



# instruction manual revision

## GENERAL

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

## INSTRUCTION MANUAL AFFECTED:

68P80101W58-A      Radius Two-Way Radio Service Manual

## REVISION DETAILS:

1. All Radius M100 and M206 models now use a new Masked Logic Board kit, HLN9123A, instead of the HLN5173A Logic Board. The circuit board diagrams, schematic and parts list for the HLN9123A Masked Logic Board are contained in this revision.
2. All Radius 800 MHz models use a new Talkaround RF Board kit, HLF9122A, instead of the old HLF4095A RF Board. This change allows transmitter operation in either the 806-825 MHz or 851-870 MHz frequency ranges. Transmitter power output is 15 watts in the 806-825 MHz range and 12 Watts in the 851-870 MHz range. The EIA Receiver Selectivity specification for all 800 MHz models is changed to 68 dB. All other specifications on page viii are unchanged. The circuit board diagrams, schematic diagram and parts list for the HLF9122A 800 MHz Talkaround RF Board are contained in this revision. The information for the HLF4095A RF Board (schematic on page 20, circuit board diagrams on page 21, and parts list on pages 47-49) is obsolete; however, do not discard these pages because the information on the other sides still applies. 514.25 425.27
3. The following RF boards are upissued from "A" suffix to "B" suffix:  
  
HLD4321B VHF RF Board 136-162 MHz replaces HLD4321A.  
HLD4322B VHF RF Board 146-174 MHz replaces HLD4322A.  
HLE4425B UHF RF Board 449-470 MHz replaces HLE4425A.

The "B" suffix kits include modifications to the carrier squelch circuitry for faster channel scan operation. These changes are:

C75 is changed from 0.22 uF to 0.1 uF, part number 21-11032B13.  
C76 is changed from 2.2 uF to 1 uF, part number 23-11048B05.  
R58 is changed from 220k to 100k, part number 06-11024A97.

4. The HLN5173A Logic Board is replaced by HLN5173B. The differences are:

The part number for the microcomputer U802 is changed from 51-97024A01 to 51-80960T01.

U804, 8Kx8 EPROM, is no longer part of the Logic Board kit, but is contained in a separate ROM kit HLN9277A. This ROM kit is part of Radius M214 models only.

U805, 2Kx8 NOVRAM, is deleted altogether. New software contained in the ROM kit makes U805 unnecessary.

5. The model charts on pages ii through vi are replaced by the model charts contained in this revision. The changes due to items 1 through 4 above are reflected in these new charts.
6. The following changes affect the HLE4425A/B UHF RF Boards. These changes apply to the schematic on page 18 and the parts list on pages 44-46.

The value of C152 is changed to 82 pF, part number 21-11031A37.  
 The value of C314 is changed to 10 pF, part number 21-11022H27.  
 Q207 and Q208 are changed to type M82D39, part number 48-80182D39.  
 R225 is changed to 2.7k, part number 06-11024A59.

7. The following changes affect the HLD4326A 40 Watt PA Board, 146-174 MHz. These changes affect the schematic on page 23 and the parts list on page 52.
- a. Resistor R2440 is changed to 47 ohms, 1 watt, part number 06-11086A27.
  - b. Resistor R2450 is changed to 120 ohms, 1 watt, part number 06-11086A37.
  - c. Resistor R2451 is no longer used.
  - d. Resistors R2452 and R2453 are changed to 0 ohms, part number 06-11024B23.
  - e. Capacitor C2481, 470 pF, part number 21-11031A55, has been added from the junction of R2450 and R2452 to ground. The part is physically located between R2452 and C2443.
8. The following change affects the HLE4431A 25 Watt UHF Power Amplifier. The part number for capacitors C2631 and C2632 is changed to 21-11078B23. This change affects the parts list on page 54 only.
9. The following changes affect the HLE4432A 35 Watt UHF Power Amplifier. These changes affect the schematic on page 25 and the parts list on page 56.

REF. NO.	NEW PART NUMBER	NEW VALUE
C2731	21-11078B23	24 pF
C2732	21-11078B23	24 pF
C2740	21-11078B31	36 pF
C2745	21-80240G37	20 pF
C2746	21-80240G11	6.2 pF
L2743	24-11030E07	1/2 turn GRY

10. The following changes affect the Radius M206/M214 6/14 Freq. Display Board. On page 28, the part number for U1101 is changed from 51-84944N29 to 51-84437N25. C1101, 0.1 μF chip, part number 21-11032B13, should be added to the parts list.
11. A mylar insulator, part number 14-80932U01, has been added to the inside of the 15-80953T01 VCO shield cover (reference 13 on page 30 and reference 16 on page 31).

