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Collins Government Telecommunications Group

# 30S-1 RF Linear Amplifier

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RF Linear Amplifier**

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

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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	

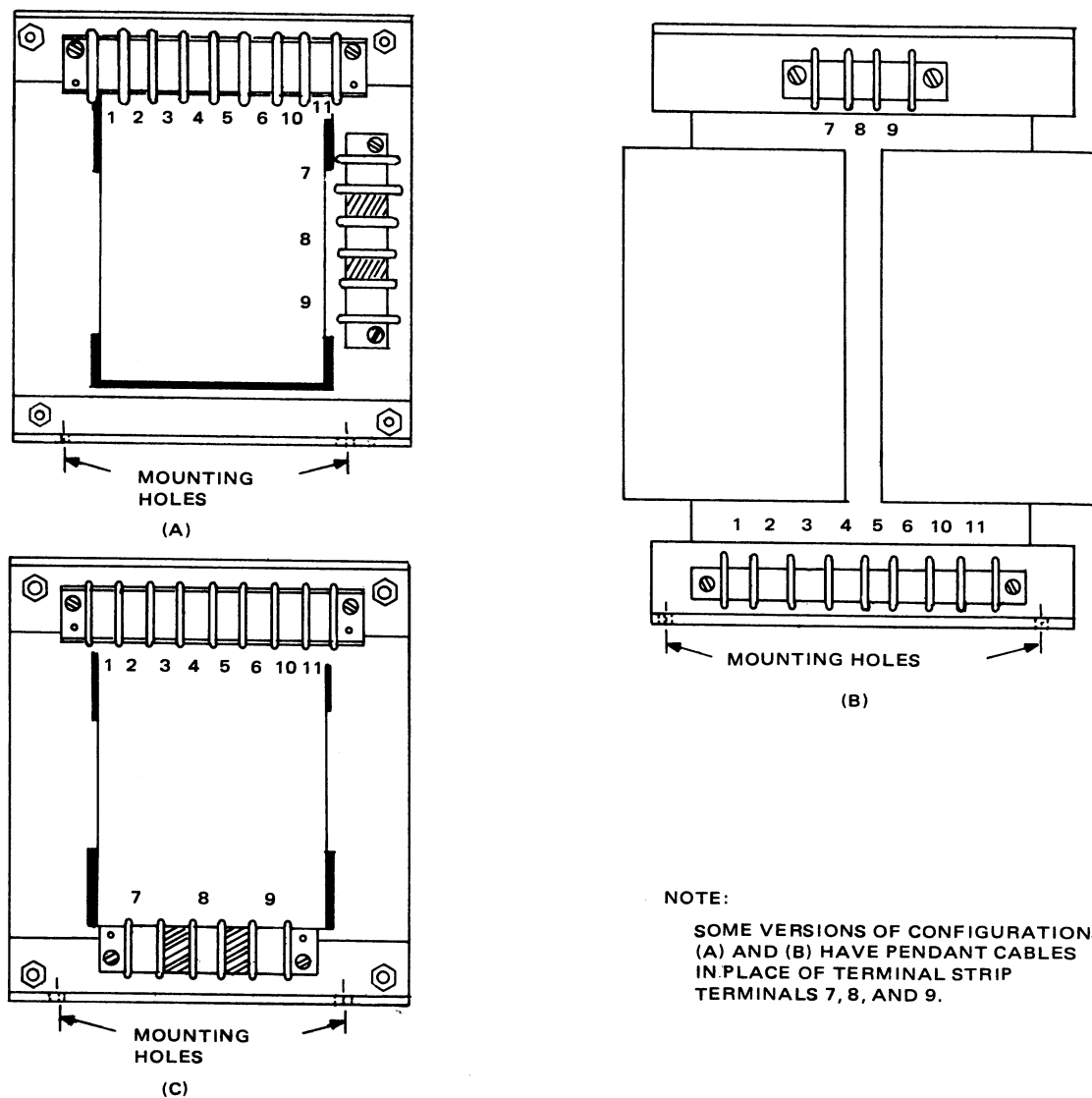
## 1.2 MOUNTING, CABLING, AND ADJUSTMENTS

### **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



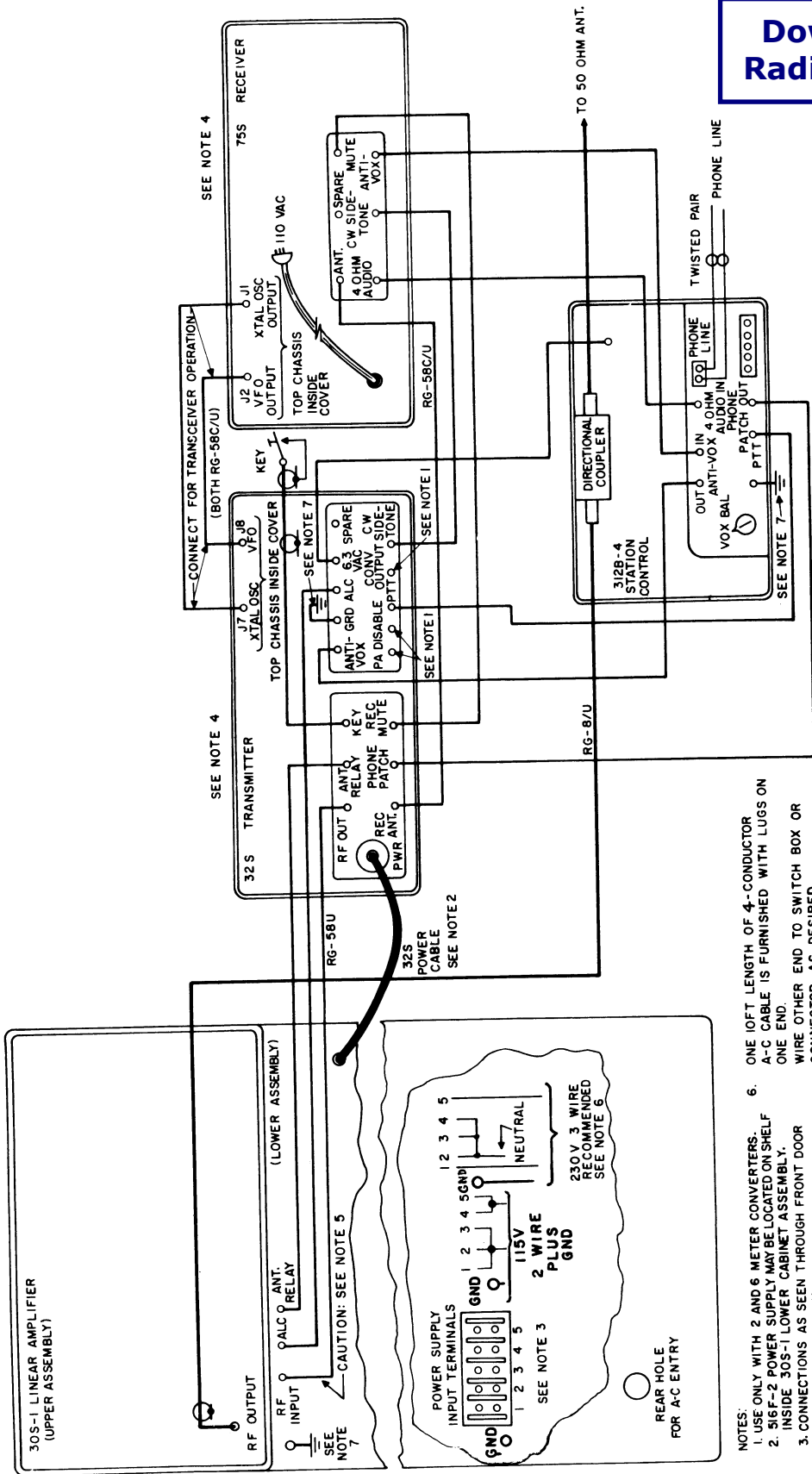
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30S-1 Plate Transformer Configuration and Terminal Strip Locations  
Figure 1-1

- 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

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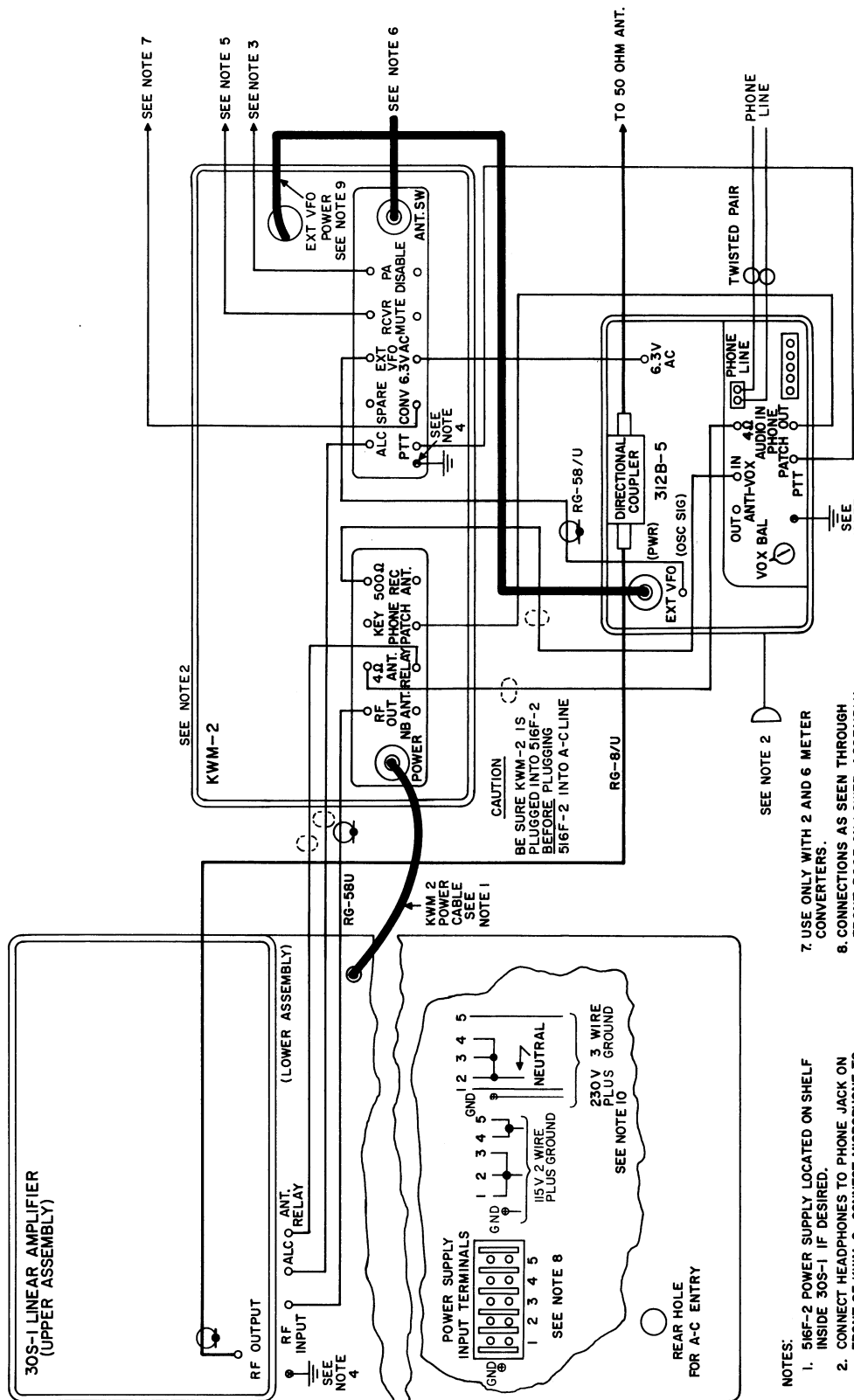


