

Rockwell
International

Collins instruction book

Collins Government Telecommunications Group

30S-1 RF Linear Amplifier



**Rockwell
International**

Collins instruction book

**30S-1
RF Linear Amplifier**

**Collins Government
Telecommunications Group
Rockwell International
Cedar Rapids, Iowa 52406**

We welcome your comments concerning this instruction book. Although every effort has been made to keep it free of errors, some may occur. When reporting a specific problem, please describe it briefly and include the instruction book part number, the paragraph or figure number, and the page number.

Send your comments to: Publications Department
Collins Government
Telecommunications Group
Rockwell International
Cedar Rapids, Iowa 52406

table of contents

| | <i>Page</i> |
|---|-------------|
| Section 1 Installation | 1-1 |
| 1.1 Unpacking..... | 1-1 |
| 1.2 Mounting, Cabling, and Adjustments..... | 1-2 |
| 1.2.1 Mounting and Cabling..... | 1-2 |
| 1.2.2 Adjustment..... | 1-10 |
| Section 2 Operation | 2-1 |
| 2.1 Operation in SSB or CW Service..... | 2-1 |
| Section 3 Principles of Operation | 3-1 |
| 3.1 General..... | 3-1 |
| 3.2 Block Diagram..... | 3-1 |
| 3.3 Input Circuits..... | 3-1 |
| 3.4 Output Circuits..... | 3-1 |
| 3.5 Power Supply Circuits..... | 3-1 |
| 3.6 Protective Circuits..... | 3-4 |
| 3.6.1 Safety Interlock Circuits..... | 3-4 |
| 3.6.2 Time Delay and Step-Start Circuits..... | 3-4 |
| 3.6.3 Thermal and Overload Circuits..... | 3-4 |
| 3.6.4 Power Control Circuits..... | 3-5 |
| 3.7 ALC and RF Negative Feedback Circuits..... | 3-5 |
| 3.8 Tuning and Loading Meter Circuit..... | 3-5 |
| 3.9 Description of Controls and Indicators..... | 3-5 |
| Section 4 Service Instructions | 4-1 |
| 4.1 General..... | 4-1 |
| 4.2 Blower Lubrication..... | 4-1 |
| 4.3 Alignment of RF Input Circuits..... | 4-1 |
| 4.3.1 Amateur Bands..... | 4-1 |
| 4.3.2 General Coverage..... | 4-2 |
| 4.4 Bias and Filament Voltage Adjustment..... | 4-2 |
| 4.5 Loading Indicator Adjustment..... | 4-2 |
| 4.6 Power Output Check..... | 4-3 |
| 4.7 Dial Cord Replacement..... | 4-3 |
| 4.8 PA Tube Replacement..... | 4-3 |
| 4.9 Pilot Lamp Replacement..... | 4-5 |
| Section 5 Specifications | 5-1 |
| 5.1 Specifications..... | 5-1 |

table of contents (cont)

| | <i>Page</i> |
|---|-------------|
| Section 6 Parts List | 6-1 |
| 6.1 Introduction..... | 6-1 |
| 6.1.1 General..... | 6-1 |
| 6.1.2 Group Assembly Parts List..... | 6-1 |
| 6.1.3 Numerical Index..... | 6-1 |
| 6.1.4 Reference Designation Index..... | 6-1 |
| 6.1.5 How to Use This Parts List..... | 6-1 |
| 6.1.6 Manufacturer's Code, Name, and Address..... | 6-2 |
| 6.1.7 Configuration Identifiers..... | 6-4 |
| 6.2 Group Assembly Parts List..... | 6-6 |
| 6.3 Numerical Index..... | 6-28 |
| 6.4 Reference Designation Index..... | 6-32 |
| Section 7 Illustrations | 7-1 |

list of illustrations

| <i>Figure</i> | <i>Page</i> |
|---|-------------|
| 1-1 30S-1 Plate Transformer Configuration and Terminal Strip Locations..... | 1-3 |
| 1-2 Station Interconnections With 32S() and 75S()..... | 1-4 |
| 1-3 Station Interconnections With KWM-2..... | 1-5 |
| 1-4 Station Interconnections With KWM-1..... | 1-7 |
| 1-5 Power Supply Compartment, Parts Location and Wiring..... | 1-9 |
| 1-6 Heater and Bias Adjustment Locations..... | 1-10 |
| 1-7 30S-1 RF Linear Amplifier, Operating Controls..... | 1-10 |
| 3-1 30S-1 Block Diagram..... | 3-2 |
| 3-2 Connections for 2-Wire, 230-Volt Operations..... | 3-3 |
| 3-3 Control and Interlock Circuits, Simplified Schematic Diagram..... | 3-3 |
| 4-1 Input Tuned Circuit Adjustment Locations..... | 4-1 |
| 4-2 2-Tone Test Setup..... | 4-2 |
| 4-3 30S-1, Front Panel Lowered and Subpanel Exposed..... | 4-4 |
| 4-4 Dial Cord Replacement Diagram..... | 4-5 |
| 7-1 30S-1 RF Linear Amplifier, Schematic Diagram..... | 7-5 |

list of tables

| <i>Table</i> | | <i>Page</i> |
|--------------|--|-------------|
| 1-1 | Equipment Furnished With 30S-1..... | 1-1 |
| 2-1 | Multimeter Scale Values..... | 2-2 |
| 4-1 | Frequency Coverage Allowable by Realignment..... | 4-2 |

SERVICE BULLETIN LIST

| SERVICE BULLETIN NO | SUBJECT | MANUAL REVISION NUMBER | MANUAL REVISION DATE |
|---------------------|--|------------------------|----------------------|
| 1 | To increase operating life of pa tube | 11th Ed | 15 Jun 73 |
| 2 | Prevent intermittent dropout of plate overload relay | 11th Ed | 15 Jun 73 |
| 3 | Reduce excessive ALC control | 11th Ed | 15 Jun 73 |

section 1

installation

1.1 UNPACKING

Carefully remove the amplifier and associated items (table 1-1) from the packing material. Examine for visible damage. If the amplifier

has been damaged in shipment, save box and packing material, and notify the transportation company. Fill out and mail the equipment registration card.

Table 1-1. Equipment Furnished With 30S-1.

| QUANTITY | DESCRIPTION | FUNCTION | COLLINS PART NUMBER |
|----------|--|------------------------------------|---------------------|
| 1 | Ac power cable, four #12 wires, 10 feet long, with lugs on one end. | Ac power | 609-0682-001 |
| 2 | Shielded cables, 10 feet long, with phono plug (part number 361-0062-00) on each end. | ALC and antenna relay cables | 426-2029-000 |
| 1 | RG-58/U cable, 20.5 feet long, with phono plug (part number 361-0062-00) on each end. | Rf input cable | 426-5079-000 |
| 1 | RG-213/U cable, 10 feet long, with type N connector (part number 357-9261-00) on each end. | Rf output cable | 545-3122-000 |
| 1 | Instruction book. | Instructions | 520-5879000 |
| 1 | Polyethylene spiral wrapping, 6 feet long. | Lacing the inter-connecting cables | 152-3375-000 |
| 2 | Cable marker card. | Cable callout | 280-2946-000 |
| 2 | Fuses, 1-ampere. | Spare | 264-4280-000 |
| 2 | Fuses, 3.2-ampere. | Spare | 264-0216-000 |
| 2 | Fuses, 8-ampere. | Spare | 264-0395-000 |
| 4 | Fuses, 15-ampere. | Spare | 264-0912-340 |
| 1 | Key sch screw #8. | Knob removal | 024-0019-000 |
| 1 | Key sch screw #6 (4-spline). | Tool | 024-9730-000 |
| 1 | Key sch screw #6 (6-spline). | Tool | 024-0167-000 |
| 1 | Bag containing hardware. | Mounting 516F-2 Power Supply | |
| 1 | Bag containing hardware. | Mounting power transformer | |

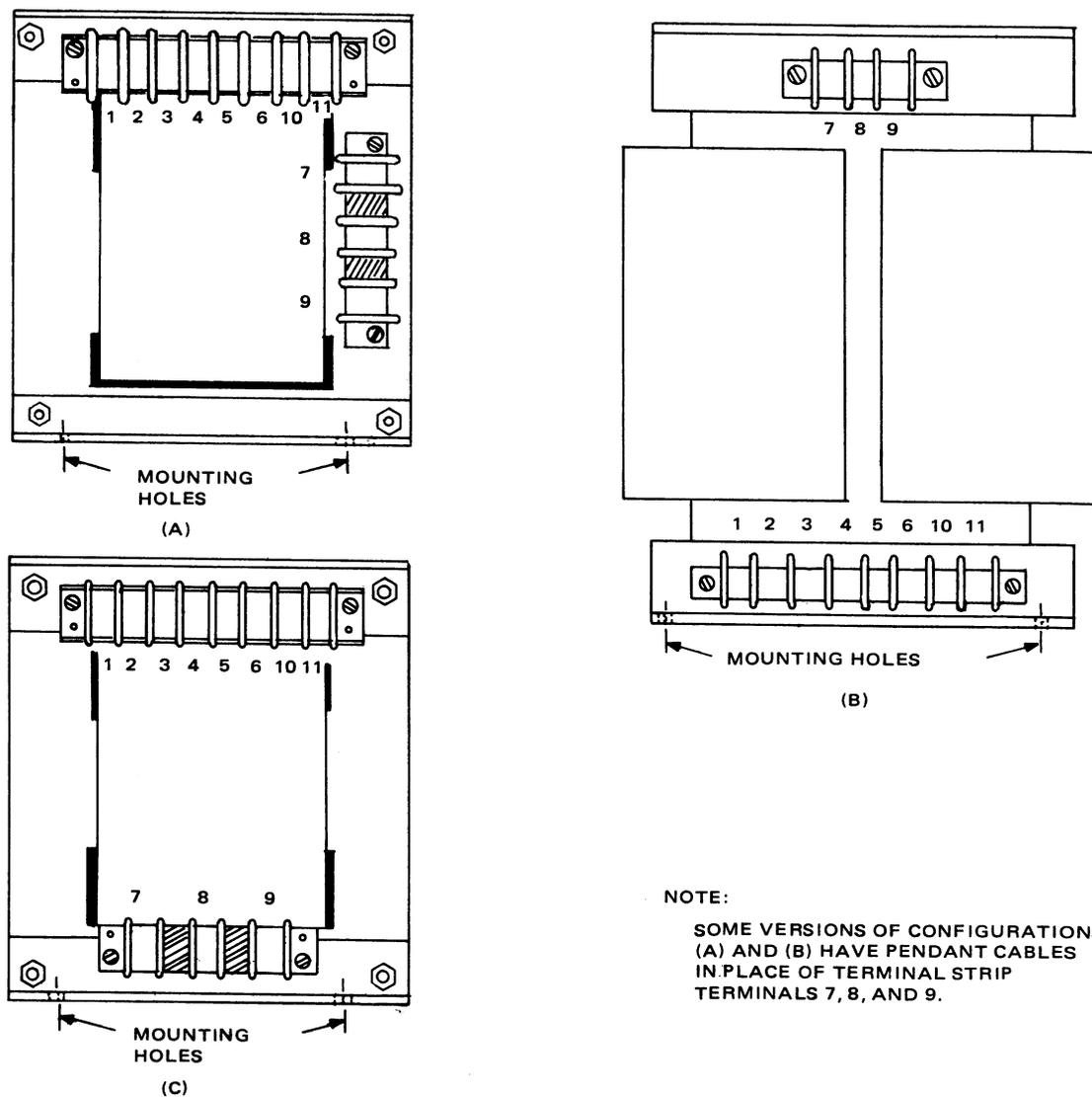
1.2 MOUNTING, CABLING, AND ADJUSTMENTS

Warning

Do not block interlock switches. Lethal voltages are present in this equipment. The high voltage is interlocked with the amplifier covers. Make no attempt to put the amplifier into service until all compartment covers are in place. Disconnect primary power before attempting any repairs.

1.2.1 Mounting and Cabling

- a. Set the 30S-1 on the floor beside the operating desk.
 - b. Unlock the power supply compartment door with the key furnished, pull out the door, and remove it. The key is packed in a small cloth bag that is tied to one of the knobs on the front panel. Uncrate the high-voltage transformer from its separate shipping container.
 - c. Loosen the exciter power supply shelf, shown in figure 1-5, and tip it back out of the way. This shelf provides space for mounting the exciter power supply inside the 30S-1 power compartment, if desired. The shelf may be loosened by removing three flathead machine screws along the left side and two sheet-metal screws along the back edge. The screwheads on the left side are on the inside of the cabinet, and the screwheads along the rear are on the outside of the cabinet.
 - d. Mount the high-voltage power supply transformer over the mounting holes in the bottom plate of the compartment. Be sure to position the transformer with terminals 1, 2, 3, 4, 5, 6, 10, and 11 positioned as shown in figure 1-1. Secure the transformer to the cabinet floor with the four screws supplied.
- Note**
- In order to insert the rear screws in the mounting holes, it may be necessary to use beeswax or some other type of adhesive on the screwdriver head.
- e. Connect the lead from the ceramic post insulator to the center tap (terminal 8) of the transformer (figure 1-1). This insulator is shown in figure 1-5 in front of the 3B28 filament transformer, T202.
 - f. Connect the two leads from the lower terminals of the two surge suppressing resistors, R222 and R223, to terminals 7 and 9 of the transformer (figure 1-1). These resistors are mounted behind the rectifier tube sockets.
 - g. Connect the wires of the cable to the terminal strip across the top edge of the transformer frame according to the wire code information of figure 1-5.
 - h. Replace the exciter power supply shelf. Secure the front edge of the shelf to the back edge of the transformer with spacer and screw provided. Replace the two sheet-metal screws along the rear, and replace the three flathead machine screws along the left side.
 - i. If the exciter power supply is preferred on the operating desk, disregard note 2 of figure 1-2 and note 1 of figures 1-3 and 1-4.
 - j. If the exciter power supply is preferred in the lower compartment of the 30S-1, remove the 516F-2 from its case before mounting on the shelf in the 30S-1. Plug the 32S-() (or KWM-2) into the 516F-2. Plug the 516F-2 into J204. This jack is located inside the 30S-1 on the flange of the power supply shelf. See figure 1-5.
 - k. Secure the 516F-2 chassis with the sheet-metal screws provided. Insert two of the screws from the outside rear of the cabinet, and two from the front of the shelf inside the cabinet.
 - l. Connect the 30S-1 power supply input terminals to the ac line according to the information given in figures 1-2 through 1-4, and figure 7-1. Run the ac power supply leads through the entry conduit from the rear of the cabinet. Connect the white wire to the neutral. The ac input terminals are shown in figure 1-5.
 - m. Install the rectifier tubes. Install plate caps on the rectifier tubes. Make sure the plug-in time-delay relay is installed on the shelf in the power supply. The delay relay looks like an octal-base tube. Refer to figure 6-6. Open the top cover of the rf compartment. Check that thermal relay K102 is properly positioned as shown in figure 6-2. Check the entire rf compartment to see that no short circuits exist.
 - n. Connect a 32S-(), KWM-2, or KWM-1 exciter as shown in figures 1-2, 1-3, or 1-4. A length

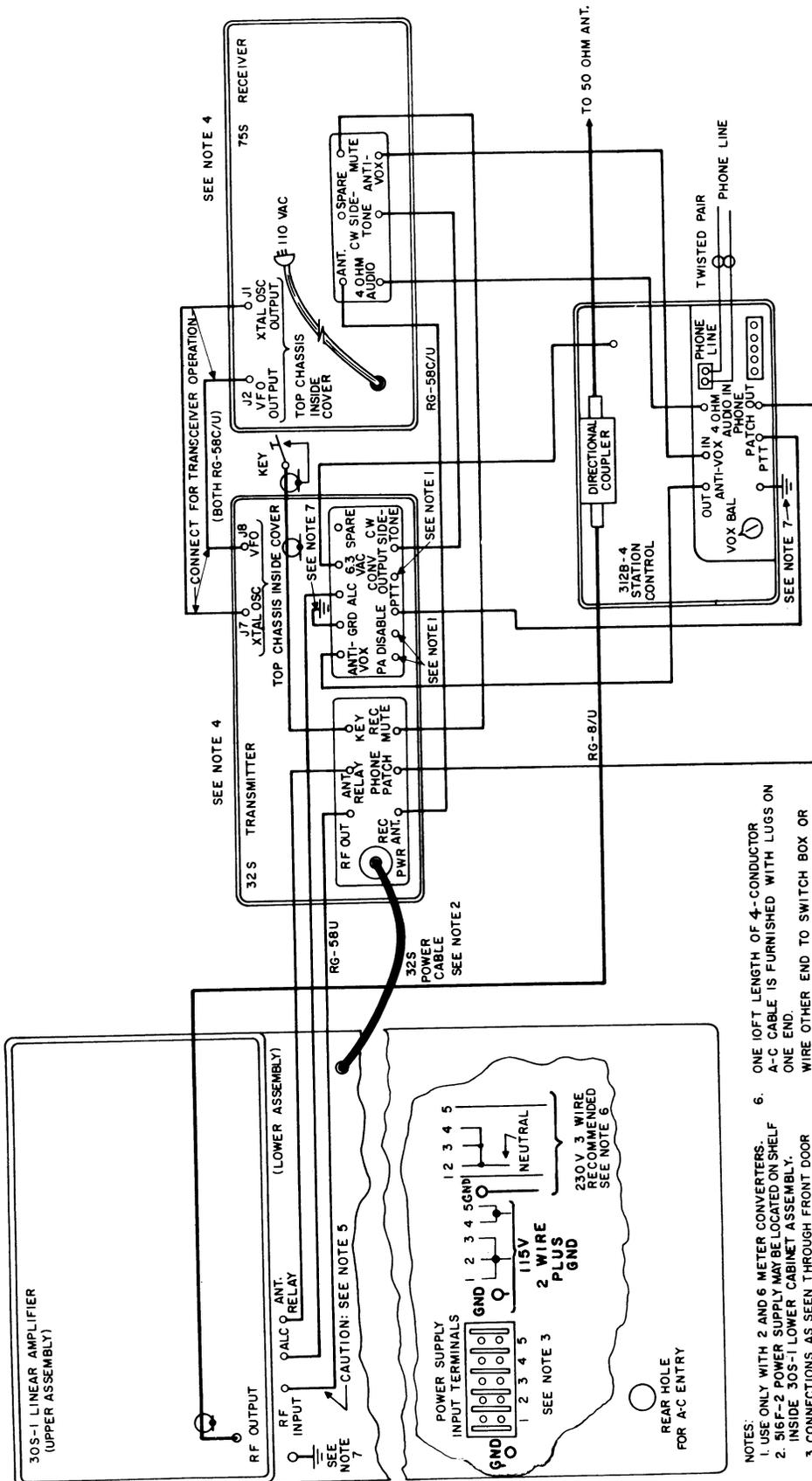


TP3-5300-012

30S-1 Plate Transformer Configuration and Terminal Strip Locations
Figure 1-1

- of polyethylene spiral wrapping is included with the 30S-1 for making a neat bundle of interconnecting wires behind the operating desk.
- o. If KWM-1 models above serial number 861 are used with the 30S-1, it will be necessary to bring out ALC and "ground-on-transmit" connections to P1, terminals 19 and 20. This will allow the switching circuits of the KWM-1 to control the antenna changeover relays of the 30S-1 when connected to J203 on the 30S-1. Make these breakout connections to P1, using shielded wire and connect

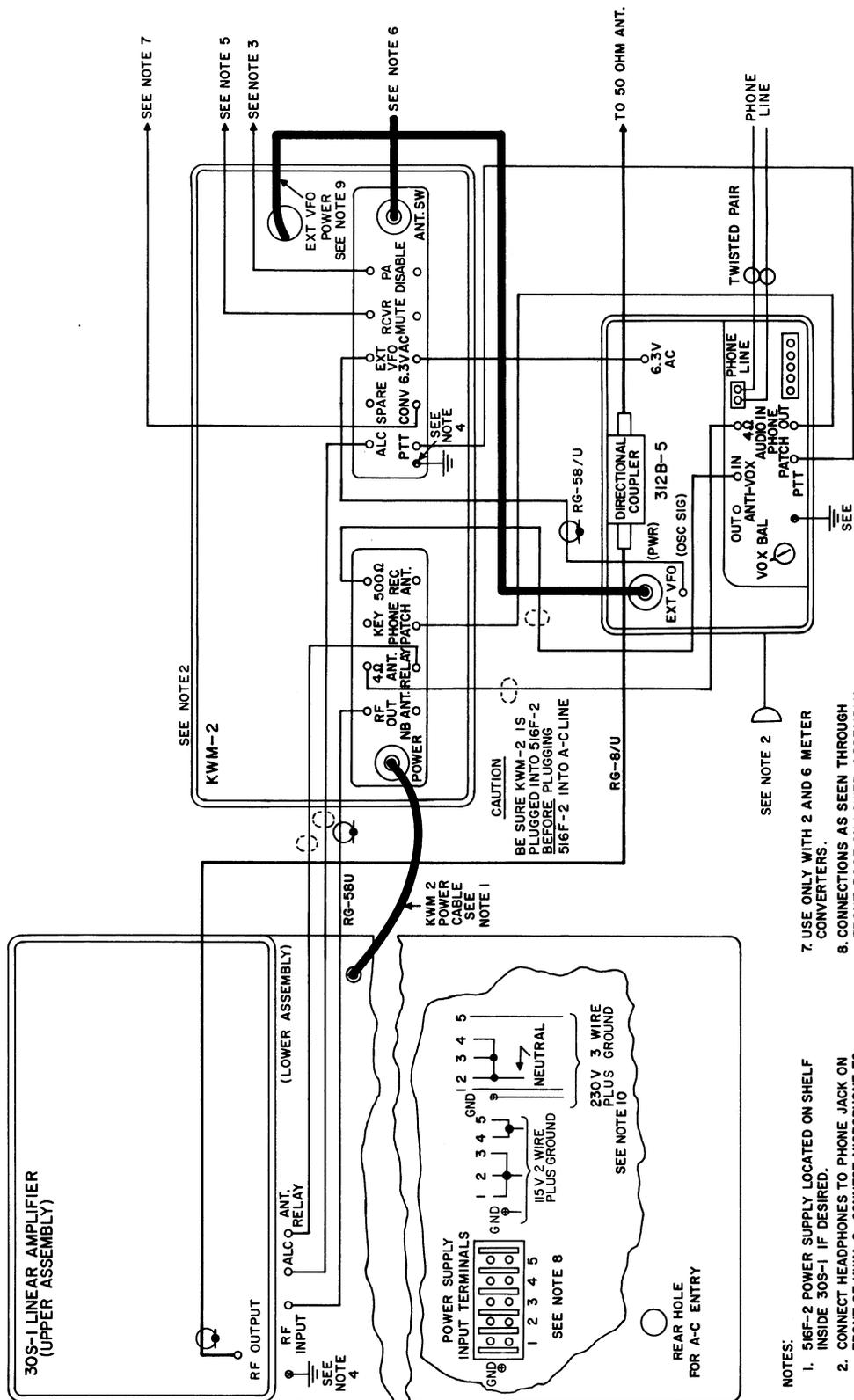
- to 30S-1 ALC and ANT. RELAY jacks with phono plugs.
- p. If KWM-1 models below serial number 861 are used with the 30S-1, it is necessary to make connections inside the KWM-1 for ALC. Use an ohmmeter to locate the feedthrough capacitor, C169, which is connected to pin 19 of J5. Connect a wire from this feedthrough capacitor to pin 7 of tube socket XV10. In addition, it will be necessary to connect an external dropping resistor and relay as shown in the detail of figure 1-4, for KWM-1 control



- NOTES:
1. USE ONLY WITH 2 AND 6 METER CONVERTERS.
 2. 56F-2 POWER SUPPLY MAY BE LOCATED ON SHELF INSIDE 30S-1 LOWER CABINET ASSEMBLY.
 3. CONNECTIONS AS SEEN THROUGH FRONT DOOR ON LOWER ASSEMBLY.
 4. CONNECT HEADPHONES TO PHONES JACK, FRONT OF 75S. CONNECT MICROPHONE TO MICROPHONE JACK, FRONT OF 312B-1.
 5. THIS COAXIAL CABLE IS FURNISHED IN 20.5 FT. LENGTH, DO NOT SHORTEN OR SUBSTITUTE ANY OTHER LENGTH.
 6. ONE 10FT LENGTH OF 4-CONDUCTOR A-C CABLE IS FURNISHED WITH LUGS ON ONE END. WIRE OTHER END TO SWITCH BOX OR CONNECTOR AS DESIRED.
 7. CONNECT TO EARTH GROUND.

TP-5297-019

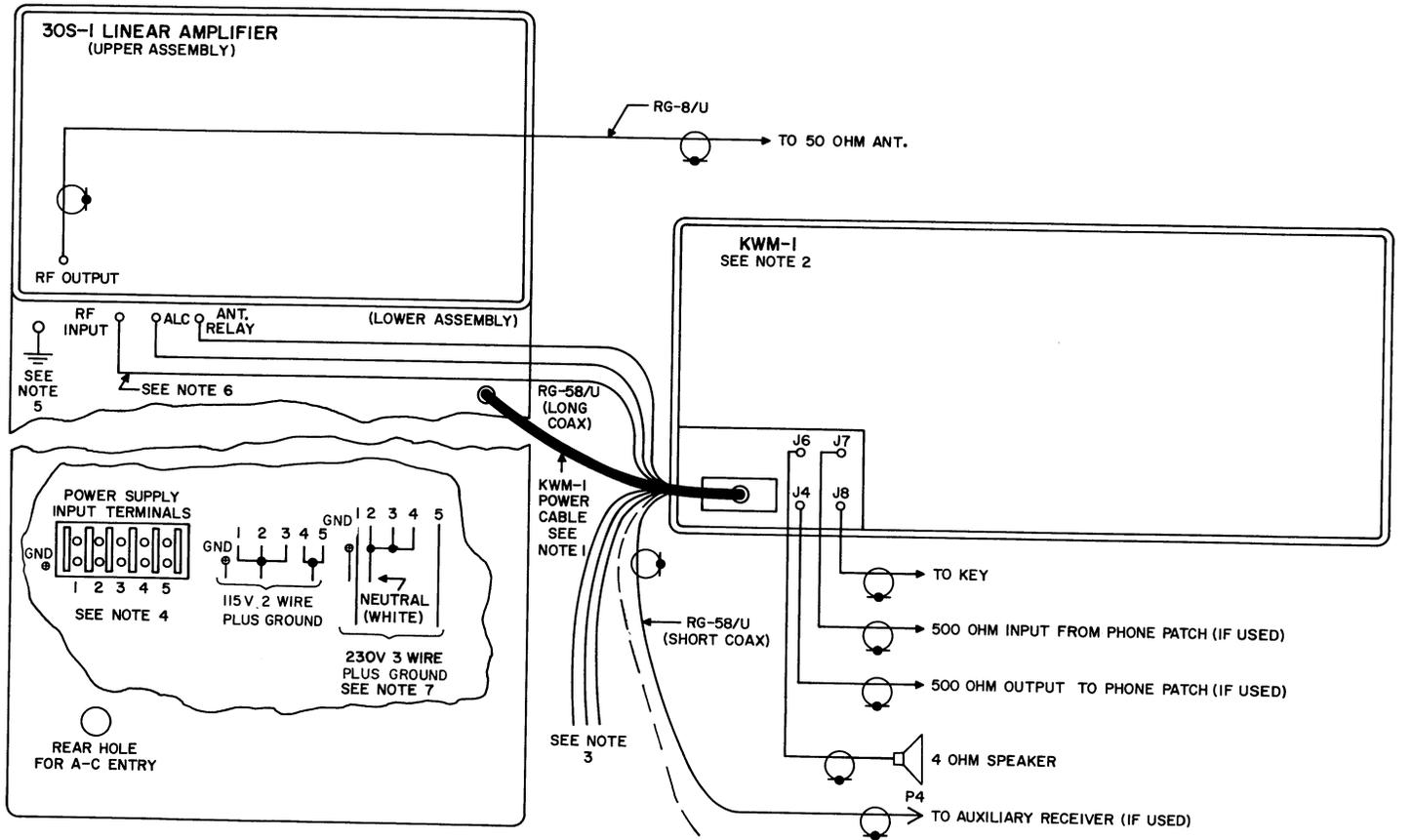
Station Interconnections With 32S-() and 75S-()
Figure 1-2



C487-02-4

Station Interconnections With KWM-2
Figure 1-3

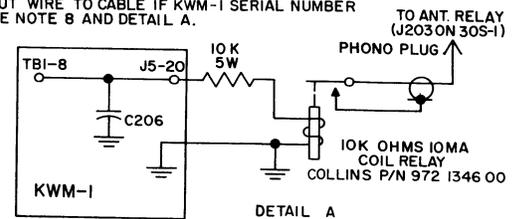
- NOTES:
1. 516F-2 POWER SUPPLY LOCATED ON SHELF INSIDE 30S-1 IF DESIRED.
 2. CONNECT HEADPHONES TO PHONE JACK ON FRONT OF KWM-2. CONNECT MICROPHONE TO MIC JACK ON FRONT OF 312B-5.
 3. USE ONLY WITH 2 AND 6 METER CONVERTERS. (CAUTION +275V DC PRESENT HERE)
 4. CONNECT TO EARTH GROUND.
 5. EXTERNAL RECEIVER MUTING.
 6. CABLE TO ANTENNA SWITCHING RELAYS, (IF USED)
 7. USE ONLY WITH 2 AND 6 METER CONVERTERS.
 8. CONNECTIONS AS SEEN THROUGH FRONT DOOR ON LOWER ASSEMBLY.
 9. EXTERNAL VFO POWER CABLE PLUGS INTO J17 ON CHASSIS.
 10. 10 FT LENGTH OF 4 WIRE (EACH NO. 12) CONDUCTOR WITH LUGS ON ONE END. CONNECT OTHER END TO SWITCHBOX OR PLUG AS DESIRED.



