MOTOROLA

MSF 5000

DIGITAL CAPABLE AND ANALOG PLUS STATIONS

900 MHz Service Manual

68P81092E90-O
UP - 7/94

FCC INTERFERENCE WARNING

The FCC requires that manuals pertaining to Class A computing devices must contain warnings about possible interference with local residential radio and TV reception. This warning reads as follows:

> Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

COMMERCIAL WARRANTY (STANDARD)

Motorola radio communications products (the "Product") is warranted to be free from defects in material and workmanship for a period of ONE (1) YEAR (except for crystals and channel elements which are warranted for a period of ten (10 years) from the date of shipment. Parts including crystals and channel elements, will be replaced free of charge for the full warranty period but the labor to replace defective parts will only be provided for One Hundred-Twenty (120) days from the date of shipment. Thereafter purchaser must pay for the labor involved in repairing the Product or replacing the parts at the prevailing rates together with any transportation charges to or from the place where warranty service is provided. This express warranty is extended by Motorola, 1301 E. Algonquin Road, Schaumburg, Illinois 60196 to the original end use purchaser only, and only to those purchasing for purpose of leasing or solely for commercial, industrial, or governmental use.

THIS WARRANTY IS GIVEN IN LIEU OF ALL OTHER WARRANTIES EXPRESS OR IMPLIED WHICH ARE SPECIFICALLY EXCLUDED, INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. IN NO EVENT SHALL MOTOROLA BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES TO THE FULL EXTENT SUCH MAY BE DISCLAIMED BY LAW.

In the event of a defect, malfunction or failure to conform to specifications established by Motorola, or if appropriate to specifications accepted by Motorola in writing, during the period shown, Motorola, at its option, will either repair or replace the product or refund the purchase price thereof. Repair at Motorola's option, may include the replacement of parts or boards with functionally equivalent reconditioned or new parts or boards. Replaced parts or boards are warranted for the balance of the original applicable warranty period. All replaced parts or product shall become the property of Motorola.

This express commercial warranty is extended by Motorola to the original end user purchaser or lessee only and is not assignable or transferable to any other party. This is the complete warranty for the Product manufactured by Motorola. Motorola assume no obligations or liability for additions or modifications to this warranty unless made in writing and signed by an officer of Motorola. Unless made in a separate agreement between Motorola and the original end user purchaser, Motorola does not warrant the installation, maintenance or service of the Products.

Motorola cannot be responsible in any way for any ancillary equipment not furnished by Motorola which is attached to or used in connection with the Product, or for operation of the Product with any ancillary equipment, and all such equipment is expressly excluded from this warranty. Because each system which may use Product is unique, Motorola disclaims liability for range, coverage, or operation of the system as a whole under this warranty.

This warranty does not cover:

a) Defects or damage resulting from use of the Product in other than its normal and customary manner.

b) Defects or damage from misuse, accident, water or neglect.

c) Defects or damage from improper testing, operation, maintenance installation, alteration, modification, or adjusting.

d) Breakage or damage to antennas unless caused directly by defects in material workmanship.

e) A Product subjected to unauthorized Product modifications, disassembly or repairs (including without limitation, the addition to the Product of non-Motorola supplied equipment) which adversely affect performance of the Product or interfere with Motorola's normal warranty inspection and testing of the Product to verify any warranty claim.

f) Product which has had the serial number removed or made illegible.

g) A Product which, due to illegal to unauthorized alteration of the software/firmware in the Product, does not function in accordance with Motorola's published specifications or the FCC type acceptance labeling in effect for the Product at the time the Product was initially distributed from Motorola.

This warranty sets forth the full extent of Motorola's responsibilities regarding the Product. Repair, replacement or refund of the purchase date, at Motorola's option is the exclusive remedy. IN NO EVENT SHALL MOTOROLA BE LIABLE FOR DAMAGES IN EXCESS OF THE PURCHASE PRICE OF THE PRODUCT, FOR ANY LOSS OF USE, LOSS OR TIME, INCONVENIENCE, COMMERCIAL LOSS, LOST PROFITS OR SAVINGS OR OTHER INCIDENTAL, SPECIAL OR CONSEQUENTIAL DAMAGE ARISING OUT OF THE USE OR INABILITY TO USE SUCH PRODUCT, TO THE FULL EXTENT SUCH MAY BE DISCLAIMED BY LAW.

SOFTWARE NOTICE/WARRANTY

Laws in the United States and other countries preserve for Motorola certain exclusive rights for copyrighted Motorola software such as the exclusive rights to reproduce in copies and distribute copies of such Motorola software. Motorola software may be used in only the Product in which the software was originally embodied and such software in such Product may not be replaced, copied, distributed, modified in any way, or used to produce any derivative thereof. No other use including without limitation alteration, modification, reproduction, distribution, or reverse engineering of such Motorola software or exercise of rights in such Motorola software is permitted. No license is granted by implication, estoppel or otherwise under Motorola patent rights or copyrights.

This warranty extends only to individual products: batteries are excluded, but carry their own separate limited warranty.

In order to obtain performance of this warranty, purchaser must contact its Motorola salesperson or Motorola at the address first above shown, attention Quality Assurance Department.

This warranty applies only within the fifty (50) United States and the District of Columbia.

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instruction manual revision

GENERAL:

This revision outlines changes that have occurred since the printing of your instruction manual. Use this information to correct your manual.

INSTRUCTION MANUAL AFFECTED:

68P81092E05–O	*MSF 5000* Instruction Manual
68P81092E75–O	*MSF 5000* VHF Service Manual
68P81092E80–O	*MSF 5000* UHF Service Manual
68P81092E85–O	*MSF 5000* 800 MHz Service Manual
68P81092E90–O	*MSF 5000* 900 MHz Service Manual

REVISION DETAILS:

1. Refer to page 1–45 of the **ALIGNMENT** Section of your manual (Chapter 1, 68P81092E76–O) and make the following change. Under the heading **"High/Low End Adjustment"** on page 1–45, change step 2 to read as follows:

   - **2.** "With an audio generator, inject a 1 kHz tone at 100 mV into the MIC AUDIO input (J812–4) on the control connector or into TP8 on the SSCB."

NOTE

The same change above applies also to instruction manual 68P81092E05–O except, the **ALIGNMENT** section for this manual is Chapter 4 (68P81092E04–O). Make the change for step 2 (above) on page 4–45 of instruction manual 68P81092E05–O.

Table of Contents

SECTION **NUMBER**

Table of Contents

SECTION ***NUMBER***

Foreword

Maintenance Philosophy

The *MSF 5000* is comprised of many boards and assemblies. These boards and assemblies should be replaced with known good boards and assemblies whenever they are determined to be faulty. This Service Manual, in conjunction with the *MSF 5000* Instruction Manual, is used to return the station to normal operation as quickly as possible.

Due to the high percentage of surface mount components and multi-layer circuit boards, field repair of station boards and assemblies is discouraged.

Scope of Manual

This manual contains schematics, parts lists, and other detailed information for each board and assembly.

The information in this manual is accurate as of the printing date. Changes occurring after the printing date are temporarily incorporated into the manual through Standard Manual Revisions (SMRs). This manual will be revised on a periodic basis as SMRs and other engineering changes are made to the *MSF 5000* equipment.

General Safety Information

The United States Department of Labor, through the provisions of the Occupational Safety and Health Act of 1970 (OSHA), has established an electromagnetic energy safety standard which applies to the use of this equipment. Proper use of this radio results in exposure below the OSHA limit.

The following precautions are always recommended:

- ❒ DO NOT operate the transmitter of a fixed radio (base station, microwave and rural telephone RF equipment) or marine radio when someone is within two feet (0.6 meter) of the antenna.
- ❒ DO NOT operate the transmitter of any radio unless all RF connectors are secure and any open connectors are properly terminated.
- ❒ DO NOT operate this equipment near electrical caps or in an explosive atmosphere.
- ❒ All equipment must be properly grounded according to Motorola installation instructions for safe operation. Refer to the R56 Quality Standards FNE Installation manual.
- ❒ All equipment should be serviced only by a qualified technician.

Refer to the appropriate section of the installation manual for additional pertinent safety information.

WARNING

Possible electrical shock hazard. Before attempting removal or installation, make sure the primary power and batteries are disconnected.

CAUTION

This station contains CMOS devices. Proper troubleshooting and installation techniques require grounding precautions by personnel prior to handling equipment.

Service and Repairs

Motorola Service

Motorola's National Service Organization offers one of the finest nationwide installation and maintenance programs available. This organization includes approximately 900 authorized Motorola Service Stations (MSS) located throughout the United States. Each service station is manned by one or more trained FCC licensed technicians.

Each MSS is independently owned and operated. An MSS is selected by Motorola to service its customers. Motorola maintenance is available on a time and material basis or a periodic fixed fee arrangement.

The administrative staff of this organization consists of national, area and district service managers and district representatives, all of whom are Motorola employees. Their objective is to improve the service to our customers.

For additional information about purchasing a service contract for Motorola equipment, contact your Motorola Service Representative, or write to:

National Service Manager

Motorola Communications and Electronics, Inc.

1301 E. Algonquin Road SH4

Schaumburg, Illinois 60196

Replacement Parts

When ordering replacement parts or equipment information, include the station model number, option numbers (if applicable), and the replacement part number. This applies to all components, kits, and chassis. If the component part number is not known, include its chassis or kit number and a description of the component on the order.

Crystal and channel element orders should specify the crystal or channel element type number, crystal and carrier frequency, and the model number using the part.

Orders for active filters should specify type number and frequency, identify the owner/operator of the communications system to use these items, and any serial number stamped on the components being replaced.

Refer to the addresses and phone numbers listed on the following pages when ordering replacement parts.

Mail Orders

Send all written orders to the following addresses listed below:

Replacement Parts/Test Equipment/Crystal Service Items:

Motorola

Worldwide System and Aftermarket Products Division

Attention: Order Processing

1313 E. Algonquin Road

Schaumburg, Illinois 60196

International Orders:

Motorola

Worldwide System and Aftermarket Products Division

Attention: International Order Processing

1313 E. Algonquin Road

Schaumburg, Illinois 60196

Federal Government Orders:

Motorola

Worldwide System and Aftermarket Products Division

Attention: Order Processing

7230 Parkway Drive

Hanover, Maryland 21076

Fax Orders

Fax orders to the following numbers listed below:

Replacement Parts/Test Equipment/Crystal Service Items:

Domestic Fax - (708) 538-8198

International Fax - (708) 576-3023

Federal Government Orders:

Fax - (301) 925-2690

Trunked & 900 MHz Customer Response Center:

Fax - (800) 526-8644

Telephone Orders/Customer Service

Telephone customer service or place phone orders to the following numbers listed below:

Replacement Parts/Test Equipment/Crystal Service Items:

National Parts - (800) 422-4210

Federal Government Orders - (800) 826-1913

International Orders - (708) 538-8023

Product Services:

Telephone - (708) 576-0180

Trunked & 900 MHz Customer Response Center:

Telephone - (800) 247-2346

National Service Training Video Tapes:

Telephone - (708) 576-8012

System Support Center:

Telephone - (800) 448-3245

Upload Center:

Telephone - (800) 874-5574

Parts Identification:

Telephone - (708) 538-0021

Indirect Distribution Dealer Support Group:

Telephone - (800) 356-9058

Direct Product Services:

Telephone - (800) 523-4007

Radio Service Software (RSS) Support:

See Direct Product Services

Training

Contact training at the number listed below:

National Service Training (NST):

Telephone - (708) 576-8012

Performance Specifications

About the Performance Specifications

This section contains performance specifications for the 900 MHz *MSF 5000* station. It contains General specifications, Transmit specifications, and Receive specifications.

900 MHz General

Description	Value or Range
Number of Channels	4 standard up to 15 frequencies optional on conventional stations. 1 standard on trunked stations
Input Voltage (AC)	96 - 132 Vac @ 60 Hz Optional 50 Hz, 110/220 Vac †
Operating Temperature	-30° C to +60° C
Dimensions (H x W x D): 75 Watts 150 Watts ††	 37.25" x 22" x 10" (95.0 x 56.0 x 25.4 cm) 46" x 21.75" x 10" (117 x 56 x 25.4 cm)
Weight: 75 Watts 150 Watts	 175 lbs. (80 kg) 340 lbs. (155 kg)
Input Power: (varies w/options) 75 Watts 150 Watts	Standby / Transmit 95 Watts / 440 Watts 115 Watts / 765 Watts
Metering	Optional interactive DMP provides 5 Watts audio, analog metering and status display of control signals Optional interactive RMP provides 5 Watts audio and analog metering
† Reduces power output on 150 Watt stations to 125 Watts †† Measurement does not include tip feet	

900 MHz Transmit

Description	Value or Range
Frequency	935 - 941 MHz
Transmit Bandwidth	6 MHz
RF Power Output Range: 75 Watts 150 Watts	 35 - 75 Watts 75 - 150 Watts
Output Impedance	50 Ω
Frequency Stability	±2 ppb from -30°C to +60°C
Isolation	-20 dBc @ ±25 kHz
Deviation Clear	±2.5 MHz for 100% @ 1 kHz
Audio Sensitivity: Conventional Trunked	 -35 dBm to +11 dBm variable -20 dBm to +11 dBm variable
Conducted Spurious & Harmonic Emissions	-90 dBc
FM Hum and Noise	-45 dB nominal for 300 to 3 kHz bandwidth (with 750 µ sec. pre-emphasis referenced to 1 kHz tone @ 1.5 kHz deviation)
Audio Response	+1, -3 dB from 6 dB per octave pre-emphasis 300 - 3 kHz referenced to 1 kHz at line input
Audio Distortion	Less than 2% @ 1 kHz (@ 3 kHz deviation)
FCC Designation: 75 Watts 150 Watts	Internal Reference / External Reference ABZ89FZ5655 / ABZ89FZ5656 ABZ89FZ5658 / ABZ89FZ5659

900 MHz Receive

Description	Value or Range
Frequency	896 - 902 MHz
Channel Spacing	12.5 kHz
Selectivity EIA SINAD	-80 dB
Receiver Bandwidth	5.0 MHz
Receiver Sensitivity	0.25 µV 12 dB SINAD
Off Channel Acceptance	±2 kHz minimum
Frequency Stability	±2 ppb from -30°C to +60°C
Intermodulation EIA SINAD	-80 dB
Spurious & Image Rejection	-100 dB
Audio Response	+1, -3 dB from 6 dB per octave de-emphasis from 400 Hz to 3 kHz bandwidth at line output
Audio Distortion	Less than 3% distortion at 1 kHz
FM Hum and Noise	-45 dB nominal for 300 to 3 kHz bandwidth (with 750 µ sec. pre-emphasis referenced to 1 kHz tone @ 1.5 kHz deviation)
RF Input Impedance	50 Ω
FCC Designation: Internal Reference External Reference	 ABZ89FR5655 ABZ89FR5656

MODEL COMPLEMENT CHART FOR MSF 5000 ANALOG PLUS BASE STATIONS 900 MHz

LEGEND:

1, 2 = Items Supplied

* = Refer to 1st Item Breakdown Chart

DESCRIPTION	MODEL	ITEM	TFF6072B	TKN8487A	TKN8492A	TKN8496A	TKN8497A	TKN8498B	TKN8499A	TKN8500C	TKN8543A	TKN8573A	TKN8579A	TKN8580A	TKN8710A	TKN8713A	TKN8720A	TKN8741A	TKN8993A	TLF6890A	TLN2490A*	TLN3022B*	TLN3024B*	TLN3025C*	TLN3112E*	TLN3205A*	TLN3221B*	TLN3342A*	TPN1186B*	TRN5177A	TRN5178B	TRN5200A	TRN5352A	TRN5353A	TRN5355A	TRN5427A	TRN5954A	TRN7039A	TRN7040A	TRN7200A	TRN7201A	TRN7224A	TRN7225A	TRN7249A	TRN7252B	TRN7385A	TRN7551A	TRN7586A	TRN7717A	TRN7754A*	TRN7794A	TRN9512A	TRN9871B	TRN9892B	TTF1212C*	TTF1242D*	TTF1480A*	TUF1790A*	TUF1920A*
75W Data Base Station	C65GFB2206A		1	2			1		1			1	1		1	1	1		1	2	1			1			1	1	1	1	1	1	1	1	2	1		2	1	1	1	1	1	1	1	1	1		1	1	1			1	1		1
75W Analog Plus Trunked Repeater	C65GFB5203AT		1	1	1	1		1	1	1	1	1	1							1	1		1		1			1					1	1	1		1	1	2	1	1	1	1	1	1			1	1	1	1	1			1	1	1	
75W Analog Plus Conventional Repeater	C65GFB7206AT		1		1		1		1	1		1	1								1			1	1	1			1			1	2	1	1		1	1	2	1	1	1	1	1	1			1	1	1	1	1			1	1	1	
150W Data Base Station	C85GFB2206A		1	2			1		1			1		1	1	1	1	1	1	2	1	1			1			1	1	2	1	1	1		2		2	1		2	2	1	1	1	1	1	1	1	1		1	1		1	1	1	1	
150W Analog Plus Trunked Repeater	C85GFB5203AT		1	1	1	1		1	1	1	1	1		1						1		1	1		1	1			2				1	2			1	1	2	2	1	1	1	1	1			1	1	1	1		1	1	1	1	1	
150W Analog Plus Conventional Repeater	C85GFB7206AT		1		1		1		1	1		1		1								1			1	1	1			2				1	2	2		1	1	2	2	1	1	1	1	1			1	1	1	1		1	1	1	1	1	

MSFX010
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900 MHz Model Charts

1st ITEM BREAKDOWN CHART FOR MSF 5000 ANALOG PLUS BASE STATIONS 900 MHz

LEGEND:

1, 2, 4 = Items Supplied

* = Refer to 2nd Item Breakdown Chart

	DESCRIPTION	Preselector Filter	Image Injection Filter	2175 Hz Notch Hybrid Filter	2175 Hz Bandpass Hybrid Filter	Driver PA Deck Cabling	Reference Synthesizer Cables	IPA Cable	20A Hi Power Junction Box Hardware	SSCB Power Cable	Synthesizer Cable	IPA Feedthru Cable	PA Cabling Kit	Intermediate Power Amplifier	PA Final Mode Hybrid, 928-944 MHz	Predriver Mode Hybrid	Receiver VCO:435-490 MHz	PA RF Mixer Hybrid, 896-915 MHz	Injection Double Amplifier Board	Line Interface Board	Display Board	60Hz Hi Power Junction Box Hardware	Miscellaneous Hardware	RF Tray Interconnect Board	RF Tray w/ EXT REF Hardware	PA Final Hardware	Uniboard	500W 60Hz Power Supply Hardware	14V Distribution Board	Trunked Tone Remote Control Audio Board	Synthesizer Hardware	900 MHz Analog Plus Staiton Control Board	110V 60Hz Label	Station Access Board	110V 60Hz Lo Power Junction Box Hardware	Universal Power Supply Hardware	RF Tray Hardware for Data Station	Socketed Display Board	15A Line Cord Hardware	Standoff Hardware	10V 60 Hz 14V Labels	900 MHz EXT REF Uniboard W/RSSI/Loopback	Hybrid Flutter Attenuator	Balancing Resistor Hardware	Final PA Distribution Board	Balancing Resistor Hybrid	70W Driver PA Deck Feedthru Plate	External Reference Connector	Thermistor Board	RF Board Hardware	HSO Power Supply	Hybrid Flutter Attenuator	Driver PA Deck Hardware	RF Circulator Hybrid	Reference Synthesizer Board	Reference Synthesizer Hardware	Transmit VCO: 435-475 MHz	Transmitter Circulator w/ Load	6-way Power Combiner Board	Hybrid 3-way Combiner/Directional Coupler Board	Single Circulator	Station Control Board Firmware	TTRC Module Firmware	Secure Module Firmware
	ITEM	TFF6202A	TFF6203A	TFN6056A	TFN6061A	TKN8342C	TKN8525A	TKN8562A	TKN8565A	TKN8599B	TKN8655A	TKN8842A	TKN8975C	TLF1521B*	TLF6633A	TLF6692A	TRE1322B*	TRF6512B	TRF6513A	TRN5159B	TRN7008A	TRN7110B	TRN7117A	TRN7142B	TRN7144A	TRN7173A	TRN7197B	TRN7213B	TRN7242A	TRN7273D	TRN7304A	TRN7423A	TRN7497A	TRN7537B	TRN7564A	TRN7580A	TRN7587A	TRN7606A	TRN7671A	TRN7827A	TRN7857A	TRN7881A	TRN7913A	TRN9060A	TRN9062B	TRN9064A	TRN9191A	TRN9256A	TRN9386A	TRN9458B	TRN9812B	TRN9837A	TRN9840B	TRN9867B	TRN9910B	TRN9932A	TTE1472B*	TTF1362B*	TTF6203A	TTF6273B	TTF6470A	TVN6055A	TVN6056A	TVN6118A
DESCRIPTION	MODEL																																																															
110V 15A 60Hz Lo Power Junction Box	TLN2490A																			1													1		1																													
110V 20A 60Hz Hi Power Junction Box	TLN3022B								1											1		1														1			1		1																							
Reference Synthesizer	TLN3024B						1																																																1	1								
HSO Synthesizer	TLN3025C										1																				1																				1				1									
Trunked Toned Remote Control Audio Board	TLN3112E			1	1																									1																																		
Analog Plus Station Control Board	TLN3205A																				1											1																				1										1		
Station Access Module (SAM)	TLN3221B																																	1						1																								1
900 MHz Data Station Control Board	TLN3342A																																					1					1									1										1		
500W 60Hz Power Supply	TPN1186B																						1					1	1																																		1	
Trunked Toned Remote Control Logic Board	TRN7754A																																																															
Transmitter Final Power Amp, 928-944 MHz	TTF1212C												1		6											1																		2	1	4	1		1										1					
70W Driver Power Amp, 928-944 MHz	TTF1242D					1									4	1																													1	2	1		1				1							1				
Single Circulator w/ Load	TTF1480A																																																									1			1			
RF Tray Chassis w/ High Stability Osc, 896-944 MHz	TUF1790A	1	1					1		1		1		1			1	1	1					1	1		1																					1									1							
900 MHz EXT REF RF Tray W/RSSI/Loopback	TUF1920A	1	1					1		1		1		1			1	1	1					1																		1						1									1							

MSFX011
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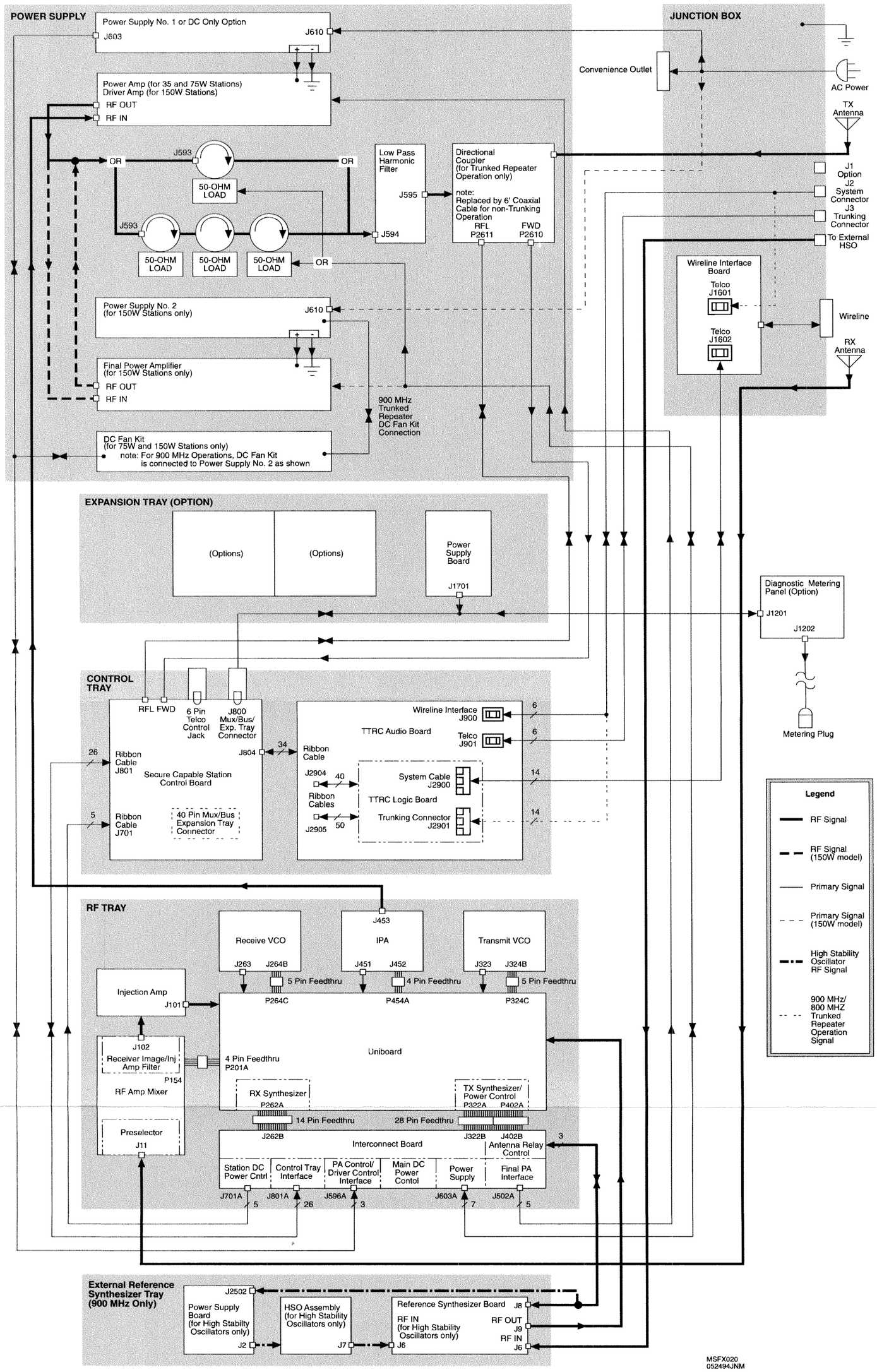
2nd ITEM BREAKDOWN CHART FOR MSF 5000 ANALOG PLUS BASE STATIONS 900 MHz

LEGEND:

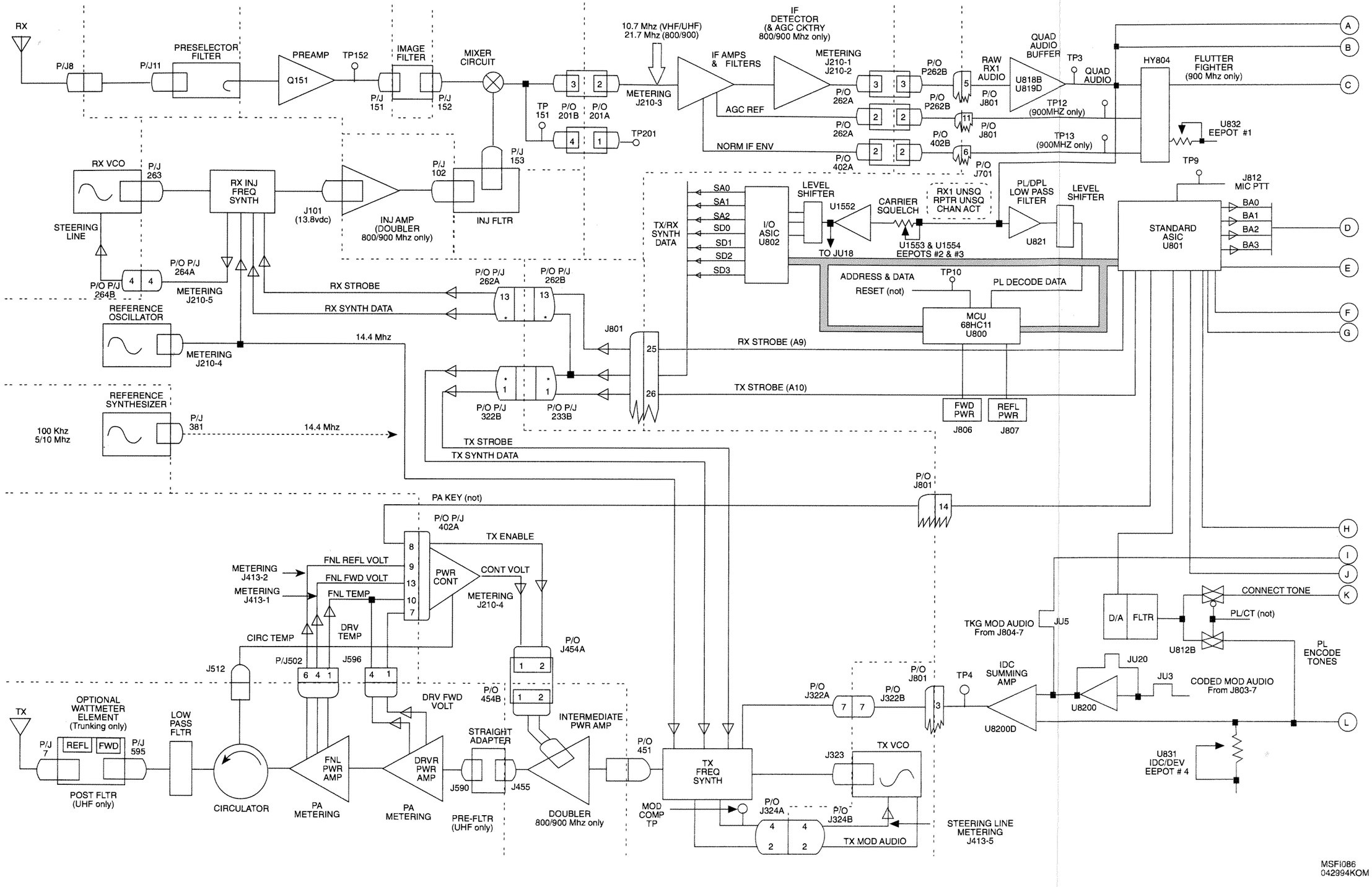
1 = Items Supplied

DESCRIPTION	MODEL	ITEM TLE5372B	TLE5382B	TLF6840C	TLF6850A	TRN9458B	TRN9867B	TRN9930A
		DESCRIPTION Transmit VCO Hardware	Receiver VCO Hardware	Intermediate Power Amplifier Hybrid	Intermediate Power Amplifier Hybrid Module	RF Load Hardware	RF Circulator Hybrid	Intermediate Power Amplifier Hardware
Intermediate Power Amplifier	TLF1521B			1	1			1
Receiver VCO	TRE1322B		1					
Transmit VCO	TTE1472B	1						
Transmitter Circulator w/ Load	TTF1362B					1	1	

MSFX012
052494JNM


POWER SUPPLY
Power Supply No. 1 or DC Only Option
J603
J610
Power Amp (for 35 and 75W Stations)
Driver Amp (for 150W Stations)
RF OUT
RF IN
OR
J593
50-OHM LOAD
Low Pass Harmonic Filter
J595
J594
Directional Coupler (for Trunked Repeater Operation only)
note: Replaced by 6' Coaxial Cable for non-Trunking Operation
RFL P2611
FWD P2610
Power Supply No. 2 (for 150W Stations only)
Final Power Amplifier (for 150W Stations only)
900 MHz Trunked Repeater DC Fan Kit Connection
DC Fan Kit (for 75W and 150W Stations only)
note: For 900 MHz Operations, DC Fan Kit is connected to Power Supply No. 2 as shown
JUNCTION BOX
Convenience Outlet
AC Power
TX Antenna
J1 Option
J2 System Connector
J3 Trunking Connector
To External HSO
Wireline Interface Board
Telco J1601
Telco J1602
Wireline
RX Antenna
EXPANSION TRAY (OPTION)
(Options)
(Options)
Power Supply Board
J1701
Diagnostic Metering Panel (Option)
J1201
J1202
Metering Plug
CONTROL TRAY
RFL FWD
6 Pin Telco Control Jack
J800 Mux/Bus/ Exp. Tray Connector
Ribbon Cable J801
Secure Capable Station Control Board
J804
Ribbon Cable
TTRC Audio Board
Wireline Interface J900
Telco J901
J2904
Ribbon Cables
J2905
System Cable J2900
TTRC Logic Board
Trunking Connector J2901
Ribbon Cable J701
40 Pin Mux/Bus Expansion Tray Connector
RF TRAY
Receive VCO
IPA
Transmit VCO
J263
J264B
J451
J452
J323
J324B
J453
5 Pin Feedthru
4 Pin Feedthru
P264C
P454A
P324C
Injection Amp
J101
J102
Receiver Image/Inj Amp Filter
P154
RF Amp Mixer
Preselector
J11
Uniboard
4 Pin Feedthru
P201A
RX Synthesizer
P262A
TX Synthesizer/ Power Control
P322A
P402A
14 Pin Feedthru
28 Pin Feedthru
J262B
J322B
J402B
Interconnect Board
Antenna Relay Control
Station DC Power Cntrl
Control Tray Interface
PA Control/ Driver Control Interface
Main DC Power Contol
Power Supply
Final PA Interface
J701A
J801A
J596A
J603A
J502A
External Reference Synthesizer Tray (900 MHz Only)
J2502
Power Supply Board (for High Stabilty Oscillators only)
J2
HSO Assembly (for High Stability Oscillators only)
J7
Reference Synthesizer Board
J8
RF IN (for High Stability Oscillators only)
J6
RF OUT
J9
RF IN
J6
Legend
RF Signal
RF Signal (150W model)
Primary Signal
Primary Signal (150W model)
High Stability Oscillator RF Signal
900 MHz/ 800 MHZ Trunked Repeater Operation Signal
MSFX020
052494JNM

MSF 5000 Block Diagram



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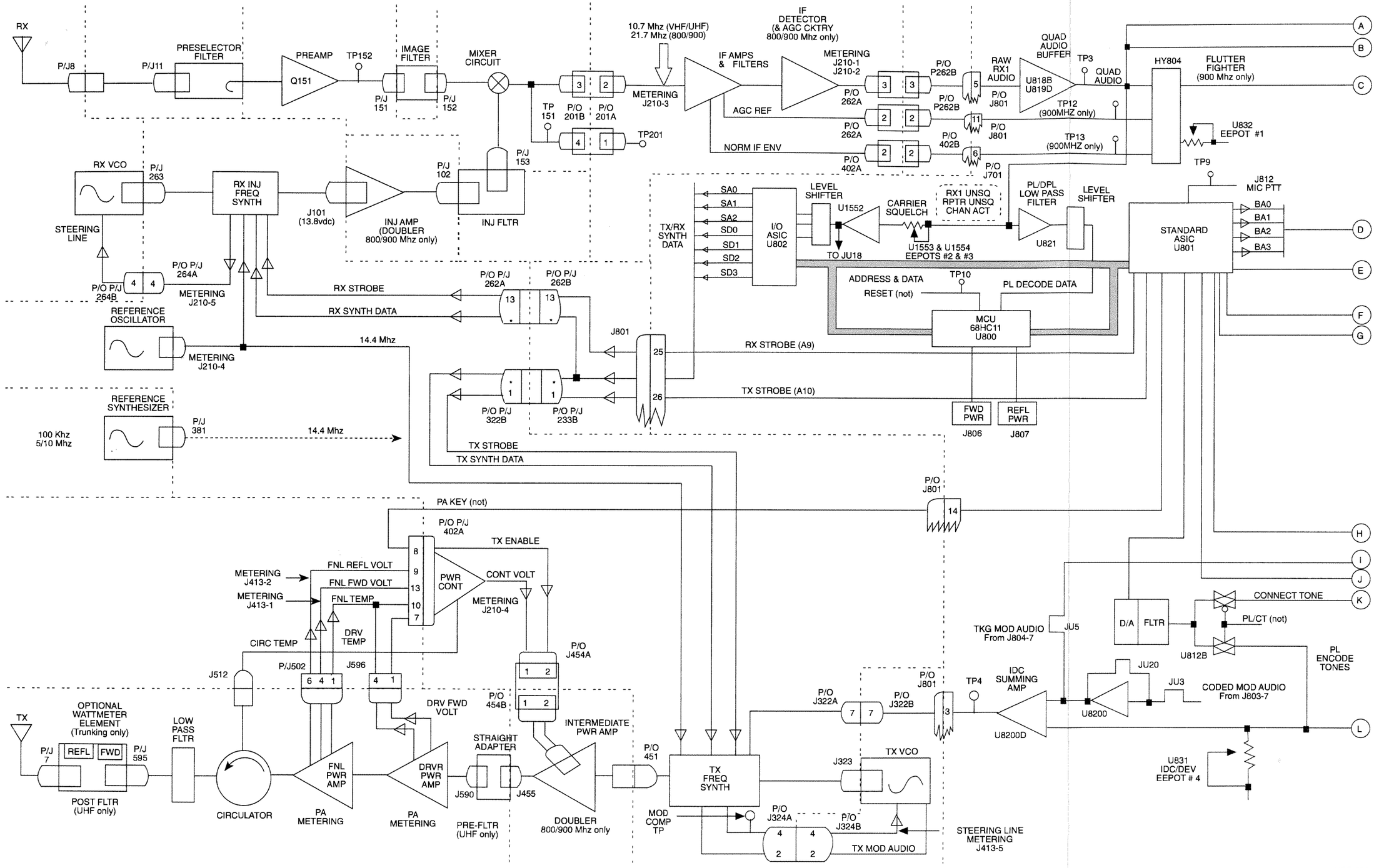
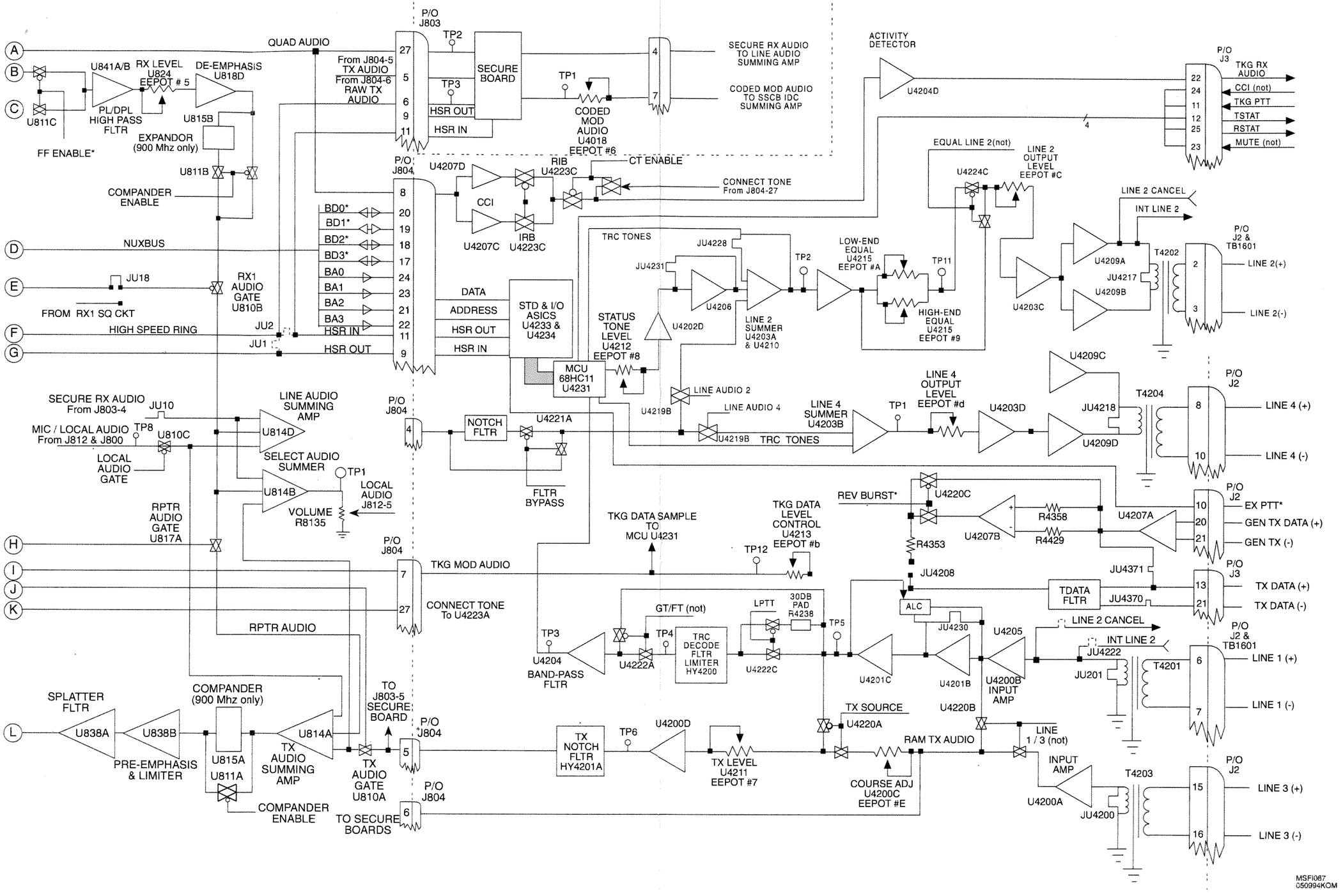

RX
P/J8
P/J11
PRESELECTOR FILTER
PREAMP
Q151
TP152
IMAGE FILTER
P/J 151
P/J 152
MIXER CIRCUIT
10.7 Mhz (VHF/UHF)
21.7 Mhz (800/900)
METERING J210-3
IF DETECTOR (& AGC CKTRY 800/900 Mhz only)
IF AMPS & FILTERS
METERING J210-1 J210-2
AGC REF
NORM IF ENV
P/O 262A
P/O P262B
P/O 402B
P/O J801
P/O J701
RAW RX1 AUDIO
U818B U819D
QUAD AUDIO BUFFER
TP3
QUAD AUDIO
TP12 (900MHZ only)
TP13 (900MHZ only)
HY804
FLUTTER FIGHTER (900 Mhz only)
U832 EEPOT #1
TP9
J812 MIC PTT
TP
P/O 201B
P/O 201A
TP201
P/J 153
RX VCO
P/J 263
RX INJ FREQ SYNTH
STEERING LINE
J101 (13.8vdc)
P/J 102
INJ AMP (DOUBLER 800/900 Mhz only)
INJ FLTR
P/O P/J 264A
P/O P/J 264B
METERING J210-5
RX STROBE
RX SYNTH DATA
P/O P/J 262A
P/O P/J 262B
REFERENCE OSCILLATOR
METERING J210-4
14.4 Mhz
J801
REFERENCE SYNTHESIZER
100 Khz 5/10 Mhz
P/J 381
14.4 Mhz
P/O P/J 322B
P/O P/J 233B
TX STROBE
TX SYNTH DATA
TX/RX SYNTH DATA
SA0
SA1
SA2
SD0
SD1
SD2
SD3
I/O ASIC U802
LEVEL SHIFTER
U1552
TO JU18
CARRIER SQUELCH
U1553 & U1554 EEPOTS #2 & #3
RX1 UNSQ RPTR UNSQ CHAN ACT
PL/DPL LOW PASS FILTER
U821
LEVEL SHIFTER
STANDARD ASIC U801
BA0
BA1
BA2
BA3
ADDRESS & DATA
RESET (not)
TP10
PL DECODE DATA
MCU 68HC11 U800
RX STROBE (A9)
TX STROBE (A10)
FWD PWR
REFL PWR
J806
J807
PA KEY (not)
P/O J801
P/O P/J 402A
TX ENABLE
METERING J413-2
FNL REFL VOLT
METERING J413-1
FNL FWD VOLT
FNL TEMP
PWR CONT
CONT VOLT
METERING J210-4
CIRC TEMP
DRV TEMP
P/J502
J596
J512
P/O J454A
P/O 454B
DRV FWD VOLT
INTERMEDIATE PWR AMP
STRAIGHT ADAPTER
J590
J455
TX
OPTIONAL WATTMETER ELEMENT (Trunking only)
REFL
FWD
P/J 7
P/J 595
POST FLTR (UHF only)
LOW PASS FLTR
CIRCULATOR
FNL PWR AMP
PA METERING
DRVR PWR AMP
PA METERING
PRE-FLTR (UHF only)
DOUBLER 800/900 Mhz only
P/O 451
TX FREQ SYNTH
MOD COMP TP
P/O J322A
P/O J322B
P/O J324A
P/O J324B
TX MOD AUDIO
J323
TX VCO
STEERING LINE METERING J413-5
TP4
IDC SUMMING AMP
U8200D
U8200
JU5
JU20
JU3
TKG MOD AUDIO From J804-7
CODED MOD AUDIO From J803-7
D/A
FLTR
CONNECT TONE
PL/CT (not)
U812B
PL ENCODE TONES
U831 IDC/DEV EEPOT # 4
A
B
C
D
E
F
G
H
I
J
K
L
MSFI086
042994KOM

MSF 5000 Block Diagrams



Alignment

Chapter Overview

This chapter describes how to align an *MSF 5000* base station. The chapter contents are listed in Table 1-1.

Table 1-1 ***Chapter contents***

Section	Page	Description
Recommended Test Equipment	1-1	A list of recommended tools and test equipment needed to properly align an *MSF 5000* station.
General Guidelines	1-2	Things to consider before aligning a station.
Alignment Procedures	1-4	Detailed procedures for aligning a station.
Simulcast Receiver Adjustment	1-49	Procedures for aligning a simulcast station receiver.
Simulcast Deviation Adjustment	1-51	Procedures for aligning a simulcast station transmitter.

Recommended Test Equipment

The following test equipment is required to align the *MSF 5000* station:

- ❒ R2000 Service Monitor (or equivalent)
- ❒ Diagnostic Metering Panel or Radio Metering Panel (both are referred to as *metering panel*)
- ❒ HP3552A Transmission Test Set (or equivalent)
- ❒ 50 Ω RF terminating load (two times the rated power; dependent on transmitter output)
- ❒ Wattmeter (two times the rated power; dependent on transmitter output)
- ❒ Voltmeter
- ❒ Frequency measuring device
- ❒ Tuning tool kit (supplied with station)
- ❒ Torx driver

The following test equipment is optional:

- ❒ Radio Service Software (RSS)
- ❒ Service computer

General Guidelines

The following procedures require the service technician or installer to have a basic knowledge of the *MSF 5000* operation. Refer to the *MSF 5000* Instruction manual for additional information.

NOTE

Most of the following procedures apply to stations containing the *Simulcast Option (C777)*, however, Simulcast procedures are included at the end of this chapter. Refer to the trunked station dual path and digital path simulcast manual (68P81081E60) for system setup information using this option.

MSF 5000 Alignment Requirements

- ❒ Check all deviation levels by measuring the highest positive or negative peak deviation.
- ❒ Terminate all 600 Ω/900Ω wireline inputs and outputs with a 600 Ω/900Ω terminating load before taking measurements.
- ❒ *For trunking stations*, if the *MSF 5000* is connected to an operational Trunked Radio Central Controller, disable the station from the system only through the central controller.
- ❒ To activate/deactivate Muxbus bits, either use the DMP and RSS or the equivalent jumper settings provided throughout the procedure.
- ❒ Most adjustments in the alignment procedure are made from the tuning channel (channel 0/mode 0).

  Channel 0 is the tuning channel. This is the average of the highest and lowest programmed frequencies. The channel is displayed in the **Chan** digit (i.e., last digit on the left-hand side) of the **Status** display.

  Mode 0 disables PL/DPL and opens squelch. The mode is displayed in the **Mode** digit (center) of the **Status** display.
- ❒ If available, use RSS to determine the programmed receive and transmit frequencies for each channel.
- ❒ While tuning filters for a maximum or minimum reading, adjust the tuning screw an additional 1\2 turn to ensure a true maximum or minimum level.
- ❒ When using a frequency measuring device, ensure the accuracy rating is equal to at least 10 times that of the station stability.
- ❒ The typical maximum phone line input level is from 0 dBm to -10 dBm.
- ❒ The *MSF 5000* EEPOTs provide the functions listed in Table 1-2. Refer to the *MSF 5000* Instruction manual for additional information on adjusting EEPOTs.

Table 1-2 ***EEPOT Definitions***

EEPOT #	Function	EEPOT Location
0	coded RX level †	Secure board
1	*Flutter Fighter* level (900 MHz only)	SSCB
2	repeater squelch level	SSCB
3	receiver squelch level	SSCB
4	maximum deviation level	SSCB
5	RX level (for repeater deviation)	SSCB
6	coded deviation level	SSCB
7	TX audio level	TTRC board
8	status tone level	TTRC board
9	high-end equalization level	TTRC board
A	low-end equalization level	TTRC board
b	trunking data level	TTRC board
C	line 2 output level	TTRC board
d	line 4 output level	TTRC board
E	coarse line level adjust	TTRC board
F	SAM encoder level ‡	SAM

† Only with optional Secure board.
‡ Only with optional SAM board.

Alignment Procedures

Motorola recommends performing alignment procedures after installing the *MSF 5000*, six months after installation, and every twelve months thereafter. If the *MSF 5000* is equipped with the *Battery Revert Option (C28)*, verify its performance as well.

Always perform the procedures in the order presented. Some of the adjustments are presented for stations containing specific options. Perform only those procedures applying to the specific *MSF 5000* configuration.

Power Supply Voltage

The following procedure is only performed when a station is equipped with the *Battery Revert Option (C28)*. This procedure adjusts the voltage set potentiometer which sets the battery charge voltage at the Junction Box battery connection.

1. Verify the station is dekeyed.
2. On the Junction Box, disconnect the battery cable from the station.
3. Set the **FL** ↓**/EQ** ↑ switch (S650) to **FL** ↓ (Float).
   The **FL** ↓**/EQ** ↑ switch is located on the Power Supply board. Refer to Figure 1-1 for the location of this switch.

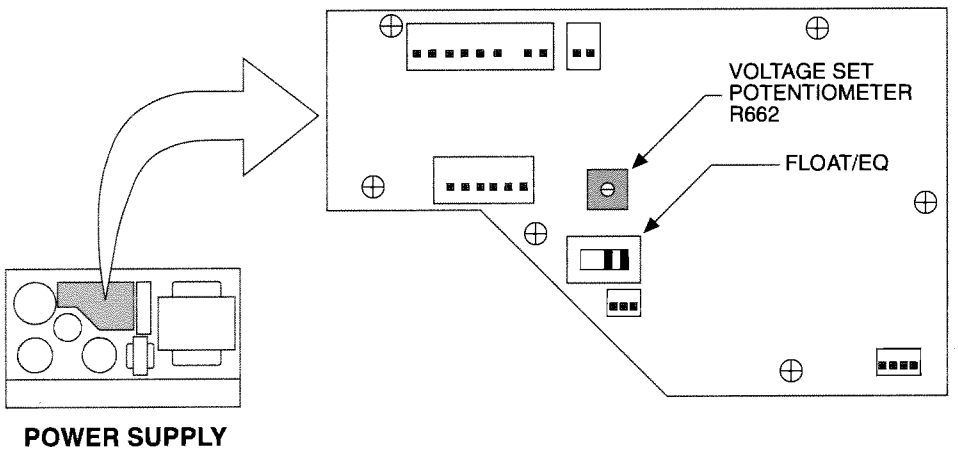


Figure 1-1 ***Power Supply Board (top View)***

4. Adjust the **VOLTAGE SET** potentiometer (R662) to set the battery charge voltage at the battery connector on the Junction Box.

   For optimum performance, set R662 to the manufacturer's recommended battery charging voltage listed in Table 1-3.

Table 1-3 ***Recommended Battery Charging Voltages***

Battery Type	Voltage
Lead Acid	13.25 Vdc (26.5 Vdc)
NI-CAD™	14.25 Vdc (28.5 Vdc)
GEL-CELL™	13.5 Vdc (27 Vdc)
No Batteries	14.25 Vdc (28.5 Vdc)

Note: Voltages represented in parenthesis ( ) are for *VHF stations* using the 24 Vdc output post. All voltages represented are at room temperature conditions.

NOTE

Only connect fully charged batteries to the station. Allow discharged batteries to charge for at least three hours before connecting them to the station. Keying the station without fully charged batteries reduces station performance.

NOTE

Motorola recommends periodically setting the **FL ↓/ EQ ↑** switch to **EQ ↑** (i.e., every 3 - 4 months or after heavy usage). Leave this switch in the **EQ ↑** (equalize) position until the batteries' cells are fully equalized.

5. Connect the batteries to the Junction Box. Observe polarity of the connector.

VCO Adjustments

The following procedure adjusts the Transmit and Receive Voltage Controlled Oscillators (VCOs). The VCOs are adjusted through the use of the **Rx Lock** and **Tx Lock** LEDs, the VCO locking cams, and a metering panel. This procedure does not apply to VHF stations since they do not require fine tuning for proper operation.

NOTE

The Transmit and Receive VCO adjustment should only be performed for *UHF, 800 MHz, and 900 MHz Analog Plus stations*. This procedure does not apply to *VHF stations*.

1. On the top of the RF Tray, rotate both VCO locking cams to **Transit**.

   The **Transit** position secures the VCOs in place while adjusting or moving the station. Refer to Figure 1-2 for the location and rotation of the VCO locking cams.

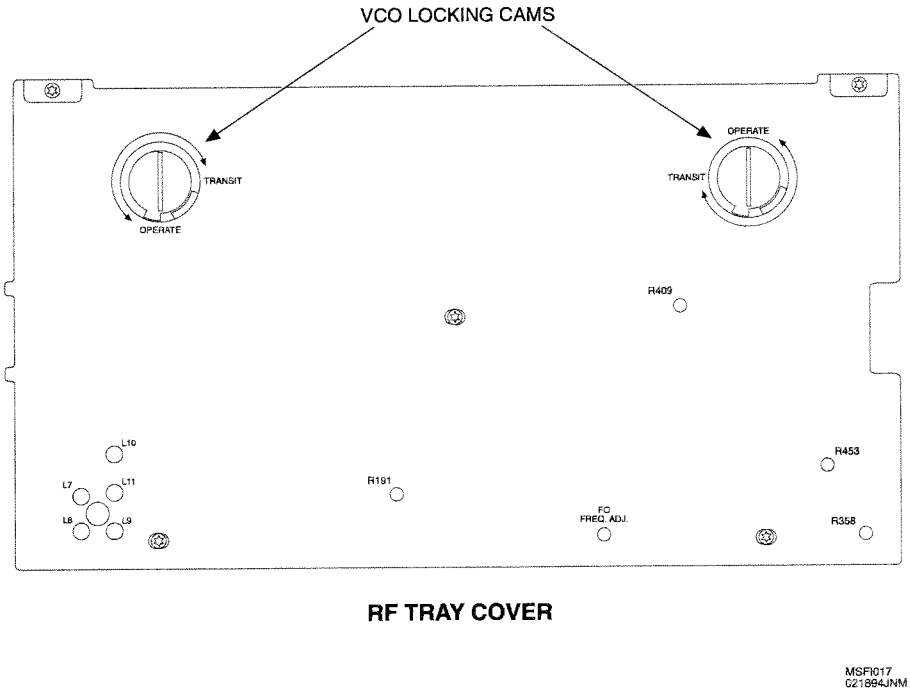


Figure 1-2 ***VCO Locking Cams***

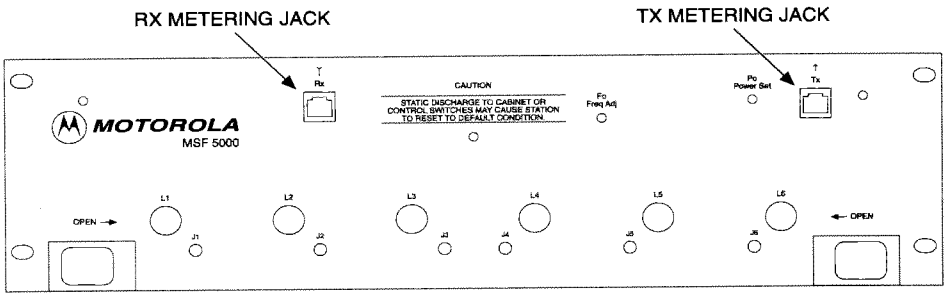
2. On the control tray, set the station to the channel with the highest programmed operating frequency.

   The channel is displayed in the **Chan** digit (i.e., last digit on the left-hand side) of the **Status** display.

Transmit VCO Adjustment

3. Connect a metering panel to the **Tx** metering jack located on the front right-hand side of the RF Tray using the metering cable.

   Refer to Figure 1-3 for the location of the RF Tray metering jacks.



RF TRAY FRONT PANEL

NOTE: L1 - L6, J1 - J6 and Fo Freq Adj are not found on VHF models.
Access requires the removal of the front panel.

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Figure 1-3 ***Metering Jacks***

4. On the metering panel, set the Meter switch to 5 and set the reversing switch (±) to + (positive).

   Meter 5 should read 38 ±2 µA. If the meter indicates this value, proceed to the Receive VCO Adjustment.

5. Adjust the TX VCO tuning screw until the **Tx Lock** indicator on the control tray illuminates.

   Access the TX VCO tuning screw from the upper hole on the right-hand side of the RF Tray. Turning the TX VCO clockwise (CW) increases the level; turning it counter-clockwise (CCW) decreases the level. Refer to Figure 1-4 for the location and rotation of the VCOs.

6. Adjust the TX VCO tuning screw until Meter 5 on the metering panel indicates 38 ± 2 µA.

Receive VCO Adjustment

7. Connect a metering panel to the **Rx** metering jack on the front left-hand side of the RF Tray using the metering cable.

   Refer to Figure 1-3 for the location of the RF Tray metering jacks.

8. On the metering panel, verify Meter 5 is selected and the reversing switch (±) is set to + (positive).

   Meter 5 should read 38 ± 2 µA. If the meter indicates this value, proceed to step 11.

9. Adjust the RX VCO tuning screw until the **Rx Lock** indicator on the control tray illuminates.

   Access the RX VCO tuning screw from the upper hole on the left-hand side of the RF Tray. Turning the RX VCO clockwise (CW) increases the level; turning it counter-clockwise (CCW) decreases the level. Refer to Figure 1-5.

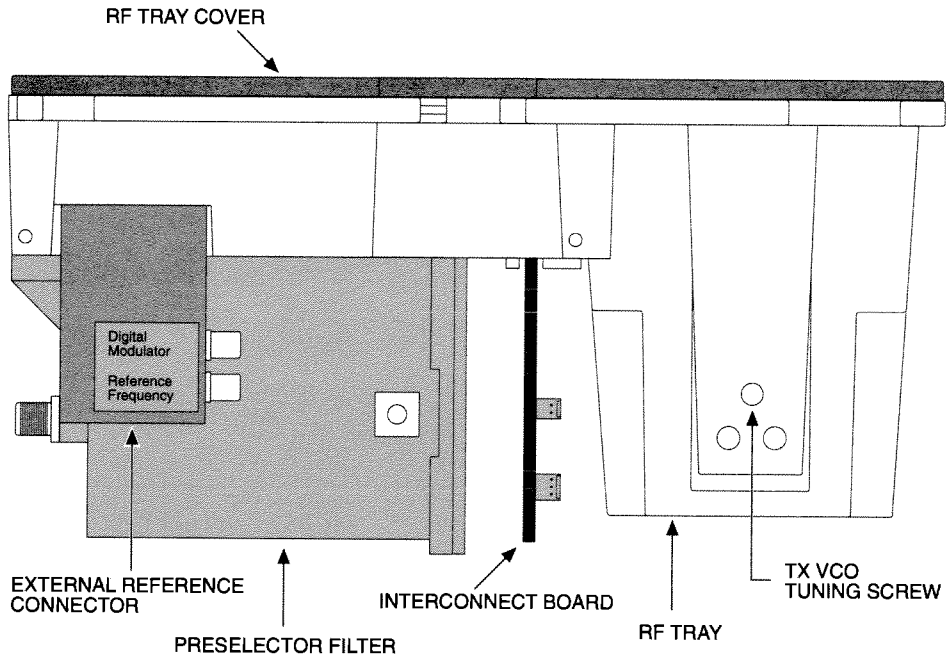


Figure 1-4 ***TX VCO Tuning Screw***

10. Adjust the RX VCO tuning screw until Meter 5 on the metering panel indicates 38 ± 2 µA.

11. Rotate both VCO locking cams to **Operate**.

Injection Filter Adjustment

The following procedure aligns the Injection Filter for the tuning channel frequency (channel 0/mode 0). By adjusting the Injection Filter to the tuning channel, the station is tuned for a all programmed frequencies.

The Injection Filter tuning screws are accessed through the RF Tray cover. The tuning screws are adjusted until a maximum reading is obtained on the metering panel.

1. Connect a metering panel to the **Rx** metering jack on the front left-hand side of the RF Tray using the metering cable.

2. On the metering panel, set the Meter switch to 3 and verify the reversing switch (±) is set to the + (positive).

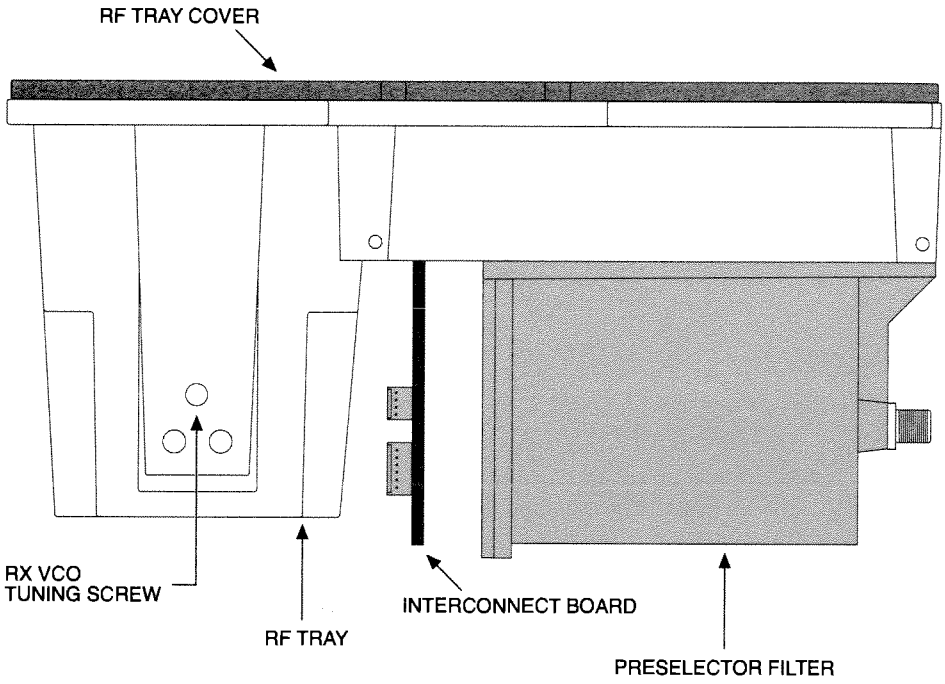


Figure 1-5 ***RX VCO Tuning Screw***

3. On the control tray, set the **Acc Dis/Reset** switch to **Acc Dis**.
4. Using the **Select/Set** switch, set the station to tuning channel.
5. Using a tuning screwdriver, adjust L7 until Meter 3 on the metering panel indicates a maximum level.

   Refer to Figure 1-6 for the location of the Injection Filter tuning screws.
6. Using a tuning screwdriver, adjust L8 until Meter 3 on the metering panel indicates a maximum level.
7. Using a tuning screwdriver, adjust L9 until Meter 3 on the metering panel indicates a maximum level.
8. Repeat steps 5 through 7 until a maximum level is obtained.

Preselector / Image Filter Adjustment

The following procedure aligns the Preselector and Image Filters for the tuning channel frequency (channel 0/mode 0). By adjusting the Preselector and Image Filters to the tuning channel, the station is tuned for all programmed frequencies.

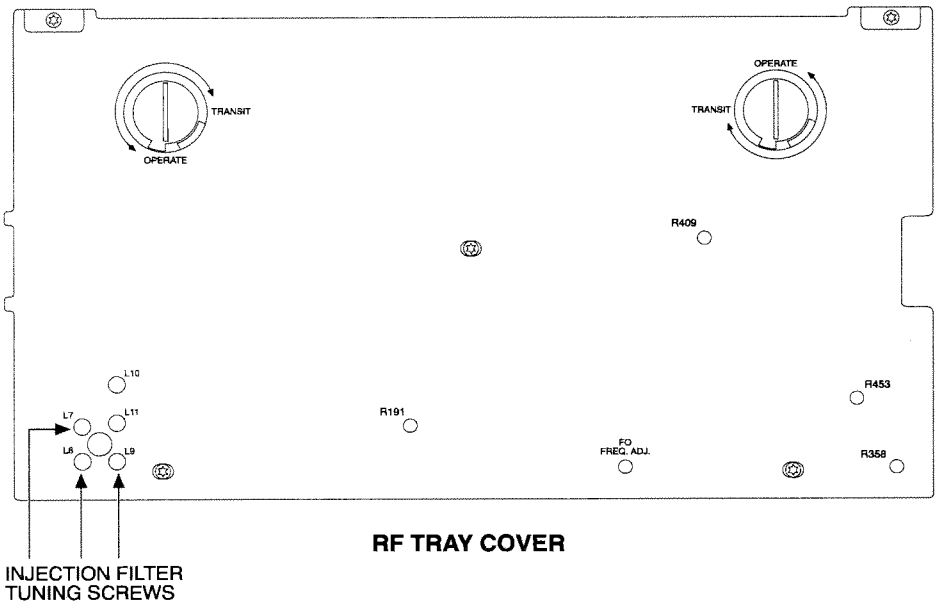


Figure 1-6 ***Injection Filter Tuning Screws (RF Tray Cover)***

The Preselector Filter tuning screws are accessed through the RF Tray front panel. There are a total of six Preselector tuning screws, except for VHF stations which contain only five tuning screws. For VHF stations, the RF Tray front panel must be removed. The Preselector Filter tuning screws are adjusted until the proper reading is obtained on the metering panel.

The Image Filter tuning screws are accessed from the top of the RF Tray cover. The Image Filter tuning screws are adjusted until the proper reading is obtained on the metering panel.

Typically, the Preselector and Image Filter require only a fine adjustment. However, if the station requires a major tuning adjustment, the coarse adjustment must be performed initially. Coarse adjustments are usually required after frequency changes, filter replacements, and servicing.

Coarse Adjustment

1. If adjusting a *VHF station*, remove the RF Tray front panel. Otherwise, proceed to step 2.

2. Using the **Select/Set** switch, set the station to the tuning channel.

3. Terminate the Preselector by connecting a 50 Ω load to the Preselector input.

   For non-duplex repeaters and base stations, connect the load to the receive antenna connection on the Junction Box.

NOTE

When tuning for a minimum or maximum reading on the meter, adjust the tuning screws an additional half-turn. This ensures that the true minimum or maximum level.

4. On the front of the RF Tray, adjust all the Preselector tuning screws CCW as indicated below. Refer to Figure 1-7.

   On *800 MHz stations*, adjust the tuning screws until they extend approximately 1/8" from the front panel.

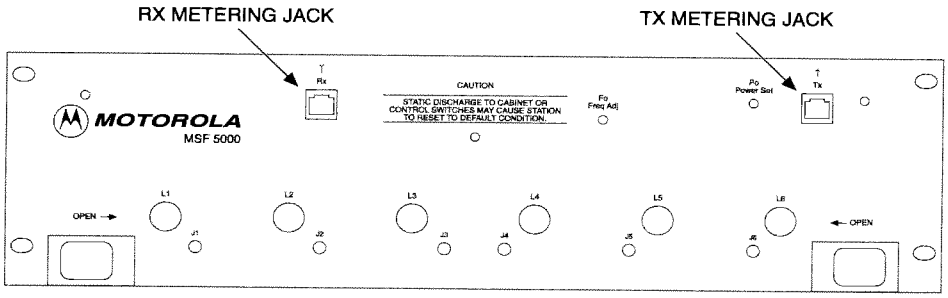
   On *UHF and 900 MHz Analog Plus stations*, adjust the tuning screws until they extend approximately 1/4" from the front panel.

   On *VHF stations* using *VHF Range 1 Option (C367)*, adjust the tuning screws until they extend approximately 3/4" from the tension nut.

   On *VHF stations* using *VHF Range 2*, adjust the tuning screws until they extend approximately 1/8" from the tension nut.

NOTE

On *VHF stations* at frequencies near 158 MHz (Range 1) or near 174 MHz (Range 2), the meter indication may not decrease after tuning for a maximum level. If this happens, stop adjusting the tuning screw.



RF TRAY FRONT PANEL

NOTE: L1 - L6, J1 - J6 and Fo Freq Adj are not found on VHF models. Access requires the removal of the front panel.

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Figure 1-7 ***Preselector Filter Tuning Screws***

5. Connect the Preselector probe from the output of a signal generator to J1 of the Preselector located on the front panel of the RF Tray.

6. Set the signal generator to output a 1 mV on-channel signal.

7. On the metering panel, set the Meter switch to 2 and verify the reversing switch (±) is set to the + (positive).

   Verify a level between 25 and 35 µA on the metering panel. Adjust the signal generator output, as necessary, to meet the required level.

8. On the top of the RF Tray, adjust the Image Filter (L10 and L11) until Meter 2 indicates a maximum level.

   Refer to Figure 1-8 for the location of the Image Filter tuning screws.

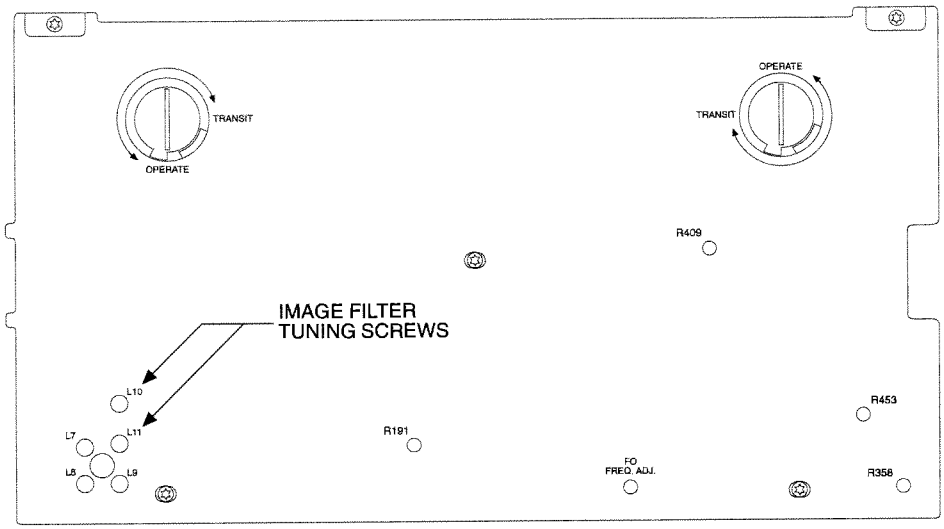


Figure 1-8 ***Image Filter Tuning Screws (top View of RF Tray)***

9. On the front of the RF Tray, adjust L1 on the Preselector until Meter 2 indicates a maximum level.

10. Adjust L2 on the Preselector until Meter 2 indicates a minimum level.

11. Move the probe to J2 and adjust L3 on the Preselector until Meter 2 indicates a minimum level.

12. Move the probe to J3 and adjust L4 on the Preselector until Meter 2 indicates a minimum level.

13. Move the probe to J4 and adjust L5 on the Preselector until Meter 2 indicates a minimum level.

NOTE

Perform step 14 only if aligning *UHF, 800 MHz, and 900 MHz Analog Plus stations*. Otherwise, proceed to Fine Adjustment.

14. For *UHF, 800 MHz, and 900 MHz Analog Plus stations,* move the probe to J5 and adjust L6 on the Preselector until Meter 2 indicates a minimum level.

Fine Adjustment

15. Using the **Select/Set** switch, set the station to the tuning channel.

16. Use a signal generator to inject a 1 mV on-channel signal into the receiver antenna connector on the Junction Box.

17. Alternately adjust L10 and L11 on the Image Filter until Meter 2 indicates a maximum level.

18. Alternately adjust L1 on the Preselector and L11 on the Image Filter until Meter 2 indicates a maximum level.

19. Adjust L6 on the Preselector (L5 for *VHF stations*) until Meter 2 indicates a maximum level.

NOTE

Perform step 20 only if aligning a *VHF station*. Otherwise, proceed to Adjusting the Transmit Filter (Duplexer).

20. On *VHF stations* only, reinstall the RF Tray front panel.

Adjusting the Transmit Filter (Duplexer)

The following procedure is only performed for *UHF stations* equipped with the *Duplex Filter Option (C597, C675, or C677)*. This procedure aligns the prefilter and postfilter of the Duplex Filter.

The prefilter and postfilter are aligned for the tuning channel frequency (channel 0/mode 0). By adjusting the prefilter and postfilter to the tuning channel, the station is tuned for all programmed frequencies.

The prefilter and postfilter tuning screws are easily accessed within the station cabinet. The tuning screws are adjusted until the proper reading is obtained on the metering panel.

CAUTION

Never attempt to adjust the Prefilter or Postfilter for the purpose of obtaining maximum station output power. Misalignment of other specifications may occur.

1. On the control tray, set the **Acc Dis/Reset** switch to **Acc Dis**.
2. Disconnect the PA input cable from the output of the Prefilter (J501). Refer to Figure 1-9 for the location of J501.

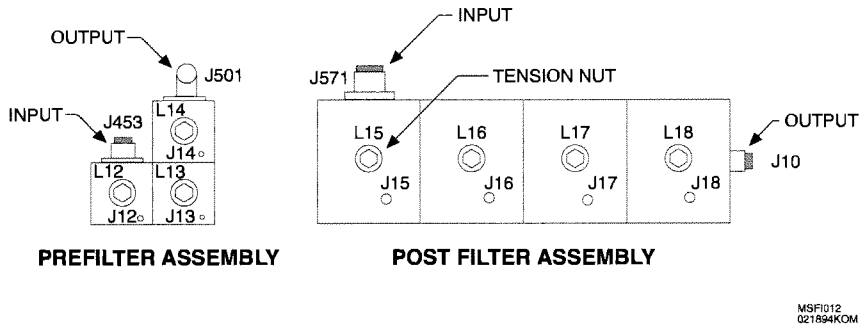


Figure 1-9 ***Duplexer Tuning Screws***

3. Connect a 50 Ω load to J501.
4. Set the signal generator to the transmitter tuning channel frequency.
5. Adjust the signal generator output to 0 dBm (225 mV).
   If the Preselector is properly aligned, connect the signal generator to the transmit antenna connector on the Junction Box. Otherwise, connect the signal generator to the Postfilter output (J10).
6. Detune the Postfilter by turning L15 through L17 CCW until they extend approximately 1/2" from the tension nut.
7. Connect the tuning probe to J18 on the Postfilter.
8. Adjust L18 for maximum indication on the millivoltmeter.
9. Adjust L17 for minimum indication on the millivoltmeter.
10. Move the tuning probe to J17 on the Postfilter.
11. Adjust L16 for minimum indication on the millivoltmeter.
12. Move the tuning probe to J16 on the Postfilter.
13. Adjust L15 for minimum indication on the millivoltmeter.

14. Remove the IPA output cable from the Prefilter input (J453).
15. Connect a signal generator to the Prefilter input (J453).
16. Detune the Prefilter by turning L13 and L14 CCW until they extend approximately 1/2" from the tension nut.
17. Move the tuning probe to J12 on the Prefilter.
18. Adjust L12 for maximum indication on the millivoltmeter.
19. Adjust L13 for minimum indication on the millivoltmeter.
20. Move the tuning probe to J13 on the Prefilter.
21. Adjust L14 for minimum indication on the millivoltmeter.
22. Disconnect all test equipment.
23. Connect the PA input cable to the Prefilter (J501).
24. Connect the IPA cable to the IPA (J453).
25. Set the **Acc Dis/Reset** switch to the center (normal) position.

Forward/Reflected Power Trip Point Set

The following procedure is only performed for *trunked stations* or *data stations*. This procedure adjusts the forward and reflected power trip points to a user specified level.

This procedure requires adjustment of the station output power level, setting the trip point, and then readjusting the station for the appropriate output power level. The trip point value appearing in the **Status** display is a relative value. This value cannot be converted to the actual power level adjustment.

CAUTION

Do not attempt to enter or adjust the forward and reflected power trip set mode if a wattmeter is not present in the station (i.e., it is a conventional station). The codeplug may be corrupted which causes constant alarms.

1. Connect the station transmit antenna connector on the Junction Box to a wattmeter terminated with a 50 Ω load.

   Use a wattmeter capable of handling the full-rated station power.

2. Key the station by setting the LOC PTT MUXbus bit (A1/D1).

   This may also be accomplished by grounding TP9 (or J812-4) on the SSCB.

3. Set and hold the **Select/Set** switch to **Set**.

   Be sure to hold this switch during step 4 and step 8.

4. Set the **PL Dis/Xmit** switch to **PL Dis**.

5. Set the **Acc Dis/Reset** switch to **Acc Dis**.

   The **Status** display indicates "**trP**".

6. Release the **Select/Set** switch.

7. Set the **PL Dis/Xmit** and **Acc Dis/Reset** switches to the center (normal) position.

   The first character of the **Status** display toggles between "**F**" (forward power) and "**r**" (reflected power), as shown in Figure 1-10.

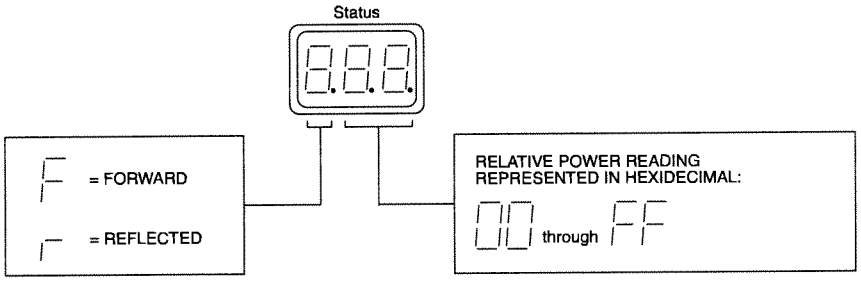


Figure 1-10 ***Forward/Reflected Power Status Display Definitions***

Forward Power Level Adjustment

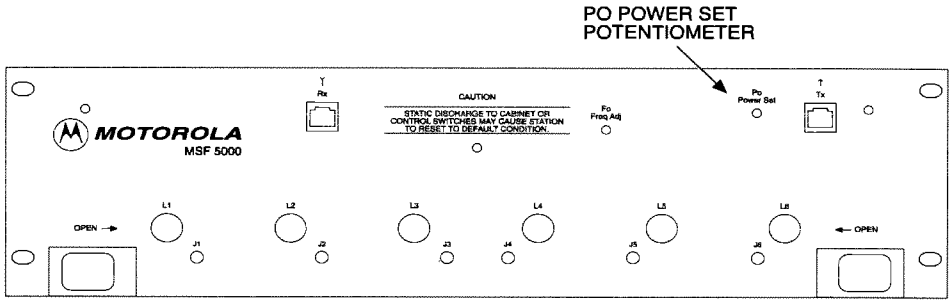
8. Use the tuning tool to set the power output to the desired forward power level trip point by adjusting **Po Power Set** potentiometer (R426).

   This is typically set to 35% of the rated station power level. Refer to Table 1-4 through Table 1-6.

   The **Po Power Set** potentiometer is part of the Uniboard and is accessed through the opening in the RF Tray front panel, refer to Figure 1-11. Turn the **Po Power Set** potentiometer CW to increase power out; turn it CCW to decrease power out.

9. With the transmitter keyed, set the **Select/Set** switch to **Select** when the first character of the **Status** display shows "**F**".

   The second and third digits indicate the forward power level trip point. This value is represented in hexadecimal.



RF TRAY FRONT PANEL

NOTE: L1 - L6, J1 - J6 and Fo Freq Adj are not found on VHF models.
Access to these requires the removal of the front panel.

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Figure 1-11 ***Po Power Adjustment***

Reflected Power Level Adjustment

10. Use the tuning tool to set the power output to the desired reflected power level trip point by adjusting the **Po Power Set** potentiometer.

    The reflected power level trip point is typically set to 20% of the rated station power level. Refer to Table 1-4 through Table 1-7.

11. Toggle the **Select/Set** switch to **Select** when the first character of the **Status** display shows "**r**".

    The second and third digits indicate the reflected power level trip point. This value is represented in hexadecimal.

12. Set the **Select/Set** switch to **Set** to exit the power trip point mode.

13. Deactivate all activated MUXbus bits.

RF Power Output Adjustment

The following procedure is divided into three parts:

- ❒ Overdrive Control
- ❒ Power Set Control
- ❒ Battery Cutback Control

The Overdrive Control is only performed on high power stations (i.e., containing two Power Amplifiers). This procedure adjusts the power cut-back if the output power level exceeds a predetermined level set by the user. The Overdrive Control (R453) adjustment is located on the Uniboard, and is accessed from the top of the RF Tray cover.

Table 1-4 ***VHF Station Rated RF Power Levels***

Model	with Duplexer (C182)	with Single Circulator (C265)	with Duplexer & Single Circulator (C182/C265)	Standard
C23CXB	3.5	4.5	3.0	6
C43CXB	15	20	12	25
C63CXB	45	60	35	75
C73CXB	75	100	60	125
C93CXB	n/a	300 (360)	n/a	350 (390)
C93CXB with 220 Vac 50 Hz	n/a	260 (340)	n/a	300 (380)

Notes:
1. All RF power levels are listed in Watts.
2. All power levels are for 110 Vac/60 Hz stations, except where noted.
3. RF power levels in parenthesis are Overdrive Power Levels.

Table 1-5 ***UHF Station Rated RF Power Levels***

Model	with Option C675 or C182	with Option C597	with Option C676	with Option C677	Standard
C24CXB	4	3	3	3	6
C34CXB	10	8	9	8	15
C44CXB	30	22	25	20	40
C64CXB	55	40	45	40	75
C74CXB	85	60	70	55	110
C84CXB	140	n/a	n/a	n/a	225(285)
C84CXB with 220 Vac 50 Hz	125 (160)	n/a	n/a	n/a	200 (260)

Notes:
1. All RF power levels are listed in Watts.
2. All power levels are for 110 Vac/60 Hz stations, except where noted.
3. RF power levels in parenthesis are Overdrive Power Levels.

The Power Set Control (R426) adjusts the RF output power level of the station to the site specified level. The Power Set Control adjustment is located on the Uniboard, and is accessed from the RF Tray front panel.

The Battery Cutback Control (R409) adjusts the RF output power level of the station to 50% of the rated station output power level. This adjustment reduces the station output power level when the station reverts to battery back-up. The Battery Cutback Control adjustment is located on the Uniboard, and is accessed from the top of the RF Tray cover.

Table 1-6 ***800 MHz Station Rated RF Power Levels***

Model	with Duplexer (TDF9680A)	with Triple Circulator (C676)	with Duplexer & Triple Circulator (C676/ TDF9680A)	Standard
C45CXB	23	30	21	35
C65CXB	50	60	45	75
C85CXB	100 (150)	125 (180)	90 (130)	150 (220)
C85CXB with 220 Vac 50 Hz	85 (125)	110 (160)	75 (120)	125 (180)

Notes:
1. All RF power levels are listed in Watts.
2. All power levels are for 110 Vac/60 Hz, stations except where noted.
3. RF power levels in parenthesis are Overdrive Power Levels.

Table 1-7 ***900 MHz Analog Plus Station Rated RF Power Levels***

Model	with Duplexer (TDF6542A)	with Triple Circulator (C676)	with Duplexer & Triple Circulator (C676/ TDF6542A)	Standard
C65GFB	50	60	45	75
C85GFB	100 (150)	125 (180)	90 (130)	150 (220)
C85GFB with 220 Vac 50 Hz	80 (125)	110 (160)	75 (120)	125 (180)

Notes:
1. All RF power levels are listed in Watts.
2. All power levels are for 110 Vac/60 Hz, stations except where noted.
3. RF power levels in parenthesis are Overdrive Power Levels.

1. Connect the station transmit antenna connector on the Junction Box to a wattmeter terminated with a 50 Ω load.

   Use a load capable of handling two times the rated station power.

2. Using tuning tool, rotate the **Po Power Set** potentiometer (R426) fully CCW, then CW 1/8 turn.

   The **Po Power Set** potentiometer is accessed through the opening in the RF Tray front panel.

Overdrive Control

NOTE

Step 3 through step 8 only apply to *high power stations*, which contain two Power Amplifiers. Otherwise, proceed to Power Set Control.

3. Using the tuning tool, rotate the **Overdrive Control** potentiometer (**R453**) fully CW.

   R453 is part of the Uniboard. Refer to Figure 1-12 for the location of the Overdrive control.

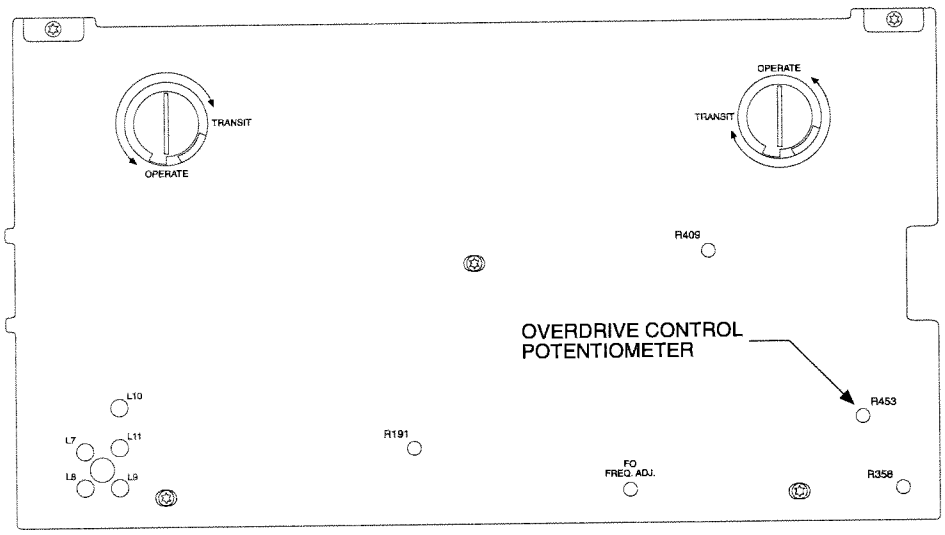


Figure 1-12 ***Overdrive Control Adjustment***

4. Key the station by setting the LOC PTT MUXbus bit (A1/D1) or by setting the **PL Dis/Xmit** switch to **Xmit**.

5. Using the tuning tool, adjust the **Po Power Set** control to obtain the overdrive power level.

   The overdrive power level is shown in Table 1-4 through Table 1-7.

6. Using the tuning tool, adjust the **Overdrive Control** slowly CCW until the **PA Full** LED just turns off.

7. Dekey the station by clearing the LOC PTT MUXbus bit (A1/D1).

8. Using the tuning tool, adjust the **Po Power Set** potentiometer fully CCW, then CW 1/8 turn.

Power Set Control

9. Key the station by setting the LOC PTT MUXbus bit (A1/D1) or by setting the **PL Dis/Xmit** switch to **Xmit**.

10. Using the tuning tool, adjust the **Po Power Set** control to obtain the lowest of either the rated RF Station Power Level, the maximum level allowed by the FCC license, or the site specific power level. Refer to Figure 1-12.

NOTE

The rated RF station power level may not be the recommended site output power level.

11. Dekey the station by clearing the LOC PTT MUXbus bit.

Battery Cutback Control

NOTE

If the station is not equipped with a *Battery Revert Option (C28)*, proceed to step 19. Also, cutback must be programmed to happen while in battery revert mode. Refer to the RSS manual for additional information.

12. Disconnect the AC power cord from the Junction Box.

    The station should continue to operate on battery backup.

13. Key the station by setting the LOC PTT MUXbus bit (A1/D1) or by setting the **PL Dis/Xmit** switch to **Xmit**.

14. Using the tuning tool, adjust the **CUTBACK** control to obtain 50% of the rated station power level.

    The **CUTBACK** control (R409) is part of the Uniboard. Refer to Figure 1-13 for the location of the cutback control. Table 1-4 through Table 1-7 lists the rated station power level for each band.

15. Deactivate all activated MUXbus bits and disconnect all test equipment.

16. Apply AC power by connecting the AC power cord to the Junction Box.

Transmit Frequency Adjustment

The following procedure adjusts the Fo Freq Adj to fine tune the transmit frequency. It is assumed the station is programmed with the correct frequencies and hardware. Allow sufficient time for the external reference to warm-up prior to performing this procedure.

