

INSTRUCTION MANUAL

**SRPT-40E**

*Export*

FREQUENCY AGILE  
REMOTE TRANSMITTER

**MARTI**

# WARNING

**THIS EQUIPMENT *MUST* BE OPERATED WITH A 3-PRONG GROUNDED OUTLET RECEPTACLE. FAILURE TO USE A PROPERLY GROUNDED OUTLET MAY RESULT IN IMPROPER OPERATION OR SAFETY HAZARD!**

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a. Notice of the claimed defect is given to Marti within one (1) year [two (2) years for STL systems] from date of original shipment and goods are returned in accordance with Marti instructions.

b. Equipment, accessories, tubes and batteries not manufactured by Marti are subject to only such adjustments as Marti may obtain from the supplier thereof.

c. This warranty does not apply to equipment which has been altered, improperly handled, or damaged in any way.

The Seller is in no event liable for consequential damages, installation cost or other costs of any nature as a result of the use of the products manufactured or supplied by the Seller, whether used in accordance with instructions or not.

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# TECHNICAL MANUAL

## MARTI ELECTRONICS

### SRPT-40E TRANSMITTER

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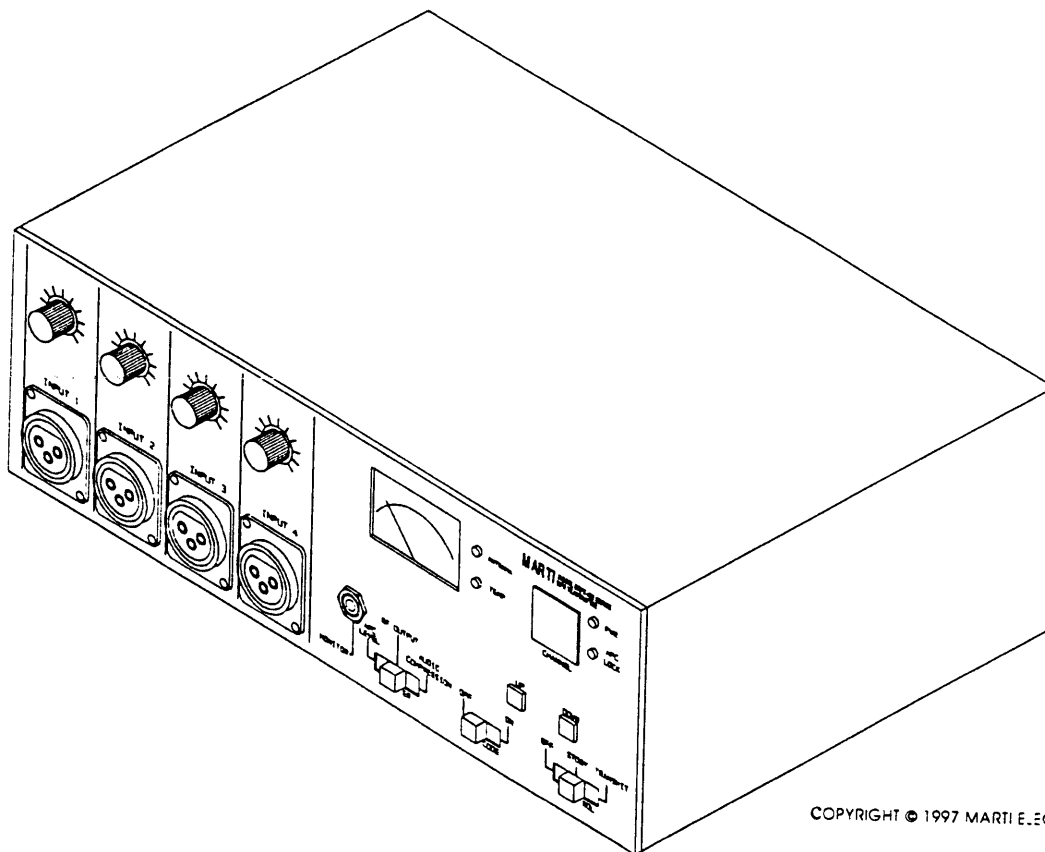
# INTRODUCTION – SRPT-40E.

The Marti Model SRPT-40E is a remote pick-up broadcast transmitter designed for operation in the 150 MHz, 215 MHz, 300 MHz, and 450 MHz RPU bands. When used with the SR-10E companion receiver, the transmitter provides a remote broadcast link having un-surpassed audio quality. The SRPT-40E transmitter operates from several power supply sources such as 90 to 264 volts 50/60 Hz ac or 11 to 14 volts dc. Four audio input channels are provided with individual mixing gain controls. A meter and selector switch are provided for monitoring audio compression, RF output, and AFC levels. The SRPT-40E is equipped with the Marti Electronics solid-state audio processing circuitry which results in the highest audio quality possible.

The SRPT-40E has been designed to operate with other Marti equipment to form communications systems capable of covering large areas with broadcast-quality audio while providing continuous-duty operation. The SRPT-40E applications include mobile repeaters, fixed automatic repeaters, base stations, and TSL data links (transmitter-to-studio data links).

Features of this transmitter include:

- Continuous duty 40 watt output.
- Four balanced microphone mixing inputs. One is configurable for balanced line level inputs.
- Front panel or remote selection of up to 16 operating channels. The unit is constructed at the factory to operate in a 4 MHz group of frequencies within an RPU band. The RPU bands include: 150 MHz, 215 MHz, 300 MHz, and 450 MHz.
- Sub-Audible Encoder.
- Internal FM Compressor-Limiter.
- Switching power supply operates on any ac voltage from 90 – 264 VAC 50/60 Hz.
- Flashing LEDs indicate antenna VSWR problems and over-temperature conditions.
- Illuminated VU Meter.



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FIGURE 1. SRPT-40E TRANSMITTER

SRP40E1



# SPECIFICATIONS.

Table 1 presents the electrical and physical specifications of the SRPT-40E transmitter.

**TABLE 1. SRPT-40E ELECTRICAL AND PHYSICAL SPECIFICATIONS**  
(Sheet 1 of 2)

| PARAMETER            | SPECIFICATION                                                                                                                                                                                                                                                                                  |
|----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>ELECTRICAL</b>    |                                                                                                                                                                                                                                                                                                |
| FREQUENCY BAND       | 150 MHz/215 MHz/300 MHz/450 MHz as specified.                                                                                                                                                                                                                                                  |
| OPERATING CHANNELS   | ±2MHz from specified center frequency. Programmable in 12.5 kHz increments.                                                                                                                                                                                                                    |
| MAXIMUM POWER OUTPUT | 40 Watts.                                                                                                                                                                                                                                                                                      |
| MODULATION           | 10KOF3E – FCC Frequency Group P.<br>25KOF3E – FCC Frequency Group K, L, N2.<br>50KOF3E – FCC Frequency Group N1, R.                                                                                                                                                                            |
| OUTPUT CONNECTOR     | SO-239                                                                                                                                                                                                                                                                                         |
| FREQUENCY STABILITY  |                                                                                                                                                                                                                                                                                                |
| Mobile               | 0.005%                                                                                                                                                                                                                                                                                         |
| Base                 | 0.00025% (above 400 MHz).                                                                                                                                                                                                                                                                      |
| SPURIOUS EMISSIONS   | Meets FCC requirements.                                                                                                                                                                                                                                                                        |
| AUDIO INPUTS         | Four balanced microphone 150 ohm inputs with mixing controls and XLR-3 connectors. Microphone input #4 and D connector on rear panel switchable to balanced line levels.                                                                                                                       |
| MODULATION CONTROL   | Broadcast-quality compressor/limiter built in.                                                                                                                                                                                                                                                 |
| ENCODING (OPTIONAL)  | Built-in subaudible 27 Hz tone encoder.                                                                                                                                                                                                                                                        |
| METERING/INDICATORS  | Illuminated meter indicates audio compression, RF output power, and AFC voltage. Flashing LEDs indicate high ANTENNA VSWR and over TEMP conditions. A PWR LED indicates when power is applied to the unit. An AFC LOCK LED indicates the frequency synthesizer VCO is locked to the reference. |
| CONTROLS             | (4) INPUT LEVEL, METER switch, ENCODE switch, CONTROL switch, and channel UP/DOWN switches.                                                                                                                                                                                                    |
| POWER REQUIREMENTS   | 120/220 VAC, 50/60 Hz.                                                                                                                                                                                                                                                                         |
| ACCESSORY CONNECTOR  | 11 to 13.5 VDC, negative ground.<br>9-pin D connector for DC power, remote control, encode, and line level input.                                                                                                                                                                              |
| <b>PHYSICAL</b>      |                                                                                                                                                                                                                                                                                                |
| DIMENSIONS           | 11.5 in.(29.21 cm.) wide x 3.5 in. (8.89 cm.) high x 13.3 in. (33.78 cm) deep.                                                                                                                                                                                                                 |
| WEIGHT               |                                                                                                                                                                                                                                                                                                |
| Domestic packed      | 8 lbs (3.63 kgs).                                                                                                                                                                                                                                                                              |
| Export packed        | 11 lbs (4.99 kgs).<br>11.6 lbs (5.27 kgs).                                                                                                                                                                                                                                                     |

**TABLE 1. SRPT-40E ELECTRICAL AND PHYSICAL SPECIFICATIONS**  
(Sheet 2 of 2)

| PARAMETER                                       | SPECIFICATION                     |
|-------------------------------------------------|-----------------------------------|
| ENVIRONMENTAL<br>OPERATING TEMPERATURE<br>RANGE | -10°C to +45°C (+14°F to +113°F). |

## **OPTIONS.**

The following text presents the SRPT-40E transmitter options.

| MARTI NO. | DESCRIPTION                                                                                                                 |
|-----------|-----------------------------------------------------------------------------------------------------------------------------|
| 700-251   | Mobile Mounting kit. Includes 586-074 DC power cable.                                                                       |
| 586-074   | SRPT-40/RPT-30 DC power plug, cable fuse.                                                                                   |
| 586-073   | 12' microphone cable for push-to-talk control of 700-251 mobile kit. Requires dynamic microphone with XLR-4 male connector. |
| 585-037-1 | Fixed repeat cable, CR-10/SR-10E to SRPT-40/RPT-30/SRPT-40E.                                                                |
| 585-037-2 | Mobile repeat cable, AR-10/SR-10E to SRPT-40/RPT-30/SRPT-40E.                                                               |
| 700-253   | Rack mounting kit.                                                                                                          |
| 550-111   | DB-9 female plug for RPT series Accessory connector. Requires 550-066 shell below.                                          |
| 550-066   | DB-9 shell for 550-111 above (order together).                                                                              |
| 570-038   | Antenna relay for 2-way operation (requires factory installation).                                                          |
| 585-026   | 20 inch coax cable connects SRPT-40/RPT-30 with receiver for two-way operation.                                             |
| 585-038-2 | Mute cable, mutes receiver while transmitting during two-way operation.                                                     |

## **UNPACKING AND INSPECTING.**

The equipment becomes the property of the customer when the equipment is delivered to the carrier. Perform a visual inspection to determine that no apparent damage has been incurred during shipment. Do not accept a damaged shipment or a shipment with shortages until the carrier's agent endorses a statement of the irregularity on the shipping documents. Without documentary evidence, a claim can not be filed.

Unpack the equipment immediately and carefully inspect for concealed damage. If damage is discovered, stop unpacking and request an immediate inspection by a local agent of the carrier. A written report of the agent's inspection with his signature is necessary to support the claim. The contents of the shipment should be as indicated on the packing list. Do not discard any packing material until all items are located. Small items are often thrown away with the packing material. Packing material should be retained until equipment testing has been completed. Any equipment returned to the factory should be packed in the original cartons, insured, and pre-paid.

# INSTALLATION.

Install rack-mounted equipment in a well ventilated, well-grounded, and shielded rack cabinet. Do not locate solid-state equipment in a rack above high temperature producing tube-type equipment. Problems can also be avoided by locating the unit away from other equipment containing strong magnetic field transformers. These fields can induce hum and noise into the equipment and result in poor performance. Strong RF fields should be avoided where possible. Extensive shielding and filtering have been incorporated into the SRPT-40E to permit operation in moderate RF environments. All equipment racks, cabinets, etc. should be connected together by a 2 inch wide copper grounding strap to ensure that all system elements are at the same RF ground potential.

## STATIONARY INSTALLATION.

A typical stationary remote installation consists of the SRPT-40E transmitter, a 90-264 VAC power source, microphones and other audio program sources, and a portable antenna. Remotes using portable antennas inside buildings have a very limited range (typically less than one mile). If greater range is required, consider locating the transmitting antenna outside the building at a height necessary to provide a line-of-sight path to the receiving antenna. This may not be practical if a great length of coaxial cable is required.

Many broadcasters are using the Marti mobile relay system to do remotes from inside buildings. This system consists of the originating transmitter with its antenna inside the building which transmits to a "mobile relay" parked outside the building. The mobile relay consists of a Marti Model SR-10E receiver and a second SRPT-40E transmitter with mobile antennas installed in a vehicle. The SR-10E receiver: 1) picks up the encoded signal originating from the transmitter located inside the building and 2) automatically turns on the relay transmitter (on a different frequency) which re-transmits the program to the distant receiving antenna at the radio station studio or transmitter site. For more information on relay systems, contact Marti Electronics, Inc.

### Stationary Installation Procedure.

1. Locate the transmitter near the announcer or engineer to permit access to gain controls, microphone inputs, the monitor receptacle, and metering.
2. With the SRPT-40E CONTROL switch in the OFF position, connect the transmitter ac line cord into a grounded 90-264 volt ac 50/60 Hz ac receptacle.



**NOTE**

**NOTE**

**IF THE UNIT IS TO BE OPERATED FROM A DC POWER SOURCE, ENSURE THE DC POWER SUPPLY CABLE IS CONNECTED TO THE APPROPRIATE TERMINALS: RED = + POSITIVE AND BLACK = - NEGATIVE.**

3. For locations where ac power is not available, the unit can be connected to a fully charged automobile battery. The SRPT-40E requires 5 amperes at 12.6 volts dc. If the unit is to be operated from a dc power source, connect the unit to the source using dc power cable, fuse, and plug kit 586-074. Ensure the dc power cable is connected to the appropriate terminals: RED = + Positive and BLACK = - Negative.
4. Connect a portable antenna such as the Marti PAV/150, PAV-450, or YC-450 to the ANTENNA connector on the back of the transmitter.

## MOBILE INSTALLATION.

For mobile installation, the SRPT-40E transmitter can be: 1) installed in a vehicle with direct access to the OFF, STANDBY, and, TRANSMIT controls or 2) located in the trunk of a car or rear of a van and controlled remotely. The installation is determined by the type of vehicle and intended anticipated operation. The antenna(s) are usually mounted on top of the vehicle to provide maximum height.

### Mobile Installation Procedure - Transmitter Mounting.

1. Locate transmitter so the vent holes on top and rear of the unit are not obstructed. Ensure enough space is provided for the microphone XLR connectors on the front panel and the accessory plug on rear of unit.

2. Refer to Figure 2 and attach the four mounting fasteners in the retracted position in the four slots on the sides of the transmitter. The fasteners are included in mobile mounting kit 700-251.
3. Mark the location of the two mounting holes in each fastener bracket. Drill 7/64" diameter holes into the mounting surface at the marked places for #6 x 1/2" sheet metal screws.
4. Attach the mounting fasteners with the sheet metal screws provided. Secure the transmitter with the fasteners.

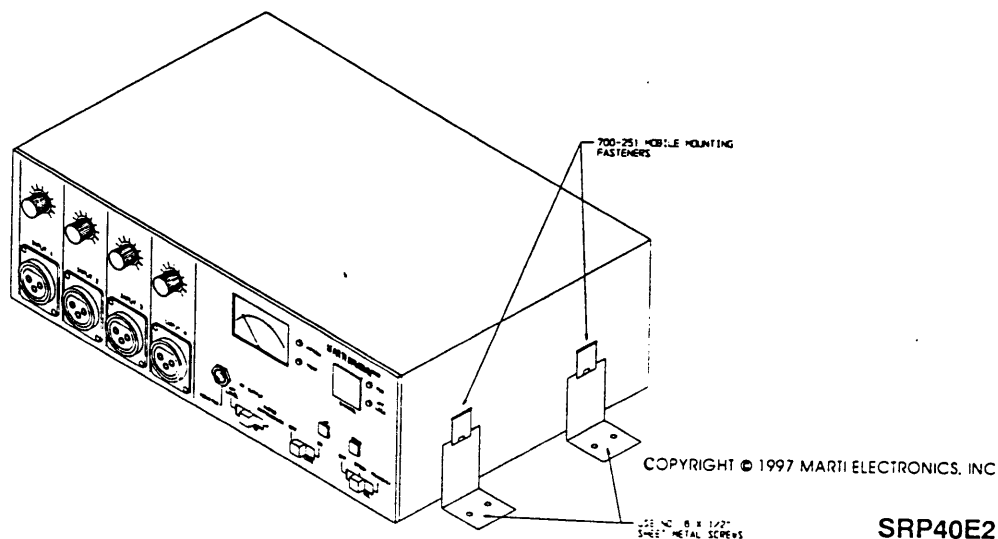


**CAUTION**

**CAUTION**

**THE UNIT IS DESIGNED FOR A NEGATIVE GROUND IN 12 VOLT VEHICLES. ENSURE THE DC POWER CABLE IS CONNECTED TO THE CORRECT TERMINALS IN THE VEHICLE.**

5. Connect the unit to an appropriate dc power source. The unit is designed for a negative ground in 12 volt vehicles. Reverse polarity may destroy all the transistors in the unit.



**FIGURE 2. SRPT-40E MOBILE MOUNTING**

### **Mobile Installation Procedure – Receiver Mounting.**

1. For mobile repeater operation using the SR-10E receiver, mount the receiver near the transmitter using the three fasteners supplied in Mobile Mounting Kit, 700-251.



**CAUTION**

**CAUTION**

**THE UNIT IS DESIGNED FOR A NEGATIVE GROUND IN 12 VOLT VEHICLES. ENSURE THE DC POWER CABLE IS CONNECTED TO THE CORRECT TERMINALS IN THE VEHICLE.**

2. Connect the unit to an appropriate dc power source. The unit is designed for a negative ground in 12 volt vehicles. Reverse polarity may destroy all the transistors in the unit.

### **Mobile Installation Procedure – Remote Control.**



**CAUTION**

**CAUTION**

**TOTAL CONTROL CIRCUIT RESISTANCE MUST NOT EXCEED 0.3 OHMS.**

Remote control of the SRPT-40E transmitter requires a switch to control the primary +12 volt dc power and a second switch to control the transmit function (refer to Figure 3). Control of the primary +12 volt dc power supply can be accomplished by connecting the unit to the accessory circuit of the vehicle which is controlled by the ignition switch. Control of the transmit function can be performed by installing a switch on the vehicle or by using a push-to-talk switch on a microphone such as the Marti MCD-70B. Control circuits having more than 0.3 ohms resistance should employ a relay with low resistance contacts located near the transmitter.

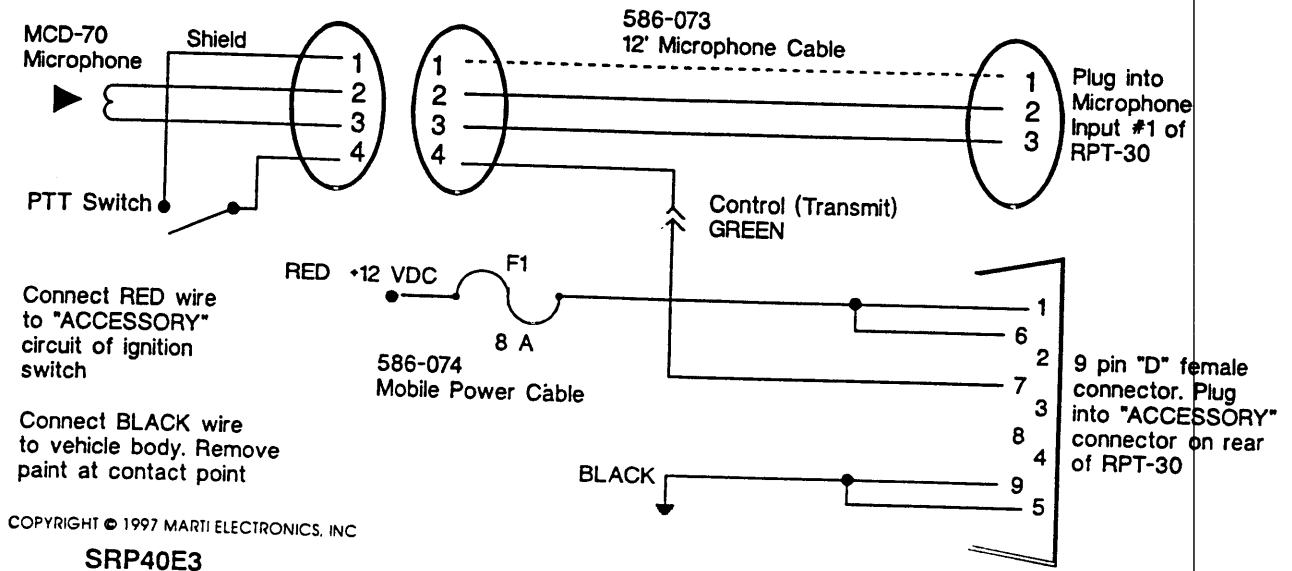


FIGURE 3. MOBILE INSTALLATION - REMOTE CONTROL CONNECTIONS

### Mobile Installation Procedure - Repeater.

Refer to STATIONARY INSTALLATION in the preceding text to install the unit for mobile repeat operation applications. Connect the unit to a power source using mobile repeat cable No. 585-037-2 (refer to Figure 4). This cable is connected between the SRPT-40E transmitter and the SR-10E receiver. A dc power source is obtained by connecting the fused RED wire on the cable to the vehicle accessory +12 volt circuit controlled by the vehicle ignition switch.

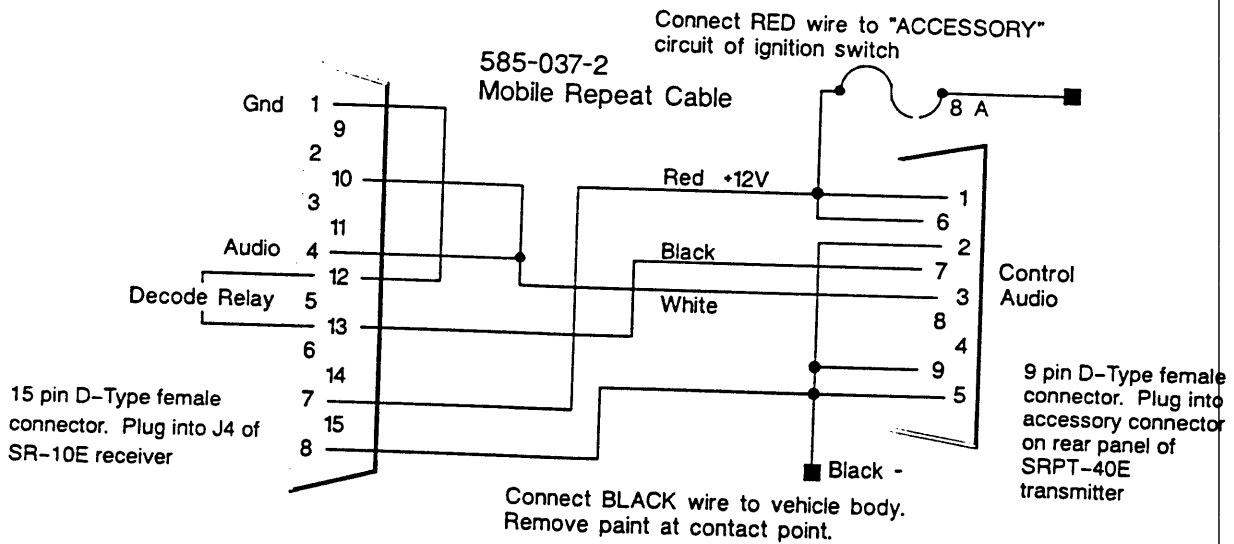


FIGURE 4. MOBILE REPEAT CABLE CONNECTIONS

### Mobile Installation Procedure - Antennas.

Depending on the application, one or more mobile antennas are required for the various receive and transmit frequencies and if antenna duplexing is used. Antennas are specified in the various system packages listed in the Marti literature. Perform the procedures as described in the mobile antenna instructions.

## FIXED BASE STATION, TSL, & REPEATER INSTALLATION.



**CAUTION**  
**CAUTION**

**TO PREVENT OVER-TEMPERATURE CONDITIONS, ALLOW ONE RACK SPACE ABOVE AND BELOW THE TRANSMITTER FOR PROPER AIR VENTILATION.**

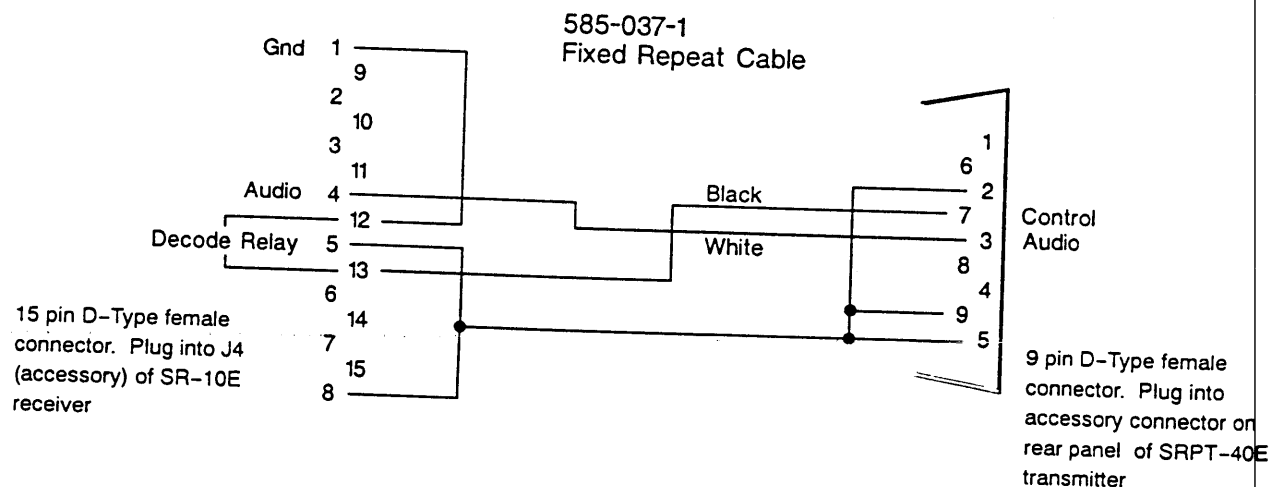
1. Install the transmitter in a standard rack by using rack mounting kit 700-253. Ensure one rack space above and below the unit is provided for proper air ventilation.
2. Connect transmitting antenna to the **ANTENNA** receptacle on SRPT-40E rear-panel.
3. If a receiver is to share the antenna with the transmitter such as in a two-way base station application, the transmitter must be equipped with optional antenna relay No. 570-038. After the relay is installed, connect the **RECEIVER** jack on SRPT-40E rear panel to the receiver antenna connector using 20-inch coaxial cable 585-026. Receiver muting during transmitting is accomplished using mute cable 585-038-2. This cable connects to the **ACCESSORY** receptacle on each unit.



**WARNING**  
**WARNING**

**TO PREVENT THE POSSIBILITY OF ELECTRIC SHOCK AND POOR PERFORMANCE, ENSURE THE TRANSMITTER IS CONNECTED TO A GROUNDED RECEPTACLE.**

4. Connect the transmitter to a grounded 90-264 volt ac 50 or 60 Hz receptacle.
5. For fixed automatic repeater applications, refer to Figure 5 and connect cable 585-037-1 between the accessory connectors of the receiver and the SRPT-40E transmitter. Connect the receiving antenna to receiver J6 and the transmit antenna to SRPT-40E ANTENNA connector.



