

JULY 1994

£2.20

TELEVISION

SERVICING·VIDEO·SATELLITE·DEVELOPMENTS

A REED BUSINESS PUBLICATION

BUILD THIS PERSONAL COMPUTER

TV Fault Finding

**Sony CCDF335 Fault
Guide**

**Domestic MATV
Techniques**

**Ferguson Service
Briefs**

VCR Clinic



AROUND THE SHOWS



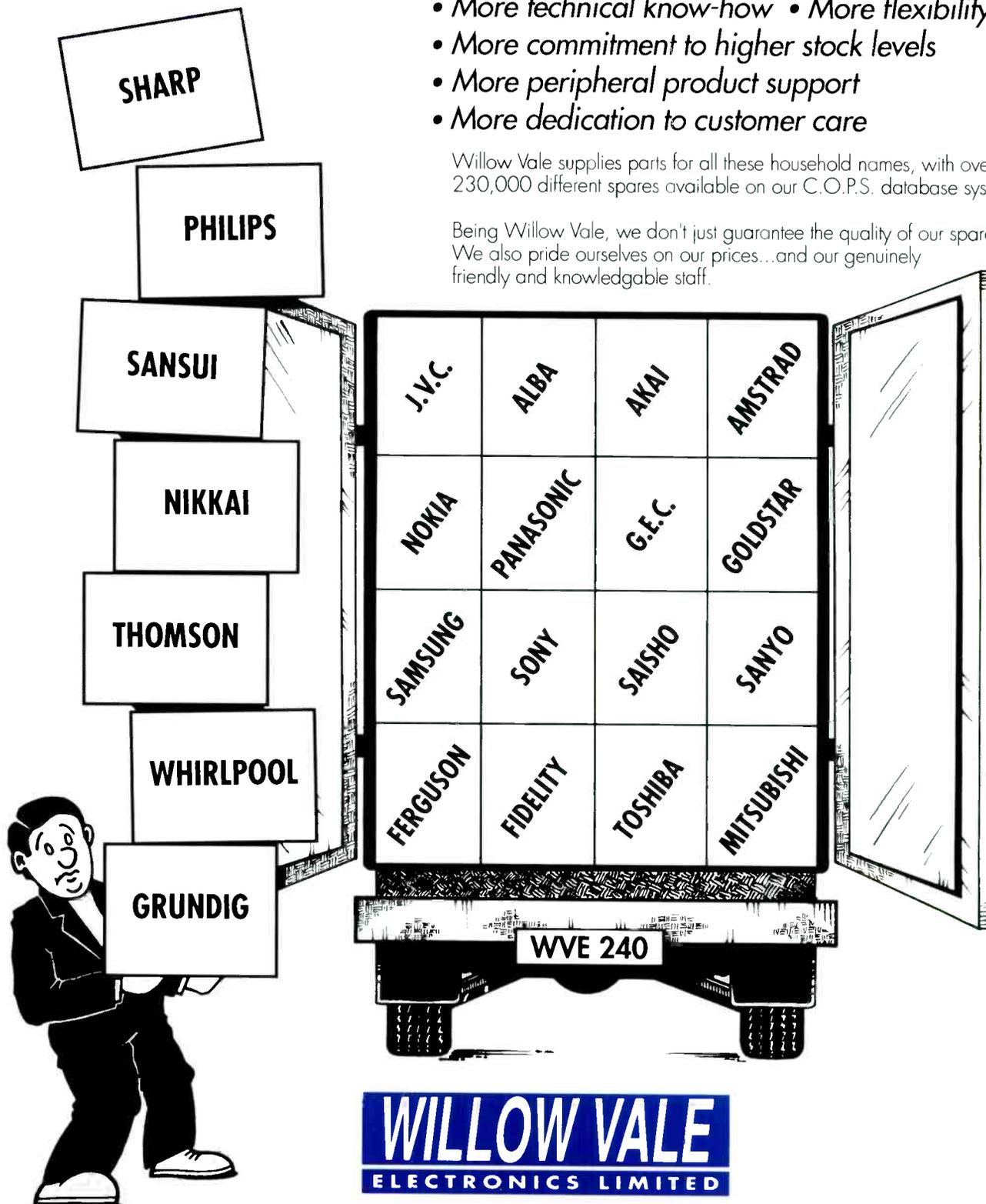
WILLOW VALE ELECTRONICS LIMITED

Willow Vale gives you more...

- More technical know-how
- More flexibility
- More commitment to higher stock levels
- More peripheral product support
- More dedication to customer care

Willow Vale supplies parts for all these household names, with over 230,000 different spares available on our C.O.P.S. database system.

Being Willow Vale, we don't just guarantee the quality of our spares. We also pride ourselves on our prices...and our genuinely friendly and knowledgeable staff.



WILLOW VALE
ELECTRONICS LIMITED

'The Better Choice'

Reading (0734) 876444 Manchester (061) 682 1415

TELEVISION

JULY 1994

On Sale
June 15th

Vol. 44, No. 9

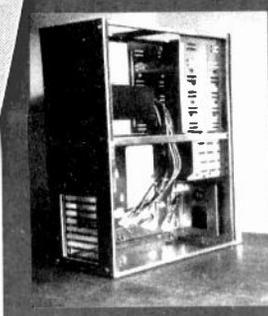
Issue 525

- 604 Ferguson Service Briefs**
Notes on fault finding and modifications.
- 628 At the Brown Goods Shows** *George Cole*
What the setmakers are offering in 1994.
- 630 CD Player Repairs** *Les Austin*
Mainly on laser power adjustment.
- 632 Satellite Fault Finding**
- 634 Fault Notes: The Panasonic Alpha 3 Chassis** *Ray Meadows*
Reports from various service departments.
- 642 Domestic MATV Techniques** *Ian Martin*
Best practice for various types of installation.

- 662 ADSL - Interactive TV via the Phone** *Geoff Lewis, B.A., M.Sc.*
Technology developed by BT and Bell to provide interactive video services via standard copper telephone links.
- 666 Fisher FVHP710 Reel Idler Replacement** *Ed Rowland*
A simpler way of carrying out one of the least liked jobs in video servicing.
- 667 The Sony CCDF335 Camcorder** *Keith T. Keeton*
A summary of faults experienced.

REGULAR FEATURES

- 621Leader
- 622Teletopics
- 633What a Life!
- 635Test Case
- 636VCR Clinic
- 640Letters
- 644TV Fault Finding
- 650Camcorner
- 651Help Wanted
- 663Next Month in *Television*
- 664Long-distance Television



652 Building a Personal Computer
David Botto
This two-part feature explains how to build a powerful PC that won't easily become outdated. For ease of use and optimum reliability only leading brand parts are specified.

- 660 Satellite Receiver Tuning** *Gordon McCrea, B.Sc.*
A two-EEPROM programme storage system and how to use a PC to store satellite set-ups.

The August issue will be published on July 20th

COPYRIGHT

© Reed Business Publishing Ltd., 1994 Copyright in all drawings, photographs and articles published in *Television* is fully protected and reproduction or imitation in whole or in part is expressly forbidden. All reasonable precautions are taken by *Television* to ensure that the advice and data given to readers are reliable. We cannot however guarantee it and we cannot accept legal responsibility for it.

CORRESPONDENCE

All correspondence regarding advertisements should be addressed to the Advertisement Manager, "Television", Quadrant House, The Quadrant, Sutton, Surrey SM2 5AS. Editorial correspondence should be addressed to "Television" Editorial Department, Reed Business Publishing, Quadrant House, The Quadrant, Sutton, Surrey SM2 5AS.

INDEXES AND BINDERS

Indexes for Vols. 38 to 43 are available at £3.50 each from Video Interface Products Ltd., who can also supply a six-year consolidated index on computer disc. For further details see page 639.

Binders that hold twelve issues of *Television* are available for £5 each from Television Binders, 78 Whalley Road, Wilpshire, Blackburn BB1 9LF. Make cheques payable to "Television Binders".

SUBSCRIPTIONS

An annual subscription costs £26 in the UK, £37 for Eire/Europe airmail (postage included for all rates). Rest of the world airmail available on request. Send orders with payment to Quadrant Subscription Services Ltd., Oakfield House, Perrymount Road, Haywards Heath, Sussex, RH16 3DH.

Subscription hotline for 24-hour ordering with Credit Card telephone 0622 721666 quoting INJ.

BACK NUMBERS

Some back issues are available at £2.75 each from Television, Room L323, Quadrant House, The Quadrant, Sutton, Surrey SM2 5AS. Make cheques/postal orders payable to Reed Business Publishing Ltd. See box on page 661.

ISSN 0032-647X

GRANDATA LTD

K.P. HOUSE, UNIT 15, POP IN COMMERCIAL CENTRE, SOUTHWAY, WEMBLEY, MIDDLESEX, ENGLAND HA9 0HB

Telephone: 081-900 2329 Fax: 081-903 6126

TRANSISTORS / LINEAR ICs

Part	Price	Part	Price	Part	Price	Part	Price	Part	Price	Part	Price	Part	Price	Part	Price				
AAV32	9p	BD246A	50p	BFY64	25p	MJ15004	300p	2N1613	24p	3.276	115p	BR84D	37p	6502A	360p	AN7156	240p	HA13108	350p
AC107	40p	BD265	45p	BFY90	45p	MJ2501	100p	2N1711	24p	4.0	110p	2A400V	43p	65C02	930p	AN7168	200p	HA13412	600p
AC125	30p	BD267	45p	BLY48	85p	MJ2955	55p	2N1893	30p	5.0	140p	2A/600V	43p	65C22	280p	AN7178	200p	HA13432	400p
AC126	30p	BD269	45p	BR100	14p	MJ3000	100p	2N2102	30p	10.0	140p	BR88D	43p	6800	220p	AN7222	25p	HA17524	250p
AC127	30p	BD278	50p	BR103	37p	MJ3001	100p	2N2218A	24p	11.0	250p	BR88D	43p	6802	220p	AN7254	150p	ICL7106	65p
AC128K	45p	BD311	100p	BR303	85p	MJE29A	30p	2N2219	24p	12.0	200p	2A/800V	43p	6805	500p	AN7256	250p	ICL7660	24p
AC141K	45p	BD334	100p	BS274	33p	MJE30A	30p	2N2222	23p	14.756	200p	BR32	43p	36808	500p	AN7310	60p	KA2102	150p
AC176	22p	BD315	150p	BSX20	150p	MJE340	30p	2N2222	23p	15.0	160p	BR34	43p	6809	500p	AN7311	90p	KA2130	150p
ACY18	42p	BD317	150p	BT100A	40p	MJE350	80p	2N2269	15p	24.0	250p	2A/400V	43p	6810	150p	AN7311	90p	KA2130	150p
ACY19	48p	BD331	40p	BT100	180p	MJE520	30p	2N2484	15p			2A/400V	43p	6818	150p	AN7410	150p	KA2206	150p
AD149	60p	BD332	40p	BT109	90p	MP8112	45p	2N2646	40p			BR36	44p	6821	380p	AY3-1015	290p	KA2209	150p
AF125	50p	BD361	60p	BT119	100p	MPSA05	15p	2N2904	20p			BR62	80p	6821	150p	AY3-1270	130p	KA2210	230p
AF339	20p	BD362	60p	BT146	99p	MPSA06	15p	2N2905	20p			BR62	80p	6840	290p	AY3-1350	450p	KA2212	130p
8B1058	18p	BD370	100p	BT179	100p	MPSA19	15p	2N2906	18p			BR62	80p	6845	200p	AY3-8910	360p	KA2213	130p
8B2058	24p	BD371	100p	BU125	80p	MPSA20	15p	2N2907	18p			BR62	80p	6850	90p	AY3-8912	400p	KA2214	150p
8C107	8p	BD433	28p	BU108	100p	MPSA42	15p	2N3019	28p			BR62	80p	8085A	300p	BA301	55p	KA2261	100p
8C108	8p	BD433	28p	BU109	80p	MPSA43	15p	2N3053	18p			BR62	80p	8088	500p	BA311	80p	KA2263	100p
8C139	7p	BD434	30p	BU110	90p	MPSA70	15p	2N3054	18p			BR62	80p	8156	300p	BA333	60p	KA2264	100p
8C109C	10p	BD436	31p	BU111	100p	MPSA92	20p	2N3055	38p			BR62	80p	8224	240p	BA401	60p	KA2401	150p
8C140	20p	BD437	28p	BU112	100p	MPSA93	20p	2N3055H	50p			BR62	80p	8226	240p	BA402	50p	KA2412	350p
8C141	20p	BD438	36p	BU126	65p	MR510	35p	2N3056	30p			BR62	80p	8251	750p	BA511	145p	KA2912	125p
8C142	20p	BD439	36p	BU180	100p	MR856	36p	2N3702	9p			BR62	80p	8251	200p	BA512	150p	KA2914A	100p
8C143	20p	BD440	40p	BU184	100p	OC28	350p	2N3703	9p			BR62	80p	8252	200p	BA513	150p	KA2914A	100p
8C147	8p	BD441	40p	BU204	65p	OC39	250p	2N3704	9p			BR62	80p	8252	200p	BA514	150p	KA2914A	100p
8C148	8p	BD441	40p	BU205	70p	OC45	250p	2N3705	9p			BR62	80p	8252	200p	BA515	150p	KA2914A	100p
8C149	8p	BD441	40p	BU206	70p	OC45	250p	2N3706	9p			BR62	80p	8252	200p	BA516	150p	KA2914A	100p
8C159	8p	BD534	38p	BU208	70p	OC45	250p	2N3707	9p			BR62	80p	8252	200p	BA517	150p	KA2914A	100p
8C160	30p	BD535	38p	BU208A	70p	OC45	250p	2N3708	9p			BR62	80p	8252	200p	BA518	150p	KA2914A	100p
8C171	10p	BD536	38p	BU208B	200p	R2008B	100p	2N3711	12p			BR62	80p	8252	200p	BA519	150p	KA2914A	100p
8C172	10p	BD537	40p	BU208D	130p	R2010B	100p	2N3711	12p			BR62	80p	8252	200p	BA520	150p	KA2914A	100p
8C177	14p	BD538	40p	BU209	90p	S2000A3	175p	2N3772	9p			BR62	80p	8252	200p	BA521	150p	KA2914A	100p
8C178	14p	BD538	40p	BU225	120p	S2000AF	175p	2N3773	100p			BR62	80p	8252	200p	BA522	150p	KA2914A	100p
8C179	14p	BD645	50p	BU226	100p	S2055A	175p	2N3798	100p			BR62	80p	8252	200p	BA523	150p	KA2914A	100p
8C182	7p	BD647	50p	BU312	90p	S2055AF	200p	2N3819	29p			BR62	80p	8252	200p	BA524	150p	KA2914A	100p
8C183	7p	BD649	50p	BU325	55p	S2630A	100p	2N3903	11p			BR62	80p	8252	200p	BA525	150p	KA2914A	100p
8C183L	7p	BD675	40p	BU326A	75p	S2800M	72p	2N3906	11p			BR62	80p	8252	200p	BA526	150p	KA2914A	100p
8C184	7p	BD677	40p	BU406	60p	TIP29	15p	2N4031	25p			BR62	80p	8252	200p	BA527	150p	KA2914A	100p
8C184L	7p	BD678	40p	BU407	85p	TIP29A	22p	2N4401	12p			BR62	80p	8252	200p	BA528	150p	KA2914A	100p
8C184L	7p	BD678	40p	BU407	85p	TIP29B	22p	2N4403	12p			BR62	80p	8252	200p	BA529	150p	KA2914A	100p
8C184L	7p	BD678	40p	BU407	85p	TIP29E	22p	2N4501	12p			BR62	80p	8252	200p	BA530	150p	KA2914A	100p
8C184L	7p	BD678	40p	BU407	85p	TIP29E	22p	2N4501	12p			BR62	80p	8252	200p	BA531	150p	KA2914A	100p
8C184L	7p	BD678	40p	BU407	85p	TIP29E	22p	2N4501	12p			BR62	80p	8252	200p	BA532	150p	KA2914A	100p
8C184L	7p	BD678	40p	BU407	85p	TIP29E	22p	2N4501	12p			BR62	80p	8252	200p	BA533	150p	KA2914A	100p
8C184L	7p	BD678	40p	BU407	85p	TIP29E	22p	2N4501	12p			BR62	80p	8252	200p	BA534	150p	KA2914A	100p
8C184L	7p	BD678	40p	BU407	85p	TIP29E	22p	2N4501	12p			BR62	80p	8252	200p	BA535	150p	KA2914A	100p
8C184L	7p	BD678	40p	BU407	85p	TIP29E	22p	2N4501	12p			BR62	80p	8252	200p	BA536	150p	KA2914A	100p
8C184L	7p	BD678	40p	BU407	85p	TIP29E	22p	2N4501	12p			BR62	80p	8252	200p	BA537	150p	KA2914A	100p
8C184L	7p	BD678	40p	BU407	85p	TIP29E	22p	2N4501	12p			BR62	80p	8252	200p	BA538	150p	KA2914A	100p
8C184L	7p	BD678	40p	BU407	85p	TIP29E	22p	2N4501	12p			BR62	80p	8252	200p	BA539	150p	KA2914A	100p
8C184L	7p	BD678	40p	BU407	85p	TIP29E	22p	2N4501	12p			BR62	80p	8252	200p	BA540	150p	KA2914A	100p
8C184L	7p	BD678	40p	BU407	85p	TIP29E	22p	2N4501	12p			BR62	80p	8252	200p	BA541	150p	KA2914A	100p
8C184L	7p	BD678	40p	BU407	85p	TIP29E	22p	2N4501	12p			BR62	80p	8252	200p	BA542	150p	KA2914A	100p
8C184L	7p	BD678	40p	BU407	85p	TIP29E	22p	2N4501	12p			BR62	80p	8252	200p	BA543	150p	KA2914A	100p
8C184L	7p	BD678	40p	BU407	85p	TIP29E	22p	2N4501	12p			BR62	80p	8252	200p	BA544	150p	KA2914A	100p
8C184L	7p	BD678	40p	BU407	85p	TIP29E	22p	2N4501	12p			BR62	80p	8252	200p	BA545	150p	KA2914A	100p
8C184L	7p	BD678	40p	BU407	85p	TIP29E	22p	2N4501	12p			BR62	80p	8252	200p	BA546	150p	KA2914A	100p
8C184L	7p	BD678	40p	BU407	85p	TIP29E	22p	2N4501	12p			BR62	80p	8252	200p	BA547	150p	KA2914A	100p
8C184L	7p	BD678	40p	BU407	85p	TIP29E	22p	2N4501	12p			BR62	80p	8252	200p	BA548	150p	KA2914A	100p
8C184L	7p	BD678	40p	BU407	85p	TIP29E	22p	2N4501	12p			BR62	80p	8252	200p	BA549	150p	KA2914A	100p
8C184L	7p	BD678	40p	BU407	85p	TIP29E	22p	2N4501	12p			BR62	80p	8252	200p	BA550	150p	KA2914A	100p
8C184L	7p	BD678	40p	BU407	85p	TIP29E	22p	2N4501	12p			BR62	80p	8252	200p	BA551	150p	KA2914A	100p
8C184L	7p	BD678	40p	BU407	85p	TIP29E	22p	2N4501	12p			BR62	80p	8252	200p	BA552	150p	KA2914A	100p
8C184L	7p	BD678	40p	BU407	85p	TIP29E	22p	2N4501	12p			BR62	80p	8252	200p	BA553	150p	KA2914A	100p
8C184L	7p	BD678	40p	BU407	85p	TIP29E	22p	2N4501	12p			BR62	80p	8252	200p	BA554	150p	KA2914A	100p
8C184L	7p	BD678	40p	BU407	85p	TIP29E	22p	2N4501	12p			BR62	80p	8252	200p	BA555	150p	KA2914A	100p
8C184L	7p	BD678	40p	BU407	85p	TIP29E	22p	2N4501	12p			BR62	80p	8252	200p	BA556	150p	KA2914A	100p
8C184L	7p	BD678	40p	BU407	85p	TIP29E	22p	2N4501	12p			BR62	80p	8252	200p	BA557	150p	KA2914A	100p
8C184L	7p	BD678	40p	BU407	85p	TIP29E	22p	2N4501	12p			BR62	80p	8252	200p	BA558	150p	KA2914A	100p
8C184L	7p	BD678	40p	BU407	85p	TIP29E	22p	2N4501	12p		</								

VCR BELT KITS / REPLACEMENT VIDEO LAMPS

Model	Price	Model	Price	Model	Price	Model/Price
HRD520, 600, 620, 637, 641, 650, 830 HRD540, 560, 580, 660, 860, 960, HRSS800	95p 130p	VR6010, VR9010 VR6020, VR6022, VR6023, VR6028, VR7730 VR6024 VR6520, VR6540, VR6560 VR6710, VR6720, VR6735, VR6720 VR6720, VR6730, VR6760, VR6775, VR6780	70p 75p 75p 90p 130p 160p	Models & Description	Order Code	Price
KENWOOD KV901 KV903	70p 90p	SAISHO VR2000, VHL3 VR3800	90p 75p	UNIVERSAL VIDEO LAMP 9V 80mV (310mm WIRES)	VL01	25p
LOEWE OC11, OC40 OC410, OC420, OC440, OC460 OC50, OC55, OC60, OC65, OC70, OC75	95p 130p 120p	SALORA SV6500 SV6500 SV8000 SV8100 SV8500, SV8520, SV9500 SV7400, SV8400, SV8420, SV8550 SV8700, SV8710, SV8750, SV9700 SV8800, 6900, 8810, 8820, 8870, 8910, 8920, 8970 SV9600, 8620, 8700, 8720, 8830, 9600, 9810	100p 150p 120p 60p 150p 120p 120p 95p 95p 130p	PANASONIC VIDEO LAMPS	VL02	35p
LOGIK VR955	180p	SAMSUNG SV716, 717, V1616, V1621, V1626, VX616, VX617, VX619, VX626, VX627, VX629, 85p VX620, 510, 610, 616, 617, 619, 620, 626, 627, 629, V510, 520, 611, 616, 621, 626, VX510, 520 V8900, V8910, V1900, V1910 PX980, 981, 982, SE9001, SV9001, SVX307, 319, 322, VB770, 8220, 8225, V1770, 780, 8220, 8225, VK8220, VPX31, VX750, VK790, 8220, 8225 SVX301, 303, 305, SX7301, VB710, 871, V1730, 710, VX712, VX720, 730, 970, 871, 972 VX9880	100p 150p 120p 60p 150p 120p 120p 95p 95p 130p	SHARP VIDEO LAMPS	VL02	35p
LUXOR 9245, 9251 9252 9253 9254 9255 9256 9270, 9271, 9273, 9274 9272, 9280 9281, 9284, 9285, 9292, VR3701, 3721, 3731, 3761, 3781	130p 140p 140p 100p 130p 130p 115p 140p 95p	MATSUI VX850	100 110	HITACHI 5381682 (VT63, VT64) VIDEO LAMPS	VL04	135p
MITSUBISHI HS200 HS300, 301, 302, 307, 310, 337, 338, 347, 349, 411, 412, 421, HSB10, 20, 30, HSE10, 20, 30, 70 HS303, HS304, HS306, HS307, HS330, HS400, HS700 HS318, HS319, HS410	200p 150p 150p 130p	SANYO VTC5000, 5150, 6000, 8500, VTCM10, 11, 20, 21, 30, 31, 50 VTC6300, VTC6350, VTC6400, VPR5800 VTC5500 VTC9100, VTC9300 VTC1100, 1300, 1500, 1100, 1150, 1200, 130, 1500 VHR2100, VHR2300, VHR2500, VHR2700 VHR3100, 3300, 3310, 3400, 3700, 3800, VHRD500, 700 VHR4100, 4150, 4200, 4300, 4350, 4770, 5100, 5200, 5300, 5350, 5700, 7100, 7200, 7500, 7530, 7540, 7800, 7810, 8100, 8200, 8250, 8500, VHRD4400, 4410, 4500, 4600, 4610, 4710, 4890, 6700	100 110 100p 95p 220p 90p 150p 110p	AIWA, AKAI, ALBA, AMSTRAD, BLAUPUNKT, FERGUSON, FIDELITY, FISHER, FUJITSU, FUNAI, G.E.C., GOLDSTAR, GRANADA, GRUNDIG, HINARI, HITACHI, ITT, JVC (HRD SERIES), MATSUI, MITSUBISHI, NEC, ORION, NATIONAL, PHILIPS, SAISHO, SALORA, SAMSUNG, SANYO, SHARP, SIEMEN, SONY, TELEFUNKEN, THOMSON, TOSHIBA	VL05	150p
N.E.C. NB30, NB31, NB32, NB33 NB95 PVC2300, PVC2400 DX1000, 1600, 2000, 3000, N9012, 9013, 9014, 9016, 9033, 9034, 9053, 9054, 9055, 9066, 9110, 9120, 9510, 9520, 9530, 9510	100p 80p 180p 95p	SHARP VC200, 384, 385, 386, 388, 390, 9300, 9500, 9700 VC7300, VC7700, VC7750, VC7800, VC8000 VC8300 VC300, 387, 471, 473, 481, 482, 483, 486, 488, 496, 8481 VC402, 500, 571, 573, 581, 582, 583, 584, 585, VCF3 VC600, 651, 682, 684, 685, 693, 783, VC6F3, VC6V3 VC772, 779, 781, 782, 785, 786, 793, 800, 7810, 7822, VCA100, VCA102, 104, 131, 140, 170, 202, 203, 234, 501, 602, 5011, VCD806, 810, 815, VCDH80, 865, 910, VCS1000, VCT310, 410, VCT1314, VCTS312	100p 100p 150p 150p 80p 70 80p 115p	AKAI, GRANADA (VHSTJ2), HITACHI (VT3000), ITT (VR3912), VRP3833), JVC (HR2200, 3300, 3330, 3660), MITSUBISHI (HS200), TELEFUNKEN (VR510, 519, 610), THOMSON (VK300, 305, 306, 3301), FERGUSON (3V00, 16, 22, 24, 3292, 8900, 8901, 8902, 8903, 8909, 8912, 8922, 8925)	VL01	25p
NATIONAL PANASONIC NV300, NV332, NV333, NV340, NV366 NV777, NV788 NV2000, NV2010, NV3000 NV7000, NV7200, NV7800 NV8600, NV8610, NV8620 NV230, 250, 280, 430, 431, 433, 450, 460, 465, 470, 730, 770, 810, 870, 890, AG1000, 1050 NV370, NV380, NV480, NV630, NV780, NV830, NV850 NV6500, NV688, AG6010, AG6015 NVG7, 10, 12, 14, 15, 18, 30, 130, 400, NVH70	125p 100p 130p 95p 145p 125p 100p 110p 70p	SIEMENS FM350, FM352, FM365 FM484, FM485 FM381, FM392, FM394, FM462 FM481, FM464, FM468, FM561 FM361, FM362, FM363, FM364	60p 55p 100p 150p 120p	BLAUPUNKT, ORION (VH1, 2A), NATIONAL (NV200, 2010, 3000, 7000, 8150, 8200, 8400, 8600, 8610, 8620), SHARP (VC2300, 6000, 6200, 6300, 7300, 7700, 8000, 8300)	VL02	40p
NORDMENDE V100, V140 V1000M, 1005M, 1205, 1215, 1235, 1245, 1305, 1403, 1405, V1500P, 1503, 1505K, 1805K, 2000D, 2405, 2500H, 3000H, 3240SH, 3105, 4405H, 6000, 8005, 900, 905 V1001, 1005, 1015, 1025, 1035, 1041, 1055, 1065, 1105, 3005, 304, 5005, 502, 503 V101, V102, V103, V112, V141, V142, V301, V302 V110, V333 V1500T, V2000B, V2000P, V400H V250, V460, V9460, V20035542, V20035543 V300, V303, V380 V500	70p 95p 65p 80p 90p 110p 95p 130p 75p 75p	SONY SLC6, SLJ10, SLT6ME SLC5, SLC7, SLJ7, SLJ9 SLC9, SL8000, SL8080, SLT50 SL8000E, SL8080E, SL8200, SL8600 SLV255	140p 140p 165p 170p 75p 90p 85p 100p 90p	AKAI (VS10), GRANADA (VHSXJ3), ITT (VR3993, 3994), JVC (HR2650, 7600, 7610, 7650, 7655), TELEFUNKEN (VR530, 535, 539, 550, 630, 650), THOMSON (V309, 316, 357, VK309, 411, TX8000), FERGUSON (3V31, 8941, 8942)	VL06	40p
ORION COMBI15000, 16000, NEVHM, TYP230RC, 900MH1012, VH1030, 1040, 1060, 1070, 1100, 1120, 1440, 1500, 1660, 1800, 2150, 2308, 2400, 2500, 2600, 2700, 2960, 300, 358, 360, 362, 4010, 4015, 4016, 4020, 4300, 5010, 5015, 530, 535, 536, 630, 635, 640, 730, 735, VP220, 225, 245, VR1032, 2968, 2980, 821, 925, VXL25 NEVHL, VCP, VH1204, 2004, 2204, 3050, 3060, 4008, 403, 4012, 412, 512, 600, 806, 744, 774, 7905, 800, 820, 900, 974, VP200, VR2949, 2956, 2957, VXL20 VC160, 180, VH1000, 200, 201, 205, 212, 250, 254, 288, 300, 303, 3030, 312, 33, 3312, 404, 555, 700, 704, 708, 712, 770, 780, 844, 900, VHF2, VH3 VH1, VH2A	30p 90p 80p 150p	TELEFUNKEN VR400, VR410, VR440, VR449 VR450, VR640, VR549, VR640 VR620, VR529, VR620, VR920 VR530, VR535, VR539, VR550, VR630, VR650 A940, VR1925, 1930, 1940, 1950, 2950, 925, 930, 940, 950 A920, VR1970, 1980, 2920, 2925, 2930, 2970, 7921, 7926, 7931, 7970, 7971, 7980, 970, 7981, 975, 980 A1200, 930, 932, 935, 960, 960, 990, VR2931, 2935, 2941, 2971, 3935, 3945, 3950, 3965, 3975, 4935, 4940, 4942, 4945, 496, 5VR4970, 6000, 7932, 7959, 7979 VR1935 VR2915	130p 70p 70p 75p 90p 85p	AUTHENTIC (N850), DECCA (VR8300), GRANADA (VHSTJ3, WJ1, WJ3), ITT (VR3913, 3914, 3963), JVC (HT7200, 7300, 7350, 7700), TELEFUNKEN (VR450, 520, 529, 540, 549, 620, 640, 920, 1920), THOMSON (V4100, VK308, 309, 312, 410), FERGUSON (3V23, 29, 30, 8923, 8924, 8929, 8930, 8931, 8940)	VL07	40p
PHILIPS VR6460, VR6920 VR6540 DV188, 286, 291, 292, 488, 471, 562, 571, 761, VR201, 202, VR20DV1, 20DV2, 20RV7, 25801, 25802, 302, 303, 305, VR30DV2, 35802, 35803, 635B7, 715B4, 715B5, 715B8, VR65B2, 915B2, 925B3, VR6180, 6185, 6285, 6290, 6291, 6293, 6367, 6390, 6391, 6393, 6467, 6468, 6470, 8661, 6570, 6581, 6670, 6676, 6760, VR69S84, 865B1, 925B3 VR6442, VR6542 VR2025, VR2580 VR445B9, BR445B920, VR445B922, BR6843 VR6548, VR6648, VR49SB620, VR6486S	170p 100p 85p 70p 100p 100p 110p	THOMSON SV1000, V410, 430, 450, 510, 520, 530, 540, 620, 630, 640, 4240, SV5540 V3800, V398, V357, VK411 TX8500, V342, 343, 351, 352, 353, 360, 364, 368, 4210, 4230, 4260, 4400, 5500, 6000, 8564 V320, V321, V323, V326, V4200, V4300 V333 V340 V4100, VK308, VK309, VK410 VK300, VK301, VK302, VK303, VK305, VK3301 VK312	65p 75p 90p 90p 100p 100p 135p 65p	GRANADA (VHSAY3), SHARP (VC200, 381, 384, 385, 386, 388, 390, 393, 9300, 9500, 9700)	VL08	60p
SABA VR6420, 6435, 6440, 6460, 6480, 6620, 6770, 7200, 8420, 2A10, 70, 2B20, 3B20, 4A10, 4B20, 6A10, 6A70, 6B20, 8B20 VR6004, 6005, 6011, 6014, 7004, 7011, 7014, 8011, 8014, BERLIN VR2000, VR6000, VR8012, VR7000, VR7720, PVR6068 VR5005, VHR7000 VR6006, 6007, 6008, 6009, 6015, 9016, 9018, 6038, 7006, 7007, 7016, 7018, 9006	90p 65p 90p 130p 135p 120p 65p	TOSHIBA V55, V57 V33, V31, V51, V53, V9600, V9680 V61, V63, V65, V66, V67 DV80B, DV80D, V71, 73, 74, 75, 81, 83, 85, 86 V108, V109, V199, V209, V609 V91G, V95G	85p 85p 150p 120p 120p	PANASONIC MODE SWITCHES NV2000, 2010, 7000, 7200, 7800 (VSS0048) £2.25 NV230, 260, 430, 810, 870, 2300, 4300 (VSS0110) £2.25 NV830 (VSS0091) £2.10 NV300, 333, 340, 366, 688, 777, 778 (VSS0060) £3.75 NVG21, 25, NVH65, NVDB0 (VSS0175A) £2.00		

ON/OFF MAIN SWITCHES

GRUNDIG
PART NO: 29703, 29102
USED ON: C7500, C7500TT, C8500, C8502,
C8712, C8714, C8894, M68-190,
M68-1E0/99, M70-195, P40-345,
ST66-1502, T55-340, V7722
PRICE: £3.00

ITT
PART NO: 13/1074
USED ON: CP0200, 0211F, 0323, 0323/1,
0341/14, 0345F, 0351/1, 0361,
0361/1, 9350, CT0500, 0500/1/T,
0500T
PRICE: £3.25
PART NO: LFC 005
USED ON: CVC40
PRICE: £3.00

MATSUI/SAISHO
USED ON: MATSUI:2190, SAISHO-
PST2130TX
PRICE: £3.50

PHILIPS
USED ON: K30, K35, K40, KT3, KT4
PRICE: £1.00

SONY
PART NO: (POWER SWITCH + REMOTE
SWITCH)
USED ON: KV1612 MK1, KV1612 MK2,
KV1614, KV2052, KV2056,
KV2062, KV2068, KV2212,
KV2215, KV2252, KV2256,
KV2704, KV2705, KV2706,
KV2752PE3, KX20PS1,
KX20PS2, KX27PS1
PRICE: £3.50
PART NO: (POWER SWITCH + REMOTE
SWITCH)
USED ON: KV2022, KV2024
PRICE: £3.25
PART NO: (POWER SWITCH)
USED ON: KV1810 MK1, KV1810 MK2,
KV1820, KV1822, KV2000 MK1
PRICE: £8.00
PART NO: (POWER SWITCH 26mm)
USED ON: KV1400, KV1440, KV2040,
KV2068
PRICE: £2.00
PART NO: (POWER SWITCH 21mm +
REMOTE SWITCH)
USED ON: KV2020
PRICE: £2.50
PART NO: 2 PIN (FUNCTION SWITCH)
USED ON: KV1612 MK1, KV1612 MK2,
KV2052, KV2056, KV2212,
KV2215, KV2216, KV2252,
KV2255, KV2704, KV2705,
KV2706, KV275PE3, KV2756PE3
PRICE: £0.45
PART NO: (4 PIN FUNCTION SWITCH)
USED ON: VARICUS
PRICE: £0.50

GRANDATA LTD
Tel: 081-900 2329
Fax: 081-903 6126

VIDEO SERVICE KITS

AMSTRAD
VCR700
Contents
BELT SET, PINCH ROLLER, REEL IDLER, VIDEO LAMP
Order Code: SK41 £5.58

FERGUSON & JVC
3V42/43
HRD455/HRD725
Contents
BELT SET, PINCH ROLLER, CLUTCH MECHANISM, TENSION BAND
Order Code: SK37 £17.50
Economy Kit Contents
BELT SET, PINCH ROLLER, SUPPLY CLUTCH, TAKE UP CLUTCH
Order Code: SK38 £9.50

3V58/59/64/65
HRD170/180/210/230/300/320/370/400/430/530/700/750
HR55000
Contents
BELT SET, PINCH ROLLER, IDLER ARM, TENSION BAND
Order Code: SK44 £8.50

3V29/3V30
HR7200/7300/7350
Contents
BELT SET, PINCH ROLLER, TENSION BAND, IDLER TYRES
Order Code: SK05 £6.00

3V35/36/38/39/49
HRD110/111/120/225
Contents
BELT SET, PINCH ROLLER, TENSION BAND, IDLER TYRES
Order Code: SK04 £5.50

3V31/3V42
HR7600/7610/7650/7655
Contents
BELT SET, T.U. REEL TABLE TYRE, PINCH ROLLER, REEL IDLER, T.U. CLUTCH, T.U. IDLER, TENSION BAND, VIDEO LAMP
Order Code: SK33 £12.00
Economy Kit Contents
BELT SET, T.U. REEL TABLE TYRE, PINCH ROLLER, REEL IDLER TYRE, T.U. IDLER TYRE, T.U. CLUTCH
Order Code: SK34 £5.50

3V35/36/38/39/49
HRD110/111/120/121/225
Contents
BELT SET, T.U. REEL TABLE TYRE, SUPPLY REEL TABLE TYRE, PINCH ROLLER, T.U. CLUTCH, T.U. IDLER, REEL IDLER, TENSION BAND
Order Code: SK35 £10.50
Economy Kit Contents
BELT SET, T.U. REEL TABLE TYRE, SUPPLY REEL TABLE TYRE, PINCH ROLLER, T.U. CLUTCH, T.U. IDLER TYRE, REEL IDLER TYRE
Order Code: SK36 £5.80

3V29/3V30
HR7200/7300/7350
Contents
BELT SET, T.U. REEL TABLE TYRE, SUPPLY REEL TABLE TYRE, PINCH ROLLER, REEL IDLER, T.U. CLUTCH, T.U. IDLER, TENSION BAND, VIDEO LAMP
Order Code: SK31 £11.00
Economy Kit Contents
BELT SET, T.U. REEL IDLER TYRE, SUPPLY REEL TABLE TYRE, PINCH ROLLER, REEL IDLER TYRE, T.U. IDLER TYRE, T.U. CLUTCH
Order Code: SK32 £5.10

3V44/45/48/53/54/55/57
HRP50/HRD140/150/158/160
HRD250/257/565/566/755
Contents
BELT SET, PINCH ROLLER, CLUTCH MECHANISM, TENSION BAND
Order Code: SK39 £15.00
Economy Kit Contents
BELT SET, PINCH ROLLER
Order Code: SK40 £9.50

FISHER
FVHP905/906/907/908/910/911/916/918
Contents
BELT SET, PINCH ROLLER, IDLER, GEAR IDLER UNIT, TENSION BAND
Order Code: SK57 £13.00
Economy Kit Contents
BELT SET, PINCH ROLLER, IDLER TYRE
Order Code: SK58 £5.00

FVHP15/16/18/620/622/710/711/715/716/720/721/722/725/
730/830/840
Contents
BELT SET, PINCH ROLLER, IDLER, GEAR IDLER UNIT, TENSION BAND
Order Code: SK68 £12.50
Economy Kit Contents
BELT SET, PINCH ROLLER, IDLER TYRE
Order Code: SK69 £3.60

HITACHI
VT11/V733
Contents
BELT SET, PINCH ROLLER, TENSION BAND, IDLER TYRES
Order Code: SK08 £6.00

VIDEO SERVICE KITS (Cont.)

VT11/V733
Contents
BELT SET, T.U. REEL TABLE TYRE, SUPPLY REEL TABLE TYRE, PINCH ROLLER, FF/REW IDLER, CLUTCH PLATE, TENSION BAND
Order Code: SK45 £14.00
Economy Kit Contents
BELT SET, PINCH ROLLER, FF/REW IDLER TYRE, T.U. REEL TABLE TYRE
Order Code: SK46 £4.50

VT52/61/62/63/64/65/85/86/640
Contents
BELT SET, PINCH ROLLER, FF/REW ARM, CLUTCH PLATE, TENSION BAND
Order Code: SK49 £14.00
Economy Kit Contents
BELT SET, PINCH ROLLER, FF/REW IDLER
Order Code: SK50 £3.25

VT400/405/410/13/14/15/18/420/25/26/28/430/31/35/48/450/498/
510/520/25/26/530/35/36/540/545/46/48/570/75/576/580/85/88
Contents
TIMING BELT, PINCH ROLLER, FF/REW ARM, CLUTCH BASE, TENSION BAND
Order Code: SK52 £11.50

VT100/110/111/113/115/118/120/125/128/130/135/138/145/150/
175/220/225/250/255/258/260/VTL30
Contents
BELT SET, PINCH ROLLER, FF/REW ARM, CLUTCH PLATE, TENSION BAND
Order Code: SK51 £14.00

PANASONIC
NV2000/NV2010
Contents
BELT SET, PINCH ROLLER, TENSION BAND, IDLER TYRES
Order Code: SK83 £6.25
Economy Kit Contents
NV7000/NV7200/NV7800
Contents
BELT SET, PINCH ROLLER, TENSION BAND, IDLER TYRES
Order Code: SK02 £5.50

NV300/NV330/NV333/NV340/NV366
Contents
BELT SET, PINCH ROLLER, TENSION BAND, IDLER TYRE
Order Code: SK01 £5.50

NV2000/NV2010
Contents
BELT SET, PINCH ROLLER, FF IDLER, PLAY IDLER, TENSION BAND, VIDEO LAMP
Order Code: SK13 £8.00
Economy Kit Contents
BELT SET, PINCH ROLLER, IDLER TYRE, PULLEY TYRE
Order Code: SK14 £4.50

NV7000/NV7200/NV7800
Contents
BELT SET, PINCH ROLLER, IDLER UNIT, PLAY IDLER, TENSION BAND
Order Code: SK11 £8.50
Economy Kit Contents
BELT SET, PINCH ROLLER, IDLER TYRE, CLUTCH TYRE
Order Code: SK12 £4.20

NV300/NV330/NV333/NV340/NV366
Contents
BELT SET, PINCH ROLLER, IDLER UNIT, PLAY IDLER, TENSION BAND
Order Code: SK15 £7.50
Economy Kit Contents
BELT SET, PINCH ROLLER, IDLER TYRE, PLAY IDLER TYRE
Order Code: SK16 £4.00

NVG7/NVG9/NVG10/NVG11/NVG12/NVG14/NVG15/NVG16/
NVG18/NVG30/NVG120/NVG130/NVG400/NVH65 (PK/AC)
AG1810 (PK)
Contents
LOADING BELT, CAPSTAN BELT, PINCH ROLLER, IDLER, TENSION BAND
Order Code: SK27 £8.00
Economy Kit Contents
LOADING BELT, CAPSTAN BELT, PINCH ROLLER, IDLER TYRE
Order Code: SK28 £4.00

NV332
Contents
BELT SET, PINCH ROLLER, PLAY IDLER, FF/REW IDLER, TENSION BAND, FF/REW TYRE
Order Code: SK29 £12.00
Economy Kit Contents
BELT SET, PINCH ROLLER, IDLER TYRE
Order Code: SK30 £5.10

NV230/250/260/280/430/450/460/470/650/810/890/
AG1200PK/AG1500PK
Contents
BELT SET, PINCH ROLLER, IDLER, TENSION BAND
Order Code: SK23 £6.00
Economy Kit Contents
BELT SET, PINCH ROLLER, IDLER TYRE
Order Code: SK24 £3.50

NV600/NV688
Contents
BELT SET, PINCH ROLLER, PLAY IDLER, FF/REW IDLER, TENSION BAND
Order Code: SK25 £12.00
Economy Kit Contents
BELT SET, PINCH ROLLER, PLAY IDLER TYRE, FF/REW IDLER TYRE
Order Code: SK26 £6.00

NV730/NV770
Contents
SLOT IN BELT, LOADING BELT, PINCH ROLLER, IDLER UNIT, TENSION BAND
Order Code: SK19 £6.50
Economy Kit Contents
SLOT IN BELT, LOADING BELT, PINCH ROLLER, IDLER TYRE
Order Code: SK20 £4.00

NV370/NV380/480/630/780/830/850/AG2100PK/AG2200PK
Contents
BELT SET, PINCH ROLLER, IDLER, TENSION BAND
Order Code: SK21 £6.00
Economy Kit Contents
BELT SET, PINCH ROLLER, IDLER TYRE
Order Code: SK22 £3.00

NV777/NV788
Contents
BELT SET, PINCH ROLLER, IDLER UNIT, TENSION BAND
Order Code: SK17 £7.00
Economy Kit Contents
BELT SET, PINCH ROLLER, IDLER TYRE
Order Code: SK18 £4.00

VIDEO SERVICE KITS (Cont.)

SHARP
VC381
Contents
BELT SET, PINCH ROLLER, REEL IDLER, TENSION BAND, VIDEO LAMP
Order Code: SK47 £9.00
Economy Kit Contents
BELT SET, PINCH ROLLER, REEL IDLER TYRE
Order Code: SK48 £4.75

VC500/VC571/VC581/VC582/VC583/VC584/VC5F3
Contents
BELT SET, PINCH ROLLER, REEL IDLER, TENSION BAND
Order Code: SK60 £9.50
Economy Kit Contents
BELT SET, PINCH ROLLER, REEL IDLER
Order Code: SK61 £8.50

VC781/VC7810/VC7822/VC785/VC786/VC733/VC800/
VCA100/VCA102/VCA10A/VCA202
Contents
BELT SET, PINCH ROLLER, REEL DRIVE UNIT, TENSION BAND
Order Code: SK84 £13.50
Economy Kit Contents
REEL DRIVE UNIT TYRE
Order Code: SK85 £8.25

VC681/VC682/VC684/VC685/VC693/VC699/VC6F3/VC700
Contents
BELT SET, PINCH ROLLER, REEL DRIVE UNIT, TENSION BAND
Order Code: SK82 £13.50
Economy Kit Contents
BELT SET, PINCH ROLLER, REEL DRIVE UNIT TYRE
Order Code: SK83 £6.00

FOR MORE DETAILS OF OVER 500 TYPES OF SERVICE KITS... PLEASE RING US!

BACKUP BATTERIES

REPLACEMENT PHILIPS NI-CAD BACKUP BATTERIES
Replaces Ferguson Part No: 00E6-067-001, used on TX10, L2V 150P
Replaces Philips Part No's: 138-10138, 138-10313, 1.2V - 90mAh 120p
Replaces Philips Part No's: 138-10229, 2.4V - 90mAh 200p
REPLACEMENT FERGUSON NI-CAD BACKUP BATTERIES
Replaces Ferguson Part Nos: 00E6-066-001, 2.4V
Used on: 3V35, 3V56, 3V58, 3V65 200p

REPLACEMENT LINE OUTPUT TRANSFORMERS

Description	Price	Order Code
HITACHI 2433752	1500p	LOT01
ORION 3714002	1500p	LOT02
FIDELITY ZX300	1500p	LOT03
FE TX100 90 DEG	1500p	LOT04
SABA 490007182	1500p	LOT05
FE TX90 WHITE	1650p	LOT06
ITT D30737 EQ	1600p	LOT07
BLAUPUNKT 210	1600p	LOT08
GRUNDIG 2922010	1600p	LOT09
ITT CVC800/1/3	1500p	LOT10
ITTD218/37 EQ	1600p	LOT11
NORMENDE 5255	1600p	LOT12
SABA 81000 200	1800p	LOT13
SALORA 7238 EQ	1600p	LOT14
SABA 811-50-24	1600p	LOT15
SABA 770223500	1600p	LOT16
TELEFUNKEN AT1	1450p	LOT17
TELEFUNKEN EQ	1400p	LOT18
SALORA FM02188	1600p	LOT19
NORMENDE 5255	1600p	LOT20
ITT CVC 1150/1	1500p	LOT21
ITT COMPACT 80	1500p	LOT22
FE TX100 GREEN	1450p	LOT23
HINARI CT45 5113	1500p	LOT24
SELECO 6320410	1600p	LOT25
BLAUPUNKT 8667	1600p	LOT26
ITT COMPACT B1	1450p	LOT27
ITT CT3326 MUL	1500p	LOT28
ITT D066/37 EQ	1600p	LOT29
ITT 3546 EO	1500p	LOT30
LUXOR 5810110	1600p	LOT31
SABA 849380920	1600p	LOT32
HITACHI 2434141 CP	1450p	LOT33
FE TX100 110 D	1700p	LOT34
HANTAREX 28021	1600p	LOT35
SHARP C3700 EO	1600p	LOT36
HITACHI 2432981 CP	1500p	LOT37
FERGUSON 00D3-508-002	1650p	LOT38
Fits Chassis TX99 41cm + 51cm Used On: 51K2, 51J8, 51J7, 41H3, 41H3, 41H2, 51K3	1850p	LOT39
PANASONIC TLF14567F	1850p	LOT40
Used On: TC2043, TC2243, TX300		
PANASONIC TLF14568F	2350p	LOT41
Used On: TX2231, TX2244		
PANASONIC TLF14584F	2350p	LOT41
Used On: TC2210, TC2180, TX1752, TX2112		
TX2112, TX2162, TXC22	2350p	LOT42
PANASONIC TLF14588F		
TC1651, TC2051, TC2061, TC2263, TC2263, TX5500		
HINARI	1600p	LOT43
Used On: CT15		
HITACHI 2434274	1400p	LOT44
CPT2174, CPT2176, CPT2178, 2434274		

We stock line output transformers for over 100 different models. Please ring 081-900 2329 for more information.

SEE OTHER PAGES FOR MORE GRAND DATA BARGAINS

IDLERS & PULLEYS REPLACEMENT

AKAI					
VS1.2, VS4.5, VS15	FF-REW IDLER	M1327773	400p		
VS3.8, 12, 56, 58, 59		BV327815	500p		
VS1.2, VS4.5, VS15	T-UP IDLER	BV327815	500p		
VS3.8, 12, 56, 59		BV321979	600p		
VS100	IDER	MZ36980J2	900p		
VS126, 128, 155	IDER ASSY				
VS166, 240, 246, 247, 248, 250, 512, 516, 516					
VS22, 38, 106, 112, 115, 116, 205, 220	T-UP IDLER	PU47752	£4.50		
VS350, VS9800		PU46381	£4.00		
VS9500, VS9800	UNLOADING IDLER	PU46380	£4.00		
VS9500, VS9800	REW IDLER	PU46380	£4.00		
VS9500, VS9800	IDER	BV336067	£5.00		
VS9500, VS9800	REEL TABLE	BR347731	450p		
VS1.3, 3, 9, 12					
VS15, 58					
VS23, 35, 37, 53, 55	CLUTCH	ML373043	1100p		
VS56, 76, VSA77					
VS8700	FF IDLER	BV321781	£3.20		
VS9700	REW IDLER	W321762	£4.25		
AMSTRAD					
VC7000	IDER	150280	£1.50		
TVR1, VCR4500	CLUTCH	150873	£3.75		
VCR4600, VCR5200, VCR9000		151284	£3.50		
TVR1, VCR4500	GEAR HOLDER				
VCR4600, VCR5200, VCR9000					
TVR1, VCR4600	REF CLUTCH				
VCR6200		153202	£3.80		
VCR6000, VCR6100	CLUTCH		£4.00		
VCR6500, VCR9000	CLUTCH				
VCR6500, VCR6600	MOD KIT	(TAPE CREAMING)	300p		
VCR7000					
MOD KIT TAPE CREAMING FOR AMSTRAD					
VCR4600, 4600, 4700					
FERGUSON					
3V00, 3V01, 3V16	T-UP IDLER	PU47752	£4.50		
3V22, 3292, 8930, 8901, 8904, 8908		PU48280	£5.50		
3V16, 3V22	T-UP IDLER				
8903, 8908, 8912, 8922					
3V23, 3V29, 3V30	REEL IDLER	PU48967	175p		
3V31, 3V32, 3V35, 8923, 8924, 8929, 8930, 8931, 8940, 8941, 8942		PU49042A	360p		
3V23, 3V31	T-UP IDLER	51402	100p		
3V29, 3V30, 3V31	T-UP IDLER				
3V32, 3V36, 3V36, 3V38, 3V39, 3V49, 8930, 8931, 8940, 8941, 8942		PU51380	200p		
3V29, 3V30, 3V31	T-UP CLUTCH				
3V32, 8930, 8931, 8940, 8941		PU55374	200p		
3V35, 3V36, 3V38	REEL IDLER				
3V38, 3V49, 8943, 8944	T-UP CLUTCH	PU55373	150p		
3V35, 3V36, 3V38					
3V39, 3V49, 8943, 8944	IDER ARM	PU58645	£2.25		
3V38, 3V39, 3V54					
3V65, FV10, FV11, FV12, FV13, FV14, FV20, FV21, FV22, FV26	CLUTCH ASSY	PU58822	1200p		
FV30, FV32, FV33, 8950, VC141L	CLUTCH ASSY	PU57858	1050p		
3V42, 3V43	CLUTCH ASSY				
3V43, 3V44, 3V46	CLUTCH ASSY	PU56043-1-4	240p		
3V48, 3V53, 3V54, 3V55, 3V57, 8947, 8948	SUPPORT CLUTCH	PU56044-1-5	160p		
3V42, 3V43, 3V44					
3V45, 3V48, 3V53, 3V54, 3V55, 3V56, 3V57, 8947, 8948	LOADING IDLER	PU43681	£4.00		
3V00, 3V01, 3V16	REW IDLER	PU46380	500p		
3V22, 3292, 8930, 8901, 8902, 8903, 8904, 8908, 8909					
8912, 8922					
3V00, 3V01, 3V16	REW IDLER	PU46380	500p		
3292, 8930, 8901, 8904, 8906					
3V16, 3V22, 8902	IDER	PL49281	£1.70		
8909, 8912, 8922					
FISHER					
FVHP420, 520, 530	FF-REW PULLEY	H3638531	80p		
FVHP415, 618, 620	COMP. IDLER ASSY	F1430420400300	£220p		
FVHP622, 710, 711, FVHP720, 721, 722, FVHP725, 730, 830					
FVHP840, 906, 906, FVHP890, 910, 911, FVHP915, 916, 918					
FVHP415, 618, 620	CLUTCH IDLER ASSY	F1430480400900	380p		
FVHP622, 710, 711, FVHP720, 721, 722					
FVHP725, 730, 830, FVHP840					
FVHP615, 618, 620	REEL T-UP ASSY	F1430410400900	£5.50		
FVHP622, 710, 711, FVHP720, 721, 722					
FVHP725, 730, 830, FVHP840					
FVHP905, 908, 908	GEAR IDLER ASSY	F1430490402400	275p		
FVHP910, 911, 915, FVHP918, 918					
FVHP975, 980, 990	IDER	F1430420400700	300p		
FVHP988, 5000, 5035					
FVHP950, 5075, 5100					
FVHD40, 55, 140	REEL DRIVE ROLLER		£8.00		
FVHP1, 10, 20					
FVHP975, 980, 990	CLUTCH	F12430510404200	£3.50		
FVHP420, 520, 530	IDER		£2.80		
FVHP420, 520, 530	TAKE UP IDLER		290p		
FVHP990	LOADING GEAR		90p		
VBS3500	REEL DRIVE PULLEY		£3.20		
VBS3500	IDER		250p		
VBS7000	REW IDLER		5p		
GOLDSTAR					
GHV1221, 1232, 1240	CLUTCH GEAR	435038A	£2.50		
GHV1241, 1242, 1243, GHV1244, 1245, 1246, GHV1247, 1248, 8000					
GHV8200, 8210, 8215, GHVP61, VCP4100, 4130	IDER		110p		
GHV1241, 1242, 1243, GHV1244, 1245, 1246, GHV1247, 1248, 8000					
GHV8200, 8210, 8215, GHVP51, VCP4100, 4130					
HINARI					
VXL3, VXL20	REEL IDLER	40000009	110p		
VXL2	IDER		110p		
VXL4, VXL35	IDER		£2.75		
VXL4, VXL35	CLUTCH		15.50		
VXL4, VXL12, VXL25	LIMITER POST		£1.30		
VXL20, VXL35, VTV300					
VXL5, VXL6	CLUTCH		£3.75		
VXL5, VXL6	GEAR HOLDER		£3.50		
VXL7, VXL8, VXL9	CLUTCH		£3.80		
HITACHI					
VT11-33, VT63-64	CLUTCH ASSY	6879515	£7.50		
VT14, 17, 18, 38, 57, 86, 88, 84, 35, 38, 52, 61, 62, 65, 85, 830, 840, VT165					
VT120-220, 100, 110	CLUTCH ASSY	6886824	£7.50		
111, 113, 115, 118, 200		6886972			
125, 128, 130, 135, 138, 145, 150, 175, 225, 250, 255, 258, 280, VTL30					
VT8000-8300, 7000	FF-REW IDLER	6413863	£2.80		
VT8500-8700					
VT8000-8300, 7000	PLAY IDLER	6414221	290p		
VT8500-8700					
VT8000-8300, 7000	FF-REW PULLEY	6383531	80p		
VT8500-8700					
VT8300-9500, 6500	FF-REW IDLER	6881471	240p		
VT680, 6800, 9700, 9900					
VT9300-9500, 6500	PLAY IDLER	6861482	230p		
VT680, 6800, 9700		6861481			
VT1-9000					
VT3300-9500, 9700	IDER	681505	230p		
VT9900, 8500, 680, 6800	IDER	687043	£3.80		
VT11-33, VT63-64	FF-REW IDLER	8886971	125p		
VT14, 15, 17, 18, 34, VT35, 38, 39, 52, 61, 62					
VT65, 85, 86, 88, 330, 640					
VT1000, 110, 111, 113	FF-REW ARM	6886972	240p		
VT115, 118, 119, 120, 125, 128, 130, 135, 138, 145, 150					
VT175, 220, 225, 250, 255, 258, 280, VTI-30					
VT400, 405, 410, 413	FF-REW ARM	6897094	£1.30		
VT414, 415, 418, 420, 425, 426, 428, 430, 431, 435					
VT438, 450, 456, 510, 518, 520, 525, 526, 530, 535					
VT536, 540, 545, 548, 549, 570, 575, 576, 580, 585					
VT598, VTM625, 626, 630, 635, 636, 640, 645, 646, VTS80, 86					
VT400, 405, 410, 413	CLUTCH BASE	6896951	£3.25		
VT414, 415, 418, 420, 425, 426, 428, 430, 431, 435					
VT438, 450, 456, 510, 518, 520, 525, 526, 530, 535					
VT536, 540, 545, 548, 549, 570, 575, 576, 580, 585					
VT598, VTM625, 626, 630, 635, 636, 640, 645, 646, VTS80, 86					
VT3000	T-UP IDLER (LARGE)		£4.50		
VT3000	REW IDLER		£8.00		

VR2500, 3200, 3300, 3500, 3600, 3900	IDER		110p
VR705, VR805, VR905			
SANYO			
VHR1110, 1150, 1200	IDER	143-0-6627-14730	£5.00
VHR1300, 1500			
VTC6000, 5150, 6000	FF-REW IDLER	143-0-7417-20001	250p
VTC6500, VTCM10, M 1, M20, M21, M30, M31, M50			
VTC8100, VTC9300	IDER	143-0-5517-01400	95p
VTC9300	FF-ROLLER ASSY	143-0-5477-00200	200p
VTCM10, M11, M20, M21	REEL DRIVE PULLEY	143-0-8627-10350	£5.00
VTCM30, M31, M50			
VHR2100, 2300, 2500	IDER	6130374899	300p
VHR2700			
VTC5000, 5150, 6000	PULLEY	143-0-6627-01201	£5.20
VTC6500			
VTCM10, M11, M20, M21	PULLEY	143-0-6627-10350	£5.50
VTCM30, M31, M50			
VHR3100, 3300, 3310	REEL DRIVE ROLLER	143-0-6627-15621	350p
VHR3400, 3700, 3800			
VHR5000, VHR7000			
VPR5600, VTC3500	LOADING ROLLER	143-0-661T-03800	80p
VTC5400			
VTC3000	FWD LIMITER		£3.50
VTC3000	IDER		750p
SHARP			
VC600, 651, 681, 682	IDER ASSY	NIDL0005GEZZ	110p
VC684, 685, 693, 699, 700, 783, VCFR, VCFR3	IDER ASSY	NIDL0006GEZZ	110p
VC7300, VC7700, 7750	PLAY IDLER KIT	NPLYV0107GEZZ	£8.15
		NPLYV0041+ NDA1V1007	£7.50

FAULT FINDING GUIDE BOOK

Video Recorders Edition 2
List more than 4000 faults for 43 different brands
Price £9 45p Only. No VAT
Order Code: BOOK01

Satellite Repair Manual Edition 2

A comprehensive guide to receiver reviewing, featuring stock faults and installation tips.
Price 1475p Only No VAT Postage 100p
Order Code: BOOK03

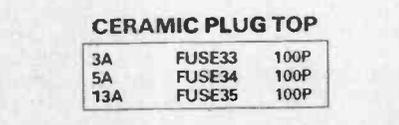
VIDEO HEAD CLEANING STICKS



Order Code: SP14
Price 17p each
15P each pack of 10pcs
13P each pack of 25pcs

VIDEO MAINTENANCE TOOLS

Set of 8 Allen keys packed in a plastic wallet
Order Code: TOOL9
Price 125p
Specifically designed for video maintenance



CERAMIC PLUG TOP
3A FUSE33 100P
5A FUSE34 100P
13A FUSE35 100P

Solder Map 1.2mm x 10metres 300P
Tubed Silicon Grease 50 gram 200P
Tubed Heat Sink Compound 25 gram 150P

UNIVERSAL HEAD EXTRACTOR TOOL
Hand tool designed for extracting hand to remove heads without damage to either the head or the mounting assembly.
Adjustable so as to suit various brand heads.
PRICE - £7

GRANDATA LTD
Tel: 081-900 2319
Fax: 081-903 6126

ELC EAST LONDON COMPONENTS
AUDIO TELEVISION VIDEO
COMPONENTS AT VERY KEEN PRICES
TEL: 081-472 4871 FAX: 081-503 5926

REMOTE CONTROLS FROM £7.99

IDLER TYRES 50p 1+, 25p 10+

VIDEO HEADS FROM £6.99

Over 200 models at very attractive prices.
AKAI, AMSTRAD, FERGUSON, FISHER,
GOLDSTAR, HINARI, HITACHI, LOGI,
MATSUI, ORION, PANASONIC, SAISHO,
SHARP AND MANY MORE

VIDEO SPARES

3V29 TAKE UP IDLER	£1.30p	3V22	1.80
3V29 FF REW IDLER	£2.80p	3V29/30/33	1.00
3V59/65 FV1014 IDLER	£1.50p	3V42/65	0.85
3V23 LOADING ROLLER BAR	£3.99p	HRD520/830	1.20
SHARP 0005 IDLER	£1.99p	RSHERS	1.10
SHARP VCG61 ASSEMBLY	£1.99p	FYHP905/725	1.10
VT11/14/17 IDLER	£1.99p	FYHP905/910	1.10
VT11 CLUTCH ASSEMBLY	£6.99p	GRUNDIG	1.45
VT1002/25/260 IDLER	£2.75p	VS180	1.90
NEC 9013 IDLER	£4.99p	VS300	1.90
SANYO VHR3300 IDLER	£3.99p	VS380	1.75
AKAI VS105/250 CLUTCH ASSEMBLY	£11.99p	HINARI	1.25
SAISHO VR380 CLUTCH	£4.99p	VKL3-20	1.50
MITSUBISHI H5337 FF IDLER	£2.70p	VKL4-35	1.50
ALBA BENTRA PULLEY	£1.25p	HITACHI	1.30
MATSUI LUMITER POST	£1.95p	VT11/33	1.30
PANASONIC NV370 IDLER	£3.99p	VT52/65	1.75
FISHER 615 IDLER	£3.50p	VT110/220	1.80
FISHER GEAR ASSEMBLY	£4.50p	MITSUBISHI	1.75
AMSTRAD PINCH WHEEL MOD KIT	£1.99p	HS306/307	1.75
UNIVERSAL TRIPLER	£4.99p	PHILIPS	2.40
HITACHI MODULE HM6251	£6.99p	YR6548	1.50
CD2410 TRIPLER	£16.99p	YR6367	1.50
TENSION BAND FOR MOST MOD. FROM	£1.99p	SAMSUNG	1.50
CIRCUIT PROTECTOR ICD	50p	VK510/520	1.50
TX10 FOCUS UNIT	£7.99p	SANYO	2.15
PHILIPS BACK-UP BATTERY	£1.30p	VHR1300	2.05
ALBA BATTERY 1F 5.5V	£2.50p	VHR3300	1.30
TV SWITCHES FOR MOST MOD. FROM	£1.99p	VCR381	1.25
SONY FUNCTION SWITCH	0.85p	VCR61/681	1.50
		VCR300	1.50

ELC EAST LONDON COMPONENTS
63 PLASHET GROVE, EAST HAM,
LONDON E6 1AD. TEL: 081-472 4871
two minutes walk from Upton Park Tube Station
PLEASE PHONE US IF WHAT YOU NEED
IS NOT LISTED AS WE HOLD THOUSANDS
OF ITEMS IN STOCK
ADD £1 P/P ADD 17.5% VAT
ALL GOODS DESPATCHED SAME DAY
PRICE SUBJECT TO CHANGE WITHOUT NOTICE
VISA ACCESS ACCEPTED. MIN ORDER £5.00

LINE OUTPUT TRANSFORMERS
OVER 100 MODELS AT LOW PRICES

AKAI	19.99	MATSUI	19.99	AN3822K	7.99	LA7835	1.99	STK5720	6.00	TDA1516	4.00	UPC1378	2.20	25B705	2.00
CT270E	19.99	1440B	16.99	AN5435	2.50	M490BB1	2.80	STK5730	6.00	TDA1518	4.00	UPC1394	1.90	25B755	3.50
CT2870	19.99	1450	16.99	AN5512	2.99	M491BB1	2.50	STK7216	6.00	TDA1520	4.00	UPC1420	5.25	25B817	2.00
ALBA	19.99	1465	16.99	AN7161	1.99	M5444L	8.50	STK7226	8.50	TDA1521	3.99	UPC1488	3.50	25B822	0.80
CTV14RS	19.99	1480A	16.99	AN7178	4.25	M5454L	2.99	STK7306	4.25	TDA1522	3.99	UPC1488	3.50	25B882	0.80
AMSTRAD	14.99	MITSUBISHI	16.99	AN7178	2.60	M5454L	2.99	STK8250	8.00	TDA1523	3.99	UPC1498	3.50	25B891	1.40
CTV2200	14.99	CT2258TX	16.99	BA3402	1.99	M5454L	4.25	STK7340	6.99	TDA1524	4.25	X2402P	4.25	25B892	0.80
TV2210	14.99	CT2839TX	16.99	BA5402	2.50	M5464L	2.99	STR6020	8.50	TDA1525	4.00	SG2844 THY	7.00	25B910	3.50
BU14	16.99	ORION	16.99	BA6109	1.99	M5464L	3.99	STR4211	5.99	TDA1526	4.00	SG613 THY	11.00	25C8106	0.80
2020T	16.99	PHILIPS	16.99	BA6121	2.80	M5464L	3.99	STR5412	4.50	TDA1527	3.25	BU208A	1.10	25C8229	0.25
2020T	16.99	FIDELITY	13.99	BA6209	2.50	M5464L	3.99	STR5412	4.50	TDA1528	2.00	BU500	0.99	25C8229	0.25
2020T	16.99	AMSTRAD	14.50	BA6219	2.99	M5464L	3.99	STR5412	4.50	TDA1529	2.00	BU500A	0.99	25C8229	0.25
2020T	16.99	AMSTRAD	12.99	BA6222	2.90	M5464L	3.99	STR5412	4.50	TDA1530	2.00	BU500A	0.99	25C8229	0.25
2020T	16.99	AMSTRAD	12.99	BA6225	1.99	M5464L	3.99	STR5412	4.50	TDA1531	2.00	BU500A	0.99	25C8229	0.25
2020T	16.99	AMSTRAD	12.99	BA6228	1.99	M5464L	3.99	STR5412	4.50	TDA1532	2.00	BU500A	0.99	25C8229	0.25
2020T	16.99	AMSTRAD	12.99	BA6238	1.99	M5464L	3.99	STR5412	4.50	TDA1533	2.00	BU500A	0.99	25C8229	0.25
2020T	16.99	AMSTRAD	12.99	BA6239	2.50	M5464L	3.99	STR5412	4.50	TDA1534	2.00	BU500A	0.99	25C8229	0.25
2020T	16.99	AMSTRAD	12.99	BA6304	1.99	M5464L	3.99	STR5412	4.50	TDA1535	2.00	BU500A	0.99	25C8229	0.25
2020T	16.99	AMSTRAD	12.99	BA6305	1.99	M5464L	3.99	STR5412	4.50	TDA1536	2.00	BU500A	0.99	25C8229	0.25
2020T	16.99	AMSTRAD	12.99	BA6305	1.99	M5464L	3.99	STR5412	4.50	TDA1537	2.00	BU500A	0.99	25C8229	0.25
2020T	16.99	AMSTRAD	12.99	BA6305	1.99	M5464L	3.99	STR5412	4.50	TDA1538	2.00	BU500A	0.99	25C8229	0.25
2020T	16.99	AMSTRAD	12.99	BA6305	1.99	M5464L	3.99	STR5412	4.50	TDA1539	2.00	BU500A	0.99	25C8229	0.25
2020T	16.99	AMSTRAD	12.99	BA6305	1.99	M5464L	3.99	STR5412	4.50	TDA1540	2.00	BU500A	0.99	25C8229	0.25
2020T	16.99	AMSTRAD	12.99	BA6305	1.99	M5464L	3.99	STR5412	4.50	TDA1541	2.00	BU500A	0.99	25C8229	0.25
2020T	16.99	AMSTRAD	12.99	BA6305	1.99	M5464L	3.99	STR5412	4.50	TDA1542	2.00	BU500A	0.99	25C8229	0.25
2020T	16.99	AMSTRAD	12.99	BA6305	1.99	M5464L	3.99	STR5412	4.50	TDA1543	2.00	BU500A	0.99	25C8229	0.25
2020T	16.99	AMSTRAD	12.99	BA6305	1.99	M5464L	3.99	STR5412	4.50	TDA1544	2.00	BU500A	0.99	25C8229	0.25
2020T	16.99	AMSTRAD	12.99	BA6305	1.99	M5464L	3.99	STR5412	4.50	TDA1545	2.00	BU500A	0.99	25C8229	0.25
2020T	16.99	AMSTRAD	12.99	BA6305	1.99	M5464L	3.99	STR5412	4.50	TDA1546	2.00	BU500A	0.99	25C8229	0.25
2020T	16.99	AMSTRAD	12.99	BA6305	1.99	M5464L	3.99	STR5412	4.50	TDA1547	2.00	BU500A	0.99	25C8229	0.25
2020T	16.99	AMSTRAD	12.99	BA6305	1.99	M5464L	3.99	STR5412	4.50	TDA1548	2.00	BU500A	0.99	25C8229	0.25
2020T	16.99	AMSTRAD	12.99	BA6305	1.99	M5464L	3.99	STR5412	4.50	TDA1549	2.00	BU500A	0.99	25C8229	0.25
2020T	16.99	AMSTRAD	12.99	BA6305	1.99	M5464L	3.99	STR5412	4.50	TDA1550	2.00	BU500A	0.99	25C8229	0.25
2020T	16.99	AMSTRAD	12.99	BA6305	1.99	M5464L	3.99	STR5412	4.50	TDA1551	2.00	BU500A	0.99	25C8229	0.25
2020T	16.99	AMSTRAD	12.99	BA6305	1.99	M5464L	3.99	STR5412	4.50	TDA1552	2.00	BU500A	0.99	25C8229	0.25
2020T	16.99	AMSTRAD	12.99	BA6305	1.99	M5464L	3.99	STR5412	4.50	TDA1553	2.00	BU500A	0.99	25C8229	0.25
2020T	16.99	AMSTRAD	12.99	BA6305	1.99	M5464L	3.99	STR5412	4.50	TDA1554	2.00	BU500A	0.99	25C8229	0.25
2020T	16.99	AMSTRAD	12.99	BA6305	1.99	M5464L	3.99	STR5412	4.50	TDA1555	2.00	BU500A	0.99	25C8229	0.25
2020T	16.99	AMSTRAD	12.99	BA6305	1.99	M5464L	3.99	STR5412	4.50	TDA1556	2.00	BU500A	0.99	25C8229	0.25
2020T	16.99	AMSTRAD	12.99	BA6305	1.99	M5464L	3.99	STR5412	4.50	TDA1557	2.00	BU500A	0.99	25C8229	0.25
2020T	16.99	AMSTRAD	12.99	BA6305	1.99	M5464L	3.99	STR5412	4.50	TDA1558	2.00	BU500A	0.99	25C8229	0.25
2020T	16.99	AMSTRAD	12.99	BA6305	1.99	M5464L	3.99	STR5412	4.50	TDA1559	2.00	BU500A	0.99	25C8229	0.25
2020T	16.99	AMSTRAD	12.99	BA6305	1.99	M5464L	3.99	STR5412	4.50	TDA1560	2.00	BU500A	0.99	25C8229	0.25
2020T	16.99	AMSTRAD	12.99	BA6305	1.99	M5464L	3.99	STR5412	4.50	TDA1561	2.00	BU500A	0.99	25C8229	0.25
2020T	16.99	AMSTRAD	12.99	BA6305	1.99	M5464L	3.99	STR5412	4.50	TDA1562	2.00	BU500A	0.99	25C8229	0.25
2020T	16.99	AMSTRAD	12.99	BA6305	1.99	M5464L	3.99	STR5412	4.50	TDA1563	2.00	BU500A	0.99	25C8229	0.25
2020T	16.99	AMSTRAD	12.99	BA6305	1.99	M5464L	3.99	STR5412	4.50	TDA1564	2.00	BU500A	0.99	25C8229	0.25
2020T	16.99	AMSTRAD	12.99	BA6305	1.99	M5464L	3.99	STR5412	4.50	TDA1565	2.00	BU500A	0.99	25C8229	0.25
2020T	16.99	AMSTRAD	12.99	BA6305	1.99	M5464L	3.99	STR5412	4.50	TDA1566	2.00	BU500A	0.99	25C8229	0.25
2020T	16.99	AMSTRAD	12.99	BA6305	1.99	M5464L	3.99	STR5412	4.50	TDA1567	2.00	BU500A	0.99	25C8229	0.25
2020T	16.99	AMSTRAD	12.99	BA6305	1.99	M5464L	3.99	STR5412	4.50	TDA1568	2.00	BU500A	0.99	25C8229	0.25
2020T	16.99	AMSTRAD	12.99	BA6305	1.99	M5464L	3.99	STR5412	4.50	TDA1569	2.00	BU500A	0.99	25C8229	0.25
2020T	16.99	AMSTRAD	12.99	BA6305	1.99	M5464L	3.99	STR5412	4.50	TDA1570	2.00	BU500A	0.99	25C8229	0.25
2020T	16.99	AMSTRAD	12.99	BA6305	1.99	M5464L	3.99	STR5412	4.50	TDA1571	2.00	BU500A	0.99	25C8229	0.25
2020T	16.99	AMSTRAD	12.99	BA6305	1.99	M5464L	3.99	STR5412	4.50	TDA1572	2.00	BU500A	0.99	25C8229	0.25
2020T	16.99	AMSTRAD	12.99	BA6305	1.99	M5464L	3.99	STR5412	4.50	TDA1573	2.00	BU500A	0.99	25C8229	0.25
2020T	16.99	AMSTRAD	12.99	BA6305	1.99	M5464L	3.99	STR5412	4.50	TDA1574	2.00	BU500A	0.99	25C8229	0.25
2020T	16.99	AMSTRAD	12.99	BA6305	1.99	M5464L	3.99	STR5412	4.50	TDA1575	2.00	BU500A	0.99	25C8229	0.25
2020T	16.99	AMSTRAD	12.99	BA6305	1.99	M5464L	3.99	STR5412	4.50	TDA1576	2.00	BU500A	0.99	25C8229	0.25
2020T	16.99	AMSTRAD	12.99	BA6305	1.99	M5464L	3.99	STR5412	4.50	TDA1577	2.00	BU500A	0.99	25C8229	0.25
2020T	16.99	AMSTRAD	12.99	BA6305	1.99	M5464L	3.99	STR5412	4.50	TDA1578	2.00	BU500A	0.99	25C8229	0.25
2020T	16.99	AMSTRAD	12.99	BA6305	1.99	M5464L	3.99	STR5412	4.50	TDA1579	2.00	BU500A	0.99	25C8229	0.25
2020T	16.99	AMSTRAD	12.99	BA6305	1.99	M5464L	3.99	STR5412	4.50	TDA1580	2.00	BU500A	0.99	25C8229	0.25
2020T	16.99														

**WE WILL ONLY SUPPLY TOP QUALITY,
BRANDED COMPONENTS.
REPUTATION COUNTS WITH US**

G.G.L. COMPONENTS

PO BOX 72, UNIT 7, SOUTH JOHN STREET, CARLISLE, CUMBRIA CA2 5AL.
TEL: (0228) 39693/20358 Fax: (0228) 515127.

BUY WITH



AERIAL ACCESSORIES

COAX PLUG.....	18
F CONNECTOR.....	20
VIDEO LEAD 2M.....	75
FLY LEAD 2M.....	75
4 WAY DISTRIBUTION.....	18.50
AMPLIFIER MAINS.....	20.25
8 WAY DISTRIBUTION.....	20.25
AMPLIFIER MAINS.....	20.25

BATTERIES

AA (pkt of 4).....	1.20
AA (pkt of 4).....	1.20
FERGUSON 3V55.....	4.95
PHILIPS MEMORY 1V2.....	1.70
PHILIPS MEMORY 2V4.....	2.50

CAPACITORS

0 115 5v (back-up).....	2.50
63v.....	18
100uf at 63v.....	22
220uf at 63v.....	35
250v.....	20
1uf at 250v.....	25
4.7uf at 250v.....	35
22uf at 250v.....	40
47uf at 250v.....	65
100uf at 250v.....	1.25
400v.....	23
1uf at 400v.....	35
4.7uf at 400v.....	70
22uf at 400v.....	85
(ALL PCB MOUNTING).....	85

DIODES

R2M.....	95
BY133.....	9
BY227.....	20
BY299/800.....	35
IN4007.....	10
IN5408.....	20
BZX61C (pkt of 5) 6v 7.5 12v 15v 24v 33v 68v 120v 130v 100.....	20

EHT TRAYS

CONTINENTAL 30AX FOCUS.....	8.95
DECCA 120/130.....	7.95
GRUNDIG CUC2410 14".....	13.70
GRUNDIG CUC2410 22".....	13.70
PHILIPS KT3.....	7.95
UNIVERSAL.....	5.95

FUSES

20mm A S (PKTS OF 10).....	4.95
250MA, 315MA, 500MA, 630MA.....	1.20
800MA, 1A, 1.6A, 2A, 2.5A, 3.15A.....	20
20mm Q/B (PKTS OF 10).....	7.50
500MA, 630MA, 800MA, 1A, 1.6A, 2A, 2.5A, 3.15A.....	80

I.C.'s

CNX62A.....	4.75
SA1293-02.....	5.95
SA1293-03.....	7.25
SA1293A-03.....	8.35
SL1432.....	1.95
STK5331.....	4.95
STK5332.....	4.95
STK5333.....	11.25
STK5421.....	3.50
STK5422.....	5.50
STK5481.....	6.95
STK5482.....	4.95
STK5490.....	7.95
STK7308.....	5.50
STK7348.....	5.50
STR4211.....	4.50
STR5012.....	4.95
STR5020.....	7.35
STR50103A.....	5.95
STR54041.....	6.95
STR58041.....	5.95
STRD1816.....	5.70
TD11070.....	1.95
TD12030.....	1.95
TD12170.....	2.95
TD12270.....	2.75
TD12576A.....	5.95
TD12577A.....	3.50
TD12578A.....	2.95
TD12579.....	3.95
TD12581.....	4.50
TD12582.....	2.50
TD12653AQ.....	2.95
TD13330.....	8.50
TD13560.....	4.95
TD13561A.....	4.95
TD13562A (TFK).....	4.65
TD13565.....	3.95
TD13571BQ.....	8.95
TD13576B.....	10.25
TD13650.....	8.95
TD13651/3.....	2.95
TD13651A.....	4.75
TD13653A.....	3.50
TD13654A.....	2.95
TD14500.....	4.50
TD14501.....	5.25

TDA4503.....	4.95
TDA4505E.....	5.45
TDA4600/3.....	2.95
TDA4600/2D.....	3.95
TDA4601.....	2.95
TDA601 DIL.....	3.75
TEA1039.....	1.95
TEA2018A.....	2.50
TMP47C434N 3414.....	14.95
TMP47C434N 3415.....	14.95
TMP47C434N 3537.....	14.95
TMP47C434N 3555.....	15.55
TMP47C434N 3558.....	15.55
TMP47C434N 3559.....	14.95
X2402P.....	4.95
CIRCUIT PROTECTORS N10,N20,N25 (each).....	50

LINE O/P TRANSFORMERS

FERGUSON TX90 20".....	14.85
FERGUSON TX100 90D.....	16.95
FERGUSON TX100 110D.....	13.80
FERGUSON TX100 FST.....	17.25
FIDELITY ZX2000 + MOD.....	13.95
FIDELITY ZX3000.....	12.95
HINARI CT4/5.....	15.95
HITACHI CPT1474/1476.....	17.75
HITACHI CPT2174/76/78.....	15.58
HITACHI CPT2276/2278.....	16.45
HITACHI CPT2476/2478.....	17.95
ITT COMPACT 80R/110.....	14.95
ITT CVCI2000/1.....	19.95
ITT PICO 1/1A/5.....	17.75
MATSUI 1410/20/40.....	18.95
PHILIPS CP90.....	17.95
PHILIPS CTX14720".....	20.35
PHILIPS 2A.....	18.50

SERVICE MANUALS

AMSTRAD 4600.....	9.95
AMSTRAD 6000.....	9.95
FERGUSON TX85.....	9.95
FERGUSON 3V55.....	13.95
FERGUSON 3V65.....	13.95
FERGUSON FV11.....	13.95

SWITCHES

FIDELITY CTV140.....	1.50
GRUNDIG CUC731.....	3.50
ITT TX SERIES.....	4.95
KT4/CTX REMOTE.....	1.75
TX910 STANDARD.....	1.00
TX910 REMOTE.....	1.75
TX90/100 STANDARD.....	1.50
TX90/100 REMOTE.....	1.75

TRANSISTORS

BC639.....	20
BC640.....	20
BF460.....	95
BU208D.....	1.95
BU426A.....	1.45
BU500.....	2.00
BU508A.....	1.50
BU508AF.....	1.60
BU508D.....	1.60
BU508DF.....	1.95
BU508V.....	1.90
BU807.....	1.75
BU111AF.....	1.90
BU156A.....	2.25
BUX84.....	80
RA050.....	2.95
T9053V/T9054V.....	3.50
T9064V.....	1.95
TIP29E (TO168V).....	75
TIP41C.....	50
TIP42C.....	50
TIP112H (TO167V).....	75
TIP1791A.....	1.95
2SD1497.....	3.95
2SD1497/02.....	4.25
TRANSISTOR EQUIVALENT BOOKS TVT A-Z & 2N-2SD.....	28.45

PANASONIC LOPTS

PANASONIC TLF 14567F.....	19.50
PANASONIC TLF 14568F.....	19.50

REMOTE CONTROLS

FERGUSON T725.....	9.75
FERGUSON TX34.....	9.75
FERGUSON TX42.....	9.75
FERGUSON TX85 FAST TEXT.....	11.95
FERGUSON TX89 FAST TEXT.....	11.95
FERGUSON TX100 NON TEXT.....	11.50
FERGUSON TX100 TEXT.....	9.75
FERGUSON TX100 STEREO.....	11.95
FERGUSON TX100 TEXT.....	10.95
FERGUSON ICC5.....	17.95
FERGUSON SRA1.....	13.50
FIDELITY CTV145.....	12.95
FIDELITY CTV22.....	12.75
FINLUX 1101 TO 2335.....	11.50
GOODMANS TX1103/1200.....	18.95
GRANDUA UNIVERSAL.....	12.95
GRANDIG TP400 TEXT.....	12.90
GRUNDIG TP650 TEXT.....	11.45
GRUNDIG TP660.....	11.45
HITACHI CPT1446.....	11.45
HITACHI CPT2174.....	17.95
HITACHI CPT2188.....	9.75

HITACHI CPT2246.....	12.75
ITT FS9/10 DICIVISION.....	13.25
ITT RG305.....	10.75
ITT RG306.....	10.75
ITT VS4.....	10.75
ITT VSS TEXT.....	10.75
MATSUI 1440.....	12.75
PACE 6000.....	11.95
PANASONIC TQ141/12.....	14.95
PANASONIC TQ141/19.....	13.95
PHILIPS G11 IIR TEXT.....	13.95
PHILIPS KT3/30 NON TEXT.....	12.95
PHILIPS KT3/30 TEXT.....	12.50
PHILIPS RC5991.....	11.50
PHILIPS RC5903 GENUINE.....	11.50
PHILIPS MINATURE.....	9.95
PHILIPS VR6452.....	11.50
PHILIPS VR6457.....	11.50
PROGRAMMABLE.....	22.50
REDIFFUSION MKIV.....	10.95
REDIFFUSION MKIVA.....	12.45
SAISHO CT142N.....	11.50
SAISHO CT143TX.....	12.95
SANYO VHR 1100/1200.....	14.25
SONY RM615.....	12.75
SONY RM632/636.....	10.75
SONY RM670/672/676.....	10.75
TATUNG RC4/45.....	10.25
TATUNG RC79.....	10.25
TATUNG RC99.....	11.95
TOP TEL.....	24.95

VIDEO HEADS

AKAI VS1/5.....	8.50
ALBA 4000X.....	16.95
AMSTRAD 4500/9000.....	14.70
AMSTRAD 4600/4700.....	13.75
AMSTRAD 6010.....	16.25
AMSTRAD 7040.....	14.95
FERGUSON 3V00/39.....	8.50
FERGUSON 3V42/55.....	17.25
FERGUSON 3V59/FV12.....	27.95
FERGUSON 3V65/FV11.....	16.50
FERGUSON FV12L/32L.....	27.95
FERGUSON FV31.....	25.95
FERGUSON FV42L.....	48.05
FISHER FVH615/910.....	16.50
FISHER FVH725.....	28.95
FISHER FVH906/916.....	18.50
GOLDSTAR V1221/1290.....	13.95
HITACHI 8000/9700.....	13.50
HITACHI VT11/33.....	14.30
HITACHI VT117/19.....	24.50
HITACHI VT63/64.....	19.25
HITACHI VT69.....	28.50
HITACHI VT120E/220E.....	21.25
HITACHI VT130E.....	25.30

**VIDEO HEADS ARE OF THE BEST
QUALITY AND ARE BRANDED
OR MANUFACTURERS OWN**

SERVICE AIDS

ANTEX 17W IRON.....	8.50
ANTEX 25W IRON.....	8.75
CLEAR TEXT TAPE.....	7.95
FIBRE CLEANING PEN.....	3.50
HEATSIK COMPOUND.....	1.55
ONYX SOLDER PUMP.....	9.95
ONYX TIPS.....	1.50
SILICON GREASE.....	1.85
SOLDA MOP.....	8.80
SOLDER 0.5KG 18SWG.....	8.50
SOLDER 0.5KG 22SWG.....	8.75
WELLER GUN TIPS (2).....	1.65

**NEW LISTS NOW
AVAILABLE.
PLEASE REQUEST**

ALBA VIDEO SPARES

VCR4000.....	1.95
BELT KIT.....	1.85
CAPACITOR BACK-UP.....	3.95
PINCH ROLLER.....	3.95
REEL IDLER.....	3.95
REEL PULLEY.....	1.95

AMSTRAD VIDEO SPARES

VCR4500.....	1.95
GEAR ASSEMBLY.....	9.95
MODIFICATION KIT.....	5.50
PINCH ROLLER.....	3.50
VCR4600.....	1.95
GEAR ASSEMBLY.....	9.95
MODIFICATION KIT.....	5.50
PINCH ROLLER.....	3.50
VCR6000.....	1.95
BELT KIT.....	1.95
PINCH ROLLER.....	3.95
CLUTCH.....	3.95

FERGUSON VIDEO SPARES

3V29/30.....	1.95
BELT KIT.....	29.50
CAPSTAN MOTOR.....	70
CASSETTE LAMP.....	1.95
LOADING BELTS (5).....	3.95
PINCH ROLLER.....	2.95
REEL IDLER.....	2.95
TAKE UP CLUTCH.....	2.95
TAKE UP IDLER.....	1.95
3V35/39.....	1.95
BELT KIT.....	21.50
CAPSTAN MOTOR.....	28.95
CASSETTE HOUSING.....	1.95
LOADING BELTS (5).....	23.95
MAINS TRANSFORMER.....	3.95
PINCH ROLLER.....	2.95
REEL IDLER.....	2.95
TAKE UP IDLER.....	1.95
TAKE UP CLUTCH.....	2.95
3V44/45.....	1.50
CASSETTE HOUSING.....	28.95
PINCH ROLLER.....	3.95
3V65/FV11.....	1.75
BELT KIT.....	27.50
CAPSTAN MOTOR.....	27.50
CASSETTE HOUSING.....	3.95
PINCH ROLLER.....	3.95
REEL IDLER.....	2.75

FISHER VIDEO SPARES

FVH5000.....	2.20
BELT KIT.....	5.50
REEL IDLER.....	3.50
PINCH ROLLER.....	2.60
TENSION BAND.....	2.90
FVH15720.....	1.95
BELT KIT.....	5.95
CLUTCH ASSEMBLY.....	4.50
PINCH ROLLER.....	5.95
REEL IDLER.....	3.95
FVH905/910.....	1.95
BELT KIT.....	5.95
CLUTCH ASSEMBLY.....	5.95
REEL IDLER.....	5.95

HITACHI VIDEO SPARES

VT8000/8700E.....	1.95
BELT KIT.....	2.95
FF/REW IDLER.....	3.95
FF/REW PULLEY.....	3.95
PINCH ROLLER.....	3.95
PLAY IDLER.....	3.95
REEL TABLE.....	3.95
TENSION BAND.....	2.95
VT9300/8700E.....	1.95
BELT KIT.....	2.75
FF/REW IDLER.....	3.95
FF/REW PULLEY.....	3.95
PINCH ROLLER.....	3.95
PLAY IDLER.....	3.95
VT11/33E.....	1.95
BELT KIT.....	27.50
CAPSTAN MOTOR VT11E.....	23.95
CAPSTAN MOTOR VT33E.....	7.95
CLUTCH ASSEMBLY.....	2.50
FF/REW IDLER GENUINE.....	3.95
FF/REW PULLEY.....	3.95
PINCH ROLLER.....	3.95
REPAIR KIT.....	12.95
VR6462/6560.....	14.75
CASSETTE HOUSING.....	3.95
REEL IDLER GENUINE.....	4.95
VR6467/6760.....	21.50
REPAIR KIT GENUINE.....	2.95
BELT KIT.....	10.98
CASSETTE HOUSING.....	7.50
PINCH ROLLER ARM ASSY.....	7.50

PANASONIC VIDEO SPARES

NV230/430.....	1.95
BELT KIT.....	3.95
PINCH ROLLER.....	3.30
REEL IDLER GENUINE.....	3.30
NV333/366.....	1.95
BELT KIT.....	3.95
CAPSTAN MOTOR.....	5.50
CASSETTE HOUSING.....	3.95
PINCH ROLLER.....	3.95
PLAY IDLER GENUINE.....	5.50
REEL IDLER GENUINE.....	1.35

NV370

BELT KIT.....	1.95
MODE SWITCH.....	3.95
PINCH ROLLER.....	3.95
REEL IDLER GENUINE.....	3.30</



NO REWIND? NO PROBLEM FAST FORWARD TO EURAS SYSTEM

Video technology is changing fast. New models get introduced with alarming regularity, each with the latest enhancement. So it's not surprising to find models and faults you've not encountered before.

The problem is you can spend costly, unchargeable time searching for elusive faults, which is where Eurasis System can help.

The Eurasis System is Europe's largest repair tips database for Video, Television and CD.

With over 120,000 repair tips for 14,000 models from 270 manufacturers you are sure to find the solution quickly. And because it is frequently updated, it always covers the latest models.

For a FREE demonstration diskette to run on your PC or details of Eurasis System in manual form, clip the coupon or phone 0272 860900.

EURAS INTERNATIONAL LTD
EURAS HOUSE, 51 BRISTOL ROAD,
KEYNSHAM, BRISTOL, BS18 2BA



EURAS

Solutions at your fingertips

PLEASE SEND ME A FREE DEMONSTRATION DISKETTE
PLEASE SEND ME DETAILS OF EURAS SYSTEM IN MANUAL FORM

NAME _____

TITLE _____

COMPANY _____

ADDRESS _____

POSTCODE _____

TV7/94A

P.V. TUBES
104 ABBEY STREET, ACCRINGTON
LANCS BB5 1EE
☎ 0254 236521/232611
FAX 0254 395361
24 Hr Answering Service

SEND LARGE S.A.E. FOR TRADE CATALOGUE

WE ARE CLOSED ALL DAY WEDNESDAY
CALLERS WELCOME AT TRADE COUNTER
MON-FRI 9-5pm
SAT 9-1pm

ATTENTION CARAVAN OWNERS TOURING FRANCE? STATIC IN SILVERDALE		VALVES	
14" Multisystem TV	£294.00	NEW - Branded Boxes - full range - (matched pairs available)	
21" Multisystem TV	£333.00	ECC81	£2.90 ECC82 £2.90
Multisystem Video	£405.00	ECC83	£4.90 ECC85 £3.00
Yes all suitable for France!		ECC88	£3.24 ECL82 £3.37
Video Player only 12v AC/DC		ECL86	£3.50 EL34 £7.00
Mains/Battery	£159.95	EL84	£3.00 EL519 £6.50
7" MONO TV/RADIO	£70.00	GZ34	£5.00 KT66 £9.75
Portarig Caravan Aerial	£19.50	KT88	£18.00 PCL805 £2.70
(W/B aerial/all fixings)		PCL86	£3.40 PCS504 £3.00
47cm Flat Plate Satellite	£77.00	PL519	£5.90 PY500A £2.95
Dish with LNB		12BY7A	£5.50 6L6GC £5.31
Stand alone security alarm	£19.95	6L6GT	£5.31 6KD6 £35.00
Traveller Set Top aerial	£16.60		

NEW PHILIPS TVS/VIDEOS

14" Portable R/C	£140.00
14" Portable (Seart)	£150.00
14" Portable Text	£190.00
51cm FST Fastext 2 spkrs	£285.00
51cm Stereo Nicam Fastext	£368.00
66cm Classic Line Nicam	£898.00
Fastext Including Cabinet	
MATCHLINE 117cm Super Screen including Cabinet	£2200.00
4 head LP Video Recorder	£270.00
14" TV/VCR Combination	POA
Voice Actuated Remote Control	£82.00

Ask for prices on HiFi/CD/Midi etc

WIRELESS SECURITY SYSTEM
New system which can even protect your car in the drive, shed, garage all without wires linked to your house alarm. British made - Can't be jammed. Ring for Info Pack.

SATELLITE SYSTEMS
Pace PRD 800 + 199 Channel REC
Only £162.00
With 60cm dish LNB £190.00
With 80cm dish LNB £210.00

OUR NOW FAMOUS DEGAUSSING COIL £27.50

WE CAN'T LIST EVERYTHING THAT WE STOCK. OUR RANGE IS EXTENSIVE. WE HAVE A TRADE CATALOGUE ON REQUEST. WE ARE ALSO ON LINE WITH 'MOVIES' TO ORDER ANY PHILIPS PART QUICKLY. JUST SOME OF THE THINGS WE SELL: AERIALS, SPARKETS, BATTERIES, CABLE CONNECTORS, CMOS CAPACITORS, COMPUTER ACCESSORIES, DISCS, DIODES, ELECTRICAL ACCESS, FUSES, ICs, LOFTY LEADS, MANUALS, PUSH BUTTON LIGHTS, PHONES, PHONE ACCESS, POTENTIOMETERS, RELAYS, SEMICONDUCTORS, STRIPBOARD, STYL, SMOKE DETECTORS, SWITCHES, TUNERS, TV BATTERY LEADS, TV WALL BRACKETS, TOOLS, TEST EQUIPMENT, VALVES AND EVERYTHING YOU NEED FOR VIDEO REPAIRS - HEADS, IDLERS, TYRES, PINCH ROLLERS, CLEANERS, TEST CASSETTES, VIDEO TAPE (inc BETA and V2000) etc.

Goods are despatched on the day we receive your order. If for any reason we are out of stock we will try to inform you as quickly as possible. We try our best to give a speedy, fair and efficient service. VAT invoice on request. Give us a ring - we'll give you service. Please ask if what you need is not listed - we will try to help. Prices are subject to change without notice. In some cases we may have to supply an equivalent. We need expiry dates for credit card orders. MIN. ORDER £5.



TECHNICAL BOOKS

A selection from our range of books for the repair trade

- TELEVISION CHASSIS GUIDE**
Full cross reference for all models.
Order MP-78, £6.00
- TELEVISION EQUIVALENTS**
Lists models which are the same.
Order MP-160, £6.00
- FAULT LISTS FOR TELEVISIONS**
Hundreds of specific faults for dozens of different makes and models.
Order MP-206, £7.00
- TELETEXT REPAIR MANUAL**
Covers SAA range of boards.
Order MP-78, £7.00
- TELEVISION REMOTE CONTROL CIRCUITS**
Dozens of Diagrams on many remotes.
Order MP-187, £10.00
- TV POWER SUPPLY CIRCUITS**
Dozens of P.S. circuit stages.
Order MP-210, £10.00
- SCART EUROCONNECTOR SYSTEM**
Comprehensive details of the system.
Order MP-21, £3.00
- P.C. HARD DISC DRIVE REFERENCE MANUAL**
Comprehensive Drive Details.
Order MP-24, £5.00
- P.C. DIAGNOSTICS SOFTWARE**
Dozens of programs to aid you in diagnostics of PCs and Drives etc.
2 sets of 7 x 3.5" Discs per set.
Set 1. Order MP-250, £12.50
Set 2. Order MP-251, £12.50
- VIDEO RECORDER AND CAMCORDER EQUIVALENTS**
Full Cross-reference guides.
Makes A-J. Order MP-218, £6.00
Makes K-Z. Order MP-219, £6.00
- FAULT LISTINGS FOR VIDEO**
Lists Hundreds of Faults for dozens of makes and models.
Volume 1. MP-206, £7.00
Volume 2. MP-228, £7.00
- VHS VIDEO RECORDER PRINCIPLES**
Detailed guide on how it works.
Order MP-28, £4.00
- VIDEO TEST JIG**
Special cassette lets you operate the machine in test mode.
Order VTJ, £15.00
- VIDEO HEAD CLEANING KIT**
Special kit with comprehensive instructions on how to service heads.
Order VICK, £5.00
- VIDEO RECORDER FAULTS**
Unique repair guide for beginners
Order MP-5, £3.00
- WIRE ANTENNAS FOR I.F. OPERATORS**
THE Aerial book for Amateurs.
Order MP-243, £5.95
- REBEL TO REEL TAPE RECORDER SERVICING**
Theory and circuits for repairs.
Order MP-201, £4.95
- TRANSISTOR RADIO REPAIR GUIDE**
Comprehensive servicing charts.
Order MP-37, £6.95
- RECORDER PLAYER SPEED DISC**
Get your phonograph up to speed.
Order MP-8, £0.95
- SWITCH MODE POWER SUPPLY I.C. TYPE TDA-4600**
Circuitry and operation explained.
Order MP-37, £6.95
- VOLTAGE REGULATORS, STABILISERS & POWER SUPPLIES**
Identification and specifications.
Order MP-9, £3.00
- CMOS DATABOOK**
Pinouts and circuits for 40K series.
Order MP-10, £5.00
- TTL DATABOOK**
Pinouts and circuits for 7400 series.
Order MP-34, £5.00
- TRANSISTOR EQUIVALENTS**
Includes details on testing them.
Order MP-24, £3.00
- OFFICE EQUIPMENT EQUIVALENTS**
Photocopiers & Fax machines covered.
Order MP-200, £6.00
- TELEPHONE CODE LOCATION GUIDE**
Find the Town from the Phone Code.
Order MP-19, £4.00
- MANUFACTURERS EQUIVALENTS**
What makes are the same.
Order MP-220, £3.00

The above selection are just a few of the Hundreds of Unique Repair and Data Guides shown in our FREE catalogue - Yours for the asking. Sent FREE with all orders or send 2 x 1st class stamps for your copy TODAY!

Order TODAY using Access/Visa for immediate despatch.
All order plus £2.35 Post and Packing. (Overseas £5.00)

MAURITRON TECHNICAL SERVICES (6TV1)

47A High Street, Chinnor, Oxfordshire OX9 4DJ.

Tel: 0844-351694. Fax: 0844-352554.

TELEVISION



REED
BUSINESS
PUBLISHING

Channel 5

The government has been wondering what to do about Channel 5, which for a long time we all thought was dead and buried. Last time the franchise was advertised by the ITC there was minimal interest. But now, it seems, someone feels that they can make a go of it. Before the ITC goes ahead and readvertises the franchise however it wants the government's assurance that the frequencies are not likely to be required for other purposes, i.e. digital TV broadcasting. NTL has, on behalf of the Radio Communications Agency, been carrying out research on the possibilities for using the channels (35 and 37) at present earmarked for a prospective fifth terrestrial analogue TV service in the UK.

It's difficult to understand why anyone should be all that keen to bring a fifth terrestrial TV service into operation. There is, of course, the prospect of profitable work for the advertising industry, which complains (as it would) that there is not enough competition at present. Then you could argue that the existing four services are so poor that a fifth choice for viewers can't be bad, also that it could be used for programming of a more regional/local nature and thus provide more opportunities for local groups and programme makers. Maybe. One detects however a certain desperation about the efforts to persuade the government to give the go-ahead. It is of course a last chance situation. With the rapid advances in digital TV technology, an opportunity such as Channel 5 for a further analogue TV service won't be around for very much longer. Those in favour say that the service could be up and running quite quickly,

while digital broadcasting remains some way in the future.

The Channel 5 lobby has come up with some strange ideas to further its case. There has been the suggestion that only one of the two u.h.f. channels is actually required, along with some use of taboo channels (those set aside because of possible interference problems) and retuning of relay transmitters. The claim is that this would enable a service to be provided for 70 per cent of the population (the original Ch. 5 was to serve 75 per cent by using the two u.h.f. channels). It's also suggested that by taking liberties with polarisation the need for an extra aerial for Ch. 5 reception would be reduced. Another curious claim is that this would reduce the need to retune VCRs and other equipment that uses the ch. 35-37 spectrum - this was the factor that caused so much concern on the technical side during the previous debate on the prospects for Ch. 5. There has been no explanation as to how the retuning problem could be dramatically reduced, while the prospective use of taboo channels could greatly aggravate the situation. Those lobbying for Ch. 5 don't seem to appreciate that an awful lot of equipment in people's homes was designed before anyone came along with these novel ideas.

Apart from the technicalities, one has to query the benefits that Ch. 5 would provide. People already have access, via satellite and/or cable, to far more than the basic four terrestrial channels. The problem is not a dearth of channels, it's the poor quality of most of what's on offer. We can afford to wait to see what digital TV will bring in the not very distant future.

Faults Disc

The Fault Report Disc promised in our March issue (see page 346) is now available from Video Interface Products Ltd. (see box on page 639 this month) at £15. It contains the full text of all the TV, VCR, CD player and satellite TV receiver faults published in Volume 43 of *Television* (the November 1992-October 1993 issues), giving readers rapid access to this information.

For copyright reasons the disc cannot be used on its own. It has to be used in conjunction with the Index disc available from VIP Ltd. The text on the Faults disc is loaded on to your computer's hard disc. Once this has been done, the Index disc can be used to call up on the screen the full text of fault reports as required. The Index disc provides you with a faults listing under brand name and model number, with a brief one-line note on the nature of each fault to enable you to assess its relevance to the problem being dealt with at the time.

The system has been devised for easy use, and we believe that readers with PCs (IBM compatible) will find it helpful. If the demand is sufficient, we propose to issue Faults discs for earlier years - and for following years as soon as the material can be assembled and put on disc.

EDITOR

John A. Reddihough

PRODUCTION EDITOR

Tessa Winford

EDITORIAL OFFICE

081 652 8120

Fax 081 652 8956

Note that we are unable to answer technical queries over the telephone and cannot provide information on spares other than that given in our Spares Guide.

ADVERTISEMENT MANAGER

Carol Nobbs
081 652 8327

SALES EXECUTIVE

Pat Bunce
081 652 8339
Fax 081 652 8931

ADVERTISING PRODUCTION

Brian Chapman
081 652 8681
Fax 081 652 8917

PUBLISHING DIRECTOR

Susan Downey

SUBSCRIPTION ENQUIRIES

0444 445 566

SUBSCRIPTION HOTLINE

24-hour subscription ordering with credit card number phone 0622 721 666 and quote reference INJ.

COVER PHOTO

This month's cover photograph shows the personal computer project in its full tower case: see pages 652-9.

Teletopics

TRADE SCENE

According to the latest BREMA figures 1993 saw an improvement in most sections of the brown goods market in the UK. This was rather better than in the other European Union countries. Sales of most types of TV/video equipment rose in the UK – the exception was camcorders, which have declined from a peak in 1992. Deliveries of large-screen colour sets (over 17in.) rose 6.7 per cent to 1.9m while deliveries of small-screen sets (17in. and under) rose 3.1 per cent to 1.88m. VCR deliveries rose 8.2 per cent to 2.4m – it was the best year so far in volume terms for VCRs – but camcorder deliveries fell 6 per cent to 540,000. More TV sets and VCRs incorporated Nicam sound – up 18.5 and 14 per cent respectively (that's 770,000 TV sets and 480,000 VCRs). Satellite receiver deliveries rose 7.7 per cent to 700,000. The total TV market grew 5 per cent in value to £1.12bn (at retail prices). Ten per cent of TV sets incorporated Dolby Surround Sound while 40 per cent of VCRs incorporated VideoPlus. It seems that the camcorder market continued to decline into the current year.

1993 was also a good year for manufacturing in the UK. Production of TV sets rose 30 per cent to 4.3m, with exports at 2.4m, up 14.3 per cent. VCR production rose 5.9 per cent to 1.8m, exports at 1.2m rising 20 per cent.

SATELLITE TV

The growing use of 'unauthorised' cards to decode its transmissions has led BSkyB to launch a new type of card, called Period 9. According to market research company GfK there are at present 2.5m satellite installations in the UK. Because of the churn effect – the number of installations that are removed or cease to be used – it's difficult to arrive at a precise figure. GfK estimate that 200,000 homes stopped using satellite in 1993, representing a ten per cent 'drop-out' level.

Three United Artists cable TV channels – The Parliamentary Channel, The Learning Channel and Wire TV – are now being distributed via transponder 62 on Intelsat 601 using digital video compression. NTL's System 2000 video compression equipment enables United Artists to distribute four channels using the 36MHz bandwidth of a single transponder. UAP is also using the equipment to distribute the Discovery and Bravo channels via Astra 1C. NTL has delivered over a hundred encoders for its video compression systems worldwide, conforming to enhanced MPEG-1 standards. The company has demonstrated full MPEG-2 encoding/decoding and expects to have on the market complete end-to-end systems that comply with the final standard later this year.

INTERACTIVE TV

Philips Consumer Electronics, the US TV manufacturer Zenith Electronics and Compression Labs, a specialist in video-conferencing technology, are to develop and market technology for interactive TV services. They will be providing set-top boxes, for both digital and analogue networks, to enable cable TV and telecoms operators to deliver a wide range of options such as video-on-demand, video games and home shopping.

Microsoft has developed a software system called Tiger to enable inexpensive microcomputer systems to be used to

deliver interactive TV services. The 'media server' system developed by Microsoft in collaboration with Compaq Computer and Intel is claimed to provide cable TV and telephone companies with interactive TV technology at a fraction of the cost of that available from competitors. The company says that with the right software it's not necessary to use high-power computers for VOD and similar services.

General Instrument and Scala Inc. are developing an interactive programming guide (IPG) to enable satellite TV viewers to navigate simply and quickly through the increasing number of channels available. It will be introduced with the US Primestar service next summer (1995). To provide IPG, GI will incorporate Scala's multimedia software in a customised microprocessor. IPG will become standard with all GI satellite TV receivers. By using IPG, viewers will be able to browse through current and future programming by date, channel or category, and will be able to order choices in much the same way that movies can be obtained from pay-per-view providers.

Sega is launching cable TV games-on-demand services in the USA and Japan. The US Sega Channel will be a joint venture with TCI and Time Warner, two of the largest cable TV operators there. Sega will charge a monthly fee of ¥3,000 (about \$30) in Japan: this will cover the rent of a special cartridge that plugs into the Sega video games machine and enable the user to play the games available as many times as wished. The US service is to be priced in line with premium cable TV channel services, which typically cost about \$15 a month. New games cartridges typically sell at around \$55 in the USA.

BUSINESS NEWS

Japan's leading consumer electronics companies have been reporting poor results for the last financial year, blaming weak demand and the high yen exchange rate. Matsushita Electric reported a fall in pre-tax profits for the third year running – sales fell six per cent and pre-tax profits 21 per cent. Sony's sales fell by 6.5 per cent and operating profits by 21 per cent, though pre-tax profits rose ten per cent because of foreign exchange gains and lower costs. Sony says that sales of new products, such as car navigation systems and MiniDisc players, fared well though sales of video equipment fell by 19 per cent. Sony's film company put in a poor performance while Matsushita's entertainment revenues, including sales from MCA, declined in yen terms. JVC, Pioneer and Kenwood are others that have experienced a poor year.

Japanese woes have extended to its famed games companies. Sega has suffered its first profits fall in twelve years. Turnover improved by two per cent but pre-tax profits fell by 23 per cent. Nintendo's sales in the year to March fell 24 per cent while its pre-tax profits fell by 44 per cent.

Alba plc is to buy Goodmans Industries for a maximum of £3.6m in shares and cash. The Goodmans brand and product range will be maintained by Alba, whose other brands include Bush, Harvard and Hinari. Goodmans, once famed as a loud-speaker manufacturer, nowadays specialises in in-car entertainment and domestic audio and visual products – it ranks first in the UK home karaoke market.

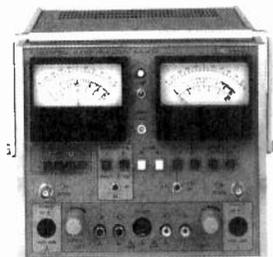
Confusion at Grundig now that, in the UK, we have Grundig Satellite Communications and Grundig International Ltd., which operate separately. Grundig Satellite Communications is a joint venture between Gooding Consumer Electronics and Grundig AG, Germany. The idea at present is that GI will sell through its Prestige Centre account holders while GSC will sell to all other outlets. A new range of Grundig-brand colour sets is to be manufactured by Gooding in France. GI Ltd. has made a loss for the last ten years. Spares ordering could well become a problem.



ELECTRONIC TEST EQUIPMENT

Audio - Video- Television - Satellite TV - Telecommunications

The manufacturer who cares about quality & features rather than being lowest in price !



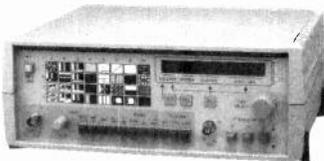
Audio Analyser Model AA-930

Multi-function meter. Measures distortion, wow & flutter, stereo power, signal levels in & out; generates audio test signals. Features include large clearly marked analogue meters. Performs the work of many individual instruments. £ 490

Television Pattern Generator Model GV-698/11

32 patterns, 32 internal memories. PAL/NTSC/SECAM standards, with I, B, G, H, M, N, D & K, NICAM, teletext all in one instrument.

Optional on screen logotype. (Other pattern generators available from £ 210). £ 1428



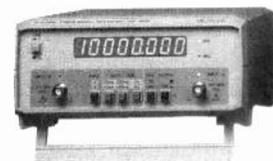
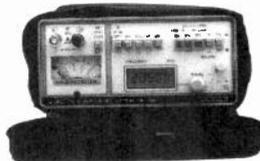
Television Pattern Generator Model GV-298

Compact high performance generator, RF and video outputs. Frequency range same as GV-698/11, 37 to 865 MHz. Circle pattern included. £ 433



TV & Satellite Level Meter Model MC-360

Ideal instrument for the professional installer of FM/TV aerials and satellite TV dishes. Covers 48 to 856 MHz and 950 to 2050 MHz. Lightweight, compact and rechargeable battery operated. £ 654

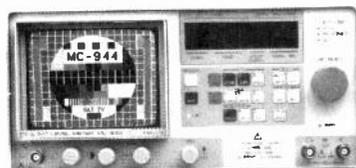


Frequency counters



Models FD-250 & FD-252

FD-250 covers 20 Hz to 160 MHz and FD-252 covers same, plus 100 MHz to 2.4 GHz. Large L.E.D. display. Wide performance at low cost. £ 153 & £ 206



TV & Satellite Level Meter Model MC-944

This meter has everything for the top flight installer of aerials, dishes, CCTV, MATV, SMATV and other systems. Features include TV monitor, spectrum analyser, sync pulse, teletext, printer output, 99 memories, tuneable audio subcarriers, etc. Full autocorrection for superb, unequalled accuracy! RS-232 as standard. £ 1895



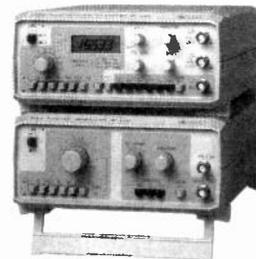
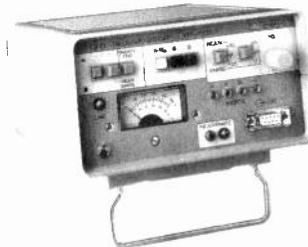
Low Distortion Generator

Low Frequency Model GB-212

20 Hz to 200 kHz, harmonic distortion 0.02 % maximum over audio band. Frequency counter resolution as high as 0.1 Hz. 600 ohms impedance. Output level attenuation range 80 dB, with analogue meter for setting accuracy. Excellent output level flatness. £ 219

Function Generators Models GF-230 & GF-232

Two versions available: 0.1 Hz to 1 MHz and 0.2 Hz to 2 MHz. Producing sine, triangular and square waveforms, with variable symmetry. Excellent performance. £ 153 & £ 208

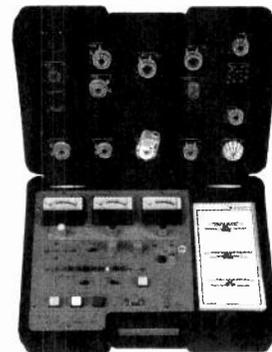


CRT Rejuvenator Model RT-501 B

An essential tool for every TV workshop. Promax have made many thousands. Supplied complete with a set of base adaptors. £ 235

CRT Rejuvenator Model TA-903

Similar to TA-901, but has three meters to monitor cathode current. Special technique allows repeated rejuvenation of CRT. Supplied in attache style case, for easy field and workshop use. £ 498

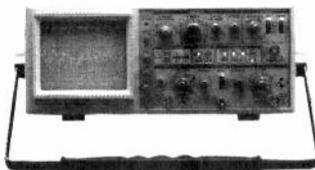
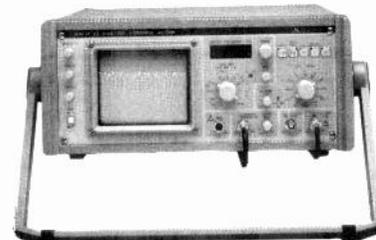


TV/FM Level Meter Model MC-160 B

The aerial installers best friend. Calibrated for accurate signal level measurements. Digital frequency display ensures correct signal selection and identification. Built-in demodulator for easy station ident, and audible tone for easy positioning. This meter is light in weight, but has outstanding technical features. £ 354

R.F. Spectrum Analyser Model AE-566

1 to 1000 MHz, with 950 to 1750 MHz option. Built-in tracking generator. Offers spanwidths from 1 MHz to 1000 MHz. Includes normalizer. This analyser is ideal for production and educational applications, as well as R+D. £ 2800



Oscilloscopes

We are able to supply a complete range of oscilloscopes. These include both analog and digital types, covering bandwidths of 20 MHz to 100 MHz. We are able to prepare quotations for a specified quantity.



The company has been producing test equipment in Spain for over thirty years, earning a strong reputation for excellent engineering, quality performance at budget prices. The equipment is supported by Alban Electronics from their St Albans facility. These products are suitable for only professional and educational applications and enquiries.



Prices shown exclude VAT, but includes UK delivery. Most items available for immediate despatch.



ALBAN ELECTRONICS LIMITED
4U - St Albans Enterprise Centre - Long Spring
Porters Wood - St Albans - Hertfordshire - AL3 6EN
Tel: 0727 832266 - Fax: 0727 810546

Ferguson Service Briefs

TV CHASSIS

IKC2 Chassis

Failure to come out of standby: Because of the complex nature of the overload protection, faults in various areas can lead to removal of the line drive, the set tripping to the standby condition. Here are some examples: collector-emitter leakage in TV01 (BC558C) in the safety circuit, the 4.7V zener diode DP55 in the h.t. error sensing stage being open-circuit, and a defective TL082 field drive chip IF01 (the field output thyristor TF16 was being driven heavily throughout the field scan period) have all been responsible for this symptom.

ICC5 Chassis

The EW modulator coil LG11 is a problem area with this chassis. Poor wire insulation causes flashovers and destruction of the TDA4950 control/driver chip IG01. Check all components in the EW modulator area before switching on. Failure of the flyback tuning capacitor CL48 is not uncommon. If it goes short-circuit it will destroy the chopper transistor TP24 instantly. With some sets it can burn up because of dry-joints, causing damage to the main PCB. Its value varies with different tubes/models. The following is a specification summary, with the model number first and the part number last:

51K4	7.5nF, 1.5kV	43461900
51K5, 51K7	11nF, 1.6kV	43324400
51L3, 51L7	13.1nF, 1.5kV	43324700
59K4	11nF, 1.6kV	43324400
59K5/K7/L7	13.1nF, 1.5kV	43324700
59M2	10.5nF, 1.5kV	C5105AA415WA09
59M5	12.5nF, 1.6kV	43430500
66M3	11nF, 1.6kV	43324400
68K4	13.1nF, 1.6kV	43324700
68M5	12.4nF, 1.5kV	43430500
B78NT	12.4nF, 1.6kV	10361100

Audible whistling from the back of the cabinet is caused by ferrite beads on the leads of power devices (glue with coil dope etc.) and wound components in the line timebase (dope will provide a cure).

A modification kit is available to prevent sound rattling with Soundline cabinets.

The following is a brief faults summary for this chassis:

Dead set: Broken print between DL52 and DL18.

Dead set, no standby: Check RP42 and DL52 as necessary.

Dead set but h.t. (V2 supply) o.k.: R42 is probably open-circuit because the BC639 line driver transistor TL29 is leaky.

Tripping: Possible causes are the line/field output trans-

former LL53, the MC7805 5V regulator IR81, CP29 (47nF), DL55 (BA157) going open-circuit and the 5V regulator on the text panel (TV09 and associated components).

Tripping at switch-on: IL14 (TEA2029C) or CL21 (1 μ F) could be defective or DL21 (field output thyristor) open-circuit.

Intermittent tripping: CL48 (see above).

Trips after warming up for a few minutes: Zener diode DL18 (ZDP36) or DL25 (ZDP10) in the trip circuit has leakage that increases with temperature.

Field collapse: RF01 (3M Ω) is probably open-circuit.

Line tearing: Replace CL16 (3.3nF).

No vertical text lock: Replace IL14 (TEA2029C).

Some text pages not available: Replace IV01.

Sound plop at switch-on (Model 68K4): Add a 47k Ω resistor between pins 13 and 16 of IS08.

ICC6 Chassis

Wavering verticals can be experienced with some prerecorded tapes. The basic cause of the problem is that some software houses use a copyright protection system, called MacroVision, that inserts peak white pulses on blank lines during the field flyback period. These lead another VCR to think that the video input level is high: the a.g.c. system then reduces the record channel gain with the result that the recording is of very poor quality. Unfortunately the peak white pulses can upset the a.g.c. system in some TV chassis. There was a problem with the TX98 chassis (Model 51P7). Modifications introduced to cure the fault with the ICC6 chassis are as follows: ensure that CV66 is 8.2nF, RV64 12k Ω and RV66 15k Ω . The value of CV66 is critical.

ICC7 Chassis

Dead set, mains fuse FP01 open-circuit: Check the chopper transistor TP29 and h.t. rectifier DP50. Can also be caused by a faulty PH9135 degaussing thermistor (RP05) – in this case the fuse failure may be intermittent to start with.

Dead set: Ensure that start-up voltages are present at pins 15 and 16 of IP01 (TEA2261). RP62 (0.1 Ω) could be open-circuit, DL17 (1N4148) short-circuit or the field output chip IF01 (TDA8178F) faulty.

Dead set, standby lamp on: No line drive from IV01 (TA8659/CN).

Dead or tripping: Check whether DF16 (BA157) in the field output stage or the line driver transistor TL17 (BSR51) is short-circuit.

Stuck in standby: TR76 (BC558B) faulty.

Failure to start up from cold: CV01 (220 μ F) in the protection circuit low in value.

Field collapse: Check RP62 (0.1 Ω), DF16 (BA157) and IF01 (TDA8178F).

Field foldover: DL09 or DF16 (both type BA157) could be leaky or IF01 (TDA8178F) faulty.

No sync: CV37 (2.2 μ F) open-circuit.

Blank raster (no video): DL42 in the pulse feed to pin 35 of IV01 short-circuit.

ICC8 Chassis

This is similar to the ICC7 chassis and shares some fault patterns. Here are some possibilities:

Failure to start up: TV02 short-circuit.

Intermittently dead: CP55 faulty.

Tripping: DP55 short-circuit.

Trips after about three minutes: CP57 faulty – leak increases with temperature.

Flyback lines: DR61 short-circuit.

High text brightness with shifted text: Check TP03 and TP04.

No sound: CM08 defective.

Clicks with Nicam: IR01 defective.

Poor or popping Nicam: Change the i.f. module.

TX80 Chassis

Dead set: Check whether DP12 (BA157) is short-circuit or RP17 (9.1k Ω , 9W) open-circuit.

Stuck in standby: RP01 (27k Ω , 3W) and/or RP36 (75k Ω , 2W) high in value.

No colour: CC08 (10nF) could be open-circuit, CC12 (39nF) short-circuit or IL01 (M52038SP) faulty.

Intermittent red picture: Check track between RV110 and TV101.

TX90E Chassis

Tripping: Replace IL01.

Low h.t.: Check R206, R207, R211 and R212.

Whistling from power supply: RP12 high in value.

Whistling from LOPT: Reorientate RL27 and DL06.

Incorrect line frequency: Check R225-R229.

Ragged verticals: Check whether C189 is open-circuit.

Field collapse: IL01 defective.

Flyback lines: Check RL10, JL15, IL01.

Failure to tune: C106 faulty.

No video: RS32's leadout wire shorted to adjacent screening can.

Intermittent signals: Faulty i.f. module.

No blue drive: IV01 defective.

Hum on sound in standby: Change the value of CS02 to 10 μ F.

VCRs

Models FV37H, FV46T, FV57H, FV58T

A fault condition in the encoder slide switch can cause intermittent mechanical functions and possible damage to other items. Symptoms are: no playback, eject, loading or unloading; no capstan or drum servo control; slack tape around guide rollers after cassette loading; the machine enters the stop mode whenever time-mode is requested, after which the machine powers down to standby. For correct operation the encoder slide switch (which has been redesigned), the half-loading gear assembly and the control cam should be replaced. There are new part numbers for all these items, as follows:

Control cam PQ20822-2-7.

Half-loading gear assembly PQ43570A-2

Encoder slide switch PU60622-1-2 (Models FV31R, FV37H, FV46D), PU60973-1-1 (Models FV45LX, FV46T, FV47S), PU61247-1-1 (Models FV57H and FV58T).

Note that this series of models is based on the JVC HRD520 etc.

Models FV41R, FV42L, FV50B, FV51R, FV52L, FV60B

To cure random fuse blowing change the value of CP01 from 100nF to 4.7nF.

Model FV52L

To prevent microcontroller chip (IT01) lock out, add a 22k Ω , 0.25W resistor and a BC547 transistor on the print side of the PCB, with suitable insulation. One end of the resistor goes to pin 12 of IT01, the other end to the transistor's base. Connect the transistor's emitter to chassis and its collector to pin 8 of IT01.

Models FV61-FV70B

If channel search doesn't stop when a channel has been tuned in but skips to the next channel and continues to repeat this skipping, change RA01 from 390k Ω to 470k Ω .

Models FV61LV, FV62LV, FV67HV, FV68TX

To improve the reliability of the bias/erase oscillator, change

LL01 to part no. 20018560, CL04 to 2.7nF (part no. 20136340), CL07 to 56nF, 5% (part no. 20024150) and RL02 to 47 Ω , 5% (part no. 41056002). This supersedes previous information. It's best to solder the connections to the full erase head, removing the plug and socket connections.

R2000 Cat 1 Models

The Telefunken IC-SP TFMO4033N IR receiver module is the correct type for use with key/display PCB type KDB/FCB R2000 B/A index SM. Damage will occur if an attempt is made to use the Sharp GPIU583X module.

R2000 Cat 2 Models

Failure to detect hi-fi audio with prerecorded tapes can be cured by increasing the drop-out detector sensitivity setting via PL26. Proceed as follows: connect a voltmeter to pin 5 of BL35; inject a 1.4MHz, 37mV r.m.s. (104mV p-p) signal at pin 5 of BL05; adjust PL26 for a reading of 3.6V \pm 0.1V d.c. on the meter.

Occasional interference after switching from mono audio to Nicam stereo can be cured by changing capacitors CM50 and CM51 in the 18.432MHz oscillator circuit from 4.7pF to 5.6pF. These are surface-mounted components, part no. 50876240.

Because of a software bug the 9th and 19th day of February cannot be set during timer programming in a non-leap year. There's a way round this. To set the timer programming for the above days set the timer to any month other than February, then set the date (9th or 19th) and finally change the month back to February!

Models in this range include the FV67H, FV68TX etc.

R2000 and R3000 Ranges

The u.h.f. modulator adjustment range with these models was changed to chs. 51-66. To adjust the modulator using the remote control handset, proceed as follows:

(1) Press and hold the green or B button on the handset for at least eight seconds. The fluorescent display will then show ch. 60.

(2) Press the = or - button with R3000 models, the + button with R2000 models, to select the channel that has the least effect on off-air signals.

(3) Fine tune the modulator as necessary by pressing the handset's auto-track button, then the + or - button to increase or decrease the frequency

(4) Press the exit or E button to store the setting and return to normal operation.

In some areas, for example Oxford, Selkirk, Beacon Hill and Mendip, patterning may still be experienced. When this happens the owner may not be able to use the mix mode of r.f. output. It will be necessary to select the switched mode, which enables the r.f. modulator to be switched off whilst off-air channels are being watched on the TV set. The VCRs are supplied set to the mix mode but can be changed to the switched mode as follows.

R2000 models: Press and hold the r.f. out button the VCR's

front panel for at least eight seconds. The switched mode is now engaged. 'TV' will be displayed in the fluorescent panel during the VCR's stop mode, 'VCR' being displayed during playback.

R3000 models: Press and hold the green or B button on the remote control handset for at least eight seconds. Press the VCR/TV button to select the mix or switched mode. Press exit to store the setting and return to normal operation.

When setting for the mix mode a small square is lit in the fluorescent display above the channel number. No additional key presses are required for normal viewing. The alternative mode can be forced by pressing the remote control unit's VCR/TV button.

Better picture and sound quality are obtained when the VCR is connected to the TV set via the scart socket. A second scart socket is provided for connection to a satellite or cable receiver.

R3000 Models

Lack of a full-page blue background may be experienced when the on-screen display is switched to the full-page mode. This is frequently replaced by a noisy picture. To overcome this problem replace crystal QA11 with a new type, part no. 20180860, and change the associated tuning capacitors CA11 and CA12 from 27pF to 8.2pF (part no. 11046070).

SATELLITE TV

Model SRD5

Timer gain: There have been reports of receivers gaining up to 45 seconds a week. To cure this, change C32 from 33pF to 47pF.

On-screen graphics: Problems with the 17.73447MHz crystal X2 can cause problems with the on-screen graphics. The cure is to fit new crystal part no. 170-0177341 and change both C126 and C127 to 12pF, 5%, 50V (part no. 40429090).

TV interference: Patterning on some terrestrial TV channels can be caused by harmonics radiated by the 14MHz VideoCrypt clock. Fitting good-quality r.f. leads should cure this. If necessary the following modifications can be carried out:

Fit a Gold air-wound 200mH coil in place of the wire link in position L52.

Fit a Gold air-wound 200mH coil in place of the 100 Ω resistor in position L53.

Remove C250 (surface-mounted type).

Change C340 to 27pF (surface mounted).

Fit a 27pF surface-mounted capacitor in position C341.

A further reduction in the level of interference can be achieved by earthing the u.h.f. modulator's can to the receiver's chassis. This can be done by soldering braid to the can and trapping it between the can and the rear metal-work - with some receivers it may be necessary to scrape paint from the inside of the back panel to achieve good electrical connection.

MANOR SUPPLIES

MKV PAL COLOUR TEST GENERATOR
FOR DOMESTIC TV & VCR.

TEST
DEMONSTRATIONS
AT 172
WEST END LANE



- ★ 40 different patterns and variations.
- ★ Fully interlaced sync pulses with correct picture blanking
- ★ EBU colour bars, BBC colour bars, whole rasters & split bars (specially useful for VCR service), white, yellow, cyan, green, magenta, red, blue and black
- ★ Chequerboard
- ★ Mono outputs with border castellations, cross hatch, grey scale, vertical lines, horizontal lines and dots. UHF modulator output plugs straight into receiver aerial socket.
- ★ Additional video output for CCTV & VCR.
- ★ Facilities for sound output.
- ★ Easy to build kit, standard parts. Only 2 adjustments. No special test equipment required.
- ★ Mains operated with stabilised power supply.
- ★ All kits fully guaranteed with back-up service.
- ★ Also available with VHF Modulator.

Price of Kit **£79.00**
Case (10" x 6" x 2 1/2") app **£19.00**
Optional Sound Module (6MHz or 5.5MHz) **£5.90**
Built & Tested in Case including Sound Module **£129.00**
Post/Packing £4.50
Add VAT 17.5% TO ALL PRICES

PAL COLOUR BAR GENERATOR (Mk4)

- ★ Output at UHF, applied to receiver aerial socket.
- ★ In addition to colour bars R-Y, B-Y etc.
- ★ Cross-hatch, grey scale, peak white and black level.
- ★ Push button controls, battery or mains operated.
- ★ Simple design, only five i.c.s on colour bar P.C.B.
- ★ Backup service available.

PRICE OF MK4 COLOUR BAR GENERATOR KIT **£39.00. CASE £5.80. BATT HOLDERS £4.20**
MAINS SUPPLY KIT **£5.80**
(Combined P&P £4.50)

VHF MODULATOR (CH 1 to 4) FOR OVERSEAS **£6.80.**
EASILY ADAPTED FOR VIDEO OUTPUT & C.C.T.V.

ADD
VAT
17.5%

LINE OUTPUT TRANSFORMER TESTER

- ★ Service Aid.
- ★ Saves time and money.
- ★ Checks short turns.
- ★ Simple to use.
- ★ Reliable.
- ★ Battery operated.
- ★ Pocket size.

PRICE **£24.00**
POST/PACKING **£2.50**

ADD
VAT
17.5%

INFRA RED REMOTE CONTROL TESTER

- ★ Pocket size.
- ★ LED + audible indication.
- ★ Simple to use.

PRICE **£20.00**
POST/PACKING **£2.50**

KITS AND PROJECTS

SAW IF AND TUNER UNIT complete and tested for video & audio outputs **£28.50** p.p. **£1.80.**
PAL DECODER KIT (Video to RGB) for Monitors **£27.00** p.p. **£1.80.**
PAL ENCODER KIT (RGB to Video) **£20.00** p.p. **£1.80.**
CRT TESTER & REACTIVATOR KIT For Colour & Mono complete with Case, Panel Meter Indicator - can be adapted for latest CRTs **£45.00** p.p. **£4.50.**

TV & VIDEO SPARES

REMOTE CONTROLS

Replacement for: Ferguson, Hitachi, Philips, Panasonic, Grundig, ITC, Sony, Saisho, Granada, Saisho + many others

Phone for make and model no.