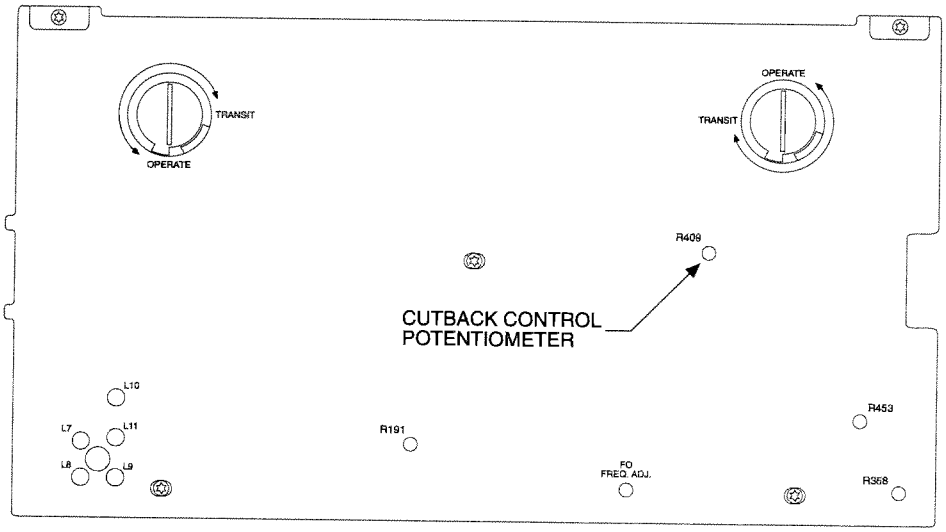


Figure 1-13 ***Cutback Control Adjustment***

For 900 MHz Analog Plus stations, an High Stability Oscillator (HSO) or an external reference is required. For all other bands, an HSO or an external reference is not required, but optional.

The Fo Freq Adj potentiometer is located on the Uniboard. For VHF stations, the Fo Freq Adj is accessed from the top of the RF Tray cover. For all other bands, the Fo Freq Adj is accessed from the RF Tray front panel.

NOTE

A minimum warmup time of 60 minutes is required if the station is a *900 MHz Analog Plus station* or if it is equipped with a *High Stability Oscillator Option (C573)*. Otherwise, ensure that the frequency reference device is fully warmed up.

1. On *900 MHz Trunking stations* or stations equipped with the *External Reference Option (C574)*, apply the site high stability 5 MHz reference signal to the external reference connector on the Junction Box.
2. Adjust U1 on the reference synthesizer board for 1.5 +/- 0.1 Volts at TP1.
3. Set the **Acc Dis/Reset** switch to **Acc Dis**.
4. If necessary, attenuate the transmitted RF signal from the station to the frequency measuring device.

5. Key the station by setting the LOC PTT MUXbus bit (A1/D1) or by setting the **PL Dis/Xmit** switch to **Xmit**.

6. Measure the transmitter carrier frequency.

> **NOTE**
>
> If the station contains an *External Reference Option (C574)* or a *High Stability Oscillator Option (C573)*, and the frequency is out of alignment, refer to the appropriate alignment procedure. Otherwise proceed to step 8.

7. If necessary, adjust the **Fo Freq Adj** warp control to set the measured transmit frequency to the nominal station transmit frequency.

   For UHF, 800 MHz, and 900 MHz Analog Plus stations, the **Fo Freq Adj** warp control is located on the RF Tray front panel. For VHF stations, the **Fo Freq Adj** warp control is accessed through the top cover of the RF Tray. Refer to Figure 1-14 for the location of the **Fo Freq Adj**.

8. Dekey the station by clearing the LOC PTT MUXbus bit (A1/D1).

9. Set the **Acc Dis/Reset** switch to the center (normal) position.

I-F AGC Threshold Adjustment

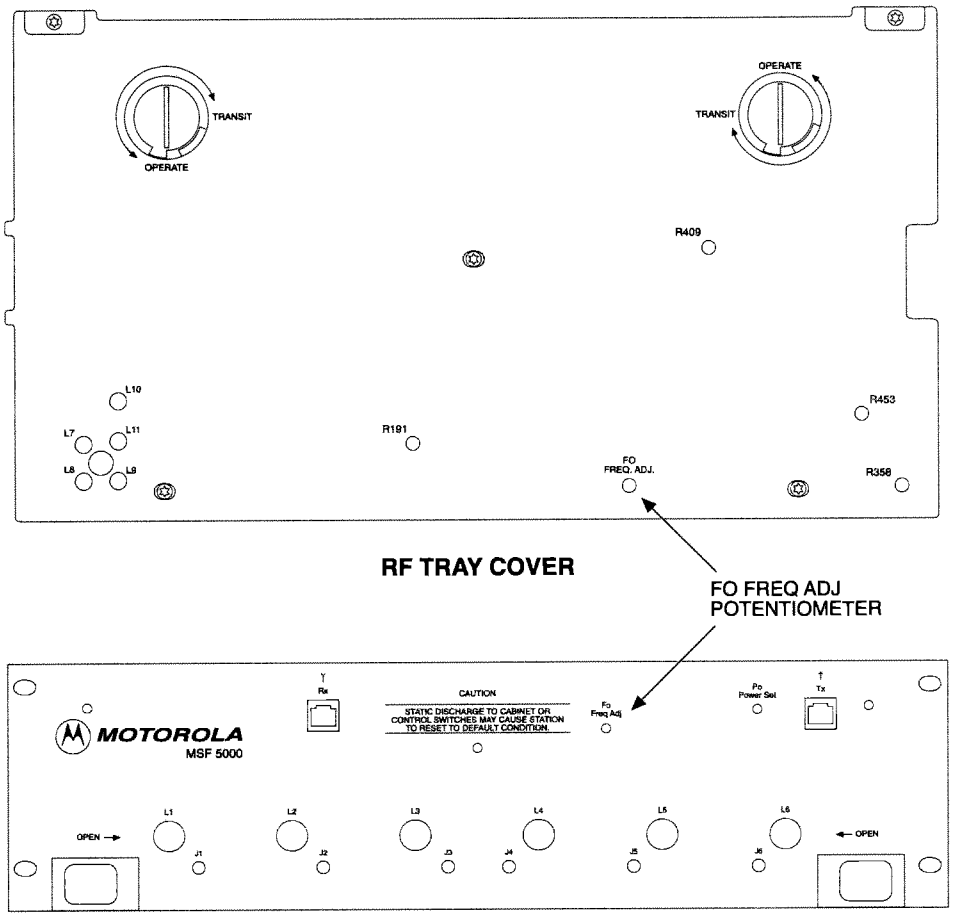
The following procedure is only performed on *800 MHz and 900 MHz Analog Plus stations*. This procedure adjusts the I-F AGC Threshold.

This adjustment is performed by the tuning channel frequency (channel 0/mode 0). This allows the station to be tuned for all programmed frequencies.

The I-F AGC Threshold adjustment (**R191**) is located on the Uniboard, and is accessed from the top of the RF Tray cover.

1. Set the **Acc Dis/Reset** switch to **Acc Dis**.

2. Using the **Select/Set** switch, set the station to the tuning channel.



NOTE: L1 - L6, J1 - J6 and Fo Freq Adj are not found on VHF models. Access to these requires the removal of the front panel.

NOTE: For UHF, 800 MHz and 900 MHz models, the Fo Freq Adj is accessed at the RF Tray Front Panel. For VHF models, the Fo Freq Adj is accessed at the RF Tray Cover.

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Figure 1-14 ***Fo Freq Adj Control***

3. Inject an on-channel 1000 µV signal, modulated with a 1 kHz tone at 60% of full station deviation into the receiver connector on the Junction Box.

Station deviation settings are listed in Table 1-8.

Table 1-8 ***Deviation Settings***

	Frequency Range		
Deviation Adjustment	**VHF,UHF, and 800 MHz (kHz)**	**866-869 MHz (kHz)**	**900 MHz Analog Plus (kHz)**
100% Full Station Deviation	5	4	2.5
Maximum Station Deviation	4.6	3.7	2.3
60% Full Station Deviation	3	2.4	1.5
40% Full Station Deviation	2	1.6	1.0
Simulcast Data Deviation	0.85	0.7	0.5
Trunked Data Deviation	0.85	0.7	0.5
Failsoft Data Deviation	1	0.8	0.7
Coded Deviation (+/-) 200 Hz, using a 1 kHz square wave	3.9	2.3	N/A
Note: All deviation measurements and settings must be within +/- 100 Hz except where noted.			

4. Using a digital voltmeter, adjust **R191** for 0.60 Vdc between NORM ENV (TP13 or HY804-13 on the SSCB) and AGC REF (TP12 or HY804-10 on the SSCB).

   Refer to Figure 1-15 for the location of R191 on the Uniboard and Figure 1-16 for the location of NORM ENV and AGC REF on the SSCB.

5. Remove the injected signal from the receiver connector on the Junction Box.

6. Set the **Acc Dis/Reset** switch to the center (normal) position.

Modulation Compensation Adjustment

The following procedure adjusts the modulation compensation circuit on the Uniboard. This adjustment is performed by using the tuning channel frequency (channel 0/mode 0). This allows the station to be tuned for all programmed frequencies.

While in the tuning channel, a 10 Hz waveform should appear whenever the station is keyed via a local push-to-talk (LOC PTT). This gives the technician a

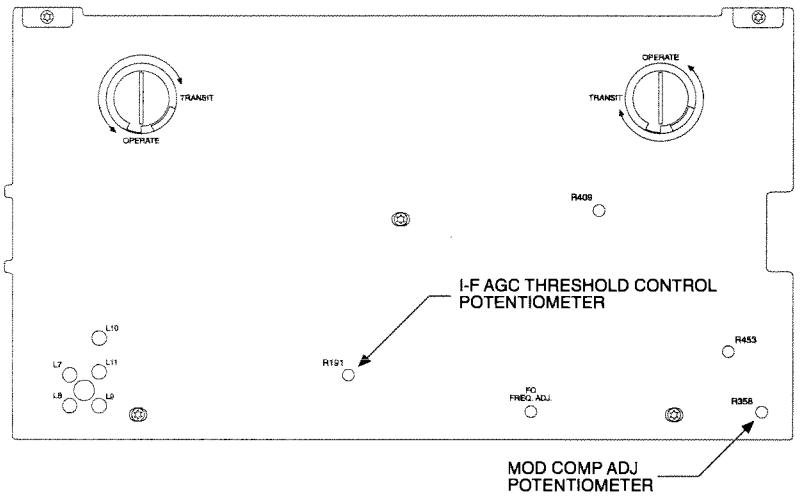


Figure 1-15 ***I-F AGC Threshold Control***

good reference waveform to use to tune and verify proper modulation compensation operation.

The modulation compensation adjustment (**R358**) is located on the Uniboard, and is accessed from the top of the RF Tray cover.

1. Set the **Acc Dis/Reset** switch to **Acc Dis**.
2. Using the **Select/Set** switch, set the station to the tuning channel.
3. Key the station by setting the LOC PTT MUXbus bit (A1/D1).
4. Monitor the transmitter waveform. The waveform should consist of a 10 Hz square wave, as shown in Figure 1-17.
5. Examine the waveform for straight long transitions, however, a slight slant is acceptable.

   If adjustment is required continue with step 6, otherwise, proceed to step 8.
6. Adjust **R358** for the best 10 Hz square wave.

   R358 is part of the Uniboard and is accessed through the RF Tray cover, as shown in Figure 1-15.
7. Dekey the station by clearing the LOC PTT MUXbus bit (A1/D1).
8. Set the **Acc Dis/Xmit** switch to the center (normal) position.

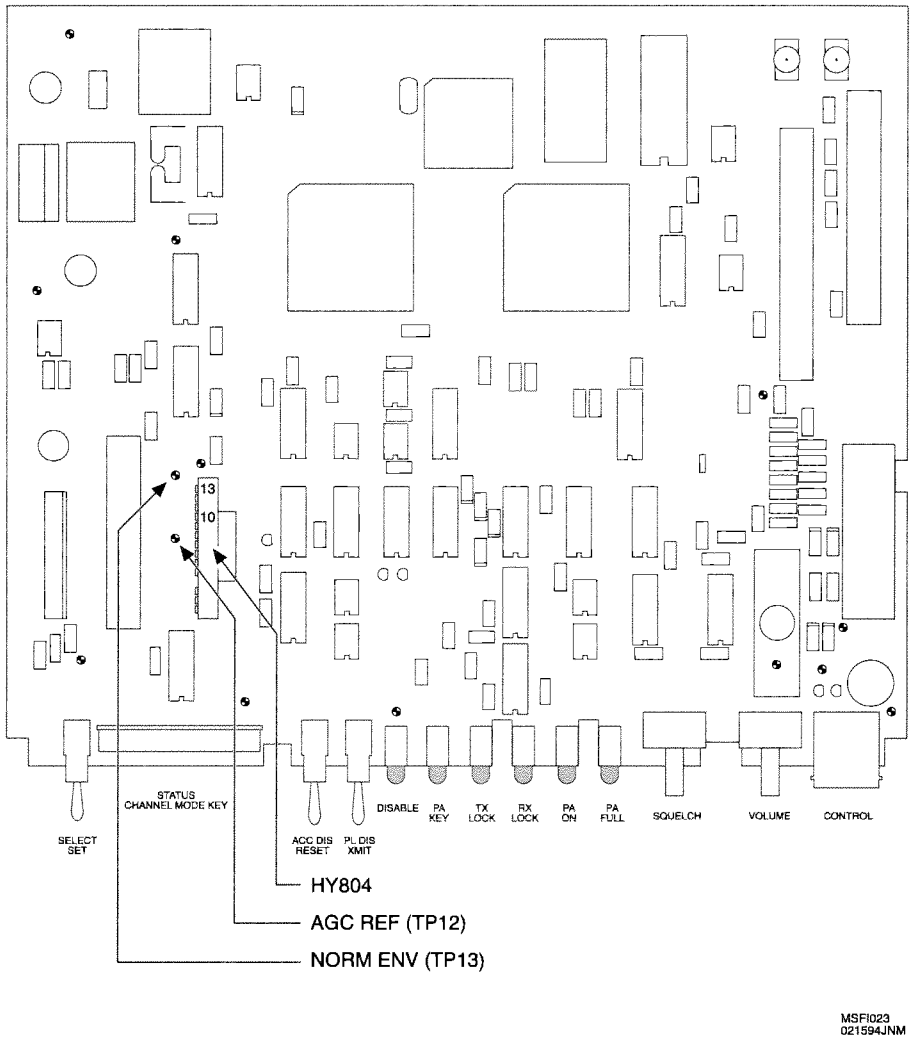


Figure 1-16 ***NORM ENV and AGC REF Measurement Points***

Trunked Data Deviation Adjustment

The following procedure is only performed for *trunked stations*. For optimum performance, perform this procedure with the Central Controller to allow the adjustment to be made with the disconnect word. The disconnect word is equal in deviation to TDATA. The station should not enter failsoft mode during this adjustment.

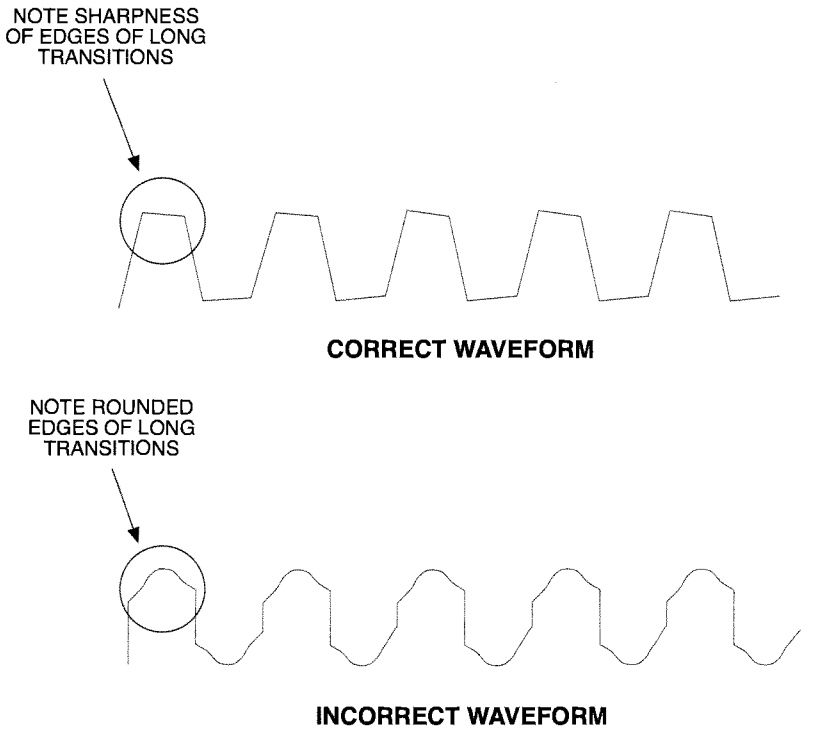


Figure 1-17 ***Modulation Compensation Waveform***

NOTE

Proceed to Transmitter Maximum Deviation Adjustment if this is not a *trunked station.*

1. If a Trunked Radio Central Controller is available proceed to step 3.

NOTE

Perform step 2 only when a Central Controller is not available (i.e., lab or depot). Once the station is installed back into the system, perform the entire procedure again for optimum performance.

2. Inject a 150 Hz tone at 0.9 Vrms (closed circuit level) with 600 Ω termination across pins 4 (-) and 12 (+) of the trunking connector J2901 on the TTRC board. Proceed to step 5.

   This simulates a trunking data (TDATA) signal to perform this alignment procedure. Refer to Figure 1-18 for the location of the trunking connector J2901.

   The **Fail Soft** LED should not be illuminated.

3. Connect an operational Trunked Radio Central Controller to the station.

   This allows the station that is being aligned to receive trunked data (TDATA) from the Trunked Radio Central Controller.

   The **Fail Soft** LED should not be illuminated.

4. Verify the station being aligned is disabled from the Trunked Radio Central Controller.

   This is accomplished by pressing the Transmit Interface Board (TIB) disable switch on the Trunked Radio Central Controller for the channel being adjusted.

5. Key the station by setting the LOC PTT MUXbus bit (A1/D1).

6. Monitor the transmitted deviation level.

7. Measure the Trunked Data Deviation level and compare it to the requirements of Table 1-8.

   If the level is out of adjustment, set it by adjusting EEPOT b. Refer to the Instruction manual for additional information on adjusting EEPOTs.

   If the station contains the *Simulcast Operation Option (C777)*, measure the simulcast data deviation. EEPOT b is used to adjust the simulcast deviation. Refer to the Simulcast procedure at the end of this chapter for additional information.

8. Dekey the station by clearing the LOC PTT MUXbus bit (A1/D1).

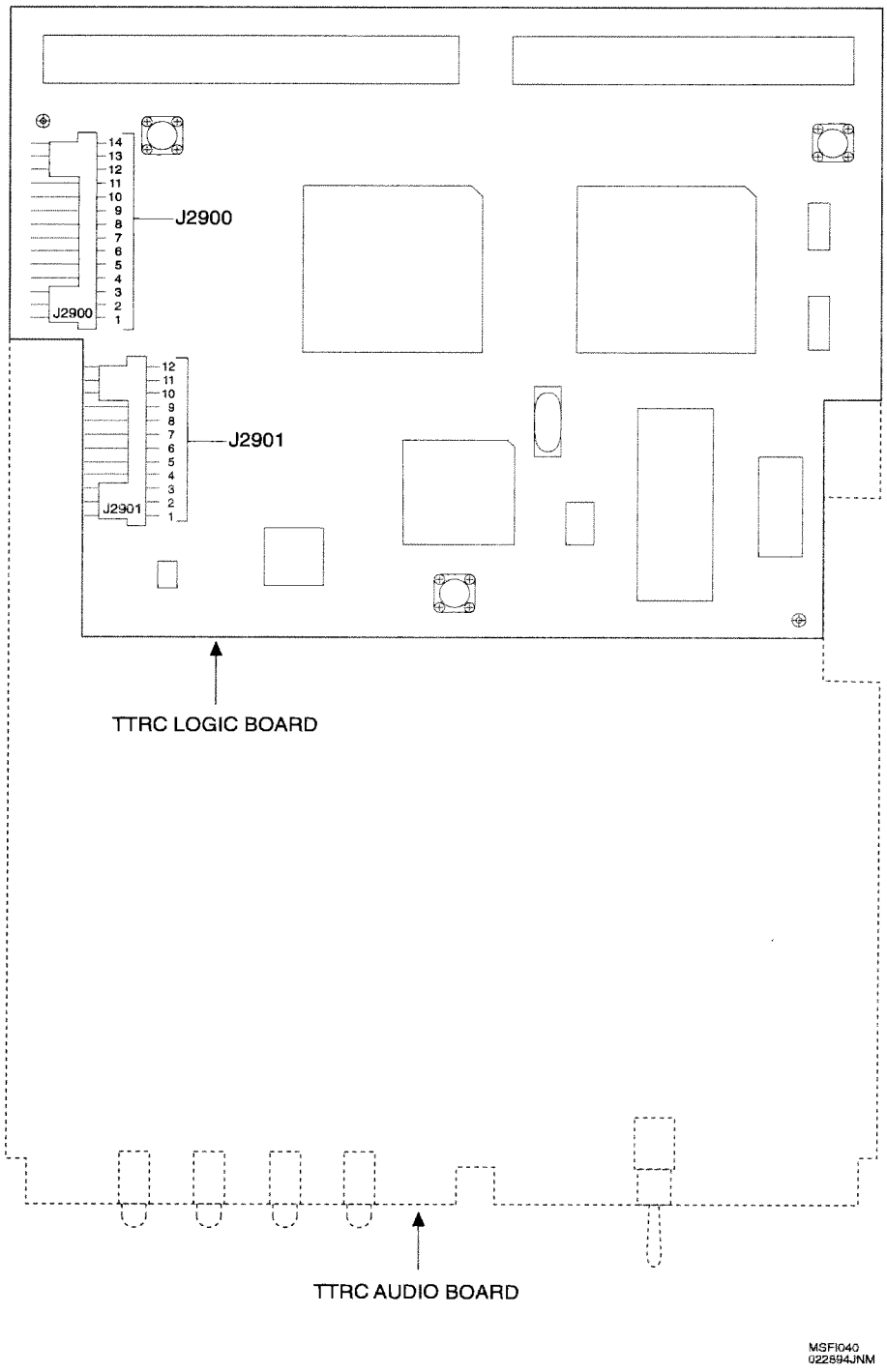


Figure 1-18 ***TTRC Logic Board Showing J2901***

NOTE

If the adjustments cannot be made within +/- 100 Hz, refer to the Troubleshooting chapter of the Instruction manual.

Transmitter Maximum Deviation Adjustment

The following procedure adjusts the maximum deviation for the transmitter. This adjustment is required to keep the station within local regulatory agency standards by preventing interference with adjacent channels.

To accurately perform this procedure, make sure all transmitted data is present (e.g., PL, DPL, Connect Tone, TDATA, etc.). Do not use the **Xmit** switch because it strips the PL and other transmitted data from the transmitted signal.

NOTE

Each channel must have the Maximum Deviation measured and set individually, since this level is channel slaved. It is not necessary to check the tuning channel deviation levels.

1. Inject a 1 kHz tone, at 1 Vrms closed circuit level, into the **MIC AUDIO** connector on the front panel or into TP8 on the SSCB. This is a 600 Ω input.

   Refer to Figure 1-19 for the location of TP8.

2. Set the **Acc Dis/Xmit** switch in **Acc Dis** to prevent the station from keying during this procedure.

3. Set the station to channel 1 if the station has multiple channels.

4. Key the station by setting the LOC PTT MUXbus bit (A1/D1).

NOTE

If this is a *trunked station* or if the station is equipped with PL or DPL coded squelch, the transmit signal consists of Mic Audio summed in with TDATA or the coded squelch signal. DO NOT use the **PL Dis/Xmit** switch to key the station; doing so strips the TDATA and coded squelch signals from the transmitted signal and gives a false deviation reading.

5. Measure the Maximum Station Deviation level and compare it to the requirements in Table 1-8.

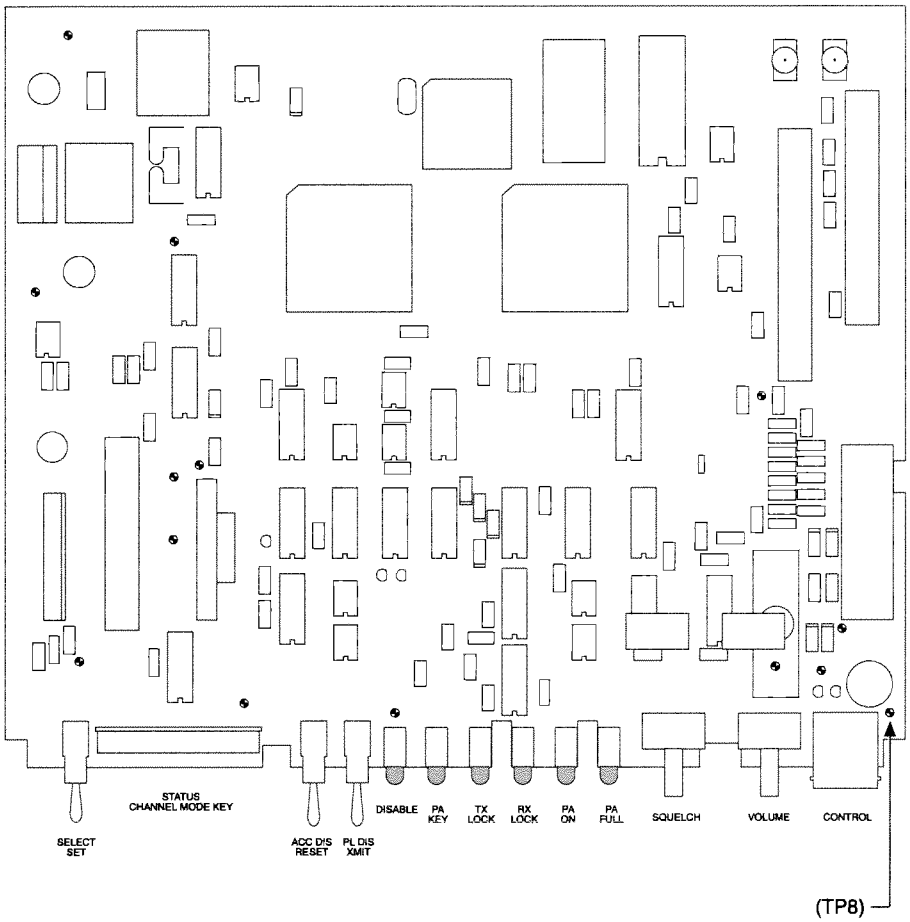


Figure 1-19 ***SSCB Showing TP8***

6. If the level is out of adjustment, set it by adjusting EEPOT 4.

   Refer to the Operation chapter of the Instruction manual for additional information on adjusting EEPOTs.

7. If the station has multiple channels (excluding channel 0) perform steps 4 through 6 for each one.

8. Dekey the station by clearing the LOC PTT MUXbus bit (A1/D1).

9. Set the **Acc Dis/Xmit** switch to the center (normal) position.

Transmitter Wireline Audio Adjustment

This procedure adjusts the transmitter wireline audio level. When performing this procedure for Tone Remote Control, there are two different paths the transmit audio can take via Line 1 (ALC path) or Line 3 (non-ALC path). For conventional stations, the default is Line 1. *For trunked stations,* the default is Line 3. The only path the audio can take via Line 3 is the non-ALC path. Refer to Figure 1-20 for a block diagram of the ALC circuitry.

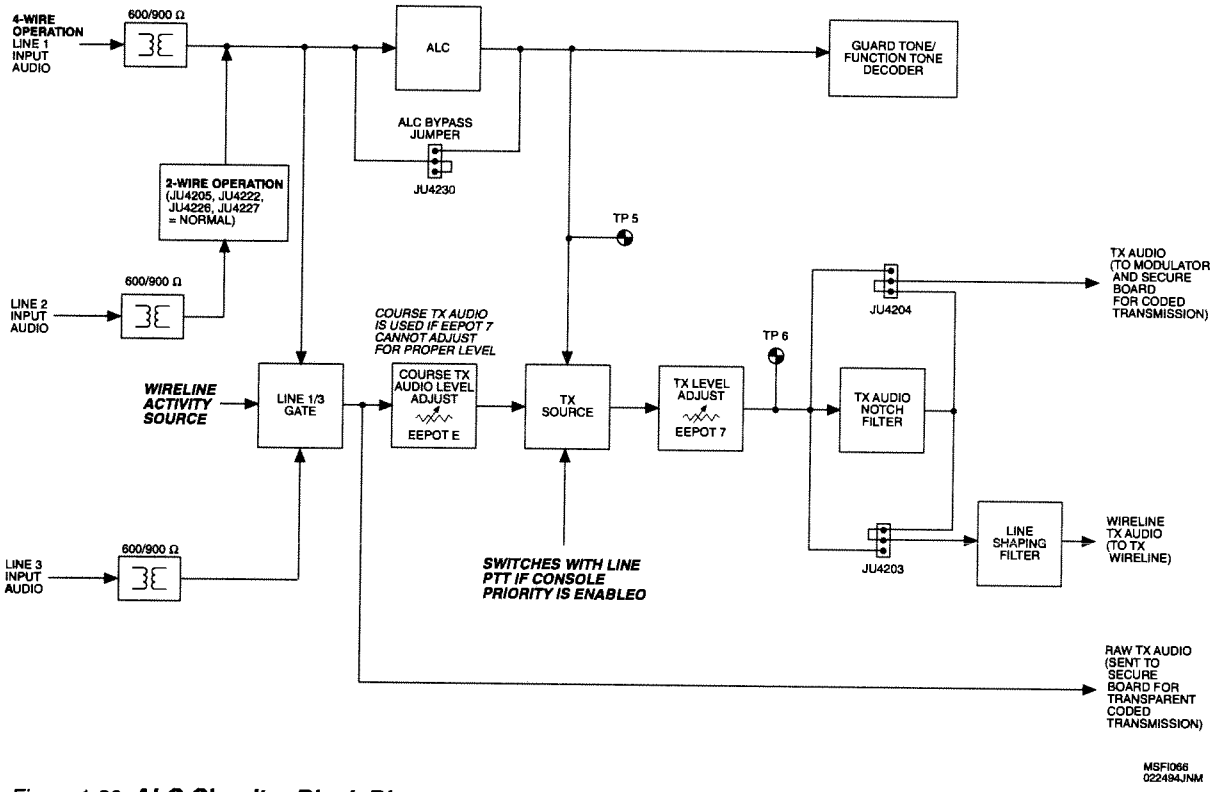


Figure 1-20 ***ALC Circuitry Block Diagram***

For adjusting transmit audio via the ALC path, the standard HLGT/FT/LLGT sequence should be followed for the ALC circuitry to adjust accordingly.

For adjusting transmit audio via the non-ALC path, a 1 kHz tone should be used. There is also a course level adjustment via EEPOT E which compensates for a higher or lower levels of audio. There are four different settings for this EEPOT. EEPOT E should only be used if the level for EEPOT 7 could not be met for audio through the non-ALC path.

For Console Priority Option (C115), the console is connected to Line 1 or Line 2 depending on the wireline setting. The trunking phone interconnect audio is connected to Line 3 and Line 4. The value of EEPOT 7 has two values, one for interconnect audio and one for console audio. EEPOT 7 must be aligned twice in this configuration.

For DC remote control, the audio is always routed through the non-ALC path.

When the TTRC Audio board is jumpered for a four-wire system, the transmit wireline interface is across Line 1 (+) and Line 1 (-) on the Junction Box screw terminal strip. The receive wireline interface is across Line2 (+) and Line2 (-).

When the TTRC Audio board is jumpered for a two-wire system, the transmit/receive wireline interface is across Line 2 (+) and Line 2 (-) on the Junction Box screw terminal strip.

For two and four-wire systems, these connections are 600 Ω balanced inputs, unless otherwise jumpered for 900 Ω balanced inputs.

NOTE

If the station is a *trunked station without the Console Priority Option (C115)* or is configured for *DC remote control,* proceed to the DC Remote Control/Trunking Adjustment.

If this is a *trunked station with the Console Priority Option (C115),* proceed to the Trunking/Console Priority Adjustment.

Tone Remote Control Adjustment

1. Using RSS, determine if the transmit audio is being routed to the modulator via the ALC circuit.
   - ○ **Transmit source = ALC** - Key the station using a High Level Guard Tone (HLGT)/Function Tone (FT) sequence. This allows the ALC circuit to be properly set. Proceed to step 2.
   - ○ **Transmit source = non-ALC** - Key the station via a LIN PTT (A1/D2). Proceed to step 4.
2. Set HLGT, FT, LLGT, and the 1 kHz tone to the levels expected from the console, in the following relative relationship:
   - ○ HLGT to 0 dBm
   - ○ FT to -10 dBm
   - ○ LLGT to -30 dBm
   - ○ Average audio (1 kHz tone @ -6 dBm)

NOTE

These recommended levels are intended for co-located consoles which do not have phone line loss. If other levels are required due to phone line loss, the same relative relationship of signal levels should be maintained.

CAUTION

Do not key the station via RSS or by setting the LIN PTT MUXbus bit since these methods do no set ALC correctly.

3. Inject an HLGT/FT sequence followed by a 1 kHz tone with LLGT across the appropriate transmit wireline terminals, using a console or service monitor.

   Line 1 +/- for four-wire systems or Line 2 +/- for two-wire systems.

   The station should be keyed. Proceed to step 6.

4. Inject a 1 kHz tone across the appropriate transmit wireline terminals at a level matching average audio (-6 dBm), or other levels relative to peak input level.

NOTE

The recommended level is intended for co-located consoles which do not have phone line loss. If other levels are required due to phone line loss, the same relative relationship of signal levels should be maintained.

5. Key the station by setting the LIN PTT MUXbus bit (A1/D2).

6. Set and hold the **PL Dis/Xmit** switch to **Xmit** during step 7.

   This strips any data from being summed with the transmit audio.

7. Adjust transmit audio level via EEPOT 7 until the transmitted deviation level reaches 60% full station deviation, as indicated in Table 1-8.

8. Adjust EEPOT E if the level cannot be set via EEPOT 7 alone.

9. Exit the EEPOT adjust mode.

   Refer to Operation chapter of the Instruction manual for additional information relating to the EEPOT adjust mode.

10. Remove the test tones.

DC Remote Control/Trunking Adjustment

NOTE

The following procedure applies only if the station is configured for *DC remote control* or is a configured as a *trunked station*. Otherwise, proceed to the Receiver Level Adjustment.

1. Inject a 1 kHz tone at the average audio (6 dB below peak audio) phone line level into the transmit wireline interface on the Junction Box.

   Line 1 +/- for four-wire systems or Line 2 +/- for 2 -wire systems.

2. If this is *not a trunked station*, gate the wireline audio to the transmitter by setting the LIN PTT MUXbus bit (A1/D2).

   For trunked stations, key the transmitter with a trunked PTT by disconnecting the trunking cable from connector J3 on the Junction Box.

   Key the transmitter by connecting a jumper wire jumper from J2901-8 (TKG PTT) to J2901-1 (LOGIC GND) on the TTRC logic board.

3. Enter the EEPOT adjust mode.

   Refer to the Operation chapter of the Instruction manual for additional information relating to the EEPOT adjust mode.

4. Set and hold the **PL Dis/Xmit** switch to **Xmit** for step 5.

   This strips any data from being summed with the transmit audio.

5. Adjust the TX Audio Level (EEPOT 7) until the transmitted deviation level reaches 60% full station deviation as indicated in Table 1-8.

6. Release the **PL Dis/Xmit** switch and remove all tones from the wireline.

7. Clear the LIN PTT MUXbus bit (A1/D2) or the trunked PTT jumper.

Trunking/Console Priority Adjustment

NOTE

The following procedure applies only to *a trunked station* with *the Console Priority Option (C115)*. Otherwise, proceed to the Receiver Level Adjustment.

1. Set HLGT, FT, LLGT, and the 1 kHz tone to the expected input levels:
   - ○ HLGT to 0 dBm.
   - ○ FT to -10 dBm

- LLGT to -30 dBm
- 1 kHz tone to -6 dBm (average audio)

NOTE

These recommended levels are intended for co-located consoles which do not have phone line loss. If other levels are required due to phone line loss, the same relative relationship of signal levels should be maintained.

CAUTION

Do not key the station via RSS or by setting the PTT MUXbus bit since these methods do no set ALC correctly.

2. Inject an HLGT/FT sequence followed by a 1 kHz tone with LLGT across the appropriate transmit wireline terminals, using a console or service monitor.

   Line 1 +/- for four-wire systems or Line 2 +/- for two-wire systems.

3. Set and hold the **PL Dis/Xmit** switch to **Xmit** during step 4.

   This strips any data from being summed with the transmit audio.

4. Adjust transmit audio level via EEPOT 7 until the transmitted deviation level reaches 60% full system deviation, as indicated in Table 1-8.

   Refer to Operation chapter of the Instruction manual for additional information relating to the EEPOT adjust mode.

5. Remove the LLGT and 1 kHz test tone.

6. Inject a 1 kHz tone at the average audio phone line level (i.e., 6 dB below peak audio) through the wireline into the Line 3 input on the system connector of the Junction Box.

7. If this is a *trunked station,* disconnect the trunking cable from Junction Box connector (J3).

8. Key the transmitter by connecting a jumper wire jumper from J2901-8 (TKG PTT) to J2901-1 (LOGIC GND) on the TTRC logic board.

9. Set and hold the **PL Dis/Xmit** switch to **Xmit** during step 11.

   This strips any data from being summed with the transmit audio.

10. Scroll completely through the EEPOT numbers once, and then back to EEPOT 7.

11. Adjust EEPOT 7 until the transmitted deviation level reaches 60% full system deviation as indicated in Table 1-8.

    If the deviation level could not be set, adjust EEPOT E to select the appropriate range (0 through 3) of EEPOT 7. Repeat step 11.

12. Remove the test tone.

13. Release the **PL Dis/Xmit** switch.

Receiver Level Adjustment

The following procedure adjusts the receiver level deviation for the repeater mode of operation. For stations configured as base stations, a relative level can be measured on the SSCB which is equivalent to the repeater deviation level. For stations containing the *Spectra-TAC/DIGITAC Encoder Option (C269)*, the receiver level should be adjusted during in-cabinet repeat operation.

1. Inject a 1mV RF receive signal, modulated with a 1 kHz tone at 40% full station deviation, as indicated in Table 1-8, into the receiver antenna connector on the Junction Box.

   Refer to Figure 1-21 for the antenna connector locations.

2. Set the R1 PL DT MUXbus bit (A3/D2).

NOTE

Steps 3 through step 9 apply only to stations configured as repeaters. If the station is configured as a base station (half-duplex with antenna relay or full-duplex base station) or is a *trunked station* with a *Spectra-TAC/DIGITAC Encoder Option (C269)*, proceed to step 10.

3. If this is a *trunked station*, disconnect the trunking cable from Junction Box connector (J3).

4. Key the transmitter by connecting a jumper wire jumper from J2901-8 (TKG PTT) to J2901-1 (LOGIC GND) on the TTRC logic board.

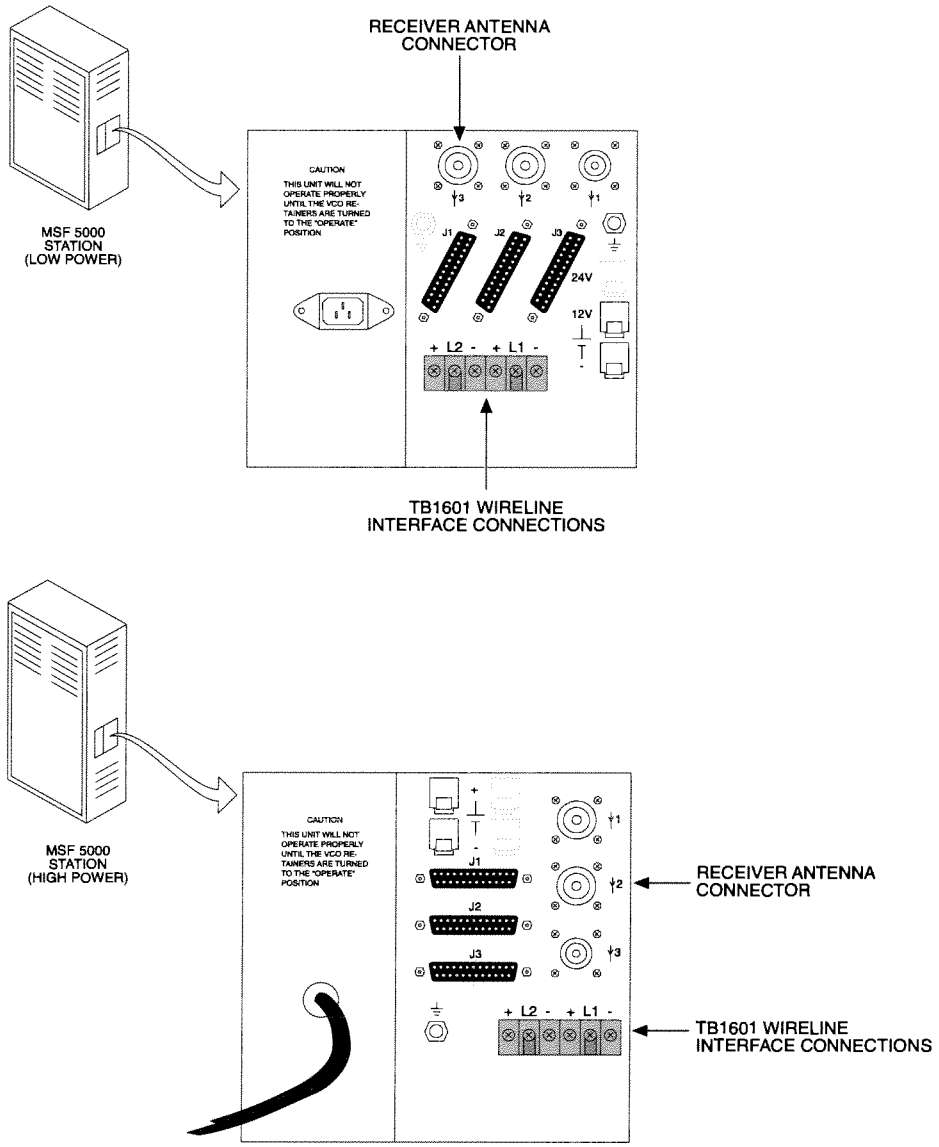
   Refer to Figure 1-22 for the connection locations.

5. Set and hold the **PL Dis/Xmit** switch to **Xmit** to strip off any TDATA or PL/DPL.

6. Verify the transmitted deviation level is at 60% full station deviation as indicated in Table 1-5.

   This setting provides +3.5 dB of repeater gain. If this level is out of adjustment, set it by adjusting EEPOT 5.

   If unity gain is desired, set for 40% full system deviation.



NOTE: Dashed components (24V connection and ground) are used on VHF models only.

MSFI044
022894KOM

Figure 1-21 ***Junction Box Antenna Connections***

NOTE

Step 7 through step 9 only apply to *900 MHz Analog Plus stations.*

7. Select EEPOT 1 to enable *Flutter Fighter.*

8. Set and hold the **PL Dis/Xmit** switch to **Xmit**.

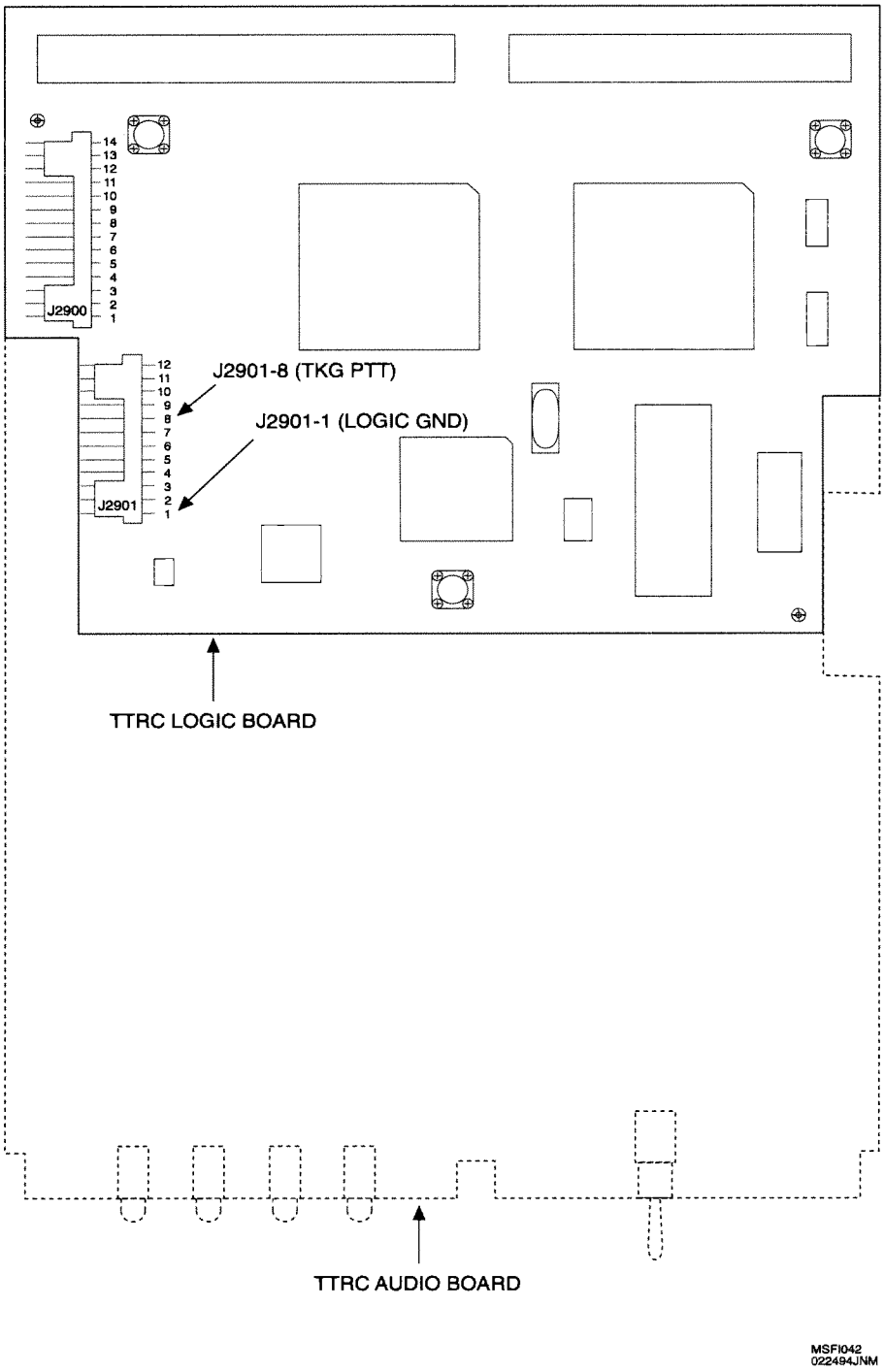


Figure 1-22 ***TTRC Logic Board***

9. Verify the transmit deviation level is at 60% full system deviation as indicated in Table 1-8. If not, adjust EEPOT 1.

NOTE

Perform step 10 only if the station is configured as a base station.

10. For base stations, verify 350±50 mVac is measured at TP1 on the SSCB, as shown in Figure 1-23. If not, adjust EEPOT 5.

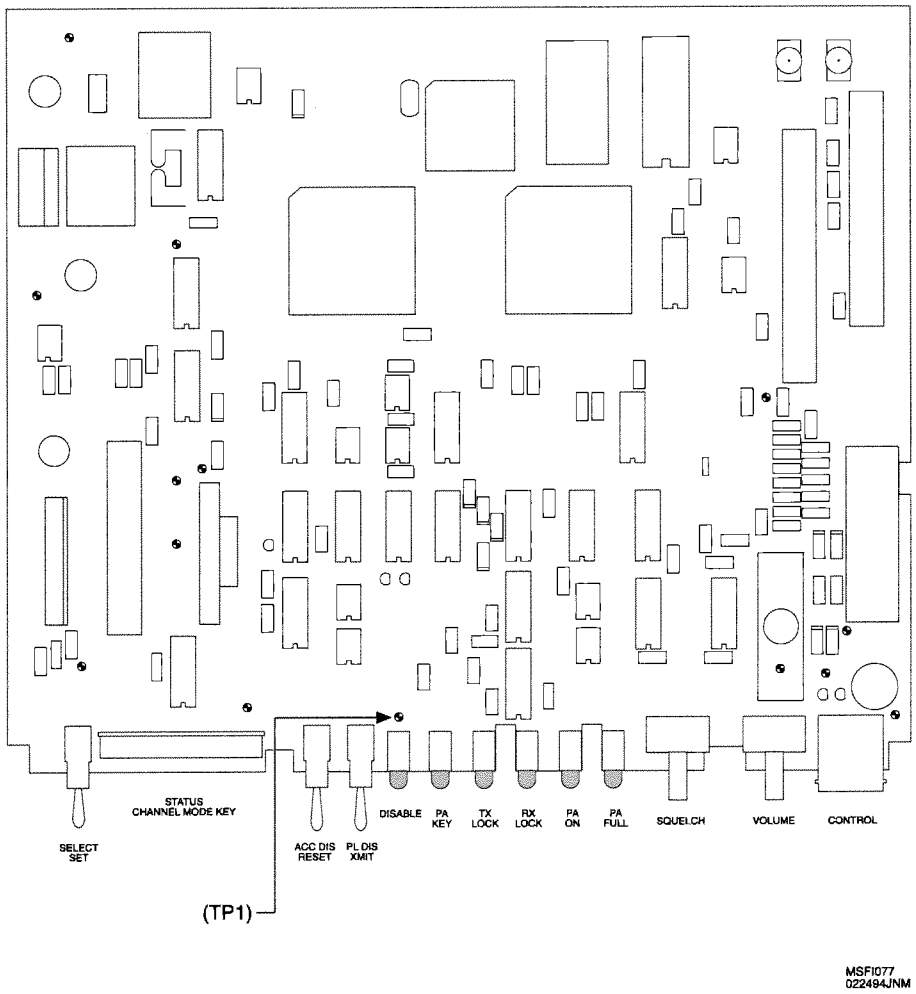


Figure 1-23 ***SSCB Showing TP1***

NOTE

Step 11 and step 12 only apply to *900 MHz Analog Plus stations* with the *Spectra-TAC/DIGITAC Encoder Option (C269) or an antenna relay.*

11. For *Analog Plus stations* equipped with a *Spectra-TAC/DIGITAC Encoder Option (C269)* or *an antenna relay,* select EEPOT 1 to enable the *Flutter Fighter.*

12. Verify the AC voltage at TP1, on the SSCB is 350±50 mVac as shown in Figure 1-23. If not, adjust EEPOT 1.

13. Dekey the station, deactivate any activated MUXbus bits, connect any disconnected cables, and remove any jumper wires that were installed.

Receiver Wireline Audio Adjustment

The following procedure adjusts the receiver wireline audio level for Line 2 and Line 4. The desired audio level is dependent upon the system configuration. If the station is configured for *Spectra-TAC/DIGITAC Encoder Option (C269).* Proceed directly to the High/Low End Adjustment to compensate for line loss.

NOTE

Perform this procedure only if the station is NOT equipped with a *Spectra-TAC/DIGITAC Encoder Option (C269)* to be used in a voting system. If voting will be used, proceed to the High/Low End Adjustment.

1. Inject a 1mV RF receive signal, modulated with a 1 kHz tone at 60% full station deviation into the receiver antenna connector on the Junction Box. Refer to Table 1-8.

2. Set the **PL Dis/Xmit** switch to **PL Dis**.

3. Verify the receive audio between Line 2 (+) and Line 2 (-) on the Junction Box screw terminal strip is at the desired phone line level.

   The typical phone line level is from 0 dBm to -10 dBm.

   If not, set it by adjusting EEPOT C.

NOTE

If the station is a *trunked station* with a *Console Priority Option (C115)* installed, continue with step 4. Otherwise, proceed to step 5.

4. Verify the receive audio at Line 4 on the system connector is at the desired phone line level.

   The typical phone line level is from 0 dBm to -10 dBm.

   If not, set the desired level by adjusting EEPOT d.

5. Deactivate all activated MUXbus bits.

6. Set the **PL Dis/Xmit** switch to the center (normal) position.

Decoded Receive Audio Adjustment

The following procedure adjusts the decoded receive audio level for stations containing the *Secure Encryption Option (C331, C388, C794, C795, or C797)*. Before performing this procedure, make sure the level of Line 2 is adjusted to the same relative level (0 dB) as the clear receive audio level.

NOTE

The Line 2 level must be adjusted before performing this procedure.

1. Inject a 1mV RF receive signal, modulated with a secure (digitally encrypted) 1 kHz tone at 3.9 kHz deviation into the receiver antenna connector on the Junction Box.

NOTE

The encryption source must be programmed with the same encryption key as the station. Refer to the Operation chapter of the Installation manual for additional information.

2. Verify the outbound receiver audio between Line 2 (+) and Line 2 (-) is 0 dB relative to the clear wireline audio level.

   The clear wireline audio level setting was set up in the Receive Wireline Audio Adjustment procedure or the maximum allowable phone line level, whichever is less. If not, adjust EEPOT 0.

3. Remove the RF signal from the antenna connector on the Junction Box.

Squelch Adjustment

The following procedure adjusts the repeater and receiver squelch levels. If the station is configured for *Spectra-TAC/DIGITAC Option (269)* or to generate status tone, proceed directly to the High/Low End Adjustment.

The repeater squelch level is typically set for an RF level corresponding to 15 dB SINAD. The receiver squelch level is typically set for an RF level corresponding to 12 dB SINAD (15 dB SINAD for *trunked stations*). The RF level is measured at the SPEAKER AUDIO on the front panel connector. Both squelch levels can be set to the levels corresponding to system requirements.

For trunked stations, the repeater squelch potentiometer (EEPOT 2) is set to 00.

NOTE

If the station is configured to generate status tone and is not used for voting purposes, proceed to Status Tone Adjustment.

If the station is used for voting purposes, proceed to High/Low End Adjustment.

1. Set the **PL Dis/Xmit** switch to **PL Dis**.

NOTE

EEPOT 2 and EEPOT 3 are set at the factory to the maximum level (99). This fully closes the squelch.

2. Set EEPOT 2 and EEPOT 3 to the minimum level (00) to fully open the squelch.
3. Inject an on channel RF signal, without modulation at the desired repeater squelch threshold level, into the receiver antenna connector on the Junction Box.

NOTE

If this is a *trunked station,* proceed to step 5.

4. Adjust the Repeater Squelch Level (EEPOT 2) to the desired level.
5. Adjust the Receive Squelch Level (EEPOT 3) to the desired level.
6. Set the **PL Dis/Xmit** switch to the center (normal) position.

High/Low End Adjustment

The following procedure is only performed when a station is configured voting purposes. This adjustment provides an increase in level at the high and low end frequency response of the receiver audio to compensate for phone line loss. All voting receivers must be equalized to provide proper voting.

This procedure requires a technician at the comparator end of the phone line and the station being aligned.

NOTE

Perform this procedure only if the station is equipped with a *Spectra-TAC/DIGITAC Encoder Option (C269)* and will be used for voting. Otherwise, proceed to the Status Tone Adjustment.

1. Adjust the STAC Encoder Level (EEPOT 8) to the minimum level (00) to cause a minimum wireline status tone output.
2. With an audio generator, inject a 1 kHz tone at 1 mV into the MIC AUDIO input (J812-4) on the control connector or into TP8 on the SSCB.

NOTE

The generator must remain at a constant output level from 400 Hz to 4 kHz.

3. Set the **Intercom** switch to **On**.
4. Monitor across Line 2 (+) and Line 2 (-) and adjust the Line 2 Output Level (EEPOT C) for -10 dB.
5. Measure and record the level at the input to the comparator (DIGITAC input).

   The difference between the -10 dBm input and measurement at the comparator is the phone line loss at 1 kHz.
6. Set the audio generator frequency to 3 kHz.
7. Adjust the STAC High End Equalization Level (EEPOT 9) so that the level measured at the comparator is the same level recorded in step 5.
8. Repeat steps 5 through 7 until the level difference between 1 kHz and 3 kHz is within +/- 1 dB. The 1 kHz reference level must remain at -10 dB.
9. Set the generator frequency to 400 Hz.

10. Adjust the STAC Low End Equalization Level (EEPOT A) so that the level measured at the comparator is the same level recorded in step 5. Do not readjust EEPOTS C or 9.

11. Adjust the STAC Low End Equalization Level (EEPOT A) to the same level recorded in step 5.

12. Deactivate all activated MUXbus bits.

13. Set the **Intercom** switch to **Off**.

14. Disconnect the audio generator from the MIC AUDIO input.

Status Tone Adjustment

The following procedure is performed when a station is configured to have status tone sent from the station. This adjustment also sets the receiver and repeater squelch EEPOTs.

When completed, the status tone EEPOT is set to provide the required status tone level to be sent down the wireline Line 2. If the station is configured to operate with *Spectra-TAC/DIGITAC Encoder Option (C269)*, the receiver and repeater squelch levels are also adjusted to provide the proper unsquelching level.

NOTE

Only perform this procedure if the station being aligned is configured to generate status tone.

1. Inject an on channel 1mV RF signal, modulated with a 1 kHz tone at 100% full station deviation (60% full station deviation for *trunked stations*), into the receiver antenna connector on the Junction Box.

   Refer to Table 1-8 for values of full station deviation.

2. Set the **PL Dis/Xmit** to **PL Dis**.

3. Monitor the receive audio across Line 2 (+) and Line 2 (-) and adjust the Line 2 Output Level (EEPOT C) for the maximum desired phone line level.

   This is typically in the range of 0 dBm through -10 dBm.

4. Measure and record the level at the input to the comparator or other equipment expecting status tone from the station.

5. Set the **PL Dis/Xmit** to the center (normal) position.

6. Remove the RF signal generator from the receiver and verify the receiver is squelched.

7. Monitor the TAC comparator input and adjust the status tone Level (EEPOT 8) for a 2175 Hz status tone level 13 dB (9 dB for *trunked stations*) below the level recorded in step 4.

NOTE

Perform this procedure only if the station is equipped with a *Spectra-TAC/DIGITAC Encoder Option (C269)*. Otherwise, proceed to the Coded Transmit Deviation Adjustment procedure.

8. Set EEPOT 2 and EEPOT 3 to the minimum level (00) to fully open the squelch.
9. Set the **PL Dis/Xmit** switch to **PL Dis**.
10. Measure and record the rms noise voltage level at the Line 2 output.
11. Inject an on channel 0.1 µV RF signal, without modulation into the receiver antenna connector on the Junction Box.
12. Increase the RF level until the Line 2 output level decreases 20 dB from the level recorded in step 10.

NOTE

The 20 dBQ level correlates to a 17 dB SINAD measurement.

13. Adjust the Receiver Squelch Level (EEPOT 3) until the R1 UN SQ MUXbus bit (A5/D0) is disabled.
14. Adjust the Repeater Squelch Level (EEPOT 2) until the RPT USQ MUXbus bit (A3/D0) is disabled.
15. Disconnect all test equipment and set the **PL Dis/Xmit** switch to the center (normal) position.

Coded Transmit Deviation Adjustment

The following procedure is only performed when a station is configured for the *Transparent Operation Option (C514)*. This procedure does not apply to any *900 MHz Analog Plus stations*, due to its incompatibility with secure operation.

When performing this procedure, the EEPOT mode (EEPOT 6) is entered to generate a 1 kHz tone. The station is then keyed via the Xmit switch and the deviation is adjusted.

NOTE

Perform this procedure only if the station is equipped with a *Transparent Operation Option (C514)* for secure operation. This option is not available on *900 MHz Analog Plus stations.*

1. Select EEPOT 6 on the **Status** display.

   After 5 seconds, an internal 1 kHz square wave generator is enabled in the station.

2. Key the station by holding the **PL Dis/Xmit** switch to **Xmit**.

3. With a modulation analyzer, measure the transmitter deviation level and compare it to the settings shown in Table 1-8.

   Adjust EEPOT 6 if required to reach the desired level.

4. Set the **PL Dis/Xmit** switch to the center (normal) position.

5. Reset the station by toggling the **Acc Dis/Reset** switch to **Reset**.

NOTE

If aligning a station that contains the Simulcast Option (C777), perform the Simulcast procedures at the end of this chapter.

6. This concludes the *MSF 5000* Alignment procedure.

Simulcast Receiver Adjustment

1. Adjust EEPOTs 6, 8, 9, A, and C to 00.

NOTE

Step 2 through step 8 require the audio generator to remain at a constant output level of 100 mV from 400 to 3000 Hz.

2. Use an audio generator and inject a 1 kHz tone at 100 mV, measured with and AC voltmeter, into the MIC AUDIO (J812-4) input on the front panel control jack; or via TP8 on the SSCB.
3. Set the front panel **Intercom** switch to **On** and activate the LOC PTT MUXbus bit.
4. Adjust EEPOT C to -10 dBm at Line 2 +/- on the Junction Box.
   This is a 600 Ω balanced output.
5. Set the generator frequency to 3 kHz and adjust EEPOT 9 to -10 dBm.
6. Repeat step 2 through step 5 until the difference is within +/- 1 dB.
   The 1 kHz level reference must remain at -10 dBm.
7. Set the generator frequency to 400 Hz.
8. Adjust EEPOT A to -10 dBm.
   Do not readjust EEPOT 9 or EEPOT C.
9. Deactivate the MUXbus bits.
10. Set the **Intercom** switch to **Off**.
11. Disconnect the audio generator from the MIC AUDIO input.
12. Set the **PL Dis/Xmit** switch to **PL Dis**.
13. Inject an on-channel 1 mV RF signal modulated with a 1 kHz tone at 100% full system deviation into the receiver port.
14. Adjust EEPOT 5 for -6 dBm at Line 2 +/-.

NOTE

Perform step 15 and step 16 if the station is equipped with the Secure Option C514, otherwise proceed to step 17.

15. Without changing the RF input level, inject a coded eye pattern (using the proper encryption algorithm) and adjust EEPOT C for -6 dBm at Line 2 +/-.

16. Repeat step 13 and step 14.

17. Set the **PL Dis/Xmit** switch to the center (off) position.

    Remove the RF signal from the receiver

18. Adjust EEPOT 8 for a status tone (2175 Hz) level of -19 dBm at line 2 +/-.

19. Adjust EEPOTs 2 and 3 to 00.

20. Set the **PL Dis/Xmit** switch to **PL Dis**.

    Measure and record the rms noise voltage level at Line 2.

21. Inject an on-channel 0.1 uV signal without modulation at the receive antenna port.

22. Increase the RF level until the Line 2 output level decreases by 20 dB from the level recorded in step 20 (20 dbQ).

    This correlates to 17 dB SINAD.

23. Adjust EEPOT 3 until the R1 UN SQ MUXbus bit turns off.

NOTE

Perform step 24 if the station is equipped with Secure Option C514 and codeplug option X20AZ_SP, otherwise proceed to step 25.

24. Without changing the RF input level, inject a coded eye pattern and adjust EEPOT 2 until the RPT UN SQ MUXbus bit turns off.

25. Disconnect all test equipment.

    Alignment is complete.

Simulcast Deviation Adjustment

1. Set EEPOTs 4 and 7 to 00.
   EEPOTs 4 and 7 have no effect in simulcast.
2. Inject a 1 kHz signal at -10 dBm into the Gen TX Data input to the station.
3. Key the station by activating the Loc PTT MUXbus bit.
4. Measure the transmit deviation level and use EEPOT B to set for 60% full system deviation.
5. Dekey the station and remove the test tone.
   The transmit alignment is complete.

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RF Tray

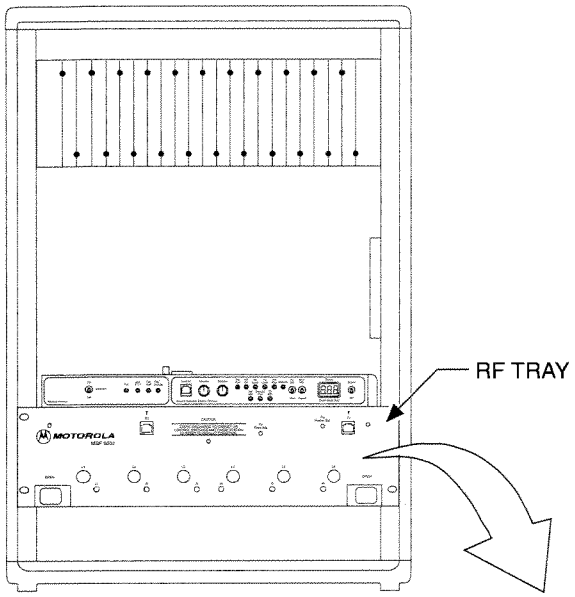
Chapter Overview

This chapter contains module and component locators, block diagrams, interconnect diagrams, schematics, and parts lists for the RF Tray.

Table 2-1 ***Chapter Contents***

RF Tray

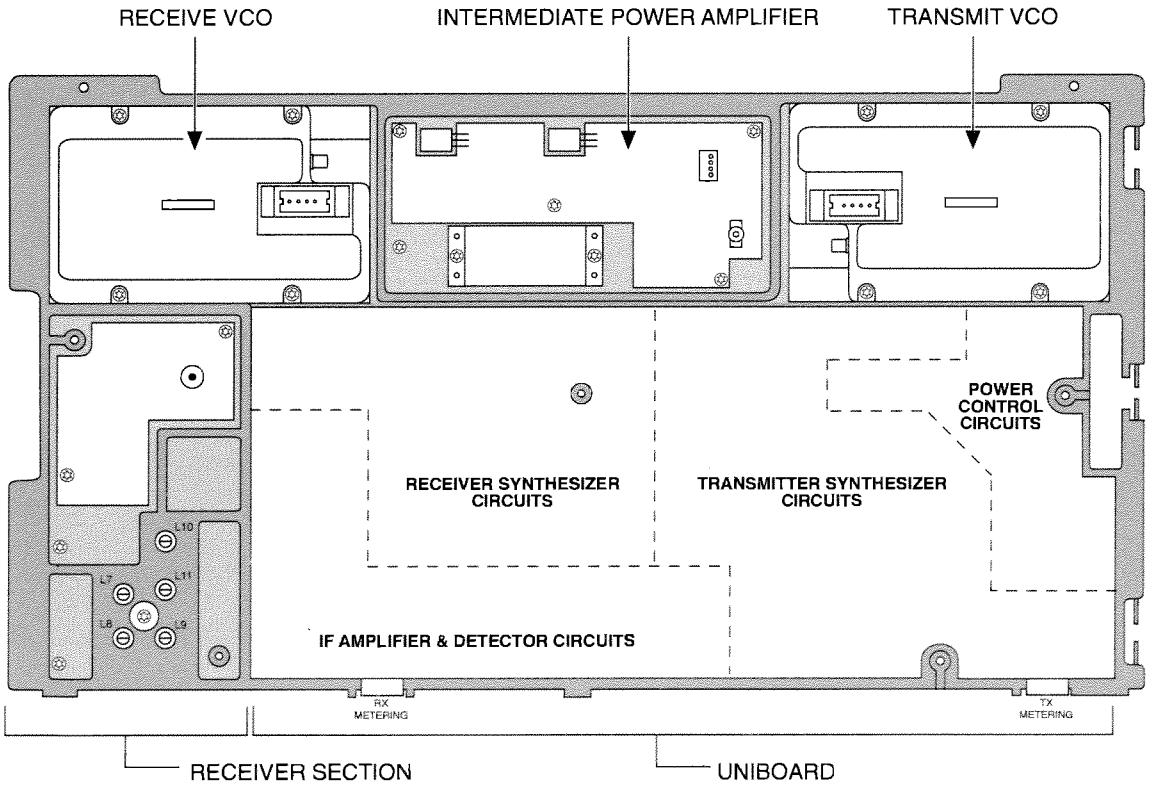
The *MSF 5000* 900 MHz RF Tray information includes models TUF1790 and TUF1920.



TRN7144 RF Tray Hardware

non-referenced items:

0184237T01	FILTER, feedthru
0184238T01	FILTER, feedthru
0184241T01	FILTER, feedthru assembly: 4-filter
0184243T01	FILTER, feedthru assembly: 28-filter
0310907A27	SCREW, machine: M3.5 x 0.6 x 8 (4 used)
0310943J15	Screw, tapping: TT3.5x0.6x8 (6 used)
0310943J17	SCREW, tapping: TT3.5 x 0.6x13 (17 used)
0384833P01	SCREW, captive: M4 x 0.7 x 5 (5 used)
0783104N01	BRACKET, pc board mtg (2 used)
1583176N01	COVER, LL amplifier core
1585526U02	HOUSING RADIO TRAY
1585527U01	COVER RADIO TRAY HOUSING
3282170V01	GASKET RF (93.5 used)
3282170V02	GASKET RF (3.63 used)
3282796H02	GASKET, radio frequency iterference: .125 x .062" (25.2 used)
3282796H03	GASKET, rfi: .125 x .125" (21.25 used)
4283501N03	RETAINING, E ring (2 used)
4583153N01	CAM, 1/4 turn lock (2 used)



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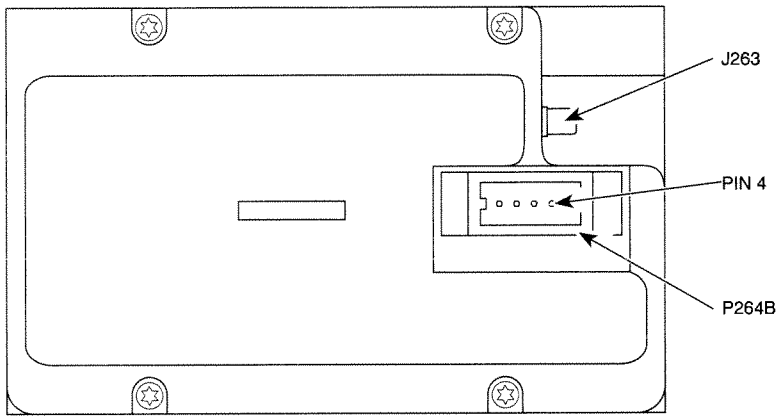
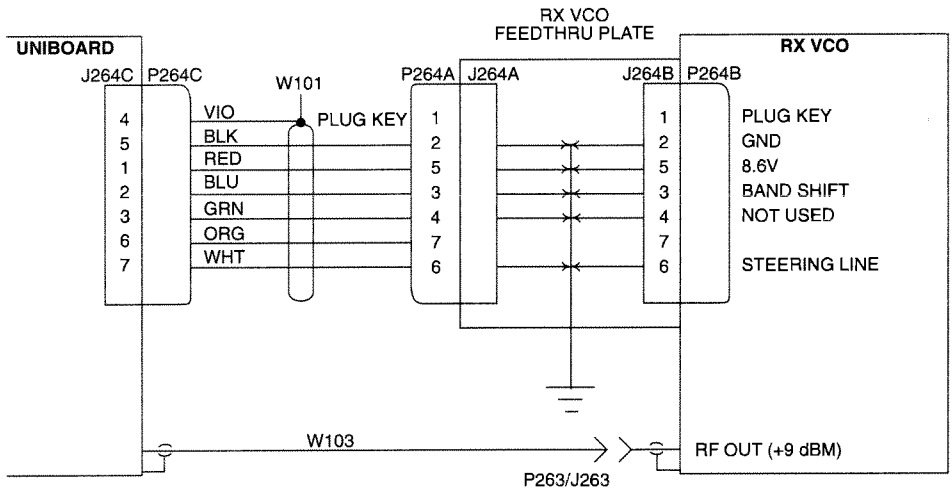
TRE1322 Receive VCO



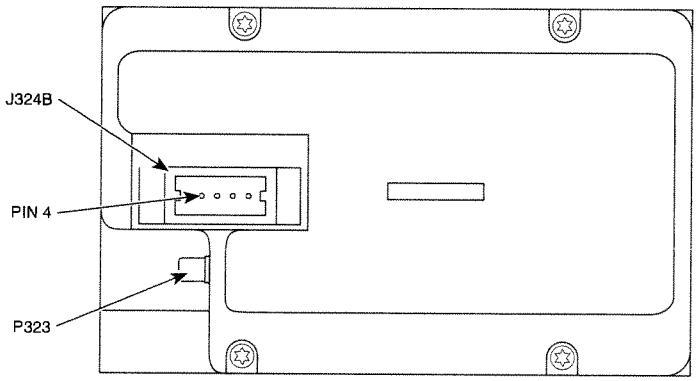


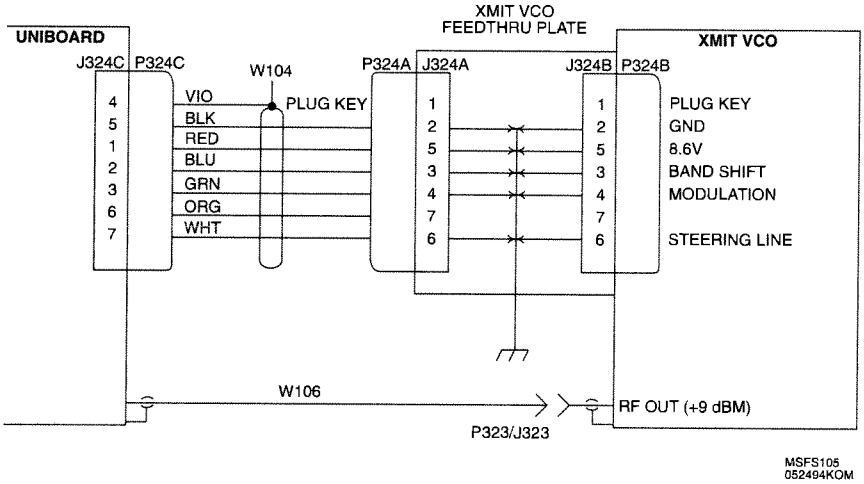
TLE5382 VCO Hardware

non-referenced items:

0184239T01	FILTER ASSEMBLY, feedthru: 4-filter
0283718N01	NUT, tension
0310943J10	SCREW, tapping: TT3 x 0.5 x 8 (7 used)
0310943J16	SCREW, tapping: TT3.5 x 0.6 x 10 (4 used)
0383100N04	SETSCREW, M11x0.75x17.2
0383677N02	SCREW, captive: M3.5 x 0.6 x 18 (4 used)
0484081N01	WASHER, shoulder (3 used)
0784888R01	BRACKET
0984135B02	CONNECTOR, receptacle, phono
1583182N01	COVER
1583190N02	HOUSING
1583191N02	CSTG VCO RESONATOR
2483375N01	COIL, RF probe (red)
2483692N02	COIL, probe (red)
3282796H02	GASKET, radio frequency interference: .125 x .062" (12.56 used)
3283142N01	GASKET: 30.8x14.0MM
4183147N02	SPRING (4 used)
4283517N01	RETAINER, spring (4 used)

TTE1472 Transmit VCO



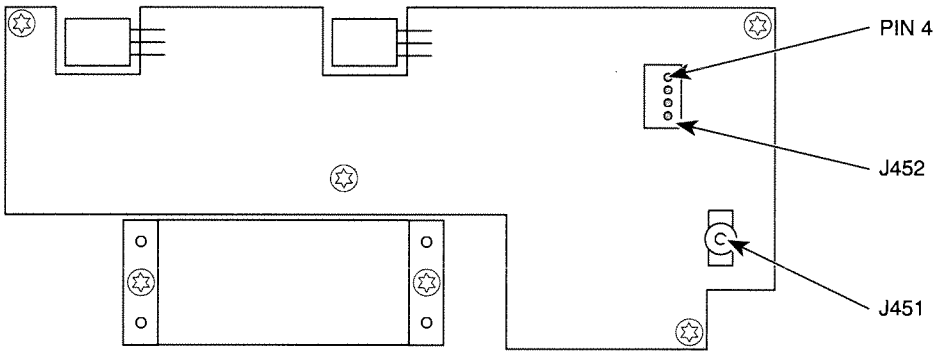


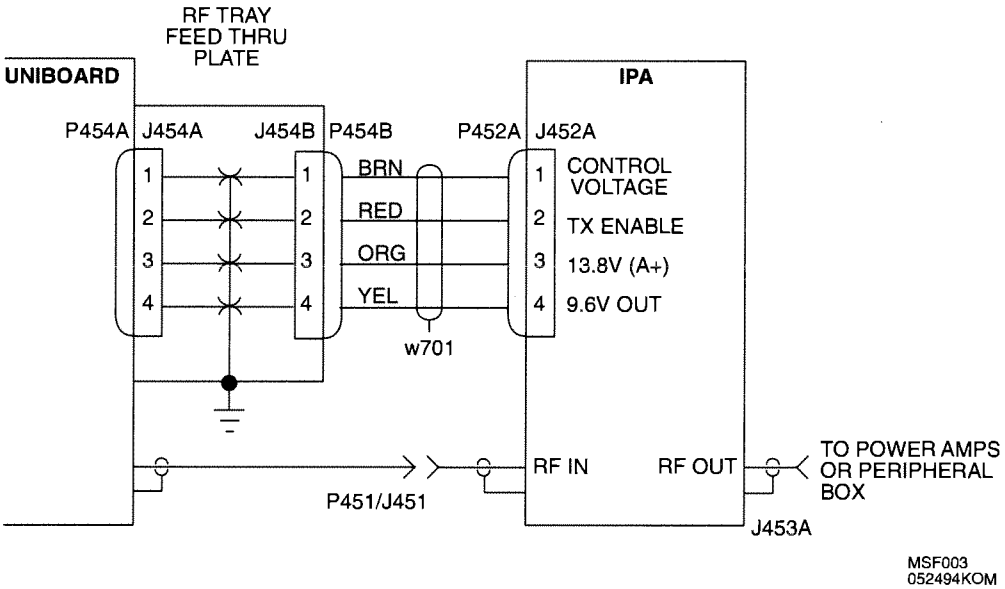
TLE5372 VCO Hardware

non-referenced items:

0184239T01	FILTER ASSEMBLY, feedthru: 4-filter
0283718N01	NUT, tension
0310943J10	SCREW, tapping: TT3 x 0.5 x 8 (7 used)
0310943J16	SCREW, tapping: TT3.5 x 0.6 x 10 (4 used)
0383100N05	SETSCREW: M11x0.75x17.2
0383677N02	SCREW, captive: M3.5 x 0.6 x 18 (4 used)
0484081N01	WASHER, shoulder (3 used)
0784888R01	BRACKET
0984135B02	CONNECTOR, receptacle, phono
1583182N01	COVER
1583190N02	HOUSING
1583191N02	CSTG VCO RESONATOR
2483375N02	COIL, rf probe (blue)
2483692N01	COIL, probe (black)
2483692N03	COIL, probe (blue)
3282796H02	GASKET, radio frequency iterference: .125 x .062" (12.56 used)
3283142N01	GASKET: 30.8x14.0MM
4183147N02	SPRING (4 used)
4283517N01	RETAINER, spring (4 used)

TLF1521 IPA





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052494KOM

TRN9930 IPA Hardware

switch:

S1,2	0310943J11	SCREW, tapping: TT3 x 0.5 x 10
S3 thru 5	0310943J16	SCREW, tapping: TT3.5 x 0.6 x 10

non-referenced items:

	0310943M04	SCREW, tapping: TT2.5 X 0.45 X 8 (2 used)
	0383677N02	SCREW, captive: M3.5 x 0.6 x 18 (4 used)
	0987318C06	CONNECTOR, female, 1-contact
	0987439C02	CONNECTOR, female, 1-contact
	2684873R01	Heat sink

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Uniboard

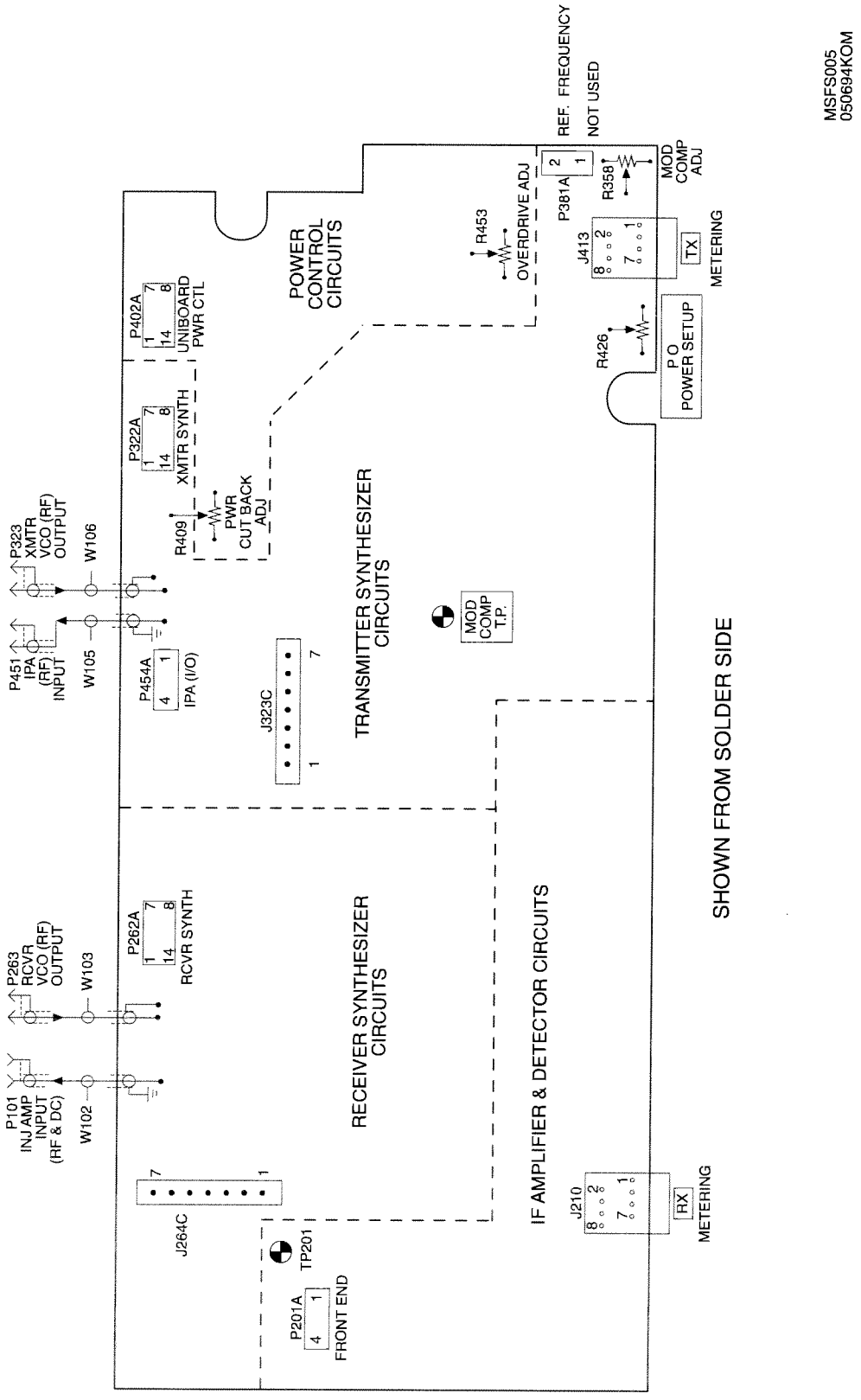
This section contains overlays, schematics, and parts lists for components of the Uniboard. Some parts may not be placed on all Uniboards.

If a single asterisk (*) is shown beside a reference designator on the schematic, refer to the applicable parts list for the proper value If a double asterisk (**) is shown, the component is not placed.

