UNCLASSIFIED

MAINTENANCE MANUAL

for

LOW FREQUENCY GENERAL PURPOSE TRANSMITTER

MODEL GPT-10KLF

THE TECHNICAL MATERIEL CORPORATION
MAMARONECK, N.Y. OTTAWA, ONTARIO

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MAMARONECK, N.Y. **OTTAWA, CANADA**

IN-349

ISSUE DATE: 30 NOV. 1965

NOTICE

THE TECHNICAL MATERIEL CORPORATION
COMMUNICATIONS ENGINEERS
700 FENIMORE ROAD MAMARONECK, N. Y.

Warranty

The Technical Materiel Corporation, hereinafter referred to as TMC, warrants the equipment (except electron tubes,* fuses, lamps, batteries and articles made of glass or other fragile or other expendable materials) purchased hereunder to be free from defect in materials and workmanship under normal use and service, when used for the purposes for which the same is designed, for a period of one year from the date of delivery F.O.B. factory. TMC further warrants that the equipment will perform in a manner equal to or better than published technical specifications as amended by any additions or corrections thereto accompanying the formal equipment offer.

TMC will replace or repair any such defective items, F.O.B. factory, which may fail within the stated warranty period, PROVIDED:

1. That any claim of defect under this warranty is made within sixty (60) days after discovery thereof and that inspection by TMC, if required, indicates the validity of such claim to TMC's satisfaction.

2. That the defect is not the result of damage incurred in shipment from or to the factory.

3. That the equipment has not been altered in any way either as to design or use whether by replacement parts not supplied or approved by TMC, or otherwise.

4. That any equipment or accessories furnished but not manufactured by TMC, or not of TMC design shall be subject only to such adjustments as TMC may obtain from the supplier thereof.

Electron tubes*furnished by TMC, but manufactured by others, bear only the warranty given by such other manufacturers. Electron tube warranty claims should be made directly to the manufacturer of such tubes.

TMC's obligation under this warranty is limited to the repair or replacement of defective parts with the exceptions noted above.

At TMC's option any defective part or equipment which fails within the warranty period shall be returned to TMC's factory for inspection, properly packed with shipping charges prepaid. No parts or equipment shall be returned to TMC, unless a return authorization is issued by TMC.

No warranties, express or implied, other than those specifically set forth herein shall be applicable to any equipment manufactured or furnished by TMC and the foregoing warranty shall constitute the Buyers sole right and remedy. In no event does TMC assume any liability for consequential damages, or for loss, damage or expense directly or indirectly arising from the use of TMC Products, or any inability to use them either separately or in combination with other equipment or materials or from any other cause.

*Electron tubes also include semi-conductor devices.

PROCEDURE FOR RETURN OF MATERIAL OR EQUIPMENT

Should it be necessary to return equipment or material for repair or replacement, whether within warranty or otherwise, a return authorization must be obtained from TMC prior to shipment. The request for return authorization should include the following information:

1. Model Number of Equipment.
2. Serial Number of Equipment.
3. TMC Part Number.
4. Nature of defect or cause of failure.
5. The contract or purchase order under which equipment was delivered.

PROCEDURE FOR ORDERING REPLACEMENT PARTS

When ordering replacement parts, the following information must be included in the order as applicable:

1. Quantity Required.
2. TMC Part Number.
3. Equipment in which used by TMC or Military Model Number.
4. Brief Description of the Item.
5. The *Crystal Frequency* if the order includes crystals.

PROCEDURE IN THE EVENT OF DAMAGE INCURRED IN SHIPMENT

TMC's Warranty specifically excludes damage incurred in shipment to or from the factory. In the event equipment is received in damaged condition, the carrier should be notified immediately. Claims for such damage should be filed with the carrier involved and not with TMC.

All correspondence pertaining to Warranty Claims, return, repair, or replacement and all material or equipment returned for repair or replacement, within Warranty or otherwise, should be addressed as follows:

THE TECHNICAL MATERIEL CORPORATION
Engineering Services Department
700 Fenimore Road
Mamaroneck, New York

RECORD OF CORRECTIONS MADE

Change No.	Date of Change	Date Entered	Entered By
2	1 Jan. 1967	Incorporated in Manual	

CHANGE NO. 1 GPT-10KLF

INSTRUCTION BOOK CHANGE NOTICE

Date December 10, 1965

Manual affected: Maintenance Manual for General Purpose Transmitter, Model GPT-10KLF (Issue Date: 30 Nov. 1965) IN-349

Page 2-9. Paragraph 2-2d.

Change the note on page 2-9 to read:

NOTE

Refer to paragraph 2-10 for primary power circuitry for transformers T2001 and T2002.

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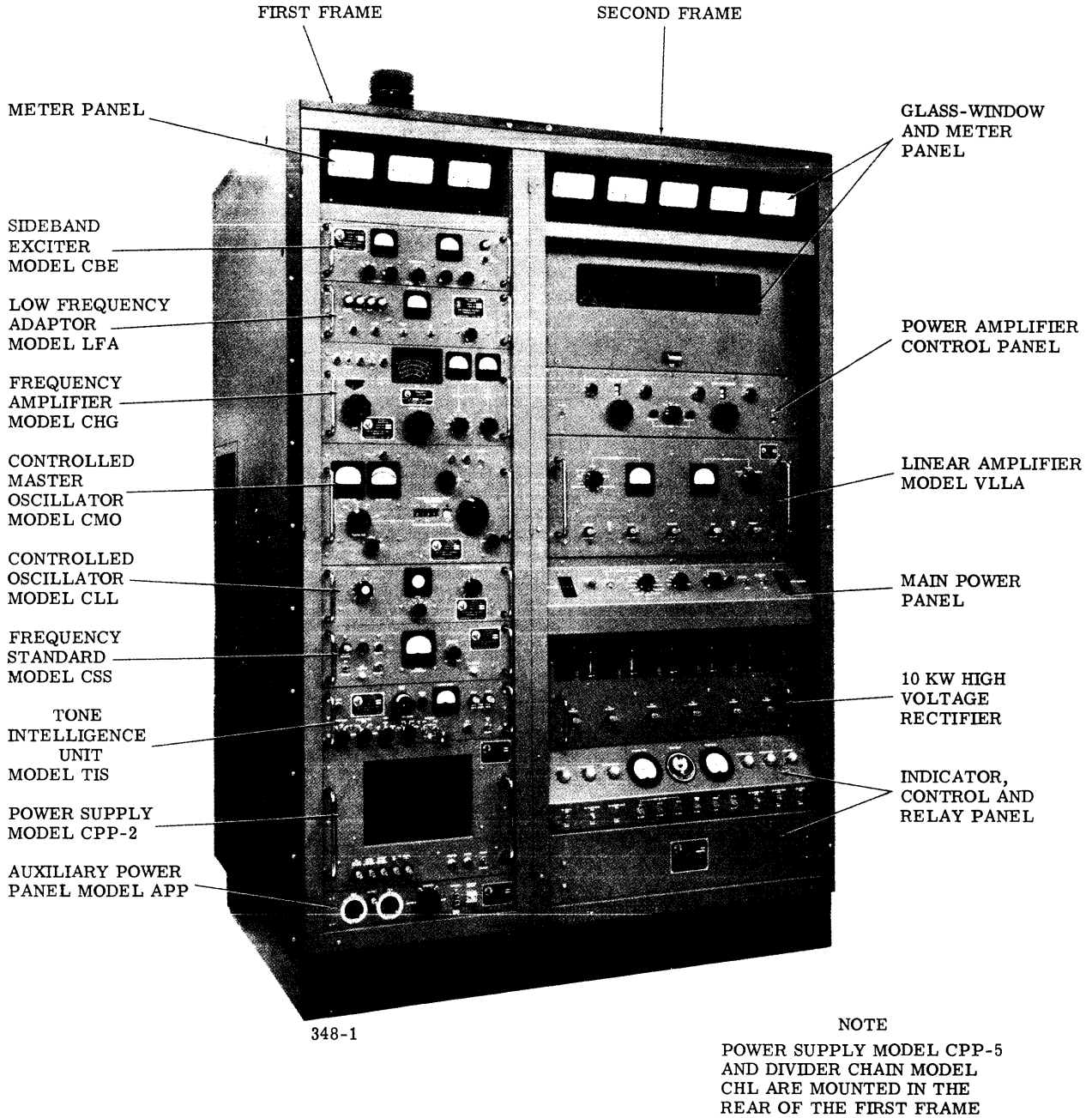

Figure 1-1. General Purpose Transmitter, Model GPT-10KLF, Front View

SECTION 1

GENERAL INFORMATION

1-1. PURPOSE OF EQUIPMENT.

The GPT-10KLF Transmitter (figure 1-1) is a conservatively-rated general purpose transmitter that delivers up to 10,000 watts peak envelope power (PEP), or 5,000 watts average power, throughout the 5- to 540-kc range. For pulsed operation, and a duty cycle not exceeding 10%, up to 25,000 watts peak power output is available. Operation between 540- and 600-kc is possible with 5,000 watts PEP or 2,500 watts average power output. The transmitter provides many types of operating modes, as follows:

(1) Single sideband (SSB) with suppressed or any degree of carrier (this mode includes amplitude modulation equivalent (AME) operation).

(2) Double sideband (DSB with suppressed or any degree of carrier (this mode includes amplitude modulation (AM) operation).

(3) Independent sideband (ISB) (separate intelligence on each sideband) with suppressed or any degree of carrier.

(4) Frequency-shift telegraphy (FSK).

(5) Keyed-carrier telegraph (CW).

(6) Keyed-tone telegraphy (MCW).

(7) Facsimile (FAX).

1-2. DESCRIPTION OF EQUIPMENT.

a. GENERAL. - As shown in figure 1-1, the transmitter consists of two frames. The two frames house all the components of the transmitter and are equipped with protective front doors. Primary power and control line connections are made through the base assembly. The r-f output connection is made at a coaxial connector on the upper right side of the second frame.

b. FIRST FRAME. - The first frame houses the exciter components of the transmitter. The frame is divided into a front and rear section by a partition which supports miscellaneous controls, connectors, and terminal boards. An AUXILIARY FRAME MAIN POWER circuit breaker, located on the rear of the inner partition, controls the application of power to the exciter circuits. A fan in the upper front portion of the first frame provides air cooling of the exciter components. A red lamp on the roof of the frame lights when high voltage is applied to the transmitter. A meter panel, mounted at the top of the first frame, contains three meters. These monitor the PA tubes screen grid voltage, filament circuit primary voltage, and PA tubes plate voltage.

c. SECOND FRAME. - The second frame houses the linear r-f amplifier stages of the transmitter and associated power supply and power control circuits.

(1) Second Frame Meter Panel. - The meter panel, mounted at the top of the second frame, contains five meters. These monitor the PA

tubes grid bias voltages, PA tubes screen grid voltage, PA tubes plate current, and transmitter power output or transmission line VSWR.

(2) 10-KW PA. - The 10-kw PA, occupying the upper portion of the second frame, contains the two tubes used in the final amplifier stage of the transmitter and associated output impedance-matching components.

(3) Linear Amplifier. - The linear amplifier drawer VLLA, slide-mounted below the 10-kw PA, contains the first two amplifier stages of the transmitter, filament, screen, and plate supplies for these stages, and the bias supply for all of the r-f amplifiers.

(4) Main Power Panel. - The main power panel, mounted in the center-front portion of the second frame, contains controls for applying primary power to all second frame circuits, an interlock circuit monitor, and d-c voltage controls.

(5) 10-KW High Voltage Rectifier. - The 10-kw high voltage rectifier, slide-mounted below the main power panel, receives high-voltage, 3-phase, a-c power from a transformer in the main frame, and provides B+ potential for the 10-kw PA tubes. The 10-kw high voltage rectifier also provides rectification for the 3200-volt section of the transmitter main power supply. Either a solid-state rectifier, High Voltage Rectifier, Model HVRC-2, or a gaseous-tube rectifier, High Voltage Rectifier AX-103 is provided.

(6) Indicator Control and Relay Panel. - The relay panel, mounted at the lower front section of the second frame, contains overload and other protective relays associated with the 10-kw PA tubes, second stage amplifier tubes, and the PA tubes screen voltage supply.

SECTION 2

PRINCIPLES OF OPERATION

2-1. GENERAL

This section covers the principles of operation of the three r-f amplifier stages of the the 10KLF transmitter and of the associated protective, control, and power suppy circuits.

2-2. OVERALL BLOCK DIAGRAM ANALYSIS (See figure 2-1).

As shown in the block diagram, the GPT-10KLF transmitter consists of an exciter, a three-stage linear r-f amplifier, power supplies, and control and protective circuits. The exciter circuits are housed in the first frame. The principles of operation of the exciter circuits are not described in this manual; refer to technical manual supplied for the exciter system. The exciter provides an r-f output within the 5- to 540-kilocycle range at a level of up to one watt PEP (peak-envelope-power). This excitation is applied to the first r-f amplifier in the VLLA. The first r-f amplifier, a push-pull, broad-band (untuned) stage drives the IPA stage, also a push-pull, broad-band amplifier contained in the VLLA. The IPA stage provides excitation for the 10-kw power amplifier.

Bias, filament voltages, screen grid voltages, and plate supply voltages for the first r-f amplifier and IPA tubes are provided by power supplies in the VLLA.

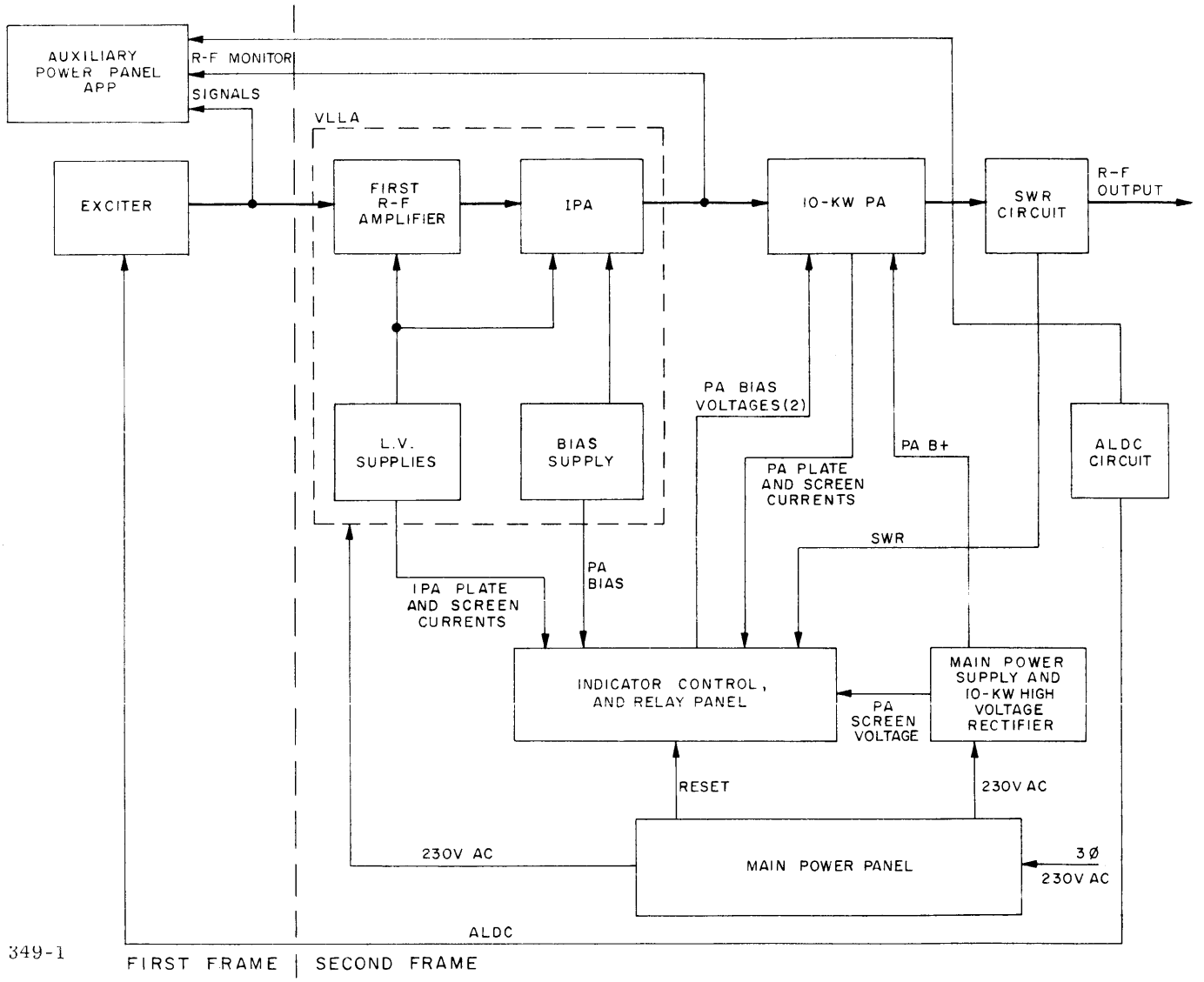

Figure 2-1. Block Diagram, GPT-10KLF

The 10-kw PA, also a push-pull, broad-band amplifier, raises the r-f signal level as high as 5,000 watts average. With a 50% duty cycle, an output of up to 10,000 watts PEP is provided; with a 10% duty cycle (comparable with 16-tone v-f telegraphy), the power-amplifier will provide up to 25,000 watts PEP. The output configuration of the 10-kw PA includes an adjustable impedance matching device, allowing the transmitter to be terminated into a variety of loads.

The 10-kw PA receives its filament, screen grid, and plate voltages from the main power supply. Bias for the two power-amplifier tubes is derived from an output of the bias supply in the VLLA.

The SWR circuit, interposed in the r-f output line, detects transmitter output power level and SWR (standing wave ratio) on the transmission line connected to the output terminal.

Samples of the r-f signals at the output of the IPA and at the output of the 10-kw PA are routed to the auxiliary power panel in the first frame, where they may be conveniently monitored. A sample of the 10-kw PA output signal is also applied to the ALDC (automatic load and drive control) circuit. The ALDC circuit can be adjusted so that a control voltage is applied to the exciter whenever a predetermined PEP level is reached. Excessively high drive peaks and excessive distortion is thus prevented.

The protective circuits in the indicator, control, and relay panel monitor various transmitter operating parameters, and deenergizes the

high voltage circuits if one or more of the following conditions exist:

(1) Excessive IPA tubes screen grid current.

(2) Excessive IPA tubes plate current.

(3) Insufficient bias voltage for power-amplifier tubes.

(4) Excessive power-amplifier tubes plate current.

(5) Excessive power-amplifier tubes screen tubes screen grid current.

(6) Excessive current through the zener diode regulator in the PA tubes screen voltage supply.

(7) Excessive SWR at transmitter output.

Interlocks, provided at key points throughout the transmitter afford personnel and equipment protection. If any of these interlocks opens, the high voltage circuits are deenergized. The interlocks are located on doors, panels, drawers, and the important ventilating ducts.

2-3. VLLA

a. FIRST RF AMPLIFIER. - (Figure 2-2)

R-f input from the exciter enters the VLLA via jack J2001. A tee pad, comprising resistors R2015, R2012, and R2013, presents the exciter with the correct load impedance. The pi-el network made up of inductors L2008, L2009, L2010, and capacitors C2010, C2011, C2012, and C2013, eliminates possible high frequency components of the excitation. Transformer T2003 converts the unbalanced input signal to a balanced signal for application to the grids of tubes V2001 and V2002. Swamping resistors R2011 and R2014 ensure broad band-pass of the amplifier input

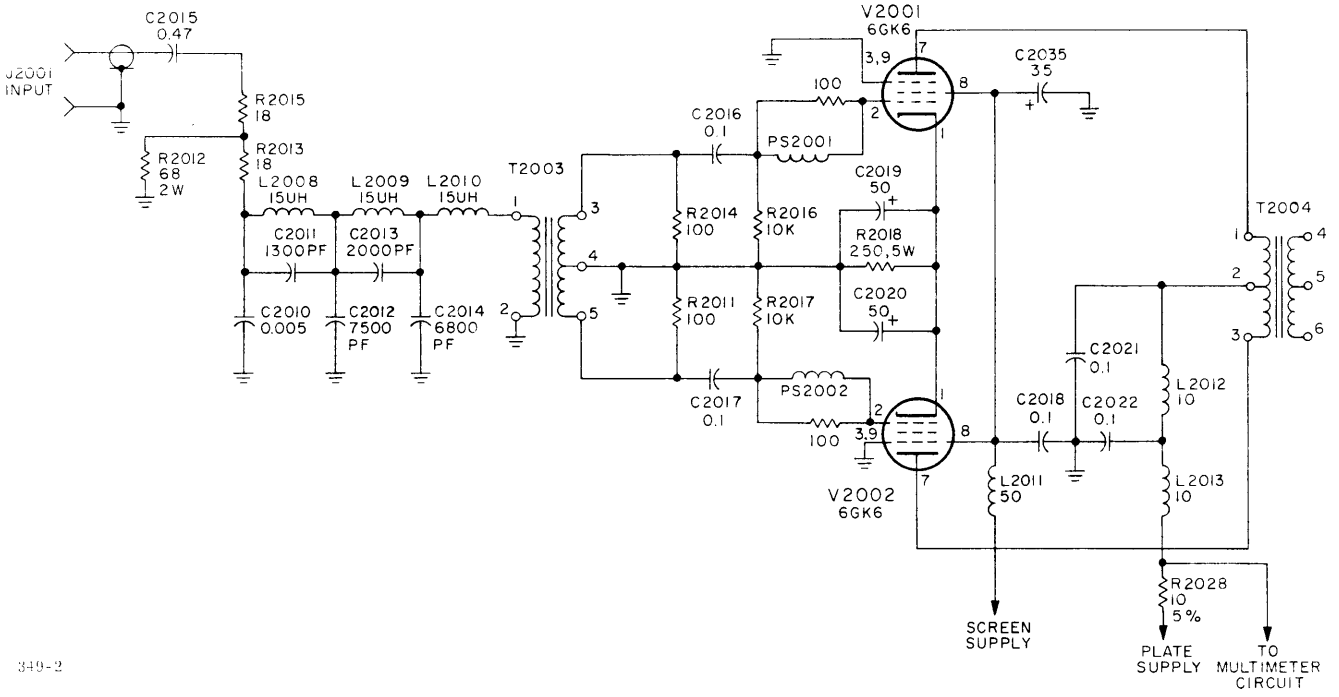

Figure 2-2. Simplified Schematic, First RF Amplifier

circuit. The amplifier tubes V2001 and V2002 are self-biased by cathode resistor R2018. The output signal is coupled to the IPA stage by transformer T2004. Resistor R2028 is a shunt for multimeter M2001 to permit monitoring the first amplifier tubes plate current (see paragraph c).

b. IPA (Figure 2-3). - Input transformer T2004 is swamped by resistors R2019 and R2020 to ensure broad bandwidth. A sample of the r-f signal at terminal 4 of T2004 (common with grid of V2003) is coupled through resistor R2037 to the multimeter circuit. Resistor R2037 serves the same purpose in the input circuit of V2004. IPA tubes V2003 and V2004 each receive individually controlled bias from the VLLA power supply (see paragraph d). The IPA output is coupled through transformer T2005 to the 10-kw PA. Resistors R2040 and R2043 couple samples of the r-f output signal to the multimeter circuit. Resistor R2048 is a shunt for multimeter M2001 to permit monitoring the IPA tubes screen grid current. Switch S2002 connects meter M2002 to indicate the plate current of V2003, of V2004, or of the combined plate currents.

