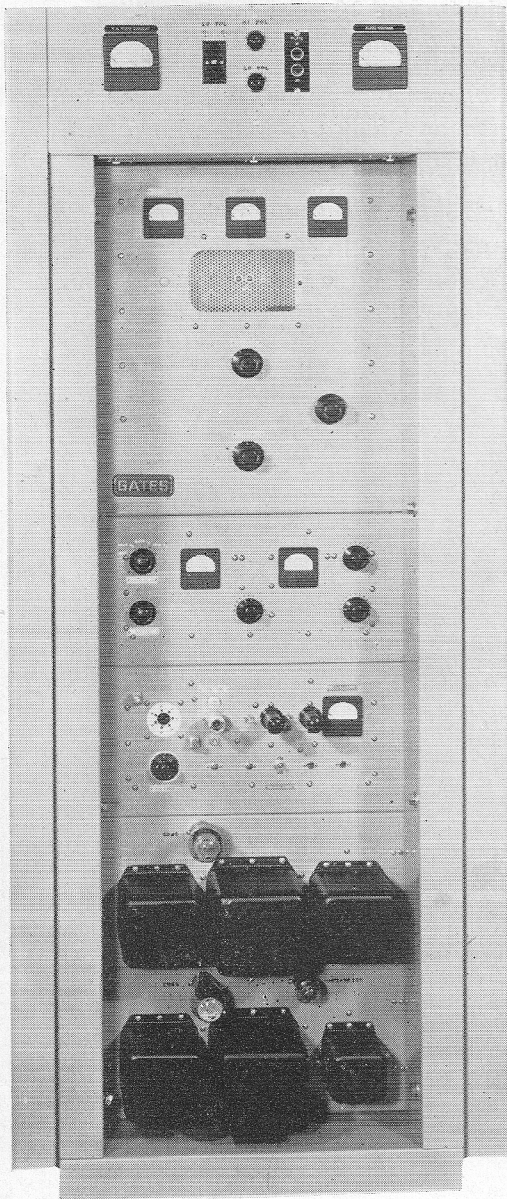
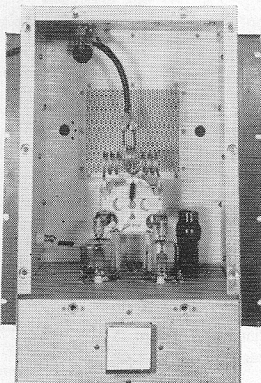
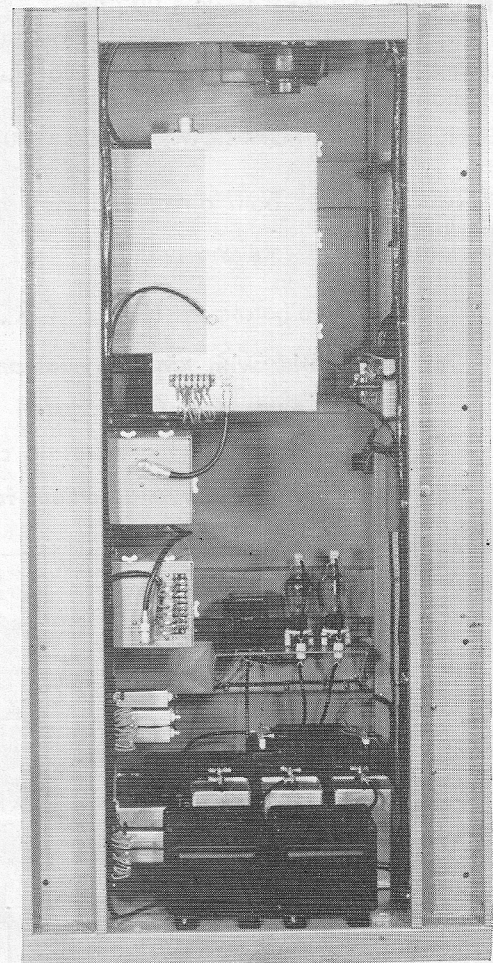


**GATES**

# 250/300 WATT SPECIAL PURPOSE VHF TRANSMITTER



A special transmitter with particular attention given to the requirements of Guided Missile and Doppler techniques in tracking and velocity measurements. Features rugged design, low harmonic radiation and extremely low carrier noise level along with exacting frequency stability.



Interior of completely shielded power amplifier section. Filaments of power amplifiers are supplied by direct current for lower carrier noise.

Rear view illustrates extreme care in design and manufacture in both interstage shielding and rugged construction.



# 250/300 WATT VHF PRECISION TRANSMITTER

This transmitter has been designed for special applications where highly stable equipment is mandatory such as in Guided Missile projects or any application where a better than the best commercial standard is required.

Second and higher order harmonics are attenuated 80 db or better by special attention to shielding and RF circuitry. Carrier noise is also maintained at 80 db or better below the carrier fundamental. This, in part, is accomplished by application of direct current to the filaments of the final power amplifier stage. — Carrier frequency can be

maintained at one part in 10 million over a period of at least 15 minutes and 10 parts in one million over periods of 8 hours or longer.

Designed for continuous duty, the M-5077 transmitter is fully metered and fully protected with a generous relay and circuit breaker system.

Also available are the M-5551 Dovap transmitter with frequency range of 30 to 40 Mc, and the M-5552 50 watt transmitter. (Same basic design as the M-5077). Write for specific information on these models.

## SPECIFICATIONS

**POWER OUTPUT:** 250/300 watts continuous duty.

**OUTPUT IMPEDANCE:** 51 ohms.

**POWER INPUT:** 115 volts, 50/60 cycles, from power line capable of 1.5KW.

**SIZE:** 66" high, 27 1/2" wide, 36" deep.  
Door swing 20".

**WEIGHT:** Net 750 lbs. Packed 990 lbs.  
Export wt. 1800 lbs. packed. Cubage 75.8.

**OSCILLATION:** Precision crystal control at fundamental approximately 4000 Kc.

**FREQUENCY RANGE OF TRANSMITTER:** 70-80 Mc as ordered.

**METERING:** 6 meters both direct and multimeter check all tube functions.

**COOLING:** Forced air to final PA chamber. Balance convex.

**NOISE:** 80 db or better below carrier.

**RF HARMONICS:** 80 db or better below fundamental (all harmonics) into 50 ohm resistive load.

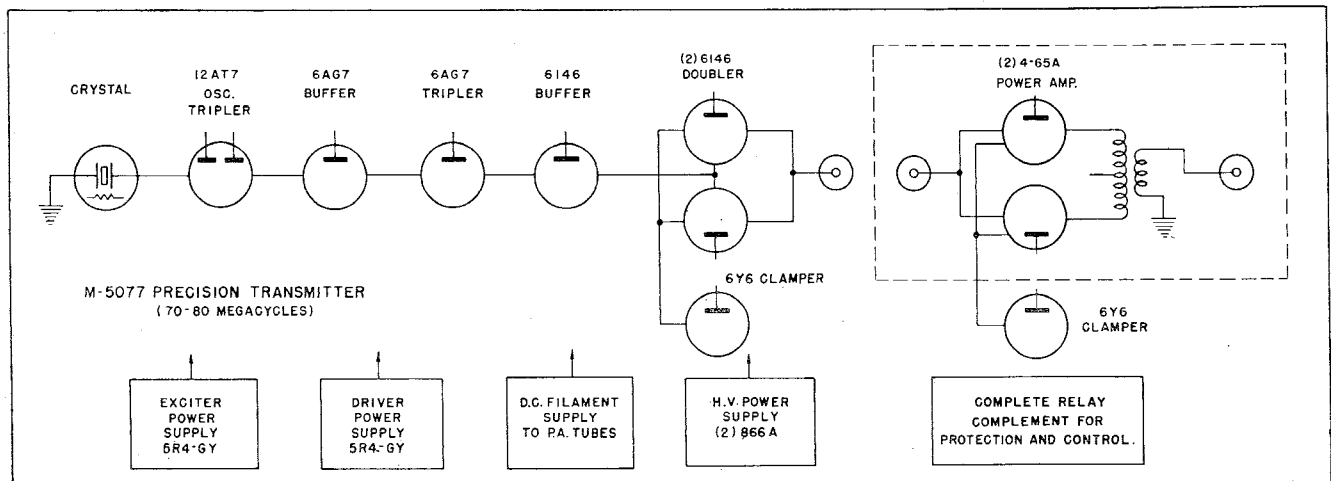
**FREQUENCY STABILITY:** One part in 10 million for 15-minute periods. 10 parts in one million over extended periods.

**KEYING:** Carrier may be interrupted with good square top wave form up to 60 WPM or 300 carrier breaks per minute.

**TUBES:** 3 each 6146; 2 each 6AG7, 4-65A, 6Y6G, VR150, 5R4GY, 866A; one 12AT7.

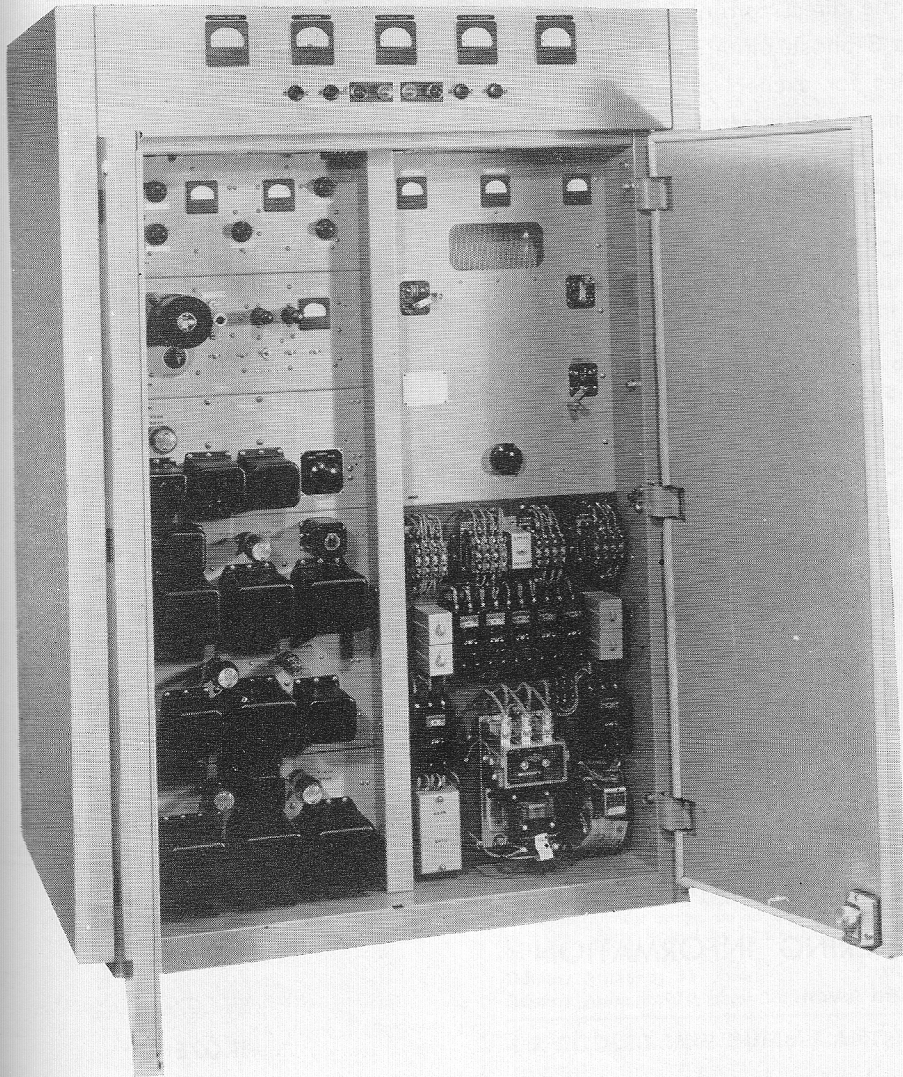
## ORDERING INFORMATION

Transmitter with tubes, crystal and oven .....	M-5077
Crystal oven only (less crystal) .....	JK07E
Crystal (for above oven), state carrier frequency .....	H18
Spare 100% tube complement for M-5077 transmitter .....	TK-199



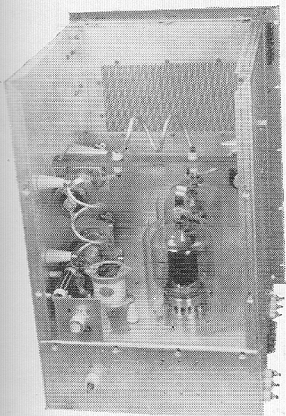
**GATES**

## 2KW VHF PRECISION TRANSMITTER

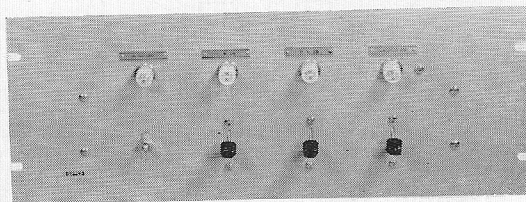


The Doppler technique used for velocity measurements in the testing of guided missiles and many similar applications requires a precision transmitter with the highest quality standards. The Gates M-5076 transmitter is designed for the 30-40 Mc band, produces a full 2KW output at continuous duty and has in-built features that meet exacting demands.

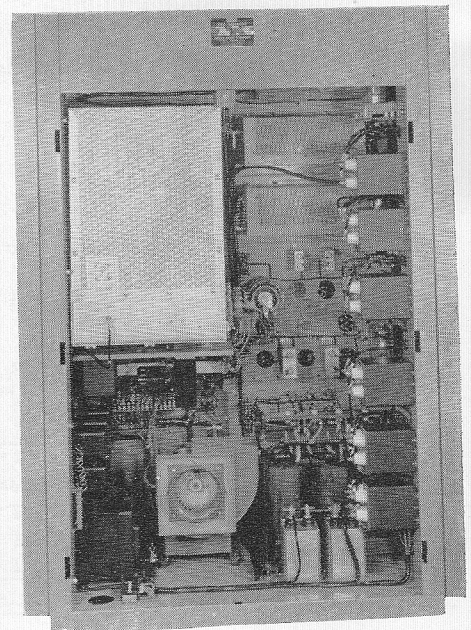
Rugged design including heavy duty front doors, low spurious radiation, low carrier noise and accurate frequency stability, provides a transmitter already proven in strategic services.



Power Amplifier Unit.



Remote control panel allows operation on as much as 10 miles of line.





# 2KW VHF PRECISION TRANSMITTER

Harmonic or spurious radiation, by use of shielding and choice of circuitry, at second and higher order harmonics is 80 db or better below fundamental carrier. Separate direct current filament supplies are provided for each of the 4-1000A power amplifier tubes, which along with the 3-phase plate supply assures carrier noise reduction of 80 db or better. Generous use of intermediate power supplies for exciter, driver, final PA screen and bias adds to both good regulation and reliability. A remote control unit as standard equipment, when operated on two standard telephone pairs, permits operation on as much as 10 miles of line. Transmitter may be turned on and off and keyed remotely. Carrier frequency may be held to one part in 10 million for 15-minute periods and 10 parts in one million for extended periods of 8 hours or longer.

## SPECIFICATIONS

**POWER OUTPUT:** Rated 2KW continuous but may be operated up to 4KW with reasonable off-on cycles.

**OUTPUT IMPEDANCE:** 51 ohms.

**POWER INPUT:** 230 volts, 50/60 cycles, 3-phase, with suggested 20KW primary source for best regulation. 115 volts required for inner cabinet service lights used.

**SIZE:** 66" high, 47" wide, 34½" deep.  
Back door swing 20".

**WEIGHT:** Net 1400 lbs. Packed 1900 lbs.  
Export wt. 2200 lbs. packed. Cubage 124.9.

**OSCILLATOR:** Precision crystal controlled at crystal frequency of approximately 4000 Kc.

**FREQUENCY RANGE:** 30-40 Mc as ordered.

**METERING:** 11 meters both direct and multimeter check all tube functions. An output meter indicates power output in watts and VSWR.

**COOLING:** Dual squirrel-cage blower for direct PA tube cooling and second for over-all cooling. Air intake is spun glass replaceable filter.

**RF HARMONICS:** 80 db or better below fundamental at second and higher order harmonics.

**NOISE:** 80 db or better below carrier.

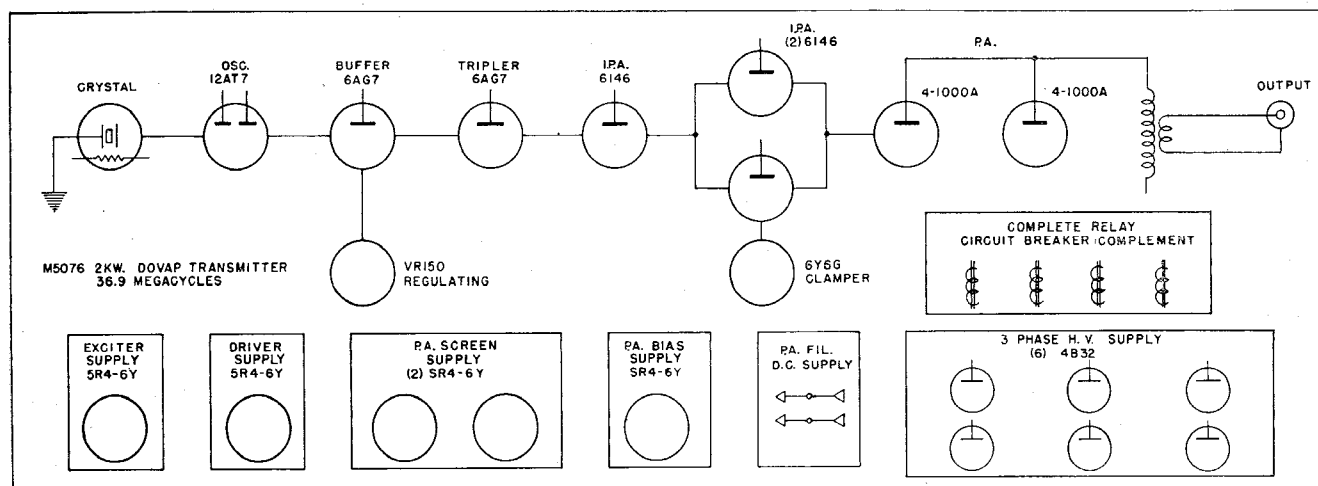
**KEYING:** Carrier may be interrupted with good square top wave form at 60 WPM or 300 carrier breaks per minute.

**FREQUENCY STABILITY:** One part in 10 million for 15-minute periods. 10 parts in one million for extended periods of 8 hours or longer.

**TUBES:** (6) 4B32, (5) 5R4G, (3) 6146, 2 each 6AG7, 4-1000A, VR150, 1 each 6Y6G, 12AT7 and 6X56T (in remote control unit).

## ORDERING INFORMATION

Transmitter with tubes, crystal and oven .....	M-5076
Crystal oven (less crystal) .....	JK07E
Crystal (or above oven), state carrier frequency .....	H-18
Spare 100% tube complement for M-5076 transmitter .....	TK-198





## BFR-50C FM RELAY TRANSMITTER

Designed for 50 watt FM service and available at any frequency between 40 and 220 Mc and for any frequency swing. Models below 80 Mc have maximum swing of  $\pm 40$  Kc or less, as desired. Above 80 Mc may be  $\pm 75$  Kc or less, as desired. General specifications of this model are found on Pages 64 and 65 (Model BF-E-50B). This model differs as outlined above and has (1) 5894 tube, (1) 6AQ5 tube, and (1) 5R4GYA tube added.

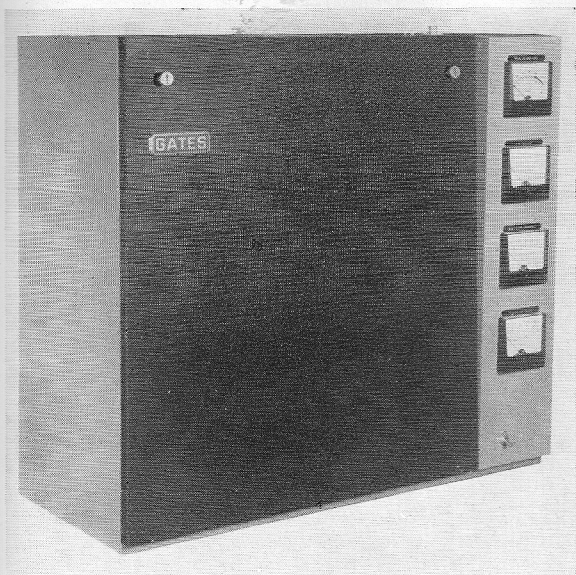
Multiplex is also available as an optional accessory in single or dual sub-channels. In relay service this offers many possibilities such as a talking channel or second program channel.

Where the full, wide frequency response is not desired, the BFR-50C transmitter may be used with the communications "Limiter/Filter Amplifier" listed on Page 206.

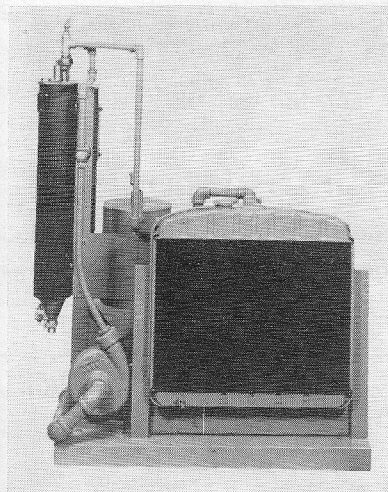
### ORDERING INFORMATION

50 watt relay transmitter for 40-220 Mc operation, with tubes, crystal and oven*	BFR-50C
Spare 100% tube kit for above	TK-310
Single multiplex sub-channel	M-5633A
Dual multiplex sub-channel	M-5633

\* State carrier frequency and frequency swing desired, when ordering.



### VHF 5KW DUMMY ANTENNA (heat exchanger)



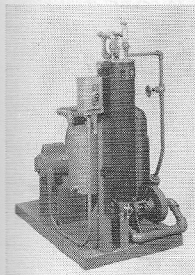
Self-contained, water cooled 5KW antenna to operate up to 5KW power and up to 500 Mc. Impedance 51 ohms. Consists of 1 HP electric motor driven pump and fan which cools water circulating through radiator to dummy antenna. Overflow reservoir provided. For testing high frequency transmitter in VHF and UHF bands. Has direct reading power indicating watt meter.

SIZE: 25" wide, 39 1/2" deep, 36" high.

POWER: 5KW continuous at 500 Mc (half rating if AM modulated).

RADIATOR: 18 quarts water or approved anti-freeze.

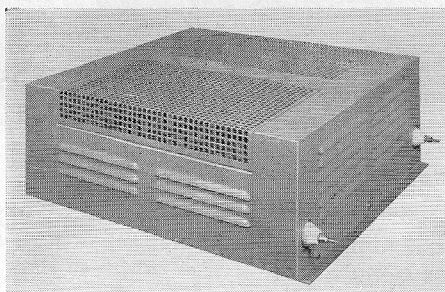
COOLING: 900 BTU.



VHF Dummy Antenna ..... M-5508

NOTE: Other higher power rating heat exchangers are available on special order. Prompt quotations on receipt of (a) power rating, (b) impedance, and (c) frequency of operation.

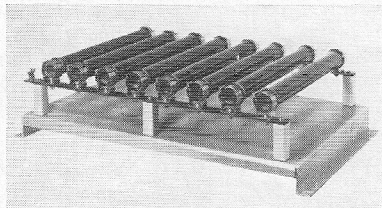
### AIR COOLED 5KW DUMMY ANTENNA



Though designed primarily as a dummy antenna for testing 5KW broadcast transmitters, this unit may be used between 200 Kc and 6 Mc with excellent results. Includes series of wire-wound non-inductive resistance elements. Power rating based on 100% modulation at 5KW. Fully housed as illustrated. Size: 27 1/2" x 26" x 10 1/4" high.

Dummy Antenna, 51 ohms	DU-551
Dummy Antenna, 70 ohms	DU-570

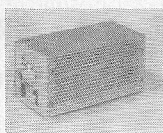
### AIR COOLED 1KW DUMMY ANTENNA



This unit may be used for any transmitter between 200 Kc and 6 Mc at a maximum power rating of 1KW, 100% modulated. Consists of non-inductive resistors heavily banded together to arrive at correct load resistance. Size: 20 1/4" x 12 5/8" x 5" high.

Dummy Antenna, 51 ohms	DU-151
Dummy Antenna, 70 ohms	DU-170

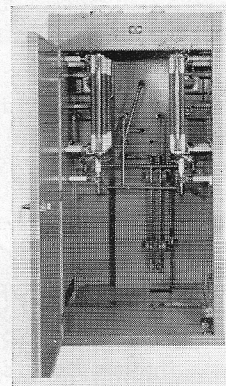
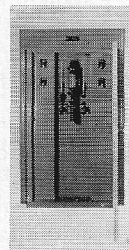
### VHF 10-WATT DUMMY



Designed for measuring BF-E-10B transmitter, listed on Page 64. Power rating 10 watts at 50-250 Mc. Has Type N connector for attaching RG-8U cable. Ideal for measuring low powered VHF transmitters including many types of police transmitters, etc. Impedance 50 ohms.

VHF Dummy Antenna ..... M-5645

### WATER COOLED DUMMY ANTENNAS



Available in 25KW and 50KW designs for broadcast and high frequency service. Ratings are at 100% amplitude modulation and 50% may be added where unmodulated. — High frequency models are provided with variable coil and variable capacitor elements for tuning out reactance. Medium frequency models are straight resistance elements.

Paralleled wire resistance elements are precision supported in a water-tight glass enclosure around which filtered water is evenly distributed. Dual thermometers measure water temperature in and out and the differential is measured in power.

### SPECIFICATIONS

WATER FLOW: (50KW) 15 gal. per min.  
(25KW) 12 gal. per min.

LOAD RESISTANCE: Available in 50, 70, 150, 300 and 600 ohms, as ordered. High frequency models available 300 and 600 ohms only.

SIZE: 78" high, 42" wide, 48 1/2" deep.

### ORDERING INFORMATION

25KW model, 540-1600 Kc	M-4750A
25KW model, 2-25 Mc	M-4750
50KW model, 540-1600 Kc	M-5497
50KW model, 2-25 Mc	M-5497A

Above models built to order. Be sure and state power rating and frequency when ordering.

**GATES**

## COMMUNICATIONS — LIMITER/FILTER AMPLIFIER



Designed to provide microphone and line input to any communications transmitter. Embodies both limiting amplifier and high frequency cut-off filter to meet present FCC specifications. Ideal for use with new transmitters or existing communications transmitters in modernizing them to meet current FCC requirements by reducing high frequency response above 3000 cycles, and providing a fast acting limiting amplifier to prevent over-modulation of the transmitter.

Provides input circuits for either a high impedance microphone or 600 ohm line — switchable from front panel. Gain controls are provided for adjusting level of: (a) input line, (b) master gain and microphone level, and (c) input level to transmitter. A 3" meter is provided to indicate compression point.

Available in two types. M-5263 has a maximum output of +18 dbm at 600 ohms. M-5263A has a maximum output of 75 volts RMS for push-pull 100,000 ohm grids. Both models have self-contained power supply.

### SPECIFICATIONS

**INPUT IMPEDANCES:** Mic. Hi-Z. Line 600 ohms.  
**OUTPUT IMPEDANCES:** M-5263, 600 ohms. M-5263A, 100,000 ohms.  
**GAIN:** M-5263, from line to output 56 db, from mic to output 86 db +3 db. M-5263A, line to output 42.5 db, mic to output 72 db +3 db.  
**COMPRESSION:** (Min. threshold) mic -63 db +3 db. Line -33 db +3 db.  
**NOISE:** 45 db or better below +18 dbm output. Measured with input of -55 dbm and 5 db compression.  
**DISTORTION:** At compression levels up to +20 db does not exceed 5%. At compression levels up to 30 db does not exceed 10%.  
**FREQUENCY RESPONSE:** With high frequency filter insert at all times, essentially flat at 200-2500 cycles. Down 10 db at 100 and 3300 cycles. Down 20 db at 60 and 4000 cycles. Down 30 db at 35 and 4000 cycles. Down 40 db at 20 and 4800 cycles.  
**POWER:** 115 volts, 50/60 cycles, approximately 40 watts.  
**TUBES:** One each, 6X4, 6AK6, 5879, OA2; two each 12AT7.

