

SOUND QUALITY FOR OVER 25 YEARS

TFT
INCORPORATED

3090 OAKMEAD VILLAGE DRIVE, SANTA CLARA, CA 95051-0862
(408) 727-7272 FAX (408) 727-5942

TFT
INCORPORATED

**MODEL EAS 930A
MULTI-MODULE RECEIVER
USER'S GUIDE**

TFT INCORPORATED
3090 OAKMEAD VILLAGE DRIVE
SANTA CLARA, CA 95051-0862

P/N 5004-930A REV. B
NOVEMBER 1996
EQUIPMENT SERIAL NO. _____
SHIPMENT DATE _____

**MODEL EAS 930A
MULTI-MODULE RECEIVER
USER'S GUIDE**

TFT, INC.
3090 OAKMEAD VILLAGE DRIVE,
SANTA CLARA, CA 95051-0862
TEL: (408) 727-7272, Ext. 300
FAX: (408) 727-5942

CONTENTS

CHAPTER 1 - GENERAL INFORMATION

Paragraph	Title	Page
1.1	About this Guide.....	1-1
1.2	Overview of this Guide	1-1
1.3	Introducing the Model EAS 930A Receiver	1-2
1.4	Specifications	1-3
1.5	Warranty Information	1-4
1.6	Claims for Damage in Shipment	1-4

CHAPTER 2 - GETTING TO KNOW YOUR EAS 930A

2.1	Unpacking and Inspection	2-1
2.2	Front Panel Controls and Indicators	2-1
2.3	Rear Panel Controls and Connectors	2-3

CHAPTER 3 - PRE-INSTALLATION CHECKOUT

3.1	Introduction.....	3-1
3.2	System Operation.....	3-1
3.3	Selection of Operating Frequencies	3-1
3.3.1	Selection of AM Receiver Frequency.....	3-1
3.3.2	Selection of FM Receiver Frequency	3-1
3.3.3	Selection of NOAA Weather Radio Receiver Frequency	3-2
3.4	Pre-Installation Checkout of the EAS 930A	3-2
3.4.1	AM Receiver Checks	3-2
3.4.2	FM Receiver Checks.....	3-2
3.4.3	NOAA Weather Radio Receiver Check	3-2

CHAPTER 4 - INSTALLATION AND OPERATION

4.1	Introduction.....	4-1
4.2	Model EAS 930A System Installation.....	4-1
4.3	FM and NOAA Weather Radio Antenna Installation.....	4-2
4.4	AM Antenna Installation	4-2
4.5	Received Signal Strength Indication (RSSI).....	4-2
4.6	How to Install a New Receiver Module.....	4-3
4.6.1	AM Receiver Kit Installation Procedure	4-3
4.6.2	FM Receiver Kit Installation Procedure	4-4
4.6.3	Weather Radio Receiver Kit Installation Procedure	4-4

APPENDIX A - ENGINEERING DRAWINGS

Figure No.	Title	Drawing No.
A-1	Speaker Amp. & Power Supply Board, Schematic.....	6601-4026
A-2	Speaker Amp. & Power Supply Board, PCB Assy.....	6608-4026
A-3	AM Receiver Board, Schematic.....	6601-4038
A-4	AM Receiver Board, PCB Assy.....	6608-4038
A-5	FM Receiver Board, Schematic	6601-4037
A-6	FM Receiver Board, PCB Assy.....	6608-4037
A-7	NOAA Weather Radio Receiver Board, Schematic.....	6601-4039
A-8	NOAA Weather Radio Receiver Board, PCB Assy.	6608-4039

APPENDIX B - PARTS LIST

B-1	Speaker Amplifier & Power Supply Board Assembly.....	6608-4026
B-2	AM Receiver Board Assembly	6608-4038
B-3	FM Receiver Board Assembly	6608-4037
B-4	NOAA Weather Radio Board Assembly	6608-4039

Chapter 1 - General Information

1.1 About This Guide

This user's guide contains instructions for unpacking, setting up, operating, and routine maintenance of the TFT Model EAS 930A Multi-Module radio receiver for use in conjunction with the new Emergency Alert System (EAS).

It is recommended that the user read this Guide, and follow the pre-installation checkout in Chapter 3 and the steps in Chapter 4 for installation and operation.

1.2 Overview of This Guide

- Chapter 1 contains a general description of the Receiver, technical specifications, and warranty information.
- Chapter 2 contains instructions for unpacking and inspecting the Receiver, an explanation of front and rear panel controls, indicators and connectors, and a description of accessory items.
- Chapter 3 contains instructions for selection of receiver operating frequencies, and pre-installation checkout procedures.
- Chapter 4 contains instructions for installation of antennas, and connections to the Model EAS 930A. It also describes the field installation of the receiver modules when required.
- Chapter 5 describes the theory of operation of the Receiver beginning with a system block diagram description, following by block diagram descriptions of the AM, FM, and NOAA receiver modules and the speaker amplifier and power supply board.
- Chapter 6 contains maintenance instructions including performance checks of the AM, FM and NOAA channels. A troubleshooting guide is also included.
- Appendix A contains Assembly and Schematic drawings of Receiver circuit boards.
- Appendix B is a parts list for the EAS 930A.

1.3 Introducing the Model EAS 930A Receiver

The TFT Model EAS 930A Multi-Module Receiver System is a compact, modular radio receiver system for use with TFT's EAS 911 Emergency Alert System Decoder to enable broadcasters to participate in the Emergency Alert System. The EAS 930A consists of a chassis containing a power supply, audio amplifier, and built-in speaker. The unit can accommodate up to four field-installable receiver modules. The receiver modules can be any combination of AM receiver, FM Receiver, Weather Radio Receiver or VHF/UHF Receiver. Figure 1-1 is a basic block diagram of the Multi-Module Receiver.

The FM Receiver module is a high-performance professional receiver tunable across the FM broadcast band from 88 to 108 MHz in 100 kHz increments via a 3-digit front panel rotary switch.

The AM Receiver module uses a frequency-synthesized local oscillator which is phase-locked to a crystal oscillator. It is tunable across the AM broadcast band from 540 to 1720 kHz in 10 kHz increments via a 3-digit front panel rotary switch.

The NOAA Weather Radio Receiver module is a dual-conversion, FM narrow-band receiver. It is tunable from 162.40 to 162.55 MHz in 25 kHz increments via a single-digit front panel rotary switch.

All three receivers are provided in the standard EAS 930A equipment. A fourth module can be added to the chassis. Instructions for field installation of receiver modules is given in Chapter 4.

Each receiver module has loop-through circuitry for hot standby configuration. It switches to the audio of the hot standby receiver when the primary station is off, then switches back when the RF signal returns. Relay contacts provide drop-out alarm.

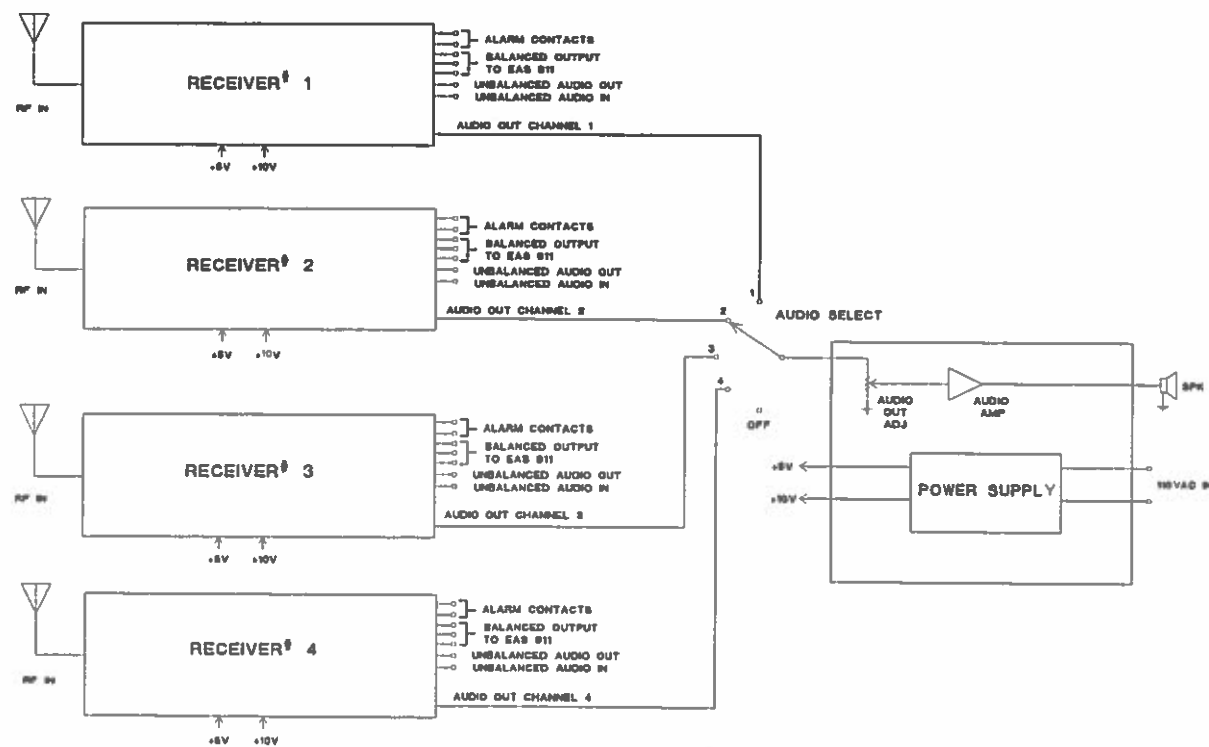


Figure 1-1. Model EAS 930A Multi-Module Receiver Basic Block Diagram

A speaker on the front panel provides audio monitoring of each receiver output. A front panel accessible 5-position switch is used to select the receiver audio to be monitored. The speaker works in conjunction with the VOLUME control also mounted on the front panel.

The Model EAS 930A is configured at the factory with an AM, FM, and NOAA receiver. The unit operates from a 117 VAC, 50 or 60 Hz power source.

1.4 Specifications

The EAS 930A performance and physical specifications are listed in Table 1-1.

Table 1-1
SPECIFICATIONS

FM RECEIVER MODULE		WEATHER RADIO RECEIVER MODULE (Continued)	
Frequency Range	88-108 MHz, digitally tunable in 100 kHz steps	Sensitivity	1.5 μ V for 20 dB quieting
Antenna Input	75 Ω , Type F connector	Image Rejection	60 dB
Sensitivity	2 μ V for 20 dB quieting	I.F. Rejection	70 dB
Audio Output	-10 dBm to +3 dBm (adjustable from rear panel) 600 Ω balanced, 3-pin terminal block	Modulation	FM, \pm 5 kHz deviation
T.H.D.	Less than 3% at 66.6% modulation	Antenna	75 Ω , type F connector
		Audio Output	-10 dBm to +3 dBm (adjustable from rear panel) balanced, 3-pin terminal block
AM RECEIVER MODULE		T.H.D.	Less than 3% at 66.6% modulation
Frequency Range	540 kHz to 1720 kHz, digitally tunable in 10 kHz steps	PHYSICAL AND ENVIRONMENTAL	
Antenna Input	Terminal block connector; external AM loop antenna supplied	L.O. Emissions	Fully compliant with FCC Rules, Part 15
Sensitivity	20 μ V for 20 dB S/N	Dimensions	1-3/4" x 19"W x 12"D
AGC	45 dB	Operating Temperature	0° to 50° C
Audio Output	-10 dBm to +3 dBm (adjustable from rear panel) 600 Ω balanced, 3-pin terminal block	Net Weight	Approximately 6.5 lbs
T.H.D.	Less than 3% at 66.6% modulation	Shipping Weight	Approximately 8 lbs
WEATHER RADIO RECEIVER MODULE		ORDERING INFORMATION	
NOAA Weather Channel	Channel 1: 162.550 MHz Channel 2: 162.400 MHz Channel 3: 162.475 MHz Channel 4: 162.425 MHz Channel 5: 162.450 MHz Channel 6: 162.500 MHz Channel 7: 162.525 Mhz	TFT PART NUMBER	DESCRIPTION
		5116-0930A	EAS 930A complete assembly with chassis power supply and AM FM, and Weather Receiver Modules
		5102-3969	Chassis with power supply and audio monitor speaker only
		6608-4037	FM Receiver Module
		6608-4038	AM Receiver Module
		6608-4039	NOAA Weather Receiver Module

1.5 Warranty Information

The following warranty policy and limitations are applicable to the Model EAS 930A Emergency Alert System Multi-Module Receiver.