c. MULTIMETER CIRCUIT. (Figure 2-4). - When MULTIMETER switch S2001 is set at position (1), MULTIMETER M2001 is connected across resistor R2028; resistor R2029 is the meter multiplier in this position. Therefore, the indicated voltage drop across R2028 is proportional to the plate current of tubes V2001 and V2002. With S2001 set at position (2), R2030 becomes the multiplier, and R2031 is the shunt. M2001 indicates the

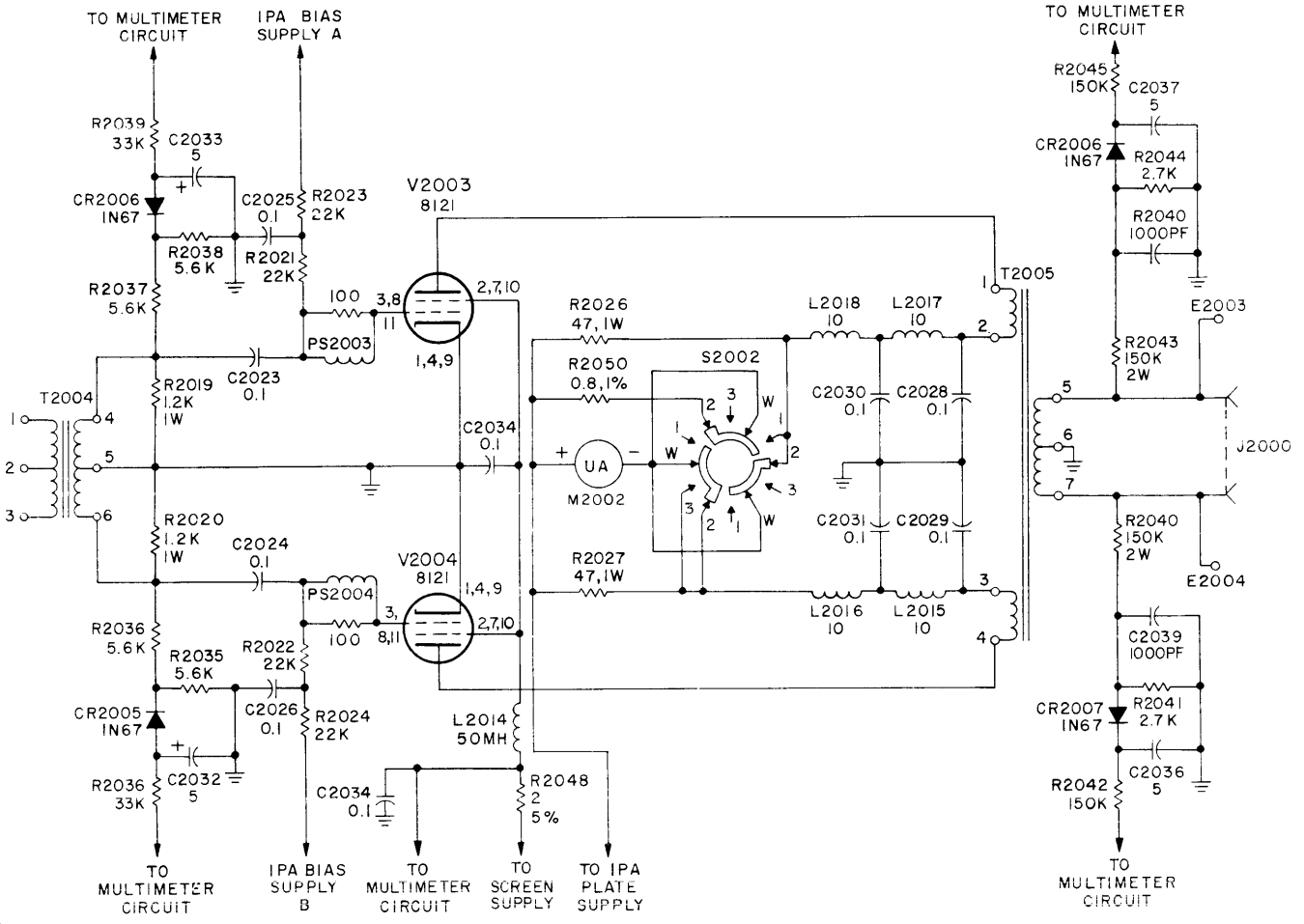

Figure 2-3. Simplified Schematic, IPA

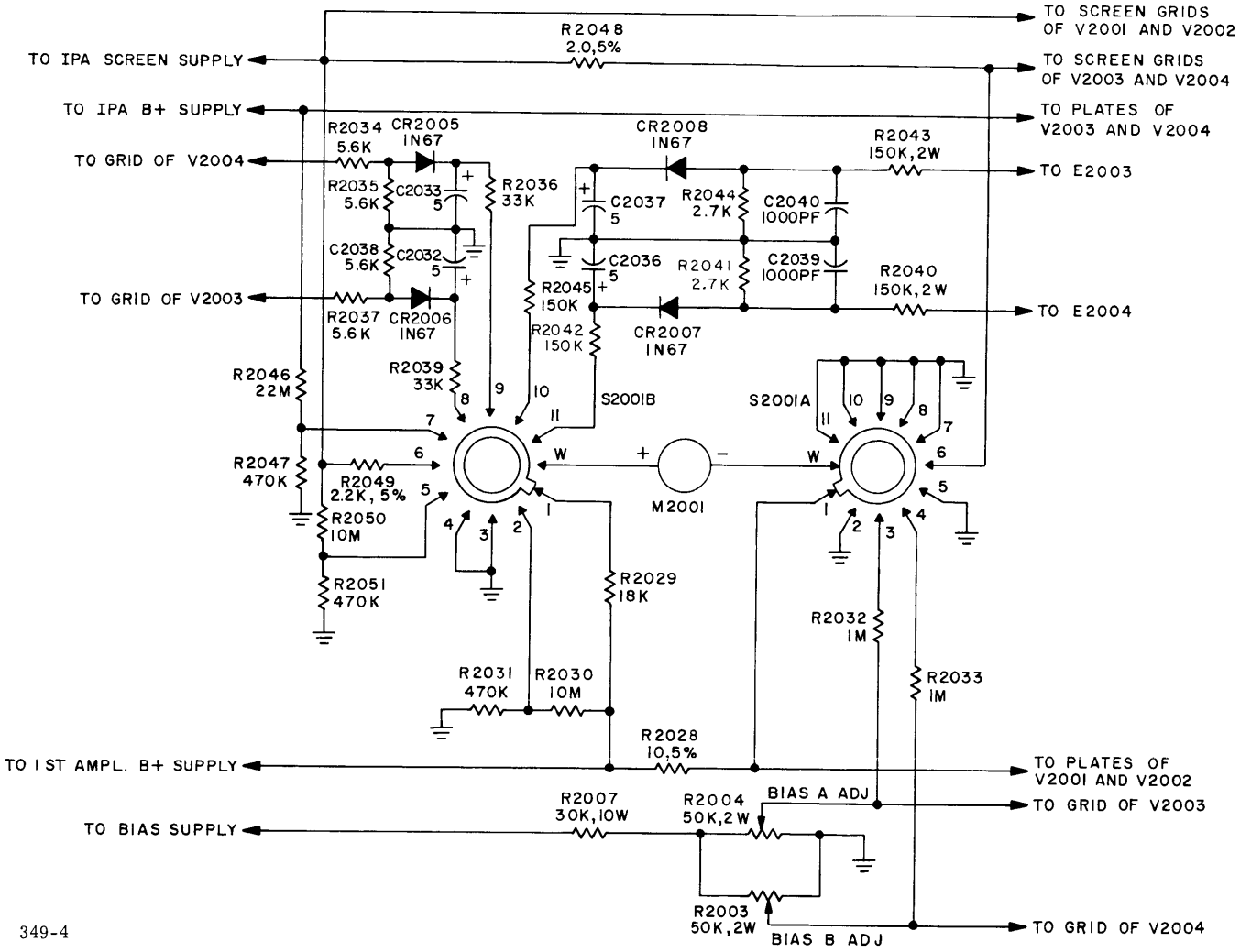

Figure 2-4. Simplified Schematic, Multi-Meter Circuit

voltage at the arm of potentiometer R2004. Note that the positive terminal of the meter is now grounded. Similarly, the meter will indicate the voltage at the arm of R2003 when S2001 is set at position (4). At position (5) of the switch, R2050 becomes the multiplier, and R2051 becomes the meter shunt (negative terminal of meter again grounded); the meter indicates potential applied to the screen grids of V2001 through V2004. At position (6), the operation is similar to that of position (2), and in position (7) the operation is similar to that of position (1) or (5).

When S2001 is set at position (8), the meter indicates the value of r-f voltage rectified by diode CR2006. The operation of the metering circuit is similar in positions (9), (10), and (11) to that of position (8).

d. POWER SUPPLIES. (Figure 2-5).

NOTE

Refer to paragraph 2-10 for primary power circuitry for transformers T2001 and &

(1) Bias Supply. - Rectifier V2006 receives 1000 vac from secondary winding 9-11 of transformer T2001; note that the filament of V2006 is grounded. The negative output of the rectifier is taken from terminal 10 of T2001 and applied to two-section, choke-input filter consisting of L2001, L2002, C2001, and C2003. Fuse F2003 protects the chokes and transformer from overloads. Tubes V2007, V2008, and V2009 with dropping resistor R2007 form a shunt regulator circuit. Regulated -390 vdc is taken from the cathode of V2007 and is routed to the bias adjusting networks for the 10-kw power-amplifier tubes. Bias for IPA tube A,

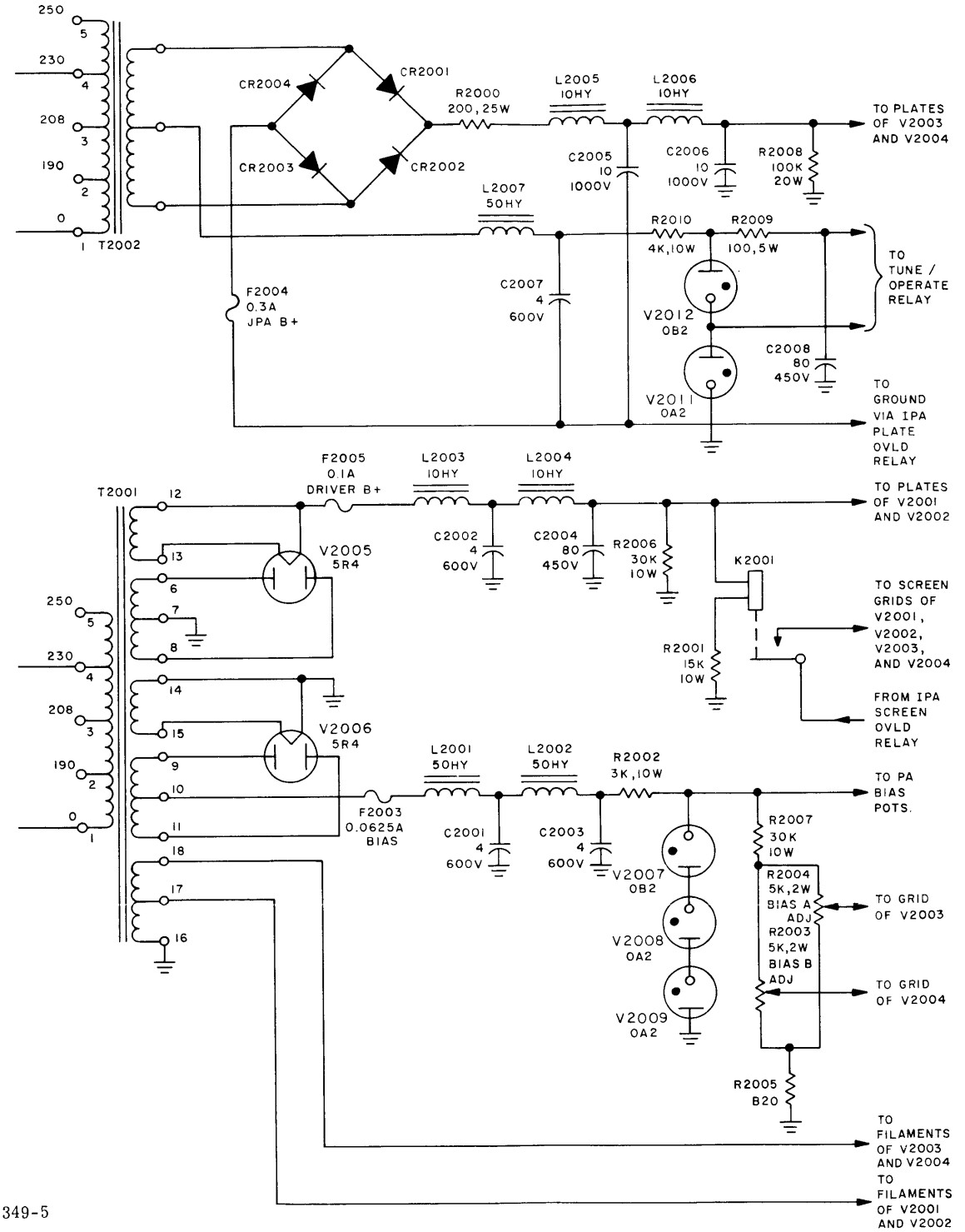

Figure 2-5. Simplified Schematic, Low Voltage Power Supplies

V2003, is taken from the voltage divider consisting of resistors R2007, R2004, and R2005. Bias for IPA tube B, V2009, is taken from the voltage divider consisting of resistors R2007, R2003, and R2005.

(2) First R-F Amplifier Plate Supply. - Rectifier V2005 receives 635 vac from secondary winding 6-8 of transformer T2001. The positive output of the rectifier is taken from the filament of V2005 and applied to two-section, choke-input filter consisting of L2003, L2004, C2002, and C2004. Bleeder resistor R2006 ensures capacitor discharge for personnel safety. The +265 vdc output of the supply is routed to the plate circuit of the first r-f amplifier tubes V2001 and V2002. Relay K2001, energized only when plate voltage is present, ensures that screen supply voltage will not be applied to the r-f amplifier tubes in absence of plate voltage (application of screen supply without plate supply would damage the tubes).

(3) Screen Voltage and IPA Plate Supply. - Bridge rectifier consisting of CR2001, CR2002, CR2003, and CR2004 receives 850 vac from the secondary of transformer T2002. The positive output of the rectifier, taken from the cathodes of CR2001 and CR2002, is applied to two-section, choke-input filter consisting of L2005, L2006, C2005, and C2006. Resistor R2000 protects against heavy surge currents when the supply is energized. Bleeder resistor R2008 ensures capacitor discharge for personnel safety. The output of this supply, taken from choke L2006, is routed to the plates of the IPA tubes, V2003 and V2004. The negative terminal of the supply is returned to ground through the IPA PLATE OVLD relay.

Diodes CR2003 and CR2004 provide full-wave rectification for the screen voltage supply. The positive output of the rectifier is taken from the center-tap of the secondary of T2002, and is applied to choke-input filter L2007/C2007. Resistor R2010, and tubes V2011 and V2012 constitute a shunt regulator. When the transmitter is in operate condition, positive 255 vdc from the anode of regulator V2010 is routed to the screen grids of the first r-f amplifier and IPA tubes. When the transmitter is in tune condition, positive 150 vdc from the junction of V2010 cathode and V2011 anode is routed to the screen grids of the first r-f amplifier and IPA tubes.

2-4. 10-KW PA (Figure 2-6).

The 10-kw PA receives excitation from transformer T2005 (IPA stage) through terminals E1013 and E1014. A sample of the input signal is routed from voltage divider consisting of resistors R1202 and R1203 to the auxiliary power panel in the first frame where it may be conveniently monitored. The balanced input signal is applied to the power-amplifier tubes through parasite suppressors PS1200 and PS1203. The 10-kw PA is a broad-band, push-pull circuit. Note that bias for the two tubes is individually adjustable so that different tube emission levels can be compensated for. The output of the amplifier is taken from transformer T1200 and applied to impedance matching network T1201 through LOAD ADJUST FINE switch S1202. A sample of the r-f signal from T1200 is coupled to the ALDC circuit. (See paragraph 2-5). Also, a sample of the T1200 output signal is routed to the auxiliary power panel in the first frame where it may be convenitently monitored. The output of autotransformer T1201 is routed

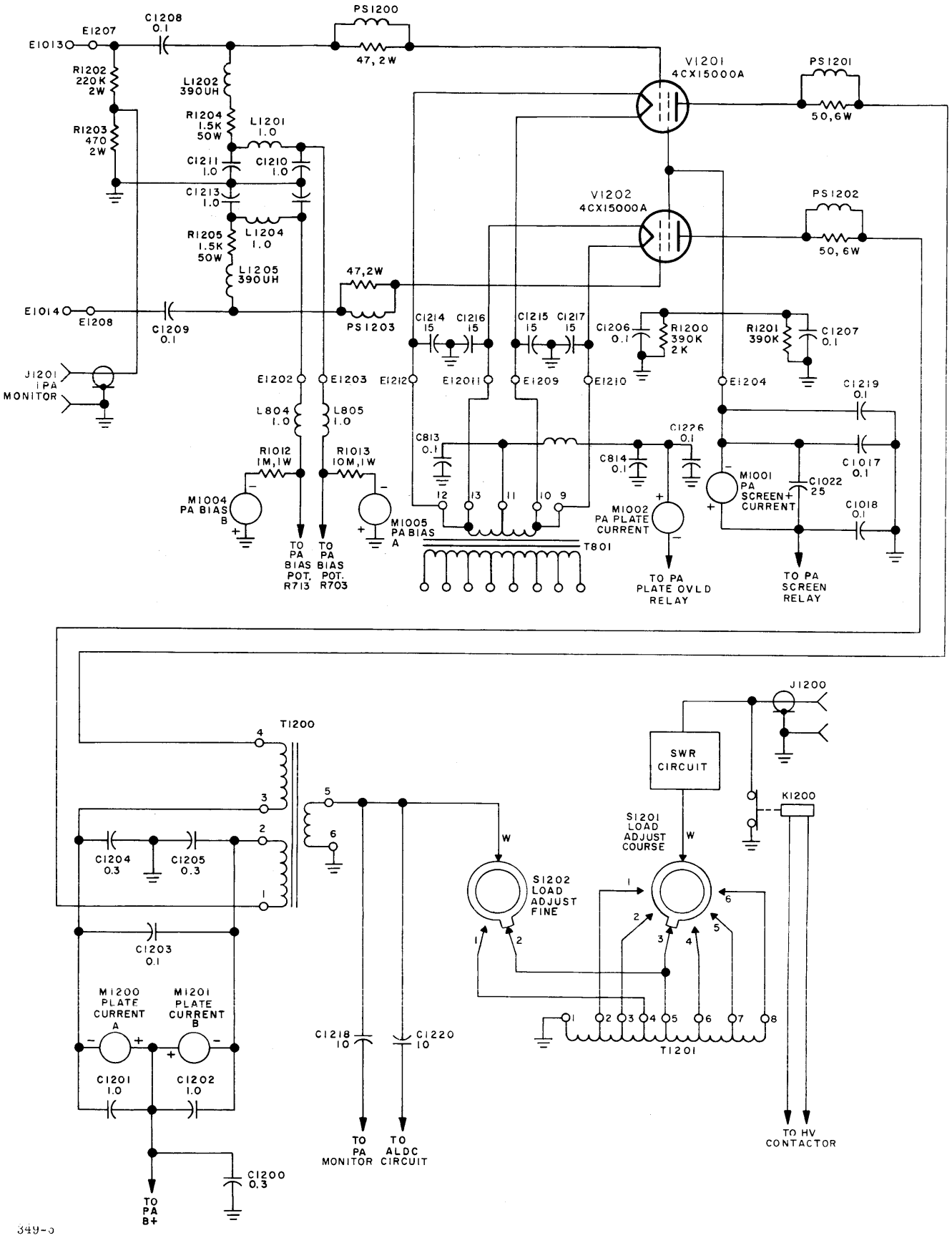

Figure 2-6. Simplified Schematic, 10-KW PA

to J1200 via LOAD ADJUST COARSE switch S1201 and the SWR circuit (see paragraph 2-6). Relay K1200 grounds the 10-kw PA output line whenever the high voltage B+ supply is deenergized.

2-5. ALDC CIRCUIT (Figure 2-7).

A portion of the r-f signal from the 10-kw PA is applied to diode CR1200 through the voltage divider consisting of capacitors C1220 and C1221. The cathode of CR1200 is biased positive from the voltage divider consisting of resistors R1013 and R1014. When the r-f signal at the anode of CR1200 exceeds the bias potential, the diode will conduct and charge capacitors C1224 and C1225 to a negative value. This negative voltage is routed to the exciter circuits where it is used as a gain control. ALDC ADJUST control R1014 is set so that excessively high levels of r-f output signals generate a control signal to reduce gain in the exciter equipment. Large transients and excessive distortion are thus prevented.

2-6. SWR CIRCUIT (Figure 2-8).

