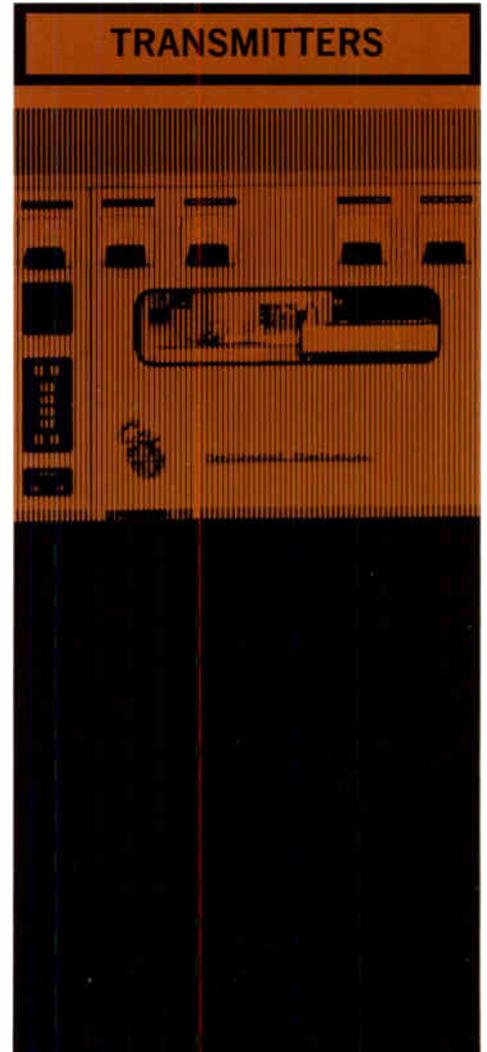
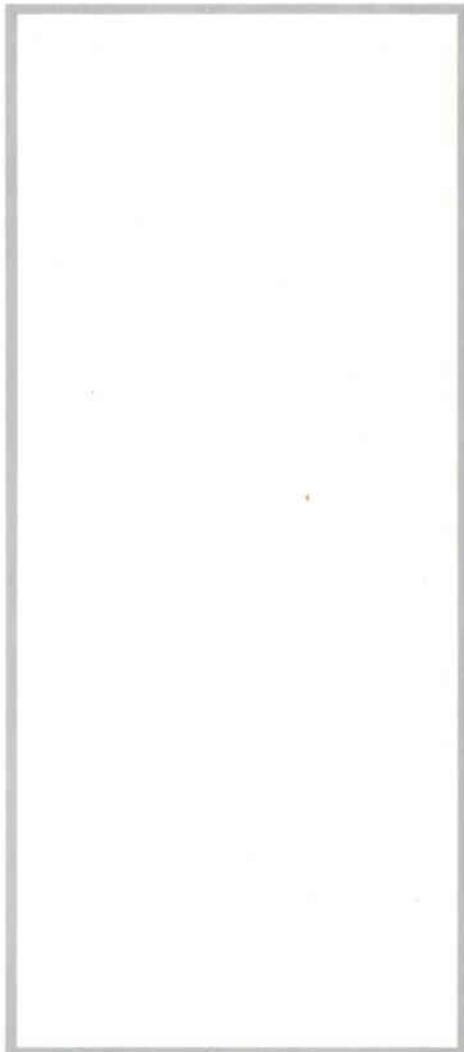
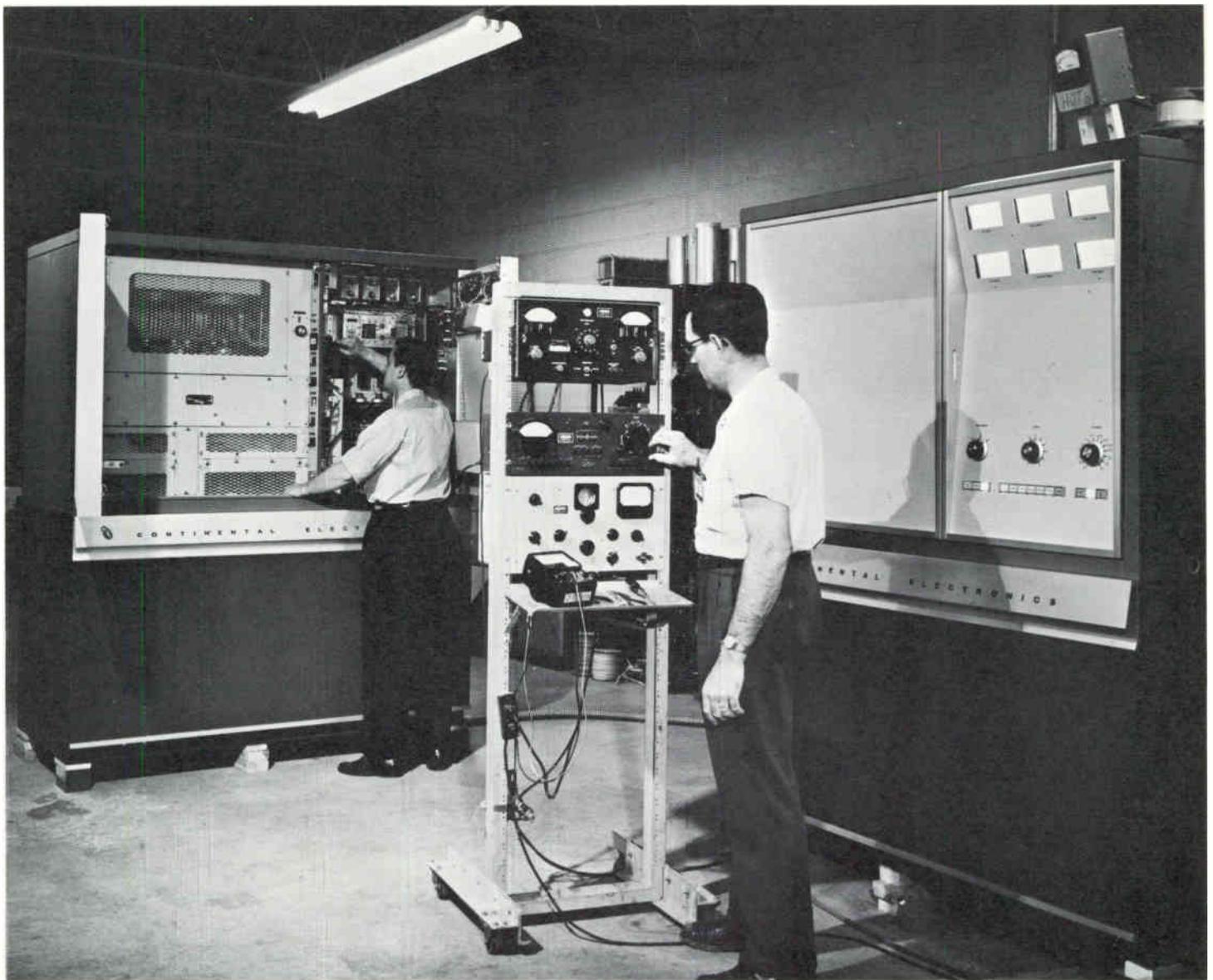


LTV *Continental Electronics DIVISION*



**COMMERCIAL
CATALOG**





Continental Electronics has designed, developed, manufactured, and installed a wide variety of specialized broadcast transmitting equipment for use throughout the world. Following is a partial listing of these transmitters.

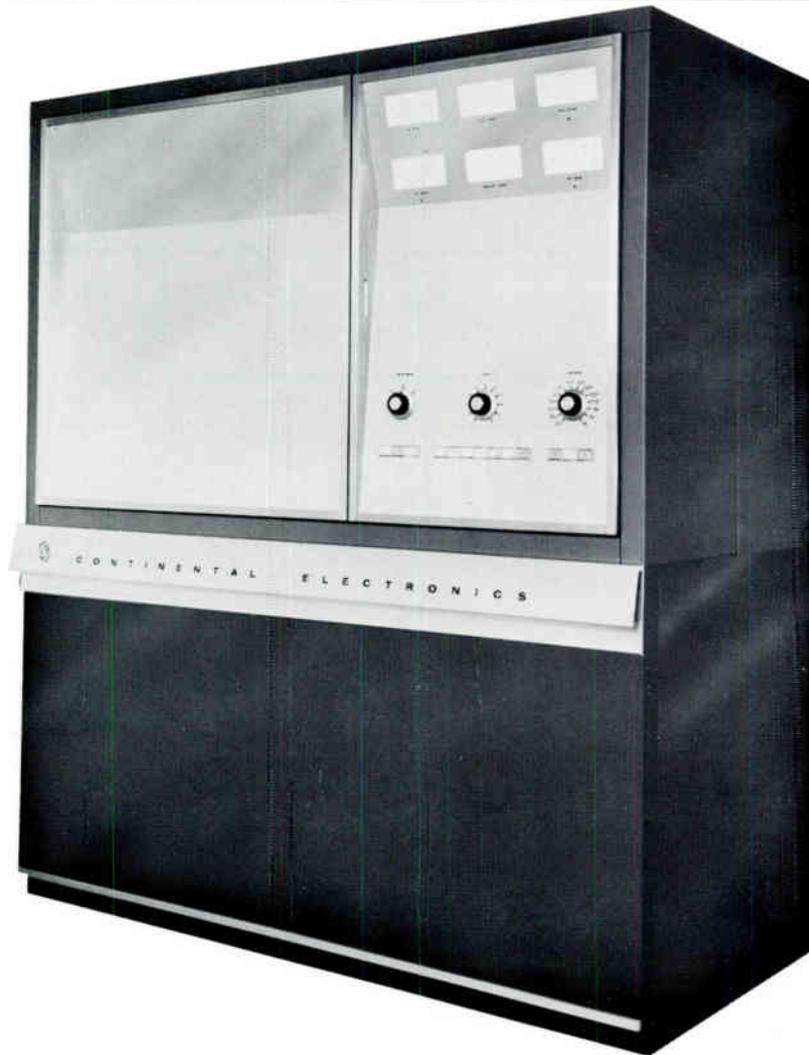
	TYPE	POWER	FREQUENCY	DESCRIPTION
LF	223A	1,000 kw	150-500 kc	Broadcast AM
	220A	500 kw	150-500 kc	Broadcast AM
MF	323B	1,000 kw	535-1605 kc	Broadcast AM
	322B	750 kw	535-1605 kc	Broadcast AM
	320B	500 kw	535-1605 kc	Broadcast AM
	318A	100 kw	535-1605 kc	Broadcast AM
	317C	50 kw	535-1605 kc	Broadcast AM
	316C	10 kw	535-1605 kc	Broadcast AM
	315C	5 kw	535-1605 kc	Broadcast AM
HF	420A	500 kw	4-27 Mc	SW Broadcast AM
	419B	250 kw	4-27 Mc	SW Broadcast AM
	418A	100 kw	3-30 Mc	SW Broadcast AM
	417B	50 kw	3-30 Mc	SW Broadcast AM
	416C	10 kw	3-22 Mc	SW Broadcast AM
	415C	5 kw	3-22 Mc	SW Broadcast AM



BROADCAST
TRANSMITTER

TYPE 315C/316C
5/10 KW MF AM

1



TYPE 315C/316C 5/10 KW, MF, AM BROADCAST TRANSMITTER

Both transmitters are identical mechanically and electrically. Type 315C is a 5 kw transmitter. One additional tube, plus its associated circuitry, increases its power to 10 kw and it becomes the Type 316C 10 kw transmitter. 230 volt, 3 phase power is required for both transmitters, and it is feasible to convert the 315C to the 316C at any future time.

The RF lineup consists of a crystal oscillator followed by an untuned driver and final amplifier. Modulation and carrier level regulation are accomplished at the screen grids of the final amplifier using a direct-coupled cathode-follower system.

Over-all feedback is provided by a sample of the RF voltage from transmitter output being rectified and applied to the first audio stage to reduce noise and improve

linearity.

Modulation is accomplished by Continental's patented "Regulinear*" Screen Modulation System, which provides high level modulation with low power tubes. Wiring is provided to simplify addition of components for push button switching and power cutback. Provision is also made for addition of remote control components.

All power supplies use silicon rec-
*U.S. Pat. No. 2,918,631

**BROADCAST
TRANSMITTER**

TYPE 315C/316C
5/10 KW MF AM

2

tifiers which require no warm up and can be operated at temperatures below zero. The 315C/316C will not be damaged if turned on from cold start. Vacuum tubes in the audio and RF circuits are protected by a 20 second delay circuit which allows filament warm up. Transmitter has been environment tested and operated at temperatures over 100° F.

The 315C/316C is housed in a single, lightweight, frameless aluminum cabinet which provides excellent shielding and easy access to components. It requires 34" x 66" of floor space, and there are no external transformers or components. Separate air system cools tubes and cabinet.

SPECIFICATIONS

AF input impedance: 150/600 ohms

AF input level 100% Mod.: ±10 dbm ± 2 db

AF response 50-7500 cy: ± 1db
30-15,000 cy: ± 1.5

AF distortion 50-10,000 cy: under 3%

Noise, unweighted (under 100% mod): -60 db

Carrier shift, 100% mod: under 2.0%

Modulation: high level screen

Freq. range: 535-1620 kc

Emission: A3

Freq. stability: ±0.002%, 0-50° C

Output impedance: 50-250 ohms

Power output capability: 5500 w for 315C; 10,600 w for 316C

Max ambient operating temp: +45° C

Power supply: 208/230 v, 3 phase

Line freq: 50/60 cy

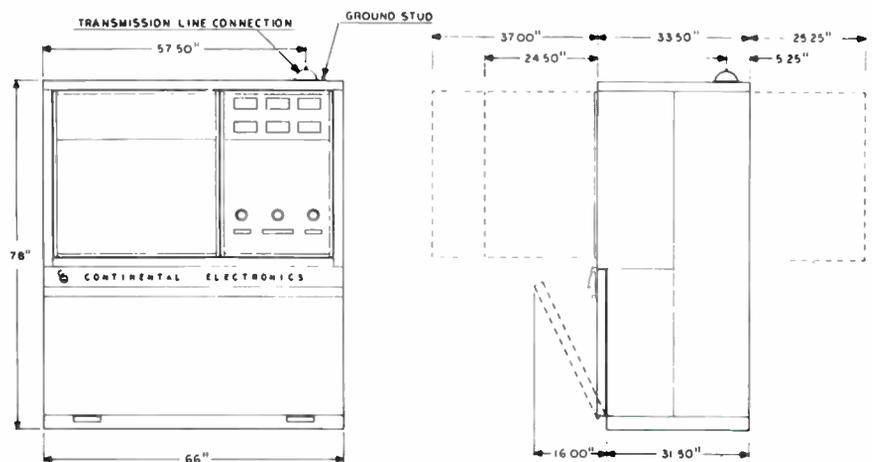
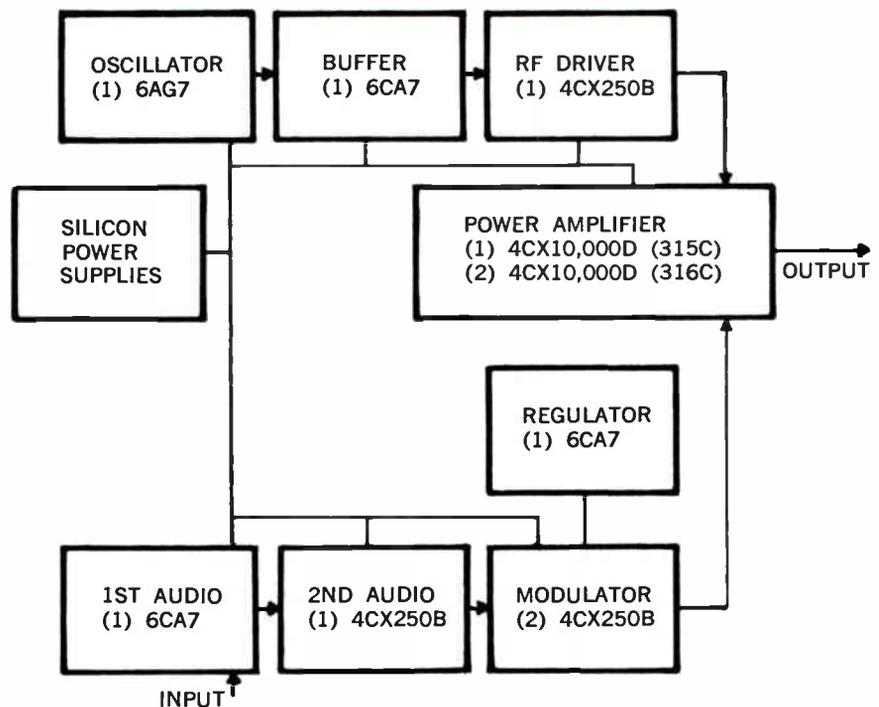
Max power consumption: (approx)
16 kw for 315C; 30 kw for 316C

Power factor: 95%

Permissible combined voltage variation and regulation: ±5%

Size: 66" W, 78" H, 34" D

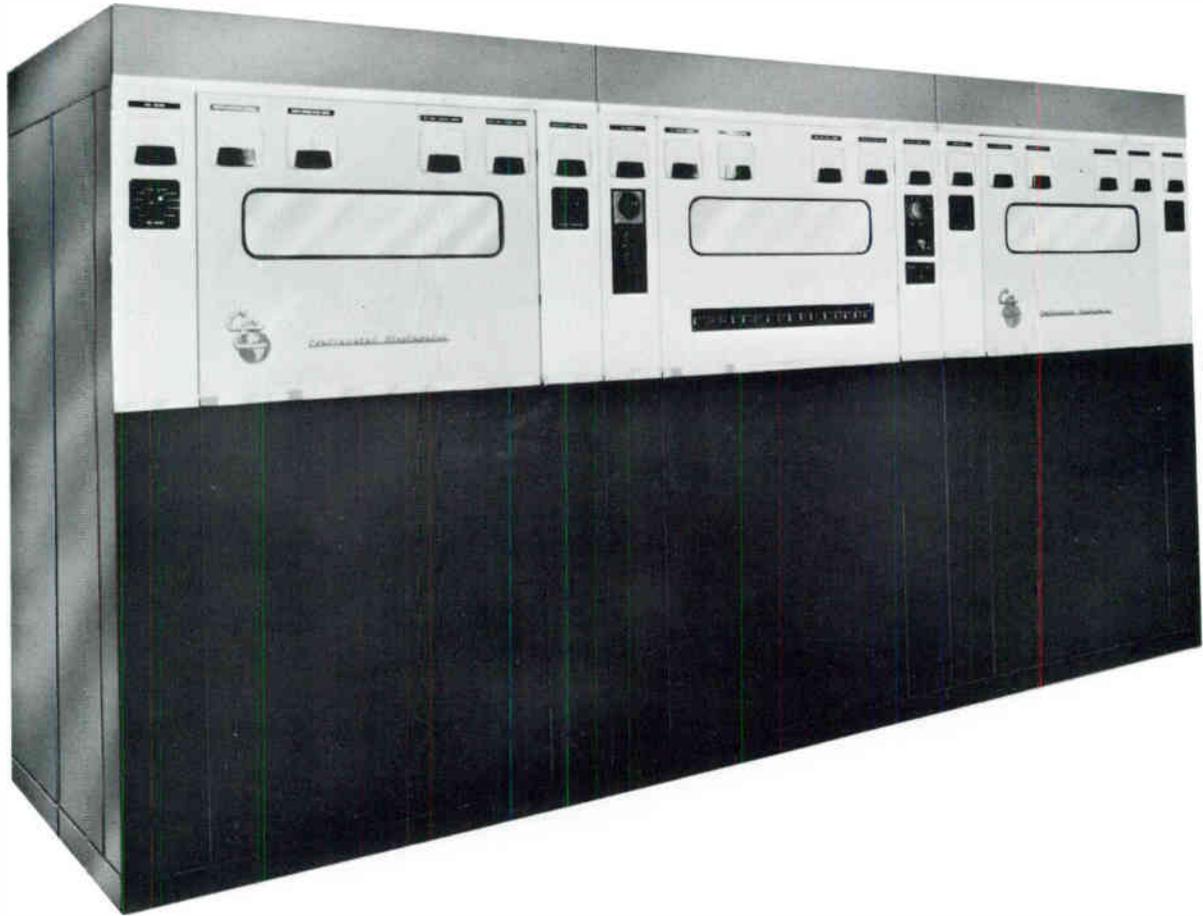
Weight: 315C, 1900 lbs; 316C, 2150 lbs





BROADCAST
TRANSMITTER

TYPE 317C
50 KW MF AM



**TYPE 317C 50 KW MF
AM BROADCAST TRANSMITTER**

Continental's 317C utilizes the newest concept in efficient transmitter design: "High Efficiency Screen Modulated Power Amplifier."* It provides higher efficiency at lower operating cost as compared to other 50 kw transmitters. It has the highest overall efficiency of any 50 kw transmitter known to be in existence.

Both power amplifier tubes operate

*Patents applied for

as conventional class "C" amplifier. They require low RF drive and no neutralization.

High level screen modulation system eliminates high power modulation transformer and reactor.

Separate low power modulator tubes supply alternate half cycles of audio, with peak tube modulated by positive half cycles and carrier tube by negative half cycles. This allows modulator to operate similar to a push-pull class "B" amplifier, with the resulting high effi-

ciencies.

The 317C uses overall feedback for low distortion and improved frequency response.

Built-in Magniphase line protection system provides instantaneous protection from lightning and open or shorted transmission line.

Vacuum capacitors are used in high power network; variable vacuum capacitors are of the new ceramic type. A total of 12 tubes are used. Silicon rectifiers are used throughout.

**BROADCAST
TRANSMITTER**

TYPE 317C
50 KW MF AM

4

Compact design requires only 54 sq. ft. of floor space. All components are self-contained within cabinets, including switch gear, power distribution and blowers. Only external component is the plate transformer which is in self-contained enclosure requiring 8 sq. ft. No transformer vaults are required.

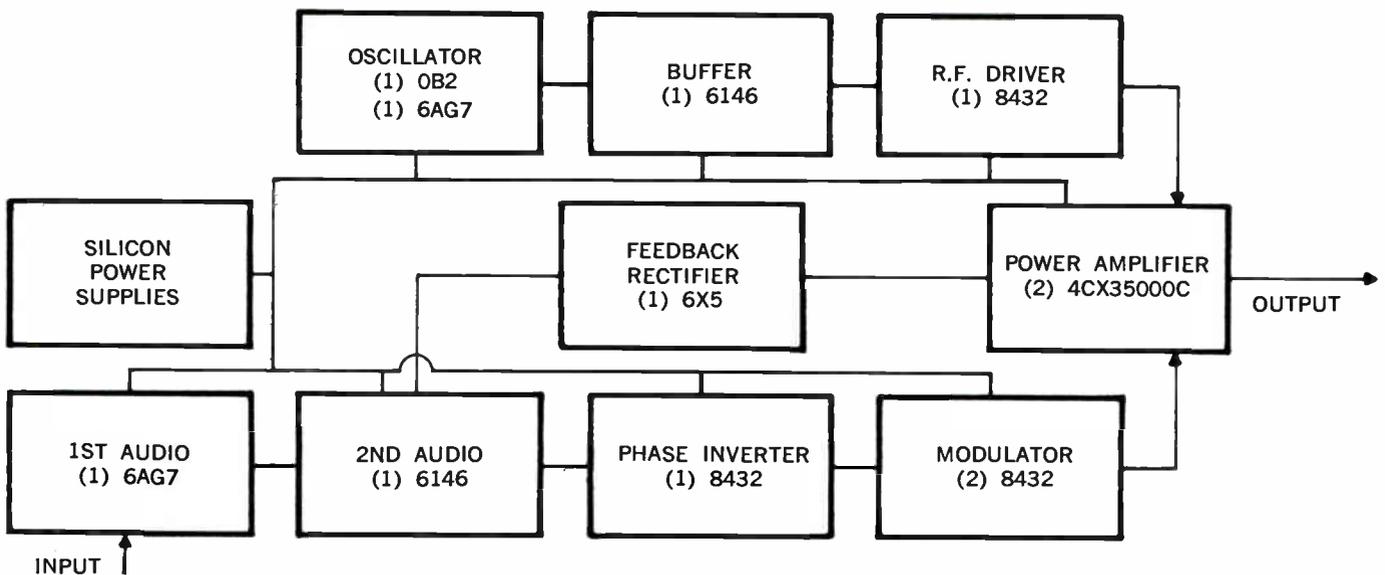
TENTATIVE SPECIFICATIONS

AF input impedance: 150/600 ohms
AF input level, 100% mod: +10 dbm ± 2 db

AF response 50-7500 cycles: ± 1.0 db.
30-10,000 cycles: ± 1.5 db.
AF distortion, 50-7500 cycles: less than 3.0% RMS with 95% modulation
Noise, unweighted (below 100% Mod.): 60 db. below 100% Mod.
Modulation: Screen Grid modulation of final stage.
Freq. range, any single freq: 535-1620 kc
Emission: A3
Freq. Stability: ± 5 cycles
Type of output: unbalanced
Carrier shift, 100% Mod.: Less than 1.0%.
Output impedance: 50 ohms or other specified.

RF voltage for freq. monitoring: 10 v. RMS, 75 ohms
RF voltage for mod. monitoring: 10 v. RMS, 75 ohms
Power output capability: 53,000 w.
Max: ambient operating temp.: 120° F.
Power supply: 460 v., 3 phase 50/60 cy
Power consumption 0% mod: 85 kw
Average mod: 95 kw
100% mod: 120 kw
power factor: 0.9
Permissible combined voltage variation and regulation: $\pm 5\%$
Size: 144"W, 78" H, 54" Deep
Floor space: 54 sq. ft. (plus 8 sq. ft. for external transformer)
Weight all units: approx 8,000 lbs.

TENTATIVE BLOCK DIAGRAM, LISTING TUBE COMPLEMENTS





TYPE 416D 10 KW HF AM BROADCAST TRANSMITTER

For operation in the International short wave broadcast band, it utilizes Continental's field-proven screen modulation system which makes possible an excellent degree of performance. Transmitter is manually tuned over the frequency range from 3 to 22 megacycles. Excitation is provided by either a crystal oscillator or a variable fre-

quency oscillator. The 416D is housed in frameless aluminum cabinets which provide excellent shielding, light weight and easy access to all components.

The 416D can be adapted to provide pre-set channeling and automatic tuning. It can also be provided as a communications transmitter with the following power capabilities: 20 kw for CW or FSK emission; 30 kw peak envelope

power for SSB. By removing one P.A. tube, the Type 416D becomes the Type 415D, and has a power output of 5 kw.

Any appropriate crystal oscillator or variable frequency oscillator having an output of 0.2 watt into a 75-ohm line, can be used to excite the Type 416D. The exciter amplifier unit is followed by the tuned driver and power amplifier circuitry. Modulation and carrier

level regulation are accomplished at the screen grids of the final amplifier tubes, using a direct-coupled cathode-follower circuit. Over-all RF feedback is sampled from the output of the transmitter, rectified and applied to the first audio stage to reduce noise and improve linearity.

Two 4CX10,000D tubes are operated in parallel to provide the 10 kw power output. Grid circuit is driven through a Pi network from a single 4CX300A. Output circuit of the Power Amplifier consists of a Pi network and a harmonic filter. Screen grid modulation offers the following features and advantages: problems of power-line regulation and carrier shift are minimized, reduced modulator power requirements, use of small audio components, no audio output transformers, low distortion, and continuous 100% modulation over audio spectrum.

Power supplies use solid state rectifiers, eliminating warm-up time and improving operation in areas of temperature extremes.

Transmitter is air cooled, with air intake from the rear.

SPECIFICATIONS

Audio input impedance: 150/600 ohms.

Audio input level: 100% mod:
+10 dbm \pm 2 db.

Audio freq response: (95% mod)
50-7500 cps \pm 1 db; 30-10,000 cps \pm 1.5 db.

