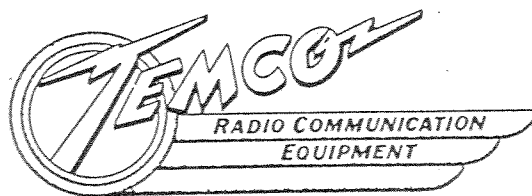
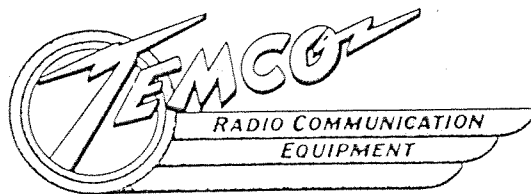


INSTRUCTION BOOK
for
TEMCO MODEL 75-GA
RADIO TELEPHONE AND TELEGRAPH TRANSMITTER



MANUFACTURED BY
TRANSMITTER EQUIPMENT MFG. CO., INC.
NEW YORK CITY

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F O R E W O R D

These instructions are prepared to offer persons engaged in the installation and operation of this equipment, an understanding of the circuits and connections involved to place and maintain this transmitter in an operating condition. It is important that persons so engaged carefully read all of the instructions and carefully inspect the circuit diagrams before any attempt is made to install or operate the equipment. The better the understanding obtained from these instructions, the less trouble will be experienced in the satisfactory installation and operation of this unit.

S A F E T Y N O T I C E

This equipment employs high voltages which are dangerous to life if contacted by operating personnel. The top cover of the equipment is provided with an electrical interlock. However, operating personnel should always ground any part of the equipment before touching it. In the event the cover is to be opened, or if the chassis is to be removed from the cabinet, all power should first be removed from the transmitter.

G U A R A N T E E

This transmitter is guaranteed to be free from any defect in workmanship and material that may develop within a period of ninety (90) days from date of purchase, under the terms of standard guarantee, as designated by the Radio Manufacturers Association. Any part or parts that prove defective within this period will be replaced without charge when subjected to examination at our factory, providing such defect, in our opinion, is due to faulty material or workmanship and not caused by tampering, abuse or normal wear. All such adjustments to be made f.o.b. factory. In the event it is necessary to return any part or parts to the factory, a "Return Material Permit" must be obtained in advance, by first writing the Adjustment Department, who will issue due authorization under the terms of the guarantee. TEMCO reserves the right to make changes in design or add improvements to instruments manufactured by them, without incurring any obligation to install same in any instrument purchased. All TEMCO transmitters are built under Patents of the Radio Corporation of America and the American Telephone & Telegraph Company.

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GENERAL DESCRIPTION OF COMPLETE EQUIPMENT

MECHANICAL

The transmitter comprises a single horizontal chassis upon which all power, audio and RF components are mounted. Cabinet construction permits removal of chassis from front, by removal of panel screws and chassis screws holding chassis to base of cabinet. Cabinet is dark grey wrinkle finish. Front panel is metal-etched with polished grey and aluminum finish. Antenna connections are at rear edge of cabinet. Power connection is made by means of an 8 foot cable. Provisions are made for remote "Transmit-Receive" switch by means of a 4 contact socket at rear edge of cabinet.

EMISSION

A-1 and A-3.

POWER OUTPUT

75 watts on A-3, 100 watts on A-1.

FREQUENCY RANGES

3500 to 4000 KC
7000 to 7300 KC
14,000 to 14,440 KC
21,000 to 21,500 KC
28,000 to 29,700 KC

FREQUENCY DETERMINATION

1. Untuned Crystal Oscillator
2. Variable Frequency Oscillator

TUNING

From front of panel on all frequencies.

CONTROLS

1. VFO tuning dial
2. Oscillator selector switch
3. Exciter frequency selector switch
4. Amplifier tuning dial
5. Filament control switch
6. Plate control switch
7. Transmit-Standby control switch
8. Emission (Phone-CW) selector switch
9. Microphone gain control and switch

KEYING SPEED

50 words per minute, or better.

REMOTE OPERATION

Remote operation of the transmitter is accomplished from the operating position by means of an externally located double pole single throw switch connected to transmitter by means of a 4 contact plug-in type multi-cable. (Not furnished as standard equipment with the transmitter).

Application of plate voltage is therefore controlled from this remote point, in parallel to the "Transmit-Standby" control located on the transmitter front panel.

METERING

Modulation plate current
Amplifier grid current
Amplifier plate current

TYPE OF MODULATION

High level class AB2.

MODULATION CAPABILITY

100%.

INPUT LEVEL FROM HIGH IMPEDENCE CRYSTAL OR DYNAMIC MICROPHONE

Level of approximately -55 db.

AUDIO FREQUENCY RESPONSE

± 2 db from 100 to 6,000 c.p.s.

NOISE LEVEL

-45 db or better below 100% modulation.

AUDIO DISTORTION

Less than 8% at 85% modulation.

OUTPUT CIRCUIT

Each plug-in final amplifier coil contains a fixed tapped coupling link by means of which, variable coupling is obtained. This type output circuit permits working directly into untuned transmission lines having an impedance of not less than 30 nor more than 600 ohms, either balanced or unbalanced. The number of turns in use in the antenna link can be adjusted by means of a flexible lead and clip. With other types of antennas, such as Marconi, Zeppelin, etc., external tuning or loading circuits may be necessary.

TUBE COMPLEMENT

<u>TYPE</u>	<u>FUNCTION</u>
1-6J5.....	Variable Frequency Oscillator
1-6AG7.....	Class A Buffer and untuned Crystal Osc.
4-6L6.....	Frequency Multipliers
1-TB35.....	Final Amplifier
1-6SJ7.....	Input Voltage Amplifier stage
4-6L6G.....	Class AB2 Modulators
1-6J5.....	Modulator Driver
1-5R4GY.....	Exciter Plate Supply Rectifier
1-5R4GY.....	Modulator Plate Supply Rectifier
1-5R4GY.....	Speech Amplifier Rectifier
2-866A.....	Power Amplifier Plate Supply Rectifier
1-VR150.....	Oscillator Voltage Regulator

DUTY CYCLE
Intermittent.

POWER INPUT REQUIREMENTS (Approximate)

Standby filaments only.....	90 watts
CW operation, key up.....	185 watts
CW operation, key down.....	340 watts
Telephone operation, zero modulation.....	490 watts
Telephone operation, average 100% modulation.....	520 watts

POWER FACTOR
Approximately 90%.

POWER SOURCE
110-120 volts, 50/60 cycles AC.

MEASUREMENTS
Approximately 30" wide, 21" deep, 12" high.

WEIGHT
Net: 140 pounds
Gross: 178 pounds, packed for shipment.

A. DESCRIPTION OF TRANSMITTER UNIT

A-1 GENERAL

The Model 75-GA telephone and telegraph transmitter consists of a band switching radio frequency exciter section, a final amplifier employing a plug-in coil, speech amplifier, modulator and 3 power supplies, compactly arranged in a table mounted cabinet. The only accessories needed are a microphone, telegraph key and suitable antenna installation. Provisions are made for five amateur bands from 3.5 to 29.7 megacycles, any one of which may be selected by means of a band switch on the front panel. In changing frequencies, it is merely necessary to turn the band switch, plug-in correct final amplifier coil unit, select either VFO or crystal operation, choose proper VFO frequency and tune the plate circuit of the final amplifier to resonance. The transmitter is designed to give a power output of 100 to 125 watts on CW telegraph and 75 to 95 watts on telephone. The higher output ratings are obtainable on the 3.5 and 7 megacycle bands; the lower ratings on the three higher frequency bands.

A-2 RADIO FREQUENCY SECTION

The RF section of the 75-GA transmitter uses a single 6J5 (V1) as a Variable Frequency Oscillator and a 6AG7 (V2) as a class A amplifier and untuned crystal controlled oscillator. These two stages are rigidly mounted in a cast aluminum box with an inter-stage shield mounted therein. A VFO and two position crystal selector switch permits the operator to select either VFO operation or crystal control.

The output of the 6AG7 (V2) stage is fed to the grid circuit of a 6L6 (V3), which operates on either 3.5 or 7 megacycles, depending upon the setting of the exciter band switch. Inductances (L4 and L5) are for the 7 and 3.5 megacycle bands and are tuned at the factory by means of brass slugs, so that they resonate over the entire width of each band, thus providing for a constant grid drive to either the following frequency multiplying 6L6 stages, or directly to the grid of the TB35 final amplifier tube, (V7). When operation on 14, 21 or 28 megacycles is desired, additional 6L6 tubes (V4, V5 and V6) are switched into the circuit and provide for constant grid drive to the final amplifier stage. In the case of V6, the 28 megacycle multiplier, due to the extreme width of the 28 megacycle band, it is necessary to move the tuning slug located within the inductance (L8), by means of the VFO tuning dial. In this manner, constant tracking over the entire width of the 28 megacycle band is accomplished, which insures proper grid drive over the entire band width. When operating this band on crystal control, the VFO tuning dial should be set so that the driven slug will approximate the correct position for maximum grid drive that would be obtained with VFO operation. The TB35 final amplifier stage (V7), operates as a class C amplifier and is tuned to the proper frequency by means of (C29) and its associated inductances (L10 to L14). Reference should be made to schematic diagram Fig. A, for electrical connections and to plan view of chassis, Fig. B and top view of transmitter, Fig. 2 for location of various components.

A-3 SPEECH AMPLIFIER AND MODULATOR SECTION

The speech amplifier uses a type 6SJ7 tube (V10), resistance coupled to a type 6J5 tube (V11). The latter drives four type 6L6G tubes (V12, V13, V14 and V15), connected in push-pull parallel, which serve as the modulator. These modulator tubes operate as a class AB1 amplifier, going into class AB2 on modulation peaks. The speech amplifier input is designed to use a high impedance microphone of either the crystal or dynamic type.

A-4 POWER SUPPLY SECTION

Three separate power supplies are provided.

The first, consisting of Transformer (T1) rectifier tube type 5R4GY (V9), choke (CH1), and condensers (C31 and C32) furnishes plate and screen power to the exciter stages, tubes V1, V3, V4, V5 and V6, the screen power to the class A amplifier tube (V2) as well as filament current through all these RF tubes.

The second, consisting of Transformer (T2), rectifier tubes type 5R4GY, (V16 and V17), choke (CH2) and condensers (C44, C45 and C40), is a dual power supply, furnishing plate and screen power to the speech amplifier and modulator separately, plate power to the class A amplifier tube, (V2) and filament current to the associated speech amplifier and modulator tubes.

The third, consisting of Transformer (T3), rectifier tube type 866A (V18 and V19) choke (CH3) and condenser (C41) and supplies plate power to the final amplifier tube (V7).

B. CIRCUIT FUNCTIONS

B-1 RADIO FREQUENCY CIRCUITS

The 75-GA transmitter uses a 6J5 as a temperature compensated Variable Frequency Oscillator and is tunable from the front of panel over the frequency range of from 3500 to 4000 KC. On higher frequencies, a series of frequency multipliers are employed to provide for operation on five of the amateur bands from 3500 to 29,700 KC. A 6AG7 class A buffer is used to isolate the Variable Frequency Oscillator from the succeeding frequency multiplier tubes, thus insuring maximum frequency stability of the VFO. The 6AG7 is also used as an untuned crystal oscillator, selection of which is controlled from front of panel. Provisions are included to accomodate two crystal holders. By means of oscillator selector switch (S1), the VFO is connected into operating condition, or one of two crystals is connected to the 6AG7 stage. The four 6L6 tubes (V3 to V6 inclusive) are employed when higher frequency operation is desired. The first 6L6 stage (V3) operates on either 3.5 or 7 megacycle amateur bands. The 3.5 m.c. band coil (L5) is used only for this band. On 7, 14, 21 and 28 m.c. bands, L4 is used. The output from the exciter unit is fed through a coupling condenser (C30) to the grid of the TB35 final amplifier tube (V7). 90 volts negative fixed bias is applied to the grid of the amplifier tube and the grid current flowing in this stage is measured by the grid current milliammeter (M2). The plate circuit of the final amplifier stage employs a plug-in inductance, together with its associated output link coil.