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FIGURE 5. FIXED REPEAT CABLE CONNECTIONS

SRP40E5

## BASE STATION ANTENNA INSTALLATION.



**NOTE**

**NOTE**



**NOTE**

**NOTE**

*THE FOLLOWING SUGGESTIONS ARE FOR PERSONNEL RESPONSIBLE FOR ANTENNA INSTALLATIONS TO AVOID ERRORS IN ASSEMBLY AND ADJUSTMENT. MARTI ELECTRONICS, INC. ASSUMES NO RESPONSIBILITY FOR THE INSTALLATION AND PERFORMANCE OF ANTENNA SYSTEMS USED WITH MARTI EQUIPMENT. THE FOLLOWING TEXT IS NOT A COMPLETE STEP-BY-STEP PROCEDURE. HOWEVER, THE TEXT PRESENTS THE MOST FREQUENTLY REPORTED ERRORS IN ANTENNA SYSTEM INSTALLATION.*



**WARNING**

**WARNING**

*DEATH CAN OCCUR IF AN ANTENNA COMES IN CONTACT WITH ELECTRIC POWER LINES OR EXPOSED ELECTRICAL WIRING. USE EXTREME CAUTION WHEN INSTALLING ANTENNAS. KEEP ANTENNAS AWAY FROM POWER LINES.*



**CAUTION**  
**HIGH LEVEL RF RADIATION**

*PERSONNEL MUST NOT BE NEAR A RADIATING ANTENNA. LOCATE THE ANTENNA AS FAR AS POSSIBLE FROM PEOPLE AND EQUIPMENT SUSCEPTIBLE TO RF RADIATION. DO NOT MOUNT ANTENNA DIRECTLY ON THE TRANSMITTER. REFER TO ANSI C95.1 "LIMITS ON NON-IONIZING RADIATION".*

### **Antenna Assembly.**

Follow the manufacturer's instructions carefully. If no instructions were included with the antenna, call or write the antenna manufacturer for instructions. Antennas which have phasing or stacking cables must be assembled carefully to avoid phase reversal or signal cancellation.

### **Transmission Line Connector Assembly.**

Do not use RG-58 U or RG-8 U cable with antennas. The cable has too much loss at VHF and UHF frequencies. Follow the instructions furnished by the manufacturer when cutting coaxial cable. Inspect the cable ends for small metal fragments which can short-circuit the line inside the connector assembly. Check the line for a short-circuit condition using an ohmmeter after each connector is installed. Pressurized line should be checked for several days under pressure before installation on a tower to ensure that there are no leaks in the line or fittings.

## ***Moisture Proofing Coax Connectors.***

Extreme care must be exercised with coaxial cable before and after connectors have been installed to ensure that moisture does not enter the line. Foam dielectric line can absorb moisture and is difficult to detect and remedy. Therefore, keep the line dry while in storage with the ends tightly capped. Coaxial splices, connectors, and fittings to be located outside should be made mechanically tight, then coated with a weatherproofing material over at least two layers of vinyl plastic electrical tape. Moisture problems in antenna systems are usually traced back to connectors which have NOT been properly taped. The Marti K-1 Grounding and Weatherproofing Kit is recommended for use in each new antenna installation.

## ***Location and Grounding of Coaxial Cable.***



### ***NOTE***

***DO NOT STRAP RECEIVER CABLE TO THE MAIN ANTENNA CABLE AT ANY POINT. PLACE THE RECEIVER ANTENNA CO-AXIAL CABLE ON THE OPPOSITE SIDE OF THE TOWER FROM THE MAIN ANTENNA CABLE.***

### ***NOTE***

Keep the RPU receiver coaxial cable as far from the broadcast transmitter RF output line as possible. Maintain maximum separation between these cables at all points including the distance from the tower base to transmitter building as well as inside the building.

## ***System Grounding.***

It is essential that the RPU antenna system be properly grounded for safety and proper operation. Ensure the antenna system is properly grounded.

## ***Antenna Installation and Adjustment.***

The polarization of the transmit and receive antennas of the RPU system must be the same. For example, if the transmitting antenna is vertical, the receiving antenna must also be vertical. Each antenna should be attached to the tower using the proper side mount or top mount hardware. If an RF watt meter is available, each antenna and transmission line can be checked for VSWR conditions when the transmitter is producing RF power. The VSWR should be less than 1.5 to 1 (1.5:1). If the antenna system fails to give the predicated signal strength, check the following items:

1. Ensure the antenna is correctly assembled.
2. Ensure the antennas have same polarity.
3. Check VSWR of both the transmit and receive antennas. The VSWR should be less than 1.5:1.
4. Check for obstructions in the path such as trees and man-made structures. The base antenna must be high enough to provide a line-of-sight path to the remote transmitting antenna.

# ***OPERATION.***

## **MICROPHONE INPUT CONNECTORS.**

The INPUT 1, INPUT 2, INPUT 3, and INPUT 4 microphone inputs are for a balanced 150 ohm dynamic microphone such as the Shure BG 1.0 equipped with a standard XLR-3 or A3M connector. INPUT 4 can operate at MIC LEVEL or HIGH LEVEL by means of a selector switch inside the transmitter (located just behind the INPUT 4 level control). The unit is factory configured for a HIGH LEVEL balanced input for use with tape cartridge machines, etc. To convert INPUT 4 to a microphone level, remove top cover and operate the switch to MIC.



## ACCESSORY INPUT CONNECTOR.



**CAUTION**

**CAUTION**

***TOTAL CONTROL CIRCUIT RESISTANCE MUST NOT EXCEED 0.3 OHMS.***

When INPUT 4 is operated to **HI**, audio can be routed to pins 2 and 3 on the **ACCESSORY** connector on the transmitter rear panel. The input level should be between 0.2 volts to 2.0 volts rms. The output impedance of the device connected to INPUT 4 should be 8 – 600 ohms. For unbalanced operation, ground pin 2 to pin 5 and connect the audio to pin 3. Use a standard 9-pin D-type female connector with a cover. The **TRANSMIT** control can be controlled remotely by using a low resistance switch circuit connected to pins 7 and 9.

## GAIN CONTROLS.

The gain control located above each input connector provides independent channel level adjustment. Each gain potentiometer is adjusted as follows:

1. Connect an input source and operate at a normal audio level.
2. Turn gain control to the maximum counter-clockwise ("OFF") position.
3. Operate the **CONTROL** switch to **STDBY** and allow **METER** to indicate 0 VU. Slowly increase gain (clockwise) until the meter begins deflecting to the left on audio peaks. Maximum deflection should be –3 to –5 VU on the meter scale. This indicates 100% modulation of the transmitter. Excessive gain cause high compression values which result in an annoying increase in background noise. A 600 ohm headset may be connected to the **MONITOR** jack to aid in arriving at the proper gain adjustment. In high noise environments, close-talk the microphone and reduce the microphone gain until a maximum of –2 VU is indicated.
4. Once the proper gain level is determined, do not change the level for that particular microphone or tape player. The broadcast quality compressor/limiter built into the unit will maintain modulation at the maximum level while preventing over-modulation.

## CONTROL SWITCH.

When the transmitter is not in use, operate the **CONTROL** switch to **OFF**. Operate the switch to **STDBY** at least 2 minutes before transmission is anticipated. This activates all audio circuits, the **MONITOR** jack, and the meter. Current drain is minimal in **STDBY**. The **CONTROL** switch is operated to **TRANSMIT** when transmission is desired. Return the **CONTROL** switch to **STDBY** or **OFF** as soon as a transmission is completed.

## ENCODE SWITCH.

The internal subaudible encoder can be switched to **ON** or **OFF** by the front panel **ENCODE** switch. Encoding is used to activate a repeater station or tape recorder etc.

## MONITOR JACK.

The **MONITOR** jack is active in the **STDBY** and **TRANSMIT** modes. A high-quality headset with a 300 ohm or higher impedance can be inserted into the **MONITOR** jack to perform adjustments or to monitor the transmitted audio quality. A miniature, single circuit, 1/8 inch phone plug should be used with the **MONITOR** jack.

## ANTENNA CONNECTOR.



**CAUTION**

**CAUTION**

***ENSURE THE ANTENNA IS CONNECTED TO THE UNIT BEFORE OPERATING THE CONTROL SWITCH TO TRANSMIT.***

To connect various antenna systems to the unit, refer to **INSTALLATION** and **ANTENNAS** in the preceding text. Ensure the antenna connector is secure and the antenna is clear of objects which may affect the radiation efficiency. Ensure the antenna is connected to the unit before operating the **CONTROL** switch to **TRANSMIT**.

## RECVR CONNECTOR.

If the SRPT-40E is equipped with the optional antenna relay, the transmit antenna can be used for receiving by connecting a coaxial cable (No. 585-026) between the **RECVR** jack on the SRPT-40E and the **ANTENNA** connector of the SR-10E receiver. To silence the receiver while transmitting, connect mute cable 585-038-2 to the **ACCESSORY** connector on each unit.

## ANTENNA INDICATOR.

The red **ANTENNA** indicator flashes to indicate a problem with the antenna when transmitting. The indicator will flash if the **CONTROL** switch is switched to "TRANSMIT" without an antenna connected. The indicator can also indicate a: 1) defective antenna, coaxial cable, or connector or 2) improper antenna. Prolonged operation with these conditions can damage the transmitter.

## TEMP INDICATOR.

The **TEMP** indicator flashes to indicate excessive operating temperatures within the transmitter. This can be caused by obstructed vent holes in the top or rear of the unit, a defective cooling fan, or antenna problems. If the **TEMP** indicator begins to flash, do not operate SRPT-40E until the cause of overheating is corrected.

## CHANNEL UP/DOWN SWITCHES.

The channel **UP/DOWN** buttons allow the selection of up to 16 pre-selected channels. The channels are selected by depressing the **UP** or **DOWN** buttons as required to select the desired channel.

## AFC LOCK LED.

The **AFC LOCK** indicator should be illuminated at all times when the transmitter is operating. This indicates the frequency synthesizer **VCO** is locked to the reference.

## PWR LED.

The **PWR** indicator will illuminate to indicate ac power or an appropriate dc power source is applied to the unit.

## VU METER.

The **METER** switch allows the monitoring of important transmitter parameters. The unit is equipped with a three position switch to display the following parameters.

### **AFC Level.**

When the **METER** switch is operated to **AFC LEVEL**, the meter will indicate the **AFC** error correction voltage in the phase-locked loop. The operating range of the **AFC** error correction voltage is between -2 VU to +3 VU. Level errors greater than the normal range will require adjustment of the **VCO** center frequency (refer to **MAINTENANCE** in the following text).

## RF Output.

When the **METER** switch is operated to **RF OUTPUT**, the meter will indicate the PA RF output power level. For a 40 watt output, the VU meter will indicate approximately 0 VU  $\pm$  3 VU.

## Audio Compression.

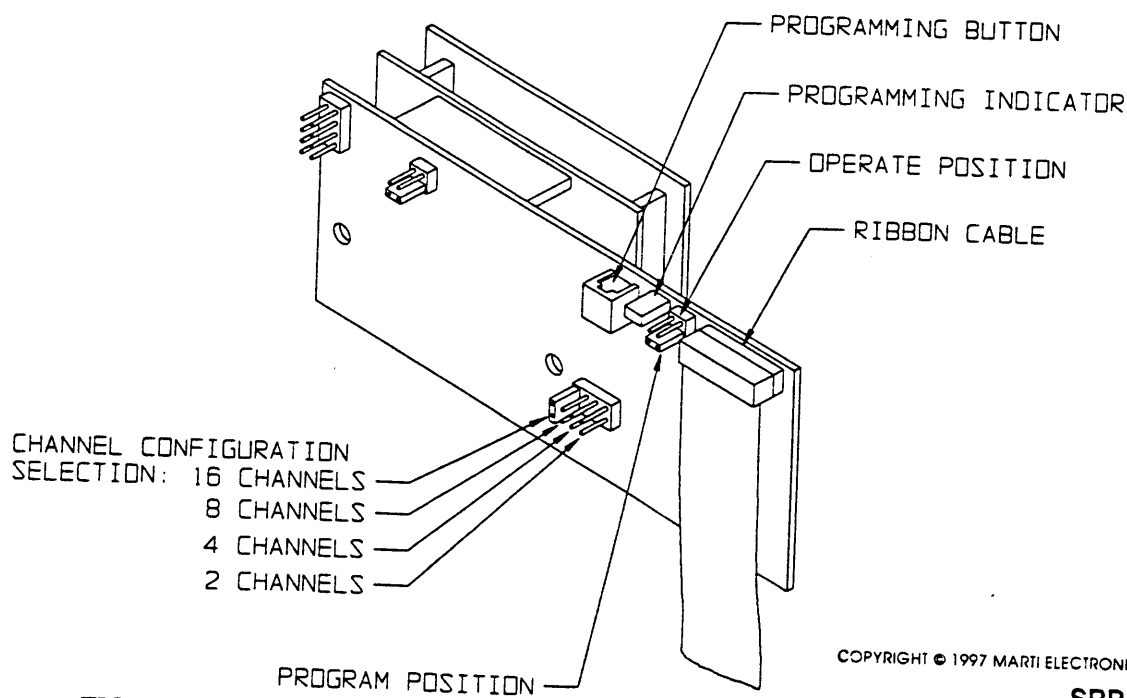
When the **METER** switch is operated to **AUDIO COMPRESSION**, the meter will indicate the audio limit level. A normal audio compression indication is from 0 to -4 VU. A meter value of -5 VU or greater indicates excessive compression. Reduce the amount of compression by reducing the audio input level.

## PROGRAMMING THE CHANNELS.

The SRPT-40E is constructed for a specified center frequency when shipped from the factory. This center frequency selection is factory programmed into channel 1 and allows the unit to be programmed for operation within a  $\pm$ 2 MHz range of the frequency. Within this 4 MHz range, the unit can be programmed to operate on any frequency in 12.5 kHz increments. This results in approximately 320 available operating frequencies. These frequencies are recorded in the **PROGRAMMING DATA SHEETS** shipped with the unit.

Of the 320 available operating frequencies, up to 16 frequencies can be selected and assigned to operating channels in the unit. The unit can be programmed for 16 channels, 8 channels, 4 channels, or 2 channels. To program the unit for the desired number of channels and assign the frequencies to the channels, proceed as follows:

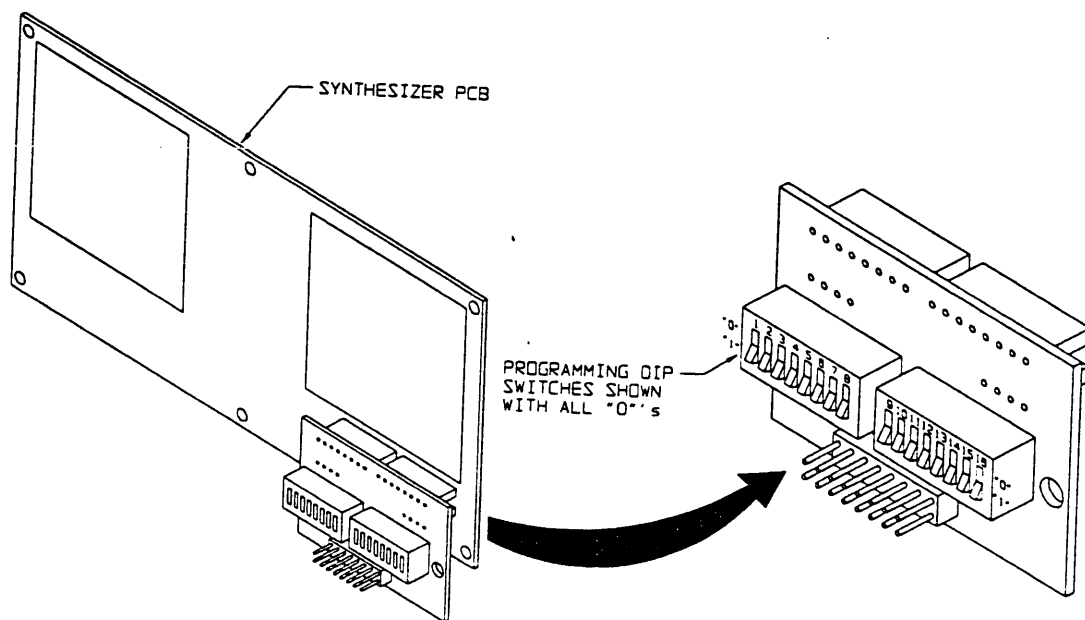
1. Remove the SRPT-40E top cover.
2. Connect the unit ac line cord to an appropriate power receptacle. Ensure the **CONTROL** switch is operated to **OFF**.
3. Refer to Figure 6 and locate the controller circuit board. This circuit board is the larger board directly behind the front panel channel display.
4. Refer to Figure 6 and select the number of operating channels using jumper P105.



**FIGURE 6. CONTROLLER CIRCUIT BOARD (VIEW FROM REAR OF UNIT)**

5. Refer to Figure 6 and place the **OPERATE/PROGRAM** jumper P104 on the controller circuit board in the **PROGRAM** position as shown.

6. Assign a frequency to a channel as follows:
  - A. Operate the **CONTROL** switch to **STDBY**.
  - B. Use the front panel **UP** and **DOWN** buttons to select the channel to be programmed.
  - C. Refer to the **PROGRAMMING DATA SHEETS** shipped with the unit and locate the operating frequency to be assigned to the channel. Highlight the 16 DIP switch programming positions for the frequency.
  - D. Refer to Figure 7 and locate the synthesizer circuit board.
  - E. Refer to Figure 7 and program the 16 DIP switch programming positions for the desired frequency. The DIP switch can be operated to the 1 or 0 position. To program a 1, the switch must be operated towards the ribbon cable. To program a 0, the switch must be operated towards the synthesizer circuit board.



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**FIGURE 7. FREQUENCY SYNTHESIZER CIRCUIT BOARD**

- F. Refer to Figure 6 and depress the **PROGRAMMING** button. The programming LED will illuminate when the switch settings are programmed into the controller circuit board.
- G. Repeat the procedure for each channel to be programmed into the unit.



**NOTE**

**IF ALL THE CHANNELS ARE NOT USED IN A CONFIGURATION, THE UNUSED CHANNELS SHOULD BE PROGRAMMED WITH THE FREQUENCY FROM THE LAST USED CHANNEL.**

**NOTE**

**IF ALL THE CHANNELS ARE NOT USED IN A CONFIGURATION, THE UNUSED CHANNELS SHOULD BE PROGRAMMED WITH THE FREQUENCY FROM THE LAST USED CHANNEL.**

- H. If all the channels in a configuration are not used, program the unused channels using the frequency from the last used channel. For example, a unit is configured for 8 channels and only channels 1 through 6 are to be used. Therefore, program channels 7 and 8 with the frequency assigned to channel 6.
7. When all the channel programming has been completed, refer to Figure 6 and return the **OPERATE/PROGRAM** jumper on the controller circuit board to the **OPERATE** position.



**NOTE**

**NOTE**

**ENSURE ALL THE DIP SWITCHES ON THE SYNTHESIZER CIRCUIT BOARD ARE OPERATED TO THE 1 POSITION. THE UNIT WILL NOT RECALL THE STORED FREQUENCIES CORRECTLY IF THIS IS NOT PERFORMED.**

8. Refer to Figure 7 and operate all the DIP switches to the 1 position. The unit will not recall the stored frequencies correctly if this is not performed.
9. Operate the **CONTROL** switch to **OFF** and replace the top cover.

## **OPERATING PROCEDURE.**

1. Operate the **CONTROL** switch to **OFF** and connect the unit to a 90 – 264 volt grounded ac receptacle.
2. Connect the antenna to the **ANTENNA** connector on the rear panel.
3. Select the desired operating channel.
4. Operate the **CONTROL** switch to **STDBY**. Allow approximately 2 minutes for warm-up.
5. Connect microphones to **INPUT 1** through **INPUT 3** or a line level source such as a tape player to **INPUT 4**. **INPUT 4** can be configured for microphone or line inputs (refer to **MICROPHONE INPUT CONNECTORS** in the preceding text). Check the levels by observing the compression on the meter and by using a headphone connected to the **MONITOR** receptacle. Operate the **INPUT 1** through **INPUT 4** gain controls for a maximum of -3 VU audio compression on the VU meter.
6. To transmit, operate the **CONTROL** switch to **TRANSMIT**. Operate the **METER** switch to **RF OUTPUT**. The meter should read 0 VU  $\pm$  3 VU.
7. If the **ANTENNA** indicator flashes during transmit operation, operate the **CONTROL** switch to **OFF** immediately. Check the antenna, connectors, and coaxial cable. Placing an antenna too near a wall or other object can cause **ANTENNA** indicator to flash.
8. If the **TEMP** indicator flashes during transmit operation, ensure: 1) the vent holes in top or rear of unit are not obstructed, 2) the fan is operating, 3) the transmitter is properly tuned, 4) an improper antenna load is not present, or 5) any other problems causing excessive heating are present. Do not operate SRPT-40 until cause of overheating is corrected.

## **THEORY OF OPERATION.**

The SRPT-40E block diagram at the end of this manual presents an overall description of the SRPT-40E circuitry. Refer to the diagram as required for the following circuit description.

### **PRE-AMPLIFIER/MIXER CIRCUIT BOARD 800-251A.**

Each of the four microphone inputs is applied to a low-noise differential operational amplifier. Critical resistors in the input circuits are low-noise, precision, and temperature stable to obtain maximum performance from the pre-amps. Monolithic chip capacitors are used to filter RF voltages that may be present at the microphone inputs. The four operational amplifier outputs are routed to gain controls, mixed using resistors, and routed to the audio circuit board.

## **AUDIO CIRCUIT BOARD 800-166AE.**

The audio circuit board performs several functions. Integrated circuit IC-1 functions as a: 1) pre-emphasis amplifier, 2) voltage-controlled attenuator, and 3) regulator/ripple rejector. Pre-emphasized audio from IC-1B is also routed to D2 - D3 which form an adjustable series peak-limiting circuit. This circuit is adjusted to limit only audio peaks from the compressor. The limiter circuit output is applied to a low-pass filter (L1, C23, R46) which reduces the audio bandwidth specified for the operating channel of the transmitter. The low-pass filter output is mixed with the output of tone encoder IC-2A. IC-2A is a low-distortion Wien bridge oscillator. This composite signal is then routed to the controller circuit board for application to control R4. The signal from R4 is applied to the modulation port of the VCO on the frequency synthesizer circuit board. This audio signal is also routed to amplifier IC-2B to increase the level required for a 600 ohm headphone monitor. IC-2C is a dc amplifier designed to amplify the AGC voltage. The output of IC-2C drives the audio compression meter.

## **RF POWER AMPLIFIER CIRCUIT BOARD 800-170A2E/170A4E/170A1E.**

The RF output from the RF pre-driver circuit board is connected to the input of the power amplifier circuit board at a 50 ohm impedance. Transformation of the 50 ohm input to the base impedance of Q1 is accomplished by C1, C2, L1, L2, and L3. L4 and L5 provide a path for Q1 base current and the L5 - R1 parallel circuit reduces low frequency gain and instability. The RF output power of Q1 is approximately 10 watts and is routed to the base of Q2 by the L-C impedance matching network shown on the schematic. L13 and R2 reduce low-frequency gain and instability. RF power at the collector of Q2 is matched to 50 ohms by the L-C network shown. The collector supply to Q1 and Q2 is decoupled by L8 and C5 - C10.

## **OUTPUT LOW-PASS FILTER CIRCUIT BOARD 800-250A4/306A2.**

RF output from the RF power amplifier circuit board is routed through a four-section low-pass filter and directional-coupler before reaching the output connector. The directional-coupler is of stripline construction. The forward power sample of this coupler is routed to the RF output meter and the reflected power sample is routed to comparator IC-1A on the meter circuit board. IC-1A will flash the ANTENNA LED to indicate a high VSWR condition. R5 and R6 calibrate the forward and reflected power samples. Circuitry for an optional antenna relay is provided on the circuit board. When installed, this relay switches the antenna from receive to transmit for two-way operation.

## **POWER SUPPLY ASSEMBLIES 800-324A.**

The transmitters are equipped with 800-324A power supplies. The power supply accepts ac input potentials from 90 to 264 volts and supplies 15 VDC at 8 Amperes to power the SRPT-40E circuitry. The supplies are not manufactured by Marti Electronics; therefore, no additional circuitry description can be provided.

## **ACCESSORY CONNECTOR CIRCUIT BOARD 800-253A.**

All input/output circuits connect to the ACCESSORY receptacle on the accessory connector circuit board. The input/output signals and the ac line input are equipped with RF filters. In addition to the L and C filter components, the circuit board is also equipped with reverse polarity protector diode D2.

## **METER CIRCUIT BOARD 800-252A.**

The meter circuit board is equipped with the VU meter, meter illumination lamp, ANTENNA and TEMP LEDs. The circuit board also contains comparator drivers IC-1A and IC-1B.

## **THERMISTOR CIRCUIT BOARD 800-255A.**

The thermistor circuit board is equipped with thermistor R1 and transistor Q1. R1 is used to detect the transmitter operating temperature. The thermistor is connected to the temperature comparator on the meter circuit board. The TEMP indicator will flash to indicate an over-temperature condition. Q1 is used to control the fan.

## **FREQUENCY SYNTHESIZER 800-287A4ET/-305A2ET/-305A1ET.**

The SRPT-40E is equipped with 3 different frequency synthesizer circuit boards as determined by the band of operation. The 800-287A4ET circuit board is used in the 450 MHz band units. The 800-305A1ET circuit board is used in the 150 MHz band units. The 800-305A2ET circuit board is used in the 215 MHz band units. The frequency synthesizer consists of Phase-Locked Loop IC5, voltage-controlled-oscillator Q2, pre-scaler IC4, reference oscillator Y1, and loop filter IC2A. The transmitter frequency is synthesized using a local oscillator. IC5 is a programmable device with a reference frequency generated by a crystal oscillator. The loop filter is an active type. The pre-scaler is used to pre-scale the VCO frequency to make it compatible to the PLL. The PLL performs three major functions:

1. Compares the phase of the pre-scaled VCO frequency with the frequency of resolution and produces outputs that are used by the loop filter to generate a dc voltage. This dc control voltage is used to control the VCO frequency.
2. Controls the pre-scaler by selecting the divisor.
3. Generates the frequency of resolution internally using the crystal oscillator.

The PLL has 16 programming pins that are used by controller circuit board 800-339A1 to select a VCO frequency and produce a lock. An extremely stable crystal oscillator and noiseless loop filter make the synthesizer ultra stable. The output of phase-locked VCO Q2 is buffered by IC3. The output of IC3 is low-pass filtered and connected to J1 (L.O. out).

## **CONTROLLER CIRCUIT BOARD 800-339A1.**

The controller board consists of up/down counter U107 and EPROMs U109 and U110. Pulses from the channel selector switches on LCD display circuit board 800-340A1 are routed through a debouncing circuit constructed from timer U106. The output from U106 is applied to a logic circuit consisting of NOR gates U101 and U102. The logic circuit directs U107 to count up or down as determined by the up/down switches on the LCD display circuit board. The output of U107 functions as an address generator for U109 and U110. Both U109 and U110 respond to the address by selecting an 8 bit output with the information required to drive the PLL circuit on the frequency synthesizer circuit board.

Header J104 configures EPROMs U109/U110 for read or write operation. When P104A is installed in position 1-2 and S101 is depressed, data on the I/O bus will be stored in U109/U110 and LED DS101 will illuminate. When P104B is installed in position 3-4, U109/U110 will be configured to place the frequency synthesizer programming information on the I/O bus for application to IC5 on the frequency synthesizer circuit board.

## **LCD DISPLAY CIRCUIT BOARD 800-340A1.**

The LCD display circuit board consists of two switches, two indicators, and an LCD display. Switch S201 operates the channel display in the up direction when depressed. Switch S203 operates the channel display in the down direction when depressed. AFC lock indicator DS202 will illuminate to indicate when the PLL circuit on the synthesizer circuit board is locked. PWR indicator DS201 illuminates when ac or dc power is applied to the unit. DS203 is a 2-digit LCD display. The display is controlled by the circuitry on the LCD display driver circuit board.

## **LCD DISPLAY DRIVER CIRCUIT BOARD 800-341A.**

The channel display is controlled by circuitry on the LCD display driver circuit board. The output of U107 on the controller circuit board also functions as an address generator for EEPROM U302. U302 is programmed with the data used to generate the numerals on the LCD display. The output of U302 is pulsed by timer U301 and applied to transistor array U303 which is used to drive the LCD display on the LCD display circuit board. DS301 is used to back-light the LCD display.

## **POWER SUPPLY REGULATOR CIRCUIT BOARD 800-168-1AE.**

The power supply regulator circuit board is equipped with three-terminal adjustable regulator IC-1. IC-1 is designed for a +13 volt dc output. Capacitors C7 and C8 provide filtering for the dc supply.

## **RF PRE-DRIVER CIRCUIT BOARD 800-338A1/A2/A4.**

The RF pre-driver circuit board is equipped with RF amplifier transistors Q1 and Q2. Q1 functions as a pre-driver stage. Q2 is designed as an RF amplifier stage. Resistors R1 through R3 attenuate the RF input signal. Matching of the 50 Ohm input impedance to the input impedance of Q1 is accomplished by L1, L2, and C1. The amplified RF signal from Q1 is applied to amplifier Q2. Impedance matching between Q1 and Q2 is provided by C2, C3, L3, L4, and R5. The output impedance of Q2 is matched to the RF output impedance by C4 and C5. Thermistor T1 monitors the RF amplifier heat sink temperature.