Audio distortion: 3% (95% mod)
50-10,000 cps.

Noise: -60 db (below 100% mod).
Carrier shift: less than 2% (95% mod).

Modulation: high-level screen grid.

Freq range: 3-22 mc.

Emission: A3.

Output: unbalanced coaxial.

Output impedance: 50 ohms.

Output capability: 10,600 w.

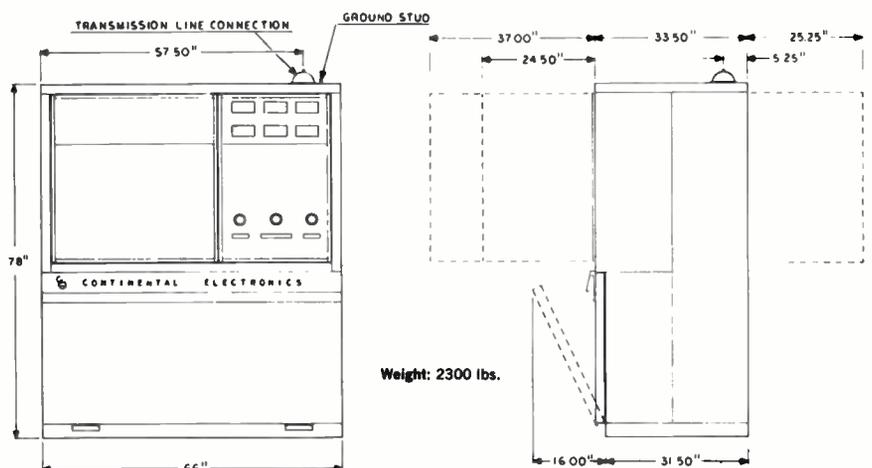
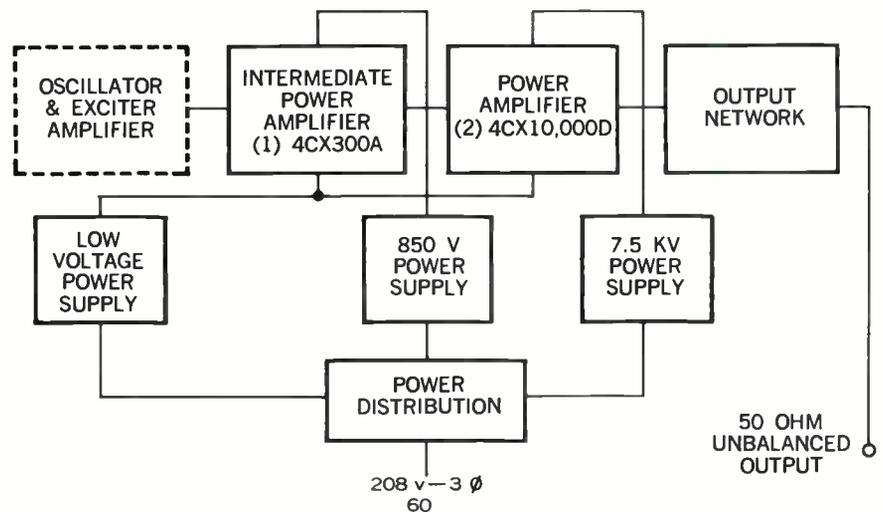
Max ambient operating temperature: +45° C.

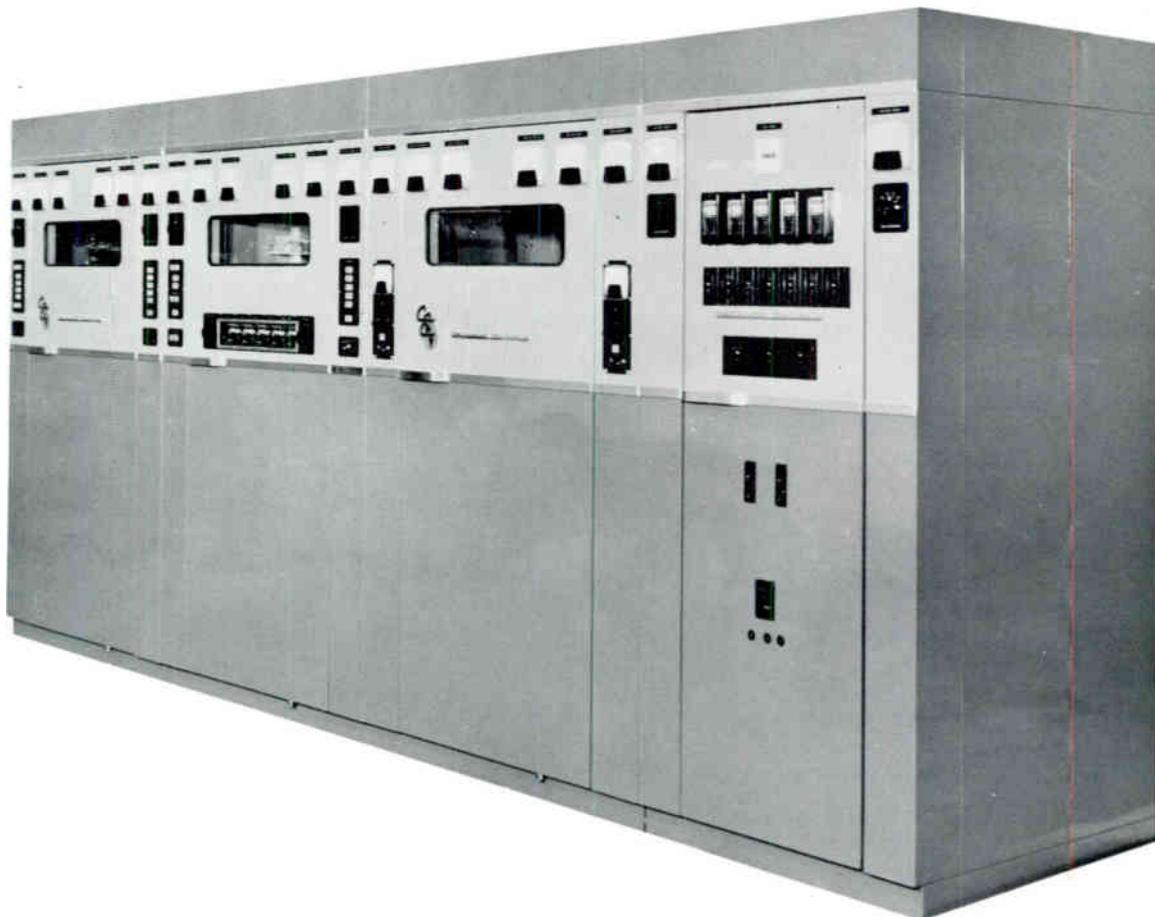
Power source required: 208/230 v, 3 phase, 50-60 cps.

Power consumption: 30 kw (approx.)

Power factor: 90%.

Permissible combined voltage variation and regulation \pm 5%.





TYPE 417B 50 KW HF AM BROADCAST TRANSMITTER

For operation in International short wave broadcast band, and for communication service with frequency shift keying. Manually tuned over the frequency range from 3 to 30 megacycles, it utilizes high-level plate modulation. Power Amplifier uses a single type ML-6697 air cooled tube which provides high efficiency, increased reliability and ease of servicing as compared to multiple-tube power amplifiers.

Light weight, low cost power tubes are operated at 50% or less of their maximum ratings for increased reliability. Solid state rectifiers are used in all power supplies.

The 417B is designed as two separate units: the audio modulator system, and a complete radio frequency system. The RF system may be operated as a FSK communication transmitter independently of the modulator.

Any appropriate master oscillator

can be used to excite the Type 417B. The first and second RF amplifier stages are series-fed circuits, and are tuned through a gear train from a single motor. The inter-stage coupling between the intermediate power amplifier and the power amplifier consists of a motor driven Pi network. The PA employs broad band bridge neutralization.

The output network consists of a parallel resonant circuit tuned by motor driven vacuum capacitors.

**BROADCAST
TRANSMITTERS**

**TYPE 417B
50 KW, HF, AM**

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Motor operated loading is accomplished by varying the coupling between the balanced output links and the parallel resonant circuit inductor. Four sets of inductors are provided for band changing.

First and second audio stages are operated in Class A push-pull. Driver stage is a cathode-follower employing four tubes in a push-pull parallel configuration. High-level modulator operates in Class B push-pull for a 40 kw output.

All power supplies utilize solid state rectifiers, eliminating warm-up time and improving transmitter operation in areas of temperature extremes.

Transmitter is air cooled, with air intake from the bottom/back.

SPECIFICATIONS

Audio input impedance: 150/600 ohms.

Audio input level: 100% mod:
+10 dbm ±2 db.

Audio freq response: ±1.5 db, 30-7500 cps.

Audio distortion: less than 3%, 50-7500 cps.

Hum and noise: 55 db below 7500 cy (95% modulation).

Carrier shift: less than 3%.

Modulation: high level plate.

Freq range: 3-30 mc.

Emission: A3.

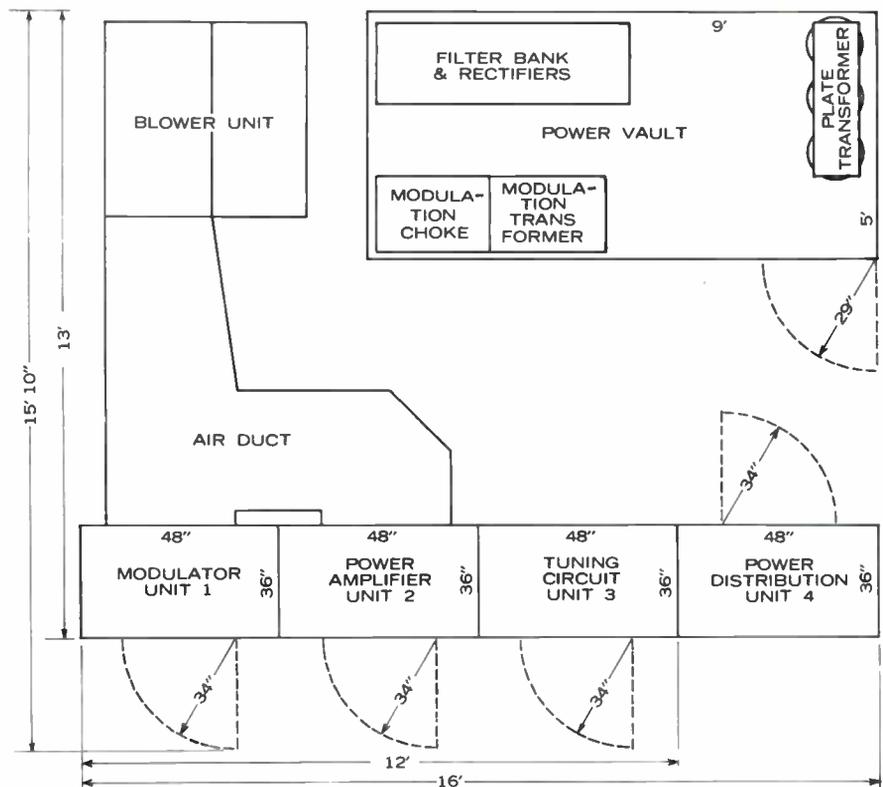
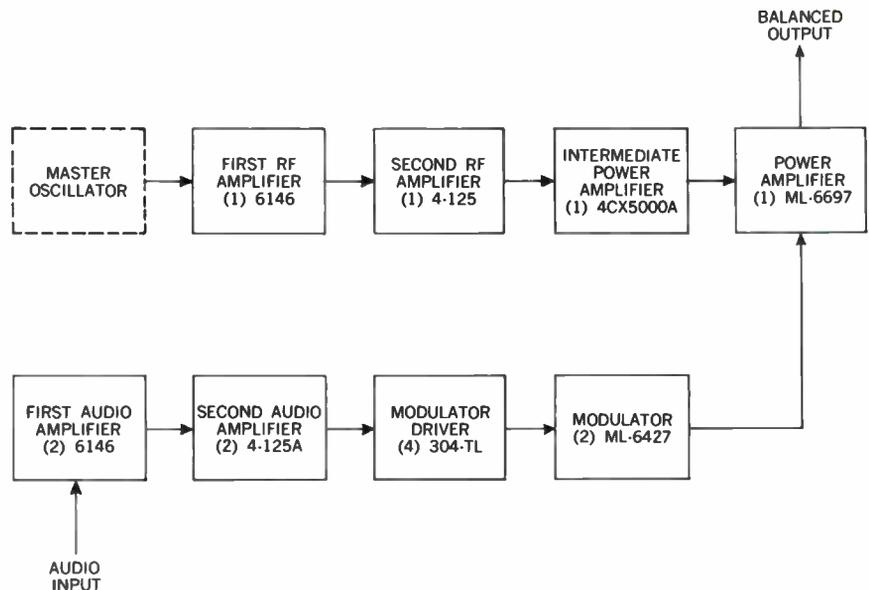
RF output impedance: 150-600 ohms balanced.

Power output capability: 55,000 w.

Power source: 460 v ±5%, 50-60 cps, 3 phase, 3 wire.

Power consumption: 0% modulation 95 kw; 30% modulation 110 kw; 100% modulation 145 kw.

Power factor: 0.9.



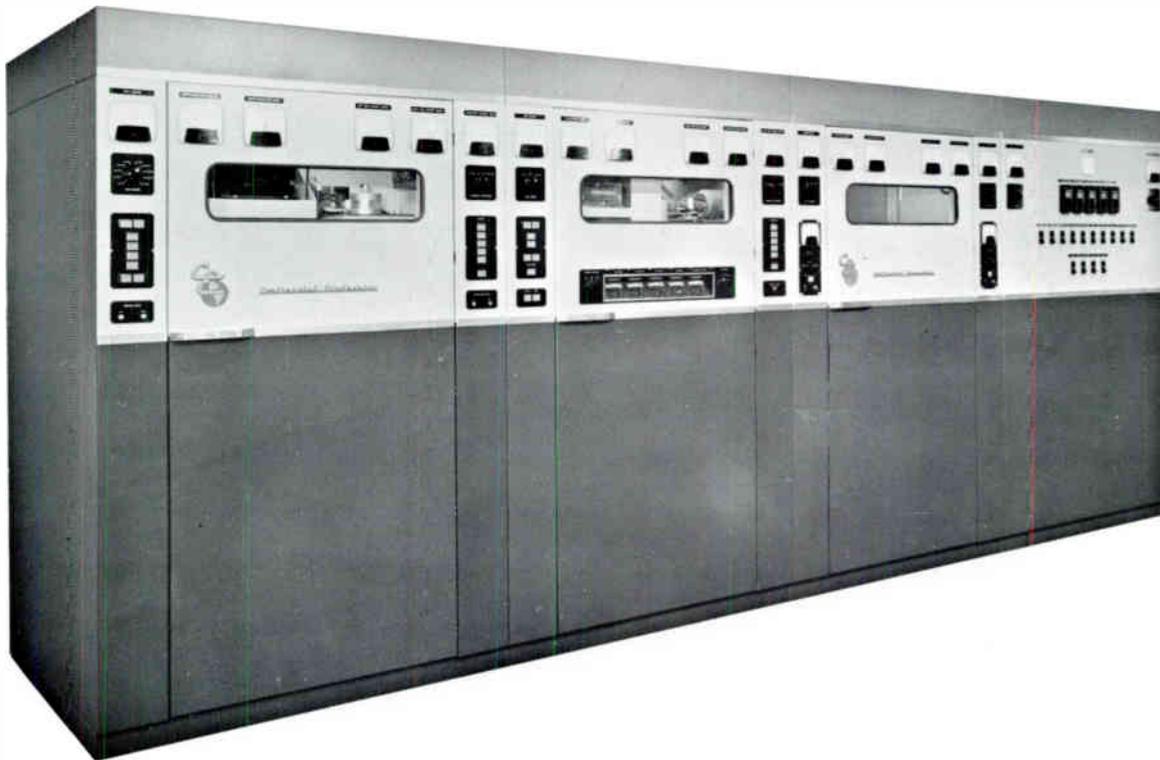
All units 78" H; total approx. weight 12,000 lbs.



BROADCAST
TRANSMITTER

TYPE 418A
100 KW HF AM

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TYPE 418A 100 KW HF AM BROADCAST TRANSMITTER

For operation in the International short wave broadcast band, it is high-level plate modulated with trapezoidal modulation capability. Operating over the frequency range from 3.2 to 26.1 megacycles, the 418A uses four amplifier stages to raise input level of 0.5 watts to 100 kw carrier power output. Five front panel controls tune the complete transmitter. A vapor phase system is used to provide efficient, stable cooling to insure maximum tube life. Fast frequency change is ac-

complished with only four RF stages and the output network to adjust. Tuning is amplified with all RF stages operating at fundamental carrier frequency. Transmitter is fully instrumented, and all operating parameters are displayed on front-mounted, functionally grouped meters. Supervisory controls and equipment protection systems use illuminated push buttons to facilitate control and status monitoring. Solid state rectifiers are used in all power supplies. Individual, externally mounted crystal oscillator/multiplier units

preset for each operating frequency may be used in groups, with selective switching to control single or multiple transmitters. Stable, variable frequency oscillators are available. Audio peak clipping amplifiers can be used to increase percentage of modulation by use of trapezoidal wave form.

Five stages are used to raise audio frequency input from +10 dbm ± 2 db, to the modulator output required for 100% modulation. The first is a low gain push-pull stage for compensating for low frequencies as required in trap-

**BROADCAST
TRANSMITTER**

**TYPE 418A
100 KW HF AM**

10

ezoidal modulation. The second and third are conventional push-pull and RC coupled. The fourth is a pair of triodes employed in a push-pull cathode follower circuit and is transformer coupled to modulator grids. A pair of F-8388 triodes are used in a conventional push-pull Class B modulator circuit.

The 418A will accept a sine-wave audio frequency signal. However, power handling capability of the modulator and power supplies has been increased considerably to permit operation with a trapezoidal signal. This results in higher average percentage of modulation and improved intelligibility.

SPECIFICATIONS

Audio input impedance: 150/600 ohms.

Audio input level, 100% mod: +10 dbm ±2 db.

Audio freq. response: ±5 db, 30-7500 cps.

Audio distortion: less than 3%, 50-7500 cps, 95% mod.

Hum and noise: 55 db below 100% mod.

Carrier shift: less than 3%

Modulation: high level plate

Freq. range: 3.2 — 26.1 mc

Emission: A3

RF output impedance: 300-600 ohms balanced

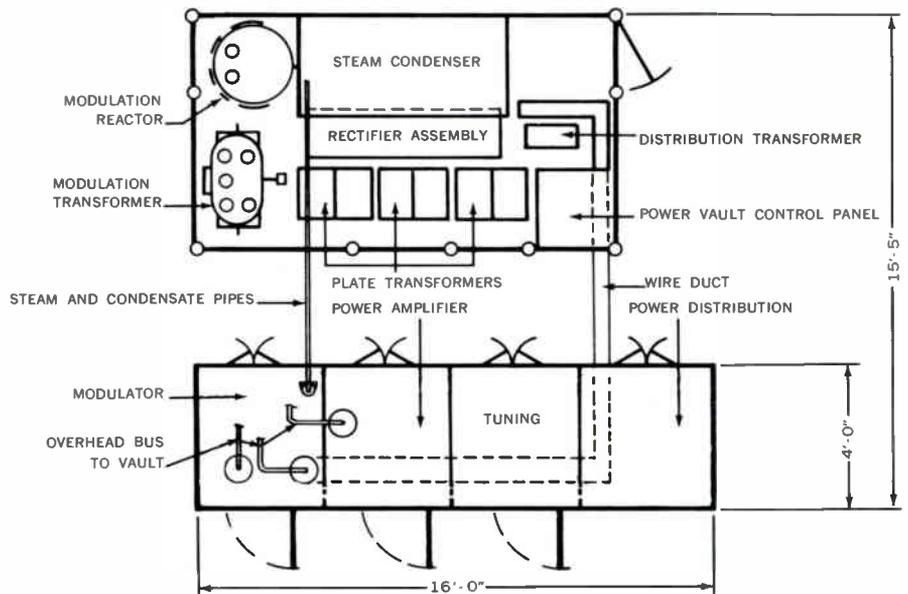
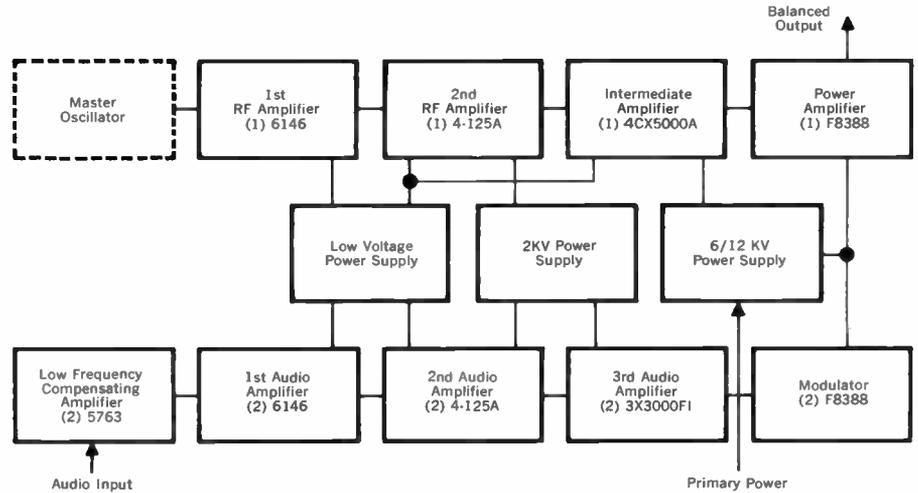
RF input: 0.5 w, 75 ohms

Carrier output: 100 kw

Power source: 460 v, ±5%, 50-60 cps, 3 phase

Power consumption: 0% mod. 196 kw; 30% mod. 215 kw; 90% mod. 275 kw.

Power factor: 0.9



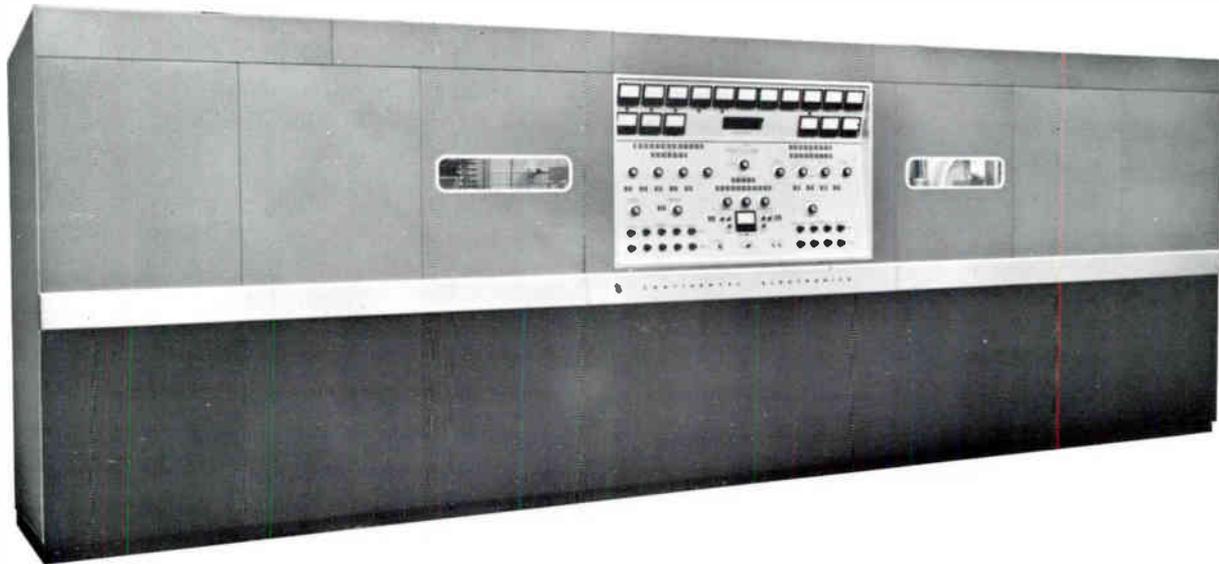
All cabinets 78" high; total approx. weight 19,100 lbs.



BROADCAST
TRANSMITTER

TYPE 419C
250 KW HF AM

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TYPE 419C 250 KW HF AM BROADCAST TRANSMITTER

For operation in the International short wave broadcast band, it is a high-level plate modulated transmitter with capabilities for full trapezoidal modulation. The standard 419C continuously covers the frequency range from 3.95 to 26.6 megacycles in four bands. All tuning controls are manually controlled from the front panel. As a customer option, the 419C can be provided with 20 or more pre-set frequencies, enabling the operator to change to any predetermined frequency in less than 20 seconds.

As another option, it can be provided so as to be automatically tuned on any frequency between 3.95 and 26.6 megacycles in less than 40 seconds without operator adjustment. Identical tube types are used for all high-power stages, reducing maintenance and replacement costs. A vapor phase cooling system provides stable operation and relatively small component size. All high-level tuning elements are motor driven ceramic vacuum variable capacitors which are controlled from the central console. All essential controls, metering positions and status indicators are

located on the central console for easy tune-up. All dc power supplies use solid state rectifiers.

The 419C is completely self-contained. Output from the built-in crystal oscillators and frequency multipliers is fed into a two-stage continuously tuned amplifier. The 125 watt level is amplified to 10 kw by a 4CX-3000A tetrode; then further amplified to 50 kw by an F-8388 vapor cooled tube. The PA develops 250 kw, and an additional 30 kw is fed through the PA to provide a total of 280 kw carrier output. The driver and two PA tubes are operated in a grounded grid

**BROADCAST
TRANSMITTER**

TYPE 419C
250 KW HF AM

circuit. Tank circuits for the PA are shorted coaxial lines which are bandswitched. Output at 50 ohms impedance level is taken from the coaxial lines and connected to the Baluns.

The output network consists of four tuned transformers which transform 50 ohms unbalanced to 300 ohms balanced transmission line or antenna.

The modulator uses two F-8388 vapor cooled triodes in Class AB₂. These tubes are driven by four F-8133 vapor cooled triodes. Low frequency amplitude and phase compensation are used to provide an ideal trapezoidal waveform, and sinusoidal low frequency response.

SPECIFICATIONS

Audio input impedance: 150/160 ohms

Audio input level, 100% mod:
+10 dbm ±2 db

Audio freq. response: ±1 db 100-7500 cy; ±2 db 50 - 10,000 cy up to 95% mod.

Audio distortion: less than 4% 100 - 5000 cy; less than 5% 50 - 100 and 5000 - 7500 cps

Hum and noise: 50 db below 100% mod.