Table 2-2 ***Section Contents***

Uniboard	Overlay Page	Schematic Page	Connector Page	Parts List Page
TRN7197	2-11	2-13	2-9	2-21
TRN7881	2-11	2-13	2-9	2-25

Uniboard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050694KOM
REF. FREQUENCY
NOT USED
P381A
R358
MOD COMP ADJ
R453
OVERDRIVE ADJ
J413
TX
METERING
R426
P O POWER SETUP
POWER CONTROL CIRCUITS
P402A
UNIBOARD PWR CTL
P322A
XMTR SYNTH
R409
PWR CUT BACK ADJ
P323 XMTR VCO (RF) OUTPUT
W106
P451 IPA (RF) INPUT
W105
P454A
IPA (I/O)
J323C
TRANSMITTER SYNTHESIZER CIRCUITS
MOD COMP T.P.
P263 RCVR VCO (RF) OUTPUT
W103
P262A
RCVR SYNTH
P101 INJ AMP INPUT (RF & DC)
W102
RECEIVER SYNTHESIZER CIRCUITS
IF AMPLIFIER & DETECTOR CIRCUITS
SHOWN FROM SOLDER SIDE
J264C
TP201
P201A
FRONT END
J210
RX
METERING

Uniboard Connectors

P201A

1	TEST POINT TP151
2	MIXER OUT & MTR 3
3	+9.6V
4	GND

P454A

1	CONTROL VOLTAGE
2	TX ENABLE
3	MAIN +13.8V (A+)
4	+9.6V

P262A

+5V	1	14	MAIN +13.8V (A++)
RX STROBE	2	13	N.C.
SA2	3	12	RAW RX AUDIO
SA1	4	11	RX LOOP
SA0	5	10	SD0
SD1	6	9	SD3
SD2	7	8	$\overline{\text{RX LOOP}}$

P322A

SA1	1	14	TX STROBE
$\overline{\text{MOD ENABLE}}$	2	13	SA2
$\overline{\text{TX LOCK}}$	3	12	SA0
SD2	4	11	TX LOOP
SD1	5	10	SD3
AUDIO (GND A)	6	9	SD0
+9.6V	7	8	TX MOD AUDIO

P402A

$\overline{\text{PA ON}}$	1	14	$\overline{\text{PA POWER CUTBACK}}$
FINAL FORWARD VOLTAGE	2	13	N.C.
METERING FINAL FORWARD VOLTAGE	3	12	MAIN +13.8V (A++)
AUDIO GND	4	11	+5V
THERMAL SUM POINT	5	10	METERING FILANL REFLECTED VOLTAGE
CIRCULATOR LOAD $\overline{\text{TEMP}}$	6	9	$\overline{\text{PA FULL POWER}}$
PA KEY	7	8	DRIVER FORWARD VOLTAGE

W104

P324A			P324C
PLUG KEY	1	WHT	7 STEERING LINE
GND	2	BLK	6 GUARD BAND
BAND SHIFT	3	BLU	5 GND
TX MOD AUDIO	4	GRN	4 GND
+8.6V	5	RED	3 TX MOD AUDIO
VCO STEERING LINE	6	VIO	2 BAND SHIFT
N.C.	7	ORG	1 +8.6V

W101

P264A			P264C
PLUG KEY	1	ORG	7 STEERING LINE
GND	2	WHT	6 GUARD BAND
BAND SHIFT	3	BLK	5 GND
NOT USED	4	BLU	4 GND
+8.6V	5	GRN	3 NOT USED
VCO STEERING LINE	6	VIO	2 BAND SHIFT
N.C.	7	RED	1 +8.6V

J413
TX MTR

GND	7	8	GND
TX STEERING LINE VOLTAGE	5	6	GND
CONTROL VOLTAGE	3	4	DRIVER FORWARD VOLTAGE
FINAL FORWARD VOLTAGE	1	2	FINAL REFLECTED VOLTAGE

J210
RX MTR

GND	7	8	GND
RX STEERING LINE VOLTAGE	5	6	GND
MIXER L.O. LEVEL	3	4	INTERNAL REF. OSC. LEVEL
QUADRATURE DETECTOR	1	2	I-F LEVEL

MSFS099
042194JNM

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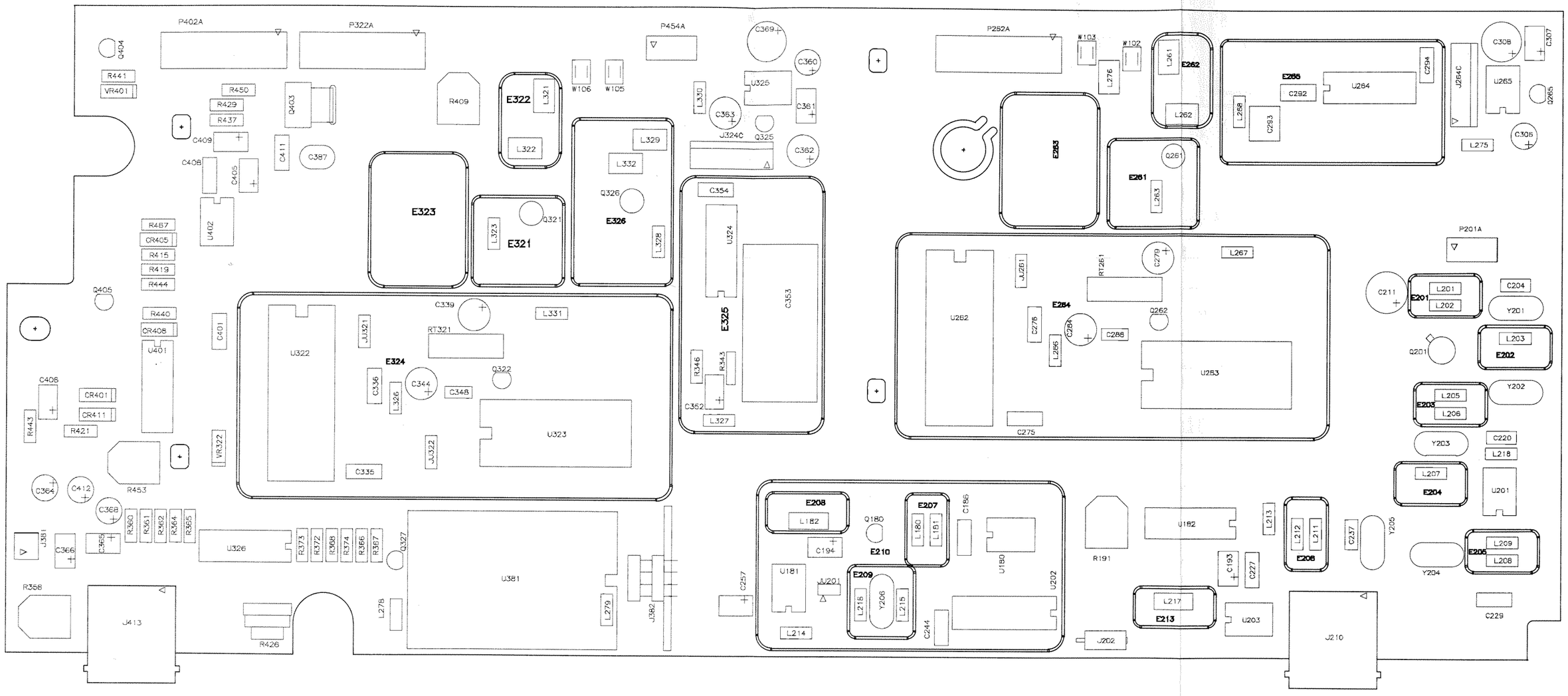
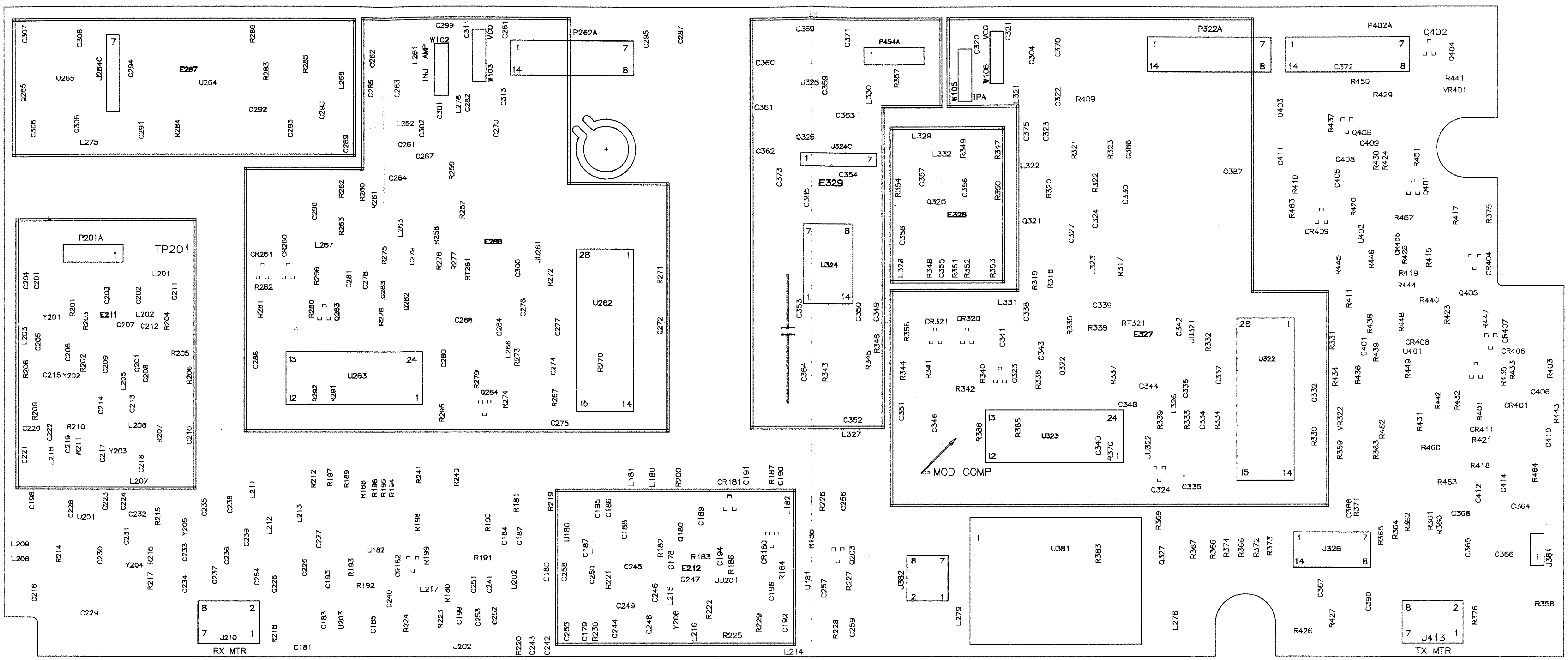
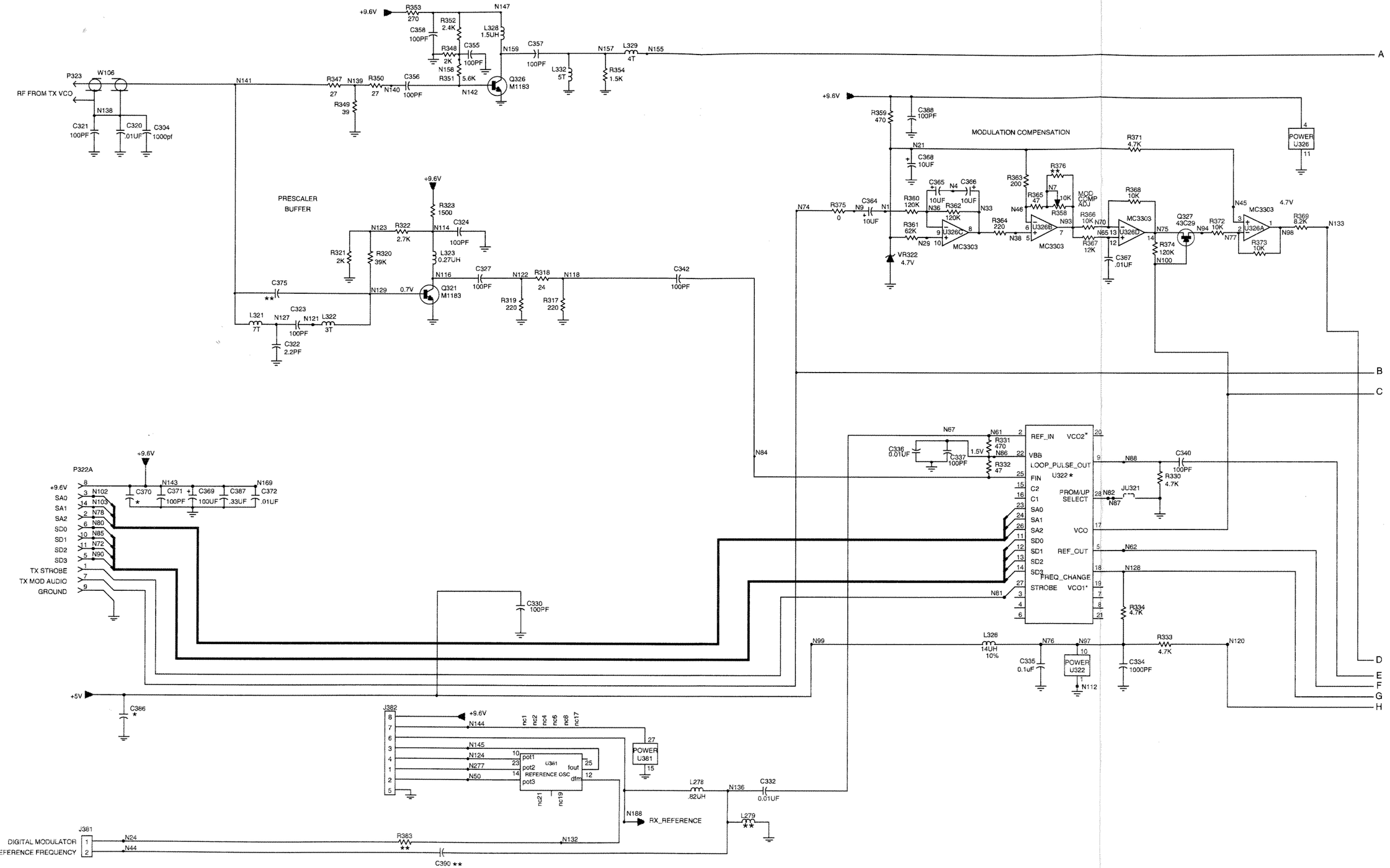


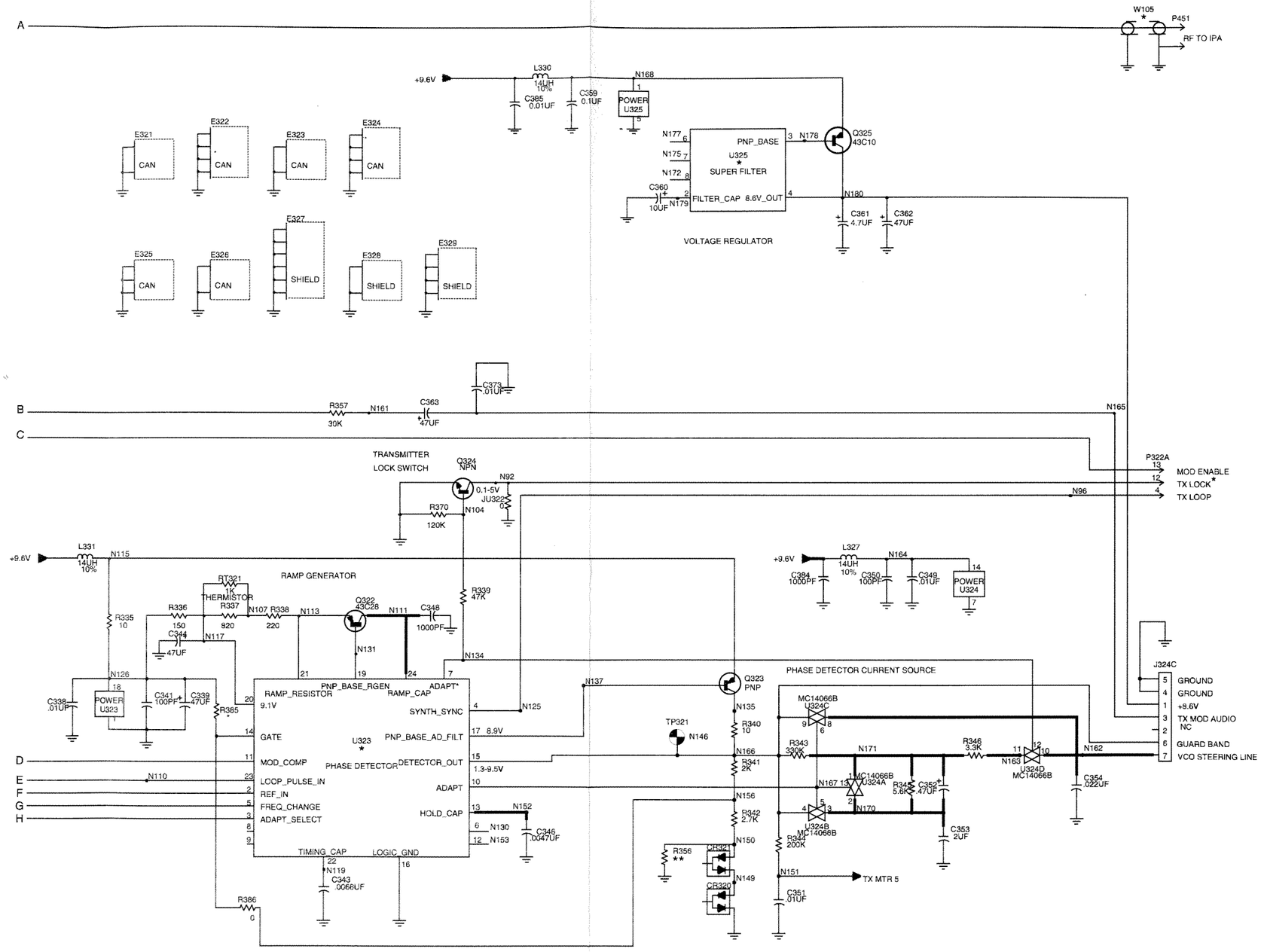
COMPONENT SIDE

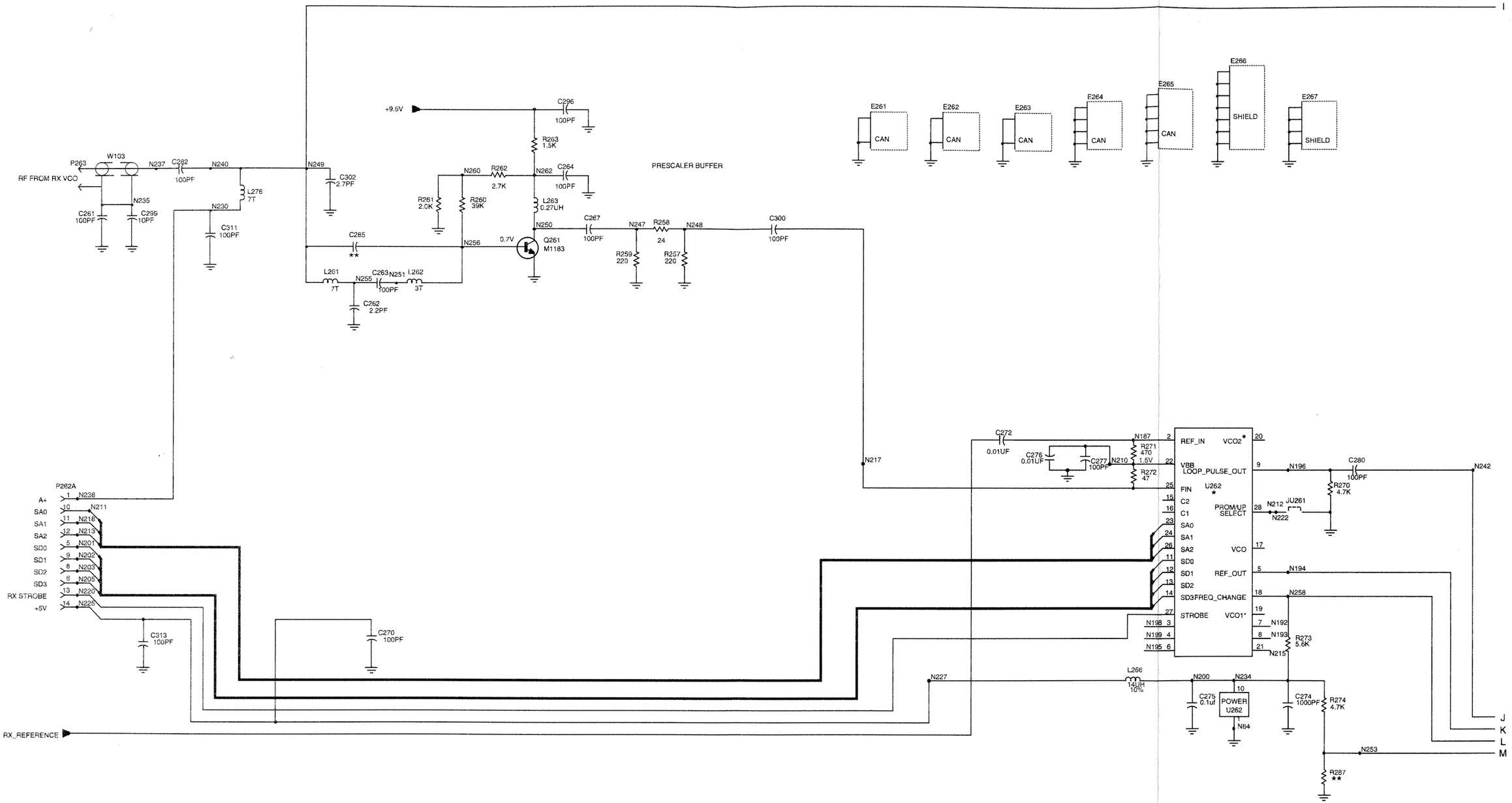
TRN7197/TRN7881 Uniboards

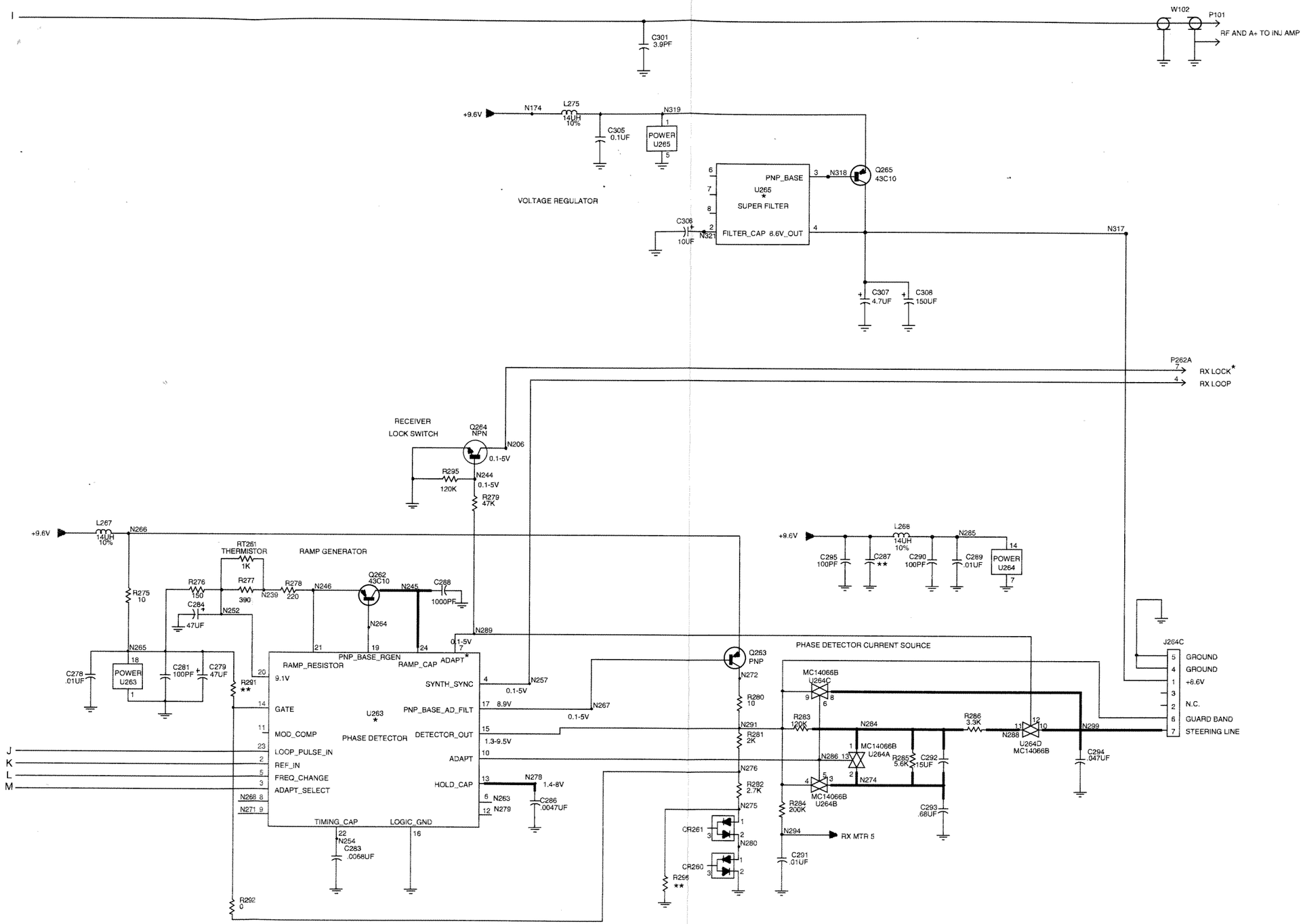


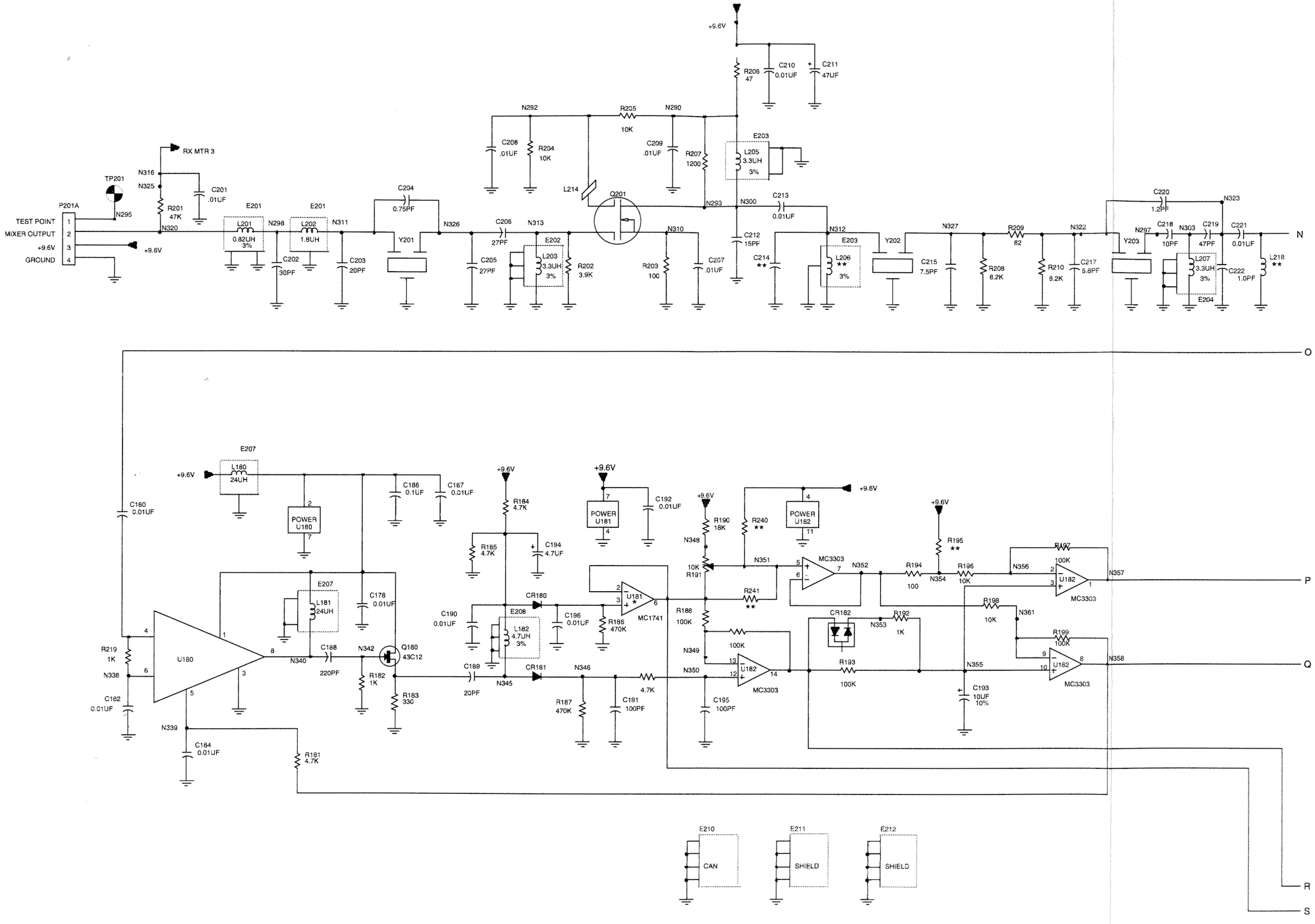
SOLDER SIDE


+9.6V
R353 270
C358 100PF
R352 2.4K
L328 1.5UH
N147
R348 2K
C355 100PF
N158
R351 5.6K
Q326 M1183
N142
N159
C357 100PF
N157
L329 4T
N155
L332 5T
R354 1.5K
A
P323
W106
RF FROM TX VCO
N138
C321 100PF
C320 .01UF
C304 1000pf
N141
R347 27
N139
R350 27
N140
C356 100PF
R349 39
PRESCALER BUFFER
R323 1500
N123
R322 2.7K
N114
C324 100PF
R321 2K
R320 39K
L323 0.27UH
N116
C327 100PF
N122
R318 24
N118
C342 100PF
C375 **
N129
0.7V
Q321 M1183
L321 7T
N127
C323 100PF
N121
L322 3T
C322 2.2PF
R319 220
R317 220
+9.6V
R359 470
C388 100PF
MODULATION COMPENSATION
N21
C368 10UF
R371 4.7K
POWER U326
11
R376 **
C365 10UF
N4
C366 10UF
R363 200
N7
R365 47
10K
MOD COMP ADJ
R358
N74
R375 0
C364 10UF
N9
N1
R360 120K
N36
R362 120K
N33
N46
R361 62K
N29
U326C
MC3303
R364 220
N38
U326B
MC3303
R366 10K
N70
R367 12K
N65
U326D
MC3303
R368 10K
C367 .01UF
Q327 43C29
N75
R374 120K
N100
N45
MC3303
4.7V
R372 10K
N94
N77
U326A
R373 10K
R369 8.2K
N98
N133
VR322 4.7V
B
C
N84
N67
C336 0.01UF
C337 100PF
1.5V
N61
R331 470
N86
R332 47
REF_IN
VCC2*
VBB
LOOP_PULSE_OUT
U322*
FIN
C2
C1
SA0
SA1
SA2
SD0
SD1
SD2
SD3
FREQ_CHANGE
STROBE
VCO1*
PROM/UP SELECT
VCO
REF_OUT
N88
C340 100PF
R330 4.7K
N82
N87
JU321
N62
N128
R334 4.7K
N81
P322A
+9.6V
SA0
SA1
SA2
SD0
SD1
SD2
SD3
TX STROBE
TX MOD AUDIO
GROUND
N102
N103
N78
N80
N85
N72
N90
N143
C370 *
C371 100PF
C369 100UF
C387 .33UF
N169
C372 .01UF
C330 100PF
N99
L326 14UH 10%
N76
N97
C335 0.1uF
POWER U322
N112
R333 4.7K
N120
C334 1000PF
D
E
F
G
H
+5V
C386 *
J382
+9.6V
N144
N145
N124
N277
N50
nc1
nc2
nc4
nc5
nc8
nc17
pot1
pot2
pot3
U381
REFERENCE OSC
fout
dfm
nc21
nc19
POWER U381
L278 .82UH
N136
C332 0.01UF
N188
RX_REFERENCE
L279 **
J381
DIGITAL MODULATOR
REFERENCE FREQUENCY
N24
N44
R383 **
N132
C390 **

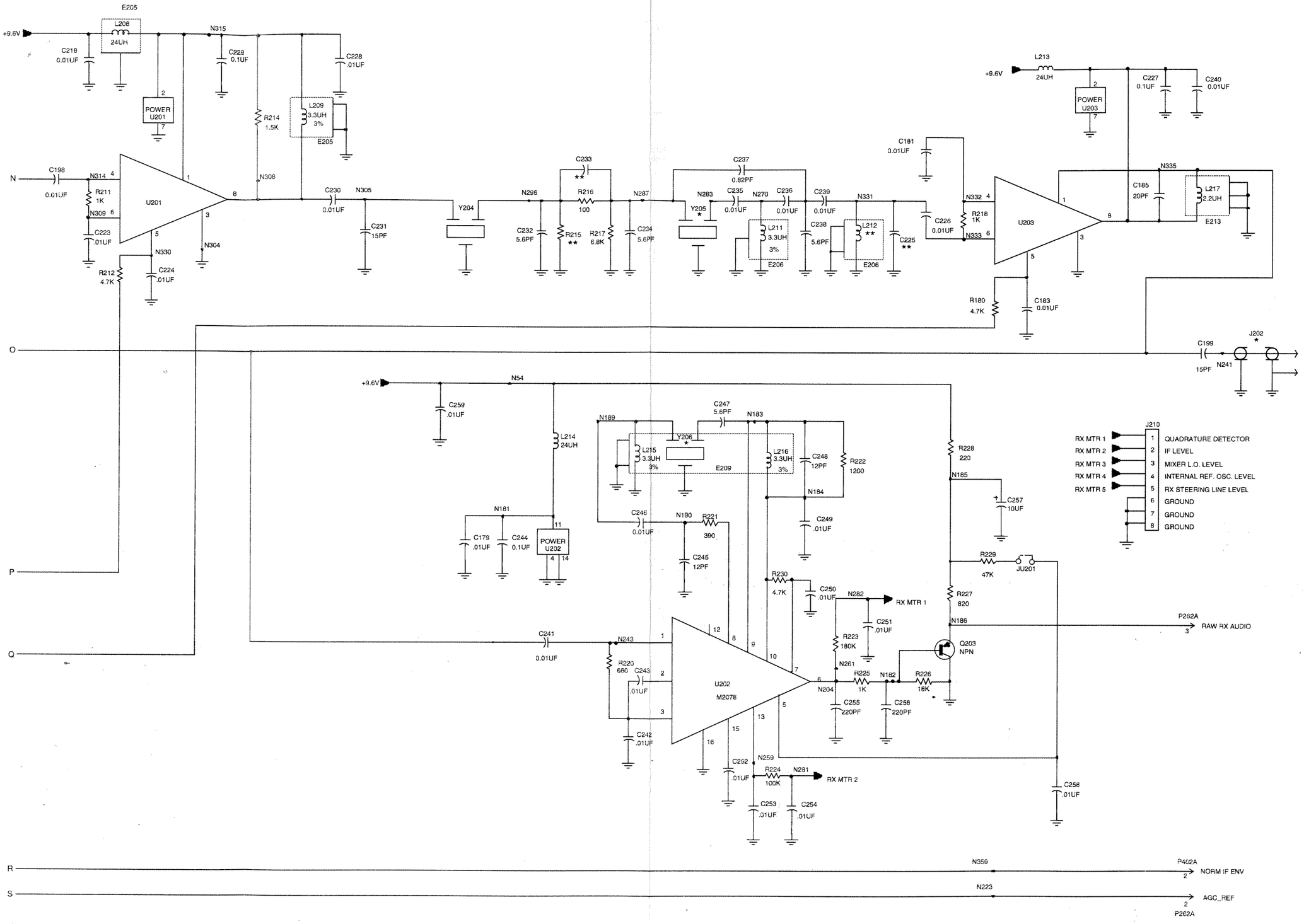

A
B
C
D
E
F
G
H
W105
P451
RF TO IPA
+9.6V
L330
1.4UH
10%
C385
0.01UF
C359
0.1UF
N168
POWER
U325
E321
E322
E323
E324
E325
E326
E327
E328
E329
CAN
SHIELD
PNP_BASE
U325
SUPER FILTER
FILTER_CAP 8.6V_OUT
Q325
43C10
N177
N175
N172
N179
N178
N180
C360
10UF
C361
4.7UF
C362
47UF
VOLTAGE REGULATOR
C373
.01UF
R357
30K
N161
C363
47UF
N165
TRANSMITTER
LOCK SWITCH
Q324
NPN
0.1-5V
JU322
0
N92
R370
120K
N104
N96
P322A
13
12
4
MOD ENABLE
TX LOCK
TX LOOP
L331
14UH
10%
N115
RAMP GENERATOR
RT321
1K
THERMISTOR
R336
150
R337
920
N107
R338
220
N113
Q322
43C28
N111
C348
1000PF
R339
47K
R335
10
C344
47UF
N117
N131
N134
N126
18
POWER
U323
C338
.01UF
C341
100PF
C339
47UF
R385
20
14
11
23
2
5
3
6
9
21
19
24
7
PNP_BASE_RGEN
RAMP_RESISTOR
9.1V
RAMP_CAP
ADAPT*
GATE
MOD_COMP
LOOP_PULSE_IN
REF_IN
FREQ_CHANGE
ADAPT_SELECT
U323
*
PHASE DETECTOR
SYNTH_SYNC
PNP_BASE_AD_FILT
DETECTOR_OUT
1.3-9.5V
ADAPT
HOLD_CAP
TIMING_CAP
LOGIC_GND
22
16
13
6
12
N119
C343
.0066UF
N130
N153
N152
C346
.0047UF
4
17
15
10
8.9V
N125
N110
R386
0
L327
14UH
10%
N164
C384
1000PF
C350
100PF
C349
.01UF
14
POWER
U324
7
PHASE DETECTOR CURRENT SOURCE
Q323
PNP
N137
N135
R340
10
TP321
N146
N166
R341
2K
N156
R342
2.7K
N150
R356
**
CR321
CR320
N149
N151
TX MTR 5
C361
.01UF
MC14066B
U324C
MC14066B
U324A
MC14066B
U324B
MC14066B
U324D
R343
330K
N171
R346
3.3K
N163
N162
N167
R345
5.6K
C352
47UF
N179
R344
200K
C353
2UF
C354
.022UF
J324C
5
4
1
3
2
6
7
GROUND
GROUND
+9.6V
TX MOD AUDIO
NC
GUARD BAND
VCO STEERING LINE

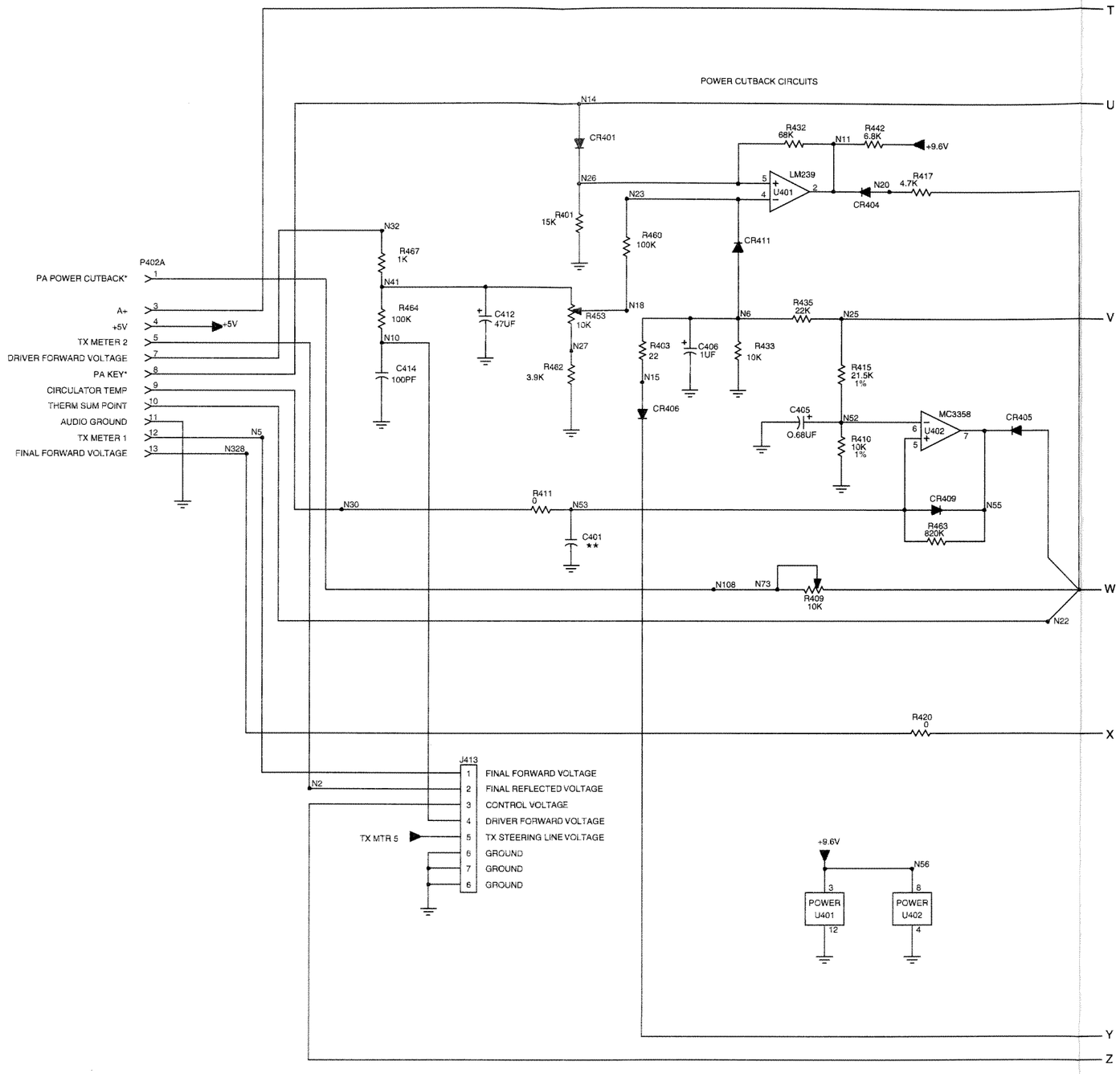

+9.6V
C296
100PF
R263
1.5K
W103
P263
RF FROM RX VCO
N237
C282
100PF
N240
N249
C302
2.7PF
L276
7T
N235
C261
100PF
C299
10PF
N230
C311
100PF
N260
R262
2.7K
N262
C264
100PF
PRESCALER BUFFER
R261
2.0K
R260
39K
L263
0.27UH
C285
**
N256
0.7V
Q261
M1183
N250
C267
100PF
N247
R258
24
N248
C300
100PF
R259
220
R257
220
L261
7T
N255
C263
100PF
N251
L262
3T
C262
2.2PF
E261
CAN
E262
CAN
E263
CAN
E264
CAN
E265
CAN
E266
SHIELD
E267
SHIELD
N217
C272
0.01UF
C276
0.01UF
C277
100PF
N210
N187
R271
470
1.5V
R272
47
REF_IN
VCO2*
VBB
LOOP_PULSE_OUT
FIN
U262
*
C2
C1
PROM/UP
SELECT
SA0
SA1
SA2
SD0
SD1
SD2
SD3FREQ_CHANGE
STROBE
VCO
REF_OUT
VCO1*
N196
C280
100PF
N242
R270
4.7K
N212
JU261
N222
N194
N258
N198
N199
N195
N192
N193
R273
5.6K
N215
P262A
A+
SA0
SA1
SA2
SD0
SD1
SD2
SD3
RX STROBE
+5V
N238
N211
N218
N213
N201
N202
N203
N205
N220
N225
C313
100PF
C270
100PF
N227
L266
14UH
10%
N200
N234
C275
0.1uf
POWER
U262
N64
C274
1000PF
R274
4.7K
N253
R287
**
RX_REFERENCE
J
K
L
M

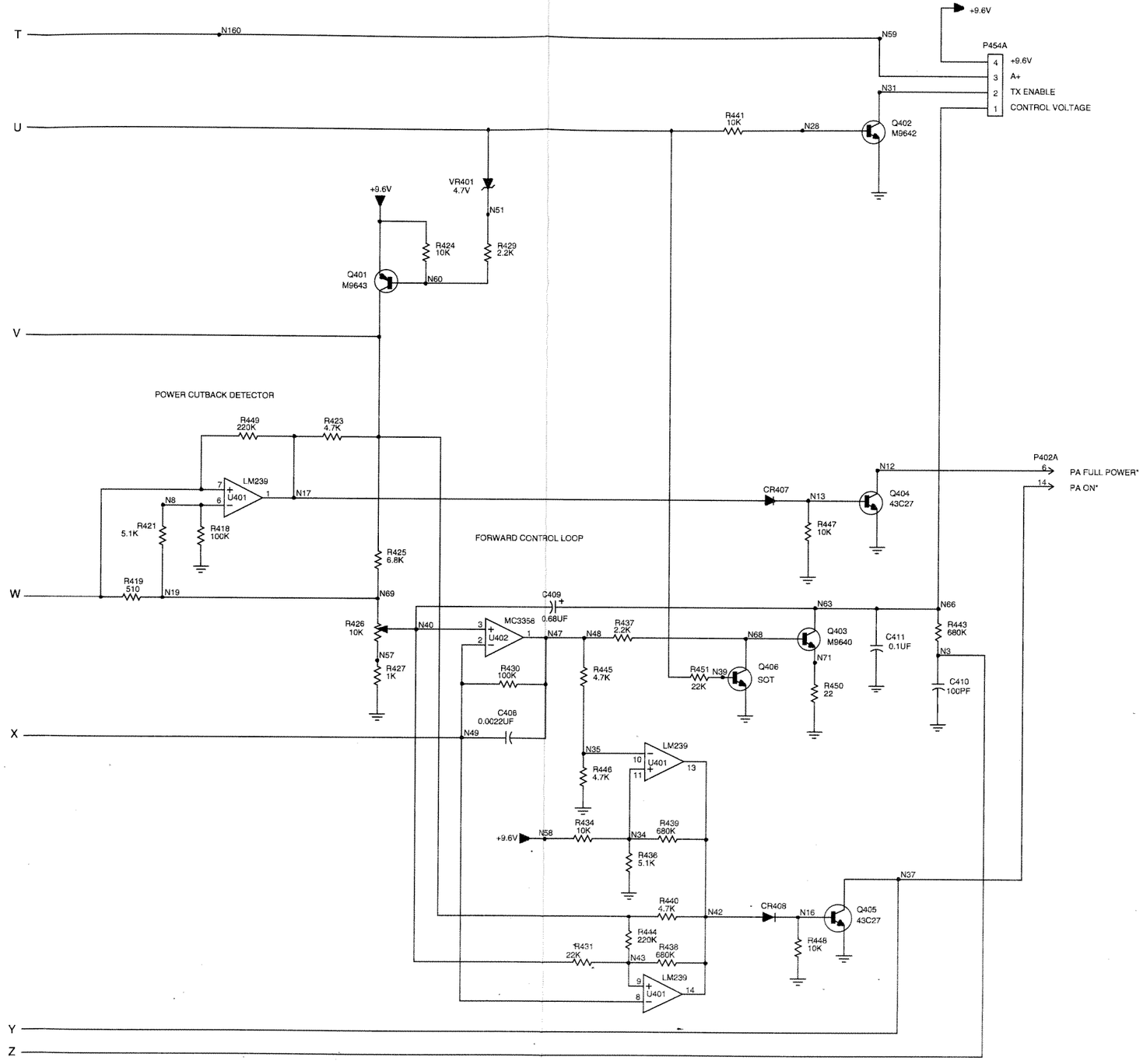

W102
P101
RF AND A+ TO INJ AMP
C301
3.9PF
+9.6V
N174
L275
14UH
10%
N319
C305
0.1UF
POWER
U265
VOLTAGE REGULATOR
PNP_BASE
U265
SUPER FILTER
FILTER_CAP 8.6V_OUT
N318
Q265
43C10
C306
10UF
N321
N317
C307
4.7UF
C308
150UF
P262A
RX LOCK*
RX LOOP
RECEIVER
LOCK SWITCH
Q264
NPN
N206
0.1-5V
R295
120K
N244
0.1-5V
R279
47K
L267
14UH
10%
N266
RT261
THERMISTOR
1K
RAMP GENERATOR
R276
150
R277
390
R278
220
N239
N246
Q262
43C10
N245
C288
1000PF
R275
10
C284
47UF
N252
N264
N265
N289
0.1-5V
PNP_BASE_RGEN
RAMP_RESISTOR
RAMP_CAP
ADAPT*
9.1V
SYNTH_SYNC
GATE
PNP_BASE_AD_FILT
MOD_COMP
PHASE DETECTOR
DETECTOR_OUT
LOOP_PULSE_IN
REF_IN
FREQ_CHANGE
ADAPT_SELECT
ADAPT
HOLD_CAP
TIMING_CAP
LOGIC_GND
U263
*
C278
.01UF
POWER
U263
C281
100PF
C279
47UF
R291
**
C283
.0068UF
R292
0
N257
0.1-5V
N267
8.9V
0.1-5V
1.3-9.5V
N278
1.4-8V
C286
.0047UF
N263
N279
J
K
L
M
N268
N271
PHASE DETECTOR CURRENT SOURCE
Q263
PNP
N272
R280
10
R281
2K
N291
R282
2.7K
N275
R284
200K
N294
RX MTR 5
C291
.01UF
CR261
CR260
N280
R256
**
MC14066B
U264C
R283
120K
N284
R286
3.3K
N288
MC14066B
U264D
N299
C294
.047UF
MC14066B
U264A
R285
5.6K
C292
.15UF
N286
N274
MC14066B
U264B
C293
.68UF
L266
14UH
10%
N285
C295
100PF
C287
**
C290
100PF
C289
.01UF
POWER
U264
J264C
GROUND
GROUND
+8.6V
N.C.
GUARD BAND
STEERING LINE


+9.6V
R206 47
C210 0.01UF
C211 47UF
N292
R205 10K
N290
C208 .01UF
R204 10K
C209 .01UF
R207 1200
E203
L205 3.3UH 3%
L214
Q201
N293
N300
C213 0.01UF
RX MTR 3
N316
N325
TP201
N295
P201A
TEST POINT 1
MIXER OUTPUT 2
+9.6V 3
GROUND 4
R201 47K
C201 .01UF
N320
+9.6V
E201
L201 0.82UH 3%
N298
E201
L202 1.8UH
N311
C202 30PF
C203 20PF
C204 0.75PF
Y201
N326
C206 27PF
N313
C205 27PF
E202
L203 3.3UH 3%
R202 3.9K
N310
R203 100
C207 .01UF
C212 15PF
C214 **
N312
E203
L206 ** 3%
Y202
C215 7.5PF
N327
R209 82
R208 8.2K
N322
R210 8.2K
C217 5.6PF
C220 1.2PF
N323
Y203
N297
C218 10PF
N303
C219 47PF
C221 0.01UF
L218 **
E204
L207 3.3UH 3%
C222 1.0PF
N
O
E207
L180 24UH
+9.6V
C160 0.01UF
POWER U180
2
7
C186 0.1UF
C187 0.01UF
R184 4.7K
R185 4.7K
C194 4.7UF
POWER U181
7
4
C192 0.01UF
+9.6V
R190 18K
N348
R240 **
POWER U182
4
11
+9.6V
+9.6V
R195 **
E207
L181 24UH
C178 0.01UF
CR180
E208
L182 4.7UH 3%
C190 0.01UF
C196 0.01UF
R186 470K
U181 MC1741
R188 100K
10K R191
N351
MC3303
N352
R241 **
R194 100
N354
R196 10K
R197 100K
N356
U182 MC3303
N357
P
R198 10K
N361
R199 100K
U182 MC3303
N358
Q
CR182
N353
R192 1K
R193 100K
N355
C193 10UF 10%
100K
N349
N350
U182 MC3303
C195 100PF
R219 1K
N338
U180
N340
C188 220PF
N342
Q180 43C12
R182 1K
R183 330
C189 20PF
N345
CR181
N346
R187 470K
C191 100PF
4.7K
C182 0.01UF
N339
C184 0.01UF
R181 4.7K
R
S
E210
CAN
E211
SHIELD
E212
SHIELD

TRN7197/TRN7881 Uniboards




POWER CUTBACK CIRCUITS
T
U
V
W
X
Y
Z
P402A
PA POWER CUTBACK*
A+
+5V
TX METER 2
DRIVER FORWARD VOLTAGE
PA KEY*
CIRCULATOR TEMP
THERM SUM POINT
AUDIO GROUND
TX METER 1
FINAL FORWARD VOLTAGE
N14
CR401
R432 68K
N11
R442 6.8K
+9.6V
N26
LM239
U401
N23
N20
R417 4.7K
CR404
R401 15K
N32
R467 1K
R460 100K
CR411
N41
R464 100K
C412 47UF
R453 10K
N18
N6
R435 22K
N25
N10
C414 100PF
N27
R462 3.9K
R403 22
C406 1UF
R433 10K
R415 21.5K 1%
N15
CR406
C405 0.68UF
N52
MC3358
U402
CR405
R410 10K 1%
N5
N328
N30
R411 0
N53
CR409
N55
C401 **
R463 820K
N108
N73
R409 10K
N22
R420 0
J413
1 FINAL FORWARD VOLTAGE
2 FINAL REFLECTED VOLTAGE
3 CONTROL VOLTAGE
4 DRIVER FORWARD VOLTAGE
TX MTR 5
5 TX STEERING LINE VOLTAGE
6 GROUND
7 GROUND
6 GROUND
N2
+9.6V
N56
POWER U401
POWER U402


T
U
V
W
X
Y
Z
N160
N59
+9.6V
P454A
4 +9.6V
3 A+
2 TX ENABLE
1 CONTROL VOLTAGE
N31
R441 10K
N28
Q402 M9642
VR401 4.7V
N51
R424 10K
R429 2.2K
Q401 M9643
N60
POWER CUTBACK DETECTOR
R449 220K
R423 4.7K
LM239
U401
N17
N8
R421 5.1K
R418 100K
R425 6.8K
R419 510
N19
N69
FORWARD CONTROL LOOP
CR407
N13
R447 10K
Q404 43C27
N12
P402A
6 PA FULL POWER*
14 PA ON*
C409 0.68UF
R426 10K
N40
MC3358
U402
N47
N48
R437 2.2K
N68
Q403 M9640
N63
N66
C411 0.1UF
R443 680K
N3
C410 100PF
N57
R427 1K
R430 100K
R445 4.7K
R451 22K
N39
Q406 SOT
N71
R450 22
C406 0.0022UF
N49
N35
LM239
U401
R446 4.7K
R434 10K
+9.6V
N58
N34
R439 680K
R436 5.1K
N37
R440 4.7K
N42
CR408
N16
Q405 43C27
R444 220K
R448 10K
R431 22K
R438 680K
N43
LM239
U401

TRN7197 Uniboard Parts List

Reference Symbol	Motorola Part No.	Description
		capacitor, fixed:
C178 thru 184	2113741B45	0.01 uF, +/-5%; 50 V
C185	2113740B32	20 pF, +/-5%; 50 V
C186	0811051A13	0.1 uF, +/-5%; 63 V
C187	2113741B45	0.01 uF, +/-5%; 50 V
C188	2113740B57	220 pF, +/-5%; 50 V
C189	2113740B32	20 pF, +/-5%; 50 V
C190	2113741B45	0.01 uF, +/-5%; 50 V
C191	2113740B49	100 pF, +/-5%; 50 V
C192	2113741B45	0.01 uF, +/-5%; 50 V
C193	2311054H08	10 uF, +/-10%; 25V
C194	2311054L14	4.7 uF, +/-10%; 50 V
C195	2113740B49	100 pF, +/-5%; 50 V
C196	2113741B45	0.01 uF, +/-5%; 50 V
C198	2113740B57	220 pF, +/-5%; 50 V
C199	2113740B29	15 pF, +/-5%; 50 V
C201	2113741B45	0.01 uF, +/-5%; 50 V
C202	2113740B36	30 pF, +/-5%; 50V
C203	2113740B32	20 pF, +/-5%; 50 V
C204	2182450B61	1 pF, +/-5%; 500V
C205	2113740B36	30 pF, +/-5%; 50V
C206	2113740B35	27 pF, +/-5%; 50 V
C207 thru 210	2113741B45	0.01 uF, +/-5%; 50 V
C212	2113740B29	15 pF, +/-5%; 50 V
C213	2113741B45	0.01 uF, +/-5%; 50 V
C215	2113740B23	8.2 pF, +/-0.25 pF; 50V
C216	2113741B45	0.01 uF, +/-5%; 50 V
C217	2113740B21	6.8 pF, +/-0.25 pF; 50 V
C218	2113740B23	8.2 pF, +/-0.25 pF; 50V
C219	2113740B47	82 pF, +/-5%; 50V
C220	2182450B08	1.2 pF, +/-5%; 500V
C221	2113740B28	13 pF, +/-5%; 50V
C222	2113740B32	20 pF, +/-5%; 50 V
C223,224	2113741B45	0.01 uF, +/-5%; 50 V
C225	2113740B35	27 pF, +/-5%; 50 V
C226	2113741B45	0.01 uF, +/-5%; 50 V
C227	0811051A13	0.1 uF, +/-5%; 63 V
C228	2113741B45	0.01 uF, +/-5%; 50 V
C229	0811051A13	0.1 uF, +/-5%; 63 V
C230	2113741B45	0.01 uF, +/-5%; 50 V
C231	2113740B36	30 pF, +/-5%; 50V
C232	2113740B23	8.2 pF, +/-0.25 pF; 50V
C234,235	2113740B22	7.5 pF, +/-0.25 pF; 50V
C236	2113740B47	82 pF, +/-5%; 50V
C237	2182450B32	2.7 pF, +/-5%; 500V
C239 thru 243	2113741B45	0.01 uF, +/-5%; 50 V
C244	0811051A13	0.1 uF, +/-5%; 63 V
C245	2113740B37	33 pF, +/-5%; 50V
C246	2113741B45	0.01 uF, +/-5%; 50 V
C247	2113740B21	6.8 pF, +/-0.25 pF; 50 V
C248	2113740B34	24 pF, +/-5%; 50V
C249 thru 254	2113741B45	0.01 uF, +/-5%; 50 V
C255,256	2113740B57	220 pF, +/-5%; 50 V
C257	2311054H08	10 uF, +/-10%; 25V
C258,259	2113741B45	0.01 uF, +/-5%; 50 V
C261	2113740B49	100 pF, +/-5%; 50 V
C262	2113740B09	2.2 pF, +/-0.25 pF; 50 V
C263,264	2113740B49	100 pF, +/-5%; 50 V
C267	2113740B49	100 pF, +/-5%; 50 V
C270	2113740B49	100 pF, +/-5%; 50 V
C272	2113741B45	0.01 uF, +/-5%; 50 V
C274	2113740B73	1000 pF, +/-5%; 50 V
C275	0811051A13	0.1 uF, +/-5%; 63 V
C276	0811017A08	0.01 uF, +/-5%; 50 V
C277	2113740B49	100 pF, +/-5%; 50 V
C278	2113741B45	0.01 uF, +/-5%; 50 V
C279	2313748G18	47 uF, +/-20%; 25 V
C280 thru 282	2113740B49	100 pF, +/-5%; 50 V
C283	2113741B41	6800 pF, +/-5%; 50 V
C284	2313748G18	47 uF, +/-20%; 25 V
C286	2113741B37	4700 pF, +/-5%; 50 V
C288	2183162H09	1000 pF, +/-5%; 25V
C289	2113741B45	0.01 uF, +/-5%; 50 V
C290	2113740B49	100 pF, +/-5%; 50 V
C291	2113741B45	0.01 uF, +/-5%; 50 V
C292	0811051A14	0.15 uF, +/-5%; 63V
C293	0811051A18	0.68 uF, +/-5%; 63V
C294	0811051A11	0.047 uF, +/-5%; 63V
C295,296	2113740B49	100 pF, +/-5%; 50 V
C299	2113740B25	10 pF, +/-5%; 50 V
C300	2113740B49	100 pF, +/-5%; 50 V
C301	2113740B15	3.9 pF, +/-0.25 pF; 50 V
C302	2113740B11	2.7 pF, +/-0.25 pF; 50V
C304	2113740B73	1000 pF, +/-5%; 50 V
C305	2113741B69	0.1 uF, +/-5%; 50 V
C306	2313748G08	10 uF, +/-20%; 16 V
C307	2311054L14	4.7 uF, +/-10%; 50 V
C308	2313748G27	150 uF, +/-20%; 16V
C311	2113740B49	100 pF, +/-5%; 50 V
C313	2113740B49	100 pF, +/-5%; 50 V
C320	2113741B45	0.01 uF, +/-5%; 50 V
C321	2113740B49	100 pF, +/-5%; 50 V
C322	2113740B09	2.2 pF, +/-0.25 pF; 50 V
C323,324	2113740B49	100 pF, +/-5%; 50 V
C327	2113740B49	100 pF, +/-5%; 50 V
C330	2113740B49	100 pF, +/-5%; 50 V
C332	2113741B45	0.01 uF, +/-5%; 50 V
C334	2113740B73	1000 pF, +/-5%; 50 V
C335	0811051A13	0.1 uF, +/-5%; 63 V
C336	0811017A08	0.01 uF, +/-5%; 50 V
C337	2113740B49	100 pF, +/-5%; 50 V
C338	2113741B45	0.01 uF, +/-5%; 50 V
C339	2313748G18	47 uF, +/-20%; 25 V
C340 thru 342	2113740B49	100 pF, +/-5%; 50 V
C343	2113741B41	6800 pF, +/-5%; 50 V
C344	2313748G18	47 uF, +/-20%; 25 V
C346	2113741B37	4700 pF, +/-5%; 50 V
C348	2183162H09	1000 pF, +/-5%; 25V
C349	2113741B45	0.01 uF, +/-5%; 50 V
C350	2113740B49	100 pF, +/-5%; 50 V
C351	2113741B45	0.01 uF, +/-5%; 50 V
C352	2311054L02	0.47 uF, +/-10%; 50 V
C353	0883862M02	2 uF, +/-10%; 100 V
C354	0811051A09	0.022 uF, +/-5%; 63 V
C355 thru 358	2113740B49	100 pF, +/-5%; 50 V
C359	2113741B69	0.1 uF, +/-5%; 50 V
C360	2313748G08	10 uF, +/-20%; 16 V
C361	2311054L14	4.7 uF, +/-10%; 50 V
C362,363	2313748G18	47 uF, +/-20%; 25 V
C364	2313748G08	10 uF, +/-20%; 16 V
C365,366	2311054H08	10 uF, +/-10%; 25V
C367	2113741B45	0.01 uF, +/-5%; 50 V
C368	2313748G08	10 uF, +/-20%; 16 V
C369	2313748G22	100 uF, +/-20%; 25 V
C371	2113740B49	100 pF, +/-5%; 50 V
C372	2113741B45	0.01 uF, +/-5%; 50 V
C373	2113740B69	680 pF, +/-5%; 50V
C384	2113740B73	1000 pF, +/-5%; 50 V
C385	2113741B45	0.01 uF, +/-5%; 50 V
C387	0811051A16	0.33 uF, +/-5%; 63V
C388	2113740B49	100 pF, +/-5%; 50 V
C390	2113741B45	0.01 uF, +/-5%; 50 V
C405	2311054L04	0.68 uF, +/-10%; 50 V
C406	2311054L06	1 uF, +/-10%; 50 V
C408	0811017A03	2200 pF, +/-5%; 50 V
C409	2311054L04	0.68 uF, +/-10%; 50 V
C410	2113740B49	100 pF, +/-5%; 50 V
C411	0811051A13	0.1 uF, +/-5%; 63 V
C412	2313748G16	47 uF, +/-20%; 10 V
C414	2113740B49	100 pF, +/-5%; 50 V
		diode: (see note)
CR180,181	4805129M41	Rectifier
CR182	4813833C07	Diode, dual 100 W

TRN7197 Uniboard Parts List

Reference Symbol	Motorola Part No.	Description
CR401	4883654H01	silicon
CR404	4813833C10	0.1A, 70V
CR405	4883654H01	silicon
CR406,407	4813833C10	0.1A, 70V
CR408	4883654H01	silicon
CR409	4813833C10	0.1A, 70V
CR411	4883654H01	silicon
		shield:
E201 thru 207	2683696R01	SHIELD, coil
E208	2684971R01	SHIELD CAN
E209	2683697R01	SHIELD, crystal
E210	2683121N03	SHIELD, can: transmitter
E213	2684971R01	SHIELD CAN
E265	2683120N01	SHIELD, can: 18.42x47.63x26.67MM
E322	2683122N04	Shield, can: 12.45 x 13.34 x 20.32MM
E326	2683120N02	SHLD CKT BD TOP
E328	2684397N01	SHLD SLDR SIDE XMTR
		connector:
J210	0983112N02	receptacle: 8-contact
J264C	0180730E03	receiver VCO steering
J324C	0180730E02	transmitter VCO steering
J381	0983109N06	receptacle: 2-contact
J413	0983112N02	receptacle: 8-contact
		inductor:
L180,181	2411047B58	24 UH
L182	2484250D03	CHK RF 2.2UH
L201	2411047B23	0.82 uH
L202	2411047C31	CHK RF MLD A/I 1.8UH 3
L203	2411047C37	CHK RF MLD A/I 3.3UH 3
L205	2411047C37	CHK RF MLD A/I 3.3UH 3
L207	2411047C31	CHK RF MLD A/I 1.8UH 3
L208	2411047B58	24 UH
L209	2411047C31	CHK RF MLD A/I 1.8UH 3
L211	2411047C31	CHK RF MLD A/I 1.8UH 3
L213,214	2411047B58	24 UH
L215,216	2411047C31	CHK RF MLD A/I 1.8UH 3
L217	2484250D03	CHK RF 2.2UH
L218	2411047C31	CHK RF MLD A/I 1.8UH 3
L261	2411030A06	7 turns
L262	2411030A02	3 turns
L263	2411047B11	0.27 UH
L266 thru 268	2411047A26	12 uH
L275	2411047A26	12 uH
L276	2411030A06	7 turns
L278,279	2411047B23	0.82 uH
L321	2411030A06	7 turns
L322	2411030A02	3 turns
L323	2411047B11	0.27 UH
L326,327	2411047A26	12 uH
L328	2411047B11	0.27 UH
L329	2411030A03	4 turns
L330,331	2411047A26	12 uH
L332	2411030A04	Coil, rf 5turns GRN
		connector:
P101	3084158N01	CABLE ASSEMBLY, injection amplifier input: includes single contact receptacle co
P201A	0983109N07	receptacle: 4-contact
P262A	0983110N01	receptacle: 14-contact
P322A	0983110N01	receptacle: 14-contact
P402A	0983110N01	receptacle: 14-contact
P454A	0983109N07	receptacle: 4-contact
		transistor: (see note)
Q180	4800869839	N-C Type
Q201	4883865T01	Field Effect N-Channel Dual Gate
Q203	4811056A08	PNP
Q261	4884411L83	NPN
Q262	4813824D10	PNP
Q263	4811056A08	PNP
Q264	4811056B04	NPN 4811056A04
Q265	4800869681	PNP
Q321	4884411L83	NPN
Q322	4813824D10	PNP
Q323	4811056A08	PNP
Q324	4811056B04	NPN 4811056A04
Q325	4800869681	PNP
Q326	4884411L83	NPN
Q327	4813823D01	TSTR N-CH RF JFET 2N5484RLRP
Q401	4811056A08	PNP
Q402	4813824A10	NPN
Q403	4800869640	NPN
Q404,405	4800869528	NPN
Q406	4813824A10	NPN
		resistor, fixed:
R180,181	0611077A90	4.7K, +/-5%; 1/8 W
R182	0611077A74	1K, +/-5%; 1/8 W
R183	0611077A62	330 ohms, +/-5%; 1/8W
R184,185	0611077A90	4.7K, +/-5%; 1/8 W
R186,187	0611077B39	470K, +/-5%; 1/8 W
R188,189	0611077B23	100K, +/-5%; 1/8 W
R190	0611077B05	18K, +/-5%; 1/8 W
R191	1882281V01	POT 9MM ROUND SNGL TURN 3319P
R192	0611077A74	1K, +/-5%; 1/8 W
R193	0611077B23	100K, +/-5%; 1/8 W
R194	0611077A50	100 ohms, +/-5%; 1/8 W
R196	0611077A98	10K, +/-5%; 1/8 W
R197	0611077B23	100K, +/-5%; 1/8 W
R198	0611077A98	10K, +/-5%; 1/8 W
R199	0611077B23	100K, +/-5%; 1/8 W
R200	0611077A90	4.7K, +/-5%; 1/8 W
R201	0611077B15	47K, +/-5%; 1/8 W
R202	0611077A88	3.9K, +/-5%; 1/8 W
R203	0611077A50	100 ohms, +/-5%; 1/8 W
R204,205	0611077A98	10K, +/-5%; 1/8 W
R206	0611077A42	47 ohms, +/-5%; 1/8 W
R207	0611077A73	910 ohms, +/-5%; 1/8W
R208	0611077A96	8.2K, +/-5%; 1/8 W
R209	0611077A48	82 ohms, +/-5%; 1/8W
R210	0611077A96	8.2K, +/-5%; 1/8 W
R211	0611077A74	1K, +/-5%; 1/8 W
R212	0611077A90	4.7K, +/-5%; 1/8 W
R214	0611077A74	1K, +/-5%; 1/8 W
R215	0611077A94	6.8K, +/-5%; 1/8W
R216	0611077A50	100 ohms, +/-5%; 1/8 W
R217	0611077A94	6.8K, +/-5%; 1/8W
R218,219	0611077A74	1K, +/-5%; 1/8 W
R220	0611077A70	680 ohms, +/-5%; 1/8 W
R221	0611077A60	270 ohms, +/-5%; 1/8 W
R222	0611077A72	820 ohms, +/-5%; 1/8 W
R223	0611077B29	180K, +/-5%; 1/8 W
R224	0611077B23	100K, +/-5%; 1/8 W
R225	0611077A74	1K, +/-5%; 1/8 W
R226	0611077B05	18K, +/-5%; 1/8 W
R227	0611077A72	820 ohms, +/-5%; 1/8 W
R228	0611077A58	220 ohms, +/-5%; 1/8 W
R229	0611077B15	47K, +/-5%; 1/8 W
R230	0611077A90	4.7K, +/-5%; 1/8 W
R257	0611077A58	220 ohms, +/-5%; 1/8 W
R258	0611077A35	24 ohms, +/-5%; 1/8 W
R259	0611077A58	220 ohms, +/-5%; 1/8 W
R260	0611077B13	39K, +/-5%; 1/8 W
R261	0611077A81	2K, +/-5%; 1/8 W
R262	0611077A84	2.7K, +/-5%; 1/8 W
R263	0611077A78	1.5K, +/-5%; 1/8 W
R270	0611077A90	4.7K, +/-5%; 1/8 W
R271	0611077A66	470 ohms, +/-5%; 1/8 W
R272	0611077A42	47 ohms, +/-5%; 1/8 W
R273	0611077A92	5.6K, +/-5%; 1/8 W
R274	0611077A90	4.7K, +/-5%; 1/8 W
R275	0611077A26	10 ohms, +/-5%; 1/8 W
R276	0611077A54	150 ohms, +/-5%; 1/8 W
R277	0611077A64	390 ohms, +/-5%; 1/8 W
R278	0611077A58	220 ohms, +/-5%; 1/8 W
R279	0611077B15	47K, +/-5%; 1/8 W
R280	0611077A26	10 ohms, +/-5%; 1/8 W
R283	0611077B25	120K, +/-5%; 1/8 W
R284	0611077B30	200K, +/-5%; 1/8 W
R285	0611077A92	5.6K, +/-5%; 1/8 W

Reference Symbol	Motorola Part No.	Description
R286	0611077A86	3.3K, +/-5%; 1/8 W
R292	0611077A01	0 ohm, +/-5%; 0 W
R295	0611077B25	120K, +/-5%; 1/8 W
R317	0611077A58	220 ohms, +/-5%; 1/8 W
R318	0611077A35	24 ohms, +/-5%; 1/8 W
R319	0611077A58	220 ohms, +/-5%; 1/8 W
R320	0611077B13	39K, +/-5%; 1/8 W
R321	0611077A81	2K, +/-5%; 1/8 W
R322	0611077A84	2.7K, +/-5%; 1/8 W
R323	0611077A78	1.5K, +/-5%; 1/8 W
R330	0611077A90	4.7K, +/-5%; 1/8 W
R331	0611077A66	470 ohms, +/-5%; 1/8 W
R332	0611077A42	47 ohms, +/-5%; 1/8 W
R333,334	0611077A90	4.7K, +/-5%; 1/8 W
R335	0611077A26	10 ohms, +/-5%; 1/8 W
R336	0611077A54	150 ohms, +/-5%; 1/8 W
R337	0611077A72	820 ohms, +/-5%; 1/8 W
R338	0611077A58	220 ohms, +/-5%; 1/8 W
R339	0611077B15	47K, +/-5%; 1/8 W
R340	0611077A26	10 ohms, +/-5%; 1/8 W
R343	0611009B10	330K, +/-5%; 1/4 W
R344	0611077B30	200K, +/-5%; 1/8 W
R345	0611077A92	5.6K, +/-5%; 1/8 W
R346	0611009A61	3.3K, +/-5%; 1/4 W
R347	0611077A36	27 ohms, +/-5%; 1/8 W
R348	0611077A81	2K, +/-5%; 1/8 W
R349	0611077A40	39 ohms, +/-5%; 1/8 W
R350	0611077A36	27 ohms, +/-5%; 1/8 W
R351	0611077A92	5.6K, +/-5%; 1/8 W
R352	0611077A83	2.4K, +/-5%; 1/8 W
R353	0611077A60	270 ohms, +/-5%; 1/8 W
R354	0611077A78	1.5K, +/-5%; 1/8 W
R357	0611077B18	62K, +/-5%; 1/8 W
R358	1882281V01	POT 9MM ROUND SNGL TURN 3319P
R359	0611077A66	470 ohms, +/-5%; 1/8 W
R360	0611009A99	120K, +/-5%; 1/4W
R361	0611009A92	62K, +/-5%; 1/4W
R362	0611009A99	120K, +/-5%; 1/4W
R363	0611077A57	200 ohms, +/-5%; 1/8 W
R364	0611009A33	220 ohms, +/-5%; 1/4 W
R365	0611009A17	47 ohms, +/-5%; 1/4W
R366	0611009A73	10K, +/-5%; 1/4 W
R367	0611009A75	12K, +/-5%; 1/4W
R368	0611009A73	10K, +/-5%; 1/4 W
R369	0611077A96	8.2K, +/-5%; 1/8 W
R370	0611077B25	120K, +/-5%; 1/8 W
R371	0611077A90	4.7K, +/-5%; 1/8 W
R372,373	0611009A73	10K, +/-5%; 1/4 W
R374	0611009A99	120K, +/-5%; 1/4W
R375	0611077A01	0 ohm, +/-5%; 0 W
R386	0611077A01	0 ohm, +/-5%; 0 W
R401	0611077B03	15K, +/-5%; 1/8 W
R403	0611077A34	22 ohms, +/-5%; 1/8 W
R409	1882281V01	POT 9MM ROUND SNGL TURN 3319P
R410	0611077F91	10K, +/-1%; 1/8 W
R411	0611077A01	0 ohm, +/-5%; 0 W
R415	0611049D24	21.5K, +/-1%; 1/4 W
R417	0611077A90	4.7K, +/-5%; 1/8 W
R418	0611077B23	100K, +/-5%; 1/8 W
R419	0611009A42	510 ohms, +/-5%; 1/4 W
R420	0611077A01	0 ohm, +/-5%; 0 W
R421	0611009A66	5.1K, +/-5%; 1/4 W
R423	0611077A90	4.7K, +/-5%; 1/8 W
R424	0611077A98	10K, +/-5%; 1/8 W
R425	0611077A94	6.8K, +/-5%; 1/8W
R426	1882281V02	POT 9MM ROUND SNGL TURN 3319W
R427	0611077A74	1K, +/-5%; 1/8 W
R429	0611009A57	2.2K, +/-5%; 1/4 W
R430	0611077B23	100K, +/-5%; 1/8 W
R431	0611077B07	22K, +/-5%; 1/8 W
R432	0611077B19	68K, +/-5%; 1/8W
R433,434	0611077A98	10K, +/-5%; 1/8 W
R435	0611077B07	22K, +/-5%; 1/8 W
R436	0611077A91	5.1K, +/-5%; 1/8 W
R437	0611009A57	2.2K, +/-5%; 1/4 W
R438,439	0611077B43	680K, +/-5%; 1/8 W
R440	0611009A65	4.7K, +/-5%; 1/4 W
R441	0611009A73	10K, +/-5%; 1/4 W
R442	0611077A94	6.8K, +/-5%; 1/8W
R443	0611009B18	680K, +/-5%; 1/4 W
R444	0611009B06	220K, +/-5%; 1/4 W
R445,446	0611077A90	4.7K, +/-5%; 1/8 W
R447,448	0611077A98	10K, +/-5%; 1/8 W
R449	0611077B31	220K, +/-5%; 1/8 W
R450	0611009A09	22 ohms, +/-5%; 1/4 W
R451	0611077B07	22K, +/-5%; 1/8 W
R453	1882281V01	POT 9MM ROUND SNGL TURN 3319P
R460	0611077B23	100K, +/-5%; 1/8 W
R462	0611077A88	3.9K, +/-5%; 1/8 W
R463	0611077B45	820K, +/-5%; 1/8 W
R464	0611077B23	100K, +/-5%; 1/8 W
R467	0611009A49	1K, +/-5%; 1/4 W
		thermistor:
RT261	0600858402	1K, +/-10%; 0 W
RT321	0600858402	1K, +/-10%; 0 W
		integrated circuit: (see note)
U180	5113815D23	IC AGC/RF VIDEO AMP DL SUP
U181	5184320A13	Operational Amplifier
U182	5113819D04	General Purpose Differential Operational Amplifier
U201	5113815D23	IC AGC/RF VIDEO AMP DL SUP
U202	5184320A78	IF Amplifier/Quadrature Phase Detector
U203	5113815D23	IC AGC/RF VIDEO AMP DL SUP
U262	5183977M37	Programmable Reference Divider
U263	5183977M36	Sample and Hold Phase Detector
U264	5113806D21	analog switching multiplexer
U265	5184768F65	Low Noise Filter
U322	5183977M37	Programmable Reference Divider
U323	5183977M36	Sample and Hold Phase Detector
U324	5113806D21	analog switching multiplexer
U325	5184768F65	Low Noise Filter
U326	5113819D04	General Purpose Differential Operational Amplifier
U401	5184621K74	Comparator
U402	5184621K89	Dual Operational Amplifier
		cable assembly:
W102	0180751D84	injection input
W103	0180721E56	VCO Out
W105	0180798D03	IPA Input
W106	0180721E56	VCO Out
		crystal: (see note)
Y201	9182673N05	FLTR XTAL
Y202	9182673N06	FLTR XTAL
Y204	9182673N07	FLTR XTAL
		non-referenced items:
	0500136977	Eye .121 x .093
	1485334U01	INSULATOR RUBBER (SILICON) (6 used)
	1583142M01	HOUSING, connector: 7-contact (2 used)
	1584301K03	HOUSING, connector: 5-contact (2 used)
	2682172T01	SHIELD SLDR SIDE (used with E212)
	2683681R01	SHIELD, solder side: 9.65x57.10x38.10MM (used with E211)
	2813922A07	HDR 7 POS STR .1 CTR GLD PLTD (used with J264C)
	2813922A07	HDR 7 POS STR .1 CTR GLD PLTD (used with J324C)
	2882365D02	plug: phono (2 used)
	2884302K01	Plug Key, polarized
	2980014A01	CLIP, coaxial (terminal) (used with W102)
	2980014A01	CLIP, coaxial (terminal) (used with W103)
	2980014A01	CLIP, coaxial (terminal) (used with W105)
	2980014A01	CLIP, coaxial (terminal) (used with W106)

TRN7197 Uniboard Parts List

Reference Symbol	Motorola Part No.	Description
	3000859004	CABLE, coaxial: type RG316/U (15.38 used)
	3010286B09	24STIVVI (2.76 used)
	3084204N01	CABLE, 4-conductor (11 used)
	3700132049	TBG HS POLYOL 1/4 CLR
	3700132251	tubing polyol. 3/16" (blk) (0.75 used)
	3700132562	TBG HS POLYOL 1/8 CLR (0.38 used)
	3782603D60	SLVG HS POLYOL .125 BLK BLANK (2 used)
	3982717M01	CONTACT, receptacle (18 used)
	4284011N01	CLIP, coaxial cable restraint (2 used)
	5483865R01	Label, bar code: 1/4" wide, white
	5484960T01	Label, bar code: 6.3 x 12.7MM, white
	5584300B01	HANDLE: 3.52" lg (2 used)
	5584300B05	HANDLE: 1.37" lg (used with E211)
	5584300B05	HANDLE: 1.37" lg (used with E212)

Note: For optimum performance, diodes, transistors, integrated circuits, and crystals must be ordered by Motorola part number.