IC SELECTION

140N487	£15.80	SAF1032	£4.50	TA7680AP	£5.80	TDA2581	£6.80	TDA4600	£3.85
AN5521	£3.80	SAF1039	£2.20	TA7681P	£7.80	TDA2582	£2.80	TDA4601	£2.80
AN5900	£2.20	SL470471	£4.00	TA7698P	£6.80	TDA2593	£1.50	TDA4605	£2.80
BA6209	£3.80	SL486	£3.20	TA8739P	£4.50	TDA2594	£3.80	TDA4610	£6.80
BA61943	£3.80	SL490	£2.80	TBA1205	£1.20	TDA2595	£4.80	TDA4950	£1.60
BA6229	£3.80	SL1430	£2.40	TBA750	£2.20	TDA2600	£6.80	TDA5510	£12.50
BA6238A	£2.80	SL1432	£2.40	TBA920	£2.80	TDA2611A	£1.90	TDA5850	£2.80
BA6239	£3.80	SN76226D	£1.80	TBA950	£2.20	TDA2640	£3.20	TDA7052	£2.50
CXCFR007	£14.40	SN76705	£9.80	TBA2000	£1.80	TDA2653A	£5.80	TDA8153	£7.80
CXK62	£4.80	STK5322	£21.80	TC A270	£1.80	TDA2654	£5.70	TDA8170	£3.00
HA11211	£2.80	STK5325	£6.80	TC A800	£6.80	TDA2655B	£16.60	TDA8172	£12.95
HA11423	£3.80	STK5326	£6.80	TD6316AP	£4.80	TDA2670	£3.20	TDA8175	£2.50
HA5138SP	£21.50	STK5332	£6.80	TD A1035T	£2.40	TDA2680	£3.80	TDA8190 KIT	£2.20
LA4445	£3.80	STR5333	£8.80	TD A1037	£1.90	TDA2690	£3.80	TDA8190	£3.80
LA4520	£3.80	STK5338	£6.80	TD A1044	£2.90	TDA2780	£6.80	TDA8305	£9.80
LA7800	£1.80	STK5337	£7.00	TD A1060	£3.80	TDA3190	£4.20	TDA8341	£4.20
LA7520	£2.80	STK5339	£6.80	TD A1082	£4.80	TDA3301	£6.80	TDA8372A	£8.40
LA7801	£3.50	STR5342	£4.80	TD A1170S	£4.80	TDA3303	£19.80	TDA9403	£3.80
LA7820	£3.80	STK5372H	£7.80	TD A1180	£2.20	TDA3330	£12.50	TDA9503	£3.80
LA7830	£2.80	STK5392	£6.80	TD A1185A	£3.20	TDA3500	£6.80	TDA9513	£4.80
M104B1	£6.80	STK5421	£6.80	TD A1190Z	£2.20	TDA3505	£4.50	TEA1014	£3.50
M293B1	£15.80	STK5422	£7.80	TD A1200	£5.70	TDA3560	£5.80	TEA1029	£5.80
M490BB1	£16.80	STK5471	£6.50	TD A1512	£3.20	TDA3540	£2.50	TEA1039	£2.80
M491BB1	£9.80	STK5481	£5.80	TD A1515	£4.50	TDA3541	£3.50	TEA2018A	£2.20
M494	£9.80	STK5482	£5.80	TD A1524	£6.80	TDA3561A	£5.80	TEA2026	£2.80
M5202P	£5.80	STK5482	£5.80	TD A1524	£2.80	TDA3562A	£5.80	TEA2029	£5.80
MDA2062	£3.80	STK6962	£3.80	TD A1701	£3.80	TDA3565	£3.80	TEA2164	£3.95
ML237	£3.80	STK7308	£6.80	TD A1770A	£9.20	TDA3566	£5.80	TEA2165A	£6.80
ML926	£4.80	STK7348	£10.80	TD A1870	£6.80	TDA3571	£4.80	TEA2166	£14.80
SA45425	£15.80	STR5125	£4.80	TD A2004	£2.80	TDA3676B	£9.80	TMS100021	£6.80
SA41024	£5.80	STR441	£15.80	TD A1908	£2.80	TDA3640	£5.20	TMP47432AP	£6.80
SA41025	£5.80	STR450	£11.40	TD A1940	£3.20	TDA3650	£9.80	K188	£21.95
SA41124	£3.50	STR451	£18.80	TD A1950	£3.50	TDA3651	£4.20	TMP47432AP	£6.80
SA45000	£6.80	STR5404	£14.80	TD A2270	£3.80	TDA3652A	£7.80	UC3844	£15.50
SA41251	£6.40	STR4090	£13.50	TD A2006	£2.80	TDA3653B	£3.20	TMP47434N	£15.80
SA41293 02	£8.80	STR4211	£6.80	TD A2009A	£2.80	TDA3654	£3.20	3555	£16.80
SA41293 03	£8.80	STR5412	£9.80	TD A2030	£2.80	TDA3810	£5.50	TMP47434N	£15.80
SA45000	£6.80	STR4090	£13.50	TD A2030A	£2.80	TDA4420	£2.20	359	£15.80
SA45010	£5.80	STR50020	£6.80	TD A2040	£7.80	TDA4426	£3.20	UAU2000	£8.50
SA45012	£5.80	STR50103	£5.80	TD A2050	£4.80	TDA4427	£3.20	U2829B	£6.50
SA45020	£5.80	STR50115	£7.50	TD A2150	£3.20	TDA4442	£2.80	U3668	£14.80
SA45030	£6.80	STR5404	£14.80	TD A2577A	£4.80	TDA4443	£7.80	UC3844	£2.50
SA45040	£6.80	STR55041	£18.50	TD A2540	£2.20	TDA4500	£5.80	UPC1363C	£5.80
SA45050	£11.80	STR58041	£6.80	TD A2548	£5.80	TDA4501	£7.80	UPC1363CA	£5.80
SA45231	£7.80	STR59941	£6.80	TD A2576A	£7.80	TDA4502A	£13.80	UPC1378	£1.90
SA45243	£23.50	STR6020	£7.80	TD A2577A	£4.80	TDA4503	£5.80	UPC1394	£3.80
SA3035	£9.80	STRD4420	£4.80	TD A2578	£3.80	TDA4505	£6.80	UPC1420CA	£12.20
SAB3037	£8.80	STRD6108E	£5.80	TD A2579	£3.80	TDA4555	£9.80	UPC1488	£3.20
								UPD1397C	£4.80

LINE OUTPUT TRANSFORMERS

ALBA CTV14RS	£23.80	PHILIPS K40	£27.50
B&O LX2500, 2800 AT207781	£23.50	PHILIPS 3A	£20.00
BUSH AT20790	£23.50	PHILIPS 3B	£20.00
DECCA/TATUNG 145,146,147 P/N853786	£21.80	PHILIPS CF1	£23.80
FIDELITY ZX2000	£15.50	PHILIPS CP90	£17.80
FIDELITY ZX3000	£14.50	PHILIPS CP110	£32.00
FIDELITY ZX3000 22"	£14.50	PHILIPS GR1AX	£25.90
HINARI C.T. CTS	£14.00	PHILIPS NC3	£22.50
HITACHI CPT1455, 1456, 1476, 24341471	£17.50	SAISHO CT14R, CT141, 3714002	£19.80
HITACHI CPT1446, 1626 2432981	£17.50	SAISHO CT141B, CT142B, 3214009	£34.80
HITACHI CPT1714, 2176, 2178 2434274	£17.50	SONY CBP2144, 2145	£22.80
HITACHI CPT2476, 2478 2434002	£21.80	SONY CTP7132, 7135	£39.80
HITACHI CPT2074, 2274 2433752	£16.80	SOLAVOX 14R19	£16.50
ITT/NOKIA Compact B 110*	£15.00	SOLAVOX 16R19	£16.50
ITT/NOKIA Compact 80, 110*	£14.70	SOLAVOX 20R19	£15.00
ITT/NOKIA Compact 80, 110* FST	£19.80	SOLAVOX 22R19	£15.00
ITT/NOKIA CVC 25	£14.95	SOLAVOX 22S19	£15.00
ITT/NOKIA CVC 800, 801, 803	£16.50	SOLAVOX 22T09	£15.00
ITT/NOKIA CVC1100, Picos	£14.95	SOLAVOX 22T19	£15.00
ITT/NOKIA CVC1150, 1175	£14.95	SONY KV1412	£21.80
ITT/NOKIA CVC1200, 1201, Mini 2	£11.50	SONY KV1440, 1460	£20.00
ITT/NOKIA CVC1204	£11.50	SONY KV1882	£24.80
ITT/NOKIA CVC1210/12/15/17	£15.80	SONY KV2056, 2062	£24.80
ITT/NOKIA Digi 3, 110*	£18.45	SONY KV2092/96	£24.80
ITT/NOKIA Core 90* 4515-03-46	£19.80	SONY KV213RTU	£52.00
ITT/NOKIA Core 110* 4515-03-48	£19.80	SONY KV2252/56, 2752/56, 2762/66 PE3	£29.00
ITT/NOKIA Core 110* FST	£19.95	SONY KV2704	£29.00
LOEWE C9000, Art1, Art T21, Art T28, Contur	£25.90	SONY KV27XRTU	£25.00
T24, T28, Profi T28	£25.90	THORN/FERG TX9	£25.50
LOEWE C9011, Classic M24, S127, S28, Contur	£22.80	THORN/FERG TX10 (Chopper)	£14.00
S124, S127, S128, S24, S28, Profi S28	£22.80	THORN/FERG TX85, 86	£19.80
LOEWE Classic M124, M27, Contur M27	£34.40	THORN/FERG TX89	£25.50
LOEWE Profi M2	£34.40	THORN/FERG TX90 14", T9031, Red Spot	£17.80
LUXOR 5810110 01	£27.60	THORN/FERG TX90 20", T9044, White Spot	£17.80
MATSUI 1440A, 1480A, 3714002	£19.80	THORN/FERG TX100 110" T6033L, Green Spot	£16.00
MATSUI 1420B, 1440B, 3214009	£19.80	THORN/FERG TX100 90" 243892, Yellow Spot	£14.00
MATSUI 1465	£21.80	THORN/FERG TX100 110" FST, T60451, Blue Spot	£16.80
MATSUI 1465	£21.80	THORN/FERG TX100 90" FST, T60451, Blue Spot	£15.00
PANASONIC TLF14520F, TLF14568F	£24.80	THORN/FERG TX100 Chopper Tx	£15.80
PANASONIC TLF14521F	£24.80	THORN/FERG TX100 51P7	£32.00
PANASONIC TLF14586F	£29.00	THORN/FERG ICC5, 44076100	£28.00
PANASONIC TLF14586F	£29.00	THORN/FERG ICC5, 47235901	£21.80
PHILIPS K73	£21.90	THORN/FERG ICC5, 47238700	£18.00
PHILIPS K30	£21.80	THORN/FERG ICC5, 59MS	£28.00
PHILIPS CTX-EIS	£22.50		
PHILIPS K74	£22.50		
PHILIPS ZA	£22.00		

MANY OTHER LOTS IN STOCK, PLEASE PHONE WITH MAKE AND MODEL NUMBER

TRIPLERS EHT MULTIPLIERS

CONTINENTAL UNIVERSAL TVK & BG RANGE (Quote exact no.) **£13.80**
TVK 96-1 **£13.80**
TVK 96-3 **£18.00**
U.K. UNIVERSAL (best quality) **£7.80**

MISCELLANEOUS

MAINS TRANSFORMERS: 6.3 Volts CRT boost **£6.80** p.p. **£1.80**
Mains Isolating 500VA **£51.25** p.p. **£5.25**
455 CRYSTALS for handsets. 4 for **£2.00** p.p. **80p**
DEGAUSSING ROD **£33.75** p.p. **£3.50**
TRANSPARENT VIDEO SERVICE CASSETTE **£6.80** p.p. **£1.80**
TV FAULT FINDING GUIDE **£14.80**
VCR FAULT FINDING GUIDE **£14.80**
HITACHI FRAME MODULE HM 6251, HM6232 **£9.80**
HITACHI THERMISTOR TH902 **£2.85**
FERGUSON TX10 FOCUS UNIT **£8.50** p.p. **£1.80**
PHILIPS BACK UP BATTERY: 2.4V **£3.00**, 1.2V **£2.00** p.p. **90p**

HOW TO ORDER: ADD p&g TO ORDER + VAT 17.5% TO THE TOTAL
PRICES ARE SUBJECT TO CHANGE WITHOUT NOTICE

Telephone 071-794 8751/794 7346
Fax 071-431 5778

MANOR SUPPLIES

172 WEST END LANE, LONDON NW6 1SD

CALLERS WELCOME AT SHOP

Mon-Fri 9.30-6pm - Thurs 9.30-1pm - Sat 9.30-5pm

At The Brown Goods Shows

George Cole

Various venues around London were recently host to the annual Brown Goods Shows. Although some of the biggest names (including Sharp, Mitsubishi, Hitachi and Philips) were missing there were still plenty of new and interesting developments to be seen.

Television

There is little doubt about what the TV feature of 1994 is – Dolby surround sound. Many companies have now followed Toshiba's lead and introduced sets that have this. As a result there were plenty of demonstration room walls shaking to the sound of Terminator 2 and other Hollywood blockbusters. Most of the new surround-sound sets use the Dolby Pro Logic system, an enhanced version that includes a central dialogue speaker and additional electronics for better effects. Toshiba's new Pro Logic sets include the 2539DB, 2939DB and 3339DB (the first two figures indicate the screen size in inches). They also feature a Dolby 3 stereo mode and a phantom mode that manipulates the sound.

Panasonic showed two Pro Logic sets, Models TX25X1DP (25in.) and TX28X1DP (28in.). Sony had 25 and 29in. models, the KVA2542 and KVA2942 respectively. Grundig's Pro Logic sets included the 25in. ST63-760 and 28in. ST72-760; the E72-911 is a 28in. set designed by Porsche, and very nice it looked too. The sets are fitted with Grundig's Megatron tube, which has a silicon oxide anti-glare, anti-static surface. Another new Grundig feature is Megatext, which has a 128-page memory for fast access to all pages. It will be initially introduced on Grundig's 100Hz sets.

Another company with Dolby Pro Logic TV sets was Ferguson, whose 25in. DSF59NX and 28in. DSF68NX models also have an auto-install facility. This tunes in the channels automatically. Other features are PAL, NTSC and SECAM playback compatibility and 16:9 format switching with zoom control. JVC has also entered the surround sound market, though its new models, the 25in. AV25S4 and 28in. AV28S4, have standard Dolby surround sound.

A number of widescreen sets were on display. Toshiba had a whopping 56in. projection set while JVC showed a

model that features its Panorama system. This reduces picture distortion when 4:3 images are expanded to 16:9. But neither company plans to launch widescreen sets in the near future. Sony however has entered this market with the 28in. Model KVV2812. At £1,800 it offers Nicam, a digital comb filter, 100Hz scanning and a Dolby Pro Logic kit.

Toshiba's 21in. 2145DB and 25in. 2545DB are referred to as 'super Nicam' sets, with the Quadryl four-speaker stereo system. The sets have two side-panel speakers plus two 'pop-up' speakers that add a little punch to the sound. I was pleasantly surprised by the results, which are pretty effective.

Sony refers to its new X7 series TV sets as the 'ultimate monitors'. Models KVV2572 (25in.) and KVV2972 (29in.) have Super Trinitron tubes, a Spectrum sound system and plenty of AV sockets at the front and back. The 21in. Model KVV2172 has a Hiblack Trinitron tube.

Ferguson made a point of style/fashion with its Starck-designed sets. These include the 28in. Nicam Model S68N, which certainly stands out on the shelf with its curvy grey cabinet and pinhole pattern. It will be interesting to see how consumers react to it. Gold-Star is also emphasising design. Its series of concept 'Retro TV' sets included the Fashion TV which has a detachable lycra cover: GoldStar says that the cover can be changed in the same way that you change cloths to suit your personality, living room or mood.

Toshiba and Samsung showed combined TV/VCR models that looked very similar. The 14in. Samsung Model TVP3370 is due to be launched this summer, with 20 and 21in. models to follow. Toshiba hasn't announced dates for its combo units. They looked very good, and nostalgia freaks would love the analogue clock displays for timer setting (anyone recall the Philips N1400 format?!). Another feature is the voice-instruction system: this reminds the user verbally to insert a tape and warns of timer clashes.

Panasonic had on show its 14in. Flat Vision TV set, which costs the equivalent of around £1,700 in Japan. The display technology is similar to that of a c.r.t., but with an electrostatic deflection system for the numerous beams – the screen is divided into a matrix of 10,000 units, each with its own beam. The result is a flatter TV (panel depth is less than

10cm, which compares with 34cm for a 14in. c.r.t.) with good picture quality and a wide viewing angle.

Nokia, showing its latest products at the Cable and Satellite Show, announced that a number of German and Swiss broadcasters including ARD, ZDF, Bayem 3 and SRG will be starting PAL Plus transmissions this year – receivers are to go on sale in these countries at the end of the year. Nokia is also involved in a number of digital TV projects. These include the HD-Divine digital HDTV system and the development of digital set-top receivers that use TV/COM International's NetWORKS digital compression technology.

VCRs

Akai introduced an enhanced version of its Intelligent HQ system, known as Super Intelligent HQ (Super IHQ). The system is designed to improve the playback picture and the hi-fi sound quality. Super IHQ uses a hi-pro GX4 head assembly and various circuitry to reduce video noise and chroma shift. The Hi-fi Auto-track Tuning system varies the current level for optimum sound quality and reduces interference with the video signal. The new PRO GX4-HF head records wider hi-fi tracks for better tracking. Super IHQ is also claimed to improve LP playback: Akai says the picture quality is as good as that of SP recordings made on its previous machines. A number of demonstrations that compared Super IHQ recordings with those made by Panasonic VHS and Super VHS machines were held by Akai. The test images consisted of teletext and still pictures. In most cases the Super IHQ system performance was impressive, but to my eyes the non-Super IHQ images looked better with some material. Machines that feature Super IHQ include Models VSG2200, VSG815 and VSG415. The deck, known as the Quick Servo Drive chassis, goes from stop to play in 0.6sec and rewinds an E180 tape in 120sec. VideoPlus and PDC are included with Akai's latest VCRs.

Digital View Scan (DVS) is an interesting feature of the Sanyo VHR874E. It enables the user to hear snatches of the sound track during picture search, in both the forward and reverse modes. The system works at twice the normal speed: although technical details were scant it seems that the sound signal is

digitised, fed into a memory, chopped up and then fed out. The system works remarkably well, and would be useful for editing or times when you want to run through a recording quickly.

Several new features have been introduced in the latest JVC range, including VideoPlus with add time. This enables users to add an extra few minutes to VideoPlus recordings. All new models have PDC compatibility, either with a built-in decoder or an optional add-on adaptor. Instant ReView makes it easier to find the start of a recorded programme: you simply press a button after which the VCR automatically switches on, rewinds to the beginning of the recording and starts to play back. EasyEdit is a random assemble-edit feature that copies up to eight random scenes on to a second VCR. The HRS5900EK is a new S-VHS recorder that features JVC's ProDIGI technology: this uses a new YC processor chip to reduce circuit size and improve the signal-to-noise performance, a new digital chip for better colour reproduction and a pre-rec amplifier chip for improved sound and picture quality.

JVC also gave many people their first glimpse of the W-VHS format, which is designed to operate with the Japanese Hi-Vision analogue HDTV system. The VCR concerned plays and records in the VHS, S-VHS and W-VHS modes: metal tape is used for the HDTV recordings. W-VHS pictures were displayed on a widescreen TV set and looked really sharp. We're unlikely to see W-VHS in Europe however. Even the Japanese are having second thoughts about Hi-Vision as the rest of the world moves towards digital TV.

GoldStar has introduced three new models, the RF900i, QR504i and RQ304i, with Intellistart: they automatically set the clock and tune the channels. This is similar to Amstrad's Auto-Start system. Ferguson's Model FV88HVX incorporates a version called Auto Install. It also has a Starck design, satellite and cable compatibility for VideoPlus recordings, a Nicam decoder and NTSC playback. Grundig's GV469M is a multi-standard model that can handle PAL, ME SECAM, SECAM L and NTSC tapes: it has six heads, Nicam sound and a jog/shuttle dial.

Samsung's SV300W is a multi-standard conversion deck that's intended for the professional, business and educational markets. The Sony EVS9000 is a top-end Hi-8 deck that includes a time-code recording system, PCM digital sound, a timebase corrector and a Nicam decoder. Toshiba's latest range

of VCRs incorporates an automatic fault diagnosis system.

Camcorders

Although camcorder sales have been disappointing of late, a variety of new models were on display. JVC again showed the GRSZ1 Super VHS model that has a multi-function lens offering ultra-wide angle, Microscope, Tele-Macro and Wide-Macro shooting. It also has an 11 times optical zoom and 22 times digital zoom. Other features include a 1/3in., 470,000 pixel CCD imager, digital effects, a colour viewfinder with an 0.7in., 100,000-pixel TFT active-matrix LCD screen and multi-brand remote control. JVC has introduced an auto-pause feature on its GRAX40EK and GRAX60EK VHS-C models: an internal gyro sensor detects when the camcorder is pointed towards the ground, automatically switching it off to prevent unwanted recordings of one's feet. A retractable auto light pops up and switches on automatically when the light falls below a certain level.

The Panasonic NVR10B VHS-C camcorder also has an anti-ground shooting system, while the NVR30B has hi-fi stereo sound in addition.

Sony models on show included the CCD-TR3 which uses a lithium-ion battery and has an electronic steady-shot system, time-code recording and home-base station for easy playback and editing. The CCD-SC5 Handcam Vision has a built-in 3in. colour LCD screen.

Multimedia

Panasonic showed its REAL 3DO multimedia machine, which plays 3DO, Photo CD and audio CDs: there are plans to introduce an add-on digital cartridge so that Video CDs can be played. It uses a 32-bit, 12MHz ARM60 RISC processor and has 3Mbytes of RAM, 512Kbytes of ROM, custom graphics chips and a double-speed CD-ROM drive. The model on show was an NTSC version. Panasonic plans to launch a PAL version in October with a price of "under £500".

Technics plans to launch Video CD this October. Its SCVC10 Video CD mini hi-fi system, which was being shown, includes a tape deck, tuner, Video CD deck, remote control and speakers. The system can handle audio CD, CD+G, Karaoke and Video CDs. A number of Video CD titles were being demonstrated. While many looked as good as VHS, on some material pixellation and mosaic effects were noticeable. But Video CD is an exciting prospect. Technics expects worldwide Video CD

hardware sales to rise from 0.3 million this year to 17 million by 1998.

LaserDisc isn't dead. Sony showed the MDP850 player which is compatible with audio CD and PAL and NTSC LDs in CAV and CLV formats. The machine has an auto-reverse system.

Satellite

Sony's 25in. KVG2515 and 29in. KVG2915 have built-in satellite tuners with a VideoCrypt decoder. The tuner is Astra 1D compatible. Other features include a Nicam decoder, Super Trinitron tube and Fastext. Sony is launching 63cm and 80cm dishes.

JVC showed its TUAD1000 satellite receiver system which has a 200-channel IRD, stereo sound, ANRS noise reduction and three scart sockets. It's available with a 63cm or 80cm dish. Toshiba has re-entered the satellite business with the TS540 receiver. This has a built-in VideoCrypt decoder, a twin-card slot, two LNB inputs and Wegener Panda stereo. The Panasonic TUSD450DP receiver includes Dolby Pro Logic sound.

Amstrad's new range of enhanced wideband receivers, Models SRD540, SRD545 and SRD550, have a 700MHz-2.05GHz i.f. bandwidth. This makes them Astra 1D compatible without need to change or adjust the existing LNB. For owners of previous models Amstrad is offering an Astra 1D upgrade unit for about £50.

Audio

Sony and JVC demonstrated second-generation MiniDisc player/recorders. They looked very good but at around £400-£500 each MiniDisc is still not a mass-market format. Technics showed a mini DCC hi-fi system, Model SCCH909D, which is expected to sell at about £400.

JVC and Sony both had 100-disc CD jukeboxes, while Sanyo's CDP60 portable CD player included a digital anti-shock system that uses a ten-second buffer memory.

Akai was very proud of its RX890 'Virtual Room' simulator system, which is priced at around £800. It uses digital signal processing to create the best listening conditions. The user feeds various information into the system, e.g. room size and speaker positioning. The RX890 then alters the phase, equalisation, delay and reverberation characteristics to obtain optimum sound quality. The system includes an RDS tuner that enables the user to select radio channels by type, e.g. news, classical and rock. No doubt we'll soon see a system that recommends the best station to listen to.

CD Player Repairs

Les Austin

Laser power: to adjust or not adjust, that is the question. Whether 'tis better to follow the manufacturer's instructions, or ignore them and have a twiddle . . . (with apologies to you know who). Some manufacturers sanction adjustment while others forbid it, telling you to replace the laser unit. So what should we do? A poor TV picture may indicate that a new tube is needed, but I'm sure that every one of us has at some time used a booster, obtaining perfect results that have lasted for a significant length of time. Surely then it must be all right to turn up a low-emission laser? But just as with a TV tube, you must be cautious if you don't want to kill it off in one quick go. Clearly the starting point must be sensible measurement. How do we do that?

If you repair many CD players you'll probably have access to a laser power meter. I've found a meter to be very useful – even though an engineer at one manufacturer told me that he never uses his and that I should throw mine away. Where the laser power is specified in the manual, a check on it is obviously the logical thing to do. It's more common to find the power specified with older players: with later machines you usually find that the amplitude of the r.f. eye pattern is specified. With the CDM2 and CDM4 rafoc units Philips recommends the use of a method that measures the current flow through the pick-up diodes. With the DSK9 player however, which uses the CDM4 unit, Hinari tells you to use a laser power meter to carry out adjustment. As mentioned above, some manuals avoid the subject or state that adjustment should not be attempted.

Meters

The laser produces a coherent light beam whose wavelength, in air, is 780nm (7,800 Angstroms if you're over twenty one years). This is at the extreme red end of the visible light spectrum. Measurement of beam power is carried out by directing the beam at a photodetector and noting the resultant current flow. For something in excess of £200 the Leader LPM8000 does this. It has two wavelength settings and a choice of power ranges.

For convenience at home however I use a 'junk-box' device that cost me nothing. It consists of a BPW34 diode

(from an old Grundig remote control receiver module) connected to a meter with an f.s.d. of 100µA. The meter's internal resistance is 975Ω: a 2.2kΩ resistor in parallel gives a good calibration against a Leader LPM8000. The scale is linear, the range being 0-0.35mW. Do you remember the little dental mirror given away with *Television* a few years ago? I removed the mirror disc and mounted the photodiode in its place: it's quite useful for getting to inaccessible lasers (whatever you do, don't look at the beam directly). If you don't have a BPW34 I think you'll get identical results by using the more common BPW41. It has a narrower spectral response but a similar output at the laser frequency (as far as I can deduce from my weighty data book). I can't claim BSI approval for this power meter, but I do find it very useful – and it imposes no strain on the bank balance.

Laser Power Control

Before we look at typical measurement methods and results we should mention the basic method of laser power control. When a current that exceeds the threshold level flows through an active laser a beam is emitted from one side of the semiconductor sandwich. This is the beam that eventually reaches the disc. Another beam is emitted from the other side of the sandwich. This shines on a photodiode that's used to monitor the intensity of the beam. The output from this photodiode is coupled to an operational amplifier which is part of a feedback control system that maintains a constant beam output by adjusting the supply to the laser. Laser action is inherently unstable, especially with regard to temperature: without this tight control loop there would be thermal runaway and destruction of the laser. Perhaps this is why some manuals are reluctant to suggest adjustment.

Measurement and Adjustment

Before you measure the beam power it's important to clean the lens. Sony recommends the use of a cotton-wool bud moistened with isopropyl alcohol. A gentle spiral motion is suggested,

moving the bud from the centre of the lens outwards.

Measuring beam power with a meter is simply a matter of holding the sensor above the lens and switching the player on. The meter reading will vary as the lens moves during the focus-search action, so a couple of attempts may be required to get a satisfactory reading. With some units it's a struggle to get the sensor to the lens during the brief focus-search period: with other units the laser operates continuously, so it's just a matter of lifting the disc holder flap out of the way.

For the early PDM6 multi-play machine Pioneer provides an adjustment procedure that quotes a laser power reading of 0.25mW. A check on the r.f. signal should show a 1.2-1.4V peak-to-peak waveform – but it's the power reading that should be used for this adjustment.

The specification with the Hinari DSK2 is less precise, the laser power range given in the manual being 0.12-0.36mW. The r.f. gain is separately adjustable with this model. When I set the laser power at 0.25mW and then adjusted the r.f. gain for a 1.4-1.6V peak-to-peak eye pattern I got perfect results from a player that had not been working prior to the adjustment – the laser power had been 0.16mW and the r.f. waveform 0.4V p-p.

Obviously a compromise may be required where the laser power and r.f. gain can both be adjusted. It's possible that a low laser power and high r.f. gain could give rise to playing errors. Conversely, high power and low r.f. gain would be likely to reduce the life expectancy of the laser unit.

The JVC XLE3 is usually fitted with the Optima-3 laser unit. According to the manual the laser power should be greater than 0.1mW and the r.f. waveform at least 1.5V p-p: if these figures are not met, the laser unit should be replaced.

Next some machines for which the r.f. signal level is quoted for adjustment purposes. Again the general situation should be considered. Laser power control is exactly as described above: it's merely that the eye pattern is used as the reference. Since the signal is measured after passing through the top lens, being reflected from the disc, then returning via the optical system to the pick-up photodiodes, there must be a

good disc in the player as well as a clean lens.

Ideally a standard test disc such as the Sony YEDS18 should be used. If you don't have one of these or a similar type from another manufacturer, get a good quality disc and use that. It's important to realise that many CD discs on the market can be described only as junk. Buy a Sony classical music disc, or perhaps the Deutsche Grammophon recording of Ravel's Bolero, which is recommended by Sharp. Look after it!

The next thing you must do is ensure that the r.f. waveform is not substandard for some other reason. This depends on the circuitry involved. In general, the focus bias must be set correctly and, with some older machines, the tangential adjustment must be carried out. Always refer to the service manual for these adjustments.

Once the test disc is in place and all the other relevant settings are correct you can check and if necessary adjust the laser power.

Take for example the Aiwa Model CXN990, which has a Sony KSS210 laser unit that feeds a Sony CXA1081M r.f. chip. The manual gives the correct eye-pattern amplitude as 1.4V p-p. This particular combination of laser unit and r.f. chip is probably the most frequently encountered one in CD players, a level of 1.2-1.4V p-p being a safe bet in any such machine. In fact the laser used is not the main criterion: it's the r.f. chip that matters – measure the output at pin 2. It is worth noting that the Samsung KA9201 is a direct equivalent of the CXA1080M. The CXA1081S is in a different package but is otherwise identical, with the same pin connections.

What would happen if we tried to set up such players using a power meter? We would get into a mess. For example some Samsung RCD1300 players use the Sony KSS210 laser unit while others are fitted with Samsung's own SOH-90-T4 laser unit. The r.f. eye-pattern amplitude should be the same with both, but while the laser power reading with the KSS210 is about 0.08mW that with the Samsung unit is 0.22mW! Using the meter here without a full knowledge of the differences would probably end in tears and burnt out lasers.

Another common combination is the Sanyo SF89 laser unit and the LA9200 or LA9201 r.f. chip. Here again the laser is not the vital item with regard to setting up. Sharp uses the combination in its 450 series of midi machines, giving a range of 1.3-2V p-p for the r.f. waveform. I think a value of 1.6V p-p can safely be used with any such

player. The signal (RFSM) can be scoped at pin 36 of the LA9200 chip. In a previous instalment I suggested checking it at the other side of the 10k Ω resistor that's connected to pin 22. This may sound like conflicting advice, but in fact it's more or less the same – it's easier simply to find pin 36.

Rafoc Units

Finally a look at the Philips CDM series of rafoc units. With most of these the preamplifier and servo circuit are mounted on a subpanel at the back of the unit. The common photodiode cathode connection in the pickup is connected to the r.f. chip. Also connected to this common point is a 100k Ω resistor followed by a 4.7k Ω resistor (circuit reference R3102) that's connected to the 5V supply. Philips tells you to connect a d.c. millivoltmeter across this resistor (R3102) then adjust the laser power potentiometer for a reading of 50mV.

This sounds very simple, and so it is, but there's a pitfall. Recently I had a repair bounce after fitting a replacement servo board. As I had a couple of new, spare boards it had been easier to swap boards rather than try to find the cause of the fault at component level. All that then needed to be done was to adjust the laser power. The complaint with the returned machine was that it wouldn't play all discs. One of the non-players was sent along with the machine, and sure enough it couldn't be played. My Stravinsky disc played all right however. I reset the laser power using the Sony YEDS18 test disc, then checked the voltage across R3102 with several discs. The Stravinsky disc produced a reading of 50mV, the same as the test disc. The customer's disc produced a reading of 64mV. My Sixties mix disc produced 61mV, while a rather awful single made by PDO yielded 78mV! All these discs played all right however.

I don't claim to know why there should be this variation, though I could speculate about the transparency and thickness of the protective layer, different reflectiveness of the silvering, or perhaps even the width of the pits. Whatever the reason, the message is simple: always use a decent disc. Note that monitoring the eye pattern with the Philips system won't tell you much about the laser power: there's obviously an a.g.c. circuit that fixes the r.f. signal level before it emerges from the chip.

Perhaps the Hinari instruction for the CDM4-equipped Model DSK9, to adjust for a laser power meter reading of 0.1mW, is quite sensible after all.

A Crowning Success

"Les" asked Harry, "will you see if you can do something with this thing. It needs a new laser and you probably know the cheapest place to get one."

The thing in question was a Crown midi system, a Model CDK2300. I connected it up, inserted a disc and closed the drawer. I could hear the disc spin quickly, then slow down and stop, whereupon the TOC was displayed. Strange behaviour if the laser is no good I thought. When play was pressed the clock could be seen indicating time elapse in a healthy-looking manner. Time to connect some speakers and listen to how it sounded. It didn't sound at all.

I removed the record deck and one side panel to have a look around inside with the scope. There was a fairly standard arrangement: a KSS210 laser, CXA1081S r.f. chip, CXA1082 servo control chip, CXD1130Q digital processor, LC7881 DA converter (DAC) and an HM6116M RAM. I'd no Crown circuit handy, but plenty of others that should provide any information I might need.

Since everything seemed to be o.k. except for the lack of sound, I prodded around at the output end to see whether any audio was present. There was nothing to be seen. Next try with the scope connected to the inputs to the DAC chip. In fact pins 78, 79 and 80 of the digital processor chip are the easiest place at which to look. With the scope d.c. coupled and set at 1V/div, one should see the left-right clock at pin 80 and, at twice the speed, the word clock at pin 79. These should be rock-steady squarewaves. They were. Pin 78 should have the data, which is usually seen as a series of regular transitions whose horizontal lines are at the 0V and 5V levels. This appeared to be o.k. at first glance – until I realised that there was a regular small (one-bit wide) section at 5V missing. This may not have been visible without the scope triggering being correctly set. When I slowed down the scope's timebase, the 'twinkling' normally visible with the data signal was not to be seen. A regular stream of information seemed to be reaching the DAC chip, but it didn't seem to be serial audio.

This suggested that the DAC chip was probably o.k., and since the processor was doing so much correctly I assumed that it too was good. That really left only the RAM chip as a suspect – and it has 20 legs, not 80! After fitting a new HM6116M chip I could listen to Vivaldi's Seasons instead of just seeing the clock notch

up silent seconds. At under £2 that was the cheapest 'new laser' that Harry is ever likely to see.

Tale of Woe, Episode 2

Starting work may have enabled me to obtain my first motor bike, but it also meant two half days and three evenings each week over the next eight years spent at the Tech. I did manage to find some time to play, but since there were exams to be sat every year, in late May/early June, I never managed to get to the Isle of Man for the TT races. In fact it wasn't until nineteen years after

the first bike that I finally got there. I returned during successive years, and kept thinking how quiet it was – part from the bikes.

Back on the mainland work was becoming a pain. Mainly because of incompetent bosses who couldn't stand a good idea unless they could convince themselves that they'd thought of it first – too often the case in British industry. So time to get out and start on my own.

Nobody seemed to be keen on paying me large sums of money for being brilliant. When starvation seemed to be imminent I had a chance

meeting in a motor bike scrap emporium with a fellow enthusiast who just happened to be a very senior executive in the retail side of the consumer electronics industry. He swapped me a couple of Grundig 5010 TV sets for some old motor bike bits. More to the point he put me in touch with a regular supply of these sets, and my business changed direction. I next had to find out, pretty quickly, how to repair 5010s. I recalled learning, fifteen years before at the Tech, something about thyratrons, pentodes and suchlike – but would it be of any help now? More next time!

Satellite Fault Finding

Pace PRD800/900

We've had several cases of intermittent or complete loss of audio recently with these receivers. It's quite common for the fault to be either not present or intermittent when the receiver is first plugged in, becoming permanent when the unit has warmed up.

Remove the top cover and gently press the rear upper corner of the satellite tuner (Mod 1) towards and away from the r.f. modulator. If this turns the sound on and off, check the voltage at pin 1 of the TL084 quad operational amplifier U15 which is at the left-hand end of the main PCB. If this voltage comes and goes with the sound, remove the main PCB from the cabinet and then unsolder the satellite tuner from the board. You will see that there are two print tracks on the top surface of the board, a thin one and a wider one, that run from behind the r.f. modulator under the satellite tuner. What happens is that the rear edge of the tuner contacts the thin track. When this happens the track, which is connected from pin 1 of U15 to C451 (audio coupling to the r.f. modulator) becomes short-circuited to chassis, effectively removing the audio input to the modulator.

Insulate this spot (a quarter-inch square of self-adhesive label is o.k.) and refit the satellite tuner. Once you are familiar with this fault it's often possible to tilt the tuner towards the modulator, making enough space available to slide a suitable slip of insulation beneath the offending rear end. Secure it with a touch of Evostick. This is much quicker and easier than taking out the main board to remove the tuner.

As the mono feed to U15 is via C555 from the junction of R281/2, which are across the stereo feeds to pins 1 and 3 of the VCR scart connector, in installations where the satellite connection is via a scart socket rather than the r.f. output this fault may never be noticed. **J.C.Priest.**

Pace SS9200

If you get one of these receivers that is dead, with either the 1AT mains fuse or the 4.7Ω surge-limiting resistor (safety type) blown, before you dive in and replace the

usual batch of components in the chopper circuit check the mains bridge rectifier diodes. One or two of these can go short-circuit. If necessary take out the chopper transformer and carry out resistance checks: we've had a few with an internal short between the primary and feedback windings.

If the power supply is working but produces very slightly low output voltages, possibly resulting in tearing lines on the picture (more noticeable with decrypted channels), check the value of the 0.22Ω safety resistor carefully. It may have increased slightly in value without going open-circuit. A value between 0.47Ω and 1Ω is quite enough to upset the supply regulation. **J.C.P.**

Pace PRD900

For LED display faults with early versions of this receiver – missing segments, all segments glowing slightly, no '-' in standby etc. – before you condemn the display or the Z8 microcontroller chip U2 take a careful look at the subpanel mounted above U2 on stand-off pins. In particular check where the sixteen pins of the interface connector join the main board at the redundant U4 position, also the single chassis pin close behind. Several of these connections will be found to have cracks at the junction of the track and pin. Some careful surgery is required here – it's quite common to find that some work has been done in this area before the unit left the factory. **J.C.P.**

BOOK REVIEW

Newnes Satellite Communications Pocket Book, by James Wood, published by Butterworth-Heinemann at £12.95.

This is a strange little book that seems to be aimed more at those in the communications field than those concerned with the practicalities of reception. It contains quite a lot of information, with an international slant, but it's rather a jumble of bits and pieces. Sections have titles such as "Historical overview of communications and radio broadcasting", "The satellite age", "Growth in satellite communications systems", "Launching into space: a risk industry" and so on. I could find only one reference to encryption – in the section on MAC! There's no mention of Astra 1C or 1D, though there is a short section on "the role of the satellite in the Gulf War". An odd book indeed. **J.A.R.**

What a Life!

Donald Bullock

I don't like these modern telephones – the sort without wires to anchor them. Steven does though. He's got one that he carries around the workshop. When he's finished talking to it he puts it down wherever he happens to be and goes out. My troubles start when it rings and I can't find it.

Yesterday he left it on our COPS monitor. When it rang I lunged at it and it fell under the table. That was where I crawled to answer it.

"I'm Doctor Who" said a voice.

"Good God!" I exclaimed.

"My personal has gone all velly silly colours and shrunk" he continued. "It's also making a silly noise."

"But why tell me?" I asked.

"Because I want it put right. By the way, I have it in the car."

"Where are you then?"

"In your front drive."

The Philips KT3

As I clambered from beneath the table he came in. A photo with "Dr. Hoo" and the name of a local hospital was attached to his shirt. The portable turned out to be a Philips 37KT3060 (KT3 chassis). When I plugged it in and switched on there was distorted sound and the field scanning had collapsed to a non-linear six-inch band across the centre of the screen. Then Dr. Hoo's suit started to bleat. He took his smart-phone from his pocket, cooed into it then took his leave.

Did the set have one fault or three? I opened it up and waggled the degaussing plug in its socket. One of the wires popped out. It had never been crimped. I soldered it properly, curing fault number one. What about the distorted sound? When I tried an audio module from a scrap set the improvement was immediate. So that was the answer to fault number two. The field fault wasn't so easy to deal with.

Half an hour later I was totally baffled. Every voltage and waveform in the field timebase seemed to be correct, and I'd replaced the BD223/BD234 pair of field output transistors and umpteen other components. Time for some logical thinking. What hadn't I tried?

I sat and reflected. There was a time when scan coils often gave

trouble. But they don't seem to fail any more. Or do they? In a flash I decided upon a course of action. I loped over to our TV graveyard and saw a set with a dud tube and an identical set of scan coils. When these were fitted to the set on the bench a perfect picture came up. Well! We live and learn.

Another Portable

It was then that Mr. Bacaroni called in, carrying a 14in. Saisho portable – a CT142RX. He thrust it into my face and began to sing like Pavarotti.

"My Emerson from Roma, he lasted till old age. This Japanese bunkum, no age at all, he go up there." He was pointing to the sky.

"They do, they do" I said. "Leave it with us. Don't ring – we'll ring you." Off he pounced.

I didn't have the manual but the set seemed to be similar to the Matsui 1480A for which I did have one. So I used this to go after the fault. When the set was switched on it made a thin, tinny sound and there was no raster. After checking that the h.t. was correct I investigated the 2SD1426 line output transistor Q402 and found that it was short-circuit base-to-emitter. When this had been replaced there was the welcome crackle of e.h.t. Another job done, I thought. But I was wrong.

The picture that came up was only a third of the correct width. I switched off and felt the line output transformer. It was warm, but not hot. So was the replacement transistor. I spent an age going through the line scan circuit. Apart from one or two slightly low capacitors, which I replaced to no avail, everything seemed to be all right. There was a substantial fault somewhere, but once again I had run out of ideas. Then I noticed the smell of something cooking and saw a thin wisp of smoke climbing from the scan coils. I switched off and felt them. They were hot all right. Surely not another dud deflection yoke?

I returned to our graveyard and found an identical set of coils. Fitting them restored perfect results. It's fortunate that the same make and type of yoke is used in so many sets. I hadn't had to replace the deflection

coils for years, then suddenly I had to do just that on two consecutive jobs!

Some Easier Ones

Earlier Steven had taken in a Sony KVM14U with no raster. When I removed the back I expected to find another open-circuit resistor in the first anode supply, with the rectifier diode cracked and cooked. But no, the first anode supply was o.k. Pity! Then, brushing the dust from the neck of the tube, I noticed that the heaters were out. As usual the supply comes from the line output transformer. Although it's a pulsed voltage, our meter indicated that it was present. But it wasn't reaching the tube's base. The feed is via plug CND82, which is beside the transformer. There was a hairline crack in one of the tracks. I hand wired both connections, switched on, and up came the picture.

Meanwhile Steven was working on a Ferguson 3767 (TX10 chassis). There was e.h.t. and the tube's heaters were alright, but there was no brightness. He'd measured the first anode voltage and found that it was about 800V. "Check the cathode voltages" I suggested. These were too high. We looked at the green LED on the c.r.t. base panel – it provides a stable bias voltage for the RGB output stages. There was no light. A replacement sorted that one out.

The complaint with an Hitachi VT9500 VCR we had in was that rewind was o.k. but there was no fast-forward operation. Steven applied his attention to it. The idler seemed to be catching on the chassis and as it's made of thin plastic we assumed that it was warped. So a Konig replacement was fitted. To Steven's astonishment this made no difference. It took him a while to see that this was because the tiny tensioning ball bearing was missing. We then realised that it was also missing from the original idler. A new idler from Hitachi had the ball bearing intact and fitting it corrected the trouble.

Our final case that morning was a dead Bush 2114 portable. The things to go for in this situation are the thermistor (TH801) and resistor (R817, 5-6kΩ) in the start-up circuit – feeding pin 9 of the TDA4601 chopper control chip IC801. We replaced them both and had the set working merrily. Another item that gives trouble in the power supply is R808 (270kΩ) which is connected to pin 4 of the chip – in the collector current simulation network. It goes high in value, killing the chopper transistor.

Fault Notes: Panasonic Alpha 3 Chassis

Ray Meadows

Following my recent series on the Panasonic Alpha 3 chassis, here are some fault reports that have been provided by various service departments. Most of the faults are listed under particular models, but many of them could be experienced with other models that use the chassis.

All Models

No sound or raster but the remote LED flashes: This indicates that the 5V standby supply is present but the line output stage isn't working. You'll probably find that the fusible resistor R555 in the h.t. feed to the line output stage is open-circuit. This can be caused by an internal short in the line output transformer T551 but in many cases is caused by unexplained failure of R555 itself.

Loss of video and audio signals: This can be caused by a loose H panel. The problem may occur when the customer tries to use the AV2 connector, the scart lead levering the panel out of its sockets. This results in loss of the tuner as well as the AV signals.

No colour when using the AV connector: Before opening the set up and condemning the AV switching chips, check the position of the front-mounted AV2 source switch. If this is set to the S-video position when a composite video source is being used there's loss of colour.

No teletext pages but the text header appears: This is quite a common fault. An associated symptom is corrupted or 'jumping' text. The usual cause is the 220pF ceramic capacitor C3511.

Remote control unit won't operate older Panasonic VCRs: This simple problem is cured by opening the remote control unit's battery compartment, locating the small slide switch and changing its position. The remote control unit will then transmit the older 7-bit VCR commands (the handsets leave the factory set to the newer 8-bit format).

Model TX25A2

Nicam audio missing: Check the serial data output at pin 10 of the SAA7280 Nicam decoder chip IC2001 on panel

B (panel BN on early production models). If there's no output at this point, replace the TDA1543 DAC chip IC2003.

No sound during VCR playback: With all channels transmitting Nicam signals, loss of the f.m. sound was noticed only with VCR operation. IC2101 (AN5215) on panel B was faulty.

Model TX25A2X

No colour apart from a pale red tint: The digital delay line IC602 was faulty. Note that early versions of the Alpha 3 chassis use the TDA4660 chip while later ones use the TDA4661: these chips are not interchangeable.

Intermittent thick horizontal lines on the screen, accompanied by loss of signals: Replace the ENV87839G3 tuner unit.

Model TX25W2

Picture tube spot burn: Failure of the switch-off spot suppression circuit on panel Y is the cause of this potentially expensive problem. In one case R380 (56k Ω) hadn't been inserted into the panel correctly during manufacture.

Severe bowing at the sides of the picture: Check the fusible resistor R706 (10 Ω). This sometimes fails by itself but is usually accompanied by failure of the EW correction chip IC701.

Severe defocusing with pale raster: After checking that the line output and e.h.t. circuits are o.k., take a look at the c.r.t. socket on panel Y. Oxidation of the terminals can cause poor contact and thus a high impedance at the focus and first anode (screen grid) connections. This problem is reminiscent of the old Rank T20/T22 chassis. Replacement c.r.t. sockets are available from Panasonic though no part number is listed in the manual.

Model TX25W2A

Sound but no picture: Beam blanking had removed the picture. This was confirmed by slowly advancing the setting of the first anode/screen grid preset control, showing that there was field collapse. Replacement of the AN5521 chip IC451 and the fusible link R451 (part no. TSF19801) restored normal operation.

No satellite reception: The primary side of the satellite pack's power transformer can go open-circuit because of failure of its internal fuse. Before replacing the transformer, part no. TLP17256Z, check that there are no shorts in the aerial lead.

Poor satellite reception: A common problem is degraded picture performance over time, with an increase in 'sparklies', often being worse after rain. The cause is condensation inside the feedhorn or on the LNB window. The LNB will usually be o.k. after drying out, but it's best to fit a new feedhorn and LNB, taking extra care over water-proofing the seal between the two. I often add some silicone seal around the rear of the feedhorn cap – early types suffered from water ingress here as well.

Patterning on BBC-1: The cause was r.f. radiation from the VideoCrypt decoder – the patterning disappeared when

the decoder's scart socket was disconnected. Strangely, the effect was present only on chs. 58 (BBC-1) and 44 (BBC-1 Wales). A different decoder and TV set were tried but the problem remained the same. In the end it was cured by changing the aerial wall socket from a TV/f.m. diplexer type to a normal TV only type! Presumably this type of instability could affect other models and makes of TV receiver as well.

Model TX28A2

Uncontrollable brightness: The beam limiter was not operating correctly because of a tiny crack in panel E. It had probably occurred when panel E was refitted after a previous repair but was impossible to see with the panel in place as it was beneath, and no doubt caused by, one of the chassis frame lugs.

Model TX28W2

Nicam audio couldn't be selected: When Nicam sound is available but the f.m. (mono) mode is selected an 'inverted-triangle' symbol appears at the top left of the screen. With no Nicam signal present the symbol doesn't appear because there's no choice. The symbol was present all the time with this set: the microcontroller chip couldn't select the stereo mode because IC2202 (LA7222-TV) was permanently latched on. Replacing this chip restored

normal operation, with the stereo symbol appearing.

Model TX28W2X

No tuning when cold: Replace the tuner unit.

Model TX33A2

Vertical linearity and height drift as the set warms up: The cause was leakage in diodes D452 and D453 in the field timebase circuit. Replacing them cured the fault.

Flickering at the bottom corners of the screen: The cause was poor shadowmask suspension in the c.r.t. – the shadowmask vibrated in synchronisation with loud sounds from the speakers. There were three possible solutions: to keep the volume down; to use external speakers; or (rather expensive) replace the c.r.t.

Model TX37A2G

No luminance signal (including text!): This seemed strange as text is generated in RGB form. Nevertheless white text was absent though coloured text (and pictures) were present. The clue to the cause of the problem was the fact that the 100Hz processing panel converts all signals, including text, to Y-C form. There was no luminance because R5606 (100Ω) was open-circuit.

Test Case 379

One of the biggest problems in our trade is the 'won't-go-wrong' situation – when a goodly percentage of the items presented for repair flatly refuse to show the faults about which complaints have been made. As in the Test Case workshop, many *Television* readers are probably surrounded with soak-testing TV sets and VCRs that run all day every day without ever displaying a symptom. Sometimes the gear isn't faulty at all, the cause of the problem being 'pilot error' or some other external factor: sometimes on the other hand an intermittent fault is lurking in there. Meanwhile what do you do?

An example of this sort of inconclusive soak testing occurred recently when Sam, who serves petrol at the Texaco down the road, brought his VHS VCR along. He told our Pam about wildly wobbling pictures, green, streaky images and staggering, jumping people on the screen whenever he played a tape. According to Sam the picture was virtually unwatchable. Pam labelled the machine and put it on the in bench, with the rest.

Next day Dylan picked up the machine and connected it to the monitor on his bench. Playback of the workshop test tape was just fine, coming in at the centre point of the preset tracking adjustment. Time to make a test recording, in case the problem occurred only with playback of the machine's own recordings. Again no problem. Anyway how can a VCR make the picture go green? Dylan phoned Sam for some clarification.

He was told that the picture wobbled and flapped from side to side, that actors bent over backwards and often slipped sideways off the screen, that the top of the picture wobbled more than the bottom, and that very often the screen would flash up green. No, Sam didn't make off-air recordings very often: he generally watched the tapes

stocked by the garage, which operated a video takeaway service as a sideline. No, it couldn't be the TV receiver's fault – he was using a new Hitachi set that had been delivered and installed by Joe Bright, the local discount merchant. And it couldn't be the connecting lead because the only link (between aerial sockets) carried off-air signals without any problems. Dylan arranged to collect a tape that was known to have caused the trouble on his way to work next morning and try it in the offending machine.

The tape, selected from the top row of the video rack, played perfectly well in Sam's machine next day. The nature of the software was such that four technicians were soon gathered around Dylan's monitor to witness the clear and stable picture – with no bending over backwards or slipping off sideways. Nor was the picture green: more blue, in fact. . .

Dragging himself away from the screen, Dylan tried to work out what could be causing this odd situation. He checked the back tension and ran an alignment tape through the machine. The control head needed very slight lateral adjustment to make the tracking spot on, and was realigned accordingly. The tape path was then carefully cleaned, and the slightly shiny pinch roller was replaced. Sam's tape was played over and over again in the workshop. Finally the machine was reassembled to await Sam's collection.

Dylan had no sooner sat down at the bench next morning when the phone rang. It was Sam of course: the machine was producing exactly the same results. Once again it was confirmed that the TV set's off-air pictures, and those fed to it from the VCR in the E-E mode, were perfectly stable. It seemed that the problem could be solved only on site. So it was arranged that one of the field engineers would call and check it out.

Once at Sam's flat the cause of the trouble was found within minutes. What was it? For the solution, turn to page 663.

VCR Clinic

*Reports from Brian Storm, David Belmont
Steve Cannon, Michael Dranfield,
John C. Priest, Chris Watton,
Andrew J. Finn, Keith T. Keeton
and Terry Lamoon*

Panasonic NVFS100

In both the S-VHS and standard VHS modes the playback picture was just a dark, blurred mess. After much chasing of signals around this complex machine attention was focused on the sub-luminance pack, in particular the 1H delay system. Checks showed that the video output waveform at pin 1 of IC3504 was badly distorted. The culprit was eventually found to be C3510, which decouples pin 5 of this chip. It was open-circuit, a new 3.3 μ F, 25V capacitor curing the problem. **B.S.**

Panasonic NVL20

The complaint was of intermittent flashing on the E-E pictures. As I was unable to tune in any of the local channels I first checked the tuner's BT supply, which was low. It eventually transpired that C706 (0.01 μ F) was leaky, compressing the tuning band at one end and probably causing some instability from cold. **B.S.**

Panasonic NVHD100

This machine's recordings were spoilt by an intermittent twitching, as though there was a 'glitch' on the drum drive. The cause of the fault turned out to be the impedance roller next to the full-erase head. A replacement, part no. VXP1402, restored flicker-free operation. **B.S.**

Panasonic NVL28

There was no power supply operation, the set being totally dead. Checks on the primary side of the power supply revealed that C1109 (1 μ F, 400V) was open-circuit. **B.S.**

Panasonic NVW1E

This standards-conversion machine has only line in and line out facilities. It played back, or would monitor, sound but in any mode the picture was just blank. Some quick scope checks showed that video was almost everywhere it should have been inside the machine. We eventually found that the 2SD601 video buffer transistor Q3908 was faulty. It feeds video to the output jacks. **B.S.**

Matsui VX1000

The complaint with this machine was of severe sound wow, getting worse towards the middle and end of a tape. We found that the reel brakes weren't being released during playback because the operating lever had come adrift. A broken plastic lug on the main chassis was the cause of this. Unfortunately the only cure is to replace the deck chassis. **D.B.**

Amstrad UF20

No fast forward or rewind has been the fault with several of these machines, whose design leaves a lot to be desired. If you insert a dummy cassette the reels turn but the torque is low because the clutch is engaged. The culprit is the M lever (part no. 2549601), which is under the cam gear. The

clutch here loses its grip. Replacement restores normal operation. **D.B.**

Ingersol VR965

This machine wouldn't tune in any off-air signals – the tuning voltage was stuck at 12V. We found that IC6101 had an internal short-circuit, a replacement clearing the problem. **D.B.**

JVC HRD750

This machine was dead apart from a hissing noise. On investigation we found that there was arcing between the 350V line and the chopper transistor's heatsink. Cutting the track and fitting an insulated wire link as a replacement restored normal operation. **D.B.**

Ferguson FV21R

When play was selected fuse F2 blew. Another engineer thought that the loading chip was the cause of the fault but the fuse blew only when the loading cycle had been completed. The culprit turned out to be the capstan drive chip. **D.B.**

Saishi VP3000 Video Player

This machine would turn itself off after varying lengths of time. Replacing both end-of-tape sensors cured the fault. **D.B.**

Aiwa VXT1000

There was no audio output from this TV-video combination. At switch on the volume is at minimum: we found that the volume-up button was dry-jointed, resoldering this restoring the sound. **D.B.**

Hitachi VTM598

There was no servo lock with this multistandard machine. After replacing IC601 and setting up the tape path the results obtained were excellent. **D.B.**

Sony SLV425

The reported fault was that the playback picture was poor and reverted intermittently to a blue screen. There's a Sony technical tip for a similar fault, to replace the EPROM ICY270 (part no. G79801093), but doing this made no difference. Good job the machine was under guarantee – the chip costs around £30 trade.

The usual reason for reversion to a blue screen is a noisy signal. So we checked the video playback output at pin 7 of CIC2160. It was a good, clean signal. From here the signal is passed to CIC2520, which provides signal delay and is part of the dropout compensation circuit. The input at pin 6 was o.k., but there was a severely distorted output at pin 4: it should have been delayed video but looked more like high-amplitude (4V peak-to-peak) digital

noise of some kind.

A check showed that the clock pulse input at pin 7 was fine. What next? Fortunately we had another of these machines in for a different fault. So we hoisted it over in order to compare the voltages and waveforms around CIC2520. With this second machine the signal that emerged at pin 4 was indeed normal, delayed video. Before condemning the chip we decided to check the conditions at the other three pins (excluding the supply and chassis pins) – pins 1, 5 and 8. In the faulty machine there was a 5V clock-frequency sinewave at pin 8, the other machine having just a d.c. voltage here. The only component connected to this pin is a 10nF surface-mounted capacitor, CC2527. To my relief when a 10nF capacitor was bridged across it the problem cleared. Fitting a replacement restored the machine to good health. **S.C.**

JVC HRD540

It's very common for the deck to jam, leaving the loading motor whirring away. The cause of this is the half-loading arm/gear, JVC part no. PQ43570B: the teeth wear and the gear then jumps a tooth or two, jamming the deck. Sometimes the first tooth breaks off the master cam, JVC part no. PQ20822-2-7. Both items are available from Willow Vale. It's best to replace them both regardless.

When you've removed the old half-loading arm, don't discard it immediately – it can be useful for realigning the deck. You'll see that there's a hole just above the cassette lamp: if you push the half-loading arm into this hole it will hold the slider plate beneath in exactly the right position ready for fitting the master cam. Don't forget to align the audio/control head, which has to be removed to fit the half-loading arm. **M.Dr.**

Sony SLV415

The symptoms with this machine were odd. A tape could be loaded but the machine then went into fast-forward video search with no other functions available – though twisting the jog-shuttle control backwards and forwards would sometimes give the pause mode. The tape couldn't be ejected: it had to be wound out manually after disconnection from the mains supply. Another symptom was that none of the buttons on the remote control unit had any effect, though an IR test showed that the device was working.

With very little experience of this model and no manual, we decided to go straight to the deck mechanical position (mode) switch. But after giving this a good clean the faults remained the same. Then a thought came to mind: the jog-shuttle control at the front of the machine is more or less just a big mode switch and could be faulty. Fortunately it plugs in. Disconnecting it brought the machine back to life – the remote control unit now worked, and all functions were available. When we opened the jog-shuttle control up we found that it was very tarnished inside. Cleaning it failed to cure the problem, a replacement from Sony (part no. 1-572-662-11) being required. It costs less than £10. After a good clean the machine performed excellently. **M.Dr.**

GoldStar P5001

We've had a number of these playback-only machines in recently, all with the same fault – throwing loops of tape in the rewind mode. In every case the cause has been a faulty soft-brake lever on the take-up spool. All the machines have been fairly new. On examination we've

found no friction surface on the soft-brake lever, no trace of a loose felt pad inside the machine and no sign of adhesive on the face of the brake lever. So it would seem that a brake pad had never been fitted. Without one there's insufficient friction when the brake is applied during rewind. As a result the spool is allowed to overrun, spilling tape as it does.

Correction for this is easy. The lever can be lifted out of the mechanism without any need for dismantling other than to remove the machine's top cover. The lever is held on its pivot by a small plastic catch. After removing it, a small piece of felt from an old back-tension band can be attached with a small dab of Evostick or similar impact adhesive. Make sure that the adhesive is dry before refitting the lever and testing.

The lever illustration in the service manual for this mechanism seems to show a brake pad attached. The parts list shows it as 'Item 049 – Brake – pt. no. 338-083A (Assy T-Soft)' and also denotes it 'NSP' (non service part). **J.C.P.**

Sanyo VHR291E

When you've uncased this VCR you have to lift the main PCB CP1 before work can be carried out on the deck mechanism. The board can be mounted vertically at the rear of the chassis, and to facilitate this a long ribbon cable at the right-hand side is connected to the operation/display board TM1 on the front panel, being long enough when unfolded to allow board CP1 to stand upright. The ribbon cable at the left-hand side of board CP1, connected to the audio level meter board AD2, is shorter and must be disconnected. If audio tests are not involved you can operate the deck with this cable disconnected – alternatively if it's necessary to work on panel AD2 use extension cable 'relay jig' VHJ-0088 which is available from Sanyo.

It's common, when deck maintenance or cleaning has been carried out, to find that on test after reassembly there's an audio problem. It shows up as a whine at about 3kHz, usually in the right-hand channel only, with both recordings and playback. The cause is that board CP1 has been refitted with the long, right-hand side ribbon cable stowed, as seems to be natural, with a single fold in the clear space in the chassis to the right of the deck mechanism. As a result of this however the folded end of the cable towards the rear of the case can become sandwiched between Nicam board TM5 at the bottom of the case and the tuner/VIF/RF modulator modules on the underside of board CP1. The problem is that signals from the ribbon cable's clock/data lines are then picked up by the other circuit modules, producing the audio whine. Make sure that when board CP1 is refitted the long ribbon cable is rolled up and stowed in the front section of the case, well away from the other circuit modules. There doesn't seem to be any cautionary note about this in the manual, and the first time we came across the problem there was a lot of head scratching before we solved it. **J.C.P.**

Samsung SI1260

This machine produced a blank display. We connected a scope to the modulator/booster can's input, with the machine operating in the playback mode, and found that there was no signal. A check on the play mode supply line DLPB5V at pin 4 of CN3201, the 11-pin plug to the pre-amplifier module, produced a reading of only 3.6V. We traced the source of this back to D110 (1N4001) which turned out to be faulty. It provides the PB5 supply from 'always 5' via switch transistor Q105. **C.W.**

Samsung SI621

The customer's note said that this machine would play some tapes but not others. This was because of loss of the control pulses from the audio/control head. Cleaning the head thoroughly and lubricating it failed to clear the fault, though the face of the head appeared to be perfect. A new head had to be fitted. **C.W.**

Toshiba V110

The job ticket said "clock went first, now dead". A check on the power supply showed that all voltages were present and correct however. When the main board was lifted we saw that there's a large heatsink on the left-hand side. Two transistors here, TT52 and TT53, and i.c. IT14 were dry-jointed. **A.J.F.**

Ferguson 3V42/JVC HRD455 range

These machines are now becoming slow at lacing up for play or record. Cleaning the drive gear loading cog assembly provides only a temporary cure. The permanent cure is to obtain a complete assembly, ready lubricated and including the motor and new plastic circlips, from SEME (part no. DECKR5). The motor can also be faulty. Don't forget to clean the spindles of the two small white cogs (connect gear 1 and 2) and the two larger cogs (loading gear 1 and 2) at the bottom of the deck. **A.J.F.**

ITT VR3620 and Clones (Twin Speed)

Replacement power supplies can be obtained from NCS and from Akai. You'll find it a lot cheaper to order from Akai (part no. BAV1084D500B)! **A.J.F.**

Toshiba V210

These machines can do strange things. Measure the voltage between the cathode of DT53 and chassis. If the reading is not exactly 5V, replace DT53 with a 2.7V zener diode. You'll find DT53 at the bottom right-hand corner of the top panel. **A.J.F.**

Panasonic NVG21

The complaint was of tuning drift. We found that a tape could be played but when stop was selected the machine would shut down, tripping. On examining the power supply we found that C12 and C39, both 47 μ F, 16V, were faulty. After replacing them the machine remained dead! Other capacitors in the power supply were then found to be either open-circuit or of incorrect value - C18, C22 and C25, all 47 μ F, 50V and C2, 1,000 μ F, 6.3V. (Power supply type VEK3254-2.) **A.J.F.**

Saisho VR805S

This machine would intermittently stop when playing a tape. The usual standard Sharp idler was replaced but the fault persisted. This time the cause turned out to be the cassette-in switch on the main deck. Cleaning it cured the problem. **A.J.F.**

Salora SV9900

The cause of a dim clock display was found to be capacitors C446 and C447, both 56 μ F, 16V - a strange value. The

replacements supplied by the manufacturer were 120 μ F, 35V high-temperature (105°C) types. When we fitted them the display seemed to be no different from that with the 47 μ F capacitors fitted as a temporary cure! **A.J.F.**

Sony SLV373

This machine displayed P6 and rewind didn't work. The cure was to replace the two reel turntable photosensors PH001 and PH002 (part no. 8-759-144-33) on board MD40 beneath the deck mechanism. It's best to replace the two as the cost is minimal and any further trouble in this area is prevented. They are easier than it may at first seem to replace. **A.J.F.**

Sony GV8E

No LC display, VTR section o.k.: Replace the d.c.-a.c. converter (internally shorted) and fuse F103 on boards PS181/RG5.

No LC display, no sound, sound/vision o.k. at line outputs. Q114 keeps blowing, no output from T101: The 5V line is being earthed on PCB TT20. Replace D310 (short-circuit), which is connected to pin 58 of IC301, and Q114. Fault area boards PS181/TT20.

No power to TV section, mechanism and line outputs o.k.: Replace fuse F103 on board PS181.

No playback colour, TV o.k.: Replace faulty delay line on board SV35.

Playback picture jumps: Symptom is similar to that with dirty heads but cleaning doesn't clear fault. Replace head drum.

Low brightness: Back light in reflector assembly not working. Replace fluorescent tube.

Click on rewind/fast forward: Replace worn mechanism pulley relay assembly. **K.T.K.**

Goodmans SX2700

The customer complained that he couldn't copy tapes to this machine. Normally this is down to the customer's wiring, but not this time. A check showed that there was no video from the socket. As I didn't have a manual I thought I'd try and trace the signal back. Fortunately I soon came across a dry-joint at C381. When this was resoldered and the machine was switched back on the results were perfect. **T.L.**

Akai VSG43

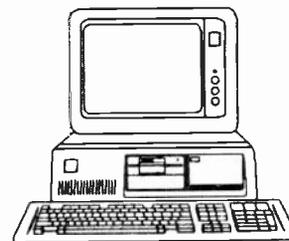
This brand-new machine chewed tapes. When the top had been removed I noticed that the take-up spool wasn't moving. Investigation at the underside of the mechanism showed that the clutch drive was disengaged and the circlip was missing. When I pushed the clutch together and fitted a new circlip everything worked perfectly. How simple some faults can be! **T.L.**

Philips VR6585

When this Nicam VCR was switched on there was just a blank screen in either E-E or playback. The cause was failure of the 315mA wickman fuse T501. It's on the luminance/chroma panel, not in the power supply. **T.L.**

TELEVISION INDEX & DIRECTORY

and REPRINTS SERVICE



Television Index Disc

Version 2 of the computerised index to *TELEVISION* magazine, covering volumes 38 to 43 (1988 – 1993), is now available. There are over 5000 references to TV/VCR fault reports and articles, with synopses. A TV/VCR spares guide, an advertisers list and a directory of trade and professional organisations are included. The software is easy to use and very quick. It runs on any IBM or compatible PC with 512K RAM and a hard disc.

Those with version 1 discs can have them upgraded for £12 each: return the disc quoting its serial number.

Price: £30 (specify 5.25" or 3.5")

Reprints of articles from *TELEVISION* back to 1986 are also available: ordering information is provided with the index, or can be obtained from the address below. Hard copy indexes of *TELEVISION* are available for volumes 38 to 43 at £3.50 each.

NEW NEW NEW NEW NEW NEW NEW NEW NEW

Fault Report Disc

Contains the full text for TV, VCR, camcorder, satellite TV and CD fault reports published in Volume 43 of *Television* (November 1992 to October 1993 issues), giving you easy access to this vital information. Note that the disc cannot be used on its own, only in conjunction with the Index disc: you load the contents of the Fault Report disc on to your computer's hard disc then access it via the Index disc. The Fault Report disc is available at £15 (specify 5.25" or 3.5").

Please allow up to 28 days for delivery. All the above prices include UK postage and VAT where applicable. Add an extra £1 postage for overseas EU orders, or £5 for non-EU overseas orders. Cheques should be made payable to Video Interface Products.

Video Interface Products Ltd., 1 Vineries Close, Cheltenham GL53 0NU, UK.

NEW SETS

Sanyo's new range of colour receivers includes a model that makes use of organic semiconductors. These are said to offer improved performance because of lower noise levels. Model CB6649 uses them to provide improved sound quality by reducing distortion.

Philips' latest range of models includes three with 100Hz timebase operation: two have the 'Crystal Clear' picture system and one has a

widescreen tube. The CC system involves black-stretch to improve the contrast in dark areas of the picture, comb filtering for improved chroma/luminance signal separation and scan-velocity modulation for a sharper picture. Readers of Ray Meadows' recent series on the Panasonic Alpha 3 chassis will be familiar with these techniques. Viewing options with the 32in. widescreen Model 32W962B are standard 4:3 display, widescreen 16:9, panorama which stretches the side edges of the

4:3 picture to fill the screen and movie expand. The latter expands the picture vertically and horizontally in one step to fill the screen. It's less flexible than the zoom adjustment available with Philips' 28in. widescreen model, but zoom will be added to the 32in. sets at a later date. Another feature of these sets is multi-PIP which fills the screen with one moving and eleven freeze-frame pictures: these can be from different channels or a freeze-frame presentation of one action such as a golf shot.

Letters

IR INTERFERENCE

I had a strange fault with a TV/video system consisting of a Ferguson 51P7 TV set and FV51R VCR. The TV set would change channels at random, displaying a different channel to that indicated by the screen number, while the VCR would sometimes turn on and start to carry out one of its functions.

As a first step aimed at pinpointing the cause of the trouble all the scart leads were removed. Both units continued to malfunction. My next step was to remove all the remote control units from the room, on the basis that one of them might be emitting some strange signals. Again both units continued to malfunction.

It looked as if the TV set and VCR both had a similar fault. But one night when the fault occurred I realised that the centre room light had been turned on and that an energy-saving lamp had recently been fitted. When the light was switched off then, after several minutes, on again the TV set changed channels. As a check I repeated the switching off and on. A few seconds later the TV set's IR receive LED lit up, indicating that a signal was being received; on switching the centre light off the receive light faded out.

Thus the energy-saving lamp, installed in the centre of the room, was giving off enough IR radiation to confuse the TV set and VCR. The problem disappeared when an ordinary bulb was used to replace the energy-saving one.

D.J. Maxfield,

Epworth, South Yorkshire.

S VIDEO

There have been numerous references in *Television* to S-VHS connectors and signals. Since the magazine serves as the reference for all those connected with the television and video industry, I feel that we should try to maintain accuracy in our use of terminology. To this end I would quote as follows from the manual for the Panasonic NV-FS88B VCR: "The 'S' in the 'S-Video Socket' stands for 'separated Y/C', not for 'S-VHS'". This is quite right, since these sockets are in particular used for connecting Hi-8 camcorders, which are produced by many more manufacturers than those that support S-VHS.

So in future all references to these connectors and signals should state S-video not S-VHS.

Colin McCormick,

Plymouth, Devon.

REMOTE CONTROL UNITS & CHILD LOCK

With reference to David C.J. Tilley's letter (April), if an ICC5 chassis receiver is stuck in the child lock mode and the default code 0000 doesn't unlock it, the remote control unit can be used to do so. When the set is powered up, a blank raster will appear with a text overlay stating that the lock is engaged. (If the set is in standby, power up with any number key.) With the original handset, the receiver will unlock by pressing the Fastext buttons in the sequence red, green, blue then finally yellow, holding this one until the set powers fully and unlocks (usually about eight seconds). The set will now operate perfectly until someone locks it again. You cannot reprogram a new PIN without knowing the PIN currently set.

On the subject of ICC5 sets, and many others for that matter, I've had an incredible number of handsets that operate intermittently because of moisture penetration through the keypad. I can only assume that the rubber 'sweats' to some degree, as there's no evidence of spillage etc. A worthwhile tip is to clean the PCB contact pads with a small amount of Brasso or a similar polish then, if keypad wear is evident, paint each pad with conductive silver paint. This will bring a whole new lease of life to the unit. Ensure that the paint dries fully – only a very small amount per pad is needed. Silver paint is quite expensive, about a fiver for a minuscule bottle. But, when you consider that many manufacturers are unable to supply replacement keypads, just one repair will justify the cost.

Paul Charlton, Colorvision plc.,

Redditch, Worcs.

AUDIO TAPE CHOPPING

I read with interest Geoff Davies' article on audio tape damage problems in the April issue. Though I prefer colour TV sets, I get asked to service quite a lot of audio cassette/radio recorders, decks (just front ends) and Walkmans. With a few units the customer has said "when I push the play button the unit chops the tape in half, can I solve the problem?"

One such unit was a mono radio/cassette recoder from a 'budget' range – easily identified by the fact that there's no erase head, a permanent magnet being used instead. After careful examination of the cassette mechanism, and comparing it with a scrap unit from a double-cassette machine, I noticed that the movable plate on which the tape head sits was bent. As a result, the tape-tension arm was farther forward than it should be, exerting greater pressure on the test tape. Ultimately it would have cut the tape in half, acting like a knife. The problem was cured by bending the plate and arm back to the correct position, again comparing the unit to the scrap one to get the alignment right.

The cause of the trouble is incorrect insertion of a cassette. If it has not been pushed all the way into the slot in the cassette door the cassette casing will, when the door is closed, make contact with the tension arm, forcing it downwards and forwards. When the user opens the door, pushes the cassette in properly, closes the door then presses the play and/or record buttons the tape is chopped in half.

M.K. Hayter,

Moseley, Birmingham.

SAMSUNG MODIFICATIONS

I feel that I must reply to Mr. Coton's letter (May issue) regarding a modification to the Samsung CI-5013T carried out by my company. If Samsung say "we've not had that fault", where does this leave the dealer? Do you tell your customer that you cannot repair the fault on the set you've sold, or do you try to do something off your own back?

The modification in question relates to the SAA5246 ECCT teletext chip. According to the manufacturer's data sheet, the maximum supply voltage is 5.5V, a typical voltage of 5V being specified. We found that with change of temperature, perhaps when the set has been used for some time, a teletext fault would occur in the picture/text mode. The cause was the fact that the supply at pin 1 of the chip was out of specification in comparison with the SAA5246 data sheet. The supply to pin one in this set is clamped by a 5.6V zener diode (TDZ04). Clearly this is incorrect.

While on the subject of modifications, a while ago Samsung issued a technical bulletin concerning a purity

error with the CI-5012Z. The official modification involves fitting a second degaussing thermistor in parallel on the underside of the PCB. I feel that if I'd devised this modification I'd be labelled a 'cowboy'. A better cure would be to advise the customer to switch the set off at the mains occasionally, as degaussing doesn't take place when the set is switched in and out of standby.

In reply to Steve Beeching's letter (same issue), the FV74X had a recommended retail price of £399. Hardly a low-cost VCR.

*Michael Dranfield,
Buxton, Derbyshire.*

NVQs

My article (June issue) on National Vocational Qualifications for the electronics servicing industry was based on the information available at the time. Since then further information has been released by both the City and Guilds and the Electronics Examination Board (EEB), who work in close partnership on the current 224 Electronic Equipment Servicing examinations.

City and Guilds has announced that the standards of competence for brown goods NVQs have been developed. The units cover such areas as the installation and removal of equipment, the diagnosis and rectification of a range of faults, and customer contact skills. The next stages are to group the units into qualifications and further edit them. Assessment materials must then be developed, after which a submission has to be made to the NCVQ for accreditation. There is still much work to be done, and accreditation by the NCVQ is anything but automatic.

The Industry Lead Body (ILB) has recommended that submission be made to the NCVQ in late 1994, with pilot NVQs beginning during 1995. This sounds quite hopeful until you read the latest release from the EEB which reports that all work came to a halt during the autumn of 1993 and that there have been no further developments.

Apparently the ILB is not able to proceed without the appointment of a consultant by the Employment Department. This just isn't happening. Also the City and Guilds information says that it has run out of money for the purpose.

My article highlighted the concerns of many about the standards (or lack of them) with the new NVQs. The EEB reports that the ILB for the brown goods area is "happy with the present qualifications, and is reluctant to support an NVQ that seems to be inferior." So there may be hope for our industry yet.

*Joe Cieszynski,
New Moston, Manchester.*

CHANGING TIMES

I read with interest "The Cowboy Element" letter in the June issue, but detected a slight element of 'sour grapes'. The real reason for the demise of the writer's business could well be the fact that when Joe Public wants a new TV or video nowadays he looks in the adverts in the Sunday newspaper, or one of the fall-out supplements from the TV programme press, then jets off to the "Asteroid Belt", the "police station at Dock Green", "the local Indian restaurant" or some similar large electrical retail chain where a price war is still in full swing. Times have changed. Gone are the days of the local white or brown goods electrical retailer, who was able to give such a fast and efficient back-up service. Sadly, I've seen so many hereabouts disappear over the last ten years or so. The main thing in the customer's

mind today is the price, and only the price. I was amazed when, some years ago, I contacted a local electrical wholesaler with a view to retailing some popular brand-name products and found that I could buy them much cheaper as a member of the public from a large chain store. What chance have we got?! The major manufacturers have to take some of the blame: they gave massive discounts to the large chain stores in order to compete against the chains' own-brand cheap imports while keeping the wholesale prices to the local retailer at an unacceptably high level.

Incidentally my own small company was started up fifteen years ago, mainly as a result of the complacency of our local main dealers in the days before the chain stores took over. Time and time again I had been asked to repair car radios for the local garages and the public because the local TV shops had little experience of these items and simply didn't want to know. As a Radio Amateur for many years, well versed in the repair, design and construction of electronic and radio equipment, I found these jobs quite simple. So I set up my own small company specialising in In-Car Audio, as it's now called, and have made a reasonable living from it ever since.

Name and address supplied.

MEDICAL MATTERS

From time to time injuries sustained through work, mainly back problems, have been mentioned in *Television's* correspondence columns. A problem that can arise, particularly as a result of lifting, is the inguinal hernia: a painful lump appears in the groin. The cause of the trouble is abdominal wall rupture, whereupon a bit of what should be inside, i.e. gut, tries to get outside, creating the lump and pain.

Conventional hernia surgery is notoriously uncomfortable and generally involves taking several weeks off work to recover. The technique is hardly elegant. It's rather like darning a sock: the tissues are pulled together and stitched to close the gap. The failure rate is ten per cent.

An excellent alternative involves fitting a fine but very strong polypropylene mesh patch over the hole in the abdominal wall. The healing process, which is very rapid, results in the mesh prosthesis becoming embedded in the tissue, like the steel in reinforced concrete – a good engineering repair!

I underwent such an operation, under local anaesthetic, one Friday morning and returned to work the following Wednesday. Unfortunately at present the NHS seems to be reluctant to employ this method. So I had the job done privately at The British Hernia Centre, Hendon. I was asked to stay overnight at the nearby Holiday Inn in case I required any follow-up treatment, but everything was fine and I went home next day. Driving wasn't permitted straight away, but this constraint was quite different from that of a colleague who underwent conventional surgery and was told not to lift a newspaper for a week! He was away from work for eight weeks.

I'm sure that there are many in the trade who could benefit from this 'patch' surgery. In my case it cost £895 and took little over an hour. The surgeon told me that many organisations pay for their employees' operations, because it makes economic sense to have them fit and back at work rather than pay them sick pay for weeks on end. In view of the rapid recovery a small one- or two-person business needn't suffer badly if the choice to go for the 'patch' repair is made. Incidentally the success rate is 99 per cent – ten times better than with the conventional method.

*Keith Cummins,
Holbury, Hants.*

Domestic MATV Techniques

Ian Martin

Thanks to the relatively low cost of consumer electronics products nowadays many households possess two or three TV sets, a VCR and quite possibly a computer console, a satellite receiver and a camcorder. Some homes may have a second VCR or a second satellite receiver. For most people the 'main' system will be in the living room, secondary items being installed in a bedroom, kitchen or children's play area. Such secondary TV sets and VCRs will probably be operated with set-top aerials. More and more customers are now asking about the possibility of connecting everything to a common aerial installation, in effect representing a domestic Master Aerial TV (MATV) system. This is usually possible, the disadvantage of the extra cables being outweighed by the improved signals and the flexibility of the system. Another advantage is that duplication of aerials and dishes is avoided.

Aerial Splitters

The simplest request is to run two TV sets from the output of a single u.h.f. aerial array. This is easy. All that's usually required is a good-quality, low-loss inductive splitter to separate the feeds to the two receivers, see Fig. 1. If the signals are of good quality to start with, the inclusion of a splitter will not degrade them noticeably. If noise is present, a u.h.f. signal amplifier can be added. Best practice is to use the minimum acceptable extra gain in order to prevent the tuners in the attached TV sets/VCRs being overloaded. VCRs frequently incorporate gain in their aerial loop-through units, which tend to become overloaded when strong input signals are present. The result of this can be the presence of annoying beat signals on all channels, not just the VCR channel.

Use of Two Aerials

Most viewers in our area receive signals from two main transmitters via a couple of u.h.f. aerials. These are seldom installed correctly. Separate downloads which the viewer must change between manually are sometimes fitted. Or there may be a mechanical switch that's relatively trans-

parent at u.h.f. Worst of all, the outputs from the two aerials may simply be mixed together via a splitter. In the latter case the customer may complain about ghosting or poor teletext reception – caused by signals from the stronger transmitter being picked up off-beam by the other aerial and then being mixed back in the download.

Use of a diplexer will solve this problem by providing selective filtering before the outputs from the two aerials are combined. In our area HTV Wales/S4C signals from Wenvoe can be received with a group B aerial while HTV West/ch. 4 signals from Mendip need a group C/D aerial. The appropriate diplexer contains a low-pass filter for group B signals and a high-pass filter for group C/D signals. Different combinations are available for the various aerial groups. Fig. 2 shows how the system should be arranged.

Another type of diplexer is available for use where a v.h.f. radio aerial is installed, see Fig. 3. It enables the v.h.f. radio and u.h.f. TV signals to be combined to feed a single download, a second diplexer operating in reverse being used at the receiver end. Some aerial wall plates in modern houses have a built-in diplexer, with r.f. sockets marked 'TV' and 'FM'. Note that if an aerial amplifier is used with such a system it must be a wideband type, covering Bands II, IV and V. Otherwise the v.h.f. radio signals will be attenuated. If the radio signals don't require amplification a way round this is to fit the amplifier between the TV aerial and the diplexer, as shown in Fig. 4.

An Extension

A possible extension, see Fig. 5, is the use of two downloads to each room – well, one download and one uplead actually. This can be of use to enable the output from a satellite receiver or VCR to be viewed in other rooms. Double wall sockets can be used, one connection for up and the other for down. Use of the combiner will probably mean that an r.f. amplifier is required to make up for the losses.

When the output from a VCR is connected to an uplead its r.f. input must be disconnected – otherwise oscillation will occur. This doesn't limit the arrangement too much: in addition to VCR playback and satellite viewing the system

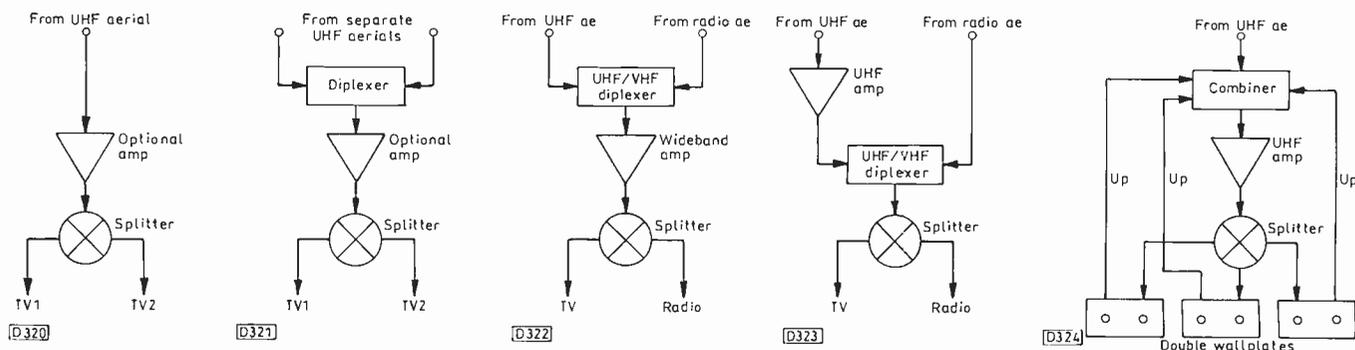


Fig. 1 (left): Use of a splitter, with u.h.f. amplifier if necessary, to feed two receivers with the output from a single u.h.f. aerial. Fig. 2 (centre left): Use of a diplexer to combine the outputs from two u.h.f. aerials, followed by optional amplification and then splitting. Fig. 3 (centre): U.H.F./V.H.F. diplexing with a wideband amplifier to make good the insertion loss. Fig. 4 (centre right): An alternative approach where the f.m. radio signal doesn't require amplification. Fig. 5 (right): A more elaborate arrangement that distributes signals from VCRs and/or satellite receivers.

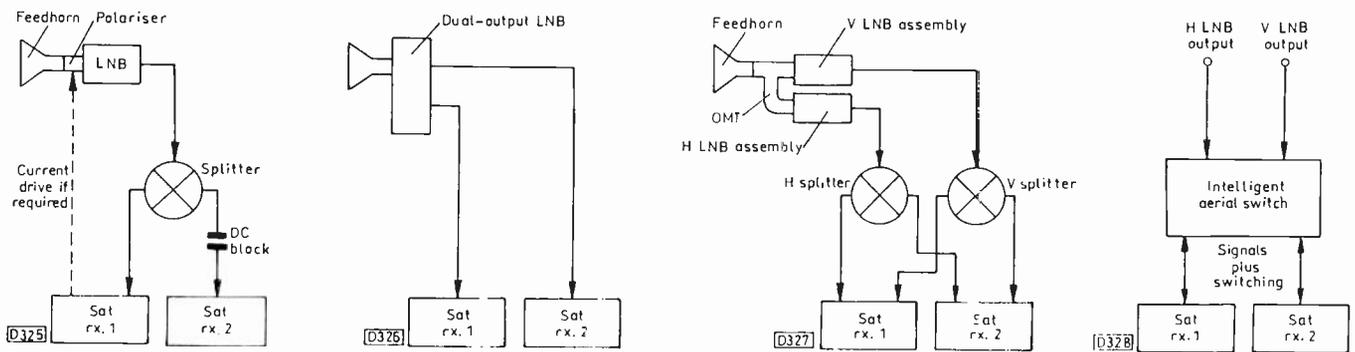


Fig. 6 (left): Simplest way of using the output from a single LNB to feed two satellite TV receivers. An extra lead, shown with broken line, is required where the polariser is current driven.
 Fig. 7 (centre left): Use of a dual-output LNB to feed separate receivers, with voltage-controlled polarisation switching.
 Fig. 8 (centre right): Use of two LNBs, an orthomode transducer and splitters where the polarisers are current driven.
 Fig. 9 (right): Use of an 'intelligent aerial switch' to enable two satellite TV receivers with voltage-controlled polarisation switching to select the outputs from two LNBs independently.

allows for other applications such as security or child monitoring.

Satellite MATV Systems

Satellite master aerial systems are another matter altogether. They require a little more planning since in addition to the r.f. signal the download must carry (as an upload) the power supply for the LNB and some means for polarisation switching. In some cases the latter is done by altering the LNB's supply voltage: with others an external control wire is required. Most of the popular receivers for Astra reception use voltage switching, 13-14V for vertical and 17-18V for horizontal polarisation (assuming normal LNB orientation). With other ranges a separate wire is required to provide the current drive for a magnetic polariser. This has the advantage of enabling fine 'skew' adjustment to be carried out between the horizontal and vertical modes to take into account adverse weather conditions or dish movement with a motorised system. Some commercial MATV systems get around this polariser problem by block converting all the channels with one polarisation to a higher or lower frequency, dispensing with the need for polarisation switching. This approach is too expensive for domestic use – and is not without problems.

As with a single u.h.f. aerial, the simplest approach (see Fig. 6) is to split the output from the LNB and feed it to two receivers. One receiver will always control the polarisation: the other one must be prevented from doing so, either by inserting a d.c. block in the feeder (with voltage switching) or by leaving the polariser feed disconnected (with current switching). Incorporating a d.c. block is good practice anyway, as there's no point in two receivers trying to power one LNB – it could also lead to damage.

The problem with the system outlined in Fig. 6 is that the second receiver can receive only channels with the same polarisation as the one being received by the main receiver. A better system (Fig. 7) is to use a dual-output LNB, with the polarisation of the two outputs selectable independently. Basically such a unit consists of two completely separate, voltage-switched LNBs in one package. Where the receivers provide an output to drive a magnetic polariser, two LNBs and polarisers could be fitted with a single feedhorn and an orthomode transducer (OMT) between the feedhorn and the polarisers – see Fig. 8. An OMT is a piece of plumbing that splits the incoming satellite signal into two orthogonally polarised (at 90° with respect to each other) signals that can then be detected separately. Strictly speaking the polarisers are unnecessary as the OMT provides separation, but with

suitably equipped receivers such as those used in motorised systems they enable skew adjustment to be carried out.

An 'intelligent aerial switch' can be used with receivers that employ voltage switching. The arrangement is shown in Fig. 9. Horizontally and vertically polarised outputs from two LNBs are fed to the switch which in turn feeds two satellite receivers. These select the required polarisation independently by supplying the appropriate voltage to the switch. Switches of this type are manufactured by Global Communications UK. Different versions cater for various requirements, i.e. extra receivers and triplexing for satellite TV, u.h.f. TV and f.m. radio.

Wiring

One problem with these ideas is wiring. When a property is being rewired provision for distribution systems can be arranged by installing a couple of r.f. leads and perhaps loud-speaker leads while replastering. Most of the above ideas require only one interconnecting lead however. It may be possible to use existing wiring where this is in good condition. Many modern houses already have a TV socket and the necessary wiring fitted, so the only changes needed may be up in the loft. Note however that most TV wall sockets incorporate series capacitors to provide d.c. isolation. Where a satellite receiver is to power an LNB or provide switching via the cable these must be replaced with types that are d.c. coupled. Suitable outlet faceplates are available in diplexer and triplexer forms.

In Conclusion

The ideas outlined above are only a few of the many possible ways of distributing signals. Coaxial relays could be used as two-way switches in simple systems. Whatever method is used, it's important to remember that satellite signals are more susceptible than u.h.f. TV ones to degradation introduced by low-quality cables and poor connections. Also that r.f. amplifiers should be used only where absolutely necessary. Subtle interference problems caused by the indiscriminate use of gain can be difficult to cure and are usually more irritating than a weak signal. If a scart cable can be used to interconnect a VCR and a TV receiver, always go for it. As well as providing stereo sound playback with improved picture quality, it means that one less u.h.f. modulator is involved.

Products that enable remote control signals to be transmitted along an MATV cable have been marketed. The infra-red commands are converted to r.f. signals then converted back to infra-red at the remote end.

TV Fault Finding

Reports from Keith Evans, John Edwards, Chris Watton, Michael Dranfield, Terry Lamoon, Brian Storm, Fred Sander, Alfred Damp and Nick Beer

Toshiba 2100RBT

The customer's complaint was that "it blinks but doesn't work". When we applied power to the set the standby LED pulsed but there was no other operation. Investigation in the power supply area led us to suspect the mains bridge rectifier's 120 μ F, 400V reservoir capacitor C820. Fitting a replacement restored normal operation. Because electrolytic capacitors of this size and value are not that common we ordered two from Toshiba in readiness for the next casualty.

K.E.

STR451 regulator itself (Q801) had failed. Both items were replaced.

J.E.

Panasonic TX2450 (U5 Chassis)

We don't get many sets with colour faults these days. So we were surprised that our customer reported loss of colour with this one. Sure enough on test the set produced an excellent monochrome picture without a hint of tint. Having been caught out before when one of the kids has wound the saturation control down we toggled the remote control buttons in the hope of some colour, but alas the picture remained in monochrome.

On removing the back we homed in on the TDA3562A colour decoder chip IC601. Voltage checks proved inconclusive, and the scope showed that a healthy chroma input signal was present at pin 4. Tweaking the reference oscillator trimmer C610 made no difference, neither did a new 8.8MHz crystal, but a new TDA3562A restored glorious colour.

K.E.

Ferguson TX90 Chassis

As the fuse on the secondary side of the mains transformer was blackened it was no surprise to find that two of the rectifier diodes and the T9064V line output transistor were short-circuit. When these had been replaced and the set was switched on the fuse blew again. The culprit turned out to be the resistor in the degaussing circuit – it was arcing internally.

J.E.

NEI 14FRE

There was a blank raster, even with the first anode voltage increased, though the supply voltages were all present and correct and the tube's heaters were glowing. A check on the sandcastle pulse at pin 8 of the TDA3560 colour decoder chip (always a good place to start) showed that it was missing. The pulse was present at pin 17 of the TDA2579 timebase generator chip. When we followed the print from this to the decoder chip we came to an above board wire link which had a nice, healthy sandcastle pulse at one end but nothing at the other. The link looked o.k., but resoldering it enabled the pulse to reach its destination, restoring the picture.

J.E.

Philips CP110 Chassis

The sound was o.k. but there was a blank screen. I turned up the first anode control expecting to see a white line across the middle of the screen but instead was greeted by a full blue raster with flyback lines. Checks on the tube base panel proved that Tr7405 (BF423) in the blue output stage was short-circuit. A replacement and a good resoldering of all the transistors on the panel produced a nice picture – after readjusting the first anode control of course.

J.E.

Amstrad CTV2200

The cause of field collapse was traced to C828 (100 μ F, 35V). IC801 is normally responsible for this fault, but not on this occasion.

J.E.

Ferguson TX99 Chassis

There was no remote control operation. The on-board controls worked normally and a test showed that the handset was transmitting. So attention was turned to the infra-red receiver in the set. When this was removed the cause of the fault was immediately obvious. One of the three leads connected to the module was broken where it's soldered to the PCB.

J.E.

Sony AE1 Chassis

Intermittent picture and sound was the complaint with one of these sets. We found that all the connections to the 2SD1548LB chopper transistor Q608 were dry-jointed. When the surge limiting resistor R805 (1.2 Ω) in the 200V supply goes open-circuit you get the blank raster with flyback lines symptom.

J.E.

Matsui 1460

When this set was switched on the relay clicked and the channel display worked but otherwise the set remained dead. A resistance check at the regulator chip's output pin indicated that a short was present. Normally the cause is the R2M over-voltage protection diode D805, but this time the

Ferguson TX10/Tristar Rebuild

These teletext sets were produced around 1990/1 and consist of a reconditioned TX10 chassis, a new tube and cabinet and remote handset. For those who come across one of them for the first time, the search tuning controls are very small buttons at the right-hand side of the cabinet, about eight inches from the bottom and about an inch in from the cabinet/back cover seam. The preset volume, contrast, brightness and colour controls are on the remote control panel inside the cabinet. There's a programme display at the front of the set, but unfortunately the on-screen channel status doesn't agree with the

number shown in the display. For example with Channel 4 on programme 4 the display shows 4 while the on-screen status shows BBC-1. How confusing! To put matters right, change the TAC (text acquisition and control) chip on the teletext decoder panel from type SAA5040C to type SAA5040A – the suffixes C and A determine the on-screen display. C.W.

Philips KT4/K40 Chassis

We had trouble with repeated failure of the TDA3650 field output chip every few weeks. On the first occasion we attended to a good crop of dry-joints. We eventually decided to replace the BYV95B 26V supply rectifier D6186 and its 3,000µF reservoir capacitor C2187 when fitting a new TDA3650. There were no further problems. C.W.

Sony K VX25TU

The raster was severely cramped at the bottom of the screen and stretched at the top. When I removed the back cover I longed to see a PCL805! Instead however I saw a 680µF, 25V capacitor, C531, with its case split. Could it have been connected to the cathode of something?! C.W.

Triumph CTV8212

This set wasn't completely dead as the remote relay in the power supply clicked, but the h.t. had fallen to 9.5V. Checks in the power supply brought to light two leaky zener diodes, D503 and D505. They are both 3.6V types rated at 1.3W. C.W.

ITT CT2500 (Pico Chassis)

The cause of failure of the power supply to operate was traced to the ZPY120 120V over-voltage protection zener diode D658. On test it read 3kΩ in both directions. C.W.

Philips CP90 Chassis

This set was dead with the line output transistor short-circuit. In this case the cause was a poor connection at the scan coil plug/socket. As the pin had blackened, the lead/plug and socket were all replaced. C.W.

Granada C59GZ7

There was no picture and we had no circuit diagram for the set, which is full of digital things. Difficult, but we must try! The power supply worked, and various voltages marked on the panel were correct. The tube's heaters were alight, and there were good e.h.t., focus and first anode voltages. But the voltages at the tube's cathodes were high at about 185V. When the setting of the first anode control was advanced a peculiar barrel-shaped illumination was obtained. This was no sort of raster: it was a reflection of a collapsed field, deflected off the screen's viewing area. A replacement TDA8172 field output chip (IC570) together with resoldering a million dry-joints restored the picture. C.W.

Philips CP110 Chassis

The mains fuse was shattered and two of the diodes in the bridge rectifier circuit were short-circuit. After replacing all four bridge rectifier diodes and fitting a new fuse the set was still dead. A check showed that the output produced by the bridge rectifier was 180V instead of 290V. Assuming

that I'd put the diodes in the right way round, there was only one possible cause, the reservoir capacitor. A new 150µF, 385V capacitor restored the power. C.W.

Hitachi CPT2158

This set led us a dance over some months. The initial complaint was that repeated pressing of the on/off switch was required before the set would come on. But no fault could be found during its repeated visits to the shop. Then on one occasion we found that the 2SD1877 line output transistor had failed. In fact it would fail after about four weeks, and the customer continued to complain about the need for continued on/off operation. Many components were replaced and dry-joints resoldered. We ran the set daily for three weeks in the shop, but the 2SD1877 failed only at the customer's house where the set was being run from a three-way adaptor, along with an electric fire and a table lamp. With thoughts of the G11, we felt that this could be the cause. We sold the customer a four-way trailing socket, but the set continued to come back.

A chance discovery led us to the cause of the fault. If the set was left in a very cold place it would trip at switch on, with a large e.h.t. surge. Since the crowbar Q706 is fired by excessive line pulses at pin 1 of the LOPT, it seemed likely that the power supply's output varied with temperature. We connected a 100W bulb across the power supply's output as a dummy load and found that the 152V output could be made to rise to 250V if C917 was cooled. This capacitor is part of the negative feedback control loop: when the feedback falls, the output rises to compensate. In the interests of temperature stability we decided to replace C917 with a 4.7µF tantalum capacitor. Note that it's shown the wrong way round in the manual: D905's anode should go to the negative side of the capacitor. M.Dr.

Fidelity CTV140

The symptoms were full brightness with flyback lines. There was a note attached to the manual: we'd had the fault before, caused by failure of R57 (10Ω) in the supply to the TDA3330 colour decoder chip. Not this time however. On this occasion it was caused by the fact that the 4.7µF, 350V RGB output stages' 160V supply reservoir capacitor C100 had dried out. M.Dr.

Ferguson TX100 Chassis

If the relay is chattering and the line output transistor TR10 is o.k., go straight to the BY299 diode D28 in the h.t. feed to the line output stage. Check whether it has gone short-circuit. If it's all right, suspect the line output transformer. Note that D28 is present in the 110° version of the chassis only. M.Dr.

Hitachi CPT230

For no field sync from cold with this elderly set replace C602 (1µF, 50V). Remember the GEC C2110 chassis?! M.Dr.

Sanyo CBP2145

This set wouldn't come on for the first fifteen minutes. It would then display a snowy picture, and the channel change was sluggish. This kind of fault always leads me to suspect low supply voltages and poor smoothing. Sure enough the culprits were C397 and C364 (both 100µF, 16V). Replacing them restored correct operation. Apparently this is a

common problem with these sets, but it's not when you don't see many of them!

T.L.

Panasonic Euro 1 Chassis

The picture would flash at random, a white raster alternating with a normal picture. In moments of stable operation we also noticed that there were no on-screen graphics. As these are added in RGB form we changed the VDU2416 video processor chip. This of course made no difference. An overdue check on the teletext operation produced a white raster with random graphics characters spread around the screen. After fitting a new TPU2763 teletext chip (IC1761) normal operation was restored.

B.S.

Panasonic Z4 Chassis

This was the second of these sets I've had with intermittent loss of sound. When the fault occurs a sharp tap on the cabinet will cure it. But with the back removed no amount of banging, twisting and pulling will instigate it – which is not surprising when you realise that the dome speaker system is part of the back cabinet assembly, and that if the speaker wires are lightly pulled they both come off! Retightening the connecting plugs to the speaker cures the fault.

B.S.

Philips G90AE Chassis

I've had two of these sets with the following serious problem. During production the junction leads of diodes D6624 and D6642 on the primary side of the chopper circuit weren't cut short enough. As a result, they tended to touch the solder-pad junction of resistors R3627 and R3625 intermittently. This doesn't affect the set in its working mode, but when the set is switched to standby the voltage across the 9V reservoir capacitor C2260 gradually rises from 9.2V to 25V, eventually shorting nearly all the diodes, transistors etc. in this part of the circuit with possible damage, if any attempt is made to switch out of standby, to most of the same items in the primary side of the chopper circuit.

The first set drove me up the wall as it would behave perfectly for a few days before blowing all the above components. Now, before we do anything else when one of these sets comes in for repair, we check the connections to D6624 and D6622.

F.S.

Grundig CUC5310 Chassis

This set came in with the wickman fuse SI624 blown and the chopper transistor T644 short-circuit. These components were replaced and were then destroyed at switch on. Several cold checks had been carried out on the primary side of the chopper circuit to try to find the cause of the transistor's failure. The cause was eventually found on the secondary side, where the 200V rectifier D681 was short-circuit. Replacing this and the other two items restored normal operation, proved by a lengthy soak test.

A.D.

Hitachi G7P Mk II Chassis

The job card said that the set was dead, which was not a totally inaccurate description. When I looked at the power supply several high-value resistors caught my eye – R919, R920 (both 100k Ω) and R932 (120k Ω). The one that looked most distressed had risen in value from 100k Ω to 130k Ω . The other 100k Ω resistor, which looked brand new, was open-circuit. R932, which is connected to pin 4 of the TDA4601 chip to provide chopper transistor collector

current simulation, had risen in value to 130k Ω . When these three resistors had been replaced the set was speaking to us and displayed a picture.

A.D.

Philips KT4 Chassis

This set had a text fault: mix-mode text was visible but wasn't coloured, while in the text mode the screen blanked out. RGB, Y and blanking signals all appeared to be arriving at the TDA3651A chroma processing chip. Replacing it cured the fault.

A.D.

Philips GR1-AX Chassis

The customer complained about low sound. We found that the 5.1V zener diode D6715 was leaky. It's in the volume control line, being mounted adjacent to the TMP47C434-3559 microcontroller chip IC7700.

A.D.

Finlux 3621

There was white patterning at black level with TV, text and AV signals. Noise on a supply line seemed a likely cause, but scope checks on the supplies to the c.r.t. base and drive circuits showed that they were all clean. Still convinced that such noise was the cause of the problem I moved over to the power supply and found that there was 5.5V p-p of hash on the 7V rail. Replacing CG46 (470 μ F, 16V) cleared the fault.

N.B.

Panasonic Alpha 3 Chassis

This set was dead but was making a noise: it was not an overload whine but an unloaded power supply buzz. R555, the fusible link in the h.t. feed to the line output stage, was open-circuit. No shorts could be measured however. Overriding R555 for the purpose of testing showed that initially, at switch on, there was a burst of e.h.t. that was clearly too high – the focus spark gap also fired over. The cause of the problem was the line output transformer T551.

N.B.

Ferguson TX90E Chassis

This is the new TX90 chassis, used in Model B39F, not the original one. Clever of Thomson to decide to reuse a chassis number when there are thousands of the original sets still in service. . . . Anyway, the problem with this particular set was a pattern of white lines over the picture from cold. It was like a beat pattern. There was also an amount of flashing. The fault could be instigated by tapping the chassis anywhere, but careful probing brought me to the tuner unit. By gently squeezing its case without removing the board the fault could be cleared. A new tuner put matters right.

N.B.

Sharp C1420H

There was intermittent hum on vision and sometimes a negative picture. Flexing the tuner internally would instigate and clear the fault. So we sent the tuner to MCES to be rebuilt. When it was returned and refitted we had a superb picture.

N.B.

Philips GR1-AX Chassis

The complaint was about intermittent colour. There was also sometimes a dark, vertical bar about a third of the way across the screen. The fault was far more prevalent with VCR play-

The smallest & most comprehensive Test Pattern Generator money can buy! **NEW!**

Special introductory offer of only

£99

Limited period only. RRP is £155
Price excludes £2.50 p&p & VAT.

Order direct from OZAN

0202 877270

37 Haviland Rd, Ferndown Ind Est
Poole, Dorset. BH21 7SA



Order TELETEST today.
If you are not completely
satisfied, simply return it
within 30 days for a full
'no-quibble' refund.

Test Patterns



Colour Bars



Grey Scale



Crosshatch



Red Purity

Audio Signal



1KHz Sine Wave

Outputs

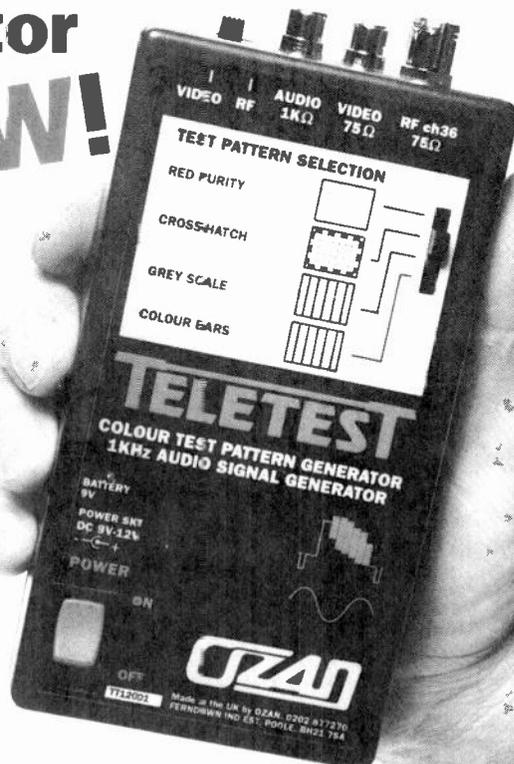
Phono socket:
Composite Video

Phono socket:
Line out Audio

Co-Axial socket:
**Video & Audio
Ch 36 UHF PAL I**
PAL BG version also available

Power

9V PP3 battery
or External PSU
included with TELETEST



Technical Specification

Composite video output: PAL 4.433MHz, 95% chroma (bars), 1Vpp 75Ω
Audio output: 1KHz sine wave, 1Vpp 1KΩ (nominal)
RF output: UHF Ch36 PAL I 6MHz 75Ω (or PAL BG 5.5MHz)
Synchronisation: Fully interlaced, 15.625Hz line frequency
50Hz field rate, all broadcast spec pulses

TELETEST

Size: 155x75x40mm
Weight: 265g
Accessories included:
External PSU
Instructions

TELETEST from OZAN

back. This fact provided the clue. There was a break in the track that leads from pin 10 of the line output transformer around the corner of the PCB where it slides into the back cover (the fault had occurred following a move). **N.B.**

Panasonic Z3 Chassis

This was an odd fault. The set was dead but there was an initial rush of e.h.t. Then almost immediately the set would become inert, with just a buzzing from the power supply. The latter was up and running, with correct h.t., but there was no line drive because the protection circuit was operating. As there were no obvious problems in the deflection circuits and the components in the protection circuit all read correctly, I removed the protection transistor Q451 which was biased on. This revealed the fact that there was field collapse. I soon traced the cause to the MA2270 zener diode D4539 in the field output stage.

Once full scan had been restored the set was left on soak test. After about ten minutes I heard it fire over and saw that the point of distress was in the tube's neck. The h.t. and e.h.t. were fine, the cause of the trouble being a faulty tube. It seems that it had killed off the original zener diode. **N.B.**

Grundig TVR5504

The TV section was in trouble. Intermittently text would flash up over the picture in various corrupted forms, the picture would disappear to give a black raster, or there would be disturbed vision like an off-tune signal. At such times the text couldn't be obtained. The cause of the trouble was dry-joints at the earth links between the top and

bottom print on the text PCB. There are only five or six links, so its worth resoldering the lot. **N.B.**

Sony KVP14U

A colleague had recently attended to dry-joints in the VIF can, the symptoms being loss of vision and tuning, but the set was now back because it was completely dead. The power supply was clearly being shut down by excess current demand at one secondary feed, but there were no measurable shorts in the loads or rectifiers. Eventually we found that the cause of the trouble was the 680pF protection capacitor C608 across the rectifier for the 119V supply. It was breaking down under load. **N.B.**

B and O 8102 (71XX Series)

This set would sometimes stick in the standby mode, particularly when it was cold. Occurrence of the fault was totally random, and neither heat nor freezer would instigate or clear it. Generally once the set had started it could be restarted from standby without problem. The cause of the trouble was that R20 on the remote control/microcontroller panel had gone high in value. If you find that a 2.7MΩ resistor is fitted in this position, replace it with an 820kΩ resistor. Note that two different PCBs are used in this chassis. **N.B.**

Grundig CUC3400 Chassis

From cold this set wouldn't change channels. The number would change, but there would be no tuning. The cause was a dry-joint at pin 15 of the tuner/i.f. unit's socket – the tuning voltage supply pin. **N.B.**

ECONOMIC DEVICES 32 TEMPLE STREET, WOLVERHAMPTON, WV2 4AN

15/80H	3.83	ZSC1398	0.80	ZSD401	3.46	8AX14	0.28	8D189	0.48	8F870	0.23	8YV96D	0.27	LM393N	1.19	SDA2112	11.00	TA7122BP	0.63	TD1170N	1.38	TD49503	2.13	
15/85R	3.84	ZSC143A	2.70	ZSD438	0.34	8B105B	0.24	8D190	0.31	8F959	0.18	8YW56	0.46	M192B1	1.86	SG264A	10.62	TA7146P	7.70	TD1170S	1.16	TD49504	4.98	
17052	3.85	ZSC1509	0.72	ZSD476	0.97	8C107B	0.20	8D201	0.40	8F960	0.27	8YX5560	0.20	M21C	1.65	SG613	18.79	TA7176P	1.78	TD1190Z	4.08	TD49509	1.61	
17053	2.38	ZSC1520	0.54	ZSD525	1.27	8C108	0.15	8D203	0.46	8F966	0.61	CA1310E	0.78	M293	14.63	SGF344	6.93	TA7193AP	6.77	TD1200	0.91	TD49510	1.87	
17088	2.38	ZSC1573	0.36	ZSD551	0.58	8C109A	0.16	8D232	0.45	8F970	0.30	CA3094	3.06	M490	15.30	SKE4F104	0.97	TA7193P	7.09	TD1270	0.79	TD49519	2.15	
17089	3.39	ZSC1573Q	0.26	ZSD5513	3.94	8C109B	0.15	8D234	0.34	8F939	0.43	CD4001	0.21	M491	7.94	SKE4F210	0.87	TA7205AP	1.68	TD1412	1.77	TD49518A	1.48	
17127	1.77	ZSC1675	0.09	ZSD636	0.19	8C117	0.14	8D237	0.30	8F941	0.44	CD4011	0.21	M5015AP	3.24	SKE5F310	1.68	TA7207P	1.68	TD1506	4.59	TD49516	2.69	
1N4001	0.04	ZSC1685	0.21	ZSD637	0.16	8C139	0.33	8D238	0.24	8F990	0.61	CD4013	0.34	MS1102L	1.77	SL1430	0.87	TA7210P	1.50	TD1510	3.40	TD49515	1.68	
1N4002	0.07	ZSC1740	0.14	ZSD667	0.39	8C140	0.21	8D239	0.29	8F990A	0.77	CD4016	0.14	MS1231P	2.03	SL1431	1.57	TA7214P	3.74	TD1512	3.17	TD49516G	0.82	
1N4003	0.05	ZSC1741	0.17	ZSD669	0.63	8C141	0.34	8D241	0.41	8F991	0.60	CD4021	0.43	MS1293AP	4.64	SL1432	0.54	TA7217AP	1.37	TD1515A	2.54	TD49516M	0.75	
1N4004	0.07	ZSC1815	0.17	ZSD699A	0.63	8C147A	0.06	8D243	0.39	8F996	0.53	CD4052	0.29	MS1515L	2.01	SL471	0.54	TA7222	1.60	TD1516Q	3.32	TD49517	0.59	
1N4005	0.09	ZSC1826	0.72	ZSD716	1.46	8C148	0.12	8D243A	0.43	8F992A	0.48	CD4053	0.39	MS1521L	0.34	SN29764AN	1.99	TA7227P	2.29	TD1518Q	2.81	TD49518	0.36	
1N4006	0.06	ZSC1827	1.00	ZSD718	2.21	8C148A	0.06	8D243C	0.44	8F995	0.55	CD4066	0.30	MS1521L	0.34	SN29764AN	1.99	TA7230P	1.80	TD1701	3.67	TD49519	1.71	
1N4007	0.06	ZSC1845	0.26	ZSD734	0.24	8C148B	0.04	8D244A	0.34	8F996	0.34	CD4069	0.30	MS1521L	0.34	SN29764AN	1.99	TA7233P	1.95	TD1870	3.37	TD49520	0.58	
1N4148	0.04	ZSC1846	0.51	ZSD762	1.78	8C149	0.04	8D244C	0.42	8F995	0.34	CD4070	0.21	MS213P	0.55	SN7474N	0.98	TA7230P	1.80	TD1904	1.21	TD49521	0.57	
1N4448	0.06	ZSC1923	0.14	ZSD774	1.15	8C149C	0.04	8D245C	0.92	8F990	0.27	CDX62A	2.78	SN76013ND	2.78	SN76227N	1.07	TA7240P	2.46	TD1905	1.27	TD49522	0.42	
1N5061	0.38	ZSC1942	3.57	ZSD787E	0.46	8C157	0.13	8D246C	0.97	8F991	1.15	CR3CM	3.44	MS4548L	1.97	SN76227N	1.07	TA7240P	2.46	TD1905	1.27	TD49523	0.48	
1N5402	0.12	ZSC1959	0.11	ZSD837	0.90	8C159	0.06	8D247A	0.56	8F993	0.57	CR103	4.49	MS4548L	2.41	SN76666N	2.20	TA7241	2.30	TD1905	1.21	TD49524	0.42	
1N5404	0.13	ZSC1969	2.46	ZSD841	1.45	8C161	0.27	8D317	1.20	8R303	1.22	CV12E	4.19	MS4548L	4.95	SN76705AN	2.54	TA7250	4.03	TD1908A	3.42	TD49525	0.48	
1N5406	0.12	ZSC1983	1.87	ZSD856	1.03	8C167	0.42	8D318	1.29	8R344	1.02	CV12E	4.19	MS4548L	3.30	ST341M	2.54	TA7267P	2.02	TD1940	2.77	TD49526	0.46	
1N5408	0.12	ZSC2001	0.22	ZSD869	5.18	8C171B	0.30	8D380	0.34	8R556	0.43	DX10910	7.05	MS4648L	6.87	ST4401	4.10	TA7270	1.00	TD1950	1.86	TD49527	0.48	
1N914	0.04	ZSC2073	0.77	ZSD870	3.81	8C177	0.14	8D433	0.29	8SS38	0.33	DTA144EF	0.17	MS4895P	20.45	ST4441C	2.80	TA7270P	1.95	TD2002	0.85	TD49528	0.83	
1S1555	0.22	ZSC2078	0.85	ZSD871	5.08	8C178	0.25	8D434B	0.34	8T120	1.28	ER1400	0.47	MS4895P	5.95	STK0029	12.04	TA7271P	2.65	TD2004	1.44	TD49529	0.30	
1S2076	0.29	ZSC2141	1.48	ZSD880	0.48	8C182L	0.06	8D435	0.38	8T129	4.38	ER1400	0.47	MS4895P	2.38	STK0039	7.11	TA7273	3.64	TD2005	1.44	TD49530	0.46	
2N2219A	0.27	ZSC2166	1.27	ZSD882	0.43	8C182LB	0.06	8D436	0.32	8T13960M	1.87	HA11235	1.95	MS4895P	1.95	STK0040	9.70	TA7274P	2.72	TD2006	1.06	TD49531	0.94	
2N2222	0.22	ZSC2168	0.85	ZSD898B	7.78	8C184	0.09	8D437	0.32	8T151500R	1.10	HA11244	0.81	MS4895P	3.63	STK0059	7.45	TA7280	2.69	TD2009	2.29	TD49532	0.17	
2N2905	0.21	ZSC2236	0.36	ZSD904	5.95	8C184C	0.06	8D438	0.31	8T151800	1.15	HA11244	0.81	MS4895P	2.79	STK025	10.58	TA7299	2.63	TD2020	3.72	TD49533	0.32	
2N2926G	0.37	ZSC2271	0.36	ZSD913	0.38	8C184C	0.10	8D441	0.34	8T151800	1.15	HA11244	0.81	MS4895P	2.79	STK025	10.58	TA7299	2.63	TD2020	3.72	TD49534	0.30	
2N3053	0.36	ZSC2274	0.31	ZSD913	741.500	0.21	8C204	0.14	8D442	0.29	8U208A	1.44	HA11440	3.46	MS4895P	1.62	STK0362	8.88	TA7317P	0.93	TD2030V	1.05	TD49535	0.44
2N3054	0.98	ZSC2274K	0.31	ZSD913	741.500	0.21	8C204	0.14	8D442	0.29	8U208A	1.44	HA11440	3.46	MS4895P	1.62	STK0362	8.88	TA7317P	0.93	TD2030V	1.05	TD49536	0.44
2N3055	0.86	ZSC2314	0.33	ZSD913	741.500	0.21	8C204	0.14	8D442	0.29	8U208A	1.44	HA11440	3.46	MS4895P	1.62	STK0362	8.88	TA7317P	0.93	TD2030V	1.05	TD49537	0.44
2N3442	1.00	ZSC2335	1.43	ZSD913	741.500	0.21	8C204	0.14	8D442	0.29	8U208A	1.44	HA11440	3.46	MS4895P	1.62	STK0362	8.88	TA7317P	0.93	TD2030V	1.05	TD49538	0.44
2N3702	0.11	ZSC2458	0.12	ZSD913	741.500	0.21	8C204	0.14	8D442	0.29	8U208A	1.44	HA11440	3.46	MS4895P	1.62	STK0362	8.88	TA7317P	0.93	TD2030V	1.05	TD49539	0.44
2N3704	0.14	ZSC2482	0.34	ZSD913	741.500	0.21	8C204	0.14	8D442	0.29	8U208A	1.44	HA11440	3.46	MS4895P	1.62	STK0362	8.88	TA7317P	0.93	TD2030V	1.05	TD49540	0.44
2N3773	1.27	ZSC2547E	0.24	ZSD913	741.500	0.21	8C204	0.14	8D442	0.29	8U208A	1.44	HA11440	3.46	MS4895P	1.62	STK0362	8.88	TA7317P	0.93	TD2030V	1.05	TD49541	0.44
2N3819	0.55	ZSC2565	0.61	ZSD913	741.500	0.21	8C204	0.14	8D442	0.29	8U208A	1.44	HA11440	3.46	MS4895P	1.62	STK0362	8.88	TA7317P	0.93	TD2030V	1.05	TD49542	0.44
2N3904	0.11	ZSC2570A	0.29	ZSD913	741.500	0.21	8C204	0.14	8D442	0.29	8U208A	1.44	HA11440	3.46	MS4895P	1.62	STK0362	8.88	TA7317P	0.93	TD2030V	1.05	TD49543	0.44
2N4444	3.22	ZSC2577	9.99	ZSD913	741.500	0.21	8C204	0.14	8D442	0.29	8U208A	1.44	HA11440	3.46	MS4895P	1.62	STK0362	8.88	TA7317P	0.93	TD2030V	1.05	TD49544	0.44
2N6292	0.62	ZSC2581	3.05	ZSD913	741.500	0.21	8C204	0.14	8D442	0.29	8U208A	1.44	HA11440	3.46	MS4895P	1.62	STK0362	8.88	TA7317P	0.93	TD2030V	1.05	TD49545	0.44
7SA1015	0.10	ZSC2632	0.43	ZSD913	741.500	0.21	8C204	0.14	8D442	0.29	8U208A	1.44	HA11440	3.46	MS4895P	1.62	STK0362	8.88	TA7317P	0.93	TD2030V	1.05	TD49546	0.44
2SA1016	0.26	ZSC2655	0.31	ZSD913	741.500	0.21	8C204	0.14	8D442	0.29	8U208A	1.44	HA11440	3.46	MS4895P	1.62	STK0362	8.88	TA7317P	0.93	TD2030V	1.05	TD49547	0.44
2SA1020	0.43	ZSC2671	0.68	ZSD913	741.500	0.21	8C204	0.14	8D442	0.29	8U208A	1.44	HA11440	3.46	MS4895P	1.62	STK0362	8.88	TA7317P	0.93	TD2030V	1.05	TD49548	0.44
2SA1020Y	0.43	ZSC2688	0.52	ZSD913	741.500	0.21	8C204	0.14	8D442	0.29	8U208A	1.44	HA11440	3.46	MS4895P	1.62	STK0362	8.88	TA7317P	0.93	TD2030V	1.05	TD49549	0.44
2SA1095	7.44	ZSC2765	0.36	ZSD913	741.500	0.21	8C204	0.14	8D442	0.29	8U208A	1.44	HA11440	3.46	MS4895P	1.62	STK0362	8.88	TA7317P	0.93	TD2030V	1.05	TD49550	0.44
2SA1102	2.54	ZSC2791	5.44	ZSD913	741.500	0.21	8C204	0.14	8D442	0.29	8U208A	1.44	HA11440	3.46	MS4895P	1.62	STK0362	8.88	TA7317P	0.93	TD2030V	1.05	TD49551	0.44
2SA1143	0.17	ZSC3150	1.53	ZSD913	741.500	0.21	8C204	0.14	8D442	0.29	8U208A	1.44	HA11440	3.46	MS4895P	1.62	STK0362	8.88	TA7317P	0.93	TD2030V	1.05	TD49552	0.44

SPECIAL OFFERS - ENDS 30/06/94 OR WHILE STOCKS LAST

BU208A x 5	3.99	TDA 4610 x 2	2.55
BU 426A x 5	3.75	STANDARD VIDEO SENSOR LAMP x10	2.50
BU 508A x 5	3.60	STANDARD VIDEO SENSOR LAMP	4.00
BU 508AF x 5	5.00	+ PLUG x 10	4.00
BUT 11AF x 5	3.25	VT11E ETC. BELT KIT x5	5.50
TV FAULT FINDING GUIDE	9.99	3V29 ETC. BELT KIT x 5	4.50
VIDEO FAULT FINDING GUIDE	9.99	3V35/6 ETC. BELT KIT x 5	4.25
SATELLITE FAULT FINDING GUIDE	14.95	SCART TO SCART LEAD 1.5m ALL PINS	2.90
PHILIPS 1.2 VOLT BACK UP BATTERY x 5	4.50	CONNECTED x 2	4.00
PHILIPS 2.4 VOLT BACK UP BATTERY x 5	8.75	COAX PLUG TO COAX SOCKET 2m x 10	4.00
TDA 3654 x 2	2.50	COAX PLUG TO PLUG 2m x 10	4.00

2SA1175	0.25	ZSC3153	2.37	AD161	1.02	8C307B	0.06	8DX32	1.70	BU705	1.61	HM7103	16.44	MPSA42	0.23	STK5326	6.7
---------	------	---------	------	-------	------	--------	------	-------	------	-------	------	--------	-------	--------	------	---------	-----

THE GREENWELD

1994

SUPER SENSATIONAL SUMMER SALE

We're back again with a bigger & better SALE than ever before! Our stores are bulging with surplus stock we need to clear! We need to shift this mountain of material FAST! So the prices are lower than ever; the choice is wider than ever; & the stock is better than ever! Don't miss the boat - at these prices, goods fly out, so place your order by phone, fax, post or in person TODAY!



ECLIPSE

ELECTRONIC ANTI-DAZZLE MIRROR

Reduces eye strain & tiredness
Automatic operation
Safety glass
Easily fitted
Uses internal or car battery
Made in the UK

The Mirror that dips by itself

Removes headlight dazzle from behind
Dips in 1/10 second
Sensitivity selector
Battery operated, easily fitted
Complete with accessories
Order Code: Z5693

½ PRICE!! £4.95

AIR PURIFIER AND IONIZER

BO47E

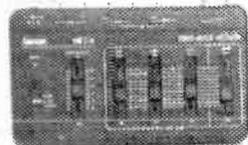


A compact, stylish ionizer and air purifier designed specifically for car, truck and bus use with a coverage volume of 14m³. Removes unpleasant smells, airborne dust, bacteria, tobacco smoke, etc. Supplied with a double sided self adhesive pad.

Power 12Vdc 1.8W
Dims 110 x 65mm

½ PRICE!! £2.95

Stereo Video Mixer



VM516 Desk type video mixer with enhancer. Allows separate smooth adjustment and mixing of original video sound with 3 external sources (mic, cassette etc). Master output control. Also

continuously adjustable slider corrects video signal when copying. Supplied with 12V mains adaptor

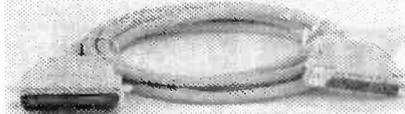
½ PRICE!! £19.95

ALL THESE CAN BE YOURS

FREE

- Z5557 Clock Module
- Vero Easiwire
- Z9210 Spectrum Keyboard
- Z5740 Extn Speakers
- AA12531 Switch Mode PSU
- Z8939 Cablevision
- Z3458 'D' Lithium Battery
- Z5744 Windows 3.0

See Page 34 for details



Z5775 Amazing deal on printer cables. Brand new, individually bagged. 25 way D plug to 36 way Centronics plug. 1.8m long. You'd normally pay anything up to £6.95 for one of these.

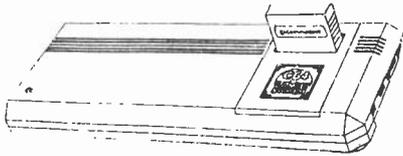
½ PRICE!! £1.95

Greenweld Electronics Ltd

27 Park Road, Southampton SO15 3UQ
Tel: 0703 236363 Fax: 0703 236307

REMEMBER!! Min Order **£15**
P&P **£3**

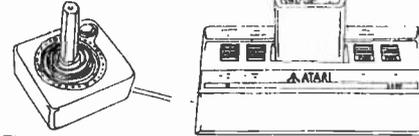
C64 GAMES CONSOLE



TY1 Clearing final stocks of this popular console. They are customer returns, and are sold "as seen" - no test, no guarantee, except they are complete. Final reduction to £20

SALE PRICE £5

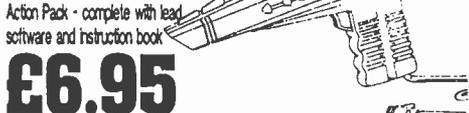
Atari 2600 Games Console



These popular consoles are complete, refurbished units with joystick, power supply, TV lead and games cartridge (Centipede). **£29.95**

SALE PRICE £9.95

SPECTRUM +2 LIGHT GUN



Action Pack - complete with lead software and instruction book
£6.95
 Free!! with every light Gun - 8 Extra Games!!
 (Z5564 -6 + additional cassette)

SALE PRICE £2

Maximiser

Z8953 Complete unit with power supply and comprehensive instructions. Designed to add the facilities of error correction, speed buffering, encryption (optional) and a battery backed data store with a printer port to existing modems capable of speeds up to 2400 baud. Easy to use. (Send £5 returnable deposit for user manual for further information). **£20.00**

SALE PRICE £7.95

CROSSTALK XVI

Z5495 Another super software deal! We've purchased a number of the best selling CROSSTALK XVI data comms packages. New and sealed containing a 5.25" disk and 182 page manual, PC DOS V3.61, last selling for around £60. Our special low price just **£17.95**

SALE PRICE £8.95

'INDIVIDUAL' Tutors
 Nicely boxed sets for IBM PC's with handbook and disk

Z5447 Learn to type - 5.25" disk only. **£1.95**

SALE PRICE £1.00

Z5448 Learn to use DOS 5.25". **£3.95**

SALE PRICE £2.50

Z5450 Learn to use DOS3.5". **£3.95**

SALE PRICE £2.50

Z5451 Learn to use your PC, 5.25" disk only **£1.95**

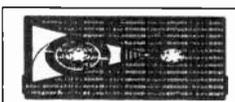
SALE PRICE £1.00

SPECIAL PRICE WHILST STOCKS LAST

Z5687 Top quality branded disks by Fuji - 3.5" DS DD in sealed boxes of 10 **£6.00**; 10 + 4.80; 25 + **£4.40**

SALE PRICE 10 for £4.50

Spectrum Games Cassettes



Z1101 Sinclair P15/G Pack, 7 cassettes (no library cases) in a boxed set with over 100 games, all with documentation.

ONLY £2.95

SALE PRICE £1.50

Magnetic card reader head - used for detecting when credit card or similar is swiped. Made by DRH. Type no 01.635. No other info (but our technical expert is working on it).

Order Code **Z2121**
 Prices **£2.00** 100 + £1.00

SALE PRICE 2/£1.00

Z8940 2400 ft of superb quality used 0.5" tape on 10" reels. 6250 CPI. Various manufacturers. Supplied in carrier. New, they cost £12.00. Could probably be used as video tape - we're checking this out. Meanwhile, why not buy a few reels - useful as cheap 'twine' for tying up garden plants etc!!