12. A paper insulator, part number 14-80935U01, has been added to the inside of the 26-80038M01 RF chassis shield (reference 14 on page 30 and reference 17 on page 31).
13. The coiled cord for the HMN1038A Desk Microphone is changed from 30-80152H06 to 30-80043N04. This cord is contained in the HKN4291A Microphone Cable Kit. The new cable uses a BLUE wire for the hook function instead of WHITE. These changes apply to page 35.
14. When ordering Radius RADIO SERVICE SOFTWARE packages HVN9173 or HVN9174 as described in section 3, page 5, always be sure you are ordering the latest version, indicated by the suffix letter. If you are not sure, contact Radius Product Services, 1-800-356-1520.
15. HLN4433A (Hangup Clip for Compact Microphone) has been replaced by HLN9073A. These two kits are identical.
16. The following information for the Optional Control Station Accessories on page 35 is incorrect. The kit number for the Desk Tray should be HLN5292A. The part number for the housing (REF. SYMBOL 5) should be 15-80289E03. The styling of the desk tray differs slightly from that shown in the illustration.
17. The following changes affect the HLD3009A 25 Watt VHF Power Amplifier 146-174 MHz range only. Capacitor C2337 is changed to 33 pF, part number 21-80060M31. Capacitor C2338 is changed to 39 pF, part number 21-80060M33.

MODEL		FREQ.	VERSION	<b>VHF Radius Mobile Radio</b> <b>25 Watt RF Power</b> <b>136-162 MHz</b> <b>146-174 MHz</b>  * = ONE ITEM SUPPLIED DEPENDENT UPON FREQUENCY. X = ONE ITEM SUPPLIED.	
ITEM		DESCRIPTION			
D33LRA73A5BK	2	Radius M100 (P/DPL/CSS)	RF BOARD 136-162 MHz		
D33LRA77A5BK	6	Radius M206 (P/DPL/CSS)	RF BOARD 146-174 MHz		
D33LRA7PA5BK	14	Radius M214 (P/DPL/CSS, Scan)	LOGIC BOARD (MASKED)		
			LOGIC BOARD (EXPANDED)		
			DISPLAY BOARD 2 FREQ.		
			DISPLAY BOARD 6/14 FREQ.		
			FRONT PANEL HDWR 2 FREQ.		
			FRONT PANEL HDWR 6 FREQ.		
			FRONT PANEL HDWR 14 FREQ.		
			FRONT PANEL SWITCH BOARD		
			CHASSIS HDWR		
			25W PA BOARD 136-162 MHz		
			25W PA BOARD 146-174 MHz		
			25W HEATSINK HDWR		
			MICROPHONE		
			COILED CORD		
ITEM	DESCRIPTION	ITEM	DESCRIPTION	ITEM	DESCRIPTION
* * *	HUD1712A UNIFIED CHASSIS KIT 136-162 MHz	HLD4321B	RF BOARD 136-162 MHz	X	
* * *	HUD1703A UNIFIED CHASSIS KIT 146-174 MHz	HLD4322B	RF BOARD 146-174 MHz	X	X
* * *	HUD1705B UNIFIED CHASSIS KIT 136-162 MHz	HLN9123A	LOGIC BOARD (MASKED)	X	X
* * *	HUD1706B UNIFIED CHASSIS KIT 146-174 MHz	HLN5173B	LOGIC BOARD (EXPANDED)	X	X
* * *	HLD1615A PA KIT 25 WATT 136-162 MHz (Note 1)	HLN5174A	DISPLAY BOARD 2 FREQ.		
* * *	HLD3009A PA KIT 25 WATT 146-174 MHz (Note 2)	HLN5175A	DISPLAY BOARD 6/14 FREQ.		
X	HCN3032A FRONT PANEL 2 FREQ.	HLN9141A	FRONT PANEL HDWR 2 FREQ.	X	X
X	HCN3033A FRONT PANEL 6 FREQ.	HLN9142A	FRONT PANEL HDWR 6 FREQ.	X	X
X	HCN3034A FRONT PANEL 14 FREQ.	HLN9143A	FRONT PANEL HDWR 14 FREQ.	X	X
X X X	HLN9180A NAMEPLATE	HLN5184A	FRONT PANEL SWITCH BOARD		
X X X	HHN4029A HOUSING KIT	HLN5188A	CHASSIS HDWR		
X X X	HMN1056A MICROPHONE KIT	HLD4323A	25W PA BOARD 136-162 MHz		
X X X	HLN9073A MICROPHONE HANGUP CLIP	HLD4324A	25W PA BOARD 146-174 MHz		
X X X	HKN4137A POWER CABLE KIT	HLN5183A	25W HEATSINK HDWR		
X X X	HLN5189A INSTALLATION HDWR KIT	HLN1245A	MICROPHONE	X	X
X X X	HBN4040A PACKING KIT	HLN5301A	COILED CORD		
X	HLN9277A ROM KIT				

NOTE: 1. HLD1615A IS PART OF HUD1712A OR HUD1705B.  
 2. HLD3009A IS PART OF HUD1703A OR HUD1706B.