NOTES:

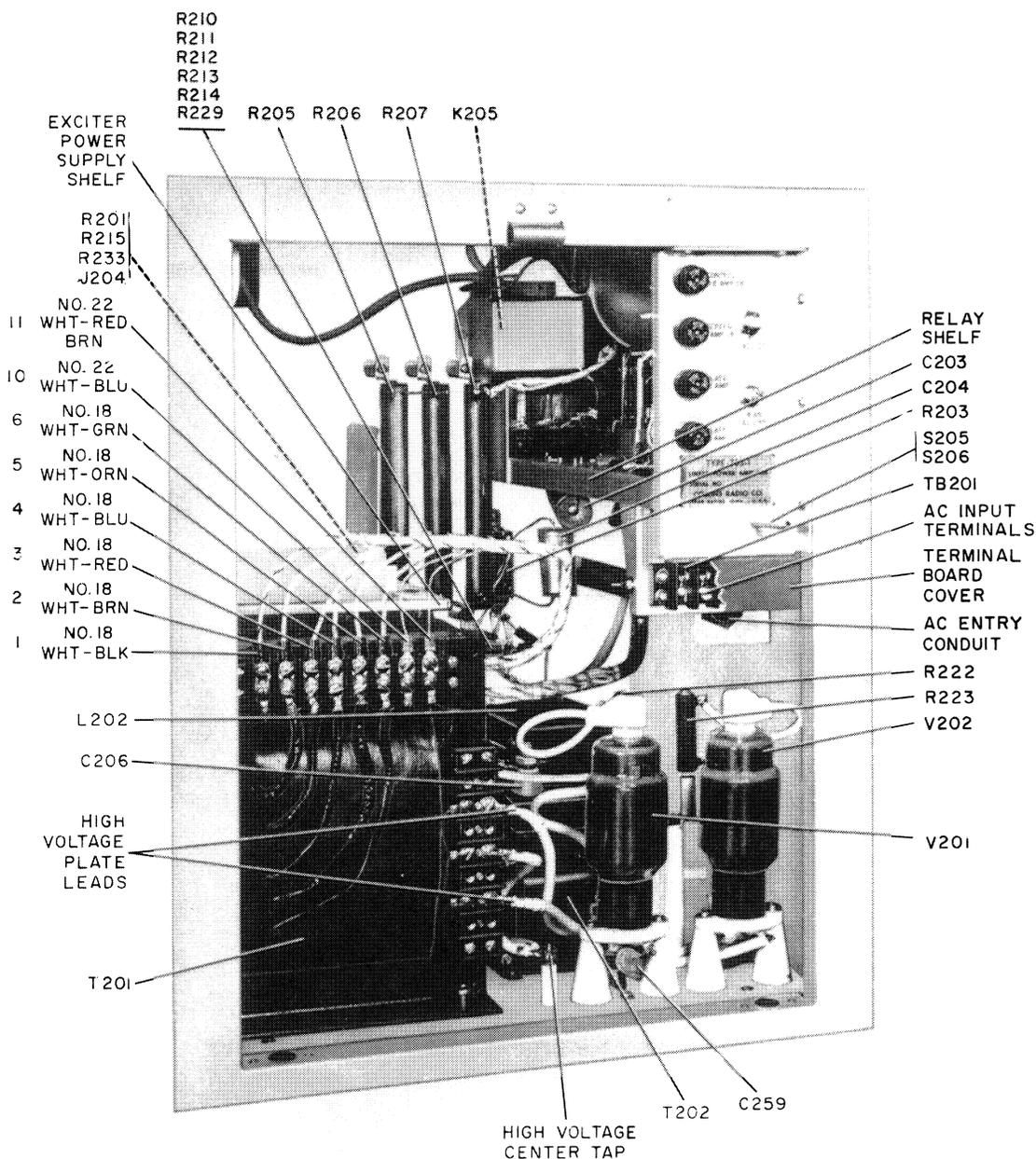
1. 516F-1 POWER SUPPLY MAY BE LOCATED ON SHELF INSIDE 30S-1 LOWER CABINET ASSEMBLY.
2. CONNECT HEADPHONES TO PHONE JACK ON FRONT OF KWM-1, CONNECT MICROPHONE TO MIC JACK ON FRONT OF KWM-1.
3. CABLE TO ANTENNA SWITCHING RELAYS, (IF USED).
4. CONNECTIONS AS SEEN THROUGH FRONT DOOR ON LOWER ASSEMBLY.
5. CONNECT TO EARTH GROUND.

6. THIS CABLE IS FURNISHED WITH 30S-1 IN 20.5 FT LENGTH. DO NOT CUT. ADD THE 2.5 FT LENGTH TO BRING TOTAL LENGTH TO 23 FT.
7. 10 FT LENGTH OF 3 WIRE (EACH NO. 12) CONDUCTOR WITH LUGS ON ONE END. CONNECT OTHER END TO SWITCH BOX OR PLUG AS DESIRED.
8. SEE DETAIL A FOR EXT RELAY CONNECTIONS FOR KWM-1 SWITCHING OF 30S-1 (KWM-1 SERIAL NUMBERS BELOW 861).



C432-14-4

Station Interconnections With KWM-1
Figure 1-4



*Power Supply Compartment, Parts Location and Wiring
Figure 1-5*

of changeover relays in the 30S-1. Using an ohmmeter, locate the feedthrough capacitor, C206, which is connected to pin 20 of J5 (in KWM-1). Connect a wire from terminal 8 of TB1 in KWM-1 to C206. Make corresponding breakout connection from P1-19 with shielded wire and connect breakout to 30S-1 ALC jack with a phono plug. External to the KWM-1,

connect a 10,000-ohm, 5-watt resistor and a relay coil in series from J5-20 to a ground on the rear of the KWM-1 chassis. Use a relay, such as Collins part number 972-1346-00, with a 10,000-ohm, 10-mA coil and a set of normally open contacts. Connect the normally open contacts through a piece of shielded wire (or microphone cable) and a phono plug

section 1
installation

to ANT. RELAY (J203) on the 30S-1. This arrangement will allow KWM-1 switching of 30S-1 changeover relays.

Warning

Be careful to avoid the 260-volt B+ present on the resistor and relay coil connections.

Note

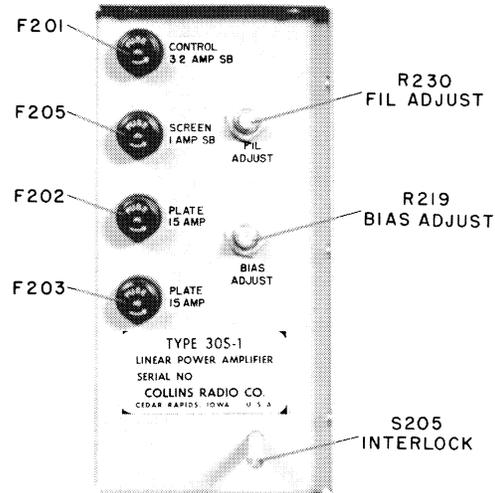
The rf cable supplied for connecting the 32S-() or the KWM-2 to 30S-1 is 20.5 feet long. Do not cut this cable. This length is optimum in maintaining the low-distortion figure for which the equipment was designed. An additional 2.5 feet of cable, with connectors, is required for connecting the KWM-1 output to the 30S-1. This makes a total of 23 feet for the KWM-1 connection.

1.2.2 Adjustment

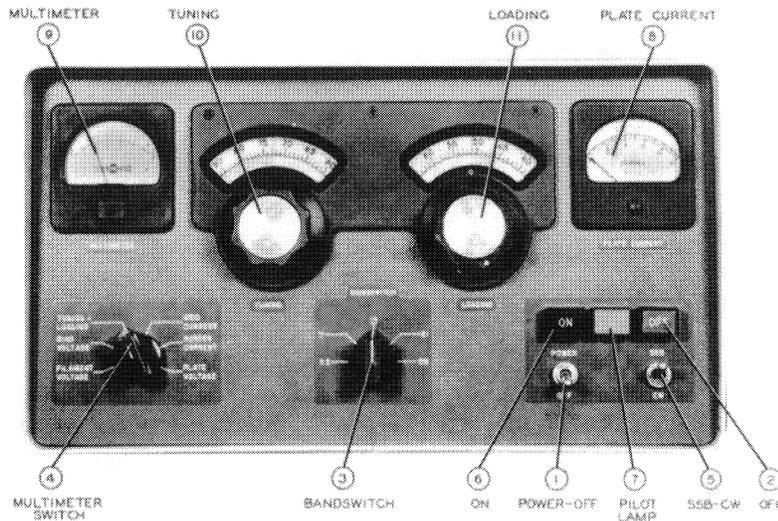
a. Refer to figure 1-7. Set POWER-OFF switch (1) to POWER. Set SSB-CW switch (5) to SSB and MULTIMETER switch (4) to FILA-

MENT VOLTAGE. Be sure the plate power is off and the rectangular red pilot lamp (7) is out. The following adjustments are made without excitation.

b. Set filament voltage to 6.0 volts ac with FIL ADJUST. Refer to figure 1-6.



Heater and Bias Adjustment Locations
Figure 1-6



30S-1 RF Linear Amplifier, Operating Controls
Figure 1-7

- c. Set MULTIMETER switch (4) to PLATE VOLTAGE.

Note

Due to the 3-minute delay of time-delay relay K202, plate voltage will not come on until 3 minutes after filament voltage has been applied. During this 3-minute wait, the exciter may be operated as a low-power station.

Warning

Do not make bias adjustments with the power on. Do not block the power supply interlock switch. Lethal voltages are present in the power supply.

- d. After the 3-minute delay time has elapsed, press the plate ON button. The rectangular red pilot lamp should light, and plate voltage should be indicated on the MULTIMETER (9).
- e. Set exciter MIC GAIN control fully counter-clockwise to produce zero drive, and set the exciter EMISSION switch to TUNE position. Idling plate current will be indicated on the 30S-1 PLATE CURRENT meter (8).
- f. Remove the front cover from the power supply compartment; make a small change in setting of BIAS ADJUST; replace cover and read PLATE CURRENT meter. Repeat until the no-signal plate current is 200 mA.
- g. When these adjustments are completed, press the plate OFF pushbutton (2).

section 2

operation

2.1 OPERATION IN SSB OR CW SERVICE (Refer to figure 1-7.)

- a. Set POWER-OFF switch (1) to POWER.
- b. Set exciter band switch to desired band and exciter meter switch to PLATE. Adjust exciter idling plate current to 50 mA. Be sure 30S-1 and exciter ALC jacks are connected together. When the 3-minute delay time has elapsed, press plate ON pushbutton. Set exciter meter switch to ALC. Adjust exciter ALC ZERO for an exciter meter indication of zero ALC. Refer to procedure in exciter instruction book. Press 30S-1 plate OFF pushbutton.
- c. Tune and load the exciter into the antenna or dummy load, whichever is connected to RF OUTPUT jack J103 at the rear of the 30S-1. Tune and load 32S-() or KWM-() according to its instruction book, except load only to 200 mA plate current. This change in procedure for 32S-() or KWM-() is necessary to obtain the low system distortion for which this equipment was designed.

Note

Use a 100-watt dummy load (such as Collins DL-1, 52 ohms) unless antenna and feedline system present an swr not exceeding 1.25 to 1.

Caution

Do not leave the dummy load connected to the 30S-1 output with the 30S-1 power on unless dummy load used has power dissipating capacity equal to or greater than the output power of the 30S-1.

- d. Remove exciter output by turning microphone gain control to OFF. If a different make of exciter is used, place it in STANDBY.
- e. Press 30S-1 plate OFF button, and turn 30S-1 BANDSWITCH (3) to desired band.
- f. Set MULTIMETER switch (4) to TUNING & LOADING.
- g. Set SSB-CW switch (5) to desired mode of operation.

- h. Disconnect dummy load and connect antenna to RF OUTPUT jack.
- i. Press plate ON pushbutton (6). The pilot lamp (7) should light if the 3-minute delay time has elapsed.
- j. With exciter EMISSION switch in LOCK KEY position, increase exciter output by increasing microphone gain until 350-mA plate current is indicated on PLATE CURRENT meter (8).
- k. Observe the MULTIMETER (9). Adjust the TUNING control (10) for MULTIMETER dip, and adjust the LOADING control (11) for MULTIMETER 0 until the meter indication is 0 at the dip.
- l. Adjust exciter output (with exciter MIC GAIN control) until 30S-1 peak plate current is 300 mA for SSB or 400 mA for CW.
- m. Redip and reload with the TUNING and LOADING controls, keeping MULTIMETER indication at 0.
- n. Recheck PLATE CURRENT meter indication for proper value as given in step 1. Repeat steps 1 and m, as necessary, until power amplifier is loaded to 400 mA for CW or 300 mA peak for SSB. Do not switch from SSB to CW (or from CW to SSB) while operating. Be sure 30S-1 plate voltage is off when changing setting of SSB-CW switch (5).
- o. For SSB operation, set 32S-() (or KWM-2) EMISSION switch to USB or LSB. Set exciter METER switch to ALC. Adjust MIC GAIN for meter indication of 6 dB for 32S-() or KWM-2 (or S6 for KWM-1) for peak voice readings in normal operation of the exciter. For CW or RTTY operation, set EMISSION switch to CW. The transmitter is now ready to operate.
- p. Pressing the plate OFF pushbutton (2) automatically switches the exciter to the antenna for low-power operation.

Caution

Wait at least 5 seconds after pressing plate OFF button (2) before pressing plate ON button (6). This delay is necessary to allow the step-start circuit to recover.

Note

The cathode-input circuit on the 3.5-MHz band is factory tuned for minimum input vswr at 3.8 MHz. The vswr will increase slightly for operation on other parts of the band. This will cause small changes in the normal load setting of the exciter. It is possible, but not necessary, to adjust L114 for minimum vswr at a favored part of the 3.5-MHz band. The cathode input circuits for the 7-, 14-, 21-, and 28-MHz bands are broad enough that no adjustments are necessary within these bands.

q. Table 2-1 lists full-scale and normal meter indications for all scales of the multimeter.

Full-scale indication on the PLATE CURRENT meter is 1000 mA, and normal indication on this meter is 400 mA for CW or 300 mA on voice peaks for SSB. According to FCC regulations, the drive power to the grounded-grid amplifier must be added to pa plate power input to determine total final amplifier plate power input. The above plate current ratings keep the amplifier input within legal limits.

Caution

If the 30S-1 is to be driven by an exciter not having automatic load control (ALC), monitor the 30S-1 grid current continuously while transmitting, and keep the drive level at a point that just produces a slight kick in the grid current indication.

Table 2-1. Multimeter Scale Values.

| MULTIMETER SWITCH SETTINGS | FULL-SCALE INDICATIONS | NORMAL INDICATIONS |
|----------------------------|------------------------|--|
| FILAMENT VOLTAGE | 10 volts ac | 6.0 volts ac. |
| BIAS VOLTAGE | -100 volts dc | Voltage necessary to set idling plate current to 200 mA. |
| TUNING & LOADING | Not applicable | 0 when 30S-1 is properly loaded. |
| GRID CURRENT | 5.0 mA | Never more than 0.2 mA in CW, 0 in SSB. |
| SCREEN CURRENT | 50 mA | Never more than ±25 mA. |
| PLATE VOLTAGE | 5000 volts | 2000 for CW. 3000 for SSB. |

3.1 GENERAL

The 30S-1 RF Linear Amplifier consists of a 1-stage linear amplifier and the necessary power supplies. It is capable of the maximum legal input power in the amateur bands between 3.5 and 29.7 MHz. It operates in either CW or SSB service with any exciter (such as KWM-1, KWM-2, or 32S-()) capable of 80 watts pep output. In addition, the amplifier may be operated outside the amateur bands at any frequency between 3.4 and 30 MHz by retuning its input circuits.

3.2 BLOCK DIAGRAM

Figure 3-1 is a block diagram of the 30S-1 RF Linear Power Amplifier. The power amplifier stage is a single ceramic tetrode that is cathode driven. The control grid is grounded for rf by capacitor C104, and the screen grid is connected directly to ground. The plate power supply, the screen grid power supply, and the control grid bias supply are connected in series. The junction between the plate power supply and the screen grid power supply is grounded through the screen current meter shunt. This arrangement places the cathode at negative potential with respect to the screen grid. The bias supply is connected between the cathode and the control grid. Provisions are included for rf negative feedback to improve linearity and for automatic load control to prevent overdrive.

3.3 INPUT CIRCUITS

Refer to figures 3-1 and 7-1. Pi-network broad-tuned circuits and the interconnecting rf feedline match the 50-ohm input impedance to the cathode impedance, which is approximately 100 ohms. The 20.5-foot length of cable (furnished) is necessary between the 32S-1() (or KWM-2) driver and the 30S-1 input circuits. This is due to the necessity of having an even multiple of 180-degree phase shifts between driver plate and power amplifier grid. The cable length and the 30S-1 input circuits together accomplish this. An even multiple

of 180-degree phase shifts is necessary because the varying drive intensity causes a change in the pa cathode impedance, which is translated to a shift in reactive impedance at the driver plate. The shift in reactive impedance, at the driver plate, results in phase modulation of the driver and increases the total overall distortion of the system. A 2.5-foot additional length of cable is required to bring the total interconnecting cable length to 23.0 feet for use with the KWM-1 as a driver. Drive power required for maximum legal input on SSB is 80 watts pep nominal.

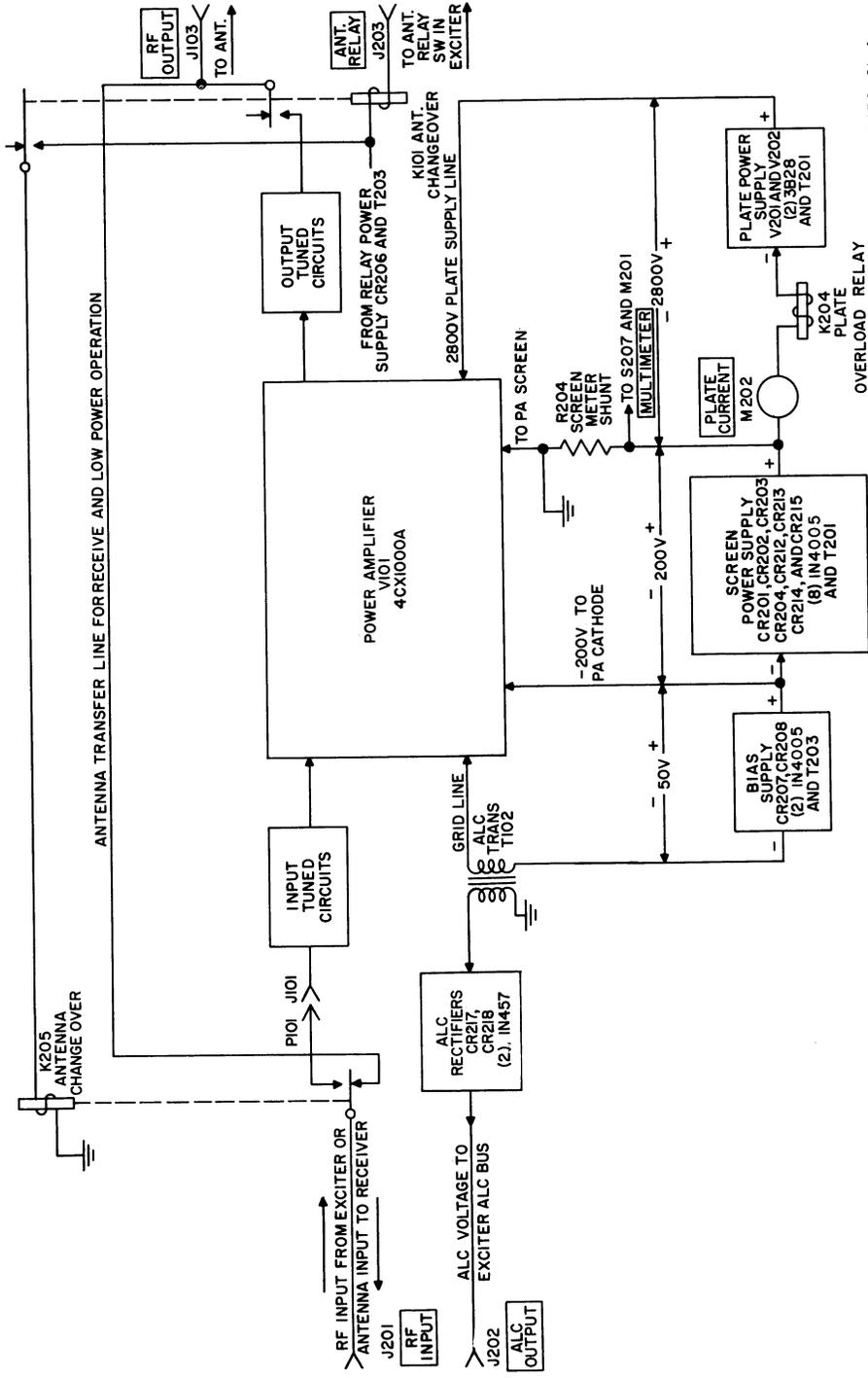
3.4 OUTPUT CIRCUITS

The plate circuit of the power amplifier is tuned by a pi network consisting of C120, L109, L104, C121, and C122. Capacitors C121 and C122 are ganged together and are adjusted by front panel control (LOADING) for matching the pi-network circuit to the impedance of the antenna and feed system in use. Capacitor C120 may be adjusted by the TUNING control on the front panel for resonating the tank circuit to the frequency in use. Output from the plate tank circuit is connected through the contacts of antenna changeover relay K101 to the antenna when the control circuits are switched to transmit function.

3.5 POWER SUPPLY CIRCUITS (Refer to figures 3-1, 3-2, 3-3, and 7-1.)

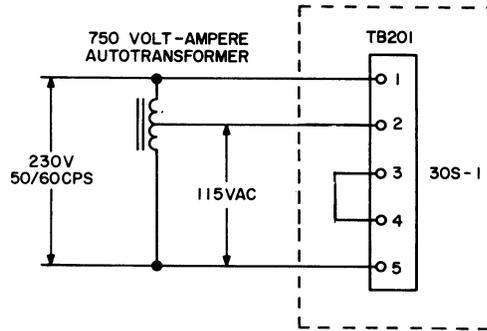
Separate plate, screen, and bias voltage sections and three ac heater sections are included in the 30S-1 power supply. The power supply may be connected to a 115-volt, single-phase or a 230-volt, 3-wire, single-phase source. The 230-volt, 3-wire, single-phase source. The 230-volt, 3-wire connection is recommended. When only a 2-wire 230-volt source is available, connect a 230- to 115-volt autotransformer rated at 750 volt-amperes as shown in figure 3-2. Always connect the 30S-1 to a low-resistance earth ground using the ground connection on the rear of the 30S-1. The high-voltage plate transformer, T201, has two primary windings that are connected in

section 3
principles of operation



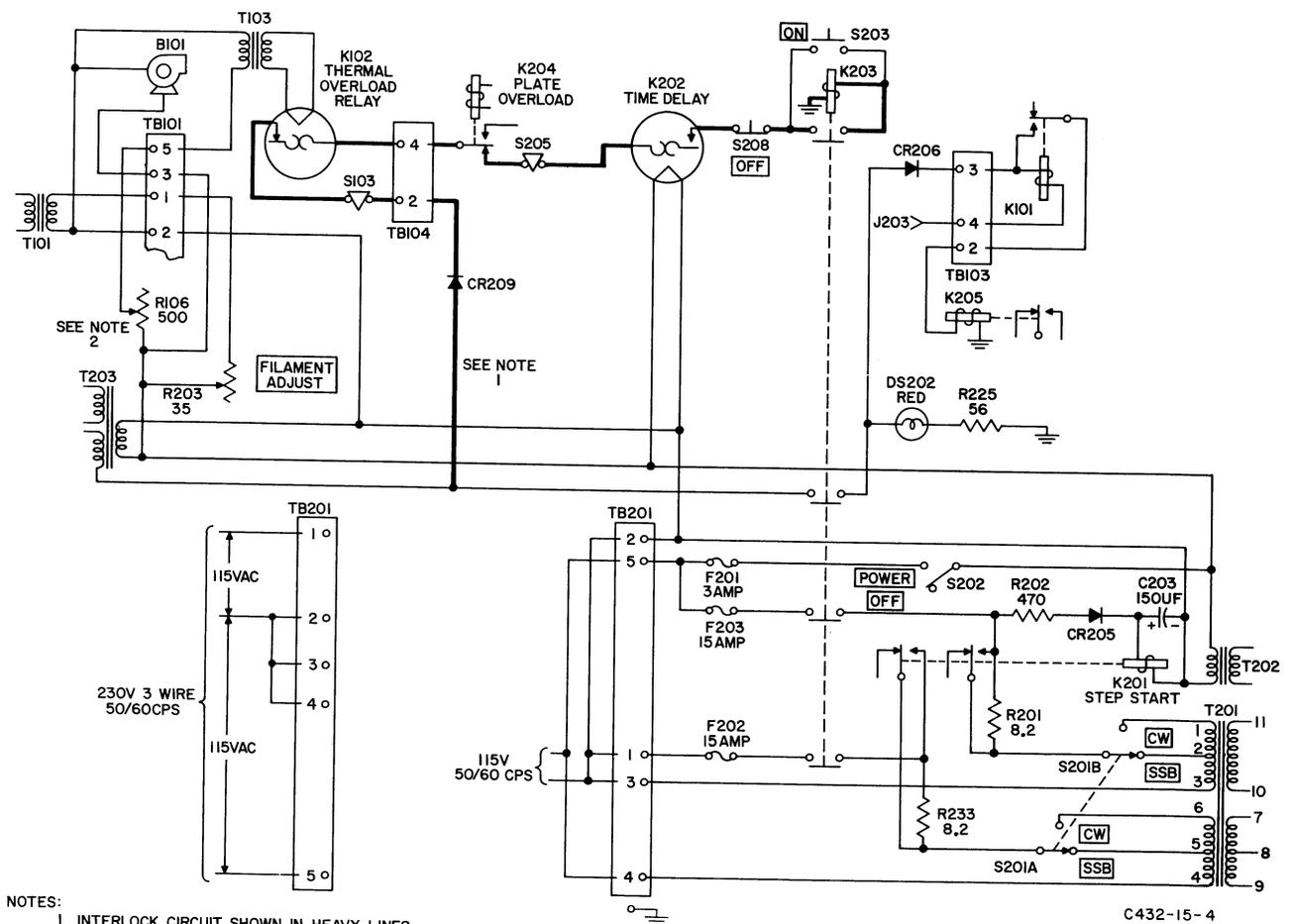
C-432-01-4

30S-1 Block Diagram
 Figure 3-1



TP3-5301-019

Connections for 2-Wire, 230-Volt Operations
Figure 3-2



- NOTES:
1. INTERLOCK CIRCUIT SHOWN IN HEAVY LINES.
 2. R106 FACTORY ADJUSTMENT OF K102 OPERATING POINT.

Control and Interlock Circuits, Simplified Schematic Diagram
Figure 3-3

parallel for 115-volt operation, and in series for 230-volt operation. The 12-volt ac winding of bias supply transformer T203 supplies current for the pilot lamps in the two meters and the pilot lamps which light the two dials. This transformer winding also supplies current to be rectified for dc relay power. The bias winding of T203 is connected to CR207 and CR208 in a full-wave rectifier circuit. This circuit provides grid bias voltage for the power amplifier. The heater of the 3-minute time-delay relay is supplied power from the 115-volt ac connections, which also furnish power to the high-voltage rectifier filament transformer, T202. Transformer T103 supplies ac power for the heater of the thermal overload relay, K102. Taps on the primary of the high-voltage plate transformer, T201, are switched to provide the different voltages necessary for the power amplifier in CW or SSB operation. Power amplifier bias voltage is taken from the bias supply bleeder resistors for CW or SSB operation. The screen supply rectifiers are eight type 1N4005 silicon diodes in a full-wave bridge circuit. Each rectifier diode is paralleled with a 0.001- μ F capacitor to protect it from high transient voltages.

3.6 PROTECTIVE CIRCUITS (Refer to figure 3-3.)

3.6.1 Safety Interlock Circuits

The top cover and the power supply front door operate safety interlock switches for operator protection. When the top cover is opened, interlock switch S103 breaks the circuit to the coil of plate contactor K203. This removes all high voltages from the 30S-1. When the power supply compartment (lower) door is opened, interlock switch S205 breaks the same circuit and removes all high voltages. Both interlock switches are mechanically coupled to shorting switches which short out the high-voltage filter capacitors at the same time the interlock circuit opens. Rf compartment interlock switch S102 is mechanically coupled to shorting switch S101, and power supply compartment interlock switch S205 is mechanically coupled to shorting switch S206. This arrangement protects the operator from accidental contact with approximately 3000 volts dc, which is present in either compartment.

Warning

Do not block interlock switches. Voltages present in this equipment are dangerous to life. Be sure to press the OFF pushbutton before opening cabinet. Do not reach into lower cabinet unless the power cord is disconnected. Line voltage is present at relay K203 regardless of the position of the POWER-OFF switch. Accidental closing of K203 would apply line voltage to the plate transformer.