Price **Only £2 a reel**
 - or come and collect **100 for £50 + VAT**

SALE PRICE £1.00

WORDS & FIGURES by **LIFETREE**

Comes with 546 page manual and spread out menu + disks, all in a library case
 Z5442 5.25" version
 Z5443 3.5" version

Features Include: Z5443 3.5" version

- Spreadsheet**
- 1-2-3 1A compatible .WKS files
 - 9999 rows by 256 columns
 - Supports 1-2-3 1A functions, macros
 - Protected and hidden cells
 - Horizontal or vertical split screen
 - Move, copy, transpose ranges
 - Sparse matrix data storage
 - Supports LIM: Expanded Memory
 - Uses 8087, 80287 math coprocessor
- Word Processor**
- Include "live" spreadsheet data in document
 - Two-line headers and footers
 - Bold, underline shown on-screen
 - Global find and replace
 - Right & left justify, centering
 - Automatic reformat, word wrap
 - Import text from ASCII files
 - Supports over 200 printers
- Auditor**
- Toggle from worksheet to audit display with a single command
 - Pinpoint circular references
 - Identify source of other errors
- Data Management**
- Three-key data sort
 - 7 database statistical functions
 - Query using up to 32 search criteria, wild card parameters
- Graphics**
- Line and XY graphs, scatter plots, pie bar and stacked bar charts
 - Superset of 1-2-3 1A type fonts
 - High-resolution display (EGA, Hercules)
 - High-resolution output to printers and plotters

ONLY £14.95

Requirements: DOS 2.0 or higher, 256K RAM two disk drives, monochrome or color display

Printers: Text—over 200 including Epsoms, IBM, Tandy, HP LaserJet™ and many others; Graphics—Epson, HP LaserJet, PostScript™ printers, and others

3 1/2" disk version available requires 1 disk drive

SALE PRICE £9.95

SPACE

Z5809 Brand new software (Mar 93) from a Company that recently went bust - SPACEManager. Compression tool for MS-DOS6 and Windows users. Boxed, sealed product. 48 page handbook & 3.5/5.25" DD disks. RRP £82.20. Our Price **£29.95**

SALE PRICE £9.95

All these titles for use with Light Guns:

- Z5564 Magnum (48k) 50p
- Z5565 Rookie + Missile Ground Zero (+2) 50p
- Z5566 Solar Invasion + Robot Attack (+2) 50p
- Z5567 Also one for the Amstrad (Magnum) - this is a C60 cassette and could be used for music. Pack of 10 **£2**; 100 **£12**

Any Mix
SALE PRICE 10 for £1.00

GREENWELD

27 Park Road, Southampton SO15 3UQ
Tel: (0703) 236363 Fax: (0703) 236307

SUPER SENSATIONAL SUMMER SALE

Computers Inc. Keyboards

3

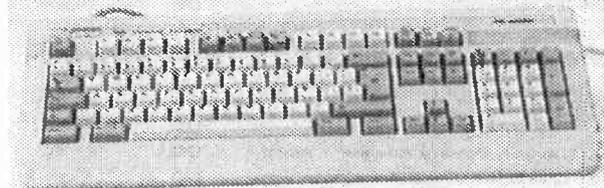
SPECTRUM



Z9210 Complete keyboard for the +3 - keytops, membrane and cover. 2 flexible connectors. Spanish version.

SALE PRICE £1.50 **£2.95**

SECOND HAND KEYBOARDS

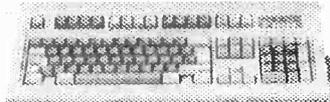


Amstrad keyboard returns - please note these are not new and have not been tested by us. They are complete undamaged units, however. Nearly all have foreign keys.

Z9213 PC2086 Z9216 PC2386
Z9215 PC2286 Z9217 PC3086

All at the same price

£3 EACH **£2.00**



Z9214 Commodore PC keyboard - untested return

£3.00

Z9215 Amstrad PC1640 keyboard - untested return

£2.00

COMPUTER PRODUCTS:

CODE NO.	DESCRIPTION	PRICE
Z4133	Corgi Telecontrol. Neat 2 part black plastic case 100x60x25mm with 3 rcd control switches, 2W, 3W and 8W. Believed to come from a low cost game. 1m long 5 core lead attached	Only 50p
ZZ4139	Skeleton version of Currah µSlot. 'T' connector (1 female, 2 male) for the Spectrum enabling 2 peripherals to be connected at one time. Further µ slots can be added allowing more peripherals to be added. No plastic case.	Only £1.00
Z4155	8" Floppy Discs. BASF Flexidisc SS/DD in packs of 10 (List £32.00).	£9.00
Z4159	Qume Printer Ribbon.	Only £1.00
Z4239	BBC Music Software Mupados Recorder Classroom Ensemble Network Pack, for use with Z4228. Includes 2 disks, a cassette and book.	Only £4.95
Z4326/7	Music Master 5¼" 40/80 Disks for BBC	Only £14.95
Z4328	Mupados Recorder Tutor 5¼" 40 Track Disks.	Only £7.95
Z4329	Mupados Recorder Tutor Ensemble Pack.	Only £2.95
Z4330	Mupados Recorder Tutor Duelt Pack	Only £2.95
Z4332	Micro Master Keyboards.	Only £4.95
Z4333	Micro Master Concert Pitch.	Only £4.95
Z4334	Micro Master Keyboards B ⁷ Fiat.	Only £4.95
Z5123	Eurocard Sized Modem. Fully functional brand new and boxed. Standard 160x100mm with DIN41612 connector. Only 300 baud, but at the price we're asking represents superb value for money!! - needs ± 12V.	Only £5.95
Z5130	Spectrum Interface. PCB has 28 way DS edge connector one end and socket the other, with a single Z80A P10 chip. There's a 20 way IDC socket on the end of a meter long piece of ribbon cable, too. Vacuum formed plastic case.	Only £2.00
Z5132	CBM Interface. This only has a 12 way 0.156" DS socket and lead.	Only £2.00
Z5269	Olivetti Cartridge Ribbon - correctable carbon type 16.5mm wide x 120mm long, lexicart 90/92 Type No. 568N	Only £1.00
Z5270	Black Nylon Ribbon type NCR 499 12.4mm wide by Caribonum	Box of 4 £2.00
Z5303	Spectrum Joystick Interface. In case 77x80x20. PCB has LS366 and LS138, 9 pin 'D' plug and 23w edge connector. Made by Cheetah for spectrum.	Only £1.50
Z5435	Amstrad PD1 Control pad. For use with the Amstrad GX4000, 464+ and £128+.	Only £3.95
Z5437	Rape Alarm. 4 in 1 super body alarm - use as a torch, and mugging alarm, Door/Window alarm, fire alarm. Well made tough plastic case finished in black, overall size 135x50x32mm. Uses PP3 and 2xAA cells (supplied).	Great Value at £14.95
Z5525	Captain Grant joystick for the ATARI etc.	Only £4.95
Z5562	Aristocord parallel/centronics interface card for Apple II. New and boxed with 1.2m printer lead and handbook. Made by Simon Computers Ltd.	Only £7.50
Z5578	Spectrum Programmable Interface - No Batt No. IC	2 for £1.00
Z23154	Nylon printer ribbon type N465, ref KSR430. Boxed.	Only £1.50
Z8958	Modem Returns - model 21/23/AD (same as our Z8937). No idea what's wrong with them - some have fault labels on them. Supplied complete with plug in PSU.	Only £15.00
Z8826	Phillips PG3650 Comp. Board. Without handbook. Features: high and low level inputs; 32 single or 16 diff inputs. 16Mb memory space 12 bit resolution Amp gains 1 - 1000	Only £25.00 to clear
Z5445	Learn to type 5.25"	Only £3.95

Everything in this box 1/2 Price

ZON X-81 SOUND UNIT

The ZON X-81 sound unit is completely self-contained and especially designed for use with the ZX-81. It just plugs in: no dismantling or soldering. No power pack, batteries, leads or other extras. Manual Volume Control on panel - ample volume from built in loudspeaker. Standard ZX-81 - 16k Rampack or printer can be plugged into ZON-X81 Sound Unit without affecting normal ZX-81 operation. Huge range of possible sounds for games or music. Helicopters, Sci-Fi, Space Invaders, Explosions, Gunshots, Drums, Planes, Lasers, Organs, Bells, Tunes, Chords, etc or whatever you devise! Uses 3 channel sound chip giving programme control of pitch, volume of tones and noise, all with envelope control. Easily added to existing games or programmes using a few simple 'BASIC' lines. Full instructions with many examples of how to obtain effects and the programmes. supplied. Fully guaranteed. £9.55

SALE PRICE **£7.50**

Z9172 ACOUSTIC COUPLER

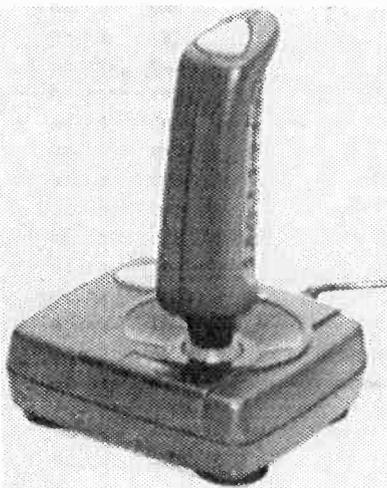
Found a few more of these down our stores - they were originally offered back in 1988 for use with a telephone handset - supplied with ROM cartridge & power supply. £8.00

SALE PRICE **£6.00**

Z9012 Memorex MRX IV ¼" computer tape. 600 ft on 175mm dia spool. 6250BPI. In case, in sealed poly bag. List £7.49

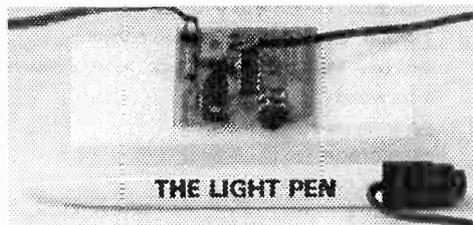
Our price £3.50 50 + 2.00

SALE PRICE **£1.00**



Z5610 Back in stock again - after a very long time! The BBC joystick. Rugged design, high speed sensitive performance, 2 fast response buttons, 4 suction cups and an extra long cord. New & boxed £3.95; 100+ 2.00

SALE PRICE **£2.95**



THE LIGHT PEN

Z5768 Light pen + driver panel. These are not new, but look OK. Pen has BPW14A detector connected to a 1m lead with 3.5mm plug. Panel 52x38mm has 3.5mm socket, 2.1mm power socket, 4011, trimpot + two leads - one with 3.5mm plug, the other with a 2.1mm power plug. Possibly for Spectrum?

ONLY £1.50

SALE PRICE **£1.00**



**SUPER SENSATIONAL
SUMMER SALE**
Computers Inc. Keyboards

GREENWELD
27 Park Road, Southampton SO15 3UQ
Tel: (0703) 236363 Fax: (0703) 236307

EVERYTHING ON THIS PAGE **2** FOR THE **1** PRICE OF

CHEAPO PC, AMIGA, ATARI, ACORN & MAC SOFTWARE

These are the cover disks given away on the front cover of many of the computer mags. The software itself is free - the charge is for the disk & promotion costs.

(a) for the PC

Z3091	PC Today	Sept 93	Fastrax & Overstamp	DD	£1.50
Z3092	PC Today	Sept 93	Tracker 3, dlabel, Brix, Image	DD	£1.50
Z3093	PC Today	Aug 93	Show Business (2 disks); Everyday Adventure, Buyers Guide, Bananold	DD	£3.00
Z3094	PC Plus	Aug 93	4DOS, EC Constitution(!) + utilities, games, spreadsheets/mallmerge tutorials + lots more	DD	£1.50
Z3095	PC Format	Aug 93	Yol Joe, Winrisk, Bullfrog, C	DD	£1.50
Z3096	PC Com. Buyer		Defender, Bullfit, PSearch, Ripbar, Winzip, Macsee, srdsk202	DD	£1.50
Z3104	What Personal Com	Aug 93	Print Shop	DD	£1.50
Z3105	What PC	Aug 93	Profitability, Sky Globe, Galacta	DD	£1.50
Z3106	PC Home	Oct 93	Dashboard, Sink or Swim, Fast!	DD	£1.50
Z3107	PC Review	Sep 93	Even more Incred. machine, Volutare		
Z3108	Windows User		FreshINI, LogOff, MetaMouse, Winclock, Mouse Odometer, Minesweeper + 7 more	DD	£1.50
Z3109	PC Review	Sep 93	Lost Vikings	DD	£1.50
Z3110	Comp Buyer		Top Copy+	DD	£1.50
Z3111	PC Direct	Aug 93	Addit, Dacan, PCRemote, TED, Tracker, Buyers Adviser + more	DD	£1.50
Z3112	Windows mag	No 6	DescribeIt, Fractions, KwikDraw, Quickdex, SmartAccs, WinDock	DD	£1.50
Z3113	PC Today	Oct 93	Visio + 32 page book, Message, Hypercalc, Quick Menu, Chomp, Effective English	2 x DD + book	£3.50
Z3114	What Personal Com	Sep 93	Personal print shop, Comcob 3D + Free screen wipe	DD + wipe	£1.50
Z3115	PC Direct		All star utilities	HD	£2.00
Z3116	Computer Shopper		1st Press for Windows	HD	£2.50
Z3117	PC Home	Sep 93	Intellidraw, Phage Fight, + 6 utils	HD	£2.50
Z3118	PC Plus	Oct 93	Dashboard, Paintshop Pro, Snarf	HD	£2.50
Z3119	PC Format	Sep 93	Incredible Machine, Neopaint 2	DD	£1.50
Z3120	Computer Buyer		Zool	DD	£1.50
Z3121	Windows User		500 Hints & Tips, Product Dir, etc	DD	£1.50
Z3122	What Personal Com	Oct 93	Quicken for Windows	HD	£2.50
Z3123	What Personal Comp	Oct 93	Business Plan Master, Action Pro + others	DD	£1.50
Z3124	PC Plus	Sep 93	Movies, Bookmaker, Waver, Speaker Driver, Guesspeg, Icons	DD	£1.50

(b) for the Amiga

Z3097	Amiga Action		Stardust, Universal Warrior	DD	£1.50
Z3098	Amiga Action		Tensai, Grav Attack, Jump'n'Roll	DD	£1.50
Z3099	Amiga Format		DeLuxe Music, Insectoids2, Amos Source Code	DD	£1.50
Z3120	CU Amiga	62	Interword	DD	£1.50
Z3121	CU Amiga	63	Apocalypse	DD	£1.50
Z3122	CU Amiga	64	Advantage	DD	£1.50
Z3123	CU Amiga	65	Soccer Kid, F117A + more	DD	£1.50
Z3124	The One	Sept 93	F117A 2, Suburban Commando, Deep Core	DD	£1.50
Z3125	The One	Sept 93	Bubba'n'Stix, Overdrive	DD	£1.50
Z3126	Amiga Format	51a	Second Samurai	DD	£1.50
Z3127	Amiga Format	51b	TurboPrint2, Skidmarks	DD	£1.50
Z3128	Amiga Power	29	F117A, Blob, Squigs	DD	£1.50
Z3129	Amiga User Int	Sept 93	Dash, DiskSalv2, PrintGuide, STP, Translate + 8 more	DD	£1.50
Z3130	Amiga Action		F117A, Deep Core, Defender, Suburban Commando, Smurf Hunt, Nicky2, Winning Post	3 x DD	£4.50
Z3131	Amiga Comp		F117A, Abackup, Disksalv, Tool Manager	DD	£1.50
Z3132	Amiga Comp		Caligari, 10/10, Amos	DD	£1.50

(c) for other machines

Z3133	Atari ST Review	17	Prospero C, Critical Mass	DD	£1.50
Z3134	Mac Format	4	Address Book, Accounts, Columns II, Icon Quest, Classic Daleks	DD	£1.50
Z3135	The Mac		Applicount prof 2.6, + 7 games	DD	£1.50
Z3136	Acorn User	Oct 93	Xenon 2, Omnidesk, Morpheus	DD	£1.50
Z3137	Archim. World	Sep 93	Simone, Error throwback, Spricht, ProcFunc, DBFind + more Clip Art	DD	£1.50

GREENWELD

27 Park Road, Southampton SO15 3UQ
Tel: (0703) 236363 Fax: (0703) 236307

SUPER SENSATIONAL SUMMER SALE

Computers Inc. Keyboards



SOFTWARE SUPERMART

Just received 8 pallets of software, books, keyboards and power supplies from one of the major clearance warehouses - they buy in from all over the world, hence the range of foreign language product on this list.

Microsoft ^{+MOUSE} WINDOWS 3.0

Complete boxed set from Amstrad containing 3.5" disks, Manual and Mouse. Same price for either language

£14.95

Z5741 Italian
Z5742 German

Microsoft WINDOWS 3.0

Boxed Set from Hyundai containing Manual and 3.5" disks

£14.95

Z5743 English

Microsoft WINDOWS 3.0

Set of 5 x 5.25" disks only. Same price either language.

£4.95

Z5744 English
Z5756 French

Microsoft WINDOWS 3.0

User's Guide by Hyundai. 640 pages - large format, 210x197mm

£4.95

Z5757 English

Microsoft MS-DOS V4.01

From Hyundai, boxed set of 7 x 5.25" disks, inc. 286/386 systems utilities

£3.95

Z5746 English

Microsoft MS-DOS V3.2

Set of 4 x 5.25" PC Systems disks for the Amstrad PC1640, inc. GEM. Same price for either language

£1.95

Z5748 English
Z5749 French

Microsoft MS-DOS V3.2

Set of 4 x 5.25" PC Systems disks for the Amstrad PC1512, inc. GEM

£1.95

Z5750 English

Microsoft MS-DOS V4.01

+ GW Basic Manual only (no disks) from Hyundai - 640 pages. Also included is shell users guide + Users ref (120 pages)

£2.95

Z5752 English

Amstrad PCW8256/8512 User Guide - Covers CP/M, Logo and Word processor - over 400 pages of useful information

£1.95

Z5761 English

Wordstar

Easy
EXTRA

Word processing and label making software for the PC. Boxed package - 3 books + 6 x 5.25" disks. (Looks the same as Wordstar Express)

£9.95

Z5751 English

Microsoft MS-DOS V5.0

Manual Only by Hyundai

£1.95

Z5753 English

Just found two more pieces of software:

Z5806 Hyundai. 7 x 5.25" disks containing MSDOS 4.01, + 286/386 systems utilities. All in German

£3.95

Z5807 Amstrad. 2 x 5.25" disks containing MSDOS 3.2 in Russian

£1.95

HYUNDAI



PC XT 95 key keyboards in a variety of language options. These are brand new boxed units of an excellent build quality

All the same price
£5

Z9213 French Z9215 Swedish
Z9214 Nordic Z9216 Spanish

Lotus Symphony.....

The full boxed version of this popular piece of business software - word processor, spreadsheet, database and communications modules V2.0 on 5.25" disks. List Price for the English version was £395



£24.95

Z5760 German



SUPER SENSATIONAL SUMMER SALE Hardware

GREENWELD

27 Park Road, Southampton SO15 3UQ
Tel: (0703) 236363 Fax: (0703) 236307

TWO FOR THE PRICE OF ONE

HARDWARE

CODE	DESCRIPTION	PRICE
Z356	Heatsink 80x50mm for TO3.	4/ £1.00.
Z582	Yellow adhesive tape, 66m roll 3mm wide.	Only 30p
Z1365	PC mounting 20mm fuseholder. Paxolin base.	10/10p 1000/03.05 1000/10.45 10/03.00 100/17.40 1000/130.5
Z1402	11 pin relay socket, solder pins.	0
Z1416	Concentric pulley wheel with lever. 38mm dia.	Pack of 6 50p
Z1417	Right angle plastic tube connector.	Pack of 12 50p
Z1440	Wood screw with countersunk pozidrive head 8mm long x NO 4 black.	Pack of 100/40p Pack of 1000/22.20
Z1279	TO3 mica washers.	Pack of 100 £2.50 500/27.80 100/£1.00
Z1747	Fuse clip, RS412-784.	Pack of 1.00
Z1768	Numericator/CRT base 13 pin PC mntg by Clinch.	Pack of 1.00
Z1834	4BA solder tags	Pack of 1000 £6.70
Z1848	Terry clips. Bright chrome finish by Lewis. Spring type 100/17, 27mm dia.	Pack of 10/£1.00
Z2050	Key operated cabinet latch with 2 keys.	Only £1.00
Z2051		
Z2054	Small flat brass 'spike' fuseholder. 0.3mm thick as shown.	Pack of 100 50p
Z2062	Wire snares. 1.74m long thin multistrand steel cable with a loop at both ends. 0.7 dia.	Only £1.00
Z2175	Pozi pan AB self tappers No4 x 0.5 inch. Zinc plated.	Box of 2000 £2.75 25p each 5/£1.00
Z2315	Allen key, 4mm 27mm x 110mm.	100+0.08
Z2330	Heatsink-TO220 type 30°C/W 11 x 22 x 19.	1k+0.06
Z2332	Antivibration mount. 2 studs 13mmx6mm dia. Overall 25mm dia.	Pack of 8 £1.00
Z2333	Ceramic insulating beads 3.4mm long. OD 3.4mm; ID 1.8.	Pack of 200 £1.00
Z2335	Stand off insulated terminal 11mm high with 2.5mm threaded insert.	Pack of 6 £1.00
Z2336	Stand off insulated terminal 11mm high with 2.5mm threaded insert.	Pack of 10 £1.00
Z2334	Right angle steel bracket 38x22.5x10. Length drilled with 2x4.8mm holes; width drilled with 7mm dia hole. 2mm thick.	Pack of 10 £1.00 100+0.06 1k
Z2338	Current shunt. 15A 75mV mounted between 2 brass terminals with 10mm holes 100mm apart	50p each
Z2343	Siemens 32A 550V standard fuse carrier.	Only £1.00
Z2374	Fuse Carrier. M16 Half nuts, steel	Pack of 8 £1.00
Z2551	Fuse clip for 32mm fuse. Sturdy construction, PC mntg.	Pack of 20 £1.00 100+0.03 1k+0.02
Z2568	15mm right angle bend.	Only £1.00
Z2569	Earthing clip with label embossed: 'Safety Electrical Connection - do not remove'	2 for £1.00
Z2636	Heat sink for single TO3 device, 7.1°C/W. Twisted vane type. 42x38x25mm.	4 for £1.00 100+0.18
Z2026	Cambion PCB pins. High quality double sided needs 1.8mm hole	Packs of 1000 £8.50
Z2170	PCB pins - double sided for 0.15 pitch perforated board. 1.3mm dia, 19mm long.	Only £2.50
Z2175	Pozi pan AB self tappers No4 x 0.5inch. Zinc plated.	Box of 2000 £2.75
Z2388	Plastic stand-off for 3/4" trim pots (our 75CER type)	Pack of 50 £1.00
Z2438	White plastic oblong stand off (for 7 seg LED's) 19.5x10.2x12.2mm high.	Pack of 100 £2.00
Z3032		
Z3141	1.5LM Solid Aluminium Insert Knob.	150 for 10p each 150 for 20p each
Z3142	105 LM Solid Aluminium Black insert Knob.	200 for 8p each 60p each
Z3143	Small Aluminium Front and Sides Knob, pushon 18mm dia x 17mm high.	200 for 8p each 60p each
Z472	Clock case - oval format. Overall size 130x88mmx87mm deep, with built-in stand. Rear panel has holes drilled to accept 4 switches and audible alarm. Made in high impact white plastic. No front panel.	75p each
Z855	Dispenser tube with valve. As used on cream dispenser. 185mm long, with extra tube and connectors 250mm long.	80p each
Z4053	Antistatic bags. Black 'Velostat' by 3M, these bags are 460x350mm. Ideal for cutting up to store static sensitive devices.	4/£1.00
Z4204	White rubber feet. 12.5mm dia x 6.5mm high. Screw fix.	Pack of 40 £1.00
Z4273	1/8" bore red, green, yellow or black nylon compressed Air line Hose. 150 psi max.	50p/m 15m coil £5.95
Z4283	High insulation adhesive tape, like brown translucent sellotape. 33m reel x 12mm wide.	75p each
Z4283	Self adhesive profiled sealing strip. Cross section 9.4mm (sample free).	20p/metre 50m roll/£5.22
Z5004	Strain relief bushes for anchoring cable through panels. For cables up to about 5mm dia. White.	Pack of 40 £1.00
Z5151	Some odd pieces of clear perspex: 45x22x1 with central 3.5mm hole; 82x61x2.8 with 3.8mm hole near edge; 100x64x1.9mm with a couple of slots.	£1.00
Z5229	Case for digital thermostat unit with red bezel and front clip. Overall dimensions 57.5x25x70mm deep.	Only £1.50 each 100+ 0.80
Z5264	Handy black plastic panel 102x22mm with 5 pin 180° DIN skt. 2 phono skts and a single wire aena/earth socket.	Pack of 10 £1.00 100+0.05 1k+0.035
Z5345	25mm T piece with inspection cover.	£1.00 each
Z5346	25mm 90° bend with inspection cover, length 150mm	50p each

Z5347	25mm 90° bend, no cover. Length 300mm	£1.00 each
Z5348	Saddle clamp for 25mm conduit	8/£1.00
Z5349	Saddle clamp for 25mm conduit	8/£1.00
Z5350	20mm T piece with compression nuts.	£1.50
Z5358	Wire dispensing tool. Orange ABS handle with 50p each geared feed to nozzle..	
Z5511	Smart 2 part grey plastic ventilated case 198x178x72mm with aluminium panels front and back. One panel has a small cut out for a mains cable. Complete with screws.	£4.95
Z5521	PCB 208x88mm with 5 DIN skts mounted one end. Only Mains input to transformer.	£5.00
Z5593		
Z01152	Scotch sensing markers for magnetic computer tape 1/8" wide; 1" long tabs. 250 on a reel.	£1.50 each
Z23221	Antistatic adhesive labels. Sheet of 45 18x12mm Black print on yellow background.	£1.00 each
Z23222	As above, but includes wording 'Caution static sensitive'.	£1.00 each
Z27227	Industrial gas spring - as used for holding open lids on machines etc. This one requires 40 Newton each force, has a stroke of 200mm with a 6mm dia plunger. 6mm eye one end, 7.5mm recess the other.	£10.00
Z5006	12mm Fan guard, 110mm PC Chrome plated steel.	£1.20 each
Z9187	Empty case 265x105x120mm - 2 part steel with front panel in plastic, with a cut-out 50x30mm. 4 rubber each feet.	Only £2.00
Z07007	Long sleeved grommet 45mm long. Hole dia 4mm	40 for £1.00
Z27111	Rexine covered box with felt lined interior. Overall size 165x85x45mm.	£1.50 each
Z5399	As Z5398 but with red box.	Only £2.00
Z5400	MK surface mntg box in red with 24V buzzer and lamp. Red fascia plate marked 'FIRE ALARM'.	Only £3.50
Z5414	CAUTION - static sensitive device self adhesive labels - black print on yellow background, size for 89x64mm. Come in sheets of 9 -	5 sheets £2.00 Box of 2000 labels £20.00
Z5155	MCB single pole rated 50A 240/ 415V AC. Also aux contacts. Standard DIN rail fixing. Siemens model no 5 SN7.	Only £3.00
Z3186	Drawing ink Staedler/ Mars 23ml plastic bottle (green)	Only £1.00 each 10+ 0.70

Heatsinks

Z2314 Heatsink for TO126/220 devices with lugs for locating into PCB. 30 x 25 x 12.5mm. Pack of 8 £1.00 100 + 0.08 1k + 0.05

Misc Screws & Bolts

Z2371	5/16"x1" UNC hex head bolts. A pack of 10 costs	£1.00
Z2372	3/8"x1.25" set screws, hex head. A pack of 6 for	£1.00
Z2368	M6x1/4 as above. Pack of 50 for	£1.00
Z2367	5/8" UNC half nut, pack of 10	£1.00
Z2369	1/4"x1.5" UNF hex head high tensile steel screws. Pack of 25 for	£1.50. Box of 200 £8.50
Z2370	1/2"x1/2" as above, pack of 10 for	£2.00 or a box of 50 for £8.00
Z7007	M3 x 50mm csk pozi steel screws. Boxes of	250 £4.00
Z9030	M6 x 50mm csk slot steel screws	16/£1.00; box of 100 £3.00
Z9031	M8 x 60mm (23mm threaded hex head steel bolt)	8/£1.00; box of 200 £12.00
Z9032	M10 x 35mm hex head bolt HT steel	8/£1.00; box of 100 £6.00

Z2370 1/2"x1/2" as above, pack of 10 for £2.00 or a box of 50 for £8.00

Z7007 M3 x 50mm csk pozi steel screws. Boxes of 250 £4.00

Z9030 M6 x 50mm csk slot steel screws 16/£1.00; box of 100 £3.00

Z9031 M8 x 60mm (23mm threaded hex head steel bolt) 8/£1.00; box of 200 £12.00

Z9032 M10 x 35mm hex head bolt HT steel 8/£1.00; box of 100 £6.00

Knobs

Z2311 High quality black finish solid aluminium knob with marker. 22mm dia x 14mm high. 6.35mm fixing by grub screw. 3/ £1.00 100+ 0.20

Z4054 High quality collet knob in matt black finish for 6.35mm (0.25") Spindle. 36mm dia. Clip on black cap and pointer. Price..... 40p 10+ 0.26 100+ 0.17

Z4198 Knobs - Bargain price on black plastic control knobs with coloured tops, similar to K9. 19mm high x 20mm dia. Top available with indent in white, pale blue, beige, mushroom, or green K9 + cap with line costs 30p; these are substantially cheaper, even in small quantities. Only sold with cap.

1-9	20p each
10-24	15p each
25-99	12p each
100+	10p each

Z3175 Fan guard for 120mm sq fans. Pack of 3 £1.00

Z2541 A small finned heat sink and retaining clip by Farnell, their code 175 649. It's 12.5x34.5x25mm and rated 13°C/W. Their price is 66p. You can have a pack of 3 for £1.00; 100+ 0.15

Z1524 Heatsink 32 x 23 x 15mm. Price 5/ £1.00

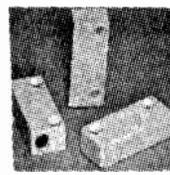
Z2590 Copper heat sink, formed into TO5 shape using 0.3mm thick copper sheet. 17mm dia x 20mm. Pack of 8 £1.00

Z2636 Heat sink for single TO3 device, 7.1°C/W. Twisted vane type. 42x38x25mm. Like Farnell 170-077 - their price 50p Our Price 4 for £1.00; 100+ 0.18

Z5521 Giant Vero layout sheet, as used professionally. Heavy duty tracing paper 610x430mm printed with a piece of vero 455x155mm (both sides shown) with numbered rows and lettered strips. Great for designers. Only £1.00

Z3101 Solder sticks 295x6mm dia, wt 89g. Could be 40/60. DP 2.49 Our Price £1.00

Misc Hardware



Z3029 Useful encapsulated magnet, for use with reed switches. White block, 38x15x10mm with 2 fixing holes, has a strong magnet inside 25x5mm dia, easily removable if required. They normally cost around 70p each - our special low price 5 for £2.00

Z5596 Black ABS potting box 75x50x35 - a bit higher than our V1052 at 25p. Pack of 10 £2.00

Z55580 Handy flip-top white plastic case with clear lid, size 70x50x30mm. Sold in packs of ten for £3.00

Z3026 Crimp rings M3.5, uninsulated for up to 6.5mm dia cable. Sample on request. Pack of 100 for £2.00, 1000 £15

empty tape spools: Z5570 5" plastic, individually boxed, good quality by Zonal. 3 for £1.00

Z5152 Plastic Bits. 100 assorted stand offs etc. £1.00
Z635 Digital multimeter case DP2010, 110x80x20mm with cut outs for switches and terminals. Aluminium fascia plate. 2 for £1.00

Z5436 2 part black plastic case with textured finish 160x155x63mm. Slots for front and rear panels (not supplied) £2.00

Z5447 Heavy duty rubber feet. Really solid, 34mm dia x 25mm high. Pack of 4 £1.00

Z5513 Cap clip - 61-66mm vertical mnt. Pack of 5 £2.00

PCB Stand-offs. These have been advertised previously at over twice the price! Only 2 sizes remaining, both in packs of 100:

Z5514 9.53mm £1.00
Z5515 12.7mm £1.00

Z5451 M25 cable gland, black, for 12-18mm dia cables. 2 for £1.00

Z5452 Grommet strip, black, for panels 1.3-2.2mm thick. 5m length £1.50

Z5453 Diecast ally cable clamp for cables 12-18mm dia. With fixing nut. £1.00

Z582 Stick on feet (3M bumpons) 10mm dia x 4mm thick. Prices Sheet of 58/ £1.70
10/ 12.20 25/ 26.10 100/ 87.00

Z5175 High quality heavy duty ball type castor 63mm dia, chromed steel with brass insert with 9.3mm threaded insert. DP 6.25 Our price £4.00

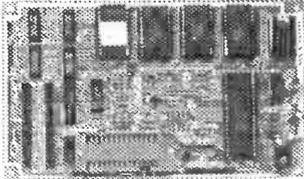
Z5178 Smaller brown ball type castor 50mm dia made by Kenrick. Steel insert with 8mm threaded insert. DP 3.15 Our price £2.50

Z2854 Cable (or any other) markers. These are red self adhesive strips 38mm long 7mm wide printed in black 6 times down their length with a digit. Made from an extremely strong non-stretch fabric. 33 strips to a card, numbered 1 to 33. Useful for identity tags, numbering files, etc. 2 cards for £1.00

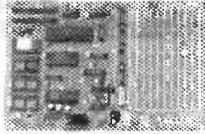


Micro-Professor

A popular teaching aid in use some years ago by Acer, we have some of the add-on options, as shown below



Z9197 EPROM Programmer board. This 157x107mm panel has a 28 pin ZIF skt, 8255, 2732 and 3 x HM6116LP-3 RAM chips, all in sockets + 7 other chips. £3.95

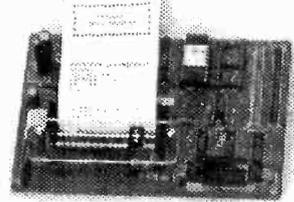


Z9198 Input/Output control and memory expansion board, with a breadboard user area, overall size 222x158mm. Chips on board include Z80A PIO & CTC, 8251 (all in sockets) + 10 other chips. Uses PIO to control the serial input and output, CTC to control the counter and timer. In addition a 2732 EPROM contains 4 programs - one for demonstrating PIO, two for CTC and one for 8251. A 132 page manual gives comprehensive information on the panel, and there's a short 40 way IDC lead, too. All this for **£5.95**

Z5714 BASIC chip (27C64 EPROM) + programming manual. Again, for use with the Micro-Professor. 12 chapters + 9 appendices - 196 pages of informative text. **£3.95**



Z5715 FORTH chip (2764 EPROM) + programming manual 146 pages of comprehensive information on the FORTH language. **£2.95**

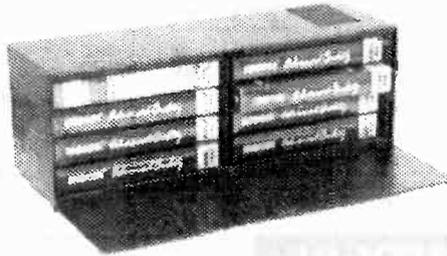


Z9196 Printer board 157x108mm. This is probably the most useful panel, and we hope to supply a disk with it to use with a PC. There's a compact thermal print mechanism on board (20 characters/138 dots per line), together with a 2732 and 7 other chips. A connecting lead, roll of thermal paper and 32 page handbook are also included. **£7.95**

SAPONA SERVICE AIDS

As shown on P132 of our 1993 Catalogue. We've discontinued the entire range as they were very poor sellers. Buy now and Clean up!

CODE	DESCRIPTION	PRICE
SP0809	Screen & Keyboard Cleaning Kit	£10.99
SP0816	Screen Cleaning Kit	£7.99
SP0810	Mouse Cleaning Kit	£12.99
SP0961	General Office Cleaning Case	£48.49
SP0821	Laser Printer Cleaning Kit	£24.49
SP0819	Facsimile Cleaning Kit	£26.99
SP0820	Typewriter/Printer Cleaning Kit	£9.49
SP0818	Photocopier Cleaning Kit	£9.49
SP0811	CAD/CAM Plotter Cleaning Kit	£28.99
SP0822	ATM Cleaning Kit	£34.99



Z9204 Very smart matt black video tape cabinet with polished drop down lid by Laserline for storing up to 8 VHS tapes, featuring the exclusive Securing Release Mechanism (SRM) One touch releases the cassette for easy removal. Sold by HMV for £14.99 each Our Price **£6.99**

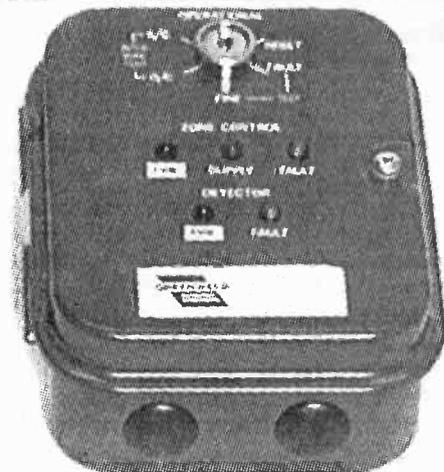


DATA RECORDER

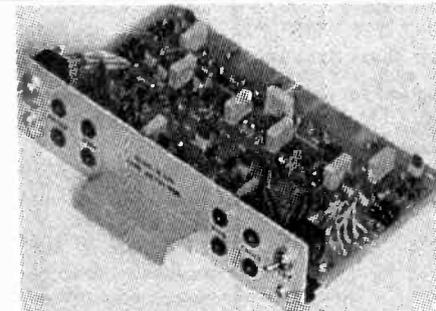
Z9202 Model 210, by Cristie. Somewhat obsolescent unit dating back to mid-eighties. Uses Philips mini DCR tape with a storage capacity (wait for it) of 64k! However, the unit is of excellent build quality & the cassette mechanism could be replaced. Black ABS case 200x175x110mm with 6 LED's on front panel & 'Record' & 'End' switches. Rear has mains inlet, switch & 25W D serial interface socket. Inside, the linear PSU is well constructed using a toroidal transformer. The interface board uses 6502/6522 technology. Supplied complete with mains lead with 13A plug, 25W plug - 25W socket lead & comprehensive manual. Only **£14.95**

SALE PRICE 1/2 Price

SALE PRICE £4.95



Z5564 Fire alarm control box. Steel case 170x145x80mm painted bright red and contains circuitry to wire to detectors. Front panel has 6 position key operated switch (2 supplied), LED indicator for Fire, Supply and Fault under zone control and Fire and Fault LEDs for selectors. Needs special resistance wire (see below) to cable to sensors and 24V supply. The 2 PCBs contain some nice parts - lots of CMOS, 2 reed relays, a dozen or so transistors. Supplied with circuit diagram and other info. Only **£12.95**



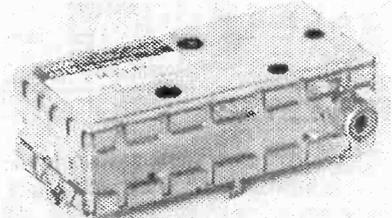
Z5565 Dual line selector - FREE if ordered with Z5564 above! PCB 158x82mm with aluminium front panel 160x38mm intended for rack mounting. Board has 12xBC182, a couple of tants, resistors, capacitors etc. Front panel has 2 DPCO min. toggle switches, 4 red and 4 yellow LEDs. **£2.00**

SALE PRICE £1.00

Z5638 Head cleaning cassette. 3/£1.00 100 100+ 0.20.

SALE PRICE 6/£1.00

SALE PRICE £7.95



Z5717 UHF sound & vision modulator, channel E36, by Astec, type UM1287, as used in the Dragon computer. 5V supply, 8MHz bandwidth. **£4.95**

SALE PRICE £2.00

SALE PRICE £6.95

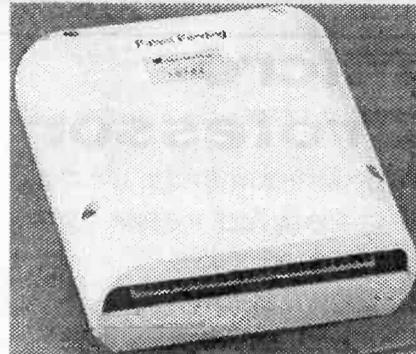


**SUPER SENSATIONAL
SUMMER SALE**
Finished Goods

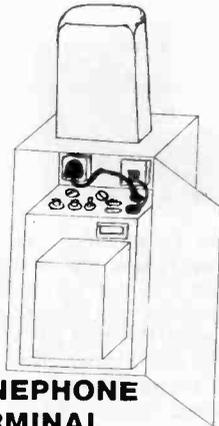
GREENWELD
27 Park Road, Southampton SO15 3UQ
Tel: (0703) 236363 Fax: (0703) 236307

ZONEPHONE ZAPPED!!

You've probably seen in the press the much hailed personal phone has been a dismal flop - with 3 different systems and the restraints imposed on its use meant it had little practical value. Failure seemed inevitable - but there's a silver lining to every cloud and its an ill wind that blows nobody any good, etc, etc ... we've purchased some of the goods with more to follow.



Z5787. Cartridge for the Simplifier, available separately if required. See BL103 for details. **£3.50**



ZONEPHONE TERMINAL

Z8956 These were the units screwed to various buildings throughout the UK which you stood next to whilst making a phone call with your incredibly useful handset! Too bad if you weren't in range (99.9% of the UK wasn't!) but it was a nice toy while it lasted. There was a lot of clever technology involved, and we're selling these at probably about 1% or

2% of their real cost! So what do you get for your money?

Well, a lot of case for a start - in the outer steel case (a) 480 x 300 x 150mm with fibreglass aerial case on top (b) 250 x 160 x 75mm, there's another steel case (c) 325 x 245 x 130mm and inside this there's a plastic box (d) 200 x 15 x 75mm.

(a) contains a metal surface mounting 13A socket and a BT line socket.

(b) has 2 whip aerials 200mm long terminated in PL259 plugs.

(c) contains 8V 3.8Ah sealed lead acid battery, mains transformer (10V 2A Sec), mains filter and a plethora of plugs and sockets mounted on top - 3 BNC and 2 x 9 pin 'D' type, also 2 fuseholders, a lead with 13A plug and another lead with BT plug, and a power on/off toggle. Screwed to the inside of the lid is a PCB 250 x 160 with lots of nice bits - 64180 CPU, 27C256 EPROM, 5256-15 256k RAM x 3, LM2940, LM317T, BD680 x 2, 3.6V AA size lithium cell in holder, about 30 various linear/logic chips, 3 xtals etc, etc. (You're getting great value for money here!)

(d) contains the Tx/Rx panel 170 x 135mm. Lovely bit of kit, this, all surface mount - about 20 chips. Inputs

and outputs are taken to 2 min PCB sockets.

There's another panel the same size in this box, with lots of hi-tech devices - 2 x TMS77C82 programmable 8 bit microcontroller, 77C01, TMS320MC10FNL 16/32 bit signal processor, LM2984 triple 5V output regulator and another 10 chips, 4 'D' plugs/sockets and lots of other bits. And that's about it!

Available in two versions

Complete

Z8956

£17.95

SALE PRICE £12.95

Less Aerials & fibreglass case

Z8956

£12.95

SALE PRICE £9.95



Z5200 Spirit Burner. Very useful in science labs or for the home experimenter. Chromed steel container 93mm dia x 48mm high has absorbent material covered in wire mesh. Adjusting lever allows variations in temperature. Complete with 70mm dia dish for heating substances in. **Only £2.50**

SALE PRICE £1.00

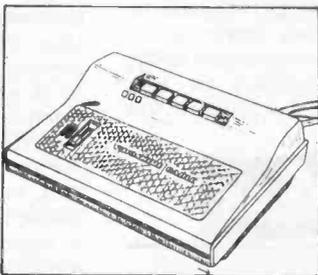
CABLEVISION CALAMITY !!!

Seems like Visionhire became a bit overstocked on their cablevision consoles - we've just purchased a quantity of these superb brand new units which contain some great electronics and as ever can offer them at an absolute BargainPrice!!

Two tone brown case (dimensions as shown) contains PCB 192x195mm with easily removed UHF modulator made by Labgear (Sound and Vision); video pre-amp; stabilized power supply and all the decoding circuitry (9 transistors and TBA673 chip).

On the front of the case is a cable/off air switch and 5 push buttons (4 channels and on/off mains switch). There are 4 cables coming from the rear (these alone are worth what we are asking for the whole thing!) - 2m mains lead, 1.5m 8 core screened cable with 9 pin plug, 2m video in lead with coax plug and 2m video out lead with coax socket. As you would expect from a company like Visionhire, everything is top quality. The case can easily be utilised for other purposes - the dark brown inserts on the front are both easily removable, if required. Please note the low price we are asking in no way reflects their true worth - they're taking up a lot of space, so we need to shift them quickly!!

Z8939 £6.95 100+ 3.50 1k+ 2.50. Add VAT to quantity prices



SALE PRICE £2.50

LOPT TESTER

LOP1 Dynamic Line Output Transformer Tester. This invaluable piece of test equipment will allow an engineer to test LOPTs under working conditions. It has been designed by a TV engineer with 30 years experience and is both simple to use and effective. Mains operation. **£19.95**



Z5371 Simplex rate-of-heat rise and 135°F detector, model 4255. A rise of more than 15°F per minute, or if temp reaches 135°F will close contacts. Supplied boxed with installation instructions. These normally sell for around 18.00. Our price **£10.00 100+ 5.50**

SALE PRICE £9.95

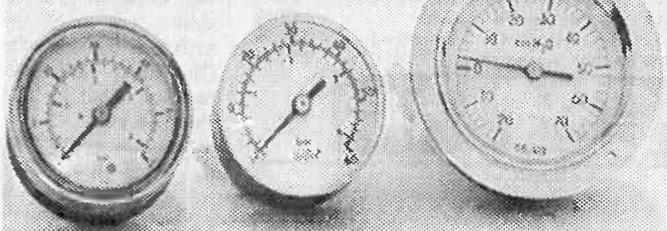
SALE PRICE £2.50



Z5499 UM1233 Astec UHF modulator, brand new, full spec. Currently being sold for around £6. Our Price **£2.95**

SALE PRICE £1.00

PRESSURE GAUGES



SALE PRICES

Z5764 Scaled 0-60 PSI in black and 0-4 bar in red, these have a chrome surround. Rear entry input via 10mm threaded connector. 53mm dia x 30mm deep. **£3.95**

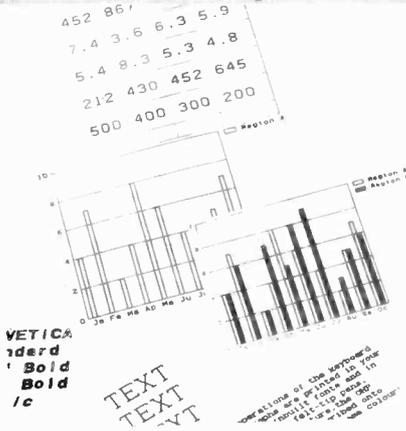
Z5765 Scaled 0-60 PSI and 0-4 bar in black. All plastic. 10mm threaded rear connector. 50mm dia x 33mm deep. **£2.95**

Z5766 Superb low pressure gauge with aneroid movement. 60mm dia x 34mm deep, with removable chrome flange 75mm dia. Scale is calibrated -20 to +70 cm water (i.e. -0.29 to +1.00 PSI) **£9.95**

£3
£2
£7

HANIMEX
AV

Electronic Graphic Writer



**PRINTS ON PAPER OR CLEAR
FILM IN UP TO 4 COLOURS**

Interchangeable pen facility allows choice of colour with paper or acetate film option. Use ballpoint pen set with A4 paper, or special felt tip OHP pen set with A4 size OHP transparency film. Both sets available in set of four colours Black, Blue, Green and Red. Pens easily changed for multi colour productions.



SALE PRICE £69.95

ORIGINAL SELLING PRICE £299!

3-MODE OPERATION

TYPE MODE: Characters, Numbers and Symbols are printed immediately on pressing the keys.
LINE MODE: A line of characters is entered into the line memory. Up to 16 Characters can be arranged on the LCD display and then corrected before printing.
EDIT MODE: Allows for easy editing of the page memory. Add, delete, insert words or graphics as you wish then press PRINT to automatically produce the amended version.

MEMORY

LINE MEMORY: 250 Bytes
PAGE MEMORY: 3x 1800 Byte for characters
1,200 Bytes for graphs and layout

4 GRAPH MAKING FUNCTIONS

Layouts (for tables) bar graphs, Linear Graphs and Pie Charts easily and accurately produced in choice of three sizes with multi colour if desired. It is possible to enter into page memory a maximum of two layouts and/or: three graphs (Bar, Linear, Pie) for a Maximum of five.

18 FONTS IN 9 TYPE SIZES

Choose from Gothic, Courier and Helvetica outline type faces each in plain or italic, and each available in nine character sizes ranging from 75 characters per line to 8 per line. Letters may be underlined, half bold or full bold.

COMPACT, PORTABLE AND CONVENIENT

Measuring a mere 320 mm (W) x 60 mm (H) x 260 mm (D) and weighing 2.3 kg (excluding batteries) the Hanimex OHP Graphic Writer will travel anywhere. Takes four size D 1.5V Alkaline Batteries fitted with 6V DC Input for use with AC Mains Adaptor (Batteries and AC Mains Adaptor available extra).

Supplied brand new in original boxes, complete with mains PSU and FREE OHP set containing 10 OHP sheets and 2 4-colour pen sets!
Order Code HAN101

£99

FREE - when you buy one of these machines
Bargain List Subscription worth £6

From Penguin Products we have...



£19.95 ...The **SIMPLIFIER**
Order Code Z9209

What is it? Well, it was to simplify using complex software with a PC. Remembering the various keystrokes for packages like Lotus 1 2 3 was no longer necessary - by putting this console between keyboard and PC and plugging in the correct cartridge, you simply followed the instructions on the LCD. OK in it's day I suppose, but worth little more than it's component value now. These units are brand new and in original boxes. The console measures 290x237x75mm and is of high quality construction with a 'computer grey' case. Externally, there are 2 cartridge slots, keyboard skt, 5V DC input skt, normal/bypass switch, reset button and a couple of pots. Inside are three PCB's - one has 3 LCD's mounted on it; 2 are 40 character x 2 lines and the third is 24x2; there are also LED's and switch contacts. The main processor panel has a Z80 CPU in skt, Z80 SIO, 27C256 in skt, and a couple of dozen other chips. The final board has a P8051 in skt, another two dozen chips, relay, 2 xtals etc. Supplied with instruction book and a Lotus 1 2 3 cartridge, which has 2 PCB's inside - 2016 coin cell + bits on one, and 2x27C256 EPROM's in skts + 11 chips on other.

SALE PRICE £12.95



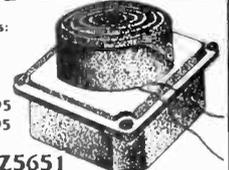
Z8970 Remote control cable TV unit made by GEC. Attractive black plastic case 205x120x40mm with membrane pushbutton keypad (22 keys). Front panel has 4x5mm red LED's to indicate status and a dual 7 seg display to show channel. On the 195x102mm PCB is a small regulated power supply (12V & 5V) derived from Z5226 plug in PSU (not supplied). The main chip is a KS49429 and there are also TBA120T, ULN2003B, 4049 + 4.000MHz crystal & 3 small signal transistors as well as the IR detector diode. 2 screened cases contain (a) a PCB with some filter circuitry utilizing surface mount technology, few small chokes, couple of trimmer caps and input and output sockets; and (b) the infra red decoding circuitry using a TDA3047 chip. Regrettably, we don't have any remote controllers, but these units offer great value for money - just £5.95 each

SALE PRICE £2.50

SUPERB ALARM SYSTEM!

Consists of:
(a) Weatherproof metal case with a plasticized finish 100x100x50mm;
(b) Alarm module (open & closed loop) with delay on PCB 78x48mm. Needs 12V supply that drives strobe and/or audible alarm via relay and charges PP3 back-up NlCad;
(c) Highly visible red xenon strobe light 75mm dia.
Supplied with wiring diagram and circuit details

Parts available separately, as follows:
Z5653 Box 100x100x50mm £2.50
Z5654 Box 80x80x50mm £2.00
Z5655 Strobe light £4.95
Z3102 Alarm module for Z5651 £4.95
Z3103 Alarm module for Z5652 £2.95



Z5652 Similar, smaller version consisting of:
(a) Case as above but 80x80x50mm;
(b) Alarm trigger module on 55x55mm PCB
(c) Strobe light as above
Supplied with wiring diagram & circuit details **£9.95**

SALE PRICE £7.50

Order Code: Z5651
ALL FOR JUST £12.95

SALE PRICE £9.95

Versatile Timer Unit (Available again!)
Z5438D Here's an interesting bit of kit. In a white 2 part ABS case 145x85x75mm is a timer PCB 142x70mm. £4.95 each 100+ 2.40. Supplied with data.

SALE PRICE £3.95

Amazing Clock Modules!

Z5557 Clock module with timer and two alarms. Displays day, hour, minute and AM/PM. Overall size 48x32x7mm. Display 10mm. With lots of info. £3.95

SALE PRICE £2.00

SUPER VALUE!!

4 x AA NI-CAD CHARGER

Order Code MW2982



£3.50 each

10 + 2.50; 25 + 2.00 (Both + VAT)
* Fast charge switch
* LED charging light

SALE PRICE £2.95

EASIWIRE - an exciting new product from BICC-VERO which enables you to construct electronic circuits quickly, easily and cleanly - without solder - by using a wrapping technique.

- EASIWIRE is supplied in kit form and is complete with everything required to construct a circuit.
- ★ A high quality wiring pen with built-in wire cutter.
- ★ A flexible injection moulded wiring board.
- ★ An unwrap tool. A double ended device for anchoring the wire at the start of wrapping and removing connections that need to be changed.
- ★ Two sheets of double sided, self-adhesive material.
- ★ Spring-loaded terminals and jacks for off board connections.
- ★ Spare spool of wire.
- ★ A clearly written instruction book.

428-63625 £15.00

SALE PRICE £2.95

20615 UT1 Meterite. Digital ultrasonic measuring tool. Features:

- *Recalls last reading even after switch off
- *Auto hold of reading for 10secs
- *Auto shut off after 10 secs
- *Error indication
- *Sequential addition
- *Converts metric to imp and vice versa
- *Range 2-50ft ±0.5%

LIST PRICE £55.13
OUR PRICE £24.95



SALE PRICE £19.95

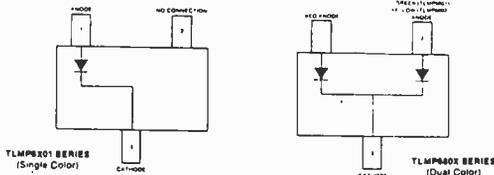
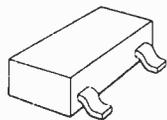
10

**SUPER SENSATIONAL
SUMMER SALE**
OPTO

GREENWELD
27 Park Road, Southampton SO15 3UQ
Tel: (0703) 236363 Fax: (0703) 236307

EVERYTHING ON THIS PAGE FOR THE PRICE OF 1

SURFACE MOUNT LED'S



These LED's are in a SOT23 package (2.9x1.1x1.4mm)

CODE	PART NO	COLOUR	SPEC	£2 PACK	100+	1k+
Z2673	TLMP6301	Orange	0.5mcd @ 10mA	15	.06	.045
Z2674	TLMP6311	Red	1.6mcd @ 10mA	12	.08	.06
Z2675	TLMP6401	Yellow	0.5mcd @ 10mA	15	.06	.045
Z2676	TLMP6411	Yellow	1.6mcd @ 10mA	12	.08	.06
Z2677	TLMP6501	Green	0.5mcd @ 10mA	15	.06	.045
Z2678	TFS021	Red/Green	0.5mcd @ 10mA	8	.12	.09
Z2679	TLMP6802	Red/Yellow	1.6mcd @ 10mA	8	.16	.12
Z2680	TLMP6803	Red/Orange	1.6mcd @ 10mA	6	.16	.12

KS106 A mixed pack of 100, containing most of the above types for just £8.95

MINIATURE LED'S

These LED'S have axial leads

CODE	PART NO	COLOUR	SPEC	£2 PACK	100+	1k+
Z2691	TFS065	Red 1.8mm	2.8mcd @ 10mA	10	.10	.07
Z2692	TFS066	Red 1.8mm	2.8mcd @ 10mA	10	.10	.07
Z2693	TFS068	Green 1.8mm	4.5mcd @ 10mA	10	.10	.07

STANDARD LED'S

These LED'S have radial leads

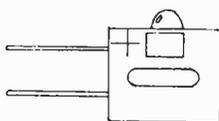
CODE	PART NO	COLOUR	SPEC	£2 PACK	100+	1k+
Z2682	MV6052	Red 5mm	0.7mcd @ 20mA tint/undiffused	25	.045	.03
Z2683	SL35091G	Orange 3mm	16mcd @ 10mA	16	.06	.04
Z2684	HLMP3850	Yellow 5mm	150mcd @ 20mA untint/undiffused	12	.075	.05
Z2685	HLMP3950	Green 5mm	150mcd @ 20mA untint/undiffused	12	.075	.05
Z2686	TLMP7413	Yellow 5mm	150mcd @ 20mA untint/undiffused	12	.075	.05
Z2687	TLMP7513	Green 5mm	150mcd @ 20mA untint/undiffused	12	.075	.05
Z2688	TLMP7313	HE Red 5mm	150mcd @ 20mA untint/undiffused	12	.075	.05
Z2689	LST712L	Orange/Green 5mm	4mcd @ 20mA milky/diffused	10	.09	.06
Z2690	XC5549R	Red 5mm	4mcd @ 10mA tinted/undiffused	30	.04	.025
Z2694	TLMP5401*	Yellow 5x2mm	4mcd @ 20mA tinted/undiffused	15	.055	.035

*These have an interlocking moulding incorporated to enable accurate alignment when stacked.

CODE	TYPE	COLOUR	SIZE	SPECIFICATION	TU/DU	QTY	£2 PACK
Z2907	HLMP0401	YELLOW	2.5X7MM	0.9MCD @ 10MA	TD	1900	12
Z2908	HLMP0504	GREEN	2.5X7MM	0.9MCD @ 10MA	TD	296	12
Z2912	HLMP3050	RED	5MM	2.0MCD @ 20MA	TU	6880	30
Z2914	HLMP3416	YELLOW	5MM	20.0MCD @ 10MA	TU	5444	12
Z2915	HLMP3517	GREEN	5MM	6.7MCD @ 10MA	TU	1514	14
Z2916	HLMP3519	GREEN	5MM	10.6MCD @ 10MA	TU	2172	12
Z2917	HLMP3862	YELLOW	5MM	8.0MCD @ 10MA	TD	200	14
Z2919	MV54123	GREEN	2X5MM	1.0MCD @ 20MA	TD	592	15
Z2920	MV6051	RED	5MM	0.4MCD @ 20MA	UD	4400	15
Z2921	MV64520	GREEN	5MM	12.0MCD @ 20MA	TU	514	12
Z2922	MV6752	HE RED	5MM	17.0mcd @ 20MA	TU	19112	20
Z2923	TF5012	HE RED				2416	20
Z2924	TF5031	HE RED	5MM	6.3MCD @ 10MA	TD	56170	25
Z2925	TF5032	RED	5MM	10.0MCD @ 10MA	TD	1564	20
Z2926	TLMP5001	RED	2X5MM	INTERLOCKING	TD	2775	20
Z2927	TLMP5301	HE RED	2X5MM	INTERLOCKING	TD	12823	15
Z2928	TLMP5501	GREEN	2X5MM	INTERLOCKING	TD	3600	15
Z2929	TLMP5801	RED/GRN	2X5MM	INTERLOCKING	TD	567	10
Z2930	TLMP7003	UB RED	5MM	200.0MCD @ 20MA	UU	1278	10
Z2931	TLMP7005	UB RED	5MM	300.0MCD @ 20MA	UU	924	8
Z2932	TLMP9710	HE RED	TO46	3.0MCD @ 20MA	H	95	12

H = Hermetic; TU/DU = Tinted/Untinted/Diffused/Undiffused

SUBMIN LED'S

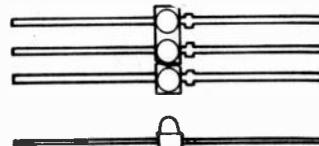


These excellent quality 1.5mm Led's are housed in a 6.2x5x2.4mm package with built in resistor for 5V operation (add 470R resistor for 12V). Available in Green (DP £1.73) or red (DP £1.16).

Z2135 Red	3/£1	100+ 0.15
Z2136 Green	2/£1	100+ .25

Z1932 Red square LED with rounded corners, 5mm. Pack of 15 for £1.00

Z1933 Thin rect. red LED - 5x1.5mm. Pack of 20 £1.00



Z2571 Hewlett Packard sub-min red LED array type HLMP6204. Strip of 4 x 1.8mm LED'S, easily separated if required. DP 1.27. Our Price: Pack of 6 £2.00

Z2091 Red 5mm square, Lilon type LTL9223A. Pack of 12 £1.00; 100+ 0.038; 1k+ 0.03

Z2098 Red 7x2.55mm rectangular by Senior type SE6511D. Pack of 12 £1.00; 100+ 0.038; 1k+ 0.03

Z2095 Red 5mm square with rounded corners by Phillips type HR44DL. Pack of 12 £1.00; 100+ 0.038; 1k+ 0.03

Z2096 Clear infra red 4.5x1.5mm rectangular, Honeywell type 8406. Pack of 8 £1.00; 100+ 0.06; 1k+ 0.04

Z2097 Red 5x2mm rectangular by GI, type MV57123. Pack of 12 £1.00; 100+ 0.038; 1k+ 0.03

Z2182 Standard 5mm red LED with 18mm leads, bent at right angles. 18/£1.00 100+ 0.03 1k+ 0.02 10k+ 0.015.



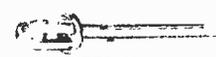
Hermetically sealed, TO46 case

CODE	PART	COL	RATING	£2 PK	100+
Z2764	TLMP9210	GRN	3.0 mcd @ 20ma	15	.07
Z2765	TLMP9310	YELL	3.0 mcd @ 20ma	15	.07

(B) (i) PHOTOTRANSISTORS, INFRA RED

All are in TO18 hermetically sealed cases.

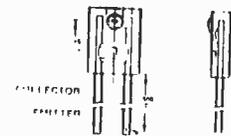
CODE	PART NO	ImA	mW/cm	£2 PK	100+ QTY
Z2766	TDET800W	0.3	5	10	.10
Z2767	TDET801W	0.5	5	10	.10
Z2769	TDET803	4	5	10	.10
Z2770	TDET804	7	5	10	.10



Z1847 4 Phototransistor SDP8405 with data.

Price £1.00

Z2860 3mm red diffused IR LED. No other info, so 10 for £1



Z1846 2 pairs of infra red emitter/ receiver SDP8406/ 8506 by Honeywell with comprehensive data.

Price £1.00



Z2122 Vactel Type VTL 100I - IR emitter and detector can be removed from the plastic housing if required. An extremely cheap version of TIL100/TIL38!

Pack of 5 £1.00 100+ 0.10 1k+ 0.07

Z1743 TIL143 Opto slotted switch. These have cropped leads and some are ex-equip, but are all working.

Price Pack of 3/ £1.00

Z1499 Opto slotted switch on small (25x26mm) panel Type P850 75p;

Z1934 Stackable red LED - white casing round 6x3.5mm. Pack of 10 for £1.00

A couple of small matching rectangular LED's, 3.8 x 1.75 mm :

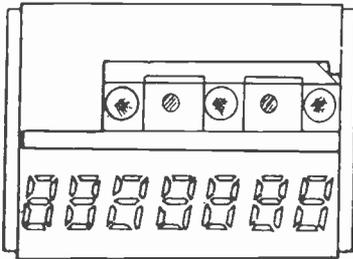
Z2500 Green Pack of 12 £1 100+ .05 1k+ .04

Z2501 Red Pack of 12 £1 100+ .05 1k+ .04

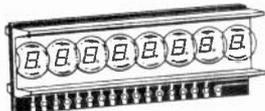
Z1845 Rectangular LED 7x2.5 Red. Unusual size by Hewlett Packard type LMP301.

Price Pack of 12/ £1.00

EVERYTHING ON THIS PAGE 2 FOR THE PRICE OF 1

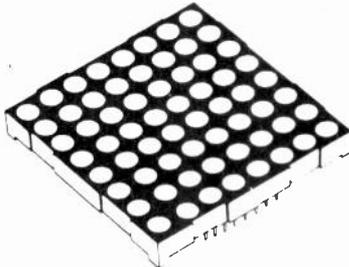


Z2658 LED module. An interesting little PCB 50x35mm that has mounted on it a 7 digit 7 segment red display, and a plastic moulding under which are 3 surface mount LED's, one each red, yellow and green. On the back of the PCB is a SED5031M chip. Offered without info at present, although we are working on it. Believed to have been the display on a mobile phone. Only £1 each



Z2903D Red LED PCB mounted display - 12 bubble digits 0.11" high. Full data supplied. Only £1.50 100+0.80

Z415 Display. 8 digit LED multiplexed. With data. 31 x 16mm.
Price 80p



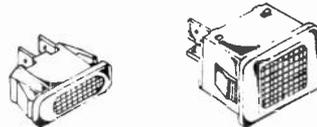
(C) LED BLOCKS

CODE	PART NO	SIZE (MM)	MATRIX	COLOUR	PRICE
Z2759	TFB3358C	35	5X8	YELLOW	1.60
Z5469	TFB3458C	35	5X8	GREEN	1.60
Z5470	TFB3758C	35	5X8	HE RED	1.60
Z2761	TFB5357A	51	5X7	YELLOW	1.80
Z5471	TFB5357C	51	5X7	YELLOW	1.80
Z5474	TFB5457A	51	5X7	GREEN	1.80
Z5478	TFB5757A	51	5X7	HE RED	1.80
Z5479	TFB5757C	51	5X7	HE RED	1.80
Z5472	TFB5388A	58	8X8	YELLOW	3.50
Z5473	TFB5388C	58	8X8	YELLOW	3.50
Z5476	TFB5488A	58	8X8	GREEN	3.50
Z5477	TFB5488C	58	8X8	GREEN	3.50
Z5480	TFB5788C	58	8X8	HE RED	3.50

The suffix A or C to the part number indicates common anode and common cathode respectively.

NEON INDICATORS

Top quality range by IMO - they are cheap because they're 110/120V - but we supply a suitable resistor for mains operation



Type A - Panel mounting 33 x 15mm with 0.25" tags. Clip fix, requires 25 x 12.5mm cut-out.

Z1899 Green **5 for £1 100 + 0.10 1k + 0.06**

Type B - Panel mounting 36.5 x 26.5mm with 0.25" tags. Clip fix, requires 30 x 22.5mm cut-out.

Z1901 Red **(Any mix) 5 for £1**
Z1903 Amber **100 + 0.10 1k + 0.06**

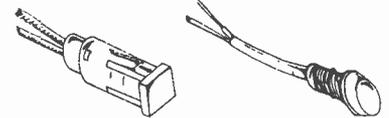


Type C - Small round face 10mm dia. Clip fix, requires 9mm dia hole.

Z1905 Red **(Any mix) 5 for £1**
Z1906 Green **100 + 0.10 1k + 0.06**

Type D - Large round face 13.5mm dia. Clip fix, requires 12.5mm dia hole.

Z1910 Green **(Any mix) 5 for £1**
Z1912 White **100 + 0.10 1k + 0.06**



Type E - Small square face 10.5mm. Clip fix, requires 9.5mm dia hole.

Z1914 Green **(Any mix) 5 for £1**
Z1915 Amber **100 + 0.10 1k + 0.06**
Z1916 White

Type G - Small round face 7.5mm dia, threaded body, requires 6.5mm dia hole.

Z1921 Red **5 for £1; 100 + 0.10; 1k + 0.06**

Type M - Body dia 17.5mm - chrome bezel. Wire ends.

Z2088 Clear **Price 5 for £1.00**
100 + 0.10 1k + 0.06

Z2459 Neon bulbs 5.5mm dia x 15mm long - wire ended 90V neons at a great saving over normal prices! Made by VCH International. In packs of 100 at £4.00 10+ 3.00

Z1935 LED clip for right angle mounting to PC board. Plastic holder for 5mm LED has 2.3mm dia spigot. Great value at 40 for £1.00; 1000+ 0.015

Z2904D Red 3.5 digit 0.5" PCB mounted LED display. Common anode multiplexed output and stackable with full data. £1.00

LED INTEGRATED DISPLAYS

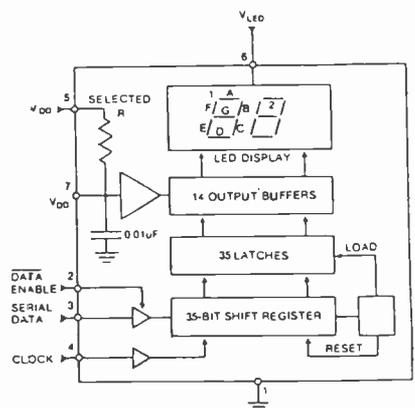
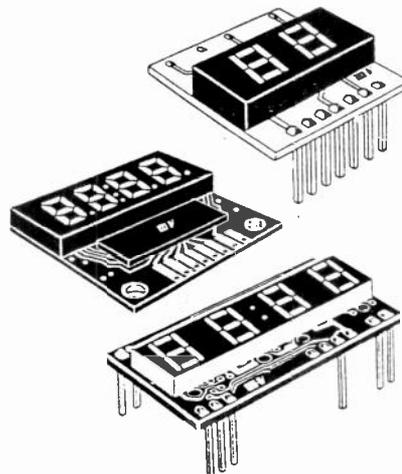


FIGURE 1—Block Diagram

A selection of 2 & 4 digit red and green displays with on board serial data in/parallel data out chips. Designed to operate with minimal interface. TTL compatible. Wide power supply operation. Direct current drive. Comprehensive data available - see below for details.

CODE	TYPE	COLOUR	DESCRIPTION	QTY	PRICE
Z2888	TSM4307	RED	2-DIGIT 0.3"p	429	£1.00
Z2889	TSM4507	RED	2-DIGIT 0.5"p	873	22.00 1.20
Z2890	TSM5032	RED	2-DIGIT 0.3"	543	£1.00
Z2891	TSM5032P	RED	2-DIGIT 0.3"p	354	£1.00
Z2892	TSM5052	RED	2-DIGIT 0.5"	131	£1.40
Z2893	TSM5052P	RED	2-DIGIT 0.5p	955	£1.40
Z2894	TSM5232P	GREEN	2-DIGIT 0.3"p	654	£1.10
Z2897	TSM5732	HE RED	2-DIGIT 0.3"	663	£1.10
Z2899	TSM5752	HE REC	2-DIGIT 0.5"	98	£1.50
Z2900	TSM6232P	GREEN	2-DIGIT 0.3"p	248	£1.10
Z2901	TSM6732P	HE RED	2-DIGIT 0.3"p	358	£1.10

The p suffix indicates pcb with 0.1" pitch pins

Individual data sheets are supplied with each device, and a booklet, Z2999 is available with applications data + program listing on all the devices, price £2.00

K848 A pack of 10 assorted of the above types £5.00

Become a

GOLD

Subscriber!

A better deal for regular customers - lower postage, discounts on all regular and Bargain List items, FREE Catalogue, monthly mailings. See page 46 for details

Z1361 Right angle DIL socket for mounting 7 seg displays (takes our MAN6740 dual digit). Extremely high quality.
Prices: 40p 10+ 0.26 100+ 0.17.



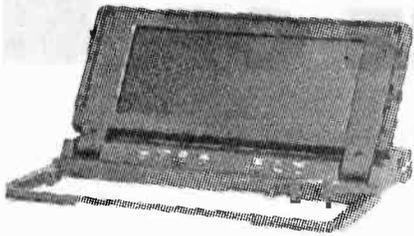
SUPER SENSATIONAL SUMMER SALE

OPTO

GREENWELD

27 Park Road, Southampton SO15 3UQ
Tel: (0703) 236363 Fax: (0703) 236307

GRAPHIC & DOT MATRIX DISPLAYS



Z9516 Victor V86P portable computer, the top half in fact. Plastic moulding contains the screen which is a jumbo LCD (275x132mm overall; actual screen 230x105mm) and contrast pot, not much else really, except a lead from the LCD to a socket which plugged into the main PCB. The LCD is made by Optrex model DMF651 AN-3 and contains 3x HD61105 and 8xHD61104. Yours for just £15.00

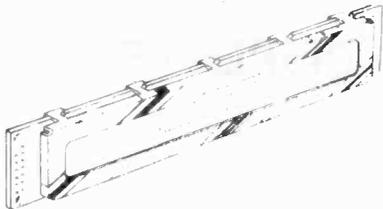
SALE PRICE £7.50

Z5489 20x2 dot matrix display by Toshiba, type TLC501 with 2xHD44100 & HD44780A00 chips on board. Fitted with 14 pin IDC type plug. PCB 115x37mm. £7.00

SALE PRICE £4.95

Z5460 Epson dot matrix display type EG2401A. Display area 139x39mm. Overall size 178x69mm. No data at present £15.00

SALE PRICE £9.95



(D) LCD DOT MATRIX MODULES

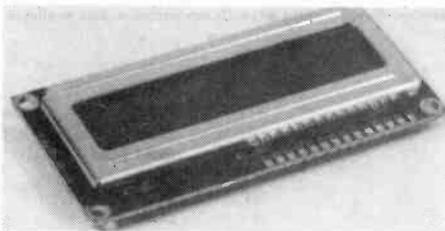
All with HD44780 controller (and HD44100 on larger displays)

CODE	PART No.	SIZE	CHAR	HT	PRICE
Z5482D	TLCM1620	16X2	5X7	4.27	6.00
Z5484D	TLCM2011	20X1	5X7	5.20	4.60
Z5486D	TLCM4021	40X2	5X7	5.20	9.50

A data sheet is included in the price.

Application notes: A 16 page booklet is available, price £2.00 order code Z2842

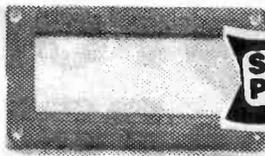
SALE PRICE 25% off



Z5096 16 character: x 1 line. Very similar to our Z1814 but slightly larger character -6.3x3.15 (8x5 dots). Type LCDM16166 by Refac. Supplied with data. Uses Hitachi HD44780A00 chip.

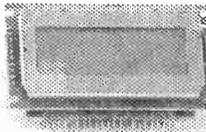
Price £8.00

SALE PRICE £4.95



SALE PRICE £8

Z3059 Date display module 4 digit LCD in compact plastic housing 60x30x7 has decoder driver circuits CMOS/TTL compatible inputs 0-9, A-F. Only 3 input required, clock, data in & load. Based on Hughes 0438A. With data DP22.78. Our Price £9.95



SALE PRICE £5

Z3063 EA-Y 16015A2 16 Digit LCD module by Epson. On double panel 84x44mm with 22 way connector. Only £6.00



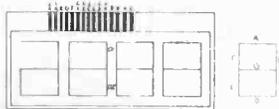
Z1731 NEC Vacuum Fluorescent Display FIP8BIII. 8 digit multiplexed output 10mm high. Heater voltage 2V. grid/anode voltage 24V. (Use Z4248 transformer to power).

Price £3.00

SALE PRICE £1.00

Z5459 Futaba 16 character x 2 line vacuum fluorescent display, type 162-BY-01Z. Supplied with pin out. Next month's 'Guardian' will have some driver circuits shown. Only £2.50

SALE PRICE £1.00



Z2362 MS463M 0.6" common cathode 4 digit multiplexed display on PCB 70x30 with 15 way connector. Intended for digital clock use. Supplied with pin out. ONLY £1.50

SALE PRICE £1.00

Z2432 LCD 8 digit 10mm high. Single sided 36 way edge connector. Only £2.00 100+ 1.00 1k+ 0.80

SALE PRICE 2 for £1

Z4115 8 digit 12.7mm high LCD and holder. These are 14 segment devices allowing alphanumeric display. Normally costing over £15.00 we are offering these for just £4.50

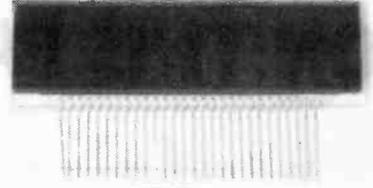
SALE PRICE £2.00



Z2172 40 character x 1 line LCD by Optrex (Japan). High quality double height display with 192 character ROM; other characters can be displayed by generation in RAM. Other features include cursor with control, blink character, scroll display, read and write display data, single +5V supply, data and power inputs by one 16 pin 0.05" SIL socket, pin outs standard and compatible with other Optrex displays, contrast control, easily interfaced with either 4 or 8 bit uP's. Supplied complete with data. Dimensions: Characters are 5 x 12 dot arrays measuring 3.2 x 10mm Display size 170 x 17.5mm Module size 220 x 40mm DP over £50.00 Our Price £15.00

SALE PRICE £3.00

Z2659 LCD module. Probably Intended for use in mobile phones. Size 44x28mm. One row of 10 digits + a load of Japanese characters. Uses 2xOKI M5259 chips. No other data (yet) £2.50



SALE PRICE £1.00

Z2163 4 Digit multiplexed LCD, 50 x 30mm probably for an electronic balance-symbols include balance pens, 5 stage bar graph, lb's and kg's etc. Digit height 12mm. Self adhesive pad on back. 13 pin PCB connector. £2.00

SALE PRICE £1.00

Z5352D Densitron alphanumeric LCD module 40x1 character type H2572HT. Farnell's price 29.28 - Superdeal Price: £9.95

SALE PRICE £6.95

Z1637 LCD Display - Direct drive 3 1/2 digit with 'LO-BATT' 12.7mm high digits. Op voltage 4-12 RMS @ 32Hz type. Consumes only 25µA with all segments on. Trade price £7.97 each. Supplied with data, but no edge connector.

Prices £1.00 25+ 0.65 100+ 0.50

SALE PRICE 2/£1.00

Xtra Special

Z655 PLASTIC PUMP
(from cream dispenser)

10 for £1

Star Buy!!

Xtra Special

FUSES/HOLDERS

Z1395 15mm fuseholder 10/£1

Z2528 Thermal Fuse 152C 6/£1

Star Buy!!

FIBRE OPTIC CABLE

Just purchased 40,000m of 0.2mm dia top quality fibre optic cable. Ideal for modellers and experimenters. Last time we had this (Winter 91/92) it whizzed out the door - so don't leave it too long before ordering!

Tech Spec: 1310nm - 0.32-0.39dB/km 1550nm - 0.22-0.24dB/km.

Sold in the following packs:

Z3015 10m £2.00

Z5559 100m £12.00

Z9153 1000m reel £85

SALE PRICE 1/2 Price

ALL ITEMS ON THIS PAGE HALF PRICE!

OPTO

Pack No	Qty	Description	Price
VP28	10	Rectangular 0.2" red LEDs	£1.00
VP130	6	Red 7 seg CC 14mm x 7.5mm RDP FND 353 LED Display	£2.00
VP131	4	Green 7 seg CA 0.6" LDP XAN 6520 LED display	£2.00
VP133	6	Red overflow 0.6" 3xCA, 3xCC 6630 50 LED Display	£2.00
VP134	5	Green overflow 0.6" CA XAN 6530 LED Display	£2.00
VP138	20	Assorted LED Displays our mix with data	£5.00
VP147	1	Pair Opto Coupled Modules with data	£0.60
VP199	4	DL707R LED Display CA.	£1.00
VP204	10	Large 5mm green LEDs	£1.00
VP205	10	Small 3mm green LEDs	£1.00
VP207	10	Small 3mm yellow LEDs	£1.00
VP208	10	Large 0.2" LEDs clear showing red	£1.00
VP243	3	Tricolour LEDs rectangular 5mm, red, green, yellow	£1.00
VP266	10	Large 5mm orange LEDs	£1.00
VP279	10	OC71 Photo Germanium Transistor PNP	£1.00
VP284	2	Opto-isolator IL74-4N27 single	£1.00
VP285	1	Dual Opto-isolator IL74	£1.00

INDICATORS

Code	Qty	Description	Price
1534	5	T 1½ LES Bulbs 6V 0.36W	£1.00
1535	5	T 1½ LES Bulbs 6.5V 1W	£1.00
1542	5	MES Round 12V 2.2W	£1.00
1539	5	MES Round 6.5V 0.15A	£1.00
1552	5	Panel Mounting bezel. High quality plastic with recessed aperture. 6mm dia. For use with 3mm LED	£1.00
1553	5	As above but with convex end	£1.00
VP578	3	12V indicator. Red 8mm dia x 30mm long	£1.00

We're re-offering some red LED displays which have appeared in previous lists; now at much reduced prices.

CODE	TYPE	SIZE	CA/CC	DP	QTY	£2PACK	100+	1000+
Z3001	S806RWB	20mm	CA	RH	792	8	12	.08
Z3002	LTS312R	0.3"	CA	BOTH	1325	15	.08	.05
Z3003	3719	0.3"	CA	RH	1075	20	.05	.03
Z3004	3729	0.3"	CA	RH	9807	20	.05	.03
Z3005	MIP4710	0.43"	CA	RH	1705	20	.05	.03
Z3006	MAN4710A	0.43"	CA	RH	1441	20	.05	.03
Z3007	MIP4720	0.43"	CA	LH	977	20	.05	.03
Z3008	MIP4920	0.43"	CA	NONE	3983	20	.05	.03

SUPER LED PARCEL!!

Over 300,000 top quality, full spec LED's in a variety of shapes and sizes.

Code	Type	Size	Colour	Shape	Description	Qty	£2 Pack	100+	1k+
Z7201	EL103CD	2mm	G	CYL		100	12	-	-
Z7202	EL103YD	2mm	Y	CYL		99	12	-	-
Z7203	HLMP1719	3mm	Y	R		6107	16	.06	.04
Z7204	TLMP1300	3mm	R	R	Hi Eff diffused	4960	20	.05	.035
Z7205	TLMP1503	3mm	G	R	Diffused	1479	16	.06	.04
Z7206	LY3140-LP	3mm	Y	R		1386	16	.06	.04
Z7207	LY3369-EH	3mm	Y	R	Low Current	409	16	.06	.04
Z7208	LG3369-EH	3mm	G	R	Low Current	115	16	.06	.04
Z7209	LS3380-GK	3mm		R	Wideangle Super bright	817	16	.06	.04
Z7210	LY3180-J	3mm	Y	R		472	16	.06	-
Z7211	LT0379-41UR	3mm	R	R	Super bright Waterclear	97	12	-	-
Z7212	FDL1303Y1	3mm	Y	R	ULTRA HI INT	91	12	-	-
Z7213	FDL1303G1	3mm	G	R	ULTRA HI INT	97	12	-	-
Z7214	FDL1303HR1	3mm	R	R	ULTRA HI INT HI Eff	93	12	-	-
Z7215	LT331L	3mm	Y	R		968	16	.06	-
Z7216	LY5180-H	5mm				387	16	.06	-
Z7217	HLMP4700	5mm	R	R	Hi Eff	2944	20	.05	.035
Z7218	TLMP7005	5mm	R	R	Hi Int, Clear	2474	20	.05	.035
Z7219	TLMP7313	5mm	R	R	Hi Int, Hi Eff	3890	16	.06	.04
Z7220	TLMP4945	5mm	R	R	Hi Eff CC Reg	477	12	.08	-
Z7221	TLMP3300	5mm	R	R	Hi Eff diff	9935	20	.05	.035
Z7222	TLMP3502	5mm	G	R	Diff	3996	20	.05	.035
Z7223	TLMP3801	5mm	R/G	R	Dual Red/Green 3 Leads	500	10	.10	-
Z7224	TLMP5491	5mm	R/G	R	Dual Red/Green 2 Leads	273	10	.10	-
Z7225	LR5360-G	5mm	R	R		1181	16	.06	.04
Z7226	LR5380-J	5mm	R	R	Wide Angle	435	12	.08	-
Z7227	LS5460-HL	5mm	R	R	Super	4550	16	.06	.04
Z7228	LH371-EJ	5mm	R/G	CYL	Red/Green dual 3 Leads	492	10	.10	-
Z7229	LG5360-H	5mm	G	R		1118	16	.06	.04
Z7230	LR5460-FJ	5mm	R	R		14218	20	.05	.035
Z7231	LY5180-H	5mm	R	R	Wide Angle Super	387	16	.06	-
Z7232	LS5180-J	5mm	R	R	Wide Angle Super	484	16	.06	-
Z7233	LG5180-H	5mm	G	R	Wide Angle	407	16	.06	-
Z7234	LT1841-11	5mm	O	R		215	16	.06	-
Z7235	LT1811	5mm	R	R	Super Bright	38807	25	.045	.03
Z7236	LT1821	5mm	G	R	Super Bright	18757	16	.06	.04
Z7239	LT1831	5mm	Y	R	Super Bright	1709	16	.06	.04
Z7237	FDL4601HRI	5mm	R	R	ULTRA HI INT	989	14	.07	-
Z7238	LT2402-52	5mm	R/G	R	Dual Red/Green 2 Leads	989	10	.09	-
Z7240	LT2462-52	5mm	R/G	R	Dual Red/Green 3 Leads	94	10	.09	-
Z7241	LN21RCPHL	5mm	R	R		80639	30	.04	.025
Z7242	LN81RCPH	5mm	R	R	Hi Eff	995	20	.05	-
Z7243	EL331ID	5mm	R	R	Hi Eff	94544	30	.04	.025
Z7244	EL533YD	5x2.4	Y	T	Tombstone	21972	16	.06	.04
Z7245	LT5211-41	5x2	R	R	Hi Eff	402	10	.09	-

OPTO/LED/LCD/VFD/NEON/BULB/7 SEG. ETC.

CODE NO.	DESCRIPTION	PRICE
Z1466	GI lamp type 286-002. This is a 12V 1.2W wedge lamp 18mm long x 4.8mm dia.	12; 25/£2.50 100/£7.00 500/£25.00
Z1923	Slide (PO type) 220V	5 for £1.00
Z1924	Small slide base 48V 25mA T5.5.	5 for £1.00
Z1925	Small slide base 24V 20mA T5.5.	5 for £1.00 100/£10.00
Z1926	Small slide base 60V 20mA T5.5	5 for £1.00
Z1939	7 seg display, luminous intensity 0.6mCd, RH, CC, 10mA. 0.3" (7.62mm).	1+ 31p 25+ 0/20 100+ 0.16
Z194C	+1 seg display, luminous intensity 0.6mCd, LH, CA, 10mA. 0.3" (7.62mm).	1+ 20p 25+ 0.13 100+ 0.10
Z1943	+1 seg display, luminous intensity 0.8mCd, RH, CA, 10A. 0.5" (12.88mm).	1+ 23p 25+ 0.15 100+ 0.12
Z1944	+1 seg display, luminous intensity 0.8mCd, RH, CC, 10A. 0.5" (12.88mm).	1+ 23p 25+ 0.15 100+ 0.12
Z2063	IMO Neon Indicator. Large square face 13.5mm. clip fix (Green).	5 for £1.00 100+ 0.10 1k+ 0.06
Z2064	IMO Neon Indicator. Large square face 13.5mm. clip fix (Amber).	5 for £1.00 100+ 0.10 1k+ 0.06
Z2065	IMO Neon Indicator. Large square face 13.5mm. clip fix (White).	5 for £1.00 100+ 0.10 1k+ 0.06
Z2139	Indicator, 12V. Panel mounting, they require 25x12.5mm cut-out. 0.25 tabs. (Amber).	5 for £1.00
Z2357	LCD. 6 digit, 0.5", 50 pin device.	Only £2.00
Z2650	Photodiode - infra red receiver in 3mm LED package.	Pack of 6 for £1.00 100+ 0.09 1k+ 0.06
Z2668	PCB/LCD/IC and 7106 driver. Contains most other parts required.	Only £4.00 (no data).
Z2840	MOC3021LP OPTO (SUR. MNT.).	20 for £3.95
Z2995	Red Neon in Bezel, single hole (7mm) mntg. 75mm leads.	5 for £2.00
Z2996	Amber Neon in Bezel, single hole (7mm) mntg. 75mm leads.	5 for £2.00
Z2997	24V, 21W, SBC Bulb.	5 for £2.00
Z2998	12V, 21W, SBC Bulb.	5 for £2.00
Z3059	Data display module. 4 digit LCD in compact plastic housing 60x30x7 has decoder driver circuits CMOS/TTL compatible inputs 0-9, A-F. Only 3 input required, clock, data in load & load. Based on Hughes 0438A. With data.	Only £9.95
Z3063	EA-Y-16015A2. 16 digit LCD module by Epson. On double panel 84x44mm with 22 way connector.	Only £6.00
Z3139	Neat high quality pot from AB. Body 16x16mm, gold plated tags, moulded carbon track. 50k lin.	4/£1.00
Z3140	300mA Mes Bulbs 3.5V	50 at 10p each 2 for £1.00
Z4314	Indicator, 14V 40mA Opal.	£6.00 each
Z5483	LCD Dot Matrix Module. TLCM1621. SIZE 16x7 CHAR 5x7 HT4.27.	£7.00 each
Z5485	LCD Dot Matrix Module. TLCM2021. SIZE 20x2 CHAR 5x7 HT4.85	£7.00 each



SUPER SENSATIONAL SUMMER SALE

Leads & Cables

GREENWELD

27 Park Road, Southampton SO15 3UQ
Tel: (0703) 236363 Fax: (0703) 236307

TWO FOR THE PRICE OF ONE TELEPHONE LEADS AND HANDSETS

Z4309 BT 'breakout' lead. One end has moulded housing with 6 pin BT plug and socket. Other end has 6 pin FCC68 plug (as used on some computers). Overall length 3m
Price **£2.20**

Z5500 Telephone handset in pale grey with black 4 core lead. No plug **£2.00**

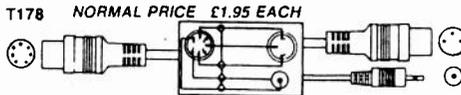
Z5512 Ivory telephone handset, 4 way curly cord with spade terminals which can be unplugged (unusually) from handset. **£2.50**

Z5360 New brown telephone handsets by BT, complete with curly cord and 4 way socket. **£4.50**

Z5254 2m long 4 core sheathed cable fitted with a sleeved grommet, 4 pin DIN socket to open end. **4 for £1.00; 100+ 0.12**

Z5251 1m long twin flex, 2.5mm power socket to open end. Fitted with sleeved square grommet. **Pack of 3 £1.00; 100+ 0.18**

Z2161 14 way ribbon cable 500mm long terminated both ends with 14 pin DIL header plugs.
Price **£1.00**



7-pin DIN plug to 3-pin DIN plug and 2.5mm jack plug. Colour grey.
Length 1m

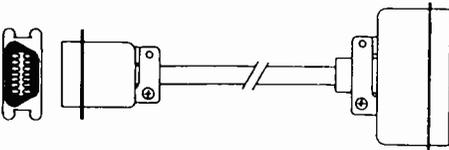
5 FOR £1.00

CAT PRICE £2.58



T108 **BUC12**
BNC plug to PL259 (UHF) plug.
Length 1.2m

**CLEARANCE PRICE £1.00;
100 FOR £50.00**



Z3037 50 way D type IDC plug by Thomas & Betts. DP 18.16.
Our Price £2.00

Z3038 50 way D type IDC socket by Thomas & Betts **£2.00**

Z3040 28 way Spectrum edge connectors, right angle PC mntg
10/£2.00 100+ 0.10; 1K+ 0.06

Z3036 Useful heavy duty 'Jones' 6 way non reversible plug and socket by Cinch. Skt is chassis mounted, plug has cover and cable clamps. Will take 20A+. **£1.75**

Z3031 High quality TO3 socket with threaded brass inserts. In our current catalogue at 28p each. **Special price 6 for £1.00**

Z5771 Flex pack - we've found a number of reels of 7/0.2 flex, mostly bi- and tri-colour, so are offering a pack of 50m - 5 x 10m lengths for just **£1.30**

Z5770 40gm (4.5m) reel of 23SWG enamelled copper wire (solder thru type) Would normally cost around 80p **Special Low Price - 5 for £2.00; 100+ 0.25**

Z3164 Universal car power lead. 5 wires with inline fuseholder and ingenious plastic moulding allowing pins to be inserted in various orientations. With diagram. **£1.50**

Z5658 Short (300mm) lead with 25D plug one end, 9D socket the other. High quality gold plated product. **£2.50**

Z3168 Short audio lead, 5 pin DIN 180 skt to 2 phono plugs. **50p**

Z5774 1m long 18 core + earth screened lead terminated one end with 25 way D plug + cover with locking screws. **3 for £2.00**

A parcel of telephone leads and cable has arrived:

Z5526 8 core cable 15m long **£1.95**

Z5527 8 core cable 10m long **£1.30**

Z5528 8 core cable 5m long **80p**

Z5529 Telephone line cord. Flat grey 6 way with std BT plug one end, open the other. Fitted with square grommet. 3m long (our 2m long version of this costs **£2.95**) **ONLY £1.50 100+ 0.75**

Z5530 As above, but fitted with a six way socket on open end **£1.60 100+ 0.80**

Z5531 3m 6 core flat gray lead fitted with IDC line plug both ends. **£2.95**



Z3035 large qty (10,000+) 'Western Electric' FCC68 sockets, 8 pin PCB mount. As used in computer comms/telephones. DP 1.93. **Our Price - Pack of 8 £2.00; 100+ 0.10; 1k+ 0.06; 10k+ 0.04**

Z2640 IDC telecomm/computer 8 way line plug normally selling for around 60p. **Our special low price 4 for £1.00; 100+ 0.15; 1k+ 0.09 (fits above Z3035)**

XLR connectors - high quality brass chassis mounting:

Z3012 3 pin socket with release catch **£1.00 100+ 0.60**

Z3013 3 pin plug **80p 100+ 0.50**

Z3014 Standard 75R BNC Plug Cat price 99p Superdeal 5 for **£2.00; 100+ 0.25; 1000+ 0.20**



Z4353 6 way DIN lead; 1.5m lead terminated one end with a 6 pin DIN plug. Bare wires the other end.

Prices **Pack of 4/£1.00; 100/£12.00; 1000/£90.00**

Z5087 Lead - 6 PIN DIN to 3 coloured phono plugs (video + L and R audio) using flat splittable screened lead. Nice and long-2M. Cheap enough to cut the DIN plug off and reterminate with phonos!

Price **2/£1.00 10+ 0.35 100+ 0.25**

Z5606 Mains lead - moulded IEC 6A skt to open end, 1.8m long **Only £1 25+ 0.70 100+ 0.60**

Z5553 Intercom lead - 15m of twin flex wound on a handy frame with a 2.5mm plug either end. Great value at **60p; 100+ 0.25; 1000+ 0.20**

WIRE & CABLE

Code	Qty	Description	Price
397	1m	2 core oval mains cable 2.5A	£25p/m
366	1	Enamelled copper wire 38swg, 2 oz reel	£1.20
383	1	Tinned copper wire 16swg, 4oz reel	£1.70
382	1	Tinned copper wire 18swg, 4oz reel	£1.70
VP300	1	10m Speaker lead, 2 pin DIN socket	£1.00
VP304	1	1.5m 4 core cable individually screened 5 pin DIN core plug - tinned open end	£1.00
VP306	1	1.5m cable 5 pin DIN plug - 3.5mm jack plug pin 1 & 4 connection	£1.00
VP306	1	2m typewriter/calculator lead 3 pin plug, angled european IEC configuration 6A 250Vac	2/£2.00
VP310	1	20cm lead 2 x 2 pin DIN plug - stereo in-line jack socket	£1.00
VP311	1	2m lead, scart plug - 5 pin DIN plug and 2 BNC plugs	£6.00
VP315	1	2m coax lead, BNC plug - UHF plug, 70Ω	£3.00

Z5767 Coiled mic/guitar lead CL20 from Eagle, in original packs. Std 0.25" straight plug to std 0.25" right angle plug. Extended length 5m. **Super Price - £2.95**

Z5785 16/0.2 flex. 100m reels in grey only **£2.00; 100+ 1.20**

K878 Probes with leads. One end gas probe, other end may have probe, plug or socket. Again up to 10 different colours. 10 leads. **Only £4.75**

K879 10 leads, all different colours, 60mm long with 45mm probes each end. **Only £9.95**

K880 Patch lead, 500mm long - 10 different colours terminated with gold plated 1.5mm plugs both ends. **£2.50**

K881 Patch lead, 120-125mm long, only red, blue & yellow with gold plated 1mm plugs both ends. **Pack of 25 £4.95**

PL616 DC adaptor lead for Walkman, 1.8m long.
Price **30p 100+ 0.15**

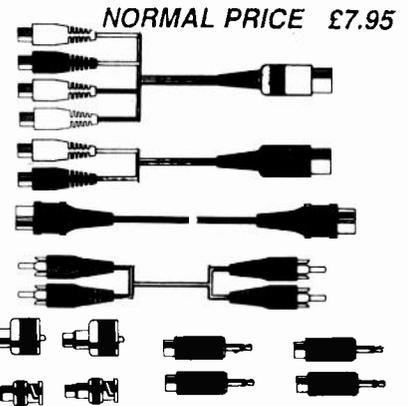
PL528 2 pin DIN line socket to phono plug 0.2m long.
Price **20p 100+ 0.10**

PL708 Video lead. PL259 plug to F type plug. 3m low loss coax.
Price **85p 100+ 0.45**

PL608 5 pin DIN - 3 pin DIN audio lead 1.2m long.
Price **40p 100+ 0.20**

Z5450 Ribbon cable 1m long terminated one end with 50 way IDC skt, the other end with 64 way DIN41612 skt. **£2.00**

Z5401 Spider leads - like our P0650 at 99p, but they are grey. 2m long and have a 1.3mm power plug (for Walkmans) as well as the normal 2.1 and 2.5 power plugs, and 2.5/3.5 jack plugs. **2 For £1.00 100+ 0.24; 1k+ 0.16**



SALE PRICE £4.00

T120

Video/audio dubbing kit.

- ★ 1 screened lead - 5-pin DIN plug to 5-pin DIN plug. Mirror image. 1.5m.
- ★ 1 twin, screened lead - 2 phono plugs to 2 phono plugs. 1.5m.
- ★ 1 twin, screened lead - 2 phono sockets to 5-pin DIN. 180mm.
- ★ 2 twin, screened leads - 4 phono sockets to 5-pin DIN. 180mm.
- ★ 2 adaptors - phono socket to PL259 (UHF plug)
- ★ 2 adaptors - phono socket to BNC plug
- ★ 4 adaptors - phono socket to 3.5mm jack plug

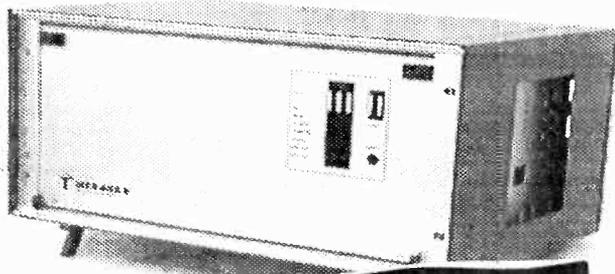
NC535 PL259 - PL259 Lead 1.2m long. Now discontinued so selling off at **£1.75 each**

Z5658 Short (300mm) lead with 25D plug one end, 9D socket the other. High quality gold plated product. **£2.50**

Z3062 Lead 1.8m long, metal 9 pin D plug both ends. **£3.00**

EXCELLENT INSTRUMENT CASE

£29.95

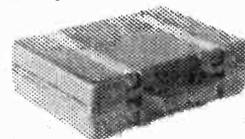


SALE PRICE £24.95

Z9220 Superb Brand New 19" Instrument Case, made for BT Miracle Call Logging Equipment.

This case is finished in an attractive slate blue, and measures 495 wide x 320 deep x 244 high (5U). Flip up plastic feet on base. Internal sub-unit fitted - this is an aluminium chassis with hinged fold down front cover, punched with 3 holes as shown. The right hand side has been punched to take 4 x 25 way D connectors, IEC mains inlet + a number of other holes. To access these connectors, a hole 154x120mm has been cut in the outer case. Must have cost BT a fortune - a standard equipment housing of this size and quality costs over £100

HELIX CASES BACK IN STOCK!



W89 Black plastic briefcase 400x270x90mm has many uses - sample case, documents, tools, hobbybox, sewing box - even lunch box!. Comfortable carrying handle and secure fastenings

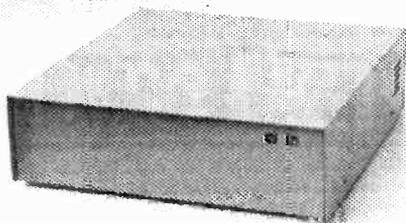
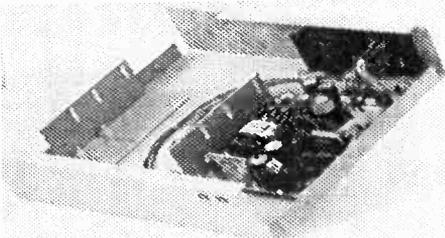
SUPER PRICE £3.95



W68 A smaller more compact version - this case measures 270x175x50mm, and has a moulded-in handle and snap shut catch.

SUPER PRICE £1.95

SUPERB BRAND NEW INSTRUMENT CASE & PSU



Z9201 Excellent quality 2 part pale grey steel instrument case 285Wx293Dx78H.

Front has yellow & green LED: Rear has switchd & fused mains input. 2 small vents on sides & 1 at rear. Inside is a 38W switchmode PSU made by Astec, model SA40-1310. 115/230V input, outputs: +5V 2.5A; +12V 2A; -12V 0.1A. Outputs wired to flying leads, 50x60x25mm. 12V 0.16A fan fitted & wired. 2 multipurpose slotted angle brackets are fixed into the rear of the cabinet allowing a wide variety of equipment to be mounted within panels, disk drives etc. (space available 250x150x70). Distributor price on this must be £70.80.

OUR PRICE
£24.95

SALE PRICE £19.95



Z5699 In line black vented PSU case 83x54x53mm. Held together by 2 self tappers. 12mm hole for mains cable, 5.3x3.7mm hole for output lead. Only 70p.

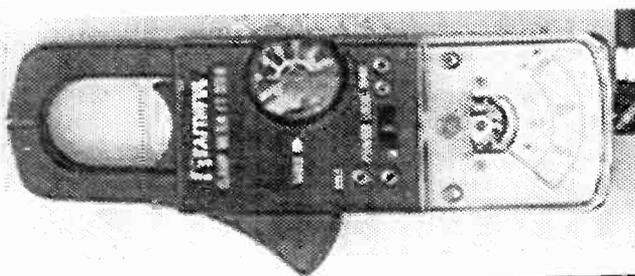
SALE PRICE 3/£1.00

CLAMP METER

Z9195 Wide ranging instrument at a bargain price!. 5 ac current ranges, 0.6-15-30-60-150-300A; 3 ac voltage ranges, 0-150-300-600V; Ohms to 5k (200R centre). The manual supplied includes the circuit diagram. Other features: needle lock, self contained ohms probe, carrying strap, solid carrying case, test lead, spare fuses.

Few only left at

£24.95



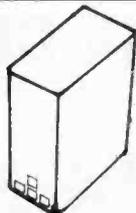
16

SUPER SENSATIONAL SUMMER SALE

Batts & Transformers

GREENWELD

27 Park Road, Southampton SO15 3UQ
Tel: (0703) 236363 Fax: (0703) 236307



Z4149 Ex-mobile radio Ni-cad batteries, discarded because they either have broken cases and od/or a dud cell - but at the price being asked they are amazing value! Pack of 8 cells, like AA but 73mm long, in a tough plastic case. Either use as a 10V battery pack, or remove from case and use cells individually. Each cell rated 1.25V 900mA. **£3.50**

SALE PRICE £1;10/£6

Z4150 Back in stock! The popular ex - radio batteries containing 8 x AA Nicads. Generally rejected because of physical damage - but there may be the occasional duff cell. Total capacity: 10V @ 500mA. Same price - **£1.60**

SALE PRICE £1.00



Z4216 Much sought after 4.8V 150mA batteries with PCB mounting tags on 25mm pitch. Battery size 25 x 16 dia. Ideal for paralleling. Some corrosion.
Prices reduced to **50p each** 25+ 0.35 100+ 0.25

SALE PRICE 10/£2.00



Z2450 Tadiran AA size battery 3.6V PC mounting. Date code 6/89. DP on these is 5.17. Our price **£2.00** 25+ 1.50 100+ 1.20

SALE PRICE 8/£2.00

Z2721 Lithium battery 11mm long x 12.5mm dia. 3V 160mA PC mntg. DP 3.73. Our Price **£1.20**

SALE PRICE 4/£1.00

Z2719 Lithium battery, Varta 6201 3V 1500mAh PC mntg 60mm long x 11.2mm dia. DP 6.00+ Our Price **£2.00**

SALE PRICE 8/£2.00

Z2720 Lithium Battery, Vidor G06/53 3V 1400mAh PC mntg. 50mm long x 15mm dia, individually boxed. DP 6.00+. Our Price **£2.00**

SALE PRICE 8/£2.00



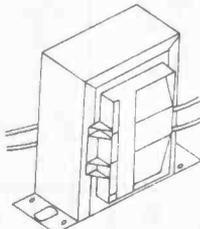
Z2451 Tadiran 0.5AA size battery, 3.6V PC mntg. Date code 8/86. DP 4.58 Our price **£1.75** 25+ 1.35 100+ 1.05

SALE PRICE 4/£2.00

Z2069 Thin heatsink (1.2mm) 57 x 57 formed to accept single TO3 device.

Price **5 for £1.00**

SALE PRICE £1.25



Z5206 Super transformer for railway and other modellers. Mains primary, secondary 16V 3A. Size 50x55x60mm high 61mm FC. Great value for money only **£3.00** 100+ 2.00 1k+ 1.50

SALE PRICE £2.00

Box of 60 £80

Z4248 Mains transformer, 110/ 240V input via PCB pins. Secondary: 6.5V (w 8VA), 22V (w 8VA), 22V (w 1VA); 1.5-0-1.5V (w 1VA). Nicely made by Skot.

Price **£3.00**

SALE PRICE £1.20

Z5595 Mains primary, 35V 2A secondary, handy transformer, our cat no. X064 at 8.32. However we're a bit overstocked on these and can sell 100 only at **£3 each**.

SALE PRICE £2.00

Z2643 Oscillator transformer has push, pull and feedback windings and a secondary of around 385 turns, giving a ratio of about 100:1. As used in high frequency voltage converter circuits. **2 for £1.00**

SALE PRICE 4/£1.00

Xtra Special

BBC SOFTWARE

Z4333 Micro Maestro 5.25" disk + tape + C60 stereo cassette + handbook. Concert pitch **£2**

Z4334 As above but B flat **£2**

Z4326 Music Master. Mic to attach to recorder + processor + 5.25" disk + handbook 40t **£3**

Z4327 As above but 80t **£3**

Z4328 Recorder Tutor - 5.25" disk, 38p handbook, C90 cassette with 52 tunes **£2**

Z4329 Ensemble Pack **£1**

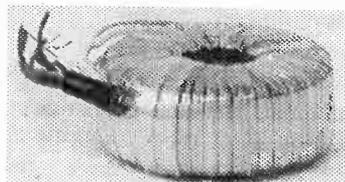
Z4330 Duet Pack **£1**

Star Buy!!



Z5567 60 amp alternator and generator noise filter, model C1360. Range 2-400 MHz. We had these a couple of years ago, and they were extremely popular. Unusual to get repeat supply so if you missed out last time, you have another chance! Only **£3.95 each**

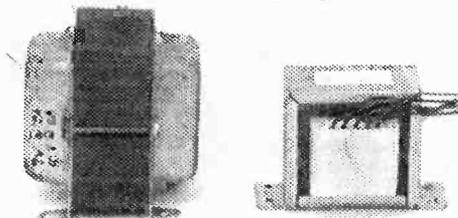
SALE PRICE £2.50



Z5727 Toroidal Transformer with mounting. Size 86 dia x 31 high. 0-110/220/240Vpri, 8-0-8V 50VA sec. Only **£4.50**.

SALE PRICE £3.95

TRANSFORMERS



Z5772 Old fully screened transformer that's been hanging around our stores far too long. Std mains primary, it has two useful secondaries 7V 2A and 10V 2A. Bit rusty. Size 82x89x64mm **£2.00**

SALE PRICE £1.00

Z5773 Useful clamp model, new and individually boxed. Again, std mains primary and 2 secondaries: 12-0-12V @ 1.5A and 0-12V @ 1.5A. By linking these two windings, 36V @ 1.5A is available. Size 70x70x60mm. **£3.00**

SALE PRICE £1.50

Xtra Special

CONNECTORS

Z042 2 pin DIN spkr skt 50/£1

Z598 PC IEC skt 3/£1

Z1987 75R conn 3/£1

Z2055 8pin DIN skt 12/£1

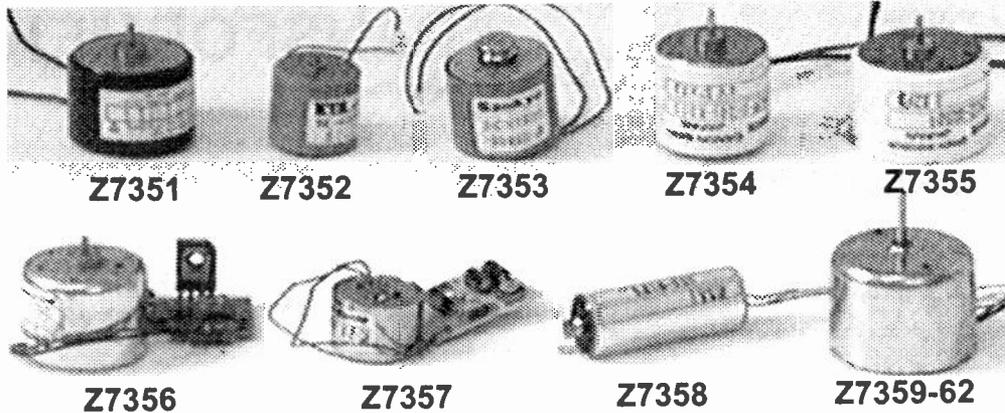
Z2021 BNC 3/£2

Z1714 5pin DIN 240 - box of 36 **£1.00**

Star Buy!!

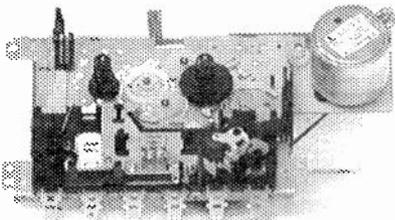
ALL ITEMS ON THIS PAGE HALF PRICE!

TAPE, RECORD & CASSETTE DECK MOTORS

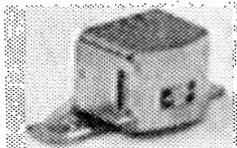


CODE	TYPE	DIA	HT	SP	V	I	Speed	Dir	Used In:	QTY	RRP	OUR PRICE
Z7351	MM330	23	17	3	13.2	140	2400	CCW	Audiola Car Stereo	59	21.95	£4.95
Z7352	MM340	27.5	20	10	4.5	110	2400	CW	Electronically Governed	57	11.95	£2.95
Z7353	MM345	30	22	5	6			CW	Blaupunkt	181	7.95	£1.95
Z7354	MM350	34	22	2	6	165	2000	CW	Far East Imports	28	10.95	£2.95
Z7355	MM360	28.5	20.5	2	6	170	2400	CW	Hitachi, Orion and Sharp.	30	10.95	£2.95
Z7356	MM370								Electronically goverend	38	14.95	£2.95
Z7357	MM380	22	12.5	1.2	4.5	130	2400	CW	Toshiba, Aiwa Electronically goverend	92	24.95	£4.95
Z7358	MM390	14	40	4.3	1.5	105	2600	CW	Sony	21	21.95	£4.95
Z7367	MM410	38	36		12	60	1130/1520	CW	JVC, Hitachi, Toshiba, Dual and Grundig Turntables	33	12.95	£2.95
Z7359	MM420	34	22	2	4.5		1520	CW		35	6.95	£1.95
Z7360	MM430	34	22	2	4.5		2000/2300	CCW		40	6.95	£1.95
Z7361	MM450	34	22	2	4.5		2000/2300	CCW		40	6.95	£1.95
Z7362	MM460	34	22	2	6.7		2000/2300	CW		48	6.95	£1.95
Z7363	MM480	27	21	2	6.7		2000/2300	CW		13	6.95	£1.95

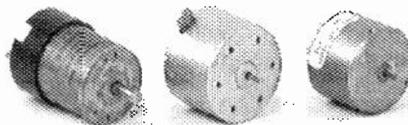
STEREO CASSETTE PLAYER



Z5488 9V stereo cassette deck mech. Record/replay and erase heads, 6 push buttons - fwd, rev, play, rec, pause and stop. Only £2.95



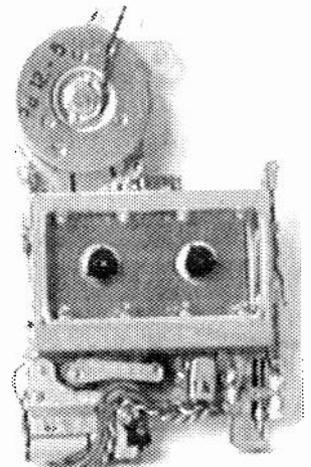
Z7350 Stereo cassette head using high B hard permalloy for metal tape. Full spec included. RRP 6.95. Our price £2.00.



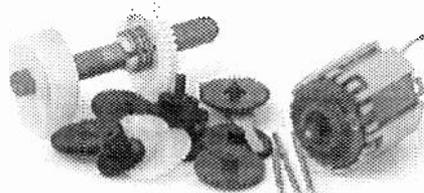
Z5427 Tachometer. Here's a nice little unit at a fraction of its true worth - made by Transicon Inc, this will give an accurate voltage for any given speed. Gradient 1.55V/1000RPM. Only £8.00

Z5487 Mabuchi hi-torque 9V cassette motor 35mm dia x 25mm. Only £1.00; Box of 200 £65

Z3039 High quality DC motor by Phillips, 32.2mm dia x 24mm high. Spindle 2mm dia x 7mm long. Low noise level, smooth running, designed for cassette machines. Normal V = 6.7V, max 12V: 2000 RPM. Full spec on request. £1.95 100+ 1.00



Z5716 Extremely high quality compact mini cassette deck. Overall size only 89x57x16.5mm. 3V operation. Motor has tach sensor. Combined 4 track record/playback/erase head. Another motor with worm drive just 14x11mm dia used to engage the pinch roller with the capstan. Brass flywheel, diecast frame. No electronics, but flying leads from motor, head and switch Superb value at £4.95



Z5782 Plastic housing with small (25x23mm dia - 2W) mains motor and complex gear chain to give a final speed of 1 rev every 12 hours on to a 0.25" spindle, operating various switch contacts. Nice selection of easily removeable plastic gearwheels (10) and spindles (3) Only £1.50 - or buy a tray of 21 for £20

Xtra Special

Suppressors & Filters

Z2444 Protector 14A 5/£1

Z003 Potted, fused 5/£1

J057 6A IEC inlet £1.00

Star Buy!!

HALF PRICE ALL ITEMS IN THIS BOX TRANSFORMERS

CHOKES + COILS + MOTORS:

CODE NO.	DESCRIPTION	PRICE
Z588	Min Coil in screened can. TOKO type 113CN 2249 HM.	Pack of 10 £1.00 100+0.04 1k+0.25
Z589	TOKO Can type 113CNK 1881EK	Pack of 10 £1.00
Z590	SIGMA Axial choke type SC10, 150µH.	Pack of 10 £1.00
Z1564	TOKO RCL Coils all In 10x 10mm screened cans. 90D0. 180. 002. 86049	25p each 25+0.15 100+0.08. Any mix
Z1767	Choke, 56mH 10mm x 9mm dia.	Pack of 10 £1.00
Z1817	Miniature Axial Choke SC30, 1mH.	Pack of 10 £1.00
Z1964	50mH choke, fairly low current. PC mounting. Adjustable. 13mm dia x 12mm long.	Pack of 3 £1.00
Z2339	Heavy duty iron cored open wound choke by siemens 58x23x26, B82503-U-A-14 rated 100µH 10A 380V Ac.	2 for £1.00
Z2340	Encapsulated choke 77 x 32 x 27 by siemens with screw terminals rated 65µH 25A. 9mΩ 500V	Only £2.00
Z2645	Small wound toroid - OD 17.5mm, ID 9.5mm. 6.7mm thick. Wound with 27 turns of 23swg wire.	Pack of 12 £2.00 100+ 0.09 1000+ 0.05
Z3021	Repanco High Q choke type CH6, 5µH 1R75.	Pack of 6 £2.00
Z3140	82µH axial chokes	Pack of 100 £2.00
Z4393	Ferrite tube 9.5mm long 4mm OD 2.6mm ID.	Pack of 25 £1.00 1k+ 0.015
Z5246	Mains synchronous motor with easily accessible gearbox giving a final speed to the 5.5mm dia 12 toothed gearwheel of 0.2RPM (12 revs per hour).	Only £3.95 100+ 2.50
Z5517	4 Phase Brushless DC Motor. A powerful 12V brushless motor thought t. Diameter 35mm, length 50mm, spindle length 10mm, spindle diameter 3mm	Only £2.00
Z5518	Phase 12V Stepper Motor. Thought to have been removed from disk drive. Step angle 7.5°, voltage 12V, current per phase 0.25A. The spindle has a 10mm pitch anti-clockwise helix cut in it - presumably to move the read write head. Diameter 57mm, depth 25mm, spindle length 80mm, spindle diameter ¼".	Only £2.50

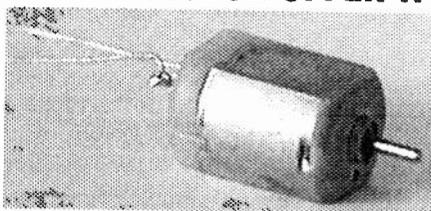
All have mains primaries

Code	Qty	Description	Price
2036	1	0-17V 250mA	£2.30
2034	1	0-35V 1.7A	£4.90
2042	1	0-25V 2A	£4.40
2035	1	0-55V 2A	£8.95
2043A	1	20-0-20V 500mA	£3.80
2031	1	0-19-25-33-40-50V 500mA	£7.50
2032	1	0-19-25-33-40-50V 1A	£9.30
2038	1	Miniature driver, Primary 20k ,Secondary 2k CT	£1.20

BATTERIES & CAGES

Pack No	Qty	Description	Price
VP904	2	Battery cage to take 10 'AA' cells. Uses PP3 connector	£1.00
206	4	Battery cage to take 4 'C' cells, end to end in line	£1.00
VP906	10	Red and Black snap on clips for PP9 battery	£1.00
VP913		Gun type probes - pull on lever to open jaw. Tails 4mm plugs. Red & Black	£1.95 Per pair

SUPER MOTOR OFFER !!

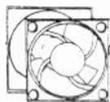


Spec:
Size: 25x20x15mm
Volts: 12V
RPM: 15,000 no load
Current: 50mA
Spindle: 8.5 x 2Ø

4 for £1

100 + 0.14 1000 + 0.10

SALE PRICE 8/£1.00



Z5730 Ex-equip 120x120x38mm fans, 230V ac mostly by Papst. Good, clean condition. **£5.95**

SALE PRICE £4.95

SCOOP BATTERY DEAL!

Sealed lead acid battery by Panasonic (Matsushita). Superb quality & value. Constant voltage charge 12V 17Ah size 182 x 167 x 75mm.

Voltage regulation - Cycle Use 14.6-15V
Standby Use 13.6 - 13.8V

Initial Current - less than 6.8A
These look brand new & have been checked & charged by us prior to despatch. Use our A116 charger for re-charging. Bolt terminals.

OUR PRICE LIST PRICE OVER £50!!

SALE PRICE £15.00

Z560J Papst 115V AC metal 120x120x26mm £2

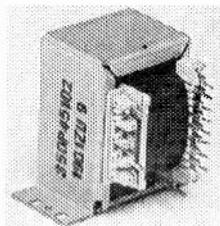
Z5602 Useless fan guard that doesn't fit any of the above - fixing holes are on 115mm centres. 10 for £2

SUPER TRANSFORMERS

Clamp construction, or PCB mounting standard mains primary with secondaries as follows:

12V @ 2A
16V @ 2A

OFFER!



Also two low current windings:

5V @ 50mA @
38V @ 50mA

Overall size 64 x 53 x 65mm

PRICE - £3.50 each
BOX OF 20 - £50

SALE PRICE £2 each Box of 20 £30



Z5728 Fan as used in Z9201. 12V 0.16A 50x60x25mm made by Panaflo. Flying leads. Distributor price is £17.00. **Our price £5.00**

SALE PRICE £3.50

GREENWELD

27 Park Road, Southampton SO15 3UQ
Tel: (0703) 236363 Fax: (0703) 236307

**SUPER SENSATIONAL
SUMMER SALE**
PSU's

19

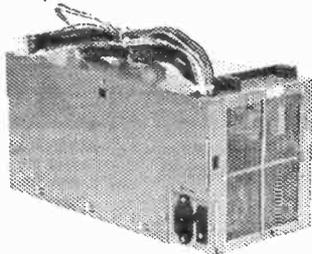
POWER SUPPLY BARGAIN

One of the best power supplies we've seen for the money - this 397 watt switch mode beauty is of the highest quality, made by Delta Electronics Inc. Removed from equipment, but in excellent condition (less than a year old!) the unit is totally enclosed in a steel case 340x152x152mm. It has an IEC mains inlet with suppressor fitted and on/off mains rocker switch, and all outputs are on leads with power connectors.

Now for the Spec:

**Inputs: 100-120V @ 10A or
200-240V @ 6A, switchable
on front panel.**

**Outputs: +5V @ 40A
+12V @ 15A
-5V @ 1A
-12V @ 1A**



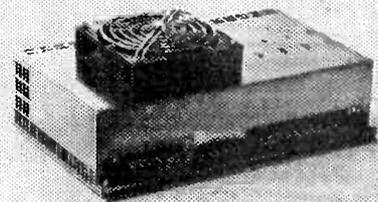
A 12V DC 120x120mm fan is fitted at the rear of the case. Current distributor price of a unit of this ilk would be around £400!

OUR PRICE £29.95
SAVE 92%! Order Code Z 9157

SALE PRICE £19.95

Z2599	2.5W DC-DC converter - 5V in, +12, -12V out @ 100mA. Size 68x31x27mm	Only £8.50
Z4190	T/X D/Drive PSU kit.	
Z4215	Siliconix mains input, 4.5V DC 150mA output to 3.5mm jack plug on 2m lead. Built -in continental 2-pin plug. Size 62x46x35mm.	Only £1.50
Z5094	Tripler, made by Konig for Remo type D 126 for Telefusion and ITT models.	Only £1.50 10+ 1.20 100+ 0.65
Z5095	Tripler, Remo type D125 for 22-26 Korning 429 models.	Only £2.00 10+ 1.20 100+ 0.65
Z5143	Plug in power supply giving 7.5V 600mA on the end of a 2m lead with a 2.5mm power plug.	Only £2.50 100+1.80
Z5330	Plug in power supply giving 6V 200mA to a 2.5mm plug on the end of a 1.5m lead.	Only £2.00
Z5519	Great value! PSU. Power supply, ex-equip unboxed. Mains input transformer.	Only £2.00
Z5546	Plug in car power supply - use cigar lighter socket to convert 12V to 6V 1A DC regulated. (uses 7805 & zener). 3m long lead with 2.5mm power sct. Super bargain price.	Only £1.50
Z06545	Switching Regulator.	
Z8661	Advance switch mode PSU 110/250V as input, output 5V 50A. Has external fan 120x120mm fitted to case 305x109x75mm.	Only £30.00
Z9137	+5V 2.5A; -12V 0.25A; +16V 4.5A (Useful for battery charger?)	Only £17.95
Z8961	PSU, 5V 60A.	
Z06536	Weir SMM 30/ 12 . 30 watt cased unit 174x100x51mm with three outputs: 5V @ 3A; +12V @ 0.6A; -12V @ 0.6A.	Only £20.00

SALE PRICE All 1/2 Price



Z8661 Advance switch mode PSU 110/250Vac input, output 5V 50A. Brand new & boxed. Has external fan 120x120mm fitted to case 305x109x75mm

Super Deal Price £30

SALE PRICE £15.00

Z5519 Power supply, ex-equip unboxed. Mains input transformer, bridge rectifier and smoothing cap giving 9V 800mA. Only £2.00

SALE PRICE £1.00

Z3180 Small cased switch mode regulator 70x50x25mm by Melcher model NSA55-7R 12V in, 5V 2A out. £3.00

SALE PRICE £1.50

A106 3V, 300MA Personal Stereo PSU. Only £3.00

SALE PRICE £2.00

Z5785 Switched mode PSU made by Traco, Zurich size 175x105x50mm. Completely enclosed. Label says V in is 36-60 and V out 'multi' (but believed to be 5V). Only handful, so not worth taking apart to find out more. Take pot luck for just £2.50!

Xtra Special

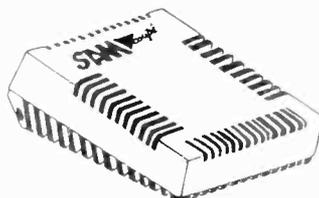
HARDWARE

Z1834 4BA solder tags 1000/£3
Z592 Yellow tape 3mmx66m 5/£1
Z1440 Screws 4x8mm 1000/£1

Z2333 Ceramic beads 3.4mm cd 400/£1
Z2335 Stand offs 24mm, 3.5mm thread 12/£1
Z2336 Stand offs 11mm, 2.5mm thread 20/£1
Z2337 Screws 6BAx12mm pozi/pon 1000/£3

Star Buy !!

SAM POWER SUPPLY & MODULATOR

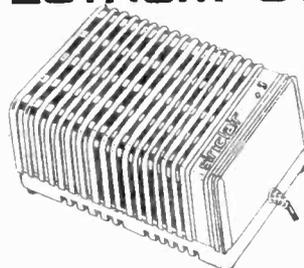


Z9111 Never heard of the SAM Coupé Computer? Well, the holding company SAMCO went bust, and now someone is trying to resurrect it - but the liquidators were anxious to turn piles of stock into cash, so we purchased all remaining stocks of the Astec made PSU's and can offer them at an amazing price! Inside the 170x150x70mm grey and black vented case is a linear power supply (240V ac in; 5V 2A & 12V 0.1A dc out) PLUS a UM1286 UHF colour TV + sound modulator! There are 3 leads: 2.2m phono to co-ax; 2m mains & 1.9m output lead fitted with a 6 pin DIN plug. All brand new stock. All this for just

£9.95 100+
4.40

SALE PRICE £4.95

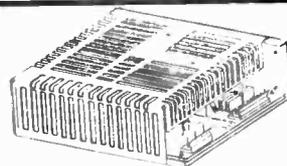
SPECTRUM +3 PSU



Brand new product - our scoop purchase of these linear power units enable you to buy at less than one third the normal price! Attractively cased in a black vented plastic case 155x102x70mm, they have a 1.3m mains lead and an output lead 2m long fitted with a 6 pin DIN plug. Input: 220/240V ac. Output: +5V @ 2A; +12V @ 0.7A; -12V @ 50mA. Z9110

£9.95 100+
4.50

SALE PRICE £3.95



Z9114 This is a super unit 168x110x50mm in its steel case. 7 gain, removed from gaming machines and tested before despatch. Std mains input. Outputs: +5V 3A; +12V 3A; -5V 0.5A; +12V 0.3A. Excellent Value at

£12.50 100+
5.75

SALE PRICE £5.95

LIGHT UP YOUR LAYOUT

K692 Super deal for modellers - we supply a mains power supply, 100 miniature lamps for wiring into your railway layout or dolls house, and 100m of flex. Circuits and details of how to wire up the lamps in series/parallel are privied. Everything for just £19.95

20

SUPER SENSATIONAL SUMMER SALE

PSU's

GREENWELD

27 Park Road, Southampton SO15 3UQ
Tel: (0703) 236363 Fax: (0703) 236307

SWITCH MODE PSU's



AA12531 Switch mode PSU by Astec partially cased. 160x104x45mm overall with 160x100mm Eurocard PCB. Inputs and outputs are on colour coded flying leads. Input 115/230V 50/60Hz. Outputs: +5V @ 5A; +12V @ 0.15A. Total wattage 50W.

£6.95; 25+ 5.43; 100+ 4.53

SALE PRICE £2.00

Conversion Kit

K725 This kit converts the AA12531 PSU into a much more versatile supply. giving +5V @ 2.5A; +12V @2A; -12V @ 0.1A and -5V @ 0.55A. Complete set of parts and full instructions £3.50 instructions only (K726) £1.00



Farnell NO55P Power Supplies

We've taken delivery of these popular supplies from several different sources, and now have the following models available. All are switch mode 115/230V input rated 55 watts max. Size of cased units 182x112x55mm, uncased size 160x100x40mm.

Z5334 Model 314. Outputs: +5V 3.5A; +12V 3A -12V 1A. Price £14.95

SALE PRICE £7.50

Z5304 Model 326, cased. Outputs: +5V 3A; +12V 0.1A; -12V 0.1A. Price £12.95

SALE PRICE £6.50

Z9148 QUEL Powerline switch mode PSU. Ventilated case 267x120x57mm. Input: 42-56V DC. Output: +5V 25A; -5V 4A; +12V 4A; -12V 4A; +24V 4A. Max. output power 200 watts. £9.95

SALE PRICE £4.95

Z5573 Switch mode PSU Eurocard 160x100mm with the following outputs: +5V 2.5A; +12V 2A; 12V 0.1 A 110/230v input. Great value at £7.95

SALE PRICE £5.95

Z9145 As above, but input 115/230vac (or 325v DC). Outputs: +5v 25A; -5v 4A; +12v 3A; -12v 3A; -48v 2A. Max output power 200 watts. £19.95

SALE PRICE £12.95

Z5682 Model P400. Outputs +5V 6A; +12V 3A; 12V 2A; 24V 1A. £12.95

SALE PRICE £7.95

MODEL RAILWAY CONTROL AND SWITCHING UNIT

This ready built versatile piece of equipment allows:
* Full forward and reverse control of train using regulated and smoothed supply (1.4A)*
Requires 3 components (supplied) to be soldered to each panel.
* Relay control of 5 separate circuits. (10A changeover contacts; Ideal for points operation)
* Powering of auxiliary equipment - 2 separate 5V 1A outputs.

A mains powered panel 185x105mm contains all electronics. All voltages are fully stabilized and both input and output are fused.

Connections, both input and output are by screw terminals which are clipped onto the on-board pins.

The five 12V relays are controlled by the transistor circuits which require only 5V 30mA. Supplied by the on board power supply.

Supplied uncased with circuit and wiring diagram. (SAE for free copy.)

Suitable black ABS plastic case £3.50
Order Code Z8897 Price reduced to £14.95

SALE PRICE £7.50

Z8887 Made by STC, this 160x100mm panel is attached to an aluminium chassis. 165x102x65mm and has a single 5V 6A output. Supplied with connection details, we can offer these at a fraction of their normal cost.
Price £5.95 10+ 4.30 100+ 3.43

SALE PRICE £2.00

Z8888 A larger version of the above, PCB 220x100mm and chassis 225x102x65mm providing a single 5V 10A output. Supplied with connection details.
Price Only £8.95 10+ 6.50 100+ 5.20

SALE PRICE £2.50

Z5519 Power supply, ex-equip unboxed. Mains input transformer, bridge rectifier and smoothing cap giving 9V 800mA. Only £2.00

SALE PRICE £1.50

Z5278 Plug in wall type 24V ac 100mA output on 2m lead £1.75 100 + 1.10

SALE PRICE £1.00



Z5583 'Agenda' PSU 13A plug in type - output 12V 100mA DC on 2m lead with right angle 1.3mm power plug. £1.25

SALE PRICE 75p

Z5584 'Agenda' PSU 13A plug in type - output 15V 100mA DC on 2m lead with right angle 1.3mm power plug. £1.25

SALE PRICE 75p

Z5585 PSU with mains input via 1.5m lead. Output 8V 200mA regulated on, unusually, a photo socket! £2.00

SALE PRICE £1.00

Z5586 US Microwriter PSU. Input 117V ac via US 2 pin plug. Output 12V DC 200mA on 2m lead with 3.1mm power plug. 2 for £1.00

SALE PRICE 4/£1.00

Z5587 Another Microwriter PSU. 220V input via continental plug (2 thin pins). Output 12V DC 200mA on 2m lead with 3.1mm power plug. £1.00

SALE PRICE 2/£1.00



Z5611 Plug in PSU by Tandata. Rather strange one, this - has 3 separate outputs, +16V 100mA; +8V 40mA terminating on a 4 pin DIN plug on the end of a 2m black lead £3.95; 100+2.00

SALE PRICE £2.00

Z5612 Plug in power supply giving out 10V 300mA ac on a 2.5mm power plug on the end of a 2m lead. £1.95; 100+1.10

SALE PRICE £1.00

Z5613 Griffin Power Supply. High quality cased unit with 1m mains lead and 1m output lead with a 0.25" stereo plug on the end. Output is 9-0-9V 1A ac. £4.95 100 + 2.65

SALE PRICE £3.00

DC-DC PSU's

Z8890 DC-DC CONVERTER BOARD
These panels 220 x 195 require 50V dc input for 5V 19.5A output. Inputs and outputs on DIN41612 connector. These brand new panels made by STZ are now being offered at just: Prices £7.95 25+ 5.20 100+ 3.80

SALE PRICE £2.50

Z1893 Input 48V (43-52V). output 5V 1A. Price £2.50 100+ 1.00

5 watt regulator PCB mounting. DC-DC converter. These are encapsulated in a 51x51x10mm package with output pins on 0.1 pitch. These are ex-equip but guaranteed DP £59.75

SALE PRICE £1.00



Z660 Astec switch mode PSU type AA7271. This small PCB. Just 50x50mm will accept 8-24V input and give a stable 5V dc at up to 2A output. The 6 transistor circuit provided current overload protection. Thermal cut-out and excellent filtering. Offered at a remarkably low price. Price £5.00

SALE PRICE £2.00

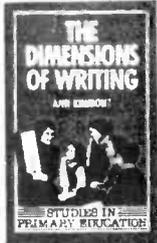
ALL BOOKS ON THIS PAGE ANY 5 £5; ANY 15 £10



IT-INSET: PARTNERSHIP IN TRAINING
The Leicestershire Experience
Tim Everton and Graham Impey

IT-INSET is a radical approach to teacher education which combines school-focused INSET for teachers with school-based initial training for students. This book is a lively, readable account of Leicestershire's experience of IT-INSET, described through the words of participating teachers, students and tutors. It aims to give an insight into what it is like to be a member of an IT-INSET team and to describe the potential benefits to be gained. It is also concerned with the practical considerations which need to be taken into account in terms of making IT-INSET work.