- NOTES:
1. USE ONLY WITH 2 AND 6 METER CONVERTERS.
  2. 56F-2 POWER SUPPLY MAY BE LOCATED ON SHELF INSIDE 30S-1 LOWER CABINET ASSEMBLY.
  3. CONNECTIONS AS SEEN THROUGH FRONT DOOR ON LOWER ASSEMBLY.
  4. CONNECT HEADPHONES TO PHONES JACK, FRONT OF 75S. CONNECT MICROPHONE TO MICROPHONE JACK, FRONT OF 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.

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



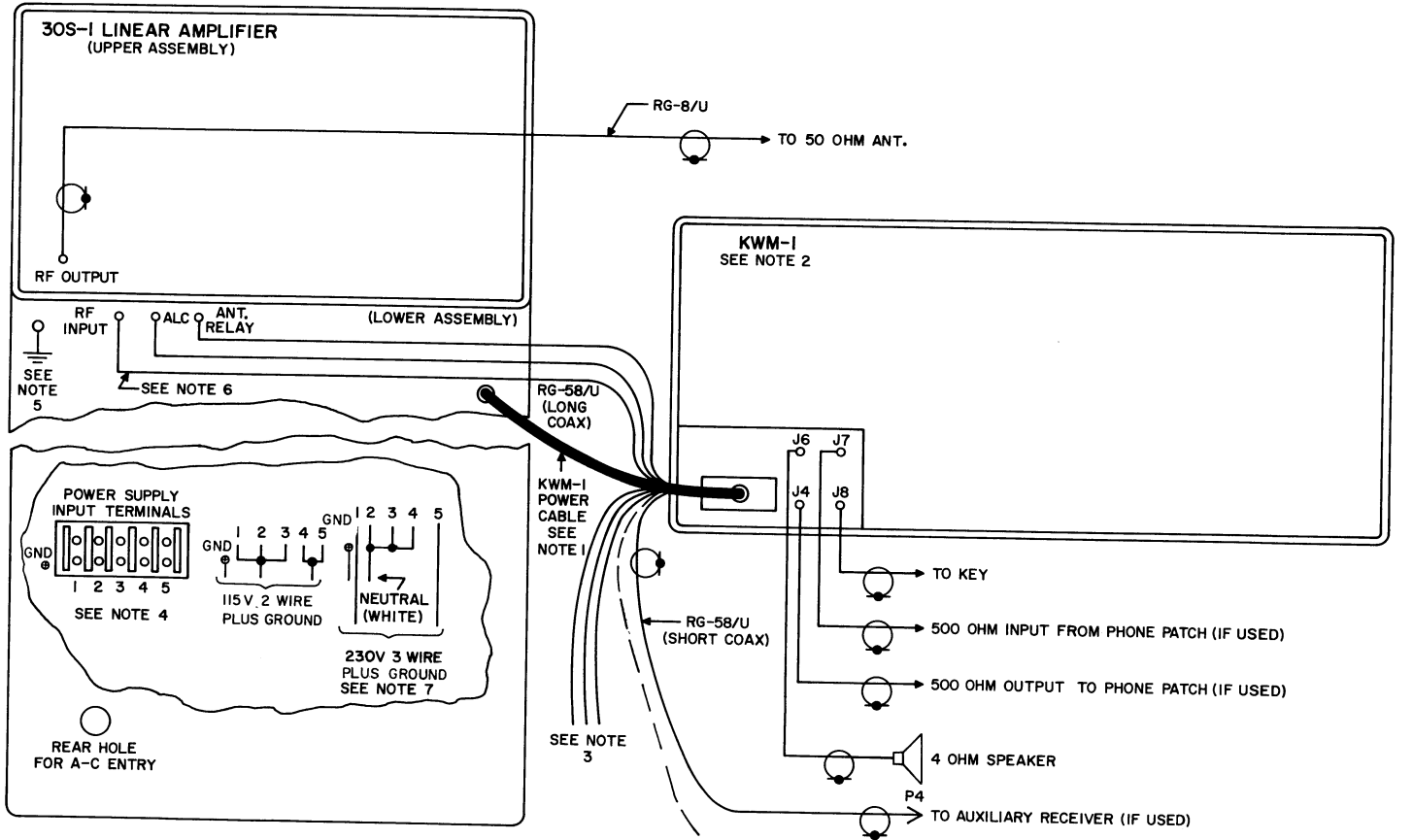


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Station Interconnections With KWM-2  
Figure 1-3

- 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.

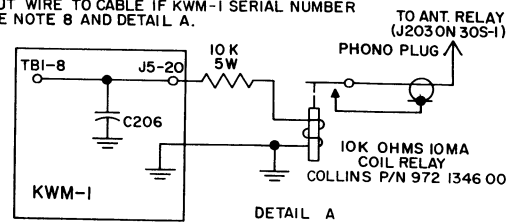




NOTES:

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).

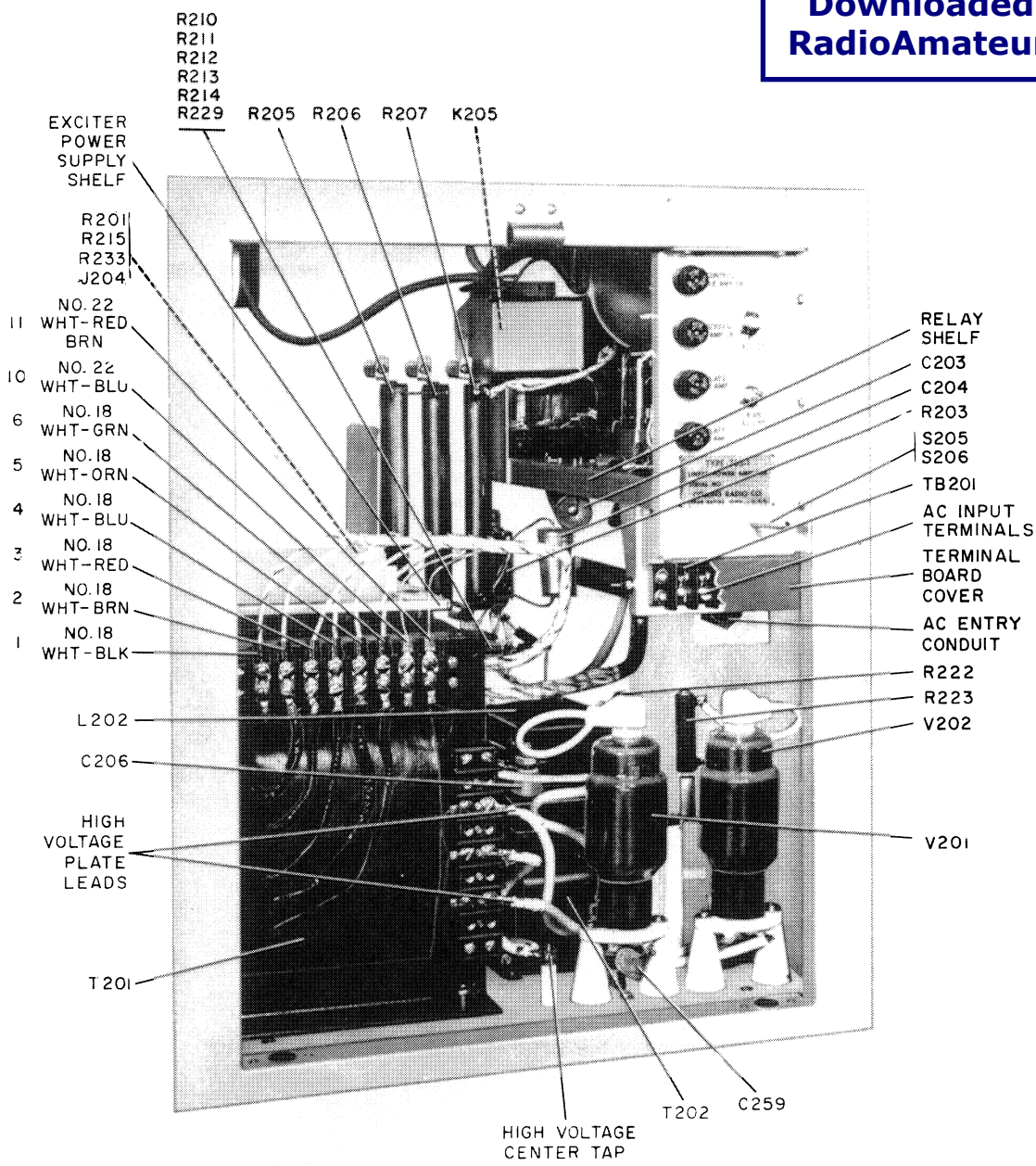


C432-14-4

Station Interconnections With KWM-1  
Figure 1-4



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*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**

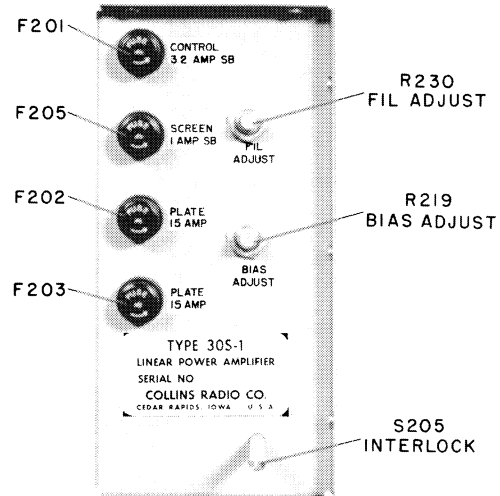
The rf cable supplied for connecting the 32S-( ) or the KWM-2 to 30S-1 is 20.5 feet long. Do not cut this cable. This length is optimum in maintaining the low-distortion figure for which the equipment was designed. An additional 2.5 feet of cable, with connectors, is required for connecting the KWM-1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