## **MAINTENANCE.**

The SRPT-40E transmitter is tested and inspected at the factory prior to shipment. The unit performance was recorded on the factory test report shipped with the unit. Adjustments should rarely be required in the field and should be attempted only by highly trained technicians familiar with this type equipment. Refer to the SRPT-40E ADJUSTMENT LOCATIONS illustration in the following text for the location of the adjustments and test points.

## **TEST EQUIPMENT.**

The following text presents the equipment required to perform the SRPT-40E adjustments.

1. Marconi RF Signal Generator, Model 2022C or TF2013.
2. Insulated Adjustment Tool.
3. Kron-Hite Distortion Analyzer, Model 6801.
4. Spectrum Analyzer, Hewlett Packard Model 8558B.

## **PRE-AMPLIFIER CIRCUIT BOARD REMOVAL.**

To remove pre-amplifier circuit board 800-251A from the chassis, proceed as follows:

1. Remove the knobs and hardware from the four level controls on front panel.
2. Unlock the microphone connectors as follows:
  - A. In addition to the three pin receptacles, the microphone connector is equipped with a small hole near the center of the connector. This hole contains a tiny locking mechanism. Using a small (0.75" wide) flat blade screwdriver, insert the tool into hole and turn slowly until screwdriver engages the connector lock.
  - B. Turn screwdriver counter-clockwise (1/8 turn) until the microphone insert releases.
  - C. Repeat the procedure for each microphone input.
  - D. Gently push the black plastic inserts out of the metal shells while simultaneously pushing the gain adjust controls inward until the circuit board releases from the front panel.
3. Remove the circuit board from the chassis. To re-install the circuit board, reverse the above procedure.

## **POWER SUPPLY ASSEMBLY 800-324A.**

The transmitters are equipped with power supply assembly 800-324A. The modules are self-contained with no user adjustments.

## **RF PRE-DRIVER CIRCUIT BOARD 800-338A1/A2/A4.**

To adjust the pre-driver circuit board assembly, proceed as follows:

1. Connect a 50 ohm load with a sampling port and a wattmeter with a 50 watt element for the correct frequency range to the SRPT-40E ANTENNA connector.



2. Connect a 13.5 volt DC regulated bench power supply with an accurate 0–10 Ampere meter to the transmitter using power cable 586–074 (refer to Figure 3).
3. Connect the spectrum analyzer to the wattmeter sample port.
4. Operate the **CONTROL** switch to **TRANSMIT** and adjust capacitors C1 through C5 for: 1) minimum current on the power supply ampere meter, 2) maximum output power on the wattmeter, and 3) minimum spurs on the spectrum analyzer. Adjust the capacitors in the following order: C1, C2, C3, C4, and C5.
5. Once the pre-driver circuit board is adjusted, refer to the following text and perform the RF POWER AMPLIFIER CIRCUIT BOARD 800–170A1E/A2E/A4E procedures.

## **RF POWER AMPLIFIER CIRCUIT BOARD 800–170A1E/A2E/A4E.**

To adjust the RF power amplifier circuitry, proceed as follows:

1. Ensure the RF pre-driver circuit board is adjusted before proceeding (refer to RF PRE-DRIVER CIRCUIT BOARD 800–338A1/A2/A4 adjustment procedures in the preceding text if required).
2. Connect a 50 ohm load with a sampling port and a wattmeter with a 50 watt element for the correct frequency range to the SRPT–40E ANTENNA connector.
3. Connect a 13.5 volt DC regulated bench power supply with an accurate 0–10 Ampere meter to the transmitter using power cable 586–074 (refer to Figure 3).
4. Connect the spectrum analyzer to the wattmeter sample port.
5. Operate the **CONTROL** switch to **TRANSMIT** and adjust capacitors C1, C2, C11, C12, and C13 for: 1) minimum current on the power supply ampere meter, 2) maximum output power on the wattmeter, and 3) minimum spurs on the spectrum analyzer. Adjust the capacitors in the following order: C1, C2, C11, C12, and C13.
6. Adjust collector output matching capacitors C16, C17, and C18 for maximum efficiency at the rated output by slightly retuning for a minimum current at the rated power output. Total current to the transmitter is approximately:

| FREQUENCY | POWER OUTPUT | CURRENT      |
|-----------|--------------|--------------|
| 450 MHz   | 40 watts     | 7.5 to 8.0 A |
| 300 MHz   | 40 watts     | 6.5 to 7.0 A |
| 215 MHz   | 40 watts     | 6.0 to 6.5 A |
| 150 MHz   | 40 watts     | 6.0 to 6.5 A |

7. Remove the test equipment.

## **AUDIO CIRCUIT BOARD 800–166AE.**

### ***Encoder Calibration.***

1. Connect a 50 watt test load with sampling port to the ANTENNA connector.
2. Connect an FM deviation meter and frequency counter to the sampling port.
3. Operate the **CONTROL** switch to **TRANSMIT**.
4. Operate the **ENCODE** switch to **ON** and adjust encode level control R33 for a 1.0 kHz deviation.
5. Remove the test equipment.

### ***Meter Calibration.***

1. Operate the **METER** switch to **AUDIO COMPRESSION**.
2. With no audio input, adjust control R22 for a 0 VU meter indication.

### ***Distortion Adjustment.***

1. Operate the **ENCODE** switch to **OFF**.
2. Connect a harmonic distortion analyzer to the audio output of the SR-10E receiver.
3. Connect a 50 watt test load with sampling port to the SRPT-40E ANTENNA connector.



**CAUTION**

**CAUTION**

***DO NOT ROUTE THE SRPT-40E OUTPUT DIRECTLY INTO THE INPUT OF THE SR-10E. THIS WILL SEVERELY DAMAGE THE RECEIVER INPUT STAGE.***

4. Route a 100 microvolt signal from the sample port to the receiver RF input.
5. Connect an audio signal generator to INPUT 4 on the transmitter.
6. Modulate the transmitter with a 2500 Hz tone at 3 dB compression.
7. Adjust limit level control R26 to the maximum counter-clockwise position and note the distortion. The distortion should be less than 2%. Slowly adjust R26 clockwise until an additional 0.1% distortion is indicated on the distortion meter.
8. Remove the test equipment.

### ***Encode Frequency Adjustment.***

1. Connect a 50 watt test load with sampling port to the SRPT-40E ANTENNA connector.



**CAUTION**

**CAUTION**

***DO NOT ROUTE THE SRPT-40E OUTPUT DIRECTLY INTO THE INPUT OF THE SR-10E. THIS WILL SEVERELY DAMAGE THE RECEIVER INPUT STAGE.***

2. Route a 100 microvolt signal from the sample port to the receiver RF input.
3. Operate the **ENCODE** switch to **ON**.
4. Operate the SR-10E **METER** switch to **DECODE LEVEL**.
5. Adjust encode frequency control R37 for a maximum indication on the SR-10E meter.
6. Remove the test equipment.

### ***Frequency Response Adjustment.***

1. Connect an audio voltmeter to the output terminals of the SR-10E receiver.
2. Connect a 50 watt test load with sampling port to the ANTENNA connector.
3. Connect an attenuator to the sample port and route a 100 microvolt signal into the SR-10E receiver.
4. Connect an audio signal generator to line level **INPUT 4** on the SRPT-40E. Adjust the signal generator for a 2.5 kHz signal at 20 dB below the compression level.
5. Adjust L1 for a maximum level on the audio meter.
6. Remove the test equipment.

## **FREQUENCY SYNTHESIZER CIRCUIT BOARD 800-287A4ET/305A1ET/305A2ET.**

The VCO and frequency synthesizer circuitry is adjusted at the factory and will not require adjustment in the field. Do not adjust the circuitry in the field.

# OUTPUT FILTER CIRCUIT BOARD 800-250A4/306A2.

## Forward Power Calibration.

To calibrate the forward power directional coupler, proceed as follows:

1. Connect a 50 ohm load with a sampling port and a wattmeter with a 50 watt element for the correct frequency range to the SRPT-40E ANTENNA connector.
2. Operate the METER switch to RF OUTPUT.
3. Ensure the wattmeter indicates 40 watts.
4. Adjust forward calibration control R5 for a +1 VU meter indication.
5. Remove the test equipment.

## Reflected Power Calibration.

To calibrate the reflected power directional coupler, proceed as follows:

1. Disconnect the test load/antenna from the SRPT-40E ANTENNA connector.
2. Operate the CONTROL switch to TRANSMIT.
3. Adjust reflected power calibration control R6 until the front panel ANTENNA indicator illuminates.

## PARTS LIST.

The following text presents the SRPT-40E parts list information.

TABLE 2. SRPT-40E 450 MHz Unit - 705-ST40-4E

| REF. DES. | DESCRIPTION                                      | PART NO.    | QTY. |
|-----------|--------------------------------------------------|-------------|------|
| ----      | Ribbon Cable, 14 Inches HCSD-08-D14.00-0         |             |      |
| ----      | Cable Assembly, SRPT-40E Harness                 | 586-138     | 1    |
| ----      | Final Wiring, SRPT-40E                           | 586-169     | 1    |
| ----      | Front Panel Wiring, SRPT-40E                     | 586-170     | 1    |
| ----      | SRPT-40E/450 Main Frame                          | 586-170F    | 1    |
| ----      | SRPT-40E Audio Circuit Board                     | 700-250-39A | 1    |
| ----      | SRPT-40E Power Supply Regulator Circuit Board    | 800-166AE   | 1    |
| ----      | RPT-30/STL-30 450 RF Amplifier Circuit Board     | 800-168-1AE | 1    |
| ----      | RPT-30/STL-30 450 Output Filter Circuit Board    | 800-170A4E  | 1    |
| ----      | RPT-30 Pre-Amplifier Mixer Circuit Board         | 800-250A4   | 1    |
| ----      | RPT-30/STL-30 Meter Circuit Board                | 800-251A    | 1    |
| ----      | RPT-30/STL-30 Accessory Connector Circuit Board  | 800-252A    | 1    |
| ----      | SRPT-40 Thermistor Circuit Board                 | 800-253A    | 1    |
| ----      | SRPT-40E/450 Frequency Synthesizer Circuit Board | 800-255A    | 1    |
| ----      | SRPT-40E RF Pre-Driver Circuit Board             | 800-287A4ET | 1    |
| ----      | Controller Circuit Board Assembly                | 800-338A4   | 1    |
| ----      | LCD Display Circuit Board Assembly               | 800-339A1   | 1    |
| ----      | Display Driver Circuit Board Assembly            | 800-340A1   | 1    |
| ----      | Cable Switch Interface Assembly                  | 800-341A    | 1    |
| ----      | Power Supply Assembly, TEK150SOO-XXX             | 800-343A    | 1    |
|           |                                                  | 800-324A    | 1    |

**TABLE 3. SRPT-40E 300 MHz Unit - 705-ST40-3E**

| REF. DES.     | DESCRIPTION | PART NO. | QTY. |
|---------------|-------------|----------|------|
| NOT AVAILABLE |             |          |      |

**TABLE 4. SRPT-40E 215 MHz Unit - 705-ST40-2E**

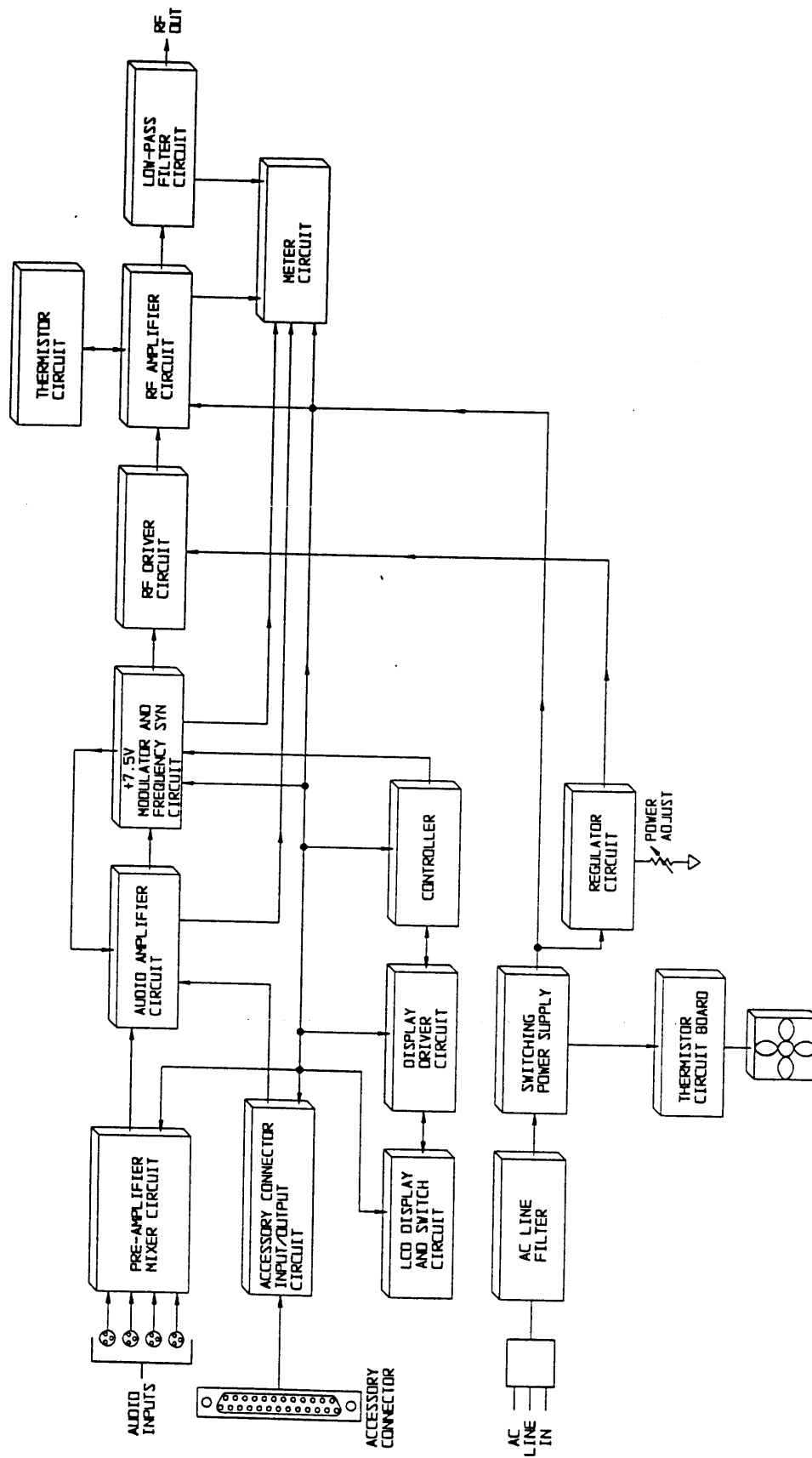
| REF. DES. | DESCRIPTION                                      | PART NO.     | QTY. |
|-----------|--------------------------------------------------|--------------|------|
| ----      | Ribbon Cable, 6 Inches HCSD-08-D6.00-01          | 586-134      | 1    |
| ----      | Final Wiring, SRPT-40E                           | 586-170      | 1    |
| ----      | Cable Assembly, SRPT-40E Harness                 | 586-173      | 1    |
| ----      | Front Panel Wiring, SRPT-40E                     | 586-170F     | 1    |
| ----      | SRPT-40E/450 Main Frame                          | 700-250-39A2 | 1    |
| ----      | SRPT-40E Audio Circuit Board                     | 800-166AE    | 1    |
| ----      | SRPT-40E Power Supply Regulator Circuit Board    | 800-168-1AE  | 1    |
| ----      | RPT-30/STL-30 215 RF Amplifier Circuit Board     | 800-170A2E   | 1    |
| ----      | RPT-30 215 Output Filter Circuit Board           | 800-306A2    | 1    |
| ----      | RPT-30 Pre-Amplifier Mixer Circuit Board         | 800-251A     | 1    |
| ----      | RPT-30/STL-30 Meter Circuit Board                | 800-252A     | 1    |
| ----      | RPT-30/STL-30 Accessory Connector Circuit Board  | 800-253A     | 1    |
| ----      | SRPT-40 Thermistor Circuit Board                 | 800-255A     | 1    |
| ----      | SRPT-40E/215 Frequency Synthesizer Circuit Board | 800-305A2ET  | 1    |
| ----      | SRPT-40E RF Pre-Driver Circuit Board             | 800-338A2    | 1    |
| ----      | Controller Circuit Board Assembly                | 800-339A1    | 1    |
| ----      | LCD Display Circuit Board Assembly               | 800-340A1    | 1    |
| ----      | Display Driver Circuit Board Assembly            | 800-341A     | 1    |
| ----      | Cable Switch Interface Assembly                  | 800-343A     | 1    |
| ----      | Power Supply Assembly, TEK150SOO-XXX             | 800-324A     | 1    |

**TABLE 5. SRPT-40E 150 MHz Unit - 705-ST40-1E**  
(Sheet 1 of 2)

| REF. DES. | DESCRIPTION                                     | PART NO.     | QTY. |
|-----------|-------------------------------------------------|--------------|------|
| ----      | Ribbon Cable, 6 Inches HCSD-08-D6.00-01         | 586-134      | 1    |
| ----      | Final Wiring, SRPT-40E                          | 586-170      | 1    |
| ----      | Front Panel Wiring, SRPT-40E                    | 586-170F     | 1    |
| ----      | Cable Assembly, SRPT-40E Harness                | 586-173      | 1    |
| ----      | SRPT-40E/215 Main Frame                         | 700-250-39A2 | 1    |
| ----      | SRPT-40E Audio Circuit Board                    | 800-166AE    | 1    |
| ----      | SRPT-40E Power Supply Regulator Circuit Board   | 800-168-1AE  | 1    |
| ----      | SRPT-40E/150 Amplifier                          | 800-170A1E   | 1    |
| ----      | RPT-30 Pre-Amplifier Mixer Circuit Board        | 800-251A     | 1    |
| ----      | RPT-30/STL-30 Meter Circuit Board               | 800-252A     | 1    |
| ----      | RPT-30/STL-30 Accessory Connector Circuit Board | 800-253A     | 1    |
| ----      | RPT-30/STL-30 Thermistor Circuit Board          | 800-255A     | 1    |
| ----      | SRPT-40E/150 Frequency Synthesizer              | 800-305A1ET  | 1    |
| ----      | RPT-30/150 Output Filter                        | 800-306A1    | 1    |
| ----      | Power Supply Assembly, TEK150SOO-XXX            | 800-324A     | 1    |

**TABLE 5. SRPT-40E 150 MHz Unit - 705-ST40-1E**  
**(Sheet 2 of 2)**

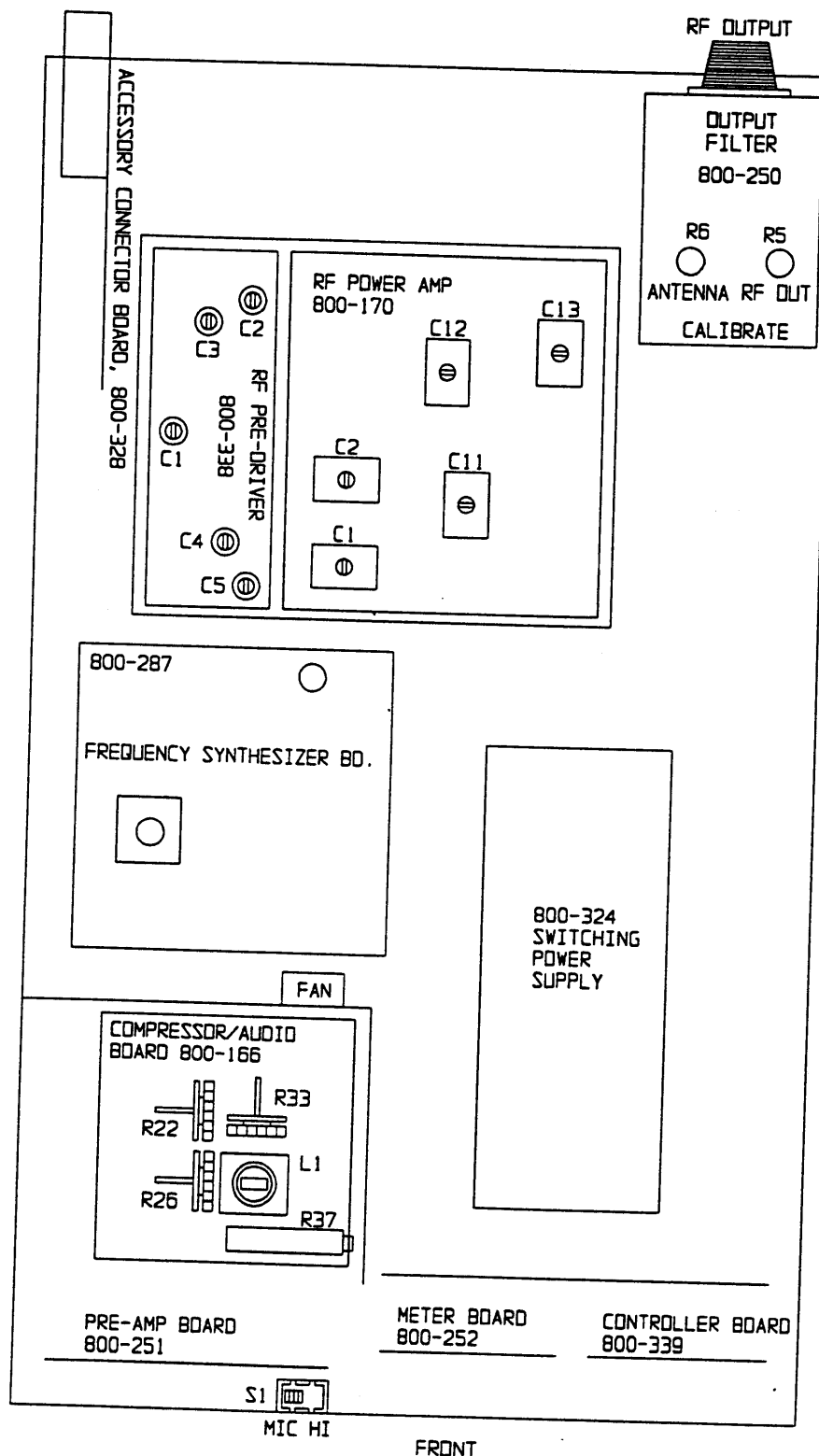
| REF. DES. | DESCRIPTION                           | PART NO.  | QTY. |
|-----------|---------------------------------------|-----------|------|
| ----      | SRPT-40E RF Pre-Driver Circuit Board  | 800-338A1 | 1    |
| ----      | Controller Circuit Board Assembly     | 800-339A1 | 1    |
| ----      | LCD Display Circuit Board Assembly    | 800-340A1 | 1    |
| ----      | Display Driver Circuit Board Assembly | 800-341A  | 1    |
| ----      | Cable Switch Interface Assembly       | 800-343A  | 1    |



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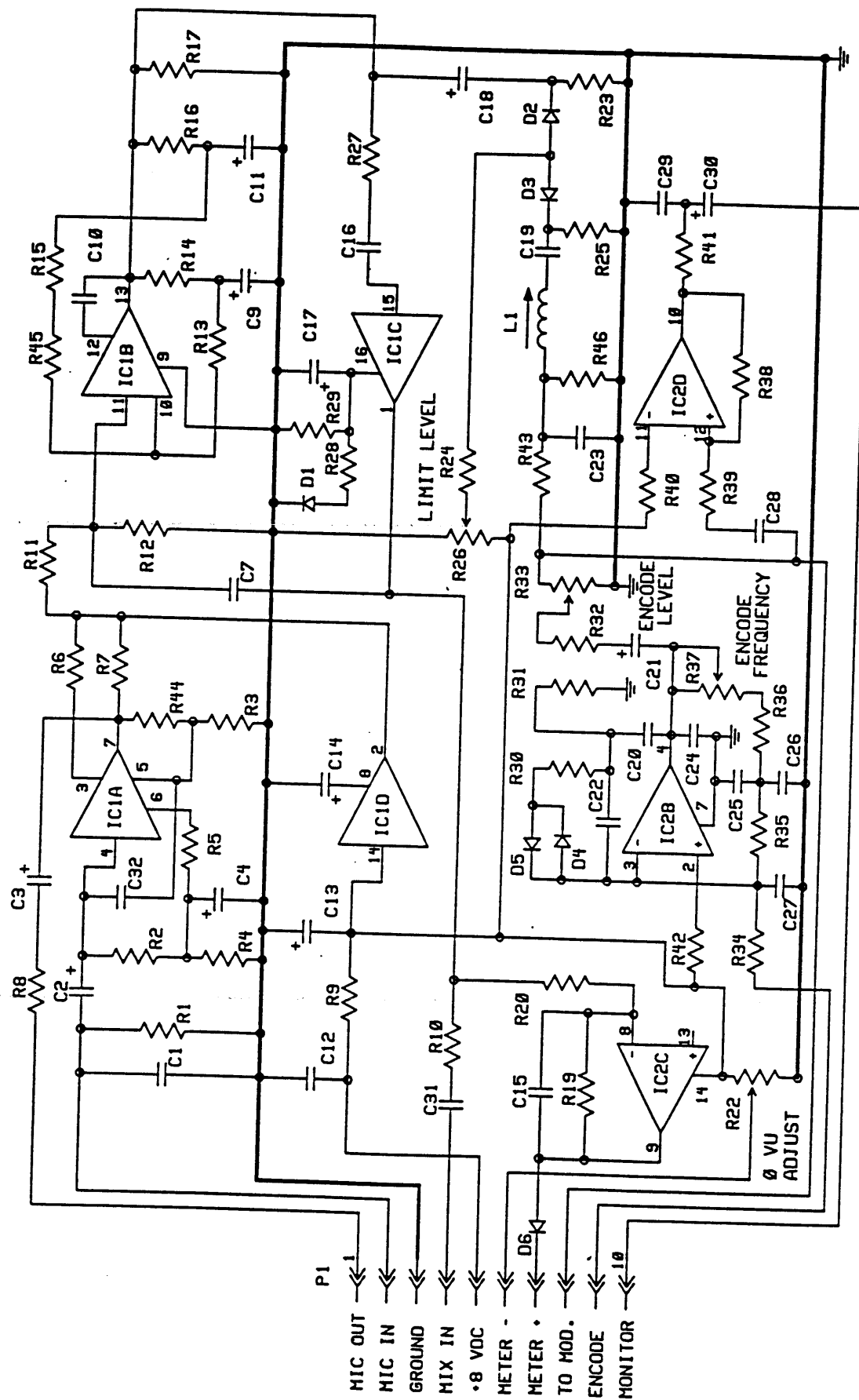
SRPT-40E BLOCK DIAGRAM



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# SRPT-40E ADJUSTMENT LOCATIONS

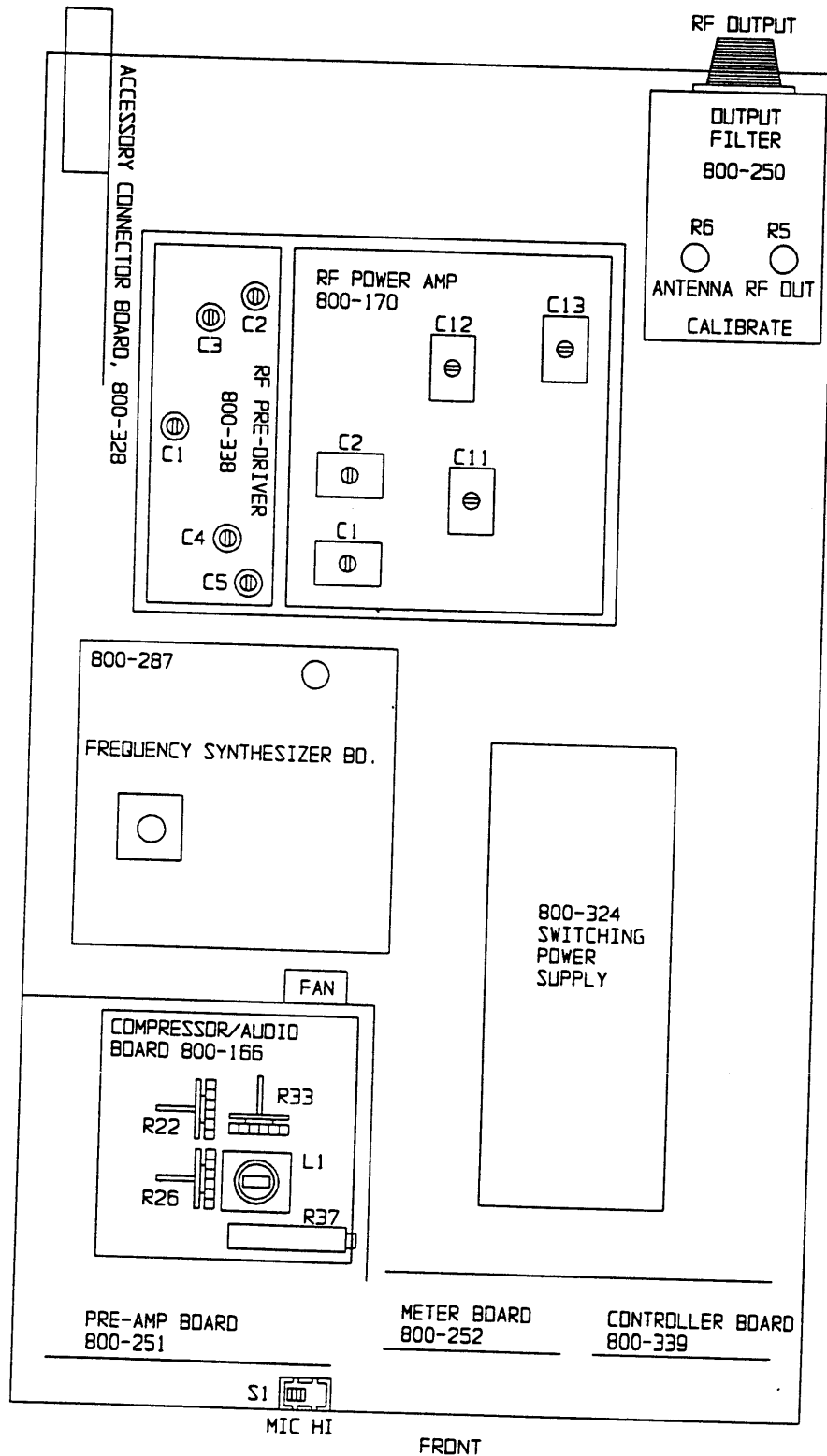
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SRPT-40E AUDIO CIRCUIT BOARD - 800-166AE