B-2 SPEECH AMPLIFIER AND MODULATOR CIRCUITS

When radio telephone operation is desired from the Model 75-GA transmitter, the speech amplifier and modulator are placed in an operating condition by means of switch (S6) which is actuated when gain control is turned clockwise. Voice frequency voltages generated in a crystal or dynamic microphone are applied to the grid of a type 6SJ7 tube (V10). These voltages are amplified and coupled to the grid of a type 6J5 tube (V6), through resistors (R20 and R22) and condenser (C35). Resistor (R22) is a variable potentiometer mounted on the front panel and is used to control the audio power level. The output of tube (V11) is inductively coupled to the grids of the four modulator tubes by means of transformer (T4). The four type 6L6G modulator tubes (V12, V13, V14 and V15) are connected in push-pull parallel and their output is applied to plate and screen circuits of the final amplifier tube (V7), through transformer (T5). Note that transformer (T5) has two secondary windings, thus providing simultaneous modulation of both plate and screen. Switch (S7) short circuits the plate circuit secondary on transformer (T5) when the transmitter is used for CW telegraphy, in order to prevent dangerous transient voltages developing.

B-3 POWER SUPPLY CIRCUITS

The power supplies in the 75-GA transmitter use conventional full wave rectifier circuits. Referring to the schematic diagram, Fig.A, 110-120 volt alternating current is supplied to the primary of transformer (T1).

This transformer has four secondary windings; three of which supply filament voltages to the various circuits outlined in the schematic diagrams. The fourth is the high voltage secondary which is center-tapped and the two ends are connected to the plates of the rectifier tube (V9). As these plates conduct on alternate half cycles, the output of tube (V9) is pulsating DC with a frequency of 120 pulses per second. This pulsating DC is filtered by means of choke (CH1) and condensers (C31 and C32) and the pure DC output is used to supply plate power to the exciter tubes (V1 and V6 inclusive). The operation of the other power supplies is similar, and thus, will not be described in detail.

C. INSTALLATION

C-1 CAUTION

High voltages are used in the 75-GA transmitter and accidental contact with the plate supply to the final amplifier could be fatal to the operator. When working with radio transmitters, it is essential that safety precautions be observed at all times. Thus, the transmitter is provided with safety interlock switch (S8), which turns off the high voltage supply when the top of the cabinet is open. Never change crystals or plug in the final amplifier plate inductances without first placing the "Transmit-Standby" switch at STANDBY position and the "Plate Power" switch at the OFF position.

C-2 UNCRATING

The transmitter has been carefully packed in a heavy wooden case and certain blocks and wedges have been placed within the cabinet itself to prevent any damage being sustained by the transformers in case of abnormal shock incurred in shipment. When the transmitter is received, carefully remove it from the wooden case, being careful not to scratch the cabinet or front panel when removing the padded blocks in each of the four corners. Inspect carefully for any damage which may have occurred during transit. In case of damage, a claim should be filed at once with the transportation company.

C-3 CONNECTIONS

In the making of any connections to the 75-GA transmitter, be certain that all tubes are in their proper sockets and plate caps on the type 866A tubes (V18 and V19) and on the type TB35 (V7) are in place. The transmitter should be located on the operating table in a convenient position. The following connections are necessary:

- (a) Place switches "Plate Power" and "Filament Power" at OFF position and plug the power cord (P1) into a source of 110-120 volts, 50/60 cycle alternating current. If this transmitter is to be used on voltages higher than 120 volts, a special auto transformer is available as an accessory item. This transformer must have a 600 volt ampere rating.

- (b) Connect the telegraph key to terminals #1 and #2 on terminal strip (TS1) at back of cabinet. The frame of the key should go to terminal #1 which is grounded to the chassis. It is recommended that terminal #1 be connected to a good external ground. If the 75-GA transmitter is to be used for radio telephony only, the key terminals #1 and #2 can be shorted by a jumper. If the transmitter is to be used for both telephone and telegraph, a standard Morse key with a circuit closing lever will be found convenient.
- (c) Connect a crystal or dynamic microphone to socket (J2) located on the front panel on the lower left side, marked "Microphone".
- (d) Connect a suitable antenna to the terminals (E4 and E5) at the rear of cabinet. (See Section C-4 for antenna recommendations).
- (e) Connect terminals (E6 and E7) to the antenna terminals of the receiver. By means of antenna change-over relay (K1), the same antenna may be used for both transmitting and receiving. Terminals #6 and #7 on terminal strip (TS1) should be connected to the standby terminals of the receiver, since this circuit is operated by the antenna change-over relay during transmission periods, which will automatically silence the receiver when transmitting. Terminals #3, #4, #5 of terminal strip (TS1) should not be used until it is desirable to increase the power by employing the TEMCO Model 500-GA transmitter.
- (f) When remote control of the "Transmit-Standby" switch is desired, these connections may be brought out by means of a double pole single throw switch to whatever location the operator deems most convenient. This switch is connected through a four wire cable and four contact plug, which should be inserted into receptacle (P2) located at rear of transmitter cabinet. When operating from this remote switch position, the "Transmit-Standby" switch located in transmitter should always be left at STANDBY.

C-4 ANTENNA RECOMMENDATIONS

The final amplifier coil units used in the 75-GA transmitter, are provided with individual antenna pick-up coils. The number of turns in use in the antenna coil can be adjusted by means of a flexible lead and clip. If a matched impedance antenna of the proper dimensions is used, no further tuning equipment is needed, inasmuch as the correct load on the transmitter may be secured by varying the number of turns in use in the antenna pick-up coil. With other types of antennas, such as the Marconi, Zeppelin, etc., external tuning or loading circuits will be necessary.

In any installation, the antenna to be used must be selected with the utmost consideration, for the results obtained from the 75-GA are controlled by the antenna system's efficiency. More information concerning the various types of antennas may be found in the chapter on antenna systems in the RADIO AMATEUR'S HANDBOOK published by the American Radio Relay League, West Hartford, Connecticut. The most desirable antennas from the standpoint of efficiency of power transfer, simplicity of coupling arrangements and minimum radiation from feeders, are the Johnson "Q", the two wire matched impedance "Y" type and the doublet antenna utilizing 72 ohm coaxial transmission line. The chief disadvantage of the above mentioned antennas, is the fact that they are designed for operation on one frequency only. A single wire fed antenna however, is moderately efficient on harmonics of its fundamental frequency and that fact, combined with its simplicity of coupling, makes it useful when multi-band operation is desired.

NOTE

It must be pointed out however, that this form of antenna is also subject to harmonic radiation and when used, the operator must be extremely careful to ascertain whether second, third or higher multiple of harmonics are being radiated in sections of the spectrum that will cause trouble to other services. Of course, when space and location permit, the operator can obtain a much higher signal gain by the use of directive antenna systems, which have the property of increasing the radiated power up to seven times, and in some systems, this gain may be as high as fourteen times.

D. ADJUSTMENT & OPERATION

D-1 GENERAL

The TEMCO 75-GA transmitter is designed with ample factor of safety and all components are more than adequate for continuous normal operation. In order to secure the maximum in performance and service however, a few simple precautions should be observed. When tuning the transmitter, the key should not be held down for long periods with the plate circuits detuned, inasmuch as the large overload will shorten the tube life. When adjusting antenna coupling, always start with a few turns (clip nearest outside end of coil) and increase the load gradually to the proper point. If the transmitter has been out of service for a long time, it is advisable to check the voltage of bias batteries (BT1 and BT2) located under chassis, before turning the power on. In any case, these batteries should be replaced after approximately two years of service. Never change the position of the band switch while the transmitter is operating. Do not operate on CW telegraphy with the "Emission" switch at PHONE position. Also, make certain that this switch is at PHONE position before attempting to modulate the transmitter.

D-2 CW TELEGRAPHY (VFO OPERATION)

Choose the band upon which operation is desired, by means of the front panel frequency selector switch, (S2). Insert the proper final amplifier coil to the same frequency range in socket (J1). Leave the clip on the flexible lead detached. Set the switches as follows:

1. "Microphone" gain at OFF position
2. "Emission" switch at CW position
3. "Plate" switch at OFF position
4. "Transmit-Standby" switch at STANDBY position
5. "Filament" switch at ON position

Wait for at least 30 seconds for the tube filaments and heaters to warm up. When first placing the transmitter in operation, it is advisable to wait for 15 minutes so that the rectifier tubes can evaporate any mercury which has splashed on the elements. Refer to the frequency chart at rear of book for an approximate setting of the VFO to the desired frequency within the band limits specified. Set the oscillator selector switch to VFO position. With the cover of the transmitter open, set the "Transmit-Standby" switch at TRANSMIT position. Press the key and note that the grid current meter will give an indication of somewhere between 30-50 MA, depending upon frequency and VFO dial position. It would be helpful to listen to the signal from the exciter on a monitor, a frequency meter or a receiver with the gain reduced appropriately.

Lower the cover of the cabinet, place the "Plate" switch at ON and press the key again (tap of antenna coil is still disconnected). Turn the amplifier tuning dial until the reading of the PA plate meter is at minimum. Note the dial reading of amplifier tuning. Set the "Plate" switch at OFF. Open cover of the cabinet and attach clip to antenna coil at about half the number of turns recommended in the accompanying tuning charts for the frequency used. (Note: The final amplifier coil unit should be inserted in socket (J1) with the end covered by antenna coil toward the back of the cabinet. Turns in the antenna coil are counted from that end). Close the cover, set the "Plate" switch at ON, press the key and readjust the amplifier tuning for minimum current on PA plate meter. Repeat this process, increasing the number of turns in use in the antenna coil until the desired loading is obtained, not exceeding 150 MA for CW. (It is assumed that some form of matched impedance antenna employing a two wire or coaxial transmission line is in use. For antennas requiring external tuning, the procedure will have to be modified.)

If the antenna is of correct dimensions for the frequency being used, it will be found that full loading is obtained at approximately the same setting of amplifier tuning as was noted previously. If the minimum reading under load of PA plate meter occurs at a setting of amplifier tuning, more than 10 degrees off from the "No Load" reading, it indicates a reactive load due to improper antenna dimensions. Under such circumstances, the efficiency will be low and severe harmonic radiation may take place.

Assuming that the preceding steps have been carried out as described, the transmitter is now ready for operation on CW telegraphy. During the receiving periods, it is merely necessary to place the "Transmit-Standby" switch at STANDBY position. To shut down the transmitter, place the "Plate" and "Filament" switches at OFF position.

D-3 CW TELEGRAPHY (Crystal Operation)

In the preceding paragraph, it was described how to place the TEMCO Model 75-GA transmitter into operation when using a Variable Frequency Oscillator. To operate on CW telegraphy, employing a crystal as frequency determining element, it becomes necessary to employ a crystal having a frequency within the range of from 3500 to 4000 KC, or 7000 to 7425 KC, since the oscillator must operate within these ranges regardless of the output frequency of the final amplifier stage. By referring to the accompanying charts, it can easily be determined as to the exact crystal frequency necessary for operating frequencies on any of the five amateur bands. This same information will be helpful to the operator in setting the VFO to the desired frequency.

Provisions are incorporated within the VFO box for two quartz crystals; the selection of which may be obtained from the front of panel by the "Oscillator Selector" switch, (S1). Set this switch to either crystal #1 or #2, depending upon its position within the transmitter, and proceed with the tuning as outlined in the preceding section. On all of the four lower frequency bands from 3.5 to 21 megacycles, the VFO tuning dial is disregarded when operating on crystal. When operating within the 28 megacycle band, using crystal control, it is necessary, in order to obtain maximum grid drive to the final amplifier, to set the VFO tuning dial at some position between 5 and 32 degrees, in order that it will set the 28 megacycle coil (L8), to its proper value, by means of the variable driven slug which is used to provide constant grid drive over the entire 28 megacycle band. The VFO tuning dial should be adjusted so that the amplifier grid meter will read maximum for the frequency employed, when on crystal control. The amplifier tuning procedure should be carried out as previously described.

D-4 RADIO TELEPHONY

Tune the entire transmitter to the desired frequency, either on VFO or crystal, in the same manner as described for CW Telegraphy, with the following exceptions:

1. Reduce the number of turns used in the antenna coupling coil so that the PA plate current meter does not read above 125 MA.
2. If a jumper is used between terminals #1 and #2 on terminal strip (TS1), the closing of the key is eliminated and the transmitter is energized at once when the "Transmit-Standby" switch is set at TRANSMIT position.