1.2.2 Adjustment

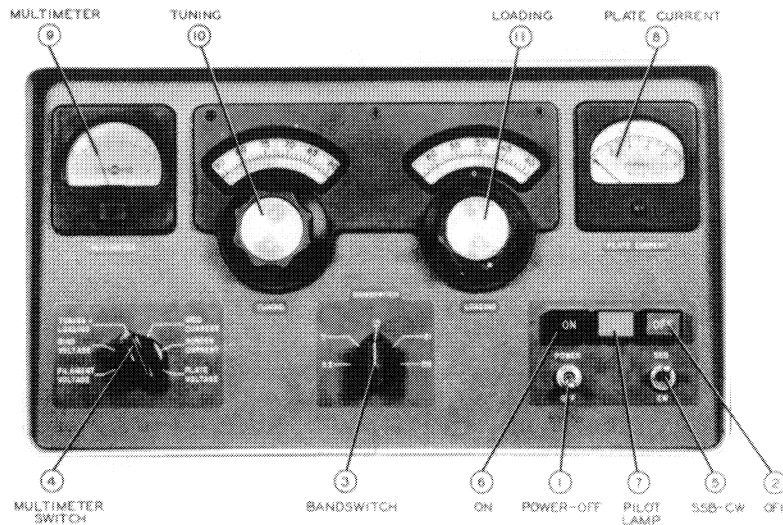
a. Refer to figure 1-7. Set POWER-OFF switch (1) to POWER. Set SSB-CW switch (5) to SSB and MULTIMETER switch (4) to FILA-

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 counterclockwise 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.

## principles of operation

### 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.

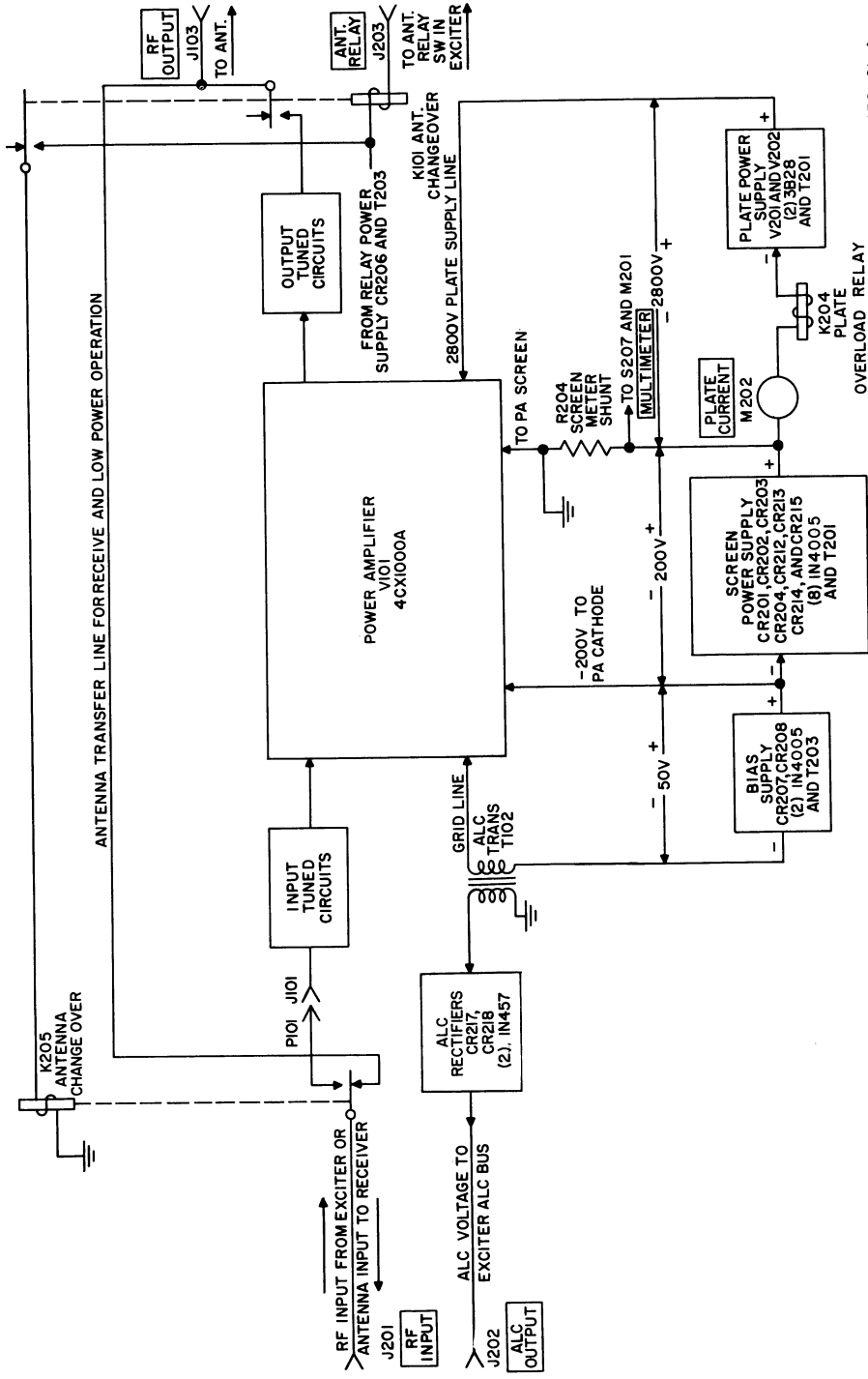
### 3.4 OUTPUT CIRCUITS

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

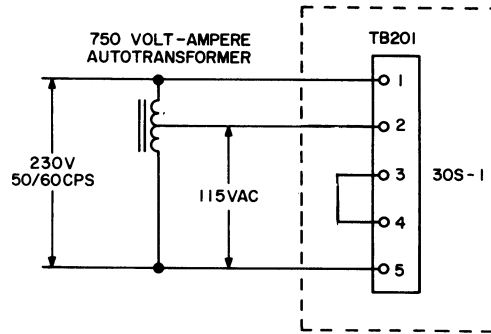
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C-432-01-4

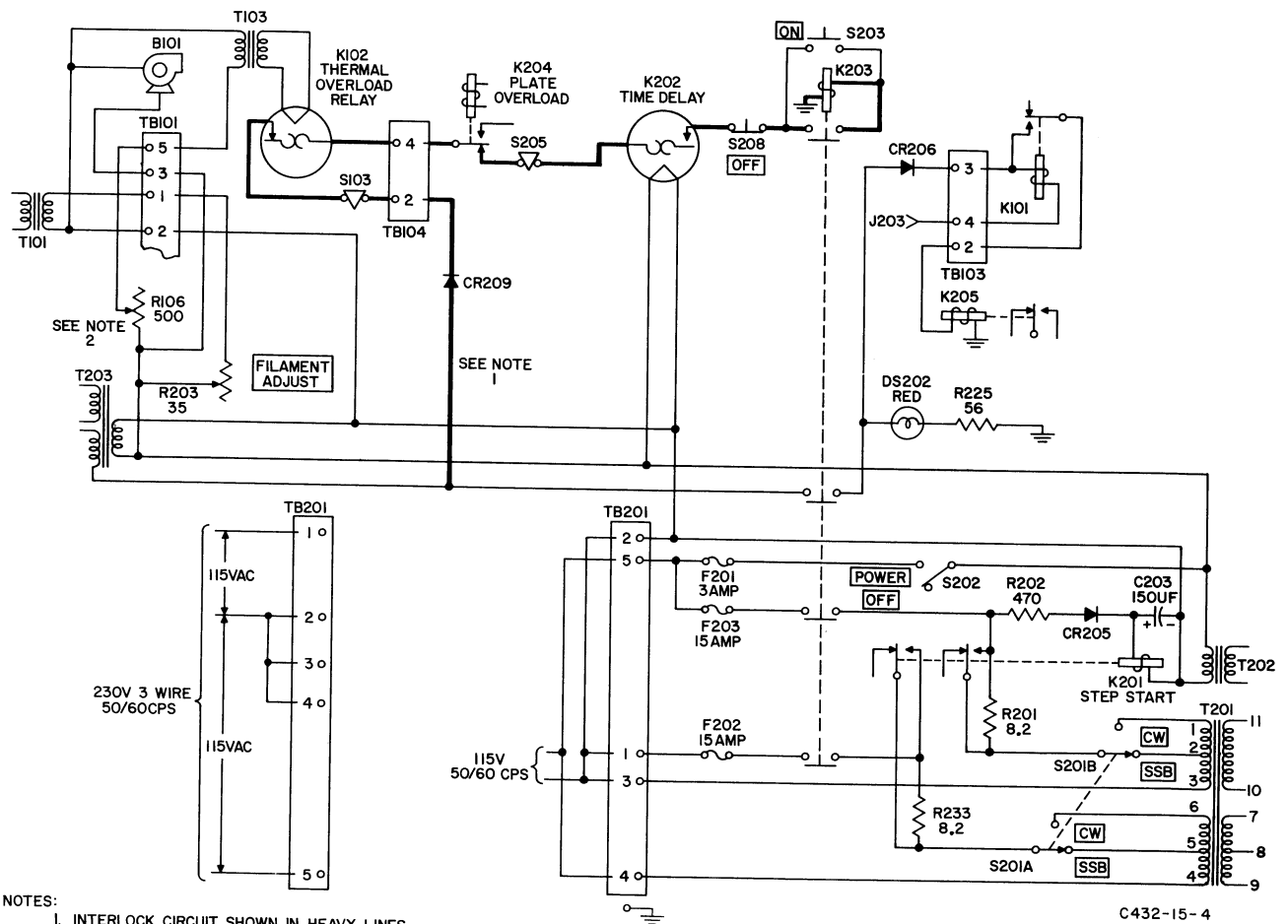
30S-1 Block Diagram  
 Figure 3-1

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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- $\mu$ 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

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- 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

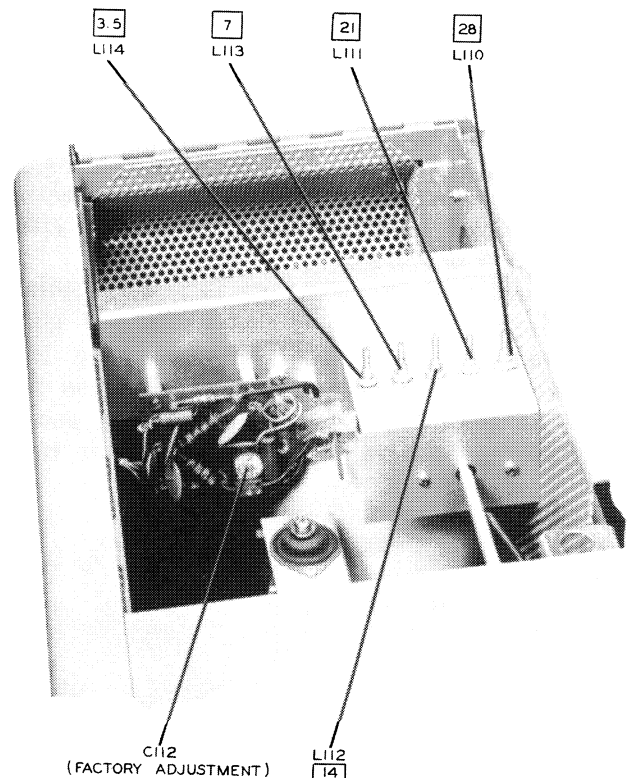
The blower motor bearings are permanently lubricated and do not require oiling.

