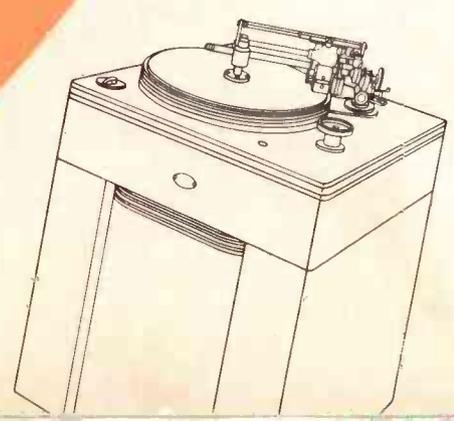
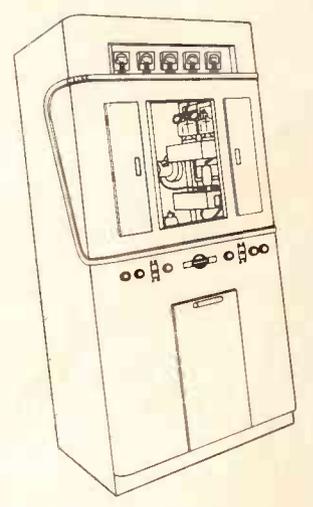


Collins **BROADCAST
EQUIPMENT**



Collins Engineering and Manufacturing facilities at Cedar Rapids, Burbank and Dallas, in conjunction with a well coordinated team of representatives deployed throughout the nation, as well as Canada, Mexico and overseas, assures the Broadcaster rapid and complete fulfillment of his individual need . . . whether it be a completely new broadcast system, from microphone to antenna . . . expansion or modification . . . expert engineering advice . . . or modernizing an existing installation.

Custom-built equipment is a Collins speciality . . . proven by more than 20 years of design experience in meeting the most exacting requirements. In addition to custom and production built Collins equipment, the following pages include first quality accessories which can be supplied to meet the Broadcaster's needs.

In its years of continuous expansion, Collins engineering has contributed many new ideas and techniques to the field of broadcast communications. Today, Collins broadcast equipment ranks preeminently in world markets with many hundreds of Collins transmitters in service in North America as well as in major foreign countries.

This catalog is intended as a convenience for the Broadcaster who is in need of equipment which meets his requirements. The transmitters, consoles, speech equipment, amplifiers, and broadcast accessories in the following pages reflect Collins Radio Company's approach to providing a complete line of highest quality broadcast equipment.

COLLINS RADIO COMPANY **CEDAR RAPIDS, IOWA**

261 Madison Avenue, NEW YORK 16

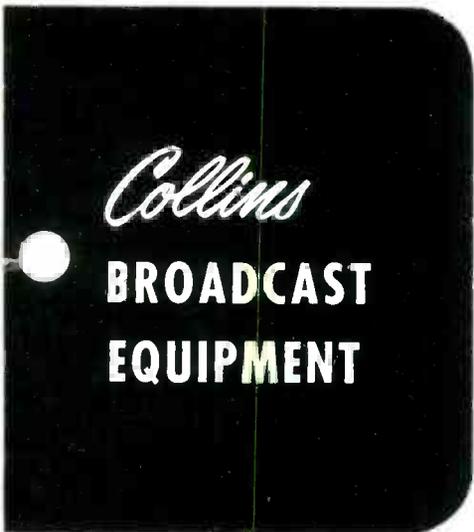
1930 Hi-Line Drive, DALLAS 2

2700 W. Olive Avenue, BURBANK

Dogwood Road, Fountain City, KNOXVILLE

222 W. Pensacola Street, TALLAHASSEE

COLLINS RADIO COMPANY OF CANADA, LTD.
74 Sparks St., OTTAWA, ONTARIO



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300J

250/100 watt



The Collins 300J Transmitter is designed for continuous broadcast operation on any desired frequency in the range of 540 to 1600 kilocycles or any of the high frequency Broadcast Bands with facilities for power reduction from 250 to 100 watts.

Advanced engineering to maintain precise stability includes elimination of crystal ovens and associated thermostats, and other complexities. Extremely stable low temperature coefficient crystals are part of the precision oscillator circuit which maintains broadcast band frequency stability as close as ± 2 cps while the FCC specification is ± 20 cps.

High-gain 4-125A tetrodes are employed in the modulator and P A section and are conservatively operated to provide a large safety factor for continuous, dependable service.

SPECIFICATIONS

FREQUENCY RANGE: 540-1600 kc standard (frequencies to 18 mc available)

POWER OUTPUT: 250/100 watts

FREQUENCY STABILITY: Less than ± 10 cps (average ± 2 cps)

AUDIO FREQUENCY RESPONSE: Within ± 1.5 db from 50 to 10,000 cps

AUDIO FREQUENCY DISTORTION: Less than 3% from 50-7500 cps for 95% modulation, including all harmonics up to 16 kc

RESIDUAL NOISE LEVEL: 60 db below 100% modulation

CARRIER SHIFT: Less than 5%

R-F OUTPUT IMPEDANCE: 75/50 ohms standard — other impedances available

AUDIO INPUT IMPEDANCE: 600/150 ohms

AUDIO INPUT LEVEL: +10 dbm ± 2 db, pad input

AMBIENT TEMPERATURE RANGE: +15° to +45° C

ALTITUDE RANGE: Sea level to 6000 feet

POWER SOURCE: 208/230 volt single phase 50/60 cps

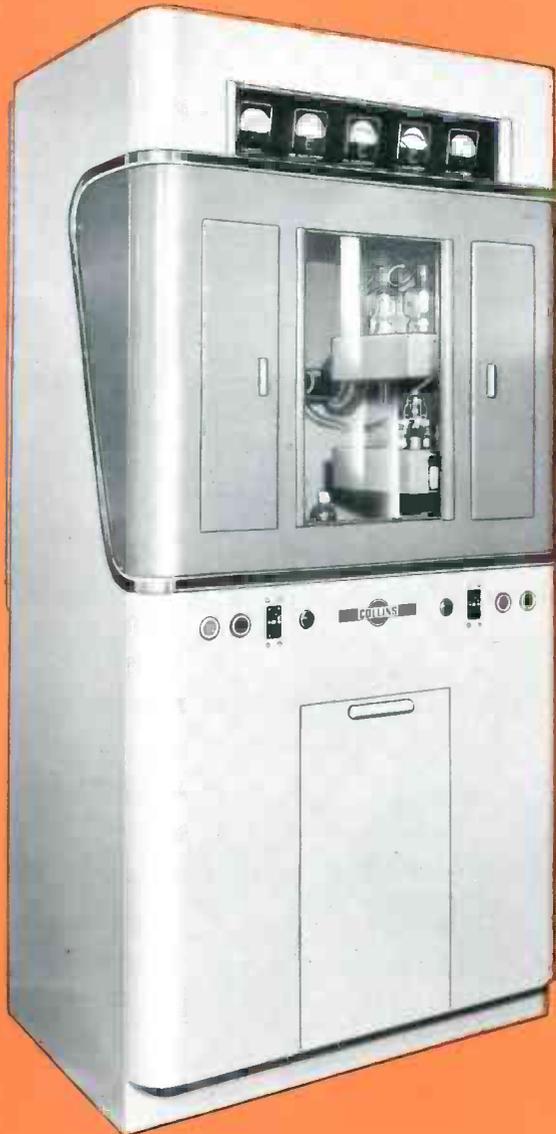
POWER DEMAND: 1.6 kw 90% PF at 100% modulation

WEIGHT: Approximately 900 pounds

DIMENSIONS: 38" wide, 76" high, 27" deep

550A

500/250 watt



The Collins 550A operates on any specified frequency in the band from 540 to 1600 kilocycles or any of the high frequency broadcast bands. Facilities for power reduction from 500 watts to 250 watts are standard equipment in the 550A.

Equipment design includes an extremely stable oscillator circuit, similar to and described under the 300J, to produce extremely high stability. Two crystals for the operating frequency are utilized with one always in standby position. Either crystal is instantly selectable while the transmitter is in operation.

As in all other Collins Broadcast transmitters, all vacuum tubes are operated far below their power dissipation level to insure dependability.

SPECIFICATIONS

FREQUENCY RANGE: 540-1600 kc standard — frequencies to 18 mc available

POWER OUTPUT: 500/250 watts

FREQUENCY STABILITY: Less than ± 10 cps, (average ± 2 cps)

AUDIO FREQUENCY RESPONSE: Within 1.5 db from 50 to 10,000 cps

AUDIO FREQUENCY DISTORTION: Less than 3.0% from 50-7500 cps for 95% modulation, including all harmonics up to 16 kc

RESIDUAL NOISE LEVEL: 60 db below 100% modulation

CARRIER SHIFT: Less than 5%

R-F OUTPUT IMPEDANCE: 75/50 ohms standard — other impedances available

AUDIO INPUT IMPEDANCE: 600/150 ohms

AUDIO INPUT LEVEL: +10 dbm ± 2 db, pad input

AMBIENT TEMPERATURE RANGE: Sea level to 6000 feet

POWER SOURCE: 208/230 volts single phase 50/60 cps

POWER DEMAND: 3.2 kw, 83% PF at 100% modulation

WEIGHT: Approximately 1100 pounds

DIMENSIONS: 38" wide, 76" high, 27" deep

TYPE 20V

1000/500 watt



The new 20V is designed for continuous high fidelity broadcast operation at any specified frequency in the band from 540 to 1600 kilocycles or any of the high frequency broadcast bands up to 18 mc.

Facilities for power reduction from 1000 watts to 500 watts are standard equipment in the 20V.

The a-c power is obtained from a 208/230-volt single phase 50/60 cps source.

All materials and components used in the 20V are of the highest Collins quality and assure long life with trouble free operation.

SPECIFICATIONS

FREQUENCY RANGE: 540-1600 kc standard — frequencies to 18 mc available

POWER OUTPUT: 1000/500 watts

FREQUENCY STABILITY: Less than ± 10 cps (average ± 2 cps)

AUDIO FREQUENCY RESPONSE: Within ± 1.5 db from 50 to 10,000 cps

AUDIO FREQUENCY DISTORTION: Less than 3% from 50-7500 cps for 95% modulation, including all harmonics up to 16 kc

RESIDUAL NOISE LEVEL: 60 db below 100% modulation

CARRIER SHIFT: Less than 5%

R-F OUTPUT IMPEDANCE: 75/50 ohms standard — other impedances available

AUDIO INPUT IMPEDANCE: 600/150 ohms

AUDIO INPUT LEVEL: +10 dbm ± 2 db, pad input

AMBIENT TEMPERATURE RANGE: +15° to +45° C

ALTITUDE RANGE: Sea level to 6000 feet

POWER SOURCE: 208/230 volts single phase 50/60 cps

POWER DEMAND: 4.25 kw, 90% PF at 100% modulation

WEIGHT: Approximately 1150 pounds

DIMENSIONS: 38" wide, 76" high, 27" deep

TRANSMITTERS

21E/21M
5000/10,000 watts

The 5000 watt 21E and 10,000 watt 21M Transmitters permit operation on standard broadcast and short wave as well, from 540 kilocycles to 18 megacycles.

The 21 square feet of floor space occupied by the 21E/M is $\frac{1}{3}$ to $\frac{1}{2}$ less than the space occupied by the average broadcast transmitter of this power.

All transformers and reactors are the dry type which eliminates the fireproof vault required with transmitters using oil-filled components.

All tubes may be viewed through plate glass windows. Relays and contactors are easily accessible for inspection and adjustment following removal of covers on the front of the equipment.



SPECIFICATIONS

FREQUENCY RANGE: 540-1600 kc standard—frequencies to 18 mc available

POWER OUTPUT: 21E—5,000 watts; 21M—10,000 watts

FREQUENCY STABILITY: 540 kc to 1600 kc less than ± 10 cps 10° C to 50° C (average ± 2 cps); 1600 kc to 18mc $\pm 0.002\%$ $+20^{\circ}$ to $+45^{\circ}$ C

AUDIO FREQUENCY RESPONSE: Within ± 2 db from 50 to 10,000 cps measured at 95% modulation

DISTORTION: Less than 3% from 50 to 7500 cps at 95% modulation, including all harmonics up to 16 kc

RESIDUAL NOISE LEVEL: 55 db below 100% modulation from 0 to 30 kc; 60 db below 100% modulation from 150 cycles to 7500 cps

CARRIER SHIFT: Less than 3%

R-F OUTPUT IMPEDANCE: 75/50 ohms standard—other impedances available

AUDIO INPUT IMPEDANCE: 600/150 ohms

AUDIO INPUT LEVEL: $+10$ dbm, ± 2 db, 600 ohms input with built-in input pad. With input pad removed, -5 dbm is sufficient for 100% modulation. 150 ohm connection of input transformer is possible when desired.

TEMPERATURE RANGE: $+15^{\circ}$ to $+45^{\circ}$ C ambient

ALTITUDE RANGE: Sea level to 6000 feet

POWER SOURCE: 208/230 volts three phase 50/60 cps (50 cps on special order)

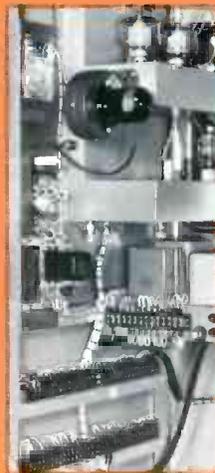


Shown is a Collins 20V 1 kw AM transmitter equipped with remote control actuators installed at the factory. All transmitters can be so equipped either at the factory or in the field.

The Collins-Rust Remote System is unique in that no vacuum tubes are used resulting in the highest degree of reliability.

Lower left is the rack mounted control unit for installation at the studio. Nine meter readings and 11 functions can be accomplished with this unit. In addition to the studio control unit, a rack mounting transmitter unit (not shown) is supplied to work in conjunction with the transmitter actuators.

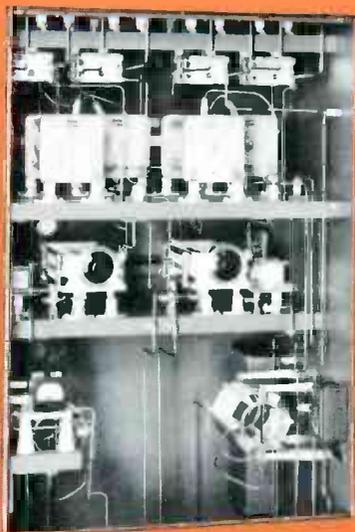
Auxiliary contactors, metering units and terminal boards are shown below in a typical Collins factory installation. Components are mounted for convenient accessibility, thus facilitating routine inspection and maintenance.



PHASING EQUIPMENT



Typical 1KW Phasing Equipment (Right hand Cabinet) with 20V 1KW Transmitter



Rear View Power Division and Phasing Networks

Since directional antenna systems vary greatly in design, the required phasing and tuning equipment is necessarily custom engineered and built. Collins supplies phasing units incorporating continuously variable, independent adjustment of both phase and amplitude, within the range necessary to assure complete pattern control. In a typical circuit, amplitude adjustment is accomplished by means of variable inductors in a power-dividing tank circuit, while phase control is provided by "T", "Pi", or series reactance networks. These features result in flexibility and rapid adjustment during the tuning process, and greater stability and ease of maintenance after the station is on the air. For the customer's protection, the circuit is submitted to his consultant for approval before construction is started.

Tuning units for a directional array normally incorporate "T" networks, designed to match the impedance of the tower to the transmission line impedance. Standard equipment is an antenna tuning unit includes an a-c convenience outlet, a plug-in heating element to prevent condensation, lightning reactor and horngap, and antenna lead. Optionally, an electronic remote indicating antenna ammeter, lightning filter, and isolation inductor for the sampling cable may be added.

40-C



ANDREW 40-C PHASE MONITOR . . . facilitates adjustment and maintenance of broadcast directional antenna arrays. Phase Angles are indicated directly in degrees on a single meter, permitting immediate observation of the effects of small antenna system adjustments. Relative amplitude of antenna currents can be quickly determined with the ratio appearing on a special ratio scale.

SPECIFICATIONS

FREQUENCY RANGE: 550 to 1600 kc

PHASE ANGLE RANGE: 0 to $\pm 180^\circ$

ABSOLUTE ACCURACY: $\pm 2^\circ$

STABILITY: $\pm 2^\circ$

INPUT IMPEDANCE: 72 ohms

SENSITIVITY: Better than 1 volt

MAXIMUM PERMISSIBLE SIGNAL: 15 volts

POWER SUPPLY: 115-volt, 60 cps

POWER CONSUMPTION: 50 watts

TUBE COMPLEMENT: 2 6AB7's, 1 6AL5, 2 VR150's, 1 5Y3

METER: D-c microammeter, two phase-angle scales having total length of 7 inches and one special current ratio scale 2.5" long

DIMENSIONS: 10½" high, 19" wide, 7" deep

WEIGHT: 21 pounds

FINISH: Smooth gray front panel, gray wrinkle dust cover — others available

MODEL 108



CLARKE 108 PHASEMETER . . . an instrument designed to provide an indication of the phase relations in directional antenna systems. Each instrument is tailored for the particular installation and usually incorporates provision for indicating the relative amplitudes of the currents in the various antennas, as well as the phase relation. The Model 108 Phasemeter has found its principal use in broadcast stations employing directional antennas, but its wide frequency range makes it readily adaptable for other applications.

SPECIFICATIONS

FREQUENCY RANGE: 100 kc to 2 mc

PHASE ANGLE RANGE: 0 to 360 degrees

MONITORING ACCURACY: 1 degree

RESOLUTION: ½ degree

R-F INPUT IMPEDANCE: 50 or 70 ohms nominal

R-F VOLTAGE RANGE: 1 to 7 volts

TUBE COMPLEMENT: 2 6AU6, 2 OB3, 1 5Y3, 3 6AL5

POWER SUPPLY: 105 to 125 volts

POWER CONSUMPTION: 80 watts

DIMENSIONS: 14" x 19" x 7"

WEIGHT: 20 pounds

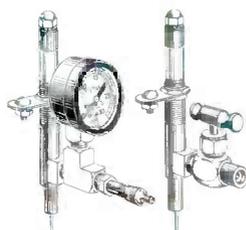
PHASE SAMPLING ACCESSORIES

TYPE 83



COAXIAL CABLE . . . Semi-flexible, air-dielectric coaxial cable for carrying r-f energy from sampling device to phase monitor. Impedance 70 ohms. Available in continuous lengths, factory spliced, end seals attached and shipped under pressure.

1601GV 1601R



END TERMINALS . . . for attachment to ends of Type 83 cable. Terminal with gauge and valve is recommended at the monitor end of the line; terminal with relief valve at the tower end.

872



SAMPLING LOOP . . . unshielded, constructed of 1/2 inch steel angles, galvanized. Installed on towers about 0.23 wave-length from top but not less than 25 feet above ground.

4873



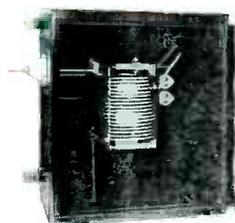
LEAD AND ADAPTER ASSEMBLY . . . one required for each sampling line. Includes 15 feet of 75 ohm, flexible, solid dielectric cable and suitable adapters for connecting between 40C Phase Monitor and Type 83 cable with 1601GV End Terminal.

132A



ISOLATION INDUCTOR . . . carries sampling line across base insulator without detuning tower. Wound of 3/8 inch coaxial cable. Diameter 12 inches. Length 15 inches. 70 microhenries.

133



ISOLATION INDUCTOR . . . is similar to 132A except it is inside a weather-proof housing.

8510



CURRENT TRANSFORMER . . . is used in place of sampling loop when all towers are less than 0.23 wave-length. Electrostatically shielded. Secondary adjustable by means of taps.



1181-A

FREQUENCY DEVIATION MONITOR . . . indicates directly magnitude and direction of the frequency deviation of an AM transmitter. The monitor input is obtained from the transmitter output. Positive indication of failure of either transmitter carrier or monitor crystal oscillator is provided.

SPECIFICATIONS

FREQUENCY RANGE: .5 to 2.0 mc
 CRYSTAL: Supplied with unit. Specify frequency on purchase order.
 DEVIATION RANGE: ± 30 cps
 DIMENSIONS: 19" wide, 15 $\frac{3}{4}$ " high, 13" deep, for rack mounting
 FINISH: Metallic gray
 POWER SOURCE: 105-125 or 210-250 volts a-c, 50/60 cps 125 watts



1301-A

AUDIO OSCILLATOR . . . supplies an audio signal for distortion measurements on audio frequency equipment and AM and FM radio transmitters.

Twenty-seven fixed frequencies can be selected between 20 and 15,000 cps. A range extension unit, Type 1301-PI, is available for other frequencies as low as 2 cycles per second. 600 ohm and 5,000 ohm output impedances are provided.

Maximum output is 100 milliwatts into 5,000 ohms; or 18 milliwatts into 600 ohms. Inherent distortion is less than .1%.