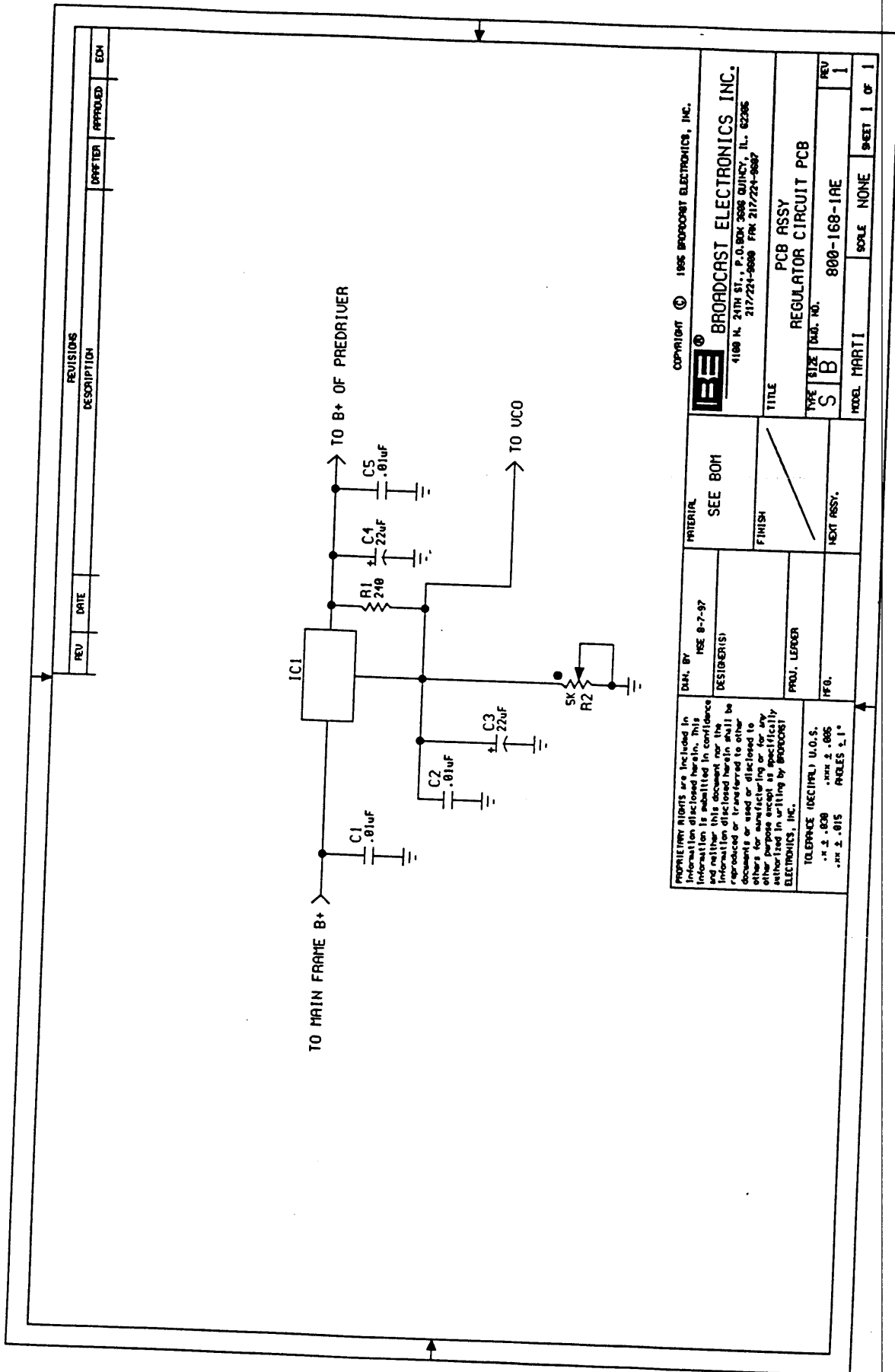
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# SRPT-40E ADJUSTMENT LOCATIONS

SRP40E8

**TABLE 6. SRPT-40E AUDIO CIRCUIT BOARD - 800-166AE**  
(Sheet 2 of 2)

| REF. DES. | DESCRIPTION                                              | PART NO.  | QTY. |
|-----------|----------------------------------------------------------|-----------|------|
| R19       | Resistor, 2.2 Meg Ohm 1/4 Watt 5% Metal Fi               | 145-225   | 1    |
| R20       | Resistor, 470 k Ohm 1/4 Watt 5% Metal Film               | 145-474   | 1    |
| R21       | NOT USED                                                 | -----     | -    |
| R22       | Potentiometer, 5 k Ohm Cermet Bourns 3309P-              | 101-502   | 1    |
| R23       | Resistor, 3.3 k Ohm 1/4 Watt 5% Metal Film               | 145-332   | 1    |
| R24       | Resistor, 2.7 k Ohm 1/4 Watt 5% Metal Film               | 145-272   | 1    |
| R25       | Resistor, 4.7 k Ohm 1/4 Watt 5% Metal Film               | 145-472   | 1    |
| R26       | Potentiometer, 100 k Ohm Cermet Bourns 3309              | 101-104   | 1    |
| R27       | Resistor, 2.2 k Ohm 1/4 Watt 5% Metal Film               | 145-222   | 1    |
| R28       | Resistor, 2.2 Meg Ohm 1/4 Watt 5% Metal Fi               | 145-225   | 1    |
| R29       | Resistor, 10 Meg Ohm 1/4 Watt 5% Metal Fil               | 145-106   | 1    |
| R30       | Resistor, 8.2 Meg Ohm 1/4 Watt 5% Carbon F               | 145-825   | 1    |
| R31       | Resistor, 221 k Ohm 1/4 Watt 1% RN55D2213F               | 145-224-1 | 1    |
| R32       | Resistor, 22 k Ohm 1/4 Watt 5% Metal Film M              | 145-223   | 1    |
| R33       | Potentiometer, 100 k Ohm Cermet Bourns 3309              | 101-104   | 1    |
| R34       | Resistor, 10 k Ohm 1/4 Watt 5% Metal Film M              | 145-103   | 1    |
| R35, R36  | Resistor, 475 k Ohm 1/4 Watt 1% RN55D4753F               | 145-474-1 | 2    |
| R37       | Potentiometer, 1 Meg Ohm Cermet Bourns' 3296             | 104-105   | 1    |
| R38, R39  | Resistor, 1 Meg Ohm 1/4 Watt 5% Metal Film               | 145-105   | 2    |
| R40       | Resistor, 2.2 Meg Ohm 1/4 Watt 5% Metal Fi               | 145-225   | 1    |
| R41       | Resistor, 560 Ohm 1/4 Watt 5% Metal Film M               | 145-561   | 1    |
| R42       | Resistor, 2.2 Meg Ohm 1/4 Watt 5% Metal Fi               | 145-225   | 1    |
| R43       | Resistor, 33 k Ohm 1/4 Watt 5% Metal Film Mepco<br>SFR25 | 145-333   |      |
| R44       | Resistor, 8.2 k Ohm 1/4 Watt 5% Metal Film               | 145-822   | 1    |
| R45       | Resistor, 2.7 k Ohm 1/4 Watt 5% Metal Film               | 145-272   | 1    |
| R46       | Resistor, 15 k Ohm 1/4 Watt 5% Metal Film M              | 145-153   | 1    |
| R47       | Resistor, 100 k Ohm 1/4 Watt 5% Metal Film               | 145-104   | 1    |
| ----      | IC Socket, 14-Pin Keltron ICS-14-3-T                     | 550-069   | 1    |
| ----      | Headers, DuPont #65566-131 .150 Center Sin               | 511-034   | 1    |
| ----      | IC Socket, 16-Pin Keltron ICS-16-3-T                     | 550-068   | 1    |
| ----      | Brackets, #6 Keystone 634                                | 510-210   | 2    |



| REV |  | DATE |  | REVISIONS |  | DESCRIPTION |  | DRAFTER |  | APPROVED |  | EOM |  |
|-----|--|------|--|-----------|--|-------------|--|---------|--|----------|--|-----|--|
|     |  |      |  |           |  |             |  |         |  |          |  |     |  |

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|            |  |                       |  |
|------------|--|-----------------------|--|
| TITLE      |  | PCB ASSY              |  |
| TYPE       |  | REGULATOR CIRCUIT PCB |  |
| SIZE       |  | 800-168-1AE           |  |
| NO. PART I |  | NONE                  |  |
| REV        |  | 1                     |  |
| SHEET      |  | 1 OF 1                |  |

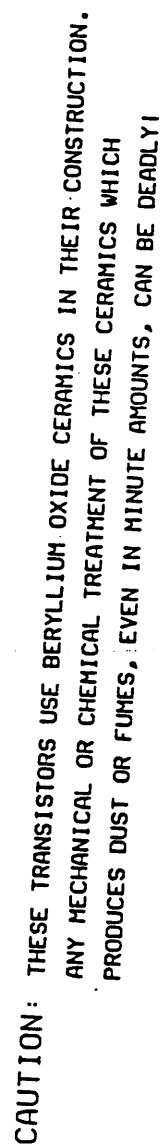
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TOLERANCE (DECIMAL) U.O.S.  
 .XX ± .008  
 .XX ± .015  
 .XX ± .005  
 .XX ± .010

|             |  |              |  |
|-------------|--|--------------|--|
| MATERIAL    |  | SEE BOM      |  |
| FINISH      |  | NEXT ASSY.   |  |
| DESIGNER(S) |  | PROJ. LEADER |  |
| DATE BY     |  | PSE 8-7-97   |  |

**TABLE 7. SRPT-40E POWER SUPPLY REGULATOR CIRCUIT BOARD - 800-168-1AE**

| REF. DES. | DESCRIPTION                                                              | PART NO.   | QTY. |
|-----------|--------------------------------------------------------------------------|------------|------|
| C01, C02  | Capacitor, Monolithic Chip, 10000 pF 10% XR7K                            | 270-103    | 2    |
| C03, C04  | Capacitor, Electrolytic 22 uF 25V 105c Cornell Dubilier<br>201B220P025XX | 219-250    | 2    |
| C05       | Capacitor, Monolithic Chip, 10000 pF 10% XR7K                            | 270-103    | 1    |
| PCB       | PC Board, Regulator RPT-15 STL-10                                        | 800-168-1B | 1    |
| R01       | Resistor, 240 Ohm 1/4 Watt 2% RL07S241G                                  | 145-241-1  | 1    |
| R02       | Potentiometer, 5 k Ohm Cermet Bourns<br>3006W-1-502                      | 100-532    | 1    |
| ----      | #4 Bracket, Keystone 612                                                 | 510-191    | 1    |
| ----      | Connector, Crimp Terminal Pin Molex 08-50-0187                           | 550-126    | 1    |
| ----      | Wire, UL1429 22/7 OS-1 Orange                                            | 580-047    | 1    |
| ----      | Wire, UL1429-18/19 #18 Red                                               | 580-133    | 1    |
| ----      | Wire, UL1429-18/19 #18 Blue                                              | 580-136    | 1    |



SRPT-40E/450 RF AMPLIFIER CIRCUIT BOARD - 800-170A4E  
 SRPT-40E/300 RF AMPLIFIER CIRCUIT BOARD -  
 SRPT-40E/215 RF AMPLIFIER CIRCUIT BOARD - 800-170A2E  
 SRPT-40E/150 RF AMPLIFIER CIRCUIT BOARD - 800-170A1E

**TABLE 8. SRPT-40E/450 RF AMPLIFIER CIRCUIT BOARD - 800-170A4E**

| REF. DES. | DESCRIPTION                               | PART NO.   | QTY. |
|-----------|-------------------------------------------|------------|------|
| C01, C02  | Capacitor, Variable, Trimmer 2.5-7        | 260-100    | 2    |
| C03       | Capacitor, Uncased Mica, 16 pF 33V        | 240-160    | 1    |
| C04       | Capacitor, Uncased Mica, 22 pF 33V        | 240-120    | 1    |
| C05       | Capacitor, .1 mF 100V 10% Mylar           | 217-103    | 1    |
| C06       | Capacitor, Electrolytic 22 uF 25V Me      | 219-200    | 2    |
| C07, C08  | Capacitor, Uncased Mica, 500 pF 33V       | 236-501    | 2    |
| C09       | Capacitor, Electrolytic 22 uF 25V Me      | 219-200    | 2    |
| C10       | Capacitor, .1 mF 100V 10% Mylar           | 217-103    | 1    |
| C11, C12  | Capacitor, Variable, Trimmer 4-20 p       | 260-200    | 2    |
| C13       | NOT USED                                  |            |      |
| C14       | NOT USED                                  |            |      |
| C15       | Capacitor, Uncased Mica, 33 pF 33V        | 240-330    | 1    |
| C16, C17  | Capacitor, Variable, Trimmer 4-20 p       | 260-200    | 2    |
| C18       | Capacitor, Variable, Trimmer 25-115       | 240-602    | 1    |
| C19       | NOT USED                                  |            |      |
| L01       | NOT USED                                  |            |      |
| L02       | NOT USED                                  |            |      |
| L03       | NOT USED                                  |            |      |
| L04       | Inductor, 8 Turn 22 AWG (CCW)             | 350-117    | 1    |
| L05       | Inductor, 15 uH Coilcraft 90-27           | 330-012    | 1    |
| L06       | Inductor, 8 Turn 22 AWG (CCW)             | 350-117    | 1    |
| L07       | NOT USED                                  |            |      |
| L08       | Inductor, Fair-Rite #2961666671           | 330-019    | 1    |
| L09       | NOT USED                                  |            |      |
| L10       | NOT USED                                  |            |      |
| L11       | NOT USED                                  |            |      |
| L12       | Inductor, 8 Turn 22 AWG (CCW)             | 350-117    | 1    |
| L13       | Inductor, 10 uH 1-43LQ105-1               | 330-018    | 1    |
| L14       | Inductor, 8 Turn 22 AWG (CCW)             | 350-117    | 1    |
| L15       | NOT USED                                  |            |      |
| L16       | NOT USED                                  |            |      |
| PCB       | PC Board, Power Amplifier RPT-15 STL-10/  | 800-170-2B | 1    |
| Q1        | Transistor, Philips BLW81                 | 441-433    | 1    |
| Q2        | Transistor, Thomson SD1434                | 443-030    | 1    |
| R01, R02  | Resistor, 47 Ohm 1/4 Watt 5% Carbon       | 145-470-C  | 2    |
| R03       | NOT USED                                  |            |      |
| R04       | NOT USED                                  |            |      |
| R05       | NOT USED                                  |            |      |
| ----      | Thermistor, Fenwal 142-102-FAG-RB1        | 120-002    | 1    |
| ----      | Screw, 4-40 x 1/2" Philips Pan Head M/S n | 500-011    | 2    |
| ----      | Screw, 6-32 x 5/8" Philips Pan Head M/S n | 500-025    | 4    |
| ----      | Pop-Rivet, USM SD-428S                    | 500-105-1  | 4    |
| ----      | Keps Nut 4 x40 Zinc 4CNKEOZ               | 500-199    | 2    |
| ----      | Brackets, #6 Keystone 634                 | 510-210    | 4    |
| ----      | Insulation, Softshield II CHOGAS139       | 510-261    | 0.33 |
| ----      | Solder Lug, #6 Short Concord 707-12       | 512-010    | 4    |
| ----      | Spacer, 6-32 x 11/16 Hex Threaded C       | 513-043    | 4    |
| ----      | Heatsink, Drilled SRPT-40E                | 520-050DE  | 1    |
| ----      | Fingerstock, Angle Contact Strip          | 700-260    | 0.55 |

**TABLE 9. SRPT-40E/300 RF AMPLIFIER CIRCUIT BOARD -**

| REF. DES.     | DESCRIPTION | PART NO. | QTY. |
|---------------|-------------|----------|------|
| NOT AVAILABLE |             |          |      |

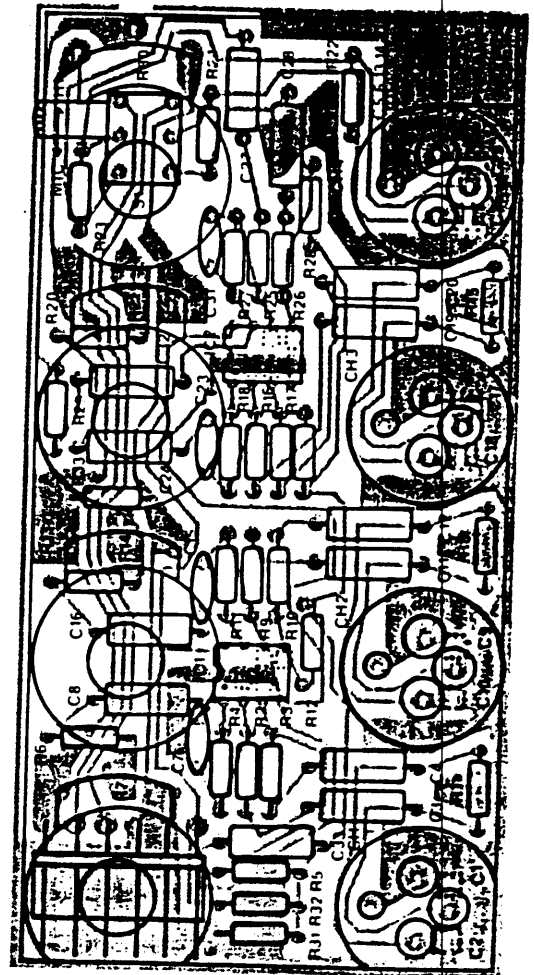
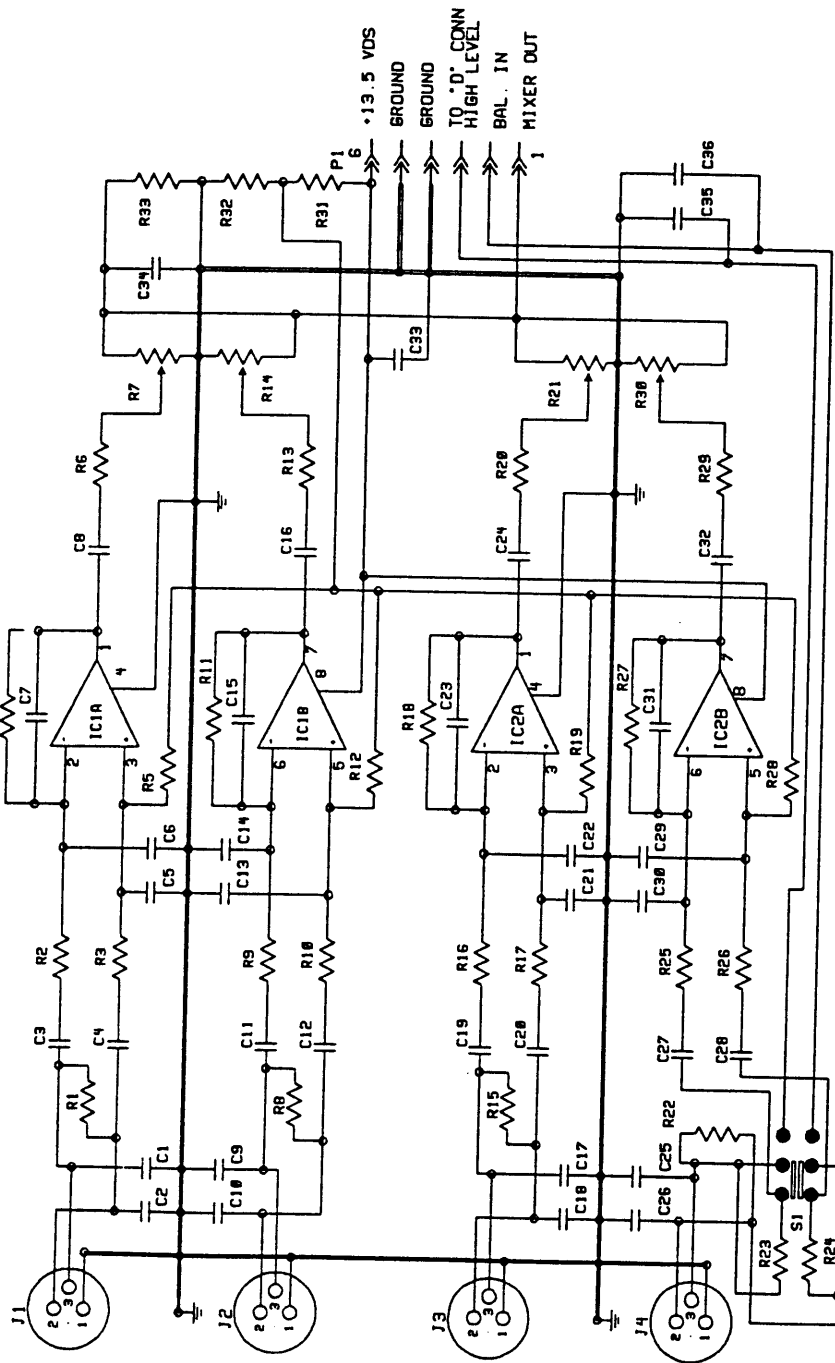
**TABLE 10. SRPT-40E/215 RF AMPLIFIER CIRCUIT BOARD - 800-170A2E**

| REF. DES. | DESCRIPTION                                            | PART NO.   | QTY. |
|-----------|--------------------------------------------------------|------------|------|
| C01, C02  | Capacitor, Variable, Trimmer 8-45 pF FW C4             | 260-300    | 2    |
| C03       | NOT USED                                               | -----      | -    |
| C04       | NOT USED                                               | -----      | -    |
| C05       | Capacitor, .1 mF 100V 10% Mylar                        | 217-103    | 1    |
| C06       | Capacitor, Electrolytic 22 uF 25V Mepco 307            | 219-200    | 1    |
| C07, C08  | Capacitor, Uncased Mica, 500 pF 33V 5% FWJ             | 236-501    | 2    |
| C09       | Capacitor, Electrolytic 22 uF 25V Mepco 307            | 219-200    | 1    |
| C10       | Capacitor, .1 mF 100V 10% Mylar                        | 217-103    | 1    |
| C11       | Capacitor, Variable, Trimmer 8-45 pF FW C4             | 260-300    | 1    |
| C12       | NOT USED                                               | -----      | -    |
| C13       | NOT USED                                               | -----      | -    |
| C14       | NOT USED                                               | -----      | -    |
| C15       | Capacitor, Uncased Mica, 22 pF 33V 5% FWJ1             | 240-220    | 1    |
| C16       | Capacitor, Variable, Trimmer 8-45 pF FW C4             | 260-300    | 1    |
| C17a      | Capacitor, Variable, Trimmer 12-65 pF FW A             | 240-600    | 1    |
| C17b      | Capacitor, Uncased Mica, 22 pF 33V 5% FWJ1             | 240-220    | 1    |
| C18, C19  | Capacitor, Variable, Trimmer 25-115 pF FW              | 240-602    | 1    |
| C20       | Capacitor, Uncased Mica, 33 pF 33V 5% FWJ1             | 240-330    | 1    |
| L01       | PC BOARD                                               | -----      | -    |
| L02       | NOT USED                                               | -----      | -    |
| L03       | PC BOARD                                               | -----      | -    |
| L04       | Inductor, 8 Turn 22 AWG (CCW)                          | -----      | -    |
| L05       | Inductor, 15 uH Coilcraft 90-27                        | 350-117    | 1    |
| L06       | Inductor, 8 Turn 22 AWG (CCW)                          | 330-012    | 1    |
| L07       | PC BOARD                                               | 350-117    | 1    |
| L08       | Inductor, Fair-Rite #2961666671                        | -----      | 1    |
| L09       | PC BOARD                                               | 330-019    | 1    |
| L10       | NOT USED                                               | -----      | -    |
| L11       | PC BOARD                                               | -----      | -    |
| L12       | Inductor, 8 Turn 22 AWG (CCW)                          | -----      | -    |
| L13       | Inductor, 15 uH Coilcraft 90-27                        | 350-117    | 1    |
| L14       | Inductor, 8 turn 22 AWG (CCW)                          | 330-012    | 1    |
| L15       | PC BOARD                                               | 350-117    | 1    |
| L16       | NOT USED                                               | -----      | -    |
| L17       | NOT USED                                               | -----      | -    |
| PCB       | PC Board, Power Amplifier RPT-15 STL-10/15             | -----      | -    |
| Q1        | Transistor, Philips BLW81                              | 800-170-2B | 1    |
| Q2        | Transistor, Philips BLV45/12                           | 441-433    | 1    |
| R01, R02  | Resistor, 47 Ohm 1/4 Watt 5% Carbon Comp 3             | 444-512    | 1    |
| R03       | NOT USED                                               | 145-470-C  | 2    |
| R04       | Resistor, 10 Ohm 1/4 Watt 5% Carbon Comp 3             | -----      | -    |
| R05       | NOT USED                                               | 145-100-C  | 1    |
| ----      | Thermistor, Fenwal 142-102-FAG-RB1 1000 Ohm @ 25C 10%  | -----      | -    |
| ----      | Screw, 4-40 x 1/2" Phillips Pan Head M/S Nickel Plated | 120-002    | 1    |
| ----      | Screw, 6-32 x 5/8" Phillips Pan Head M/S Nickel Plated | 500-011    | 2    |
| ----      | Pop-Rivet, USM SD-42BS                                 | 500-025    | 4    |
| ----      | Keps Nut 4 x 40 Zinc 4CNKEOZ                           | 500-105-1  | 1    |
| ----      | Brackets, #6 Keystone 634                              | 500-199    | 2    |
| ----      | Solder Lug, #6 Short Concord 707-1206                  | 510-210    | 4    |
| ----      | Spacer, 6-32 x 11/16 Hex Threaded Concord              | 512-010    | 4    |
| ----      | Heatsink, Drilled SRPT-40E Amp.                        | 513-043    | 1    |
| ----      | Coax RG-188A/U Teflon 95% Shield                       | 520-050DE  | 1    |
| ----      | Fingerstock, Angle Contact Strip                       | 580-033-1  | 1    |
| ----      | Terminal, Vinyl Insulated C10                          | 700-260    | 1    |
|           |                                                        | 512-002    | 1    |