### 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

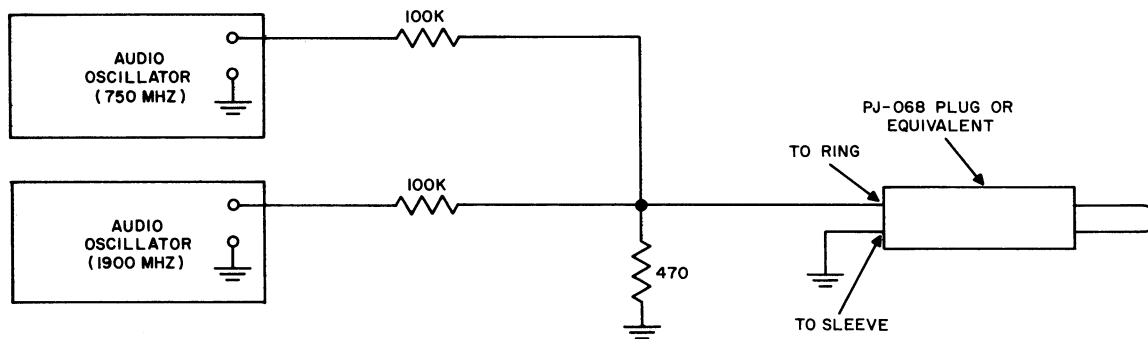
The loading indicator circuit may be checked for accuracy as follows:

- a. Connect a 50-ohm, 2500-watt, noninductive dummy load to RF OUTPUT connector J103 on the rear of the 30S-1.
- b. Tune and load the 30S-1 at 14.3 MHz (SSB).
- c. 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

- d. 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.
- e. 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.
- f. 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.

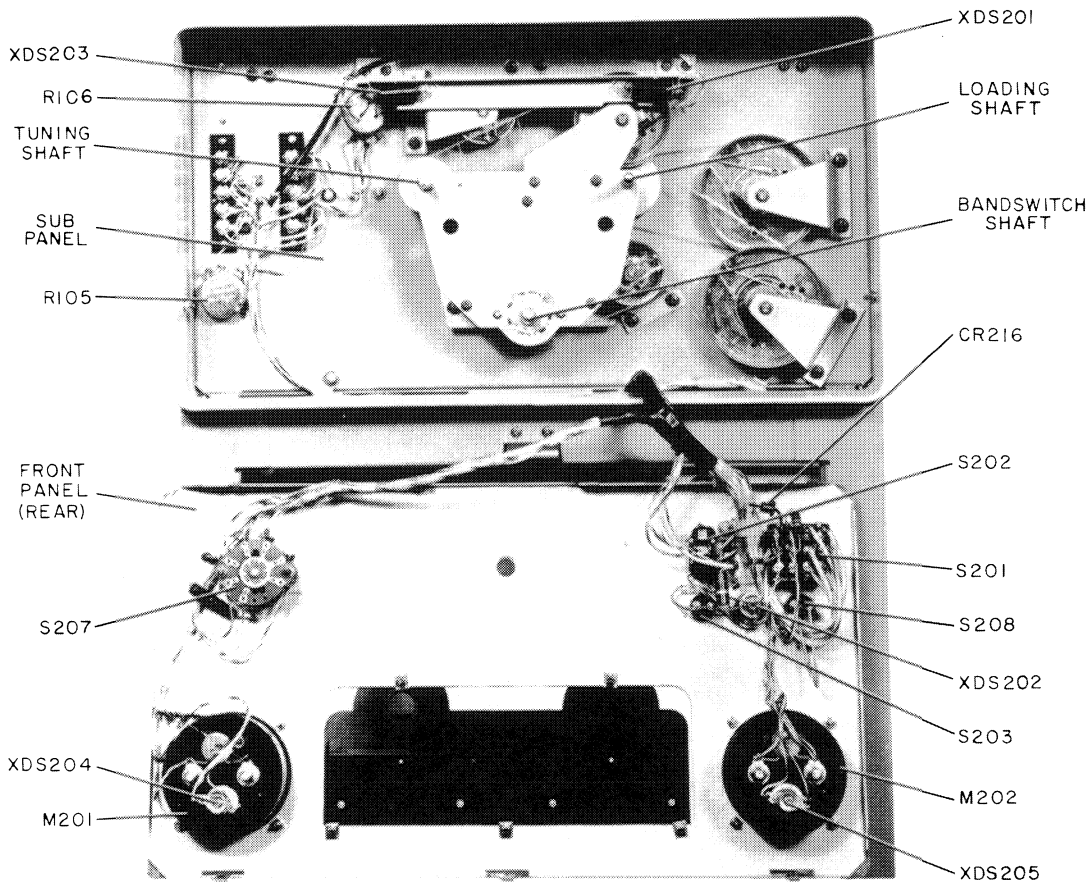
#### 4.7 DIAL CORD REPLACEMENT

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

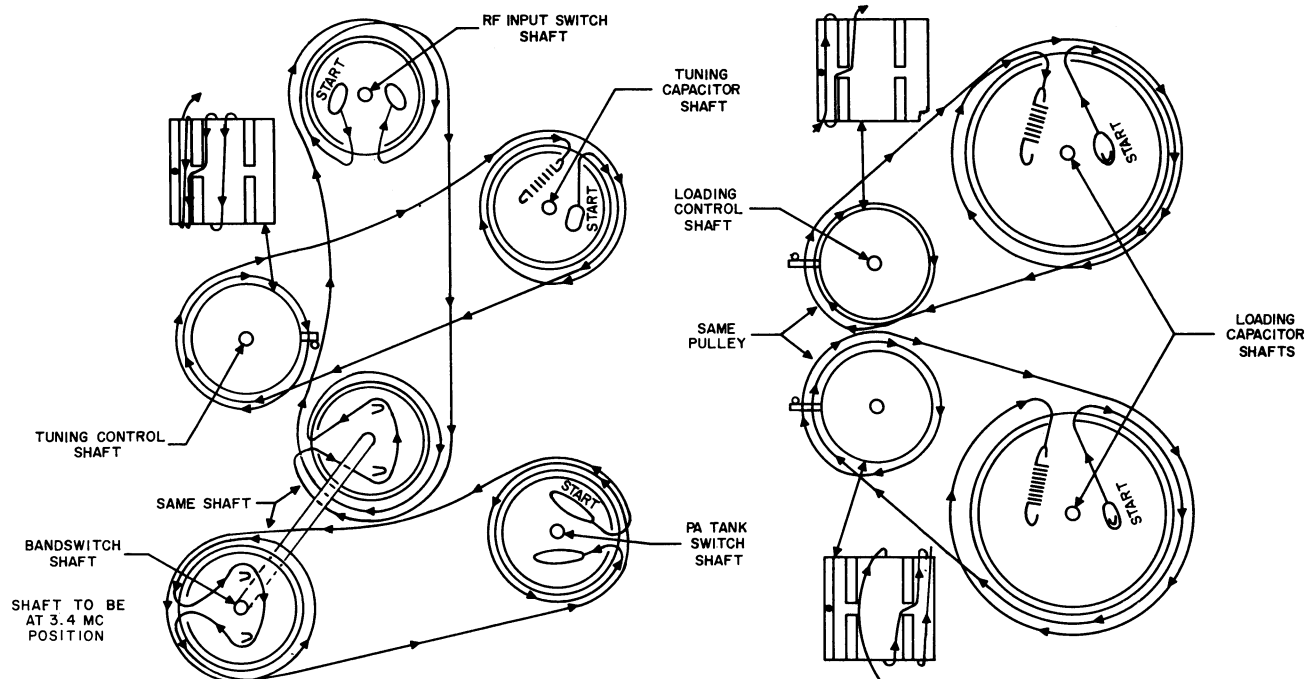
- e. Insert the tube gently into its socket, making certain the tube base contacts are not jammed or bent in the process. In order to do this, start the socket key into the keyway inside the tube and lower the tube gently, feeling for any binding between socket key and tube keyway. If binding occurs, 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.



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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.