WARRANTY

TFT, Inc. warrants each manufactured Model EAS 930A Multi-Module Receiver to meet published specifications and to be free from defects in material and workmanship. TFT will repair or replace, at its expense, for a period of one (1) year from the date of shipment of equipment, all parts which are defective from faulty material or workmanship. This Warranty does not cover equipment which has been misused and/or altered by the user. Units found to be defective during the warranty period shall be returned to TFT with transportation charges prepaid by the BUYER. It is expressly agreed that replacement and repair shall be the sole remedy of the SELLER with respect to any non-conforming equipment and parts thereof, and shall be in lieu of any other remedy available by applicable law. All returns to the factory must be authorized in advance by TFT. Upon examination by the factory, if any EAS911 Equipment is found to be defective, the unit will be repaired and returned to the BUYER with transportation charges prepaid by TFT during the warranty period. Transportation charges for the units found to be defective within the first 30 days of the warranty period will be paid both ways by TFT. Transportation charges for warranty returns wherein failure is found not to be the fault of TFT or one year after the delivery of the equipment shall be paid both ways by the BUYER. This warranty does not apply to equipment which, in the opinion of the SELLER, has been altered or misused.

NO OTHER WARRANTY IS EXPRESSED OR IMPLIED. TFT IS NOT LIABLE FOR ANY CONSEQUENTIAL DAMAGES.

1.6 Claims for Damage in Shipment

Your instrument should be inspected and tested by the method given in Chapter 3 of this guide as soon as it is received. If the instrument is damaged in any way or fails to operate properly due to transportation damage, file a claim with the carrier or, if insured separately, with the insurance company.

OUR EMERGENCY SERVICE IS AVAILABLE 24 HOURS A DAY. PLEASE CALL US IF YOU NEED ASSISTANCE WITH ANY TFT PRODUCT.

TFT, INC.
 3090 OAKMEAD VILLAGE DRIVE,
 SANTA CLARA, CA 95051-0862
 TEL: (408) 727-7272, Ext. 300
 FAX: (408) 727-5942

Chapter 2 - Getting to Know Your EAS 930A

2.1 Unpacking and Inspection

Upon receiving the instrument, inspect the packing box for signs of shipping damage. Report any damage to the transportation company.

Open the shipping box, and verify that it contains the following items:

- Model EAS 930A Multi-Module Receiver
- AM Loop Antenna with Base, TFT P/N 2140-7215
- RF Power Splitter 2:1, TFT P/N 1890-0015
- RF Cable Assembly, Type F to Type F, RG59 (2 each), TFT P/N 4750-0981
- Power Cord
- Installation and Operation Guide, TFT P/N 5004-0930A
- Warranty Card

After unpacking, operate the instrument in accordance with the procedures in Chapter 3 of this guide. If the instrument is damaged or fails to operate properly due to transportation damage, file a claim with the transportation company or, if insured separately, with the insurance company.

2.2 Front Panel Controls and Indicators

Receiver front panel controls and indicators are shown in Figure 2-1. Numbered items in this figure are explained in Table 2-1.

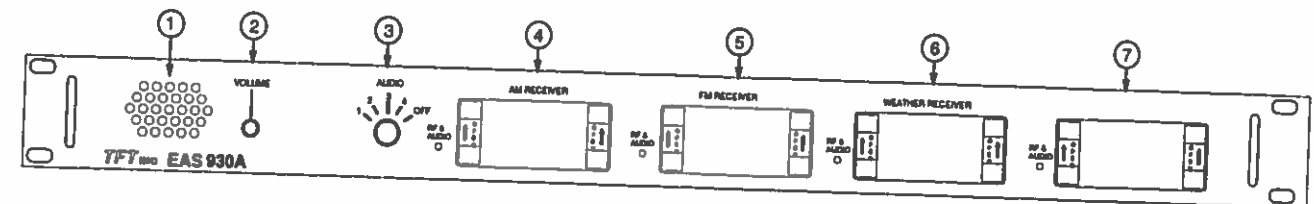


Figure 2-1. Receiver Front Panel Controls and Indicators

Table 2-1. Receiver Front Panel Controls and Indicators

ITEM	TITLE	FUNCTION
1		Speaker. Produces audible output from receiver selected via AUDIO switch (Item 3)
2	VOLUME	Potentiometer. Volume control for receiver audio selected via AUDIO switch (Item 3)
3	AUDIO	5-position rotary switch. Selects the audio output of a receiver for routing to audio amplifier and speaker. In the OFF position, no receiver audio is selected.
		Note: Power to the Receivers is always ON. The 5-position switch controls only which receiver audio is routed to the speaker for monitoring.

Table 2-1. Receiver Front Panel Controls and Indicators (Continued)

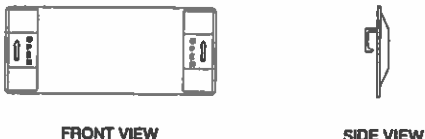
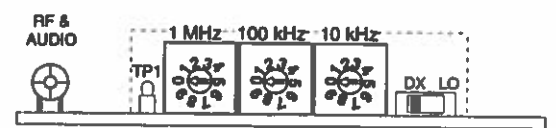
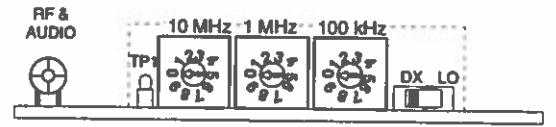
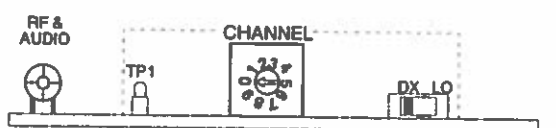
ITEM	TITLE	FUNCTION
		<p>Note: Individual Receiver controls are accessible by removing the associated push-on cover (shown below) from the front panel. To remove the cover, push it upward to disengage its rear hooks, then pull gently forward to remove it from the front panel.</p>  <p style="text-align: center;">FRONT VIEW SIDE VIEW</p>
4	AM RECEIVER	<p>Receiver module for AM broadcast band (540 - 1720 kHz)</p>  <p style="text-align: center;">Figure 2-2. AM Receiver Module Edge-Mounted Controls and Indicators</p> <p>RF & AUDIO Yellow LED. Flashes when an RF signal is detected which is above the minimum level of 20 μV and has audio modulation.</p> <p>TP1 Test point for RF Signal Strength Indication (RSSI) monitoring</p> <p>1 MHz, 100 kHz, 10 kHz Rotary switches for setting receive frequency</p> <p>DX/LO Local/Distant switch for setting receiver sensitivity</p>
5	FM RECEIVER	<p>Receiver module for FM broadcast band (88 - 108 MHz)</p>  <p style="text-align: center;">Figure 2-3. FM Receiver Module Edge-Mounted Controls and Indicators</p> <p>RF & AUDIO Yellow LED. Flashes when an RF signal is detected which is above the minimum level of 10 μV and has audio modulation.</p> <p>TP1 Test point for RF Signal Strength Indication (RSSI) monitoring</p> <p>10 MHz, 1 MHz, 100 kHz Rotary switches for setting received frequency</p> <p>DX/LO Local/Distant switch for setting receiver sensitivity</p>
6	WEATHER RECEIVER	<p>Radio Receiver module for weather broadcasts (162.400 - 162.550 MHz)</p>  <p style="text-align: center;">Figure 2-4. Weather Receiver Module Edge-Mounted Controls and Indicators</p>

Table 2-1. Receiver Front Panel Controls and Indicators (Continued)

ITEM	TITLE	FUNCTION
6 (Cont'd.)	RF & AUDIO	Yellow LED. Flashes when an RF signal is detected which is above the minimum level of 5 μ V and has audio modulation.
	TP1	Test point for RSSI monitoring
	CHANNEL	Rotary switch for setting receive channel. See Table 3-1 for weather channel frequencies
	DX/LO	Local/Distant switch for setting receiver sensitivity
7	(unmarked)	Slot for additional Receiver Module. Module can be any type

2.3 Rear Panel Controls and Connectors

Receiver rear panel controls and connectors are shown in Figure 2-5. Numbered items in this figure are explained in Table 2-2.

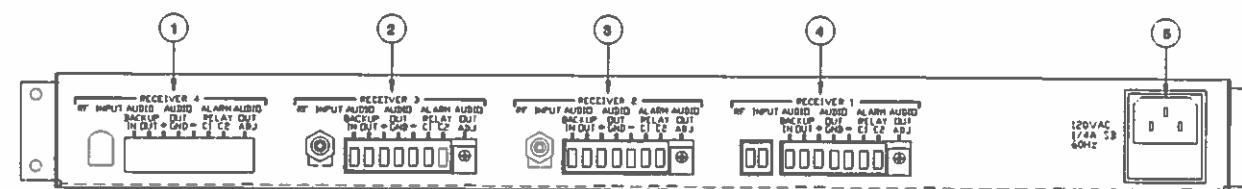


Figure 2-5. Receiver Rear Panel Controls and Connectors

Table 2-2. Receiver Rear Panel Controls and Connectors

ITEM	TITLE	FUNCTION
1	RECEIVER 4	<p>Controls and connectors for Receiver 4:</p> <p>RF INPUT: Type F connector for RF input to the FM and Weather receiver modules, 2 pin terminal block connector for RF input to the AM Receiver module.</p> <p>AUDIO BACKUP INPUT: An unbalanced audio signal can be input to the receiver. If the receiver loses RF or modulation, the AUDIO BACKUP INPUT is switched to the BALANCED AUDIO OUTPUT.</p> <p>NOTE: To activate this feature, refer to 4.2, System Installation.</p> <p>AUDIO BACKUP OUTPUT: An unbalanced audio output is provided to be used as the AUDIO BACKUP INPUT to another module.</p> <p>BALANCED AUDIO OUTPUT: Terminal block connector for balanced audio output to EAS 911 or other external equipment.</p> <p>ALARM RELAY CONTACTS: The ALARM RELAY CONTACTS are closed if the Receiver loses RF or modulation.</p>

Table 2-2. Receiver Rear Panel Controls and Connectors (Continued)

ITEM	TITLE	FUNCTION
		AUDIO OUT ADJ: Level adjustment for balanced audio output. Normally set to 2.2 Vp-p as measured with an oscilloscope from ground to either the + or - terminal.
2	RECEIVER 3	Controls and connectors for Receiver 3 Functions of these items are identical to those for Receiver 4
3	RECEIVER 2	Controls and connectors for Receiver 2 Functions of these items are identical to those for Receiver 4
4	RECEIVER 1	Controls and connectors for Receiver 1 Functions of these items are identical to those for Receiver 4
5	120VAC, 1/4A SB 60 Hz	Prime power input connector and fuse holder

Chapter 3 - Pre-Installation Checkout

3.1 Introduction

This chapter describes EAS 930A Multi-Module Receiver pre-installation checkout procedures. It is recommended that the user perform these procedures on the EAS 930A on a work bench before its final installation.

3.2 System Operation

The unit has two front-panel controls. The AUDIO select switch is used to select the audio output of a receiver for monitoring via the front panel speaker. The volume of the speaker output is adjustable via the front panel VOLUME control (Figure 2-1, Item 2).

Controls for receiver modules are edge-mounted on their main circuit cards. The controls are accessible by removing the front panel access plate of the module.

Each receiver module has a level adjustment for its audio output (See Figure 2-5). This audio output is routed to rear-panel terminals (See Figure 2-5), and is separate from that supplied to the front-panel AUDIO select switch (Figure 2-1, Item 3). Receiver audio selected by this switch is routed to the internal speaker/amplifier for local monitoring.

3.3 Selection of Receiver Operating Frequencies

Each receiver module has one or more rotary switches for setting its operating frequency. These switches are shown in Figures 3-1 thru 3-3, and are accessible by removing the receiver's front panel access plate (push-on cover). See Item 3 of Table 2-1 for push-on cover removal instructions.

3.3.1 Selection of AM Receiver Frequency

The AM Receiver controls and indicators accessible from the front panel are shown in Figure 3-1. The receiver operating frequency can be set from 540 to 1720 kHz in 10 kHz steps via three rotary switches. The AM receiver frequency should be set to one of the two FCC-assigned EAS stations.

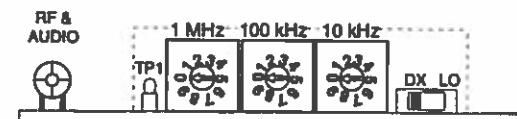


Figure 3-1. AM Receiver Controls and Indicators

3.3.2 Selection of FM Receiver Frequency

The FM Receiver controls and indicators accessible from the front panel are shown in Figure 3-2. The receiver operating frequency can be set from 88 to 108 MHz in 100 kHz steps via three rotary switches. The FM receiver frequency should be set to one of the two FCC-assigned EAS stations.