The r-f signal applied to diodes CR1250, CR1251 and CR1252 is derived from transformers T1251 and L1250. This signal will be at a maximum when the current and voltage on the r-f output line are in phase, and is proportional to transmitter output power. The r-f signal applied to diodes CR1253, CR1254, and CR1255 is derived from trans-

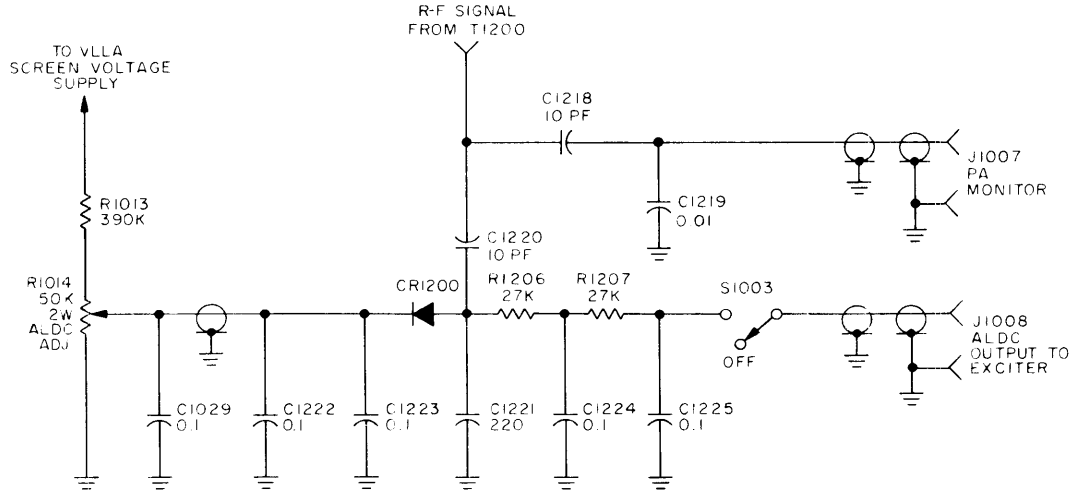

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Figure 2-7. Simplified Schematic, ALDC Circuit

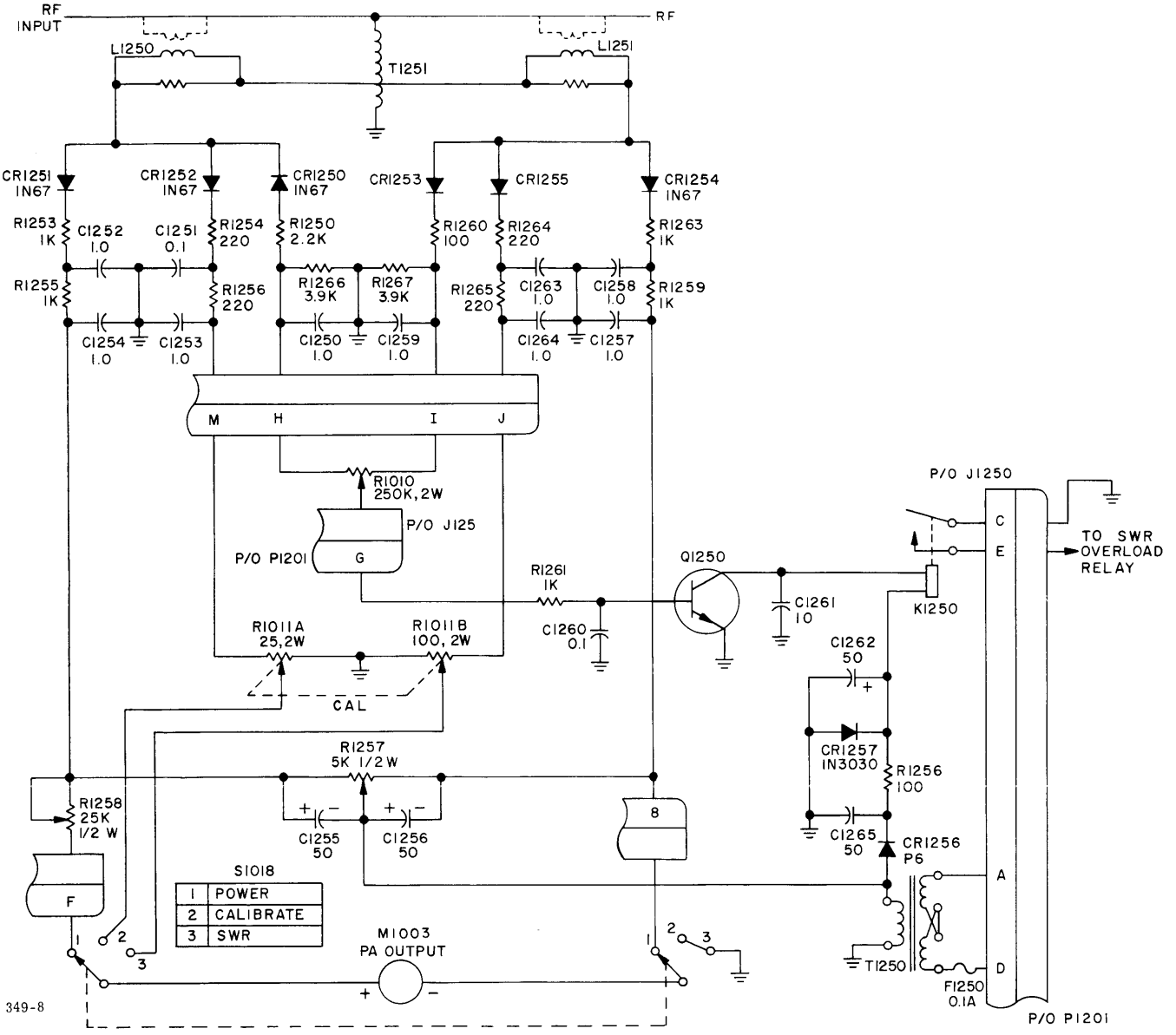


Figure 2-8. Simplified Schematic, SWR Circuit

formers T1251 and L1251. This signal will be at a maximum when the current and voltage on the r-f output line are 180^{o} out of phase and is proportional to power reflected into the transmitter from the load.

SWR OVERLOAD SET control R1010 receives a negative d-c signal from CR1250 that is proportion to transmitter output power, and a positive d-c signal from CR1253 that is proportional to reflected r-f power. When reflected power is too high with respect to transmitter output power (anologus to excessive standing wave ratio), the arm of R1010 becomes positive. This positive voltage turns on transistor Q1250; conduction through Q1250 energizes relay K1262. The contacts of energized K1262 complete the trip circuit for the SWR OVERLOAD relay. Diode CR1257 prevents the possible generation of negative voltage transients by the coil of relay K1262 which might damage transistor Q1250.

When switch S1018 is set at CALIBRATE, positive d-c voltage from diode CR1252 is applied to PA OUTPUT meter M1003 through CAL control R1011A. The CAL control is then adjusted for a predetermined meter indication for the particular value of transmitter output power. The d-c voltage from CR1252 is proportional to r-f output power. When S1018 is set at SWR, positive voltage from diode CR1255 is applied to M1003 through R1011B. The SWR (standing wave ratio) is read directly from the meter since SWR is a function of incident and reflected power, and R1011B was simultaneously adjusted with R1011A to calibrate the meter for the particular output power level.

When S1018 is set at POWER, 25 vac from transformer T1250 is applied in-phase to both sides of meter M1008. Negative half-cycles of this a-c voltage will gate diodes CR1251 and CR1254 on. Negative half-cycles of r-f voltage at the anode of CR1251 decreases the diodes conduction, making the left side of M1003 less negative than the right side. Negative half-cycles of r-f voltage at the anode of CR1254 will similarly affect its conduction. The meter indication is, then, equal to forward power minus reflected power. The metering circuit indication is a true $\frac{E^2}{Z}$ value.

2-7. MAIN POWER SUPPLY AND 10-KW HIGH VOLTAGE RECTIFIER (Figure 2-9)

The main power supply produces the high d-c voltages for the plates and screen grids of the 10-kw power-amplifier tubes.

NOTE

Refer to paragraph 2-10 for primary power circuitry for transformers T800 and T600 through T605.

The 7500-volt B+ supply for the 10-kw PA consists of transformer T800, a full wave rectifier, and one-section, choke-input filter. Transformer T800 supplies three-phase, 6222-volt, a-c to the full wave rectifier in the 10-kw high voltage rectifier. The positive output of the rectifier, taken from terminal E1001, is applied to filter choke L800. A sequential control circuit in the primary circuitry of T800 places surge-limiting

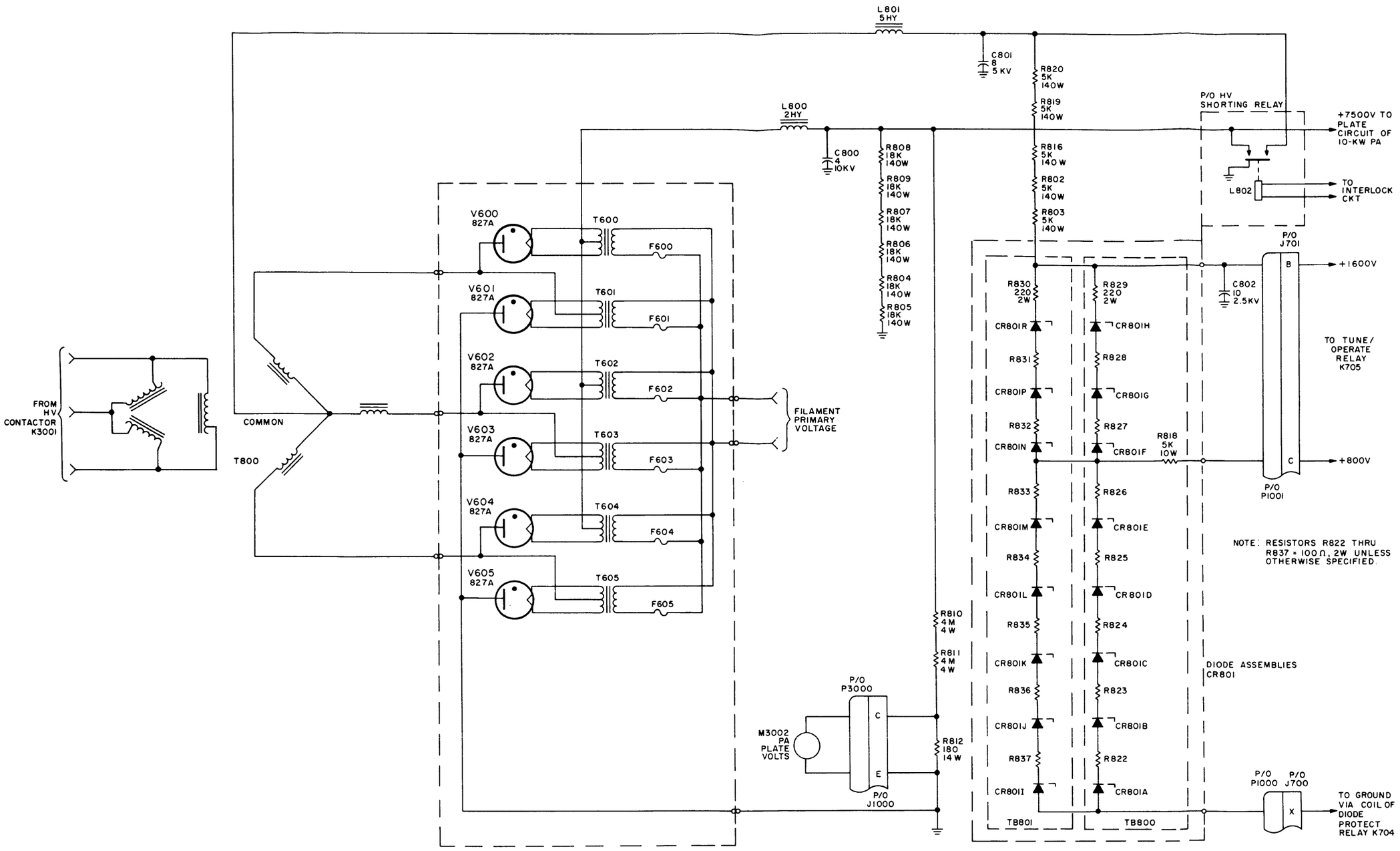


Figure 2-9. Simplified Schematic, Rack Power Supply

resistors in the a-c line to prevent the large charging current of filter capacitor C800 from damaging the choke or transformer. After C800 has partially charged, these resistors are shorted, and full primary voltage is applied to T800. Bleeder resistors R804 through R809 provide the discharge path of C800. The negative output of the rectifier is taken from terminal E1007, and is returned to ground. Resistors R810 and R811 are multipliers for PA PLATE VOLTS meter M3002; resistor R812 is the meter shunt.

Three of the diodes in the high voltage rectifier constitute a three-phase, half wave rectifier; the +3200-volt output of this rectifier is taken from the common terminal of the T800 secondary. Resistors R802, R803, R816, R819 and R820 and diode assembly CR801 form a shunt regulator; the diodes adjust the current through the dropping resistors so that the output voltages are constant. The +1600 v output is routed to the power-amplifier tube screen grids when the transmitter is in OPERATE condition; the +800 v screen supply is used in TUNE condition.

The HV SHORTING relay discharges filter capacitors C800 and C801 whenever a door, drawer, or panel is opened.

2-8. PROTECTIVE INTERLOCK CIRCUIT (Figure 2-10)

The protective interlocks and the high voltage supply control circuit are interconnected in such a way that high voltage is removed if a door, panel or drawer is opened, a cooling blower fails, or one of the OUTPUT LOADING switches is rotated.

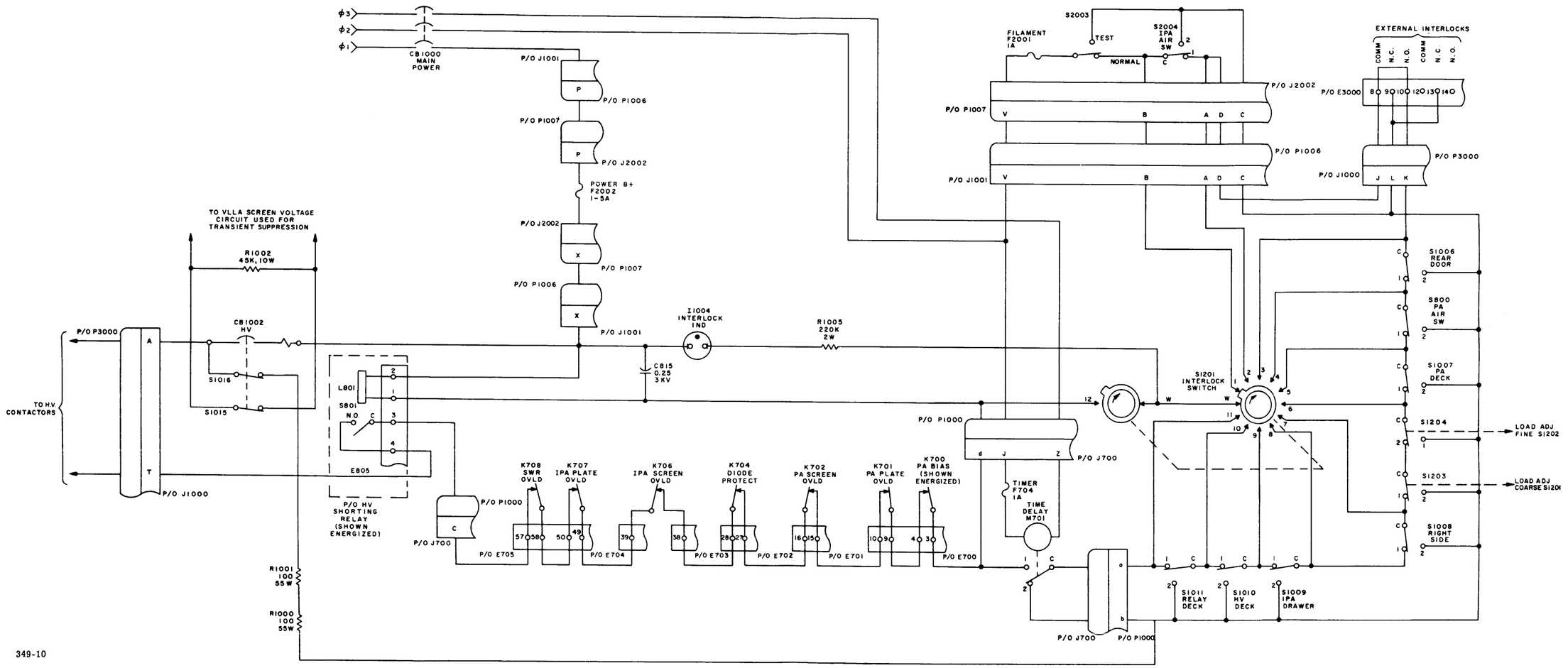


Figure 2-10. Protective Interlock Circuit

The interlock circuit comprises eleven switches and one relay, forming a series loop. Six of the switches are closed only when doors, panels, or drawers are properly secured; two of the switches (S2004 and S800) are closed only when the IPA blower B2001 and MAIN BLOWER B800, respectively, are operating. Two of the switches (S1203 and S1209) are closed only when the OUTPUT LOADING switches in the 10-kw PA are properly set in detent. Auxiliary contacts of TEST/NORMAL switch S2003 in the VLLA are included in the interlock circuit so that the high voltage circuits cannot be energized unless the VLLA power supply control circuit is set up for normal operation.

Phase 2 primary voltage is applied to the interlock circuit via MAIN POWER circuit breaker CB1000 and FILAMENT fuse F2001. When all the interlock switches are closed the phase 2 voltage is applied to the C terminal of TIME DELAY relay M701. The motor section of M701 receives phase 2-3 voltage and will close the contacts after a preset interval (usually 5 minutes). When the contacts of M701 close, phase 2 voltage is applied to solenoid L801 of the HV SHORTING RELAY. L801 receives phase 1 voltage via MAIN POWER circuit breaker CB1000 and POWER B+ fuse F2002. Note that if one of the interlock switches or the contacts of the TIME DELAY relay are open, the HV SHORTING RELAY will not be energized. Also, when any of the interlock switches is open, phase 2 voltage will be routed to switch S1016 through resistors R1000 and R1001. If HV circuit breaker CB1002 is set at ON when this condition

exists, the phase 3 to phase 2 circuit path is completed, and the HV circuit breaker will trip due to the phase 3 to phase 2 current through its thermal trip element. The application of high voltage is therfore prevented when an interlock switch is open.

The 12 contacts of INTERLOCK switch S1201 are connected to junctions of switches in the interlock loop. When S1201 is set at its first position (IPA TEST SWITCH), INTERLOCK IND lamp I1004 is connected between phase 1 voltage and the junction of switches S2003 and S2004. If S2003 is at its NORMAL position, phase 2 voltage will light lamp I1004. When S1201 is set at its twelfth position (TIMER), lamp I1004 will be lit only if all switches and relay M701 in the interlock circuit are closed.

The contacts of six overload relays (K701, K702, K704, K706, K707, and K708), PA BIAS relay K700, and switch S801 constitute one branch of the interlock circuit. Phase 2 voltage is applied to the relay contact chain from TIME DELAYrelay M701 when all interlock switches are closed. When all relay contacts are closed (no overload condition exists, and normal bias is supplied to PA tubes), phase 2 voltage is routed to the HIGH VOLTAGE contactors is the First Frame of the transmitter. Phase 3 voltage is routed to the contactors when HV circuit breaker CB1002 is set at ON.

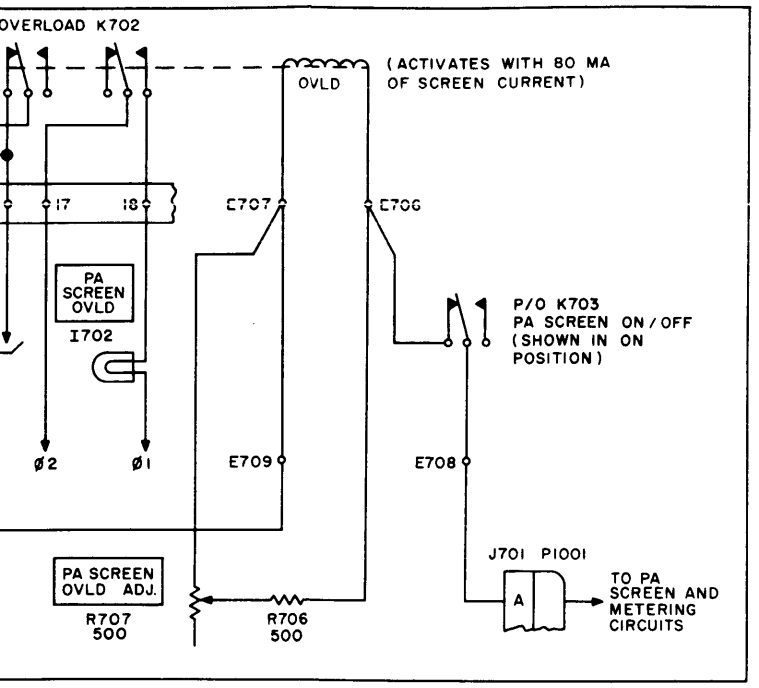
2-9. PROTECTIVE AND CONTROL RELAY CIRCUITS. (Figure 2-11)

Seven relays in the realy, control and indicator panel are included in the protective interlock circuit (paragraph 2-8). During normal operation, contacts of these seven relays form a series circuit, as shown in figure 2-10. The series circuit permits the HV contactors, part of the main power supply control circuit, to operate. When one of these seven relays detects an excessive current, a deficient voltage, or excessive transmission line standing wave ratio, the high voltage circuits of the main power supply and VLLA power supply are deenergized.

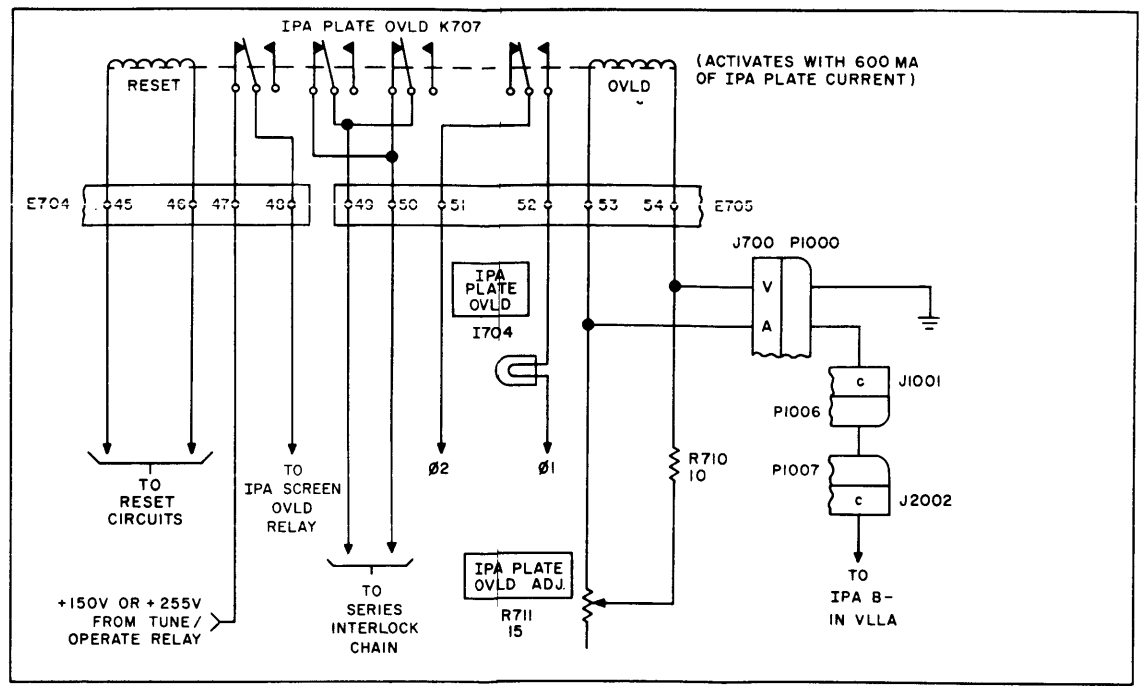
Relay K700 is energized when the -390 v output of the VLLA bias supply is present. If the VLLA bias supply fails, relay K700 is deenergized. This action opens the series interlock circuit, and turns on PA BIAS lamp I700.

Relay K701 is tripped by excessive power-amplifier tubes cathode current. In this condition, the series interlock circuit is opened, and PA PLATE OVLD lamp I701 is turned on. When a plate current overload occurs, the relay latches in the overload position. To restore high voltage circuit operation, 230 vac is applied to the reset coil of the overload relays, thus closing the interlock chain. The setting of shunt resistor R705 (PA PLATE OVLD ADJ.) determines the trip point of the relay.