Reference Symbol	Motorola Part No.	Description

TRN7881 Uniboard Parts List

Reference Symbol	Motorola Part No.	Description
		capacitor, fixed:
C178 thru 184	2113741B45	0.01 uF, +/-5%; 50 V
C185	2113740B32	20 pF, +/-5%; 50 V
C186	0811051A13	0.1 uF, +/-5%; 63 V
C187	2113741B45	0.01 uF, +/-5%; 50 V
C188	2113740B57	220 pF, +/-5%; 50 V
C189	2113740B32	20 pF, +/-5%; 50 V
C190	2113741B45	0.01 uF, +/-5%; 50 V
C191	2113740B49	100 pF, +/-5%; 50 V
C192	2113741B45	0.01 uF, +/-5%; 50 V
C193	2311054H08	10 uF, +/-10%; 25V
C194	2311054L14	4.7 uF, +/-10%; 50 V
C195	2113740B49	100 pF, +/-5%; 50 V
C196	2113741B45	0.01 uF, +/-5%; 50 V
C198	2113740B57	220 pF, +/-5%; 50 V
C199	2113740B29	15 pF, +/-5%; 50 V
C201	2113741B45	0.01 uF, +/-5%; 50 V
C202	2113740B36	30 pF, +/-5%; 50V
C203	2113740B32	20 pF, +/-5%; 50 V
C204	2182450B61	1 pF, +/-5%; 500V
C205	2113740B36	30 pF, +/-5%; 50V
C206	2113740B35	27 pF, +/-5%; 50 V
C207 thru 210	2113741B45	0.01 uF, +/-5%; 50 V
C212	2113740B29	15 pF, +/-5%; 50 V
C213	2113741B45	0.01 uF, +/-5%; 50 V
C215	2113740B23	8.2 pF, +/-0.25 pF; 50V
C216	2113741B45	0.01 uF, +/-5%; 50 V
C217	2113740B21	6.8 pF, +/-0.25 pF; 50 V
C218	2113740B23	8.2 pF, +/-0.25 pF; 50V
C219	2113740B47	82 pF, +/-5%; 50V
C220	2182450B08	1.2 pF, +/-5%; 500V
C221	2113740B28	13 pF, +/-5%; 50V
C222	2113740B32	20 pF, +/-5%; 50 V
C223,224	2113741B45	0.01 uF, +/-5%; 50 V
C225	2113740B35	27 pF, +/-5%; 50 V
C226	2113741B45	0.01 uF, +/-5%; 50 V
C227	0811051A13	0.1 uF, +/-5%; 63 V
C228	2113741B45	0.01 uF, +/-5%; 50 V
C229	0811051A13	0.1 uF, +/-5%; 63 V
C230	2113741B45	0.01 uF, +/-5%; 50 V
C231	2113740B36	30 pF, +/-5%; 50V
C232	2113740B23	8.2 pF, +/-0.25 pF; 50V
C234,235	2113740B22	7.5 pF, +/-0.25 pF; 50V
C236	2113740B47	82 pF, +/-5%; 50V
C237	2182450B32	2.7 pF, +/-5%; 500V
C239 thru 243	2113741B45	0.01 uF, +/-5%; 50 V
C244	0811051A13	0.1 uF, +/-5%; 63 V
C245	2113740B37	33 pF, +/-5%; 50V
C246	2113741B45	0.01 uF, +/-5%; 50 V
C247	2113740B21	6.8 pF, +/-0.25 pF; 50 V
C248	2113740B34	24 pF, +/-5%; 50V
C249 thru 254	2113741B45	0.01 uF, +/-5%; 50 V
C255,256	2113740B57	220 pF, +/-5%; 50 V
C257	2311054H08	10 uF, +/-10%; 25V
C258,259	2113741B45	0.01 uF, +/-5%; 50 V
C261	2113740B49	100 pF, +/-5%; 50 V
C262	2113740B09	2.2 pF, +/-0.25 pF; 50 V
C263,264	2113740B49	100 pF, +/-5%; 50 V
C267	2113740B49	100 pF, +/-5%; 50 V
C270	2113740B49	100 pF, +/-5%; 50 V
C272	2113741B45	0.01 uF, +/-5%; 50 V
C274	2113740B73	1000 pF, +/-5%; 50 V
C275	0811051A13	0.1 uF, +/-5%; 63 V
C276	0811017A08	0.01 uF, +/-5%; 50 V
C277	2113740B49	100 pF, +/-5%; 50 V
C278	2113741B45	0.01 uF, +/-5%; 50 V
C279	2313748G18	47 uF, +/-20%; 25 V
C280 thru 282	2113740B49	100 pF, +/-5%; 50 V
C283	2113741B41	6800 pF, +/-5%; 50 V
C284	2313748G18	47 uF, +/-20%; 25 V
C286	2113741B37	4700 pF, +/-5%; 50 V
C288	2183162H09	1000 pF, +/-5%; 25V
C289	2113741B45	0.01 uF, +/-5%; 50 V
C290	2113740B49	100 pF, +/-5%; 50 V
C291	2113741B45	0.01 uF, +/-5%; 50 V
C292	0811051A14	0.15 uF, +/-5%; 63V
C293	0811051A18	0.68 uF, +/-5%; 63V
C294	0811051A11	0.047 uF, +/-5%; 63V
C295,296	2113740B49	100 pF, +/-5%; 50 V
C299	2113740B25	10 pF, +/-5%; 50 V
C300	2113740B49	100 pF, +/-5%; 50 V
C301	2113740B15	3.9 pF, +/-0.25 pF; 50 V
C302	2113740B11	2.7 pF, +/-0.25 pF; 50V
C304	2113740B73	1000 pF, +/-5%; 50 V
C305	2113741B69	0.1 uF, +/-5%; 50 V
C306	2313748G08	10 uF, +/-20%; 16 V
C307	2311054L14	4.7 uF, +/-10%; 50 V
C308	2313748G27	150 uF, +/-20%; 16V
C311	2113740B49	100 pF, +/-5%; 50 V
C313	2113740B49	100 pF, +/-5%; 50 V
C320	2113741B45	0.01 uF, +/-5%; 50 V
C321	2113740B49	100 pF, +/-5%; 50 V
C322	2113740B09	2.2 pF, +/-0.25 pF; 50 V
C323,324	2113740B49	100 pF, +/-5%; 50 V
C327	2113740B49	100 pF, +/-5%; 50 V
C330	2113740B49	100 pF, +/-5%; 50 V
C332	2113741B45	0.01 uF, +/-5%; 50 V
C334	2113740B73	1000 pF, +/-5%; 50 V
C335	0811051A13	0.1 uF, +/-5%; 63 V
C336	0811017A08	0.01 uF, +/-5%; 50 V
C337	2113740B49	100 pF, +/-5%; 50 V
C338	2113741B45	0.01 uF, +/-5%; 50 V
C339	2313748G18	47 uF, +/-20%; 25 V
C340 thru 342	2113740B49	100 pF, +/-5%; 50 V
C343	2113741B41	6800 pF, +/-5%; 50 V
C344	2313748G18	47 uF, +/-20%; 25 V
C346	2113741B37	4700 pF, +/-5%; 50 V
C348	2183162H09	1000 pF, +/-5%; 25V
C349	2113741B45	0.01 uF, +/-5%; 50 V
C350	2113740B49	100 pF, +/-5%; 50 V
C351	2113741B45	0.01 uF, +/-5%; 50 V
C352	2311054L02	0.47 uF, +/-10%; 50 V
C353	0883862M02	2 uF, +/-10%; 100 V
C354	0811051A09	0.022 uF, +/-5%; 63 V
C355 thru 358	2113740B49	100 pF, +/-5%; 50 V
C359	2113741B69	0.1 uF, +/-5%; 50 V
C360	2313748G08	10 uF, +/-20%; 16 V
C361	2311054L14	4.7 uF, +/-10%; 50 V
C362,363	2313748G18	47 uF, +/-20%; 25 V
C364	2313748G08	10 uF, +/-20%; 16 V
C365,366	2311054H08	10 uF, +/-10%; 25V
C367	2113741B45	0.01 uF, +/-5%; 50 V
C368	2313748G08	10 uF, +/-20%; 16 V
C369	2313748G22	100 uF, +/-20%; 25 V
C371	2113740B49	100 pF, +/-5%; 50 V
C372	2113741B45	0.01 uF, +/-5%; 50 V
C373	2113740B69	680 pF, +/-5%; 50V
C384	2113740B73	1000 pF, +/-5%; 50 V
C385	2113741B45	0.01 uF, +/-5%; 50 V
C387	0811051A16	0.33 uF, +/-5%; 63V
C388	2113740B49	100 pF, +/-5%; 50 V
C390	2113741B45	0.01 uF, +/-5%; 50 V
C405	2311054L04	0.68 uF, +/-10%; 50 V
C406	2311054L06	1 uF, +/-10%; 50 V
C408	0811017A03	2200 pF, +/-5%; 50 V
C409	2311054L04	0.68 uF, +/-10%; 50 V
C410	2113740B49	100 pF, +/-5%; 50 V
C411	0811051A13	0.1 uF, +/-5%; 63 V
C412	2313748G16	47 uF, +/-20%; 10 V
C414	2113740B49	100 pF, +/-5%; 50 V
		diode: (see note)
CR180,181	4805129M41	Rectifier
CR182	4813833C07	Diode, dual 100 W

TRN7881 Uniboard Parts List

Reference Symbol	Motorola Part No.	Description
CR401	4883654H01	silicon
CR404	4813833C10	0.1A, 70V
CR405	4883654H01	silicon
CR406,407	4813833C10	0.1A, 70V
CR408	4883654H01	silicon
CR409	4813833C10	0.1A, 70V
CR411	4883654H01	silicon
		shield:
E201 thru 207	2683696R01	SHIELD, coil
E208	2684971R01	SHIELD CAN
E209	2683697R01	SHIELD, crystal
E210	2683121N03	SHIELD, can: transmitter
E213	2684971R01	SHIELD CAN
E265	2683120N01	SHIELD, can: 18.42x47.63x26.67MM
E322	2683122N04	Shield, can: 12.45 x 13.34 x 20.32MM
E326	2683120N02	SHLD CKT BD TOP
E328	2684397N01	SHLD SLDR SIDE XMTR
		connector:
J202	3084897T01	COAX ASSEM RSSI
J210	0983112N02	receptacle: 8-contact
J264C	0180730E03	receiver VCO steering
J324C	0180730E02	transmitter VCO steering
J381	0983109N06	receptacle: 2-contact
J413	0983112N02	receptacle: 8-contact
		inductor:
L180,181	2411047B58	24 UH
L182	2484250D03	CHK RF 2.2UH
L201	2411047B23	0.82 uH
L202	2411047C31	CHK RF MLD A/I 1.8UH 3
L203	2411047C37	CHK RF MLD A/I 3.3UH 3
L205	2411047C37	CHK RF MLD A/I 3.3UH 3
L207	2411047C31	CHK RF MLD A/I 1.8UH 3
L208	2411047B58	24 UH
L209	2411047C31	CHK RF MLD A/I 1.8UH 3
L211	2411047C31	CHK RF MLD A/I 1.8UH 3
L213,214	2411047B58	24 UH
L215,216	2411047C31	CHK RF MLD A/I 1.8UH 3
L217	2484250D03	CHK RF 2.2UH
L218	2411047C31	CHK RF MLD A/I 1.8UH 3
L261	2411030A06	7 turns
L262	2411030A02	3 turns
L263	2411047B11	0.27 UH
L266 thru 268	2411047A26	12 uH
L275	2411047A26	12 uH
L276	2411030A06	7 turns
L278,279	2411047B23	0.82 uH
L321	2411030A06	7 turns
L322	2411030A02	3 turns
L323	2411047B11	0.27 UH
L326,327	2411047A26	12 uH
L328	2411047B11	0.27 UH
L329	2411030A03	4 turns
L330,331	2411047A26	12 uH
L332	2411030A04	Coil, rf 5turns GRN
		connector:
P101	3084158N01	CABLE ASSEMBLY, injection amplifier input: includes single contact receptacle co
P201A	0983109N07	receptacle: 4-contact
P262A	0983110N01	receptacle: 14-contact
P322A	0983110N01	receptacle: 14-contact
P402A	0983110N01	receptacle: 14-contact
P454A	0983109N07	receptacle: 4-contact
		transistor: (see note)
Q180	4800869839	N-C Type
Q201	4883865T01	Field Effect N-Channel Dual Gate
Q203	4811056A08	PNP
Q261	4884411L83	NPN
Q262	4813824D10	PNP
Q263	4811056A08	PNP
Q264	4811056B04	NPN 4811056A04
Q265	4800869681	PNP

Reference Symbol	Motorola Part No.	Description
Q321	4884411L83	NPN
Q322	4813824D10	PNP
Q323	4811056A08	PNP
Q324	4811056B04	NPN 4811056A04
Q325	4800869681	PNP
Q326	4884411L83	NPN
Q327	4813823D01	TSTR N-CH RF JFET 2N5484RLRP
Q401	4811056A08	PNP
Q402	4813824A10	NPN
Q403	4800869640	NPN
Q404,405	4800869528	NPN
Q406	4813824A10	NPN
		resistor, fixed:
R180,181	0611077A90	4.7K, +/-5%; 1/8 W
R182	0611077A74	1K, +/-5%; 1/8 W
R183	0611077A62	330 ohms, +/-5%; 1/8W
R184,185	0611077A90	4.7K, +/-5%; 1/8 W
R186,187	0611077B39	470K, +/-5%; 1/8 W
R188,189	0611077B23	100K, +/-5%; 1/8 W
R190	0611077B05	18K, +/-5%; 1/8 W
R191	1882281V01	POT 9MM ROUND SNGL TURN 3319P
R192	0611077A74	1K, +/-5%; 1/8 W
R193	0611077B23	100K, +/-5%; 1/8 W
R194	0611077A50	100 ohms, +/-5%; 1/8 W
R196	0611077A98	10K, +/-5%; 1/8 W
R197	0611077B23	100K, +/-5%; 1/8 W
R198	0611077A98	10K, +/-5%; 1/8 W
R199	0611077B23	100K, +/-5%; 1/8 W
R200	0611077A90	4.7K, +/-5%; 1/8 W
R201	0611077B15	47K, +/-5%; 1/8 W
R202	0611077A88	3.9K, +/-5%; 1/8 W
R203	0611077A50	100 ohms, +/-5%; 1/8 W
R204,205	0611077A98	10K, +/-5%; 1/8 W
R206	0611077A42	47 ohms, +/-5%; 1/8 W
R207	0611077A73	910 ohms, +/-5%; 1/8W
R208	0611077A96	8.2K, +/-5%; 1/8 W
R209	0611077A48	82 ohms, +/-5%; 1/8W
R210	0611077A96	8.2K, +/-5%; 1/8 W
R211	0611077A74	1K, +/-5%; 1/8 W
R212	0611077A90	4.7K, +/-5%; 1/8 W
R214	0611077A74	1K, +/-5%; 1/8 W
R215	0611077A94	6.8K, +/-5%; 1/8W
R216	0611077A50	100 ohms, +/-5%; 1/8 W
R217	0611077A94	6.8K, +/-5%; 1/8W
R218,219	0611077A74	1K, +/-5%; 1/8 W
R220	0611077A70	680 ohms, +/-5%; 1/8 W
R221	0611077A60	270 ohms, +/-5%; 1/8 W
R222	0611077A72	820 ohms, +/-5%; 1/8 W
R223	0611077B29	180K, +/-5%; 1/8 W
R224	0611077B23	100K, +/-5%; 1/8 W
R225	0611077A74	1K, +/-5%; 1/8 W
R226	0611077B05	18K, +/-5%; 1/8 W
R227	0611077A72	820 ohms, +/-5%; 1/8 W
R228	0611077A58	220 ohms, +/-5%; 1/8 W
R229	0611077B15	47K, +/-5%; 1/8 W
R230	0611077A90	4.7K, +/-5%; 1/8 W
R257	0611077A58	220 ohms, +/-5%; 1/8 W
R258	0611077A35	24 ohms, +/-5%; 1/8 W
R259	0611077A58	220 ohms, +/-5%; 1/8 W
R260	0611077B13	39K, +/-5%; 1/8 W
R261	0611077A81	2K, +/-5%; 1/8 W
R262	0611077A84	2.7K, +/-5%; 1/8 W
R263	0611077A78	1.5K, +/-5%; 1/8 W
R270	0611077A90	4.7K, +/-5%; 1/8 W
R271	0611077A66	470 ohms, +/-5%; 1/8 W
R272	0611077A42	47 ohms, +/-5%; 1/8 W
R273	0611077A92	5.6K, +/-5%; 1/8 W
R274	0611077A90	4.7K, +/-5%; 1/8 W
R275	0611077A26	10 ohms, +/-5%; 1/8 W
R276	0611077A54	150 ohms, +/-5%; 1/8 W
R277	0611077A64	390 ohms, +/-5%; 1/8 W
R278	0611077A58	220 ohms, +/-5%; 1/8 W
R279	0611077B15	47K, +/-5%; 1/8 W
R280	0611077A26	10 ohms, +/-5%; 1/8 W
R283	0611077B25	120K, +/-5%; 1/8 W
R284	0611077B30	200K, +/-5%; 1/8 W

Reference Symbol	Motorola Part No.	Description
R285	0611077A92	5.6K, +/-5%; 1/8 W
R286	0611077A86	3.3K, +/-5%; 1/8 W
R292	0611077A01	0 ohm, +/-5%; 0 W
R295	0611077B25	120K, +/-5%; 1/8 W
R317	0611077A58	220 ohms, +/-5%; 1/8 W
R318	0611077A35	24 ohms, +/-5%; 1/8 W
R319	0611077A58	220 ohms, +/-5%; 1/8 W
R320	0611077B13	39K, +/-5%; 1/8 W
R321	0611077A81	2K, +/-5%; 1/8 W
R322	0611077A84	2.7K, +/-5%; 1/8 W
R323	0611077A78	1.5K, +/-5%; 1/8 W
R330	0611077A90	4.7K, +/-5%; 1/8 W
R331	0611077A66	470 ohms, +/-5%; 1/8 W
R332	0611077A42	47 ohms, +/-5%; 1/8 W
R333,334	0611077A90	4.7K, +/-5%; 1/8 W
R335	0611077A26	10 ohms, +/-5%; 1/8 W
R336	0611077A54	150 ohms, +/-5%; 1/8 W
R337	0611077A72	820 ohms, +/-5%; 1/8 W
R338	0611077A58	220 ohms, +/-5%; 1/8 W
R339	0611077B15	47K, +/-5%; 1/8 W
R340	0611077A26	10 ohms, +/-5%; 1/8 W
R343	0611009B10	330K, +/-5%; 1/4 W
R344	0611077B30	200K, +/-5%; 1/8 W
R345	0611077A92	5.6K, +/-5%; 1/8 W
R346	0611009A61	3.3K, +/-5%; 1/4 W
R347	0611077A36	27 ohms, +/-5%; 1/8 W
R348	0611077A81	2K, +/-5%; 1/8 W
R349	0611077A40	39 ohms, +/-5%; 1/8 W
R350	0611077A36	27 ohms, +/-5%; 1/8 W
R351	0611077A92	5.6K, +/-5%; 1/8 W
R352	0611077A83	2.4K, +/-5%; 1/8 W
R353	0611077A60	270 ohms, +/-5%; 1/8 W
R354	0611077A78	1.5K, +/-5%; 1/8 W
R357	0611077B18	62K, +/-5%; 1/8 W
R358	1882281V01	POT 9MM ROUND SNGL TURN 3319P
R359	0611077A66	470 ohms, +/-5%; 1/8 W
R360	0611009A99	120K, +/-5%; 1/4W
R361	0611009A92	62K, +/-5%; 1/4W
R362	0611009A99	120K, +/-5%; 1/4W
R363	0611077A57	200 ohms, +/-5%; 1/8 W
R364	0611009A33	220 ohms, +/-5%; 1/4 W
R365	0611009A17	47 ohms, +/-5%; 1/4W
R366	0611009A73	10K, +/-5%; 1/4 W
R367	0611009A75	12K, +/-5%; 1/4W
R368	0611009A73	10K, +/-5%; 1/4 W
R369	0611077A96	8.2K, +/-5%; 1/8 W
R370	0611077B25	120K, +/-5%; 1/8 W
R371	0611077A90	4.7K, +/-5%; 1/8 W
R372,373	0611009A73	10K, +/-5%; 1/4 W
R374	0611009A99	120K, +/-5%; 1/4W
R375	0611077A01	0 ohm, +/-5%; 0 W
R386	0611077A01	0 ohm, +/-5%; 0 W
R401	0611077B03	15K, +/-5%; 1/8 W
R403	0611077A34	22 ohms, +/-5%; 1/8 W
R409	1882281V01	POT 9MM ROUND SNGL TURN 3319P
R410	0611077F91	10K, +/-1%; 1/8 W
R411	0611077A01	0 ohm, +/-5%; 0 W
R415	0611049D24	21.5K, +/-1%; 1/4 W
R417	0611077A90	4.7K, +/-5%; 1/8 W
R418	0611077B23	100K, +/-5%; 1/8 W
R419	0611009A42	510 ohms, +/-5%; 1/4 W
R420	0611077A01	0 ohm, +/-5%; 0 W
R421	0611009A66	5.1K, +/-5%; 1/4 W
R423	0611077A90	4.7K, +/-5%; 1/8 W
R424	0611077A98	10K, +/-5%; 1/8 W
R425	0611077A94	6.8K, +/-5%; 1/8W
R426	1882281V02	POT 9MM ROUND SNGL TURN 3319W
R427	0611077A74	1K, +/-5%; 1/8 W
R429	0611009A57	2.2K, +/-5%; 1/4 W
R430	0611077B23	100K, +/-5%; 1/8 W
R431	0611077B07	22K, +/-5%; 1/8 W
R432	0611077B19	68K, +/-5%; 1/8W
R433,434	0611077A98	10K, +/-5%; 1/8 W
R435	0611077B07	22K, +/-5%; 1/8 W
R436	0611077A91	5.1K, +/-5%; 1/8 W

Reference Symbol	Motorola Part No.	Description
R437	0611009A57	2.2K, +/-5%; 1/4 W
R438,439	0611077B43	680K, +/-5%; 1/8 W
R440	0611009A65	4.7K, +/-5%; 1/4 W
R441	0611009A73	10K, +/-5%; 1/4 W
R442	0611077A94	6.8K, +/-5%; 1/8W
R443	0611009B18	680K, +/-5%; 1/4 W
R444	0611009B06	220K, +/-5%; 1/4 W
R445,446	0611077A90	4.7K, +/-5%; 1/8 W
R447,448	0611077A98	10K, +/-5%; 1/8 W
R449	0611077B31	220K, +/-5%; 1/8 W
R450	0611009A09	22 ohms, +/-5%; 1/4 W
R451	0611077B07	22K, +/-5%; 1/8 W
R453	1882281V01	POT 9MM ROUND SNGL TURN 3319P
R460	0611077B23	100K, +/-5%; 1/8 W
R462	0611077A88	3.9K, +/-5%; 1/8 W
R463	0611077B45	820K, +/-5%; 1/8 W
R464	0611077B23	100K, +/-5%; 1/8 W
R467	0611009A49	1K, +/-5%; 1/4 W
		thermistor:
RT261	0600858402	1K, +/-10%; 0 W
RT321	0600858402	1K, +/-10%; 0 W
		integrated circuit: (see note)
U180	5113815D23	IC AGC/RF VIDEO AMP DL SUP
U181	5184320A13	Operational Amplifier
U182	5113819D04	General Purpose Differential Operational Amplifier
U201	5113815D23	IC AGC/RF VIDEO AMP DL SUP
U202	5184320A78	IF Amplifier/Quadrature Phase Detector
U203	5113815D23	IC AGC/RF VIDEO AMP DL SUP
U262	5183977M37	Programmable Reference Divider (2 used)
U263	5183977M36	Sample and Hold Phase Detector (2 used)
U264	5113806D21	analog switching multiplexer
U265	5184768F65	Low Noise Filter (2 used)
U322	5183977M37	Programmable Reference Divider (2 used)
U323	5183977M36	Sample and Hold Phase Detector (2 used)
U324	5113806D21	analog switching multiplexer
U325	5184768F65	Low Noise Filter (2 used)
U326	5113819D04	General Purpose Differential Operational Amplifier
U401	5184621K74	Comparator
U402	5184621K89	Dual Operational Amplifier
		cable assembly:
W102	0180751D84	injection input
W103	0180721E56	VCO Out
W105	0184854T01	CABLE UNBD TX 2 RLC LOOPBSCK
W106	0180721E56	VCO Out
		crystal: (see note)
Y201	9182673N05	FLTR XTAL
Y202	9182673N06	FLTR XTAL
Y203	1485334U01	INSULATOR RUBBER (SILICON)
Y204	9182673N07	FLTR XTAL
Y205,206	1485334U01	INSULATOR RUBBER (SILICON)
		non-referenced items:
	0500136977	Eye .121 x .093
	1485334U01	INSULATOR RUBBER (SILICON) (used with Y201)
	1485334U01	INSULATOR RUBBER (SILICON) (used with Y202)
	1485334U01	INSULATOR RUBBER (SILICON) (used with Y204)
	1583142M01	HOUSING, connector: 7-contact (2 used)
	1584301K03	HOUSING, connector: 5-contact (2 used)
	2682172T01	SHIELD SLDR SIDE (used with E212)
	2683681R01	SHIELD, solder side: 9.65x57.10x38.10MM (used with E211)
	2813922A07	HDR 7 POS STR .1 CTR GLD PLTD (used with J264C)

TRN7881 Uniboard Parts List

Reference Symbol	Motorola Part No.	Description
	2813922A07	HDR 7 POS STR .1 CTR GLD PLTD (used with J324C)
	2882365D02	plug: phono
	2884302K01	Plug Key, polarized
	2980014A01	CLIP, coaxial (terminal) (used with J202)
	2980014A01	CLIP, coaxial (terminal) (used with W102)
	2980014A01	CLIP, coaxial (terminal) (used with W103)
	2980014A01	CLIP, coaxial (terminal) (used with W105)
	2980014A01	CLIP, coaxial (terminal) (used with W106)
	3000859004	CABLE, coaxial: type RG316/U (7.5 used)
	3010286B09	24STIVVI (2.76 used)
	3084204N01	CABLE, 4-conductor (11 used)
	3700132049	TBG HS POLYOL 1/4 CLR
	3700132251	tubing polyol. 3/16" (blk) (0.75 used)
	3700132562	TBG HS POLYOL 1/8 CLR (0.38 used)
	3782603D60	SLVG HS POLYOL .125 BLK BLANK (2 used)
	3982717M01	CONTACT, receptacle (18 used)
	4284011N01	CLIP, coaxial cable restraint
	5483865R01	Label, bar code: 1/4" wide, white
	5484960T01	Label, bar code: 6.3 x 12.7MM, white
	5584300B01	HANDLE: 3.52" lg (2 used)
	5584300B05	HANDLE: 1.37" lg (used with E211)
	5584300B05	HANDLE: 1.37" lg (used with E212)

Note: For optimum performance, diodes, transistors, integrated circuits, and crystals must be ordered by Motorola part number.

Reference Symbol	Motorola Part No.	Description

TRN7142 Interconnect Board

Table 2-3 lists parts that are not placed on this Interconnect Board.

Table 2-3 ***Interconnect Board Kit Component Values***

REFERENCE DESIGNATOR	TRN7142
C4604	100p
CR4601	.1A
CR4602	.1A
JU4601	--
JU4602	--
R4609	4.7k
R4611	--
R4612	150
R4614	33k
R4615	1.2k
R4620	100k
R4621	1.2k
R4622	7.5k
R4623	10k
R4624	13k
R4625	1k
R4627	4.02k
R4628	10k
R4629	8.2
R4630	0
R4631	0
R4632	0
R4633	0
R4634	0
R4635	0
RT4600	--

Note: Unless otherwise noted, all resistors are in ohms and all capacitors are in microfarads.

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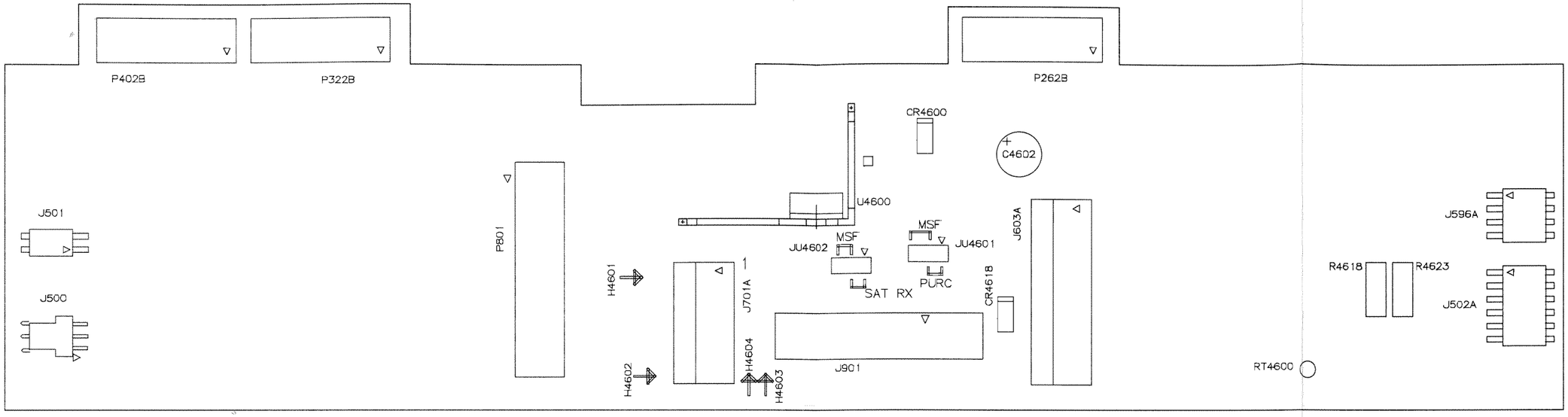
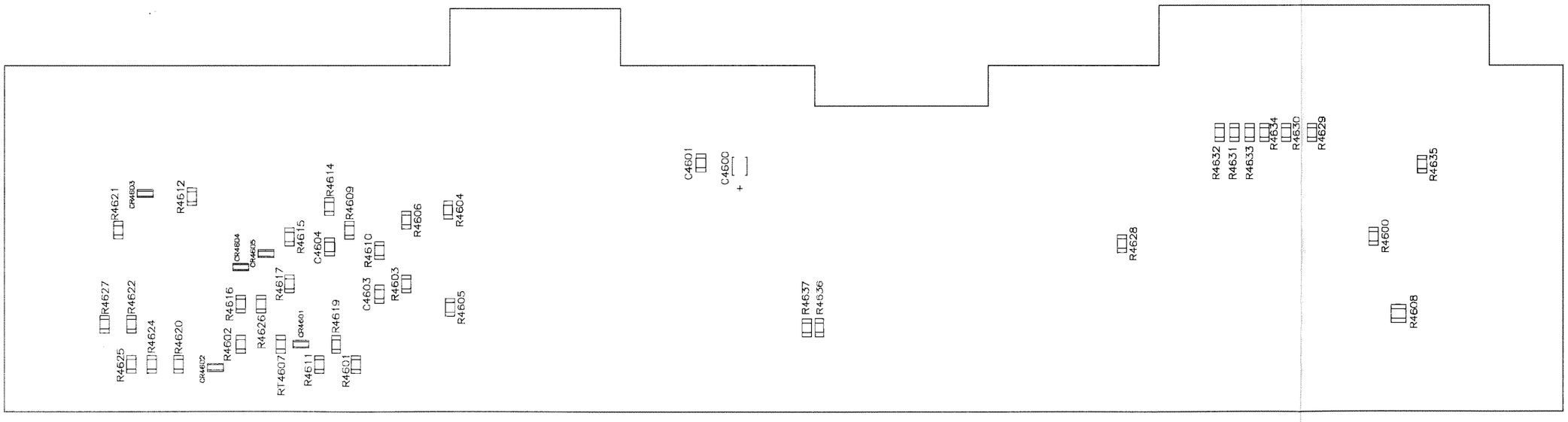
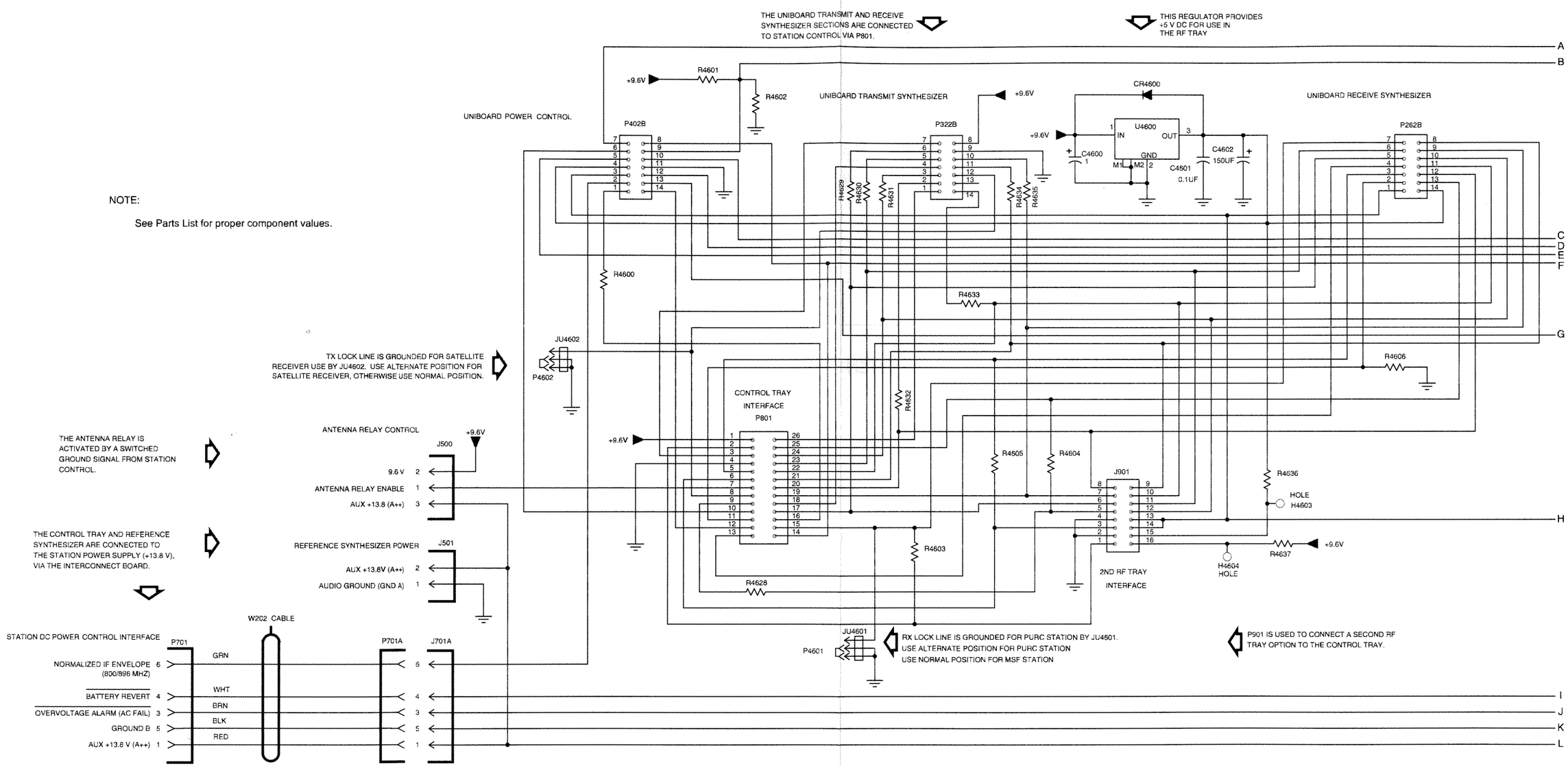


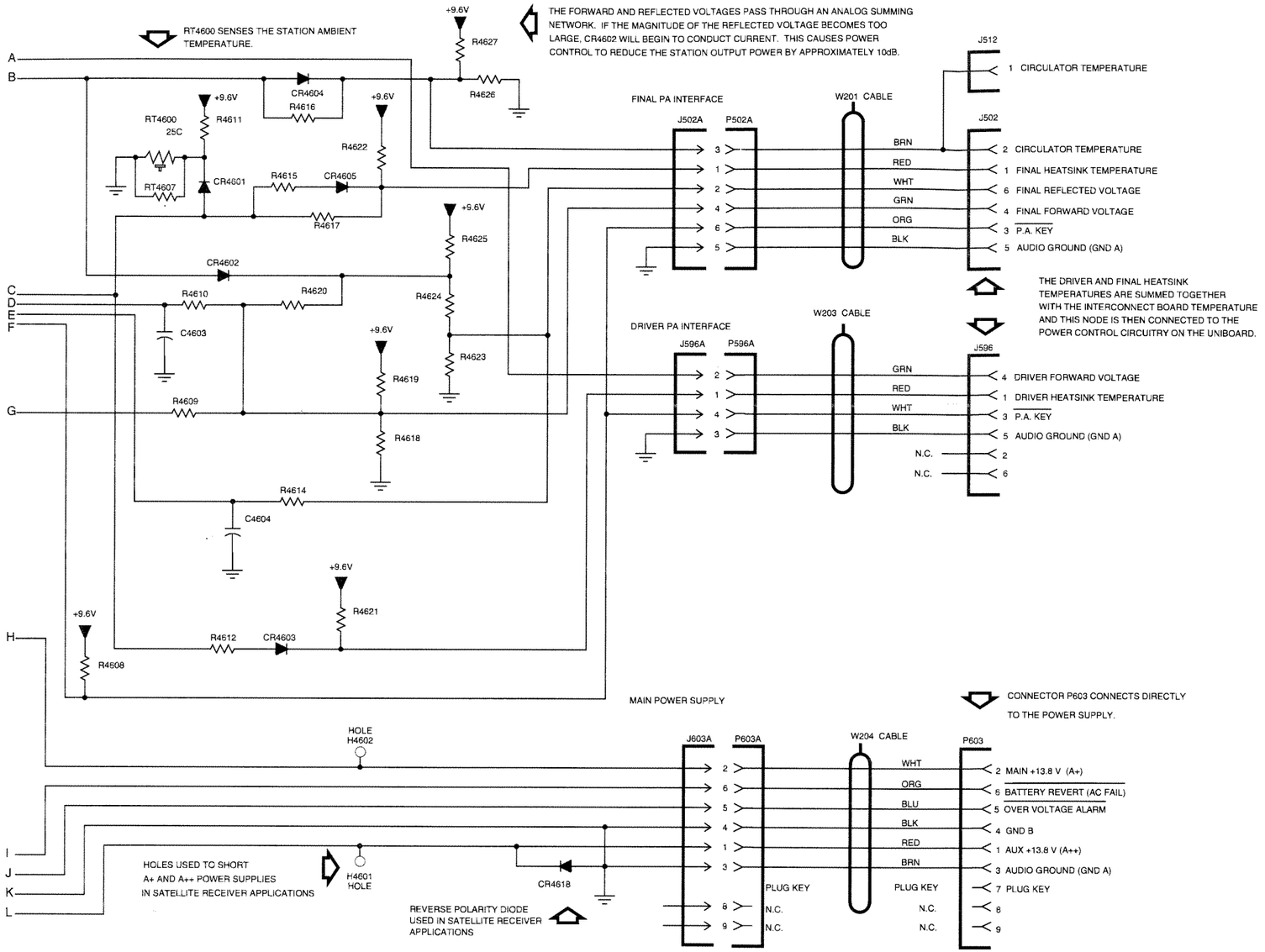
COMPONENT SIDE



SOLDER SIDE

TRN7142 Interconnect Board



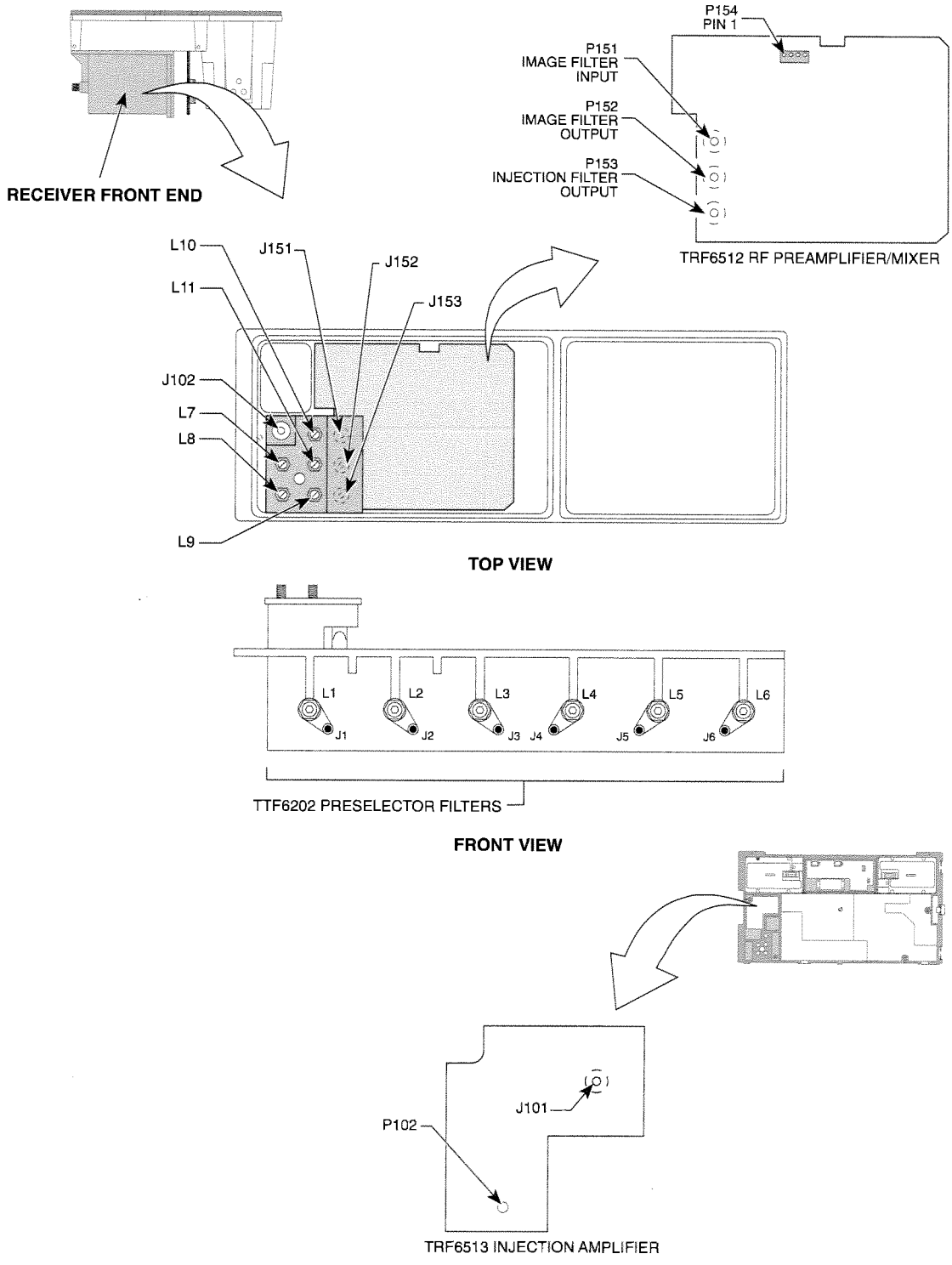

RT4600 SENSES THE STATION AMBIENT TEMPERATURE.
THE FORWARD AND REFLECTED VOLTAGES PASS THROUGH AN ANALOG SUMMING NETWORK. IF THE MAGNITUDE OF THE REFLECTED VOLTAGE BECOMES TOO LARGE, CR4602 WILL BEGIN TO CONDUCT CURRENT. THIS CAUSES POWER CONTROL TO REDUCE THE STATION OUTPUT POWER BY APPROXIMATELY 10dB.
+9.6V
R4627
R4626
CR4604
R4616
R4611
RT4600 25C
RT4607
CR4601
R4615
CR4605
R4622
R4617
R4625
CR4602
R4610
R4620
R4624
C4603
R4619
R4623
R4609
R4618
R4614
C4604
R4621
R4612
CR4603
R4608
A
B
C
D
E
F
G
H
I
J
K
L
FINAL PA INTERFACE
J502A
P502A
W201 CABLE
J512
1 CIRCULATOR TEMPERATURE
J502
BRN
RED
WHT
GRN
ORG
BLK
2 CIRCULATOR TEMPERATURE
1 FINAL HEATSINK TEMPERATURE
6 FINAL REFLECTED VOLTAGE
4 FINAL FORWARD VOLTAGE
3 P.A. KEY
5 AUDIO GROUND (GND A)
THE DRIVER AND FINAL HEATSINK TEMPERATURES ARE SUMMED TOGETHER WITH THE INTERCONNECT BOARD TEMPERATURE AND THIS NODE IS THEN CONNECTED TO THE POWER CONTROL CIRCUITRY ON THE UNIBOARD.
DRIVER PA INTERFACE
J596A
P596A
W203 CABLE
J596
GRN
RED
WHT
BLK
N.C.
N.C.
4 DRIVER FORWARD VOLTAGE
1 DRIVER HEATSINK TEMPERATURE
3 P.A. KEY
5 AUDIO GROUND (GND A)
2
6
MAIN POWER SUPPLY
CONNECTOR P603 CONNECTS DIRECTLY TO THE POWER SUPPLY.
HOLE H4602
J603A
P603A
W204 CABLE
P603
WHT
ORG
BLU
BLK
RED
BRN
PLUG KEY
N.C.
N.C.
2 MAIN +13.8 V (A+)
6 BATTERY REVERT (AC FAIL)
5 OVER VOLTAGE ALARM
4 GND B
1 AUX +13.8 V (A++)
3 AUDIO GROUND (GND A)
7 PLUG KEY
8
9
HOLES USED TO SHORT A+ AND A++ POWER SUPPLIES IN SATELLITE RECEIVER APPLICATIONS
H4601 HOLE
CR4618
REVERSE POLARITY DIODE USED IN SATELLITE RECEIVER APPLICATIONS

TRN7142 Interconnect Board Parts List

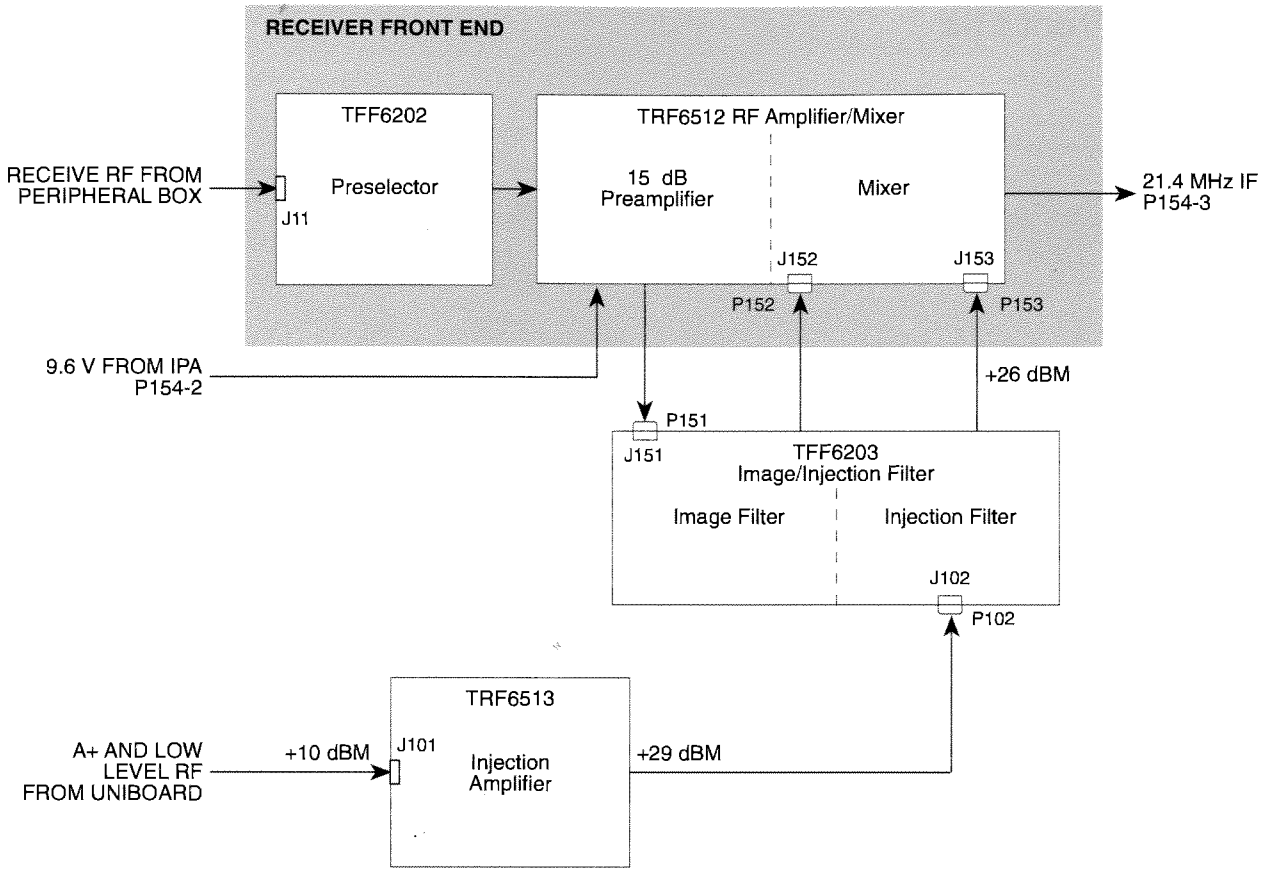
Reference Symbol	Motorola Part No.	Description
		capacitor, fixed:
C4600	2311049A08	1 uF, +/-10%; 35 V
C4601	2113741B69	0.1 uF, +/-5%; 50 V
C4602	2313748G27	150 uF, +/-20%; 16V
C4603,4604	2113740B49	100 pF, +/-5%; 50 V
		diode: (see note)
CR4600	4813833D08	1A, 600V
CR4601 thru 4605	4813833C10	0.1A, 70V
		connector:
J500	2813922B03	HDR 3 POS RT .1 CTR GLD PLTD
J501	2813922B02	HDR 2 POS RT .1 CTR GLD PLTD
J502A	2813922B06	HDR 6 POS RT .1 CTR GLD PLTD
J596A	2813922B04	HDR 4 POS RT .1 CTR GLD PLTD
J603A	2882984N14	plug: 9-contact
J701A	2882984N13	plug: 6-contact
J901	2882505T02	plug: 16-contact
		connector:
P262B	0983111N02	receptacle: 14-contact
P322B	0983111N02	receptacle: 14-contact
P402B	0983111N02	receptacle: 14-contact
P801	2883290P13	plug: 26-contact
		resistor, fixed:
R4600	0611077A74	1K, +/-5%; 1/8 W
R4601	0611077G09	15K, +/-1%; 1/8 W
R4602	0611077F91	10K, +/-1%; 1/8 W
R4608	0611072A49	1K, +/-5%, 1/4W
R4609	0611077A90	4.7K, +/-5%; 1/8 W
R4610	0611077B23	100K, +/-5%; 1/8 W
R4611	0611077B11	33K, +/-5%; 1/8 W
R4612	0611077A76	1.2K, +/-5%; 1/8 W
R4614	0611077B23	100K, +/-5%; 1/8 W
R4615	0611077A76	1.2K, +/-5%; 1/8 W
R4618	0611045A49	1K, +/-5%; 1/2W
R4619	0611077B23	100K, +/-5%; 1/8 W
R4620	0611077A95	7.5K, +/-5%; 1/8W
R4621	0611077A98	10K, +/-5%; 1/8 W
R4622	0611077B02	13K, +/-5%; 1/8W
R4623	0611045A49	1K, +/-5%; 1/2W
R4624	0611077F53	4.02K, +/-1%; 1/8W
R4625	0611077F91	10K, +/-1%; 1/8 W
R4626	0611077A98	10K, +/-5%; 1/8 W
R4627	0611077A96	8.2K, +/-5%; 1/8 W
R4628 thru 4635	0611077A01	0 ohm, +/-5%; 0 W
		thermistor:
RT4600	0683600K05	100K, +/-10%; 2 MW
		integrated circuit: (see note)
U4600	5113816D01	5 V Positive Regulator
		non-referenced items:
	0210971A16	NUT, hex: 3 x0.5mm
	0310907A19	SCREW, machine: M3x0.5x8
	0484152B01	WASHER, shoulder
	0984728L01	Shorting Jumper: 2-contact (used with JU4601)
	0984728L01	Shorting Jumper: 2-contact (used with JU4602)
	1483820M02	INSULATOR, heat conductive
	2684012N01	HEAT SINK
	2880001R03	plug: 3-contact (used with JU4601)
	2880001R03	plug: 3-contact (used with JU4602)
	5483865R01	Label, bar code: 1/4" wide, white
	5484960T01	Label, bar code: 6.3 x 12.7MM, white

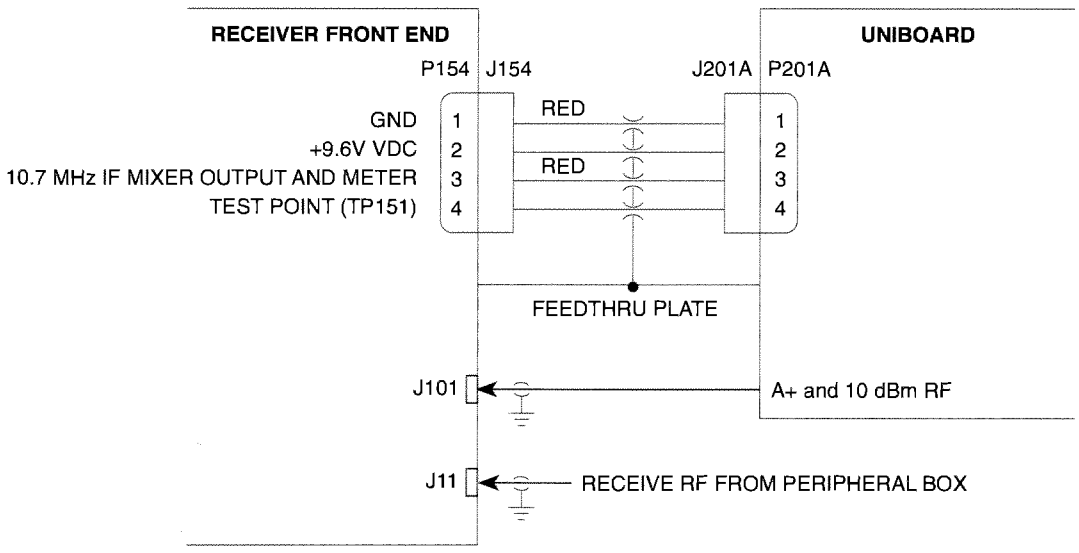
Note: For optimum performance, diodes and integrated circuits must be ordered by Motorola part number.

Receiver Front End



Receiver Front End





MSFS120
053194KOM

Control Tray

Chapter Overview

This chapter contains overlays, schematics, and parts lists for components of the Control Tray.

Table 3-1 ***Chapter Contents***

Secure Capable Station Control Board (SSCB)

The following information covers models TLN3384, TLN3385, TLN3386 and TLN3387 SSCBs. The TLN3182 and TLN3318 SSCBs have been replaced by TLN3384. The TLN3189 and TLN3319 SSCBs have been replaced by TLN3385. The TLN3204 and TLN33320 SSCBs have been replaced by TLN3386. The TLN3205 and TLN3342 SSCBs have been replaced by TLN3387.

Table 3-2 lists parts that may or may not be placed on all SSCB boards. Some boards may also use different values for the same component.

Table 3-2 ***SSCB Kit Component Values***

REFERENCE DESIGNATOR	TLN3384	TLN3385	TLN3386	TLN3387
C1554	.001uF	.01uF	.001uF	.001uF
C1556	.001uF	.01uF	.001uF	.001uF
C1564	1000PF	4700PF	4700PF	--
R1523	47k	47k	56k	47k
R1525	100k	56k	33k	39k
R1527	330k	56k	33k	39k
R1532	22k	150k	150k	22k
R1535	120k	100k	47k	120k
R1536	220k	470k	220k	220k
R1557	22k	150k	150k	22k
R1561	120k	100k	47k	120k
R1562	220k	470k	220k	220k
R1571	10k	82k	10k	10k
R1572	--	0	0	0
R1573	5.1k	43k	5.1k	5.1k
R1574	5.1k	43k	5.1k	5.1k
R8119	510	510	510	1.5k
R8120	560	560	560	1.8k
R8132	5.6k	6.8k	6.8k	5.6k
R8177	33k	33k	33k	27k
R8180	33k	33k	33k	27k
R8186	3.6k	30k	3.6k	--
R8196	1.2k	1.2k	1.2k	680
VR1532	2.7V	3.3V	3.3V	3.3V
VR1533	2.7V	3.3V	3.3V	3.3V
Note: Unless otherwise noted, all resistors are in ohms and all capacitors are in microfarads.				

SSCB Connectors

J800

PIN OUT DETAIL

Quad 1 Audio	39	40	Audio Gnd
Audio Gnd	37	38	Rx1 Audio
Rx2 Audio	35	36	Tx Audio
Local Audio	33	34	Tx Data Audio
GCC/RAC Data Audio	31	32	Select Audio
Quad 2 Audio	29	30	Diversity Audio
Audio Spare	27	28	Gen Tx Data
Logic Spare	25	26	Audio Spare
Shut Down	23	24	Logic Spare
Logic Gnd	21	22	DS *
BD2 *	19	20	BD3 *
BD0 *	17	18	BD1 *
BA2	15	16	BA3
BA0	13	14	BA1
IPBC	11	12	Expansion Reset *
Audio Gnd	9	10	Audio Gnd
Audio Gnd	7	8	Audio Gnd
A++	5	6	Audio Gnd
A++	3	4	A++
A++	1	2	A++

J801

PIN OUT DETAIL

Tx Strobe	26	25	Rx1 Strobe
SA0	24	23	SD3
SA1	22	21	SD2
SA2	20	19	SD1
Tx Loop	18	17	SD0
PA Power Cutback *	16	15	Rx1 Lock *
PA Key *	14	13	Rx1 Loop
PA On *	12	11	AGC Ref (800/896)
PA Full Power *	10	9	Rx2 Strobe
Tx Lock *	8	7	Antenna Relay Enable *
Row Rx2 Audio	6	5	Row Rx1 Audio
Audio Gnd (Gnd A)	4	3	Tx Mod Audio
Rx2 Lock *	2	1	+9.6V

J802

PIN OUT DETAIL

1	Logic Gnd
2	MRTI PL Strip *
3	Logic Gnd
4	MRTI Monitor *
5	MRTI PTT *
6	Logic Gnd
7	Audio Gnd
8	IN MRTI Audio
9	Logic Gnd
10	Out MRTI Audio
11	MRTI Rx Carrier
12	MRTI Inhibit
13	N.C.
14	MRTI Aux Indicate
15	N.C.
16	A++
17	A++
18	Audio Gnd
19	N.C.
20	N.C.

J803

PIN OUT DETAIL

Audio Gnd	40	39	+5V
N.C.	38	37	Key Battery Gnd
N.C.	36	35	Coded Rx Level *
Secure Alert Tones	34	33	Expansion Reset *
Coded Mod Level *	32	31	Level Inc
Level U/D *	30	29	IPCB
In MRTI Audio	28	27	Quad Audio
N.C.	26	25	DS *
BA0	24	23	BA1 *
BA2	22	21	BA3 *
BD) *	20	19	BD1 *
BD2 *	18	17	BD3 *
Logic Gnd	16	15	HSR Syn
Logic Gnd	14	13	HSR Clock
Logic Gnd	12	11	HSR to Secure
Logic Gnd	10	9	HSR In
Local Audio	8	7	Coded Mod Audio
Row Tx Audio	6	5	Tx Audio
Secure Rx Audio	4	3	+9.6V
Audio Gnd	2	1	Audio Gnd

J804

PIN OUT DETAIL

Audio Gnd	34	33	+5V
A++	32	31	+5V
Gen Tx Data	30	29	Mute
Expansion Reset *	28	27	Connect Tone Audio
IPCB	26	25	DS *
BA0	24	23	BA1
BA2	22	21	BA3
BD0 *	20	19	BD1 *
BD2 *	18	17	BD3 *
Logic Gnd	16	15	HSR Syn
Logic Gnd	14	13	HSR Clock
Logic Gnd	12	11	HSR from TTRC
Logic Gnd	10	9	HSR Out
Quad Audio	8	7	TKG Mod Audio
Row Tx Audio	6	5	Tx Audio
Line Audio	4	3	9.6V
Audio Gnd	2	1	A++

J812

PIN OUT DETAIL

IPCB	6	5	Spkr Audio
MIC PTT *	4	3	MIC Audio
Audio Ground	2	1	Logic Ground

TRANSISTOR DETAILS
(TOP VIEW)

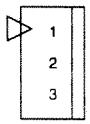
4800869642
4800889328
4800869643
4811043C05
4811043C26
4811043C06

1 -EMITTER
2 -BASE
3 -COLLECTOR

4811043C37
4800869653

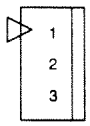
1 -DRAIN
2 -SOURCE
3 -COLLECTOR

4800889828

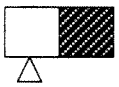


1 -EMITTER
2 -BASE
3 -COLLECTOR

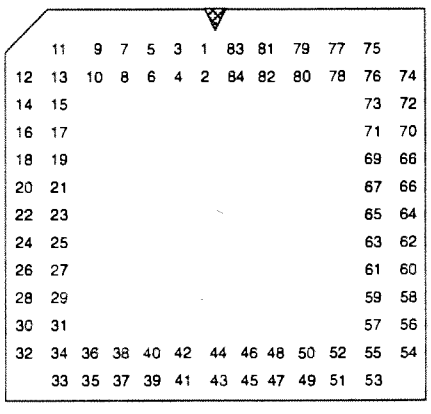
4883875D05



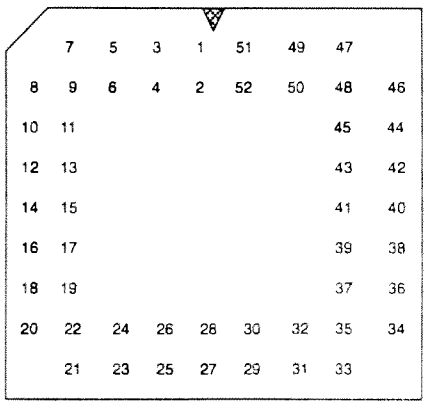
1 -CATHODE
2 -ANODE
3 -GATE



NOTE: SHADED AREA INDICATES
DEFAULT JUMPER POSITION



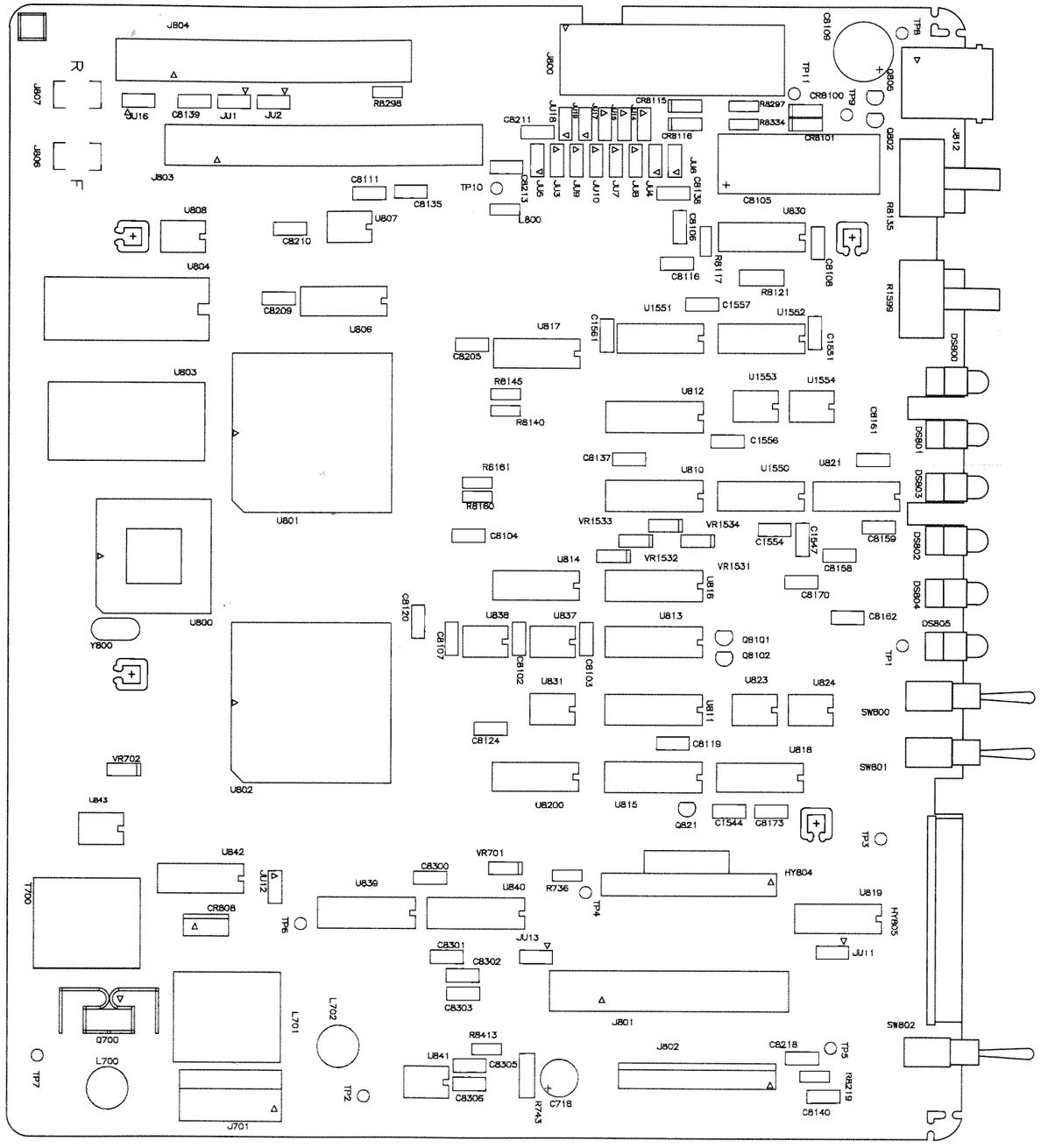
ASIC SOCKET DETAIL



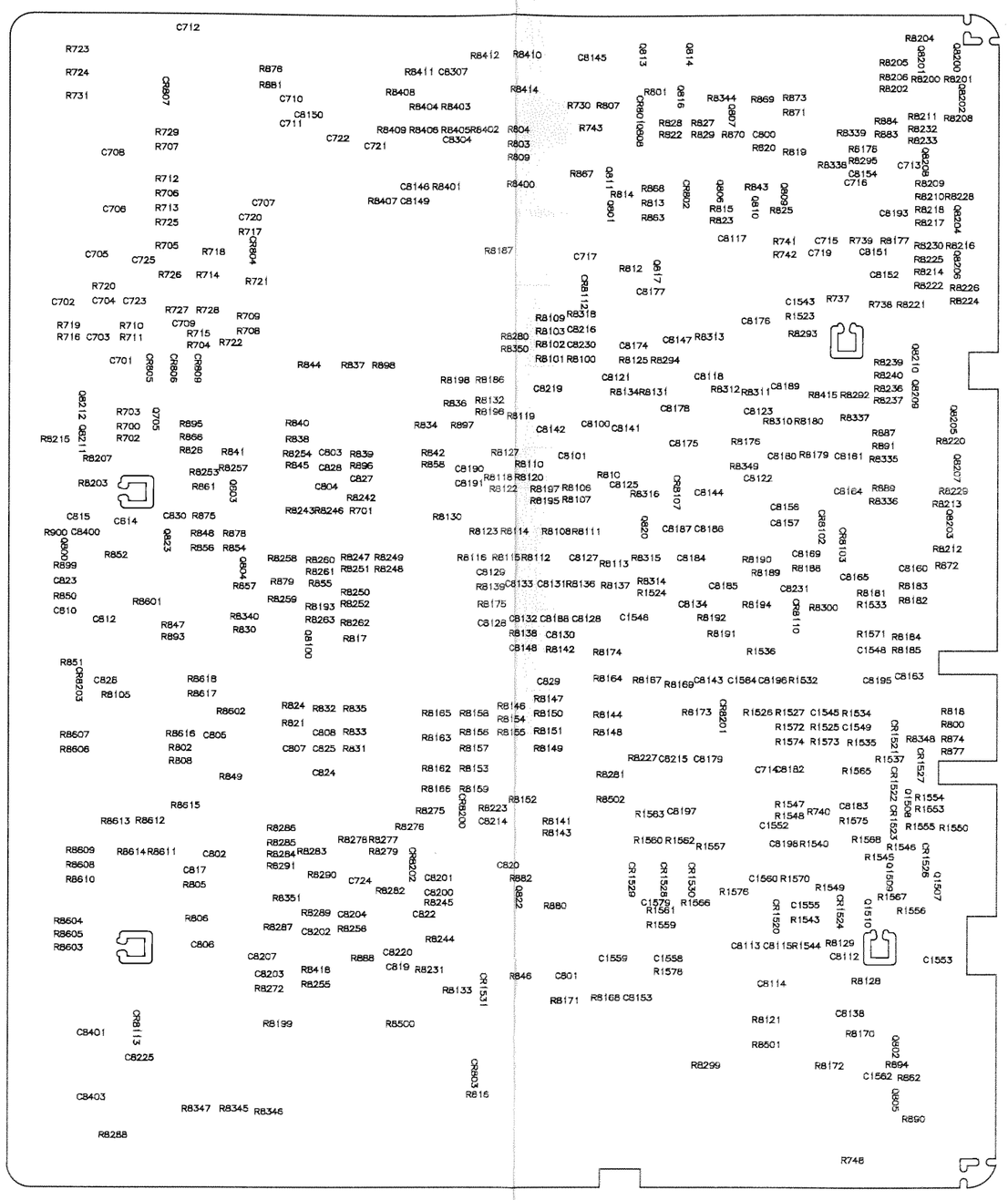
µP SOCKET DETAIL

MSFS018
040794KOM

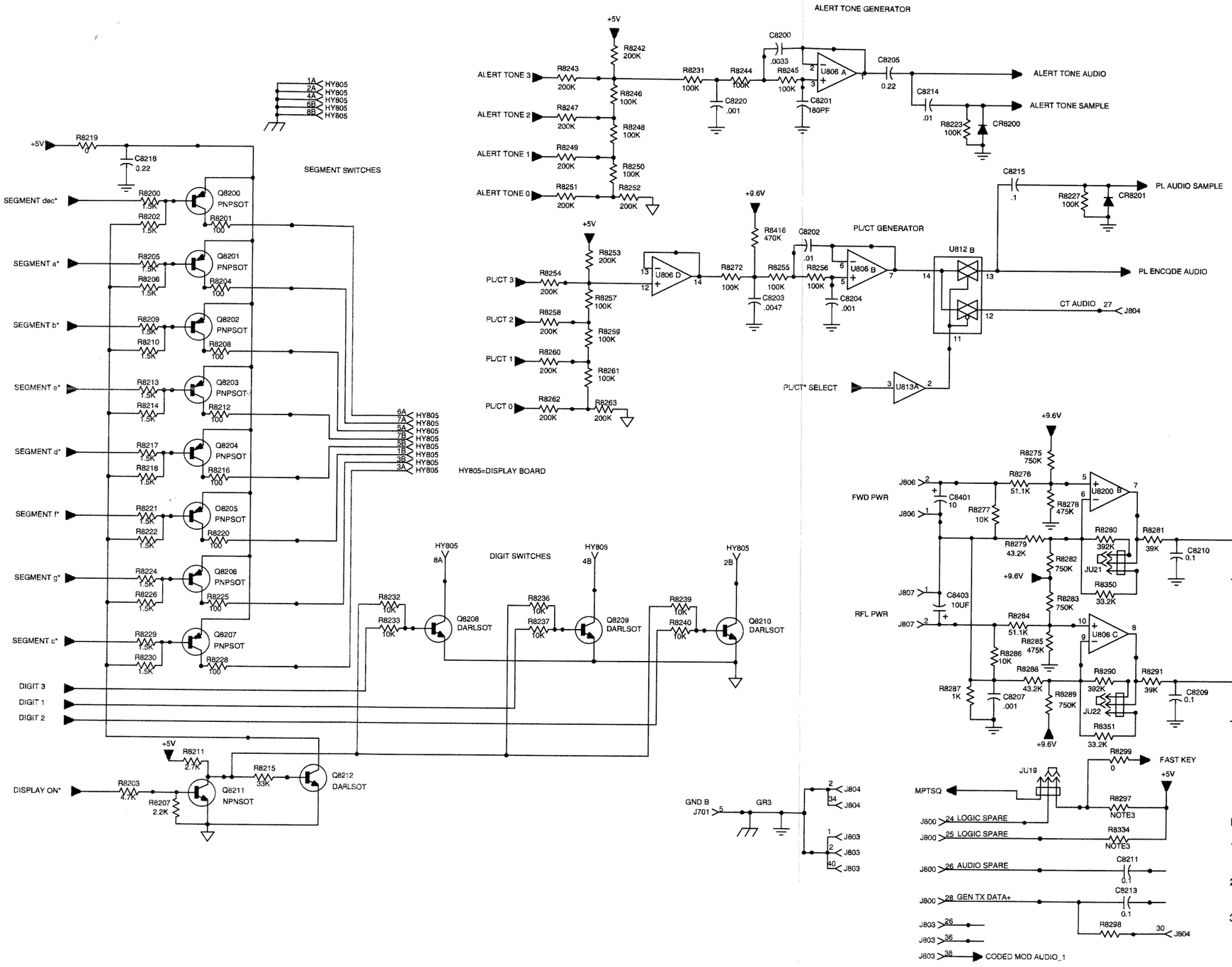
TLN3384/TLN3385/TLN3386/TLN3387 SSCB



COMPONENT SIDE



SOLDER SIDE

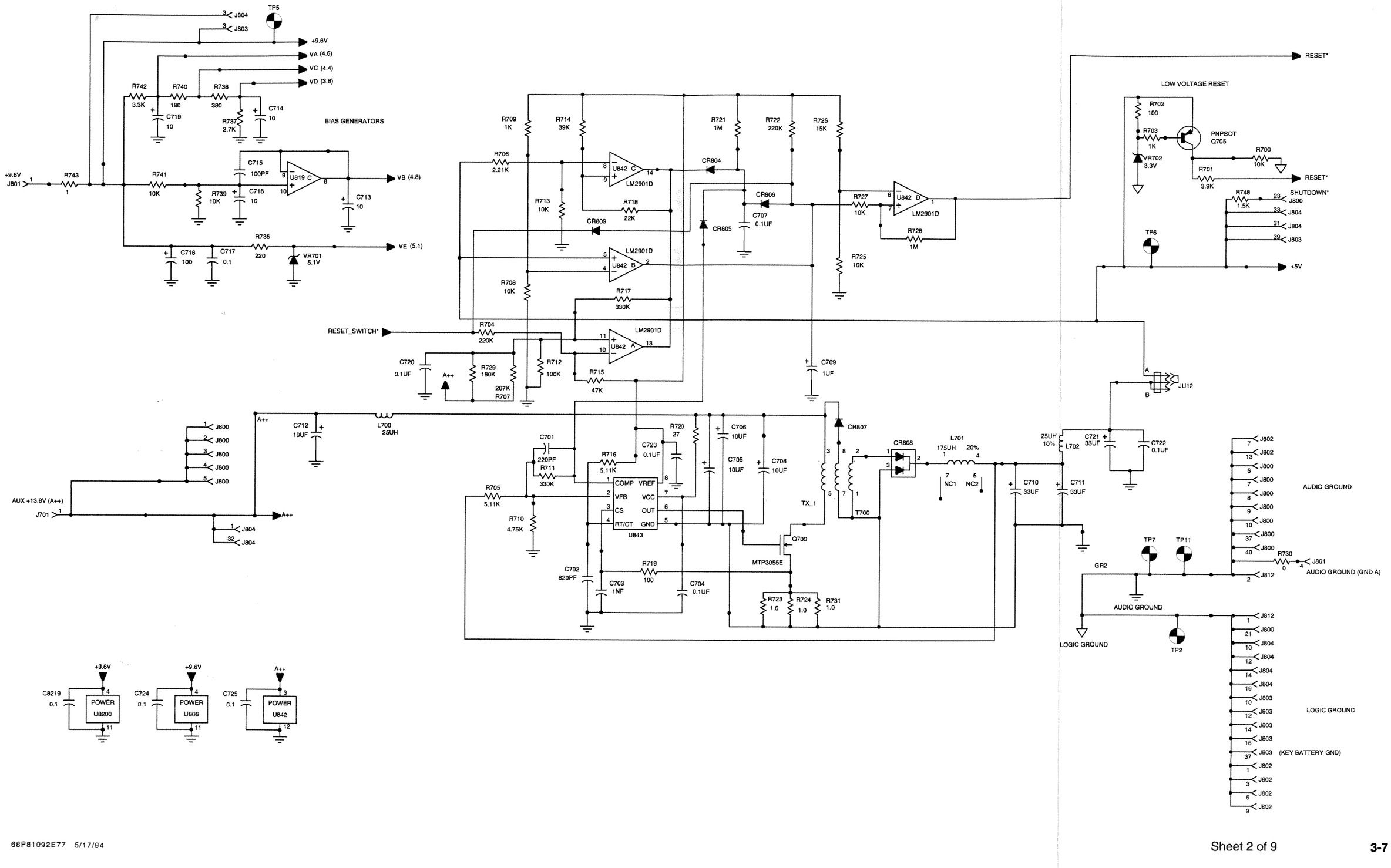


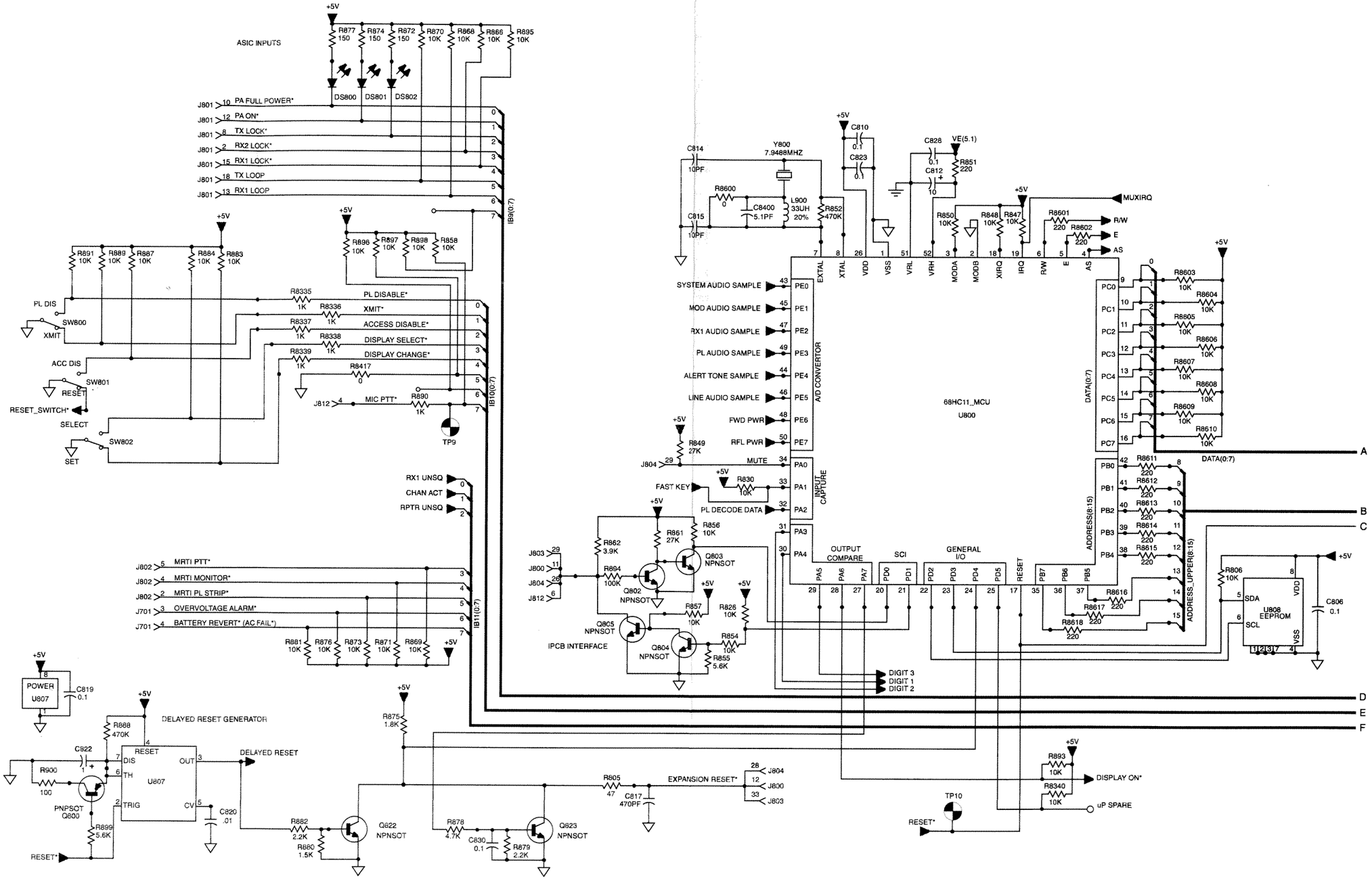
NOTES:

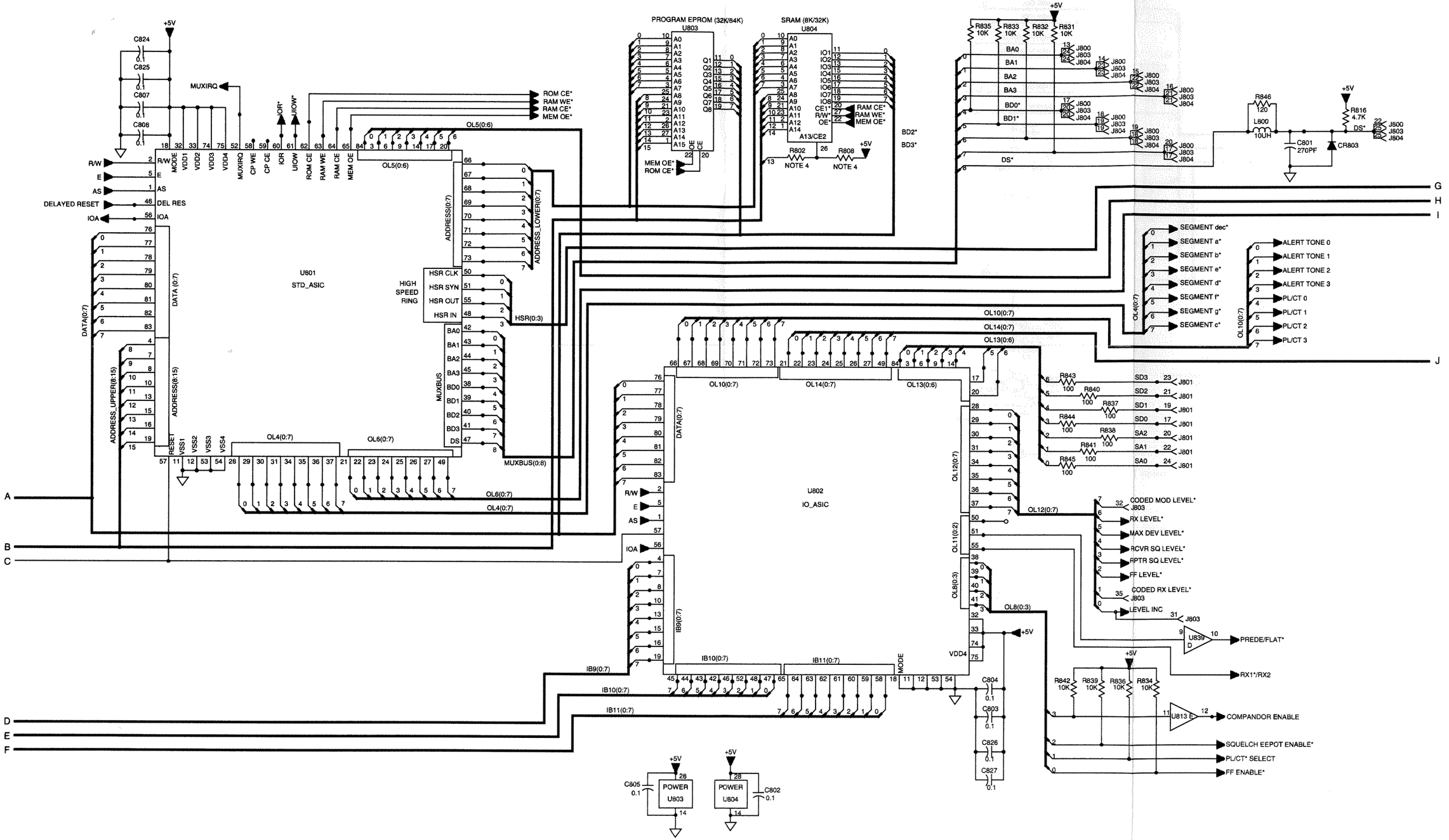
1. Unless otherwise specified, all resistor values are in ohms and capacitor values in microfarads.
2. An asterisk (*) after or a line over a signal name indicates an active low level signal.
3. R8902/R808 [0 ohm chip resistors] are populated according to SRAM type:

   8K SRAM: R802 out, R808 in
   32K SRAM: R802 in, R808 out

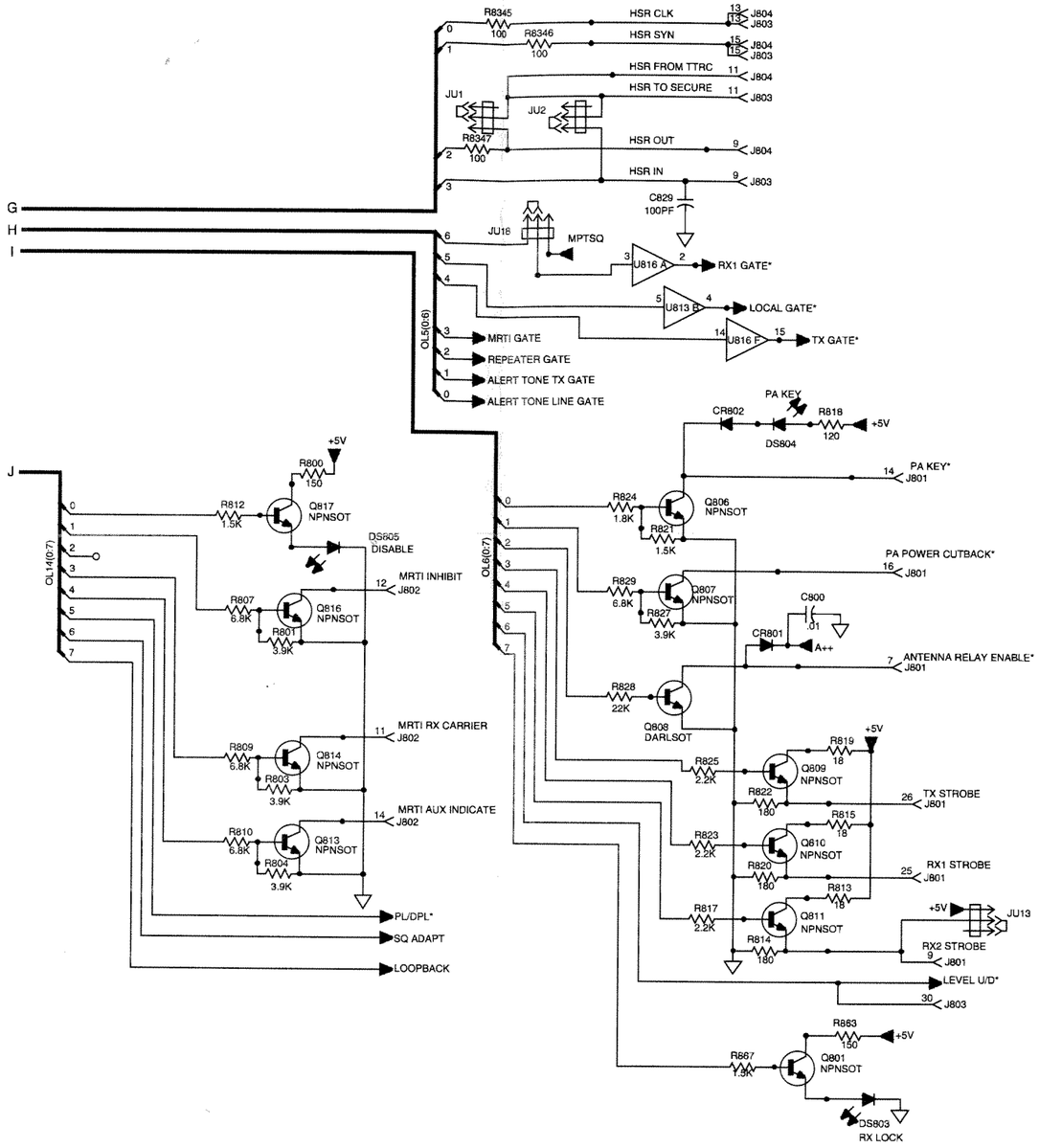
4. These part values change depending on kit used. Please refer to Table 3-2 for correct part value:

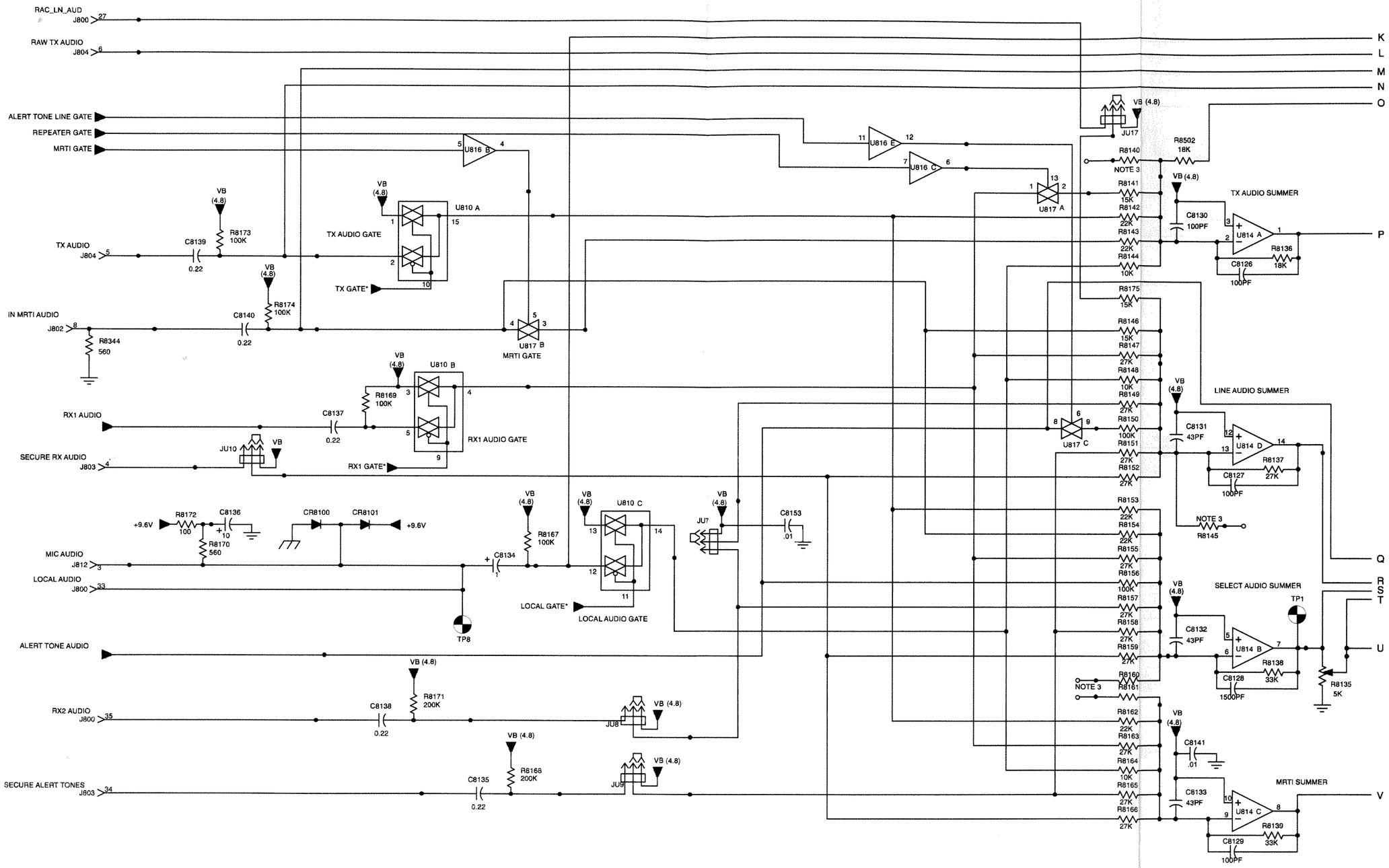

TP5
J804
J803
+9.6V
VA (4.6)
VC (4.4)
VD (3.8)
BIAS GENERATORS
R742 3.3K
R740 180
R738 390
C719 10
R737 2.7K
C714 10
+9.6V J801
R743 1
R741 10K
C715 100PF
U819 C
VB (4.8)
R739 10K
C716 10
C713 10
C718 100
C717 0.1
R736 220
VR701 5.1V
VE (5.1)
R709 1K
R714 39K
R706 2.21K
U842 C
LM2901D
R713 10K
R718 22K
CR809
LM2901D
U842 B
R708 10K
R717 330K
RESET_SWITCH*
R704 220K
LM2901D
U842 A
C720 0.1UF
R729 160K
267K R707
R712 100K
R715 47K
R721 1M
R722 220K
R726 15K
CR804
CR806
C707 0.1UF
CR805
R727 10K
U842 D
LM2901D
R728 1M
R725 10K
C709 1UF
RESET*
LOW VOLTAGE RESET
R702 100
R703 1K
VR702 3.3V
PNPSOT Q705
R700 10K
R701 3.9K
RESET*
R748 1.5K
SHUTDOWN* J800
J804
J804
J803
TP6
+5V
A
B
JU12
A++
C712 10UF
L700 25UH
C701 220PF
R716 5.11K
R711 330K
R720 27
C723 0.1UF
C706 10UF
C705 10UF
C708 10UF
CR807
CR808
L701 175UH 20%
NC1
NC2
25UH 10%
L702
C721 33UF
C722 0.1UF
C710 33UF
C711 33UF
R705 5.11K
R710 4.75K
COMP VREF
VFB VCC
CS OUT
RT/CT GND
U843
TX_1
T700
Q700
MTP3055E
C702 820PF
R719 100
C703 1NF
C704 0.1UF
R723 1.0
R724 1.0
R731 1.0
J800
AUX +13.8V (A++)
J701
J804
J804
AUDIO GROUND
TP7
TP11
GR2
R730 0
J801
AUDIO GROUND (GND A)
J812
AUDIO GROUND
LOGIC GROUND
TP2
LOGIC GROUND
(KEY BATTERY GND)
C8219 0.1
POWER U8200
C724 0.1
POWER U806
C725 0.1
POWER U842