SPECIFICATIONS

POWER SOURCE: 115 volts a-c 50/60 cps, 230 volts a-c 50/60 cps.
 WEIGHT: 30 pounds (approx.)
 DIMENSIONS: 19" wide, 7" high, 14" deep, for rack mounting
 FINISH: Metallic gray



1931-A

AM MODULATION MONITOR . . . For frequency range of 0.5 to 8 mc. Performs the following functions:

- (1) Measures percentage modulation on either positive or negative peaks.
- (2) Indicates overmodulation
- (3) Monitors program level
- (4) Measures carrier shift when modulation is applied
- (5) Measures transmitter audio frequency response

SPECIFICATIONS

DIMENSIONS: 19" wide, 8 $\frac{3}{4}$ " high, 11 $\frac{5}{8}$ " deep, for rack mounting
 WEIGHT: 31 pounds
 FINISH: Metallic gray
 POWER SOURCE: 105-125 volts a-c, 40/60 cps, 50 watts



1932-A

DISTORTION AND NOISE METER . . . measures distortion, noise, and hum level in audio frequency circuits and is continuously adjustable in frequency over the audio range. Measurements as follows: fundamental frequencies, 50 to 15,000 cps; noise and hum measurements, 30 to 45,000 cps; distortion values, as low as 0.1%.

SPECIFICATIONS

INPUT IMPEDANCE: 100,000 ohms unbalanced, 600 ohms bridging (10,000 ohms) balanced or unbalanced
 DIMENSIONS: 19" wide, 7" high, 12" deep, for rack mounting
 WEIGHT: 35 $\frac{1}{2}$ pounds
 FINISH: Metallic gray
 POWER SOURCE: 105-125 volts a-c or 210-250 volts a-c, 40/60 cps, 60 watts



WX-2B

INTENSITY METER . . . designed for close-in measurements on high-powered directional arrays, as well as interference studies where very low signal strengths are encountered.

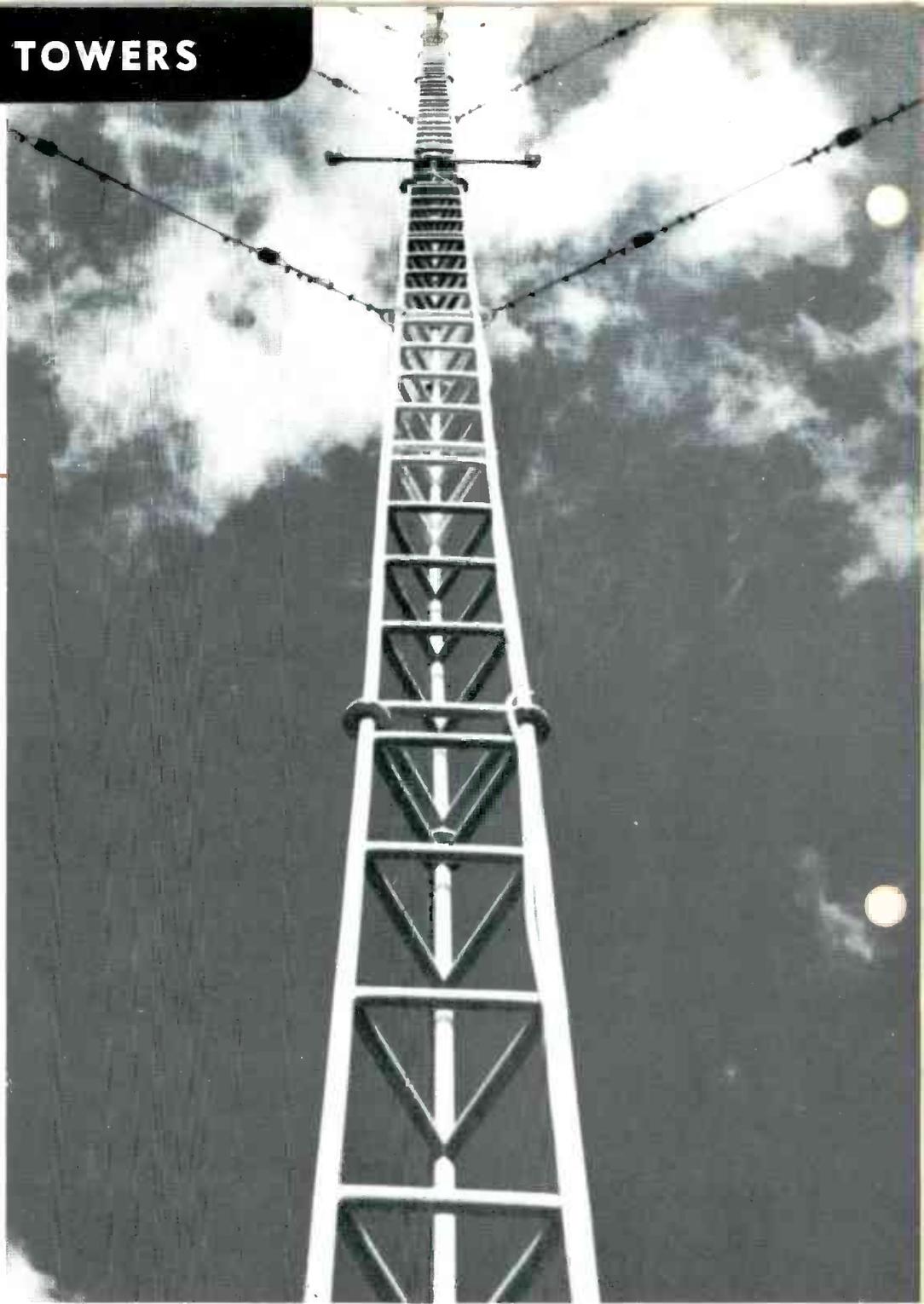
SPECIFICATIONS

FREQUENCY RANGE: 550-1600 kc
 SENSITIVITY: 10 uv/m to 10 v/m (all frequencies)
 POWER SUPPLY: 2 — 67 $\frac{1}{2}$ volt batteries, 5 — 1 $\frac{1}{2}$ volt cells
 ANTENNA: Built-in loop with electro-static shield
 WEIGHT: 12.6 pounds
 SIZE: 9" high, 13" wide, 5 $\frac{3}{4}$ " deep

AM ANTENNA TOWERS

STAINLESS

TOWER HEIGHT	TOWER TYPE
150'	G-15
160'	G-15
180'	G-15
200'	G-15
220'	G-15
240'	G-15
250'	G-15
260'	G-24
280'	G-24
300'	G-24
320'	G-24
340'	G-24
350'	G-24
360'	G-24
380'	G-36
400'	G-36
420'	G-36
440'	G-36
460'	G-36

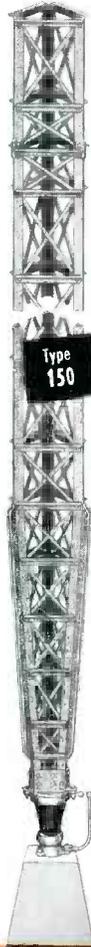
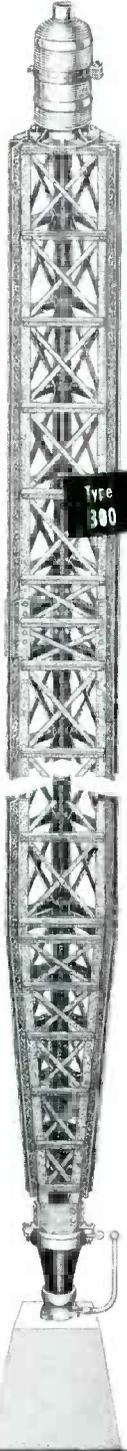


Stainless towers feature simple, clean, straightforward design for easy erection and maintenance. The towers are constructed of 20-foot welded tubular steel sections. These sections are triangular in cross-section and are secured to each other by simply bolting together the corner flanges. Guyed towers are designed for an ultimate 125 mph wind. Self-supported and special towers are quoted upon request.

AM ANTENNA TOWERS

WINCHARGER

TYPE 150 — This popular type of non-insulated tower employs this base assembly which is sturdily designed to carry its maximum height of 320'.



Type 150

TYPES 101 - 78 - 42 — This simple strong type of base assembly is used on non-insulated towers No. 101 - 78 - and 42 for their respective maximum heights as shown on the accompanying Specification Chart.



Type 101

TYPE 300 — Here's a tower base assembly with ample safety factor to support heavy duty Type 300 tower to its maximum height of 440'.



Type 78



Type 42

ALL LEGS, BRACES ETC., ARE HOT-DIPPED GALVANIZED AFTER HOLES ARE PUNCHED
Non-Galvanized Towers Optional at Lower Cost

On all towers the braces act as steps so any side can be easily climbed.

WINCHARGER NON-INSULATED TOWER BASE ASSEMBLIES ARE INDIVIDUALLY DESIGNED FOR MAXIMUM STRENGTH AND SAFETY.

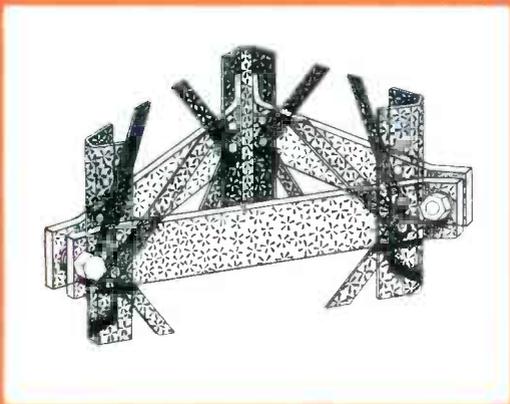
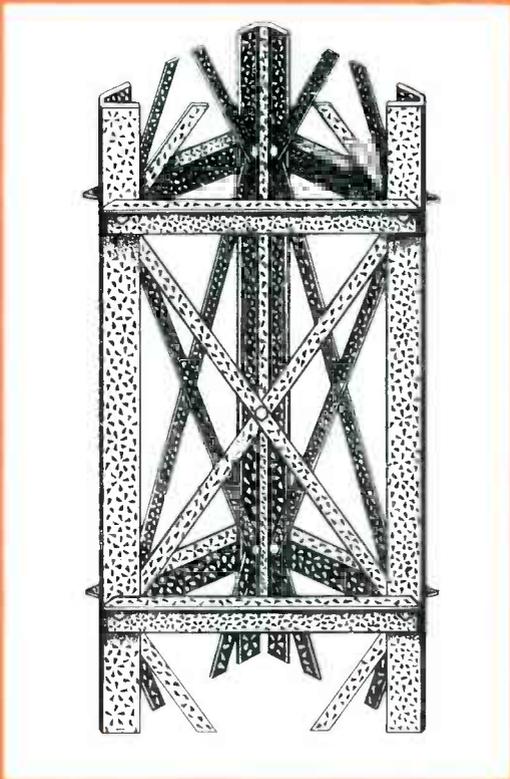
WINCHARGER TOWER

Specifications

Tower Type	Recommended Maximum Height	Tower Width	Guy Levels <small>3 Guys at each level</small>	Weight Per Ft.*	AM Power† <small>Watt Rating (1/2 Wave Length or Taller)</small>	Type of Base Insulation
300	440 ft.	28½ in.	50 ft.	30 lbs.	50,000	LOCKE or LAPP
150	320 ft.	18½ in.	40 ft.	15 lbs.	10,000	"
101	220 ft.	14½ in.	35 ft.	10.1 lbs.	5,000	"
78	155 ft.	14½ in.	35 ft.	7.8 lbs.	5,000	"
42	125 ft.	13½ in.	30 ft.	4.2 lbs.	3,000	BALL & SOCKET

*Tower steel only — weight of guys, insulators, etc. not included. † Insulation for greater power available at slight extra cost.

a WINCHARGER TOWER for *every* need



TOWER CONSTRUCTION

TYPES:

Model 9 — Heights from 30 feet to 140 feet, 20" wide.

Model 12 — Heights from 140 feet to 240 feet, 20" wide.

Model 15 — Heights from 240 feet to 340 feet, 20" wide.

Model 35 — Heights from 340 feet to 510 feet, 38" wide.

DESIGN — GENERAL:

Guyed type (guys approximately each 38 to 45 feet).

Designed to withstand 30 lbs. per sq. ft. wind load, app. 100 M.P.H.

Triangular (3 leg construction).

Uniform cross section (entire height).

Towers are angle-braced every 24 inches, facilitates climbing on any side.

Space required for guy wire anchor is a radius about base of tower equal to 75% of tower height.

GUY ASSEMBLIES:

Extra heavy steel plates completely surround the outside of the tower at each guy level. The plates are bolted to the tower legs and then the three plates are bolted to each other. The guy wires are attached to these plates. Thus, any guy wire pulls directly on opposite guy rather than tending to pull the tower apart (as occurs when guys are merely attached to a leg).

FINISH:

All steel is hot-dip galvanized — after holes are punched. Non-galvanized tower at lower prices is available. Hardware such as turn-buckles, thimbles, clips, and clamps are hot-dip galvanized. All bolts, nuts, and lock washers are electro-galvanized.

PAINT:

All towers are supplied with International Airways orange and white.

Galvanized surface is specially treated and prepared for paint.

HUGHEY & PHILLIPS TOWER LIGHTING EQUIPMENTS

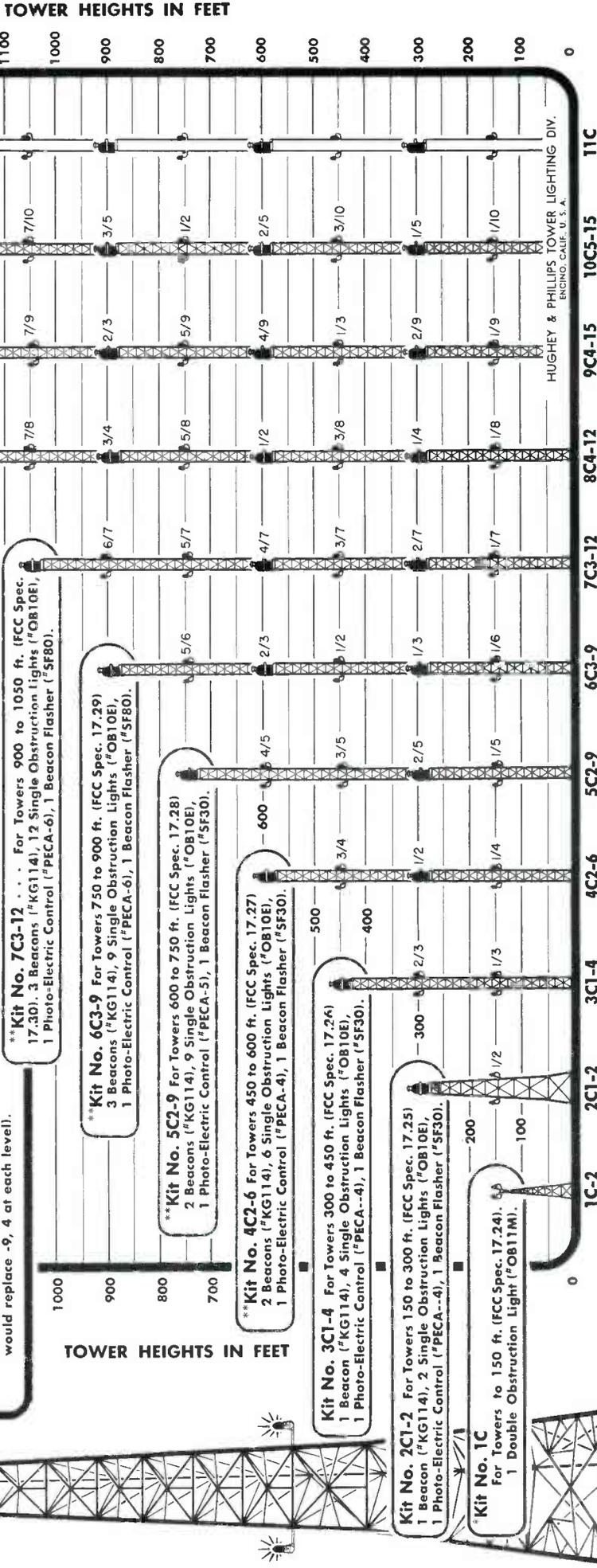
TOWER LIGHTING KITS DESIGNED TO MEET FCC. SPECIFICATIONS

Lighting Kits COST LESS AND SAVE TIME in Engineering, Purchasing, and Erection.

This chart is illustrative of the latest Federal Communications Commission Rules concerning the lighting of antenna towers and supporting structures, effective March 30, 1953. The kit numbers denote complete lighting kits consisting of every item of material necessary to wire and light a tower. No attempt is made here to list all items. In ordering lighting kits, please furnish print giving the following engineering data: Tower type and height, Guy wire details, Antenna type and height, Tower sections at all light levels, and the power source.

ORDERING INSTRUCTIONS

HUGHEY & PHILLIPS Kit Numbers are arrived at in the following manner, FOR EXAMPLE: Kit No. 6C3-9
 6 . . . is the Tower Height (750 to 900 ft.) requiring 6 light levels.
 C . . . is for Conduit Kit ("C") would replace "V" for Exposed Wire Kit.
 3 . . . is for the Number of Beacons required (Minimum No. Req. 3, Max. No. Req. 5, as per FCC Spec. 17.29) 4 or 5 would replace 3 if required.
 -9 . . . is for the Number of Obstruction Lights required (9 is the Minimum No. Req. for a Triangular Tower, 3 at each level. For a Square Tower, -12 would replace -9, 4 at each level).



Lights on each outside corner of the tower, at each prescribed level. HUGHEY & PHILLIPS Kits supply only three Single Obstruction Lights for each required level. Four will be supplied for square towers. In order to supply lighting kits for towers topped by an antenna, which requires lighting, engineering prints showing the type and overall dimensions of the antenna will also be required.

a Beacon, at any level, is obstructed from any angle, by the Tower Structure, then two Beacons must be mounted on the outside of diagonally opposite corners at this prescribed level. HUGHEY & PHILLIPS Kits include only one KG114 Beacon for each required level unless otherwise specified.

As per FCC Specifications: Towers over 450 ft. require Obstruction

* All Kit Numbers listed are Galvanized Conduit Kits. All Exposed Wire Kits will be designated with the letter E in place of the letter C. Example: 1E-2, 2E1-2, 3E1-4, etc.

** As per FCC Specifications: Towers over 450 ft. require a Beacon, within the Tower, at levels other than the top. The number of levels requiring a Beacon depends on the Tower Height. If the visibility of

ANTENNA TUNING UNITS

42E/142A



FRONT COVER REMOVED

42E ANTENNA TUNERS . . . are specially constructed units to match a vertical radiator to an unbalanced transmission line. The electrical circuit is arranged in either a T section or otherwise, depending upon the particular application. Line current and antenna current meters are provided as well as a current transformer for a remote meter. A horn gap is provided for lightning protection. Overall dimensions: 27" wide, 27 $\frac{3}{4}$ " high, 27" deep. Weight 117 pounds. Finish: gray. Weather Proof Housing.

142A SHUNT MATCHING NETWORK . . . cancels reactance for matching shunt fed antennas to a transmission line. In general the 142A is housed the same as the 42E Antenna Tuning Unit except that only one meter and one tuning inductor are supplied. Unit includes static drain choke and r-f transformer for remote antenna current meter. See 42E above for dimensions and approximate weight.

Units are designed to fit varying requirements and Collins Radio Company should be supplied the following information:

- (1) Transmitting frequency
- (2) Transmission line impedance
- (3) Tower height
- (4) Distance to tower feeder tap from ground
- (5) Distance from base of tower to tuning or matching unit

23C, D, E



TOWER LIGHTING CHOKES . . . provide thorough isolation of power lines from the r-f field. They are in all-weather housings complete with mounting brackets. Conduit terminations are provided. Three Collins Types: 23C-1, 500-watt single phase, weight 20 pounds; 23D-1, 1500-watt single phase, 20 pounds; 23E-1, 3000-watt three phase, 20 pounds.

FM ANTENNAS

The Collins 37M Series FM Ring Antennas consist of only two basic parts: (1) radiating rings and (2) connecting inter-ring transmission line. Any number of rings, either odd or even, may be employed, providing maximum flexibility in available power gains for the requirements of the particular installation.

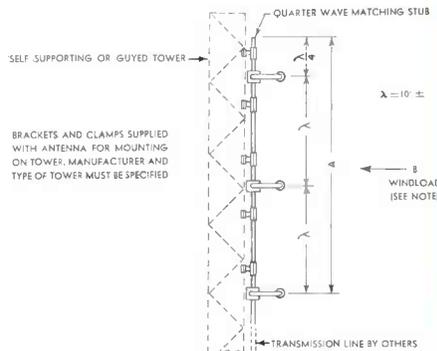
Only one inter-element transmission line is required to feed all rings in a multiple element array. The individual radiating rings are identical mechanically and electrically. They are both shunt fed and mechanically supported by this single interconnecting feed line, which consists of modified lengths of standard RETMA specification rigid coaxial transmission line of suitable size for the transmitter power being employed. The 37M terminates in a standard RETMA 51.5 ohm flange connection on the bottom element of the array for coupling directly to the transmission line.