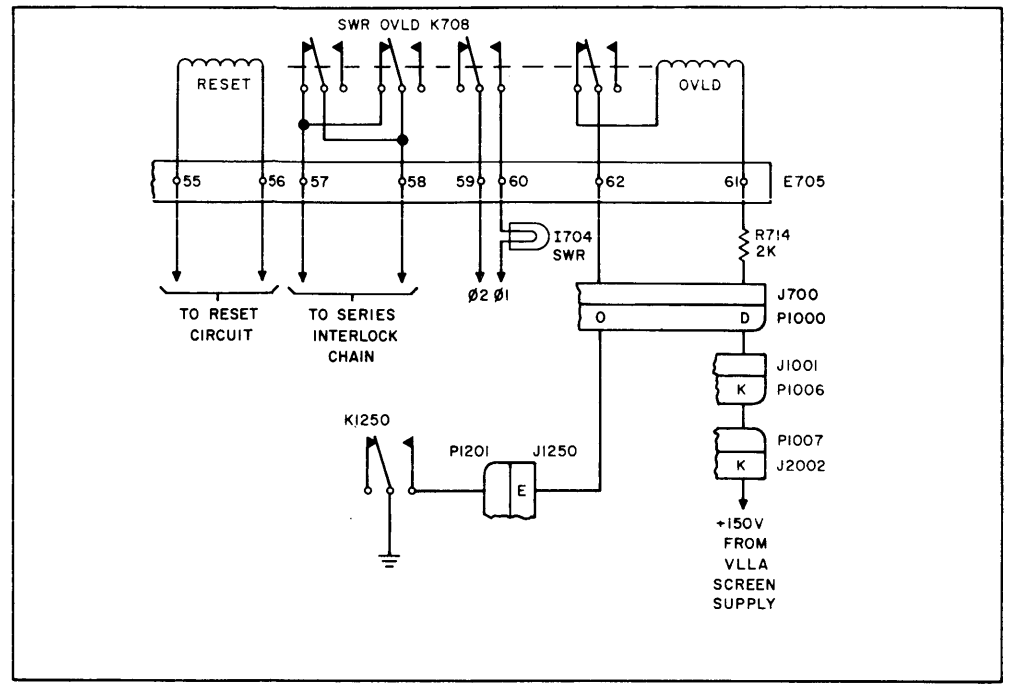
Relay K702 is tripped by excessive power-amplifier tubes screen grid currents. The setting of PA SCREEN OVLD ADJ resistor R707 determines the proportionate amount of screen grid current passing through the relay's trip coil. When a screen current overload occurs, the series interlock



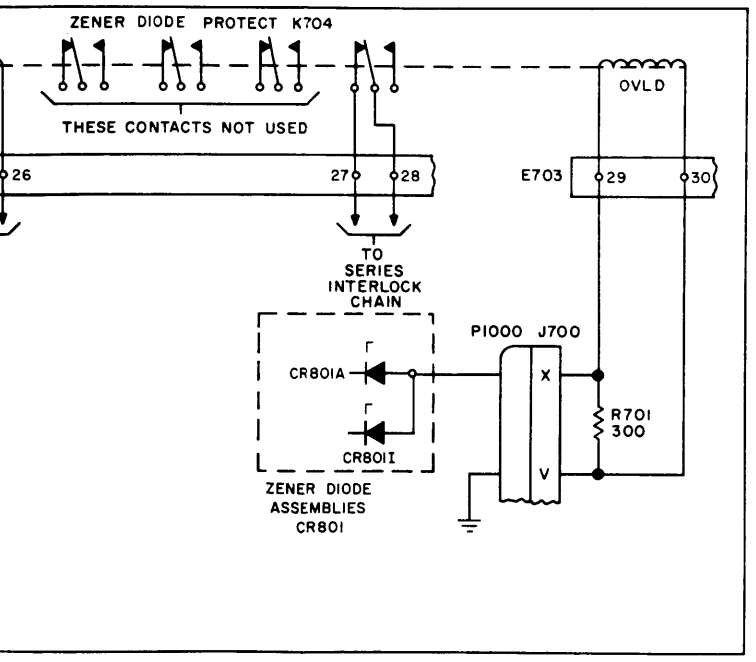
LOAD POSITION



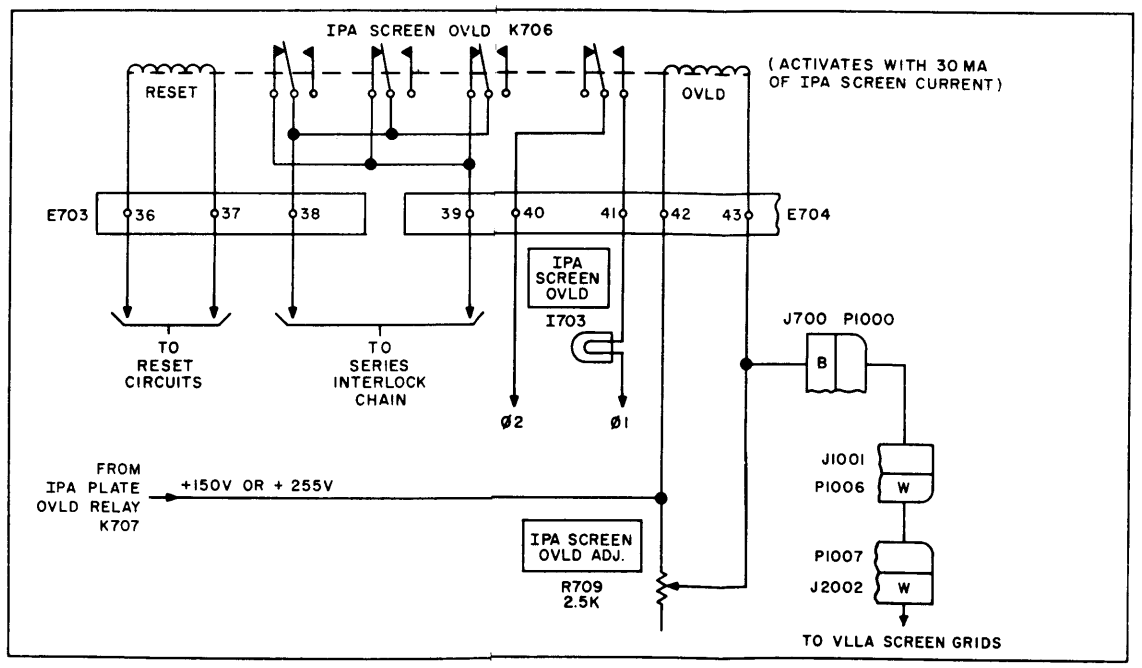
E – IPA PLATE OVERLOAD RELAY, NO OVERLOAD POSITION



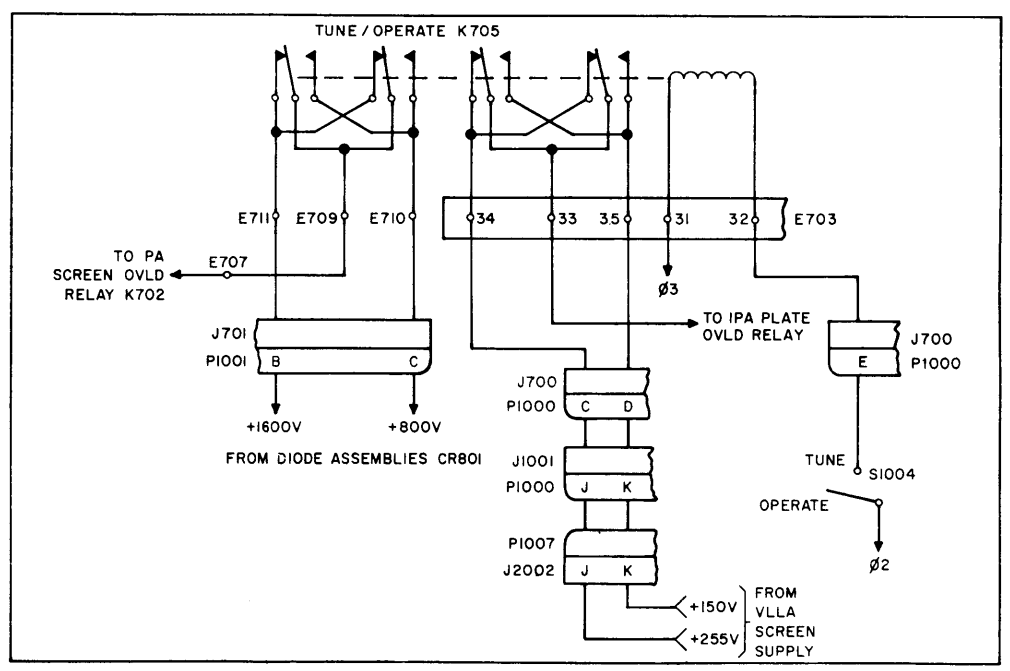
G – SWR OVERLOAD RELAY, NO OVERLOAD POSITION



NORMAL DIODE CURRENT POSITION

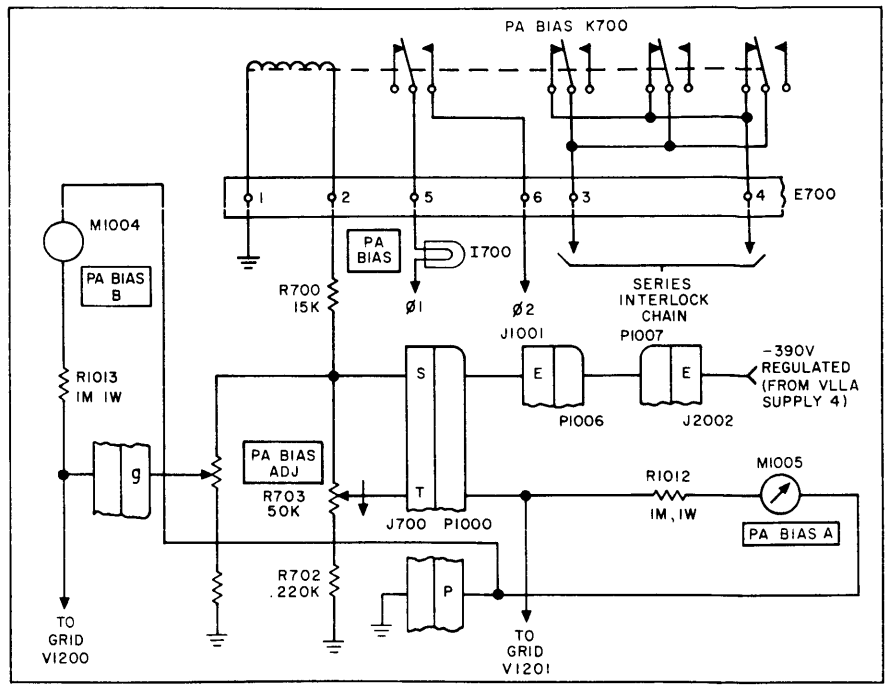


F – IPA SCREEN OVERLOAD RELAY, NO OVERLOAD POSITION

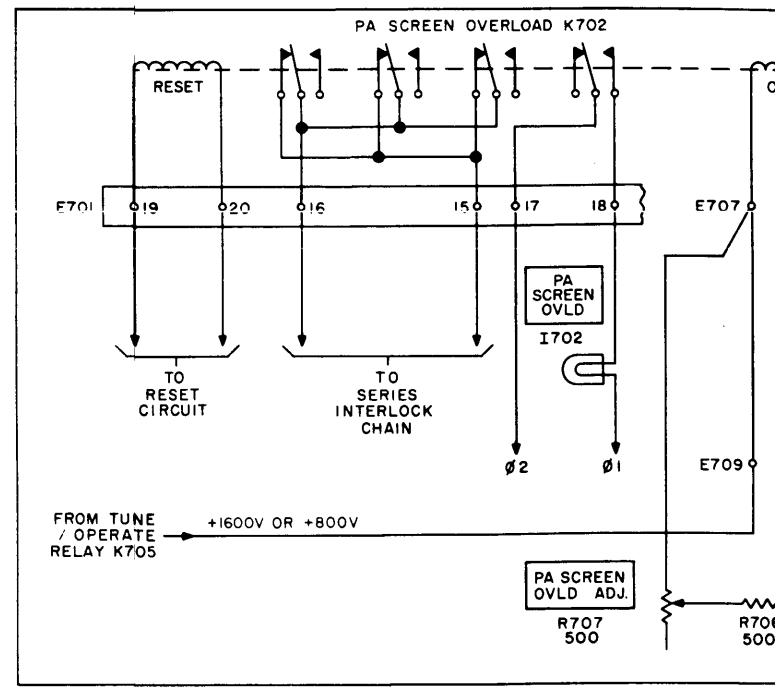


H – TUNE/OPERATE RELAY, OPERATE POSITION

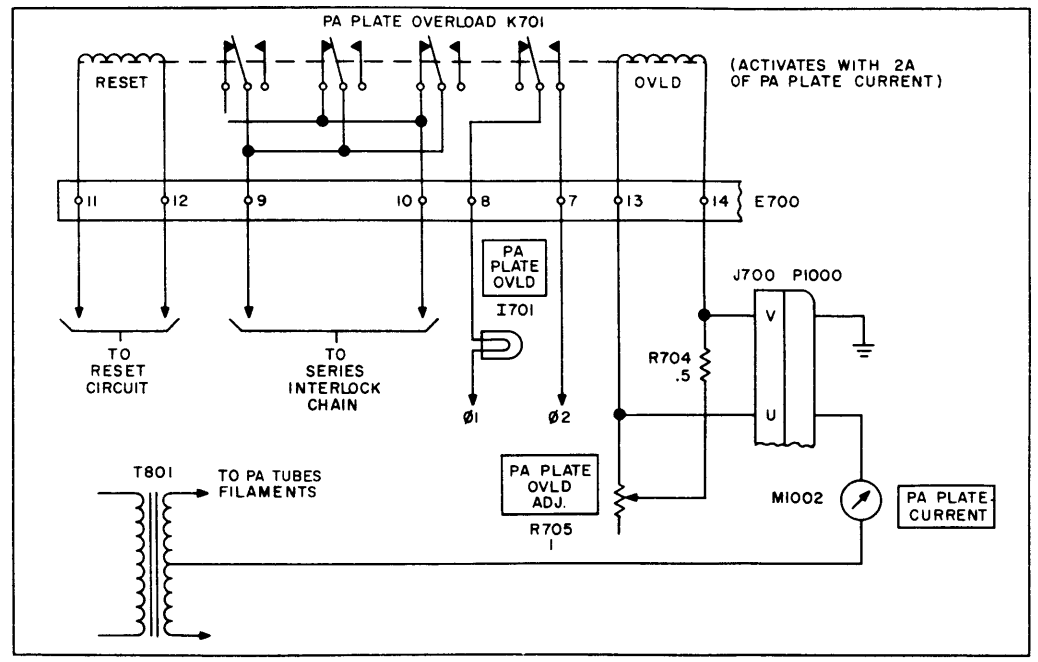
Figure 2-11. Protective and Control Relay Circuits



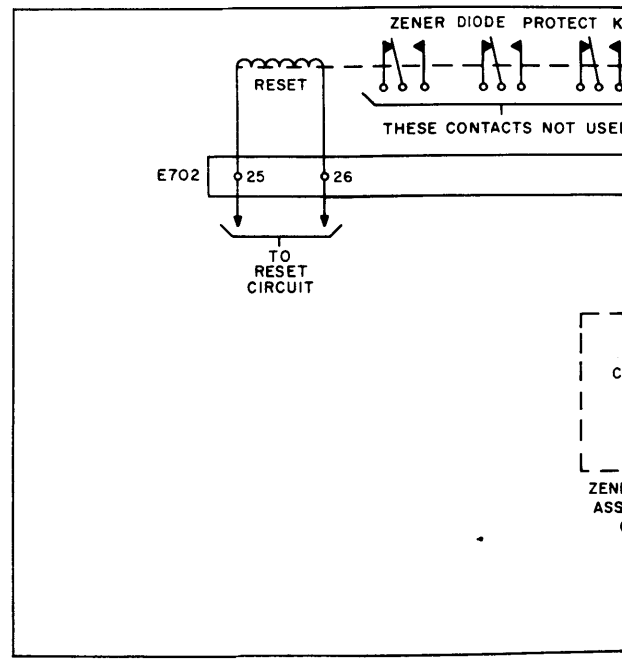
A – PA BIAS RELAY, NORMAL BIAS POSITION



C – PA SCREEN OVERLOAD RELAY, NO OVERLOAD POSITION



B – PA PLATE OVERLOAD RELAY, NO OVERLOAD POSITION



D – DIODE PROTECT RELAY, NORMAL DIODE CURRENT POSITION

circuit is opened, and PA SCREEN OVLD lamp I702 is turned on; the relay is latched in its tripped position until 230 vac is applied to its reset coil.

Relay K704 actuates, and opens the series interlock circuit, whenever excessive current is drawn through the zener diodes in the power-amplifier tubes screen voltage supply. The trip coil of this relay is interposed between the negative terminal of the shunt regulator and ground. There is no indicator lamp associated with this overload relay.

Relay K707 is tripped by excessive IPA tubes plate current. The trip coil of the relay is interposed between ground and the negative terminal of the IPA plate voltage supply. Since this terminal is common to the VLLA screen voltage supply also, IPA tubes and first r-f amplifier tubes screen grid currents pass through the relay coil in addition to the IPA tubes plate current. The screen grid currents will, however, always be small relative to the plate currents. The positive supply voltage for the VLLA tubes screen grids is passed through contacts of this relay; this ensures that screen voltage is removed when a plate current overload occurs. IPA PLATE OVLD lamp I704 is turned on when the relay is tripped.

Relay K706 is tripped by excessive screen grid currents drawn by the first r-f amplifier tubes and IPA tubes in the VLLA. First r-f amplifier tubes screen grid current will always be small, however, relative to IPA tubes screen grid current. The setting of IPA SCREEN OVLD ADJ resistor R709 determines the trip point of the relay. IPA SCREEN OVLD lamp I703 in turned on when an overload occurs.

Relay K708 is tripped by +150 vdc through resistor R714 and contacts of relay K1250 whenever an excessive SWR (standing wave ratio) exists at the transmitter output. Refer to paragraph 2-6 and figure 2-7 for control circuitry for relay K1250. SWR lamp I705 is turned on when the relay is tripped.

When switch S1004 is set at OPERATE, relay K705 is deenergized. In this condition, +1600 vdc is routed from CR801 in the main power supply to the 10-kw PA tubes via contacts of K705, the coil of K702 and contacts of K703; +255 vdc is routed to the first r-f amplifier and IPA tubes via contacts of K705, the coil of K706, and contacts of K707. When switch S1004 is set at TUNE, relay K705 is energized. In this condition, +800 vdc is routed from the main power supply to the 10-kw PA tubes; +150 vdc is routed to the first r-f amplifier and IPA tubes.

2-10. A-C POWER DISTRIBUTION. (Figure 2-12)

Three-phase, a-c power is applied to the transmitter via terminals E1008, E1009, and E1010. Phase 2 to phase 3 voltage is routed to the first frame, and thence through AUXILIARY FRAME MAIN POWER circuit breaker CB3000 to TOP FAN B1200 and autotransformer T3002. Transformer T3002 provides 115 vac to power the exciter equipments; TOP FAN B1200 provides ventilation for the exciter equipments. All remaining circuits are protected and controlled by MAIN POWER circuit breaker CB1000.

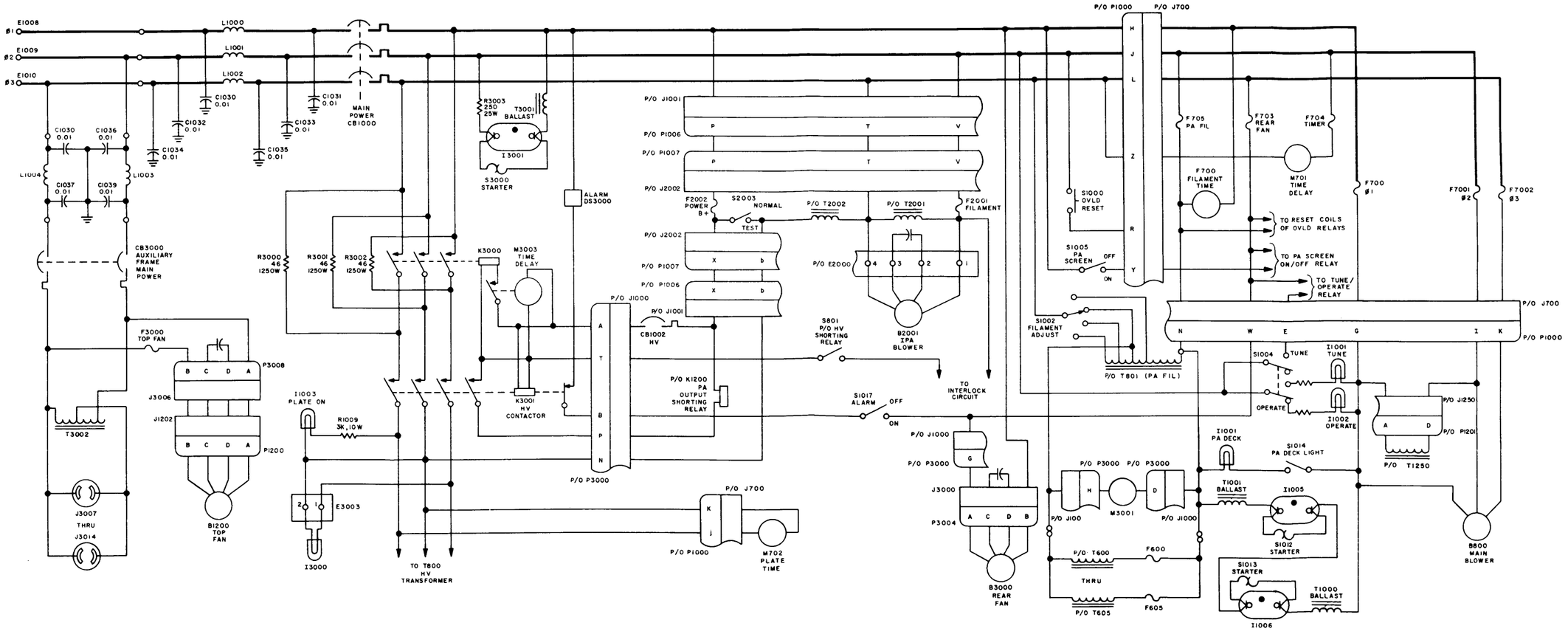


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Figure 2-12. A-C Power Distribution

Three-phase voltage is applied to high voltage transformer T800 through contactor K3001. K3001 is energized by phase 1 voltage through POWER B+ fuse F2002 and HV circuit breaker CB1002, and phase 2 through the interlock circuit and FILAMENT fuse F2001. Also energized by K3001 are PLATE ON lamp I1003, the high voltage warning lamp I3000 (located on the roof of the first frame), PLATE TIME meter M702, and PA output shorting relay K1200. Transformer T2002 receives phase 2 voltage via contactor K3001; when it is desired to energize the IPA plate supply and VLLA screen supply exclusive of the main power supply (T800), TEST/NORMAL switch may be set at TEST, applying phase 1 voltage to transformer T2002. Resistors R3000, R3001 and R3002 reduce the voltages initially applied to transformers T800 and T2002. This is done to limit the high surge currents that would be experienced with the associated d-c supplies. Approximately 20 seconds after K3001 operates, time delay relay K3003 causes contactor K3000 to operate, shorting the surge limiting resistors, and applying full line voltage to transformers T800 and T2002.

Phase 2 voltage is applied to transformers T2001, IPA BLOWER B2001, and to the interlock circuit via FILAMENT fuse F2001; transformer T2001 and the IPA BLOWER are returned to the phase 3 line.

Phase 3 voltage is applied to REAR FAN B3000 via REAR FAN fuse F703; the REAR FAN is returned to the phase 1 line. The phase 3 voltage from fuse F703 is also applied to the reset coils of all overload relays, TUNE/OPERATE relay K705, PA SCREEN ON/OFF relay K703, and alarm buzzer

DS3000. The alarm buzzer is energized only when ALARM switch S1017 is set at ON, and high voltage contactor K3001 is deenergized.

Phase 2 voltage is applied to FILAMENT TIME meter M700, PA FILAMENT transformer T801, PA DECK light I1001, FILAMENT PRIMARY meter M3001, fluorescent lamp I1005, and high-voltage rectifier filament transformers (when used). The FILAMENT PRIMARY meter and high voltage rectifier filament transformers are returned to the 230 v tap of T801; phase 3 voltage is applied to one of the primary taps of T801 through FILAMENT ADJUST switch S1002; switch S1002 is set so that the correct voltage (230 v) is applied to M3001.