**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

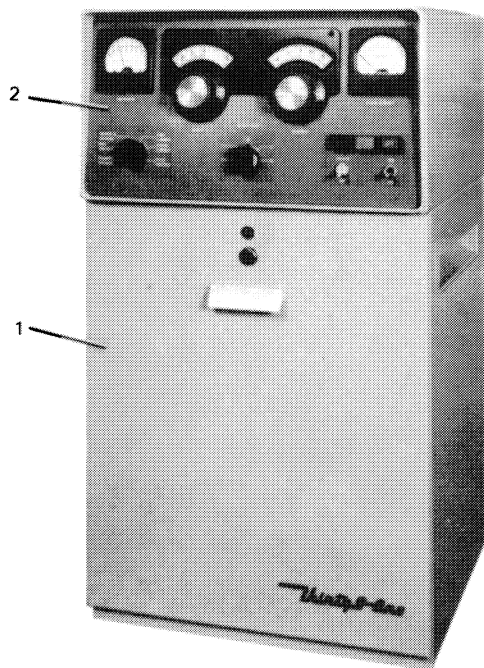
CODE	MANUFACTURER'S NAME AND ADDRESS	CODE	MANUFACTURER'S NAME AND ADDRESS
75618	Lion Fastener Co., Inc. N. Main Honeoye Falls, NY 14472	82142	Airco Speer Electronics Div. of Air Reduction Co., Inc. Grand Plaza 945 Grand Ave. Nogales, AZ 85621
76005	Lord Mfg. Co. Div. of Lord Corp. 1635 W. 12th St. Erie, 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**

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TP3-5558-027

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



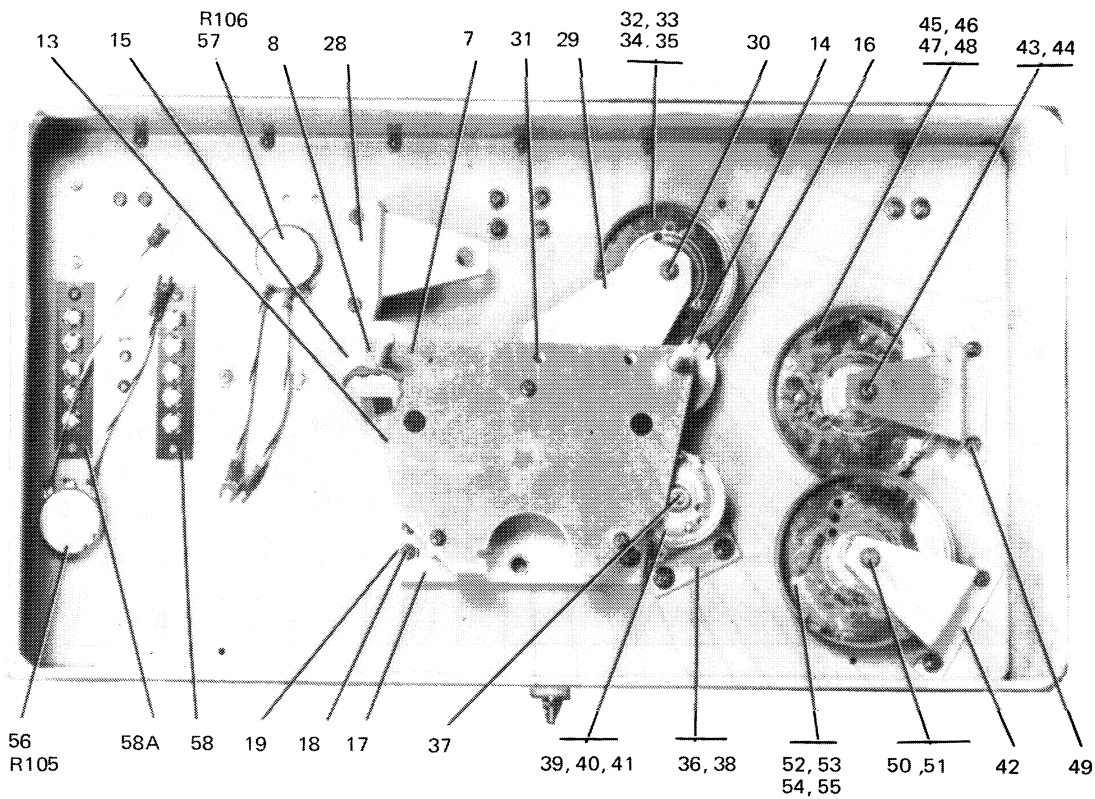
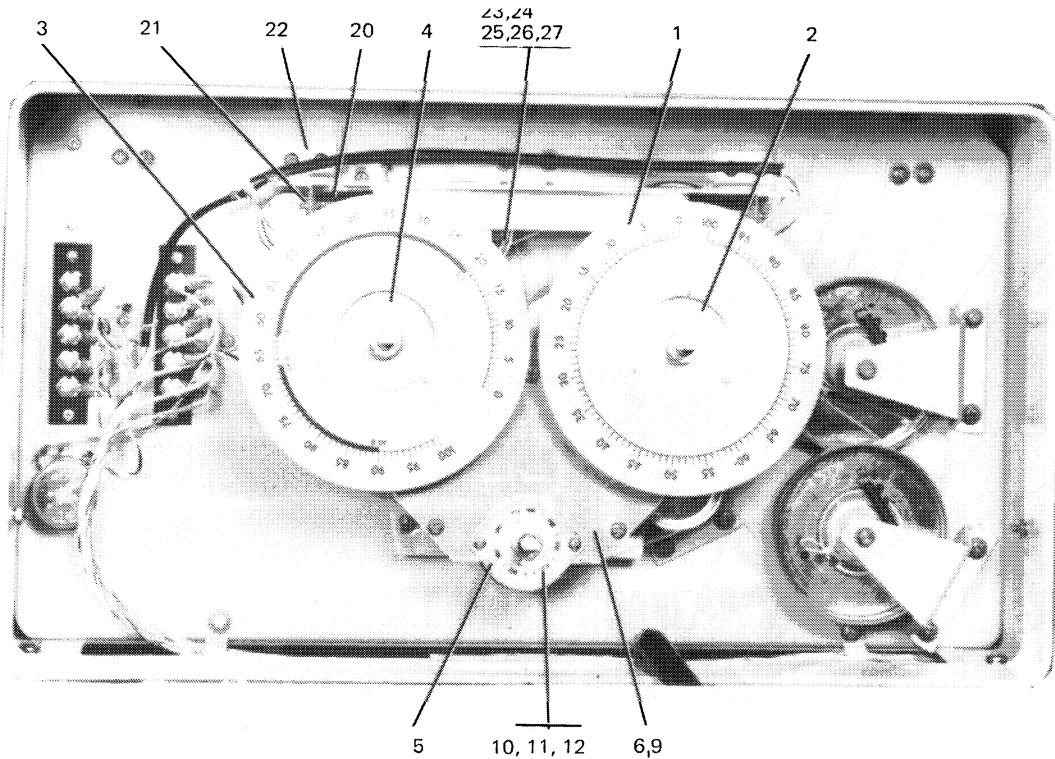
section 6  
parts list

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



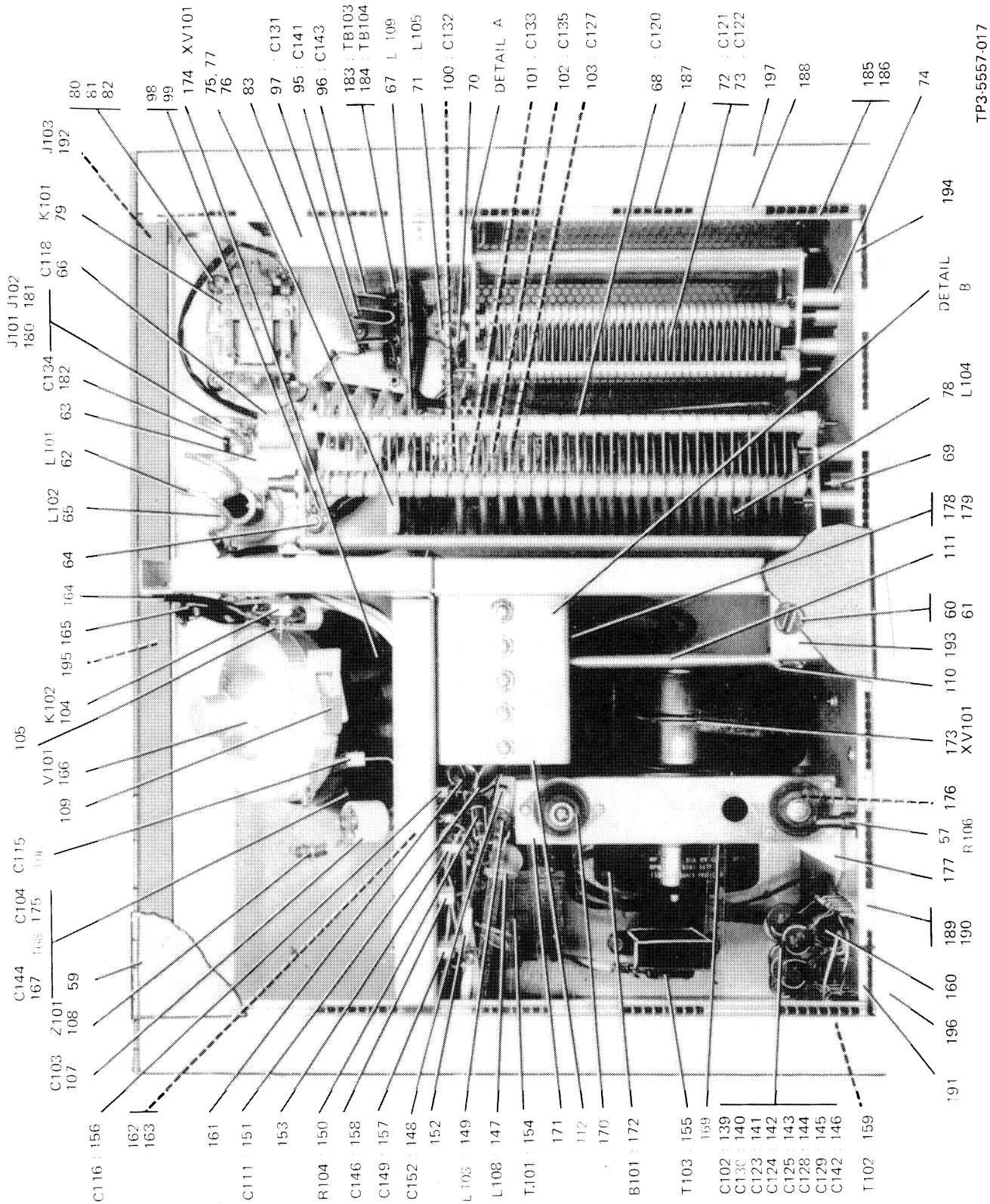
GROUP ASSEMBLY PARTS LIST



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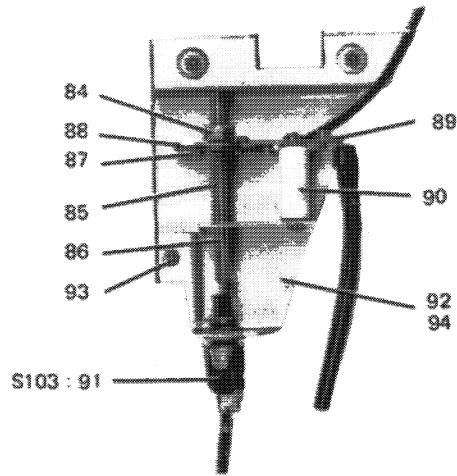
Power Amplifier Cabinet Subassembly  
Figure 6-2 (Sheet 1 of 3)