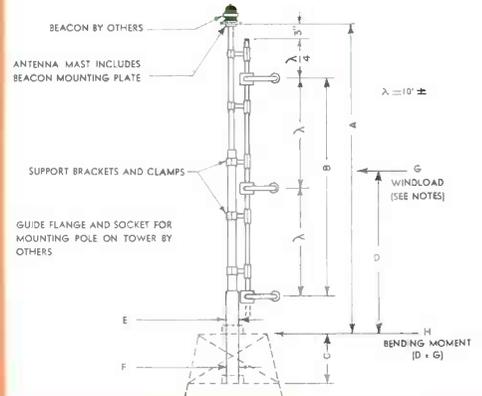
RADIATION RING

ENGINEERING DATA

SIDE MOUNTING



TOP MOUNTING



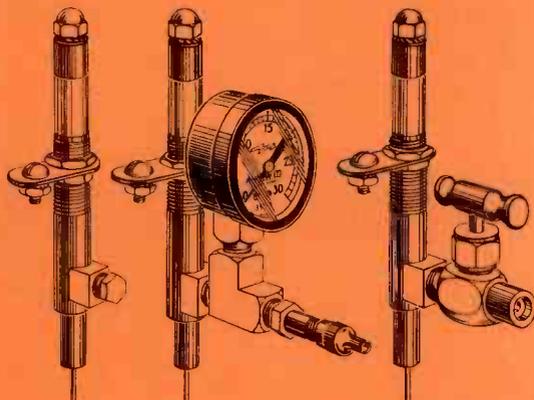
SIDE MOUNTING*

Collins Type	No. of Rings	Power Gain	Field Gain	A Feet	On 1 5/8" Line B Weight	On 3 1/8" Line B Weight
37M-1	1	.9	.95	2-6 ±	24	23
37M-2	2	2.0	1.41	12-6 ±	68	55
37M-3	3	3.0	1.73	22-6 ±	114	86
37M-4	4	4.1	2.02	32-6 ±	160	119
37M-5	5	5.2	2.28	42-6 ±	206	152
37M-6	6	6.3	2.51	52-6 ±	252	185
37M-7	7	7.3	2.70	62-6 ±	298	218
37M-8*	8	8.4	2.90	72-6 ±	344	251

*Top mounting antennas or antennas with more than eight rings quoted upon request.

1. Windloads based on 20 pounds per square foot on projected areas of cylindrical surfaces with all sections considered round.
2. Power gains compared to half wave dipole.
3. Antenna assemblies on 1 5/8 inch line are rated for power inputs at base of antenna up to 3 kilowatts for a single ring array; 6 kilowatts for two or more rings.
4. Antenna assemblies on 3 1/8 inch line are rated for power inputs up to 3 kilowatts per ring at base of antenna; with maximum of 20 kilowatts for seven or more rings.
5. Antennas for power inputs in excess of 20 kilowatts incorporate the use of a Tee feed at center of array.

COAXIAL CABLES



SEMI-FLEXIBLE COAXIAL CABLES

Andrew Type 83 Coaxial Cable is a $\frac{3}{8}$ " diameter, air-dielectric cable that is widely used in the following radio applications:

- (1) To connect transmitter to antenna in installations of 300 watts or less.
- (2) To connect communications receivers to antennas.
- (3) To connect the phase sampling pick-up device to the phase monitor in broadcast directional systems.

Type 83 Coaxial Cable is semi-flexible. The outer conductor material is a soft temper copper tubing which is easily bent by hand, although repeated flexure is not advisable. The cable is easily uncoiled and laid in place. Once installed, it provides a permanent transmission line, highly stable both electrically and mechanically.

For best results, the cable should be maintained under gas pressure at all times. (See 1701-Series Gas-Tight end terminals.)

TYPE 1701-P, TYPE 1701-GV, TYPE 1701-R GAS-TIGHT END TERMINALS: Type 1701-P has removable exhaust plug. Type 1701-GV includes pressure gauge and inlet valve for admission of gas. Type 1701-R includes needle type release valve for gas exhaust. Terminals include tin plated inner and outer connectors (not shown) for soldering to cable. Inner connection is made to husky ceramic insulator.

$\frac{3}{8}$ " DIAMETER SEMI-FLEXIBLE COAXIAL CABLE — TYPE 83

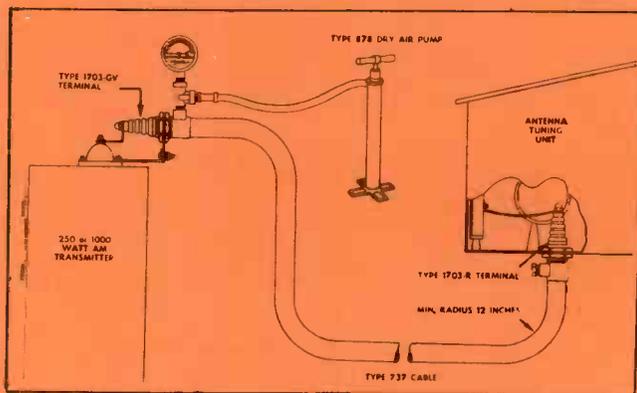
TYPE	DESCRIPTION	TYPE	DESCRIPTION
83	Coaxial cable $\frac{3}{8}$ " diameter, semi-flexible.	915-R	Coupling with gas release valve on side.
385	Shipping reel, 400-1000 feet, deposit only, refundable if returned transportation prepaid by the buyer within one year.	990	Cable cap, non-insulated, to be attached to cable at factory.
386	Shipping reel, 1000-2000 feet, deposit only, refundable if returned transportation prepaid by the buyer within one year.	990-G	Cable cap with pressure gauge, non-insulated, to be attached to cable at factory.
8319	Solder connectors, inner and outer.	990-V	Cable cap with gas inlet valve, non-insulated, to be attached to cable at factory.
1701-P	End terminal with removable exhaust plug.	990-GV	Cable cap with gauge and valve, non-insulated, to be attached to cable at factory.
1701-GV	End terminal with pressure gauge and inlet valve.	8329	Reducer connector, Type 737 to Type 83 cable.
1701-R	End terminal with gas release valve.	4868	Adapter for connecting Type 83 cable to RG-8/U or RG-11/U solid dielectric cable. Fits on Type 1701 terminal and provides male thread to fit PL-259 plug on end of solid dielectric cable. Terminal and plug not included.
853	Right angle junction box for $\frac{3}{8}$ " cable. Use where bending radius sharper than 6 inches is required.	L-12344	Adapter for connecting Type 83 cable to RG-17/U solid dielectric cable. Fits on Type 1701 terminal (not included) and includes special plug to be attached to cut end of RG-17/U.
825	T Junction box.		
830	Collar clamp (for passing cable thru panel).		
915	Coupling with side connection for $\frac{1}{4}$ " copper tubing.		

7/8" DIAMETER SEMI-FLEXIBLE COAXIAL CABLE — TYPE 737

TYPE	DESCRIPTION
737	Coaxial cable 7/8" diameter semi-flexible, 64 ohms.
386	Shipping reel, 250-1000 feet, deposit only, refundable if returned transportation prepaid by the buyer within one year.
8328-B	Solder connectors, outer and inner, per pair.
1703-P	End terminal with removable exhaust plug.
1703-GV	End terminal with pressure gauge and inlet valve.
1703-R	End terminal with pressure release valve.
61	Right angle junction box
6500	Right angle bend, 7/8" cable bent to 12" radius, with 2 solder connectors.
65	T junction box.
859	Y junction box.
K-15475-2	H junction box.
829	Collar clamp (for passing cable thru panel).
4878	Split collar clamp (two piece, for passing 7/8" cable thru panel).
917	Coupling with side connection for 1/4" copper tubing.
917-R	Coupling with gas release valve on side.
917-GV	Coupling with pressure gauge and valve on side.
980	Cable cap, non-insulated, to be attached to cable at factory.
980-G	Cable cap with pressure gauge, non-insulated, to be attached to cable at factory.
980-V	Cable cap with gas inlet valve, non-insulated, to be attached to cable at factory.
980-GV	Cable cap with gauge and valve, non-insulated, to be attached to cable at factory.
8329	Reducer connector, Type 737 to Type 83 cable.
4876-1	Adapter, Type 737 to Type 451 flanged line.

TYPE	DESCRIPTION
L-12394	Adapter for connecting Type 737 cable to RG-8/U or RG-11/U solid dielectric cable. Fits on 1703 terminal and provides male thread to fit PL-259 plug on end of solid dielectric cable. Plug and terminal not included.
L-14139	Adapter for connecting Type 737 cable to RG-8/U solid dielectric cable, using Type N fittings. Weatherproof. Fits on Type 1703 terminal (not included) and includes UG-21B/U plug, to be attached to end of RG-8/U cable.
L-12423	Adapter for connecting Type 737 cable to RG-17/U solid dielectric cable. Fits on 1703 terminal and provides male thread to fit plug UG-154/U on end of solid dielectric cable. Terminal and plug not included.
L-13223-1	Pair of swivel flanges for field attachment to Type 737 cable. Includes solderless inner connector and all necessary hardware for joining flanges.
L-13223-2	Single swivel flange for field attachment to Type 737 cable. Includes solderless inner connector and all necessary hardware.
K-14707	Blank flange with 1/8" pipe plug, for temporary capping of end of line. Attaches to L-13223-2.
K-14707-2	Same as K-14707 except with O-ring and hardware.
K-13046	Tubing cutter.
K-13137	Grooving tool, used in attaching solder couplings and end terminals.
737-103	Insulator beads.
6104	Mounting strap.
K-11487	Insulated mounting clamp.
L-11662-1	Insulated mounting clamp for attachment with Wraplock.
K-11419-2	Wraplock, for attaching cable to tower or post, can of 100 feet with locking keys. Width 3/8".
K-12395-1	Wraplock, stainless steel, can of 100 feet with locking keys. Width 1/2".

TO CONNECT 250 OR 1000 WATT AM TRANSMITTER TO ANTENNA TUNING UNIT



QUANTITY	TYPE	DESCRIPTION
(As Required)	737	Coaxial cable, end fittings attached, shipped under pressure.
1	386	Cable reel, deposit only, refundable.
1	1703-GV	Seal for 7/8 cable, with gauge and valve. Attached to cable.
1	1703-R	Seal for 7/8 cable, with gas release valve. Attached to cable.
1	8328-B	Pair of connectors. (For emergency splicing if line is damaged.)
(As Required)	6104	Cable strap, for 7/8 cable.
1	878	Hand operated dry air pump, for pressurizing line.

COAXIAL CABLES

1 5/8" DIAMETER RIGID TRANSMISSION LINES — TYPE 451

TYPE	DESCRIPTION
451	Transmission line 1 5/8" diameter, 51.5 ohms, 20 foot sections.
1051	Right angle bend.
1151	45 degree bend.
2151	Right angle junction box.
M-13273	Special angle bend for Type 451. Indicate desired angle in degrees change of direction. Maximum angle 90 degrees.
T-1251	Gas barrier.
2051	End terminal.
1351	Gas inlet coupling.
1551	Clamp connector, for providing a flange on cut end of Type 451.
1851	Connector, Type 451 to 452.
4874	Adapter, Type 451 to RG-17/U solid dielectric cable. Flange on one end; other end solders to braid of RG-17/U. Not gas tight.
M-13942	Adapter, 451 cable to RG-8/U. Fits Type N plug UG-21B/U (not included). Incorporates gas barrier and removable gas vent plug.
4876-1	Adapter, Type 451 to Type 737.

TYPE	DESCRIPTION
3451	Hardware kit for Type 451. Includes nuts and bolts for 6 flanged connections, 10 rubber gaskets, and 2 inner connectors.
L-11381-2	Set of hardware (nuts, bolts, lockwashers) for joining one pair of 1 5/8" flanges.
K-10875	Flange for Type 451 transmission line.
K-10419-2	Silver solder ring preform, for brazing flange to line.
L-10683-2	Rubber gasket for Type 451 line.
M-11473	Special length 1 5/8" transmission line with flanges on both ends. Specify length in inches.
M-13279	Special length 1 5/8" transmission line, no end flanges. Specify length in inches.
K-12234-1	Blank cover plate for capping 1 5/8" flange. With 1/8" pipe plug.
K-12430	Clamp and grounding strap, for connecting line to tower in AM-FM isolation systems.
K-14485	Rotating and fixed ring for 1 5/8" swivel flange. Includes silver solder ring preform.
K-13944	Inner connector, used in joining adjacent sections of 1 5/8" transmission lines.
K-14156	Inner connector, used in connecting 1 5/8" line to fittings.

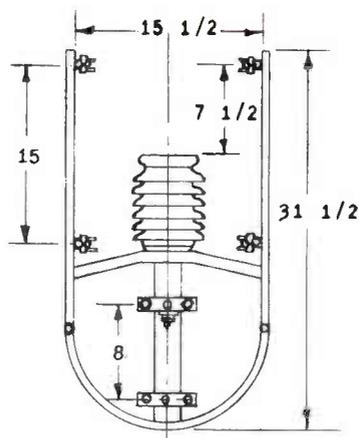
3 1/8" DIAMETER RIGID TRANSMISSION LINES — TYPE 452

TYPE	DESCRIPTION
452	Transmission line 3 1/8" diameter, 51.5 ohms, 20 foot sections.
T-1052	Right angle bend.
1152	45 degree bend.
2152	Right angle junction box.
T-1952	Special angle bend for Type 452. Indicate desired angle in degrees change of direction. Maximum angle 90 degrees.
2052	End terminal.
1352	Gas inlet coupling.
1552	Clamp connector, for providing a flange on cut end of Type 452.
1851	Reducer connector, Type 452 to 451.
M-11860	Special length 3 1/8" transmission line with flanges on both ends. Specify length in inches.
M-13277	Special length 3 1/8" transmission line, no end flanges. Specify length in inches.
2452	Hardware kit for Type 452. Includes nuts and bolts for 4 flanged connections, 10 rubber gaskets, and 2 inner connectors.

TYPE	DESCRIPTION
L-11381-3	Set of hardware (nuts, bolts, lockwashers) for joining one pair of 3 1/8" flanges.
L-10881	Flange for Type 452 transmission line.
K-10419-11	Silver solder ring preform for brazing 3 1/8" flange.
L-10683-3	Rubber gasket for Type 452 line.
K-12234-2	Blank cover plate for capping 3 1/8" flange. With 1/8" pipe plug.
K-12431	Clamp and grounding strap for connecting line to tower in AM-FM isolation systems.
K-14486	Rotating and fixed ring for 3 1/8" swivel flange. Includes silver solder ring preform.
K-15391	Inner connector, used in connecting 3 1/8" line to fittings. Not recommended for joining sections of transmission line.
K-14417	Inner connector, used in joining adjacent sections of 3 1/8" transmission line. Not recommended for connection to fittings because of mechanical interference.

OPEN WIRE TRANSMISSION LINE SUPPORT BRACKET

No. 174-1 FOR 5, 6, or 7 WIRE GROUNDED LINES



CONSTRUCTION: Center insulator supported by U-shaped channel iron frame.

MATERIAL:

Frame — Heavily galvanized channel iron
 Insulation — Wet process porcelain
 Connectors — Copper

MAXIMUM DIMENSIONS:

Height — 31 1/2"
 Width — 17"
 Height of center insulator — 8 1/2"
 Outside conductors form a square 15" on a side

ELECTRICAL:

Power Rating — up to 50 KW with proper conductors
 Surge Impedance (calculated)

Center ungrounded wires 12' above ground:

5 wire, 334 ohms, #6 conductor — 350 ohms, #8 conductor
 6 wire, 231 ohms, #6 conductor — 248 ohms, #8 conductor
 7 wire, 168 ohms, #6 conductor — 179 ohms, #8 conductor

MOUNTING:

Designed to mount on pole of 3" iron pipe (3 1/2" o.d.)
 6" x 6" wood (square) or telephone pole.

AUDIO CONSOLES

212A-1



212A-1 AUDIO CONSOLE . . . provides facilities for auditioning or rehearsing, cueing and broadcasting simultaneously from any combination of two studios, an announce booth, a control room microphone, two turntables, and any two of nine remote lines. Two program amplifiers are included to feed two independent programs, or by operating the line reversal switch, providing an emergency amplifier for normal use.

SPECIFICATIONS

FREQUENCY RESPONSE: Within 2 db, 30 — 15,000 cps.
INPUT IMPEDANCE: 30/50 or 200/250 ohms
Remote lines 150 or 600 ohms
Turn tables 30/50 or 200/250 ohms
OUTPUT IMPEDANCE: 150 or 500/600 ohms balanced
DISTORTION: Less than 1% at normal level
GAIN: Microphone to program line, 100 db
Remote line to program line, 50 db
POWER: 115 volt, 50/60 cps
WEIGHT: 150 pounds
DIMENSIONS: 42" wide, 12" high, 17½" deep
RELAY UNIT: 274D-1 or 274D-4
POWER SUPPLY: 409U-1 or 409U-2

212B



212B AUDIO CONSOLE . . . has the same features as the 212A-1 but is smaller, has fewer amplifiers and functional facilities.

Contains seven independent input channels, including 4 microphone inputs, each with its own preamplifier, 2 high level transcription inputs, and a remote pickup channel. Two models are available: The 212B-1 as described. The 212B-2 includes two additional preamplifiers for low level transcription inputs.

SPECIFICATIONS

The specifications of the 212B-1 and 212B-2 are identical with those of the 212A-1 except as follows:
WEIGHT: 107 pounds, and Dimensions: 31½" wide, 12" high, 17½" deep.
RELAY UNIT: 274D-2 or 274D-5
POWER SUPPLY: 409U-1 or 409U-2

409U-1



409U-1 CONSOLE POWER SUPPLY . . . is a wall mounting power supply for the 212A and 212B series consoles. It contains three supplies which furnish d-c power for preamplifiers, monitor and line amplifiers, and 12 volts for relay operation. In addition, it furnishes 6.3 volts a-c to operate all tubes in the console.

SPECIFICATIONS

INPUT: 105-125 volts 50/60 cycles a-c (by varying transformer taps)
WEIGHT: 70 pounds, 3 ounces
DIMENSIONS: 20½" wide, 15½" high, 10" deep
FINISH: Glossy black cabinet with metallic gray

409U-2 CONSOLE POWER SUPPLY . . . is a rack mounting power supply electrically the same as the 409U-1.

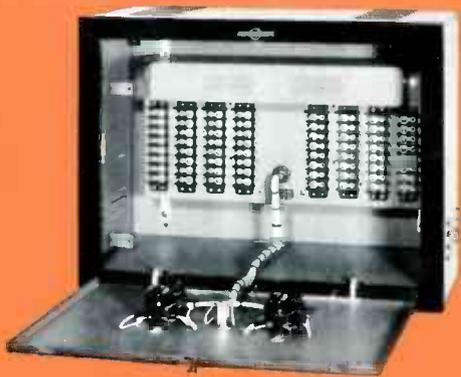
An easily removable dust cover protects the wiring.

SPECIFICATIONS

DIMENSIONS: 19" wide, 14" high, 9½" deep
FINISH: Metallic gray panel, velvet gray dust cover
WEIGHT: 61 pounds, 12 ounces

RELAY CONTROL UNITS

274D-1



274D-1 RELAY CONTROL UNIT . . . is a relay control unit for use with the 212A console. It completely controls studio and control room loudspeakers, as well as studio on-off-the-air lights. Two switches on the hinged front panel control 110 volt power to the power supply and 110 volt power to the studio warning lights.

SPECIFICATIONS

INPUT POWER: Supplied by 409U-series power supply

WARNING LIGHT POWER: 115 volts, 50/60 cycles. Circuit breaker links are supplied for currents up to 9 amperes.

DIMENSIONS: 20½" wide, 15½" high, 10" deep

WEIGHT: 17 pounds, 9 ounces

FINISH: Glossy black cabinet, metallic gray panel

274D-2



274D-2 RELAY CONTROL UNIT . . . is a wall mounted unit designed for use with the 212B console. It completely controls studio and control room loudspeakers, as well as studio on-off-the-air lights, and line voltage to the power supply and studio warning lights.

SPECIFICATIONS

INPUT POWER: Supplied by 409U-series power supply

WARNING LIGHT POWER: 115 volts, 50/60 cycles. Circuit breaker links are supplied for currents up to 9 amperes.

DIMENSIONS: 20½" wide, 11" high, 10" deep

FINISH: Glossy black cabinet, metallic gray door

WEIGHT: 13 pounds

274D-4



274D-4 CONTROL UNIT . . . is identical to 274D-1 with the exception that it is constructed for rack mounting. An easily removable dust cover protects the wiring.

SPECIFICATIONS

DIMENSIONS: 19" wide, 8¾" high, 5½" deep (with dust cover)

WEIGHT: 10 pounds

FINISH: Metallic gray panels, velvet gray cover

274D-5



274D-5 RELAY CONTROL UNIT . . . is identical with 274D-2, with the exception that it is constructed for rack mounting. An easily removable dust cover protects the wiring.

SPECIFICATIONS

DIMENSIONS: 19" wide, 7" high, 5½" deep (with dust cover)

FINISH: Metallic gray panel, velvet gray cover

WEIGHT: 7 pounds, 3 ounces



6Q-1

6Q-1 DUAL PREAMPLIFIER . . . contains two preamplifiers on one chassis.