Carrier shift: less than 5%

Modulation: high level plate

Freq. range: 3.95 - 26.6 mc

Emission: A3 and F1

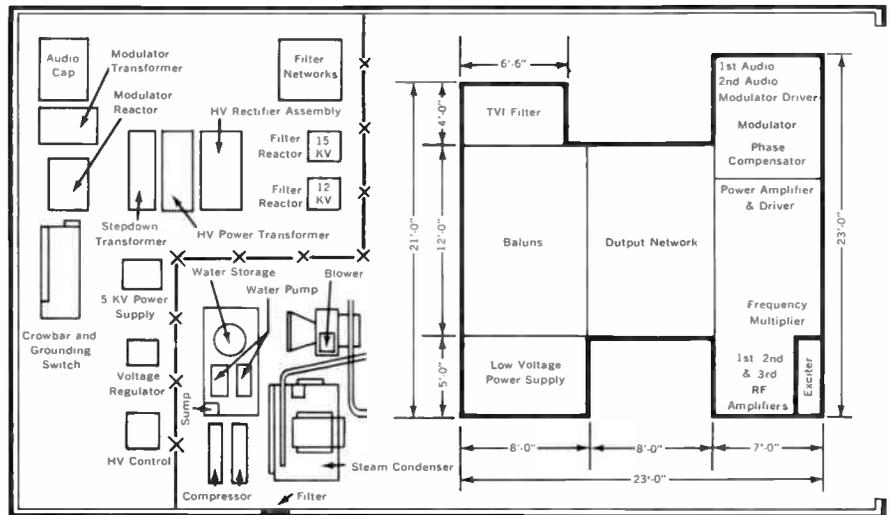
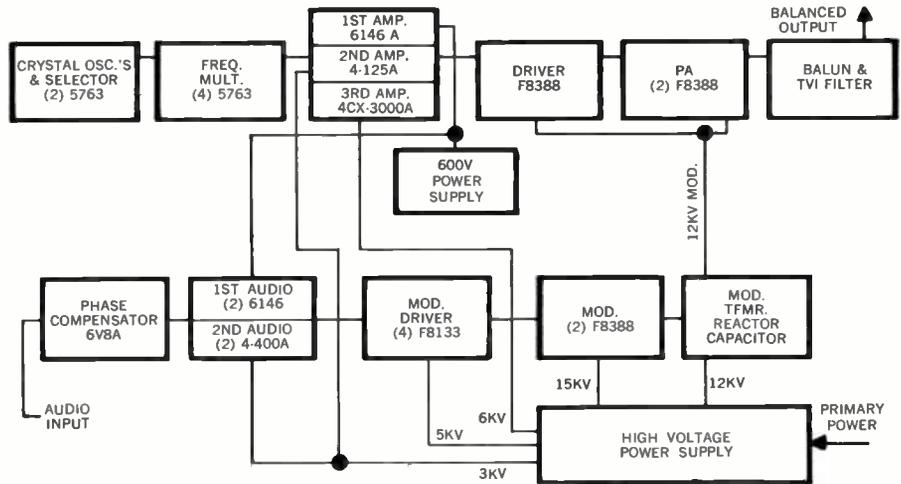
RF output impedance: 300 ohms balanced

Carrier output: 250 kw

Power source: 4160 v, ±3%, 50-60 cps, 3 phase

Power consumption: unmodulated 455 kw; 100% modulation 680 kw

Power factor: 85% or higher



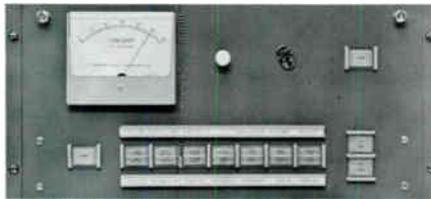
Minimum floor space 997 sq. ft.; total approx. weight 74,500 lbs.



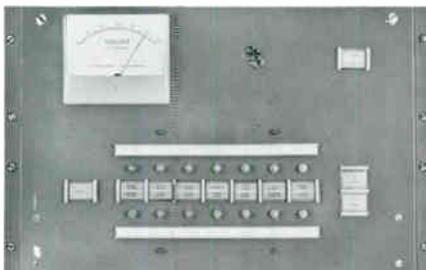
TRANSMITTER
ACCESSORIES

REMOTE CONTROL

13



STUDIO UNIT



TRANSMITTER UNIT

TYPE TRC-3 TRANSMITTER REMOTE CONTROL

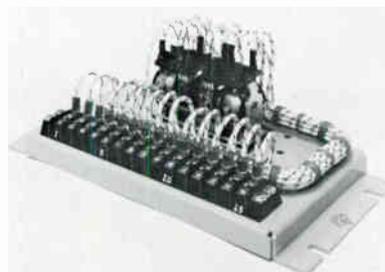
A simplified, reliable transmitter remote control system that meets all FCC requirements for unattended transmitter operation. It provides remote control and monitoring of one or more transmitters of any power level. The basic system consists of two main units: the TRC-T transmitter control terminal, and the TRC-S studio control unit. These terminals are interconnected by two standard signaling grade, commercial telephone lines that are suitable for dc operation, and may have up to 8000 ohms loop resistance. One pair is used for control from studio to transmitter, with dc voltage impressed from either side to ground. The other pair returns low level metering signals to control point. Metering is accomplished by reading in "percent-of-normal." Normal readings are logged at 100%. Control units have illuminated push buttons with direct readout of function performed. All

studio metering and control functions are duplicated at the transmitter terminal. Use of normally energized control circuits throughout the system assures "fail-safe" operation.

SPECIFICATIONS

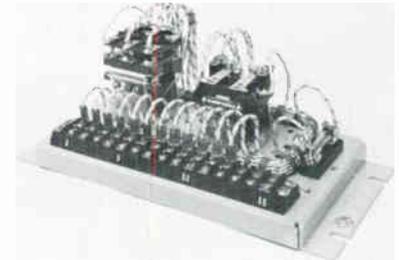
Terminal units are designed for mounting in 19" equipment racks, and are constructed on vertical chassis with hinge-down front panels for maximum accessibility. The TRC-S unit requires 8 3/4" vertical rack space, and is 11" deep. Weight: 23 lbs. The TRC-T unit requires 12 1/4" vertical rack space, and is 11" deep. Weight: 39 lbs. Additional relay units and accessory items are required to make-up a complete transmitter remote control system. Type and number of accessory items are determined by specific metering and control functions desired by the station, and by the type and number of transmitters to be remotely controlled.

TRC-3 ACCESSORIES



TYPE 31121-B, MECHANICAL LATCHING RELAY UNIT. Connects between TRC-T unit and transmitter for control of circuits locally controlled by switches, such as filaments on-off, emergency generator on-off, etc. 4PDT controls

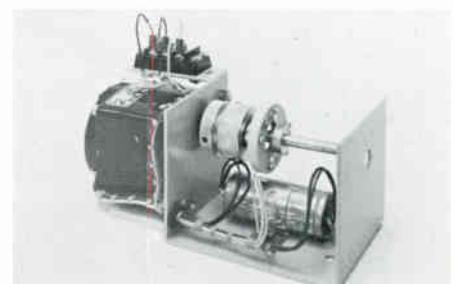
rated 10a, 115 vac, non-inductive.



TYPE 31122-B, ELECTRICAL LATCHING RELAY UNIT. Similar to Type 31121-B, except unit is held in "on" position through its own contacts, will automatically release if transmitter site power fails momentarily. DPDT contacts rated 10a, 115 vac, non-inductive.

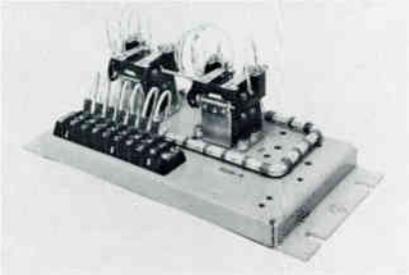


TYPE 31123-B, MOMENTARY OUTPUT RELAY UNIT. Connects between TRC-T unit and transmitter for control of circuits locally controlled by push-buttons, such as pattern change, and existing motors. Two sets DPDT contracts rated 15a, 115 vac, non-inductive.

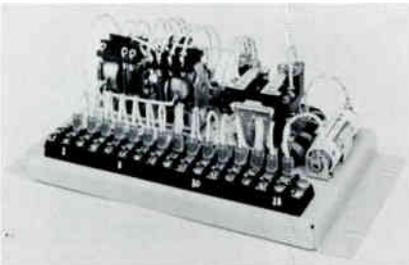


TYPE 31124-B, MOTOR AND CLUTCH ASSEMBLY. Reversible

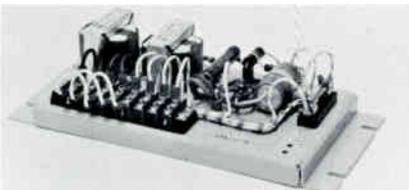
motor operating directly from TRC-T unit. Rated at 2.8 RPM, 95 in-oz. Other speed and torque ratings available on special order. Used for power output adjustment.



TYPE 31125-B, REPORT-BACK RELAY UNIT. Provides lamp signal at studio terminal to indicate that the particular switching function has been operated "on" or "off." Two units can be used per system.



TYPE 31126-B, PROGRAM LINE REVERSING UNIT. Changes transmitter inputs between main and spare program lines. Battery provides studio metering indication according to position of lines.



TYPE 31128-B, LINE VOLTAGE METERING UNIT. Used with 115 or 230 vac circuits to produce a dc sample proportional to voltage. Provides filament voltage meter-

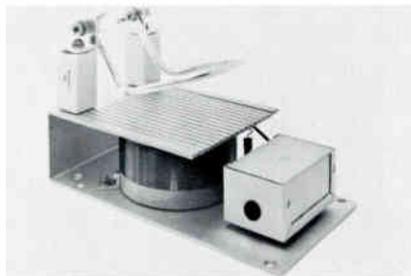
ing if connected across primary of filament transformer.



TYPE 31129-B, LINE VOLTAGE METERING UNIT. To be used if hum and noise exist in telephone lines from either side to ground.



TYPE 5522-A, TOWER LIGHTS METERING UNIT. Produces dc sample proportional to current, includes current transformer. One required for each set of tower lights to be metered or can be used for total tower light control.



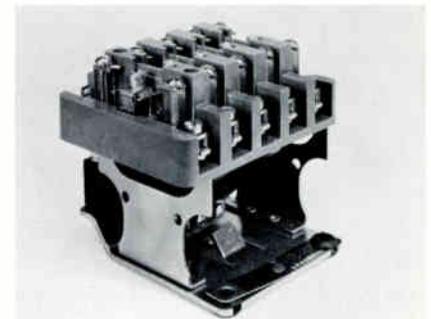
TYPE B31099-1, ANTENNA METERING UNIT. Produces rectified dc sample proportional to R.F. current. ac power not required. For currents of 0 to 15 amperes RF Type B31099-2 used for currents of 15 amps and above.

DOSX RELAYS. May be connected at TRC-T switching output to control external pushbutton circuit, or may be used as auxiliary relay in

transmitter or other external circuitry requiring interlocking.



DOSX-7T: 115 vac coil, DPDT 15 amp, 115 vac non-inductive contacts. DOSX-12T: same as DOSX-7, except with 230 vac coil. DOSX-59T: same as DOSX-7, but has 110 vdc coil.



RBM CONTACTORS. Heavy-duty, industrial contactors, they may be connected at TRC-T switching output to control external pushbutton circuit, or for interlocking use in external circuitry. Recommended for Plate on-off control. RBM 101130-101: 115 vac coil, 3 PNO reversible contacts, rated 10 amps, 115 v ac non-inductive. RBM 101150-101: same as RBM 101130-101 but has 5PNO reversible contacts. RBM Contactors also available with 230 vac coils, and with 15 amp reversible and 25 amp N.O. contacts.



TRANSMITTER
ACCESSORIES

MONITOR RECEIVER
FAULT ALARM
PHANTOM ANTENNAS



MRIC MONITOR RECEIVER

Continental's Monitor Receiver is a high-quality, fixed-tuned unit used for monitoring transmitter operation at the studio location. Off-the-air signals are picked up by a shielded loop antenna, amplified by the receiver, and fed to the station's modulation and frequency monitors located at the studio.



LOOP ANTENNA

SPECIFICATIONS

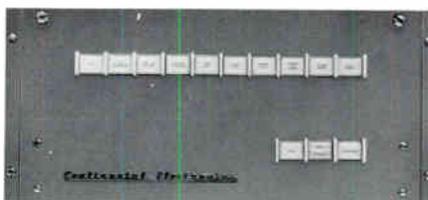
Freq. range: 0.54 to 1.7 mc
Input impedance: 50 ohms, unbalanced
Input sensitivity, at maximum gain with standard loop antenna: 20 mv/meter
Output: will drive all modern frequency and modulation monitors. Modulation Monitor: 6 v rms across 75 ohm unbalanced lead. Frequency Monitor: 1 v minimum, high impedance unbalanced, from special clipping amplifier. Audio: 600 ohms, balanced essentially flat to 10 kc. Maximum output level +20 dbm at 100% modulation, at rated modulation monitor output.
Meter: Indicates relative input signal strength in "% of normal."

Carrier alarm: Buzzer and lamp alarm on loss of carrier. Provision made for external lamp and buzzer.

Tubes: one each, OA2, 2D21, 6AK5, 6AU6, 1614; two 6BA6; three 12AU7.

Power input: 115 v \pm 5%, 50/60 cy, 95 w.

Size: 19" W, 7" H, 14" D. 27 lbs.



STUDIO UNIT



TRANSMITTER UNIT

FAULT ALARM

Continental's Type TRC-FA Fault Alarm System is a monitoring system that is used at unattended transmitting stations to provide remote alarm and indication in the event of a change of status in any one of 10 or 15 monitored conditions. Any function such as a fire, building entry, heating system failure, etc., which can be reduced to a normally-closed circuit in its normal condition, can be presented as a remote fault indication. The system consists of two rack-mounted units: a Transmitter Unit and a Studio Unit. These units are designed as accessory units to the Type TRC-3 Transmitter Remote Control System, and as such can operate over a pair of telephone

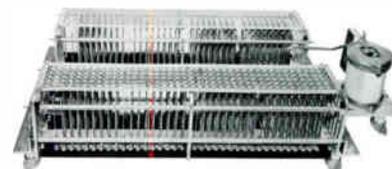
lines provided for the TRC-3 system. None of the TRC-3 system functions are required for its operation. The Fault Alarm System may be used as a separate facility, using its own telephone lines if desired.

SPECIFICATIONS

Both terminals are designed for mounting in 19" equipment racks, and have hinge-down front panels. Each terminal requires 8 3/4" vertical rack space, and each unit is 10" deep. Weight: 23 lbs.

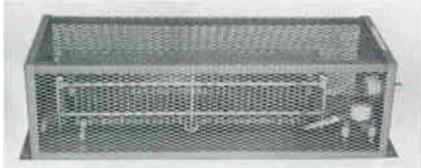
PHANTOM ANTENNAS

Continental has had more than 18 years of experience in providing phantom antennas for broadcast transmitters at power levels up to 1,000,000 watts. Antennas can be supplied in a variety of configurations and power levels. Several are described below.

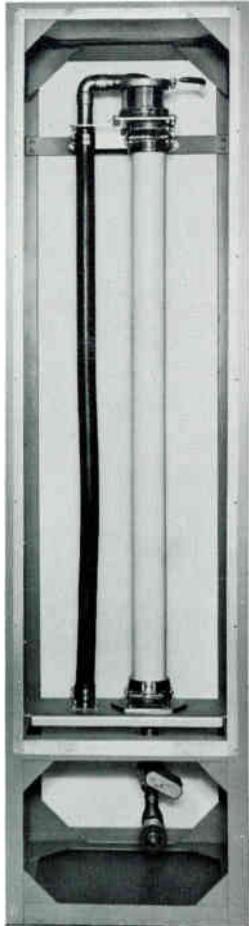


TYPE 516A 10 kw air cooled phantom antenna is a convection air cooled load that will handle a 10 kw transmitter at 100% modulation. It is supplied as an essentially flat load on a specified frequency and impedance in the standard broadcast band. The 516A can be furnished with or without screen enclosures. RF ammeter is optional. Size: 41" W, 24" D, 12" H. Approx weight: 60 lbs.

TYPE 515A 5 kw air cooled phantom antenna is a convection air cooled load that will handle a 5 kw

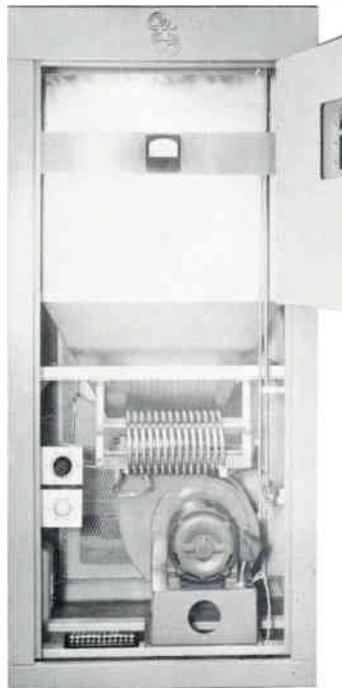


transmitter at 100% modulation. Operating characteristics are same as Type 516A. Size: 41" W, 8" D, 12" H. Approx weight: 35 lbs.



TYPE 517B 50 kw water cooled phantom antenna is supplied as an essentially flat load of sufficient band width for modulation on a specified frequency and impedance in the standard broadcast band. The 517B can handle a 50

kw transmitter at 100% modulation. It can be cooled with any raw water source having relatively low mineral content, and resistivity of 3000 to 5000 ohms per cubic inch or better, with a flow rate of 20 gpm. The 517B is supplied with flow switch for interlocking with transmitter circuitry. RF ammeters and temperature gauges are optional. Available with or without cabinet. Size: 24" W, 24" D, 90" H. Approx. weight 300 lbs.

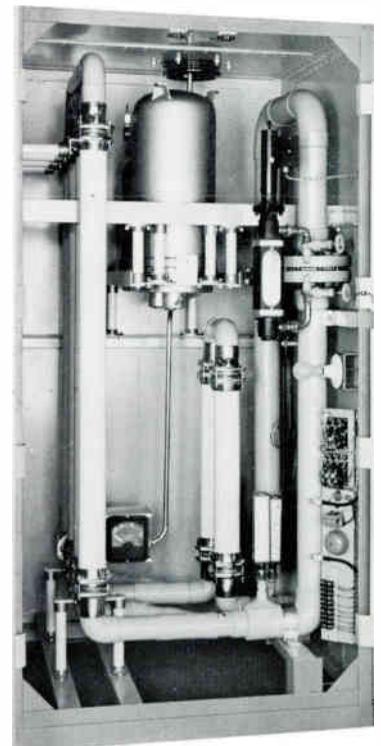


TYPE 517C 50 kw air cooled phantom antenna is forced-air cooled and completely self-contained. It will handle a 50 kw transmitter at 100% modulation, and is supplied as an essentially flat load of sufficient band width for modulation on the specified frequency and impedance in the standard broadcast band. The 517C is supplied

with RF ammeter, and an air flow switch for interlocking with transmitter circuitry: Size: 36" W, 34" D, 78" H. Approx. weight: 950 lbs.



300 KW HF



500 KW MF



TRANSMITTER
ACCESSORIES

LINE PROTECTION
SYSTEM
OSCILLATORS



TYPE 59200 MAGNIPHASE TRANSMISSION LINE PROTECTION SYSTEM

An all-electronic device used to protect RF transmission lines, antennas, and tuning equipment from damage due to line faults, arcs or overloads at any of these points. It detects an impedance change in the load seen by the transmitter, and will cut off the transmitter for approximately sixty milliseconds. Transmitter will then be re-energized, but if arc still

exists, it will drop off again. The system consists of two units: a line coupler, which is inserted in the transmission line at the transmitter output; and a bridge unit, which may be located on the transmitter, or rack-mounted.

The line coupler is capacitive and inductive and will sample both voltage and current. These samples are fed to the balanced bridge circuit.

A normally lighted neon lamp will flash at a rapid rate until the fault clears, or transmitter is manually cut off.

SPECIFICATIONS

Frequency range: 0.54 to 1.6 mc
Transmission line impedance: 50 to 250 ohms, unbalanced.

Transmission line coupler: Available in 5/10 kw and 50 kw models
Outputs:

- (a) instantaneous bias cutoff output for transmitter squelching
- (b) relay cutoff circuit for externally operated transmitter cut-off
- (c) relay contact output for operation of external alarm.

Meter: indicates null at bridge balance:

Controls: Sensitivity, balancing, disable switch

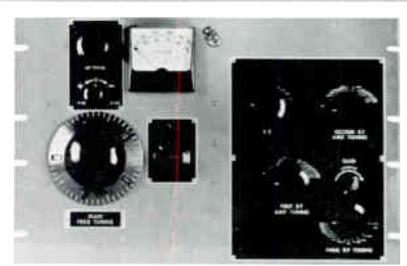
Tube complement: 6AL5 and 2D21

Power input: 115 vac, ±10%, 50/60 cy, 25 w



5/10 KW & 50 KW LINE COUPLER

Size: Type 59200-1 (for C.E. transmitters): 3 1/2" W, 10 1/2" H, 8" D.
Type 59200-2 (rack-mounted): 19" W, 3 1/2" H, 8" D Approx. 10 lbs.
Line coupler, 5/10 kw, 2" diameter x 11 1/2" L, 50 kw, 5" diameter x 6 1/2" H.



TYPE D-31735 VARIABLE FREQUENCY OSCILLATOR

Provides signals with crystal stability on any frequency in the standard broadcast band.

SPECIFICATIONS

Output freq: 500-1700 kc
Output Impedance: 50 ohms
Output level: 2 watts
Output voltage: sinusoidal CW
Stability: within 20 cps
Harmonic output: -50 db
Intermodulation products & spurious emission, -65 db
Size: 19" W, 10" D, 10" H.
Weight: approx. 10 lbs.

Power Supply

Power: 105-125 vac 50/60 cy, approx. 80 w

Regulation: Voltage regulating transformers used

Mechanical

Power supply: 19" W, 18" D, 7"H.
Weight: approx. 20 lbs.



TYPE 115 HIGH FREQUENCY VARIABLE MASTER OSCILLATOR

Covers the range from 2 to 4 mc. Buffers and multipliers provide output from 2 to 32 mc.

SPECIFICATIONS

Variable HFO output: 2 to 32 mc, continuous

Crystal: 2 to 4 mc for output frequencies of 2 to 32 mc

Output impedance: 75 ohm coaxial
Output level: 2 w, 2 to 4 mc; 0.5 w, 4 to 32 mc

Output voltage: sinusoidal
BF OSCILLATOR

Frequency: 450-475 kc

Output level: 3.5 v across 1,000 ohms, level control on rear of chassis

Power: 110/220 v, 50/60 cy, approx. 200 w

Stability: ± 20 cps/mc for ambient change of ± 25 (from 0° to 50° C.) for any 8 hours. 5 cps/mc $\pm 10\%$ line voltage change.

Size: 19" W, 14" D, 10½" H.

Weight: 54 lbs.

TYPE 108 MASTER CRYSTAL OSCILLATOR Multiplier is a stable crystal controlled high frequency oscillator covering the range from 2 to 4 mc. Provides four crystal controlled frequencies to excite a

series of frequency multipliers to extend its range from 2 to 32 mc.



SPECIFICATIONS

OSCILLATOR, MULTIPLIER

Output freq: 2 to 32 mc

Crystal freq: 2 to 4 mc

Output impedance: 75 ohms

Output level: 2 w to 2 to 4 mc; 0.5 w at 4 to 32 mc

Output voltage: sinusoidal
FREQUENCY MULTIPLIER

Input impedance: 75 ohms

Input freq: 2 to 4 mc

Input level: 4 to 12 v

BF CRYSTAL OSCILLATOR

Output freq: 400-800 kc

Crystal freq: 400-800 kc

Output level: approx. 3 v across 1,000 ohms

Output voltage: sinusoidal

Power: 110/220 v, 50/60 cy, approx. 80 w

Size: 19" W, 14"D, 3½" H

Weight: approx. 20 lbs.



506A MODULATION MONITOR

Meeting all FCC requirements, the Type 506A continuously measures the percentage of modulation of the RF carrier of an AM transmitter. Unit is completely transistorized. Frequently used controls are on the front panel. Two illumi-

nated meters monitor carrier level and percent of modulation. Modulation peaks are indicated by a flashing lamp, and the flashing level is adjustable from 0% to 100% modulation. Lamp lights when negative modulation exceeds dial set point by more than 2%. Remote modulation meter and/or flasher may be used. Two auxiliary audio outputs are provided: one for fidelity measurement, the other for audio monitoring circuit.

SPECIFICATIONS

Carrier Frequency Input

Input impedance 75 ohms; frequency range 0.5 to 1.6 mc; RF power 0.5 w (6 to 20 v rms)

Modulation percentage meter: accuracy, $\pm 2\%$ of full scale with a modulating frequency of 1000 cps; response, ± 0.3 db from 30 cps to 100 kc, ± 0.1 db from 100 cps to 30 kc.

Audio Monitoring Output: response ± 0.5 db from 30 cps to 100 kc; distortion less than 0.2%, 600 ohm load; output voltage approx. 0.5 v rms at 100% modulation with 600 ohm load.

Fidelity Measuring Output: response ± 0.5 db from 30 cps to 100 kc; distortion less than 0.1%; hum and noise -80 db below signal level 1.5 v rms; output voltage approx. 3.5 v rms at 100% modulation with load resistance greater than 100,000 ohms shunted by capacitance of less than 500 mmf.

Power: 105/125 vac, 50/60cy, 10 w.

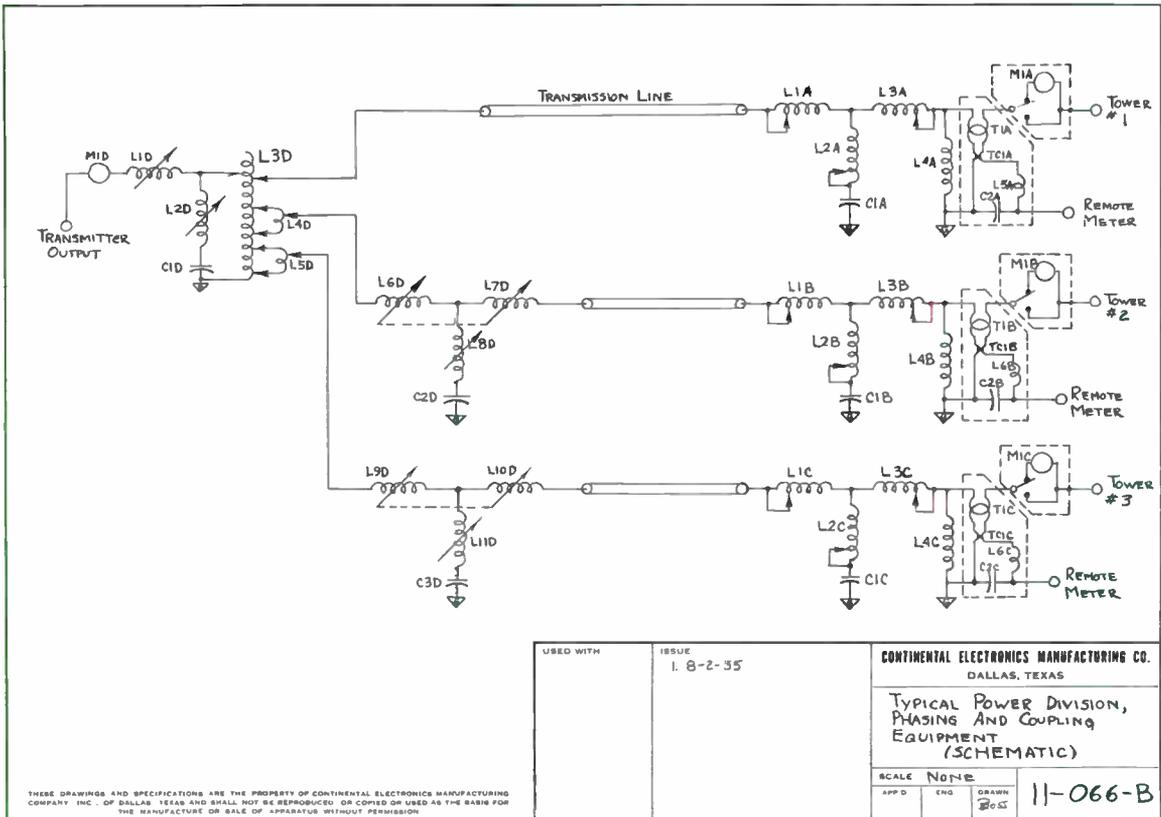
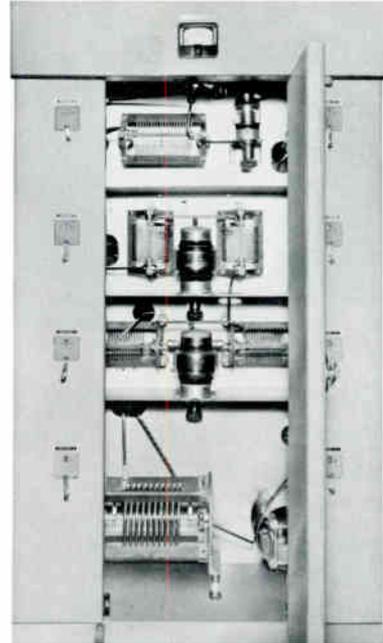
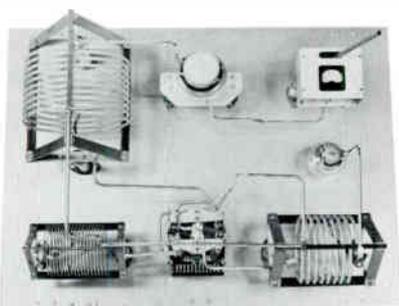
Dimensions: 19"W, 5¼" H, 5" D.