3.6.2 Time Delay and Step-Start Circuits

When POWER-OFF switch S202 is closed, power is applied to the heater of the 3-minute time-delay relay, K202. After the power has been applied to its heater for approximately 3 minutes, the bimetallic contacts close. These contacts are in series with the interlock circuits and the coil of plate contactor K203. When the ON pushbutton is depressed, K203 is energized, and contacts of K203 close and apply power to step-start relay K201 through dc rectifier CR205. The large electrolytic capacitor across the coil terminals of K201 requires a fixed charging time to rise to a potential high enough to energize the relay. When this time has passed, K201 energizes and shorts out the step-start resistors. Until relay K201 has closed, all power applied to the transformer primary winding has been dropped through the two step-start resistors, R201 and R233. Thus, the high-voltage power supply starts at low primary voltage and, after the step-start cycle has elapsed, switches to full voltage. This allows time for partial charging of the large, high-voltage filter capacitors, C207 and C208, before the application of full secondary voltage to the rectifier plates. During this time, the rectifier tubes are protected from damaging peak currents.

3.6.3 Thermal and Overload Circuits

The thermal overload relay, K102, protects the power amplifier tube from overdissipation and loss of cooling air. Its bimetallic strip has contacts connected in series with the interlock system. The thermal overload switch is located in the airstream from V101. Current from transformer T103 is passed through the heater of

K102. This current keeps the temperature of K102 just below that necessary to open its contacts. If the airstream fails, the temperature of the bimetallic strip increases, opening the interlock circuit and removing voltages from the power amplifier. If overdissipation occurs in the plate of the power amplifier, the higher air temperature causes K102 to open and break the interlock circuit.

Caution

Adjustments for proper operating points of K102 are made at the factory. Do not adjust R106 or alter the contact spacing of K102. Loss of thermal protection of V101 may result.

3.6.4 Power Control Circuits

Refer to figure 3-3. When the POWER-OFF switch is operated to POWER position, 115-volt ac power is applied to the filament and control circuits. If the 3-minute time delay of K202 has passed, and if all interlock circuits are in proper operating condition, the plate contactor may be energized by pushing ON switch S203. When K203 contacts close, one set of them holds the electrical connection to the coil and keeps the relay closed after the ON pushbutton is released. Other contacts of K203 supply power to the antenna changeover relay circuit and to the primary winding of the high-voltage transformer, T201. Power to T201 is applied from K203 contacts through two step-start resistors. These resistors reduce the voltage applied to the transformer until capacitor C203 charges high enough that the voltage across it will energize step-start relay K201. When K201 closes, its contacts short out the step-start resistors and allow full voltage to be applied to the transformer winding.

3.7 ALC AND RF NEGATIVE FEEDBACK CIRCUITS

Automatic load control is a type of compressor circuit, operating at radio frequencies. The modulation envelope is detected by power amplifier grid rectification. This signal is filtered of rf by L108 and C140 and applied through transformer T102 to ALC rectifiers CR217 and CR218 to produce a negative control voltage which is a function

of the drive level. The ALC rectifiers are connected as a voltage doubler. The negative control voltage produced by the ALC rectifiers is fed back to the ALC line of the exciter to produce 3 dB of override control.

The 3 dB of ALC override control produced in the 30S-1 reduces the exciter rf gain and keeps the drive level within required limits. Automatic load control helps to keep the drive level low enough to prevent driving the power amplifier into grid current and distortion.

A fixed amount of rf negative feedback, from the output circuit of the power amplifier to the input of the power amplifier, produces a high degree of linearity of the amplified signal. This feedback is accomplished by capacitor C103, which couples some of the plate energy back to the grid circuit. Although there is no phase inversion between the cathode and the plate circuits of a cathode-driven amplifier, there is a phase inversion between the cathode and the grid circuit, providing the grid is not bypassed completely at the rf frequency. Therefore, the feedback voltage is out of phase with the grid voltage. Capacitors C103 and C104 form a voltage divider circuit to maintain the proper amount of feedback voltage.

3.8 TUNING AND LOADING METER CIRCUIT

One section of the SSB-CW switch, S201, selects the proper output voltage from the tuning and loading bridge circuit for the TUNING & LOADING meter indication. This circuit and the power amplifier tube form a specialized bridge circuit. It consists of V101, CR101A, and CR101B, and the associated load resistors and filter networks. The bridge is balanced when the plate circuit TUNING and LOADING controls are set to present the proper load impedance to the power amplifier plate. The meter then will read zero at any power level, and the power amplifier tube will operate at the proper gain level for maximum efficiency and linearity.

3.9 DESCRIPTION OF CONTROLS AND INDICATORS (Refer to figure 1-7.)

- a. POWER-OFF. This switch controls application of ac primary power to the 30S-1. When it is in OFF position, the 30S-1 is disabled. When it is in the POWER position, ac power is

section 3
principles of operation

- applied to filament, control, and indicator circuits (except "plate on" indicator DS202).
- b. ON. When this momentary push switch is pressed, power is applied to the coil of the plate contactor. The plate contactor is held closed by one set of its contacts.
 - c. OFF. This momentary push switch opens the interlock circuit and deenergizes the plate contactor.
 - d. BANDSWITCH. This control selects the desired operating band.
 - e. MULTIMETER. This control selects the desired indication of the MULTIMETER. Refer to table 2-1 for description of switch positions.
 - f. SSB-CW. This switch selects plate and bias voltages for either SSB or CW operation. It also selects the proper output from the tuning and loading bridge circuit for application to the MULTIMETER.
 - g. TUNING. This control adjusts the plate tuning capacitor. The dial is calibrated in a logging scale.
 - h. LOADING. This control adjusts pi-network loading capacitors C121 and C122. The dial is calibrated in a logging scale.
 - i. CALIBRATION CHART. No calibration chart is provided on the front panel or in this instruction book. Such a chart must be derived for the conditions involved in a particular antenna and feed system. The operator can make a chart for his particular system, using the logging scales on the TUNING and LOADING controls.

section 4

service instructions

Note

For additional service information on the 30S-1 RF Linear Amplifier, write or call Amateur Radio Marketing, Collins Radio Group, Rockwell International, Cedar Rapids, Iowa 52406; 319/395-4507.

4.1 GENERAL.

No special test equipment is required or adjustment of the input rf circuits if the station includes an rf wattmeter and directional coupler such as are included in the 312B-4 Station Control. If it is necessary to adjust the loading indication of the multimeter, required test equipment includes a 2500-watt, noninductive dummy load and a 2-tone audio oscillator (750 and 1900 Hz).

Caution

If any replacements are made in input circuits, be sure to retain the 6.1-foot coaxial lead between S102A and L110. This critical length of cable is part of the matching network.

4.2 BLOWER LUBRICATION

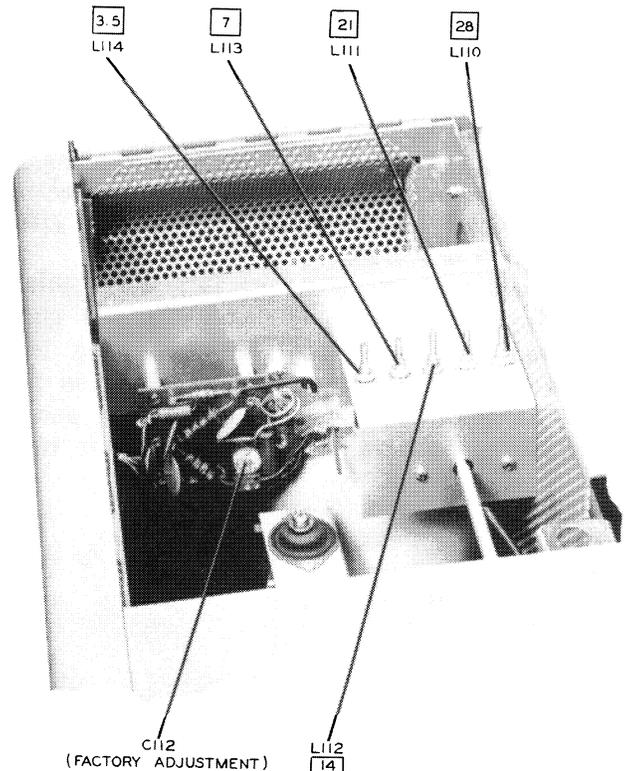
The blower motor bearings are permanently lubricated and do not require oiling.

4.3 ALIGNMENT OF RF INPUT CIRCUITS

4.3.1 Amateur Bands

- Connect a directional wattmeter (such as the type used in the 312B-4 Station Control or 302C-3 Directional Coupler) between the exciter output and RF INPUT jack J201 on the 30S-1. Connect a 2500-watt, noninductive 50-ohm dummy load to the output of the 30S-1.
- With the 30S-1 plate power off, tune the exciter to 3.6 MHz (if CW operation only is anticipated), 3.8 (if both CW and phone operation is anticipated), or 3.9 MHz (if phone operation only is anticipated).
- With the 30S-1 SSB-CW switch in the SSB position, press the ON pushbutton. Tune and load the 30S-1 into the dummy load. Retune

- and load the exciter output as necessary to maintain a 50-watt exciter power output.
- Refer to figure 4-1. While monitoring the directional wattmeter installed in step a above, adjust L114 (accessible through one of the holes in the top cover of the rf compartment) for minimum reflected power (not to exceed 2 watts).
- Repeat the above procedure at 7.2, 14.3, 21.3, and 28.6 MHz, adjusting L113, L112, L111, and L110 respectively. These adjustments are accessible through the holes in the top cover of the rf compartment. Do not raise the rf compartment cover for this procedure.



Input Tuned Circuit Adjustment Locations
Figure 4-1

4.3.2 General Coverage

Use the same procedure as given in paragraph 4.3.1, except set exciter to a frequency that is in the middle of the desired band. Useful bandwidth at the new alignment frequencies is approximately the same as that for the amateur bands. Do not attempt alignment to place the new operating bands outside the ranges given in table 4-1 for the BANDSWITCH positions listed. Also, do not attempt amateur-band operation on a BANDSWITCH position when the tuned circuits for that position have been realigned for out-of-band operation.

4.4 BIAS AND FILAMENT VOLTAGE ADJUSTMENT

Occasionally check the FILAMENT VOLTAGE reading on the MULTIMETER and the no-signal plate current on the PLATE CURRENT meter. If these readings are not 6.0 volts ac and 200 mA dc, respectively, adjust as in paragraph 1.2.2.

4.5 LOADING INDICATOR ADJUSTMENT

The loading indicator circuit may be checked for accuracy as follows:

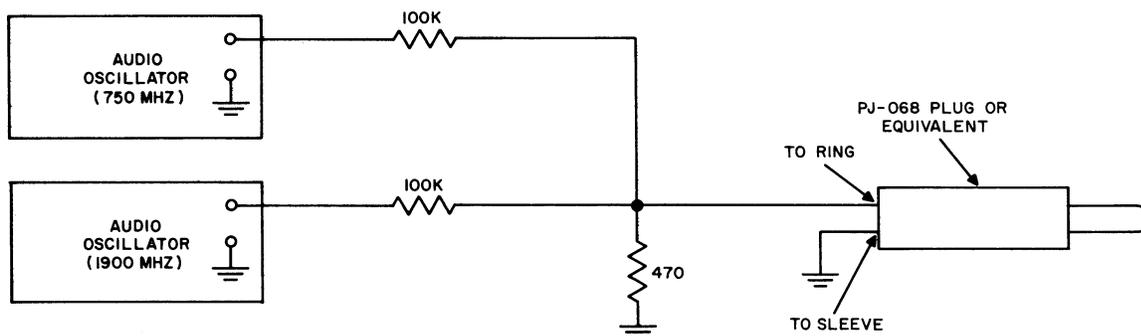
- Connect a 50-ohm, 2500-watt, noninductive dummy load to RF OUTPUT connector J103 on the rear of the 30S-1.
- Tune and load the 30S-1 at 14.3 MHz (SSB).
- Introduce a 2-tone input signal (750 and 1900 Hz) to the exciter input. When using the KWM-2/2A or S-line equipment, this can be done as shown in figure 4-2, where one audio oscillator is generating a 750-Hz, 1-volt rms signal and the other is generating a 1900-Hz, 1-volt rms signal.

Table 4-1. Frequency Coverage Allowable by Realignment.

| BANDSWITCH SETTING | LOWER LIMIT (MHz) | UPPER LIMIT (MHz) |
|--------------------|-------------------|-------------------|
| 3.5 | 3.4 | 6.0 |
| 7 | 6.0 | 10.0 |
| 14 | 10.0 | 15.0 |
| 21 | 15.0 | 22.0 |
| 28 | 22.0 | 30.0 |

signal and the other is generating a 1900-Hz, 1-volt rms signal.

- Adjust the exciter for a USB signal of approximately 30 watts rf output using the 2-tone signal for the exciter drive. When using the KWM-2/2A or S-line equipment, this is done by positioning the METER switch to the ALC position and turning the MIC GAIN control clockwise until an indication of 6 dB is indicated on the meter.
- Set the 30S-1 MULTIMETER switch to the TUNING & LOADING position. Adjust the 30S-1 TUNING and LOADING controls for maximum power output. If the meter indication is not 0, adjust C112 until the meter indication is 0.
- Remove the drive to the 30S-1 (when using the KWM-2/2A or S-line equipment, merely turn the MIC GAIN control fully counterclockwise) and push the OFF pushbutton on the 30S-1. Remove the 2-tone input signal. Set the 30S-1 multimeter switch to the GRID position. Increase the exciter drive level to produce a



2-Tone Test Setup
 Figure 4-2

30S-1 current indication of 0.2 mA (when using the KWM-2/2A or S-line equipment, increase the drive by positioning the mode selector to the LOCK KEY position and then positioning the MIC GAIN control clockwise to the desired drive level).

- g. Set the 30S-1 MULTIMETER switch to the TUNING & LOADING position. Adjust the TUNING control to produce a dip in the multimeter indication. Adjust the LOADING control for a peak PLATE CURRENT meter indication. Continue adjusting the TUNING control for a multimeter dip and the LOADING CONTROL for a PLATE CURRENT meter peak until the PLATE CURRENT meter indicates 480 mA and the MULTIMETER indicates 0.
- h. If the multimeter indication in step g is not satisfactory, adjust R105 until the MULTIMETER indication is 0.

4.6 POWER OUTPUT CHECK

- a. Connect a 50-ohm, 2500-watt noninductive dummy load to RF OUTPUT connector J103 on the rear of the 30S-1.
- b. Connect an rf vacuum-tube voltmeter across the dummy load, setting the range scale on the meter to read approximately 300 volts of rf.
- c. Tune and load the 30S-1 on any frequency in the CW mode, The rf vtvm across the dummy load should indicate at least 173 volts.

Caution

During the above procedure, do not keep the 30S-1 operating at output power levels higher than 600 watts for long periods of time. The power supply is not designed for continuous high power operation.

For SSB operation, the average voice has a peak-to-average power ratio of approximately 15 dB. The ALC circuits of the equipment reduce this ratio to approximately 10 dB for the average operator. This means that the average power read on the wattmeter is about 10 percent of the peak power output. If the operator's voice is low pitched, the average power indicated on the wattmeter will be higher. However, since the ALC circuits of the equipment reduce the drive power when the amplifier reaches 2-kW plate

power input, indication of ALC voltage on voice peaks means that the 30S-1 is operating at its optimum power output level.

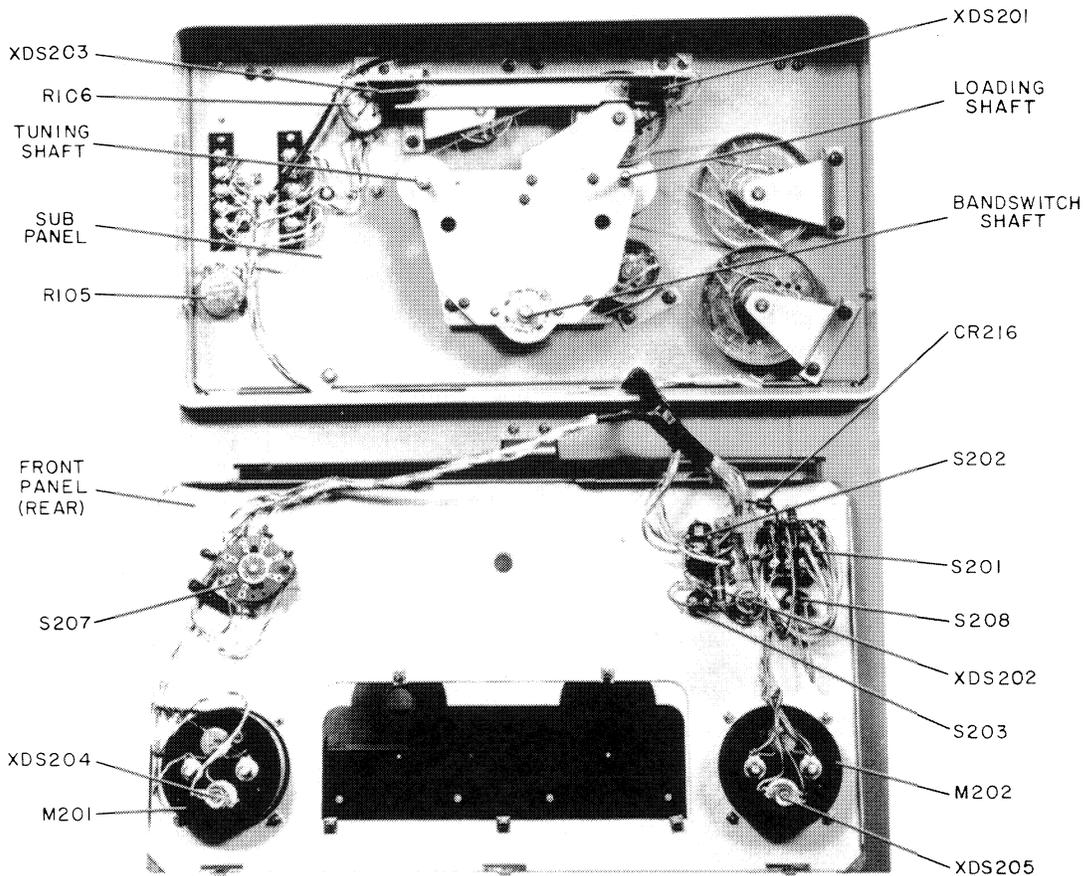
4.7 DIAL CORD REPLACEMENT

Refer to figures 4-3 and 4-4. Remove all control knobs. Remove the flathead screws securing the front panel to the cabinet. These screws are arranged across the top front and bottom front edges of the cabinet. The power supply front cover must be removed to gain access to the bottom screws. Do not loosen the screws at the sides of the cabinet. Remove the front panel from the cabinet, exposing subpanel and dial drive assemblies. Remove the broken or defective dial cord, and replace with the proper length of the new cord (Collins part number 432-1009-00). When ordering dial cord, be sure to state the desired length in feet. If possible, measure the required length of the new cord to be cut by the length of the old cord removed. Note that switch drive cords are not under spring tension. These cords are pulled and tied tight in order to bring switches into positive detent. Replace front panel and knobs. If switches are not aligned to same relative positions after the dial cord replacement, loosen the shaft couplers and align switches and knobs for proper positions. Retighten couplers.

4.8 PA TUBE REPLACEMENT

If it is necessary to replace the power amplifier tube, V101, proceed carefully as follows:

- a. Move K102 aside as shown on 30S-1 lid so it will not interfere in tube removal or replacement.
- b. Loosen the clamp around the tube plate cooling fins. Do not move the tube clamp out of position.
- c. Grasp the tube by the plate cooling fins, and gently rotate tube one-third turn counterclockwise. Pull the tube straight out from its socket. Do not force at any time, but feel for binding or interference as the tube is withdrawn. Inspect the connector tabs inside the socket to make sure they were not deformed in tube removal.
- d. Remove the new tube from its carton. Inspect it to be certain that the base contacts have not been damaged in shipping. These contacts are the thin metal tabs that extend radially from the ceramic lower portion of the tube.



30S-1, Front Panel Lowered and Subpanel Exposed
 Figure 4-3

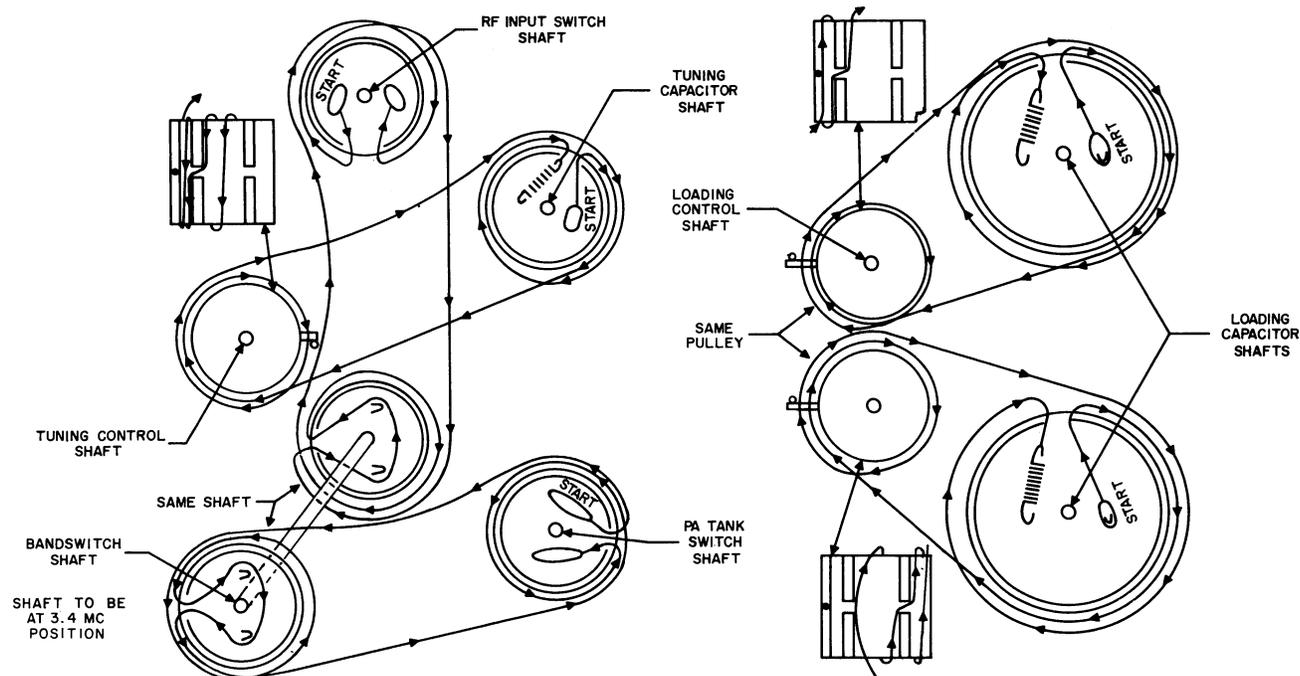
- e. Insert the tube gently into its socket, making certain the tube base contacts are not jammed or bent in the process. In order to do this, start the socket key into the keyway inside the tube and lower the tube gently, feeling for any binding between socket key and tube keyway. If binding occurs, withdraw the tube, rotate it one-third turn and try again. In two of the three possible positions, the tube may bind in entering the socket. This is due to the fact that the tube keyway and the socket key are slightly off center. Find the orientation that does not bind, and insets the tube all the way into the socket so that the bottom portion of the tube plate cooling fins is inside the black cooling chimney.
- f. Check that the top of the tube plate cooling fins is approximately seven-eighths of an inch above

the top edge of the black cooling chimney. Turn the tube clockwise (viewed from 30S-1 rear) against the stop to tighten the tube base contacts under the socket contacts. Do not force.

Caution

If an attempt is made to force the tube into its contacts when the tube is not properly seated in its socket, both tube and socket may be damaged. The warranty for tube and socket is void for damage caused by improper handling or installation.

- g. Tighten the clamp around the tube plate cooling fins. This makes electrical connection to the plate of the tube.



C432-07-P

Dial Cord Replacement Diagram
Figure 4-4

- h. Place thermal relay K102 so that its detent is engaged, and it will be in the airstream flowing through the cooling fins of the tube.

Caution

Be sure that K102 does not touch the top of the tube. This would cause a damaging short circuit.

Refer to figure 6-2, which shows the power amplifier tube properly installed and the proper operating position of K102. Inspect the rf compartment to be sure there are no short circuits, and close the top cover.

4.9 PILOT LAMP REPLACEMENT

The "plate on" indicator lamp may be replaced without removing the front panel. The red and black jewel which covers this lamp snaps onto the panel. It is shown in figure 1-7 as the PILOT LAMP (7). Grasp the jewel and snap it off. Replace the bulb (DS202), and snap the jewel back in place. The meter and dial lamps may be replaced

by removing the front panel. To replace these lamps, proceed as follows:

- a. Remove all control knobs. Remove the power supply front cover.
- b. Remove the flathead screws securing the front panel to the cabinet.

Note

Do not loosen any screws at the sides of the cabinet. The front panel is secured only by screws along the top and bottom edges.

- c. Pull the front panel out and allow it to hang by its cable. Refer to figure 4-3.
- d. To replace the dial lamps, slip their clip-on sockets off the ends of the bracket that is mounted above the dials. Replace the dial lamps and slip the clip-on sockets back on the bracket. Refer to figure 4-3.
- e. To replace a meter lamp, pull the socket straight out from the meter case. Replace the lamp in the socket and snap the socket back into the hole in the meter case.

section 5

specifications

5.1 SPECIFICATIONS

Size 77.79 cm (30-5/8 in) high,
43.18 cm (17 in) wide, 47.63
cm (18-3/4 in) deep (overall
dimensions).

Weight 72.56 kg (160 pounds).

Frequency
range 3.5 to 29.7 MHz, covering
all amateur bands. By
retuning input coils as
necessary, the following
general coverage bands
may be covered.

| FREQ BAND (MHz) | TOTAL COVERAGE (MHz) |
|--------------------|-------------------------|
| 3.5 | 3.4 to 6.0 |
| 7.0 | 6.0 to 10.0 |
| 14.0 | 10.0 to 15.0 |
| 21.0 | 15.0 to 22.0 |
| 28.0 | 22.0 to 30.0 |

Mode Any type of emission.

Type of
service Intermittent commercial
or amateur.

Plate power input

CW 1000 watts input.

SSB Nominal average input of
1000 watts with speech.
Distortion products at
this level are at least 30
dB down from signal.

Drive power
requirements

SSB 80 watts pep nominal.

CW 60 watts nominal.

Primary power
requirements

..... 230 volts ac, 3-wire,
single-phase, at 15 amperes
or 115 volts ac at 30 amperes.

Input impedance 52 ohms.

Output

impedance 52 ohms nominal unbalanced
with swr not to exceed 2 to 1.

Power output

..... Into a 52-ohm resistive load:
SSB - 1000 watts pep with
35-dB signal to distortion
ratio;
CW - 600 watts with 1-kW
input.

Noise level

..... 40 dB down from output
signal with 1-kW
single-tone input.

Harmonic and other
spurious radiation

outputs At least 45 dB down from
output signal.

Automatic load
control

..... Up to 12 dB of automatic
load control (compression),
available at rear of cabinet
for control of excitation
source.

Vacuum tubes

Pa 4CX1000A (one).

Rectifiers 3B28 (two).

6.1 INTRODUCTION

6.1.1 General

The purpose of this parts list, prepared by Collins Radio Group of Rockwell International, is for identification, requisition, and issuance of parts.

Parts listed meet critical equipment design specification requirements. Use only part numbers specified in this parts list for replacement of parts.

6.1.2 Group Assembly Parts List

FIG - ITEM Column — Digits preceding the dash refer to figure numbers. Digits following the dash are item numbers assigned in sequence to correspond with item numbers on the illustrations.

PART NO Column — Listed are MIL standard, vendor, or Collins part numbers. Collins part numbering system consists of 10 digits as follows: a 3-digit family number, a 4-digit serial number, and a 3-digit dash number.

INDENT Column — Items are coded 1, 2, 3, etc, to indicate the relationship to the next higher assembly.

DESCRIPTION Column — Lists the noun name, modifier, descriptive information, federal manufacturer's code, reference designation, attaching part (AP), reference to other figures, and effectivities.

Attaching parts are identified by (AP) following the part or parts they attach.

Effectivities are identified by the following methods: MCN (Manufacturer Control Number) 101 and up; CI (Configuration Identifier) 5-digit number; REV (Revision Identifier) dash (-) denotes original, letter A first change, letter B second change, etc. One of the above identifiers is listed on each chassis and/or replaceable assembly. Service Bulletins are identified by SB 1, SB 2, etc.

USABLE ON CODE Column — Part variations within a group of equipment are indicated by a letter code (A, B, C, etc). Absence of a code indicates part applies to all models.

UNITS PER ASSY Column — Quantities specified are per item number. Letters AR denote the selection of parts as required. Letters RF refer to an assembly completely assembled on a preceding figure and illustration.

6.1.3 Numerical Index

PART NUMBER Column — Part numbers are listed in alphanumeric sequence.

FIG - ITEM Column — Digits preceding the dash refer to figure numbers. Digits following the dash are item numbers.

TTL REQ Column — Listed is the total quantity of parts or assemblies covered in the Group Assembly Parts List.

6.1.4 Reference Designation Index

REFERENCE DESIGNATION Column — Reference designations are listed in alphanumeric sequence.

FIG - ITEM Column — Digits preceding the dash refer to figure numbers. Digits following the dash are item numbers.

PART NUMBER Column — Part numbers listed are for items that have reference designations assigned.

6.1.5. How to Use This Parts List

To locate a part number if the assembly in which the part is used is known, turn to the List of Illustrations and find the page number for the assembly in which the part is used. Locate the part and its index number on the illustration and find the index number on the Group Assembly Parts List page to determine its description and part number.