SPECIFICATIONS

INPUT IMPEDANCE: 50 or 250 ohms
INPUT LEVEL: Commercial microphone level
OUTPUT IMPEDANCE: 600 ohms
GAIN: 47 db
FREQUENCY RESPONSE: ± 1 db 30-15,000 cps
DISTORTION: Less than 1%
NOISE: Better than -65 db
TUBES: 2-6AQ6, 2-6C4
POWER REQUIREMENTS: 140 volts d-c, 8 ma; 6.3 volts a-c or d-c, 0.6 amp
DIMENSIONS: 4 $\frac{3}{4}$ " high, 4 $\frac{1}{2}$ " wide, 10 $\frac{1}{2}$ " deep
WEIGHT: 5 pounds, 2 ounces



6N-1

6N-1 PROGRAM AMPLIFIER . . . is mounted on a console type chassis, and utilizes an external power supply such as the 409T-2. A dual section, 100,000 ohm-per-section potentiometer, for gain control, is also required, such as the Collins No. 378 0014 00.

SPECIFICATIONS

INPUT IMPEDANCE: 600 ohms matching or 20,000 ohms bridging—150 ohms available
INPUT LEVEL: Not exceeding -10 dbm
OUTPUT LEVEL: +30 dbm
OUTPUT IMPEDANCE: 600 ohms—150 ohms available
GAIN: 68 db matching, 58 db bridging
FREQUENCY RESPONSE: ± 1 db 30-15,000 cps
DISTORTION: Less than 1% at +30 dbm
NOISE: Better than -65 db
TUBES: 2—6AQ6, 2—6C4, 2—6F6
POWER REQUIREMENTS: 325 volts d-c, 5 ma; 6.3 volts a-c or d-c, 2 amp
DIMENSIONS: 5 $\frac{3}{4}$ " high, 6" wide, 10 $\frac{1}{2}$ " deep
WEIGHT: 4 pounds, 12 ounces



6S-2

6S-2 ISOLATION AMPLIFIER . . . may be used for bridging, distribution and isolation, program booster, or as a program amplifier. An external power supply such as 409T-2 required.

SPECIFICATIONS

FREQUENCY RESPONSE: 30-15,000 cps ± 1.0 db
DISTORTION: Less than 1% at any level up to +20 dbm output
NOISE: -65 db
OVERALL GAIN: +45 db line matching, +35 db bridging
INPUT LEVEL: -10 dbm max.
OUTPUT LEVEL: -20 to +20 dbm
INPUT IMPEDANCE: 600 ohms, or bridge with 20,000 ohms; 150 ohms available
OUTPUT IMPEDANCE: 600 ohms, 150 ohms available
TUBE COMPLEMENT: 2—6SN7
POWER REQUIREMENTS: 6.3 volts, 0.6 amp a-c or d-c; 100 to 250 volts d-c at 20 ma
DIMENSIONS: 5 $\frac{1}{2}$ " high, 4 $\frac{1}{2}$ " wide, 10 $\frac{1}{2}$ " deep
WEIGHT: 5 pounds, 4 ounces



6V-2

6V-2 MONITOR AMPLIFIER . . . 10 watt monitor amplifier mounted on a console type chassis. A dual section (25,000 ohm per-section) potentiometer is needed, such as Collins No. 378 0022 00 no detent; or Collins No. 378 0021 00 with detents. 62 db gain as a matching amplifier, 52 db gain as a bridging amplifier.

SPECIFICATIONS

INPUT IMPEDANCE: 600 ohms matching, or 20,000 ohms bridging
INPUT LEVEL: Not more than -10 dbm
OUTPUT IMPEDANCE: 600 ohms balanced
GAIN: 62 db matching 600 ohms; 52 db bridging with 20,000 ohms
FREQUENCY RESPONSE: ± 1 db 30-15,000 cps
DISTORTION: Less than 1% at +40 dbm (vu)
NOISE: Better than -75 db
POWER REQUIREMENTS: 325 volts d-c, 150 ma; 6.3 volts a-c or d-c 2.7 amp
DIMENSIONS: 6 $\frac{1}{2}$ " high, 6" wide, 10 $\frac{1}{2}$ " deep
TUBE COMPLEMENT: 6SN7, 6SL7, 2-6L6
WEIGHT: 7 pounds

CONSOLE TYPE SUB-UNITS

6W-2



6W-2 MONITOR AMPLIFIER . . . is a 2 watt amplifier which may be used to drive monitor speakers, or for any other applications requiring up to 2 watts. An external power supply is needed.

SPECIFICATIONS

INPUT IMPEDANCE: 600 ohms — 150 ohms available
INPUT LEVEL: Not over -10 dbm
OUTPUT IMPEDANCE: 600 ohms — 150 ohms available
GAIN: 45 db, 600 ohms matching; 33 db at 20,000 ohms bridging
FREQUENCY RESPONSE: 30 to 15,000 cps \pm 1.5 db
DISTORTION: At +30 dbm, less than 1%
NOISE: Better than -70 db from +30 dbm output
POWER REQUIREMENTS: 325 volts d-c, 50 ma; 6.3 volts a-c or d-c, 1.7 amp
DIMENSIONS: 5 $\frac{1}{2}$ " high, 4 $\frac{1}{2}$ " wide, 10 $\frac{1}{2}$ " deep
TUBE COMPLEMENT: 6SL7, 2-6F6 or 2-1621
WEIGHT: 4 pounds, 12 ounces

117P-1



117P-1 REPEAT COIL UNIT . . . consists of two coils mounted on a console type chassis. The characteristics are as follows:

INPUT IMPEDANCE: 600, 250 or 50 ohms balanced — 150 ohms available
INPUT LEVEL: +25 dbm max.
OUTPUT IMPEDANCE: 600 ohms — 150 ohms available
DISTORTION: Less than 0.2% at +25 dbm
FREQUENCY RESPONSE: \pm 0.4 db 30-15,000 cps
DIMENSIONS: 4 $\frac{1}{2}$ " high, 4 $\frac{1}{2}$ " wide, 10 $\frac{1}{2}$ " deep
WEIGHT: 1 pound, 14 ounces

409T-2



409T-2 POWER SUPPLY . . . mounted on a console type chassis 4 $\frac{1}{2}$ " wide. Mounting holes are standard for mounting in Collins consoles. By changing 2 resistors supplied in a kit, any one of the voltages and currents listed below may be obtained.

325 volts d-c, 50 ma
300 volts d-c, 100 ma
250 volts d-c, 50 ma
250 volts d-c, 75 ma
250 volts d-c, 100 ma
Also 6.3 volts a-c, 5 amp, CT

SPECIFICATIONS

TUBE: 5R4GY
OUTPUT CONNECTIONS: Solder type terminals
INPUT: 115 volts a-c, 50/60 cps
DIMENSIONS: 8 $\frac{1}{2}$ " high, 4 $\frac{1}{2}$ " wide, 10 $\frac{1}{2}$ " deep
WEIGHT: 8 pounds, 4 ounces

6R-2



6R-2 ISOLATION AMPLIFIER . . . employs a gain control in twenty steps of 2 db each. Provisions have been made for external metering of the tube currents.

SPECIFICATIONS

FREQUENCY RESPONSE: 30-15,000 cps \pm 1.0 db
DISTORTION: 1% max, at any level up to +20 dbm
NOISE: -65 db
OVERALL GAIN: +45 db as line amplifier, +35 db as bridging amplifier
OUTPUT LEVEL: -20 to +20 dbm
MAXIMUM INPUT LEVEL: -10 dbm
INPUT IMPEDANCE: 600 ohms, or bridge with 20,000 ohms — 150 ohms available
OUTPUT IMPEDANCE: 600 ohms — 150 ohms available
TUBE COMPLEMENT: 2 — 6SN7
POWER REQUIREMENTS: 6.3 volts, 0.6 amp a-c or d-c; 100 to 250 volts d-c at 20 ma. Collins 409T-1 or 409T-3 power supply recommended
DIMENSIONS: 19" wide, 3 $\frac{1}{2}$ " high, 8 $\frac{1}{8}$ " deep
FINISH: Metallic gray
WEIGHT: 10 $\frac{1}{2}$ pounds

RACK MOUNTED AMPLIFIERS

26W-1



26W-1 LIMITING AMPLIFIER . . . is recommended for use in any AM, FM or TV installation to control the amplitude of audio. Limiting prevents overmodulation and accompanying distortion, permits a higher average modulation level.

SPECIFICATIONS

FREQUENCY RANGE: 50-15,000 cps ± 1.0 db
INPUT IMPEDANCE: 200, 600 ohms, or bridging
INPUT LEVEL: -25 to +25 dbm
OUTPUT IMPEDANCE: 600 ohms
OUTPUT LEVEL: -12 to +18 dbm
COMPRESSION RATIO: 18/1 in db above verge of compression.
OPERATE TIME: Adjustable 1.0, 3.0, or 10.0 milli-seconds
RELEASE TIME: 1.0, 2.5, or 5.0 seconds
HUM AND NOISE: -65 db below output level
CONTROLS: Input and output attenuators, vu range switch, and meter selector switch
POWER SOURCE: 115 volts a-c, 50/60 cps
DIMENSIONS: 14" high, 19" wide, 9" deep, for rack mounting
WEIGHT: 45 pounds (55 pounds shipping weight)
FINISH: Metallic gray panel

6P-1



6P-1 PREAMPLIFIER . . . operates from a low level microphone or similar source and has sufficient output to drive a program amplifier.

SPECIFICATIONS

INPUT IMPEDANCE: 30/50, 200/250, or 500/600 ohms
OUTPUT IMPEDANCE: 600 ohms (150 ohms available)
INPUT LEVEL: Commercial microphone level
OUTPUT LEVEL: -35 to -15 dbm
OVERALL GAIN: 45 db in high position, 35 db in low position
FREQUENCY RESPONSE: 30-15,000 cps ± 1.0 db
NOISE LEVEL: -65 db from program level
DISTORTION: Less than 1.0% at program level
TUBE COMPLEMENT: 2-1620 or 2-6J7
POWER REQUIREMENTS: 6.3 volts a-c, 0.6 amps; 180 volts d-c, 6 ma.
Collins 409T-1 or 409T-3 power supply recommended.
MOUNTING DIMENSIONS: 19" wide, 3 1/2" high, 7 1/2" deep
FINISH: Metallic gray
WEIGHT: 11 pounds

6T



6T MONITOR AMPLIFIER . . . is a 2 watt monitor amplifier having a self-contained power supply.

SPECIFICATIONS

INPUT IMPEDANCE: 600 ohms matching, or 20,000 bridging
OUTPUT IMPEDANCE: 600, 150, 16, 8 and 4 ohms
FREQUENCY RESPONSE: 30-15,000 cps ± 2 db
GAIN: 55 db matching 600 ohms; 45 db bridging with 20,000 ohms
DISTORTION: Less than 3%
NOISE: -65 db
OUTPUT LEVEL: +33 dbm
MAXIMUM INPUT LEVEL: +10 dbm
TUBES: 2-12AU7, 2-6AQ5, 2-6X4
FINISH: Metallic gray
MOUNTING DIMENSIONS: 5 1/4" high, 19" wide, 6 1/2" deep
POWER REQUIREMENTS: 115 volts a-c, 50/60 cps
WEIGHT: Approximately 15 pounds

6X-2



6X-2 MONITOR AMPLIFIER . . . high fidelity 10 watt monitor amplifier with self-contained power supply.

SPECIFICATIONS

INPUT IMPEDANCE: 600 ohms matching, 20,000 ohms bridging (150 ohms available)
OUTPUT IMPEDANCE: 600 ohms, balanced
OUTPUT LEVEL: +40 dbm (10 watts, 12 watts max.)
OVERALL GAIN: 55 db maximum
FREQUENCY RESPONSE: 30 to 15,000 cps ± 1.5 db
NOISE LEVEL: Better than 70 db below output level
DISTORTION: Less than 2% from 50 to 15,000 cps, 10 watts output
TUBES: 1-6SN7, 1-6SL7, 2-6L6G's, 1-5Y4G
POWER SOURCE: 115 volts a-c, 50/60 cps
MOUNTING DIMENSIONS: 8 3/4" high, 19" wide, 10 1/4" deep
WEIGHT: 34 pounds, 10 ounces
FINISH: Metallic gray

METERING UNITS

62E-2



62E-2 VU PANEL . . . accurately monitors audio levels in broadcasting, recording studios, and sound systems. A Weston type 30 meter is provided, with illuminated face and easily read figures. Overswing is small, and pointer action is deliberate and positive. The 62E vu panels are designed to operate from a 600 ohm line. However, other impedances may be used in conjunction with a calibration chart.

SPECIFICATIONS

INPUT IMPEDANCE: 7500 ohms constant except on the 1 mw calibration position
ATTENUATOR RANGE: +4 db to +40 db in 2 db steps, T-type construction
NUMBER OF INPUT CIRCUITS: Four
FREQUENCY RANGE: Constant response within 0.2 db up to 10,000 cps
POWER REQUIREMENTS FOR METER ILLUMINATION: 6.3 volts a-c or d-c, 0.3 amp
DIMENSIONS: 19" wide for standard rack mounting, 5 $\frac{1}{4}$ " high
FINISH: Metallic gray
WEIGHT: 9 pounds

82D-7



METER PANEL TYPE 82D-7 . . . accommodates four meters of the Weston type 301 size (not supplied), and is equipped with a dust cover 7 $\frac{1}{2}$ " deep.

SPECIFICATIONS

DIMENSIONS: 19" wide, 5 $\frac{1}{4}$ " high, 5" deep
FINISH: Metallic gray
WEIGHT: 6 pounds

82T-1



82T-1 METERING UNIT . . . is wired to accommodate 10 plate metering circuits, and 10 cathode metering circuits. By adding jumpers on the terminal strip, the unit will operate for 20 cathode circuit measurements.

The basic meter movement is 1 ma full scale, and is calibrated 0 to 5. It will indicate currents of 0-5, 0-50, and 0-500 ma with a 25 ohm, 2.04 ohm or 0.22 ohm multiplier resistor. In addition, a twenty-first position allows a check of the a-c voltage in the rack.

SPECIFICATIONS

DIMENSIONS: 12" wide, 5 $\frac{1}{4}$ " high, 7 $\frac{1}{2}$ " deep
WEIGHT: 10 pounds
FINISH: Metallic gray
CURRENT RANGE: 0-5, 50, 500 ma (with appropriate circuit)
A-C METERING: Indicates 120 volts center scale, and shows variations of 5 volts per 1 scale division from 80 to 130 volts. (Scale not calibrated for a-c volts.)

409T-1



409T-1 POWER SUPPLY . . . supplies plate and filament power, with a tapped primary for voltage adjustment. Collins 6P preamplifiers and 6R isolation amplifiers may be mounted in the same rack with the 409T-1 power supply.

SPECIFICATIONS

TUBES: 2—6X5
 PLATE SUPPLY VOLTAGE: 250 volts d-c, 100 ma
 FILAMENT SUPPLY VOLTAGE: 6.3 volts a-c, 5.0 amps
 DIMENSIONS: 19" wide, 5¼" high, 7½" deep
 WEIGHT: 24½ pounds
 FINISH: Metallic gray panel, velvet gray dust cover

409T-3



409T-3 POWER SUPPLY . . . rack mounted on a 3½" panel. Connections are made to a covered terminal board at the rear. Any one of the output voltages and currents listed below is made available by changing two resistors supplied in a kit.

SPECIFICATIONS

RIPPLE VOLTAGE: .005 volts at 250 volts d-c, 50 ma
 OUTPUT: 325 volts d-c, 50 ma
 250 volts d-c, 50 ma
 180 volts d-c, 50 ma
 140 volts d-c, 50 ma
 250 volts d-c, 25 ma
 140 volts d-c, 20 ma
 6.3 volts d-c, 3 amp
 TUBES: 1-6X5
 FINISH: Metallic gray
 WEIGHT: 11 pounds
 INPUT: 115 volts a-c 50/60 cps

414F-3



414F-3 RELAY POWER SUPPLY . . . well filtered, well regulated d-c power source for operating relays and pilot lights. An on-off switch and a pilot light are mounted on the front of the cabinet. A fuse receptacle is available through the access door.

SPECIFICATIONS

DIMENSIONS: 20½" wide, 11" high, 10" deep
 WEIGHT: 35 pounds
 FINISH: Metallic gray door, glossy black cabinet
 INPUT: 105-125 volts a-c, 50/60 cps
 OUTPUT: 12 volts d-c, 5 amperes; 12.6 volts a-c center tapped, 5 amperes

414F-4



414F-4 RELAY POWER SUPPLY . . . is designed for operation of small number of relays. This unit provides a source of 12 volts d-c at 1 ampere, and 12.6 volts a-c center tapped, at 3.5 amperes.

SPECIFICATIONS

POWER SOURCE: 115 volts a-c, 50/60 cps
 DIMENSIONS: 19" wide, 3½" high, 7" deep
 WEIGHT: 8¾ pounds
 FINISH: Metallic gray

JACK PANELS

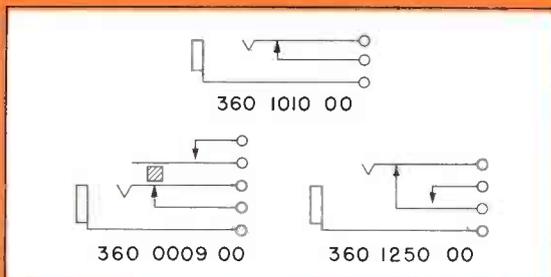
265D



TYPE 265D JACK PANELS . . . provide connections for test purposes or for terminating program lines and order wires. Lines, amplifiers, microphones, equalizers, and other audio equipment can be speedily interchanged for maintenance or emergency operation. These jack panels mount in standard 19-inch racks. Regularly supplied with Collins 360 1010 00 jack.

Type No.	Description	Height	Weight
265D-1	12 pr. jacks	1 $\frac{3}{4}$ "	3 $\frac{3}{4}$ pounds
265D-2	24 pr. jacks	3 $\frac{1}{2}$ "	6 $\frac{1}{2}$ pounds
265D-3	48 pr. jacks	5 $\frac{1}{4}$ "	11 $\frac{1}{2}$ pounds
265D-4	72 pr. jacks	7 "	17 pounds
265D-5	96 pr. jacks	10 $\frac{1}{2}$ "	22 $\frac{1}{2}$ pounds
265D-6	120 pr. jacks	12 $\frac{1}{4}$ "	28 pounds

JACKS



LONG FRAME TWO CIRCUIT JACKS

CIRCUIT	PART NUMBER
Break one, make one	360 0009 00
Break one	360 1010 00
Make before break	360 1250 00

PATCH CORDS

PATCH CORDS . . . for use with jack strips are available in lengths from 6 inches to 10 ft. The plugs are of the shielded type, with the sleeves tied together and grounded. The circuit is maintained through connections to the plug tips.



LENGTH	PART NO.
$\frac{1}{2}$ ft.	361 0010 00
1 ft.	361 0011 00
2 ft.	361 0012 00
3 ft.	361 0013 00
4 ft.	361 0014 00
5 ft.	361 0015 00
10 ft.	361 0016 00

PROGRAM EQUALIZERS

116F-1



116F-1 PROGRAM EQUALIZER . . . provides complete facilities for controlling the frequency response of program and communication circuits. Since this unit has an insertion loss of 30 db, the Collins 6R Isolation Amplifier in association returns the level to normal, plus gain if desired.

SPECIFICATIONS

INPUT AND OUTPUT IMPEDANCE: 600 ohms, unbalanced
EQUALIZATION FREQUENCIES: 30, 50, 100 or 200 cps;
5, 7, 10, or 15 kc
FREQUENCY RANGE: 30-15,000 cps
DIMENSIONS: 19" width, 5 $\frac{1}{4}$ " height, 7 $\frac{1}{2}$ " depth
WEIGHT: 15 pounds
FINISH: Metallic gray

116E-3



116E-3 AND 116E-4 EQUALIZERS . . . are especially suited for stations having a variety of remote programs coming from different lines. The 116E-3 and -4 offer equalization in the high frequency ranges only. Dial calibration reduces line equalization time to a single run to find the line characteristics.

SPECIFICATIONS

116E-3 Equalizer

INPUT AND OUTPUT IMPEDANCE: 600 ohms unbalanced
EQUALIZATION FREQUENCIES: 5, 7, 10, and 15 kc
MAXIMUM BOOST: Approx. 30 db
INSERTION LOSS: Approx. equal to amount of equalization used
FREQUENCY RANGE: 30 to 15,000 cps
DIMENSIONS: 19" wide, 3 $\frac{1}{2}$ " high, 7 $\frac{1}{4}$ " deep
WEIGHT: 6 pounds, 7 ounces
FINISH: Metallic gray panel; flat gray back

116E-4



116E-4 Equalizer

INPUT AND OUTPUT IMPEDANCE: 600 ohms unbalanced
EQUALIZATION FREQUENCIES: 5, 7, 10, and 15 kc
MAXIMUM BOOST: Approx. 30 db each channel
INSERTION LOSS: Approx. equal to amount of equalization used
FREQUENCY RANGE: 30 to 15,000 cps
DIMENSIONS: 19" wide, 3 $\frac{1}{2}$ " high, 8 $\frac{1}{4}$ " deep
WEIGHT: 9 pounds, 7 ounces
FINISH: Metallic gray

117N-2



117N-2 REPEAT COIL PANEL . . . is a complete assembly including chassis, terminal board, and dust cover, but less repeat coils. This unit will accommodate four Thordarson type repeat coils with an R-4 case. Fifty terminals on the board make connections to external equipment. The Dust cover is held on by two convenient Dzus fasteners.