2 FREQ M100 D33LRA73A5BK 25W  
 6 FREQ M206 D33LRA77A5BK 25W  
 14 FREQ M214 D33LRA7PA5BK 25W

MODEL	FREQ.	VERSION	VHF Radius Mobile Radio 40 Watt RF Power 146-174 MHz		
D43LRA7945BK	2	Radius M100 (PL/DPL/GSQ)	<p>* = ONE ITEM SUPPLIED DEPENDENT UPON FREQUENCY. X = ONE ITEM SUPPLIED.</p>		
D43LRA77A5BK	6	Radius M206 (PL/DPL/GSQ)			
D43LRA79A5BK	14	Radius M214 (PL/DPL/GSQ, Scan)			
ITEM	DESCRIPTION	ITEM	DESCRIPTION	ITEM	DESCRIPTION
X X	HUD1707A	HUD1707A	UNIFIED CHASSIS KIT 146-174 MHz	X X	RF BOARD 146-174 MHz
	X	HUD1710B	UNIFIED CHASSIS KIT 146-174 MHz	X	LOGIC BOARD (MASKED)
X X X	HLD3010A	HLD3010A	PA KIT 40 WATT 146-174 MHz (See Note)		LOGIC BOARD (EXPANDED)
X		HCN3032A	FRONT PANEL 2 FREQ.		DISPLAY BOARD 2 FREQ.
	X	HCN3033A	FRONT PANEL 6 FREQ.		DISPLAY BOARD 8/14 FREQ.
	X	HCN3034A	FRONT PANEL 14 FREQ.		FRONT PANEL HDWR 2 FREQ.
X X X	HLN9180A	HLN9180A	NAMEPLATE		FRONT PANEL HDWR 6 FREQ.
X X X	HHN4029A	HHN4029A	HOUSING KIT		FRONT PANEL HDWR 14 FREQ.
X X X	HMN1056A	HMN1056A	MICROPHONE KIT		FRONT PANEL SWITCH BOARD
X X X	HLN9073A	HLN9073A	MICROPHONE HANGUP CLIP		CHASSIS HDWR
X X X	HKN4137A	HKN4137A	POWER CABLE KIT		40W PA BOARD 146-174 MHz
X X X	HLN5189A	HLN5189A	INSTALLATION HDWR KIT		40W HEATSINK HDWR
X X X	HBN4040A	HBN4040A	PACKING KIT		MICROPHONE
	X	HLN9277A	ROM KIT		COILED CORD

NOTE: HLD3010A IS PART OF HUD1707A OR HUD1710B.

MODEL		FREQ.	VERSION
D34LRAT7345BK		2	Radius M100 (PL/DPL/CSD)
D34LRAT745BK		6	Radius M206 (PL/DPL/CSD)
D34LRAT745BK		14	Radius M214 (PL/DPL/CSD, Scan)

ITEM	DESCRIPTION
HLE4425B	RF BOARD 449-470 MHz
HLN9123A	LOGIC BOARD (MASKED)
HLN5173B	LOGIC BOARD (EXPANDED)
HLN5174A	DISPLAY BOARD 2 FREQ.
HLN5175A	DISPLAY BOARD 6/14 FREQ.
HLN9141A	FRONT PANEL HDWR 2 FREQ.
HLN9142A	FRONT PANEL HDWR 6 FREQ.
HLN9143A	FRONT PANEL HDWR 14 FREQ.
HLN5184A	FRONT PANEL SWITCH BOARD
HLN5188A	CHASSIS HDWR
HLE4431A	25W PA BOARD 449-470 MHz
HLN5182A	25W HEATSINK HDWR
HLN1245A	MICROPHONE
HLN5301A	COILED CORD

ITEM	DESCRIPTION
X X	HUE2065A UNIFIED CHASSIS KIT 449-470 MHz
X X	HUE2060B UNIFIED CHASSIS KIT 449-470 MHz
X X X	HLE1687A PA KIT 25 WATT 449-470 MHz (See Note)
X	HCN3032A FRONT PANEL 2 FREQ.
X	HCN3033A FRONT PANEL 6 FREQ.
X	HCN3034A FRONT PANEL 14 FREQ.
X X X	HLN9180A NAMEPLATE
X X X	HHN4029A HOUSING KIT
X X X	HMN1056A MICROPHONE KIT
X X X	HLN9073A MICROPHONE HANGUP CLIP
X X X	HKN4137A POWER CABLE KIT
X X X	HLN5189A INSTALLATION HDWR KIT
X X X	HBN4040A PACKING KIT
X	HLN9277A ROM KIT

\* = ONE ITEM SUPPLIED.

NOTE: HLE1687A IS PART OF HUE2065A OR HUE2060B.

MODEL		FREQ.	VERSION
D44LR73A5BK		2	Radius M100 (PL/DPL/CSD)
D44LR74A5BK		6	Radius M206 (PL/DPL/CSD)
D44LR75A5BK		14	Radius M214 (PL/DPL/CSD, Scan)

ITEM		DESCRIPTION
<b>UHF Radius Mobile Radio 35 Watt RF Power 449-470 MHz</b>		
<b>X = ONE ITEM SUPPLIED.</b>		
ITEM	DESCRIPTION	
HLE4425B	RF BOARD 449-470 MHz	
HLN9123A	LOGIC BOARD (MASKED)	
HLN5173B	LOGIC BOARD (EXPANDED)	
HLN5174A	DISPLAY BOARD 2 FREQ.	
HLN5175A	DISPLAY BOARD 6/14 FREQ.	
HLN9141A	FRONT PANEL HDWR 2 FREQ.	
HLN9142A	FRONT PANEL HDWR 6 FREQ.	
HLN9143A	FRONT PANEL HDWR 14 FREQ.	
HLN5184A	FRONT PANEL SWITCH BOARD	
HLN5188A	CHASSIS HDWR	
HLE4432A	35W PA BOARD 449-470 MHz	
HLN5274A	35W HEATSINK HDWR	
HLN1245A	MICROPHONE	
HLN5301A	COILED CORD	