GROUP ASSEMBLY PARTS LIST

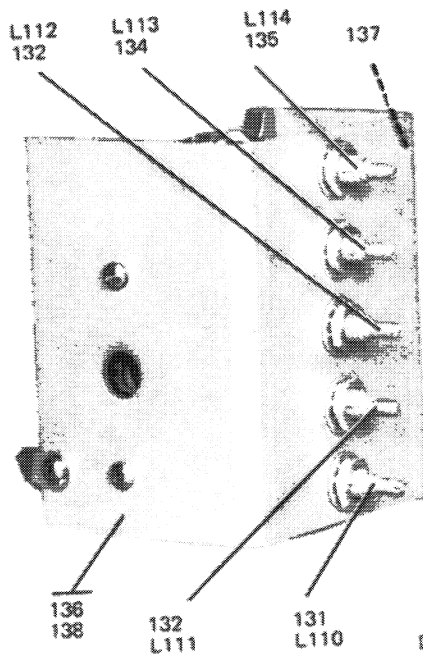


Power Amplifier Cabinet Subassembly  
Figure 6-2 (Sheet 2)

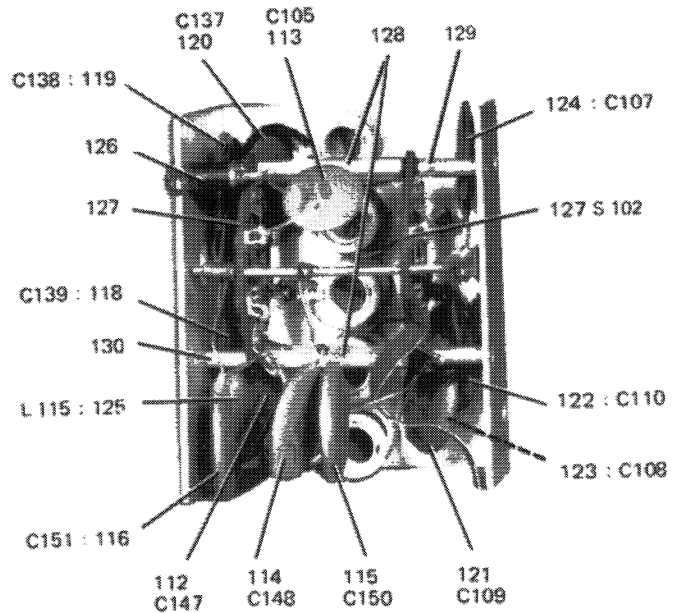
GROUP ASSEMBLY PARTS LIST



DETAIL A



DETAIL B



TP3-5557-017

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

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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

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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

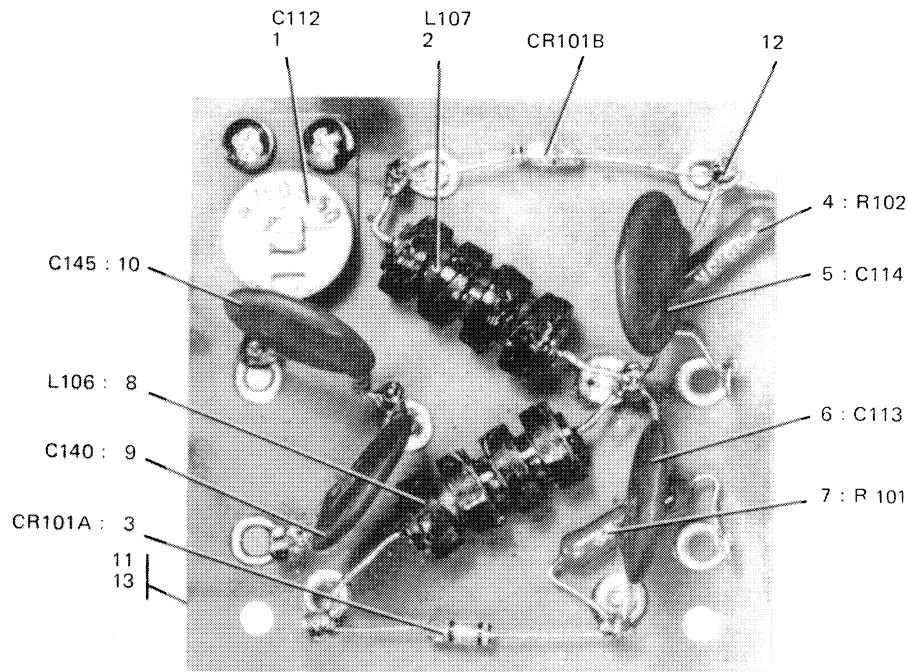


GROUP ASSEMBLY PARTS LIST

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



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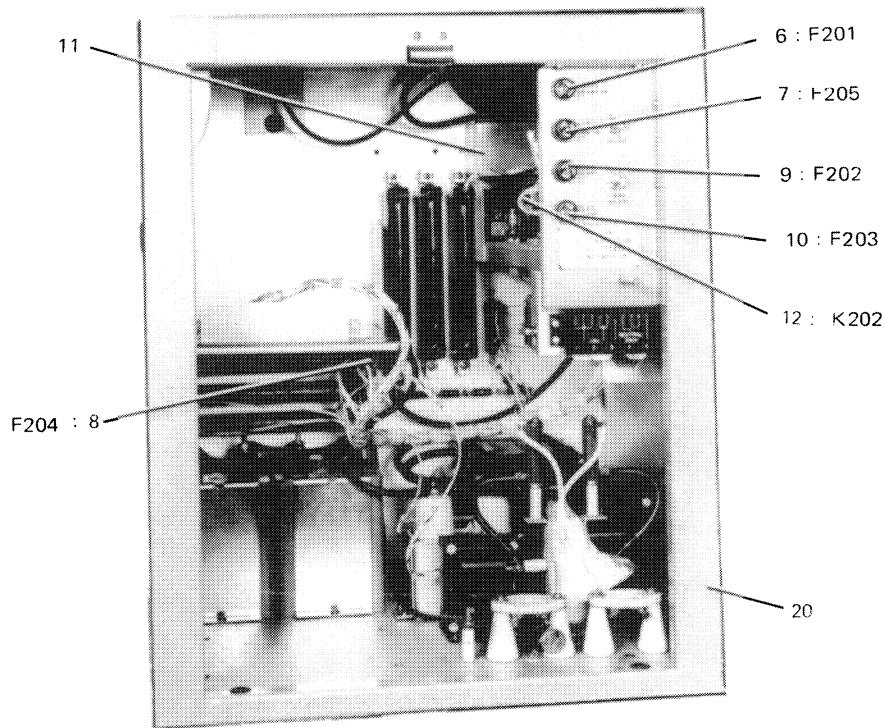
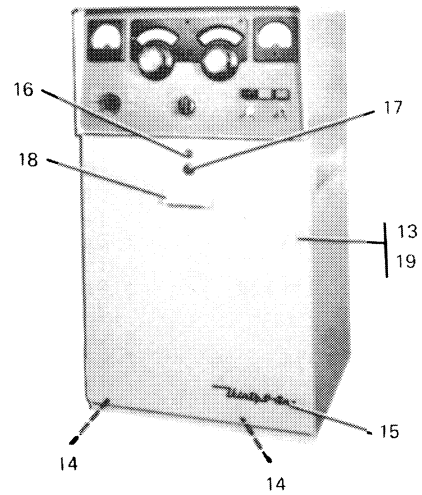
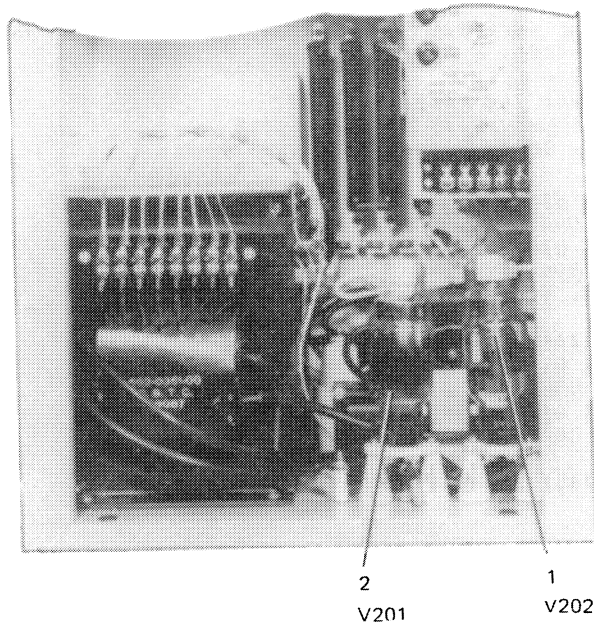
Terminal Board Assembly  
Figure 6-3