To locate the illustration for a part if the part number is known, refer to the Numerical Index and find the part number. Turn to the Group Assembly Parts List and find the first figure and index number indicated in the Numerical Index for that part. If this figure shows the part in a section or system of the equipment other than the one desired, refer to the other figure numbers listed in the Numerical Index.

section 6
parts list

To locate the illustration for a part if the reference designation is known, refer to the Reference Designation Index and find the symbol; turn to the Group Assembly Parts List and find the figure and index number indicated in the index.

6.1.6 Manufacturer's Code, Name, and Address

| CODE | MANUFACTURER'S NAME AND ADDRESS | CODE | MANUFACTURER'S NAME AND ADDRESS |
|-------|--|-------|---|
| | | 11700 | J. B. Electronic Transformers, Inc. 2310 W. Armitage Chicago, IL 60647 |
| A1334 | Joyner Corp. Ocoess, MN | 12204 | Chrysler Corp. 341 Massachusetts Ave. Detroit, MI 48231 |
| 01884 | Sprague Electric Co. Dearborn Electronics Div. P.O. Box 1076 Longwood, FL 32750 | 12697 | Clarostat Mfg. Co., Inc. Lower Washington St. Dover, NH 03820 |
| 02660 | Bunker-Ramo Corp. The Amphenol Connector Div. 2801 S. 25th Ave. Broadview, IL 60153 | 14370 | Continental Rubber Works 1953 Liberty Ave. Erie, PA 16502 |
| 04009 | Arrow-Hart, Inc. 103 Hawthorne St. Hartford, CT 06106 | 14608 | Corbin Cabinet Lock Div. of Emhart Corp. 225 Episcopal Rd. Berlin, CT 06037 |
| 04713 | Motorola, Inc. Semiconductor Products Div. 5005 E. McDowell Rd. Phoenix, AZ 85008 | 19500 | Edison, Thomas A., Industries Div. of McGraw-Edison New Jersey 51 Lakeside Ave. West Orange, NJ 07052 |
| 06980 | Varian Associates Emiac Div. 301 Industrial Way San Carlos, CA 94070 | 23452 | Franklin Electric Co., Inc. 400 E. Spring St. Bluffton, IN 46714 |
| 07910 | Teledyne Semiconductor 12515 Chadron Ave. Hawthorne, CA 90250 | 24226 | Gowanda Electronics Corp. 179 Broadway Rd. Gowanda, NY 14070 |
| 08594 | EIMAC Div. of Varian Ass. Salt Lake City Facility 1678 S. Pioneer Rd. Salt Lake City, UT 84104 | 24446 | General Electric Co. 1 River Road Schenectady, NY 12305 |
| 09250 | Electro Assemblies, Inc. 4338 W. Montrose Ave. Chicago, IL 60641 | 27193 | Cutler-Hammer, Inc. Specialty Products Div. 4201 N. 27th St. Milwaukee, WI 53216 |
| 09922 | Burndy Corp. Richards Ave. Norwalk, CT 06852 | 29238 | Hart-Advance Relay Div. Oak Electro/Netics Corp. 201 W. Centralia St. Elkhorn, WI 53121 |

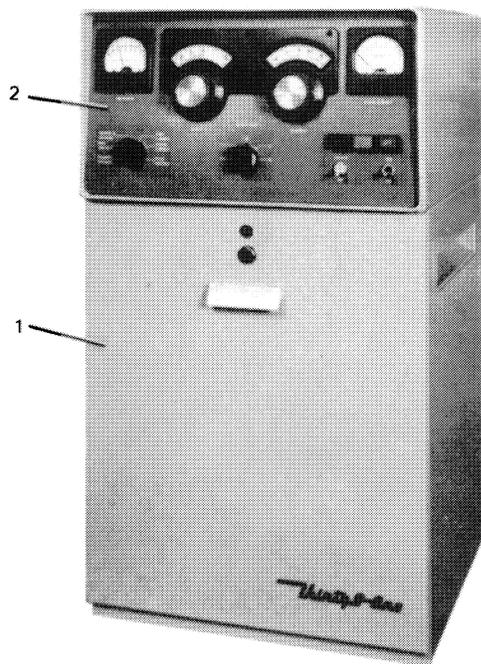
| CODE | MANUFACTURER'S NAME AND ADDRESS | CODE | MANUFACTURER'S NAME AND ADDRESS |
|-------|---|-------|---|
| 37942 | Mallory, P. R., and Co., Inc. 3029 E. Washington St. Indianapolis, IN 46206 | 71313 | Cardwell Condenser Corp. 80 E. Montauk Hwy. Lindenhurst, NY 11757 |
| 42498 | National Radio Co., Inc. 78 Stone P1 Melrose, MA 02176 | 71400 | Bussmann Mfg. Div. of McGraw Edison Co. 2536 W. University St. St. Louis, MO 63107 |
| 44655 | Ohmite Mfg. Co. 3601 W. Howard St. Skokie, IL 60076 | 71590 | Centralab Electronics Div. of Globe-Union, Inc. 5757 N. Green Bay Ave. Milwaukee, WI 53201 |
| 45722 | U. S. M. Corp. Parker-Kalon Fastener Div. 1 Peekay Dr. Clifton, NJ 07014 | 71785 | TRW Electronic Components Cinch Div. 1501 Morse Ave. Elk Grove Village, IL 60617 |
| 46384 | Penn Engineering and Mfg. Co. Old Easton Hwy. Doylestown, PA 18901 | 72136 | Electro Motive Mfg. Co., Inc., The South Park and John Streets Willimantic, CT 06226 |
| 55026 | Simpson Electric Co. Div. of American Gage and Machine Co. 5200 W. Kinzie St. Chicago, IL 60644 | 72765 | Drake Mfg. Co. 4626 N. Olcott Ave. Harwood Heights, IL 60656 |
| 56289 | Sprague Electric Co. North Adams, MA 01247 | 72962 | Elastic Stop Nut Div. of Amerace Esna Corp. 2330 Vauxhall Rd. Union, NJ 07083 |
| 59730 | Thomas and Betts Co., The 36 Butler St. Elizabeth, NJ 07207 | 72982 | Erie Technological Products, Inc. 644 W. 12th St. Erie, PA 16512 |
| 70371 | American Lava Corp. Cherokee Blvd and Manufacturers Rd. Chattanooga, TN 37405 | 73386 | Freed Transformer Co., Inc. 1736 Weirfield St. Brooklyn, NY 11227 |
| 70485 | Atlantic India Rubber Works, Inc. 571 W. Polk St. Chicago, IL 60607 | 74970 | Johnson, E. F., Co. 299 10th Ave. S.W. Waseca, MN 56093 |
| 70674 | A. D. C. Products Div. of Magnetic Controls Co. 4900 W. 78th St. Minneapolis, MN 55435 | 75346 | Kirkland, H. R., Co. 8-10 King St. Morristown, NJ 07960 |
| 71279 | Cambridge Thermionic Corp. 445 Concord Ave. Cambridge, MA 02138 | 75543 | Lavelle Rubber Co. 424 N. Wood Chicago, IL 60622 |

| CODE | MANUFACTURER'S NAME AND ADDRESS | CODE | MANUFACTURER'S NAME AND ADDRESS |
|-------|--|---|--|
| 75618 | Lion Fastener Co., Inc. N. Main Honeoye Falls, NY 14472 | 82142 | Airco Speer Electronics Div. of Air Reduction Co., Inc. Grand Plaza 945 Grand Ave. Nogales, AZ 85621 |
| 76005 | Lord Mfg. Co. Div. of Lord Corp. 1635 W. 12th St. Erie, PA 16512 | 83827 | Resistors, Inc. 5228 W. 26th St. Chicago, IL 60650 |
| 76854 | Oak Industries Inc. Switch Div. Crystal Lake, IL 60014 | 84970 | Sarkes Tarizian, Inc. Broadcast Eqpt. Div. E. Hillside Dr. Bloomington, IN 47401 |
| 77250 | Pheoll Mfg. Co. Div. of Allied Products Corp. 5700 W. Roosevelt Rd. Chicago, IL 60650 | 86684 | RCA Corp. Electronic Components 415 S. 5th St. Harrison N.J. 07029 |
| 77342 | AMF, Inc. Potter and Brumfield Div. 1200 E. Broadway Princeton, IN 47570 | 91459 | Alcon Metal Products, Inc. 1750 N. Kimball Ave. Chicago, IL 60647 |
| 80008 | Electro Engineering Works, Inc. 401 Preda St. San Leandro, CA 94577 | 91637 | Dale Electronics, Inc. P.O. Box 609 Columbus, NB 68601 |
| 80033 | Prestole Everlock, Inc. 1345 Miami St. Loledo, OH 43605 | 92825 | Whitso, Inc. 9330 Byron St. Schiller Park, IL 60176 |
| 80058 | Joint Electronic Type Designation System | 94222 | Southco, Inc. Lester, PA 19113 |
| 80089 | Essex Wire Corp. Controls Div. 131 Godfrey St. Logansport, IN 46947 | 94635 | Gray Stamping and Mfg. Co. W. John St. Plano, IL 60545 |
| 81091 | Pass and Seymour, Inc. Solvay Station Syracuse, NY 13209 | 96906 | Military Standards |
| 81349 | Military Specifications | <i>6.1.7 Configuration Identifiers</i> | |
| 81483 | International Rectifier Corp. 9220 Sunset Blvd. Los Angeles, CA 90069 | The following CI/REV LTRS were used in compiling data for this manual: | |

| <u>CI/REV</u> | <u>UNIT</u> | <u>FIG-ITEM</u> |
|---------------|--------------------|-----------------|
| <u>LTR</u> | <u>PART NUMBER</u> | |
| 72416 | 522-1286-011 | 6-1 |
| AD | 544-6873-000 | 6-2 |

| <u>CI/REV</u> <u>LTR</u> | <u>UNIT</u> <u>PART NUMBER</u> | <u>FIG-ITEM</u> |
|-----------------------------|-----------------------------------|-----------------|
| 71272 | 544-7024-005 | 6-2-59 |
| 71272 | 544-6995-003 | 6-2-76 |
| 71272 | 545-7825-003 | 6-2-77 |
| 72443 | 544-6879-000 | 6-2-83 |
| K | 544-6877-000 | 6-2-112 |
| 71272 | 544-6871-000 | 6-2-169 |
| 71272 | 544-6883-000 | 6-3 |
| 71272 | 544-6970-002 | 6-3-11 |
| 71272 | 544-6872-000 | 6-4-13 |
| AB | 544-6874-000 | 6-5 |
| 71272 | 544-6882-000 | 6-5-14 |
| AE | 544-6880-000 | 6-6 |
| 71105 | 609-0691-001 | 6-7 |
| 71083 | 609-0690-001 | 6-7-20 |

6.2 GROUP ASSEMBLY PARTS LIST



TP3-5558-027

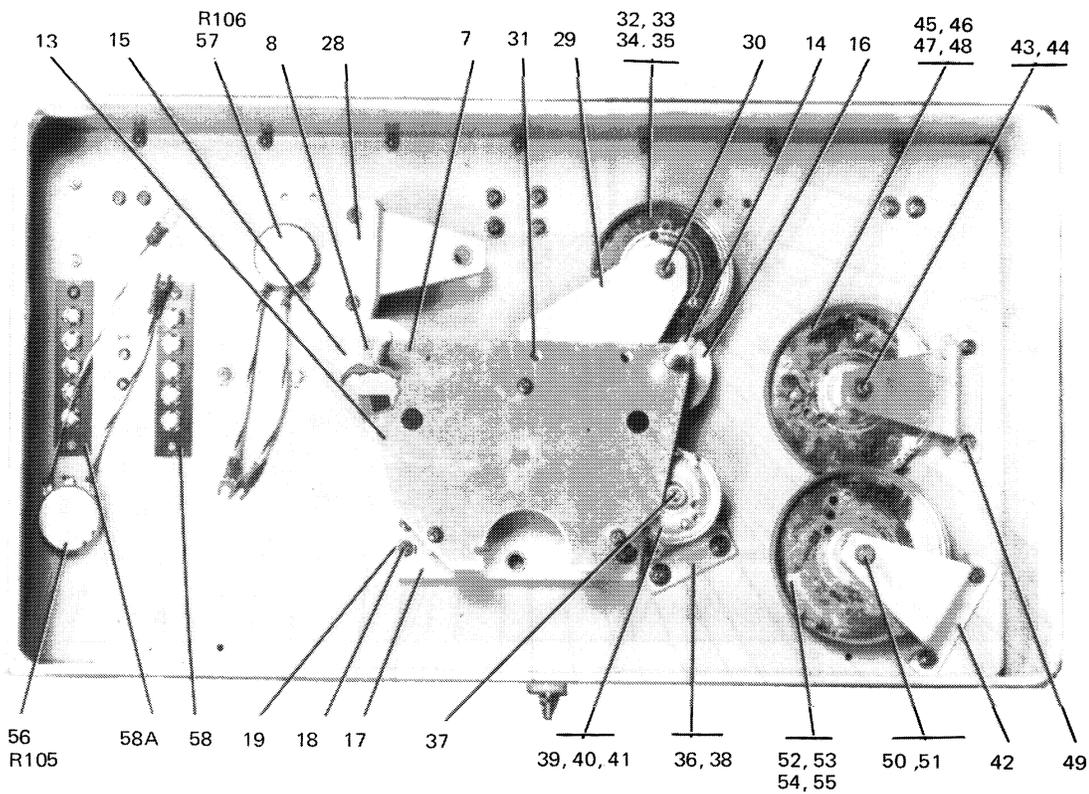
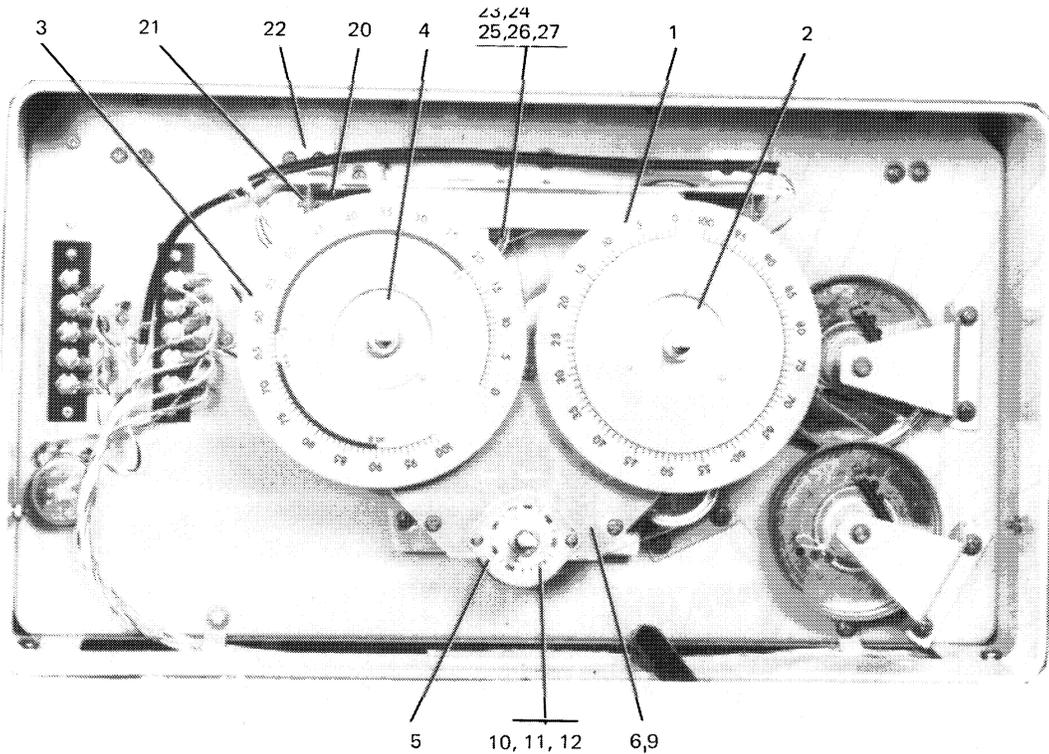
*30S-1 Power Amplifier
Figure 6-1 (Sheet 1 of 2)*

section 6
parts list

GROUP ASSEMBLY PARTS LIST

| FIG - ITEM | PART NO | INDENT | DESCRIPTION | USABLE ON CODE | UNITS PER ASSY |
|---------------|----------------|--------|---|----------------------|----------------------|
| 6-1 - | 522-1286-011 | 1 | AMPLIFIER, POWER 30S-1 | | 1 |
| 1 | NO NUMBER | 2 | CABINET ASSY, POWER SUPPLY (SEE FIG 6-4) | | 1 |
| 2 | NO NUMBER | 2 | CABINET ASSY, UPPER | | 1 |
| 3 | 545-7815-000 | 3 | KNOB | | 2 |
| 4 | 544-0781-004 | 3 | KNOB, POINTER | | 2 |
| 5 | NO NUMBER | 3 | PANEL ASSY, FRONT | | 1 |
| 6 | 36C175A | 4 | CAPACITOR,FXD, CER DIEI, 10000PF, 20%, 500V (V56289) 913-3013-000 C202 | | 1 |
| 7 | 36C175A | 4 | CAPACITOR,FXD, CER DIEI, 10000PF, 20%, 500V (V56289) 913-3013-000 C201 | | 1 |
| 8 | R3741XOK10R10H | 4 | RESISTOR,FXD,WW 10.1 OHMS, 3%, 7W (V91637) 746-9186-000 R204 | | 1 |
| 9 | RN6501100F | 4 | RESISTOR,FXD, FILM, 110 OHMS, 1%, 1/2W (V81349) 705-7050-000 R221 | | 1 |
| 10 | RN7008060F | 4 | RESISTOR,FXD, FILM, 806 OHMS, 1%, 3/4W (V81349) 705-7779-000 R209 | | 1 |
| 11 | RCR42G560KS | 4 | RESISTOR,FXD, CMPSN, 56 OHMS, 10%, 2W (V81349) 745-5600-000 R225 | | 1 |
| 12 | RCR20G204JS | 4 | RESISTOR,FXD, CMPSN, 0.20MEGO, 5%, 1/2W (V81349) 745-1448-000 R217 | | 1 |
| 13 | RCR32G472KS | 4 | RESISTOR,FXD, CMPSN, 4.7K, 10%, 1W (V81349) 745-3380-000 R235 | | 1 |
| 14 | 1N1492 | 4 | SEMICOND DEVICE (V81483) 353-1661-000 CR216 | | 1 |
| 15 | 544-6958-002 | 4 | ESCUTCHEON | | 1 |
| 16 | 544-6957-002 | 5 | WINDOW, DIAL | | 2 |
| 17 | 544-6996-003 | 5 | ESCUTCHEON | | 1 |
| 18 | 544-6884-000 | 4 | PANEL ASSY | | 1 |
| 19 | RCR32G473KS | 5 | RESISTOR,FXD, CMPSN, 47K, 10%, 1W (V81349) 745-3422-000 R231 | | 1 |
| 20 | 259-1027-000 | 5 | SWITCH,RTRY 259-1027-000 S207 | | 1 |
| 21 | 31-759 | 5 | TERMINAL,LUG (V02660) 304-0139-000 | | 1 |
| 22 | 83001 | 5 | SWITCH,TGL (V04009) 260-2613-000 S202 | | 1 |
| 23 | 7665K4 | 5 | SWITCH,TGL (V27193) 266-0072-000 S201 | | 1 |
| 24 | 1025NC | 5 | SWITCH,PB (V75346) 260-2697-000 S208 | | 1 |
| 25 | 1025ND | 5 | SWITCH,PB (V75346) 260-2696-000 S203 | | 1 |
| 26 | 262-0626-000 | 5 | LENS,LIGHT, RED 262-0626-000 | | 1 |
| 27 | MS15571-2 | 5 | LAMP,INCAND (V96906) 262-3240-000 DS202 | | 1 |
| 28 | 262-0627-000 | 5 | LIGHT,HOLDER 262-0627-000 | | 1 |
| 29 | 1532A | 5 | TERMINAL BOARD (V71785) 306-9032-000 | | 1 |
| | 546-2149-000 | 5 | METER KIT | | 1 |
| 30 | 5690 | 6 | MILLIAMMETER,DC (V55026) 458-0484-000 M202 | | 1 |
| 31 | 5687 | 6 | MILLIAMMETER,DC (V55026) 458-0483-000 M201 | | 1 |
| 32 | 1520A | 6 | TERMINAL BOARD (V71785) 306-9033-000 | | 1 |
| 33 | HP6N | 4 | CLAMP,LOOP (V09922) 150-1543-000 | | 1 |
| 34 | 544-6997-003 | 4 | PANEL,FRONT | | 1 |
| 35 | 544-6873-000 | 2 | CABINET SUBASSEMBLY,POWER AMPLIFIER (SEE FIG 6-2) | | 1 |

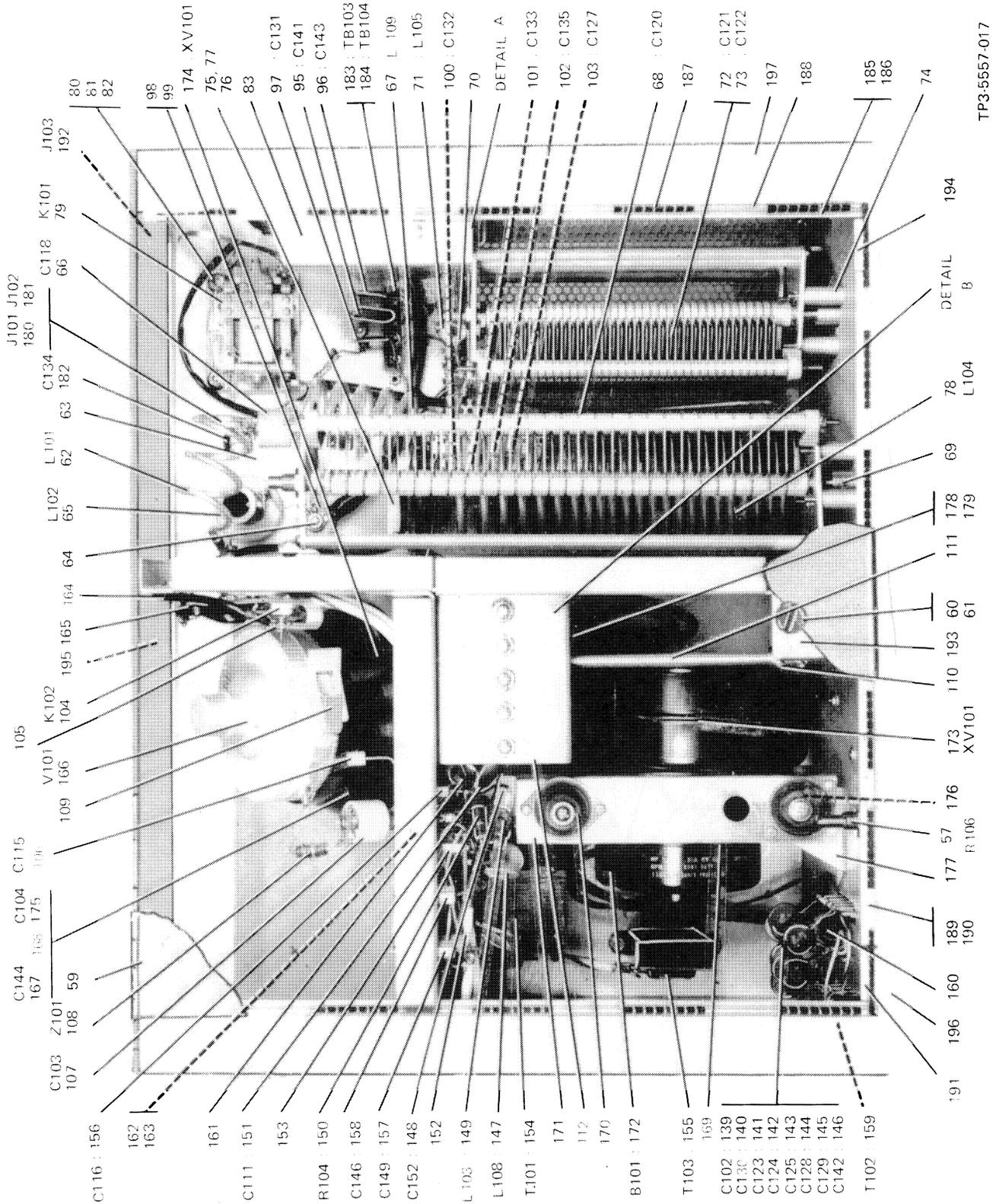
GROUP ASSEMBLY PARTS LIST



TP3-5557-0 7

Power Amplifier Cabinet Subassembly
Figure 6-2 (Sheet 1 of 3)

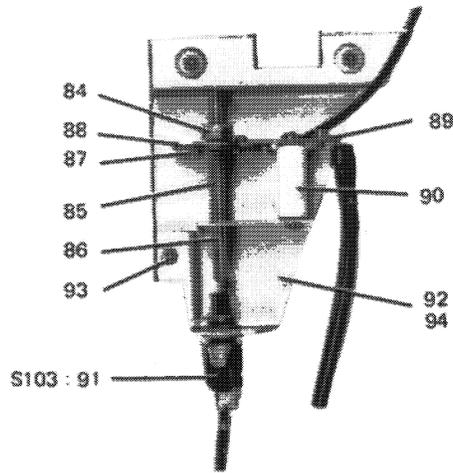
GROUP ASSEMBLY PARTS LIST



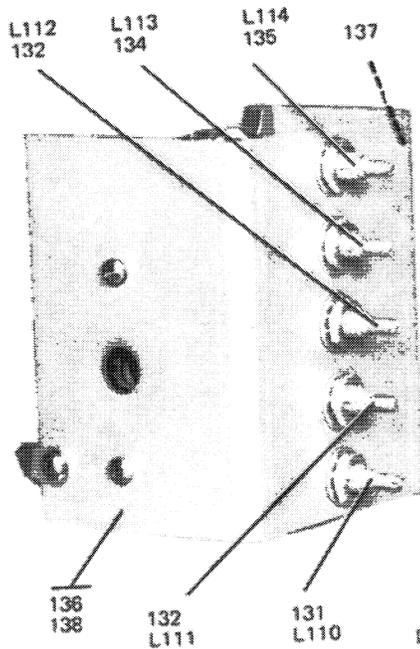
Power Amplifier Cabinet Subassembly
Figure 6-2 (Sheet 2)