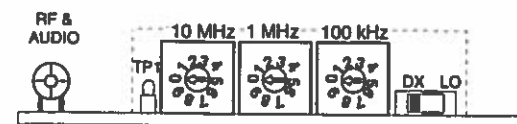


Figure 3-2. FM Receiver Controls and Indicators

3.3.3 Selection of NOAA Weather Radio Receiver Frequency

The NOAA Weather Radio Receiver controls and indicators accessible from the front panel are shown in Figure 3-3. The receiver operating frequency can be set to any of 7 discrete channels from 162.400 to 162.550 MHz via a single rotary switch as listed in Table 3-1. A listing of the frequency assignments for the NOAA Weather Radio Network can be found in Table 3-2.

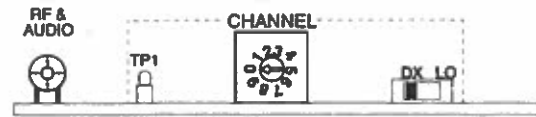


Figure 3-3. NOAA Weather Radio Receiver Controls and Indicators

Table 3-1. NOAA Channel Frequencies

Channel	Frequency (MHz)
1	162.550
2	162.400
3	162.475
4	162.425
5	162.450
6	162.500
7	162.525

There is no FCC requirement for broadcasters or cablecasters to monitor NOAA Weather stations. However, since the Weather Radio stations use the same EAS codes, it is an added protection to monitor these stations. More than 80% of all alert activities are weather related according to the FCC

3.4 Pre-Installation Checkout of the EAS 930A

It is recommended that a bench test of the EAS 930A Receiver be performed before final installation. This will verify that the unit has not been damaged in shipment.

3.4.1 AM Receiver Checks

Connect the loop antenna to the antenna input at the rear panel of the AM Receiver. Check for audio output from the speaker. Tune to a strong, local AM station if there is no audio output at the frequency selected in Paragraph 3.3.1 of this Chapter. The objective is to verify that the AM receiver is operating properly.

3.4.2 FM Receiver Checks

Perform a confidence check of the FM Receiver by repeating the procedures of Paragraph 3.4.1 on the FM receiver using either an indoor dipole antenna or an outdoor antenna described in Paragraph 4.3. The objective is to verify proper operation of the FM Receiver.

3.4.3 NOAA Weather Radio Receiver Check

Perform a confidence check of the FM Receiver by selecting the strongest NOAA Weather Station in the area. Use an indoor or outdoor antenna described in Paragraph 4.3

Table 3-2.

NOAA Weather Radio Network

Legend-Frequencies are identified as follows:

1. 162.550 MHz
2. 162.400 MHz
3. 162.475 MHz
4. 162.425 MHz
5. 162.450 MHz
6. 162.500 MHz
7. 162.525 MHz

Location	Frequency	Location	Frequency	Location	Frequency	Location	Frequency
Alabama		California	continued	Georgia	continued	Kansas	continued
Anniston	3	Monterey	2	Chatsworth	2	Dodge City	3
Birmingham	1	Point Arena	1	Columbus	2	Elsworth	2
Demopolis	3	Redding (P)	1	Macon	3	Topeka	3
Dozier	1	Sacramento	1	Palham	1	Wichita	1
Florence	3	San Diego	2	Savannah	2	Kentucky	
Huntsville	2	San Francisco	2	* Valdosta	6	Ashland	1
Louisville	3	San Luis Obispo	1	Waycross	3	Bowling Green	2
Mobile	1	Santa Barbara	2	Waynesboro	4	Covington	1
Montgomery	2	Colorado		Hawaii		Elizabethtown ®	2
Tuscaloosa	2	Alamosa (P)	3	Hilo	1	Hazard	3
Alaska		Colorado Springs	3	Honolulu	1	Lexington	2
Anchorage	1	Denver	1	Kokee	2	Louisville	3
Cordova	1	Fort Collins	5	Mt. Haleakala	2	Mayfield	3
Fairbanks	1	Grand Junction	1	Waimanalo (P)	2	Pikeville ®	2
Homer	2	Greeley	2	Idaho		Somerset	1
Juneau	1	Longmont	1	Boise	1	Louisiana	
Ketchikan	1	Pueblo	2	Lewiston (P)	1	Alexandria	3
Kodiak	1	Sterling	2	Pocatello	1	Baton Rouge	2
Nome	1	Connecticut		Twin Falls	2	Buras	3
Haines	1	Hartford	3	Illinois		Lafayette	1
Seward	1	Meriden	2	Champaign	1	Lake Charles	2
Sitka	1	New London	1	Chicago	1	Monroe	1
Valdez	1	Delaware		Marion	4	Morgan City	3
Wrangell	2	Lewes	1	Moline	1	New Orleans	1
Yakutat	2	District of Columbia		Peoria	3	Shreveport	2
Arizona		Washington, D.C.	1	Rockford	3	Maine	
Flagstaff	2	Florida		Springfield	2	* Caribou	7
Lake Powell	1	Bell Glade	2	Indiana		* Dresden	3
Phoenix	1	Daytona Beach	2	* Bloomington	5	Elsworth	2
Tucson	2	Fort Myers	3	Evansville	1	Portland	1
Yuma	1	Gainesville	3	Fort Wayne	1	Maryland	
Arkansas		Jacksonville	1	Indianapolis	1	Baltimore	2
Fayetteville	3	Key West	2	Lafayette	3	Hagerstown	3
Fort Smith	2	Melbourne	1	* Marion	5	Salisbury	3
Gurdon	3	Miami	1	South Bend	2	Massachusetts	
Jonesboro	1	Orlando	3	Terre Haute	2	Boston	3
Little Rock	1	Panama City	1	Iowa		Hyannis	1
Mountain View	2	Pensacola	2	Cedar Rapids	3	Worcester	1
Star-City	2	Tallahassee	2	Des Moines	1	Michigan	
Texarkana	1	Tampa	1	Dubuque (P)	2	Alpena	1
California		West Palm Beach	3	Sioux City	3	Detroit	1
Bakersfield (P)	1	Georgia		Waterloo	1	Flint	2
Coachella (P)	2	Athens	2	Kansas		Grand Rapids	1
Eureka	2	Atlanta	1	Chanute	2	Houghton	2
Fresno	2	Augusta	1	Colby	3	Marquette	1
Los Angeles	1	* Baxley	7	Concordia	1		
Lindsay	6						

Chapter 4 - Installation and Operation

Location	Frequency	Location	Frequency	Location	Frequency	Location	Frequency
Michigan	continued	New Mexico		Pennsylvania	continued	U.S. Virgin Islands	
* Onondaga	2	Albuquerque	2	Erie	2	* St. Thomas	3
Sault Sainte Marie	1	Clovis	3	Harrisburg	1	Utah	
Traverse City	2	Des Moines	1	Johnstown	2	Logan	2
Minnesota		Farmington	3	Philadelphia	3	Cedar City	2
Detroit Lakes	3	Hobbs	2	Pittsburgh	1	Vernal	2
Duluth	1	Las Cruces	2	State College	3	Salt Lake City	1
International Falls	1	Ruidoso	1	* Towanda	3	Vermont	
Mankato	2	Santa Fe	1	* Wellsboro	1	Burlington	2
Minneapolis	1	New York		Wilkes-Barre	1	* Marlboro	4
Rochester	3	Albany	1	Williamsport	2	Windsor	3
Saint Cloud (P)	3	Binghamton	3	Puerto Rico		Virginia	
Thief River Falls	1	Buffalo	1	Maricao	1	Heathsville	2
Wilmarr (P)	2	Elmira	2	San Juan	2	* Kynchburg	1
Mississippi		Kingston	3	Rhode Island		Norfolk	1
Ackerman	3	New York City	1	Providence	2	Richmond	3
Booneville	1	* Riverhead	3	South Carolina		Roanoke	2
Bude	1	Rochester	2	Beaufort	3	Washington	
* Columbia	2	Syracuse	1	Charleston	1	Neah Bay	1
Gulfport	2	North Carolina		Columbia	2	Olympia	3
Hattiesburg	3	Asheville	2	Cross	3	Seattle	1
Inverness	1	Cape Hatteras	3	Florence	1	Spokane	2
Jackson	2	Charlotte	3	Greenville	1	Wenatchee	3
Meridian	1	Fayetteville	3	Myrtle Beach	2	Yakima	1
Oxford	2	New Bern	2	Sumter (R)	3	West Virginia	
Missouri		Raleigh/Durham	1	South Dakota		Beckley	6
Columbia	2	Rocky Mount	3	Aberdeen	3	Charleston	2
Camdenton	1	Wilmington	1	Huron	1	Clarksburg	1
Hannibal	3	Winston-Salem	2	Pierre	2	Gilbert	7
Hermitage	5	North Dakota		Rapid city	1	Hinton	4
Joplin/Carthage	1	Bismark	2	Sioux Falls	2	Moorefield	7
Kansas City	1	Dickinson	2	Tennessee		Spencer	6
St. Joseph	2	Fargo	2	Bristol	1	Sutton	5
St. Louis	1	Jamestown	2	Chattanooga	1	Wisconsin	
Sikeston	2	Minot	2	Cookeville	2	La Crosse (P)	1
Springfield	2	Petersburg	2	Jackson	1	Green Bay	1
Montana		Williston	2	Knoxville	3	Madison	1
Billings	1	Ohio		Memphis	3	Menomonie	2
Butte	1	Akron	2	Nashville	1	Milwaukee	2
Glasgow	1	Cambridge	3	Shelbyville	3	* Park Falls	6
Great Falls	1	Cleveland	1	Waverly	2	Wausau	3
Havre (P)	2	Columbus	1	Texas		Wyoming	
Helena	2	Dayton	3	Abilene	2	Casper	1
Kaispell	1	Lima	2	Amarillo	1	Cheyenne	3
Miles City	2	Sandusky	2	Austin	2	Lander	3
Missoula	2	Toledo	1	Beaumont	3	Sheridan (P)	3
Nebraska		Oklahoma		Big Spring	3		
Bassett	3	Clinton	3	Brownsville	1		
Grand Island	2	Enid	3	Bryan	1		
Holdrege	3	Lawton	1	Corpus Christi	1		
Lincoln	3	McAlester	3	Dallas	2		
Meriman	2	Okahoma City	2	Del Rio (P)	2		
Norfolk	1	Tulsa	1	El Paso	3		
North Platte	1	Oregon		Forth Worth	1		
Omaha	2	Astoria	2	Galveston	1		
Scottsbluff	1	Brookings	1	Houston	2		
Nevada		Coos Bay	2	Laredo	3		
Elko	1	Eugene	2	Lubbock	2		
Ely	2	Klamath Falls	1	Lufkin	1		
Las Vegas	1	Medford	2	Midland	2		
Reno	1	Newport	1	Paris	1		
Winnemucca	2	Pendleton	2	Pharr	2		
New Hampshire		Portland	1	San Angelo	1		
Concord	2	Roseburg	1	San Antonio	1		
New Nersey		Salem	3	Sherman	3		
Atlantic City	2	Pennsylvania		Tyler	3		
		Allentown	2	Victoria	2		
		Clearfield	1	Waco	3		
				Wichita Falls	3		

- Notes:**
1. Stations marked with an asterisk (*) are funded private interest groups.
 2. Stations marked @ are low powered experimental repeater stations serving a very limited local area.
 3. Stations marked (P) operate less than 24 hours/day however, hours are extended when possible during severe weather.
 4. Occasionally the frequency of an existing or planned station must be changed because of unexpected radio frequency interference with adjacent NOAA Weather Radio stations and/or with other government or commercial operators within the area.

4.1 Introduction

This chapter describes EAS 930A Multi-Module Receiver system installation procedures to be performed after the unit passes the pre-installation checkout described in Chapter 3.

4.2 Model EAS 930A System Installation

The EAS 930A Receiver requires connections to antennas as shown in Figure 4-1. The 930A also requires connection to prime power. The receiver audio outputs are typically connected to the TFT Model 911 Emergency Alert System Decoder's audio inputs.

If the receivers are to be used in a hot standby configuration, the AUTO SWITCH strap on the receiver must be placed in the ON position. Remove the top cover of the EAS 930A to gain access to this strap on the module. On the rear panel of the EAS 930A, connect the AUDIO BACKUP OUTPUT of the backup receiver to the AUDIO BACKUP INPUT of the primary receiver. If the primary receiver loses RF or modulation, the backup receiver will be switched to the output of the primary receiver. The ALARM RELAY output provides a set of closed contacts if the receiver loses RF or audio, and can be used for alarm monitoring purposes.