### ORDERING INFORMATION

Communications Amplifier, less tubes ..... M-5263  
Communications Amplifier, less tubes ..... M-5263A  
100% tube kit ..... TK-235

## SELECTIVE (HETERODYNE FILTER) AMPLIFIER



### SPECIFICATIONS

**INPUT IMPEDANCE:** 600 ohms.  
**INPUT LEVEL:** Approximately 0 VU.  
**FREQUENCY RESPONSE:** +1 db 20-20,000 cycles.  
**DISTORTION:** 1 1/2% or less 20-20,000 cycles at +18 dbm.  
**NOISE:** 70 db or better below +18 dbm.  
**REJECTION:** 40 db up at 220 cycles and 50 db up at 220-20,000 cycles.  
**TUBES:** Four 6SN7, three 6SJ7, one each OC3, OD3 and 5Y3GT.  
**SIZE:** 19" wide, 5 1/4" high, 16 1/2" deep.  
**POWER:** 115 volts, 50/60 cycles at approximately 60 watts.  
**SHIPPING WEIGHT:** 35 lbs.

Where receiving high frequency signals, the heterodyning of closely associated incoming signals, or two receivers beating at an audio rate, causes receiving difficulties which can often be either greatly improved or completely corrected by the use of the M3922 selective amplifier. Where the interference tone remains constant, the elimination of any single audio frequency between 20-20,000 cycles is possible. If several interference tones are present, selective amplifiers may be placed in series and each undesirable tone reduced or eliminated so that readability of the received signal is greatly improved.

Basic principle is that of a selective audio filter, usually attached ahead of the audio system in the receiver or where attached to the 600 ohm output, a fixed pad should be inserted to provide input level. An additional amplifier is required in the latter case to provide loudspeaker level. Interference tone rejection coverage between 20-20,000 cycles is by means of a calibrated switch plus coarse and fine adjustments. Audio level control, pilot light, fuse and starting switch complete the front panel facilities.

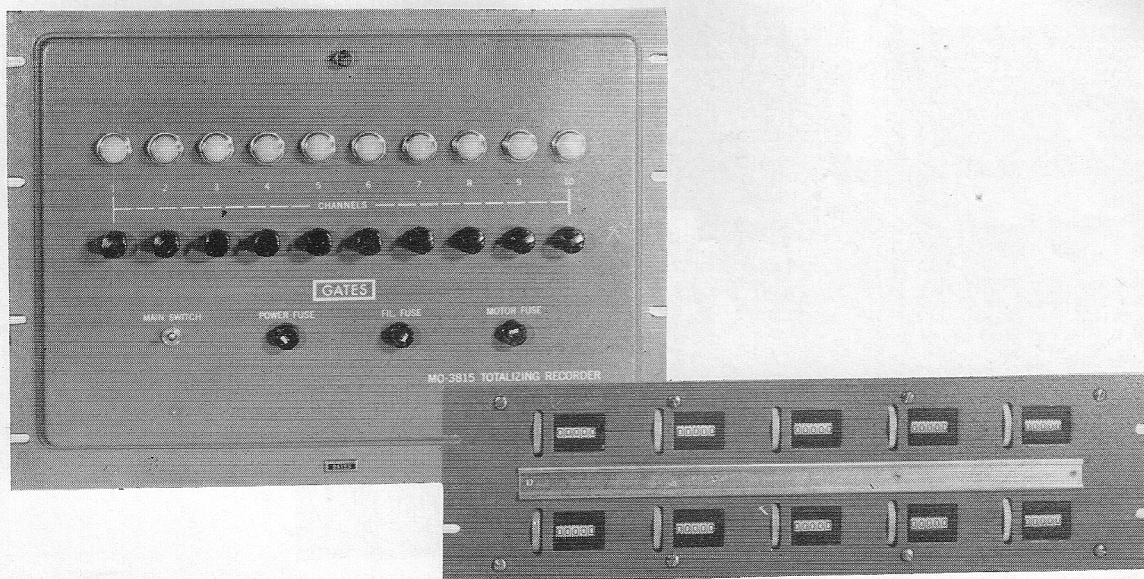
### ORDERING INFORMATION

Selective Amplifier with tubes ..... M-3922  
Spare 100% tube complement ..... M-4138

Where customer requirements exceed 25 units, write for special quantity prices.

**GATES**

## TOTALIZING RECORDER



Gates MO-3815 Totalizer is a precision unit used to record the time a signal is at or above a pre-selected value. It is widely used for measuring the field intensity of high frequency signals in propagation tests. It is designed for extreme accuracy and stability over long periods of time. The most discriminating customers have found nothing lacking in its performance.

Used with a high quality receiver and fed off the rectified output. The input voltage range of the Totalizer is 0 to -10 volts DC. Any of the ten channels may be set to any voltage within this range. The sensitivity of the Totalizer is guaranteed to be within .05 volts DC input, however average readings are from .002 to .005 volts. This sensitivity is the difference in the voltage required to energize the channel and to de-energize it. Thus, a channel may be set up to energize with nine volts input and will de-energize when the signal drops to 8.998 volts. The isolation between any or all of the ten channels is great enough to permit setting them up in an increasing sequence of .05 volts apart, yet no interaction of channels will occur.

Each channel, when energized, starts a synchronous one RPM motor that drives a Veeder-Root counter. The counter reads in tenths of minutes and will total up to 9,999.9 minutes. A front panel reset wheel allows resetting from any reading to zero with one revolution of the wheel. The control unit and the counter unit are separate.

**CONSTRUCTION:** Totalizer recorder: 14"x19" cast aluminum panel and shelf with drop down front door for component servicing. Finish, gray. Counter panel: 5 1/4"x19". Finish, gray.

**TUBES:** Eleven 6SL7, ten 6SJ7, one each 6Y6G, 6SN7GT, OD3.

**RELAYS:** Hermetically sealed.

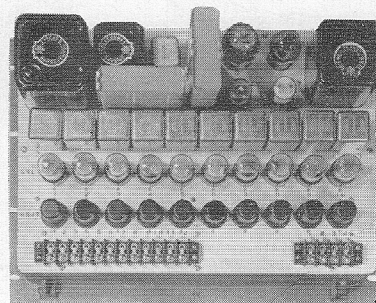
**POWER:** 115 volts, 60 cycles, approximately 200 watts.

**EQUIPMENT SUPPLIED:** Totalizing recorder amplifier, totalizing counter panel, 10' interconnecting cable, 100% set tubes.

The M-3815 Totalizer is also available less the counter panel where other indicating devices are preferred to that of the direct reading counter.

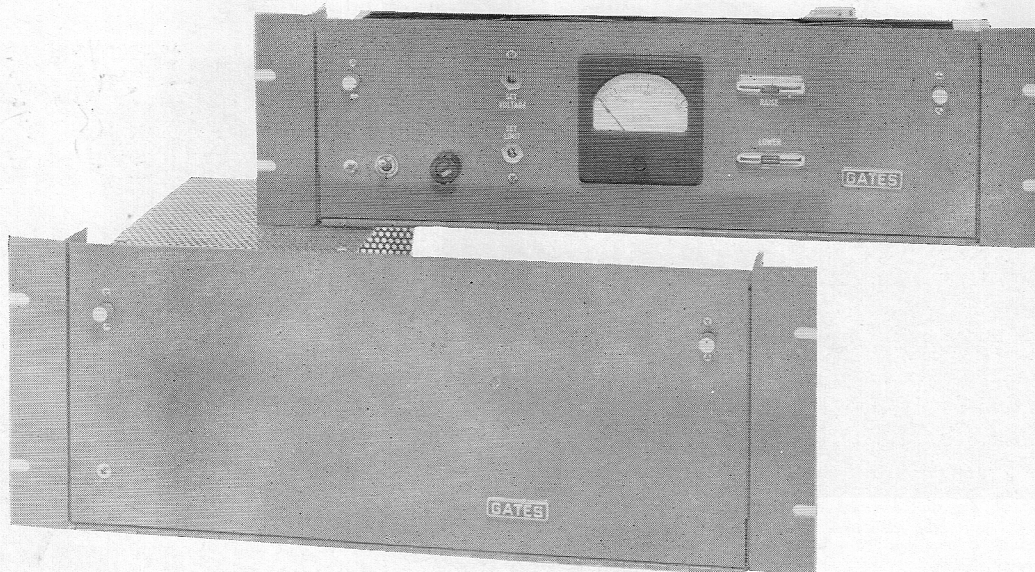
### ORDERING INFORMATION

Totalizer complete with counter panel and tubes (as illustrated) .....	M-3815
Totalizer unit with tubes but less counter panel ....	M-5507
100% spare tube kit .....	TK-230

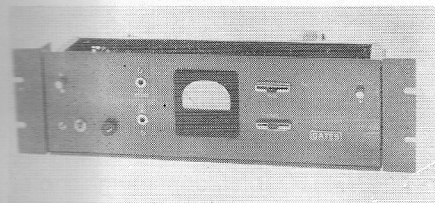


**GATES**

# ELECTRONIC VOLTAGE REGULATORS

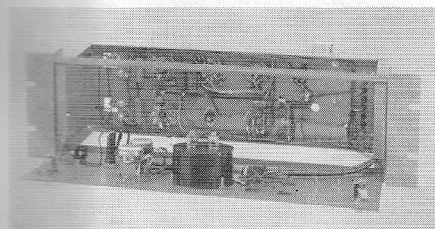


Available in ranges from 1 KVA to 70 KVA and in one or three phase systems. All models consist of two units: (1) the rack or cabinet type electronic control unit requiring only 5 1/4"x19" of panel space, and (2) the rack or cabinet model motor driven variable transformer in 1 KVA or 2 KVA sizes. As the electronic voltage regulator is a device to move forward or backward a motor driven variable transformer, there is no problem in wave form distortion such as often accompanies many types of regulators. The speed of voltage reset is fast enough for excellent operation with varying loads such as a Class B modulator. In addition, less than maximum loads will in no way upset either the regulation or wave form.



Front of rack mount M-5294 electronic regulator control panel.

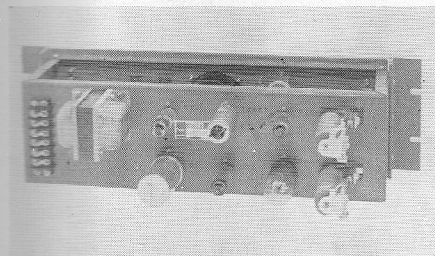
For all power ratings the M-5294 electronic control unit is identical, always consuming only 5 1/2"x19" of rack space, or approximately 7"x21"x10" if cabinet type is for wall mounting. The electronic regulator may be adjacent or several hundred feet from the motor driven variable transformer. Six interconnecting wires are required between the two units—no larger than 16 AWG regardless of distance.



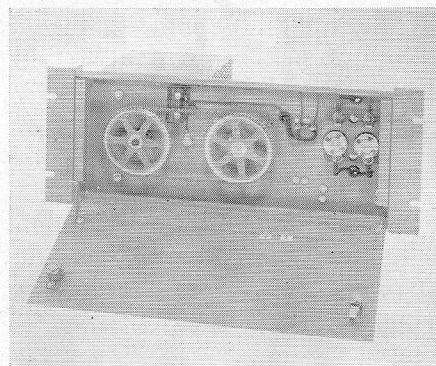
Front panel of M-5294 electronic regulator drops down so all components can be reached.

Models for 115 and 230 volts, as well as single and 3 phase are available. All models are rated for either 50 or 60 cycles.

Outstanding feature of all models is the absolute regulation regardless of load conditions. As the electronic regulator actually operates from the output of the regulated supply, it is continually seeking to find the correct voltage if the load is full or zero. Though adjustment may be made for regulation as close as  $\pm 1$  volt, the regulator may be adjusted for looser tolerances if the applied load is not that critical. In this case the operation of the motor unit is less frequent, reducing wear.



Rear M-5294 electronic regulator. There are no external components other than the motor driven variable transformer unit.



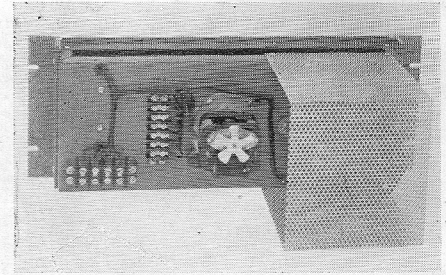
Front panel drop down view of the 1 KVA or 2 KVA models. These models will hold within  $\pm 1$  volt at any load up to maximum where input voltages vary  $\pm 20\%$ . Ideal for rack or smaller installations for TV, radio and hundreds of industrial applications.





## ELECTRONIC VOLTAGE REGULATORS

Principle of operation is by no means complex, yet extremely positive. The electronic control section operates from the output voltage present at the load point of the motor driven variable transformer. This, in turn, is adjusted by the electronic control unit M-5294 to be independent of the current consumed by the load. Control tube is a sharp cut-off pentode which has a large change in plate current in ratio to grid voltage. This tube, with other circuit components and tubes, operates sensitive relays of about 1 MA current. These relays handle the forward/reverse action of the motor driving the variable transformer. — The operator may adjust from the front panel of the M-5294 regulator, the exact output voltage desired. For example, a 230 volt model may be set for 208 volts output and maintain regulation at this point.



Rear of M-5295 rack mount motor driven variable transformer unit. M-5314, 2 KVA model is identical. Rack space is only 7"x19" or total for M-5294 electronic regulator and 1 or 2 KVA variable transformer unit is only 12 1/4"x19" of rack space.

The experienced engineer is well acquainted with the need for proper line voltages. For industrial applications the need is so great that even suggesting applications would consume pages. For radio and television broadcasting, the lack of uniform voltages at many critical points of both studio and transmitter operation may disrupt or greatly impair transmission.

### SPECIFICATIONS

**SIZE:** M-5294 regulator; rack model, 5 1/2"x19"x8 1/2" deep.  
 M-5294A cabinet model regulator, 5 1/2"x19"x10" deep.  
 M-5295 complete 1 KVA regulator, 12 1/4"x19"x8 1/2" deep.  
 M-5295A complete 1 KVA cabinet model, 14"x21"x10" deep.  
 M-5314 complete 2 KVA regulator, 12 1/4"x19"x8 1/2" deep.  
 M-5314A complete 2 KVA cabinet model, 14"x21"x10" deep.

**REGULATION:** ±17% variation of input voltage will allow constant output voltage as close as ±1%, regardless of load.

**TUBES:** 6X4, 12AT7, 6AU6.

**FINISH:** Medium gloss gray.

### ORDERING INFORMATION

#### 115 Volt, 50/60 Cycle Automatic Voltage Regulators, Single Phase

Rating	Style	Cat.
1 KVA	Rack Mounted .....	M-5295
1 KVA	With Wall Mounted Control Unit .....	M-5295A
2 KVA	Rack Mounted .....	M-5314
2 KVA	With Wall Mounted Control Unit .....	M-5314A
6 KVA	With Rack Mounted Control Unit .....	M-5315
6 KVA	With Wall Mounted Control Unit .....	M-5315A
15 KVA	With Rack Mounted Control Unit .....	M-5316
15 KVA	With Wall Mounted Control Unit .....	M-5316A

#### 230 Volt, 50/60 Cycle Automatic Voltage Regulators, Single Phase

2.4 KVA	Rack Mounted .....	M-5317
2.4 KVA	With Wall Mounted Control Unit .....	M-5317A
7.5 KVA	With Rack Mounted Control Unit .....	M-5318
7.5 KVA	With Wall Mounted Control Unit .....	M-5318A
27.5 KVA	With Rack Mounted Control Unit .....	M-5319
27.5 KVA	With Wall Mounted Control Unit .....	M-5319A

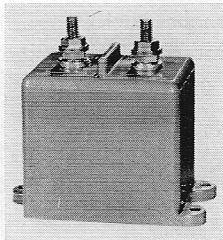
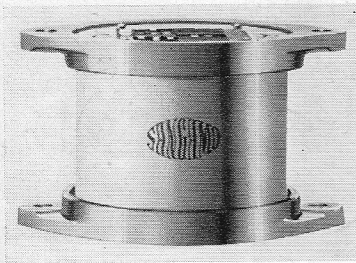
#### 230 Volt, 50/60 Cycle Automatic Voltage Regulators, Three Phase

10 KVA	With Rack Mounted Control Unit .....	M-5320
10 KVA	With Wall Mounted Control Unit .....	M-5320A
20 KVA	With Rack Mounted Control Unit .....	M-5321
20 KVA	With Wall Mounted Control Unit .....	M-5321A
45 KVA	With Rack Mounted Control Unit .....	M-5322
45 KVA	With Wall Mounted Control Unit .....	M-5322A
70 KVA	With Rack Mounted Control Unit .....	M-5323
70 KVA	With Wall Mounted Control Unit .....	M-5323A

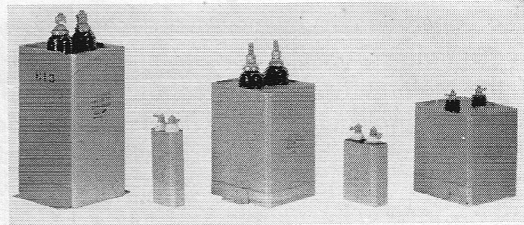
NOTE: For Voltages higher than 230 volts, prices on application.



# MICA AND FILTER CAPACITORS



TYPE F



Type F2 Mica Capacitors

F2-545	.0005	5000
F2-531	.0001	5000
F2-5315	.00015	5000
F2-532	.0002	5000
F2-5325	.00025	5000
F2-533	.0003	5000
F2-534	.0004	5000
F2-535	.0005	5000
F2-536	.0006	5000
F2-5375	.00075	5000
F2-538	.0008	5000
F2-521	.001	5000
F2-5215	.0015	5000
F2-522	.002	5000
F2-5225	.0025	5000
F2-523	.003	5000
F2-424	.004	4000
F2-325	.005	3000
F2-326	.006	3000
F2-328	.008	3000
F2-211	.01	2000
F2-2115	.015	2000
F2-212	.02	2000
F2-213	.03	2000
F2-1514	.04	1500
F2-1515	.05	1500
F2-0501	.1	500
F2-0202	.2	250
F2-02025	.25	250

Type	Capacity
7106-2	2— 600 volts DC
7106-4	4— 600 volts DC
7106-8	8— 600 volts DC
7106-10	10— 600 volts DC
7110-2	2—1000 volts DC
7110-4	4—1000 volts DC
7110-8	8—1000 volts DC
7110-10	10—1000 volts DC
7120-2	2—2000 volts DC
7120-4	4—2000 volts DC
7120-8	8—2000 volts DC
7120-10	10—2000 volts DC
7130-2	2—3000 volts DC
7130-4	4—3000 volts DC
7130-8	8—3000 volts DC
7140-2	2—4000 volts DC
7140-4	4—4000 volts DC
7140-6	6—4000 volts DC
7150-2	2—5000 volts DC
7150-4	4—5000 volts DC
7160-1	1—6000 volts DC
7160-2	2—6000 volts DC
7175-1	1—7000 volts DC
7175-2	2—7000 volts DC
TK70040	4—7000 volts DC

Catalog Number	Capacity Mfd.	Peak Wkg. Volts
<b>Type G1</b>		
G1-641	.00001	6000
G1-645	.00005	6000
G1-631	.0001	6000
G1-632	.0002	6000
G1-634	.0004	6000
G1-635	.0005	6000
G1-621	.001	6000
G1-6215	.0015	6000
G1-622	.002	6000
G1-623	.003	6000
G1-624	.004	6000
G1-625	.005	6000
G1-526	.006	5000
G1-511	.01	5000
G1-4115	.015	4000
G1-312	.02	3000

Type G4

Catalog Number	Capacity Mfd.	Peak Wkg. Volts
G4-3043	.00003	30000
G4-3045	.00005	30000
G4-3031	.0001	30000
G4-30315	.00015	30000
G4-30325	.00025	30000
G4-3035	.0005	30000
G4-3038	.0008	30000
G4-3021	.001	30000
G4-25215	.0015	25000
G4-2022	.002	20000
G4-2023	.003	20000
G4-2024	.004	20000
G4-1525	.005	15000
G4-1526	.006	15000
G4-1228	.008	12000
G4-1011	.01	10000
G4-612	.02	6000
G4-514	.04	5000

Type G5

Catalog Number	Capacity Mfd.	Peak Wkg. Volts
G5-5045	.00005	50000
G5-3531	.0001	35000
G5-35325	.00025	35000
G5-3534	.0004	35000
G5-3535	.0005	35000
G5-3521	.001	35000
G5-3022	.002	30000
G5-30225	.0025	30000
G5-3023	.003	30000
G5-2525	.005	25000
G5-2026	.006	20000
G5-1511	.01	15000

Type F1 Mica Capacitors

Catalog Number	Capacity Mfd.	Peak Wkg. Volts
F1-341	.00001	3000
F1-345	.00005	3000
F1-331	.0001	3000
F1-3315	.00015	3000
F1-332	.0002	3000
F1-3325	.00025	3000
F1-333	.0003	3000
F1-334	.0004	3000
F1-335	.0005	3000
F1-336	.0006	3000
F1-3375	.00075	3000
F1-338	.0008	3000
F1-321	.001	3000
F1-3215	.0015	3000
F1-322	.002	3000
F1-3225	.0025	3000
F1-223	.003	3000
F1-224	.004	2000
F1-225	.005	2000
F1-226	.006	2000
F1-1528	.008	1500
F1-111	.01	1000
F1-112	.02	1000
F1-0215	.05	250
F1-0201	.1	250

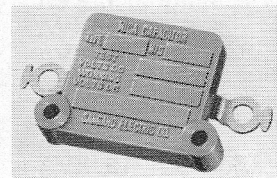
Type F3 Mica Capacitors

Catalog Number	Capacity Mfd.	Test Volts D. C.
F3-8325	.00025	8000
F3-835	.0005	8000
F3-821	.001	8000
F3-822	.002	8000
F3-825	.005	8000
F3-811	.01	8000
F3-415	.05	4000
F3-201	.1	2000
F3-06025	.25	600
F3-0605	.5	600
F3-0610	1.0	600

## TYPE E

Catalog Number	Capacity Mfd.	Test Volts D. C.
E-1245	.00005	12500
E-1231	.0001	12500
E-12325	.00025	12500
E-1235	.0005	12500
E-1221	.001	12500
E-12215	.0015	12500
E-1222	.002	12500
E-1023	.003	10000
E-1024	.004	10000
E-1025	.005	10000
E-721	.001	7000
E-722	.002	7000
E-723	.003	7000
E-711	.01	7000
E-3524	.004	3500
E-3525	.005	3500
E-3511	.01	3500
E-3512	.02	3500
E-3515	.05	3500
E-215	.05	2000
E-201	.1	2000

TYPE E



TYPE H

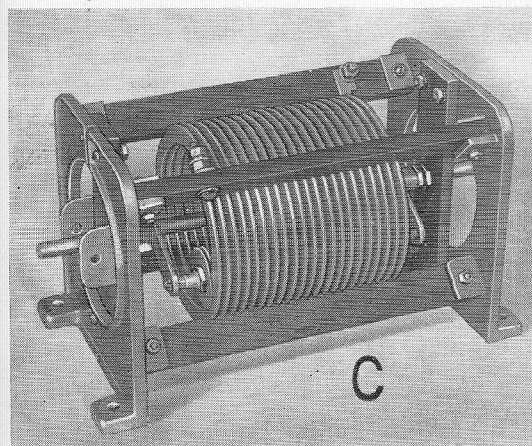
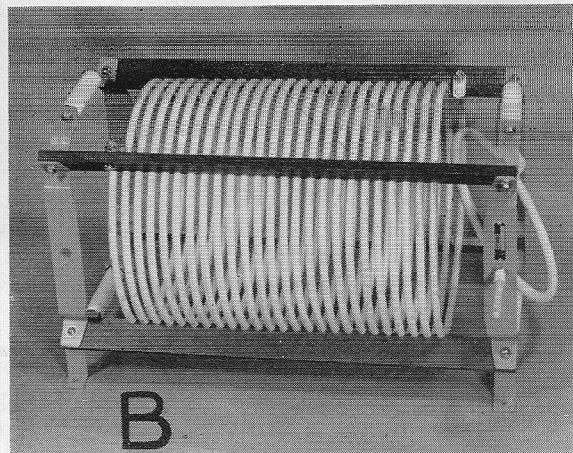
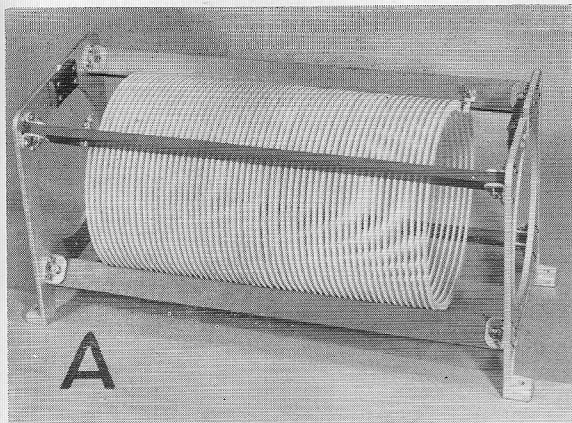
## MICA CAPACITORS

### 1200 W.V.D.C.

Type	Capacity	Test Volts D. C.
H-T2450	.00005	\$0.96
H-T2310	.0001	.96
H-T2320	.0002	.96
H-T2325	.00025	.96
H-T2330	.0003	.96
H-T2340	.0004	.96
H-T2350	.0005	.96
H-T2210	.001	1.08
H-T2215	.0015	1.38
H-T2220	.002	1.44
H-T2225	.0025	1.68
H-T2230	.003	1.83
H-K2240	.004	1.83
H-K2250	.005	1.98
H-K2260	.006	1.98
H-K2280	.008	2.31
H-K2110	.01	3.06

**GATES**

# INDUCTORS, VARIABLE AND FIXED

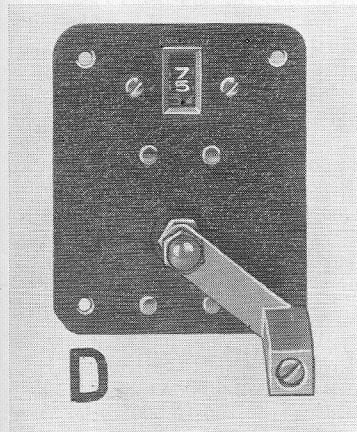


Used in both Gates and many other makes of transmitters and phasing equipment. Variable coils have cast aluminum end bells with double gripping bearing wheels. All types are micalex insulated and silver plated.

**LEGEND:**

- FA**—Fixed 1/4" edgewise, 10 amp. rating, Fig. A
- FB**—Fixed 3/8" edgewise, 15 amp. rating, Fig. A
- FC**—Fixed 1/2" edgewise, 20 amp. rating, Fig. A
- FBT**—Fixed 3/8" copper tubing, 30 amp. rating, Fig. B
- FCT**—Fixed 1/2" copper tubing, 40 amp. rating, Fig. B
- VB**—Variable 3/8" edgewise, 15 amp. rating, Fig. C
- VC**—Variable 1/2" edgewise, 20 amp. rating, Fig. C

Ind. uh	Length	Diam.	Cat. No.	Ind. uh	Length	Diam.	Cat. No.
87	12 1/16"	4"	87FA4634	17	8 3/4"	4"	17FC1654
6	5 15/16"	4"	6FB0854	24	8 3/4"	5"	24FC1655
10	5 15/16"	5"	10FB0855	32	8 3/4"	6"	32FC1656
13	5 15/16"	6"	13FB0856	42	12 5/8"	6"	42FC2266
18	8 3/4"	4"	18FB1754	67	13 1/16"	6"	67FC2856
26	8 3/4"	5"	26FB1755	78	16"	8"	78FC2568
35	8 3/4"	6"	35FB1756	10	12 1/2"	6"	10FBT1066
58	10 3/8"	5"	58FB2845	32	15"	8"	32FBT1658
78	10 3/8"	6"	78FB2846	45	18 1/2"	8"	45FBT2158
128	12 1/8"	5"	128FB4635	65	24 1/2"	9"	65FBT2559
6	6 1/4"	4"	6FC0854	17	14"	8"	17FCT1178
10	6 1/4"	5"	10FC0855	35	24 1/2"	9"	35FCT1779-C
13	6 1/4"	6"	13FC0856				



**VARIABLE COILS**

Ind. uh	Length	Diam.	Cat. No.	Ind. uh	Length	Diam.	Cat. No.
6	8"	4"	6VC0854	16	9 1/8"	4"	16VB1544
15	10 3/4"	4"	15VC1444	30	11 1/8"	4"	30VB2344
26	10 3/4"	4"	26VC2144	105	12 1/2"	5"	105VB3735

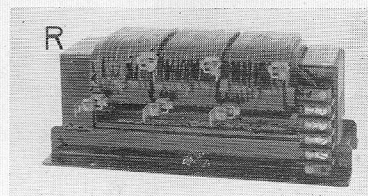
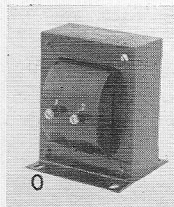
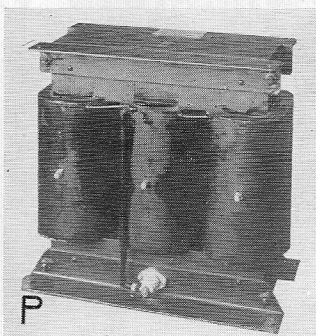
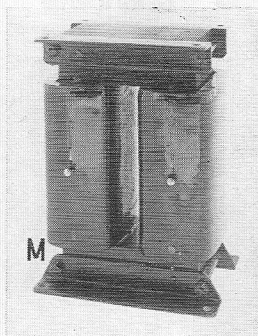
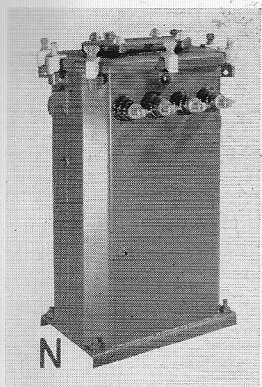
**CLIPS**

- LC4 For 1/4" edgewise FA coils
- LC6 For 3/8" edgewise FB coils
- LC8 For 1/2" edgewise FC coils
- RC6 For 3/8" tubing FBT coils
- RC8 For 1/2" tubing FCT coils

**DIAL FOR VARIABLE COIL**

M3401F Veeder counter geared type, reads to 1/10 turn. 1/4" diam. shaft. Fig. D.