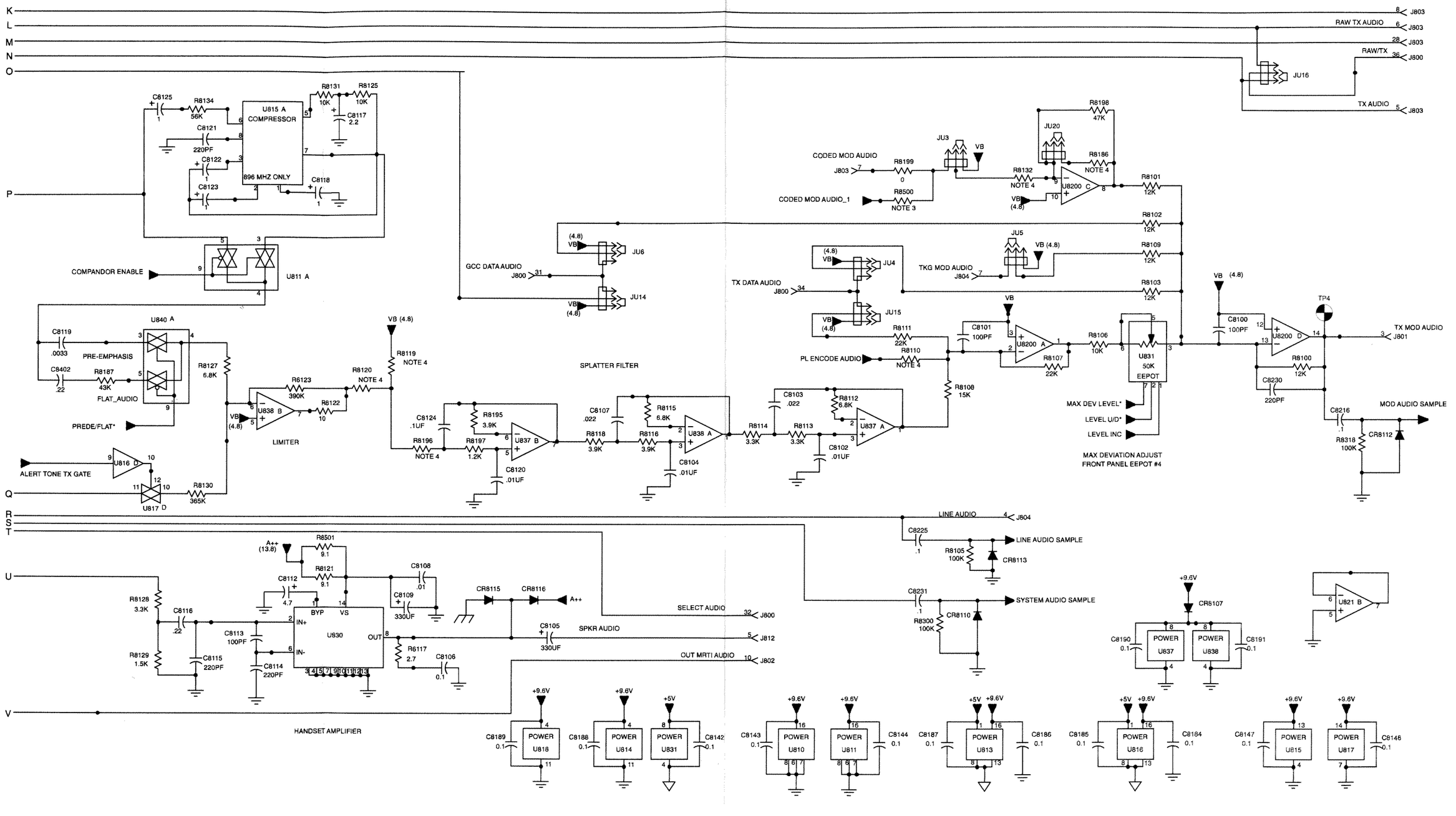

ASIC INPUTS
+5V
R877 150
R874 150
R872 150
R870 10K
R868 10K
R866 10K
R895 10K
DS800
DS801
DS802
J801 10 PA FULL POWER*
J801 12 PA ON*
J801 8 TX LOCK*
J801 2 RX2 LOCK*
J801 15 RX1 LOCK*
J801 18 TX LOOP
J801 13 RX1 LOOP
IB9(0:7)
R891 10K
R889 10K
R887 10K
R884 10K
R883 10K
R896 10K
R897 10K
R898 10K
R858 10K
PL DIS
SW800
XMIT
ACC DIS
SW801
RESET
RESET_SWITCH*
SELECT
SW802
SET
R8335 1K
R8336 1K
R8337 1K
R8338 1K
R8339 1K
R8417 0
PL DISABLE*
XMIT*
ACCESS DISABLE*
DISPLAY SELECT*
DISPLAY CHANGE*
J812 4 MIC PTT*
R890 1K
TP9
IB10(0:7)
RX1 UNSQ
CHAN ACT
RPTR UNSQ
J802 5 MRTI PTT*
J802 4 MRTI MONITOR*
J802 2 MRTI PL STRIP*
J701 3 OVERVOLTAGE ALARM*
J701 4 BATTERY REVERT* (AC FAIL*)
IB11(0:7)
R881 10K
R876 10K
R873 10K
R871 10K
R869 10K
Y800 7.9488MHZ
C814 10PF
C815 10PF
R8600 0
C8400 5.1PF
L900 33UH 20%
R852 470K
C810 0.1
C823 0.1
C828 0.1
C812 10
VE(5.1)
R851 220
R850 10K
R848 10K
R847 10K
R8601 220
R8602 220
MUXIRQ
R/W
E
AS
EXTAL
XTAL
VDD
VSS
VRL
VRH
MODA
MODB
XIRQ
IRQ
R/W
E
AS
SYSTEM AUDIO SAMPLE
MOD AUDIO SAMPLE
RX1 AUDIO SAMPLE
PL AUDIO SAMPLE
ALERT TONE SAMPLE
LINE AUDIO SAMPLE
FWD PWR
RFL PWR
A/D CONVERTOR
PE0
PE1
PE2
PE3
PE4
PE5
PE6
PE7
68HC11_MCU
U800
R849 27K
J804 29 MUTE
FAST KEY
PL DECODE DATA
R830 10K
INPUT CAPTURE
PA0
PA1
PA2
PA3
PA4
PA5
PA6
PA7
OUTPUT COMPARE
SCI
GENERAL I/O
PD0
PD1
PD2
PD3
PD4
PD5
RESET
PB7
PB6
PB5
ADDRESS(8:15)
DATA(0:7)
PC0
PC1
PC2
PC3
PC4
PC5
PC6
PC7
R8603 10K
R8604 10K
R8605 10K
R8606 10K
R8607 10K
R8608 10K
R8609 10K
R8610 10K
R8611 220
R8612 220
R8613 220
R8614 220
R8615 220
R8616 220
R8617 220
R8618 220
ADDRESS_UPPER(8:15)
R8806 10K
SDA
SCL
U808 EEPROM
VDD
VSS
C806 0.1
R862 3.9K
R894 100K
R861 27K
R856 10K
Q803 NPNSOT
Q802 NPNSOT
Q805 NPNSOT
Q804 NPNSOT
R857 10K
R826 10K
R854 10K
R855 5.6K
IPCB INTERFACE
DIGIT 3
DIGIT 1
DIGIT 2
A
B
C
D
E
F
POWER U807
C819 0.1
DELAYED RESET GENERATOR
R888 470K
C822 1
R900 100
PNPSOT Q800
R899 5.6K
RESET*
U807
RESET
DIS
TH
TRIG
OUT
CV
C820 .01
DELAYED RESET
R882 2.2K
R880 1.5K
Q622 NPNSOT
R875 1.8K
R878 4.7K
C830 0.1
R879 2.2K
Q623 NPNSOT
R605 47
C817 470PF
EXPANSION RESET*
J804
J800
J803
R893 10K
R8340 10K
DISPLAY ON*
uP SPARE
TP10
RESET*

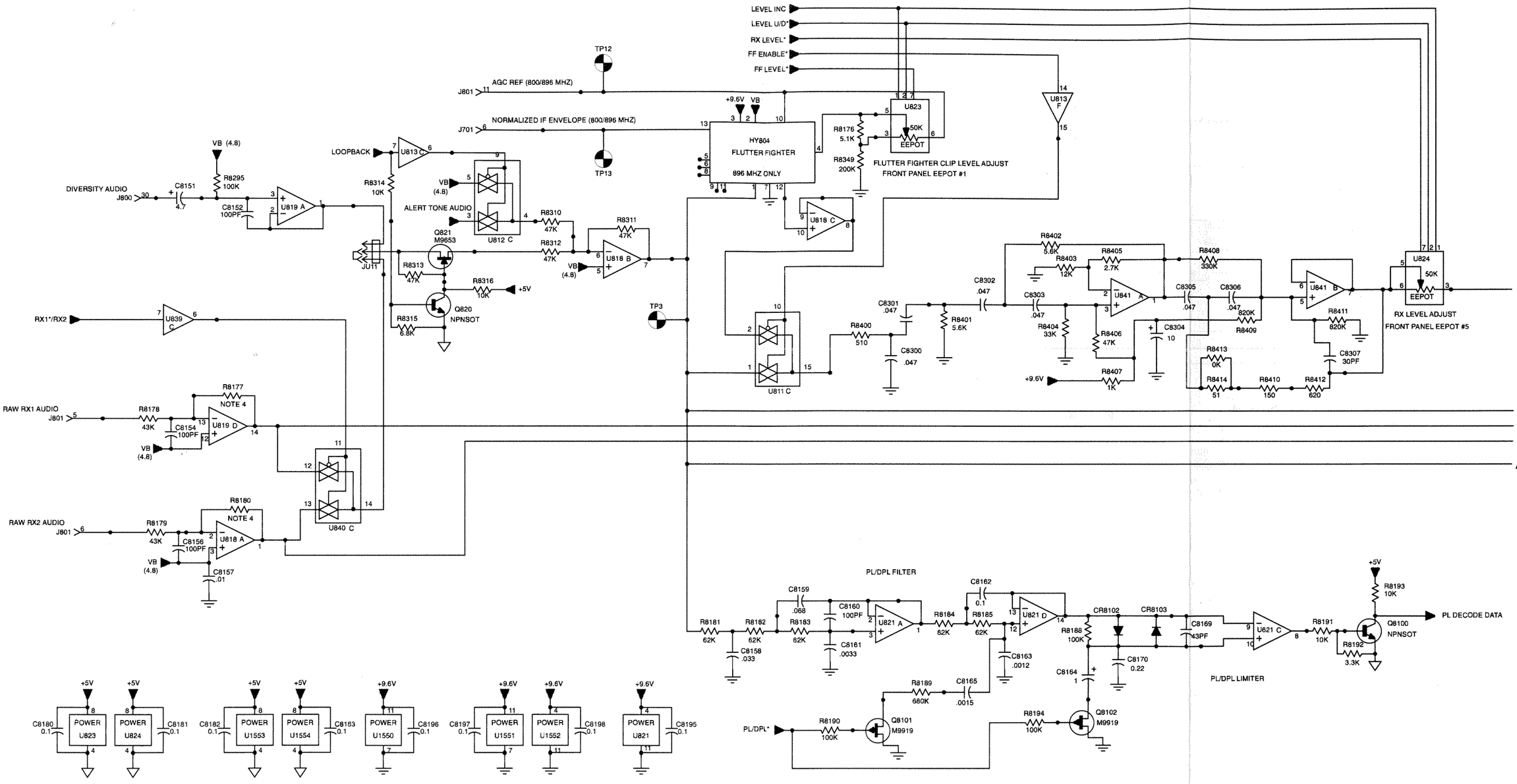

U801
STD_ASIC
U802
IO_ASIC
PROGRAM EPROM (32K/64K)
U803
SRAM (8K/32K)
U804
A13/CE2
HIGH SPEED RING
HSR CLK
HSR SYN
HSR OUT
HSR IN
HSR(0:3)
MUXBUS(0:8)
ADDRESS(0:7)
ADDRESS_LOWER(0:7)
ADDRESS_UPPER(8:15)
DATA(0:7)
OL5(0:6)
OL6(0:7)
OL4(0:7)
OL10(0:7)
OL14(0:7)
OL13(0:6)
OL12(0:7)
OL11(0:2)
OL8(0:3)
IB9(0:7)
IB10(0:7)
IB11(0:7)
ROM CE*
RAM WE*
RAM CE*
MEM OE*
MUXIRQ
DELAYED RESET
BD2*
BD3*
DS*
SEGMENT dec*
SEGMENT a*
SEGMENT b*
SEGMENT e*
SEGMENT d*
SEGMENT f*
SEGMENT g*
SEGMENT c*
ALERT TONE 0
ALERT TONE 1
ALERT TONE 2
ALERT TONE 3
PL/CT 0
PL/CT 1
PL/CT 2
PL/CT 3
CODED MOD LEVEL*
RX LEVEL*
MAX DEV LEVEL*
RCVR SQ LEVEL*
RPTR SQ LEVEL*
FF LEVEL*
CODED RX LEVEL*
LEVEL INC
PREDE/FLAT*
RX1*/RX2
COMPANDOR ENABLE
SQUELCH EEPOT ENABLE*
PL/CT* SELECT
FF ENABLE*
POWER U803
POWER U804
NOTE 4

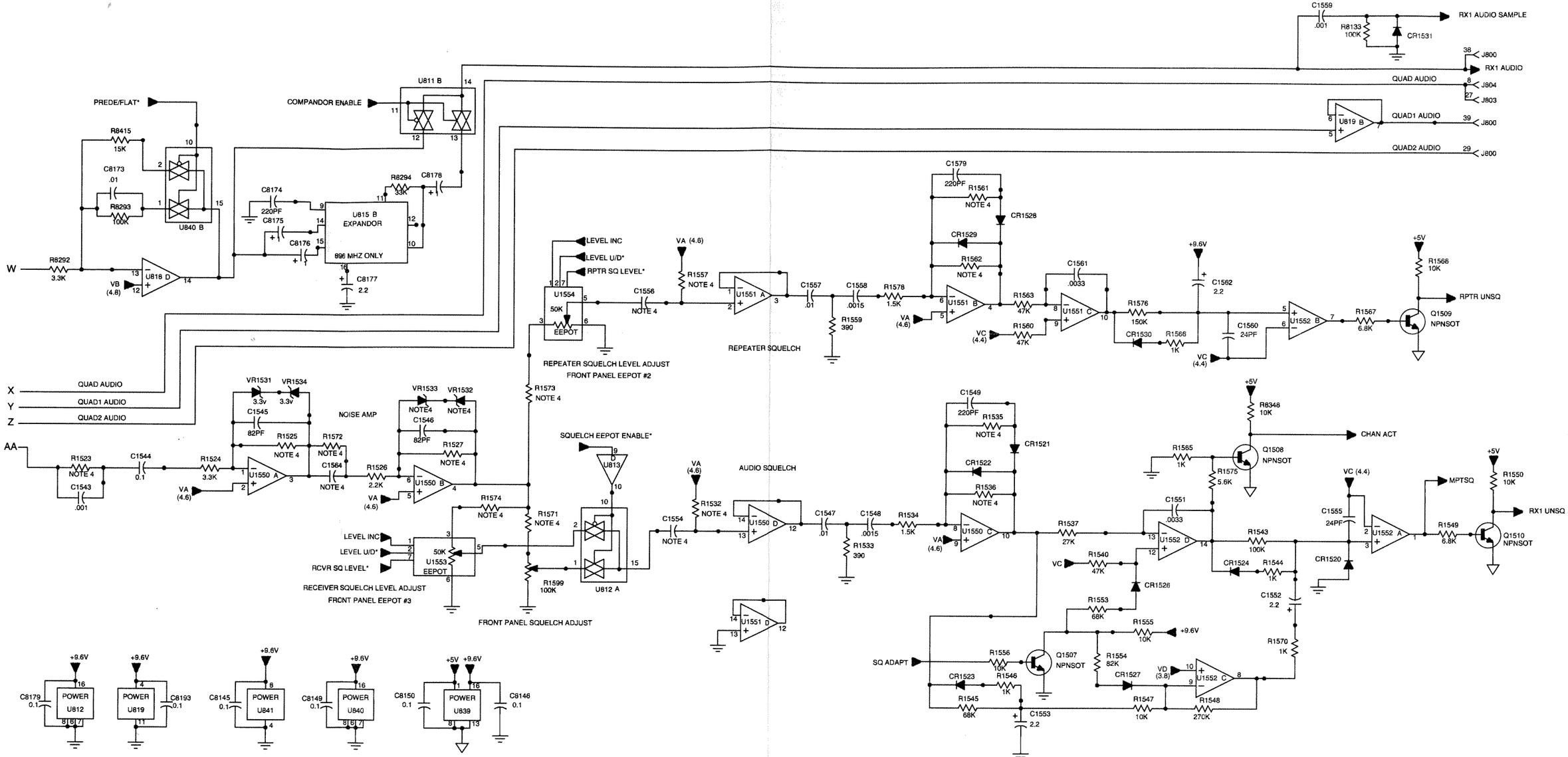
TLN3384/TLN3385/TLN3386/TLN3387 SSCB




RAC_LN_AUD
J800 27
RAW TX AUDIO
J804 6
ALERT TONE LINE GATE
REPEATER GATE
MRTI GATE
K
L
M
N
O
P
Q
R
S
T
U
V
VB (4.8)
JU17
R8502 18K
R8140 NOTE 3
R8141 15K
R8142 22K
R8143 22K
R8144 10K
TX AUDIO SUMMER
C8130 100PF
U814 A
R8136 18K
C8126 100PF
U816 E
U816 C
U817 A
U816 B
U810 A
TX AUDIO
J804 5
C8139 0.22
R8173 100K
TX AUDIO GATE
TX GATE*
IN MRTI AUDIO
J802 8
R8344 560
C8140 0.22
R8174 100K
U817 B
MRTI GATE
R8175 15K
R8146 15K
R8147 27K
R8148 10K
R8149 27K
R8150 100K
R8151 27K
R8152 27K
R8153 22K
R8154 22K
R8155 27K
R8156 100K
R8157 27K
R8158 27K
R8159 27K
R8160 NOTE 3
R8161
R8162 22K
R8163 27K
R8164 10K
R8165 27K
R8166 27K
LINE AUDIO SUMMER
C8131 43PF
U814 D
R8137 27K
C8127 100PF
NOTE 3
R8145
SELECT AUDIO SUMMER
TP1
C8132 43PF
U814 B
R8138 33K
C8128 1500PF
R8135 5K
MRTI SUMMER
C8133 43PF
U814 C
R8139 33K
C8129 100PF
C8141 .01
U817 C
U810 B
R8169 100K
C8137 0.22
RX1 AUDIO
SECURE RX AUDIO
J803 4
JU10
RX1 GATE*
RX1 AUDIO GATE
U810 C
R8172 100
C8136 10
R8170 560
+9.6V
CR8100
CR8101
MIC AUDIO
J812 3
LOCAL AUDIO
J800 33
C8134 1
R8167 100K
JU7
C8153 .01
LOCAL GATE*
LOCAL AUDIO GATE
TP8
ALERT TONE AUDIO
RX2 AUDIO
J800 35
C8138 0.22
R8171 200K
JU8
SECURE ALERT TONES
J803 34
C8135 0.22
R8168 200K
JU9


K
L
M
N
O
P
Q
R
S
T
U
V
J803 8
RAW TX AUDIO J803 6
J803 28
RAW/TX J800 36
TX AUDIO J803 5
JU16
C8125
R8134 56K
U815 A COMPRESSOR
R8131 10K
R8125 10K
C8117 2.2
C8121 220PF
C8122
C8123
C8118
896 MHZ ONLY
COMPANDOR ENABLE
U811 A
GCC DATA AUDIO J800 31
JU6
JU14
SPLATTER FILTER
U840 A
C8119 .0033
PRE-EMPHASIS
C8402 .22
R8187 43K
FLAT_AUDIO
PREDE/FLAT*
R8127 6.8K
R6123 390K
R8120 NOTE 4
R8119 NOTE 4
VB (4.8)
U838 B
R8122 10
LIMITER
C8124 .1UF
R8196 NOTE 4
R8195 3.9K
R8197 1.2K
U837 B
C8120 .01UF
C8107 .022
R8118 3.9K
R8115 6.8K
R8116 3.9K
U838 A
C8104 .01UF
R8114 3.3K
R8113 3.3K
C8102 .01UF
U837 A
C8103 .022
R8112 6.8K
R8108 15K
U816 D
ALERT TONE TX GATE
U817 D
R8130 365K
CODED MOD AUDIO J803 7
R8199 0
CODED MOD AUDIO_1
R8500 NOTE 3
JU3
VB
R8198 47K
JU20
R8186 NOTE 4
R8132 NOTE 4
U8200 C
VB (4.8)
R8101 12K
R8102 12K
R8109 12K
R8103 12K
JU5
VB (4.8)
TKG MOD AUDIO J804 7
JU4
TX DATA AUDIO J800 34
JU15
PL ENCODE AUDIO
R8111 22K
R8110 NOTE 4
C8101 100PF
U8200 A
R8107 22K
R8106 10K
U831 50K EEPOT
MAX DEV LEVEL*
LEVEL U/D*
LEVEL INC
MAX DEVIATION ADJUST
FRONT PANEL EEPOT #4
VB (4.8)
C8100 100PF
U8200 D
TP4
TX MOD AUDIO J801
R8100 12K
C8230 220PF
C8216 .1
R8318 100K
CR8112
MOD AUDIO SAMPLE
LINE AUDIO 4 J804
C8225 .1
R8105 100K
CR8113
LINE AUDIO SAMPLE
C8231 .1
R8300 100K
CR8110
SYSTEM AUDIO SAMPLE
A++ (13.8)
R8501 9.1
R8121 9.1
C8112 4.7
C8108 .01
C8109 330UF
U830
BYP
VS
IN+
IN-
OUT
R8128 3.3K
C8116 .22
R8129 1.5K
C8113 100PF
C8115 220PF
C8114 220PF
CR8115
CR8116
A++
SELECT AUDIO J800 32
SPKR AUDIO
C8105 330UF
J812 5
OUT MRTI AUDIO J802 10
R6117 2.7
C8106 0.1
HANDSET AMPLIFIER
CR8107
U821 B
C8190 0.1
C8191 0.1
POWER U837
POWER U838
C8189 0.1
C8188 0.1
C8142 0.1
C8143 0.1
C8144 0.1
C8187 0.1
C8186 0.1
C8185 0.1
C8184 0.1
C8147 0.1
C8146 0.1
POWER U818
POWER U814
POWER U831
POWER U810
POWER U811
POWER U813
POWER U816
POWER U815
POWER U817
+9.6V
+5V


LEVEL INC
LEVEL U/D*
RX LEVEL*
FF ENABLE*
FF LEVEL*
TP12
AGC REF (800/896 MHZ)
J801
NORMALIZED IF ENVELOPE (800/896 MHZ)
J701
TP13
HY804
FLUTTER FIGHTER
896 MHZ ONLY
U823
R8176 5.1K
R8349 200K
50K
EEPOT
FLUTTER FIGHTER CLIP LEVEL ADJUST
FRONT PANEL EEPOT #1
U813 F
VB (4.8)
DIVERSITY AUDIO
J800
C8151 4.7
R8295 100K
C8152 100PF
U819 A
LOOPBACK
U813 C
R8314 10K
ALERT TONE AUDIO
Q821 M9653
U812 C
R8310 47K
R8311 47K
R8312 47K
U818 B
R8313 47K
R8316 10K
+5V
Q820 NPNSOT
R8315 6.8K
JU11
TP3
U818 C
R8402 5.6K
R8403 12K
R8405 2.7K
R8408 330K
C8302 .047
C8303 .047
C8305 .047
C8306 .047
U841 A
U841 B
U824
50K
EEPOT
RX LEVEL ADJUST
FRONT PANEL EEPOT #5
W
RX1*/RX2
U839 C
C8301 .047
R8400 510
C8300 .047
R8401 5.6K
R8404 33K
R8406 47K
R8407 1K
+9.6V
C8304 10
R8409 820K
R8411 820K
C8307 30PF
R8413 0K
R8414 51
R8410 150
R8412 620
U811 C
X
Y
Z
AA
RAW RX1 AUDIO
J801
R8177 NOTE 4
R8178 43K
C8154 100PF
U819 D
R8180 NOTE 4
RAW RX2 AUDIO
J801
R8179 43K
C8156 100PF
U818 A
C8157 .01
U840 C
PL/DPL FILTER
C8159 .068
C8160 100PF
C8161 .0033
C8158 .033
R8181 62K
R8182 62K
R8183 62K
U821 A
C8162 0.1
R8184 62K
R8185 62K
U821 D
C8163 .0012
R8188 100K
CR8102
CR8103
C8169 43PF
C8170 0.22
C8164 1
U621 C
PL/DPL LIMITER
R8191 10K
R8193 10K
R8192 3.3K
Q8100 NPNSOT
PL DECODE DATA
+5V
R8189 680K
C8165 .0015
R8190 100K
PL/DPL*
Q8101 M9919
R8194 100K
Q8102 M9919
POWER U823
POWER U824
POWER U1553
POWER U1554
POWER U1550
POWER U1551
POWER U1552
POWER U821
C8180 0.1
C8181 0.1
C8182 0.1
C8183 0.1
C8196 0.1
C8197 0.1
C8198 0.1
C8195 0.1


PREDE/FLAT*
COMPANDOR ENABLE
U811 B
R8415 15K
C8173 .01
R8293 100K
U840 B
R8292 3.3K
U818 D
VB (4.8)
W
C8174 220PF
C8175
C8176
U815 B EXPANDOR
896 MHZ ONLY
R8294 33K
C8178
C8177 2.2
C1559 .001
R8133 100K
CR1531
RX1 AUDIO SAMPLE
J800
RX1 AUDIO
QUAD AUDIO
J804
J803
U819 B
QUAD1 AUDIO
J800
QUAD2 AUDIO
J800
X QUAD AUDIO
Y QUAD1 AUDIO
Z QUAD2 AUDIO
AA
VR1531 3.3v
VR1534 3.3v
C1545 82PF
R1525 NOTE 4
R1572 NOTE 4
C1564 NOTE 4
NOISE AMP
VR1533 NOTE4
VR1532 NOTE4
C1546 82PF
R1527 NOTE 4
R1523 NOTE 4
C1544 0.1
C1543 .001
R1524 3.3K
U1550 A
VA (4.6)
R1526 2.2K
U1550 B
R1574 NOTE 4
R1571 NOTE 4
R1599 100K
U812 A
SQUELCH EEPOT ENABLE*
U813
LEVEL INC
LEVEL U/D*
RCVR SQ LEVEL*
U1553 EEPOT 50K
RECEIVER SQUELCH LEVEL ADJUST
FRONT PANEL EEPOT #3
FRONT PANEL SQUELCH ADJUST
LEVEL INC
LEVEL U/D*
RPTR SQ LEVEL*
U1554 EEPOT 50K
REPEATER SQUELCH LEVEL ADJUST
FRONT PANEL EEPOT #2
R1573 NOTE 4
C1556 NOTE 4
VA (4.6)
R1557 NOTE 4
U1551 A
REPEATER SQUELCH
C1557 .01
C1558 .0015
R1559 390
R1578 1.5K
C1579 220PF
R1561 NOTE 4
CR1528
CR1529
R1562 NOTE 4
U1551 B
VA (4.6)
VC (4.4)
R1563 47K
R1560 47K
C1561 .0033
U1551 C
+9.6V
R1576 150K
CR1530
R1566 1K
C1562 2.2
C1560 24PF
U1552 B
+5V
R1566 10K
R1567 6.8K
Q1509 NPNSOT
RPTR UNSQ
C1549 220PF
R1535 NOTE 4
CR1521
CR1522
R1536 NOTE 4
VA (4.6)
AUDIO SQUELCH
C1554 NOTE 4
R1532 NOTE 4
U1550 D
C1547 .01
C1548 .0015
R1533 390
R1534 1.5K
U1550 C
R1537 27K
VC (4.4)
R1540 47K
SQ ADAPT
R1556 10K
Q1507 NPNSOT
R1546 1K
CR1523
R1545 68K
C1553 2.2
R1553 68K
CR1526
R1554 82K
CR1527
R1547 10K
VD (3.8)
U1552 C
R1548 270K
R1555 10K
+9.6V
R8348 10K
CHAN ACT
R1565 1K
Q1508 NPNSOT
R1575 5.6K
C1551 .0033
U1552 D
R1543 100K
CR1524
R1544 1K
CR1520
C1552 2.2
R1570 1K
C1555 24PF
U1552 A
MPTSQ
R1549 6.8K
Q1510 NPNSOT
R1550 10K
RX1 UNSQ
C8179 0.1
POWER U812
C8193 0.1
POWER U819
C8145 0.1
POWER U841
C8149 0.1
POWER U840
C8150 0.1
POWER U839
C8146 0.1

TLN3384 SSCB Parts List

Reference Symbol	Motorola Part No.	Description
		capacitor, fixed:
C701	2113740B57	220 pF, +/-5%; 50 V
C702	2113740B71	820 pF, +/-5%; 50 V
C703	2113740B73	1000 pF, +/-5%; 50 V
C704	2113741B69	0.1 uF, +/-5%; 50 V
C705,706	2311049A19	10 uF, +/-10%; 25 V
C707	2113741B69	0.1 uF, +/-5%; 50 V
C708	2311049A19	10 uF, +/-10%; 25 V
C709	2311049A08	1 uF, +/-10%; 35 V
C710,711	2311049A22	33 uF, +/-10%; 16 V
C712 thru 714	2311049A19	10 uF, +/-10%; 25 V
C715	2113740B49	100 pF, +/-5%; 50 V
C716	2311049A19	10 uF, +/-10%; 25 V
C717	2113741B69	0.1 uF, +/-5%; 50 V
C718	2313748G21	100 uF, +/-20%; 16V
C719	2311049A19	10 uF, +/-10%; 25 V
C720	2113741B69	0.1 uF, +/-5%; 50 V
C721	2311049A22	33 uF, +/-10%; 16 V
C722 thru 725	2113741B69	0.1 uF, +/-5%; 50 V
C800	2113741B45	0.01 uF, +/-5%; 50 V
C801	2113740B59	270 pF, +/-5%; 50V
C802 thru 808	2113741B69	0.1 uF, +/-5%; 50 V
C810	2113741B69	0.1 uF, +/-5%; 50 V
C812	2311049A19	10 uF, +/-10%; 25 V
C814,815	2113740B25	10 pF, +/-5%; 50 V
C817	2113740B65	470 pF, +/-5%; 50 V
C819	2113741B69	0.1 uF, +/-5%; 50 V
C820	2113741B45	0.01 uF, +/-5%; 50 V
C822	2311049A08	1 uF, +/-10%; 35 V
C823 thru 828	2113741B69	0.1 uF, +/-5%; 50 V
C829	2113740B49	100 pF, +/-5%; 50 V
C830	2113741B69	0.1 uF, +/-5%; 50 V
C1543	2113740B73	1000 pF, +/-5%; 50 V
C1544	0811051A13	0.1 uF, +/-5%; 63 V
C1545,1546	2113740B47	82 pF, +/-5%; 50V
C1547	0811017A08	0.01 uF, +/-5%; 50 V
C1548	2113740B76	1500 pF, +/-5 pF; 50V
C1549	2113740B57	220 pF, +/-5%; 50 V
C1551	0811017A05	3300 pF, +/-5%; 50V
C1552,1553	2311049A10	2.2 uF, +/-10%; 35V
C1554	0811017A01	1000 pF, +/-5%; 50 V
C1555	2113740B34	24 pF, +/-5%; 50V
C1556	0811017A01	1000 pF, +/-5%; 50 V
C1557	0811017A08	0.01 uF, +/-5%; 50 V
C1558	2113740B76	1500 pF, +/-5 pF; 50V
C1559	2113740B73	1000 pF, +/-5%; 50 V
C1560	2113740B34	24 pF, +/-5%; 50V
C1561	0811017A05	3300 pF, +/-5%; 50V
C1562	2311049A10	2.2 uF, +/-10%; 35V
C1564	2113741B21	1000 pF, +/-5%; 50 V
C1579	2113740B57	220 pF, +/-5%; 50 V
C8100,8101	2113740B49	100 pF, +/-5%; 50 V
C8102	0811017A08	0.01 uF, +/-5%; 50 V
C8103	0811051A09	0.022 uF, +/-5%; 63 V
C8104	0811017A08	0.01 uF, +/-5%; 50 V
C8105	2313748G25	333 uF, +/-20%; 35V
C8106	0811051A13	0.1 uF, +/-5%; 63 V
C8107	0811051A09	0.022 uF, +/-5%; 63 V
C8108	0811017A08	0.01 uF, +/-5%; 50 V
C8109	2313748G25	333 uF, +/-20%; 35V
C8112	2311049A15	4.7 uF, +/-10%; 35V
C8113	2113740B49	100 pF, +/-5%; 50 V
C8114,8115	2113740B57	220 pF, +/-5%; 50 V
C8116	0811051A15	0.22 uF, +/-5%; 63 V
C8117	2311049A10	2.2 uF, +/-10%; 35V
C8118	2311049A08	1 uF, +/-10%; 35 V
C8119	0811017A05	3300 pF, +/-5%; 50V
C8120	0811017A08	0.01 uF, +/-5%; 50 V
C8121	2113740B57	220 pF, +/-5%; 50 V
C8122,8123	2311049A08	1 uF, +/-10%; 35 V
C8124	0811051A13	0.1 uF, +/-5%; 63 V
C8125	2311049A08	1 uF, +/-10%; 35 V
C8126,8127	2113740B49	100 pF, +/-5%; 50 V
C8128	2113740B76	1500 pF, +/-5 pF; 50V
C8129,8130	2113740B49	100 pF, +/-5%; 50 V
C8131 thru 8133	2113740B40	43 pF, +/-5%; 50V
C8134	2311049A08	1 uF, +/-10%; 35 V
C8135	0811051A15	0.22 uF, +/-5%; 63 V
C8136	2311049A19	10 uF, +/-10%; 25 V
C8137 thru 8140	0811051A15	0.22 uF, +/-5%; 63 V
C8141	2113741B45	0.01 uF, +/-5%; 50 V
C8142 thru 8150	2113741B69	0.1 uF, +/-5%; 50 V
C8151	2311049A15	4.7 uF, +/-10%; 35V
C8152	2113740B49	100 pF, +/-5%; 50 V
C8153	2113741B45	0.01 uF, +/-5%; 50 V
C8154	2113740B49	100 pF, +/-5%; 50 V
C8156	2113740B49	100 pF, +/-5%; 50 V
C8157	2113741B45	0.01 uF, +/-5%; 50 V
C8158	0811051A10	0.033 uF, +/-5%; 63V
C8159	0811051A12	0.068 uF, +/-5%; 63 V
C8160	2113740B49	100 pF, +/-5%; 50 V
C8161	0811017A05	3300 pF, +/-5%; 50V
C8162	0811051A13	0.1 uF, +/-5%; 63 V
C8163	2113740B74	1200 pF, +/-5%; 50V
C8164	2311049A08	1 uF, +/-10%; 35 V
C8165	2113740B76	1500 pF, +/-5 pF; 50V
C8169	2113740B40	43 pF, +/-5%; 50V
C8170	0811051A15	0.22 uF, +/-5%; 63 V
C8173	0811017A08	0.01 uF, +/-5%; 50 V
C8174	2113740B57	220 pF, +/-5%; 50 V
C8175,8176	2311049A08	1 uF, +/-10%; 35 V
C8177	2311049A10	2.2 uF, +/-10%; 35V
C8178	2311049A08	1 uF, +/-10%; 35 V
C8179 thru 8191	2113741B69	0.1 uF, +/-5%; 50 V
C8193	2113741B69	0.1 uF, +/-5%; 50 V
C8195 thru 8198	2113741B69	0.1 uF, +/-5%; 50 V
C8200	2113741B33	3300 pF, +/-5%; 50V
C8201	2113740B55	180 pF, +/-5%; 50V
C8202	2113741B45	0.01 uF, +/-5%; 50 V
C8203	2113741B37	4700 pF, +/-5%; 50 V
C8204	2113740B73	1000 pF, +/-5%; 50 V
C8205	0811051A15	0.22 uF, +/-5%; 63 V
C8207	2113740B73	1000 pF, +/-5%; 50 V
C8209 thru 8211	0811051A13	0.1 uF, +/-5%; 63 V
C8213	0811051A13	0.1 uF, +/-5%; 63 V
C8214	2113741B45	0.01 uF, +/-5%; 50 V
C8215,8216	2113741B69	0.1 uF, +/-5%; 50 V
C8218	0811051A15	0.22 uF, +/-5%; 63 V
C8219	2113741B69	0.1 uF, +/-5%; 50 V
C8220	2113740B73	1000 pF, +/-5%; 50 V
C8225	2113741B69	0.1 uF, +/-5%; 50 V
C8230	2113740B57	220 pF, +/-5%; 50 V
C8231	2113741B69	0.1 uF, +/-5%; 50 V
C8300 thru 8303	0811051A11	0.047 uF, +/-5%; 63V
C8304	2311049A19	10 uF, +/-10%; 25 V
C8305,8306	0811051A11	0.047 uF, +/-5%; 63V
C8307	2113740B36	30 pF, +/-5%; 50V
C8400	2113740B18	5.1 pF, +/-0.25 pF; 50V
C8401	2311049A19	10 uF, +/-10%; 25 V
C8402	0811051A15	0.22 uF, +/-5%; 63 V
C8403	2311049A19	10 uF, +/-10%; 25 V
		diode: (see note)
CR801,802	4813833C10	0.1A, 70V
CR803	4805129M41	Rectifier
CR804 thru 807	4813833C10	0.1A, 70V
CR808	4884349P01	Dual Rectifier
CR809	4813833C10	0.1A, 70V
CR1520 thru 1522	4805129M41	Rectifier
CR1523,1524	4813833C10	0.1A, 70V
CR1526,1527	4813833C10	0.1A, 70V
CR1528,1529	4805129M41	Rectifier
CR1530	4813833C10	0.1A, 70V
CR1531	4805129M41	Rectifier

TLN3384 SSCB Parts List

Reference Symbol	Motorola Part No.	Description
CR8100,8101	4883654H01	silicon
CR8102,8103	4813833C10	0.1A, 70V
CR8107	4813833C10	0.1A, 70V
CR8110	4805129M41	Rectifier
CR8112,8113	4805129M41	Rectifier
CR8115,8116	4883654H01	silicon
CR8200 thru 8203	4805129M41	Rectifierlight emitting diode: (see note)
DS800 thru 803	4888245C22	GRN
DS804	4888245C23	YEL
DS805	4888245C24	RED
DS8200 thru 8202	4882771L03	7-segment display (red)
		hybrid:
HY805	TRN7008A	Display Board
		connector:
J701	2882984N13	plug: 6-contact
J801	2882505T03	plug: 26-contact
J802	2813922A14	HDR 14 POS STR .1 CTR GLD PLTD
J803	2882505T05	plug: 40-contact
J804	2882505T04	plug: 34-contact
J805A	2883547T01	receptacle: 8-contact, right anle
J805B	2883547T01	receptacle: 8-contact, right anle
J806,807	0984231B03	receptacle: phono jack
J812	0983112N01	receptacle: 6-contact
		inductor:
L700	2484386T01	25 UH
L701	2484266T01	150 UH
L702	2484386T01	25 UH
L800	2411047A25	10 UH
L900	2411047A31	CHK RF MLD A/I 33UH
		transistor: (see note)
Q700	4884233T01	type MOSFET
Q705	4813824A17	PNP
Q800	4813824A17	PNP
Q801 thru 807	4813824A10	NPN
Q808	4813824A06	NPN
Q809 thru 811	4813824A10	NPN
Q813,814	4813824A10	NPN
Q816,817	4813824A10	NPN
Q820	4813824A10	NPN
Q821	4800869653	type JFET
Q822,823	4813824A10	NPN
Q1507 thru 1510	4813824A10	NPN
Q8100	4813824A10	NPN
Q8101,8102	4811043B42	TSTR 48R00869919 A/I
Q8200 thru 8207	4813824A17	PNP
Q8208 thru 8210	4813824A06	NPN
Q8211	4813824A10	NPN
Q8212	4813824A06	NPN
		resistor, fixed:
R700	0611077A98	10K, +/-5%; 1/8 W
R701	0611077A88	3.9K, +/-5%; 1/8 W
R702	0611077A50	100 ohms, +/-5%; 1/8 W
R703	0611077A74	1K, +/-5%; 1/8 W
R704	0611077B31	220K, +/-5%; 1/8 W
R705	0611077F63	5.11K, +/-1%; 1/8 W
R706	0611077F28	2.21K, +/-1%; 1/8 W
R707	0611077H30	267K, +/-1%; 1/8 W
R708	0611077F91	10K, +/-1%; 1/8 W
R709	0611077E94	1K, +/-1%; 1/8 W
R710	0611077F60	4.75K, +/-1%; 1/8 W
R711	0611077B35	330K, +/-5%; 1/8 W
R712	0611077B23	100K, +/-5%; 1/8 W
R713	0611077F91	10K, +/-1%; 1/8 W
R714	0611077B13	39K, +/-5%; 1/8 W
R715	0611077B15	47K, +/-5%; 1/8 W
R716	0611077F63	5.11K, +/-1%; 1/8 W
R717	0611077B35	330K, +/-5%; 1/8 W
R718	0611077B07	22K, +/-5%; 1/8 W
R719	0611077A50	100 ohms, +/-5%; 1/8 W
R720	0611077A36	27 ohms, +/-5%; 1/8 W
R721	0611077B47	1 meg, +/-5%; 1/8 W

Reference Symbol	Motorola Part No.	Description
R722	0611077B31	220K, +/-5%; 1/8 W
R723,724	0683962T01	1 ohm, +/-5%; 1 W
R725	0611077F91	10K, +/-1%; 1/8 W
R726	0611077G09	15K, +/-1%; 1/8 W
R727	0611077A98	10K, +/-5%; 1/8 W
R728	0611077H85	1 meg, +/-1%; 1/8 W
R729	0611077B29	180K, +/-5%; 1/8 W
R730	0611077A01	0 ohm, +/-5%; 0 W
R731	0683962T01	1 ohm, +/-5%; 1 W
R736	0611009A33	220 ohms, +/-5%; 1/4 W
R737	0611077A84	2.7K, +/-5%; 1/8 W
R738	0611077A64	390 ohms, +/-5%; 1/8 W
R739	0611077A98	10K, +/-5%; 1/8 W
R740	0611077A56	180 ohms, +/-5%; 1/8W
R741	0611077A98	10K, +/-5%; 1/8 W
R742	0611077A86	3.3K, +/-5%; 1/8 W
R743	0683962T01	1 ohm, +/-5%; 1 W
R748	0611077A78	1.5K, +/-5%; 1/8 W
R800	0611077A54	150 ohms, +/-5%; 1/8 W
R801	0611077A88	3.9K, +/-5%; 1/8 W
R802	0611077A01	0 ohm, +/-5%; 0 W
R803,804	0611077A88	3.9K, +/-5%; 1/8 W
R805	0611077A42	47 ohms, +/-5%; 1/8 W
R806	0611077A98	10K, +/-5%; 1/8 W
R807	0611077A94	6.8K, +/-5%; 1/8W
R809,810	0611077A94	6.8K, +/-5%; 1/8W
R812	0611077A78	1.5K, +/-5%; 1/8 W
R813	0611077A32	18 ohms, +/-5%; 1/8 W
R814	0611077A56	180 ohms, +/-5%; 1/8W
R815	0611077A32	18 ohms, +/-5%; 1/8 W
R816	0611077A90	4.7K, +/-5%; 1/8 W
R817	0611077A82	2.2K, +/-5%; 1/8 W
R818	0611077A52	120 ohms, +/-5%; 1/8 W
R819	0611077A32	18 ohms, +/-5%; 1/8 W
R820	0611077A56	180 ohms, +/-5%; 1/8W
R821	0611077A78	1.5K, +/-5%; 1/8 W
R822	0611077A56	180 ohms, +/-5%; 1/8W
R823	0611077A82	2.2K, +/-5%; 1/8 W
R824	0611077A80	1.8K, +/-5%; 1/8 W
R825	0611077A82	2.2K, +/-5%; 1/8 W
R826	0611077A98	10K, +/-5%; 1/8 W
R827	0611077A88	3.9K, +/-5%; 1/8 W
R828	0611077B07	22K, +/-5%; 1/8 W
R829	0611077A94	6.8K, +/-5%; 1/8W
R830 thru 836	0611077A98	10K, +/-5%; 1/8 W
R837,838	0611077A50	100 ohms, +/-5%; 1/8 W
R839	0611077A98	10K, +/-5%; 1/8 W
R840,841	0611077A50	100 ohms, +/-5%; 1/8 W
R842	0611077A98	10K, +/-5%; 1/8 W
R843 thru 845	0611077A50	100 ohms, +/-5%; 1/8 W
R846	0611077A52	120 ohms, +/-5%; 1/8 W
R847,848	0611077A98	10K, +/-5%; 1/8 W
R849	0611077B09	27K, +/-5%; 1/8 W
R850	0611077A98	10K, +/-5%; 1/8 W
R851	0611077A58	220 ohms, +/-5%; 1/8 W
R852	0611077B39	470K, +/-5%; 1/8 W
R854	0611077A98	10K, +/-5%; 1/8 W
R855	0611077A92	5.6K, +/-5%; 1/8 W
R856 thru 858	0611077A98	10K, +/-5%; 1/8 W
R861	0611077B09	27K, +/-5%; 1/8 W
R862	0611077A88	3.9K, +/-5%; 1/8 W
R863	0611077A54	150 ohms, +/-5%; 1/8 W
R866	0611077A98	10K, +/-5%; 1/8 W
R867	0611077A78	1.5K, +/-5%; 1/8 W
R868 thru 871	0611077A98	10K, +/-5%; 1/8 W
R872	0611077A54	150 ohms, +/-5%; 1/8 W
R873	0611077A98	10K, +/-5%; 1/8 W
R874	0611077A54	150 ohms, +/-5%; 1/8 W
R875	0611077A80	1.8K, +/-5%; 1/8 W
R876	0611077A98	10K, +/-5%; 1/8 W
R877	0611077A54	150 ohms, +/-5%; 1/8 W
R878	0611077A90	4.7K, +/-5%; 1/8 W
R879	0611077A82	2.2K, +/-5%; 1/8 W
R880	0611077A78	1.5K, +/-5%; 1/8 W
R881	0611077A98	10K, +/-5%; 1/8 W
R882	0611077A82	2.2K, +/-5%; 1/8 W
R883,884	0611077A98	10K, +/-5%; 1/8 W

Reference Symbol	Motorola Part No.	Description
R887	0611077A98	10K, +/-5%; 1/8 W
R888	0611077B39	470K, +/-5%; 1/8 W
R889	0611077A98	10K, +/-5%; 1/8 W
R890	0611077A74	1K, +/-5%; 1/8 W
R891	0611077A98	10K, +/-5%; 1/8 W
R893	0611077A98	10K, +/-5%; 1/8 W
R894	0611077B23	100K, +/-5%; 1/8 W
R895 thru 898	0611077A98	10K, +/-5%; 1/8 W
R899	0611077A92	5.6K, +/-5%; 1/8 W
R900	0611077A50	100 ohms, +/-5%; 1/8 W
R1523	0611077B15	47K, +/-5%; 1/8 W
R1524	0611077A86	3.3K, +/-5%; 1/8 W
R1525	0611077B23	100K, +/-5%; 1/8 W
R1526	0611077A82	2.2K, +/-5%; 1/8 W
R1527	0611077B35	330K, +/-5%; 1/8 W
R1532	0611077B07	22K, +/-5%; 1/8 W
R1533	0611077A64	390 ohms, +/-5%; 1/8 W
R1534	0611077A78	1.5K, +/-5%; 1/8 W
R1535	0611077B25	120K, +/-5%; 1/8 W
R1536	0611077B31	220K, +/-5%; 1/8 W
R1537	0611077B15	47K, +/-5%; 1/8 W
R1540	0611077B15	47K, +/-5%; 1/8 W
R1543	0611077B23	100K, +/-5%; 1/8 W
R1544	0611077A74	1K, +/-5%; 1/8 W
R1545	0611077B19	68K, +/-5%; 1/8W
R1546	0611077A74	1K, +/-5%; 1/8 W
R1547	0611077A98	10K, +/-5%; 1/8 W
R1548	0611077B33	270K, +/-5%; 1/8W
R1549	0611077A94	6.8K, +/-5%; 1/8W
R1550	0611077A98	10K, +/-5%; 1/8 W
R1553	0611077B19	68K, +/-5%; 1/8W
R1554	0611077B21	82K, +/-5%; 1/8W
R1555,1556	0611077A98	10K, +/-5%; 1/8 W
R1557	0611077B07	22K, +/-5%; 1/8 W
R1559	0611077A64	390 ohms, +/-5%; 1/8 W
R1560	0611077B15	47K, +/-5%; 1/8 W
R1561	0611077B25	120K, +/-5%; 1/8 W
R1562	0611077B31	220K, +/-5%; 1/8 W
R1563	0611077B15	47K, +/-5%; 1/8 W
R1565,1566	0611077A74	1K, +/-5%; 1/8 W
R1567	0611077A94	6.8K, +/-5%; 1/8W
R1568	0611077A98	10K, +/-5%; 1/8 W
R1570	0611077A74	1K, +/-5%; 1/8 W
R1571	0611077A98	10K, +/-5%; 1/8 W
R1573,1574	0611077A91	5.1K, +/-5%; 1/8 W
R1575	0611077A92	5.6K, +/-5%; 1/8 W
R1576	0611077B27	150K, +/-5%; 1/8W
R1578	0611077A78	1.5K, +/-5%; 1/8 W
R1599	1882787K08	variable: 100K +/-20%; 1/4W
R8100 thru 8103	0611077B01	12K, +/-5%; 1/8 W
R8105	0611077B23	100K, +/-5%; 1/8 W
R8106	0611077A98	10K, +/-5%; 1/8 W
R8107	0611077B07	22K, +/-5%; 1/8 W
R8108	0611077B03	15K, +/-5%; 1/8 W
R8109	0611077B01	12K, +/-5%; 1/8 W
R8110	0611077B11	33K, +/-5%; 1/8 W
R8111	0611077B07	22K, +/-5%; 1/8 W
R8112	0611077A94	6.8K, +/-5%; 1/8W
R8113,8114	0611077A86	3.3K, +/-5%; 1/8 W
R8115	0611077A94	6.8K, +/-5%; 1/8W
R8116	0611077A88	3.9K, +/-5%; 1/8 W
R8117	0611009B26	2.7 ohms, +/-5%; 1/4W
R8118	0611077A88	3.9K, +/-5%; 1/8 W
R8119	0611077A67	510 ohms, +/-5%; 1/8 W
R8120	0611077A68	560 ohms, +/-5%; 1/8 W
R8121	0683962T24	9.1 ohms, +/-5%; 1W
R8122	0611077A26	10 ohms, +/-5%; 1/8 W
R8123	0611077B37	390K, +/-5%; 1/8W
R8125	0611077A98	10K, +/-5%; 1/8 W
R8127	0611077A94	6.8K, +/-5%; 1/8W
R8128	0611077A86	3.3K, +/-5%; 1/8 W
R8129	0611077A78	1.5K, +/-5%; 1/8 W
R8130	0611077H43	365K, +/-1%; 1/8W
R8131	0611077A98	10K, +/-5%; 1/8 W
R8132	0611077A92	5.6K, +/-5%; 1/8 W
R8133	0611077B23	100K, +/-5%; 1/8 W
R8134	0611077B17	56K, +/-5%; 1/8 W
R8135	1882787K09	variable: 5K +/-10%; 1/4W
R8136	0611077B05	18K, +/-5%; 1/8 W
R8137	0611077B09	27K, +/-5%; 1/8 W
R8138,8139	0611077B11	33K, +/-5%; 1/8 W
R8141	0611077B03	15K, +/-5%; 1/8 W
R8142,8143	0611077B07	22K, +/-5%; 1/8 W
R8144	0611077A98	10K, +/-5%; 1/8 W
R8146	0611077B03	15K, +/-5%; 1/8 W
R8147	0611077B09	27K, +/-5%; 1/8 W
R8148	0611077A98	10K, +/-5%; 1/8 W
R8149	0611077B09	27K, +/-5%; 1/8 W
R8150	0611077B23	100K, +/-5%; 1/8 W
R8151,8152	0611077B09	27K, +/-5%; 1/8 W
R8153,8154	0611077B07	22K, +/-5%; 1/8 W
R8155	0611077B09	27K, +/-5%; 1/8 W
R8156	0611077B23	100K, +/-5%; 1/8 W
R8157 thru 8159	0611077B09	27K, +/-5%; 1/8 W
R8162	0611077B07	22K, +/-5%; 1/8 W
R8163	0611077B09	27K, +/-5%; 1/8 W
R8164	0611077A98	10K, +/-5%; 1/8 W
R8165,8166	0611077B09	27K, +/-5%; 1/8 W
R8167	0611077B23	100K, +/-5%; 1/8 W
R8168	0611077B30	200K, +/-5%; 1/8 W
R8169	0611077B23	100K, +/-5%; 1/8 W
R8170	0611077A68	560 ohms, +/-5%; 1/8 W
R8171	0611077B30	200K, +/-5%; 1/8 W
R8172	0611077A50	100 ohms, +/-5%; 1/8 W
R8173,8174	0611077B23	100K, +/-5%; 1/8 W
R8175	0611077B03	15K, +/-5%; 1/8 W
R8176	0611077A91	5.1K, +/-5%; 1/8 W
R8177	0611077B11	33K, +/-5%; 1/8 W
R8178,8179	0611077B14	43K, +/-5%; 1/8 W
R8180	0611077B11	33K, +/-5%; 1/8 W
R8181 thru 8185	0611077B18	62K, +/-5%; 1/8 W
R8186	0611077A87	3.6K, +/-5%; 1/8W
R8187	0611077B14	43K, +/-5%; 1/8 W
R8188	0611077B23	100K, +/-5%; 1/8 W
R8189	0611077B43	680K, +/-5%; 1/8 W
R8190	0611077B23	100K, +/-5%; 1/8 W
R8191	0611077A98	10K, +/-5%; 1/8 W
R8192	0611077A86	3.3K, +/-5%; 1/8 W
R8193	0611077A98	10K, +/-5%; 1/8 W
R8194	0611077B23	100K, +/-5%; 1/8 W
R8195	0611077A88	3.9K, +/-5%; 1/8 W
R8196,8197	0611077A76	1.2K, +/-5%; 1/8 W
R8198	0611077B15	47K, +/-5%; 1/8 W
R8199	0611077A01	0 ohm, +/-5%; 0 W
R8200	0611077A78	1.5K, +/-5%; 1/8 W
R8201	0611077A50	100 ohms, +/-5%; 1/8 W
R8202	0611077A78	1.5K, +/-5%; 1/8 W
R8203	0611077A90	4.7K, +/-5%; 1/8 W
R8204	0611077A50	100 ohms, +/-5%; 1/8 W
R8205,8206	0611077A78	1.5K, +/-5%; 1/8 W
R8207	0611077A82	2.2K, +/-5%; 1/8 W
R8208	0611077A50	100 ohms, +/-5%; 1/8 W
R8209,8210	0611077A78	1.5K, +/-5%; 1/8 W
R8211	0611077A84	2.7K, +/-5%; 1/8 W
R8212	0611077A50	100 ohms, +/-5%; 1/8 W
R8213,8214	0611077A78	1.5K, +/-5%; 1/8 W
R8215	0611077B11	33K, +/-5%; 1/8 W
R8216	0611077A50	100 ohms, +/-5%; 1/8 W
R8217,8218	0611077A78	1.5K, +/-5%; 1/8 W
R8219	0611009B23	0 ohm, +/-5%; 1/4 W
R8220	0611077A50	100 ohms, +/-5%; 1/8 W
R8221,8222	0611077A78	1.5K, +/-5%; 1/8 W
R8223	0611077B23	100K, +/-5%; 1/8 W
R8224	0611077A78	1.5K, +/-5%; 1/8 W
R8225	0611077A50	100 ohms, +/-5%; 1/8 W
R8226	0611077A78	1.5K, +/-5%; 1/8 W
R8227	0611077B23	100K, +/-5%; 1/8 W
R8228	0611077A50	100 ohms, +/-5%; 1/8 W
R8229,8230	0611077A78	1.5K, +/-5%; 1/8 W

TLN3384 SSCB Parts List

Reference Symbol	Motorola Part No.	Description
R8231	0611077G88	100K, +/-1%; 1/8 W
R8232,8233	0611077A98	10K, +/-5%; 1/8 W
R8236,8237	0611077A98	10K, +/-5%; 1/8 W
R8239,8240	0611077A98	10K, +/-5%; 1/8 W
R8242,8243	0611077H18	200K, +/-1%; 1/8 W
R8244	0611077G88	100K, +/-1%; 1/8 W
R8245	0611077B23	100K, +/-5%; 1/8 W
R8246	0611077G88	100K, +/-1%; 1/8 W
R8247	0611077H18	200K, +/-1%; 1/8 W
R8248	0611077G88	100K, +/-1%; 1/8 W
R8249	0611077H18	200K, +/-1%; 1/8 W
R8250	0611077G88	100K, +/-1%; 1/8 W
R8251 thru 8254	0611077H18	200K, +/-1%; 1/8 W
R8255,8256	0611077B23	100K, +/-5%; 1/8 W
R8257	0611077G88	100K, +/-1%; 1/8 W
R8258	0611077H18	200K, +/-1%; 1/8 W
R8259	0611077G88	100K, +/-1%; 1/8 W
R8260	0611077H18	200K, +/-1%; 1/8 W
R8261	0611077G88	100K, +/-1%; 1/8 W
R8262,8263	0611077H18	200K, +/-1%; 1/8 W
R8272	0611077B25	120K, +/-5%; 1/8 W
R8275	0611077H73	750K, +/-1%; 1/8W
R8276	0611077G60	51.1K, +/-1%; 1/8 W
R8277	0611077A98	10K, +/-5%; 1/8 W
R8278	0611077H54	475K, +/-1%; 1/8W
R8279	0611077G53	43.2K, +/-1%; 1/8 W
R8280	0611077H46	392K, +/-1%; 1/8W
R8281	0611077B13	39K, +/-5%; 1/8 W
R8282,8283	0611077H73	750K, +/-1%; 1/8W
R8284	0611077G60	51.1K, +/-1%; 1/8 W
R8285	0611077H54	475K, +/-1%; 1/8W
R8286	0611077A98	10K, +/-5%; 1/8 W
R8287	0611077A74	1K, +/-5%; 1/8 W
R8288	0611077G53	43.2K, +/-1%; 1/8 W
R8289	0611077H73	750K, +/-1%; 1/8W
R8290	0611077H46	392K, +/-1%; 1/8W
R8291	0611077B13	39K, +/-5%; 1/8 W
R8292	0611077A86	3.3K, +/-5%; 1/8 W
R8293	0611077B23	100K, +/-5%; 1/8 W
R8294	0611077B11	33K, +/-5%; 1/8 W
R8295	0611077B23	100K, +/-5%; 1/8 W
R8298	0611009B23	0 ohm, +/-5%; 1/4 W
R8299	0611077A01	0 ohm, +/-5%; 0 W
R8300	0611077B23	100K, +/-5%; 1/8 W
R8310 thru 8313	0611077B15	47K, +/-5%; 1/8 W
R8314	0611077A98	10K, +/-5%; 1/8 W
R8315	0611077A94	6.8K, +/-5%; 1/8W
R8316	0611077A98	10K, +/-5%; 1/8 W
R8318	0611077B23	100K, +/-5%; 1/8 W
R8335 thru 8339	0611077A74	1K, +/-5%; 1/8 W
R8340	0611077A98	10K, +/-5%; 1/8 W
R8344	0611077A68	560 ohms, +/-5%; 1/8 W
R8345 thru 8347	0611077A50	100 ohms, +/-5%; 1/8 W
R8348	0611077A98	10K, +/-5%; 1/8 W
R8349	0611077B30	200K, +/-5%; 1/8 W
R8350,8351	0611077G42	33.2K, +/-1%; 1/8W
R8400	0611077A67	510 ohms, +/-5%; 1/8 W
R8401,8402	0611077A92	5.6K, +/-5%; 1/8 W
R8403	0611077B01	12K, +/-5%; 1/8 W
R8404	0611077B11	33K, +/-5%; 1/8 W
R8405	0611077A84	2.7K, +/-5%; 1/8 W
R8406	0611077B15	47K, +/-5%; 1/8 W
R8407	0611077A74	1K, +/-5%; 1/8 W
R8408	0611077B35	330K, +/-5%; 1/8 W
R8409	0611077B45	820K, +/-5%; 1/8 W
R8410	0611077E15	150 ohms, +/-1%; 1/8W
R8411	0611077B45	820K, +/-5%; 1/8 W
R8412	0611077E73	604 ohms, +/-1%; 1/8W
R8413	0611009B23	0 ohm, +/-5%; 1/4 W
R8414	0611077A43	51 ohms, +/-5%; 1/8 W
R8415	0611077B03	15K, +/-5%; 1/8 W
R8416	0611077B39	470K, +/-5%; 1/8 W
R8417	0611009B23	0 ohm, +/-5%; 1/4 W
R8501	0683962T24	9.1 ohms, +/-5%; 1W
R8502	0611077B05	18K, +/-5%; 1/8 W
R8600	0611009B23	0 ohm, +/-5%; 1/4 W
R8601,8602	0611077A58	220 ohms, +/-5%; 1/8 W
R8603 thru 8610	0611077A98	10K, +/-5%; 1/8 W
R8611 thru 8618	0611077A58	220 ohms, +/-5%; 1/8 W
		switch:
SW800,801	4083980R12	toggle: sp3t (on-off-mom)
SW802	4083980R11	toggle: sp3t (mom-off-mom)
		transformer:
T700	2584265T01	power
		test point:
TP1 thru 13	2962998D01	terminal pin
		integrated circuit: (see note)
U800	5113802A01	Micro Computere Unit w/Switch Control Interface
U801,802	5184494R03	ASIC Station Control
U803	TVN6055A	Software SSCB
U803	5191012H75	IC PRGMD EPROM 12H75
U804	5184064F76	Static 32Kx8 Bit RAM
U806	5113819D02	LO COST LO PWR 14 DIP
U807	5113815J04	555 Timer
U808	0982808R02	SOCKET, IC: 8-contact
U810 thru 812	5184887K60	Triple 2-Channel Analog Mux/Demux
U813	5184704M19	Hex Level Shifter/Logic Level Converter
U814	5113819D04	General Purpose Differential Operational Amplifier
U816	5184704M19	Hex Level Shifter/Logic Level Converter
U817	5113806D21	analog switching multiplexer
U818,819	5113819D04	General Purpose Differential Operational Amplifier
U821	5113819D04	General Purpose Differential Operational Amplifier
U823,824	5182335V01	IC EEPOT 50K 10% _9312_
U830	5184621K33	Operational Amplifier
U831	5182335V01	IC EEPOT 50K 10% _9312_
U837,838	5184621K85	Dual Operational Amplifier
U839	5184704M19	Hex Level Shifter/Logic Level Converter
U840	5184887K60	Triple 2-Channel Analog Mux/Demux
U841	5184621K85	Dual Operational Amplifier
U842	5113820D02	type LM2901N
U843	5184371T01	Single Current Mode Controller
U1550,1551	5183222M03	Quad Operational Amplifier
U1552	5113819D02	LO COST LO PWR 14 DIP
U1553,1554	5182335V01	IC EEPOT 50K 10% _9312_
U8200	5113819D04	General Purpose Differential Operational Amplifier
		voltage regulator: (see note)
VR701	4883461E40	Zener 5.1V
VR702	4882479V02	DIODE ZENER 3.3V
VR1531	4882479V02	DIODE ZENER 3.3V
VR1532,1533	4882479V01	DIODE ZENER 2.7V
VR1534	4882479V02	DIODE ZENER 3.3V
		crystal: (see note)
Y800	4880113K04	7.948 MHZ
		non-referenced items:
	TTN4042A	UHF/VHF NB CNTRL BD
	0300140230	SCR TPG 4-40X5/16 STARPAN CHS (2 used with J800)
	0982449T01	SOCKET, IC: 52-contact (used with U800)
	0982449T03	SOCKET, IC: 84-contact (used with U801)
	0982449T03	SOCKET, IC: 84-contact (used with U802)
	0982808R10	Socket, IC: 28-contact (used with U803)
	0983729M17	receptacle: 20-contact (2 used with J800)
	0984728L01	Shorting Jumper: 2-contact (used with JU1)
	0984728L01	Shorting Jumper: 2-contact (used with JU2)

Reference Symbol	Motorola Part No.	Description
	0984728L01	Shorting Jumper: 2-contact (used with JU3)
	0984728L01	Shorting Jumper: 2-contact (used with JU4)
	0984728L01	Shorting Jumper: 2-contact (used with JU5)
	0984728L01	Shorting Jumper: 2-contact (used with JU6)
	0984728L01	Shorting Jumper: 2-contact (used with JU7)
	0984728L01	Shorting Jumper: 2-contact (used with JU8)
	0984728L01	Shorting Jumper: 2-contact (used with JU9)
	0984728L01	Shorting Jumper: 2-contact (used with JU10)
	0984728L01	Shorting Jumper: 2-contact (used with JU11)
	0984728L01	Shorting Jumper: 2-contact (used with JU12)
	0984728L01	Shorting Jumper: 2-contact (used with JU13)
	0984728L01	Shorting Jumper: 2-contact (used with JU14)
	0984728L01	Shorting Jumper: 2-contact (used with JU15)
	0984728L01	Shorting Jumper: 2-contact (used with JU16)
	0984728L01	Shorting Jumper: 2-contact (used with JU17)
	0984728L01	Shorting Jumper: 2-contact (used with JU18)
	0984728L01	Shorting Jumper: 2-contact (used with JU19)
	0984728L01	Shorting Jumper: 2-contact (used with JU20)
	0984728L01	Shorting Jumper: 2-contact (used with JU21)
	0984728L01	Shorting Jumper: 2-contact (used with JU22)
	1485334U01	Insulator (used w/ Y800)
	2683373P02	HEAT SINK, transistor
	2880001R03	plug: 3-contact (used with JU1)
	2880001R03	plug: 3-contact (used with JU2)
	2880001R03	plug: 3-contact (used with JU3)
	2880001R03	plug: 3-contact (used with JU4)
	2880001R03	plug: 3-contact (used with JU5)
	2880001R03	plug: 3-contact (used with JU6)
	2880001R03	plug: 3-contact (used with JU7)
	2880001R03	plug: 3-contact (used with JU8)
	2880001R03	plug: 3-contact (used with JU9)
	2880001R03	plug: 3-contact (used with JU10)
	2880001R03	plug: 3-contact (used with JU11)
	2880001R03	plug: 3-contact (used with JU12)
	2880001R03	plug: 3-contact (used with JU13)
	2880001R03	plug: 3-contact (used with JU14)
	2880001R03	plug: 3-contact (used with JU15)
	2880001R03	plug: 3-contact (used with JU16)
	2880001R03	plug: 3-contact (used with JU17)
	2880001R03	plug: 3-contact (used with JU18)
	2880001R03	plug: 3-contact (used with JU19)
	2880001R03	plug: 3-contact (used with JU20)
	2880001R03	plug: 3-contact (used with JU21)
	2880001R03	plug: 3-contact (used with JU22)
	2882296R34	plug: 40-contact (used with J800)
	4380054K02	SPACER, support (4 used)
	4884349P01	silicon
	5483865R01	Label, bar code: 1/4" wide, white (2 used)
	5484960T01	Label, bar code: 6.3 x 12.7MM, white (2 used)

Note: For optimum performance, diodes, transistors, integrated circuits, and crystals must be ordered by Motorola part number.

Reference Symbol	Motorola Part No.	Description

TLN3385 SSCB Parts List

Reference Symbol	Motorola Part No.	Description
		capacitor, fixed:
C701	2113740B57	220 pF, +/-5%; 50 V
C702	2113740B71	820 pF, +/-5%; 50 V
C703	2113740B73	1000 pF, +/-5%; 50 V
C704	2113741B69	0.1 uF, +/-5%; 50 V
C705,706	2311049A19	10 uF, +/-10%; 25 V
C707	2113741B69	0.1 uF, +/-5%; 50 V
C708	2311049A19	10 uF, +/-10%; 25 V
C709	2311049A08	1 uF, +/-10%; 35 V
C710,711	2311049A22	33 uF, +/-10%; 16 V
C712	2311049A19	10 uF, +/-10%; 25 V
C713	2311049A08	1 uF, +/-10%; 35 V
C714	2311049A19	10 uF, +/-10%; 25 V
C715	2113740B49	100 pF, +/-5%; 50 V
C716	2311049A19	10 uF, +/-10%; 25 V
C717	2113741B69	0.1 uF, +/-5%; 50 V
C718	2313748G21	100 uF, +/-20%; 16V
C719	2311049A19	10 uF, +/-10%; 25 V
C720	2113741B69	0.1 uF, +/-5%; 50 V
C721	2311049A22	33 uF, +/-10%; 16 V
C722 thru 725	2113741B69	0.1 uF, +/-5%; 50 V
C800	2113741B45	0.01 uF, +/-5%; 50 V
C801	2113740B59	270 pF, +/-5%; 50V
C802 thru 808	2113741B69	0.1 uF, +/-5%; 50 V
C810	2113741B69	0.1 uF, +/-5%; 50 V
C812	2311049A19	10 uF, +/-10%; 25 V
C814,815	2113740B25	10 pF, +/-5%; 50 V
C817	2113740B65	470 pF, +/-5%; 50 V
C819	2113741B69	0.1 uF, +/-5%; 50 V
C820	2113741B45	0.01 uF, +/-5%; 50 V
C822	2311049A08	1 uF, +/-10%; 35 V
C823 thru 828	2113741B69	0.1 uF, +/-5%; 50 V
C829	2113740B49	100 pF, +/-5%; 50 V
C830	2113741B69	0.1 uF, +/-5%; 50 V
C1543	2113740B73	1000 pF, +/-5%; 50 V
C1544	0811051A13	0.1 uF, +/-5%; 63 V
C1545,1546	2113740B47	82 pF, +/-5%; 50V
C1547	0811017A08	0.01 uF, +/-5%; 50 V
C1548	2113740B76	1500 pF, +/-5 pF; 50V
C1549	2113740B57	220 pF, +/-5%; 50 V
C1551	0811017A05	3300 pF, +/-5%; 50V
C1552,1553	2311049A10	2.2 uF, +/-10%; 35V
C1554	0811017A08	0.01 uF, +/-5%; 50 V
C1555	2113740B34	24 pF, +/-5%; 50V
C1556,1557	0811017A08	0.01 uF, +/-5%; 50 V
C1558	2113740B76	1500 pF, +/-5 pF; 50V
C1559	2113740B73	1000 pF, +/-5%; 50 V
C1560	2113740B34	24 pF, +/-5%; 50V
C1561	0811017A05	3300 pF, +/-5%; 50V
C1562	2311049A10	2.2 uF, +/-10%; 35V
C1564	2113741B37	4700 pF, +/-5%; 50 V
C1579	2113740B57	220 pF, +/-5%; 50 V
C8100,8101	2113740B49	100 pF, +/-5%; 50 V
C8102	0811017A08	0.01 uF, +/-5%; 50 V
C8103	0811051A09	0.022 uF, +/-5%; 63 V
C8104	0811017A08	0.01 uF, +/-5%; 50 V
C8105	2313748G25	333 uF, +/-20%; 35V
C8106	0811051A13	0.1 uF, +/-5%; 63 V
C8107	0811051A09	0.022 uF, +/-5%; 63 V
C8108	0811017A08	0.01 uF, +/-5%; 50 V
C8109	2313748G25	333 uF, +/-20%; 35V
C8112	2311049A15	4.7 uF, +/-10%; 35V
C8113	2113740B49	100 pF, +/-5%; 50 V
C8114,8115	2113740B57	220 pF, +/-5%; 50 V
C8116	0811051A15	0.22 uF, +/-5%; 63 V
C8117	2311049A10	2.2 uF, +/-10%; 35V
C8118	2311049A08	1 uF, +/-10%; 35 V
C8119	0811017A05	3300 pF, +/-5%; 50V
C8120	0811017A08	0.01 uF, +/-5%; 50 V
C8121	2113740B57	220 pF, +/-5%; 50 V
C8122,8123	2311049A08	1 uF, +/-10%; 35 V
C8124	0811051A13	0.1 uF, +/-5%; 63 V
C8125	2311049A08	1 uF, +/-10%; 35 V
C8126,8127	2113740B49	100 pF, +/-5%; 50 V
C8128	2113740B76	1500 pF, +/-5 pF; 50V
C8129,8130	2113740B49	100 pF, +/-5%; 50 V
C8131 thru 8133	2113740B40	43 pF, +/-5%; 50V
C8134	2311049A08	1 uF, +/-10%; 35 V
C8135	0811051A15	0.22 uF, +/-5%; 63 V
C8136	2311049A19	10 uF, +/-10%; 25 V
C8137 thru 8140	0811051A15	0.22 uF, +/-5%; 63 V
C8141	2113741B45	0.01 uF, +/-5%; 50 V
C8142 thru 8150	2113741B69	0.1 uF, +/-5%; 50 V
C8151	2311049A15	4.7 uF, +/-10%; 35V
C8152	2113740B49	100 pF, +/-5%; 50 V
C8153	2113741B45	0.01 uF, +/-5%; 50 V
C8154	2113740B49	100 pF, +/-5%; 50 V
C8156	2113740B49	100 pF, +/-5%; 50 V
C8157	2113741B45	0.01 uF, +/-5%; 50 V
C8158	0811051A10	0.033 uF, +/-5%; 63V
C8159	0811051A12	0.068 uF, +/-5%; 63 V
C8160	2113740B49	100 pF, +/-5%; 50 V
C8161	0811017A05	3300 pF, +/-5%; 50V
C8162	0811051A13	0.1 uF, +/-5%; 63 V
C8163	2113740B74	1200 pF, +/-5%; 50V
C8164	2311049A08	1 uF, +/-10%; 35 V
C8165	2113740B76	1500 pF, +/-5 pF; 50V
C8169	2113740B40	43 pF, +/-5%; 50V
C8170	0811051A15	0.22 uF, +/-5%; 63 V
C8173	0811017A08	0.01 uF, +/-5%; 50 V
C8174	2113740B57	220 pF, +/-5%; 50 V
C8175,8176	2311049A08	1 uF, +/-10%; 35 V
C8177	2311049A10	2.2 uF, +/-10%; 35V
C8178	2311049A08	1 uF, +/-10%; 35 V
C8179 thru 8191	2113741B69	0.1 uF, +/-5%; 50 V
C8193	2113741B69	0.1 uF, +/-5%; 50 V
C8195 thru 8198	2113741B69	0.1 uF, +/-5%; 50 V
C8200	2113741B33	3300 pF, +/-5%; 50V
C8201	2113740B55	180 pF, +/-5%; 50V
C8202	2113741B45	0.01 uF, +/-5%; 50 V
C8203	2113741B37	4700 pF, +/-5%; 50 V
C8204	2113740B73	1000 pF, +/-5%; 50 V
C8205	0811051A15	0.22 uF, +/-5%; 63 V
C8207	2113740B73	1000 pF, +/-5%; 50 V
C8209 thru 8211	0811051A13	0.1 uF, +/-5%; 63 V
C8213	0811051A13	0.1 uF, +/-5%; 63 V
C8214	2113741B45	0.01 uF, +/-5%; 50 V
C8215,8216	2113741B69	0.1 uF, +/-5%; 50 V
C8218	0811051A15	0.22 uF, +/-5%; 63 V
C8219	2113741B69	0.1 uF, +/-5%; 50 V
C8220	2113740B73	1000 pF, +/-5%; 50 V
C8225	2113741B69	0.1 uF, +/-5%; 50 V
C8230	2113740B57	220 pF, +/-5%; 50 V
C8231	2113741B69	0.1 uF, +/-5%; 50 V
C8300 thru 8303	0811051A11	0.047 uF, +/-5%; 63V
C8304	2311049A19	10 uF, +/-10%; 25 V
C8305,8306	0811051A11	0.047 uF, +/-5%; 63V
C8307	2113740B36	30 pF, +/-5%; 50V
C8400	2113740B18	5.1 pF, +/-0.25 pF; 50V
C8401	2311049A19	10 uF, +/-10%; 25 V
C8402	0811051A15	0.22 uF, +/-5%; 63 V
C8403	2311049A19	10 uF, +/-10%; 25 V
		diode: (see note)
CR801,802	4813833C10	0.1A, 70V
CR803	4805129M41	Rectifier
CR804 thru 807	4813833C10	0.1A, 70V
CR808	4884349P01	Dual Rectifier
CR809	4813833C10	0.1A, 70V
CR1520 thru 1522	4805129M41	Rectifier
CR1523,1524	4813833C10	0.1A, 70V
CR1526,1527	4813833C10	0.1A, 70V
CR1528,1529	4805129M41	Rectifier
CR1530	4813833C10	0.1A, 70V

Reference Symbol	Motorola Part No.	Description
CR1531	4805129M41	Rectifier
CR8100,8101	4883654H01	silicon
CR8102,8103	4813833C10	0.1A, 70V
CR8107	4813833C10	0.1A, 70V
CR8110	4805129M41	Rectifier
CR8112,8113	4805129M41	Rectifier
CR8115,8116	4883654H01	silicon
CR8200 thru 8203	4805129M41	Rectifier
		light emitting diode: (see note)
DS800 thru 803	4888245C22	GRN
DS804	4888245C23	YEL
DS805	4888245C24	RED
DS8200 thru 8202	4882771L03	7-segment display (red)
		hybrid:
HY805	TRN7008A	Display Board
		connector:
J701	2882984N13	plug: 6-contact
J801	2882505T03	plug: 26-contact
J802	2813922A14	HDR 14 POS STR .1 CTR GLPLTD
J803	2882505T05	plug: 40-contact
J804	2882505T04	plug: 34-contact
J805A	2883547T01	receptacle: 8-contact, right anle
J805B	2883547T01	receptacle: 8-contact, right anle
J806,807	0984231B03	receptacle: phono jack
J812	0983112N01	receptacle: 6-contact
		inductor:
L700	2484386T01	25 UH
L701	2484266T01	150 UH
L702	2484386T01	25 UH
L800	2411047A25	10 UH
L900	2411047A31	CHK RF MLD A/I 33UH
		transistor: (see note)
Q700	4884233T01	type MOSFET
Q705	4813824A17	PNP
Q800	4813824A17	PNP
Q801 thru 807	4813824A10	NPN
Q808	4813824A06	NPN
Q809 thru 811	4813824A10	NPN
Q813,814	4813824A10	NPN
Q816,817	4813824A10	NPN
Q820	4813824A10	NPN
Q821	4800869653	type JFET
Q822,823	4813824A10	NPN
Q1507 thru 1510	4813824A10	NPN
Q8100	4813824A10	NPN
Q8101,8102	4811043B42	TSTR 48R00869919 A/I
Q8200 thru 8207	4813824A17	PNP
Q8208 thru 8210	4813824A06	NPN
Q8211	4813824A10	NPN
Q8212	4813824A06	NPN
		resistor, fixed:
R700	0611077A98	10K, +/-5%; 1/8 W
R701	0611077A88	3.9K, +/-5%; 1/8 W
R702	0611077A50	100 ohms, +/-5%; 1/8 W
R703	0611077A74	1K, +/-5%; 1/8 W
R704	0611077B31	220K, +/-5%; 1/8 W
R705	0611077F63	5.11K, +/-1%; 1/8 W
R706	0611077F28	2.21K, +/-1%; 1/8 W
R707	0611077H30	267K, +/-1%; 1/8 W
R708	0611077F91	10K, +/-1%; 1/8 W
R709	0611077E94	1K, +/-1%; 1/8 W
R710	0611077F60	4.75K, +/-1%; 1/8 W
R711	0611077B35	330K, +/-5%; 1/8 W
R712	0611077B23	100K, +/-5%; 1/8 W
R713	0611077F91	10K, +/-1%; 1/8 W
R714	0611077B13	39K, +/-5%; 1/8 W

Reference Symbol	Motorola Part No.	Description
R715	0611077B15	47K, +/-5%; 1/8 W
R716	0611077F63	5.11K, +/-1%; 1/8 W
R717	0611077B35	330K, +/-5%; 1/8 W
R718	0611077B07	22K, +/-5%; 1/8 W
R719	0611077A50	100 ohms, +/-5%; 1/8 W
R720	0611077A36	27 ohms, +/-5%; 1/8 W
R721	0611077B47	1 meg, +/-5%; 1/8 W
R722	0611077B31	220K, +/-5%; 1/8 W
R723,724	0683962T01	1 ohm, +/-5%; 1 W
R725	0611077F91	10K, +/-1%; 1/8 W
R726	0611077G09	15K, +/-1%; 1/8 W
R727	0611077A98	10K, +/-5%; 1/8 W
R728	0611077H85	1 meg, +/-1%; 1/8 W
R729	0611077B29	180K, +/-5%; 1/8 W
R730	0611077A01	0 ohm, +/-5%; 0 W
R731	0683962T01	1 ohm, +/-5%; 1 W
R736	0611009A33	220 ohms, +/-5%; 1/4 W
R737	0611077A84	2.7K, +/-5%; 1/8 W
R738	0611077A64	390 ohms, +/-5%; 1/8 W
R739	0611077A98	10K, +/-5%; 1/8 W
R740	0611077A56	180 ohms, +/-5%; 1/8W
R741	0611077A98	10K, +/-5%; 1/8 W
R742	0611077A86	3.3K, +/-5%; 1/8 W
R743	0683962T01	1 ohm, +/-5%; 1 W
R748	0611077A78	1.5K, +/-5%; 1/8 W
R800	0611077A54	150 ohms, +/-5%; 1/8 W
R801	0611077A88	3.9K, +/-5%; 1/8 W
R802	0611077A01	0 ohm, +/-5%; 0 W
R803,804	0611077A88	3.9K, +/-5%; 1/8 W
R805	0611077A42	47 ohms, +/-5%; 1/8 W
R806	0611077A98	10K, +/-5%; 1/8 W
R807	0611077A94	6.8K, +/-5%; 1/8W
R809,810	0611077A94	6.8K, +/-5%; 1/8W
R812	0611077A78	1.5K, +/-5%; 1/8 W
R813	0611077A32	18 ohms, +/-5%; 1/8 W
R814	0611077A56	180 ohms, +/-5%; 1/8W
R815	0611077A32	18 ohms, +/-5%; 1/8 W
R816	0611077A90	4.7K, +/-5%; 1/8 W
R817	0611077A82	2.2K, +/-5%; 1/8 W
R818	0611077A52	120 ohms, +/-5%; 1/8 W
R819	0611077A32	18 ohms, +/-5%; 1/8 W
R820	0611077A56	180 ohms, +/-5%; 1/8W
R821	0611077A78	1.5K, +/-5%; 1/8 W
R822	0611077A56	180 ohms, +/-5%; 1/8W
R823	0611077A82	2.2K, +/-5%; 1/8 W
R824	0611077A80	1.8K, +/-5%; 1/8 W
R825	0611077A82	2.2K, +/-5%; 1/8 W
R826	0611077A98	10K, +/-5%; 1/8 W
R827	0611077A88	3.9K, +/-5%; 1/8 W
R828	0611077B07	22K, +/-5%; 1/8 W
R829	0611077A94	6.8K, +/-5%; 1/8W
R830 thru 836	0611077A98	10K, +/-5%; 1/8 W
R837,838	0611077A50	100 ohms, +/-5%; 1/8 W
R839	0611077A98	10K, +/-5%; 1/8 W
R840,841	0611077A50	100 ohms, +/-5%; 1/8 W
R842	0611077A98	10K, +/-5%; 1/8 W
R843 thru 845	0611077A50	100 ohms, +/-5%; 1/8 W
R846	0611077A52	120 ohms, +/-5%; 1/8 W
R847,848	0611077A98	10K, +/-5%; 1/8 W
R849	0611077B09	27K, +/-5%; 1/8 W
R850	0611077A98	10K, +/-5%; 1/8 W
R851	0611077A58	220 ohms, +/-5%; 1/8 W
R852	0611077B47	1 meg, +/-5%; 1/8 W
R854	0611077A98	10K, +/-5%; 1/8 W
R855	0611077A92	5.6K, +/-5%; 1/8 W
R856 thru 858	0611077A98	10K, +/-5%; 1/8 W
R861	0611077B09	27K, +/-5%; 1/8 W
R862	0611077A88	3.9K, +/-5%; 1/8 W
R863	0611077A54	150 ohms, +/-5%; 1/8 W
R866	0611077A98	10K, +/-5%; 1/8 W
R867	0611077A78	1.5K, +/-5%; 1/8 W
R868 thru 871	0611077A98	10K, +/-5%; 1/8 W
R872	0611077A54	150 ohms, +/-5%; 1/8 W
R873	0611077A98	10K, +/-5%; 1/8 W

TLN3385 SSCB Parts List

Reference Symbol	Motorola Part No.	Description
R874	0611077A54	150 ohms, +/-5%; 1/8 W
R875	0611077A80	1.8K, +/-5%; 1/8 W
R876	0611077A98	10K, +/-5%; 1/8 W
R877	0611077A54	150 ohms, +/-5%; 1/8 W
R878	0611077A90	4.7K, +/-5%; 1/8 W
R879	0611077A82	2.2K, +/-5%; 1/8 W
R880	0611077A78	1.5K, +/-5%; 1/8 W
R881	0611077A98	10K, +/-5%; 1/8 W
R882	0611077A82	2.2K, +/-5%; 1/8 W
R883,884	0611077A98	10K, +/-5%; 1/8 W
R887	0611077A98	10K, +/-5%; 1/8 W
R888	0611077B39	470K, +/-5%; 1/8 W
R889	0611077A98	10K, +/-5%; 1/8 W
R890	0611077A74	1K, +/-5%; 1/8 W
R891	0611077A98	10K, +/-5%; 1/8 W
R893	0611077A98	10K, +/-5%; 1/8 W
R894	0611077B23	100K, +/-5%; 1/8 W
R895 thru 898	0611077A98	10K, +/-5%; 1/8 W
R899	0611077A92	5.6K, +/-5%; 1/8 W
R900	0611077A50	100 ohms, +/-5%; 1/8 W
R1523	0611077B15	47K, +/-5%; 1/8 W
R1524	0611077A86	3.3K, +/-5%; 1/8 W
R1525	0611077B17	56K, +/-5%; 1/8 W
R1526	0611077A82	2.2K, +/-5%; 1/8 W
R1527	0611077B17	56K, +/-5%; 1/8 W
R1532	0611077B27	150K, +/-5%; 1/8W
R1533	0611077A64	390 ohms, +/-5%; 1/8 W
R1534	0611077A78	1.5K, +/-5%; 1/8 W
R1535	0611077B23	100K, +/-5%; 1/8 W
R1536	0611077B39	470K, +/-5%; 1/8 W
R1537	0611077B15	47K, +/-5%; 1/8 W
R1540	0611077B15	47K, +/-5%; 1/8 W
R1543	0611077B23	100K, +/-5%; 1/8 W
R1544	0611077A74	1K, +/-5%; 1/8 W
R1545	0611077B19	68K, +/-5%; 1/8W
R1546	0611077A74	1K, +/-5%; 1/8 W
R1547	0611077A98	10K, +/-5%; 1/8 W
R1548	0611077B33	270K, +/-5%; 1/8W
R1549	0611077A94	6.8K, +/-5%; 1/8W
R1550	0611077A98	10K, +/-5%; 1/8 W
R1553	0611077B19	68K, +/-5%; 1/8W
R1554	0611077B21	82K, +/-5%; 1/8W
R1555,1556	0611077A98	10K, +/-5%; 1/8 W
R1557	0611077B27	150K, +/-5%; 1/8W
R1559	0611077A64	390 ohms, +/-5%; 1/8 W
R1560	0611077B15	47K, +/-5%; 1/8 W
R1561	0611077B23	100K, +/-5%; 1/8 W
R1562	0611077B39	470K, +/-5%; 1/8 W
R1563	0611077B15	47K, +/-5%; 1/8 W
R1565,1566	0611077A74	1K, +/-5%; 1/8 W
R1567	0611077A94	6.8K, +/-5%; 1/8W
R1568	0611077A98	10K, +/-5%; 1/8 W
R1570	0611077A74	1K, +/-5%; 1/8 W
R1571	0611077B21	82K, +/-5%; 1/8W
R1572	0611077A01	0 ohm, +/-5%; 0 W
R1573,1574	0611077B14	43K, +/-5%; 1/8 W
R1575	0611077A92	5.6K, +/-5%; 1/8 W
R1576	0611077B27	150K, +/-5%; 1/8W
R1578	0611077A78	1.5K, +/-5%; 1/8 W
R1599	1882787K08	variable: 100K +/-20%; 1/4W
R8100 thru 8103	0611077B01	12K, +/-5%; 1/8 W
R8105	0611077B23	100K, +/-5%; 1/8 W
R8106	0611077A98	10K, +/-5%; 1/8 W
R8107	0611077B07	22K, +/-5%; 1/8 W
R8108	0611077B03	15K, +/-5%; 1/8 W
R8109	0611077B01	12K, +/-5%; 1/8 W
R8110	0611077B16	51K, +/-5%; 1/8W
R8111	0611077B07	22K, +/-5%; 1/8 W
R8112	0611077A94	6.8K, +/-5%; 1/8W
R8113,8114	0611077A86	3.3K, +/-5%; 1/8 W
R8115	0611077A94	6.8K, +/-5%; 1/8W
R8116	0611077A88	3.9K, +/-5%; 1/8 W
R8117	0611009B26	2.7 ohms, +/-5%; 1/4W
R8118	0611077A88	3.9K, +/-5%; 1/8 W
R8119	0611077A67	510 ohms, +/-5%; 1/8 W
R8120	0611077A68	560 ohms, +/-5%; 1/8 W
R8121	0683962T24	9.1 ohms, +/-5%; 1W
R8122	0611077A26	10 ohms, +/-5%; 1/8 W
R8123	0611077B37	390K, +/-5%; 1/8W
R8125	0611077A98	10K, +/-5%; 1/8 W
R8127	0611077A94	6.8K, +/-5%; 1/8W
R8128	0611077A86	3.3K, +/-5%; 1/8 W
R8129	0611077A78	1.5K, +/-5%; 1/8 W
R8130	0611077H43	365K, +/-1%; 1/8W
R8131	0611077A98	10K, +/-5%; 1/8 W
R8132	0611077A94	6.8K, +/-5%; 1/8W
R8133	0611077B23	100K, +/-5%; 1/8 W
R8134	0611077B17	56K, +/-5%; 1/8 W
R8135	1882787K09	variable: 5K +/-10%; 1/4W
R8136	0611077B05	18K, +/-5%; 1/8 W
R8137	0611077B09	27K, +/-5%; 1/8 W
R8138,8139	0611077B11	33K, +/-5%; 1/8 W
R8141	0611077B03	15K, +/-5%; 1/8 W
R8142,8143	0611077B07	22K, +/-5%; 1/8 W
R8144	0611077A98	10K, +/-5%; 1/8 W
R8146	0611077B03	15K, +/-5%; 1/8 W
R8147	0611077B09	27K, +/-5%; 1/8 W
R8148	0611077A98	10K, +/-5%; 1/8 W
R8149	0611077B09	27K, +/-5%; 1/8 W
R8150	0611077B23	100K, +/-5%; 1/8 W
R8151,8152	0611077B09	27K, +/-5%; 1/8 W
R8153,8154	0611077B07	22K, +/-5%; 1/8 W
R8155	0611077B09	27K, +/-5%; 1/8 W
R8156	0611077B23	100K, +/-5%; 1/8 W
R8157 thru 8159	0611077B09	27K, +/-5%; 1/8 W
R8162	0611077B07	22K, +/-5%; 1/8 W
R8163	0611077B09	27K, +/-5%; 1/8 W
R8164	0611077A98	10K, +/-5%; 1/8 W
R8165,8166	0611077B09	27K, +/-5%; 1/8 W
R8167	0611077B23	100K, +/-5%; 1/8 W
R8168	0611077B30	200K, +/-5%; 1/8 W
R8169	0611077B23	100K, +/-5%; 1/8 W
R8170	0611077A68	560 ohms, +/-5%; 1/8 W
R8171	0611077B30	200K, +/-5%; 1/8 W
R8172	0611077A50	100 ohms, +/-5%; 1/8 W
R8173,8174	0611077B23	100K, +/-5%; 1/8 W
R8175	0611077B03	15K, +/-5%; 1/8 W
R8176	0611077A91	5.1K, +/-5%; 1/8 W
R8177	0611077B11	33K, +/-5%; 1/8 W
R8178,8179	0611077B14	43K, +/-5%; 1/8 W
R8180	0611077B11	33K, +/-5%; 1/8 W
R8181 thru 8185	0611077B18	62K, +/-5%; 1/8 W
R8186	0611077B10	30K, +/-5%; 1/8W
R8187	0611077B14	43K, +/-5%; 1/8 W
R8188	0611077B23	100K, +/-5%; 1/8 W
R8189	0611077B43	680K, +/-5%; 1/8 W
R8190	0611077B23	100K, +/-5%; 1/8 W
R8191	0611077A98	10K, +/-5%; 1/8 W
R8192	0611077A86	3.3K, +/-5%; 1/8 W
R8193	0611077A98	10K, +/-5%; 1/8 W
R8194	0611077B23	100K, +/-5%; 1/8 W
R8195	0611077A88	3.9K, +/-5%; 1/8 W
R8196,8197	0611077A76	1.2K, +/-5%; 1/8 W
R8198	0611077B15	47K, +/-5%; 1/8 W
R8199	0611077A01	0 ohm, +/-5%; 0 W
R8200	0611077A78	1.5K, +/-5%; 1/8 W
R8201	0611077A50	100 ohms, +/-5%; 1/8 W
R8202	0611077A78	1.5K, +/-5%; 1/8 W
R8203	0611077A90	4.7K, +/-5%; 1/8 W
R8204	0611077A50	100 ohms, +/-5%; 1/8 W
R8205,8206	0611077A78	1.5K, +/-5%; 1/8 W
R8207	0611077A82	2.2K, +/-5%; 1/8 W
R8208	0611077A50	100 ohms, +/-5%; 1/8 W
R8209,8210	0611077A78	1.5K, +/-5%; 1/8 W
R8211	0611077A84	2.7K, +/-5%; 1/8 W
R8212	0611077A50	100 ohms, +/-5%; 1/8 W
R8213,8214	0611077A78	1.5K, +/-5%; 1/8 W
R8215	0611077B11	33K, +/-5%; 1/8 W
R8218	0611077A50	100 ohms, +/-5%; 1/8 W
R8217,8218	0611077A78	1.5K, +/-5%; 1/8 W
R8219	0611009B23	0 ohm, +/-5%; 1/4 W
R8220	0611077A50	100 ohms, +/-5%; 1/8 W
R8221,8222	0611077A78	1.5K, +/-5%; 1/8 W
R8223	0611077B23	100K, +/-5%; 1/8 W