Weight: 10 lbs.



PHASING AND COUPLING

Continental has designed and manufactured phasing and coupling equipment for all power levels through 1,000,000 watts. This equipment is custom built to meet individual specifications and applications. It can be of a panel construction, mounted on existing walls in customer-furnished phasing rooms and antenna coupling houses, or supplied in cabinets matching the transmitter, with the coupling units in weather-proof cabinets. All antenna phasing equipment is designed in cooperation with the customer's consulting engineers, and manufacture is not initiated until consultant and customer approve the design.



TRANSMITTER
ACCESSORIES

PHASE MONITOR
FIELD INTENSITY
METER
ISOLATION
INDUCTORS



TYPE 108E PHASE MONITOR

Provides an indication of the phase relation in directional antenna system. Tailored to meet requirements of each specific system, monitor has provision for indicating relative amplitude of currents in various elements. Specify number of towers.

SPECIFICATIONS

Frequency range: 100 kc to 2 mc
Phase angle range: 0 to 360 degrees
Monitoring accuracy: 1 degree
Resolution: 1/2 degree
RF input impedance: 50/70 ohms, nominal
RF voltage range: 1 to 7 v
Power: 105/125 vac, 80 w
Size: 19" W, 7" D, 14" H.
Weight: 20 lbs.

TYPE 120E FIELD INTENSITY METER

A compact instrument that measures a wide range of radio signal intensities in the broadcast band. May also be used for interference studies at low signal strength, or for close-in measurements of high power directional arrays. Overall band width is 7 kc at 1,000 kc at the one-half voltage response.



When ordering, specify if complete calibration or spot calibration on one frequency.

SPECIFICATIONS

Field Intensity Range: 10 mv per meter to 10 v per meter
Accuracy of Attenuation: 2%
Output Indicator: panel meter, direct reading with logarithmic scale 1 to 10, provision for recorder and headphone
Antenna: shielded, unbalanced loop
Power: five 1/2 v batteries, two 67 1/2 v batteries (not supplied) provision for external power; battery life approx. 500 indications
Size: 13" W, 5 3/4" D, 9" H.
Weight: 12 1/2 lbs. with batteries

ISOLATION FILTER INDUCTORS

Johnson isolation filters provide high efficiency transfer of a sampling current across tower base insulator. Used on a sampling line when tower is 1/4 wave or higher, they present a high shunting impedance at the tower base. Con-

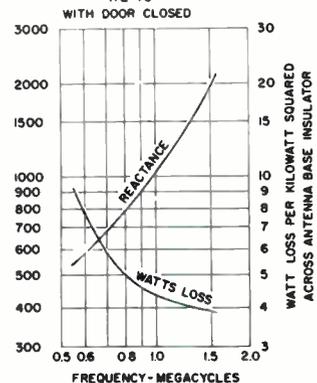
sists of an inductor (approximately 18 uh) wound of coaxial sampling and includes necessary couplings.



172-84 isolation filter 3/8" copper coax, 50 ohm, insulated mounting.
172-85 isolation filter, 3/8" copper coax, 50 ohm, in steel cabinet
172-87 isolation filter, 3/8" "Spi-rafil" coax, 70 ohm, insulated mounting.
172-88 isolation filter 3/8" "Spi-rafil" coax, 70 ohm, in steel cabinet

NOTE: Isolation Filters wound with special lines such as "Foamflex," "Styroflex," RG8W, or RG11W are available on special order.

CHARACTERISTICS OF ISOLATION FILTER
172-75



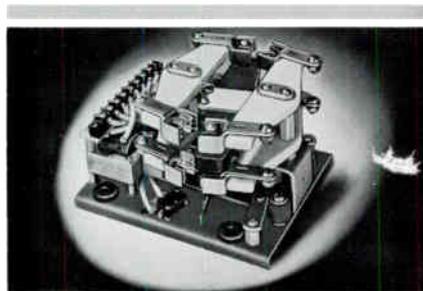


PHASE SAMPLING LOOPS

173-10 Deluxe shielded loop will respond only to radiated magnetic field, because of its complete shielding which eliminates electrostatic coupling. Mounts on stand-off insulators, adjusted by rotation. For use with pressurized, air insulated or solid dielectric line. Size: 24" W, 72" H.

173-11-1 Standard unshielded three-sided loop for grounding to tower leg as fourth side. Varying the distance between outside leg and tower adjusts sensitivity. Designed for 70 ohm conductor sampling line. Comes complete with all hardware. 72" H, 30" max. width. **173-11-3** for RG8/u and RG11/u.

173-11-2 Insulated to permit phase sampling without use of isolation filter on simple arrays and low impedance towers. Adjusted by varying the loop position in mounting clamps. For use with solid outside conductor line. 41 1/4" W, 73" H. **173-11-4** for RG8/u and RG11/u.



RF CONTACTORS

Contactors for switching high voltage, high current RF or dc. Operated by momentarily energized 220/110 vac 50/60 cy solenoids. No holding current is required. Dimensions of 145-100 series: 6 1/2" W, 5 1/2" H, 7 7/8" L. 145-200 series: 8 1/4" W, 6 1/4" H, 10 1/2" L. Four auxiliary micro switches (two N/O, two N/C).

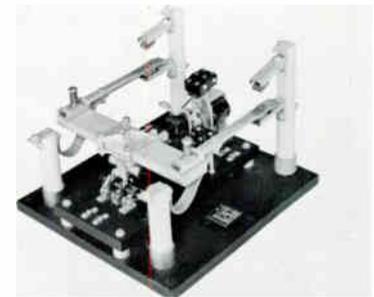
145-101-13: SPDT, 17,000 v, 25 amp.

145-102-13: DPDT, 17,000 v, 25 amp.

145-201-13: SPDT, 22,000 v, 25 amp.

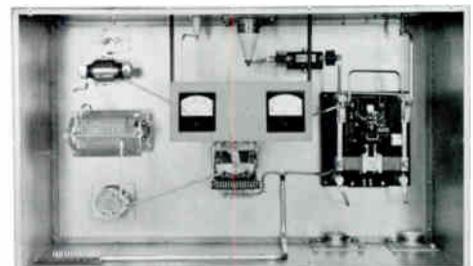
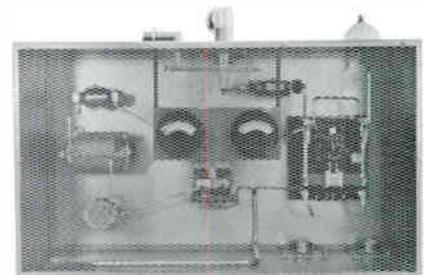
145-202-13: DPDT, 22,000 v, 25 amp.

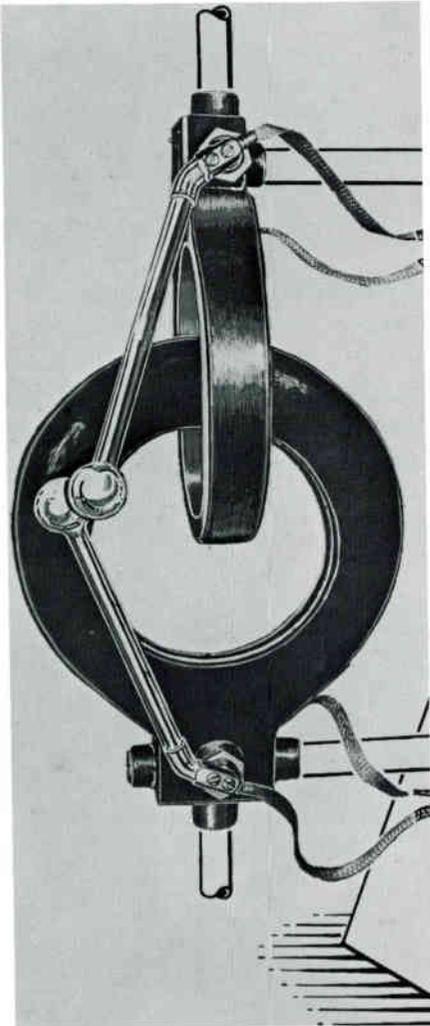
RC-7680-355: 15 kv, 75 amp DPDT. Has mechanical latching mechanism; momentary pulse of coil current changes contactor position. Four DPDT auxiliary micro switches. 14" W, 12" D, 15" H. Specify coil voltage: 220 or 110 vac, 50 or 60 cy.



ENCLOSURES

Continental can supply a wide variety of enclosures with RF contactors and networks for antenna, emergency antenna and phantom antenna switching. Enclosures are also custom built to meet specific customer requirements.





ISOLATION TRANSFORMERS

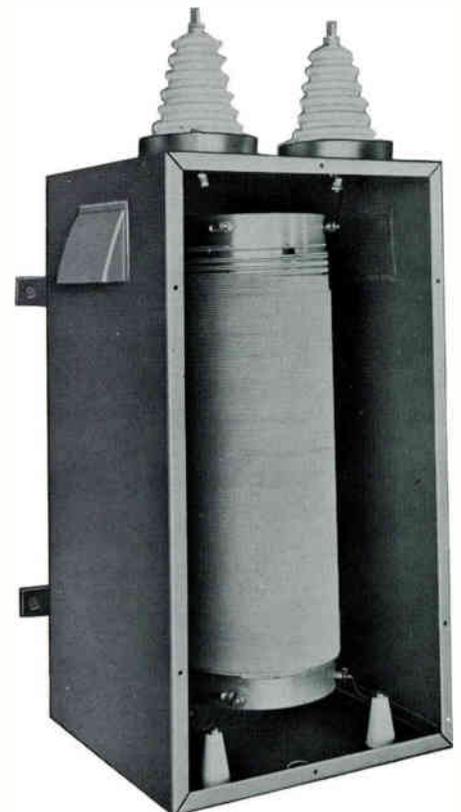
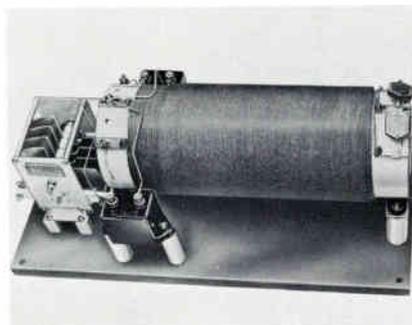
Hughey & Phillips transformers provide a low capacity means of supplying 60 cycle power across the base insulator of insulated radio towers. Large spacing and resultant low capacity makes them highly desirable for use in directional arrays, and where high voltages are across base insulators. No tuning or RF adjustments are required. 50 cycle transformers are also available.

Data	Type TI 2070	Type TI 2017	Type TI 2035
secondary rating	750 w	1750 w	3500 w
primary voltage, taps	115 (2,6% taps)	115 (2,6% taps) 230 (4,3% taps)	115 (2,6% taps) 230 (4,3% taps)
secondary voltage, taps	117/120	117/120	117/120
efficiency at load	94%	94%	94%
secondary voltage regulation, no load to full load	7%	9%	9%
capacity	20 mmfd	25 mmfd	32 mmfd
approx. peak RF breakdown	40 kv	40 kv	50 kv
net weight	78 lbs.	88 lbs	138 lbs.

TOWER LIGHTING FILTERS

Type 172-13-1 Panel Mounted Filter is equipped with a variable tuning capacitor to adjust for highest reactance at frequencies from 550 to 1500 kc.

Type 172-14 is a fixed tuned filter mounted in a heavy 12" x 12" x 21" ventilated weatherproof cabinet. Type 172-14-1 covers frequencies of 550 to 1100 kc. Type 172-14-3 covers frequencies from 1100 to 1600 kc. Filter is easily mounted on tower or post with integral brackets.



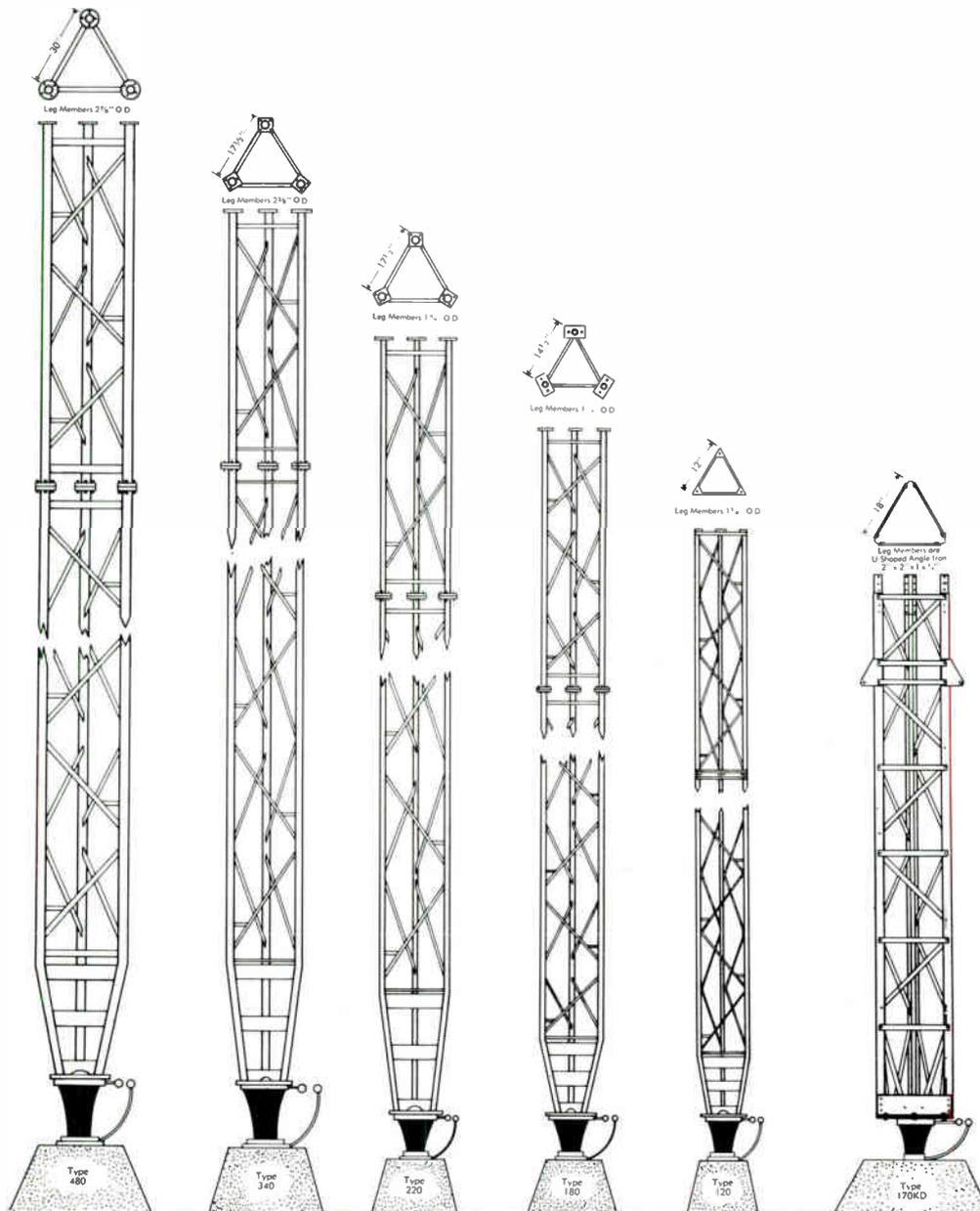


UTILITY TOWER COMPANY

Towers are available in the six basic designs shown below. All have superior engineering and workmanship, and always meet or exceed RETMA specifications. The five standard models feature round members welded together in 20 foot sections except for top sec-

tion which is to customer measurement. Thus, you get exact height for your frequency and power. The Type 170 KD tower is of bolted angle-iron construction in 10 foot sections, and is ideal for overseas installations because of ease and economy of shipping.

Comes with choice of hot dip galvanized or rust-inhibitive primer finish. Anchors are individually designed to meet each tower installation requirement. I-beam, with its proven structural rigidity, is imbedded in concrete slab reinforced with steel rods and earth fill on top.

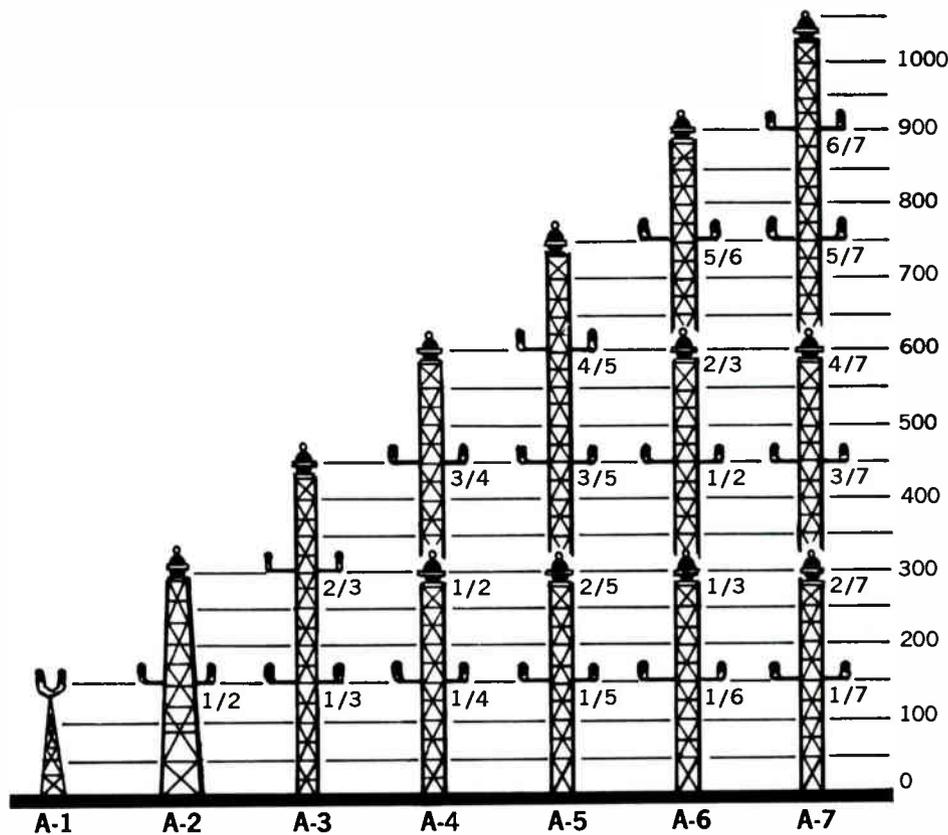


tower type	maximum recommended height	tower width	weight per foot*	type of base insulation
480	480'	33"	28 lbs.	Locke or Lappe
340	350'	19 $\frac{7}{8}$ "	17 lbs.	Utility 3401
220	250'	19-7/16"	12.5 lbs.	Utility 3401
180	200'	16-3/16"	10 lbs.	Utility 2201
120	200'	13 $\frac{1}{4}$ "	8 lbs.	Utility 2201
170KD	320'	18"	17 lbs.	Utility 3401

*Tower steel only. Weight of guys, insulators, etc., not included.

Chart shows typical tower lighting requirements. For current specifications, consult FCC Rules and Regulations, Vol. I Part 17.

A-1: 21 to 150 ft, 1 double obstruction light.
A-2: 151 to 300 ft, 1 beacon, 2 obstruction lights, beacon flasher, photo-electric control.
A-3: 301 to 450 ft, 1 beacon, 4 obstruction lights, beacon flasher, photo-electric control.
A-4: 451 to 600 ft, 2 beacons, 6 obstruction lights (8 for square tower), beacon flasher, photo-electric control.
A-5: 601 to 750 ft, 2 beacons, 9 obstruction lights (12 for square tower), beacon flasher, photo-electric control.
A-6: 751 to 900 ft, 3 beacons, 9 obstruction lights (12 for square tower), beacon flasher, photo-electric control.
A-7: 901 to 1050 ft, 3 beacons, 12 obstruction lights (16 for square tower), beacon flasher, photo-electric control.





**PHELPS DODGE
TRANSMISSION LINE
STYROFLEX® COAXIAL CABLE**

Available in continuous 1000 foot lengths, it is a semiflexible seamless aluminum sheathed, air dielectric cable. In small diameter cables, inner conductor is solid copper wire. In larger cables, conductor is copper tube. Inner conductor is supported coaxially in pure, seamless aluminum tube by "Styroflex" tape helix. Also available with "Habirlene" jacket for direct burial.

50 OHM IMPEDANCE

Cable no.	Cable size
ST 38-50	3/8"
ST 12-50	1/2"
ST 34-50	3/4"
ST 78-50	7/8"
ST 118-50	1 1/8"
ST 158-50	1 5/8"
ST 318-50	3 1/8"
ST 418-50	4 1/8"
ST 618-50	6 1/8"

also available in 70, 75, 77.5 and 100 ohm impedances



FOAMFLEX® COAXIAL CABLE

Available in continuous 1000 foot lengths, it is a semiflexible aluminum sheathed air dielectric cable. Construction: copper inner conductor, a foamed polyethylene dielectric, and aluminum outer conductor. Available with "Habirlene" jacket for direct burial.

50 OHM IMPEDANCE

Cable no.	Cable size
FX 38-50	3/8"
FX 12-50	1/2"
FX 34-50	3/4"
FX 78-50	7/8"
FX 158-50	1 5/8"

also available in 70, 75, 100 and 125 ohm impedances



CORR-O-FOAM® COAXIAL CABLE

Available in continuous 5000 foot lengths, it is constructed with copper inner conductor, a foamed polyethylene dielectric, and a formed corrugated aluminum tape and "Habirlene" jacket. Used extensively in CCTV, ETV, communication and broadcast.

50 OHM IMPEDANCE

Cable no.	Cable size
CF 38-50	3/8"
CF 12-50	1/2"
CF 34-50	3/4"
CF 78-50	7/8"

also available in 75 ohm impedance



RIGID COAXIAL CABLE

Designed for broadcast installations of all types, standard copper rigid line has low loss and excellent VSWR; is produced in accordance with MIL-L-3980 and EIA Standard RS-225 where applicable. Rigid aluminum line is also available.

50 OHM IMPEDANCE

Cable no.	Cable size
CPC 78-50	7/8"
CPC 158-50	1 5/8"
CPC 318-50	3 1/8"
CPC 618-50	6 1/8"
(CPC 618-75	6 1/8", 75 ohm)

7/8" 50 OHM ACCESSORIES

1-78-50 — Line, 20' lengths, flanged both ends. (Also in 19'6").

2-78-50 — Line, 20' lengths, flanged one end. (Also in 19'6").

3-78-50 — Line, 20' lengths. No flanges.

4-78-50 — 90 degree Miter Elbow, swivel flanged both ends, female bullet receptacles. Silver plated inner conductor.

5-78-50 — 45 degree Miter Elbow, swivel flanged both ends, female bullet receptacles. Silver plated inner conductor.

6-78-50 — 90 degree Miter Elbow, male. Silver plated inner conductor.

7-78-50 — Gas Barrier, with "O" ring and special hardware. Incorporates 1/8" IPS gas inlet port.

8-78-50 — Tee Assembly.

9-78-50 — 7/8" to "N" Female Adapter.

10-78-50 — Field Flange, soft solder type.

11-78-50 — Field Flange, un-gassed.

12-78-50 — Anchor insulator connector. Silver Plated.

13-78-50 — Flange, fixed, for silver brazing; includes silver solder preform ring.

14-78-50 — "O" Ring gasket.

15-78-50 — Cover Plate.

18-78-50 — Flange, swivel, for silver solder preform ring.

1 5/8" 50 OHM ACCESSORIES

- 1-158-50** — Line, 20' lengths, flanged both ends. (Also in 19'6").
- 2-158-50** — Line, 20' lengths, flanged one end. (Also in 19'6").
- 3-158-50** — Line, 20' lengths. No flanges.
- 4-158-50** — 90 degree Miter Elbow, swivel flanged both ends, female bullet receptacles. Silver plated inner conductor.
- 5-158-50** — 45 degree Miter Elbow, swivel flanged both ends, female bullet receptacles. Silver plated inner conductor.
- 6-158-50** — 90 degree Miter Elbow, male. Silver plated inner conductor.
- 7-158-50** — Gas Barrier, with "O" ring and special hardware. Incorporates 1/8" IPS gas inlet port.
- 8-158-50** — Tee Assembly.
- 9-158-50** — 1 5/8" to "N" Female Adapter.
- 10-158-50** — Field Flange, soft solder type.
- 11-158-50** — Field Flange, un-gassed.
- 12-158-50** — Anchor insulator connector. Silver plated.
- 13-158-50** — Flange, fixed, for silver brazing; includes silver solder preform ring.
- 14-158-50** — "O" Ring gasket.
- 15-158-50** — Cover Plate.
- 16-158-50** — Slotted Coupling.
- 18-158-50** — Flange, swivel, for silver brazing; includes silver solder preform ring.

3 1/8" 50 OHM ACCESSORIES

- 1-318-50** — Line, 20' lengths, flanged both ends. (Also in 19'6").
- 2-318-50** — Line, 20' lengths,

flanged one end. (Also available in 19'6").

- 3-318-50** — Line, 20' lengths. No flanges.
- 4-318-50** — 90 degree Miter Elbow, swivel flanged both ends, female bullet receptacles. Silver plated inner conductor.
- 5-318-50** — 45 degree Miter Elbow, swivel flanged both ends, female bullet receptacles. Silver plated inner conductor.
- 6-318-50** — 90 degree Miter Elbow, male. Silver plated inner conductor.
- 7-318-50** — Gas Barrier, with "O" ring and special hardware. Incorporates 1/8" IPS gas inlet port.
- 8-318-50** — Tee Assembly.
- 9-318-50** — Reducer, Flange Type, 3 1/8" 50 ohm to 1 5/8" 50 ohm.
- 10-318-50** — Field Flange, soft solder type.
- 11-318-50** — Field Flange, un-gassed.
- 12-318-50** — Anchor insulator connector. Silver plated.
- 13-318-50** — Flange, fixed, for silver brazing; includes silver solder preform ring.
- 14-318-50** — "O" Ring gasket.
- 15-318-50** — Cover plate.
- 16-318-50** — Slotted Coupling.
- 17-318-50** — Reducer, Taper, 3 1/8" 50 ohm to 1 5/8" 50 ohm.
- 18-318-50** — Flange, swivel, for silver brazing; includes silver solder preform ring.

6 1/8" 50 OHM ACCESSORIES

- 1-618-50** — Line, 20' lengths, flanged both ends. (Also in 19'6").
- 2-618-50** — Line, 20' lengths,

flanged one end. (Also available in 19'6").

- 3-618-50** — Line, 20' lengths. No flanges.
- 4-618-50** — 90 degree Miter Elbow, swivel flanged both ends, female bullet receptacles. Silver plated inner conductor.
- 5-618-50** — 45 degree Miter Elbow, swivel flanged both ends, female bullet receptacles. Silver plated inner conductor.
- 6-618-50** — 90 degree Miter Elbow, male. Silver plated inner conductor.
- 7-618-50** — Gas Barrier, with "O" ring and special hardware. Incorporates 1/8" IPS gas inlet port.
- 8-618-50** — Tee Assembly.
- 9-618-50** — Reducer, Step, 6 1/8" 50 ohm to 3 1/8" 50 ohm.
- 10-618-50** — Field Flange, soft solder type.
- 11-618-50** — Field Flange, un-gassed.
- 12-618-50** — Anchor insulator connector. Silver plated.
- 13-618-50** — Flange, fixed, for silver brazing; includes silver solder preform ring.
- 14-618-50** — "O" Ring gasket.
- 15-618-50** — Cover Plate.
- 17-618-50** — Reducer, Taper, 6 1/8" 50 ohm to 3 1/8" 50 ohm.
- 18-618-50** — Flange, swivel, for silver brazing; includes silver solder preform ring.