**TRANSFORMERS FOR BROADCASTING**



These quality transformers are for radio broadcasting, communications and in many instances, television transmitters are regularly carried in stock and are of such specialized design they will not be found elsewhere. If you are modernizing, building your own or need a replacement transformer, you need not wait for it to be specially built as the Gates stock is in most cases immediately available.

**Transformers for 250 Watts**

- MODULATION TRANSFORMER:** Primary for PP Class B, 810 tubes. Secondary 4000 ohms no current in Sec. Response 30-10,000 cycles  $\pm 1$  db. Fully cased. 7 1/4" high, 6 1/8" wide, 5 1/4" deep. .... **BM-1**
- MODULATION REACTOR:** For use with modulation transformer BM-1 above. Inductance 65 hy. Current 250 MA  $\pm 1$  db, 30-10,000 cycle response. Fully cased. Size matches BM-1. .... **BR-1**
- DRIVER TRANSFORMER:** Primary PP 6L6, 1622, etc. Secondary Class B, 810 tube grids. Chassis mounting, fully cased. Response  $\pm 1$  db, 30-10,000 cycles. .... **BD-1**
- POWER TRANSFORMER:** Primary 215/230/245 volts, 50/60 cycles. Secondary 1700-0-1700 volts at 0.85 amperes continuous duty 3% regulation under Class B modulation. Case Style M. .... **AP-7235**
- SWINGING CHOKE:** 5-25 hy. at 500 MA. 52 ohms resistance. 7000V insulation. Round case, base terminals. .... **CG-109**
- SMOOTHING CHOKE:** 25 hy. at 300 MA. 90 ohms resistance. 5000V insulation. Round case, base terminals. .... **CG-105**

**Transformers for 500 Watts**

- MODULATION TRANSFORMER:** Primary for PP Class B, 833A tubes. Secondary 6400 ohms no current in Sec. Response  $\pm 1$  db, 30-10,000 cycles. Case Style M. .... **AM-30613**
- MODULATION REACTOR:** For use with above modulation transformer. 50 hy. at 350 MA. 225 ohms resistance. Response  $\pm 1$  db, 30-10,000 cycles. Case Style M. .... **AC-10650**
- DRIVER TRANSFORMER:** For PP 845 tubes or similar Class A to PP 833A Class B grids.  $\pm 1$  db, 30-10,000 cycles. Chassis mount. .... **AS-3172C**
- POWER TRANSFORMER:** Primary 230 volts, 50/60 cycles. Secondary 2335-0-2335 volts at 0.46 amperes continuous duty to deliver 2000 volts at 650 MA. Three choke input. Case Style M. .... **AP-12001E**
- SWINGING CHOKE:** 5-25 hy. at 500 MA. 52 ohms resistance. 7000V insulation. Round case, base terminals. .... **CG-109**
- SMOOTHING CHOKE:** 25 hy. at 300 MA. 90 ohms resistance. 5000V insulation. Round case, base terminals. .... **CG-105**

**Transformers for 1000 Watts**

- MODULATION TRANSFORMER:** Primary for PP 833A in Class B. Secondary 4750 ohms no current in Sec. Also has a second tapped secondary to provide 2, 4 or 8 watts at 3000 ohms for modulating the RF driver stage, if desired.  $\pm 1$  db, 30-10,000 cycles. Case Style M. .... **AM-30469**
- MODULATION REACTOR:** For use with AM30469 modulation transformer. Inductance 40 hy. Resistance 170 ohms. Current 600 MA. Response  $\pm 1$  db, 30-10,000 cycles. Case Style M. .... **AC-10465**
- DRIVER TRANSFORMER:** For PP 845 tubes or similar in Class A to PP 833A tubes Class B.  $\pm 1$  db, 30-10,000 cycles. Chassis mount. .... **AS-3172C**

- POWER TRANSFORMER:** Primary 230 volts, 50/60 cycles. Secondary 3100-0-3100 volts at 0.71 amperes to produce 2600 volts DC at 1 ampere when used with choke input filter. Case Style M. .... **AP-10459E**
- SWINGING CHOKE:** High inductance, high current type, 5-16 hy. at 1.5 amperes. Resistance 30 ohms. 10,000V insulation. Case Style M. .... **AC-10458**
- SMOOTHING CHOKE:** 2 1/2 hy. at 700 MA. 20 ohms resistance. 10,000V insulation. Case Style O. .... **AC-10457**

**Transformers for 5000 Watts**

- MODULATION TRANSFORMER:** Primary for PP Class B 3X2500A3 or 3X2500F3 tubes. Secondary 3600 ohms.  $\pm 1$  db, 30-10,000 cycles. Dry type. Case Style M. .... **AM-7718E**
- MODULATION TRANSFORMER:** Same specifications as AM-7718E above, only oil filled indoor or outdoor type in steel tank. Case Style N. .... **AM-7718M**
- MODULATION REACTOR:** 30 hy. at 1.4 amperes. Response  $\pm 1$  db, 30-10,000 cycles. Insulation 15,000V. Dry type. Case Style M. Companion to modulation transformer AM-7718E. .... **AC-7719E**
- MODULATION REACTOR:** Oil filled type in steel tank for indoor or outdoor mounting. 52 hy. at 1.4 amperes. Case Style N. Companion to modulation transformer AM-7718M. .... **AC-7719M**
- POWER TRANSFORMER:** Primary 205/215/230 volts, 50/60 cycles, 3 phase delta. Secondary 2160 volts per leg Y connected. Supplies 5000 volts DC at 2.3 amperes when used with six 8008 or 872A rectifier tubes. Dry type. Case Style M. Companion to AM-7718E and AC-7719E. .... **AP-8000E**
- POWER TRANSFORMER:** Primary 230 volts, 50/60 cycles, 3 phase delta. Secondary 2160 volts per leg Y connected to deliver 5000 volts DC at 2.3 amperes when used with six 8008 or 872A rectifiers. Oil filled type in steel tank for indoor or outdoor mounting. Case Style N. Companion to AM-7718M and AC-7719M. .... **AP-8000M**
- INPUT OR SMOOTHING CHOKE:** 4 hy. at 1.5 amperes. 17 ohms resistance. 8000V insulation RMS. Case Style M. .... **AC-3143E**
- DRIVER TRANSFORMER:** For PP parallel 845 tubes or similar Class A to PP 3X2500A3 or 3X2500F3 grids Class B.  $\pm 1$  db, 30-10,000 cycles. Chassis mount. Balance windings for individual biasing of 3X2500 grids. .... **AS-3172C**

**Transformers for 10,000 Watts**

- MODULATION TRANSFORMER:** Primary for PP 3X2500A3 or 3X2500F3 tubes Class B. Secondary 1780 ohms.  $\pm 1$  db, 30-10,000 cycles. Dry type. Case Style M. .... **AM-30643E**
- MODULATION TRANSFORMER:** Same specifications as AM-30643E, only oil filled in steel tank for indoor or outdoor mounting. Case Style N. .... **AM-3167M**
- MODULATION REACTOR:** 26 hy. at 2.8 amperes  $\pm 1$  db, 30-10,000 cycles. Dry type. Case Style M. Companion to AM-30643E. .... **AC-3168E**

**TRANSFORMERS (continued)**

**MODULATION REACTOR:** Same as AC-3168E, only oil filled in steel tank for indoor or outdoor service. Case Style N. Companion to modulation transformer AM-3167M. .... **AC-3168M**

**DRIVER TRANSFORMER:** For PP parallel 845 tubes or similar Class A to P 3X2500A3 or 3X2500F3 grids Class B.  $\pm 1$  db, 30-10,000 cycles. Chassis mount. Balanced windings for individual bias of 3X2500 tubes. .... **AS-3172C**

**POWER TRANSFORMER:** Primary 230 volts, 50/60 cycles, 3 phase delta. Secondary tapped to deliver 5000, 5250 or 5500 volts DC at 4.5 amperes when used with six 673 tubes Y connected. Dry type. Case Style P. Companion to AM-3167E and AC-3168E. .... **AP-3090E**

**POWER TRANSFORMER:** Same as above, only oil filled in steel tank for indoor and outdoor mounting. Case Style N. Companion for AM-3167M and AC-3168M. .... **AP-3090M**

**INPUT OR SMOOTHING CHOKE:** 2 hy. at 3 amperes. 6.4 ohms resistance. 18,000 volt insulation. Case Style M. In 10KW broadcast, 2 chokes are used as input chokes for RF and modulators ..... **AC-3147E**

**Transformers for 20KW**

**MODULATION TRANSFORMER:** Primary for four 3X3000A1 or 3X3000F1 tubes in PP parallel, impedance 5000 ohms plate to plate. Secondary 235 ohms to match Class C amplifier of four 3X2500A3 or 3X2500F3 tubes.  $\pm 1$  db, 30-10,000 cycles. Oil filled indoor or outdoor type. Case Style N. Use with modulation reactor AC-8675M and driver transformer AS-8672E listed below. .... **AM-8674M**

**MODULATION REACTOR:** 14 hy. at 5.25 amperes.  $\pm 1$  db, 30-10,000 cycles. Oil filled indoor or outdoor type. Case Style N. Use with AM-8674M modulation transformer and 8 mfd. coupling capacitor. .... **AC-8675M**

**DRIVER TRANSFORMER:** Primary two 845 tubes or similar in Class A. Secondary two windings for Class B grids of four 3X3000A1 or 3X3000F1 tubes in PP parallel.  $\pm 1$  db, 30-10,000 cycles. Chassis mount. .... **AS-8672E**

**POWER TRANSFORMER:** Suggest separate power supplies for modulators and RF, using two Type AP-3090M power transformers as listed above under 10KW transformers.

**FILTER REACTOR:** 2 hy. at 5.3 amperes. Oil filled indoor or outdoor mounting. For 20KW two used for dual power supplies as suggested above under "Power Transformer." Case Style N. .... **AC-8673M**

**Transformers for 50KW**

**MODULATION TRANSFORMER:** Primary 3300 ohms plate to plate for two 5891 tubes, Class B, with 10.7 KV on plates. Secondary 1700 ohms. Oil filled in steel tank for indoor or outdoor service.  $\pm 2$  db, 30-10,000 cycles. Case Style A. Size: 33" wide, 42" deep, 58" high. .... **AM-11788**

**MODULATION REACTOR:** For use with AM-11788 above. 25 hy. at 6.5 amperes. 7600 volts RAS at 30 cycles.  $\pm 2$  db, 30-10,000 cycles. Oil filled in steel case for indoor or outdoor mounting. Size: 40" diameter, 56" high. Case Style O. .... **AC-11787**

**DRIVER TRANSFORMER:** A cathode follower circuit is recommended for this service employing four type 833A driver tubes. Circuit information will be supplied to purchasers of AM-11788 and AC-11787 units where requested.

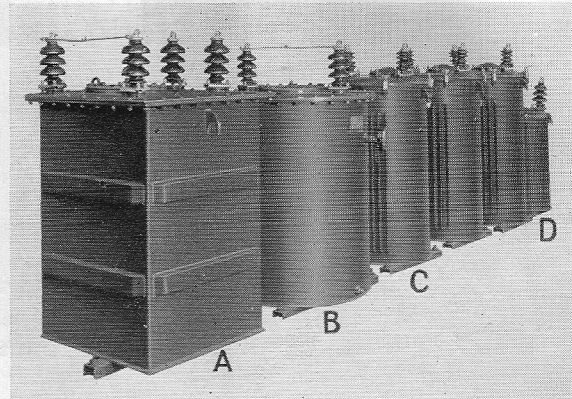
**POWER TRANSFORMER:** Primary 460 volts single phase, 50/60 cycles. 3 required for 3 phase delta primary and secondary. Primary has 2 1/2 % taps above and below 460V and 50% tap for low power. Secondary 8300-4150 volts. When used with 3 phase full wave bridge rectifier, filter reactor AC-11786 below and six type 857B rectifier tubes will deliver 10,700 volts DC at 13 amperes. Case Style C. Oil filled indoor or outdoor mounting. Size: 27" diameter, 56" high. .... **AP-11785M**

**FILTER REACTOR:** 1 hy. at 13 amperes, 34,000 volt test insulation. Oil filled in steel tank for indoor or outdoor mounting. Case Style D. .... **AC-11786**

**Filament Transformers**

For single 3X2500A3 or 3X2500F3. Primary 215/230/245 volts, 50/60 cycles. Secondary 7.8 VCT 51 ampere secondaries. Case Style R. .... **AF-7782E**

For three 3X2500A3 or 3X2500F3. Primary 215/230/245 volts, 50/60 cycles. Three separate 7.8 VCT 51 ampere secondaries. Case Style R. .... **AF-10434E**



For 5891 tube in 50KW service. Three required for 3 phase. Primary 230 volts, single phase, 50/60 cycles with  $\pm 2 1/2$  % taps. Secondary 11 volts at 95 amperes. Primaries are delta connected and secondaries Y connected. Size: 6 1/4" wide, 9 5/8" high, 7 5/8" deep. .... **AF-11856E**

For four 833A, 810 or similar tubes. Primary 230 volts, 50/60 cycles. Secondary No. 1, 10 VCT at 10 amperes. Secondary No. 2, 10 VCT at 10 amperes. Secondary No. 3, 10 VCT at 20 amperes. Has heavy wire leads for direct connection to tube sockets. Case Style R. .... **AF-30099E**

**Rectifier filament transformer.** Has 6 secondary windings 5 VCT at 10 amperes for 8008, 872A or 673 rectifier tubes. Primary 215/230/245 volts single phase, 50/60 cycles. Used as rectifier filament transformer in 5, 10 and 20KW transmitters. Insulation 15,000 volts. Case Style R. .... **AF-10432E**

**Rectifier filament transformer.** Primary 230 volts, 50/60 cycles. Secondary 5.1 VCT at 15 amperes for two 8008 or 872A rectifier tubes. Insulation 10,000 volts ..... **AF-10456K**

**Rectifier filament transformer.** For 857B rectifier filament as used in 50KW service. Primary 230 volts, 50/60 cycles with  $\pm 2 1/2$  % taps. Secondary 5 volts at 33 amperes. Insulation all points 25,000 volts. Size: 6" wide, 3 7/8" deep, 8" high. .... **AF-11857E**

**Audio Transformers**

**INPUT TRANSFORMERS:** For transmitter input to low level audio stages. Handles +20 db input or less at low distortion. Quadruple shielding. Round case chassis mount.  $\pm 1$  db, 30-15,000 cycles. Primary 125/250 or 500/600 ohms. Secondary for PP or single grid 120,000 ohms. .... **AI-3002U**

**INPUT TRANSFORMER:** Specifically designed for high quality preamplifier input. Triple shielding. Round case. Primary 50/150/250 ohms. Secondary to single 60,000 ohm grid. 1 3/4" diameter and 1 5/16" high. Maximum input level 0 db,  $\pm 1/2$  db, 30-15,000 cycles. .... **AI-10379T**

**INPUT TRANSFORMER:** Identical to AI-10379T above, only primary 600 ohms. .... **AI-10386T**

**OUTPUT TRANSFORMER:** Preamplifier output transformer to match AI-10379T or AI-10386T input transformers. Primary 15,000 ohms, no DC in winding. Secondary 150/250 and 600 ohms. Excellent shielding. Size: 1" diameter and 1 3/16" high.  $\pm 1/2$  db, 30-15,000 cycles. .... **AO-10427T**

**OUTPUT TRANSFORMER:** For program or remote amplifiers. Primary 10,000 ohms with up to 15 MA in winding. Secondary 150/250 and 600 ohms. Excellent shielding. Size: 2" wide, 1 3/4" deep, 2 3/4" high.  $\pm 1$  db, 30-15,000 cycles. .... **AO-10864T**

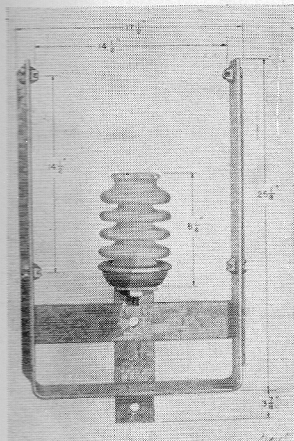
**REPEATER TRANSFORMER:** Line to line. Primary and secondary 50/125/250/500 and 600 ohms. Maximum level +16 db. Response 20-20,000 cycles  $\pm 1$  db shielding. Fully cased top or chassis mounting. .... **114A**

**50,000 TRANSFORMERS**

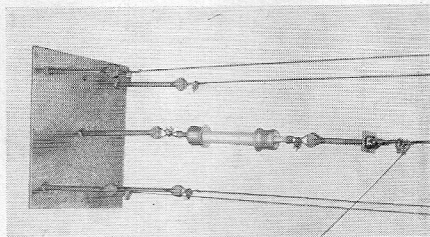
Listed on these pages is only a fraction of the huge transformer stock in the Gates stock rooms. If you have a breakdown, call the Gates service department first. If you need a special, it is likely Gates will have it. From the smallest ounce weight unit to 50 KW, be it audio, filter, power, equalizer, autoformer or filament transformers, the 50,000 transformer stock is the largest in the world geared to broadcaster and communications needs.



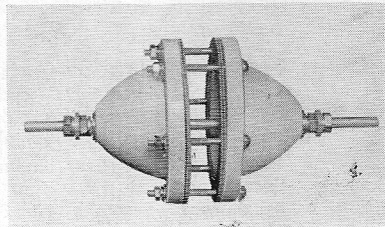
# OPEN WIRE TRANSMISSION LINE



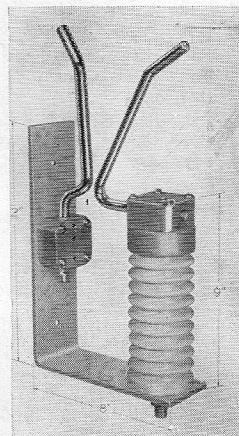
M-3327 Bracket



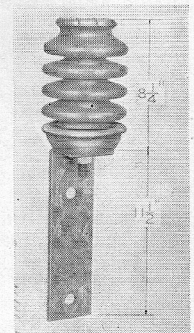
M-3328 End Plate



M-2870D Feed-Thru Bowl



M-3322 Horn Gap



M-3864 Center Post

## Transmission Line Bracket

For 5 or 6 wire transmission line. Rating up to 150KW modulated. Made of 1/4" steel 3" wide with welded L section on each side to fully prevent twisting under ice or wind load. Supplied with 8 1/4" ribbed insulator, wire guides and all hardware. Galvanized throughout.

Line Bracket ..... M-3327

## Line End Plate

To terminate the open wire line at each end. Plate is 1/4" thick, 20" square. Fully galvanized. Includes turnbuckles, 25 1/2" strain insulator and all hardware. Rating up to 150KW modulated.

End Plate ..... M-3328

## Feed-Thru Bowls

A large feed-thru bowl with 50KW modulated rating. Available in single and double units and with solid or hollow studs as listed below. Bowls are Alsimag. Hardware heavy brass. Velutex seals are provided for weather-tight installation.

- Solid stud, 2 bowls, for walls to 10 1/2" thick ..... M-2870D
- Same as above but hollow stud ..... M-3254
- Solid stud, single bowl, for walls 1" thick ..... M-5280
- Same as above but hollow stud ..... M-5281

## Horn Gap

A very desirable item where higher power is employed. Connects to hot side of line and ground to drain off lightning and heavy static discharges. Usually one is employed for each 200' of line. Insulator for 150KW arc gaps heavy chrome plate. Galvanized throughout.

Horn Gap ..... M-3322

## Center Post Assembly

Has variety of uses such as end or corner angling of transmission line, support insulator for two wire line or rhombic antennas, and a guide insulator such as end of building or coupling unit. Rating 150KW galvanized throughout.

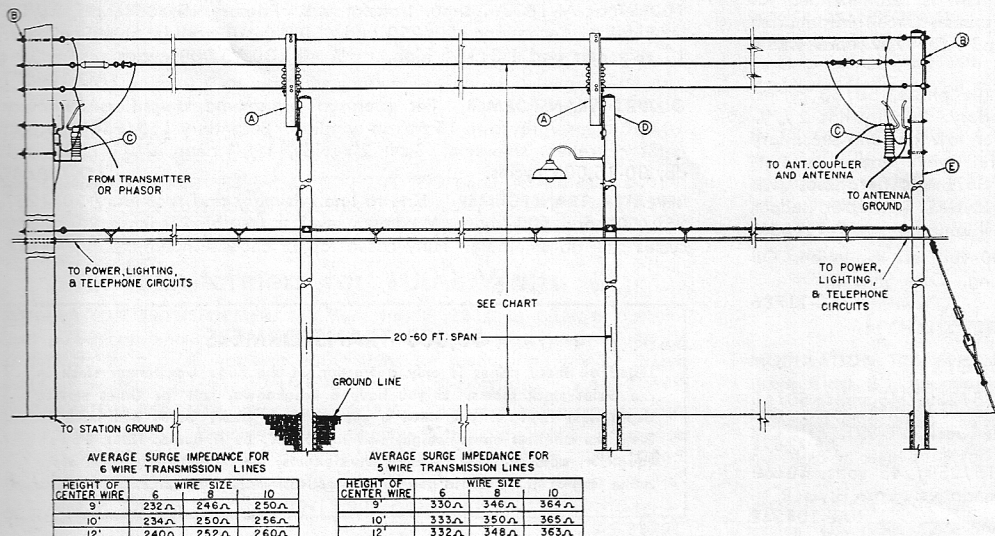
Center Post Insulator ..... M-3864

## Hard Drawn Wire

If desired, when ordering transmission line components, Gates will gladly supply No. 6, 8 or 10 hard drawn copper wire of current market prices. State length in feet desired, remembering to multiply the length of line by the number of wires in line, either 5 or 6.

## Special Open Wire Lines

Gates engineers have designed many special open wire lines for both short and long distances. Most celebrated was a 30-mile line supplied for use in the Arctic Circle. Upon receipt of a sketch or word description of the requirements, Gates engineers will gladly submit layout and quotation.



## Open Wire Design and Impedance Chart

Chart to the left illustrates typical five or six wire open type transmission line. Table is provided to show impedances with various wire sizes at certain heights above ground. Transmission line brackets are M-3327, end plate M-3328. Horn gap is M-3322. The power, lighting and telephone circuits shown are optional, according to requirements of installation. Open wire line will average about the same per foot cost as 7/8" coaxial cable.

# COAXIAL CABLE, TOWER LIGHTS AND ACCESSORIES

## Solid Dielectric Cable

Low loss, flexible, polyethylene inner jacket covered by copper shield with vinyl outer jacket overall, impervious to exposure, acids, alkalis, oils and gasoline. Excellent AM transmission line.

Item	Cat. No.
Single conductor OD .285, impedance 51 ohms	RG-8U
Single conductor OD .285, impedance 75 ohms	RG-11U
Single conductor OD .680, impedance 51 ohms	RG-17U
Single conductor OD .910, impedance 51 ohms	RG-19U
Two conductor OD .285, impedance 95 ohms	RG-22U

RG cable should be ordered to length desired. Where continuous unbroken lengths are required in long sections, a refundable reel charge of \$50.00 per reel will be made and fully credited with reel returned transportation prepaid.

## Helix 50 Ohm Coaxial Cable

A new type of cable combining high efficiency, ease of handling and low standing wave ratio. High efficiency due to spiral insulation of low loss polyethylene permitting high percentage of air in space between inner and outer conductors. The inside of the outer conductor is clad with heavy conductivity copper. Fully weatherproof and flexible, requiring no elbows, junction boxes etc., for making bends.

Coaxial cable $\frac{7}{8}$ " diam. Length to order. Specify end fittings desired as listed below and attached at no extra charge	H-0
Coaxial cable $1\frac{5}{8}$ " diam. Length to order. Specify end fittings desired as listed below and attached at no extra charge	H-1
End terminal for $\frac{7}{8}$ " Helix line	20-T
Flange end terminal for $1\frac{5}{8}$ " Helix line	21-F

## Air Dielectric Coaxial Cable

Andrew air dielectric coaxial cable has solid copper outer conductor with inner conductor supported by steatite beads.

Coaxial cable $\frac{3}{8}$ " semi-flexible, impedance 70 ohms	83
End terminal for $\frac{3}{8}$ " line with gas inlet and pressure gauge	1701-GV
End terminal for $\frac{3}{8}$ " line with removable exhaust plug	1701-P
End terminal for $\frac{3}{8}$ " line with needle valve for gas release	1701-R
Coaxial cable $\frac{7}{8}$ " semi-flexible, impedance 50 ohms, power rating for AM broadcast 3.2KW	S-450
End terminal for S-450 cable with gauge and valve	1703-AGV
End terminal for S-450 cable with gas release plug	1703-AP
End terminal for S-450 cable with release valve	1703-AR

When ordering S-450 cable, specify end fittings desired as above and these will be attached at the factory and complete assembly shipped under pressure. No charge will be made for this service other than in large lengths, reel will be billed but refunded when returned transportation prepaid.

## AIR DIELECTRIC COAXIAL CABLE (continued)

Item	Cat. No.
Coaxial cable $1\frac{5}{8}$ " OD, impedance 51.5 ohms, rated 10 KW for AM broadcast, supplied in 20' lengths, includes flanges and fittings for each end	451
Coaxial cable, any special length of 451 (state length when ordering)	12211
Right angle mitered elbow for 451 cable, includes flanges and fittings	1051-M
45-degree mitered elbow with flanges and fittings for 451 cable	1151-M
Gas inlet coupling for 451 cable	1351
Clamp connector for providing a pressure type flange on cut end of 451 cable	T-1551
End terminal having Type N jack on one end, standard flange for Type 451 cable on other end, incorporates gas barrier and removable gas vent plug	13942

## Ground Materials

No. 10 soft drawn copper ground wire, packed in 100-pound coils, approximately 3100 feet in 100 pounds	GR-10
Copper ground strap 2" wide, packed in 100' rolls	GR-25T
Copper ground strap 4" wide, packed in 50' rolls	GR-45T
Ground rod, Copperweld heavy ground rod 8' long	GR-8R
Ground screen, heavy copper, $\frac{3}{4}$ " mesh in sheets 8'x24'	GR-24SC

The above materials are carried in Quincy and all branches. Prices shown in price list vary as to variance of copper market.