Reference Symbol	Motorola Part No.	Description
R8224	0611077A78	1.5K, +/-5%; 1/8 W
R8225	0611077A50	100 ohms, +/-5%; 1/8 W
R8226	0611077A78	1.5K, +/-5%; 1/8 W
R8227	0611077B23	100K, +/-5%; 1/8 W
R8228	0611077A50	100 ohms, +/-5%; 1/8 W
R8229,8230	0611077A78	1.5K, +/-5%; 1/8 W
R8231	0611077G88	100K, +/-1%; 1/8 W
R8232,8233	0611077A98	10K, +/-5%; 1/8 W
R8236,8237	0611077A98	10K, +/-5%; 1/8 W
R8239,8240	0611077A98	10K, +/-5%; 1/8 W
R8242,8243	0611077H18	200K, +/-1%; 1/8 W
R8244	0611077G88	100K, +/-1%; 1/8 W
R8245	0611077B23	100K, +/-5%; 1/8 W
R8246	0611077G88	100K, +/-1%; 1/8 W
R8247	0611077H18	200K, +/-1%; 1/8 W
R8248	0611077G88	100K, +/-1%; 1/8 W
R8249	0611077H18	200K, +/-1%; 1/8 W
R8250	0611077G88	100K, +/-1%; 1/8 W
R8251 thru 8254	0611077H18	200K, +/-1%; 1/8 W
R8255,8256	0611077B23	100K, +/-5%; 1/8 W
R8257	0611077G88	100K, +/-1%; 1/8 W
R8258	0611077H18	200K, +/-1%; 1/8 W
R8259	0611077G88	100K, +/-1%; 1/8 W
R8260	0611077H18	200K, +/-1%; 1/8 W
R8261	0611077G88	100K, +/-1%; 1/8 W
R8262,8263	0611077H18	200K, +/-1%; 1/8 W
R8272	0611077B25	120K, +/-5%; 1/8 W
R8275	0611077H73	750K, +/-1%; 1/8W
R8276	0611077G60	51.1K, +/-1%; 1/8 W
R8277	0611077A98	10K, +/-5%; 1/8 W
R8278	0611077H54	475K, +/-1%; 1/8W
R8279	0611077G53	43.2K, +/-1%; 1/8 W
R8280	0611077H46	392K, +/-1%; 1/8W
R8281	0611077B13	39K, +/-5%; 1/8 W
R8282,8283	0611077H73	750K, +/-1%; 1/8W
R8284	0611077G60	51.1K, +/-1%; 1/8 W
R8285	0611077H54	475K, +/-1%; 1/8W
R8286	0611077A98	10K, +/-5%; 1/8 W
R8287	0611077A74	1K, +/-5%; 1/8 W
R8288	0611077G53	43.2K, +/-1%; 1/8 W
R8289	0611077H73	750K, +/-1%; 1/8W
R8290	0611077H46	392K, +/-1%; 1/8W
R8291	0611077B13	39K, +/-5%; 1/8 W
R8292	0611077A86	3.3K, +/-5%; 1/8 W
R8293	0611077B23	100K, +/-5%; 1/8 W
R8294	0611077B11	33K, +/-5%; 1/8 W
R8295	0611077B23	100K, +/-5%; 1/8 W
R8298	0611009B23	0 ohm, +/-5%; 1/4 W
R8299	0611077A01	0 ohm, +/-5%; 0 W
R8300	0611077B23	100K, +/-5%; 1/8 W
R8310 thru 8313	0611077B15	47K, +/-5%; 1/8 W
R8314	0611077A98	10K, +/-5%; 1/8 W
R8315	0611077A94	6.8K, +/-5%; 1/8W
R8316	0611077A98	10K, +/-5%; 1/8 W
R8318	0611077B23	100K, +/-5%; 1/8 W
R8335 thru 8339	0611077A74	1K, +/-5%; 1/8 W
R8340	0611077A98	10K, +/-5%; 1/8 W
R8344	0611077A68	560 ohms, +/-5%; 1/8 W
R8345 thru 8347	0611077A50	100 ohms, +/-5%; 1/8 W
R8348	0611077A98	10K, +/-5%; 1/8 W
R8349	0611077B30	200K, +/-5%; 1/8 W
R8350,8351	0611077G42	33.2K, +/-1%; 1/8W
R8400	0611077A67	510 ohms, +/-5%; 1/8 W
R8401,8402	0611077A92	5.6K, +/-5%; 1/8 W
R8403	0611077B01	12K, +/-5%; 1/8 W
R8404	0611077B11	33K, +/-5%; 1/8 W
R8405	0611077A84	2.7K, +/-5%; 1/8 W
R8406	0611077B15	47K, +/-5%; 1/8 W
R8407	0611077A74	1K, +/-5%; 1/8 W
R8408	0611077B35	330K, +/-5%; 1/8 W
R8409	0611077B45	820K, +/-5%; 1/8 W
R8410	0611077E15	150 ohms, +/-1%; 1/8W
R8411	0611077B45	820K, +/-5%; 1/8 W
R8412	0611077E73	604 ohms, +/-1%; 1/8W
R8413	0611009B23	0 ohm, +/-5%; 1/4 W
R8414	0611077A43	51 ohms, +/-5%; 1/8 W
R8415	0611077B03	15K, +/-5%; 1/8 W
R8416	0611077B39	470K, +/-5%; 1/8 W
R8417	0611009B23	0 ohm, +/-5%; 1/4 W
R8501	0683962T24	9.1 ohms, +/-5%; 1W
R8502	0611077B05	18K, +/-5%; 1/8 W
R8600	0611009B23	0 ohm, +/-5%; 1/4 W
R8601,8602	0611077A58	220 ohms, +/-5%; 1/8 W
R8603 thru 8610	0611077A98	10K, +/-5%; 1/8 W
R8611 thru 8618	0611077A58	220 ohms, +/-5%; 1/8 W
		switch:
SW800,801	4083980R12	toggle: sp3t (on-off-mom)
SW802	4083980R11	toggle: sp3t (mom-off-mom)
		transformer:
T700	2584265T01	power
		test point:
TP1 thru 13	2962998D01	terminal pin
		integrated circuit: (see note)
U800	5113802A01	Micro Computere Unit w/Switch Control Interface
U801,802	5184494R03	ASIC Station Control
U803	TVN6055A	Software SSCB
U803	5191012H75	IC PRGMD EPROM 12H75
U804	5184064F76	Static 32Kx8 Bit RAM
U806	5113819D02	LO COST LO PWR 14 DIP
U807	5113815J04	555 Timer
U808	0982808R02	SOCKET, IC: 8-contact
U810 thru 812	5184887K60	Triple 2-Channel Analog Mux/Demux
U813	5184704M19	Hex Level Shifter/Logic Level Converter
U814	5113819D04	General Purpose Differential Operational Amplifier
U816	5184704M19	Hex Level Shifter/Logic Level Converter
U817	5113806D21	analog switching multiplexer
U818,819	5113819D04	General Purpose Differential Operational Amplifier
U821	5113819D04	General Purpose Differential Operational Amplifier
U823,824	5182335V01	IC EEPOT 50K 10% _9312_
U830	5184621K33	Operational Amplifier
U831	5182335V01	IC EEPOT 50K 10% _9312_
U837,838	5184621K85	Dual Operational Amplifier
U839	5184704M19	Hex Level Shifter/Logic Level Converter
U840	5184887K60	Triple 2-Channel Analog Mux/Demux
U841	5184621K85	Dual Operational Amplifier
U842	5113820D02	type LM2901N
U843	5184371T01	Single Current Mode Controller
U1550,1551	5183222M03	Quad Operational Amplifier
U1552	5113819D02	LO COST LO PWR 14 DIP
U1553,1554	5182335V01	IC EEPOT 50K 10% _9312_
U8200	5113819D04	General Purpose Differential Operational Amplifier
		voltage regulator: (see note)
VR701	4883461E40	Zener 5.1V
VR702	4882479V02	DIODE ZENER 3.3V
VR1531 thru 1534	4882479V02	DIODE ZENER 3.3V
		crystal: (see note)
Y800	4880113K04	7.948 MHZ
		non-referenced items:
	TTN4043A	UHF/VHF CNTRL BD
	0300140230	SCR TPG 4-40X5/16 STARPAN CHS (2 used with J800)
	0982449T01	SOCKET, IC: 52-contact (used with U800)
	0982449T03	SOCKET, IC: 84-contact (used with U801)

TLN3385 SSCB Parts List

Reference Symbol	Motorola Part No.	Description
	0982449T03	SOCKET, IC: 84-contact (used with U802)
	0982808R10	Socket, IC: 28-contact (used with U803)
	0983729M17	receptacle: 20-contact (2 used with J800)
	0984728L01	Shorting Jumper: 2-contact (used with JU1)
	0984728L01	Shorting Jumper: 2-contact (used with JU2)
	0984728L01	Shorting Jumper: 2-contact (used with JU3)
	0984728L01	Shorting Jumper: 2-contact (used with JU4)
	0984728L01	Shorting Jumper: 2-contact (used with JU5)
	0984728L01	Shorting Jumper: 2-contact (used with JU6)
	0984728L01	Shorting Jumper: 2-contact (used with JU7)
	0984728L01	Shorting Jumper: 2-contact (used with JU8)
	0984728L01	Shorting Jumper: 2-contact (used with JU9)
	0984728L01	Shorting Jumper: 2-contact (used with JU10)
	0984728L01	Shorting Jumper: 2-contact (used with JU11)
	0984728L01	Shorting Jumper: 2-contact (used with JU12)
	0984728L01	Shorting Jumper: 2-contact (used with JU13)
	0984728L01	Shorting Jumper: 2-contact (used with JU14)
	0984728L01	Shorting Jumper: 2-contact (used with JU15)
	0984728L01	Shorting Jumper: 2-contact (used with JU16)
	0984728L01	Shorting Jumper: 2-contact (used with JU17)
	0984728L01	Shorting Jumper: 2-contact (used with JU18)
	0984728L01	Shorting Jumper: 2-contact (used with JU19)
	0984728L01	Shorting Jumper: 2-contact (used with JU20)
	0984728L01	Shorting Jumper: 2-contact (used with JU21)
	0984728L01	Shorting Jumper: 2-contact (used with JU22)
	1485334U01	Insulator (used w/ Y800)
	2683373P02	HEAT SINK, transistor
	2880001R03	plug: 3-contact (used with JU1)
	2880001R03	plug: 3-contact (used with JU2)
	2880001R03	plug: 3-contact (used with JU3)
	2880001R03	plug: 3-contact (used with JU4)
	2880001R03	plug: 3-contact (used with JU5)
	2880001R03	plug: 3-contact (used with JU6)
	2880001R03	plug: 3-contact (used with JU7)
	2880001R03	plug: 3-contact (used with JU8)
	2880001R03	plug: 3-contact (used with JU9)
	2880001R03	plug: 3-contact (used with JU10)
	2880001R03	plug: 3-contact (used with JU11)
	2880001R03	plug: 3-contact (used with JU12)
	2880001R03	plug: 3-contact (used with JU13)
	2880001R03	plug: 3-contact (used with JU14)
	2880001R03	plug: 3-contact (used with JU15)
	2880001R03	plug: 3-contact (used with JU16)
	2880001R03	plug: 3-contact (used with JU17)
	2880001R03	plug: 3-contact (used with JU18)
	2880001R03	plug: 3-contact (used with JU19)
	2880001R03	plug: 3-contact (used with JU20)
	2880001R03	plug: 3-contact (used with JU21)
	2880001R03	plug: 3-contact (used with JU22)
	2882296R34	plug: 40-contact (used with J800)
	4380054K02	SPACER, support (4 used)
	4884349P01	silicon
	5483865R01	Label, bar code: 1/4" wide, white (2 used)
	5484960T01	Label, bar code: 6.3 x 12.7MM, white (2 used)

Reference Symbol	Motorola Part No.	Description

Note: For optimum performance, diodes, transistors, integrated circuits, and crystals must be ordered by Motorola part number.

TLN3386 SSCB Parts List

Reference Symbol	Motorola Part No.	Description
		capacitor, fixed:
C701	2113740B57	220 pF, +/-5%; 50 V
C702	2113740B71	820 pF, +/-5%; 50 V
C703	2113740B73	1000 pF, +/-5%; 50 V
C704	2113741B69	0.1 uF, +/-5%; 50 V
C705,706	2311049A19	10 uF, +/-10%; 25 V
C707	2113741B69	0.1 uF, +/-5%; 50 V
C708	2311049A19	10 uF, +/-10%; 25 V
C709	2311049A08	1 uF, +/-10%; 35 V
C710,711	2311049A22	33 uF, +/-10%; 16 V
C712	2311049A19	10 uF, +/-10%; 25 V
C713	2311049A08	1 uF, +/-10%; 35 V
C714	2311049A19	10 uF, +/-10%; 25 V
C715	2113740B49	100 pF, +/-5%; 50 V
C716	2311049A19	10 uF, +/-10%; 25 V
C717	2113741B69	0.1 uF, +/-5%; 50 V
C718	2313748G21	100 uF, +/-20%; 16V
C719	2311049A19	10 uF, +/-10%; 25 V
C720	2113741B69	0.1 uF, +/-5%; 50 V
C721	2311049A22	33 uF, +/-10%; 16 V
C722 thru 725	2113741B69	0.1 uF, +/-5%; 50 V
C800	2113741B45	0.01 uF, +/-5%; 50 V
C801	2113740B59	270 pF, +/-5%; 50V
C802 thru 808	2113741B69	0.1 uF, +/-5%; 50 V
C810	2113741B69	0.1 uF, +/-5%; 50 V
C812	2311049A19	10 uF, +/-10%; 25 V
C814,815	2113740B25	10 pF, +/-5%; 50 V
C817	2113740B65	470 pF, +/-5%; 50 V
C819	2113741B69	0.1 uF, +/-5%; 50 V
C820	2113741B45	0.01 uF, +/-5%; 50 V
C822	2311049A08	1 uF, +/-10%; 35 V
C823 thru 828	2113741B69	0.1 uF, +/-5%; 50 V
C829	2113740B49	100 pF, +/-5%; 50 V
C830	2113741B69	0.1 uF, +/-5%; 50 V
C1543	2113740B73	1000 pF, +/-5%; 50 V
C1544	0811051A13	0.1 uF, +/-5%; 63 V
C1545,1546	2113740B47	82 pF, +/-5%; 50V
C1547	0811017A08	0.01 uF, +/-5%; 50 V
C1548	2113740B76	1500 pF, +/-5 pF; 50V
C1549	2113740B57	220 pF, +/-5%; 50 V
C1551	0811017A05	3300 pF, +/-5%; 50V
C1552,1553	2311049A10	2.2 uF, +/-10%; 35V
C1554	0811017A08	0.01 uF, +/-5%; 50 V
C1555	2113740B34	24 pF, +/-5%; 50V
C1556,1557	0811017A08	0.01 uF, +/-5%; 50 V
C1558	2113740B76	1500 pF, +/-5 pF; 50V
C1559	2113740B73	1000 pF, +/-5%; 50 V
C1560	2113740B34	24 pF, +/-5%; 50V
C1561	0811017A05	3300 pF, +/-5%; 50V
C1562	2311049A10	2.2 uF, +/-10%; 35V
C1564	2113741B37	4700 pF, +/-5%; 50 V
C1579	2113740B57	220 pF, +/-5%; 50 V
C8100,8101	2113740B49	100 pF, +/-5%; 50 V
C8102	0811017A08	0.01 uF, +/-5%; 50 V
C8103	0811051A09	0.022 uF, +/-5%; 63 V
C8104	0811017A08	0.01 uF, +/-5%; 50 V
C8105	2313748G25	333 uF, +/-20%; 35V
C8106	0811051A13	0.1 uF, +/-5%; 63 V
C8107	0811051A09	0.022 uF, +/-5%; 63 V
C8108	0811017A08	0.01 uF, +/-5%; 50 V
C8109	2313748G25	333 uF, +/-20%; 35V
C8112	2311049A15	4.7 uF, +/-10%; 35V
C8113	2113740B49	100 pF, +/-5%; 50 V
C8114,8115	2113740B57	220 pF, +/-5%; 50 V
C8116	0811051A15	0.22 uF, +/-5%; 63 V
C8117	2311049A10	2.2 uF, +/-10%; 35V
C8118	2311049A08	1 uF, +/-10%; 35 V
C8119	0811017A05	3300 pF, +/-5%; 50V
C8120	0811017A08	0.01 uF, +/-5%; 50 V
C8121	2113740B57	220 pF, +/-5%; 50 V
C8122,8123	2311049A08	1 uF, +/-10%; 35 V
C8124	0811051A13	0.1 uF, +/-5%; 63 V
C8125	2311049A08	1 uF, +/-10%; 35 V
C8126,8127	2113740B49	100 pF, +/-5%; 50 V
C8128	2113740B76	1500 pF, +/-5 pF; 50V
C8129,8130	2113740B49	100 pF, +/-5%; 50 V
C8131 thru 8133	2113740B40	43 pF, +/-5%; 50V
C8134	2311049A08	1 uF, +/-10%; 35 V
C8135	0811051A15	0.22 uF, +/-5%; 63 V
C8136	2311049A19	10 uF, +/-10%; 25 V
C8137 thru 8140	0811051A15	0.22 uF, +/-5%; 63 V
C8141	2113741B45	0.01 uF, +/-5%; 50 V
C8142 thru 8150	2113741B69	0.1 uF, +/-5%; 50 V
C8151	2311049A15	4.7 uF, +/-10%; 35V
C8152	2113740B49	100 pF, +/-5%; 50 V
C8153	2113741B45	0.01 uF, +/-5%; 50 V
C8154	2113740B49	100 pF, +/-5%; 50 V
C8156	2113740B49	100 pF, +/-5%; 50 V
C8157	2113741B45	0.01 uF, +/-5%; 50 V
C8158	0811051A10	0.033 uF, +/-5%; 63V
C8159	0811051A12	0.068 uF, +/-5%; 83 V
C8160	2113740B49	100 pF, +/-5%; 50 V
C8161	0811017A05	3300 pF, +/-5%; 50V
C8162	0811051A13	0.1 uF, +/-5%; 63 V
C8163	2113740B74	1200 pF, +/-5%; 50V
C8164	2311049A08	1 uF, +/-10%; 35 V
C8165	2113740B76	1500 pF, +/-5 pF; 50V
C8169	2113740B40	43 pF, +/-5%; 50V
C8170	0811051A15	0.22 uF, +/-5%; 63 V
C8173	0811017A08	0.01 uF, +/-5%; 50 V
C8174	2113740B57	220 pF, +/-5%; 50 V
C8175,8176	2311049A08	1 uF, +/-10%; 35 V
C8177	2311049A10	2.2 uF, +/-10%; 35V
C8178	2311049A08	1 uF, +/-10%; 35 V
C8179 thru 8191	2113741B69	0.1 uF, +/-5%; 50 V
C8193	2113741B69	0.1 uF, +/-5%; 50 V
C8195 thru 8198	2113741B69	0.1 uF, +/-5%; 50 V
C8200	2113741B33	3300 pF, +/-5%; 50V
C8201	2113740B55	180 pF, +/-5%; 50V
C8202	2113741B45	0.01 uF, +/-5%; 50 V
C8203	2113741B37	4700 pF, +/-5%; 50 V
C8204	2113740B73	1000 pF, +/-5%; 50 V
C8205	0811051A15	0.22 uF, +/-5%; 63 V
C8207	2113740B73	1000 pF, +/-5%; 50 V
C8209 thru 8211	0811051A13	0.1 uF, +/-5%; 63 V
C8213	0811051A13	0.1 uF, +/-5%; 63 V
C8214	2113741B45	0.01 uF, +/-5%; 50 V
C8215,8216	2113741B69	0.1 uF, +/-5%; 50 V
C8218	0811051A15	0.22 uF, +/-5%; 63 V
C8219	2113741B69	0.1 uF, +/-5%; 50 V
C8220	2113740B73	1000 pF, +/-5%; 50 V
C8225	2113741B69	0.1 uF, +/-5%; 50 V
C8230	2113740B57	220 pF, +/-5%; 50 V
C8231	2113741B69	0.1 uF, +/-5%; 50 V
C8300 thru 8303	0811051A11	0.047 uF, +/-5%; 63V
C8304	2311049A19	10 uF, +/-10%; 25 V
C8305,8306	0811051A11	0.047 uF, +/-5%; 63V
C8307	2113740B36	30 pF, +/-5%; 50V
C8400	2113740B18	5.1 pF, +/-0.25 pF; 50V
C8401	2311049A19	10 uF, +/-10%; 25 V
C8402	0811051A15	0.22 uF, +/-5%; 63 V
C8403	2311049A19	10 uF, +/-10%; 25 V
		diode: (see note)
CR801,802	4813833C10	0.1A, 70V
CR803	4805129M41	Rectifier
CR804 thru 807	4813833C10	0.1A, 70V
CR808	4884349P01	Dual Rectifier
CR809	4813833C10	0.1A, 70V
CR1520 thru 1522	4805129M41	Rectifier
CR1523,1524	4813833C10	0.1A, 70V
CR1526,1527	4813833C10	0.1A, 70V
CR1528,1529	4805129M41	Rectifier
CR1530	4813833C10	0.1A, 70V

TLN3386 SSCB Parts List

Reference Symbol	Motorola Part No.	Description
CR1531	4805129M41	Rectifier
CR8100,8101	4883654H01	silicon
CR8102,8103	4813833C10	0.1A, 70V
CR8107	4813833C10	0.1A, 70V
CR8110	4805129M41	Rectifier
CR8112,8113	4805129M41	Rectifier
CR8115,8116	4883654H01	silicon
CR8200 thru 8203	4805129M41	Rectifier
		light emitting diode: (see note)
DS800 thru 803	4888245C22	GRN
DS804	4888245C23	YEL
DS805	4888245C24	RED
DS8200 thru 8202	4882771L03	7-segment display (red)
		hybrid:
HY805	TRN7008A	Display Board
		connector:
J701	2882984N13	plug: 6-contact
J801	2882505T03	plug: 26-contact
J802	2813922A14	HDR 14 POS STR .1 CTR GLD PLTD
J803	2882505T05	plug: 40-contact
J804	2882505T04	plug: 34-contact
J805A	2883547T01	receptacle: 8-contact, right anle
J805B	2883547T01	receptacle: 8-contact, right anle
J806,807	0984231B03	receptacle: phono jack
J812	0983112N01	receptacle: 6-contact
		inductor:
L700	2484386T01	25 UH
L701	2484266T01	150 UH
L702	2484386T01	25 UH
L800	2411047A25	10 UH
L900	2411047A31	CHK RF MLD A/I 33UH
		transistor: (see note)
Q700	4884233T01	type MOSFET
Q705	4813824A17	PNP
Q800	4813824A17	PNP
Q801 thru 807	4813824A10	NPN
Q808	4813824A06	NPN
Q809 thru 811	4813824A10	NPN
Q813,814	4813824A10	NPN
Q816,817	4813824A10	NPN
Q820	4813824A10	NPN
Q821	4800869653	type JFET
Q822,823	4813824A10	NPN
Q1507 thru 1510	4813824A10	NPN
Q8100	4813824A10	NPN
Q8101,8102	4811043B42	TSTR 48R00869919 A/I
Q8200 thru 8207	4813824A17	PNP
Q8208 thru 8210	4813824A06	NPN
Q8211	4813824A10	NPN
Q8212	4813824A06	NPN
		resistor, fixed:
R700	0611077A98	10K, +/-5%; 1/8 W
R701	0611077A88	3.9K, +/-5%; 1/8 W
R702	0611077A50	100 ohms, +/-5%; 1/8 W
R703	0611077A74	1K, +/-5%; 1/8 W
R704	0611077B31	220K, +/-5%; 1/8 W
R705	0611077F63	5.11K, +/-1%; 1/8 W
R706	0611077F28	2.21K, +/-1%; 1/8 W
R707	0611077H30	267K, +/-1%; 1/8 W
R708	0611077F91	10K, +/-1%; 1/8 W
R709	0611077E94	1K, +/-1%; 1/8 W
R710	0611077F60	4.75K, +/-1%; 1/8 W
R711	0611077B35	330K, +/-5%; 1/8 W
R712	0611077B23	100K, +/-5%; 1/8 W
R713	0611077F91	10K, +/-1%; 1/8 W
R714	0611077B13	39K, +/-5%; 1/8 W
R715	0611077B15	47K, +/-5%; 1/8 W
R716	0611077F63	5.11K, +/-1%; 1/8 W
R717	0611077B35	330K, +/-5%; 1/8 W
R718	0611077B07	22K, +/-5%; 1/8 W

Reference Symbol	Motorola Part No.	Description
R719	0611077A50	100 ohms, +/-5%; 1/8 W
R720	0611077A36	27 ohms, +/-5%; 1/8 W
R721	0611077B47	1 meg, +/-5%; 1/8 W
R722	0611077B31	220K, +/-5%; 1/8 W
R723,724	0683962T01	1 ohm, +/-5%; 1 W
R725	0611077F91	10K, +/-1%; 1/8 W
R726	0611077G09	15K, +/-1%; 1/8 W
R727	0611077A98	10K, +/-5%; 1/8 W
R728	0611077H85	1 meg, +/-1%; 1/8 W
R729	0611077B29	180K, +/-5%; 1/8 W
R730	0611077A01	0 ohm, +/-5%; 0 W
R731	0683962T01	1 ohm, +/-5%; 1 W
R736	0611009A33	220 ohms, +/-5%; 1/4 W
R737	0611077A84	2.7K, +/-5%; 1/8 W
R738	0611077A64	390 ohms, +/-5%; 1/8 W
R739	0611077A98	10K, +/-5%; 1/8 W
R740	0611077A56	180 ohms, +/-5%; 1/8W
R741	0611077A98	10K, +/-5%; 1/8 W
R742	0611077A86	3.3K, +/-5%; 1/8 W
R743	0683962T01	1 ohm, +/-5%; 1 W
R748	0611077A78	1.5K, +/-5%; 1/8 W
R800	0611077A54	150 ohms, +/-5%; 1/8 W
R801	0611077A88	3.9K, +/-5%; 1/8 W
R802	0611077A01	0 ohm, +/-5%; 0 W
R803,804	0611077A88	3.9K, +/-5%; 1/8 W
R805	0611077A42	47 ohms, +/-5%; 1/8 W
R806	0611077A98	10K, +/-5%; 1/8 W
R807	0611077A94	6.8K, +/-5%; 1/8W
R809,810	0611077A94	6.8K, +/-5%; 1/8W
R812	0611077A78	1.5K, +/-5%; 1/8 W
R813	0611077A32	18 ohms, +/-5%; 1/8 W
R814	0611077A56	180 ohms, +/-5%; 1/8W
R815	0611077A32	18 ohms, +/-5%; 1/8 W
R816	0611077A90	4.7K, +/-5%; 1/8 W
R817	0611077A82	2.2K, +/-5%; 1/8 W
R818	0611077A52	120 ohms, +/-5%; 1/8 W
R819	0611077A32	18 ohms, +/-5%; 1/8 W
R820	0611077A56	180 ohms, +/-5%; 1/8W
R821	0611077A78	1.5K, +/-5%; 1/8 W
R822	0611077A56	180 ohms, +/-5%; 1/8W
R823	0611077A82	2.2K, +/-5%; 1/8 W
R824	0611077A80	1.8K, +/-5%; 1/8 W
R825	0611077A82	2.2K, +/-5%; 1/8 W
R826	0611077A98	10K, +/-5%; 1/8 W
R827	0611077A88	3.9K, +/-5%; 1/8 W
R828	0611077B07	22K, +/-5%; 1/8 W
R829	0611077A94	6.8K, +/-5%; 1/8W
R830 thru 836	0611077A98	10K, +/-5%; 1/8 W
R837,838	0611077A50	100 ohms, +/-5%; 1/8 W
R839	0611077A98	10K, +/-5%; 1/8 W
R840,841	0611077A50	100 ohms, +/-5%; 1/8 W
R842	0611077A98	10K, +/-5%; 1/8 W
R843 thru 845	0611077A50	100 ohms, +/-5%; 1/8 W
R846	0611077A52	120 ohms, +/-5%; 1/8 W
R847,848	0611077A98	10K, +/-5%; 1/8 W
R849	0611077B09	27K, +/-5%; 1/8 W
R850	0611077A98	10K, +/-5%; 1/8 W
R851	0611077A58	220 ohms, +/-5%; 1/8 W
R852	0611077B47	1 meg, +/-5%; 1/8 W
R854	0611077A98	10K, +/-5%; 1/8 W
R855	0611077A92	5.6K, +/-5%; 1/8 W
R856 thru 858	0611077A98	10K, +/-5%; 1/8 W
R861	0611077B09	27K, +/-5%; 1/8 W
R862	0611077A88	3.9K, +/-5%; 1/8 W
R863	0611077A54	150 ohms, +/-5%; 1/8 W
R866	0611077A98	10K, +/-5%; 1/8 W
R867	0611077A78	1.5K, +/-5%; 1/8 W
R868 thru 871	0611077A98	10K, +/-5%; 1/8 W
R872	0611077A54	150 ohms, +/-5%; 1/8 W
R873	0611077A98	10K, +/-5%; 1/8 W
R874	0611077A54	150 ohms, +/-5%; 1/8 W
R875	0611077A80	1.8K, +/-5%; 1/8 W
R876	0611077A98	10K, +/-5%; 1/8 W
R877	0611077A54	150 ohms, +/-5%; 1/8 W
R878	0611077A90	4.7K, +/-5%; 1/8 W
R879	0611077A82	2.2K, +/-5%; 1/8 W
R880	0611077A78	1.5K, +/-5%; 1/8 W

Reference Symbol	Motorola Part No.	Description
R881	0611077A98	10K, +/-5%; 1/8 W
R882	0611077A82	2.2K, +/-5%; 1/8 W
R883,884	0611077A98	10K, +/-5%; 1/8 W
R887	0611077A98	10K, +/-5%; 1/8 W
R888	0611077B39	470K, +/-5%; 1/8 W
R889	0611077A98	10K, +/-5%; 1/8 W
R890	0611077A74	1K, +/-5%; 1/8 W
R891	0611077A98	10K, +/-5%; 1/8 W
R893	0611077A98	10K, +/-5%; 1/8 W
R894	0611077B23	100K, +/-5%; 1/8 W
R895 thru 898	0611077A98	10K, +/-5%; 1/8 W
R899	0611077A92	5.6K, +/-5%; 1/8 W
R900	0611077A50	100 ohms, +/-5%; 1/8 W
R1523	0611077B17	56K, +/-5%; 1/8 W
R1524	0611077A86	3.3K, +/-5%; 1/8 W
R1525	0611077B11	33K, +/-5%; 1/8 W
R1526	0611077A82	2.2K, +/-5%; 1/8 W
R1527	0611077B11	33K, +/-5%; 1/8 W
R1532	0611077B27	150K, +/-5%; 1/8W
R1533	0611077A64	390 ohms, +/-5%; 1/8 W
R1534	0611077A78	1.5K, +/-5%; 1/8 W
R1535	0611077B15	47K, +/-5%; 1/8 W
R1536	0611077B31	220K, +/-5%; 1/8 W
R1537	0611077B15	47K, +/-5%; 1/8 W
R1540	0611077B15	47K, +/-5%; 1/8 W
R1543	0611077B23	100K, +/-5%; 1/8 W
R1544	0611077A74	1K, +/-5%; 1/8 W
R1545	0611077B19	68K, +/-5%; 1/8W
R1546	0611077A74	1K, +/-5%; 1/8 W
R1547	0611077A98	10K, +/-5%; 1/8 W
R1548	0611077B33	270K, +/-5%; 1/8W
R1549	0611077A94	6.8K, +/-5%; 1/8W
R1550	0611077A98	10K, +/-5%; 1/8 W
R1553	0611077B19	68K, +/-5%; 1/8W
R1554	0611077B21	82K, +/-5%; 1/8W
R1555,1556	0611077A98	10K, +/-5%; 1/8 W
R1557	0611077B27	150K, +/-5%; 1/8W
R1559	0611077A64	390 ohms, +/-5%; 1/8 W
R1560,1561	0611077B15	47K, +/-5%; 1/8 W
R1562	0611077B31	220K, +/-5%; 1/8 W
R1563	0611077B15	47K, +/-5%; 1/8 W
R1565,1566	0611077A74	1K, +/-5%; 1/8 W
R1567	0611077A94	6.8K, +/-5%; 1/8W
R1568	0611077A98	10K, +/-5%; 1/8 W
R1570	0611077A74	1K, +/-5%; 1/8 W
R1571	0611077A98	10K, +/-5%; 1/8 W
R1572	0611077A01	0 ohm, +/-5%; 0 W
R1573,1574	0611077A91	5.1K, +/-5%; 1/8 W
R1575	0611077A92	5.6K, +/-5%; 1/8 W
R1576	0611077B27	150K, +/-5%; 1/8W
R1578	0611077A78	1.5K, +/-5%; 1/8 W
R1599	1882787K08	variable: 100K +/-20%; 1/4W
R8100 thru 8103	0611077B01	12K, +/-5%; 1/8 W
R8105	0611077B23	100K, +/-5%; 1/8 W
R8106	0611077A98	10K, +/-5%; 1/8 W
R8107	0611077B07	22K, +/-5%; 1/8 W
R8108	0611077B03	15K, +/-5%; 1/8 W
R8109	0611077B01	12K, +/-5%; 1/8 W
R8110	0611077B16	51K, +/-5%; 1/8W
R8111	0611077B07	22K, +/-5%; 1/8 W
R8112	0611077A94	6.8K, +/-5%; 1/8W
R8113,8114	0611077A86	3.3K, +/-5%; 1/8 W
R8115	0611077A94	6.8K, +/-5%; 1/8W
R8116	0611077A88	3.9K, +/-5%; 1/8 W
R8117	0611009B26	2.7 ohms, +/-5%; 1/4W
R8118	0611077A88	3.9K, +/-5%; 1/8 W
R8119	0611077A67	510 ohms, +/-5%; 1/8 W
R8120	0611077A68	560 ohms, +/-5%; 1/8 W
R8121	0683962T24	9.1 ohms, +/-5%; 1W
R8122	0611077A26	10 ohms, +/-5%; 1/8 W
R8123	0611077B37	390K, +/-5%; 1/8W
R8125	0611077A98	10K, +/-5%; 1/8 W
R8127	0611077A94	6.8K, +/-5%; 1/8W
R8128	0611077A86	3.3K, +/-5%; 1/8 W
R8129	0611077A78	1.5K, +/-5%; 1/8 W

Reference Symbol	Motorola Part No.	Description
R8130	0611077H43	365K, +/-1%; 1/8W
R8131	0611077A98	10K, +/-5%; 1/8 W
R8132	0611077A94	6.8K, +/-5%; 1/8W
R8133	0611077B23	100K, +/-5%; 1/8 W
R8134	0611077B17	56K, +/-5%; 1/8 W
R8135	1882787K09	variable: 5K +/-10%; 1/4W
R8136	0611077B05	18K, +/-5%; 1/8 W
R8137	0611077B09	27K, +/-5%; 1/8 W
R8138,8139	0611077B11	33K, +/-5%; 1/8 W
R8141	0611077B03	15K, +/-5%; 1/8 W
R8142,8143	0611077B07	22K, +/-5%; 1/8 W
R8144	0611077A98	10K, +/-5%; 1/8 W
R8146	0611077B03	15K, +/-5%; 1/8 W
R8147	0611077B09	27K, +/-5%; 1/8 W
R8148	0611077A98	10K, +/-5%; 1/8 W
R8149	0611077B09	27K, +/-5%; 1/8 W
R8150	0611077B23	100K, +/-5%; 1/8 W
R8151,8152	0611077B09	27K, +/-5%; 1/8 W
R8153,8154	0611077B07	22K, +/-5%; 1/8 W
R8155	0611077B09	27K, +/-5%; 1/8 W
R8156	0611077B23	100K, +/-5%; 1/8 W
R8157 thru 8159	0611077B09	27K, +/-5%; 1/8 W
R8162	0611077B07	22K, +/-5%; 1/8 W
R8163	0611077B09	27K, +/-5%; 1/8 W
R8164	0611077A98	10K, +/-5%; 1/8 W
R8165,8166	0611077B09	27K, +/-5%; 1/8 W
R8167	0611077B23	100K, +/-5%; 1/8 W
R8168	0611077B30	200K, +/-5%; 1/8 W
R8169	0611077B23	100K, +/-5%; 1/8 W
R8170	0611077A68	560 ohms, +/-5%; 1/8 W
R8171	0611077B30	200K, +/-5%; 1/8 W
R8172	0611077A50	100 ohms, +/-5%; 1/8 W
R8173,8174	0611077B23	100K, +/-5%; 1/8 W
R8175	0611077B03	15K, +/-5%; 1/8 W
R8176	0611077A91	5.1K, +/-5%; 1/8 W
R8177	0611077B11	33K, +/-5%; 1/8 W
R8178,8179	0611077B14	43K, +/-5%; 1/8 W
R8180	0611077B11	33K, +/-5%; 1/8 W
R8181 thru 8185	0611077B18	62K, +/-5%; 1/8 W
R8186	0611077A87	3.6K, +/-5%; 1/8W
R8187	0611077B14	43K, +/-5%; 1/8 W
R8188	0611077B23	100K, +/-5%; 1/8 W
R8189	0611077B43	680K, +/-5%; 1/8 W
R8190	0611077B23	100K, +/-5%; 1/8 W
R8191	0611077A98	10K, +/-5%; 1/8 W
R8192	0611077A86	3.3K, +/-5%; 1/8 W
R8193	0611077A98	10K, +/-5%; 1/8 W
R8194	0611077B23	100K, +/-5%; 1/8 W
R8195	0611077A88	3.9K, +/-5%; 1/8 W
R8196,8197	0611077A76	1.2K, +/-5%; 1/8 W
R8198	0611077B15	47K, +/-5%; 1/8 W
R8199	0611077A01	0 ohm, +/-5%; 0 W
R8200	0611077A78	1.5K, +/-5%; 1/8 W
R8201	0611077A50	100 ohms, +/-5%; 1/8 W
R8202	0611077A78	1.5K, +/-5%; 1/8 W
R8203	0611077A90	4.7K, +/-5%; 1/8 W
R8204	0611077A50	100 ohms, +/-5%; 1/8 W
R8205,8206	0611077A78	1.5K, +/-5%; 1/8 W
R8207	0611077A82	2.2K, +/-5%; 1/8 W
R8208	0611077A50	100 ohms, +/-5%; 1/8 W
R8209,8210	0611077A78	1.5K, +/-5%; 1/8 W
R8211	0611077A84	2.7K, +/-5%; 1/8 W
R8212	0611077A50	100 ohms, +/-5%; 1/8 W
R8213,8214	0611077A78	1.5K, +/-5%; 1/8 W
R8215	0611077B11	33K, +/-5%; 1/8 W
R8216	0611077A50	100 ohms, +/-5%; 1/8 W
R8217,8218	0611077A78	1.5K, +/-5%; 1/8 W
R8219	0611009B23	0 ohm, +/-5%; 1/4 W
R8220	0611077A50	100 ohms, +/-5%; 1/8 W
R8221,8222	0611077A78	1.5K, +/-5%; 1/8 W
R8223	0611077B23	100K, +/-5%; 1/8 W
R8224	0611077A78	1.5K, +/-5%; 1/8 W
R8225	0611077A50	100 ohms, +/-5%; 1/8 W
R8226	0611077A78	1.5K, +/-5%; 1/8 W

TLN3386 SSCB Parts List

Reference Symbol	Motorola Part No.	Description
R8227	0611077B23	100K, +/-5%; 1/8 W
R8228	0611077A50	100 ohms, +/-5%; 1/8 W
R8229,8230	0611077A78	1.5K, +/-5%; 1/8 W
R8231	0611077G88	100K, +/-1%; 1/8 W
R8232,8233	0611077A98	10K, +/-5%; 1/8 W
R8236,8237	0611077A98	10K, +/-5%; 1/8 W
R8239,8240	0611077A98	10K, +/-5%; 1/8 W
R8242,8243	0611077H18	200K, +/-1%; 1/8 W
R8244	0611077G88	100K, +/-1%; 1/8 W
R8245	0611077B23	100K, +/-5%; 1/8 W
R8246	0611077G88	100K, +/-1%; 1/8 W
R8247	0611077H18	200K, +/-1%; 1/8 W
R8248	0611077G88	100K, +/-1%; 1/8 W
R8249	0611077H18	200K, +/-1%; 1/8 W
R8250	0611077G88	100K, +/-1%; 1/8 W
R8251 thru 8254	0611077H18	200K, +/-1%; 1/8 W
R8255,8256	0611077B23	100K, +/-5%; 1/8 W
R8257	0611077G88	100K, +/-1%; 1/8 W
R8258	0611077H18	200K, +/-1%; 1/8 W
R8259	0611077G88	100K, +/-1%; 1/8 W
R8260	0611077H18	200K, +/-1%; 1/8 W
R8261	0611077G88	100K, +/-1%; 1/8 W
R8262,8263	0611077H18	200K, +/-1%; 1/8 W
R8272	0611077B25	120K, +/-5%; 1/8 W
R8275	0611077H73	750K, +/-1%; 1/8W
R8276	0611077G60	51.1K, +/-1%; 1/8 W
R8277	0611077A98	10K, +/-5%; 1/8 W
R8278	0611077H54	475K, +/-1%; 1/8W
R8279	0611077G53	43.2K, +/-1%; 1/8 W
R8280	0611077H46	392K, +/-1%; 1/8W
R8281	0611077B13	39K, +/-5%; 1/8 W
R8282,8283	0611077H73	750K, +/-1%; 1/8W
R8284	0611077G60	51.1K, +/-1%; 1/8 W
R8285	0611077H54	475K, +/-1%; 1/8W
R8286	0611077A98	10K, +/-5%; 1/8 W
R8287	0611077A74	1K, +/-5%; 1/8 W
R8288	0611077G53	43.2K, +/-1%; 1/8 W
R8289	0611077H73	750K, +/-1%; 1/8W
R8290	0611077H46	392K, +/-1%; 1/8W
R8291	0611077B13	39K, +/-5%; 1/8 W
R8292	0611077A86	3.3K, +/-5%; 1/8 W
R8293	0611077B23	100K, +/-5%; 1/8 W
R8294	0611077B11	33K, +/-5%; 1/8 W
R8295	0611077B23	100K, +/-5%; 1/8 W
R8298	0611009B23	0 ohm, +/-5%; 1/4 W
R8299	0611077A01	0 ohm, +/-5%; 0 W
R8300	0611077B23	100K, +/-5%; 1/8 W
R8310 thru 8313	0611077B15	47K, +/-5%; 1/8 W
R8314	0611077A98	10K, +/-5%; 1/8 W
R8315	0611077A94	6.8K, +/-5%; 1/8W
R8316	0611077A98	10K, +/-5%; 1/8 W
R8318	0611077B23	100K, +/-5%; 1/8 W
R8335 thru 8339	0611077A74	1K, +/-5%; 1/8 W
R8340	0611077A98	10K, +/-5%; 1/8 W
R8344	0611077A68	560 ohms, +/-5%; 1/8 W
R8345 thru 8347	0611077A50	100 ohms, +/-5%; 1/8 W
R8348	0611077A98	10K, +/-5%; 1/8 W
R8349	0611077B30	200K, +/-5%; 1/8 W
R8350,8351	0611077G42	33.2K, +/-1%; 1/8W
R8400	0611077A67	510 ohms, +/-5%; 1/8 W
R8401,8402	0611077A92	5.6K, +/-5%; 1/8 W
R8403	0611077B01	12K, +/-5%; 1/8 W
R8404	0611077B11	33K, +/-5%; 1/8 W
R8405	0611077A84	2.7K, +/-5%; 1/8 W
R8406	0611077B15	47K, +/-5%; 1/8 W
R8407	0611077A74	1K, +/-5%; 1/8 W
R8408	0611077B35	330K, +/-5%; 1/8 W
R8409	0611077B45	820K, +/-5%; 1/8 W
R8410	0611077E15	150 ohms, +/-1%; 1/8W
R8411	0611077B45	820K, +/-5%; 1/8 W
R8412	0611077E73	604 ohms, +/-1%; 1/8W
R8413	0611009B23	0 ohm, +/-5%; 1/4 W
R8414	0611077A43	51 ohms, +/-5%; 1/8 W
R8415	0611077B03	15K, +/-5%; 1/8 W
R8416	0611077B39	470K, +/-5%; 1/8 W
R8417	0611009B23	0 ohm, +/-5%; 1/4 W
R8501	0683962T24	9.1 ohms, +/-5%; 1W
R8502	0611077B05	18K, +/-5%; 1/8 W
R8600	0611009B23	0 ohm, +/-5%; 1/4 W
R8601,8602	0611077A58	220 ohms, +/-5%; 1/8 W
R8603 thru 8610	0611077A98	10K, +/-5%; 1/8 W
R8611 thru 8618	0611077A58	220 ohms, +/-5%; 1/8 W
		switch:
SW800,801	4083980R12	toggle: sp3t (on-off-mom)
SW802	4083980R11	toggle: sp3t (mom-off-mom)
		transformer:
T700	2584265T01	power
		test point:
TP1 thru 13	2962998D01	terminal pin
		integrated circuit: (see note)
U800	5113802A01	Micro Computere Unit w/Switch Control Interface
U801,802	5184494R03	ASIC Station Control
U803	TVN6055A	Software SSCB
U803	5191012H75	IC PRGMD EPROM 12H75
U804	5184064F76	Static 32Kx8 Bit RAM
U806	5113819D02	LO COST LO PWR 14 DIP
U807	5113815J04	555 Timer
U808	0982808R02	SOCKET, IC: 8-contact
U810 thru 812	5184887K60	Triple 2-Channel Analog Mux/Demux
U813	5184704M19	Hex Level Shifter/Logic Level Converter
U814	5113819D04	General Purpose Differential Operational Amplifier
U816	5184704M19	Hex Level Shifter/Logic Level Converter
U817	5113806D21	analog switching multiplexer
U818,819	5113819D04	General Purpose Differential Operational Amplifier
U821	5113819D04	General Purpose Differential Operational Amplifier
U823,824	5182335V01	IC EEPOT 50K 10% _9312_
U830	5184621K33	Operational Amplifier
U831	5182335V01	IC EEPOT 50K 10% _9312_
U837,838	5184621K85	Dual Operational Amplifier
U839	5184704M19	Hex Level Shifter/Logic Level Converter
U840	5184887K60	Triple 2-Channel Analog Mux/Demux
U841	5184621K85	Dual Operational Amplifier
U842	5113820D02	type LM2901N
U843	5184371T01	Single Current Mode Controller
U1550,1551	5183222M03	Quad Operational Amplifier
U1552	5113819D02	LO COST LO PWR 14 DIP
U1553,1554	5182335V01	IC EEPOT 50K 10% _9312_
U8200	5113819D04	General Purpose Differential Operational Amplifier
		voltage regulator: (see note)
VR701	4883461E40	Zener 5.1V
VR702	4882479V02	DIODE ZENER 3.3V
VR1531 thru 1534	4882479V02	DIODE ZENER 3.3V
		crystal: (see note)
Y800	4880113K04	7.948 MHZ
		non-referenced items:
	TTN4044A	800MHZ CNTRL BD
	0300140230	SCR TPG 4-40X5/16 STARPAN CHS (2 used with J800)
	0982449T01	SOCKET, IC: 52-contact (used with U800)
	0982449T03	SOCKET, IC: 84-contact (used with U801)
	0982449T03	SOCKET, IC: 84-contact (used with U802)
	0982808R10	Socket, IC: 28-contact (used with U803)
	0983729M17	receptacle: 20-contact (2 used with J800)
	0984728L01	Shorting Jumper: 2-contact (used with JU1)
	0984728L01	Shorting Jumper: 2-contact (used with JU2)

Reference Symbol	Motorola Part No.	Description
	0984728L01	Shorting Jumper: 2-contact (used with JU3)
	0984728L01	Shorting Jumper: 2-contact (used with JU4)
	0984728L01	Shorting Jumper: 2-contact (used with JU5)
	0984728L01	Shorting Jumper: 2-contact (used with JU6)
	0984728L01	Shorting Jumper: 2-contact (used with JU7)
	0984728L01	Shorting Jumper: 2-contact (used with JU8)
	0984728L01	Shorting Jumper: 2-contact (used with JU9)
	0984728L01	Shorting Jumper: 2-contact (used with JU10)
	0984728L01	Shorting Jumper: 2-contact (used with JU11)
	0984728L01	Shorting Jumper: 2-contact (used with JU12)
	0984728L01	Shorting Jumper: 2-contact (used with JU13)
	0984728L01	Shorting Jumper: 2-contact (used with JU14)
	0984728L01	Shorting Jumper: 2-contact (used with JU15)
	0984728L01	Shorting Jumper: 2-contact (used with JU16)
	0984728L01	Shorting Jumper: 2-contact (used with JU17)
	0984728L01	Shorting Jumper: 2-contact (used with JU18)
	0984728L01	Shorting Jumper: 2-contact (used with JU19)
	0984728L01	Shorting Jumper: 2-contact (used with JU20)
	0984728L01	Shorting Jumper: 2-contact (used with JU21)
	0984728L01	Shorting Jumper: 2-contact (used with JU22)
	1485334U01	Insulator (used w/ Y800)
	2683373P02	HEAT SINK, transistor
	2880001R03	plug: 3-contact (used with JU1)
	2880001R03	plug: 3-contact (used with JU2)
	2880001R03	plug: 3-contact (used with JU3)
	2880001R03	plug: 3-contact (used with JU4)
	2880001R03	plug: 3-contact (used with JU5)
	2880001R03	plug: 3-contact (used with JU6)
	2880001R03	plug: 3-contact (used with JU7)
	2880001R03	plug: 3-contact (used with JU8)
	2880001R03	plug: 3-contact (used with JU9)
	2880001R03	plug: 3-contact (used with JU10)
	2880001R03	plug: 3-contact (used with JU11)
	2880001R03	plug: 3-contact (used with JU12)
	2880001R03	plug: 3-contact (used with JU13)
	2880001R03	plug: 3-contact (used with JU14)
	2880001R03	plug: 3-contact (used with JU15)
	2880001R03	plug: 3-contact (used with JU16)
	2880001R03	plug: 3-contact (used with JU17)
	2880001R03	plug: 3-contact (used with JU18)
	2880001R03	plug: 3-contact (used with JU19)
	2880001R03	plug: 3-contact (used with JU20)
	2880001R03	plug: 3-contact (used with JU21)
	2880001R03	plug: 3-contact (used with JU22)
	2882296R34	plug: 40-contact (used with J800)
	4380054K02	SPACER, support (4 used)
	4884349P01	silicon
	5483865R01	Label, bar code: 1/4" wide, white (2 used)
	5484960T01	Label, bar code: 6.3 x 12.7MM, white (2 used)

Note: For optimum performance, diodes, transistors, integrated circuits, and crystals must be ordered by Motorola part number.

Reference Symbol	Motorola Part No.	Description

TLN3387 SSCB Parts List

Reference Symbol	Motorola Part No.	Description
		capacitor, fixed:
C701	2113740B57	220 pF, +/-5%; 50 V
C702	2113740B71	820 pF, +/-5%; 50 V
C703	2113740B73	1000 pF, +/-5%; 50 V
C704	2113741B69	0.1 uF, +/-5%; 50 V
C705,706	2311049A19	10 uF, +/-10%; 25 V
C707	2113741B69	0.1 uF, +/-5%; 50 V
C708	2311049A19	10 uF, +/-10%; 25 V
C709	2311049A08	1 uF, +/-10%; 35 V
C710,711	2311049A22	33 uF, +/-10%; 16 V
C712	2311049A19	10 uF, +/-10%; 25 V
C713	2311049A08	1 uF, +/-10%; 35 V
C714	2311049A19	10 uF, +/-10%; 25 V
C715	2113740B49	100 pF, +/-5%; 50 V
C716	2311049A19	10 uF, +/-10%; 25 V
C717	2113741B69	0.1 uF, +/-5%; 50 V
C718	2313748G21	100 uF, +/-20%; 16V
C719	2311049A19	10 uF, +/-10%; 25 V
C720	2113741B69	0.1 uF, +/-5%; 50 V
C721	2311049A22	33 uF, +/-10%; 16 V
C722 thru 725	2113741B69	0.1 uF, +/-5%; 50 V
C800	2113741B45	0.01 uF, +/-5%; 50 V
C801	2113740B59	270 pF, +/-5%; 50V
C802 thru 808	2113741B69	0.1 uF, +/-5%; 50 V
C810	2113741B69	0.1 uF, +/-5%; 50 V
C812	2311049A19	10 uF, +/-10%; 25 V
C814,815	2113740B25	10 pF, +/-5%; 50 V
C817	2113740B65	470 pF, +/-5%; 50 V
C819	2113741B69	0.1 uF, +/-5%; 50 V
C820	2113741B45	0.01 uF, +/-5%; 50 V
C822	2311049A08	1 uF, +/-10%; 35 V
C823 thru 828	2113741B69	0.1 uF, +/-5%; 50 V
C829	2113740B49	100 pF, +/-5%; 50 V
C830	2113741B69	0.1 uF, +/-5%; 50 V
C1543	2113740B73	1000 pF, +/-5%; 50 V
C1544	0811051A13	0.1 uF, +/-5%; 63 V
C1545,1546	2113740B47	82 pF, +/-5%; 50V
C1547	0811017A08	0.01 uF, +/-5%; 50 V
C1548	2113740B76	1500 pF, +/-5 pF; 50V
C1549	2113740B57	220 pF, +/-5%; 50 V
C1551	0811017A05	3300 pF, +/-5%; 50V
C1552,1553	2311049A10	2.2 uF, +/-10%; 35V
C1554	0811017A01	1000 pF, +/-5%; 50 V
C1555	2113740B34	24 pF, +/-5%; 50V
C1556	0811017A01	1000 pF, +/-5%; 50 V
C1557	0811017A08	0.01 uF, +/-5%; 50 V
C1558	2113740B76	1500 pF, +/-5 pF; 50V
C1559	2113740B73	1000 pF, +/-5%; 50 V
C1560	2113740B34	24 pF, +/-5%; 50V
C1561	0811017A05	3300 pF, +/-5%; 50V
C1562	2311049A10	2.2 uF, +/-10%; 35V
C1579	2113740B57	220 pF, +/-5%; 50 V
C8100,8101	2113740B49	100 pF, +/-5%; 50 V
C8102	0811017A08	0.01 uF, +/-5%; 50 V
C8103	0811051A09	0.022 uF, +/-5%; 63 V
C8104	0811017A08	0.01 uF, +/-5%; 50 V
C8105	2313748G25	333 uF, +/-20%; 35V
C8106	0811051A13	0.1 uF, +/-5%; 63 V
C8107	0811051A09	0.022 uF, +/-5%; 63 V
C8108	0811017A08	0.01 uF, +/-5%; 50 V
C8109	2313748G25	333 uF, +/-20%; 35V
C8112	2311049A15	4.7 uF, +/-10%; 35V
C8113	2113740B49	100 pF, +/-5%; 50 V
C8114,8115	2113740B57	220 pF, +/-5%; 50 V
C8116	0811051A15	0.22 uF, +/-5%; 63 V
C8117	2311049A10	2.2 uF, +/-10%; 35V
C8118	2311049A08	1 uF, +/-10%; 35 V
C8119	0811017A05	3300 pF, +/-5%; 50V
C8120	0811017A08	0.01 uF, +/-5%; 50 V
C8121	2113740B57	220 pF, +/-5%; 50 V
C8122,8123	2311049A08	1 uF, +/-10%; 35 V
C8124	0811051A13	0.1 uF, +/-5%; 63 V

Reference Symbol	Motorola Part No.	Description
C8125	2311049A08	1 uF, +/-10%; 35 V
C8126 thru 8130	2113740B49	100 pF, +/-5%; 50 V
C8131 thru 8133	2113740B40	43 pF, +/-5%; 50V
C8134	2311049A08	1 uF, +/-10%; 35 V
C8135	0811051A15	0.22 uF, +/-5%; 63 V
C8136	2311049A19	10 uF, +/-10%; 25 V
C8137 thru 8140	0811051A15	0.22 uF, +/-5%; 63 V
C8141	2113741B45	0.01 uF, +/-5%; 50 V
C8142 thru 8150	2113741B69	0.1 uF, +/-5%; 50 V
C8151	2311049A15	4.7 uF, +/-10%; 35V
C8152	2113740B49	100 pF, +/-5%; 50 V
C8153	2113741B45	0.01 uF, +/-5%; 50 V
C8154	2113740B49	100 pF, +/-5%; 50 V
C8156	2113740B49	100 pF, +/-5%; 50 V
C8157	2113741B45	0.01 uF, +/-5%; 50 V
C8158	0811051A10	0.033 uF, +/-5%; 63V
C8159	0811051A12	0.068 uF, +/-5%; 63 V
C8160	2113740B49	100 pF, +/-5%; 50 V
C8161	0811017A05	3300 pF, +/-5%; 50V
C8162	0811051A13	0.1 uF, +/-5%; 63 V
C8163	2113740B74	1200 pF, +/-5%; 50V
C8164	2311049A08	1 uF, +/-10%; 35 V
C8165	2113740B76	1500 pF, +/-5 pF; 50V
C8169	2113740B40	43 pF, +/-5%; 50V
C8170	0811051A15	0.22 uF, +/-5%; 63 V
C8173	0811017A08	0.01 uF, +/-5%; 50 V
C8174	2113740B57	220 pF, +/-5%; 50 V
C8175,8176	2311049A08	1 uF, +/-10%; 35 V
C8177	2311049A10	2.2 uF, +/-10%; 35V
C8178	2311049A08	1 uF, +/-10%; 35 V
C8179 thru 8191	2113741B69	0.1 uF, +/-5%; 50 V
C8193	2113741B69	0.1 uF, +/-5%; 50 V
C8195 thru 8198	2113741B69	0.1 uF, +/-5%; 50 V
C8200	2113741B33	3300 pF, +/-5%; 50V
C8201	2113740B55	180 pF, +/-5%; 50V
C8202	2113741B45	0.01 uF, +/-5%; 50 V
C8203	2113741B37	4700 pF, +/-5%; 50 V
C8204	2113740B73	1000 pF, +/-5%; 50 V
C8205	0811051A15	0.22 uF, +/-5%; 63 V
C8207	2113740B73	1000 pF, +/-5%; 50 V
C8209 thru 8211	0811051A13	0.1 uF, +/-5%; 63 V
C8213	0811051A13	0.1 uF, +/-5%; 63 V
C8214	2113741B45	0.01 uF, +/-5%; 50 V
C8215,8216	2113741B69	0.1 uF, +/-5%; 50 V
C8218	0811051A15	0.22 uF, +/-5%; 63 V
C8219	2113741B69	0.1 uF, +/-5%; 50 V
C8220	2113740B73	1000 pF, +/-5%; 50 V
C8225	2113741B69	0.1 uF, +/-5%; 50 V
C8230	2113740B57	220 pF, +/-5%; 50 V
C8231	2113741B69	0.1 uF, +/-5%; 50 V
C8300 thru 8303	0811051A11	0.047 uF, +/-5%; 63V
C8304	2311049A19	10 uF, +/-10%; 25 V
C8305,8306	0811051A11	0.047 uF, +/-5%; 63V
C8307	2113740B36	30 pF, +/-5%; 50V
C8400	2113740B18	5.1 pF, +/-0.25 pF; 50V
C8401	2311049A19	10 uF, +/-10%; 25 V
C8402	0811051A15	0.22 uF, +/-5%; 63 V
C8403	2311049A19	10 uF, +/-10%; 25 V
		diode: (see note)
CR801,802	4813833C10	0.1A, 70V
CR803	4805129M41	Rectifier
CR804 thru 807	4813833C10	0.1A, 70V
CR808	4884349P01	Daul Rectifier
CR809	4813833C10	0.1A, 70V
CR1520 thru 1522	4805129M41	Rectifier
CR1523,1524	4813833C10	0.1A, 70V
CR1526,1527	4813833C10	0.1A, 70V
CR1528,1529	4805129M41	Rectifier
CR1530	4813833C10	0.1A, 70V
CR1531	4805129M41	Rectifier
CR8100,8101	4883654H01	silicon

Reference Symbol	Motorola Part No.	Description
CR8102,8103	4813833C10	0.1A, 70V
CR8107	4813833C10	0.1A, 70V
CR8110	4805129M41	Rectifier
CR8112,8113	4805129M41	Rectifier
CR8115,8116	4883654H01	silicon
CR8200 thru 8203	4805129M41	Rectifier
		light emitting diode: (see note)
DS800 thru 803	4888245C22	GRN
DS804	4888245C23	YEL
DS805	4888245C24	RED
DS8200 thru 8202	4882771L03	7-segment display (red)
		hybrid:
HY804	TRN9837A	Hybrid Flutter Attenuator
HY805	TRN7008A	Display Board
		connector:
J701	2882984N13	plug: 6-contact
J801	2882505T03	plug: 26-contact
J802	2813922A14	HDR 14 POS STR .1 CTR GLD PLTD
J804	2882505T04	plug: 34-contact
J805A	2883547T01	receptacle: 8-contact, right anle
J805B	2883547T01	receptacle: 8-contact, right anle
J806,807	0984231B03	receptacle: phono jack
J812	0983112N01	receptacle: 6-contact
		inductor:
L700	2484386T01	25 UH
L701	2484266T01	150 UH
L702	2484386T01	25 UH
L800	2411047A25	10 UH
L900	2411047A31	CHK RF MLD A/I 33UH
		transistor: (see note)
Q700	4884233T01	type MOSFET
Q705	4813824A17	PNP
Q800	4813824A17	PNP
Q801 thru 807	4813824A10	NPN
Q808	4813824A06	NPN
Q809 thru 811	4813824A10	NPN
Q813,814	4813824A10	NPN
Q816,817	4813824A10	NPN
Q820	4813824A10	NPN
Q821	4800869653	type JFET
Q822,823	4813824A10	NPN
Q1507 thru 1510	4813824A10	NPN
Q8100	4813824A10	NPN
Q8101,8102	4811043B42	TSTR 48R00869919 A/I
Q8200 thru 8207	4813824A17	PNP
Q8208 thru 8210	4813824A06	NPN
Q8211	4813824A10	NPN
Q8212	4813824A06	NPN
		resistor, fixed:
R700	0611077A98	10K, +/-5%; 1/8 W
R701	0611077A88	3.9K, +/-5%; 1/8 W
R702	0611077A50	100 ohms, +/-5%; 1/8 W
R703	0611077A74	1K, +/-5%; 1/8 W
R704	0611077B31	220K, +/-5%; 1/8 W
R705	0611077F63	5.11K, +/-1%; 1/8 W
R706	0611077F28	2.21K, +/-1%; 1/8 W
R707	0611077H30	267K, +/-1%; 1/8 W
R708	0611077F91	10K, +/-1%; 1/8 W
R709	0611077E94	1K, +/-1%; 1/8 W
R710	0611077F60	4.75K, +/-1%; 1/8 W
R711	0611077B35	330K, +/-5%; 1/8 W
R712	0611077B23	100K, +/-5%; 1/8 W
R713	0611077F91	10K, +/-1%; 1/8 W
R714	0611077B13	39K, +/-5%; 1/8 W
R715	0611077B15	47K, +/-5%; 1/8 W
R716	0611077F63	5.11K, +/-1%; 1/8 W

Reference Symbol	Motorola Part No.	Description
R717	0611077B35	330K, +/-5%; 1/8 W
R718	0611077B07	22K, +/-5%; 1/8 W
R719	0611077A50	100 ohms, +/-5%; 1/8 W
R720	0611077A36	27 ohms, +/-5%; 1/8 W
R721	0611077B47	1 meg, +/-5%; 1/8 W
R722	0611077B31	220K, +/-5%; 1/8 W
R723,724	0683962T01	1 ohm, +/-5%; 1 W
R725	0611077F91	10K, +/-1%; 1/8 W
R726	0611077G09	15K, +/-1%; 1/8 W
R727	0611077A98	10K, +/-5%; 1/8 W
R728	0611077H85	1 meg, +/-1%; 1/8 W
R729	0611077B29	180K, +/-5%; 1/8 W
R730	0611077A01	0 ohm, +/-5%; 0 W
R731	0683962T01	1 ohm, +/-5%; 1 W
R736	0611009A33	220 ohms, +/-5%; 1/4 W
R737	0611077A84	2.7K, +/-5%; 1/8 W
R738	0611077A64	390 ohms, +/-5%; 1/8 W
R739	0611077A98	10K, +/-5%; 1/8 W
R740	0611077A56	180 ohms, +/-5%; 1/8W
R741	0611077A98	10K, +/-5%; 1/8 W
R742	0611077A86	3.3K, +/-5%; 1/8 W
R743	0683962T01	1 ohm, +/-5%; 1 W
R748	0611077A78	1.5K, +/-5%; 1/8 W
R800	0611077A54	150 ohms, +/-5%; 1/8 W
R801	0611077A88	3.9K, +/-5%; 1/8 W
R802	0611077A01	0 ohm, +/-5%; 0 W
R803,804	0611077A88	3.9K, +/-5%; 1/8 W
R805	0611077A42	47 ohms, +/-5%; 1/8 W
R806	0611077A98	10K, +/-5%; 1/8 W
R807	0611077A94	6.8K, +/-5%; 1/8W
R809,810	0611077A94	6.8K, +/-5%; 1/8W
R812	0611077A78	1.5K, +/-5%; 1/8 W
R813	0611077A32	18 ohms, +/-5%; 1/8 W
R814	0611077A56	180 ohms, +/-5%; 1/8W
R815	0611077A32	18 ohms, +/-5%; 1/8 W
R816	0611077A90	4.7K, +/-5%; 1/8 W
R817	0611077A82	2.2K, +/-5%; 1/8 W
R818	0611077A52	120 ohms, +/-5%; 1/8 W
R819	0611077A32	18 ohms, +/-5%; 1/8 W
R820	0611077A56	180 ohms, +/-5%; 1/8W
R821	0611077A78	1.5K, +/-5%; 1/8 W
R822	0611077A56	180 ohms, +/-5%; 1/8W
R823	0611077A82	2.2K, +/-5%; 1/8 W
R824	0611077A80	1.8K, +/-5%; 1/8 W
R825	0611077A82	2.2K, +/-5%; 1/8 W
R826	0611077A98	10K, +/-5%; 1/8 W
R827	0611077A88	3.9K, +/-5%; 1/8 W
R828	0611077B07	22K, +/-5%; 1/8 W
R829	0611077A94	6.8K, +/-5%; 1/8W
R830 thru 836	0611077A98	10K, +/-5%; 1/8 W
R837,838	0611077A50	100 ohms, +/-5%; 1/8 W
R839	0611077A98	10K, +/-5%; 1/8 W
R840,841	0611077A50	100 ohms, +/-5%; 1/8 W
R842	0611077A98	10K, +/-5%; 1/8 W
R843 thru 845	0611077A50	100 ohms, +/-5%; 1/8 W
R846	0611077A52	120 ohms, +/-5%; 1/8 W
R847,848	0611077A98	10K, +/-5%; 1/8 W
R849	0611077B09	27K, +/-5%; 1/8 W
R850	0611077A98	10K, +/-5%; 1/8 W
R851	0611077A58	220 ohms, +/-5%; 1/8 W
R852	0611077B47	1 meg, +/-5%; 1/8 W
R854	0611077A98	10K, +/-5%; 1/8 W
R855	0611077A92	5.6K, +/-5%; 1/8 W
R856 thru 858	0611077A98	10K, +/-5%; 1/8 W
R861	0611077B09	27K, +/-5%; 1/8 W
R862	0611077A88	3.9K, +/-5%; 1/8 W
R863	0611077A54	150 ohms, +/-5%; 1/8 W
R866	0611077A98	10K, +/-5%; 1/8 W
R867	0611077A78	1.5K, +/-5%; 1/8 W
R868 thru 871	0611077A98	10K, +/-5%; 1/8 W
R872	0611077A54	150 ohms, +/-5%; 1/8 W
R873	0611077A98	10K, +/-5%; 1/8 W
R874	0611077A54	150 ohms, +/-5%; 1/8 W
R875	0611077A80	1.8K, +/-5%; 1/8 W

TLN3387 SSCB Parts List

Reference Symbol	Motorola Part No.	Description
R876	0611077A98	10K, +/-5%; 1/8 W
R877	0611077A54	150 ohms, +/-5%; 1/8 W
R878	0611077A90	4.7K, +/-5%; 1/8 W
R879	0611077A82	2.2K, +/-5%; 1/8 W
R880	0611077A78	1.5K, +/-5%; 1/8 W
R881	0611077A98	10K, +/-5%; 1/8 W
R882	0611077A82	2.2K, +/-5%; 1/8 W
R883,884	0611077A98	10K, +/-5%; 1/8 W
R887	0611077A98	10K, +/-5%; 1/8 W
R888	0611077B39	470K, +/-5%; 1/8 W
R889	0611077A98	10K, +/-5%; 1/8 W
R890	0611077A74	1K, +/-5%; 1/8 W
R891	0611077A98	10K, +/-5%; 1/8 W
R893	0611077A98	10K, +/-5%; 1/8 W
R894	0611077B23	100K, +/-5%; 1/8 W
R895 thru 898	0611077A98	10K, +/-5%; 1/8 W
R899	0611077A92	5.6K, +/-5%; 1/8 W
R900	0611077A50	100 ohms, +/-5%; 1/8 W
R1523	0611077B15	47K, +/-5%; 1/8 W
R1524	0611077A86	3.3K, +/-5%; 1/8 W
R1525	0611077B13	39K, +/-5%; 1/8 W
R1526	0611077A82	2.2K, +/-5%; 1/8 W
R1527	0611077B13	39K, +/-5%; 1/8 W
R1532	0611077B07	22K, +/-5%; 1/8 W
R1533	0611077A64	390 ohms, +/-5%; 1/8 W
R1534	0611077A78	1.5K, +/-5%; 1/8 W
R1535	0611077B25	120K, +/-5%; 1/8 W
R1536	0611077B31	220K, +/-5%; 1/8 W
R1537	0611077B15	47K, +/-5%; 1/8 W
R1540	0611077B15	47K, +/-5%; 1/8 W
R1543	0611077B23	100K, +/-5%; 1/8 W
R1544	0611077A74	1K, +/-5%; 1/8 W
R1545	0611077B19	68K, +/-5%; 1/8W
R1546	0611077A74	1K, +/-5%; 1/8 W
R1547	0611077A98	10K, +/-5%; 1/8 W
R1548	0611077B33	270K, +/-5%; 1/8W
R1549	0611077A94	6.8K, +/-5%; 1/8W
R1550	0611077A98	10K, +/-5%; 1/8 W
R1553	0611077B19	68K, +/-5%; 1/8W
R1554	0611077B21	82K, +/-5%; 1/8W
R1555,1556	0611077A98	10K, +/-5%; 1/8 W
R1557	0611077B07	22K, +/-5%; 1/8 W
R1559	0611077A64	390 ohms, +/-5%; 1/8 W
R1560	0611077B15	47K, +/-5%; 1/8 W
R1561	0611077B25	120K, +/-5%; 1/8 W
R1562	0611077B31	220K, +/-5%; 1/8 W
R1563	0611077B15	47K, +/-5%; 1/8 W
R1565,1566	0611077A74	1K, +/-5%; 1/8 W
R1567	0611077A94	6.8K, +/-5%; 1/8W
R1568	0611077A98	10K, +/-5%; 1/8 W
R1570	0611077A74	1K, +/-5%; 1/8 W
R1571	0611077A98	10K, +/-5%; 1/8 W
R1572	0611077A01	0 ohm, +/-5%; 0 W
R1573,1574	0611077A91	5.1K, +/-5%; 1/8 W
R1575	0611077A92	5.6K, +/-5%; 1/8 W
R1576	0611077B27	150K, +/-5%; 1/8W
R1578	0611077A78	1.5K, +/-5%; 1/8 W
R1599	1882787K08	variable: 100K +/-20%; 1/4W
R8100 thru 8103	0611077B01	12K, +/-5%; 1/8 W
R8105	0611077B23	100K, +/-5%; 1/8 W
R8106	0611077A98	10K, +/-5%; 1/8 W
R8107	0611077B07	22K, +/-5%; 1/8 W
R8108	0611077B03	15K, +/-5%; 1/8 W
R8109	0611077B01	12K, +/-5%; 1/8 W
R8110	0611077B11	33K, +/-5%; 1/8 W
R8111	0611077B07	22K, +/-5%; 1/8 W
R8112	0611077A94	6.8K, +/-5%; 1/8W
R8113,8114	0611077A86	3.3K, +/-5%; 1/8 W
R8115	0611077A94	6.8K, +/-5%; 1/8W
R8116	0611077A88	3.9K, +/-5%; 1/8 W
R8117	0611009B26	2.7 ohms, +/-5%; 1/4W
R8118	0611077A88	3.9K, +/-5%; 1/8 W
R8119	0611077A78	1.5K, +/-5%; 1/8 W
R8120	0611077A80	1.8K, +/-5%; 1/8 W
R8121	0683962T24	9.1 ohms, +/-5%; 1W
R8122	0611077A26	10 ohms, +/-5%; 1/8 W
R8123	0611077B37	390K, +/-5%; 1/8W

Reference Symbol	Motorola Part No.	Description
R8125	0611077A98	10K, +/-5%; 1/8 W
R8127	0611077A94	6.8K, +/-5%; 1/8W
R8128	0611077A86	3.3K, +/-5%; 1/8 W
R8129	0611077A78	1.5K, +/-5%; 1/8 W
R8130	0611077H43	365K, +/-1%; 1/8W
R8131	0611077A98	10K, +/-5%; 1/8 W
R8132	0611077A92	5.6K, +/-5%; 1/8 W
R8133	0611077B23	100K, +/-5%; 1/8 W
R8134	0611077B17	56K, +/-5%; 1/8 W
R8135	1882787K09	variable: 5K +/-10%; 1/4W
R8136	0611077B05	18K, +/-5%; 1/8 W
R8137	0611077B09	27K, +/-5%; 1/8 W
R8138,8139	0611077B11	33K, +/-5%; 1/8 W
R8141	0611077B03	15K, +/-5%; 1/8 W
R8142,8143	0611077B07	22K, +/-5%; 1/8 W
R8144	0611077A98	10K, +/-5%; 1/8 W
R8146	0611077B03	15K, +/-5%; 1/8 W
R8147	0611077B09	27K, +/-5%; 1/8 W
R8148	0611077A98	10K, +/-5%; 1/8 W
R8149	0611077B09	27K, +/-5%; 1/8 W
R8150	0611077B23	100K, +/-5%; 1/8 W
R8151,8152	0611077B09	27K, +/-5%; 1/8 W
R8153,8154	0611077B07	22K, +/-5%; 1/8 W
R8155	0611077B09	27K, +/-5%; 1/8 W
R8156	0611077B23	100K, +/-5%; 1/8 W
R6157 thru 8159	0611077B09	27K, +/-5%; 1/8 W
R8162	0611077B07	22K, +/-5%; 1/8 W
R8163	0611077B09	27K, +/-5%; 1/8 W
R8164	0611077A98	10K, +/-5%; 1/8 W
R8165,8166	0611077B09	27K, +/-5%; 1/8 W
R8167	0611077B23	100K, +/-5%; 1/8 W
R8168	0611077B30	200K, +/-5%; 1/8 W
R8169	0611077B23	100K, +/-5%; 1/8 W
R8170	0611077A68	560 ohms, +/-5%; 1/8 W
R8171	0611077B30	200K, +/-5%; 1/8 W
R8172	0611077A50	100 ohms, +/-5%; 1/8 W
R8173,8174	0611077B23	100K, +/-5%; 1/8 W
R8175	0611077B09	27K, +/-5%; 1/8 W
R8176	0611077A91	5.1K, +/-5%; 1/8 W
R8177	0611077B09	27K, +/-5%; 1/8 W
R8178,8179	0611077B14	43K, +/-5%; 1/8 W
R8180	0611077B09	27K, +/-5%; 1/8 W
R8181 thru 8185	0611077B18	62K, +/-5%; 1/8 W
R8187	0611077B14	43K, +/-5%; 1/8 W
R8188	0611077B23	100K, +/-5%; 1/8 W
R8189	0611077B43	680K, +/-5%; 1/8 W
R8190	0611077B23	100K, +/-5%; 1/8 W
R8191	0611077A98	10K, +/-5%; 1/8 W
R8192	0611077A86	3.3K, +/-5%; 1/8 W
R8193	0611077A98	10K, +/-5%; 1/8 W
R8194	0611077B23	100K, +/-5%; 1/6 W
R8195	0611077A88	3.9K, +/-5%; 1/8 W
R8196	0611077A70	680 ohms, +/-5%; 1/8 W
R8197	0611077A76	1.2K, +/-5%; 1/8 W
R8198	0611077B15	47K, +/-5%; 1/8 W
R8199	0611077A01	0 ohm, +/-5%; 0 W
R8200	0611077A78	1.5K, +/-5%; 1/8 W
R8201	0611077A50	100 ohms, +/-5%; 1/8 W
R8202	0611077A78	1.5K, +/-5%; 1/8 W
R8203	0611077A90	4.7K, +/-5%; 1/8 W
R8204	0611077A50	100 ohms, +/-5%; 1/8 W
R8205,8206	0611077A78	1.5K, +/-5%; 1/8 W
R8207	0611077A82	2.2K, +/-5%; 1/8 W
R8208	0611077A50	100 ohms, +/-5%; 1/8 W
R8209,8210	0611077A78	1.5K, +/-5%; 1/8 W
R8211	0611077A84	2.7K, +/-5%; 1/8 W
R8212	0611077A50	100 ohms, +/-5%; 1/8 W
R8213,8214	0611077A78	1.5K, +/-5%; 1/8 W
R8215	0611077B11	33K, +/-5%; 1/8 W
R8216	0611077A50	100 ohms, +/-5%; 1/8 W
R8217,8218	0611077A78	1.5K, +/-5%; 1/8 W
R8219	0611009B23	0 ohm, +/-5%; 1/4 W
R8220	0611077A50	100 ohms, +/-5%; 1/8 W
R8221,8222	0611077A78	1.5K, +/-5%; 1/8 W
R8223	0611077B23	100K, +/-5%; 1/8 W
R8224	0611077A78	1.5K, +/-5%; 1/8 W
R8225	0611077A50	100 ohms, +/-5%; 1/8 W

Reference Symbol	Motorola Part No.	Description
R8226	0611077A78	1.5K, +/-5%; 1/8 W
R8227	0611077B23	100K, +/-5%; 1/8 W
R8228	0611077A50	100 ohms, +/-5%; 1/8 W
R8229,8230	0611077A78	1.5K, +/-5%; 1/8 W
R8231	0611077G88	100K, +/-1%; 1/8 W
R8232,8233	0611077A98	10K, +/-5%; 1/8 W
R8236,8237	0611077A98	10K, +/-5%; 1/8 W
R8239,8240	0611077A98	10K, +/-5%; 1/8 W
R8242,8243	0611077H18	200K, +/-1%; 1/8 W
R8244	0611077G88	100K, +/-1%; 1/8 W
R8245	0611077B23	100K, +/-5%; 1/8 W
R8246	0611077G88	100K, +/-1%; 1/8 W
R8247	0611077H18	200K, +/-1%; 1/8 W
R8248	0611077G88	100K, +/-1%; 1/8 W
R8249	0611077H18	200K, +/-1%; 1/8 W
R8250	0611077G88	100K, +/-1%; 1/8 W
R8251 thru 8254	0611077H18	200K, +/-1%; 1/8 W
R8255,8256	0611077B23	100K, +/-5%; 1/8 W
R8257	0611077G88	100K, +/-1%; 1/8 W
R8258	0611077H18	200K, +/-1%; 1/8 W
R8259	0611077G88	100K, +/-1%; 1/8 W
R8260	0611077H18	200K, +/-1%; 1/8 W
R8261	0611077G88	100K, +/-1%; 1/8 W
R8262,8263	0611077H18	200K, +/-1%; 1/8 W
R8272	0611077B25	120K, +/-5%; 1/8 W
R8275	0611077H73	750K, +/-1%; 1/8W
R8276	0611077G60	51.1K, +/-1%; 1/8 W
R8277	0611077A98	10K, +/-5%; 1/8 W
R8278	0811077H54	475K, +/-1%; 1/8W
R8279	0611077G53	43.2K, +/-1%; 1/8 W
R8280	0611077H46	392K, +/-1%; 1/8W
R8281	0611077B13	39K, +/-5%; 1/8 W
R8282,8283	0611077H73	750K, +/-1%; 1/8W
R8284	0611077G60	51.1K, +/-1%; 1/8 W
R8285	0611077H54	475K, +/-1%; 1/8W
R8286	0611077A98	10K, +/-5%; 1/8 W
R8287	0611077A74	1K, +/-5%; 1/8 W
R8288	0611077G53	43.2K, +/-1%; 1/8 W
R8289	0611077H73	750K, +/-1%; 1/8W
R8290	0611077H46	392K, +/-1%; 1/8W
R8291	0611077B13	39K, +/-5%; 1/8 W
R8292	0611077A86	3.3K, +/-5%; 1/8 W
R8293	0611077B23	100K, +/-5%; 1/8 W
R8294	0611077B11	33K, +/-5%; 1/8 W
R8295	0611077B23	100K, +/-5%; 1/8 W
R8298	0611009B23	0 ohm, +/-5%; 1/4 W
R8299	0611077A01	0 ohm, +/-5%; 0 W
R8300	0611077B23	100K, +/-5%; 1/8 W
R8310 thru 8313	0611077B15	47K, +/-5%; 1/8 W
R8314	0611077A98	10K, +/-5%; 1/8 W
R8315	0611077A94	6.8K, +/-5%; 1/8W
R8316	0611077A98	10K, +/-5%; 1/8 W
R8318	0611077B23	100K, +/-5%; 1/8 W
R8335 thru 8339	0611077A74	1K, +/-5%; 1/8 W
R8340	0611077A98	10K, +/-5%; 1/8 W
R8344	0611077A68	560 ohms, +/-5%; 1/8 W
R8345 thru 8347	0611077A50	100 ohms, +/-5%; 1/8 W
R8348	0611077A98	10K, +/-5%; 1/8 W
R8349	0611077B30	200K, +/-5%; 1/8 W
R8350,8351	0611077G42	33.2K, +/-1%; 1/8W
R8400	0611077A67	510 ohms, +/-5%; 1/8 W
R8401,8402	0611077A92	5.6K, +/-5%; 1/8 W
R8403	0611077B01	12K, +/-5%; 1/8 W
R8404	0611077B11	33K, +/-5%; 1/8 W
R8405	0611077A84	2.7K, +/-5%; 1/8 W
R8406	0611077B15	47K, +/-5%; 1/8 W
R8407	0611077A74	1K, +/-5%; 1/8 W
R8408	0611077B35	330K, +/-5%; 1/8 W
R8409	0611077B45	820K, +/-5%; 1/8 W
R8410	0611077E15	150 ohms, +/-1%; 1/8W
R8411	0611077B45	820K, +/-5%; 1/8 W
R8412	0611077E73	604 ohms, +/-1%; 1/8W
R8413	0611009B23	0 ohm, +/-5%; 1/4 W
R8414	0611077A43	51 ohms, +/-5%; 1/8 W
R8415	0611077B03	15K, +/-5%; 1/8 W
R8416	0611077B39	470K, +/-5%; 1/8 W
R8417	0611009B23	0 ohm, +/-5%; 1/4 W
R8501	0683962T24	9.1 ohms, +/-5%; 1W
R8502	0611077B05	18K, +/-5%; 1/8 W
R8600	0611009B23	0 ohm, +/-5%; 1/4 W
R8601,8602	0611077A58	220 ohms, +/-5%; 1/8 W
R8603 thru 8610	0611077A98	10K, +/-5%; 1/8 W
R8611 thru 8618	0611077A58	220 ohms, +/-5%; 1/8 W
		switch:
SW800,801	4083980R12	toggle: sp3t (on-off-mom)
SW802	4083980R11	toggle: sp3t (mom-off-mom)
		transformer:
T700	2584265T01	power
		test point:
TP1 thru 13	2962998D01	terminal pin
		integrated circuit: (see note)
U800	5113802A01	Micro Computere Unit w/Switch Control Interface
U801,802	5184494R03	ASIC Station Control
U803	TVN6055A	Software SSCB
U803	5191012H75	IC PRGMD EPROM 12H75
U804	5184064F76	Static 32Kx8 Bit RAM
U806	5113819D02	LO COST LO PWR 14 DIP
U807	5113815J04	555 Timer
U808	0982808R02	SOCKET, IC: 8-contact
U810 thru 812	5184887K60	Triple 2-Channel Analog Mux/Demux
U813	5184704M19	Hex Level Shifter/Logic Level Converter
U814	5113819D04	General Purpose Differential Operational Amplifier
U815	5184621K86	Dual Gain Control
U816	5184704M19	Hex Level Shifter/Logic Level Converter
U817	5113806D21	analog switching multiplexer
U818,819	5113819D04	General Purpose Differential Operational Amplifier
U821	5113819D04	General Purpose Differential Operational Amplifier
U823,824	5182335V01	IC EEPOT 50K 10% _9312_
U830	5184621K33	Operational Amplifier
U831	5182335V01	IC EEPOT 50K 10% _9312_
U837,838	5184621K85	Dual Operational Amplifier
U839	5184704M19	Hex Level Shifter/Logic Level Converter
U840	5184887K60	Triple 2-Channel Analog Mux/Demux
U841	5184621K85	Dual Operational Amplifier
U842	5113820D02	type LM2901N
U843	5184371T01	Single Current Mode Controller
U1550,1551	5183222M03	Quad Operational Amplifier
U1552	5113819D02	LO COST LO PWR 14 DIP
U1553,1554	5182335V01	IC EEPOT 50K 10% _9312_
U8200	5113819D04	General Purpose Differential Operational Amplifier
		voltage regulator: (see note)
VR701	4883461E40	Zener 5.1V
VR702	4882479V02	DIODE ZENER 3.3V
VR1531 thru 1534	4882479V02	DIODE ZENER 3.3V
		crystal: (see note)
Y800	4880113K04	7.948 MHZ
		non-referenced items:
	TTN4045A	900MHZ CNTRL BD
	0300140230	SCR TPG 4-40X5/16 STARPAN CHS (2 used with J800)
	0982449T01	SOCKET, IC: 52-contact (used with U800)
	0982449T03	SOCKET, IC: 84-contact (used with U801)
	0982449T03	SOCKET, IC: 84-contact (used with U802)

TLN3387 SSCB Parts List

Reference Symbol	Motorola Part No.	Description
	0982808R10	Socket, IC: 28-contact (used with U803)
	0983729M17	receptacle: 20-contact (2 used with J800)
	0984728L01	Shorting Jumper: 2-contact (used with JU1)
	0984728L01	Shorting Jumper: 2-contact (used with JU2)
	0984728L01	Shorting Jumper: 2-contact (used with JU3)
	0984728L01	Shorting Jumper: 2-contact (used with JU4)
	0984728L01	Shorting Jumper: 2-contact (used with JU5)
	0984728L01	Shorting Jumper: 2-contact (used with JU6)
	0984728L01	Shorting Jumper: 2-contact (used with JU7)
	0984728L01	Shorting Jumper: 2-contact (used with JU8)
	0984728L01	Shorting Jumper: 2-contact (used with JU9)
	0984728L01	Shorting Jumper: 2-contact (used with JU10)
	0984728L01	Shorting Jumper: 2-contact (used with JU11)
	0984728L01	Shorting Jumper: 2-contact (used with JU12)
	0984728L01	Shorting Jumper: 2-contact (used with JU13)
	0984728L01	Shorting Jumper: 2-contact (used with JU14)
	0984728L01	Shorting Jumper: 2-contact (used with JU15)
	0984728L01	Shorting Jumper: 2-contact (used with JU16)
	0984728L01	Shorting Jumper: 2-contact (used with JU17)
	0984728L01	Shorting Jumper: 2-contact (used with JU18)
	0984728L01	Shorting Jumper: 2-contact (used with JU19)
	0984728L01	Shorting Jumper: 2-contact (used with JU20)
	0984728L01	Shorting Jumper: 2-contact (used with JU21)
	0984728L01	Shorting Jumper: 2-contact (used with JU22)
	1485334U01	Insulator (used w/ Y800)
	2683373P02	HEAT SINK, transistor
	2880001R03	plug: 3-contact (used with JU1)
	2880001R03	plug: 3-contact (used with JU2)
	2880001R03	plug: 3-contact (used with JU3)
	2880001R03	plug: 3-contact (used with JU4)
	2880001R03	plug: 3-contact (used with JU5)
	2880001R03	plug: 3-contact (used with JU6)
	2880001R03	plug: 3-contact (used with JU7)
	2880001R03	plug: 3-contact (used with JU8)
	2880001R03	plug: 3-contact (used with JU9)
	2880001R03	plug: 3-contact (used with JU10)
	2880001R03	plug: 3-contact (used with JU11)
	2880001R03	plug: 3-contact (used with JU12)
	2880001R03	plug: 3-contact (used with JU13)
	2880001R03	plug: 3-contact (used with JU14)
	2880001R03	plug: 3-contact (used with JU15)
	2880001R03	plug: 3-contact (used with JU16)
	2880001R03	plug: 3-contact (used with JU17)
	2880001R03	plug: 3-contact (used with JU18)
	2880001R03	plug: 3-contact (used with JU19)
	2880001R03	plug: 3-contact (used with JU20)
	2880001R03	plug: 3-contact (used with JU21)
	2880001R03	plug: 3-contact (used with JU22)
	2882296R34	plug: 40-contact (used with J800)
	4884349P01	silicon
	5483865R01	Label, bar code: 1/4" wide, white (2 used)
	5484960T01	Label, bar code: 6.3 x 12.7MM, white (2 used)

Notes: For optimum performance, diodes, transistors, integrated circuits, and crystals must be ordered by Motorola part number.