	ITEM	DESCRIPTION	HLE4425B	HLN9123A	HLN5173B	HLN5174A	HLN5175A	HLN9141A	HLN9142A	HLN9143A	HLN5184A	HLN5188A	HLE4432A	HLN5274A	HLN1245A	HLN5301A
X	X	HUE2066A	UNIFIED CHASSIS KIT 449-470 MHz	X	X							X				
	X	HUE2064B	UNIFIED CHASSIS KIT 449-470 MHz	X	X							X				
X	X	X	HLE3011A	PA KIT 35 WATT 449-470 MHz (See Note)									X	X		
X			HCN3032A	FRONT PANEL 2 FREQ.			X	X			X					
	X		HCN3033A	FRONT PANEL 6 FREQ.				X	X	X						
		X	HCN3034A	FRONT PANEL 14 FREQ.			X		X	X						
X	X	X	HLN9180A	NAMEPLATE												
X	X	X	HHN4029A	HOUSING KIT												
X	X	X	HMN1056A	MICROPHONE KIT											X	X
X	X	X	HLN9073A	MICROPHONE HANGUP CLIP												
X	X	X	HKN4137A	POWER CABLE KIT												
X	X	X	HLN5189A	INSTALLATION HDWR KIT												
X	X	X	HBN4040A	PACKING KIT												
		X	HLN9277A	ROM KIT												

NOTE: HLE3011A IS PART OF HUE2066A OR HUE2064B.

MODEL		FREQ.	VERSION
D35LRA7346AK		2	Radius M100 (PL/DPL/CSQ)
D35LRA7746AK		6	Radius M206 (PL/DPL/CSQ)
D35LRA7PA6AK		14	Radius M214 (PL/DPL/CSQ, Scan)

ITEM		DESCRIPTION
X	X	HUF3090A UNIFIED CHASSIS KIT 800 MHz
X	X	HUF3024A UNIFIED CHASSIS KIT 800 MHz
X	X	HLF1038A PA KIT 15 WATT 800 MHz (See Note)
X		HCN3032A FRONT PANEL 2 FREQ.
	X	HCN3033A FRONT PANEL 6 FREQ.
	X	HCN3034A FRONT PANEL 14 FREQ.
X	X	HLN9180A NAMEPLATE
X	X	HHN4029A HOUSING KIT
X	X	HMN1056A MICROPHONE KIT
X	X	HLN9073A MICROPHONE HANGUP CLIP
X	X	HKN4137A POWER CABLE KIT
X	X	HLN5189A INSTALLATION HDWR KIT
X	X	HBN4040A PACKING KIT
	X	HLN9277A ROM KIT

ITEM	DESCRIPTION
HLF9122A	RF BOARD 800 MHz TALKAROUND
HLN9123A	LOGIC BOARD (MASKED)
HLN5173B	LOGIC BOARD (EXPANDED)
HLN5174A	DISPLAY BOARD 2 FREQ.
HLN5175A	DISPLAY BOARD 6/14 FREQ.
HLN9141A	FRONT PANEL HDWR 2 FREQ.
HLN9142A	FRONT PANEL HDWR 6 FREQ.
HLN9143A	FRONT PANEL HDWR 14 FREQ.
HLN5184A	FRONT PANEL SWITCH BOARD
HLN5188A	CHASSIS HDWR
HLF4097A	15W PA BOARD 800 MHz
HLN5293A	15W HEATSINK HDWR
HLN1245A	MICROPHONE
HLN5301A	COILED CORD