## Pumps, Dehydrators

Dry air pump comes complete with 8' hose and silica gel fill	878
Automatic dehydrator used with all sizes air dielectric lines for dehydrating as much as 40,000 feet of $\frac{7}{8}$ " line, 10,000 feet of $1\frac{5}{8}$ " line, etc., wall mount	1910
Gas distribution manifold, includes pressure gauges, needle valves, 15' of $\frac{1}{4}$ " copper tubing for any number of coaxial cables. State number of outlets desired	6600

## Tower Lights

Single obstruction light, bottom entrance conduit fitting furnished with lamp receptacle to accommodate either a 100 or 111 watt, 115V medium screw base lamp, or lumen medium pre-focus series lamp	OB-20
Single obstruction light, same as Model OB-20 above but side entrance conduit fitting	OB-21
Double obstruction light, provided with two lamp receptacles, each accommodating either 100 or 111 watts, medium screw base lamp, or lumen medium pre-focus lamp. Bottom entrance fitting type for 1" conduit.	
For medium screw base	OB-22-4
For pre-focus base	OB-22P-4

(continued next page)

**COAXIAL CABLE, TOWER LIGHTS AND ACCESSORIES**

**TOWER LIGHTS (continued)**

- Code beacon 300 MM**, standard fully approved FCC and CAA model supplied with two red filters.
- For 3/4" conduit ..... **KG-114-3**
- For 1" conduit ..... **KG-114-1**
- Replacement lamp, 100 watt obstruction** ..... **100A21-TS**
- Replacement lamp, 111 watt obstruction** ..... **111A21-TS**
- Beacon lamp, 500 watt** ..... **500PS-40**
- Beacon lamp, 620 watt** ..... **620PS-40**

**Complete Tower Light Kits**

The following kits are complete, meeting the requirements of FCC Form 715, FCC Rules Part 17, and CAA standards for marking and lighting obstructions to air navigation, November 1, 1953. The FCC construction permit in all cases will specify the required lighting for each installation, which should tie to the specifications of lighting kits as shown below.

- Tower lighting kit for towers to 150'.**  
FCC Spec. No. 2, CAA Spec. No. 1, includes one double obstruction light ..... **A-1**
- Tower lighting kit for towers 151' to 300'.**  
FCC Spec. Nos. 3, 11, 21 and CAA Spec. A-2, includes one code beacon, two obstruction lights, beacon flasher and photo-electric control ..... **A-2**
- Tower lighting kit for towers 301' to 450'.**  
FCC Spec. Nos. 3, 12, 21 and CAA Spec. A-3, includes code beacon, four obstruction lights, beacon flasher and photo-electric control ..... **A-3**
- Tower lighting kit for towers 451' to 600'.**  
FCC Spec. Nos. 3, 4, 13, 21 and CAA Spec. A-4, includes two code beacons, six obstruction lights, beacon flasher and photo-electric control ..... **A-4**

For towers higher than 600' please write for prices. Equipment for tower lighting normally carried in stock at all times.

**Flashers and Photo Cell Units**

- Single unit**, indoor housing, lighting control unit with outdoor remote weather photo tube, includes complete code flasher for flashing of three towers and photo-electric cell control for automatic turning on and off 115/230 V, 50/60 cycle, 3 conductors to each tower ..... **LC-2077**
- Single unit**, indoor housing, same as LC-2077 above but for 4 towers instead of 3 ..... **LC-2076**
- Beacon flasher**, electro-mechanical device for outdoor mounting, meets FCC and CAA regulations, single pole mercury tilt switch and synchronous motor, Model BF-32 has fail-safe provision for 117 V, single circuit type.  
**Beacon flasher** ..... **BF-31**  
**Beacon flasher with fail-safe** ..... **BF-32**

Gates is a national distributor for Andrew, Hughey & Phillips, Fischer-Pierce and other leading manufacturers of approved tower lighting equipment. Generous stocks are carried at the factory and all branches.

For open wire transmission line, see Page 218.

**FLASHERS AND PHOTO CELL UNITS (continued)**

- Photo-cell and beacon flasher**, a combination unit in weatherproof housing. Photo-cell may be rotated to north regardless of mounting position on tower. Turns on at 35-foot candles and off at 58-foot candles. Fully approved.  
For 1 pole 30 amperes, flashes one circuit ..... **LC-2074**  
For 1 pole 30 amperes, flashes two circuits ..... **LC-2072**
- Fischer-Pierce Photo-Cell Unit**, unit completely weatherproof, fully approved for turning on and off tower lights, has time delay of 5-7 seconds to prevent operating lights by chance exposure such as walking in front of unit.  
**Photo-cell unit** for 105-130 volts, 3000 watt rating, SPST, double break ..... **63305C**  
**Photo-cell unit**, same as above but for 210-250 volts ..... **63306C**

**Rhombic Antenna Equipment**

- Rhombic transmitting antenna**, frequency range 4-22 Mcs., power 30 KW. A 3-wire curtain. Kit consists of 3-strand No. 12 Copperweld wire with maximum side lengths of 375'. Strain and spreader insulators with necessary hardware included for tower or pole attachment. Downlead is supplied with transmission line kit (see RTL-300 below). Shipping weight: 500 lbs.  
**Rhombic transmission antenna** ..... **RTA-330**
- Transmission line for rhombic antenna**, a 500' 2-wire open-wire line having a nominal impedance of 600 ohms, with 3-strand No. 12 Copperweld wire spaced 12" apart, includes downlead for rhombic transmitting antenna (RTA-330 above), strain insulators, line support insulators for single pole mounting, horn gap insulators, with grounding wire and rods, improved entrance bowls, wooden crossarms (2) for dead ending, guys and anchors for one dead end and three line-turn poles, all with necessary hardware. Shipping weight: 400 lbs.  
**Transmission line for rhombic antenna** ..... **RTL-300**

- Dissipation line for rhombic transmitting antenna**, includes 1500' of No. 14 stainless steel wire, strain spreader and spacer insulators, line tension and equalization sheaves, ground wire and rod, one cross-arm with pole guy and anchor for dead ending below antenna, and all necessary hardware. Shipping weight: 125 lbs.  
**Dissipation line** ..... **TDL-340**
- Doublet transmitting antenna**, frequency range 2-15 Mcs., power 30 KW, consists of 7-strand No. 12 Copperweld wire, includes strain insulators and hardware for attaching to towers or poles. Downlead included in kit listed below. Shipping weight: 90 lbs.  
**Doublet antenna** ..... **DTA-430**

- Transmission line for doublet transmitting antenna**, 500' long, 2-wire, 600 ohm, open-wire line consists of 3-strand No. 12 Copper weld for downlead (delta match type) and line, dead end cross-arms, strain line support and improved entrance bowl insulators, horn gap insulators with grounding wire and rod, pole guys and anchors for dead end poles and line-turn poles, and necessary hardware. Shipping weight: 360 lbs.  
**Transmission line for doublet antenna** ..... **DTL-400**





## TELECTRO PROFESSIONAL TAPE RECORDERS

One of the finest commercial tape recorders and playback units manufactured in the world today. Commercial equivalent to the much used Government Model AN/TNH-2B. Available in console, rack and portable two-case models.

Tape transport mechanism is a masterpiece of precision. Partial features include: (1) hysteresis synchronous motor, (2) dual torque motors for supply and take up reels, (3) adjustable take up torque, (4) self-aligning solenoid operated brakes, (5) heavy fly-wheel for low flutter, (6) automatic shut off switch, (7) push-button operation with easy remote control operation, (8) editing knobs, and (9) will rewind a full 10 1/2" reel in one minute.

### MECHANICAL AND ELECTRICAL SPECIFICATIONS

**STARTING TIME:** Less than 0.1 second.

**STOPPING TIME:** At 15 ips tape moves less than 2 inches after stop switch is operated.

**PLAYBACK TIME:** 1 hour at 7 1/2 ips with standard 10 1/2 inch NARTB reel for half-track recording; 2 hours using both tracks; up to 3 hours using long play tape.

**PLAYBACK TIME ACCURACY:** Better than 0.2%.

**REWIND TIME:** Less than 1 minute.

**FAST WIND TIME:** Less than 1 minute.

**PLUG-IN HEAD ASSEMBLY:** Dual track heads are standard. Soundhead assembly contains erase, playback and record heads. Available with single track heads.

**MOUNTING AND INSTALLATION:** Horizontal or vertical. Designed for either rack or console installation. Also available in handsomely designed carrying case.

**WOW AND FLUTTER:** Less than 0.15% rms at 15 ips. Less than 0.2% rms at 7 1/2 ips.

**POWER SOURCE:** 115 volts, 60 cps.

**POWER CONSUMPTION:** 230 watts.

**FREQUENCY RESPONSE:** at 15 ips ..... 30 to 15,000 ±2 db.  
at 7 1/2 ips ..... 30 to 15,000 ±4 db.  
at 7 1/2 ips ..... 30 to 10,000 ±2 db.

**SIGNAL TO NOISE RATIO:** Over 55 db at both 7 1/2 and 15 ips as defined by NARTB standards.

**DISTORTION:** Less than 2% rms at maximum recording level.  
Less than 1% rms at standard recording level.

**OUTPUT TERMINATION:** 600 ohms balanced—termination switch is provided; monitor jack for connection to a power amplifier; jack for 600 ohms headset.

**OUTPUT VOLTAGES:** 0 VU or +4 dbm across 600 ohms balanced load or unbalanced load.  
6 volts across 20,000 ohms.

**INPUTS:** Microphone input—30 to 250 ohms.

Bridge input—20,000 ohms.

Line input—600 ohms balanced. 600 ohms unbalanced.

**MONITORING SWITCH:** Rapid switching from monitoring tape playback to monitoring live input.

**METER SWITCH:** Provides rapid switching for indicating:  
Playback level; Record level; Bias level; Erase Current.

**METER:** VU.

**CONTROLS:** Input jack, output jacks and meter—located on front panel.

**ERASE OSCILLATOR:** 85 kc adjustable. Screwdriver adjustment permits rapid setting of erase current level.

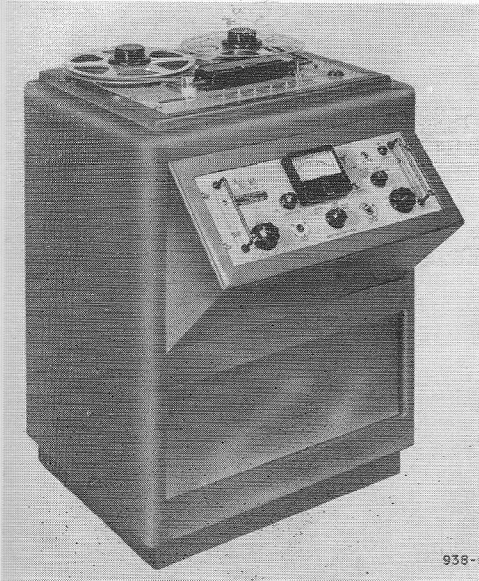
**BIAS LEVEL:** Screwdriver adjustment permits easy setting of bias level.

**SIZES:** (Console) 34"x23"x25 1/2" deep.  
(Rack) transport 19"x15 3/4"x5" deep.  
Amplifier 19"x7"x14" deep.  
(Portable) 2 cases 20"x20"x9" high.

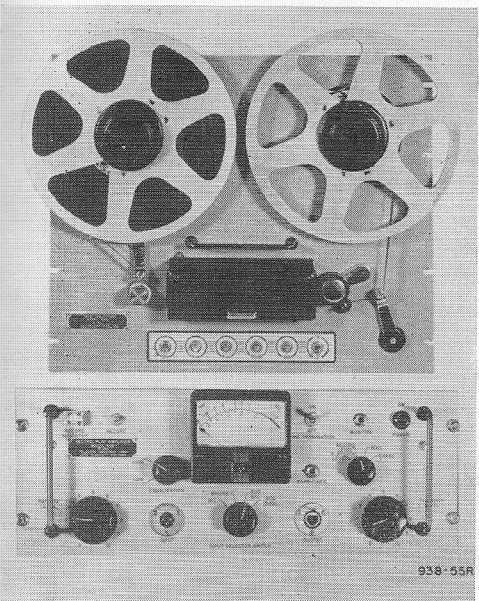
### ORDERING INFORMATION

Console model, full track, as illustrated ..... 938C  
Rack model, full track, as illustrated ..... 938R  
Two-cast portable model, full track, as illustrated ..... 938P

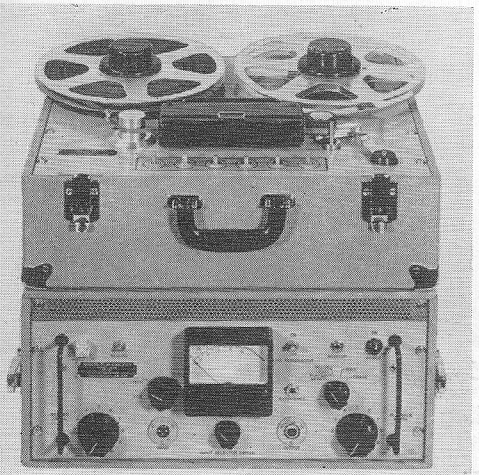
**NOTE:** All models available in half track at no extra cost, where stated on order. Stereophonic models also available.



Model 938C



Model 938R



Model 938P

**NEW MAGNECORD  
727 SERIES**



As new as MagneCORD's big new manufacturing plants in Oklahoma, the 727 Series offers advanced professional results at a price lower than one would estimate for such quality. Two units consisting of rack mount transport mechanism and rack mount amplifier. Fully adaptable to remote control.

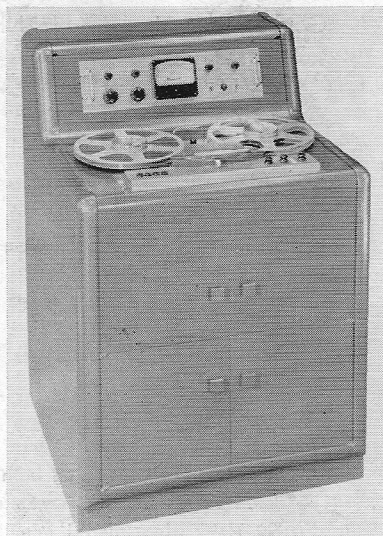
**SPECIFICATIONS**

**Tape Transport**

- TAPE SPEEDS:** 7½" and 15".
  - REEL SIZE:** 10½" or 7" or 5".
  - TAPE DRIVE:** Direct synchronous hysteresis capstan drive. Electrically adjusted torque motors.
  - TAPE LOADING:** Deep slot with automatic tape lifter during rewind and fast forward.
  - STARTING TIME:** Instantaneous to normal forward.
  - OPERATIONAL CONTROLS:** Push-button type, rewind, stop, record, play, fast forward, cue, off/on and capstan speed change.
  - TIMING ACCURACY:** 3 seconds in 30 minutes.
  - WOW, FLUTTER:** 0.15% at 15" and 0.2% at 7½".
  - RESPONSE:** 30-15,000 cycles ±2 db at 15".  
40-12,000 cycles ±2 db at 7½".
  - HEADS:** Full track.
  - NOISE:** 55 db down from third harmonic distortion point.
  - HIGH FORWARD AND REWIND TIME:** 100 seconds full 10½" reel.
  - PANEL SIZE:** 19"x14".
- Record/Playback Amplifier**
- IMPEDANCES:** Input, unbalanced bridging for 0 level recording.  
Output, cathode follower unbalanced 20,000 ohms.
  - OUTPUT LEVEL:** +18 dbm or less at 1.3% distortion.
  - METER:** 4" VU reads bias, record and playback level.
  - EQUALIZATION:** Standard NARTB.
  - PANEL SIZE:** 5¼"x19".

Tape transport mechanism .... 727AX  
Record/Playback amplifier .... 727BX

**TOP PROFESSIONAL M-90 SERIES  
MAGNECORD TAPE RECORDERS**



M-90ACC



M-90AC

Nothing has been left undone to make this the finest of fine pros in the recording field. For the fine radio or television station or the recording laboratory doing advanced work, the M-90 has no superior. Available in console, portable and rack models.

**TAPE TRANSPORT SPECIFICATIONS**

- TAPE SPEED:** 7½ and 15 ips.
- STARTING TIME:** Less than 0.1 second.
- STOPPING TIME:** Less than 2 inches of tape at 15 ips.
- TIMING ACCURACY:** ±3 seconds in 30 minutes.
- FLUTTER AND WOW:**  
Less than 0.1% RMS max. at 15 ips.  
Less than 0.15% RMS max. at 7½ ips.
- REWIND AND HIGH FORWARD:** 10½-inch 2400 foot reel less than 55 sec.
- PLAYING TIME:**  
32 minutes at 15 ips on 10½" NARTB reel.  
64 minutes at 7½ ips.
- FREQUENCY RESPONSE:**  
30 to 15,000 cps ±2 db at 15 ips.  
40 to 12,000 cps ±2 db at 7½ ips.
- SIGNAL-TO-NOISE:** 58 db at 7½ and 15 ips (S/N for ½-track 55 db).
- MONITORING:** Front panel jack for impedance phones. (Microphone and line cues may be had at all times independently of tape motion).
- AMPLIFIER SIZE:** 19"x5¼".
- TRANSPORT SIZE:** 19"x12¼".
- POWER SUPPLY SIZE:** Integral with amplifier.
- POWER CONSUMPTION (total):** 290 watts.

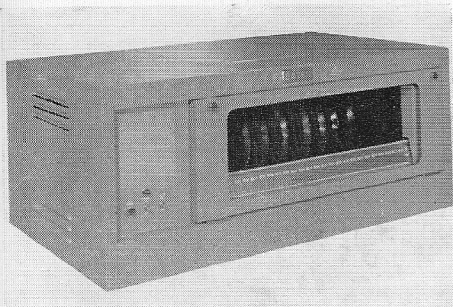
**AMPLIFIER SPECIFICATIONS**

- MINIMUM INPUT LEVEL:**  
Microphone: 90 dbm for zero level recording.  
Balanced bridge: 15 dbm or .15 V for zero level recording.  
Unbalanced bridge 0.015 V for zero level recording.
- INPUT IMPEDANCE:**  
Mic.: 50 to 250 ohms balanced or unbalanced.  
Balanced bridge: 160,000 ohms.  
Unbalanced bridge: 100,000 ohms.  
Pre-emphasis 8 db at 15 kc at 15 ips, 20 db at 16 kc at 7½ ips.
- PLAYBACK AMPLIFIER:**  
Output level 6 dbm when meter indicates zero VU. 18 dbm at 1.3% total harmonic distortion.  
Output impedance: 600 ohms balanced or unbalanced.  
Noise: 66 db below playback level of a 1 kc signal.  
Distortion: .6% at 6 dbm at 400 cps.  
1.3% at 18 dbm at 400 cps.
- Note: Playback characteristic of the M-90 is the same as the primary playback standard for magnetic recorders as defined by NARTB.
- METERING:** Bias, record and playback levels read on 4" VU meter. (Meter protected by switching to bias position when output exceeds 3 VU.)

**ORDERING INFORMATION**

- Console model includes transport and amplifier in beautiful cabinet 28" wide, 28" deep and 41" high ..... M-90ACC
- Portable model in two cases including transport and amplifier.... M-90AC
- Rack model includes transport and amplifier for rack mounting M-90ACX

**100-RECORD AUDITORIUM SYSTEM**

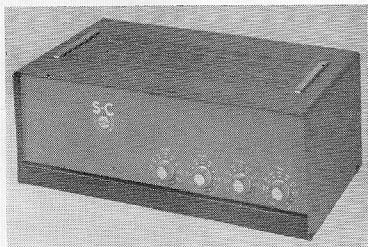


For the college student union, high school recreation room, restaurant and many applications where hours of automatic music from 45 RPM records can provide dance, concert, symphony or mood music.

Consists of special design record changer playing 100, 45 RPM discs on both sides or approximately 9 hours of music without attention. Changer is constructed in steel cabinet. Records may be set up in sequence of combinations desired and any record may be instantly rejected. Has dual diamond styli good for average 10,000 plays before replacement.

Standard equipment includes a Stromberg-Carlson 30-watt amplifier which may be mounted near or distant from the automatic record player. Amplifier will accommodate two microphones along with the changer and is capable of handling as many as 12 loudspeakers.

For loudspeakers, see Pages 220, 229.  
For microphones, see Pages 227, 228, 229.



It is emphasized that this system is professional in every way and not to be confused with home record changers. This system may be as hi-fidelity in scope as the purchaser desires in the selection of loudspeakers as both the automatic record system and amplifier are Hi-Fi in design.

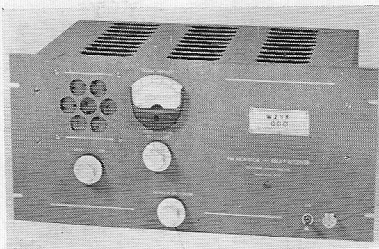
**SIZE:** (automatic changer in steel cabinet) — 38½" wide, 17½" deep, 16¼" high.  
(amplifier) — separate unit unit shelf or desk mount.

**RATING:** From small rooms to auditoriums of 4000 seating capacity with proper speaker system.

**CUSTOM REQUIREMENTS:** Gates will gladly recommend proper speaker system by providing simple sketch of room or auditorium showing dimensions.

Auditorium system including 100-record changer in steel cabinet, 30-watt amplifier and instructions ..... **M-5666**

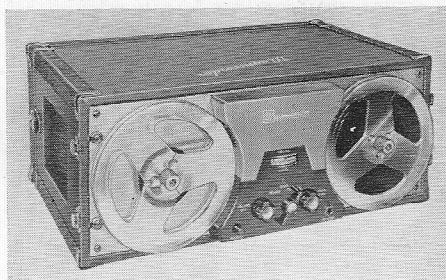
**FM RELAY RECEIVER**



Designed specifically for air pickup of FM broadcasting and re-transmitting at full 30-15,000 cycle response at distortion of 1% or better 50-15,000 cycles. Bandwidth 150 Kc, 88-108 Mc, antenna 72 or 300 ohms, output 150/600 ohms. Crystal controlled oscillator for absolute negative drift. Sensitivity 2 Mv. for 20 db quieting or 10 Mv. for 40 db quieting. Has monitor speaker, signal strength meter and 12 tubes plus rectifier. Rack mount 8¾" x 19". Please state frequency when ordering.

Relay Receiver ..... **CM-0**

**MAGNECORD S36-B**



Here is a widely used professional tape recorder in the low priced field for real commercial results. Single unit has Hi-Z microphone and unbalanced bridging input. Playback amplifier output; 600 ohms balanced or unbalanced. Output level; ±8 VU. Response 50-15,000 cycles. Tape speeds 7½" and 15" by capstan change. Hysteresis synchronous motor drive. Uses 7" reels. Rewinds in 40 seconds. Illuminated VU meter. Wow flutter 0.3%. Full track NARTB response. Panel 7" x 19" for rack mounting.

Tape recorder rack mount ..... **S36-BX**  
Same as above in portable carrying case **S36-B**

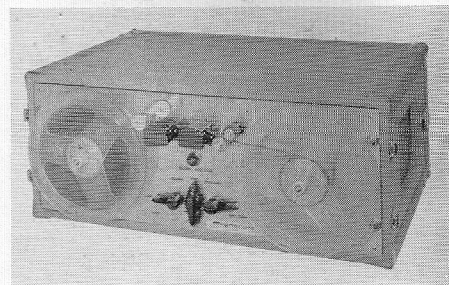
**PENTRON NL2**



A low priced, good quality recorder that will fill many needs where higher priced equipment not necessary. Tape speeds 7½" and 3¾". Supplied with microphone. Has dual speakers, 5 watt amplifier. Single rotary control for recording, index counter, interlocked record button, instant speed change, magic eye level indicator. Response 40-13,000 cycles at 7½". Two input jacks. Size: 10¾" high, 14" wide and 16¾" deep. Beautiful portable case. Twin track only.

Pentron recorder complete ..... **NL2**

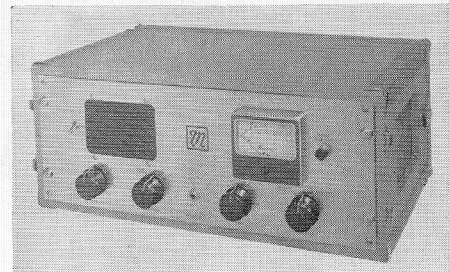
**MAGNECORD PT6 SERIES**



Often called "Mr. Tape Recorder" this famous pair of recorder and amplifier in early designs date back to the beginning of tape recording.— New and up to date in all respects, the PT6 Series is still the fastest selling professional recorder, designed for broadcasters, in its price range.

Hysteresis synchronous drive motor, 7½" and 15" speeds by switch on front, takes 7" reels with adapters for 10" reels available, NARTB equalization, 50 ohm and bridging input with enough gain for direct microphone recording, output 16 or 600 ohms. Big VU meter, 10 watt monitoring amplifier, internal monitor speaker and in rack or portable case models.

**Response:** 50-15,000 cps. at 15" or 50-7500 cps. at 7½". Flutter 0.3% or better at 15 ips. Panel size both models, 7" x 19". For a top quality unit in the medium price range—this is it.



**ORDERING INFORMATION**

Recorder unit rack mount ..... **PT6-6AX**  
Amplifier unit rack mount ..... **PT6-6JX**  
Recorder in portable case ..... **PT6-6A**  
Amplifier in portable case ..... **PT6-6J**  
10½" reel adapter arms, pair ..... **93X28**

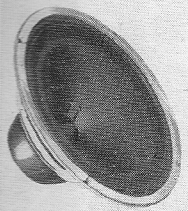
**Stock Branches are a Gates Exclusive . . .**

Gates stock carrying branch stores are established to serve broadcasters better.

**GATES RADIO COMPANY**  
2700 Polk Avenue  
Houston 3, Texas

**GATES RADIO COMPANY**  
1133 Spring Street, N. W.  
Atlanta, Georgia

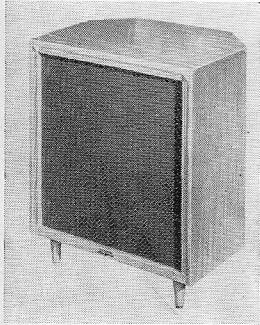
**GE 12" LOUDSPEAKER**



A 45-13,000 cycle, 12" loudspeaker with 9-ounce Alnico V magnet, 8 ohm voice coil to handle 25 watts program material. For fullest fruition suggest use with A1-406 enclosure listed below. Diameter 12 7/32". Highly recommended for topflight monitoring and audition.

**GE 12" Loudspeaker** ..... 1203A

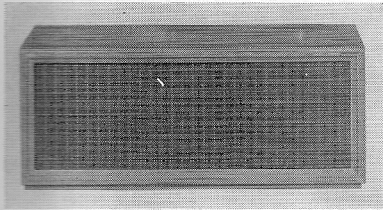
**GE 6' SPEAKER CABINET**



Features "distributed port" acoustical design for smooth, full low frequency response. For corner or straight wall placement. 31 1/4" high, 25 5/8" wide and 18 1/4" deep. Available in blonde, mahogany and unfinished. A beautiful cabinet in both performance and appearance, and modestly priced.

- GE speaker cabinet, blonde ..... A1-406B
- GE speaker cabinet, mahogany ..... A1-406M
- GE speaker cabinet, unfinished ..... A1-406U

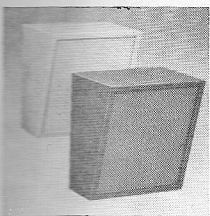
**GE 8" SPEAKER ENCLOSURE**



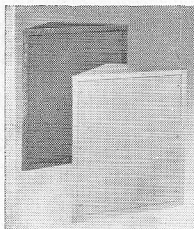
Only 10" high, this beautiful enclosure for 8" speakers may be mounted horizontally near the ceiling, on a shelf or vertically. Has "distributed port" acoustic design. A fine enclosure for audience or reception room. Size: 26" wide, 10" high and 11" deep.

- GE enclosure, blonde ..... A1-412
- GE enclosure, mahogany ..... A1-411
- GE enclosure, unfinished ..... A1-414

**WALL BAFFLES**



Flat mount



Corner mount

For 12" loudspeaker and available in blonde or mahogany. Ideal for studio, reception room and general sound distribution.

- Flat wall baffle (blonde) ..... DWB-12
- Flat wall baffle (mahogany) ..... DWM-12
- Corner wall baffle (blonde) ..... C12A-B
- Corner wall baffle (mahogany) ..... C12A-M

**CEILING BAFFLE**

Spun aluminum, satin finish for 8" speaker provides 360° coverage. Mounts flush with ceiling.



Ceiling baffle ..... AL8-A

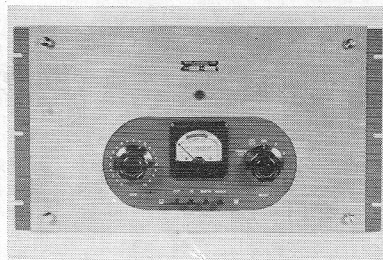
**PRESTO 6N DISC RECORDER**



The "Mr. Recorder" of the disc recording field. Illustrated in portable case but floor cabinet available for permanent use. Designed specifically for broadcasting station and recording laboratory. When used with the A93 amplifier, listed below, a wide variety of recording curves are possible and will meet all currently popular standards. Records at 33 1/3 or 78 RPM and simple adapter converts to 45 RPM. Feed screw supplied is 112 lines per inch inside to out. Feed screws of 96, 104, 120 or 136, either inside to out or vice versa, are available along with microgroove pitches of 244, 256 and 288. For 115 volts, 60 cycles. Cutting head impedance, choice of 15 or 500 ohms. Playback pickup 500 ohms.