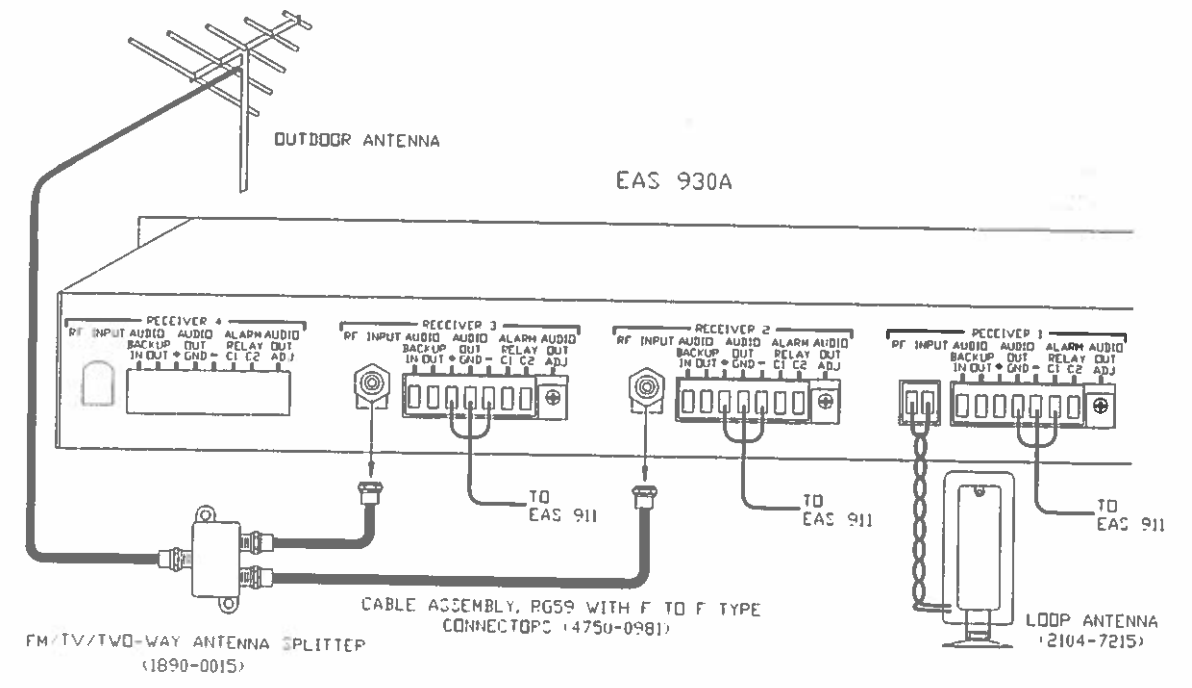


Figure 4-1. EAS 930A RF Input Connections

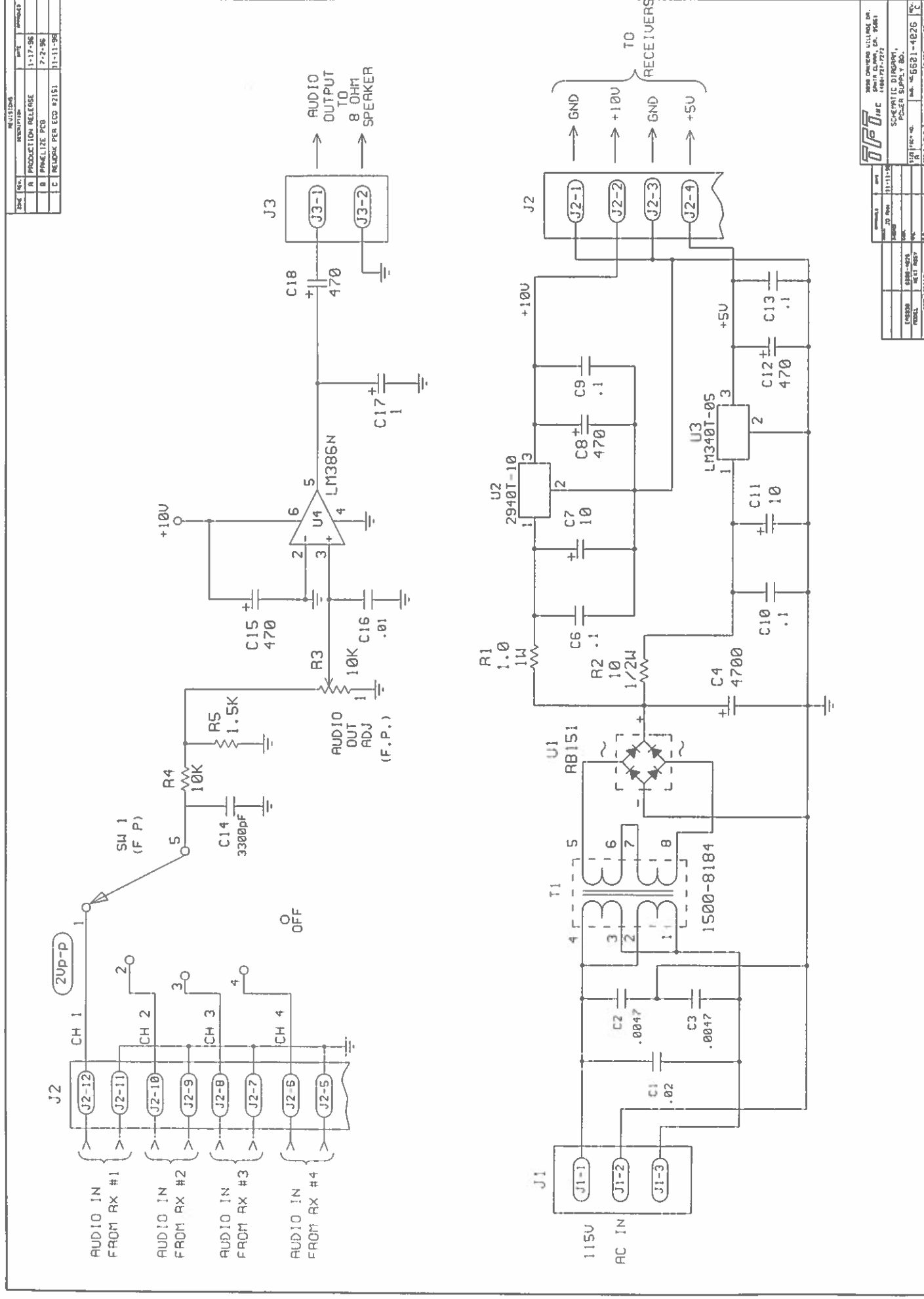
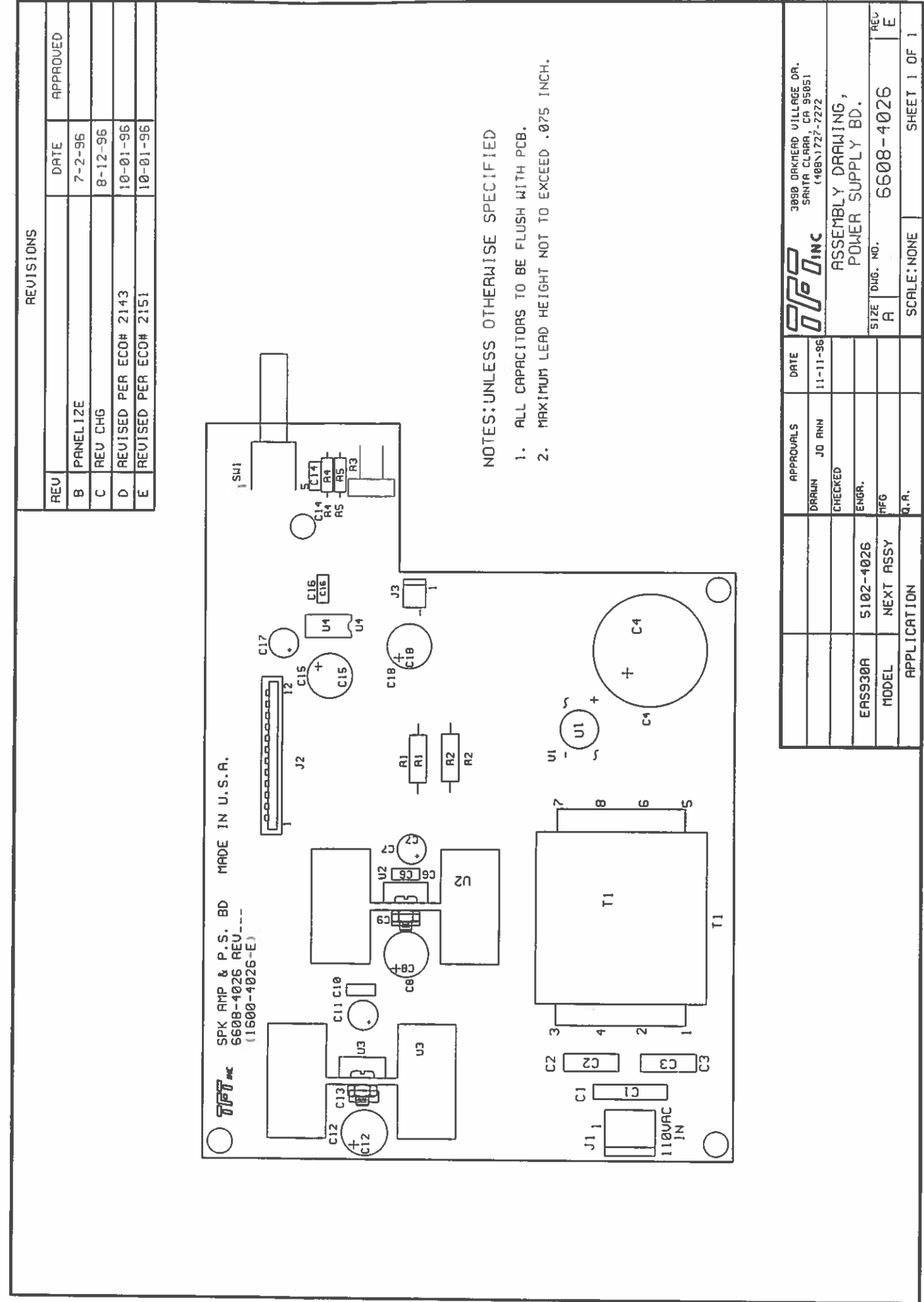