After the transmitter is properly tuned as described, set the "Transmit-Standby" switch at STANDBY; the "Emission" switch at PHONE and turn the microphone gain to the right, thus closing switch (S6) connecting power to the modulating equipment. If a key is used, it should be closed by means of its closing lever. Turn on the transmitter by setting the "Transmit-Standby" switch at TRANSMIT position, and advance the microphone gain, at the same time speaking into the microphone. Watch the modulator plate current meter. With the microphone gain control set at a low level and no sound going into the microphone, the normal reading of the plate current meter will be between 190 and 215 MA. With the microphone gain control turned up for normal operation, this meter will show an increased reading on sound peaks. It should never be permitted to increase more than 30 MA above the "No Modulation" value and not that much if the transmitter is running below maximum power output (amplifier plate meter less than 115 MA). A greater increase than 30 MA will cause severe overmodulation and interference in adjacent radio channels. Under normal speaking, the modulator plate meter should vary only between 5 and 20 MA. If the 75-GA transmitter and associated receiver are connected in accordance with previous recommendations, it is only necessary to operate the "Transmit-Standby" switch to change from transmitting to receiving. The antenna will be transferred and the receiver turned on and off automatically. When changing back to CW operation, be sure to:

1. Open the shorting switch on the key
2. Set the "Emission" switch at CW position
3. Turn the microphone gain control all the way to the left until switch (S6) clicks, thus disconnecting the power from the modulator equipment. For a temporary shut-down, it is only necessary to set the "Plate" and "Filament" switches at OFF.

D-5 CHANGING FREQUENCY

When the transmitter has been properly adjusted for either CW or phone operation on a given frequency, employing either VFO or crystal, it is a very simple matter to return to that frequency, merely by setting the tuning dials to their previously logged position and by setting the exciter band switch to its desired frequency. It will be necessary to insert the correct coil unit in the final amplifier socket (J1) and readjust the amplifier tuning dial to its pre-logged position.

D-6 MISCELLANEOUS NOTES

It will be noted that the amplifier grid current, when operating on the 3.5 to 4 megacycle band, will be in excess of 30 MA, whereas on 7, 14, 21 and 28 megacycles, the amplifier grid current reading will be somewhat less. The transmitter has been designed and the final amplifier tube chosen, to operate over considerably wide limits, in view of the wide frequency coverage of this transmitter. The equipment has been designed so that the minimum output rating will be obtained as long as the amplifier grid current reads 15 MA or higher. In general, the lower frequencies will have higher grid current readings than will the higher frequencies, but it will be found that if the line voltage into the transmitter is maintained at a minimum of 115 volts under load, the voltages within the transmitter will provide for more than ample grid current. Therefore, grid currents of from 15 to 40 MA are to be considered perfectly normal and permitting efficient operation of the final amplifier stage.

REPLACEABLE PARTS LIST FOR MODEL 75GA TRANSMITTER

REF. SYMBOL	NAME OF PART AND DESCRIPTION	FUNCTION	MFR. CODE	PART NO.
R-1	Resistor, 390 Ohms 10% Tol., 1 watt carbon	Plate isolation resistor for tube V-1	AB	GB-3911
R-2	Resistor, 220 Ohms 10% Tol., 1 watt carbon	Plate limiting resistor for tube V-2	AB	GB-2211
R-3	Resistor, 91,000 Ohms 5% Tol., 1 watt carbon	Grid bias resistor for tube V-3	AB	GB-9135
R-4	Resistor, 1,500 Ohms 10% Tol., 1 watt carbon	Cathode bias resistor for tube V-1	AB	GB-1521
R-5	Resistor, 620 Ohms 5% Tol., 2 watt carbon	Cathode bias resistor for tube V-2	AB	HB-6215
R-6	Resistor, 82,000 Ohms 10% Tol., 2 watt carbon	Bleeder resistor for screen of tubes V-12, V-13, V-14, and V-15	AB	HB-8231
R-7	Resistor, 47,000 Ohms 10% Tol., 1 watt carbon	Grid bias resistor for tube V-3	AB	GB-4731
R-8	Resistor, 20,000 Ohms, 20 watt, wirewound	Bleeder resistor for plate supply of tubes V-12, V-13, V-14, and V-15	HH	2A-5
R-9	Resistor, 22,000 Ohms 10% Tol., 2 watt carbon	Grid bias resistor for tube V-4	AB	HB-2231
R-10	Resistor, 56,000 Ohms 10% Tol., 2 watt carbon	Grid bias resistor for tube V-5	AB	HB-5631
R-11	Resistor, 39,000 Ohms 10% Tol., 2 watt carbon	Grid bias resistor for tube V-6	AB	HB-3931

REPLACEABLE PARTS LIST FOR MODEL 75GA TRANSMITTER

REF. SYMBOL	NAME OF PART AND DESCRIPTION	FUNCTION	MFR. CODE	PART NO.
R-12	Resistor, 100,000 Ohms 10% Tol., 1/2 watt carbon	Grid isolation resistor for tube V-10	AB	EB-1041
R-13	Resistor, 25,000 Ohms, 50 watt, wirewound, adj.	Exciter high voltage bleeder resistor	HH	41/2B-2
R-14	Resistor, 470,000 Ohms 10% Tol., 1 watt carbon	Grid block keying isolation resistor	AB	GB-4741
R-15	Resistor, 10,000 Ohms, 10 watt, wirewound	Plate dropping resistor for tube V-8	HH	13/4Z-5
R-16	Resistor, 30,000 Ohms, 75 watt, wirewound, adj.	Final high voltage bleeder resistor	HH	6B-2
R-17	Resistor, 2 megohms 5% Tol., 1 watt carbon	Grid bias resistor for tube V-10	AB	HB-2055
R-18	Resistor, 2,000 Ohms 5% Tol., 1 watt carbon	Cathode bias resistor for tube V-10	AB	GB-2025
R-19	Resistor, 1 megohm 10% Tol., 1 watt carbon.	Screen dropping resistor for tube V-10	AB	GB-1051
R-20	Resistor, 220,000 Ohms 10% Tol., 1 watt carbon	Plate dropping resistor for tube V-10	AB	GB-2241
R-21	Resistor, 47,000 Ohms 10% Tol., 1/2 watt carbon	Decoupling resistor for plate of tube V-10	AB	EB-4731
R-22	Potentiometer, 500,000 Ohms, 1/4 watt carbon, with SPST Switch (S6)	Audio gain control for tube V-11, and audio power switch	CRL	N-103W/ K155Sw

REPLACEABLE PARTS LIST FOR MODEL 75GA TRANSMITTER

REF. SYMBOL	NAME OF PART AND DESCRIPTION	FUNCTION	MFR. CODE	PART NO.
R-23	Resistor, 1,000 Ohms 10% Tol., 1 watt carbon	Cathode bias resistor for tube V-11	AB	GB-1021
R-24	Resistor, 125 Ohms, 20 watt, wirewound	Cathode bias resistor for tubes V-12, V-13, V-14, and V-15	WL	20F
R-25	Resistor, 47 Ohms 10% Tol., 1/2 watt carbon	Parasitic resistor for tube V-12	AB	EB-4701
R-26	Same as R-25	Parasitic resistor for tube V-13	AB	EB-4701
R-27	Same as R-25	Parasitic resistor for tube V-14	AB	EB-4701
R-28	Same as R-25	Parasitic resistor for tube V-15	AB	EB-4701
R-29	Resistor, 24,000 Ohms 5% Tol., 2 watt carbon	Plate dropping resistor for tube V-11	AB	HB-2435
C-1	Condenser, variable, 50 mmfd, dual section, air	Tuning condenser for tube V-1	TE	6382
C-2	Condenser, variable, 100 mmfd, single section, air	Padding condenser for tube V-1	H	APC-100
C-3	Capacitor, 150 mmfd 5% Tol., 500 vdc, silver mica	Grid blocking condenser for tube V-1	SE	KR-1315
C-4	Capacitor, 300 mmfd 5% Tol., 500 vdc, silver mica	Feed back condenser for tube V-1	SE	KR-1333

REPLACEABLE PARTS LIST FOR MODEL 75GA TRANSMITTER

REF. SYMBOL	NAME OF PART AND DESCRIPTION	FUNCTION	MFR. CODE	PART NO.
C-5	Capacitor, .006 mfd 20% Tol., 500 vdc, mica	Cathode by-pass for tube V-1	SE	C-1260
C-6	Capacitor, .01 mfd 20% Tol., 300 vdc, mica	Plate by-pass for tube V-1	SE	C-06110
C-7	Capacitor, .001 mfd 20% Tol., 500 vdc, mica	Grid by-pass for tube V-2	SE	C-1210
C-8	Same as C-7	Plate blocking condenser for XSl and XS2	SE	C-1210
C-9	Same as C-5	Cathode by-pass for tube V-2	SE	C-1260
C-10	Same as C-5	Plate by-pass for tube V-2	SE	C-1260
C-11	Capacitor, .002 mfd 20% Tol., 500 vdc, mica	Screen by-pass for tube V-2	SE	C-1220
C-12	Capacitor, 50 mmfd 10% Tol., 500 vdc, mica	Coupling condenser for tube V-3	SE	K-1450
C-13	Capacitor, 20 mmfd, 300 vdc, ceramicon	Feedback condenser for tube V-2	E	Type L
C-14	Same as C-11	Screen by-pass condenser for tube V-3	SE	C-1220
C-15	Same as C-11	Plate by-pass condenser for tube V-3	SE	C-1220
C-16	Same as C-12	Coupling condenser for tube V-4	SE	K-1450
C-17	Same as C-11	Screen by-pass for tube V-4	SE	C-1220
C-18	Same as C-11	Plate by-pass for tube V-4	SE	C-1220

REPLACEABLE PARTS LIST FOR MODEL 75GA TRANSMITTER

REF. SYMBOL	NAME OF PART AND DESCRIPTION	FUNCTION	MFR CODE	PART NO.
C-19	Same as C-12	Coupling condenser for tube V-5	SE	K-1450
C-20	Same as C-11	Screen by-pass condenser for tube V-5	SE	C-1220
C-21	Same as C-11	Plate by-pass condenser for tube V-5	SE	C-1220
C-22	Capacitor, 100 mmfd 10% Tol., 500 vdc, mica	Coupling condenser for tube V-6	SE	K-1310
C-23	Same as C-11	Screen by-pass condenser for tube V-6	SE	C-1220
C-24	Same as C-6	Bias supply decoupling condenser for tube V-3	SE	C-06110
C-25	Same as C-6	Filament by-pass condenser for tube V-7	SE	C-06110
C-26	Same as C-6	Filament by-pass condenser for tube V-7	SE	C-06110
C-27	Same as C-11	Screen by-pass condenser for tube V-7	SE	C-1220
C-28	Capacitor, .002 mfd 20% Tol., 5,000 vdc, mica	Plate by-pass condenser for tube V-7	SE	BE5220
C-29	Condenser, variable, 50-150 mmfd, dual section, air, 3,000 vdc	Class C amplifier tuning condenser	EFJ	ED-30

REPLACEABLE PARTS LIST FOR MODEL 75GA TRANSMITTER

REF. SYMBOL	NAME OF PART AND DESCRIPTION	FUNCTION	MFR. CODE	PART NO.
C-30	Same as C-22	Coupling condenser for tube V-7	SE	K-1310
C-31	Capacitor, 8 mfd, 600V working, plug in, electrolytic	Input filter condenser for exciter high voltage supply	TE	6383
C-32	Same as C-31	Output filter condenser for exciter high voltage supply	TE	6383
C-33	Capacitor, 10 mfd, 50 vdc, electrolytic	Cathode by-pass condenser for tube V-10	A	MM-50
C-34	Capacitor, .1 mfd, 400 vdc, tubular, paper	Screen by-pass condenser for tube V-10	CD	DT-4P1
C-35	Capacitor, .01 mfd, 400 vdc, tubular, paper	Coupling condenser for tube V-11	CD	DT-4S1
C-36	Capacitor, 8 mfd, 500 vdc, dual section, electrolytic	Input filter condenser for decoupling network of plate of tube V-10	SP	D-8532
C-37	Part of C-36	Output filter condenser for decoupling network of plate of tube V-10		
C-38	Same as C-33	Cathode by-pass for tube V-11	A	MM-50
C-39	Capacitor, 16 mfd, 250 vdc	Cathode by-pass for tubes V-12, V-13, V-14, and V-15	CD	BR1625
C-40	Same as C-31	Filter for modulator plate supply	TE	6383