- Recorder, chassis only ..... 6N
- Recorder, in portable case (illustrated) ..... 6NP
- Recorder, in floor cabinet ..... 6NC
- Adapter for 45 RPM ..... GR45
- Microgroove feed screw, 244 lines ..... GR244

**A93 RECORDING AMPLIFIER**



Suggested for use with 6N recorder listed above. Provides 3 curves of: (1) flat, (2) phono recording, and (3) NARTB. Radius switch incorporated permits operator to compensate for loss of high frequencies at center of disc. Includes VU meter, range control and master gain. Power, 30 watts.

Recording amplifier ..... A93

**PRESTO 1D CUTTING HEAD**

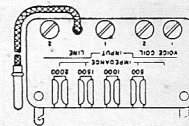
Recognized as the finest in the disc recording field. Very low distortion and flat response from 50-10,000 cycles. Available in 16 or 500 ohms. Illustrated on Presto recorders listed above.

- Recording head, 16 ohms ..... 1D-16
- Recording head, 500 ohms ..... 1D-500

**RECORDING STYLUS**

Professional type, disc tested, for best possible recordings. State whether long or short shank when ordering.

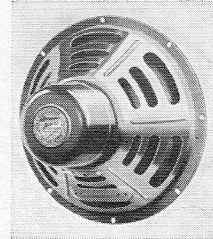
- 87° sapphire, dural shank ..... GR14-87
- 70° sapphire, dural shank ..... GR14-70
- Microgroove sapphire, dural shank ..... GR-20



**SPEAKER MATCHING TRANSFORMERS**

Primary adjustable to 500, 1000, 1500 or 2000 ohms. Secondary as stated below. Power handling 10 watts for ZY--2002 and ZY-4004 and 16 watts for ZY-2003. Matching transformer, Sec. 8 ohms ..... ZY-2002  
Matching transformer, Sec. 4 ohms ..... ZY-4004  
Matching transformer, Sec. 8 ohms ..... ZY-2003

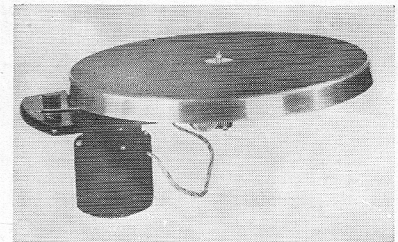
**JENSEN PM SPEAKERS**



This popular speaker is very modest in price and available in 8", 10" and 12" sizes. Voice coil 6-8 ohms. Power rating 8 watts on 8" and 10" models and 9 watts on 12" model. For general studio work with wall baffles and GE speaker enclosures, these models are excellent.

- 8" Jensen speaker ..... P8S
- 10" Jensen speaker ..... P10T
- 12" Jensen speaker ..... P12T

**PRESTO T68 TURNTABLE**



Three speeds, 16" platter, designed straightforward with hysteresis type motor. Operates all three speeds of 33 1/3, 45 and 78 RPM with single speed shift lever. For 115 volts, 60 cycles.

Transcription Turntable ..... T68H

**PRESTO T18 TURNTABLE**



Quite similar to T68 above but with 12" platter. Operates at 33 1/3, 45 and 78 RPM with single shift lever to triple idler wheels. Hysteresis motor.

Presto 12" Turntable ..... T18H

**Gates wants you to know . . .**

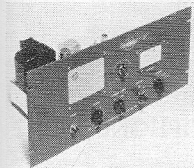
that the supply of every needed item is part of our business. Your small needs are treated with the same importance and urgency as the most expensive item in the Gates line.

**CONELRAD RECEIVER**



117R905

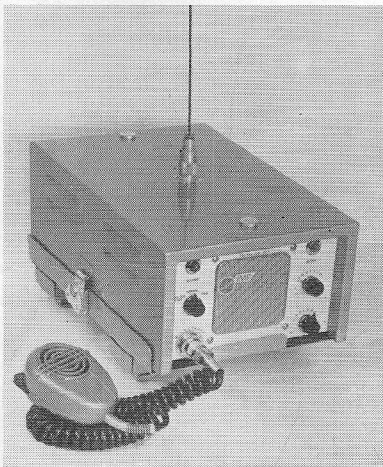
The new Conalert, 2 monitor Conelrad is specifically designed for Civil Defense and is FCDA approved Item 21. Required in all radio stations and very necessary in schools, hospitals, industries and those depending on Civil Defense. Continuously monitors all key radio stations to give warning for impending air attack. — Has 5 preset standard broadcast channels including 640 and 1240 Kc. Silent or audible monitoring, automatic visual and audible alarm, fail safe external alarm connection in case of receiver failure. Built in speaker. Seven tubes plus rectifier. Size (rack model): 19" x 8 3/4" x 9 3/4" deep. Cabinet model: 15" x 9" x 10 1/2" deep. For 115 volts, 50/60 cycles.



Conelrad Receiver, cabinet model ..... 117R905  
Conelrad Receiver, rack model ..... 117R906

117R906

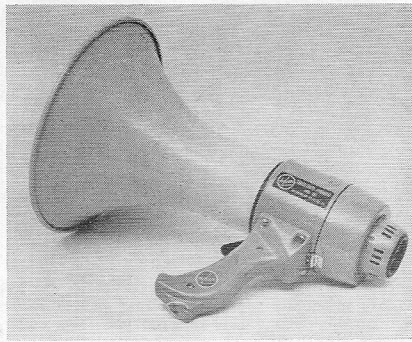
**INDUSTRIAL MOBILE PHONE**



A portable transmitter-receiver for industrial use such as talking from a fork lift to office, one fork lift to another or any mobile short range use up to one mile. Operates from 6 or 12 volts DC or 117 volts AC. Supplied with microphone, crystals, power cable and antenna. Use FCC Form 400 for easily obtained license. Power of transmitter, 3 watts. Accepted by FCC under Parts 9, 10, 11 and 16. State crystal frequency when ordering.

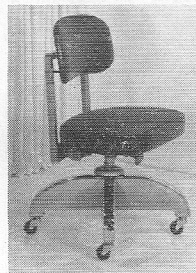
- Industrial mobile phone for 30-50 Mc ..... TR-325
- Industrial mobile phone for 152-174 Mc ..... TR-426
- Industrial mobile phone for 108-152 Mc ..... TR-426A

**TRANSISTORIZED LOUDHAILER**



The newest thing in electronic megaphones of tremendous power for commercial, industrial and sports. No tubes, yet supplies 3 watts with a small battery pack that will last approximately six months. Speak into one end and a loud clear voice covering easily 400 yards comes out the other. Size: 15 1/2" long, 10 1/2" bell. Weight, 5 lbs. FCDA listed Item P-2.

Loudhailer ..... 5907  
Battery kit ..... GR-120

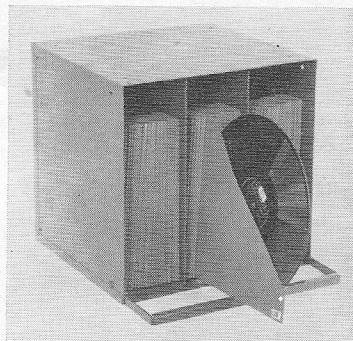


**CONTROL ROOM CHAIR**

Selected by Gates for comfort and utility in control room service. Smooth running, quiet casters, 180° swivel, adjustable height, form fitting back contour. Covering DuPont fabrilite. A strong serviceable chair to prevent fatigue.

Control Room Chair .... 255

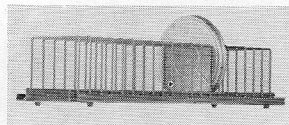
**SECTIONAL DISC CABINETS**



All metal supplied with 90 heavy red wallet pockets, one for each record, two sets gummed numbers, 270 printed cataloging cards for 3-way cross index and steel card file.

Record size	Width	Height	Depth	Pocket Cap.	Cat. No.
7"	13 1/8"	9"	9"	90	A-7
10"	13 1/8"	12 3/8"	12"	90	B-10
12"	13 1/8"	15 5/8"	14"	90	C-12
16"	13 1/8"	20 5/8"	20"	90	D-16

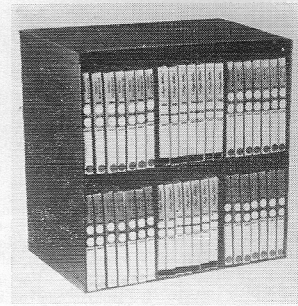
**FILM SEPARATORS FOR 16MM REELS**



Heavy wire separators on metal base with card holders for indexing. Length, 29".

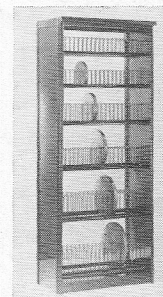
Capacity	Cat. No.
22—400' reels	SR-420
20—600/800' reels	SR-6820
20—1200/1600' reels	SR-1216

**TAPE CABINETS**



Holds 42 reel boxes of 7" tape reels. 13 1/8" wide, 12 5/8" high, 8 5/8" deep. Has six compartments. May be stacked as desired. .... TR-742  
Holds 21 reel boxes of 10 1/2" tape reels. 13 1/8" wide, 12 5/8" high, 12" deep. Has three compartments. May be stacked as desired. .... TR-1021

**FILM CABINET**



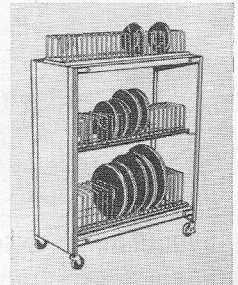
Closed top, base and sides. Open front and back. Equipped with separator racks adjustable to 1" centers. Gray enamel finish. Size: 30" wide, 75" high, 15" deep. Capacity: 44-400' reels, 20-600/800' reels, 1200/1600' reels. Size computed with reel cans.

Film Cabinet ..... F50-6120

**FILM REELMOBILE**

Accommodates up to 27-400' reels, 25-600/800' reels and 25-1200/1600' reels. 3" moulded cushion-tread swivel casters, two with brakes, made of steel, finish gray. Film separator racks adjustable vertically on 1" centers. Size: 41 1/2" high, 15" deep and 36" wide.

Film Reelmobile .. RM-77

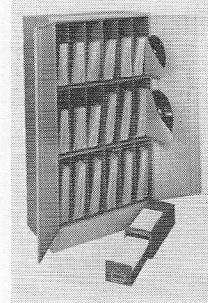


**DISC REELMOBILE**

Same as above but equipped with your choice of four sectional disc cabinets listed in center column. When ordering, state what sectional disc cabinets are desired.

Disc Reelmobile with four sectionals  
disc cabinets ..... DM-360X

**DISC CABINET**



Protect those expensive and fragile 12" LP's as they should be. Holds 540 12" LP's with a heavy red wallet for each. Includes two sets of numbers, 1620 printed catalog cards and card file. Size: 60" high, 29" wide and 14" deep. Double door with lock and key.

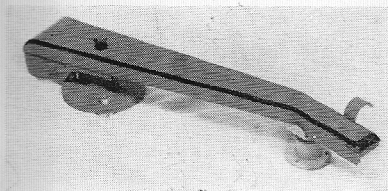
Disc Storage Cabinet ..... C-540

SEE PAGE 147 FOR NEW RECORD-TAPE SERVICE CABINET

**FOR AFTER HOURS SERVICE**

If you have an emergency we want to help any time — night, wee hours, holidays. — Place your call to Baldwin 2-5088, Quincy, Illinois and they will put you in touch with the proper Gates person assigned to emergency service. — For emergencies, call the telephone number and not by company name.

**GRAY VISCOUS-DAMPED ARM**



Considered one of the truly fine professional arms used in broadcasting today. Handles 16" discs or smaller. Features perfect tracking, adjustable dampening and viscous-damped feature almost eliminates fractured stylus by dropping on record. Use with GE triple or single play reluctance pickup heads. Page 131.

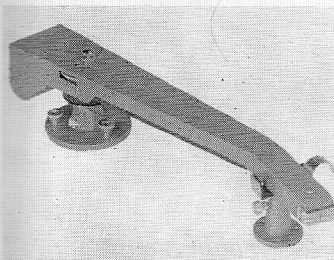
Gray Viscous-Damped Arm ..... Cat. 108-C

**GRAY MICROBALANCED ARM**

Fully viscous-damped with both vertical and horizontal pivots. Features maximum tracking stability and complete static balance around the vertical pivot. Made by Gray. Use with single or triple play cartridges on Page 131.

Microbalanced arm (for 16" discs or less) .... 216

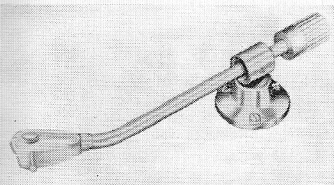
**VISCOUS DAMPED ARM**



This new model, only recently introduced into the United States, employs the floating action viscous damped principle. Supported at one point by needle bearing and jeweled pivot in ball and socket assembly in silica oil dampening fluid. Has variable side adjustment for exact stylus pressure. Accommodates all reluctance cartridges including triple plays as listed on Page 131. For 17" discs or less.

Viscous damped tone arm ..... GR-16

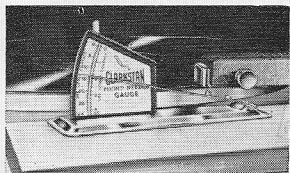
**TUBULAR TRANSCRIPTION ARM**



Adjustable for turntable height, dual ball bearing races for horizontal movement and vertical movement pivots in 1 MM. chrome steel ball bearings. Stylus pressure adjustable by self locking, threaded counterweight. Handles all GE cartridges listed on Page 131. Has tubular arm body.

Transcription arm for 16" or less records ..... 160  
Transcription arm for 12" or less records ..... 120

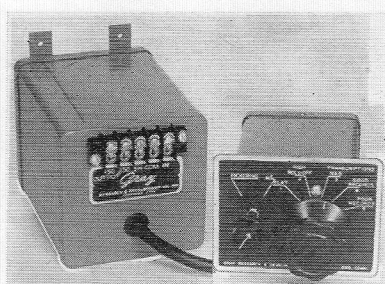
**STYLUS FORCE GAUGE**



An inexpensive yet very needed item wherever transcriptions are used. Measures pressure in grams of stylus on record.

Stylus gauge ..... 301

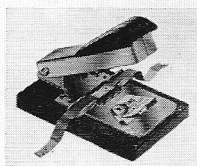
**GRAY EQUALIZER**



Four-position equalizer for use with any low impedance pickup cartridge (Page 131) and provides these curves: (1) latest NARTB/AES, (2) intermediate, (3) roll off, and (4) flat response. Output impedance 150 ohms. Supplied as illustrated with etched dial plate and knob. Suggest M-5330 preamplifier listed Page 156. Made by Gray.

Transcription Pickup Equalizer ..... 602-C

**TAPE SPLICER**



Cutter cartridges house 3 long life blades. Two operating positions, miter cut and trimming cut selected by knob. With clear plastic dust cover.

Gibson standard splicer ..... TS4H

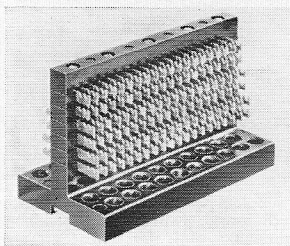
**Industrial Tape Splicer**

For computer, TV and industrial tapes up to 1" wide. Long life, easily replaceable blades. Precise blade centering adjustment. Heavy cast base.



SIZE	Cat. No.
For 1/4" tapes	TS-250
For 1/2" tapes	TS-500
For 5/8" tapes	TS-625
For 3/4" tapes	TS-750
For 1" tapes	TS-1000

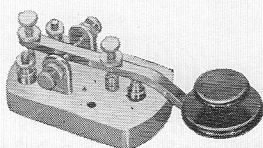
**AUDIO TERMINAL BLOCK**



Has 120 terminals in six rows. Molded one-piece phenolic block with base 3 1/2" x 6 1/8". Height 3 1/2". Terminals plated brass. Polished phenolic finish makes easy removal of solder splash.

Audio terminal block ..... PT-106

**HEAVY DUTY KEY**



Large 1/4" coin silver contacts, chrome base. Navy type knob. Adjustable steel bearings and well designed spring give light keying touch. Finest hand key money can buy.

Telegraph key ..... 114-321

**HEAD PHONES**



Brush dual crystal unit as illustrated. Smartly styled, unusually sensitive and dependable. For all professional service.

Dual head set ..... BA-200

Brush single head set with head band. Otherwise same as dual unit above.

Single head set ..... BA-201

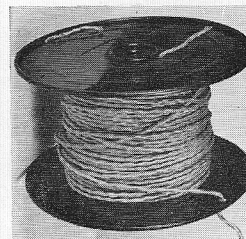
Trim dual head set, feather weight model, long recognized as an industry leader. Impedance 24,000 ohms.

Trim dual head set ..... 107

Trim 5 head set, particularly designed for broadcast use. Response substantially flat through all essential frequencies. Shell and cap molded plastic. Alnico V magnet. Floating diaphragm. Supplied with cushions. Impedance 600 ohms.

Trim 5 head set ..... 35-3

**STUDIO AND MICROPHONE CABLE**



**Studio Cable**

Shielded 2-conductor No. 20 stranded, cloth and heavy cotton fabric with tinned copper shield overall. Finest quality for studio audio wiring. Packaged in 250', 500' and 1000' lengths ..... 5H-20

Shielded 2-conductor No. 22 solid enameled, cotton wrap and cotton braid waxed. Tinned copper shield. Has 22 AWG tinned solid copper wire under shield and tubed chrome vinyl plastic jacket. Small size 0.185" diameter. Packaged 100', 500', 1000' spools. .... 8440

A very small 2-conductor shielded cable frequently used in rack wiring. OD .125". Has 2-conductor 16/36 stranded plastic insulation of each conductor with tinned copper shield overall. Packaged 250', 500' and 1000' spools ..... 1261

Shielded 2-conductor No. 18 stranded for power cabling. Has rubber insulation and overall rubber jacket. OD 0.295". Available in 50' and 100' spools. .... 8428

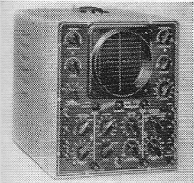
**Microphone Cable**

Rubber jacketed shielded highly flexible 2-conductor microphone cable of high commercial quality. Available any length as ordered. Per foot ..... MIC-100

Single conductor shielded rubber jacketed microphone cable ..... 8410

FOR PICKUP CARTRIDGES AND PREAMPLIFIERS, PLEASE REFER TO PAGE 131.

**5" OSCILLOSCOPE**

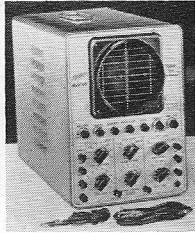


This Hickok large commercial scope is one of the industry's most popular. Frequency response wide band DC to 5 Mc and narrow band to 2.5 Mc within 3 db. Uses 5ADP1 flat faced cathode ray tube. Complete in every detail including illuminated calibrated green screen and filter. Size: 14"x12"x18" deep. For 115 volts, 50/60 cycles.

5" Oscilloscope ..... 770

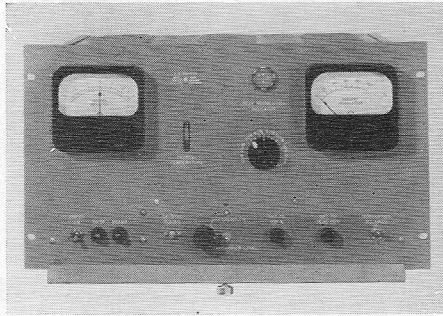
**PORTABLE 5" OSCILLOSCOPE**

This technician's model portable scope in the popular price class will fill all practical needs in AM radio and industrial testing. Response DC to 750 Kc within 3 db. Illuminated calibrated screen with green filter. Uses 5UP1 cathode ray tube with sharp trace detail. Size: 13" high, 10" wide, 16" deep. For 115 volts, 50/400 cycles.



Portable Oscilloscope ..... 685

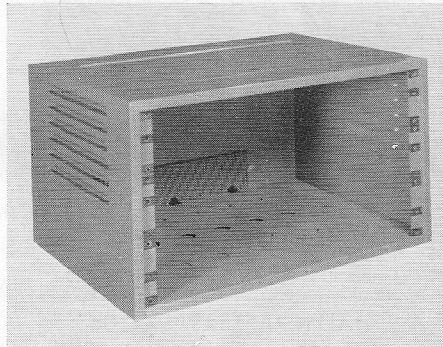
**FREQUENCY MODULATION MONITOR**



Made by Hewlett-Packard and FCC approved for measuring frequency and modulation percentage of standard FM broadcasting stations with  $\pm 75$  Kc swing. An accurate laboratory type instrument used in scores of FM stations. Be sure and state frequency when ordering. Panel size: 10 1/2" x 19". For 115 volts, 50/60 cycles.

FM Monitor ..... 335B

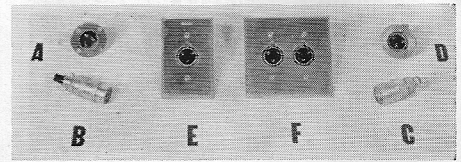
**DESK RACK CABINET**



Styled and finished in gray to match all Gates equipment as well as standard industry requirements. Holds 10 1/2"x19" rack panel space with 14" inside depth clearance. Hinged lid and well louvered for ventilation. Size: 20 1/4" wide, 11 3/4" high, 15" deep.

Desk rack cabinet ..... M-5644

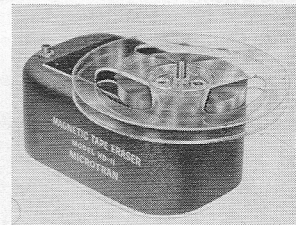
**CANNON P CONNECTORS**



Long a popular, heavy duty connector in radio and TV. Approximately 1 1/8" in diameter.

Symbol	Description	Cat. No.
A	Receptacle for chassis mounting, male, 3 prong	P3-14
B	Cable receptacle, female, 3 prong	P3-CG-115
C	Cable plug, male, 3 prong	P3-CG-125
D	Receptacle for chassis mounting, female, 3 prong	P3-13
E	Wall plate with 3 prong female receptacle	P3-35
F	Wall mounting with two 3 prong female receptacles	P3-35-2G

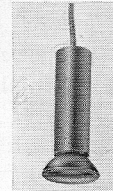
**TAPE ERASER**



Bulk tape demagnetizer developing high intensity magnetic field. Erases recorded signals and noise completely and restores tape to like new condition. Handles 5", 7" and 10 1/2" reels. Adapter hub available (optional accessory) for 10 1/2" reels. 117 volts, 50/60 cycles.

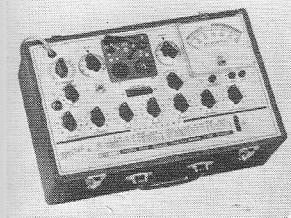
Tape eraser ..... HD-11

**TELEPHONE PICKUP COIL**



For transcribing telephone conversations with recorder. Suction cup attaches unit to telephone receiver. Supplied with 6 1/2" cord. Must be used in accordance with Federal law. Size: 5/8" diameter and 2 3/8" long.

Telephone pickup coil ..... HP-61



**PORTABLE TUBE TESTER**

Accommodates over 95% of all tubes in use today including new 11-pin socket and many foreign tubes. Along with standard requirements of a good tester, this model reads: grid current (gas) test, filament continuity test, constant indication of line voltage and Hickok famous roll chart for speedy data on tube to be checked. 17" wide, 11 3/4" long, 7 1/2" deep.

Portable tube tester ..... 6000

**INDUSTRIAL TUBE TESTER**



A rugged industrial tester to serve almost every conceivable need. Tube leakage reads directly on meter scale, provision for measuring plate milliamperes and heater current. Outstanding feature is separate rectified DC voltage applied to each tube element in dual tubes permitting accurate balancing of such tubes as the 6SN7. Also tests selenium rectifiers and germanium cycles.

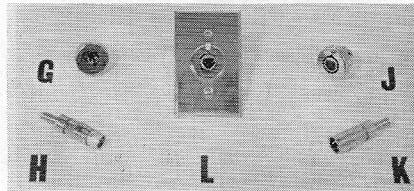
Industrial tube tester ..... 539B

**BLANK RACK PANELS**

Made of 3/16" half hard flat aluminum stock 19" wide, punched standard relay rack mountings and finished in medium gloss gray. These are not the skimpy 1/8" blank panels but standard commercial thickness, available all widths from 3 1/2" to 19 1/4" in 1 3/4" multiples.

Blank panels, per 1 3/4" multiples ..... BL-1

**CANNON XL CONNECTORS**



Popular small size Cannon connector used universally in radio and TV.

Symbol	Description	Cat. No.
G	Chassis receptacle, male, 3 prong	XL3-14
H	Cable receptacle, female, 3 prong	XL3-11
J	Chassis receptacle, female, 2 prong	XL3-13
K	Cable plug, 3 prong, male	XL3-12
L	Single, 3 prong, female, wall plate	XL3-35
—	Double, 3 prong, female, wall plate	XL3-35-2G

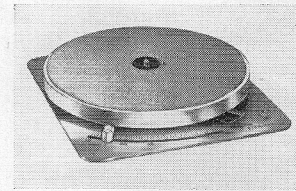
**VOLT-OHM-METER**



This new improved Simpson model is the broadcaster's right hand. Over 3/4 million in use. Reads DC and AC voltage to 5000V, volume level in db to +50 db, resistance to 20 megs, and DC milliamperes to 500 and amperes to 10. With test leads.

Volt-Ohm-Meter ..... 260

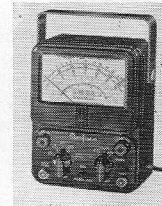
**VARIABLE SPEED TURNTABLE**



Here is a product with wide versatility. A lever on front adjusts speed from 16 to 83 RPM with exact settings at 16 2/3, 33 1/3, 45 and 78 RPM. 12" turntable, built in stroboscope, 45 RPM hub supplied and wow less than 0.2% RMS. Ideal for sound effects table as well as standard record player. Mounting plate size: 11 3/4"x13 1/4".

Variable speed turntable ..... 60

**VACUUM TUBE VOLT-OHM-METER**



A new Simpson product indispensable in maintenance. Has 22 megohm input impedance, twice as high as any instrument in its class. Single DC/AC/ohms probe. Handles RF voltages to 150V RMS. Seven DC ranges to 1500V, seven AC ranges to 1500V. Peak to peak to 4000V. AF voltages (30-100 Kc  $\pm 5\%$ ) to 1500V ohms to 1 meg. in 7 ranges.

Volt-Ohm-Meter ..... 311  
RF probe for above ..... 0073

**NATIONAL NC-66**



A portable receiver to cover the 150-400 Kc band as well as .50-1.4 Kc (broadcast) and 1.4 Kc to 23 Mc. AC or battery operated. Inbuilt ferrite loop antenna and whip antenna. Ideal for all purpose portable short wave and broadcast with excellent performance on marine bands for boat owners. Size: 12 1/4" x 9 3/4" x 10". Weight, 16 lbs., less batteries.

Portable receiver ..... NC-66

**NATIONAL NC-109**



Low price, yet top quality with full 540 Kc to 40 Mc coverage. Has crystal filter, separate product detector for CW and single sideband reception. Has large S meter and covers entire range in four bands. Size: 16 1/4" x 10" x 10 7/8" deep. Finish, gray. 115 volts, 50/60 cycles.

Communications receiver ..... NC-109

**NATIONAL NC-188**



Four general coverage ranges 540 Kc to 40 Mc for phone and CW. Also 5 band spread ranges 80-10 meters. A truly fine communications receiver at very low cost. Size: 16 1/4" x 10" x 11" deep. 115 volts, 50/60 cycles.

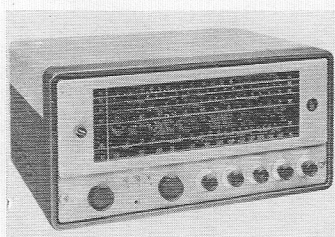
Communications receiver ..... NC-188

**MULTIPLEX RECEIVER**



Designed for one and two sub-channel service with FM multiplexing in 88-108 Mc band. Used with multiplex transmitter on Pages 64-74. Further details on request.