The book should be of particular interest to teachers and students in initial training and is an ideal introduction to the IN-SET model for all those concerned with improving classroom practice in both primary and secondary schools.



THE DIMENSIONS OF WRITING
Developing Extending and Applying Skills
Ann Kinmont

This book is essentially a study of writing development in primary school children. It attempts to provide a developmental model which relates to the acquisition of writing skills and to children's growth in knowledge of the forms and structures of writing.

The author examines the classroom context and the role of the teacher and offers strategies and techniques for effective teaching. There is emphasis on writing across the curriculum and particularly, on the function of literature and creative activity in writing development. Consideration is given to those characteristics on which judgements can be based, so that they may be substantially related to the National Curriculum attainment targets and importantly to assessment.



MEETING INDIVIDUAL NEEDS IN THE PRIMARY SCHOOL
Mel Ainscow and Jim Muncay

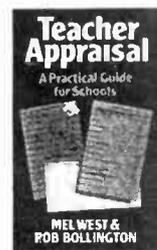
The aim of this book is to help teachers in primary schools to review and develop their thinking and practice in meeting the individual needs of their pupils. Whilst it is written in a form that makes it useful for individual teachers, it should also be used as a basis for some form of co-operative in-service activity involving groups of teachers.

Fundamental to the ideas presented in this book is a view that schools should discontinue the practice of regarding as being special pupils because they are regarded as being special. Instead the authors would like to see energy and resources used to make schools more flexible in their response to all their pupils. Hence the reference to 'individual needs' in the title.

Published at £11.99
OUR PRICE £3.00

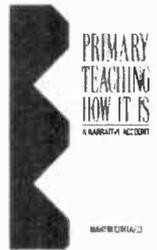
Published at £10.99
OUR PRICE £2.50

Published at £10.99
OUR PRICE £2.50



TEACHER APPRAISAL
A Practical Guide for Schools
Mel West and Rob Bollington

This book provides an overview of the purposes and processes associated with teacher appraisal. Aimed at the practitioner, its emphasis is on development and application of teacher appraisal activities and it includes a number of suggestions on 'getting started'. To this end it provides in an appendix a series of sample forms and documents which readers are encouraged to photocopy and adapt for their own use in schools.



PRIMARY TEACHING: HOW IT IS
Martin Cortazzi

The book examines important aspects of primary teachers' experience by drawing on the author's analysis of nearly a thousand accounts of classroom events told by 123 teachers. Through their stories a clear picture is built up of how teachers see teaching.

Most primary teachers cannot easily see each other at work. However it is possible to read of other teacher's experiences. This confirms, extends and illuminates one's own experience.

'Primary Teaching: How It Is' presents and analyses teachers' experience and views of children, planning, children's learning, classroom events and dealing with parents. The fundamental basis of the book is innovative - using a systematic analysis of teachers' narrative accounts to examine their perspectives on teaching.



CURRICULUM EXPOSED
John Matthews

This text book defines and explains in simple language the essential characteristics of the school curriculum and the forces which act on it.

The National Curriculum provides an integrating theme throughout the book, and the author gives a list of suggested further reading.

This is not just a standard first year text for students starting B.Ed and PGCE courses but also an introduction for school governors who under the 1986 and 1988 Education Acts have an increased responsibility for the curriculum in their schools.

Published at £9.99
OUR PRICE £2.50

Published at £11.99
OUR PRICE £3.00

Published at £9.99
OUR PRICE £2.50



MANAGING THE PRIMARY SCHOOL
Tim Hill

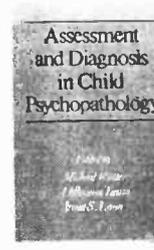
This book, one of the first to take account of the recommendations of the Education on Reform Act which came into effect in September 1988, is not only for head teachers and their deputies but also for school governors, parents and students of education.

Tim Hill provides a practical overview of primary school management from resources, which include staff, space, equipment and finance, to relationships with outside bodies, governors, parents, teachers, children and non teaching staff.



TEACHING CHILDREN'S LITERATURE
In the primary school
Geoff Fenwick

The teaching of literature is an important part of the National Curriculum. Many primary school teachers, particularly those who work in nursery and infant departments, might question whether literature can in fact be taught. The formal examination of children's literature is probably the issue which is the root cause for this uncertainty. Geoff Fenwick sets out to show that children's literature should and can be taught.



ASSESSMENT & DIAGNOSIS IN CHILD PSYCHOPATHOLOGY

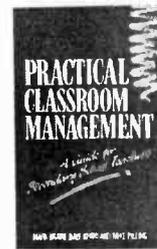
M. Rutter, A. Husain, Tams & Irma S Lann
Determining the nature of an individual's mental health problem is the first step toward rational and effective intervention. However, pinpointing mental disorders is a delicate business, and in the case of children and adolescents this critical task is further complicated by the currently shifting conceptualisations of their specific nature and their determinations.

This book critically examines the two major classification systems for mental disorders, DSM-III and ICD-9 and is invaluable for researchers, clinicians and students.

Published at £10.99
OUR PRICE £2.50

Published at £11.99
OUR PRICE £3.00

Published at £45.00
OUR PRICE £8.00



LABOUR MIGRATION

James H Johnson & John Salt
This book offers a multi-dimensional analysis of labour migration, including behavioural, economic and institutional approaches; combines various scales of analysis, including the national scale, the occupational scale and the household scale, and examines labour migration in a variety of national contexts.



PRACTICAL CLASSROOM MANAGEMENT

A Guide for Secondary School Teachers
Mark Braine, Dave Kerry and Mike Pilling
This practical handbook, written by practising teachers, is for student and new teachers, but as a handy source of reference it will be of interest to all teachers. The main thrust of the book is practical and relates to the type of situation found in the classroom. It covers everything required to make that first year of teaching a success. The aim of the authors is to make the reader confident in handling such situations by anticipating them and planning strategies.



SPECIAL EDUCATION IN CHANGE

Mel Ainscow
This book is the result of investigations carried out by experienced teachers into aspects of their own practice. It is concerned with the following themes:

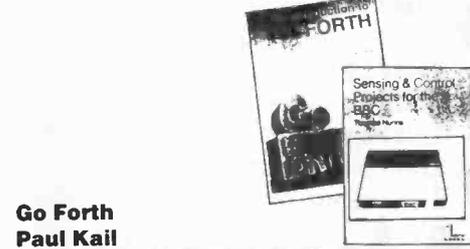
- The nature of the changes that are occurring in special education
- The impact these changes are having on the education service
- The need to develop methods of inquiry that have breadth and flexibility.
- The importance of teachers as 'reflective practitioners', skilled and confident in learning from their own experience.

Together the authors provide a rich source of ideas that will be of interest to teachers in primary, secondary and special schools. They are also relevant to members of advisory and support services.

Published at £9.99
OUR PRICE £2.50

Published at £15.00
OUR PRICE £4.00

Published at £9.99
OUR PRICE £2.50



Sensing & Control Projects for the BBC
Thomas Nunns

Introduces ways of using the analogue In socket and user port to interface the computer with its environment. No experience of electronics is needed, and there is no soldering. That does not mean the projects are trivial - they have been carefully designed to enable a greater understanding of the versatility of the BBC microprocessor. 82pp 241x182mm. Originally £5.95

OUR PRICE £2.00

Go Forth
Paul Kall

An introduction to the Forth language. It's as easy to use as BASIC, but much faster. This book is a complete foundation course in Forth programming and contains a number of complete programs. Originally published at £8.95

OUR PRICE £2.00

Z5639 Commodore 128 Personal Computer System Guide. The complete original 406 page handbook 210x145mm, spiral bound. Contains a lot of useful general info - esp. on BASIC programming.

ONLY £3.95

SOFTWARE BOOK BARGAIN



These two spiral bound large format (A4) books are excellent in their respective areas. Both writers are experts in their fields and these well laid out manuals show clearly how to work your way through the program. Originally published at £10.99

Z5581 Ventura Publisher £3
Z5582 Paradox Database £3

BOOKS AT BARGAIN PRICES!!

Books on this page, originally retailing at £5.95-£6.95 each now only £2.50 each!



Flying R/C Gliders

GEORGE STRINGWELL
248 x 185mm ILLUSTRATED 64 PAGES
ISBN: 0-85242-995-9 1990 £5.95 PB

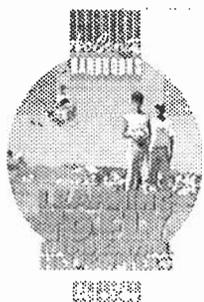
George Stringwell helps you to get started in the hobby. Full of sensible and practical advice, the book covers slope and thermal soarers, counselling on becoming safely airborne with your first model, and intermediate and more advanced glider flying.



R/C Vintage Model Aeroplanes

PETER RUSSELL
248 x 185mm ILLUSTRATED 64 PAGES
ISBN: 0-85242-996-7 1989 £5.95 PB

Peter Russell answers the question 'What is Vintage?' and describes the international history of model flight. He next covers the vintage subject and gives details on building and covering, engines and fuel. This is an essential handbook for all vintage enthusiasts.



Learning to Fly Radio Control Helicopters

DAVE DAY
248 x 185mm ILLUSTRATED 64 PAGES
ISBN: 1-85486-025-9 1990 £5.95 PB

Radio control helicopters are the fastest growing aspect of the hobby. Unfortunately, many modellers attempting to become proficient with these machines meet with failure, due to ignorance of the design, mechanics, setting - up and flying methods. In this book Dave Day explains the basics of learning to fly these exciting aircraft.



Radio Control Scale Boats

JOHN CUNDELL
248 x 185mm ILLUSTRATED 64 PAGES
ISBN: 1-85486-021-6 1990 £5.95 PB

For every five model boats constructed, four are of scale subjects. In this book, John Cundell describes how to choose a model type, what scale to build in, where to obtain plans, kit availability, hull construction methods, materials and adhesives, propulsion, radio control and other useful information and advice.



The Car Modellers Handbook

MAT IRVINE
210 x 145mm ILLUSTRATED 160 PAGES
ISBN: 1-85486-046-1 1991 £6.95 PB

An up-to-date and comprehensive guide to all aspects of building and finishing model cars. Mat Irvine covers a basic kit, simple and complex detailing, building dioramas and using accessories, and painting and decal application. He also gives history of the model car market and discusses the 'collectability' of the model kit. Illustrated throughout, the book is an essential reference for all car modellers worldwide.

A few surplus books recently purchased. Please bear in mind these were published some years ago - most are mid to late 70's, so the technology is not state of the art, but the price is also 15 years out of date!

Make the Most of Your Pocket Calculator

Lars Jansson

100 x 170mm, 72 pages

Handy pocket book that covers basic and advanced functions of calculators. Useful glossary of terms and table of maths symbols, too.

Price 75p Sale Price 50p

Order Code Z5703

Getting the Most out of your Electronic Calculator

William L. Hunter

137 x 214mm, 204 pages

A much more comprehensive book on calculators, concentrating on the practical approach - uses in the kitchen, homework, Income tax preparation, interest, grocery shopping etc.

Price £3.60 Sale Price £2.50

Order Code Z5709

And 4 Babani books, too....

BP51 Electronic Music & Creative Tape Recording by M.K.Berry. Pub. at £1.25 Sale Price 60p

BP114 The Art of Programming the 16k ZX81 by M James & S.M.Gee. Pub at £2.50 Sale Price £1.50

BP100 An Introduction to Video by D.K.Matthewson. Pub at £1.95 Sale Price £1.20

BP33 Electronic Calculator Users Handbook by M.H.Babani. Pub at 95p

This was excellent value at the time - over 200 pages of formulae and conversion tables. If you want to convert it, this book has probably got a table for it! Sale Price 75p

BPX6 Data Book

Excellent value TTL data book. Includes H, L, S & LS. A5 format, 116 pages, giving mechanical data, Interchangeability Guide, Function Selection Guide, and pin outs of TTL from 7400-74670. As this was published some years ago, the very latest types do not appear, but at the price, this book offers superb value. £1.50

Xtra Special

HARDWARE

- Z5144 25D covers 20/£1.50
- Z5142 Vacuum case 6/£1
- Z2175 4x0.5" pozi pan screws
- Z5408 Heatsink with 2x7805 & 2xBUY18S (both TO3) £1.00
- Z07007 Sleeved grommet 120/£1
- Z2311 Knobs, solid black ally 6/£1
- Z4283 Sealing strip 50m/£3
- Z5349 32mm conduit clamp 12/£1
- Z5149 Self amalgamating tape 125m x 13mm £5
- Z5164 As above but 21mm wide £7

Star Buy!!

Xtra Special

MICROSWITCHES

- Z4370 20A - 1c/o, 1b 4/£1
- Z5158 10A 380V 1m 1b 2/£1
- Z5191 2A thermal CB 2/£1
- Z5192 3A thermal CB 2/£1
- Z2084 Skeleton spco 5A 8/£1
- Z2166 Low I 1m 12/£1
- Z2486 15A spco 4/£1
- Z2487 15A 380V 2/£1.50
- Z2488 5A roller lever 2/£1
- Z2489 5A air operated 2/£1.50
- Z2490 As above, double 2/£3.50
- Z2491 Sp heavy duty 4/£1
- Z2499 Limit sw, 1m 1b 8/£1
- Z2947 65mm lever 2/£1

Star Buy!!

STUPENDOUS SAVINGS!!

HUGE REDUCTIONS IN AUDIO/VIDEO PROCESSORS

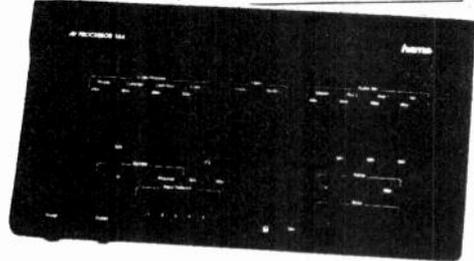
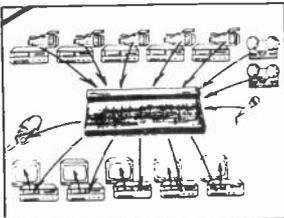
SUPER QUALITY PRODUCT FROM HAMA

for the ultimate in creativity
and copying performance. Also
for Super-video!

The AV Processor 144 makes it possible

LIST PRICE
£459.00

WAS
£199.95



SALE PRICE £149.95

Obviously, to secure and multiply your private wealth the highest interest rate must be obtained. And the same should apply to your video films, particularly since the value of your film treasures can be enhanced without the hazards of fluctuating interest rates. Video processors always enjoy a big demand because they can enhance video films for presentation to a wider audience.

The AV Processor 144 should be a must for all video film editing and copying as it guarantees optimal processing of the video and audio signals, also in the new and superior S-VHS or Hi-8 technologies. It is fitted with a variety of different connecting sockets, including EuroAV (= SCART), RCA and BNC assigned. And should you still encounter connecting problems with your recorders, the HAMA Adaptor Cable Set (Art No. 43197) will cope with any situation.

The screen splitter function enables you to compare the processed picture with the original one to immediately reveal all changes on the screen. The console is provided with five input selector keys with which the source VCR can be selected without any bothersome replugging of cables. The AV Processor 144 can produce up to five copies simultaneously - a tremendous time-saving feature when considering how long it would take to produce these copies individually. And all this can be combined with colour and contrast correction, the addition of a poster effect, and the ability to influence contour sharpness. The latter is particularly important as a result of copying losses. Such lack of definition has to be nullified. This is easily effected with the HAMA AV Processor enough to protect video film treasures against losses.

Technical data
Contrast control: ± 6dB
Colour saturation: + dB, -20 dB
Contour control ± 10 dB, above 2 MHz
video input/output: 2 x Scart (input/output) 2 x Hosiden (output) 1 x BNC/RCA (input) 1 x BNC/RCA (output) 2 x Hosiden RCA (input)
Audio input/output: 2 x RCA stereo (AUX 1) 1 x MIC 6.3 mm mono jack plug 2 x RCA stereo (AUX 2) 1 x headphones 6.3 mm stereo jack plug
Video Bandwidth: 7.7 MHz
Audio Bandwidth: 30 Hz - 25.000 Hz
Resolution: >430 lines
Features Automatic noise suppression S-video compatible
Power supply: Separate mains unit 12 V/500 mA
40144

It couldn't be easier

LIST PRICE £179.99



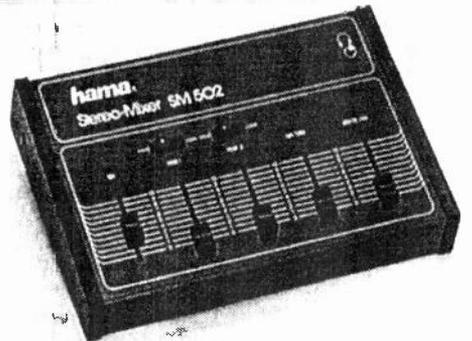
WAS
£79.95

SALE PRICE £59.95

Video film copying is child's play with the HAMA AV 140. Two Euro-AV sockets establish the contact between the playback and recording units. And there is no longer any replugging if the copying direction is to be reversed. Simply push the input key to decide whether copying is from unit 1 to unit 2, or vice versa. Two LEDs indicate the selected direction. And with the bypass switch you can decide whether the signals require enhancement or not. Everything is under your complete control, and the results can always be checked on the monitor which displays either the original or the enhanced picture.

Audio Video Processor AV 140

Corrects the video colour signals from the recorders or camera while copying from tape to tape. Both the colour intensity and contrasts can be continuously changed. A record player, CD player or cassette deck can be connected to add a new source of sound to the original sound in any variable mixing ratio. A microphone connection is also provided. A significant benefit: Two copies can be simultaneously produced!



SM502 Stereo Mixer

4 Channel audio mixer with inputs for mic, mag/cer phono and tape/tuner. Outputs for headphones and to amplifier. Freq Res 20-20000Hz. S/N ratio >55dB. Supplied with 9V mains adaptor

Our Special Low Price: £44.95

SALE PRICE £29.95

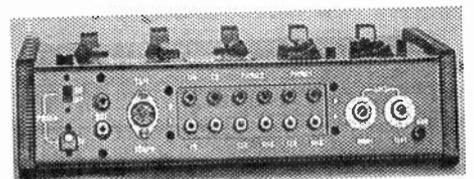
SPECIAL OFFER ON SCART LEADS!!

All pins connected - 1.5m long
Order Code CSL20

£2.00 each

100 + £1.25 + VAT

250 + £1.00 + VAT



SM507 Stereo Mixer

Big brother of SM502 - this one has all the facilities of the above mixer + twin VU meters and an additional record/replay DIN socket. As can be seen from the inset pic, the socketry on the rear is excellent.

Our Special Low Price: £69.95

SALE PRICE £49.95

HALF PRICE ALL ITEMS IN THIS BOX

**NEW JOB LOT OF DISCONTINUED LINES
FROM MAJOR DISTRIBUTOR!**

(The RRP quoted is the retail price charged by shops they supplied)

(a) SEMICONDUCTORS

CODE	TYPE	CASE	DESCR PTION	QTY	RRP	OUR PRICE
Z7301	2SC1449	TO126	Transist	295	1.95	4/£2
Z7302	2SC1675	TO92	Transist	540	1.45	8/£2
Z7303	2SC2028	TO126	Transist	147	1.95	4/£2
Z7304	2SC2001	TO92	Transist	834	1.95	8/£2
Z7305	2SC829	TO92	Transist	1729	95p	20/£2
Z7306	LA1365	14 DIL	IC	244	2.45	3/£2
Z7307	LA3350	16 DIL	IC	190	2.45	3/£2
Z7308	LA6458	8 DIL	IC	671	1.50	5/£2
Z7309	MC1496P	16 DIL	IC	156	3.95	2/£2
Z7310	TA7061	7 SIL	IC	907	2.95	3/£2

(b) DRIVE BELTS

An awful lot of these in all shapes and sizes, for cassette, turntable and video decks We'll sell them individually, but for best value, buy a mixed pack!

CODE	TYPE	DESCRIPTION*	QTY	RRP	OUR PRICE
Z7311	AS5030	30/94	156	95p	40p
Z7312	AS5032	32.5/102/1.7	146	95p	40p
Z7313	AS6036C		66	95p	40p
Z7314	AS6037	36/116/2	397	95p	40p
Z7315	AS6048A	48/150.9/0.8	178	1.45	75p
Z7316	AS6048C	48.5/152.5/0.8	51	95p	40p
Z7317	AS6049	49/154/0.9	22	1.45	75p
Z7318	AS6049B	49/150/2	85	95p	40p
Z7319	AS6050C	50/157/1.5	103	1.45	75p
Z7320	AS6051	51.5/162/1.4	335	95p	40p
Z7321	AS6071B	71/223/1.9	1994	1.45	75p
Z7322	AS6075	75.5/237/1.9	254	1.45	75p
Z7323	AS6088	88/277/2	89	1.95	90p
Z7324	AS6104	104/327/2.4	240	1.45	75p
Z7325	AS7030	30/94/0.8	298	1.45	75p
Z7326	AS8060	60/188.5/0.8/8	89	1.45	75p
Z7327	AS8071	71/223/0.6/4	271	2.25	£1.00
Z7328	AS8073	72.5/228/0.8/4.5	150	2.25	£1.00
Z7329	AS8077	77/242/0.8/5	227	2.25	£1.00
Z7330	AS8082	82/258/0.8/4.5	509	2.25	£1.00
Z7331	AS8088	88/276.5/0.8/4.5	452	2.25	£1.00
Z7332	AS8094	94/297/1.2/10	31	1.95	90p
Z7333	AS8145	145/456/0.8/4.5	11	2.95	£1.40
Z7334	AS8158	158/496/1.0/8.0	594	2.95	£1.40
Z7335	AS8160	160/503/0.7/5 BSR	12	2.95	£1.40
Z7336	AS8285	285/896/0.7/5 Yamaha/Pioneer	97	4.95	£2.00
Z7337	AS8310	310/974.5/0.7/5 JVC/Tech/Empire	551	4.95	£2.00
Z7338	VS9050	50.5/159/2	160	1.45	75p
Z7339	VS9079	79/248/1.8	8	1.45	75p
Z7340	VS9109	109/343/1.0/5	129	2.45	£1.20
Z7341	VS9147	147/462/1.2/7	143	2.45	£1.20

Z7393 VS9596 92/289/1.0/10 1353 1.95 90p

* Dia/Inside circumference/Thickness/Width

Substantial discounts on large quantities

K875 Pack containing 25 different belts from above list (those we have less than 50 of not included) TOTAL RRP £49.70!! **OUR PRICE £6.95**

(c) VIDEO BELT KITS

CODE	TYPE	DESCRIPTION	QTY	RRP	OUR PRICE
Z7371	VK9102	4; Nat. Pan NV777	2	4.95	£2.95
Z7372	VK9142	3; Sanyo VTC5500	2	4.95	£2.95
Z7373	VK9143	5; Sanyo VTC5300	7	2.95	£1.95
Z7374	VK9181	6; Sharp 6300, 6500	349	5.95	£1.95
Z7375	VK9204	6; Sony SLT9ME/J9	83	5.95	£1.95
Z7391	VK9241	5; Toshiba V5250/80	4	5.95	£2.95
Z7392	VK9244	5; Toshiba V7540	127	5.95	£1.95

(d) DUST COVERS

Made from a leather-look fabric backed plastic. Individually boxed.

CODE	TYPE	DESCRIPTION	SIZE	QTY	RRP	OUR PRICE
Z7386	W21017	Intellivision	36x22x 6cm	151	4.95	£1.00
Z7387	W40017	Atari 400	32x27x 9/3cm		5.95	£1.00
Z7388	W23017	Coleco	38x23x 7cm	149	4.95	£1.00
Z7368	W20017	Atari 2600	32x22x 7.5cm	7	4.95	£1.00
Z7369	W43017	Texas TI99	37x24x 6/3cm	100+	5.95	£1.00
Z7370	W45017	Sinclair	18x15x 5/3cm*	100+	5.95	£1.00

*This case has an all-round zip

(e) AERIALS

CODE	TYPE	DESCRIPTION*	QTY	RRP	OUR PRICE
Z7376	RA154	165/1550/13/13/ M4 tapped hole	31	4.95	3.00
Z7378	RA640	184/1000/7/9/ 4mm hole	80	4.95	3.00
Z7379	RA650	150/640/5/7/ 3mm hole	48	3.95	2.00
Z7380	RA665	158/720/6/8/ M4 tapped hole	70	3.95	2.00
Z7381	RA670	175/840/6/8/ M4 tapped hole	92	4.95	3.00
Z7382	RA675	120/530/6/9/ M4 tapped hole	52	4.90	3.00
Z7383	RA680	180/1000/7/9/ M4 tapped hole	83	3.95	2.00
Z7384	RA685	155/640/5/17/ M4 tapped hole	161	3.45	2.00
Z7385	RA690	240/790/5/7/ M4 tapped hole	178	3.95	2.00

*Length open/closed/No of sections/dia/fixing



Z5776 BIB static
eliminator kit - pump
action dispenser + 2
large cloths. 2 kits
£1.00; 100+ 0.25

SALE PRICE 1/2 Price

VIDEO LIGHT

TO84



20W halogen video light with 6V 1700mAh battery pack. The video light is provided with a synchronisation lead which, when the light is switched to "remote", allows the light to switch on when the camcorder is switched on (Sony and Panasonic camcorder). The on/off/remote switch has a lock button to prevent accidental movement.

ONLY £24.95

SALE PRICE £19.95

Cut along this line

To make up this 32 page CD and Tape brochure, simply remove centre 16 pages, fold in half and cut along the centre crease (top edge)

We are compiling a database of music lovers. Whatever your interest, if you would like to be included, please return this form. We will then send our next CD & Tape brochure just as soon as it is published, totally free and without obligation. It would be helpful if you gave some idea of your preferences. Please tick the appropriate boxes. Thank you.

Name

Address

Postcode

Do you buy CD's Tapes LP's

Do you buy Full Price (£10+) Mid-Price (£5-10) Budget (Under £5)

Musical preferences:

Rock Pop Reggae C&W Jazz Big Band Swing

Classical Talking Books

How much do you spend per month on CD's & Tapes (a) in shops £.....

(b) By Mail Order £.....

Any Comments?

BUDGET CD COMPANY AND TAPE



Fold along this line



27 Park Road Southampton SO15 3UQ
Tel: (0703) 236363 Fax: (0703) 236307

Welcome to the first edition of our Budget CD & Tape Company Catalogue - CD's and tapes at sensible prices for value conscious buyers. No sacrifice has been made on quality, however - all items featured are from Tring International plc who have the most modern CD & tape production units, pressing millions of discs every month! Look, too, at the range - all tastes are catered for! We have Rock/Pop/Raggae, Country & Western, Jazz, Big Band, Swing, Classical, Tranquil Moods/Sound Effects & Talking Books! There are single CD's, 4 Packs, 10 Packs, Single & Twin Pack Cassettes. Browse through at your leisure, and when you're ready to order, there's a form on the back page - or call us on 0703 236363. We look forward to serving you.

ROCK 'N' ROLL/POP/SOUL/REGGAE/ROCK

Order Code	Artist(s) & Title(s)	Price (CD)	Price (Tape)
CD GRF001	Hits of the Sixties (Vol One) 27 Tracks Featuring: UNDER THE BOARDWALK The Drifters	£2.99	£1.99
CD MCGRF001	BARFOOTIN Robert Palmer - LEADER OF THE PACK The Shangri-las and many more.	£2.99	£1.99
TAPE MCGRF002	Hits of the sixties (Vol Two) 28 Tracks Featuring: LOUIE LOUIE The Kingsmen - COMINNA Ray Peterson - GIVE HIM A GREAT BIG KISS The Shangri-las and many more.	£2.99	£1.99
CD GRF007	This Is Soul 25 Tracks Featuring: SAVE THE LAST DANCE FOR ME The Drifters - KNOCK ON WOOD Eddie Floyd - HOLD ON IM COMING Sam & Dave and many more.	£2.99	£1.99
CD MCGRF008	Kings of Rock-n-Roll 30 Tracks Featuring: RED RIVER ROCK Johnny & The Hurricanes - ROCK AROUND THE CLOCK Bill Haley - LONG TALL SALLY Little Richard and many more.	£2.99	£1.99
CD GRF009	Rock Around the Clock 23 Tracks Featuring: JAMBALAYA Fat Domino - MY BLUE HEAVEN Fat Domino - JOHNNY B GOODE Jerry Lee Lewis and many more.	£2.99	£1.99
CD GRF014	Fats Domino Blueberry Hill 23 Tracks Featuring: BLUEBERRY HILL IM READY AINT THAT A SHAME SO LONG Medley with C. Rober. HELLO JOSEPHINE. BLUE MONDAY and many more.	£2.99	£1.99
TAPE MCGRF014	more.		
CD GRF015	Gene Chandler Duke of Earl 29 Tracks Featuring: I FOOLED YOU THIS TIME DIKE OF EARL NOTHING CAN STOP ME NOW. RAINBOW YOU THREW A LUCKY PUNCH. IT'S NO GOOD FOR ME SO MANY WAYS. and many more.	£2.99	Not Available on Cassette
CD GRF018	Johnny and The Hurricanes All The Hits 23 Tracks Featuring: RED RIVER ROCK. CROSSFIRE. REVELLE ROCK. SHEBA. ROCKIN' GOOSE. MR LONELY. HIGH VOLTAGE. COME ON TRAIN. BUCKE. LAZY. TIME BOOM and many more.	£2.99	£1.99
TAPE MCGRF018	BUCKE. LAZY. TIME BOOM and many more.		
CD GRF020	Cruisin' (Vol One) 26 Tracks Featuring: BLUEBERRY HILL Fat Domino - DUKE OF EARL Gene Chandler - YAKETY YAK The Coasters - DA DOO RON RON The Crystals - AT THE HOP Denny and The Juniors and many more.	£2.99	£1.99
TAPE MCGRF020	The Juniors and many more.		
CD GRF021	Little Richard 27 Tracks Featuring: LUCILLE. LONG TALL SALLY. WHOLE LOTTA SHAMIN GOIN ON. GOOD GOLLY MISS MOLLY. TUTTI FRUTTI. RIP IT UP. KEEP A KNOCKIN'. SHORT FAT FANNY. OHH MY SOUL. JENNY. JENNY. and many more.	£2.99	£1.99
TAPE MCGRF021	more.		
CD GRF028	Bob Marley Live Yourself 27 Tracks Featuring: SOUL SHAKEDOWN PARTY. STOP THE TRAIN. CALTON. SOUL CARNIVALS. GO TELL IT ON THE MOUNTAIN. CANT YOU SEE SOON COME. CHEER UP. BACK OUT. DO IT TWICE and many more.	£2.99	£1.99
TAPE MCGRF028	more.		
CD GRF029	Mud (with Les Gray) 20 Tracks Featuring: THE NIGHT HAS A THOUSAND EYES. (LET ME BE YOUR) TEDDY BEAR. TILL I KISSED YOU. SAVE THE LAST DANCE FOR ME. (MIDNIGHT) STALKED WITH A KISS. URSTICK ON YOUR COLLAR and many more.	£2.99	Not Available on Cassette
CD GRF030	The Drifters 26 Tracks Featuring: ON BROADWAY. SAVE THE LAST DANCE FOR ME. DANCE WITH ME. THERE GOES MY BABY. UP ON THE ROOF. UNDER THE BOARDWALK. THIS MAGIC MOMENT and many more.	£2.99	£1.99
TAPE MCGRF30	more.		
CD GRF031	The Shagrat - Las 24 Tracks Featuring: REMEMBER WALKING IN THE SANDS. LEADER OF THE PACK. RIGHT NOW AND NOT LATER. LONG LIVE OUR LOVE. OUT IN THE STREETS. PAST PRESENT AND FUTURE. HE CRED GIVE HIM A GREAT BIG KISS and many more.	£2.99	£1.99
GRR MCGRF31	more.		
CD GRF032	White Nelson 15 There Something On Your Mind 29 Tracks Featuring: THE GHOST. LETS PRETEND. IM GONNA LOSE A LOT OF TEARDROPS. WASTIN TIME. GO AWAY. NOT TOMORROW IN SIGHT. A NEW WAY TO CRY. BROKEN PROMISES and many more.	£2.99	£1.99
TAPE MCGRF32	more.		
CD MCGRF33	Ray Charles Blues Is My Middle Name 26 Tracks Featuring: GOIN' DOWN SLOW. ALONE IN THE CITY. NOW SHE'S GONE. ROCKIN' CHAIR BLUES. A SENTIMENTAL BLUES. CAN ANYONE ASK FOR MORE. LETS HAVE A BALL. THIS LOVE OF MINE and many more.	£2.99	£1.99
GRR033	more.		
CD GRF035	Carl Perkins Matchbox 23 Tracks Featuring: BORN TO BOOGIE. DADDY SANG BASS. REDNECK STANDING IN THE NEED OF LOVE. WE DID IT IN '54. DISCIPLE IN BLUE SUDE SHOES. I CAN FEEL IT. WHAT AM I LIVING FOR. DONT GET OFF GETTING ON and many more.	£2.99	£1.99
TAPE MCGRF35	more.		

Buy with Confidence.....!!

We have been established in the mail order business for over 20 years. Most orders are despatched within a few days of receipt, but allow up to 28 days for temporary stock shortages.

CD Accessories

A163A CD Rack

A unique storage system which will hold up to 20 CD's in their case allowing them to flip back and forth. Free standing and interlocking. Only £1.95

A162B CD Cases

Replacement CD storage case. in packs of 2. Only £1.05

A160 CD Cleaner

Compact disc cleaning kit which cleans the disc with a radial action as recommended by CD manufacturers. Strong plastic case with hinged lid to retain CD channels pad for cleaning. Kit also contains 1 bottle CD cleaning liquid and pad cleaning brush. Only £4.95

Tape Accessories

A170A Tape Head Demagnetizer

A compact and easy to use tool. Simply plug the demagnetizer in, press the red button and place the tip gently in contact with the tape head. Rotate the tip across the surface and withdraw slowly. Use every 50hrs of play time to improve sound quality. Power: 220/240V ac. Only £2.95

A453 Head Cleaner/Demagnetizer

Head cleaner and demagnetizer - just pop this cassette in your machine for a few minutes and listen to the result! Only 99p

A451 Cleaning Kit

Neat cleaning kit all contained in standard cassette case. Nylon bristled brush, inspection mirror and head cleaning tool. Cleaning fluid and 6 spare pads. Ideal present. Only £1.30

HD07 Electronic Demagnetizer

Solid state electronics inside cassette case makes this particularly simple to use - just insert in recorder, press play for one or two seconds and the job's done. Full details supplied. Only £6.50

GREENWELD

Established in 1973 by Peter Green, this successful mail order company deals in a wide range of technical goods. Starting with surplus electronic components & equipment from Government Auctions, the company has expanded it's product range to fulfil customer requirements and now issues a 192 page catalogue every year with additional supplements every month.

Audio: Pre-amps, amps, mixers, microphones, speakers, headphones, intercomms, CD's, cassettes & accessories inc. drive belts, **Batteries:** Zinc, Alkaline & Nicad for Audio & Video + Chargers. **Books:** 24 pages of technical books ; **Cable & Wire:** flex for phones & intercomms, mains cable, speaker cable + clips & ties; **Clocks:** Basic movements for modellers, hands & dials; **Capacitors:** Huge range Car **Equipment:** Amplifiers up to 400 watts, speaker systems, aeriels & accessories; **CD-Rom's:** Big range of popular titles from £14.95 each; **Connectors:** 10 pages of plugs, sockets & leads; **Craft Goods:** wood, wheels, motors, gears, glue etc; **Disco Equipment:** Radio mics, guitar pedals, turntables, helicopters & much more; **Endosures:** Boxes & cases in metal & plastic; **Graphic Stationery Supplies:** Pens, pencils, drawing boards & equipment, rulers, airbrushes, envelopes, dry transfer lettering; **Hardware:** knobs, screws & nuts, spacers, heatinks; **Instrumentation:** Test equipment, meters, oscilloscopes; **Lighting:** lamps & holders from sub min to mains, torches security lights, strobes; **Opto:** LED's & displays; **Packs & Kits:** for the hobbyist; **Power Supplies & Transformers:** Miniature to massive; **Radio, T.V. & Tape:** Single to 15 band receivers, scanners & accessories, personal stereos etc; **Resistors:** from 1/4 w to 50 w & pots, too! **Security & Surveillance:** Buzzers, bells, CCTV, PIR sensors & alarms; **Semiconductors:** Diodes, transistors & IC's; **Solar Cells:** Free power from the sun! **Soldering Equipment:** Irons, gas & electric; **Switches & Relays:** From miniature upwards!; **Telephone Accessories:** Aeriels, Batteries, extension leads, plugs & sockets; **Tools:** Wide range of low cost hand tools; **Metal Detectors:** 8 models to choose from; **Video:** Big range of accessories from Hama, aeriels, cleaners, mixers, splitters, tripods, lights, batteries etc.

THE ROYAL PHILHARMONIC COLLECTION

Just introduced is the Royal Philharmonic Collection. In return for being sponsored by Tring International and Classic FM, the RPO have produced exclusive superb quality recordings at incredibly low prices - watch out for rave reviews in the classical music press! To promote this new range, a sampler CD has been produced featuring 14 popular classical tracks lasting an hour and all for just £2.99.



Sampler Album



Beethoven Sampler Album

**Royal Philharmonic Collection
Sampler Album - £2.99**

Order Code: TRP999
Features track(s) from each of the CD's listed below

Beethoven - £3.99
Symphony No. 6 in F Major, Opus 68 The Pastoral
Order Code: TRP001

Dvorak - £3.99
Symphony No. 9 in E Minor From the New World
Order Code: TRP010

Vivaldi - Pachelbel - Bach - £3.99
Mixed Collection
Order Code: TRP009

Gershwin - Ravel - Debussy - £3.99
Mixed Collection
Order Code: TRP005



Bach - Grieg

Order Code: TRP009

- As Advertised on Classic FM



Rimsky-Korsakov



Mozart



Gershwin-Ravel-Debussy

Tchaikovsky - £3.99
The Nutcracker Suite/Swan Lake Suite
Order Code: TRP006

Holst - £3.99
The Planets Suite, Opus 32
St Paul's Suite for string orchestra, Opus 29 No.2
Order Code: TRP007

Bizet - £3.99
Carmen Suites No. 1 and 2
Grieg
Peer Gynt Suites No. 1 and 2
Order Code: TRP002

Mozart - £3.99
*Symphony No. 40 in G Minor, K550/
Symphony No. 41 in C, K551 'Jupiter'*
Order Code: TRP004

Wagner - £3.99
Order Code: TRP008

Rimsky - Korsakov - £3.99
Scheherazade - Symphonic Suite; Opus 35
Capriccio Espagnol, Opus 35
Order Code: TRP003

CD TAPE MCGRF37	Cruisin' (Vol Two) 24 Tracks Featuring: WHOLE LOTTS SHAKIN' GOIN' ON Little Richard - LITTLE TOWN FURT Del Shannon - CHAPEL OF LOVE The Dixie Cups - BECAUSE THEY'RE YOUNG Duane Eddy and many more.	£2.99	£1.99
CD TAPE MCGRF42	The Shirelles Greatest Hits 21 Tracks Featuring: SOLDIER BOY, WILL YOU LOVE ME TOMORROW, DEDICATED TO THE ONE I LOVE, FOOLISH LITTLE GIRL, MAMA SAID BABY IT'S YOU and many more.	£2.99	£1.99
CD TAPE MCGRF043	Surfin' Safari 18 Tracks featuring: SURFIN' SAFARI The Beach Boys - SURF CITY Jan & Dean - SURFIN' The Beach Boys - DEAD MAN'S CURVE Jan & Dean - SURFER GIRL The Beach Boys - LITTLE OLD LADY FROM PASADENA Jan & Dean and many more.	£2.99	£1.99
CD TAPE MCGRF045	The Ohio Players 23 Tracks Featuring: OVER THE RAINBOW, LONELY STREET, STREET PARTY, SUMMERTIME, BAD BARGAIN, THE MAN THAT I AM, FIND SOMEONE TO LOVE, COLD, COLD WORLD and many more.	£2.99	£1.99
CD TAPE MCGRF046	Carlos Santana As years go by featuring: JINGO, EL CORAZON MAND LA PUESTA DEL SOL PERUSACION, AS THE YEARS GO BY, SOUL SACRIFICE, FRIED NECKBONES AND HOME FRIES, SANTANA, JAM.	£2.99	£1.99
CD TAPE MCGRF046	James Brown Live in Concert 20 Tracks Featuring: TURN IT LOOSE (GIVE IT UP) IT'S TOO FUNKY IN HERE/GONNA HAVE A FUNNY GOOD TIME (DOING IT TO DEATH/TRY ME, GET ON THE GOOD FOOT/PRISONER OF LOVE/GET UP OF THAT THING and many more.	£2.99	£1.99
CD TAPE MCGRF047	Gladys Knight & the Pips Every Beat of My Heart 23 Tracks Featuring: EVERY BEAT OF MY HEART, ROOM IN YOUR HEART, GUESS WHO, LETTER FULL OF TEARS, YOU BROKE YOUR PROMISE OPERATOR, GOODNIGHT MY LOVE, LOVE ME AGAIN and many more.	£2.99	£1.99
CD TAPE MCGRF048	Jerry Lee Lewis Live in Concert 23 Tracks Featuring: WHO'S SORRY NOW, COME ON IN, SHAKE, RATTLE AND ROLL/FLIP, FLOP AND FLY, CHANTILLY LACE, YOU WIN AGAIN, GREAT BALLS OF FIRE and many more.	£2.99	£1.99
CD TAPE MCGRF052	Gene Pitney Greatest Hits 21 Tracks Featuring: THE MAN WHO SHOT LIBERTY VALANCE, IT OF FIRE and many more.	£2.99	Not Available on Cassette
CD TAPE MCGRF053	Billy Ocean Love Really Hurts Without You 14 Tracks Featuring: LOVE REALLY HURTS WITHOUT YOU, EMOTIONS IN MOTION, ON THE RUN (HOLD ON BROTHER), WHOSE LITTLE GIRL ARE YOU?, BLACK AS HE'S PAINTED and many more.	£2.99	£1.99
CD TAPE MCGRF055	Gene Vincent Be Bop A Lula 16 Tracks Featuring: BE BOP A LULA, ROCKY ROAD BLUES, BABY BLUE, WHOLE LOTTA SHAKIN' GOIN' ON, THE DAY THE WORLD TURNED BLUE, STORY OF THE ROCKER and many more.	£2.99	£1.99
CD TAPE MCGRF057	The Ultimate Workout (Aerobics Workout) 12 Tracks Featuring: WORK THAT BODY, SHOOT YOUR SHOT, I DON'T WANNA DANCE, DO YOU REALLY WANT TO HURT ME, AEROBIC DANCING, YOUNG GUNS (GO FOR IT), CAN'T TAKE MY EYES OFF YOU and many more.	£2.99	£1.99
CD TAPE MCGRF071	Summer Lovin' Instrumental Hits 20 Tracks Featuring: SEALED WITH A KISS, UNDER THE INFLUENCE OF LOVE, DAYTIME FRIENDS, LET YOUR LOVE FLOW, PHYSICAL, THE HAPPENING, IT NEVER RAINS IN SOUTHERN CALIFORNIA and many more.	£2.99	£1.99
CD TAPE MCGRF082	Georgie Fame & The Blue Flames yeh yeh 15 Tracks Featuring: SATURDAY NIGHT FISH FRY, ROSETTA, YEH YEH, LEAN ON ME, THE BALAD OF BONNIE AND CLYDE, THAT OLD ROCK AND ROLL and many more.	£2.99	Not Available on Cassette
CD TAPE MCGRF102	Reggae Hits (Vol One) 16 Tracks Featuring: MONEY IN MY POCKET, SOUL REBEL I SHOW YOU HOW TO REGGAE, SOUL SHAKEDOWN PARTY PRISONER OF LOVE, STOP THE TRAIN CAN YOU FEEL IT, CAUTION and many more.	£2.99	£1.99
CD TAPE MCGRF104	Reggae Hits (Vol Two) 16 Track Featuring: DON'T ROCK MY BOAT, LOVE ME, KEY TO THE WORLD, RIDING HIGH, UPSIDE DOWN, ONLY HEAVEN CAN WAIT, FUSSIN' AND FIGHTIN', I WILL LOVE YOU LIKE ABC and many more.	£2.99	£1.99
CD TAPE MCGRF116	Sweet Soul Music (Vol One) 21 Tracks Featuring: I FEEL GOOD James Brown - SOME KIND OF WONDERFUL The Drifters - YOU GOT ME HUMMIN' Sam & Dave - BEHIND CLOSED DOORS Percy Sledge - STAND BY ME - Ben E King and many more.	£2.99	£1.99
CD TAPE MCGRF117	Sweet Soul Music (Vol Two) 21 Tracks Featuring: SOUL MAN Sam & Dave - THANK YOU PRETTY BABY Brook Benton - I GOT THE FEELING James Brown - WARM AND TENDER LOVE Percy Sledge and many more.	£2.99	£1.99
CD TAPE MCGRF118	Whole Lotta Shakin' Goin' On Rock'n'Roll Hits 21 Tracks Featuring: WHOLE LOTTA SHAKIN' GOIN' ON Jerry Lee Lewis - KEEP A KNOCKIN' Little Richard - BLUE MONDAY Pat Domino - REBEL LOUSER Duane Eddy and many more.	£2.99	£1.99
CD TAPE MCGRF119	Rock'n'Roll is Here To Stay Rock'n'Roll Greats 21 Tracks Featuring: ROCK 'N' ROLL IS HERE TO STAY Danny and The Juniors - SEE YOU LATER ALLIGATOR Bill Haley - JAMBALAYA Fab Domino - THE GIRL CAN'T HELP IT Little Richard and many more.	£2.99	£1.99
CD TAPE MCGRF122	Let's Twist Again Hits of The Sixties 25 Tracks Featuring: LET'S TWIST AGAIN Cubby Checker - SURFER ON BROADWAY The Drifters - ROCKIN' ROBIN Bobby Day - SUGAR SUGAR The Archies - SURFER GIRL The Beach Boys and many more.	£2.99	Not Available on Cassette
CD TAPE MCGRF123	Hits of The Sixties 25 Tracks Featuring: SAVE THE LAST DANCE FOR ME The Drifters - RUNAWAY Del Shannon - HE'S SO FINE The Chiffons - NEEDLES AND PINS The Searchers - IT'S IN HIS KISS Betty Everette - THE TWIST Chubby Checker and many more.	£2.99	£1.99
CD TAPE MCGRF130	Willi You Still Love Me Tomorrow Will You Still Love Me Tomorrow The Shirelles - KISSES SWEETER THE WINE Jimmy Rogers - MY BOYFRIENDS BACK The Angels - IT'S IN KISS Betty Everette and many more.	£2.99	Not Available on Cassette
CD TAPE MCGRF131	Dedicated To The One I Love 25 Tracks Featuring: LITTLE DARLING The Diamonds - EARTH ANGELS The Penguins - CHAPEL OF LOVE The Dixie Cups - FOOLS RUSH IN Brook Benton - UPTOWN The Crystals and many more.	£2.99	£1.99
CD TAPE MCGRF132	Santana Acapulco Sunrise 11 Tracks Featuring: ACAPULCO SUNRISE, COCONUT GROVE, HOT TAMALES, WITH A LITTLE HELP FROM MY FRIENDS, EVERYDAY I HAVE THE BLUES, JAM IN E TRAVELIN' BLUES, and many more.	£2.99	£1.99

CD	GRF134	John Travolta Greased Lightning 20 Tracks Featuring: LET HER IN, NEVER GONNA FALL IN LOVE AGAIN, RAMBOURS, BAZZMATAZZ, I DON'T KNOW WHAT I LIKE ABOUT YOU BABY, BIG TROUBLE, GOODNIGHT MISTER MOON and many more.	\$2.99	\$1.99
CD	GRF138	Bob Marley Trench Town Rock 22 Tracks Featuring: TRENCHTOWN ROCK, ALL IN ONE, SOUL REBEL, TRY ME, IT'S ALRIGHT, NO SYMPATHY, MY CLIP, CONNER STONE, NO WATER REATION, RANBOWY COUNTRY, KINKY REGGAE, NATURAL MISTIC, THERE SHE GOES and many more.	\$2.99	\$1.99
CD	GRF149	It's In His Kiss 26 Tracks Featuring: IT'S IN HIS KISS (THE SHOOP SHOOP SONG), Betty Everett - THREE KISSES OF LOVE, The Bee Gees - MY GUY, Mary Wells - WHY DO FOOLS FALL IN LOVE, The Diamonds and many more.	\$2.99	\$1.99
CD	GRF153	The Hits of Vangelis Pluster 14 Tracks Featuring: PLUSTAR, ERICS THEME, ITALIAN SONGS, ROMANTIC LOGIC, THE WILL OF THE WIND, HYNNE ELSEWHERE, APOCALYPSE DES ANIMAMUX, THE TAO OF LOVE and many more.	\$2.99	\$1.99
CD	GRF158	Evil Dreams 16 Tracks Featuring: JE T'AMIE, MOI NON PLUS, I WANT YOUR SEX, BILTS, SHAVING THE NIGHT TOGETHER, MY BABY JUST CARES FOR ME, EMMANUELE, HEAVY INDEBTS (LE REVE) and many more.	\$2.99	\$1.99
CD	GRF160	The Pet Shop Boys Hits of 15 Tracks Featuring: BEING BORING, WHAT HAVE I DONE TO DESERVE THIS?, HOW CAN YOU EXPECT TO BE TAKEN SERIOUSLY, SO HARD, IT'S A SIN, RENT, HEART, I WANT A DOG, OPPORTUNITIES, LOVE COMES QUICKLY and many more.	\$2.99	\$1.99
CD	GRF161	The Isley Brothers Twist & Shout 17 Tracks Featuring: TWIST & SHOUT, NOBODY BUT ME, YOU BETTER COME HOME, I S'VAI LOVE, I LOVE HER, I LOVE HER, I LOVE YOU KNOW, HOW, WITH LINDA, TIME AFTER TIME, RIGHT NOW and many more.	\$2.99	\$1.99
CD	GRF163	Techno Rave 12 Tracks Featuring: LET'S GO (RADICAL DANCE MIX), Accelerator - CLUB OVER DUE (TECHNO HOUSE MIX), Synchro - OUT OF CONTROL, Cosmic Ray - HYPNOTICA (HIPNOTIC DANCE MIX), Delirium - DOMINATOR 909, Suzanne and many more.	\$2.99	\$1.99
CD	GRF164	Brook Benton Endlessy 20 Tracks Featuring: A LOVERS QUESTION, LET ME IN YOUR WORLD, YOU'VE NEVER BEEN THIS FAR, I LOVE HER, I LOVE HER, I LOVE YOU KNOW, HOW, MEN ARE, TILL I CAN'T TAKE IT ANY MORE, THESE ARMS YOU PUSHED AWAY and many more.	\$2.99	\$1.99
CD	GRF166	The Sixties Decade 1960 20 Tracks Featuring: POETRY IN MOTION, Johnny Thelsson - TELL LADJAI, I LOVE HER, Roddy Valence - VENUS, Frankie Avalon - WHAT IN THE WORLD'S COME OVER YOU, Jack Scott - STEP BY STEP, The Great Red River Rock and many more.	\$2.99	\$1.99
CD	GRF167	The Sixties Decade 1961 20 Tracks Featuring: LET'S TWIST AGAIN, Chubby Checker - STAND BY ME, Ben E King - RUNAWAY, Del Shannon - WILL YOU STILL LOVE ME TOMORROW, The Shirelles - MOON RIVER, Danny Williams and many more.	\$2.99	\$1.99
CD	GRF168	The Sixties Decade 1962 20 Tracks Featuring: TOWN WITHOUT PITY, Gene Amery - UMBO, ROCK, Chubby Checker - HE'S A REBEL, The Crystals - PEPPERMINT TWIST, Joey Dee & the Starlighters and many more.	\$2.99	\$1.99
CD	GRF169	The Sixties Decade 1963 20 Tracks Featuring: TWIST & SHOUT, The Isley Brothers - GOOD GOLLY MISS MOLLY, Jerry Lee Lewis - IF I HAD A HAMMER, Trixi Lopez - DO YOU WANT TO KNOW, A SECRET, Bill Krammer and many more.	\$2.99	\$1.99
CD	GRF170	The Sixties Decade 1964 20 Tracks Featuring: HELLO DOLLY, Louis Armstrong - IM GONNA BE STRONG, Gene Amery - DOWNTOWN, Penula Clark - DAVE, The Beachtorns - CHAPEL OF LOVE, The Dave Croy - UNDER THE BOWWALK, The Drifters and many more.	\$2.99	\$1.99
CD	GRF171	The Sixties Decade 1965 20 Tracks Featuring: WOOLY BULLY, Sam the Sham & the Pharoos - I KNOW, A PLACE, Penula Clark - MARI, The Beachtorns - SWEETS FOR MY SWEET, The Drifters - SILHOUETTES, Hermans Hermits and many more.	\$2.99	\$1.99
CD	GRF172	The Sixties Decade 1966 20 Tracks Featuring: SWEET TALKING GUY, The Chiffons - GETAWAY, George Fame - WARM AND TENDER, LOVE, Percy Sledge - YOU GOT ME HUMMIN', Sam & Dave - NO MILK TODAY, Hermans Hermits - YOU WERE ON MY MIND, Christopher St. Peter and many more.	\$2.99	\$1.99
CD	GRF173	The Sixties Decade 1967 20 Tracks Featuring: THE LETTER, The Boxtops - DON'T SLEEP IN THE SUBWAY, Penula Clark - THE BALLAD OF BONNIE & CLYDE, George Fame - A KIND OF HUSH, Hermans Hermits - SOUL MAN, Sam & Dave and many more.	\$2.99	\$1.99
CD	GRF174	The Sixties Decade 1968 20 Tracks Featuring: IT'S IN HIS KISS, Betty Everett - SUNSHINE GIRL, Hermans Hermits - DOCK OF THE BAY, Percy Sledge - CRY LIKE A BABY, The Boxtops - OB-LADI, OB-LA-DA, Marmalade and many more.	\$2.99	\$1.99
CD	GRF175	The Sixties Decade 1969 20 Tracks Featuring: SUGAR, Sugar, The Archies - LOVE GROWS HOME, Sam & Dave and many more.	\$2.99	\$1.99
CD	GRF176	The Foundations Greatest Hits 12 Tracks Featuring: BUILD ME UP BUTTERCUP, THE BAD OLD OLD DAYS, BABY NOW THAT I'VE FOUND YOU, BACK ON MY FEET AGAIN, LONELY AND SAD, BORN TO LIVE AND BORN TO DIE and many more.	\$2.99	\$1.99
CD	GRF177	Hits of The 70's (Vol One) 22 Tracks Featuring: LITTLE WILLIE SWEET - I CAN DO IT, The Rubettes - EMOTION, IN MOTION, Billy Ocean - GREASED LIGHTENING, John Travolta - BAND OF GOLD, Freda Payne - IT'S BEEN SO LONG, George McGee and many more.	\$2.99	\$1.99
CD	GRF178	Hits of The 70's (Vol Two) 22 Tracks Featuring: LET'S GET TOGETHER, The Gitter Band - SUGAR BABY, LOVE, The Rubettes - BALLROOM BLITZ, Sweet - DRIFAWAY, Double Grey - GET DANNIN', Dazy Tex & The Sex-o-tettes - ROCK YOUR BABY, George McGee and many more.	\$2.99	\$1.99
CD	GRF179	Martha Reeves & The Top Tops Featuring: JIMMY MACK, QUICKSAND, HEAVYWE, DANCING IN THE STREET, NOWHERE TO RUN, SPOOKY, IN THE MIDDNIGHT HOUR, IT'S THE SAME OLD SONG, I WANT YOU BACK and many more.	\$2.99	\$1.99
CD	GRF180	Brian Poole of the Tennessee 14 Tracks Featuring: TWIST & SHOUT, DO YOU LOVE ME, SOMEONE SOMEONE, TONIGHT, SILENCE IS GOLDEN, UNCLE WILLIE, GOOD LOVING, TWELVE STEPS OF LOVE and many more.	\$2.99	\$1.99
CD	GRF185	Mike Pender's Searchers, Needles & Pins and other Hits 14 Tracks Featuring: SWEETE FOR MY SWEET, SUGAR AND SPICE, DON'T THROW YOUR LOVE AWAY, LOVE POTION No.9, BROKEN HEARTS, GOODBYE MY LOVE, NEEDLES AND PINS and many more.	\$2.99	\$1.99

TALKING BOOKS

Order Code	Title(s)/Author(s) & Narrator's	Price
TAB001	The Careful Man Author: Frederick Forsyth, Narrator: Robert Powell	\$2.99
TAB002	The Shepherd Author: Frederick Forsyth, Narrator: Robert Powell	\$2.99
TAB003	Sharp Practice Author: Frederick Forsyth, Narrator: Edward De Souza	\$2.99
TAB006	A Fallen Curtain Author: Ruth Rendell, Narrator: Simon Jones	\$2.99
TAB007	You Can't Be Too Careful and other stories.. Author: Ruth Rendell, Narrator: Simon Jones	\$2.99
TAB008	Spring Fever Author: Dick Francis, Narrator: Tony Britton	\$2.99
TAB009	Madonna - Blonde Ambition - The Early Years Author: Mark Beago, Narrator: Mark Rolston	\$2.99
TAB010	Madonna - Now Author: Mark Beago, Narrator: Mark Rolston	\$2.99
TAB011	The McBain Brief Author: Ed McBain, Narrator: Jerry Orbach	\$2.99
TAB012	Eyewitness Author: Ed McBain, Narrator: Jerry Orbach	\$2.99
TAB016	Riding For The Brand Author: Louis L'Amour, Narrator: John Randolph Jones	\$2.99
TAB019	A Murder Coming and Other Stories From Cold Blood Author: Various, Narrator: Various	\$2.99
TAB020	Man On The Roof Author: Jas Alpertin/Peter Sellers/Peter Robinson, Narrator: Jerry Orbach	\$2.99
TAB021	The Speckled Band Sherlock Holmes Author: Sir Arthur Doyle, Narrator: Donald Pickering	\$2.99
TAB022	The Monkey's Paw & Other Tales of Terror Author: W/W/Jacobs/Ambrose Bierce/de Maupassant/E. Benson, Edgar Allen Poe, Narrator: Victor Garber	\$2.99
TAB023	Rachel In Love Author: Pat Murphy, Narrator: Brenda Vaccaro	\$2.99
TAB024	Points Of Departure Author: Pat Murphy, Narrator: Brenda Vaccaro	\$2.99
TAB025	Dracula Author: Bram Stoker, Narrator: Donald Pickering	\$2.99
TAB026	Dracula's Guest Author: Bram Stoker, Narrator: Victor Garber	\$2.99
DTAB501	Eye Of The Needle Author: Ken Follet, Narrator: Edward Woodward	\$4.99
DTAB502	The Key To Rebecca Author: Ken Follet, Narrator: Anthony Quayle	\$4.99
DTAB503	David Copperfield Author: Charles Dickens, Narrator: Simon Callow	\$4.99
DTAB504	The Valley Of Fear Sherlock Holmes Author: Sir Arthur Conan Doyle, Narrator: Christopher Lee	\$4.99
DTAB505	The Narrative Of Gordon Arthur Pym Of Nantucket Author: Edgar Allen Poe, Narrator: Christopher Plummer	\$4.99
DTAB506	Connecticut Yankee In King Arthurs Court Author: Mark Twain, Narrator: Richard Kiley	\$4.99
DTAB507	Call Of The Wild Author: Jack London, Narrator: Theodore Bikel	\$4.99
DTAB508	Desert Death Song Author: Louis L'Amour, Narrator: John Randolph Jones	\$4.99
DTAB509	Dracula Author: Bram Stoker, Narrator: Donald Pickering	\$4.99
DTAB510	Dr. Jekyll & Mr Hyde Author: Robert Louis Stevenson, Narrator: John Hurt	\$4.99
DTAB511	The Secret Garden Author: Francis Hodgson Burnett, Narrator: Juliet Stevenson	\$4.99
DTAB511	No Come Backs Author: Frederick Forsyth, Narrator: Edward De Souza	\$4.99
DTAB514	Pride & Prejudice Author: Jane Austen, Narrator: Jane Lapolaitie	\$4.99
DTAB515	Great Expectations Author: Charles Dickens, Narrator: Tom Baker	\$4.99
DTAB516	The Scarlet Pimpernel Author: Baroness Orczy, Narrator: Simon Williams	\$4.99
DTAB517	Moby Dick Author: Herman Melville, Narrator: George Kennedy	\$4.99
DTAB518	The Case Of The Curious Bride Pery Mason Author: Earle Stanley Gardner, Narrator: William Hookins	\$4.99
DTAB519	The Case Of The Sulky Girl Pery Mason Author: Earle Stanley Gardner, Narrator: William Hookins	\$4.99
DTAB520	The Last Of The Mohicans Author: James Fenimore Cooper, Narrator: Theodor Bikel	\$4.99

CD TAPE MCATM002	ATM002	Atmospheric Moods THE MIGHTY RAINFOREST 5 Tracks Featuring: CAVE WAVES, PANGOLIN PYGMYS, ISLAND IN THE TREES, GAZZELLA HAWKBOY.	\$2.99	\$1.99
CD TAPE MCATM003	ATM003	Atmospheric Moods RAINSTORMS, THE TEARS OF GILEY SANDS, 6 Tracks Featuring: THE GARDEN OF TOMS, DANCING ON THE WATER, MANIHUBRA SKY, FIDEL SANDS, LON, STATUE.	\$2.99	\$1.99
CD TAPE MCATM004	ATM004	Atmospheric Moods THE MOUNTAIN RETREAT 5 Tracks Featuring: KOGI BRIDGE, PAPAS CELLO, GEORGE'S SONG, SHOHONDO TEMPLE, THE STRINGS OF TIME, TOKAFI.	\$2.99	\$1.99
CD TAPE MCATM005	ATM005	Atmospheric Moods THE RUINE OF LIGHT 8 Tracks Featuring: INWARDS, WITHOUT LEAVING, ANGEL, DARIUS & STARS, AGES FLOAT, I BLUE, BEACH JERBA ONE YEAR, OUTWARDS.	\$2.99	\$1.99
CD TAPE MCATM006	ATM006	Atmospheric Moods THE MOUNTAIN STREAM 6 Tracks Featuring: MORNING FLOW, THE TRANQUIL BROOK, DANCING ON THE WATER, GENTLY DOWN THE STREAM, WINDING THROUGH THE VALE, SUNSET RIVER.	\$2.99	\$1.99
CD TAPE MCATM007	ATM007	Tranquil Moods RAGING RIVER ADMITS THE FOMY EDDYING RAPIDS WE FIND AN UNFASNY MUSICAL PIECE PERFORMED BY THE RAGING RIVER, AS THE WATER FOLDS, OVER ITSELF TIME AND CURRENTS DETERMINED BY THE MUSICAL PIECE ON THIS RECORDING.	\$2.99	\$1.99
CD TAPE MCATM008	ATM008	Tranquil Moods COUNTRY SUNRISE A GENTLE BREEZE UCKS THE LANDSCAPE JUST AS THE COUNTRY SUNRISE PERFORMS ITS MYSTICAL ROUTINE, EMANATING FROM THE HORIZON IS A SENSE OF WARMTH FROM THE SUN LIKE A GLOWING EMBER IN THE SKY AS WITH THE SUN, THE SYNTHESIZER IN THIS PIECE FILLS THE ATMOSPHERE UBIQUITOUSLY WITH A SOOTHING RADIANCE.	\$2.99	\$1.99
CD TAPE MCATM009	ATM009	Tranquil Moods LIGHTENING, THUNDER & RAIN AMONGST THE VORTEX OF ONE OF THE MOST VIOLENT NATURAL OCCURANCES THE SOOTHING SOUND OF STRINGS INVITE YOU TO RELAX AS THE IMMINENT LIGHTNING, THUNDER & RAIN LOOM, MENACINGLY OVERHEAD, BUT YOU ARE NOT ALONE, BIRDS ABOVE FLEE TO IDLE BLISS BEYOND THE HORIZON, FOR A SCENE SO DISTURBING, NOTHING CAN BE MORE RELAXING.	\$2.99	\$1.99
CD TAPE MCATM010	ATM010	Tranquil Moods WONDROUS WATERFALL PERCHED HIGH ABOVE THE WONDROUS WATERFALL SITS THE BEAUTIFUL SOUNDS OF AMBIENT WIND-PIPPES, DIPPING INTO THE VALLEY DEEP BELOW ONLY EVER BEFORE PENETRATED BY THE CONSTANT FLOW OF WATER WEARING AWAY AT THE ROCK AFTER MILLIONS OF YEARS.	\$2.99	\$1.99
CD TAPE MCATM011	ATM011	Tranquil Moods SULTRY SUMMER BREEZE WHILST A SULTRY SUMMER BREEZE WHIPS THE LEAVES OF TREES AND BLADES OF GRASS AROUND YOU, THE GUITAR SOUNDS PLAYED WITH AN "E-BOW" CREATE A STARK WARMTH SWEEPING ACROSS THE LANDSCAPE COMPLEMENTED BY THE BREATHY KEYBOARD SOUNDS IN THE DISTANCE.	\$2.99	\$1.99
CD TAPE MCATM012	ATM012	Tranquil Moods WHALES OF THE PACIFIC GENTLE WAVES LAP THE SIDE OF YOUR BOAT AND THE WIND TEASES THE FLAPPING SAILS AS THE WHALES TAKE YOU ON A MYSTICAL JOURNEY ACROSS THE OCEAN TO A MAGICAL PLACE WHERE THE MERMAIDS SING FOREVER IN HARMONIOUS REPRISE WITH THE WHALES, RELAX IN TRANQUILITY.	\$2.99	\$1.99
CD TAPE MCATM013	ATM013	Tranquil Moods TROPICAL RAINFOREST AS THE TROPICAL FAUNA CHATTER INCESSANTLY, PAN PIPES AND FLUTES CALL OUT TO THEM AGAINST THE HUMID ATMOSPHERE BELOW THE CANOPY OF THE TROPICAL RAINFOREST, YOU CAN FEEL THE WARMTH AS PILLARS OF SUNLIGHT FLICKER ACROSS YOUR BODY FROM ABOVE.	\$2.99	\$1.99
CD TAPE MCATM014	ATM014	Tranquil Moods BABBLING BROOK IN THE WARMTH OF THE NOON DAY SUN, THE BABBLING BROOKS STEADY FLOW EMBROILS THE PERCUSSION SOUNDS BOUNCING PAST, AS THE EVER PREVAILING WARM WIND SOUNDS DANCE WITH THE BIRDS ABOVE.	\$2.99	\$1.99
CD TAPE MCATM015	ATM015	Tranquil Moods THUNDERSTORM COME ALONG FOR AN ELECTRIFYING EXPERIENCE AS NATURE TAKES CONTROL AND BOLTS OF LIGHTNING LEAP FROM A DARK AND TREATENING SKY, LET GUITARS AND DRUMS SWEEP YOU ACROSS THE BARREN PLAINS BELOW, RELAX IN TRANQUILITY.....	\$2.99	\$1.99
CD TAPE MCATM016	ATM016	Tranquil Moods COUNTRY SUNSET WITH UBIQUITOUS CHIRPING OF CRICKETS, THE GUITAR PLAYED WITH AN "E-BOW" EILY FLOATS ABOVE THE BARREN LANDSCAPE AND AMONGST THE LAST LINGERING RAYS OF SUNLIGHT, ALSO IN THE DISTANCE ARE THE CAPTIVATING RHYTHMS OF PERCUSSION.	\$2.99	\$1.99
CD TAPE MCATM017	ATM017	Tranquil Moods SEA OF SERENITY AS YOU SAIL ALONG THE SEA OF SERENITY, MAGICAL WATER-LIKE PERCUSSION AND KEYBOARD WASHES FROM ALL AROUND IN INFINITE HARMONY WITH THE ECHOES OF THE WAVES BELOW AND THE DANCING SAILS ABOVE.	\$2.99	\$1.99
CD TAPE MCATM018	ATM018	Tranquil Moods OCEAN DAY BREAK WITH EVERY EBB, TIDE AND FLICKER OF DANCING SUNLIGHT, WHISPERS OF BREATHY KEYBOARD BECOME ENVELOPED IN EVERY WAVE, ONLY TO RESURGE AGAIN AND SOFTLY WASHED UPON THE GOLDEN SAND AND CRYSTAL LIT SEASHELLS OF THE MORNING SUN.	\$2.99	\$1.99
CD EFX001	EFX001	SOUND FX Fights of The Night Featuring: GHOSTLY SOUNDS, DEMONIC LAUGHTER, CHAINS, FOOTSTEPS, SCREAMS and many more.	\$4.99	Not Available on Cassette
CD EFX002	EFX002	SOUND FX 101 Sound Effects Featuring: ROLLER COASTER, 707 JET LANDING, CHAMPAGE CORK POPS, CLOCK TICKING and many more.	\$4.99	Not Available on Cassette
CD EFX003	EFX003	SOUND FX Outer Space Featuring: CRUISERS LANDING, CAVERNS, VISION FROM MAPS, SPACE SIREN and many more.	\$4.99	Not Available on Cassette
CD EFX004	EFX004	SOUND FX Workshop of Sound Featuring: ROULETTE WHEEL, BASKETBALL GAME, CATS MEOWING, ELECTRIC SAW and many more.	\$4.99	Not Available on Cassette
CD EFX005	EFX005	SOUND FX Musical Featuring: BASS AND DRUMS, CITY CHASE, SULTRY TRUMPET, LULLABY and many more.	\$4.99	Not Available on Cassette

CD TAPE MCGRF186	GRF186	The Fortunes Greatest Hits 15 Tracks Featuring: YOU'VE GOT YOUR TROUBLES, HERE IT COMES AGAIN, CAROLINE, SEASONS IN THE SLIN, DON'T THROW YOUR LOVE AWAY, LINDSEY, FREEDOM COME FREEDOM GO and many more.	\$2.99	\$1.99
CD TAPE MCGRF187	GRF187	Swowaddywaddy Non Stop Rock'n'Roll Megamix 30 Tracks Featuring: SHOWAWADDYVADDY, TWIST & SHOUT, ALLEY OOP, THREE STEPS TO HEAVEN, BLUE MOON, THAT'S ROCK N ROLL, YOU GOT WHAT IT TAKES and many more.	\$2.99	\$1.99
CD TAPE MCGRF189	GRF189	Trini Lopez If I Had a Hammer 22 Tracks Featuring: IF I HAD A HAMMER, LEMON TREE, LA BAMBABA, AMOR, GONNA GET ALONG WITHOUT YOU, THIS LAND IS YOUR LAND, AMERICA, GRANADA, KANSAS CITY, and many more.	\$2.99	\$1.99
CD TAPE MCGRF191	GRF191	Gerry & The Pacemakers Greatest Hits 11 Tracks Featuring: HOW DO YOU DO IT, I'M THE ONLY ONE, FERRY CROSS THE MERSEY, YOU'LL NEVER WALK ALONE, I LIKE IT, ITS STILL ROCK & ROLL, ROLL OVER BEETHOVEN, UNCHAINED MELODY and many more.	\$2.99	\$1.99
CD TAPE MCGRF196	GRF196	Doo Wop Classics 19 Tracks Featuring: BOOK OF LOVE The Monotones - OVER AND OVER AGAIN Harvey & The Moonglows - PLEASE COME BACK HOME The Flamingos - HEART AND SOUL The Cleftones and many more.	\$2.99	\$1.99
CD TAPE MCGRF200	GRF200	Gary Glitter The Best of 22 Tracks Featuring: ROCK & ROLL (PART 1), ROCK & ROLL (PART 2), I DIDN'T KNOW I LOVED YOU (I'LL I SAW YOU ROCK & ROLL), HELLO, HELLO I'M BACK AGAIN, DO YOU WANT TO TOUCH ME and many more.	\$2.99	\$1.99
CD TAPE MCGRF207	GRF207	Donovan Greatest Hits 16 Tracks Featuring: JENNIFER JUNIPER, CATCH THE WIND, HURDY GURDY MAN, SUNSHINE SUPERMAN, SADNESS, UNIVERSAL SOLDIERS, COSMIC WHEELS, ATLANTIS, WEAR YOUR LOVE LIKE HEAVEN and many more.	\$2.99	\$1.99
CD TAPE MCGRF209	GRF209	Alan Price Live In Concert 22 Tracks Featuring: ARRIVAL, O LUCKY MAN, LEFT OVER PEOPLE, AWAY AWAY, UNDER THE SUN, IN TIMES LIKE THESE, SIMON SMITH AND HIS AMAZING DANCING BEAR and many more.	\$2.99	\$1.99
CD TAPE MCGRF210	GRF210	The Ultimate House Dance Floor Smash Hits 28 Tracks Featuring: HOUSE MIX 1, DOCTORIN' THE HOUSE/TIRED OF GREETING PUSHED AROUND/HOUSE ARREST/THEME FROM S' EXPRESS/THE JACK THE HOUSE BUILT ETC and many more.	\$2.99	\$1.99
CD TAPE MCGRF211	GRF211	Disco Explosion 30 Tracks Featuring: FEELS LIKE I'M IN LOVE Kelly Marie - I LOVE TO LOVE Tina Charles - OUE SERA MI VIDA The Gibson Brothers - GET DANCIN' Disco Tex and The Sex-ettes - REACH OUT ILL BE THERE Gloria Gaynor and many more.	\$2.99	\$1.99
CD TAPE MCGRF212	GRF212	Disco Inferno 20 Tracks Featuring: I WILL SURVIVE Gloria Gaynor - RING MY BELL Anita Ward - CLUBA The Gibson Brothers - I WANNA DANCE WIT C100 Disco Tex & The Sex e-ettes - KING FU FIGHTING Cari Douglas and many more.	\$2.99	\$1.99
CD TAPE MCGRF218	GRF218	Ike & Tina Turner Mississippi Rolling Stone 20 Tracks Featuring: LIVING FOR THE CITY, ROCKIN' AND ROLLIN', SUGAR, SUGAR, CHICKEN, MISSISSIPPI ROLLING STONE, GOLDEN EMPIRE, I'M LOOKING FOR MY MIND, and many more.	\$2.99	\$1.99
CD TAPE MCGRF221	GRF221	Sounds of The 70's 24 Tracks Featuring: I WILL SURVIVE Gloria Gaynor - THREE STEPS TO HEAVEN Showaddywaddy - SUMMER LOVE SENSATION Bay City Rollers - I LOVE TO LOVE Tina Charles - I'M ON FIRE 5,000 VOLTS and many more.	\$2.99	\$1.99
CD TAPE MCGRF222	GRF222	Rockin' Seventies 20 Tracks Featuring: I CAN DO IT The Rubettes - ANGEL FACE The Glitter Band - WHO PUT THE BUMP Showaddywaddy - YOU LITTLE TRUSTMAKER Tymes - KEEP ON DANCIN' The Bay City Rollers - JUKE BOX JIVE The Rubettes and many more.	\$2.99	\$1.99
CD TAPE MCGRF223	GRF223	Semanticual Seventies 20 Tracks Featuring: INDIANA WANTS ME R Dean Taylor - I'M DOIN FINE NOW New York City - BREAKING UP IS HARD TO DO Neil Sedaka - MIDNIGHT AT THE OASIS Maria Muldrew and many more.	\$2.99	\$1.99
CD TAPE MCGRF234	GRF234	Shakin' Stevens And The Sunsets 18 Tracks Featuring: YOU MOSTEST GIRL, SEXY WAYS, HONEY HUSH, EVIL HEARTED, JUNGLE ROCK, MY BABY DIED, MONKEYS UNCLE, SILVER WINGS, MEMPHIS EARTHQUAKE and many more.	\$2.99	\$1.99
CD TAPE MCGRF261	GRF261	Ragga 14 Tracks Featuring: OH CAROLINA, IRON LION ZION, SWEAT (A/LA/LA/LONG), FLEX ALL THAT SHE WANTS, ROCK WITH YOU, MR LOVERMAN, I CAN'T HELP FALLING IN LOVE WITH YOU and many more.	\$2.99	\$1.99
CD TAPE MCHD001	JHD001	Barry White Your Heart & Soul 11 Tracks Featuring: I'VE GOT THE WORLD TO HOLD ME UP, UNDER THE INFLUENCE OF LOVE, YOUR HEART AND SOUL, LONG BLACK VEIL, ALL IN THE R IN OF LOVE, FRAGILE and many more.	\$2.99	\$1.99
CD TAPE MCHD003	JHD003	La Toya Jackson Bad Girl 12 Tracks Featuring: SEXUAL FEELING, YOU & ME, HE'S MY BROTHER, RESTLESS HEART, PLAYBOY (BE ME), YOU CAN COUNT ON ME SOMEWHERE, BAD GIRL, BE MY LOVER and many more.	\$2.99	\$1.99
CD TAPE MCHD005	JHD005	Chris de Burgh The Hits Of by The Ron Davis Orchestra 11 Tracks Featuring: DON'T PAY THE FERRYMAN, THE GETAWAY, A SPACEMAN CAME TRAVELLING, SAILING AWAY, DIAMOND IN THE DARK and many more.	\$2.99	\$1.99
CD TAPE MCHD006	JHD006	Bea Gees You Wouldn't Know 13 Tracks Featuring: SPIKS AND SPECKS, THREE KISSES OF LOVE, I DON'T THINK ITS FUNNY, TURN AROUND, LOOK AT ME, I AM THE WORLD, HOW LOVE WAS TRUE, AND THE CHILDREN LAUGHING and many more.	\$2.99	\$1.99
CD TAPE MCHD007	JHD007	Paul Anka My Way 13 Tracks Featuring: CRAZY LOVE, MY HOMETOWN, DANCE ON LITTLE GIRL, WHO'S SORRY NOW, WE MADE IT HAPPEN, SOME KIND OF FRIEND, LOVE IS, SOMETHING GOOD IS COMING and many more.	\$2.99	\$1.99
CD TAPE MCHD012	JHD012	The Ultimate Surfing Album 15 Tracks Featuring: THE BEACH BOYS, Surfin' - THE SURFARIS Wipeout - JAN AND DEAN Surf City The CHALLENGERS Mr. Moto - THE MARKET Surfers Stomp - JAN AND DEAN Fun Fun Fun and many more.	\$2.99	\$1.99
CD TAPE MCHD013	JHD013	Beach Hits Songs of Summer 16 Tracks Featuring: HEATWAVE Martha Reeves, HOLD BACK THE NIGHT The Tramps, GREASED LIGHTENING John Travolta, WHERE DID OUR LOVE GO Donnie Elbert, UNDER THE MOON OF LOVE Showaddywaddy and many more.	\$2.99	\$1.99
CD TAPE MCHD015	JHD015	Neil Sedaka Greatest Hits Live In Concert 16 Tracks Featuring: SING ME, STANDING ON THE INSIDE, LAUGHTER IN THE RAIN, OHI CAROL, CLIMB UP (STAIRWAY TO HEAVEN), HEY LITTLE DEVIL, SWEET SIXTEEN, CALENDER GIRL, NEW YORK CITY, and many more.	\$2.99	\$1.99

CD	JHD017	Shwaddywaddy Greatest Hits 20 Tracks Featuring: THREE STEPS TO HEAVEN, THE MOON OF LOVE, YOU GOT WHAT IT TAKES, HEY ROCK 'N' ROLL, WHEN, DANCIN' PARTY, PRETTY LITTLE ANGEL EYES and many more.	\$2.99	£1.99
CD	JHD018	Kim Carnes To Love Somebody 9 Tracks Featuring: SWEET LOVE SONG, TO MY SOUL, EVERYTHING HAS TO BE FREE, DO YOU WANNA DANCE, I WON'T CALL YOU BACK, TO LOVE, TO LOVE SOMEBODY and many more.	\$2.99	£1.99
CD	JHD019	Immaculate Mikes The Vision Mastermixers Over 30 Tracks Featuring: THE IMMACULATE MIX: VOEGE/OPEN YOUR HEART/INTO THE GROOVE/HOUBA/VILLE A PRAYER/EXPRESS YOURSELF/CALUSING A COMMOTION/LIKE A VIRGIN/AND MANY MORE.	\$2.99	£1.99
CD	JHD022	Donna Summer Shout It Out 9 Tracks Featuring: NA NA HEY, THEY CAN'T TAKE AWAY OUR LOVE, SUMMER, SHOUT IT OUT, FUNSTREET, BACK OFF BOOGALOO, NICE TO SEE YOU, DO WHAT YOUR MOTHER DO.	\$2.99	£1.99
CD	JHD023	Just The Two Of Us 16 Tracks Featuring: JUST THE TWO OF US, Jack Jones, EVERY BEAT OF MY HEART, Gladys Knight, LOVE REALLY HURTS WITHOUT YOU, Billy Ocean, LOOKING THROUGH THE EYES OF LOVE, Gen Pliny and many more.	\$2.99	£1.99
CD	JHD025	Bay City Rollers Greatest Hits 10 Tracks Featuring: KEEP ON DANCING, REMEMBER SHAWG-A-LANG, SUMMER LOVE SENSATION, BRE BRE BABY, GIVE A LITTLE LOVE, HONEY HONEY, LOVE ME LIKE I LOVE YOU and many more.	\$2.99	£1.99
CD	JHD026	Gloria Gaynor Greatest Hits 10 Tracks Featuring: I WILL SURVIVE, REACH OUT ILL BE THERE, IF YOU WANT TO DO IT YOURSELF, I AM WHAT I AM, THE REASON FOR THE SEASON, CAN'T TAKE MY EYES OFF YOU and many more.	\$2.99	£1.99
CD	JHD027	Ami Stewart My Heart And 10 Tracks Featuring: MY HEART & I, DESIRE (CHI MAI), HURRY TO ME, COME SAY AWAY, HERE'S TO YOU, SONG FOR ELEN, ONE LOVE, SWEET DREAM, SEAN SEAN, COULD HEAVEN BE and many more.	\$2.99	£1.99
CD	JHD028	Heavenwe Boogie Nights 10 Tracks Featuring: BOOGIE NIGHTS, INTRODUCING THE LOVE, STIRRI FINGERS, SHAPE MY LOVE, ALWAYS AND FOREVER, SWAP YOU CAN GET IT, WHOS LONELY NOW, WHAT DAT?, TURN THE CLOCKBACK.	\$2.99	£1.99
CD	JHD031	Paul Young & The G-Tips 10 Tracks Featuring: SYSLUM THE LETTER SONG, THE TRACKS OF MY TEARS, YOU ARE THE LIFE INSIDE OF ME, A MAN CAN'T LOSE WHAT HE DON'T HAVE, SOME KIND OF WONDERFUL, LOVE HURTS and many more.	\$2.99	£1.99
CD	JHD035	Val Doonigan Walk Tall 13 Tracks Featuring: WALK TALL, THE SPECIAL YEARS, WHAT WOULD I BE, ELUSIVE BUTTERFLY, IF THE WORLD STOPPED LOVING, ORAFFERTY'S MOTOR CAR MORNING, IF I KNEW WHAT I KNOW NOW and many more.	\$2.99	£1.99
CD	JHD037	The Best Of High Energy 19 Tracks Featuring: HIGH ENERGY, Evelyn Thomas, SO MANY MEN, SO LITTLE TIME, Miguel Brown - Caught In The Act, Estelle Bentley - All American Boy, Barbara Ferrington and many more.	\$2.99	£1.99
CD	JHD040	Sabrina Boys 10 Tracks Featuring: LIKE A YO YO, ALL OF ME, DOCTOR'S ORDERS, BOYS, FUNKY GIRL, MY CHICO, PIRATE OF LOVE, SEXY GIRL, GUNS & DOLLS, S.E.X.	\$2.99	£1.99
CD	JHD042	Eightsies Soul 15 Tracks Featuring: CLOSE TO PERFECTION, Miguel Brown - Heartless, Evelyn Thomas - Falling From A Great Height, Million Brown - Look Back Over Your Shoulder, Archie Bell and The Dells and many more.	\$2.99	£1.99
CD	JHD043	Dance Hits Of The Eighties 15 Tracks Featuring: HIGH ENERGY, Evelyn Thomas - Fan The Flame, Barbara Ferrington - So Many Men, So Little Time, Miguel Brown - Who Knows What Evil Man to Man and many more.	\$2.99	£1.99
CD	JHD044	Shirley Bassey Still 13 Tracks Featuring: HOW DO YOU KEEP THE MUSIC PLAYING, HE WAS BEAUTIFUL, THE POWER OF LOVE, STILL, ALL I ASK OF YOU, I WANT TO KNOW WHAT LOVE IS, THE WIND, BENEATH MY WINGS and many more.	\$2.99	£1.99
CD	JHD048	Sandie Shaw Always Something There To Remind Me 15 Tracks Featuring: ALWAYS SOMETHING THERE TO REMIND ME, MONSIEUR DUPONT, YOU'VE NOT CHANGED, HEAVEN KNOWS IM MISSING HIM NOW and many more.	\$2.99	£1.99
CD	JHD051	Chris Andrews Yesterday Man and Other Hits 14 Tracks Featuring: YESTERDAY MAN, WATCHA GONNA DO NOW?, TO WHOM IT CONCERNS, STOP THAT GIRL, SOMETHING ON MY MIND, BROWN EYES, ITS ALL UP TO YOU NOW and many more.	\$2.99	£1.99
CD	JHD054	Chris Farrowe Out Of Time 11 Tracks Featuring: TRY ME, ROCK & ROLL SOLDIER, SOME MOTHERS SON, HOLD ON, BLUES ANTHEM, WAITING IN THE WINGS, FUNCTION, FUNCTION TO FUNCTION, WORKING IN THE PARKING LOT, MAKE IT FLY and many more.	\$2.99	£1.99
CD	JHD055	Anita Ward Ring My Bell 11 Tracks Featuring: RING MY BELL, IM READY FOR YOUR LOVE, CURTAINS UP, THIS MUST BE LOVE, SWEET SPENDOUR, THERE'S NO DOUBT ABOUT IT, YOU LIE, MAKE BELIEVE, LOVERS and many more.	\$2.99	£1.99
CD	JHD056	Hazel O'Connor Cover Plus 12 Tracks Featuring: (COVER PLUS) WE'RE ALL GROWN UP, HAANGING AROUND, EE-LANDIO, NOT FOR YOU, HOLD ON, SO YOU'RE BORN, DAMN CHORUS, ANIMAL FARM, IVE WILL BE HAPPY, and many more.	\$2.99	£1.99
CD	JHD057	Shirley Bassey I Am What I Am 16 Tracks Featuring: BIG SPENDER, GOLDFINGER, KISS ME HONEY, HONEY KISS ME, WHAT NOW MR LOVE, SOMETHING, AS LONG AS HE NEEDS ME, AS I LOVE YOU and many more.	\$2.99	£1.99
CD	JHD058	Greyhound Black & White 12 Tracks Featuring: BLACK AND WHITE, DREAM LOVER, STAND FIRM, YOUR RIGHTS, JAMAICA RUM, SLY HIGH, WALK ONLY WALK CAN WIN, MANGO ROCK, UNCHAINED MELODY and many more.	\$2.99	£1.99
CD	JHD060	Jimmy James And The Vagabonds Greatest Hits 14 Tracks Featuring: NOW IS THE TIME, TILL GO WHERE THE MUSIC TAKES ME, YOU CAN'T STAND A CHANCE, DO THE FUNKY CONGA, NEVER HAD THIS DREAM BEFORE, HET GIRL, and many more.	\$2.99	£1.99
CD	JHD062	The London Invasion 13 Tracks Featuring: FOR YOUR LOVE, THE YARDBOYS - TOO MUCH MONKEY BUSINESS, THE YARDBOYS - IM A MAN, THE YARDBOYS - COLD LADY, Humble Pie - SILVER TONGUE, Humble Pie and many more.	\$2.99	£1.99

CD	SYM076	Puccini Puccini La Boheme 14 Tracks Featuring: NON SONO IN VENA, CH GELIDA MANNIA, SI MI CHIAMANO MIMI, O SOAVE PANCILLA, LA COMMEDIA E STUPENDO, QUANDO MENO NO and many more.	\$2.99	£1.99
CD	SYM077	Verdi Verdi Aida (Highlights) 8 Tracks Featuring: SI CORRE VOCE, SE QUEL QUERRIER/CELEST ALFA, RITORNA VINCI, GLORIA ALI: EGGITO, AD ISIDE/VALETT, QUI RADAMES VERBA, and many more.	\$2.99	£1.99
CD	SYM078	Puccini Puccini Madama Butterfly Highlights 12 Tracks Featuring: INTRODUCTION, DOVUNQUE ALI MONDO, SPIRA SUL MARE E SULLA TERRA, BIMBA, DAGU OCCHI PIENI DI MA, UN DEL DI and many more.	\$2.99	£1.99
CD	SYM079	Verdi Verdi (Highlights) La Traviata 13 Tracks Featuring: OVERTURE, UBAMMO, NE TIETI CALCI, UN DI FEUCE, ETIERA (DUET), E' STRANO (SCENE AND ARIA), LUNGA DA LEI (SCENE AND ARIA) and many more.	\$2.99	£1.99
CD	SYM080	Rossini The Barber of Seville (Highlights) 9 Tracks Featuring: OVERTURE, LARGO AL FANTOTUM, UNA VOCE POCO FA, ALI: IDEA DI QUELL METALLO, ECCO RIDEVI IN CIELO, DUNQUE LO SON and many more.	\$2.99	£1.99
CD	SYM081	Herbert Von Karajan 8 Tracks Featuring: BEETHOVEN'S SYMPHONY NO.5 IN C MINOR, OPUS 67, ALEGRO CON BRIO, ANDANTE CON MOTTO, ALEGRO, ALEGRO, ALEGRO, BEETHOVEN SYMPHONY NO. 7 IN A MAJOR, OPUS 92 and many more.	\$2.99	£1.99
CD	SYM082	Herbert Von Karajan 9 Tracks Featuring: BEETHOVEN'S SYMPHONY NO.6 IN F MAJOR, OPUS 68, ALEGRO MA NON TROPPO, ANDANTE MOLTO MOSSO, SCHERZO-ALEGRO, ALEGRO and many more.	\$2.99	£1.99
CD	SYM083	Herbert Von Karajan 4 Tracks Featuring: BEETHOVEN'S SYMPHONY NO.9 IN D MINOR, OPUS 125, CHORAL, ALEGRO MA NON TROPPO, UN POCO MAESTOSO, MOLTO VIVACE and many more.	\$2.99	£1.99
CD	SYM084	Maria Callas 7 Tracks Featuring: BE RAGGIO LUSINGERHER (ROSSINI/SEMPERMADEI), DEI TUOI LA MADRE (CHERBINI/MEDRY), COSTA DIVA (BELLINI) - THE BARBER OF SEVILLE and many more.	\$2.99	£1.99
CD	SYM089	A Night At The Ballet The Australian Symphony Orchestra 18 Tracks Featuring: SUGAR PLUM FAIRY, NOCTURNE-COPELIA, DANCE OF THE LITTLE SWANS, FOUR SEASONS, GOPAK, TYBALDS DEATH and many more.	\$2.99	£1.99
CD	SYM091	West Side Story/Porgy & Bess George Gershwin 11 Tracks Featuring: MARIA, AMERICA, TONIGHT, SOMEWHERE, ONE HAND, ONE HEART, I GOT PLENTY OF NOTHING and many more.	\$2.99	£1.99
CD	SYM092	Harp Virtuoso Handel, Bach, Dussek, Glinka, Spohr, Debussy, Durand, Anna Leites 9 Tracks Featuring: ARIA - HANDEL, PASSACAGLIA-HANDEL, PRALUDUM C DUR-BACH, SONATA-DUSSEK and many more.	\$2.99	£1.99
CD	SYM093	Italian Court Composers Albinoni, Corelli, Vivaldi, Torelli, Monteverdi, 15 Tracks Featuring: ALBINONI, ADALGO G MOLL/G MINOR CORCELLI-CONCERTO GROSSO OP.6.8, VIVACE, GRAVE, ALEGRO, ADALGO, ALEGRO and many more.	\$2.99	£1.99
CD	SYM094	Excerpts From The Marriage of Figaro The Magic Flute Wolfgang Amadeus Mozart 10 Tracks Featuring: FIGARO/NONPIU ANDITA, FARTALONNIE AMOROSO, SUSANNA-REZITATIV, 'GIUNSE ALENIL MEMENTO', FIGARO and many more.	\$2.99	£1.99
CD	SYM095	The Great Composers Short Pieces 11 Tracks Featuring: PETER I, TCHAIKOVKI FROM 'THE SEASONS', FERLARI: CARVALI, OCTOBER, AUTUMN SONG, LUDWIG VAN BEETHOVEN, FUR ELISE EDWARD GREIG FROM 'TYRIC PIECES' OPUS 12/1 and many more.	\$2.99	£1.99
CD	SYM096	Romantic Organ Saints-sans, Breucse, Franck 11 Tracks Featuring: CESAR FRANCK (1882-1890) CHORALE FOR GRAND ORGAN, IN E MAJOR ROBERT SCHUMANN (1810-1856), CANONS OPUS 56, NOT SO QUICKLY and many more.	\$2.99	£1.99
CD	SYM097	Romantic Piano Mozart, Chopin, Brahms & Liszt 13 Tracks Featuring: FRANZ LISZT - RUSTING IN THE FOREST, DANCE OF THE GNOMES, FUNERALS, FREDERIC CHOPIN, WAZURKA IN A MINOR OPUS 1/4, ETUDE IN A FLAT MAJOR OPUS 25/1 and many more.	\$2.99	£1.99
CD	SYM098	Authentic Vivaldi Concertos on Authentic Instruments 9 Tracks Featuring: CONCERTO FOR STRING QUARTET & ORGAN IN D MAJOR RV. 124, ALEGRO, GRAVE, ALEGRO CONCERTO FOR VIOLIN, CELLO, STRING QUARTET & HARP/ICHOARD IN G MAJOR RV. 415 and many more.	\$2.99	£1.99
CD	SYM099	Composers from The French Royal Court Couperin, Leclair & Dula 20 Tracks Featuring: COUPERIN, PRELUDE NON MESURE, LULLY: AIR, RAEMEAL: CONCERT EN SEPTOUR, LA POULE, MENUIER (2.5 L'ENHARMONIQUE and many more.	\$2.99	£1.99
CD	SYM100	Opera Favorites - Chorus 7 Tracks Featuring: M. GINKA: VANI SUSANNE/PILOGUE/FINALE MENUIER (2.5 L'ENHARMONIQUE and many more.	\$2.99	£1.99
CD	CPPO01	101 Famous Classical Masterpieces 101 Tracks Featuring: (Vol One) VIVALDI - SPRING FROM THE FOUR SEASONS, (Vol Two) MOZART/ALEGRO FROM EINE KLEINE NACHT MUSIK (Vol Three) TCHAIKOVSKI/VIOLIN CONCERTO 3rd MOVEMENT, (Vol Four) HOUSTWARS THE BRINGER OF WAR FROM THE PLANETS SUITE, (Vol Five) GINKA/OVERTURE: RUSLAN AND LUDMILA and many more.	\$2.99	Not Available on Cassette

TRANQUIL MOODS/SOUND EFFECTS



Order Code	Artist & Title(s)	Price (CD)	Price (Tape)
TAPE TMMC103 (TV/VI)	Atmospheric Moods: Tropical Rainforest, Lightning, Thunder & Rain 13 Tracks Featuring: TROPICAL RAIN/FOREST, CAVE WAVES, RAINGOULIN PRIGANS, ISLAND IN THE TREES, GAZZELLA, HAWKBOY, LIGHTENING, THUNDER & RAIN and many more.	Not Available on CD	\$2.99
CD ATM001	Atmospheric Moods: OCEAN SURFS 6 Tracks Featuring: EMOGO, THE FISH, THE SEAL, VOYAGER, SAHARAVALI, SEA OF SEEDS.	\$2.99	£1.99

CD TAPE MCSV046	Haydn Symphony No. 104 in D Major 11 Tracks Featuring: ADAGIO, ANDANTE, MENUETTO, ALLEGRO SPIRITOSO, ALLEGRO ASSAI CON SPIRITO, ADAMO (CHORALE), MENUET, ADAGIO CANTABILE and many more.	£2.99	£1.99
CD TAPE MCSV047	Camille Saint-Saëns Carnival of the Animals 18 Tracks Featuring: INTRODUCTION ET MARCHÉ ROYALE DE LION, DELUX POULES ET COQUE, HEMIOTTES, TORTUES, L'ÉLÉPHANT, KANGOUROUS, AQUARIUM and many more.	£2.99	£1.99
CD TAPE MCSV048	Strauss Don Quixote, op. 35 Fantastische Variationen über Thema litterarischen Characters // Tracks Featuring: INTRODUCTION; DON QUIXOTE VERLIEBT ÜBER DER LECTURE DER RITTERROMANE SENSINEN VERSTAND UND BESCHLEIHT and many more.	£2.99	£1.99
CD TAPE MCSV049	Stravinsky Petruschka, Burleske in vier Bildern 13 Tracks Featuring: BILD 1; DER AHRIMARKT-FEIE POPULJARE DE LA SEMAINE GRASSELE TOUR DE PASSE-PASSE, DANSE RUSSE, BILD 2; BEL PETRUSCHKA-CHEZ PETROUCHKA and many more.	£2.99	£1.99
CD TAPE MCSV050	Schumann 19 Tracks Featuring: WALDSZENEN OP. 82 - BIRD AS PRHET FANTASIESTÜCKE OP.12, ENTANGLING DREAMS, AT NIGHT, ARABESKE OP. 18, BLUMENSTÜCK DE-DUR/D FLAT MAJOR OP. 19 and many more.	£2.99	£1.99
CD TAPE MCSV051	Bethoven Symphony No.6 in F Major op. 48 (Pastoral) 9 Tracks Featuring: ISI MOVEMENT, ALLEGRO MA NON TROPPO, 5TH MOVEMENT, ALLEGRETTO, 'EROKA' SYMPHONY NO. 3 IN E FLAT OP. 55 and many more.	£2.99	£1.99
CD TAPE MCSV053	Ballet Music 8 Tracks Featuring: ADOLPHE ADAM-'GISELLE', FRANZ SCHUBERT-'ROSAMÜNDE', ANTON RUBINSTEIN-'REVE ANGELOU, PETER I. TCHAIKOVSKY-HOCHZEITSWAGSCH MAZURKA OP. 20A and many more.	£2.99	£1.99
CD TAPE MCSV054	Virtuoso Piano 14 Tracks Featuring: SCHUBERT-'THE TROUT', PIANO QUINTETT IN A OP. 114 D657 THEME AND VARIATION CASPAR DA SALO QUARTETT, RACHMANINOFF-PIANO CONCERTO NO. 2 IN C MINOR OP. 18 MT ALLEGRO SCHERZANDO 'THE LONDON PHILHARMONIC ORCHESTRA and many more.	£2.99	£1.99
CD TAPE MCSV058	Quiet Nights 8 Tracks Featuring: DEBUSSY-'CLAR DE LUNE, PETER SCHMALFUSS-'PIANO (STEINWAY), MOZART-EINE KLEINE NACHTMUSIC ROMANZE ANDANTE, PERFORMED BY THE CAMERATA ROMANA and many more.	£2.99	£1.99
CD TAPE MCSV059	J.S. Bach 7 Tracks Featuring: TOCCATA AND FUGUE IN D MINOR BWV 538 (DORIAN), 'NUN KOMM, DER HEIDEN HELIAND' BWV 659, TRIO SUPER 'ALLEIN GOIT IN DER HOH SEI EHR' BWV 664 and many more.	£2.99	£1.99
CD TAPE MCSV060	Ballet Music 8 Tracks Featuring: ADOLPHE ADAM-'GISELLE', FRANZ SCHUBERT-'ROSAMÜNDE', ANTON RUBINSTEIN-'REVE ANGELOU, PETER I. TCHAIKOVSKY-HOCHZEITSWAGSCH MAZURKA OP. 20A and many more.	£2.99	£1.99
CD TAPE MCSV062	Brahms Hungarian Dances no.1 - 21 21 Tracks Featuring: IN G MINOR, ALLEGRO MOLTO, IN D MINOR, ALLEGRO NON ASSAI, IN F MAJOR, ALLEGRETTO, IN F SHARP MINOR, POCO SOSTENUTO, IN G MINOR, ALLEGRO and many more.	£2.99	£1.99
CD TAPE MCSV063	Schumann Symph. No.1 and Symph. No. 3 8 Tracks Featuring: ANDANTE UN POCO MAESTOSO, ALLEGRO MOLTO VIVACE, LARGHETTO, ATTACA SCHERZO: MOLTO VIVACE and many more.	£2.99	£1.99
CD TAPE MCSV064	Mendelssohn Violin Concerto in E minor 7 Tracks Featuring: ALLEGRO MOLTO APPASSIONATO, ANDANTE, ALLEGRO MOLTO VIVACE SYMPHONY NO.3 IN A MINOR and many more.	£2.99	£1.99
CD TAPE MCSV065	Tchaikovsky Symphony No.5 in e minor op. 64 8 Tracks Featuring: ANDANTE, ANDANTE CANTABILE CON 'ALCUNA LICENZA' VALSE: ALLEGRO, MODERATO, FINALE: ANDANTE MAESTOSO and many more.	£2.99	£1.99
CD TAPE MCSV066	Pavarotti Sing's Verdi 13 Tracks Featuring: OHI FEDE NEGAR POTESSI AGLI OCHI MIE... OLANDINO LE SERE AL PLACIDO (LUISS MILLER), KYRIE ELIFSON (MESSA DA REQUEIM), DELLA MIA BELLA...QUESTA D QUELLA (RIGOLETTO) and many more.	£2.99	£1.99
CD TAPE MCSV067	Bruch Violin Concerto No.1 in G Minor Op. 26 6 Tracks Featuring: VORSPEL, ALLEGRO MODERATO, ADAGIO FINALE: ALLEGRO, ENERGICO PAGANINI CONCERTO FOR VIOLIN AND ORCHESTRA NO. 5 IN A MINOR and many more.	£2.99	£1.99
CD TAPE MCSV068	Vivaldi Famous Concerti 15 Tracks Featuring: CONCERTO GROSSO IN C, RV 558, ALLEGRO MOLTO, ANDANTE MOLTO, ALLEGRO VIOLIN CONCERTO NO.5 IN E FLAT RV 253, (ALLEGRO E) PRELUZ and many more.	£2.99	£1.99
CD TAPE MCSV069	Liszt 3 Tracks Featuring: HUNGARIAN RHAPSODY NO.5, LES PRELUDES-SYMPHONIC POEM NO.3 G97, TASSO-SYMPHONIC POEM NO. 2 G98.	£2.99	£1.99
CD TAPE MCSV070	Dvorak Slavonic Dances Op. 46 & Op. 72 16 Tracks Featuring: NO.1 IN C MAJOR, NO. 2 IN E MINOR, NO. 3 IN A FLAT MINOR, NO. 4 IN F MAJOR, NO.5 IN A MAJOR, NO.6 IN D MAJOR and many more.	£2.99	£1.99
CD TAPE MCSV071	Pirates of Penzance The Pirates of Penzance 13 Tracks Featuring: POUR, OH POUR THE PIRATE SHERRY, WHEN FREDERIC WAS A LITTLE LAD, I AM A PIRATE KING, OH, IS THERE NOT ONE WANDEN BEAST-POOR WANDRING ONE and many more.	£2.99	£1.99
CD TAPE MCSV072	The Mikado 16 Tracks Featuring: INTRODUCTION AND OPENING CHORUS/A WANDERING MINSTREL, OUR GREAT MIKADO, BEHOLD THE LORD HIGH EXECUTIONER and many more.	£2.99	£1.99
CD TAPE MCSV073	Gondoliers Gondoliers 14 Tracks Featuring: THE OPENING, CHORUS, FROM THE SUNNY SPANISH SHORES/SIN ENTERPRISE OF A MARTIAL KIND, O RAPTURE, I STOLE THE PRINCE and many more.	£2.99	£1.99
CD TAPE MCSV074	Plácido Domingo and Friends 9 Tracks Featuring: AMOUR TI VIETA, OLANDRO LE SERRE, PARTO PARTO, INTERMEZZO, CHE LLA MI VENGO, LA BODA DE LUIS ALONSO, TIU PLUNON TURNILA BOHEME and many more.	£2.99	£1.99
CD TAPE MCSV075	Pavarotti Favourite Operatic Exports 11 Tracks Featuring: 'DELLA MIA BELLA...QUESTA O QUELLA...'; 'AH, INSEPERABILE' EL SOL DELL'ANIMA'; 'ELLA MI FU RAPITA...';'PARRMI VEDER LE LACCRIME' and many more.	£2.99	£1.99

CD TAPE MCHD063	Wild Connections 9 Tracks Featuring: SAVE A PLACE FOR ME, DEEP GREEN, CARLIN HOW, OLD MAN OF THE OCEAN, SKINNINGROVE BAY (PART ONE), SKINNINGROVE BAY (PART TWO), and many more.	£2.99	£1.99
CD TAPE MCHD064	Roy Harper Legend 12 Tracks Featuring: CHINA GIRL, GOLDFISH, SOPHISTICATED BEGGAR, MY FRIEND, BIG FAT SILVER AEROPLANE, BLACKPOOL, LEGEND, GIRLIE, OCTOBER, TWELFTH, BLACK CLOUDS and many more.	£2.99	£1.99
CD TAPE MCHD065	Rod Stewart In A Broken Dream 10 Tracks Featuring: IN A BROKEN DREAM, SECOND TIME AROUND THE WHEEL, YOUR WILY WAYS, DOING FINE (CLOUD NINE), TURN THE MUSIC AROUND, IF THE WORLD STOPPED STILL TONIGHT and many more.	£2.99	£1.99
CD TAPE MCHD066	Gary 'Us' Bonds Greatest Hits 20 Tracks Featuring: NEW ORLEANS, PLEASE FORGIVE ME, NOT ME, GIVE ME ONE MORE CHANCE, QUARTER TO THREE, TIME OLSTORY, SCHOOL IS OUT, ONE MILLION TEARS, SCHOOL IS IN, A TRIP TO THE MOON and many more.	£2.99	£1.99
CD TAPE MCHD068	Elvis Presley Live 12 Tracks Featuring: HEARTBREAK HOTEL, LONG TALL SALLY, I WAS THE ONE, MONEY HONEY, IVE GOT A WOMAN, BLUE SUEDE SHOES, HOUND DOG, BABY LETS PLAY HOUSE and many more.	£2.99	£1.99
CD TAPE MCHD069	Steve Harley and Cockney Rebel Live and Unleashed 13 Tracks Featuring: MAKE ME SMILE (COME UP AND SEE ME), MR. SOFT, MR RAFFLES (MAN WAS MEAN), WHEN IM WITH YOU, STAR FOR A WEEK and many more.	£2.99	£1.99
CD TAPE MCHD076	Carl Douglas Kung Fu Fighting 14 Tracks Featuring: KUNG FU FIGHTING, WHEN YOU GOT LOVE, I WANT TO GIVE YOU MY EVERYTHING, RUN BACK, I DONT CARE WAHT PEOPLE SAY, NEVER HAD THIS DREAM BEFORE and many more.	£2.99	£1.99
CD TAPE MCHD077	Tina Turner Sing's Country 11 Tracks Featuring: LAY IT DOWN, LOVIN' HIM WAS EASIER, GOOD HEARTED WOMEN, IF THIS WAS OUR LAST TIME, STAND BY YOUR MAN, FREEDOM TO STAY, WE HAD IT ALL and many more.	£2.99	£1.99
CD TAPE MCHD078	Gibson Brothers Greatest Hits 16 Tracks Featuring: CUBA, OLIE SERA MI VIDI, OHKI WHAT A LIFE, BETTER DO IT SALSA, MARIANA, LATIN AMERICA, WEST INDIES, CARIBBEAN CONCERTO, LIMBO and many more.	£2.99	£1.99
CD TAPE MCHD079	Ottawan Disco 16 Tracks Featuring: D.I.S.C.O., HANDS UP (GIVE ME YOUR HEART), YOU'RE O.K., CRAZY MUSIC, HELLO RIO, HELP GET ME SOME HELP, SHA LA LA, 'AE IS MY SONG, SIESTA FOR TWO and many more.	£2.99	£1.99
CD TAPE MCHD084	Immaculate Mixes Over 30 Tracks Featuring: SAVAMIX 1; I HEARD A RUMOUR/MIXER GONNA GIVE YOU UP/TOY BOY/NOTHING'S GONNA STOP ME NOW/FLIM/RESPECTABLE/WHENEVER YOU NEED SOMEBODY/LOVE IN THE FIRST DEGREE and many more.	£2.99	£1.99
CD TAPE MCHD085	Sixties Mixes 60 Tracks Featuring: SIXTIES MIX 1; LETS DANCE/IGET AROUND/I SAW HER STANDING THERE/YOU REALLY GOT ME/DA DOO RON RON/BABY LOVE/LAZY SUNDAY/HI HO SILVER and many more.	£2.99	£1.99
CD TAPE MCHD086	Seventies Mixes Over 60 Tracks Featuring: SEVENTIES MIX; COUNTDOWN, TO THE HITS/BOOGIE NIGHTS/FUNKTOWN/VIDEO KILLED THE RADIO STAR/VOULEZ VOUS/S.O.S./BANG A BOOMERANG and many more.	£2.99	£1.99
CD TAPE MCHD087	Disco Mixes 60 Tracks Featuring: DISCO MIX 1; DISCO INFERNI/NO I WAS MADE FOR DANCING/ANADU/JEALOUSY/SEPTEMBER 11.C.A./HOW COULD THIS GO WRONG/I LOVE THE NIGHTLIFE/RUMOUR HAS IT/BELFAST and many more.	£2.99	£1.99
CD TAPE MCHD088	The Best Of Northern Soul 18 Tracks Featuring: TWENTY FOUR HOURS A DAY, Barbara Pennington - WEKSPOT, Evelyn Thomas - YOUR MAGIC PIT A SPELL ON ME, L.J. Johnson - BREAKING DOWN THE WALLS OF HEARTBREAK, Edwin Star and many more.	£2.99	£1.99
CD TAPE MCHD090	That's Eurobeat 20 Tracks Featuring: DO YOU KNOW THE WAY TO SAN JOSE? Croisette - THE BOYS COME TO TOWN Earlene Bentley - STEALING MY TIME Kelly Marie - STANDING AT THE CROSSROADS Evelyn Thomas and many more.	£2.99	£1.99
CD TAPE MCHD092	Soulful Love Songs 20 Tracks Featuring: WITH YOU IM BORN AGAIN Syreeta - THE TRACKS OF MY TEARS The Contours - TEARDROPS Edwin Star - WISHING ON A STAR Billie Calvin - YEL IM READY Kim Lifeston and many more.	£2.99	£1.99
CD TAPE MCHD101	TSOP In Concert - The Sound of Philadelphia 15 Tracks Featuring: INTRODUCTION Harold Melvin & the BlueNotes - THE LOVE I LOST Harold Melvin & the BlueNotes - IF YOU DONT KNOW ME BY NOW Harold Melvin & the BlueNotes and many more.	£2.99	£1.99
CD TAPE MCHD102	Dave Dee, Dozy, Beaky, Mick & Tich Their Greatest Hits 12 Tracks Featuring: THE LEGEND OF XANALOO, HIDEAWAY, BEND IT, ZABADAK, IT'S HARD TO LOVE, OKAY, HOLD RIGHT, THE WRECK OF ANTOINETTE and many more.	£2.99	£1.99
CD TAPE MCHD103	Rose Royce Greatest Hits Live In Concert 9 Tracks Featuring: IS IT LOVE YOU'RE AFTER, I LOVE THE FEELING, WISHING ON A STAR, THE MAGIC TOUCH, BAND INTRODUCTION, DO YOUR DANCE and many more.	£2.99	£1.99
CD TAPE MCHD104	Tavaris Live in Concert 14 Tracks Featuring: BAD TIMES, NEVER HAD A LOVE LIKE THIS BEFORE, CANT TAKE THE BLAME FOR LOSING YOU, YOU ARE THE WORDS, MEDLEY: DONT TAKE AWAY THE MUSIC, SHE'S GONE and many more.	£2.99	£1.99
CD TAPE MCHD105	Dance Sounds Of The Seventies 20 Tracks Featuring: LOVE MACHINE The Miracles - WFEAK SPOT Evelyn Thomas - TWENTY FOUR HOURS A DAY Barbara Pennington - YOUR MAGIC PIT A SPELL ON ME L.J. Johnson and many more.	£2.99	£1.99
CD TAPE MCHD106	Summer Dance Energy 20 Tracks Featuring: LOVE IN THE NIGHT V.H.F., HOW MANY HEARTS Evelyn Thomas - IVE BEEN A BAG GIRL Barbara Pennington - BEELINE Miquel Brown - ON THE HOUSE Midnight Sunrise and many more.	£2.99	£1.99
CD TAPE MCHD107	Rock'n'Roll Megamix Over 60 Tracks Featuring: LETS TWIST AGAIN/PEPPERMINT TWIST/YAYA TWIST/LETS DANCE/ KISSIN' TWIST/FANNY M&M/TWIST A ST. TROPEZ/SPEEDY GONZALES/RED ROVER ROCK and many more.	£2.99	£1.99
CD TAPE MCHD108	George Benson Love For Sale B Tracks Featuring: LOVE FOR SALE, THE MASOGRADE IS OVER, WITCHCRAFT, THERE WILL NEVER BE ANOTHER YOU, ALL BLUES, BLUE BOSSA, OLEO, LIL'DRIFTIN'.	£2.99	£1.99

CD JHD109	Herbie Hancock, Jammin' 6 Tracks Featuring: JAMMIN' WITH HERBIE, HERBIE BLUES, ROCK YOUR SOUL, TCB WITH HERBIE, SOUL POWER, CAT CALL.	\$2.99	E1.99
CD JHD112	Dezmond Decker, The Israelites 20 Tracks Featuring: YOU CAN GET IT IF YOU REALLY WANT, I BELIEVE, PERSERVERANCE, GET UP LITTLE SUSIE, PICKNEY GAL, RUDY GOT SOUL, THAT'S THE WAY LIFE GOES and many more.	\$2.99	E1.99
CD JHD116	Sister Sledge Live in Concert 11 Tracks Featuring: EVERYBODY DANCE, THINKING OF YOU, HE'S THE GREATEST DANCER, TRUE LOVE, FRANKIE, BROTHER BROTHER STOP, LOVE OF THE LORD, WE ARE FAMILY and many more.	\$2.99	E1.99
CD AA003	Ray Charles Audio Archive Collectors Edition 20 Tracks Featuring: I WONDER WHO'S KISSING HER NOW, LET'S HAVE A BALL, GOIN' DOWN SLOW, SITTING ON TOP OF THE WORLD, ALONE IN THE CITY and many more.	\$2.99	E1.99
CD AA050	Elvis Presley Audio Archive Collectors Edition 13 Tracks Featuring: HEARTBREAK HOTEL, LONG TALL SALLY, I WAS THE ONE, MONEY HONEY, IVE GOT A WOMAN, BLUE SUEDE SHOES, HOUD DOG and many more.	\$2.99	E1.99
CD TFP001	Soul Hits Vol One! 100 Tracks Featuring: Disc One: SOUL MAN Sam & Dave, Disc Two: ON BROADWAY The Drifters, Disc Three: IT'S TOO FLUNKY IN HERE, Disc Four: SOUL SISTER, BROWN SUGAR Sam & Dave and many more.	\$12.99	Not Available on Cassette
CD TFP002	Rock 'n Roll Hits 100 Tracks Featuring: Disc One: JUST LIKE EDDIE HEINZ, Disc Two: THE TWIST Chubby Checker, Disc Three: SEE YOU LATER ALLIGATOR Bill Haley, Disc Four: AT THE HOPE Danny & The Juniors and many more.	\$12.99	Not Available on Cassette
CD TFP004	Hits Of The Sixties 100 Tracks Featuring: Disc One: LET'S TWIST AGAIN Chubby Checker, Disc Two: DA DOO RON RON The Mysticks, Disc Three: IT'S IN HIS KISS (THE SHOOP SHOOP SONG) Betty Everett, Disc Four: IT'S MY PARTY Letty Goss and many more.	\$12.99	Not Available on Cassette
CD TFP008	Love Songs Vol One! 100 Tracks Featuring: Disc One: THEN HE KISSED ME The Crystals, Disc Two: BEHIND CLOSED DOORS Percy Sledge, Disc Three: ROCK YOUR BABY George McGrae, Disc Four: STORM WEATHER Lena Horne and many more.	\$12.99	Not Available on Cassette
CD TFP010	Bob Marley Over 40 Tracks Featuring: Disc One: DONT ROCK MY BOAT, Disc Two: LEVELY UP YOURSELF, Disc Three: TRENCH TOWN ROCK, Disc Four: REBELS HOE and many more.	\$12.99	Not Available on Cassette
CD TFP014	Motor City Over 40 Tracks Featuring: Disc One: HEATWAVE Martha Reeves, Disc Two: MY GUY Major Wells, Disc Three: PLEASE MR POSTMAN The Originals, Disc Four: WITH YOU IM BORN AGAIN Syreeta and many more.	\$12.99	Not Available on Cassette
CD TFP015	Hits Of The 50's 100 Tracks Featuring: Disc One: TWILIGHT TIME The Ratlers, Disc Two: BLUEBERRY HILL Fat Domino, Disc Three: HARBOUR LIGHTS The Patmos, Disc Four: SEARCHIN The Coasters and many more.	\$12.99	Not Available on Cassette
CD TFP016	Hits Of The Sixties Vol Two! 100 Tracks Featuring: Disc One: WIND THING The Troggs, Disc Two: THE HIPPI SHAKE The Swinging Blue Jeans, Disc Three: NEEDLES AND PINS The Searchers, Disc Four: IM THE ONE Gerry and the Pacemakers and many more.	\$12.99	Not Available on Cassette
CD TFP018	Cruisin' Greats 100 Tracks Featuring: Disc One: BLUEBERRY HILL Fat Domino, Disc Two: SEA FOURS Frankie Ford, Disc Three: WOOLY BULLY Sam The Sham & The Pharoques, Disc Four: RHYTHM OF THE RAIN The Cascades and many more.	\$12.99	Not Available on Cassette
CD TFP019	Reggae Greats Over 40 Tracks Featuring: Disc One: MONEY IN MY POCKET Dennis Brown, Disc Two: LEVELY UP YOURSELF Bob Marley, Disc Three: SOUL CAPTIVES Bob Marley, Disc Four: RETURN OF SUPER APE The Upsetters and many more.	\$12.99	Not Available on Cassette
CD TFP021	Hits Of The 70's 100 Tracks Featuring: Disc One: GET DANCIN' Disco Tex & The Sex-Loftes, Disc Two: I WANNNA DANCE WITH CHOO Disco Tex & The Sex-Loftes, Disc Three: LET'S GET TOGETHER AGAIN The Gitter Band, Disc Four: PEOPLE LIKE YOU, PEOPLE LIKE ME The Gitter Band and many more.	\$12.99	Not Available on Cassette
CD TFP025	The British Invasion Vol One! 100 Tracks Featuring: Disc One: WILD THING The Troggs, Disc Two: HES IN TOWN The Rockin' Berries, Disc Three: HELLO LITTLE GIRL The Fourmost, Disc Four: A LITTLE CHILDREN Billy J. Kramer and many more.	\$12.99	Not Available on Cassette
CD TFP031	Disco Fever Vol One! 100 Tracks Featuring: Disc One: FEELS LIKE IM IN LOVE Kelly Marie, Disc Two: D.I.S.C.O. Otisawan, Disc Three: I LOVE TO LOVE Tina Charles, Disc Four: KINGS MY BELL Anita Ward and many more.	\$12.99	Not Available on Cassette
CD TFP002	The Sixties Decade 200 Tracks Featuring: Disc One: POETRY IN MOTION Johnny Thelsson, Disc Two: LET'S TWIST AGAIN Chubby Checker, Disc Three: TOWN WITHOUT JOINTY Piny Gene Plimsey, Disc Four: TWIST & SHOUT The Isely Brothers, Disc Five: GOOD GOLLY MISS MOLLY Jerry Lee Lewis, Disc Six: WOOLY BULLY Sam The Sham & The Pharoques, Disc Seven: SWEET TALKING GUY The Chiffons, Disc Eight: THE LETTER The Bop Tops, Disc Nine: IT'S IN HIS KISS Betty Everett, Disc Ten: SUGAR SUGAR The Archies and many more.	\$29.99	Not Available on Cassette
CD PAT201	Greatest Ever JUNIOR PARTY MEGAMIX 32 Non Stop Tracks Featuring: MIX One: GHOSTBUSTERS/DOON THE DO/HOULDA/THIE RIGHT STUFF/THE CHICKEN SONG/LAMBDOO/GO! TO GET and many more.	\$12.99	E1.99
CD PAT911	UK Top Charts Vol One! by Chartbuster & The Megamixes 20 Non Stop Tracks Featuring: MIX ONE: I BELIEVE/3 A.M. ETERNAL/VIGILE IT/MARY HAD A LITTLE BOV/VHAT DO I HAVE TO DO/ALL RIGHT NOW/WANNA GIVE YOU DEVOTION and many more.	\$12.99	E1.99
CD PAT914	Greatest Ever CHRISTMAS PARTY MEGAMIX 28 Non Stop Tracks Featuring: MIX One: MERRY XMAS EVERBODY/WISH IT COULD BE CHRISTMAS EVERY DAY/WINTER WONDERLAND/ALL I WANT FOR CHRISTMAS IS MY 2 FRONT TEETH and many more.	\$12.99	E1.99
CD PAT918	UK Top Charts Vol Two! by Chartbuster & The Megamixes 20 Non Stop Tracks Featuring: MIX ONE: YOU COULD BE MINE/CHARIVY/PEOPLE ARE STILL HAVING SEX/SAILING ON THE SEVEN SEAS/VANS TO LOVE and many more.	\$12.99	E1.99
CD PAT929	UK Top Charts Vol Three! by Chartbuster & The Megamixes 28 Non Stop Tracks Featuring: MIX ONE: BLACK OR WHITE/HOLE HEARTED/APARENTLY NOTHIN/SUNSHINE ON A RAINY DAY/GET OFF/SET ADRIFT ON MEMORY BLISS and many more.	\$12.99	E1.99
CD PAT929	UK Top Charts Vol Three! by Chartbuster & The Megamixes 28 Non Stop Tracks Featuring: MIX ONE: BLACK OR WHITE/HOLE HEARTED/APARENTLY NOTHIN/SUNSHINE ON A RAINY DAY/GET OFF/SET ADRIFT ON MEMORY BLISS and many more.	\$12.99	E1.99

CD SYM018	Beethoven Symphonie Fantastique Op. 14 5 Tracks Featuring: DREAMS, SUFFERING, LARGO-ALLEGRO AGITATO, APPRESSIONATO ASSAI, A BALL, WALTZ, ALLEGRO NON TROPPO and many more.	\$2.99	E1.99
CD SYM019	Hardt Sympony No.99 in E flat major, 8 Tracks Featuring: ADAGIO/VIVACE ASSAI, ADAGIO, MENUETTO, ALLEGRETTO, FINALE: VIVACE SYMPHONY NO. 101 IN D MAJOR (THE WATCH) and many more.	\$2.99	E1.99
CD SYM020	Handel Music For The Royal Fireworks 15 Tracks Featuring: OVERTURE (ADAGIO-ALLEGRO-LENTEMENTO-ALLEGRO D.C.), BOURREE, LA PAIX (LARGO ALA SICILIANA), LA REJOISSANCE and many more.	\$2.99	E1.99
CD SYM021	Griegs Peer Gynt Suite No. 1 op. 46 11 Tracks Featuring: MORNING, HOUR, ASSES DEATH-ANIRATS DANCE, IN THE PAUL OF THE MOUNTAIN KING, PEER GYNT SUITE NO.2 OP.55, ABBIC DANCE and many more.	\$2.99	E1.99
CD SYM022	Geisthohn 7 Tracks Featuring: AN AMERICAN IN PARIS, RHAPSODY IN BLUE, JAWACEK SYMPHONY FOR THE ORCHESTRA and many more.	\$2.99	E1.99
CD SYM023	Dvorak Sympony No. 9, From the world of Sympony, 5 Tracks Featuring: ADAGIO-ALLEGRO MOLTO, LARGO, SCHERZO: MOLTO VIVACE, ALLEGRO CON FUOCO, LARGHETTO FROM THE STRING SERENADE IN E MAJOR OP. 22.	\$2.99	E1.99
CD SYM024	Beethoven sympony No. 9 op. 125 5 Tracks Featuring: ALLEGRO MA NON TROPPO, MOLTO VIVACE, ADAGIO MOLTO E CANTRABILE, PRESTO, ALLEGRO ASSAI.	\$2.99	E1.99
CD SYM025	Beethoven sympony No. 6 op. 68 Pastoral 8 Tracks Featuring: ALLEGRO MA NON TROPPO, ANDANTE MOLTO MOSSO, ALLEGRO, ALLEGRETTO, QUARTET FOR PIANO, VIOLIN, VIOLA, VIOLONCELLO IN E MINOR OP. 16 and many more.	\$2.99	E1.99
CD SYM026	Beethoven sympony No. 5 in C minor op. 67 Fate 6 Tracks Featuring: ALLEGRO CON BRIO, ANDANTE CON MOTO, ALLEGRO, ALLEGRO, SCHUBERT SYMPHONY NO. 8 IN B MINOR (UNFINISHED) and many more.	\$2.99	E1.99
CD SYM027	Beethoven Moonlight Sonata op. 27 no. 2 in C sharp minor, 9 Tracks Featuring: ADAGIO SOSTENUTO, ALLEGRETTO, PRESTO AGITATO, PATHETIQUE OP. 13 IN C MINOR, ALLEGRO CON BRIO and many more.	\$2.99	E1.99
CD SYM028	Ravel 4 Tracks Featuring: BOLERO - PIANO CONCERTO IN G MAJOR, ALLEGRAENTE, ADAGIO ASSAI, PRESTO.	\$2.99	E1.99
CD SYM029	Rostini 8 Tracks Featuring: ROSSINI, WILLIAM TELL OVERTURE KHACHATURIAN, SABRE DANCE DUKAS, THE SORCERERS APPRENTICE RIMSKYKORSKOV, FLIGHT OF THE BUMBLE BEE BORKDIN, IN THE STEPPES OF CENTRAL ASIA VAVGNER and many more.	\$2.99	E1.99
CD SYM030	Great Composers Vol One! 16 Tracks Featuring: SCHUBERT-MOMENT MUSICAL IN F MINOR IMPROMPTU IN A FLAT MAJOR, SCHUMANN-DREAMING OP.15, MENDELSSOHN, SPRING SONG- TCHAIKOVSKY and many more.	\$2.99	E1.99
CD SYM031	Debussy 16 Tracks Featuring: Deux Nubesques (1888), In E major, 2 in G major Clair de lune (1890), Moonlight Suite Bergamsque (Esamps (1903), Gardens in the Rain Nocturne (Ed. 1907) and many more.	\$2.99	E1.99
CD SYM032	J.S. Bach Italian Concerto in F major, BWV 971 11 Tracks Featuring: MODERATO, ANDANTE, ALLEGRO VIVACE PARTITA NO. 1 IN B FLAT MAJOR, BWV 825, PRAELUDIUM, ALEMANNIDE and many more.	\$2.99	E1.99
CD SYM033	Brahms Festival Overture, Tragic Overture Concert for Violin op. 77, 5 Tracks Featuring: ACADEMIC FESTIVAL, OVERTURE, CONCERTI FOR VIOLIN AND ORCHETRA IN D DOUR OP. 77- ALLEGRO MA NON TROPPO, ADAGIO and many more.	\$2.99	E1.99
CD SYM034	Straus 10 Tracks Featuring: MORNING PAPERS OP. 279, PERPETUUM MOBILE OP. 257, PIZZICATO-POLKA, RADZETKY MARCH OP. 228, EMPORER WALTZ OP. 437, THUNDER AND LIGHTNING OP. 324 and many more.	\$2.99	E1.99
CD SYM035	Bizet Carmen Suite No. 1 16 Tracks Featuring: PRÉLUDE, ADAGIONAVE, INTERMEZZO/INTERLUDE, SEGUEDILLE, LES DRAGONS D'ALCALA, LES TORREDOORS CARMEN-SUITE NO.2 and many more.	\$2.99	E1.99
CD SYM036	Mozart sympony No. 41 in C Major K551, Jupiter 7 Tracks Featuring: ALLEGRO VIVACE, ANDANTE, CONTRABO, MENUETTO, ALLEGRETTO, MOLTO ALLEGRO HORN CONCERTO NO. 3 IN E FLAT MAJOR K447 and many more.	\$2.99	E1.99
CD SYM037	Chopin World Famous Piano Music Vol One! 9 Tracks Featuring: NO. 1 OP. 29 IN A FLAT MAJOR, ALLEGRO ASSAI, NO. 2 OP. 36 IN F SHARP MAJOR, ANDANTINO, NO. 3 OP. 51 IN G FLAT MAJOR, VIVACE and many more.	\$2.99	E1.99
CD SYM038	Handel Water Music for The Royal Fireworks 18 Tracks Featuring: OVERTURE-ADAGIO STRACALO, ALLEGRO-ANDANTE-ALLEGRO, A TEMPO DA MINUETTO, AIR, MENUETT, BOURREE and many more.	\$2.99	E1.99
CD SYM039	Beethoven Piano Concerto No.4 6 Tracks Featuring: ALLEGRO MODERATO, ANDANTE CON MOTO, RONDO: VIVACE PIANO CONCERTO NO 5, ALLEGRO, ADAGIO UN POCO MOSSO and many more.	\$2.99	E1.99
CD SYM040	Beethoven Sympony No. 3 in E flat major, Tenica' op.55 4 Tracks Featuring: ALLEGRO CON BRIO, MARCHA FUNEBRE: ADAGIO ASSAI, SCHERZO: ALLEGRO VIVACE, FINALE: ALLEGRO MOLTO-POCO ANDANTE-PRESTO and many more.	\$2.99	E1.99
CD SYM042	Overtures Vol Two! 8 Tracks Featuring: CIMEROSA - OVERTURE FROM 'IL MATRIMONIO SEGRETO', MASGGINI - INTERLUDE FROM 'CAVALIERA RUSTICANA', ALBER - OVERTURE FROM 'LA MLETTE DE PORTICI' and many more.	\$2.99	E1.99
CD SYM043	J.S. Bach Brandenburg Concerto No. 1 in F major BWV 1046 13 Tracks Featuring: ALLEGRO, ADAGIO, ALLEGRO, MENUETTO, BRANDENBURG CONCERTO NO.2 IN F MAJOR BWV 1047 and many more.	\$2.99	E1.99
CD SYM044	Listz Les Préludes 4 Tracks Featuring: SYMPHONIC POEM NO.3 ORPHEUS, SYMPHONIC POEM NO. 4, HUNGARIAN RHAPSODY NO. 5, TASSO (AMENITO E TRIONFO, SYMPHONIC POEM NO. 2.	\$2.99	E1.99