REPLACEABLE PARTS LIST FOR MODEL 75GA TRANSMITTER

REF. SYMBOL	NAME OF PART AND DESCRIPTION	FUNCTION	MFR. CODE	PART NO.
C-41	Capacitor, 4 mfd, 1,500 vdc	Output filter for power amplifier plate supply	CD	TV15040
C-42	Same as C-11	R.F. filter condenser for plate circuit of tube V-10	SE	C-1220
C-43	Same as C-11	R.F. filter condenser for cathode circuit of tube V-10	SE	C-1220
C-44	Same as C-36	Input filter condenser for preamplifier high voltage	SP	D-8532
C-45	Part of C-44	Output filter condenser for preamplifier high voltage		
C-46	Same as C-22	Parasitic suppressor condenser for secondary of T-4	SE	K-1310
C-47	Same as C-22	Parasitic suppressor condenser for secondary of T-4	SE	K-1310
C-48	Condenser, variable, 2-9 mmf, ceramic air padder	Grid input compensating condenser for tube V-4	E	TS-2B
C-49	Same as C-48	Grid input compensating condenser for tube V-5	E	TS-2B
C-50	Same as C-48	Grid input compensating condenser for tube V-6	E	TS-2B
C-51	Condenser, variable, 616 neutralizing	Neutralizing condenser for tube V-3	N	NC-600U
C-52	Same as C-12	28 mc. band coupling condenser for tube V-4	SE	K-1450

REPLACEABLE PARTS LIST FOR MODEL 75GA TRANSMITTER

REF. SYMBOL	NAME OF PART AND DESCRIPTION	FUNCTION	MFR. CODE	PART NO.
L-1	Inductor, osc. range 3.5-4 mc., 1-1/2" dia. bak. form; grid winding 18 turns #19 wire close-wound; plate winding 9 turns #24 wire close-wound over cold end of grid coil.	R.F. oscillator, grid and plate coil for tube V-1	TE	6380
L-2	Inductor, class "A" stage range on BFO 3.5-4 mc., 1/2" dia. bak. form, 3/8" powdered iron slug, 91 turns #28 wire close-wound.	Class A amplifier plate coil for tube V-2	TE	6381
L-3	Inductor, 2.5 MH, 3 pie, bank wound on 1/4" ceramic form.	Pierce oscillator plate coil for tube V-2	JM	34101
L-4	Inductor, range 7-7.34 mc., 29 turns #24 wire, 1" dia. air wound.	Doubler plate coil for tube V-3	TE	6392A-4
L-5	Inductor, range 3.5-4 mc., 50 turns #30 wire, tapped 10 turns from bottom end, 1" dia. bak. form.	Amplifier plate coil for tube V-3	TE	6254
L-6	Inductor, range 14-14.4 mc., 15 turns #20 wire, 1" dia. air wound.	Doubler plate coil for tube V-4	TE	6392A-3
L-7	Inductor, range 21-21.5 mc., 8 turns #20 wire, 1" dia. air wound.	Tripler plate coil for tube V-5	TE	6392A-2
L-8	Inductor, range 28-29.7 mc., 7 turns #18 wire, 1" dia. air wound.	Doubler plate coil for tube V-6	TE	6392A-1
L-9	Choke, R.F., 2.5 Millihenries.	Grid choke for tube V-7	JM	34101
L-10	Inductor, range 3.5-4 mc., inductance 24 microhenries with 12 turn coupling link.	R.F. power amplifier plate coil.	TE	2090
L-11	Inductor, range 7-7.34 mc., inductance 8.9 microhenries with 8 turn coupling link.	R.F. power amplifier plate coil.	TE	2091

REPLACEABLE PARTS LIST FOR MODEL 75GA TRANSMITTER

REF. SYMBOL	NAME OF PART AND DESCRIPTION	FUNCTION	MFR. CODE	PART NO.
L-12	Inductor, range 14-14.4 mc., inductance 2.3 microhenries, with 7 turn coupling link.	R.F. power amplifier plate coil.	TE	2092
L-13	Inductor, range 21-21.5 mc., inductance 1.2 microhenries, with 6 turn coupling link.	R.F. power amplifier plate coil.	TE	2093
L-14	Inductor, range 28-29.7 mc., inductance .67 microhenries, with 5 turn coupling link.	R.F. power amplifier plate coil.	TE	2094
L-15	Same as L-9.	Grid choke for tube V-3.	JM	34101
V-1	Tube, triode amplifier.	R.F. oscillator.	RCA	6J5
V-2	Tube, pentode power amplifier.	Class A amplifier	RCA	6AG7
V-3	Tube, beam power amplifier.	3.5 mc. amplifier and 7 mc. doubler.	RCA	6L6
V-4	Same as V-3.	14 mc. doubler.	RCA	6L6
V-5	Same as V-3.	21 mc. tripler.	RCA	6L6
V-6	Same as V-3.	28 mc. doubler.	RCA	6L6
V-7	Tube, tetrode.	Class C power amplifier.	TT	TB-35
V-8	Tube, voltage regulator.	R.F. oscillator voltage regulator.	RCA	VR-150
V-9	Tube, full-wave high vacuum rectifier.	Exciter high voltage rectifier.	RCA	5R4GY

REPLACEABLE PARTS LIST FOR MODEL 75GA TRANSMITTER

REF. SYMBOL	NAME OF PART AND DESCRIPTION	FUNCTION	MFR. CODE	PART NO.
V-10	Tube, triple grid pentode	Microphone preamplifier	RCA	6SJ7
V-11	Same as V-1	Driver for final modulator tubes	RCA	6J5
V-12	Tube, beam power amplifier	Final modulator tube	RCA	6L6G
V-13	Same as V-12	Final modulator tube	RCA	6L6G
V-14	Same as V-12	Final modulator tube	RCA	6L6G
V-15	Same as V-12	Final modulator tube	RCA	6L6G
V-16	Same as V-9	Speech amplifier plate and screen supply and final modulator stage screen supply	RCA	5R4GY
V-17	Same as V-9	Final modulator plate supply	RCA	5R4GY
V-18	Tube, half-wave, high vacuum mercury rectifier	Final amplifier plate and screen supply	RCA	866A
V-19	Same as V-18	Final amplifier plate and screen supply	RCA	866A
T-1	Transformer, power; primary 117V AC, single phase, 50/60 cycles; secondary 380V DC @ 250 M.A. center tap, 6.3V @ 7.8 amps. Center tap, 2.5V @ 10 amps, 5V @ 2 amps	Exciter high voltage plate and filament transformer for exciter stage and filament transformer for power amplifier tube V-7 and rectifier tubes V-18 and V-19	ET	495A-1

REPLACEABLE PARTS LIST FOR MODEL 75GA TRANSMITTER

REF. SYMBOL	NAME OF PART AND DESCRIPTION	FUNCTION	MFR. CODE	PART NO.
T-2	Transformer, power; primary 117V AC, single phase 50/60 cycles; secondary 450V AC @ 235 M.A. and 295V AC @ 42 M.A. center tapped, 6.3V @ 4.2 amps center tapped, 5V @ 3 amps, 5V @ 3 amps.	Plate supply and filament transformer for audio amplifier.	ET	495A-2
T-3	Transformer, power; primary 117V AC, single phase, 50/60 cycles; secondary, 1,000V DC @ 150 M.A. center tapped.	High voltage plate supply transformer for class C power amplifier stage.	ET	566
T-4	Transformer, A-F driver, turns ratio 1:2, to match output of 6J5 tube to input of four 6L6 tubes in push-pull-parallel class AB, secondary winding center tapped, type 2A75.	Interstage coupling between preamplifier and modulator stages.	ET	782L3
T-5	Transformer, A-F, modulator, turns ratio primary to #1 secondary 1:1.66, turns ratio primary to #2 secondary 2.32:1, current rating #1 secondary 130 milliamperes, current rating #2 secondary 20 milliamperes, #2 secondary to match 11,200 Ohm load.	Audio frequency coupling between modulator stage and class C power amplifier stage.	ET	939
CH-1	Reactor, fixed, 12 henries @ 250 M.A., iron core, single winding, DC resistance 100 Ohms.	Exciter high voltage supply filter reactor.	ET	733A1
CH-2	Reactor, fixed, 5 henries @ 40 M.A., iron core, single winding, DC resistance 400 Ohms.	Preamplifier high voltage supply filter reactor.	ET	219J1
CH-3	Reactor, fixed, 30 henries @ 150 M.A., iron core, single winding, DC resistance 270 Ohms.	Class C power amplifier high voltage supply filter reactor.	ET	489
S-1	Switch, single section, 3 pole, 3 position, ceramic wafer.	VFO-crystal selector switch.	CRL	2507

REPLACEABLE PARTS LIST FOR MODEL 75GA TRANSMITTER

REF. SYMBOL	NAME OF PART AND DESCRIPTION	FUNCTION	MFR. CODE	PART NO.
S-2	Switch, three section, 6 pole, 5 position, ceramic wafer.	Doubler band switch	TE	6384
S-3A,B	Switch, DPST, toggle, 5 amps @ 125V.	Filament and bias switch	AHH	ST26N
S-4	Switch, SPST, toggle, 5 amps @ 125V.	Plate switch	AHH	ST26N
S-5	Same as S-3.	Transmit-stand-by switch	AHH	ST26N
S-6	Switch, SPST, rotary, 3 amps, @ 125V, (Part of Pot. R-22).	Modulator power switch	CRL	K155
S-7	Switch, SPST, toggle, 10 amps, 125V.	Phone-CW switch	PS	1311
S-8	Switch, SPST, micro, 10 amps, 125V.	Cover interlock safety switch	MS	YZ-ROL
M-1	Meter, DC, milliammeter range 0-300 milliamperes DC	Modulator plate current meter	DJA	S212
M-2	Meter, DC milliammeter range 0-50 milliamperes DC	P.A. grid current	DJA	S212
M-3	Same as M-1	P.A. plate	DJA	S212
F-1	Fuse, 10 ampere, 250V	Main line fuse	BM	4AG
F-2	Fuse, 5 ampere, 250V	Line fuse for high voltage transformer	BM	4AG
BT-1	Battery, 45V, "B" battery	Fixed grid bias for tubes V-4, V-5, V-6, and V-7	BB	Z-30
BT-2	Same as BT-1	Fixed grid bias for tubes V-4, V-5, V-6, and V-7	BB	Z-30

REPLACEABLE PARTS LIST FOR MODEL 75GA TRANSMITTER

REF. SYMBOL	NAME OF PART AND DESCRIPTION	FUNCTION	MFR. CODE	PART NO.
I-1	Lamp, 6.3V, 250 milliamperes, bayonet base	Oscillator tuning dial light	GE	44
I-2	Same as I-1	Power amplifier tuning dial light	GE	44
J-1	Jack bar, 5 contacts, ceramic	Socket for final RF amplifier inductors	BW	A-56
J-2	Connector, shielded, shorting type	Microphone connection to pre-amplifier stage	AP	MC-1F
K-1	Relay, 3PDT, 10 amp contact, 115V AC coil	Antenna change-over relay	LR	1177

INDEX TO PARTS MANUFACTURERS

<u>SYMBOL</u>	<u>MANUFACTURER</u>	<u>SYMBOL</u>	<u>MANUFACTURER</u>
A	Aerovox Corp. New Bedford, Mass.	H	Hammarlund Mfg. Co. New York, N. Y.
AB	Allen-Bradley Co. Milwaukee, Wisc.	HH	Hardwick & Hindle, Inc. Newark, N. J.
AHH	Arrow-Hart & Hegeman Elec. Co. Hartford, Conn.	JM	James Millen Mfg. Co. Malden, Mass.
AP	American Phenolic Corp. Chicago, Ill.	LR	Leach Relay Co. Los Angeles, Calif.
BB	Burgess Battery Co. New York, New York	MS	Micro-Switch Corp. Freeport, Ill.
BM	Bussmann Mfg. Co. St. Louis, Mo.	N	National Co., Inc. Malden, Mass.
BW	Barker & Williamson Upper Darby, Penna.	PS	Pass & Seymour Newark, N. J.
CD	Cornell-Dubulier, Inc. South Plainfield, N. J.	RCA	R.C.A. Mfg. Co. Harrison, N. J.
DJA	DeJur-Amsco Corp. Long Island City, N. Y.	SE	Sangamo Electric Co. Springfield, Ill.
E	Erie Resistor Corp. Erie, Pennsylvania	SP	Sprague Electric Co. North Adams, Mass.
EFJ	E. F. Johnson Co. Waseca, Minn.	TE	Transmitter Equipment Mfg. Co. New York, N. Y.
ET	Electronic Transformer Co. New York, New York	TT	Taylor Tubes, Inc. Chicago, Ill.
GE	General Electric Co. Schenectady, N. Y.	WL	Ward Leonard Elec. Co. Mount Vernon, N. Y.