**TABLE 11. SRPT-40E/150 RF AMPLIFIER CIRCUIT BOARD - 800-170A1E**

| REF. DES. | DESCRIPTION                                            | PART NO.   | QTY. |
|-----------|--------------------------------------------------------|------------|------|
| C01       | Capacitor, Variable, Trimmer 25-115 pF FW              | 240-602    | 1    |
| C02       | Capacitor, Variable, Trimmer 12-65 pF FW A             | 240-600    | 1    |
| C03       | NOT USED                                               |            |      |
| C04       | NOT USED                                               |            |      |
| C05       | Capacitor, .1 mF 100V 10% Mylar                        | 217-103    | 1    |
| C06       | Capacitor, Electrolytic 22 uF 25V Mepco 307            | 219-200    | 1    |
| C07, C08  | Capacitor, Uncased Mica, 500 pF 33V 5% FWJ             | 236-501    | 2    |
| C09       | Capacitor, Electrolytic 22 uF 25V Mepco 307            | 219-200    | 1    |
| C10       | Capacitor, .1 mF 100V 10% Mylar                        | 217-103    | 1    |
| C11       | Capacitor, Variable, Trimmer 25-115 pF FW              | 240-602    | 1    |
| C12       | NOT USED                                               |            |      |
| C13       | Capacitor, Uncased Mica, 200 pF 33V 5% FWJ             | 240-201    | 1    |
| C14       | Capacitor, Uncased Mica, 33 pF 33V 5% FWJ1             | 240-330    | 1    |
| C15       | NOT USED                                               |            |      |
| C16       | Capacitor, Variable, Stripline 1.9-15.7 pF             | 230-160    | 1    |
| C17       | NOT USED                                               |            |      |
| C18       | Capacitor, Variable, Stripline 1.9-15.7 pF             | 230-160    | 1    |
| C19       | Capacitor, Variable, Trimmer 12-65 pF FW A             | 240-600    | 1    |
| IC1       | NOT USED                                               |            |      |
| L01       | NOT USED                                               |            |      |
| L02       | NOT USED                                               |            |      |
| L03       | NOT USED                                               |            |      |
| L04       | Inductor, 8 Turn 22 AWG (CCW)                          | 350-117    | 1    |
| L05       | Inductor, 15 uH Coilcraft 90-27                        | 330-012    | 1    |
| L06       | Inductor, 8 Turn 22 AWG (CCW)                          | 350-117    | 1    |
| L07       | NOT USED                                               |            |      |
| L08       | Inductor, Fair-Rite #2961666671                        | 330-019    | 1    |
| L09       | NOT USED                                               |            |      |
| L10       | NOT USED                                               |            |      |
| L11       | NOT USED                                               |            |      |
| L12       | Inductor, 8 Turn 22 AWG (CCW)                          | 350-117P   | 1    |
| L13       | Inductor, 15 uH Coilcraft 90-27                        | 330-012    | 1    |
| L14       | Inductor, 8 Turn 22 AWG (CCW)                          | 350-117P   | 1    |
| L15       | NOT USED                                               |            |      |
| L16       | Inductor, 14 AWG Silver                                | 350-158    | 1    |
| Q1        | Transistor, Philips BLW29                              | 420-029    | 1    |
| Q2        | Transistor, Philips BLV45/12                           | 444-512    | 1    |
| R01, R02  | Resistor, 47 Ohm 1/4 Watt 5% Carbon Comp 3             | 145-470-C  | 2    |
| R03       | Resistor, 1 Ohm 1/4 Watt 5% Carbon Film 29             | 145-010    | 1    |
| R04       | Resistor, 10 Ohm 1/4 Watt 5% Carbon Comp 3             | 145-100-C  | 1    |
| R05       | Resistor, 180 Ohm 1/4 Watt 5% Metal Film M             | 145-181    | 1    |
| ----      | Thermistor, Fenwal 142-102-FAG-RB1 1000 OH             | 120-002    | 1    |
| ----      | Hex Nut, #6-32 Extra Small Pattern Nickel Plated       | 500-001    | 4    |
| ----      | Screw, 4-40 x 1/2" Phillips Pan Head M/S Nickel Plated | 500-011    | 2    |
| ----      | Screw, 6-32 x 5/8" Phillips Pan Head M/S Nickel Plated | 500-025    | 4    |
| ----      | Pop-Rivet, USM SD-42BS                                 | 500-105-1  | 4    |
| ----      | Keps Nut 4 x 40 Zinc 4CNKEOZ                           | 500-199    | 2    |
| ----      | Brackets, #6 Keystone 634                              | 510-210    | 4    |
| ----      | Terminal, Vinyl Insulated C10#10 stud #10-12 Wire      | 512-002    | 1    |
| ----      | Solder Lug, #6 Short Concord 707-1206                  | 512-010    | 4    |
| ----      | Spacer, 6-32 x 11/16 Hex Threaded Concord              | 513-043    | 4    |
| ----      | Heatsink, Drilled SRPT-40E Amp                         | 520-050DE  | 1    |
| ----      | White Coax Cable                                       | 580-033-1  | 2.5  |
| ----      | Fingerstock, Angle Contact Strip                       | 700-260    | 13   |
| ----      | PC Board, Power Amp. RPT-15 STL-10/15                  | 800-170-2B | 1    |

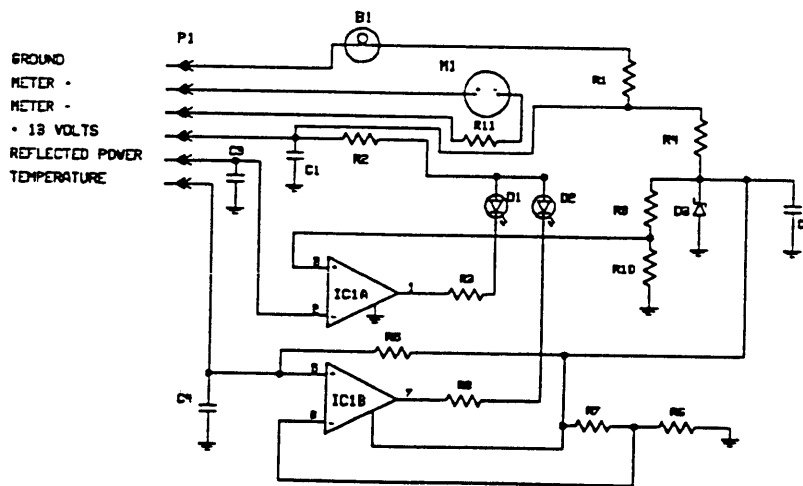
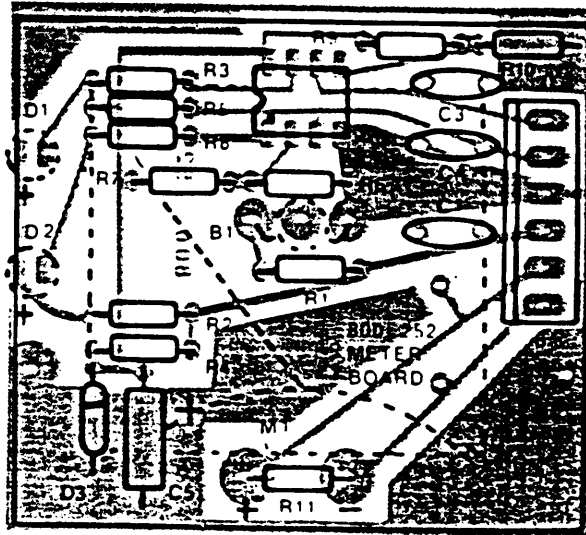




RPT-30 PRE-AMPLIFIER MIXER CIRCUIT BOARD 800-251A

**TABLE 12. RPT-30 PRE-AMPLIFIER MIXER CIRCUIT BOARD - 800-251A**

| REF. DES. | DESCRIPTION                                      | PART NO.    | QTY. |
|-----------|--------------------------------------------------|-------------|------|
| C01, C02  | Capacitor, Monolithic Chip, 1000 pF 50V 5%       | 270-102     | 2    |
| C03, C04  | Capacitor, Electrolytic 22 uF 25V Mepco 307      | 219-200     | 2    |
| C05, C06  | Capacitor, Monolithic Chip, 27 pF 50V 5% K       | 270-270     | 2    |
| C07       | Capacitor, 10 pF 5% NPO Disc Pace F6NPO1C1       | 255-100     | 2    |
| C08       | Capacitor, Electrolytic 22 uF 25V Mepco 307      | 219-200     | 1    |
| C09, C10  | Capacitor, Monolithic Chip, 1000 pF 50V 5%       | 270-102     | 2    |
| C11, C12  | Capacitor, Electrolytic 22 uF 25V Mepco 307      | 219-200     | 2    |
| C13, C14  | Capacitor, Monolithic Chip, 27 pF 50V 5% K       | 270-270     | 2    |
| C15       | Capacitor, 10 pF 5% NPO disc Pace F6NPO1C1       | 255-100     | 1    |
| C16       | Capacitor, Electrolytic 22 uF 25V Mepco 307      | 219-200     | 1    |
| C17, C18  | Capacitor, Monolithic Chip, 1000 pF 50V 5%       | 270-102     | 1    |
| C19, C20  | Capacitor, Electrolytic 22 uF 25V Mepco 307      | 219-200     | 2    |
| C21, C22  | Capacitor, Monolithic Chip, 27 pF 50V 5% K       | 270-270     | 2    |
| C23       | Capacitor, 10 pF 5% NPO Disc Pace F6NPO1C1       | 255-100     | 1    |
| C24       | Capacitor, Electrolytic 22 uF 25V Mepco 307      | 219-200     | 1    |
| C25, C26  | Capacitor, Monolithic Chip, 1000 pF 50V 5%       | 270-102     | 1    |
| C27, C28  | Capacitor, Electrolytic 22 uF 25V Mepco 307      | 219-200     | 2    |
| C29, C30  | Capacitor, Monolithic Chip, 27 pF 50V 5% K       | 270-270     | 2    |
| C31       | Capacitor, 10 pF 5% NPO Disc Pace F6NPO1C1       | 255-100     | 1    |
| C32, C33a | Capacitor, Electrolytic 22 uF 25V Mepco 307      | 219-200     | 2    |
| C33b, C34 | Capacitor, Monolithic Chip, 1000 pF 50V 5%       | 270-102     | 4    |
| thru C36  |                                                  |             |      |
| IC1, IC2  | Integrated Circuit, Philips NE5532AN             | 405-532     | 2    |
| J1 thru   | Connector, XLR Receptacle Insert                 | 550-155-1   | 4    |
| J4        |                                                  |             |      |
| PCB       | PC Board, Pre-Amp/Mixer RPT-30                   | 800-251B    | 1    |
| R01       | Resistor, 2.2 k Ohm 1/4 Watt 5% Metal Film       | 145-222     | 1    |
| R02, R03  | Resistor, 1.5 k Ohm 1/4 Watt 5% Metal Film M     | 145-152     | 2    |
| R04, R05  | Resistor, 100 k Ohm 1/4 Watt 2% RL07S104G        | 145-104-1   | 2    |
| R06       | Resistor, 15 k Ohm 1/4 Watt 5% Metal Film M      | 145-153     | 1    |
| R07       | Potentiometer, 25 k Ohm Linear Taper PC Mount    | 100-143     | 1    |
| R08       | Resistor, 2.2 k Ohm 1/4 Watt 5% Metal Film       | 145-222     | 1    |
| R09, R10  | Resistor, 1.5 k Ohm 1/4 Watt 5% Metal Film M     | 145-152     | 2    |
| R11, R12  | Resistor, 100 k Ohm 1/4 Watt 2% RL07S104G        | 145-104-1   | 2    |
| R13       | Resistor, 15 k Ohm 1/4 Watt 5% Metal Film Mount  | 145-153     | 1    |
| R14       | Potentiometer, 25 k Ohm Linear Taper PC Mount    | 100-143     | 1    |
| R15       | Resistor, 2.2 k Ohm 1/4 Watt 5% Metal Film       | 145-222     | 1    |
| R16, R17  | Resistor, 1.5 k Ohm 1/4 Watt 5% Metal Film Mount | 145-152     | 2    |
| R18, R19  | Resistor, 100 k Ohm 1/4 Watt 2% RL07S104G        | 145-104-1   | 2    |
| R20       | Resistor, 15 k Ohm 1/4 Watt 5% Metal Film Mount  | 145-153     | 1    |
| R21       | Potentiometer, 25 k Ohm Linear Taper PC Mount    | 100-143     | 1    |
| R22       | Resistor, 2.2 k Ohm 1/4 Watt 5% Metal Film       | 145-222     | 1    |
| R23, R24  | Resistor, 360 k Ohm 1/4 Watt 5% Carbon Film      | 145-364-1   | 2    |
| R25, R26  | Resistor, 1.5 k Ohm 1/4 Watt 5% Metal Film Mount | 145-152     | 2    |
| R27, R28  | Resistor, 100 k Ohm 1/4 Watt 2% RL07S104G        | 145-104-1   | 2    |
| R29       | Resistor, 15 k Ohm 1/4 Watt 5% Metal Film Mount  | 145-153     | 1    |
| R30       | Potentiometer, 25 k Ohm Linear Taper PC Mount    | 100-143     | 1    |
| R31, R32  | Resistor, 22 k Ohm 1/4 Watt 5% Metal Film Mount  | 145-223     | 2    |
| R33       | Resistor, 5.6 k Ohm 1/4 Watt 5% Metal Film       | 145-562     | 1    |
| S1        | Switch, Side Action Slide DPDT Ark-Les S-9       | 530-051     | 1    |
| ----      | Connector, 6-Pin Molex Angle Header              | 550-149     | 1    |
| ----      | Grounding Strap, RPT-30 Pre-Amp                  | 700-250-15P | 1    |

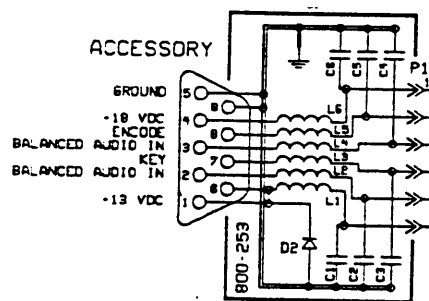


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RPT-30/STL-30 METER CIRCUIT BOARD - 800-252A

**TABLE 13. RPT-30/STL-30 METER CIRCUIT BOARD - 800-252A**

| REF. DES. | DESCRIPTION                                 | PART NO. | QTY. |
|-----------|---------------------------------------------|----------|------|
| B1        | Subminiature Lamp, Lumex IFL-LX2162-16T     | 510-196  | 1    |
| C1        | Capacitor, .01 mF 50V GMV Disc Pace F6Z5U1  | 217-104  | 1    |
| C2        | Capacitor, Electrolytic 22 uF 25V Radial NI | 219-220  | 1    |
| C3, C4    | Capacitor, .01 mF 50V GMV Disc Pace F6Z5U1  | 217-104  | 2    |
| D1, D2    | Diode, LED, TLBR-5410 (Blinking)            | 415-410  | 2    |
| D3        | Diode, Zener Motorola 1N4741A 11V 5%        | 410-110  | 1    |
| IC1       | Integrated Circuit, TI LM393P               | 400-293  | 1    |
| M1        | Meter, Model HS-10 VU                       | 030-039M | 1    |
| PCB       | PC Board, Meter RPT-30                      | 800-252B | 1    |
| R01       | Resistor, 30 Ohm 1/4 Watt 5% Metal Film Me  | 145-300  | 1    |
| R02       | Resistor, 10 Ohm 1/4 Watt 5% Metal Film Me  | 145-100  | 1    |
| R03       | Resistor, 180 Ohm 1/4 Watt 5% Metal Film M  | 145-181  | 1    |
| R04       | Resistor, 100 Ohm 1/4 Watt 5% Metal Film M  | 145-101  | 1    |
| R05       | Resistor, 1 k Ohm 1/4 Watt 5% Metal Film Me | 145-102  | 1    |
| R06       | Resistor, 2.2 k Ohm 1/4 Watt 5% Metal Film  | 145-222  | 1    |
| R07       | Resistor, 10 k Ohm 1/4 Watt 5% Metal Film M | 145-103  | 1    |
| R08       | Resistor, 180 Ohm 1/4 Watt 5% Metal Film M  | 145-181  | 1    |
| R09       | Resistor, 22 k Ohm 1/4 Watt 5% Metal Film M | 145-223  | 1    |
| R10       | Resistor, 1 k Ohm 1/4 Watt 5% Metal Film Me | 145-102  | 1    |
| R11       | Resistor, 560 Ohm 1/4 Watt 5% Metal Film M  | 145-561  | 1    |
| ----      | Screw, 4-40 x 1/4" Phillips Pan Head M/S N  | 500-004  | 1    |
| ----      | Terminal, Keystone 1238                     | 511-038  | 1    |
| ----      | Spacer, 4-40 x 13/16 Hex Threaded Concord   | 513-033  | 1    |
| ----      | Connector, 6-Pin Molex Header               | 550-136  | 1    |

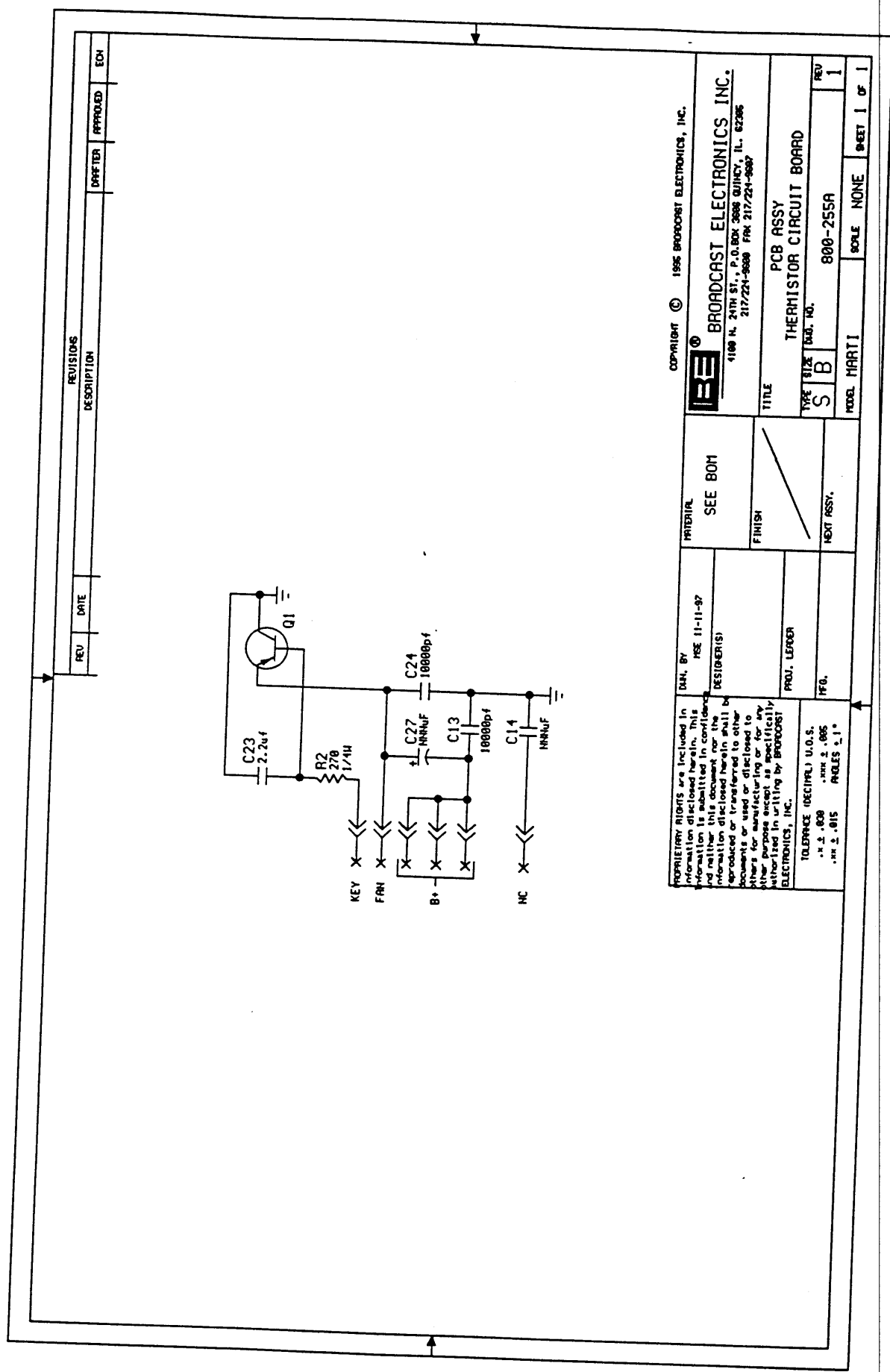


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RPT-30/STL-30 ACCESSORY CONNECTOR CIRCUIT BOARD - 800-253A

TABLE 14. RPT-30/STL-30 ACCESSORY CONNECTOR CIRCUIT BOARD - 800-253A

| REF. DES.     | DESCRIPTION                                | PART NO. | QTY. |
|---------------|--------------------------------------------|----------|------|
| C1 thru<br>C6 | Capacitor, Monolithic Chip, 1000 pF 50V 5% | 270-102  | 6    |
| D2            | Diode, Fagor 1N5402                        | 415-401  | 1    |
| L1            | Inductor, Fair-Rite #2961666671            | 330-019  | 1    |
| L2 thru<br>L5 | Inductor, 10 uH 1-43LQ105-1                | 330-018  | 4    |
| L6            | Inductor, Fair-Rite #2961666671            | 330-019  | 1    |
| PCB           | PC Board, Accessory Connector RPT-30       | 800-253B | 1    |
| ----          | Connector, D-Sub 9-Pin Angle Keltron DNR-0 | 550-154  | 1    |
| ----          | Connector, 6-Pin Molex Angle Header        | 550-149  | 1    |



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TITLE PCB ASSY  
 THERMISTOR CIRCUIT BOARD  
 TYPE SIZE Dwg. NO. 800-255A  
 MODEL PART I SCALE NONE SHEET 1 OF 1

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DATE BY HSE 11-11-87

DESIGNER(S)

PROJ. LEADER

FINISH

SEE BOM

NEXT ASSY.

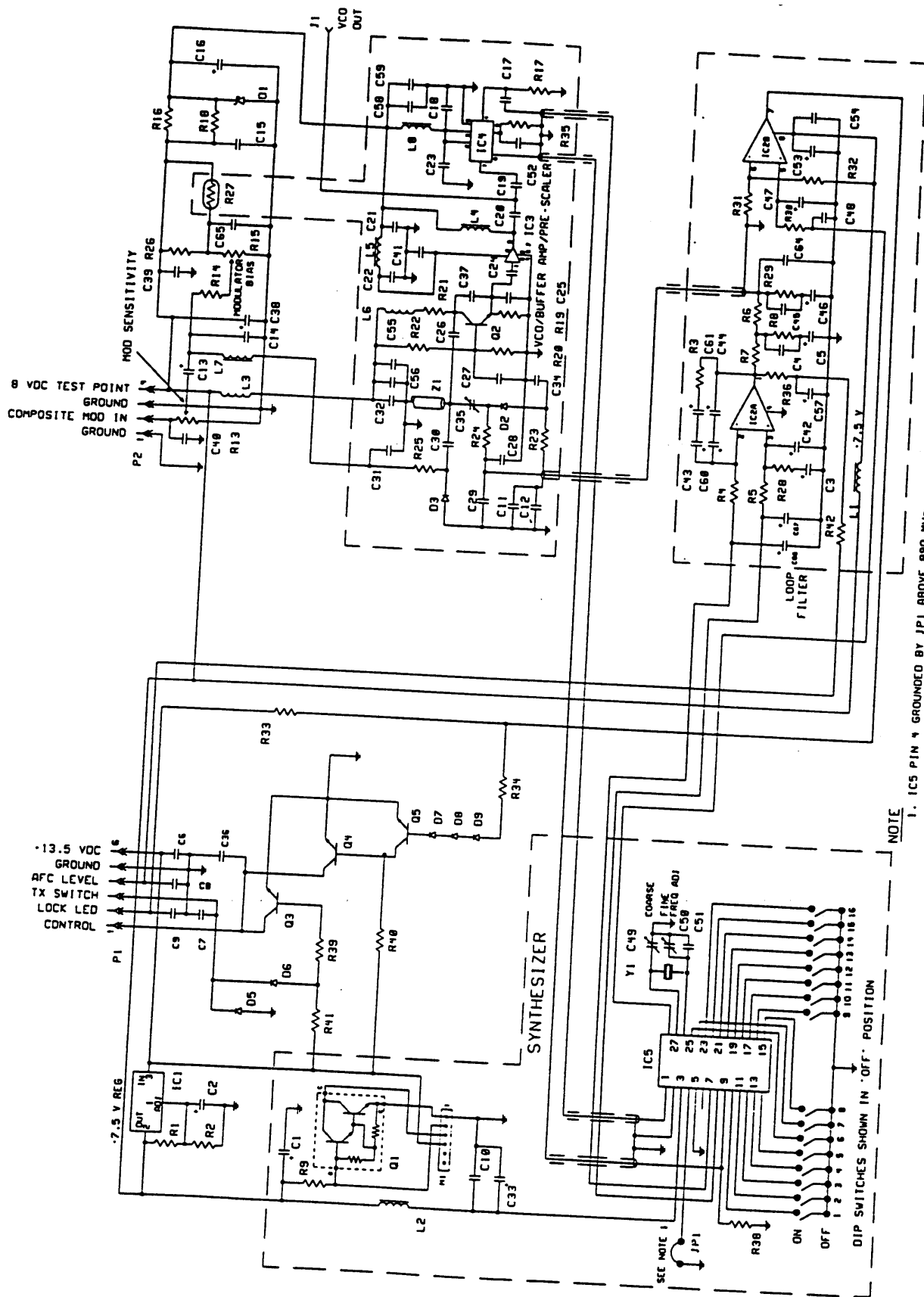
IFG.