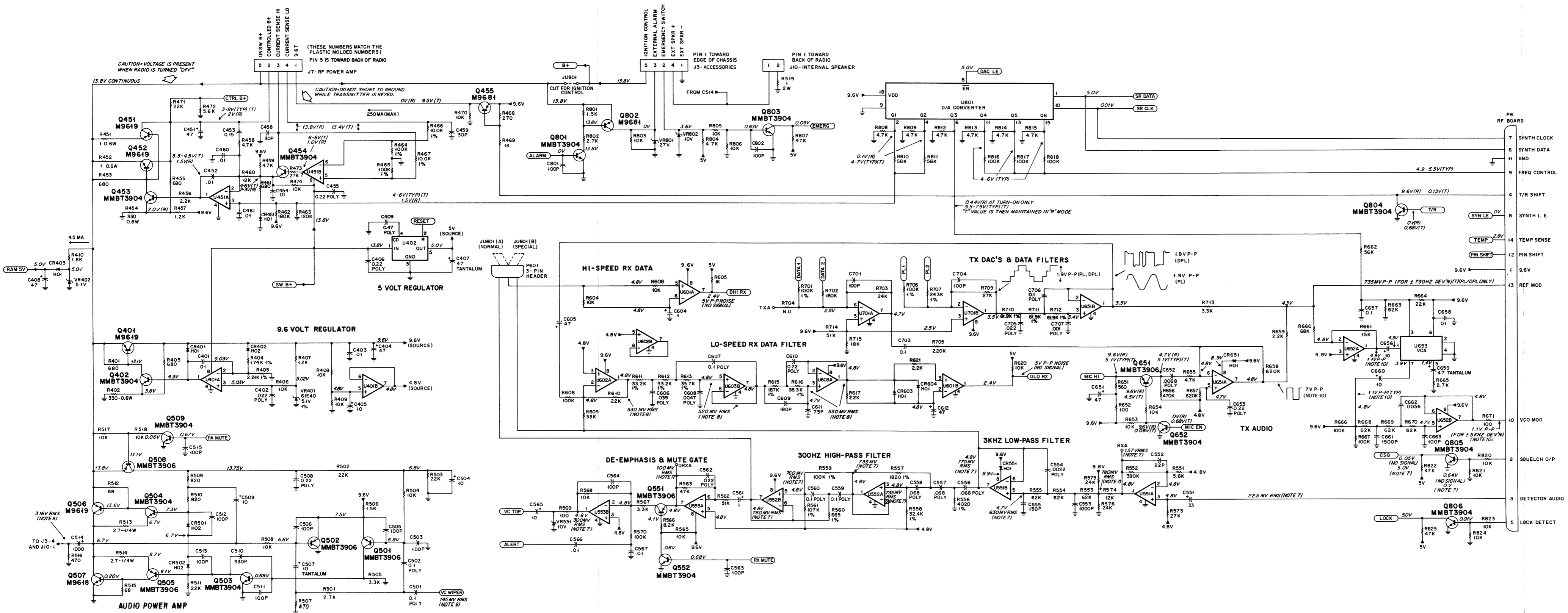
  

**800 MHz Radius Mobile Radio  
15 Watt RF Power  
with Talkaround  
TX: 806-825 or 851-870 MHz  
RX: 851-870 MHz**

**X = ONE ITEM SUPPLIED.**

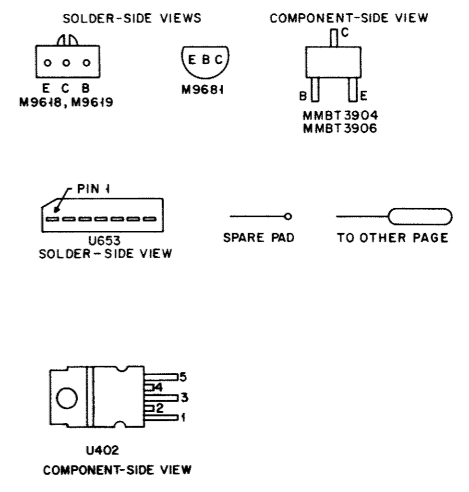
NOTE: HLF1038A IS PART OF HUF3090A OR HUF3024A.





NOTES:

1. UNLESS OTHERWISE INDICATED, RESISTOR VALUES ARE IN OHMS, CAPACITOR VALUES ARE IN MICROFARADS, INDUCTOR VALUES ARE IN MICROHENRIES.
2. NON-POLARIZED CAPACITORS ARE CHIPTYPE UNLESS OTHERWISE INDICATED.
3. POLARIZED CAPACITORS ARE ALUMINUM ELECTROLYTIC TYPE UNLESS OTHERWISE INDICATED.
4. NOT USED.
5. DC VOLTAGES ARE MEASURED WITH A HIGH IMPEDANCE (10 MEGOHM) DC VOLTMETER.
6. ALL VOLTAGE MEASUREMENTS ARE IN THE RECEIVE MODE UNLESS INDICATED AS FOLLOWS:  
(R) RECEIVE MODE  
(T) TRANSMIT MODE
7. MEASURED IN THE RECEIVE MODE WITH AN ON-CHANNEL SIGNAL AT A LEVEL OF -20 DBM, MODULATED WITH 1 KHZ AT 3 KHZ DEVIATION. MEASURED WITH AN AC RMS VOLTMETER.
8. SAME AS NOTE 7 EXCEPT MODULATING FREQUENCY IS 100 HZ.
9. SAME AS NOTE 7, EXCEPT WITH VOLUME CONTROL ADJUSTED FOR 5 WATTS (3.16 VOLTS RMS ACROSS 2 OHM LOAD).
10. MEASURED IN THE TRANSMIT MODE WITH 1 KHZ, 800 MV RMS SIGNAL APPLIED TO MICROPHONE INPUT FROM 600 OHM SOURCE.