TP3-5557-017

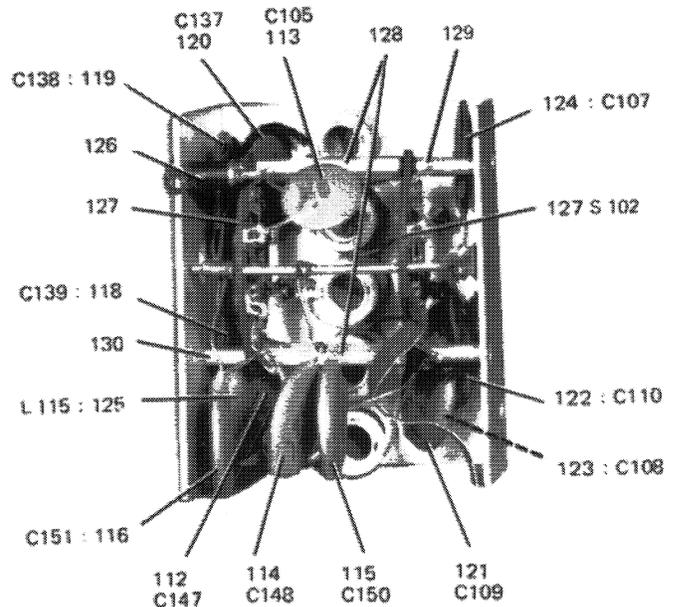
GROUP ASSEMBLY PARTS LIST



DETAIL A



DETAIL B



TP3-5557-017

Power Amplifier Cabinet Subassembly
Figure 6-2 (Sheet 3)

section 6
parts list

GROUP ASSEMBLY PARTS LIST

| FIG - ITEM | PART NO | INDENT | DESCRIPTION | USABLE ON CODE | UNITS PER ASSY |
|------------|----------------|--------|--|----------------|----------------|
| 6-2 - | 544-6873-000 | 1 | CABINET SUBASSEMBLY, POWER AMPLIFIER (SEE FIG 6-1-35 FOR NHA) | | REF |
| 1 | 544-6954-002 | 2 | DISC, DIAL | | 1 |
| 2 | 544-6952-002 | 2 | HUB, DIAL | | 1 |
| 3 | 544-6953-002 | 2 | DISC, DIAL | | 1 |
| 4 | 544-6952-002 | 2 | HUB, DIAL | | 1 |
| 5 | 95861AH | 2 | DETENT, SW (V76854) 269-2037-000 | | 1 |
| | 502-1515-002 | 2 | WASHER, FLAT (AP) | | 2 |
| 6 | 544-6944-002 | 2 | PLATE, FRONT | | 1 |
| 7 | M916562-201 | 3 | PIN, SPR, SST, 0.078 DIA X 3/8 (V96906) 311-0357-000 | | 1 |
| 8 | F346-4MILL6085 | 3 | BEARING, SLV (V12204) 309-0124-000 | | 1 |
| 9 | 544-6941-002 | 3 | PLATE, FRONT | | 1 |
| 10 | 544-6949-002 | 2 | PULLEY, DRIVE | | 2 |
| 11 | 544-6932-002 | 3 | HUB, PULLEY | | 2 |
| 12 | SP2-15 | 3 | PULLEY, GROOVE (V94635) 281-0057-000 | | 2 |
| 13 | 544-6967-002 | 2 | COLLAR, SHAFT | | 2 |
| 14 | 544-6931-002 | 2 | SHAFT, DIAL | | 2 |
| 15 | 544-6964-002 | 2 | DRUM, TUNING | | 1 |
| 16 | 544-6962-002 | 2 | DRUM, LOADING | | 1 |
| 17 | 544-6945-002 | 2 | PLATE, REAR | | 1 |
| 18 | 540-9468-003 | 2 | POST | | 3 |
| 19 | 544-6929-002 | 2 | BLOCK, CHASSIS | | 2 |
| 20 | M915571-2 | 2 | LAMP, INCAND (V96906) 262-3240-000 DS201 ,DS203 | | 2 |
| 21 | 4159-043 | 2 | LAMPHOLDER (V72765) 262-1210-000 | | 2 |
| 22 | 544-6965-002 | 2 | DUCT, WIRING | | 1 |
| 23 | 544-6937-002 | 2 | SHAFT, SWITCH | | 1 |
| 24 | 544-6967-002 | 2 | COLLAR, SHAFT | | 2 |
| 25 | 544-6949-002 | 2 | PULLEY, DRIVE | | 1 |
| 26 | 544-6932-002 | 3 | HUB, PULLEY | | 1 |
| 27 | SP2-15 | 3 | PULLEY, GROOVE (V94635) 281-0057-000 | | 1 |
| 28 | 544-6979-002 | 2 | BRACKET, SWITCH | | 1 |
| 29 | 544-6980-002 | 2 | BRACKET, ANGLE | | 1 |
| 30 | F346-4MILL6085 | 2 | BEARING, SLV (V12204) 309-0124-000 | | 1 |
| 31 | CL632-2C | 2 | NUT, PLAIN, CD PL STL, 6-32 (V46384) 334-0066-000 | | 2 |
| 32 | 544-6946-002 | 2 | COUPLER, SHAFT | | 1 |
| 33 | 544-6938-002 | 3 | SHAFT, BEARING | | 1 |
| 34 | SP3-22 | 3 | PULLEY, GROOVE (V94635) 281-0054-000 | | 1 |
| 35 | 544-6934-002 | 3 | COUPLER, SHAFT | | 1 |
| 36 | 545-7601-002 | 2 | BRACKET, SWITCH | | 1 |
| 37 | F347-4MILL6085 | 3 | BEARING, SLV (V12204) 309-0125-000 | | 1 |
| 38 | 545-7600-002 | 3 | BRACKET, SWITCH | | 1 |
| 39 | 544-6899-002 | 2 | PULLEY, SWITCH | | 1 |
| 40 | 544-6898-002 | 3 | HUB, PULLEY | | 1 |
| 41 | SP2-15 | 3 | PULLEY, GROOVE (V94635) 281-0057-000 | | 1 |
| 42 | 544-6942-002 | 2 | BRACKET, LOADING | | 1 |
| 43 | F346-4MILL6085 | 2 | BEARING, SLV (V12204) 309-0124-000 | | 1 |
| 44 | 544-6971-002 | 2 | BRACKET, LOADING | | 1 |
| 45 | 544-6947-002 | 2 | COUPLER, SHAFT | | 1 |
| 46 | 544-6938-002 | 3 | SHAFT, BEARING | | 1 |
| 47 | SP4-28 | 3 | PULLEY, GROOVE (V94635) 281-0019-000 | | 1 |
| 48 | 544-6935-002 | 3 | COUPLER, SHAFT | | 1 |
| 49 | 544-6943-002 | 2 | BRACKET, LOADING | | 1 |
| 50 | F346-4MILL6085 | 3 | BEARING, SLV (V12204) 309-0124-000 | | 1 |
| 51 | 544-6972-002 | 3 | BRACKET, LOADING | | 1 |
| 52 | 544-6948-002 | 2 | COUPLER, SHAFT | | 1 |
| 53 | 544-6938-002 | 3 | SHAFT, BEARING | | 1 |
| 54 | SP4-28 | 3 | PULLEY, GROOVE (V94635) 281-0019-000 | | 1 |
| 55 | 544-6936-002 | 3 | COUPLER, SHAFT | | 1 |
| 56 | 376-3275-000 | 2 | RESISTOR, VAR, CMPSN, 100K, 20%, 1/2W, 3/4SFT (V12697) 376-3275-000 R105 (REPLACE WITH 376-3010-000) | | 1 |

GROUP ASSEMBLY PARTS LIST

| FIG - ITEM | PART NO | INDENT | DESCRIPTION | USABLE ON CODE | UNITS PER ASSY |
|------------|---------|--------------|---|----------------|----------------|
| 6-2 | 56 | CM37371-3010 | 2 RESISTOR,VAR, 100K, 20%, 1/2W (V12697) 376-3010-000 R105 (REPLACES 376-3275-000) | | 1 |
| | 57 | RA20SASD501A | 2 RESISTOR,VAR,WW 500 OHMS, 10%, 2W (V81349) 750-0510-000 R106 | | 1 |
| | 58 | 1775 | 2 TERMINAL BOARD (V71785) 306-0035-000 TB101 | | 1 |
| | 58A | 1775 | 2 TERMINAL BOARD (V71785) 306-0035-000 TB102 | | 1 |
| | 59 | 544-7024-005 | 2 COVER ASSY,BACK | | 1 |
| | 60 | G055-93 | 2 EYELET,TURNLOCK (V75618) 012-1299-000 | | 1 |
| | 61 | 85-11-080-17 | 2 STUD,TURNLOCK, FSTNR, CD PL STL, 0.290 DIA X 0.525 (V94222) 012-1302-000 | | 1 |
| | 62 | 544-6950-002 | 2 COIL L101 | | 1 |
| | 63 | 544-7037-002 | 2 STRAP NO.2 | | 1 |
| | 64 | 540-9250-003 | 2 POST | | 1 |
| | 65 | 540-7979-000 | 2 CHOKE,RF L102 | | 1 |
| | 66 | DA858-003 | 2 CAPACITOR,FXD, CER DIEL, 1000PF, 20%, 5000V (V71590) 913-0101-000 C118 | | 1 |
| | 67 | 544-6900-002 | 2 CHOKE,RF L109 | | 1 |
| | 68 | 154-16 | 2 CAPACITOR,VAR, AIR DIEL, 36 TO 229PF (V71313) 920-0137-000 C120 | | 1 |
| | 69 | 544-6928-002 | 2 POST SPACER | | 1 |
| | 70 | 540-7036-002 | 2 GEAR,SYNCHRO | | 1 |
| | 71 | 49966 | COIL,RF, 44MH (V45722) 240-0137-000 L105 | | 1 |
| | 72 | 154-32 | 2 CAPACITOR,VAR, AIR DIEL, 29 TO 700PF (V71313) 920-0140-000 C121 | | 1 |
| | 73 | 154-32 | 2 CAPACITOR,VAR, AIR DIEL, 29 TO 700PF (V71313) 920-0140-000 C122 | | 1 |
| | 74 | 544-6928-002 | 2 POST,SPACER | | 6 |
| | 75 | 544-6896-002 | 2 BRACKET,SWITCH | | 1 |
| | 76 | 544-6995-003 | 2 SHAFT ASSY | | 1 |
| | 77 | 545-7825-003 | 2 SWITCH ASSY, BAND S104 | | 1 |
| | 78 | 545-7604-003 | 2 COIL TUNING L104 | | 1 |
| | 79 | 970-1922-000 | 2 RELAY,AMT (V29238) 970-1922-000 K101 | | 1 |
| | 80 | 541-5979-002 | 2 SPACER,SLEEVE | | 4 |
| | 81 | M335489-4 | 2 GROMMET,RBR (V96906) 201-0001-000 | | 4 |
| | 82 | 544-7003-000 | 2 ISOLATOR,RELAY | | 1 |
| | 83 | 544-6879-000 | 2 INTERLOCK ASSY | | 1 |
| | 84 | 544-6967-002 | 3 COLLAR,SHAFT | | 1 |
| | 85 | 544-6922-002 | 3 SPRING ,SHORTING SWITCH | | 1 |
| | 86 | 544-6924-002 | 3 SHAFT,INTERLOCK | | 1 |
| | 87 | 544-6926-002 | 3 ISULATOR,SWITCH | | 1 |
| | 88 | 544-6925-002 | 3 DISC,SHORTING | | 1 |
| | 89 | 544-6919-002 | 3 PLATE | | 1 |
| | 90 | E1001 | 3 INSULATOR,STDF (V70371) 190-1151-000 | | 1 |
| | 91 | 8411K11 | 3 SWITCH,PUSH (V27193) 260-2548-000 S103 | | 1 |
| | 92 | 544-6990-003 | 3 BRACKET ,INTERLOCK | | 1 |
| | 93 | 68NC3-40 | 4 NUT,SLFLKG, AL, 4-40 (V72962) 333-0199-000 | | 1 |
| | 94 | 544-6989-003 | 4 BRACKET ,INTERLOCK | | 1 |
| | 95 | 36C175A | 2 CAPACITOR,FXD, CER DIEL, 10000PF, 20%, 500V (V56289) 913-3013-000 C141 | | 1 |
| | 96 | DD60-152 | 2 CAPACITOR,FXD, CER DIEL, 0.0015UF, 20%, 6000V (V71590) 913-3539-000 C143 | | 1 |
| | 97 | 36C175A | 2 CAPACITOR,FXD, CER DIEL, 10000PF, 20%, 500V (V56289) 913-3013-000 C131 | | 1 |
| | 98 | X896 | 2 INSULATOR,BSHG (V71590) 190-1127-000 | | 1 |
| | 99 | X100 | 2 INSULATOR,BSHG (V71590) 190-1123-000 | | 1 |
| | 100 | CK12BX102M | 2 CAPACITOR,FXD, CER DIEL, 1000PF, 20%, 100V (V81349) 913-3019-000 C132 | | 1 |
| | 101 | 36C175A | 2 CAPACITOR,FXD, CER DIEL, 10000PF, 20%, 500V (V56289) 913-3013-000 C133 | | 1 |
| | 102 | 36C175A | 2 CAPACITOR,FXD, CER DIEL, 10000PF, 20%, 500V (V56289) 913-3013-000 C135 | | 1 |

section 6
parts list

GROUP ASSEMBLY PARTS LIST

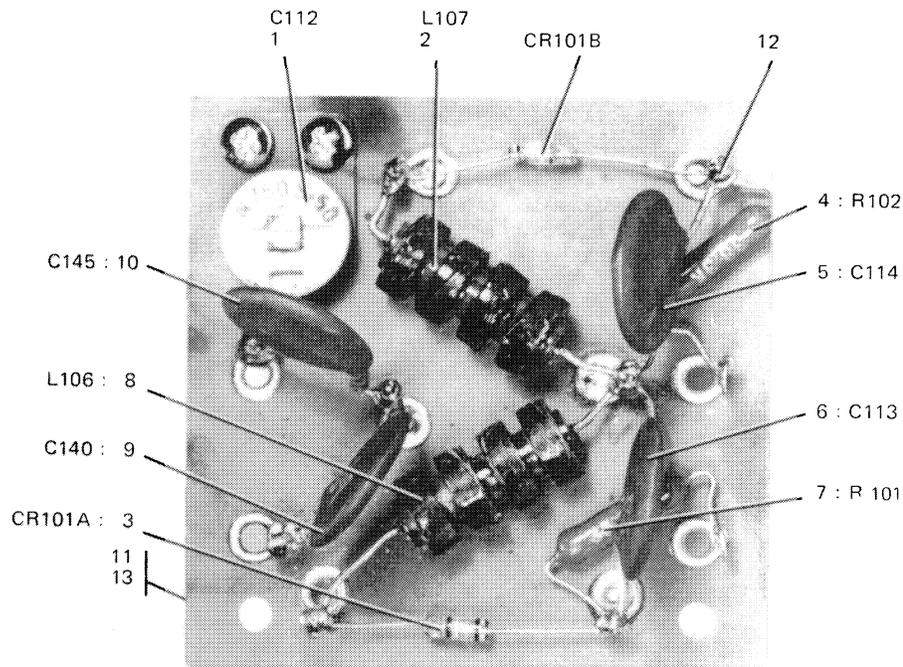
| FIG - ITEM | PART NO | INDENT | DESCRIPTION | USABLE ON CODE | UNITS PER ASSY |
|------------|-----------------|--------|---|----------------|----------------|
| 6-2 103 | 0060-152 | 2 | CAPACITOR,FXD, CER DIEI, 0.0015UF, 20%, 6000V (V71590) 913-3539-000 C127 | | 1 |
| 104 | 545-3120-004 | 2 | SWITCH,THERMAL K102 | | 1 |
| 105 | 545-3119-003 | 2 | BRACKET,HINGE | | 1 |
| 106 | 913-3703-000 | 2 | CAPACITOR,FXD, CER DIEI, 1PF, 25%, 5000V 913-3703-000 C115 | | 1 |
| 107 | 850552 | 2 | CAPACITOR,FXD, CER DIEI, 5PF, 5%, 5000V (V71590) 913-0840-000 C103 | | 1 |
| 108 | 544-6876-000 | 2 | SUPPRESSOR ,PARASITIC Z101 | | 1 |
| 109 | 544-6927-002 | 2 | CLAMP,TUBE | | 1 |
| 110 | 544-6939-002 | 2 | COUPLER,SWITCH | | 1 |
| 111 | 544-6933-002 | 2 | SHAFT,SWITCH | | 1 |
| 112 | 544-6877-000 | 2 | INPUT ASSY | | 1 |
| 113 | 36C175A | 3 | CAPACITOR,FXD, CER DIEI, 10000PF, 20%, 500V (V56289) 913-3013-000 C105 | | 1 |
| 114 | 913-3587-000 | 3 | CAPACITOR,FXD, CER DIEI, 1000PF, 5%, 1000V (V71590) 913-3587-000 C148 (REPLACE WITH 913-1292-000) | | 1 |
| 114 | 327-029X5T0102Z | 3 | CAPACITOR,FXD, CER DIEI, 1000PF, M20%P80%, 500V (V72982) 913-1292-000 C148 (REPLACES 913-3587-000) | | 1 |
| 115 | 913-3589-000 | 3 | CAPACITOR,FXD, CER DIEI, 560PF, 5%, 1000V (V71590) 913-3589-000 C150 | | 1 |
| 116 | 913-3589-000 | 3 | CAPACITOR,FXD, CER DIEI, 560PF, 5%, 1000V (V71590) 913-3589-000 C151 | | 1 |
| 117 | 913-3588-000 | 3 | CAPACITOR,FXD, CER DIEI, 650PF, 5%, 1000V (V71590) 913-3588-000 C147 (REPLACE WITH 912-2989-000) /B5/ | | 1 |
| 117 | CM06FD681J03 | 3 | CAPACITOR,FXD, CER DIEI, 680PF, 5%, 500V (V81349) 912-2989-000 C147 (REPLACES 913-3588-000) /B5/ | | 1 |
| 118 | 913-3582-000 | 3 | CAPACITOR,FXD, CER DIEI, 220PF, 5%, 1000V (V71590) 913-3582-000 C139 | | 1 |
| 119 | 913-3581-000 | 3 | CAPACITOR,FXD, CER DIEI, 180PF, 5%, 2000V (V71590) 913-3581-000 C138 | | 1 |
| 120 | 913-3579-000 | 3 | CAPACITOR,FXD, CER DIEI, 91PF, 5%, 2000V (V71590) 913-3579-000 C137 | | 1 |
| 121 | 913-3585-000 | 3 | CAPACITOR,FXD, CER DIEI, 510PF, 5%, 1000V (V71590) 913-3585-000 C109 | | 1 |
| 122 | 913-3586-000 | 3 | CAPACITOR,FXD, CER DIEI, 820PF, 5%, 1000V (V71590) 913-3586-000 C110 | | 1 |
| 123 | 913-3572-000 | 3 | CAPACITOR,FXD, CER DIEI, 110PF, 5%, 1000V (V71590) 913-3572-000 C108 | | 1 |
| 124 | 913-3579-000 | 3 | CAPACITOR,FXD, CER DIEI, 91PF, 5%, 2000V (V71590) 913-3579-000 C107 (REPLACE WITH 913-3581-000) | | 1 |
| 124 | 913-3581-000 | 3 | CAPACITOR,FXD, CER DIEI, 180PF, 5%, 2000V (V71590) 913-3581-000 C107 (REPLACES 913-3579-000) | | 1 |
| 125 | 545-7814-000 | 3 | COIL L115 | | 1 |
| 126 | 2A10815 | 3 | TERMINAL STDF (V92825) 306-0234-000 | | 1 |
| 127 | 94111AH | 3 | SWITCH SECT,RTR (V76854) 269-2036-000 S102 | | 2 |
| 128 | 540-9057-003 | 3 | POST | | 2 |
| 129 | 541-5974-002 | 2 | SPACER,SLEEVE | | 2 |
| 130 | 541-5970-002 | 3 | SPACER,SLEEVE | | 2 |
| 131 | 544-6999-003 | 3 | COIL NO 2 L110 | | 1 |
| 132 | 544-6998-003 | 3 | COIL NO 1 L111 (REPLACE WITH 790-1645-001) | | 1 |
| 132 | 790-1645-001 | 3 | COIL NO 1 L111 (REPLACES 544-6998-003) | | 1 |
| 133 | 544-7002-003 | 3 | COIL NO 5 L112 | | 1 |
| 134 | 544-7001-003 | 3 | COIL NO 4 L113 | | 1 |
| 135 | 544-7000-003 | 3 | COIL NO 3 L114 | | 1 |
| 136 | 544-7008-003 | 3 | BRACKET,SWITCH | | 1 |
| 137 | CL632-2C | 4 | NUT,PLAIN, CD PL STL, 6-32 (V46384) 334-0066-000 | | 2 |

GROUP ASSEMBLY PARTS LIST

| FIG - ITEM | PART NO | INDENT | DESCRIPTION | USABLE ON CODE | UNITS PER ASSY |
|------------|---------|--------------------|---|----------------|----------------|
| 6-2 | 138 | 544-7007-003 | 4 BRACKET, SWITCH | | 1 |
| | 139 | 36C175A | 2 CAPACITOR, FXD, CER DIEL, 10000PF, 20%, 500V (V56289) 913-3013-000 C102 | | 1 |
| | 140 | 36C175A | 2 CAPACITOR, FXD, CER DIEL, 10000PF, 20%, 500V (V56289) 913-3013-000 C130 | | 1 |
| | 141 | 36C175A | 2 CAPACITOR, FXD, CER DIEL, 10000PF, 20%, 500V (V56289) 913-3013-000 C123 | | 1 |
| | 142 | 36C175A | 2 CAPACITOR, FXD, CER DIEL, 10000PF, 20%, 500V (V56289) 913-3013-000 C124 | | 1 |
| | 143 | 36C175A | 2 CAPACITOR, FXD, CER DIEL, 10000PF, 20%, 500V (V56289) 913-3013-000 C125 | | 1 |
| | 144 | 36C175A | 2 CAPACITOR, FXD, CER DIEL, 10000PF, 20%, 500V (V56289) 913-3013-000 C128 | | 1 |
| | 145 | 36C175A | 2 CAPACITOR, FXD, CER DIEL, 10000PF, 20%, 500V (V56289) 913-3013-000 C129 | | 1 |
| | 146 | 36C175A | 2 CAPACITOR, FXD, CER DIEL, 10000PF, 20%, 500V (V56289) 913-3013-000 C142 | | 1 |
| | 147 | 9348 | 2 COIL, RF, 2MH (V24226) 240-0134-000 L108 | | 1 |
| | 148 | DM15C150K500WV4C R | 2 CAPACITOR, FXD, MICA DIEL, 15PF, 10%, 500V (V72136) 912-2760-000 C152 | | AR |
| | 148 | DM15E220K500WV4C R | 2 CAPACITOR, FXD, MICA DIEL, 22PF, 10%, 500V (V72136) 912-2769-000 C152 | | AR |
| | 148 | DM15E270K500WV4C R | 2 CAPACITOR, FXD, MICA DIEL, 27PF, 10%, 500V (V72136) 912-2775-000 C152 | | AR |
| | 148 | DM15E390K500WV4C R | 2 CAPACITOR, FXD, MICA DIEL, 39PF, 10%, 500V (V72136) 912-2787-000 C152 | | AR |
| | 148 | DM15E470K500WV4C R | 2 CAPACITOR, FXD, MICA DIEL, 47PF, 10%, 500V (V72136) 912-2793-000 C152 | | AR |
| | 149 | 240-0191-000 | 2 COIL, RF, 56UH (V82142) 240-0191-000 L103 (REPLACE WITH 240-1624-000) | | 1 |
| | 149 | M975103-6 | 2 COIL, RF, 56UH (V96906) 240-1624-000 L103 (REPLACES 240-0191-000) | | 1 |
| | 150 | RCR32G102KS | 2 RESISTOR, FXD, CMPSN, 1K, 10%, 1W (V81349) 745-3352-000 R104 | | 1 |
| | 151 | DM15C050D500WV4C R | 2 CAPACITOR, FXD, MICA DIEL, 5PF, 0.5PF, 500V (V72136) 912-2751-000 C111 | | 1 |
| | 152 | 544-6883-000 | 2 BOARD ASSY, TERMINAL (SEE FIG 6-3) | | 1 |
| | 153 | 540-9168-003 | 2 POST | | 1 |
| | 154 | 27370 | 2 TRANSFORMER, PWR (V80089) 662-0354-000 T101 | | 1 |
| | 155 | E13768 | 2 TRANSFORMER, PWR (V80008) 662-0427-000 T103 | | 1 |
| | 156 | 2443-000X5T0151K | 2 CAPACITOR, FXD, CER DIEL, 150PF, 10%, 500V (V72982) 913-3705-000 C116 | | 1 |
| | 157 | 327-029X5T0102Z | 2 CAPACITOR, FXD, CER DIEL, 1000PF, M20%P80%, 500V (V72982) 913-1292-000 C149 | | 1 |
| | 158 | 327-029X5T0102Z | 2 CAPACITOR, FXD, CER DIEL, 1000PF, M20%P80%, 500V (V72982) 913-1292-000 C146 | | 1 |
| | 159 | E13660 | 2 TRANSFORMER, AF (V80008) 667-0344-000 T102 | | 1 |
| | 160 | HP4N | 2 CLAMP, LOOP (V09922) 150-1541-000 | | 1 |
| | 161 | 544-7038-002 | 2 STRAP | | 1 |
| | 162 | XI640 | 2 INSULATOR, BSHG (V71590) 190-1121-000 | | 1 |
| | 163 | X830 | 2 INSULATOR, BSHG (V71590) 190-1125-000 | | 1 |
| | 164 | 18A18697 | 2 TERMINAL BOARD (V71785) 306-0168-000 | | 1 |
| | 165 | 544-6894-002 | 2 PLATE, INSULATOR | | 1 |
| | 166 | 4X25080R4CX250B | 2 ELECTRON TUBE (V08594) 256-0123-000 V101 | | 1 |
| | 167 | 36C175A | 2 CAPACITOR, FXD, CER DIEL, 10000PF, 20%, 500V (V56289) 913-3013-000 C144 | | 1 |
| | 168 | 544-7004-003 | 2 DUCT, AIR | | 1 |
| | 169 | 544-6871-000 | 2 BLOWER ASSY | | 1 |
| | 170 | 106PDL2 | 3 MOUNT, RESILIENT (V76005) 200-1449-000 | | 3 |
| | 171 | 544-6986-003 | 3 BRACKET, BLOWER MOUNTING | | 1 |
| | 172 | 82132-0032 | 3 FAN, CNTFGL (V23452) 009-1407-000 B101 | | 1 |
| | 173 | 544-6985-003 | 2 DUCT AIR | | 1 |
| | 174 | Y131A | 2 SOCKET, ELECTRON (V06980) 220-1341-000 XV101 | | 1 |

GROUP ASSEMBLY PARTS LIST

| FIG - ITEM | PART NO | INDENT | DESCRIPTION | USABLE ON CODE | UNITS PER ASSY |
|------------|-----------------------|--------|---|----------------|----------------|
| 6-2 - 175 | 913-3538-000 | 2 | CAPACITOR,FXD, CER DIEI, 220PF, 5%, 1000V 913-3538-000 C104 | | 1 |
| 176 | 544-6887-000 | 2 | BRACKET,BLOWER | | 1 |
| 177 | 544-6890-002 | 2 | BRACKFT,BLOWER | | 1 |
| 178 | RG58CU | 2 | CABLE,RF (V80058) 425-0042-000 | | 1 |
| 179 | HP8N | 2 | CLAMP,LOOP (V09922) 150-1545-000 | | 1 |
| 180 | 201-11-01-018 | 2 | JACK,PHONO (V71785) 360-0088-000 J101 | | 1 |
| 181 | 201-11-01-018 | 2 | JACK,PHONO (V71785) 360-0088-000 J102 | | 1 |
| 182 | DM15F330K500WV4C R | 2 | CAPACITOR,FXD, MICA DIEI, 33PF, 10%, 500V (V72136) 912-2781-000 C134 | | 1 |
| 183 | 1774 | 2 | TERMINAL BOARD (V71785) 306-0034-000 TB103 | | 1 |
| 184 | 1774 | 2 | TERMINAL BOARD (V71785) 306-0034-000 TB104 | | 1 |
| 185 | 544-6892-002 | 2 | STRIP,HOLD DOWN | | 2 |
| 186 | 544-6893-002 | 2 | STRIP,HOLD DOWN | | 2 |
| 187 | 545-9118-002 | 2 | PLATE,NUT | | 10 |
| 188 | 544-6891-002 | 2 | TAB,GROUNDING | | 10 |
| 189 | 544-6921-002 | 2 | STRIP,BACKING | | 1 |
| 190 | 544-6920-002 | 2 | STRIP,BACKING | | 1 |
| 191 | 544-6891-002 | 2 | TAB,GROUNDING | | 7 |
| 192 | M39012-04-0002 | 2 | CONNECTOR,RCPT, ELEC (V81349) 357-9003-000 J103 | | 1 |
| 193 | 544-6977-002 | 2 | BRACKET,LATCH | | 1 |
| 194 | 544-6974-002 | 2 | BRACKET,STOP | | 2 |
| 195 | 544-6975-002 | 2 | RUMPER | | 1 |
| 196 | 544-7030-006 | 2 | FRAME,CABINET | | 1 |
| 197 | 544-7032-006 | 2 | CAPINET,UPPER | | 1 |



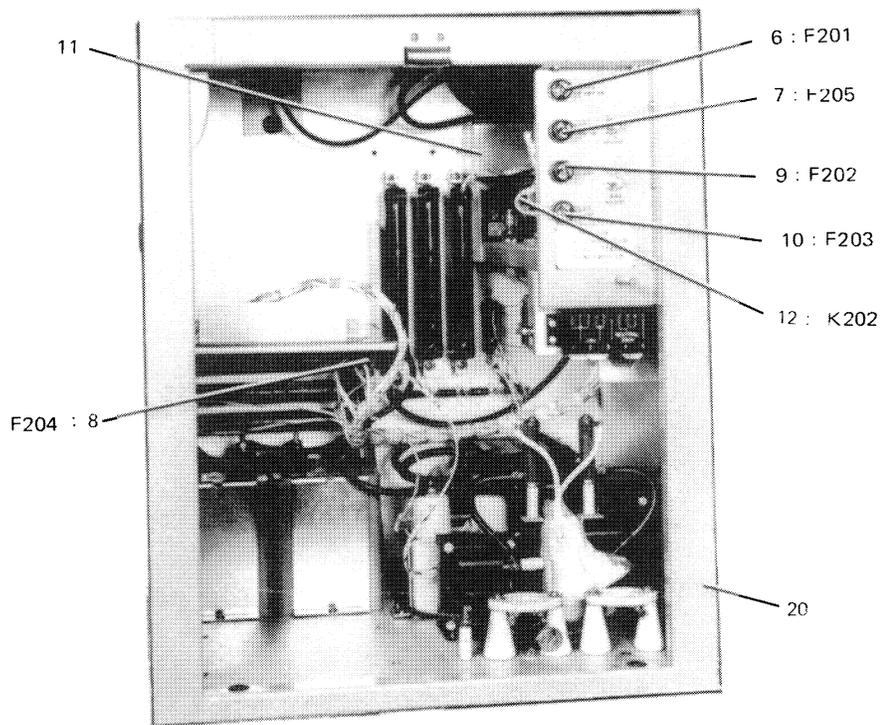
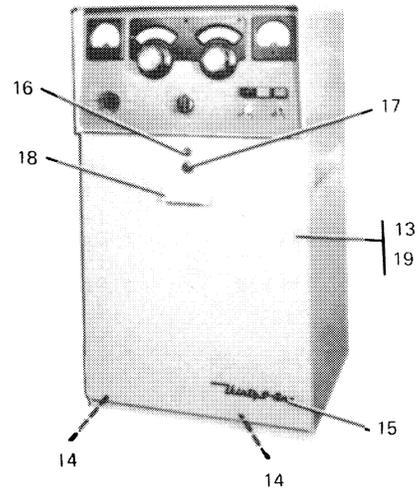
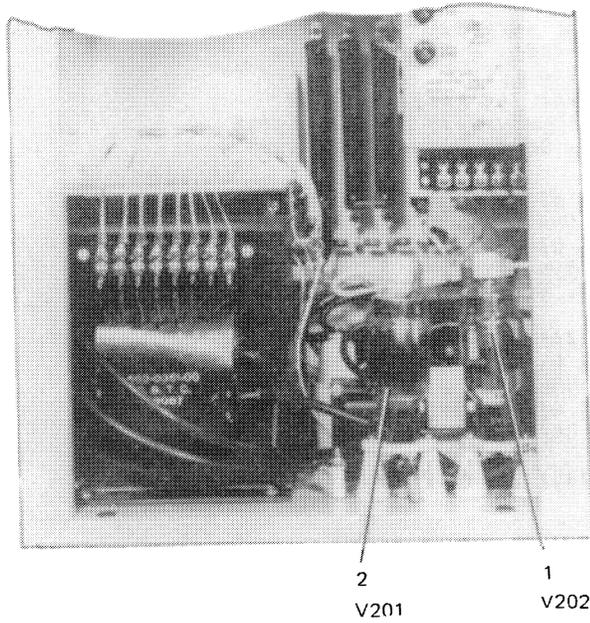
TP3-5556-017