SPECIFICATIONS

DIMENSIONS: 5 $\frac{1}{4}$ " high, 19" wide, 5" deep

WEIGHT: 7 $\frac{1}{2}$ pounds (less coils)

FINISH: Metallic gray panel, velvet gray dust cover

268A-1, B-1



268A-1/268B-1 ATTENUATOR PANELS . . . Separate gain control may be maintained over incoming and outgoing lines, auxiliary amplifiers, and speakers, by the use of the Collins 268A-1 and 268B-1 attenuator panels. The 268A-1 consists of two balanced ladder attenuators while the 268B-1 features two bridged-tee type attenuators. Both types have 20 steps, 2 db attenuation per step, with infinite attenuation in the last step. Connections are conveniently brought out to a terminal strip on the rear. The front panel is attractively engraved to indicate decibels of attenuation.

SPECIFICATIONS

DIMENSIONS: 3 $\frac{1}{2}$ " high, 19" wide, 4" deep

INPUT OR OUTPUT IMPEDANCE: 600 ohms—other impedances available

WEIGHT: 268A-1, 8 pounds, 14 ounces

FINISH: Metallic gray

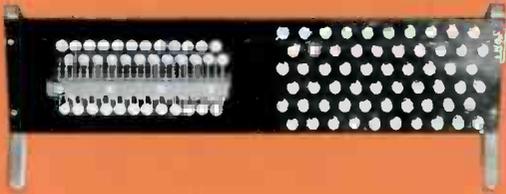
112B-1



112B-1 SWITCH AND FUSE PANEL . . . provides primary a-c control over ten different circuits. A heavy-duty circuit breaker, operated by a snap action switch, carries the total a-c load, and each of the ten circuits is individually fused. A door in the front panel furnishes convenient access to the fuses. The panel is 5 $\frac{1}{4}$ " high, and mounts in a standard 19" rack. Metallic gray finish. Weight, 6 $\frac{1}{2}$ pounds. Complete with set of extra circuit-breaker heaters for operation at 3, 5 or 7 amperes. Furnished with 9 ampere link installed.

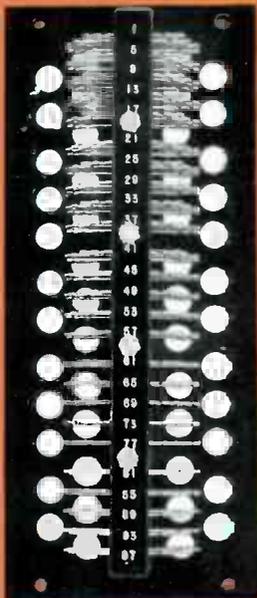
TERMINAL BOARDS

151K-1



151K-1 . . . is used in the base of rack mounting cabinets. It contains 96 telephone type solder terminals for audio connections, and 60 heavy duty threaded stud type terminals for power connections. Weight, 2 pounds, 14 ounces.

151K-5



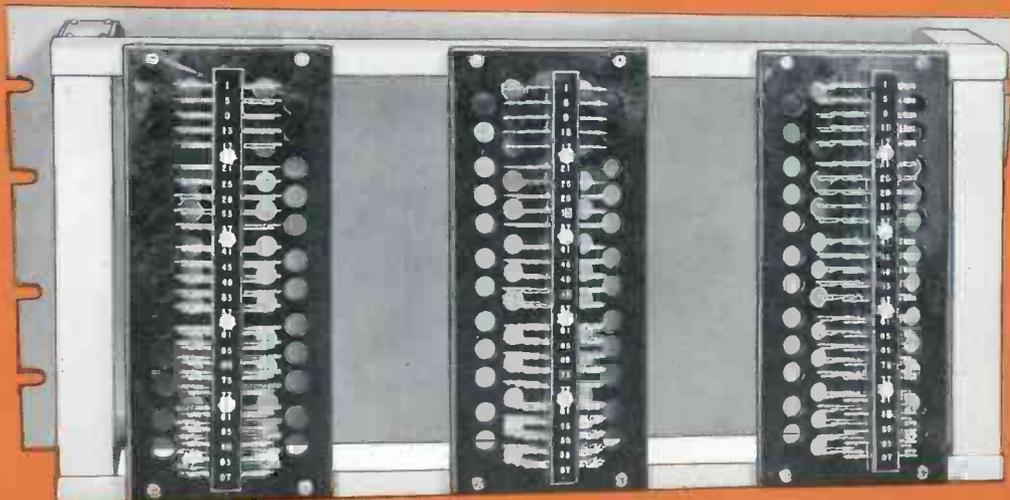
151K-5 . . . is a terminal board consisting of 100 telephone type terminals, 25 in a row, 4 rows deep, on a 3½" x 8" bakelite board which has 7½" x 2½" mounting centers. Weight, 1 pound.

151K-4 . . . has 4—151K-5's assembled on an inclined plane on an 8¾" x 19" panel, for standard rack mounting. The assembly is 7½" deep. Weight, 7 pounds.

151K-3 . . . is identical to the 151K-4 except it has only 3—151K-5's assembled on a panel. Weight, 8 pounds.

151K-6 . . . is similar to the 151K-1 except that 144 telephone type terminals are provided as well as the 60 heavy duty terminals. Weight, 3 pounds.

151K-3



WARNING LIGHT ASSEMBLIES

209A-1



209A WARNING LIGHT ASSEMBLIES . . . are constructed of aluminum sheet metal with a divided light compartment. Each of the two light compartments contains two 7½ watt 110-volt a-c bulbs and sockets to provide illumination of the lettering.

The 209A-1 flush type is mounted with the light box recessed in the wall, using the light box as the junction box, or mounting it to a standard junction box recessed deeper into the wall. The cover plate mounts directly to the wall with four screws.

The 209A-2 external type is mounted with the light box directly over a standard junction box which is recessed in the wall the usual depth. The cover plate mounts directly to the light box with two screws.

The signs are made of boilable lucite with a black surface except for colored lettering. Special wording is available at additional cost. The weight of each sign is 2 oz. The four available signs are:

ON THE AIR	Red letters	STAND BY	Green letters
ON THE AIR	Red letters	AUDITION	Green letters
ON THE AIR	Red letters	REHEARSAL	Green letters
AM	Red letters	FM	Green letters

209A-2



SPECIFICATIONS

209A-1 — For mounting flush with the wall (sign ordered separately)

DIMENSIONS: 4⅝" high, 7⅜" wide, 2" deep

WEIGHT: 11 ounces.

209A-2 — For wall mounting (sign ordered separately)

DIMENSIONS: 4⅝" high, 9½" wide, 2" deep

WEIGHT: 15 ounces.

HOOKUP WIRE

TWO CONDUCTOR No. 20: Two insulated conductors, twisted and covered by tinned copper braid. Each conductor No. 20AWG, 3 amp. capacity. Two solid colors, or solid color with tracers. Shielding: 96 strands No. 34AWG tinned copper wire braided in groups of 4 strands side by side. Types available:

Solid conductor fiber-glass braid insulation.

Solid conductor lacquered or unlacquered cotton braid insulation. Seven strands minimum. Fiber-glass braid insulation.

Seven strands minimum. Lacquered or unlacquered cotton braid insulation.

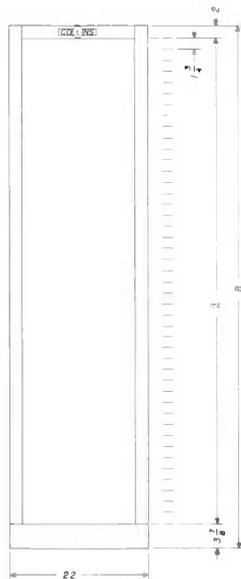
TWO CONDUCTOR No. 16: Each conductor color coded, No. 16AWG (19 strands minimum). 15 amps a-c, 1000 volts rms. Lacquered cotton braid insulation. Shield: 90 (minimum) strands of No. 32 to No. 38AWG tinned copper wire with 5 (minimum) strands

running side by side. Overall diam.: 0.32" maximum. Collins Part No.: 425 0061 00.

TWO CONDUCTOR No. 12: Each conductor No. 12AWG (19 strands minimum). 20 amp a-c, 1000 volts rms. Lacquered cotton braid insulation color coded. Shield: 92 strands of No. 34AWG tinned copper wire with 4 strands side by side. Overall diameter: 0.420" maximum.

MICROPHONE CABLE (RUBBER): Two insulated conductors, twisted, covered by tinned copper shielding and encased in rubber. Diam. approx. 0.285". Each conductor: 26 strands No. 34AWG tinned soft annealed wire twisted for flexibility. Equivalent to No. 20 AWG 3 amp 300 volts. Rubber covering $\frac{1}{64}$ ", one white, one black. Shield: 96 strands of No. 34AWG tinned copper wire, braided with 4 strands running side by side. Jacket $\frac{3}{64}$ " black rubber.

RACK CABINETS



Type 619B Cabinets are sturdily constructed of sheet metal, conveniently drilled to accommodate standard 19" panels of any height. A hinged full-length rear door provides immediate access to all units mounted in the cabinet. Adequate ventilation is obtained through louvers in the door and through an opening in the top that is protected from dust by a baffle plate. The outside depth of the cabinet is 18 inches.

These cabinets are available in metallic gray finish. Black lacquered style strips are furnished with each cabinet.

619B cabinets are furnished in two sizes, the 619B-1 having 77" panel mounting space, and the 619B-2 which has 70" panel mounting space. Overall heights are 83" and 76" respectively.

BLANK PANELS

Height	Weight
1 3/4"	10 ounces
3 1/2"	1 pound, 4 ounces
5 1/4"	1 pound, 14 ounces
7 "	2 pounds, 8 ounces
8 3/4"	3 pounds, 2 ounces
10 1/2"	3 pounds, 12 ounces
12 1/4"	4 pounds, 6 ounces
14 "	5 pounds,

Standard blank panels are $\frac{3}{16}$ " aluminum, with metallic gray finish notched to fit 19" racks. Other metals and colors are available on special order.

12Z-2/-3



12Z-2 AND 12Z-3 REMOTE AMPLIFIERS . . . are light-weight, small-size a-c and battery-operated remote amplifiers featuring double program protection, convenience, and excellent performance. Design includes combination of four input channels with individual controls, a master control, an a-c power supply, with automatic change over to self contained batteries in the event of a-c line failure.

SPECIFICATIONS

GAIN: Approximately 90 db
 NOISE LEVEL: 60 db below program level or better
 POWER OUTPUT: 50 milliwatts (+17 dbm)
 DISTORTION: Less than 1% at typical operating levels
 FREQUENCY RESPONSE: ± 1 db 50 to 15,000 cps
 INPUT IMPEDANCE: 30/50 ohms for 12Z-2; 200/250 ohms for 12Z-3
 OUTPUT IMPEDANCE: 600 ohms (150 ohms available on order)
 CASE: Welded aluminum alloy, finished in black wrinkle
 CARRYING CASE: Leather reinforced canvas
 MICROPHONE CONNECTIONS: Cannon type P-3-13 supplied—(Hubbell and other types available)
 POWER SOURCE: 110 volts a-c and self contained batteries
 WEIGHT: With 3 45-volt B batteries and 5 A batteries approximately 40 pounds; 28 pounds without batteries
 SIZE: 14 $\frac{1}{2}$ " wide, 11 $\frac{1}{2}$ " high, 8 $\frac{1}{4}$ " deep

212Y



212Y SINGLE CHANNEL REMOTE AMPLIFIER . . . combines small size and light weight with high fidelity. One high fidelity channel is incorporated, which operates from a low level velocity, dynamic or other self-generating microphone. A universal input transformer matches all low impedance commercial type microphones.

The 212Y Remote Amplifier is available in two models; the 212Y-1 which has a Cannon XL-3-13 microphone connector, and the 212Y-2 which has a Cannon P3-13 microphone connector.

SPECIFICATIONS

SIZE: 7" wide, 4 $\frac{3}{4}$ " high, 6 $\frac{1}{4}$ " deep
 WEIGHT: 10 pounds
 NUMBER OF CHANNELS: One
 GAIN: 85 db max.
 INPUT IMPEDANCE: 30/50 ohms or 200/250 ohms
 OUTPUT IMPEDANCE: 600 ohms
 POWER OUTPUT: +17 dbm
 DISTORTION: Less than 1.0% between 30-15,000 cps
 NOISE LEVEL: 65 db below normal program level
 TUBES: 2-6AQ6, 1-6AK6, 1-7Y4
 FREQUENCY RESPONSE: Within 1.0 db; 30-15,000 cps
 FINISH: Black anodic aluminum panel, black wrinkle cover
 CARRYING CASE: Leather reinforced canvas with pouch
 POWER SOURCE: 115 volts a-c, 50/60 cps (self contained)
 BATTERY OPERATION: Requires 412C-2 battery box and cable

60H



60H TWO CHANNEL REMOTE MIXER . . . is a two-position, low-level mixer to be used in conjunction with the Collins 212Y Remote Amplifier. It consists of a mixer chassis in a cabinet which has an opening for the insertion of the 212Y Amplifier. The 212Y slides into the 60H mixer case exactly as it does into its own case.

A standard 3-inch vu meter with adjustable range extension attenuator is provided for visual monitoring of the program material, while headphone monitoring is accomplished as before in the 212Y amplifier.

SPECIFICATIONS

INPUT IMPEDANCE: 60H-2, 30/50 ohms; 60H-3, 150 ohms; 60H-4, 200/250 ohms
 OUTPUT IMPEDANCE: 60H-2, 50 ohms; 60H-3, 250 ohms; 60H-4, 250 ohms
 INSERTION LOSS: 60H-2, 6 db; 60H-3, 10 db; 60H-4, 4.5 db
 NUMBER OF INPUT CHANNELS: Two
 MICROPHONE RECEPTACLE: Cannon type XL-3-13 (adapters available for other standard types)
 FINISH: Black anodic aluminum panel, black wrinkle cover
 DIMENSIONS: 14" wide, 6" high with legs (4 $\frac{3}{4}$ " high less legs), 7 $\frac{1}{2}$ " deep
 CARRYING CASE: Leather reinforced canvas with pouch
 WEIGHT: Mixer and carrying case only, 6 pounds

REMOTE AMPLIFIERS

212U

212U TWO CHANNEL REMOTE AMPLIFIER . . . consists of a 60H mixer and a 212Y amplifier. Both units are mounted in a single aluminum cabinet. A carrying case is provided with both shoulder strap and handle. The a-c cord is connected to the 212Y unit while the interconnecting cable associated with the 412C-2 battery box is required for battery operation.



SPECIFICATIONS

INPUT IMPEDANCE: 212U-1, 30/50 ohms; 212U-2, 150 ohms; 212U-3, 200/250 ohms

OUTPUT IMPEDANCE: 600 ohms

POWER OUTPUT: 17 dbm (1 mw 600 ohms ref. level)

DISTORTION: Less than 1½% between 50-15,000 cps

NOISE LEVEL: Better than 65 db below program level

FREQUENCY RESPONSE: ±2 db, 30-15,000 cps

GAIN: 85 db less mixer insertion loss

SIZE: 14" width, 6" height with legs (4¾" less legs), 7½" depth

WEIGHT: 13 pounds

POWER SOURCE: 117 volts a-c 60 cps; power supply self-contained

412C



412C BATTERY BOX . . . is recommended for use with the 212Y and 212U Remote Amplifiers. The 412C-2 battery box is sturdily constructed, and holds the batteries securely. Space in the top of the case receives the 6 ft. rubber jacketed cable for transportation. Three thumb screws hold the clamp which secures all of the batteries in place.

SPECIFICATIONS

FINISH: Black wrinkle

DIMENSIONS: 10¾" wide, 6½" deep, 9¾" high

WEIGHT: With batteries approximately 22 pounds

BATTERIES: 4—Burgess M30 or Eveready 482 or equivalent; 5—Burgess 4F or Eveready 742 batteries, or equivalent

CONNECTOR ADAPTERS

65S-5
with Hubbell
7555



65S-6
with Hubbell
7484



65S-4
with Hubbell
23002



65S-3
with Hubbell
7082



65S-2
with Cannon
P3-CG-11S



MICROPHONES

RCA



77D POLYDIRECTIONAL . . . is adjustable by means of a slotted shaft on the rear side of windscreen. Supplied with 3-position "Voice-Music" switch for selection of best operating characteristics for voice or music. Two-tone umber gray.

IMPEDANCE: 30, 150, or 250 ohms (tapped)
RESPONSE: 50-15,000 cps
OUTPUT LEVEL: -59 db (1 mw/10 dynes per sq. cm.)
WEIGHT: 3 pounds



44-BX VELOCITY . . . provides excellent reproduction of entire audio frequency range. Pickup of reflected sound reduced. Neutral gray satin chrome.

IMPEDANCE: 30, 150, or 250 ohms
RESPONSE: 50-15,000 cps
OUTPUT LEVEL: -55 dbm
WEIGHT: 8½ pounds



BK-1A PRESSURE . . . is ideal for remote pickups, outdoor use where constant handling by announcer is necessary. Light-weight, small portable.

IMPEDANCE: 30, 150, or 250 ohms
RESPONSE: 60-10,000 cps
OUTPUT LEVEL: -52 dbm
WEIGHT: 3 pounds

ALTEC



633-A DYNAMIC . . . is non-directional or may be given directivity by use of 8B baffle. For non-directional use, the 633-A is mounted vertically on stand or suspended by its cordage.

IMPEDANCE: 20 ohms
RESPONSE: 40-10,000 cps
OUTPUT LEVEL: -59 dbm/10 dynes per sq. cm.



639A, B . . . are each a combination of a dynamic moving coil pressure element and an improved ribbon type velocity actuated element. The 639A has 3 patterns selected by a screwdriver operated switch: C, Cardioid; D, Dynamic; R, Ribbon.

IMPEDANCE: 40 ohms (work into 25 to 50 ohms)
RESPONSE: 40 to 10,000 cps
OUTPUT LEVEL: -56 dbm, 10 dynes per sq. cm.



670 CARDIOID . . . features a ribbon-type element coupled to an acoustical network. Equipped with a swivel head with a 5/8" x 27 stand thread and three-prong microphone receptacle for attachment to plug and cable. Includes impedance selector switch.

IMPEDANCE: 30/50 or 150/250 ohms
RESPONSE: 35-15,000 cps
OUTPUT LEVEL: -58 dbm, 10 dynes/sq. cm.
WEIGHT: 1¼ pounds



660A, B DYNAMIC . . . provide professional broadcast quality and differ only in impedance values. Housed in a die cast shell with silver-satin finish. Swivel head has a 5/8" x 27 stand thread allowing 90° tilt.

IMPEDANCE: 660A, 30 ohms; 660B, 30, 150, 20,000 ohms
RESPONSE: 40-10,000 cps
OUTPUT LEVEL: -57 dbm into 30-ohm load
WEIGHT: 1½ pounds

TURNER



50D, 50D-TV DYNAMICS . . . are high fidelity non-directional types. Model 50D is finished in satin chrome while 50D-TV is satin black. Complete with swivel coupler, cable set and matching desk stand with shockmount.

IMPEDANCE: Choice of 50, 200, 500 or 25,000 ohms

RESPONSE: 50-15,000 cps

OUTPUT LEVEL: 56 db below 1 volt/dyne/sq. cm.

WEIGHT: 1 pound

51D, 51D-TV . . . are electrically the same as 50D and 50D-TV except response is 60-13,000 cps.



211 DYNAMIC . . . withstands rough handling. Ideal for quality recording, P. A., sound systems and broadcast work, including FM. Satin chrome finish.

IMPEDANCE: 50, 200, or 500 ohms

RESPONSE: 50-10,000 cps

OUTPUT LEVEL: 54 db below 1 volt/dyne/sq. cm.



57 DYNAMIC . . . is designed to meet TV, broadcast and P. A. performance requirements. Slim, modern appearance is featured with excellent sound characteristics. Quickly converted from desk to floor stand usage. Cannon XL-4 connector built in permits selection of high or low impedance. Case: Aluminum anodized.

IMPEDANCE: selection of high or low

RESPONSE: 50-13,000 cps

OUTPUT LEVEL: 55 db below 1 volt/dyne/sq. cm.

WEIGHT: 14 ounces



999 DYNAMIC . . . has voice coil and transformer leads insulated from ground and microphone case. Line is balanced to ground. Gun-metal finish.

IMPEDANCE: 50, 200, or 500 ohms

RESPONSE: 80-9000 cps

OUTPUT LEVEL: 52 db below 1 volt-dyne/sq. cm.

ELECTRO-VOICE



655 TV DYNAMIC . . . affords high signal-to-thermal noise ratio. Pop-proof head stops blast. Can be used on stand, in hand, or on boom. Black anodized finish. 18' cable.