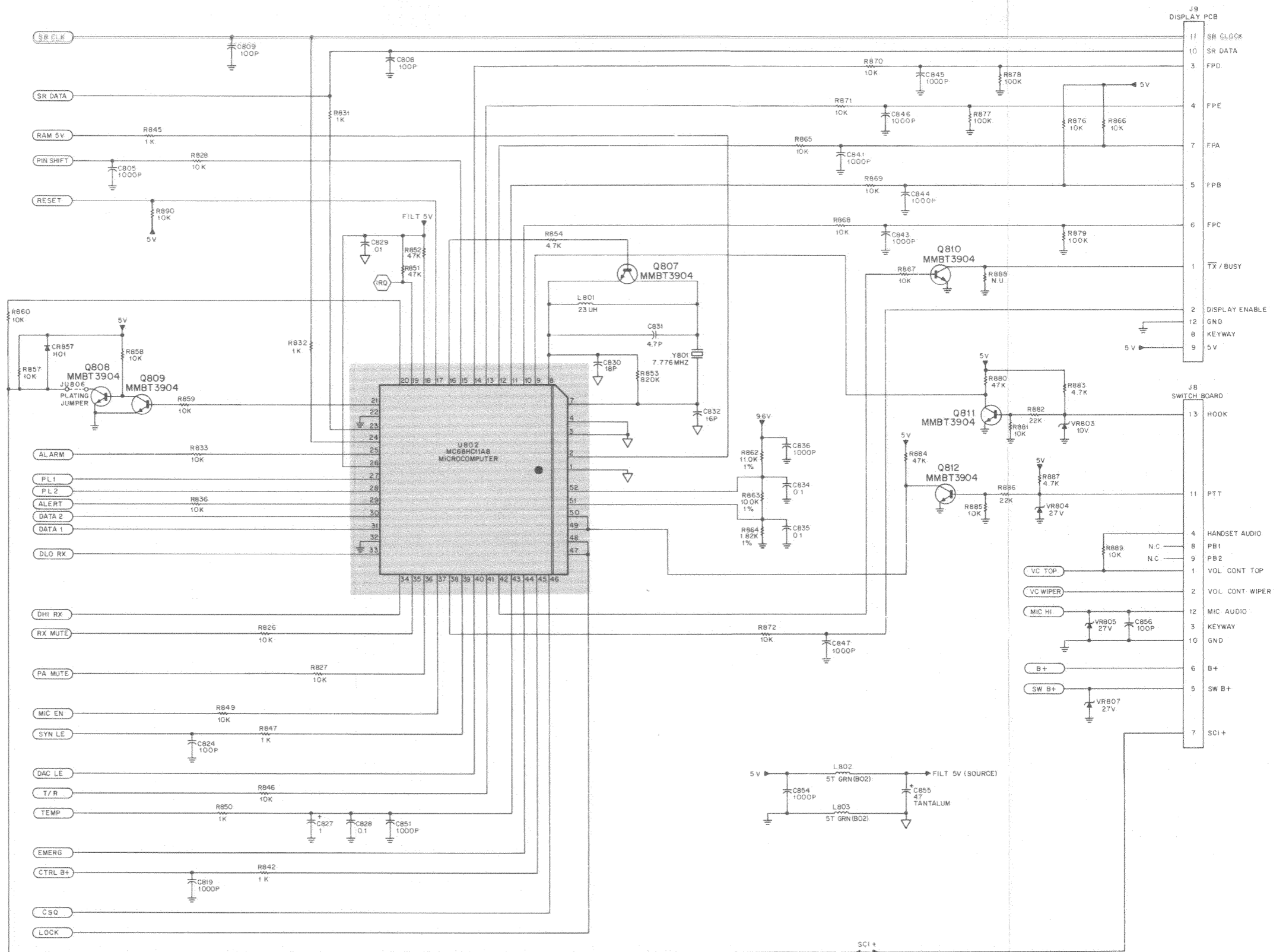


SHEET 1 OF 2

5-PIN

Masked Logic Board Schematic Diagram  
HLN9123A (Sheet 1 of 2)  
9

[MMR005 6/1/88]