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



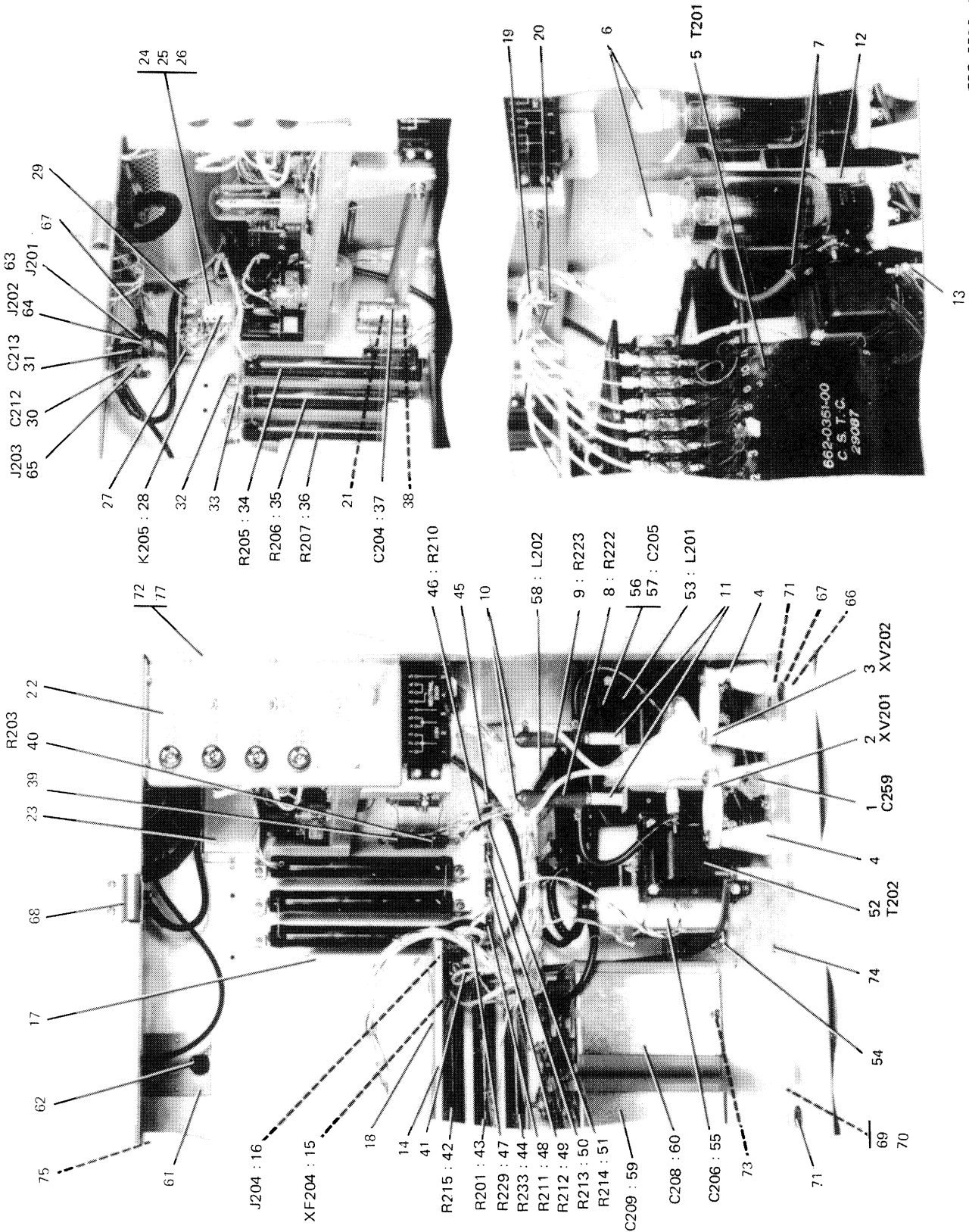
TP3-5552-017

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

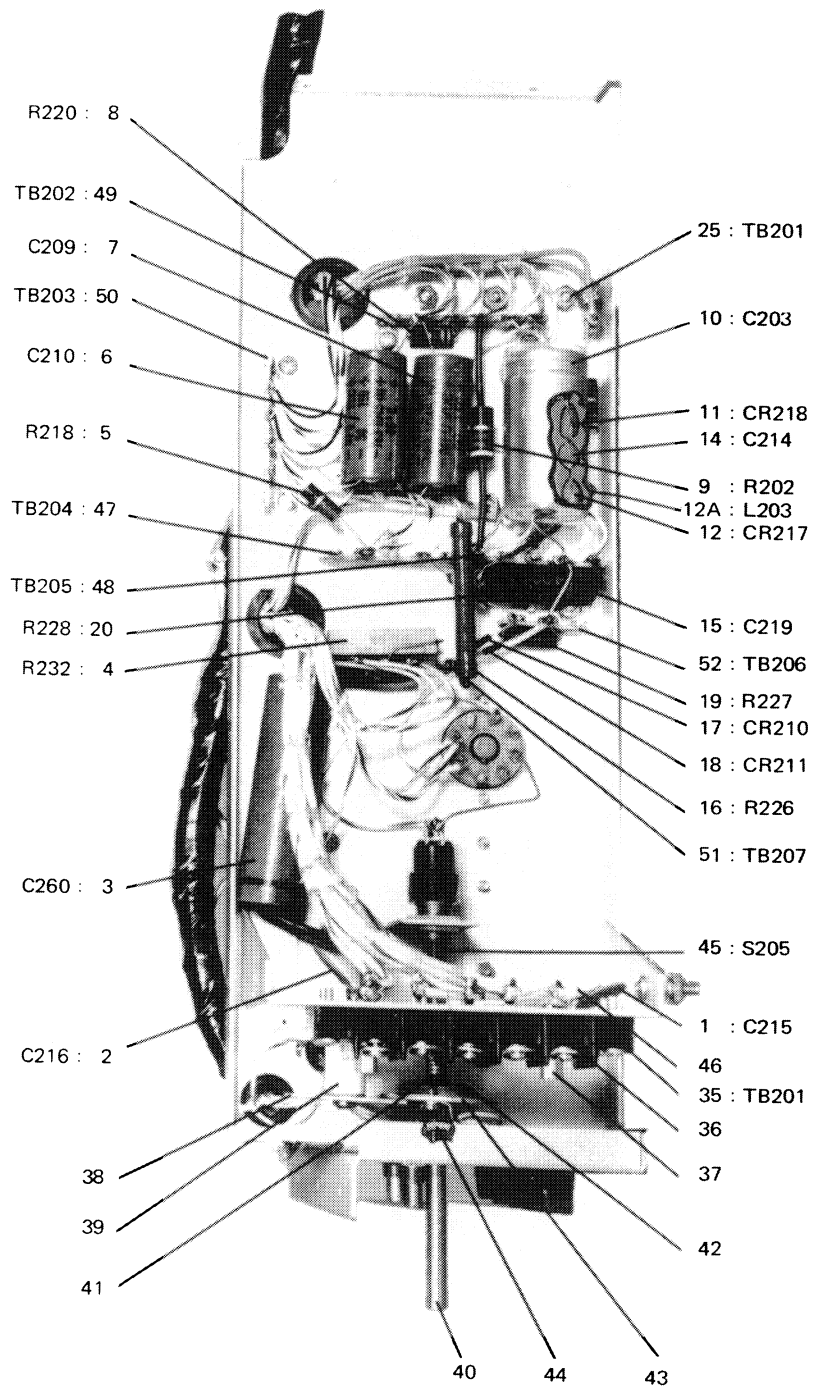
section 6  
parts list

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

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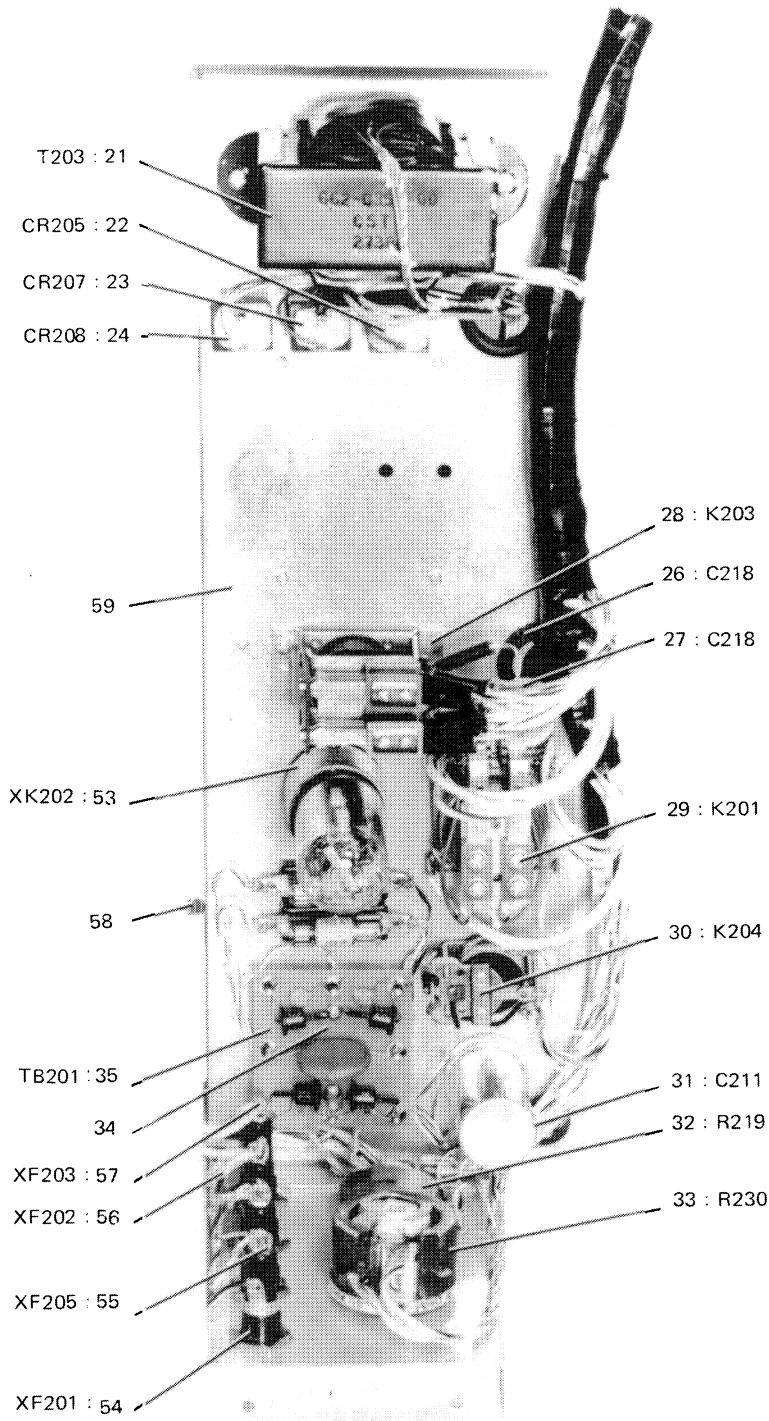
GROUP ASSEMBLY PARTS LIST