Phase 1, 2, and 3 voltages are applied to MAIN Blower B800 through fuses F700, F701, and F702. Phase 1 voltage from F700 is applied to PA DECK light I1001 through switch S1014, and to fluorescent lamp I1006. Lamps I1001 and I1006 (through I1005) are returned to the phase 2 line. Lamps I1005 and I1006 illuminate the second frame meter panel. Fluorescent lamp I3001, connected across the phase 1 - phase 2 lines illuminate the first frame meter panel. Transformer T1250 (part of the SWR circuitry) receives phase 1 - phase 2 voltage via fuses F700 and F701.

SECTION 3

TROUBLESHOOTING

Before pursuing a lengthy troubleshooting procedure, the equipment should be visually inspected as outlined in table 3-1. An equipment performance check (table 3-2) is provided to localize the cause of trouble to a particular circuit or section of the transmitter. When a trouble has been localized to the VLLA drawer, use the voltage and resistance data given in table 3-3 to find the faulty component. If a fuse repeatedly blows, or a circuit breaker continually trips (indicating a fault in the primary power circuitry), use the simplified schematic diagram, figure 2-12, to find the faulty component. Refer to section 7 of this manual for complete schematic diagrams.

TABLE 3-1. PRELIMINARY INSPECTION PROCEDURE

WHAT TO INSPECT	DEFECTS TO LOOK FOR	REMEDY
All electrical connections at rear of main and auxiliary frames.	Open connections, dirt, frayed cables.	Tighten, replace or clean as necessary.
Antenna connections at top or side of main frame.	Loose connections, dirt, frayed cables.	Tighten, replace or clean as necessary.
Knobs, screws, connections.	Loose or missing hardware.	Tighten or replace.
Wiring	Loose or frayed wires.	Resolder or rewire.
Resistors	Cracks, chipping, blistering, discoloration, and other signs of overheating.	Replace as necessary.

TABLE 3-1. PRELIMINARY INSPECTION PROCEDURE (Cont)

WHAT TO INSPECT	DEFECTS TO LOOK FOR	REMEDY
Capacitors	Leaks, bulges, discoloration.	Replace as necessary.
Tubes	Poor seating.	Secure firmly in place.
Meters	Bent needle, cracked case, broken glass.	Replace as necessary.

TABLE 3-2. EQUIPMENT PERFORMANCE CHECK

STEP	OPERATION	NORMAL INDICATION	PROBABLE CAUSE OF ABNORMAL INDICATION
1	Connect antenna or dummy load to transmitter and check that all doors, drawers, and covers are secured.		
2	Set AUXILIARY FRAME MAIN POWER circuit breaker at ON.	Top fan B1200 operates, power lamps on individual exciter units light when their associated power switches are set at ON.	If exciter units are powered, but top fan fails to operate, TOP FAN fuse F300, capacitor C3018, or fan B1200 is defective. If none of the exciter units can be powered, transformer T3002 is defective. If an individual exciter unit cannot be powered, it is defective. (Refer to appropriate modular-unit manual.)
3	Remove P3001 from J3001; terminate J3001 with a 50-ohm dummy load. Tune up exciter at same carrier frequency in the 5- to 500-kc range.	R-F output (up to 5 watts PEP) is obtained at J3001.	Defective unit is exciter. Refer to appropriate exciter equipment manual.
4	Set switches on second frame as follows: PA SCREEN - OFF TUNE/OPERATE - TUNE HIGH VOLTAGE - OFF ALDC - OFF INTERLOCK - NORMAL		
5	Set TIME DELAY at 5, then set MAIN POWER circuit breaker at ON.	Main frame blower B800 operates.	Open MAIN BLOWER fuse on relay panel or defective blower unit.

TABLE 3-2. EQUIPMENT PERFORMANCE CHECK (cont)

STEP	OPERATION	NORMAL INDICATION	PROBABLE CAUSE OF ABNORMAL INDICATION
5 (cont)		TUNE lamp lights.	Open resistor R1007.
		PA BIAS lamp lights, then goes out after a few seconds.	Defective bias supply in VLLA, defective relay K700.
		PA BIAS meters (A and B) indicate approximately 300V.	Incorrect setting of PA BIAS ADJ controls.
		FILAMENT PRIMARY meter indicates 230V.	Incorrect setting of FIL ADJ switch.
		After 5 minutes, INTERLOCK INDICATOR lamp lights.	Open interlock circuit
6	Set MULTIMETER switch at V_3 BIAS.	MULTIMETER indicates approximately 30V.	Incorrect setting of BIAS A ADJ control.
7	Set MULTIMETER switch at V_4 BIAS.	MULTIMETER indicates approximately 30V.	Incorrect setting of BIAS B ADJ control.
8	Set MULTIMETER switch at V_1 & V_2 PLATE VOLTAGE.	MULTIMETER indicates approximately 250V.	Defective VLLA power supply circuit.
9	Set HIGH VOLTAGE circuit breaker at ON.	PLATE ON lamp and warning lamp on roof of first frame glow dimly.	If PLATE ON lamp does not light, resistor R1009 is defective.
		PA PLATE VOLTS meter indicates 3.5 KV	Defective contactor K3001.
		After approximately 5 seconds, above lamps come to full brightness, and PA PLATE VOLTS meter indicates 7.5 KV.	Defective or misadjusted timer M3003; defective contactor K3000; defective high voltage rectifier tube; defective transformer T800.
10	Set MULTIMETER switch at E_p IPA.	MULTIMETER indicates approximately 800V.	Defective IPA B+ supply in VLLA.

TABLE 3-2. EQUIPMENT PERFORMANCE CHECK (cont)

STEP	OPERATION	NORMAL INDICATION	PROBABLE CAUSE OF ABNORMAL INDICATION
11	Set PA SCREEN switch at ON.	PA SCREEN VOLTS meter indicates approximately 800V.	Open choke L801, open resistor R802, R816, R819 or R820; defective screen regulator diodes CR800; defective relay K703.
12	Set TUNE/OPERATE switch at OPERATE.	PA SCREEN VOLTS meter indicates approximately 1600V.	Defective relay K705.
		PLATE CURRENT A and PLATE CURRENT B meters each indicate 1 ampere.	Misadjusted PA BIAS ADJ potentiometers R703 and R712; defective tube V1201 or V1202.
13	Set PLATE MA switch at 1.	PLATE MA meter should indicate 110 ma.	Misadjusted BIAS A ADJ potentiometer R2004; defective tube V2003.
14	Set PLATE MA switch at 2.	PLATE MA meter should indicate 110 ma.	Misadjusted BIAS B ADJ potentiometer R2003; defective tube V2004.
15	Tune exciter to a frequency between 5- and 500-kc; set CARRIER LEVEL control at 0 DB.		
	NOTE When performing step 16 below, do not allow indication on PA PLATE CURRENT meter to exceed 2.8 amperes.		
16	Adjust excitation until PA OUTPUT meter indicates 5 kw.	MULTIMETER M2001 indicates between V and V when MULTIMETER switch S2001 is set at IPA GRID 1st RF, or IPA GRID 2nd RF.	Defective tube V2001 or V2002; defective transformer T2003 or T2004.

TABLE 3-2. EQUIPMENT PERFORMANCE CHECK (cont)

STEP	OPERATION	NORMAL INDICATION	PROBABLE CAUSE OF ABNORMAL INDICATION
16 (cont)		MULTIMETER M2001 between V and V when MULTIMETER switch S2001 is set at PA GRID 1st RF or PA GRID 2nd RF.	Defective tube V2003 or V2004; defective transformer T2005.
			If PA PLATE CURRENT meter tends to indicate higher than 2.8 amperes, tube V1201 or V1202 is defective; transformer T1200 or T1201 is defective.

TABLE 3-3. VOLTAGE AND RESISTANCE CHART, VLLA

TUBE	PIN NUMBER										
	1	2	3	4	5	6	7	8	9	10	11
V2001	250	-.25 10K	0 0	0 0	Fil 0		245 10K	160 260 10M	0 0		
V2002	250	-.25 10K	0 0	0 0	Fil 0		245 10K	160 260 10M	0 0		
V2003	0 0	160 260 10M	-17 45K	0 0	Fil 0	0 0	160 260 10M	-17 45K	0 0	160 260 10M	-17 45K
V2004	0 0	160 260 10M	-17 45K	0 0	Fil 0	0 0	160 260 10M	-17 45K	0 0	160 260 10M	-17 45K
V2005		5 ac 0		1010* 40K		1010* 40K		5 0			
V2006		5 ac 12K		635** 82		635** 82		5 12K			
V2007	-220 ∞	-390 35K		-390 35K	-220 ∞		-390 35K				
V2008	-108 ∞	-220 ∞		-220 ∞	-108 ∞		-220 ∞				
V2009	0 0	-108 ∞		-108 ∞	0 0		-108 ∞				
V2010	245 150K	145 ∞		145 ∞	245 150K		145 ∞				
V2011	145 ∞	0 0		0 0	145 ∞		0 0				

SECTION 4

MAINTENANCE

4-1. GENERAL.

Maintenance is divided into three categories: operator's maintenance, preventive maintenance, and corrective maintenance. The operator's maintenance, normally performed by the operator as he works with the equipment, is confined to visual inspection, cleaning, and fuse replacement. Operator's maintenance for the transmitter is included in the associated operating manual. Preventive and corrective maintenance procedures are given in this section.

4-2. PREVENTIVE MAINTENANCE.

Preventive maintenance is maintenance that detects and corrects trouble-producing conditions before they become serious enough to affect equipment operation. Some trouble-producing conditions are dirt and grime, contact erosion, improper contact pressure, lack of proper lubrication, improper relay adjustment, dirty air filters, overheating, unstable power supplies, vacuum tubes with poor emission, and loose parts (due to vibration). Recommended schedules for preventive maintenance are presented below.

a. ONCE EACH SHIFT DURING AN "ON THE AIR" PERIOD. - Check the operator's performance record for irregularities and possible sources of future trouble. Observe all electrical quantities measurable with built-in meters and compare observations with established standards for irregularities. Observe indicator lights and rectifier tubes for abnormal

color and signs of internal flashing.

b. DAILY DURING AN "OFF THE AIR" PERIOD. - Visually and manually inspect all parts in the transmitter for overheating and damage. Inspect all sliding or moving coil contacts. Feel blower and fan motors for overheating and observe rotating parts for wear. Note deposits of dust and dirt. Inspect condition of relay contacts. Check operation of all door interlocks.

c. MONTHLY DURING "OFF THE AIR" PERIODS. - Recondition rotary and switch contacts as necessary. Use crocus cloth and trichlorethylene or ethylenedichloride for cleaning. Inspect and clean the transmitter. Check the condition of the air filters. Replace or clean dirty filters. Inspect the equipment for loose solder connections or screws, especially in those areas in which appreciable vibration occurs. Note the condition of gear trains; those showing signs of becoming dry should be lubricated with a drop or two of any high quality, light machine lubricant. Check the condition of all tubes.

4-3. OVERLOAD ADJUSTMENTS.

a. IPA SCREEN OVERLOAD.

(1) Set MAIN POWER circuit breaker at OFF. Extend Linear Amplifier VLAA on its slides. Set TEST/NORMAL switch S2003 at TEST.

(2) Set MAIN POWER circuit breaker at ON. Adjust IPA SCREEN OVLD ADJ rheostat R709 until relay K706 remains latched in its non-

overload position after the RESET pushbutton has been depressed.

(3) To check overload, short pin 2 of XV2004 to ground; relay K706 should trip.

(4) Set S2003 at NORMAL and return VLAA to its normal position.

b. IPA PLATE OVERLOAD.

(1) Set MAIN POWER circuit breaker at ON; set HIGH VOLTAGE circuit breaker at ON. Set TUNE/OPERATE switch at OPERATE.

(2) Set PLATE MA switch at 1; adjust BIAS A ADJ potentiometer until PLATE MA meter indicates 150 ma. Set PLATE MA switch at 2; adjust BIAS B ADJ potentiometer until PLATE MA meter indicates 150 ma.

(3) Adjust IPA PLATE OVLD ADJ rheostat until relay K707 trips.

(4) Adjust BIAS A ADJ and BIAS B ADJ potentiometers as outlined in paragraph 4-4.

c. PA SCREEN OVERLOAD.

(1) Connect a 50-ohm, 5000-watt non-reactive dummy load to the transmitter.

(2) Set LOAD ADJ FINE switch at 20; set LOAD ADJ COARSE switch at 30. Tune transmitter to approximately 500 kc, and increase output until PA SCREEN CURRENT meter indicates 60 ma.

(3) Adjust PA SCREEN OVLD ADJ rheostat R707 until relay K702 trips.

(4) Decrease excitation and depress RESET button.

d. PA PLATE OVERLOAD.

(1) Set MAIN POWER circuit breaker at ON. Set HIGH VOLTAGE circuit breaker at ON; set TUNE/OPERATE switch at OPERATE.

(2) Adjust PA BIAS ADJ potentiometer R703 (on left side of relay panel) until PA PLATE CURRENT A meter indicates 1.4 amp. Adjust PA BIAS ADJ potentiometer R712 (on right side of relay panel) until PA PLATE CURRENT B meter indicates 1.4 amp.

(3) Adjust PA PLATE OVLD ADJ rheostat R705 until relay K701 trips.

(4) Adjust PA BIAS ADJ potentiometers as outlined in paragraph 4-4.

e. SWR OVERLOAD.

NOTE

The directional coupler must be aligned in accordance with instructions given in paragraph 4-5 before adjusting the SWR overload circuit.

(1) Set MAIN POWER circuit breaker at OFF.

(2) Connect 50-ohm dummy load and .01 microfarad 4000-volt capacitor in series to transmitter output at shown in figure 4-1.

NOTE

If an SWR overload sensitivity of 2:1 is desired, use a test frequency of 350 kc when performing the remainder of this alignment. If an SWR overload sensitivity of 3:1 is desired, use a test frequency of 225 kc.

(3) Set POWER-CALIBRATE-SWR switch at POWER. Energize transmitter, and tune exciter to desired test frequency. Adjust excitation until PA OUTPUT indicates 1 kw.

(4) Set POWER-CALIBRATE-SWR switch at CALIBRATE; adjust CAL control until pointer on OUTPUT meter rests at CAL marker. Set POWER-CALIBRATE-SWR switch at SWR; OUTPUT meter should indicate between 3.3 and 3.7 (at 225 kc) or between 2.3 and 2.7 (at 350 kc).

(5) Adjust SWR OVERLOAD ADJ potentiometer until relay K708 trips.

(6) De-energize transmitter, remove dummy load and capacitor, and replace normal output line.

4-4. BIAS ADJUSTMENTS.

a. IPA.

(1) Set TUNE/OPERATE switch at OPERATE.

(2) Energize transmitter, and set HIGH VOLTAGE circuit breaker at ON. Do not apply excitation.

(3) Set PLATE MA switch at 1; adjust BIAS A ADJ potentiometer until PLATE MA meter indicates 100 ma.

(4) Set PLATE MA switch at 2; adjust BIAS B ADJ potentiometer until PLATE MA meter indicates 100 ma.

(5) Set HIGH VOLTAGE circuit breaker at OFF.

b. PA.

(1) Set MAIN POWER switch at ON; set HIGH VOLTAGE circuit breaker at ON. Set PA SCREEN switch at ON; set TUNE/OPERATE switch at OPERATE. Do not apply excitation.

(2) Adjust PA BIAS ADJ potentiometer R703 (on left side of relay panel) until PA PLATE CURRENT A meter indicates 1 ampere.

(3) Adjust PA BIAS ADJ potentiometer R712 (on right side of relay panel) until PA PLATE CURRENT B meter indicates 1 ampere.

(4) Set HIGH VOLTAGE circuit breaker at OFF.

4-5. DIRECTIONAL COUPLER ADJUSTMENTS.

a. Energize transmitter; do not turn on high voltage.

b. Set POWER-CALIBRATE-SWR switch at POWER. Adjust potentiometer R1257 (located in directional coupler) until PA OUTPUT meter indicates zero.

c. Connect at 50-ohm, 5000-watt non-reactive dummy load to the transmitter output. Connect an r-f ammeter (10-amp scale or larger) between transmitter and dummy load.

d. Tune transmitter to a frequency on the 5- to 500-kc range. Adjust excitation to obtain 10 amperes r-f current into dummy load.

e. Adjust potentiometer R1258 until PA OUTPUT meter indicates 5 kw.

f. De-energize transmitter, and disconnect dummy load.

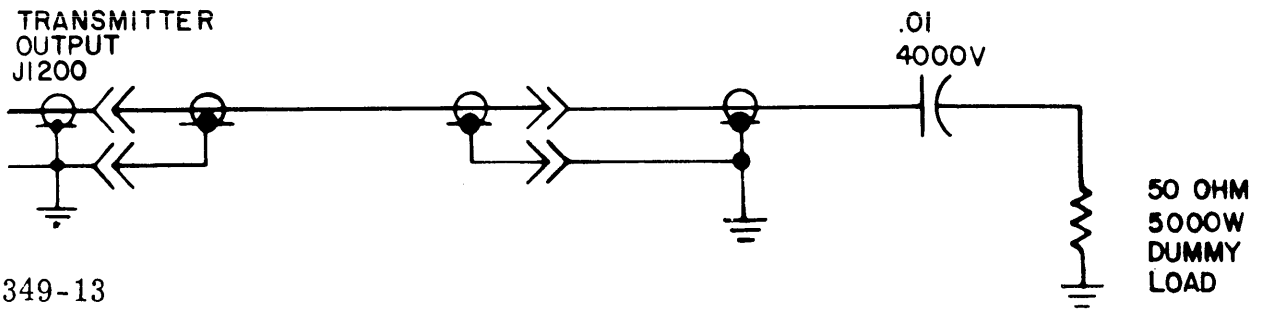

Figure 4-1. Test Set-up, SWR Overload

SECTION 5

PARTS LIST

5-1. INTRODUCTION

The parts list presented in this section is a cross-reference list of parts identified by a reference designation and TMC part number. In most cases, parts appearing on schematic diagrams are assigned reference designations in accordance with MIL-STD-16. Wherever practicable, the reference designation is marked on the equipment, close to the part it identifies. In most cases, mechanical and electro-mechanical parts have TMC part numbers stamped on them.

To expedite delivery when ordering any part, specify the following:

a. Reference symbol.

b. Description as indicated in parts list.

c. TMC part number.

d. Model and serial numbers of the equipment containing the part being replaced; this can be obtained from the equipment nameplate.

For replacement parts not covered by warranty (refer to warranty sheet in front of manual), address all purchase orders to:

The Technical Materiel Corporation
Attention: Sales Department
700 Fenimore Road
Mamaroneck, New York

PARTS LIST

for

AUXILIARY POWER PANEL, MODEL APP-8

REF SYMBOL	DESCRIPTION	TMC PART NUMBER
CP1	ADAPTER, CONNECTOR, ELECTRICAL: cable to connector. Part of W2.	UG175*/U
DS1	Non-replaceable item. Part of XF1.	
E1	TERMINAL BOARD, BARRIER: 5 terminals; 6-32 thd x 1/4" long binder head screws; bakelite body.	TM102-5
F1	FUSE, CARTRIDGE: 5 amps; time lag; 1-1/4" long x 1/4" dia.; slo-blo.	FU102-5
J1	ADAPTER, CONNECTOR, ELECTRICAL: RF; QDS to UHF.	JJ147
J2	JACK, TELEPHONE: silver alloy contacts.	JJ116-2
J3	Same as J2.	
J4	CONNECTOR, RECEPTACLE, ELECTRICAL: 3 female contacts, straight type; U-shape grounding.	JJ173
J5	Same as J4.	
P1	CONNECTOR, PLUG, ELECTRICAL: female; quick disconnect type; for use with RG59/U coaxial cable. (SUPPLIED AS A LOOSE ITEM)	PL157
P2	CONNECTOR, PLUG, ELECTRICAL: AC; 3 prong polarized plug with removeable ground connection. (SUPPLIED AS A LOOSE ITEM)	PL218
P3	Same as P2. (SUPPLIED AS A LOOSE ITEM)	
P4	NOT USED	
P5	NOT USED	
P6	CONNECTOR, PLUG, ELECTRICAL: coaxial; UHF type; one contact, 500 VDC peak; mica insulation. Part of W2.	PL259A-TEF
P7	CONNECTOR, PLUG, ELECTRICAL: coaxial; male; BNC type. Part of W2.	UG88*/U
R1	Non-replaceable item. Part of XF1.	
S1	SWITCH, ROTARY: RF; 5 contacts, non-shorting type; 100 watts.	SW239
W1	NOT USED	

REF SYMBOL	DESCRIPTION	TMC PART NUMBER
W2	CABLE ASSEMBLY, ELECTRICAL: RF; 50 ohms; consists of 1 adapter CP1, and 2 connectors P6, P7.	CA480-109-8
XF1	FUSEHOLDER: lamp indicating; accommodates cartridge fuse 1-1/4" long x 1/4" dia.; 90 to 250 V, 20 amps; neon lamp type with 220K ohm lamp resistor; transparent clear flat sided knob; black body; consists of DS1, R1.	FH104-3

PARTS LIST

for

HIGH VOLTAGE RECTIFIER, MODEL AX103

REF SYMBOL	DESCRIPTION	TMC PART NUMBER
C600	CAPACITOR, FIXED, MICA DIELECTRIC: 10,000 uuf, ±1%; 300 WVDC.	CM35F103F03
C601	Same as C600.	
DS600	Non-replaceable item. Part of XF600.	
DS601	Non-replaceable item. Part of XF601.	
DS602	Non-replaceable item. Part of XF602.	
DS603	Non-replaceable item. Part of XF603.	
DS604	Non-replaceable item. Part of XF604.	
DS605	Non-replaceable item. Part of XF605.	
E600	Non-replaceable item. Part of W600.	
E601	Non-replaceable item. Part of W601.	
E602	Non-replaceable item. Part of W602.	
E603	Non-replaceable item. Part of W603.	
E604	Non-replaceable item. Part of W604.	
E605	Non-replaceable item. Part of W605.	
E606	CONTACT ASSEMBLY: brass, nickel plate; 7/8" dia. x 1/2" long button; w/threaded shaft, 1/4-20 thds.	AX172
E607 thru E612	Same as E606.	
E613	INSULATOR, FEED-THRU	AX152
E614 thru E618	Same as E613.	
F600	FUSE, CARTRIDGE: 1 amp; time lag; 1-1/4" long x 1/4" dia.; slo-blo.	FU102-1
F601 thru F605	Same as F600.	

HIGH VOLTAGE RECTIFIER, MODEL AX103

REF SYMBOL	DESCRIPTION	TMC PART NUMBER
MP600	INSULATOR: round pillar type; white glazed steatite; 1" long x 3/4" dia.; tapped 10-32 x 3/8" deep each end.	NS3W0308
MP601	Same as MP600.	
MP602	INSULATOR: round pillar type; white glazed steatite; 2" long x 1" dia.; tapped 1/4-20 x 1/2" deep each end.	NS3W0432
MP603 thru MP607	Same as MP602.	
MP608	WINDOW, front panel.	PX440
MP609	SCREW	SC139
MP610	Same as MP609.	
R600	Non-replaceable item. Part of XF600.	
R601	Non-replaceable item. Part of XF601.	
R602	Non-replaceable item. Part of XF602.	
R603	Non-replaceable item. Part of XF603.	
R604	Non-replaceable item. Part of XF604.	
R605	Non-replaceable item. Part of XF605.	
T600	TRANSFORMER, POWER, STEP-DOWN: primary- 230 V, 50/60 cps (Hz), single phase; secondary- 5 V, 10 amps, CT; insulated for 2,500 volts primary and 15 Kv secondary; hermetically sealed rectangular steel case.	TF201
T601 thru T605	Same as T600.	
V600	TUBE, ELECTRON: mercury vapor, half wave rectifier; 4 pin base.	872A
V601 thru V605	Same as V600.	