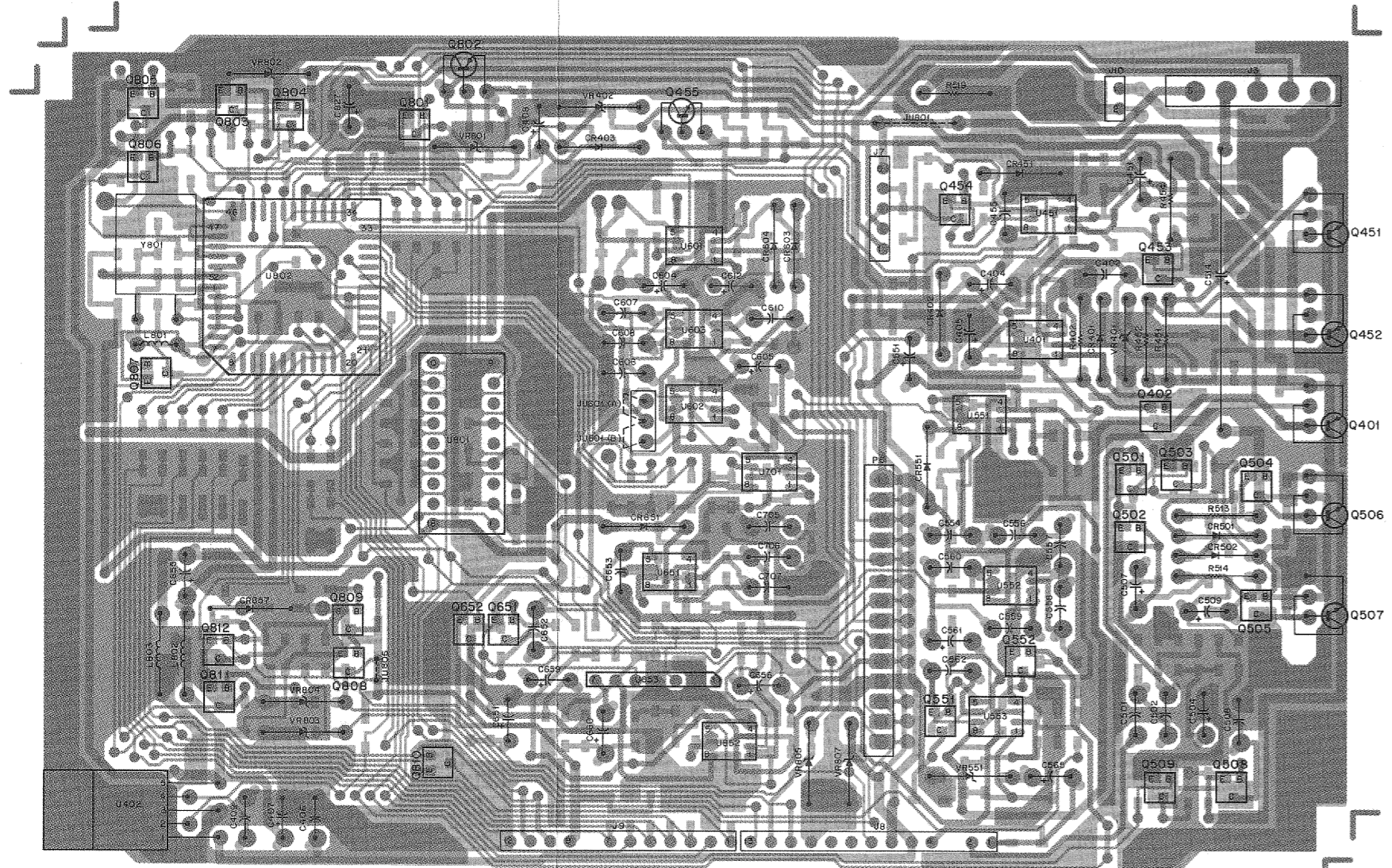


Masked Logic Board Schematic Diagram

(Sheet 2 of 2)

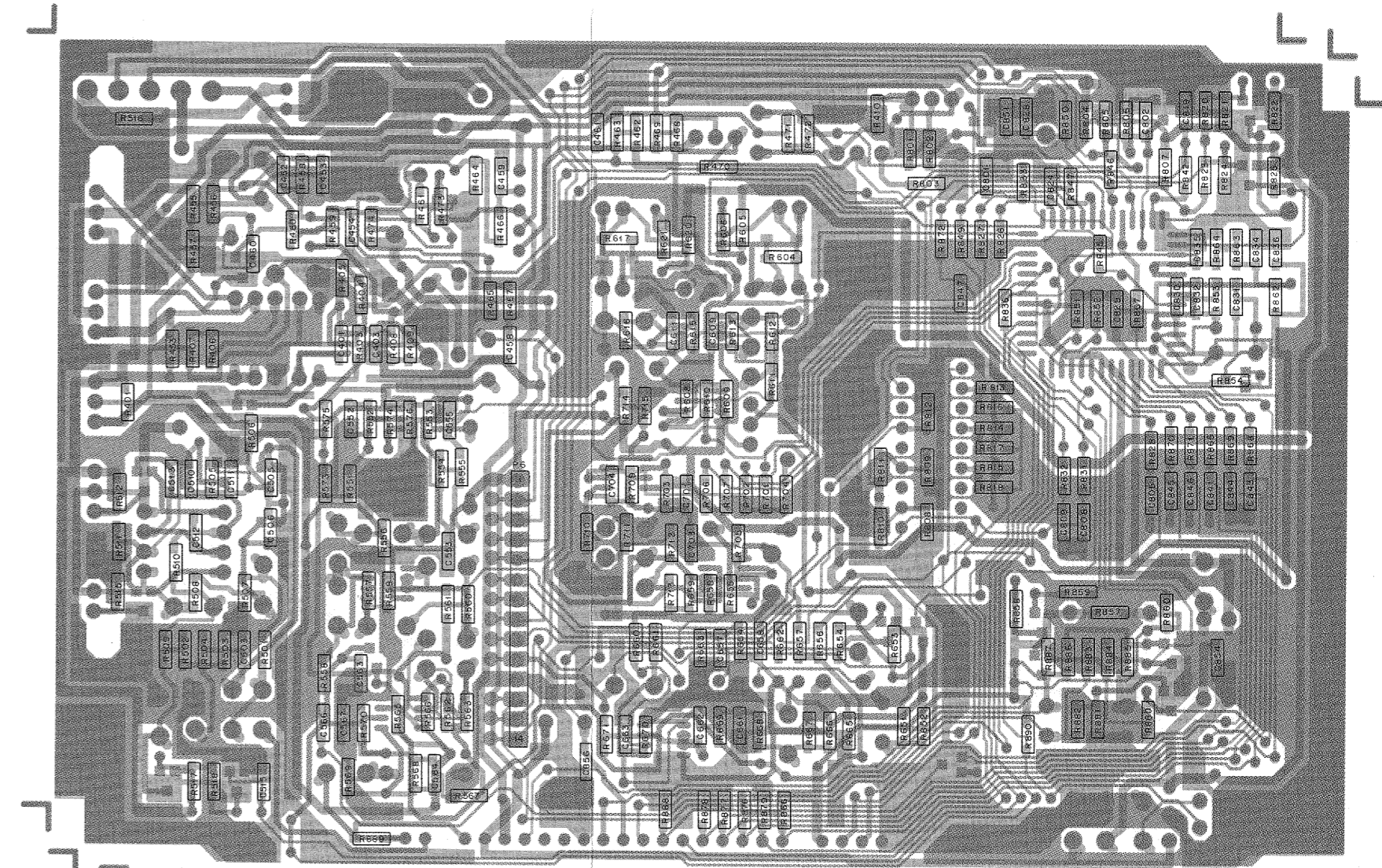
[MMR005 6/1/88]