Reference Symbol	Motorola Part No.	Description

TTRC Connectors

P804

5V	33	34	STATIC & AUDIO GND
5V	31	32	A+
MUTE	29	30	GEN TX DATA +
CONNECT TONE	27	28	EXP RESET*
DATA STROBE	25	26	IPCB
BA1	23	24	BA0
BA3	21	22	BA2
BD1*	19	20	BD0*
BD3*	17	18	BD2*
HSR SYNCH	15	16	LOGIC GND
HSR CLK	13	14	LOGIC GND
HSR DATA OUT	11	12	LOGIC GND
HSR DATA IN	9	10	LOGIC GND
TKG MOD AUDIO	7	8	QUAD AUDIO
TX AUDIO	5	6	RAW TX AUDIO
9.6V	3	4	LINE AUDIO
A+	1	2	STATIC & AUDIO GND

J2904

STATIC & AUDIO GND	50	49	ALC SAMPLE
CURRENT +	48	47	CURRENT -
TRC TONE SAMPLE	46	45	STAC TONE SAMPLE
LINE 2 SAMPLE	44	43	LINE 4 SAMPLE
TKG DATA SAMPLE	42	41	SPARE [HI]
RESET *	40	39	DLYD RESET
TX LVL ADJ CS*	38	37	STAC LVL CS*
HIGH EQUAL CS*	36	35	LOW EQUAL CS*
DATA DEV CS*	34	33	LINE 2 LVL CS*
LINE 4 LEVEL CS*	32	31	LVL INC*
TX DATA -	30	29	TX DATA +
GEN TX DATA -	28	27	GEN TX DATA +
5V	26	25	5V
A+	24	23	MUTE
IPCB	22	21	DATA STROBE
BA0	20	19	BA1
BA2	18	17	BA3
BD0*	16	15	BD1*
BD2*	14	13	BD3*
HSR SYNCH	12	11	LOGIC GND
HSR CLK	10	9	LOGIC GND
HSR DATA OUT	8	7	LOGIC GND
HSR DATA IN	6	5	LOGIC GND
TKG RX AUDIO	4	3	9.6V
STATIC & AUDIO GND	2	1	A+

J2905

ACTIVITY*	40	39	REVBURST
TONE DETECT	38	37	GAIN UPHOLD
FILTER CLK	36	35	EQUAL LINE 2*
DATA/FLSFT*	34	33	ALC IDLE
GT LINE 2/4	32	31	FILTER BYPASS
CT ENABLE	30	29	CCI ENABLE
GT/FT*	28	27	LVL U/D*
TX LVL CO	26	25	TX LVL C1
LPTT	24	23	TX AUDIO 4
TRC LVL CO	22	21	TRC LVL C1
STAC TONE	20	19	TRC TONE
LINE MUTE 2	18	17	LINE MUTE 4
TKG AUDIIO MUTE	16	15	TX SOURCE
LOOP BACK	14	13	DECODE AUDIO
INTERCOM	12	11	
	10	9	FAIL LT
LINE PTT LT	8	7	TRC ENCODE LT
FAILSOFT LT	6	5	LIMIT GAIN*
LINE 1/3*	4	3	LINE AUDIO 2
LINE AUDIO 4	2	1	TX AUDIO 2

P2905

PIN OUT FOR 40 PIN CABLE

1	TX AUDIO 2
2	LINE AUDIO 4
3	LINE AUDIO 2
4	LINE 1/3*
5	LIMIT GAIN*
6	FAILSOFT LT
7	TRC ENCODE LT
8	LINE PTT LT
9	FAIL LT
10	
11	
12	INTERCOM
13	DECODE AUDIO
14	LOOP BACK
15	TX SOURCE
16	TXG AUDIO MUTE
17	LINE MUTE 4
18	LINE MUTE 2
19	TRC TONE
20	STAC TONE
21	TRC LVL C1
22	TRC LVL C0
23	TX AUDIO 4
24	LPTT
25	TX LVL C1
26	TX LVL C0
27	LVL U/D*
28	GT/FT*
29	CCI ENABLE
30	CT ENABLE
31	FILTER BYPASS
32	GT LINE 2/4
33	ALC IDLE
34	DATA/FLSFT*
35	EQUAL LINE 2
36	FILTER CLK
37	GAIN UP HOLD
38	TONE DETECT
39	REVBURST
40	ACTIVITY*

P2904

PIN OUT FOR 50 PIN CABLE

1	A+
2	BOARD GND [STATIC/AUDIO]
3	+9.6V
4	TKG RX AUDIO
5	LOGIC GND
6	HSR DATA IN
7	LOGIC GND
8	HSR DATA OUT
9	LOGIC GND
10	HSR CLOCK
11	LOGIC GND
12	HSR SYNCH
13	BD3*
14	BD2*
15	BD1*
16	BD0*
17	BA3
18	BA2
19	BA1
20	BA0
21	DATA STROBE
22	IPCB
23	MUTE
24	A+
25	+5V
26	+5V
27	GEN TX DATA +
28	GEN TX DATA -
29	TX DATA +
30	TX DATA -
31	LVL INC*
32	LINE 4 LVL CS*
33	LINE 2 LVL CS*
34	DATA DEV CS*
35	LOW EQUAL CS*
36	HIGH EQUAL CS*
37	STATIC LVL CS*
38	TX LVL ADJ CS*
39	DLYD RESET
40	RESET*
41	SPARE [HI]
42	TKG DATA SAMPLE
43	LINE 4 SAMPLE
44	LINE 2 SAMPLE
45	STAC TONE SAMPLE
46	TRC TONE SAMPLE
47	CURRENT -
48	CURRENT +
49	ALC SAMPLE
50	BOARD GND [STATIC/AUDIO]

J900

	5	6	LINE 2 +
LINE 1 +	3	4	LINE 2 -
LINE 1 -	1	2	

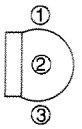
J901

	5	6	LINE 4 +
LINE 3 +	3	4	LINE 4 -
LINE 3 -	1	2	

NOTE:
AN ASTERISK (*) AFTER OR A LINE OVER A SIGNAL NAME INDICATES AN ACTIVE LOW LEVEL SIGNAL.

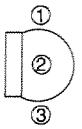
TRANSISTOR DETAILS

4813824D17



1 = EMITTER
2 = BASE
3 = COLLECTOR

4800869653



1 = DRAIN
2 = SOURCE
3 = GATE

MSFS019
040794KOM

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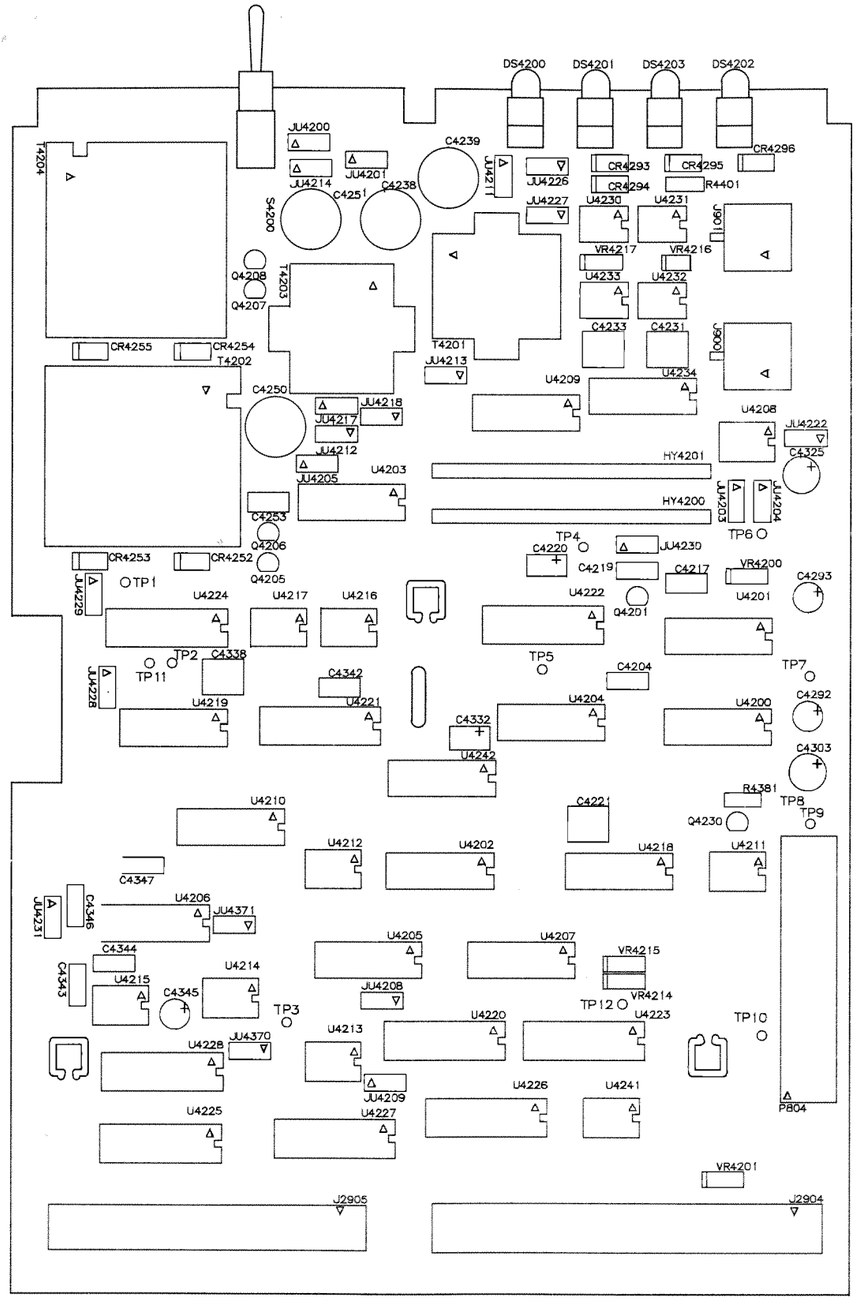
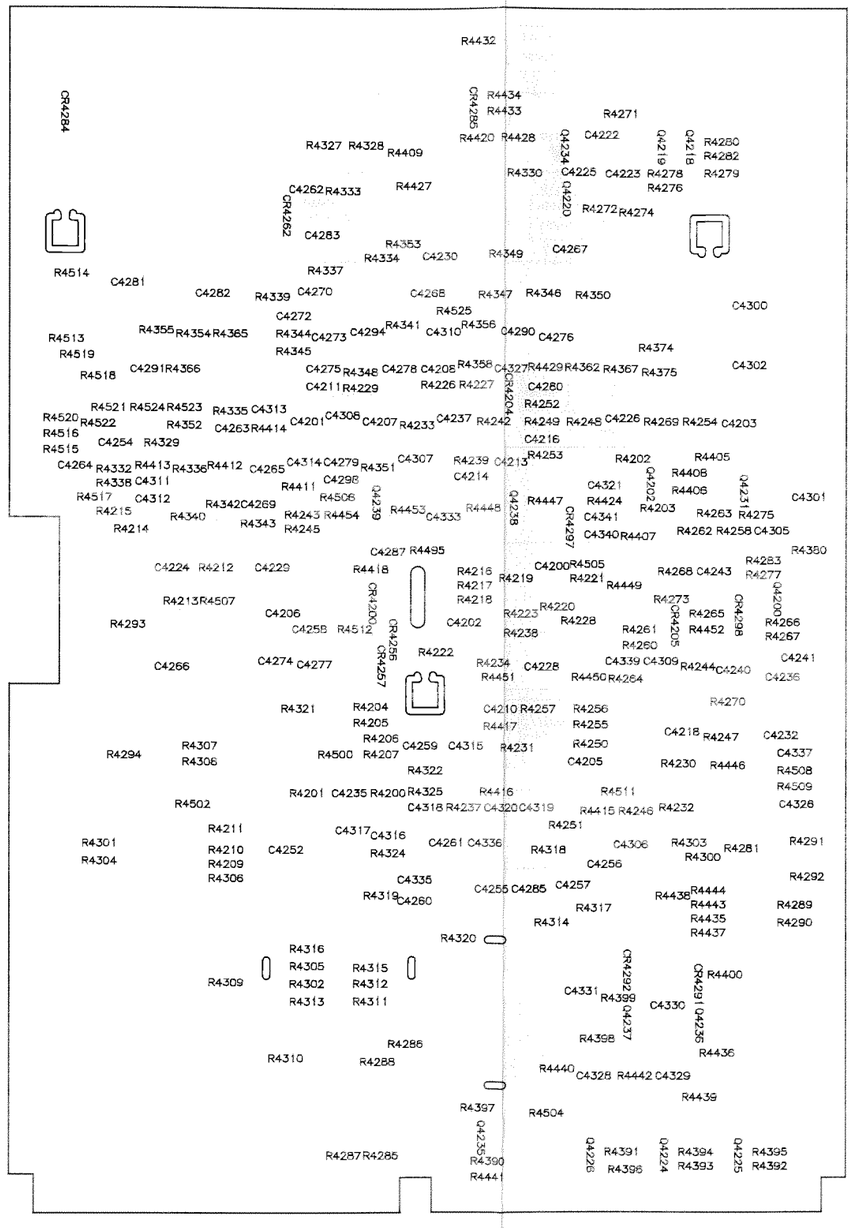
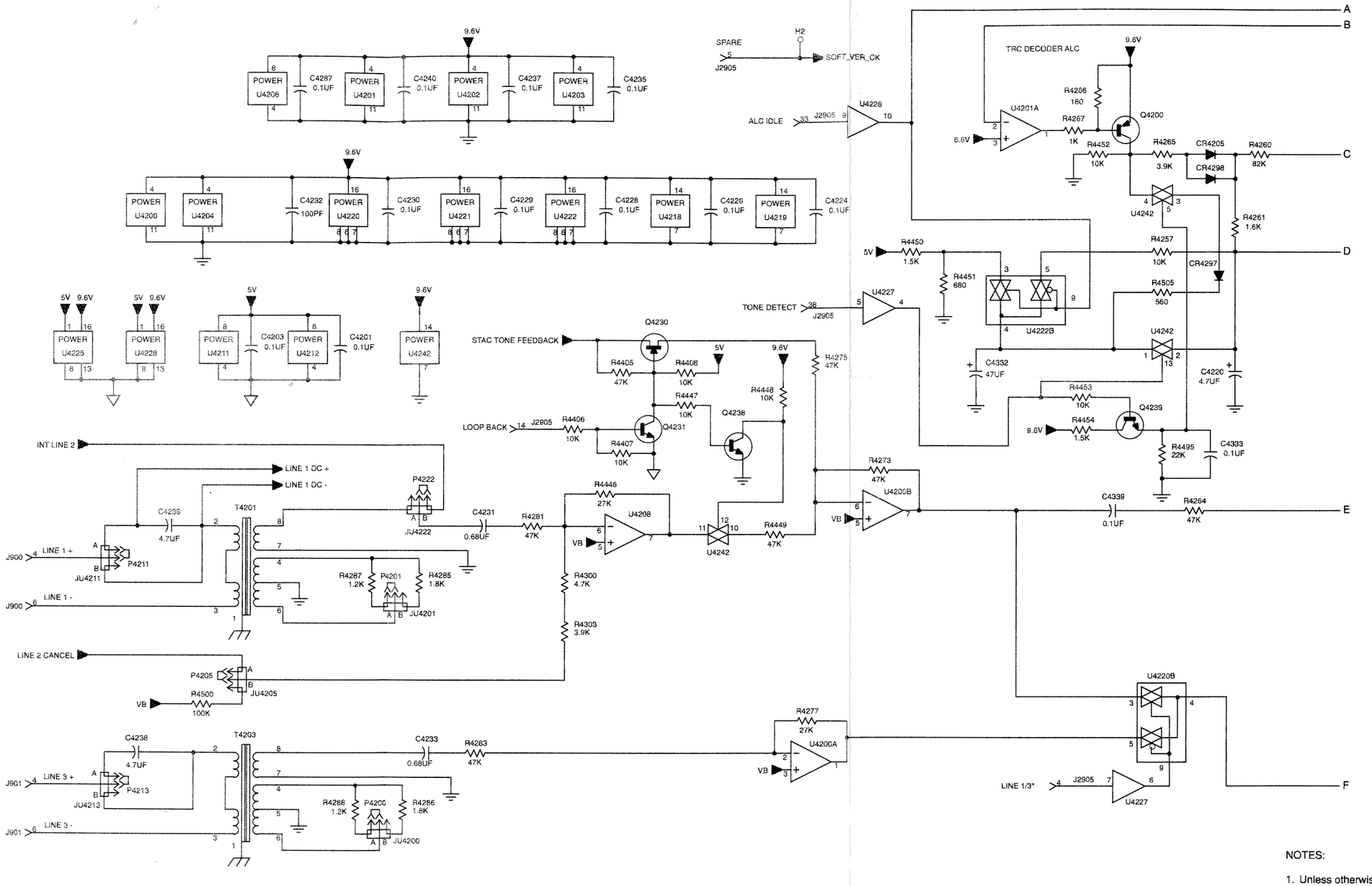


COMPONENT SIDE



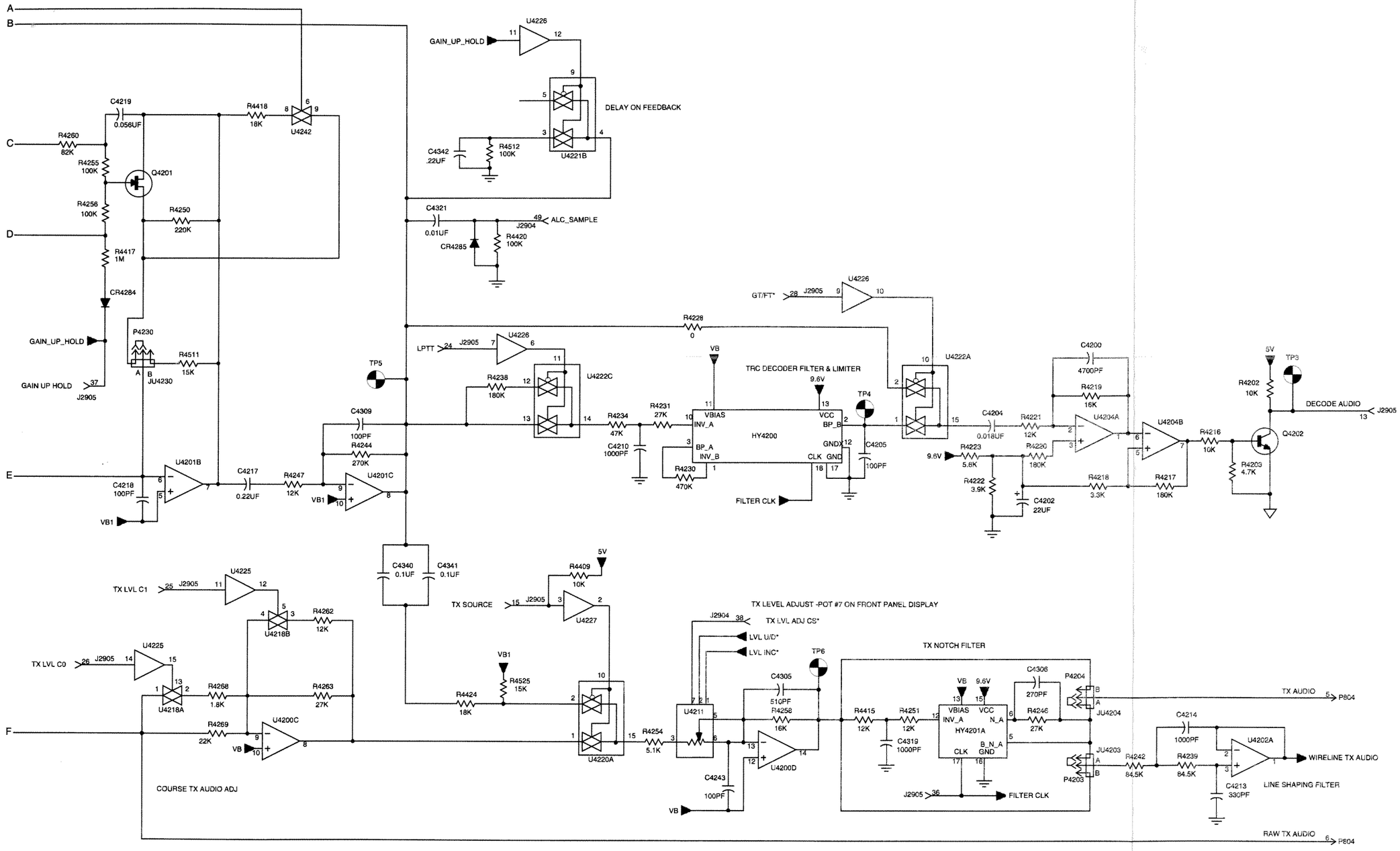
SOLDER SIDE

TLN3112 TTRC Audio Board

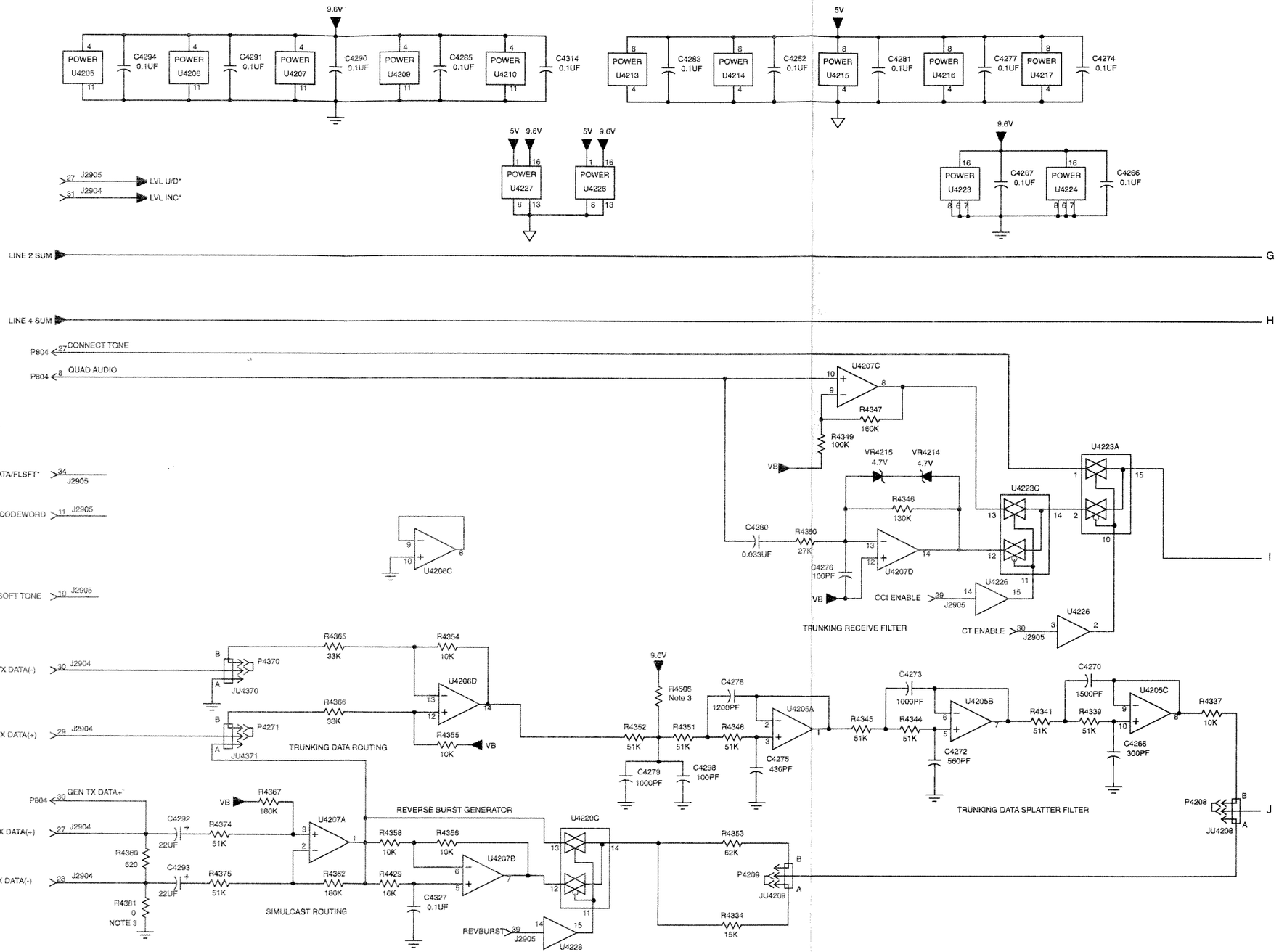


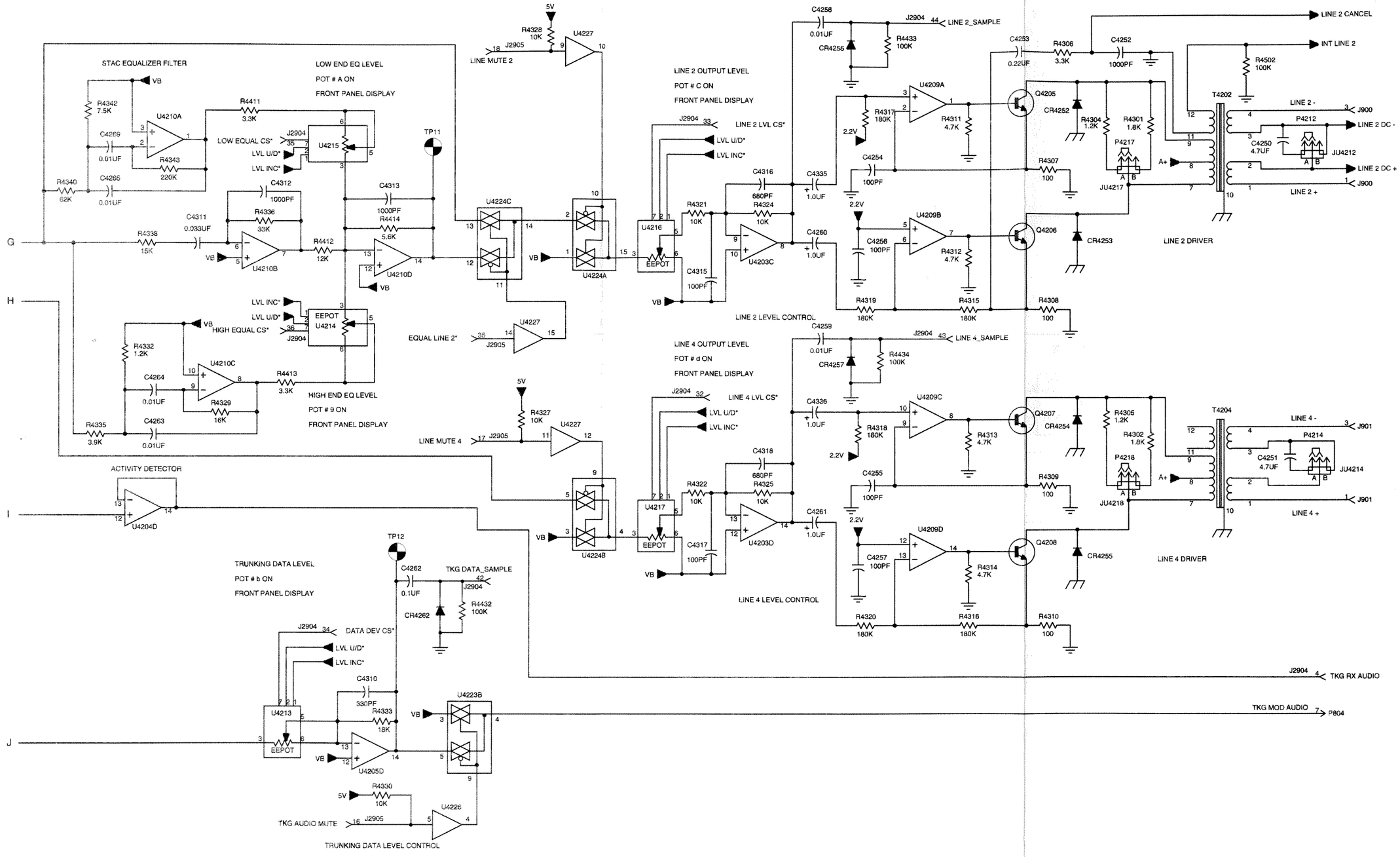
NOTES:

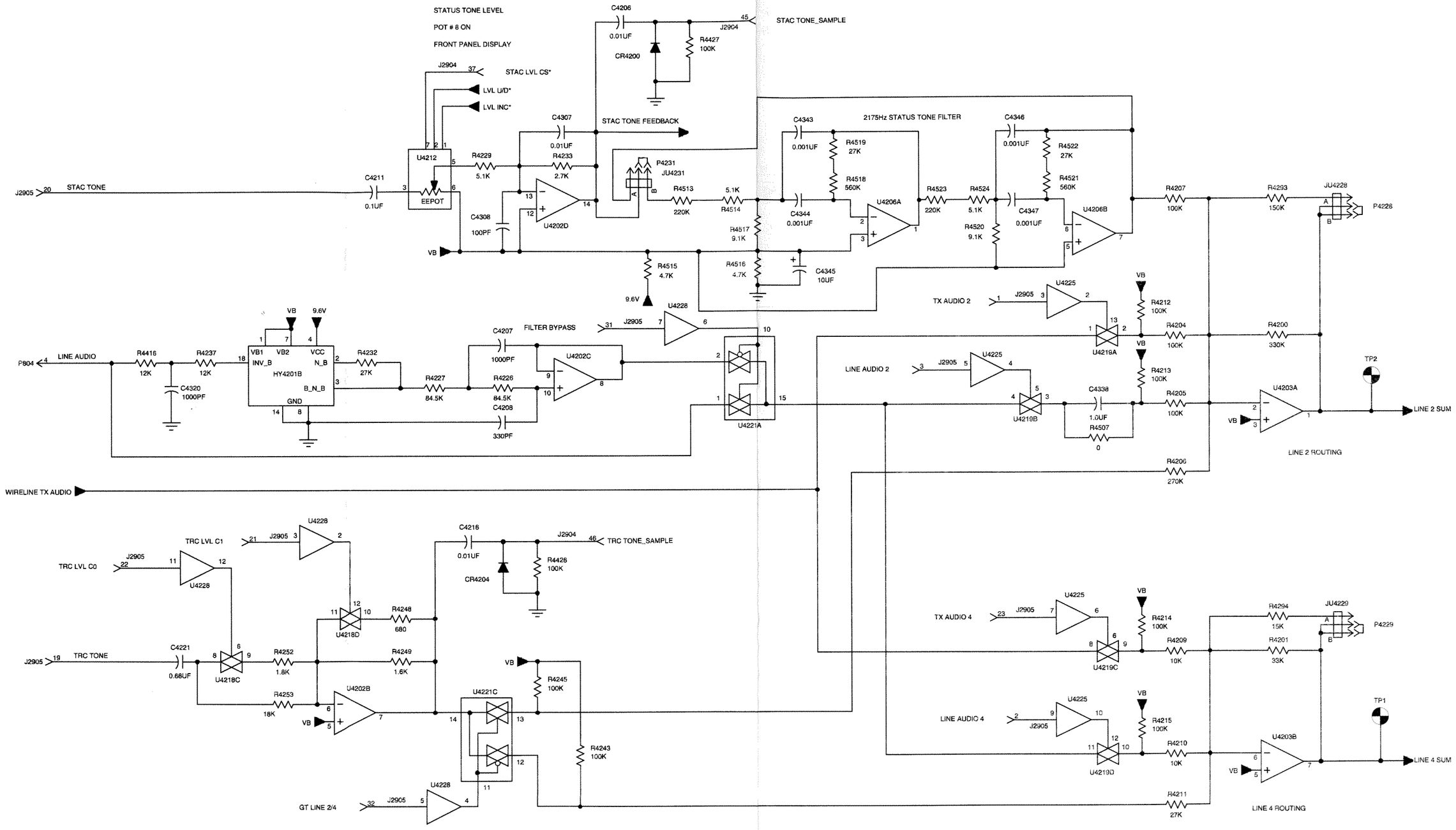
1. Unless otherwise specified, all resistor values are in ohms and capacitor values in microfarads.
2. An asterisk (*) after or a line over a signal name indicates an active low level signal.
3. Parts not included on standard kits, but it may be added for special applications.

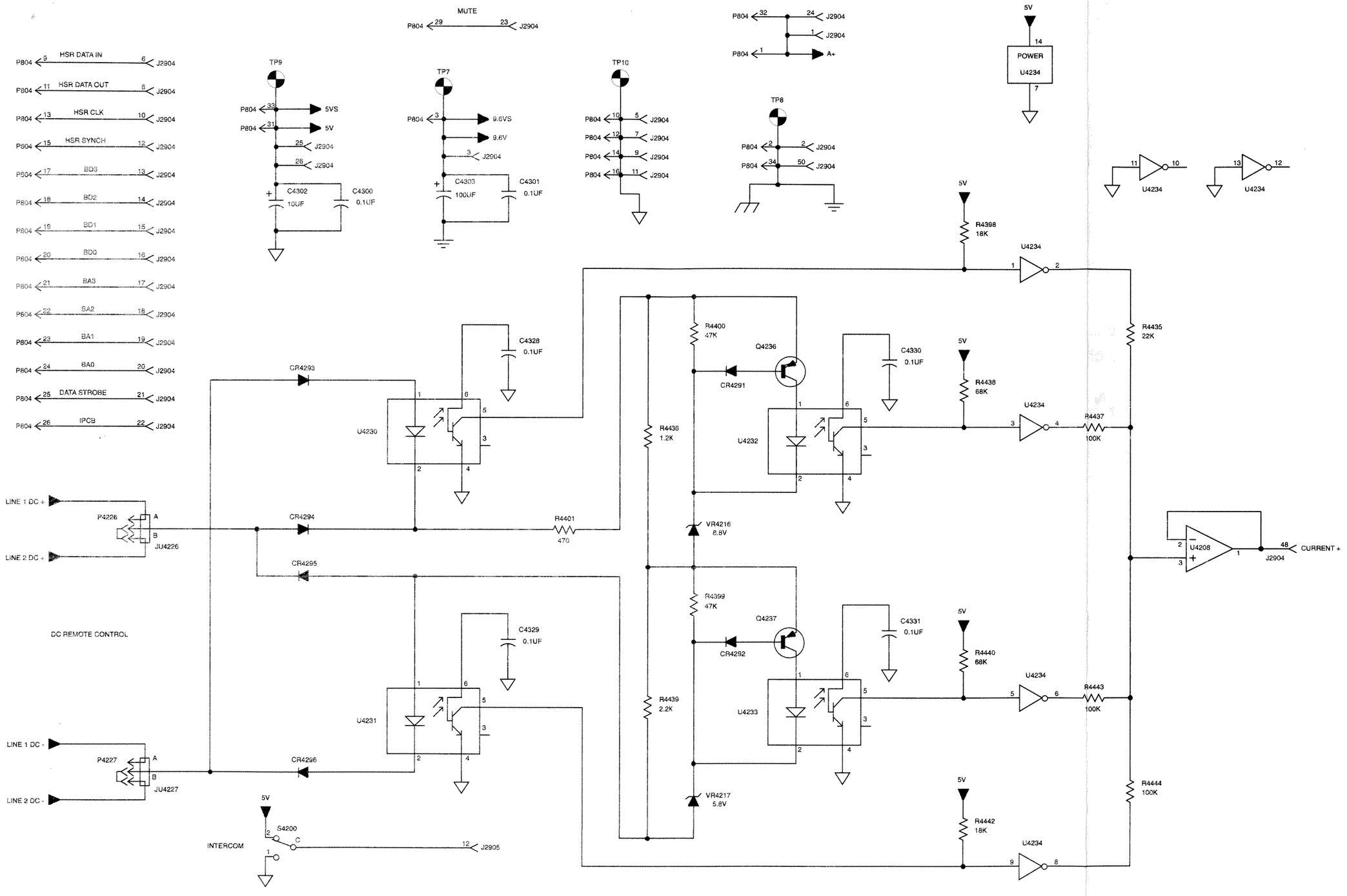

A
B
C
D
E
F
C4219
0.056UF
R4418
18K
U4242
R4260
82K
R4255
100K
Q4201
R4256
100K
R4250
220K
R4417
1M
CR4284
GAIN_UP_HOLD
P4230
A B
JU4230
R4511
15K
GAIN UP HOLD
37
J2905
U4226
GAIN_UP_HOLD
DELAY ON FEEDBACK
C4342
.22UF
R4512
100K
U4221B
C4321
0.01UF
CR4285
R4420
100K
49
J2904
ALC_SAMPLE
GT/FT*
28
J2905
U4226
R4228
0
LPTT
24
J2905
U4226
TP5
C4309
100PF
R4244
270K
U4222C
R4238
180K
R4234
47K
R4231
27K
C4210
1000PF
VB
TRC DECODER FILTER & LIMITER
9.6V
VBIAS
INV_A
BP_A
INV_B
VCC
BP_B
GNDX
CLK GND
HY4200
TP4
R4230
470K
FILTER CLK
C4205
100PF
U4222A
C4204
0.018UF
C4200
4700PF
R4219
16K
R4221
12K
U4204A
U4204B
5V
TP3
R4202
10K
DECODE AUDIO
J2905
13
Q4202
R4216
10K
R4209
4.7K
R4223
5.6K
9.6V
R4220
180K
R4222
3.9K
C4202
22UF
R4218
3.3K
R4217
180K
U4201B
C4218
100PF
C4217
0.22UF
R4247
12K
U4201C
VB1
C4340
0.1UF
C4341
0.1UF
R4409
10K
5V
TX LVL C1
25
J2905
U4225
R4262
12K
U4218B
TX SOURCE
15
J2905
U4227
TX LEVEL ADJUST -POT #7 ON FRONT PANEL DISPLAY
J2904
38
TX LVL ADJ CS*
LVL U/D*
LVL INC*
TP6
TX LVL C0
26
J2905
U4225
R4268
1.8K
U4218A
R4263
27K
R4269
22K
U4200C
R4424
18K
R4525
15K
U4220A
R4254
5.1K
U4211
C4305
510PF
R4258
16K
U4200D
C4243
100PF
TX NOTCH FILTER
R4415
12K
R4251
12K
C4319
1000PF
VBIAS
INV_A
CLK
VCC
N_A
B_N_A
GND
HY4201A
C4306
270PF
R4246
27K
P4204
JU4204
JU4203
P4203
TX AUDIO
5
P804
J2905
36
FILTER CLK
C4214
1000PF
R4242
84.5K
R4239
84.5K
U4202A
C4213
330PF
LINE SHAPING FILTER
WIRELINE TX AUDIO
RAW TX AUDIO
6
P804
COURSE TX AUDIO ADJ

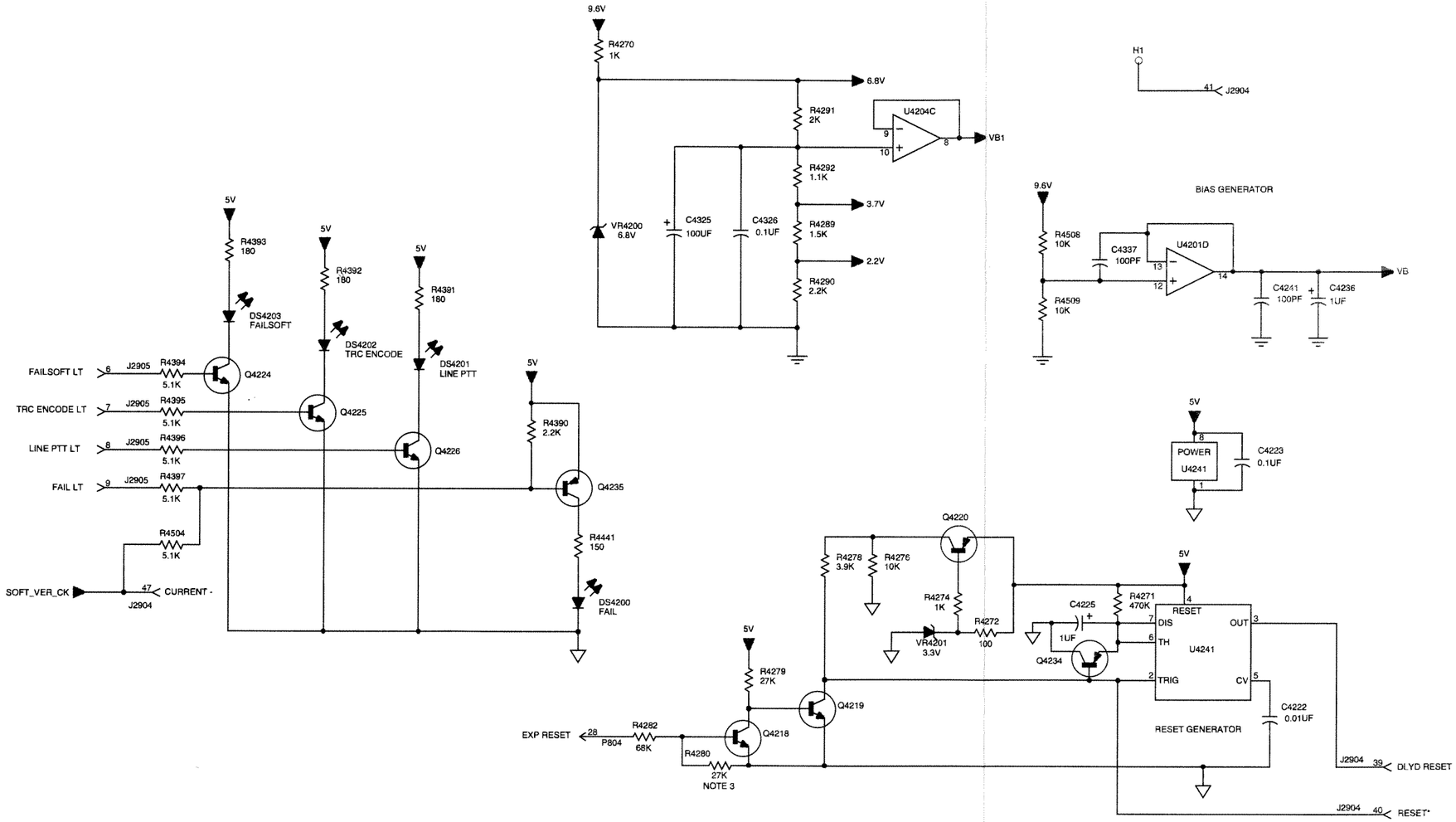
TLN3112 TTRC Audio Board




STAC EQUALIZER FILTER
LOW END EQ LEVEL
POT # A ON
FRONT PANEL DISPLAY
HIGH END EQ LEVEL
POT # 9 ON
FRONT PANEL DISPLAY
LINE 2 OUTPUT LEVEL
POT # C ON
FRONT PANEL DISPLAY
LINE 2 LEVEL CONTROL
LINE 2 DRIVER
LINE 4 OUTPUT LEVEL
POT # d ON
FRONT PANEL DISPLAY
LINE 4 LEVEL CONTROL
LINE 4 DRIVER
TRUNKING DATA LEVEL
POT # b ON
FRONT PANEL DISPLAY
TRUNKING DATA LEVEL CONTROL
ACTIVITY DETECTOR
LINE MUTE 2
LINE MUTE 4
EQUAL LINE 2*
TKG AUDIO MUTE
LOW EQUAL CS*
HIGH EQUAL CS*
LINE 2 CS*
LINE 4 CS*
DATA DEV CS*
LVL U/D*
LVL INC*
LINE 2_SAMPLE
LINE 4_SAMPLE
TKG DATA_SAMPLE
LINE 2 CANCEL
INT LINE 2
LINE 2 -
LINE 2 DC -
LINE 2 DC +
LINE 2 +
LINE 4 -
LINE 4 +
TKG RX AUDIO
TKG MOD AUDIO
EEPOT
VB
5V
A+


STATUS TONE LEVEL
POT # 8 ON
FRONT PANEL DISPLAY
J2904
37
STAC LVL CS*
LVL U/D*
LVL INC*
C4206
0.01UF
CR4200
R4427
100K
45
J2904
STAC TONE_SAMPLE
C4307
0.01UF
STAC TONE FEEDBACK
U4212
EEPOT
R4229
5.1K
R4233
2.7K
P4231
JU4231
R4513
220K
5.1K
R4514
C4308
100PF
U4202D
VB
J2905
20
STAC TONE
C4211
0.1UF
R4515
4.7K
9.6V
R4516
4.7K
C4345
10UF
R4517
9.1K
C4344
0.001UF
C4343
0.001UF
2175Hz STATUS TONE FILTER
R4519
27K
R4518
560K
U4206A
R4523
220K
R4524
5.1K
R4520
9.1K
C4346
0.001UF
R4522
27K
R4521
560K
C4347
0.001UF
U4206B
R4207
100K
R4293
150K
JU4228
P4228
U4228
J2905
31
FILTER BYPASS
C4207
1000PF
U4202C
R4227
84.5K
R4226
84.5K
C4208
330PF
U4221A
P804
4
LINE AUDIO
R4416
12K
R4237
12K
C4320
1000PF
HY4201B
VB1
VB2
VCC
INV_B
N_B
B_N_B
GND
R4232
27K
U4225
J2905
1
TX AUDIO 2
U4219A
VB
R4212
100K
R4204
100K
R4200
330K
LINE AUDIO 2
3
J2905
U4225
U4219B
C4338
1.0UF
R4507
0
R4213
100K
R4205
100K
U4203A
TP2
LINE 2 SUM
LINE 2 ROUTING
R4206
270K
WIRELINE TX AUDIO
U4228
TRC LVL C1
TRC LVL C0
J2905
21
22
U4228
U4218D
R4248
680
C4216
0.01UF
CR4204
J2904
46
TRC TONE_SAMPLE
R4426
100K
J2905
19
TRC TONE
C4221
0.68UF
U4218C
R4252
1.8K
R4249
1.6K
R4253
18K
U4202B
VB
R4245
100K
U4221C
R4243
100K
GT LINE 2/4
32
J2905
U4228
U4225
J2905
23
TX AUDIO 4
U4219C
R4214
100K
R4209
10K
R4294
15K
R4201
33K
JU4229
P4229
U4225
LINE AUDIO 4
J2905
U4219D
R4215
100K
R4210
10K
R4211
27K
U4203B
TP1
LINE 4 SUM
LINE 4 ROUTING


P804 9 HSR DATA IN 6 J2904
P804 11 HSR DATA OUT 8 J2904
P804 13 HSR CLK 10 J2904
P804 15 HSR SYNCH 12 J2904
P804 17 BD3 13 J2904
P804 18 BD2 14 J2904
P804 19 BD1 15 J2904
P804 20 BD0 16 J2904
P804 21 BA3 17 J2904
P804 22 BA2 18 J2904
P804 23 BA1 19 J2904
P804 24 BA0 20 J2904
P804 25 DATA STROBE 21 J2904
P804 26 IPCB 22 J2904
TP9
P804 33 5VS
P804 31 5V
25 J2904
26 J2904
C4302 10UF
C4300 0.1UF
MUTE
P804 29 23 J2904
TP7
P804 3 9.6VS
9.6V
3 J2904
C4303 100UF
C4301 0.1UF
TP10
P804 10 5 J2904
P804 12 7 J2904
P804 14 9 J2904
P804 16 11 J2904
P804 32 24 J2904
1 J2904
P804 1 A+
TP8
P804 2 2 J2904
P804 34 50 J2904
5V
14
POWER
U4234
7
11 10 U4234
13 12 U4234
R4398 18K
U4234
R4435 22K
C4328 0.1UF
CR4293
U4230
R4400 47K
Q4236
CR4291
C4330 0.1UF
R4436 1.2K
U4232
R4438 68K
U4234
R4437 100K
VR4216 8.8V
R4399 47K
Q4237
CR4292
C4331 0.1UF
R4440 68K
U4234
R4443 100K
R4439 2.2K
U4233
VR4217 5.8V
R4442 18K
U4234
R4444 100K
U4208
48 CURRENT +
J2904
LINE 1 DC +
P4226 A
B
JU4226
LINE 2 DC +
CR4294
R4401 470
CR4295
DC REMOTE CONTROL
C4329 0.1UF
U4231
LINE 1 DC -
P4227 A
B
JU4227
LINE 2 DC -
CR4296
5V
S4200
INTERCOM
12 J2905


9.6V
R4270
1K
6.8V
R4291
2K
U4204C
9
10
8
VB1
R4292
1.1K
3.7V
VR4200
6.8V
C4325
100UF
C4326
0.1UF
R4289
1.5K
2.2V
R4290
2.2K
5V
R4393
180
DS4203
FAILSOFT
R4392
180
DS4202
TRC ENCODE
R4391
180
DS4201
LINE PTT
FAILSOFT LT
6
J2905
R4394
5.1K
Q4224
TRC ENCODE LT
7
J2905
R4395
5.1K
Q4225
LINE PTT LT
8
J2905
R4396
5.1K
Q4226
FAIL LT
9
J2905
R4397
5.1K
R4504
5.1K
SOFT_VER_CK
47
J2904
CURRENT -
5V
R4390
2.2K
Q4235
R4441
150
DS4200
FAIL
H1
41
J2904
BIAS GENERATOR
9.6V
R4508
10K
C4337
100PF
U4201D
13
12
14
VB
R4509
10K
C4241
100PF
C4236
1UF
5V
8
POWER
U4241
1
C4223
0.1UF
Q4220
R4278
3.9K
R4276
10K
R4274
1K
R4272
100
VR4201
3.3V
5V
R4271
470K
4
RESET
C4225
1UF
7
DIS
OUT
3
6
TH
U4241
Q4234
2
TRIG
CV
5
C4222
0.01UF
RESET GENERATOR
5V
R4279
27K
Q4219
Q4218
EXP RESET
28
P804
R4282
68K
R4280
27K
NOTE 3
J2904
39
DLYD RESET
J2904
40
RESET*

TLN3112 TTRC Audio Board Parts List

Reference Symbol	Motorola Part No.	Description
		capacitor, fixed:
C4200	2113741B37	4700 pF, +/-5%; 50 V
C4201	2113741B69	0.1 uF, +/-5%; 50 V
C4202	2311049A21	22 uF, +/-10%; 20 V
C4203	2113741B69	0.1 uF, +/-5%; 50 V
C4204	0811051A20	0.018 uF, +/-5%; 1V
C4205	2113740B49	100 pF, +/-5%; 50 V
C4206	2113741B45	0.01 uF, +/-5%; 50 V
C4207	2113740B73	1000 pF, +/-5%; 50 V
C4208	2113740B61	330 pF, +/-5%; 50V
C4210	2113740B73	1000 pF, +/-5%; 50 V
C4211	2113741B69	0.1 uF, +/-5%; 50 V
C4213	2113740B61	330 pF, +/-5%; 50V
C4214	2113740B73	1000 pF, +/-5%; 50 V
C4216	2113741B45	0.01 uF, +/-5%; 50 V
C4217	0811051A15	0.22 uF, +/-5%; 63 V
C4218	2113740B49	100 pF, +/-5%; 50 V
C4219	0811051A23	0.056 uF, +/-5%; 1V
C4220	2311054H04	4.7 uF, +/-10%; 25V
C4221	0811051A18	0.68 uF, +/-5%; 63V
C4222	2113741B45	0.01 uF, +/-5%; 50 V
C4223,4224	2113741B69	0.1 uF, +/-5%; 50 V
C4225	2311049A08	1 uF, +/-10%; 35 V
C4226	2113741B69	0.1 uF, +/-5%; 50 V
C4228 thru 4230	2113741B69	0.1 uF, +/-5%; 50 V
C4231	0811051A18	0.68 uF, +/-5%; 63V
C4232	2113740B49	100 pF, +/-5%; 50 V
C4233	0811051A18	0.68 uF, +/-5%; 63V
C4235	2113741B69	0.1 uF, +/-5%; 50 V
C4236	2311049A08	1 uF, +/-10%; 35 V
C4237	2113741B69	0.1 uF, +/-5%; 50 V
C4238,4239	2382174V01	4.7 uF, +/-20%; 200 V
C4240	2113741B69	0.1 uF, +/-5%; 50 V
C4241	2113740B49	100 pF, +/-5%; 50 V
C4243	2113740B49	100 pF, +/-5%; 50 V
C4250,4251	2382174V01	4.7 uF, +/-20%; 200 V
C4252	2113740B73	1000 pF, +/-5%; 50 V
C4253	0811051A15	0.22 uF, +/-5%; 63 V
C4254 thru 4257	2113740B49	100 pF, +/-5%; 50 V
C4258,4259	2113741B45	0.01 uF, +/-5%; 50 V
C4260,4261	2311049A08	1 uF, +/-10%; 35 V
C4262	2113741B69	0.1 uF, +/-5%; 50 V
C4263 thru 4265	2113741B45	0.01 uF, +/-5%; 50 V
C4266,4267	2113741B69	0.1 uF, +/-5%; 50 V
C4268	2113740B60	300 pF, +/-5%; 50V
C4269	2113741B45	0.01 uF, +/-5%; 50 V
C4270	2113740B78	1500 pF, +/-5 pF; 50V
C4272	2113740B67	560 pF, +/-5%; 50V
C4273	2113740B73	1000 pF, +/-5%; 50 V
C4274	2113741B69	0.1 uF, +/-5%; 50 V
C4275	2113740B64	430 pF, +/-5%; 50V
C4276	2113740B49	100 pF, +/-5%; 50 V
C4277	2113741B69	0.1 uF, +/-5%; 50 V
C4278	2113740B74	1200 pF, +/-5%; 50V
C4279	2113740B73	1000 pF, +/-5%; 50 V
C4280	2113741B57	0.033 uF, +/-5%; 50 V
C4281 thru 4283	2113741B69	0.1 uF, +/-5%; 50 V
C4285	2113741B69	0.1 uF, +/-5%; 50 V
C4287	2113741B69	0.1 uF, +/-5%; 50 V
C4290,4291	2113741B69	0.1 uF, +/-5%; 50 V
C4292,4293	2313748G13	22 uF, +/-20%; 25V
C4294	2113741B69	0.1 uF, +/-5%; 50 V
C4298	2113740B49	100 pF, +/-5%; 50 V
C4300,4301	2113741B69	0.1 uF, +/-5%; 50 V
C4302	2311049A19	10 uF, +/-10%; 25 V
C4303	2313748G22	100 uF, +/-20%; 25 V
C4305	2113740B66	510 pF, +/-5%; 50V
C4306	2113740B59	270 pF, +/-5%; 50V
C4307	2113741B45	0.01 uF, +/-5%; 50 V
C4308,4309	2113740B49	100 pF, +/-5%; 50 V
C4310	2113740B61	330 pF, +/-5%; 50V
C4311	2113741B57	0.033 uF, +/-5%; 50 V
C4312,4313	2113740B73	1000 pF, +/-5%; 50 V
C4314	2113741B69	0.1 uF, +/-5%; 50 V
C4315	2113740B49	100 pF, +/-5%; 50 V
C4316	2113740B69	680 pF, +/-5%; 50V
C4317	2113740B49	100 pF, +/-5%; 50 V
C4318	2113740B69	680 pF, +/-5%; 50V
C4319,4320	2113740B73	1000 pF, +/-5%; 50 V
C4321	2113741B45	0.01 uF, +/-5%; 50 V
C4325	2313748G22	100 uF, +/-20%; 25 V
C4326 thru 4331	2113741B69	0.1 uF, +/-5%; 50 V
C4332	2311054A09	47 uF, +/-20%; 6 V
C4333	2113741B69	0.1 uF, +/-5%; 50 V
C4335,4336	2311049A08	1 uF, +/-10%; 35 V
C4337	2113740B49	100 pF, +/-5%; 50 V
C4338	0811051A19	1 uF, +5%/-0.5%; 63V
C4339 thru 4341	2113741B69	0.1 uF, +/-5%; 50 V
C4342	0811051A15	0.22 uF, +/-5%; 63 V
C4343,4344	0811017A01	1000 pF, +/-5%; 50 V
C4345	2313748G10	10 uF, +/-20%; 50V
C4346,4347	0811017A01	1000 pF, +/-5%; 50 V
		diode: (see note)
CR4200	4805129M41	Rectifier
CR4204,4205	4805129M41	Rectifier
CR4256,4257	4805129M41	Rectifier
CR4262	4805129M41	Rectifier
CR4284,4285	4805129M41	Rectifier
CR4291,4292	4813833C10	0.1A, 70V
CR4293 thru 4296	4813833D08	1A, 600V
CR4297,4298	4805129M41	Rectifier
		light emitting diode: (see note)
DS4200	4888245C24	RED
DS4201 thru 4203	4888245C23	YEL
		hybrid:
HY4200	TFN6061A	2175 Hz Bandpass Filter
HY4201	TFN6056A	2175 Hz Notch Filter
		connector:
J900,901	0984206N01	receptacle: 6-contact
J2904	2885155U07	PLUG, Header; 50 contacts
J2905	2885155U06	PLUG, Header; 40 contacts
		connector:
P804	3083139N22	CABLE ASSEMBLY, flat, 34-conductor; includes connector P804
		transistor: (see note)
Q4200	4811056A08	PNP
Q4201	4800869653	type JFET
Q4202	4813824A10	NPN
Q4205 thru 4208	4813824D17	NPN; 300 V
Q4218,4219	4813824A10	NPN
Q4220	4811056A08	PNP
Q4224 thru 4226	4813824A10	NPN
Q4230	4800869653	type JFET
Q4231	4813824A10	NPN
Q4234 thru 4237	4811056A08	PNP
Q4238,4239	4813824A10	NPN
		resistor, fixed:
R4200	0611077B35	330K, +/-5%; 1/8 W
R4201	0611077B11	33K, +/-5%; 1/8 W
R4202	0611077A98	10K, +/-5%; 1/8 W

TLN3112 TTRC Audio Board Parts List

Reference Symbol	Motorola Part No.	Description
R4203	0611077A90	4.7K, +/-5%; 1/8 W
R4204,4205	0611077B23	100K, +/-5%; 1/8 W
R4206	0611077B33	270K, +/-5%; 1/8W
R4207	0611077B23	100K, +/-5%; 1/8 W
R4209,4210	0611077A98	10K, +/-5%; 1/8 W
R4211	0611077B09	27K, +/-5%; 1/8 W
R4212 thru 4215	0611077B23	100K, +/-5%; 1/8 W
R4216	0611077A98	10K, +/-5%; 1/8 W
R4217	0611077B29	180K, +/-5%; 1/8 W
R4218	0611077A86	3.3K, +/-5%; 1/8 W
R4219	0611077B04	16K, +/-5%; 1/8W
R4220	0611077B29	180K, +/-5%; 1/8 W
R4221	0611077B01	12K, +/-5%; 1/8 W
R4222	0611077A88	3.9K, +/-5%; 1/8 W
R4223	0611077A92	5.6K, +/-5%; 1/8 W
R4226,4227	0611077G81	84.5K, +/-1%; 1/8 W
R4228	0611077A01	0 ohm, +/-5%; 0 W
R4229	0611077A91	5.1K, +/-5%; 1/8 W
R4230	0611077B39	470K, +/-5%; 1/8 W
R4231,4232	0611077B09	27K, +/-5%; 1/8 W
R4233	0611077A84	2.7K, +/-5%; 1/8 W
R4234	0611077B15	47K, +/-5%; 1/8 W
R4237	0611077B01	12K, +/-5%; 1/8 W
R4238	0611077B29	180K, +/-5%; 1/8 W
R4239	0611077G81	84.5K, +/-1%; 1/8 W
R4242	0611077G81	84.5K, +/-1%; 1/8 W
R4243	0611077B23	100K, +/-5%; 1/8 W
R4244	0611077B33	270K, +/-5%; 1/8W
R4245	0611077B23	100K, +/-5%; 1/8 W
R4246	0611077B09	27K, +/-5%; 1/8 W
R4247	0611077B01	12K, +/-5%; 1/8 W
R4248	0611077A70	680 ohms, +/-5%; 1/8 W
R4249	0611077A79	1.6K, +/-5%; 1/8W
R4250	0611077B31	220K, +/-5%; 1/8 W
R4251	0611077B01	12K, +/-5%; 1/8 W
R4252	0611077A80	1.8K, +/-5%; 1/8 W
R4253	0611077B05	18K, +/-5%; 1/8 W
R4254	0611077A91	5.1K, +/-5%; 1/8 W
R4255,4256	0611077B23	100K, +/-5%; 1/8 W
R4257	0611077A98	10K, +/-5%; 1/8 W
R4258	0611077B04	16K, +/-5%; 1/8W
R4260	0611077B21	82K, +/-5%; 1/8W
R4261	0611077A79	1.6K, +/-5%; 1/8W
R4262	0611077B01	12K, +/-5%; 1/8 W
R4263	0611077B09	27K, +/-5%; 1/8 W
R4264	0611077B15	47K, +/-5%; 1/8 W
R4265	0611077A88	3.9K, +/-5%; 1/8 W
R4266	0611077A56	180 ohms, +/-5%; 1/8W
R4267	0611077A74	1K, +/-5%; 1/8 W
R4268	0611077A80	1.8K, +/-5%; 1/8 W
R4269	0611077B07	22K, +/-5%; 1/8 W
R4270	0611077A74	1K, +/-5%; 1/8 W
R4271	0611077B39	470K, +/-5%; 1/8 W
R4272	0611077A50	100 ohms, +/-5%; 1/8 W
R4273	0611077B15	47K, +/-5%; 1/8 W
R4274	0611077A74	1K, +/-5%; 1/8 W
R4275	0611077B15	47K, +/-5%; 1/8 W
R4276	0611077A98	10K, +/-5%; 1/8 W
R4277	0611077B09	27K, +/-5%; 1/8 W
R4278	0611077A88	3.9K, +/-5%; 1/8 W
R4279,4280	0611077B09	27K, +/-5%; 1/8 W
R4281	0611077B15	47K, +/-5%; 1/8 W
R4282	0611077B19	68K, +/-5%; 1/8W
R4283	0611077B15	47K, +/-5%; 1/8 W
R4285,4286	0611077A80	1.8K, +/-5%; 1/8 W
R4287,4288	0611077A76	1.2K, +/-5%; 1/8 W
R4289	0611077A78	1.5K, +/-5%; 1/8 W
R4290	0611077A82	2.2K, +/-5%; 1/8 W
R4291	0611077A81	2K, +/-5%; 1/8 W
R4292	0611077A75	1.1K, +/-5%; 1/8W
R4293	0611077B27	150K, +/-5%; 1/8W
R4294	0611077B03	15K, +/-5%; 1/8 W
R4300	0611077A90	4.7K, +/-5%; 1/8 W
R4301,4302	0611077A80	1.8K, +/-5%; 1/8 W
R4303	0611077A88	3.9K, +/-5%; 1/8 W
R4304,4305	0611077A76	1.2K, +/-5%; 1/8 W
R4306	0611077A86	3.3K, +/-5%; 1/8 W
R4307 thru 4310	0611077A50	100 ohms, +/-5%; 1/8 W
R4311 thru 4314	0611077A90	4.7K, +/-5%; 1/8 W
R4315 thru 4320	0611077B29	180K, +/-5%; 1/8 W
R4321,4322	0611077A98	10K, +/-5%; 1/8 W
R4324,4325	0611077A98	10K, +/-5%; 1/8 W
R4327,4328	0611077A98	10K, +/-5%; 1/8 W
R4329	0611077B04	16K, +/-5%; 1/8W
R4330	0611077A98	10K, +/-5%; 1/8 W
R4332	0611077A76	1.2K, +/-5%; 1/8 W
R4333	0611077B05	18K, +/-5%; 1/8 W
R4334	0611077B03	15K, +/-5%; 1/8 W
R4335	0611077A88	3.9K, +/-5%; 1/8 W
R4336	0611077B11	33K, +/-5%; 1/8 W
R4337	0611077A98	10K, +/-5%; 1/8 W
R4338	0611077B03	15K, +/-5%; 1/8 W
R4339	0611077B16	51K, +/-5%; 1/8W
R4340	0611077B18	62K, +/-5%; 1/8 W
R4341	0611077B16	51K, +/-5%; 1/8W
R4342	0611077A95	7.5K, +/-5%; 1/8W
R4343	0611077B31	220K, +/-5%; 1/8 W
R4344,4345	0611077B16	51K, +/-5%; 1/8W
R4346	0611077B26	130K, +/-5%; 1/8W
R4347	0611077B28	160K, +/-5%; 1/8W
R4348	0611077B16	51K, +/-5%; 1/8W
R4349	0611077B23	100K, +/-5%; 1/8 W
R4350	0611077B09	27K, +/-5%; 1/8 W
R4351,4352	0611077B16	51K, +/-5%; 1/8W
R4353	0611077B18	62K, +/-5%; 1/8 W
R4354 thru 4356	0611077A98	10K, +/-5%; 1/8 W
R4358	0611077A98	10K, +/-5%; 1/8 W
R4362	0611077B29	180K, +/-5%; 1/8 W
R4365,4366	0611077B11	33K, +/-5%; 1/8 W
R4367	0611077B29	180K, +/-5%; 1/8 W
R4374,4375	0611077B16	51K, +/-5%; 1/8W
R4380	0611077A69	620 ohms, +/-5%; 1/8 W
R4390	0611077A82	2.2K, +/-5%; 1/8 W
R4391 thru 4393	0611077A56	180 ohms, +/-5%; 1/8W
R4394 thru 4397	0611077A91	5.1K, +/-5%; 1/8 W
R4398	0611077B05	18K, +/-5%; 1/8 W
R4399,4400	0611077B15	47K, +/-5%; 1/8 W
R4401	0611009A41	470 ohms, +/-5%; 1/4W
R4405	0611077B15	47K, +/-5%; 1/8 W
R4406 thru 4409	0611077A98	10K, +/-5%; 1/8 W
R4411	0611077A86	3.3K, +/-5%; 1/8 W
R4412	0611077B01	12K, +/-5%; 1/8 W
R4413	0611077A86	3.3K, +/-5%; 1/8 W
R4414	0611077A92	5.6K, +/-5%; 1/8 W
R4415,4416	0611077B01	12K, +/-5%; 1/8 W
R4417	0611077B47	1 meg, +/-5%; 1/8 W
R4418	0611077B05	18K, +/-5%; 1/8 W
R4420	0611077B23	100K, +/-5%; 1/8 W
R4424	0611077B05	18K, +/-5%; 1/8 W
R4427,4428	0611077B23	100K, +/-5%; 1/8 W
R4429	0611077B04	16K, +/-5%; 1/8W
R4432 thru 4434	0611077B23	100K, +/-5%; 1/8 W
R4435	0611077B07	22K, +/-5%; 1/8 W
R4436	0611077A76	1.2K, +/-5%; 1/8 W
R4437	0611077B23	100K, +/-5%; 1/8 W
R4438	0611077B19	68K, +/-5%; 1/8W
R4439	0611077A82	2.2K, +/-5%; 1/8 W
R4440	0611077B19	68K, +/-5%; 1/8W
R4441	0611077A54	150 ohms, +/-5%; 1/8 W
R4442	0611077B05	18K, +/-5%; 1/8 W
R4443,4444	0611077B23	100K, +/-5%; 1/8 W
R4446	0611077B09	27K, +/-5%; 1/8 W
R4447,4448	0611077A98	10K, +/-5%; 1/8 W
R4449	0611077B15	47K, +/-5%; 1/8 W
R4450	0611077A78	1.5K, +/-5%; 1/8 W
R4451	0611077A70	680 ohms, +/-5%; 1/8 W
R4452,4453	0611077A98	10K, +/-5%; 1/8 W
R4454	0611077A78	1.5K, +/-5%; 1/8 W
R4495	0611077B07	22K, +/-5%; 1/8 W
R4500	0611077B23	100K, +/-5%; 1/8 W
R4502	0611077B23	100K, +/-5%; 1/8 W
R4504	0611077A91	5.1K, +/-5%; 1/8 W
R4505	0611077A68	560 ohms, +/-5%; 1/8 W
R4507	0611077A01	0 ohm, +/-5%; 0 W

Reference Symbol	Motorola Part No.	Description
R4508,4509	0611077A98	10K, +/-5%; 1/8 W
R4511	0611077B03	15K, +/-5%; 1/8 W
R4512	0611077B23	100K, +/-5%; 1/8 W
R4513	0611077B31	220K, +/-5%; 1/8 W
R4514	0611077A91	5.1K, +/-5%; 1/8 W
R4515,4516	0611077A90	4.7K, +/-5%; 1/8 W
R4517	0611077A97	9.1K, +/-5%; 1/8 W
R4518	0611077B41	560K, +/-5%; 1/8W
R4519	0611077B09	27K, +/-5%; 1/8 W
R4520	0611077A97	9.1K, +/-5%; 1/8 W
R4521	0611077B41	560K, +/-5%; 1/8W
R4522	0611077B09	27K, +/-5%; 1/8 W
R4523	0611077B31	220K, +/-5%; 1/8 W
R4524	0611077A91	5.1K, +/-5%; 1/8 W
R4525	0611077B03	15K, +/-5%; 1/8 W
		switch:
S4200	4083980R08	toggle: spdt
		transformer:
T4201	2584202A02	Audio Frequency
T4202	2583036L01	Audio Frequency
T4203	2584202A02	Audio Frequency
T4204	2583036L01	Audio Frequency
		integrated circuit: (see note)
U4200 thru 4207	5113819D04	General Purpose Differential Operational Amplifier
U4208	5184621K89	Dual Operational Amplifier
U4209,4210	5113819D04	General Purpose Differential Operational Amplifier
U4211 thru 4217	5182802R24	Digitally Controlled 50K Potentiometer
U4218,4219	5113806D21	analog switching multiplexer
U4220 thru 4224	5184887K60	Triple 2-Channel Analog Mux/Demux
U4225 thru 4228	5184704M19	Hex Level Shifter/Logic Level Converter
U4230 thru 4233	5184621K34	Optical Isolator
U4234	5184887K52	Hex Schmitt Trigger
U4241	5113815J04	555 Timer
U4242	5113806D21	analog switching multiplexer
		voltage regulator: (see note)
VR4200	4883461E25	Zener 6.8V
VR4201	4882479V02	DIODE ZENER 3.3V
VR4214,4215	4882256C03	Zener 4.7V
VR4216	4882256C56	Zener 8.8V
VR4217	4882256C61	Zener 5.8V
		non-referenced items:
	TRN7273D	TTRC Audio Board
	0984728L01	Shorting Jumper: 2-contact (used with JU4200)
	0984728L01	Shorting Jumper: 2-contact (used with JU4201)
	0984728L01	Shorting Jumper: 2-contact (used with JU4203)
	0984728L01	Shorting Jumper: 2-contact (used with JU4204)
	0984728L01	Shorting Jumper: 2-contact (used with JU4205)
	0984728L01	Shorting Jumper: 2-contact (used with JU4208)
	0984728L01	Shorting Jumper: 2-contact (used with JU4209)
	0984728L01	Shorting Jumper: 2-contact (used with JU4211)
	0984728L01	Shorting Jumper: 2-contact (used with JU4212)
	0984728L01	Shorting Jumper: 2-contact (used with JU4213)
	0984728L01	Shorting Jumper: 2-contact (used with JU4214)
	0984728L01	Shorting Jumper: 2-contact (used with JU4217)
	0984728L01	Shorting Jumper: 2-contact (used with JU4218)
	0984728L01	Shorting Jumper: 2-contact (used with JU4222)
	0984728L01	Shorting Jumper: 2-contact (used with JU4226)
	0984728L01	Shorting Jumper: 2-contact (used with JU4227)
	0984728L01	Shorting Jumper: 2-contact (used with JU4228)
	0984728L01	Shorting Jumper: 2-contact (used with JU4229)
	0984728L01	Shorting Jumper: 2-contact (used with JU4230)
	0984728L01	Shorting Jumper: 2-contact (used with JU4231)
	0984728L01	Shorting Jumper: 2-contact (used with JU4370)
	0984728L01	Shorting Jumper: 2-contact (used with JU4371)
	2880001R03	plug: 3-contact (used with JU4200)
	2880001R03	plug: 3-contact (used with JU4201)
	2880001R03	plug: 3-contact (used with JU4203)
	2880001R03	plug: 3-contact (used with JU4204)
	2880001R03	plug: 3-contact (used with JU4205)
	2880001R03	plug: 3-contact (used with JU4208)
	2880001R03	plug: 3-contact (used with JU4209)
	2880001R03	plug: 3-contact (used with JU4211)
	2880001R03	plug: 3-contact (used with JU4212)
	2880001R03	plug: 3-contact (used with JU4213)
	2880001R03	plug: 3-contact (used with JU4214)
	2880001R03	plug: 3-contact (used with JU4217)
	2880001R03	plug: 3-contact (used with JU4218)
	2880001R03	plug: 3-contact (used with JU4222)
	2880001R03	plug: 3-contact (used with JU4226)
	2880001R03	plug: 3-contact (used with JU4227)
	2880001R03	plug: 3-contact (used with JU4228)
	2880001R03	plug: 3-contact (used with JU4229)
	2880001R03	plug: 3-contact (used with JU4230)
	2880001R03	plug: 3-contact (used with JU4231)
	2880001R03	plug: 3-contact (used with JU4370)
	2880001R03	plug: 3-contact (used with JU4371)
	4380054K02	SPACER, support (3 used)
	5483865R01	Label, bar code: 1/4" wide, white
	5484960T01	Label, bar code: 6.3 x 12.7MM, white

Note: For optimum performance, diodes, transistors, and integrated circuits must be ordered by Motorola part number.

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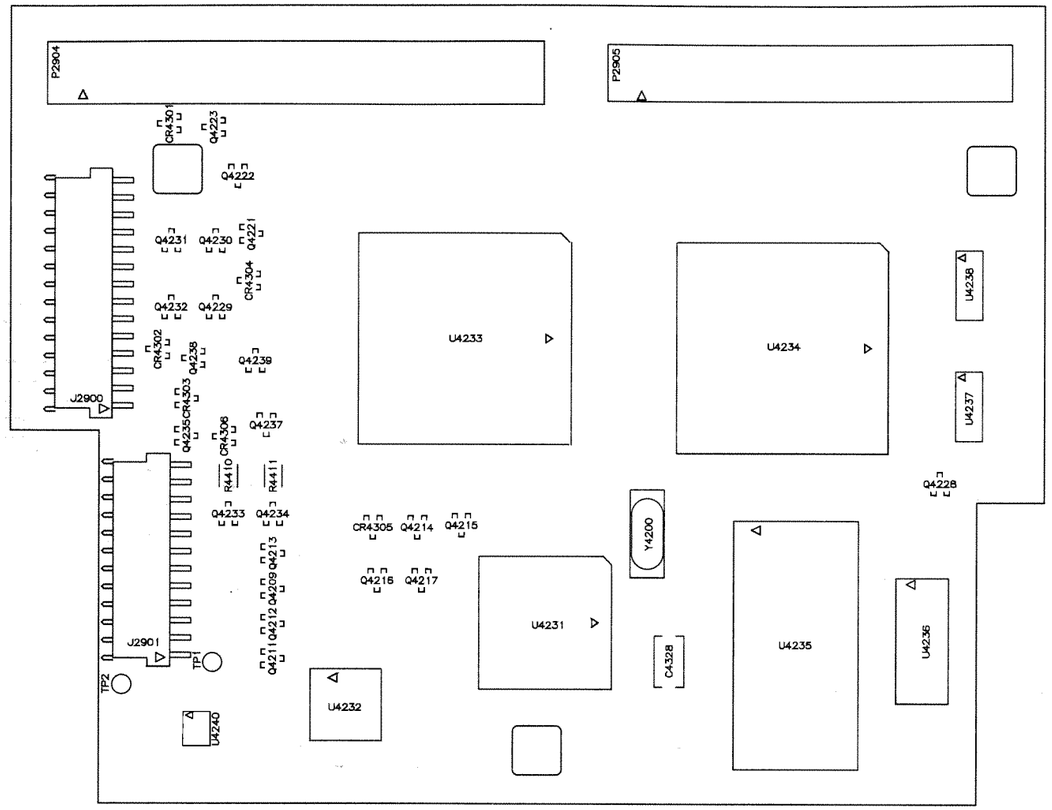
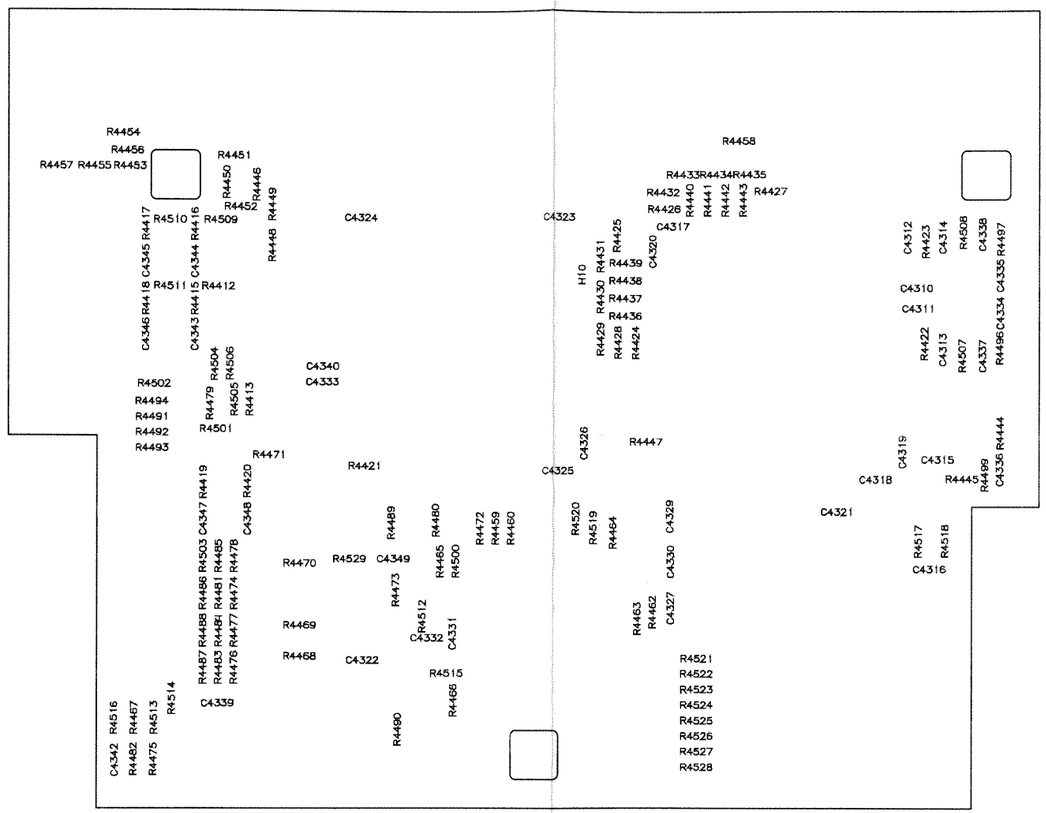
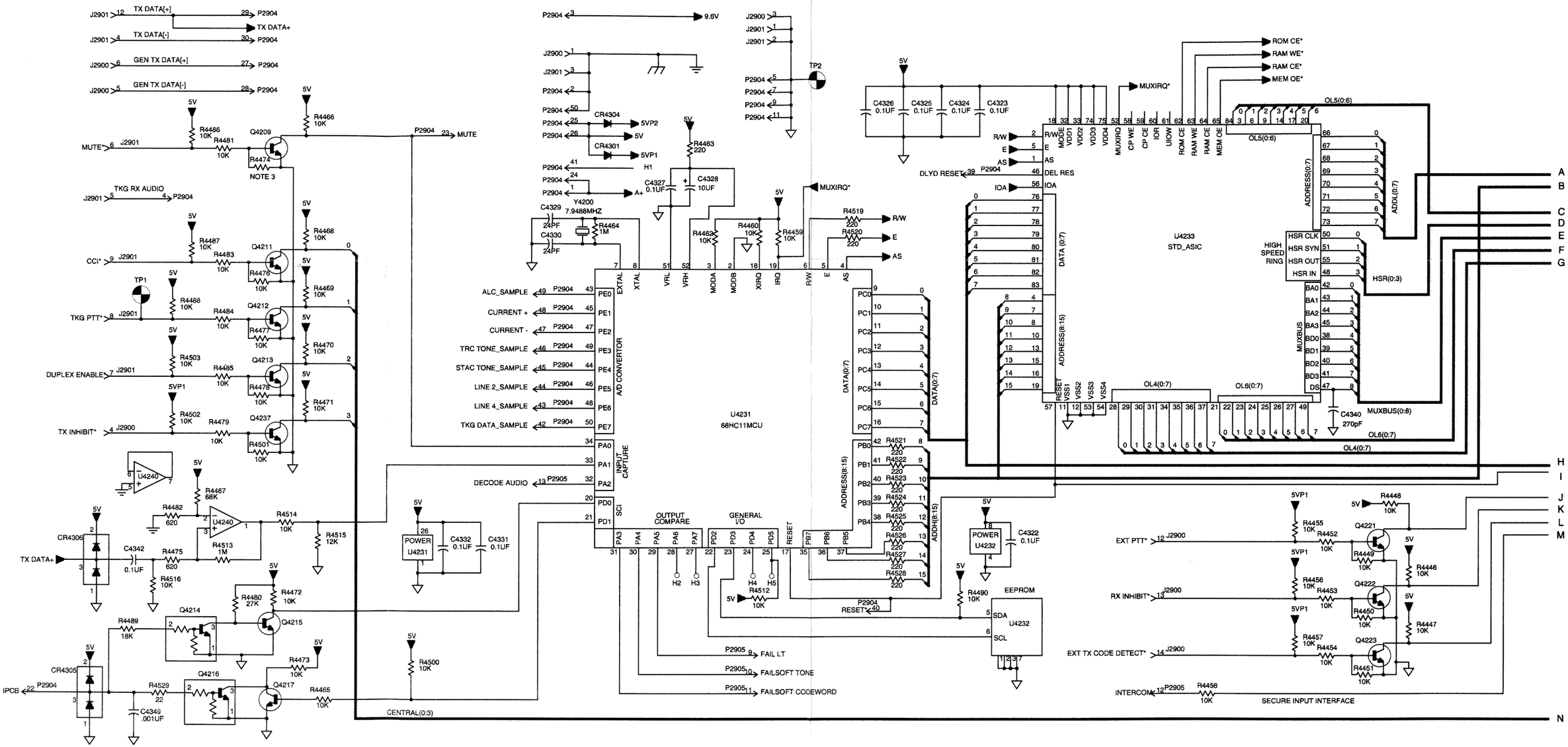


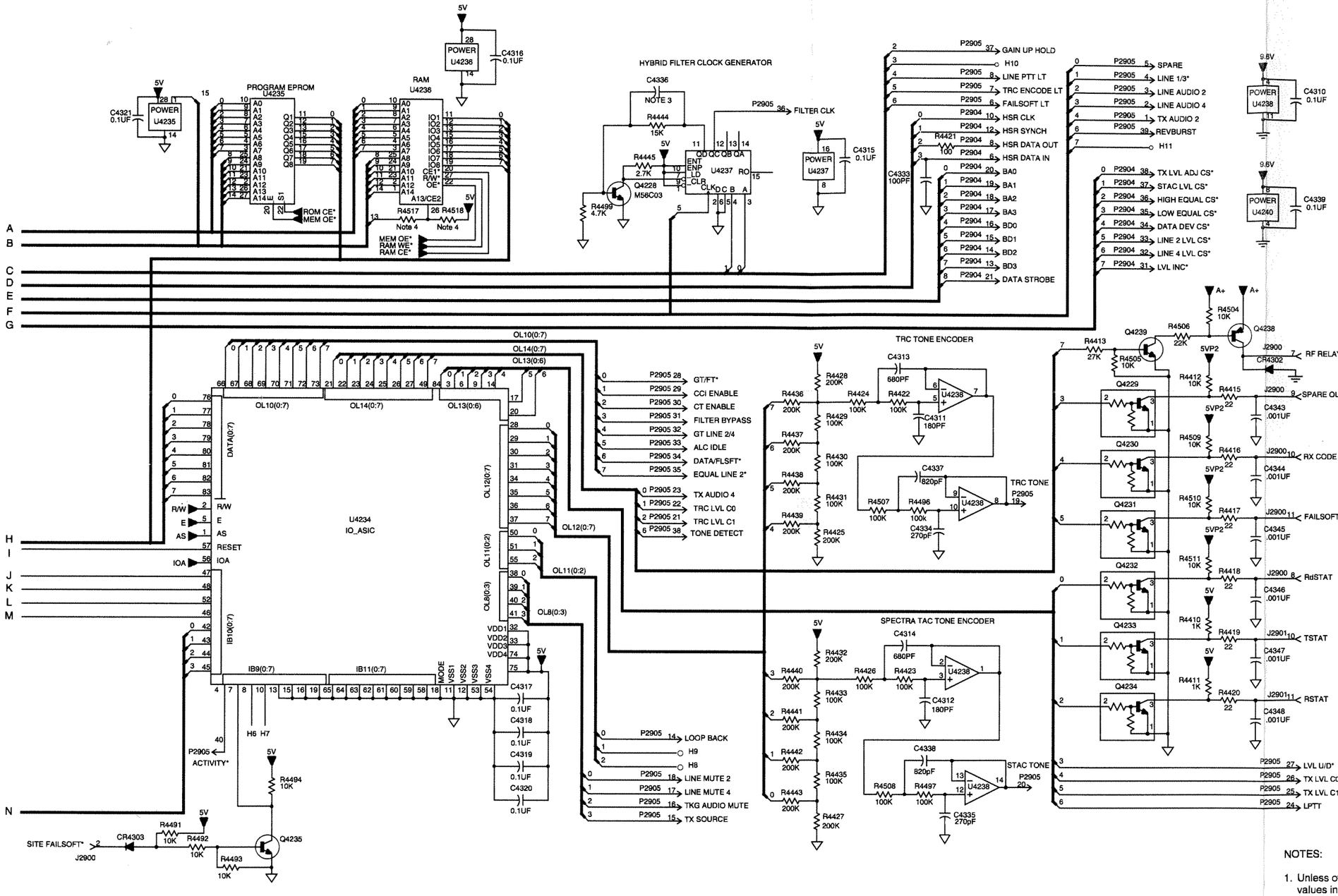
COMPONENT SIDE



SOLDER SIDE

TLN7754 TTRC Logic Board





NOTES:

1. Unless otherwise specified, all resistor values are in ohms and capacitor values in microfarads.
2. An asterisk (*) after or a line over a signal name indicates an active low level signal.
3. Parts not included on standard kits, but it may be added for special applications.
4. R4517 installed and R4518 removed if 51-84064F78 (32k RAM) is installed. R4517 removed and R4518 installed if (8k RAM) is installed.