HIGH VOLTAGE RECTIFIER, MODEL AX103

REF SYMBOL	DESCRIPTION	TMC PART NUMBER
W600	CABLE ASSEMBLY, ELECTRICAL: number 18 stranded, single conductor wire, rubber covered; consists of plate cap on one end, E600, terminal lug on other end.	CA409-15-4.75
W601	Same as W600. Consists of E601.	
W602	Same as W600. Consists of E602.	
W603	Same as W600. Consists of E603.	
W604	Same as W600. Consists of E604.	
W605	Same as W600. Consists of E605.	
W606	LEAD, ELECTRICAL	CA412-11-1.75
W607	LEAD, ELECTRICAL	CA412-11-2.50
W608	LEAD, ELECTRICAL	CA412-11-4.00
W609	LEAD, ELECTRICAL	CA412-11-5.00
W610 thru W616	Same as W609.	
W617	LEAD, ELECTRICAL	CA412-11-7.00
W618 thru W625	Same as W617.	
W626	LEAD, ELECTRICAL	CA412-11-10.00
W627	LEAD, ELECTRICAL	CA412-11-11.00
W628	LEAD, ELECTRICAL	CA412-11-15.50
W629	LEAD, ELECTRICAL	CA412-11-9.00
W630	WIRING HARNESS, BRANCHED, ELECTRICAL	CA413
XF600	FUSEHOLDER: lamp indicating; accommodates cartridge fuse 1-1/4" long x 1/4" dia.; 90 to 250 V, 20 amps; neon lamp type with 220K ohm lamp resistor; transparent clear flat sided knob; black body; consists of DS600, R600.	FH104-3

HIGH VOLTAGE RECTIFIER, MODEL AX103

REF SYMBOL	DESCRIPTION	TMC PART NUMBER
XF601	Same as XF600. Consists of DS601, R601.	
XF602	Same as XF600. Consists of DS602, R602.	
XF603	Same as XF600. Consists of DS603, R603.	
XF604	Same as XF600. Consists of DS604, R604.	
XF605	Same as XF600. Consists of DS605, R605.	
XV600	SOCKET, ELECTRON TUBE: twist lock, 4 pin base.	TS123-211-100
XV601 thru XV605	Same as XV600.	

PARTS LIST

for

RELAY PANEL, MODEL AR166

REF SYMBOL	DESCRIPTION	TMC PART NUMBER
C700	CAPACITOR, FIXED, ELECTROLYTIC: 50 uf, ±2%; 50 WVDC.	CE63F500G
C701	Same as C700.	
C702	CAPACITOR, FIXED, CERAMIC DIELECTRIC: 10,000 uuf, GMV; 500 WVDC.	CC100-16
C703	Same as C700.	
DS700	Non-replaceable item. Part of XF700.	
DS701	Non-replaceable item. Part of XF701.	
DS702	Non-replaceable item. Part of XF702.	
DS703	Non-replaceable item. Part of XF703.	
DS704	Non-replaceable item. Part of XF704.	
DS705	Non-replaceable item. Part of XF705.	
E700	TERMINAL BOARD, BARRIER: 14 terminals; 6-32 thd x 1/4" long binder head screws; phenolic body.	TM100-14
E701	TERMINAL BOARD, BARRIER: 8 terminals; 6-32 thd x 1/4" long binder head screws; phenolic body.	TM100-8
E702	Same as E701.	
E703	Same as E701.	
E704	TERMINAL BOARD, BARRIER: 10 terminals; 6-32 thd x 1/4" long binder head screws; phenolic body.	TM100-10
E705	Same as E700.	
E706	CONNECTOR, FEED-THRU: ceramic body.	TE175
E707 thru E711	Same as E706.	
F700	FUSE, CARTRIDGE: 10 amps; time lag; 1-1/4" long x 1/4" dia.; slo-blo.	FU102-10
F701	Same as F700.	
F702	Same as F700.	

REF SYMBOL	DESCRIPTION	TMC PART NUMBER
F703	FUSE, CARTRIDGE: 5 amps; time lag; 1-1/4" long x 1/4" dia.; slo-blo.	FU102-5
F704	FUSE, CARTRIDGE: 1 amp; time lag; 1-1/4" long x 1/4" dia.; slo-blo.	FU102-1
F705	FUSE, CARTRIDGE: 15 amps; time lag; 1-1/4" long x 1/4" dia.; slo-blo.	FU102-15
I700	LAMP, GLOW: neon; double candlebra; 110 volts, 1/4 watt; T-4-1/2 clear bulb; bayonet base.	BI103-2
I701 thru I705	Same as I700.	
J700	CONNECTOR, RECEPTACLE, ELECTRICAL: 35 male contacts.	MS3102A32-7P
J701	CONNECTOR, RECEPTACLE, ELECTRICAL: 3 male contacts.	MS3102A22-9P
K700	RELAY, ARMATURE: 4PDT; coil rated at 11,000 ohms, ±10%; contacts rated at 10 amps 125 VAC resistive; operate 0.010 amps, non-operate 0.009 amps.	RL126
K701	RELAY, ARMATURE: 4PDT; contacts rated at 25 amps, 125 VAC resistive; latch relay- 1,100 ohms, ±10%; unlatch relay- 0-93 ohms, ±10%; latch operate 190 volts, 60 cps (Hz) AC or less.	RL122
K702	RELAY, ARMATURE: 4PDT; contacts rated at 20 amps, 125 VAC resistive; latch relay- 1,100 ohms, ±10%; unlatch relay- 1,500 ohms, ±10%; latch operate 190 volts, 60 cps (Hz) AC or less.	RL128
K703	RELAY, ARMATURE: 4PDT; contacts rated at 25 amps; coil- 1,150 ohms, ±10%; operate- 220 volts, 50/60 cps (Hz).	RL124
K704	RELAY, ARMATURE: 4PDT; coil- latch 1,100 ohms, ±10%; trip- 170 ohms, ±10%; contacts rated at 20 amps non-inductive; latch operate- 190 volts, 60 cps (Hz) or less.	RL125
K705	Same as K703.	
K706	RELAY, ARMATURE: coil- latch 1,100 ohms, ±10%; trip- 10,000 ohms, ±10%; 4PDT; contacts rated at 25 amps non-inductive load; latch operate- 220 volts, 60 cps (Hz) or less.	RL127

RELAY PANEL, MODEL AR166

REF SYMBOL	DESCRIPTION	TMC PART NUMBER
K707	RELAY, ARMATURE: 4PDT; coil- latch relay 1,100 ohms, ±10%, unlatch relay 43 ohms, ±10%; contacts rated at 20 amps, 125 VAC resistive; latch operate- 220 volts, 60 cps (Hz) or less.	RL123
K708	Same as K706.	
M700	METER: elapsed time; 240 volts, 60 cps (Hz); standard ASA/MIL 3-1/2" (MR-36) mounting.	MR125-2
M701	METER, INTERVAL: time delay; contacts rated at 10 amps; time cycle 5 min.; dial division- 5 seconds; 3" dia. panel mounting; bakelite case.	TI101-5
M702	Same as M700.	
R700	RESISTOR, FIXED, COMPOSITION: 15,000 ohms, ±5%; 2 watts.	RC42GF153J
R701	RESISTOR, FIXED, COMPOSITION: 300 ohms, ±5%; 2 watts.	RC42GF301J
R702	RESISTOR, FIXED, COMPOSITION: 220,000 ohms, ±5%; 2 watts.	RC42GF224J
R703	RESISTOR, VARIABLE, COMPOSITION: 50,000 ohms, ±10%; 2 watts.	RV4LAYSA503A
R704	RESISTOR, FIXED, WIREWOUND: 0.5 ohms, 5 watts.	RW107-54
R705	RESISTOR, VARIABLE, WIREWOUND: 1 ohm, 4 watts, linear taper.	RA107TXA1R0A
R706	RESISTOR, FIXED, WIREWOUND: 500 ohms, 142 ma DC; 10 watts.	RW109-19
R707	RESISTOR, VARIABLE, WIREWOUND: 500 ohms, ±10%; 25 watts.	RA75ASA501AK25
R708	NOT USED	
R709	RESISTOR, VARIABLE, COMPOSITION: 15,000 ohms, ±10%; 2 watts.	RV4LAYSA153A
R710	RESISTOR, FIXED, WIREWOUND: 10 ohms, 1,000 ma DC; 10 watts.	RW109-4
R711	RESISTOR, VARIABLE, WIREWOUND: 100 ohms, ±10%; 25 watts; linear taper.	RA75AXA101AK25

REF SYMBOL	DESCRIPTION	TMC PART NUMBER
R712	Same as R703.	
R713	Same as R702.	
R714	RESISTOR, FIXED, WIREWOUND: 2,000 ohms, 70 ma DC; 10 watts.	RW109-28
R715	Non-replaceable item. Part of XF700.	
R716	Non-replaceable item. Part of XF701.	
R717	Non-replaceable item. Part of XF702.	
R718	Non-replaceable item. Part of XF703.	
R719	Non-replaceable item. Part of XF704.	
R720	Non-replaceable item. Part of XF705.	
XF700	FUSEHOLDER: lamp indicating; accommodates cartridge fuse 1-1/4" long x 1/4" dia.; 90 to 250 V, 20 amps; neon lamp type with 220K ohm lamp resistor; transparent clear flat sided knob; black body; consists of DS700, R715.	FH104-3
XF701	Same as XF700. Consists of DS701, R716.	
XF702	Same as XF700. Consists of DS702, R717.	
XF703	Same as XF700. Consists of DS703, R718.	
XF704	Same as XF700. Consists of DS704, R719.	
XF705	Same as XF700. Consists of DS705, R720.	
XI700	LIGHT, INDICATOR: with white frosted lens; 105/125 volts; bayonet base lamp.	TS137-7FB4
XI701 thru XI705	Same as XI700.	

PARTS LIST
for
MAIN POWER SUPPLY, MODEL AP125

REF SYMBOL	DESCRIPTION	TMC PART NUMBER
B800	FAN, CENTRIFUGAL: 220 V, 50/60 cps, 3 phase; ccw rotation; 3,250 RPM nom.; 2,320 watts full load; 6.1 line amps.	BL111
C800	CAPACITOR, FIXED, PAPER DIELECTRIC: 4 uf, ±10%; 10,000 WVDC.	CP103
C801	CAPACITOR, FIXED, PAPER DIELECTRIC: 8 uf, ±10%; 5,000 WVDC.	CP104
C802	CAPACITOR, FIXED, PAPER DIELECTRIC: 10 uf, ±10%; 2,500 WVDC.	CP105
C803 thru C812	NOT USED	
C813	CAPACITOR, FIXED, PAPER DIELECTRIC: 0.1 uf, ±20%; 1,000 WVDC.	CX109-4
C814	Same as C813.	
C815	CAPACITOR, FIXED, PAPER DIELECTRIC: 0.25 uf, ±10%; 3,000 WVDC.	CP70E1FL254K
CR800	NOT USED	
CR801A,B,C D,E,F,G,H	SEMICONDUCTOR DEVICE SET: Zener diodes (matched). Non-replaceable item. Part of TB800, TMC part No. A4309.	
CR801I,J,K, L,M,N,P,R	SEMICONDUCTOR DEVICE SET: Zener diodes (matched). Non-replaceable item. Part of TB801, TMC part No. A4310.	
E800	TERMINAL, FEED-THRU	TE101-3
E801	BUSHING, FEED-THRU: steatite insulators, neoprene gland, hot tinned brass stud, 1/4-20 threads, 1-1/8" dia. x 3" long o/a.	AX150
E802	Same as E801.	
E803	Same as E800.	
E804	Same as E800.	

MAIN POWER SUPPLY, MODEL AP125

REF SYMBOL	DESCRIPTION	TMC PART NUMBER
E805	TERMINAL BOARD, DARRIER: 4 terminals; 6-32 thd. x 1/4" long binder head machine screws; bakelite base.	TM102-4
E1001	CONTACT, ELECTRICAL: spring loaded; nickel plated beryllium copper; 2-1/4" x 1-1/4" x 1" o/a.	AX153
E1002 thru E1007	Same as E1001.	
E1008 thru E1012	Part of Main Frame Assembly, AX576.	
E1013	CONTACT, ELECTRICAL: spring loaded; silver plated beryllium copper; 3/4" x 1-1/8" x 3/4" o/a.	AX154
E1014	Same as E1013.	
J1000	CONNECTOR, RECEPTACLE, ELECTRICAL: female; pin type.	MS3102A20-29S
J1001	CONNECTOR, RECEPTACLE, ELECTRICAL: 35 female contacts.	MS3102A32-7S
J1002	CONNECTOR, RECEPTACLE, ELECTRICAL: RF; 1 round female contact, straight type; 52 ohms; series BNC to BNC.	UG625*/U
J1003	Same as J1002.	
J1004	Part of Main Frame Assembly, AX576.	
J1005	CONNECTOR, RECEPTACLE, ELECTRICAL: 1 round female contact; series BNC to BNC.	JJ172
J1006 thru J1008	Same as J1005.	
L800	REACTOR, FILTER CHOKE: 2 hy at 2.5 amps; insulated for 15 Kv.	TF280
L801	REACTOR, FILTER CHOKE: 5 hy at 1 amp.	TF199
L802	SOLENOID, RELAY: w/plunger; 230 V, 60 cps, 0.2 amps; continuous duty cycle.	SZ100
L803	CHOKE, FILTER: RF; fixed; 1 mh, ferrite core.	A4099-1

MAIN POWER SUPPLY, MODEL AP125

REF SYMBOL	DESCRIPTION	TMC PART NUMBER
L804	Same as L803.	
L805	Same as L803.	
P1000	CONNECTOR, RECEPTACLE, ELECTRICAL: female.	MS3106B32-7S
P1001	CONNECTOR, RECEPTACLE, ELECTRICAL: female.	MS3106B22-9S
P1002	Part of Main Frame Assembly, AX576.	
P1003	Part of Main Frame Assembly, AX576.	
P1004	CONNECTOR, PLUG, ELECTRICAL: 1 male contact rated for 500 V peak; polarized.	PL244-1
P1005	Same as P1004.	
P1006	Part of Main Frame Assembly, AX576.	
P1007	Part of Main Frame Assembly, AX576.	
P1008	Same as P1004.	
P1201	CONNECTOR, RECEPTACLE, ELECTRICAL: female.	MS3108B20-27S
R800	NOT USED	
R801	NOT USED	
R802	RESISTOR, FIXED, WIREWOUND: 5,000 ohms, 140 watts.	RW118F502
R803	Same as R802.	
R804	RESISTOR, FIXED, WIREWOUND: 18,000 ohms, 140 watts.	RW118F183
R805 thru R809	Same as R804.	
R810	RESISTOR, FIXED, WIREWOUND: 4 megohms, ±0.5%; 4 watts.	RW122-1-405
R811	Same as R810.	
R812	RESISTOR, FIXED, WIREWOUND: 180 ohms, ±0.5%; 14 watts.	RW119G181
R813	Same as R812.	

REF SYMBOL	DESCRIPTION	TMC PART NUMBER
R814	RESISTOR, FIXED, WIREWOUND: 800,000 ohms, ±0.5%; 6 watts.	RW122-3-804
R815	Same as R814.	
R816	Same as R802.	
R817	NOT USED	
R818	RESISTOR, FIXED, WIREWOUND: 5,000 ohms, ±5%; 10 watts. Part of Semiconductor Device Set, TB800, TMC part number A4309.	RW109-32
R819	Same as R802.	
R820	Same as R802.	
R821	RESISTOR, FIXED, WIREWOUND: 100,000 ohms, ±5%; current rating 8.5 ma; 20 watts. Part of Semiconductor Device Set, TB800, TMC part number A4309.	RW110-43
R822	RESISTOR, FIXED, COMPOSITION: 100 ohms, ±5%; 2 watts. Part of Semiconductor Device Set, TB800, TMC part number A4309.	RC42GF101J
R823 thru R828	Same as R822. Part of Semiconductor Device Set, TB800, TMC part number A4309.	
R829	RESISTOR, FIXED, COMPOSITION: 220 ohms, ±5%; 2 watts. Part of Semiconductor Device Set, TB800, TMC part number A4309.	RC42GF221J
R830	Same as R829. Part of Semiconductor Device Set, TB800, TMC part number A4310.	
R831 thru R837	Same as R822. Part of Semiconductor Device Set, TB801, TMC part number A4310.	
R1000 thru R1005	Part of Main Power Panel, AX537.	
R1006 thru R1011A,B	Part of Power Amplifier Section, AX531.	

MAIN POWER SUPPLY, MODEL AP125

REF SYMBOL	DESCRIPTION	TMC PART NUMBER
R1012	Part of Meter Box Assembly, AM124.	
R1013	Part of Meter Box Assembly, AM124.	
R1014	RESISTOR, FIXED, COMPOSITION: 22 ohms, ±5%; 1 watt.	RC32GF220J
R1015	Same as R1014.	
R1016	Same as R1014.	
S800	SWITCH, AIRFLOW	SW243
S801	SWITCH, PUSHBUTTON: momentary contact; SPST; 15 amps at 125, 250, 460 VAC; 1/2 watt at 125 VDC, 1/4 amp at 250 VDC.	SW169
T800	TRANSFORMER, POWER: primary input 210, 220, 230, 250 volts, 50/60 cps AC; 3 phase delta primary, 3,400 VAC each; secondary rating 1.6 amps.	TF203
T801	TRANSFORMER, FILAMENT: primary input 0, 190, 200, 210, 220, 230, 250 V, 50/60 cps; tapped primary; secondary rated at 6.5 VAC, 320 amps, CT.	TF279
TB800	SEMICONDUCTOR DEVICE SET: consisting of matched sets of Zener diodes, symbol numbers CR801A, B, C, D,E,F,G,H and 10 resistors, symbol numbers R818, R821 thru R829.	A4309
TB801	SEMICONDUCTOR DEVICE SET: consisting of matched sets of Zener diodes, symbol numbers CR801I, J,K,L, M,N,P,R and 8 resistors, symbol numbers R830 thru R837.	A4310
W1000	Part of Main Frame Assembly, AX576.	
W1001	Part of Main Frame Assembly, AX576.	
W1002	Part of Meter Box Assembly, AM124.	
W1003	WIRING HARNESS, BRANCHED, ELECTRICAL: consists of 12 connectors, J1000, J1001, J1005, J1006 thru J1008, P1000, P1001, P1004, P1005, P1008, P1201.	CA992
Z1000	ANTENUATOR, ASSEMBLY: consists of 2 BNC connectors, J1002, J1003 and 3 resistors, R1014, R1015, R1016.	A5461

PARTS LIST

for

METER BOX ASSEMBLY, AM124

REF SYMBOL	DESCRIPTION	TMC PART NUMBER
C1000 thru C1016	NOT USED	
C1017	CAPACITOR, FIXED, PLASTIC DIELECTRIC: 0.1 uf, ±20%; 2,000 WVDC.	CX109-5
C1018	Same as C1017.	
C1019 thru C1021	NOT USED	
C1022	CAPACITOR, FIXED, ELECTROLYTIC: 25 uf, -10% +150% at 120 cps (Hz) at 25°C; 50 WVDC; polarized.	CE105-25-50
E1000	NOT USED	
E1001 thru E1007	Part of Main Power Supply AP125.	
E1008 thru E1010	Part of Main Frame Assembly AX576.	
E1011	BUSHING: feed-thru, with out gland.	NS118-5
E1012	Same as E1011.	
I1000 thru I1003	Part of Power Amplifier Section AX531.	
I1004	Part of Main Power Panel AX537.	
I1005	LAMP, FLUORESCENT: standard cool white; 1/2" dia. x 11-3/4" long.	BI107
I1006	Same as I1005.	
I1007	LAMP, INCANDESCENT: 230 V, 25 watts; frosted lens; standard screw base; 2-3/8" dia. x 3-15/16" long.	BI106-2
M1000	NOT USED	
M1001	AMMETER: PA; 0-100 ma DC; 4-1/2" square case.	MR116

METER BOX ASSEMBLY, AM124

REF SYMBOL	DESCRIPTION	TMC PART NUMBER
M1002	AMMETER: PA; 0-3 amps DC; 4-1/2" square case.	MR117
M1003	KILOWATT METER, SWR: 0-100 ma; 2,000 ohms resistance; standard 4-1/2" rectangular case.	MR174
M1004	VOLTMETER: 0-1,000 negative VDC; linear scale; standard 4-1/2" square case.	MR134
M1005	Same as M1004.	
R1000 thru R1005	Part of Main Power Panel AX537.	
R1006 thru R1009	Part of Power Amplifier Section AX531.	
R1010	Part of Power Amplifier Section AX531.	
R1011A,B	Part of Power Amplifier Section AX531.	
R1012	RESISTOR, PRECISION: 1 megohm, $\pm$1%; 1/2 watt at 80°C; 1.0 watt.	RN25X1004F
R1013	Same as R1012.	
S1000 thru S1005	Part of Main Power Panel AX537.	
S1006 thru S1011	Part of Main Frame Assembly AX576.	
S1012	STARTER, FLUORESCENT LAMP: 8 watts; 13/16" dia. x 1-1/2" long.	PO170
S1013	Same as S1012.	
T1000	BALLAST, FLUORESCENT LAMP: 8 watts, 118 V, 0.17 amp, 60 cps (Hz).	PO169
T1001	Same as T1000.	
W1000	Part of Main Frame Assembly AX576.	
W1001	Part of Main Frame Assembly AX576.	

METER BOX ASSEMBLY, AM124

REF SYMBOL	DESCRIPTION	TMC PART NUMBER
W1002	WIRING HARNESS, BRANCHED, ELECTRICAL	CA997
XI1000 thru XI1003	Part of Power Amplifier Section AX531.	
XI1004	Part of Main Power Panel AX537.	
XI1005A,B	SOCKET, FLUORESCENT LAMP: 75 watts, 250 volts.	TS141
XI1006A,B	Same as XI1005A,B.	
XI1007	SOCKET, LAMP: screw type.	TS143
XS1000 thru XS1011	NOT USED	
XS1012	SOCKET, STARTER, FLUORESCENT: 60 watts, 250 volts.	TS140
XS1013	Same as XS1012.	