IMPEDANCE: 250 ohms changeable to 50 ohms

RESPONSE: 40-20,000 cps

OUTPUT LEVEL: -55 db

WEIGHT: 11 ounces

654 BROADCAST DYNAMIC . . . matches in quality, with less range, that of 655. Recessed impedance selector. Pop-proof head. Black enamel finish. 18' cable.

IMPEDANCE: 50 or 250 ohms, selectable

RESPONSE: 50-16,000 cps

OUTPUT LEVEL: -55 db

WEIGHT: 15 1/2 ounces

MICROPHONES



635 BROADCAST DYNAMIC . . . meets requirements of TV and Broadcast service in studios and on remotes, on a stand or in hand, indoors and out. Omni directional. Satin chrome finish. 18' cable.

IMPEDANCE: 50 or 250 ohms, selectable

RESPONSE: 60-13,000 cps

OUTPUT LEVEL: -55 db

WEIGHT: 1 1/2 pounds



731 DYNAMIC (CARDYNE II) . . . contains dual-type external shockmount, high-low impedance selector, and on-off switch (optional).

RESPONSE: 40-10,000 cps

OUTPUT LEVEL: -52 db

WEIGHT: 2 pounds, 8 ounces



666 SUPER CARDIOID . . . permits close talking with no bass accentuation. Increases working distance over pressure microphones by factor of 1.7:1 due to reverberation reduction. Operates on boom, stand, or in hand. Impedance changeable on internal terminal board. Aluminum cast case. Finish: TV gray.

IMPEDANCE: 50, 150, or 250 ohms

RESPONSE: 30-15,000 cps

OUTPUT LEVEL: -57 db

WEIGHT: 11 ounces



646 DYNAMIC . . . is small and versatile; may be used for chest, desk, or hand. Omnidirectional pattern. Neck cord and support clips supplied. Built-in cable connector. Gray anodized finish. 30' cable.

IMPEDANCE: 50, 150, or 250 ohms

RESPONSE: 40-15,000 cps

OUTPUT LEVEL: -57 db

WEIGHT: 7 ounces, less cable



650 DYNAMIC . . . includes recessed impedance selector switch, dual type external shockmount, tiltable head, satin chrome finish.

IMPEDANCE: 50 or 250 ohms

RESPONSE: 40-15,000 cps

OUTPUT LEVEL: -48 db

WEIGHT: 3 pounds

MICROPHONE STANDS

RCA



MODEL 91-A for 44-BX MICROPHONE

BASE: 7" diameter
FINISH: Dark umber gray
HEIGHT: 8 $\frac{3}{8}$ " to center swing of 44-BX microphone
 $\frac{1}{2}$ " pipe thread



91-B

Desk stand with $\frac{3}{4}$ " and $1\frac{3}{4}$ " fittings for use with RCA type 88A and 77D microphones. Fittings have $\frac{1}{2}$ " pipe thread.
2 supplied, $\frac{3}{4}$ " and $1\frac{3}{4}$ "
FINISH: Black and chromium



MODEL MI-4095 BANQUET STAND

BASE: $10\frac{1}{2}$ " x $3\frac{5}{8}$ " folded. Base effectively 12" diameter when set up.
HEIGHT: $10\frac{3}{4}$ " to $24\frac{3}{4}$ " adjustable
FINISH: Black wrinkle and chromium
 $\frac{1}{2}$ " pipe thread



MODEL KS-3B

Boom with $\frac{1}{2}$ " pipe thread. 3 locking casters
HEIGHT: 5' 2" to 8' 8"
BOOM: 3' to 6'
FINISH: Stainless steel and gray

MODEL MI-6208 3 SECTION STAND

HEIGHT: 3' 11" to 5' (using 3 sections) 1' 6" to 2' 7" (using 2 sections)
BASE: 10" diameter $\frac{1}{2}$ " pipe thread
FINISH: Stand, polished chromium; Base, gunmetal crackle with silver strips

MODEL 90A

This stand has a very smooth acting clutch, and does not require adjustment when height is changed.

BASE: $12\frac{1}{4}$ "
HEIGHT: 3' 8" to 6' 2"
 $\frac{1}{2}$ " pipe thread
FINISH: Satin chromium

MICROPHONE STANDS

ALTEC



MODEL 23A

BASE: 5" diameter
HEIGHT: 77/16"
FINISH: Altec-Western gray crinkle
5/8 x 24 female thread



MODEL 24A

For use with Altec-Western microphones 633A, 639A, 639B.
BASE: 4 1/2" x 6 1/2" oval
FINISH: Aluminum gray lacquer
5/8-24 thread

MELETRON



180 BOOM STAND

Complete with hooks and adapters for microphones using 1/2" thread and 5/8-27 thread
HEIGHT: 5' to 9' adjustable
BOOM LENGTH: 4' to 8' adjustable
FINISH: Tubing — alumilite, castings — platinum gray



MODEL 360 PORTABLE FOLDING STAND

HEIGHT: 19 1/2" to 60" adjustable. Fold to 15 1/2".
Has single hollow adapter for 5/8-24 thread, 5/8-27 thread, 1/2" pipe tap, and plug-in to fit all standard microphones
FINISH: Tubing centerless ground and anodized

MICROPHONE STANDS

TURNER



C-3 STAND . . . finished in satin chrome. 5½" high, base 4¾" diameter, weighs 14 ounces. ⅝" x 27 thread fits any standard microphone.

"6" . . . Model "6" Desk Stands were especially designed for use with 50D, 50D-TV, 51D, and 51D-TV dynamic microphones. The 5-inch base has a built-in shockmount. Model C-6 finished in satin chrome to match 50D. Model BL-6 finished in satin black to match Models 50D-TV and 51D-TV. Model G-6 finished in umber gray to match 51D.

ATLAS



DS-10 DESK STAND . . . receives any microphone having ⅝" x 27 thread. Adequate space underside for installation of on-off or push-to-talk switch. Rubber bumpers protect desk surface. Constructed entirely of precision die castings. Finish is gunmetal opalescent enamel with chrome trim. Weight is 1½ pounds.

MS-25 MICROPHONE STAND . . . features "Safety Air-Lock Cushion" to prevent accidental or sudden slippage of telescoping section. Weight: 24 pounds. Base finish: chrome and gray shivel. Tube finish: full chrome. Height-adjust: 37" to 66". Base diameter: 17".

BS-36, BS-36W BOOM STANDS . . . are identical except the BS-36W features mobile base. Mobile base has ball-bearing hard-rubber swivel castors. "Safety Air-Lock Cushion" included as described under MS-25. Boom is easily removable to use as upright floor stand. Boom length: 72" with more extension addable. Vertical adjust: 48" to 72". Base diameter: 17". Tubular finish: chrome plated. Base finish: chrome and gunmetal shivel.

CS-1 COLLAPSIBLE STAND . . . is collapsible to a minimum length of 23 inches . . . especially suitable for portability. Weight: 5 pounds. Base finish: Cadmium plated; tube, full chrome. Height-adjust: 23" to 62".

B-16H



REK-O-KUT B-16H TRANSCRIPTION TURNTABLE . . . entirely new elements of design and engineering, based upon suggestions made by leading engineers in the field, were embodied to produce this "authentic" three-speed turntable. As a result, all three recording speeds— $33\frac{1}{3}$, 45 and 78—can be selected with equal facility simply by turning an indicator.

SPECIFICATIONS

STARTING: From standing start to 78 rpm . . . $\frac{3}{4}$ of a turn; from standing start at 45 and 33 rpm . . . $\frac{1}{4}$ of a turn

NOISE LEVEL: 50 db below average recording level

SPEED VARIATION: Meets the NAB standard for speed variation and "wow" content

CUEING: $15\frac{3}{4}$ " Turntable permits the record to overlap $\frac{1}{8}$ " which enables the operator to cue from the rim of the disc.

DIMENSIONS: $1\frac{1}{2}$ " above base, 6" below; 20" wide x $18\frac{3}{4}$ " deep

SPEED SHIFT: Mastermatic, self-locking

MOTOR: Hysteresis Synchronous; 60 cps a-c 115 volts (motors available in other frequencies and voltages at additional cost)

FINISH: Blue-gray wrinkle

WEIGHT: 30 pounds

C-78



MODEL C-78 CONSOLE CABINET FOR B-16H . . . is designed to receive B-16H chassis without using screws or bolts. Floats on felt. Features two storage compartments with piano hinges and flush ring-latches. Includes built-in electrical outlets and adjustable levelling castors. Metallic-gray finish. Dimensions: 33" high, 22" wide, $20\frac{1}{2}$ " deep.

64-A



PRESTO 64-A TRANSCRIPTION TURNTABLE . . . is recommended especially for broadcast station transcription and record reproduction. Its drive mechanism is directly gear driven at both $33\frac{1}{3}$ and 78 rpm. A separate motor is employed for each speed and there is no mechanical speed shift whatsoever. The mechanical construction is very heavy, insuring unusually long life under continuous operation. Forty-five rpm may be added by the installation of a third motor which drives through a rubber idler against the mechanical filter of the main drive system.

SPECIFICATIONS

MECHANICAL NOISE: 50 db below average program level

SPEED REGULATION: Overall variation none, instantaneous variation 0.25%

POWER REQUIREMENTS: 115 volts 60 cycle — 0.75 amp

DIMENSIONS: 24" x 24" x 33"

10-B



PRESTO 10-B TRANSCRIPTION TURNTABLE . . . consists of a chassis, 16 inch turntable, motor and 3-speed drive mechanism — $33\frac{1}{3}$, 45 and 78 rpm. This unit is generally similar to the former 2-speed 10-A unit.

Simplicity and easy maintenance are important qualities of the 10-B. The motor pulley has three different diameters which can be brought into contact with the turntable tire to select the required speed.

SPECIFICATIONS

MECHANICAL NOISE RATIO: 40 db below average program level

SPEED REGULATION: Overall 0.5%, instantaneous 0.25%

POWER REQUIRED: 110 volts 60 cycle — 0.5 amp

WEIGHT: 50 pounds

Note: Presto type 3A cabinet (not shown, but similar in appearance to 64A cabinet) can be supplied for mounting 10B chassis.

66-G



PRESTO 66-G RECORDER . . . consists of the 64-A gear drive mechanism and cabinet with the overhead cutting mechanism of the 6-N. This combination comprises an unusually fine recorder for studio use. The exact speed regulation of the 64-A and wide response of the Presto I-D cutting head assure in the 66-G the best results possible for masters or for instantaneous recordings. When used as a transcription turntable the overhead mechanism may be lifted off and stored until needed again.

RECORDING EQUIPMENT

6-N



PRESTO 6-N RECORDER . . . is designed for use as either a portable or a stationary recorder. Broadcasting stations for a decade have an ideal and economical mechanism for master work, delayed programs, and local program recording. Standard equipment includes the Presto 1-D cutting head, spiraling feedscrew, vertical damper, time scale, and lateral reproducer. Microgroove and 45 rpm are provided at slight additional cost. Housed, if desired, in the 4-B cabinet, or as a chassis alone, should it be desired to mount the unit in a bench or table.

SPECIFICATIONS

FREQUENCY RESPONSE: 50-10,000 cps
MECHANICAL NOISE: 40 db below average program level
IMPEDANCES: Cutting head 500 or 15 ohms (specify which)
Reproducer output 500 ohms
FEED SCREW PITCHES: 96, 104, 112, 120, 128, 136, also microgroove, inside-out or outside-in
SPEED REGULATION: Overall 0.5%, instantaneous 0.25%
POWER REQUIREMENTS: 115 volts, 60 cycle — 0.6 amp
DIMENSIONS: In carrying case, 20 $\frac{1}{4}$ " x 20" x 15"
WEIGHT: In carrying case, 82 pounds

92-B



PRESTO 92-B AMPLIFIER . . . is a rack mounting recording amplifier with an output rating of sixty watts for recording with a wide dynamic range and the least possible distortion. When portability does not require the 90-B Amplifier, the 92-B is recommended for use with the 6-N and 66-G recorders.

SPECIFICATIONS

FREQUENCY RESPONSE: 21-17,000 cps; flat, phono and NAB characteristics
POWER: 60 watts
GAIN: 83 db (with 15,000 ohm bridge input — 68 db)
SIGNAL TO NOISE RATIO: 60 db at 1 $\frac{1}{2}$ % distortion
POWER REQUIREMENTS: 115 volts 60 cycle — 1.5 amps
DIMENSIONS: 19" x 14" x 10"
WEIGHT: 84 pounds
INPUT IMPEDANCES: 50, 250, 500 (specify which) Specify output impedance to match impedance of cutting head

90-B



PRESTO 90-B AMPLIFIER . . . is used with the 6-N recorder to provide all of the facilities needed for studio recording, yet is a completely portable unit.

The complete amplifier contains three preamplifiers with separate gain controls, a master gain control, equalizer control, input and output selector switches, and power amplifier for recording and playback. Connectors are provided on the back of the unit for three microphones, two pick-ups, line input and line output, speaker output, output to two recording heads, and connections for Presto 161-A auto equalizer.

SPECIFICATIONS

FREQUENCY RESPONSE: 30-15,000 cps \pm 1 db, flat, phono, and NAB characteristics
SIGNAL TO NOISE RATIO: 60 db at 1.5% distortion
OUTPUT POWER: 10 watts
OVERALL GAIN: 115 db
POWER REQUIREMENTS: 115 volts 60 cycle — 1.5 amps
DIMENSIONS: 24" x 13" x 14"
WEIGHT: 53 pounds

M80 SERIES



M80AC



M80ACC

MAGNECORD M80ACC (CONSOLE) AND M80AC (PORTABLE) . . . are simple to load, contain push-button controls, and have direct tape drive in conjunction with electrical supply and take-up torques, and no mechanical brakes are involved. Fluttering is minimized—less than 0.1% RMS maximum at 7½" per second. Brakes for stopping transport feature drawn and ground stainless steel differential brake bands. Response at 15" per second is ± 4 db at 30 to 20,000 cps and ± 2 db at 50 to 10,000 cps; at 7½" per second, ± 4 db at 30 to 15,000 cps and ± 2 db at 50 to 10,000 cps. Either of two speeds is selectable by a front-panel switch. Head assemblies for full track, half track or instrumentation are interchanged rapidly without loss of alignment. Complete remote operation includes record and playback. Reel size is 10½". Starting time: less than 0.1 second. Stopping time: less than 2" of tape at 15" per second. Rewind time: 45 seconds for 2400 feet. Model M80AC includes M80C Amplifier, M80A Tape Transport and connecting cable. Weight is 65 pounds.

PT63



PT63-AH

PT63-J

MAGNECORD PT63-AH BASIC RECORDER . . . is a basic recording mechanism that offers the advantage of monitoring from the tape while recording. Uses three separate heads—Erase, Record and Playback. All heads contained in a single housing, are individually aligned and can be replaced as required. Record and Reproduce heads are both triple shielded to minimize hum and cross-talk. High forward speed for cueing. Frequency Response: Flat from 50-15,000 cps, ± 2 db at 15" per second tape speed. Flat 50-7,500 cps, ± 2 db at 7½" per second, when proper equalizer is used. Recording Speed: 15" or 7½" per second interchangeable. Both quick-change capstans supplied. Rewind Speed: 1200' (full 7" reel) rewound in approximately 40 seconds. Flutter: Maximum, 0.3%. Bias Oscillator: Built-in. Uses single 12AU7 tube. Power supplied from PT63 series amplifiers. Panel: 7" x 17" Magnecord Gray Hammered finish.

MAGNECORD PT63-J AMPLIFIER . . . is designed for use with PT63 basic recording units. Portable single channel amplifier containing separate record and playback amplifiers plus 10 watts of audio which will drive a large external speaker. Switch for equalization of 7½" and 15" per second tape speeds. Another switch is built in the control panel so that the record, playback or bias readings may be taken from the same 3" vu meter. All other basic specifications are the same as the PT63-J. Panel size 19" wide x 7" high and may be directly rack mounted when removed from case.

PT7-P



MAGNECORD PT7-P . . . is a three-channel, high level mixing amplifier which has separate amplifier for record and playback. Three impedance inputs are included—30, 50, and 250— and each input works into a separate amplifier to enable high level mixing; and bridging input is also available. Output is as follows: zero level at 600 ohms, balanced, and 10 watts of audio is present for a monitor speaker or external speaker. A switch selects 7½" or 15" equalization. A selector switch enables reading of bias, record or playback, on a 4-inch illuminated vu meter.

MAGNECORD PT7-CX LINE LEVEL MIXER . . . is designed to mount in a 19" Console Rack. Input: 600 ohm, balanced—also bridging input. Output: zero level at 600-ohm, balanced. Switch for 7½" or 15" per second tape speed equalization. A switch is provided for metering bias, record or playback, on a 4-inch illuminated vu meter. Size: 7" x 19". Weight: 26½ pounds.

PT6-BN/BAH



PT6-BN

PT6-BAH

MAGNECORD AMPLIFIER PT6-BN AND RECORDER PT6-BAH . . . Binaural Amplifier PT6-BN has a frequency response of ± 2 db in the frequency range of 50 to 15,000 cps at a tape speed of 15" per second, and ± 2 db in the 50 to 7500 cps range at 7½" per second. Outputs: line +4 dbm at 600 ohms balanced at binding posts. Power output: 10 watts into 4 or 16 ohms. The monitor speaker is 4" x 6", and the two front-panel vu meters are each 3" square.

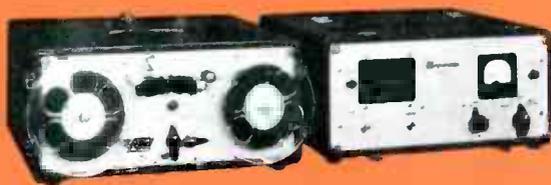
Binaural Recorder PT6-BAH . . . is recommended as a companion unit to Amplifier PT6-BN. Two speeds are provided—15" per second or 7½" per second. Rewind speed is 7" reel, 40 seconds. Response is as follows: 15", below 50 cps to 15 kc, ± 2 db; 7½", 50 cps to 7 kc, ± 2 db. The drive motor is a synchronous type, 117-volt; rewind motor is shaded pole. Maximum flutter is 0.3%. A 12AU7 tube is used for the built-in bias oscillator.

PT6-VAH



PT6-VAH VOYAGER . . . consists of the standard PT6-AHX recorder and a new, small, lightweight amplifier, both in a single carrying case. The new amplifier has two inputs—a microphone input, balanced, with 30 ohm impedance (easily converted to 200 ohm), and a high impedance unbalanced input. The output is 600 ohm, balanced or unbalanced, with a maximum output of 6 dbm. An earphone monitor jack on the front panel is connected during both record and playback. Frequency response of the Voyager with tape is ± 2 db from 50 to 15,000 cycles per second at 15" per second tape speed. The portable carrying case is designed to have the amplifier and recorder mechanism back-to-back when closed for transport. Interconnecting cables may be left connected. The case has been made large enough to provide ample storage space for tape and parts. The unit weighs 42 pounds. Case dimensions are 19" x 7¾" x 17¾".

PT6-J/AH



MAGNECORD PT6-J AMPLIFIER . . . has a single low impedance mike input with gain control, high level terminal for tuner or amplifier input, a 5" PM monitor speaker, zero-level output terminal for external amplifier or line and a 10-watt audio amplifier with associated jack for an external speaker. A VU meter is provided for continuous volume level indications. A 3-position switch selects either erase record, playback or public address as desired. Inputs: one low level, low-Z for microphone; high level input, 100,000 ohms unbalanced. Output: line output, +8 dbm at 600 ohms balanced from 2 binding posts. Power Output: 10 watts at 3.2 or 16 ohms. Frequency Response: ± 2 db from 50-7000 cps at $7\frac{1}{2}$ " per second when plug-in recording equalizer is used. Signal-to-Noise: Wide band noise including tape, 47 db. Switching: 3-position switch for "Record," "Listen" or "Amplifier" operation. Inserts proper characteristics for record or playback and removes all equalization for use as a 10 watt audio or P. A. amplifier. Dimensions: 18" long, 8" wide, $12\frac{3}{4}$ " deep. In black leatherette case. 117 volts, 60 cps.

MAGNECORD PT6-AH BASIC RECORDER . . . is a basic tape recording mechanism designed to produce excellent quality magnetic tape recordings. For use where requirements are low distortion and wide-band reproduction. Interchangeable capstans and pressure rollers are supplied for quick shift from $\frac{1}{2}$ -hour capacity at $7\frac{1}{2}$ " per second to 15 minute capacity at 15" per second. No tools needed. Rewind Speed: Full $7\frac{1}{2}$ " reel (1200-ft) in approximately 40 seconds. High speed forward for fast cueing in. Frequency Response: From below 50 cps to 15 kc ± 2 db at 15" per second; 50 cps to 7 kc ± 2 db at $7\frac{1}{2}$ " per second when properly equalized. Motors: Synchronous 117 volts, 60 cps a-c drive; shaded pole motor for rewind. Flutter: Maximum, 0.3%. Bias Oscillator: Built-in. Uses single 12AU7 tube. Power supplied from amplifier. In black grain leatherette case, 18" long, 8" wide, $15\frac{1}{2}$ " deep. Power: 117 volts 60 cps, single phase. 70 watts.