6 1/8" 75 OHM ACCESSORIES

- 1-618-75** — Line, 20' lengths, flanged both ends. (Also in 19'6").
- 2-618-75** — Line, 20' lengths, flanged one end. (Also in 19'6").
- 3-618-75** — Line, 20' lengths. No flanges.

4-618-75 — 90 degree Miter Elbow, swivel flanged both ends, female bullet receptacles. Silver plated inner conductor.

5-618-75 — 45 degree Miter Elbow, swivel flanged both ends, female bullet receptacles. Silver plated inner conductor.

6-618-75 — 90 degree Miter Elbow, male. Silver plated inner conductor.

7-618-75 — Gas Barrier, with "O" ring and special hardware. Incorporates 1/8" IPS gas inlet port.

8-618-75 — Tee Assembly.

9-618-75 — Reducer, Step, 6 1/8" 75 ohm to 3 1/8" 75 ohm.

10-618-75 — Field Flange, soft solder type.

11-618-75 — Field Flange, un-gassed.

12-618-75 — Anchor insulator connector. Silver plated.

13-618-75 — Flange; fixed, for silver brazing; includes silver solder preform ring.

14-618-75 — "O" Ring gasket.

15-618-75 — Cover Plate.

17-618-75 — Reducer, Taper, 6 1/8" 75 ohm to 3 1/8" 75 ohm.

18-618-75 — Flange, swivel, for silver brazing; includes silver preform ring.

SUPPORTING HARDWARE FOR RIGID LINE



ANCHOR FITTING Fastens top of single line runs rigidly to tower.



DUAL ANCHOR FITTING Fastens top of dual line runs rigidly to tower.



HANGER-SPRING Supports weight of vertical single line runs. Use one every 10 ft.



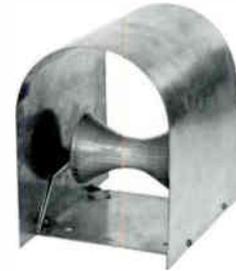
DUAL HANGER-SPRING Supports weight of vertical dual line run. Use one every 10 ft.



LATERAL BRACE Secures line at tower base.



HORIZONTAL SUPPORT Supports horizontal runs of line.



ROLLER ASSEMBLY Supports horizontal runs of large diameter line.



BULKHEAD FITTING Anchors horizontal runs of small diameter line where they enter building or cabinet.



BULKHEAD FITTING Anchors horizontal runs of large diameter line where they enter building or cabinet.



DUAL BULKHEAD FITTING Anchors dual horizontal runs of large diameter line where they enter building or cabinet.

line size	anchor fitting no.	dual anchor fitting no.	hanger spring no.	dual hanger spring no.	lateral brace no.	horizontal support no.	roller assembly no.	bulkhead fitting no.	bulkhead fitting no.	dual bulkhead fitting no.
7/8	51-78		91-78		131-78	71-78		61-78		
1 5/8	51-158	81-158	91-158	101-158	131-158		121-158	61-158	111-158	141-158
3 1/8	51-318	81-318	91-318	101-318	131-318		121-318	61-318	111-318	141-318
6 1/8	51-618		91-618		131-618		121-618		111-618	141-618

PHELPS DODGE AUTOMATIC DEHYDRATOR

The Auto-Dryaire Dehydrator is designed around the Super-Life Compressor, two identical drying chambers, a timer and a system of four solenoid valves. These components, in conjunction with suitable accessories, comprise the complete dehydration system.

The air pressure at the DRY AIR output fitting is controlled between 10 and 15 psi by an internal pressure switch.

Continental supplies hardware and fittings necessary to complete the dehydration system. Typical units are shown below.



NEEDLE VALVE



COPPER TUBE



GAS INLET



MANIFOLD



AUDIO

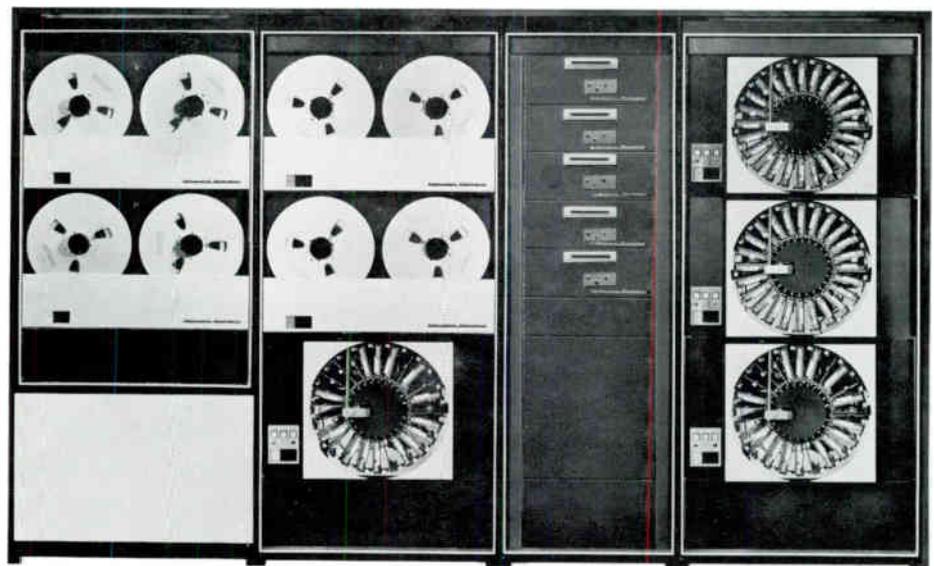
AUTOMATIC
PROGRAMMING/
LOGGING

PROLOG PROGRAMMING/ LOGGING SYSTEM

Can operate continuously and unattended for 24 hours or more, mono or stereo. An individual music format is achieved and placed under management control for a consistent sound by separating the music into categories, along with any special features, and placing this material on separate tape transports for programming in any combination. Each segment of the program can be changed so that the music sound is automatically varied to suit the time of day. Program material can come from the station, network, or commercial music libraries, and can be utilized in any combination desired. PROLOG operates by the simple process of having a photo electric cell read squarelike marks (■) on the station log. The log is a continuous fanfold 11" wide printed form divided horizontally into segments of air time. Vertical columns provide space for entering scheduled time, program duration, program, sponsor, and source code number. The log can also be marked to show "unsold availabilities". As the log moves through the programmer, the actual air time of each event, accurate to seconds, is automatically printed in the "air time" column of the log, thus providing station authentication for each event. The log is prepared on a standard typewriter, and can be marked to join or leave specific network programs at a pre-determined exact time. PROLOG can provide any degree of automatic

or live programming. Flexibility is achieved through the use of several standard components which are combined into a system to provide the capability desired. Certain units such as the programmer/logger, tape transport, and tone generator, are common to all systems. The number of components used in the PROLOG System is determined by the scope and number of functions the station wants to automate. A typical Prolog System is shown below; PROLOG 400, it consists of: programmer/logger, manual control panel, 4 music source tape transports, 4 24-cartridge rotating units, 5 single playback units,

4 Intro-Control units, recording center for cartridges, 25-cycle tone generator, 3 rotating frame consoles, fixed frame with 19" panel/rack, initial supply of log forms. PROLOG 400 provides 24 hours or more of unattended operation, mono or stereo, has random selection of any of 101 voice cartridges, uses PROLOG Intro-Control accessory to achieve "personality programming" and provide individualized intros to music. Four tape transports provide 24 hours of music which can be constantly varied throughout day or night time operation. Capability can be expanded by adding other PROLOG components or accessories.





PROLOG CONSOLE

The programmer/logger and manual control panels sit on the control desk which is finished in walnut grained Texolite to match rack mounted equipment. Log forms and electronics are in the pedestal base.



PROGRAMMER/LOGGER

A transistorized photo electric fiberoptic read out system and transistorized circuitry assures maximum dependability of the programmer/logger and complete Prolog System. Programmer/logger reads the log form to automatically control up to 300 program sources. A hinged plexiglass cover permits a clear view of the next 30 minutes of programming, and allows any last minute corrections to the log that may be required. Safety features include

automatic by-pass upon 5 second audio failure of any source. System restarts automatically after power failure. An accessory unit provides auxiliary power for keeping log and timers on real time while power is cut off.

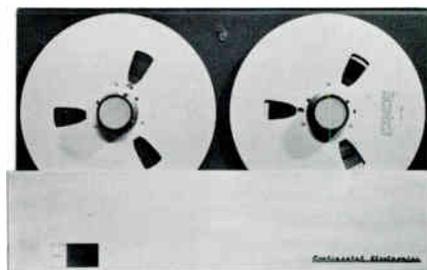


MANUAL CONTROL PANEL

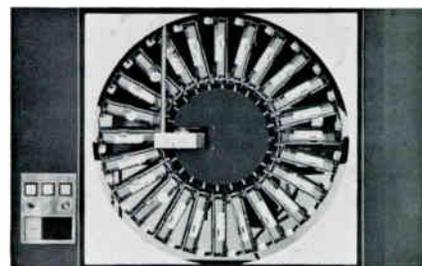
Provides complete push-button control of all program sources. Enables announcer to cancel or activate any one of up to 300 program sources, change the log, skip items on the log, pick up new programming, operate live for any period of time, inject live "personality programming" at will, and return to automated programming as desired. Lighted switches indicate next item to be programmed, enabling announcer to assume complete control on instant notice.

TYPE 600 TAPE TRANSPORT

For Prolog Systems only. Completely transistorized, and furnished with all electronics necessary for Prolog operation. It operates at $7\frac{1}{2}$ and $3\frac{3}{4}$ ips with a Flutter and Wow specification of .1 or less with signal to noise ratio 55 db or below. Fast starting and stop-



ping, it has advanced tape tensioning system regulated by tape sensing arms for proper control of 14" or 10 $\frac{1}{2}$ " reels. System control unit provides three lights on front panel indicating Power On, Ready, and On the Air. Metalized leaders provide positive automatic reversing. Mono or stereo.



TYPE 905 ROTATING CARTRIDGE PLAYBACK

For Prolog System only. Provides random selection of any of 24 cartridges, with transfer and cue on second track. Completely transistorized, it has all controls necessary for Prolog operation. Mounts in 30" Prolog racks, requires 19" vertical panel space. Mono or stereo.

SPECIFICATIONS

Cartridge transfer time: 1.75 sec. plus recueing time.

Freq. response: $7\frac{1}{2}$ IPS + 2db 30 to 12,000 cps NARTB.

Signal to noise ratio: Ref. 3% T.H.D.: 50 db.



AUDIO

AUTOMATIC
PROGRAMMING/
LOGGING

BACKGROUND MUSIC

DUAL INTERMIX

Flutter and wow: under 0.2% RMS.

Time capacity: 10 seconds to 10½ Minutes.

Speed: 7½ IPS.

Start time: 0.1 Sec.

Stop time: 0.1 Sec.



TYPE 930 SINGLE CARTRIDGE PLAYBACK

For Prolog Systems only. Provides transfer and cue tone control on second track. Equipped with auxiliary arming unit for system control. Transistorized circuitry. Mounts in 19" Prolog rack. Mono or stereo.

SPECIFICATIONS

Freq. response: 7½ ips ± 2db 30 to 12,000 cps.

Signal to noise ratio: Ref. 3% T.H.D.: 50 db.

Flutter and wow: under 0.2% RMS.

Time capacity: 10 seconds to 31 minutes.

Speed: 7½ ips (3¾ ips by external re-connection).

Start time: 0.1 Sec.

Stop time: 0.1 Sec.

Size: 9" W, 7" H, 13¾" D. 28 lbs.

TYPE 911 RECORDING CENTER

Prepares cartridges for use in rotating or single cartridge units. Enables station to record cartridges with voice on one track, record transfer tone plus separate cue tone on second track. Transistorized.



SPECIFICATIONS.

Line input: 600 ohms: ±15 dbm.

Response: 30 to 12,000 cps NARTB ± 2 db.

Bias: 60 kc adjustable.

Meter: VU Meter with switch to measure input levels, output levels and bias current.

PLAYBACK

Freq. response: 7½ ips ± 2 db 30 to 12,000 cps NARTB.

Signal to noise ratio: Ref. 3% T.H.D.: 50 db.

Flutter and wow: under 0.2% RMS.

Time capacity: 10 seconds to 31 minutes.

Speed: 7½" ips (3¾" by external re-connection).

Start time: 0.1 Sec.

Stop time: 0.1 Sec.

Size: 19" W, 12½" H, 15½" D.

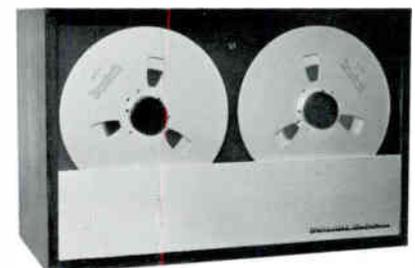
Weight: 48 lbs.

TYPE 100 DUAL INTERMIX SYSTEM

For main channel or background music service, it provides basic music source with program variation by intermixing two continuous 2-direction tape transports. Automatic reversing tape transports are available at 7½ or 3¾ ips, and provide 12 or 24 hours of continuous programming. Program is varied by presetting timer panel. If one tape transport fails, the other



will operate continuously. Timer panel has master on-off switch, power and failure lights. Furnished in Texolite paneled rack cabinet with tape storage drawer. Transistorized. Size: 34" W, 76" H, 20½" D.



TYPE 500 TAPE TRANSPORT

Single long-play transport in Texolite cabinet. Basic music source provides 6 hours on two tracks. Has positive, automatic reversing, fast start and stop with tape tensioning system regulated for proper control of 10½" or 14" reels. Transistorized. Mono or stereo.

SPECIFICATIONS

Output: 8 db at 600 ohms.

Freq. response: 30 to 15,000 cps.

Signal to noise ratio: below 55 db at 7½ ips.

Flutter and wow: 0.1 or less.

Size: 32" W, 22" H, 16" D.



AMPEX 602 SERIES RECORDERS

A portable field recorder that provides professional studio quality.

602-1 ONE CHANNEL RECORDER

Choose full or half-track heads. A professional mono unit.

602-2 TWO CHANNEL RECORDER

Two-track heads with selective-track erase head, two electronic channels. Provides 2-track stereo and half-track mono.

622 SPEAKER/AMPLIFIER

Studio-quality playback unit for demonstration or monitoring.

SPECIFICATIONS, 602-1/602-2

Frequency response: 40 to 15,000 cps: down no more than 4 db at 15,000; ± 2 db, 40 to 10,000 cps at $7\frac{1}{2}$ ips. $3\frac{3}{4}$ ips $\pm 2 - 4$ db, 40 to 8,000 cps.

Signal-to-noise ratio: Model 602-1: with full track head, over 57 db; with half-track head, over 55 db. Model 602-2: over 55 db. All at $7\frac{1}{2}$ ips.

Flutter and wow: under 0.17% at $7\frac{1}{2}$ ips; under 0.25% at $3\frac{3}{4}$ ips.

Timing accuracy: $\pm 0.2\%$ at $7\frac{1}{2}$

ips (± 3.6 seconds, 30 minute recording).

Fast forward or fast rewind time: 90 seconds for full 1200-foot-reel.

Heads: Three separate heads: erase, record, playback. Model 602-1: Full-track or half-track. Model 602-2: Two-track heads.

Speeds: $7\frac{1}{2}$ ips or $3\frac{3}{4}$ ips.

Reel size: 7" and 5".

Inputs: (each channel) Two inputs, individual gain controls. Low impedance mike input: 150 microvolts for record level. Line input (100K unbalanced): -10 dbm for record level. Provision for plug-in balanced line or bridging input transformers. Line input can be used for second microphone. (Accessory plug-in preamplifier allows 2 microphones to be mixed on one channel).

Outputs (each channel): +4 dbm into 600 ohm. Balanced or unbalanced. Head phone jack. Selector permits monitoring either the input source or the tape playback, while recording.

Power: 117v, 50 or 60 cy. 115/230v, 50 cy. Model 602-1, 70 va. Model 602-2, 105 va.

SPECIFICATIONS, 622

Overall frequency response (in air): Better than 65-10,000 cps. **Speaker size:** 8" full-range.

Amplifier: Output 10w; signal to noise 70 db.

Power requirement: 117v, 50 or 60 cy., 0.5 amps, 55w.

Overall size with carrying case:

602-1: 8"x13 $\frac{3}{4}$ "x12 $\frac{1}{2}$ ", 28 lbs.

602-2: 8"x13 $\frac{3}{4}$ "x23", 42 lbs.

622: 13"x16"x8", 25 lbs.

19" rack mounting:

602-1: Use 864 adapter, requires

17 $\frac{1}{2}$ " vertical space.

602-2: Use 865 adapter, requires 23 $\frac{3}{4}$ " vertical space.



AMPEX PR-10 RECORDERS

Fully-portable, 2-speed compact recorder. Four-position head assembly with separate erase, record and playback heads; extra position for optional, 4-track stereo playback or special requirements.

PR-10-2, STEREOPHONIC

Complete stereophonic record and reproduce, monophonic record and reproduce with many of the new two channel techniques, conventional monophonic use.

PR-10-1, MONOPHONIC

One channel, available with full or half-track heads. Single channel electronics have built-in mixer that can mix line and microphone or two microphones.

ACCESSORIES

MX-10 FOUR POSITION TWO-CHANNEL, MONOPHONIC/STEREO MIXER

Permits up to four microphones, or two mikes and two lines, to be controlled and fed to either or both output channels.



SA-10 PROFESSIONAL SPEAKER/ AMPLIFIER MONITOR SYSTEM

Provides quality, power, and overload characteristics essential to critical listening and evaluation.

REMOTE CONTROL

Plugs into receptacle provided and permits recorder to be controlled from any desired location. Duplicates all functions of record, play, fast forward and fast rewind buttons on tape transport. Available as a boxed or flush plate unit.

PLUG-IN EQUALIZERS

Interchangeable units provide NAB, AME or CCIR curves appropriate to tape speed used.

PLUG-IN INPUT UNITS

Interchangeable units match various inputs such as zero loss transformer for balanced bridging; 40 db microphone preamplifier for close pickup and/or high output microphones; 60 db preamplifier for distant pickup or low output microphones.

SPECIFICATIONS

Overall freq. response: 30-15,000 cps ± 2 db at 15 ips; 40-12,000 cps ± 2 db at $7\frac{1}{2}$ ips; 30-15,000 cps ± 2 db, -4 db at $7\frac{1}{2}$ ips; 40-6,000 cps ± 2 db at $3\frac{3}{4}$ ips; 40-8,000 cps ± 2 db, -4 db at $3\frac{3}{4}$ ips.

Signal to noise ratio: 55 db at 15 and $7\frac{1}{2}$ ips (half track or two track). 60 db at 15 and $7\frac{1}{2}$ ips (full track), 50 db at $3\frac{3}{4}$ ips.

Flutter and wow: Less than 0.15% rms at 15 ips; 0.18% rms at $7\frac{1}{2}$ ips; 0.25% rms at $3\frac{3}{4}$ ips.

Timing accuracy: $\pm 0.25\%$ at 15 and $7\frac{1}{2}$ ips $\pm 0.40\%$ at $3\frac{3}{4}$ ips.

Output: $+4$ dbm into 600 ohm

balanced or unbalanced load. Single and two-channel headphone jacks provided.

Inputs: PR-10-1: Two inputs, individual gain controls on each. 1: Low impedance microphone input. 2: Unbalanced bridging with provisions for plug-in line transformer or low impedance plug-in microphone preamp. **PR-10-2:** Two inputs, one per channel. Both unbalanced bridging with provision for plug-in line transformers or low impedance plug-in microphone preamps. The MX-10 accessory mixer is designed to feed unbalanced bridge inputs.

Speeds: $7\frac{1}{2}$ and 15 ips, or $3\frac{3}{4}$ and $7\frac{1}{2}$ ips

Power required: 117 vac, 60 cy, 215 w.

Rack space: Transport $8\frac{3}{4}$ " x 19" x 6" D. Electronics $5\frac{1}{4}$ " x 19" x $5\frac{7}{8}$ " D.

Weight: 44 lbs; 53 lbs in case.

AMPEX 351 RECORDER/ REPRODUCER

Monophonic. Furnished either full-track or half-track, shown mounted in console. Available for rack mounting or in portable case.

AMPEX 351-2 RECORDER/ REPRODUCER

Two-channel or stereo. Consists of two 351 single channel electronics, plus two-track heads with separate erase for each channel.

NOTE: Ampex 351 series recorder/reproducers are available as Universal Models for world-wide applications. Universal Models differ from standard models by providing a switch for either CCIR or NAB equalization. They also con-

tain a built-in adjustable multi-tapped power transformer, permitting 14 different input line voltages in the range from 90 to 130 v and 200 to 240 v operating on virtually any of the world's standard line voltages with no need for external step-down transformers.



SPECIFICATIONS FOR 351 and 351-2

Tape speeds: $7\frac{1}{2}$ and 15 ips or $3\frac{3}{4}$ and $7\frac{1}{2}$ ips.

Freq. response: Overall response: 15 ips ± 2 db 30 - 18,000; $7\frac{1}{2}$ ips ± 2 db 40 - 10,000, ± 4 db at 30 cps and 15 kc; $3\frac{3}{4}$ ips ± 2 db 50 - 7,500

Heads: 351: Half or full-track erase, record and playback; 351-2: Two-track erase, record and playback. 4-position head assembly available, includes quarter track reproduce head.

Signal-to-noise ratio: 15 ips: Full track, 60 db; half track, 55 db; 2 channel stereo, 55 db; $7\frac{1}{2}$ ips; full track, 60 db; half track, 55 db; 2

ALTEC CONSOLE
PREAMPLIFIER
AMPLIFIER

channel stereo, 55 db; 3¾ ips; full track, 50 db; half track, 50 db; 2 channel stereo, 50 db. **Flutter:** 15 ips: below 0.11%; 7½ ips: below 0.14%; 3¾ below 0.18%

Start/stop: **Start:** Tape accelerates to full speed in less than 1/10 second. **Stop:** At 15 ips speed, tape moves less than two inches after pressing "Stop" button.

Playback timing accuracy: ±0.2% (±3.6 seconds in a thirty-minute recording).

Record Input: Suitable to any one of three input terminations: (a) microphone level, 150 to 250 ohms nominal (may be strapped for 30 to 50 ohms nominal); (b) balanced bridging, 200 K ohms input impedance. (c) unbalanced bridge, 100 K ohms input impedance.

Equalization: All standard models supplied with NAB equalization. AME or CCIR curves available on special order.

Playback Output: Plus 8 dbm output into 600 ohms, balanced or unbalanced.

Power requirements: Single channel models require 2.0 amp; two channel models require 2.5 amp. Standard models are 117v.

Dimensions/weights: Standard 19" panels with commercial notching for rack mounting. Tape transport: 15¾" vertical rack space, weight 50 lbs. Electronic assembly: 7" vertical rack space, weight 18 lbs. (two electronics assemblies required for 2 channel stereo). Console for 351: 48" H, 24" W, 28½" D, weight 168 lbs.

**ALTEC 250 SU CONTROL CONSOLE**

Fulfills all stereo and universal operating requirements for recording studios and TV, AM and FM broadcast stations. The console comes equipped with all controls and wired with output circuitry for single-channel, single-line, two-channel, two-line, dual stereo or three channel/two channel stereo operation. It is only necessary to plug-in the required number of preamp and program amplifiers or input transformers to provide the desired functions.

SPECIFICATIONS**Microphone input to line output:**

Gain 98 db (includes 6 db line isolation pad); frequency response ±1 db 30 to 15,000 cps; distortion 0.5% 30 to 15,000 cps at output level of +20 dbm and less than 1% at +24 dbm; signal to noise ratio 70 db (+18 dbm output with -50 dbm input).

High level channels: Gain 41 db; freq. response ±1 db 30 to 15,000 cps; distortion 0.5% 30 to 15,000 cps at +20 dbm output and less than 1% at +24 dbm output; signal to noise ratio 70 db (18 dbm output with -10 dbm input).

Source impedances: Microphone inputs 150 or 600 ohms; line or utility inputs up to 15,000 ohms.

Load impedances: Line outputs 600 ohms; monitor outputs 600 ohms (requires separate monitor

amplifiers); headphone outputs 600 ohms.

VU meters: One furnished complete with illuminating lamps, mounting facilities and pads. (A second meter is required for "stereo" or two-channel/two line operation.)

Channels: One, two or three divided to two for stereo use.

Attenuators: 10 mixers. (All 600-ohm step type attenuators.) Two masters or two sub-masters and one board master. Two monitors.

Keys: 10 three-position keys make each mixer attenuator selectable to three buses.

Rotary switches: Inputs 1 and 2 have switches providing choice of four program sources each, for utility use. (Total of 16 connected inputs.) Two-position line output switch.

Filters: One four-position speech-music filter provided.

Headphone jacks: Two for channel monitoring. Third unwired for intercom, etc.

Cabinet: Hinged two-slope control panels. Contains all equipment except power supply and monitor amplifier(s).

Size: 9½" H, 39¼" W, 16" D.

ACCESSORIES**458A PREAMPLIFIER**

Gain: 40 db unterminated input, 34 db terminated.

Power output: +20 dbm at less than .5% THD 50 to 15,000 cps.



+25 dbm at less than 1% THD at 1 kc.

Frequency response: ± 1 db 20 to 20,000 cps.

Source impedance: 150 or 600 ohms (centertap available when connected for 600 ohms).

Load impedance: 150 to 600 ohms (centertap available when connected for 600 ohms).

Output impedance: Equal to load impedance.

Noise level: Equivalent input noise: 126 dbm (valid for unterminated input operation).

Power: 15ma at 275 vdc and .7a at 6.3 vdc.

Tubes: Two 6072/12AY7.

Size: 1 $\frac{3}{4}$ " W x 3-15/16" H and 9-11/16" L when mounted in tray.

Weight: 3 $\frac{1}{2}$ lbs. (including tray).



459A PROGRAM AMPLIFIER

Gain: 56 db unterminated input, 50 db terminated.

Power output: +30 dbm at less than .5% THD 30 to 20,000 cps. +35 dbm at less than 1% THD at 1 kc.

Frequency response: ± 1 db 20 to 20,000 cps.

Source impedance: 150 or 600 ohms (centertap available when connected for 600 ohms).

Load impedance: 150 or 600 ohms (centertap available when connected for 600 ohms).

Noise level: equivalent input noise 126 dbm (valid for unterminated input operation).

Power: 40ma at 275 vdc and 1.6a at 6.3 vdc.

Tubes: one 6072/12AY72, two 12BH7.

Size: 1 $\frac{3}{4}$ " W x 3-15/16 H x 9-11/16" L when mounted in tray.

Weight: 3 $\frac{1}{2}$ lbs. (including tray).



535A POWER SUPPLY

Output: 275 vdc at 275 ma.

Input: 117v 50-60 cps 245w at full load.

Rectifiers: silicon.

Weight: 16 pounds.

Size: 7-3/16" W x 9 $\frac{5}{8}$ " H x 7".



13387 UTILITY INPUT DEVICE

An isolation transformer for high level inputs built on a "plug-in" chassis of the same size and dimensions as the 458A. Used for "bridging" a 150 or 600 ohm line or matching a 15,000 ohm line.

Weight: 1 lb.



5981 TUBE TEST METER

Checks condition of the tubes used in the "plug-in" amplifiers 458A and 459A. Mounting and wiring is provided in the console.