E. SUPPLEMENTARY DATA

E-1 CHART OF PERFORMANCE CHARACTERISTICS

DESCRIPTION	INDICATING METER	OPERATING FREQUENCY RANGE	NORMAL	MAXIMUM	MINIMUM
Power amplifier grid current	AMPLIFIER GRID	3500-4000 KC	30 MA	42 MA	25 MA
Power amplifier grid current	AMPLIFIER GRID	7000-7300 KC	27 MA	40 MA	22 MA
Power amplifier grid current	AMPLIFIER GRID	14,000-14,400 KC	27 MA	40 MA	22 MA
Power amplifier grid current	AMPLIFIER GRID	21,000-21,500 KC	20 MA	30 MA	15 MA
Power amplifier grid current	AMPLIFIER GRID	28,000-29,700 KC	20 MA	30 MA	15 MA
Final amplifier plate current, (Antenna clip connected, phone)	AMPLIFIER PLATE	3500-29,700 KC	120 MA	125 MA	100 MA
Final amplifier plate current, (Antenna connected, CW telegraphy)	AMPLIFIER PLATE	3500-29,700 KC	140 MA	150 MA	100 MA (depending on coupling to antenna)
Modulator plate current (audio gain set at maximum, 0% modulation)	MODULATOR PLATE	3500-29,700 KC	200 MA	215 MA	190 MA
Modulator plate current (audio gain open, 100% modulation)	MODULATOR PLATE	3500-29,700 KC	225 MA	250 MA	210 MA

E-2 CHART OF VOLTAGE READINGS FOR SERVICE CHECKS

USE 1000 OHMS PER VOLT TEST METER

LEGEND FOR REMARKS: A — TRANSMIT-STANDBY SWITCH AT TRANSMIT
B — TRANSMIT-STANDBY SWITCH AT STANDBY

CIRCUIT	READING TAKEN		VOLTS	REMARKS
	FROM	TO		
Line	F1	F2	115 AC	All readings taken at this line voltage
V1	Pin 2	Pin 7	6.3 AC	B
V1	Pin 3	Ground	150 DC	A
V2	Pin 2	Pin 7	6.3 AC	B
V2	Pin 6	Ground	150 DC	A
V2	Pin 8	Ground	310 DC	A
V-3, V-4, V-5, V-6	Pin 2	Pin 7	6.3 AC	B
V3, V4, V5, V6	Pin 4	Ground	255 DC	A
V3, V4, V5, V6	Pin 3	Ground	380 DC	A
V3, V4, V5, V6	Pin 5	Ground	-45 DC	B
V7	Pin 1	Pin 4	6.3 AC	B
V7	Pin 2	Ground	310 DC	A
V7	Pin 3	Ground	-90 DC	B
V7	Tuning Con- denser frame	Ground	1080 DC	A
V8	Pin 5	Ground	150 DC	A
V9	Pin 2	Ground	370 DC	A
V10	Pin 2	Pin 7	6.3 AC	B
V10	Pin 5	Ground	1.5 DC	A
V10	Pin 6	Ground	15 DC	A
V10	Pin 8	Ground	40 DC	A
V11	Pin 2	Pin 7	6.3 AC	B
V11	Pin 3	Ground	175 DC	A
V11	Pin 8	Ground	6 DC	A
V12, V13, V14, V15	Pin 2	Pin 7	6.3 AC	B
V12, V13, V14, V15	Pin 3	Ground	410 DC	A
V12, V13, V14, V15	Pin 4	Ground	310 DC	A
V12, V13, V14, V15	Pin 3	Ground	28 DC	A
V16	Pin 8	Ground	355 DC	A
V16	Pin 2	Pin 8	5 AC	B
V17	Pin 2	Pin 8	5 AC	B
V17	Pin 2	Ground	410 DC	A
V18, V19	Pin 1	Pin 4	2.5 AC	B
V18, V19	Pin 1	Ground	1080 DC	A