**HALLICRAFTERS SX-62A**



All purpose receiver for AM and FM. Tunes 550-1620 Kc and 1620 Kc to 32 Mc, plus FM band from 29 to 109 Mc. Fourteen tubes plus rectifier. Temperature compensated, voltage regulated and 6-position selectivity. 20" x 10 1/2" x 16" deep. 115 volts, 50/60 cycles.

All purpose receiver ..... SX-62A

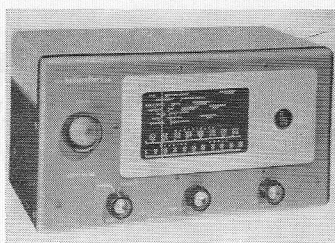
**HALLICRAFTERS SX-100**



Topflight communications receiver with double conversion super-het over entire frequency range of 538 Kc to 34 Mc. Precision gear drives, selectable sideband reception of both suppressed and full carrier. Twelve tubes plus rectifier. 18 3/8" x 8 1/2" x 10 3/4" deep. Tee notch filter and 100 Kc crystal calibrator. 115 volts, 50/60 cycles.

Communications receiver ..... SX-100

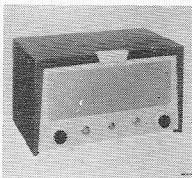
**HALLICRAFTERS SX-104**



Model SX-104 is for 30-50 Mc, and SX-105 for 152-173 Mc. Quartz crystal control or tunable. Built in squelch. Nine tubes plus rectifier. Size: 13" x 7" x 7 3/4" deep. 115 volts, 50/60 cycles.

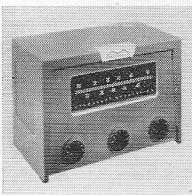
For 30-50 Mc ..... SX-104  
For 152-173 Mc ..... SX-105

**ALERT RECEIVERS**



Receiver for 30-50 Mc ..... MCA-100L  
Receiver for 144-174 Mc ..... MCA-100H

Meets Civil Defense Certifications R-74 and R76. A crystal controlled receiver for the 25-50 Mc or 144-174 Mc FM bands. 11 tubes plus rectifier. 1.5 microvolt sensitivity. Loudspeaker level output. For 115 volts, 50/60 cycles. Be sure and state crystal frequency when ordering.

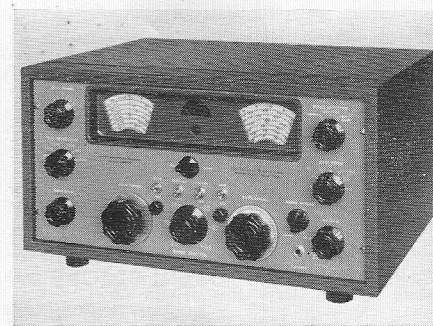


**TURNTABLE FM RECEIVER**

For 30-50 or 152-174 Mc bands. Seven tubes and rectifier. Inbuilt 5" speaker. 115 volts, 50/60 cycles. 4 microvolt sensitivity.

For 30-50 Mc ..... MR-33  
For 152-174 Mc ..... MR-10

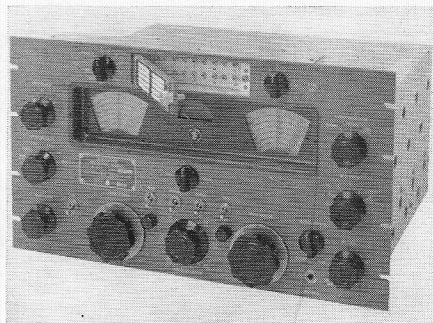
**TMC MODEL GJR-90**



One of the finest professional communications receivers in the world today with double emission super-het and frequency range from 540 Kc to 31 Mc. Receives AM, CW, MCW and SSB. Sensitivity better than 1 microvolt. Fourteen tubes plus rectifier and regulator. Size (cabinet): 20" x 10" x 15" deep. Rack mounting: 19" x 8 3/4" x 14" deep. For 115/230 volts, 50/60 cycles.

Professional receiver ..... GPR-90

**SSB CRYSTAL CONTROL**



This TMC receiver offers all of the features of the GPR-90 above but permits the use of 10 precisely adjustable crystal positions available from the front panel for stabilities in SSB and point to point or net operations becomes simple and straightforward. Frequency range 540 Kc to 31 Mc in 6 bands. Sensitivity 1 microvolt or better. Fifteen tubes plus rectifier and regulator. Size: 19" x 10 1/2" x 14" deep. 115/230 volts, 50/60 cycles. Uses CR 18/U crystals.

Receiver complete ..... GPR-90RX

**SINGLE SIDEBAND ADAPTER**



Will adapt to any receiver which will provide 0.3 volts (RMS) RF input at 455 Kc. Is a filter type slicer for accurate SSB tuning. The 455 Kc input is converted to low frequency with a mixer/oscillator for selection of either sideband. Has electrical band spread for easy tuning of SSB. Output is at loudspeaker level. Size: 12" x 10" x 15" deep. For 115 volts, 50/60 cycles.

TMC SSN Adapter ..... GSB-1

**POLICE ALARM**



For listening on 30-50 Mc FM band. Ideal for staff monitoring in standby service. Self-contained loudspeaker. For 115 volts, 50/60 cycles.

Police Alarm ..... PR-31



## REMOTE CONTROL SYSTEM (for Communications)



A complete remote control system with microphone for operating a communications transmitter and receiver over 20 miles or less on a single telephone line. Features are:

1. Turns line power to transmitter, on and off.
2. Keys transmitter (puts transmitter on and off the air).
3. Selects one of 3 channels or one of 3 transmitters.
4. Amplifies and reproduces audio from receiver (over same pair of wires).
5. Adjusts squelch on receiver.
6. Provides intercom to transmitter location.
7. Includes "press to talk" dynamic microphone.
8. Automatic gain amplifier (limiter).
9. Large 4½" meter reads audio level.
10. 300-3000 cycle response for communications.
11. 5" speaker self-contained.
12. Provision for foot key.

**EQUIPMENT FURNISHED INCLUDES:** (a) dynamic microphone with press to talk desk stand, (b) remote control unit as illustrated, and (3) switching line amplifier on rack mount 3½" x 19" panel.

All equipment is self-contained except the switching line amplifier which requires 6.3 volts at 0.3A at 200/300 volts DC at 15 MA of external power. — This remote control system has unusual versatility and will adapt to nearly all needs. In some instances of multi-channel and power switching, added relays easily procurable from standard sources, might be required.

**SPECIFICATIONS:** For 115 volts, 50/60 cycles. Output level adjustable to +14 dbm. Size: 15" long, 9" high and 10¼" deep. Noise, 46 db below 0 level. Squelch, 0 to -20 volts to remote receiver. Tubes: 12AU7, 12AX7, 6AQ5, 6J8 and 5Y3GT.

Remote Control System, includes microphone .... 117C903

## CITIZENS BAND TRANS-CEIVER



Here is a brand new transmitter and receiver for the 450-470 Mc citizens band. The first modestly priced unit that may be easily licensed to "service" and "industrial" organizations. Operates either on 12 volt car battery or 115 volts AC. Field and base station are identical for complete compatibility and interchangeability.

One cabinet 13" wide, 14½" long and 5¾" high contains the complete transmitter-receiver package which includes self-contained loud-speaker and press to talk microphone. When combined with the Model 4002 whip antenna for mobile or permanent installation, nothing else is required.

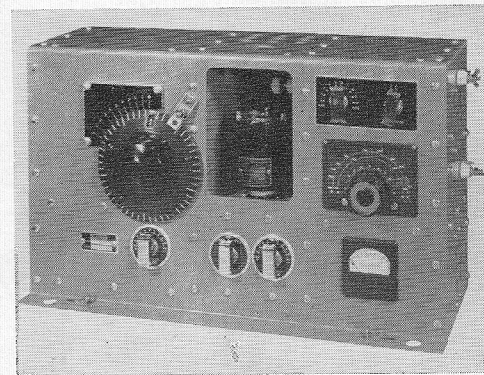
Mileage range of this equipment cannot be definitely stated as location has varying effect. The TR500 citizens unit has 10 watts input or 40 to 50 watts output which is in excess of normal citizens band equipment. Under normal conditions, coverage of several miles can be expected.

**SPECIFICATIONS:** 100 db down selectivity at ±50 Kc. Band pass, 6 db down at ±20 Kc. Sensitivity, better than 20 db quieting for 1.0 UV input. Squelch range, 0-1 UV. Stability, ±.0025%. Duty cycle 20% or 1 minute transmit to 4 minute receive. Response, 300-3000 cycles. Spurious emission, 60 db below fundamental or better. — Made by Kaar.

Citizens band unit complete\* ..... **TR-500**  
Whip antenna ..... **A-4002**

\* State frequency when ordering.

## VFO-CRYSTAL OSCILLATOR-AMPLIFIER

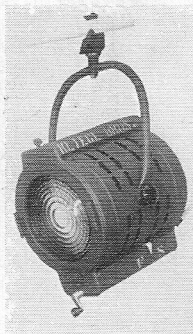


A specially designed unit for 540-1600 Kc operation providing the stability of crystal control on the operating frequency or switch to VFO for change to any broadcast frequency. Has calibrated dial in 10 Kc steps with 1-1500 dial and 200 cycles/div. straight line. Stability, crystal ±10 cycles. VFO ±200 cycles under normal operating conditions. Output, 2 watts at 70 ohms. — Size: 19" wide, 10½" high and 6½" deep. Further detail on this precision instrument will be supplied on request.

VFO/Crystal Oscillator-Amplifier ..... **M-4230**  
Crystal and oven (state frequency) ..... **JK-57**

**KLIEGL FRESNEL LENS SPOTLIGHTS**

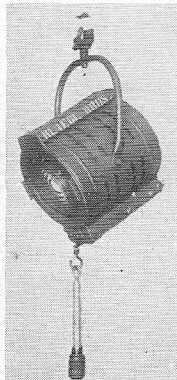
Front and back spindle adjustment control. Heat resisting lens. Perfect light control without spill light or side glare. Adjustable from wide spread to minimum spot. Includes 3' asbestos leads and connector.



- 3" lens, 100/150W lamp ..... 44N3TVG
- 6" lens, 500/750W lamp ..... 44N6TVG
- 8" lens, 1000/1500/2000W lamp ..... 44N8TVG
- 12" lens, 2000W lamp ..... 44N12TVG
- 19" roller caster floor stand for 6" and 8" lens models ..... 1420CR
- 25" roller caster floor stand for 8" and 12" lens models ..... 1421CR

**KLIEGL POLE-OP 8" FRESNEL**

Turns, tilts, adjusts barn doors — all by pole — from studio floor. Has 8" fresnel lens and basic light design very similar to 44N8TVG listed above. Includes C clamp, swivel, asbestos leads and connector. Pole is accessory item. Size: 2 3/8" high, including cradle. 13" wide and 13" deep.



- Pole-Op Klieglight .... 44NP8G
- Sectional 12' pole, handle and loop ..... 44

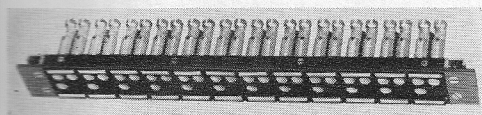
**LAMP SIZES**

For fresnel lights listed above, use following lamp sizes:

- 44N3TVG ..... 100/150W Bayonet Base
- 44N6TVG ..... 500/750W T20 Med. PF Base
- 44N8TVG ..... 1000, 1500, 2000W, G40 Mog, PF Box
- 44NP8G ..... 1000, 1500, 2000W, G40 Mog, PF Box
- 44N12TVG ..... 2000 watt, G48 Mog, BP Base

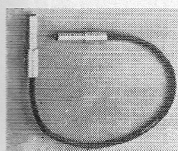
IMPORTANT: See price list for added discount to regular Kliegl light users applicable to TV stations.

**VIDEO PATCH PANEL**



For patching coaxial circuits. 12 groups of 3 jacks on a strip 2 1/8" x 1 9/16". Contacts heat treated beryllium copper. Outer braid of coaxial cable may be soldered directly to jacks for complete shielding. Patch cords and plugs listed and illustrated below.

- Video patch panel ..... 963
- Looping plug ..... 965
- 18" patch cord ..... 967A
- 24" patch cord ..... 967B



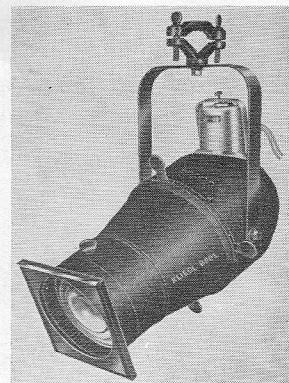
967



965

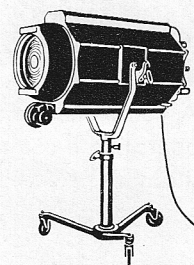
**KLIEGLIGHTS**

Klieglights are spot-flood lights and differ completely from plano-convex and fresnel lens units. Klieglights have been perfected to a degree that arc spotlights are no longer needed. Produce a brilliant, clear, uniform light, easily controlled and molded into any desired pattern. Perfect for highlighting areas or front spotlighting. Outstanding when used with projected scenery, as beam can be cut at any point. Available in hanging and floor models.



Model 1365EG

- Klieglight for 250/500/750 watts T14 Med. bi-post base, up burning spot lamps. Included are reflector, 4 independently adjusted square framing shutters, 6" stepped lens, asbestos wires, yoke and C clamp. Hanging type ..... 1365EG
- Same as 1365EG but with built-in iris shutter ..... 1365EG-IRS
- Same as 1365EG but for 1500/2000 watt T base up burning, 200 hour life lamps ..... 1366EG
- Same as 1366EG but with built-in iris shutter ..... 1366EG-IRS
- Super Klieglight for 2000W T30 base up burning lamp. Rear operated curtain and iris shutter, 12" lens. Includes 25' cable, roller caster floor stand and switch. Rating, 450 foot candles at 4', spot at 25' ..... 1174G
- Dyna-beam Klieglight similar to 1174G above but uses 3000W T32 base up burning lamp. Added feature, in-built rear operated horizontal spread lens which doubles width or projected spot when desired. Rating, 1000 foot candles at 4', spot at 25' ..... 1178G

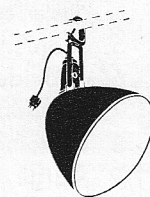


Floor model similar to 1174G and 1178G

**KLIEGL 18" SCOOP LIGHT**

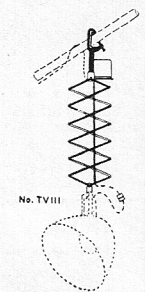


Popular Kliegl light has socket cap with universally adjustable yoke and C clamp, permitting straight down as well as up lighting. Spring tension adjustment. Light weight, ideal for field work. Hood of 16 gg. Alzak-finished aluminum. Includes 3' asbestos leads, connector and takes PS52 lamps from 750W to 2500W in size.



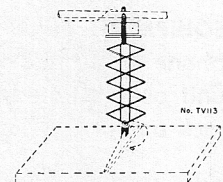
- Scoop Light ..... TV1155G

**HANGING DEVICES**

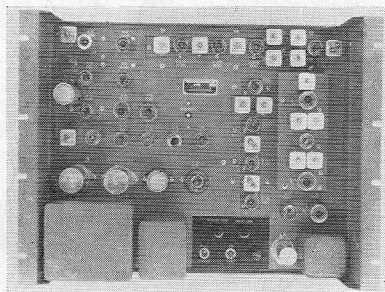


Single spring counter-balance raising and lowering device for use with models TV111 scoop and 44N6TVG fresnel lens units, 360° horizontal rotation and vertical tilt. Illustrated to left. Ideal method of positioning light where needed .... TV111

- Same as TV111 only designed to hold fresnel lens model 44N8TVG ..... TV112



Double spring counter-balance device as illustrated to right for use with 44N12TVG fresnel lens light ..... TV113



**TV REBROADCAST RECEIVER**

High quality receiver used in rebroadcasting TV signals. 3 outputs, video, audio and sync. Sound and video channels are separate. Frequency control is excellent to point that drift on channel 13 is negligible.

**SPECIFICATIONS**

- VIDEO:** Output 75 ohms at 1.5 volts peak to peak and response to 4 Mc.
- AUDIO:** Output +18 dbm, 600/150 ohms, 30-15,000 cycles. Distortion, 1% or less.
- SYNC:** Output 75 ohms at 4 volts peak to peak.
- OTHER:** RF input 75 ohms. Power, 115 volts, 60 cycles. Size: 19"x13 3/4"x8 3/4" deep.

- TV Receiver ..... TR-1

Now, more than ever, Electro-Voice microphones are being purchased for exacting professional applications.

Since the advent of TV, concrete evidence is visible daily on any TV screen of the popularity, versatility, and superior performance of E-V microphones.

For over 30 years, Electro-Voice, through progressive engineering and manufacturing skill, has devoted itself to the needs of the broadcast and TV industry. As specialists, Electro-Voice conceived the slim-trim design in dynamic microphones which has so facilitated improved programing and

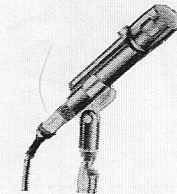
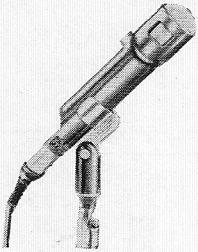
audio quality in recent years. Mindful of the requirement for dependability in modern broadcast work, Electro-Voice created Acoustalloy, the famous diaphragm material which met the need for rugged reliability in strenuous operation, and vastly reduced station overhead costs in microphone servicing. Electro-Voice has obsoleted the use of fragile ribbons in directional microphones, and made possible superior discrimination against unwanted sounds through development of the dynamic Variable Distance principle.

These features, and many more, make Electro-Voice the choice for your station.

## CARDIOID MICROPHONES

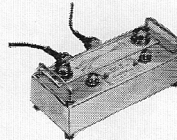
### MODEL 666 VARIABLE D DYNAMIC

A superior cardioid microphone with uniformly excellent front-to-back discrimination, wide-range response. For boom, hand, desk, or floor stand operation under a variety of conditions, especially useful where noise and severe reverberation exist. At least 20 db front-to-back discrimination across the spectrum. Proximity effect is virtually eliminated. 30 to 16,000 cps response. Variable 50, 150, 250-ohms output at -55 db. Cast aluminum case, TV gray finish. Clamp-on stand mount with  $\frac{5}{8}$ "-27 thread and  $\frac{1}{2}$ " adapter. 20' cable with UA-3 connector. Size:  $7\frac{1}{2}$ " l.,  $1\frac{3}{4}$ " max. dia. Net wt. 11 oz.



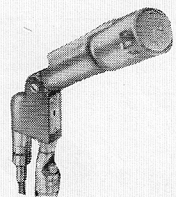
### MODEL 667 TRANSISTORIZED DYNAMIC

This all-purpose microphone fulfills wide-range requirements under a great variety of acoustic conditions. Combines excellent cardioid operation with an in-line transistor preamp; controls provide 40 distinct frequency response characteristics. Max. output level: 50 ohms, -30 db; 150 ohms, -32 db; 250 ohms, -33 db. Similar to 666 except 35 to 16,000 cps response, brown and gold finish. Preamp noise level -123 db referred to input. Controls: Bass (+3 db, flat, -5 db, -9 db at 100 cps); Treble (+9 db, +6 db, +3 db, flat, -6 db at 10kc); Gain (4-position); Presence (+6 db at 3.5 kc, +1 db at 2 and 6kc); Power On-Off. Long-life mercury battery supplied. Net wt.  $3\frac{1}{4}$  lbs. 50', 20' cables with UA-3 connectors; hardwood carrying case.



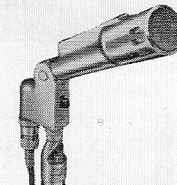
### MODEL 665 VARIABLE D DYNAMIC

Similar to Model 666 in performance but for slightly less exacting requirements. 40 to 15,000 cps response. Recessed switch permits 50 or 250 ohms output at -55 db. Die cast case with nonreflecting gray finish.  $\frac{5}{8}$ "-27 thread; 18' cable, XL-3 connector. Size:  $7\frac{3}{16}$ " l.,  $1\frac{1}{8}$ " max. dia. Net wt. 1 lb. 10 oz.



### MODEL 664 VARIABLE DYNAMIC

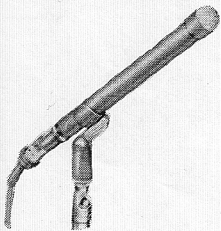
A good medium-price cardioid, similar to Model 666 in operating principle. 40 to 15,000 cps response. 150-ohm and Hi-Z output at -55 db. Chrome finish, cast case. 18' cable, MC-4 connector.  $7\frac{3}{16}$ " l.,  $1\frac{1}{8}$ " dia. Net wt. 1 lb., 10 oz.



## OMNIDIRECTIONAL MICROPHONES

### MODEL 655C SLIM-TRIM DYNAMIC

The finest TV-BC microphone—widest range commercially available, 40 to 20,000 cps. Widely used as laboratory standard. Outstanding for single-mike applications. 50, 150, 250 ohms at -55 db. Adjustable clamp-on stand mount,  $\frac{5}{8}$ "-27 thread,  $\frac{1}{2}$ " adapter, TV gray finish. 20' cable, UA-3 connector. Size:  $10\frac{1}{2}$ " l., 1" dia. Net wt. 11 oz.



### MODEL 654 SLIM-TRIM BC DYNAMIC

Functional slim-trim styling; similar to Model 655C in design, but for slightly less exacting applications. A high-quality unit for remotes, man-on-the-street shows, and all-around studio use. 50 to 15,000 cps response. Recessed switch selects 50 or 250 ohms output at -55 db. Tilttable head; TV gray finish; 18' cable, XL-3 connector;  $\frac{5}{8}$ "-27 thread. Size: 10" by 1". Net wt.  $15\frac{1}{2}$  oz.



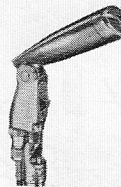
### MODEL 636 SLIMAIR DYNAMIC

Fine general purpose microphone with style and quality of the Model 655C. 60 to 15,000 cps response. Hi and Lo-Z at -55 db. Tilttable head; On-Off switch; chrome finish.  $\frac{5}{8}$ "-27 thread. 18' cable, MC-4 connector.  $10\frac{1}{4}$ " l.,  $1\frac{1}{8}$ " dia. Net wt. 15 oz.



### MODEL 623 SLIM DYNAMIC

A good versatile performer in a medium price slim-style mike. 60 to 12,000 cps. response. 150 ohms and Hi-Z output at -57 db. Tilttable head; chrome finish. 18' cable, MC-4 connector;  $\frac{5}{8}$ "-27 thread. Size:  $7\frac{1}{2}$ " by  $1\frac{3}{16}$ ". Net wt. 15 oz.



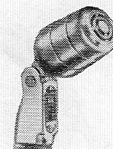
### MODEL 635 BROADCAST DYNAMIC

"Workhorse of the industry" for remote pickups, announcing, studio work. 40 to 15,000 cps. response. Switch selects 50 or 250 ohms output at -55 db. Tilttable head; chrome finish.  $\frac{5}{8}$ "-27 thread. 18' cable, XL-3 connector. Size: 2" by  $6\frac{1}{4}$ ". Net wt. 1 lb.



### MODEL 630 POPULAR DYNAMIC

Famous for quality at low cost. 60 to 11,000 cps response. 50, 250 ohms, Hi-Z output (specify when ordering) at -55 db. On-Off switch; tilttable head; chrome finish. 18' cable, MC-3 connector;  $\frac{5}{8}$ "-27 thread. Size: 2" by  $6\frac{1}{4}$ ". Net wt. 1 lb.



#### MODEL 605 DURABLE DYNAMIC

For dependable, general purpose use. Response 65 to 8,000 cps. 50, 250 ohms, Hi-Z (specify when ordering) at -55 db. Fixed head; chrome finish, 18' cable with MC-1 connector.  $\frac{5}{8}$ "-27 thread. Size:  $3\frac{1}{4}$ " by 2" dia. Net wt. 12 oz.



#### MODEL 611 MERCURY DYNAMIC

Traditionally styled, fine-performing dynamic for general sound pickup. Response 50 to 9000 cps. 50, 150, 250 ohms, Hi-Z output (specify when ordering) at -55 db. Tilttable head; On-Off switch; chrome finish. 18' cable, MC-3 connector.  $\frac{5}{8}$ "-27 thread. Size:  $2\frac{3}{8}$ " by  $3\frac{1}{8}$ " by  $6\frac{1}{4}$ ". Net wt. 1  $\frac{1}{4}$  lbs.

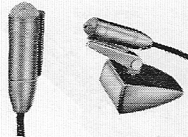


### SPECIAL PURPOSE MICROPHONES

#### MODEL 649 MINIATURE LAVALIER

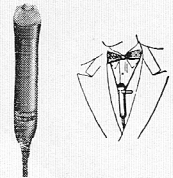
Smallest dynamic lavalier, weighs only 2 oz.,  $2\frac{11}{16}$ " by  $\frac{3}{4}$ " dia. Easily hidden in corsage, under lapel or tie, behind book—anywhere. Response 60 to 10,000 cps. 50, 150, and 250 ohms at -62 db. TV gray finish. Neck cord, clip, transformer housing at end of 30' cable, UA-3 connector.

Model 449 stand. For Model 649 microphone.



#### MODEL 646 LAVALIER DYNAMIC

Extremely versatile—for chest, stand, boom, hand use. Variable control for rising or flat HF response. 50 to 10,000 cps. 50, 150, 250 ohms output (specify when ordering) at -57 db. TV gray finish. Neck cord, clip, 30' cable, built-in connector. Size:  $6\frac{1}{4}$ " by 1" dia. Use Model 300 clamp (not included) for stand use. Net wt. 7 oz.



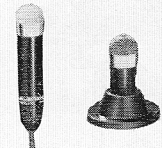
#### MODEL 210KK CARBON MICROPHONE

Lightweight, hand-held, extra rugged. Single-button carbon. Output -50 db. DPDT, Press-to-Talk switch can be used for relay control. Black phenolic case. 5' coiled cord. Size:  $2\frac{1}{4}$ " by  $2\frac{1}{4}$ " by 4".



#### MODEL 647 LAVALIER DYNAMIC

Small, rugged, versatile. For less exacting lavalier applications. Response 60 to 10kc, 150 ohms or Hi-Z (specify when ordering) at -57 db output. TV gray finish. Neck cord, clip, 18' cable, built-in connector. Size: 5" by 1" dia. Uses Model 300 clamp (not included) for stand use. Net weight 4 oz.



Model 416 Stand. Flush mount for Models 646, 647.

#### MODEL 648 INTERCOM DYNAMIC

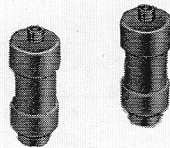
Convenient talk-back and paging microphone. Mounts on desk or floor stand, boom, goose-neck, or special fixtures. Cable (not included) is concealed when used on Model 448 swivel boom. Response 50 to 10kc. 50, 150, 250 ohms output (specify when ordering) at -58 db. TV gray finish. Built-in connector. Size:  $6\frac{1}{16}$ " by 1" dia. (with  $\frac{5}{8}$ "-27 thread adapter). Net weight 8  $\frac{1}{2}$  oz.



MODEL 448 SWIVEL BOOM MOUNT. Specifically for use with Model 648. Holds mike  $11\frac{3}{8}$ " off mtg. surface, extends 4" below surface,  $2\frac{1}{2}$ " dia. mtg. base. 62° elbow bend. Chrome finish. MC-2 connector. Net wt. 1 lb., 5 oz.

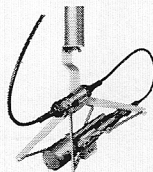
### MICROPHONE ACCESSORIES

MODEL 345 SHOCK MOUNT. Dual-type, prevents reproduction of external shocks, vibrations. Easily attached, removed. Chrome finish.  $\frac{5}{8}$ "-27 thread. Size:  $3\frac{3}{8}$ " by  $1\frac{1}{2}$ " dia. Net wt. 10 oz.

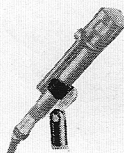


MODEL 346 SHOCK MOUNT. Similar to Model 345 but specifically for use with Model 666, other 11-oz. microphones. TV gray finish.

MODEL 366 BOOM SHOCK MOUNT. Extremely light suspension shock mount. Designed for use with 666, 667, 655C, other 1" diameter microphones. No tools required for installation. Pigtail cable connection (UA-3 connectors) forms cable shock-isolation loop.