TOLERANCE DECIMAL U.O.S.  
 .X ± .000  
 .X ± .005  
 .X ± .015

**TABLE 15. RPT-30/STL-30 THERMISTOR CIRCUIT BOARD - 800-255A**

| REF. DES. | DESCRIPTION                                   | PART NO. | QTY. |
|-----------|-----------------------------------------------|----------|------|
| C13, C14  | Capacitor, Monolithic Chip 10000 pF 10% XR7 K | 270-103  | 2    |
| C23       | Capacitor, Tantalum, 2.2 mF 25V ECS-F1EE22    | 299-220  | 1    |
| C27       | Capacitor, Electrolytic 220 uF 25V Radial N   | 219-221  | 1    |
| PCB       | PC Board, Thermistor RPT-30                   | 800-255B | 1    |
| Q01       | Transistor, Motorola 2N2907A                  | 422-907  | 1    |
| R02       | Resistor, 270 Ohm 1/4 Watt 5% Metal Film M    | 145-271  | 1    |
| ----      | Connector, 6-Pin Molex Header                 | 550-136  | 1    |





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SRPT-40E/450 FREQUENCY SYNTHESIZER CIRCUIT BOARD - 800-287A4ET  
 SRPT-40E/300 FREQUENCY SYNTHESIZER CIRCUIT BOARD - 800-305A3ET  
 SRPT-40E/215 FREQUENCY SYNTHESIZER CIRCUIT BOARD - 800-305A2ET  
 SRPT-40E/150 FREQUENCY SYNTHESIZER CIRCUIT BOARD - 800-305A1ET

**TABLE 16. SRPT-40E/450 FREQUENCY SYNTHESIZER CIRCUIT BOARD - 800-287A4ET**  
(Sheet 1 of 3)

| REF. DES.    | DESCRIPTION                                   | PART NO. | QTY. |
|--------------|-----------------------------------------------|----------|------|
| C01          | Capacitor, Electrolytic 22 uF 25V Radial NI   | 219-220  | 1    |
| C02          | Capacitor, Tantalum, 4.7 mF 16V ECS-F1CE47    | 299-470  | 1    |
| C03          | Capacitor, Tantalum, 15 mF 25V ECS-F1EE156    | 299-151  | 1    |
| C04          | Capacitor, .1 mF 100V 10% Mylar               | 217-103  | 1    |
| C05          | Capacitor, Tantalum, 15 mF 25V ECS-F1EE156    | 299-151  | 1    |
| C06 thru C12 | Capacitor, Monolithic Chip, 1000 pF 50V 5%    | 270-102  | 7    |
| C13          | Capacitor, Electrolytic 1000 uF 16V Radial    | 219-102  | 1    |
| C14          | Capacitor, Monolithic Chip, 22 pF 50V 5% K    | 270-220  | 1    |
| C15          | Capacitor, Monolithic Chip, 1000 pF 50V 5%    | 270-102  | 1    |
| C16          | Capacitor, Electrolytic 10 uF 25V Radial N    | 219-100  | 1    |
| C17, C18     | Capacitor, Monolithic Chip, 1000 pF 50V 5%    | 270-102  | 2    |
| C19          | Capacitor, Monolithic Chip 4.7 pF 50V 5% KE   | 270-407  | 1    |
| C20 thru C23 | Capacitor, Monolithic Chip, 1000 pF 50V 5%    | 270-102  | 4    |
| C24, C25     | Capacitor, Monolithic Chip 4.7 pF 50V 5% KE   | 270-407  | 2    |
| C26          | Capacitor, Monolithic Chip, 10 pF 50V 5% K    | 270-100  | 1    |
| C27          | Capacitor, Monolithic Chip, 100 pF 50V 5%     | 270-101  | 1    |
| C28          | Capacitor, Monolithic Chip, 22 pF 50V 5% K    | 270-220  | 1    |
| C29          | Capacitor, Monolithic Chip, 1000 pF 50V 5%    | 270-102  | 1    |
| C30          | Capacitor, Monolithic Chip, 2.2 pF 50V 5% K   | 270-202  | 1    |
| C31          | Capacitor, Monolithic Chip, 22 pF 50V 5% K    | 270-220  | 1    |
| C32          | Capacitor, Monolithic Chip, 1000 pF 50V 5%    | 270-102  | 1    |
| C33          | Capacitor, Electrolytic 47 uF 16V Radial ME   | 219-470  | 1    |
| C34          | Capacitor, Monolithic Chip, 1000 pF 50V 5%    | 270-102  | 1    |
| C35          | Capacitor, Variable .6 - 4.5 pF Sprague-Goo   | 290-527  | 1    |
| C36          | Capacitor, Monolithic Chip, 1000 pF 50V 5%    | 270-102  | 1    |
| C37          | Capacitor, Monolithic Chip, 22 pF 50V 5% K    | 270-220  | 1    |
| C38          | Capacitor, Electrolytic 22 uF 25V Radial NI   | 219-220  | 1    |
| C39          | Capacitor, Monolithic Chip, 1000 pF 50V 5%    | 270-102  | 1    |
| C40          | Capacitor, Monolithic Chip, 22 pF 50v 5% K    | 270-220  | 1    |
| C41          | Capacitor, Monolithic Chip, 1000 pF 50V 5%    | 270-102  | 1    |
| C42          | Capacitor, Tantalum, 2.2 mF 25V ECS-F1EE22    | 299-220  | 1    |
| C43          | Capacitor, Tantalum 33 uF 16V ECS-F1CE336K    | 299-330  | 1    |
| C44          | Capacitor, Tantalum, 4.7 mF 16V ECS-F1CE47    | 299-470  | 1    |
| C45          | Capacitor, .1 mF 100V 10% Mylar               | 217-103  | 1    |
| C46          | Capacitor, Tantalum, 15 mF 25V ECS-F1EE156    | 299-151  | 1    |
| C47          | Capacitor, Tantalum, 2.2 mF 25V ECS-F1EE22    | 299-220  | 1    |
| C48          | Capacitor, .1 mF 100V 10% Mylar               | 217-103  | 1    |
| C49, C50     | Capacitor, Variable, 3.5-36 pF Sprague-Goo    | 290-523  | 1    |
| C51          | Capacitor, 100 pF N750 5% Disc .25 Lead Spa   | 256-101  | 1    |
| C52          | Capacitor, Monolithic Chip, 1000 pF 50V 5%    | 270-102  | 1    |
| C53          | Capacitor, Electrolytic 22 uF 25V Radial NI   | 219-220  | 1    |
| C54 thru C56 | Capacitor, Monolithic Chip, 1000 pF 50V 5%    | 270-102  | 3    |
| C57          | Capacitor, Electrolytic 22 uF 25V Radial NI   | 219-220  | 1    |
| C58          | Capacitor, Monolithic Chip, 1000 pF 50V 5%    | 270-102  | 1    |
| C59          | Capacitor, Monolithic Chip 10000 pF 10% XR7 K | 270-103  | 1    |
| C60          | Capacitor, Tantalum, 4.7 mF 16V ECS-F1CE47    | 299-470  | 1    |
| C61          | Capacitor, Tantalum 33 uF 16V ECS-F1CE336K    | 299-330  | 1    |
| C62 thru C65 | Capacitor, Monolithic Chip, 1000 pF 50V 5%    | 270-102  | 4    |
| C66          | Capacitor, Tantalum, 15 mF 25V ECS-F1EE156    | 299-151  | 1    |
| C67          | Capacitor, Tantalum, 2.2 mF 25V ECS-F1EE22    | 299-220  | 1    |
| C68 thru C70 | Capacitor, Monolithic Chip 4.7 pF 50V 5% KE   | 270-407  | 3    |

**TABLE 16. SRPT-40E/450 FREQUENCY SYNTHESIZER CIRCUIT BOARD - 800-287A4ET**  
(Sheet 2 of 3)

| REF. DES. | DESCRIPTION                                  | PART NO.    | QTY. |
|-----------|----------------------------------------------|-------------|------|
| D01       | Diode, Zener 1N4734A 5.6V                    |             |      |
| D02, D03  | Diode, Alpha SMV1204-99 Hyper-Abrupt Tunin   | 414-734     | 1    |
| D04       | NOT USED                                     | 410-105     | 2    |
| D05       | Diode, General Instruments 1N4007            | -----       | -    |
| D06       | Diode, Schottky Motorola 1N5818              | 414-007     | 1    |
| D07 thru  | Diode, 1N4148 Philips                        | 415-818     | 1    |
| D09       |                                              | 410-914     | 3    |
| IC1       | Heatsink With LM317T                         |             |      |
| IC2       | Integrated Circuit, OP-Amp Analog OP275GP    | 520-051A317 | 1    |
| IC3       | Integrated Circuit, NEC UPC 1678G (MMIC)     | 400-275     | 1    |
| IC4       | Integrated Circuit, Motorola MC12022AD       | 401-678     | 1    |
| IC5       | Integrated Circuit, Motorola MC145152-P2     | 400-501     | 1    |
| JP1       | Connector, 1 Dual Pin Header                 | 400-145     | 1    |
| L01 thru  | Inductor, 15 uH Coilcraft 90-27              | 550-184     | 1    |
| L03       |                                              | 330-012     | 1    |
| L04       | Inductor, 10 Turn .15 uH #90-03              |             | 3    |
| L05       | Inductor, 15 uH Coilcraft 90-27              | 350-121     | 1    |
| L06       | Inductor, .33 uH Coilcraft 70-07             | 330-012     | 1    |
| L07, L08  | Inductor, 15 uH Coilcraft 90-27              | 330-020     | 1    |
| M1        | R-15C Synthesizer Oven                       | 330-012     | 1    |
| Q1        | part of M1                                   | 520-052AC   | 1    |
| Q2        | Transistor, NE68833                          | -----       | -    |
| Q3 thru   | Transistor, Motorola 2N3904                  | 420-901     | 1    |
| Q5        |                                              | 425-301     | 1    |
| R01       | Resistor, 240 Ohm 1/4 Watt 2% RL07S241G DA   |             |      |
| R02       | Resistor, 1.2 k Ohm 1/4 Watt 2% RLO7S122G    | 145-241-1   | 1    |
| R03       | Resistor, 10 k Ohm 1/4 Watt 5% Metal Film M  | 145-122-1   | 1    |
| R04, R05  | Resistor, 100 k Ohm 1/4 Watt 5% Metal Film   | 145-103     | 1    |
| R06       | Resistor, 2.7 k Ohm 1/4 Watt 2% RL07S272G    | 145-104     | 2    |
| R07, R08  | Resistor, 1 k Ohm 1/4 Watt 5% Metal Film Me  | 145-272-1   | 1    |
| R09       | Resistor, 4.7 k Ohm 1/4 Watt 5% Metal Film   | 145-102     | 1    |
| R10       | NOT USED                                     | 145-472     | 1    |
| R11       | NOT USED                                     | -----       | -    |
| R12       | NOT USED                                     | -----       | -    |
| R13       | Potentiometer, 5 k Ohm Cermet Bourns 3309P-  | -----       | -    |
| R14       | Resistor, 10 k Ohm 1/4 Watt 5% Metal Film M  | 101-502     | 1    |
| R15       | Potentiometer, 5 k Ohm Cermet Bourns 3309P-  | 145-103     | 1    |
| R16       | Resistor, 30 Ohm 1/4 Watt 5% Metal Film Me   | 101-502     | 1    |
| R17       | Resistor, #263-1 k Ohm 1/8 Watt 5% Chip      | 145-300     | 1    |
| R18       | Resistor, 30 Ohm 1/4 Watt 5% Metal Film Me   | 185-102     | 1    |
| R19       | Resistor, #263-100 Ohm 1/8 Watt 5% Chip      | 145-300     | 1    |
| R20       | Resistor, #263-2.7 k Ohm 1/8 Watt 5% Chip    | 185-101     | 1    |
| R21       | Resistor, #263-100 Ohm 1/8 Watt 5% Chip      | 185-272     | 1    |
| R22, R23  | Resistor, #263-8.2 k Ohm 1/8 Watt 5% Chip    | 185-101     | 1    |
| R24       | Resistor, 10 k Ohm 1/8 Watt 5% Chip AVX#CR3  | 185-822     | 2    |
| R25       | Resistor, #263-8.2 k Ohm 1/8 Watt 5% Chip    | 185-103     | 1    |
| R26       | Resistor, 1.5 k Ohm 1/4 Watt 5% Metal Film M | 185-822     | 1    |
| R27       | Thermistor, Fenwal 142-102-FAG-RB1 1000 OH   | 145-152     | 1    |
| R28       | Resistor, 10 k Ohm 1/4 Watt 5% Metal Film M  | 120-002     | 1    |
| R29       | Resistor, 4.7 k Ohm 1/4 Watt 5% Metal Film   | 145-103     | 1    |
| R30       | Resistor, 47 k Ohm 1/4 Watt 5% Metal Film M  | 145-472     | 1    |
| R31       | Resistor, 39 k Ohm 1/4 Watt 5% Carbon Film   | 145-473     | 1    |
| R32       | Resistor, 27 k Ohm 1/4 Watt 5% Carbon Film   | 145-393     | 1    |
| R33       | Resistor, 330 Ohm 1/4 Watt 5% Metal Film M   | 145-273     | 1    |
| R34       | Resistor, 4.7 k Ohm 1/4 Watt 5% Metal Film   | 145-331     | 1    |
| R35       | Resistor, #263-100 k Ohm 1/8 Watt 5% Chip    | 145-472     | 1    |
|           |                                              | 185-104     | 1    |

**TABLE 16. SRPT-40E/450 FREQUENCY SYNTHESIZER CIRCUIT BOARD - 800-287A4ET**  
(Sheet 3 of 3)

| REF. DES. | DESCRIPTION                                  | PART NO.  | QTY. |
|-----------|----------------------------------------------|-----------|------|
| R36       | Resistor, 27 k Ohm 1/4 Watt 5% Carbon Film   | 145-273   | 1    |
| R37       | NOT USED                                     | -----     | -    |
| R38       | Resistor, 330 Ohm 1/4 Watt 5% Metal Film M   | 145-331   | 1    |
| R39       | Resistor, 10 k Ohm 1/4 Watt 5% Metal Film M  | 145-103   | 1    |
| R40       | Resistor, 4.7 k Ohm 1/4 Watt 5% Metal Film   | 145-472   | 1    |
| R41       | Resistor, 10 k Ohm 1/4 Watt 5% Metal Film M  | 145-103   | 1    |
| R42       | Resistor, 36 k Ohm 1/4 Watt 2% RL07S363G     | 145-363-1 | 1    |
| S1, S2    | Connector, 8-Pin Socket Molex 90147-1108     | 550-210   | 1    |
| Y1        | Crystal, 12.8 MHz, Fundamental AT cut, HC-   | 011-280   | 1    |
| Z1        | Ceramic Filter, SR9000SPQ0514BY .620" lon    | 360-040   | 1    |
| ----      | Eyelet, GS-612 Brass                         | 500-190   | 1    |
| ----      | Connector, 6-Pin Molex Header                | 550-136   | 1    |
| ----      | Connector, 4-Pin Molex Header                | 550-165   | 1    |
| ----      | Crystal Socket, CS-109-07                    | 520-040   | 1    |
| ----      | IC Socket, 8-Pin Keltron ICS-08-3-T          | 550-070   | 1    |
| ----      | Coax #421-099 High Shield RG-188             | 580-033   | 1    |
| ----      | Wire, UL1429 22/7 OS-1 Red                   | 580-043   | 1    |
| ----      | Formed Cover, #50-CBS 2" x 2" Less Standof   | 700-262   | 1    |
| ----      | Formed Cover, #50-CBS 2" x 2" With Hole Less | 700-263   | 1    |
| ----      | Fence For 700-262 & 700-263 52-CBS 8" Fence  | 700-264   | 1    |
| ----      | PC Board, STL-15C Frequency Synthesizer      | 800-287B  | 1    |
| ----      | IC Socket, 28-Pin DIP 151-9028               | 550-190   | 1    |
| ----      | Connector, KSM S.FL2-R-SMT Surface Mount     | 550-193   | 1    |
| ----      | Screw, #4 x 1/4" Phillips Pan Head SM Type   | 500-077   | 1    |

**TABLE 17. SRPT-40E/300 FREQUENCY SYNTHESIZER CIRCUIT BOARD - 800-305A3ET**

| REF. DES.     | DESCRIPTION | PART NO. | QTY. |
|---------------|-------------|----------|------|
| NOT AVAILABLE |             |          |      |

**TABLE 18. SRPT-40E/215 FREQUENCY SYNTHESIZER CIRCUIT BOARD - 800-305A2ET**  
(Sheet 1 of 4)

| REF. DES.    | DESCRIPTION                                 | PART NO. | QTY. |
|--------------|---------------------------------------------|----------|------|
| C01          | Capacitor, Electrolytic 22 uF 25V Radial NI | 219-220  | 1    |
| C02          | Capacitor, Tantalum, 4.7 mF 16V ECS-F1CE47  | 299-470  | 1    |
| C03          | Capacitor, Tantalum, 15 mF 25V ECS-F1EE156  | 299-151  | 1    |
| C04, C05     | Capacitor, .1 mF 100V 10% Mylar             | 217-103  | 1    |
| C06 thru C12 | Capacitor, Monolithic Chip, 1000 pF 50V 5%  | 270-102  | 7    |
| C13          | Capacitor, Electrolytic 1000 uF 16V Radial  | 219-102  | 1    |
| C14          | Capacitor, Monolithic Chip, 22 pF 50V 5% K  | 270-220  | 1    |
| C15          | Capacitor, Monolithic Chip, 1000 pF 50V 5%  | 270-102  | 1    |
| C16          | Capacitor, Electrolytic 10 uF 25V Radial N  | 219-100  | 1    |
| C17, C18     | Capacitor, Monolithic Chip, 1000 pF 50V 5%  | 270-102  | 2    |
| C19          | Capacitor, Monolithic Chip, 1 pF 50V 5% Kem | 270-010  | 1    |
| C20 thru C23 | Capacitor, Monolithic Chip, 1000 pF 50V 5%  | 270-102  | 4    |
| C24          | Capacitor, Monolithic Chip, 10 pF 50V 5% K  | 270-100  | 1    |

**TABLE 18. SRPT-40E/215 FREQUENCY SYNTHESIZER CIRCUIT BOARD - 800-305A2ET**  
(Sheet 2 of 4)

| REF. DES. | DESCRIPTION                                   | PART NO.    | QTY. |
|-----------|-----------------------------------------------|-------------|------|
| C25       | Capacitor, Monolithic Chip, 22 pF 50V 5% K    |             |      |
| C26, C27  | Capacitor, Monolithic Chip, 1000 pF 50V 5%    | 270-220     | 1    |
| C28       | Capacitor, Monolithic Chip, 22 pF 50V 5% K    | 270-102     | 2    |
| C29       | Capacitor, Monolithic Chip, 1000 pF 50V 5%    | 270-220     | 1    |
| C30       | Capacitor, Monolithic Chip, 2.2 pF 50V 5% K   | 270-102     | 1    |
| C31       | Capacitor, Monolithic Chip, 22 pF 50V 5% K    | 270-202     | 1    |
| C32       | Capacitor, Monolithic Chip, 1000 pF 50V 5%    | 270-220     | 1    |
| C33       | Capacitor, Electrolytic 47 uF 16V Radial ME   | 270-102     | 1    |
| C34       | Capacitor, Monolithic Chip, 1000 pF 50V 5%    | 219-470     | 1    |
| C35       | Capacitor, Variable .8 - 8 pF Sprague-Goodm   | 270-102     | 1    |
| C36       | Capacitor, Monolithic Chip, 1000 pF 50V 5%    | 290-528     | 1    |
| C37       | Capacitor, Monolithic Chip 4.7 pF 50V 5% KE   | 270-102     | 1    |
| C38       | Capacitor, Electrolytic 22 uF 25V Radial NI   | 270-407     | 1    |
| C39       | Capacitor, Monolithic Chip, 1000 pF 50V 5%    | 219-220     | 1    |
| C40       | Capacitor, Monolithic Chip, 22 pF 50V 5% K    | 270-102     | 1    |
| C41       | Capacitor, Monolithic Chip, 1000 pF 50V 5%    | 270-220     | 1    |
| C42       | Capacitor, Tantalum, 2.2 mF 25V ECS-F1EE22    | 270-102     | 1    |
| C43       | Capacitor, Tantalum 33 uF 16V ECS-F1CE336K    | 299-220     | 1    |
| C44       | Capacitor, Tantalum, 4.7 mF 16V ECS-F1CE47    | 299-330     | 1    |
| C45, C46  | Capacitor, .1 mF 100V 10% Mylar               | 299-470     | 1    |
| C47       | Capacitor, Tantalum, 2.2 mF 25V ECS-F1EE22    | 217-103     | 1    |
| C48       | Capacitor, .1 mF 100V 10% Mylar               | 299-220     | 1    |
| C49, C50  | Capacitor, Variable, 3.5-36 pF Sprague-Goo    | 217-103     | 1    |
| C51       | Capacitor, 100 pF N750 5% Disc .25 Lead Spa   | 290-523     | 2    |
| C52       | Capacitor, Monolithic Chip, 1000 pF 50V 5%    | 256-101     | 1    |
| C53       | Capacitor, Electrolytic 22 uF 25V Radial NI   | 270-102     | 1    |
| C54, C55  | Capacitor, Monolithic Chip, 1000 pF 50V 5%    | 219-220     | 1    |
| C56       | Capacitor, Monolithic Chip 10000 pF 10% XR7 K | 270-102     | 1    |
| C57       | NOT USED                                      | 270-103     | 1    |
| C58       | Capacitor, Monolithic Chip, 1000 pF 50V 5%    | -----       | -    |
| C59       | Capacitor, Monolithic Chip 10000 pF 10% XR7 K | 270-102     | 1    |
| C60       | Capacitor, Tantalum, 4.7 mF 16V ECS-F1CE47    | 270-103     | 1    |
| C61       | Capacitor, Tantalum 33 uF 16V ECS-F1CE336K    | 299-470     | 1    |
| C62, C63  | Capacitor, Monolithic Chip, 1000 pF 50V 5%    | 299-330     | 1    |
| C64       | NOT USED                                      | 270-102     | 1    |
| C65       | Capacitor, Monolithic Chip, 1000 pF 50V 5%    | -----       | -    |
| C66       | Capacitor, Electrolytic 470 uF 16V Radial 1"  | 270-102     | 1    |
| C67, C68  | Capacitor, Tantalum, 4.7 mF 16V ECS-F1CE47    | 219-471     | 1    |
| D1        | Diode, Zener 1N4734A 5.6V                     | 299-470     | 2    |
| D2        | Diode, Alpha SMV1204-99 Hyper-Abrupt Tunin    | 414-734     | 1    |
| D3        | Not Applicable                                | 410-105     | 1    |
| D4        | NOT USED                                      | 410-102     | 1    |
| D5        | Diode, General Instruments 1N4007             | -----       | -    |
| D6        | Diode, Schottky Motorola 1N5818               | 414-007     | 1    |
| D7 thru   | Diode, 1N4148 Philips                         | 415-818     | 1    |
| D9        |                                               | 410-914     | 3    |
| IC1       | Heatsink With LM317T                          |             |      |
| IC2       | Integrated Circuit, OP-Amp Analog OP275GP     | 520-051A317 | 1    |
| IC3       | Integrated Circuit, NEC UPC 1678G (MMIC)      | 400-275     | 1    |
| IC4       | Integrated Circuit, Motorola MC12022AD        | 401-678     | 1    |
| IC5       | Integrated Circuit, Motorola MC145152-P2      | 400-501     | 1    |
| JP1       | Connector, 1 Dual Pin Header                  | 400-145     | 1    |
| L1 thru   | Inductor, 15 uH Coilcraft 90-27               | 550-184     | 1    |
| L3        |                                               | 330-012     | 1    |
| L4        | Inductor, 3.3 uH Coilcraft 70-19              |             |      |
| L5        | Inductor, 15 uH Coilcraft 90-27               | 330-021     | 1    |
|           |                                               | 330-012     | 1    |

**TABLE 18. SRPT-40E/215 FREQUENCY SYNTHESIZER CIRCUIT BOARD - 800-305A2ET**  
(Sheet 3 of 4)

| REF. DES.    | DESCRIPTION                                              | PART NO.  | QTY. |
|--------------|----------------------------------------------------------|-----------|------|
| L6           | Inductor, 3.3 uH Coilcraft 70-19                         | 330-021   | 1    |
| L7, L8       | Inductor, 15 uH Coilcraft 90-27                          | 330-012   | 1    |
| M1           | R-15C Synthesizer Oven                                   | 520-052AC | 1    |
| PCB          | PC Board, STL-15C/215 Freq. Synthesizer                  | 800-305B  | 1    |
| Q1           | Part of M1                                               | N/A       | -    |
| Q2           | Transistor, Siliconix SST-310                            | 421-310   | 1    |
| Q3 thru Q5   | Transistor, Motorola 2N3904                              | 425-301   | 3    |
| R01          | Resistor, 240 Ohm 1/4 Watt 2% RL07S241G DA               | 145-241-1 | 1    |
| R02          | Resistor, 1.2 k Ohm 1/4 Watt 2% RL07S122G                | 145-122-1 | 1    |
| R03 thru R05 | Resistor, 10k Ohm 1/4 Watt 5% Metal Film M               | 145-103   | 3    |
| R06          | Resistor, 2.7 k Ohm 1/4 Watt 2% RL07S272G                | 145-272-1 | 1    |
| R07          | Resistor, 1 k Ohm 1/4 Watt 5% Metal Film Me              | 145-102   | 1    |
| R08          | Resistor, 1 Ohm 1/4 Watt 5% Carbon Film 29AB250-1        | 145-010   | 1    |
| R09          | Resistor, 4.7 k Ohm 1/4 Watt 5% Metal Film               | 145-472   | 1    |
| R10          | NOT USED                                                 | -----     | -    |
| R11          | NOT USED                                                 | -----     | -    |
| R12          | NOT USED                                                 | -----     | -    |
| R13          | Potentiometer, 5 k Ohm Cermet Bourns 3309P-              | 101-502   | 1    |
| R14          | Resistor, 10 k Ohm 1/4 Watt 5% Metal Film M              | 145-103   | 1    |
| R15          | Potentiometer, 5 k Ohm Cermet Bourns 3309P-              | 101-502   | 1    |
| R16          | Resistor, 30 Ohm 1/4 Watt 5% Metal Film Me               | 145-300   | 1    |
| R17          | Resistor, #263-1k Ohm 1/8 Watt 5% Chip                   | 185-102   | 1    |
| R18          | Resistor, 30 Ohm 1/4 Watt 5% Metal Film Me               | 145-300   | 1    |
| R19          | NOT USED                                                 | -----     | -    |
| R20, R21     | Resistor, #263-100 Ohm 1/8 Watt 5% Chip                  | 185-101   | 2    |
| R22          | NOT USED                                                 | -----     | -    |
| R23          | Resistor, #263-8.2 k Ohm 1/8 Watt 5% Chip                | 185-822   | 1    |
| R24          | Resistor, 10 k Ohm 1/8 Watt 5% Chip AVX#CR3              | 185-103   | 1    |
| R25          | Resistor, #263-8.2 k Ohm 1/8 Watt 5% Chip                | 185-822   | 1    |
| R26          | Resistor, 1.5 k Ohm 1/4 Watt 5% Metal Film M             | 145-152   | 1    |
| R27          | Thermistor, Fenwal 142-102-FAG-RB1 1000 OH               | 120-002   | 1    |
| R28          | Resistor, 4.7 k Ohm 1/4 Watt 5% Metal Film               | 145-472   | 1    |
| R29          | Resistor, 1 Ohm 1/4 Watt 5% Carbon Film 29AB250-1        | 145-010   | 1    |
| R30          | Resistor, 47 k Ohm 1/4 Watt 5% Metal Film M              | 145-473   | 1    |
| R31          | Resistor, 39 k Ohm 1/4 Watt 5% Carbon Film               | 145-393   | 1    |
| R32          | Resistor, 27 k Ohm 1/4 Watt 5% Carbon Film               | 145-273   | 1    |
| R33          | Resistor, 330 Ohm 1/4 Watt 5% Metal Film M               | 145-331   | 1    |
| R34          | Resistor, 4.7 k Ohm 1/4 Watt 5% Metal Film               | 145-472   | 1    |
| R35          | Resistor, #263-100 k Ohm 1/8 Watt 5% Chip                | 185-104   | 1    |
| R36          | Resistor, 27 k Ohm 1/4 Watt 5% Carbon Film               | 145-273   | 1    |
| R37          | NOT USED                                                 | -----     | -    |
| R38          | Resistor, 330 Ohm 1/4 Watt 5% Metal Film M               | 145-331   | 1    |
| R39          | Resistor, 10 k Ohm 1/4 Watt 5% Metal Film M              | 145-103   | 1    |
| R40          | Resistor, 4.7 k Ohm 1/4 Watt 5% Metal Film               | 145-472   | 1    |
| R41          | Resistor, 10 k Ohm 1/4 Watt 5% Metal Film M              | 145-103   | 1    |
| R42          | Resistor, 36 k Ohm 1/4 Watt 2% RL07S363G                 | 145-363-1 | 1    |
| S1, S2       | Switch, 8 Position DIP AMP 571-4356405                   | 530-060   | 2    |
| Y1           | Crystal, 12.8 MHz, Fundamental AT Cut, HC-               | 011-280   | 1    |
| Z1           | Resonator, Coaxial (Freq. In MHz To 3 Deci               | 360-039   | 1    |
| ----         | Screw, #4 x 1/4" Phillips Pan Head SM Type A Zinc Plated | 500-077   | 1    |
| ----         | Crystal Socket, CS-109-07                                | 520-040   | 1    |

**TABLE 18. SRPT-40E/215 FREQUENCY SYNTHESIZER CIRCUIT BOARD - 800-305A2ET**  
(Sheet 4 of 4)

| REF. DES. | DESCRIPTION                                           | PART NO. | QTY. |
|-----------|-------------------------------------------------------|----------|------|
| ----      | IC Socket, 8-Pin Keltron ICS-08-3-T                   | 550-070  | 1    |
| ----      | Connector, 6-Pin Molex Header                         | 550-136  | 1    |
| ----      | Connector, 4-Pin Molex Header                         | 550-165  | 1    |
| ----      | Connector, 28-Pin DIP 151-9028                        | 550-190  | 1    |
| ----      | Connector, KSM S.FL-R-SMT Surface Mount               | 550-193  | 1    |
| ----      | Coax #421-099 High Shield RG-188                      | 580-033  | 1    |
| ----      | Wire, UL1429 22/7 OS-1 Red                            | 580-043  | 1    |
| ----      | Formed Cover, #50-CBS 2" x 2" Less Standoff           | 700-262  | 1    |
| ----      | Formed Cover, #50-CBS 2" x 2" With Hole Less Standoff | 700-263  | 1    |
| ----      | Fence for 700-262 & 700-263                           | 700-264  | 1    |