Figure A-1



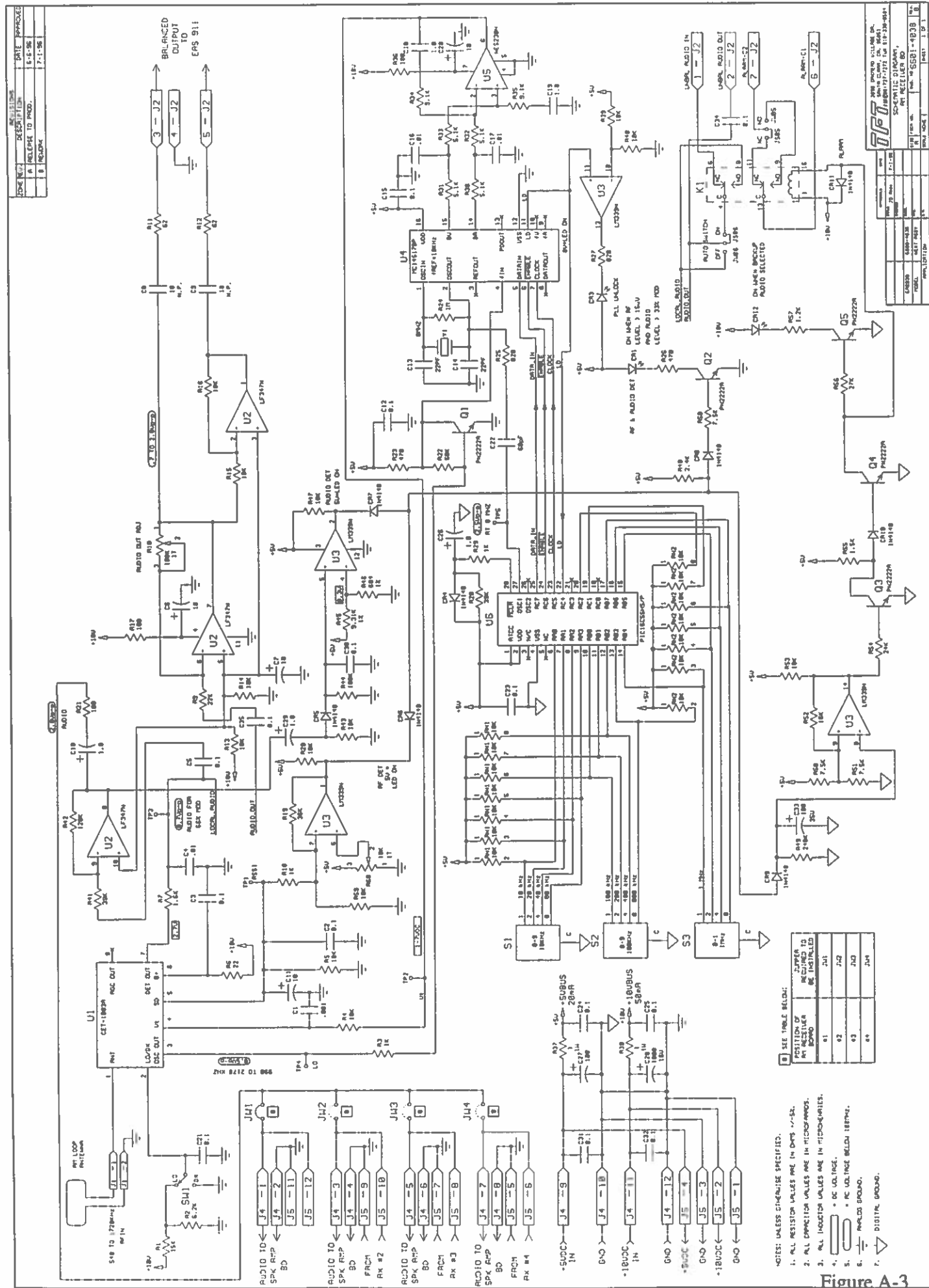


Figure A-3

REV	DATE	APPROVED
A	6-14-96	
B	7-1-96	

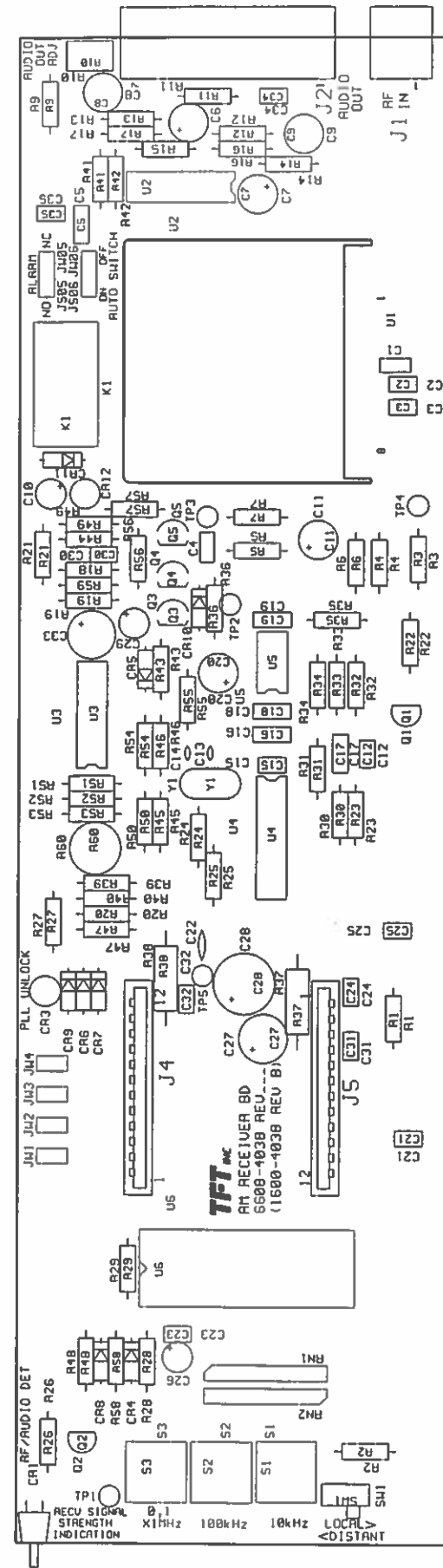


Figure A-4

REV	DATE	APPROVALS	DATE	APPROVED
A	7-1-96	DRAIN	7-1-96	
B		CHECKED		
		ENGR.		
		MFG		
		D.A.		

3888 ORKHEAD VILLAGE DR.
 SANTA CLARA, CA 95051
 INC. 1081727-7272 FAX 910-338-0584
 ASSEMBLY DRAWING
 AM RECEIVER BD.
 SIZE: A
 DRG. NO.: 6608-4038
 SCALE: NONE
 SHEET 1 OF 1

REV. NO.	DESCRIPTION	DATE	APPROVED
1	RELEASE TO PROD.	6-14-96	
2	DELETE R3, R5	7-1-96	

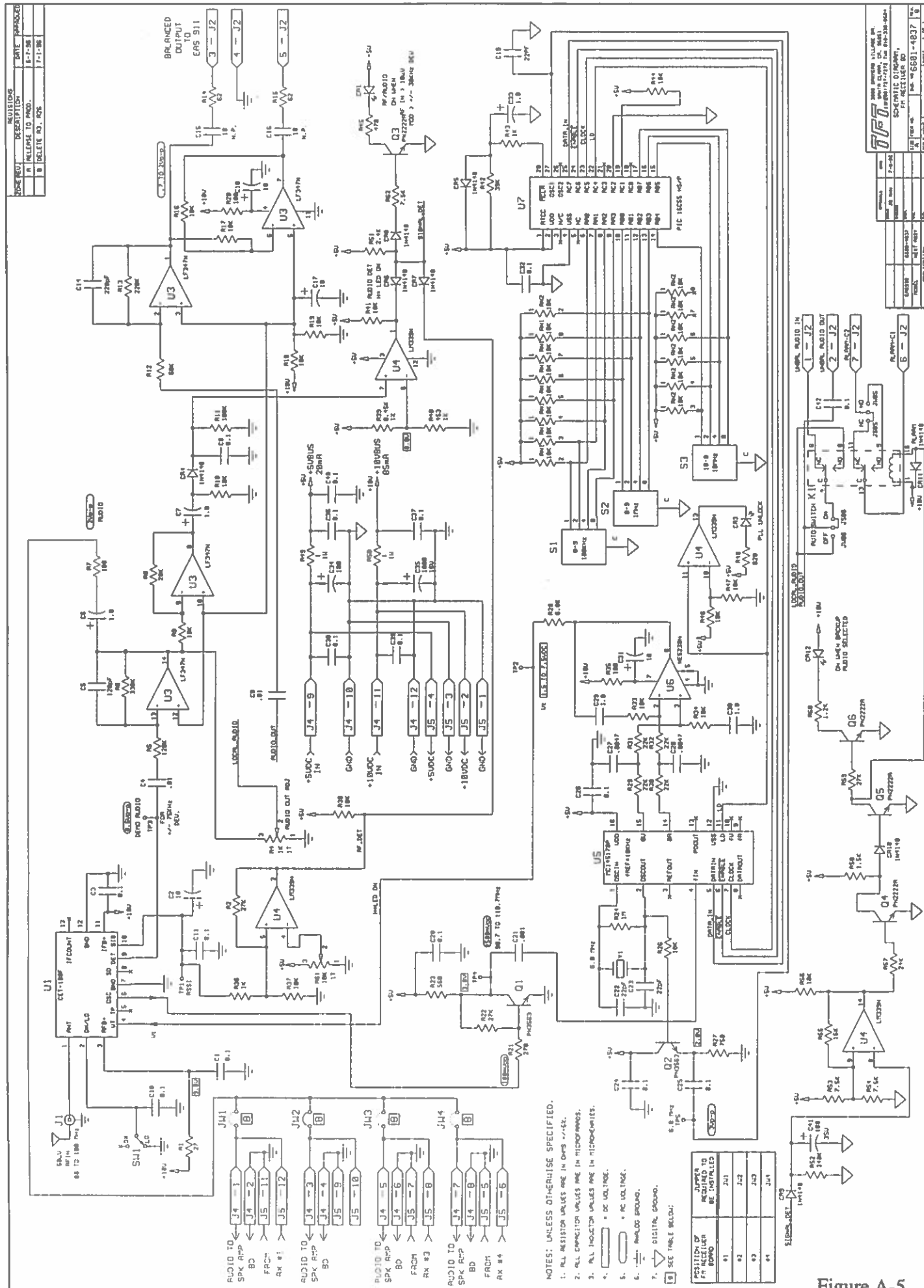


Figure A-5

REV	DESCRIPTION	DATE	APPROVED
A	RELEASE TO PROD.	6-14-96	
B	REWORK	7-1-96	

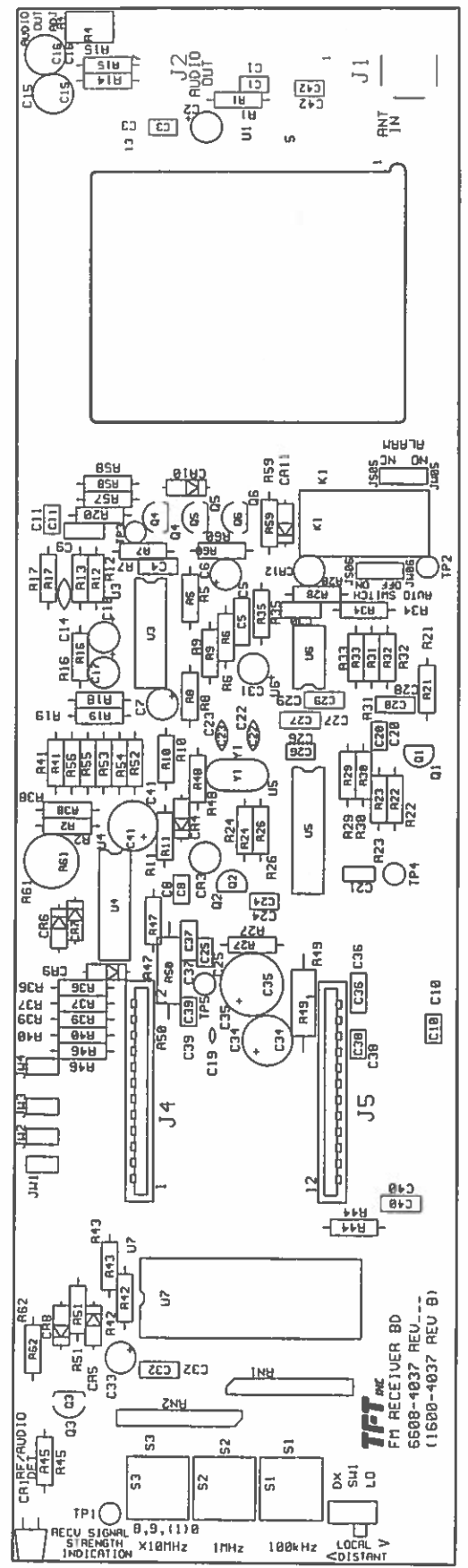


Figure A-6

APPROVALS	DATE	3890 DAKWOOD VILLAGE DR. SANTA CLARRA, CA 95051
DRAWN JO RNN	7-8-96	INC. (408) 727-7272 TX# 910-338-0584
CHECKED		ASSEMBLY DRAWING
ENGR.		FM RECEIVER BD.
ERS330	5102-3947	SIZE (AUG. NO. 6608-4037
MODEL	NEXT ASSY	A
APPLICATION	Q.A.	SCALE: NONE
		SHEET 1 OF 1

Appendix B - Parts List

Figure	Title	Dwg. No.	Rev.
B-1	Speaker Amplifier & Power Supply Board Assembly	6608-4026	C
B-2	AM Receiver Board Assembly	6608-4038	B
B-3	FM Receiver Board Assembly	6608-4037	B
B-4	NOAA Weather Radio Board Assembly	6608-4039	B