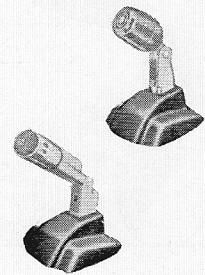
MODEL 300 MICROPHONE CLAMP. Lightweight adapter fits any 1" dia. mike, provides positive stand mount; finger-operated nonslip clamp.  $\frac{5}{8}$ "-27 thread,  $\frac{1}{2}$ " adapter.



### DESK STANDS

MODEL 418. Heavy die cast base, TV gray finish. For use with small-stud mikes such as Models 611, 623, 630, 635 and 636.

MODEL 418-S. Stand with on-off switch.



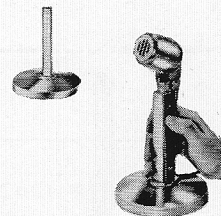
MODEL 419. Similar to Model 418 but for use with Models 654, 664, and 665.

MODEL 419-S. Stand with on-off switch.

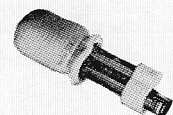
MODEL 420. Heavy cast iron base, TV gray finish. With simple, positive finger-operated clamp. Mounts Models 666, 667, 655C, 646, other 1" dia. mikes. Net wt. 3 lbs.



MODEL 423-A. Sturdy, smartly styled. Round die cast base,  $5\frac{1}{8}$ " dia., rubber base buttons. Chrome finish. Specify 3" or 5" stem riser.  $\frac{5}{8}$ "-27 thread. Net wt. 1 lb.



MODEL 428 TOUCH-TO-TALK STAND. Lever-type switch for relay operation or mike on-off. SPDT or DPDT switch (specify when ordering). Closes, opens instantly or locks in "talk" position. Chrome finish, gray plastic switch lever. Size: 7" by  $5\frac{1}{8}$ " base dia. Net wt. 1  $\frac{3}{4}$  lbs.



MODEL 524 WIND SCREEN. Minimizes wind effects, boom or outdoor use. Made of Acousti-foam rubber. For use with Models 666, 667. Net wt. 2 oz.

MODEL 335 BLAST FILTER. Acoustically treated to stop wind, breath blasts without affecting frequency response. For Models 630, 635, 605. Chrome finish.



## DR-330 MICROPHONE

Variable polar pattern, -57 dbm output and selectable 50, 150 or 250 ohm impedance, this microphone is considered one of the finest manufactured today. Pattern is true cardioid uni-directionality. May be changed to bi-directional ribbon or uni-directional dynamic. 40-15,000 cycle response. 6½" high with shock mounting, 2" diam. Weight, 20 ounces. Finish, gold and black. Supplied with 25' cable and Cannon XL3-12 plug.

Microphone less desk stand ..... DR-330  
Desk Stand ..... ND

## DEMOUNTABLE FLOOR STAND

A completely demountable floor stand for easy, light weight portability, yet unusually strong and sturdy. Adjusts from 26-64". Finish, chrome. 5/8" x 27 thread. Rubber cushioned feet. Weight, 4 lbs. Can be collapsed to length of 22½".

Demountable Stand ..... CS-33

## DESK STAND

Adjustable 8" to 13", chrome stem and substantial cast base with felt feet. 5/8" x 27 thread.

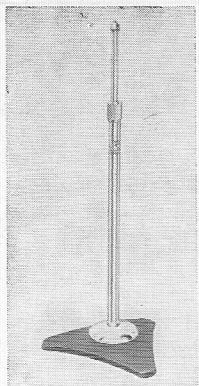
Desk Stand ..... DS-7

## BANQUET STAND

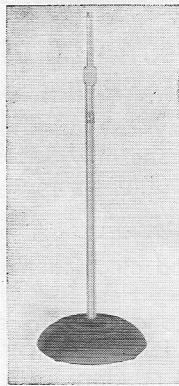
Adjustable 18" to 32", chrome stem and 8" diameter base. 5/8" x 27 thread. Full grip velvet action silent adjustment.

Banquet Stand ..... TS-6

## FLOOR STANDS



MS-25



MS-10C

A floor stand with a big heavy base, listed to left above. Weighs 24 lbs. and base 17" across. Adjustable to 66". Full chrome with gray base. 5/8" x 27 thread. Non-slipping clutch. Fits all microphones listed in this catalog.

Microphone Floor Stand ..... MS-25

Here is a good medium-priced floor stand with a 10" diameter base, chrome pipe and gray base. Adjustable to 64" with 5/8"x27 thread and non-slipping clutch. Weighs 9 lbs.

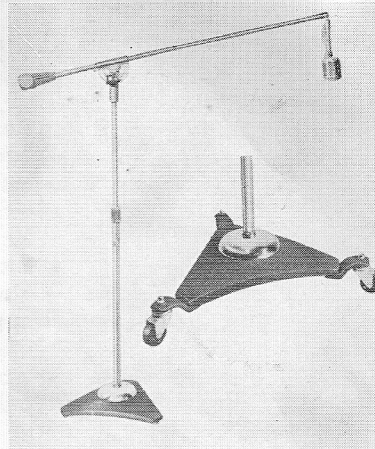
Microphone Floor Stand ..... MS-10C

## BOOM BRACKET

A boom bracket to attach to any existing floor stand with 5/8"x27 thread. 32" long, chrome plated. Counter balance adjustable for various microphones.

Boom Bracket ..... BB-1

## BOOM STANDS



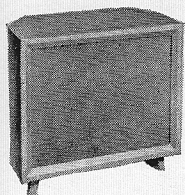
**New Model!** All advantages of "Floating Action" and "safety Air-Lock Cushion" that prevents accidental slippage. All parts "Velvet Smooth" in operation. Boom easily removable to use upright as a conventional floor stand. Gyromatic swivel joint assures mike always hangs in proper position.

**SPECIFICATIONS:** Boom length 62" (more extension addable). Adjustable vertical extension 48"-72". Base diameter 17". Tubular sections super-chrome plated. Modernistic base finished in chrome and gun metal shrivel. "Snap On" hangers furnished to hold mike cable to boom section. Ship. wt. 33 lbs.

Boom Stand without casters ..... BS-36

Boom Stand with silent casters ..... BS-36W

## ELECTRO-VOICE ENCLOSURES AND SPEAKERS



### THE EMPIRE

Contemporary styling, functional design, and exceptional craftsmanship combine to provide an along-the-wall enclosure capable of superb musical reproduction. Accepts the speakers listed below. Available in mahogany, limed oak or walnut finish. Dimensions 29½" high, 32" wide, 16" deep. Shpg. wt. 56 lbs.

### MODEL 15TRX

An excellent three-in-one speaker system for full-range reproduction. Response 30 to 19kc in Empire enclosure. Crossover points, 2kc and 3.5kc. 16 ohms impedance. Magnet wt. 5¾ lbs. Includes level control. 15½" dia., 9½" deep overall. Shpg. wt. 48 lbs.

### MODEL 15TRXB

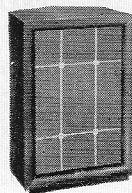
Economy version of three-way Model 15TRX. Response 30 to 18kc in Empire. 16 ohms impedance. Magnet wt. 1½ lbs. Includes level control. 15½" dia., 7¾" deep overall. Shipping weight 17 lbs.

### MODEL 848

Rugged, wide-range coaxial projector, for voice and musicasting. Coaxial performance in a weatherproof, blastproof fiberglass horn assembly. Response 200 to 10kc with wide-angle dispersion. 16 ohms impedance. 10½" wide, 20½" high, 20" deep. Shpg. wt. 17 lbs.

### MODEL 847

Compact and efficient, similar to Model 848 in operation but for low-level applications. Response 300 to 10kc. 16 ohms impedance. 11¾" wide, 7¾" high, 10" deep. Shpg. wt. 7 lbs.



### THE ARISTOCRAT

Unusually smooth reproduction from a modest size enclosure, when used with the speakers listed below. Specifically for room-corner placement. Crafted from the finest hardwood veneers; available in mahogany, limed oak or walnut finish. Dimensions 29½" high, 19" wide, 16½" deep. Shpg. wt. 44 lbs.

### MODEL SP12

Clean, sparkling reproduction is provided by this efficient 12" coaxial speaker. Response 30 to 13kc in Aristocrat enclosure. 16 ohms impedance. 3-lb. magnet. 12¼" dia., 7½" deep overall. Shpg. wt. 25 lbs.

### MODEL SP12B

Economy version of Model SP12. Response 30 to 13kc in Aristocrat. 16 ohms impedance. 1-lb. magnet. 12¼" dia., 6" deep overall. Shipping weight 12 lbs.

### THE BARONET

An excellent enclosure where space is limited. For room-corner placement on the floor or hang from the ceiling. Wide-range reproduction is assured using the Model SP8B listed below. Available in mahogany, limed oak or walnut finish. 22½" high, 14½" wide, 13¾" deep. Shpg. wt. 20 lbs.

### MODEL SP8B

The perfect complement for the Baronet enclosure. Smooth peak-free response from 35 to 13kc. 16 ohms impedance. 1-lb. magnet. 8¾" dia., 4¾" deep overall. Shpg. wt. 9 lbs.

**NEW PRESTO 800 PROFESSIONAL TAPE RECORDER**

Designed by a world leader in recording equipment, the new Series 800 tape recorders are thought by many to be the finest made today. Close cooperation with professional recordists resulted in many mechanical and electrical features that are innovations. — Here is a recorder used as the master in phonograph record recording or the type major broadcasting studios and networks will rely on. The 800 can be depended upon to maintain original adherence to highest specifications almost indefinitely.

**TRANSPORT FEATURES**

- 3 Motors (Direct-Drive Hysteresis Synchronous Capstan Motor and Two Torque Motors).
- 10½" reel capacity.
- Solenoid operated brakes and pressure pulley. Entirely new brake design eliminates frequent readjustment.
- Individually and functionally illuminated pushbutton relay controls.
- Provision for remote control.
- Exclusive tape edit button allows easy "run-off" of unwanted tape.
- Cue button allows hand cueing without motor or brakes.
- Automatic tape lift; only head(s) in use are contacted by tape.
- Easy "Sweep" tape loading.
- Unique e-z-off self-locking combination reel retainers and editing knobs.
- Three-speed ranges of rewind and fast forward.
- Two reel-size switches for perfect running torque control.
- Removable unitized head assembly with self-contained adjustments.

**PREAMPLIFIER**

- Input can be switched to 600 ohm line, bridging or microphone input.
- Illuminated VU meter reads recording, playback, bias or erase levels.
- Two separate output circuits for maximum versatility:
  1. Cueing output switched with VU meter has separate independent level control. Sufficient output to drive small loudspeaker and/or earphones.
  2. Monitor output has input-output comparison switch.
- Any number of amplifiers can be interlocked for multi-channel operation by use of accessory cable.
- No clicks when starting or stopping recording under any conditions.

**SPECIFICATIONS**

- SPEEDS:** 7.5 and 15 ips (Equalization automatically switched with speed change).
- SPEED REGULATION (wow and flutter):** No more than .10% at 15 ips or .15% at 7.5 ips.
- SIGNAL-TO-NOISE RATIO:** 60 db at 1.0% distortion.
- PLAYBACK AMPLIFIER DISTORTION:** 1% (harmonic) at plus 20 dbm output from 35 to 15,000 cps.
- FREQUENCY RESPONSE:** 30-20,000 cps ±2 db at 15 ips.
- HEADS:** Accommodates up to four full or ½ track ("Stacked" Stereo optional).
- TRANSPORT PANEL SIZE:** 19"x15¼".
- PRE-AMPLIFIER SIZE:** 19"x7½".
- SEPARATE POWER SUPPLY PANEL SIZE:** 19"x3½".

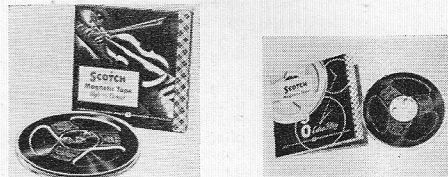
**ORDERING INFORMATION**

(Full Track)

- Console model complete (Fig. 1) ..... C800-1
  - Rack model complete (Fig. 2 and 3) ..... R800-1
  - Portable model (2 cases not illustrated) ..... P800-1
- Available half track, stereo and other combinations as desired.

**RECORDING TAPE**

(Minnesota Mining & Mfg. Co.)



Recording tape is carried in generous quantity at all Gates stock carrying points. Rapid turnover assures fresh stock at all times. Recording tape is prepaid to any place in the United States and quantity prices are lower (see price list). Unless otherwise stated, all tape is of Minnesota Mining manufacture.

Size Cat. No.

**Type 111 plastic base, red oxide coating:**

¼"x 150' plastic 3" reel .....	111-1.5
¼"x 300' plastic 4" reel .....	111-3
¼"x 600' plastic 5" reel .....	111-6
¼"x1200' plastic 7" reel .....	111-12
¼"x2400' on hub .....	111-24H
¼"x2400' on 10½" metal reel .....	111-24R
¼"x4800' on hub .....	111-48H
¼"x4800' on 14" metal reel .....	111-48R

**Type 120 high output plastic base, green coded:**

¼"x 600' plastic 5" reel .....	120A-6
¼"x1200' plastic 7" reel .....	120A-12

**Type 190 new thin type, 50% more recording time per reel:**

¼"x 900' plastic 5" reel .....	190-9
¼"x1800' plastic 7" reel .....	190-18
¼"x3600' NARTB 10½" metal reel .....	190-36R
¼"x3600' on hub .....	190-36H
¼"x7200' on 14" metal reel .....	190-72R
¼"x7200' on hub .....	190-72H

**Type 150 weather balanced extra play:**

¼"x 900' on 5" plastic reel .....	150-9
¼"x1800' on 7" plastic reel .....	150-18
¼"x3600' on hub .....	150-36H
¼"x3600' on 10½" metal reel .....	150-36R
¼"x7200' on hub .....	150-72H
¼"x7200' on 14" metal reel .....	150-72R

**New 200 double play tape:**

¼"x2400' on 7" reel .....	200-24
¼"x4800' on 10½" NARTB metal reel .....	200-48R

**Special tapes:**

Splicing tape ½"x150' .....	41-½S
Leader timing tape, ¼"x150' .....	43-1.5
Head alignment tape 15" sec. ....	200
Head alignment tape 7½" sec. ....	GR-LST

**Empty reels with mailing cartons:**

3" empty reel .....	RB-3
4" empty reel .....	RB-4
5" empty reel .....	RB-5
7" empty reel .....	RB-7
10½" empty metal reel .....	RE-10-½M

Quantity prices shown on price list— all tape prepaid anywhere in U. S. A.

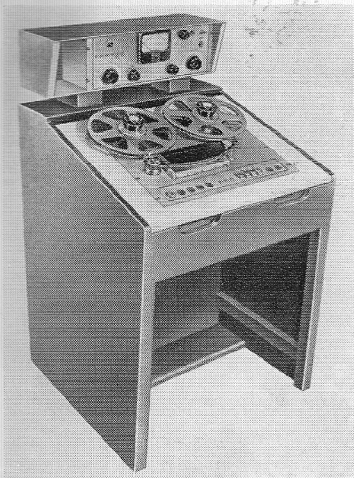


Fig. 1: Console model is functionally correct, commercially styled and easy to service. Note foot room not usually found on tape recorders.

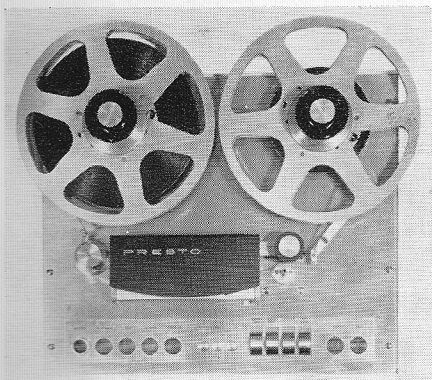


Fig. 2: Tape transport mechanism is a masterpiece of accurate machining and fine workmanship. Exclusive tape edit button permits easy "run-off" of unwanted tape.

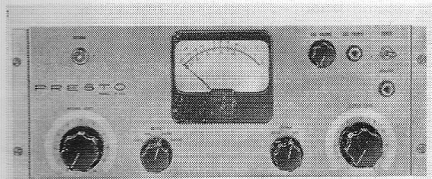


Fig. 3: The amplifier has dual output circuits. Monitoring amplifier has input-output comparison switch. There are no clicks or pops when starting or stopping recordings.

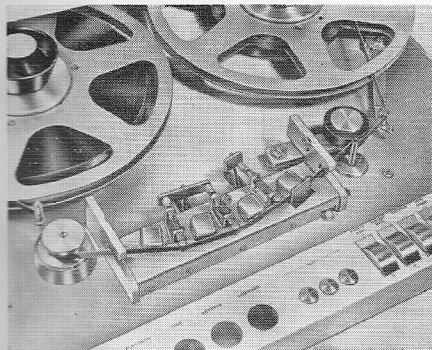


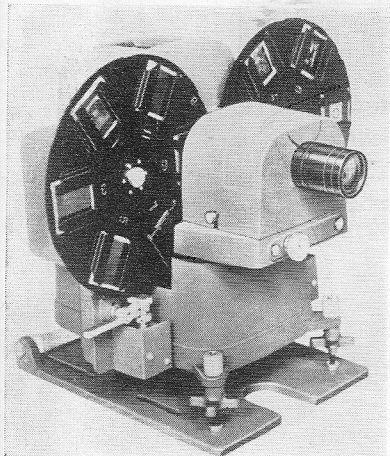
Fig. 4: The precision alignment of the multiple heads and simplicity of threading is exemplified in this illustration. Many of the long existing demands of professional recordists have been supplied in the 800 Series recorders.

**MODEL 3B TELEJECTOR**

Accommodates twelve 2"x2" transparencies in an uninterrupted slide sequence of TV commercials, news photographs and station breaks. — Is automatic. Additional loaded turrets may be substituted in seconds. Features new optical mixing system. Superposes two images on one optical axis permitting smooth lap dissolves or instant switching. Designed for use with vidicon multiplexer. Iconoscope may also be used. Supplied with 6" or 7" coated lens as ordered. — For 115V, 60 cycles. Control circuit operates from 24 volts DC, 10 watts. — May be used with 35B manual control unit to produce superpositions, laps, fades and slide changes at desired rate and local/remote slide changes.

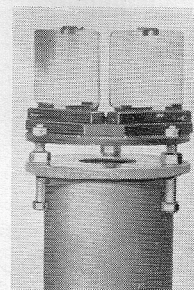
**ORDERING INFORMATION**

Telojector, lens, automatic timer box and 2 slide turrets .....	Model 3B
Manual control unit .....	Model 35B
Additional turrets, 31L or 31R (L indicates left, R right) .....	31L-31R
Mounting shelf, for mounting Telojector to Gray multiplexers .....	Model 63A



**62A TWO-WAY FIXED MIRROR MULTIPLEXER**

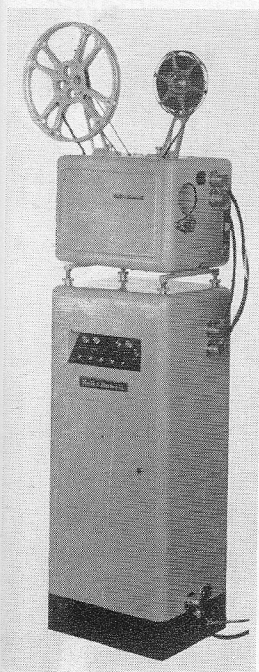
Handles two film projectors into single camera. By use of 63A mounting shelf, the 3B Telojector can also be used. Height, optical center to floor, 48". With this system slides and film are handled with one set-up.



Multiplexer and Base ..... 62A

**BELL AND HOWELL TV PROJECTOR**

BELL & HOWELL "614 JAN" is a new TV projector for 16 mm designed for use with vidicon film chains and having an important exclusive feature of being able to play back magnetic sound tracks as well as the normal optical sound track. Originally designed for the Army to JAN Specs, is self-evidence of ruggedness. Design eliminates need for synchronizing pull down with sync generator. Light output is 50 lumens with a 300W, 25 hour lamp. — All functions "On", "Off", "Show", "Forward" or "Reverse" may be remotely operated, if desired.

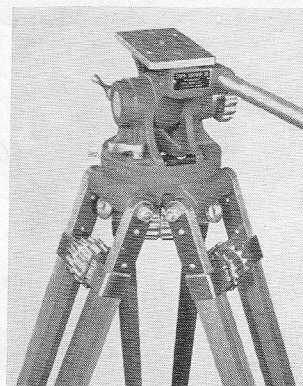


**SPECIFICATIONS**

- REEL CAPACITY:** 2000'.
- SOUND:** Optical and magnetic.
- LOOP SETTER:** Push-button.
- SHUTTER:** 120 cycles per second.
- LENS:** 2" f/1.6 (up to 5.4 where desired).
- DISTORTION:** 2% or less, 100-7000 cps.
- RESPONSE:** 80-8000 cps ±1 1/2 db.
- FLUTTER:** 0.25% or less.
- POWER:** 105-129 volts, 50/60 cycles.
- SIZE:** (with pedestal) 51 3/4" high, 12 1/8" wide, 16 1/4" long. Lens to floor: 48" ±1".

Projector complete with pedestal ..... 614CBVM

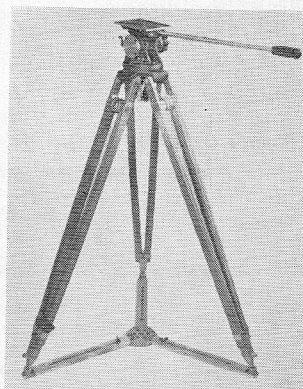
**CAMERA TRIPODS**



**SPRING HEAD TRIPOD**

This model ideal for vidicon cameras weighing up to 25 lbs. Constructed with spring load tilt which assures camera returning to neutral position when lever is in unlocked position. Range, 44 1/2" low to 73" high. Built-in spirit level. Model B triangle is optional base unit to keep legs from spreading and marring floors.

Professional Jr. spring head tripod .....	GR-973
Model B triangle .....	GR-974



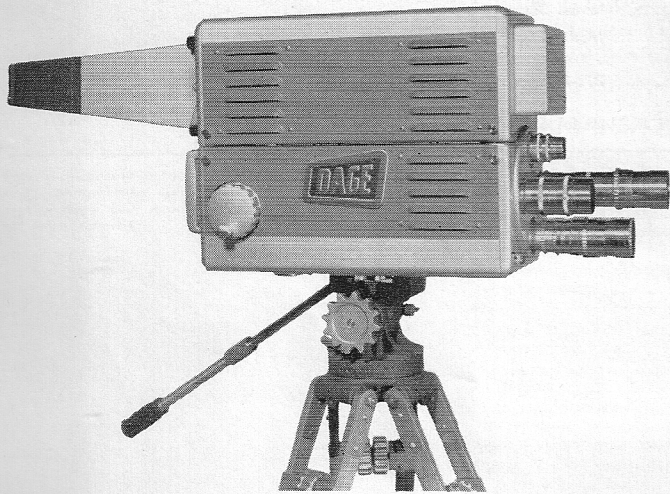
**FRICTION HEAD TRIPOD**

For vidicon or cameras 25 pounds or less. Equipped with friction type pan and tilt head, with tilt tension adjustment and pan and tilt lock levers. Equipped with spirit level. Range, 44 1/2" low to 73" high. Legs of sturdy maple with quick positive locking devices.

Professional Jr. friction head tripod .....	GR-975
Carrying case for outside use .....	GR-976

**DAGE TELEVISION EQUIPMENT**

Gates is exclusive world-wide distributor, except Canada, for Dage professional television cameras, film chains, switchers, monitors, synchronous generators and other Dage products for television broadcasting stations. Both sales and service of Dage monochrome and color equipment is handled exclusively through the Gates sales and engineering departments.



**MODEL 320-A STUDIO CAMERA**

A precision studio production camera, built to operate long hours with only minimum maintenance. Equipped with four lens turret and electronic viewfinder. Lenses may be quickly interchanged from the operator's position. Focusing is smooth, with no backlash. A four unit chassis is hinge mounted, to swing out, the amplifier strips are plug-in, hinge secured and all components are readily accessible. As a camera for film operation, the Model 320-F is identical to the 320-A other than a single lens is provided and the viewfinder is omitted. (See Page 234.)

**Features:**

- Adjustable dynamic focus.
- Variable aperture correction.
- Overscan switch.
- Camera linearity independent of drive pulse widths.
- Local-remote switch for electrical focus.
- Anti-backlash, planetary drive optical focus.
- Rear lens turret control, positive indexing type.
- All tubes, controls and components easily accessible without use of tools.
- Unfolds for ease in servicing. Plug-in (hinge secured) amplifier strips.
- Detachable viewfinder. Camera will operate without readjustment with viewfinder removed.
- Viewfinder circuits adjustable independent of camera circuits.
- Adjustable peaking coils.

**SPECIFICATIONS**

- OUTPUT:** Picture signal (negative black), 0.25 volt (p-p) (nominal).
- FREQUENCY RESPONSE:** 8 mc  $\pm$  1 db.
- IMPEDANCE:** 51.5 ohms.
- LIGHT REQUIREMENTS:** (for quality), 100-150 ft. candles.
- NOISE-FREE PICTURE:** (average scene) with f:1.5 lens stop, incident illumination.
- SPECTRAL RESPONSE:** (with 6326 Vidicon), approx. same as human eye.
- LENSES:** 16mm "C" mount. Turret provision for 4 lenses.
- VIEWFINDER:** Electronic 5" with 5AYP4 tube. Magnetic deflection, electrostatic focus.
- MECHANICAL:** (case dimensions), 11 3/16" high, 7 1/4" wide and 17 3/4" long. Finish, blue and silver lustre baked enamel. Weight, with viewfinder, 30 lbs. Mounting, 1/4" x 20 tapped for standard tripod screw.

**ORDERING INFORMATION**

- Studio camera complete with viewfinder, 4 lens turret, vidicon tube but less lenses\* ..... **320-A**
- Film camera less viewfinder and less lens\* and with vidicon tube ..... **320-F**

\* Lenses and complete studio or film chains are listed both separately and complete in the price list accompanying this catalog.

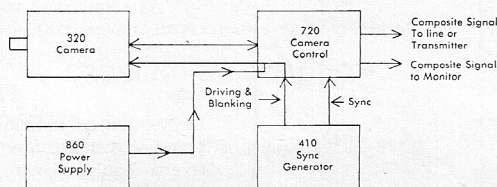
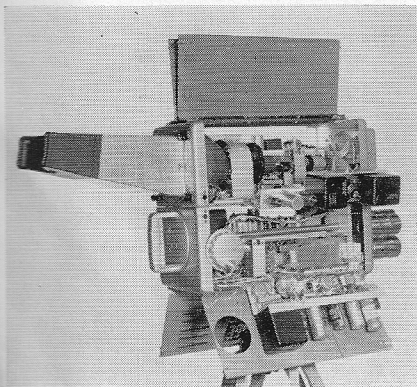
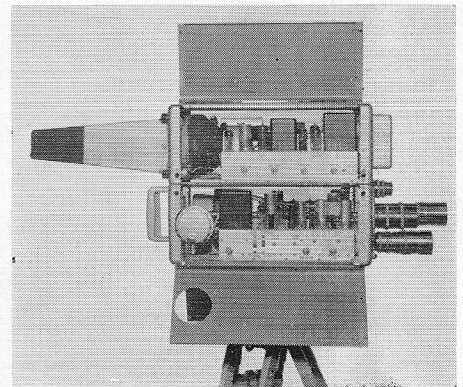


FIG. 1-1

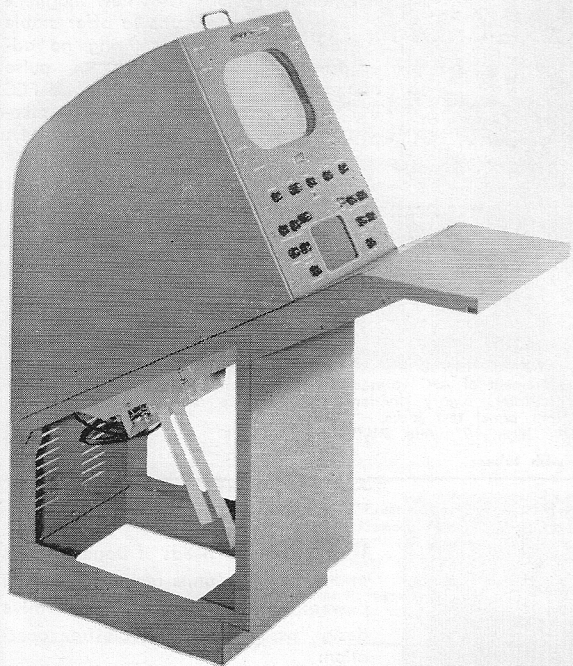
MINIMUM NUMBER OF UNITS COMPRISING A SINGLE CAMERA CHAIN







## DAGE CAMERA CONTROL



Provides control over electrical focus of camera target, beam and video gain. Camera picture is displayed on high quality video monitor. Oscilloscope permits waveform monitoring at either horizontal or vertical rates. Control of blanking level of composite picture signal, provision for internal insertion of sync to picture, with sync height adjustment, is included for installation using only one camera with no switching of signal sources. Interlaced pulse cross display is available from composite signals.