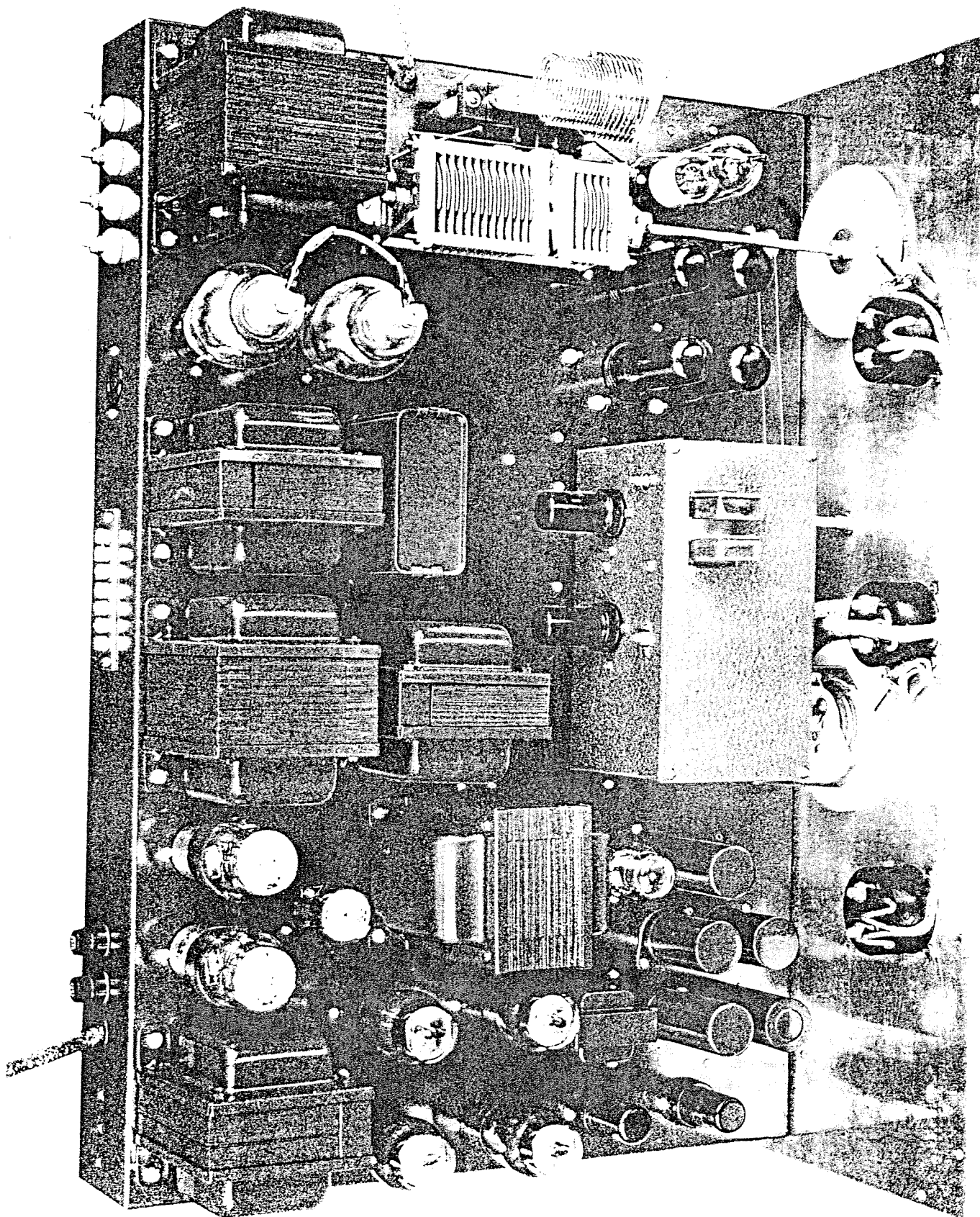


FIG. 2—TEMCO MODEL 75 GA—TRANSMITTER TOP VIEW

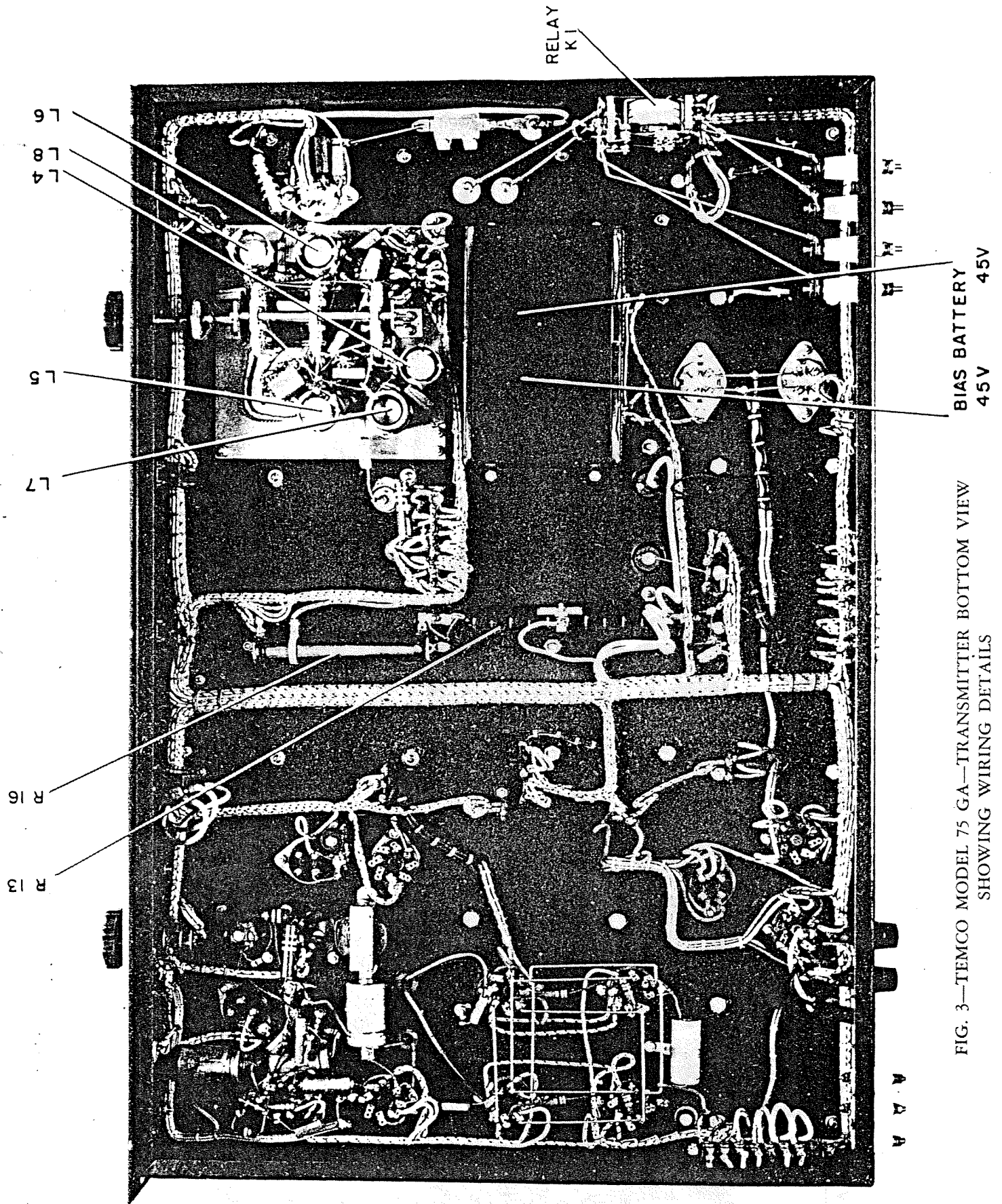


FIG. 3—TEMCO MODEL 75 GA—TRANSMITTER BOTTOM VIEW
SHOWING WIRING DETAILS

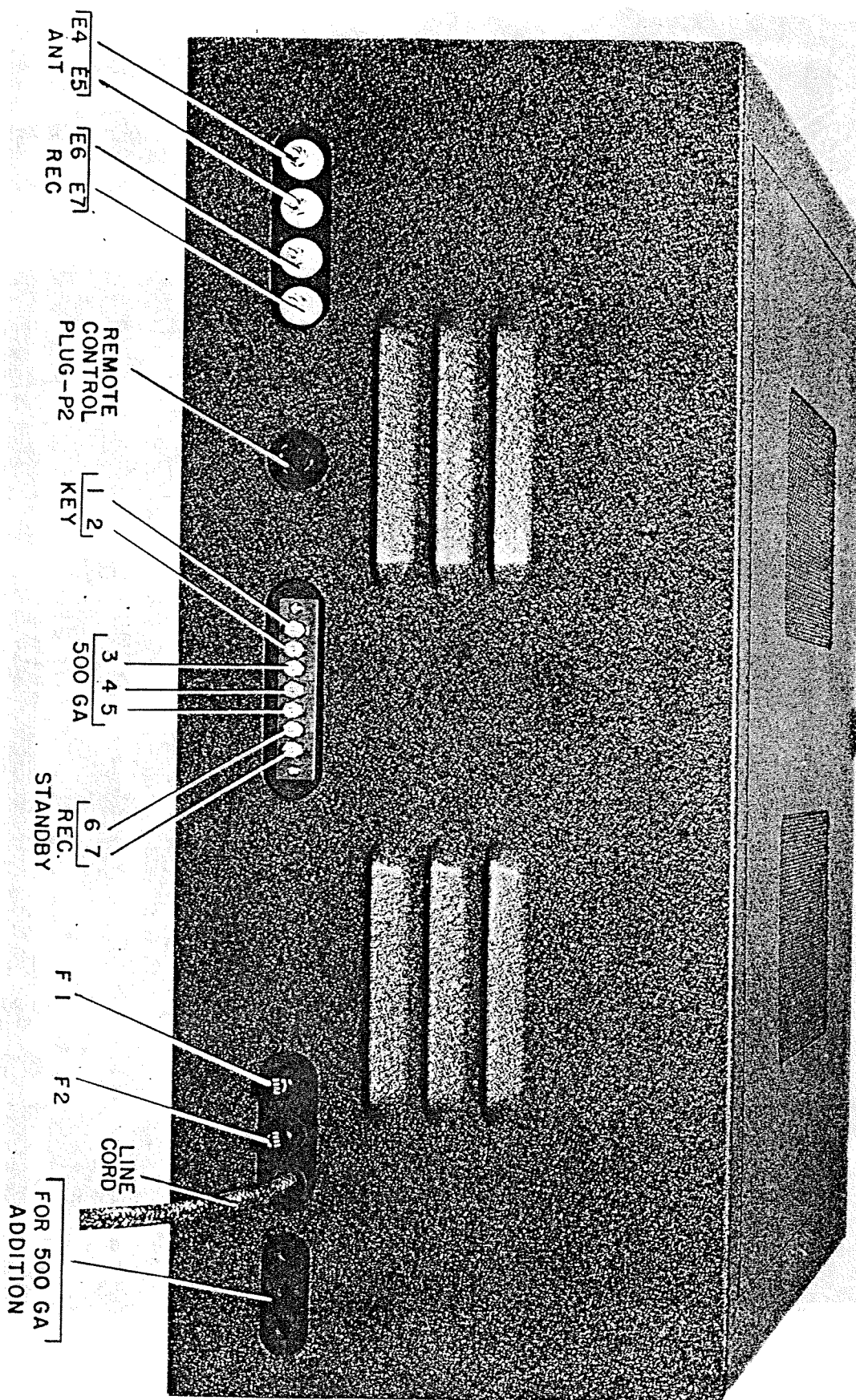


FIG. 4—TEMCO MODEL 75 GA—TRANSMITTER REAR VIEW IN CABINET

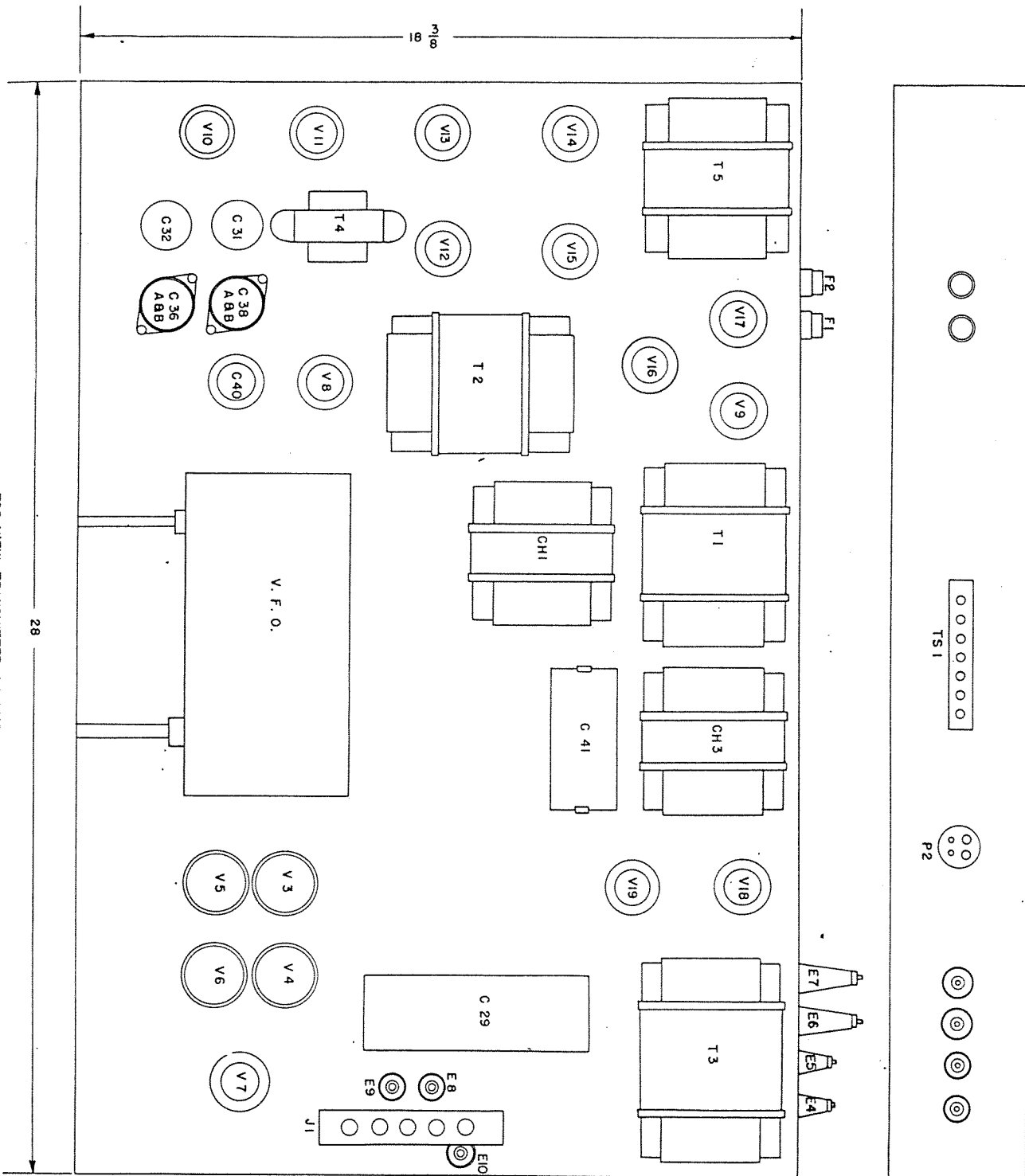
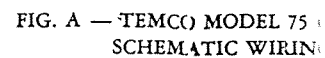
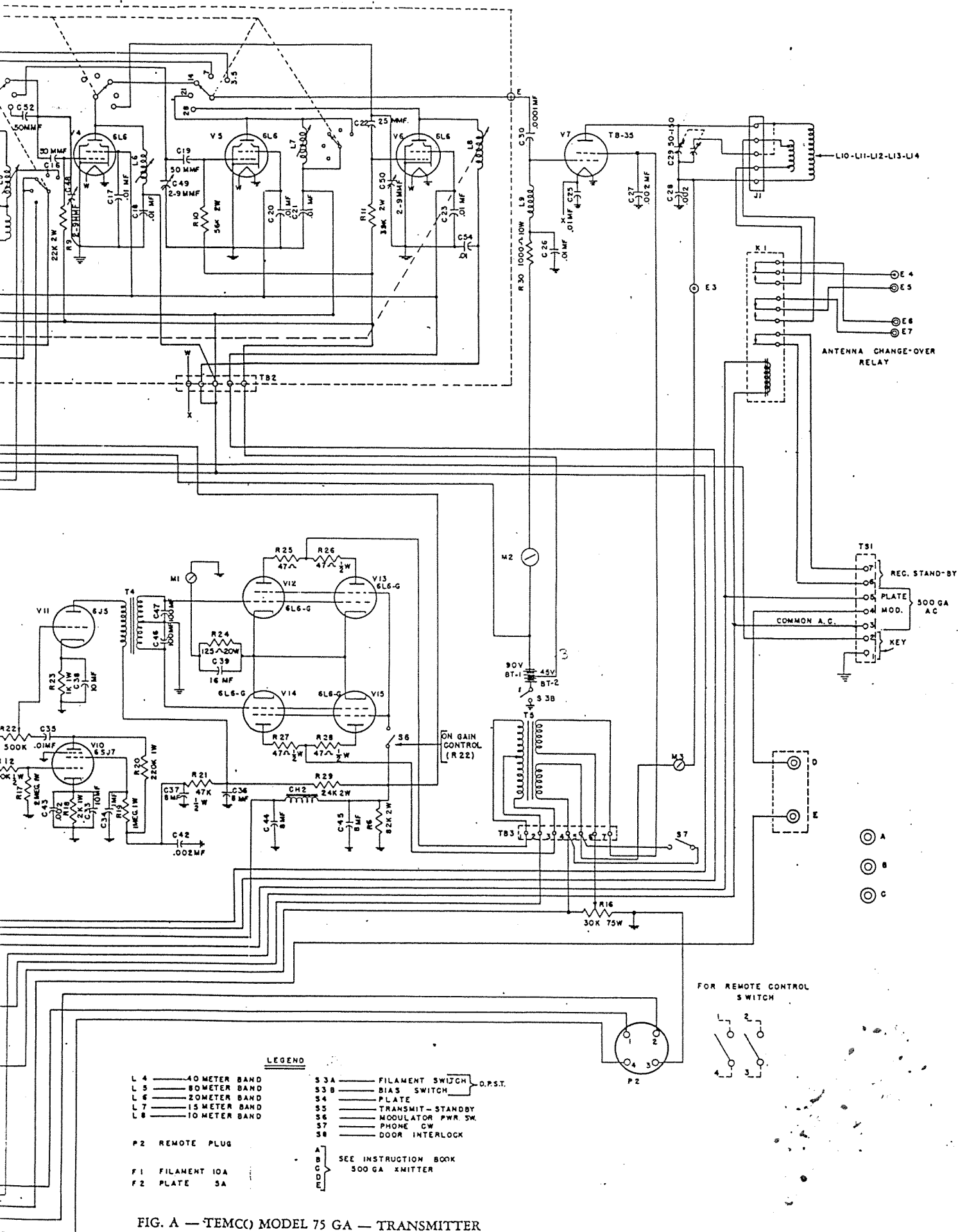