PT6-COMB.



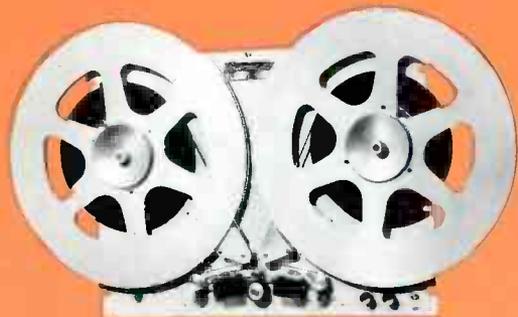
SPECIAL PT6 COMBINATIONS . . . The portable MagneCordette combines the PT6-AH mechanical unit and the PT6-G "Custom" amplifier with the new PT6-K amplifier-speaker combination. The PT6-K 10 watt power amplifier with speakers in a portable carrying case meets all requirements of high fidelity equipment and was designed for use with the MagneCordette. The portable amplifier is mounted in a carrying case connected to the rear of the MagneCordette. Two wide range speakers are mounted on the amplifier with the case acting as a baffle. All controls and connections of the amplifier-speaker combination are readily accessible on the front of the unit, as well as a 110 volt outlet. This unit may be used as a P. A. system. Frequency Response: ± 2 db from 30 cps to 15 kc. Bass Control: +16 db to -12 db at 50 cps. Treble Control: +12 db to -20 db at 10 kc. Input: 0.3 volts. High impedance, unbalanced. Max. Power Output: 10 watts. Output Impedance: 4, 8 or 16 ohms. Distortion: Less than 1% at 10 watts. Signal-to-Noise: 65 db.

PT6-D3



MAGNECORD PT6-D3 TAPE DUPLICATING AMPLIFIER . . . with a single unbalanced input feeds three PT6-AH recorders through a master gain control and amplifier stage to individual gain controls. Output from individual gain controls is fed through standard MagneCord equalizer circuit to individual PT6-AH recorders. Dubbing amplifier features 60 cycle calibrating circuit, master motor control circuit permits presetting of individual units and simultaneous starting and stopping of individual recording mechanisms. Volume meter can be bridged across any of three recording channels. Head-phone jack permits monitoring any channel.

4-14



MAGNECORD 4-14 CONTINUOUS TAPE PLAYER . . . plays for two hours at $7\frac{1}{2}$ " per second on one half (one track) of the tape—then automatically reverses and plays the other half for two hours—thus giving you twice the ordinary time on one 14" reel of standard $\frac{1}{4}$ " tape, 4800 feet long. Having the same high standards as all professional Magnecorders, the continuous tape-player is complete with: Dual track playback heads, a compact line-level high-quality amplifier, a convenient panel light "in-use" indicator—and full shock mounting to eliminate the extraneous vibration noise from the amplifier, and automatic reverse relays which save time and trouble.

8-14 CONTINUOUS TAPE PLAYER . . . is the same as Model 4-14 except that it has a 900 RPM motor allowing a tape speed of $3\frac{3}{4}$ " per second which permits automatic reverse every four hours.

ACCESSORIES

PT6-EL CONTINUOUS LOOP

Eliminates rewind. Holds up to 600 feet (15 minutes at $7\frac{1}{2}$ " per second) on endless tape loop.

PT6-M AUXILIARY SPOOLING MECHANISM

($10\frac{1}{2}$ " x 19" rack panel). For increasing playing time of PT6-R/PT6-AHX combination by factor of 2.

PT6-H RACK PANEL

($8\frac{3}{4}$ " x 19" rack panel). For rack mounting one PT6-AHX.

PT6-HT RACK PANEL AND THROWOVER SWITCH

For rack mounting a second PT6-AHX with the PT6-AHX/PT6-R combination and providing selective switching between either PT6-AHX and the PT6-R amplifier for continuous recording.

91X279 VOICE OPERATED RELAY

Bridges between PT6-J and PT6-AH units, adaptable to other units. Starts and stops recorder when sound source begins and ceases.

PT6-S PORTABLE POWER SUPPLY

117 volts, 60 cycle from 12 volts d-c self-contained airplane-type battery.

93 x 4 10 $\frac{1}{2}$ " REEL ADAPTER KIT

Adapts PT6-AH or PT63-AH to accommodate 10 $\frac{1}{2}$ " reels.

3 OR 4 CHANNEL LOW-LEVEL MIXERS

Multi-channel low level mixers for up to four 30/50 ohm low impedance mikes. Use with PT6-J single input amplifiers.

**PRICE
LIST**

EFFECTIVE DECEMBER 1, 1954

Collins

**BROADCAST
EQUIPMENT**

COLLINS RADIO COMPANY
CEDAR RAPIDS, IOWA



All prices listed here are F. O. B. manufacturing point and are subject to change without notice. They do not include any state, federal or local sales, use or excise taxes.

BROADCAST EQUIPMENT

PAGE	TYPE NO.	PART NO.	DESCRIPTION	PRICE
TRANSMITTERS				
3	300J	522 0100 5	Broadcast Transmitter, 100-250 watts	\$ 2,857.80
			Spare Tube Kit for 300J	152.20
4	550A	522 0182 2	Broadcast Transmitter, 250-500 watts	3,963.80
			Spare Tube Kit for 550A	196.20
5	20V	522 0108 5	Broadcast Transmitter, 500-1,000 watts	5,385.30
			Spare Tube Kit for 20V	274.70
6	21E	505 9578 6	Broadcast Transmitter, 5,000 watts	18,964.00
			Spare Tube Kit for 21E	796.00
6	21M	505 9580 6	Broadcast Transmitter, 10,000 watts	22,590.00
			Spare Tube Kit for 21M	1,070.00
			Spare Crystal for 300J, 550A, 20V, 21E/M	90.00
REMOTE CONTROL SYSTEMS				
7			Collins/Rust Remote Control Systems	On Application
PHASING EQUIPMENT				
8			Phasing Equipment	On Application
PHASING ACCESSORIES				
9	40C		40C Phase Monitor, less leads	\$ 575.00
9	108		108 Phase Meter, Two Element	550.00
			Three Element	575.00
			Four Element	600.00
			Over Four Element	On Application
PHASE SAMPLING ACCESSORIES				
10	83		Semi-flexible, 70-ohm Coaxial Cable, per ft.	\$.50
10	1601GV		Terminal Gauge, for Type 83 cable	10.00
10	1601R		End Terminal, for Type 83 cable	10.00
10	872	013 0530 00	Sampling Loop	40.00
10	4873		Lead and Adapter Assembly	12.00
10	132A	013 0437 00	Isolation Inductor	110.00
10	133		Isolation Inductor, inside weather-proof housing	300.00
10	8510	097 1179 00	Current Transformer	50.00
TEST AND MEASURING EQUIPMENT				
11	1181-A	277 0004	Frequency Deviation Monitor	\$ 775.00
11	1301-A	277 0008 00	AM Modulation Monitor	495.00
11	1931-A	277 0001 00	Audio Oscillator	440.00
11	1932-A	277 0002 00	Distortion and Noise Meter	595.00
11	WX-2B	097 1027 00	Intensity Meter	790.00
STAINLESS AM ANTENNA TOWERS				
12	G-15		Triangular, 150'	\$ 1,890.00
12	G-15		Triangular, 160'	2,500.00
12	G-15		Triangular, 180'	2,600.00
12	G-15		Triangular, 200'	2,750.00
12	G-15		Triangular, 220'	3,150.00
12	G-15		Triangular, 240'	3,400.00
12	G-15		Triangular, 250'	3,500.00
12	G-24		Triangular, 260'	4,250.00
12	G-24		Triangular, 280'	4,450.00

PAGE	TYPE NO.	PART NO.	DESCRIPTION	PRICE
STAINLESS AM ANTENNA TOWERS (Cont.)				
12	G-24		Triangular, 300'	\$ 4,750.00
12	G-24		Triangular, 320'	5,250.00
12	G-24		Triangular, 340'	5,650.00
12	G-24		Triangular, 350'	6,150.00
12	G-24		Triangular, 360'	On Application
12	G-36		Triangular, 380'	On Application
12	G-36		Triangular, 400'	On Application
12	G-36		Triangular, 420'	On Application
12	G-36		Triangular, 440'	On Application
12	G-36		Triangular, 460'	On Application

All prices quoted include tower, guys, hardware, insulators, foundation, anchor, steel, lights, and erection.

WINCHARGER AM ANTENNA TOWERS

13	300		150' to 440'	\$2,615.00 to \$6,759.00
13	150		150' to 320'	\$1,496.00 to \$3,174.00
13	101		150' to 220'	\$1,187.00 to \$1,700.00

TOWER CONST. CO. AM ANTENNA TOWERS

14	9		30' to 140'	On Application
14	12		140' to 240'	On Application
14	15		240' to 340'	On Application
14	35		340' to 510'	On Application

TOWER LIGHTING EQUIPMENT

15	11C		Lighting Kit for Towers over 1500 ft.	On Application
15	10C5-15		Lighting Kit for Towers 1350 to 1500 ft.	On Application
15	9C4-15		Lighting Kit for Towers 1200 to 1350 ft.	On Application
15	8C4-12		Lighting Kit for Towers 1050 to 1200 ft.	On Application
15	7C3-12		Lighting Kit for Towers 900 to 1050 ft.	On Application
15	6C3-9		Lighting Kit for Towers 750 to 900 ft.	On Application
15	5C2-9		Lighting Kit for Towers 600 to 750 ft.	On Application
15	4C2-6		Lighting Kit for Towers 450 to 600 ft.	On Application
15	3C1-4		Lighting Kit for Towers 300 to 450 ft.	On Application
15	2C1-2		Lighting Kit for Towers 150 to 300 ft.	On Application
15	1C		Lighting Kit for Towers to 150 ft.	On Application

ANTENNA TUNING UNITS

16	42E	505 5373 5	Antenna Tuning Unit	\$510.00 to \$600.00
16	142A	505 8065 5	Antenna Tuning Unit	\$460.00 to \$550.00
16	23C-1	520 2933 00	Tower Lighting Choke	24.75
16	23D-1	520 2934 00	Tower Lighting Choke	90.00
16	23E-1	520 2935 00	Tower Lighting Choke	140.00

FM ANTENNAS

17	37M-1		One-ring	\$ 545.00 to \$ 585.00
17	37M-2		Two-ring	\$1,090.00 to \$1,170.00
17	37M-3		Three-ring	\$1,635.00 to \$1,755.00
17	37M-4		Four-ring	\$2,180.00 to \$2,340.00
17	37M-5		Five-ring	\$2,725.00 to \$2,925.00
17	37M-6		Six-ring	\$3,270.00 to \$3,510.00
17	37M-7		Seven-ring	\$3,815.00 to \$4,095.00
17	37M-8		Eight-ring	\$4,360.00 to \$4,680.00

PAGE	TYPE NO.	PART NO.	DESCRIPTION	PRICE
COAXIAL CABLES				
3/8" DIAMETER SEMI-FLEXIBLE COAXIAL CABLE				
18	83		Coaxial cable 3/8" diameter, semi-flexible	\$.50
18	385	013 0452 00	Shipping reel, 400-1000 feet, deposit only, refundable if returned transportation prepaid by the buyer within one year	40.00
18	386	013 0453 00	Shipping reel, 1000-2000 feet, deposit only, refundable if returned transportation prepaid by the buyer within one year	80.00
18	8319	013 0761 00	Solder connectors, inner and outer75
18	1701-P	013 0611 00	End terminal with removable exhaust plug	8.50
18	1701-GV	013 0610 00	End terminal with pressure gauge and inlet valve	11.50
18	1701-R	013 0612 00	End terminal with gas release valve	10.00
18	853	013 0527 00	Right angle junction box for 3/8" cable. Use where bending radius sharper than 6 inches is required	2.50
18	825		T Junction box	4.50
18	830	013 0526 00	Collar clamp (for passing cable thru panel)	1.90
18	915		Coupling with side connection for 1/4" copper tubing	6.25
18	915-R		Coupling with gas release valve on side	8.75
18	990		Cable cap, non-insulated, to be attached to cable at factory80
18	990-G	013 0551 00	Cable cap with pressure gauge, non-insulated, to be attached to cable at factory	3.25
18	990-V	013 0552 00	Cable cap with gas inlet valve, non-insulated, to be attached to cable at factory	2.00
18	990-GV		Cable cap with gauge and valve, non-insulated, to be attached to cable at factory	4.25
18	8329		Reducer connector, Type 737 to Type 83 cable	3.75
18	4868	013 0718 00	Adapter for connecting Type 83 cable to RG-8/U or RG-11/U solid dielectric cable. Fits on Type 1701 terminal and provides male thread to fit PL-259 plug on end of solid dielectric cable. Terminal and plug not included	8.75
18	L-12344		Adapter for connecting Type 83 cable to RG-17/U solid dielectric cable. Fits on Type 1701 terminal (not included) and includes special plug to be attached to cut end of RG-17/U	25.00
7/8" DIAMETER SEMI-FLEXIBLE CABLE				
19	737		Coaxial cable 7/8" diameter semi-flexible, 64 ohms	\$.10
19	386	013 0453 00	Shipping reel, 250-1000 feet, deposit only, refundable if returned transportation prepaid by the buyer within one year	80.00
19	8328-B	097 0197 00	Solder connectors, outer and inner, per pair	1.60
19	1703-P	013 0614 00	End terminal with removable exhaust plug	9.50
19	1703-GV	013 0613 00	End terminal with pressure gauge and inlet valve	11.25
19	1703-R	013 0615 00	End terminal with pressure release valve	11.25
19	61	013 8050 00	Right angle junction box	5.00
19	6500	013 0019 00	Right angle bend, 7/8" cable bent to 12" radius, with 2 solder connectors	5.00
19	65		T junction box	8.25
19	859		Y junction box	15.00
19	K-15475-2		H junction box	19.00
19	829		Collar clamp (for passing cable thru panel)	3.25
19	4878	013 0726 00	Split collar clamp (two piece, for passing 7/8" cable thru panel)	3.75
19	917	013 0540 00	Coupling with side connection for 1/4" copper tubing	5.75
19	917-R		Coupling with gas release valve on side	8.25
19	917-GV		Coupling with pressure gauge and valve on side	8.25
19	980		Cable cap, non-insulated, to be attached to cable at factory	1.10
19	980-G	097 0192 00	Cable cap with pressure gauge, non-insulated, to be attached to cable at factory	4.75
19	980-V	097 0191 00	Cable cap with gas inlet valve, non-insulated, to be attached to cable at factory	2.90

PAGE	TYPE NO.	PART NO.	DESCRIPTION	PRICE
7/8" DIAMETER SEMI-FLEXIBLE CABLE (Cont.)				
19	980-GV		Cable cap with gauge and valve, non-insulated, to be attached to cable at factory	\$ 6.00
19	8329		Reducer connector, Type 737 to Type 83 cable	3.75
19	4876-1	013 0724 00	Adapter, Type 737 to Type 451 flanged line	18.00
19	L-12394		Adapter for connecting Type 737 cable to RG-8/U or RG-11/U solid dielectric cable. Fits on 1703 terminal and provides male thread to fit PL-259 plug on end of solid dielectric cable. Plug and terminal not included	7.00
19	L-14139		Adapter for connecting Type 737 cable to RG-8/U solid dielectric cable, using Type N fittings. Weatherproof. Fits on Type 1703 terminal (not included) and includes UG-21B/U plug, to be attached to end of RG-8/U cable	14.00
19	L-12423		Adapter for connecting Type 737 cable to RG-17/U solid dielectric cable. Fits on 1703 terminal and provides male thread to fit plug UG-154/U on end of solid dielectric cable. Terminal and plug not included	17.50
19	L-13223-1		Pair of swivel flanges for field attachment to Type 737 cable. Includes solderless inner connector and all necessary hardware for joining flanges.	8.75
19	L-13223-2		Single swivel flange for field attachment to Type 737 cable. Includes solderless inner connector and all necessary hardware	5.00
19	K-14707		Blank flange with 1/8" pipe plug, for temporary capping of end of line. Attaches to L-13223-2	1.00
19	K-14707-2		Same as K-14707 except with O-ring and hardware	2.70
19	K-13046		Tubing cutter	3.15
19	K-13137		Grooving tool, used in attaching solder couplings and end terminals	5.50
19	737-103		Insulator beads, per hundred	2.50
19	6104	013 0219 00	Mounting Strap	.15
19	K-11487		Insulated Mounting Clamp	3.75
19	L-11662-1		Insulated mounting clamp for attachment with Wraplock	5.50
19	K-11419-2		Wraplock, for attaching cable to tower or post, can of 100 feet with locking keys. Width 3/8"	5.00
19	K-12395-1		Wraplock, stainless steel, can of 100 feet with locking keys. Width 1/2"	12.50

1 1/8" DIAMETER RIGID TRANSMISSION LINES

20	451		Transmission line 1 1/8" diameter, 51.5 ohms, 20 foot sections.	\$ 55.00
20	1051	013 0181 00	Right angle bend	33.00
20	1151	097 0095 00	45-degree bend	34.00
20	2151	013 0654 00	Right angle junction box	32.00
20	M-13273		Special angle bend for Type 451. Indicate desired angle in degrees change of direction. Maximum angle 90 degrees	100.00
20	T-1251		Gas barrier	32.00
20	2051	097 0463 00	End Terminal	20.00
20	1351	097 0097 00	Gas inlet coupling	12.50
20	1551	097 0099 00	Clamp connector, for providing a flange on cut end of Type 451	15.00
	L-13945		Reducer connector, Type 451 to 450	28.00
20	1851	013 0641 00	Connector, Type 451 to 452	34.00
20	4874	013 0722 00	Adapter, Type 451 to RG-17/U solid dielectric cable. Flange on one end; other end solders to braid of RG-17/U. Not gas tight	20.00
20	M-13942		Adapter, 451 or 551 cable to RG-8/U. Fits Type N plug UG-21B/U (not included). Incorporates gas barrier and removable gas vent plug	37.50
20	4876-1	013 0724 00	Adapter, Type 451 to Type 737	18.00
	4876-2		Adapter, Type 451 to Type S-450 cable	20.00
20	2451	097 0464 00	Hardware kit for Type 451. Includes nuts and bolts for 6 flanged connections. 10 rubber gaskets and 2 inner connectors	12.50

PAGE	TYPE NO.	PART NO.	DESCRIPTION	PRICE
1 5/8" DIAMETER RIGID TRANSMISSION LINES (Cont.)				
20	L-11381-2	013 0860 00	Set of hardware (nuts, bolts, lockwashers) for joining one pair of 1 5/8" flanges	\$.90
20	K-10875	013 0381 00	Flange for Type 451 transmission line	2.40
20	K-10419-2		Silver solder ring preform, for brazing flange to line	.15
20	L-10683-2	013 0232 00	Rubber gasket for Type 451 line	.25
20	M-11473		Special length 1 5/8" transmission line, with flanges on both ends. Specify length in inches	19.00
20	M-13279		Special length 1 5/8" transmission line, no end flanges. Specify length in inches	.20
20	K-12234-1	013 0912 00	Blank cover plate for capping 1 5/8" flange. With 1/8" pipe plug	4.50
20	K-12430	013 0945 00	Clamp and grounding strap, for connecting line to tower in AM-FM isolation systems	8.00
20	K-14485		Rotating and fixed ring for 1 5/8" swivel flange. Includes silver solder ring preform	4.70
20	K-13944		Inner connector, used in joining adjacent sections of 1 5/8" transmission lines	2.50
20	K-14156		Inner connector, used in connecting 1 5/8" line to fittings	2.80
3 1/8" DIAMETER RIGID TRANSMISSION LINES				
20	452		Transmission line 3 1/8" diameter, 51.5 ohms, 20 foot sections	\$ 115.00
20	T-1052		Right angle bend	48.00
20	1152	013 0566 00	45-degree bend	48.00
20	2152		Right angle junction box	75.00
20	T-1952		Special angle bend for Type 452. Indicate desired angle in degrees change of direction. Maximum angle 90 degrees	125.00
20	2052	013 0651 00	End terminal	32.00
20	1352	097 0107 00	Gas inlet coupling	15.00
20	1552	097 0109 00	Clamp connector, for providing a flange on cut end of Type 452	19.00
20	1851		Reducer connector, Type 452 to 451	34.00
20	1852	097 0112 00	Connector, Type 452 to 453	52.00
20	M-11860		Special length 3 1/8" transmission line, with flanges on both ends. Specify length in inches	40.00
20	M-13277		Special length 3 1/8" transmission line, no end flanges. Specify length in inches	.40
20	2452	013 0680 00	Hardware kit for Type 452. Includes nuts and bolts for 4 flanged connections, 10 rubber gaskets and 2 inner connectors	18.00
20	L-11381-3		Set of hardware (nuts, bolts, lockwashers) for joining one pair of 3 1/8" flanges	1.60
20	L-10881		Flange for Type 452 transmission line	7.25
20	K-10419-11		Silver solder ring preform for brazing 3 1/8" flange	.25
20	L-10683-3		Rubber gasket for Type 452 line	.45
20	K-12234-2		Blank cover plate for capping 3 1/8" flange. With 1/8" pipe plug	6.25
20	K-12431		Clamp and grounding strap for connecting line to tower in AM-FM isolation systems	12.00
20	K-14486		Rotating and fixed ring for 3 1/8" swivel flange. Includes silver solder ring preform	13.80
20	K-15391		Inner connector, used in connecting 3 1/8" line to fittings. Not recommended for joining sections of transmission line	2.25
20	K-14417		Inner connector, used in joining adjacent sections of 3 1/8" transmission line. Not recommended for connection to fittings because of mechanical interference	5.40
	K-13244-1		Reducing inner connector to adapt fittings designed for Type 452 line to fit Type 552-1 line	3.45
	174-1		Open Wire Transmission Line	On Application
			5 wire, 334 ohms, # 6 conductor—350 ohms, # 8 conductor	
			6 wire, 231 ohms, # 6 conductor—248 ohms, # 8 conductor	
			7 wire, 168 ohms, # 6 conductor—179 ohms, # 8 conductor	