### Features 720-A . . .

- Target current calibration circuit.
- Adjustable peaking coils.
- Regulated high voltage for picture tube.
- Amplified blanking at both horizontal and vertical rates.
- Monitor high voltage circuits independent of deflection.
- All monitor adjustments on front panel.

### SPECIFICATIONS

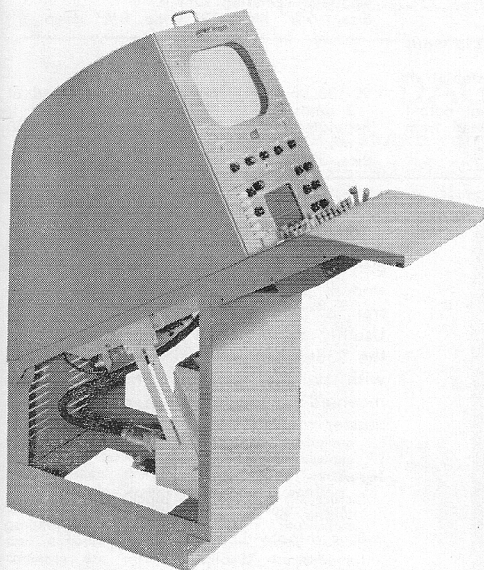
**INPUT:** Horizontal driving pulse (negative): 3-5 volts (p-p).  
 Vertical driving pulse (negative): 3-5 volts (p-p).  
 Blanking (negative): 3-5 volts (p-p).  
 Picture signal (negative black): 0.25 volt (nominal) (p-p).  
 Impedance: 51.5 ohms.  
 Power required: 280 volts DC at 600 ma and 117 volts AC 60 cycles, or Model 860 power supply listed following page.

**OUTPUT:** Picture signal (negative black): video 1.0 volts (p-p). Composite 1.4 volts (p-p). Adjustable sync level.  
 Frequency response: 8 mc  $\pm$ 1 db.  
 Impedance: 75 ohms.

**OPTICAL:** Picture monitor: 10" picture tube, Type 10FP4A.  
 Waveform monitor: 5" CRO, flat face, electrostatic deflection, Type 5ABP1. Illuminated graticule. RETMA calibration.

Camera Control Unit, with tubes ..... 720-A

## DAGE 635-A MASTER MONITOR



This precision master monitor incorporates interlaced pulse cross display and a regulated Kinescope high voltage supply. The picture size remains constant regardless of brightness setting. Illuminated 5" "A" Scope calibrated graticule provides accurate measuring of video levels from any of six video sources selected by push-button.

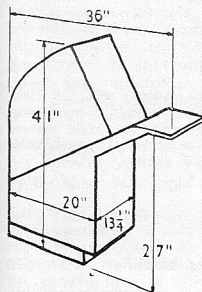
### Features 635-A . . .

- Amplified blanking both horizontal and vertical.
- Picture tube HV circuit independent of deflection.
- All operating adjustments front panel.
- Dustproof picture tube screen enclosure.
- Uses either composite signal, drive pulses or sync pulses for deflection as selected by relay operated from "A" Scope selector switch for signal selection.
- Interlaced pulse cross display by front panel switch selection.

### SPECIFICATIONS

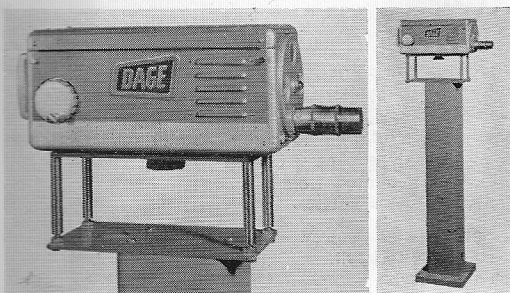
ELECTRICAL		Picture Monitor	(Waveform Monitor)
Input:	AC line voltage	117 volts $\pm$ 10% at 80 watts.	117 volts $\pm$ 10% at 40 watts.
	DC regulated	280 volts at 305 ma.	280 volts at 100 ma (approx.).
	Video (Non-composite) Black negative	0.15 volt p-p minimum. 1.0 volt p-p nominal.	1.0 volt p-p nominal.
	Video (Composite) Black negative	0.2 volt p-p minimum. 1.4 volts p-p nominal	1.4 volts p-p nominal.
	Impedance	2500 ohms (Bridging, or terminated in 75 ohms).	360K (Bridging, or terminated in 75 ohms).
	H and V drive pulses (negative)	0.4 volt p-p minimum. 3.5 volts p-p nominal.	3-5 volts p-p.
	OR Sync (negative)	0.4 volt p-p minimum. 3.5 volts p-p nominal.	3-5 volts p-p.
	Video connector	BNC Type UG 625/U	BNC Type UG 625/U.
	Number of video inputs	One, as selected by six-position selector switch on "A" Scope.	Total six. Automatic sync insertion for pix monitor on non-composite signal.
	Picture tube	Type 10FP4-A	Type 5ABP1.
	CRO		IRE Roll off.
	Frequency response	8 MC $\pm$ 2 db.	

Master Monitor/Waveform Monitor, with tubes ..... 635-A



Dimensional drawing of 720-A camera control unit and 635-A master monitor.

**FILM CAMERA — PEDESTAL**



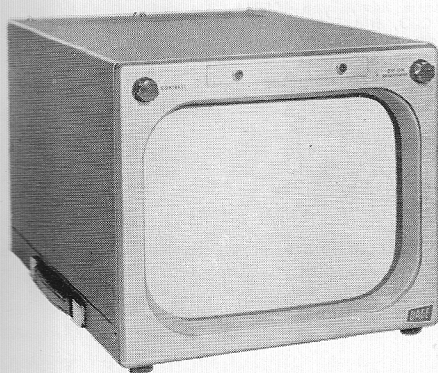
Pictured above is the Dage 320-F vidicon film camera. This model is identical to the 320-A listed on Page 232 with viewfinder and lens turret removed. Full specifications are listed on Page 232.

Film Camera, less lens ..... **320-F**

Pedestal as illustrated above, allows proper camera mounting with adjustments for dual projector, slide projector and multiplexer installation. So designed that camera may be quickly removed for other service or 320-A studio camera may be quickly attached in case the studio camera is employed for both live and film pickup.

Pedestal complete ..... **C-080**

**VIDEO MONITOR**



For broadcast monitoring for medium or wide bandwidth (optional) with high gain, regulated high voltage for picture stability and freedom from size variation. Has rugged metal cabinet with handles if portability is needed. Monitor may be stacked in multiple and is also available rack mount.

**SPECIFICATIONS**

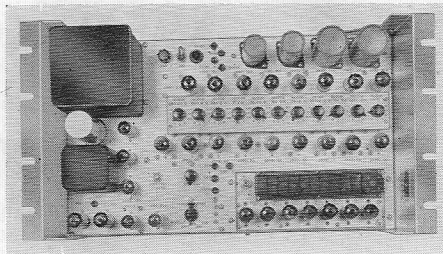
- Video input (black negative polarity):  
0.1 volt (p-p) minimum.  
4.0 volts (p-p) maximum.
- Sync input (when used) negative:  
0.1 volt (p-p) minimum.  
4.0 volts (p-p) maximum.
- Contrast Control Range: 30 db minimum.
- Input Impedance: Hi-impedance bridging.  
May be terminated.
- Input Connector: BNC, Type UG-290/U.
- Kinescope: 14QP4 or 14QP4A.
- Frequency Response:  $\pm 3$  db to 8.0 mc wide-band.  
 $\pm 3$  db to 4.0 mc narrow-band.
- Video Gain: 47 db  $\pm 3$  db wide-band.  
57 db  $\pm 3$  db narrow-band.
- Line Voltage: 117  $\pm 7$  volts, 50-60 cycles.
- Power Consumption: 175 watts.
- Size: (cabinet model) 12" high, 15" wide, 19 1/2" deep.  
(rack model) 14" high, 19" wide, 8" deep.
- Weight: 53 lbs.
- Finish: Blue-gray baked enamel cabinet, silver lustre front.

Video Monitor ..... **602-A**

**LENSES**

As lenses are of various focal lengths, a complete listing will be found in the price list with this catalog. — The usual focal length lens for film pickup is 3" f/2.5. For a 4-lens turret in the studio camera, Page 232, a 1" f/1.5, a 2" f/1.9, a 3" f/2.5 and a 4" f/4.5 provides an excellent quartet for a wide range of studio and outside pickup.

**SYNCHRONOUS GENERATOR**



A new sync generator for monochrome or color. Uses new magnetic binary counter circuits to offer stable frequency division requiring no adjustment. Pulse widths in pulse shaper unit to meet RETMA and FCC specifications. Complete with electronically regulated power supply. Available in rack or portable case model.

**SPECIFICATIONS**

Line phasing adjustment available, not less than 60 degrees. Electronically regulated power supply.

Input: AC power, 115 volts, 60 cycles ..... 150 watts

Output: Frequency: Peak to peak volts, (across 75 ohms) +0, -1 volt

- Horizontal Driving: 15,750 ..... 5 volts
- Vertical Driving: 60 ..... 5 volts
- Blanking: 60 and 15,750 ..... 5 volts
- Synchronizing, composite: 60 and 15,750 ..... 5 volts
- Test: Provision for measurement of AFC voltage available from front panel test jacks. Master oscillator, binary divider output signals and waveforms available from front panel test jacks.
- Size: (rack model) 10 1/2" high, 19" wide, 7 1/2" deep.

Synchronous Generator with tubes ..... **410-A**

**POWER SUPPLIES**

Three models fit needs of Dage cameras and other Dage units requiring external power supplies. Ultra conservative design assures long, trouble-free operation.

**Model 850**

90-130 volts AC, 60 cycle. Supply fused at 5 amps.  
Regulated +250 to +300 volts (approx.) at maximum of 400 ma.  
Unregulated +360 volts (approx.).  
Negative centering supply.  
Size: 6 3/4" high, 19" wide, 8 1/4" deep.

**Model 840**

90-130 volts AC, 60 cycle. Supply fused at 2 amps.  
Regulated -150 volts at maximum of 200 ma.  
Size: 3 1/2" high, 19" wide, 8 1/4" deep.

**Model 860**

90-130 volts 60 cycle single phase AC at 450 watts (approx.) Fuse, 10 amp., 3AG.  
Regulated +250 to +300 volts DC (adjustable) at maximum of 800 ma.  
Unregulated +360 volts (approx.). Current output such that total of 800 ma is not exceeded from regulated and unregulated totals.  
Size: 12 1/4" high, 19" wide, 8 1/4" deep.

**SWITCHER AND FADER**

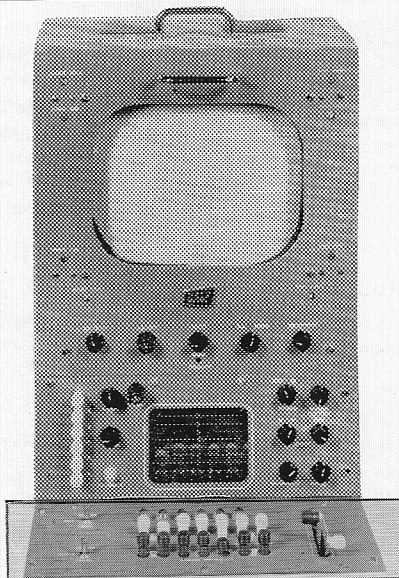
Six incoming video sources, two of which may be composite signals, includes smooth action fading and accurate control of video programming functions. Usually mounted in sloping portion of the 635-A master monitor (see Page 235) with switcher amplifier (not illustrated) mounted in lower section of the 635-A master monitor.

**SPECIFICATIONS**

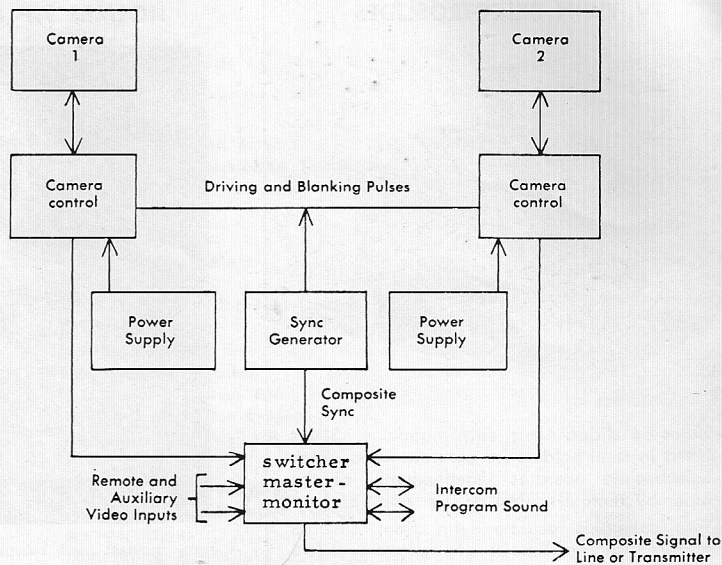
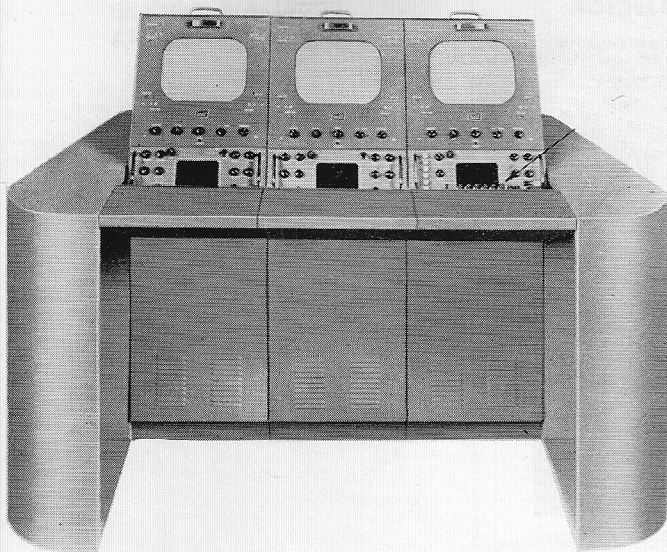
- Input: Picture signal (negative black): 1 volt (p-p) video, or 1.4 volts (p-p) composite.  
Sync (negative): 3-5 volts p-p.  
Impedance: 75 ohms.  
Power required: +280 volts (regulated) at 200 ma (approx.) 117 volts  $\pm 10$  volts for intercom circuit and filaments.  
Number of signal inputs: Six. (Two inputs for composite signals).

- Output: Picture signal (negative black): 1.4 volts (p-p) composite. Adjustable sync level. Video channel gain-balance controls.  
Impedance: 75 ohms.  
Isolated Monitor signal (negative black): 1.4 volts (p-p) in 75 ohms.  
Size: (Switcher) 3 1/4" high, 13" wide, 5 1/4" deep.  
(Fader) 9 3/4" high, 11 3/4" wide, 7 1/4" deep.

Switcher-Fader, includes amplifier ..... **520**



Above, the 520 Switcher-Fader control panel mounted under the 635-A master monitor. Tally light indicates which signal on air. Has sync interlock provisions for stabilizing amplifier control, back-porch line-to-line clamper, adjustable sync amplitude, program and intercom sound provision and external tally lights for all input positions.



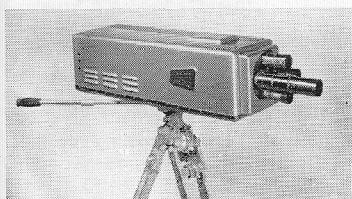
ABOVE is illustrated the complete video control center for dual camera control, switcher-fader and master monitor. Camera control units may be used for dual camera chain such as one studio camera and one film camera. For additional cameras it is only necessary to add the 720 camera control, widening the above control unit by the width of one 720-A console. Schematic diagram illustrates the basic console arrangement. Synchronous generator and power supplies would be rack mounted. — With the above equipment, associate cameras, projectors and audio equipment listed elsewhere in this catalog, the basic equipment is ready to attach to a Gates television transmitter or other makes.

**VIDEO ACCESSORIES**

Each installation will require certain accessories such as camera, power, pulse, sync and intercom cables along with lens, camera dollies, multiplexers for projector to film camera pickup and other necessary but not major components. To avoid unnecessary listing and confusion, these items are listed in the price list accompanying this catalog. — Gates engineers will gladly provide complete package listings or advice relative to any need that might be in question.

**DAGE CAMERAS FOR COLOR**

A complete line of color studio cameras, film cameras, camera controls, monitors, switchers and all necessary equipment for broadcasting in color is now ready for the progressive TV broadcaster. Listed below are several typical units. Gates will gladly quote portions or complete packages on request.



Above, the new Dage color studio camera with four lens turret. Camera employs three-vidicon system. Accessories available include control consoles, monitors, color sync generators, masking amplifiers, gamma modification amplifiers, matrixing and encoding equipment. — Dage color cameras are already in use at various locations in the United States and may be seen in use at the courtesy of the user.

FIG. 1. Dage 750-A color film camera control console. A newly developed cathode follower blanking clipper circuit insures constant reference black level under severe scenic changes.

FIG. 2: The 360-A Dage color film TV camera-multiplexer. The 3-vidicon color system and inclusion of multiplexer permits operation of films and slides of varying density without objectionable picture noise.

FIG. 3: Assemblage of accessories for color operation is usually in one standard rack of equipment as illustrated. Gates engineers will gladly consult with any prospective user of color to plan the installation.

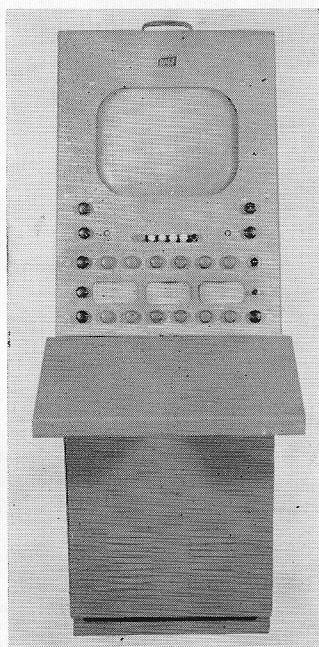


Fig. 1

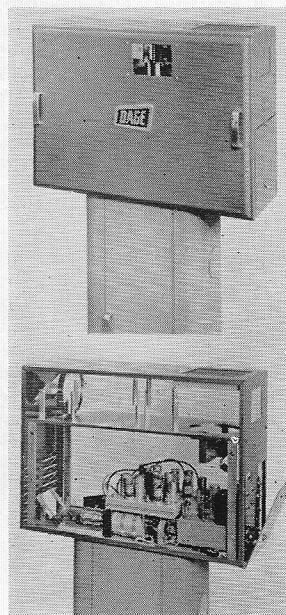


Fig. 2

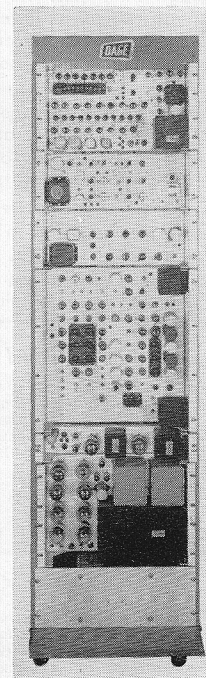
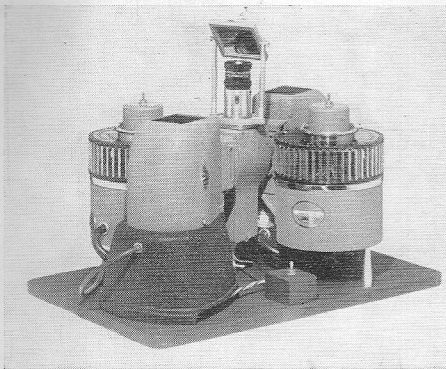


Fig. 3

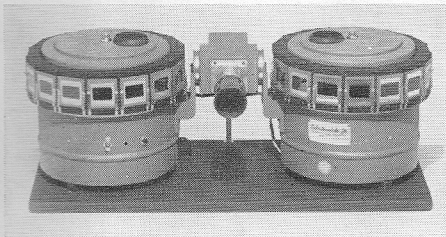
**TV TWIN SELECTROSLIDES**



- Holds 96 slides, 48 in each magazine. Slides insert in steel holders for accurate focus. Each Selectroslide operates independently of the other by remote control and is vibration-free.
- Two solenoids actuate twin front silvered mirrors. Change time is approximately 1/50 second. Aspheric condensing system assures even illumination over 100% picture area. Lamp capacity 100 to 750 watts.
- Lenses 7" to 11" are available. Excellent for color or black and white. Size: base 24" x 16", height 13".

TV Twin Selectroslide, less lens ..... Cat. 340A

**TWIN SELECTROSLIDE JUNIOR**



- Holds 32 slides, 16 in each magazine. Four registering pins for each slide for perfect alignment. Each turret operates independently of the other by local or remote control. For rechecking, turret may be rotated by hand.
- Two solenoids actuate twin front silvered mirrors. Change time 1/50 second. Aspheric condensing system assures even illumination over 100% picture area. Lamp capacity 50-300 watts. 150 watts usually used.
- Lenses 7" to 11" are available. Excellent for color or black and white.

Twin Selectroslide Junior, less lens ..... 330A  
 Twin Selectroslide Junior with 4 slide preview to illuminate next 4 slides to be used ..... 330B

**SINGLE TURRET SELECTROSLIDE**

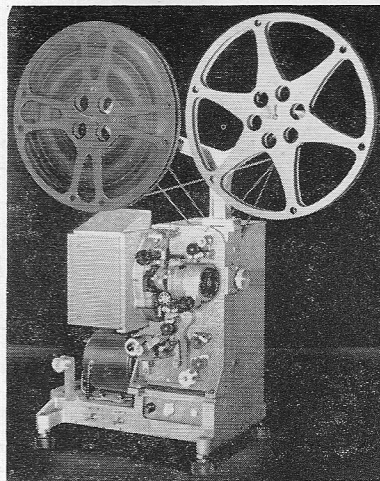
Quite similar in specifications to Twin Junior above, only has single turret to hold 16 slides. Turret can be shifted by pressing a button on side or remote operation is also possible. Lenses from 5" to 11" may be used. Should be used with lens support for lenses 7" or larger.

Single Selectroslide, less lens ..... 322A  
 Lens support ..... 349  
 Single Selectroslide with 4 slide previewing ..... 322B

**LENSES FOR SELECTROSLIDES**

5" lens in special TV focusing mount ..... 343  
 7" lens in special TV focusing mount ..... 344  
 7½" lens in special TV focusing mount ..... 344A  
 9" lens in special TV focusing mount ..... 345  
 11" lens in special TV focusing mount ..... 348

**HOLMES ITP PROJECTOR**



A fine, modest cost TV projector with provision for remote control. High speed rewind (2000' in 2 minutes). Powered by 1/20 HP synchronous ball bearing motor. Has complete tilting and leveling facility, forced ventilation, three-stage preamplifier and uses a 500 watt pre-focus base projection lamp. Available with or without base.

**SPECIFICATIONS**

**Projector and Amplifier:** 107 to 127 volts, 60 cycle, single phase AC, 650 watts.  
**Projection Lamp:** 500 watt, T-10, medium prefocus, 115 volt, C13D filament.  
**Exciter Lamp:** 0.75 ampere, 4 volt, T-5, single contact, prefocus base, C-8 construction.  
**Photocell:** Type 927.  
**Power Output:** +2 VU at 1000 cycles.  
**Hum and Noise Level:** -50 db below output.  
**Distortion:** 1% at output level.  
**Gain:** 60 db at 1000 cycles.  
**Input Impedance:** 500,000 ohms.  
**Output Impedance:** 500/600 ohms.  
**Voltage Amplifier:** 5879.  
**Output:** 5751.  
**Oscillator:** 50C5.  
**Fuse:** 2 ampere.  
**Projection Lens Height:** 13½" ± ½".  
**Film Capacity:** 2000 feet.  
**Film Speed:** 24 frames per second.  
**Shutter Speed:** 720 RPM, 60 exposures per second.  
**Motor:** Synchronous, 1/20 HP, single phase, 60 cycle, 1800 RPM.  
**Size:** Width, 10", length, 15½", height, 17½", weight, 50 lbs.

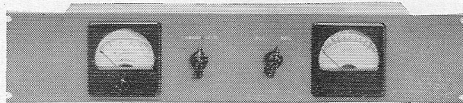
**ORDERING INFORMATION**

Projector with 2" focus f/1.6 lens, 500 watt lamp, tubes, feed and take-up reels ..... ITP

**ACCESSORIES:**

Remote control unit complete ..... GR-51  
 Three point floor pedestal with top ..... GR-52  
 Spare exciter lamp, 4 volt, .75 ampere ..... GR-53  
 Spare 500 watt projection bulb ..... GR-54  
 Spare preamplifier tube kit ..... GR-55

**TUBELESS MODULATION MONITOR**

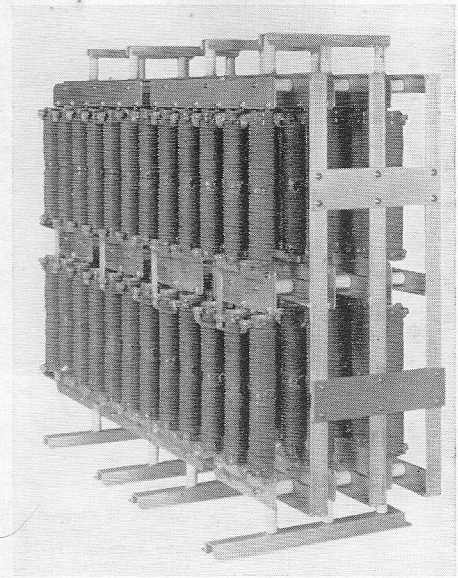


For reading modulation percentage in communications AM operated transmitters. Uses germanium rectifiers in place of tubes. Carrier level and modulation percentage meters are 3" square case. For radio broadcasting service the MO-2639 monitor on Page 87 should be used.

**SPECIFICATIONS**

**MODULATION INDICATION:** Reads 0-110% modulation and in decibels.  
**ACCURACY:** 2% at 100% modulation and 5% mid-scale.  
**FREQUENCY RESPONSE:** Within 2 db 50-10,000 cycles.  
**INPUT:** Requires about ¼ watt. Input voltage 20V at 1000 kc or less. Input capacity 15 mmfd.  
**RF RANGE:** 2 to 30 mc.  
 Modulation monitor complete ..... Cat. M-3737

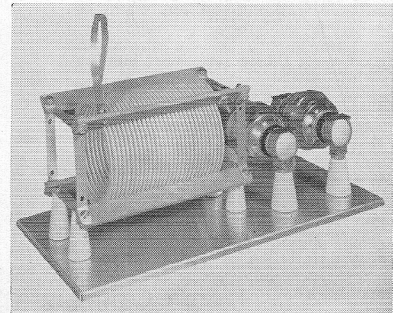
**50KW AIR COOLED DUMMY ANTENNA**



To eliminate water cooling at higher powers, Gates has developed this new air cooled unit for use between 540 and 2000 Kc. Unit pictured above illustrates the grouping of resistance elements and an aluminum frame. This frame is then installed in a forced air chamber, usually a metal duct with proper size blower attached at one end. In 50KW transmitters with external blower, such as the Gates BC-50B transmitter, the dummy antenna may be mounted in the air duct itself.

As dummy antennas are required in various resistances and loading requirements, this product, though readily available, is carried as a custom item. Gates will quote promptly on receipt of (a) resistance or impedance, (b) distance of dummy antenna from transmitter output, (c) frequency of operation, and (d) cooling facilities, if any.

A power rating of 75KW permits 100% modulation of 50KW transmitters under proper cooling conditions.



The above tuning unit is provided with the 50KW dummy antenna to assure a perfect non-reactance load. This consists of a standard tapped edgewise coil and vacuum capacitor assembly.

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