13225 RACK MOUNTING ASSEMBLY

For rack mounting of speech input

equipment. Will take nine Type 13401 Mounting Trays for use



with Altec 458A and 459A "Plug-in" Amplifiers and Altec 13387 Utility Input Device. Mounts in 19" rack and occupies only 5 $\frac{1}{4}$ " of panel space. Complete assembly weighs 4 lbs.

13401 MOUNTING TRAY ASSEMBLY

Furnished as part of the Altec Control Console, it is available separately to provide mounting for "Plug-in" Amplifiers and Utility Input Devices when mounted in the 13225 Rack Mounting Assembly.



ALTEC MIXER AMPLIFIER

The 1567A is designed for remote broadcast and recording applications when installed in portable carrying case. It can be mounted in racks, or in table top consoles; either singly for monophonic use or in pairs for stereo pickup.

SPECIFICATIONS

Gain: 97 db max. Channels 1, 2, 3, 4; 55 db max. Channel 5 (17 mv in for 0 dbm output).

Power output: +18 dbm or 50 v open circuit.

Frequency response: ± 1 db 30-15,000 cps.

Input impedance: 1 megohm, Channel 1, 2, 3, 4; .25 megohm Channel 5.

Source impedance: 30/50 and

ALTEC PREAMPLIFIER
COMPRESSOR
AMPLIFIER

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120/200 ohms Channels 1, 2, 3, 4 with 4722 plug-in microphone transformer.

Load impedance line output: 15,000 ohms to infinity; 150 and 600 ohms with 15095 plug-in line transformer.

Load impedance, recorder output: 270,000 ohms and 100 mmf. min.

Noise level: Equivalent input noise — 123 dbm. Output noise — 68 dbm with master gain control closed.

Controls: 5 mixer, master, bass, treble and illumination controls, VU range, power switch.

Power: 117 v, 60 cps, 20 w.

Tubes: three 12AX7, one 6CG7.
Size: 5¼" H x 19" W x 6¾" D (less portable case).

Weight: 10¾ lbs.

Accessories (order extra): 12862 VU Meter Assembly; 12864 Plug-in RIAA Phono Equalizer Assembly; 12863 KX Connector Assembly; 12866 Portable Carrying Case for portable use; 4722 Plug-in Microphone Input Transformer; 15095 Plug-in Output Line Transformer.

**ALTEC PREAMPLIFIER**

For TV and radio broadcast, and recording applications requiring a separate high-quality preamplifier with self-contained ac power supply. With the addition of the Altec 15095 and/or 4722 transformers, it accepts all low impedance microphones, together with standard 150 and 600 ohms lines.

SPECIFICATIONS

Gain: 65 db maximum.

Power output: +10 dbm or 18v (rms) open circuit.

Freq. response: ±1 db 30-15000 cps.

Input impedance: 100,000 ohms.
Source impedance: 30/50 and 120/200 ohms with 4722 plug-in microphone transformer.

Load impedance: 15,000 ohms to infinity. 150 and 600 ohms with 15095 plug-in line transformer.

Noise level: equivalent input noise — 120 dbm. Output noise — 81 dbm with gain control closed.

Controls: Gain and power.

Power supply: 117 v 60 cps, 5 w.

Size: 1¾" H x 19" W x 7" D.

Weight: 5½ lbs.

Accessories: 4722 Plug-in microphone transformer; 15095 Plug-in transformer; 13033 Phono Equalizer Assembly.

**ALTEC 436C COMPRESSOR
AMPLIFIER**

The 436C is designed for input circuit applications in both recording studios and broadcast stations. For the recording studio it automatically maintains a high recording level without danger of over-modulation on peaks. In the broadcast station it automatically provides a higher level of modulation and reduces the tendency to over-modulate.

SPECIFICATIONS

Gain: 56 db from 15,000 ohm source; 40 db bridging 600 ohm line.

Freq. response: ±1.5 db, 30-

15,000 cy.

Power output: +24 dbm (as straight amplifier).

Harmonic distortion: At 25 db of compression less than 1.5%, 35-15,000 cycles; at 30 db of compression less than 2.5%, 25-10,000 cycles. (0 db threshold setting.)

Noise level: 74 db below rated output (-111 dbm equivalent input noise).

Input impedance: 15,000 ohms bridging transformer (ungrounded).

Source impedance: Any up to 15,000 ohms.

Load impedance: 150/600 ohms.

Maximum compression: 30 db.

Attack time: 50 milliseconds.

Release time: Adjustable, .3 seconds to 1.3 seconds (63% recovery).

Threshold. Adjustable 0 dbm to +16 dbm output.

Compression ratio: 2:1 at 0 dbm threshold; 4:1 at +16 dbm threshold.

Controls: Input gain control, Threshold control, Release time control, AC power switch.

Power supply: 117 v, 60 cy, 20 w.

Tubes: 6BC8, 6CG7, 6AL5.

Size: 19" W, 3½" H, 6" D.

Weight: 8½ lbs.

**ALTEC 438C COMPRESSOR
AMPLIFIER**

Same as the 436C except that it incorporates an additional stage of amplification to provide a low impedance microphone input and gain control. The overall gain of the 438C is 90 db from microphone input, 40 db from bridging 600 ohm line.



AUDIO

LIMITING AMPLIFIER
AUDIMAX
PORTABLE
TURNTABLE &
CONSOLE

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UNIVERSAL LIMITING AMPLIFIER

Model 175BT is a professional peak limiting amplifier, for use in recording and broadcasting. The front panel is hinged to provide accessibility to inner components. An internal switch is provided on one position of the test switch, permitting balancing or rebalancing without test equipment. The VU meter can be switched to indicate input and output as well as gain reduction in db. Attenuators are detented in 2 db steps, with vernier adjustments in excess of 2 db for each step. All control functions are on the front panel. A limit defeat switch is mounted on the rear of the attack control. Screwdriver adjustment holes allow the VU meter to be adjusted during balancing, with panel closed.

SPECIFICATIONS

Freq. response: ± 1 db from 20 cps to 20 kc, without limiting; ± 1 db from 20 cps to 20 kc with 5 db limiting.

Maximum power output: Less than 1% THD, 50 cps to 15 kc at 24 dbm.

Gain: Jumper in low gain position: 24 db; in high gain position: 34 db.

Minimum input level to accomplish limiting: Jumper in low gain position -10 dbm; in high gain position -20 dbm.

Maximum output at threshold of limiting: +20 dbm.

Input and output impedance: 600 ohms, unbalanced.

Signal to noise ratio: 80 db.
Compression ratio (above threshold of limiting): 12 to 1.

Attack time: Adjustable from 100 to 1000 microseconds.

Release time: Adjustable from 27 to 527 milliseconds.

Size: 19" W, 3 $\frac{1}{2}$ " H, 9 $\frac{1}{4}$ " D.

Weight: 17 lbs.



CBS AUDIMAX AUTOMATIC LEVEL CONTROL

Maintains maximum modulation or recording level and is available in two models. Audimax I employs a "Platform" concept, and is used for broadcasting and recording. Audimax II provides a "Gated Gain Stabilizer" and is intended for television, motion pictures and video tape production.

SPECIFICATIONS, AUDIMAX I

Freq. response: Flat within 1 db from 50 to 15,000 cps.

Harmonic distortion: Below 1% from 50 cps to 15,000 cps at ± 21 dbm.

Noise level: Below -90 db relative to +21 dbm output.

Control: ± 10 db of gain control.

Maximum gain: 35 db.

Input and output impedances: 150 or 600 ohms, balanced or unbalanced.

Minimum input level: 0 vu with maximum gain reduction, no input attenuation.

Output level: +18 vu with maximum gain reduction.

Power: 25 w at 117 vac.

Size: 19" W (rack mounting), 5 $\frac{1}{4}$ " H, 12 $\frac{3}{8}$ " D; weight 27 lbs.

SPECIFICATIONS, AUDIMAX II

Threshold continuously adjustable from -40 dbm input to maximum input; all other specifications same as Audimax I.



NORTHERN ELECTRIC PORTABLE TURNTABLE AND CONSOLE

For remote operations. Type TPC consists of: R5461B portable audio console; two CH12 (12") turntables and arms; R21489 cue amplifier with speaker; control panel with input selector keys; turntable controls and cue selector switch; set of removable legs. All units with exception of turntables are plug-in, with all electronics completely solid state. Two inputs are connected to the turntables. A third input is provided for operator's microphone. Five inputs are provided for auxiliary equipment such as tape recorders, spot tape machines, travelling microphones, and other equipment that may be required. Turntables can be started remotely from front of panel. Push buttons are provided for cueing. Passive equalization is provided in turntable input circuits to console.

Dynamic equalization may be obtained by substituting plug-in R21673 active equalizers. The R21489A cue amplifier provides up to one watt audio output power. All inputs, with exception of local microphone, can be monitored. Self-contained power supply provides power to operate turntable motor start relays. The R21718A preamplifier supplies additional 45 db of gain to assure adequate gain to monitor low-level microphones.

SPECIFICATIONS

No. of inputs: 5 high/low level, 1 low level (operator's microphone), 2 turntables.

No. of outputs: 2 @ +18 dbm (selectable on A-B basis), 1 for order wire line, 1 bridging, for headset monitoring, 1 P.A. Feed (gain controlled).

Power: 125w (with both turntables operating).

Size: 37" W, 24 $\frac{3}{4}$ " D, 34" H with legs, 10" H without legs.

Weight: 100 lbs. (approx.)



NORTHERN ELECTRIC PORTABLE AUDIO CONSOLE

The R5461B is a transistorized ac or battery operated broadcast console with a single channel output at line level and four microphone input channels. Gain of each input channel is independently

controlled and the overall gain of the console is governed by a master control. All mixing potentiometers as well as the master control are graded in 2 db steps. The console consists of four single stage preamplifiers mounted on two printed circuit boards, a two-stage intermediate preamplifier, a line amplifier and a power supply. All amplifiers are completely transistorized. The preamplifiers and the intermediate amplifier use plug-in printed circuit boards.

SPECIFICATIONS

Freq. response: Within EIA RS219.

Distortion: Within EIA RS219.

Input noise: -115 dbm max. (at 68 db gain).

Overall gain: 98 db \pm 2 db max.

Input impedance: 4 low level inputs 30-50/150-250 ohms.

Output impedance: 1 high level output 150/160 ohms.

Power supply: 117 vac, 60 cy, 90 w or 48 vdc. (Batteries not supplied.)

Battery life: 1500 Charge and Discharge cycles.

Size: Without cover, 16 $\frac{1}{2}$ " W, 8" H, 6 $\frac{1}{2}$ " D; with cover, 16 $\frac{5}{8}$ " W, 8 $\frac{1}{4}$ " H, 7" D.

Weight, including batteries: 26 lbs. less Transit case.



NORTHERN ELECTRIC PROGRAM TRANSMISSION PANEL

The R20330C panel consists of a R20312A Plug-in Amplifier, 410A

Jackfield, input and output transformers and an LC and R equalizer which permits equalization of non-loaded cable circuits to 15 kc.

The 15 kc equalizer consists of inductance, capacitance and resistance elements, all of which are variable. A maximum equalization of 35 db is possible. The inactive elements are selected by an interlocked L/C switch while the resistance is varied by a thumb wheel attenuator.

The R20312A is a three-stage negative feedback amplifier and has two negative feedback loops, one connected from the output to the emitter of the second stage. The R20312A forms the active part of the R20330C panel and is a plug-in unit removable from the front panel. The gain is controlled by an attenuator over a 40 db range in 2 db steps.

The input and output transformers have the required longitudinal balance and isolation to make repeating coils unnecessary, and both input and output can be switched to 150 or 600 ohms by means of screwdriver operated type switches.

To facilitate testing, equalizing and monitoring, a 410A jackfield is provided on the left hand side of the front panel. A separate winding on the output transformer is brought out to one of the pairs of jacks to which a VU meter can be patched.

A 48-volt dc power supply is required to operate this equipment.

ACCESSORIES

R20330-40 Cable Assembly

This assembly comprises eleven



feet of coded cable, one end terminating in a plug for connection to the R20330C Panel. The opposite end consists of bared, tinned wires for connection to appropriate terminal strips on terminal and fuse panels located in telephone central office equipment bays.

For portable application, the R20330C Program Transmission Panel has been combined with an R20587A Power Supply and convenient carrying case to form an integrated assembly for field use.

R20331A Volume Indicator Panel

This unit consists of a V.U. meter a 12-step matched attenuator, matching transformer and an associated jack field.

SPECIFICATIONS

Output level: +20 dbm max.

Distortion at rated output: 35 to 8000 cy less than 0.5%; 8000 cy to 20 kc less than 0.75%.

Freq. response: 35 to 20,000 cy ± 0.5 db.

Gain: 40 db ± 1 db at 1000 cy.

Input impedance: 150/600 ohms.

Output impedance: 150/600 ohms.

Signal to noise ratio: 85 db min.

Power: 50 ma at 48 vdc.

Size: 19" W, 3 1/2" H, 7 1/4" D.

QRK TURNTABLES

Designed for continuous 24-hour operation, main table and vital wear points utilize oilite bushed bearings. Turntable has only three rotating parts. 12" table at 33 RPM comes up to full speed in 1/16 revolution. 16" table at 33 RPM comes up to full speed in 1/10 revolution. Inner-recessed area of table handles 45's, engag-

ing the large hub. 10's and 12's rest on outer area, engaging small spindle. Turntables come equipped with control light and switch.



CUSTOM 12" TURNTABLE

Size: Front to back — 15 1/2"; 15" wide; depth below frame 6"; comes in beige with brown felt turntable cover (standard color).



STANDARD 12" OR 16" TURNTABLE

Size of 12" turntable: Front to back 15 3/8"; 14 1/2" wide; depth below frame 6".

Size of 16" turntable: front to back 19 5/8"; 19 5/8" wide; depth below frame 6".

Both 12" and 16" turntables come in grey with brown felt table cover. Professional tone arms, cartridges, equalizers and broadcast turntable accessories can be supplied to meet customer requirements.

ALTEC 639A/B VARIABLE PATTERN CARDIOID

The 639 consists of two independent elements, one dynamic and one velocity (ribbon), carefully phased and acoustically integrated to provide the finest poly-pattern microphone available. The selective six directional patterns range from

cardioid through Figure 8, to omnidirectional.



SPECIFICATIONS

Freq. response: 40 to 10,000 cy.

Output impedance: 30/50 ohms.

Output level: - 52 dbm/10 dynes/cm.

Pickup pattern: 639A-3 directional pattern, 639B-6 directional pattern.

Hum: - 120 db.

Protection: Two stage wind screen.

Size: 7 1/2" H (including plug) x 3-7/16" W x 4-7/16" D.

Weight: 3 1/4 lbs.



633 OMNI-DIRECTIONAL DYNAMIC

Freq. response: 35 to 12,000 cy.

Output impedance: 30/50 ohms, 633C, 30/50 ohms selective.

Output level: - 55 dbm/10 dynes/cm.

Size: 2" dia., 3 1/2" L.

Weight: 633, 10 ozs; 633C, 13 ozs. 633C has non-crushable diaphragm of mylar.

685A CARDIOID DYNAMIC

A general purpose, high quality microphone for a variety of studio uses. Equipped with a non-crushable diaphragm of mylar and exclusive sintered bronze filter which gives positive protection against

airborne magnetic dust. A "lock-in" feature gives positive mounting or permits easy removal.



SPECIFICATIONS

Freq. response: 40 to 16,000 cy.

Output impedance: 30/50, 150/250 and 20,000 ohms (selection by connections in microphone cable plug). Shipped with leads connected for 150/250 ohms.

Output level: - 54 dbm/10 dynes/cm.

Discrimination: Average front to back, 20 db.

Pickup pattern: Cardioid.

Hum: - 120 db.

Size: 1½" diameter at top, 7-13/16" long not including plug.

Weight: 11 ozs. (not including cable and plug).

Includes a 15 foot, 2 conductor, shielded cable with microphone plug.



ALTEC 684A OMNI-DIRECTIONAL DYNAMIC

The 684A is the omni-directional counterpart of the 685A, and incorporates the same design features. It offers a somewhat wider frequency response.

SPECIFICATIONS

Freq. response: 35 to 20,000 cy.

Output impedance: 30/50, 150/250 and 20,000 ohms (selection by connections in microphone cable plug).

Output level: - 55 dbm/10 dynes/cm.

Hum: - 120 db

Size: 1½" diameter at top (1½" largest diameter), 7½" long not including plug.

Weight: 8 ozs.

Mounting: Separate "Slip-On" adapter No. 13338 furnished. Includes 15 feet, 2 conductor shielded cable with microphone plug.



ALTEC 686A DYNAMIC LAVALIER

Small, lightweight and unobtrusive, the 686A has the widest frequency range and highest sensitivity of any dynamic lavalier-type microphone on the market today. It has Altec's exclusive sintered bronze filter.

SPECIFICATIONS

Freq. response: 70 to 20,000 cy.

Output impedance: 30/50 and 150/250 ohms (selectable by connections in plug at end of microphone cable).

Output level: - 55 dbm/10 dynes/cm.

Pickup pattern: Omnidirectional.

Hum: - 120 db

Size: 1-1/16" diameter at top tapered to ¾" at cable entrance, 3½" long.

Weight: 3 ozs. (not including cable and plug).

Mounting: "Snap-on" Lavalier neck cord No. 13356 and spring type tie or lapel clip No. 13322. Microphone complete with 20 foot, 3-conductor, shielded cable, plug.



ALTEC 181A BOOM MOUNT

For use with all Altec microphones, the 181A may be adjusted over an arc of 45°. Includes a nipple with ⅝" — 27 threads which is used to attach the microphone mounting facility to the shock mount shroud.

Microphones not equipped with slip-on adapters may be coupled directly to the shroud by means of the ⅝" — 27 threaded nipple.



ALTEC 24C and 26A DESK STANDS

The 24C is gray in finish and has a ⅝" — 24 thread for microphone attachment. A separate adapter for ⅝" — 27 microphone threads is also furnished. Weight 3 pounds. 26A is sturdy microphone desk stand weighing 2 pounds finished



AUDIO

MICROPHONES

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in dark green. It includes a chrome finished stem riser having $\frac{5}{8}$ " — 27 threads. Provisions are made on the 26A for installing an Altec 7A Microphone Switch.



ALTEC 22C FLOOR STAND

The 22C is a rugged microphone floor stand weighing 13 pounds. Adjustable from 35" to 64", has $\frac{5}{8}$ " — 27 thread. A separate adapter is $\frac{5}{8}$ " — 24 microphone thread is also furnished.



ALTEC MICROPHONE ACCESSORIES FOR WESTERN ELECTRIC TYPES 639, 633

8B attachment: $3\frac{1}{4}$ " baffle provides semi-directional response from 633 Microphone.

311A plug: For use in 633 and 632C microphones, makes it possible to interchange these microphones with the 639.

442A jack: Provides termination of microphone cord. When used with 712A Adapter, it properly connects to bottom of 639 Microphone and also to 311A Plug as used on 633 and 632C microphones.

712A adapter: Used with 442A Jack, it provides greater mounting security.

9A swivel attachment: Used with 633 and 632C microphones. Provides a 90 degree swivel. May be attached directly to microphone or used with 311A Plug, 442A Jack, and 712A Adapter. Has $\frac{5}{8}$ " — 24 male thread.

23A desk stand: Slender stand for use with 633 or 632C microphone. Has $\frac{5}{8}$ " — 24 female thread. Height $7\frac{1}{2}$ ", diameter 5".



UNIVERSITY 401 OMNI-DIRECTIONAL/DYNAMIC

Versatility of application makes this a highly desirable multi-purpose microphone for those who require optimum wide-range reproduction of music and voice.

SPECIFICATIONS

Freq response: 30 — 20,000 cps.

Impedance: 30/50, 150/250; 20,000 ohms.

Output level: 30/50, 150/250 ohms; — 55 db/1 mv/10 dynes/cm, — 148 db EIA sensitivity rating; 20,000 ohms, into high impedance input: 16 mv/10 dynes/cm.

Hum reference: — 120 db/.001 gauss.

Size: $1\frac{1}{8}$ " max. dia. $6\frac{3}{8}$ " maximum length without adapter.

Weight: 2 lbs.



UNIVERSITY 501 CARDIOID DYNAMIC

Affords ultra-high discrimination, virtually eliminates background noise. Excellent directional characteristics.

SPECIFICATIONS

Freq response: 30-16,000 cps.

Impedance: 30/50; 150/250; 20,000 ohms.

Output level: 30/50, 150/250 ohms; — 54 db/1 mv/10 dynes/cm; — 147 db EIA sensitivity rating; 20,000 ohms into high impedance input; 17 mv/10 dynes/cm.

Hum reference: — 2 db/.001 gauss.

Size: $1\frac{1}{2}$ " max. dia., $6\frac{3}{8}$ " max. length without adapter.

Weight: $2\frac{1}{4}$ lbs.



UNIVERSITY 70 OMNI-DIRECTIONAL DYNAMIC

Fulfills requirements for a general-purpose, low-cost, dynamic microphone. It is ideal for general soundcasting applications in churches, schools, industrial and

commercial public address installations.

SPECIFICATIONS

Freq response: 50-14,000 cps.

Impedance: 30/50; 20,000 ohms.

Output level: 30/50 ohms; - 50 db/1 mv/10 dynes/cm; - 143 db EIA sensitivity rating; 20,000 ohms into high impedance input; 28 mv/10 dynes/cm.

Hum reference: - 120 db/.001 gauss.

Size: 1 5/32" dia, 6" L.

Weight: 2 1/4 lbs.

Furnished with 15 foot 3-conductor shielded cable, Model SA10 slide-on stand adapter. Model 71 available with on-off slide switch.

UNIVERSITY ACCESSORIES



SA10 Slide-on stand adapter for use with any complete assembly. Permits quick removal of microphone from stand to hand. Standard 5/8-27 thread. Size: 2 7/8" x 2" x 1 1/2". Weight: 1/4 lb.



PA10 Adapts modular microphones to receive the Model CA10, Cannon XLR-3-11C plug, or Amphenol 91-854... all permitting quick disconnect. Dimensions: 3 1/8" x 1". Shipping weight: 1/4 lb.



CA10 Cannon XLR-3-11C plug complete with 18' cable. Has push-action latch lock. Size: 2-1/16" x 3/4". Weight: 1 1/4 lbs.



SSP10 Decorative stand adapter. Connects directly to each basic microphone module. Includes on-off switch and receptacle for CA10, Cannon XLR-3-11C plug, or Amphenol 91-854. Permits tilting the microphone through a 90° arc. Mounts to any stand with standard 5/8-27 NPSM thread. Size: 3-7/16" x 2 3/4" x 1 1/8". Weight: 1/2 lb.



SP10 Offers all advantages of PA10, with the addition of heavy duty positive action on-off slide switch. Size: 3 1/8" x 1". Weight: 1/4 lb.



DS10 Heavy cast iron desk stand. Perfectly balanced to prevent tipping of even largest microphones. Accommodates all microphones with standard 5/8-27 thread, as well as University SA10 and SSP10 stand adapters. Size: 4 1/2" x 7 7/8" x 4 5/8". Weight: 3 1/2 lbs.



CC10 Provides most economical of all modular microphone assemblies. For use with any basic microphone module when neither switch nor quick-disconnect is required. Includes integral 18' cable. Size: 1-13/16" x 1". Weight: 1 1/4 lbs.



TURNER MODEL 275 DYNAMIC HEADSET/MICROPHONE

Microphone is swivel mounted to the headset. The earphones are vertically adjustable for proper fitting. Both headset and microphone are moving coil dynamics, assuring maximum response and reproduction over the entire voice range. The microphone response is 100 to 10,000 cps with an output rating of - 60db. The earphone response on all models is from 30 to 10,000 cps. Net weight 14 oz.



AUDIO
SPEAKERS

ALTEC 415C, 412C BIFLEX LOUDSPEAKERS

The patented multiple compliance of the Biflex principle achieves unusually wide frequency range. The smaller center cone operates independently to reproduce high frequencies. Entire cone is used for the lower frequencies. The crossover is effected mechanically at 1000 cycles.



SPECIFICATIONS, 415C

Power: 25 w.
Freq. response: 30-14,000 cps.
Impedance: 8 ohms.
Voice coil diameter: 3".
Diameter: 15-3/16".
Magnet weight: 2.4 lbs.
Depth: 7".
Weight: 25 lbs.



SPECIFICATIONS, 412C

Power: 20 w.
Freq. response: 40-15,000 cps.
Impedance: 8 ohms.

Voice coil diameter: 3".
Diameter: 12 1/4".
Magnet weight: 1.8 lbs.
Depth: 5 5/8".
Weight: 15 lbs.

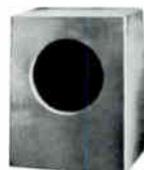


ALTEC 755C LOUDSPEAKER

Speaker has been a standard of quality in the broadcast and recording field because of its wide, smooth response and the broad angle of distribution provided by its shallow cone design. Use of a ceramic magnet achieves extremely slim profile for mounting in shallow enclosures.

SPECIFICATIONS, 755C

Power: 15 w.
Freq. response: 40-15,000 cps.
Impedance: 8 ohms.
Voice coil diameter: 2".
Diameter: 8 3/8".
Magnet weight: Special high flux indox V.
Depth: 2 1/4".
Weight: 3.75 lbs.



ALTEC LOUDSPEAKER ENCLOSURES

	612	614	618	622B
high	29 1/2"	24 3/4"	22"	17"
wide	25 1/2"	18 3/4"	17"	22"
deep	17 3/4"	14 1/4"	13 1/4"	13 1/4" 7 1/8"
weight	63 lbs.	39 lbs.	22 lbs.	22 lbs.
finish	gray	gray	gray	brown
speaker mtg. dia.	15", 12"	15", 12" 8"	12", 8"	12"



ALTEC 841A "CORONADO"

Housing an Altec 414 12" woofer and 3000 sectoral horn and driver, the "Coronado" provides a full 40-22,000 cps frequency response with 20 watts maximum input power. A full two-section Altec N-3000 network divider permits each speaker to handle only those frequencies for which it was engineered. Cabinet is furnished in either walnut or mahogany, measures 30" H x 19" W x 14" D and is lined with fiberglass.

AUDIO

- SPEAKERS
- JACK PANELS
- EQUIPMENT RACKS



ALTEC 836A "LIDO"

For the smaller broadcast station or recording studio, this system provides excellent audio reproduction for monitoring where space is at a premium. It incorporates two 8" speakers and, at lower frequencies, both units work in phase. In the higher frequencies, a dividing network makes use of the 755C reproducer for maximum response.

Frequency range: 40-13,000 cps.

Impedance: 8 ohms.

Power rating: 15 watts.

Dimensions: 12 7/8" H, 26" W, 12 7/8" D. Walnut or mahogany



PJ-341



PJ-343

JACK PANELS

ADC Panels are molded of solid phenolic and reinforced with steel to provide maximum rigidity and strength. Jacks are spaced to permit use of any standard double plug with 5/8" spacing. Mounting brackets and designation strips furnished with each panel. All panels designed to fit standard 19" relay rack.

SPECIFICATIONS

PJ-341 Double panel: Holds 48 jacks; holes spaced to prevent patching adjacent circuits; 2 1/8" panel space.

PJ-343 Single panel: Holds 24 jacks; holes spaced to prevent patching adjacent circuits; 1 3/4" panel space.



PATCH CORDS

ADC shielded cords are made of tinned copper conductor wire with heavy braided cover reinforced at each end. Black, with shields grounded both ends are standard. Unshielded, or assemblies with shields grounded one end only, and special color cords available.

DIMENSIONS AND CORD LENGTHS

length	PJ-1 plug	PJ-5-plug
6"	PJ-10 1/2	PJ-50 1/2
1'	PJ-11	PJ-51
2'	PJ-12	PJ-52
3'	PJ-13	PJ-53
4'	PJ-14	PJ-54
5'	PJ-15	PJ-55
6'	PJ-16	PJ-56
10'	PJ-10	PJ-50



MOLDED TERMINAL BLOCKS

Durable black phenolic plastic material. Terminals are .040" plated brass. Base 3" x 6-1/16".