**TABLE 19. SRPT-40E/150 FREQUENCY SYNTHESIZER CIRCUIT BOARD - 800-305A1ET**  
(Sheet 1 of 3)

| REF. DES. | DESCRIPTION                                  | PART NO. | QTY. |
|-----------|----------------------------------------------|----------|------|
| C01       | Capacitor, Electrolytic 22 uF 25V Radial NI  | 219-220  | 1    |
| C02       | Capacitor, Tantalum, 4.7 mF 16V ECS-F1CE47   | 299-470  | 1    |
| C03       | Capacitor, Tantalum, 15 mF 25V ECS-F1EE156   | 299-151  | 1    |
| C04, C05  | Capacitor, .1 mF 100V 10% Mylar              | 217-103  | 1    |
| C06 thru  | Capacitor, Monolithic Chip, 1000 pF 50V 5%   | 270-102  | 7    |
| C12       |                                              |          |      |
| C13       | Capacitor, Electrolytic 1000 uF 16V Radial   | 219-102  | 1    |
| C14       | Capacitor, Monolithic Chip, 22 pF 50V 5% K   | 270-220  | 1    |
| C15       | Capacitor, Monolithic Chip, 1000 pF 50V 5%   | 270-102  | 1    |
| C16       | Capacitor, Electrolytic 10 uF 25V Radial N   | 219-100  | 1    |
| C17, C18  | Capacitor, Monolithic Chip, 1000 pF 50V 5%   | 270-102  | 2    |
| C19       | Capacitor, Monolithic Chip, 1 pF 50V 5% Kem  | 270-010  | 1    |
| C20 thru  | Capacitor, Monolithic Chip, 1000 pF 50V 5%   | 270-102  | 4    |
| C23       |                                              |          |      |
| C24       | Capacitor, Monolithic Chip, 10 pF 50V 5% K   | 270-100  | 1    |
| C25       | Capacitor, Monolithic Chip, 22 pF 50V 5% K   | 270-220  | 1    |
| C26, C27  | Capacitor, Monolithic Chip, 1000 pF 50V 5%   | 270-102  | 2    |
| C28       | Capacitor, Monolithic Chip, 22 pF 50V 5% K   | 270-220  | 1    |
| C29       | Capacitor, Monolithic Chip, 1000 pF 50V 5%   | 270-102  | 1    |
| C30       | Capacitor, Monolithic Chip, 2.2 pF 50V 5% K  | 270-202  | 1    |
| C31       | Capacitor, Monolithic Chip, 22 pF 50V 5% K   | 270-220  | 1    |
| C32       | Capacitor, Monolithic Chip, 1000 pF 50V 5%   | 270-102  | 1    |
| C33       | Capacitor, Electrolytic 47 uF 16V Radial ME  | 219-470  | 1    |
| C34       | Capacitor, Monolithic Chip, 1000 pF 50V 5%   | 270-102  | 1    |
| C35       | Capacitor, Variable .8 - 8 pF Sprague-Goodm  | 290-528  | 1    |
| C36       | Capacitor, Monolithic Chip, 1000 pF 50V 5%   | 270-102  | 1    |
| C37       | Capacitor, Monolithic Chip, 4.7 pF 50V 5% KE | 270-407  | 1    |
| C38       | Capacitor, Electrolytic 22 uF 25V Radial NI  | 219-220  | 1    |
| C39       | Capacitor, Monolithic Chip, 1000 pF 50V 5%   | 270-102  | 1    |
| C40       | Capacitor, Monolithic Chip, 22 pF 50V 5% K   | 270-220  | 1    |
| C41       | Capacitor, Monolithic Chip, 1000 pF 50V 5%   | 270-102  | 1    |
| C42       | Capacitor, Tantalum, 2.2 mF 25V ECS-F1EE22   | 299-220  | 1    |
| C43       | Capacitor, Tantalum, 33 uF 16V ECS-F1CE336K  | 299-330  | 1    |
| C44       | Capacitor, Tantalum, 4.7 mF 16V ECS-F1CE47   | 299-470  | 1    |
| C45, C46  | Capacitor, .1 mF 100V 10% Mylar              | 217-103  | 2    |

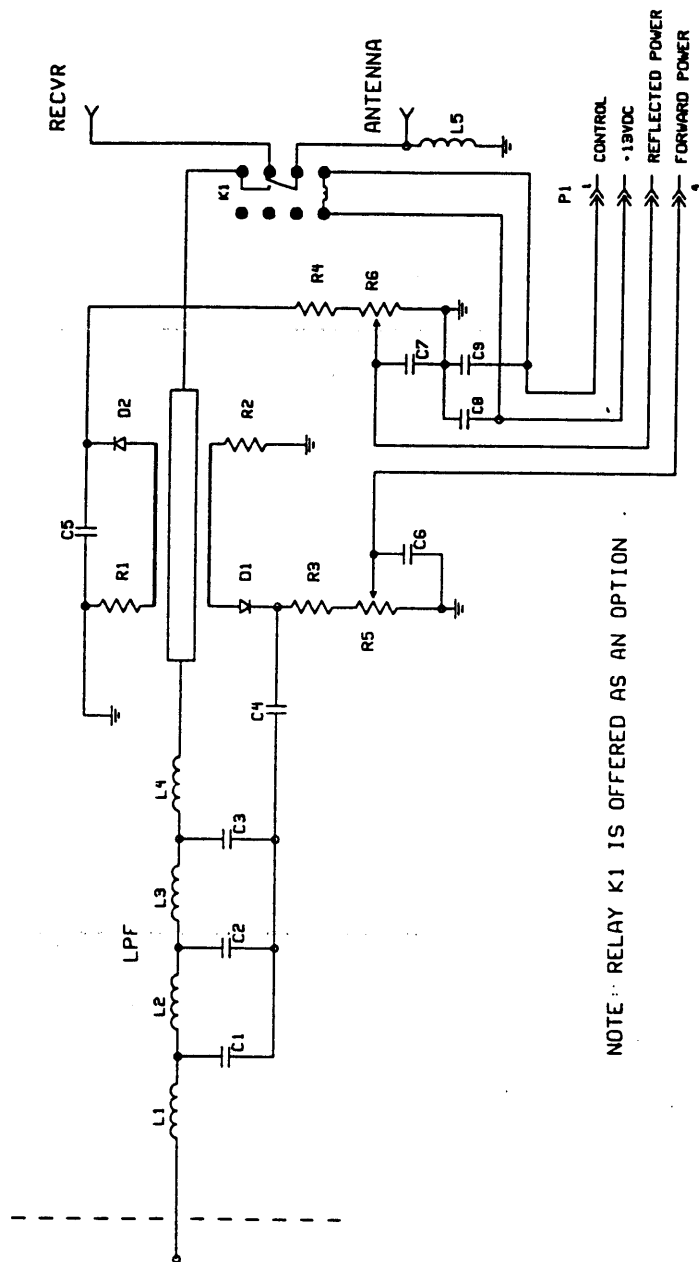
**TABLE 19. SRPT-40E/150 FREQUENCY SYNTHESIZER CIRCUIT BOARD - 800-305A1ET**  
(Sheet 2 of 3)

| REF. DES.    | DESCRIPTION                                           | PART NO.    | QTY. |
|--------------|-------------------------------------------------------|-------------|------|
| C47          | Capacitor, Tantalum, 2.2 mF 25V ECS-F1EE22            | 299-220     | 1    |
| C48          | Capacitor, .1 mF 100V 10% Mylar                       | 217-103     | 1    |
| C49, C50     | Capacitor, Variable, 3.5 - 36 pF Sprague-Goo          | 290-523     | 2    |
| C51          | Capacitor, 100 pF N750 5% Disc .25 Lead Spa           | 256-101     | 1    |
| C52          | Capacitor, Monolithic chip, 1000 pF 50V 5%            | 270-102     | 1    |
| C53          | Capacitor, Electrolytic 22 uF 25V Radial NI           | 219-220     | 1    |
| C54, C55     | Capacitor, Monolithic Chip, 1000 pF 50V 5%            | 270-102     | 2    |
| C56          | Capacitor, Monolithic Chip 10000 pF 10% XR7 K         | 270-103     | 1    |
| C57          | NOT USED                                              |             |      |
| C58          | Capacitor, Monolithic Chip, 1000 pF 50V 5%            | 270-102     | 1    |
| C59          | Capacitor, Monolithic Chip, 1000 pF 10% XR7 K         | 270-103     | 1    |
| C60          | Capacitor, Tantalum, 4.7 mF 16V ECS-F1CE47            | 299-470     | 1    |
| C61          | Capacitor, Tantalum 33 uF 16V ECS-F1CE336K            | 299-330     | 1    |
| C62, C63     | Capacitor, Monolithic Chip, 1000 pF 50V 5%            | 270-102     | 2    |
| C64          | NOT USED                                              |             |      |
| C65          | Capacitor, Monolithic Chip, 1000 pF 50V 5%            | 270-102     | 1    |
| C66          | Capacitor, Electrolytic 470 uF 16V Radial 1           | 219-471     | 1    |
| C67, C68     | Capacitor, Tantalum, 4.7 mF 16V ECS-F1CE47            | 299-470     | 2    |
| D1           | Diode, Zener 1N4734A 5.6V                             | 414-734     | 1    |
| D2           | Diode, Alpha SMV1204-99 Hyper-abrupt Tunin            | 410-105     | 1    |
| D4           | NOT USED                                              |             |      |
| D5           | Diode, General Instruments 1N4007                     | 414-007     | 1    |
| D6           | Diode, Schottky Motorola 1N5818                       | 415-818     | 1    |
| D7 thru D9   | Diode, 1N4148 Philips                                 | 410-914     | 3    |
| IC1          | Heatsink, W/LM317T                                    | 520-051A317 | 1    |
| IC2          | Integrated Circuit, OP-Amp Analog OP275GP             | 400-275     | 1    |
| IC3          | Integrated Circuit, NEC UPC 1678G (MMIC)              | 401-678     | 1    |
| IC4          | Integrated Circuit, Motorola MC12022AD                | 400-501     | 1    |
| IC5          | Integrated Circuit, Motorola MC145152-P2              | 400-145     | 1    |
| JP1          | Connector, 1 Dual Pin Header                          | 550-184     | 1    |
| L1 thru L3   | Inductor, 15 uH Coilcraft 90-27                       | 330-012     | 3    |
| L4           | Inductor, 3.3 uH Coilcraft 70-19                      | 330-021     | 1    |
| L5           | Inductor, 15 uH Coilcraft 90-27                       | 330-012     | 1    |
| L6           | Inductor, 3.3 uH Coilcraft 70-19                      | 330-021     | 1    |
| L7, L8       | Inductor, 15 uH Coilcraft 90-27                       | 330-012     | 2    |
| M1           | R-15C Synthesizer Oven                                | 520-052AC   | 1    |
| PCB          | PC Board, STL-15C/215 Freq. Synthesizer               | 800-305B    | 1    |
| Q2           | Transistor, Siliconix SST-310                         | 421-310     | 1    |
| Q3, Q4, Q5   | Transistor, Motorola 2N3904                           | 425-301     | 3    |
| R01          | Resistor, 240 Ohm 1/4 Watt 2% RL07S241G DA            | 145-241-1   | 1    |
| R02          | Resistor, 1.2 k Ohm 1/4 Watt 2% RLO7S122G             | 145-122-1   | 1    |
| R03 thru R05 | Resistor, 10 k Ohm 1/4 Watt 5% Metal Film Mepco SFR25 | 145-103     | 3    |
| R06          | Resistor, 2.7 k Ohm 1/4 Watt 2% RL07S272G             | 145-272-1   | 1    |
| R07          | Resistor, 1 k Ohm 1/4 Watt 5% Metal Film Me           | 145-102     | 1    |
| R08          | Resistor, 1 Ohm 1/4 Watt 5% Carbon Film 29AB250-1     | 145-010     | 1    |
| R09          | Resistor, 4.7 k Ohm 1/4 Watt 5% Metal Film            | 145-472     | 1    |
| R10          | NOT USED                                              |             |      |
| R11          | NOT USED                                              |             |      |
| R12          | NOT USED                                              |             |      |
| R13          | Potentiometer, 5 k Ohm Cermet Bourns 3309P-           | 101-502     | 1    |
| R14          | Resistor, 10 k Ohm 1/4 Watt 5% Metal Film M           | 145-103     | 1    |
| R15          | Potentiometer, 5 k Ohm Cermet Bourns 3309P-           | 101-502     | 1    |
| R16          | Resistor, 30 Ohm 1/4 Watt 5% Metal Film Me            | 145-300     | 1    |
| R17          | Resistor, #263-1 k Ohm 1/8 Watt 5% Chip               | 185-102     | 1    |
| R18          | Resistor, 30 Ohm 1/4 Watt 5% Metal Film Me            | 145-300     | 1    |

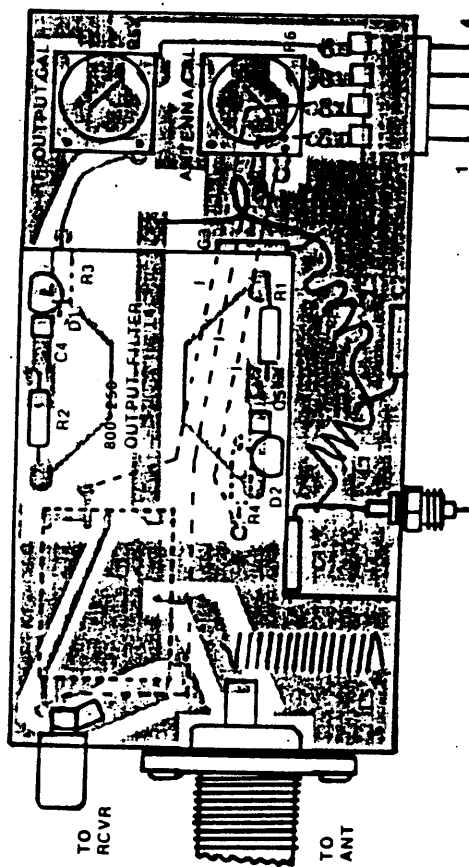


TABLE 19. SRPT-40E/150 FREQUENCY SYNTHESIZER CIRCUIT BOARD - 800-305A1ET  
(Sheet 3 of 3)

| REF. DES. | DESCRIPTION                                              | PART NO.  | QTY. |
|-----------|----------------------------------------------------------|-----------|------|
| R19       | NOT USED                                                 |           |      |
| R20, R21  | Resistor, #263-100 Ohm 1/8 Watt 5% Chip                  |           |      |
| R22       | NOT USED                                                 | 185-101   | 2    |
| R23       | Resistor, #263-8.2 k Ohm 1/8 Watt 5% Chip                |           |      |
| R24       | Resistor, 10 k Ohm 1/8 Watt 5% Chip AVX#CR3              | 185-822   | 1    |
| R25       | Resistor, #263-8.2 k Ohm 1/8 Watt 5% Chip                | 185-103   | 1    |
| R26       | Resistor, 1.5 k Ohm 1/4 Watt 5% Metal Film M             | 185-822   | 1    |
| R27       | Thermistor, Fenwal 142-102-FAG-RB1 1000 OH               | 145-152   | 1    |
| R28       | Resistor, 4.7 k Ohm 1/4 Watt 5% Metal Film               | 120-002   | 1    |
| R29       | Resistor, 1 Ohm 1/4 Watt 5% Carbon Film 29AB250-1        | 145-472   | 1    |
| R30       | Resistor, 47 k Ohm 1/4 Watt 5% Metal Film M              | 145-010   | 1    |
| R31       | Resistor, 39 k Ohm 1/4 Watt 5% Carbon Film               | 145-473   | 1    |
| R32       | Resistor, 27 k Ohm 1/4 Watt 5% Carbon Film               | 145-393   | 1    |
| R33       | Resistor, 330 Ohm 1/4 Watt 5% Metal Film M               | 145-273   | 1    |
| R34       | Resistor, 4.7 Ohm 1/4 Watt 5% Metal Film                 | 145-331   | 1    |
| R35       | Resistor, #263-100 k Ohm 1/8 Watt 5% Chip                | 145-472   | 1    |
| R36       | Resistor, 27 k Ohm 1/4 Watt 5% Carbon Film               | 185-104   | 1    |
| R37       | NOT USED                                                 | 145-273   | 1    |
| R38       | Resistor, 330 Ohm 1/4 Watt 5% Metal Film M               |           |      |
| R39       | Resistor, 10 k Ohm 1/4 Watt 5% Metal Film M              | 145-331   | 1    |
| R40       | Resistor, 4.7 Ohm 1/4 Watt 5% Metal Film                 | 145-103   | 1    |
| R41       | Resistor, 10 k Ohm 1/4 Watt 5% Metal Film M              | 145-472   | 1    |
| R42       | Resistor, 36 k Ohm 1/4 Watt 2% RL07S363G                 | 145-103   | 1    |
| S1, S2    | Switch, 8 Position DIP AMP 571-4356405                   | 145-363-1 | 1    |
| Y1        | Crystal, 12.8 MHz, Fundamental AT Cut, HC-               | 530-060   | 1    |
| Z1        | Resonator, Coaxial (Freq. In MHz to 3 deci               | 011-280   | 1    |
| ----      | Screw, #4 X 1/4" Phillips Pan Head SM Type A Zinc Plated | 360-039   | 1    |
| ----      | Crystal Socket, CS-109-07                                | 500-077   | 1    |
| ----      | IC Socket, 8 Pin Keltron ICS-08-3-T                      | 520-040   | 1    |
| ----      | Connector, 6 Pin Molex Header                            | 550-070   | 1    |
| ----      | Connector, 4 Pin Molex Header                            | 550-136   | 1    |
| ----      | Connector, 28 Pin DIP 151-9028                           | 550-165   | 1    |
| ----      | Connector, KSM SFL-R-SMT Surface Mount                   | 550-190   | 1    |
| ----      | Coax #421-099 High Shield RG-188                         | 550-193   | 1    |
| ----      | Wire, UL1429 22/7 OS-1 Red                               | 580-033   | 1    |
| ----      | Formed Cover, #50-CBS 2" x 2" Less Standoff              | 580-043   | 1    |
| ----      | Formed Cover, #50-CBS 2" x 2" W/Hole Less Standoff       | 700-262   | 1    |
| ----      | Fence For 700-262 & 700-263                              | 700-263   | 1    |
| ----      | Capacitor, Monolithic Chip, 1 pF 50V NPO                 | 700-264   | 1    |
|           |                                                          | 270-010   | 1    |



NOTE: RELAY K1 IS OFFERED AS AN OPTION



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- RPT-30/215 OUTPUT FILTER CIRCUIT BOARD - 800-306A2
- RPT-30/STL-30 450 OUTPUT FILTER CIRCUIT BOARD - 800-250A4
- RPT-30/150 OUTPUT FILTER CIRCUIT BOARD - 800-306A1

**TABLE 20. RPT-30/STL-30 450 OUTPUT FILTER CIRCUIT BOARD - 800-250A4**

| REF. DES.     | DESCRIPTION                                 | PART NO.    | QTY. |
|---------------|---------------------------------------------|-------------|------|
| C1 thru<br>C3 | Capacitor, Uncased Mica, 8.2 pF 33V 5% FWJ  | 240-802     | 2    |
| C4 thru<br>C9 | Capacitor, Monolithic Chip, 1000 pF 50V 5%  | 270-102     | 6    |
| D1, D2        | Diode, Motorola MMBD101L Chip               |             |      |
| L1            | Inductor, 1 Turn 20 AWG                     | 410-305     | 2    |
| L2            | Inductor, 3 Turn 20 AWG (CW)                | 350-116P    | 1    |
| L3            | Inductor, 1 Turn 20 AWG                     | 350-111P    | 1    |
| L4            | Inductor, 3 Turn 20 AWG (CW)                | 350-116P    | 1    |
| L5            | Inductor, 16 Turn 20 AWG                    | 350-111P    | 1    |
| PCB           | PC Board, RF Output RPT-30                  | 350-140P    | 1    |
| R1, R2        | Resistor, 68 Ohm 1/4 Watt 5% Carbon Comp 3  | 800-250B    | 1    |
| R3, R4        | Resistor, 4.7 k Ohm 1/4 Watt 5% Metal Film  | 145-680-C   | 2    |
| R5, R6        | Potentiometer, 5 k Ohm Cermet Bourns 3309P- | 145-472     | 2    |
| ----          | Pop-Rivet, USM SD-42BS                      | 101-502     | 1    |
| ----          | Pop-Rivet, 3 x 6mm Gesipa Metric            | 500-105-1   | 1    |
| ----          | #4 Bracket, Keystone 612                    | 500-158     | 1    |
| ----          | Terminal, Insulated Feed-Thru Staffel TFF9  | 510-191     | 1    |
| ----          | Connector, SO-239A UHF Panel Receptacle A   | 511-004     | 1    |
| ----          | Connector, 4-Pin Molex Angle Header         | 550-012     | 1    |
| ----          | Wire, UL1429 22/7 OS-1 Yellow               | 550-158     | 1    |
| ----          | Output Filter Box, RPT-30                   | 580-044     | 1    |
| ----          | Shield, RPT-30 Output Filter Box            | 700-250-8P  | 1    |
| ----          | Fingerstock, Angle Contact Strip            | 700-250-14P | 1    |
|               |                                             | 700-260     | 1    |

**TABLE 21. RPT-30 215 OUTPUT FILTER CIRCUIT BOARD - 800-306A2**

| REF. DES.     | DESCRIPTION                                 | PART NO.    | QTY. |
|---------------|---------------------------------------------|-------------|------|
| C1 thru<br>C3 | Capacitor, Uncased Mica, 16 pF 33V 5% FWJ1  | 240-160     | 3    |
| C4 thru<br>C9 | Capacitor, Monolithic Chip, 1000 pF 50V 5%  | 270-102     | 6    |
| D1, D2        | Diode, Motorola MMBD101L Chip               |             |      |
| L1            | Inductor, 2 Turn 20 AWG                     | 410-305     | 2    |
| L2            | Inductor, 4 Turn 20 AWG                     | 350-143P    | 1    |
| L3            | Inductor, 2 Turn 20 AWG                     | 350-142P    | 1    |
| L4            | Inductor, 4 Turn 20 AWG                     | 350-143P    | 1    |
| L5            | Inductor, 16 Turn 20 AWG                    | 350-142P    | 1    |
| R1, R2        | Resistor, 220 Ohm 1/4 Watt 5% Carbon Comp   | 350-140P    | 1    |
| R3, R4        | Resistor, 1 k Ohm 1/4 Watt 5% Metal Film Me | 145-221-C   | 2    |
| R5, R6        | Potentiometer, 5 k Ohm Cermet Bourns 3309P- | 145-102     | 2    |
| ----          | Pop-Rivet, USM SD-42BS                      | 101-502     | 2    |
| ----          | Pop-Rivet, 3 x 6mm Gesipa Metric            | 500-105-1   | 1    |
| ----          | #4 Bracket, Keystone 612                    | 500-158     | 1    |
| ----          | Terminal, Insulated Feed-Thru Staffel TFF9  | 510-191     | 1    |
| ----          | Connector, SO-239A UHF Panel Receptacle A   | 511-004     | 1    |
| ----          | Connector, 4-Pin Molex Angle Header         | 550-012     | 1    |
| ----          | Wire, UL1429 22/7 OS-1 Yellow               | 550-158     | 1    |
| ----          | Shield, RPT-30 Output Filter Box            | 580-044     | 1    |
| ----          | Output Filter Box, RPT-30                   | 700-250-14P | 1    |
| ----          | Fingerstock, LH-55-52400 X 24               | 700-250-8P  | 1    |
| ----          | Fingerstock, Angle Contact Strip            | 700-258     | 1    |
| ----          | PC Board, RPT-30/150/215 Output Filter Bd   | 700-260     | 1    |
|               |                                             | 800-306B    | 1    |

**TABLE 22. RPT-30/150 MHZ OUTPUT FILTER CIRCUIT BOARD - 800-306A1**

| REF. DES.     | DESCRIPTION                                  | PART NO.    | QTY. |
|---------------|----------------------------------------------|-------------|------|
| C1 thru<br>C3 | Capacitor, Uncased Mica, 22 pF 33V 5% FWJ101 | 240-220     | 3    |
| C4 thru<br>C9 | Capacitor, Monolithic Chip, 1000 pF 50V 5%   | 270-102     | 6    |
| D1, D2        | Diode, Motorola MMBD101L Chip                | 410-305     | 2    |
| L1            | Inductor, 3 Turn 20 AWG (CW)                 | 350-111     | 1    |
| L2            | Inductor, 6 Turn AWG (CW)                    | 350-110     | 1    |
| L3            | Inductor, 4 Turn 20 AWG                      | 350-142     | 1    |
| L4            | Inductor, 6 Turn AWG (CW)                    | 350-110     | 1    |
| L5            | Inductor, 16 Turn 20 AWG                     | 350-140P    | 1    |
| R1, R2        | Resistor, 220 Ohm 1/4 Watt 5% Carbon Comp    | 145-221-C   | 2    |
| R3, R4        | Resistor, 1 k Ohm 1/4 Watt 5% Metal Film Me  | 145-102     | 2    |
| R5, R6        | Potentiometer, 5 k Ohm Cermet Bourns 3309P-  | 101-502     | 2    |
| ----          | Pop-Rivet, USM SD-42BS                       | 500-105-1   | 1    |
| ----          | Pop-Rivet, 3 x 6mm Gesipa Metric             | 500-158     | 1    |
| ----          | #4 Bracket, Keystone 612                     | 510-191     | 1    |
| ----          | Terminal, Insulated Feed-Thru Staffel TFF9   | 511-004     | 1    |
| ----          | Connector, SO-239A UHF Panel Receptacle A    | 550-012     | 1    |
| ----          | Connector, 4 Pin Molex Angle Header          | 550-158     | 1    |
| ----          | Wire, UL1429 22/7 OS-1 Yellow                | 580-044     | 1    |
| ----          | Shield, RPT-30 Output Filter Box             | 700-250-14P | 1    |
| ----          | Output Filter Box, RPT-30                    | 700-250-8P  | 1    |
| ----          | Fingerstock, Angle Contact Strip             | 700-260     | 1    |
| ----          | PC Board, RPT-30/150/215 Output Filter Board | 800-306B    | 1    |

**TABLE 23. SRPT-40E/450 MHz RF PRE-DRIVER CIRCUIT BOARD - 800-338A4**

| REF. DES.       | DESCRIPTION                                                         | PART NO.  | QTY. |
|-----------------|---------------------------------------------------------------------|-----------|------|
| C01             | Capacitor, Variable, 5-25 pF Sprague-Goodman<br>GKU-25000           | 290-521   | 1    |
| C02             | Capacitor, Variable Trimmer 9-50 pF #24AA024                        | 290-525   | 1    |
| C03             | Capacitor, Variable, 2.8-10 pF Sprague-Goodman<br>GKU-10000         | 290-522   | 1    |
| C04             | Capacitor, Variable Trimmer 9-50 pF #24AA024                        | 290-525   | 1    |
| C05             | Capacitor, Variable, 2.8-10 pF Sprague-Goodman<br>GKU-10000         | 290-522   | 1    |
| C06, C07        | Capacitor, Monolithic Chip, 1000 pF 50V 5%<br>KemetC1206C102J5GACTR | 270-102   | 2    |
| C08             | Capacitor, .1 mF 100V 10% Mylar                                     | 217-103   | 1    |
| C09             | Capacitor, Monolithic Chip, 10000 pF 10% XR                         | 270-103   | 1    |
| L01             | Jumper                                                              | n/a       | 4    |
| L02 thru<br>L04 | Inductor, 8 Turn 22 AWG (CCW)                                       | 350-117   | 3    |
| L05, L06        | Inductor, 8 Turn 22 AWG (CCW)                                       | 350-117   | 2    |
| L08             | Inductor, 1 Turn, 20 AWG (CCW)                                      | 350-116   | 1    |
| PCB             | PC Board, SRPT-40E RF Driver REV 2                                  | 800-338B  | 1    |
| Q01             | Transistor, Philips 8TT9A                                           | 420-098   | 1    |
| Q02             | Transistor, Philips BLW80 2N5945                                    | 425-945   | 1    |
| R01             | NOT USED                                                            |           |      |
| R02             | Resistor, #263-100 Ohm 1/8 Watt 5% Chip                             | 185-101   | 1    |
| R03             | Resistor, 15 Ohm 1/8 Watt 5% Chip Dale<br>#CRCW1206150JT            | 185-150   | 1    |
| R04             | Inductor, 1 Turn, 20 AWG (CCW)                                      | 350-116   | 1    |
| R05             | Resistor, 47 Ohm 1/4 Watt 5% Carbon Comp<br>30BJ250                 | 145-470-C | 1    |
| R06             | Resistor, 330 Ohm 1/2 Watt Carbon Comp                              | 105-331   | 1    |
| ----            | Cable Assembly W/ 1 Conn. KSM-2191-0                                | 586-122   | 1    |
| ----            | Fingerstock, Angle Contact Strip                                    | 700-260   | 5.5  |
| ----            | Hex Nut, #4-40 Regular Nickel Plated                                | 500-002-1 | 3    |
| ----            | Screw, 4-40 x 1/2" Philips Pan Head M/S Nickel Plated               | 500-011   | 3    |