PARTS LIST

for

MAIN POWER PANEL, AX537

REF SYMBOL	DESCRIPTION	TMC PART NUMBER
C1000 thru C1016	NOT USED	
C1017	Part of Meter Box Assembly AM124.	
C1018	Part of Meter Box Assembly AM124.	
C1019 thru C1021	NOT USED	
C1022	Part of Meter Box Assembly AM124.	
C1023	NOT USED	
C1024	NOT USED	
C1025 thru C1028	Part of Power Amplifier Section AX531.	
C1029	CAPACITOR, FIXED, METALLIZED PLASTIC DIELECTRIC: 0.10 uf, ±20%; 400 WVDC.	CN114R104M
CB1000	CIRCUIT BREAKER: 3PST; 50 amps, 230 VAC.	SW240-2
CB1001	NOT USED	
CB1002	CIRCUIT BREAKER: SPST; 350 ma, 230 VAC.	SW297
I1000 thru I1003	Part of Power Amplifier Section AX531.	
I1004	LAMP, NEON: 105/125 V, 1/25 watt; miniature bayonet T-3-1/4 bulb.	BI100-51
R1000	RESISTOR, FIXED, WIREWOUND: 100 ohms, 55 watts.	RW115-101-55
R1001	Same as R1000.	
R1002	RESISTOR, FIXED, WIREWOUND: 45,000 ohms, current rating 15 ma; 10 watts.	RW109-42
R1003	RESISTOR, FIXED, COMPOSITION: 270,000 ohms, ±5%; 1/2 watt.	RC20GF274J

MAIN POWER PANEL, AX537

REF SYMBOL	DESCRIPTION	TMC PART NUMBER
R1004	RESISTOR, VARIABLE, COMPOSITION: 50,000 ohms, ±20%; 2 watts.	RV4NAYSD503B
R1005	RESISTOR, FIXED, COMPOSITION: 220,000 ohms, ±5%; 1 watt.	RC32GF224J
S1000	SWITCH, PUSHBUTTON: SPST; 1 amp, 250 V or 3 amps 125 V; momentary contact.	SW168SPST2NOBR
S1001	SWITCH, ROTARY: 1 section, 12 positions; 30° angle of throw.	SW250
S1002	SWITCH, ROTARY: tap; 10 amps, 150 VAC.	SW167-7
S1003	SWITCH, ROTARY	SW255
S1004	SWITCH, TOGGLE: DPDT: 28° angle of throw; bat type handle.	ST22N
S1005	SWITCH, TOGGLE: DPST; 28° angle of throw; bat type handle.	ST12A
S1006 thru S1011	Part of Main Frame Assembly AX576.	
S1012	Part of Meter Box Assembly AM124.	
S1013	Part of Meter Box Assembly AM124.	
S1014	Part of Main Frame Assembly AX576.	
S1015	SWITCH, MICRO: SPST; 1/2 amp at 125 VDC or 1/4 amp at 250 VDC.	SW189
S1016	Same as S1015.	
XI1000 thru XI1003	Part of Power Amplifier Section AX531.	
XI1004	LIGHT, INDICATOR: with clear unfrosted lens for miniature bayonet base T-3-1/4 bulb.	TS106-2

PARTS LIST
for
MAIN FRAME ASSEMBLY, AX576

REF SYMBOL	DESCRIPTION	TMC PART NUMBER
C1000 thru C1016	NOT USED	
C1017	Part of Meter Box Assembly, AM124.	
C1018	Part of Meter Box Assembly, AM124.	
C1019 thru C1021	NOT USED	
C1022	Part of Meter Box Assembly, AM124.	
C1023	NOT USED	
C1024	NOT USED	
C1025 thru C1028	Part of Power Amplifier Section, AX531.	
C1029	Part of Main Power Panel, AX537.	
C1030	CAPACITOR, FIXED, CERAMIC DIELECTRIC: 1,000 uuf, ±20%; 5,000 WVDC.	CC109-38
C1031 thru C1039	Same as C1030.	
E1000	NOT USED	
E1001 thru E1007	Part of Main Power Supply, AP125.	
E1008	INSULATOR, FEED-THRU: consists of 2 ribbed steatite insulators; 1 brass, nickel plated 1/4-20 threaded rod, 4" long; 2 neoprene gaskets; 2 fiber washers; 2 flat washers; 2 hex nuts; 2 external tooth lock-washers; 1-1/4" dia. x 4" long o/a.	AX261
E1009	Same as E1008.	
E1010	Same as E1008.	

MAIN FRAME ASSEMBLY, AX576

REF SYMBOL	DESCRIPTION	TMC PART NUMBER
J1000 thru J1003	Part of Main Power Supply, AP125.	
J1004	CONNECTOR, RECEPTACLE, ELECTRICAL: 1 round female contact, straight type; series BNC to BNC.	JJ172
L1000	COIL, RADIO FREQUENCY: line filter; L- nominal 177 uh (175-179) Q greater than 10; F- 2 mc.	CL155
L1001 thru L1004	Same as L1000.	
P1000	Part of Main Power Supply, AP125.	
P1001	Part of Main Power Supply, AP125.	
P1002	CONNECTOR, PLUG, ELECTRICAL: 1 male contact rated for 500 V peak; polarized; series BNC.	PL244-1
P1003	Same as P1002.	
P1004	Part of Main Power Supply, AP125.	
P1005	Part of Main Power Supply, AP125.	
P1006	CONNECTOR, PLUG, ELECTRICAL: male, pin type.	MS3106B32-7P
P1007	CONNECTOR, PLUG, ELECTRICAL: female, socket type.	MS3106B32-7S
S1000 thru S1005	Part of Main Power Panel, AX537.	
S1006	SWITCH, INTERLOCK: push to operate; total travel approx. 0.312; 15 amps, 120/250 VAC; 2 amps resistive at 250 VDC.	SW230
S1007 thru S1011	Same as S1006.	
W1000	CABLE ASSEMBLY, ELECTRICAL: power.	CA431
W1001	CABLE ASSEMBLY, ELECTRICAL: RF.	CA830

PARTS LIST

for

POWER AMPLIFIER SECTION, AX531

REF SYMBOL	DESCRIPTION	TMC PART NUMBER
B1200	FAN, AXIAL: 115/230 V, 4 uf, 50/60 cps, single phase; 100 watts full load; 1.0/0.5 line amps; nom. RPM 3.400; max. CFM 740; CCW rotation.	BL123
C1000 thru C1016	NOT USED	
C1017	Part of Meter Box Assembly, AM124.	
C1018	Part of Meter Box Assembly, AM124	
C1019 thru C1021	NOT USED	
C1022	Part of Meter Box Assembly, AM124.	
C1023	NOT USED	
C1024	NOT USED	
C1025	CAPACITOR, FIXED, PLASTIC DIELECTRIC: 0.1 uf.	CX111
C1026 thru C1028	Same as C1025.	
C1200	CAPACITOR, FIXED, PAPER DIELECTRIC: 0.3 uf, ±10%; 10 KVDC.	CP119
C1201	CAPACITOR, FIXED, PAPER DIELECTRIC: 1 uf, ±10%; 1,000 KVDC.	CP117-1
C1202	Same as C1201.	
C1203	CAPACITOR, FIXED, PLASTIC DIELECTRIC: 0.1 uf.	CX113-1
C1204	Same as C1200.	
C1205	Same as C1200.	
C1206	CAPACITOR, FIXED, PAPER DIELECTRIC: 0.1 uf, ±20%; 2 KVDC.	CP117-2
C1207	Same as C1206.	
C1208	CAPACITOR, FIXED, HIGH VOLTAGE: 0.1 uf, ±20% at 60 cps; 1,000 WVDC.	CX109-4

REF SYMBOL	DESCRIPTION	TMC PART NUMBER
C1209	Same as C1208.	
C1210 thru C1213	Same as C1201.	
C1214	CAPACITOR, FIXED, PAPER DIELECTRIC: 15 uf, ±10%; 50 WVDC.	CP116
C1215 thru C1217	Same as C1214.	
C1218	CAPACITOR, FIXED, VACUUM: 10 uuf, 17,000 V peak.	CO104-2
C1219	CAPACITOR, FIXED, MICA DIELECTRIC: 10,000 uuf, ±1%; 300 WVDC.	CM35F103F03
C1220	Same as C1218.	
C1221	CAPACITOR, FIXED, MICA DIELECTRIC: 220 uuf, ±5%; 500 WVDC.	CM15F221J03
C1222	CAPACITOR, FIXED, CERAMIC DIELECTRIC: 100,000 uuf, +80% -20%; 300 WVDC.	CC100-37
C1223 thru C1225	Same as C1222.	
C1226	CAPACITOR, FIXED, HIGH VOLTAGE: 0.1 uf, ±20% at 60 cps; 2,000 WVDC.	CX109-5
C1227 thru C1229	Same as C1226.	
CR1200	SEMICONDUCTOR DEVICE, DIODE: germanium.	1N468
DC1200	DIRECTIONAL COUPLER (SEE SEPARATE PARTS LIST FOR BREAKDOWN)	AX569
E1200	NOT USED	
E1201	INSULATOR, FEED-THRU: long.	AX314
E1202	BUSHING, FEED-THRU: with out gland.	NS118-5

POWER AMPLIFIER SECTION, AX531

REF SYMBOL	DESCRIPTION	TMC PART NUMBER
E1203 thru E1208	Same as E1202.	
E1209	ROD: 1/2-20 thd., brass, nickel plated, 3-1/4" long.	SM5020BN3.250
E1210 thru E1212	Same as E1209.	
E1213 thru E1215	Same as E1201.	
I1000	LAMP, INCANDESCENT: 230 volts, 10 watts; screw type base.	BI105-1
I1001 thru I1003	Same as I1000.	
J1200	CONNECTOR (Unbalanced Output) (AS REQUIRED BY CUSTOMER)	
J1201	CONNECTOR, RECEPTACLE, ELECTRICAL: RF; 1 round female contact, straight type; 52 ohms; series BNC to BNC.	UG625*/U
K1200	RELAY, SHORTING: R1 switch type; peak test voltage 50 Kv, 100 amps RMS; solenoid voltage 230 VAC; auxiliary switch SPDT rated at 230 volts, 15 amps.	RL154
L1200	NOT USED	
L1201	CHOKE ASSEMBLY: 1.0 uh.	A4099-1
L1202	CHOKE ASSEMBLY: 390 uh.	A4099-2
L1203	NOT USED	
L1204	Same as L1201.	
L1205	Same as L1202.	
M1200	AMMETER, DC: 0-1.5 amp movement; approx. resistance 0.033 ohms; standard 4-1/2" rectangular case.	MR179
M1201	Same as M1200.	

POWER AMPLIFIER SECTION, AX531

REF SYMBOL	DESCRIPTION	TMC PART NUMBER
P1200	CONNECTOR, PLUG, ELECTRICAL: 4 male contacts, straight type.	MS3106B14S2P
PS1200	SUPPRESSOR, PARASITIC	A4094
PS1201	SUPPRESSOR, PARASITIC	A4093
PS1202	Same as PS1201.	
PS1203	Same as PS1200.	
R1000 thru R1005	Part of Main Frame Assembly, AX537.	
R1006	RESISTOR, FIXED, WIREWOUND: 3,000 ohms; current rating 58 ma; 10 watts.	RW109-30
R1007 thru R1009	Same as R1006.	
R1010	RESISTOR, VARIABLE, COMPOSITION: 250,000 ohms, ±10%; 2 watts.	RV4NAYSD254A
R1011A,B	RESISTOR, VARIABLE, COMPOSITION: dual pot.	RV112
R1200	RESISTOR, FIXED, COMPOSITION: 390,000 ohms, ±5%; 2 watts.	RC42GF394J
R1201	Same as R1200.	
R1202	RESISTOR, FIXED, COMPOSITION: 220,000 ohms, ±5%; 2 watts.	RC42GF224J
R1203	RESISTOR, FIXED, COMPOSITION: 470 ohms, ±5%; 2 watts.	RC42GF471J
R1204	RESISTOR, FIXED, FILM: non-inductive bonded carbon; 1,500 ohms, ±10%; power rated for 50 watts at 40°C.	RR134-152
R1205	Same as R1204.	
R1206	RESISTOR, FIXED, COMPOSITION: 27,000 ohms, ±5%; 1/2 watt.	RC20GF273J
R1207	Same as R1206.	

POWER AMPLIFIER SECTION, AX531

REF SYMBOL	DESCRIPTION	TMC PART NUMBER
S1000 thru S1005	Part of Main Power Panel, AX537.	
S1006 thru S1011	Part of Main Frame Assembly, AX576.	
S1012	Part of Meter Box Assembly, AM124.	
S1013	Part of Meter Box Assembly, AM124.	
S1014	SWITCH, TOGGLE: SPST; 28° angle of throw; bat type handle.	ST12A
S1015	Part of Main Power Panel, AX537.	
S1016	Part of Main Power Panel, AX537.	
S1017	Same as S1014.	
S1018	SWITCH, ROTARY: 1 section, 3 positions; contacts rated for 1 amp at 28 VDC or 5 amps at 110 VAC.	SW112
S1200	NOT USED	
S1201	SWITCH, CERAMIC	SW383
S1202	SWITCH, CERAMIC	SW382
S1203	SWITCH, MICRO: push; SPDT; 10 amps at 125/250 VAC; 1/2 amp at 125 VDC; 1/4 amp at 125 VDC.	SW189
S1204	Same as S1203.	
T1200	TRANSFORMER: output.	TF278
T1201	TRANSFORMER: impedance matching.	TF281
V1200	TUBE, ELECTRON: air cooled; tetrode.	4CX15000A
V1201	Same as V1200.	
XI1000	LIGHT, INDICATOR: with frosted amber lens; screw type socket.	TS136-3FS
XI1001	LIGHT, INDICATOR: with frosted green lens; screw type socket.	TS136-2FS

POWER AMPLIFIER SECTION, AX531

REF SYMBOL	DESCRIPTION	TMC PART NUMBER
XI1002	LIGHT, INDICATOR: with frosted blue lens; screw type socket.	TS136-4FS
XI1003	LIGHT, INDICATOR: with frosted red lens; screw type socket.	TS136-1FS
XV1200	SOCKET, ELECTRON TUBE	TS134
XV1201	Same as XV1200.	
Z1200	AUTOMATIC LOAD DRIVE CONTROL	A5453

PARTS LIST

for

DIRECTIONAL COUPLER, AX569

REF SYMBOL	DESCRIPTION	TMC PART NUMBER
C1250	CAPACITOR, FIXED, METALLIZED PLASTIC DIELECTRIC: 1.0 uf, ±20%; 200 WVDC.	CN112A105M2
C1251	CAPACITOR, FIXED, METALLIZED PLASTIC DIELECTRIC: 0.1 uf, ±5%; 400 WVDC.	CN114R104-5J
C1252 thru C1254	Same as C1250.	
C1255	CAPACITOR, FIXED, ELECTROLYTIC: 50 uf, +50% -15%; 60 WVDC.	CE107-1
C1256	Same as C1255.	
C1257 thru C1259	Same as C1250.	
C1260	Same as C1251.	
C1261	Same as C1250.	
C1262	Same as C1255.	
C1263	Same as C1250.	
C1264	Same as C1250.	
C1265	Same as C1255.	
CR1250	SEMICONDUCTOR DEVICE, DIODE: silicon.	1N67
CR1251 thru CR1255	Same as CR1250.	
CR1256	SEMICONDUCTOR DEVICE, DIODE: silicon.	1N2671A
CR1257	SEMICONDUCTOR DEVICE, DIODE: Zener.	1N3030
E1250	ROD: 1/4-20 thd.; brass, nickel plated; 3" length.	SM2520BN3.00
E1251	Same as E1250.	
F1250	FUSE, CARTRIDGE: 1/10 amp; time lag; 1-1/4" long x 1/4" dia.; slo-blo.	FU102-.10

DIRECTIONAL COUPLER, AX569

REF SYMBOL	DESCRIPTION	TMC PART NUMBER
K1250	RELAY, ELECTROMAGNETIC: sub-miniature; DPDT type contacts rated for 2 amps at 26.5 VDC resistive; hook terminals; nom. coil voltage 26.5 V; min. coil resistance 700 ohms; min. operating amps 0.019 amp; max. pull-in voltage 14 V; drop out voltage 2.5 V min.; hermetically sealed case.	RL160-1
L1250	LOOP ASSEMBLY	A4105
L1251	Same as L1250.	
Q1250	TRANSISTOR: NPN; silicon mesa.	2N697
R1250	RESISTOR, FIXED, COMPOSITION: 2,200 ohms, ±5%; 1/2 watt.	RC20GF222J
R1251	RESISTOR, FIXED, WIREWOUND: 50 ohms, ±2%; 5 watts.	RR114-50WZ
R1252	Same as R1251.	
R1253	RESISTOR, FIXED, COMPOSITION: 1,000 ohms, ±5%; 1 watt.	RC32GF102J
R1254	RESISTOR, FIXED, COMPOSITION: 220 ohms, ±5%; 1/2 watt.	RC20GF221J
R1255	Same as R1253.	
R1256	Same as R1254.	
R1257	RESISTOR, VARIABLE, COMPOSITION: 5,000 ohms, ±10%; 1/2 watt; linear taper.	RV106UX8B502A
R1258	RESISTOR, VARIABLE, COMPOSITION: 25,000 ohms, ±10%; 1/2 watt; linear taper.	RV106UX8B253A
R1259	Same as R1253.	
R1260	RESISTOR, FIXED, COMPOSITION: 100 ohms, ±5%; 1/2 watt.	RC20GF101J
R1261	Same as R1253.	
R1262	RESISTOR, FIXED, COMPOSITION: 100 ohms, ±5%; 1 watt.	RC32GF101J
R1263	Same as R1253.	

DIRECTIONAL COUPLER, AX569

REF SYMBOL	DESCRIPTION	TMC PART NUMBER
R1264	Same as R1254.	
R1265	Same as R1254.	
R1266	RESISTOR, FIXED, COMPOSITION: 3,900 ohms, ±5%; 1/2 watt.	RC20GF392J
R1267	Same as R1266.	
T1250	TRANSFORMER, POWER	TF282
T1251	TRANSFORMER, AUTO	TF321

PARTS LIST

for

IPA DRAWER, VLLA-1

REF SYMBOL	DESCRIPTION	TMC PART NUMBER
B2000	NOT USED	
B2001	BLOWER: 220 volts, 0.1 amp, 50/60 cps (Hz); 3,150 RPM, single phase, 1/75 HP; 1 uf, 220 VAC capacitance; continuous duty operation.	BL124
C2000	NOT USED	
C2001	CAPACITOR, FIXED, PAPER DIELECTRIC: 4 uf, ±10%; 600 WVDC.	CP41B1FF405K
C2002	Same as C2001.	
C2003	Same as C2001.	
C2004	CAPACITOR, FIXED, ELECTROLYTIC: 80 uf. 450 WVDC; polarized.	CE51C800R
C2005	CAPACITOR, FIXED, PAPER DIELECTRIC: 10 uf, ±10%; 1,000 WVDC.	CP70B1FG106K
C2006	Same as C2005.	
C2007	Same as C2001.	
C2008	Same as C2004.	
C2009	Same as C2001.	
C2010	CAPACITOR, FIXED, MICA DIELECTRIC: 5,100 uuf, ±2%; 500 WVDC.	CM35F512G03
C2011	CAPACITOR, FIXED, MICA DIELECTRIC: 1,300 uuf, ±2%; 500 WVDC.	CM100-9
C2012	CAPACITOR, FIXED, MICA DIELECTRIC: 7,500 uuf, ±2%; 300 WVDC.	CM35F752G03
C2013	CAPACITOR, FIXED, MICA DIELECTRIC: 2,000 uuf, ±2%; 500 WVDC.	CM100-14
C2014	CAPACITOR, FIXED, MICA DIELECTRIC: 6,800 uuf, ±2%; 300 WVDC.	CM35F682G03
C2015	CAPACITOR, FIXED, PLASTIC DIELECTRIC: 0.47 uf, ±5%; 400 WVDC.	CN114R474J
C2016	CAPACITOR, FIXED, CERAMIC DIELECTRIC: 100,000 uuf, +80% -20%; 500 WVDC.	CC100-32

REF SYMBOL	DESCRIPTION	TMC PART NUMBER
C2017	Same as C2016.	
C2018	Same as C2016.	
C2019	CAPACITOR, FIXED, ELECTROLYTIC: 50 uf, +50% -15%; 60 WVDC.	CE107-1
C2020	Same as C2019.	
C2021 thru C2026	Same as C2016.	
C2027	NOT USED	
C2028	CAPACITOR, FIXED, GLASS DIELECTRIC: 0.1 uf, ±20%; 1,000 WVDC.	CX109-4
C2029 thru C2031	Same as C2028.	
C2032	CAPACITOR, FIXED, ELECTROLYTIC: 5 uf, -10% +150% at 120 cps at 25°C; 50 WVDC; polarized.	CE105-5-50
C2033	Same as C2032.	
C2034	Same as C2016.	
C2035	CAPACITOR, FIXED, ELECTROLYTIC: dual section; 35 uf each section; 450 WVDC.	CE52C350R
C2036	Same as C2032.	
C2037	Same as C2032.	
C2038	CAPACITOR, FIXED, PAPER DIELECTRIC: 1 uf, ±10%; 1,000 WVDC.	CP117-1
C2039	CAPACITOR, FIXED, MICA DIELECTRIC: 100 uuf, ±2%; 500 WVDC.	CM15F101G03
C2040	Same as C2039.	
CR2000	NOT USED	
CR2001	RECTIFIER, SEMICONDUCTOR DEVICE: silicon.	DD112-1

REF SYMBOL	DESCRIPTION	TMC PART NUMBER
CR2002 thru CR2004	Same as CR2001.	
CR2005	SEMICONDUCTOR DEVICE, DIODE: silicon.	1N67
CR2006 thru CR2008	Same as CR2005.	
DS2000	NOT USED	
DS2001	Non-replaceable item. Part of XF2001.	
DS2002	Non-replaceable item. Part of XF2002.	
DS2003	Non-replaceable item. Part of XF2003.	
DS2004	Non-replaceable item. Part of XF2004.	
DS2005	Non-replaceable item. Part of XF2005.	
E2000	TERMINAL BOARD, BARRIER: 8 terminals; 6-32 screws on one end, solder lugs on other end; phenolic black bakelite.	TM100-8
E2001	INSULATOR, FEED-THRU	NS137-1
E2002	Same as E2001.	
E2003	INSULATOR, FEED-THRU	NS112-1
E2004	Same as E2003.	
EV2000	NOT USED	
EV2001	SHIELD, ELECTRON TUBE: heat dissipating.	TS128-6
EV2002	Same as EV2001.	
EV2003 thru EV2006	NOT USED	
EV2007	SHIELD, ELECTRON TUBE: 7 pin miniature.	TS102U03
EV2008 thru EV2011	Same as EV2007.	

REF SYMBOL	DESCRIPTION	TMC PART NUMBER
F2000	NOT USED	
F2001	FUSE, CARTRIDGE: 1 amp; time lag; 1-1/4" long x 1/4" dia.; slo-blo.	FU102-1
F2002	FUSE, CARTRIDGE: 1-1/2 amp; time lag; 1-1/4" long x 1/4" dia.; slo-blo.	FU102-1.5
F2003	FUSE, CARTRIDGE: 1/16 amp; time lag; 1-1/4" long x 1/4" dia.; slo-blo.	FU102-.0625
F2004	FUSE, CARTRIDGE: 3/10 amp; time lag; 1-1/4" long x 1/4" dia.; slo-blo.	FU102-.300
F2005	FUSE, CARTRIDGE: 1/10 amp; time lag; 1-1/4" long x 1/4" dia.; slo-blo.	FU102-.100
J2000	CONNECTOR, RECEPTACLE, ELECTRICAL: RF type.	UG103*/U
J2001	CONNECTOR, RECEPTACLE, ELECTRICAL: 1 round female contact, straight type; series BNC to BNC.	JJ172
J2002	CONNECTOR, RECEPTACLE, ELECTRICAL: 35 male contacts.	MS3102A32-7P
K2000	NOT USED	
K2001	RELAY, ARMATURE: 4PDT; coil rated at 11,000 ohms, ±10%; contacts rated for 10 amps at 125 VAC resistive; operate- 0.010 amperes, non-operate- 0.009 amperes.	RL126
L2000	NOT USED	
L2001	CHOKE, FILTER: fixed; single coil; 50 hy at 50 ma; 700 ohms approx. DC resistance; 50 ma.	TF286
L2002	Same as L2001.	
L2003	CHOKE, FILTER: fixed; single coil; 9 hy at 280 ma; 85 ohms approx. DC resistance.	TF283
L2004 thru L2006	Same as L2003.	
L2007	Same as L2001.	
L2008	COIL, RADIO FREQUENCY: fixed; 15 uh, ±10%; 0.50 ohms max. DC resistance.	CL270-15

REF SYMBOL	DESCRIPTION	TMC PART NUMBER
L2009	Same as L2008.	
L2010	Same as L2008.	
L2011	COIL, RADIO FREQUENCY: fixed; 50 mh, ±5%; 110 ohms, ±20% resistancel current rating 75 ma max.	CL226-5
L2012	COIL, RADIO FREQUENCY: 10 mh; current rating 75-100 ma max.; 30 ohms, ±10% approx. resistance.	CL101-4
L2013	Same as L2012.	
L2014	Same as L2011.	
L2015 thru L2018	Same as L2012.	
M2000	NOT USED	
M2001	MULTI-METER, MILLIAMP, DC; 0-150 ma movement; 1 ohm approx. resistance; standard black case.	MR175
M2002	MULTI-METER, MICROAMP, DC; 0-50 microamp movement; 2,000 ohms approx. resistance; standard black case.	MR168
PS2000	NOT USED	
PS2001	SUPPRESSOR, PARASITIC	A4103
PS2002 thru PS2004	Same as PS2001.	
R2000	RESISTOR, FIXED, WIREWOUND: 200 ohms; current rating 355 ma; 25 watts.	RW111-11
R2001	RESISTOR, FIXED, WIREWOUND: 15,000 ohms; current rating 25.5 ma; 10 watts.	RW109-36
R2002	RESISTOR, FIXED, WIREWOUND: 3,000 ohms; current rating 58 ma; 10 watts.	RW109-30
R2003	RESISTOR, VARIABLE, COMPOSITION: 5,000 ohms, ±10%; 2 watts; linear taper A.	RV4LAYSA502A
R2004	Same as R2003.	