CD TRP008	Wagner: The Royal Philharmonic Collection. Featuring: The Ride of the Valkyries, Overture: Rienzi and many more.	\$3.99	Not Available on Cassette
CD TRP009	Vivaldi/Bach: The Royal Philharmonic Collection. Featuring: The Four Seasons/Brandenburg Concerto No.3 in G. BWV 1018.	\$3.99	Not Available on Cassette
CD TRP010	Dvorak: The Royal Philharmonic Collection. Featuring: Symphony No. 9 in E Minor 'From the New World'.	\$3.99	Not Available on Cassette
CD TRP999	Sampler Album: The Royal Philharmonic Collection. Featuring: Excerpts from the first ten Albums Wagner Prelude Act III, Lohergrin DVORAK Largo from Symphony No. 9 'New World', BACH Brandenburg Concerto No. 3, First Movement and many more.	\$2.99	Not Available on Cassette
TAPE TTMC052	Beethoven: The Great Composers 10 Tracks Featuring: THE PASTORAL SYMPHONY No. 6 IN F MAJOR: 1ST MOVEMENT ALLEGRO MA NON TROPPO, 5TH MOVEMENT ALLEGRETTO, THE SHEPHERDS SONG and many more.	\$2.99	Not Available on CD
TAPE TTMC053	Tchaikovsky: The Great Composers 12 Tracks Featuring: THE 1812 OVERTURE, SWAN LAKE ACT I WALTZ, ACT 2 - DANCE OF THE LITTLE SWANS, VIOLIN CONCERTO IN D MAJOR 1st MOVEMENT and many more.	\$2.99	Not Available on CD
TAPE TTMC054	Mozart: The Great Composers 11 Tracks Featuring: ELVIRA MADIGAN 2nd MOVEMENT ANDANTE CANTABILE FROM VIOLIN CONCERTO IN D, ADAGIO FROM CLARINET CONCERTO IN A and many more.	\$2.99	Not Available on CD
TAPE TTMC055	Strauss: The Great Composers 12 Tracks Featuring: MORNING PAPERS, PERPETUUM MOBILE, LONG LIVE THE MAGYAR, THE EMPEROR WALTZ, TRISH TRASH POLKA, ACCELERATION WALTZ, THE RADETSKY MARCH and many more.	\$2.99	Not Available on CD
TAPE TTMC056	Vivaldi: The Great Composers 20 Tracks Featuring: THE FOUR SEASONS, SPRING ALLEGRO, SPRING LARGO, SPRING ALLEGRO, SUMMER ALLEGRO, SUMMER ADAGIO, SUMMER PRESTO, AUTUMN ALLEGRO and many more.	\$2.99	Not Available on CD
TAPE TTMC057	The Last Night of The Proms 15 Tracks Featuring: ELGAR: POMP AND CIRCUMSTANCE MARCHES, No. 3 IN C MINOR, No. 4 IN G MAJOR, No. 5 IN C MAJOR; WAGNER: RIDE OF THE VALKYRIES and many more.	\$2.99	Not Available on CD
TAPE TTMC059	A Night At The Opera Luciano Pavarotti & Placido Domingo: Over 30 Tracks Featuring: LA DONNA MOBILE Luciano Pavarotti, AU FONDU DU TEMPLE SAINT (IN THE MIDST OF THE TEMPLE) (the Pearl Fishers - Bizet) LARGO AL FACILUUM (the Barber of Seville-Rossini) and many more.	\$2.99	Not Available on CD
TAPE TTMC060	Greatest Overtures: The Vienna Philharmonic Orchestra 8 Tracks Featuring: GUNKA: RUSLAN & LUDMILLA, NICOLA: THE MERRY WIVES OF WINDSOR, BEETHOVEN: THE RUINS OF ATHENS, OFFEBACH: ORPHENS IN THE UNDERWORLD and many more.	\$2.99	Not Available on CD
TAPE TTMC073	Pavarotti: The World's Greatest Tenor Over: 30 Tracks Featuring: NESSUN DORMA LA DONNA MOBILE, OH MESSINA! OG FATO ORRENDO!, GUSTO CIELO AHI RESPONDETE, OIA, CHI SEI CHE ARDISI, AGGIARATI FUTURO IN QUESTE MURAT,.... and many more.	\$2.99	Not Available on CD
TAPE TTMC105	Switched On Classics (Vol Two) The Neon Philharmonic Orchestra 30 Tracks Featuring: TCHAIKOVSKY: Capriccio Italien; Adagio from Swan Lake; Nutcracker Dance of the Reed Flutes; Romeo & Juliet; Symphony Pathetique Nutcracker; Trepak/Dance of the Sugar Plum Fairy and many more.	\$2.99	Not Available on CD
CD SYM001	Pachelbel 12 Tracks Featuring: ALBINONI: ADAGIO FOR ORGAN AND STRINGS; PACHELBEL CANON/BACH SUIT No. 3 IN D, OVERTURE, AIR ON A G STRING and many more.	\$1.99	Not Available on CD
CD SYM002	Tchaikovsky 4 Tracks Featuring: PINAO CONCERTO IN B MINOR, ALLEGRO NON TROPPO E MOLTO MAESTOSO-ALLEGRO CON SPICATO and many more.	\$1.99	Not Available on CD
CD SYM003	Wagner 5 Tracks Featuring: TANNHAUSER, DER FLEGENDE HOLLANDER, PARSIFAL, RIENZI, DAS LIEBESVERBOT	\$1.99	Not Available on CD
CD SYM004	Vivaldi: The Four Seasons 15 Tracks Featuring: SPRING: CONCERTO IN E MAJOR RV 269, ALLEGRO, LARGO E PIANISSIMO SEMPRE, DANZA PASTORALE: ALLEGRO SUMMER CONCERTO IN G MINOR RV 315 and many more.	\$1.99	Not Available on CD
CD SYM005	Tchaikovsky Symphony No. 6 in B Minor op. 74 (Pathtitju) 4 Tracks Featuring: ADAGIO ALLEGRO NON TROPPO, ALLEGRO CON GRAZIA, ALLEGRO MOLTA VIVACE, FINALE: ADAGIO LAMENTOSO.	\$1.99	Not Available on CD
CD SYM006	Tchaikovsky Romeo and Juliet 9 Tracks Featuring: ROMEO AND JULIET, FANTASY OVERTURE, SZELNE, VALSE, RALSE PAS D'ACTION, DANSE HONGROISE, DANSE ESPAGNOLE, DANSE NAPOLITAINNE and many more.	\$1.99	Not Available on CD
CD SYM009	Schubert: The Trout Piano Quintet in A Op. 114, D667 5 Tracks Featuring: The Trout Piano Quintet in A Op. 114, D667, ALLEGRO VIVACE, ANDANTE, SCHERZO: PRESTO, THEME AND VARIATIONS, FINALE: ALLEGRO GIUSTO.	\$1.99	Not Available on CD
CD SYM011	Rimsky-Korsakov Shepherds Op. 35 5 Tracks Featuring: THE SEA AND SINBAD'S SHIP, LARGO E MAESTOSO, THE STORY OF PRINCE KALENDER, LENTO-ADAGIO, THE YOUNG PRINCE AND PRINCESS ANDANTINO QUASI ALLEGRETTO and many more.	\$1.99	Not Available on CD
CD SYM012	Prokofiev Romeo and Juliet (Scenes Des Ballet) 8 Tracks Featuring: THE MONTAGUES AND THE CAPULETS, TYBALTS DEATH, ROMEO AT THE GRAVE OF JULIET, THE BALCONY SCENE, SYMPHONY NO 1 'CLASSICAL', OP 25 and many more.	\$1.99	Not Available on CD
CD SYM013	Offt Camina Burana 8 Tracks Featuring: FORTUNA IMPERATRIX MUNDI O FORTUNE PLANGO VULNERA, PRIMO VERE VERIS LETIA FACIES OMNIA SOL TEMPERAT ECCE GRATURN and many more.	\$1.99	Not Available on CD
CD SYM014	Mendelssohn A Midsummer Night's Dream 14 Tracks Featuring: OVERTURE OP.21, SCHERZO OP. 61/1, NOCTURNE OP. 61/7, WEDDING MARCH OP. 61/9, CLOWNS DANCE OP. 61/11 and many more.	\$1.99	Not Available on CD
CD SYM015	Mozart: Symphony No. 40 in G minor KV 550 8 Tracks Featuring: MOLTO ALLEGRO, ANDANTE, MENUETTE: ALLEGRETTO, FINALE: ALLEGRO ASS AI and many more.	\$1.99	Not Available on CD
CD SYM017	Holst: The Planets Op 32 7 Tracks Featuring: MARS, THE BRINGER OF WAR, VENUS, THE BRINGER OF PEACE, MERCURY, THE WINGED MESSENGER and many more.	\$1.99	Not Available on CD

TAPE TTMC001	Hits of The Fifties Over 50 Tracks Featuring: ONE DOZEN ROSES The Mills Brothers, JAVA JIVE The Ink Spots, STRANGER IN PARADISE The Four Aces SO RARE The Mills Brothers, THE GIRL CANT HELP IT Little Richard and many more.	\$2.99	Not Available on CD
TAPE TTMC002	Hits of The 50's 50 Tracks Featuring: UNFORGETTABLE The Ink Spots, GOOD GOLLY MISS MOLLY Little Richard, KISSES SWEETER THAN WINE Jimmy Rogers, SEE YOU LATER ALIGATOR Bill Haley and many more.	\$2.99	Not Available on CD
TAPE TTMC003	Cruise'n' Hits 50 Tracks Featuring: MONEY HONEY Little Richard, CROSS FIRE Johnny & the Hurricanes, AT THE HOP Danny & the Juniors, DA DOO RON RON The Crystals, WILL YOU STILL LOVE ME The Shirelles, YAKETY YAK The Coasters and many more.	\$2.99	Not Available on CD
TAPE TTMC004	Cruise'n' Greats 50 Tracks Featuring: WOOLY BULLY Sam the Sham & the Pharoahs, MR BASSMAN Johnny Cymbal, OH MY SOUL Little Richard, AINT THAT A SHAME Fab Domino and many more.	\$2.99	Not Available on CD
TAPE TTMC006	The Love Songs Collection Over 50 Tracks Featuring: GIRLS The Moments, BUILD ME UP BUTTERCLIP The Foundations, TENDER YEARS George Jones, SH BOOM SH BOOM The Crewcuts, I COULDA BEEN ME Billy Jo Spears, and many more.	\$2.99	Not Available on CD
TAPE TTMC009	Jukebox Jive 50 Tracks Featuring: GOOD GOLLY MISS MOLLY Little Richard, TWIST AND SHOUT The Isley Brothers, RUNAROUND SUE Del Shannon, BE BOP A LULA Gene Vincent RUBBER BALL Bobby Vee and many more.	\$2.99	Not Available on CD
TAPE TTMC010	Jukebox Saturday Night 50 Tracks Featuring: SEE YOU LATER ALIGATOR Bill Haley and the Comets, RED RIVER ROCK Johnny & the Hurricanes, THE HUCKLEBUCK Chubby Checker, BE BOP A LULA Gene Vincent and many more.	\$2.99	Not Available on CD
TAPE TTMC011	Soul Classics 50 Tracks Featuring: I GOT THAT FEELING James Brown, STAND BY ME Ben E King, BRING IT ON HOME TO ME Eddie Floyd, HOLD ON IM COMING Solomon Burke, RAINY NIGHT IN GEORGIA Brook Benton and many more.	\$2.99	Not Available on CD
TAPE TTMC012	Soul Greats Over 50 Tracks Featuring: ITS TOO FLUNKY HERE James Brown, KIDDOO Brook Benton, TIGHTEN UP Archie Bell & The Drells, I THANK YOU Sam & Dave, LOVIN' ARMS Doble Grey and many more.	\$2.99	Not Available on CD
TAPE TTMC016	Hits of The 60's (Vol Two) 50 Tracks Featuring: BUILD ME UP BUTTERCLIP The Foundations, THIS GOES MY BABY The Drifters, OPERATOR Gladys Knight, MY BOYFRIENDS BACK The Angels, LITTLE TOWN FLIRT Del Shannon and many more.	\$2.99	Not Available on CD
TAPE TTMC017	Hits of The 70's 50 Tracks Featuring: BLOCKBUSTER The Sweet, GET DANCIN' Disco Tex & the Sex-6-tettes, PATIENCES Chairence Carter, ANGEL FACE Gitter Band, YELLOW RIVER Christie and many more.	\$2.99	Not Available on CD
TAPE TTMC019	Reggae Hits Over 30 Tracks Featuring: MONEY IN MY POCKET Dennis Brown, SOUL REBEL Bob Marley, I SHOW YOU HOW TO REGGAE Soulful Dynamics, PRISONER OF LOVE Merger, STOP THE TRAIN Bob Marley and many more.	\$2.99	Not Available on CD
TAPE TTMC025	Little Richard The-Greatest Hits 27 Tracks Featuring: LUCILLE, WHOLE LOTTA SHAKIN' GOIN' ON, TUTI FRUTI, KEEP A KNOCKIN', OH MY SOUL, THE GIRL CANTY HELP IT, SLIPPIN' AND A SLIDIN' and many more.	\$2.99	Not Available on CD
TAPE TTMC043	The Drifters Greatest Hits 25 Tracks Featuring: ON BROADWAY, DANCE WITH ME, UP ON THE ROOF, THIS MAGIC MOMENT, PLEASE STAY, SWEETS FOR MY SWEET, THIRD RATE ROMANCE, NIGHT MOVES, ANOTHER SATURDAY NIGHT and many more.	\$2.99	Not Available on CD
TAPE TTMC044	Surfin' Safari 28 Tracks Featuring: SURFIN' SAFARI The Beach Boys, WIPEOUT The Surfaris, SURF CITY Jan & Dean, SURFIN' The Beach Boys, SURFERS STOMP The Markets, LITTLE OLD LADY FROM PASADENA Jan & Dean and many more.	\$2.99	Not Available on CD
TAPE TTMC045	Santana Jingo 16 Tracks Featuring: JINGO, EL COROON MANDA, LA PEUSTA DEL SOL, PERSUASION, AS YEARS GO BY, SOUL SACRIFICE, FRIED NECKBONES & HOME FRIES, ACAPULCO SURFES and many more.	\$2.99	Not Available on CD
TAPE TTMC046	James Brown 17 Tracks Featuring: COLD SWEAT, I CANT STAND MYSELF, PAPAS GOT A BRAND NEW BAG, I GOT YOU, SEX MACHINE, HOT PANTS, PLEASE PLEASE PLEASE, JAM, ITS A MAN'S WORLD and many more.	\$2.99	Not Available on CD
TAPE TTMC062	Showaddyaddy Rock 'N' Roll Hits Party Over 30 Tracks Featuring: THREE STEPS TO HEAVEN, ALLY OOP, TWIST & SHOUT, BILLIE MONO, THATS ROCK 'N' ROLL, YOU GOT WHAT IT TAKES, I LOVE YOU LOVE ME LOVE, ALWAYS YOURS, ROCK 'N' ROLL (PART 1), AINT THAT A SHAME, SCHOOL DAY, THE CLAPPING SONG and many more.	\$2.99	Not Available on CD
TAPE TTMC065	Gary Glitter The Greatest Hits 28 Tracks Featuring: THE LEADER OF THE GANG, I LOVE YOU LOVE ME LOVE, ALWAYS YOURS, ROCK 'N' ROLL (PART 1), AINT THAT A SHAME, SCHOOL DAY, THE CLAPPING SONG and many more.	\$2.99	Not Available on CD
TAPE TTMC066	60's Decade 1960-1961 50 Tracks Featuring: POETRY IN MOTION Johnny Thorton, TELL LAURA I LOVE HER Ricky Valence, VENUS Frankie Avalon, WHAT IN THE WORLD'S COME OVER YOU Jack Scott and many more.	\$2.99	Not Available on CD
TAPE TTMC067	60's Decade 1962-1963 50 Tracks Featuring: TOWN WITH PITY Gene Pitney, LIMBO ROCK Chubby Checker, HES A REBEL The Crystals, PEPPERMINT TWIST Joey Dee & The Starlighters, JAMBALAYA Fab Domino and many more.	\$2.99	Not Available on CD
TAPE TTMC068	60's Decade 1964-1965 50 Tracks Featuring: HELLO DOLLY Louis Armstrong, IM GONNA BE STRONG Gene Pitney, DOWNTOWN Petula Clarke, DIANE The Beachtels, CHAPEL OF LOVE The Dixie Cups, UNDER THE BROADWALK The Drifters and many more.	\$2.99	Not Available on CD
TAPE TTMC069	60's Decade 1968-1969 50 Tracks Featuring: SWEET TALKIN' GUY The Chiffons, GETAWAY George Fame, WARM & TENDER LOVE Percy Sledge, YOU GOT ME HUMMIN' Sam & Dave and many more.	\$2.99	Not Available on CD
TAPE TTMC070	60's Decade 1968-1969 50 Tracks Featuring: ITS IN HIS KISS Betty Everett, SUNSHINE GIRL Hermans Hermits, DOCK OF THE BAY Percy Sledge, CRY LIKE A BABY The Boxtops, OBLA-DI-OB-LA DA Marmalade and many more.	\$2.99	Not Available on CD
TAPE TTMC074	The Best Of The Barron Knights 30 Tracks Featuring: CALIFORNIA GIRLS, FUN, FUN, FUN, GOOD VIBRATIONS, D.I.Y., MR BRONSKI MEETS MR EVANS, THE AIR HOSTESS SONG, ALL THROUGH THE NIGHT, STREET RHYMES, CHURCHILL RAP and many more.	\$2.99	Not Available on CD

TAPE TMC078 (TWIN)	The British Invasion 50 Tracks Featuring: WILD THING The Troggs, WITH A GIRL LIKE YOU The Troggs, I CAN'T CONTROL MYSELF The Troggs, DO YOU WANT TO KNOW A SECRET Billy J. Kramer, BAD TO ME Billy Kramer and many more.	Not Available on CD	£2.99
TAPE TMC081 (TWIN)	Disco Dynamic Over 50 Tracks Featuring FEELS LIKE IM IN LOVE Kelly Marie, BOOGIE NIGHTS Heanaw, RING MY BELL Anita Ward, CUBA The Gibson Brothers, LOVE TRAIN The Three Degrees with Harold Melvin and many more.	Available on CD	£2.99
TAPE TMC088 (TWIN)	Legends of Rock n. Roll 50 Tracks Featuring: ROCK AROUND THE CLOCK Bill Haley and the Comets, VENUS Frankie Avalon, LETS TWIST AGAIN Chubby Checker, KEEP A KNOCKIN Little Richard and many more.	Not Available on CD	£2.99
TAPE TMC093 (TWIN)	Gene Primry 24 Hours From Tulsa Over 30 Tracks Featuring: 24 HOURS FROM TULSA, TOWN WITHOUT PRY, THE MAN WHO SHOT LIBERTY VALANCE, IT HURTS TO BE IN LOVE and many more.	Not Available on CD	£2.99
TAPE TMC100 (TWIN)	Love Classics 50 Tracks Featuring: ITS IN HIS KISS Betty Everett, WARM AND TENDER LOVE Perry Sledge, AINT NO SUNSHINE AL Jarreau, THE BEST THING THAT EVER HAPPENED TO ME Gladys Knight and many more.	Not Available on CD	£2.99
TAPE TMC102 (TWIN)	Shakin Stevens and The Sunsets Roll Over Beethoven 30 Tracks Featuring: ROLL OVER BEETHOVEN, WHITE LIGHTENING, HI HEEL SNEAKERS, MAMMITHAN, MELODDRAMA, ALAN FREED CALIFORNIA COWBOY and many more.	Not Available on CD	£2.99
TAPE TMC104 (TWIN)	Sounds Of The 70s 50 Tracks Featuring: I WILL SURVIVE Gloria Gaynor, THREE STEPS TO HEAVEN Snowdaddywaddy, SUMMER LOVE SENSATION Bay City Rollers, I LOVE TO LOVE That Charles, IM ON FIRE 5000 Vois and many more.	Not Available on CD	£2.99

EASY LISTENING



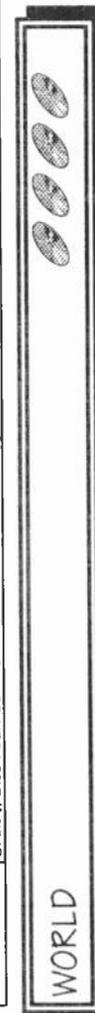
Order Code	Artist(s) & Title(s)	Price (CD)	Price (Tape)
CD GRF016 TAPE MCGRF016	Bing Crosby Everything I Have Is Yours 24 Tracks Featuring: BLACKSWITH BLUES, COME WHAT YOU WANT, GLOW WORK, FEET UP, PITTSBURGH PENNSYLVANIA, PLEASE MR. SUN, COCKED UP, GRIMM! EVERYTHING I HAVE IS YOURS and many more.	£2.99	£1.99
CD MCGRF017 TAPE MCGRF017	Judy Garland The One and Only 24 Tracks Featuring: OVER THE RAINBOW, A FOGGY DAY IN LONDON TOWN, MAKE SOMEONE HAPPY, WHEN THE SUN COMES OUT, SMILE, IM ALWAYS CHASING RAINBOWS and many more.	£2.99	£1.99
CD GRF038 TAPE MCGRF38	Nat King Cole Sweet Georgia Brown 26 Tracks Featuring: MAN ON THE KISS, OLD GRAND PANS THE BULES, PAPER MOON, IF YOU CANT SMILE AND SAYES, FIRM FROM SQUID, YES SIR, THATS MY BABY, YOURS THE CREAM IN MY COFFEE, BUGLE CALL PEG, IM LOST and many more.	£2.99	£1.99
CD GRF044 TAPE MCGRF044	Frankie Laine Ramblin 20 Tracks Featuring: RAMBLIN, MOONLIGHT GAMBLER, I BELIEVE, HUMMINBIRD, DONT FENCE ME IN, STRANGE LAVY IN TOWN, ROSE, ROSE I LOVE YOU and many more.	£2.99	£1.99
CD GRF054 TAPE MCGRF054	Frankie Vaughan 42nd Street 24 Tracks Featuring: WHEN I FALL IN LOVE, I JUST CALLED TO SAY I LOVED YOU, A WOMAN IN LOVE (YOUR EYES ARE THE EYES), SOMETIMES WHEN WE TOUCH, ITS ALL IN THE GAME and many more.	£2.99	£1.99
CD GRF056 TAPE MCGRF056	Acker Bilk Songbook 18 Tracks Featuring: JUST WHEN I NEEDED YOU MOST, I WANT TO KNOW WHAT LOVE IS, I JUST CALLED TO SAY I LOVED YOU, LONGFELLOW SENEWADE and many more.	£2.99	£1.99
CD GRF067	Jimmy Dorsey Shine on Harvest Moon 18 Tracks Featuring: IVE GOT RHYTHM, GRAND CENTRAL, GET AWAY, SOWINGWILD OAKS, JUST YOU JUST ME, SOPHISTICATED SWING, TOGETHER HIT THE NOTE I WOULD DO ANYTHING FOR YOU and many more.	£2.99	Not Available on Cassette
CD GRF073 TAPE MCGRF073	Faron Young Four in the Morning 28 Tracks Featuring: FOUR IN THE MORNING, SEASONS COME, SEASONS GO, ALONE WITH YOU, A HEARACHE FOR A KEYSAKE, IF YOU AINT LOVIN APARTMENT 9, LIVE FAST, LOVE HARD AND DIE YOUNG and many more.	£2.99	£1.99
CD GRF074 TAPE MCGRF074	Mickey Gilley That Heart Belongs To Me 29 Tracks Featuring: AINT TO BLAME, NIGHT AFTER NIGHT, SUSIE Q, TIL MAKE IT ALL UP TO YOU, BREATHELESS, IS IT WORKING, LOVELY WINE, FORGIVE MY BABE, TURN AROUND AND LOOK AT ME and many more.	£2.99	£1.99
CD GRF083 TAPE MCGRF083	Peulia Clarke Greatest Hits 16 Tracks Featuring: CALL ME, STRANGERS IN THE NIGHT, THE GOOD LIFE, ITS A SIGN OF THE TIMES, THIS IS MY SONG, DOWNTOWN, I COULDNT LIVE WITHOUT YOU and many more.	£2.99	£1.99
CD GRF086	Jimmie Lunceford Baby Wont You Please Come Home 26 Tracks Featuring: THE LONESOME ROAD, YOU SET ME ON FIRE, BABY WONT YOU PLEASE COME HOME, IVE ONLY MYSELF TO BLAME, YOU'RE JUST A DREAM, EASTER PARADE and many more.	£2.99	Not Available on Cassette
CD GRF087	Benny Carter These Foolish Things 23 Tracks Featuring: BLUE INTERLUDE, HOW COME YOU DO ME, LIKE YOU DO, ONCE UPON A TIME, DEVILS HOLIDAY, LONESOME NIGHTS, SHOOT THE WORKS and many more.	£2.99	Not Available on Cassette
CD GRF094	Two Sleepy People The Songs of Hoagy Carmichael 23 Tracks Featuring: TWO SLEEPY PEOPLE, BLUE ORCHIDS, GEORGIA ON MY MIND, LAZYBONES, LIVIN TO MYSELF, HEART AND SOUL, SING IT WAY DOWN LOW, and many more.	£2.99	Not Available on Cassette
CD GRF096 TAPE MCGRF096	Maurice Chevalier's Paris Wait Til You See Ma Cherie 22 Tracks Featuring: WHAT WOULD SUNLIGHT DOWN IN THE MOONLIGHT and many more.	£2.99	£1.99
CD GRF097	Abdowly 20 Tracks Featuring: TWO SLEEPY PEOPLE GOODNIGHT ANGEL, ANY BROKEN HEARTS TO ME? SWEET AS A SONG, WHEN MOTHER NATURE SINGS HER LULLABY, IS THAT THE WAY TO TREAT A SWEETHEART? and many more.	£2.99	Not Available on Cassette

CLASSICAL



Order Code	Artist(s) & Title(s)	Price (CD)	Price (Tape)
CD GRF139 TAPE MCGRF139	Switched On Classics The Neon Philharmonic Orchestra 35 Tracks Featuring: CLASSICS ON 45 TCHAIKOVSKY Piano Concerto no 1 - Rimsky Korsakov Flight of the Bumble Bee - MOZART Symphony no 40 - GERHARD Richter/piano in Blue and many more.	£2.99	£1.99
CD GRF155 TAPE MCGRF154	Switched On Opera 18 Tracks Featuring: MATTINATA Leonardo QUENTA O DELLE RIGOLETTO/Verdi, MARCA TRIONFALE Adagio/Verdi, LA DONNA E MOBILE Rigletto/Verdi, LA CALUNIA Barbere di Siviglia/Kossakoff and many more.	£2.99	£1.99
CD GRF235 TAPE MCGRF235	Switched On Classics (Vol Two) The Neon Philharmonic Orchestra 31 Tracks Featuring: TCHAIKOVSKY Piano Concerto No. 1, RIMSKY-KORSAKOV Flight of the Bumble Bee, MOZART Symphony No. 40 and many more.	£2.99	£1.99
CD GRF236 TAPE MCGRF236	Switched On Classics (Vol Three) The Neon Philharmonic Orchestra 31 Tracks Featuring: TCHAIKOVSKY Capriccio Italien, Adagio from Swan Lake, Nutcracker: Dance of the Reed Flutes; Romeo & Juliet, and many more.	£2.99	£1.99
CD JHD045 TAPE MCHJD045	The Great Pavartotti 11 Tracks Featuring: NESSUN DORMA, CAVALIERE, NO, LA MORTE, LUNGE DA LEI, MIEI BOLLENTI STRITI, LA DONNA E MOBILE, ANNINNA DONDE VIENI and many more.	£2.99	£1.99
CD JHD046 TAPE MCHJD046	The Essential Jose Carreras 16 Tracks Featuring: OHI FEDE NEGAR POTESSI... QUANDO LE SEER AL PIACIDO LARA O L'ANELLO APPREST MI... INGENISCO, LA DONNA E MOBILE and many more.	£2.99	£1.99
CD JHD047 TAPE MCHJD047	Piaçido Domingo Opera Highlights 14 Tracks Featuring: DI OELIA PIRA, DE, MIEI BOLLENTI STRITI, REGINA... VESTI LA GUBBA, DAMMI I COLORI... RECONDITA ARMONIA and many more.	£2.99	£1.99
CD TFP009 (FOUR PACK)	Greatest Hits Of The Classics Over 70 Tracks Featuring: Disc One: PAVEL Bolero (complete) Disc Two: BETHOVAN Moonlight Piano Sonata No. 14 in C Minor, Disc Three: BETHOVEN Except from the 5th Symphony in C Minor, Disc Four: PACHELBEL Canon and many more.	£12.99	Not Available on Cassette
CD TFP013 (FOUR PACK)	Opera Favourite Highlights Over 40 Tracks Featuring: Disc One: LUCKANO PAVAROTTI La Donna e Mobile - Rigletto Disc Two: LA BOHEME Non sono in Venza, Disc Three: LA TRAVIATA, Overture Libretto, Ne Len Calci, Disc Four: BIZET: Carmen - La Voldi and many more.	£12.99	Not Available on Cassette
CD TFP022 (FOUR PACK)	The Pavarotti Collection 100 Tracks Featuring: Disc One: NESSUN DORMA, Disc Two: CAVALIERE, Disc Three: KRISTE ELETSION, Disc Four: AH! MIES AMIS and manu more.	£12.99	Not Available on Cassette
CD TFP027 (FOUR PACK)	The Three Tenors Over 40 Tracks Featuring: Disc One: OHI FEDE NEGAR POTESSI, Disc Two: ELLA MI FUI BAVRIA, Disc Three: INGENISCO, Disc Four: ADDIO FIORITO ASI and many more.	£12.99	Not Available on Cassette
CD TFP037 (FOUR PACK)	The Great Composers (Vol One) 100 Tracks Featuring: Disc One: 1812 OVERTURE OPUS 49 Disc Two: BOLERO, Disc Three: SHEHERAZADE OPUS 35 THE SEA AND SIBIRI'S SHIP, Disc Four: THE WATER COBILIN OPUS 107 and many more.	£12.99	Not Available on Cassette
CD TFP038 (FOUR PACK)	The Great Composers (Vol Two) 100 Tracks Featuring: Disc One: THE FOUR SEASONS, Disc Two: SUITE NO. 2 IN D MAJOR, WATER MUSIC, Disc Three: ITALIAN CONCERTO IN F MAJOR, Disc Four: OVERTURE FROM THE WARRAGE OF FIGARO and many more.	£12.99	Not Available on Cassette
CD TFP001 (ITEM PACK)	The Classics Discovered Over 40 Tracks Featuring: Disc One: BETHOVEN Moonlight Piano Sonata No. 14 in C Sharp Minor Op27 No.2, Disc Two: BETHOVEN, 'Choral' 9th Symphony in D Minor Op.125, Disc Three: BETHOVEN, 'Patrol' Symphony No.6 in F Major Op.68, Disc Four: DVORAK, 'New World' Symphony No.9, Disc Five: GERSWIN Rhapsody in Blue, Disc Six: HANDEL Music For The Royal Fireworks, Disc Seven: MOZART, 'Eiva Madigan' Piano Concerto No.21 in C Major K467, Disc Eight: HOLST The Planets Op.32, Disc Nine: RIMSKY-KORSAKOV Scheherazade, Disc Ten: VIVALDI The Four Seasons and many more.	£29.99	Not Available on Cassette
CD AA044 TAPE MCAA044	Piaçido Domingo Audio Collectors Edition 14 Tracks Featuring: UN DI FEUCE ETERA... BRINDISI, LIBRAMO, LIBRAMO, LUNGI DA LEI, LANIMA HO STANCA... CHE GELIDA MANINA SICILIANA, O LOLI and many more.	£2.99	£1.99
CD AA045 TAPE MCAA045	Jose Carreras Audio Collectors Edition 16 Tracks Featuring: CHE GELIDA MANINA MARCELLO FINALE/INTE DOUVOUNUE AL MONDO, ADDIO FIORITO ASI, RECONDITA ARMONIA, E LUCEVANTE STELLE and many more.	£2.99	£1.99
CD AA046 TAPE MCAA046	Ludiano Pavarotti Audio Collectors Edition 10 Tracks Featuring: NESSUN DORMA, CHE VOI MAMANTE, ADRI A FORSE IL CIELO CREDIASI MISERA, DUNQUE E' PRIMO, FINITA LA MIA LETIZIA IN FONDERE... and many more.	£2.99	£1.99
CD TRP001	The Pastoral The Royal Philharmonic Collection Featuring: Symphony No.6 in F Major, Opus 68	£3.99	Not Available on Cassette
CD TRP002	Bizet/Grieg The Royal Philharmonic Collection Featuring: Carmen Suite No. 1 and 2/Peter Gynt Suites No. 1 and 2	£3.99	Not Available on Cassette
CD TRP003	Rimsky-Korsakov The Royal Philharmonic Collection Featuring: Scheherazade - Symphonic Suite: Opus 35	£3.99	Not Available on Cassette
CD TRP004	Mozart The Royal Philharmonic Collection Featuring: Symphony No. 40 in G Minor, K550	£3.99	Not Available on Cassette
CD TRP005	Gerstwin/Ravel/Debussy The Royal Philharmonic Collection Featuring: An American in Paris/Bolero/Requiem a.l. Apres Midi D un Faune and many more.	£3.99	Not Available on Cassette
CD TRP006	Tchikovsky The Royal Philharmonic Collection Featuring: The Nutcracker Suite, Swan Lake Suite	£3.99	Not Available on Cassette
CD TRP007	Holst The Royal Philharmonic Collection Featuring: The Planets Suite, Opus 32, St Paul's Suite for String Orchestra, Opus 29 No. 2	£3.99	Not Available on Cassette

TAPE TTMC079 (TW/IN)	Great TV Themes (Vol One) 30 Tracks Featuring: MIAMI VICE, CHEERS, HAPPY DAYS, QUINCY, CHARLIE'S ANGELS, CROSSROADS, THE LITTLE HOUSE ON THE PRAIRIE, OWEN M.D. NIGHT COURT, THE MUPPET SHOW, and many more.	Not Available on CD	\$2.99
TAPE TTMC080 (TW/IN)	Great TV Themes (Vol Two) Over 30 Tracks Featuring: L.A. LAW, DYNASTY, ALL CREATURES GREAT AND SMALL, EXTENDERS, EMMERDALE FARM, STAGSY AND HUTCH, EYE LEVEL (FROM VAN DER VALK) and many more.	Not Available on CD	\$2.99
TAPE TTMC083 (TW/IN)	Great Space Themes Over 30 Tracks Featuring: THEME FROM ET, LUKE AND LEIA (FROM STAR WARS), 31 CLOSE ENCOUNTERS OF THE THIRD KIND, FLASH, ALSO SPRACH ZARATHUSTRA, THE EMPIRE STRIKES BACK, THEME FROM BATTLESTAR GALACTICA, and many more.	Not Available on CD	\$2.99
CD TFP024 (FOUR PACK)	Great Film Themes (Vol One) 100 Tracks Featuring: Disc One: THE SILENCE OF THE LAMBS, Disc Two: TERMINATOR II: THE BATTLE BOY, Disc Three: BEAUTY AND THE BEAST, Disc Four: DANCES WITH WOLVES and many more.	\$12.99	Not Available on Cassette
CD TFP029 (FOUR PACK)	Great T.V. Themes Over 40 Tracks Featuring: Disc One: MIAMI VICE, Disc Two: DALLAS, Disc Three: L.A. LAW, Disc Four: HILL STREET BLUES and many more.	\$12.99	Not Available on Cassette
CD TFP030 (FOUR PACK)	The Music Of Andrew Lloyd Webber Over 40 Tracks Featuring: Disc One: ANY DREAM WILL DO, Disc Two: AMIGOS PARA SIEMPRE (FRIENDS FOR LIFE), Disc Three: PHANTOM OF THE OPERA, Disc Four: THE MUSIC CHANGES EVERYTHING and many more.	\$12.99	Not Available on Cassette



Order Code	Artist(s) & Title(s)	Price (CD)	Price (Tape)
CD WLD001 TAPE MCWLD001	The Music Of France 20 Tracks Featuring: MILORD, I LOVE PARIS, MADEMOISELLE PARIS, REINE DE MUSETTE, LA MER, PETITE FLEUR, PAUVRE JEAN, PARLEZ-MOI D'AMOUR, MOULIN ROUGE and many more.	\$2.99	\$1.99
CD WLD002 TAPE MCWLD002	The Music Of Latin America 18 Tracks Featuring: COPACABANA, FERNANDO, QUIEREME MUCHO, EL LUTE, AY NO DIGS, SAMBA PA TI, UNA PALOMA, BLANCA, VALENCIA, BRAZIL, QUANDO QUANDO OLIVANDO, ARGENTINA and many more.	\$2.99	\$1.99
CD WLD003 TAPE MCWLD003	The Music Of Germany Over 30 Tracks Featuring: ROSAMUNDE (BEER BARREL POLKA), HEIDI, SCHNEEWALZER (SNOW WALTZ), VOLKSMUSK, MEDLEY: WERN GOTT WILL RECHTE GUNST ERWEISEN, HORSCH WAS KOMMT and many more.	\$2.99	\$1.99
CD WLD004 TAPE MCWLD004	The Music Of Greece 20 Tracks Featuring: ZORBA'S DANCE, ONIRO DEMENO, DOXA TO THEO, O KIAMOS, APOKI ZOI, TO PALIKARI KAIMO, VRAHO VRAHO, STO PERIGALITO KRIFO, DEKA PALLIKARIA and many more.	\$2.99	\$1.99
CD WLD005 TAPE MCWLD005	The Music Of Hawaii 20 Tracks Featuring: BLUE HAWAII, WINI WINI, HULA LADY, BORA BORA, PARADEISE ISLAND, MOANA RANG, HAWAIIAN WEDDING SONG, LOVELY HULA HANDS, KONTIKI, FAREWELL HAWAII, HARBOR NIGHTS and many more.	\$2.99	\$1.99
CD WLD006 TAPE MCWLD006	The Music Of Japan 22 Tracks Featuring: AUTUMN SORROW, MOON OVER TOKYO, ROKUDAN, NII ZI A, TANKO BUSHI, SORAN - BUSHI, TOHEGANSE/MAGOME ANTA GATA, DOKO SA HANA-ICHIMOMME, SAKURA and many more.	\$2.99	\$1.99
CD WLD007 TAPE MCWLD007	The Music Of Brazil 20 Tracks Featuring: MDVA MDVA, IAVA, AMOR, VEM PRA MIM, RASTA RASTAFARI, ESCUDO NEGRO, A MALUCCO DO MANGUE, MEDLEY: ISSO E BOM, VEM VER, DANCANDO and many more.	\$2.99	\$1.99
CD WLD008 TAPE MCWLD008	The Music Of Spain 18 Tracks Featuring: ESPANA CANI, MARIA ISABEL, QUIEREME MUCHO, BORRIQUITO, GUAJIRA (CAN DE AZUCAR), CIELITO LINDO, LA BAMBOLA, AGAPINAW, DE CIERTO NO SE SABE and many more.	\$2.99	\$1.99
CD WLD009 TAPE MCWLD009	The Music Of Italy 21 Tracks Featuring: L'ITALIANO, PARIAMI D'AMORE, MARILU, GLORIA, UNA LACRIMA SUL VISO, TU SEI L'UNICA DONNA PER ME, SHARAZAN, SARA PERCHETTI ANI, PER ELISA and many more.	\$2.99	\$1.99
CD WLD010 TAPE MCWLD010	The Music Of The South Pacific 24 Tracks Featuring: BLUE HAWAII, HAWAIIAN WEDDING SONG, LOVELY HULA HANDS, PEARLY SHELLS, ALOHA OE, KAMANA HILA, HAWAIIAN TATTOO and many more.	\$2.99	\$1.99
CD WLD011 TAPE MCWLD011	The Music Of Ireland 20 Tracks Featuring: IT'S A GREAT DAY FOR THE IRISH, A LITTLE BIT OF HEAVEN, WHEN IRISH EYES ARE SMILING, I'LL TAKE YOU HOME AGAIN KATHLEEN, IRISH WASH/WOMAN and many more.	\$2.99	\$1.99
CD WLD012 TAPE MCWLD012	The Music Of Bavaria 17 Tracks Featuring: GAUDEAMUS IGITUR - COWBELLS, THE HARRY LIME THEME, THE CLUCKO YODEL, EDELWEISS - BELLS, BEL VISO (PRETTY FACE), GOLDEN DAYS - STUDENT PRINCE, and many more.	\$2.99	\$1.99
CD WLD013 TAPE MCWLD013	The Music Of Mexico 19 Tracks Featuring: FELICIDAD, CORAZON ANGUSTIADO, THE SHADOW OF YOUR SMILE, MI GUAJIRAYMI CABALLO, SUENO DE AMANECER, A TASTE OF HONEY, THE WORK SONG and many more.	\$2.99	\$1.99
CD WLD014 TAPE MCWLD014	The Music Of The West Indies 16 Tracks Featuring: RIVERS OF BABYLON, SUN OF JAMAICA, NO WOMEN NO CRY, BROWN GIRL IN THE RING, GUANTANAMERA, BARBADOS, KINGSTON KINGSTON and many more.	\$2.99	\$1.99
CD WLD015 TAPE MCWLD015	The Music Of Russia 26 Tracks Featuring: MOSCOW BY NIGHT, CASATSKHOK, BLACK EYES, TWO GUITARS, LAGLENKA, THE LITTLE BELL, KALINKA, THE RED SARAPHAN, THE MOONLIGHT IS BRIGHT, THE PATH TO MY LOVER and many more.	\$2.99	\$1.99
CD WLD016 TAPE MCWLD016	The Music Of China 19 Tracks Featuring: THROUGH THE YEARS, WELCOME MY FRIEND, BEAUTIFUL MORNING, ROSE OF CHINA, SONG FOR THE DANCERS, THIS PLACE IS MY HOME, OLD TIME MEMORIES and many more.	\$2.99	\$1.99
TAPE TTMC032 (TW/IN)	The Latin Sound 28 Tracks Featuring: GUANTANAMERA, ADELITA, SIN CAJA Y TAMBOR, MULHER RENDIEIRA, VIVA JULY, ROSAJURA, LINDAURA, LOLA, RIO MANISO, MI CAJETAL, MECIENDO and many more.	Not Available on CD	\$2.99

CD	GRF098	GRF099	GRF164	GRF181	GRF182	GRF199	GRF215	GRF242	GRF244	GRF245	GRF250	GRF259	JHD014	JHD035	JHD044	JHD049	JHD051	JHD057	JHD064	JHD113	JHD114	JHD115	A4002	A4004	A4007
Noel Coward A Room With A View 18 Tracks Featuring: STATLY HOMES OF ENGLAND, MAD DOGS AND ENGLISHMEN, MRS WORTHINGTON, A ROOM WITH A VIEW, LOVER OF MY DREAMS and many more.	Gracie Fields Saily 18 Tracks Featuring: SALLY, SINGIN' IN THE BATHTUB, PASS, SHOOT, GOAL, BRING DOWN THE CURTAIN FALL IN AND FOLLOW THE BAND, THE DICKY BIRD HOP and many more.	Brook Benton Endlessly 20 Tracks Featuring: A LOVERS QUESTION, LET ME IN YOUR WORLD, YOU'VE NEVER BEEN THIS FAR, I LOVE HER, I LOVE HER, LORD YOU KNOW HOW MEN ARE, TILL I CAN TAKE IT ANY MORE THESE ARMS YOU PUSHED AWAY and many more.	Connie Francis Among My Souvenirs 20 Tracks Featuring: ROCK-A-BYE BABY WITH DIXIE MELODY, THERE WILL NEVER BE ANOTHER YOU, THE SONG HAS END, TIME AFTER TIME, HOW DID HE LOOK, HOLD ME, THRILL ME, KISS ME and many more.	Glen Campbell Greatest Hits Live 20 Tracks Featuring: RHINESTONE COMBOY, GENTLE ON MY MIND, MEDLEY: WICHITA LINEMAN GALVESTON COUNTY BOY, BY THE TIME I GET TO PHOENIX, DREAMS OF AN EVERYDAY HOUSEWIFE and many more.	Jim Reeves Your Old Love Letter 20 Tracks Featuring: HAVE I TOLD YOU LATELY THAT I LOVE YOU, JUST CALL ME LONESOME, HOWS THE WORLD TREATING YOU, IF HEARTACHES ARE IN FASHION, HOME and many more.	The Platters Greatest Hits 20 Tracks Featuring: THE GREAT PRETENDER, SMOKE GETS IN YOUR EYES, THE MAGIC TOUCH, ONLY YOU, TWILIGHT TIME, THE WONDER OF YOU, I GET THE SWEETEST FEELING, I'M SORRY and many more.	Tommy Steel Over 30 Tracks Featuring: MEDLEY I YOU MADE ME LOVE YOU/UNDER THE KELLYS DOORSTEP/APPLE BLOSSOM TIME/A SHANTY IN OLD SHANTY TOWN/UNDERNEATH THE ARCHES and many more.	Billy Vaughn Moonlight and Roses 20 Tracks Featuring: MOONLIGHT & ROSES, SAIL ALONG THE SILVER MOON, WHEELS, LONESOME OLD TOWN, O SOLE MIO, PEARLY SHELLS, SANTA LUCIA, COME PRIMA, BUONA SERA and many more.	Time Yuro Tenderly 16 Tracks Featuring: WHAT A DIFFERENCE A DAY MADE, I LOVE HOW YOU LOVE ME, SOMEWHERE OVER THE RAINBOW, INTO EACH LIFE SOME RAIN MUST FALL, YOU ALWAYS HURT THE ONE YOU LOVE and many more.	Cocktail Favourites 20 Tracks Featuring: UP UP AND AWAY, BY THE TIME I GET TO PHOENIX, RANDRORPS KEEP FALLING ON MY HEAD, YESTERDAY, FLY ME TO THE MOON, SOFTLY AS I LEAVE YOU, GOIN' OUT OF MY HEAD and many more.	Jim Reeves Peace In The Valley 20 Tracks Featuring: FOUR WALLS, MEXICAN JOE, ANINA MARIE, BLUE BOY, SOFTLY & TENDERLY, HELL HAVE A GO, BIMBO, ID LIKE TO BE, PEACE IN THE VALLEY, BILLY BAYOU and many more.	The Best of Howard Keel 26 Tracks Featuring: SOME ENCHANTED EVENING, THIS NEARLY WAS MINE, YOU NEED ME, LOVE STORY, IF EVER I WOULD LEAVE YOU, I WON'T SEND ROSES, COME IN FROM THE RAIN, AND many more.	Val Dooligan Walk Tall 13 Tracks Featuring: WALK TALL, THE SPECIAL YEARS, WHAT WOULD I BE, ELUSIVE BUTTERFLY, IF THE WORLD STOPPED LOVING, O'RAFFERTY'S MOTOR CAR, MORNING, IF I KNEW WHAT I KNOW NOW and many more.	Shirley Bassey Still 13 Tracks Featuring: HOW DO YOU KEEP THE MUSIC PLAYING, HE WAS BEAUTIFUL, THE POWER OF LOVE, STILL, ALL I ASK OF YOU, I WANT TO KNOW WHAT LOVE IS, THE WIND, BENEATH MY WINGS and many more.	The Bachelors Greatest Hits 13 Tracks Featuring: CHARMINE, MAGGIE, I BELIEVE, DIANE, THE UNICORN, STAY, NO ARMS CAN EVER HOLD YOU, WHISPERING MARIA, WARIE, RAMONA, I WOULDNT TRADE YOU FOR THE WORLD and many more.	Chris Andrews Yesterday Man and Other Hits 14 Tracks Featuring: YESTERDAY MAN, WATCHA GONNA DO NOW?, TO WHOM IT CONCERNS, STOP THAT GIRL, SOMETHING ON MY MIND, BROWN EYES, IT'S ALL UP TO YOU NOW and many more.	Shirley Bassey I Am What I Am 16 Tracks Featuring: BIG SPENDER, GOLDFINGER, KISS ME HONEY, HONEY KISS ME, WHAT NOW MY LOVE, SOMETHING, AS LONG AS HE NEEDS ME, AS I LOVE YOU and many more.	Ray Harper Legend 12 Tracks Featuring: CHINA GIRL, GOLDFISH, SOPHISTICATED BEGGAR, MY FRIEND, BIG FAT SILVER, AEROPLANE, BLACKPOOL, LEGEND, GIRLIE, OCTOBER, TWELFTH, BLACK CLOUDS, and many more.	Patsy Cline Golden Memories 20 Tracks Featuring: I DON'T WANNA LET THE TEARDROPS FALL, I'VE LOVED AND LOST AGAIN, FINGERTIPS, I CAN'T FORGET, JUST OUT OF REACH [OF MY TWO ARMS], HUNGRY FOR LOVE and many more.	Marti Webb Love Of My Life 12 Tracks Featuring: FANTASY, IF YOU LEAVE ME NOW, LIFE ON MARS, IT HAD TO BE YOU, WIND BENEATH MY WINGS, READY FOR ROSES NOW, BEN, LIFE ON MY LIFE and many more.	Shirley Bassey Sings Bond 12 Tracks Featuring: VIEW TO A KILL, NOBODY DOES IT BETTER, FROM RUSSIA WITH LOVE, WE HAVE THE TIME IN THE WORLD, YOU ONLY LIVE TWICE, DIAMONDS ARE FOREVER and many more.	Nat King Cole Audio Archive Collectors Edition 19 Tracks Featuring: YOU'RE THE CREAM IN MY COFFEE, BUGLE CALL RAG, SWEET GEORGIA BROWN, TOO MARVELOUS FOR WORDS, SWEET LOBBANNE and many more.	AJ Jolson Audio Archive Collectors Edition 20 Tracks Featuring: MY MAMMY, THERE'S A RAINBOW AROUND MY SHOULDER, MA BLUSHIN' ROSIE, I'M SITTING ON TOP OF THE WORLD and many more.	The Platters Audio Archive Collectors Edition 20 Tracks Featuring: THE GREAT PRETENDER, SMOKE GETS IN YOUR EYES, THE MAGIC TOUCH, ONLY YOU, TWILIGHT TIME, THE WONDER OF YOU and many more.	

CD PAT301	Praise by The London Philharmonic Choir 18 Tracks Featuring: POWR AND CIRCUMSTANCE, ZODOK, THE PRIEST, THE BRID, CHORUS, LONDONDRERY AIR, THE HOLY CITY, ALL PEOPLE THAT ON EARTH DO DWELL and many more.	\$2.99	\$1.99
TAPE MCGAT301	The Very Best Of Al Jolson 33 Tracks Featuring: THERE'S A RAINBOW, ROUND MY SHOULDER, LET ME SING AND IM HAPPY, CORKIDA IN THE MORNING, GIVE MY REGARDS TO BROADWAY, IS IT TRUE WHAT THEY SAY ABOUT DIXIE and many more.	Not Available on CD	\$2.99
TAPE TTMCG091	Songs From The Valleys Over 30 Tracks Featuring: THE FEROCY MALE CHOR, ABBRYSTWYTH IESTS, LOVER OF OF MY SOUL, LET WE FORGET, ENTRANCE AND THE MARCH OF THE PEERS, THE SOUND OF SILENCE and many more.	Not Available on CD	\$2.99
TAPE TTMCG092	The Songs From The Valleys The Morriston Orpheus Choir Over 30 Tracks Featuring: DIES IRE JOSEPH PARRY, LET ME BE THE AVAL, CHORUS MISERE FROM 'IL TRAVAILORE, RISE UP SHERHERD AND FOLLE and many more.	Not Available on CD	\$2.99
TAPE TTMCG100	Love Classics 50 Tracks Featuring: IT'S IN HIS KISS Betty Everett, WARM AND TENDER LOVE Percy Sledge, AINT NO SUNSHINE A Jareau, THE BEST THING THAT EVER HAPPENED TO ME Gladys Knight and many more.	Not Available on CD	\$2.99
TAPE TTMCG110	Shirley Bassey 24 Tracks Featuring: AS LONG AS HE NEEDS ME, GOLDFINGER, HE WAS BEAUTIFUL, I AM WHAT I AM, ALL I ASK OF YOU, THE POWER OF LOVE, BIG SPENDER, SOMETHING, STILL YESTERDAY and many more.	Not Available on CD	\$2.99
TAPE TTMCG111	Jim Reeves 24 Tracks Featuring: SORTLY AND TENDERLY BIMBO, JUST CALL ME LONESOME AM I LOSING YOU, I LOVE YOU MORE, BILLY BAOU, ACCORDING TO MY HEART, MAKING BELIEVE, THE WIND UP and many more.	Not Available on CD	\$2.99

JAZZ/BLUES/SWING/BIG BAND



Order Code	Artist(s) & Title(s)	Price (CD)	Price (Tape)
CD GRF010	The Jazz Selection (Vol One) 25 Tracks Featuring: TAINT WHAT YOU DO Ella Fitzgerald, WHEN MY DREAMBOAT COMES IN Jimmy Witherspoon, WHAT A DIFFERENCE A DAY MAKES Dinah Washington and many more.	\$2.99	\$1.99
CD GRF011	The Jazz Selection (Vol Two) 20 Tracks Featuring: TIGER RAG Fletcher Henderson - MY MAN! Billie Holiday - BOVING BOWING Jean Luc Ponty - GAZELOUGI Charlie Parker and many more.	\$2.99	\$1.99
CD GRF012	The Big Band Sound (Vol One) 20 Tracks Featuring: JEEPS, GREEPERS, Louis Armstrong - DOES YOUR HEART BEAT FOR ME Russ Morgan - TIGER RAG Jimmy Dorsey and many more.	\$2.99	\$1.99
CD GRF013	The Big Band Sound (Vol Two) 23 Tracks Featuring: POKAPRON TURNKITE Charlie Barnet - WHAT IS THIS THING CALLED LOVE Artie Shaw - AINT MISBEHAVIN' Duke Ellington and many more.	\$2.99	\$1.99
CD GRF014	Fats Domino Blueberry Hill 23 Tracks Featuring: BLUEBERRY HILL, IM READY, AINT THAT A SHAME, SO LONG, MEDLEY WITH C. C. RIDER, HELLO JOSEPHINE, BLUE MONDAY and many more.	\$2.99	\$1.99
CD GRF022	Nina Simone Do Nothin', Till You Hear From Me 17 Tracks Featuring: JUST IN TIME, HOUSE OF THE RISING SUN, IT DONT MEAN A THING, I LOVES YOU POKKY, GIN HOUSE BLUES, ASSIGNMENT SONG, SOLITUDE and many more.	\$2.99	\$1.99
CD GRF023	John Lee Hooker Boom Boom 26 Tracks Featuring: TURELO, BOOGIE CHILLUM, DIMPLES, DRUGS STORE WOMAN, BOOM BOOM, FISCO BLUES, NO SHOE, IM IN THE MOOD, HOBBO BLUES, BABY LEE, TROUBLE BLUES and many more.	\$2.99	\$1.99
CD GRF024	Del Shannon All The Hits and More! 31 Tracks Featuring: RUNAWAY, HATS OFF TO LARRY, HEY LITTLE GIRL, SO LONG BABY, I WONT BE THERE, GET MYSELF TO SLEEP, LITTLE TOWN FLIRT, TWO KINDS OF TEARDROPS, TWO SILHOUETTES, KEEP SEARCHIN', and many more.	\$2.99	\$1.99
CD GRF025	Muddy Waters 22 Tracks Featuring: THE STUFF YOU GOTTA WATCH, IODINE IN MY COFFEE, CLOSE TO YOU, YOURRE GONNA MISS ME, MIFAN, RED SPIDER, DIAMONDS AT YOUR FEET, YOURRE GONNA NEED MY HELP and many more.	\$2.99	\$1.99
CD GRF035	Carl Perkins Matchbox 23 Tracks Featuring: BORN TO BOOGIE, DADDY SANG BASS, REDNECK STANDING IN THE NEED OF LOVE, WE DID IT IN '54, DISCREET IN BLUE SLUDE SHOES, I CAN FEEL IT, WHAT AM I LIVING FOR, DONT GET OFF GETTING ON and many more.	\$2.99	\$1.99
CD GRF036	Louis Armstrong Get Si Bon, 20 Tracks Featuring: WAVE, WHEN THE SAINTS GO MARCHING IN, AINT MISBEHAVIN', CABARET, A KISS TO BUILD A DREAM ON, PLEASE DONT TALK ABOUT ME WHEN IM GONE, BLUEBERRY HILL, HELLO DOOLLY, ST. LOUIS BLUES, THATS MY DESIRE, and many more.	\$2.99	\$1.99
CD GRF039	Duke Ellington Ring Dem Bells 20 Tracks Featuring: THE MOOCHE, RING DEM BELLS, FUSTATION, COLORATURA, ROSE OF THE RIO GRANDE, LOVE YOU MADLY, HARLEM, CARAVAN and many more.	\$2.99	\$1.99
CD GRF059	Memphis Slim 400 Blues 22 Tracks Featuring: 400 BLUES, TROUBLE IN MIND, WORRIED LIFE BLUES, COW COW BLUES, LONESOME IN MY BEDROOM, DIGGIN' MY POTATOES, IN THE EVENING, WHEN THE SUN GOES DOWN, BLUE AND DISGUSTED and many more.	\$2.99	Not Available on Cassette
CD GRF060	Lightnin' Hopkins Lonesome Dog Blues 16 Tracks Featuring: LONESOME DOG BLUES, GLORY BE, SOMETIMES SHE WILL SHINE ON THE MOON, SANITA, HAVE YOU EVER LOVED A WOMAN and many more.	\$2.99	Not Available on Cassette
CD GRF062	Lena Horne Stormy Weather 23 Tracks Featuring: STORMY WEATHER, GOOD FOR NOTHING JOE, DIGA DIGA DO, I CANT GIVE YOU ANYTHING (BUT LOVE), WAD ABOUT THE BOY, AS LONG AS I LIVE and many more.	\$2.99	\$1.99
CD GRF063	Charlie Parker Charlie The Bird 23 Tracks Featuring: HOW HIGH THE MOON, MOOSE THE MOOCH, BE BOP A LULA, YAMBRID SUITE, CAZEZOOLOGY, SLOW BOAT TO CHINA, RIFF RAFF, SCRAPLE FROM THE APPLE and many more.	\$2.99	\$1.99

MUSICALS/T.V./FILM SOUNDTRACKS



Order Code	Artist(s) & Title(s)	Price (CD)	Price (Tape)
CD GRF041	Once Upon a Time in the West 19 Tracks Featuring: BONAWAZA, ONCE UPON A TIME IN THE WEST, THE GOOD THE BAD & THE UGLY, THE MAGNIFICENT SEVEN, THE GREEN LEAVES OF SUMMER, HIGH NOON, A FIST FULL OF DOLLARS and many more.	\$2.99	\$1.99
CD GRF110	James Bond Themes Instrumental 20 Tracks Featuring: JAMES BOND THEME, LICENCE TO KILL, THE LIVING DAYLIGHTS, NEVER SAY NEVER AGAIN, THE MAN WITH THE GOLDEN GUN, A VIEW TO A KILL and many more.	\$2.99	\$1.99
CD GRF111	South Pacific Rogers and Hammerstein - The London Theatre Orchestra & Singers 15 Tracks Featuring: OVERTURE, SOME ENCHANTED EVENING, YOUNGER THAN SPRINGTIME, CAREFULLY TALGH, THIS NEARLY WAS MINE, HAPPY TALK and many more.	\$2.99	\$1.99
CD GRF112	My Fair Lady Lerner & Loewe - The London Theatre Orchestra & Singers 12 Tracks Featuring: OVER THE RAINBOW, YOU DID IT, I COULD HAVE DANCED ALL NIGHT, WOULDNT IT BE LOVELY, WITH A LITTLE BIT OF LOCK WHI CANT IT BE ENGLISH, THE RAIN IN SPAIN and many more.	\$2.99	\$1.99
CD GRF113	West Side Story Original London Cast 11 Tracks Featuring: AMERICA (OVERTURE), SOMETHINGS COMING, MARIA, TONIGHT, COOL, ONE HAND ONE HEART, THE RUMBLE, I FEEL PRETTY, SOMEWHERE, A BOY LIKE THAT, FINALE.	\$2.99	\$1.99
CD GRF114	The Sound of Music Rogers and Hammerstein - The London Theatre Orchestra 14 Tracks Featuring: OVERTURE, THE SOUND OF MUSIC, MARK, DO RE MI, SIXTEEN GOING ON SEVENTEEN, THE LONELY GOATHEAD, HOW CAN I LOVE SURVIVE, SO LONG and many more.	\$2.99	\$1.99
CD GRF140	The Music of Andrew Lloyd Webber 18 Tracks Featuring: THE MURDER OF THE NIGHT Phantom Of The Opera - TAKE THAT LOOK OF YOUR FACE Song And Dance - ANOTHER SUICASE ANOTHER TALL Eddy - I DONT KNOW HOW TO LOVE HIM, Jesus Christ Superstar and many more.	\$2.99	\$1.99
CD GRF147	Space Themes 17 Tracks Featuring: THRAT, FROM E.T., STAR WARS THEME, CLOSE ENCOUNTERS OF THE THIRD KIND ALSO SPACCH ZAANHUSTRA (from 2001) A SPACE ODYSSEY STAR TREK (Main Theme), THEME FROM BATTLESTAR GALACTICA and many more.	\$2.99	\$1.99
CD GRF156	The Music of The Movies The Love Songs 30 Tracks Featuring: TAKE MY BREATH AWAY (from Top Gun), HE AINT HEAVY, HES MY BROTHER (from Rambo 3), THE GLORY OF LOVE (from KARATI KID 2), and many more.	\$2.99	\$1.99
CD GRF192	Hollywoods Greatest Hits 24 Tracks Featuring: THE SILENCE OF THE LAMBS, GHOST, TERMINATOR II, BUGSY, DEAD AGAIN, THE ADAMS FAMILY, NEW JACK CITY, BACK TO THE FUTURE III, ROCKY V, STAR WARS and many more.	\$2.99	\$1.99
CD GRF197	Let's Miscellaneous 17 Tracks Featuring: AT THE END OF THE DAY, I DREAMED A DREAM, WHO AM I, THE TRAIL, FANTINES DEATH, THE CONFRONTATION, MASTER OF THE HOUSE, STARS, THE ABC CAFE, RED AND BLACK and many more.	\$2.99	\$1.99
CD GRF198	Televisions Greatest Hits 23 Tracks Featuring: MAMI VICE, LA LAW, M.A.S.H., CHEERS, FAVE, DIVANITY, HAPPY DAYS, DALLAS, STAR TREK QUINCY, THE ROCKFORD FILES, MAGNUM, MOONLIGHTING, RELIY ACE OF SPES and many more.	\$2.99	\$1.99
CD GRF224	Mist Salignon The Highlights 22 Tracks Featuring: SALIGNON, APRIL 1975, THE HEAT IS ON IN SWAGON, THE MOVIE IN MY MIND, WHY GOD WHY?, SUN AND MOON, THE LAST NIGHT OF THE WORLD, HO CHI MINH CITY and many more.	\$2.99	\$1.99
CD GRF231	Rocky Horror Show 18 Tracks Featuring: SCIENCE FICTION - DOUBLE FEATURE, DAMN IT, JANET, OVER AT THE FAUNKENSTEIN PLACE, TIME WARP, SWEET TRANSVESTITE, I CAN MAKE YOU A MAN and many more.	\$2.99	\$1.99
CD GRF241	Music of The Movies The Love Songs (Vol Two) 18 Tracks Featuring: WILL ALWAYS LOVE YOU (from The Bodyguard), EVERYTHING I DO I DO FOR YOU (from Robin Hood - Prince of Thieves), THIS USED TO BE MY PLAYGROUND (from A League of Their Own) and many more.	\$2.99	\$1.99
CD GRF232	Blues Brothers 15 Tracks Featuring: SHE CAUGHT THE KATY, PETER GUNN THEME, GIMME SOME LOVIN', SHAKE YOUR TAIL FEATHER, EVERYBODY NEEDS SOMEBODY TO LOVE, THE OLD LANDMARK, THINK THEM from RAWHIDE, and many more.	\$2.99	\$1.99
CD GRF264	Crazy For You Gerswin Musical 16 Tracks Featuring: I CANT BE BOTHERED, BIRD, MY TIME, THINGS ARE LOOKING UP, SOMEONE TO WATCH OVER ME, COULD YOU USE ME?, SVAE THAT BASS, EMBRACABLE YOU and many more.	\$2.99	\$1.99
CD GRF265	The Little Shop of Horrors Musical 18 Tracks Featuring: PROLOGUE (LITTLE SHOP OF HORRORS), SMD ROW, DOWN/TOWN, DADDIO GROW, FOR ME, YA NEVER KNOW, MUSHNIK & SON, DENTIST, SOMEWHERE THATS GREEN and many more.	\$2.99	\$1.99
CD GRF266	Joseph And The Amazing Technicolor Dreamcoat Musical 20 Tracks Featuring: PROLOGUE: ANY DREAM WILL DO, JACOB AND SONS, JOSEPHS COAT, JOSEPHS DREAMS, POOR, POOR JOSEPH, ONE MORE ANGEL IN HEAVEN and many more.	\$2.99	\$1.99
CD JHD115	Shirley Bassey Sings Bond 12 Tracks Featuring: VIEW TO A KILL, NOBODY DOES IT BETTER FROM RUSSIA WITH LOVE, WE HAVE THE TIME IN THE WORLD, YOU ONLY LIVE TWICE, DIAMONDS ARE FOREVER and many more.	\$2.99	\$1.99
CD MCHD115	The Hits From The Shows Over 40 Tracks Featuring: MARIA (FROM WEST SIDE STORY), THE SOUND OF MUSIC (FROM THE SOUND OF MUSIC), THE RAIN IN SPAIN (FROM MY FAIR LADY), TONIGHT (FROM WEST SIDE STORY) and many more.	\$2.99	Not Available on CD
TAPE TTMCG033	The Hits From The Shows Over 40 Tracks Featuring: MARIA (FROM WEST SIDE STORY), THE SOUND OF MUSIC (FROM THE SOUND OF MUSIC), THE RAIN IN SPAIN (FROM MY FAIR LADY), TONIGHT (FROM WEST SIDE STORY) and many more.	Not Available on CD	\$2.99
TAPE TTMCG051	HITS OF THE MOVIES 24 Tracks Featuring: UNCHAINED MELODY (from Ghost), THE WIND BENEATH MY WINGS (from Beethoven), GROOVY KIND OF LOVE (from Buster), LET THE RIVER RUN (from Working Girl), IT MUST OF BEEN LOVE (from Pretty Women) and many more.	Not Available on CD	\$2.99
TAPE TTMCG058	Gilbert & Sullivan Spectacular The Mikado & Pirates Of Penzance Over 30 Tracks Featuring: INTRODUCTION & OPENING CHORUS/A WALKERING MINSTREL, OUR GRAVE MIKADO, BEHOLD: THE LORD HIGH EXECUTIONER, IVE GOT A LITTLE LIST and many more.	Not Available on CD	\$2.99

TAPE TTMC063 (T/W/I/N)	Aloha The Music of Hawaii 25 Tracks Featuring: HONOLULU DANCE, ALOHA DE SARINA HILO MARCH, BEAUTIFUL ISLE, TERING BULAK, ALOER ADOER, HUKIUAU SONGS, MAMA PUA IKA LANI, MILANA WAHINI and many more.	Not Available on CD	\$2.99
TAPE TTMC064 (T/W/I/N)	Sensational Synthesizer Over 30 Tracks Featuring: CHI MAL, OXYGENE, CAMILLA, CROCKETT'S THEME, ONYX, ZOOLOGOLOGIE, MADAME CURIE, THEME FROM ANTARTICA, EQUINOX PART 5, THEME FROM RAINMAN and many more.	Not Available on CD	\$2.99
TAPE TTMC075 (T/W/I/N)	Mantovani At His Very Best 30 Tracks Featuring: THREE COINS IN THE FOUNTAIN, THE SOUND OF MUSIC, THE IMPOSSIBLE DREAM, DEEP PURPLE, MORE, WHAT ARE YOU DOING THE REST OF YOUR LIFE and many more.	Not Available on CD	\$2.99
TAPE TTMC082 (T/W/I/N)	Synthesizer Spectacular 30 Tracks Featuring: BANG BANG, BLACK IS BLACK, DON'T CRY FOR ME ARGENTINA, FOR A FEW DOLLARS MORE, GIMME GIMME GIMME, THE HAPPY SONG, HOLD ME CLOSE, HONEY HONEY, THE HUSTLE, MIDNIGHT MOOD and many more.	Not Available on CD	\$2.99
TAPE TTMC084 (T/W/I/N)	Dream Melodies [Vol One] by The Sergio di Angelo Orchestra Over 30 Tracks Featuring: UNCHAINED MELODY, I JUST CALLED TO SAY I LOVE YOU, THAT OLD DEVIL CALLED LOVE, STAND BY ME, YOU DECORATED MY LIFE, PENNY LOVER and many more.	Not Available on CD	\$2.99
TAPE TTMC085 (T/W/I/N)	The Music Of James Last by The London Pops Orchestra Over 30 Tracks Featuring: CRACKLING ROSIE, LA BAMBABA, CAN'T TAKE MY EYES OFF YOU, MONTEGO BAY, CHITTY CHITTY BANG BANG and many more.	Not Available on CD	\$2.99
TAPE TTMC087 (T/W/I/N)	Dream Melodies [Vol Two] by The Sergio di Angelo Orchestra Over 30 Tracks Featuring: DO YOU KNOW THE WAY TO SAN JOSE?, A COMME AMOUR, THE WORLD WE KNEW, MONA LISA, WHEELS, A LITTLE BIT MORE and many more.	Not Available on CD	\$2.99
TAPE TTMC097 (T/W/I/N)	Instrumental Evergreens London Symphony Orchestra 30 Tracks Featuring: MAGIC, JUST WHEN I NEEDED YOU MOST, MY SIMPLE HEART, SHE'S GONE, EBONY AND IVORY, FIFTY WAYS TO LEAVE YOUR LOVER, WHEN I NEEDED YOU and many more.	Not Available on CD	\$2.99
TAPE TTMC098 (T/W/I/N)	Quiet Moments The Intimate Orchestra 30 Tracks Featuring: WITH YOU I'M BORN AGAIN, CRYING, SUDDENLY, ONE DAY I'LL FLY AWAY, FIRST TIME I EVER SAW YOUR FACE, SAULING, CH MAL, BRIGHT EYES, JUST WHEN I NEEDED YOU MOST and many more.	Not Available on CD	\$2.99
TAPE TTMC099 (T/W/I/N)	Romantic Flute 24 Tracks Featuring: ANNIES SONG, CALVIPO, MULL OF KINTYRE, SAILING, BRIGHT EYES, I HAVE A DREAM, AULD LANG SYNE, MOON RIVER, YOUR SONG, THANK YOU FOR THE MUSIC and many more.	Not Available on CD	\$2.99
TAPE TTMC101 (T/W/I/N)	Switched On Classics [Vol One] The Neon Philharmonic Orchestra 50 Tracks Featuring: MOZART Rondo Alla Turca Sonata in A minor, KV 311, DVORAK Gypsy Melody Opus 55, No.4 BEETHOVEN: The Anger Over The Lost Pennies and many more.	Not Available on CD	\$2.99
TAPE TTMC105 (T/W/I/N)	Switched On Classics [Vol Two] The Neon Philharmonic Orchestra 30 Tracks Featuring: TCHAIKOVSKY: Capriccio Italien; Adagio from Swan Lake; Nutcracker Dance of the Reed Flutes; Romeo & Juliet; Symphony Patheque Nutcracker: Trebak/Dance of the Sugar Plum Fairy and many more.	Not Available on CD	\$2.99
TAPE TTMC107 (T/W/I/N)	The Rolis Royce Coventry Band 20 Tracks Featuring: NEW YORK, NEW YORK, MEMORY FROM CATS, BORN FREE, THE YOUNG AMADEUS, CARTEGE FROM MILADA, SUGAR BLUES, MEN OF HARLECH, I DON'T KNOW HOW TO LOVE HIM and many more.	Not Available on CD	\$2.99
TAPE TTMC108 (T/W/I/N)	The Great Songwriters [Vol One] Instrumental Classics Over 30 Tracks Featuring: CHEEK TO CHEEK living Berlin, IF AINT NECESSARIL SO George Gershwin, LETS FACE THE MUSIC AND DANCE, living Berlin, FROM THIS MOMENT ON Cole Porter and many more.	Not Available on CD	\$2.99
TAPE TTMC109 (T/W/I/N)	The Great Songwriters [Vol Two] Instrumental Classics Over 30 Tracks Featuring: BEGIN THE BEGUINE Cole Porter, EASTER PARADE living Berlin, TRUE LOVE Cole Porter, THE MAN I LOVE George Gershwin, IT'S A LOVELY DAY TODAY living Berlin and many more.	Not Available on CD	\$2.99
CD CTX001	The Beatles The Synthesizer Rock Orchestra 14 Tracks Featuring: LONG AND WINDING ROAD, ALL YOU NEED IS LOVE, HANK DAVIS NIGHT, HEY JUDE, LADY MADONNA LET IT BE, LOVE ME DO, PENNY LANE, STRAWBERRY FIELDS and many more.	Not Available on Cassette	\$2.99
CD CTX002	Abba The Synthesizer Rock Orchestra 12 Tracks Featuring: THE WINNER TAKES IT ALL, DANING QUEEN, SLIPPER TROUPEUR, THANK YOU FOR THE MUSIC, TAKE A CHANCE ON ME, SOS, WATERLOO and many more.	Not Available on Cassette	\$2.99
CD CTX003	Queen The Synthesizer Rock Orchestra 12 Tracks Featuring: BOHEMIAN RHAPSODY, RADIO GAGA, THE SHOW MUST GO ON, BEST FRIEND, ONE VISION, I WANT TO BREAK FREE, WE ARE THE CHAMPIONS, I WANT IT ALL, BREAK THROUGH and many more.	Not Available on Cassette	\$2.99
CD CTX004	Eiton John The Synthesizer Rock Orchestra 12 Tracks Featuring: DON'T LET THE SUN GO DOWN ON ME, CANDLE IN THE WIND, SOMEONE SAVED MY LIFE, ROCKET MAN, SUNG FOR GUY and many more.	Not Available on Cassette	\$2.99
CD CTX005	Stevie Wonder The Synthesizer Rock Orchestra 12 Tracks Featuring: FOR ONCE IN MY LIFE, I JUST CALLED TO SAY I LOVED YOU, MASTER BLASTER, MY CHERIE AMOUR, PART-TIME LOVER, SIR DUKE and many more.	Not Available on Cassette	\$2.99
CD CTX006	Cliff Richard The Synthesizer Rock Orchestra 12 Tracks Featuring: CARRIE, A LITTLE IN LOVE, WE DON'T TALK ANYMORE, WHEN TWO WORLDS DRIFT APART, MISS YOU NIGHTS, OCEAN DEEP, SOME PEOPLE and many more.	Not Available on Cassette	\$2.99
CD CTX007	Lionel Richie The Synthesizer Rock Orchestra 12 Tracks Featuring: TRULY, HELLO, SAY YOU, SAY ME, ALL NIGHT LONG, DANCING ON THE CEILING, LOVE ON LOVE, RUNNING WITH THE NIGHT, STUCK ON YOU and many more.	Not Available on Cassette	\$2.99
CD CTX008	Phil Collins The Synthesizer Rock Orchestra 12 Tracks Featuring: IF LEAVING ME IS EASY, A GROOVY KIND OF LOVE, YOU CAN'T HURRY LOVE, SEPARATE LIVES, ONE MORE NIGHT, AGAINST ALL ODDS and many more.	Not Available on Cassette	\$2.99

CD GRF064 TAPE MCGRF064	Ella Fitzgerald Basin Street Blues 19 Tracks Featuring: BASIN STREET BLUES, STARTUP HOUR, WE CAN'T GO ON ON THIS WAY, STAIRWAY TO THE STARS, LOVER COME BACK TO ME, A TICKET, A TICKET, SING SONG SWING and many more.	Not Available on Cassette	\$2.99
CD GRF065 TAPE MCGRF065	Dizzy Gillespie Blue 'n' Boogie 15 Tracks Featuring: BLUE 'N' BOOGIE, HOT HOUSE, GROOVIN' HIGH, DIZZY ATOMOSHERE, ALL THESE THINGS YOU ARE, THINGS TO LOVE, EMANON and many more.	Not Available on Cassette	\$2.99
CD GRF066	The Oak Ridge Boys Gospel County 28 Tracks Featuring: SOMEDAY, MY HEAVENLY FATHER, DAY OF REJOICING, LEAD ME TO CALVALRY, I KNOW MY SAVIOUR IS THERE, RIVER OF LIFE, I KNOW, WITHOUT GOD, THE OLD COUNTRY CHURCH and many more.	Not Available on Cassette	\$2.99
CD GRF067	Jimmy Dorsey Shine on Harvest Moon 18 Tracks Featuring: IVE GOT RHYTHM, GRAND CENTRAL, GET AWAY, SOWING WILD OAKS, JUST YOU JUST ME, SOPHISTICATED SWING, TOGETHER HIT THE NOTE I WOULD DO ANYTHING FOR YOU and many more.	Not Available on Cassette	\$2.99
CD GRF068	Tommy Dorsey Moonlight in Vermont 23 Tracks Featuring: MARIE YOU'RE MY EVERYTHING, SONG OF INDIA, LOVE FOR SALE, TAKING A CHANCE ON LOVE, THIS LOVE OF MINE, OPIUS RIVER, SWANEE RIVER and many more.	Not Available on Cassette	\$2.99
CD GRF069 TAPE MCGRF069	Woody Herman Woodchoppers Ball 24 Tracks Featuring: PILLAR TO POST, SWEET LORRAINE, BLUES ON PARADE, WOODCHOPPERS BALL, EARLY AUTUMN, STOPIN' AT THE SAVOY and many more.	Not Available on Cassette	\$2.99
CD GRF070 TAPE MCGRF070	Johnny Paycheck Greatest Hits 26 Tracks Featuring: TAKE THIS JOB AND SHOWE IT, SLIDE OFF YOUR SATIN SHEETS, SOMEBODY LOVES ME, MOTEL TIME AGAIN, IN MEMORY, MR LOVEMAKER, A-I-I, SHE'S ALL I GOT and many more.	Not Available on Cassette	\$2.99
CD GRF074 TAPE MCGRF074	Mickey Gilley That Heart Belongs To Me 29 Tracks Featuring: AINT TO BLAME, NIGHT AFTER NIGHT, SUSIE Q, I'LL MAKE IT ALL UP TO YOU, BREATHELESS, IS IT WRONG, LONELY WINE, FORGIVE, MY BABE, TURN AROUND AND LOOK AT ME and many more.	Not Available on Cassette	\$2.99
CD GRF075 TAPE MCGRF075	Billie Holiday Miss Brown to You 22 Tracks Featuring: WHAT A LITTLE MOONLIGHT CAN DO, MISS BROWN TO YOU, TWENTY FOUR HOURS A DAY, YANKEE DOODLE NEVER WENT TO TOWN, IF YOU WERE MINE and many more.	Not Available on Cassette	\$2.99
CD GRF076 TAPE MCGRF076	Glen Miller Moonlight Serenade 25 Tracks Featuring: MOONLIGHT SERENADE, LITTLE BROWN JUG, SUNRISE SERENADE, PIN BALL PAUL, INDIAN SUMMER, THE WOODPECKER SONG and many more.	Not Available on Cassette	\$2.99
CD GRF077 TAPE MCGRF077	Cab Callaway Minnie The Moocher 25 Tracks Featuring: NAGASKI, HOY HOY, JUMPIN' JIVE, GAVE BABY GIVE, I WANT TO ROCK, MINNIE THE MOOCHER, HONEY DRIPPER, HI DE HO MAN, JUNGLE KING and many more.	Not Available on Cassette	\$2.99
CD GRF078 TAPE MCGRF078	Dixieland The Collection 25 Tracks Featuring: TIGER RAG, LOOK AT EM DOING IT NOW ORIGINAL, DIXIE COFFIN-HAGEN, CARELESS LOVE, SHE'S CRYING FOR ME, THAT'S NO BARGIN, WAY DOWN YONDER IN NEW ORLEANS, IM MORE THAN SATISFIED and many more.	Not Available on Cassette	\$2.99
CD GRF079 TAPE MCGRF079	The Beiderbecke Affair 25 Tracks Featuring: RIVERBOAT SHUFFLE, TIGER RAG, DAVEN PORT BLUES, IM LOOKING OVER A FOUR LEAF CLOVER, TRUMBULLOLOGY, CLARINET MARMALADE, OSTRICH WALK, WAY DOWN YONDER IN NEW ORLEANS and many more.	Not Available on Cassette	\$2.99
CD GRF080 TAPE MCGRF080	Scott Joplin King of Ragtime 20 Tracks Featuring: ELITE SINCORATIONS, THE CHRISTANTHEMUM, SCOTT JOPLINS NEW RAG, EUGENIA, PARAGON RAG, EUPHONIC SOUNDS, PINEAPPLE RAG, SOMETHING GOING and many more.	Not Available on Cassette	\$2.99
CD GRF081 TAPE MCGRF081	AJ Johnson Greatest Hits 20 Tracks Featuring: CALIFORNIA HERE I COME, MY MAMMY, IM SITTING ON TOP OF THE WORLD, ROCK-A-BY, YOUR BABY WITH DIME MELODY, LET ME SING AND IM HAPPY, TOOT, TOOT, TOOTISIE and many more.	Not Available on Cassette	\$2.99
CD GRF085 TAPE MCGRF086	Art Tatum St. Louis Blues 16 Tracks Featuring: TIGER RAG, TEA FOR TWO, ST. LOUIS BLUES, STRANGE AS IT SEEMS, SOPHISTICATED LADY, IT'LL NEVER BE THE SAME, WHEN A WOMEN LOVES and many more.	Not Available on Cassette	\$2.99
CD GRF086	Jimmie Lunceford Baby Won't You Please Come Home 26 Tracks Featuring: THE LONESOME ROAD, YOU SET ME ON FIRE, BABY WON'T YOU PLEASE COME HOME, IVE ONLY MYSELF TO BLAME, YOU'RE JUST A DREAM, EASTER PARADE, and many more.	Not Available on Cassette	\$2.99
CD GRF087	Benny Carter These Foolish Things 23 Tracks Featuring: BLUE INTERLUDE, HOW COME YOU DO ME, LIKE YOU DO, ONCE UPON A TIME, DEVIL'S HOLIDAY, LONESOME NIGHTS, SHOOT THE WORKS and many more.	Not Available on Cassette	\$2.99
CD GRF088 TAPE MCGRF088	Fletcher Henderson and his Orchestra 25 Tracks Featuring: BACK IN YOUR OWN BACKYARD, ROSE ROOM (JIN SUNNY ROSELAND), STAMPEDE, CHRIS AND HIS GANG, POSIN', LET ER GO, GREAT CAESERS GHOST and many more.	Not Available on Cassette	\$2.99
CD GRF089 TAPE MCGRF089	Django Reinhardt Djangoology 24 Tracks Featuring: DINAH, TIGER RAG, LADY BE GOOD, I SAW STARS, LILY BELLE, MAY JUNE, SWEET SLUC - JUST YOU, CONFESSIN', THE CONTINENTAL, BLUE DRAG, and many more.	Not Available on Cassette	\$2.99
CD GRF090 TAPE MCGRF090	Lionel Hampton Muskrat Ramble 23 Tracks Featuring: MUSKRAT RAMBLE, FIDDLE DIDDLE, SHOE SHINERS DRAG, JOHNY GET YOUR HORN AND BLOW IT, SWEETHEARTS ON PARADE, STAND BY FOR FURTHER ANNOUNCEMENTS [AND MORE GOOD NEWS] and many more.	Not Available on Cassette	\$2.99
CD GRF091 TAPE MCGRF091	Ella Fitzgerald Big Boy Blue 22 Tracks Featuring: BIG BOY BLUE, DEDICATED TO YOU, YOU SHOWED ME THE WAY, CRYING MOOD, LOVE IS THE THING THEY SAY, ALL OVER NOTHING AT ALL, IF YOU EVER SHOULD LEAVE, EVERYONES WRONG BUT ME and many more.	Not Available on Cassette	\$2.99
CD GRF092 TAPE MCGRF092	Earl Hines Father Steps in 22 Tracks Featuring: G.T. STOMP, JEZEBEEL, DOMINICK SWING, GRAND TERRACE SHUFFLE, FATHER STEPS IN, PIANO MAN, THE FATHER'S GETAWAY, ME AND COLUMBUS and many more.	Not Available on Cassette	\$2.99
CD GRF093	Coleman Hawkins Lady Be Good 23 Tracks Featuring: LULUBU, LOST IN A FOG, HONEYSLUCKLE ROSE, SOME OF THESE DAYS, AFTER YOU'VE GONE, AFTER YOU'VE GONE (ALTERNATIVE TAKE), I ONLY HAVE EYES FOR YOU and many more.	Not Available on Cassette	\$2.99
CD GRF095 TAPE MCGRF095	Fats Waller Aint Misbehavin' 23 Tracks Featuring: AINT MISBEHAVIN', THE FLAT FOOT FLOOGIE A - TICKET, A - TASKET, ALL GODS CHILLUN GOT WINGS, DEEP RIVER GO DOWN, MOSES WATER BOY and many more.	Not Available on Cassette	\$2.99

CD	GRF100	Sidney Bechet Freight Train Blues 24 Tracks Featuring: SWEETIE DEAR I WANT YOU TONIGHT, IVE FOUND A NEW BABY, LAV YOUR RACKET, MAPLE LEAF RAG, SHAG OKEY DOKE CHARACTERISTIC BLUES and many more.	\$2.99		
CD	GRF101	Joe Loss The Early Years 16 Tracks Featuring: MY HEART BELONGS TO DADDY, IN THE MOOD, BEGIN THE BEGUNE, BOO HOO, TOY TRUMPET, A LITTLE RENDEZVOUS IN HONOLULU and many more.	\$2.99		Not Available on Cassette
CD	GRF102	Bessie Smith Blue Spirit Blues 20 Tracks Featuring: IM DOWN IN THE DUMPS, BLUE SPIRIT BLUES, KITCHEN MAN FOOLISH MAN BLUES, THINKING BLUES, DEVILS GONNA GET YOU, SEND ME TO THE LEGIT CHAIR and many more.	\$2.99		\$1.99
TAPE	MCGRF124	When The Saints Go Marching In Louis Armstrong - SOMETHING NEW Court Basie Bird Of Paradise James Davis - STREET BEAT Charlie Parker and many more.	\$2.99		\$1.99
CD	GRF125	One O'Clock Jump All Time Jazz Greats 20 Tracks Featuring: ONE O' CLOCK JUMP Court Basie - MOOSE THE MOON Miles Davis - BUGLE CALL RAG Benny Goodman - PAPER MOON Nat King Cole - BASIN ST. Blues Lois Armstrong and many more.	\$2.99		Not Available on Cassette
CD	GRF126	When Your Lover Has Gone 20 Tracks Featuring: WHEN YOUR LOVER HAS GONE Billy Holiday - DAMPERS John Lee Hooker - BABY PLEASE DONT GO Muddy Waters - WHOS BEEN TALKIN Howlin Wolf and many more.	\$2.99		Not Available on Cassette
CD	GRF127	I Got It Bad And That Ain't Good Blues and Soul His 20 Tracks Featuring: I GOT IT BAD AND THAT AIN'T GOOD Billie Holiday - SAD LETTER Blues Muddy Waters - DUSTY ROAD John Lee Hooker - ROCKIN' CHAIR Blues Ray Charles and many more.	\$2.99		Not Available on Cassette
CD	GRF128	It Don't Mean A Thing If You Ain't Got That Swing Big Band Classics 20 Tracks Featuring: MOONLIGHT SERENADE Glen Miller TAKING A CHANCE ON LOVE Tommy Dorsey JUMPING AT THE WOODSIDE Court Basie TAKING THE TRAIN Duke Ellington and many more.	\$2.99		Not Available on Cassette
CD	GRF129	Stompin' At The Savoy Big Band Classics 20 Tracks Featuring: STOMPIN' AT THE SAVOY Louis Armstrong - IN THE MOOD Glenn Miller - IT STARTED ALL OVER AGAIN Tommy Dorsey NUTCRACKER SUITE Les Brown and many more.	\$2.99		\$1.99
TAPE	MCGRF152	Glen Miller Swing-Along Party 22 Tracks Featuring: STRING OF PEARLS, SONG OF VOLGA BOVANNI, CHANTANOOGA CHOO CHOO, PENNSYLVANIA 6-5000, DONT SIT UNDER THE APPLE TREE, AMERICA PATROL, SUN VALEY JUMP, and many more.	\$2.99		\$1.99
CD	GRF162	BB King BB Boogie Everyday 17 Tracks Featuring: EVERYDAY I HAVE THE BLUES, SWEET SIXTEEN, THE OTHER NIGHT BLUES, A NEW WAY OF DRIVING, WALKIN' & CRININ' ITS MY OWN FAULTY BABY and many more.	\$2.99		\$1.99
TAPE	MCGRF195	Burt Bacharach The Magical Music of 24 Tracks Featuring: RAINDROPS KEEP FALLING ON MY HEAD, REFLECTIONS, WALK ON BY, THIS GUY'S IN LOVE WITH YOU, MAKE IT EASY ON YOURSELF, THE WORLD IS A CIRCLE, MAGIC MOMENTS and many more.	\$2.99		\$1.99
CD	GRF219	BBC Big Band Plays Glenn Miller 14 Tracks Featuring: IN THE MOOD, AMERICAN PATROL, IVE GOT A GAL IN KALAMAZOO, LITTLE BROWN JUG, CHATTANOOGA CHOO CHOO, PENNSYLVANIA 6-5000, A STRING OF PEARLS and many more.	\$2.99		\$1.99
TAPE	MCGRF237	Guy Mitchell Singin' The Blues 20 Tracks Featuring: MY TRULY TRULY FAIR, KNEE DEEP IN THE BLUES, CLOUD LUCKY SEVEN, MUSIC, MUSIC, SHE WEARS RED FEATHERS, THE ROVING KIND, PRETTY LITTLE BLACK EYED SUSSIE and many more.	\$2.99		\$1.99
CD	GRF253	Switched On Swing 40 Tracks Featuring: DIXIE, CHATTANOOGA CHOO CHOO, FIVE FEET TWO, JOEYS SONG, FASCINATING RHYTHM, MY BLUE HEAVEN, IVE GOT YOU UNDER MY SKIN, YOURE NOBODY TILL SOMEBODY LOVES YOU and many more.	\$2.99		\$1.99
TAPE	MCGRF253	Switched On Swing 40 Tracks Featuring: DIXIE, CHATTANOOGA CHOO CHOO, FIVE FEET TWO, JOEYS SONG, FASCINATING RHYTHM, MY BLUE HEAVEN, IVE GOT YOU UNDER MY SKIN, YOURE NOBODY TILL SOMEBODY LOVES YOU and many more.	\$2.99		\$1.99
CD	JHD016	Duke Ellington Live in Mexico 15 Tracks Featuring: SATIN DOLL, MEDLEY: GREGGIE LOVE CALL/BLACK & TAN FANNING/THE MOOCH, HAPPY GO LUCKY LOCAL, THE MEXICAN SUITE, IT DONT MEAN A THING IF I AINT GOT THAT SWING and many more.	\$2.99		\$1.99
CD	JHD110	The Satch Dells 16 Tracks Featuring: UNFORGETTABLE Dinah Washington - RED SAILS IN THE SUNSET Dinah Washington - WHERE OR WHEN Dinah Washington - YOURE NOBODY TIL SOMEBODY Dinah Washington - MISTY Sarah Vaughn and many more.	\$2.99		\$1.99
CD	AA001	Ella Fitzgerald Audio Archive Collectors Edition 20 Tracks Featuring: DONT BE THAT WAY, A FINE ROMANCE, FLYING HOME, THAT OLD BLACK MAGIC, CRYING WOOD, IF YOU SHOULD EVER LEAVE and many more.	\$2.99		\$1.99
TAPE	MCA001	Ella Fitzgerald Audio Archive Collectors Edition 20 Tracks Featuring: DONT BE THAT WAY, A FINE ROMANCE, FLYING HOME, THAT OLD BLACK MAGIC, CRYING WOOD, IF YOU SHOULD EVER LEAVE and many more.	\$2.99		\$1.99
TAPE	MCA004	Al Jolson Audio Archive Collectors Edition 20 Tracks Featuring: MY MAMMY, THERES A RAINBOW AROUND MY SHOULDER, MA BUSHIN, ROSIE, IM SITTING ON TOP OF THE WORLD and many more.	\$2.99		\$1.99
CD	AA011	Glen Miller Audio Archive Collectors Edition 20 Tracks Featuring: MOONLIGHT SERENADE, PENNSYLVANIA 6-5000, DONT SIT UNDER THE APPLE TREE, IN THE MOOD, ST LOUIS BLUES and many more.	\$2.99		\$1.99
TAPE	MCA011	Glen Miller Audio Archive Collectors Edition 20 Tracks Featuring: MOONLIGHT SERENADE, PENNSYLVANIA 6-5000, DONT SIT UNDER THE APPLE TREE, IN THE MOOD, ST LOUIS BLUES and many more.	\$2.99		\$1.99
CD	AA012	Benny Goodman Audio Archive Collectors Edition 20 Tracks Featuring: STOMPIN' AT THE SAVOY, JUMPIN' AT THE WOODSIDE, JERSEY BOUNCE, LETS DANCE, CHRISTOPHER COLUMBUS DOWN SOUTH CAMP MEETING SOUTH OF THE BORDER (DOWN MEXICO WAY) IM GONNA SIT RIGHT DOWN AND WRITE MYSELF A LETTER and many more.	\$2.99		\$1.99
TAPE	MCA012	Benny Goodman Audio Archive Collectors Edition 20 Tracks Featuring: STOMPIN' AT THE SAVOY, JUMPIN' AT THE WOODSIDE, JERSEY BOUNCE, LETS DANCE, CHRISTOPHER COLUMBUS DOWN SOUTH CAMP MEETING SOUTH OF THE BORDER (DOWN MEXICO WAY) IM GONNA SIT RIGHT DOWN AND WRITE MYSELF A LETTER and many more.	\$2.99		\$1.99
CD	AA013	Court Basie Audio Archive Collectors Edition 20 Tracks Featuring: LESTER LEAPS IN GOING TO CHICAGO, ALL OF ME PLATTER BRUNS, I STRUCK A MATCH IN THE DARK, DANCE OF THE GIGMILNS and many more.	\$2.99		\$1.99
TAPE	MCA013	Court Basie Audio Archive Collectors Edition 20 Tracks Featuring: LESTER LEAPS IN GOING TO CHICAGO, ALL OF ME PLATTER BRUNS, I STRUCK A MATCH IN THE DARK, DANCE OF THE GIGMILNS and many more.	\$2.99		\$1.99
CD	AA014	Duke Ellington Audio Archive Collectors Edition 20 Tracks Featuring: THE MOOCHIE, HONKY-TONKIE ROSE, TAKE THE TRAIN, MOOD, INDIGO, SPHISTICATED LADY, CROSSTOWN, CAVAVAN, TEN FOR TWO and many more.	\$2.99		\$1.99
TAPE	MCA014	Duke Ellington Audio Archive Collectors Edition 20 Tracks Featuring: THE MOOCHIE, HONKY-TONKIE ROSE, TAKE THE TRAIN, MOOD, INDIGO, SPHISTICATED LADY, CROSSTOWN, CAVAVAN, TEN FOR TWO and many more.	\$2.99		\$1.99
CD	AA015	Louis Armstrong Audio Archive Collectors Edition 20 Tracks Featuring: JEEPERS GREEPERS, NAME ON THE SUNNIN' SIDE OF THE STREET, HELLO DOLLY, AINT MISBEHAVIN, BASIN ST. BLUES, CABARET and many more.	\$2.99		\$1.99
TAPE	MCA015	Louis Armstrong Audio Archive Collectors Edition 20 Tracks Featuring: JEEPERS GREEPERS, NAME ON THE SUNNIN' SIDE OF THE STREET, HELLO DOLLY, AINT MISBEHAVIN, BASIN ST. BLUES, CABARET and many more.	\$2.99		\$1.99
CD	AA021	Charlie Parker Audio Archive Collectors Edition 18 Tracks Featuring: CHASIN' THE BIRD, GRAYZECLOGY, YARBIRD SUITE, MY OLD FLAME, BE BOB A LULA, ROCKER BIRD OF PARADISE, DONT BLAME ME and many more.	\$2.99		\$1.99
TAPE	MCA021	Charlie Parker Audio Archive Collectors Edition 18 Tracks Featuring: CHASIN' THE BIRD, GRAYZECLOGY, YARBIRD SUITE, MY OLD FLAME, BE BOB A LULA, ROCKER BIRD OF PARADISE, DONT BLAME ME and many more.	\$2.99		\$1.99

CD	GRF255	Instrumental Magic Vol Two! 20 Tracks Featuring: YOU LIGHT UP MY LIFE, I BELIEVE IN YOU, NEW RD IN TOWN, TIE A YELLOW RIBBON, TORN BETWEEN TWO LOVERS, HELP ME MAKE IT THROUGH THE NIGHT, HEAVEN KNOWS and many more.	\$2.99		\$1.99
TAPE	MCGRF255	Instrumental Magic Vol Two! 20 Tracks Featuring: YOU LIGHT UP MY LIFE, I BELIEVE IN YOU, NEW RD IN TOWN, TIE A YELLOW RIBBON, TORN BETWEEN TWO LOVERS, HELP ME MAKE IT THROUGH THE NIGHT, HEAVEN KNOWS and many more.	\$2.99		\$1.99
CD	GRF256	Instrumental Magic Vol Three! 19 Tracks Featuring: TALKIN IN YOUR SLEEP, BLUE BANGOU, LADY, STRANGER ON THE SHORE, DAVIS OF WINE & ROSES, HELLO, YOUR SONG, LET YOUR LOVE FLOW, IT NEVER RAINS IN SOUTHERN CALIFORNIA, AFRICAN BEAT and many more.	\$2.99		\$1.99
TAPE	MCGRF256	Instrumental Magic Vol Three! 19 Tracks Featuring: TALKIN IN YOUR SLEEP, BLUE BANGOU, LADY, STRANGER ON THE SHORE, DAVIS OF WINE & ROSES, HELLO, YOUR SONG, LET YOUR LOVE FLOW, IT NEVER RAINS IN SOUTHERN CALIFORNIA, AFRICAN BEAT and many more.	\$2.99		\$1.99
CD	GRF257	The Diamond Symphonies 5 The London Philharmonic Orchestra 20 Tracks Featuring: OVERTURE: YOU DONT BRING ME FLOWERS, BEAUTIFUL NOSE, SOUTHERN MAN, SEPTEMBER MORNING, I AM SAD, HOLLY HOLY, CRACKLIN ROSE, and many more.	\$2.99		\$1.99
TAPE	MCGRF257	The Diamond Symphonies 5 The London Philharmonic Orchestra 20 Tracks Featuring: OVERTURE: YOU DONT BRING ME FLOWERS, BEAUTIFUL NOSE, SOUTHERN MAN, SEPTEMBER MORNING, I AM SAD, HOLLY HOLY, CRACKLIN ROSE, and many more.	\$2.99		\$1.99
CD	GRF262	Classical Police The Royal Philharmonic Orchestra and Guests 14 Tracks Featuring: OVERTURE: REGATA DE BLANC, SPIRITS IN THE MATERIAL WORLD, BE MY GIRL, DE DO DO DO DA DA DA, EVERY LITTLE THING SHE DOES IS MAGIC and many more.	\$2.99		\$1.99
TAPE	MCGRF262	Classical Police The Royal Philharmonic Orchestra and Guests 14 Tracks Featuring: OVERTURE: REGATA DE BLANC, SPIRITS IN THE MATERIAL WORLD, BE MY GIRL, DE DO DO DO DA DA DA, EVERY LITTLE THING SHE DOES IS MAGIC and many more.	\$2.99		\$1.99
CD	GRF263	Classie Abba The Royal Philharmonic Orchestra and Guests 12 Tracks Featuring: ABBAJURE, S.O.S., MANNA MAN, EAGLE, I HAVE A DREAM, DOES YOUR MOTHER KNOW, MONEY, MONEY, MONEY, KNOWING ME KNOWING YOU and many more.	\$2.99		\$1.99
TAPE	MCGRF263	Classie Abba The Royal Philharmonic Orchestra and Guests 12 Tracks Featuring: ABBAJURE, S.O.S., MANNA MAN, EAGLE, I HAVE A DREAM, DOES YOUR MOTHER KNOW, MONEY, MONEY, MONEY, KNOWING ME KNOWING YOU and many more.	\$2.99		\$1.99
CD	JHD020	A Taste Of Brazil 20 Tracks Featuring: LAMBADS MEDLEY, OVELBA DECARAVASO PARA VOCE/O REMADOR/BOM BARCELE, MEXA MEXA, LAMBADIE LAMBADIA, LAMBADA MEDLEY 2: FOGABEUA CARTAVENIAL and many more.	\$2.99		\$1.99
TAPE	MCHJD020	A Taste Of Brazil 20 Tracks Featuring: LAMBADS MEDLEY, OVELBA DECARAVASO PARA VOCE/O REMADOR/BOM BARCELE, MEXA MEXA, LAMBADIE LAMBADIA, LAMBADA MEDLEY 2: FOGABEUA CARTAVENIAL and many more.	\$2.99		\$1.99
CD	JHD061	Summer of '42 Instrumental Hits by The Bidou Orchestra 13 Tracks Featuring: SUMMER OF '42, BLUE EYED SOUL, EXODUS, BLACK MAGIC MAN, ANANUEZ MON AMOUR, COULDN'T WE BE FRIENDS, RAIN FOREST, JUMP FOR JOY, LAJURA and many more.	\$2.99		\$1.99
TAPE	MCHD061	Summer of '42 Instrumental Hits by The Bidou Orchestra 13 Tracks Featuring: SUMMER OF '42, BLUE EYED SOUL, EXODUS, BLACK MAGIC MAN, ANANUEZ MON AMOUR, COULDN'T WE BE FRIENDS, RAIN FOREST, JUMP FOR JOY, LAJURA and many more.	\$2.99		\$1.99
CD	JHD063	Wild Connections 9 Tracks Featuring: SAVE A PLACE FOR ME, DEEP GREEN, CARLIN HOW, OLD MAN OF THE OCEAN, SKINNINGROVE BAY (PART ONE), SKINNINGROVE BAY (PART TWO), and many more.	\$2.99		\$1.99
TAPE	MCHD063	Wild Connections 9 Tracks Featuring: SAVE A PLACE FOR ME, DEEP GREEN, CARLIN HOW, OLD MAN OF THE OCEAN, SKINNINGROVE BAY (PART ONE), SKINNINGROVE BAY (PART TWO), and many more.	\$2.99		\$1.99
CD	TFP017	Glen Miller Orchestra Over 40 Tracks Featuring: Disc One: MOONLIGHT SERENADE, Disc Two: LITTLE BROWN JUG, Disc Three: PENNSYLVANIA 6-5000, Disc Four: CHATTANOOGA CHOO CHOO and many more.	\$12.99		Not Available on Cassette
TAPE	MCGRF263	Glen Miller Orchestra Over 40 Tracks Featuring: Disc One: MOONLIGHT SERENADE, Disc Two: LITTLE BROWN JUG, Disc Three: PENNSYLVANIA 6-5000, Disc Four: CHATTANOOGA CHOO CHOO and many more.	\$12.99		Not Available on Cassette
CD	TFP023	Mantovani The Essential Collection Over 40 Tracks Featuring: Disc One: THEME FROM SUPERMAN Disc Two: CHAMMAINE, Disc Three: THREE COINS IN THE FOUNTAIN, Disc Four: VALENCEA and many more.	\$12.99		Not Available on Cassette
TAPE	MCGRF263	Mantovani The Essential Collection Over 40 Tracks Featuring: Disc One: THEME FROM SUPERMAN Disc Two: CHAMMAINE, Disc Three: THREE COINS IN THE FOUNTAIN, Disc Four: VALENCEA and many more.	\$12.99		Not Available on Cassette
CD	TFP032	The Very Best Of Instrumental Gold 40 Tracks Featuring: Disc One: SAIL ALONG THE SILVER MOON, Disc Two: AWAKING GRACE, Disc Three: UNFORGETTABLE, Disc Four: SONEVHERE and many more.	\$12.99		Not Available on Cassette
TAPE	MCGRF263	The Very Best Of Instrumental Gold 40 Tracks Featuring: Disc One: SAIL ALONG THE SILVER MOON, Disc Two: AWAKING GRACE, Disc Three: UNFORGETTABLE, Disc Four: SONEVHERE and many more.	\$12.99		Not Available on Cassette
CD	TFP039	The Synthesizer Rock Orchestra plays The Beatles, Abba, Queen and Elton John Over 40 Tracks Featuring: Disc One: LONG AND WINDING ROAD, Disc Two: THE WINNER TAKES IT ALL, Disc Three: BOHEMIAN RHAPSODY, Disc Four: DONT LET THE SUN GO DOWN ON ME and many more.	\$12.99		Not Available on Cassette
TAPE	MCGRF263	The Synthesizer Rock Orchestra plays The Beatles, Abba, Queen and Elton John Over 40 Tracks Featuring: Disc One: LONG AND WINDING ROAD, Disc Two: THE WINNER TAKES IT ALL, Disc Three: BOHEMIAN RHAPSODY, Disc Four: DONT LET THE SUN GO DOWN ON ME and many more.	\$12.99		Not Available on Cassette
CD	TFP032	Atmospheric Synthesizer Over 30 Tracks Featuring: AUTOBANH, MOUNTAIN DUST, ROTATIONS LOOC, POPCORN, ALWAYS ON MY MIND, THE WILL OF THE WIND, HYMNE, CHINA, ELSVHERE and many more.	\$2.99		\$1.99
TAPE	MCGRF263	Atmospheric Synthesizer Over 30 Tracks Featuring: AUTOBANH, MOUNTAIN DUST, ROTATIONS LOOC, POPCORN, ALWAYS ON MY MIND, THE WILL OF THE WIND, HYMNE, CHINA, ELSVHERE and many more.	\$2.99		\$1.99
CD	TFP029	Marching To Glory 22 Tracks Featuring: COLONEL BOGIE, WASHINGTON, AMERICAN PATROL, THE VICTOR MARCH, STARS & STRIPES FOREVER, THE LIBERTY BELL MARCH, THE RIVER KVA MARCH, STARS & STRIPES FOREVER and many more.	\$2.99		\$1.99
TAPE	MCGRF263	Marching To Glory 22 Tracks Featuring: COLONEL BOGIE, WASHINGTON, AMERICAN PATROL, THE VICTOR MARCH, STARS & STRIPES FOREVER, THE LIBERTY BELL MARCH, THE RIVER KVA MARCH, STARS & STRIPES FOREVER and many more.	\$2.99		\$1.99
CD	TFP031	The Music of Burt Bacharach 28 Tracks Featuring: RAINDROPS KEEP FALLING ON MY HEAD, REFLECTIONS, WALK ON BY, THIS GUY'S IN LOVE WITH YOU, WHO IS GOING TO LOVE ME, MAKE IT EASY ON YOURSELF and many more.	\$2.99		\$1.99
TAPE	MCGRF263	The Music of Burt Bacharach 28 Tracks Featuring: RAINDROPS KEEP FALLING ON MY HEAD, REFLECTIONS, WALK ON BY, THIS GUY'S IN LOVE WITH YOU, WHO IS GOING TO LOVE ME, MAKE IT EASY ON YOURSELF and many more.	\$2.99		\$1.99
CD	TFP032	The Latin Sound 28 Tracks Featuring: GUANTANAMERA, ADELITA, SIN CALA Y TAMBOR, MULHER RENDERA, VIVA JULY, ROSALBA, LINDURBA, LOIA, RIO MASSO, MI CRETEL, MECIENDO and many more.	\$2.99		\$1.99
TAPE	MCGRF263	The Latin Sound 28 Tracks Featuring: GUANTANAMERA, ADELITA, SIN CALA Y TAMBOR, MULHER RENDERA, VIVA JULY, ROSALBA, LINDURBA, LOIA, RIO MASSO, MI CRETEL, MECIENDO and many more.	\$2.99		\$1.99
CD	TFP035	Scotland The Brave The Gordon Highlanders 24 Tracks Featuring: SCOTLAND THE BRAVE, ON THE SOULAGE, WEE MCGREGOR, HANOVER HOUSE, QUICK MARCH OF THE THISTLES, PIPE MEDLEY and many more.	\$2.99		\$1.99
TAPE	MCGRF263	Scotland The Brave The Gordon Highlanders 24 Tracks Featuring: SCOTLAND THE BRAVE, ON THE SOULAGE, WEE MCGREGOR, HANOVER HOUSE, QUICK MARCH OF THE THISTLES, PIPE MEDLEY and many more.	\$2.99		\$1.99
CD	TFP036	Irish Favourites Vol One! 30 Tracks Featuring: FINNEGANS WAKE The Dubliners, THE BOYS FROM COUNTY ARMAUGH Manago, SUNSHINE HORNPETE/IE MOUNTAIN ROAD The Dubliners, LOVELY LETRIM, Larry Cunningham and many more.	\$2.99		\$1.99
TAPE	MCGRF263	Irish Favourites Vol One! 30 Tracks Featuring: FINNEGANS WAKE The Dubliners, THE BOYS FROM COUNTY ARMAUGH Manago, SUNSHINE HORNPETE/IE MOUNTAIN ROAD The Dubliners, LOVELY LETRIM, Larry Cunningham and many more.	\$2.99		\$1.99
CD	TFP037	Irish Favourites Vol Two! 30 Tracks Featuring: BOLD O'DONAGUE, ISLE OF INNISFREE, 21 YEARS, FORTY SHADES OF GREEN, FOUR COUNTRY ROADS, BOYS FROM THE COUNTY, ARMAUGH, PLEASE HELP ME IM FALLING and many more.	\$2.99		\$1.99
TAPE	MCGRF263	Irish Favourites Vol Two! 30 Tracks Featuring: BOLD O'DONAGUE, ISLE OF INNISFREE, 21 YEARS, FORTY SHADES OF GREEN, FOUR COUNTRY ROADS, BOYS FROM THE COUNTY, ARMAUGH, PLEASE HELP ME IM FALLING and many more.	\$2.99		\$1.99
CD	TFP038	Romantic Piano 31 Tracks Featuring: STEEPY SHORES, BALAUDE POUR ADELINE, LADY LY, STARLIGHT SERENADE, TAKE MY BREATH AWAY, THE GLORY OF LOVE, I JUST CALLED TO SAY I LOVED YOU and many more.	\$2.99		\$1.99
TAPE	MCGRF263	Romantic Piano 31 Tracks Featuring: STEEPY SHORES, BALAUDE POUR ADELINE, LADY LY, STARLIGHT SERENADE, TAKE MY BREATH AWAY, THE GLORY OF LOVE, I JUST CALLED TO SAY I LOVED YOU and many more.	\$2.99		\$1.99
CD	TFP039	Midnight Guitar 30 Tracks Featuring: MIDNIGHT, ALBATROSS, BLITS, LARG'S THEME, THEME FROM THE GODFATHER, CAVATINA, THEME FROM THE GODFATHER, SITIN' ON THE DOCK OF THE BAY, WHAT A WONDERFUL WORLD and many more.	\$2.99		\$1.99
TAPE	MCGRF263	Midnight Guitar 30 Tracks Featuring: MIDNIGHT, ALBATROSS, BLITS, LARG'S THEME, THEME FROM THE GODFATHER, CAVATINA, THEME FROM THE GODFATHER, SITIN' ON THE DOCK OF THE BAY, WHAT A WONDERFUL WORLD and many more.	\$2.99		\$1.99
CD	TFP041	Inspirational Sax 30 Tracks Featuring: WILL YOU STILL LOVE ME TOMORROW, I CANT STOP LOVING YOU, HOLDING BACK THE YEARS, TO ALL THE GIRLS I LOVED BEFORE, AGAINST ALL ODDS, MOONLIGHT SHADOW and many more.	\$2.99		\$1.99
TAPE	MCGRF263	Inspirational Sax 30 Tracks Featuring: WILL YOU STILL LOVE ME TOMORROW, I CANT STOP LOVING YOU, HOLDING BACK THE YEARS, TO ALL THE GIRLS I LOVED BEFORE, AGAINST ALL ODDS, MOONLIGHT SHADOW and many more.	\$2.99		\$1.99
CD	TFP040	Greatest Overtures The Verona Philharmonic Orchestra 8 Tracks Featuring: GINKA, RUSLAN & LYUDMILA, NICOLA, THE MERRY WIVES OF WINDSOR, BEETHOVENS, THE RUINS OF ATHENS, OFFENBACH, ORPHENS IN THE UNDERWORLD and many more.	\$2.99		\$1.99
TAPE	MCGRF263	Greatest Overtures The Verona Philharmonic Orchestra 8 Tracks Featuring: GINKA, RUSLAN & LYUDMILA, NICOLA, THE MERRY WIVES OF WINDSOR, BEETHOVENS, THE RUINS OF ATHENS, OFFENBACH, ORPHENS IN THE UNDERWORLD and many more.	\$2.99		\$1.99
CD	TFP061	Piano Favourites Over 30 Tracks Featuring: PROMISE ME, A GROOVY KIND OF LOVE, SWING, CAVATINA, THE WAY WE WERE, THE LOVE INSIDE, JUST THE WAY WE WERE, THE LOVE INSIDE, JUST THE WAY YOU ARE, ALMAZ and many more.	\$2.99		\$1.99
TAPE	MCGRF263	Piano Favourites Over 30 Tracks Featuring: PROMISE ME, A GROOVY KIND OF LOVE, SWING, CAVATINA, THE WAY WE WERE, THE LOVE INSIDE, JUST THE WAY WE WERE, THE LOVE INSIDE, JUST THE WAY YOU ARE, ALMAZ and many more.	\$2.99		\$1.99

CD TAPE MCGRF193	Inspirational Sax Six Greats 24 Tracks Featuring: WILL YOU LOVE ME TOMORROW, I CAN'T STOP LOVING YOU, HOLDING BACK THE YEARS, TO ALL THE GIRLS IVE LOVED BEFORE, AGAINST ALL ODDS, MOONLIGHT SHADOW, and many more.	£2.99	£1.99
CD TAPE MCGRF194	Midnight Guitar 24 Tracks Featuring: MIDNIGHT, ALBATROSS, BLIMITS, LARA'S THEME, THEME FROM THE GODFATHER, CAVATINA (THEME FROM THE DEERHUNTER), SITTING ON THE DOCK OF THE BAY, and many more.	£2.99	£1.99
CD TAPE MCGRF195	Burt Bacharach The Magical Music of 24 Tracks Featuring: RAINDROPS KEEP FALLING ON MY HEAD, REFLECTIONS, WALK ON BY, THIS GUY'S IN LOVE WITH YOU, MAKE IT EASY ON YOURSELF, THE WORLD IS A CIRCLE, MAGIC MOMENTS and many more.	£2.99	£1.99
CD TAPE MCGRF196	Doo Wop Classics 19 Tracks Featuring: BOOK OF LOVE The Monotones - OVER AND OVER AGAIN Harvey & The Moonlows - PLEASE COME BACK HOME The Flamingos - HEART AND SOUL The Cletones and many more.	£2.99	£1.99
CD TAPE MCGRF201	Steel Bands of the Caribbean 16 Tracks Featuring: MEDLEY: JOHN 'B' GOOD/STRAW HAT/MY WOMEN, HAWMIR, I DON'T MIND, WOMEN, MEDLEY: EVERYBODY'S AL RIGHT/COMA ODASOLAR ROLAR, and many more.	£2.99	£1.99
CD TAPE MCGRF202	The Magical Sounds of Hawaii 26 Tracks Featuring: HONOLULU DANCE, ALOHA DE SARINA, HILO MARCH, BEAUTIFUL ISLE, TERANG BUJAR, ALOEN ALOEN, HUKILAU SONG, MAMA, PAU IKA LANI, MAUNA KEA, and many more.	£2.99	£1.99
CD TAPE MCGRF203	The Apaches Play The Hits Of The Shadows 18 Tracks Featuring: APACHE, KON-TIKI, MAN OF MYSTERY, WONDERFUL LAND, ATLANTIS, F.B.I, DANCE ON, RED RIVER ROCK, BLUE SHADOW, GUITAR TANGO, THE WAR LORD, MAROC 7, and many more.	£2.99	£1.99
CD TAPE MCGRF204	The Music of James Last The London Pops Orchestra 30 Tracks Featuring: PARTY MIX ONE: EXODUS/LA BAMBA/YOU WONT FIND ANOTHER FOOL LIKE ME/OLD FASHIONED ME/SOLITAIRE/ELCONDOR PASA/BARBABA and many more.	£2.99	£1.99
CD TAPE MCGRF205	Synthesizer Spectacular 24 Tracks Featuring: WE ARE FAMILY, MUSIC, WUTHERING HEIGHTS, LE FREAK, I DON'T LIKE MONDAYS, GIMME GIMME GIMME, IN THE AIR TONIGHT, HOLD ME CLOSE, BREAKFAST IN AMERICA, and many more.	£2.99	£1.99
CD TAPE MCGRF206	Golden Clarinet Greats 24 Tracks Featuring: TAKE FIVE, ARIA FEELINGS, MORE, MISTY, MOON RIVER, SEND IN THE CLOWNS, WHAT A WONDERFUL WORLD, BRIDGE OVER TROUBLED WATER and many more.	£2.99	£1.99
CD TAPE MCGRF207	Trumpet Greats 17 Tracks Featuring: SOMEWHERE, A GROOVY KIND OF LOVE, I DON'T KNOW HOW TO LOVE HIM IF... O WHAT! A WONDERFUL WORLD, ALL I ASK OF YOU, FROM A DISTANCE, THE WIND BENEATH MY WINGS, and many more.	£2.99	£1.99
CD TAPE MCGRF208	Honky Tonk Piano Favourites 35 Tracks Featuring: OLD FASHIONED LOVE, SOME OF THESE DAYS, SWANNEE, ALLEY CAT, HANG ON, MURDER SHE SAYS, SAN ANTONIO ROSE, CALUTTA, POOR PEOPLE OF PARIS, and many more.	£2.99	£1.99
CD TAPE MCGRF209	Solo Piano Plays The Hits of Elton John 16 Tracks Featuring: BLUE EYES, CANDLE IN THE WIND, I GUESS THAT'S WHY THEY CALL IT THE BLUES, DANIEL, SAD SONGS (SAY SO MUCH), SORRY SEEMS TO BE THE HARDEST WORD, NIKITA, GOODBYE YELLOW and many more.	£2.99	£1.99
CD TAPE MCGRF210	Golden Flute 20 Tracks Featuring: SOMEWHERE, OUT OF AFRICA, ANNIE'S SONG, LET IT BE, ELEANOR RIGBY, EL CONDOR PASA, SORRY SEEMS TO BE THE HARDEST WORD, NIGHTS IN WHITE SATIN, PIPES OF PEACE and many more.	£2.99	£1.99
CD TAPE MCGRF211	Golden Saxophone 22 Tracks Featuring: SAIL ALONG THE SILVERY MOON, BLUE HAWAII, IN THE MOOD, LOOK FOR A STAR, RAUNCHY, WHISTLING WHISPERING SANDS, RED SAILS IN THE SUNSET, THE GIRL, and many more.	£2.99	£1.99
CD TAPE MCGRF212	The Romantic Guitar of Francis Goya 18 Tracks Featuring: BRIGHT EYES, JUST WHEN I NEEDED YOU MOST, I'M NOT IN LOVE, THEME FROM 'MAHOOGONY', IF YOU LEAVE ME NOW, MOON SHADOW, and many more.	£2.99	£1.99
CD TAPE MCGRF213	The Music of Henry Mancini The Henry Mancini Orchestra 18 Tracks Featuring: MOON RIVER, PETER GUNN, MIDNIGHT COWBOY, THE SWEETHEART TREE, THE PINK PANTHER THEME, BABY ELEPHANT WALK, MISTY, THEME FROM LOVE STORY, and many more.	£2.99	£1.99
CD TAPE MCGRF214	Quiet Moments 22 Tracks Featuring: WITH YOU I'M BORN AGAIN, CRYING, SUDDENLY, ONE DAY I'LL FLY AWAY, FIRST TIME EVER I SAW YOUR FACE, SAILING, CHI MAI, CAVATINA, FOR YOUR EYES ONLY, and many more.	£2.99	£1.99
CD TAPE MCGRF215	Evergreens London Symphony Orchestra 20 Tracks Featuring: MAGIC, JUST WHEN I NEEDED YOU MOST, MY SIMPLE HEART, SHE'S GONE, EBONY & IVORY, FIFTY FIVE TO LEAVE YOUR LOVER, WHEN I NEEDED YOU, and many more.	£2.99	£1.99
CD TAPE MCGRF216	Pain Flute Favourites 20 Tracks Featuring: HERE COMES THE SUN, MAYBE, LIGHT MY FIRE FORSE, WHEN YOU'RE IN LOVE WITH A BEAUTIFUL WOMAN, DIM ALL THE LIGHTS, ON THE RADIO, and many more.	£2.99	£1.99
CD TAPE MCGRF217	Golden Organ Favourites Over 30 Tracks Featuring: SO WHAT'S NEW/TIE A YELLOW RIBBON/TRY A LITTLE KINDNESS, FRENCH/THE GIRL FROM IPANEMA/IN A LITTLE SPANISH TOWN, ELIZABETHAN SERENADE, and many more.	£2.99	£1.99
CD TAPE MCGRF218	Cocktail Favourites 20 Tracks Featuring: UP UP AND AWAY BY THE TIME I GET TO PHOENIX, RAINDROPS KEEP FALLING ON MY HEAD, YESTERDAY, FLY ME TO THE MOON, SOFTLY AS I LEAVE YOU, GOIN' OUT OF MY HEAD, and many more.	£2.99	£1.99
CD TAPE MCGRF219	The Greatest Marches 18 Tracks Featuring: RINGING BROS, GRAND ENTRY, COLONEL BOGIE, INVERCARGILL, THE BILLBOARD MARCH, MARCH SALUTATION, THE THUNDERER, HANDS ACROSS THE SEA, STARS, AND STRIPES FOREVER and many more.	£2.99	£1.99
CD TAPE MCGRF220	The Pipe Bands of Scotland 20 Tracks Featuring: MULL OF KINTYRE, HEIKEN'S SERENADE, THE DAY THOU GAVEST, LORD HAS ENDED, THE DARK ISLAND, GAELIC AIR AND 2/4 MARCH, GIN I WERE A BARON'S HEIR, and many more.	£2.99	£1.99
CD TAPE MCGRF221	Instrumental Magic (Vol One) 20 Tracks Featuring: HOPELESSLY DEVOTED TO YOU, I MADE IT THROUGH THE RAIN, DON'T I MAKE YOUR BROWN EYES BLUE, ISN'T SHE LOVELY, JUST THE WAY YOU ARE, MEXICO, SHADOW DANCING, and many more.	£2.99	£1.99

CD TAPE MCAA022	Dizzy Gillespie Audio Archive Collectors Edition 17 Tracks Featuring: LONG LONG SUMMER, ALL THESE THINGS YOU ARE, RAY'S IDEA, DIZZY ATMOSPHERE, OPP-BOF-SHBAW, EMMAN, LORRAINE, and many more.	£2.99	£1.99
CD TAPE MCAA023	Fats Waller Audio Archive Collectors Edition 18 Tracks Featuring: PENT UP IN A PENTHOUSE, I CAN'T GIVE YOU ANYTHING BUT LOVE, SMOKE DREAMS OF YOU, YOU CAN'T HAVE YOUR CAKE AND EAT IT, DON'T TRY YOUR LIPS ON ME and many more.	£2.99	£1.99
CD TAPE MCAA024	Django Reinhardt Audio Archive Collectors Edition 20 Tracks Featuring: DINAH, LADY BE GOOD, TIGER RAG, I SAW THE STARS, AVALON, SMOKE RINGS, I'VE FOUND A NEW BABY, DJANGOLOGY, and many more.	£2.99	£1.99
CD TAPE MCAA025	Lionel Hampton Audio Archive Collectors Edition 20 Tracks Featuring: 12TH STREET RAG, I'M IN THE MOOD FOR SWING, JOHNNY GET YOUR HORN AND BLOW IT, DON'T BE THAT WAY and many more.	£2.99	£1.99
CD TAPE MCAA026	Stephane Grappelli Audio Archive Collectors Edition 10 Tracks Featuring: YOU TOOK ADVANTAGE OF ME, STAR EYES, ANYTHING GOES, DON'T BLAME ME, MOONLIGHT IN VERMONT, CARAVAN and many more.	£2.99	£1.99
CD TAPE MCAA027	Miles Davies Audio Archive Collectors Edition 15 Tracks Featuring: OUT OF NOWHERE, A NIGHT IN TUNISIA, YARBIRD SUITE, SCRAPPLE THE APPLE, ORNITHOLOGY, DON'T BLAME ME, MOOSE THE MOOCH, and many more.	£2.99	£1.99
CD TAPE MCAA028	Stan Getz Audio Archive Collectors Edition 5 Tracks Featuring: AUTUMN LEAVES, BILLIE'S BOUNCE, HEART PLACE KALJAU CHAPPAQUA, and many more.	£2.99	£1.99
CD TAPE MCAA029	Bessie Smith Audio Archive Collectors Edition 10 Tracks Featuring: I'M DOWN IN THE DUMPS, TAKE ME FOR A BUGGY RIDE, DO YOUR DUTY, HE'S GOT ME GOIN', KITCHEN MAN, YOU'VE GOT TO GIVE ME SOME, and many more.	£2.99	£1.99
CD TAPE MCAA030	Billie Holiday Audio Archive Collectors Edition 20 Tracks Featuring: NIGHT AND DAY, HELLO MY DARLING, WHAT A LITTLE MOONLIGHT CAN DO, I'LL NEVER FAUL YOU, MISS BROWN TO YOU, I WISH I HAD YOU, 24 HOURS A DAY, and many more.	£2.99	£1.99
CD TAPE MCAA031	Muddy Waters Audio Archive Collectors Edition 20 Tracks Featuring: THE STUFF YOU GOTTA WATCH, SHE'S ALL RIGHT, BABY PLEASE DONT GO, IODINE IN MY COFFEE, SO GLAD I'M LIVING, SITTING HERE DRINKIN' ONE MORE MILE, and many more.	£2.99	£1.99
CD TAPE MCAA032	John Lee Hooker Audio Collectors Edition 20 Tracks Featuring: DIMPLES, BOOM BOOM, WHISKEY AND WOMEN, FRISCO BLUES, TUPELO PROCESS, GOOD ROCKIN' MAMA, NO SHOE I'M IN THE MOOD, and many more.	£2.99	£1.99
CD TAPE MCAA033	Lightnin' Hopkins Audio Collectors Edition 20 Tracks Featuring: JUST SITTING DOWN THINKING, DON'T KEEP MY BABY LONG, TELL ME PRETTY MAMA, BAD LUCK & TROUBLE, NEEDED TIME, LAST AFFAIRS, and many more.	£2.99	£1.99
CD TAPE MCAA034	B.B. King Audio Collectors Edition 18 Tracks Featuring: THE LETTER, LONG NIGHTS, CATFISH BLUES, B.B. BOOGIE, EVIL CHILD, WALKIN' & CRYIN', SWEET 16, PLEASE LOVE ME, THE OTHER NIGHT BLUES, and many more.	£2.99	£1.99
CD TAPE MCAA035	The Big Bands Audio Archive Collectors Edition Over 70 Tracks Featuring: Disc One: MOONLIGHT SERENADE, Disc Two: STOMPIN' AT THE SAVOY, Disc Three: LESTER LEAPS IN, Disc Four: THE MOOCHIE and many more.	£12.99	Not Available on Cassette
CD TAPE MCAA036	Jazz Giants Audio Archive Collectors Edition Over 70 Tracks Featuring: Disc One: JEEPERS CREEPERS, Disc Two: CHANGIN' THE BIRD, Disc Three: PENT UP IN A PENTHOUSE, Disc Four: I CAN'T GIVE YOU ANYTHING BUT LOVE, and many more.	£12.99	Not Available on Cassette
CD TAPE MCAA037	The Jazz Selection 100 Tracks Featuring: Disc One: ONE O'CLOCK JUMP, Count Basie, Disc Two: BASIN STREET BLUES, Louis Armstrong, Disc Three: WHEN THE SAINTS GO MARCHING IN, Louis Armstrong, Disc Four: THE OLD BLACK MAGIC Ella Fitzgerald and many more.	£12.99	Not Available on Cassette
CD TAPE MCAA038	Blues 'n' Soul 100 Tracks Featuring: Disc One: DIMPLES John Lee Hooker, Disc Two: LITTLE RED ROOSTER Howlin' Wolf, Disc Three: BABY PLEASE DONT GO Muddy Waters, Disc Four: I GOT A RICH MAN'S WOMEN Muddy Waters and many more.	£12.99	Not Available on Cassette
CD TAPE MCAA039	The Big Band 100 Tracks Featuring: Disc One: IN THE MOOD Glenn Miller, Disc Two: APRIL IN PARIS Glenn Miller, Disc Three: BLUES IN THE NIGHT, Artie Shaw, Disc Four: CEST SI BON Louis Armstrong and many more.	£12.99	Not Available on Cassette
CD TAPE MCAA040	The Louis Armstrong Collection Over 40 Tracks Featuring: Disc One: MAME, Disc Two: JEEPERS CREEPERS, Disc Three: HELLO DOLLY, Disc Four: TEA FOR TWO and many more.	£12.99	Not Available on Cassette
CD TAPE MCAA041	Glenn Miller Orchestra Over 40 Tracks Featuring: Disc One: MOONLIGHT SERENADE, Disc Two: LITTLE BROWN JUG, Disc Three: PENNSYLVANIA 6-5000, Disc Four: CHATANOOGA CHOO CHOO and many more.	£12.99	Not Available on Cassette
CD TAPE MCAA042	BBB Big Band The Age of Swing Over 40 Tracks Featuring: Disc One: IN THE MOOD, Disc Two: KING PORTER STOMP, Disc Three: SAINT LOUIS BLUES MARCH, Disc Four: MOONLIGHT SERENADE and many more.	£12.99	Not Available on Cassette
CD TAPE MCAA043	Blues & Soul Greats 50 Tracks Featuring: DIMPLES John Lee Hooker, AIN'T SUPERSTITIOUS Howlin' Wolf, NOTHIN' FROM NOTHIN' Blues Joe Turner, I GOT IT BAD & THAT AIN'T GOOD Billie Holiday, THE STUFF YOU GOTTA WATCH Muddy Waters, and many more.	£2.99	Not Available on CD
CD TAPE MCAA044	Blues & Soul Classics 50 Tracks Featuring: COMMIT A CRIME Howlin' Wolf, BOOM BOOM John Lee Hooker, GOD BLESS THE CHILD Billie Holiday, YOU GONNA MISS ME Muddy Waters and many more.	£2.99	Not Available on CD
CD TAPE MCAA045	Ella Fitzgerald Lover come back to me Over 50 Tracks Featuring: SAVE THE LST DANCE FOR ME The Drifters, SWEET TALKING GUY The Chiffons, LETS TWIST AGAIN Chubby Checker, ITS INHIS KISS Betty Everett and many more.	£2.99	Not Available on CD
CD TAPE MCAA046	Boat, Rainbow, Country, Soul SHAKEDOWN PARTY, SWAL AXE, NATURAL MYSTIC, SOON COME, and many more.	£2.99	Not Available on CD

TAPE TTMCG021 (TV/IN)	Louis Armstrong Hello Dolly 26 Tracks Featuring: MAHE HELLO DOLLY, ST LOUIS BLUES, JEEPERS GREEPERS, STOMPIN' AT THE SAVOY, BASIN STREET BLUES, BODY & SOUL, I GOT RHYTHM, JUST A GIUGLO and many more.	Not Available on CD	\$2.99
TAPE TTMCG023 (TV/IN)	Ella Fitzgerald Lower Come Back to Me Over 30 Tracks Featuring: BASIN STREET BLUES, SWARLIT HOUR, WE CAN'T GO ON THIS WAY, STRAWWAY TO THE STARS, LOWER COME BACK TO ME, IS THERE SOMEONE ELSE and many more.	Available on CD	\$2.99
TAPE TTMCG027 (TV/IN)	Glenn Miller Moonlight Serenade 30 Tracks Featuring: LITTLE BROWN JUG, AMERICAN PATROL, TULUENO JUNCTION, SLUMBER SONG, MY BLUE HEAVEN, BLUES IN MY HEART, BEGIN THE BEGUNE, EVERYBODY LOVES MY BABY and many more.	Not Available on CD	\$2.99
TAPE TTMCG031 (TV/IN)	The Music of Burt Bacharach 28 Tracks Featuring: BANDROPS, KEEP FALLING ON MY HEAD, REFLECTIONS, WALK ON BY, THIS GUY'S IN LOVE WITH YOU, WHO IS GOING TO LOVE ME, MAKE IT EASY ON YOURSELF and many more.	Not Available on CD	\$2.99
TAPE TTMCG050 (TV/IN)	The Band Leaders Over 30 Tracks Featuring: AUNT SUPERSTITIOUS Howlin' Wolf WHAT A LITTLE MOONLIGHT CAN DO Billy Holiday, THE STUFF YOU GONNA WATCH Muddy Waters, BABY LIFE John Lee Hooker and many more.	Available on CD	\$2.99
TAPE TTMCG096 (TV/IN)	In The Mood' BBC Big Band Over 30 Tracks Featuring: IN THE MOOD, THE VERY THOUGHT OF YOU, LETS DANCE, AMERICAN PATROLS, ARTIST IN RHYTHM, BEGIN THE BEGUNE, BIG JOHN'S SPECIAL, SKYLINER and many more.	Not Available on CD	\$2.99
TAPE TTMCG106 (TV/IN)	Ellington, Armstrong, Goodman & Basie Over 30 Tracks Featuring: DUKE ELLINGTON Honkytonk Rose, LUDIS ARMSTRONG Mame, BENNY GOODMAN Jumpin' At The Woodside, COUNT BASIE Going to Chicago and many more.	Not Available on CD	\$2.99

COUNTRY



Order Code	Artist(s) & Title(s)	Price (CD)	Price (Tape)
CD GRF003	Country Giants (Vol One) 23 Tracks Featuring: REUBEN JAMES Kenny Rogers - HONKY TONK, ANGELS Dolly Parton - SWEET DREAMS Faron Young and many more.	\$2.99	\$1.99
TAPE MCGRF003	Country Giants (Vol Two) 24 Tracks Featuring: IS THERE SOMETHING ON YOUR MIND Willie Nelson - RHYTHM-N-BOOZE Buck Owens - CANDY STORE Johnny Lee and many more.	\$2.99	\$1.99
CD GRF027	Kenny Rogers Ruby Don't Take Your Love to Town 26 Tracks Featuring: RUBY DON'T TAKE YOUR LOVE TO TOWN, REUBEN JAMES, SHINE ON RUBY MOUNTAIN, TICKET TO NOWHERE, CONDITIONS JUST DROPPED IN, SHE EVEN WOKE ME UP TO SAY GOODBYE and many more.	\$2.99	\$1.99
CD GRF058	Willie Nelson/Waylon Jennings Outlaw Reunion 24 Tracks Featuring: CRINKS, Waylon Jennings - THE GHOST Willie Nelson - SALTY WAS A GOOD OLD GIRL, Waylon Jennings - LETS RETEND Willie Nelson - ABILENE, Waylon Jennings and many more.	\$2.99	\$1.99
CD GRF120	Send Me The Pillow You Dream On Country Love Songs 21 Tracks Featuring: SEND ME THE PILLOW YOU DREAM ON Hank Locklin - REUBEN JAMES Kenny Rogers I FEEL SORRY FOR HIM Willie Nelson - come on in Patsy Cline and many more.	\$2.99	\$1.99
CD GRF121	Blue Eyes Cynr In The Rain Country Greats 25 Tracks Featuring: BLUE EYES CRYIN' IN THE RAIN Roy Drusy - SHINE ON RUBY MOUNTAIN Kenny Rogers - I DIDN'T SLEEP A WINK Willie Nelson - DADDY Dornia Fargo and many more.	\$2.99	\$1.99
CD GRF182	Glenn Campbell Greatest Hits Live 20 Tracks Featuring: RHINESTONE COWBOY, GENTLE ON MY MIND, MEDLEY - WICHITA LINEWOMAN GALVESTON COUNTY BOY, BY THE TIME I GET TO PHOENIX, DREAMS OF AN EVERYDAY HOUSEWIFE and many more.	\$2.99	\$1.99
TAPE MCGRF182	Switched on Country 30 Tracks Featuring: HELLO I LOVE YOU, SUNSHINE WOMAN, BEAUTIFUL WOMAN, RUBY DON'T TAKE YOUR LOVE TO TOWN, GENTLE ON MY MIND, JOLENE, LET YOUR LOVE FLOW, RHINESTONE COWBOY and many more.	\$2.99	\$1.99
CD GRF214	Patsy Cline Golden Memories 20 Tracks Featuring: I DON'T WANNA, LET THE TEARDROPS FALL, I'M LOVED AND LOST AGAIN, FINGERTIPS, I CAN'T FORGET JUST OUT OF REACH I OF MY TWO ARMS, HUNGRY FOR LOVE and many more.	\$2.99	\$1.99
TAPE MCH0113	Country Classics 100 Tracks featuring: Disc One: REUBEN JAMES Kenny Rogers, Disc Two: SINGING THE BLUES Guy Mitchell, Disc Three: KENTUCKY PARADISE Barbara Mandrell, Disc Four: SEND ME THE PILLOW YOU DREAM ON Hank Locklin and many more.	\$12.99	Not Available on Cassette
TAPE TTMCG013 (TV/IN)	Country Round-up 20 Tracks Featuring: REUBEN JAMES Kenny Rogers, I BELIEVE Frankie Laine, YOU'LL ALWAYS HAVE SOMEONE Willie Nelson, WASTED DASH AND WASTED NIGHTS Freddy Fender and many more.	Not Available on CD	\$2.99
TAPE TTMCG014 (TV/IN)	Country Classics 50 Tracks Featuring: KENTUCKY MEANS PARADISE Barbara Mandrell, STOP LOOK AND LISTEN Patsy Cline, I CAN'T ESCAPE FROM YOU George Jones, MAKING BELIEVE King Wells, HONKY TONK ANGELS Dolly Parton and many more.	Not Available on CD	\$2.99
TAPE TTMCG020 (TV/IN)	Kenny Rogers Ruby Don't Take Your Love to Town 28 Tracks Featuring: RUBY DON'T TAKE YOUR LOVE TO TOWN, SHINE ON RUBY MOUNTAIN, TICKET TO NOWHERE, AFTER ALL, HURRY UP LOVE and many more.	Not Available on CD	\$2.99
TAPE TTMCG030 (TV/IN)	Waylon Willie 23 Tracks Featuring: CRYING Waylon Jennings, THE GHOST Willie Nelson, ABILENE Waylon Jennings, LETS RETEND Willie Nelson, ABILENE Waylon Jennings, IM GONNA LOOSE A LOT OF TEARDROPS Willie Nelson, IT'S SO EASY Waylon Jennings, WASTING TIMES Waylon Jennings and many more.	Not Available on CD	\$2.99
TAPE TTMCG034 (TV/IN)	Boxer Willie The Songs of Boxer 25 Tracks Featuring: FREIGHTLINE FEVER, TRUCK DRIVER, MAN, PLANTION 309, TRUCK DRIVER, SON OF A GUN, SIX DASH ON THE ROAD, TEDDY BEAR, WHITELINE FEVER and many more.	Not Available on CD	\$2.99
TAPE TTMCG047 (TV/IN)	Kings of Country Over 30 Tracks Featuring: REUBEN JAMES Kenny Rogers, SWEET DREAMS Faron Young, I CAN'T TAKE THE TIME Willie Nelson, THINGS TO TALK ABOUT Stonewall Jackson, RUBY DON'T TAKE YOUR LOVE TO TOWN Kenny Rogers and many more.	Not Available on CD	\$2.99

TAPE TTMCG048 (TV/IN)	Queens of Country Over 30 Tracks Featuring: HONKY TONK ANGELS Dolly Parton, THEN YOU'LL KNOW Patsy Cline, IM SO LONESOME I COULD CRY Billy Jo Spears, SLIPPIN AWAY Barbara Fairchild and many more.	Not Available on CD	\$2.99
--------------------------	---	---------------------	--------

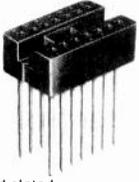
INSTRUMENTAL



Order Code	Artist(s) & Title(s)	Price (CD)	Price (Tape)
CD GRF051	Thats Lambda 14 Tracks Featuring: LAMBADA (long Version)/Disco-Dance Mix, LAMBADA COPACABANA (Instrumental Version), FRA SER SEI WHOMAN QUIR VIZO APITA, JA PASSOU O MAO (Instrumental Version) FANTASIA, RIO, GECEGA JOGO DE FOOD, NAO SEI LAMBADA QUERER, LAMBADA (Instrumental Radio Mix).	\$2.99	\$1.99
TAPE MCGRF051	Acker Bilk Songbook 18 Tracks Featuring: JUST WHEN I NEEDED YOU MOST, I WANT TO KNOW WHAT LOVE IS, I JUST CALLED TO SAY I LOVED YOU, LONGFELLOW, SERENADE and many more.	\$2.99	\$1.99
CD GRF056	Summer Loving Instrumental Hits 20 Tracks Featuring: SEALED WITH A KISS, UNDER THE INFLUENCE OF LOVE, DAYTIME FRIENDS, LET YOUR LOVE FLOW, PHYSICAL, THE HAPPENING, IT NEVER RAINS IN SOUTHERN CALIFORNIA and many more.	\$2.99	\$1.99
CD GRF084	Kings Of Gypsy Music 22 Tracks Featuring: SON SERA MIX, DALE DALE AL BORDON, GITRAYA, MOREVA, VENCA VALENTE, ESE AMOR QUE ME ENGANABA, RUMBA PARA TI and many more.	\$2.99	\$1.99
TAPE MCGRF084	Fletcher Henderson and his Orchestra 25 Tracks featuring: BACK IN YOUR OWN BACKYARD, ROSE ROOM (IN SUNNY ROSELAND), STRAWPEDE, CHRS AND HIS GANG, POSIN, LET ER GO, GREAT CAESERS GHOST and many more.	\$2.99	\$1.99
CD GRF097	Abowby 20 Tracks featuring: TWO SLEEPY PEOPLE GOODNIGHT ANGELAN, BROKEN HEARTS TO MEET SWEET AS A SONG, WHEN, MOTHER NATURE SINGS HER LULLARY, IS THAT THE WAY TO TREAT A SWEET HEART and many more.	\$2.99	\$1.99
CD GRF098	Noel Coward A Room with a View 18 Tracks Featuring: STAITLY HOMES OF ENGLAND, MAD DOGS AND ENGLISHMEN, MRS WORTHINGTON, A ROOM WITH A VIEW, LOVER OF MY DREAMS and many more.	\$2.99	\$1.99
CD GRF106	Top Hat, White Tie and Tails The Irving Berlin Songbook (Instrumental) 20 Tracks Featuring: CHECK TO CHECK, DOWN WHAT COMES NATURALLY, EASTER PARADE, THE GIRL THAT I MARRY, CHANGE PARTNERS, ISNT THIS A LOVELY DAY TODAY and many more.	\$2.99	\$1.99
CD GRF108	George Gerswin (Instrumental) 20 Tracks Featuring: BUT NOT FOR ME, EMBRACABLE YOU, FASCINATING RHYTHM, A FOGGY DAY, I GOT RHYTHM, IT AINT NECESSARILY SO, LETS CALL THE WHOLE THING OFF and many more.	\$2.99	\$1.99
CD GRF109	Can Can Instrumental Music from Cole Porter 20 Tracks Featuring: ANOTHER OPENIN, ANOTHER SHOW, BEGIN THE BEGUNE, CEST MAGNIFIQUE FROM THIS MOMENT ON, I LOVE PARIS, IT'S A BRIGHT WITH ME, ITS DELICIOUSLY DAY and many more.	\$2.99	\$1.99
CD GRF115	Atmospheric Synthesizer (Vol One) 17 Tracks Featuring: THEME FROM ANATATCA, THE EVE OF THE WAR, EDINOXE (PART 5), TUBULAR BELLS (THEME FROM THE EXOCORIST), AUTOBANH, ALBORA and many more.	\$2.99	\$1.99
TAPE MCGRF115	This is Stand-Dance 16 Tracks featuring: SOCA DANCE, SUNSHINE SOCA, FEELS LIKE SUNDAY ON AN ISLAND, BLUMA VISTA, TAKE IT EASY, SOCA HIGH, HOT COCKTAIL, NO WORRY, ITS THE RHYTHM, SOCA BEAT, MY SUNSHINE GIRL and many more.	\$2.99	\$1.99
CD GRF133	Switched On Classics The Neon Philharmonic Orchestra 35 Tracks Featuring: CLASSICS ON 45 TCHAKOVSKY Piano Concerto no 1, RIMSKY-KORSAKOV Flight of the bumble bee - MOZART Symphony no 40 - GERSHWIN Rhapsody in Blue and many more.	\$2.99	\$1.99
TAPE MCGRF139	Quiet Nights In Instrumental Hits 20 Tracks Featuring: LOVES THEME, JUST THE WAY YOU ARE, WHAT I DID FOR LOVE, BALAUDE POUR ADRIENE, YOU LIGHT UP MY LIFE, ARTHURS THEME, UNDER THE INFLUENCE OF LOVE, DONT TIT and many more.	\$2.99	\$1.99
CD GRF154	The Rodriguez The Hanning Pan Flute 18 Tracks Featuring: UP WHERE WE BELONG, UNCHAINED MELODY, YOU LIGHT UP MY LIFE, DO THAT TO ME ONE MORE TIME, FEELINGS, LET IT BE, EVEN THE NIGHTS ARE BETTER and many more.	\$2.99	\$1.99
TAPE MCGRF154	Sousa Favorites 18 Tracks featuring: STARS AND STRIPES, SEMPER PARADOX, DIPLOMAT MARCH, INVINCIBLE ENGLE, LIBERTY BELLS, HANOS ACROSS THE SEA, KING COTTON, THE BELLS OF CHICAGO, CRUSADER, THE BRIDE ELICT and many more.	\$2.99	\$1.99
CD GRF157	Erotic Dreams 16 Tracks Featuring: JE T' AIME, MOI NON PLUS, I WANT YOUR SEX, BLISS, SHARING THE NIGHT TOGETHER, MY BABY JUST CARES FOR ME, EMMANUELLE, HEXX INDETERIS, LE REVEI and many more.	\$2.99	\$1.99
CD GRF158	The Mighty Whirlizer Raymond Walkbeat 32 Tracks Featuring: HAPPY DAYS ARE HERE AGAIN, SIDE BY SIDE, LET THE REST OF THE WORLD GO BY, IF YOU KNEW SUSIE, CRUSING DOWN THE RIVER, ROAMING IN THE GLOWMING, MY GIRL'S A FOXSHIE GIRL and many more.	\$2.99	\$1.99
CD GRF159	Ratio Love Songs 20 Tracks Featuring: PIANO PIANO FANTASIE Napoli - SOLO SENZA TE 1-2-3 MAMA, LEONE Bino - UN AMORE Dany FANTASIA Capriccio - DOMANI E POI Mastrovito - CRE-DIMM Mito - Rita, Terzia and many more.	\$2.99	\$1.99
TAPE MCGRF165	Rondo Perleziano Megeo Vilanas Tribute to 16 Tracks Featuring: MAGICA, MELODIA, LA SENERISSIMA, RONDO VENEZIANO, SCRAVUCE, VISIONI DI VENEZIA, FANTASIA, VENZIANO, MISTERIO, VENEZIA MUSICA - FANTASIA and many more.	\$2.99	\$1.99
CD GRF190	Hollywoods Greatest Hits 24 Tracks Featuring: THE SILENCE OF THE LAMBS, GHOST, TERMINATOR II, BUGS, DEAD AGAIN, THE ADAMS FAMILY, NEW JACK CITY, BACK TO THE FUTURE III, ROCKY V, STAR WARS and many more.	\$2.99	\$1.99
CD GRF192	Hollywoods Greatest Hits 24 Tracks Featuring: THE SILENCE OF THE LAMBS, GHOST, TERMINATOR II, BUGS, DEAD AGAIN, THE ADAMS FAMILY, NEW JACK CITY, BACK TO THE FUTURE III, ROCKY V, STAR WARS and many more.	\$2.99	\$1.99
TAPE MCGRF192	Hollywoods Greatest Hits 24 Tracks Featuring: THE SILENCE OF THE LAMBS, GHOST, TERMINATOR II, BUGS, DEAD AGAIN, THE ADAMS FAMILY, NEW JACK CITY, BACK TO THE FUTURE III, ROCKY V, STAR WARS and many more.	\$2.99	\$1.99

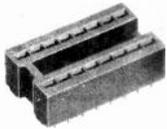
ALL ITEMS ON THIS PAGE HALF PRICE!