CKT. REF.	DESCRIPTION	TFT PART NO.
C001	CAP CER DISC .02MFD	1005-2039CEAS
C002	CAP CER DISC .0047MFD	1005-4749CEAS
C003	CAP CER DISC .0047MFD	1005-4749CEAS
C004	4700MFD 25V VERT MT LO PRO CAP	1010-0473CEAS
C005	PARTS NOT USED	X000-0001
C006	CAP CER 0.1MF CK05BX K	1015-0001CEAS
C007	CAP ELECT 10 MFD 25V VERT MT	1010-0099CEAS
C008	CAP ELEC 470MF 25V VERT MNT	1010-0045CEAS
C009	CAP CER 0.1MF CK05BX K	1015-0001CEAS
C010	CAP CER 0.1MF CK05BX K	1015-0001CEAS
C011	CAP ELECT 10 MFD 25V VERT MT	1010-0099CEAS
C012	CAP ELEC 470MF 25V VERT MNT	1010-0045CEAS
C013	CAP CER 0.1MF CK05BX K	1015-0001CEAS
C014	CAP CER .0033MF CK05BX K	1015-0014CEAS
C015	CAP ELEC 470MF 25V VERT MNT	1010-0045CEAS
C016	CAP CER .01MF CK05BX103K	1015-0002CEAS
C017	CAP 1.0 MFD 50V (NO SUB.)	1010-0021CEAS
C018	CAP ELEC 470MF 25V VERT MNT	1010-0045CEAS
HS01	HEATSINK 1"WD X 1"H X L.65LG	2010-0847CEAS
HS02	HEATSINK 1"WD X 1"H X L.65LG	2010-0847CEAS
J001	PLUG LOCKING 3 PIN	2250-6003CEAS
J002	12PIN .100CTR FLEX CBL CONN	2250-6019EAS
J003	2 PIN .100 CTR STRAIGHT MALE CONN	2250-5829CEAS
PCB1	SPK AMP & PS BD 930	1800-4026EAS
R001	RES 1W 1.0 OHM 5% METAL OXIDE	1088-0071CEAS
R002	RES CAR FILM 10 OHM 5% 1/2W	1087-1910CEAS
R003	10K POT VT W/HANDLE PTC10WH2.5	1070-0504EAS
R004	RES CAR FILM 1/4W 5% 10K	1085-1002CEAS
R005	RES CAR COMP 1/4W 5% 1.5K	1085-1501CEAS
SW01	ROTARY SWITCH - 1P5T	1800-2130EAS
T001	XFMR 11VDC AT .4A	1500-8184EAS
U001	1.5A BRDG RECT RB-151	1284-0151EAS
U002	LOW DROPOUT REGULATOR +10V 1A	1100-2910EAS
U003	IC LM340T-05	1100-7805CEAS
U004	IC LM388 LOW VOLT AUDIO P A	1100-0386CEAS

CKT REF	DESCRIPTION	TFT PART NO.
C001	CAP 1000PF 100V CER NPO	1005-1003CEAS
C002	CAP CER 1MFD	1005-1100CEAS
C003	CAP CER 1MFD	1005-1100CEAS
C004	.01UF CER CAP	1005-1038EAS
C005	CAP CER 1MFD	1005-1100CEAS
C006	CAP ELECT 10 MFD 25V VERT MT	1010-0099CEAS
C007	CAP ELECT 10 MFD 25V VERT MT	1010-0099CEAS
C008	CAP ELEC 10MFD 25V NP V MT	1010-0013CEAS
C009	CAP ELEC 10MFD 25V NP V MT	1010-0013CEAS
C010	CAP 1.0 MFD 50V (NO SUB.)	1010-0021CEAS
C011	CAP ELECT 10 MFD 25V VERT MT	1010-0099CEAS
C012	CAP CER 1MFD	1005-1100CEAS
C013	CAP MINI CER 22 PF NPO 63V	1017-0220CEAS
C014	CAP MINI CER 22 PF NPO 63V	1017-0220CEAS
C015	CAP CER 1MFD	1005-1100CEAS
C016	CAP CER .01MF CK05BX103K	1015-0002CEAS
C017	CAP CER .01MF CK05BX103K	1015-0002CEAS
C018	CAP CER DISC 1MFD	1005-0001CEAS
C019	CAP CER DISC 1MFD	1005-0001CEAS
C020	CAP ELECT 10 MFD 25V VERT MT	1010-0099CEAS
C021	CAP CER 1MFD	1005-1100CEAS
C022	CAP MINI CER 68PF NPO 63V	1017-0680CEAS
C023	CAP CER 1MFD	1005-1100CEAS
C024	CAP CER 1MFD	1005-1100CEAS
C025	CAP CER 1MFD	1005-1100CEAS
C026	CAP 1.0 MFD 50V (NO SUB.)	1010-0021CEAS
C027	CAP ELECT VT MT 100UF (NO SUB.)	1010-0110CEAS
C028	CAP ELEC 1000MF 16V VERT MT	1010-0012CEAS
C029	CAP 1.0 MFD 50V (NO SUB.)	1010-0021CEAS
C030	CAP CER 1MFD	1005-1100CEAS
C031	CAP CER 1MFD	1005-1100CEAS
C032	CAP CER 1MFD	1005-1100CEAS
C033	CAP ELECT VT MT 100UF (NO SUB.)	1010-0110CEAS
C034	CAP CER 1MFD	1005-1100CEAS
C035	CAP CER 1MFD	1005-1100CEAS
CR01	LED AND208Y YELLOW	1285-4207CEAS
CR02	PARTS NOT USED	X000-0001
CR03	LED PL07-CT-R RED	1285-4550EAS
CR04	1N4148 DIODE	1281-4148CEAS
CR05	1N4148 DIODE	1281-4148CEAS
CR06	1N4148 DIODE	1281-4148CEAS
CR07	1N4148 DIODE	1281-4148CEAS
CR08	1N4148 DIODE	1281-4148CEAS
CR09	1N4148 DIODE	1281-4148CEAS
CR10	1N4148 DIODE	1281-4148CEAS
CR11	1N4148 DIODE	1281-4148CEAS
CR12	LED PL07-CT-R RED	1285-4550EAS
J001	2 PIN .200 CTR PLUG CONN	1700-1202EAS
J002	7 PIN .200CTR MALE R/A TERM BLK	1700-5009EAS
J003	PARTS NOT USED	X000-0001
J004	12PIN 100CTR FLEX CBL CONN	2250-6019EAS
J005	12PIN 100CTR FLEX CBL CONN	2250-6019EAS
J501	SOCKET JUMPER 2 PIN	2250-2502CEAS
J505	SOCKET JUMPER 2 PIN	2250-2502CEAS
J506	SOCKET JUMPER 2 PIN	2250-2502CEAS
JW01	CONN 2PIN HEADER MALE .100CTR	2250-5892CEAS
JW02	CONN 2PIN HEADER MALE .100CTR	2250-5892CEAS
JW03	CONN 2PIN HEADER MALE .100CTR	2250-5892CEAS
JW04	CONN 2PIN HEADER MALE .100CTR	2250-5892CEAS
JW05	3 PIN HEADER MALE .100 CTR BLK CON	2250-5833CEAS
JW06	3 PIN HEADER MALE .100 CTR BLK CON	2250-5833CEAS
K001	RELAY 12BOC 2A AT 28 V	1880-0022CEAS
PCB1	AM RECEIVER PCB 930	1800-4038EAS
Q001	TRANS PN2222A NPN	1271-2223CEAS
Q002	TRANS PN2222A NPN	1271-2223CEAS
Q003	TRANS PN2222A NPN	1271-2223CEAS
Q004	TRANS PN2222A NPN	1271-2223CEAS
Q005	TRANS PN2222A NPN	1271-2223CEAS
R001	RES CAR FILM 1/4W 5% 15K	1085-1502CEAS
R002	RES CAR FILM 1/4W 5% 8.2K	1085-6201CEAS
R003	RES CAR FILM 1/4W 5% 1K	1085-1001CEAS
R004	RES CAR FILM 1/4W 5% 10K	1085-1002CEAS
R005	RES CAR FILM 1/4W 5% 10K	1085-1002CEAS
R006	RES CAR FILM 1/4W 5% 22	1085-0022CEAS
R007	RES CAR COMP 1/4 W 5% 1.6K	1085-1601CEAS

CKT REF	DESCRIPTION	TFT PART NO.
R008	PARTS NOT USED	X000-0001
R009	RES CAR FILM 1/4W 5% 22K	1085-2202CEAS
R010	100K 1T SIDE ADJ CERMET POT 3362X	1072-1103EAS
R011	RES CAR FILM 1/4W 5% 62	1085-0062CEAS
R012	RES CAR FILM 1/4W 5% 62	1085-0062CEAS
R013	RES CAR FILM 1/4W 5% 10K	1085-1002CEAS
R014	RES CAR FILM 1/4W 5% 10K	1085-1002CEAS
R015	RES CAR FILM 1/4W 5% 10K	1085-1002CEAS
R016	RES CAR FILM 1/4W 5% 10K	1085-1002CEAS
R017	RES CAR FILM 1/4W 5% 100	1085-0100CEAS
R018	RES CAR FILM 1/4W 5% 1K	1085-1001CEAS
R019	RES CAR FILM 1/4W 5% 36K	1085-3602CEAS
R020	RES CAR FILM 1/4W 5% 10K	1085-1002CEAS
R021	RES CAR FILM 1/4W 5% 100	1085-0100CEAS
R022	RES CAR COMP 1/4W 5% 68K	1085-6802CEAS
R023	RES CAR FILM 1/4W 5% 470 OHM	1085-0470CEAS
R024	RES CAR FILM 1/4W 5% 1M	1085-1004CEAS
R025	RES CAR FILM 1/4W 5% 820 OHM	1085-0820CEAS
R026	RES CAR FILM 1/4W 5% 470 OHM	1085-0470CEAS
R027	RES CAR FILM 1/4W 5% 820 OHM	1085-0820CEAS
R028	RES CAR FILM 1/4W 5% 39K	1085-3902CEAS
R029	RES CAR FILM 1/4W 5% 1K	1085-1001CEAS
R030	RES CAR FILM 1/4W 5% 5.1K	1085-5101CEAS
R031	RES CAR FILM 1/4W 5% 5.1K	1085-5101CEAS
R032	RES CAR FILM 1/4W 5% 3.1K	1085-5101CEAS
R033	RES CAR FILM 1/4W 5% 5.1K	1085-5101CEAS
R034	RES CAR FILM 1/4W 5% 9.1K	1085-9101CEAS
R035	RES CAR FILM 1/4W 5% 9.1K	1085-9101CEAS
R036	RES CAR FILM 1/4W 5% 100	1085-0100CEAS
R037	RES 1W 1.0 OHM 5% METAL OXIDE	1088-0071CEAS
R038	RES 1W 1.0 OHM 5% METAL OXIDE	1088-0071CEAS
R039	RES CAR FILM 1/4W 5% 10K	1085-1002CEAS
R040	RES CAR FILM 1/4W 5% 10K	1085-1002CEAS
R041	RES CAR FILM 1/4W 5% 39K	1085-3902CEAS
R042	RES CAR COMP 1/4W 5% 120K	1085-1203CEAS
R043	RES CAR FILM 1/4W 5% 10K	1085-1002CEAS
R044	RES CAR COMP 1/4W 5% 100K	1085-1003CEAS
R045	RES MT FLM 1/8W 1% 9.31K	1081-9311CEAS
R046	RES MT FLM 804 1/8W 1%	1081-0804CEAS
R047	RES CAR FILM 1/4W 5% 10K	1085-1002CEAS
R048	RES CAR FILM 1/4W 5% 2.4K	1085-2401CEAS
R049	RES CAR 1/4W 5% 240K	1085-2403CEAS
R050	RES CAR FILM 1/4W 5% 7.5K	1085-7501CEAS
R051	RES CAR FILM 1/4W 5% 7.5K	1085-7501CEAS
R052	RES CAR FILM 1/4W 5%16K	1085-1602CEAS
R053	RES CAR FILM 1/4W 5% 10K	1085-1002CEAS
R054	RES CAR FILM 1/4 W 5% 24K	1085-2402CEAS
R055	RES CAR COMP 1/4W 5% 1.5K	1085-1501CEAS
R056	RES CAR FILM 1/4W 5% 36K	1085-3602CEAS
R057	RES CAR FILM 1/4W 5%1.2K	1085-1201CEAS
R058	RES CAR FILM 1/4W 5% 7.5K	1085-7501CEAS
R059	RES CAR FILM 1/4W 5% 10K	1085-1002CEAS
R060	POT CERMET 10K PC MNT TOP ADJ	1072-1111CEAS
RN01	10K SIP 8 PIN BUSSED RES NETWORK	1073-1007EAS
RN02	10K SIP 8 PIN BUSSED RES NETWORK	1073-1007EAS
S001	10POS BCD R/A ROTARY DIP SWITCH	1800-3089EAS
S002	10POS BCD R/A ROTARY DIP SWITCH	1800-3089EAS
S003	10POS BCD R/A ROTARY DIP SWITCH	1800-3089EAS
SW01	SPDT R/A PC MNT MIN SWITCH	1800-3089EAS
TP01	1/8 DX .35L BLK TEST TERMINAL	2140-0150CEAS
TP02	1/8 DX .35L BLK TEST TERMINAL	2140-0150CEAS
TP03	1/8 DX .35L BLK TEST TERMINAL	2140-0150CEAS
TP04	1/8 DX .35L BLK TEST TERMINAL	2140-0150CEAS
TP05	1/8 DX .35L BLK TEST TERMINAL	2140-0150CEAS
U001	CE-1003A AM RX TUNER	4500-1815EAS
U002	IC LF347N LIN QUAD OP AMP	1100-0347CEAS
U003	IC LM339 VOLTAGE COMPARATOR	1100-0339CEAS
U004	MC145170P IC	1102-1457EAS
U005	NE5230N LO VOLT OP AMP IC 8 PIN	1100-5230CEAS
XY01	INSULATOR FOR CRYSTAL HC-25	2140-0104CEAS
Y001	8 000MHZ HC48/U XTAL	2400-0800EAS