REF SYMBOL	DESCRIPTION	TMC PART NUMBER
R2005	RESISTOR, FIXED, COMPOSITION: 820 ohms, ±5%; 1/2 watt.	RC20GF821J
R2006	RESISTOR, FIXED, WIREWOUND: 30,000 ohms; current rating 18 ma; 10 watts.	RW109-39
R2007	Same as R2006.	
R2008	RESISTOR, FIXED, WIREWOUND: 100,000 ohms, ±5%; current rating 8.5 ma; 20 watts.	RW110-43
R2009	RESISTOR, FIXED, WIREWOUND: 100 ohms, ±5%; current rating 223 ma; 5 watts.	RW107-18
R2010	RESISTOR, FIXED, WIREWOUND: 4,000 ohms; current rating 50 ma; 10 watts.	RW109-31
R2011	RESISTOR, FIXED, COMPOSITION: 100 ohms, ±5%; 1/2 watt.	RC20GF101J
R2012	RESISTOR, FIXED, COMPOSITION: 68 ohms, ±5%; 2 watts.	RC42GF680J
R2013	RESISTOR, FIXED, COMPOSITION: 18 ohms, ±5%; 1 watt.	RC32GF180J
R2014	Same as R2011.	
R2015	Same as R2013.	
R2016	RESISTOR, FIXED, COMPOSITION: 10,000 ohms, ±5%; 1/2 watt.	RC20GF103J
R2017	Same as R2016.	
R2018	RESISTOR, FIXED, WIREWOUND: 250 ohms, ±5%; current rating 141 ma; 5 watts.	RW107-23
R2019	RESISTOR, FIXED, COMPOSITION: 1,200 ohms, ±5%; 1 watt.	RC32GF122J
R2020	Same as R2019.	
R2021	RESISTOR, FIXED, COMPOSITION: 22,000 ohms, ±5%; 1/2 watt.	RC20GF223J
R2022 thru R2024	Same as R2021.	

REF SYMBOL	DESCRIPTION	TMC PART NUMBER
R2025	RESISTOR, FIXED, WIREWOUND: precision; 0.80 ohms, ±10%; 1 watt. (Used on serial numbers 19471, 19472 and 19473)	RB100ER80K
R2025	RESISTOR, VARIABLE, COMPOSITION: 5 ohms at 200 ma, ±10%; 2 watts. (Used on serial numbers 19300, 19473 and 26657)	RA101ASN050A
R2026	RESISTOR, FIXED, COMPOSITION: 47 ohms, ±5%; 1 watt.	RC32GF470J
R2027	Same as R2026.	
R2028	RESISTOR, FIXED, COMPOSITION: 10 ohms, ±5%; 1/2 watt.	RC20GF100J
R2029	RESISTOR, FIXED, COMPOSITION: 18,000 ohms, ±5%; 1/2 watt.	RC20GF183J
R2030	RESISTOR, FIXED, COMPOSITION: 10 megohms, ±5%; 1/2 watt.	RC20GF106J
R2031	RESISTOR, FIXED, COMPOSITION: 470,000 ohms, ±5%; 1/2 watt.	RC20GF474J
R2032	RESISTOR, FIXED, COMPOSITION: 1 megohm, ±5%; 1/2 watt.	RC20GF105J
R2033	Same as R2032.	
R2034	RESISTOR, FIXED, COMPOSITION: 56,000 ohms, ±5%; 1/2 watt.	RC20GF563J
R2035	RESISTOR, FIXED, COMPOSITION: 5,600 ohms, ±5%; 1/2 watt.	RC20GF562J
R2036	RESISTOR, FIXED, COMPOSITION: 33,000 ohms, ±5%; 1/2 watt.	RC20GF333J
R2037	Same as R2034.	
R2038	Same as R2035.	
R2039	Same as R2036.	
R2040	RESISTOR, FIXED, COMPOSITION: 150,000 ohms, ±5%; 2 watts.	RC42GF154J
R2041	RESISTOR, FIXED, COMPOSITION: 2,700 ohms, ±5%; 1/2 watt.	RC20GF272J

REF SYMBOL	DESCRIPTION	TMC PART NUMBER
R2042	RESISTOR, FIXED, COMPOSITION: 220,000 ohms, ±5%; 1/2 watt.	RC20GF224J
R2043	Same as R2040.	
R2044	Same as R2041.	
R2045	Same as R2042.	
R2046	RESISTOR, FIXED, COMPOSITION: 22 megohms, ±5%; 1/2 watt.	RC20GF226J
R2047	Same as R2031.	
R2048	RESISTOR, FIXED, WIREWOUND: precision; 2 ohms, ±5%; 1 watt.	RB100E2R000J
R2049	RESISTOR, FIXED, COMPOSITION: 2,200 ohms, ±5%; 1/2 watt.	RC20GF222J
R2050	Same as R2030.	
R2051	Same as R2031.	
R2052	Non-replaceable item. Part of XF2001.	
R2053	Non-replaceable item. Part of XF2002.	
R2054	Non-replaceable item. Part of XF2003.	
R2055	Non-replaceable item. Part of XF2004.	
R2056	Non-replaceable item. Part of XF2005.	
S2000	NOT USED	
S2001	SWITCH, ROTARY: 2 section, 11 position, 30° angle of throw; 2 non-shorting type and 2 silver plated brass contacts; rated for 0.5 amp at 800 volts.	SW350
S2002	SWITCH, ROTARY: 1 section, 3 position, 30° angle of throw; 1 non-shorting type and 1 silver plated brass contacts; rated for 0.3 amp, 800 volts.	SW349
S2003	SWITCH, TOGGLE: DPDT; 28° angle of throw; bat type handle.	ST22N
S2004	SWITCH, MICRO: rated at 5 amps, 125/250 VAC.	SW252

REF SYMBOL	DESCRIPTION	TMC PART NUMBER
T2000	NOT USED	
T2001	TRANSFORMER, POWER: primary input 190, 208, 230, 250 volts at 50/60 cps; secondary- (A) 300 VDC at 100 ma, (B) 5 VAC at 2 amps, (C) 5 VAC at 2 amps, (D) 500 VDC at 50 ma, (E) 12.6 VAC at 2.5 amps, (F) 6.3 VAC at 2 amps.	TF284
T2002	TRANSFORMER, POWER: primary input 190, 208, 230, 250 volts at 50/60 cps; secondary 950 volts, CT at 280 ma DC.	TF285
T2003	TRANSFORMER	TF320
T2004	TRANSFORMER	TF319
T2005	TRANSFORMER	TF318
V2000	NOT USED	
V2001	TUBE, ELECTRON: power pentode; 9 pin miniature.	6GK6
V2002	Same as V2001.	
V2003	TUBE, ELECTRON: 11 pin tetrode.	8121
V2004	Same as V2003.	
V2005	TUBE, ELECTRON: duo-diode; octal.	5R4
V2006	Same as V2005.	
V2007	TUBE, ELECTRON: voltage regulator; 7 pin miniature.	0A2
V2008	Same as V2007.	
V2009	TUBE, ELECTRON: voltage regulator; 7 pin miniature.	0B2
V2010	Same as V2009.	
V2011	Same as V2007.	
XC2000 thru XC2003	NOT USED	
XC2004	SOCKET, ELECTRON TUBE: octal, high crown.	TS101P01

REF SYMBOL	DESCRIPTION	TMC PART NUMBER
XC2005 thru XC2007	NOT USED	
XC2008	Same as XC2004.	
XC2009 thru XC2034	NOT USED	
XC2035	Same as XC2004.	
XF2000	NOT USED	
XF2001	FUSEHOLDER: lamp indicating; accommodates cartridge fuse 1-1/4" long x 1/4" dia.; 90 to 250 V, 20 amps; neon lamp type with 220K ohm lamp resistor; transparent clear flat sided knob; black body; consists of DS2001, R2052.	FH104-3
XF2002	Same as XF2001. Consists of DS2002, R2053.	
XF2003	Same as XF2001. Consists of DS2003, R2054.	
XF2004	Same as XF2001. Consists of DS2004, R2055.	
XF2005	Same as XF2001. Consists of DS2005, R2056.	
XV2000	NOT USED	
XV2001	SOCKET, ELECTRON TUBE: 9 pin miniature.	TS103P01
XV2002	Same as XV2001.	
XV2003	SOCKET, ELECTRON TUBE: bottom mounting, 11 pin.	TS170-2
XV2004	Same as XV2003.	
XV2005	Same as XC2004.	
XV2006	Same as XC2004.	
XV2007	SOCKET, ELECTRON TUBE: 7 pin miniature.	TS102P01
XV2008 thru XV2011	Same as XV2007.	

PARTS LIST
for
AUXILIARY FRAME ASSEMBLY, AX534

REF SYMBOL	DESCRIPTION	TMC PART NUMBER
B3000	NOT USED	
B3001	FAN, AXIAL: (CCW); single phase; 115/230 V, 50/60 cps: capacitance 4 uf: nominal RPM 3,400; insulation class B; 100 watts full load.	BL105
C3000 thru C3009	NOT USED	
C3010 thru C3016	Part of Auxiliary Meter Box, AM125.	
C3017	CAPACITOR, FIXED, PAPER DIELECTRIC: 4 uf, ±10%; 600 WVDC.	CP41B1FF405K
C3018	Same as C3017.	
C3019 thru C3024	NOT USED	
C3025	CAPACITOR, FIXED, MICA DIELECTRIC: 1,000 uuf, ±2%; 500 WVDC.	CM20F102G03
C3026	NOT USED	
C3027 thru C3038	Same as C3025.	
CB3000	CIRCUIT BREAKER: 110/230 VAC, 10 amps, double pole.	SW251-2
CR3000	SEMICONDUCTOR DEVICE, DIODE	1N547
DS3000	BUZZER: 230 VAC: 5-1/2" mounting centers.	BZ100
DS3001	Non-replaceable item. Part of XF3000.	
E3000	TERMINAL BOARD, BARRIER: fourteen 6-32 thd. x 1/4" long binding head machine screws; plastic body.	TM100-14
E3001	TERMINAL BOARD, BARRIER: eight 6-32 thd. x 1/4" long binding head machine screws; plastic body.	TM100-8
E3002	Same as E3000.	

AUXILIARY FRAME ASSEMBLY, AX534

REF SYMBOL	DESCRIPTION	TMC PART NUMBER
E3003	TERMINAL BOARD, BARRIER: four 6-32 thd. x 1/4" long binder head machine screws; plastic body.	TM102-4
E3004	CONTACT SET, ELECTRICAL: relay; for K3000, TMC part number RL130; consisting of 3 moveable contacts, 3 line contacts, 3 load contacts.	AX176
E3005 thru E3009	Same as E3004.	
F3000	FUSE, CARTRIDGE: 1/2 amp; time lag; 1-1/4" long x 1/4" dia.; slo-blo.	FU102-.5
I3000	LAMP, INCANDESCENT: clear; 230/250 V, 40 watts; standard screw base; 4" x 1-7/8" o/a.	BI106-1
J1200	Part of Power Amplifier Section, AX531.	
J1201	Part of Power Amplifier Section, AX531.	
J1202	CONNECTOR, RECEPTACLE, ELECTRICAL: 4 female contacts.	MS3102A14S2S
J3000	Same as J1202.	
J3001	CONNECTOR, RECEPTACLE, ELECTRICAL: 1 round female contact, straight type; series BNC to BNC.	JJ172
J3002 thru J3004	Same as J3001.	
J3005	NOT USED	
J3006	Same as J1202.	
J3007	CONNECTOR, RECEPTACLE, ELECTRICAL: female; twist lock.	JJ170
J3008 thru J3014	Same as J3007.	
J3015	CONNECTOR, RECEPTACLE, ELECTRICAL: 1 female contact; 52 ohms; series BNC.	UG625*/U
J3016	Same as J3015.	

REF SYMBOL	DESCRIPTION	TMC PART NUMBER
J3017	Same as J3001.	
K3000	CONTACTOR, RELAY: magnetic; 110 V at 25 cps or 220 V at 60 cps; silver contacts; auxiliary switch mounted on left and right side of panel, left side normally open, right side normally closed; contacts rated for 1.5 amps at 220 VAC or 3 amps at 110 VAC.	RL130-3
K3001	CONTACTOR, RELAY: magnetic; 110 V at 25 cps or 220 V at 60 cps; silver contacts; auxiliary switch mounted on left side of panel, normally open; contacts rated for 1.5 amps at 220 VAC or 3 amps at 110 VAC.	RL130-5
M3000 thru M3002	Part of Auxiliary Meter Box, AM125.	
M3003	TIME DELAY: 20 seconds; quick make, quick break; 250 V, 5 amps non-inductive; switches.	TI100
MP3000	FILTER, AIR CONDITIONING: single pad; 16" long x 16" wide x 1/2" thk.	AD103-4
MP3001	FILTER, AIR CONDITIONING: single pad; 11-3/8" long x 10-1/8" wide x 1/2" thk.	AD103-2
MP3002	Same as MP3001.	
MP3003	RETRACTOR, CABLE: stainless steel spring.	SP137-1
MP3004	Same as MP3003.	
MP3005	Same as MP3003.	
P3000	CONNECTOR, PLUG, ELECTRICAL: male.	MS3106B20-29P
P3001	CONNECTOR, PLUG, ELECTRICAL: 1 male contact; voltage rating 500 V peak; polarized; series BNC.	PL244-1
P3002	Same as P3001.	
P3003	Same as P3001.	
P3004	CONNECTOR, PLUG, ELECTRICAL: male.	MS3106A14S-2P
P3005 thru P3007	Same as P3001.	

AUXILIARY FRAME ASSEMBLY, AX534

REF SYMBOL	DESCRIPTION	TMC PART NUMBER
P3008	Same as P3004.	
P3009 thru P3037	Same as P3001.	
P3038	CONNECTOR, PLUG, ELECTRICAL: male. Part of W3002.	MS3106B20-27P
P3039	CONNECTOR, PLUG, ELECTRICAL: 16 female contacts, angle type silver plated brass. Part of W3002.	PL186
P3040	Same as P3039. Part of W3003.	
P3041	CONNECTOR, PLUG, ELECTRICAL: 16 female contacts, angle type silver plated brass. Part of W3003.	PL187
P3042	Same as P3039. Part of W3004.	
P3043	Same as P3041. Part of W3004.	
P3044	Same as P3039. Part of W3005.	
P3045	Same as P3041. Part of W3005.	
P3046	Same as P3001. Part of W3001.	
P3047	Same as P3001. Part of W3001.	
P3048	Same as P3001. Part of W3000.	
P3049	Same as P3001. Part of W3000.	
P3050 thru P3053.	Same as P3001. Part of W3001.	
P3054	NOT USED	
P3055	NOT USED	
P3056	Same as P3001.	
P3057	Same as P3001.	
P3058	CONNECTOR, PLUG, ELECTRICAL: female	MS3106A14S2S
R3000	HEATING ELEMENT, ELECTRICAL: finstrip; 46 ohms; 230 V, 1,250 watts.	RR127-1
R3001	Same as R3000.	
R3002	Same as R3000.	

REF SYMBOL	DESCRIPTION	TMC PART NUMBER
R3003	Part of Auxiliary Meter Box, AM125.	
R3004	NOT USED	
R3005	RESISTOR, FIXED, COMPOSITION: 33 ohms, ±5%; 2 watts.	RC42GF330J
R3006	Same as R3005.	
R3007	RESISTOR, FIXED, COMPOSITION: 47 ohms, ±5%; 2 watts.	RC42GF470J
R3008	Non-replaceable item. Part of XF3000.	
T3000	NOT USED	
T3001	Part of Auxiliary Meter Box, AM125.	
T3002	TRANSFORMER, AUDIO FREQUENCY: input 95-250 volts; output 115 volts; 50/60 cps; rectangular steel case.	TF275
W3000	WIRING HARNESS, BRANCHED, ELECTRICAL	CA1001
W3001	CABLE ASSEMBLY, SPECIAL PURPOSE, BRANCHED, ELECTRICAL	CA1000
W3002	CABLE ASSEMBLY, ELECTRICAL: power; consists of 13 conductors, 6 foot length and 2 connectors P3038, P3039.	CA576-6-0
W3003	CABLE ASSEMBLY, ELECTRICAL: power; consists of 16 conductors 8 feet 5 inches long, and 2 connectors P3040, P3041.	CA551-5
W3004	CABLE ASSEMBLY, ELECTRICAL: power; consists of 16 conductors 9 feet 5 inches long, and 2 connectors P3042, P3043.	CA551-6
W3005	CABLE ASSEMBLY, ELECTRICAL: power; consists of 16 conductors 9 feet 5 inches long, and 2 connectors P3044, P3045.	CA551-7
W3006	WIRING HARNESS, BRANCHED, ELECTRICAL	CA999
W3007	Part of Auxiliary Meter Box, AM125.	
W3008	CABLE ASSEMBLY, ELECTRICAL: power; consists of 60" of insulated wire, rubber covered.	CA452

REF SYMBOL	DESCRIPTION	TMC PART NUMBER
W3009	CABLE ASSEMBLY, ELECTRICAL: power; consists of various types of HWC wire and insulated terminal lugs.	CA680
W3010	CABLE ASSEMBLY, ELECTRICAL: power; consists of MIL HWC wire, rubber covered.	CA683
XF3000	FUSEHOLDER: lamp indicating; accomodates cartridge fuse 1-1/4" long x 1/4" dia.; 90 to 250 V, 20 amps; neon lamp type with a 220K ohm lamp resistor; transparent clear flat sided knob; black body; consists of DS3001, R3008.	FH104-3
XI3000	LIGHT, INDICATOR: with red lens; 230 volts, 50/60 cps; for use with lamp, TMC part number BI106-1.	TS138

PARTS LIST

for

AUXILIARY METER BOX, AM125

REF SYMBOL	DESCRIPTION	TMC PART NUMBER
C3000 thru C3009	NOT USED	
C3010	CAPACITOR, FIXED, CERAMIC DIELECTRIC: 1,000 uuf, ±20%; 500 WVDC.	CK70AW102M
C3011 thru C3016	Same as C3010.	
I3000	Part of Auxiliary Frame Assembly, AX534.	
I3001	LAMP, FLUORESCENT: standard cool white.	BI107
M3000	VOLTMETER: DC; 0-1 ma movement; 46 ohms approx. resistance; standard 4-1/2" rectangular case.	MR173
M3001	VOLTMETER: AC; 0-300 volt movement; spade type pointer; panel mounting.	MR118
M3002	VOLTMETER: PA; plate; 0-10 Kv scale; 1 ma DC movement; 4-1/4" square case.	MR121
R3000 thru R3002	Part of Auxiliary Frame Assembly, AX534.	
R3003	RESISTOR, FIXED, WIREWOUND: 600 ohms, 25 watts.	RW102
S3000	STARTER, FLUORESCENT LAMP: 8 watts.	PO170
T3000	NOT USED	
T3001	BALLAST, FLUORESCENT LAMP: 8 watts, 118 volts, 0.17 amps at 60 cps.	PO169
W3000 thru W3006	Part of Auxiliary Frame Assembly, AX534.	
W3007	CABLE ASSEMBLY, POWER, ELECTRICAL	CA433
XI3000	Part of Auxiliary Frame Assembly, AX534.	
XI3001A	SOCKET, FLUORESCENT LAMP: 25 watts, 250 volts.	TS141
XI3001B	Same as XI3001A.	
XS3000	SOCKET, STARTER, FLUORESCENT: 250 V, 660 watts.	TS140

SECTION 6

SCHEMATIC DIAGRAMS

S2003 TEST SWITCH	
POS	FUNCTION
1	NORMAL
2	TEST

S2002 PLATE, MA			
POS	FUNCTION		FULL SCALE
1	Ip V_3	A	150 MA
2	Ip V_3 + V_4	PLATES	300 MA
3	Ip V_4	B	150 MA

S1201 LOAD COARSE ADJ		
POS	COUNTER READING	RESISTANCE (Ω)
1	10	25
2	20	35
3	30	50
4	40	70
5	50	100
6	60	120

S1202 LOAD FINE ADJ		
POS	COUNTER READING	RESISTANCE (Ω)
1	10	43
2	20	50

S1018	
POS	FUNCTION
1	POWER
2	CALIBRATE
3	SWR

NOTE:
1. FOR 115V OPERATION, PLACE JUMPERS BETWEEN PINS 1 AND 2 AND 3 AND 4 ONLY SHOWN BY DOTTED ---- LINE. FOR 230V OPERATION, PLACE JUMPER BETWEEN PINS 2 AND 3 ONLY SHOWN BY SOLID *** LINE
2. ALL READINGS TAKEN WITH SIMPSON MODEL 260A
3. VOLTAGE READINGS TAKEN WITH ALL PLUGS EXCEPT DRIVE CONNECTED
4. RESISTANCE READINGS ALL TO GROUND (CHASSIS) ALL ARE TAKEN WITH UNIT COMPLETELY DISCONNECTED AT REAR
5. WHERE 0 VOLTS AND 0 OHMS ARE OBVIOUS, SUCH AS GROUNDED CATHODE, NO READINGS ARE INDICATED.

Figure 6-1. Schematic Diagram, GPT-10KLF (sheet 1 of 3)

RF AMPLIFIER VLLA-1

POS	FUNCTION	FULL SCALE
S2003A,B MULTIMETER		
1	V1+V2 PLATE CURRENT	100 MA
2	V1+V2 PLATE VOLTAGE	500V
3	V3 BIAS	-50V
4	V4 BIAS	-50V
5	V3+V4 SCREEN VOLTAGE	500V
6	V3+V4 SCREEN CURRENT	100MA
7	V3+V4 PLATE VOLTAGE	1000V
8	IPA GRID 1 ST RF	50V PK
9	IPA GRID 2 ND RF	50V PK
10	PA GRID 1 ST RF	500V PK
11	PA GRID 2 ND RF	500V PK

POS	TEST
S2003 TEST S	
1	NORMAL
2	FUNC

POS	
S20	
	FUN
1	Ip V3
2	Ip V3 + V4
3	Ip V4