Wirewrap DIL Sockets



Z1892 14 way gold plated **20p**

Z2116 40 pin wirewrap socket Usually 126p Special price on surplus stock tinned. **2/£1.00** 100 + 0.25



Standard profile, high quality by Vero, Amphenol, etc Available as listed in the following table, all at remarkably low prices.

All gold plated:

Z5237 28 way **£1/10** 100+ .06

P5430 14 pin DIL header plug, gold plated solder type. As listed in our cat at 65p - special purchase price **3 for £1.00**; 100+ 0.16; 1k+ 0.12

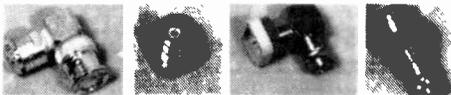
Z2007 IDC 14 way DIL plug. Normally £1.00.

Price **3/£1.00** 100 + 0.17

Z3214 BT socket type 95A for old style plug. Brown plastic clip on cover. Screw terminals **£1.00**

Z3215 Veropins type 18-56070L single sided 7.2mm long for 1.2mm hole. Pack of 100 for **£1.00**

BNC Connectors



Z2020 Right angle plug 75R, cable mounting

Price **£2.50**

Z2021 Right angle PCB mounting socket **£2.50**

Price **£2.50**

Z2022 PCB mounting socket, 50R by Belling Lee **£1.00**

Price **£1.00**

Z2040 BNC Bulkhead Socket 50R. DP **£4.44**.

Our price **£2.00**

(c) Connectors

Z3214 BT socket type 95A for old style plug. Brown plastic clip on cover. Screw terminals **£1.00**

Z3215 Veropins type 18-56070L single sided 7.2mm long for 1.2mm hole. Pack of 100 for **£1.00**

Z1557 'F' socket, single hole make low cost RF connector.

Price **4/ £1.00**



Z2023 SMC screw coupling elbow plug by Greenpar.

Price **£2.00**

Z2024 SMA screw coupling PC mounting right angle PCB socket. List price **£6.66**.

Price **£2.00**

Z2849 TNC-SMA Adaptor by Astrolab type 29068-2. Square flange 4 hole fix chassis mntg. High quality gold plated individually bagged. **£2.00**

Z1982 DIN41612 mini 1/2 B socket, 32 (2 x 16) way DP **£2.97**

Our price **£1** 100 + 0.35

Z5082 DIN 41612 right angle plug 64W (A and B) Gold plated contacts.

Price **Box of 50 £10.00** 250 + 0.10 1k + 0.06

D TYPE 25 WAY PLUGS

Z5080 Right angle PCB mounting in plastic housing by Amp, HDP-20. Gold plated contacts.

Price **Pack of 24 £5.00** 100 + .10 1000 + .06.

Edge Connectors

Z5083 40 way IDC ribbon cable terminating card edge connector. Gold plated.

Price **Pack of 10 £2.00** 100 + 0.10 1k + 0.06

Z5085 11 way single sided PCB mounting edge connector, 0.1 pitch. Sample free.

Price **Pack of 250 £5.00** 1k + 0.015 10k + 0.01

Z2154 29 way Double sided 0.1 pitch gold plated edge connector (pin 5 missing) for right angle PCB mounting clipped onto plastic bracket.

Price **£1.00** 25 + 0.60 100 + 0.35

Z2155 Back to back 0.1 pitch card edge connector. The plastic moulding has room for 12 double sided contacts, but only numbers 3, 4, 5, 6, 7, 8, 9 and 10 are fitted Gold plated.

Price **Pack of 10/ £1.00** 100 + 0.05

Z2156 PCB right angle mounting, card edge connector. 15 way double sided with pin 6 missing.

Price **Pack of 10/ £1.00** 100 + 0.05

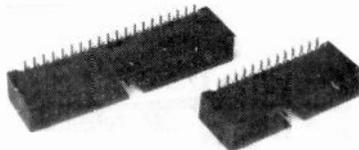


Z2061 Edge connector, 0.1 DS 25 way. Right angle PC mounting.

Price **£1.50**

Z2313 12 way DS edge connector for C64 computers (0.156"). **£1.00**

Z1828 31 way double sided 0.1" pitch gold plated PC mntg **£1.00**



5342-26 26 pin oaxed header plug **3/ £1.00** 100 + 0.15

5342-40 40 pin boxed header plug **3/ £1.00** 100 + 0.15

Z1863 As above but 33 way **2 for £1** 100 + 0.35

Z2555 Crimp connector socket, 0.6mm square. Pack of 100 **£2.00**



Z2742 Octal screw terminal relay base. DP 7.59 Our Price **£2.00**

Z350 Amp 50 way panel mntg skt, IEEE488 type **£1.00**

Z5299 Here's a great pair of connectors for anyone using a large number of wires - ideal for railway moccellers. DIN41612 style 96 way matching plug and socket. The plug is shrouded and right angle mounting - the socket can be wirewrap or PCB mounted. The DP on these is quite high, as they are used where reliability is important - you're looking at about a fiver for the pair. We've got about 200 in stock now at **£2.00 a pair**

Z2540 Edge connector, 10 way DS 0.156" pitch, gold plated with fixing holes. **2 for £1.00**

Z2849 TNC-SMA Adaptor by Astrolab type 29068-2. Square flange 4 hole fix chassis mntg. High quality gold plated individually bagged. **£2.00**

Jumper boxes - 25D to 25D connector with 25 pieces of wire to customise connections, via the PCB **All £3.95 each**
MB311P Male to male
MB312P Female to female

Z2058 6 way telecom type socket, PC mounting (as used with some computers) **Pack of 3 £1.00**

Z2059 3.5mm Chassis Socket, 3 terminals 8mm nut is missing. **Pack of 20 £1.00**

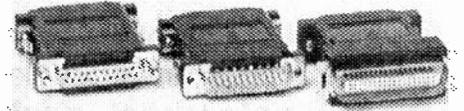
Z2113 BNC free plug. **Only 75p**

Z2114 34 way IDC card edge socket **2/£1.00**

Z2140 Amphenol 4 way socket, cable mounting with cover. **100 + 0.25 Only £1.00**

Z2141 Amphenol 5 way plug, cable mounting (no cover). **Only £1.00**

Z2142 Amphenol 11 way plug, chassis mounting. **Only £1.50**



Z5729 Set of 3 back to back connectors - one each of:

25w D skt - 25w D skt

25w D skt - 25w D plug

25w D skt - 36w Centronics plug

These are not "straight through" connectors, but covers are easily removable to wire in any way desired.

Price for all 3: **£3.95**

Z2143 Amphenol 12 way socket, chassis mounting. **Only £1.50**

Z2144 Amphenol 24 way plug, chassis mounting. **Only £2.00**

Z2145 Amphenol 15 way plug, chassis mounting. **Only £1.50**

Z2149 Amphenol Straight 60 way. **Only £1.00**

Z2146 41 way socket, McMurdo Microconnector. Arranged in 2 rows of 14 and 1 row of 13 sockets. **Only £2.00**

Z2150 Amphenol Connector. Right angle 60 way. **Only £1.00**

Z2157 Terminal Post for 1mm plug. **Pack of 100/£1.00**

Z2158 6 way Terminal Socket for 1mm plug. **250 + 0.05 Pack of 25 £1.00**

Z2159 Turned pin SIL Socket, 7 way notched so can be easily broken into any number of ways. Gold plated. **250 + 0.01 Pack of 25 £1.00**

Z2173 Mains plug and socket. Bulgin P429 p pin 1.5A chassis plug and 3 pin right angle cable mounting socket. **Our special low price per pair £1.00**

Z2344 High quality 2 pin + earth socket, cable mounting. Made in Germany, type no STAK20, rated 250V 6ADC, 16AAC. **25 + 0.65 100 + 0.50 Only £1.00**

Z2345 As Z2345 but chassis mounting. **Only £1.00**

Z2346 2 pins + earth cable mounting plug to fit Z2344/5. **Only £1.50**

Z2382 Double row 1.0 socket PCB/chassis mounting 16 way x 2, but only 1 row of pins. **Pack of 5 £1.00**

Z2397 25 way 'D' type shells. Can be used as either plugs or sockets, according to pins fitted (No pins available). **Pack of 6 £1.00**

Z2426 25 way double sided 0.1" pitch edge connector, gold plated, solder tags. **Only £1.00**

Z2427 50 way double sided 0.125" pitch edge connector, gold plated, wirewrap terminals. **Only £2.00**

Z2428 PC mounting edge connector, 13 way double sided 0.15" pitch. Gold plated. **Pack of 2 £1.00**

Z2429 15 way 'D' connector sliding lock retainer by ITT type DA51220-1 DP. **100 + 0.25 Only £1.00**

Z2430 37 way 'D' type plug, IDC type **100 + 0.40 Only £2.00**

Z2445 Data connector - like BT skt - 6 way PCB mntg for right hand plug. **2 for £1.00**

Z2448 Phono plug. Black plastic cover. **100 + 0.30 1000 + 0.02 10/£1.00**

Z2458 3.5mm Jack Plug, green cover. **100 + 0.06 10/£1.00**

Z2479 3.5mm Jack Plug, white cover. **100 + 0.06 10/£1.00**

Z2490 3.5mm Jack Plug, cream cover. **100 + 0.06 10/£1.00**

Z2563 PC mntg 6 way telephone line jack socket 605A DP 0.90 **2 for £1.00**

Z2594 50 way DS 0.125" pitch edge connector. PCB mntg **Only £1.00**

PACKS - PACKS - PACKS - PACKS

All our packs contain top quality, brand new full spec components (unless otherwise stated) and represent incredible value for money! How do we do it? By purchasing bankrupt stocks and manufacturers surplus. It's too costly to sort and catalogue all these parts, hence these outstanding packs at extraordinarily low prices - so stock up now!!

Please note most packs are calculated by weight: quantities quoted are approximate, but we do try to ensure contents are at least the number specified.

SEMICONDUCTORS

K547 Zener Diodes. Glass and plastic, 250 mW to 5W ranging from 3V to 180V. All readily identifiable, with list supplied.
PRICE: 100 for £4.95

SALE PRICE £2.00

K709 Bridge Rectifiers. Another superb value pack - could include anything from half amp to 35A, 25V to 1000V plastic and metal.
PRICE: 20 for £6.95

SALE PRICE £4.50

K710 SCR's & TRIACS. Big mixture could include all types from TO92 plastic up to DO5 stud mounting with a chance of everything in between 25V to 1000V, 100mA to tens of amps. Marvellous value.
PRICE: 25 for £ 5.95

SALE PRICE £3.50

K708 Voltage Regulators. This is an excellent pack, made up from a huge variety of +ve, -ve, fixed and variable regulators from 1.2V to 37V, 100mA to 5A plastic and metal.
PRICE: 25 for £6.95

SALE PRICE £5.00

K517 Transistor pack. 100 assorted full spec. marked plastic devices PNP NPN RF AF. Type numbers include BC114, 117, 172, 182, 183, 198, 239, 251, 214, 255, 320, BF198, 55, 394, 2N3904 etc, etc. Retail cost £16.00+
Special low PRICE: £5.95

SALE PRICE £2.50

K575 Plastic Power pack. Mainly TO126 and TO220 transistors, SCR's Triacs, etc. All new full spec marked devices offering fantastic value. Lots of TIP and BD types.
PRICE: 50 for £7.95

SALE PRICE £4.50

K711 74 Logic Pack. All brand new full spec devices from basic gates to complex logic. May include 54 & 64 types as well as 74 in L, LS, S, ALS, H, HC, HCT, etc.
PRICE: Pack of 100 £6.50

SALE PRICE £4.50

K536 74 Series Pack. "On board chips" for you to desolder containing many LS and other types. Good mix.
PRICE: 100/ £4.00

SALE PRICE £2.50

K537 IC Pack - A mix of linear and logic chips, from 6 to 40 pin. All are new, marked and full spec.
PRICE: 100 for £7.50

SALE PRICE £4.50

K850 74xx. Standard 74 series chips, gates and complex logic. Big range, over 40 types including basic gates (00, 04, 07, 20, 40 etc) and the more expensive devices like 17, 32, 74, 93, 122, 170, 174/5, 181, 193/5, 273, 368 + lots more. All brand new devices.
PRICE: Pack of 100 £7.50

SALE PRICE £4.50

K560 Mixed Semi's Pack We've now collected together enough semis to offer this pack again - it was extremely popular a couple of years ago. All types of semiconductor included - diodes, transistors, I.C.'s etc all new full spec and marked. Qty. is approximate depending on the number of power devices included.
PRICE: Pack of approx 100 £5.95; 300 £12.95 1000 £42.95

SALE PRICE 1/3 Off

K854 74LS. Probably the most popular series - this pack has a great selection of over 80 types - far too many to list here, but includes many complex (expensive!) logic devices, would cost over £40 if bought separately.
PRICE: Pack of 100 £6.00

SALE PRICE £4.25

K868 Pack of 200 Transistors. As listed on page 37.
PRICE: £6.95

SALE PRICE £3.95

K858 Lumpy SCR Pack. A selection of Stud mntg/TO66 thyristors from the above types.
PRICE: 20/£6.95

SALE PRICE £4.95

K870 Power Zenor Pack. Not many of these - but the selection is quite good. All at least 1W, plastic, top hat and stud mounting up to 10W. About a dozen or so different values.
PRICE: 50/ £3.00

SALE PRICE £2.00

K871 TO18 Metal Can Transistors - around 25 different types including 2N708, 718, 720, 726, 914, 929, 964, 2185, 2220, 2221, 2368, 2906/A, 2907A, 4212, BC178, 186, BCY72, BF181, BSX19, 85Y95A.
PRICE: 100/£9.95

SALE PRICE £6.95

K872 Plastic Power Transistors - about 30 different types, mostly TO220 with some TO126 ans TO202 etc. Types include TIP30/A/B/C, TIP110, 111, 120, BD132, 175, 185, 235/6, 240/C, 508, 677, BDW93/94, MJE340, 371, 521, 2N5285, 5294, 6121, 6289, 6388, 2SC2068 etc.
PRICE: 50/£7.95

SALE PRICE £4.95

K885 New Pack. There's a lot of TO99 product in this parcel, all by Silicon General. Too few of each type to sell individually so another pack - mostly op-amps, also mods-demos, V. regs, diff amps, wide band amps including 312, 709, 710, 711, 725, 741, 748, 733, 101, 301 (lot of these), 748, 1250, 1436, 1556, 1217, 1496 - over 30 types included. Regrettably not enough to justify including data sheets - sorry.
PRICE: 50/£3.95

SALE PRICE £2.95

K538 Diode Pack. Full spec small signal diodes like 1N4148 etc at a price never before seen!!
PRICE: 1000/£4.00

SALE PRICE £3.00

SURFACE MOUNT

KS108 New Surface Mount Pack. Excellent mix of IC's - all sorts here, from 8 pin to 40 pin, linear and logic . . . around 50 different. Lots of HC and HCT + some we don't recognise!
PRICE: Pack of 100 for £5.95

SALE PRICE £3.95

KS102 Transistors - about a dozen different types plus a few diodes, mostly SOT23. Type numbers include BCF29/30, BSR15, BC856, BCV71 BCW29/71/72/81. Supplied with code sheet.
PRICE: Pack of 100 for £3.00

SALE PRICE £2.00

KS103 Resistors. 0.125W 2% in a range of values from 3R3 to 10M. Although there is a fair range (about 50 values) many are E24.
PRICE: Pack of 1000 for £3.00

SALE PRICE £2.00

KS104 Capacitors - over 20 different values from 1pF to 470nF.
PRICE: Pack of 100 £4.00

SALE PRICE £3.00

KS105 Surface mount coil pack, only a few different values 70, 80, 120, 150 and 180uH.
PRICE: Pack of 50 assorted £3.00

SALE PRICE £2.50

KS106 Surface mount LEDs. This really is an excellent pack, containing a great selection of red, green, yellow and orange LEDs, including some dual types (red/green and red/yellow) mostly SOT23 package.
PRICE: 100 for £8.95

SALE PRICE £4.40

HARDWARE

K553 2BA Screw mix. Mostly steel, few brass / nylon etc, cheesehead, hex, countersunk, slot and pozi, mainly in lengths from 7 - 63mm. Excellent selection.
PRICE: 100/ £2.60

SALE PRICE £2.00

K830 M8 screws and bolts. Good assortment from 16-90mm long, c/s hex, pozi some hi-tensile. All steel.
PRICE: pack of 50 £3.80

SALE PRICE £2.30

K833 M6 pack. Excellent value - contains screws in various lengths and head. Mostly steel, some hi-tensile.
PRICE: pack of 100 £ 4.50

SALE PRICE £3.00

K831 M10 Bolts. Mostly hi-tensile hex head lengths from 16 - 90mm
PRICE: Pack of 20/ £3.20

SALE PRICE £2.00

K832 M12 Bolts. Mostly high tensile hex head. Lengths from 40 - 15mm
PRICE: Pack of 10/£2.40

SALE PRICE £1.70

K820 Large bolts and set screws. Could weigh as much as 150g each (up to 16mm dia x 90mm long) Practically all are steel Many different heads.
PRICE: Parcel weighing 5kg £10.00

SALE PRICE £7.00

K527 Hardware Pack This has a large variety of PK (caps) and self tapper screws from 2 x 1.5" up to 8 x 1.25 also washers, some BA metric and whit. Screws plus other miscellaneous brackets, captive nuts and bits and peices 1kg (up to 1000 peices)
PRICE: 1kg £4.00

SALE PRICE £2.50

K535 Spring Pack. Approx 100 assorted compression, extension and torsion springs up to 22mm in diameter and 30mm long.
PRICE: £1.70

SALE PRICE £1.00

K564 PCB Stand - Offs. A mixture of 8 different styles and sizes from 4.5 to 12.7 mm high.
PRICE: 100/£2.95

SALE PRICE £2.00

K843 Heatshrink Sleeving This normally expensive sleeving offered at a fraction of normal trade prices. A pack of 10m, black and clear with at least 5 different sizes from 3.5 to 42 mm dia. for just **£3.95**.

SALE PRICE £3.00

K595 Big mix of screws - very few BA mostly metric BSF Whitworth DZU etc. Tremendous variety of heads - cheese, cs, pan, hex, allen, round etc. As for size, well we've seen some as small as 3mm and a few as long as 80mm. There's even some 12.5mm dia in this pack You'll probably also find a few odd clips, washers, nuts etc. too.
PRICE: 500GM PACK £2.70

SALE PRICE £2.00

K717 Keyboard caps - a wide variety of sizes and colours from 17 x 16mm to 25 x 25mm. Some long ones too. Most have words - some numbers.
PRICE: Pack of 100 assorted £3.50

SALE PRICE £2.00

K884 Pack of 8 Tungsten Carbide drill bits. 2 each of 0.85, 0.95, 1.1 & 1.15mm.
PRICE: Pack of 8 £5.95

SALE PRICE £4.50

K875 Drive Belts. Pack containing 25 different belts listed on pg 30 of BL 102 (those we have less than 50 of not included) TOTAL RRP £49.70!!
OUR PRICE: £6.95

SALE PRICE £4.95

CONNECTORS

K803 PCB IDC connectors pack. With/without ears, straight and right angle from 10 to 64 way.
PRICE: Pack of 20 £5.50

SALE PRICE £3.00

K802 Pack of DIN41612 connectors. These popular PCB connectors come as 32/64/96 way Both plugs and sockets, some with pins missing normally costing £1-£3 each.
PRICE: Pack of 25 £8.00

SALE PRICE £5.00

K836 DIL Socket Pack A super selection of DIL IC sockets from 8 to 64 way, low profile and standard mntg, turned pin tinned, gold plated, wire wrap and solder terminals
PRICE: 100 for £14.95

SALE PRICE £9.95

K837 Lead pack. Assortment of signal and power leads terminated with a variety of plugs and sockets
PRICE: 25 for £3.95

SALE PRICE £2.95

K562 Edge connectors. Mostly 0.1 pitch some 0.15, 0.156 and 0.2 as well Single / double sided / tinned / gold plated solder/ wirewrap / PC connections
PRICE: Pack of 20 £3.95

SALE PRICE £2.95

K705 PCB Headers. SIL & DIL PC mounting header plugs straight and right angle mostly 0.1" pitch in a variety of ways from 3 to 30
PRICE: Pack of 100/£6.00

SALE PRICE £4.00

K886 SIL Sockets. Sizes from 2 to 20 way, including some on a flexible strip.
PRICE: Approx 500 pins £4.00

SALE PRICE £3.00

28**SUPER SENSATIONAL
SUMMER SALE****Packs****GREENWELD**27 Park Road, Southampton SO15 3UQ
Tel: (0703) 236363 Fax: (0703) 236307**K876** Probes only. 10 colours. Sizes from 45-127mm long.PRICE: Pack of 12 **£3.95****SALE PRICE £3.00****K877** Probes only. 1 each of 10 different colours 60mm long.PRICE: **£2.95****SALE PRICE £2.00****K878** Probes with leads. One end has probe, other end may have probe, plug or socket. Again up to 10 different colours. 10 leads.PRICE: **£4.75****SALE PRICE £4.00****K879** 10 leads, all different colours, 60mm long with 45mm probes each end.PRICE: **£9.95****SALE PRICE £8.00****K880** Patch lead, 500mm long - 10 different colours terminated with gold plated 1.5mm plugs both ends.PRICE: **£2.50****SALE PRICE £2.00****K881** Patch lead, 120 - 125mm long, only red, blue & yellow with gold plated 1mm plugs both ends.PRICE: Pack of 25 **£4.95****SALE PRICE £4.00****K887** Header pack - double row PCB gold plated headers by Harwin in everything from 6 to 50 way, easily broken down if required.PRICE Pack of 1000 pins **£9.95****SALE PRICE £5.00****RESISTORS****K867** Presets of mixed values, as listed on pg 15 of BL 102.PRICE: 200 for **£13.95****SALE PRICE £7.00****K540 Resistors.** Back in stock! after a long absence, we can again supply this popular assorted resistor pack - mostly $\frac{1}{4}$ & $\frac{1}{2}W$, some larger. Big range of popular values, all with full length leads.PRICE: Pack of 500 **£2.95.****SALE PRICE £2.00****K523 Resistor Pack .** 1000 - yes 1000 mainly $\frac{1}{2}W$ 5%, 10% & 20% carbon/carbon film resistors with preformed leads for PCB mounting. Fair range of preferred values.PRICE: only **£2.95****SALE PRICE £1.50****K531 Precision Resistor Pack.** High quality close tolerance R's with an extremely varied selection mostly $\frac{1}{4}W$ and $\frac{1}{2}W$, tolerances from 0.1% to 2% - ideal for meters, test gear etc.PRICE: 250/ **£3.00****SALE PRICE £1.50****K572 Resistor Networks.** both SIL and DIL in here, from 6 to 16 pin. Plenty of popular values like 1K, 4K7 and 10K and a good sprinkling of many other values.PRICE: Pack of 100 **£4.50****SALE PRICE £2.00****K503 Wirewound Resistors.** From 1W to 12W in vitreous enamel, ceramic & cement coated with a good range of values.PRICE: 100 for **£3.50****SALE PRICE £2.00****K525 Preset Pack.** Big, big variety of types and sizes - sub-min, min and std, MP, slider, multturn and cermets are all included. Wide range of values from 20R to 5M 100 assorted.PRICE: **£6.75****SALE PRICE £3.50****K505 Assorted Potentiometers.** All types including single, ganged, rotary and slider.PRICE: 20 for **£2.30****SALE PRICE £1.20****K827 Cermet trimmers.** An excellent range of multiturn miniature cermets from 10R to 2M.PRICE: Pack of 50 **£7.95****SALE PRICE £4.50****K828 "Lo-ohm" wirewound pack.** Values less than 10R are always popular and this pack contains only resistors between 0R1 and 10R, in wattages up to 15WPRICE: Pack of 50 **£4.30****SALE PRICE £2.50****MISCELLANEOUS****K834 Thermal fuses** 104, 109, 121 & 152°C, some with cropped leads.PRICE: Pack of 20 **£2.95****SALE PRICE £2.00****K555 Fuses.** A marvellous selection of 15, 20, 25 and 32mm fuses both carriage and wire ended in quick blow and antisurge varieties. May be anything from 32mA to 50A.PRICE: 100/**£3.95****SALE PRICE £3.00****K713 Fuse holders.** Panel and chassis mounting from basic clip to high current enclosed types for 15, 20 and 32mm fuses.PRICE: Pack of 50 **£4.00****SALE PRICE £2.50****K883 Battery cages.** A variety of holders from 2-8 cells, AA-C size.PRICE: Pack of 10 **£2.00****SALE PRICE £1.50****K823** Pack of 10 piezo and electromagnetic transducers, PC mounting and with leads. Various sizes and shapes from 15-30mm dia. Manufacturers include Star and Murata. Supplied with info sheet showing drive circuits etc.PRICE: **2.50****SALE PRICE £2.00****K541 Printed Circuit boards.** A wide variety of high quality printed circuit boards including audio, RF, digital etc all covered in components - resistors, capacitors, transistors, IC's LED's switches etc, etc. A big pack of 2Kg.PRICE: only **£7.00****SALE PRICE 5kg £10****K712 Crystals.** Mostly HC60 and HC18U in a wide variety of frequencies from a few hundred kilohertz to many megahertz and the odd crystal oscillator module or two.PRICE: 20 for **£4.95****SALE PRICE £3.50****K574 Wire link pack.** A wide range of sizes from 3mm to 50mm for use with Breadboards or PCBs. Some are bare, a few are not preformed.PRICE: per pack of 250 **£1.00****SALE PRICE 50p****SWITCHES AND RELAYS****K532 Relay pack .** We've now built up enough surplus relays to offer this popular pack once more. Could contain anything from 2V to 250V coils, SP to 6 pole contacts switching up to 10A.PRICE: 20 for **£6.95****SALE PRICE £4.50**

K593 Pack of 25 push and slide switches from page 125 of the 1991 catalogue.
PRICE: £3.50

SALE PRICE £2.50

K542 Reed Relays. Mostly DIL single pole & double pole also some changeover, these are manufacturers rejects, but a good proportion work. 5V to 50V coils. 50 assorted.
PRICE: £3.30

SALE PRICE £1.50

K520 Switch pack. 20 different assorted switches - rocker, slide, push, rotary toggle, micro etc. Amazing value.
PRICE: £2.50

SALE PRICE £1.50

K715 DIP Switch pack Tremendous selection of DIP switches mostly from page 121 of 1991 catalogue. everything from 1 - 9 way at astonishingly low price.
PRICE: Pack of 20 £3.25

SALE PRICE £2.00

CAPACITORS

K544 Mullard polyester caps. cosmetic imperfections, electrically OK. Wide range of values from 0.01 to 0.47uF in 100, 250, 400V working.
PRICE: 200/ £4.75

SALE PRICE £2.00

K546 Polystyrene/Mica/Ceramic Caps. Lots of useful small value caps up to about 0.01uF in voltages up to 8kV. Good variety.
PRICE: 100/ £2.75

SALE PRICE £1.75

K901 Mylar's - a good variety of the small 50 and 100V types - nearly all values in the E12 series from 0.001 to 0.082uF.
PRICE: Pack of 200 £3.50

SALE PRICE £2.50

K528 Electrolytic Pack . Axial and radial some ready cropped for PCB mounting. This pack offers excellent value for money. Good range of values and voltages from 0.47uF to 1000uF. 6V to 100V.
PRICE: 100/ £4.50

SALE PRICE £2.25

K518 Disc Ceramic Caps Big variety of values and voltages from a few pF to 2.2uF; 3V to 3kV.
PRICE: 200 for £2.00

SALE PRICE £1.30

K582 Polystyrene Caps. An amazing range of values from a few pF to .01. Tolerances 2-20%, Voltages to 500V.
PRICE: Pack of 200/ £4.00

SALE PRICE £2.00

K530 Assorted Polyester Caps. All new modern components radial and axial leads. All values from 0.01 to 1uF at voltages from 63 to 1000V
Super value at: 100 for £3.00

SALE PRICE £2.50

K869 Axial ceramic capacitors that have been around for some time. Nice quality bandoliered, size 6x2.5mm. Offered in packs of 600 - 100 each of the following values: 5.6, 12, 15, 22, 27 & 33pF.
PRICE: £3.50

SALE PRICE £3.00

K714 Power Supply Capacitors. All cans, mostly computer grade including popular values like 10,000uF .40V etc. Big mix of values and voltages up to 100V or more and 50,000uF.
PRICE: for box of 25 £12.50

SALE PRICE £10.00

K548 Tant bead capacitors. About a dozen different types from 0.1uF to the rather pricey 100uF, voltage from 6-50V.
PRICE: 50 for £3.00

SALE PRICE £2.00

K849 Axial Polyesters. Mixed Pack.
PRICE: 100/£2.95

SALE PRICE £2.00

K874 Solid Tantalum capacitors. A mixture of around a dozen types from Plessey and IIT of axial leaded metal cased caps. from 1uF to 100uF in voltages from 15 to 50V.
PRICE: 50/£5.95

SALE PRICE £4.50

K864 280 electrolytics, 10 each of values listed on P14 of BL103. **£7.95**

SALE PRICE £4.95

K865 2800 - 100 each as K864. £49.95

SALE PRICE £29.95

WOUND PRODUCTS

K561 Coils and Chokes. Pot cores, IF cans, open wound coils, chokes, etc from a few uF upwards in a wide variety of sizes and values.
PRICE: 50/£2.80

SALE PRICE £2.00

K579 This pack contains 10 assorted battery powered motors (mostly 3V) + 90 gears etc. 16 - 60 mm dia. + worms and shafts amazing value.
PRICE: £7.95

SALE PRICE £6.95

K866 225 Inductors of mixed values. Full description on page 38.
PRICE: 225/£14.95

SALE PRICE £7.95

POWER SUPPLY PARCEL

K506 This one's an absolute gem! Contains a selection of conventional and switch mode power supplies, including AA12531, Z660, A130, NO55, 6V 200mA, 7.5V 600mA, 24V 100mA + others! Originally selling for £40+.
PRICE: 10 assorted £25.00

SALE PRICE £15.00

K835 New transformer pack. All mains, primary, secondary range from 6-35V, 0.5 to 3A.
PRICE: Pack of 12 £10.00

SALE PRICE £7.00

OPTO

K701 110V Indicators. This pack of neon indicators comprises round and square panel mounting types in red, green, amber and clear
PRICE: Pack of 20 £2.50

SALE PRICE £1.75

K539 LED Pack . Not only round but many shaped LED's in this pack in red, yellow, green, orange and clear. Fantastic mix.
PRICE: 100/ £6.50

SALE PRICE £3.95

K524 Opto Pack . A variety of single point and 7 segment LED's (incl. dual types) of various colours and sizes, opto isolators, numicators, multi digit gas discharge displays, photo transistors, infra red emitters and receivers.
PRICE: 25 asstd. £4.50

SALE PRICE £3.00

30

**SUPER SENSATIONAL
SUMMER SALE**

Packs

GREENWELD

27 Park Road, Southampton SO15 3UQ
Tel: (0703) 236363 Fax: (0703) 236307

K806 LED Pack contains only red LED's round, square, rectangular etc, from 3mm to 7x 2.5mm.

PRICE: 100/ £5.00

SALE PRICE £3.00

K801 Seven seg. LED pack. Big variety of sizes in this pack. May include Red and green also overflow/ polarity displays, single/ double digit also 7/8/9 digit magnified displays. Sizes from 0.11" to 0.8".

PRICE: 20 peices for just £ 3.95

SALE PRICE £2.50

K873 Shaped LED's. Amongst Bi-Pak's stock were a number of shaped LED's - square, rectangular, cylindrical, oblong in red green and yellow, from 3-5mm. Excellent selection.

PRICE: Pack of 100 £8.95

SALE PRICE £6.50

K847 LED Couplers. Mixed pack containing many varieties, plus others in quantities too small to list. Full description on page 12.

PRICE: 20 for £3.95

SALE PRICE £3.00

K848 LED Displays. A pack of 10 different varieties. Full description on page 12.

PRICE: £5.00

SALE PRICE £3.50

K845 Opto Transistors. Mixed Pack.

PRICE: 25/£2.95

SALE PRICE £2.00

K846 Opto Darlingtons. Mixed Pack.

PRICE: 25/£3.95

SALE PRICE £3.00

HALF PRICE ALL ITEMS IN THIS BOX

CONNECTORS:

CODE	DESCRIPTION	PRICE	
Z576	DC Power Socket, chassis mounting.	10/ £1.00 25/£1.75 100/£6.10 1K/43.50 Only 50p	
Z598	PCB mntg 6A IEC power plug by Switchcraft. British made	Only 50p	
Z739	40 way DIL Header Plug, gold plated socket - matches McMurdo red range, but blue.	Only £1.50	
Z742	Polarising Key.	Pack of 10 50p Only £1.00	
Z743	24 way socket, connections on 5mm centres.	Only 50p	
Z769	BNP plug (it says on the packet 101/BNP/PTFE/7C) so if you're desperate for one of these, we've got them!	10/£1.00 100/£6.10 100/£1.50 100/£8.70 1000/£60.90 Only £1.00 Only £1.00 Only £1.50	
Z1382	10 way commoning block, 2x5 way 0.1" pitch by Amp.		
Z1406	Flush mounting coax socket with plastic surround.		
Z1476	Sealectro Connector Contex 75R		
Z1477	Sealectro Connector SRM 50R		
Z1485	RC4200-BS 8 way gold plated socket - matches McMurdo red range, but blue.		
Z1505	25 way R/A 'D' Socket	Only 60p	
Z1546	Crimp terminal, box type for use on header. Gold plated.	100/£3.00 1000/£19.15 80p each	
Z1548	32 way turned pin header plug, gold plated.	100/£5.20 100/£39.15 4/£1.00	
Z1555	CRT Socket. 10 way moulded green plastic.		
Z1571	10 way. 0.1 pitch header plug, gold plated.	20p each 10/£1.30 100/£8.70 Only £1.00	
Z1684	24 Pin DIL Socket. Gold plated.		
Z1693	IEC Chassis plug & filter (32mm combined by Corcom. Rated 6A 250V. Mounting hole 66x27mm.	100/£10.00 100/£10.00 Pack of 3 £1.00 Only £1.00	
Z1715	6 Pin PC mntg DIN Socket.		
Z1716	7 Pin PC mntg DIN Socket		
Z1748	2.5mm DC Line Plug. Fits PO64.		
Z1799	Belling Lee fused switched IEC inlet (DP on/off rated 6A). Needs cut out 60x28mm. Clip fix		
Z1868	5 Pin DIN 180° socket. Panel mounted by means of a press on clip at the back.	10/£1.00	
Z1870	Crimp Sockets	25/£1.00	
Z1987	75R Mini RF Connector type 50-107-0000.	Only £1.00	
Z1988	3.2mm receptacle, brass.	Pack of 50 £1.00	
Z1989	5.0mm receptacle, brass.	Pack of 50 £1.00	
Z1990	¼" receptacle, tinned.	Pack of 50 £1.50	
Z1991	¼" locking receptacle, tinned.	Pack of 50 £1.50	
Z1992	¼" blade, copper (for use with above).	Pack of 50 £1.80	
Z2595	20 way plug and socket. The 'plug' is a right angle PCB mntg type and into this slides the 'socket' that takes 20 way 0.1 pitch ribbon cable via an IDC connector.	Pack of 3 £1.00	
Z2644	PCB mains filter. Very neat 40x40x20 package. Substantial interference rejection from 150kHz to 100MHz. Rated 1A 250V ac. Individually boxed. DP 8.45.	Only £3.50.	
Z2725	64 way Amp PC mntg plug.	Only £2.00	
Z2820	3.5mm Jack Plug, yellow cover.	10 for £1.00 100 + 0.06 10 for £1.00 100 + 0.06	
Z2821	3.5mm Jack Plug, blue cover.	Only £1.00	
Z2854	Back to back co-ax (TV) plugs. Nice quality.	Pack of 10 £2.00	
Z2870	68 pin IC socket. 10x10.	Only £1.00	
Z2872	32 pin 0.6" pitch turned pin DIL skt	Pack of 10 £2.00	
Z692	IEC Inlet/Outlet.	Only £1.00	
Z5340	Hubbell, 3 Phase Twistlock receptacle 3 pole 4 wire rated 20A 250V us 3 phase socket.	2 for £1.00	
Z4070	3 way socket 4mm pitch by amp.	10/£1.00	
Z5077	McMurdo Red Range 8 way socket.	Only £2.00	
Z5078	McMurdo Red Range 16 way socket.	Only £3.00	
Z5079	McMurdo Red RAnge 32 way socket.	Only £5.00	
Z5144	25 way 'D' hoods with clamps & screws.	Pack of 10 1.50	
Z5326	ITT cannon 53 way socket type MS27/467T23B535.	Only £5.00	
Z5327	Amphenol 91-PC3F 3 way chassis socket.	Only £2.00	
Z5446	VNE Backplane by Augat.	Only £1.00	
Z5605	IEC Inlet.		
Z0334	IDC 15 way 'D' socket.	Only 70p each 2 for £1.00	
Z0335	IDC 15 way 'D' plug.	3 for £1.00	
Z1999	9 Pin plug, circular. 8 pins around the edge, the 9th is a thicker centre pin. Made by contract. Very solid housing.		
Z2003	37 way 'D' cover, plastic	Only 80p	
Z2004	24 way Centronics Style Socket, by 3M. IDC.	Only £2.00	
Z2005	25 way 'D' PC right angle mounting plug.	Only 50p	
Z2011	12 way plug	Only 80p	
Z2012	12 way Socket.	Only £1.20	
Z2016	DIN 41612 Socket.	Only £1.50	
Z2025	14 way DIN type line sockets with locking sleeve.	Only £1.00	
Z2027	CEE22 inlet by Shaftner. This is a high current version, rated 10A. Connection by 0.25" tabs at right angles to body. Screw fixing.	Only £4.00	
Z2031	Continental style 3 pin plug.	Only £1.00	
Z2055	8 pin socket, PC mounting	6 for £1.00	

- * 19 ranges
 - * 3½ ditiit 12mm LCD display
 - * Signal injector function
 - * Diode test
 - * Fuse protection
 - * Automatic polarity and zero
 - * Test leads with 4mm plugs
- Battery and instruction manual included.

OUR BIGGEST
SELLING INSTRUMENT!

**SUPERDEAL PRICE
£16.95**

AC volts 0-2i 0-750Vac±1.2%
DC volts 0-200m-2-20-20u-1000Vdc±0.8%
DC current 0-200µ-2m-20m-200m-2Adc±1.0%
Resistance 0-200-2k-20k-200k-2MΩ±0.8%
Signal injector
50Hz square wave.
5V peak to peak
Dims 126 x 70 x 24mm



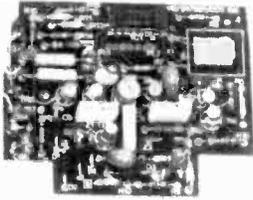
Xtra Special
HEADPHONE COVERS
Z5547 Large
Z5548 Small
Either size
10prs for £1
Star Buy !!

GREENWELD

27 Park Road, Southampton SO15 3UQ
Tel: (0703) 236363 Fax: (0703) 236307

SUPER SENSATIONAL SUMMER SALE

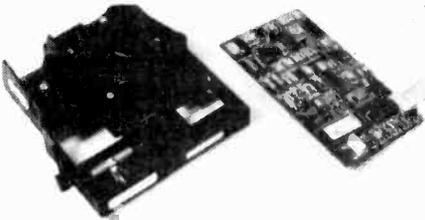
Panels



Z4318 Ex - BT tone divider PCB. Panel 84 x 69mm has on it 2559 tone divider chip, 3.579545 Xtal, 7 small signal transistors, tants, Rs, Cs, etc. Produces required tones for telephone system.

Price £1.00 100 + 0.30

SALE PRICE 5/£1.00



Z5384 Coin acceptor unit. Moulded plastic case 140x130x50mm (believed used in payphone) which has several coils embedded into it. As a coin passes over the coils, the circuitry on the 135x76mm PCB generates a pulse train. PCB contains MM9504, 82S126 In skl. CMOS 4001x2, 4053, KM2902 quad op-amp, LM2903 dual comparator, 5 small signal transistors, 4 small chokes, R's, C's etc. Only £2.95 100+ 1.75

SALE PRICE £1.00

Z5140 As listed in BL75, but we've found some of these serial parallel interface cards for the Apple II complete with comprehensive 22 page booklet. It provides full serial RS232C output + a fully decoded 8 bit parallel output port. Excellent value at £5.00

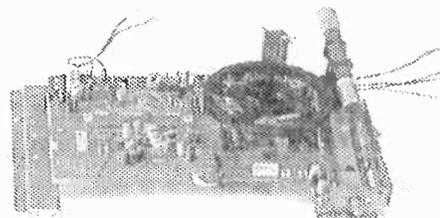
SALE PRICE £2.00



Z4279 Interesting little panel (75mm x 40mm) with 16 position BCD channel switch (24 pins), 2 dual green 7-segment displays, 2 min keyboard switches, and a short A4093. Attached by a short length of ribbon cable is a second panel (same size) with 4518, 4019 and 2 x 5068 chips. Supplied with circuit.

Price Only £2.20

SALE PRICE £1.00



Z5648 Stereo radio chassis. This one has a 6 way rotary selector switch and uses LA3220, LA3361, LA3160, LA1185, and AN7223 chips. £3.00.

SALE PRICE £1.50

Z5203 Relay panel - some panel, this! 50, yes 50 DPCO 24V DC min relays, Omron type G2V (our type W834) on PCB 230x160mm with 2xDIN41612 64 way plugs. At 1 off prices, this would cost around £100, but you can have a complete panel at just 20p per relay - that's only £10.00!

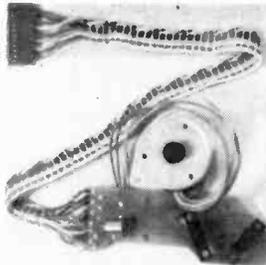
SALE PRICE £5.00

Z5597 White ABS box (like V217) 150x100x60mm with cut out 69x13mm in long side. Contains single PCB with 6x2764-30 EPROMS and a few other bits. 38mm long 22 way DS edge plug, gold plated. Believed to be a plug-in cartridge for a C64. £3.95

SALE PRICE £2.00

Z9115 Double Ringer by Weir. Right angle panel 190x72x46mm with 2xBUV46 MOSFET's, 3xBF471, some small signal T's, 3xLM358, 75453, R's C's etc. There are 7 wires leading to the inverter transformer which looks about 50VA. This unit was probably designed to take a low level signal and turn it into ringing current - about 75V 25Hz, but we have no further data. Only £4.00

SALE PRICE £1.50



Z5046 Motor Panel. PCB with mercury tilt switch, 2 x VTL10D2 opto slotted switches, length of 11 core cable with socket and superb 12V, 48 step, 7.5" Airpax stepper motor 35mm dia x 21mm with a 16 tooth 9.5mm gear wheel mounted on the 2mm dia spindle. Fixing centres 42mm. £3.50

SALE PRICE £1.50



Z1699 Mini inverter - This handy PCB 31 x 23mm uses a 2 transistor circuit to provide a 60V peak ac supply (20V dc @ 1mA) from a 3-7V dc input. Can be used to drive Z1637 LCD or for powering vacuum displays. Originally used in Newbrain computer.

Price 3/ £1.00

SALE PRICE 10/£1.00

Z3048 Tuning panel from a TV consisting of 8 x 100k multiturn pots with knurled wheel adjust in a 81x21x13mm PC mntg module. 3/£2 100+ 0.25

SALE PRICE 6/£2.00



1W Amplifier - mono

Z914 Audio amp panel 95 x 65mm with TBA820 chip. Gives 1W output with 9V supply. Switch and vol control. Just connect battery and speaker. Full details supplied.

Prices Only £1.50 25 + 0.80 100 + 0.60

SALE PRICE £1.00

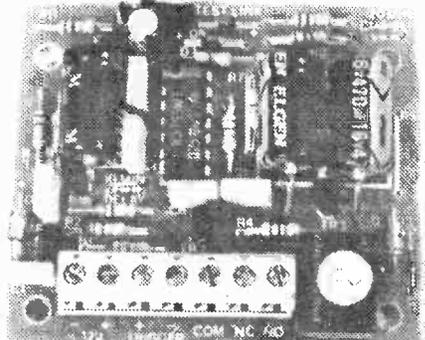
1W Amplifier - Stereo

Z915 Stereo version of above 115 x 65mm, featuring 2 x TBA820M and dual volume control.

Prices reduced to £3.00 25 + 1.80 100 + 1.20

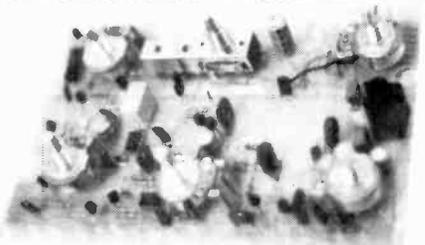
SALE PRICE £1.50

TIMER PANEL



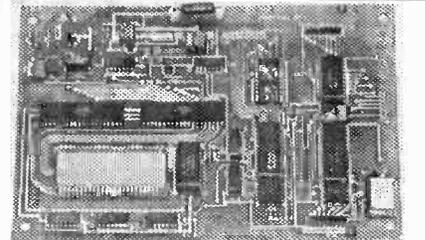
Z5514 Universal bell timer. Panel 63x55mm uses a 556 + 3 transistors to provide both 10 minute delay and 20 min cut off timers, with ability to disable one or other. +ve or -ve trigger. SPOC relay. 12V operation. Supplied with adhesive stand offs and connexion data. REDUCED TO £4.95

SALE PRICE £3.00



Z5206D Metal detector panel 185x115mm. This is the complete PCB from an expensive (£80+) "treasure detector" - just add wire coil and meter to make a working unit. Circuit uses 15 transistors and 3 IC's. There are 5 pots and a rotary switch. Detailed info supplied. £12.95

SALE PRICE £9.95



Z5608 LCD panel - PCB 234x160mm with some nice on-board parts: 2xICM7211AMIPL 4 digit LCD drivers; NSC810N RAM-I/O port timer; NSC800N CPU; MM82PC12N I/O port; 6 digit LCD; 78L05, 2xVN10KM; 12V DIL relay; 2MHz Xtal + half a dozen CMOS etc and all the usual R's, C's and diodes. Only £3.00

SALE PRICE £2.00

A MIS-ORDER has resulted in a qty of boxes of music ruled green computer listing paper being delivered.

It's 11x14 1/2" 60gm, in boxes of 2000 sheets

PRICE PER BOX: £15.00

order code: Z9192

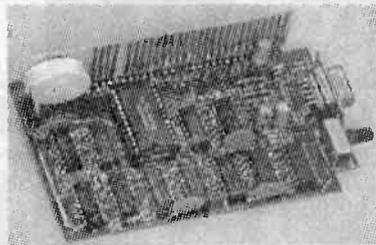
53% more paper as our standard product for the same price!!



**SUPER SENSATIONAL
SUMMER SALE**
Panels

GREENWELD
27 Park Road, Southampton SO15 3UQ
Tel: (0703) 236363 Fax: (0703) 236307

A parcel Of Spectrum programmable joystick interfaces by Fox Electronics Ltd. has just arrived - in various states of repair. Some are complete and cased, others are uncased. Most are believed to be returns, so no guarantee that they work, but there are some useful bits on the board.



Z5575 Complete PCB - no case. These look new. £1.75
Z5576 Complete PCB - no case with fault label attached. £1.25
Z5577 PCB with battery missing. £1.00 Z5578 PCB with battery and 6116 missing. 2 for £1.00
Z5579 Blank PCB. 5 for £1.00
Z3027 DPCO, PCB right angle mounting. 10 for £1.00
Z3028 6116LP-4 RAM. 4 for £1.00

SALE PRICE All 1/2 Price



Z5616 8 0.8 CA* red 7 segment LED's on panel 183 x 48mm with HC 14, HCT4054, ULN5821A, 8xZTX550. All for £3.00

SALE PRICE £1.50

Xtra Special
18 PIN IC SOCKETS
1000 YES (ONE THOUSAND) ONLY £10
Star Buy !!



Z5664 Stereo panel 235 x 165mm with 5 way push bank & 3 pots. Uses LM1035, dual tone vol & balance circuit. 2 x TDA1908A 8 watt audio amp with heat sink. Has 12V regulator on board, too. £2.20

SALE PRICE £1.50

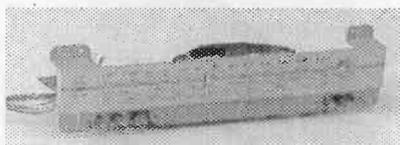
Z5665 'Unfinished' version of above - parts in place but not soldered. No heat sinks on IC's, no pots. £2.80

SALE PRICE £2.00

K860 A selection of panels from the above parcel - there are too many to list individually. Will include audio & video types with hundreds of small, modern components inc IR receivers, tuners, power transistors, LED's etc. 20 different panels. £10.00.

SALE PRICE £5.00

Xtra Special
Superb Sub-min mic
Z2642 Ideal for bugs, etc
Size 10x7x4mm
3 for £1
Star Buy!!



Z5645 Complete AM/FM stereo tuner - chassis with horizontal tuning dial, and it's even fitted with an FM ribbon aerial! Just needs 12V and an audio amp. Overall size 255 x 110 x 80mm. Push switches for AFC, mono/stereo, FM, LW, MW. All for £5.95

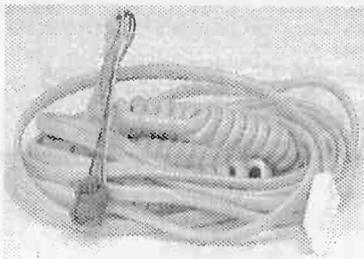
SALE PRICE £4.95

Z5666 PCB mntg TX on pax panel with 2 fuses. 2m mains lead attached, also mains push switch on flying lead. Output 9-0-9V 1/2A on flying lead with skt. £1.50

SALE PRICE £1.00

Z5674 PCB or clamp mntg transformer, mains primary, 9-0-9V 1/2A secondary (as used on above panel). £1.20

SALE PRICE 2/£1.00



Z5673 Telephone lead, 2 1/2m straight + 2m curly with 4way BT plug one end & 4W IDC socket the other. 3 for £1.00 100+ £0.20

SALE PRICE 6/£1.00



Z5646 Complete AM/FM tuner panel, has mechanics but no dial. 4 push buttons: AFC/FM/MW/LW. PCB is 195 x 105 mm, but plastic frame makes it 31 x 120 x 50 overall. Only £3.95.

SALE PRICE £2.00



Z5649 Audio board 195 x 200 mm. Apart from a complete stereo amp using 2 x TDA 1908A 8 watt chips, there's an awful lot of additional (unknown) circuitry on board. Bank of 7 push switches. Other chips include M104BI, LM1036N, TDA3810. All this for £3.20.

SALE PRICE £1.95



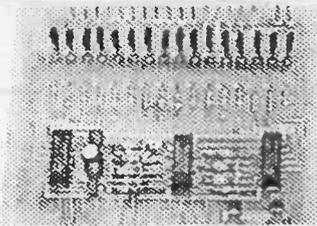
Z5650 Similar to above, but board has treble, bass and vol controls and is 295 x 170 mm. 7 input selector switches. £3.65.

SALE PRICE £2.25



Z5640 Motor panel - small PCB with KA2404, a couple of transistors plus a few other bits, and a Sanyo 12v motor 31.5 mm dia x 25 mm. Spindle 12 x 2 mm dia. Only £1.00.

SALE PRICE 2/£1.00



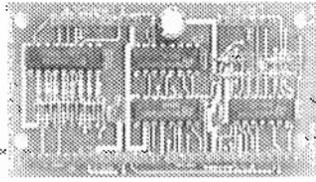
Z5618 Panel 110x92mm with 16 E-line T's 2x4724, 40106, R'd, C's etc. pack of 3 £2.00

SALE PRICE 6/£2.00

Z5621 Panel used in light gun - size 50x20mm. These have 3 or 4 2N3904/BC183 transistors, R's, C's etc - it's a small amp for the IR LED fitted to some of the PCB's. Pack of 20 panels £2.00

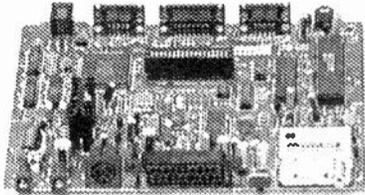
SALE PRICE 50/£2.00

Panels



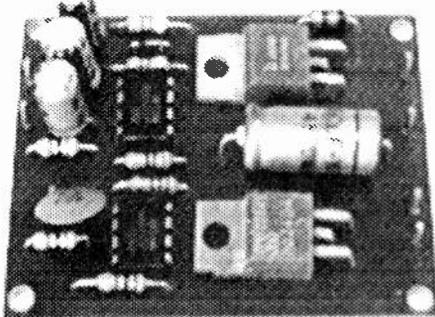
Z5619 Panel 93x47mm with TD62083, HC14, HC165, HC4094
10/£2.00

SALE PRICE 20/£2.00



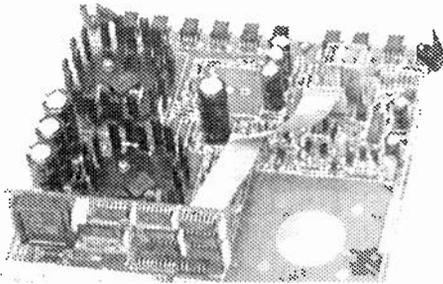
Z9217 GX4000 Games Console, being sold for parts only. The PCB 210x150mm has lots of nice bits on it: Z80CPU in skt, AY-3-8912 sound effects chip, 40489, couple of RAM chips, xtal, UM1234 UHF modulator, a dozen plastic transistors, 78L05, 7805 on heatsink, loads of C's & R's, SCART skt, 8DIN skt, 2xPower skts, 3.5mm skt, 6 pin RJ45 skt, 2 x 9pin D plugs, 15 pin D skt, 36 way edge connector - the list goes on! All yours for £3.95

SALE PRICE £3.00



Z3167 BP124 Alarm module. Super high output into horn speaker. Operates from 9-15V DC 7 watts output into 4R. Size 60x46x15mm. With data sheet. £3.50

SALE PRICE £2.50



Z5783 Ringer Generator Panel. The best thing about this PCB is the power transistors - TIP35C & TIP36C (25A 90W 100V - over £5 a pair!) on heatsinks. Also on the main board 220x195mm are 4 x 100uF 63V caps, 'continental' relay, LM358, LM339, around 20 plastic transistors, R's, C's etc + a DIN41612 connector and 9 x 10way DIL header plugs. A sub panel 132x35mm contains 8x74HC chips + an SGS 28640(?) 68 pin PLCC chip. £4.95

SALE PRICE £3.95

Z5637 Another car item; Headlights on alarm. Simple to wire in. Supplied with diagram. Boxed. £3.95

SALE PRICE £3.00

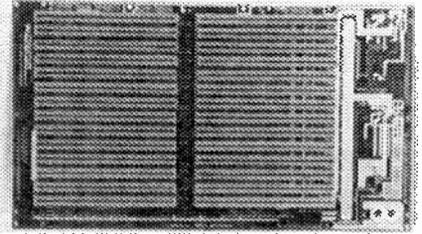
Z3179 Apple II soft printer drive board. No other info £2.00

SALE PRICE £10.00

Z8970 Lift control panel. Self contained metal box 65x90x60mm with fascia plate 292x100mm and 5 heavy duty double pole push switches fitted with 12V MBC lamps inside. Only £15.00

SALE PRICE £10.00

Z9205 Backplane. Massive PCB 480x250mm with 28 gold plated wirewrap edge connectors, 50 way double sided 0.125" pitch. Worth a fortune. Our Price £10



SALE PRICE £5.00

EVERYTHING IN THIS BOX HALF PRICE

MISC. ITEMS:

CODE	DESCRIPTION	PRICE	
Z1656	40mm long x 3mm dia.	2 for £1.00	
Z1694	S103/14 thermal switch. Glass encased with B7G base. At 24V cold start 70 secs to energise, hot start 10 secs. 5A	Only £1.00	
Z1701	Stereo cassette head.	Only £1.00	
Z1813	'E' cell. Interesting little device this! Made by Plessey for use in an air-freshener. The basic principle is that the cell is charged up and can be discharged by reversing the polarity. Fuller details and circuit of the air-freshener are supplied with each device.	Only £4.00	
Z1962	Delay line by MCG Electronics Inc. Model SLP-4-100V25.	2 for £1.00	
Z3182	8R earpiece with, unusually, 2x4mm plugs on end of 1m lead.	3 for £1.00	
Z2316	Elapsed time indicator by Curtis 0-5000 hours 5V DC 42mm long x 9 x 4mm. Wire ended.	£1.50 each	
Z2502	Olivetti Summa Add ribbon. Twin spools, black.	£1.00 each	
Z2574	20 way (DIP-IN) Inserter.	£3.00 each	
Z2576	24 way (DIP-IN) Inserter.	£2.00 each	
Z2648	UHF TV tuner - at least, the front end. Fagor SUF743 has a co-ax socket inlet into the screened case 65x50x20mm. Inside, the PCB has some surface mount bits + BF966S, BF970 and BF199 transistors and few coils.	2 for £1.00	
Z2657	Twin sensor - two bead thermistors encapsulated in a plastic moulding with a metal plate. Gold plated 6 pin plug. R @ 100°C 160k, R @ 25 °C 16M	Only £1.00	
Z2351	MCB 3 pole + N rated 16A 240/415V AC. Standard DIN rail fixing. Siemens model no 5 SN6. Individually boxed.	£10.00 each	
Z2352	MCB 3 pole + N rated 50A 240/415V AC. Standard DIN rail fixing. Siemens model no 5 SN6. Individually boxed.	£10.00 each	
Z2353	MCB 3 pole + N rated 3A 240/415V AC. Standard DIN rail fixing. Siemens model no 5 SN6.	£8.00 each	
Z2878	40430 Semiconductor. 3 legged device.	5 for £1.00	
Z2940	Pasting Brush - 25mm bristles.	Only 50p	
Z3022	We seem to have accumulated rather a lot of Antex XS 12V elements.	Only £2.50	
Z3024	Temp probe for Z5558 Module. 3m long.	Only £1.00	
Z3025	Temp probe for Z5558 Module. 10m long.	Only £2.00	
Z4135	'Stethophone' mini stereo headphones, complete with stereo jack plugs. 8R. Hinged headband.	Only £1.75	
Z3060	Italian Language Course. Consists of C90 EMI cassette tape in library case with a 32 page book covering a wide variety of subjects, supplied in a plastic wallet.	Only £1.00	
Z5142	Vacuum moulded case 225 x 175mm. Ideal for storing software/ audio cassettes, etc.	3/£1.00 100+0.22	
Z3154	MCB 3 pole + N rated 32A 240/415V AC. Standard DIN rail fixing. Siemens model no 5 SN6. Individually boxed.	£10.00 each	
Z3156	MCB single pole rated 6A 240/415V AC. Also aux contacts. Standard DIN rail fixing. Siemens model no 5 SN7.	£3.00 each	
Z3157	MCB single pole rated 16A 240/415V AC. Standard DIN rail fixing. Siemens model no 5 SN1.	£3.00 each	
Z5268	Boxed suspension cord set. White painted steel domed ceiling plate 137mm dia with 0.5m twin lead terminated to ES plastic hanging socket, also white. 250V 500W max rating).	£2.50 each 25+1.75	
Z5285	Oscillator/amplifier type RT5001 by GEC, housed in an aluminium and bakelite case 180x52x50mm. The PCB has on it a small transformer, 3x100uF 16V tant bead caps, 2xBCY40 etc.	£1.50 each	
Z5287	Tyre Pressure Alarm. Inside is a PCB with 11 miniature wire ended bulbs, a choke, 2 caps and a buzzer. There's a short length of 14 way ribbon cable, too.	£3.95 each	
Z5368	TV loop aerial, as supplied with small portables 180mm dia.	2 for £1.00 100+0.25	
Z5396	24V DC buzzer housed in a bright red surface mounting MK switch box 80x78x40mm with louvred front panel.	Only £2.00	
Z5397	24V LES lamp with red bezel mounted in MK switch box 80x78x40mm with red fascia plate.	Only £2.00	
Z5399	As Z5398 but with red box.	Only £2.00	
Z5400	MK surface mntg box in red with 24V buzzer and lamp. Red fascia plate marked 'FIRE ALARM'.	Only £3.50	
Z5414	CAUTION - static sensitive device self adhesive labels - black print on yellow background, size 89x64mm. Come in sheets of 9 -	5 sheets for £1.00 Box of 2000 labels £20.00	
Z5155	MCB single pole rated 50A 240/415V AC. Also aux contacts. Standard DIN rail fixing. Siemens model no 5 SN7.	Only £3.00	
Z3186	Drawing ink Staedtler/ Mars 23ml plastic bottle (green)	Only £1.00 each 10+ 0.70	

**SUPER SENSATIONAL
SUMMER SALE****Panels****GREENWELD**27 Park Road, Southampton SO15 3UQ
Tel: (0703) 236363 Fax: (0703) 236307

HALF PRICE ALL ITEMS IN THIS BOX

Z035	Grey ABS case 197x106x60mm with lid contains PCB with 2 relays, transformer etc.	Only £4.00	Z5210	Power supply panel - PCB 150x65mm that has been partially assembled but not soldered.	Only £1.00
Z036	PCB 265x143mm. This contains 5xLM348, 4016, 4093 & ZNA2H006E chips + transistors, R's, C's, xtal, etc.	Only £3.00	Z5211	Smaller PSU panel 97x55mm, again not soldered. Each board contains 9x1N4001, 121C thermal fuse etc.	8 Panels (72 rectx) for £1.00
Z492	M Module. 11 pin in module In 80x50x50mm case. PCB within contains 5xBC184L, + T05 transistor, R's, C's, etc. Useful housing for small projects.	3 for £1.00	Z5230	Temperature Module Panel to fit in case from order no Z5229 (no probe).	Only £9.95
Z493	D Module. As above, but PCB has 3 x BC184L, BD124, R's C's etc.	Only £2.00	Z5262	Panel in the Z5089 etc. This one has 8x2764 in sockets + 10 74LS chips.	Only £4.00
Z653	Control PCB, 140x115mm with 2x4013, 4020, 4011, 4081, 4071, 8211, LM3909, 003TIP130, 5x2N3906, switch, C's, R's, LED etc.	Only £1.50	Z5263	Panel 80x60mm with FPT100A phototransistor, LM324 quad op amp, 24V SPCO heavy duty relay, BC546, diodes, R's and C's Smashing little board.	Only £1.00
Z696	160x100 (Eurocard size) with 34 way IDC plug. LS245, LS125, LS04, LS74, LM324, and 40DIL skt with the SAA5070 view data peripheral IC missing.	Only £1.00	Z5438	Timer unit, white 2 part ABS case 145x85x75mm is a timer PCB 142x70mm. Mains is applied directly to the board and the seemingly unnecessarily complicated timer (4 chips where one would do) enable times from 1min to 2 hrs (can be extended). There are 2 heavy duty relays with 10A contacts, a piezo sounder and MBC indicator.	Only £4.95
Z4254	68008 Panel - This is the old Z220 PCB from ICL's 'one per desk' but some of the chips are missing. All panels have the MC68008PB in a socket, TMP5220, 74LS08, 38, HCT138, 245, but up to 3 of the other 4 socketed chips (pre-programmed ROMs) may be missing.	Only £2.50	Z5465	Modem PCB 197x127mm. Contains input socket for phone and output lead and plug to BT skt. 2 Omron G4D relays - 1 @ 3.6V 1 @ 5V, both with DPCO contacts; 2 G4K 5V SPCO types. Other parts include TIP126, 3x2.2µF poly caps, ULN2003, LS04, 2x2N2222 etc.	Only £4.00
Z4286	Partially assembled panel. Contains 20 LS chips, D70008C; HN61364; TC5517BPL-20.	Only £5.00	Z5521	PCB 208x88mm with 5 DIN skts' mounted one end. Mains input to transformer. Regulated (7805) output 2 heavy duty (16A) 12V relays. Chips include 6264, LM339, 27C128 in skt, 63B03 2xLF411 + several others. Usual C's, R's diodes etc.	Only £5.00
Z4294	Neat panel 213x37mm with 5 keyboard switches, 3 red LEDs and a DL1416 4 digit LED display with built in memory. There's half a metre of grey ribbon cable attached to a 34 way IDC socket.	Only £3.00	Z5522	Probes to plug into above PCB. 5 pin DIN plug with 4 separate screened leads. Each 7m long fitted with a probe	Only £6.00
Z4296	Metal chassis 310x230x25mm with 9x50 way double sided 0.1 edge connectors on small heatsinks.	Only £10.00	Z5523	Display to plug into above PCB. 5.5m lead with 5 pin DIN plug one end, + PCB 87x37mm with 4 digit LCD + MM 5452N driver chip.	Only £3.00
Z4297	Panel 95x57mm 2x18 way D/S 0.156 inch edge connectors plus 34 way IDC plug.	Only £1.00	Z5615	Giant Display Panel. (2.25") CC high brightness red 7 segment LED displays mounted on PCB 195x100mm with 20 IN4005. LED's in our cat at 8.84 each.	Only £8.00
Z4298	Panel 95x57mm with 18 way D/S 0.156 inch edge connections plus 50 way IDC plug. Also 8 way DIL switch.	Only £1.00	Z5616	Displat Panel. 8 0.8 CA* red 7 segment LED's on panel 183x48mm with HC14, HCT4054, ULN5821A, 8xZTX550.	Only £3.00
Z5047	PCB 175x122 containing a wealth of components - 80C39 CPU, 4xTL066, TL094, CMOS and 74 series chips, 8xTO126 transistors, 13 T092 transistors and lots of R's C's etc - also a 3V lithium battery. 3 connectors on it go to (a) card reader (b) Motor panel & (c) display panel which is identical to our Z027.	Only £2.00 100+ 1.00	Z5617	Panel 80x65mm with 12 red & green 5mm LED's arranged alternately in a circle. Wiring details included - use as a Christmas decoration!	Only £1.00
Z5092	PCB 8xHM3-6514-9 (1k x 4?) RAM plus few other chips.	Only £1.00	Z5618	Panel 110x92mm with 16 E-Line T's 2x4724, 40106, R's, C's etc.	Pack of 3 £2.00
Z5093	Till display. Plastic housing 200x95x45mm contains PCB 195x70mm with 8 7-seg HP LED's type 5082-7651, red 0.43 CA; 16 5mm red leds, 8255 programmable interface and other chips etc.	Only £2.50	Z5619	Panel 93x47mm with TD62083, HC14, HC165, HC4094.	10/£2.00
Z5100	Panel, 16 x HM6167LP-8 + few other odd bits.	Only £2.00	Z5620	Slotted opto switch panel 38x35mm also 4093 & ZTX450.	10 for £1.00
Z5102	Same as Z5091 but with EPROM chips removed.	Only 60p			

Any of the items below can be yours **FREE** - Just send in an Order to the value shown, and you can choose up to **25 FREE gifts!** Furthermore, if you want any extra items, you can buy up to the same number of **FREE** gifts for just £1 each! Your Order **MUST** be for at least the value shown excluding P&P. Offer available until stocks exhausted

Goods on Offer:

Z5557 Clock Module

Vero Easiwire

Z9210 Spectrum Keyboard

Z5740 Extn Speakers

AA12531 Switch Mode PSU

Z8939 Cablevision

Z3458 'D' Lithium Battery

Z5744 Windows 3.0

ORDER VALUE	Number of FREE GIFTS
-------------	----------------------

£25	1
-----	---

£50	2
-----	---

£100	5
------	---

£200	10
------	----

£500	25
------	----

HELIX MATHS SET

Colourful 4 piece set - protractor, 15cm rule, 45 and 60 degree set squares in bright primary colours, in a handy pouch

Big Discounts for quantity!

100+ 0.45

1000+ 0.35

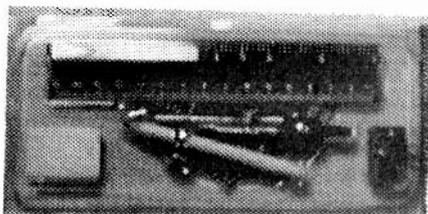
99p

Order Code Q86013



SPECIAL OFFERS FROM HELIX

A range of 'Clearance Lines' offering super value for money on top quality product



A10000 Economy maths set - 2 set squares, protractor, 15cm rule all in bright colours together with compasses and an eraser in a rigid see-through pack. Only £1.50

H40 Lettering guide value pack. Contains 4 popular sizes - 5mm & 10mm upper and lower case and 20 & 30mm upper case only. Supplied in compartmentalized clear plastic case. £1.99

Z01268 Staedtler/Mars Lumochrom leads. Pack of 12 in dispenser. Blue 2mm. Fits all standard lead holders.

Prices **30p** 10+ 0.20 50+ 0.15

Z01188 Tube of 12 x 2H leads 2mm dia.

Prices **25p** 10+ 0.17 50+ 0.12

Z01189 Tube of 12 Green leads 2mm dia.

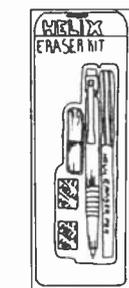
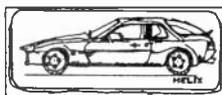
Prices **30p** 10+ 0.20 50+ 0.15

REMOVAL OF THIS COVER WILL INVALIDATE GUARANTEE NO USER SERVICE PARTS INSIDE.

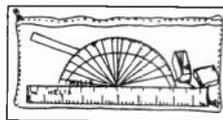
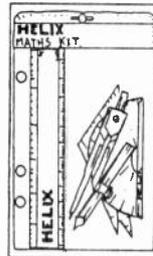
USE 9 VOLT ALKALINE BATTERY PERIODIC TESTING OF THIS UNIT MUST BE CARRIED OUT TO ENSURE SATISFACTORY OPERATION.

MADE IN GREAT BRITAIN

Z3049 Labels - self adhesive as shown **100/£1**; roll of approx 2000 £10



99p each

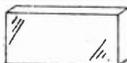


A30 Car pencil tin 180x75x20mm **99p**

E50 Eraser kit - 5 different + refillable pencil **99p**

A01 Mini maths set - clear zipped pencil case with rule, protractor, rubber and sharpener. **99p**

Q86 Small maths set - colourful rule, 2 set squares, protractor and a pair of compasses **99p**



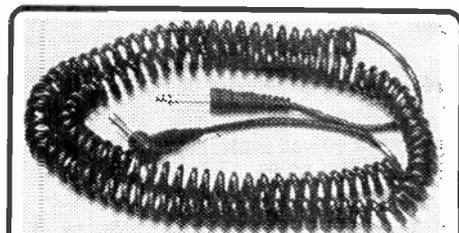
Y93021 Helix erasers. Good quality rubbers in blue, yellow and red, each 50x23x10mm. In boxes of 36 for £3.95

TEKTRONIX MANUALS

Dating from 1958, this collection covers a wide variety of test equipment. Manuals supplied will be originals in some cases where we have sufficient stocks, otherwise photocopies.

(a) Oscilloscopes	Code	Model	Price	Z1038 M	£10
	Z1001	465 early	£25	Z1039 W	£10
	Z1002	465 B250000+	£25	Z1040 Z	£10
	Z1003	517A	£15	Z1041 1A1	£10
	Z1004	520	£25	Z1042 1A2	£15
	Z1005	524AD	£15	Z1043 1A7	£20
	Z1006	526	£15	Z1044 1A7A Diff Amp	£20
	Z1007	535A	£20	Z1045 2B67 Timebase	£15
	Z1008	543/543A	£20	Z1046 3A1 Dual trace amp	£15
	Z1009	535/535A	£20	Z1047 3A6	£10
	Z1010	544	£20	Z1048 3A72	£10
	Z1011	545	£20	Z1049 3B1	£10
	Z1012	545A	£20	Z1050 3B3	£15
	Z1013	545B	£20	Z1051 7A18	£10
	Z1014	547	£25	Z1052 7B53A/AN Dual timeba	£20
	Z1015	551	£20	Z1053 53/54B	£10
	Z1016	564	£15	Z1054 53/54D	£10
	Z1017	564B	£20	Z1055 53/54G	£10
	Z1018	575-175	£20	Z1056 82	£15
	Z1019	581A	£25	Z1057 86	£10
	Z1020	585	£15		
	Z1021	585A	£20	(d) Current Probe Amplifiers	
	Z1022	661	£20	Z1058 134	£10
	Z1023	7603	£25	Z1059 131/P6016	£10
				(e) Time Mark Generator	
				Z1060 184	£15
	(b) Probes			(f) Calibrators	
	Z1024	6006	£3	Z1061 067-0521-00	£10
	Z1025	6008	£3	Z1062 067-0523-00	£10
	Z1026	6010	£3	Z1063 Calibration fixtures	£10
	Z1027	6011	£3		
	Z1028	6012	£3	(g) Miscellaneous	
	Z1029	6028	£1	Z1064 FC815 UHF FM Tx/Rx	£25
	Z1030	6054	£4		
	Z1031	6054A	£3	(h) Operators Book	
	Z1032	6075A	£3	Z1065 434	£3
				Z1066 465/DM40-43 meters	£5
	(c) Plug-In Modules				
	Z1033	B	£10		
	Z1034	CA	£10		
	Z1035	D	£10		
	Z1036	H	£10		
	Z1037	L	£10		

10% OFF ALL MANUALS



Z5767 Coiled mic/guitar lead CL20 from Eagle, in original packs. Std 0.25" straight plug to std 0.25" right angle plug. Extended length 5m. **Super Price - £2.95**

SALE PRICE £2.00

25% OFF ALL HELIX CLEARANCE LINES

This first edition of our 1994 SALE Catalogue is being distributed via several electronics magazines which have varying publication dates. Because of this, it is possible that even if you respond immediately, some goods may be sold out.

Everyone who sends in an order from this catalogue will receive an updated edition in August, showing further reductions of unsold items and several pages of new products. We look forward to serving you.

1/3rd OFF ALL ITEMS IN THIS SECTION

A few hundred speakers at knock-out prices - being offered so cheaply because they are quite old stock & some have small amounts of corrosion on the chassis. The cones, however are in excellent condition.

Z9173 13" x 8" Elliptical: If anyone can remember as far back as 1974 or so this was a very popular line. They have built-in crossover & tweeter on a frame across the front. Rated 15w RMS (In a 1975 list at £4.00 each). No inflation here - still £4.

Z9175 8" x 8R bass unit with rubber surround, 20 watts. Individually boxed. £4.

Z9176 6 1/2" 8R Nice unit by ITT. Rated 10 watts. £3.

Z9177 5 1/4" 8R individually boxed. 10 watts. £3.

Z9178 Cabinet Speakers - size 240 x 178 x 100mm finished in a light polished veneer. Single 6" unit gives surprisingly good sound quality. Ideal for extn speakers. £12.95 per pair, boxed with 3m leads.

Z9179 10 1/2" x 6 1/2" Elliptical 8R speaker. Probaly 10 watts. Individually wrapped. £2.

Z7180 8" bass unit, 8R. Big magnet. 15 watts? £4.

Z5660 4" 4R 10 watt midrange unit by Foster. £2.50.

Z5661 2" 4R 5 watt tweeter by Foster. £1.50.

Z5662 4" 4R 10 watt tweeter by ITT. Probably for use with Z5663. £2.50.

Z5663 6 1/2" 4R 10 watt bass driver by ITT. £3.50.

Z5636 High quality, high power tweeter 53x53mm. 35mm dia magnet. Solder tags. Rated 8R 40W £2.50.

40 WATT TWEETER
Z5516 55mm Dia, 3R5 impedance. Ideal replacement for many speaker systems £4.00

Burglar Alarm Bell

Z9138 A loud motor driven bell for home or industrial security systems.

Features include: Internal NiCd battery to drive bell in the event of cable being cut; internal anti-tamper switch, output for external strobe; selectable positive or negative return for control panel type; positive or negative ring control.

Dimensions: Gong diameter 185mm, bracket diameter 220mm, assembled thickness 75mm. Requires additional weather proof case for external mounting. £12.95.

Z3053 Cased piezo element 27mm dia, overall 30mm dia x 13mm deep. Pack of 8 £1.00

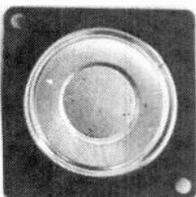
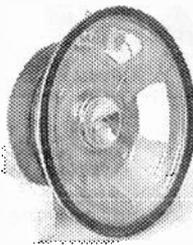
Z3054 Piezo element 20mm dia. Pack of 12 £1.00

WATERPROOF SPEAKERS

These are entirely submersible, having a clear plastic sealed cone. Have music in your bathliterally!
88mm diam (3 1/2") rated 12 watts, 8R. 60mm diam magnet.

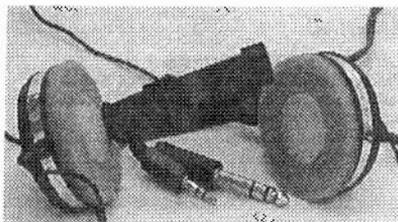
Super quality & value!

£2.95 each
25 + 1.70
100 + 1.20



Z578 Super flat speaker 30 x 30 x 3mm by Fuji, rated 16R 0.4W. DP £1.50.

Our Price 60p 25 + 0.35 100 + 0.22 1k + 0.15
Z533 Danavox transducer - used as a speaker in pocket pagers. Impedance 50R. 20mm dia leads 90mm long. Extremely high quality unit.
Prices 50p 10/ 3.65 50/ 14.80



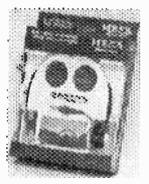
Z5560 These headphones have excellent quality transducers, although the gimmicky fold-up style leaves a bit to be desired. Supplied with mini plug + adaptor to std size. £3.95
Z9152 2 part plain carbonless listing paper 8" x 12". Box 1000. £5.00

HEADPHONE OFFER



CD04 - Neat rectangular style CD Headphones, compact design with extremely good sound. These retail for up to £19.95 (depending on how posy the store is!). Spec: 16-22,000Hz Somainium cobalt transducers. Gold plated 3.5mm plug & adaptor. 32R impedance

SUPER PRICE £4.95



MDR20 - Personal stereo headphones. Again, top quality using somarium cobalt transducers. Spec as CD04 alongside. Attractively packaged with spare covers

SUPER PRICE £3.95

Z3182 8R Earpiece with, unusually, 2x4mm plugs on end of 1m lead 3/£1.00

Z5636 High quality, high power tweeter 53x53mm. 35mm dia magnet. Solder tags. Rated 8R 40W £2.50

Xtra Special

RESISTORS

Z2104 1R 6w WW 20/£1
Z2105 50R 15W WW 5/£1
Z2106 225R 23W WW 4/£1
Z1877 0R1 11W WW 18/£1
Z1878 0R27 11W WW 18/£1
Z4402 1R 25W WW 4/£1
Z2701 6R8 5W MC 20/£2
Z2702 8R2 5W MC 20/£2

Star Buy !!

SOUNDERS/SPEAKERS/TRANSDUCERS:

CODE NO.	DESCRIPTION	PRICE
Z1771	Star QMB - 06 PCB Mnt. Piezo buzzer.	
Z2178	Fuji Piezo sounder. 168H008. Size 25x20x8.	Pack of 6 £1.00 100+ 0.08 1k+ 0.06
Z2642	Miniature piezo mic/sounder. As used in paging receivers - measures just 10x7x4mm.	2 for £1.00
Z2649	Another slightly larger mic/sounder by Microtel 20x13x7.5mm.	2 for £1.00
Z2553	Transducer by Digisound, type B/C17 in grey plastic housing 25x26x8mm.	Pack of 3 £1.00
Z945	5" x 3" 80R 1W Speaker.	Only £1.00
Z5266	Miniature 15R speaker 45mm (1.75") dia.	3 for £1.00 100+ 0.16 1k+ 0.10
Z5419	Super little speaker bargain - 63mm dia	3 for £1.00
Z5462	Metal 9V buzzers - like our A391 at 80p. Need 43mm dia hole. Overall size 50mm dia x 26mm deep.	5 for £1.00 100+ 0.20 1000+ 0.15

Z3183 Piezo transducer PC mntg Star QMB06 14x6 dia. Pitch 8mm. 3 for £1.00

MICS, SPEAKERS, EARPIECES

Code	Qty	Description	Price
VP908	2	Magnetic mic holder for CB mic	£1.00
VP909	1	2" dia speaker. 80R 0.3W	£1.00
VP910	1	4" dia high power speaker for bass applications. Frequency range 50-800Hz, max power 20W 8R	£9.95
VP316	1	5m telephone extension lead, plug - socket	£4.50
VP317	1	10m telephone extension lead plug - socket	£6.00
VP911	1	8" 8R speaker, max 12W 60-15000Hz	£7.95
VP625	1	8Ω earpiece, magnetic 2.5mm plug	£0.25
VP260	1	9" x 6" elliptical 8Ω 10W RMS speaker Freq res 60-10000Hz. Gauss 10000 centre HF cone	£4.50

BUZZERS/SIRENS

Code	Qty	Description	Price
VP107	1	Piezo buzzer miniature, 12V	£1.25
VP83	1	Electronic Buzzer 6V 25mA	£0.95
VP84	1	Electronic Buzzer 9V 25mA	£0.95
VP85	1	Electronic Buzzer 12V 25mA	£0.95

1/3rd OFF ALL ITEMS IN THIS SECTION DRAPER TOOLS

7 pce. METRIC DRILL SET
(11 6-6.5mm) High Speed Steel
STOCK No 10803



List Price inc. VAT £5.64 Ex. VAT £4.80

4.50 PER SET

SERVICE ENGINEERS TOOL CASE
STOCK No 18157



List Price inc. VAT £71.89 Ex. VAT £61.18

39.95 EACH

SANDING KIT
STOCK No 19488



List Price inc. VAT £2.33 Ex. VAT £1.98

1.95 PER KIT

6 pce. AIR BRUSH KIT
STOCK No 25989



List Price inc. VAT £15.44 Ex. VAT £13.14

11.95 PER KIT

DIAPHRAM COMPRESSOR KIT
STOCK No 28093



List Price inc. VAT £141.00 Ex. VAT £120.00

99.95 PER KIT

RECHARGEABLE SOLDERING IRON KIT
STOCK No 11674



List Price inc. VAT £25.90 Ex. VAT £22.04

19.95 PER KIT

TOOL CHEST
STOCK No 11552



List Price inc. VAT £72.50 Ex. VAT £61.70

49.95 EACH

INSPECTION LAMP (240V)
STOCK No 19100



List Price inc. VAT £11.73 Ex. VAT £9.98

7.95 EACH

STAPLE GUN
STOCK No 21350



List Price inc. VAT £10.22 Ex. VAT £8.70

5.95 EACH

3 pce. TYRE SERVICE KIT
STOCK No 27683



List Price inc. VAT £8.20 Ex. VAT £6.98

5.95 PER KIT

TILE CUTTING MACHINE
STOCK No 13460



List Price inc. VAT £30.83 Ex. VAT £26.24

21.95 EACH

HAND DRILL
STOCK No 13841



List Price inc. VAT £12.31 Ex. VAT £10.48

8.95 EACH

4 pce. WOOD CHISEL SET
STOCK No 12339



List Price inc. VAT £26.09 Ex. VAT £22.20

19.00 PER SET

DRAIN BLASTER
STOCK No 21837



List Price inc. VAT £5.57 Ex. VAT £4.74

3.95 EACH

ILLUMINATED MAGNIFIER
STOCK No 21560



List Price inc. VAT £5.43 Ex. VAT £4.62

3.95 EACH

HYDRAULIC BOTTLE JACK
2 ton capacity
STOCK No 30450



List Price inc. VAT £21.74 Ex. VAT £18.50

13.95 EACH

80 pce. 1/4"/16" sq. drive SILVERDRIVE MM/AF COMBINED SOCKET SET
STOCK No 2910C



List Price inc. VAT £91.53 Ex. VAT £77.90

64.95 PER SET

INSPECTION LAMP (12V)
STOCK No 14148



List Price inc. VAT £9.71 Ex. VAT £8.26

6.95 EACH

3 pce. ENGINEERS FILE SET
STOCK No 12265



List Price inc. VAT £11.61 Ex. VAT £9.88

7.50 PER SET

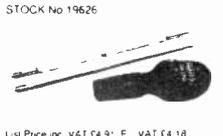
BATTERY & AUTO CABLE TESTER
STOCK No 20566



List Price inc. VAT £6.98 Ex. VAT £5.94

4.95 EACH

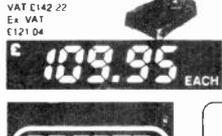
REVERSIBLE BLADE SCREWDRIVER
STOCK No 19626



List Price inc. VAT £4.91 Ex. VAT £4.18

2.50 EACH

3 speed HOBBY BENCH DRILL
STOCK No 22105



List Price inc. VAT £142.22 Ex. VAT £121.04

109.95 EACH

THREE WHEEL BANDSAW (10")
STOCK No 22119



List Price inc. VAT £230.54 Ex. VAT £196.20

199.95 EACH

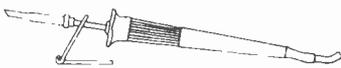
6 pce. MULTIRASP SET
STOCK No 13856



List Price inc. VAT £27.10 Ex. VAT £23.06

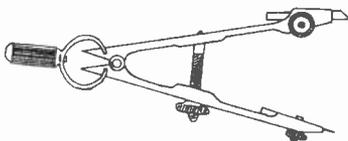
11.95 PER SET

HIGH QUALITY LOW COST SOLDERING IRON + STAND



Y061DA Mains element with interchangeable bit (std Antex CS types fit). Rated 15 watts. Ideal general purposes BS approved iron. £4.95

SALE PRICE £3.95



Z314 Precision spring bow compasses 88mm long. Max circle dia 70mm. Replaceable pencil lead and steel tip. Price £1.00

SALE PRICE 2/£1.00

Y030C 6 piece precision micro tool set contained in adhesive backed foam block - 4 screwdrivers, 2 each straight and pozi blade 190 x 240mm long, and 103mm long nosed pliers and 93mm side cutters. Price £9.95

SALE PRICE £6.95

Z5607 10 piece super little modellers cleaning and polishing kit by Black & Decker for use in any electric drill. Contains 4 polishing cylinders, 1 screw type mandrel, 1 bullet polishing point, 1 cleaning brush, 1 steel wire wheel brush, 1 pot of jewellers rouge. Excellent value at £3.95

SALE PRICE £2.95



Z9155 40 piece socket set by 'Grafter'. Good selection of sockets at a modest price - 5/32 - 9/16 & 4-14mm + handle, extn, adaptor etc, all in a hinged metal case.

SALE PRICE £4.95

SPECIAL PURCHASE OF REDUCED SHANK TUNGSTEN CARBIDE PCB DRILL BITS

All have 3.15mm shank. They normally cost around £3 each, but we have about 6000 of the four sizes listed below at very special prices!

Available in these sizes only:

Code	Size	+1	25+	100+
Z3233	0.95mm	£1.00	0.50	0.40
Z3234	1.10mm	£1.00	0.50	0.40
Z3235	1.15mm	£1.00	0.50	0.40

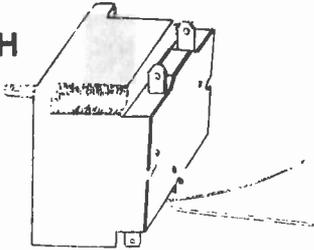
SALE PRICE 1/3rd Off

DRAPER
THE TOOL COMPANY

**ALL PRICES
INCLUSIVE OF VAT**

**These Two Columns -
TWO FOR THE PRICE OF ONE**

**TIMER
SWITCH**



Z5174 Timer switch by Diehl of Germany. Superb gearcain mains motor. (1 rev per 12 hours) operates a cam that switches 2 change over contacts with centre - off positions rated 16A 250V. Size 60x54x43mm. Spindle is 14x6mm dia Only **£3.00** 100+ £1.50.

**POINTS
SWITCHES**



Great switch bargains for railway modellers - these small switches 18mm wide and 12mm high (excluding lever) and just 4mm thick with 14mm FC come in two versions:

Z2363 2 position, 2 pairs make and 2 pairs break. Pack of 5 for **£1.00** 100+ 0.10

Z2364 3 position, 6 pairs contacts (2 pole 3 way). Pack of 5 for **£1.00** 100+ 0.10

Microswitches

Z2084 Skeleton microswitches. SPCO, 5A rating. Two 3.5mm mounting holes on 10mm centres. They are designed to be mounted side by side - in theory the number is only limited by the length of bolts available! (each switch is 5mm thick).

Price Pack of 4 for **£1.00** 100+ 0.15



Z2165 Omron miniature type SS rated 3A 250V. Single break contact operated by bent lever.

Price 5 for **£1** 100+ 0.12 1k+ 0.08

Z2166 Omron standard type VL631C. These are for signal switching, contact rating 0.1A 125A AC/30V DC. Single make contact.

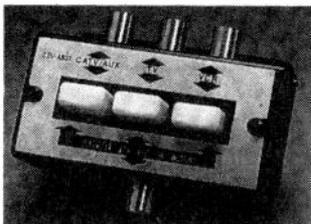
Price 6 for **£1** 100+ 0.09 1k+ 0.05

Z5188 High current microswitch by Siemens, model 3 SE3 rated 10A 380V AC. Fully shrouded screw terminals (4); 1 pair make and 1 pair break terminals. Overall size 28 x 30 x 32.

Price **£1.50**

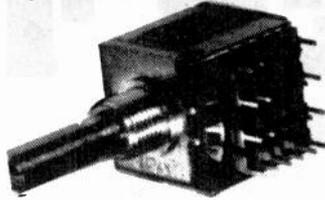
Z5568 Highland Airpax circuit breaker rated 10A - Size 50x42x19mm. A snip at **£1.00**

TV SWITCH



T123A Push button selector switch to give 3 inputs to one TV - co-ax skt inputs, co-ax plug output. Auto substitution of 75R load when channel not in use. Size 90x47x39mm
Normally **£3.99**
£2.00

Rotary Switches



Z1522 Switch, Alps SRS 40 way. As used in CB's for channel switching. Body 20x20mm. 6mm dia shaft with M9 fixing nut. Not sure if these are binary or BCD. 7 bits per step. Data sheet supplied. **£1.00**

Keyboard Switches



Z1523 PCB mounting illuminated keyboard switch. High quality single pole reed with 5V lamp made by FR. Model 18 x 18mm. No tops unfortunately.

Price 3/ **£1.00**



Z2167 Keyboard switch, single pole clip-in type with standard + stem for cap. 13.6 x 12.9mm. 7.5mm pitch. DP 75p.

Our low price 6 for **£1** 100+ 0.10

Rocker Switch

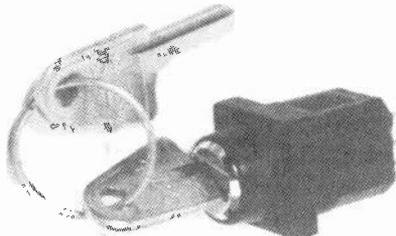


Z1819 Rocker switch in black plastic. SP on/ off rated 16A 250V ac. Needs 30 x 12mm cutout.

Price Pack of 4/ **£1.00**

Z2597 Keyswitch by Lorlin. 2p5w with 2 keys. PC mntg for low current up to 1A **£2.50**

Z2853 8 position DIL switch - AMP type 435802-9. Gold plated. Pack of 5 **£2.00**; 100+ 0.25



Z2168 Superb quality British made (TOK). Gold plated DPCO contacts. Key can be removed in either position. PC mounting or clip fix - needs 15x15mm cut-out. Ideal for alarms etc.

Price **£1.95** 25+ 1.20 100+ 0.80

Joystick Switch



Z004 Skeleton Joystick, switch type. Good quality, made by AB. Brass spindle has 44mm long black plastic handle attached. Body has 4 mounting holes. These really are a fantastic bargain!! **ONLY £1.00**

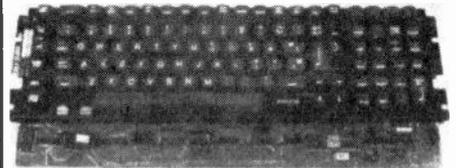
Z2699 Push to make switch, like our W435 only non-locking. Black top. Normally 52p. Special offer price 6 for **£2.00**

**ALL THESE KEYBOARDS
£2 EACH**



Z8842 Tatung VT4100 keyboard. Cased 85 key units with separate numeric keypad. With circuit. Has 2 or 3 broken key tops. 450 x 65 x 125mm.

Price **£9.95**



Z8848 Keyboard by Cherry. Room for 104 keys, all normal keys (65) fitted. Chips on board: LS373 x 2, LS374, LM3086 x 2. LS138 x 3, 555, LS08, 6805. Size 442 x 175mm.

PRICE: **£10.00**



Z8852D Keyboard. Superb brand new high quality keyboard with LCD displaying 1 line of 10 characters and a further line with various symbols. 100 keys, inc separate numeric keypad. Chips on board are 2x74HC05, 80C48. LCD + driver chip are easily removed. Amazing low price - only **£10.00**



Z8863 Keyboard. High quality unit made by Micro Switch. 69 pale grey and blue keys. 6 red 5mm LED's, 15 various LS chips, and socketed D8048 by Intel. Output via 7 way plug and there's a 4 way edge connector too. Keyboard frame is 317 x 128mm, PCB on which it's mounted is 285 x 170mm.

PRICE: **£10.00**

**Xtra Special
SWITCHES**

- Z2166 microswitch 12/£1
- Z2341 DIL switch 10/£1
- Z2499 limit switch 8/£1
- Z2491 microswitch 4/£1
- Z1522 CB switch 2/£1
- Z2492 cased uswitch 2/£1.50

Star Buy !!

TWO FOR THE PRICE OF ONE

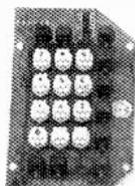
KEYBOARDS

CODE NO.	DESCRIPTION	PRICE			
Z4354	Computagraph Colourwriter panel 352x187x11mm. Ally frame supports a membrane keyboard which has 22 keys. On the rear of the panel are 6 yellow submin LED's, a 3mm red LED and 2x19W edge conns.	Only £1.00	Z2624	Push button. Red. 14x8x19.7.	10 for £1.00 100+ 0.06 1k+ 0.04 10k+ 0.03
Z4363	Membrane keyboard 225x84mm with 11 keys - 1-9 & 2 others. Output (common bus) on 12 way ribbon cable. Could be cut down to 95x70mm if only 1-9 needed.	60p each 100+0.30	Z2625	Push button. Black. 10.5x7.4x14.8.	10 for £1.00 100+ 0.06 1k+ 0.04 10k+ 0.03
Z5440	2 keypads. These are packed in pairs - both have 12 keys, but the legends are different: (a) 0-9 * and # and (b) MO LIMU B LO S F WU A and a couple of symbols. They have the graphite coated rubber membrane, but no PCB.	Only £1.50	Z2626	Push button. Red. 10.5x6.9x14.8.	10 for £1.00 100+ 0.06 1k+ 0.04 10k+ 0.03
Z9169	18 key Keypad and case. 0-9, F1-4 + 4 others in angled case 260 x 110 x 30mm that screws to Z9168 above. (see pic). On the PCB, apart from the keys are 80C32, TC55257 + Prom, 7812 and 10 other chips.	Only £2.00	Z2627	Push button. Black. 10.3x6.9x12.	10 for £1.00 100+ 0.06 1k+ 0.04 10k+ 0.03

SWITCHES:

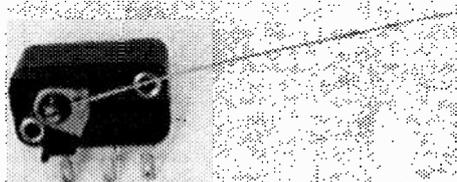
CODE NO.	DESCRIPTION	PRICE			
Z798	Large reed switch, 50.8mm long body. Rated 5A 400V max.	Pack of 10 £1.50 25/2.60 100/8.70 250/17.40 1k/60.90 3 for £1.00 Only £2.50	Z2641	Fine quality switch, push-on, push off rated 3A 250V ac. 11mm dia body and big bright red button 14mm dia. Excellent value!	10 for £1.00 100+ 0.06 1k+ 0.04 10k+ 0.03
Z1689	DP Mains switch rated 5A 250V.		Z024	80mm dia x 45 total depth. SPC switch rated 16A 250 Vac.	3 for £1.00 100+ 0.15 1k+ 0.10
Z1837	Lightweight push button switch. Double pole momentary action. 15.8mm sq cut-out. Uses Y13/4 wedge lamps. Supplied with our Z1466 12V 1.2W. Lens available in white, red, green, blue or yellow.	Only £2.50	Z4185	Switch, high current, 11 terminal device. It's 6 positions give a variety of connections. Data supplied. Standard 0.375" bush & 1/4" spindle. Rated 2A 250V, 3A, 125V or 10A 20V ac.	Only 80p
Z2107	Key switch. Single pole 4 way rated 2A 250V ac.	3 for £1.00	Z4365	8 switches, 6 interlocking (4x4PCO. 1x DPCO 1x 6PCO); and 2 independent (both DPCO). No knobs.	Only 60p
Z2108	PCB mntg rotary switch. 4 pole 3 way by C & K.	Only £2.00	Z5160	Rotary switch. Similar 3 position.	3 for £1.00 100+ 0.15
Z2134	Highland-Airpax circuit breaker rated 30A 250V. Size 51x42x19mm, screw terminals.		Z5086	Klippon SAKR 240V 10A isolating switch 4mm.	Only £1.00 Box of 80 £5.00 1k+ 0.03
Z2140	4P 3W rotary switches (cat type W025) with cut down (10mm) shaft, pc mounting.	Pack of 4 for £1.00	Z2491	Single pole heavy duty push switch with screw terminals made by Burgess, type KB5-A2.	2 for £1.00 100+ 0.30 Only £1.60
Z2188	Digital switch. PICO-D-301-AK2. BCH. 14x7.5x26.	1+ £1.00 10+ 0.60 100+ 0.40	Z2492	The above switch mounted in a plastic box 49x54x18mm with plunger assembly.	Only £1.60
Z2189	Digital switch. SMC-D-301-AK2. BCH. 22x7.5x34.	1+ £1.00 10+ 0.60 100+ 0.40	Z2493	Very large light action rocker switch, SPCO. Lever is 43mm square. Clip fix mounting.	Only £2.00
Z2191	Digital switch. DPS8-111-AK2. DEC. 24x8x35.	1+ £1.00 10+ 0.60 100+ 0.40	Z2498	Unimax high quality illuminated push switch, DP contacts. Needs 16mm dia fixing hole and takes wedge lamps. Available with green (Z2498G), Orange (Z2498R) or black (Z2498B) bezel.	Only £1.00 each
Z2192	Digital switch. SMC-137-AK2. BCD. 22x7.5x34.	1+ £1.00 10+ 0.60 100+ 0.40	Z2499	Neat limit switch with lever and microswitch action, 1 pr make and 1 pr break contacts. 18.5x10x7.8mm. Lever is 30mm long.	4 for £1.00
Z2193	Digital switch. DPS9-131-AK2. BCD. 30.5x5.5x41.	1+ £1.00 10+ 0.60 100+ 0.40	Z2602	Push switch. 8PCO. PCB/ST.	£2.00 per pack 100+ .08 1k+ .056
Z2194	Digital switch. DPS9-301-AK2. BCD. 30.5x7.5x41.	1+ £1.00 10+ 0.60 100+ 0.40	Z2603	Push switch. 6PCO. PCB/PCB.	£2.00 per pack 100+ .07 1k+ .044
Z2195	Digital switch. DPS9-111-AK2. DEC. 30.5x7.5x41	1+ £1.00 10+ 0.60 100+ 0.40	Z2604	Push switch. 6PCO. PCB/PCB.	£2.00 per pack 100+ .07 1k+ .044
Z2196	Digital switch. MHE-301-AK2. BCH. 39x10x58.	1+ £1.00 10+ 0.60 100+ 0.40	Z2605	Push switch. 6PCO. PCB/ST.	£2.00 per pack 100+ .07 1k+ .044
Z2197	Digital switch. MICO-131-AL2. BCD. 30.5x10x81.	1+ £1.00 10+ 0.60 100+ 0.40	Z2606	Push switch. 4PCO. LPCB/ST.	£2.00 per pack 100+ .05 1k+ .034
Z2198	End checks (grey only) to match Z2193, 4 + 5. Left and right hand. Free until stocks exhausted with any orders for Z2193/4/5.	Only £1.00	Z2609	Push switch. 4PCO. PCB/ST.	£2.00 per pack 100+ .05 1k+ .034
Z2341	Low cost 4 pole changeover DIP switch, 16DIL. Use screwdriver to change position to 1, 2 or off. Amazing value!	Pack of 5 £1.00 100+ 0.10 1k+ 0.07	Z2611	Push switch. 4PCO. PCB/PCB.	£2.00 per pack 100+ .05 1k+ .034
Z2361	Heavy duty push switch - push to change over, locking. Needs 12mm hole. Plunger is 8mm dia x 9mm high.	3 for £1.00	Z2612	Push switch. 2PCO. EPCB/ST.	£2.00 per pack 100+ .03 1k+ .022
Z2485	PCB mntg keyboard click switch, low profile, only 3.8mm thick. 10mm sq. SP make.	12 for £1.00 00+ 0.04	Z2613	Push switch. 2PCO. EPCB/ST.	£2.00 per pack. 100+ .03 1k+ .022
Z2486	Burgess type V12K 41x14x18mm, short lever SPCO, probably 15A rating.	2 for £1.00	Z2614	Push switch. 2PCO. LPCB/ST.	£2.00 per pack. 100+ .03 1k+ .022
Z2487	Honeywell heavy duty with brass screw terminals and brass threaded plunger. SPCO rated 15A 380V ac.	Only £1.50	Z2617	Push switch. 2PCO. PCB/ST	£2.00 per pack 100+ .03 1k+ .022
Z2488	Std 5A microswitch with roller lever on steel bracket with steel plunger.	Only £1.20	Z2623	Push button. Black. 12.4x7.7x20.	£2.00 per pack 100+ .03 1k+ .022 10 for £1.00 100+ 0.06 1k+ 0.04 10k+ 0.03
Z2489	Std 5A microswitch with plastic assembly enabling operation by blowing down tube.	Only £1.50			
Z2490	2 std 5A microswitches on plastic bracket with lever arrangement. Operate each switch by blowing or sucking.	Only £3.50			

Z5552 Big red 'STOP' push switch. Contacts (screw terminals) handle 600Vac 20A. Locking, push to break, pull to make. Needs 30mm dia fixing hole. Red knob is 40mm dia. £2.50



Z3529 Small keypad PCB. 0-9 + 12 others Red/White/Grey Keytops. £1.00

Z3056 Single pole changeover keyswitch, 2 keys supplied. Needs 16mm dia hole. No nuts! 75p



Z3530 Hairspring microswitch. Needs only a couple of grams to operate it. Rated 5A 240V ac, 24V DC SPCO. Size 31.5x16.1x19mm. 80mm long lever. £1.00

SWITCHES & RELAYS

Code	Qty	Description	Price
1951A	1	Calculator keypad 24 way + data matrix output	£2.00
1973	5	Min slide switch DPDT	£1.00
1962	2	Min latching push button 3A SPST, Red top	£1.50
1963	2	Min latching push button 3A SPDT, Red top	£1.50
VP174	5	DIL switches 1 & 2 way slide 6 way SPST, 1,00 assorted	£1.00
VP114	1	Coax Antenna Switch 3 WAY	£4.76
VP116	1	High pass filter/suppressor CB/TV	£0.50

Z8922 Made by Devlin, this keyboard has 94 keys (18 without caps: 20 with removable tops) and runs of a single 5V supply. Serial ASCII output + switch to emulate AT and XT keyboards. £12.00 each

Z3528 Illuminated push switch (no tops), size 18.5mm square. SP reed 13mm long operated by magnet 8x3x1.5mm. Bi-pin T1 (1.27mm) 12V lamp is 3.7mm dia x 9mm long. Pack of 5 £2.00; 100+ 0.20

40

SUPER SENSATIONAL SUMMER SALE
Relays

GREENWELD
27 Park Road, Southampton SO15 3UQ
Tel: (0703) 236363 Fax: (0703) 236307

EVERYTHING ON THIS PAGE FOR THE PRICE OF 1



Z2728 Teltone M949 polarized (latching) relay, size 28.5x10x10mm. This is used to detect an imbalance in voltage/current of around 1V @ 40mA flowing through the 2 coils. Single pole contact operates when this occurs. Very costly device - but yours for just £1.60; 100+ 0.90

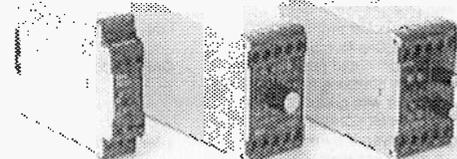
Z2848 High voltage hermetically sealed relay by Kilovac, type no K43B234. 70R 12V coil, SP normally closed contact rated at least 5kV 10mA - ceramic insulator is 25mm long! £3.00

Z2639 Hamlin metal cased reed relay 32x10x9.5mm. 24V coil SP make. DP 2.23 Our Price £1.00; 100+ 0.60

Z2554 DIL solid state relay. IR DP1210 "chpswitch". These operate from a wide ac voltage range. Max output current 1A RMS. DP £5+. Our Price £2.00



Iskra



Type TRE1311 Basic time relay closes after power is connected to the coil contacts. Rating: SA380V 1000VA. Mntg 35mm Din rail size 45x73x115mm.

CODE	VOLTS	TIME	PRICE
Z5624	240	15s	£6.00
Z5625	240	60s	£6.00

Type TRE1310 is a multiple function variety of TRE1311 relay with 8 different time constants & 8 different functions, set by thumbwheel switches.

CODE	VOLTS	TIME	PRICE
Z5626	240Vac	sec	£8.00
Z5627	240Vac	min	£8.00
Z5628	240Vac	hr	£8.00

Type TRE1610 Similar to TRE1310, but smaller: 22x73x105mm, & contacts rated 6A 250V 1500VA.

CODE	VOLTS	TIME	PRICE
Z5630	24	sec	£8.00
Z5631	240	min	£8.00
Z5632	240	hr	£8.00

Type TRE1611 Delayed pulse. size & ratings as TRE1610.

CODE	VOLTS	TIME	PRICE
Z5633	24	6s	£4.00
Z5634	240	15s	£4.00
Z5635	240	Tim/T2	£6.00

Type TRE1790 Time delay with remote option.

CODE	VOLTS	TIME	PRICE
Z5629	110	30m	£6.00

Type TRE1400 Another multifunction relay. 11pin socket mntg size 47x80x95mm Contacts rates 6A 250V 1000VA.

CODE	VOLTS	TIME	PRICE
Z3090	110	15s to 1hr	£6.00

Further data on all these relay on our data sheet Z5623 (free).

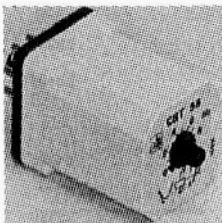


A couple of clare reed relays. In screened case 35x12.5x10, 5V coil.

Z3057 SP make (590R) Our Price £1.00; 25 + 0.60

Z3058 DP make (400R) Our Price £1.50; 25 + 0.90

Z2848 High voltage hermetically sealed relay by Kilovac, type no K43B234. 70R 12V coil, SP normally closed contact rated at least 5kV 10mA - ceramic insulator is 25mm long! £3.00



Plug in time lag relays, octal base type CRT55/58 by ISKRA. Variable time delay adjust by top-mounted. pot. Contacts rated 5A 250V AC, 500VA max. Big variety but only small quantity of each.

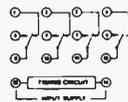
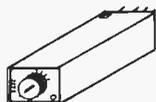
List price on these is over £20 each. 12V are DC only, higher voltage are AC/DC. 60V version in intended for use on mains with a 7K5 12 Watt resistor in series (supplies)

CODE	VOLTS	TIME	TYPE	PRICE
Z3065	12VDC	0.7-12s	55	£4.00
Z3066	12VDC	5-100s	55	£4.00
Z3067	24V	0.5-10s	58	£3.00
Z3068	24V	3-60s	55	£3.00
Z3069	24V	5-100s	55	£3.00
Z3070	24V	5-100s	58	£3.00
Z3071	24V	0.15-3m	55	£3.00
Z3072	24V	0.15-3m	58	£3.00
Z3073	48V	0.7-12s	55	£3.00
Z3074	48V	1.5-30s	55	£3.00
Z3075	48V	1.5-30s	58	£3.00
Z3076	48V	5-100s	55	£3.00
Z3077	48V	0.15-3m	58	£3.00
Z3078	60V	0.15-3s	55	£4.00
Z3079	60V	0.7-12s	58	£4.00
Z3080	60V	0.75-15s	58	£4.00
Z3081	60V	1.5-30s	55	£4.00
Z3082	60V	1.5-30s	58	£4.00
Z3083	60V	5-100s	55	£4.00
Z3084	60V	0.15-3m	55	£4.00
Z3085	60V	0.15-3m	58	£4.00
Z3086	60V	0.5-10m	58	£4.00
Z3087	60V	1.5-30m	55	£4.00
Z3088	110V	1.5-30s	58	£3.00
Z3089	110V	0.15-3m	58	£3.00

Type 55 has DPCO contacts, and has the delay when supply is switched on.

Type 58 relays are off delay type, i.e. the relay remains on for the set period after a set of auxiliary contacts are opened.

TIME DELAY RELAYS



These all originate from the largest component distributor in the UK and are in original packing. Sub min 4 pole changeover plug in type, delay before energize. Same as Omron H3Y4 series.

Code	Volts	Time	DP	Price
Z5182	240V ac	5s	25.83	£5.00
Z5198	240V ac	10s	25.83	£5.00
Z5183	110V ac	5s	25.83	£4.00
Z5184	110V ac	10s	25.83	£4.00
Z5185	110V ac	60s	25.83	£4.00
Z5186	110V ac	5m	25.83	£4.00
Z5187	24V DC	5s	24.19	£5.00
Z5188	24V DC	10s	24.19	£5.00
Z5189	24V DC	60s	24.19	£5.00
Z5190	24V DC	5m	24.19	£5.00

RELAYS:

CODE NO.	DESCRIPTION	PRICE
Z202	Relay, 3V, 35R, Spco @ 3A, AZ535, 32x2011, low profile.	Only £1.00
Z219	Relay, 50V AC, 750R, 4Pco@3A, Izumi MY4, RY45-EC, 35x27x21, plug in cont.	Only £1.00
Z230	Relay, 24V, 2600R, Spm @ 1A, Electrotherm, GR1011, 20x11x10, Pc Mntg Reed.	Only £1.00
Z252	Relay, 48V, 2500R, 2Pco @ 1A, Pervale, PC2, 30x24x19, plug in cont.	Only £0.60
Z281	Relay, 240V AC, 12k, 2Pco @ 7.5a, P&B, KU11A15, 45x36x31, 8 pin plug in.	Only £3.00
Z275	Relay, 24V, 480R, DPco @ 10A, Releco, MR54-2, 35x35x55, Octal.	Only £2.50
Z1718	Relay, 3-24V, Solid, Spm @ 4A, Huntleigh, SMT2000/3, 43x25x70, Solid State.	Only £1.00
Z2047	Omron time delay relay. Sub min 4 pole c/o type H3Y-4-US. 110V AC coil. 0.1-5 sec timing range.	Only £2.50
Z2048	Relay, 24V, 435R, 2Pco @ 10A, IMO, 60.12, 32x35x63, Octal.	Only 2.50
Z2137	Relay, 12V, 200R, Spm @ 5A, Omit, TV5/S-112DM, 29x12x20, Pc Mntg.	Only £1.50
Z2164	Relay, 24V, 1200R, Spco @ 8A, Zetter, AZ682-052-52, 27.5x25.5x11, Pc Mntg.	Only £0.75
Z2174	Relay, 9V (5-12V), 410R, 4pco @ 2A30V, Aromat, DS4E-S DC9V, 35x10x10, Pc Mntg 0.1"	Only £3.00
Z2310	Relay, 5V, 370R, SPB, AX, 400FX091, 10.5x32.5x13, Pc Mntg reed.	Only £0.50
Z2350	Relay, 12V, 68R, Spm @ 15A, 26x24x36, Open .25" Tabs.	Only £1.00
Z2400	Relay, 3V, 130R, Spb @ 1A, Gentech, G42F, 33x16x11, Pc Mntg.	Only £1.00
Z2401	Relay, 5V, 500R, Spm @ 1A, AX, 175A-4, 32x9.5x15, Pc Mntg reed.	Only £1.00
Z2402	Relay, 5V, 170R, Spb @ 1A, Clare, CUPV10201, 25x10.9x9, Pc Mntg reed.	Only £1.00
Z2403	Relay, 5V, 520R, Spm @ 500m, AX, 132A-4, 20x7x7, Dtl reed.	Only £1.00
Z2405	Relay, 5V, 470R, Spm @ 500m, Clare, PRMEL5005AB, 20x7x5, Dtl reed.	Only £1.00
Z2406	Relay, 5V, 130R, Spb @ 1A, Elliott, 36876/5, 32x15x10, Pc Mntg reed.	Only £1.00
Z2411	Relay, 12V, 1500R, SPco @ 1A, AX, 481F, 32x10x10, Pc Mntg reed.	Only £1.00
Z2413	Relay, 12V, 1500R, Spco @ 1A, AX, 481F, 32x10x10, Pc Mntg Mercury.	Only £1.00
Z2418	Relay, 24V, 11k, Spm @ 1A, Hamlin, HE221A4860, 32x10x0.9, Pc mntg reed.	Only £1.00
Z2419	Relay, 24V, 2000R, OPco @ 1A, National, AE1324, 30x20x10, Pc mntg.	Only £1.00
Z2422	Relay, 36V, 4300R, Spco @ 1A, AZ1530-Oay, 26x20x10, Pc Mntg.	Only £1.00
Z2424	Relay, 48V, 3000R, DPco @ 1A, ITT, A2446, 29x16x13, Pc Mntg.	Only £1.00
Z2425	Relay, 110V, 10k, 3Pco @ 10A, Feme, RCP11, 35x35x56, 11 Pin.	Only £2.00
Z2433	Hermetically sealed mains relay, miniature plug in type with 4PCO contacts. Size 22.5x29x32mm.	Only £4.75
Z2496	Relay, 48V A.C., 630R, 4Pco @ 3A, Omron, MY4, 27x20x41, Plug in Cont.	Only £1.00
Z2497	Relay, 12V, 110R, DPco @ 10A, IMO, 60.32, 32x35x39, Plug in 8 tags.	Only £2.50
Z2545	Relay, 12V, 1000R, Spm 200V.5A, Pickering, 97-1-A-12, 19x11x10, Dtl reed.	Only £1.00
Z286	Relay Base, holder for 4PCO MY4. Solder tag.	Only 30p
Z288	Relay Base, holder for 4PCO 'continental' solder tag.	Only 30p
Z299	Relay Base, holder for 2PCO 'continental' PCB mounting.	Only 25p
Z2852	TEK8202 5 tap atpive delay line. 14DIL package, pins are labelled Vcc, g, 1, 2, 3, 4, IN & out (like Bourns DL6300 series).	2 for £1.00
Z2941	Relay, PC mntg, 4PCO, 5A contacts, 24V DC coil. Size 34x28x21mm.	3 for £2.00 100 + 0.25; 1k + 0.20
Z3008	Relay, 5V, 60R, Spco @ 8A, Schrack, RP110005, 28x24.7x11, PC mntg.	Only £2.88
Z3010	Relay, 48V, 3000R, 6Pco @ V23030-C2026, 40x37x9, Pc Mntg.	Only £1.00
Z3023	Relay, open construction PCB mntg, 12V DC coil, SPCO 10A contacts.	Only £1.00
Z3042	Relay, ISKRA 12V TRK3631.	3 for £2.00 100+ 0.35 k+ 0.25
Z3043	Relay, ISKRA 24V TRK3613.	5 for £2.00 100+ 0.20 k+ 0.15
Z3057	SPM Relay (590R).	Only £1.00 25+ 0.60
Z3058	DPM Relay (400R).	Only £1.50 25+ 0.90
Z3177	24V relay by NEC. PC mntg SPCO size 22x16x16mm	£1.00
Z3533	BT47/9 relay - DIL mntg DPco contacts, 9V DC coil. Size 20x10x10mm	£1.00
Z2848	High voltage hermetically sealed relay by Kilovac, type no K43B234. 70R 12V coil, SP normally closed contact rated at least 5kV 10mA - ceramic insulator is 25mm long! £3.00	
Z3542	PCB relay 22x16x16mm. 12V coil, SPCO 2A contacts. Easily removed from case if required. £1.00; 25+ 0.65; 100+ 0.50	

Large parcel of Components of Interest to Manufacturers, Distributors, Retailers & Hobbyists (Pack of Samples £2, Post Free)

ALL 1/2 PRICE!!