PAGE	TYPE NO.	PART NO.	DESCRIPTION	PRICE
AUDIO CONSOLES				
21	212A-1	520 2916 00	Speech-Input Console (including power supply and relay unit)	\$ 2,085.00
			Spare Tube Kit for 212A-1	55.15
21	212B-1	520 2920 00	Speech-Input Console (including power supply and relay unit)	1,450.00
			Spare Tube Kit for 212B-1	34.75
	212B-2	520 3478 00	Speech-Input Console (including power supply and relay unit)	1,525.00
			Spare Tube Kit for 212B-2	40.25
21	409U-1	520 2914 00	Power Supply for 212A and 212B Consoles	250.00
			Spare Tube Kit for 409U-1	5.60
	409U-2	520 3015 00	Rack-Mounted Power Supply for 212A and 212B Consoles	235.00
			Spare Tube Kit for 409U-2	5.60
RELAY CONTROL UNITS				
22	274D-1	520 2918 00	Relay Control Unit for 212A Console	\$ 142.00
22	274D-2	520 2019 00	Relay Control Unit for 212B Console	106.00
22	274D-4	520 2013 00	Rack-Mounted Relay Control Unit for 212A Console	142.00
22	274D-5	520 3014 00	Rack-Mounted Relay Control Unit for 212B Console	106.00
CONSOLE TYPE SUB-UNITS				
23	6Q-1	520 2999 00	Dual Preamplifier	\$ 148.00
			Spare Tube Kit for 6Q-1	5.50
23	6N-1	520 2996 00	Program Amplifier	123.00
			Spare Tube Kit for 6N-1	9.40
23	6S-2	520 3491 00	Isolation Amplifier	100.00
			Spare Tube Kit for 6S-2	3.50
23	6V-2	505 3965 003	Monitor Amplifier	110.00
			Spare Tube Kit for 6V-2	8.75
24	6W-2	520 3223 00	Monitor Amplifier	63.00
			Spare Tube Kit for 6W-2	5.70
24	117P-1	520 3012 00	Repeat Coil Unit	40.00
24	409T-2	520 3219 00	Power Supply	40.00
			Spare Tube Kit for 409T-2	1.20
25	6R-2	520 3434 00	Isolation Amplifier	93.50
			Spare Tube Kit for 6R-2	3.50
RACK MOUNTED AMPLIFIERS				
25	26W-1	520 2722 00	Limiting Amplifier	\$ 530.00
			Spare Tube Kit for 26W-1	14.90
25	6P-1	502 8377 004	Preamplifier	100.00
			Spare Tube Kit for 6P-1	12.50
25	6T-1	520 3744 00	Monitor Amplifier	150.00
			Spare Tube Kit for 6T-1	9.40
25	6X-2	520 3364 00	Monitor Amplifier	185.00
			Spare Tube Kit for 6X-2	10.65
METERING UNITS				
26	62E-2	520 2911 00	VU Panel	\$ 131.50
26	82D-7	520 2922 00	Meter Panel	17.50
26	82T-1	520 3580 00	Metering Unit	72.25
POWER SUPPLIES				
27	409T-1	520 2883 00	Power Supply	\$ 65.00
			Spare Tube Kit for 409T-1	2.40
27	409T-3	520 3576 00	Power Supply	50.00
			Spare Tube Kit for 409T-3	1.20
27	414F-3	520 3016 00	Relay Power Supply	192.00
27	414F-4	520 3221 00	Relay Power Supply	100.00

PAGE	TYPE NO.	PART NO.	DESCRIPTION	PRICE
JACK PANELS				
28	265D-1	520 2878 00	Jack Panel, 12 pr.	\$ 35.00
28	265D-2	520 2879 00	Jack Panel, 24 pr.	71.25
28	265D-3	520 2880 00	Jack Panel, 48 pr.	123.75
28	265D-4	520 2881 00	Jack Panel, 72 pr.	160.00
28	265D-5	520 2882 00	Jack Panel, 96 pr.	On Application
28	265D-6	520 3406 00	Jack Panel, 120 pr.	282.00
LONG FRAME TWO CIRCUIT JACKS				
28	265D	360 0009 00	Break-One, Make One	\$.95
28	265D	360 1010 00	Break One75
28	265D	360 1250 00	Make Before Break	1.20
PATCH CORDS				
28		361 0010 00	1/2 ft.	\$ 7.85
28		361 0011 00	1 ft.	7.95
28		361 0012 00	2 ft.	8.25
28		361 0013 00	3 ft.	8.50
28		361 0014 00	4 ft.	8.75
28		361 0015 00	5 ft.	9.00
28		361 0016 00	10 ft.	10.25
PROGRAM EQUALIZERS				
29	116F-1	520 2893 00	Program Equalizer	\$ 179.00
29	116E-3	520 3577 00	Program Equalizer	123.50
29	116E-4	520 3578 00	Program Equalizer	133.50
ACCESSORY PANELS				
30	117N-2	520 2923 00	Repeat Coil Panel, less coils	\$ 24.75
30	268A-1	520 3571 00	Attenuator Panel, Two Balanced Ladder Attenuators	85.00
30	268B-1	520 3572 00	Attenuator Panel, Two Bridged-T Attenuators	On Application
30	112B-1	520 2925 00	Switch and Fuse Panel	35.00
TERMINAL BOARDS				
31	151K-1	520 2926 00	Terminal Board, 96 Telephone Type Solder Terminals	\$ 24.75
31	151K-5	520 3449 00	Terminal Board, 100 Telephone Type Terminals	12.40
31	151K-4	520 3448 00	Terminal Board, Four 151K-5's on Panel	116.00
31	151K-3	520 3352 00	Terminal Board, Three 151K-5's on Panel	95.00
31	151K-6	520 3761 00	Terminal Board, 144 Telephone Type Terminals	27.50
WARNING LIGHT ASSEMBLIES				
32	209A-1	520 3659 00	Warning Light Assembly, Flush Type	\$ 20.00
32	209A-2	520 3660 00	Warning Light Assembly, External Type	20.00
HOOKUP WIRE				
33	Two-Cond #20	425 0021 00	Solid Conductor, fiber-glass braid insulation	On Application
	Two-Cond #20	425 0862 00	Solid Conductor, lacquered cotton braid insulation, per foot	\$.07
	Two-Cond #20	425 0022 00	Solid Conductor, unlacquered cotton braid insulation, per foot05
	Two-Cond #20	425 0023 00	Seven strands per conductor, fiber-glass braid insulation	On Application
	Two-Cond #20	425 0863 00	Seven strands per conductor, lacquered cotton braid insulation, per foot07

PAGE	TYPE NO.	PART NO.	DESCRIPTION	PRICE
HOOKUP WIRE (Cont.)				
	Two-Cond #20	425 0024 00	Seven strands per conductor, unlacquered cotton braid insulation, per foot	\$.05
33	Two-Cond #16	425 0061 00	Nineteen strands per conductor, lacquered cotton braid insulation. Shield, 90 strands No. 32 to No. 38 AWG tinned copper wire with five strands side by side, per foot08
33	Two-Cond #12	425 0151 00	Nineteen strands per conductor, lacquered, cotton braid insulation. Shield, 92 strands No. 34 AWG tinned copper wire with four strands side by side. Per foot10
33	Mic. Cable	097 1142 00	Two insulated conductors; one black, one white; twisted, rubber encased, shielded; each conductor 26 strands No. 34 AWG; shield, 96 strands No. 34 AWG, four strands side by side, per foot, 100 ft. even06
			Miscellaneous lengths07
RACK CABINETS				
33	619B-1	404 8281 5	Rack Cabinet, 70" panel mounting space; overall height, 76"	\$ 182.00
33	619B-2	504 1303 5	Rack Cabinet, 77" panel mounting space; overall height, 83"	177.00
BLANK PANELS				
33	Blank Panels	502 8389 002	3/16" aluminum, metallic gray, for 19" racks; 1 3/4" high, 10 oz.	\$ 2.90
33	Blank Panels	502 8393 003	3/16" aluminum, metallic gray, for 19" racks; 3 1/2" high, 1 lb. 4 oz.	3.75
33	Blank Panels	502 8397 003	3/16" aluminum, metallic gray, for 19" racks; 5 1/4" high, 1 lb. 14 oz.	4.50
33	Blank Panels	502 8401 003	3/16" aluminum, metallic gray, for 19" racks; 7" high, 2 lbs. 8 oz.	5.00
33	Blank Panels	502 8405 003	3/16" aluminum, metallic gray, for 19" racks; 8 3/4" high, 3 lbs. 2 oz.	5.75
33	Blank Panels	502 8409 003	3/16" aluminum, metallic gray, for 19" racks; 10 1/2" high, 3 lbs. 12 oz.	6.75
33	Blank Panels	502 8413 003	3/16" aluminum, metallic gray, for 19" racks; 12 1/4" high, 4 lbs. 6 oz.	7.40
33	Blank Panels	502 8417 003	3/16" aluminum, metallic gray, for 19" racks; 14" high, 5 lbs.	8.25
REMOTE AMPLIFIERS				
34	12Z-2		A-c or battery operated, four input channels, 30/50 ohms input impedance	\$ 531.00
			Spare Tube Kit for 12Z-2	9.40
34	12Z-3		A-c or battery operated four input channels, 200/250 ohms input impedance	531.00
			Spare Tube Kit for 12Z-3	9.40
34	212Y-1	520 3095 00	Remote Amplifier, single input channel, Cannon XL-3-13 microphone connector	150.00
			Spare Tube Kit for 212Y-1	6.10
	212Y-2	506 0775 002	Remote Amplifier, single input channel, Cannon P3-13 microphone connector	150.00
			Spare Tube Kit for 212Y-2	6.10
34	60H-2	520 3758 00	Two Channel Remote Mixer for Collins 212Y Remote Amplifier; input impedance, 30/50 ohms; output impedance, 50 ohms	125.00
	60H-3	520 3759 00	Same as 60H-2 except input impedance, 150 ohms and output impedance, 250 ohms	125.00
	60H-4	520 3760 00	Same as 60H-2 and 60H-3 except input impedance, 200/250 ohms and output impedance, 250 ohms	125.00
35	212U		Two-channel; consists of 60H Mixer and 212Y Amplifier ..	260.00
			Spare Tube Kit for 212U	6.10
35	412C	520 3096 00	Battery Box for use with 212Y Remote Amplifier, less batteries	26.75

PAGE	TYPE NO.	PART NO.	DESCRIPTION	PRICE
CONNECTOR ADAPTERS				
35	65S-2	520 3225 00	With Hubbell 7555	\$ 7.50
35	65S-3	520 3226 00	With Hubbell 7484	4.75
35	65S-4	520 3227 00	With Hubbell 23002	6.00
35	65S-5	520 3228 00	With Hubbell 7082	3.80
35	65S-6	520 3229 00	With Cannon P3-CG-11S	3.80
MICROPHONES				
36	77D	020 0035 00	Polydirectional, RCA	\$ 145.00
36	44-BX	020 0036 00	Velocity Type, RCA	129.00
36	BK-1A		Pressure Type, RCA	79.50
36	633-A	020 6000 00	Dynamic Type, Altec	55.40
36	639A	020 0021 00	Cardioid — Dynamic — ribbon type, Altec	156.40
36	639B	020 0022 00	Cardioid — Dynamic	156.40
36	670	097 1539 00	Cardioid — ribbon type, Altec	157.05
36	660A	097 1624 00	Dynamic type, Altec	45.00
36	660B	097 1625 00	Dynamic type, Altec	52.00
37	50D		Dynamic type, satin chrome, Turner	75.00
37	50D-TV		Dynamic type, satin black, Turner	75.00
37	51D		Dynamic type, satin chrome, Turner	55.50
37	51D-TV		Dynamic type, satin black, Turner	55.50
37	211		Dynamic type, Turner	25.50
37	57		On Application	
37	999		Dynamic type, Turner	27.00
37	655-TV		Dynamic type, Electro-Voice	120.00
37	654	097 1429 00	Dynamic type, Electro-Voice	57.00
38	635	020 0096 00	Dynamic type, Electro-Voice	45.00
38	731		Dynamic type, Electro-Voice	57.00
38	666		Cardioid type, Electro-Voice	147.00
38	646		Dynamic type, Electro-Voice	84.00
38	650		Dynamic type, Electro-Voice	90.00
MICROPHONE STANDS				
39	91-A	020 0038 00	Desk type, for 44-BX Microphone, RCA	\$ 12.50
39	91-B	020 1130 00	Desk type, for 88A and 77D Microphones, RCA	12.00
39	MI-4095	020 0049 00	Desk type, RCA	25.00
39	KS-3B	097 1657 00	Boom type, mobile, RCA	138.00
39	MI-6208	020 0041 00	Floor type, RCA	11.25
39	90A	020 1140 00	Floor type, RCA	40.00
40	23A	020 1040 00	Desk type, Altec	6.60
40	24A	020 0046 00	Desk type, for 633A, 639A, 639B Microphones, Altec ...	5.10
40	180	020 0018 00	Boom type, mobile, Meletron	130.00
40	360	020 0010 00	Folding type, portable, Meletron	25.60
41	C-3	097 1414 00	Desk type, Turner	2.10
41	"6" Series		Desk type, Turner	2.70
41	DS-10		Desk type, Atlas	3.00
41	MS-25	097 1510 00	Floor type, Atlas	12.90
41	BS-36	097 1500 00	Boom type, Atlas	36.00
41	BS-36W		Boom type, mobile, Atlas	40.50
41	CS-1	097 1437 00	Floor type, Collapsible, Atlas	9.60
RECORDING EQUIPMENT				
42	B-16H	097 1325 00	Transcription Turntable, Rek-O-Kut	\$ 250.00
42	C-7	097 0784 00	Console cabinet for B-16H Turntable, Rek-O-Kut	129.95
43	64-A	272 1186 00	Transcription Turntable, Presto	497.25
43	10-B	097 1415 00	Transcription Turntable, Presto	211.65
43	66-G		Recorder, Presto	939.25

PAGE	TYPE NO.	PART NO.	DESCRIPTION	PRICE
RECORDING EQUIPMENT (Cont.)				
44	6-N	272 1248 00	Recorder, with I-B case, Presto	657.05
44	92-B		Amplifier, Presto	361.25
44	90-B		Amplifier, Presto	529.98
TAPE RECORDING EQUIPMENT				
45	M80ACC		Recorder, console type, Magnecord	\$ 1,345.00
45	M80AC		Recorder, portable type, Magnecord	1,265.00
45	PT63-AH	097 1662 00	Basic Recorder, Magnecord	349.00
45	PT63-J	097 1136 00	Amplifier for PT63, Magnecord	349.00
46	PT7-P	272 1503 00	Mixing Amplifier, Magnecord	495.00
46	PT7-CX		Line Level Mixer, Magnecord	365.00
46	PT6-BN		Amplifier, Magnecord	449.00
46	PT6-BAH		Recorder, Magnecord	349.00
46	PT6-YAH	097 1411 00	Recorder-Amplifier, Magnecord	485.00
47	PT6-J/AH		PT6-J Amplifier, Magnecord	260.00
47		097 0966 00	PT6-AH Recorder Mechanism, Magnecord	319.00
47	Special PT6-GAHP Combination		Includes PT6-G Amplifier, PT6-K Amplifier-Speaker PT6-AH Mechanical Unit, Magnecord	495.00
47	PT6-D3		Tape Duplicating Amplifier, Magnecord	265.00
48	4-14		Continuous Tape Player, Magnecord	630.00
48	8-14		Continuous Tape Player, Magnecord	655.00
TAPE RECORDER ACCESSORIES				
48	PT6-EL		Continuous Loop, Magnecord	\$ 64.50
48	PT6-M	272 1327 00	Auxiliary Spooling Mechanism, Magnecord	135.00
48	PT6-H	272 1332 00	Rack Panel, Magnecord	On Application
48	PT6-HT	272 1333 00	Rack Panel and Throwover Switch, Magnecord	49.00
48	91X279		Voice Operated Relay, Magnecord	50.00
48	PT6-S		Portable Power Supply, Magnecord	264.00
48	Reel Adapter Kit	097 1697 00	93 x 4 10 1/2" Reel Adapter Kit	39.00
48	PT6-IM3		Three-Channel Input Mixer	79.50
48	PT6-IM4	097 1413 00	Four-Channel Input Mixer	89.50



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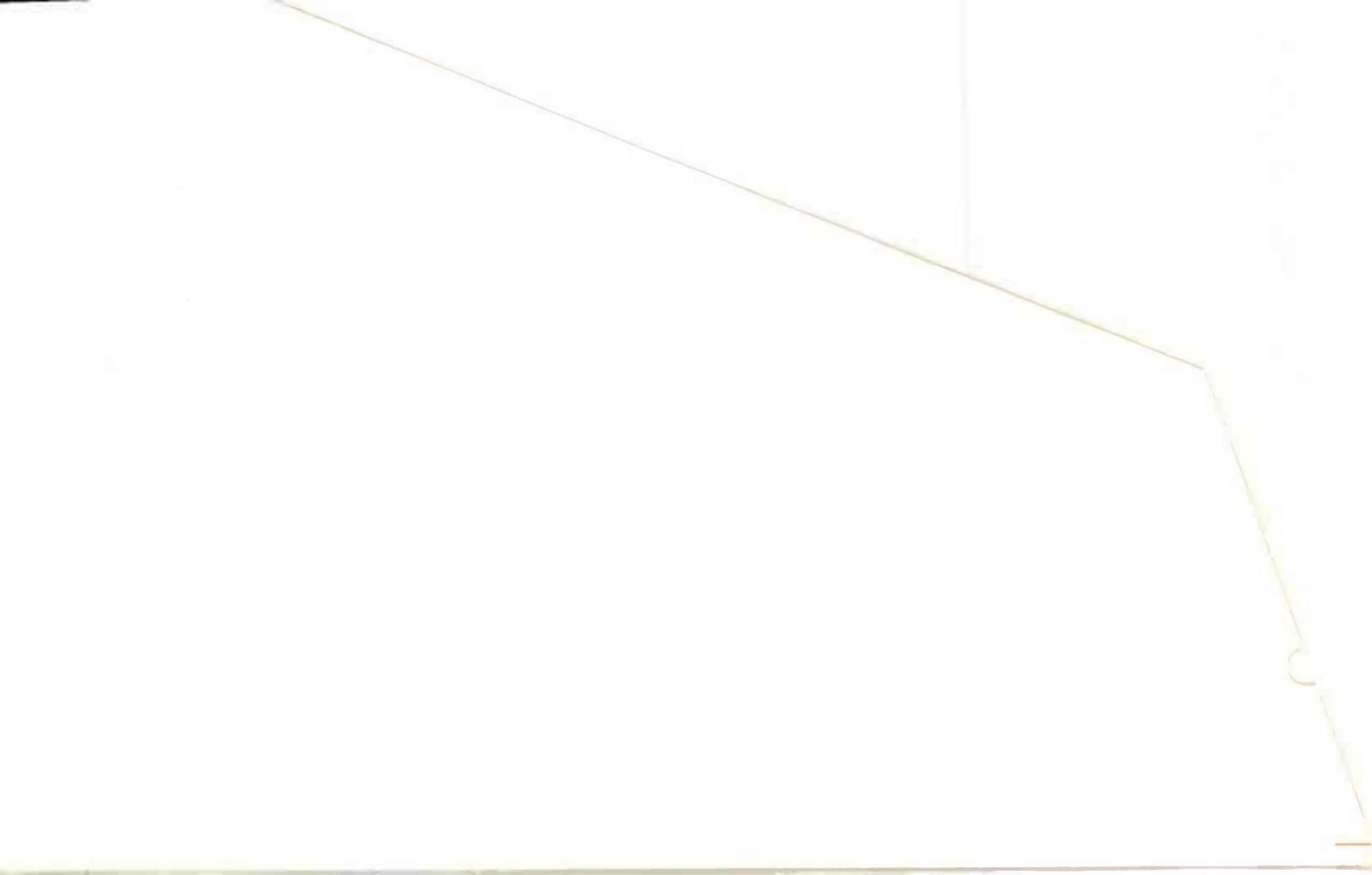
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