Terminal Board Assembly
Figure 6-3

GROUP ASSEMBLY PARTS LIST

| FIG - ITEM | PART NO | INDENT | DESCRIPTION | USABLE ON CODE | UNITS PER ASSY |
|---------------|------------------|--------|---|----------------------|----------------------|
| 6-3 - | 544-6883-000 | 1 | BOARD ASSY ,TERMINAL (SEE FIG 6-2-152 FOR NHA) | | REF |
| 1 | 557-018-8-50E | 2 | CAPACITOR,VAR, CER DIEL, 8 TO 75PF, 350V (V72982) 917-1075-000 C112 | | 1 |
| 2 | 9348 | 2 | COIL,RF, 2MH (V24226) 240-0134-000 L107 | | 1 |
| 3 | 544-6886-000 | 2 | SEMICOND DEVICE ,MATCHED PAIR CR101A,CR101B | | 1 |
| 4 | RN65D3832F | 2 | RESISTOR,FXD, FILM, 38.3K, 1%, 1/2W (V81349) 705-7172-000 R102 | | 1 |
| 5 | 36C175A | 2 | CAPACITOR,FXD, CER DIEL, 10000PF, 20%, 500V (V56289) 913-3013-000 C114 | | 1 |
| 6 | 36C175A | 2 | CAPACITOR,FXD, CER DIEL, 10000PF, 20%, 500V (V56289) 913-3013-000 C113 | | 1 |
| 7 | RN65D3832F | 2 | RESISTOR,FXD, FILM, 38.3K, 1%, 1/2W (V81349) 705-7172-000 R101 | | 1 |
| 8 | 9348 | 2 | COIL,RF, 2MH (V24226) 240-0134-000 L106 | | 1 |
| 9 | 36C175A | 2 | CAPACITOR,FXD, CER DIEL, 10000PF, 20%, 500V (V56289) 913-3013-000 C140 | | 1 |
| 10 | 36C175A | 2 | CAPACITOR,FXD, CER DIEL, 10000PF, 20%, 500V (V56289) 913-3013-000 C145 | | 1 |
| 11 | 544-6970-002 | 2 | TERMINAL BOARD | | 1 |
| 12 | 491-32-11-080-93 | 3 | TERMINAL,LUG (V71785) 304-0011-000 | | 10 |
| | | 3 | | | |
| 13 | 544-6969-002 | 3 | TERMINAL BOARD | | 1 |

GROUP ASSEMBLY PARTS LIST



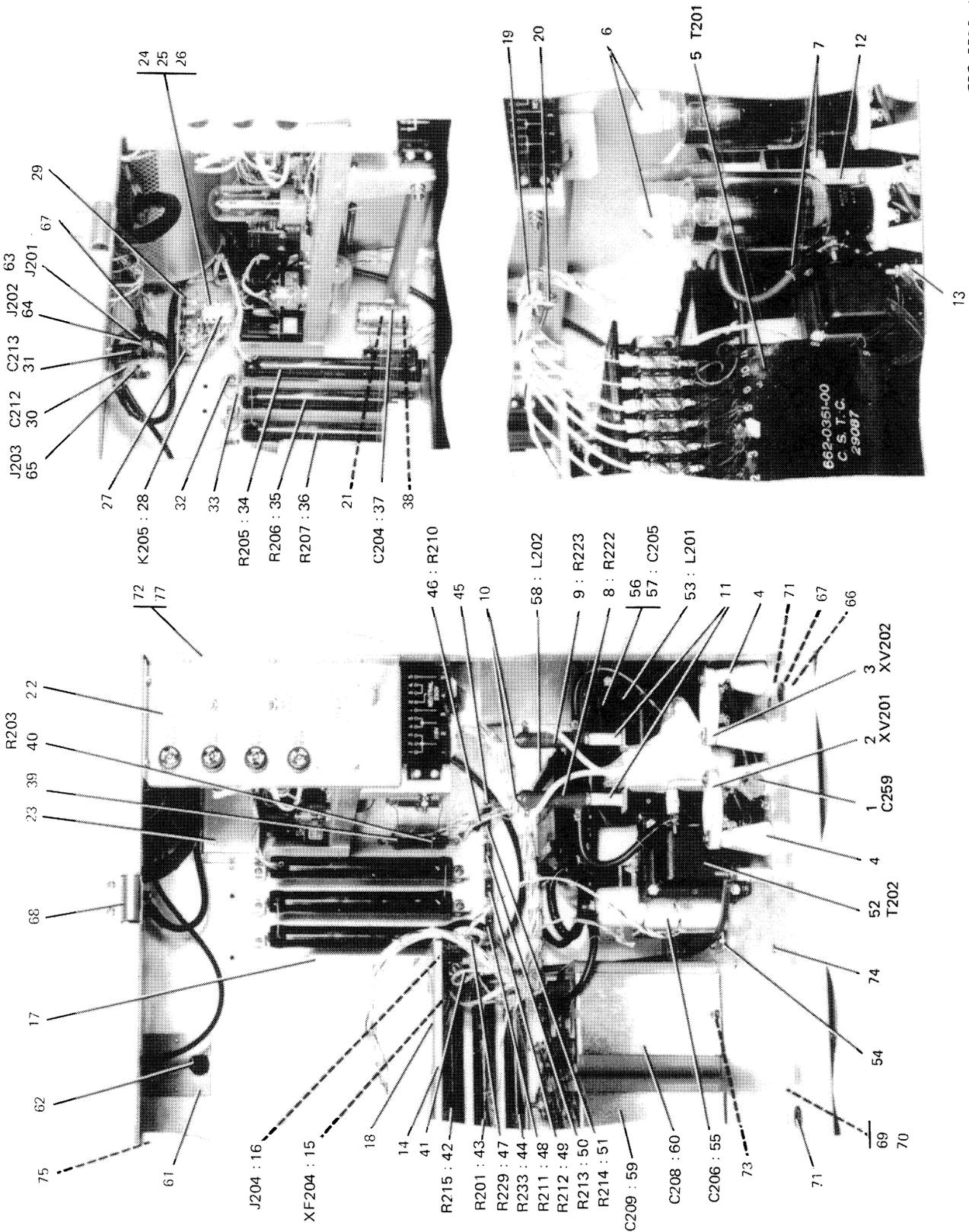
TP3-5552-017

Power Supply Cabinet Assembly
Figure 6-4

GROUP ASSEMBLY PARTS LIST

| FIG - ITEM | PART NO | INDENT | DESCRIPTION | USABLE ON CODE | UNITS PER ASSY |
|---------------|---------------|--------|--|----------------------|----------------------|
| 6-4 - | NO NUMBER | | 1 CABINET ASSY POWER SUPPLY (SEE FIG 6-1-1 FOR NHA) | | REF |
| 1 | 3B28 | | 2 ELECTRON TUBE (V86684) 256-0096-000 V201 | | 1 |
| 2 | 3B28 | | 2 ELECTRON TUBE (V86684) 256-0096-000 V202 | | 1 |
| 6 | MDX3 2-10 | | 2 FUSE,CRTG (V71400) 264-0216-000 F201 | | 1 |
| 7 | F02B250V1AS | | 2 FUSE,CRTG (V81349) 264-4280-000 F205 | | 1 |
| 8 | ABC8 | | 2 FUSE,CRTG (V71400) 264-0395-000 F204 | | 1 |
| 9 | ABC12 | | 2 FUSE,CRTG (V71400) 264-0397-000 F202 (REPLACE WITH 264-0912-340) | | 1 |
| 9 | MDA15 | | 2 FUSE,CRTG (V71400) 264-0912-340 F202 (REPLACES 264-0397-000) | | 1 |
| 10 | ABC12 | | 2 FUSE,CRTG (V71400) 264-0397-000 F203 (REPLACE WITH 264-0912-340) | | 1 |
| 10 | MDA15 | | 2 FUSE,CRTG (V71400) 264-0912-340 F203 (REPLACES 264-0397-000) | | 1 |
| 11 | 544-7006-003 | | 2 COVER,RELAY | | 1 |
| 12 | R2133 | | 2 RELAY,THRM (V19500) 402-0331-000 K202 | | 1 |
| 13 | 544-6872-000 | | 2 DOOR ASSY | | 1 |
| 14 | 544-5439-002 | | 2 PIN,LOCATER | | 2 |
| 15 | 280-2900-000 | | 2 EMBLEM,DIF CAST 280-2900-000 | | 1 |
| 16 | 280-3422-00 | | 2 INSIGNIA (VA1334) 280-3422-000 | | 1 |
| 17 | 02068 1-2 7-8 | | 2 LOCK,RIM (V14608) 015-0811-000 | | 1 |
| 18 | 544-6897-002 | | 2 HANDLE,DOOR | | 1 |
| 19 | 544-7028-005 | | 2 DOOR,CABINET | | 1 |
| 20 | 544-6874-000 | | 2 CABINET SUBASSEMBLY,POWER SUPPLY (SEE FIG 6-5) | | 1 |

GROUP ASSEMBLY PARTS LIST



TP3-5555-017

Power Supply Cabinet Subassembly
Figure 6-5

GROUP ASSEMBLY PARTS LIST

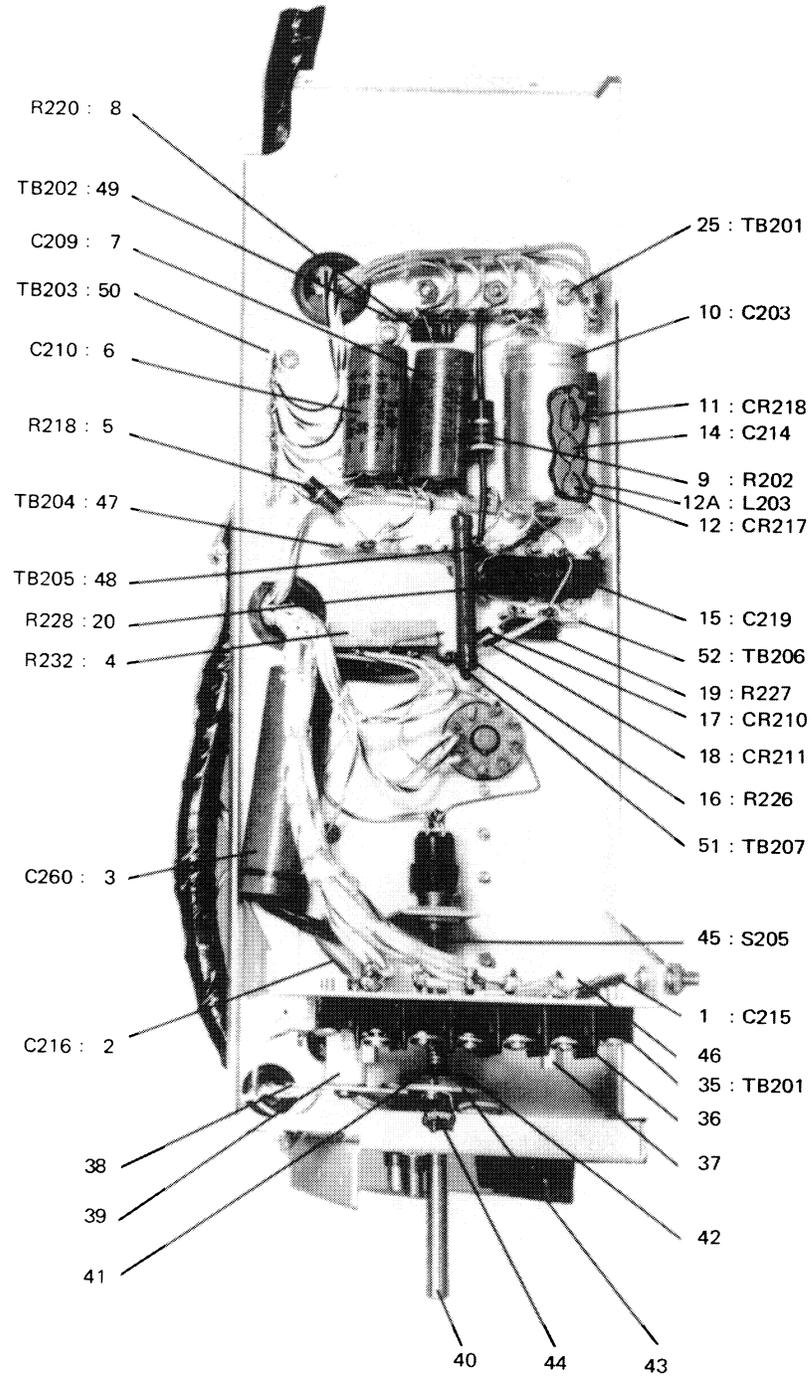
| FIG - ITEM | PART NO | INDENT | DESCRIPTION | USABLE ON CODE | UNITS PER ASSY |
|------------|---------------|--------|---|----------------|----------------|
| 6-5 - | 544-6874-000 | 1 | CABINET SUBASSEMBLY, POWER SUPPLY (SEE FIG 6-4-20 FOR NHA) | | REF |
| 1 | DD60-152 | 2 | CAPACITOR, FXD, CER DIEL, 0.0015UF, 20%, 6000V (V71590) 913-3539-000 C259 | | 1 |
| 2 | 122-224-200 | 2 | SOCKET, ELECTRON (V74970) 220-5450-000 XV201 | | 1 |
| 3 | 122-224-200 | 2 | SOCKET, ELECTRON (V74970) 220-5450-000 XV202 | | 1 |
| 4 | NL422W20-012 | 2 | INSULATOR, STDF (V81349) 190-0032-000 | | 4 |
| 5 | A15178 | 2 | TRANSFORMER, PWR (V70674) 662-0351-000 T201 | | 1 |
| 6 | SPP9 | 2 | CLIP, ELEC (V42498) 301-1005-000 | | 2 |
| 7 | E1704 | 2 | INSULATOR, STDF (V70371) 190-1143-000 | | 2 |
| 8 | RW32G100 | 2 | RESISTOR, FXD, WW 10 OHMS, 5%, 12W (V81349) 747-1114-000 R222 | | 1 |
| 9 | RW32G100 | 2 | RESISTOR, FXD, WW 10 OHMS, 5%, 12W (V81349) 747-1114-000 R223 | | 1 |
| 10 | P015-0554-000 | 2 | POST, MTG, RES (V77250) 015-0554-000 | | 2 |
| 11 | E1706 | 2 | INSULATOR, STDF (V70371) 190-1144-000 | | 2 |
| 12 | 544-9789-002 | 2 | BRACKET, RESISTOR MOUNTING | | 1 |
| 13 | E1706 | 2 | INSULATOR, STDF (V70371) 190-1144-000 | | 1 |
| 14 | 544-6882-000 | 2 | SHELF ASSY | | 1 |
| 15 | HMPHJRZZ | 3 | FUSEHOLDER (V71400) 265-1019-000 XF204 | | 1 |
| 16 | S2001 | 3 | CONNECTOR, RCPT, ELEC (V81091) 368-0115-000 J204 | | 1 |
| 17 | 544-6904-002 | 3 | BRACKET, POWER SUPPLY | | 1 |
| 18 | 544-7015-004 | 3 | SHELF, POWER SUPPLY | | 1 |
| 19 | HP8N | 2 | CLAMP, LOOP (V09922) 150-1545-000 | | 1 |
| 20 | 544-6965-002 | 2 | DUCT, WIREING | | 1 |
| 21 | 3302 | 2 | CLAMP, ELEC (V59730) 019-0099-000 | | 1 |
| 22 | 544-6880-000 | 2 | SHELF ASSY (SEE FIG 6-6) | | 1 |
| 23 | 544-6881-000 | 2 | RELAY ASSY | | 1 |
| 24 | 544-6973-002 | 3 | ISOLATOR, RELAY MOUNTING | | 1 |
| 25 | M935489-4 | 3 | GROMMET, RBR (V96906) 201-0001-000 | | 4 |
| 26 | 541-5979-002 | 3 | SPACER, SLEEVE | | 4 |
| 27 | 6881M81060A | 3 | GROMMET, RBR (V14370) 201-1140-000 | | 1 |
| 28 | KR2650 | 3 | RELAY, AMT (V77342) 970-1925-000 K205 | | 1 |
| 29 | HP14N | 2 | CLAMP, LOOP (V09922) 150-1547-000 | | 1 |
| 30 | 36C175A | 2 | CAPACITOR, FXD, CER DIEL, 10000PF, 20%, 500V (V56289) 913-3013-000 C212 | | 1 |
| 31 | 36C175A | 2 | CAPACITOR, FXD, CER DIEL, 10000PF, 20%, 500V (V56289) 913-3013-000 C213 | | 1 |
| 32 | 12 | 2 | HOLDER, RES (V44655) 139-1500-000 | | 6 |
| 33 | E1000 | 2 | INSULATOR, STDF (V70371) 190-1150-000 | | 6 |
| 34 | 710-2133-000 | 2 | RESISTOR, FXD, WW 18K, 10%, 100W (V83827) 710-2133-000 R205 | | 1 |
| 35 | 710-2133-000 | 2 | RESISTOR, FXD, WW 18K, 10%, 100W (V83827) 710-2133-000 R206 | | 1 |
| 36 | 710-2133-000 | 2 | RESISTOR, FXD, WW 18K, 10%, 100W (V83827) 710-2133-000 R207 | | 1 |
| 37 | D29076 | 2 | CAPACITOR, FXD, ELCTLT, 40UF, M10%P100%, 350V (V56289) 183-1559-000 C204 | | 1 |
| 38 | E50007-041 | 2 | RETAINER, CAP (V80033) 139-0089-000 | | 1 |
| 39 | 9 | 2 | BRACKET (V44655) 139-1900-000 | | 2 |
| 40 | 710-3542-000 | 2 | RESISTOR, FXD, WW 5K, 10%, 25W 710-3542-000 R203 | | 1 |
| 41 | 12 | 2 | HOLDER, RES (V44655) 139-1500-000 | | 6 |
| 42 | 710-2026-000 | 2 | RESISTOR, FXD, WW 8.2 OHMS, 10%, 100W (V83827) 710-2026-000 R215 | | 1 |
| 43 | 710-2026-000 | 2 | RESISTOR, FXD, WW 8.2 OHMS, 10%, 100W (V83827) 710-2026-000 R201 | | 1 |
| 44 | 710-2026-000 | 2 | RESISTOR, FXD, WW 8.2 OHMS, 10%, 100W (V83827) 710-2026-000 R233 | | 1 |
| 45 | E1706 | 2 | INSULATOR, STDF (V70371) 190-1144-000 | | 5 |
| 46 | RCR42G102JS | 2 | RESISTOR, FXD, CMPSN, 1K, 5%, 2W (V81349) 745-5651-000 R210 | | 1 |
| 47 | RCR42G105JS | 2 | RESISTOR, FXD, CMPSN, 1MEGO, 5%, 2W (V81349) 745-5777-000 R229 | | 1 |

section 6
parts list

GROUP ASSEMBLY PARTS LIST

| FIG - ITEM | PART NO | INDENT | DESCRIPTION | USABLE ON CODE | UNITS PER ASSY |
|---------------|------------------|--------|--|----------------------|----------------------|
| 6-5 48 | RCR42G105JS | 2 | RESISTOR,FXD, CMPSN, 1MEGO, 5%, 2W (V81349) 745-5777-000 R211 | | 1 |
| 49 | RCR42G105JS | 2 | RESISTOR,FXD, CMPSN, 1MEGO, 5%, 2W (V81349) 745-5777-000 R212 | | 1 |
| 50 | RCR42G105JS | 2 | RESISTOR,FXD, CMPSN, 1MEGO, 5%, 2W (V81349) 745-5777-000 R213 | | 1 |
| 51 | RCR42G105JS | 2 | RESISTOR,FXD, CMPSN, 1MEGO, 5%, 2W (V81349) 745-5777-000 R214 | | 1 |
| 52 | 662-0352-000 | 2 | TRANSFORMER,PWR (V11700) 662-0352-000 T202 | | 1 |
| 53 | E10629 | 2 | REACTOR, 3.5H (V80008) 668-0356-000 L201 | | 1 |
| 54 | CP072FE1 | 2 | RETAINER,CAP (V81349) 139-0191-000 | | 2 |
| 55 | 930-0035-000 | 2 | CAPACITOR,FXD, OIL PPR, 0.15UF, 10%, 5000V 930-0035-000 C206 | | 1 |
| 56 | CP072FA3 | 2 | RETAINER,CAP (V81349) 139-0147-000 | | 1 |
| 57 | CP72E1EH504K1 | 2 | CAPACITOR,FXD, CER DIEI, 0.5UF, 10%, 1500V (V81349) 962-4309-000 C205 | | 1 |
| 58 | 37877 | 2 | REACTOR, 8H (V73386) 668-0355-000 L202 | | 1 |
| 59 | 930-4314-000 | 2 | CAPACITOR,FXD, PPR DIEI, 4UF, 20%, 3000V (V10026) 930-4314-000 C207 | | 1 |
| 60 | 930-4314-000 | 2 | CAPACITOR,FXD, PPR DIEI, 4UF, 20%, 3000V (V10026) 930-4314-000 C208 | | 1 |
| 61 | 544-6914-002 | 2 | PLATE,COVER | | 1 |
| 62 | 913NEOPRENE45-55 | 2 | GROMMET,RBR (V75543) 201-1090-000 | | 1 |
| 63 | 201-11-01-018 | 2 | JACK,PHONE (V71785) 360-0088-000 J201 | | 1 |
| 64 | 201-11-01-018 | 2 | JACK,PHONE (V71785) 360-0088-000 J202 | | 1 |
| 65 | 201-11-01-018 | 2 | JACK,PHONE (V71785) 360-0088-000 J203 | | 1 |
| 66 | 1019W | 2 | BUMPER,RBR (V70485) 200-1204-000 | | 4 |
| 67 | 544-6901-002 | 2 | FOOT,CABINET | | 4 |
| 68 | 544-6903-002 | 2 | CATCH,DOOR | | 1 |
| 69 | 545-7603-002 | 2 | PLATE,RETAINER | | 2 |
| 70 | 504-0717-003 | 2 | WASHER | | 2 |
| 71 | M935489-6 | 2 | GROMMET,RBR (V96906) 201-0002-000 | | 2 |
| 72 | 544-7026-005 | 2 | CABINET, AMPLIFIER | | 1 |
| 73 | 68NC3-82 | 3 | NUT,SLFLKG, AL, 8-32 (V72962) 333-0211-000 | | 18 |
| 74 | CLS0420-1 | 3 | NUT,SLFLKG, SST, 1/4-20 (V46384) 334-1161-000 | | 4 |
| 75 | P344-0072-000 | 3 | SCREW,WOOD, NP BRS, 10 X 1-3/4 (V77250) 344-0072-000 | | 12 |
| 76 | P344-0066-000 | 3 | SCREW,WOOD, CD PL STL, 10 X 1 (V77250) 344-0066-000 | | 3 |
| 77 | 544-7025-005 | 3 | CABINET, AMPLIFIER | | 1 |

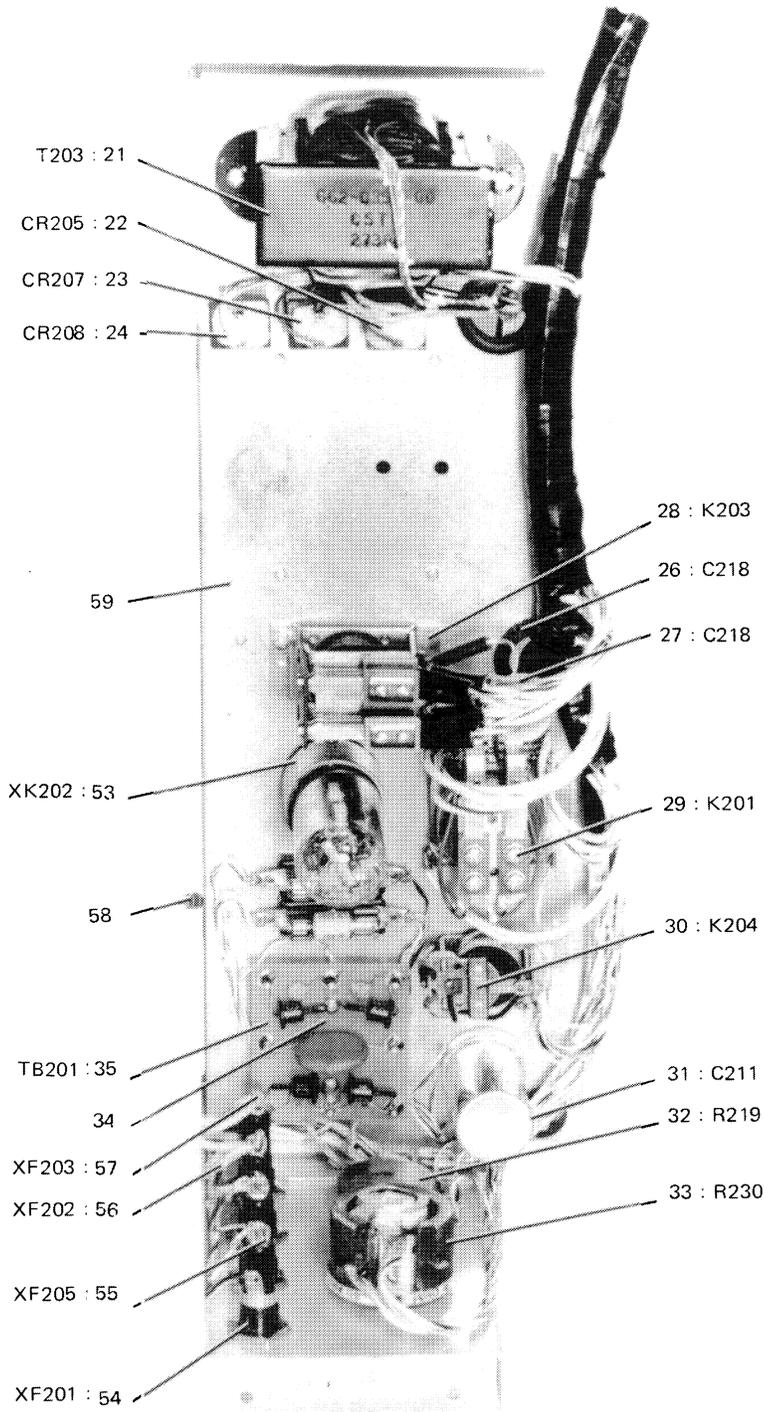
GROUP ASSEMBLY PARTS LIST



TP3-5554-027

Shelf Assembly
Figure 6-6 (Sheet 1 of 2)

GROUP ASSEMBLY PARTS LIST



TP3-5554-02 7

Shelf Assembly
Figure 6-6 (Sheet 2)