Type	No. Rows	No. Terminals
PJ-101	1	20
PJ-102	2	40
PJ-103	3	60
PJ-104	4	80
PJ-105	5	100
PJ-106	6	120



EMCOR FR RACK CABINETS

Available to order for various panel heights. Can be bolted together for multiple rack installations. Available with front and/or rear doors. Normally supplied with frame depth of 22", overall width of 21-1/6". They handle standard 19" panels.

SPECIFICATIONS

FR-24A. Allows 43 3/4" vertical panel space. Overall height 50 7/8".

FR-25A. Allows 52 1/2" vertical panel space, overall height 59 7/8".

FR-26A. Allows 61 1/4" vertical panel space, overall height 68 3/8".

FR-27A. Allows 70" vertical panel space, overall height of 77 1/8".

FR-28A. Allows 78 3/4" vertical panel space, overall height 85 7/8".

Doors and side panels must be ordered as required. Specify right or left hand doors and quantity of side panels required. Painted to match Continental equipment. Other colors on special order.



TYPE 21A-1 VIDICON CAMERA

A compact, unitized, self-contained unit that has universal application in educational and industrial television. It consistently produces high quality pictures under wide variations in lighting conditions. The camera enclosure assures proper ventilation for adequate cooling. The outside cover is easily removed to expose chassis components and internal electrical adjustments. Basic operating controls (beam, focus, target blanking) can be easily removed from the camera back for remote operation. Picture quality is maintained over distances up to 1000 feet between camera and monitor, using standard video cables without additional amplifiers. Horizontal and vertical centering adjustments are controlled electrically. dc insertion circuits maintain flat shading and stable pictures when given varied

contrast information. Accessory items include: a variety of lenses, 6" lens turret to accommodate 4 lenses which can be remotely operated, and remote optical focus. Drive motors for accessories are mounted within camera housing. Camera can be used with a variety of remote pan and tilt devices, and with environmental enclosures. RF distribution of video signal is also available.

SPECIFICATIONS

Sensitivity: provides usable picture with one foot candle on vidicon face plate.

Horizontal Resolution: 500 lines minimum at picture center.

Output: 1 v p-p.

Bandwidth: 5.5 mc.

Linearity: 2%.

Shading: no visible shading with flat 10 foot candle illumination.

Interlace: random; horizontal sweep crystal controlled; vertical sweep

locked to 60 cy line; 2:1 interlace obtained with EIA standard sync generator.

Automatic Light Compensation: ratio: 2000:1

Electrical focus: constant current, temperature compensated focus circuit.

Optical focus: mechanical positioning of vidicon assembly.

Environment: temperature: 0° to 45° C. humidity: Up to 90% relative humidity.

Meets all EIA standards.

Power Requirements: 120 vac \pm 10%, 60 cps, single phase, 75 w.

Tube Complement: one each: Vidicon, 12BH7, 6BR8, 12AU7, 12B4; four 6BS8.

Mounting: 1/4-20 tapped holes to compensate for balance with various lens configuration.

Size: 8 1/2" H, 7" W, 15" D.

Weight: 20 lbs less lens.



TYPE 20A-2 VIDICON CAMERA CHAIN

A professional-quality unit designed to meet requirements for high-quality closed circuit broadcasting. It may be used with any studio equipment utilizing EIA sync pulses. Easily and simply controlled, the 20A-2 Camera Chain is designed to achieve professional results when operated by relatively inexperienced personnel. Basic units of the 20A-2 are: Vidicon Camera, Camera Control Unit, Power Supply. The 20A-2 features: electronic 5" image viewfinder; electronic centering; tally light; sweep-failure protection; rear controlled four lens turret and optical focus on right side; transistorized two-way communication between camera and console, with individual operator listening control; adjustable, electronically regulated power supply; sync mixing facilities

in camera control; variable aperture correction.

SPECIFICATIONS

Type 20A-2 meets all EIA and broadcast standards.

Resolution: 600 TV lines minimum at center.

Bandwidth: 6 mc.

Sweep linearity: $\pm 2\%$

Video output: non-composite 1.0 v p-p, or 1.4 v p-p with EIA sync across 75 ohms.

Pulse inputs: EIA vertical and horizontal drive pulses, 4.0 v p-p. EIA blanking 4.0 v p-p. EIA sync (if desired) 4.0 v p-p.

internal pulse distribution amplifiers permit either loop-thru or termination of drive, blanking and sync pulses.

Power supply: electronically regulated 280 vdc, regulation $\pm 1\%$. Electronically regulated 150 vdc, regulation $\pm 1\%$.

Lenses: 16mm "C" mount in 4

lens turret.

Light requirements: 5 foot-lamberts minimum for usable picture. 100-150 foot candles incident for noise free quality pictures with 7735 vidicon and f 1.5 lens.

Power requirements: 117 v, 50/60 cy 300 w.

Size: 12" H; 8" W; 15" D.

Weight: 32 lbs.



Camera control chassis: 7½" x 19" deep.



Camera control panel: 5¼" x 19" x 1½" deep. Monitor, camera-control unit and control panel may be rack-mounted in standard EIA equipment racks.



TYPE 24A CAMERA

A compact, high resolution system employing 945 line scanning, Type 24A-1 or 24A-2 reproduces shades of gray from black to white. An extremely small scanning spot combines with wide band (18 megacycles) electronics to provide high resolution system. Circuits are included to permit remote control of all camera operating functions. The 24A-1 is the smaller of the two cameras, and contains only those components necessary for optimum performance. All other circuitry is removed to the control unit which may be located up to 500 feet away. The 24A-2 camera is large enough to incorporate the addition of automatic iris, shutter, and other devices. Any number of these cameras can be used together in synchronous operation,

and only one need be equipped with sync signal modules. Electrical specifications of 24A-1 and 24A-2 are identical; 24A-2 is the larger camera.

SPECIFICATIONS

Scanning lines: 945 per frame.

Horizontal freq: 28.35 kc.

Vertical freq: 60 cps.

Frame freq: 30 per second.

Interlace: ratio 2/1.

Band width: flat to 15 mc.

Vertical resolution: 650 lines.

Horizontal resolution: 700 lines.

Minimum illumination: 1 ft. candles.

Automatic light compensation: 4000/1.

Maximum altitude: 100,000 ft.

Lens: standard "C" mount.

Power: from control unit.

Mounting: single screw, $\frac{1}{4}$ x 20 thread.

Size, 24A-1: 3 $\frac{1}{2}$ " W, 4 $\frac{3}{4}$ " H, 8 $\frac{3}{4}$ " L, 5 $\frac{1}{4}$ lbs.

Size, 24A-2: 5 $\frac{1}{2}$ " W, 7 $\frac{3}{8}$ " H, 12 $\frac{1}{2}$ " L, 27 lbs.

Camera control: sync signals internal with sync chassis installed, or bridging connection for 0.5 v p-p horizontal and vertical drive, mixed blanking and sync; output signals 1.4 v p-p composite or 1.0 v p-p non-composite video, one output connection expandable to three, sending end terminated for 50 ohm cable, 0.5 v p-p sync signals, sync chassis installed, sending end terminated for 75 ohm cable; power 750 w, 90% power factor, 95-115 v, 105-125 v, 115-135 v range selected internally; mounting in standard 19" rack or portable case; 10 $\frac{1}{2}$ " H, 16 $\frac{1}{4}$ " D, 54 $\frac{1}{2}$ lbs.



8" MONITOR

The Type 30A-1/8C is a full-scale, broadcast quality 8" video monitor designed for continuous duty operation in broadcast and industrial television.

Horizontal oscillator circuits are designed to meet all requirements for video tape recording playback. Monitor is shown in portable configuration. It is also available as follows: Type 30A-1/8N: monitor chassis only Type 30A-1/82R: twin monitors for 19" rack mounting. Type 30A-1/8RC: single monitor for 19" rack mounting, monitor centered in panel (RR for monitor on right, RL for monitor on left).

SPECIFICATIONS

Input power: 117/234 v, 50/60 cy, 130 w.

Video signal: Composite 0.25 v p-p, 2 v max. Sync negative at monitor input. Parallel co-ax input connectors for multiple operation and a line terminating resistor and switch are provided.

Video response: flat to 10 mc \pm 1 db. Standard kinescope resolution in excess of 700 lines; differential gain below 5% at 50 v kinescope drive.

External sync: high impedance, 3-8 v p-p, sync negative. Parallel input connectors.

Linearity: Within 2% of picture height.

Type 30A-1/8C: portable cabinet, 41 lbs., 9 $\frac{1}{4}$ " W, 11 $\frac{1}{8}$ " H, 18" D.

Type 30A-1/8N: chassis only, 29 lbs., 8 $\frac{1}{2}$ " W, 9 $\frac{1}{4}$ " H, 18" D.

Type 30A-1/82R: twin monitors, 72 lbs., 19" W, 10 $\frac{1}{2}$ " H, 18" D, rack mounted.

Type 30A-1/8RC: centered monitor, 43 lbs., 19" W, 10 $\frac{1}{2}$ " H, 18" D, rack mounted.



14" MONITOR

The Type 30A-1/14C is a 14" monitor designed for broadcast studio and industrial television. It features both high and low voltage regulation. Loop-through operation is provided by parallel receptacles in both the video and external sync circuits. A switch permits selection of either composite video or separate video and composite sync. Monitor is shown in portable configuration. It is also available as Type 30A-1/14R for 19" rack mounting.

SPECIFICATIONS

Input power: 117/234 v, 50/60 cy, 180 w.

Video signal: 0.25 v p-p, Sync negative at monitor input.

Video input impedance: High impedance bridging (equivalent to 470K in parallel with 15 mmfd.) can be terminated by internal 75 ohm load through switch located on rear apron.

Video response: 10 mc \pm 1 db (800 line resolution). Differential gain below 5% with 50 v kinescope drive.

Linearity: Within 1% of picture height.

Type 30A-1/14C: portable cabinet, 66 lbs., 13-13/16" W, 12 $\frac{1}{8}$ " H, 18 $\frac{5}{8}$ " D.

Type 30A-1/14R: rack-mounted, 58 lbs., 11 $\frac{1}{2}$ " H, 18 $\frac{5}{8}$ " D.



17" MONITOR

The Type 30A-1/17C is a 17" industrial display monitor designed to give extremely stable pictures from industrial cameras producing other than EIA sync waveshapes. It features both high and low voltage regulation. A separate sync



channel with independent gain control assures positive interlace and stability.

Loop-through operation is provided by parallel receptacles in both the video and external sync circuit. A switch selects either composite video or separate video and composite sync. Monitor is shown in cabinet configuration. It is also available as follows: Type 30A-1/17R for 19" rack-mounting, Type 30A-1/17N chassis only.

SPECIFICATIONS

Input power: 117/234 v, 50/60 cy, 190 w.

Video signal: 0.25 v p-p, 4.0 v max., Sync negative at monitor input.

Video input impedance: High impedance bridging (equivalent to 470K in parallel with 15 mmfd.) can be terminated by internal 75 ohm load through switch on rear apron.

Video response: 10 mc ± 1 db (800 line resolution). Differential gain below 5% with 50 v kine-scope drive.

Linearity: Within 2% of picture height.

Type 30A-1/17C: portable cabinet, 90 lbs., 18-11/16" W, 18 1/8" H, 17-9/16" D.

Type 30A-1/17R: 19" rack mounted, 68 lbs., 17 1/2" H, 7 3/16" D.

Type 30A-1/17N: Chassis only, 58 lbs., 16 5/8" W, 16 1/2" H, 16 1/8" D.

TYPE 31A-1 17" MONITOR

Rugged, durable monitor for industrial television applications. Presents clear picture with excellent definition and resolution. Sta-

bility is excellent, requiring virtually no adjustment from day-to-day. Has removeable formed front, Aluminized Kine. Available in cabinet or for rack mounting.



SPECIFICATIONS

Signal input: composite video from .5 to 1.5 v p-p with sync negative; two paralleled SO-239 connectors permit looping through for multiple operation.

Power: 115 vac, 60 cy, 200 w, fused.

Video bandwidth: 8 mc video amp., resolution better than 600 lines.



23" MONITOR

The Type 30E-1/23C is a 23" dis-

play monitor designed to give optimum pictures in high ambient light areas, and is ideally suited to instructional television applications. All operating controls, adjustments and fuses are behind a locking trap door. The 30E-1/23C is available as a cabinet model for installation on a shelf, or as the 30E-1/23Y with support studs for ceiling or pedestal mount. Monitor is shown in ceiling mount configuration, with speaker enclosure attached. (accessory option).

SPECIFICATIONS

Input power: 117 v, 60 cy, 125 w.

Video signal: 0.25 v p-p, 4.0 v max., Sync negative at monitor input.

Video input impedance: High impedance bridging (equivalent to 470K in parallel with 15 mmfd.) can be terminated by internal 75 ohm load through switch on rear apron.

Video response: 10 mc ± 1 db (800 line resolution). Differential gain below 5% with 50 v kine-scope drive.

Linearity: Within 2% of picture height.

Type 30E-1/23C: cabinet, 103 lbs., 24 1/4" W, 22" H, 19" D.

Speaker enclosure, ceiling and pedestal mount are accessory.



Type 45A-1 Console

**TYPE 40A-1 SWITCHER/FADER**

A low cost, solid state, vertical interval professional switcher/fader that can switch up to six incoming video channels. Video can be faded in or out. Switching can be expanded by adding plug-in modules. Operates on industrial or EIA sync signals.

SPECIFICATIONS

Video inputs: six 1 v composite or non-composite, 75 ohm.

Video output: 1.4 v p-p, terminated 75 ohm line; 1.4 v p-p, terminated 75 ohm monitor.

Sync input: 4.0 v p-p, has loop through.

Vertical drive: 4.0 v p-p, has loop through.

Tally light: 6.3 v @ 0.4 amp.

Freq response: 10 mc \pm 0.5 db

Power: 105-115 vac, 60 cps.

Connectors: SO-239.

Panel: 19" W, 7" H, 3" D.

Module cabinet: 19" W, 7" H, 9 1/2" D.

Power supply: 19" W, 7" H, 9 1/2" D.

TYPE 41A-1 SWITCHER

An industrial switcher that can switch up to six incoming video channels.



Optional features that can be contained within the switcher are: transistorized intercom; remote camera controls.

SPECIFICATIONS

Video input: six inputs terminated 75 ohms.

Output: one, source terminated, 75 ohm unbalanced.

Connectors: push pin connectors for fast connect and disconnect.

Power: 115 vac, 2 w.

Control switches: six for cameras.

Size: 13-7/16" W, 5 1/8" H, 11" D.

**VS-6A, VS-12A VIDEO SWITCHERS**

Continental VS-6X___A and VS-12X___A Video Switchers provide a means of switching 6 or 12 video channels to multiple outputs. The number of outputs is specified by adding a designator to the model number. As an example, a 6 input

by 2 output switcher is designated as Type VS-6X2A Video Switcher. From 2 to 12 outputs may be specified.

Switching is accomplished by horizontal rows of pushbuttons which connect the video channels to the inputs of high impedance amplifiers. Pushbuttons are interlocked horizontally so that only one input may be applied to an amplifier buss at any one time. The high input impedance of each amplifier allows all 12 amplifiers to be simultaneously connected to one video input channel.

In addition to the video circuits a separate auxiliary switch section is available for switching unbalanced audio, balanced 600 ohms audio, cue lights or other functions. This section may be wired on special order to your specified requirements.

SPECIFICATIONS

Inputs, VS-6X___A: 1.4 v p-p, 6 inputs, terminated in 75 ohms.

Inputs, VS-12X___A: 1.4 v p-p, 12 inputs, terminated in 75 ohms.

Outputs: 1.4 v p-p, 2 to 12 as specified, source terminated in 75 ohms.

Connectors: SO-239 coaxial connectors, 3 wire power plug.

Input power: 115 v, 60 cycles..

Panel size (by 19" wide): Unlighted Pushbuttons; 2 to 9 outputs No. outputs x 1 3/4 inches; 10 to 12 outputs, No. outputs less one x 1 3/4 inches.

Panel size (by 19" wide): Lighted Pushbuttons; 2 to 6 outputs, No. outputs plus one x 1 3/4 inches; 7 to 12 outputs, No. outputs plus two x 1 3/4 inches.



TELEVISION
AMPLIFIER



VIDEO DISTRIBUTION AMPLIFIER

Continental DA-30P-A is completely solid state, including regulated power supply, and provides three outputs from one input. DA-60P-A is a dual unit which provides six outputs from three inputs. Input emitter-follower provides high impedance bridging which may be looped, or terminated with 75 ohm termination plug.

SPECIFICATIONS

- Input:** high impedance bridging, 10,000 ohms, minimum.
- Output:** Three outputs, source terminated in 75 ohms.
- Freq response:** 10 mc \pm .25 db, 20 mc \pm 1 db.
- Gain:** Variable from — 10 db to + 8 db.
- Max video output:** 2 1/2 v p-p.
- Isolation between outputs:** better than 40 db at 1 kc, 30 db at 5 mc, 25 db at 10 mc.
- Tilt:** less than 1 1/2 % on 50% 60 cy square wave.
- Differential gain:** less than 1% on 1 v p-p output 10 and 90% APL.
- Differential phase:** less than 2° on 1 v p-p output 10 and 90% APL.
- Hum and noise:** 60 db below 1 v.
- Temp range:** —20° C to + 50° C.
- Connectors:** SO-239.
- Power Req:** 105-125v, 60cy, 3 1/2 w.
- Size:** 1 3/4" H, 19" W, 6" D.
- Weight:** 4 lbs.
- DA-60P-A:** two complete amplifier sections; 105-125 v, 60 cy; 1 3/4" H, 19" W, 6" D, 5 lbs.



LINE DRIVING AMPLIFIER

Type LDA-1A provides a means of pre-emphasizing high and mid-range video frequencies to compensate for losses over long runs of coaxial cables. A maximum of 33 db of equalization is available, allowing a mile of RG11/U or 8000 feet of Foam 11 to be equalized. If cables with extremely low losses are used, several miles may be equalized with one LDA-1A Amplifier.

SPECIFICATIONS

- Video input:** one, terminated in 75 ohms.
- Video output:** one, source terminated for 75 ohms, unbalanced.
- Freq response:** flat to 8 mc \pm 1 db.
- Tilt:** max of 2% on 60 cy 50% square wave.
- Gain at 60 cycles:** up to 12 db max.
- Gain control:** continuously variable, 0 to max.
- Boost at 8MC:** adjustable in 6 steps of 6 db each up to 30 db max, with vernier adjustment of + 3 and — 3 db between steps; max boost 33 db.
- Video input level:** 35 to 1.4 v p-p.
- Hum and noise:** 60 db below 1.4 v.
- Video output capabilities:** 10 v p-p.
- Open circuit dc voltage:** 0.0 v.
- Short circuit dc:** 0.0 ma.
- Connectors:** SO-239.
- Power:** 90 w 105-125 v 60 cy

Size: 19" W, 5 1/4" H, 9" D.

Weight: 12 lbs.

when ordering, specify cable type and length.



MODULAR DISTRIBUTION AMPLIFIERS

Continental 1000 solid-state, plug-in modular distribution amplifiers have a bandwidth of 20 mc \pm .5 db, down 3 db at 30 mc. They are used in high-resolution systems. Model DA-1060B is a general purpose distribution amplifier with gain adjustable from —40 db to +8 db. Model DA-1062B is used where higher gain is required. (—40 db to +20 db) Model DA-1064A is used for sync insertion applications. Each amplifier has a high-impedance looping input which may be looped or terminated, and four source-terminated outputs. PD-1041A provides pulse distribution and has fast rise and fall time of 0.015 microseconds. Maintains constant output of 4 v p-p input with 2 to 4 v p-p input. Shown above, Model FR-1000A Frame with PS-1006A Power Supply out in front of frame, three Model DA-1060B amplifiers, and one Model PDA-1041A Pulse Distribution Amplifiers in-place.

Module size: 3 1/4" W, 1 3/4" H, fittings into rack-frame 19" W, 1 3/4" H, 11 1/2" D, 9 oz.

TELEVISION

CCTV
TRANSMITTER
SPECIAL EFFECTS
GENERATOR &
SYNC GENERATOR
LENS

52



CLOSED CIRCUIT TELEVISION TRANSMITTER

Type TX-1B Transmitter converts video and audio information into RF on any standard or special channel. Signals may then be fed to an RF distribution system ranging from a single or several television receiver system to an extensive system with hundreds of receivers. Output signals and "off-air" signals may be distributed simultaneously with complete compatibility. For color or monochrome. TX-1B features vestigial sideband transmission, visual outputs of 500,000 and 100,000 μ V, aural outputs of 250,000 and 50,000 μ V, separate visual and aural output controls, visual carrier crystal controlled to 0.005%, aural frequency ± 1 kc, transformer regulated voltages, harmonic filter in RF outputs, visual and aural signals mixed in directional coupler, 4.5 mc aural signal input, sending end termination.

Size: 19" W, 5 $\frac{1}{4}$ " H, 12" D, 16 lbs.



SPECIAL EFFECTS GENERATOR

Ball Brothers solid-state Mark VI produces horizontal, vertical and corner wipes, has external key for keyed inserts. It has its own internal power supply, 117 vac.

SPECIFICATIONS

Power: 117 vac, 60 cy.

Signal inputs: all bridging. Video A: 0.7 v p-p, ± 3 db, black negative. Video B, 0.7 v p-p, ± 3 db, black negative. External key, 0.7 v p-p nominal. Horizontal drive, standard EIA. Vertical drive, standard EIA. Blanking, standard EIA. Sync, standard EIA.

Signal outputs: Program video, 0.7 v, 75 ohms, black negative ± 1 db to 25 mc, 60 cy tilt less than 1%. Black level shift less than 5%. Cross-talk less than 40 db at 5 mc. Monitor video identical to program video, but with option of internal sync.

Size: 19" W, 3 $\frac{1}{2}$ " H, 7" D. 19 lbs.



SYNC GENERATOR

Riker Industries' Model 520-2 Sync Generator is crystal controlled and provides AFC EIA Sync Pulses. Pulse widths and amplitudes are controlled by fixed delay lines, binary counters and zener diodes. All portions of the sync generator are supplied as modules. Systems may be assembled to meet current requirements, and modules added to handle future needs. All units may be rack-mounted, or in portable cases. Photo shows portable case with power supply, timer, pulse gates, counter, and pulse amplifier modules. Other modules

are available as follows: Sync Lock, ABC Sync Lock System, Horizontal Lock, Vertical Lock, Bar-Dot Generator, Sync Switch, Relay Change-Over, Automatic Change-Over, Color Frequency Standard, Color Lock, Sync Generator Modules operating at 405, 625, 819 or 945 line. Solid state. Complete electrical specifications on request.

SPECIFICATIONS

All modules and power supply plug-in to frame 19" W, 3 $\frac{1}{2}$ " H, 17" D. Frame accommodates 9 modules plus power supply.



TYPE 211 NORMAL LENS

1 inch; speed f 1.9; focus range 2' to infinity; variable iris and focus.

TYPE 508 TELEPHOTO LENS

2 inch; speed f 1.9; focus range 2' to infinity; variable iris and focus.



TYPE 507 WIDE-ANGLE LENS

$\frac{1}{2}$ inch; speed f 1.9; focus range 12" to infinity; variable iris and focus.



TYPE 214 TELEPHOTO LENS

3 inch; speed f 1.9 focus range 3' to infinity; variable iris and focus.



	10'	20'	30'	40'	50'	60'	70'	80'	90'
LENS	W x H	W x H	W x H	W x H	W x H	W x H	W x H	W x H	W x H
1/2"	10' x 7.5'	20' x 15'	30' x 22.5'	40' x 30'	50' x 37.5'	60' x 45'	70' x 52.5'	80' x 60'	90' x 67.5'
1"	5' x 3.75'	10' x 7.5'	15' x 11.25'	20' x 15'	25' x 18.75'	30' x 22.5'	35' x 26.25'	40' x 30'	45' x 33.75'
2"	2.5' x 1.87'	5' x 3.75'	7.5' x 5.62'	10' x 7.5'	12.5' x 9.37'	15' x 11.25'	17.5' x 13.12'	20' x 15'	22.5' x 16.87'
3"	1.67' x 1.25'	3.33' x 2.5'	5' x 3.75'	6.67' x 5'	8.33' x 6.25'	10' x 7.5'	11.67' x 8.75'	13.33' x 10'	15' x 11.25'
4"	1.25' x 0.94'	2.5' x 1.88'	3.75' x 2.81'	5' x 3.75'	6.25' x 4.69'	7.5' x 5.63'	8.75' x 6.56'	10' x 7.5'	11.25' x 8.44'
6"	0.83' x 0.63'	1.67' x 1.25'	2.5' x 1.88'	3.33' x 2.5'	4.17' x 3.13'	5' x 3.75'	5.83' x 4.38'	6.67' x 5'	7.5' x 5.63'

RATIO OF SCENE SIZE TO DISTANCE

For greater distances multiply by 10, then multiply height and width dimensions by 10.

WOLLENSAK LENSES

Specifically designed for Vidicon cameras, these lenses allow high resolution without sacrificing contrast.

MODEL 1610 HIGH SPEED LENS
1 inch; speed f 1.5; focus range 2' to infinity; variable iris and focus

MODEL 1629 WIDE ANGLE LENS
1/2 inch; speed f 1.2; focus range 12" to infinity; variable iris and focus.

MODEL 1620 TELEPHOTO LENS
2 inch; speed f 1.5; focus range 2' to infinity; variable iris and focus.

MODEL 1630 TELEPHOTO LENS
3 inch; speed f 1.9 focus range 3' to infinity; variable iris and focus.

MODEL 1627 TELEPHOTO LENS
4 inch; speed f 2.5; focus range 3 1/4' to infinity; variable iris and focus.

MODEL 1631 TELEPHOTO LENS
6 inch; speed f 3.8; focus range 6 3/4' to infinity; variable iris and focus.



AUTOMATIC ZOOM LENS

Resolution better than 900 lines;

flange focus standard .690"; focal length 30 mm to 150 mm (1.2" to 6") or 60 mm to 300 mm (2.4" to 12") aperture f/2.7 to f/11; focusing range 6' to infinity; zoom rate (variable) approximately 8 to 3 seconds; focus rate approximately 30 to 10 seconds; power, 115 v, 50/60 cy ac; size 3 7/8" W, 5 1/4" H, 8 3/4" D. 6 1/2 lbs.; "C" mount.



CANON MOTORIZED ZOOM LENS

Features automatic aperture system powered by Cadmium Sulfide photo cells, exposure setting knob to match unit with vidicon sensitivity, blue warning light for excessive or inadequate light, brightest 16 mm zoom lens with f 1.8 speed for entire 25 to 100 mm zoom range. Focusing range 6.5 ft to infinity; zoom speed 4 to 8 seconds, size 3.9" W, 5.31" H, 7.36" D., weight 3.9 lbs.

REMOTE CONTROL BOX FOR LENS

Size 8.66" W, 2.72" H, 7.36" D., 4.6 lbs.; power 110, 115, 220 or 240 vac; selective rotary switch; 50/60 cy; can be used within 10% range of each voltage; push buttons for zoom and focus, dials for speed and exposure.



HEAVY DUTY PAN AND TILT CONTROL

Type PT-1000L provides remote orientation control of a camera that is subjected to a weather environment. Unit is cast aluminum.

SPECIFICATIONS

Pan: horizontal plane, 350°; speed 9.0° per second ±1°; torque 25 ft pounds; shunt type motor.

Tilt: vertical plane, 90° (±45° from level position); speed 3° per second ± 1/2°; torque 90 ft pounds; shunt type motor.

Weight: 70 lbs.

Input voltage: 115 v, 60 cy, 200 w.

Connectors: GK-12-32S. Mating body type cable connectors supplied.