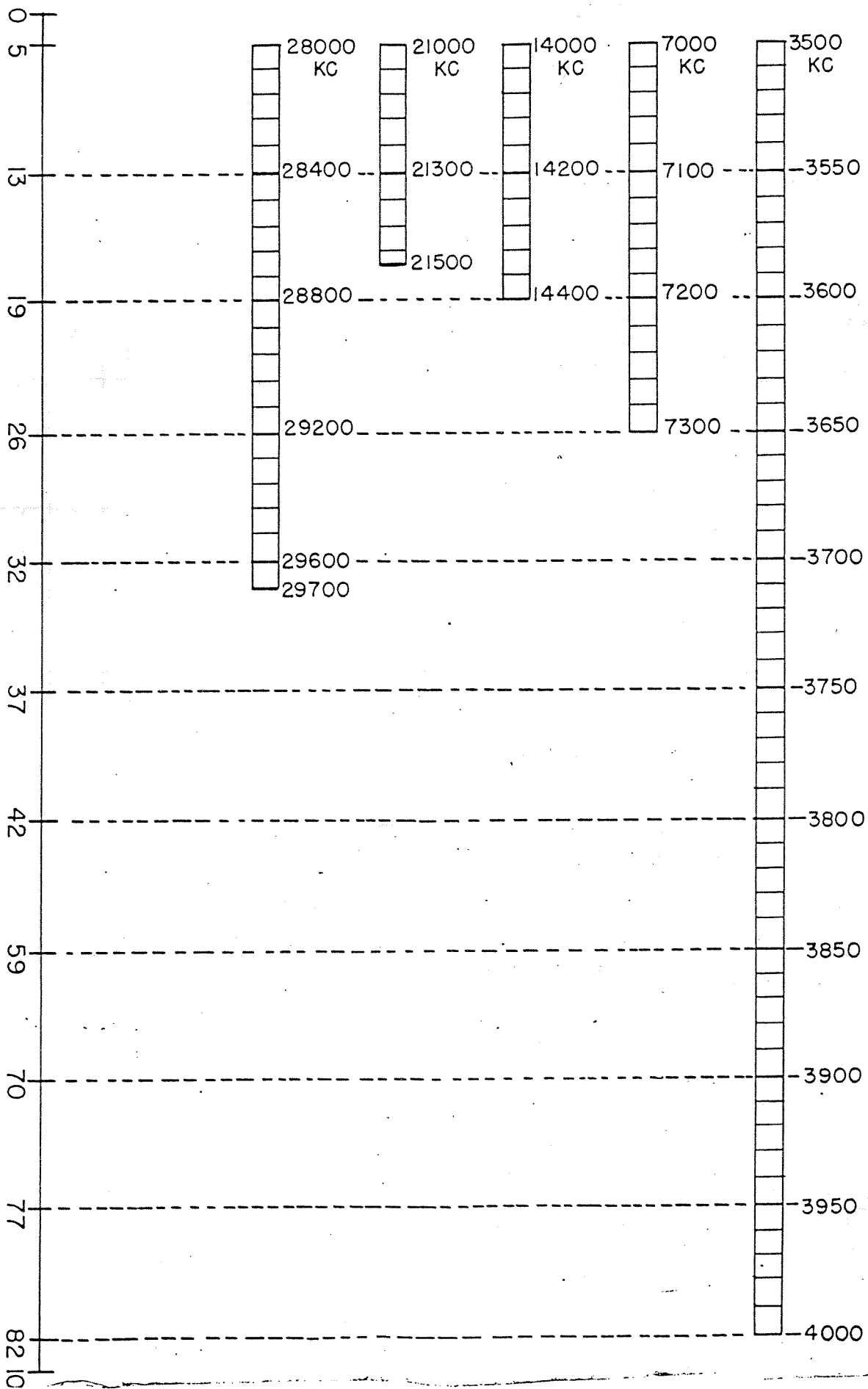
FIG. B—TEMCO MODEL 75 GA—TRANSMITTER TOP AND REAR VIEWS
SHOWING LOCATION OF IMPORTANT PARTS





[illegible]

V.F.O. CALIBRATION CHART



V.F.O. DIAL READING

FIG. D

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DATE 4-8-47 TESTED BY A.B.S. APPVD BY

FREQ.	OSC. DIAL	P.A. DIAL	E ₁ V ₂	E ₂ V ₃	I ₁ V ₃	I ₂ V ₃	I ₃ V ₃	I ₄ V ₃	I ₅ V ₃	I ₆ V ₃	I ₇ V ₃	I ₈ V ₃	E ₁ V ₂	I ₁ V ₃	I ₂ V ₃	I ₃ V ₃	I ₄ V ₃	I ₅ V ₃	I ₆ V ₃	I ₇ V ₃	I ₈ V ₃	I ₉ V ₃	I ₁₀ V ₃	I ₁₁ V ₃	I ₁₂ V ₃	I ₁₃ V ₃	I ₁₄ V ₃	I ₁₅ V ₃	I ₁₆ V ₃	I ₁₇ V ₃	I ₁₈ V ₃	I ₁₉ V ₃	I ₂₀ V ₃	I ₂₁ V ₃	I ₂₂ V ₃	I ₂₃ V ₃	I ₂₄ V ₃	I ₂₅ V ₃	I ₂₆ V ₃	I ₂₇ V ₃	I ₂₈ V ₃	I ₂₉ V ₃	I ₃₀ V ₃	I ₃₁ V ₃	I ₃₂ V ₃	I ₃₃ V ₃	I ₃₄ V ₃	I ₃₅ V ₃	I ₃₆ V ₃	I ₃₇ V ₃	I ₃₈ V ₃	I ₃₉ V ₃	I ₄₀ V ₃	I ₄₁ V ₃	I ₄₂ V ₃	I ₄₃ V ₃	I ₄₄ V ₃	I ₄₅ V ₃	I ₄₆ V ₃	I ₄₇ V ₃	I ₄₈ V ₃	I ₄₉ V ₃	I ₅₀ V ₃	I ₅₁ V ₃	I ₅₂ V ₃	I ₅₃ V ₃	I ₅₄ V ₃	I ₅₅ V ₃	I ₅₆ V ₃	I ₅₇ V ₃	I ₅₈ V ₃	I ₅₉ V ₃	I ₆₀ V ₃	I ₆₁ V ₃	I ₆₂ V ₃	I ₆₃ V ₃	I ₆₄ V ₃	I ₆₅ V ₃	I ₆₆ V ₃	I ₆₇ V ₃	I ₆₈ V ₃	I ₆₉ V ₃	I ₇₀ V ₃	I ₇₁ V ₃	I ₇₂ V ₃	I ₇₃ V ₃	I ₇₄ V ₃	I ₇₅ V ₃	I ₇₆ V ₃	I ₇₇ V ₃	I ₇₈ V ₃	I ₇₉ V ₃	I ₈₀ V ₃	I ₈₁ V ₃	I ₈₂ V ₃	I ₈₃ V ₃	I ₈₄ V ₃	I ₈₅ V ₃	I ₈₆ V ₃	I ₈₇ V ₃	I ₈₈ V ₃	I ₈₉ V ₃	I ₉₀ V ₃	I ₉₁ V ₃	I ₉₂ V ₃	I ₉₃ V ₃	I ₉₄ V ₃	I ₉₅ V ₃	I ₉₆ V ₃	I ₉₇ V ₃	I ₉₈ V ₃	I ₉₉ V ₃	I ₁₀₀ V ₃	I ₁₀₁ V ₃	I ₁₀₂ 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V ₃	I ₂₀₃ V ₃	I ₂₀₄ V ₃	I ₂₀₅ V ₃	I ₂₀₆ V ₃	I ₂₀₇ V ₃	I ₂₀₈ V ₃	I ₂₀₉ V ₃	I ₂₁₀ V ₃	I ₂₁₁ V ₃	I ₂₁₂ V ₃	I ₂₁₃ V ₃	I ₂₁₄ V ₃	I ₂₁₅ V ₃	I ₂₁₆ V ₃	I ₂₁₇ V ₃	I ₂₁₈ V ₃	I ₂₁₉ V ₃	I ₂₂₀ V ₃	I ₂₂₁ V ₃	I ₂₂₂ V ₃	I ₂₂₃ V ₃	I ₂₂₄ V ₃	I ₂₂₅ V ₃	I ₂₂₆ V ₃	I ₂₂₇ V ₃	I ₂₂₈ V ₃	I ₂₂₉ V ₃	I ₂₃₀ V ₃	I ₂₃₁ V ₃	I ₂₃₂ V ₃	I ₂₃₃ V ₃	I ₂₃₄ V ₃	I ₂₃₅ V ₃	I ₂₃₆ V ₃	I ₂₃₇ V ₃	I ₂₃₈ V ₃	I ₂₃₉ V ₃	I ₂₄₀ V ₃	I ₂₄₁ V ₃	I ₂₄₂ V ₃	I ₂₄₃ V ₃	I ₂₄₄ V ₃	I ₂₄₅ V ₃	I ₂₄₆ V ₃	I ₂₄₇ V ₃	I ₂₄₈ V ₃	I ₂₄₉ V ₃	I ₂₅₀ V ₃	I ₂₅₁ V ₃	I ₂₅₂ V ₃	I ₂₅₃ V ₃	I ₂₅₄ V ₃	I ₂₅₅ V ₃	I ₂₅₆ V ₃	I ₂₅₇ V ₃	I ₂₅₈ V ₃	I ₂₅₉ V ₃	I ₂₆₀ V ₃	I ₂₆₁ V ₃	I ₂₆₂ V ₃	I ₂₆₃ V ₃	I ₂₆₄ V ₃	I ₂₆₅ V ₃	I ₂₆₆ V ₃	I ₂₆₇ V ₃	I ₂₆₈ V ₃	I ₂₆₉ V ₃	I ₂₇₀ V ₃	I ₂₇₁ V ₃	I ₂₇₂ V ₃	I ₂₇₃ V ₃	I ₂₇₄ V ₃	I ₂₇₅ V ₃	I ₂₇₆ V ₃	I ₂₇₇ V ₃	I ₂₇₈ V ₃	I ₂₇₉ V ₃	I ₂₈₀ V ₃	I ₂₈₁ V ₃	I ₂₈₂ V ₃	I ₂₈₃ V ₃	I ₂₈₄ V ₃	I ₂₈₅ V ₃	I ₂₈₆ V ₃	I ₂₈₇ V ₃	I ₂₈₈ V ₃	I ₂₈₉ V ₃	I ₂₉₀ V ₃	I ₂₉₁ V ₃	I ₂₉₂ V ₃	I ₂₉₃ V ₃	I ₂₉₄ V ₃	I ₂₉₅ V ₃	I ₂₉₆ V ₃	I ₂₉₇ V ₃	I ₂₉₈ V ₃	I ₂₉₉ V ₃	I ₃₀₀ V ₃	I ₃₀₁ V ₃	I ₃₀₂ V ₃	I ₃₀₃ V ₃	I ₃₀₄ V ₃	I ₃₀₅ V ₃	I ₃₀₆ V ₃	I ₃₀₇ V ₃	I ₃₀₈ V ₃	I ₃₀₉ V ₃	I ₃₁₀ V ₃	I ₃₁₁ V ₃	I ₃₁₂ V ₃	I ₃₁₃ V ₃	I ₃₁₄ V ₃	I ₃₁₅ V ₃	I ₃₁₆ V ₃	I ₃₁₇ V ₃	I ₃₁₈ V ₃	I ₃₁₉ V ₃	I ₃₂₀ V ₃	I ₃₂₁ V ₃	I ₃₂₂ V ₃	I ₃₂₃ V ₃	I ₃₂₄ V ₃	I ₃₂₅ V ₃	I ₃₂₆ V ₃	I ₃₂₇ V ₃	I ₃₂₈ V ₃	I ₃₂₉ V ₃	I ₃₃₀ V ₃	I ₃₃₁ V ₃	I ₃₃₂ V ₃	I ₃₃₃ V ₃	I ₃₃₄ V ₃	I ₃₃₅ V ₃	I ₃₃₆ V ₃	I ₃₃₇ V ₃	I ₃₃₈ V ₃	I ₃₃₉ V ₃	I ₃₄₀ V ₃	I ₃₄₁ V ₃	I ₃₄₂ V ₃	I ₃₄₃ V ₃	I ₃₄₄ V ₃	I ₃₄₅ V ₃	I ₃₄₆ V ₃	I ₃₄₇ V ₃	I ₃₄₈ V ₃	I ₃₄₉ V ₃	I ₃₅₀ V ₃	I ₃₅₁ V ₃	I ₃₅₂ V ₃	I ₃₅₃ V ₃	I ₃₅₄ V ₃	I ₃₅₅ V ₃	I ₃₅₆ V ₃	I ₃₅₇ V ₃	I ₃₅₈ V ₃	I ₃₅₉ V ₃	I ₃₆₀ V ₃	I ₃₆₁ V ₃	I ₃₆₂ V ₃	I ₃₆₃ V ₃	I ₃₆₄ V ₃	I ₃₆₅ V ₃	I ₃₆₆ V ₃	I ₃₆₇ V ₃	I ₃₆₈ V ₃	I ₃₆₉ V ₃	I ₃₇₀ V ₃	I ₃₇₁ V ₃	I ₃₇₂ V ₃	I ₃₇₃ V ₃	I ₃₇₄ V ₃	I ₃₇₅ V ₃	I ₃₇₆ V ₃	I ₃₇₇ V ₃	I ₃₇₈ V ₃	I ₃₇₉ V ₃	I ₃₈₀ V ₃	I ₃₈₁ V ₃	I ₃₈₂ V ₃	I ₃₈₃ V ₃	I ₃₈₄ V ₃	I ₃₈₅ V ₃	I ₃₈₆ V ₃	I ₃₈₇ V ₃	I ₃₈₈ V ₃	I ₃₈₉ V ₃	I ₃₉₀ V ₃	I ₃₉₁ V ₃	I ₃₉₂ V ₃	I ₃₉₃ V ₃	I ₃₉₄ V ₃	I ₃₉₅ V ₃	I ₃₉₆ V ₃	I ₃₉₇ V ₃	I ₃₉₈ V ₃	I ₃₉₉ V ₃	I ₄₀₀ V ₃	I ₄₀₁ V ₃	I ₄₀₂ V ₃	I ₄₀₃ V ₃	I ₄₀₄ V ₃	I ₄₀₅ V ₃	I ₄₀₆ V ₃	I ₄₀₇ V ₃	I ₄₀₈ V ₃	I ₄₀₉ V ₃	I ₄₁₀ V ₃	I ₄₁₁ V ₃	I ₄₁₂ V ₃	I ₄₁₃ V ₃	I ₄₁₄ V ₃	I ₄₁₅ V ₃	I ₄₁₆ V ₃	I ₄₁₇ V ₃	I ₄₁₈ V ₃	I ₄₁₉ V ₃	I ₄₂₀ V ₃	I ₄₂₁ V ₃	I ₄₂₂ V ₃	I ₄₂₃ V ₃	I ₄₂₄ V ₃	I ₄₂₅ V ₃	I ₄₂₆ V ₃	I ₄₂₇ V ₃	I ₄₂₈ V ₃	I ₄₂₉ V ₃	I ₄₃₀ V ₃	I ₄₃₁ V ₃	I ₄₃₂ V ₃	I ₄₃₃ V ₃	I ₄₃₄ V ₃	I ₄₃₅ V ₃	I ₄₃₆ V ₃	I ₄₃₇ V ₃	I ₄₃₈ V ₃	I ₄₃₉ V ₃	I ₄₄₀ V ₃	I ₄₄₁ V ₃	I ₄₄₂ V ₃	I ₄₄₃ V ₃	I ₄₄₄ V ₃	I ₄₄₅ V ₃	I ₄₄₆ V ₃	I ₄₄₇ V ₃	I ₄₄₈ V ₃	I ₄₄₉ V ₃	I ₄₅₀ V ₃	I ₄₅₁ V ₃	I ₄₅₂ V ₃	I ₄₅₃ V ₃	I ₄₅₄ V ₃	I ₄₅₅ V ₃	I ₄₅₆ V ₃	I ₄₅₇ V ₃	I ₄₅₈ V ₃	I ₄₅₉ V ₃	I ₄₆₀ V ₃	I ₄₆₁ V ₃	I ₄₆₂ V ₃	I ₄₆₃ V ₃	I ₄₆₄ V ₃	I ₄₆₅ V ₃	I ₄₆₆ V ₃	I ₄₆₇ V ₃	I ₄₆₈ V ₃	I ₄₆₉ V ₃	I ₄₇₀ V ₃	I ₄₇₁ V ₃	I ₄₇₂ V ₃	I ₄₇₃ V ₃	I ₄₇₄ V ₃	I ₄₇₅ V ₃	I ₄₇₆ V ₃	I ₄₇₇ V ₃	I ₄₇₈ V ₃	I ₄₇₉ V ₃	I ₄₈₀ V ₃	I ₄₈₁ V ₃	I ₄₈₂ V ₃	I ₄₈₃ V ₃	I ₄₈₄ V ₃	I ₄₈₅ V ₃	I ₄₈₆ V ₃	I ₄₈₇ V ₃	I ₄₈₈ V ₃	I ₄₈₉ V ₃	I ₄₉₀ V ₃	I ₄₉₁ V ₃	I ₄₉₂ V ₃	I ₄₉₃ V ₃	I ₄₉₄ V ₃	I ₄₉₅ V ₃	I ₄₉₆ V ₃	I ₄₉₇ V ₃	I ₄₉₈ V ₃	I ₄₉₉ V ₃	I ₅₀₀ V ₃	I ₅₀₁ V ₃	I ₅₀₂ V ₃	I ₅₀₃ V ₃	I ₅₀₄ V ₃	I ₅₀₅ V ₃	I ₅₀₆ V ₃	I ₅₀₇ V ₃	I ₅₀₈ V ₃	I ₅₀₉ V
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Abstract