GROUP ASSEMBLY PARTS LIST

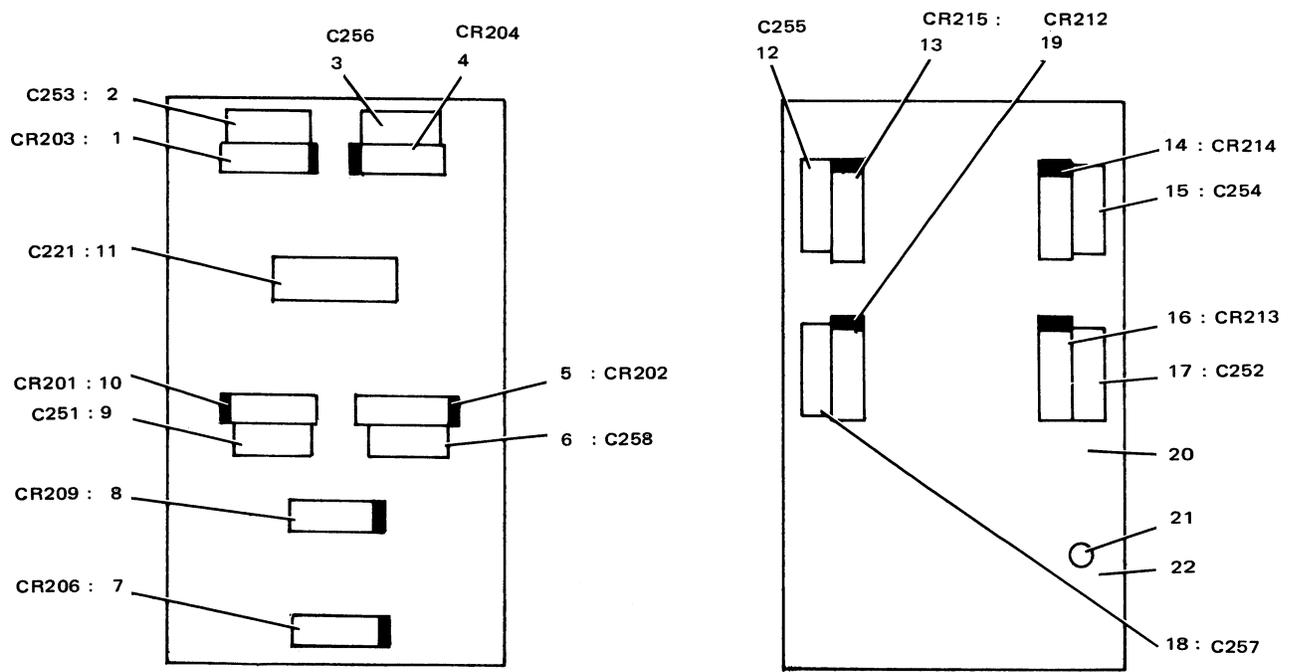
| FIG - ITEM | PART NO | INDENT | DESCRIPTION | USABLE ON CODE | UNITS PER ASSY |
|------------|--------------|--------|---|----------------|----------------|
| 6-6 - | 544-6880-000 | | 1 SHELF ASSY (SEE FIG 6-5-22 FOR NHA) | | REF |
| 1 | 36C175A | | 2 CAPACITOR,FXD, CER DIEI, 10000PF, 20%, 500V (V56289) 913-3013-000 C215 | | 1 |
| 2 | 36C175A | | 2 CAPACITOR,FXD, CER DIEI, 10000PF, 20%, 500V (V56289) 913-3013-000 C216 | | 1 |
| 3 | D38238 | | 2 CAPACITOR,FXD, ELCTLT, 2000 UF, M10%P100%, 6V (V56289) 183-1311-000 C260 | | 1 |
| 4 | RW31V100 | | 2 RESISTOR,FXD,WW 10 OHMS, 5%, 14W (V81349) 747-0724-000 R232 | | 1 |
| 5 | RCR32G222KS | | 2 RESISTOR,FXD, CMPSN, 2.2K, 10%, 1W (V81349) 745-3366-000 R218 | | 1 |
| 6 | TC49 | | 2 CAPACITOR,FXD, ELCTLT, 50UF, M10%P100%, 150V (V37942) 183-1045-000 C210 | | 1 |
| 7 | TC49 | | 2 CAPACITOR,FXD, ELCTLT, 50UF, M10%P100%, 150V (V37942) 183-1045-000 C209 | | 1 |
| 8 | RCR32G332KS | | 2 RESISTOR,FXD, CMPSN, 3.3K, 10%, 1W (V81349) 745-3373-000 R220 | | 1 |
| 9 | RCR42G471KS | | 2 RESISTOR,FXD, CMPSN, 470 OHMS, 10%, 2W (V81349) 745-5638-000 R202 | | 1 |
| 10 | D29075 | | 2 CAPACITOR,FXD, ELCTLT, 150UF, M10%P100%, 150V (V56289) 183-1560-000 C203 | | 1 |
| 11 | 1N457 | | 2 SEMICOND DEVICE CD PL STL, (V07910) 353-0204-000 CR218 | | 1 |
| 12 | 1N457 | | 2 SEMICOND DEVICE CD PL STL, (V07910) 353-0204-000 CR217 | | 1 |
| 13 | 18-119 | | 2 COIL,RF, 2MH (V09250) 240-0084-000 L203 | | 1 |
| 14 | 36C175A | | 2 CAPACITOR,FXD, CER DIEI, 10000PF, 20%, 500V (V56289) 913-3013-000 C214 | | 1 |
| 15 | 160P10494 | | 2 CAPACITOR,FXD, PPR DIEI, 0.1UF, 400V, 10% (V56289) 931-0299-000 C219 (REPLACE WITH 933-0643-000) | | 1 |
| 15 | 6IP40DA104 | | 2 CAPACITOR FXD, FILM DIEI, 0.10UF, 10%, 400V (V24446) 933-0643-000 C219 (REPLACES 931-0299-000)(REPLACE WITH 933-1043-610) | | 1 |
| 15 | LP9A1E104K | | 2 CAPACITOR,FXD, PLSTC DIEI, 0.10UF, 10%, 400V (V01884) 933-1043-610 C219 (REPLACES 933-0643-000) | | 1 |
| 16 | RN30R1002F | | 2 RESISTOR,FXD, FILM, 10K, 1%, 2W (V81349) 705-4009-000 R226 | | 1 |
| 17 | 1N457 | | 2 SEMICOND DEVICE CD PL STL, (V07910) 353-0204-000 CR210 | | 1 |
| 18 | 1N457 | | 2 SEMICOND DEVICE CD PL STL, (V07910) 353-0204-000 CR211 | | 1 |
| 19 | RN70D1001F | | 2 RESISTOR,FXD, FILM, 1K, 1%, 3/4W (V81349) 705-7596-000 R227 | | 1 |
| 20 | RN65D1212F | | 2 RESISTOR,FXD, FILM, 12.1K, 1%, 1/2W (V81349) 705-7148-000 R228 | | 1 |
| 21 | 36704 | | 2 TRANSFORMER,PWR (V73386) 662-0353-000 T203 | | 1 |
| 22 | 50 | | 2 RECTIFIER,MTLC (V84970) 353-0153-000 CR205 | | 1 |
| 23 | 50 | | 2 RECTIFIER,MTLC (V84970) 353-0153-000 CR207 | | 1 |
| 24 | 50 | | 2 RECTIFIER,MTLC (V84970) 353-0153-000 CR208 | | 1 |
| 25 | 4-1001XP | | 2 TERMINAL BOARD (V91459) 306-0006-000 TB201-A | | 1 |
| 26 | 36C175A | | 2 CAPACITOR,FXD, CER DIEI, 10000PF, 20%, 500V (V56289) 913-3013-000 C217 | | 1 |
| 27 | 36C175A | | 2 CAPACITOR,FXD, CER DIEI, 10000PF, 20%, 500V (V56289) 913-3013-000 C218 | | 1 |
| 28 | 98650-0416 | | 2 RELAY,AMT (V80089) 970-1937-000 K203 | | 1 |
| 29 | PC1011 | | 2 RELAY,AMT (V29238) 970-1921-000 K201 | | 1 |
| 30 | KR2609-2 | | 2 RELAY,AMT (V77342) 970-1936-000 K204 | | 1 |

section 6
parts list

GROUP ASSEMBLY PARTS LIST

| FIG - ITEM | PART NO | INDENT | DESCRIPTION | USABLE ON CODE | UNITS PER ASSY |
|---------------|---------------|--------|--|----------------------|----------------------|
| 6-6 - 31 | D29668 | 2 | CAPACITOR,FXD, ELCTLT, 250UF, M10%P100%, 25V, 2 SECT (V56289) 183-1480-000 C211 | | 1 |
| 32 | 377-0305-000 | 2 | RESISTOR,VAR, 5K, 10%, 2W (V12697) 377-0305-000 R219 | | 1 |
| 33 | 735-0204-000 | 2 | RESISTOR,RHEO, 0.25 OHM, 25W 735-0204-000 R230 | | 1 |
| 34 | 609-0691-001 | 2 | RECTIFIER ASSY (SEE FIG 6-7) | | 1 |
| 35 | 602Y8 | 2 | TERMINAL BOARD (V71785) 367-0039-000 TB201 | | 1 |
| 36 | 503-0668-001 | 2 | TERMINAL JUMPER | | 3 |
| 37 | 540-9217-003 | 2 | POST | | 2 |
| 38 | 544-6919-002 | 2 | PLATE | | 1 |
| 39 | E1000 | 2 | INSULATOR,STDF (V70371) 190-1150-000 | | 1 |
| 40 | 544-6924-002 | 2 | SHAFT,INTERLOCK | | 1 |
| 41 | 544-6922-002 | 2 | SPRING, SHORTING SWITCH | | 1 |
| 42 | 544-6906-002 | 2 | INSULATOR, SHORTING SWITCH | | 1 |
| 43 | 544-6905-002 | 2 | DISC,SHORTING | | 1 |
| 44 | 544-6967-002 | 2 | COLLAR,SHAFT | | 1 |
| 45 | 8411K11 | 2 | SWITCH,PUSH (V27193) 260-2548-000 S205 | | 1 |
| 46 | 545-7599-002 | 2 | SPRING, GROUNDING | | 1 |
| 47 | 1542A | 2 | TERMINAL BOARD (V71785) 306-0550-000 TB204 | | 1 |
| 48 | 1542A | 2 | TERMINAL BOARD (V71785) 306-0550-000 TB205 | | 1 |
| 49 | 332-14-06-032 | 2 | TERMINAL BOARD (V71785) 306-0083-000 TB202 | | 1 |
| 50 | 332-14-06-032 | 2 | TERMINAL BOARD (V71785) 306-0083-000 TB203 | | 1 |
| 51 | 5246A | 2 | TERMINAL BOARD (V71785) 306-0839-000 TB207 | | 1 |
| 52 | 332-1403-165 | 2 | TERMINAL BOARD (V71785) 306-0001-000 TB206 | | 1 |
| 53 | 88-8TM | 2 | SOCKET,ELECTRON (V02660) 220-1005-000 XK202 | | 1 |
| 54 | HKPHJRZZ | 2 | FUSEHOLDER (V71400) 265-1019-000 XF201 | | 1 |
| 55 | HKPHJRZZ | 2 | FUSEHOLDER (V71400) 265-1019-000 XF205 | | 1 |
| 56 | HKPHJRZZ | 2 | FUSEHOLDER (V71400) 265-1019-000 XF202 | | 1 |
| 57 | HKPHJRZZ | 2 | FUSEHOLDER (V71400) 265-1019-000 XF203 | | 1 |
| 58 | P343-0312-000 | 2 | SCREW,MACH, NP BRS, 8-32 X 5/8 (V77250) 343-0312-000 | | 1 |
| 59 | 544-7027-005 | 2 | SHELF,MOUNTING | | 1 |

GROUP ASSEMBLY PARTS LIST



TP3-5553-019

Rectifier Assembly
Figure 6-7

| FIG - ITEM | PART NO | INDENT | DESCRIPTION | USABLE ON CODE | UNITS PER ASSY |
|------------|--------------|--------|---|----------------|----------------|
| 6-7 - | 609-0691-001 | 1 | RECTIFIER ASSY (SEE FIG 6-6-34 FOR NHA) | | REF |
| 1 | 1N4005 | 2 | SEMICONV DEVICE (V04713) 353-6442-050 CR203 | | 1 |
| 2 | 40C286A | 2 | CAPACITOR,FXD, CER DIEI, 0.001UF, 20%, 1000V (V56289) 913-3742-000 C253 | | 1 |
| 3 | 40C286A | 2 | CAPACITOR,FXD, CER DIEI, 0.001UF, 20%, 1000V (V56289) 913-3742-000 C256 | | 1 |
| 4 | 1N4005 | 2 | SEMICONV DEVICE (V04713) 353-6442-050 CR204 | | 1 |
| 5 | 1N4005 | 2 | SEMICONV DEVICE (V04713) 353-6442-050 CR202 | | 1 |
| 6 | 40C286A | 2 | CAPACITOR,FXD, CER DIEI, 0.001UF, 20%, 1000V (V56289) 913-3742-000 C258 | | 1 |
| 7 | 1N4005 | 2 | SEMICONV DEVICE (V04713) 353-6442-050 CR206 | | 1 |
| 8 | 1N4005 | 2 | SEMICONV DEVICE (V04713) 353-6442-050 CR209 | | 1 |
| 9 | 40C286A | 2 | CAPACITOR,FXD, CER DIEI, 0.001UF, 20%, 1000V (V56289) 913-3742-000 C251 | | 1 |
| 10 | 1N4005 | 2 | SEMICONV DEVICE (V04713) 353-6442-050 CR201 | | 1 |
| 11 | DD16-103 | 2 | CAPACITOR,FXD, CER DIEI, 0.01UF, GMV, 1600V (V71590) 913-3522-000 C221 | | 1 |
| 12 | 40C286A | 2 | CAPACITOR,FXD, CER DIEI, 0.001UF, 20%, 1000V (V56289) 913-3742-000 C255 | | 1 |
| 13 | 1N4005 | 2 | SEMICONV DEVICE (V04713) 353-6442-050 CR215 | | 1 |
| 14 | 1N4005 | 2 | SEMICONV DEVICE (V04713) 353-6442-050 CR214 | | 1 |
| 15 | 40C286A | 2 | CAPACITOR,FXD, CER DIEI, 0.001UF, 20%, 1000V (V56289) 913-3742-000 C254 | | 1 |
| 16 | 1N4005 | 2 | SEMICONV DEVICE (V04713) 353-6442-050 CR213 | | 1 |
| 17 | 40C286A | 2 | CAPACITOR,FXD, CER DIEI, 0.001UF, 20%, 1000V (V56289) 913-3742-000 C252 | | 1 |
| 18 | 40C286A | 2 | CAPACITOR,FXD, CER DIEI, 0.001UF, 20%, 1000V (V56289) 913-3742-000 C257 | | 1 |
| 19 | 1N4005 | 2 | SEMICONV DEVICE (V04713) 353-6442-050 CR212 | | 1 |
| 20 | 609-0690-001 | 2 | TERMINAL BOARD | | 1 |
| 21 | 11438 | 3 | TERMINAL,FEEDTH (V71279) 306-0200-000 | | 12 |
| 22 | 609-0689-000 | 3 | TERMINAL BOARD | | 1 |

Revised 15 March 1976

6.3 NUMERICAL INDEX

| PART NUMBER | FIG - ITEM | TTL REQ | PART NUMBER | FIG - ITEM | TTL REQ |
|------------------|------------|---------|----------------|------------|---------|
| ABC12 | 6-4-9 | 1 | | 6-5-19 | 1 |
| | 6-4-10 | 1 | KR2609-2 | 6-6-30 | 1 |
| ABC8 | 6-4-8 | 1 | KR2650 | 6-5-28 | 1 |
| A15178 | 6-5-5 | 1 | LP9A1E104K | 6-6-15 | 1 |
| B2133 | 6-4-12 | 1 | MDA15 | 6-4-9 | 1 |
| CK128X102M | 6-2-100 | 1 | | 6-4-10 | 1 |
| CLS0420-1 | 6-5-74 | 4 | MDX3 2-10 | 6-4-6 | 1 |
| CL632-2C | 6-2-31 | 2 | MS15571-2 | 6-1-27 | 1 |
| | 6-2-137 | 2 | | 6-2-20 | 2 |
| CM06FD681J03 | 6-2-117 | 1 | | | |
| CM37371-3010 | 6-2-56 | 1 | MS16562-201 | 6-2-7 | 1 |
| CP072FA3 | 6-5-56 | 1 | MS35489-4 | 6-2-81 | 4 |
| CP072FE1 | 6-5-54 | 2 | | 6-5-25 | 4 |
| CP72E1EH504K1 | 6-5-57 | 1 | MS35489-6 | 6-5-71 | 2 |
| DA858-003 | 6-2-66 | 1 | MS75103-6 | 6-2-149 | 1 |
| DD16-103 | 6-7-11 | 1 | M39012-04-0002 | 6-2-192 | 1 |
| DD60-152 | 6-2-96 | 1 | NL422W20-012 | 6-5-4 | 4 |
| | 6-2-103 | 1 | NO NUMBER | 6-1-1 | 1 |
| | 6-5-1 | 1 | | 6-1-2 | 1 |
| DM15C050D500WV4C | 6-2-151 | 1 | | 6-1-5 | 1 |
| R | | | | 6-4- | RF |
| DM15C150K500WV4C | 6-2-148 | AR | PC1011 | 6-6-29 | 1 |
| R | | | P015-0554-000 | 6-5-10 | 2 |
| DM15E220K500WV4C | 6-2-148 | AR | P343-0312-000 | 6-6-58 | 1 |
| R | | | P344-0066-000 | 6-5-76 | 3 |
| DM15E270K500WV4C | 6-2-148 | AR | P344-0072-000 | 6-5-75 | 12 |
| R | | | RA20SASD501A | 6-2-57 | 1 |
| DM15E330K500WV4C | 6-2-182 | 1 | RCR20G204JS | 6-1-12 | 1 |
| R | | | RCR32G102KS | 6-2-150 | 1 |
| DM15E390K500WV4C | 6-2-148 | AR | RCR32G222KS | 6-6-5 | 1 |
| R | | | RCR32G332KS | 6-6-8 | 1 |
| DM15E470K500WV4C | 6-2-148 | AR | RCR32G472KS | 6-1-13 | 1 |
| R | | | RCR32G473KS | 6-1-19 | 1 |
| D29075 | 6-6-10 | 1 | RCR42G102JS | 6-5-46 | 1 |
| D29076 | 6-5-37 | 1 | RCR42G105JS | 6-5-47 | 1 |
| D29668 | 6-6-31 | 1 | | 6-5-48 | 1 |
| D38238 | 6-6-3 | 1 | | 6-5-49 | 1 |
| E1000 | 6-5-33 | 6 | | 6-5-50 | 1 |
| | 6-6-39 | 1 | | 6-5-51 | 1 |
| E1001 | 6-2-90 | 1 | RCR42G471KS | 6-6-9 | 1 |
| E10629 | 6-5-53 | 1 | RCR42G560KS | 6-1-11 | 1 |
| E13660 | 6-2-159 | 1 | RG58CU | 6-2-178 | 1 |
| E13768 | 6-2-155 | 1 | RN30R1002F | 6-6-16 | 1 |
| E1704 | 6-5-7 | 2 | RN65D1100F | 6-1-9 | 1 |
| E1706 | 6-5-11 | 2 | RN65D1212F | 6-6-20 | 1 |
| | 6-5-13 | 1 | RN65D3832F | 6-3-4 | 1 |
| | 6-5-45 | 5 | | 6-3-7 | 1 |
| E50007-041 | 6-5-38 | 1 | RN70D1001F | 6-6-19 | 1 |
| F02B250V1AS | 6-4-7 | 1 | RN70D8060F | 6-1-10 | 1 |
| F346-4MILL6085 | 6-2-8 | 1 | RS741XOK10R10H | 6-1-8 | 1 |
| | 6-2-30 | 1 | RW31V100 | 6-6-4 | 1 |
| | 6-2-43 | 1 | RW32G100 | 6-5-8 | 1 |
| | 6-2-50 | 1 | | 6-5-9 | 1 |
| F347-4MILL6085 | 6-2-37 | 1 | SPP9 | 6-5-6 | 2 |
| GOS5-93 | 6-2-60 | 1 | SP2-15 | 6-2-12 | 2 |
| HKPHJRZZ | 6-5-15 | 1 | | 6-2-27 | 1 |
| | 6-6-54 | 1 | | 6-2-41 | 1 |
| | 6-6-55 | 1 | SP3-22 | 6-2-34 | 1 |
| | 6-6-56 | 1 | SP4-28 | 6-2-47 | 1 |
| | 6-6-57 | 1 | | 6-2-54 | 1 |
| HP14N | 6-5-29 | 1 | S2001 | 6-5-16 | 1 |
| HP4N | 6-2-160 | 1 | TC49 | 6-6-6 | 1 |
| HP6N | 6-1-33 | 1 | | 6-6-7 | 1 |
| HP8N | 6-2-179 | 1 | | | |

NUMERICAL INDEX

| PART NUMBER | FIG - ITEM | TTL REQ | PART NUMBER | FIG - ITEM | TTL REQ |
|------------------|------------|---------|------------------|------------|---------|
| X100 | 6-2-99 | 1 | | 6-2-158 | 1 |
| X1640 | 6-2-162 | 1 | 3302 | 6-5-21 | 1 |
| X830 | 6-2-163 | 1 | 332-14-06-032 | 6-6-49 | 1 |
| X896 | 6-2-98 | 1 | | 6-6-50 | 1 |
| Y131A | 6-2-174 | 1 | 332-1403-165 | 6-6-52 | 1 |
| 02068 1-2 7-8 | 6-4-17 | 1 | 36C175A | 6-1-6 | 1 |
| 1N1492 | 6-1-14 | 1 | | 6-1-7 | 1 |
| 1N4005 | 6-7-1 | 1 | | 6-2-95 | 1 |
| | 6-7-4 | 1 | | 6-2-97 | 1 |
| | 6-7-5 | 1 | | 6-2-101 | 1 |
| | 6-7-7 | 1 | | 6-2-102 | 1 |
| | 6-7-8 | 1 | | 6-2-113 | 1 |
| | 6-7-10 | 1 | | 6-2-139 | 1 |
| | 6-7-13 | 1 | | 6-2-140 | 1 |
| | 6-7-14 | 1 | | 6-2-141 | 1 |
| | 6-7-16 | 1 | | 6-2-142 | 1 |
| 1N457 | 6-7-19 | 1 | | 6-2-143 | 1 |
| | 6-6-11 | 1 | | 6-2-144 | 1 |
| | 6-6-12 | 1 | | 6-2-145 | 1 |
| | 6-6-17 | 1 | | 6-2-146 | 1 |
| | 6-6-18 | 1 | | 6-2-167 | 1 |
| 1019W | 6-5-66 | 4 | | 6-3-5 | 1 |
| 1025NC | 6-1-24 | 1 | | 6-3-6 | 1 |
| 1025NC | 6-1-25 | 1 | | 6-3-9 | 1 |
| 106PDL2 | 6-2-170 | 3 | | 6-3-10 | 1 |
| 1143B | 6-7-21 | 12 | | 6-5-30 | 1 |
| 12 | 6-5-32 | 6 | | 6-5-31 | 1 |
| | 6-5-41 | 6 | | 6-6-1 | 1 |
| 122-224-200 | 6-5-2 | 1 | | 6-6-2 | 1 |
| | 6-5-3 | 1 | | 6-6-14 | 1 |
| 1520A | 6-1-32 | 1 | | 6-6-26 | 1 |
| 1532A | 6-1-29 | 1 | | 6-6-27 | 1 |
| 154-16 | 6-2-68 | 1 | 36704 | 6-6-21 | 1 |
| 154-32 | 6-2-72 | 1 | 376-3275-000 | 6-2-56 | 1 |
| | 6-2-73 | 1 | 377-0305-000 | 6-6-32 | 1 |
| 1542A | 6-6-47 | 1 | 37877 | 6-5-58 | 1 |
| | 6-6-48 | 1 | 4-1001XP | 6-6-25 | 1 |
| 160P10494 | 6-6-15 | 1 | 4X250R0R4CX250B | 6-2-166 | 1 |
| 1774 | 6-2-183 | 1 | 40C286A | 6-7-2 | 1 |
| | 6-2-184 | 1 | | 6-7-3 | 1 |
| 1775 | 6-2-58 | 1 | | 6-7-6 | 1 |
| | 6-2-58A | 1 | | 6-7-9 | 1 |
| 18-119 | 6-6-13 | 1 | | 6-7-12 | 1 |
| 18A18697 | 6-2-164 | 1 | | 6-7-15 | 1 |
| 2A1DB15 | 6-2-126 | 1 | | 6-7-17 | 1 |
| 201-11-01-018 | 6-2-180 | 1 | | 6-7-18 | 1 |
| | 6-2-181 | 1 | 4159-043 | 6-2-21 | 2 |
| | 6-5-63 | 1 | 491-32-11-080-93 | 6-3-12 | 10 |
| | 6-5-64 | 1 | 3 | | |
| | 6-5-65 | 1 | 49966 | 6-2-71 | |
| 240-0191-000 | 6-2-149 | 1 | 50 | 6-6-22 | 1 |
| 2443-000X5T0151K | 6-2-156 | 1 | | 6-6-23 | 1 |
| 259-1027-000 | 6-1-20 | 1 | | 6-6-24 | 1 |
| 262-0626-000 | 6-1-26 | 1 | 502-1515-002 | 6-2-5 | 2 |
| 262-0627-000 | 6-1-28 | 1 | 503-0668-001 | 6-6-36 | 3 |
| 27370 | 6-2-154 | 1 | 504-0717-003 | 6-5-70 | 2 |
| 280-2900-000 | 6-4-15 | 1 | 522-1286-011 | 6-1- | RF |
| 280-3422-00 | 6-4-16 | 1 | 5246A | 6-6-51 | 1 |
| 3B28 | 6-4-1 | 1 | 540-7036-002 | 6-2-70 | 1 |
| | 6-4-2 | 1 | 540-7979-000 | 6-2-65 | 1 |
| 31-759 | 6-1-21 | 1 | 540-9057-003 | 6-2-128 | 2 |
| 327-029X5T0102Z | 6-2-114 | 1 | 540-9168-003 | 6-2-153 | 1 |
| | 6-2-157 | 1 | 540-9217-003 | 6-6-37 | 2 |

NUMERICAL INDEX

| PART NUMBER | FIG - ITEM | TTL REQ | PART NUMBER | FIG - ITEM | TTL REQ |
|--------------|------------|---------|--------------|------------|---------|
| 540-9250-003 | 6-2-64 | 1 | 544-6936-002 | 6-2-55 | 1 |
| 540-9468-003 | 6-2-18 | 3 | 544-6937-002 | 6-2-23 | 1 |
| 541-5970-002 | 6-2-130 | 2 | 544-6938-002 | 6-2-33 | 1 |
| 541-5974-002 | 6-2-129 | 2 | | 6-2-46 | 1 |
| 541-5979-002 | 6-2-80 | 4 | | 6-2-53 | 1 |
| | 6-5-26 | 4 | 544-6939-002 | 6-2-110 | 1 |
| 544-0781-004 | 6-1-4 | 2 | 544-6941-002 | 6-2-9 | 1 |
| 544-5439-002 | 6-4-14 | 2 | 544-6942-002 | 6-2-42 | 1 |
| 544-6871-000 | 6-2-169 | 1 | 544-6943-002 | 6-2-49 | 1 |
| 544-6872-000 | 6-4-13 | 1 | 544-6944-002 | 6-2-6 | 1 |
| 544-6873-000 | 6-1-35 | 1 | 544-6945-002 | 6-2-17 | 1 |
| | 6-2- | RF | 544-6946-002 | 6-2-32 | 1 |
| 544-6874-000 | 6-4-20 | 1 | 544-6947-002 | 6-2-45 | 1 |
| | 6-5- | RF | 544-6948-002 | 6-2-52 | 1 |
| 544-6876-000 | 6-2-108 | 1 | 544-6949-002 | 6-2-10 | 2 |
| 544-6877-000 | 6-2-112 | 1 | | 6-2-25 | 1 |
| 544-6879-000 | 6-2-83 | 1 | 544-6950-002 | 6-2-62 | 1 |
| 544-6880-000 | 6-5-22 | 1 | 544-6952-002 | 6-2-2 | 1 |
| | 6-6- | RF | | 6-2-4 | 1 |
| 544-6881-000 | 6-5-23 | 1 | 544-6953-002 | 6-2-3 | 1 |
| 544-6882-000 | 6-5-14 | 1 | 544-6954-002 | 6-2-1 | 1 |
| 544-6883-000 | 6-2-152 | 1 | 544-6957-002 | 6-1-16 | 2 |
| | 6-3- | RF | 544-6958-002 | 6-1-15 | 1 |
| 544-6884-000 | 6-1-18 | 1 | 544-6962-002 | 6-2-16 | 1 |
| 544-6886-000 | 6-3-3 | 1 | 544-6964-002 | 6-2-15 | 1 |
| 544-6887-000 | 6-2-176 | 1 | 544-6965-002 | 6-2-22 | 1 |
| 544-6890-002 | 6-2-177 | 1 | | 6-5-20 | 1 |
| 544-6891-002 | 6-2-188 | 10 | 544-6967-002 | 6-2-13 | 2 |
| | 6-2-191 | 7 | | 6-2-24 | 2 |
| 544-6892-002 | 6-2-185 | 2 | | 6-2-84 | 1 |
| 544-6893-002 | 6-2-186 | 2 | | 6-6-44 | 1 |
| 544-6894-002 | 6-2-165 | 1 | 544-6969-002 | 6-3-13 | 1 |
| 544-6896-002 | 6-2-75 | 1 | 544-6970-002 | 6-3-11 | 1 |
| 544-6897-002 | 6-4-18 | 1 | 544-6971-002 | 6-2-44 | 1 |
| 544-6898-002 | 6-2-40 | 1 | 544-6972-002 | 6-2-51 | 1 |
| 544-6899-002 | 6-2-39 | 1 | 544-6973-002 | 6-5-24 | 1 |
| 544-6900-002 | 6-2-67 | 1 | 544-6974-002 | 6-2-194 | 2 |
| 544-6901-002 | 6-5-67 | 4 | 544-6975-002 | 6-2-195 | 1 |
| 544-6903-002 | 6-5-68 | 1 | 544-6977-002 | 6-2-193 | 1 |
| 544-6904-002 | 6-5-17 | 1 | 544-6979-002 | 6-2-28 | 1 |
| 544-6905-002 | 6-6-43 | 1 | 544-6980-002 | 6-2-29 | 1 |
| 544-6906-002 | 6-6-42 | 1 | 544-6985-003 | 6-2-173 | 1 |
| 544-6914-002 | 6-5-61 | 1 | 544-6986-003 | 6-2-171 | 1 |
| 544-6919-002 | 6-2-89 | 1 | 544-6989-003 | 6-2-94 | 1 |
| | 6-6-38 | 1 | 544-6990-003 | 6-2-92 | 1 |
| 544-6920-002 | 6-2-190 | 1 | 544-6995-003 | 6-2-76 | 1 |
| 544-6921-002 | 6-2-189 | 1 | 544-6996-003 | 6-1-17 | 1 |
| 544-6922-002 | 6-2-85 | 1 | 544-6997-003 | 6-1-34 | 1 |
| | 6-6-41 | 1 | 544-6998-003 | 6-2-132 | 1 |
| 544-6924-002 | 6-2-86 | 1 | 544-6999-003 | 6-2-131 | 1 |
| | 6-6-40 | 1 | 544-7000-003 | 6-2-135 | 1 |
| 544-6925-002 | 6-2-88 | 1 | 544-7001-003 | 6-2-134 | 1 |
| 544-6926-002 | 6-2-87 | 1 | 544-7002-003 | 6-2-133 | 1 |
| 544-6927-002 | 6-2-109 | 1 | 544-7003-000 | 6-2-82 | 1 |
| 544-6928-002 | 6-2-69 | 1 | 544-7004-003 | 6-2-168 | 1 |
| | 6-2-74 | 6 | 544-7006-003 | 6-4-11 | 1 |
| 544-6929-002 | 6-2-19 | 2 | 544-7007-003 | 6-2-138 | 1 |
| 544-6931-002 | 6-2-14 | 2 | 544-7008-003 | 6-2-136 | 1 |
| 544-6932-002 | 6-2-11 | 2 | 544-7015-004 | 6-5-18 | 1 |
| | 6-2-26 | 1 | 544-7024-005 | 6-2-59 | 1 |
| 544-6933-002 | 6-2-111 | 1 | 544-7025-005 | 6-5-77 | 1 |
| 544-6934-002 | 6-2-35 | 1 | 544-7026-005 | 6-5-72 | 1 |
| 544-6935-002 | 6-2-48 | 1 | 544-7027-005 | 6-6-59 | 1 |