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

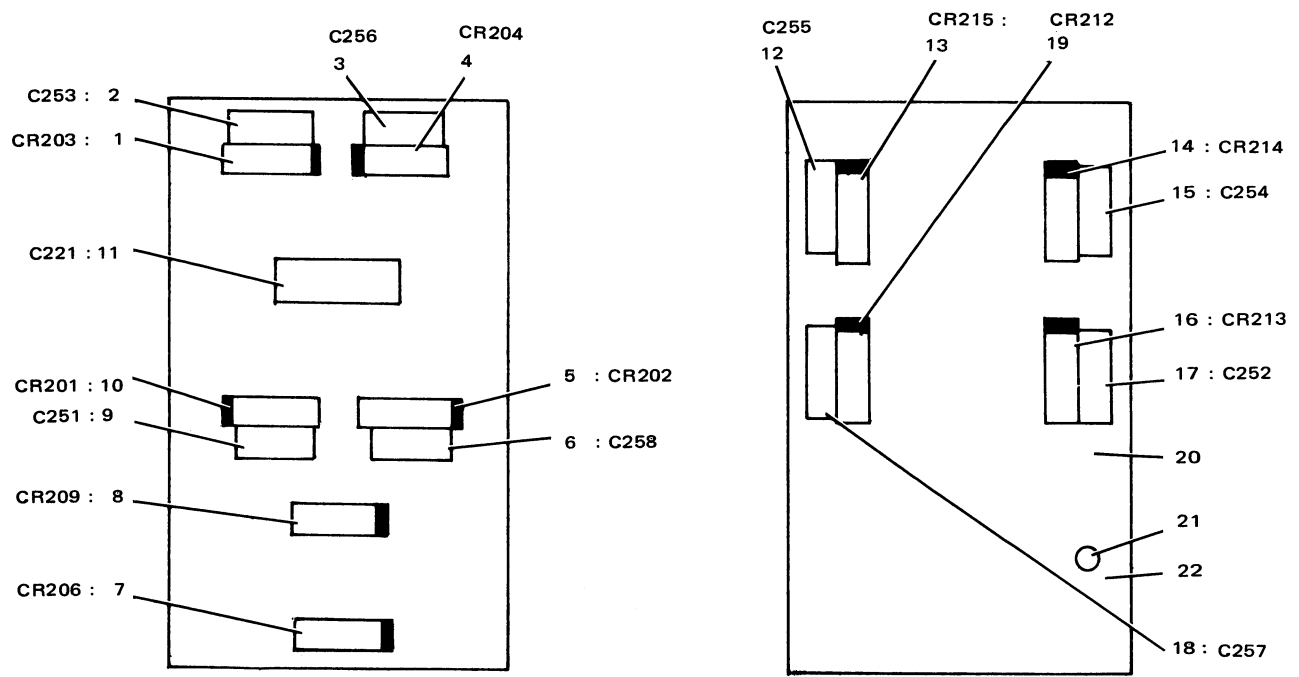
FIG - ITEM	PART NO	INDENT	DESCRIPTION	USABLE ON CODE	UNITS PER ASSY
6-6 -	544-6880-000		1 SHELF ASSY (SEE FIG 6-5-22 FOR NHA)		REF
1	36C175A		2 CAPACITOR,FXD, CER DIEI, 10000PF, 20%, 500V (V56289) 913-3013-000 C215		1
2	36C175A		2 CAPACITOR,FXD, CER DIEI, 10000PF, 20%, 500V (V56289) 913-3013-000 C216		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	1143R	3	TERMINAL,FEEDTH (V71279) 306-0200-000		12
22	609-0689-000	3	TERMINAL BOARD		1

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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			

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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
2A10B15	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

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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	2443-000X5T0151K	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


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## 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



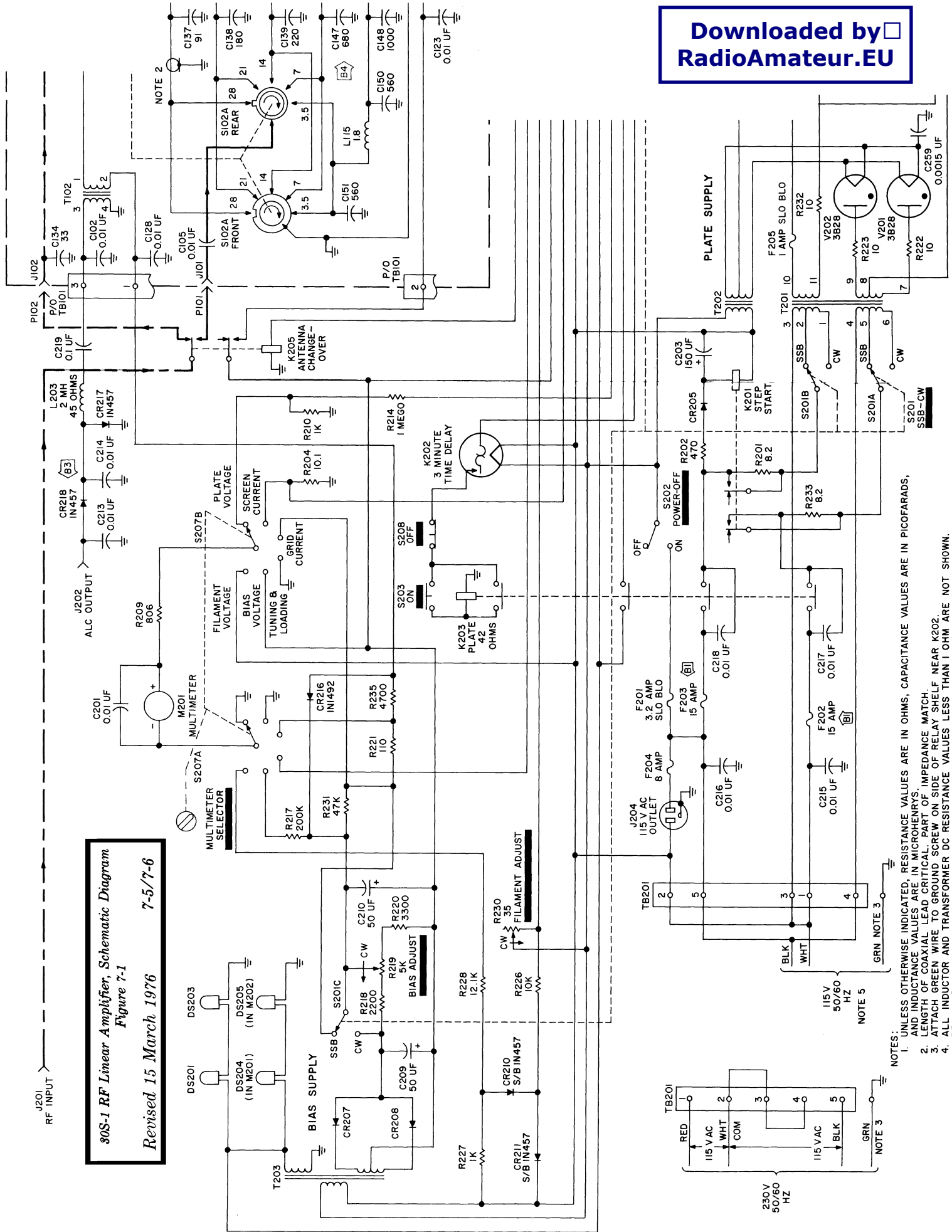
**SCHEMATIC CHANGES AND EQUIPMENT DIFFERENCES**

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.

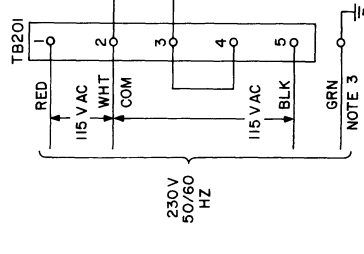
*30S-1 RF Linear Amplifier, Schematic Diagram  
 Figure 7-1 (Sheet A)*



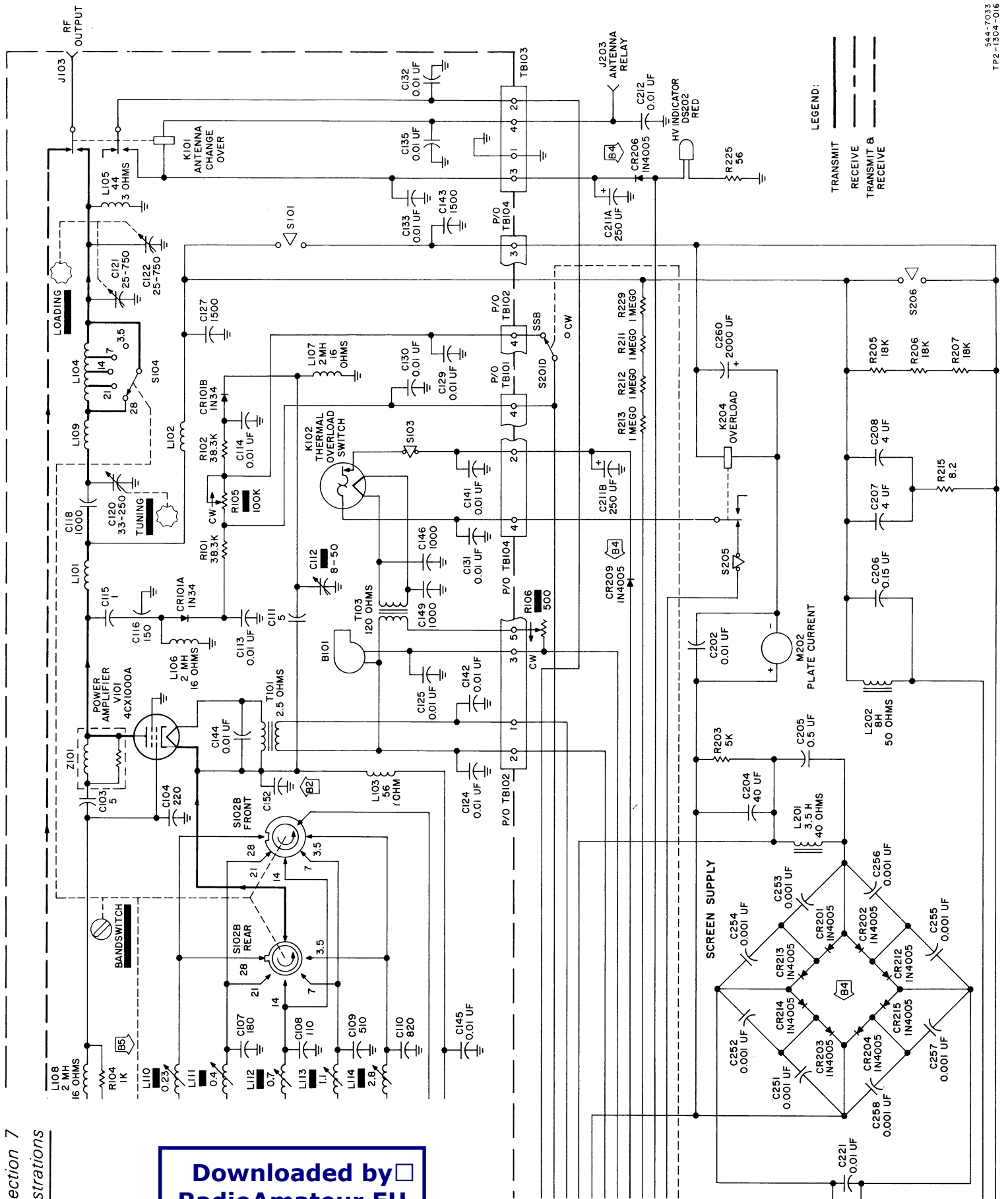
**30S-1 RF Linear Amplifier, Schematic Diagram**  
 Figure 7-1  
 Revised 15 March 1976 7-5-7-6



- 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.



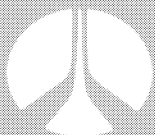
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LEGEND:  
 --- TRANSMIT  
 --- RECEIVE  
 --- TRANSMIT & RECEIVE







Rockwell  
International