(a) Ceramic Capacitors

Code	Value	Voltage	Size (mm)	Pitch (mm)	Type	Qty per box	Total	£2 Pack	1k+
Z7001	2pF	50	3.20	5	DISC	2k	2k	200	.006
Z7002	3	50	3.20	5	DISC	2k	26k	200	.006
Z7003	4.7	50	3.2x1.50	-	AXIAL	4k	80k	200	.006
Z7004	6	50	3.20	5	DISC	2k	122k	200	.006
Z7005	6.8	50	3.2x1.50	-	AXIAL	4k	4k	200	.006
Z7006	7	50	3.20	5	DISC	2k	2k	200	.006
Z7007	8.2	50	3.2x1.50	-	AXIAL	4k	828k	200	.006
Z7008	22	50	3.20	5	DISC	2.5k	332k	200	.006
Z7009	43	50	3.2x1.50	-	AXIAL	4k	2ks	200	.006
Z7010	47	50	3.2x1.50	-	AXIAL	4k	4k	200	.006
Z7012	82	50	60	5	DISC	2k	32k	200	.006
Z7013	120	50	3.2	5	DISC	-	18k	200	.006
Z7014	150	50	4.60	5	DISC	2k	2k	200	.006
Z7015	330	50	3.2x1.50	-	AXIAL	4k	7k	200	.006
Z7017	470	50	110	5	DISC	2k	42k	200	.006
Z7018	820	50	3.20	5	DISC	5k	5k	200	.006
Z7019	1200	16	3.2x1.50	-	AXIAL	4k	28k	200	.006
Z7020	1500	16	3.2x1.50	-	AXIAL	4k	564k	200	.006
Z7021	2700	16	3.2x1.50	-	AXIAL	4k	716k	200	.006
Z7022	3300	25	3.20	5	DISC	2k	126k	200	.006
Z7023	.01µF	25	-	-	-	4k	4k	100	.01
Z7024	.022	16	6x2.50	-	AXIAL	2k	16k	100	.01
Z7025	.033	25	3.50	5	DISC	-	112k	100	.01
Z7136	.033	25	6.40	5	DISC	2k	20k	100	.01
Z7026	.039	16	60	5	DISC	2k	34k	100	.01
Z7027	.047	50	60	5	DISC	2k	20k	100	.01
Z7028	.1	25	10.50	5	DISC	-	60k	100	.01

Values can be mixed to qualify for price breaks; min 1000 per value

K861 Pack of 100 each of all above - Total 2700 caps for just £12.50!!

K862 Pack of 1000 each of all above - Total 27,000 caps for just £60.00!!

(b) Poly/Plastic Film Capacitors

Code	Value	Voltage	Size	Pitch	Type	Qty per box	Total	£2 Pack	Qty	1k+
Z7028	1800pF	50	11x5.2	5	MYLAR	2500	275k	200	.006	.006
Z7133	1800pF	50	6x6	5	PLASTIC	2K	22k	200	.006	.006
Z7029	2200pF	50	6x6	5	PLASTIC	2500	337k	200	.006	.006
Z7030	0.015	50	6x6	5	PLASTIC	2k	86k	200	.006	.006
Z7031	0.039	200	13.5x10	5	MYLAR	500	500	200	.006	.006
Z7032	0.056	50	6x6	5	PLASTIC	2k	25k	200	.006	.006

K863 Pack of 100 each of the above capacitors - Total 600 for just £3.95!!

(d) Resistors

All sub min 1/8th watt 5% bandolliered. Body size - 3.2 x 1.90.

Code	Value	Qty	Code	Value	Qty	Code	Value	Qty
Z7060	5R6	50k	Z7072	390R	5k	Z7084	180k	18k
Z7061	15R	80k	Z7073	560R	110k	Z7085	200k	28k
Z7062	18R	125k	Z7132	1k2	29k	Z7086	300k	12k
Z7063	22R	5k	Z7074	1k4	12k	Z7087	330k	9k
Z7064	39R	200k	Z7075	1k5	34k	Z7088	430k	16k
Z7065	47R	5k	Z7078	8k2	15k			
Z7066	56R	40k	Z7079	12k	10k			
Z7067	82R	30k	Z7080	16k	8k			
Z7069	120R	10k	Z7081	18k	8k			
Z7071	270R	5k	Z7083	43k	60k			

Prices: 1k+ 2.00, 10k+1.60/k, 100+1.20/k.

Any mix of values, minimum 1000 per value & in increments of 1000

(e) Inductors

Code	Value	Size (mm)	Pitch (mm)	Type	Qty per box	Total	£2	100+	1k+
Z7090	1µH	4.60	5	BEAD	3k	46k	15	0.06	0.04
Z7091	1.2µH	6.7x6.50	5	RADIAL	2k	60k	15	0.06	0.04
Z7092	2.7µH	4.60	5	BEAD	3k	21k	15	0.06	0.04
Z7093	5.6µH	3x20	-	AXIAL	2k	66k	15	0.06	0.04
Z7094	10µH	-	-	AXIAL	2k	281k	15	0.06	0.04
Z7095	100µH	40	5	BEAD	2k	60k	15	0.06	0.04
Z7096	270µH	4.60	5	BEAD	3k	345k	15	0.06	0.04
Z7097	330µH	4.50	5	BEAD	3k	45k	15	0.06	0.04
Z7098	8200µH	10x7.50	5	RADIAL	-	23k	15		

K866 Pack of 25 each of the above values - Total 225 Inductors for just £14.95!!

(f) Presets

Highest quality plastic film construction - better than cermet!

Code	Value	Wattage	Size (mm)	Pitch (mm)	Type	Qty per box	Total	£2 Pack	Qty	100+	1k+
Z7099	10k	0.1	6.4x6.4	5x5	-	94k	15	.07	.05		
Z7100	100k	0.1	6.4x6.4	5x5	-	18k	15	.07	.05		
Z7101	1k	0.2	6.8x6.8	5x5	-	10k	15	.07	.05		
Z7103	5k	0.2	6.8x6.8	5x5	-	11k	15	.07	.05		
Z7104	10k	0.2	6.8x6.8	5x5	-	45k	15	.07	.05		
Z7105	20k	0.2	6.8x6.8	5x5	-	240k	15	.07	.05		
Z7106	100k	0.2	6.8x6.8	5x5	-	92k	15	.07	.05		
Z7107	200k	0.2	6.8x6.8	5x5	-	3k	15	.07	.05		

K867 Pack of 25 each of the above values - Total 200 Presets for just £13.95

(i) IC's

Code	Type	Qty	Description	Prices
Z7118	BA7740S	129		£1.00
Z7119	BU2822S	210		£1.00
Z7120	LA7393A	882		£1.00
Z7121	TDA3856	4000		£1.00
Z7122	BA7703KI(SM)	400		£1.00
Z7123	M5223FP(SM)	11,000		£1.00
Z7124	MEL75217(SM)	4,915	64 PIN (19x13)	£1.00

SM = Surface mount

(j) Surface Mount

Code	Type	Value	Voltage	Qty	Size (mm)	Prices (per reel/3k)
Z7125	CC	22F	50	140k	2x1.2	£10.00
Z7126	CC	08pF	50	36k	2x1.2	£10.00
Z7127	CC	82pF	50	136k	2x1.2	£10.00
Z7128	CC	100pF	50	52k	2x1.2	£10.00
Z7129	CC	180pF	50	68k	2x1.2	£10.00
Z7130	R	10R	50	105k	2x1.2	£10.00

CC = Ceramic Capacitor R = Resistor

We've just purchased a parcel of pots. These are the standard 'Radiohm' range with 20mm dia bodies, 55x6.35mm plastic spindles and 9.5mm bush. All are in excellent condition, most still in their original boxes, complete with nuts and washers. There are single, switched and dual types, as well as a few miniature. All are offered at great savings on the list price. Available as follows:

(a) K889 Single Log: 4k7, 10k, 22k, 47k 100k, 220k, 470k, 1M (Order as Z3536 + value)
Prices, any mix of values:
1-9 30p; 10-24 0.20; 25-99 0.16 100+ 0.12; Pack of 5 of each value, total 40 pots.
PRICE: £6.00

(b) K890 Dual Lin: 4k7, 10k, 22k, 47k 100k, 220k, 470k, 1M (Order as Z3537+value)
Prices, any mix of values:
1-9 60p; 10-24 0.40; 25-99 0.32; 100+ 0.24 Pack of 5 of each value, total 40 pots.
PRICE: £12.00

(c) K891 Dual Log: 4k7, 10k, 22k, 47k, 100k, 220k, 470k, 1M (Order as Z3538+ value)
Prices, any mix of values:
1-9 60p; 10-24 0.40; 25-99 0.32; 100+ 0.24
Pack of 5 of each value, total 40 pots.
PRICE: £12.00

(d) Single, Switched: 4k7 lin (11mm shaft), 10k lin, 10k log, 47k lin, 100k lin, 1M log (Order as Z3539+value)
Prices, any mix of values:
1-9 60p; 10-24 0.40; 25-99 0.32; 100+ 0.24

(e) K892 Miniature types - 16mm dia body, 40x4mm plastic shaft with 6.8mm dia bush. PC taps.
Lin: 1k, 4k7, 10k (Order as Z3540+value)
Log: 1k, 4k7, 10k (Order as Z3541+value)
Prices, any mix of values:
1-9 30p; 10-24 0.20; 25-99 0.16; 100+ 0.12
Pack of 5 of each value, total 30 pots.
PRICE: £4.50



**SUPER SENSATIONAL
SUMMER SALE**
R's & C's

GREENWELD
27 Park Road, Southampton SO15 3UQ
Tel: (0703) 236363 Fax: (0703) 236307

EVERYTHING ON THIS PAGE FOR THE PRICE OF 1

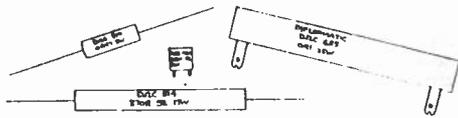
Wirewound Resistors

Z2859 25 watt metal clad wirewound, 1k 5%. 3 for £2



Wirewound 11W CGS C14 vitreous enamel low value Rs:

- Z1877 OR1 6/ £1.00 100/ 10.50
- Z1878 OR27 6/ £1.00 100/ 10.50
- Z4074 330R 3W 5% wirewound resistors on cards of 25.
- Prices 50p 100/ 3.50 100/ 26.10



(d) Power wirewound resistors, all cement coated except * which is metal clad. All 5%

Code	Value	Wattage	Type	1+	100+
Z2102	OR1*	10	TAGS	30p	0.15
Z2101	OR15	5	PC	20p	0.10
Z2103	OR47	5	WE	20p	0.10
Z4401	1R	5	PC	20p	0.10
Z4402	1R	25	TAGS	70p	0.35
Z2105	50R	15	TAGS	40p	0.20
Z2106	225R	23	TAGS	50p	0.25
Z4403	370R	17	WE	40p	0.20

Low value, close tolerance wirewound resistors:

- Z1968 OR5 5W 1% Pack of 5 £1; 100+ 0.12
- Price Pack of 5 £1; 100+ 0.12
- Z1967 OR1 3W 1% Pack of 5 £1; 100+ 0.12
- Price Pack of 5 £1; 100+ 0.12

Precision Resistors by Holsworthy

- Z1469 H2 5MO 1% 25ppm £1.00 each
- Z1468 H2 10K 0.1% 25ppm 3 for £1.00
- Z577 5k edgewise pot with switch, no knob.
- Prices 10/ £1.00 25/ 1.75 100/ 4.35

Xtra Special

SLIDE SWITCHES
Z301 / 3 / 4 / 5 / 6
10 OF EACH
PACK OF 50 **£2**
Star Buy!!

POWER SUPPLY CAPACITORS

Code	Value	Voltage	Ripple	Mnf'r	l x d	Mfr's price
Z4343	2200µF	40V	2.7A	LCR	45 x 26	2.12
Z4343	60p	25 + 0.45	100 +	0.30	
Code	Value	Volts	Mnf'r	Size	1 +	100 +
Z4410	3300	16	LCR	45 x 26*	30p	0.15

(b) Capacitors, electrolytic axial leads

Code	Value	Volts	Mnf'r	Size	1 +	100 +
Z4420	100	100	LCR	26 x 13	70p	0.40
Z4422	1000	63	Noveca	40 x 21	£1.00	0.60

Z2542 Large smoothing cap. Unusually its axial leaded 90mm long x 30dia. 5500µF 35V. Yours for only £2.00

Z2743 Bag of 200 0.47µF 50V radial electrolytic caps £2.00

Z5393 Low profile individually boxed 2,200µF 100V PC mntg cap 32x35mm dia. DP 5.54 Our Price £2.50

Z5395 Radial 470µF 16V 20x10mm dia. Pack of 25 £2.00

Z5322 1µF 50V radial 11.5x5mm. Pack of 100 £2.50; 1k+ 0.015; 10k+ 0.01

Z5323 47µF 16V radial 11.5x6mm. Pack of 100 £2.80; 1k+ 0.018; 10k+ 0.012

Z5324 470µF 10V radial 15x10mm. Pack of 100 £3.50; 1k+ 0.025

Z5325 470µF 35V radial 24x13mm. Pack of 20 £2.00; 100+ 0.06; 1k+ 0.045

(c) Capacitors, non-electrolytic axial leads

(*Radial 10mm pitch) inc close tolerance

Code	Value	Volts	Mnf'r	Size	1 +	100 +
Z4423	0.1	100		13 x 11 x 5*	4p	0.02
Z4426	1	63	EFD	18 x 7 x 7	10p	0.06

Z02284 DIL multilayer ceramic caps - 2 pin, so can be packed closely together on PCB using standard DIL spacing. Only one value - 0.22µ. List price on these is 98p each.

Our price Pack of 8/£1
100 + 0.09 1k + 0.06

MEMORY BACK-UP CAPACITORS

Miniature large capacitance type

SPEC:

47,000 µF 5.5V Discharge time (5 - 2V)

23 hrs @ 3µA. Made by NEC. Size

8x11.5mmØ

Current list price £1.77 each

Our Special low prices:

Z3144 pack of 3
£2.00

25 + 0.55 100 + 0.35 1000 + 0.27

Z3532 Bet you've never seen DIL resistor networks this cheap before! 14 DIL package 220/330R dual terminator - contains 12 each 220R and 330R resistors arranged as shown. DP over 1.00. Our Price 25/£1.00; 1000+ 0.02

Z3139 Neat high quality pot from AB. Body 16x16mm, gold plated tags, moulded carbon track. 50k lin. 4/£1.00

Z3535 Precision moulded polystyrene capacitor 100nF 2% 100V by Rifa with radial leads on 25mm pitch. Pack of 10 £2.00; 100+ 0.10

Z3185 4 watt wirewound cement coated resistor in popular 0R22 value. Pack of 10 £2.00

Z2907 Polyester cap 1.5µF 400V. Pack of 6 £2.00

Z3152 Small solid dielectric 20x20x12.5mm. Usual tapped short spindle. FC 13mm. 2 main gangs, 5-60pF and 5-150pF; 2 10F trimmers. Super Price £1.00

RESISTORS & POTS

Pack No	Qty	Description	Price
VP1	300	Assorted resistors, mixed values and types	£1.00
VP2	300	Carbon resistors, 0.25-0.5W preformed mixed	£1.00
VP4	200	0.5-1W resistors mixed values and types	£1.00
VP16	50	Wirewound resistors mixed watt values	£1.00
VP140	50	Precision resistors 1% tolerance	£1.00
VP181	100	1 & 2W resistors assorted values	£1.00
VP287	100	Close tolerance resistors 0.05-2% 10-910Ω mixed	£1.50
VP288	100	Close tolerance resistors, 0.05-2% 1k-820k mixed	£1.50
VP289	100	Metal oxide high stability resistors 0.25W mixed values	£1.50
BP636	4	5k log pot splined 6mm shaft. Body 17mm dia. 7mm fixing hole	£1.00
VP144	4	100k lin multi turn pots ideal variable cap tuning	£1.00
VP145	10	Assorted Pots, inc dual and switched types	£1.00
VP148	30	Pre-sets horizontal and vertical mixed values	£1.00
VP273	10	10k Lin rotary potentiometers slim spindle	£1.00
VP23	10	40mm track slider pots	£1.00
VP471	8	Dual Pots, Log all different values	£1.00

CAPACITORS

Pack No	Qty	Description	Price
VP5	200	Assorted capacitors, all types	£1.00
VP9	200	Ceramic capacitors miniature mixed values	£1.00
VP11	50	Electrolytics all types	£1.00
VP15	25	0.01/250V Miniature layer metal capacitors	£1.00
VP180	25	Tantalum Bead Capacitors assorted values	£1.00
VP192	30	Min electrolytics mixed values 0.47µF-1000µF, 6-16V	£1.00

VP193	6	Sub min electrolytics 2 x 1000/2200/3300µF, 10-16V	£1.00
VP630	20	High voltage electrolytics 0.47-47µF, 100-500V	£2.00
VP633	8	Electrolytics 2 x 1000/2200/3300/4700µF, 10-16V	£2.00
VP634	5	Axial electrolytics 1000µF, 16V	£1.00
VP635	4	Radial electrolytics 2200µF, 16V	£1.00
VP636	3	Axial electrolytics 4700µF, 10V	£1.00
VP637	4	Axial electrolytics 10000µF, 6.3V	£1.50
VP334	16	22µ 43V Axial	£1.00
VP335	25	47µ 16V Radial	£1.00
VP336	15	47µ 50V Radial	£1.00
VP339	12	100µ 63V Radial	£1.00
VP340	10	100µ 100V Axial	£1.00
VP344	20	330µ 10V Radial	£1.00
VP346	8	330µ 100V Axial	£1.00
VP347	16	470µ 10V Radial	£1.00
VP351	10	2200µ 10V Radial	£1.00

Found some old electrolytic caps from the Marconi parcel purchased a few years ago. Please note they are quite old and large for their value/voltage:

Code	Value*	Volts	Size	Notes	Price
Z3155	100	25	20x9	Axial solid tant	3/£1
Z3153	100	350	50x25	Plessey can	£1.00
Z5696	200	350	77x35	RS boxed can	£2.00
Z3156	1000	63	41x20	Wima axial	4/£1
Z5698	10,000	25	77x35	STC can	3/£1
Z5697	10,000	63	77x51	ITT can	£1.00
Z3154	12,000	40	81x45	Sangamo can	£1.00

In the parcel from ISKRA were a number of presets which were intended for our packs. However, the following values are available in boxes of 200 if required.

Type: PN18-EZ; Tol: 20% (30% 470k/2M2). Enclosed type rated 0.25W. Horizontal mounting on 18x10mm pitch.

Z3158 4k7 lin

Z3159 10k lin

Z3160 470k lin

Z3161 2M2 lin

All £4 per box - one of each £12

Z3162 Also Citec type PN10Z, fully enclosed vertical mounting in 10k lin only on 5x3mm pitch. Body size 12.5x10x5mm. Boxes of 250 £5

Samples of any of the above presets free

We've been rummaging in our stores and found a number of items that either have never been listed, or were last listed so long ago, they've been forgotten!

(a) Capacitors, non-electrolytic

Code	Value	Volts	Type	Size	Pitch	Price
Z3201	1000pF	50	DC	6.5	5	200/£1
Z3202	0.01	100	PS	12.5x4	A	200/£1
Z3203	0.047	250	MP	11x9x3	10	100/£1
Z3204	0.1	80	C	14x7	A	100/£1
Z3205	0.9	250	MP	27x18x8	22.5	20/£1
Z3206	1.0	250	PB	81x41x12	T	3/£1
Z3207	2.2	250	MP	31x22x13	27.5	6/£1
Z3208	2.2	250	MP	30x19x12	A	6/£1
Z3209	2.2	250	MP	30x33x15	A	6/£1
Z3210	4.0	250	PB	81x41x25	T	2/£1
Z3211	4.7	250	MP	30x19x12	A	4/£1
Z3212	4.7	100	MP	31x20x11	27.5	4/£1
Z3213	4.7	100	MP	31x22x13	27.5	4/£1

(b) Heat Sinks

Code	Size	Type	Price
Z3198	45x30x12.5	Finned TO220	5/£1
Z3199	38x28x22	Finned TO220	4/£1
Z3200	60x45x13.5	Small TO3	3/£1

Z3527 Clip on transistor heat sink for TO5 devices 11mm high x 18mm dia. Pack of 40 £2.00; 100+ 0.03; 1000+ 0.02



SUPER SENSATIONAL SUMMER SALE

Semi's

GREENWELD

27 Park Road, Southampton SO15 3UQ Tel: (0703) 236363 Fax: (0703) 236307

TWO FOR THE PRICE OF ONE TRANSISTORS

Table with 4 columns: Pack No, Qty, Description, Price. Lists various transistor models like VP46, VP50, VP153, etc.

Table with 4 columns: Pack No, Qty, Description, Price. Lists transistor models like BP831, BP832, BP833, etc.

Table with 4 columns: Pack No, Qty, Description, Price. Lists logic and memory components like Z2506, Z2507, Z2519, etc.

DIODES & SCRs

Table with 4 columns: Pack No, Qty, Description, Price. Lists diodes and SCRs like VP29, VP30, VP31, etc.

Table with 4 columns: Pack No, Qty, Description, Price. Lists memory chips like Z2734, Z2736, Z2737, etc.

Table with 4 columns: CODE, DESCRIPTION, PRICE. Lists SCR's + TRIACS like Z2321, Z2319.

Table with 4 columns: CODE, DESCRIPTION, PRICE. Lists TRANSISTORS like Z704, Z1534, Z1770, etc.

BRIDGE RECTIFIERS + DIODES:

Table with 4 columns: CODE, DESCRIPTION, PRICE. Lists bridge rectifiers and diodes like Z1996, Z2111, Z2328, etc.

Table with 4 columns: CODE, DESCRIPTION, PRICE. Lists TRANSISTORS like Z2881, Z2882, Z2883, etc.

VOLTAGE REGULATORS + CRYSTALS:

Table with 4 columns: CODE, DESCRIPTION, PRICE. Lists voltage regulators and crystals like Z1696, Z2325, Z2651, etc.

IC's

Table with 4 columns: Pack No, Qty, Description, Price. Lists various ICs like VP59, VP282, VP299, etc.

74 SERIES

Table with 4 columns: Pack No, Qty, Description, Price. Lists 74 series ICs like VP223, VP224, VP74111, etc.

Table with 4 columns: CODE, DESCRIPTION, PRICE. Lists various diodes and rectifiers like Z2861, Z2864, Z2865, etc.

IC'S

Table with 4 columns: CODE, DESCRIPTION, PRICE. Lists CMOS buffer and other ICs like Z732, Z1465, etc.

Keep up to date with the Wonderful World of Surplus! Become a Subscriber!

For just £12 a year, the new **GOLD** Subscriber category offers the following advantages:

- The Greenweld Guardian and latest Bargain List every month, together with any brochures or flyers from our suppliers;
- A first class reply paid envelope;
- A **REDUCED POSTAGE RATE** of just £1.50 for all orders (UK only);
- **5% DISCOUNT** on all regular Catalogue and Bargain List items; (*doesn't apply to qty prices or sale goods; min order value £20)
- **FREE 1995 Catalogue** on publication in October.

So with just 4 orders per year you save £6 postage, £2 for a Catalogue + 5% on everything* you buy!

This offer is only available at this price for a limited period, so join now! - just complete the appropriate line on the Order Form overleaf and send in with your order.

1995 CATALOGUE

It's not too soon to start thinking about next year's Catalogue - it will, as usual, contain a vast range of consumer goods with the emphasis on electronic products, all at extremely competitive prices. There's a space overleaf to order your copy, which will be despatched in the first week of October. Order Now - you know it makes sense!

TERMS AND CONDITIONS

Cash with order transactions are accepted on the following conditions:

The prices in this catalogue supersede all previous price lists and are valid from 1 February 1994 until any amendment sheet is issued. 1 off prices quoted are inclusive of VAT @ 17.5%; quantity prices do not include VAT which must be added @ 17.5%. In the event of change in the VAT rate, an amendment sheet will be issued. Overseas customers including Channel Island and Eire are not required to pay VAT; after any additional shipping expenses have been deducted a credit note for any excess will be sent. UK and BFPO postage at the time of issue of the catalogue (March 1993) for any quantity of goods is £3.00; any increase in this amount will be announced in an amendment sheet.

Overseas customers should send ample postage - goods will be omitted in insufficient. Packages are sent by the cheapest method unless remittance allows for airmail, (see IBC). Payment should be made by cheque, (minimum £3.00 please on account of prohibitive bank charges) PO's or cash. Stamps are quite acceptable for small orders. ACCESS, VISA & CONNECT are the only credit cards accepted. MINIMUM INVOICE CHARGE IS £15.00. Private Companies and individuals wishing to open a monthly credit account will only be considered after satisfactory cash with order transactions after which an application form will be sent on request, together with trading terms. Substitutes or near equivalents will be sent if the part

ordered is out of stock unless instructed otherwise. Credit notes exchangeable for goods or cash will be issued for parts not available. Refunds, if requested instead of a credit note will be willingly given, but may delay despatch of goods. Returns are not accepted without prior consent: see below. Illustrations descriptions and dimensions are typical only and cannot be held as binding.

© 1994 GREENWELD ELECTRONICS LTD. E & OE

OUR TRADE COUNTER AT 27 PARK ROAD STOCKS ALL CATALOGUE ITEMS, PLUS MANY OTHER ELECTRONIC PARTS. WE ARE OPEN 6 DAYS A WEEK FROM 9.00am to 5.30pm AND WE WELCOME CALLERS. RING BEFORE TRAVELING ANY DISTANCE TO ENSURE AVAILABILITY OF GOODS.

RETURNS & COMPLAINTS

If for any reason it is necessary to return goods, or you have a legitimate complaint, please ring or write explaining the problem. All staff have been instructed to give their name and a reference number when requested. In the event of any difficulty, the Manager, Kevin Jarvis, is nearly always available.

RETURNS

We are finding customers are returning goods that are not faulty; not wanted and/or ordered incorrectly. Regrettably, we cannot accept

any goods without a returns number. Our policy on returns is as follows:

1. Faulty or damaged goods will be replaced and return postage refunded.
2. Goods returned for any other reason (including goods alleged to be faulty but found to be working) will carry a 10% handling charge with a minimum of £2.00, unless being exchanged for other goods, in which case return post and packing (£3.00) must be paid. Any refunds made will be by credit card if that was the method of purchase, or by cheque for any other method of payment.

PROCEDURE FOR RETURNS

1. Ring or write for a returns number, explaining why you wish to return goods. If it is a technical problem, ask to speak to one of our technicians. Problems can sometimes be resolved over the phone.
3. Include in the parcel the document, correctly filled in, sent with the goods.
2. Pack goods adequately and return by the cheapest method (2nd class letter or ordinary parcel post) - postage refunds, if applicable are only made at these rates.

Thank you for ordering from GREENWELD - we appreciate your custom. In order to improve our service, please feel free to use this space for your comments:

TWO FOR THE PRICE OF ONE

Small parcel of Semiconductors

Z3146 75LS157 83/84 date code Fairchild/National.

Z3147 78S05 - Listed in our cat at 60p each - buy a pack of 6 for just £2.00! 100 + 1.23

Also a super deal on bridge rects - standard 1.5A 'WO' range by Semikron

Z3148 SKB1.5/02 200V Normally 28p Pk of 12 £2.00 100 + 0.09

Z3149 SKB1.5/04 400V Normally 30p Pk of 12 £2.00 100 + 0.10

Z3150 SKB1.5/08 800V Normally 34p Pk of 10 £2.00 100 + 0.12

Z3151 SCN2674BCAN40 Graphics Chip - advanced video display controller, 4MHz Character rate. With data. DP6.73
Our Price £3.00

Z6286 LM1037N No Info 3/£1.00

Z6287 TBA120T TV chip 3/£1.00

Linear IC's

Z2534 SL486 Infra red remote control pre-amp - Interfaces between IR diode and remote control circuitry. Made by Plessey. DP 2.44. Our Price £1.20

Z2472 LF398N sample and hold amp. 8DIL DP 3.94. Only £2.00

Z2535 TLC271. 8 pin DIL CMOS programmable op-amp. Supplied with data. DP 0.69. Our Price 3 for £1.00

Z2471 SN75372 Interface chip 50p

Z2582D LM319N dual high dspeed comparator with 80ns response time. Useful device with a list price of 2.80. Supplied with some circuit diagrams. Pack of 3 £2.00 100 + 0.40

Z733 SP0256A-AL2 speech chip. This has featured in several constructional articles published a few years back. Offered with an LA05 high speed CMOS ULA and R0984CS index. chip. These three were used together in the Currah µSpeech add for the spectrum & C64. All 3 chips supplied (but only SP0256 used) with circuits, PCB layout and construction info on making a speak board for the spectrum, ZX81, BBC B, C64 and VIC20 computers. Only £3.00

Z3138 Bridge rect. BYW20 - 20A 200V with 0.25" tabs. Reg Price £3, Our Price £1.00

CODE	TYPE	QTY	DESCRIPTION	PRICE
Z6279	OP02EP (25)			£2.00
Z6280	D43256AC (14)		256K static RAM,	£2.00
Z6281	78M06CT (85)		6V 500mA voltage reg	£1.00
Z6282	TL497AZN (170)		Switching DC-DC convertor	£1.00
Z6283	LM331 (40)		Precision V/F convertor	£3.00
Z6284	ICL7663 (45)		+ 1.6 to + 16 v (40mA) 8 DIL Voltage reg	£1.50
Z6285	AD7523LN (15)		8 Coil D/A convertor	£1.00

Power Transistor Bargains!!

A small parcel of power transistors - just 3 types, but extremely useful in audio amp circuits etc. All made by Siliconix, in TO3 case (QA=quantity available)

Z2548 2N3232 NPN 60V 7A 117W. HFe 18-55 @ £a. Our Price 2 for £1.00

Z2549 2N3792 PnP 80V 10A 150W. Hfe 40-150 @ 1A DP 2.94. Our Price £1.00 each; 100 + 0.50 QA200

Z2550 2N6385 Darlington NPN boV 10A 100W. HFE 1000 @ 5A. Our Price £1.50 each; 100 + 0.70 QA389

SPECIAL OFFER ON DARLINGTON TRANSISTORS! 40V 80W 12A with hfe of 750@5A!!

BDW93 40p 100 + 0.20 1k + 0.15
BDW94 40p 100 + 0.20 1k + 0.15

SPECIAL OFFER ON 40v 2a TRANSISTORS

T092 case by TI. Distributor price on 100 + is 0.21
TIPP31 NPN 100 + 0.07 1k + 0.04 10k + 0.03
TIPP32 NPN 100 + 0.07 1k + 0.04 10k + 0.03
Pack of 4 of each type £1.00

Z2514 ZTX51 PNP T092 transistor rated 80V 2A .1W, DP 0.48 Our Price 5 for £1.00 100 + 0.14 1k + 0.10

Z2524 2N3703 PNP T092 transistor rated 50V 0.2A 360mW. Our normal price is 12p. Surplus stock offered at 15 for £1.00 100 + 0.04 1k + 0.025

Z2384 MPSA13 30V Darlington T092 transistor. Hfe 10,000 @ 0.1A DP 32p Pack of 8 for £1.00 100 + .06 1k + .04

Z2484 2N3903 T092 transistor. 12 for £1.00 100 + 0.04

Z2851 2N6520 T092 high voltage transistor. PNP, 350V 0.5A 625mW. Hfe 20-100 @ 50mA. Amazing spec! Pack of 10 £2.00 100 + 0.08

Z2324 Delco DTS701 high power TO3 Silicon transistor rated 800V 1A 50W. Our Price £3.00

Z3051 BC557B BC557B - Toshiba, bagged in 200's £5.00 1000 + 0.017

Z724 BDX88A power darlington transistor - TO3 case, PNP, 60V, 12A, 117W. Hfe 7540 @ 6A 2 for £1.00

Z2851 2N6520 T092 high voltage transistor. PNP, 350V 0.5A 625mW. Hfe 20-100 @ 50mA. Amazing spec! Pack of 10 £2.00 100 + 0.08

Crystal Oscillator Modules

4 lead devices to fit standard 14DIL socket. TTL output. 5V supply.

Z2844 3.00MHz £1.50

Z2845 20.00MHz £1.50

Z3060 1MHz crystal oscillator module. DP16.97. Our Price £3.50

Crystals and filters

Crystal Oscillators. These four came in with a parcel recently

Z2895 10.000MHz

Z2696 16.800MHz

Z2698 24.000MHz

All the same price, £2.00 each: 25 + 1.00; 100 + 0.80

Z1653 HC8W 2.4576MHz, needs 32pF load capacitor. Our Price £1.00 10/5.20 100/34.80



Z1654 8.863256MHz, wire ended. Our Price 50p

Z2151 2.45760 MHz crystal by Hy-Q HC33-U. Baud rate generator. Our Price 50p 10 + 0.30 100 + 0.15

Z2079 14.000 HC18U. Our Price 60p 100 + 0.25

Z2660 Murata filter 83R10 £1.00

Z2661 Murata ceramic filter type SFG460B 12 £1.00

Z2942 X80G2 ceramic filter - similar to Z2661 10 for £2.00

Z2663 Motorola VC004E01 £1.00

Z2665 Crystal filter by Koyo 55.000MHz £1.00

Code	Type	Make	Qty	Description	DP	Price
Z3187	P80C51BH	Intel	435	8bit CMOS CPU. 256 bytes RAM	15.28	£2.00
Z3188	T8AP0256AP	To8Intel	237	PIC 3MHz	3.43	£1.00
Z3189	P8255A	Intel	5	PPI 3MHz	3.29	£1.00
Z3190	08251AC	NEC	12	PCI 3MHz	3.29	£1.00
Z3191	M80C85A	OKI	8	8bit CMOS CPU 3MHz	4.28	£1.00
Z3192	SA88032A-F	Siemens	9	8bit NMOS CPU 256 bytes RAM	2.92	£1.00
Z3193	TAT508AP	Toshiba	25	?	5.08	£2.00
Z3194	LM2575TS	NS	10	5V step down V. reg	1.74	75p
Z3195	LM336Z	NS	19	2 5V V. Ref	1.10	50Z
Z3196	TIC218M	TI	100	8A 800V Triac	1.70	50Z
Z3197	LM323K-STEEL	NS	50	+5V 3A Reg	14.45	£2.00

Yet another parcel of semi's - this one has been in stock for some time, but haven't had time to sort and list it!

Code	Type	Case	Description	Qty	Price
Z2874	723	TO99	V. Reg. +2V to 37V 0.1A 260	3/£1.00	
Z2875	TAG306/400	TO66	Triac 6A 400V	100	3/£1.00
Z2876	TAG310/400	STUD	Triac 10A 400V	34	3/£2.00
Z2877	TAG3/400	TO66	SCR 6A 400V	74	3/£1.00
Z2878	40430	TO39	Unknown	750	5/£1.00
Z2879	TAG240/500	TO220	Triac 6.6A 500V	250	3/£1.00
Z2880	TAG06/200	TO18	SCR 0.8A 200V	94	5/£1.00
Z2881	2S323	TO18	Transistor	1300	£2.00
Z2882	2S324	TO18	do	500	£2.00
Z2883	BC177A	TO18	do	275	10/£1.00
Z2884	2N4905	TO3	do	90	£2.00
Z2885	2N5108A	TO39	do	156	2/£1.00
Z2886	2N3019	TO39	do	30	2/£1.00
Z2887	2N2223	TO5	dual do	34	£1.00

Crystal Oscillator Modules

4 lead devices to fit standard 14DIL socket. TTL output. 5V supply.

Z2844 3.00MHz £1.50

Z2845 20.00MHz £1.50

Z6286 LM1037N No Info 3/£1.00

Z6287 TBA120T TV chip 3/£1.00

Z3157 78T05 - 3A 5V +ve TO220 voltage regulator. List price on these is around £3 - OUR PRICE £1.75

Z3138 Bridge Red BYW20 - 20A 200v WITH 0.25" tabs. Reg Price £3, Our Price £1.00

Z3164 78L12 voltage reg. TO92 case, cropped preformed leads. Pack of 8 £1.00

Z3545 BA5406. Believed to be an amplifier chip - 12 pin SIL. No other data. £1.50

Z2851 2N6520 T092 high voltage transistor. PNP, 350V 0.5A 625mW. Hfe 20-100 @ 50mA. Amazing spec! Pack of 10 £2.00; 100+ 0.08

Z3534 High quality valve with gold plated pins CV3998. B9A base £1.00

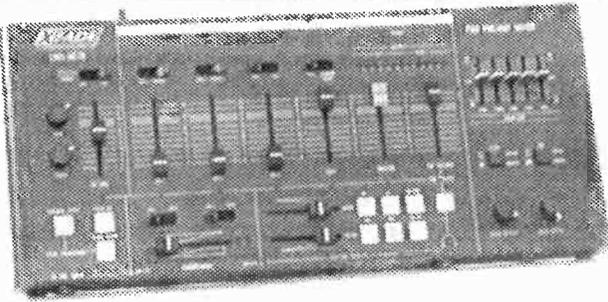
CRYSTALS

Great selection at our usual low prices!

CODE	FREQ'Y	T	Q	PRICE
		Y	T	
		P	Y	
		E		
Z3236	1.000	E	65	£2.50
Z3237	1.8432	A	200	£1.50
Z3274	1.8432	E	15	£1.50
Z3238	2.000	C	600	£1.50
Z3239	3.000	E	58	£1.50
Z3240	3.2768	E	11	£1.00
Z3241	3.579545	E	17	£1.00
Z3242	3.30	E	3	£1.50
Z3243	3.6864	A	40	60p
Z3244	4.000	A	830	60p
Z3245	4.440	A	18	£1.50
Z3246	4.9152	A	100	60p
Z3247	4.9562	A	50	60p
Z3248	5.0688	A	476	60p
Z3249	5.120	A	21	60p
Z3250	5.9904	A	5	£1.00
Z3251	6.144	A	2	£1.00
Z3252	8.000	D	60	£1.00
Z3253	9.8304	A	19	60p
Z3254	10.000	A	18	60p
Z3255	13.5168	A	2	£1.00
Z3256	16.58880	A	25	60p
Z3257	16.000	A	60	60p
Z3258	19.6608	A	3	£1.00
Z3259	20.000	A	50	60p
Z3260	22.032	A	50	60p
Z3261	22.1184	A	5	£1.50
Z3262	23.6840	A	1	£1.50
Z3263	23.400	A	50	£1.00
Z3264	23.684	A	15	£1.00
Z3265	25.000	A	8	£1.00
Z3266	25.000	B	100	£3.00
Z3267	27.000	A	4	£2.00
Z3268	28.125	A	5	£2.00
Z3269	30.000	A	1	£2.00
Z3270	32.000	A	10	£2.00
Z3271	36.000	A	2	£2.00
Z3272	50.000	B	200	£2.00
Z3273	60.000	B	200	£2.00

A HC49 - 13x10x3.7(W)
B OSC, 4 PIN PACKAGE(P)
C HC6 - 19x18x8(P)
D Plastic 3 pin SIL 16x7.5x4.5(P)
E HC6 -19x18x8(W)
W= Wire ended: P= Plug In

AMAZING DEALS



G103M 5 channel stereo mixer with 5 band graphic equalizer, electronic echo and rhythm generator. Crossfade, auto-talk, comprehensive cueing and monitoring facilities. Normal Price £199.95

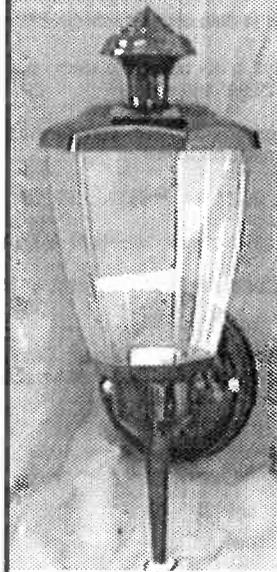
**DISCO MIXER
WITH VOICE
CHANGER,
EQUALIZER AND
ECHO**

**SALE
PRICE**

SAVE £100!!

£99.95

DUSK TO DAWN OUTSIDE LIGHT



L140
Autosensor
Lantern for
internal or
external
use.

Switches
off light at
dawn and
on at dusk.
Max 60W,
ES fitting.
Usually
£14.95

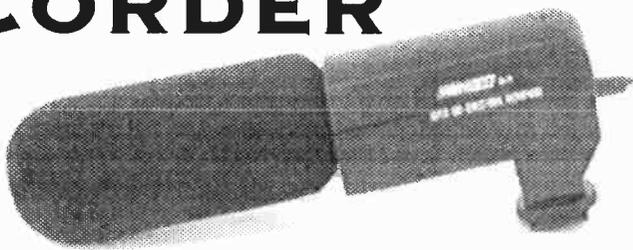
**SALE
PRICE**

£7.50

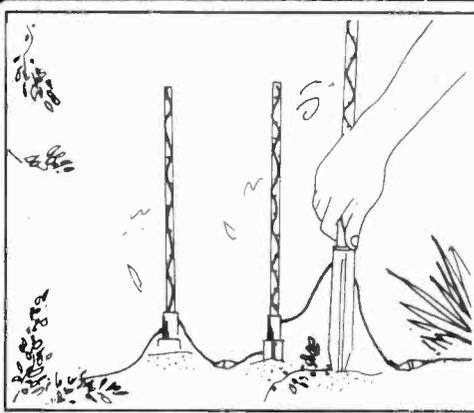
CAMCORDER MIC

**SALE
PRICE**

£14.95



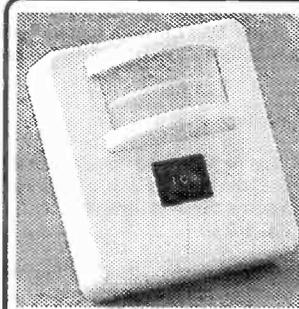
G164G Super unidirectional microphone for all camcorders. Hi/lo (-52, -62dB) sensitivity, anti-shock, Freq res 80-15,000Hz. Impedance 2k. Uses single AAA cell. Normally £34.95



GARDEN LIGHTS

L109 A set of low voltage ornamental lights - 3 x 420mm and 2 x 600mm sticks containing a total of 30 lamps. Powered by 24V transformer (supplied). Normally £19.95

**SALE
PRICE** **£9.95**



PIR AUTO LIGHT SWITCH

F602 Turns light on when you enter room - gradually dims when you leave. Security Function: Flashes light on and off; Auto Function: randomly switches light on and off. Normally £24.95

**SALE
PRICE** **£12.50**



Hi-fi
**Distribution
Blocks**
A091D 6 way
**SALE
PRICE** **£5.50**

A091C 4 way
**SALE
PRICE** **£4.50**

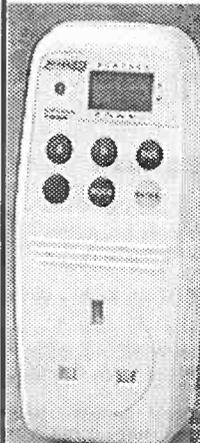
SCREENED CABLE



F036B Professional quality screened cable for audio/video leads. 2 4mm dia single lap screened, each 20/0.12mm + 4.8mm dia twin individually lap screened. 7/0.1. Bonded side by side, easily separated. Normally sells for £1.20 per metre.

**SALE
PRICE** **£20 Per Reel**
(40p/metre)

WEEKLY TIME SWITCH



F607 - Plug in, no wiring required. Features 4 programs per day with memory back up, instant override, real time display. WAS £21.95

**SALE
PRICE**
£13.95

Camcorner

Reports from David C. Woodnott,
Brian Storm, Gerald Smith and
Keith T. Keeton

Toshiba SK60P/JVC GRC7EK

This machine would record only when the wired remote control unit was connected, the trigger switch being inoperative. The cause of the problem was the remote jack: its normally-closed contact remained open, disabling the trigger switch. **D.C.W.**

Canon E200E

Failure of the mechanism in the eject position was caused by a faulty tape (jammed supply reel). Circuit protector RR1934 was open-circuit. **D.C.W.**

JVC GR65E

A common cause of no operation is a faulty AV lead short-circuiting the 8V supply at pin 3 of the 8-pin mini socket to an earthed pin. As a result CP3 (N15) on the main PCB goes open-circuit. Note that when the camcorder is working correctly the voltage at pin 3 of the AV socket is 9.6V, not 8V as shown in the circuit diagrams: it falls to 8V when an r.f. unit is fitted as it then becomes this unit's supply. A look at the circuit shows the reason for this apparent inconsistency. **D.C.W.**

Sanyo VMD9P

Playback of a prerecorded tape was o.k. but no a.t.f. signals were being laid down in the record mode. As a result there was mistracking with playback of the machine's own recordings. The a.t.f. chip IC361 has two operational amplifiers in the record a.t.f. signal path: the signals were going missing between these two stages. We found that R3602 and R3603 had been fitted to the PCB incorrectly. Fitting them in the correct positions restored normal operation. **D.C.W.**

JVC HRC3EK

This is a mini C VTR that's used with a separate camera. At switch on all the display LEDs flashed and there was an almost instant return to the power-off mode. Sometimes however the machine would work for a while before returning to the off condition.

The cause of the trouble was traced to a leaky capacitor, C3 (22 μ F, 16V), in the battery-low detection circuit. This capacitor is at the non-inverting input of a comparator chip, IC3, that monitors the 12V battery supply. As it prevented the correct potential being reached, the circuit signalled a battery-low condition to the microcontroller chip IC1 (pin 15). **D.C.W.**

Mitsubishi CX7

This S-VHS palmcorder came in because its battery contacts required attention. A simple matter to put right. On test, VHS and S-VHS recordings and playback were fine. But when, to check compatibility, one of this machine's recordings was played back by another machine there was audio but no picture. The cause of this puzzling symptom was the fact that the VHS/S-VHS tape detect switch toggle was missing. Thus S-VHS recordings were being made even

when a VHS tape was inserted. A new switch cured the problem. **D.C.W.**

Panasonic NVM10

This camcorder was dead. Preliminary checks showed that the power supply was working, but the 5V supply's integrated-circuit protector had gone open-circuit. This was not surprising: the line was at over 9V. This is always a cue to replace IC1001 and IC1002. So a new BA6149LS and UN1002 were fitted, along with an ICP. The machine now powered up and produced a good camera picture but the capstan motor just sat there, edging backwards and forwards. Checks around the servo chips showed that the servo 5V supply was way down at only 1.7V. It comes from Q1004, a new 2SD1238 transistor restoring normal service. **B.S.**

JVC GRAX5

This camcorder intermittently showed E-04 in the viewfinder. When I stripped it down I found a screw from the bottom left area of the PCB rattling around the drum chip IC201. Refitting the screw cured the problem. I've since had two more of these camcorders with this screw very loose, just waiting to fall out. If you get one of these camcorders it would be worth checking the tightness of the screw. **G.S.**

Finlux VR4700

This camcorder charger was dead, with no lights lit and no d.c. output. Bridge rectifier D101 was faulty and resistor R102 open-circuit. Replacing these items got it going again. **G.S.**

Sony V88

This was the first camcorder I came across that used the EVR chip set. Electrically it's quite reliable. The mechanism suffers from similar faults to the TR55 which followed it (see *Television* March 1994). The following are additional to those previously listed.

Failure to load tapes (sometimes won't rewind). The mechanism half loads then slowly tries to finish but fails: Cause of the fault is a slightly bent supply-reel pole. Because of this the reel is stiff. The LS chassis has to be replaced. I don't know how this fault occurs, but I've come across it several times.

Intermittent playback colour: Replace C134 on board VA39.

E-E picture slightly green, playback o.k.: Replace IC616 on board VC32P.

No focus/zoom. E-E, playback and record o.k.: Cause was PS403 on board SS82P having gone high resistance. As a result there was no AF unregulated supply to FC13P/AF36P. Replacing PS403 restored normal operation. **K.T.K.**

RECESSION – RECESSION – TIRES – TIRES

HEY LOOK, it's 1994 and the recession is still with us – so why not contact **J.J. Components** to increase your profits on Idler tires?

*EXAMPLE: 10 × Sharp tires cost £1.80 + P&P + VAT. That repairs 10 videos each at £20 – Totals to £200.
1 × Sharp original idler cost £2.85 + P&P + VAT. That repairs 1 video at £30 – Totals to £30.*

THIS PROVES THAT
"£" GETS BIGGEST BY
USING J.J.'s TIRES



IN MOST IDLERS IT'S
TIRES THAT GETS
WORN OUT AND NOT
THE PLASTIC

MOST POPULAR TIRES AVAILABLE: PACK OF 10 EACH: MINIMUM 3 PACKS ORDER

AKAI	PT. NO.
VS1-5	32773: FF/REW
VS205/240	M2366960: GEAR
WS1-5	327815: TAKEUP

FERGUSON/JVC	PT. NO.
3V29/HR7200	PU 48961: REEL
3V29/HR7200	PU 51380: CLUTCH
3V29/HR7200	PU 51402: PLAY
3V35/HRD110	PU 55373: CLUTCH
3V35/HRD110	PU 55374: REEL
FV11/HRD170	PU 58645: PLAY
8902/HR3660	PU 49282: REWIND

FISHER	PT. NO.
725/840	1430420400400: FF/REW
975	1430420400700: FF/REW

HITACHI	PT. NO.
VT11/17	6886971: FF/REW
VT5000	6413144: REWIND
VT8000	6414221: PLAY
VT9300	6861471: FF/REW
VT9300	6861482: PLAY

MITSUBISHI	PT. NO.
HS318	TIRE
HS348/337	522B020020: REEL

NEC	PT. NO.
19013/9033	1618081: PLAY

PHILIPS	PT. NO.
5462/6560/6660	52220334 IDLER

PANASONIC	PT. NO.
NV300	VXP 0433: PLAY
NV300	VXP 0401: FF/REW
NV370	VXP 0521: PLAY
NV600	VXP 0515: FF/REW
NV600	VXP 0488: PLAY
NV730	VXP 0581: FF/REW
NV2000	VXP 0331: PLAY
NV2000	VXP 0329: FF/REW
NV7000	VXP 0344: FF/REW
NV7000	VXP 0343: PLAY
NV8600	VXP 0245: REWIND
NV8600	VXP 0243: PLAY

SAISHO	PT. NO.
VR1000/2000	006: TIRE

SAMSUNG	PT. NO.
V1730/790	006: IDLER
V1730/790	006: FF/REW CLUTCH
V1730/790	006: REEL CLUTCH

SANYO	PT. NO.
VHR1500	143-0-662T14730: PLAY

SENTRA/DAEWOOD	PT. NO.
VX8400/VCR12/32 LARGE	973A507200: IDLER
VX8400/VCR12/32 SMALL	975A387600: PULLEY

SHARP	PT. NO.
VC481	NIDL0006GE22: TIRE
VC9300	NIDL0005GE22: TIRE
VC699	NPLYV0107GE22: TIRE
VCA100	NPLYV0111GE22: TIRE

SONY	PT. NO.
SLC7	6706342B: TIRE

TOSHIBA	PT. NO.
V731/71	70326575: IDLER

Please phone us for the types not listed. Please add 60p post & packing and then add 17.5% VAT to the total.
Callers by appointment only.

J.J. COMPONENTS
63 THE CHASE, EDGWARE,
MIDDX. HA8 5DN, ENGLAND
Tel Fax: 081-952 4641 Hotline No. 081-381 1700
Free fax orderline 0800 318498

Help Wanted

The aim of the Help Wanted column is to assist readers who require a part, circuit etc. that's not generally available. Requests are published at the discretion of the editor. Send them to the editorial department – do not write to or phone the advertisement department about this feature.

Wanted: Service manual, circuit or photocopy of this for the Philips VR2350 VCR. Also MAB8420PC014 i.c. A.W. Hankins, 27 Ingram House, Park Road, Hampton Wick, Kingston-upon-Thames KT1 4BA. 081 977 4917.

Wanted: Complete circuit board (Abstimmung 29504 003 02) for the Grundig CUC720 chassis; complete circuit board (Abstimmung 29504 003 43) for the Grundig CUC70KT; tuner unit (29504 011 73) for the Grundig CUC70KT. G. Vandome, H.S. Mosley Ltd., 2-4 Claytons-gate, via Friargate, Preston, Lancs PR1 2EH. 0772 556 063.

Wanted: Function PCB, part no. PU21245/B, for the Telefunken VR520 VCR. A. McGarry, 115 Church Street, Westhoughton, Bolton BL5 3SF. 0942 814 963.

Wanted: Scan coil assembly for the Panasonic TX21V1, tube type A51JRU40X03W. Also LOPT for the Hitachi CPT2568, part no. 2434492. Phil Jones, South Ribble TV, 248 Leyland Lane, Leyland, Preston PR5 3HJ. 0772 434 232.

Wanted: Manual with circuit diagrams for the Wayne Kerr type 58A video oscillator. Could stat and return. R.G. Hayward, Sunnyfields, Lighthouse Road, St. Margaret's Bay, Dover, Kent CT15 6EJ.

Wanted: Circuit diagram for the ITT VR3984, head for

the Hitachi VT17 (VHS AH3) and Ferguson FV20B, handsets for the 3V23, VT17 and VR3984, circuit for the Decca series 80/88. E.J. Edwards, 43 Hoose Court, Market Street, Hoylake, Wirral, Merseyside L47 5AB.

Wanted: TBA641 field output chip for the Thorn 1612 chassis. T.N. Stone, 4 Rosemount Court, West Boldon, Tyne and Wear NE36 0NG. 091 519 1580 (home), 091 284 3111 ext. 26784 (work).

Wanted: Element for AEI Solon Model 954 65W soldering iron or name of supplier. David Robinson, 1 Sycamore Farm Cottage, Lower Bassingthorpe, Grantham NG33 4ED. 0476 585 760.

Wanted: Decoder panel for the Sony KV1320UB prior to serial no. 100,000. Head drum motor for the Hitachi VT63. B. Senior, 1 Bedale Close, Coalville, Leicester LE67 3BA. 0530 832 088.

Wanted: LOP/pulse transformer for the Barco-vision 400 projector, also manual if possible. Fred Walker, 33 Gledhow Wood Close, Roundhay, Leeds LS8 1PN. 0532 744 811 day, 0532 698 403 evenings.

Wanted: Orion LOPT type 3714004 for the Amstrad 664 monitor. Mk. 1 model. Cassette door cover for the Akai VS5. Leon Electronics, 11 Woodend Close, Three Bridges, West Sussex RH10 1RS. 0293 520 536.

Wanted: Circuit diagram or technical information for the Marconi TF2006 f.m. signal generator. J.N. Bradshaw, 55 College Ride, Camberley, Surrey GU15 4JX. 0276 65 997.

Wanted: Three-legged 115V 5A regulator chip for the Sharp SP2 Mark 2 chassis. Ronald Lane, 29 Hawthorn Crescent, Durham DH1 1ED. 091 384 3843.

Wanted: CRT9212 chip for a Burroughs ET2130 computer. R. Mayn, The Bungalow, King Street, Maldon, Essex CM9 7DY. 0621 856 686.

Building a Personal Computer

Part 1

David Botto

There are several advantages when you build your own personal computer instead of buying a ready-made one. First the money saved by assembling it yourself means that you can afford to build a better machine. Secondly you become familiar with computer hardware and how it works. Then there's the satisfaction of knowing that you've built a powerful, top-quality computer that won't readily become outdated.

On the principle that good quality equipment always saves money in the long run, only leading brand parts are specified for this project. This makes for optimum reliability and ease of use. Close attention has however been paid to the total cost.

Assembling a PC is quite straightforward, because everything plugs together. So you can switch off your soldering iron! The only tools you'll need are Phillips screwdrivers in two sizes and a set of metric box spanners.

Some quite good, ready-built, low-priced PCs are available. But before you buy a rock-bottom, bargain-price PC it's worthwhile examining the specification carefully. Manufacturing cost may have been saved by the use of inferior or outdated components. Check for example the retrieval time from the hard disc and the number of megabytes the disc can store. An inadequate, slow hard disc with too little storage space is painful to use. Find out how much RAM the computer contains and whether this can be increased. Insufficient RAM causes all sorts of problems when the latest, advanced software is being run. You could also find that some new software can't be run at all. What sort of CPU chip is used on the motherboard? Anything less than a 486 shouldn't be considered. How many expansion slots does the motherboard contain? You'll almost certainly want to add additional PCBs in the days ahead.

Some seemingly low-priced PCs have grotty keyboards, poor quality components inside and an El Cheapo display monitor. Another important point is the guarantee. How long does it last? Will you get servicing on the spot in your workshop, or must the PC be packed up and sent to a distant place? In the latter case the experience of some PC users suggests that you could have a long wait.

These problems are all avoided when you build your own machine. Servicing and maintaining your personally built PC is easy, and there's no need to pay out for an expensive service contract. The units used in this project are listed in Table 1: they are all guaranteed by the suppliers and manufacturers.

The knowledge you gain by building your own PC will enable you to undertake the servicing and construction of PCs for others. This means extra customers and a new source of profit. Bear in mind that these new customers will probably also buy TV sets, VCRs and camcorders from you

and bring you all their servicing work.

A final but very important point is that you won't be stuck with the possibly inadequate, 'bundled' software that often comes with ready-built PCs. In the second part of this article I'll be recommending the software programs that I consider are most suitable for use by the service engineer.

If you read my articles in the August and September 1993 issues of *Television* you'll already have a basic grasp of PC fundamentals.

Parts Needed

Before describing the construction of the PC we'll list the units required and mention briefly what they do. Knowing this will help you to obtain the best results from your PC.

Table 1 lists the parts needed. Before preparing this table I checked through piles of advertisements and made many enquiries. The prices shown are correct at the time preparing this article. Simply Computers (telephone 081 523 4020) can supply the parts exactly as listed. The firm answered my queries quickly, patiently and efficiently, and sent all the information I needed by return of post. An excellent after-sales help line is provided.

The items listed come with individual instruction manuals, full software manuals and every lead and screw you'll need.

The hard-disc drive is a Western Digital type, one of the best makes available. The IDE (Integrated Drive Electronics) PCB provides an interface between the hard-disc drive, the floppy-disc drive, the mouse, the printer and the motherboard. It plugs into any 32-bit (local bus) slot on the motherboard.

As an alternative to the IDE board you could use a separate RS232 input/output board, a small computer systems interface (SCSI) board (generally referred to as a 'scuzzy') and a Western Digital SCSI hard-disc drive (see *Television* August 1993). This will increase the cost of the PC considerably but will give slightly faster operation. A two-board SCSI arrangement rather than an IDE board is necessary only when a hard disc with a storage capacity in excess of 540Mbytes is used or a large number of multiple devices, such as a tape streamer, to store vast amounts of data are to be installed. Such multiple devices are not normally required for service department use.

A Cherry keyboard is specified. When you use your PC daily you'll be glad that you fitted a top-quality keyboard with a satisfying, positive 'click' response. A good keyboard also reduces the strain on your fingers, wrists, arms and shoulders.

What to Buy

If you wish you can of course shop around for parts and prices. Bear in mind however that the items listed in Table 1 are a matched set. Also that some advertised PC parts may turn out to be grey imports, which will cause problems and delays should a panel prove to be faulty. The safest rule is to buy all your parts from one reliable supplier. You'll then know that they all match up with each other.

Unless you've a trade account with a supplier it's best to pay by credit card as this may give you protective insurance cover. Check that any company you decide to buy from is well established and reputable, and before ordering make sure that everything is in stock. Simply Computers operates a good returns policy, but to take advantage of this it's essential that you save the original packing and boxes, the manuals and all the paperwork. These items must be

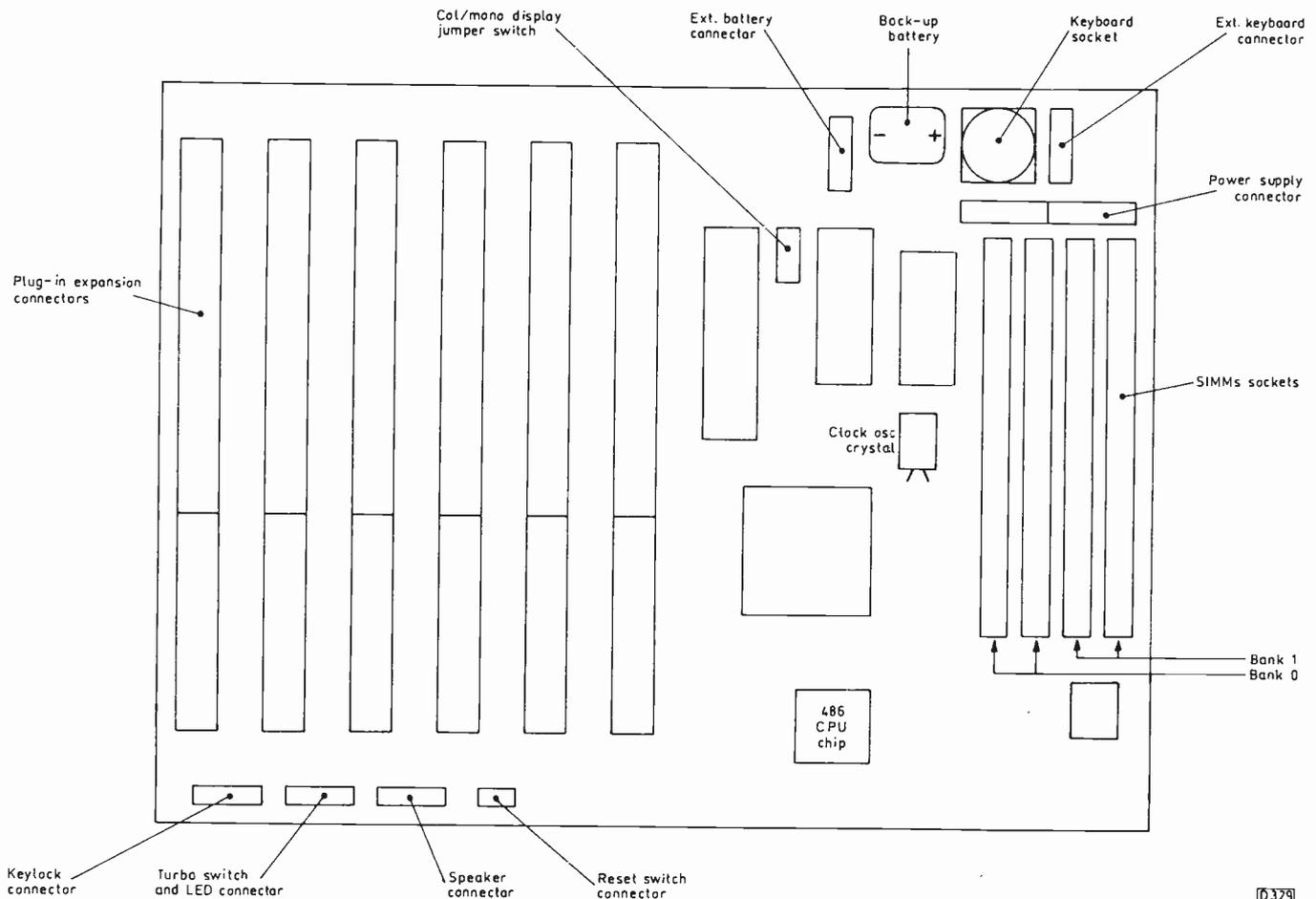


Fig. 1: Typical motherboard layout.

returned with the faulty unit should a problem arise. This is a general rule that applies with any PC parts supplier. The components used in computers are usually reliable because of the low operating voltages.

The Tower Unit

A full tower case is specified. It comes complete with built-in 230W power supply and cooling fan. Don't be tempted to buy a mini or midi tower to save money. A full tower unit is easier to work with when you start to install the various bits and pieces, and provides plenty of room for expansion. With the rapidly advancing technology and the fact that ever more uses are being found for the service department PC, the expansion capability is a definite must. There's room in the tower for four floppy-disc drives and three hard-disc drives – this is almost certainly more than you'll ever need. Inside the tower case you'll find a box or package that contains all the hardware bits needed to assemble your PC. There's also a small loudspeaker complete with its own connecting lead.

Tower cases can look quite different, but the arrangements inside are very similar. The one specified is typical, with blanked-off sections at the front reserved for the disc drives. With the completed PC the LED panel displays the speed (frequency) at which the PC is running. Next to the LED indicator are the press-button reset switch, the turbo switch and the mains power on/of switch.

The Motherboard

The motherboard, sometimes called the mainboard, is the heart of the PC. It contains the central processor unit

(CPU) which is a 486 device operating at 33MHz. At least a 386 CPU is required to operate many modern software programs: the cost of a 486 motherboard is not that much extra.

The 486DX CPU chip used incorporates such extra features as a maths co-processor and an 8K RAM cache memory. It's based on low-power CMOS circuitry, containing approximately 1.2 million transistors – and four times as many components as the older 386 processors. The additional circuitry gives you a lot more power and operating speed.

A typical motherboard layout is shown in Fig. 1 – layouts can vary but the basic details remain the same. When the board is fitted into the tower, the keyboard socket is accessible through a ready-drilled hole in the tower's metal back. This is normally the best place for this socket. Some motherboards have an additional keyboard connector to enable you to fit a socket at the front of the computer. The rechargeable battery powers the clock, so that the displayed day and date are always correct. It also powers the BIOS (basic input/output system) memory chips when the PC is switched off. There's provision for fitting an external battery if required. A lead links the keylock connector to the key-operated lock at the front of the tower: when the key is turned to its off position and removed from the lock no unauthorised person can use the PC – because the keyboard won't work.

The SIMMs PCBs

The SIMMs (single in-line memory modules), which are quite expensive, contain the RAM chips and plug into the motherboard. If you intend to use a Command Line Inter-

face (CLI) to run only DOS programs, 4Mbytes of installed SIMMs memory should be ample. You may however prefer to have a Graphical User Interface (GUI) and want a Windows display. With this you select a wanted program by setting the mouse pointer over the little picture (icon) that represents it then click a mouse button. You'll need a minimum 8Mbytes of RAM to run one of the new, powerful, memory-hungry Windows wordprocessors under Windows.

Nearly all modern PCs are fitted with SIMMs. These tiny PCBs, with the memory chips soldered to them, plug into the motherboard's SIMM sockets. If you decide to increase your PC's RAM capacity, make sure that the extra SIMMs run at the same speed (70nsecs) as the existing ones. With older computers the RAM chips were plugged into i.c. sockets that were soldered directly to the motherboard. They could suffer from what is called 'chip creep': the varying heat level in the PC meant that the memory chips tended to ease themselves out of their sockets, leading to all sorts of intermittent memory problems.

PCB Protection

Leave all the panels and drives in their antistatic coverings until you are ready to install them. This is the same rule you follow with TV and video panels that contain CMOS i.c.s. To ensure that you are not carrying static charges, earth yourself before handling the parts. Static charges are quick death to computer panels. Better still, use an antistatic wrist strap and lead. Most service departments have one. And here's another warning: never wear a wrist strap when working on a PC that has mains power connected to it – even if it's switched off.

Disc Drives

A Western Digital hard-disc drive with a storage capacity of 211Mbytes is specified. As today's advanced software programs require lots of hard-disc storage space 211Mbytes should be regarded as the minimum. You can increase this capacity by using a disc compression software program such as SuperStor, Stacker or Microsoft's DoubleSpace.

One 3.5in. floppy-disc drive is specified. Five and a quarter inch disc drives are now almost obsolete, so it's not really worthwhile fitting one unless you have a lot of data stored on 5.25in. discs.

Circuitry

We can't show the actual panel or power supply circuitry, which follows a standard pattern. Computer circuit diagrams seem to be more closely guarded than military secrets. Apparently even professional PC service engineers can't get hold of them.

Constructing your PC

Before you start to assemble your PC be sure to study the user manuals that come with the PCBs and the two disc drives thoroughly. This takes a little time, but it's time that is well spent.

When you're ready to start the construction work, begin by checking that the input to the 230W power supply, which is fixed inside the tower case, is set to 240V a.c. A label on it lists the d.c. outputs. These are +5V at 22A, -5V at 0.5A, +12V at 9.5A and -12V at 0.5A. The digital circuitry uses the 5V supplies while the disc-drive motors

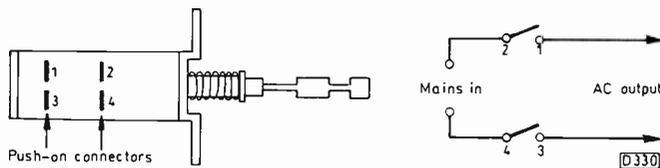


Fig. 2: Typical PC power on/off switch.

use the 12V supplies.

The mains on/off switch in the tower will probably be wired up already. If not, see Fig. 2 – the switch is a simple, double-pole on/off type. The main power cable to the power supply is easy to spot: it's the thickest cable, with four connections that push on to the mains switch. A label fixed to the power supply shows the correct colour codes and connections. It's a good idea to connect your digital multimeter, switched to the low-ohms range, across the mains plug: when you switch on – without the mains supply connected of course – you should get a reading of around 700-800Ω.

The motherboard needs to be set up before you install it. The first thing to do is to fit the SIMM modules into the slots provided. With a 486 board you'll usually find that

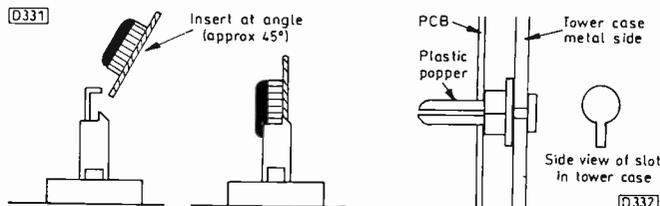


Fig. 3 (left): How a SIMM fits into the motherboard socket.

Fig. 4 (right): Motherboard stand-off insulating legs.

there are four memory bank sockets numbered 0, 1, 2 and 3. Fit the first two SIMM modules into socket 0, the second two into socket 1, the next two into socket 2 and the final two into socket 3. With a 486 motherboard the SIMM modules must always be fitted in fours, in line with each other. To fit a SIMM module, hold it at an angle of approximately 45°, insert it and gently ease it forwards until it slots into its holder solidly (see Fig. 3). Be sure to wear an antistatic wrist strap when you do this. Read the instructions in the motherboard's user manual before you fit the SIMM modules to the board.

Fortunately the motherboard jumpers normally come correctly set up. Sometimes however you may need to change the jumper switch settings. Each switch consists of two or more upright pins and a plastic connector, called a

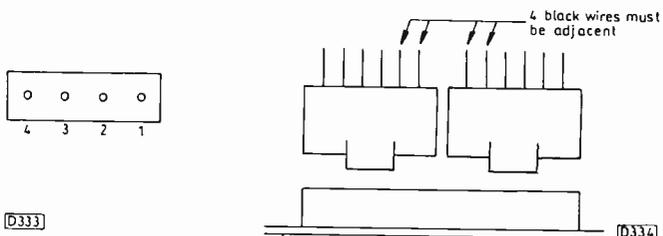


Fig. 5 (left): The speaker connector. Connections are as follows: 1 speaker drive, 2 chassis, 3 no connection, 4 +5V.

Fig. 6 (right): 12-pin power supply connector on the motherboard.

jumper, that fits over them. When a two-pin jumper links two pins the switch is on; remove it and the switch is off. Study the motherboard's user manual to find the exact settings for these jumper switches. If in doubt, phone your supplier – before you change the setting(s).

The next job is to fit the motherboard into the tower case. It fits in an upright position to one side of the case towards the bottom, looking at the rear of the tower case. It may fit at either the left- or the right-hand side: slotted holes in the side of the tower clearly show the correct position.

There are several small plastic stand-off insulating legs in the kit of supplied fittings. These push into holes in the motherboard and must project out from the print side to prevent shorts to the metal case (see Fig. 4). They slot into the elongated holes at the sides of the tower chassis. You'll find two or three hexagonal stand-off screw extensions in the tower hardware kit. Screw them into the threaded holes at the side of the computer case, where the motherboard fits. Drop the motherboard into the chassis slots, then screw it on to the hexagonal screw extensions.

A tiny loudspeaker is supplied, usually fitted on to the tower unit. Plug the lead from the speaker on to the four-pin motherboard connector labelled "speaker" (see Fig. 5). If the connector is labelled with a number, consult the

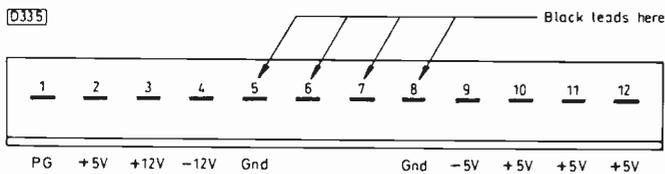


Fig. 7: Motherboard power input socket pin connections.

motherboard manual to confirm the correct position.

You can now connect the power supply to the motherboard. There are two pairs of leads from the power supply. Each has a six-pin connector. Both push on to the 12-pin power connector labelled P8 and P9 (or J2 and J3) on the motherboard, see Fig. 6. It's difficult, though possible, to get them the wrong way round. The six-pin plugs both have two black wires at one end: these black wires must be next to each other at the centre of the motherboard connector. Fig. 7 shows the motherboard's power input socket, with the pin voltages.

Pin 1 is the PG (Power Good) connection. This provides the power supply with a control voltage known as Power Good. If the a.c. mains supply voltage falls below a certain level for example the PG signal will be absent or incorrect. The power supply will then shut down and the PC will not operate, though the fan and drives sometimes still run.

Next install the 3.5in. floppy-disc drive. This is mounted horizontally. It will be your "A" drive, so mount it in the top position. You may need to fix rails to the drive. Slide it into the top bay and fasten it to the tower case chassis with screws (all the screws and rails are in the hardware kit supplied with the tower). Make sure that the drive is fitted the right way up. Leave the next bay empty: you may want to fit a second 3.5in. disc drive later – this would become your "B" drive.

Fix the hard-disc drive in the next tower bay down – this is the "C" drive. It must be firmly mounted.

The input/output IDE controller panel must now be fitted. Study Fig. 8 carefully. This panel can be pushed into any convenient 32-bit (local bus) connector on the motherboard (check the motherboard manual to find out which are

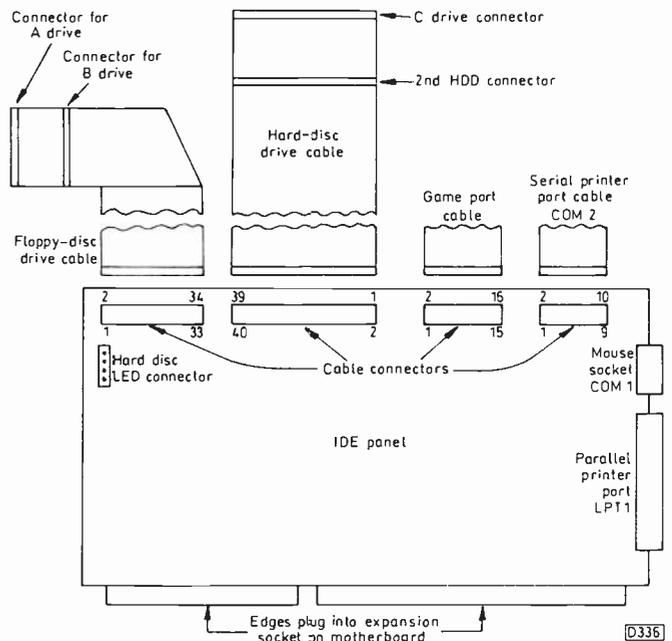


Fig. 8: Typical IDE board layout.

the local-bus slots). Make sure that you know the positions of the no. 1 pins of the connectors on the IDE panel. The rule is that the red-coloured edges of the ribbon cables must be connected to pin 1 of each IDE board connector.

When the board has been fitted, the mouse serial (COM 1) and parallel printer (LPT1) ports are accessible at the back of the tower case. Two leads (supplied with the panel) plug into the IDE board. They end in connector sockets that screw on to the rear of the tower chassis. These sockets are the joystick port and the serial printer (COM 2) port.

Connect the disc drives to the IDE board using the ribbon cables supplied. The hard-disc drive cable is the larger one, with several plug fittings attached to it. Use the end one to plug into the disc drive. The same thing applies to the cable from the floppy-disc drive.

Now plug the 1Mbyte Cirrus Logic 5428 VL-local bus PCB (graphics and video board) into any 16-bit expansion slot on the motherboard. An analogue video socket (for the monitor's plug) at the rear of this board fits into a steel slot on the rear panel of the tower case. There may be a 'knockout' metal section to remove to allow access to the video socket. Both plug-in PCBs are held in position firmly by the metal brackets and screws supplied with the tower case.

You'll see a bundle of wires at the rear of the front control panel. These may be marked with their functions. You should find the names turbo switch, turbo LED, reset switch, etc. printed on the motherboard. Sometimes however they are marked as JP1, JP2, JP3 etc. In this case you'll have to check with the motherboard manual to confirm the correct plug positions. The HDD (hard-disc drive) LED lead from the control panel goes to a connector, usually marked HDD LED, on the IDE panel. Check the instructions that come with this board if the connector isn't marked.

A jumper instruction sheet is supplied with the tower. This sets out the LED panel jumper positions required for the speed-display readout.

When all the connections to the boards and drives have been plugged in, use some plastic cable ties to keep the leads neatly in place. You may have some unused leads coming from the power supply. Check everything carefully. Once again check across the mains plug with the

FREE

TV and VCR

COMPONENTS CATALOGUE

HUGE RANGE OF SPARES

COMPETITIVE PRICES

PLUS

TV TUBES

RE-PROCESSED

NEW

B GRADE

Over 150 Types in Stock
VISTA are BSI approved

FAST DELIVERY
EFFICIENT SERVICE



FOR CUSTOMER CARE AND SERVICE CALL

TUBES: 0429 837100

COMPONENTS: 0429 838057

FAX: 0429 837101



Vista Electronics Ltd

Unit 1B, Wingate Grange Industrial Estate, Wingate, Co. Durham, TS28 5AH.

EST. 1977



J.W. HARDY



YOUR ONE-STOP-SHOP

FOR THESE FINE BRANDED PRODUCTS
- AND SO MUCH MORE . . .

Wolsey SMATV

DIAMOND AERIALS UHF/FM

GLOBAL COMMUNICATIONS FIRST IF, SMATV

J.W. HARDY communications UHF AERIALS
UHF AMPLIFIERS

Labgear Cablevision SMATV

LENSON HEATH SATELLITE
ANTENNA

PACE SATELLITE
RECEIVERS,
DECODERS

PALCOM SATELLITE
RECEIVERS

PROMAX TEST EQUIPMENT

STIF Fixings BOLTS
PLUGS

Mungo BOLTS
PLUGS

Teleste SMATV
TRIAx U.K. UHF/VHF
AERIALS

TOWER CLIPS

UNI(FIX CLIPS

**VOLEX
RAYDEX** COAX CABLES

- WE PROVIDE FULL TECHNICAL ASSISTANCE AND SERVICE BACK UP ON ALL OUR PRODUCTS
- SMATV - DISH SHARING - DESIGN CONSULTANT

Trace Price List available to bona fide TV Aerial and Satellite Dealers on proof of trading

J.W. Hardy, 231 Station Road, Stechford,
Birmingham B33 8BB. Telephone: 021-784 8478

RENTAL FINANCE

Expand your CTV and VCR rental business with no capital outlay and increase your profitability.

Broughfame has the solution and their rental finance plan will provide facilities from £2,500 upwards.

For further details ring or write to Bob Wickham at the address below:

BROUGHFAME LIMITED

115A ST JOHN'S HILL
SEVENOAKS
KENT TN13 3PE

Telephone: (0732) 743400

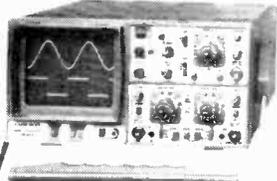
Fax: (0732) 743335

HOW TO INCREASE YOUR PROFITS, IMPROVE YOUR SERVICE, WITH COST EFFECTIVE TEST EQUIPMENT.

HAMEG OSCILLOSCOPES

HAMEG are Europe's top selling DUAL TRACE OSCILLOSCOPES. Select from four superb models. All, with the exception of the HM 1005, incorporate a useful COMPONENT TESTER. Size - all models - 285mm x 145mm x 380mm. Clear display 8cm x 10cm. Mains supply: 110/220/240V AC 50/60Hz. All supplied with 2 PROBES, a COMPREHENSIVE MANUAL and a 2 YEAR WARRANTY.

HM203-7 20MHz STANDARD

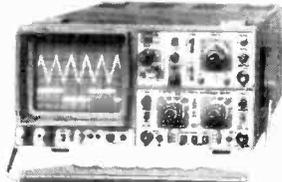


- SPECIFICATION**
- 2 Channels
 - Bandwidth: DC - 20MHz
 - Sens: Ch.1, Ch.2, 1mV/cm
 - Timebase: 0.1s - 20ns/cm
 - Triggering: DC - 40MHz
 - Active TV - Sync - Separator
 - Variable hold-off
 - Trigger LED indicator
 - Calibrator: 1KHz Square wave
 - Component tester
 - Plus many features

Price £362.00 + £63.35 V.A.T. FREE Specialist Carrier Delivery

SPECIFICATIONS HM604 60MHz UNIVERSAL

- 2 Channels
- Bandwidth: DC - 60 MHz
- Sens: Ch.1, Ch.2, 1mV/cm
- Timebase: 2.5s - 5ns/cm
- Triggering: DC - 80MHz
- Active TV - Sync - Separator
- Alter delay trigger
- Sweep delay
- Delay line
- Trigger LED indicator
- Calibrator: 1KHz & 1MHz Sq. Wave
- Component tester



Price £653.00 + £114.28 V.A.T. FREE Specialist Carrier Delivery

HM1005 100MHz UNIVERSAL 3 CHANNELS - UP TO 6 TRACES



- SPECIFICATION**
- 3 Channels
 - Bandwidth: DC - 100MHz
 - Sens: Ch.1, Ch.2, Ch.3, 1mV/cm
 - Timebase A: 2.5s - 5ns/cm
 - Timebase B: 0.2s - 5ns/cm
 - Triggering DC - 130MHz
 - After delay trigger
 - Delay line
 - Trigger LED indicator
 - Overscan LED indicator
 - Active TV - Sync - Separator
 - Calibrator: 1KHz & 1MHz Sq. Wave

Price £847.00 + £148.23 V.A.T. FREE Specialist Carrier Delivery

HM205-3 20MHz DIGITAL STORAGE

- SPECIFICATION**
- Digital Storage
 - Analogue real time (Same as 203-7)
 - Bandwidth: DC - 20MHz
 - Sens: Ch.1, Ch.2, 1mV/cm
 - Timebase Digital: 5s - 1µs/cm
 - Triggering DC - 40MHz
 - Active TV - Sync - Sampling
 - Max sampling rate: 2 x 20MHz
 - Memory: 2 x 2048 x 8 Bit
 - Dot joiner
 - Printer/plotter output



Price £653.00 + £114.28 V.A.T. FREE Specialist Carrier Delivery

BLACK STAR COLOUR PATTERN GENERATOR THE 'ORION' THREE-IN-ONE PAL VHF/UHF - PAL VIDEO COMPOSITE - R.G.B.

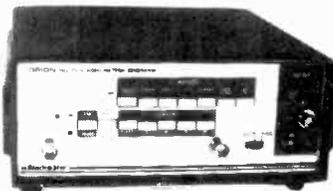
The Orion is a compact, bench instrument offering a wide range of patterns and facilities at a truly low cost. In addition to a switchable sound carrier facility which allows use with the majority of PAL TV systems, the Orion provides highly flexible TGB outputs, ensuring compatibility with most video monitors.

More than 50 pattern combinations can be selected, including those for testing static and dynamic divergence, video amplifier linearity, colour purity, general colour performance, focus etc. A separate video input to modulate camera signals, fully variable RF and video output levels facilitating AGC testing; trigger output allowing easy triggering of difficult oscilloscope waveforms; external sound modulation input via DIN connector for frequency response testing of TV sound systems; adjustable wide frequency coverage of VHF and UHF TV bands.

Indispensable in the manufacture, test, and servicing of televisions, and computer and video monitors.

FEATURES

- Colour bars, purity, greyscale, crosshatch, dots, focus, etc.
- VHF/UHF Channels
- 5.5MHz, 6.0MHz, 6.5MHz Sound Carriers.
- Internal/External Sound.
- External Video Output.
- Trigger Output.
- PAL B,D,G,H,I,K.
- Separate R, G, B and sync. O/P's.
- RGB TTL & 1V.
- Green 0.3V Syncs.
- Composite Video Output.
- Variable RF/Video Output.
- Switchable Video Polarity.
- Mains powered 220/240V AC 50/60Hz.
- Size: 98 x 219 x 240mm.



Price £229.00 + £40.08V.A.T.

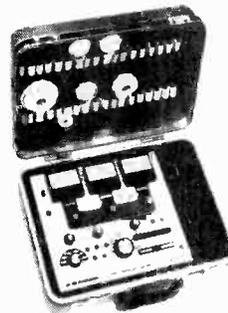
NEW! DEGAUSSING COIL

A very effective degaussing coil, ideal for degaussing TV tubes, computer monitors, oscilloscopes etc. Mains Power: 220/240 50/60Hz. Size: 355 x 355 x 24mm.

Price £46.00 + £8.05V.A.T.

B & K PRECISION CRT ANALYSER-RESTORER

The number one CRT Test Instrument. Over 5000 U.K. Television engineers wouldn't be without it.



All CRT's checked identically, including all in-line and one gun types. Tests all three guns of colour CRT's simultaneously under actual operating conditions (model 490). Exclusive multiplex technique (model 490). Measure true dynamic beam current that actually passes through G1 aperture to screen. Measures all shorts and leaks - preserving more CRT's. Tests focus electrodes lead continuity finding faults that other testers miss. Uses most powerful restoration method known with minimum danger to CRT. Rejuvenated CRT's guaranteed as new for two years. Obsolescence proof - perpetual set up chart updated and new adaptors developed. Tests and rejuvenates VDU's and oscilloscope tubes. A range of over 40 CRT base adaptors available. Increase profit. Pays for itself in months.

Prices

Model 490 Tri-dynamic three meter instrument inc. 6 common adaptors..... £559.00 + £97.83V.A.T.
Without adaptors..... £496.00 + £86.80V.A.T.
Model 480 Single meter instrument inc. 6 common adaptors..... £425.00 + £74.38V.A.T.
Without adaptors..... £360.00 + £63.00V.A.T.

SADELTA SIGNAL STRENGTH METERS

The Sadelta Field Strength Meters have been designed to facilitate the dish alignment of satellite TV systems and aerial alignment of VHF/UHF television and radio systems. Signal levels can be accurately measured on the TC402-D, TC90 AND TC80, allowing the evaluation of signal conditions for satisfactory operation. All models have a clear LCD direct frequency readout, coupled to a multiturn tuning control enabling precise channel identification.

TC402-D VHF & UHF

FEATURES

- Three bands:
 - Low VHF: 45-170MHz
 - High VHF: 170-450MHz
 - UHF: 450-862MHz.
- Digital display for direct frequency readout.
- Built-in monitor loudspeaker AM/FM.
- Signal measurement from 20µV to 3V.
- Powered by eight 1.5V AA batteries.
- Fully portable with sturdy carrying case.



Price £289.00 + £50.57 V.A.T.

TC90 VHF-UHF- SAT.

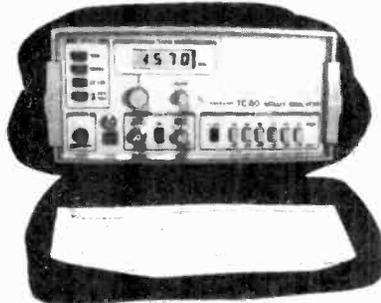
FEATURES

- Five bands:
 - Low VHF: 45-110MHz
 - High VHF: 110-300MHz
 - Hyper VHF: 300-470MHz
 - VHF: 470-862MHz
 - Satellite: 950-1750MHz.
- Digital display for direct frequency readout.
- Signal measurement VHF/UHF 20µV to 3V.
- Signal measurement satellite - 70dBm to -10dBm.
- Audible indication of satellite signal level.
- Built-in monitor loudspeaker AM/FM (not satellite).
- Powered by rechargeable battery (complete with charger 220/240V AC).
- Fully portable with sturdy carry case.



Price £499.80 + £87.47 V.A.T.

NEW! TC80 SATELLITE



TC-80 IN ITS STURDY CARRY CASE

The TC80 incorporates three unique features: video composite output; audio output with built in loudspeaker; ramp and RF signal outputs, which enable an oscilloscope to be used as a spectrum analyzer.

- 4 digit LCD freq. display
- Freq. range 950 to 1750MHz
- Sweep mode sweeps entire freq. band for rapid satellite location
- Tone select switch for audible tone proportional to signal strength
- Measurement from 40 to 100dBµV
- Audio demodulation with internal loudspeaker
- Video demodulation
- Rear SCART connector for A/V connection
- Oscilloscope/spectrum analyzer output
- Sound tuning 5 to 8MHz
- LNC PSU 14V or 18V
- LNC current measurement
- Internal rechargeable battery with charger



TC-80, USING A LCD TV AS A MONITOR

Price £490.00 + £85.75V.A.T.

U.K. POST PAID, export enquiries welcome. Visa/Access or cheque with order, payable B. K. Electronics. Official Orders welcome from Govt. Depts., colleges, P.L.C.s etc. Large (A5) S.A.E. for technical leaflets of complete range. Credit card orders are accepted by 'phone, fax or post. Delivery normally within seven days.



B. K. ELECTRONICS
UNITS 1 & 5 COMET WAY, SOUTHEND-ON-SEA
ESSEX SS26TA
Tel.: 0702-527572 Fax.: 0702-420243

DSD DISTRIBUTION

STOCKIST OF BRANDED B. STOCK
Sony, Panasonic, Hitachi, Sanyo, Toshiba etc.

Ex-Rental TV's + Videos
Basic TV's from £10
working Video's from £25

Our own Brand 'DUOTRON'
Midi + Midi Hi-Fi, CD's, Clock Radios,
Radio Cassettes, Walkmans

Unit 1, Eagle Works
Springcroft Road, Hall Green
Birmingham B11 2PP

Tel: 021-778 5825

Mobile: 0860 642972/0850 281640 Fax: 021 778 6013



COMPONENTS For TV ★ Video Audio ★ Computer

IC SELECTION

AN5753	£3.68	TA7280P	£4.99
BA6109	£1.95	TA7281P	£5.21
AY38912P	£7.74	TA7286P	£3.59
BA4236L	£3.32	TA7324P	£2.69
BA5408	£2.90	TA8400P	£4.95
BA6259N	£2.57	TA8410K	£4.97
A741CE	£0.29	TBA530	£1.74
CDP818AE	£7.24	TA7343AP	£3.49
CNX62A	£3.55	TBA810P	£1.16
DS1488N	£0.85	TBA810S	£1.62
DS75150N	£1.85	TC4940	£3.33
DS75154N	£1.85	TD41001B	£2.86
H11L3	£2.88	TD41020	£2.64
HA1137W	£3.61	TD41035T	£2.59
HA12006	£6.09	TD41170D	£4.98
HA12413	£4.75	TD41180P	£3.49
HA13007	£5.12	TD41516Q	£4.63
HD6945SP	£15.18	TD41908A	£2.06
KA7217AP	£2.77	TD42033	£2.44
LA3160	£2.28	TD42541	£2.49
LA3361	£1.79	TD42593	£3.45
LA4480	£3.86	TD43653	£3.93
LA7016	£2.99	TD44420	£2.71
LA7910	£2.52	TD44510	£3.75
LM1203N	£10.99	TD44600-2	£2.95
LM3909	£2.55	TD44601	£2.49
LM833	£1.79	TD44950	£2.15
MS4544L	£3.38		
MS4548L	£5.29		
MAB8461P	P.O.A.		
MAB849H	£5.17		
MB81416-12	£4.99		
MK4564N	£2.45	TD48140	£3.49
MP4504	£6.94	TD48170	£3.47
MSM6242B	£11.77	TE42000	£4.33
MC1377P	£7.32	TL431	£1.85
MC14052BCP	£0.78	TMP47C	P.O.A.
NE555CDP	£0.29	UM8272A	£14.09
FR255A	£2.85	UPC1277	£4.23
PC713V	£2.99	UPC1378H	£2.45
SA41124	£3.88	UPC1397C	£3.94
SED9420CAC	£15.68	UPD8039C	£12.39
STK4332	£5.71	ZX8400AP5	£4.63
STK6451	£6.29	14DN476G	£19.25
STK5482	£6.99	27C256-200	£2.98
TA7226P	£3.76	4116-2N	£1.89

MANY MORE FROM STOCK

HOME COMPUTER CHIPS ★ SPECIAL OFFER ★

CO25913	DMA	(ST)	£32.99	(11)	(5+)
KEYBOARD	CPU	(ST)	£23.50		
6569	VIC	(C64)	£13.49	£9.99	
TMS4532N4	DRAM	(Spec)	£0.99	£0.89	
ZX8302	ULA	(QL)	£5.49	£4.99	
ZX8401	ULA	(Spec)	£5.44	£4.89	
40054	ROM	(+2)	£11.69	£9.99	
74LS00	TTL	(QL)	£0.15	£0.10	
74LS157	TTL	(Spec)	£0.30	£0.25	
74LS245	TTL	(QL)	£0.39	£0.35	

All items subject to availability - Prices can change without notice.

ORDER BY POST OR PHONE

We accept payment
by VISA, Access,
DELTA, SWITCH,
Cheque or P.O.



MAIL ORDER ONLY to:
MARAPET (TVG)
1 HORNBEAM MEWS
GLOUCESTER GL2 0UE

THIS IS JUST A SMALL SAMPLE OF STOCK

We can supply spares for many makes of equipment. WRITE
(Exc. C.A.S. please) or PHONE
FOR A PRICE & AVAILABILITY
on your requirements.

0452 526883

COMPUTER SPARES

AMSTRAD	Serv. Manual CW11342	£9.51	
Cer. Capacitor 2200p/4Kv	£1.85	Power Switch CM9073	£9.63
Printer Armature			
(PCW 9512)	£4.20	COMMODORE	
User Manual (CPC464)	£10.95	IC 8372B (A3000)	£34.19
Serv. Manual (PCW9512)	£14.99	IC 8565 VIC	£18.85
Keyboard (CPC464)	£29.99	IC 908114-01 PLA	£8.99
		Modulator 251915-02	£18.76
		Serv. Manual (C64/C64C)	£14.99
		User Manual (C64)	£4.99
		MONITOR LEAD	
		Armagio to Scart 1/9	£9.29
		Most Amstrad, CBM, Philips parts available - plus selected Acorn, Atari, Sinclair & others.	

TRANSISTORS

2SA1705	£1.85	2SK301	£1.85
2SA2331	£1.59	BUV48A	£4.99

Large range of Semiconductors available

TV/MONITOR LINE OUTPUT TRANSFORMERS

AMSTRAD, IBM, DIGITAL, etc	P.O.A.
COMMODORE 1084-P/SP etc	P.O.A.
PHILIPS CM8533/CM8833 etc	£24.94
PHILIPS CM11342/62 (CM8533 MK II)	£28.51
Ferguson TX90 14" 90"	£23.99
Ferguson TX100 20" 90"	£22.25
Ferguson TX100 51cm FST	£20.91
Ferguson TX100 22" 26" 110"	£23.95
GEC C2089H/90H/C2288 to 2291H/C294H	£23.99
Hitachi CPT1463/CPT1623/24/26/44/46	£22.99
Hitachi CPT2036/46/78/78/CPT2234/36/CPT2246/78	£23.99
Philips TLF1452/7/584E	P.O.A.
Saisho Matsui, (Supply No on L.O.T.)	P.O.A.

Many other Line O/P Transformers available

AUDIO SPARES

AMSTRAD MX200/CDX400 (FUNAH) CASSETTE DOOR	£3.64
B.T. FREEWAY TELEPHONE - REPLACEMENT AERIAL	£3.65
PHILIPS CS7427 SERVICE MANUAL	£4.50
PHILIPS DB458 SERVICE MANUAL	£3.49
SHARP RGF278, 281, 284 MAIN BELT	£1.40
TOSHIBA STU2L MAINS TRANSFORMER	P.O.A.

Many other specific Parts and Manuals available.

TV SPARES

AMSTRAD TVR2 SERVICE MANUAL	£17.39
GEC/HITACHI FRAME MODULE HM6251	£9.29
PHILIPS 9809 Deg. POSISTOR (White)	£1.34
GOLDS TAP C154361/4441/CIT2152X/2172X 0/0 SWITCH	£6.49
SAMSUNG C1537V/CX558W7 On/Off SWITCH	£6.05

Many other Switches, Manuals, Posistors, etc from stock.

VIDEO SPARES

Large range of Video Heads, Idlers, Belt Kits, Pinch Rollers from stock plus much, much more. Please contact us.

We also stock REMOTE CONTROLS - Many General Components

We are pleased to serve both the Trade and End User.

DO NOT ADD VAT TO THE PRICES
SHOWN - BUT PLEASE ADD £1.25 P&P

Microwave Oven Component Parts

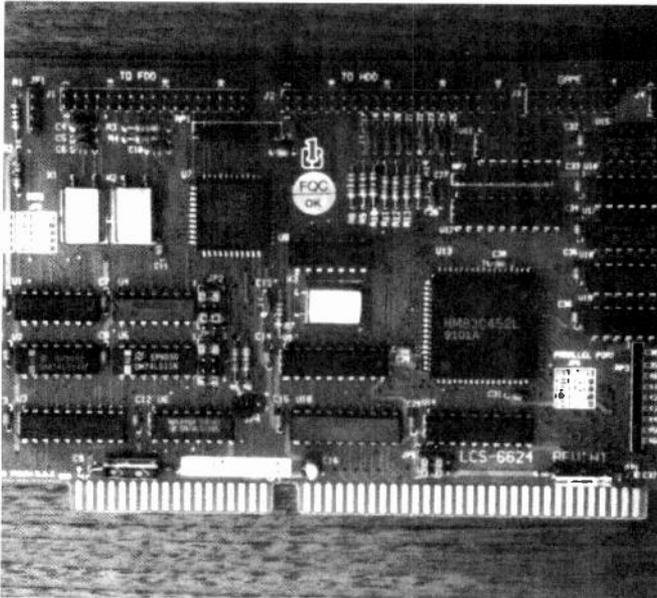
Guaranteed
Products

Guaranteed
Quality

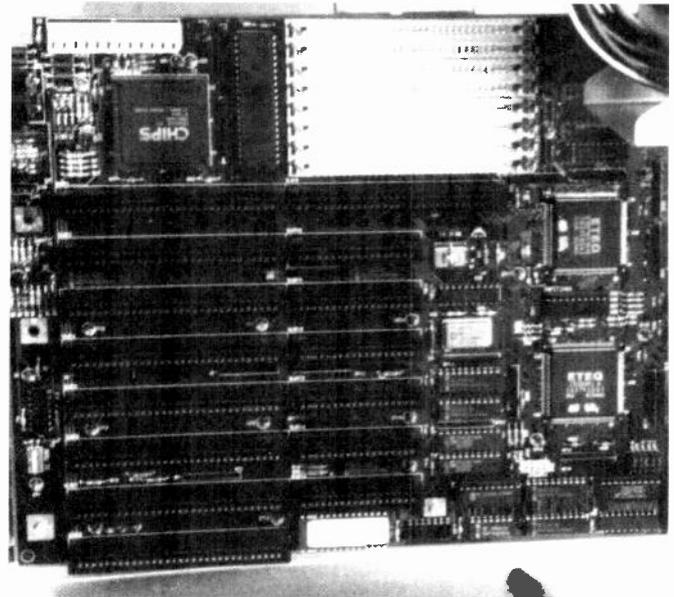
Competitive
Price



AWI Ltd,
29 Mariners View
Dodnor Industrial Estate,
Newport, Isle of Wight, PO30 5FA
Tel: (0983) 520121 Fax: (0983) 520122



The IDE board



The mother board, in place

meter on the low-ohms range to ensure that the switch connections are correct. For the time being leave the tower's cover off.

Next Month

In Part 2 we'll be describing the interconnections

between the various sections of the PC and how to test it. We'll then guide you through the secrets of the AMY BIOS set-up. After that we'll explain the all-important hard disc formatting and the installation of the disc operating system. Software suitable for service department use will be discussed, and the choice of a suitable printer will be considered.

Table 1: Items required to build the PC

Code	Item	Price
MB2010	80486 VL bus motherboard, NCPU 256K cache	£74
MB3030	Intel 80486DX-33MHz CPU	£202
HW0030	Western Digital AC1200 hard-disc drive, 211Mbytes IDE	£165
II0900	IDE board, VL-local bus, Two hard- and two floppy-disc drives, two series and one parallel data port	£19
VG1030	1Mb Cirrius Logic 5428 VL-local bus video PCB	£74
MN0000	14in. colour interlaced monitor MPRII	£185
KE0010	Cherry G80-3000 keyboard (click)	£36
CA0070	Full tower case with LED	£99
ME3010	4Mb (total) SIMMs (70ns)— order 4 x ME3010	£128
S00002	Operating system MS-DOS 6.2 and Windows for WG3.11 software	£69
MO0000	Znix 3-button mouse, Microsoft compatible	£10
CA2000	2m power cable with 5A fuse	£5
FD0000	3.5in., 1.44Mb floppy-disc drive	£27

The above are available from Simply Computers, 28 Walthamstow Business Centre, Clifford Road, Walthamstow, London E17 4SX (081 523 4020). Add 17.5% VAT to all prices. Delivery charge £15. A special mouse mat comes free with the kit of parts. A useful DIY PC reference book is available for £5 (no VAT). Antistatic wrist straps are available from sources such as RS Components.

Satellite Tuning the Easy Way

Part 2

Gordon McCrea, B.Sc.

In the May issue we described an EEPROM unit that provides an easy way of tuning the Nokia SAT1700 satellite receiver. A new version (Mk. 2) of the SAT1700 has recently been introduced. It's similar to the original version but has a more convenient socket (a six-pin connector) that can be used to connect the memory unit: as the socket is on the rear panel, the top cover doesn't have to be removed.

The Mk. 2 version of the SAT1700 has more memory for channel information than its predecessor. The same approach can be used, with the same type of EEPROM (24C164), but two of these devices are required. This article describes a suitable two-EEPROM tuning memory unit. It could also be used to store information for the SAT1700 Mk. 1, but it's better to have a separate unit with its own set-up for Mk. 1 receivers.

Mk 2 Memory Unit

Fig. 1 shows the circuit of the Mk. 2 memory unit. In addition to two 24C164 EEPROMs there's a switch (SW1) to select one or the other chip's serial data (SDA) connection. As with the Mk. 1 unit previously described, the Mk. 2 unit can be easily assembled on a small piece of prototype board. Mark the switch clearly with positions 'A' and 'B' so that there will be no mistakes in the programming operation, which spits the receiver's memory contents between the two EEPROMs. Fit a six-way cable with a trailing plug to suit the receiver's socket – see Fig. 2 for connection details. If a cable is fitted to suit Mk. 1 receivers, the Mk. 2 memory unit can be used to store two different Mk. 1 receiver setups with switch selection.

Copying Channel Information into the Mk 2 Unit

Disconnect the receiver from the mains supply, then connect the memory unit to the rear panel socket. Reconnect the mains supply. The letters 'dp' should appear in the front panel display (if not, switch off and check all connections).

Now press 'store', '-/--', 'TV-SAT' on the remote control handset. The front panel display should now show 'out', followed a short time later by 'd_'. Next switch to the second EEPROM and press the same sequence of buttons on the remote control unit (store, -/--, TV-SAT). When the memory transfer has been completed, the front panel display will show 'oc'. Disconnect the receiver from the mains supply before unplugging the memory unit.

Programming a Mk 2 Receiver

Disconnect the receiver from the mains supply and connect the memory unit to the rear panel socket. When the mains supply is reconnected the letters 'dp' should appear in the front panel display. Press the 'p+' button on the front panel and 'in' should appear in the display (if the memory unit hasn't been programmed 'Er' will be displayed), followed a short time later by 'd_'. Switch to the second EEPROM and press 'p+' again. When the display shows 'oc' the receiver has been programmed.

Computer Storage

Now for something a bit different. When you've built and used a memory unit you'll probably think that it would be very useful to have a means of keeping various different set-ups that you've gathered. You may not be so keen on the idea of buying lots more EEPROMs. The most cost-effective solution would be to store the set-ups, named and filed, on a computer disc.

We have developed a convenient method of attaching the memory unit to a standard IBM-compatible PC and feeding its contents into a named file or using a previously stored file to program the memory unit. This operates via the standard LPT1 parallel port (25-way connector): Fig. 3 shows the connections. Data bit 1 at the parallel port connection is used as the serial data (SDA) line, bit 0 is used as the clock (SCL) line. A 5V supply is obtained by holding the parallel port data bit 7 line in the active-high state. A four-core cable connected to a 25-way D connector links the parallel port to the memory

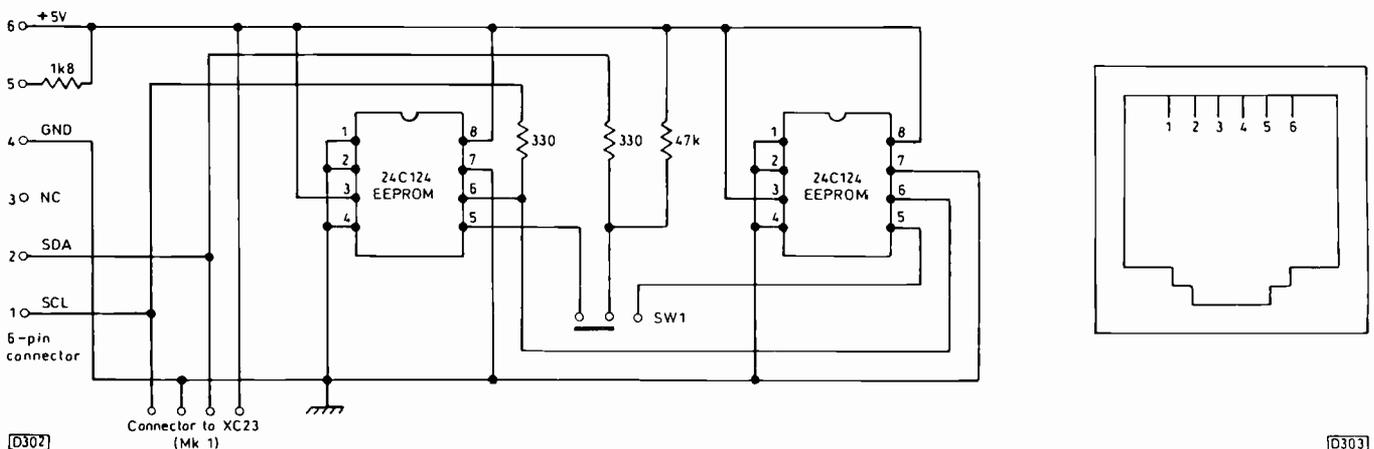


Fig. 1 (left): Circuit of the Mk. 2 memory unit.

Fig. 2 (right): 6-way receiver socket connections, viewed from the front. Pin 1 SCL (clock); 2 SDA (data); 3 no connection; 4 gnd; 5 to 1.8kΩ resistor; 6 positive supply.

unit socket(s) – sockets for Mk. 1 and/or Mk. 2 memory units can be connected to the cable.

Some software is required to drive the appropriate pins high and low at the right time. You can obtain a data sheet for the 24C164 EEPROM from RS (order code 120-154) and write a suitable program or order a program disc (details later). Note however that this software is still under development, so you'll have to take it as you find it. We've run it on most types of PC, but you may find one with which it won't work.

Connect your memory unit to the cable, and the 25-way D plug to the LPT1 parallel port connection on your PC. If you are not familiar with DOS commands, now's the time to find someone who is! You'll find 'SAT1700.EXE' and an example set-up 'NOKIA1.DAT' (for a SAT1700 Mk. 1 receiver) on the program disc. The program can be run via the floppy disc drive (assumed to be drive A:) or copied to a hard-disc directory of your choice. Type 'A:SAT1700' and the following menu will appear:

SAT1700 Programmer (V.1.0)

1. Read device
2. Program device
3. Exit program

Select option: _

If your memory unit contains a receiver set-up you can select option 1 and the following display will be obtained:

Receiving...

Reading byte: xxxx (counts from 1 to 2048)

Checksum: xxxx (checksum value for contents)

Enter filename to store contents: _ (enter a valid file name)

With a Mk. 2 memory unit each EEPROM will need to be read separately, with the total set-up being stored in two files (e.g. SETUP1.A and SETUP1.B) by reading with the switch in position A first then position B. If there's sufficient demand, we could at a later date do a program that will load the Mk. 2 memory unit contents into a single file.

If you've just built your memory unit you can use the NOKIA1.DAT file as a test. Select option 2 from the first menu. This will produce:

Enter filename to read: _ (enter NOKIA1.DAT)

Checksum: xxxx (checksum value for NOKIA1.DAT)

Programming byte: xxxx (counts from 1 to 2048)

Verifying...

Reading byte: xxxx (counts from 1 to 2048)

Checksum: xxxx (checksum value for contents)

The verifying routine reads the freshly programmed unit and returns a checksum that should be the same as the top checksum. If it doesn't, get out your scope and have a look at the SCL and SDA lines – check that there are clean, square-edged pulses of approximately 4V peak-peak amplitude. With

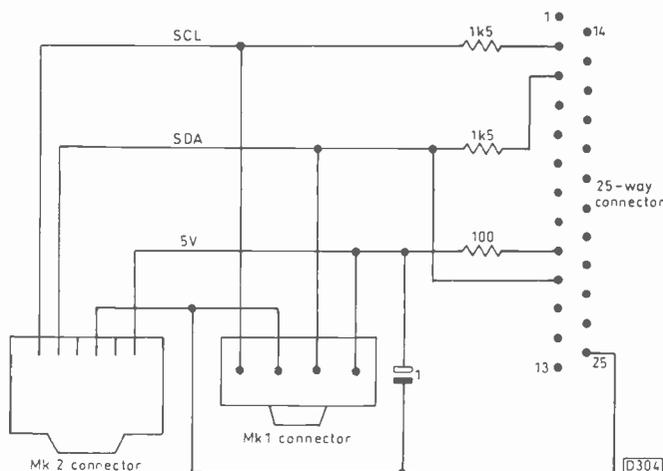


Fig. 3: Connections to an LPT1 computer port.

some computers the value of the 1.5kΩ resistors connected to pins 2 and 3 of the 25-way D connector may have to be varied.

In the next article in this series we'll explain how the time needed to tune and set up the popular Pace PRD900 receiver/decoder can be greatly reduced.

Parts and Help

The following items, also help if you are having trouble in getting started, can be obtained from Kesh Electronics Ltd., Dept TV, 6 Main Street, Kesh, Co. Fermanagh, N. Ireland BT93 1TF – if you have questions, please send a stamped addressed envelope.

PC program disc (IBM compatible, 3.5 or 5.25in.)	£9.95
Connector and cable for the SAT1700 Mk. 1	£1.95
Connector and cable for the SAT1700 Mk. 2	£1.95
6-way socket	£1.95
24C164 EEPROM	£5.95

Add 17.5 per cent VAT to the total. Post and packing is free within the UK.

BACK COPIES

We have available a limited stock of the following back issues of *Television*:

1992 February, April, May, July, August, September, October, November and December

1993 January, April, May, June, July, August, September, October, November and December

1994 January, February, March, April, May and June

Copies are available at £2.75 each including postage. Send orders to:

Television Back Issues, Room L323, Quadrant House, The Quadrant, Sutton, Surrey SM2 5AS.

Make cheques/postal orders payable to Reed Business Publishing Ltd.

ADSL – Interactive TV via the Phone

Geoff Lewis, B.A., M.Sc.

BT has over thirty million twisted-pair cables that extend from its exchange buildings to subscribers' premises. These carry the usual voice traffic, using copper or aluminium wire in various gauges ranging in diameter from 0.32-0.63mm. Any particular subscriber installation may consist of two or more cable links, so that the attenuation may well vary with different phone lines.

Sending Bits down the Line

It has been shown experimentally that these installations, originally designed to handle low voice-frequency signals (300-3,400Hz), are capable of handling much higher frequency signals. Fig. 1 gives an approximate indication of how the line attenuation varies up to 1MHz. An important point is that the group delay – the ratio of phase change per unit of frequency – is almost constant over this range.

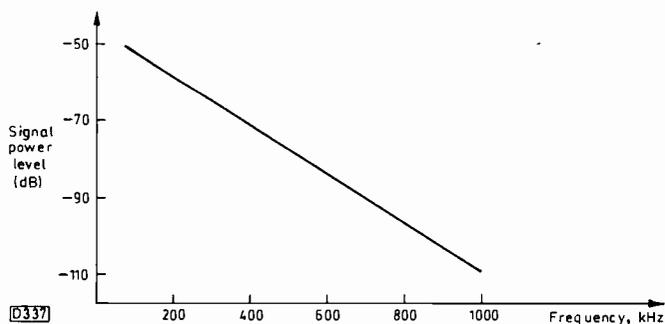


Fig. 1: Frequency response of a voice-grade cable (approximate).

Because the phase change introduced by the line is proportional to frequency, a pulse signal will suffer little distortion. There will therefore be few bit errors with a digital transmission.

These characteristics mean that high bit-rate digital signals can be transmitted via voice-grade cables. If MPEG digital signal compression is used, video signals of various grades can be sent direct to people's homes. A bit rate of 2.048Mbits/sec provides VCR quality video together with digitally-coded stereo sound. With a bit rate of 6.144Mbits/sec the video quality equals that of a broadcast transmission. The available bandwidth enables a low bit-rate user return channel to be included for control

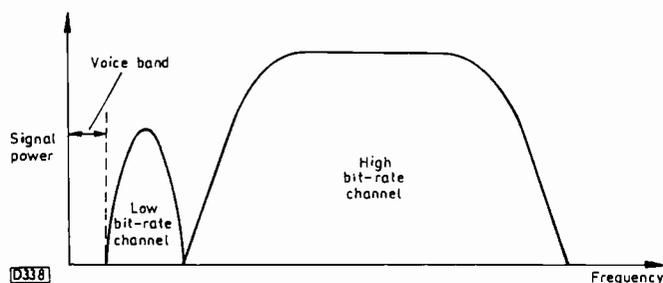


Fig. 2: ADSL spectrum.

purposes. This control channel can range from 9.6 or 16kbits/sec up to 64kbits/sec. Fig. 2 shows the general channel arrangement. The 6.114Mbits/sec down-stream channel can be allocated in various ways: 4 x 1.536Mbits/sec, 3 x 2.048Mbits/sec, 1 x 6.144Mbits/sec or in other combinations. The higher the bit rate however the shorter the possible network length. This asymmetrical digital subscribers' line (ADSL) can provide video signals with VCR features such as fast forward, fast rewind, freeze frame, pause etc. on demand.

The ADSL Network

Adaptive separation filters are employed at each end of an ADSL network so that the voice and digital services can be combined or separated with the minimum of mutual interference. Loop disconnect and dialling pulses could be particularly troublesome. A digital adaptive slicer automatically adjusts to suit individual line characteristics. These include variable temperature, moisture and interference. Provision can be incorporated so that with each new extension the line amplifiers and equalisers are reset, using a short 'training' sequence, to give the optimum signal-to-noise ratio.

To maximise the channel capacity a form of bit-rate reduction coding called 2B1Q is used. With this, each pair of binary input digits is converted into one of four quaternary symbols. In addition the ADSL system feeds the r.f. signals to the line in balanced form so that radiation and induced r.f. interference are minimised.

Modulation Techniques

Three modulation techniques, QAM, CAP and DMT, have been tested in the process of establishing a suitable transmission format.

With QAM (quadrature amplitude modulation) the binary data stream is first split into two substreams. Both are then separately modulated on to orthogonal (in this case quadrature) versions of the same carrier. These two modulated signals are added and finally sent down the line. The process has similarities with the two-phase modulation used for NTSC and PAL colour signals.

With CAP (carrierless amplitude/phase modulation) the bit stream is once again split into two components. These are separately passed through two digital filters that have an impulse response which differs by 90°. The outputs are added, passed through a digital-to-analogue converter (DAC) and then filtered before being fed to the line.

DMT (discrete multi-tone modulation) is the preferred method. It has a lot in common with COFDM (coded orthogonal frequency-division modulation), the main channel being divided into many sub-channels. Each serial digital input stream is first encoded in parallel form (see Fig. 3) and is then passed through an FFT (fast Fourier transform) processor which converts the frequency samples into time values, with a sliding time-window effect. These values are then transcoded into serial form and finally converted from digital to analogue form before transmission.

As the line characteristic for each narrow sub-channel is virtually constant, there's minimum pulse smearing and thus improved signal quality. Any impulsive noise that enters the system as interference is spread over the many sub-channels by the FFT processor window. Thus this form of interference is less likely to cause data errors.

The number of bits transmitted in each sub-channel can be varied adaptively, depending on the signal-to-noise ratio in the channels. This improves the signal quality and in addition minimises cross-talk between lines. The specifica-

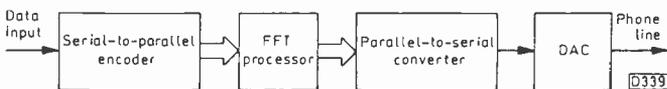


Fig. 3: Block diagram showing DMT processing.

tion includes error control in the form of Reed-Solomon coding, and there's the possibility of adding interleaving at a later date.

Current Situation

The ADSL system is regarded as being basically a bridging technology – to enable video services to be provided via standard phone lines while optical-fibre networks are being installed. Tests at rates in excess of 6-144Mbits/sec have already been carried out over relatively short distance voice-grade transmission lines.

The technology has been developed mainly by BT in the UK and Bell in the USA, working together. Standards are being worked on by the American National Standards Institute and the European Telecommunications Standards Institute. The ADSL approach offers the possibility of a standard distribution system throughout the world.

Answer to Test Case 379

– see page 635–

Because of the mechanical nature of the record/playback processes, off-tape video signals contain timing jitter. When a recording is made on one machine and then played back via another one the timing jitter is worse than when a machine plays back its own recordings. In fact when a record-and-playback session was tried at Sam's flat the Hitachi TV set produced much more stable pictures than with a prerecorded tape.

Thus the symptoms complained about by Sam were clearly due to signal jitter. Because the sync department in the set couldn't get a grip on the line sync pulses there was bending and pulling on the screen. The green flashes (yes, the picture did flash green) were caused by loss of colour reference oscillator synchronisation – line sync pulses are used for gating in this area.

But why was this particular set so intolerant of video signal jitter? It's many years since TV sets had to be modified for use with a VCR, and this was quite a new receiver. The solution was found in the set's instruction book. With this model certain channels are assigned for VCR use via an r.f. link. On these channels the time-constant of the flywheel line sync filter is shortened to suit the jittery video signal. Joe Bright's installation man had tuned the VCR in on channel 5. As soon as one of the assigned channels was used to tune in the VCR's output the wobbles disappeared as if by magic, the off-tape pictures becoming clear and stable.

Next Month in TELEVISION

SERVICING PC MONITORS

Although PC monitors have a lot in common with TV chassis there are important differences. At present, monitor repair is regarded as a specialist business. But all you need to get into this field is the right equipment and an extra bit of know-how. Ken Taylor explains how to go about it.

ASTRA 1D – WHAT LIES AHEAD

The 1D satellite will extend the Astra frequency spectrum down band to 10.7GHz. This will pose problems for many satellite receiver installations, where the LNB's local oscillator operates at 10GHz, while getting 1D with a narrow-band receiver will lose you 1B. Problems with i.f. interference may also be encountered. J. LeJeune outlines the problems and solutions.

THE SONY CCDF350 CAMCORDER

Keith Keating follows his F335 report with a faults list for the similar F350 – and some general guidance on camcorders.

TEST REPORTS

David Botto has tried out and reports on the xBase F4 software package, which has been designed to meet service department needs. It's well worth considering when you decide to computerise your paperwork.

Ian Martin has been having fun with the Pace MSS1000 satellite receiver. Features of this top-of-the-range model include a Dolby Pro Logic decoder and four-channel amplifier.

NOTES ON THE PHILIPS CTX-E CHASSIS

Vast numbers of colour portables were fitted with the CTX-E chassis, which has an established fault pattern. John Coombes outlines fault-finding procedures.

ORDER FORM

To.....
(Name of Newsagent)

Please reserve/deliver the August issue of TELEVISION (£2.20), on sale July 20th, and continue every month until further notice.

Name.....

Address.....

.....

Long-distance Television

Roger Bunney

Things have been so bad that one can only call it the "post sunspot maximum blues". The year 1993 was none too brilliant for TV DXing. So far this year, to the time of writing in May, the tendency has continued. Lack of reception must be very discouraging for newcomers. But I feel that we will have a better Sporadic E season this year than in 1993. Meanwhile there's increased interest in satellite reception. This provides DX signals of a sort each day, but it's a different kind of DX reception.

April was a quiet month for terrestrial DX-TV signals. Despite regular monitoring, I saw no evidence of a mid-April SpE opening. The Lyrids meteor shower offered a brief respite around the 14th, though there were only Band I signal pings. Simon Hamer in Powys for example logged signals from numerous Scandinavian transmitters. Tropospheric reception matched the indifferent weather. A slight lift on the 11/12th produced Band III/u.h.f. signals from Germany, France and the Benelux countries in the eastern and central UK. In the west there was u.h.f. reception from RTE (Ireland). SpE was flat throughout. On the Bank Holiday Monday, May 2nd, I received ch. R2 signals from TVR (Romania) for nearly thirty minutes. Unfortunately the skip didn't lengthen to offer JTV (Jordan) ch. E3 – though I did look! So just a solitary, long-duration signal in an otherwise empty Band I. A poor month indeed.

Satellite Sightings

Those following the events in Bosnia will have been kept really up-to-date by monitoring Intelsat 603 at 34.5°W. EBU from Sarajevo has been active for most of the day and evening, usually closing down at around 2300 after the final news programmes across Europe. The signal, at 11.143GHz (with vertical polarisation), is not particularly strong and is not helped by the inclined orbit: a 1.8m or larger dish is required for noise-free reception. The BBC from Sarajevo has been sharing facilities with ABC via Eutelsat II F3 at 16°E.

The other main source of news has been South Africa. Most of the primary feeds to Europe are in the 4GHz band. Secondary distribution across Europe has been via Eutelsat II

F4 at 7°E, using sound-in-sync (SIS) transmission – hence the shaky pictures.

We've still not managed to trace the source of the 'World Tamil Television' transmissions at 11.575GHz (V) from 16°E – programmes of sorts have now started. If anyone has any information on this satellite, please let us know.

Alan Smith out in Thailand has been having problems with his 10.5ft dish – he's now added a Ku band LNB. His first reception in this band – Ku band signals are rare in Asia – was an outside broadcast feed via the Thaicom 1 satellite. The signals are poor and Alan wonders why. I feel that the focal point is possibly slightly adrift – this wouldn't be noticed with C band signals, which are far less critical. There could also be problems with tracking accuracy. Setting up a 10.5ft dish for Ku band reception is highly critical, the -3dB beamwidth being less than 1°. What you can get away with in the C band you can't get away with in the Ku band! Reuters has told Alan that when Thaicom goes MPEG digital it will use four feeds per transponder, making a total of eight. One point that has come out is that this satellite has a third (spare) Ku band transponder which is intended as a back-up for the other two: it could be used occasionally for OB feeds etc.

Andrew Sykes has recently moved to Norfolk and has fitted his 80cm offset tracking dish to the wall. The noise that it creates is producing neighbourly friction – can anyone offer advice on overcoming or reducing structure-conducted noise with an installation like this?

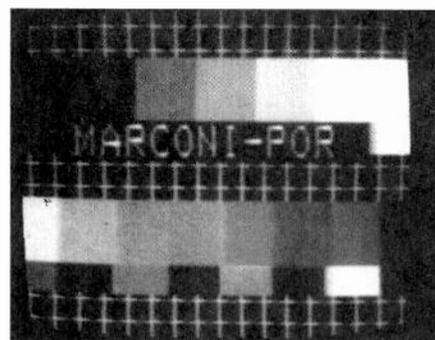
An unusual, prolonged French event with street marches, bands, discussions etc. was present at 7°E on April 24th. There was normal sound – sound-in-syncs is normally used via this satellite. I found out later that the event was a national AIDS support day programme.

News Items

The Netherlands: The morning programmes are to move from NED1 to NED2 from September: sports programmes are to move from NED2 to NED3 and, completing the circle, the Text-TV network is to move from NED3 to NED1. Coded programmes called 'BIZ-NET' (business network) will be on air from 0200-0700 – in effect all NED1 transmitters, such as Lopik ch. E4, will transmit for 24 hours a day.

Mobile radio: Motorola has sold its Central Scotland Band III network between Glasgow and Edinburgh. It looks as though this means greater Band III mobile radio activity: a new region, SuperScot, has been established incorporating smaller regions from Sotland south to Gloucester and Lowestoft. This follows the enlarged SuperNorth and Super-South regions.

Malta: The ch. E29 licence has been given to a new



Left: An example of TVE output via the Hispasat satellite at 30°W. Centre: A sound-in-sync news feed via Eutelsat II F4 at 7°E. Right: This is not RTP International via Eutelsat II F2 at 10°E but a C band downlink signal received in Sri Lanka via Gorizont at 40°E.

commercial station, Super One Television: test transmissions from Gharghur have started. Power is limited to 100W from both the main transmitter and any repeaters. There is still a problem with co-channel interference because of stations in Sicily sixty miles distant.

Thailand: The government hopes to set up a u.h.f. transmitter network. The aim is for 95 per cent coverage by the year 2000, using 36 fixed and three 'mobile' transmitters. The channel will also be relayed by satellite.

Tanzania: Applications to run commercial services have been received from Coastal Television Network (CTN), Independent Television (ITV), Radio Tumaini and three other concerns.

Ostankino: Eesti TV (Estonia) has ceased transmission of the CIS Ostankino channel – until the bills for the service provided have been paid. Ostankino 1 transmissions from Budapest have also ceased – the elderly transmitter used has been taken out of service.

Satellite News

MTV Europe plans to introduce encryption, initially via its Eutelsat feed at 13°E and later via Astra. Rupert Murdoch is to start up Star India, which will provide up to 25 channels for the subcontinent.

Newsforce, mentioned in previous columns, turns out to be a Cyprus-based SNG operation which is very active in Africa. It's the first company to rely wholly on digital compression for its feeds. This enables lower powers and smaller dishes to be used – a 1.8m dish can be used in C band rather than the 3m dish required for analogue operation. Distribution feeds have been seen via Eutelsat from an initial Intelsat digital circuit.

The German company Megasat has produced a hacked VideoCrypt card that will decode all the Sky channels plus Adult, Asian and Japanese channels. Its latest offering is the Magictouch-card: this has a small press button that when touched restores a free-running VideoCrypt signal. These cards are not available in the UK – but are widely advertised in the German satellite press.

Turner Broadcasting will probably take capacity on Insat 2B to launch an Indian version of CNN. This is in addition to a transponder booked aboard Apstar-2, which is due to be launched next March.

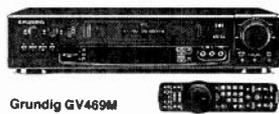
Matra Marconi is to build the Eutelsat Hot Bird Plus satellite, which is scheduled for launch in the summer of 1996. It will provide TV programming across Europe, from Moscow to the Canaries and down to the Gulf. Transmissions will be in the FSS/BSS bands, i.e. 10.95-12.5GHz, from 13°E.

A reader has asked about satellite radio information. We know of two publications that carry details of the numerous radio services on subcarriers. *Transponder* is an A4-sized fortnightly publication. A £2 cheque will bring you a sample bulletin and subscription details (at present £48 in the UK, £70 elsewhere in the EU). Send to PO Box 112, Crewe, Cheshire CW2 7DS. *Playback* is a recently-started monthly that also includes details of general radio (e.g. US a.m., on and offshore radio etc.) and happenings around the world. A sample can be obtained by sending an A5 SAE and £1.50 cheque to Mike Kerslake, 42 Larch Hill, Handsworth, Sheffield S9 4AJ. Subscription is £17 in the UK, £24 elsewhere in the EU.

The Squashed Quad Aerial

With wideband Band 1 aeriels being available commercially there appears to be little experimentation amongst enthusiasts these days. I used to have all manner of aeriels on

NEW PRODUCTS

Kansai TVR51K 21" Multi-system Colour TV

Aerial Techniques brings you two new products to complement our already extensive range

- "Personal Preference" memory function – (Volume, Colour, Brightness, Contrast and Hue)
- 5-System PAL-B/G, PAL-D/K, PAL-1, SECAM B/G, SECAM D/K and NTSC 3.58/4.43
- Infrared Remote Control
- 90 Preset Channels
- Automatic Tuning
- On Screen Display – Volume, Colour, Brightness, Contrast, Hue and Channel
- EURO-AV (SCART) Socket
- Sound Muting Function
- Presettable Off Timer (15-120 Minutes)
- Automatic Power Off Function – when no broadcasting signal is received within 10 minutes
- Full VHF/UHF Coverage
- Cable Tuner
- Single or Dual Digital Control

£269.00

COMING SHORTLY

Exclusive to Aerial Techniques, new enthusiasts manually tuned DXing satellite receiver. Features variable video bandwidth 8 – 26MHz via front control for extreme weak signal work. SAE for details

Multi-system video recording and playback in PAL/SECAM, SECAM L (for FRANCE), NTSC 3.58/4.43 MHz

- ▷ Tuner reception: B/G, 1, D/K, K1, M, L, L'. 48 channels can be memorised.
- ▷ NICAM HiFi ▷ 6 Heads.
- ▷ On Screen Display
- ▷ On Screen user menu guide in 3 languages
- ▷ High Speed Drive Mechanism, approximately 2 min. to rewind E180 tape.
- ▷ On screen programming, timer can be programmed for 8 events in 31 days.
- ▷ Infra-red remote control for operation of all major VCR functions plus selected TV functions (TV functions may not operate all Grundig TV models)
- ▷ Auto Head Cleaner
- ▷ Digital Auto Tracking
- ▷ Long Play Operation 8 hour recording time with 4 hour tape. Super long play in NTSC mode, 6 hours recording with T120 2 hour tape.
- ▷ One Touch Recording (OTR) in 30 minute stops up to a maximum of 4 hours
- ▷ Automatic Program Finder (VISS) index search system searches up to 20 recordings forwards or reverse.
- ▷ Assemble editing
- ▷ Daily/Weekly recording mode
- ▷ Multifunction display
- ▷ Connections:
 - ▷ Rear 2 Euroscart sockets
 - ▷ Front Phono AV sockets
 - ▷ Dimensions 43.5x8 9x30cm
 - ▷ Mains Voltage 90V to 240V AC

£629.00

(All prices are inclusive of Vat, Carriage & Insurance delivery £9.00 on large items). Full range of satellite equipment supplied.

Our CATALOGUE at £1 samples some but not all that we can supply, send for your copy today. UK & overseas despatch normally ex stock within 24 hours, we'll accept the usual credit cards, cash, cheques, POs – as convenient. Ring daytime with your query or late on our 24 hr phone or send in your fax and we'll get back to you shortly.

11 Kent Road, Parkstone, Poole, Dorset BH12 2EH
Tel: 0202 738232 Fax: 0202 716951

Aerial Techniques

test, patiently constructed and erected on short poles. Nowadays I have a single wideband system mounted high on the lattice mast. Brian Williams is keeping the older traditions going however at his South Wales home. He uses several aerial systems that, thanks to the high signal strengths with SpE propagation, are very effective.

One of these, see Fig. 1, is a 'squashed quad' that covers 50-55MHz: it's more a rectangle than a quad, but the basic principle is the same. The design gives a reasonable match at 75Ω, balanced. For optimum signal transfer with 75Ω

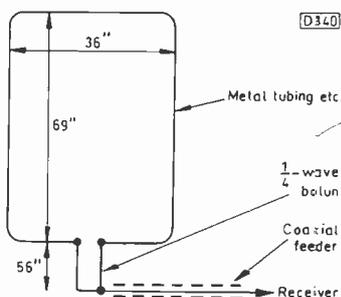


Fig. 1: Brian Williams' squashed-quad aerial, covering chs. E2/3, is suitable for loft mounting. Connection is shown via a quarter-wave balun.

coaxial cable a balanced/unbalanced ferrite transformer or a quarter-wave matching section (balun) can be used. The latter should, as shown, be 56in. long, with the output end shorted and connected to the inner conductor of the coaxial downlead. Alternatively a simple preamplifier stage would provide matching. Mount the aerial vertically for horizontal polarisation, with the feeder at the lowest point: for vertical polarisation rotate the aerial through 90°, the feeder now being at the side. For further information on the quad and

other aerials refer to the RSGB's *VHF/UHF Manual*. Our thanks to Brian Williams for this information.