Cable: 6 conductors plus ground. Requires Series 1500 control units for remote control of unit.

MEDIUM DUTY PAN AND TILT CONTROL

Type PT-550M provides remote orientation control of a camera that is subjected to a weather environment. Unit is cast aluminum.

SPECIFICATIONS

Input voltage: 115 v, 60 cy, 150 w.

Connectors: GK-12-32S. Mating body cable connectors supplied.

Cable: 6 conductors plus ground.
Pan: horizontal plane, 350°; speed 9.5° per second $\pm 1^\circ$; torque 10 ft pounds; shunt type motor.

Tilt: vertical plane, 180° ($\pm 90^\circ$ from level position); speed 4.5° per second $\pm .6^\circ$; torque 20 ft pounds; shunt type motor.

Weight: 25 lbs.

Requires Series 1500 control units for remote control of unit.



LIGHT DUTY PAN AND TILT CONTROL

Type PT-155S provides remote

orientation control of camera. Unit is solid aluminum.

SPECIFICATIONS

Input voltage: 115 v 60 c 150 w.

Connectors: GK-12-32S. Mating body type cable connectors supplied.

Cable: 6 conductors plus ground. Requires Pelco Series 1500 control units for remote control of unit.

Pan: horizontal plane, 350°; speed 9° per second $\pm 1^\circ$; torque 8 ft pounds; shunt type motor.

Tilt: vertical plane, 180°; ($\pm 90^\circ$ from level position); speed 4.5° per second $\pm .6^\circ$; torque 16 ft pounds; shunt type motor.

Size: 9 13/16" W, 9 1/2" H, 5 7/8" D.

Weight: 20 lbs.

TYPE 1500 REMOTE CONTROL UNITS

Units are available in panel for rack mounting or in cabinet; with fixed speed or variable speed pan and tilt. All control units are equipped with "Joystick" which controls pan and tilt with a single lever.

SPECIFICATIONS

Input voltage: 115 v, 60 cy, 200 w.

Connectors: GK-12-31S. Mating body type cable connectors supplied.

Cable: 6 conductors plus ground.



PT-1500P: panel, fixed speed control, 3 1/2" H, 19" W.

PT-1500PV: (not shown) panel, variable speed pan and tilt.



PT-1500CV: cabinet, variable speed pan and tilt control.

PT-1500C: (not shown) cabinet, fixed speed control.



UNIVERSAL CAMERA MOUNT

Type UM-1 is a sturdy, lightweight aluminum device. Camera can be swung in horizontal or vertical arc. Ceiling, wall or floor mounting.



LIGHT WEIGHT ENVIRONMENTAL ENCLOSURE

Type EH-1 weighs approximately 17 pounds, and is fitted with a window mounted moulded rubber, cable entry port, and top cover which extends 5" above window area. Cover is firmly held against a gasket on housing by mechanical fasteners that will each stand a 90 pound load. Mounting track is inside enclosure, on center line in longest plane.

SPECIFICATIONS

Blower: 115 v, 15 w, 200 CFM.

Heater: 115 v, 150 w, electrically isolated from housing, cannot accidentally cause housing to be "above ground potential."

Connectors (internal): six terminal strip, 6/32 screw size, provides for primary power "in" plus control circuit connections.



Size: 14" W, 10½" H, 26¾" L, 17 lbs.

ACCESSORIES

Insulation; filtered air intake and outlet with blower and adjustable thermostat control; (filters replaced externally); heating element with adjustable thermostat control; windshield wiper/outside blade; windshield wiper/inside blade; windshield washer; thermo-pane glass window; internal defroster fan with heater element — manually controlled; three inch diameter pipe entries for "purged air" system; extra deep cover for equipment having more than 9½" vertical dimension; top cover with coils for liquid coolant — heat exchanger principle; sun shroud — external inverted "U" wrap around — providing dead air space around basic enclosure — reflects sun; used in direct sunlight applications to minimize temperature rise in the enclosure; elevated camera mounting sled — for aligning "optical axis" to the window.



7401 SAMSON TRIPOD with ELEVATOR

2-section legs, 1½" and 1⅜" dia, 18" rise. Height: 32" to 72". Tele-

scoped: 6½" x 7½" x 40". Weight: 10 lbs. Photo shows 7201 Samson Friction head. 15" handle adjusts to any angle. 6" H, 2 lbs.



7601 SAMSON DOLLY

Hinge pins anchor legs in recesses in dolly arms. 4" casters with brakes. Folds to 6½"x7½"x21½" Capacity: 50 lbs. 7" H, 8 lbs.



5312 ¾ HERCULES TRIPOD with ELEVATOR

2-section legs, 1½" x 1¼" dia. Elevator 2" dia. x 18" rise. Height: 26" to 58". Telescoped: 9½" x 11½" x 31". Weight: 17 lbs. Shown mounted on 5610 Hercules ¾ Dolly. Sliding clamp fastens tripod foot plate to caster units. Casters can be set for free swiveling, straight line tracking, or locked. Folds to 7" x 13" x 22". Casters: 4" x 1". Capacity: 500 lbs. 7" H, 15 lbs.

5610 HERCULES ¾ DOLLY
5261 HERCULES DUALOK HEAD
Sliding camera plate centers camera. Handle adjusts for length and angle. Pan and tilt controls have independent drag and fast lock. Camera plate: 4" x 4". 6¾" H, 7 lbs. (shown on 5312 ¾ Hercules Tripod)



QUARTZ-KING DUAL 650

Provides up to 3900 watts of studio light from one head.

Output: (at 10 feet): wide flood position; 220 ft candles; med. flood position; 390 ft candles; wide flood, with intensifier: 430 ft candles; med. flood intensifier, 640 ft candles.

Power consumption: 5.4 amps (650 w) from 110/120 v ac or dc.

Color temperature: available for 3200° K or 3400° K constant.

QUARTZ-KING DUAL 1000

Provides up to 7600 watts of studio light from one head.

Output: (at 10 feet): wide flood; 400 ft candles; med. flood; 850 ft candles; wide flood intensifier; 620 ft candles; med. flood intensifier; 1035 ft candles.

Power consumption: 8.3 amps (1000 w) from 110/120 v ac or dc.

Color temperature: 3400° K constant.



HEAT FILTER IN HOLDER



DAYLIGHT CONVERSION FILTER



TWO-LEAF BARNDOOR



FOUR-LEAF BARNDOOR

ACCESSORY HOLDER WITH
SINGLE SCRIM

MINIDYNE 650 ELECTRONIC DIMMER

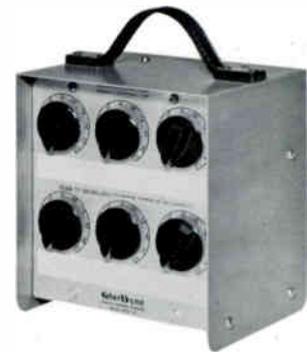
Provides smooth, continuous control of light intensities from zero to maximum. Controls any quartz-iodine and incandescent light, or



combination of lights up to total of 650 w.

Input: 110/120 v, 50/60 cy, single phase ac only.

Size: 3½" w, 6" H, 2½" D, 1¾ lbs.



COLORDYNE MULTIPLE REMOTE CONTROL

Contains 6 input receptacles and 6 control dials in a single, lightweight case for smooth continuous and individual control of up to 6 ColorDyne 120 v dimmers of any capacity.

Size: 5 9/16" W, 6 1/8" H, 5 1/4" D, 3 lbs.



COLORDYNE 1000 ELECTRONIC DIMMER

Solid-state unit provides smooth, continuous control of light intensities from zero to maximum. Controls quartz-iodine, focusing spot and floodlights using ac current up to total of 1000 w.

Input: 100/120 v, 50/60 cy, single phase ac only.

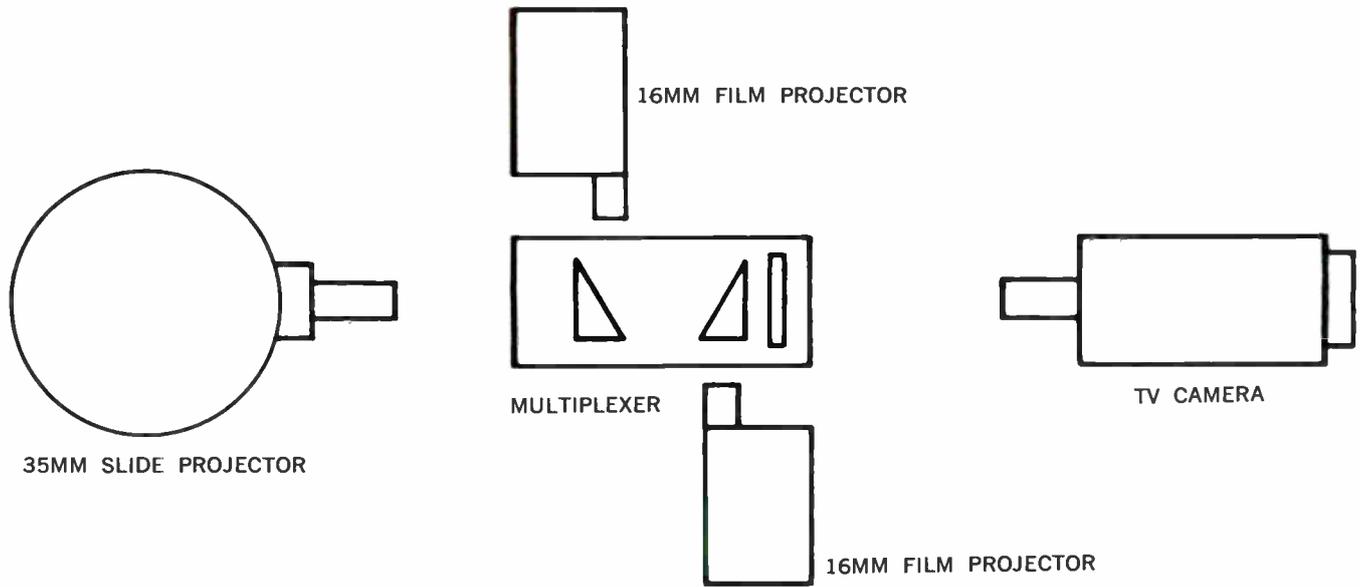
Size: 3" W, 4¾" H, 8" D, 4¼ lbs.



COLORDYNE REMOTE MASTERING CONTROL

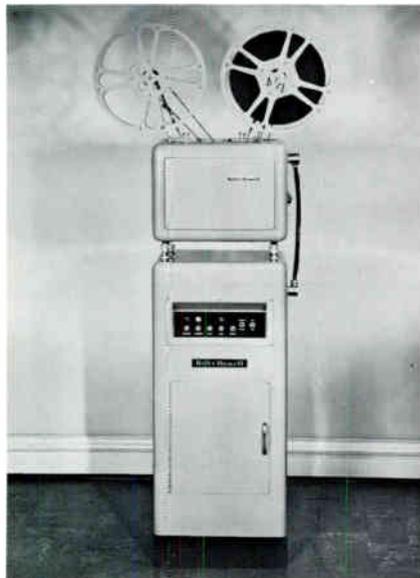
Contains 6 input receptacles and 1 control dial in lightweight case, for smooth continuous simultaneous control of up to 6 ColorDyne 120 v dimmers of any capacity.

Size: 5 9/16" W, 6 1/8" H, 5 1/4" D, 3 lbs. 7 oz.



FILM, SLIDE TV SYSTEM

Consists of one or more 16mm film or 35mm slide projectors, optical multiplexer and pedestals designed into a matched system with Continental Cameras. Equipment can be remotely operated.



BELL & HOWELL 614 CDVM PROJECTOR

- Power output:** 6 dbm/600 ohms
- Freq. response:** 80-8000 cps \pm 1 1/2 db
- Signal to noise ratio:** 60 db below rated output
- Driver motor:** synchronous
- Blower motor:** universal
- Light output:** 50 lumens with 300 w 25-hour lamp
- Light application time:** equal to or greater than 30% of single TV field
- Projection lens:** 2" f/1.6 standard
- Optical elements:** chemically coated
- Reel capacity:** 2000 ft
- Sound reproduction:** optical and magnetic
- Lubrication:** 1000 hour, single point
- Size (on pedestal):** 52 3/8" H, 12 1/8" W, 16 1/4" D, 74 lbs.



SPINDLER & SAUPPE SELECTROSLIDE

- Light:** lamp capacity 50 to 300 w
- Condensing system:** aspheric to give even light distribution.
- Slide capacity:** turret holds 16 slides, turrets interchangeable and keyed for alignment
- Operation:** turret shifted by pressing button on side of housing, or line cable can be used for remote operation; turret can be rotated by hand in one direction.



MULTIPLEXER



TYPE 48A-1 PORTABLE, TRANSISTORIZED TELEVISION RECORDER

Power requirements: 105 to 125 v at 4 amps max., 60 cy; one 117 v utility outlet is provided with maximum output of 100 w.

Video input: 75 ohms unbalanced, terminated internally; composite signal, sync negative, .8 to 1.2 v p-p composite; either standard EIA or industrial sync, interlaced or non-interlaced; any number of scanning lines at 60 fields/second can be accommodated; video input is adjustable; minimum input level is of 0.5 of p-p composite video.

Video output: 75 ohms unbalanced, 1 v \pm 10% p-p, composite; output can be fed to any video monitor employing AFC horizontal sweep circuitry having normal time constants, or to any RF Modulator

driving conventional TV receivers employing AFC horizontal sweep circuitry of normal time constants.

Audio inputs: One 6000 ohms balanced or unbalanced line input at -10 dbm minimum; terminated internally; one microphone input, nominal $\frac{1}{2}$ milli-volt across 50,000 ohms.

Audio output: 600 ohms, balanced or unbalanced, at $+4$ dbm.

Size: $29\frac{7}{8}$ " W, $14\frac{5}{8}$ " H, $17\frac{3}{8}$ " D, approx. 100 lbs.

OPERATING CHARACTERISTICS

Tape speed: 3.7" per second

Recording time: (on standard SMPTE reels) $6\frac{1}{2}$ " reel (750 ft) 40 minutes; 8" reel (1650 ft.) 90 minutes; $10\frac{1}{2}$ " reel (3600 ft.) 3 hours 15 minutes; $12\frac{1}{2}$ " reel (5540 ft.) 5 hours; proper operation with $12\frac{1}{2}$ " (31.7 cm) reels requires a minimum of 115 v.

Rewind time: 60 seconds for full 8" (20.3 cm) reels.

RESPONSE CHARACTERISTICS

Video: freq. response, ± 1.5 db, 10 cycles to 3 megacycles; signal to noise ratio, 38 db or better on interchanged tapes, p-p video to RMS noise.

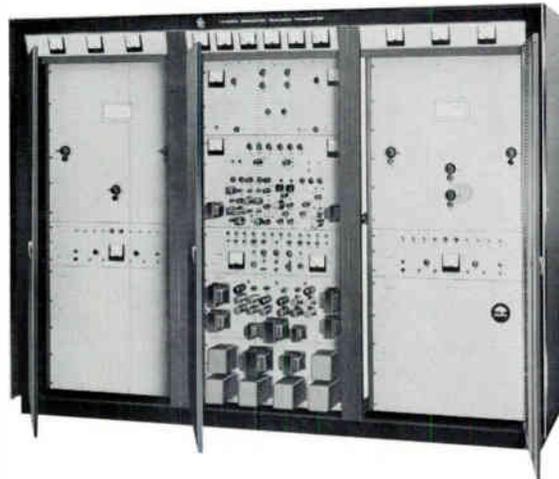
Audio: freq. response, ± 2 db from 80 cps to 8 Kcs; signal to noise ratio, 45 db below 3% distortion level at 400 cps; flutter and wow, less than 0.2% RMS from .6 cps to 250 cps.

Recording Medium: two inch wide, video magnetic tape, Mylar* base.

TYPE 48B-1 PORTABLE BROADCAST STABLE TELEVISION RECORDER

Horizontal stability: meets FCC standards; all other specifications same as Type 48A-1.

*TM DUPONT



TYPE 5000 LOW BAND AND HIGH BAND TELEVISION TRANSMITTER

Capable of 5000 watts peak visual and 2500 watts aural, it features: Aural carrier locked to visual by discriminator; built-in sweep detector; plug-in sweep inputs; RF power meter checks visual and aural power; protective and time delay circuits; requires no side-band filter; low tube costs; air cooled tubes throughout.

TELEVISION TRANSMITTERS

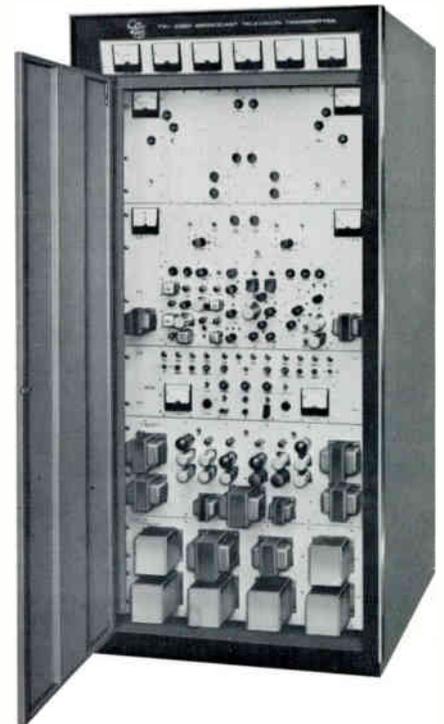
Other television transmitters similar in design and performance to the Type 500 and 5000 are: Type 2000 low band and high band, capable of 2000 w peak visual and 1000 w aural; Type 300 low band and high band, capable of 300 w peak visual and 150 w aural power; Type 100 low band and high band, capable of 100 w peak visual and 50 aural power.

5000 SPECIFICATIONS

	Visual	Aural
Emission	A5	F3
Freq. range		
low band	Ch. 2-6	Ch. 2-6
high band	Ch. 7-13	Ch. 7-13
Power output	5000 w	2500 w
Input impedance	75 ohms	600/150 ohms
Input level	.7 p-p min.	+ 8 dbm
Amplitude/freq. response	± 1 db carr. to 4.2 mc $\pm 1-3$ db at carr. +4.5 mc	± 1 db 50 cy to 1500 cy
Lower sideband	± 1 db carr. to -0.5 mc -3 to -6 db at carr. -1 mc -20 db at carr. -1.25 mc	
Carrier stability	± 1 kc	± 1 kc referred to visual carr.
AM noise	40 db below 100% modulation	50 db below carrier 60 db
FM noise, below ± 25 kc swing		
Modulation capability	10% ref. white	40 kc
Variation in freq. response w/brightness	± 1 db	
Amplitude variation over 1 picture frame	less than 5% of the peak of sync level	
Signal to hum ratio (p-p)	30 db	
Regulation of output	7% max.	
Linearity (differential gain)	1 db max.	
Differential phase	2% max.	

Sync distortion (overshoot, compression or stretch)	5% max.
RF output impedance	50 ohms
RF output fitting	1 5/8" EIA
Input power	208-230 v, 50-60 cy
Power required	20 KVA max.
Size	76 1/8" H, 106" W., 28" D., 4000 lbs.

500 SPECIFICATIONS	Visual	Aural
Emission	A5	F3
Freq. range		
low band	Ch. 2-6	Ch. 2-6
high band	Ch. 7-13	Ch. 7-13
Power output	500 w	250 w
Input impedance	75 ohms	500/150 ohms
Input level	.7 p-p min.	+8 dbm
Amplitude/freq. response	±1 db carr. to 4.2 mc +1-3 db at carr. +4.5mc	±1 db 50 cy to 15,000 cy
Lower sideband	±1 db carr. to -.5 mc -3 to -6 db at carr. -1 mc -20 db at carr. -1.25 mc	
Carrier stability	± 1 kc	± 1 kc referred to visual carr.
AM noise	40 db below 100% modulation	50 db below carr.
FM noise, below ±25 kc swing		60 db
Modulation capability	10% ref. white	40 kc
Variation in freq. response w/brightness	± 1 db	
Amplitude variation over 1 picture frame	Less than 5% of the peak of sync level	
Signal to hum ratio	30 db p-p	
Regulation of output	7% max.	
Linearity (differential gain)	1 db max.	
Differential phase	2% max.	
Sync distortion (overshoot, compression or stretch)	5% max.	
RF output impedance	50 ohms	50 ohms
RF output fitting	type N female	type N female
Input power	100-135 v, 50-60 cy	
Power required	3 KVA max.	
Size	76 1/8" H., 54" W., 28" D., 1650 lbs.	



TYPE 500 LOW BAND AND HIGH BAND TELEVISION TRANSMITTER

Capable of 500 watts peak visual and 250 watts aural, it is complete with both visual and aural transmitters.

Features: aural carrier locked to visual by discriminator; built-in sweep detector; plug-in sweep inputs; RF power meter checks visual and aural power; protective and time delay circuits; requires no sideband filter; low tube costs; air cooled tubes throughout.



TYPE MVT/MVR MICROWAVE SYSTEMS

Designed for short haul, high reliability, broad band requirements. The video bandwidth of 12 mc can be extended to 20 mc if required to handle very high resolution television signals. It can be operated at any carrier frequency from 7-15 GC by selection of the appropriate klystron and waveguide. The basic design follows the standards established for commercial television broadcast transmitters. Except for the klystron and power supplies both the receiver and transmitter are solid state.



SPECIFICATIONS, MVT/MVR TRANSMITTER

Freq. range: 7050 mc-15,000 mc
Emission: A5 (AM)
Power output: 100 mw max. @ sync peak
Input video impedance: 75 ohm

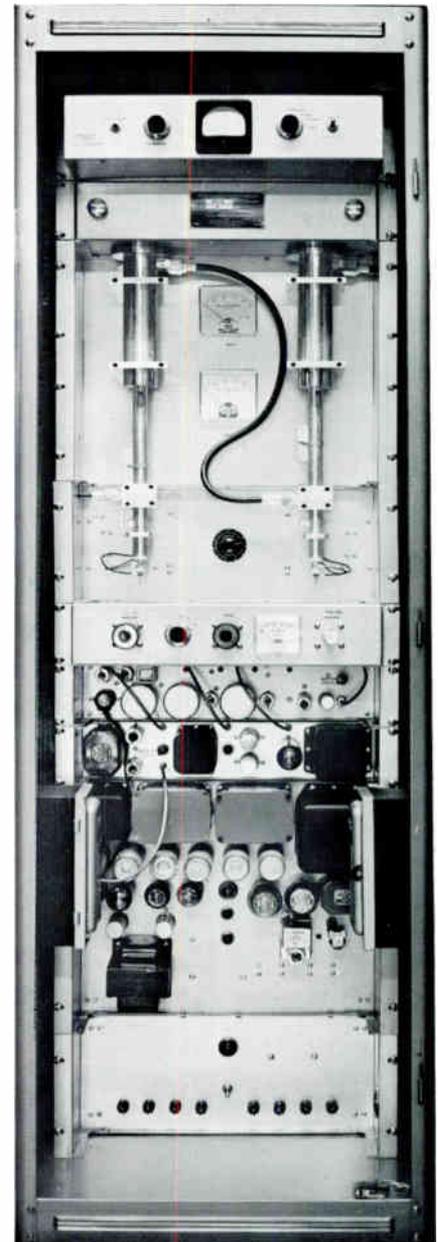
Video input level: .75 v-2 v p-p
Video response: 30 cps-12 mcps
Power req.: 50 w, 90-130 v, 50-400 cps



Freq. stability: better than .02% @ 7,000 mc .05% @ 12,000 mc
SPECIFICATIONS, MVT/MVR RECEIVER

Freq. range: 7000 mc-15000 mc with appropriate preselector.
Emission detected: A5 (A.M.)
Minimum signal input for useable picture: -70 dbw
Video output: 1.5 v p-p 75-ohm
Video response: ± 1 db, 60 cps to 15 mc

Power req.: 8 w, 105-125 v AC, 60 cps -400 cps
Selectivity RF preselector: ± 15 mc, 3 db points (factory adjustable for wider or narrower bandwidth).



TYPE 710A-1 TELEVISION TRANSLATOR

Has been type accepted for use under FCC Rules, Part 74. It receives VHF television signals and converts them without demodula-

tion to the 806 to 890 mc range for rebroadcast to isolated or remote areas (channels 70 to 83). Cavity amplifiers supply 10 watt synchronized peak television signal, with band width characteristics in excess of FCC requirements. Aural signal is transmitted in exact proportion to incoming signal. Major circuits are metered, including calibrated average power output meter for final amplifiers. Circuits and components are shielded to permit multiple use of translators operating adjacent to each other. Mechanical construction provides complete bridging between input and output circuits. Station identification is recorded on continuous magnetic tape. Time clock operation provides playback of tape at half-hour intervals.

SPECIFICATIONS

Power output: 10 w peak visual input to transmission line; 5 w average aural into transmission line.

Emission: visual A5 (AM), aural F3 (FM).

Freq. range: Ch 70 through 83 (output).

Input freq.: Ch 2 through 13.

Carrier freq. stability: crystal .0005%.

Input: 75 ohms.

Output: 52 ohms.

Noise level: FM 55 db below plus or minus 25 kc deviation. AM 50 db below carrier.

Freq. response: flat within plus or minus 1 db over 6 mc channel.

Power meter: integral direct average reading, indicates SWR.

Control: local and remote, carrier operated, on and off in accordance

with the FCC regulations.

Power requirements: 117 single phase, 50-60 cy, 435 w.

Tube complement: one each 6FV6, OD3, OA3, OA2, 12AX7, 6AQ5; two each 6AM8, 6BQ7A, 5U4G, 5R4GY, 12AT7, 3CX1000A5; three each 5876A, 6AK5; four 6CB6.

Size: 24" W, 72" H, 18" D; stand-up type steel rack cabinet; with door interlocks.



JAMPRO CORNER REFLECTOR

Photograph shows single UHF reflector antenna with power gain of 10. Power handling capacity is 12.5 kw peak visual. For auxiliary, standby or translator use. Half power horizontal bandwidth is 65 degrees. Can be stacked for higher gains. (Jampro makes a complete line of omnidirectional UHF TV antennas with power ratings of 50 kw and gains of up to 50. Omnidirectional TV translator antennas also available.)



JAMPRO BATWING ANTENNA

Photograph shows typical batwing construction for six bay, channel 8 antenna. Other standard batwing antennas are available with omnidirectional patterns for all VHF channels 2-13, with gains up to 12.5.



1050 NORTH CENTRAL EXPRESSWAY, RICHARDSON, TEXAS



4212 SOUTH BUCKNER BOULEVARD, DALLAS, TEXAS

Continental Electronics is a Division of Ling-Temco-Vought, Inc., a diversified corporation with unlimited potential and proven capabilities in the areas of aerospace, communications and military electronics.

For many years, Continental has specialized in the design, development, manufacture and installation of super power radio/radar transmitters and systems. Continental equipment has been used by virtually every Government agency, including the Air Force, Army and Navy, and by private industry. Typical examples of Continental's unique capability would

include: 2,000,000 watt VLF transmitting station for the U.S. Navy at Cutler, Maine; 1,000,000 watt LF broadcast transmitter for the USIA Voice of America; 1,000,000 watt MF broadcast transmitter for USIA Voice of America; 5,000 watt through 1,000,000 watt MF and HF broadcast transmitters in the United States and throughout the world; 600,000 watt HF transmitter for the U.S. Army; similar units for the U.S. Air Force and U.S. Navy; VHF RF Driver System for Argonne National Laboratory; radar transmitters for all three BMEWS sites; R&D and research tools that in-

clude dual-frequency, pencil-beam radar systems; solar research radars; and a multitude of other highly specialized super power equipment.

This catalog contains a sampling of the broadcast and closed circuit television equipment Continental can provide. For complete specifications, or for additional information on the specific products or product lines listed herein, contact your nearest Continental representative or address your inquiry to Dallas. We will make every effort to serve you quickly, efficiently, and at reasonable cost.

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