LOG SHEET

for Special Notes

TO THOSE USERS OF THE TEMCO 75-GA TRANSMITTER WHO

DESIRE TO INCREASE POWER NOW OR IN THE FUTURE.

The 75-GA transmitter can readily be converted to higher power (750 or 1000 watts input) by adding 3 chassis and cabinet comprising the TEMCO Model 500-GA or 1000-GA, details of which are herewith described:

Model 500-GA

RATED OUTPUT: 500 watts on both
phone and CW

FREQUENCY RANGE: Same as 75-GA

TYPE MODULATION: 100% high level
class B

INPUT LEVEL: Same as 75-GA

AUDIO RESPONSE: Same as 75-GA

AUDIO DISTORTION: Less than 8% at
90% modulation

POWER CONSUMPTION: Approximately 2 KW

POWER FACTOR: Approximately 90%

POWER SOURCE: 110 - 120 V.,
50/60 cycles AC

MEASUREMENTS: Approximately 56" high,
31" wide, 24" deep

TUBE COMPLEMENT:

- 2 - 100THs Push pull final
amplifier
- 2 - 100THs Class B modulator
- 2 - 872As High voltage rectifiers
- 1 - 5R4GY Bias supply rectifier

Model 1000-GA

750 watts on both
phone and CW

Same as 75-GA

100% high level
class B

Same as 75-GA

Same as 75-GA

Less than 8% at
90% modulation

Approximately 3 KW

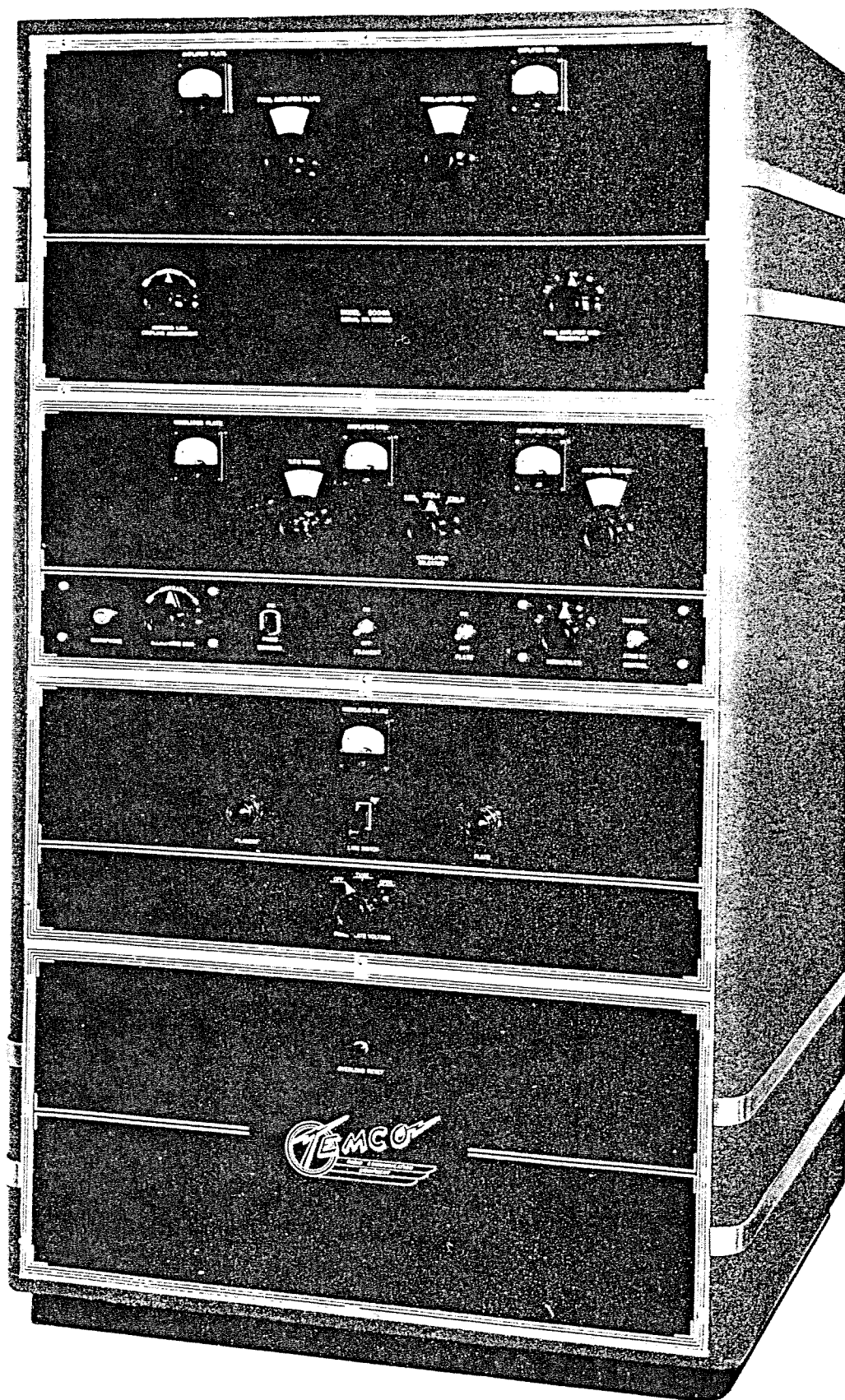
Approximately 90%

110 - 120 V.,
50/60 cycles AC

Approximately 56" high,
31" wide, 24" deep

- 2 - 250THs Push pull final
amplifier
- 2 - 100THs Class B modulator
- 2 - 872As High voltage rectifiers
- 1 - 5R4GY Bias supply rectifier

TEMCO engineers have designed a transmitter that can be operated at a power input of 750 watts, in the case of the Model 500-GA or by minor changes in the tube line-up, modulation transformer, etc., a power input of 1000 watts can be obtained as in the Model 1000-GA. We invite you to contact our factory or your nearest TEMCO distributor for complete information as to how this increase in power may be had without the sacrifice of one cent of your original investment in the Model 75-GA. Our entire facility is at your disposal and your continued interest will receive our immediate cooperation.



TEMCO MODELS 500 GA and 1000 GA TRANSMITTERS