Extended-hop Propagation

Extended-hop SpE reception was recently discussed in *Six News*. SpE propagation can occur at up to 200MHz and more. At higher frequencies the reflection angle is wide, resulting in very long hop distances. It is however also known for Band I signals to be reflected almost directly downwards, with a very small angle. In the Sixties I received Liege ch. E3 at Southampton, a distance of under 300 miles.

The theoretical maximum single-hop distance is around 1,300 miles. Yet signals are received at greater distances, though less than that with double-hop propagation. How? I recall in the Sixties receiving Cyprus ch. E2 (at 1.5kW e.r.p.). The signal didn't have the dramatic, varying-strength characteristics of SpE: instead it was more like a tropospheric signal, starting off weak, gradually increasing to fair then slowly (over some minutes) fading out again.

Six News suggests several possibilities for this extended-hop propagation.

The reflective E layer clouds could be higher than usual (70 miles), while tropospheric enhancement at one or both ends of the signal path would extend the hop distance. A more interesting explanation is that it's caused by "tilted E clouds". It has been proved that some SpE clouds are not parallel with the Earth's surface: they can be tilted at up to 30°. Two tilted cloud formations could extend the overall skip distance considerably with, in effect, a double hop occurring within the E layer: the incident signal from Earth hits the first tilted cloud which reflects it through the E layer to a second tilted cloud that reflects it back to Earth. This would explain the "super single-hop" phenomenon, with reception at distances of 1,400-2,200 miles. Signals propagated in this way have more of a tropospheric characteristic, i.e. deep and slow fading. There may be selectivity, with just one signal being received instead of several from the originating region. As the clouds move, so one signal can fade and another take its place, with varying hop distances. Let us know if, during the coming SpE season, you receive any 'super singles'!

Fisher FVHP710 Reel Idler Replacement

Ed Rowland

If a list of the jobs that engineers most dislike doing were to be compiled, replacing the reel idler in the Fisher FVHP710 VCR would definitely be somewhere near the top. Most of the engineers with whom I've discussed this tend to regard the task as a punishment visited upon them for past sins.

Many engineers may be familiar with the method about to be described, but there are doubtless plenty of poor, unenlightened souls out there who still spend too much time – up to two hours – on what can be quite a simple operation.

The problem arises because the nylon gear on the idler gear assembly is captive beneath the metal plate known as the reel bracket: it appears to be impossible to remove the idler without dismantling a major portion of the mechanics – and, according to the service manual, this is indeed the case. When you use the method shown in the manual the following items have to be removed: the capstan motor, protective plate, drive assembly, reel bracket (along with the main cam and the supply and take-up reels), idler gear, loading gear and loading motor assembly. Hence the lengthy time factor. By using the method described below the operation can be completed in under half an hour – with practice, even less.

On later models in this series a semicircular cutout is provided in the reel bracket to facilitate removal of the

idler gear. One wonders why the problem wasn't anticipated at the design stage?

Procedure

First remove the top and bottom covers, the front facia and the cassette housing. Next comes the take-up reel – make sure you don't lose the plastic spacer beneath it – and the idler spring.

Turn the machine upside down, remove the drive belt and take the brass screw out of the plastic protector. Free the wiring that's loomed beneath clips on the protector: also take off the idler arm spring. The protector can now be removed. This gives access to the idler arm and idler gear. The idler arm can be lifted clear after removing the washer.

Prise off the neoprene washer that secures the idler gear. While holding down the main body of the idler gear with one hand, firmly grasp the pulley with the other hand and pull it upwards. The pulley, a press-on fit, should then come away, revealing the top of the brass bush on which the assembly rotates.

Using two fingers of one hand, press down very firmly on the outer edge of the gear assembly: use the other hand to grasp the shaft of the idler gear and slide the assembly up the brass bush. It's now possible, by bending the nylon body downwards, to slide the toothed gear from under the reel bracket. This enables the idler gear assembly to be removed, then the reel idler.

Reassembly

Reverse the above procedure to reassemble the mechanism. Note the following points however. Before replacing the take-up reel, apply a tiny spot of lubricant to the spindle. Clean the working edges of the supply and take-up reels with isopropyl alcohol or something similar. When refitting the idler gear pulley, ensure that its top is flush with the end of the brass bush and that the idler arm is positioned correctly in relation to the idler. Check that all the springs are in place, and replace all earth leads. It's sometimes a good idea to shorten the reel idler spring by a couple of turns to improve the performance.

The Sony CCDF335 Camcorder

Keith T. Keeton

We've had the following faults with this camcorder.

Black E-E picture, playback o.k.: The iris was closed. C904 on board LI10 was open-circuit. On another occasion the same condition arose because the track between R861 and Q818 on board CV9 was open-circuit. Hard-wiring cured this. Replacement of a faulty 4MHz crystal (X601) on board CV9 cured the fault on another occasion.

Black E-E picture, playback o.k.: Q602 on board CV9 was faulty. We replaced Q602, Q617 and Q619.

Black E-E picture, RC jig shows line: IC601 (MC68HC05N4) on panel CV9 was faulty.

Colour noise on fine detail, E-E display in monochrome: Wrong filter had been fitted (lens may have been changed previously). Replace filter or complete CCD assembly.

Intermittent focus, zoom and E-E o.k.: IC601 (MC68HC05N4) on panel CV9 faulty. On other occasions we've had dry-joints around IC803/5/7/8 on this panel. Resolder as necessary.

No E-E colour, titles grey, playback o.k.: 17MHz crystal X602 on panel CV9 faulty.

No focus, zoom intermittent: Focus diode on the lens focus PCB short-circuit. Replace the lens assembly as the diode/board is not available separately. Note that there are two types (screw and nut and self-tapping).

No record, tape protected symbol appears: Switch S302 or flexiconnector FP90 in mechanism faulty. Replace as necessary.

No red in E-E display, titles wrong colours, playback o.k.: IC605 (CXA1339R) on panel CV9 faulty.

No E-E sound, playback o.k.: IC451 (LA7293) on panel MC24 faulty. On another occasion the lead between boards MC24 and VA41 was damaged.

No time/date, titles see through on E-E, playback o.k.: Dry-joint at IC606 (CXA1072R) on board CV9.

Noise lines across E-E picture: C704 on board CV9 faulty.

E-E picture flickers like old-time movie: Flicker was caused by the iris. Cured by refitting connector CN801 on panel CV9.

E-E picture has pink tinge, playback o.k.: IC601 (MC68HC05N4) on board CV9 faulty.

Pixel down: Replace faulty CCD imager.

Intermittent red on titles, E-E o.k.: Resolder dry-joints on board LI10.

Solid red or green E-E picture, titles wrong colours: IC605 (CXA1339R) on panel CV9 faulty.

Solid red E-E picture, RC not functioning: Burst data set incorrectly on RC (CV9 board). Reprogram EVR or replace IC601 (MC68HC05N4).

Capstan runs in FF on playback: Replace faulty capstan assembly (part no. 883533101).

Fault symbol appears when play or record is selected: Tape slack not being taken up. Replace faulty take-up reel/clutch assembly (part no. X37268254).

Failure to eject cassette: In one case the capstan and drum operated but not the loading motor, and the RC said 01. Replacing fuse PS503 (ICP N20) on board CO2P cured this fault. On another occasion the capstan ran all the time, then an error signal appeared. Resynchronising the mechanism cured this.

Failure to eject with PS503 blown: The capstan motor was faulty – not clear why this stopped the loading motor. RC said no fault. New capstan motor (883533101) cured fault.

Failure to eject – half ejects then goes back. RC says FG error (02): Break in flexicable FP89.

No playback/record/FF/rewind. Tape spooling out of head, pinch roller not turning: Replace arm block, part no. A7040163B.

No playback/record, loading arms pulse then stop: Worn worm gear on loading motor. Replace worm (258), part no. X37268071.

Plays back/records for a few seconds then no functions. Capstan rotates but take-up reel doesn't: Washer had come off gear assembly. Replace washer (part no. 332139311) and if necessary gear (part no. X3726812).

Plays back/records for only a few seconds then error symbol appears: Take-up reel slipping on toothed cam because take-up reel teeth worn. Replace take-up reel (part no. X3726825A).

Plays back in monochrome. E-E and recordings o.k.: Q251 on board CV9 faulty.

Playback pictures unstable. Take-up reel judders in the playback and FF modes: Sand had got into the capstan motor. Replace motor (part no. 883533101).

Published on the third Wednesday of each month by Reed Business Publishing Ltd, Quadrant House, The Quadrant, Sutton, Surrey SM2 5AS. Filmsetting by Marlin Graphics, 2-4 Powerscroft Road, Sidcup, Kent DA14 5DT. Printed in England by BPCC Magazines Division, Carlisle Web Offset, Cumbria. Distributed by IPC Marketforce, King's Reach Tower, Stamford Street, London SE1 9LS (071 261 5000). Sole Agents for Australia and New Zealand, Gordon and Gotch (Asia) Ltd.; South Africa, Central News Agency Ltd. *Television* is sold subject to the following conditions, namely that it shall not, without the written consent of the Publishers first having been given, be lent, resold, hired out or otherwise disposed by way of Trade at more than the recommended selling price shown on the cover, excluding Eire where the selling price is subject to currency exchange fluctuations and VAT, and that it shall not be lent, resold, hired or otherwise disposed of in a mutilated condition or in any unauthorised cover by way of Trade or affixed to or as part of any publication or advertising, literary or pictorial matter whatsoever.

DO YOU KNOW?

A COMPANY WHO CAN REPAIR/REALIGN ANY UHF TUNER.

A COMPANY WHO CAN REPAIR ALMOST ANY BOOSTER/MODULATOR BE IT VIDEO OR SATELLITE.

A COMPANY WHO CAN REMANUFACTURE ALMOST ANY VHS VIDEO HEAD.

A COMPANY WHO CAN REMANUFACTURE ALMOST ALL POPULAR LNB'S ON THE MARKET.

A COMPANY WHO CAN REPAIR AND TURN ROUND 90% OF GOODS RECEIVED THE SAME DAY BY 1ST POST.

A COMPANY THAT CAN CONSISTENTLY CUT YOUR SERVICING COSTS

**PHONE OR FAX THE NUMBERS BELOW
FOR YOUR FREE WALL CHARTS/PRICE LIST.**

WHO MCES

PHONE:
061-746 8037/8

OF COURSE

FAX
061-746 8136

15 LOSTOCK ROAD, DAVYHULME, MANCHESTER M31 1SU.

INFRA RED REMOTE CHECK CARDS

Both same price £7.66 each plus VAT

No minimum order
charge No P&P!



IR 5 CREDIT CARD SIZE

IR 6 KEY FOB

BULK BUYERS BARGAINS NO P&P!

10 x BU 508A	£11.00	10 x BU 526	£9.00 A
10 x BU 508AF	£12.00	25 x BYV 96D	£5.00 L
10 x BU 508DF	£13.00	10 x BYW 96E	£8.00 L
10 x BU 508V	£15.00	25 x BY 228	£10.00
10 x BUT 11A	£12.00	25 x BY 299	£5.00 P
10 x BUT 11AF	£9.00	5 x CNX 62A	£8.00 L
10 x BU 326A	£9.00	5 x TDA 3654	£8.00 U
10 x BU 407	£9.00	5 x TEA 1039	£7.50 S
10 x BU 426A	£10.00	5 x X2402P	£7.50
3 x TDA 3562A	£11.10	3 x TDA 8180	£15.00 V
3 x MDA 2062 Bush	£12.00	3 x STR 54041	£11.10 A
3 x MDA 2062 Clear	£9.00	3 x SAA 1293A03	£21.00 T
3 x SAA 129303	£15.00	3 x STR 6020	£19.00
5 x S2000AF	£13.00	10 x S2000A2	£12.00

Send cheque or postal order to E.C.S. Dept. P

6 NETHERSOLE STREET, POLESWORTH, TAMWORTH B78 1EE

No post and packing charges. Please add VAT

Phone: (0827) 330392 Fax: (0827) 331041

T V R S

We can supply the following
Access control systems
CCTV systems Alarms
Facsimile machines serviced
Contact imager sensor failure
Models: UF130, 140, 160, 300,
750, B.T. Models CF100, 700.
Complete overhaul from £60.

**30 Marsh Hill, Erdington,
Birmingham B23 7EH**

Plenty of free Parking

**Business hours Monday to Friday
10 00am – 5 30pm Sat until 1 00pm**

021 377 6451

E C S NOW HAVE A TRADE COUNTER AT T V R S

WE HAVE THE WIDEST CHOICE OF USED OSCILLOSCOPES IN THE COUNTRY
TEKTRONIX 7000 SERIES OSCILLOSCOPES
 Available from £200. Plug-ins sold separately.

TEKTRONIX 2235 Dual Trace 100MHz Delay Sweep	£800
TEKTRONIX 475 Dual Trace 200MHz Delay Sweep	£550
TEKTRONIX 465B Dual Trace 100MHz Delay Sweep	£500
TEKTRONIX 465 Dual Trace 100MHz Delay Sweep	£450
TEKTRONIX 2215A Dual Trace 60MHz Delay Sweep	£500
TEKTRONIX 2215 Dual Trace 60MHz Delay Sweep	£450
TEKTRONIX 455 Dual Trace 50MHz Delay Sweep	£400
HITACHI V650F Dual Trace 60MHz Delay Sweep	£400
HAMEG 605 Dual Trace 60MHz Delay Sweep	£400
PHILLIPS PM1217 Dual Trace 50MHz Delay Sweep	£400
GOULD OS3351 Dual Trace 30MHz TV Monitor Oscilloscope	£375
TRIO CS1830 Dual Trace 30MHz Delay Sweep	£375
WATSU SS5702 Dual Trace 20MHz	£225
GOULD OS300 Dual Trace 20MHz	£200
GOULD OS250B Dual Trace 15MHz	£125
TEKTRONIX 2430 Dual Trace 150MHz Digital Storage	£1750
TEKTRONIX 466 Dual Trace 100MHz Delay Sweep Analogue Storage	£450
HP 1741A Dual Trace 100MHz Delay Sweep Analogue Storage	£450
GOULD CS4000 Dual Trace 10MHz Digital Storage	£225

This is just a sample - many others available

PHILLIPS PM5193 Programmable synthesizer/function generator 0.1MHz - 50MHz BEE 488 As new £1500

MARCONI 2018 Synthesized AM/FM Sig Gen 80KHz - 520KHz £800

HP 8640B Signal Generator 20KHz - 1024MHz (opts 001/002/003) £1500

HP 8610C Sweep Oscillator with B6745A 5.9 - 12.4GHz £725

HP 8610C Sweep Oscillator with B6720A 10 - 1300MHz £750

RACAL 9081 Synthesized AM/FM Sig Gen 1.5 - 520MHz £600

FARNELL PS520H Synthesized AM/FM Sig Gen 100KHz - 520MHz £600

LYONS PG73N Pulse Gen PRF 1Hz - 20MHz 5 nanoseconds £150

LYONS PG71N Pulse Gen 1Hz - 5MHz 10 nanoseconds £75

FARNELL PG101 Pulse Gen 100ns 10MHz (1 Sec. 1Hz) £125

RACAL 9301A True RMS Millivoltmeter 10KHz - 1GHz £300

SPECTRUM ANALYSERS

HP 141T with B555A & B557B 10MHz - 18GHz £1800

HP 141T with B554B & B557B 500KHz - 1250MHz £1300

HP 140T with B554L & B552A 500KHz - 1250MHz £1000

HP 141T with B556A & B552B 20Hz - 300KHz £1000

HP 140T with B553L & B552A 1KHz - 110MHz £800

HP 182C with B558B 100Hz - 1500MHz £1500

HP 3582A 0.02Hz - 25.5KHz £7000

MARCONI TF 2370 1KHz - 110MHz £1500

FARNELL ISOLATING TRANSFORMERS GUS00 240V 500VA, un-used £30

Isolating Transformer 500VA, un-used £30

DATRON 1061A 6 1/2 digit Auto Multimeter with True RMS AC Current £1250

DATRON 1065 5 1/2 digit Auto Multimeter, AC/DC/Ohms with IEEE £600

HEWLETT PACKARD 3490A Bench Multimeter 5 1/2 digit AC/DC/Ohms £200

PHILLIPS PM2534 Multi Function DMM 6 1/2 digit with GPIB IEEE £450

SOKARTRON 7150 - 6 1/2 digit DMM with IEEE £400

MARCONI Digital Frequency Meter 2430A 10KHz - 80MHz £75

MARCONI Digital Frequency Meter 2431A 10KHz - 200MHz £150

MARCONI Universal Counter Timer 2437 DC - 100MHz £175

MARCONI Universal Counter Timer 2438 DC - 520MHz £225

BLACK STAR Impedance 500 Sine Sq Tr 0.1Hz - 500KHz £70

FEEDBACK FG60C Sine Sq Tr 0.01Hz - 100KHz £60

THANADAR TG101 Func. Gen. 0.02Hz - 200KHz Sine Sq Tr 100 £60

MULTIMETERS Handheld M2355-32 ranges AC/DC 10A rms Diode/Transistor Tester. Freq Counter £28.50

SOKARTRON/SCHLUMBERGER 1250 Frequency Response Analyser £3300

HP 8690B Sweep Osc with B6974 Plug-in 26.5-400KHz £300

RACAL/DANA RF Power Meter 9104 £400

RACAL/DANA 9941 Database Automatic LCR & C £350

WAYNE KERR B995 Automatic Precision Bridge 0.25% £400

WAYNE KERR B424 Digital Component Meter, LCR £125

WAYNE KERR B635 Automatic Component Bridge 0.1% £350

FARNELL PSU TV709M2 70V SA/30V 10A £200

FARNELL PSU H46/25 0-40V, 0-25 Amps Metered £400

FARNELL B3020 0-30V, 20 Amps £250

FARNELL B3010 0-30V, 10 Amps £200

HP 6255A 0-40V, 0-1.5 Amps Twice Metered £130

HP 6209B 0-320V, 0-0.1 Amps Metered £125

BRANDENBURG 472R PSU +/- 2kV £200

MARCONI TF270H Universal LCR Bridge. Battery from £150

AVO Valve Tester CT140 £75

FARNELL LA520 FF Power Amp. 1.5-520MHz 300mV £175

RACAL 9100 Absorption Wattmeter 1MHz - 1GHz 3V £100

NEW EQUIPMENT

HAMEG OSCILLOSCOPE HM1005 Triple Trace 100MHz Delay Timebase £847

HAMEG OSCILLOSCOPE HM604 Dual Trace 60MHz Delay Sweep £653

HAMEG OSCILLOSCOPE HM203 7 Dual Trace 20MHz Component Tester £342

HAMEG OSCILLOSCOPE HM205 3 Dual Trace 20MHz Digital Storage £253

All other models available - all oscilloscopes supplied with 2 probes.

BLACK STAR EQUIPMENT (P&P all units £5)

APOLLO 10 100MHz Counter Timer Ratio/Period/Time Interval etc £222

APOLLO 100 100MHz (As above with more functions) £325

METER 100 FREQUENCY COUNTER 100MHz £119

METER 600 FREQUENCY COUNTER 600MHz £145

METER 1000 FREQUENCY COUNTER 1 GHz £189

JETTOR 500 FUNCTION GEN 0.1Hz-500kHz Sine Sq Tr £119

ORION COLOUR BAR GENERATOR Part TV Video £229

All other Black Star Equipment available

OSCILLOSCOPE PROBES Switchable X1 X10 (P&P £3)

KIKUSUI VM23 AC Voltmeter Dual Channel 10KHz-500KHz 300V/100V £100

LEADER LPH181A AC Millivoltmeter 5Hz-1MHz, 100V/30V £75

MARCONI TF2100B Modulation Meter AM/FM 4MHz - 12GHz £100

DYMER 2065 Distortion Factor Meter 6.4Hz-64KHz 0.01% £150

PHILLIPS PM6309 Distortion Meter 40, 333, 1000, 5000Hz £200

MARCONI TF893B Audio Power Meter Sinad £250

MARCONI TF2163 Attenuator DC - 1GHz £100

MARCONI TF2162 Attenuator DC - 1MHz £35

TEKTRONIX PM615 High Voltage Probe £75

SULLIVAN AC Test Set £150

TUBES

14" tube to replace 37-570, 37-573, 37-554, 3701B22 only £19	14" tube to replace 37-590 370HFB22 3708B22 AXT37-001, 370HUB22 only £29
14" tube to replace almost any narrow-necked crt only £35	16" tube to replace 42-590, AXT42-001, 4202B22 only £29
17" FST tube to replace 41JAR, 41EAM only £69	16" tube to replace 38EAC, 420FSB, 420GAB, 420GJB, 420GUB only £29
21" FST tube for Tashiko, Hinari etc 51JAR21X, 51JAR65X, 51JAR96X only £45	20" tube Hitachi Instaview 510VLB22 NEW only £35
New Mono Tubes 20" only £10 14" only £5 12" only £5	Large quantity of part-used tubes Picture tested
Ring Irene or Jane with your tube number for latest price and availability	
WANTED - Dead or alive 20" narrow neck tubes 90° Non-FST. 48EACOOX (TX90) 510YXB22 (Grundig)	
	Carriage and VAT extra
	
EXPRESS TV The Mill, Mill Lane, RUGELEY, Staffs WS15 2JW Tel: 0889-577600 Fax: 0889-575600	

W.M.T.V.

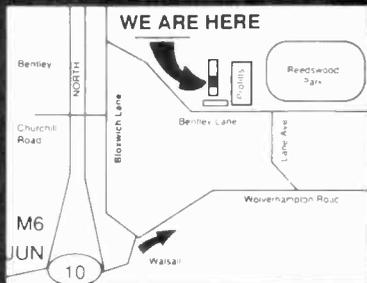
THE LARGEST INDEPENDENT
 WHOLESALERS IN WALSALL
 - SUPPLIERS OF HIGH QUALITY EX-RENTAL
 TVS AND VIDEOS TO THE TRADE
 AT COMPETITIVE PRICES
 ALSO AVAILABLE: NEW B-GRADE PRODUCTS
 - TVS, VIDEOS, AUDIO & MICROWAVES -
 ALL TESTED & BOXED

1/2 Mile of Junction 10 M6. Easy Parking Facilities

UNIT 3, BENTLEY LANE BUSINESS PARK
 BENTLEY LANE, WALSALL WS2 8TL
 Tel: 0922-724542. Fax: 0922-722208
 Mobile: 0831-246622 (24 Hours)

OPEN:
 MON-FRI,
 9-6pm
 SAT 9-2pm
 SUNDAY BY
 APPOINTMENT
 DELIVERY
 SERVICE
 THROUGHOUT
 THE COUNTRY

WE ARE HERE



TELEVISION JULY 1994

REMOTE CONTROLS

Description	Order Code	Price	Description	Order Code	Price	Description	Order Code	Price
GRUNDIG			PHILCO			69117194	RC 180	875p
TP160E	RC 107	900p	CARVEL. CONCORDE,	RC 108	850p	RC5991-UNIV	RC 300	850p
TP200, TP300	RC 380	800p	MERCURY, TELESTAR			RC38	RC 301	875p
TP400	RC 401	800p	TC10	RC 152	900p	KT3 TEXT	RC 5301	800p
TP590-600	RC 600	850p	PHILIPS			RC5352	RC 53E2	800p
TP390, TP610	RC 610	850p	RC5002,5154	RC 134	850p	RC5375	RC 5375	850p
TP621	RC 621	850p	KT3 NON TEXT	RC 135	825p	RC5 STANDARD	RC 5534	850p
TP630, TP650	RC 650	850p	69117032	RC 178	875p	RC5901	RC 5901	850p
TP660	RC 660	850p				RC5903	RC 5903	800p
TP661	RC 661	850p				SABA		
HITACHI			UNIVERSAL PROGRAMMABLE REMOTE CONTROL			T6772	RC 149	900p
CLE800-CLE830	RC 140M	850p	Controls up to 4 different devices which use infra red			TC319-320	RC 32E	875p
A617402/655602	RC 192	875p	remote controls including TV, audio, VCR and satellite.			TC356	RC 356	875p
A512120/230	RC 900	800p	(need original remote control TC program)			TC358	RC 35E	850p
A514790	RC 901	850p	Order code: IR100R Price: 1950p			TC360	RC 360	800p
A5088470	RC 902	800p	We stock Remote Controls for over 5000 different			TC365	RC 365	800p
A518612	RC903	900p	models. Fing for further details on 081-900-2329.			SALORA		
SCL002	RC904	850p				SERIES L	RC 190	875p
C2096	RC 905	850p				86173	RC 882	850p
A511940	RC 906	800p				SANYO		
655602H	RC 907	850p				RC218, RC222, RC228, RC238	RC 140M	850p
ITT						JXGE	RC 878	850p
IFB13, 14, 15	RC 143	875p				JXDE	RC 884	850p
FS4	RC 148	850p				VHR2300	RC 890	850p
RG305	RC 305	825p				RC628	RC 865	900p
RG306	RC 306	825p				SHARP		
FS9/1-10/1	RC 307	850p				G0121CESA, 123CESA, 204, 251	RC 140M	850p
VS5 RUK	RC 308	825p				SIEMENS		
VS4-1	RC 310	850p				FC616	RC 130	850p
MULTICONTROL (17C20)	RC 311	800p				FC631	RC 132	850p
KORTING						FC742	RC 164	900p
18279, 18396, 18460, 18521 SE	RC 108	850p				SONY		
40540 VTS	RC 108	900p				RM604, RM605, RM606	RC 140	850p
LOEWE						32 CHANNEL	RC 140M	850p
DC11	RC 146	850p				RM613	RC 141	850p
MATSUI						RM632, RM636	RC 160	850p
010270601	RC 889	850p				TATUNG		
VX770	RC 892	850p				FXA	RC 877	850p
METZ						RC70	RC 883	750p
JAVA COLOR (6890)	RC 166	850p				FX70 FASTTEXT	RC 894	850p
COLOR (7156)	RC 183	850p				TELEFUNKEN		
JAVA (7180)	RC 184	850p				FB632	RC 632 ST	850p
MITSUBISHI						FB639	RC 639 ST	850p
939P/03607, 939P/03609	RC 140M	850p				THORN/FERGUSON		
NOKIA						3V35-42	RC 342	850p
SATELLITE	RC 550	850p				3V31-32	RC 344	850p
NORDMENDE						3V57-58	RC 628	900p
TC2336	RC 351N	850p				TX10 TEXT	RC 732	750p
CMC1, TC3519	RC 356	875p				TX10 STEREO TEXT	RC 738	750p
OCEANIC						TX9-90-100	RC 740	750p
390C9500	RC 339	900p				3V55, FV11	RC 783	900p
ORION						TX100 FASTTEXT	RC 785	800p
RC53	RC 892	850p				TX100 STEREO FASTTEXT	RC 789	800p
PANASONIC						PROFESSIONAL	RC 790	800p
EUR51200	RC 200	850p				TOSHIBA		
TC2200	RC 201	850p				CT937	RC 950	850p
VSQ0357/NV730	RC 202	875p				CT9117	RC 951	850p
TNQ1621	RC 203	900p				201R4B	RC 952	850p

FUSES

Value	TIME LAG (20mm)		QUICK BLOW (20mm)	
	Order Code	Price	Order Code	Price
150mA	FUSE01	75P	FUSE17	60P
250mA	FUSE02	75P	FUSE18	60P
315mA	FUSE03	75P	FUSE19	60P
400mA	FUSE04	75P	FUSE20	60P
500mA	FUSE05	75P	FUSE21	60P
630mA	FUSE06	75P	FUSE22	60P
800mA	FUSE07	60P	FUSE23	60P
1A	FUSE08	60P	FUSE24	60P
1.25A	FUSE09	60P	FUSE25	60P
1.6A	FUSE10	60P	FUSE26	60P
2A	FUSE11	50P	FUSE27	60P
2.5A	FUSE12	50P	FUSE28	60P
3.15A	FUSE13	55P	FUSE29	50P
4A	FUSE14	55P	FUSE30	50P
5A	FUSE15	60P	FUSE31	50P
6.3A	FUSE16	60P	FUSE32	50P

ALL THE ABOVE PRICES ARE FOR PACKS OF 10 FUSES

I.C. PROTECTOR

ICPF10	ICPF38	ICPN10	ICPN38
ICPF15	ICPF50	ICPN15	ICPN50
ICPF20	ICPF75	ICPN20	ICPN75
ICPF25	ICPN5	ICPN25	

Price: Only 30p each

AUDIO CONTROL HEAD
Amstrad Original No: 150751
Used on Amstrad TVR1.2.3, VCR4600, 4600MII, 4700
Funai V2S, VCR4600, 4800, 5200, 5600, 6600, VIP3000,
5000
Also fits: Fidelity, Funai, Hinarl, Proline, Schneider,
Towada, Ultravox
Order Code: AH01 Price: £13.50

Amstrad Original No: 153154
Used on Amstrad 008900, 8904, VCR2000, 6000, 8600,
8602, 8603, VCR8604, 8700, 8704, 8714, 8800, 9005,
9244
Also fits: Arntech, Boadstec, Casio, Crown, Fidelity,
Goldhead, Granada, Hinarl, Marguant, Omega, Profex,
Schneider, SEG, Sentra, Shipton, Tashiko, Tatung,
Towada, Universum
Order Code: AH02 Price: £14.50

TELEVISION
Edition 3

Lists more than 3,500 faults for 50 different brands
Price: 945p only - no VAT
Order Code: BOCK02

GRANDATA LTD

K.P. HOUSE, UNIT 15, POP IN COMMERCIAL CENTRE, SOUTHWAY, WEMBLEY, MIDDLESEX, ENGLAND HA9 0HB

Telephone: 081-900 2329 Fax: 081-903 6126

SEALED LEAD ACID Battery, 6v 80/100 AH made for BT, ex equipment but ok E45 each ref APR47. Ideal electric vehicle etc.

ASTEC SWITCHED MODE PSU Gives +5 @ 3.75A, +12 @ 1.5A, -12 @ 4A, 230/110, cased, BM41012. E9.99 ref APR10P3.

TORRODIAL TX 30-0-30 480VA, Perfect for Mosfet amplifiers etc. 120mm dia 55mm thick. £18.99 ref APR19.

MOD WIRE Perfect for repairing PCB's, wire wrap etc. Thin insulated wire on 500m reels. Our price just E9.99 ref APR10P8.

12v MOVING LIGHT Controller. Made by Hella, 6 channels rated at 90watts each. Speed control, cased. £34.99 ref APR35.

ELECTRON FLASH TUBE As used in police car flashing lights etc, full spec supplied, 60-100 flashes a min. E9.99 ref APR10P5.

24v 96WATT Cased power supply. New. E13.99 ref APR14.

STETHOSCOPE Fully functioning stethoscope, ideal for listening to hearts, pipes, motors etc. E6 ref MAR6P6.

OUTDOOR SOLAR PATH LIGHT Captures sunlight during the day and automatically switches on a built in lamp at dusk. Complete with sealed lead acid battery etc. E19.99 ref MAR20P1.

ALARM VERSION Of above unit comes with built in alarm and pirt to deter intruders. E24.99 ref MAR25P4.

CLOCKMAKER KIT Hours of fun making your own clock, complete instructions and everything you need. E7.99 ref MAR8P2.

CARETAKER VOLUMETRIC Alarm, will cover the whole of the ground floor against forced entry. Includes mains power supply and integral battery backup. Powerful internal sounder, will take external bell if req'd. Retail E150+, ours? E49.99 ref MAR50P1.

TELEPHONE CABLE White 6 core 100m reel complete with a pack of 100 clips. Ideal 'phone extns etc. E7.99 ref MAR8P3.

VIEWDATA RETURNS E6 made by Tandata, includes 1200 75 mode, kb/d, RGB and comp. d/p, printer port. No PSU. E6 MAG6P7.

IBM PC CASE AND PSU Ideal base for building your own PC. Ex equipment but OK. E14.00 each REF: MAG14P2.

SOLAR POWER LAB SPECIAL You get TWO 6"x6" 6v 130mA solar cells, 4 LED's, wire, buzzer, switch plus 1 relay or motor Superb value kit just E5.99 REF: MAG6P8.

SOLID STATE RELAYS Will switch 25A mains. Input 3.5-26v DC 57x43x21mm with terminal screws E3.99 REF: MAG4P10.

300DPI A4 DTP MONITOR Brand new, TTL/ECL inputs, 15" landscape, 1200x1664 pixel complete with circuit diag to help you interface with your projects. JUST E24.99. REF: MAG25P1.

ULTRAMINI BUG MIC 6mmx3.5mm made by AKG, 5-12v elect condenser. Cost E12 ea, Our? four for E9.99 REF: MAG10P2.

RGB/CGA/EGA/TTL COLOUR MONITORS 12" in good condition. Back anodised metal case. E99 each REF: MAG99P1.

GX4000 GAMES MACHINES returns so ok for spares or repair E9 each (no games). REF: MAG9P1.

C64 COMPUTERS Returns, so ok for spares etc. E9 ref: MAG9P2.

FUSELAGE LIGHTS 3 foot by 4" panel 1/8" thick with 3 panels that glow green when a voltage is applied. Good for night lights, front panels, signs, disco etc. 50-100v per strip. E25 ref: MAG25P2.

ANSWER PHONES Returns with 2 faults, we give you the bits for 1 fault, you have to find the other yourself. BT Response 200's E18 ea REF: MAG18P1. PSU E5 ref: MAG5P12.

SWITCHED MODE PSU ex equip, 60w +5v @ 5A, -5v @ 5A, +12v @ 2A, -12v @ 5A 120/220v cased 245x88x55mm IEC input socket E6.99 REF: MAG7P1.

PLUG IN PSU 9V 200mA DC E2.99 each REF: MAG3P9.

PLUG IN ACORN PSU 19v AC 14w. E2.99 REF: MAG3P10.

POWER SUPPLY fully cased with mains and d/p leads 17v DC 900mA output. Bargain price E5.99 ref: MAG6P9.

ACORN ARCHMEDES PSU +5v @ 4.4A, on/off sw uncased, selectable mains input, 145x100x45mm E7 REF: MAG7P2.

GEIGER COUNTER KIT Low cost professional twin tube, complete with PCB and components. E29 REF: MAG29P1.

SINCLAIR C6 13" wheels complete with tube, tyre and cyde style bearing E6.99 REF: MAG6P10.

AA NICAD PACK encapsulated pack of 8 AA nicad batteries (tagged) ex equip, 55x32x32mm. E3 a pack REF: MAG3P11.

13.8V 1.9A psu cased with leads. Just E9.99 REF: MAG10P3.

360K 6.25 brand new half height floppy drives IBM compatible industry standard. Just E6.99 REF: MAG7P3.

PPC MODEM CARDS These are high spec plug in cards made for the Amstrad laptop computers. 2400 baud dial up unit complete with leads. Clearance price is E5 REF: MAG5P1.

INFRA RED REMOTE CONTROLLERS Originally made for hi spec satellite equipment but perfect for all sorts of remote control projects. Our clearance price is just E2 REF: MAG2.

TOWERS INTERNATIONAL TRANSISTOR GUIDE. A very useful book for finding equivalent transistors, leadouts, specs etc. E20 REF: MAG20P1.

SINCLAIR C6 MOTORS We have a few left without gearboxes. These are 12v DC 3,300 rpm 6"x4", 1/4" OP shaft. E25 REF: MAG25.

UNIVERSAL SPEED CONTROLLER KIT Designed by us for the above motor but ok for any 12v motor up to 30A. Complete with PCB etc. A heat sink may be required. E17.00 REF: MAG17.

VIDEO SENDER UNIT. Transmits both audio and video signals from either a video camera, video recorder, TV or computer etc to any standard TV set in a 100' range! (tune TV to a spare channel) 12v DC op. Price is E15 REF: MAG15. 12v psu is E5 extra REF: MAG5P2.

***FM CORDLESS MICROPHONE** Small hand held unit with a 500' range! 2 transmit power levels. Reqs PP3 9v battery. Tuneable to any FM receiver. Price is E15 REF: MAG15P1.

LOW COST WALKIE TALKIES Pair of battery operated units with a range of about 200'. Ideal for garden use or as an educational toy. Price is E8 a pair REF: MAG 8P1. 2 x PP3 req'd.

***MINATURE RADIO TRANSCIVERS** A pair of walkie talkies with a range of up to 2 kilometres in open country. Units measure 22x52x155mm. Complete with cases and earpieces. 2xPP3 req'd. E30.00 pair REF: MAG30.

COMPOSITE VIDEO KIT. Converts composite video into separate H sync, V sync, and video. 12v DC. E8.00 REF: MAG8P2.

LQ3600 PRINTER ASSEMBLIES Made by Amstrad they are entire mechanical printer assemblies including printhead, stepper motors etc etc in fact everything bar the case and electronics, a good stripper! E5 REF: MAG5P3 or 2 for E8 REF: MAG8P3.

NEW BULL ELECTRICAL STORE WOLVERHAMPTON BRANCH

NOW OPEN AT 55A WORCESTER
ST TEL 0902 22039

100MHZ OSCILLOSCOPES now in stock, 12x10cm screen, delayed sweep, 1 Mohm/25pfinputs, modes-ch1, ch2, add, chop, alt, dual. 460 x 305 x 200mm, 17kgs, £267+Vat includes insurance and carriage.

INFRARED LASER NIGHT SCOPES

Second generation image intensifier complete with hand grip attachment with built in laser lamp for zero light conditions. Supplied with Pentax 42mm camera mount, 1.6kg, uses 1xPP3, 3xAA's (all supplied) £245+Vat

NEW HIGH POWER LASERS

15mW, Helium neon, 3 switchable wave lengths .63um, 1.15um, 3.39um (2 of them are infrared) 500:1 polarizer built in so good for holography. Supplied complete with mains power supply. 790x65mm. Use with EXTREME CAUTION AND UNDER QUALIFIED GUIDANCE. £349+Vat.

'PC PAL' VGA TO TV CONVERTER

Just plug in and it converts your colour television into a basic VGA screen, perfect for laptops, saves lugging monitors about or just as a cheap upgrade. Intro price £49.99 +Vat.

AMSTRAD 1512DD

1512 BASE UNIT AND KEYBOARD AND TWO 5.25" 360K DRIVES. ALL YOU NEED IS A MONITOR AND POWER SUPPLY WAS £59.00

NOW ONLY £39.00
REF: MAG39

3FT X 1FT 10WATT SOLAR PANELS
14.5v/700mA
NOW AVAILABLE BY MAIL ORDER
£33.95

(PLUS £2.00 SPECIAL PACKAGING CHARGE)

TOP QUALITY AMORPHOUS SILICON CELLS HAVE ALMOST A TIMELESS LIFESPAN WITH AN INFINITE NUMBER OF POSSIBLE APPLICATIONS, SOME OF WHICH MAY BE CAR BATTERY CHARGING, FOR USE ON BOATS OR CARAVANS, OR ANYWHERE A PORTABLE 12V SUPPLY IS REQUIRED. REF: MAG34

*****WE BUY SURPLUS STOCK*****

TURN YOUR SURPLUS STOCK INTO CASH.
IMMEDIATE SETTLEMENT. WE WILL ALSO QUOTE FOR COMPLETE FACTORY CLEARANCE.

1994 CATALOGUE.

PLEASE SEND 45P. A4 SIZED SAE FOR YOUR FREE COPY.
MINIMUM GOODS ORDER IS 50 TRADE ORDERS FROM GOVERNMENT, SCHOOLS, UNIVERSITIES, & LOCAL AUTHORITIES WELCOME. ALL GOODS SUPPLIED SUBJECT TO OUR CONDITIONS OF SALE AND UNLESS OTHERWISE STATED GUARANTEED FOR 30 DAYS. RIGHTS RESERVED TO CHANGE PRICES & SPECIFICATIONS WITHOUT PRIOR NOTICE. ORDERS SUBJECT TO STOCK. QUOTATIONS WILLINGLY GIVEN FOR QUANTITIES HIGHER THAN THOSE STATED.

*SOME OF OUR PRODUCTS MAY BE UNLICENSABLE IN THE UK

BULL ELECTRICAL

250 PORTLAND ROAD HOVE SUSSEX
BN3 5QT

MAIL ORDER TERMS: CASH PO OR CHEQUE
WITH ORDER PLUS £3.00 POST PLUS VAT.

PLEASE ALLOW 7 - 10 DAYS FOR DELIVERY

TELEPHONE ORDERS WELCOME

TEL: 0273 203500

FAX: 0273 323077



SPEAKERWIRE Brown 2 core 100 foot hank E2 REF: MAG17P1.

LED PACK of 100 standard red 5m leds E5 REF: MAG5P4.

UNIVERSAL PC POWER SUPPLY complete with flylead switch, fan etc. Two types available 150w at E15 REF: MAG15P5 (23x23x23mm) and 200w at E20 REF: MAG20P3 (23x23x23mm).

***FM TRANSMITTER** housed in a standard working 13A adapter! the bug runs directly off the mains so lasts forever why pay £700? or price is E25 REF: MAG26 Transmits to any FM radio.

***FM BUG KIT** New design with PCB embedded coil for extra stability. Works to any FM radio. 9v battery req'd. E5 REF: MAG5P5.

***FM BUG BUILT AND TESTED** superior design to kit. Supplied to detective agencies. 9v battery req'd. E14 REF: MAG14.

TALKING COINBOX STRIPPER originally made to retail at E79 each, these units are designed to convert an ordinary phone into a payphone. The units have the locks missing and sometimes broken hinges. However they can be adapted for their original use or used for something else?? Price is just E3 REF: MAG3P1.

100 WATT MOSFET PAIR Same spec as 2SK343 and 2SJ413 (8A, 140v, 100w) 1N channel, 1P channel. E3 a pair REF: MAG3P2.

TOP QUALITY SPEAKERS Made for Hi Fi televisions these are 10 watt 4R Jar made 4" round with large shielded magnets. Good quality. E2 each REF: MAG2P4 or 4 for E6 REF: MAG6P2.

TWEETERS 2" diameter good quality tweeter 140R (ok with the above speaker) 2 for E2 REF: MAG2P5 or 4 for E3 REF: MAG3P4.

AT KEYBOARDS Made by Apricot these quality keyboards need just a small mod to run on any AT, they work perfectly but you will have to put up with 1 or 2 foreign keycaps! Price E6 REF: MAG6P3.

PC CASES Again mixed types so you take a chance next one off the pile E12 REF: MAG12 or two the same for E20 REF: MAG20P4.

COMMODORE MICRODRIVE SYSTEM mini storage device for C64's 4 times faster than disc drives, 10 times faster than tapes. Complete unit just E12 REF: MAG12P1.

SCHOOL STRIPPERS We have quite a few of the above units which are 'returns' as they are quite comprehensive units they could be used for other projects etc. Let us know how many you need at just \$0p a unit (minimum 10).

HEADPHONES Ex Virgin Atlantic. 8 pairs for E2 REF: MAG2P8.

PROXIMITY SENSORS These are small PCB's with what look like a source and sensor LED on one end and lots of components on the rest of the PCB. Complete with flyleads. Pack of 5 E3 REF: MAG3P5 or 20 for E8 REF: MAG8P4.

SNOOPERS EAR? Original made to dip over the earpiece of telephone to amplify the sound it also works quite well on the cable running along the wall! Price is E5 REF: MAG5P7.

DOS PACKS Microsoft version 3.3 or higher complete with all manuals or price just E5 REF: MAG5P8. Worth it just for the very comprehensive manual! 5.25" only.

DOS PACK Microsoft version 5.0 original software but no manuals hence only E3 REF: MAG3P5. 2.5" only.

CTM644 COLOUR MONITOR Made to work with the CPC464 home computer. Standard RGB input so will work with other machines. Refurbished E59.00 REF: MAG59.

PIR DETECTOR Made by famous UK alarm manufacturer these are hi spec, long range internal units. 12v operation. Slight marks on case and unboxed (although brand new) E8 REF: MAG8P5.

WINDUP SOLAR POWERED RADIO AM/FM radio complete with hand charger and solar panel! E14 REF: MAG14P1.

COMMODORE 64 TAPE DRIVES Customer returns at E4 REF: MAG4P9. Fully tested units are E12 REF: MAG12P5.

MAINS CABLES These are 2 core standard black 2 metre mains cables fitted with a 13A plug on one end, cable for the other. Ideal for projects, low cost manufacturing etc. Pack of 10 for E3 REF: MAG3P8. Pack of 100 E20 REF: MAG20P5.

MICROWAVE TIMER Electronic timer with relay output suitable to make enlarger timer etc. E4 REF: MAG4P4.

MOBILE CAR PHONE £6.99 Well almost! complete in car phone excluding the box of electronics normally hidden under seat. Can be made to illuminate with 12v also has built in light sensor so display only illuminates when dark. Totally convincing! REF: MAG6P6.

ALARM BEACONS Zenon strobe made to mount on an external bell box but could be used for caravans etc. 12v operation. Just connect up and it flashes regularly! E5 REF: MAG5P11.

FIRE ALARM CONTROL PANEL High quality metal cased alarm panel 350x165x30mm With key. Comes with electronics but no information. sale price 7.99 REF: MAG8P6.

REMOTE CONTROL PCB These are receiver boards for garage door opening systems. Another use? E4 ea REF: MAG4P5.

6"x12" AMORPHOUS SOLAR PANEL 12v 155x310mm 130mA. Bargain price just E5.99 ea REF: MAG6P12.

FIBRE OPTIC CABLE BUMPER PACK 10 metres for E4.99 ref: MAG5P13. Ideal for experimenters! 30m for E12.99 ref: MAG13P1.

LOPTX Line output transformers believed to be for hi res colour monitors but useful for getting high voltages from low ones! E2 each REF: MAG2P12 bumper pack of 10 for E12 REF: MAG12P3.

**BOTH SHOPS OPEN 9-5.30
SIX DAYS A WEEK**

PORTABLE RADIATION DETECTOR

£49.99

A Hand held personal Gamma and X Ray detector. This unit contains two Geiger Tubes, has a 4 digit LCD display with a Piezo speaker, giving an audio visual indication. The unit detects high energy electromagnetic quanta with an energy from 30K eV to over 1.2M eV and a measuring range of 5-9999 UR/h or 10-99990 Nr/h. Supplied complete with handbook.

REF: MAG50

**LOOK – CHEAP STOCK –
MAKE EXTRA PROFIT**

ALL STOCK IS NEW. A1. No 'B' Grade

Examples of This Month's Deals:-

NEW Midi Hi Fi: Twin Tape decks, Radio, Graphic, Belt drive record deck, speakers **£39.95**

NEW Walkman Headphones – Various Types **50p, £2.50, £3.45**

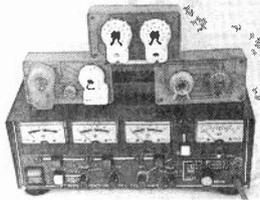
NEW Midi Hi Fi: CD, Twin Tape, Graphic, Radio, speakers only **£94.50**

Gold and Black living room clocks **£3.75**

AA Batteries **£1.65 per Dozen** AAA Batteries **£1.65 per Dozen**

PLEASE SEND S.A.E. OR FAX US FOR LATEST LIST.

The C.E.D./Semaht T101 CRT TESTER



The T101 is a quad meter unit enabling all three guns on a colour CRT to be tested in Unison and then any guns that need re-activating can be done. The unit is user friendly and does not require elaborate setting up procedures. The unit employs CMOS IC circuitry and incorporates spike suppression and overload foldback protection measures, this coupled with

the unit being housed in a steel instrument case makes the unit robust. The T101 comes with plug-in base units, thus making it obsolete proof. The unit measures 12" x 8" x 5" and weights approx. 8lbs. Price: **£379.99**

Single meter version available: **£269.99**

PLEASE FAX OR SEND S.A.E. FOR FULL SPEC.

**S. T. A.
WHOLESALE**

107 Riverview,
Chadwell St Mary, Grays
Essex RM16 4BA

Tel: 0375 856666
Fax: 0375 841540

PRICES AND STOCK CORRECT AT TIME OF GOING TO PRESS

C.T.V. (NORTH EAST)

9A/B, 94 Carrmere Road

Leechmere Ind. Est.

Sunderland

SR2 9TE

**No.1 in the North East
for all makes and models
of high quality ex-rental
televisions and video recorders
at very competitive prices**

**For Further Information
Please Contact Nick or Brian on
091-523 5554**

Fax: 091-523 8035

Export Enquiries Welcome.

CentreVision

Centrevision House Sloper Road
Leckwith Cardiff CF1 8AB

**Over 50 working
FST on display
Hitachi, Akura,
NEI B-Grade Boxed
Phone now for our
weekly special offers
Have your TV & Video
tested, working
and on display
ready for your collection**

Phone 0222 344754

for our price list

**Our lorry could be in your
area delivering now!**

All trade repairs at reasonable rates

Phone 0222 344754

Fax: 0222 344218

Export enquiries welcome

ADVERTISERS' INDEX

Aerial Techniques	665	Hardy, J.W.	656
Alban Electronics Ltd ..	670	Harrison Electronics	623
Anglian TV Wholesale ..	678	Hussein Central TV	675
A. R. International.....	678		
A.W.I.....	658	J.J. Components	651
Besco Ltd ..	674	Manor Supplies.....	627
BK Electronics	657	Marapet	658
Broughfame Ltd	656	Mauritron.....	620
Bull Electrical	671	MCES	668
Campion Wholesale TV Ltd.....	678	Ozan	647
Central TV Wholesale Ltd.....	673	P.V. Tubes	620
Centrevision	672	Redbank	677
Coastal Aerial Supplies	678	Sendz Components	
Colourtrade	676	684, IBC & OBC
CTV (Mids)	673	S.T.A.	672
CTV (N.E.)	672	Stewart of Reading	669
D.S.D.....	658	Superscreen	674
East London Components	623	Teleplace	677
Economic Devices...648-649		Teleprice Ltd	676
E.C.S.	668	Vista Electronics	656
Euras International Ltd	620	Western Trade Services	677
Eurolink.....	678	West Mids. TV	669
Express TV's.....	669	Willowvale Electronics Ltd.....	IFC
GGL Components.....	619	Wiltsgrove	673, 679
Gogglebox.....	679		
Grandata Ltd	610-618		

C.T.V.

UNIT 5, THE PHOENIX BUILDING, RUSHOCK
TRADING ESTATE, DROITWICH ROAD,
NEAR KIDDERMINSTER
TELEPHONE: 0299-251522
0836-585829/0860-809673 (24HR)

**SUPPLIERS OF HIGH QUALITY
EX-RENTAL TELEVISIONS AND VIDEOS
LARGE STOCKS ALWAYS AVAILABLE
ALL AT COMPETITIVE PRICES**

Also available: 'B' Grade Products,
Audio, and Complete Range
of Televisions and Videos

OPEN: MON-FRI - 9.30-5.30

TEL: 0299-251522
0836-585829/0860-809673 (24HR)

Fax: 0299-251543 EXPORT ENQUIRIES WELCOME



WILTSGROVE LTD Your One Stop Warehouse



RECONDITIONED WORKING STOCK

VIDEO

Top Loading VCR £35.00
Front Loaders with R/C £45.00
Twin Speed VCR with R/C £55.00
Ferguson FV11R with R/C £65.00

Basic CTV's from £15.00
Remote CTV's from £25.00
Teletext CTV's from £35.00
FST's from £65.00

TELEVISION

T.V.

20" Remote £125.00
20" Nicam Fast Text £159.00
21" Nicam Fast Text £179.00
14" Teletext £109.00

'B' GRADE WORKING STOCK

RG292 Car Radio £16.75
RG296 Car Radio £19.25
JC105 Cass/Player £5.45
JC130 Cass/Player £6.99

AUDIO (Sharp)

NEW 14" Remote Control Portable CTV 12 months Guarantee £99.95

*SONY VIEWDATA SYSTEMS with Keyboard £59.00

E-180 EXTRA GRADE VIDEO TAPE (min 50) £0.79

1000's OF QUALITY SPARES AT PRICES HARD TO BEAT!

LOPTS (REPLACEMENT) Ferguson TX100 (Green Spot) 22B1, 22B2, 22B3, 22D1, 22D2, 22D3, 26D1, 26D2, 26D3, 22G2 etc £12.75

PANASONIC TLF14567F, TLF14520F, TLF14568F, TLF14521F, TC1631, TC1641, TC2031, TC2033, TC2043, TC2232, TC2233, TC2243, TX1632, TX1642, TX2034, TX2044, TX2200, TX2230, TX2231, TX2234, TX224, TX2244, TX2636, TX3300 ONLY £17.95

HITACHI 2434274, 2434593, CPT2174, CPT2176, CPT2178 etc £14.95

FERGUSON/JCV BELT KITS Models 3V29, 3V30, 3V35, 3V36, 3V38, 3V49, HRD110, HRD111, HRD120, HRD121, HRD225, HR7200, HR7300, HR7350, 8930, 8940, 8944 etc ONLY ALL STOCK SUBJECT TO VAT, AVAILABILITY & CARRIAGE £0.99



**28, 29 RIVER STREET, DIGBETH,
BIRMINGHAM B5 5SA**



Tel: 021-722 2733 - Fax: 021-766 6100

OPEN MONDAY TO SATURDAY 9AM - 6PM

CENTRAL TV WHOLESALE DISTRIBUTOR

SUPERB
RANGE
OF TV's
AND VIDEOS

STOCK
ARRIVING
DAILY

HIGH
STREET
TRADE IN
HOTEL DISPLAY
and EX-DEMO
STOCK

EX-RENTAL
TV From
£3.00

'B' GRADE

EX-RENTAL
VIDEOS From
£25.00

DIRECT LOADS
AVAILABLE
FOR QTY
BUYERS

PHONE
TODAY
FOR BEST
RESULTS

EXPORT
ENQUIRIES
WELCOME



**▶ SAMSUNG
GHETTOBUSTER**
CD/STEREO RADIO
CASSETTE
MIN QTY 10 **£39.99**



**▶ FERGUSON
FV61LV**
VIDEOPUS -
CENTRE DECK
Min qty 5 **£169.99**
▶ FERG FV62LV £199.99
▶ FERG FV67HV £235.99
▶ SANYO CAMCORDER
P.O.A.

▶ SONY U-MATIC
VIDEO PLANNER

EXPORT ENQUIRIES WELCOME

*ALL PRICES plus VAT



Microwave

Qty 1+ **£69.00** Qty 5+ **£65.00**



Ferguson Surround Speakers

£35.00 **£25.00**



Ferguson TV Stereo Speakers

Special Price **£15.00**

Min qty 15

TV/stand - mixed sizes **£5.00** **£3.00**
Portable colour 14" new B/grade **£90.00** **£87.50**
20" colour remote control **£120.00** **£115.00**
20" colour Fastext **£135.00** **£129.00**

WE NOW STOCK AUDIO & VIDEO ACCESSORIES,
BATTERIES, REMOTES, SATELLITE EQUIPMENT



CENTRAL TV WHOLESALE DISTRIBUTION LTD



London contact: Joshi
Eley Estate, Nobel Road
Edmonton N18
Tel: 081-807 4090
Fax: 081-884 1314

Birmingham contact: Mick
369 Stratford Road, Sparkhill
Birmingham B11
Tel: 021-772 1591
Fax: 021-766 6383

NOW OPEN ON

TESSIDE

HAVE YOU NOTICED HOW EACH MONTH OUR ADVERT IN TELEVISION HAS GOT

BIGGER AND BIGGER?

THIS IS BECAUSE MORE AND MORE TRADERS ARE DISCOVERING THE QUALITY OF OUR STOCK AT THE KEENEST PRICES.

NICAM ★ FST ★ STEREO ★ BASICS ★ REMOTES ★ PORTABLES

WE ARE OPEN MONDAY – SATURDAY 9.00AM–5.30PM AND SUNDAY MORNINGS BY APPOINTMENT.

WHY NOT RING MIKE ON 0642 250850 FOR CURRENT STOCK SITUATION.
OR MOBILE 0831 715423

SUPERSCREEN

184 Linthorpe Road (opposite Uptons Department Store)

MIDDLESBROUGH

TEL: 0642 250850

CLEVELAND

FAX: 0642 250850

**FAX: 0274
722229**

BESCO LIMITED

T/A

NORTH WEST ELECTRONICS ENTIRE RANGE OF EX-RENTAL TVs & VIDEOS

NEW STOCKS EVERY DAY, WORKING OR OFF THE PILE

makes include: Sharp, Hitachi, Ferguson, Pye, NAT PAN, ITT etc.

Late models always available.

KNOCKOUT PRICES ON COLOUR TVs

FERGUSON, PYE, HITACHI, PHILIPS, BUSH, ITT, etc.

TELETEXT BARGAINS FROM £30.00 (WORKING).

FERGUSON TX TELETEXT ONLY £45. PHILIPS/PYE TEXT ALWAYS AVAILABLE

OVER 1000 COLOUR TV AND VIDEOS AVAILABLE

RING OUR HOTLINES NOW FOR PRICES OR CALL IN, YOU WILL BE DELIGHTED

Working Ex-Equipment Panels

IF	Converger	Decoder	Line scan	Power	Frame
T20//22X	5	14	18	17	14
T26 X	5	16	20	17	X
Phillips G11 14.50	5	12	20	20	11.50

All prices include Postage & Packing. But + VAT

★ IF THE PANEL YOU REQUIRE IS NOT LISTED PLEASE ASK ★

Visa Welcome

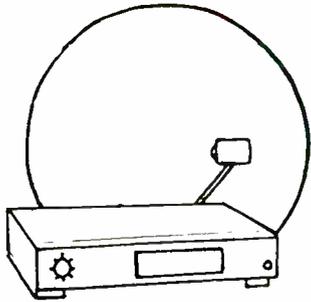
Prices are plus VAT
and based on quantity

Cheques accepted

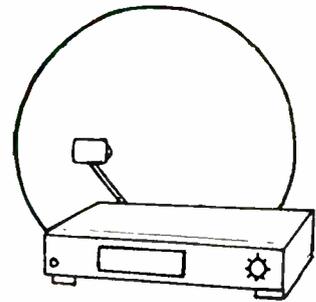
Walker House, 16 Bottomley Street, Bradford BD5 7LJ

Ring Tony 0274 308186 – Open 6 days – 9am-5pm

BRITAIN'S LARGEST INDEPENDENT PRESENTS



LTD



**MASSIVE PRICE REDUCTIONS – SPECIAL STOCK CLEARANCE
ON MANUFACTURERS B-GRADE STOCK**

COME AND SEE OUR INCREASED SELECTION

**LARGE
QUANTITIES
OF LISTED
ITEMS
AVAILABLE**

**NEW
PRODUCT LINES
NOW IN
STOCK**

**EXTENSIVE
CHOICE OF
GRADED STOCK
SEE BELOW**

AGENT WANTED IN SOUTHAMPTON AREA

WAREHOUSE AND STOCK AVAILABLE. PLEASE PHONE OUR BIRMINGHAM NUMBER

Home Computers	Radios	Satellites	CD Mini Systems
Telephones	Still Cameras	Televisions	VCRs
Clock Radios	Car Radios	Electric Fires	CD-Radio Cassettes
Calculators	Toasters	Personal CDs	Home Security Systems
CD Midi Systems	Personal Stereos	Midi Systems	Portable Audio

DON'T MISS OUT, PAY US A VISIT

PRESTON

139 Oakshott Place
Walton Summit
Ind Est
Preston (M6 Junc 29)
Tel: 0772 312101

BIRMINGHAM

208 Bromford Lane
Erdington
Birmingham B24 8DL
Tel: 021-327 3273 Fax: 021-322 2011

LONDON

Unit 2
The Royal London Est
29/35 North Acton Road
London NW10
Tel: 081-961 5005

TELEPRICE

LIMITED

THE LEADING SUPPLIER OF EX-RENTAL
TELEVISION, VIDEO AND AUDIO EQUIPMENT
TO THE WHOLESALE TRADE

CALL US FOR LATEST PRICES
AND NEAREST CONTACT ON:

Tel: 0793 421141 Fax: 0793 432478

1st Floor 52/54 Cricklade Road Swindon Wiltshire SN2 6AF

COLOURTRADE

ESTABLISHED 1973 - WHOLESALE ONLY

NEW 'B' GRADE

Major Brands ONLY Satellite, Receivers, Decoders,
Microwaves TV - Video - AUDIO

COMPLETE BOXED - WITH STAND - HANDSET - BOOK ETC

MINT LATEST NICAM FASTEXT F.S.T.

FERGUSON

FULL RANGE - ALL CURRENT MODELS OF TV-VIDEO IN STOCK

NATION-WIDE NEXT DAY DELIVERY SERVICE - VISITORS BY APPOINTMENT

Phone 021-359 7020

FAX 021-359 6344

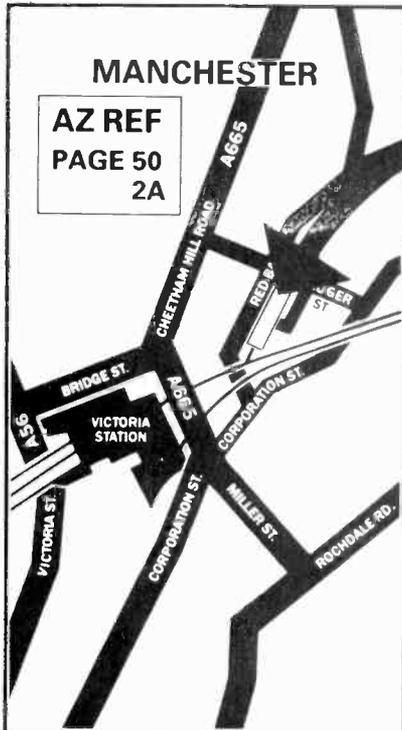


221-222 BRIDGE ST WEST, HOCKLEY,
BIRMINGHAM B19 2HU - JUST OFF M6-J6

GREATER MANCHESTER'S NO 1 WHOLESALER

RED BANK UNIT 20

HERE



STRUGGLING FOR STOCK?

WE HAVE GOT WHAT YOU NEED

THORN and GRANADA PORTABLES and F.S.T's AVAILABLE NOW!!

Televisions from £5, F/loading Videos from £20
Working Teletext from £35, 1,000s of TVs and Videos in stock
FRESH STOCK ARRIVING DAILY
RING NOW FOR STOCK UPDATE

*Export Enquiries Welcome
Open 10am - 5pm Mon-Fri

**UNIT 20, RED BANK ARCHES,
MANCHESTER M4 4HF**

— CHEQUE — ACCESS — VISA —

PHONE 061 832 4220
FAX 061 834 6368
PRICES SUBJECT
TO
VAT

WESTERN TRADE SERVICES

EST 14 YEARS

SUPPLIERS OF EX-RENTAL

TV & VIDEO

THORN AND NON THORN

SOUTH WEST

2A Barton Hill Road, Torquay,
Devon TQ2 8JH

Tel: 0803 312222

Fax: 0803 326767

Delivering throughout Devon and
Cornwall weekly

WALES

Unit 6, Islwyn Workshop,
Portymaester Ind Est, Risca,
Gwent

Tel: 0633 612667

TELEPLACE SCOTLAND

TV & VIDEO WHOLESALE.

Working Faulty Refurbished Stock Delivered.

8, Colquhoun Park
Hillington Industrial
Estate
Glasgow
G52 1XX

041-883 2610

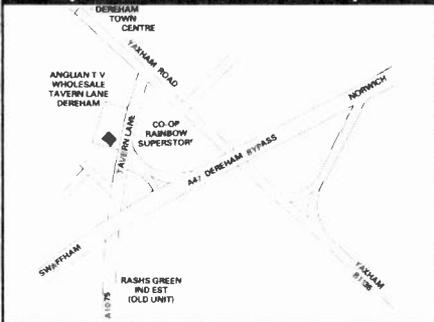
ANGLIAN TV WHOLESALE

EX-RENTAL TVs & VCRs



**NEW 'B' GRADE
TV, VIDEO
AUDIO, MICROWAVE**

**BEST POSSIBLE PRICES
RING FOR DETAILS
ANGLIAN TV WHOLESALE,
UNIT 4, BRECKLANDS BUSINESS
CENTRE, TAVERN LANE, EAST
DEREHAM, NORFOLK
TEL/FAX (0362) 691611
Open Mon-Fri 9.30am-5.30pm**



AERIALS
FOR TV & FM RADIO, PLUS
1000's OF MASTS,
BRACKETS, LASHING KITS,
CLAMPS, PLUGS, CABLES,
OUTLETS, DIPLEXERS ETC.

AMPLIFIERS
FOR DISTRIBUTION
SYSTEMS AND DOMESTIC,
MAST HEAD OR SET BACK.
WE HAVE ONE OF THE
LARGEST RANGES,
AVAILABLE FROM STOCK

MAIN DISTRIBUTORS
FOR ANTIFERENCE,
LABGEAR, WOLSEY
FRINGE, TRIAX, TELEVES,
VOLEX-RAYDEX, KUBLER
+ MANY MORE

**COASTAL
AERIAL
SUPPLIES**
UNIT X2 Rudford Industrial Estate
Ford, Arundel
0903 723726
NO MINIMUM ORDER VALUE
NEXT DAY DELIVERY ACROSS UK
CARRIAGE FREE ON ORDERS £250+
ACCEPT ACCESS VISA

**TRADE TVs
BASIC, REMOTE, TEXT**

Telephone
Roy Smith

Mon-Fri 10am-5pm

**0302-349583
0836-368878**

**A. R. International
Union Street
Doncaster
off
St Sepulchre Gate
West**

**NOW OPEN IN
LEEDS
EUROLINK
SATELLITE LTD.**

Superb Range of Ex-Rental TV's
and Video's

Direct THORN AND GRANADA
loads

Also vast range of new B Grade
TV and Video's etc

NICAM F/TEXT All boxed
complete.

Also Satellite Systems &
Accessories Handsets.

Ring the hotline on

Tel: 0532 454446

Fax: 0532 454447

Ask for AFF or SID

YOU WON'T BE DISAPPOINTED!

ARE YOU A TV/VIDEO
WHOLESALE?
WITH LARGE QUANTITIES
OF 'B' GRADE AND NEW
STOCK TO SELL

Then why not let

"TELEVISION"

help you achieve this by
placing your advertisement
with us

Over 73% of our circulation
buy direct from
advertisements which appear in

"TELEVISION"

Every Month

To find out more on current
rates and circulation

Call

PAT BUNCE

on

081-652 8339 or

Fax: 081-652 8931

For further details

**CAMPION
WHOLESALE LTD.**

**QUALITY USED TV
& VIDEO**

COMPLETE RANGE OF
TV's AND VIDEOS
MOST MAKES AND
MODELS AVAILABLE

**STOCK ARRIVING DAILY
TV's from £3.00
Videos from £30.00**

Prices Ex-VAT

Free Delivery Service
to most areas of the UK

UNIT 75, BARRACKS ROAD,
SANDY LANE INDUSTRIAL ESTATE,
STOURPORT-ON-SEVERN,
WORCESTERSHIRE DY13 9QB
Just 10 Mins from
M5 Junct. 6 Worcs North

UK's LARGEST EXPORT
WHOLESALE. CONVERSIONS
TO MOST COUNTRIES

**0299-879642 (3 lines)
FAX: 0299 827984**

**B-grade Stock All Boxed, working
If you require one item please read on:**

10" R/C Portable	£95
14" Basic Portable	£85
14" R/C Portable	£95
20" R/C	£119
20" Text	£139
21" FST R/C	£145
21" Fasttext FST	£165
21" Nicam	£219
25" Nicam	£259
L/P Videos	£99
Stereo Midi System	£110
Microwave Oven	£50
TV & Video Stands	£3

**DISCOUNT
ON
QUANTITY**

ELECTROLUX
Built in ovens
Unused and working £99

Customer returns in block.
Example. Untested 3x21" FST 3x25" FST
6x F/L Videos £40 each. Total £480 + VAT
This price does not include handsets.
Some in need of repair. Some working.

THIS MONTHS SPECIAL
20" Fasttext TV's £125 & 20" NICAM £145

W TREE WAREHOUSE
UNIT 1, SUNSHINE MILLS, WORTLEY RD, LEEDS 12
TEL: 0532 638804 FAX: 0532 310275

**SWITCH ON TO B' GRADE
AT PRICES SECOND TO NONE**

14" Remote Portables.....	85
14" Teletext Portables.....	105
14" Fasttext Portables.....	115
20" Remote CTVs.....	110
20" Teletext CTVs.....	125
20" Fasttext CTVs.....	135
21" Fasttext CTVs.....	145
20" Nicam Fasttext.....	160
21" Nicam Fasttext.....	175

All stock tested & working and boxed
with remote & instructions

Also 7000 sq ft of returned TV,
Video & Hi-Fi. Too many to list.
Don't delay phone today
to make an appointment

GOGGLEBOX TEL: LEEDS
0532-310359
DISCOUNT ELECTRICAL WAREHOUSE ASK FOR ROBERT

ALL ABOVE PRICES PLUS VAT AT 17.5%

WILTSGROVE LTD

28-29 RIVER STREET, DIGBETH
BIRMINGHAM B5 5SA
TEL: 021 772-2733 FAX: 021 766-6100

**HIGH QUALITY EX-RENTAL
THORN AND GRANADA
STOCK
PLUS
GRADED STOCK
AUDIO, TVs, VCR etc.
RING IN FOR PRICES**

**FREE DELIVERY FOR MOST
AREAS OF U.K.**

SHARP PERSONAL CASSETTE PLAYERS/CAR RADIO'S

Model	Description	Retail Price	Our Price
JC105	CASS/PLAYER	£14.50	£5.99
JC110	CASS/PLAYER	£14.99	£5.99
JC130	CASS/PLAYER/RADIO	£14.99	£6.99
JC510	CASS/PLAYER/RADIO	£29.99	£11.99
RG296	CAR RADIO/CASS	£49.99	£19.50
RG292	CAR RADIO/CASS	£49.99	£16.99

**NEW *Definition* BRAND
PORTABLE 14" REMOTE TV**

ON SCREEN DISPLAY,
VHF/UHF TUNER,
12 MONTHS GUARANTEE etc.

**SPECIAL
PRICE
£99.95**

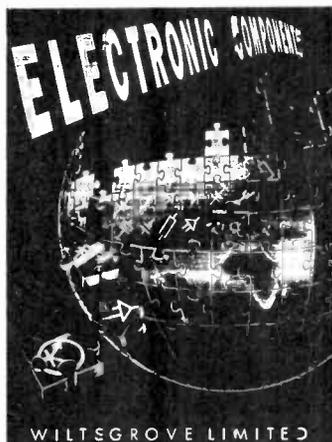


* GUARANTEED LOWEST PRICE *

EXPORT ENQUIRIES WELCOME

ALL STOCK SUBJECT TO AVAILABILITY, VAT & CARRIAGE

**ORDER YOUR FREE
CATALOGUE TODAY**



VIDEO HEADS,
REMOTE'S, IC'S,
BELT KITS,
IDLERS, PINCH
ROLLERS, LOPT'S,
MICROWAVE
PARTS, TV +
VIDEO TRIMS,
CASSETTE
HOUSINGS, FUSES
ETC

**E-180 VIDEO
TAPES £0.79
MIN QTY 50**

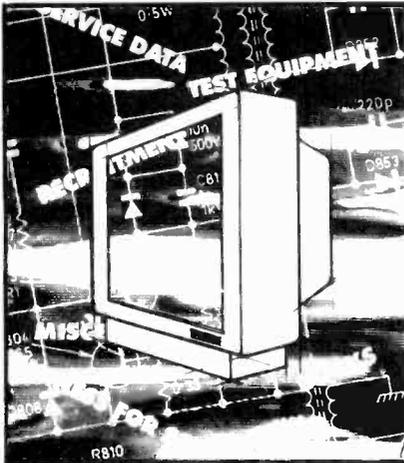
REGISTRATION FORM

COMPANY/NAME:

ADDRESS:

TELEPHONE: FAX:

CONTACT NAME:



TELEVISION CLASSIFIED

No other consumer magazine in the country can reach so effectively those readers who are wholly engaged in the television and affiliated electronic industries. They have a need to know of your products and services.

The prepaid rate for semi display setting is £12.00 per single column centimetre (minimum 3 cm). Classified advertisements £8.40 per line, box number £22.00 extra. All prices plus 17½% VAT. All cheques, postal orders etc., to be made payable to Reed Business Publishing. Advertisements, together with remittance, should be sent to The Television Classified, 11th Floor, Quadrant House, The Quadrant, Sutton, Surrey SM2 5AS.



PHONE 081-652 8339 FAX 081-652 8931



SERVICE MANUALS

We have what is probably the largest range of Service Information available anywhere. From the Earliest Valve Wireless to the Latest Video Recorders. Colour Televisions, Test Gear, Audio, Computers, Amateur Radio, in fact practically anything.

Originals or Photostats as available.

Also available. Our **FREE** catalogue detailing Hundreds of Technical Books and Repair Guides available.

Now Available. Our Service Manuals Index on P.C. Disc (3.5") for use on your Computer. Just £3.50 with FREE everlasting Updates. Order MP-285.

Mauritron Technical Services (5TV),
47A High Street, Chinnor, Oxon OX9 4DJ
Tel: 0844 351694 Fax: 0844 352554.

Please forward your latest catalogue for which I enclose 2 x 1st Class Stamps. or £3.50 for the Technical Books Catalogue plus Manuals Index on PC Disc(s).

NAME _____

Address _____

POSTCODE _____



INFOTECH



TECHNICAL INFORMATION SERVICES

76 Church Street, Larkhall, Lanarkshire ML9 1HE

Tel: (0698) 883334/888343 – Fax: (0698) 884825

Send a large SAE for your FREE catalogue of our other publications

HOW WOULD YOU LIKE TO GET ANY SERVICE MANUAL YOU WANTED FOR **ONLY £9.50?**

WELL, NOW YOU CAN!

We are running a very special offer of any 20 manuals for only £190. No catches! Order as you need them (no time limit) including all those expensive manuals you couldn't previously afford. No hidden expenses like post & packing (that's included in the price).

!Over 50 people have re-subscribed!

Subscription to this 20 manuals deal is only £190

SOME OF OUR TOP-SELLING TITLES

EUROPEAN SCRAMBLING SYSTEMS (3rd Edn.)

European Scrambling Systems is the "bible" of the black arts of signal security. Now in Euro' Scrambling 3, John McCormac analyses all of the latest hacks and scrambling systems **Only £32.00 inc. P&P**

PRACTICAL TV REPAIRS (2nd Edn.)

This book's first edition became the trade standard with over 3/4 of the book dedicated to fault finding and fixing. This update is now more comprehensive and includes Nicam and other modern innovations. **Only £18.95 inc. P&P**

PRACTICAL GUIDE TO BUYING, SELLING, REPAIRING AND SERVICING USED CD's, TVs and VCRs

They cover everything from how to choose a good ex-rental, to covering stock faults for the more common ex-rentals than elsewhere at many times the cost. These are brilliantly practical and inexpensive repair and service systems.

Only £9.95 each or £25.00 for all three

CTV – VCR – MONO – CD – CAMCORDER – AUDIO

Our complete collection of "fault-finding" & "repair" data. Including 35 video fault guides, 12 CTV specific guides, 6 general books and many other assorted titles including the three listed above. Note: This collection contains complete fault/repair data, NOT just a couple of faults on each model! **Price £299.95**

All the relevant CTV circuits can be supplied for only an extra: **£499.00**

All the relevant VCR circuits can be supplied for only an extra: **£225.00**

These circuits plus Audio, Satellite and all others only an extra: **£775.00**

SERVICE MANUALS

Have you turned work away for want of a Service Manual? Have you ever bought a Service Manual and never use it more than once?

Then why not join

"THE MANUALS LIBRARY"

For details and Membership Application Form Write, Phone or Fax

HARVEY ELECTRONICS

43 Loop Road, Beachley, Chepstow, Gwent NP6 7HE
Tel: 0291-623086 Fax: 0291-628786
VISA, ACCESS accepted

TEK-HELP

HOTLINE FOR TV & VIDEO REPAIRS THOUSANDS OF FAULTS & CURES ALL MAKES JUST THE COST OF A PHONE CALL

0891 516 434

48p PER MIN 36p CHEAP RATE

SERVICE MANUALS

For most U.K. European, Far East & USA makes

Thousands of different models available

Prices (Stock Items):-

VCR, VCP, Camcorder, TV/Vid – **£13.50**

CTV, Colour Monitor, Camera – **£8.50**

MTV, Mono Monitor, SAT, MWV – **£6.00**

Add P/P £1.50 for first item then 50p for each additional item – no VAT

Cheque/PO with order only please.

D-TEC

PO BOX 1171, FERNDOWN, DORSET BH22 9YG

Tel: 0202 870656

FAST FIX Fault Index

Now in **NEW A4 Format**, containing over 150 pages.

If you keep back copies of 'Television', FAST FIX is for you. Edition 3 lists over 8000 fault symptoms and hundreds of technical references from 12 years of Television. References are arranged alphabetically listing make, model, fault symptom and page reference. Covering the years 1982-Dec 1993, FAST FIX could pay for itself after just one repair. Regular updating takes place and all customers will be notified.

Complete FAST FIX index £16.00 inclusive.

Overseas orders please add £3.00

MONEY BACK GUARANTEE IF YOU ARE NOT COMPLETELY SATISFIED

Send Cheques/Postal Orders, payable to: J. Humphreys, 13 Mansfield Avenue, St. Johns Park, Howarden, Clwyd CH5 3SB N. Wales

For further details, tel. 0244 532961

INDEXES! INDEXES!

THOUSANDS SOLD WORLDWIDE

EDITION 10 of the complete indexes now published containing over 8,000 Faults listed in 12 Years of Television Magazine

Indexes are alphabetically listed by Make, Model, Fault, Ref and are now Available for just :

£8.00 For Television & Satellite Faults

£8.00 For Video, Camcorder & CD Faults

Or

£15.00 For both sets complete

Please add **£1.50 (UK)**, **£3.00 (Overseas)** to total order to cover post & packing.

A LOW COST UPDATE SERVICE IS ALSO AVAILABLE. FULL DETAILS DESPATCHED WITH ORDER.

To secure your copy/s please make Cheques/Postal Orders payable to:

E.C.S. 31 PRENTON ROAD WEST,
PRENTON, BIRKENHEAD,
MERSEYSIDE L42 9PY

No! For Fault/Repair Guides & Circuits

Giant Fault Guide

Alka, Alba, Amstrad, Ariston, Bendix, B&O, Bush/Rank, Decca/Tatung, Doric, Ekco, Ferguson, Fidelity, Finlux, Fisher, GEC, Grundig, Hitachi, Hinson, IIT, JVC, Korting, Lowe, Luxor/Skantic, Mitsubishi, Murphy, Nordmende, Orfan, Panasonic (basic), Philips, Sanyo, Santra, Sharp, Sony (basic), Telefunken, Toshiba, Trumpf, Zanussi.

Giant Compendium has all of the above for only **£9.95 (Normally £16.95)**
(Fault & Diagnostics Pocketbook for Ferguson TX90/TX1 CD Only £4.95)

TV AR Fault & Servicing Guides (£16.95 each)

VOL 1: The CTV's covered by this volume include:- Alba 10-14, Conic, Decca/Tatung to '89, Etron, Hinari CT4 to 8, IIT 1100/1200 plus Division to '89, Lloytron, Philips KT4/K40. The CD's covered range from Alba to Sony incorporating Philips, Ferg, Hitachi and others. Lastly, there are over 50 more different audio sets covered as well as the CD players.

VOL 2: Covers:- The CTV's covered in this volume include Ferg TX-85 to TX-100 (plus all variants and the ITC5), Philips 2A & 3A chassis, Sharp's 1S7 Chassis and others including Telefunken and Nordmende. This volume also has info on various satellites including Amstrad, Ferguson and Pace. The Atari ST (520/1040) is covered as well as a wide selection of VHS-C camcorders including Ferguson, Amstrad and Philips.

Each book has a binder full of the matching Circuits Available at **£39.50 each**

CTV CIRCUIT COLLECTIONS

Each Collection Contains All the Circuits of the Most Popular Chassis

ALBA	£25	AMSTRAD-FIDELITY	£25	B&O	£25
DECCA-TATUNG	£25	ETRON GROUP	£12	FERGUSON-BAIRD	£45
GRANADA	£25	GEC	£25	GOLDSTAR	£15
GRUNDIG	£40	HINARI	£20	HITACHI	£40
IIT-NOKIA	£45	JACKSON	£10	JVC	£20
LOHJA	£50	MATSUI-SAISHO	£40	MITSUBISHI	£50
NEC-NWC	£15	NORDMENDE	£15	PANASONIC	£60
PHILIPS	£75	PIONEER	£8	RANK	£20
REDIFFUSION	£20	SANYO	£35	SONY	£75
TELEFUNKEN	£15	TOSHIBA	£40	TRIUMPH	£20
WALTHAM	£15	ZANUSSI	£20		

Video Fault Finding Guides (5 books per series)

Series 1: Ferguson 3V00/01, 3V16, 3V22/23 Baird 8924, JVC HR-4001, Philips N-1500/N-1502, N-1700/N-1702
Series 2: Ferguson 3V29/30, Baird 8930/40, Philips 2000, Sanyo, VTC5000/5300, VTC9300, Toshiba V5970 & Clones
Series 3: Baird 8931/42, Ferg 3V31/32, Pan' NV7000/8000, Philips 22VP600/700, Sharp VC2300/7750/8300/9700
Series 4: Fidelity VTR1000 & Clones, Pan' NV100, NV8600/8610, Philips VR6460, VR6560, Sharp VC108/408/651/681
Series 5: Ferg 3V35/36/38/39/43/44/45/48/53, Hitachi VT11, VT8000/8500, GEC V4100, Pan' NV370, Philips 6920
Series 6: Grundig V5300 to 380, Hinari VXL8/9/10, Hit' VT410 to VT450, Pan' NV730 to 788, Sanyo VHR3100/3800
Series 7: Ferg 3V58 to PV11/12, Goldstar GHV/GSE 1290-1296, Pan' D-Deck, G/G1 Decks, Sharp VC381 to VC387
(Please Note: The above are not full listings, only the main models from each series, they actually contain more info)

Only **£12.95 per Series** or **£79.95 for all**



INFOTECH



76 Church Street, Larkhall, Lanarkshire ML9 1HE
Tel: (0698) 883334/888343 or Fax: (0698) 884825

Please add **£2.50 For Post & Handling**



TECHNICAL INFORMATION SERVICES

76 Church Street, Larkhall, Lanarkshire ML9 1HE

Tel: (0698) 883334/888343 - Fax: (0698) 884825

Or Send a large SAE for your FREE catalogue of 100's of publications. Please add £2.00 for Post & Handling on any order

We have the world's largest collection of:

"SERVICE MANUALS",
"SERVICE SHEETS",
"CIRCUIT DIAGRAMS",
"FAULT-FINDING GUIDES",
"REPAIR GUIDES",
"CIRCUIT DESCRIPTIONS"

For CTVs, VCRs, CDs, Satellites, Midi Systems, Computers, Amps, Oscilloscopes, Mono TV's, Radios, Camcorders, Walkmans, Car Stereos, Tape Decks, Printers, Photocopiers and almost everything else!

!!We've got the lot!!

Data Reference/Chassis Guide (4th Edn.) Only **£5.95**

With over 120 pages and incorporating a full "chassis guide" and Cross-references on every piece of CTV, CVR, Audio, Domestic and Test Equipment we can find! Equivalent books can cost over **£20.00!**

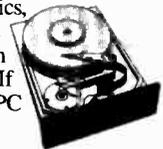
We Also Run the Largest Data Library in the United Kingdom
(Please ask for details)

Phone/Fax or write for a FREE quote on any model
Orders usually sent "same day" as the order is placed

P.C. DIAGNOSTICS SOFTWARE



Now Available - What is probably the most COMPREHENSIVE selection of diagnostics software for the P.C. currently available. A vast collection of programs and utilities to help you get the most from your system. Covers such useful information as IDE Drive parameters, PC System memory diagnostics, Low Level formats for Hard Discs, Jumper settings, Compatibility tests for modems, Data recovery programs, FAT Table analysis, Analyse modify disk boot sectors, Keyboard buffer tests, Motherboard diagnostics, System Exercisers, Setting up CD-ROM's etc etc etc. In all over 20Mb of useful information compacted onto 14 Discs with 2 reference books. If you need to get more information from your PC then this set is for you. Order TODAY.



Just **£25.00 + p/p**. Order MP-250/251.

All orders will include a copy of our FREE catalogue detailing the full range of Technical Books and Repair Guides we publish.

MAURITRON TECHNICAL SERVICES (TV2501),



47A High Street, Chinnor, Oxon, OX9 4DJ.

Tel: 0844-351694. Fax: 0844 352554.



Please forward _____ sets of MP-250/251 at £25.00 each + p/p

I enclose Cheque/Postal Order or please debit my Visa/Access Card

Card No. _____ Expires ____/____/____

NAME _____

ADDRESS _____

POSTCODE _____

Please add **£2.35 (Overseas £5.00)** to all orders to cover Postage & Packing

TRAINING

If you require a home study course in the fundamentals of electronics, either to begin a career, pursue a hobby, or refresh your knowledge, a

BASIC ELECTRONICS course, from the Direct Personal Learning scheme, could be just what you're looking for. Contact:

K. Sparrow etc. . . 11 Claydon Green
Whitchurch BRISTOL Avon BS14 0NG
Telephone: (0275) 835669

SPARES & COMPS

SURPLUS/REDUNDANT ELECTRONIC COMPONENTS WANTED

I/Cs - Tuners - Transistors - Valves - Diodes etc. any quantity considered - immediate payment.

ADM Electronic Supplies

Tel. 0827 873311. Fax 0827 874835

RCS VARIABLE VOLTAGE D.C. BENCH POWER SUPPLY

1 to 24 volts up to 1/2 amp 1 to 20 volts up to 1 amp 1 to 16 volts up to 1 1/2 amps D.C. Fully stabilised Twin panel meters for instant voltage and current reading. Overload protection Fully variable. Operates from 240V A.C. Compact unit size 9" x 5 1/2" x 3 1/2". Post & Ins. £4.45 inc. VAT

NEW MODEL. Up to 38 volts DC at 6 amp 10 amps peak Fully variable Twin panel meters. Size 14 1/2" x 11" x 4 1/2". £96 inc VAT Carr £6

RADIO COMPONENT SPECIALISTS

337 WHITEHORSE ROAD, CROYDON
SURREY, U.K. Tel: 081 684 1865
Lst. Large SAE. Delivery 7 days. Callers Welcome Closed Wed.

RECYCLED TV's - VIDEO - SAT RECEIVERS & MICROWAVE SPARES

Prices from Loptex £5 Anything from a transistor to Text Boards £10 complete chassis
Video motors £2 We break over 100 units per week!
Front panels £5 you want it? We've probably got it!
Flaps, Doors etc £1 Or will have in the future
Magnatrons £5 TV's, Video's, Microwaves, Sat
Tubes £10 receivers wanted for Breaking

M&M TRONICS 0304 812647
(mobile) 0585 253776
7 Days a week - 9am to 9pm

BUSINESS FOR SALE

TV, Video, Camcorder, Computer, etc. Sales Repairs. Town Centre, location, qualified staff, good T/O & 22k neg.

0327 301920/311236

WIZARD DISTRIBUTORS

Spares + Components
Always in stock
Video heads for over 500 models
Spares for over 20 manufacturers
Hand sets for over 200 models
TV Tubes new + regunned

Plus much much more

Empress St Works
Empress St
Manchester M16 9EN
061-872 5438, 061-848 0060
Fax: 061-873 7365

CRT FOR MONITOR, SCOPES, RADAR ETC (not domestic TV)

ZJ 3D P1	£12.00	1424A G1	£43.50
CV3946	£12.00	D14-270GH/50	£79.50
F21-12LC	£125.00	M31-190GR	£61.50
3JP1	£18.00	95447GM	£79.50
CV8897	£69.00	D15-100GH/97	£79.50
F31-12LD	£132.00	M31-191GW	£61.50
3RP1A	P.O.A.	CME1431W	£21.00
D10-210GH	£53.00	D16-100GH/67	£79.50
LD708	£61.60	M31-271W	£61.50
3WP1	£18.00	CME1523W	£27.00
D13-611GH	£53.00	DG7-5	£53.00
LD729	£61.50	M31-325BH	£29.00
SAP7	P.O.A.	CME2024W	£21.00
D13-611GM	£79.50	DG7-6	£61.50
M7-120W	£15.75	M36-141W	£61.50
7ABP33A	£18.00	CME3132GH	£31.50
D13-630GM	£53.00	DG7-32	£28.80
M14-100GH	£18.00	M40-120W	£61.50
12CSF4	£27.00	CR61400	£27.00
D14-150GH	£79.50	DG7-36	£12.00
M14-100LC	£23.50	M44-120LC	£61.50
89L	£27.00	CV1587	£29.00
D14-173GM	£79.50	E4412-B-9	£29.00
M17-151GVR	£112.00	MV6-5	£47.00
190CB4	£43.50	CV1976	£47.00
D14-173GR	£79.50	F16-101GM	£61.50
M23-112GV	£61.50	SE5FP31	£41.00
1074H	£43.50	CV2302	£79.50
D14-181GM	£79.50	F21-130GR	£41.00
M31-182V	£41.00	SE5JP31	£41.00
1396P	£43.50	CV2472	£61.50
D14-200GM	£79.50	F28-130LDS	£41.00
M31-184W	£41.00	SE32BP31	£41.00

Please add £5 p&p. in UK and 17.5% VAT. For overseas p&p please enquire. 10,000 pieces in stock. 400 types. Please enquire for any type not listed above. We also have in stock camera tubes, image intensifiers, magnetrons, vidicons and audio valves. We wish to purchase valves type KT88, KT77, KT88, PK4, PK25, DA100. Minimum order: £50 UK, £100 Export. Callers strictly by appointment only.

BILLINGTON EXPORT LIMITED Unit 1E,
Gillmans Industrial Estate, Billingsheath,
W Sussex, RH14 9EZ, UK.
Tel: 0403 784961
Fax: 0403 783519

DON'T START YOUR OWN BUSINESS

HAVE OURS

10 year established TV & Video repair & 2nd hand sales shop in busy SE London centre low overheads, no premium

081 856 6986

WANTED

WANTED WANTED

Large quantity of Secondhand 13 amp plugs.

Good price paid.

Telephone Stan 021 384 6238

WANTED

Ex Rental TV & Videos, fast collection, fair prices paid. Tel: 0742 312832.

MISCELLANEOUS

HOW THEY WORK! HOW TO TEST! HOW TO REPLACE!

Designed specifically for Domestic Appliance Engineers who want to enter the fast growing microwave Industry

Packed full of useful information, presented in a simple yet informative style

with comprehensive diagrams and illustrations.

Fault finding procedures are included at the end

of each section.

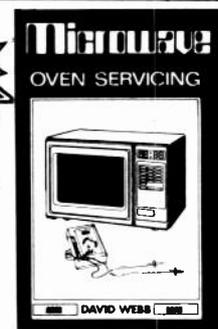
The book contains easy to follow electronic control systems

SWIFTPARK LIMITED

113 LONDON ROAD, HORNDEAN, WATERLOOVILLE, HANTS. PO8 0BJ



ORDER YOUR COPY TODAY!



We also supply microwave oven components

RELAY COMPUTER SOFTWARE

OMAGH LTD

DO YOU RENT TELEVISIONS?

DO YOU STILL USE A CARD SYSTEM?

DO YOU FIND IT DIFFICULT TO KNOW YOUR ARREARS TOTAL AT ANY GIVEN TIME?

If you do then we recommend our computer TV and Video Rental package. This package includes

- * automatic updating of each customer's record
- * alphabetical print-out of each customer's arrears and payments missed
- * total arrears immediately available
- * easy to use and operate.

NEW HIRE PURCHASE PROGRAMME NOW AVAILABLE AS WELL.

These programmes operate on all IBM compatibles running under MS-DOS. Free demonstration discs available

CONTACT WILLIAM J THOMPSON
Donaghie Post Office
Beragh Co. Tyrone
Telephone Beragh 58214 (0662 7)

CAR RADIO SECURITY DECODING SOFTWARE

The most comprehensive software package ever for only £599.99+VAT

This package is fully upgradeable to any model of radio currently on our radio decoding list. Please phone for comprehensive radio decoding list and free demonstration disc (3 1/2")

Upgrades will even cover the latest radio's on the market. We can supply/design a package to decode any radio that you choose. Updated software available absolutely free.

Package comprises models including:-

Ford, Philips, Blaupunkt, Clarion, Pioneer, Panasonic, Grundig, Hitachi, Volvo, J.V.C. In fact over 50 models covered including Ford RDS V1 & V2, Grundig SC303

Interface & all necessary probes for connection to the radios are also supplied. Installed in seconds, no modification to your computer required.

Features:-

Fully IBM or compatible, to run on all computers including lap tops, note books and even palm tops. Requires graphics capability for P.C.B. layouts. Runs from parallel port of LPT1.

1. Full user friendly menu's
2. Help screens with P.C.B. layouts for exact positioning of probes
3. Help screens to show you exactly how to enter the codes after decoding the radio
4. Error messages to advise possible fault occurrences (e.g. incorrectly fitted probe)
5. Adjustable for either b&w or colour monitors (Useful for notebooks, laptops etc.)

6. Fully reprograms blank or corrupted eeproms (using internal database)
7. Customised with your company details
8. Security coded with your choice of code to stop unauthorised access
9. Runs from C drive
10. Keeps a record of all codes (date, time, make, model)
11. Fully upgradeable

Upgrades:- Check this out?

Memphis SQR 88, CDP09, Bremen, Atlanta, Montreux, Symphony, Köln, Philadelphia, Toronto, Montreal, Paris, Peugeot PF3, Vauxhall CD300, SC202, Berlin, Frankfurt, Barcelona, Stockholm, Kingston, Nashville, Woodstock, and many many more. POA.

RADIO DECODING SERVICE:-

WE COVER ALL MODELS STARTING FROM £10.00 + CARRIAGE (£4.20 EACH WAY) + VAT. That's only £16.69 or £21.62. If we arrange collection, all you have to do is make sure its boxed and adequately protected.

Eeprom re-programming service:-

All eeproms are decoded for as little as £5.00 including VAT. Please send all eeproms in a padded envelope, to stop damage.

CDH ELECTRONICS, keeping up with the times

3 Common Walk, Huntington, Cannock, Staffs. WS12 4NB

Tel: 0543 572 523 VAT Reg No 636 876 011

JOULE A-400 CAR RADIO DECODER/RE-PROGRAMMER

features

Plugs directly into your IBM or compatible computer. Remove the baseplate from the radio, place the probe onto the PCB and the security code is instantly displayed. Changing the code or even fully re-programming is just as easy.

ABSOLUTELY NO MODIFICATIONS TO YOUR COMPUTER ARE REQUIRED

The A-400 can use either Comms 1 or Comms 2, connected via the serial lead supplied

Two levels of password protection (user selectable) to prevent unauthorised use.

Each decode is recorded and may be accessed at any time, again, to prevent unauthorised use.

Operates from 12 volt supply, either from mains (via any regulated mains adapter) for bench use or, via vehicle cigarette lighter socket, for on site use.

Easy to use software includes on-screen PCB layouts for probe location, very detailed help screens and information on how to enter codes into the radio once the set has been decoded.

Supplied complete with connecting lead, purpose designed probes and a comprehensive instruction manual.

Technical help line available to all registered users

PRICE: £375.00 + VAT

Package includes software for most popular brands of radio

PHONE NOW FOR FREE DEMONSTRATION DISK AND INFORMATION PACK

(Please state either 3.5" or 5.25" disk)

The Joule A-100 is a factory built Hi-Tech design made to a very high standard of workmanship which is set to become the industry standard for car radio decoding equipment and is available from:

ELECTRONIC SOUND SYSTEMS

62 High Northgate, Darlington, Co. Durham DL1 1UW Tel: 0325 484089 Fax: 0325 465921 Mobile: 0860 221 099

TV VIDEO SATELLITE FAULT GUIDE LINE FRYERNS

Most makes covered old and new. This service offers technical advice and cure plus Schematic diagram all for the price of £3.50

Access and Visa Fax Service
Phone 0268 558938 Anytime
4 Pincey Mead, Basildon, Essex SS13 3EW

GRUNDIG TV'S always wanted. Telephone 0229-582557.

PRIVATE RETAILER has excellent part exchange colour televisions and videos to clear. Tel: 0494 814317.

AVO MULTIMETER Model 8, £45.00. 500 volt meters £30.00. Prices plus VAT and p&p. Send SAE for lists of Surplus instruments & Scopes etc. A.C. Electronics, 17 Apleton Grove, Leeds LS9 9EN. Tel: 0532 496048.

OCHRE MILL Technical Services, Grundig TV spares for most models to 1985, fast, friendly, helpful, sensible prices. Gt. Lype Farm, Charlton, Nr. Malmesbury, Wilts SN16 9DR. Tel: 0666 823228.

BREAKING VIDEOS many modern makes ring for prices 0952 883073.

VIDEOCRYPT DECODER Service sheet with smartcard contact details Eurocrypt card interface £12. E.M.O. Ramsbottom, Lancs BL0 9AG. Tel: 0706 823036.

FOR SALE

BUSINESS FOR SALE TV/VIDEO Sales & Repair Leicestershire. T/O £75,000 P.A. L/H, L/Up shop £26,000 + s.a.v. (0602) 423588

BUSINESS FOR SALE

TV & Video & Electrical Wholesale

Good Turnover, well established, Nr Birmingham close to M6.

For further details Box No A4715.

COMPLETE CONTENTS of TV/VCR Service Centre For Sale

To include Fluke DMM, CRT Restorer, Microwave Test Kit, IR Detector, Degaussing Rod. Large range of common spares, inc many heads. Loptx, L.C's etc, complete set of Television magazines 1980 to present day. Large collection of recent Fault Finding Guides and Service Manuals. Also many misc items too many to list, worth over £3,000 will accept £1200.50 for quick sale as a job lot.

Telephone 0925 753157

FOR SALE

Superb Opportunity!

to Expand & Diversify Your Business in Security

Installing an international award winning wirefree alarm system.

Buy direct from UK manufacturer at the lowest possible prices.

Massive demand - over 17 million untapped customers.

Very high profit margins available.

Excellent Free Factory Training

Tel: 061 257 3175
or Fax: 061 256 3024 or write to PAS,
Bankley House, Bankley Street,
Levenshulme, Manchester, M19 3PQ.

TELEPHONE
FOR YOUR
FREE
INFORMATION
PACK

TUBES

REBUILT CRTs

VDU - MONITOR - TV

Image Burn-In Removed From Screen Phosphors

B.S.I. Certification

N.G.T. ELECTRONICS LTD
120, Selhurst Road, London SE25 6LL

PHONE: 081-771 3535

Britain's Oldest Established Tube Rebuilder

TRANSFORMERS

TV LINE OUTPUT TRANSFORMERS

PHONE 081-948 3702 FAX: 081-332 0583

ALBA · AMSTRAD · BUSH · DECCA · DORIC · BLAUPUNKT · FERGUSON · FIDELITY · GEC · GRUNDIG · GRANADA · HITACHI · HINARI · INDESIT · IIT · KIMARA · NIKKAI · MATSUI · MURPHY · OSAKI · NORDMENDE · LOEWE-OPTA · PANASONIC · PYE · PHILIPS · SANYO · SAISHO · SHARP · SONY · SOLOVOX · SUSUMU · TANDBERG · TELEFUNKEN · THORN · TRIUMPH · THOMSON · GOLDSTAR · BINATONE ·

FULL RANGE OF KONIG: VIDEO HEADS, BELT KITS, IDLERS, PINCH ROLLERS, TENSION BANDS. LARGE RANGE OF REMOTE CONTROLS IN STOCK

TIDMAN MAIL ORDER LTD · 236 SANDYCOMBE ROAD · RICHMOND · SURREY · TW9 2EQ

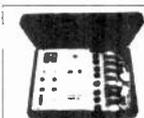
Approx. 1 mile from Kew Bridge.

Mon-Fri 9 am to 12.30 pm & 1.30-4.30 pm

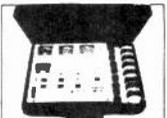
TEST EQUIPMENT

MÜTER · AT2 · BMR95 · BMR700

AT 2, Audi-Multi-Tester, 16 test-circuits for loudspeakers, tuners, amplifiers, headphones, tape recorders, mikes, boosters.



BMR 95
BMR 700



Regenerating Computers & Measurers for CRT's with cathode protection, gas clean-up aid, short repair: exhausted CRT's becomes bright and sharp again even if all other machines do not succeed

car radios, CD-players, measurement of millivolt, drift, watt, performance, with generator, radio, signal tracer/injector, 13 volt supply etc.

United Kingdom: P & E Services, Llandudno, Tel. (0492) 549246, Fax 547880.

Ireland: Dönberg Electronics, Ranafast, Co. Donegal, Tel: 353 75 48275 and 48532. Fax: 353 75 71031.

New Zealand: TDON Ltd., Onehunga, Auckland. Tel. 6 68-9 07, Fax 668-4 99.

Germany: Ulrich Müter, Oer-Erkenschwick, Fax (0 23 68) 5 7C 17.

SENDZ COMPONENTS

0702 338894
(To order see back page)

PANASONIC LOPT TLF14568F £15 TLF14567F £15	FERGUSON Camera Hard Case VA277 £10 and Camera Hard Case VA361 £10	Turntable Satellite Modulator TV £1 Sound 5.5MHz MPM 1000T £1 Sound 6.0MHz MPM 1040 £1	PHILIPS RC5410P £8 HAND SET
PANASONIC - TV Hand set for models: TC1632, TC1642, TC2232, TX2034, TX2044, TX2210, TX2234, TX2244, TX2300, TX2636, TX3300, RC201 replaces TNQ1411/2 £8 EACH	FERGUSON Video Lamp VA215 hand type £20	FEROX Cost £2.50 RF Filter Clamp for CoAx Cable Circuit for detecting R.F. Send for circuit using clamp (25p each)	ICCS E/W COIL £2
TX100 FERGUSON hand set T.780 £3	FERGUSON VIDEOSTAR AC adaptor VA235 Camera £8	Ferguson Switch Mode Transformer TXR5, TXR6, TX100 £3.50 each	EARLY BIRD SAT TUNER WITH 950-1750 MHz BASE BAND £6 WITH DATA
PANASONIC T/V Video hand set 1993 models with door - 3 types £7 EACH	2400V - 1MFD Condenser £3	ICC5 Ferguson Switch Mod Trans 3112-338-32642 £4.00	FERGUSON LOPT FST 24" TX100 - 260482 £15
FERGUSON VIDEOSTAR TRIPOD Model VA304 Large £20 Small £10	GEC Telephone Type T1033 £10	12v DC and 24v DC power supply regulated ICCS L.O.P.T. DST 88B243 DST 85B243 £10.00 each Thorn Mixed £10.00	LOPTS AMSTRAD 3714016 £5 3216001 £5
1A/1600V DG3P EOV - BY228 10p £1.00 2 amp bridge rec. wire end SKE4G202 15p Eqv. BYX71/600 500ns	Polarizer Control Unit Salora £15	Ferguson Hand Set ICCS IK2000 £5 IK7000	TOSHIBA REMOTE CT9123 £4
6 Push button switch IT1 GEC CVC45 ETC £3.00	Battery 22A V5591 Video Camera Type £10	KT3/K30 T/Text £12.50 KT3/K30 Full remote £15.00 Pye & Philips handset KT3-K30 chassis. No RC5150-RC5176-RC5071-RC5177. Special Price £13.00 RC4001 KT3 and Teletex £14.00 TX10 Hand Set Text £12.50 TX9 with Text £12.50 TX9 & TX10 button print £1.00 TX10 Focus Pots £5.50	AMSTRAD SANKYO CAPSTAN MOTOR 6,000 £3 AMSTRAD LOADING MOTOR 6,000 £1
Hitachi TV IC HAS133RSP3 £3.00	Regulated Power Supply 1200 M/A 3V - 6V - 9V - 12V D.C. £10	Mains Stand By Switch with Coil £1.00	GRUNDIG TRIPLER BG-2032-642-3002 £5
TT14 GEC TEX-DECODER 13 IC Panel with cable form £9.50	Mullard Video Modular. Application, video tape recorders, TV cameras, video games, closed circuit TV, C.C.I.R. system. Data supplied T85 250v AC mains filter 0.1+(03x2)11" leader & earth clip 25p NEW U321 Mullard £4.00	PHILIPS UNIVERSAL HAND SET £12.00 RC5 KT3 - K45 - £10.00	HAND SETS FOR 8600 SERIES AMSTRAD FOREIGN ORIGIN WITH L.C.D. £3
PHILIPS Decoder SAA IC 5020-5030 5040B-5050 K40 Text Panel £8.00	Astec UM1623 VHF £2.00 VHF/UHF Tuner S Band £3.00 ENV-5765G2 VHF/UHF £5.00	We have all parts for Philips Handsets	FERGUSON PAY HAND SET 4 FOR £1
ICCS TUBE BASE ON PANEL £5.00 ICCS DECODER PANEL £15.00 ICCS TEXT PANEL £15	Change over switch co ax type box with lead 50p UJ: 7496 Tuner £5 EF 321 £5 EG 311F £5 UF744 BAV £3 UF745 BAV £3 UHF Tuner and IF in one can (small) £5.00 Co-Ax Belling Lee Plug 14p Co-Ax Splitter £1.00 Infra Red Emitting Diode 20p NE2801 Small Neon Lamps GEC & Philips 5p	RC5353 £10 RC5300 RC5176 RC5177 EACH	TOSHIBA REMOTE CT9233 AND CT938 £3
K35 Decoder £8.00 K35 Sound OP £4.00 Thick Film Daughter K13 33122-127-43891 £3.00 12 CH. K30 Tex Rec Front Panel with I.C. £5.00	WE HAVE OVER 250 TYPES OF STK AND STR I.C.S. SEND FOR LIST	TEXT-TYPE Replace Hand Set for Philips KT3-K30, K4 etc £12.50	TOSHIBA T/V TUNER, IF ENV 57836 G2F £3
K4 Focus Pot K40 £1.00	85-4538-3 Tattung GEC 8 Button Unit Print Type 1990 to 1992 £5.00	THORN HAND SETS 9000 - 9600 - TX9 - TX10 - TX100 Text and Non-Text £10.00	HITACHI STAND BY MAIN TRANS £10 2213881 AND L210049
Fidelity Tube Base with transistor & focus pot £1.50	Philips Handset IC £3.00 SAA3010P £3.00 MAB8461/WO63 £3.00	PHILIPS RC5171 (HAND SET) £12.00	PHILIPS K35 ETC 12 WAY SWITCH WITH KNOBS 50p
TX10 Tube Base on Panel £3.00	BG 2087 - 642 - 1005 Tripler Grundig £7	K35-K4 HAND SET Repaired for £5.00	60.40 SOLDER 500G £4
PHILIPS HAND SET K35-K4-K40, etc £10	Ferguson Hand Set for IK 2000 and IK 7000 £8	PHILIPS K35-K4 HAND SET Repaired for £5.00	HIGH GAIN T/V ANTENNA UHF-VHF BUILT IN 32DB AMP 12V DC/220 AC £9.25
Universal Tripler with small focus pot. Green type £7.00	Ferguson 00V3 - 913 IC AM748D3 £5	THORN HAND SETS 9000 - 9600 - TX9 - TX10 - TX100 Text and Non-Text £10.00	AMSTRAD VIDEO FRONTS WITH FLAP LONG CHASSIS ALL MODELS MADE IN 1991 TO 1992 AND DECCA PRO LINE £3
THORN CASSETTE HOUSING PAS26805U £18.00	FERGUSON ICs Ferg-TX982 £3.00 TMP47C 634N 2685 £3.00 ST6391B1/B2 ICC7 £4.00	PHILIPS RC5171 (HAND SET) £12.00	AMSTRAD LONG CHASSIS DISPLAY PANEL 1992 TO 1993 £4
LITHIUM BATTERY BR-2/3 Volts 20p	CMC 301 front panel £5.00 CMC 303 front panel £5.00	K35-K4 HAND SET Repaired for £5.00	AMSTRAD TUNER UE33-B01 £3 IF £2
TUNER, SAT 2000 KHC £8	HTACHI, IC D1514C 036 £3 D1514C 046 E MN1250BJC E ST6393 B1/TY A HD614885A90 A TMP47C1637N C MS0442-553SP H	SANYO MAGMTRON Type 2M2181F £10	6 FOR £10 TX10 FOCUS UNIT
International Rectifier EHT Diodes G770/HV34 6KV 3 for 8p 6A/600V Stud Diodes 20p B1TW 92/800R £3.00 DL 701 50p 6A/1000V Stud Diodes 20p 24A473 PNP CP 10p DI. 711 Mullard 50p	8 Way Pre sets for TX10-TX100 £3	PHILIPS K35-K4 HAND SET Repaired for £5.00	CONVERSION KIT IIT TELETEXT £8 BURGLAR ALARM SIREN 12 VOLT 50p
	01 M4- 412-001-RU1 £3 8 Way Pre sets for TX10-TX100	SHARP Tuner and IF 1810587 PAL1 UK £3	HANDSETS AMSTRAD EASY CONTROL MODELS 4600 TO 8600 £3 each
	01 V6-251-002 Text Panel ICC5 Ferguson £10	Tuner IF UE30-BO 3 Amstrad £3	FERGUSON THOMSON SAT HANDSET SRD1 TO SRD4 £2 each
	01 V6-251-002 Text Panel ICC5 Ferguson £10		AMSTRAD NEW VIDEO DISPLAY PANELS ETC. YEAR OF MODELS 1991 TO 1992 - 20 FOR £10
			1993 TOSHIBA FAST TEXT HAND SET £3.50
			AMSTRAD IC FOR VIDEOS 6206 TO 8600 DISPLAY IC 14 DN 728 AND 14 DN 513 £3 each
			AMSTRAD 6000 MODULES IC MN616 3AS AND 6367S £6 each
			TOSHIBA HEAT SYNC COMPOUND £6 FOR KILO DRUM

MARCONI COMPACT L.N.B. 1.DB £25 10.7 TO 11.7GHZ		60cm BACK MESH DISH £20, £5 post		12v Satellite Receiver with hand set £30 Switched Mode Trans 3112. 338. 32642 Ferguson £1 Philips switched mode transformers for K40 £5		VIDEO AMSTRAD HANDSETS (HOME MARKET) £7.00 (EXPORT) £2.50 WILL WORK IN HOME MARKET		SEND FOR DATA D2 MAC SATELLITE RECEIVER £35 (£10 Post)			
SATELLITE RECEIVERS — New Ferguson BSB Chassis with Tuner, Modulator etc £10 Hand Set £1.50 £4 Post			SAT RECEIVER EARLY BIRD £25 33V33, 3V37 BATTERY £10 Postage £5		TX100 HAND SRT (785) £10 Power Supply 0-15 Volts 0-30 Volts 3 Amps with Meters £34 Post £5		6.000 and 4.600 4.700 £3 PB500 Panic and Button Transmitter 180MHz £1.00 G11 CAP 250V, 470M £1.35		New Eprom for converting Ferguson BSB Receivers to D2 MAC and PAL — 99 channel is tunable and each one can be put into memory — also has menu. £20 PAL panel (to convert to PAL) £20 SEND FOR DATA		
SMALL SATELLITE TUNERS (950 to 1750 MHz), L.F. frequency 4000MH..... £9.00 each VHF/UHF S. BAND TUNER..... £3.00 DAM MAINS CHASSIS AMSTRAD MONITOR C..... £10 UNIVERSAL TRIPLER NEW TYPE..... £4.00 VIDEO LEADS..... 80p AMSTRAD Line O.P. Transistors with Diode 2SD/453..... £1.00 VIDEO LAMPS Long Lead..... 24p HITACHI & GEC FRAME, Thick Film..... £6.00 FIDELITY SPLIT DIODE..... FCC2215AE..... £20 FCC2015BE..... £10 FCC2215BE..... £10 K30 FRONT PANEL VEL-TEX TYPE..... £5.00 NEW G11 LINE OP PANEL..... £8.00 PHILIPS YEARS AHEAD THE CREDIT CARD CALCULATOR Solar Powered..... £3.75 NEW PHILIPS SBC 1833 Solar & Battery Powered Calculator..... £8.00 THORN PANEL TX9 REC & REMOTE PANELS with Mains Trans..... £5.00 TX10 REC & REMOTE PANELS with Mains Trans..... £5.00 TX100 FRONT PANEL..... £5.00 TX10 TUBE BASE ON PANEL..... £3.00 TX9IF..... £2.00 THORN PANEL No. 515-353, 548.02, 565-01, 509/102, 515/173, 508 161..... £5.00 THORN TX STEREO SOUND O.P. PANEL (L.C. TA7227P)..... £1.00 THORN VIDEO AERIAL AMP 01 M4-597-001..... £6.00 ULTRASONIC TRANSDUCER..... 15p				CAMCORDER SANYO NP22 6v 1300mah Rechargeable Battery Pack £6.00		LEADS Scart to Scart all pin connected £2.00		Gas Soldering Irons New Type £10.00 Variety Nickel Cadmium Batteries from Telephone Type to Sub-C. 50p per cell. Mainly in packs of 6 to 8.		TELEPHONE BATTERY SANYO 3.6V 250/MA — £2 VARTA 3.5V 280 M/A £3.00 FEEDHORN FOR OFFSET ANTENNA £8.00 HITACHI U/V HAND SET VIDEO £10 THORN FRAME IC TX100 etc IC TDA 3652 IS OBSOLETE REPLACEMENT TDA 3654 £2.00	
TX100 REMOTE PANEL No. 56413IC M293B/and SAA5012 £10 etc				144MHz Changed Over Relay Aerial 50p		PHILIPS UNIVERSAL BATTERY TESTER SBC 1695 £3.00		TX100 SWITCH MODE TRANS 5157/48 £5 AND 00D4252001 06D3182001			
TX100 REMOTE PANEL IC £10				6251 FRAME O/P THICK FILM HITACHI GEC £9.00 THICK FILM HITACHI HM9205A £4.00		NEW DETECTOR £10.00 PHONE HOME TO CHECK WHETHER YOU HAVE AN INTRUDER SEND FOR DATA WITH TELEPHONE £20.00		STEREO SOLAR RADIO VHF AND MW £10.00			
NICAM UNIT — Ferguson made for ICCS Chassis — home market and export — has circuit diagram and can be converted to most sets — £15. TOSHIBA Nicam panel & IF export only has the Toshiba chip set £7.00				TX10 REMOTE PANEL £5 TX9-TX100 FRONT PANEL £5 WITH REMOTE £10 NON REMOTE 8 push button £10		REGULATED PWR. SUP. 500MA 1.5V-12V DC switched + & - £5.00		G11 470 MFD 250v £1.35			
LARGE Foams Pots. Fits Pye, GEC, ITT, Decca 75p				TX9-TX100 FRONT PANEL £5 WITH REMOTE £10 NON REMOTE 8 push button £10		MADE BY PLESSEY — MADE IN ENGLAND New public telephone exchange original price cost £299.00 Network exchange line (at home or in a small business) has two telephones and cables and NS5107 control unit SPECIAL PRICE £40 Send for data		3V33 HAND SET £10			
BSB SAT/REC NEW. CHASSIS, TUNER AND MOD £5 + Post £3				PHILIPS NEW TYPE U/V HANDSET £10		56420A 20A/600V THYRISTOR £1.75		12 Volt Relays 20p with D/P changeover			
G11 LOPT Panel £4.00 G11 Tip Switch £3.00 G11 IF Panel £2.00 G11 Decoder Panel £2.00 G8 Push Button Unit £2.00 G8 Con/Panel New Back Type £4.00				MIXED TOSHIBA HANDSETS FIVE FOR £12		DECODER C-CAM PHILIPS MADE for K-40 CHASSIS IC No. TDA 3590 £5.00		PHONO T/O LEADS 3 Metre 30p LEAD SCART TO D PLUG 50p			
Have you got Acid Rain in your garden? PH METER £5.00 Post £5 Actuator Antennemotor £15.00				TX100 FRONT PANEL £5 8 Button		ITB BG2032-642A TRIPLER £5.00		BRIDGES RECTIFIER Mixed BR-31 to 34 2 Amp to 5 Amp 8 for £1.00			
LATEST VIDEO For Latest Philips, GEC, Pye and Hitachi, Front panel with memory chip and push button and pots and LEDs £6.00 NEW				SALORA SAT RECEIVER CONVERSION KIT For models 24M60, 25M90, 28M90, SB1206E, SB1365 £15		ITT/KOKIA HF IF MODULE 24K No 5828-04-10 £15.00		1 METRE SCART LEAD £1.00			
FERGUSON CHASSIS IKC-2000 £15 TX86 Chassis £14 NEW TX100 CHASSIS TX90 CHASSIS WHITE SPOT £20 Post each, £6 TX80 CHASSIS £15				TX90 TO TX100 8 BUTTON UNIT £4.00		Tere 7-008A — 115-B-2010 ECC-2885PLE TEEF 1-030A UHF, VHF TUNER — SMALL TYPE £4 EACH		BURGLAR ALARM USE INFRA RED DETECTOR WIDE AND SHORT ANGLE WALL MOUNT 8 WITH RELAY			
LNC 11GHZ NOKIA LNB FOR OFFSET DISH £13.00 ELECTROMAGNETIC POLARIZER 10.95-12.75 GHZ £9.00 11GHZ LOW NOISE BLOCK DOWN CONVERTER SCE 975 MADE BY MASPRO £14.00 5 Mixed AMSTRAD VIDEO MOTORS £5.00				SATellite TUNER UNIT 2427611 with Base Band, Video Out £8.00		BRIDGE RECTIFIERS — MIXED 10 FOR £1		TUNER U/V 616 £10 TUNER U/V 816 £10			
TX10 8 way button unit £8.00 24v O 24v 3amp MAINS TRANSFORMER £3.00 MSHIFCF09 £2.??				TX90 TO TX100 8 BUTTON UNIT £4.00		TVK 186-5 TRIPLER £3.50 TVK 76-5 £3.50		POWER SUPPLY KIT 0.28 volts 1 1/2 amps with 2 meters £12 Printed circuit board and components			
2433752 £30 2432984 2432871 2432801 2435016 2433952 2434393 2432211 T9W4KA DST85H243 TFH3069D K41 O.P.T. K40 2433452 2432984 2434451 £14		SPLIT-DIODE 2433752 £15 TX100 Green Spot £15.00 TX100 Yellow Spot 1 O.P.T £10.00 TX90 White Spot 1 O.P.T £15.00 Split Diode 110° £12.50 Orion 65-3M GEC 85-9793-6 TX9 Thorn 2432111-2 £5 EACH 2434141 2434492 2434493		36761 36881 2435701 2434393 2435016 2435014 £10 2436797 2434494 £15		TRANSFORMERS 2435701 £10 2435012 £10 FERGUSON 47003481 £10 AMSTRAD TVR3 LPTS £10 TFB3069D EQU TFB4009AN		AT202600 AT207655 AT204811 AT207671T AT2045 RCO ST CT3325 AT203635 OT2041 AT203638 FH165KA Orion AT203651 207651 CVC 820 2432461 2433451 CVC 800		SHARP MSHIFCF09 £10 EACH FIT MOST SETS New Thorn Hand Set 0004-235 Type u/v (£10) 002-01	
SATELLITE TUNER 950MHz-1750MHz £5.00		BURGLAR ALARM £2.00 with siren 9 VOLT		PHILIPS HAND SET G11 TEXT ULTRASONIC £10		G11 HAND SET ULTRASONIC £10 PHILIPS RC5 EASY CONTROL £10		INFRA RED DETECTOR (for outside use) with Time Control & Distance Control £12 Sensitivity Adjustment Control High Adjustment Time Delay Adjustment			
TTT PANEL CMC301 CMC 113 CMC302 CMC115 CMC £5.00 303 CMC964		BRIDGE RECTIFIERS 10 FOR £1.00 4 Amp for Video Power Supply		TRV3 Amstrad Cassette Mechanisms. New with 2 motors and sound head. £15 £5. Amstrad Television Tuner UHF. Small, Fits most Amstrads. £6.		FERGUSON SAT HAND SET SR D1 £2 SR D2 SR D3 SR D4		FERGUSON ICCS STEREO O.P. PANEL ICs TDA8405 TDA8421 TBA1204 £10			
SEL ITT (FB254F/2 Front Panel) £15.00		25 Way Plug and Socket with Case £1.50		SENDZ SEE BACK PAGE		U/V 616, DIODE TRIPLERS £2.00 3600 TO 8600 AMSTRAD VIDEO HAND SET WITH LCD £10		NICAM M&B KIT MODULE £20.00 with data Burglar Alarm Has time delay to set £2 Mains Transformer 240v in 110V to 120v out 1 amp post £3			

SENDZ COMPONENTS

63 BISHOPSTEIGNTON, SMOEBURNNESS, ESSEX SS3 8AF
 NORMALLY SAME DAY SERVICE • SUBJECT TO AVAILABILITY
 No accounts • Technical information by telephone only • No credit cards
 Unless specified add £1.70 P.P. to small orders • Additional charges for
 heavier items • Specific P.P. charges are PER ITEM • For UK addresses
 please add P.P. TO ORDER THEN 13% V.A.T. TO TOTAL • This applies for the
 EC unless V.A.T. No. is given • EXPORTS P.P. at cost
 Postal Order Cheque with order
 Callers to shop: 212 London Road, Southend • Open 9.30-1.15.5.5
 Tel: 0702 332992 • Fax: 0702 338805
 GMT School orders on official headings

DIODES		Voltage Regulators		SENDZ COMPONENTS		MAB8440P		TBA1440C		TDA2540	
Bridge KBF-08	40p	+5V/UA78P055C	30p	M58658P	£1.00	BFR52	7p	TBA480U	£1.00	TDA2541	80p
BY 126	10p	-8V/79M08c	30p	2436792	£10.00	BFR81	15p	TBA520	£2.00	TDA2542	£1.00
BY 127	10p	+6V/78M06c	30p	2436797	£10.00	BFS60	10p	TBA530	£1.00	TDA2543	£2.00
BY 133	10p	LM 317T	30p	AT207825	£10.00	BF142	20p	TBA540	£2.00	TDA2546	£2.00
BY 134	10p	LM 337	30p	1TFB4032BD	£10.00	BF157	20p	TBA560CQ	£1.00	TDA2556	£1.00
BY 176	20p	LM 337	30p	1TFB410BD	£10.00	BFW11	30p	TBA570	£1.00	TDA2560	75p
BY 177	20p	LM 337	30p	M58484P	£2.00	BFX85 100V, 1 amp	50p	TBA625	50p	TDA2565	£3.00
BY 184	25p	LM 340T 5.0	50p	HA51338 SP	£3.00	BSD215	50p	TBA651	£2.00	TDA2575	£1.00
BY 187	10p	+12V/LM 340T12	50p	TA47750	50p	MRI366	40p	TBA673	£3.00	TDA2577A	£2.00
BY 190	40p	+18V/MC78M18	20p	HA114K5ANT	£2.00	AN630	20p	TBA7500	£1.00	TDA2579A	£2.00
BY 196	30p	+24V/78M24	30p	UPL1373	50p	BB 105A x12	£1.00	TBA780	75p	TDA2581	£2.00
BY 198	40p	MC 7724cp	40p	M58657P	£1.00	BB 105B x12	£1.00	TBA800	50p	TDA2581	£2.00
BY 204/4	8p	MC 7824	40p	M58658P	£1.00	BB 105G x12	£1.00	TBA810A	60p	TDA2591	£1.00
BY 206 - BY 407 Eqv	8p			M58659P	£1.00	BU121a	£1.00	TBA810S	60p	TDA2593	£3.00
BY 208/800	8p			M50430 - 850 SP	£1.00	BU122A	£1.00	TBA820	60p	TDA2593	£3.00
BY 210/400	8p			M50143 - 011P	£1.00	BU127A	£1.00	TBA920	25p	TDA2593	£3.00
BY 210/800	10p			R 2540	£2.00	CA270AE	50p	TBA920Q	£1.50	TDA2593	£3.00
BY 223	60p			R 2737	40p	CA270CE	50p	TBA990Q	£1.50	TDA2593	£3.00
BY 226	15p			R 2738 - TIP41	40p	CA270CW	50p	TBA990Q	£1.50	TDA2593	£3.00
BY 227	15p			R 2739 - TIP41c	40p	CA270CE	50p	TBA990Q	£1.50	TDA2593	£3.00
BY 228 150v	20p			R 3129 - TIP47	40p	CA270CE	50p	TBA990Q	£1.50	TDA2593	£3.00
Flat BY229 black	20p			R 4050	50p	CA3146	£1.00	TBA990Q	£1.50	TDA2593	£3.00
BY 229 Red	20p			R 4051	50p	CA3146	£1.00	TBA990Q	£1.50	TDA2593	£3.00
BY 229/400	30p			R 4052	50p	CA3146	£1.00	TBA990Q	£1.50	TDA2593	£3.00
BY 229/800	30p			R 4053	50p	CA3146	£1.00	TBA990Q	£1.50	TDA2593	£3.00
BY 237	5p			R 4054	50p	CA3146	£1.00	TBA990Q	£1.50	TDA2593	£3.00
BY 254	10p			R 4055	50p	CA3146	£1.00	TBA990Q	£1.50	TDA2593	£3.00
BY 255	10p			R 4056	50p	CA3146	£1.00	TBA990Q	£1.50	TDA2593	£3.00
BY 298	10p			R 4057	50p	CA3146	£1.00	TBA990Q	£1.50	TDA2593	£3.00
BY 299	10p			R 4058	50p	CA3146	£1.00	TBA990Q	£1.50	TDA2593	£3.00
BY 406	8p			R 4059	50p	CA3146	£1.00	TBA990Q	£1.50	TDA2593	£3.00
BY 527	20p			R 4060	50p	CA3146	£1.00	TBA990Q	£1.50	TDA2593	£3.00
BY 407a	10p			R 4061	50p	CA3146	£1.00	TBA990Q	£1.50	TDA2593	£3.00
BY 448	8p			R 4062	50p	CA3146	£1.00	TBA990Q	£1.50	TDA2593	£3.00
HY 500/200 - 5 amp	8p			R 4063	50p	CA3146	£1.00	TBA990Q	£1.50	TDA2593	£3.00
BY 527	10p			R 4064	50p	CA3146	£1.00	TBA990Q	£1.50	TDA2593	£3.00
BY 602	10p			R 4065	50p	CA3146	£1.00	TBA990Q	£1.50	TDA2593	£3.00
BYV 26C	10p			R 4066	50p	CA3146	£1.00	TBA990Q	£1.50	TDA2593	£3.00
F247	10p			R 4067	50p	CA3146	£1.00	TBA990Q	£1.50	TDA2593	£3.00
G220G	8p			R 4068	50p	CA3146	£1.00	TBA990Q	£1.50	TDA2593	£3.00
GRPMG (TX10)	30p			R 4069	50p	CA3146	£1.00	TBA990Q	£1.50	TDA2593	£3.00
XK 3102	30p			R 4070	50p	CA3146	£1.00	TBA990Q	£1.50	TDA2593	£3.00
BYV 28/200	20p			R 4071	50p	CA3146	£1.00	TBA990Q	£1.50	TDA2593	£3.00
Bridge TX10 800/3 amps	£1.50			R 4072	50p	CA3146	£1.00	TBA990Q	£1.50	TDA2593	£3.00
KBPC35-02 Bridge	£1.50			R 4073	50p	CA3146	£1.00	TBA990Q	£1.50	TDA2593	£3.00
Bridge Rec. D35B10	£1.50			R 4074	50p	CA3146	£1.00	TBA990Q	£1.50	TDA2593	£3.00
BYT71/800	12p			R 4075	50p	CA3146	£1.00	TBA990Q	£1.50	TDA2593	£3.00
				R 4076	50p	CA3146	£1.00	TBA990Q	£1.50	TDA2593	£3.00
				R 4077	50p	CA3146	£1.00	TBA990Q	£1.50	TDA2593	£3.00
				R 4078	50p	CA3146	£1.00	TBA990Q	£1.50	TDA2593	£3.00
				R 4079	50p	CA3146	£1.00	TBA990Q	£1.50	TDA2593	£3.00
				R 4080	50p	CA3146	£1.00	TBA990Q	£1.50	TDA2593	£3.00
				R 4081	50p	CA3146	£1.00	TBA990Q	£1.50	TDA2593	£3.00
				R 4082	50p	CA3146	£1.00	TBA990Q	£1.50	TDA2593	£3.00
				R 4083	50p	CA3146	£1.00	TBA990Q	£1.50	TDA2593	£3.00
				R 4084	50p	CA3146	£1.00	TBA990Q	£1.50	TDA2593	£3.00
				R 4085	50p	CA3146	£1.00	TBA990Q	£1.50	TDA2593	£3.00
				R 4086	50p	CA3146	£1.00	TBA990Q	£1.50	TDA2593	£3.00
				R 4087	50p	CA3146	£1.00	TBA990Q	£1.50	TDA2593	£3.00
				R 4088	50p	CA3146	£1.00	TBA990Q	£1.50	TDA2593	£3.00
				R 4089	50p	CA3146	£1.00	TBA990Q	£1.50	TDA2593	£3.00
				R 4090	50p	CA3146	£1.00	TBA990Q	£1.50	TDA2593	£3.00
				R 4091	50p	CA3146	£1.00	TBA990Q	£1.50	TDA2593	£3.00
				R 4092	50p	CA3146	£1.00	TBA990Q	£1.50	TDA2593	£3.00
				R 4093	50p	CA3146	£1.00	TBA990Q	£1.50	TDA2593	£3.00
				R 4094	50p	CA3146	£1.00	TBA990Q	£1.50	TDA2593	£3.00
				R 4095	50p	CA3146	£1.00	TBA990Q	£1.50	TDA2593	£3.00
				R 4096	50p	CA3146	£1.00	TBA990Q	£1.50	TDA2593	£3.00
				R 4097	50p	CA3146	£1.00	TBA990Q	£1.50	TDA2593	£3.00
				R 4098	50p	CA3146	£1.00	TBA990Q	£1.50	TDA2593	£3.00
				R 4099	50p	CA3146	£1.00	TBA990Q	£1.50	TDA2593	£3.00
				R 4100	50p	CA3146	£1.00	TBA990Q	£1.50	TDA2593	£3.00
				R 4101	50p	CA3146	£1.00	TBA990Q	£1.50	TDA2593	£3.00
				R 4102	50p	CA3146	£1.00	TBA990Q	£1.50	TDA2593	£3.00
				R 4103	50p	CA3146	£1.00	TBA990Q	£1.50	TDA2593	£3.00
				R 4104	50p	CA3146	£1.00	TBA990Q	£1.50	TDA2593	£3.00
				R 4105	50p	CA3146	£1.00	TBA990Q	£1.50	TDA2593	£3.00
				R 4106	50p	CA3146	£1.00	TBA990Q	£1.50	TDA2593	£3.00
				R 4107	50p	CA3146	£1.00	TBA990Q	£1.50	TDA2593	£3.00
				R 4108	50p	CA3146	£1.00	TBA990Q	£1.50	TDA2593	£3.00
				R 4109	50p	CA3146	£1.00	TBA990Q	£1.50	TDA2593	£3.00
				R 4110	50p	CA3146	£1.00	TBA990Q	£1.50	TDA2593	£3.00
				R 4111	50p	CA3146	£1.00	TBA990Q	£1.50	TDA2593	£3.00
				R 4112	50p	CA3146	£1.00	TBA990Q	£1.50	TDA2593	£3.00
				R 4113	50p	CA3146	£1.00	TBA990Q	£1.50	TDA2593	£3.00
				R 4114	50p	CA3146	£1.00	TBA990Q	£1.50	TDA2593	£3.00
				R 4115	50p	CA3146	£1.00	TBA990Q	£1.50	TDA2593	£3.00
				R 4116	50p	CA3146	£1.00	TBA990Q	£1.50	TDA2593	£3.00
				R 4117	50p	CA3146	£1.00	TBA990Q	£1.50	TDA2593	£3.00
				R 4118	50p	CA3146	£1.00	TBA990Q	£1.50	TDA2593	£3.00
				R 4119	50p	CA3146	£1.00	TBA990Q	£1.50	TDA2593	£3.00
				R 4120	50p	CA3146	£1.00	TBA990Q	£1.50	TDA2593	£3.00
				R 4121	50p	CA3146	£1.00	TBA990Q	£1.50	TDA2593	£3.00
				R 4122	50p	CA3146	£1.00	TBA990Q	£1.50	TDA2593	£3.00
				R 4123	50p	CA3146	£1.00	TBA990Q	£1.50	TDA2593	£3.00
				R 4124	50p	CA3146	£1.00	TBA990Q	£1.50	TDA2593	£3.00
				R 4125	50p	CA3146	£1.00	TBA990Q	£1.50	TDA2593	£3.00
				R 4126	50p	CA3146	£1.00	TBA990Q	£1.50	TDA2593	£3.00
				R 4127	50p	CA3146	£1.00	TBA990Q	£1.50	TDA2593	£3.00
		</									