MODEL 930A FM RCVR PCB ASSY NO. 6608-4037 REV. B

CKT REF	DESCRIPTION	TFT PART NO.
C001	CAP CER .1MFD	1005-1100CEAS
C002	CAP ELECT 10 MFD 25V VERT MT	1010-0099CEAS
C003	CAP CER .1MFD	1005-1100CEAS
C004	CAP CER .01MF CK05BX103K	1015-0002CEAS
C005	CAP MINI CER 120PF NPO 63V	1017-1200CEAS
C006	CAP 1.0 MFD 50V (NO SUB.)	1010-0021CEAS
C007	CAP 1.0 MFD 50V (NO SUB.)	1010-0021CEAS
C008	CAP CER .1MFD	1005-1100CEAS
C009	CAP CER .01MF CK05BX103K	1015-0002CEAS
C010	CAP CER .1MFD	1005-1100CEAS
C011	CAP CER .1MFD	1005-1100CEAS
C012	PARTS NOT USED	X000-0001
C013	PARTS NOT USED	X000-0001
C014	220PF NPO MINI CER CAP	1017-2200CEAS
C015	CAP ELEC 10MFD 25V NP V MT	1010-0013CEAS
C016	CAP ELEC 10MFD 25V NP V MT	1010-0013CEAS
C017	CAP ELECT 10 MFD 25V VERT MT	1010-0099CEAS
C018	CAP ELECT 10 MFD 25V VERT MT	1010-0099CEAS
C019	PARTS NOT USED	X000-0001
C020	CAP CER .1MFD	1005-1100CEAS
C021	CAP 1000PF 100V CER NPO	1005-1003CEAS
C022	CAP MINI CER 22 PF NPO 63V	1017-0220CEAS
C023	CAP MINI CER 22 PF NPO 63V	1017-0220CEAS
C024	CAP CER .1MFD	1005-1100CEAS
C025	CAP CER .1MFD	1005-1100CEAS
C026	CAP CER .1MFD	1005-1100CEAS
C027	CAP CER 0.0047MF CK05	1015-0012CEAS
C028	CAP CER 0.0047MF CK05	1015-0012CEAS
C029	CAP CER DISC 1MFD	1005-0001CEAS
C030	CAP CER DISC 1MFD	1005-0001CEAS
C031	CAP ELECT 10 MFD 25V VERT MT	1010-0099CEAS
C032	CAP CER .1MFD	1005-1100CEAS
C033	CAP 1.0 MFD 50V (NO SUB.)	1010-0021CEAS
C034	CAP ELECT VT MT 100UF (NO SUB.)	1010-0110CEAS
C035	CAP ELEC 1000MF 16V VERT MT	1010-0012CEAS
C036	CAP CER .1MFD	1005-1100CEAS
C037	CAP CER .1MFD	1005-1100CEAS
C038	CAP CER .1MFD	1005-1100CEAS
C039	CAP CER .1MFD	1005-1100CEAS
C040	CAP CER .1MFD	1005-1100CEAS
C041	CAP ELECT VT MT 100UF (NO SUB.)	1010-0110CEAS
C042	CAP CER .1MFD	1005-1100CEAS
CR01	LED AND206Y YELLOW	1285-4207CEAS
CR02	PARTS NOT USED	X000-0001
CR03	LED PL07-CT-R RED	1285-4550EAS
CR04	1N4148 DIODE	1281-4148CEAS
CR05	1N4148 DIODE	1281-4148CEAS
CR06	1N4148 DIODE	1281-4148CEAS
CR07	1N4148 DIODE	1281-4148CEAS
CR08	1N4148 DIODE	1281-4148CEAS
CR09	1N4148 DIODE	1281-4148CEAS
CR10	1N4148 DIODE	1281-4148CEAS
CR11	1N4148 DIODE	1281-4148CEAS
CR12	LED PL07-CT-R RED	1285-4550EAS
J001	"F" R/A PC MOUNT JACK	2220-3602CEAS
J002	7 PIN .200CTR MALE R/A TERM BLK	1700-5009EAS
J004	12PIN .100CTR FLEX CBL CONN	2250-6019EAS
J005	12PIN .100CTR FLEX CBL CONN	2250-6019EAS
J502	SOCKET JUMPER 2 PIN	2250-2502CEAS
J505	SOCKET JUMPER 2 PIN	2250-2502CEAS
J506	SOCKET JUMPER 2 PIN	2250-2502CEAS
JW01	CONN 2PIN HEADER MALE .100CTR	2250-5892CEAS
JW02	CONN 2PIN HEADER MALE .100CTR	2250-5892CEAS
JW03	CONN 2PIN HEADER MALE .100CTR	2250-5892CEAS
JW04	CONN 2PIN HEADER MALE .100CTR	2250-5892CEAS
JW05	3 PIN HEADER MALE .100 CTR BLK CON	2250-5833CEAS
JW06	3 PIN HEADER MALE .100 CTR BLK CON	2250-5833CEAS
K001	RELAY 12BDC 2A AT 28 V	1880-0022CEAS
PCB1	FM RECEIVER PCB 930	1600-4037EAS
Q001	TRANS 2N3583	1271-3583CEAS
Q002	TRANS 2N3583	1271-3583CEAS
Q003	TRANS PN2222A NPN	1271-2223CEAS
Q004	TRANS PN2222A NPN	1271-2223CEAS
Q005	TRANS PN2222A NPN	1271-2223CEAS
Q006	TRANS PN2222A NPN	1271-2223CEAS

MODEL 930A FM RCVR PCB ASSY NO. 6608-4037 REV. B

CKT REF	DESCRIPTION	TFT PART NO.
R001	RES CAR COMP 1/4W 5% 27	1085-0027CEAS
R002	RES CAR FILM 1/4W 5% 27K	1085-2702CEAS
R004	1K 1T SIDE ADJ CERMET POT	1072-1101EAS
R005	RES CAR COMP 1/4W 5% 120K	1085-1203CEAS
R006	RES CAR FILM 1/4W 5% 330K	1085-3303CEAS
R007	RES CAR FILM 1/4W 5% 100	1085-0100CEAS
R008	RES CAR FILM 1/4W 5% 20K	1085-2002CEAS
R009	RES CAR FILM 1/4W 5% 10K	1085-1002CEAS
R010	RES CAR FILM 1/4W 5% 10K	1085-1002CEAS
R011	RES CAR COMP 1/4W 5% 100K	1085-1003CEAS
R012	RES CAR COMP 1/4W 5% 68K	1085-6802CEAS
R014	RES CAR FILM 1/4W 5% 62	1085-0682CEAS
R015	RES CAR FILM 1/4W 5% 62	1085-0682CEAS
R016	RES CAR FILM 1/4W 5% 10K	1085-1002CEAS
R017	RES CAR FILM 1/4W 5% 10K	1085-1002CEAS
R018	RES CAR FILM 1/4W 5% 10K	1085-1002CEAS
R019	RES CAR FILM 1/4W 5% 10K	1085-1002CEAS
R020	RES CAR FILM 1/4W 5% 100	1085-0100CEAS
R021	RES CAR COMP 1/4W 5% 270	1085-0270CEAS
R022	RES CAR FILM 1/4W 5% 27K	1085-2702CEAS
R023	RES CAR FILM 1/4W 5% 580	1085-0580CEAS
R024	RES CAR FILM 1/4W 5% 1M	1085-1004CEAS
R026	RES CAR FILM 1/4W 5% 10K	1085-1002CEAS
R027	RES CAR COMP 1/4W 5% 750	1085-0750CEAS
R028	RES CAR COMP 1/4W 5% 8.8K	1085-8801CEAS
R029	RES CAR FILM 1/4W 5% 22K	1085-2202CEAS
R030	RES CAR FILM 1/4W 5% 22K	1085-2202CEAS
R031	RES CAR FILM 1/4W 5% 22K	1085-2202CEAS
R032	RES CAR FILM 1/4W 5% 22K	1085-2202CEAS
R033	RES CAR FILM 1/4W 5% 10K	1085-1002CEAS
R034	RES CAR FILM 1/4W 5% 10K	1085-1002CEAS
R035	RES CAR FILM 1/4W 5% 100	1085-0100CEAS
R036	RES CAR FILM 1/4W 5% 1K	1085-1001CEAS
R037	RES CAR FILM 1/4W 5% 10K	1085-1002CEAS
R038	RES CAR FILM 1/4W 5% 10K	1085-1002CEAS
R039	RES MT FILM 1/8W 1% 8.45K	1081-8451CEAS
R040	RES MT FILM 1/8W 1% 453	1081-0453CEAS
R041	RES CAR FILM 1/4W 5% 10K	1085-1002CEAS
R042	RES CAR FILM 1/4W 5% 39K	1085-3902CEAS
R043	RES CAR FILM 1/4W 5% 1K	1085-1001CEAS
R044	RES CAR FILM 1/4W 5% 10K	1085-1002CEAS
R045	RES CAR FILM 1/4W 5% 470 OHM	1085-0470CEAS
R046	RES CAR FILM 1/4W 5% 10K	1085-1002CEAS
R047	RES CAR FILM 1/4W 5% 10K	1085-1002CEAS
R048	RES CAR FILM 1/4W 5% 620 OHM	1085-0620CEAS
R049	RES 1W 1.0 OHM 5% METAL OXIDE	1088-0071CEAS
R050	RES 1W 1.0 OHM 5% METAL OXIDE	1088-0071CEAS
R051	RES CAR FILM 1/4W 5% 2.4K	1085-2401CEAS
R052	RES CAR 1/4W 5% 240K	1085-2403CEAS
R053	RES CAR FILM 1/4W 5% 7.5K	1085-7501CEAS
R054	RES CAR FILM 1/4W 5% 7.5K	1085-7501CEAS
R055	RES CAR FILM 1/4W 5% 18K	1085-1802CEAS
R056	RES CAR FILM 1/4W 5% 10K	1085-1002CEAS
R057	RES CAR FILM 1/4 W 5% 24K	1085-2402CEAS
R058	RES CAR COMP 1/4W 5% 1.5K	1085-1501CEAS
R059	RES CAR FILM 1/4W 5% 27K	1085-2702CEAS
R080	RES CAR FILM 1/4W 5% 1.2K	1085-1201CEAS
R081	POT CERMET 10K PC MNT TOP ADJ	1072-1111CEAS
R082	RES CAR FILM 1/4W 5% 7.5K	1085-7501CEAS
RND1	10K SIP 8 PIN BUSSED RES NETWORK	1073-1007EAS
RND2	10K SIP 8 PIN BUSSED RES NETWORK	1073-1007EAS
S001	10POS BCD R/A ROTARY DIP SWITCH	1800-3089EAS
S002	10POS BCD R/A ROTARY DIP SWITCH	1800-3089EAS
S003	10POS BCD R/A ROTARY DIP SWITCH	1800-3089EAS
SW01	SPDT R/A PC MNT MINI SWITCH	1800-3089EAS
TP01	1/8 DX .35L BLK TEST TERMINAL	2140-0150CEAS
TP02	1/8 DX .35L BLK TEST TERMINAL	2140-0150CEAS
TP03	1/8 DX .35L BLK TEST TERMINAL	2140-0150CEAS
TP04	1/8 DX .35L BLK TEST TERMINAL	2140-0150CEAS
TP05	1/8 DX .35L BLK TEST TERMINAL	2140-0150CEAS
U001	CET-811F FM TUNER W/IF DET	4500-1814EAS
U002	PARTS NOT USED	X000-0001
U003	UC LF347N LIN QUAD OP AMP	1100-0347CEAS
U004	UC LM339 VOLTAGE COMPARATOR	1100-0339CEAS
U005	MC145170P UC	1102-1457EAS
U006	NE5230N LO VOLT OP AMP UC 8 PIN	1100-5230CEAS
U007	E-PROM 1104-1655 FOR 930	0800-0152EAS
XY01	INSULATOR FOR CRYSTAL HC-25	2140-0104CEAS
Y001	6 000MHZ XTAL 930	2400-0800EAS