NUMERICAL INDEX

| PART NUMBER | FIG - ITEM | TTL REQ | PART NUMBER | FIG - ITEM | TTL REQ |
|---------------|------------|---------|------------------|------------|---------|
| 544-7028-005 | 6-4-19 | 1 | 913NEOPRENE45-55 | 6-5-62 | i |
| 544-7030-006 | 6-2-196 | 1 | 930-0035-000 | 6-5-55 | 1 |
| 544-7032-006 | 6-2-197 | 1 | 930-4314-000 | 6-5-59 | i |
| 544-7037-002 | 6-2-63 | 1 | | 6-5-60 | 1 |
| 544-7038-002 | 6-2-161 | 1 | 9348 | 6-2-147 | 1 |
| 544-9789-002 | 6-5-12 | 1 | | 6-3-2 | 1 |
| 545-3119-003 | 6-2-105 | 1 | | 6-3-8 | 1 |
| 545-3120-004 | 6-2-104 | 1 | 94111AH | 6-2-127 | 2 |
| 545-7599-002 | 6-6-46 | 1 | 95861AH | 6-2-5 | 1 |
| 545-7600-002 | 6-2-38 | 1 | 970-1922-000 | 6-2-79 | i |
| 545-7601-002 | 6-2-36 | 1 | 98650-0416 | 6-6-28 | i |
| 545-7603-002 | 6-5-69 | 2 | | | |
| 545-7604-003 | 6-2-78 | 1 | | | |
| 545-7814-000 | 6-2-125 | 1 | | | |
| 545-7815-000 | 6-1-3 | 2 | | | |
| 545-7825-003 | 6-2-77 | 1 | | | |
| 545-9118-002 | 6-2-187 | 10 | | | |
| 546-2149-000 | 6-1-29 | 1 | | | |
| 557-018-8-50E | 6-3-1 | 1 | | | |
| 5687 | 6-1-31 | 1 | | | |
| 5690 | 6-1-30 | 1 | | | |
| 602Y8 | 6-6-35 | 1 | | | |
| 609-0689-000 | 6-7-22 | 1 | | | |
| 609-0690-001 | 6-7-20 | 1 | | | |
| 609-0691-001 | 6-6-34 | 1 | | | |
| | 6-7- | REF | | | |
| 61F40DA104 | 6-6-15 | 1 | | | |
| 662-0352-000 | 6-5-52 | 1 | | | |
| 68NC3-40 | 6-2-93 | 1 | | | |
| 68NC3-82 | 6-5-73 | 18 | | | |
| 6881M81060A | 6-5-27 | 1 | | | |
| 710-2026-000 | 6-5-42 | 1 | | | |
| | 6-5-43 | 1 | | | |
| | 6-5-44 | 1 | | | |
| 710-2133-000 | 6-5-34 | 1 | | | |
| | 6-5-35 | 1 | | | |
| | 6-5-36 | 1 | | | |
| 710-3542-000 | 6-5-40 | 1 | | | |
| 735-0204-000 | 6-6-33 | 1 | | | |
| 7665K4 | 6-1-23 | 1 | | | |
| 790-1645-001 | 6-2-132 | 1 | | | |
| 82132-0032 | 6-2-172 | 1 | | | |
| 83001 | 6-1-22 | 1 | | | |
| 8411K11 | 6-2-91 | 1 | | | |
| | 6-6-45 | 1 | | | |
| 85-11-080-17 | 6-2-61 | 1 | | | |
| 85055Z | 6-2-107 | 1 | | | |
| 88-8TM | 6-6-53 | 1 | | | |
| 9 | 6-5-39 | 2 | | | |
| 913-3538-000 | 6-2-175 | 1 | | | |
| 913-3572-000 | 6-2-123 | 1 | | | |
| 913-3579-000 | 6-2-120 | 1 | | | |
| | 6-2-124 | 1 | | | |
| 913-3581-000 | 6-2-119 | 1 | | | |
| | 6-2-124 | 1 | | | |
| 913-3582-000 | 6-2-118 | 1 | | | |
| 913-3585-000 | 6-2-121 | 1 | | | |
| 913-3586-000 | 6-2-122 | 1 | | | |
| 913-3587-000 | 6-2-114 | 1 | | | |
| 913-3588-000 | 6-2-117 | 1 | | | |
| 913-3589-000 | 6-2-115 | 1 | | | |
| | 6-2-116 | 1 | | | |
| 913-3703-000 | 6-2-106 | 1 | | | |

6.4 REFERENCE DESIGNATION INDEX

| REFERENCE DESIGNATION | FIG - ITEM | PART NUMBER | REFERENCE DESIGNATION | FIG - ITEM | PART NUMBER |
|-----------------------|------------|------------------|-----------------------|------------|------------------|
| B101 | 6-2-172 | 82132-0032 | C147 | 6-2-117 | 913-3588-000 |
| CR101A,CR101B | 6-3-3 | 544-6886-000 | C148 | 6-2-114 | 913-3587-000 |
| CR201 | 6-7-10 | 1N4005 | C148 | 6-2-114 | 327-029X5T0102Z |
| CR202 | 6-7-5 | 1N4005 | C149 | 6-2-157 | 327-029X5T0102Z |
| CR203 | 6-7-1 | 1N4005 | C150 | 6-2-115 | 913-3589-000 |
| CR204 | 6-7-4 | 1N4005 | C151 | 6-2-116 | 913-3589-000 |
| CR205 | 6-6-22 | 50 | C152 | 6-2-148 | DM15C150K500WV4C |
| CR206 | 6-7-7 | 1N4005 | | | R |
| CR207 | 6-6-23 | 50 | C152 | 6-2-148 | DM15E220K500WV4C |
| CR208 | 6-6-24 | 50 | | | R |
| CR209 | 6-7-8 | 1N4005 | C152 | 6-2-148 | DM15E270K500WV4C |
| CR210 | 6-6-17 | 1N457 | | | R |
| CR211 | 6-6-18 | 1N457 | C152 | 6-2-148 | DM15E390K500WV4C |
| CR212 | 6-7-19 | 1N4005 | | | R |
| CR213 | 6-7-16 | 1N4005 | C152 | 6-2-148 | DM15E470K500WV4C |
| CR214 | 6-7-14 | 1N4005 | | | R |
| CR215 | 6-7-13 | 1N4005 | C201 | 6-1-7 | 36C175A |
| CR216 | 6-1-14 | 1N1492 | C202 | 6-1-6 | 36C175A |
| CR217 | 6-6-12 | 1N457 | C203 | 6-6-10 | D29075 |
| CR218 | 6-6-11 | 1N457 | C204 | 6-5-37 | D29076 |
| C102 | 6-2-139 | 36C175A | C205 | 6-5-57 | CP72E1EH504K1 |
| C103 | 6-2-107 | 85055Z | C206 | 6-5-55 | 930-0035-000 |
| C104 | 6-2-175 | 913-3538-000 | C207 | 6-5-59 | 930-4314-000 |
| C105 | 6-2-113 | 36C175A | C208 | 6-5-60 | 930-4314-000 |
| C107 | 6-2-124 | 913-3579-000 | C209 | 6-6-7 | TC49 |
| C107 | 6-2-124 | 913-3581-000 | C210 | 6-6-6 | TC49 |
| C108 | 6-2-123 | 913-3572-000 | C211 | 6-6-31 | D29668 |
| C109 | 6-2-121 | 913-3585-000 | C212 | 6-5-30 | 36C175A |
| C110 | 6-2-122 | 913-3586-000 | C213 | 6-5-31 | 36C175A |
| C111 | 6-2-151 | DM15C050D500WV4C | C214 | 6-6-14 | 36C175A |
| | | R | C215 | 6-6-1 | 36C175A |
| C112 | 6-3-1 | 557-018-8-50E | C216 | 6-6-2 | 36C175A |
| C113 | 6-3-6 | 36C175A | C217 | 6-6-26 | 36C175A |
| C114 | 6-3-5 | 36C175A | C218 | 6-6-27 | 36C175A |
| C115 | 6-2-106 | 913-3703-000 | C219 | 6-6-15 | LP9A1E104K |
| C116 | 6-2-156 | 2443-00CX5T0151K | C219 | 6-6-15 | 61F40DA104 |
| C118 | 6-2-66 | DA858-003 | C219 | 6-6-15 | 160P10494 |
| C120 | 6-2-68 | 154-16 | C221 | 6-7-11 | DD16-103 |
| C121 | 6-2-72 | 154-32 | C251 | 6-7-9 | 40C286A |
| C122 | 6-2-73 | 154-32 | C252 | 6-7-17 | 40C286A |
| C123 | 6-2-141 | 36C175A | C253 | 6-7-2 | 40C286A |
| C124 | 6-2-142 | 36C175A | C254 | 6-7-15 | 40C286A |
| C125 | 6-2-143 | 36C175A | C255 | 6-7-12 | 40C286A |
| C127 | 6-2-103 | DD60-152 | C256 | 6-7-3 | 40C286A |
| C128 | 6-2-144 | 36C175A | C257 | 6-7-18 | 40C286A |
| C129 | 6-2-145 | 36C175A | C258 | 6-7-6 | 40C286A |
| C130 | 6-2-140 | 36C175A | C259 | 6-5-1 | DD60-152 |
| C131 | 6-2-97 | 36C175A | C260 | 6-6-3 | D38238 |
| C132 | 6-2-100 | CK12BX102M | DS201 | 6-2-20 | MS15571-2 |
| C133 | 6-2-101 | 36C175A | DS202 | 6-1-27 | MS15571-2 |
| C134 | 6-2-182 | DM15E330K500WV4C | DS203 | 6-2-20 | MS15571-2 |
| | | R | F201 | 6-4-6 | MDX3 2-10 |
| C135 | 6-2-102 | 36C175A | F202 | 6-4-9 | ABC12 |
| C137 | 6-2-120 | 913-3579-000 | F202 | 6-4-9 | MDA15 |
| C138 | 6-2-119 | 913-3581-000 | F203 | 6-4-10 | ABC12 |
| C139 | 6-2-118 | 913-3582-000 | F203 | 6-4-10 | MDA15 |
| C140 | 6-3-9 | 36C175A | F204 | 6-4-8 | ABC8 |
| C141 | 6-2-95 | 36C175A | F205 | 6-4-7 | F02B250V1AS |
| C142 | 6-2-146 | 36C175A | J101 | 6-2-180 | 201-11-01-018 |
| C143 | 6-2-96 | DD60-152 | J102 | 6-2-181 | 201-11-01-018 |
| C144 | 6-2-167 | 36C175A | J103 | 6-2-192 | M39012-04-0002 |
| C145 | 6-3-10 | 36C175A | J201 | 6-5-63 | 201-11-01-018 |
| C146 | 6-2-158 | 327-029X5T0102Z | J202 | 6-5-64 | 201-11-01-018 |

REFERENCE DESIGNATION INDEX

| REFERENCE DESIGNATION | FIG - ITEM | PART NUMBER | REFERENCE DESIGNATION | FIG - ITEM | PART NUMBER |
|-----------------------|------------|----------------|-----------------------|------------|-----------------|
| J203 | 6-5-65 | 201-11-01-018 | R230 | 6-6-33 | 735-0204-000 |
| J204 | 6-5-16 | S2001 | R231 | 6-1-19 | RCR32G473KS |
| K101 | 6-2-79 | 970-1922-000 | R232 | 6-6-4 | RW31V100 |
| K102 | 6-2-104 | 545-3120-004 | R233 | 6-5-44 | 710-2026-000 |
| K201 | 6-6-29 | PC1011 | R235 | 6-1-13 | RCR32G472KS |
| K202 | 6-4-12 | B2133 | S102 | 6-2-127 | 9411AH |
| K203 | 6-6-28 | 98650-0416 | S103 | 6-2-91 | 8411K11 |
| K204 | 6-6-30 | KR2609-2 | S104 | 6-2-77 | 545-7825-003 |
| K205 | 6-5-28 | KR2650 | S201 | 6-1-23 | 7665K4 |
| L101 | 6-2-62 | 544-6950-002 | S202 | 6-1-22 | 8300 |
| L102 | 6-2-65 | 540-7979-000 | S203 | 6-1-25 | 1025W0 |
| L103 | 6-2-149 | 240-0191-000 | S205 | 6-6-45 | 8411K11 |
| L103 | 6-2-149 | MS75103-6 | S207 | 6-1-20 | 259-1027-000 |
| L104 | 6-2-78 | 545-7604-C03 | S208 | 6-1-24 | 1025NC |
| L105 | 6-2-71 | 49966 | TB101 | 6-2-58 | 1775 |
| L106 | 6-3-8 | 9348 | TB102 | 6-2-58A | 1775 |
| L107 | 6-3-2 | 9348 | TB103 | 6-2-183 | 1774 |
| L108 | 6-2-147 | 9348 | TB104 | 6-2-184 | 1774 |
| L109 | 6-2-67 | 544-6900-002 | TB201 | 6-6-35 | 602Y8 |
| L110 | 6-2-131 | 544-6999-003 | TB201-A | 6-6-25 | 4-1001XP |
| L111 | 6-2-132 | 544-6998-003 | TB202 | 6-6-49 | 332-14-06-032 |
| L111 | 6-2-132 | 790-1645-001 | TB203 | 6-6-50 | 332-14-06-032 |
| L112 | 6-2-133 | 544-7002-C03 | TB204 | 6-6-47 | 1542A |
| L113 | 6-2-134 | 544-7001-003 | TB205 | 6-6-48 | 1542A |
| L114 | 6-2-135 | 544-7000-003 | TB206 | 6-6-52 | 332-1403-165 |
| L115 | 6-2-125 | 545-7814-000 | TB207 | 6-6-51 | 5246A |
| L201 | 6-5-53 | E10629 | T101 | 6-2-154 | 27370 |
| L202 | 6-5-58 | 37877 | T102 | 6-2-159 | E13660 |
| L203 | 6-6-13 | 18-119 | T103 | 6-2-155 | E13768 |
| M201 | 6-1-31 | 5687 | T201 | 6-5-5 | A15178 |
| M202 | 6-1-30 | 5690 | T202 | 6-5-52 | 662-0352-000 |
| R101 | 6-3-7 | RN65D3832F | T203 | 6-6-21 | 36704 |
| R102 | 6-3-4 | RN65D3832F | V101 | 6-2-166 | 4X250B0R4CX250B |
| R104 | 6-2-150 | RCR32G102KS | V201 | 6-4-1 | 3B28 |
| R105 | 6-2-56 | 376-3275-000 | V202 | 6-4-2 | 3B28 |
| R105 | 6-2-56 | CM37371-3010 | XF201 | 6-6-54 | HKPHJRZZ |
| R106 | 6-2-57 | RA20SAS0501A | XF202 | 6-6-56 | HKPHJRZZ |
| R201 | 6-5-43 | 710-2026-000 | XF203 | 6-6-57 | HKPHJRZZ |
| R202 | 6-6-9 | RCR42G471KS | XF204 | 6-5-15 | HKPHJRZZ |
| R203 | 6-5-40 | 710-3542-000 | XF205 | 6-6-55 | HKPHJRZZ |
| R204 | 6-1-8 | RS741XOK10R10H | XK202 | 6-6-53 | 88-8TM |
| R205 | 6-5-34 | 710-2133-C00 | XV101 | 6-2-174 | Y131A |
| R206 | 6-5-35 | 710-2133-000 | XV201 | 6-5-2 | 122-224-200 |
| R207 | 6-5-36 | 710-2133-000 | XV202 | 6-5-3 | 122-224-200 |
| R209 | 6-1-10 | RN70D8060F | Z101 | 6-2-108 | 544-6876-000 |
| R210 | 6-5-46 | RCR42G102JS | | | |
| R211 | 6-5-48 | RCR42G105JS | | | |
| R212 | 6-5-49 | RCR42G105JS | | | |
| R213 | 6-5-50 | RCR42G105JS | | | |
| R214 | 6-5-51 | RCR42G105JS | | | |
| R215 | 6-5-42 | 710-2026-000 | | | |
| R217 | 6-1-12 | RCR20G204JS | | | |
| R218 | 6-6-5 | RCR32G222KS | | | |
| R219 | 6-6-32 | 377-0305-000 | | | |
| R220 | 6-6-8 | RCR32G332KS | | | |
| R221 | 6-1-9 | RN65D1100F | | | |
| R222 | 6-5-8 | RW32G100 | | | |
| R223 | 6-5-9 | RW32G100 | | | |
| R225 | 6-1-11 | RCR42G560KS | | | |
| R226 | 6-6-16 | RN30R1002F | | | |
| R227 | 6-6-19 | RN70D1001F | | | |
| R228 | 6-6-20 | RN65D1212F | | | |
| R229 | 6-5-47 | RCR42G105JS | | | |

section 7

illustrations

Note

The period covered by this instruction book is April 1963 to the date on the book title page.

Each equipment circuit change made during the period of time covered by this instruction book has the changes identified on the schematic diagram and in the parts list. Circuit changes are flagged on the schematic with a change identifier



pointed at the component, group of components,

or a circuit enclosed by a broken line. The identifier indicates that the component or circuit has been changed, and the number in the identifier indexes the specific change. If several components are affected by the same equipment change, there may be more than one identifier with the same index number.

The indexed changes are listed on schematic changes and equipment differences sheets inserted in front of the schematic sheet to which they are indexed.

The identifier-description describes the differences and reasons for changes and includes a recommendation as to what action should be followed during repair or maintenance.

The reason for identifying changes in this manner is that the manufacturer has "scrambled" serial numbers on his amateur products during the period covered by this instruction book. Therefore, changes cannot be identified by conventional methods.

Caution

None of the changes have been made because the equipment has failed to meet the equipment specifications and are not recommended changes for all units. Equipment changes have been made to improve performance or reliability of radios that are built using different fabrication processes. These changes will not necessarily improve the operation of your equipment and in some instances, if changes are made, will degrade the performance or possibly damage the radio.

The change identifier number is also used in the parts list section of this instruction book. However, in the parts list the identifier is enclosed in slashes (for example, /6/) instead of

the  symbol.

Below are listed service bulletins that have been written against the 30S-1 RF Linear Amplifier. These service bulletins were factory installed in units about the time the bulletins were issued and have been installed in all units since that date.

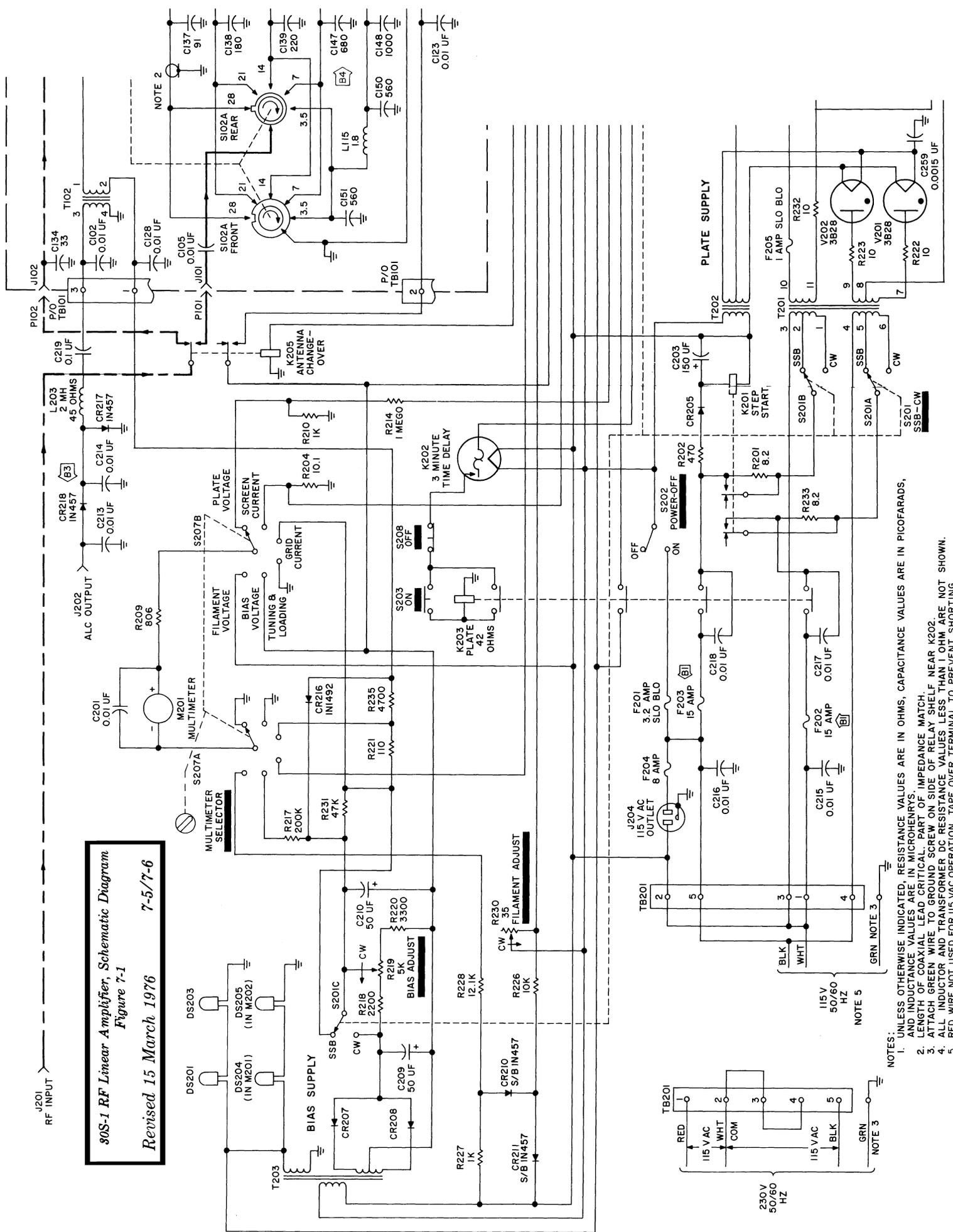
| <u>SERVICE BULLETIN NUMBER</u> | <u>DESCRIPTION</u> | <u>DATE ISSUED</u> |
|--------------------------------|--|--------------------|
| 1 | Increase the operating life of the pa tube. | 6-21-61 |
| 2 | Prevent intermittent drop-out of plate overload relay. | 11-1-69 |
| 3 | Reduce excessive ALC control. | 11-1-69 |

SCHEMATIC CHANGES AND EQUIPMENT DIFFERENCES

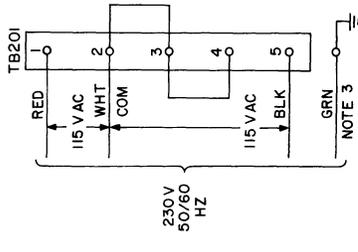
| IDENTIFIER | DESCRIPTION |
|------------|--|
| B1 | Fuses F202 and F203 were changed from 12 to 15 A. If either fuse needs replacing, it is recommended that both be replaced with the 15-A value. |
| B2 | Capacitor C152 is a factor test select component, from 15 to 47 pF, used in many units. It is selected to provide minimum swr with a 28-MHz input. If this component is in the unit and needs replacing, replace it with the existing value. If it is not in the unit, it should not be added. |
| B3 | Tube V203 (12AL5) was replaced with diodes CR217 and CR218 (1N457). V203 was located between capacitors C213 and C214 with pin 7 connected to connector J202, pins 1 and 2 connected to capacitor C114-choke L203, and pin 5 grounded. If this circuit needs repair, maintain the existing configuration. |
| B4 | <p>Diodes CR201 through CR204 and CR212 through CR215 were changed from 1N1492 to 1N4005. If any of these diodes need replacing, it is recommended that the 1N4005 be used.</p> <p>Diodes CR206 and CR209 were changed from 1N1084 to 1N4005. If one, or both, of these diodes needs replacing, it is recommended that the 1N4005 be used. If the unit originally used 1N1084 diodes, it will contain diode holders for these diodes. The 1N4005 diode leads can be soldered in place without removing the diode holders. When the factory changed to the 1N4005 diodes, terminal board TB211 was elongated to provide space to mount CR206 and CR209. With this change, the Collins part number of TB211 was changed from 545-6150-002 to 609-0691-001.</p> |
| B5 | C147 was changed from 650 to 680 pF. |

*30S-1 RF Linear Amplifier, Schematic Diagram
 Figure 7-1 (Sheet A)*

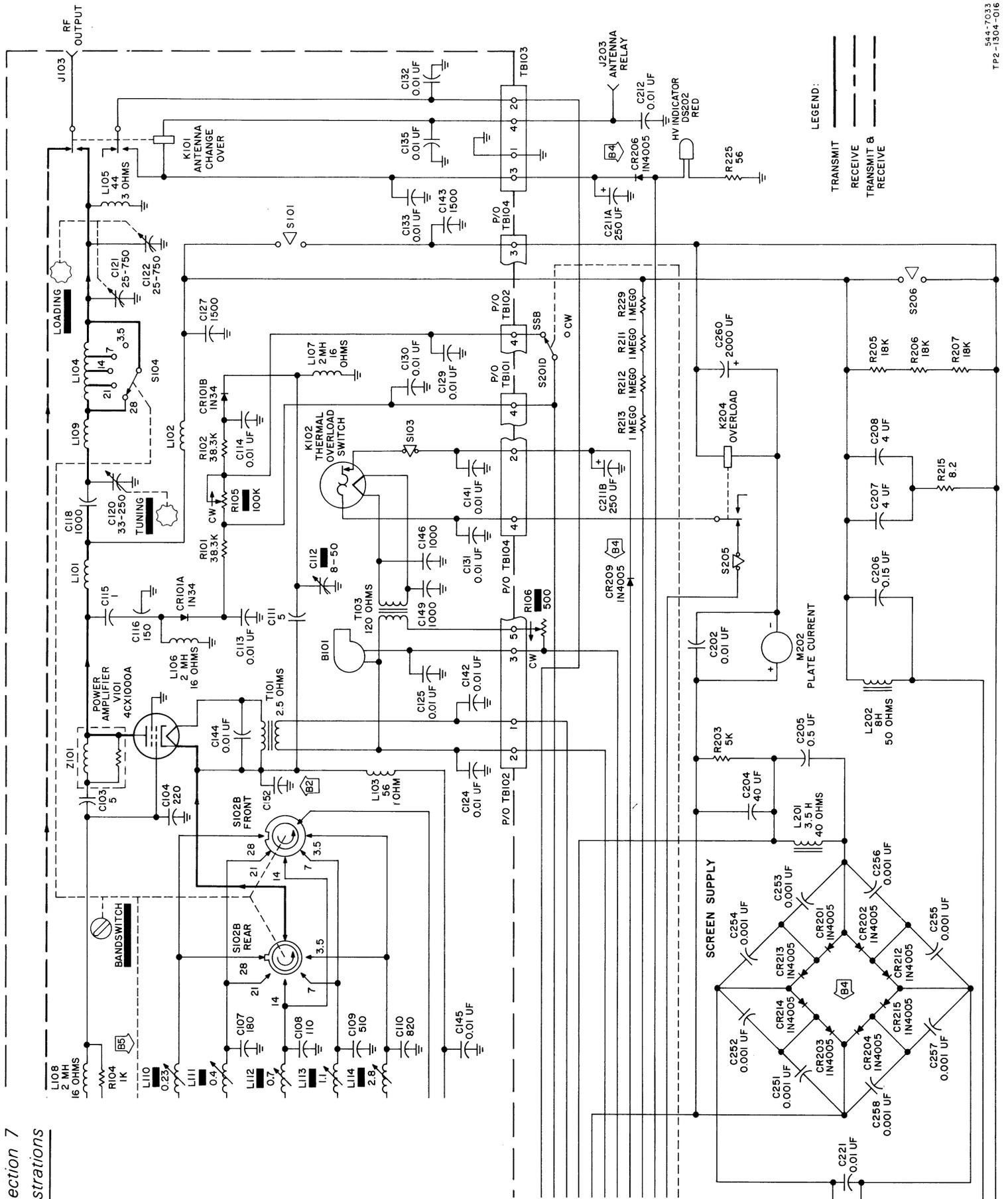
30S-1 RF Linear Amplifier, Schematic Diagram
Figure 7-1
Revised 15 March 1976
7-5-7-6



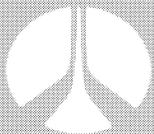
- NOTES:
1. UNLESS OTHERWISE INDICATED, RESISTANCE VALUES ARE IN OHMS, CAPACITANCE VALUES ARE IN PICOFARADS, AND INDUCTANCE VALUES ARE IN MICROHENRYS.
 2. LENGTH OF COAXIAL LEAD CRITICAL. PART OF IMPEDANCE MATCH.
 3. ATTACH GREEN WIRE TO GROUND SCREW ON SIDE OF RELAY SHELF NEAR K202.
 4. ALL INDUCTOR AND TRANSFORMER DC RESISTANCE VALUES LESS THAN 1 OHM ARE NOT SHOWN.
 5. RED WIRE NOT USED FOR 115 VAC OPERATION. TAPE OVER TERMINAL TO PREVENT SHORTING.



NOTE 3
 NOTE 5



LEGEND:
 TRANSMIT
 RECEIVE
 TRANSMIT & RECEIVE



Rockwell
International