**TABLE 24. SRPT-40E/215 MHz RF PRE-DRIVER CIRCUIT BOARD - 800-338A2**  
(Sheet 1 of 2)

| REF. DES. | DESCRIPTION                                                         | PART NO. | QTY. |
|-----------|---------------------------------------------------------------------|----------|------|
| C01       | Capacitor, Variable, 5-25 pF Sprague-Goodman<br>GKU-25000           | 290-521  | 1    |
| C02       | Capacitor, Variable Trimmer 9-50 pF #24AA024                        | 290-525  | 1    |
| C03       | Capacitor, Variable, 2.8-10 pF Sprague-Goodman<br>GKU-10000         | 290-522  | 1    |
| C04       | Capacitor, Variable Trimmer 9-50 pF #24AA024                        | 290-525  | 1    |
| C05       | Capacitor, Variable, 2.8-10 pF Sprague-Goodman<br>GKU-10000         | 290-522  | 1    |
| C06, C07  | Capacitor, Monolithic Chip, 1000 pF 50V 5%<br>KemetC1206C102J5GACTR | 270-102  | 2    |
| C08       | Capacitor, .1 mF 100V 10% Mylar                                     | 217-103  | 1    |
| L01       | Inductor, 3 Turn, #20 AWG, 0.1" dia., STL-15C/215                   | 350-168  | 1    |
| L02       | Inductor, 8 Turn 22 AWG (CCW)                                       | 350-117  | 1    |
| L03       | Inductor, 3 Turn 20 AWG (CCW)                                       | 350-112  | 1    |
| L04       | Inductor, 15 uH Coilcraft 90-27                                     | 330-012  | 1    |
| L05, L06  | Inductor, 8 Turn 22 AWG (CCW)                                       | 350-117  | 1    |
| PCB       | PC Board, RF Driver                                                 | 800-338B | 1    |
| Q01       | Transistor, Motorola MRF555                                         | 420-555  | 1    |

**TABLE 24. SRPT-40E/215 MHz RF PRE-DRIVER CIRCUIT BOARD - 800-338A2**  
(Sheet 2 of 2)

| REF. DES. | DESCRIPTION                                              | PART NO.  | QTY. |
|-----------|----------------------------------------------------------|-----------|------|
| Q02       | Transistor, Philips BLW80 2N5945                         |           |      |
| R01       | NOT USED                                                 | 425-945   | 1    |
| R02       | Resistor, #263-100 Ohm 1/8 Watt 5% Chip                  |           |      |
| R03       | Resistor, 15 Ohm 1/8 Watt 5% Chip Dale                   | 185-101   | 1    |
|           | #CRCW1206150JT                                           | 185-150   | 1    |
| R04       | Resistor, 3.3 Ohm 1/4 Watt 5% Carbon Comp                |           |      |
|           | 30BJ250                                                  | 145-030-C | 1    |
| R05       | Resistor, 47 Ohm 1/4 Watt 5% Carbon Comp                 |           |      |
|           | 30BJ250                                                  | 145-470-C | 1    |
| ----      | Cable Assembly With 1 Conn. KSM-2191-05                  |           |      |
| ----      | Hex Nut, #4-40 x 1/2" Ogukuos Oab Gead M/S Nickel Plated | 586-122   | 1    |
| ----      | Screw, 4-40 x 1/2" Phillips Pan Head M/S Nickel Plated   | 500-002-1 | 3    |
| ----      | Fingerstock, Angle Contact Strip                         | 500-011   | 3    |
|           |                                                          | 700-260   | 5.5  |

**TABLE 25. SRPT-40E/150 MHz RF PRE-DRIVER CIRCUIT BOARD - 800-338A1**

| REF. DES. | DESCRIPTION                                              | PART NO.  | QTY. |
|-----------|----------------------------------------------------------|-----------|------|
| C01       | Capacitor, Variable, 5-25 pF Sprague-Goodman GKU-25000   |           |      |
| C02       | Capacitor, Variable Trimmer 9-50 pF #24AA024             | 290-521   | 1    |
| C03       | Capacitor, Variable, 2.8-10 pF Sprague-Goodman GKU-10000 | 290-525   | 1    |
| C04       | Capacitor, Variable Trimmer 9-50 pF #24AA024             | 290-522   | 1    |
| C05       | Capacitor, Variable, 2.8-10 pF Sprague-Goodman GKU-10000 | 290-525   | 1    |
| C06       | Capacitor, Monolithic Chip, 1000 pF 50V 5% Kemet         | 290-522   | 1    |
|           | C1206C102J5GACTR                                         | 270-102   | 1    |
| C07       | Capacitor, Monolithic Chip, 1000 pF 50V 5% Kemet         |           |      |
|           | C1206C102J5GACTR                                         | 270-102   | 1    |
| C08       | Capacitor, .1 mF 100V 10% Mylar                          |           |      |
| L01       | Inductor, 3 Turn, #20 AWG, 0.1" Dia., STL-15C/215        | 217-103   | 1    |
| L02       | Inductor, 8 Turn 22 AWG (CCW)                            | 350-168   | 1    |
| L03       | Inductor, 3 Turn 20 AWG (CCW)                            | 350-117   | 1    |
| L04       | Inductor, 15 uH Coilcraft 90-27                          | 350-112   | 1    |
| L05, L06  | Inductor, 8 Turn 22 AWG (CCW)                            | 330-012   | 1    |
| PCB       | PC Board, RF Driver                                      | 350-117   | 2    |
| Q01       | Transistor, Motorola MRF555                              | 800-338B  | 1    |
| Q02       | Transistor, Philips BLW80 2N5945                         | 420-555   | 1    |
| R03       | Resistor, 15 Ohm 1/8 Watt 5% Chip Dale #CRCW1206150JT    | 425-945   | 1    |
| R04       | Resistor, 3.3 Ohm 1/4 Watt 5% Carbon Comp 30BJ250        | 185-150   | 1    |
| R05       | Resistor, 47 Ohm 1/4 Watt 5% Carbon Comp 30BJ250         | 145-030   | 1    |
| R06       | Resistor, 100 Ohm 1/2 Watt Carbon Comp 30BJ500           | 145-470   | 1    |
| ----      | Cable Assembly W/1 Conn. KSM-2191-05"                    | 105-101   | 1    |
| ----      | Fingerstock, Angle Contact Strip                         | 586-122   | 1    |
| ----      | Hex Nut, #4-40 Regular Nickel Plated                     | 700-260   | 1    |
| ----      | Screw, 4-40 x 1/2" Phillips Pan Head M/S Nickel Plated   | 500-002-1 | 1    |
| ----      | Fingerstock, Angle Contact Strip                         | 500-011   | 1    |
|           |                                                          | 700-260   | 1    |

**TABLE 26. CONTROLLER CIRCUIT BOARD - 800-339A1**  
(Sheet 1 of 2)

| REF. DES.         | DESCRIPTION                                                       | PART NO.  | QTY. |
|-------------------|-------------------------------------------------------------------|-----------|------|
| C101B             | Capacitor, Electrolytic 1000 uF 6.3V Radial<br>SMG6.3VB102M8X11LL | 218-102   | 1    |
| C102              | Capacitor, .1 mF 104 K Ceramic Dip X7R 50V                        | 255-104C  | 1    |
| C112              | Capacitor, .01 mF 50V GMV Disc Pace<br>F6Z5UIc103Z-JT             | 217-104   | 1    |
| C113              | Capacitor, .1 mF 104 K Ceramic Dip X7R 50V                        | 255-104C  | 1    |
| C114              | Capacitor, .01 mF 50V GMV Disc Pace<br>F6Z5UIc103Z-JT             | 217-104   | 1    |
| C115,<br>C116     | Capacitor, .1 mF 104 K Ceramic Dip X7R 50V                        | 255-104C  | 2    |
| C117,<br>C118     | Capacitor, .01 mF 50V GMV Disc Pace<br>F6Z5UIc103Z-JT             | 217-104   | 2    |
| C119              | Capacitor, Electrolytic 1000 uF 6.3V Radial<br>SMG6.3VB102M8X11LL | 218-102   | 1    |
| C120              | Capacitor, Tantalum, 4.7 mF 16V ECS-F1CE475K                      | 299-470   | 1    |
| C121 thru<br>C124 | Capacitor, .01 mF 50V GMV Disc Pace                               | 217-104   | 4    |
| D101              | Diode, Zener 1N4733A                                              | 414-733   | 1    |
| D103 thru<br>D106 | Diode, Germanium BKC 1N270                                        | 412-494   | 4    |
| DS101B            | LED, Green mv5454a T-1 3/4 DIFUSED QT                             | 415-454   | 1    |
| J101B             | Connector, 4 Dual Pin Header                                      | 550-197   | 1    |
| J102              | Connector, 8-Pin Socket Molex 90147-1108                          | 550-210   | 1    |
| J102A             | Connector, 6-Pin Socket Molex 90147-1206                          | 550-209   | 1    |
| J103B             | 8-Pin Dual Row Header Cut From 550-181                            | 550-219   | 1    |
| J104B             | Connector, 2 Dual Pin Header                                      | 550-191   | 1    |
| J105B             | Connector, 4 Dual Pin Header                                      | 550-197   | 1    |
| J106B             | Connector, 1 Dual Pin Header                                      | 550-184   | 1    |
| J107B             | Connector, 2 Dual Pin Header                                      | 550-191   | 1    |
| P104 thru<br>P107 | Open Top Two Circuit Shunt Molex 15-38-1024                       | 550-182   | 4    |
| Q101              | Transistor, Motorola 2N2907A                                      | 422-907   | 1    |
| R101              | Resistor, 100 Ohm 1/2 Watt Carbon Comp 30BJ500                    | 105-101   | 1    |
| R102              | Resistor, 1 k Ohm 1/4 Watt 5% Metal Film Mepco<br>SFR25           | 145-102   | 1    |
| R102              | Resistor, 4.7 k Ohm 1/4 Watt 5% Metal Film Mepco<br>SFR25         | 145-472   | 1    |
| R111              | Resistor, 1 k Ohm 1/4 Watt 5% Metal Film Mepco<br>SFR25           | 145-102   | 1    |
| R112              | Resistor, 100 k Ohm 1/4 Watt 5% Metal Film Mepco<br>SFR25         | 145-104   | 1    |
| R113,<br>R114     | Resistor, 22 k Ohm 1/4 Watt 5% Metal Film Mepco<br>SFR25          | 145-223   | 1    |
| R115              | Resistor, 10 k Ohm 1/4 Watt 5% Metal Film Mepco<br>SFR25          | 145-103   | 1    |
| R116              | Resistor, 22 k Ohm 1/4 Watt 5% Metal Film Mepco<br>SFR25          | 145-223   | 1    |
| R117              | Resistor, 2 k Ohm 1/4 Watt 2% RL07S202G                           | 145-202-1 | 1    |
| R118              | Resistor, 30 Ohm 1/4 Watt 5% Metal Film Mepco<br>SFR              | 145-300   | 1    |
| R119              | Resistor, 100 k Ohm 1/4 Watt 5% Metal Film Mepco<br>SFR25         | 145-104   | 1    |
| R120              | Resistor, 2 k Ohm 1/4 Watt 2% RL07S202G                           | 145-202-1 | 1    |
| R121              | Resistor, 10 k Ohm 1/4 Watt 5% Metal Film Mepco<br>SFR25          | 145-103   | 1    |

**TABLE 26. CONTROLLER CIRCUIT BOARD - 800-339A1**  
(Sheet 2 of 2)

| REF. DES. | DESCRIPTION                                              | PART NO. | QTY. |
|-----------|----------------------------------------------------------|----------|------|
| R122      | Resistor, 560 Ohm 1/4 Watt 5% Metal Film Mepco<br>SFR25  | 145-561  | 1    |
| R123      | Resistor, 10 k Ohm 1/4 Watt 5% Metal Film Mepco<br>SFR25 | 145-103  | 1    |
| S101B     | Switch, MC10191-00 Micro-Cosmos                          | 530-064  | 1    |
| U101      | Integrated Circuit, CD4011BE                             | 404-011  | 1    |
| U102      | IC Socket, 14-Pin Keltron ICS-14-3-T                     | 550-069  | 1    |
| U104      | Integrated Circuit, CD40193BE Harris                     | 401-930  | 1    |
| U106      | Integrated Circuit, Motorola NE555N                      | 400-555  | 1    |
| U106      | IC Socket, 8-Pin Keltron ICS-08-3-T                      | 550-070  | 1    |
| U107      | IC Socket, 16-Pin Keltron ICS-16-3-T                     | 550-068  | 1    |
| U108      | Integrated Circuit, Motorola NE555N                      | 400-555  | 1    |
| U108      | IC Socket, 8-Pin Keltron ICS-08-3-T                      | 550-070  | 1    |
| U109      | Integrated Circuit, 28C04                                | 402-804  | 1    |
| U109      | IC Socket, 24-Pin (Wide) A24-LC-TT                       | 550-169  | 1    |
| U110      | Integrated Circuit, 28C04                                | 402-804  | 1    |
| U110      | IC Socket, 24-Pin (Wide) A24-LC-TT                       | 550-169  | 1    |



TABLE 27. LCD DISPLAY CIRCUIT BOARD - 800-340A1

| REF. DES. | DESCRIPTION                                  | PART NO.  | QTY. |
|-----------|----------------------------------------------|-----------|------|
| DS201     | LED, Red Rectangular #604-L113HDT            |           |      |
| DS202     | LED, Green Rectangular #604-L113GDT          | 410-155   | 1    |
| DS203     | LCD, Varitronix VI-201-DP-FC-S               | 410-255   | 1    |
| J201,     | Connector, 8-Pin Single Row Cut From 550-214 | 410-201   | 1    |
| J202      |                                              | 550-280   | 2    |
| R201      | Resistor, 2 k Ohm 1/4 Watt 2% RL07S202G      |           |      |
| S201      | Switch, MC10191-00 Micro-Cosmos              | 145-202-1 | 1    |
| S201      | Buttons #805500009 For MC10191-00 Switch     | 530-064   | 1    |
| S203      | Switch, MC10191-00 Micro-Cosmos              | 530-064-1 | 1    |
| S203      | Buttons #805500009 For MC10191-00 Switch     | 530-064   | 1    |
|           |                                              | 530-064-1 | 1    |

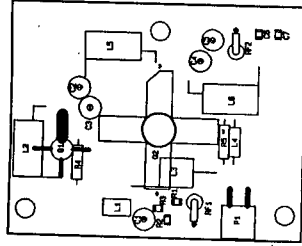
**TABLE 28. DISPLAY DRIVER CIRCUIT BOARD - 800-341A**

| REF. DES.          | DESCRIPTION                                                       | PART NO. | QTY. |
|--------------------|-------------------------------------------------------------------|----------|------|
| C301 thru,<br>C308 | Capacitor, Tantalum, 4.7 mF 16V ECS-F1CE475K                      | 299-470  | 8    |
| C309               | Capacitor, .22 uF 50V 10% Film CD MTC1P22K                        | 226-224  | 1    |
| C310 thru<br>C313  | Capacitor, .01 mF 50V GMV Disc Pace<br>F6Z5UIc103Z-JT             | 217-104  | 4    |
| J302,<br>J303      | Connector, 8-Pin Socket Molex 90147-1108                          | 550-210  | 2    |
| Q301               | Transistor, Motorola 2N3904                                       | 425-301  | 1    |
| R302               | Resistor, 10 k Ohm 1/4 Watt 5% Metal Film<br>Mepco SFR25          | 145-103  | 1    |
| R303, R304         | Resistor, 39 Ohm 1/4 Watt 5% Carbon Comp<br>30BJ250               | 145-390  | 2    |
| R305               | Resistor, 10 k Ohm 1/4 Watt 5% Metal Film Mepco<br>SFR25          | 145-103  | 1    |
| RA301,<br>RA302    | Resistor Network, CTS 750-101-R-1021 k 1/4W<br>10-Pin Single Line | 186-102  | 2    |
| U301               | IC Socket, 8-Pin Keltron ICS-08-3-T                               | 550-070  | 1    |
| U302               | IC Socket, 24-Pin (Wide) A24-LC-TT                                | 550-169  | 1    |
| U303               | IC Socket, 16-Pin Keltron ICS-16-3-T                              | 550-068  | 1    |

**TABLE 29. SWITCH INTERFACE CIRCUIT BOARD - 800-343A**

| REF. DES. | DESCRIPTION                                                         | PART NO.            | QTY.   |
|-----------|---------------------------------------------------------------------|---------------------|--------|
| PCB       | PC Board                                                            |                     |        |
| BK-J401   | Capacitor, Monolithic Chip, 1000 pF 50V 5%<br>KemetC1206C102J5GACTR | 800-343B<br>270-102 | 1<br>1 |
| BK-J401   | Capacitor, Monolithic Chip, 1000 pF 50V 5%<br>KemetC1206C102J5GACTR | 270-102             | 1      |
| BK-J401   | Capacitor, Monolithic Chip, 1000 pF 50V 5%<br>KemetC1206C102J5GACTR | 270-102             | 1      |
| BK-J401   | Capacitor, Monolithic Chip, 1000 pF 50V 5%<br>KemetC1206C102J5GACTR | 270-102             | 1      |
| BK-J401   | Capacitor, Monolithic Chip, 1000 pF 50V 5%<br>KemetC1206C102J5GACTR | 270-102             | 1      |
| BK-J401   | Capacitor, Monolithic Chip, 1000 pF 50V 5%<br>KemetC1206C102J5GACTR | 270-102             | 1      |
| BK-J401   | Capacitor, Monolithic Chip, 1000 pF 50V 5%<br>KemetC1206C102J5GACTR | 270-102             | 1      |
| BK-J401   | Capacitor, Monolithic Chip, 1000 pF 50V 5%<br>KemetC1206C102J5GACTR | 270-102             | 1      |
| BK-J401   | Capacitor, Monolithic Chip, 1000 pF 50V 5%<br>KemetC1206C102J5GACTR | 270-102             | 1      |
| BK-J402   | Capacitor, Monolithic Chip, 1000 pF 50V 5%<br>KemetC1206C102J5GACTR | 270-102             | 1      |
| BK-J402   | Capacitor, Monolithic Chip, 1000 pF 50V 5%<br>KemetC1206C102J5GACTR | 270-102             | 1      |
| BK-J402   | Capacitor, Monolithic Chip, 1000 pF 50V 5%<br>KemetC1206C102J5GACTR | 270-102             | 1      |
| BK-J402   | Capacitor, Monolithic Chip, 1000 pF 50V 5%<br>KemetC1206C102J5GACTR | 270-102             | 1      |
| BK-J402   | Capacitor, Monolithic Chip, 1000 pF 50V 5%<br>KemetC1206C102J5GACTR | 270-102             | 1      |
| BK-J402   | Capacitor, Monolithic Chip, 1000 pF 50V 5%<br>KemetC1206C102J5GACTR | 270-102             | 1      |
| BK-J402   | Capacitor, Monolithic Chip, 1000 pF 50V 5%<br>KemetC1206C102J5GACTR | 270-102             | 1      |
| J405      | 8-Pin Dual Row Header Cut From 550-181                              |                     |        |
| S401,     | Switch, 8 Position DIP 571-4356405                                  | 550-219             | 1      |
| S402      |                                                                     | 530-060             | 2      |
| BK-J401   | Connector, 8-Pin Single Row (cut from 550-214)                      | 550-280             | 1      |
| BK-J403,  | Connector, 4-Pin Single Header (cut from 550-214)                   | 550-226             | 2      |
| BK-J404   |                                                                     |                     |        |
| BK-J402   | Connector, 8-Pin Single Row (cut from 550-214)                      | 550-280             | 1      |

| REVISIONS |         |                                               |     |
|-----------|---------|-----------------------------------------------|-----|
| REV       | DATE    | DESCRIPTION                                   | EDN |
| 1         | 2-25-97 | PROTOTYPE RELEASE                             |     |
| 2         | 4-14-97 | MOVED LEFT SIDE MOUNTING HOLES .0625 TO LEFT. |     |



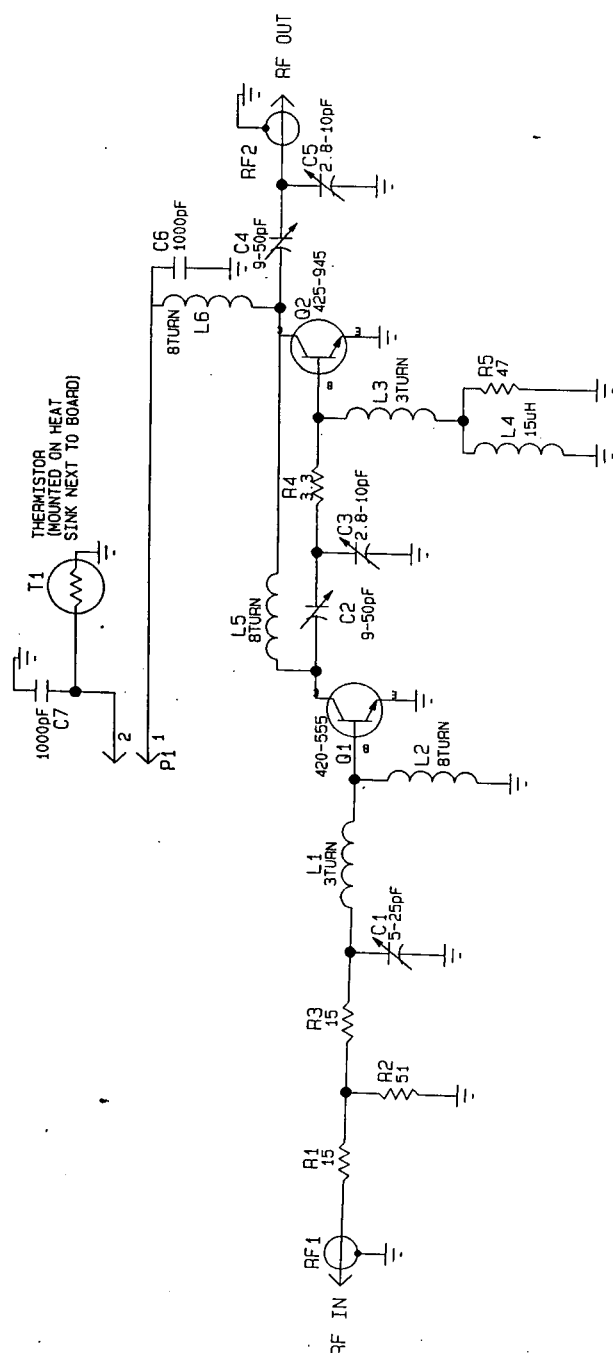
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| PROPRIETARY RIGHTS are included in this drawing. This information is confidential and its disclosure or reproduction without the written consent of BROADCAST ELECTRONICS, INC. is prohibited. |  | OWN. BY 2-25-97<br>K. TERWELP<br>DESIGNER(S) |  | MATERIAL   |  |
| TOLERANCE (DECIMAL) U.S.S.<br>.X ± .030 .XX ± .005<br>.XX ± .015 ANGLES ± 1°                                                                                                                   |  | PROJ. LEADER                                 |  | FINISH     |  |
| TITLE<br>RF DRIVER BOARD                                                                                                                                                                       |  | TYPE SIZE DWG NO.<br>A B 800-338A2/A4/A1     |  | REV<br>2   |  |
| MODEL<br>SCALE 1/1                                                                                                                                                                             |  | SHEET 1 OF 1                                 |  | NEXT ASSY. |  |

SRPT-40E/450 MHZ RF PRE-DRIVER CIRCUIT BOARD - 800-338A4  
 SRPT-40E/215 MHZ RF PRE-DRIVER CIRCUIT BOARD - 800-338A2  
 SRPT-40E 150 MHZ RF PRE-DRIVER CIRCUIT BOARD - 800-338A1  
 (54A)

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| REVISIONS |         |                    |     |
|-----------|---------|--------------------|-----|
| REV       | DATE    | DESCRIPTION        | EDN |
| 1         | 2-21-97 | PROTOTYPE RELEASE. | KT  |



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| TOLERANCE (DECIMAL) U.O.S.<br>.x ± .030 .xxx ± .005<br>.xx ± .015 ANGLES ± 1°                                                                                                                                                                                                      |  | PROJ. LEADER<br>MFG.                         |  | NEXT ASSY.         |  |
| TITLE<br>RF DRIVER BOARD                                                                                                                                                                                                                                                           |  | TYPE SIZE QWG. NO.<br>S B 800-338A2/A4/A1    |  | REV<br>1           |  |
| SCALE<br>NONE                                                                                                                                                                                                                                                                      |  | SHEET<br>1 OF 1                              |  | MODEL              |  |

BROADCAST ELECTRONICS, INC.  
 4100 N. 24TH ST. P.O. BOX 3605 QUINCY, IL. 62305  
 217/224-9600 FAX 217/224-9607

SRPT-40E/450 MHZ RF PRE-DRIVER CIRCUIT BOARD - 800-338A4  
 SRPT-40E/215 MHZ RF PRE-DRIVER CIRCUIT BOARD - 800-338A2  
 SRPT-40E/150 MHZ RF PRE-DRIVER CIRCUIT BOARD - 800-338A1  
 (54)



1) C401-C416 & P105 ARE ON SOLDER SIDE OF BOARD.

| CHANNELS | PINS (J105) |
|----------|-------------|
| 2        | 5 & 6       |
| 4        | 3 & 4       |
| 8        | 1 & 2       |
| 16       | 7 & 8       |

2) SEE SCHEMATICS SB800-339, SB800-340, SB800-341 & SB800-343.



BOARDS TO BE BROKEN APART ALONG  
SCORE LINE AFTER FLOW SOLDER.

800-339A1/A2  
800-340A1/A2  
800-341A  
800-343A

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|                                                                                                                                                                                                                                                                                                                                            |                                              |                        |                                                                                                                                                                                                    |                            |                  |                          |                                                                               |
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|                                                                                                                                                                                                                                                                                                                                            | PROJ. LEADER                                 |                        |                                                                                                                                                                                                    |                            | NEXT ASSY.       | WFG.                     | TOLERANCE (DECIMAL) U.O.S.<br>.X ± .030 .XX ± .005<br>.XX1 ± .015 ANGLES + 1° |

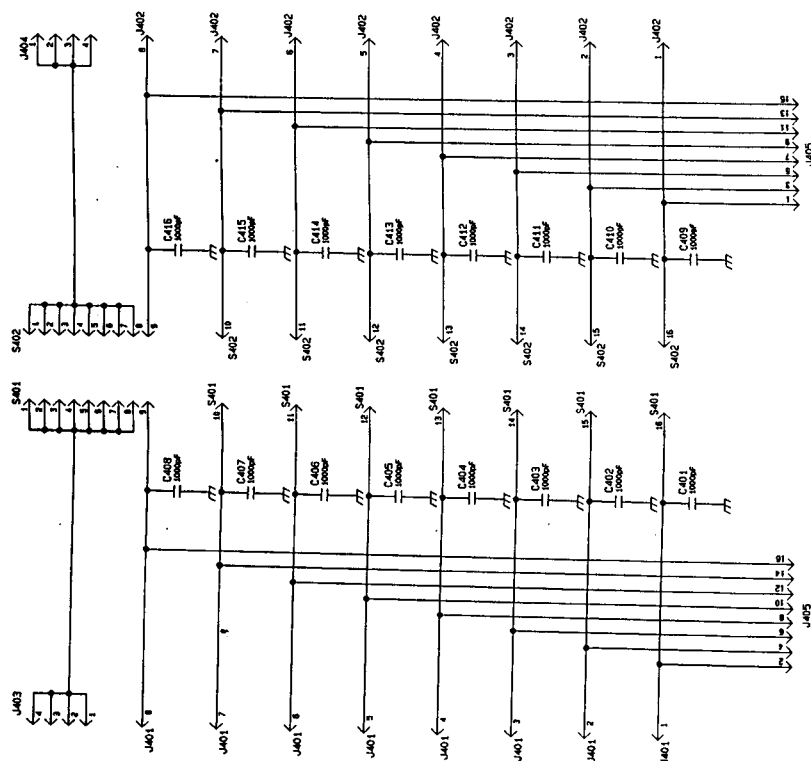
(57A)







|   |        |                          |    |    |
|---|--------|--------------------------|----|----|
| 1 | 3-1-97 | INITIATIVE RELEASE       | K1 | AC |
| 2 | 4-8-97 | ADSD C401-C415 C403 TO J | K1 | AC |
| 3 | 5-1-97 | INITIATIVE RELEASE       | K1 | AC |



- NOTES:
1. ALL DIMENSIONS IN INCHES (1/16" IN).
  2. DIMENSIONS ARE TO CENTER OF COMPONENT.
  3. COMPONENTS NOT USED.
  4. SEE ASSEMBLY INSTRUCTIONS.

|                                                  |  |                                                  |  |
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| TEL: 214-343-1000 FAX: 214-343-1001              |  | TEL: 214-343-1000 FAX: 214-343-1001              |  |
| TITLE: SPT40E BREAKAWAY                          |  | TITLE: SPT40E BREAKAWAY                          |  |
| REV: 1                                           |  | REV: 1                                           |  |
| DATE: 10/1/97                                    |  | DATE: 10/1/97                                    |  |
| BY: K. TERRY                                     |  | BY: K. TERRY                                     |  |
| CHECKED BY: K. TERRY                             |  | CHECKED BY: K. TERRY                             |  |
| APPROVED BY: K. TERRY                            |  | APPROVED BY: K. TERRY                            |  |
| SCALE: NONE                                      |  | SCALE: NONE                                      |  |
| SHEET 1 OF 1                                     |  | SHEET 1 OF 1                                     |  |

SWITCH INTERFACE CIRCUIT BOARD - 800-343A  
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