TLN7754 TTRC Logic Board Parts List

Reference Symbol	Motorola Part No.	Description
		capacitor, fixed:
C4310	2113741B69	0.1 uF, +/-5%; 50 V
C4311,4312	2113740A61	180 pF, +/-5%; 50V
C4313,4314	2113740A75	680 pF, +/-5%; 50V
C4315 thru 4319	2113741B69	0.1 uF, +/-5%; 50 V
C4320	2113740A75	680 pF, +/-5%; 50V
C4321 thru 4327	2113741B69	0.1 uF, +/-5%; 50 V
C4328	2311049A45	10 uF, +/-10%; 35V
C4329,4330	2113740B34	24 pF, +/-5%; 50V
C4331,4332	2113741B69	0.1 uF, +/-5%; 50 V
C4333	2113740A55	100 pF, +/-5%; 50V
C4334,4335	2113740A65	270 pF, +/-5%; 50V
C4336	2113741B69	0.1 uF, +/-5%; 50 V
C4337,4338	2113740A77	0.82 pF, +/-5%; 50V
C4339	2113741B69	0.1 uF, +/-5%; 50 V
C4340	2113740A65	270 pF, +/-5%; 50V
C4342	2113741B69	0.1 uF, +/-5%; 50 V
C4343 thru 4349	2113740A79	1000 pF, +/-5%; 50V
		diode: (see note)
CR4301 thru 4304	4813833C10	0.1A, 70V
CR4305,4306	4813833C05	dual 70V
		connector:
J2900	2813922B14	PLUG, Header; 14-contact
J2901	2813922B12	PLUG, Header; 12-contact
		connector:
P2904	3083139N48	CABLE, Ribbon; 50 pin
P2905	3083139N47	CABLE, Ribbon; 40 pin
		transistor: (see note)
Q4209	4813824A10	NPN
Q4211 thru 4213	4813824A10	NPN
Q4214	4884955T01	NPN
Q4215	4813824A10	NPN
Q4216	4884955T01	NPN
Q4217	4813824A10	NPN
Q4221 thru 4223	4813824A10	NPN
Q4228	4813824A10	NPN
Q4229 thru 4234	4884955T01	NPN
Q4235	4813824A10	NPN
Q4237	4813824A10	NPN
Q4238	4813824A16	PNP
Q4239	4813824A10	NPN
		resistor, fixed:
R4410,4411	0611072A49	1K, +/-5%, 1/4W
R4412	0611079A98	10K, +/-5%; 1/10W
R4413	0611079B09	27K, +/-5%; 1/10W
R4415 thru 4417	0611079A34	22 ohms, +/-5%; 1/10W
R4418	0611079A40	39 ohms, +/-5%; 1/10W
R4419,4420	0611079A34	22 ohms, +/-5%; 1/10W
R4421	0611079A50	100 ohms, +/-5%; 1/10W
R4422 thru 4424	0611077G88	100K, +/-1%; 1/8 W
R4425	0611077H18	200K, +/-1%; 1/8 W
R4426	0611077G88	100K, +/-1%; 1/8 W
R4427,4428	0611077H18	200K, +/-1%; 1/8 W
R4429 thru 4431	0611077G88	100K, +/-1%; 1/8 W
R4432	0611077H18	200K, +/-1%; 1/8 W
R4433 thru 4435	0611077G88	100K, +/-1%; 1/8 W
R4436 thru 4443	0611077H18	200K, +/-1%; 1/8 W
R4444	0611079B03	15K, +/-5%; 1/10W
R4445	0611079A84	2700 ohms, +/-5%; 1/10W
R4446 thru 4460	0611079A98	10K, +/-5%; 1/10W
R4462	0611079A98	10K, +/-5%; 1/10W
R4463	0611079A58	220 ohms, +/-5%; 1/10W
R4464	0611079B47	1MEG, +/-5%; 1/10W
R4465,4466	0611079A98	10K, +/-5%; 1/10W
R4467	0611079B19	68K, +/-5%; 1/10W
R4468 thru 4473	0611079A98	10K, +/-5%; 1/10W
R4474	0611079A90	4700 ohms, +/-5%; 1/10W
R4475	0611077A69	620 ohms, +/-5%; 1/8 W
R4476 thru 4479	0611079A98	10K, +/-5%; 1/10W
R4480	0611079B09	27K, +/-5%; 1/10W
R4481	0611079A98	10K, +/-5%; 1/10W
R4482	0611077A69	620 ohms, +/-5%; 1/8 W
R4483 thru 4488	0611079A98	10K, +/-5%; 1/10W
R4489	0611079B05	18K, +/-5%; 1/10W
R4490 thru 4494	0611079A98	10K, +/-5%; 1/10W
R4496,4497	0611077G88	100K, +/-1%; 1/8 W
R4499	0611079A90	4700 ohms, +/-5%; 1/10W
R4500 thru 4505	0611079A98	10K, +/-5%; 1/10W
R4506	0611079B07	22K, +/-5%; 1/10W
R4507,4508	0611077G88	100K, +/-1%; 1/8 W
R4509 thru 4512	0611079A98	10K, +/-5%; 1/10W
R4513	0611079B47	1MEG, +/-5%; 1/10W
R4514	0611079A98	10K, +/-5%; 1/10W
R4515	0611079B01	12K, +/-5%; 1/10W
R4516	0611079A98	10K, +/-5%; 1/10W
R4518	0611079A01	O ohms, +/-5%; 1/10W
R4519 thru 4528	0611079A58	220 ohms, +/-5%; 1/10W
R4529	0611079A34	22 ohms, +/-5%; 1/10W
		integrated circuit: (see note)
U4231	5113802A01	Micro Computere Unit w/Switch Control Interface
U4232	0980245P01	Low Pass Dual Input Package
U4233,4234	5184494R03	ASIC Station Control
U4235	0980245P07	Socket, IC: 28-contact
U4236	5113804A03	8K x 8 Static Ram
U4237	5113805A41	Synchronous Counter
U4238	5113819A04	Quad Operational Amplifier
U4240	5113818A09	Dual Differential op-amp; MC3358DR2
		crystal: (see note)
Y4200	4883793T06	7.9488 MHZ
		non-referenced items:
	2885155U06	PLUG, Header; 40 contacts (used with P2905)
	2885155U07	PLUG, Haader; 50 contacts (used with P2904)
	4380054K01	Spacer, pcb support (3 used)
	5191012H80	IC PRGMD EPROM 12H80
	5483865R01	Label, bar code: 1/4" wide, white
	5484960T01	Label, bar code: 6.3 x 12.7MM, white

Note: For optimum performance, diodes, transistors, integrated circuits, and crystals must be ordered by Motorola part number.

Secure Board

Table 3-3 lists parts that may or may not be placed on all Secure Boards. Some boards may also use different values for the same component.

Table 3-3 ***Secure Board Kit Component Values***

REFERNCE DEISGNATOR	PARTS NUMBER	TLN3045C	TLN3267A
BT4001	0983662T01	Battery	--
J4001	2813922B06	Connector	--
U4005	0980082P05	IC-CVSD 1	--
U4006	0980082P05	IC-CVSD 2	--

Note: Unless otherwise noted, all resistors are in ohms and all capacitors are in microfarads.

Secure Board Connectors

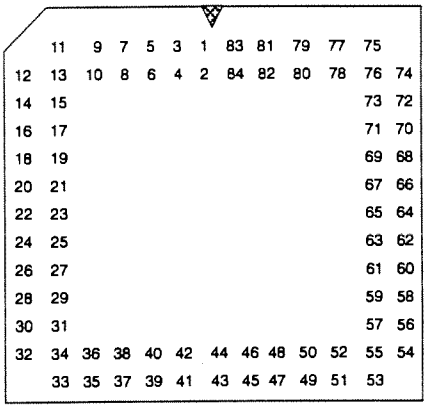
P803

1	SYSTEM GND (AUDIO GND)
2	SYSTEM GND (AUDIO GND)
3	+9.6V
4	SECURE RX AUDIO
5	TX AUDIO
6	RAW TX AUDIO
7	CODED MOD AUDIO
8	LOCAL AUDIO
9	HSR OUT
10	LOGIC GND
11	HSR IN
12	LOGIC GND
13	HSR CLK
14	LOGIC GND
15	HSR SYNC
16	LOGIC GND
17	BD3*
18	BD2*
19	BD1*
20	BD0*
21	BA3
22	BA2
23	BA1
24	BA0
25	DS*
26	SPARE
27	QUAD AUDIO
28	INBOUND MRTI
29	IPCB
30	U/D*
31	INC*
32	CODED MOD CS*
33	EXPANSION RESET*
34	SECURE ALERT TONES
35	SECURE RX CS*
36	SPARE
37	BATTERY GND
38	SPARE
39	+5V
40	SYSTEM GND (AUDIO GND)

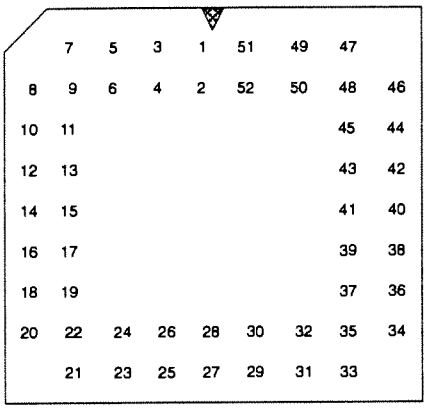
J4001

1	CI KEY
2	KID
3	CI WE*
4	CI GND*
5	EXT KR*
6	GND

ASTERISK (*) INDICATES
ACTIVE LOW STATE

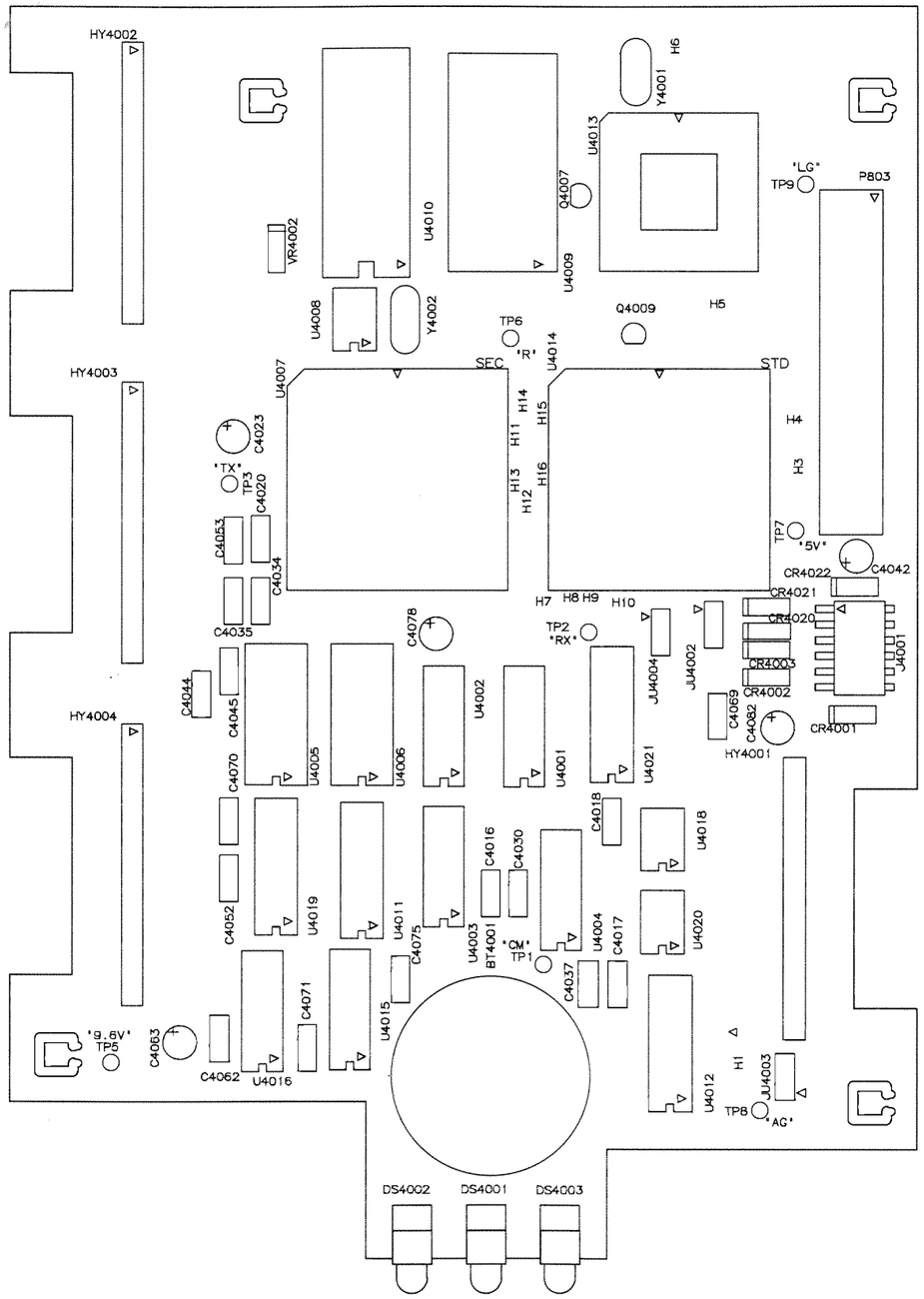


ASIC SOCKET DETAIL

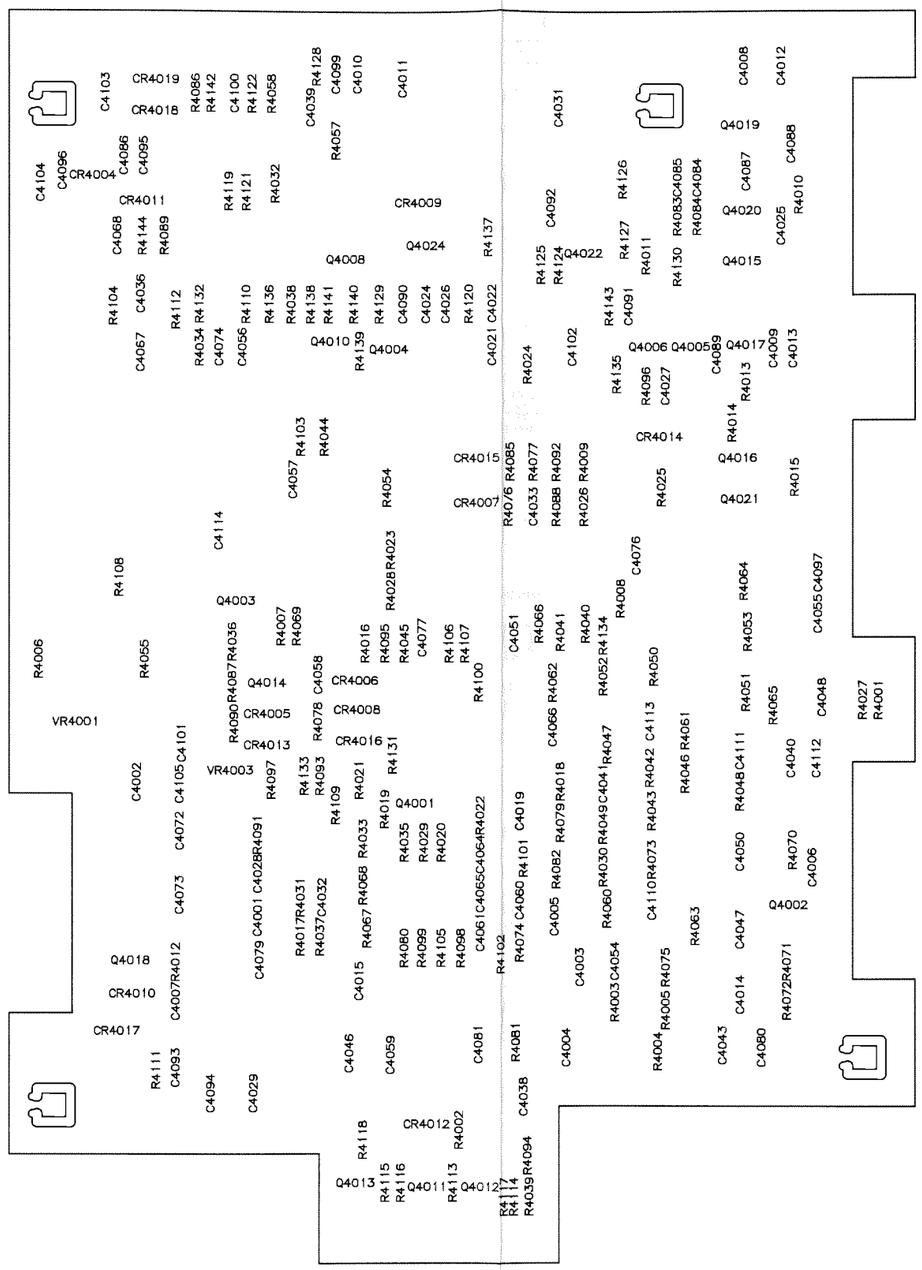


µP SOCKET DETAIL

MSF017
040794KOM

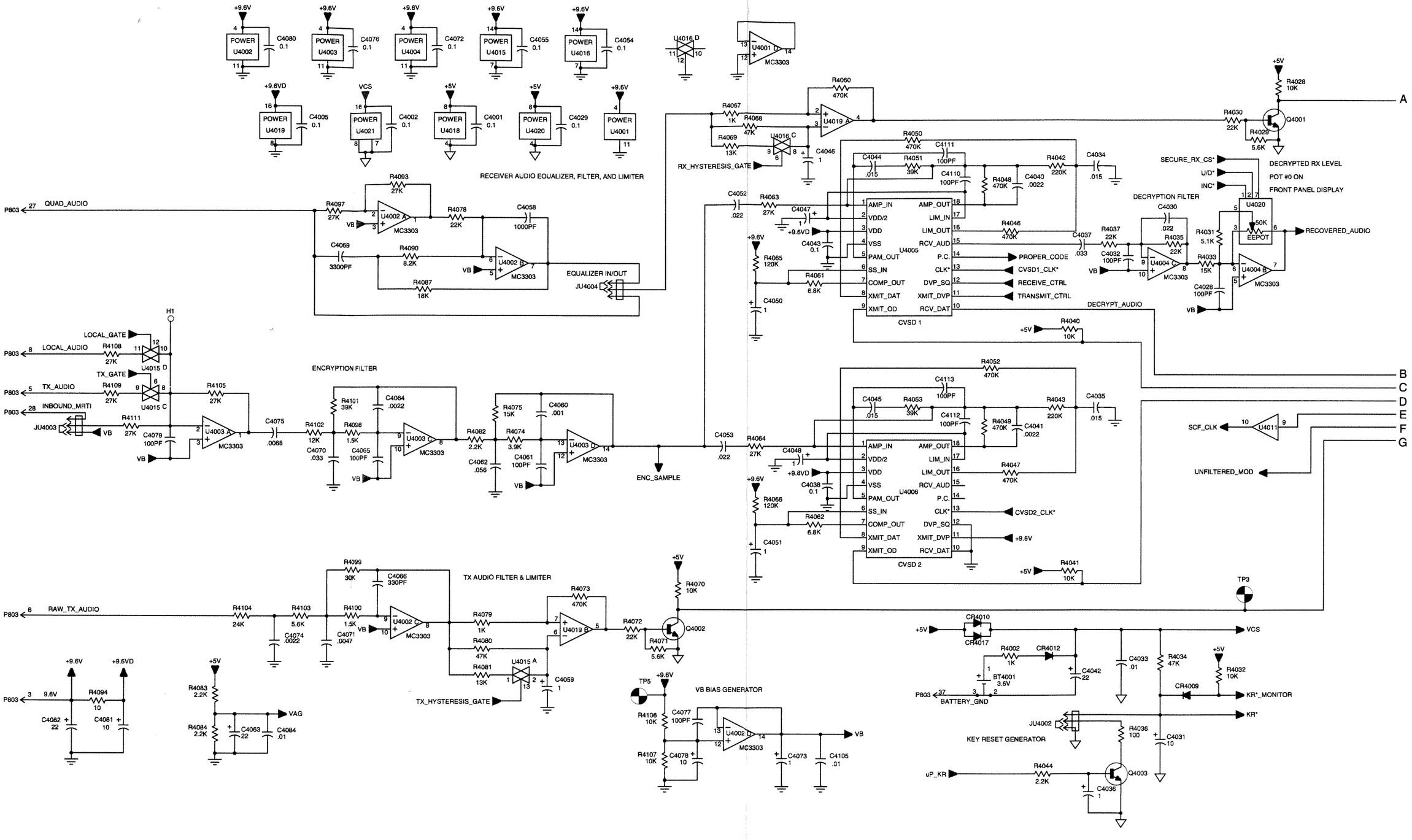


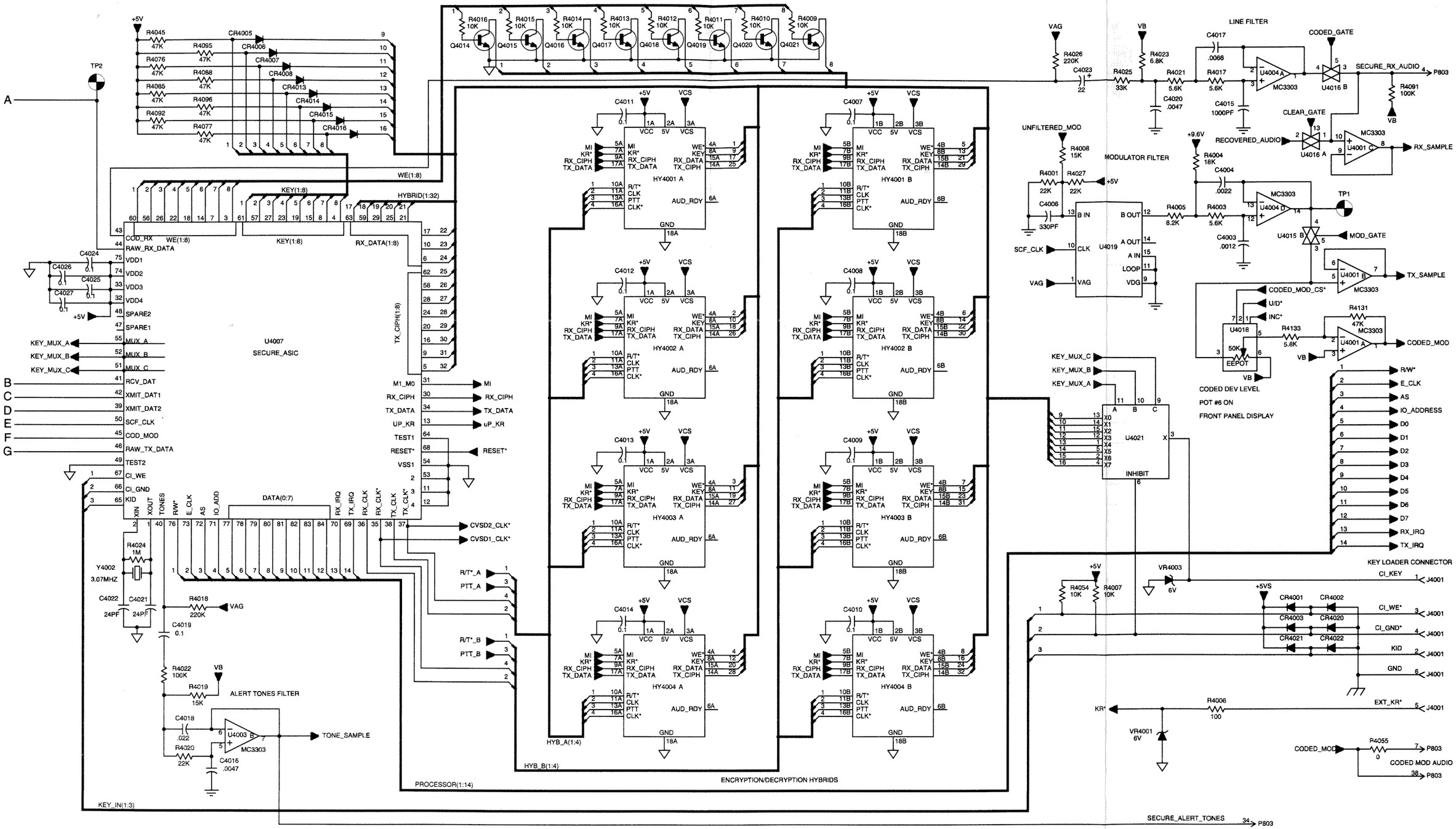
COMPONENT SIDE



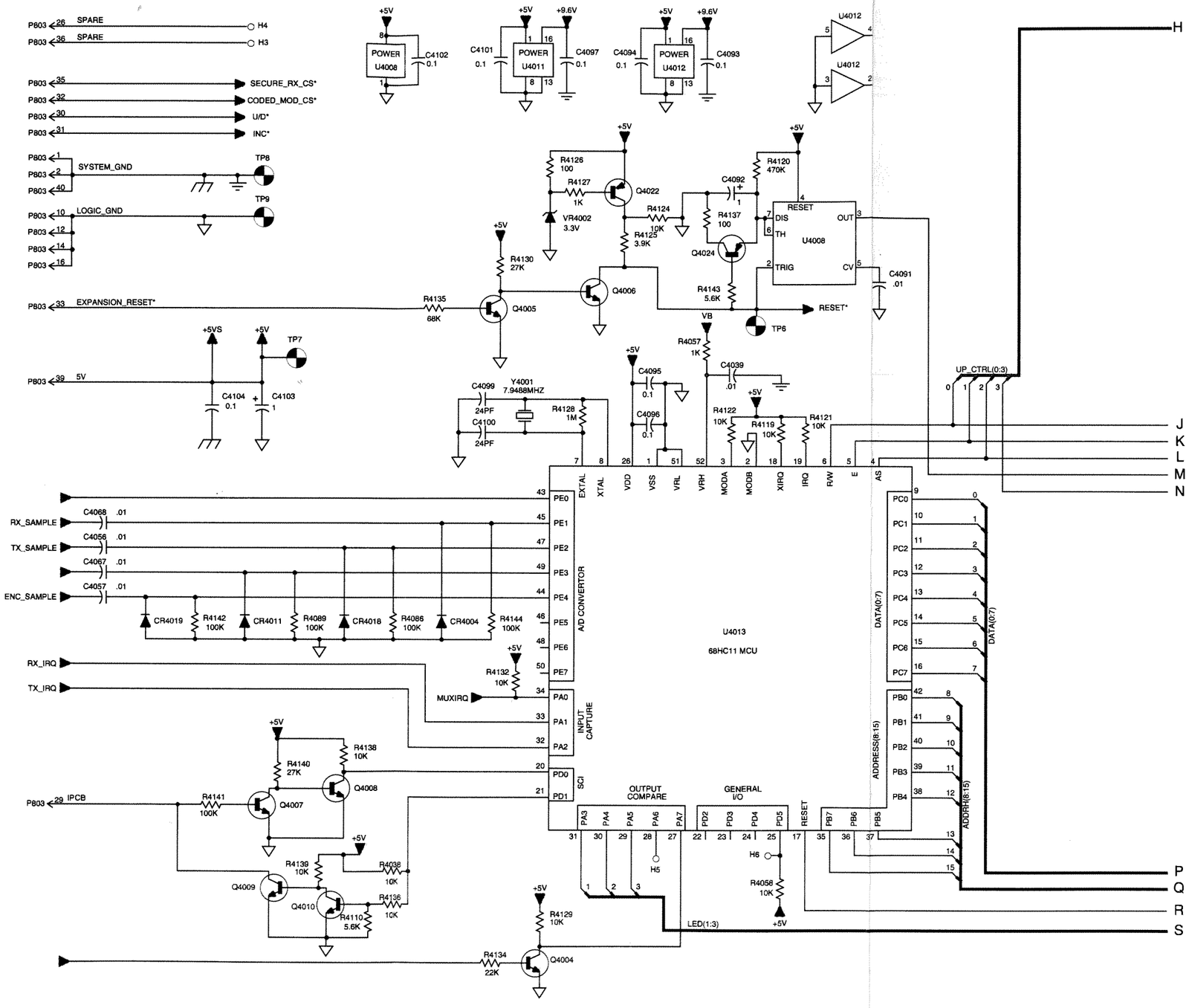
SOLDER SIDE

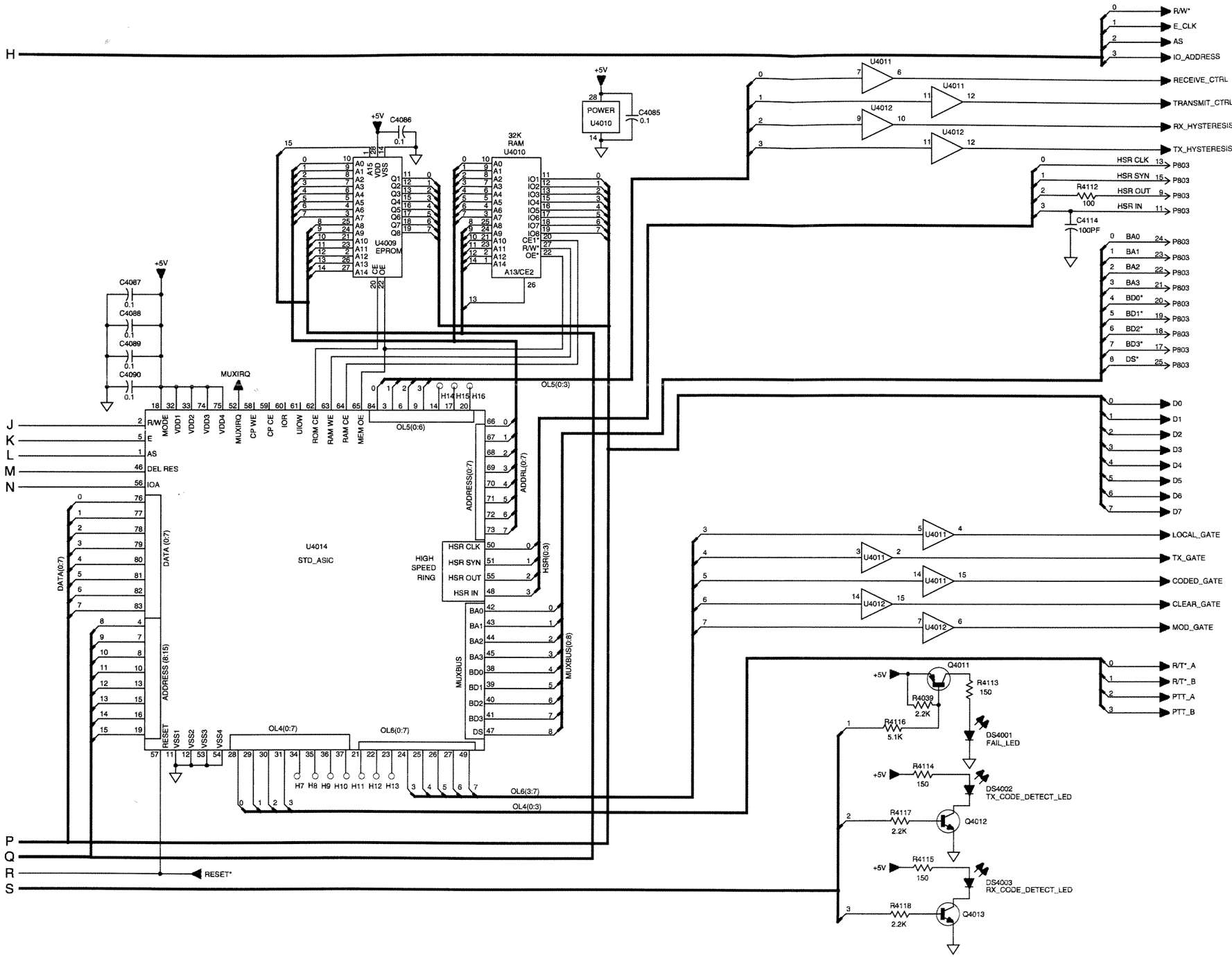
TLN3045/TLN3267 TTRC Secure Board




U4007
SECURE_ASIC
HY4001 A
HY4001 B
HY4002 A
HY4002 B
HY4003 A
HY4003 B
HY4004 A
HY4004 B
ENCRYPTION/DECRYPTION HYBRIDS
LINE FILTER
MODULATOR FILTER
ALERT TONES FILTER
CODED DEV LEVEL
POT #6 ON
FRONT PANEL DISPLAY
KEY LOADER CONNECTOR
CODED MOD AUDIO
PROCESSOR(1:14)
KEY_IN(1:3)
HYB_A(1:4)
HYB_B(1:4)
WE(1:8)
KEY(1:8)
HYBRID(1:32)
RX_DATA(1:8)
TX_CIPH(1:8)
DATA(0:7)
SECURE_ALERT_TONES

TLN3045/TLN3267 TTRC Secure Board





NOTES:

1. Unless otherwise specified, all resistor values are in ohms and capacitor values in microfarads.
2. An asterisk (*) after or a line over a signal name indicates an active low level signal.
3. Parts not included on standard kits, but it may be added for special applications.

TLN3045 Secure Board Parts List

Reference Symbol	Motorola Part No.	Description
		battery:
BT4001	0983662T01	SOCKET, contact (3 used)
		capacitor, fixed:
C4001,4002	2113741B69	0.1 uF, +/-5%; 50 V
C4003	2113740B74	1200 pF, +/-5%; 50V
C4004	2113740B80	2200 pF, +/-5%; 50V
C4005	2113741B69	0.1 uF, +/-5%; 50 V
C4006	2113740B61	330 pF, +/-5%; 50V
C4007 thru 4014	2113741B69	0.1 uF, +/-5%; 50 V
C4015	2113740B73	1000 pF, +/-5%; 50 V
C4016	0811017A06	470 pF, +/-5%; 50V
C4017	0811017A07	6800 pF, +/-5%; 50V
C4018	0811051A09	0.022 uF, +/-5%; 63 V
C4019	2113741B69	0.1 uF, +/-5%; 50 V
C4020	0811017A06	470 pF, +/-5%; 50V
C4021,4022	2113740B34	24 pF, +/-5%; 50V
C4023	2313748G13	22 uF, +/-20%; 25V
C4024 thru 4027	2113741B69	0.1 uF, +/-5%; 50 V
C4028	2113740B49	100 pF, +/-5%; 50 V
C4029	2113741B69	0.1 uF, +/-5%; 50 V
C4030	0811051A09	0.022 uF, +/-5%; 63 V
C4031	2311049A19	10 uF, +/-10%; 25 V
C4032	2113740B49	100 pF, +/-5%; 50 V
C4033	2113741B45	0.01 uF, +/-5%; 50 V
C4034,4035	0811051A08	0.015 uF, +/-5%; 63V
C4036	2311049A08	1 uF, +/-10%; 35 V
C4037	0811051A10	0.033 uF, +/-5%; 63V
C4038	2113741B69	0.1 uF, +/-5%; 50 V
C4039	2113741B45	0.01 uF, +/-5%; 50 V
C4040,4041	2113740B80	2200 pF, +/-5%; 50V
C4042	2313748G13	22 uF, +/-20%; 25V
C4043	2113741B69	0.1 uF, +/-5%; 50 V
C4044,4045	0811051A08	0.015 uF, +/-5%; 63V
C4046 thru 4048	2311049A08	1 uF, +/-10%; 35 V
C4050,4051	2311049A08	1 uF, +/-10%; 35 V
C4052,4053	0811051A09	0.022 uF, +/-5%; 63 V
C4054,4055	2113741B69	0.1 uF, +/-5%; 50 V
C4056,4057	2113741B45	0.01 uF, +/-5%; 50 V
C4058	2113740B73	1000 pF, +/-5%; 50 V
C4059	2311049A08	1 uF, +/-10%; 35 V
C4060	2113740B73	1000 pF, +/-5%; 50 V
C4061	2113740B49	100 pF, +/-5%; 50 V
C4062	0811051A23	0.056 uF, +/-5%; 1V
C4063	2313748G13	22 uF, +/-20%; 25V
C4064	2113740B80	2200 pF, +/-5%; 50V
C4065	2113740B49	100 pF, +/-5%; 50 V
C4066	2113740B61	330 pF, +/-5%; 50V
C4067,4068	2113741B45	0.01 uF, +/-5%; 50 V
C4069	0811017A05	3300 pF, +/-5%; 50V
C4070	0811051A10	0.033 uF, +/-5%; 63V
C4071	0811017A06	470 pF, +/-5%; 50V
C4072	2113741B69	0.1 uF, +/-5%; 50 V
C4073	2311049A08	1 uF, +/-10%; 35 V
C4074	2113740B80	2200 pF, +/-5%; 50V
C4075	0811017A07	6800 pF, +/-5%; 50V
C4076	2113741B69	0.1 uF, +/-5%; 50 V
C4077	2113740B49	100 pF, +/-5%; 50 V
C4078	2313748G08	10 uF, +/-20%; 16 V
C4079	2113740B49	100 pF, +/-5%; 50 V
C4080	2113741B69	0.1 uF, +/-5%; 50 V
C4081	2311049A19	10 uF, +/-10%; 25 V
C4082	2313748G13	22 uF, +/-20%; 25V
C4084	2113741B45	0.01 uF, +/-5%; 50 V
C4085 thru 4090	2113741B69	0.1 uF, +/-5%; 50 V
C4091	2113741B45	0.01 uF, +/-5%; 50 V
C4092	2311049A08	1 uF, +/-10%; 35 V
C4093 thru 4097	2113741B69	0.1 uF, +/-5%; 50 V
C4099,4100	2113740B34	24 pF, +/-5%; 50V
C4101,4102	2113741B69	0.1 uF, +/-5%; 50 V
C4103	2311049A08	1 uF, +/-10%; 35 V
C4104	2113741B69	0.1 uF, +/-5%; 50 V
C4105	2113741B45	0.01 uF, +/-5%; 50 V
C4110 thru 4114	2113740B49	100 pF, +/-5%; 50 V
		diode: (see note)
CR4001 thru 4003	4883654H01	silicon
CR4004 thru 4019	4805129M41	Rectifier
CR4020 thru 4022	4883654H01	silicon
		light emitting diode: (see note)
DS4001	4888245C24	RED
DS4002,4003	4888245C23	YEL
		connector:
J4001	2813922B06	HDR 6 POS RT .1 CTR GLD PLTD
		jumper:
JU4002 thru 4004	0984181L01	SHORTING JUMPER: 2-contact
		connector:
P803	3083139N23	CABLE ASSEMBLY, flat, 40-conductor: includes connector P803
		transistor: (see note)
Q4001 thru 4006	4813824A10	NPN
Q4007	4813824D06	NPN
Q4008	4813824A10	NPN
Q4009	4813824D06	NPN
Q4010	4813824A10	NPN
Q4011	4811056A08	PNP
Q4012 thru 4021	4813824A10	NPN
Q4022	4811056A08	PNP
Q4024	4811056A08	PNP
		resistor, fixed:
R4001	0611077B07	22K, +/-5%; 1/8 W
R4002	0611077A74	1K, +/-5%; 1/8 W
R4003	0611077A92	5.6K, +/-5%; 1/8W
R4004	0611077B05	18K, +/-5%; 1/8 W
R4005	0611077A96	8.2K, +/-5%; 1/8 W
R4006	0611077A50	100 ohms, +/-5%; 1/8 W
R4007	0611077A98	10K, +/-5%; 1/8 W
R4008	0611077B03	15K, +/-5%; 1/8 W
R4009 thru 4016	0611077A98	10K, +/-5%; 1/8 W
R4017	0611077A92	5.6K, +/-5%; 1/8W
R4018	0611077B31	220K, +/-5%; 1/8 W
R4019	0611077B03	15K, +/-5%; 1/8 W
R4020	0611077B07	22K, +/-5%; 1/8 W
R4021	0611077A92	5.6K, +/-5%; 1/8W
R4022	0611077B23	100K, +/-5%; 1/8 W
R4023	0611077A94	6.8K, +/-5%; 1/8W
R4024	0611077B47	1 meg, +/-5%; 1/8 W
R4025	0611077B11	33K, +/-5%; 1/8 W
R4026	0611077B31	220K, +/-5%; 1/8 W
R4027	0611077B07	22K, +/-5%; 1/8 W
R4028	0611077A98	10K, +/-5%; 1/8 W
R4029	0611077A92	5.6K, +/-5%; 1/8W
R4030	0611077B07	22K, +/-5%; 1/8 W
R4031	0611077A91	5.1K, +/-5%; 1/8W
R4032	0611077A98	10K, +/-5%; 1/8 W
R4033	0611077B03	15K, +/-5%; 1/8 W
R4034	0611077B15	47K, +/-5%; 1/8 W
R4035	0611077B07	22K, +/-5%; 1/8 W
R4036	0611077A50	100 ohms, +/-5%; 1/8 W
R4037	0611077B07	22K, +/-5%; 1/8 W
R4038	0611077A98	10K, +/-5%; 1/8 W
R4039	0611077A82	2.2K, +/-5%; 1/8 W
R4040,4041	0611077A98	10K, +/-5%; 1/8 W
R4042,4043	0611077B31	220K, +/-5%; 1/8 W

TLN3045 Secure Board Parts List

Reference Symbol	Motorola Part No.	Description
R4044	0611077A82	2.2K, +/-5%; 1/8 W
R4045	0611077B15	47K, +/-5%; 1/8 W
R4046 thru 4050	0611077B39	470K, +/-5%; 1/8 W
R4051	0611077B13	39K, +/-5%; 1/8 W
R4052	0611077B39	470K, +/-5%; 1/8 W
R4053	0611077B13	39K, +/-5%; 1/8 W
R4054	0611077A98	10K, +/-5%; 1/8 W
R4055	0611077A01	0 ohm, +/-5%; 0 W
R4057	0611077A74	1K, +/-5%; 1/8 W
R4058	0611077A98	10K, +/-5%; 1/8 W
R4060	0611077B39	470K, +/-5%; 1/8 W
R4061,4062	0611077A94	6.8K, +/-5%; 1/8W
R4063,4064	0611077B09	27K, +/-5%; 1/8 W
R4065,4066	0611077B25	120K, +/-5%; 1/8W
R4067	0611077A74	1K, +/-5%; 1/8 W
R4068	0611077B15	47K, +/-5%; 1/8 W
R4069	0611077B02	13K, +/-5%; 1/8W
R4070	0611077A98	10K, +/-5%; 1/8 W
R4071	0611077A92	5.6K, +/-5%; 1/8W
R4072	0611077B07	22K, +/-5%; 1/8 W
R4073	0611077B39	470K, +/-5%; 1/8 W
R4074	0611077A88	3.9K, +/-5%; 1/8 W
R4075	0611077B03	15K, +/-5%; 1/8 W
R4076,4077	0611077B15	47K, +/-5%; 1/8 W
R4078	0611077B07	22K, +/-5%; 1/8 W
R4079	0611077A74	1K, +/-5%; 1/8 W
R4080	0611077B15	47K, +/-5%; 1/8 W
R4081	0611077B02	13K, +/-5%; 1/8W
R4082 thru 4084	0611077A82	2.2K, +/-5%; 1/8 W
R4085	0611077B15	47K, +/-5%; 1/8 W
R4086	0611077B23	100K, +/-5%; 1/8 W
R4087	0611077B05	18K, +/-5%; 1/8 W
R4088	0611077B15	47K, +/-5%; 1/8 W
R4089	0611077B23	100K, +/-5%; 1/8 W
R4090	0611077A96	8.2K, +/-5%; 1/8 W
R4091	0611077B23	100K, +/-5%; 1/8 W
R4092	0611077B15	47K, +/-5%; 1/8 W
R4093	0611077B09	27K, +/-5%; 1/8 W
R4094	0611077A26	10 ohms, +/-5%; 1/8 W
R4095,4096	0611077B15	47K, +/-5%; 1/8 W
R4097	0611077B09	27K, +/-5%; 1/8 W
R4098	0611077A78	1.5K, +/-5%; 1/8W
R4099	0611077B10	30K, +/-5%; 1/8W
R4100	0611077A78	1.5K, +/-5%; 1/8W
R4101	0611077B13	39K, +/-5%; 1/8 W
R4102	0611077B01	12K, +/-5%; 1/8W
R4103	0611077A92	5.6K, +/-5%; 1/8W
R4104	0611077B08	24K, +/-5%; 1/8W
R4105	0611077B09	27K, +/-5%; 1/8 W
R4106,4107	0611077A98	10K, +/-5%; 1/8 W
R4108,4109	0611077B09	27K, +/-5%; 1/8 W
R4110	0611077A92	5.6K, +/-5%; 1/8W
R4111	0611077B09	27K, +/-5%; 1/8 W
R4112	0611077A50	100 ohms, +/-5%; 1/8 W
R4113 thru 4115	0611077A54	150 ohms, +/-5%; 1/8 W
R4116	0611077A91	5.1K, +/-5%; 1/8W
R4117,4118	0611077A82	2.2K, +/-5%; 1/8 W
R4119	0611077A98	10K, +/-5%; 1/8 W
R4120	0611077B39	470K, +/-5%; 1/8 W
R4121,4122	0611077A98	10K, +/-5%; 1/8 W
R4124	0611077A98	10K, +/-5%; 1/8 W
R4125	0611077A88	3.9K, +/-5%; 1/8 W
R4126	0611077A50	100 ohms, +/-5%; 1/8 W
R4127	0611077A74	1K, +/-5%; 1/8 W
R4128	0611077B47	1 meg, +/-5%; 1/8 W
R4129	0611077A98	10K, +/-5%; 1/8 W
R4130	0611077B09	27K, +/-5%; 1/8 W
R4131	0611077B11	33K, +/-5%; 1/8 W
R4132	0611077A98	10K, +/-5%; 1/8 W
R4133	0611077A92	5.6K, +/-5%; 1/8W
R4134	0611077B07	22K, +/-5%; 1/8 W
R4135	0611077B19	68K, +/-5%; 1/8W
R4136	0611077A98	10K, +/-5%; 1/8 W
R4137	0611077A50	100 ohms, +/-5%; 1/8 W
R4138,4139	0611077A98	10K, +/-5%; 1/8 W
R4140	0611077B09	27K, +/-5%; 1/8 W
R4141,4142	0611077B23	100K, +/-5%; 1/8 W
R4143	0611077A92	5.6K, +/-5%; 1/8W
R4144	0611077B23	100K, +/-5%; 1/8 W
		integrated circuit: (see note)
U4001 thru 4004	5113819D04	General Purpose Differential Operational Amplifier
U4005,4006	0980082P05	SOCKET, IC: 18-contact
U4007	5184494R04	ASIC Encryption
U4008	5113815J04	555 Timer
U4009	5191012H65	Programmed 64Kx8 Bit UV EPROM
U4010	5184064F76	Static 32Kx8 Bit RAM
U4011,4012	5184704M19	Hex Level Shifter/Logic Level Converter
U4013	5113802A01	Micro Computere Unit w/Switch Control Interface
U4014	5184494R03	ASIC Station Control
U4015,4016	5113806D21	analog switching multiplexer
U4018	5182802R24	Digitally Controlled 50K Potentiometer
U4019	5183977M42	Capacitor Switched Filter
U4020	5182802R24	Digitally Controlled 50K Potentiometer
U4021	5184887K26	Analog Mux/Demux
		voltage regulator: (see note)
VR4001	4813830A16	DIODE 6.0V 5% 225MW MMBZ5233B_
VR4002	4882479V02	DIODE ZENER 3.3V
VR4003	4813830A16	DIODE 6.0V 5% 225MW MMBZ5233B_
		crystal: (see note)
Y4001	4880113K04	7.948 MHZ
Y4002	4882611M12	3.072 MHZ
		non-referenced items:
	TRN9999C	Secure Module
	TVN6057A	Secure Software
	0982449T01	SOCKET, IC: 52-contact (used with U4013)
	0982449T03	SOCKET, IC: 84-contact (used with U4007)
	0982449T03	SOCKET, IC: 84-contact (used with U4014)
	0982483T01	SOCKET, IC: 18-contact (used with HY4001)
	0982483T01	SOCKET, IC: 18-contact (used with HY4002)
	0982483T01	SOCKET, IC: 18-contact (used with HY4003)
	0982483T01	SOCKET, IC: 18-contact (used with HY4004)
	0982483T02	SOCKET, IC: 16-contact (used with HY4001)
	0982483T02	SOCKET, IC: 16-contact (used with HY4002)
	0982483T02	SOCKET, IC: 16-contact (used with HY4003)
	0982483T02	SOCKET, IC: 16-contact (used with HY4004)
	0982808R10	Socket, IC: 28-contact (used with U4009)
	0984728L01	Shorting Jumper: 2-contact (3 used)
	1485334U01	INSULATOR RUBBER (SILICON) (2 used)
	2880001R03	plug: 3-contact (3 used)
	4380054K01	Spacer, pcb support (4 used)
	5483865R01	Label, bar code: 1/4" wide, white
	5484960T01	Label, bar code: 6.3 x 12.7MM, white

Note: For optimum performance, diodes, transistors, integrated circuits, and crystals must be ordered by Motorola part number.

TLN3267 Secure Board Parts List

Reference Symbol	Motorola Part No.	Description
		capacitor, fixed:
C4001,4002	2113741B69	0.1 uF, +/-5%; 50 V
C4003	2113740B74	1200 pF, +/-5%; 50V
C4004	2113740B80	2200 pF, +/-5%; 50V
C4005	2113741B69	0.1 uF, +/-5%; 50 V
C4006	2113740B61	330 pF, +/-5%; 50V
C4007 thru 4014	2113741B69	0.1 uF, +/-5%; 50 V
C4015	2113740B73	1000 pF, +/-5%; 50 V
C4016	0811017A06	470 pF, +/-5%; 50V
C4017	0811017A07	6800 pF, +/-5%; 50V
C4018	0811051A09	0.022 uF, +/-5%; 63 V
C4019	2113741B69	0.1 uF, +/-5%; 50 V
C4020	0811017A06	470 pF, +/-5%; 50V
C4021,4022	2113740B34	24 pF, +/-5%; 50V
C4023	2313748G13	22 uF, +/-20%; 25V
C4024 thru 4027	2113741B69	0.1 uF, +/-5%; 50 V
C4028	2113740B49	100 pF, +/-5%; 50 V
C4029	2113741B69	0.1 uF, +/-5%; 50 V
C4030	0811051A09	0.022 uF, +/-5%; 63 V
C4031	2311049A19	10 uF, +/-10%; 25 V
C4032	2113740B49	100 pF, +/-5%; 50 V
C4033	2113741B45	0.01 uF, +/-5%; 50 V
C4034,4035	0811051A08	0.015 uF, +/-5%; 63V
C4036	2311049A08	1 uF, +/-10%; 35 V
C4037	0811051A10	0.033 uF, +/-5%; 63V
C4038	2113741B69	0.1 uF, +/-5%; 50 V
C4039	2113741B45	0.01 uF, +/-5%; 50 V
C4040,4041	2113740B80	2200 pF, +/-5%; 50V
C4042	2313748G13	22 uF, +/-20%; 25V
C4043	2113741B69	0.1 uF, +/-5%; 50 V
C4044,4045	0811051A08	0.015 uF, +/-5%; 63V
C4046 thru 4048	2311049A08	1 uF, +/-10%; 35 V
C4050,4051	2311049A08	1 uF, +/-10%; 35 V
C4052,4053	0811051A09	0.022 uF, +/-5%; 63 V
C4054,4055	2113741B69	0.1 uF, +/-5%; 50 V
C4056,4057	2113741B45	0.01 uF, +/-5%; 50 V
C4058	2113740B73	1000 pF, +/-5%; 50 V
C4059	2311049A08	1 uF, +/-10%; 35 V
C4060	2113740B73	1000 pF, +/-5%; 50 V
C4061	2113740B49	100 pF, +/-5%; 50 V
C4062	0811051A23	0.056 uF, +/-5%; 1V
C4063	2313748G13	22 uF, +/-20%; 25V
C4064	2113740B80	2200 pF, +/-5%; 50V
C4065	2113740B49	100 pF, +/-5%; 50 V
C4066	2113740B61	330 pF, +/-5%; 50V
C4067,4068	2113741B45	0.01 uF, +/-5%; 50 V
C4069	0811017A05	3300 pF, +/-5%; 50V
C4070	0811051A10	0.033 uF, +/-5%; 63V
C4071	0811017A06	470 pF, +/-5%; 50V
C4072	2113741B69	0.1 uF, +/-5%; 50 V
C4073	2311049A08	1 uF, +/-10%; 35 V
C4074	2113740B80	2200 pF, +/-5%; 50V
C4075	0811017A07	6800 pF, +/-5%; 50V
C4076	2113741B69	0.1 uF, +/-5%; 50 V
C4077	2113740B49	100 pF, +/-5%; 50 V
C4078	2313748G08	10 uF, +/-20%; 16 V
C4079	2113740B49	100 pF, +/-5%; 50 V
C4080	2113741B69	0.1 uF, +/-5%; 50 V
C4081	2311049A19	10 uF, +/-10%; 25 V
C4082	2313748G13	22 uF, +/-20%; 25V
C4084	2113741B45	0.01 uF, +/-5%; 50 V
C4085 thru 4090	2113741B69	0.1 uF, +/-5%; 50 V
C4091	2113741B45	0.01 uF, +/-5%; 50 V
C4092	2311049A08	1 uF, +/-10%; 35 V
C4093 thru 4097	2113741B69	0.1 uF, +/-5%; 50 V
C4099,4100	2113740B34	24 pF, +/-5%; 50V
C4101,4102	2113741B69	0.1 uF, +/-5%; 50 V
C4103	2311049A08	1 uF, +/-10%; 35 V
C4104	2113741B69	0.1 uF, +/-5%; 50 V
C4105	2113741B45	0.01 uF, +/-5%; 50 V
C4110 thru 4114	2113740B49	100 pF, +/-5%; 50 V

Reference Symbol	Motorola Part No.	Description
		diode: (see note)
CR4001 thru 4003	4883654H01	silicon
CR4004 thru 4019	4805129M41	Rectifier
CR4020 thru 4022	4883654H01	silicon
		light emitting diode: (see note)
DS4001	4888245C24	RED
DS4002,4003	4888245C23	YEL
		jumper:
JU4002 thru 4004	0984181L01	SHORTING JUMPER: 2-contact
		connector:
P803	3083139N23	CABLE ASSEMBLY, flat, 40-conductor: includes connector P803
		transistor: (see note)
Q4001 thru 4006	4813824A10	NPN
Q4007	4813824D06	NPN
Q4008	4813824A10	NPN
Q4009	4813824D06	NPN
Q4010	4813824A10	NPN
Q4011	4811056A08	PNP
Q4012 thru 4021	4813824A10	NPN
Q4022	4811056A08	PNP
Q4024	4811056A08	PNP
		resistor, fixed:
R4001	0611077B07	22K, +/-5%; 1/8 W
R4002	0611077A74	1K, +/-5%; 1/8 W
R4003	0611077A92	5.6K, +/-5%; 1/8W
R4004	0611077B05	18K, +/-5%; 1/8 W
R4005	0611077A96	8.2K, +/-5%; 1/8 W
R4006	0611077A50	100 ohms, +/-5%; 1/8 W
R4007	0611077A98	10K, +/-5%; 1/8 W
R4008	0611077B03	15K, +/-5%; 1/8 W
R4009 thru 4016	0611077A98	10K, +/-5%; 1/8 W
R4017	0611077A92	5.6K, +/-5%; 1/8W
R4018	0611077B31	220K, +/-5%; 1/8 W
R4019	0611077B03	15K, +/-5%; 1/8 W
R4020	0611077B07	22K, +/-5%; 1/8 W
R4021	0611077A92	5.6K, +/-5%; 1/8W
R4022	0611077B23	100K, +/-5%; 1/8 W
R4023	0611077A94	6.8K, +/-5%; 1/8W
R4024	0611077B47	1 meg, +/-5%; 1/8 W
R4025	0611077B11	33K, +/-5%; 1/8 W
R4026	0611077B31	220K, +/-5%; 1/8 W
R4027	0611077B07	22K, +/-5%; 1/8 W
R4028	0611077A98	10K, +/-5%; 1/8 W
R4029	0611077A92	5.6K, +/-5%; 1/8W
R4030	0611077B07	22K, +/-5%; 1/8 W
R4031	0611077A91	5.1K, +/-5%; 1/8W
R4032	0611077A98	10K, +/-5%; 1/8 W
R4033	0611077B03	15K, +/-5%; 1/8 W
R4034	0611077B15	47K, +/-5%; 1/8 W
R4035	0611077B07	22K, +/-5%; 1/8 W
R4036	0611077A50	100 ohms, +/-5%; 1/8 W
R4037	0611077B07	22K, +/-5%; 1/8 W
R4038	0611077A98	10K, +/-5%; 1/8 W
R4039	0611077A82	2.2K, +/-5%; 1/8 W
R4040,4041	0611077A98	10K, +/-5%; 1/8 W
R4042,4043	0611077B31	220K, +/-5%; 1/8 W
R4044	0611077A82	2.2K, +/-5%; 1/8 W
R4045	0611077B15	47K, +/-5%; 1/8 W
R4046 thru 4050	0611077B39	470K, +/-5%; 1/8 W
R4051	0611077B13	39K, +/-5%; 1/8 W
R4052	0611077B39	470K, +/-5%; 1/8 W
R4053	0611077B13	39K, +/-5%; 1/8 W
R4054	0611077A98	10K, +/-5%; 1/8 W

TLN3267 Secure Board Parts List

Reference Symbol	Motorola Part No.	Description
R4055	0611077A01	0 ohm, +/-5%; 0 W
R4057	0611077A74	1K, +/-5%; 1/8 W
R4058	0611077A98	10K, +/-5%; 1/8 W
R4060	0611077B39	470K, +/-5%; 1/8 W
R4061,4062	0611077A94	6.8K, +/-5%; 1/8W
R4063,4064	0611077B09	27K, +/-5%; 1/8 W
R4065,4066	0611077B25	120K, +/-5%; 1/8W
R4067	0611077A74	1K, +/-5%; 1/8 W
R4068	0611077B15	47K, +/-5%; 1/8 W
R4069	0611077B02	13K, +/-5%; 1/8W
R4070	0611077A98	10K, +/-5%; 1/8 W
R4071	0611077A92	5.6K, +/-5%; 1/8W
R4072	0611077B07	22K, +/-5%; 1/8 W
R4073	0611077B39	470K, +/-5%; 1/8 W
R4074	0611077A88	3.9K, +/-5%; 1/8 W
R4075	0611077B03	15K, +/-5%; 1/8 W
R4076,4077	0611077B15	47K, +/-5%; 1/8 W
R4078	0611077B07	22K, +/-5%; 1/8 W
R4079	0611077A74	1K, +/-5%; 1/8 W
R4080	0611077B15	47K, +/-5%; 1/8 W
R4081	0611077B02	13K, +/-5%; 1/8W
R4082 thru 4084	0611077A82	2.2K, +/-5%; 1/8 W
R4085	0611077B15	47K, +/-5%; 1/8 W
R4086	0611077B23	100K, +/-5%; 1/8 W
R4087	0611077B05	18K, +/-5%; 1/8 W
R4088	0611077B15	47K, +/-5%; 1/8 W
R4089	0611077B23	100K, +/-5%; 1/8 W
R4090	0611077A96	8.2K, +/-5%; 1/8 W
R4091	0611077B23	100K, +/-5%; 1/8 W
R4092	0611077B15	47K, +/-5%; 1/8 W
R4093	0611077B09	27K, +/-5%; 1/8 W
R4094	0611077A26	10 ohms, +/-5%; 1/8 W
R4095,4096	0611077B15	47K, +/-5%; 1/8 W
R4097	0611077B09	27K, +/-5%; 1/8 W
R4098	0611077A78	1.5K, +/-5%; 1/8W
R4099	0611077B10	30K, +/-5%; 1/8W
R4100	0611077A78	1.5K, +/-5%; 1/8W
R4101	0611077B13	39K, +/-5%; 1/8 W
R4102	0611077B01	12K, +/-5%; 1/8W
R4103	0611077A92	5.6K, +/-5%; 1/8W
R4104	0611077B08	24K, +/-5%; 1/8W
R4105	0611077B09	27K, +/-5%; 1/8 W
R4106,4107	0611077A98	10K, +/-5%; 1/8 W
R4108,4109	0611077B09	27K, +/-5%; 1/8 W
R4110	0611077A92	5.6K, +/-5%; 1/8W
R4111	0611077B09	27K, +/-5%; 1/8 W
R4112	0611077A50	100 ohms, +/-5%; 1/8 W
R4113 thru 4115	0611077A54	150 ohms, +/-5%; 1/8 W
R4116	0611077A91	5.1K, +/-5%; 1/8W
R4117,4118	0611077A82	2.2K, +/-5%; 1/8 W
R4119	0611077A98	10K, +/-5%; 1/8 W
R4120	0611077B39	470K, +/-5%; 1/8 W
R4121,4122	0611077A98	10K, +/-5%; 1/8 W
R4124	0611077A98	10K, +/-5%; 1/8 W
R4125	0611077A88	3.9K, +/-5%; 1/8 W
R4126	0611077A50	100 ohms, +/-5%; 1/8 W
R4127	0611077A74	1K, +/-5%; 1/8 W
R4128	0611077B47	1 meg, +/-5%; 1/8 W
R4129	0611077A98	10K, +/-5%; 1/8 W
R4130	0611077B09	27K, +/-5%; 1/8 W
R4131	0611077B11	33K, +/-5%; 1/8 W
R4132	0611077A98	10K, +/-5%; 1/8 W
R4133	0611077A92	5.6K, +/-5%; 1/8W
R4134	0611077B07	22K, +/-5%; 1/8 W
R4135	0611077B19	68K, +/-5%; 1/8W
R4136	0611077A98	10K, +/-5%; 1/8 W
R4137	0611077A50	100 ohms, +/-5%; 1/8 W
R4138,4139	0611077A98	10K, +/-5%; 1/8 W
R4140	0611077B09	27K, +/-5%; 1/8 W
R4141,4142	0611077B23	100K, +/-5%; 1/8 W
R4143	0611077A92	5.6K, +/-5%; 1/8W
R4144	0611077B23	100K, +/-5%; 1/8 W

Reference Symbol	Motorola Part No.	Description
		integrated circuit: (see note)
U4001 thru 4004	5113819D04	General Purpose Differential Operational Amplifier
U4007	5184494R04	ASIC Encryption
U4008	5113815J04	555 Timer
U4009	5191012H65	Programmed 64Kx8 Bit UV EPROM
U4010	5184064F76	Static 32Kx8 Bit RAM
U4011,4012	5184704M19	Hex Level Shifter/Logic Level Converter
U4013	5113802A01	Micro Computere Unit w/Switch Control Interface
U4014	5184494R03	ASIC Station Control
U4015,4016	5113806D21	analog switching multiplexer
U4018	5182802R24	Digitally Controlled 50K Potentiometer
U4019	5183977M42	Capacitor Switched Filter
U4020	5182802R24	Digitally Controlled 50K Potentiometer
U4021	5184887K26	Analog Mux/Demux
		voltage regulator: (see note)
VR4001	4813830A16	DIODE 6.0V 5% 225MW MMBZ5233B_
VR4002	4882479V02	DIODE ZENER 3.3V
VR4003	4813830A16	DIODE 6.0V 5% 225MW MMBZ5233B_
		crystal: (see note)
V4001	4880113K04	7.948 MHZ
Y4002	4882611M12	3.072 MHZ
		non-referenced items:
	TRN7690A	TRANSPARENT SECURE BD
	TVN6057A	Secure Software
	0982449T01	SOCKET, IC: 52-contact (used with U4013)
	0982449T03	SOCKET, IC: 84-contact (used with U4007)
	0982449T03	SOCKET, IC: 84-contact (used with U4014)
	0982808R10	Socket, IC: 28-contact (used with U4009)
	0984728L01	Shorting Jumper: 2-contact (3 used)
	1485334U01	INSULATOR RUBBER (SILICON) (2 used)
	4380054K01	Spacer, pcb support (4 used)
	5483865R01	Label, bar code: 1/4" wide, white
	5484960T01	Label, bar code: 6.3 x 12.7MM, white

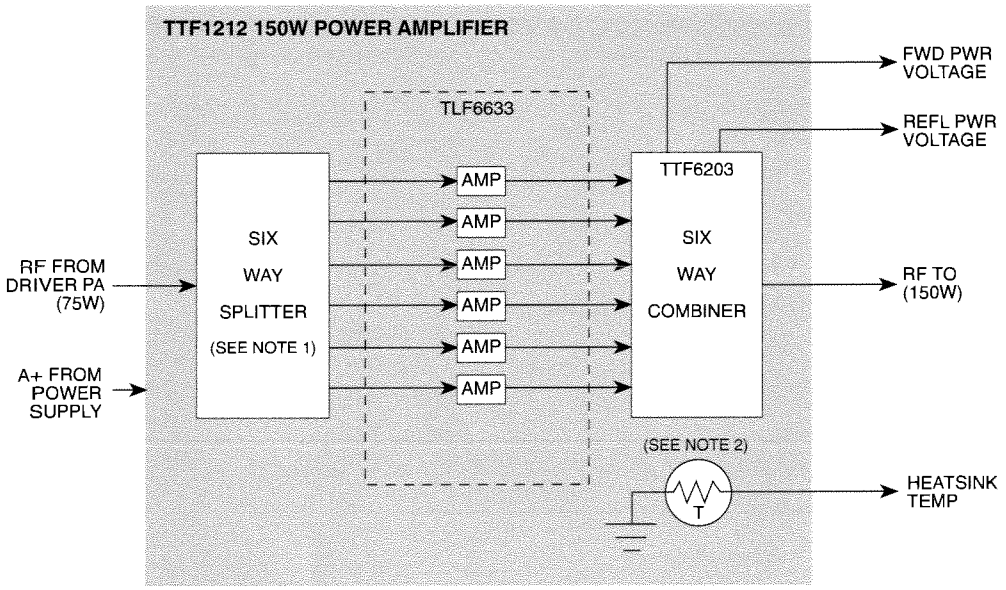
Note: For optimum performance,diodes, transistors, integrated circuits, and crystals must be ordered by Motorola part number.

Power Amplifier

Chapter Overview

This chapter contains block diagrams and replaceable components for the *MSF 5000* Power Amplifiers.

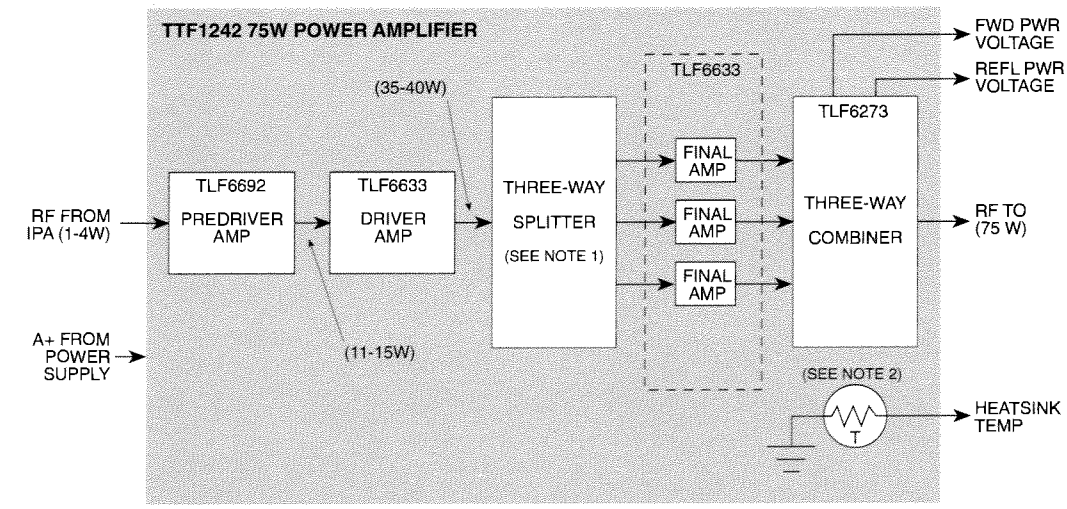
TTF1212 and TTF1242 Power Amplifier



Hardware Kit: TRN7173

NOTES:
1. Part of TRN7173.
2. Part of TRN9386.

MSFS115
050594KOM



Hardware Kit: TRN9840

NOTES:
1. Part of TRN9840.
2. Part of TRN9386.

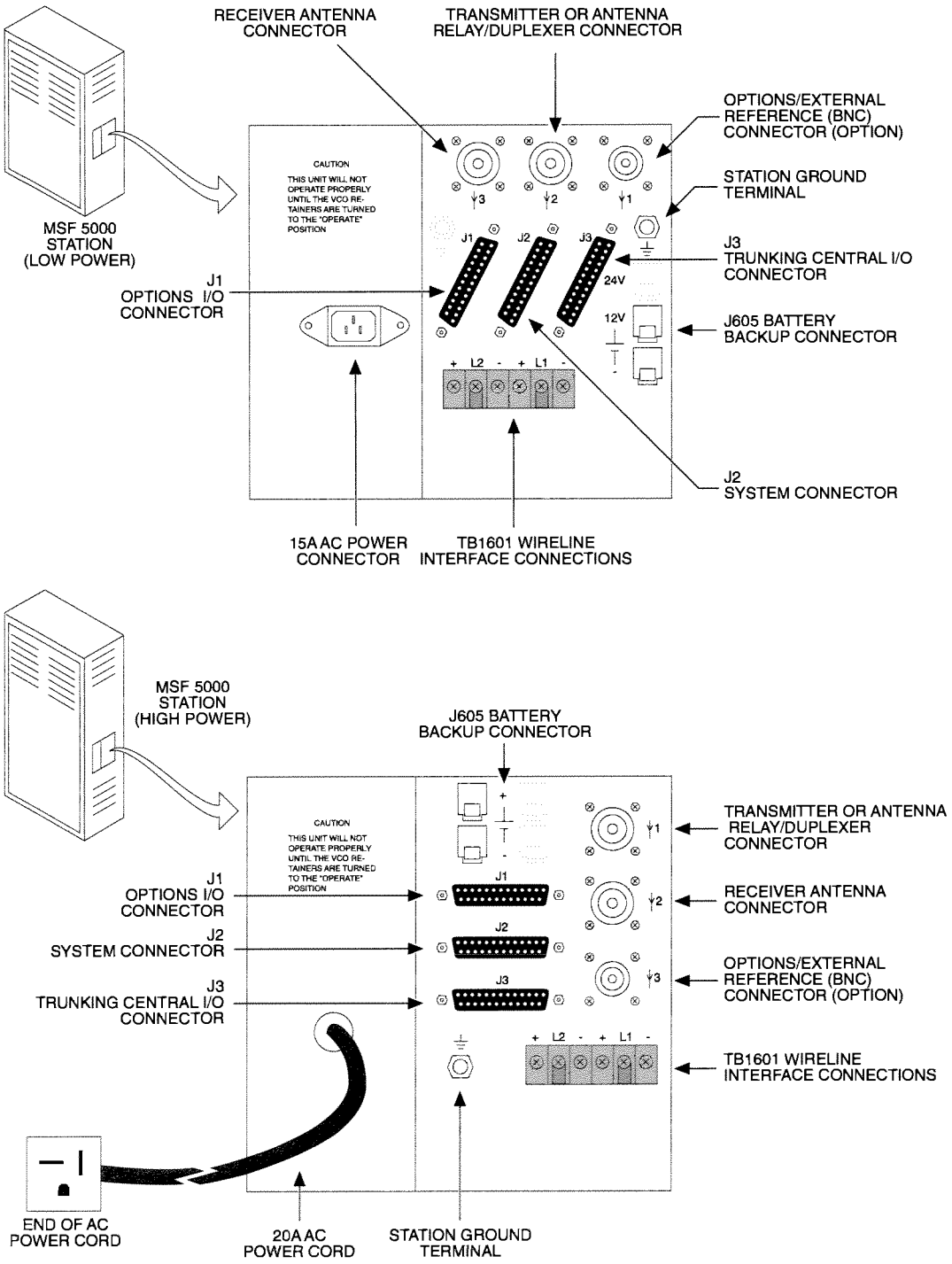
MSFS114
050594KOM

Junction Box

Chapter Overview

This chapter contains component locator and interconnect diagrams for components of the Junction Box.

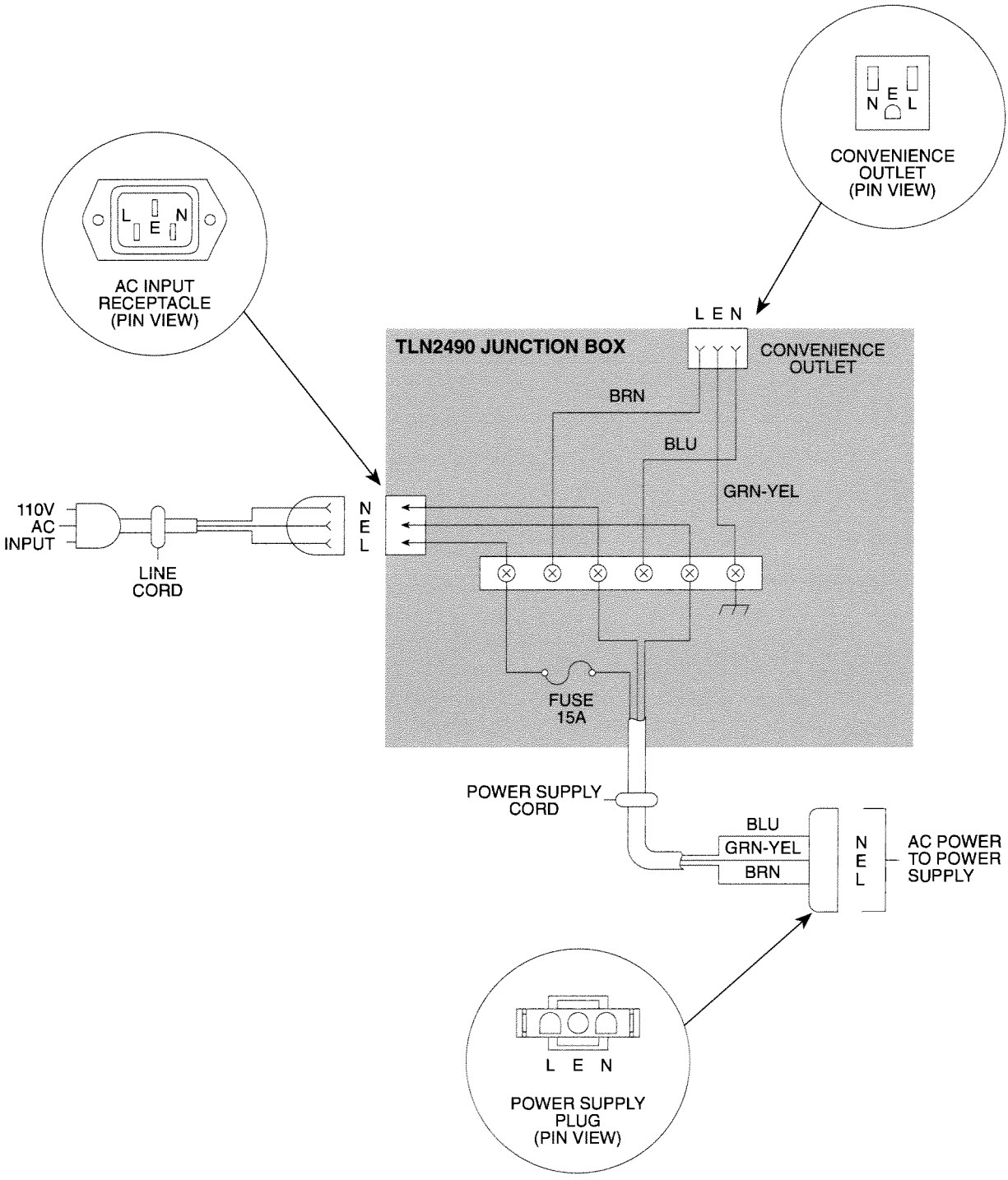
Junction Boxes



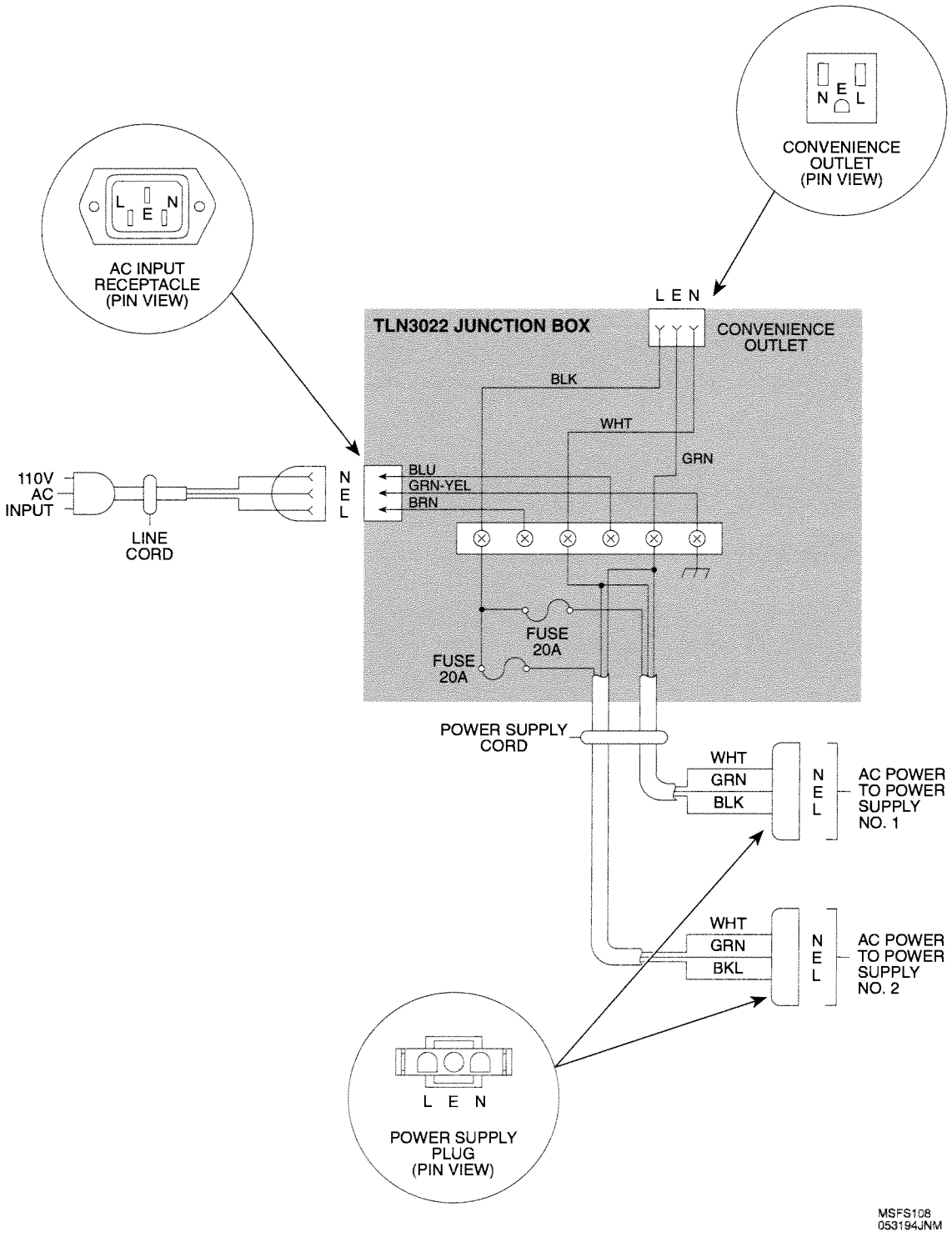
NOTE: Connectors may not be on all stations.
Dashed components (24V connection and ground) are used on VHF models only.

MSFS123
052394KOM

TLN2490 Low Power Junction Box



TLN3022 High Power Junction Box



Power Supply

Chapter Overview

This chapter contains information for power supplies that are available for the *MSF 5000*.

Kit No.	Power Rating (Watts)	Frequency (Hz)	Input Voltage (AC)	Information
TPN1185	500	60	110	Battery Revert
TPN1186	500	60	110	Battery Revert
TPN1200	500	60	110/220	Battery Revert
TPN1217	250	60	110/220	Battery Revert
TPN1218	250	60	110/220	Battery Revert
TPN1260	675	60	110	Dual Output
TPN1261	250	50	110/220	
TPN1263	500	60	110/220	Battery Revert
TPN1264	575	50	110/220	Dual Output
TPN1265	675	60	110/220	Dual Output
TPN1268	500	50	110/220	
TPN1269	500	50	110/220	Battery Revert
TPN1270	250	50	110/220	Battery Revert
TPN1271	675	60	110	Battery Revert/Dual Output
TPN1272	575	50	110/220	Battery Revert/Dual Output
TPN1273	675	60	110/220	Battery Revert/Dual Output

Power Supply

The station Power Supply is mounted in the upper half of the cabinet behind the Power Amplifier (PA). The Standard Power Supply is a ferro-resonant type that operates from a nominal 110 volt, single-phase, 60 Hz AC power source. Options are available for 220 Vac, 50 Hz operation, as well as different power levels and DC supplies on selected models.

The Power Supply accepts an AC input voltage and generates DC voltages for the station. Each PA requires a dedicated Power Supply. Low power stations require one Power Supply and high power stations require two Power Supplies. A Battery Charger Power Supply is also available.

The following available power supply options are:

- ❒ 110 or 220 Vac inputs
- ❒ 50 or 60 Hz operating frequencies
- ❒ 250, 500, 575, or 675 watts
- ❒ various output voltages

Refer to the Power Supply manual for a more detailed explanation of power supplies and options.

Standard Power Supply

The Standard Power Supply receives AC power from the Junction Box via the line cord. Refer to Figure 6-1. The Standard Power Supply provides high current A+ (UHF, 800 MHz and 900 MHz Stations) or 28Vdc (VHF Stations) to the PA and two unfiltered +13.8 Vdc (A++) outputs to the station RF Tray.

The Standard Power Supply provides the following features:

- ❒ output regulation
- ❒ filtering
- ❒ short circuit protection
- ❒ current limiting
- ❒ overvoltage protection

Battery Charger Power Supply

The Battery Charger Power Supply receives AC power from the Junction Box via the line cord. Refer to Figure 6-2. The battery charger circuitry permits the station to operate from AC power normally, but provides continued operation from external batteries (emergency power) if the AC power should fail. The Power Supply provides high current A+ to the PA (if installed) and two +13.8 Vdc unfiltered outputs to the RF Tray.

In addition to the features of the standard Power Supply, the Battery Charger Power Supply provides:

- ❒ battery equalization
- ❒ AC line failure detection
- ❒ low voltage battery disconnect (option)

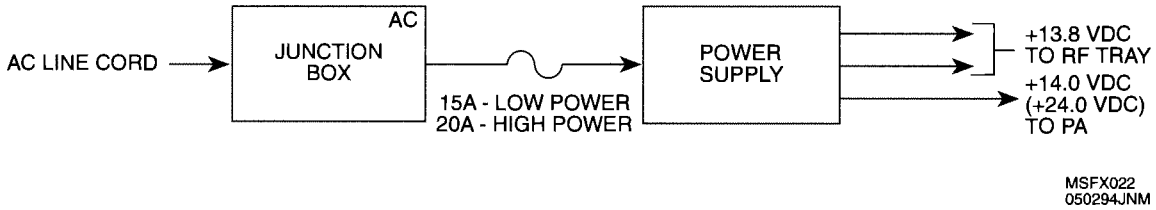


Figure 6-1 ***Standard Power Supply***

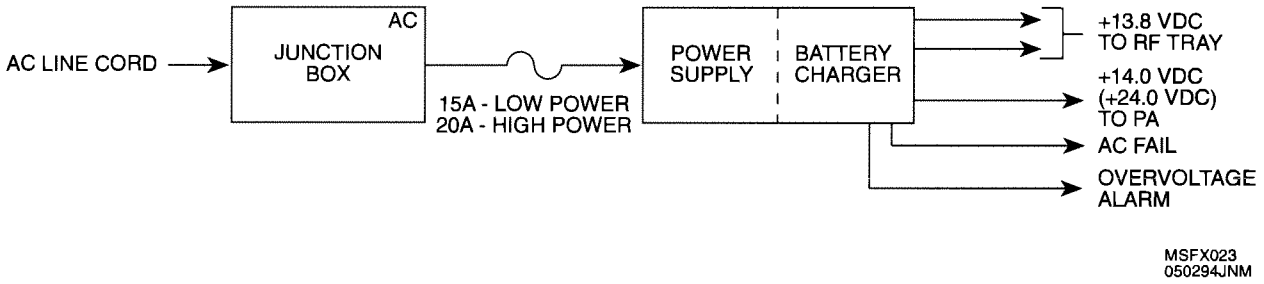


Figure 6-2 ***Battery Charger Power Supply***

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