Model EAS 930A WEATHER RADIO PCB ASSY N 6608-4039 REV. B

CKT REF	DESCRIPTION	TFT PART NO.
C001	CHIP CAP 18PF NPO 0805 CASE	1009-0180EAS
C002	CHIP CAP 82PF NPO 0805 CASE	1009-0820EAS
C003	33PF CER CHIP CAP (0805) CASE	1009-0331EAS
C004	.01UF CER CAP	1005-1038EAS
C005	.01UF CER CAP	1005-1038EAS
C006	CAP CER .1MFD	1005-1100CEAS
C007	.01UF CER CAP	1005-1038EAS
C008	CAP MINI CER 22 PF NPO 63V	1017-0220CEAS
C009	CAP MINI CER 33PF NPO RECT	1017-0330CEAS
C010	CAP MINI CER 47PF NPO RECT	1017-0470CEAS
C011	CAP MINI CER 47PF NPO RECT	1017-0470CEAS
C012	CAP 1000PF 100V CER NPO	1005-1003CEAS
C013	CAP MINI CER 47PF NPO RECT	1017-0470CEAS
C014	CAP CER .1MFD	1005-1100CEAS
C015	CAP CER .1MFD	1005-1100CEAS
C016	CAP CER .1MFD	1005-1100CEAS
C017	.01UF CER CAP	1005-1038EAS
C018	.01UF CER CAP	1005-1038EAS
C019	.01UF CER CAP	1005-1038EAS
C020	CAP CER .1MFD	1005-1100CEAS
C021	CAP CER .1MFD	1005-1100CEAS
C022	CAP CER DISC 30PF NPO	1017-0300EAS
C023	CAP MINI CER 22 PF NPO 63V	1017-0220CEAS
C024	.01UF CER CAP	1005-1038EAS
C025	CAP 1000PF 100V CER NPO	1005-1003CEAS
C026	CAP CER .01MF CK05BX103K	1015-0002CEAS
C027	CAP CER .01MF CK05BX103K	1015-0002CEAS
C028	CAP CER .1MFD	1005-1100CEAS
C029	CAP DIPPED TANT 2.2 UF 25V	1008-0023CEAS
C030	.01UF CER CAP	1005-1038EAS
C031	.01UF CER CAP	1005-1038EAS
C032	.01UF CER CAP	1005-1038EAS
C033	CAP CER .1MFD	1005-1100CEAS
C034	CAP 1.0 MFD 50V (NO SUB.)	1010-0021CEAS
C035	CAP CER .1MFD	1005-1100CEAS
C036	CAP CER .1MFD	1005-1100CEAS
C037	5.5-20PF VARI CAP	1012-0520EAS
C038	CAP CER .1MFD	1005-1100CEAS
C039	CAP MINI CER 8.8PF NPO RECT	1017-0880CEAS
C040	CAP 1.0 MFD 50V (NO SUB.)	1010-0021CEAS
C041	CAP 1000PF 100V CER NPO	1005-1003CEAS
C042	CAP CER .1MFD	1005-1100CEAS
C043	CAP CER .1MFD	1005-1100CEAS
C044	CAP ELEC 10MFD 25V NP V MT	1010-0013CEAS
C045	CAP ELEC 10MFD 25V NP V MT	1010-0013CEAS
C046	CAP ELECT 10 MFD 25V VERT MT	1010-0099CEAS
C047	CAP ELECT 10 MFD 25V VERT MT	1010-0099CEAS
C048	CAP CER .1MFD	1005-1100CEAS
C049	CAP CER .1MFD	1005-1100CEAS
C050	CAP ELECT VT MT 100UF (NO SUB.)	1010-0110CEAS
C051	CAP ELEC 1000MF 16V VERT MT	1010-0012CEAS
C052	CAP CER .01MF CK05BX103K	1015-0002CEAS
C053	CAP CER .01MF CK05BX103K	1015-0002CEAS
C054	CAP CER .1MFD	1005-1100CEAS
C055	CAP CER .1MFD	1005-1100CEAS
C056	CAP ELECT 10 MFD 25V VERT MT	1010-0099CEAS
C057	CAP ELECT 10 MFD 25V VERT MT	1010-0099CEAS
C058	CAP ELECT 10 MFD 25V VERT MT	1010-0099CEAS
C059	220PF NPO MINI CER CAP	1017-2200CEAS
C060	CAP CER .1MFD	1005-1100CEAS
C061	CAP CER .1MFD	1005-1100CEAS
C062	CAP CER .1MFD	1005-1100CEAS
C063	CAP CER .1MFD	1005-1100CEAS
C064	CAP ELECT VT MT 100UF (NO SUB.)	1010-0110CEAS
C065	CAP CER .1MFD	1005-1100CEAS
C066	CHIP CAP 0.5PF NPO 0805 CASE	1009-0005EAS
C067	CHIP CAP 0.5PF NPO 0805 CASE	1009-0005EAS
C068	CHIP CAP 15PF NPO 0805 CASE	1009-0150EAS
C069	CHIP CAP 15PF NPO 0805 CASE	1009-0150EAS
CR01	LED AND206Y YELLOW	1285-4207CEAS
CR02	PARTS NOT USED	X000-0001
CR03	LED PL07-CT-R RED	1285-4550EAS
CR04	1N4148 DIODE	1281-4148CEAS
CR05	1N4148 DIODE	1281-4148CEAS
CR06	1N4148 DIODE	1281-4148CEAS
CR07	1N4148 DIODE	1281-4148CEAS
CR08	1N4148 DIODE	1281-4148CEAS
CR09	1N4148 DIODE	1281-4148CEAS
CR10	1N4148 DIODE	1281-4148CEAS
CR11	1N4148 DIODE	1281-4148CEAS
CR12	LED PL07-CT-R RED	1285-4550EAS
FLO1	FILT 10.7MHZ/15KHZ BW (QA TEST)	1052-0058CEAS
J001	"F" R/A PC MOUNT JACK	2220-3602CEAS
J002	7 PIN .200CTR MALE R/A TERM BLK	1700-5009EAS
J003	PARTS NOT USED	X000-0001
J004	12PIN .100CTR FLEX CBL CONN	2250-6019EAS
J005	12PIN .100CTR FLEX CBL CONN	2250-6019EAS
J503	SOCKET JUMPER 2 PIN	2250-2502CEAS
J505	SOCKET JUMPER 2 PIN	2250-2502CEAS
J506	SOCKET JUMPER 2 PIN	2250-2502CEAS
JW01	CONN 2PIN HEADER MALE .100CTR	2250-5892CEAS
JW02	CONN 2PIN HEADER MALE .100CTR	2250-5892CEAS
JW03	CONN 2PIN HEADER MALE .100CTR	2250-5892CEAS
JW04	CONN 2PIN HEADER MALE .100CTR	2250-5892CEAS
JW05	3 PIN HEADER MALE .100 CTR BLK CON	2250-5833CEAS
JW06	3 PIN HEADER MALE .100 CTR BLK CON	2250-5833CEAS
K001	RELAY 12BDC 2A AT 28 V	1880-0022CEAS
L001	MC122 TYPE 2 1/2T RED COIL	1575-0028EAS
L002	MC122 TYPE 2 1/2T RED COIL	1575-0028EAS
L003	1 1/2T SHD COIL BRN 146-01J085	1575-0016EAS
L004	10EZ TYPE COIL RMC-2A6597HM	1575-0859EAS
L005	CHOKE RF 1.0UH	1530-0010CEAS
L006	MC122 TYPE 2 1/2T RED COIL	1575-0028EAS
L007	MC122 TYPE 2 1/2T RED COIL	1575-0028EAS
PCB1	WEATHER RECEIVER PCB	1600-4039EAS
Q001	MEFET NE25139 U71 SOT-143	1272-2514EAS
Q002	TRANS 2N3583	1271-3583CEAS
Q003	MP55178 NPN HI FREQ TRANS	1271-5180EAS
Q004	TRANS PN2222A NPN	1271-222

CKT REF	DESCRIPTION	TFT PART NO.
R040	RES CAR FILM 1/4W 5% 13K	1085-1302CEAS
R041	RES CAR FILM 1/4W 5% 13K	1085-1302CEAS
R042	RES CAR FILM 1/4W 5% 13K	1085-1302CEAS
R043	RES CAR FILM 1/4W 5% 13K	1085-1302CEAS
R044	RES CAR FILM 1/4W 5% 47K	1085-4702CEAS
R045	RES CAR FILM 1/4W 5% 47K	1085-4702CEAS
R046	RES CAR FILM 1/4W 5% 68 OHM	1085-0068CEAS
R047	RES CAR FILM 1/4W 5% 1K	1085-1001CEAS
R048	RES CAR FILM 1/4W 5% 10K	1085-1002CEAS
R050	RES CAR FILM 1/4W 5% 20K	1085-2002CEAS
R051	RES CAR FILM 1/4W 5% 1K	1085-1001CEAS
R052	RES CAR FILM 1/4W 5% 10K	1085-1002CEAS
R053	RES 1W 1.0 OHM 5% METAL OXIDE	1088-0071CEAS
R054	RES 1W 1.0 OHM 5% METAL OXIDE	1088-0071CEAS
R055	RES CAR FILM 1/4W 5% 1K	1085-1001CEAS
R056	RES CAR FILM 1/4W 5% 470 OHM	1085-0470CEAS
R057	RES CAR FILM 1/4W 5% 470 OHM	1085-0470CEAS
R058	RES CAR 1/4W 5% 240K	1085-2403CEAS
R059	RES CAR FILM 1/4W 5% 7.5K	1085-7501CEAS
R060	RES CAR FILM 1/4W 5% 7.5K	1085-7501CEAS
R061	RES CAR FILM 1/4W 5% 18K	1085-1602CEAS
R062	RES CAR COMP 1/4W 5% 1.5K	1085-1501CEAS
R063	RES CAR FILM 1/4W 5% 10K	1085-1002CEAS
R064	RES CAR FILM 1/4W 5% 7.5K	1085-7501CEAS
R065	RES CAR FILM 1/4W 5% 2.4K	1085-2401CEAS
R066	RES CAR FILM 1/4W 5% 10K	1085-1002CEAS
R067	RES CAR FILM 1/4W 5% 10K	1085-1002CEAS
R068	RES CAR FILM 1/4W 5% 470 OHM	1085-0470CEAS
R069	RES CAR FILM 1/4W 5% 10K	1085-1002CEAS
R070	RES CAR FLM 1/4W 5% 27K	1085-2702CEAS
R071	RES CAR FILM 1/4W 5% 1.2K	1085-1201CEAS
R072	RES CAR FILM 1/4W 5% 47K	1085-4702CEAS
R073	RES CAR FLM 1/4W 5% 27K	1085-2702CEAS
RN01	10K SIP 8 PIN BUSSED RES NETWORK	1073-1007EAS
S001	10POS BCD R/A ROTARY DIP SWITCH	1800-3089EAS
SW01	SPDT R/A PC MNT MINI SWITCH	1800-3089EAS
T001	119LC-470073NO TYPE 7PH VAR IN	1052-0119EAS
T002	119LC-470073NO TYPE 7PH VAR IN	1052-0119EAS
T003	RMC-5021182NO TYPE 10E2C VAR IND	1052-0120EAS
TP01	1/8 DX .35L BLK TEST TERMINAL	2140-0150CEAS
TP02	1/8 DX .35L BLK TEST TERMINAL	2140-0150CEAS
TP03	1/8 DX .35L BLK TEST TERMINAL	2140-0150CEAS
TP04	1/8 DX .35L BLK TEST TERMINAL	2140-0150CEAS
TP05	1/8 DX .35L BLK TEST TERMINAL	2140-0150CEAS
U001	MC3362P LOPWR DUAL CONV FM REC	1100-3362EAS
U002	MC145170P I/C	1102-1457EAS
U003	NES230N LO VOLT OP AMP I/C 8 PIN	1100-5230CEAS
U004	E-PROM 1104-1855 FOR 930	6800-0152EAS
U005	I/C LM339 VOLTAGE COMPARATOR	1100-0339CEAS
U006	I/C LF353N DUAL J FET OP AMP	1100-0353CEAS
U007	I/C LF353N DUAL J FET OP AMP	1100-0353CEAS
XY01	INSULATOR FOR CRYSTAL HC-25	2140-0104CEAS
Y001	10.25MHZ HC-49AU XTAL	2400-1025EAS