**IMPORTANT**  
 COMPONENTS WITHIN SHADED AREA ARE NOT FIELD-SERVICEABLE. IF SERVICING IS REQUIRED, THE ENTIRE BOARD MUST BE REPLACED. REFER TO SECTION 6.



COMPONENT SIDE ●  
 SOLDER SIDE ●  
 OVERLAY —

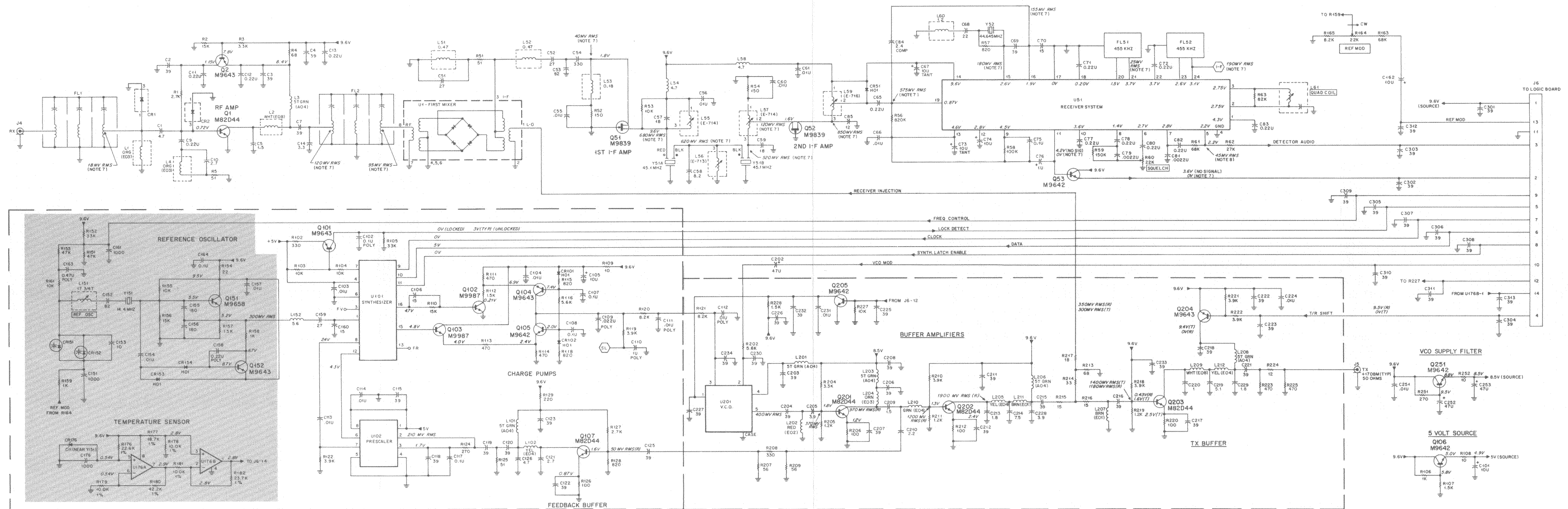
SHOWN FROM COMPONENT SIDE



COMPONENT SIDE ●  
 SOLDER SIDE ●  
 OVERLAY —

SHOWN FROM SOLDER SIDE

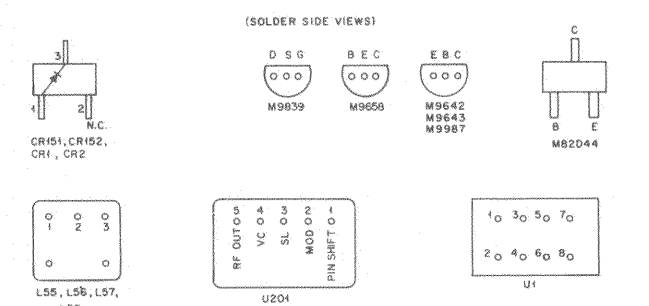
5-PIN

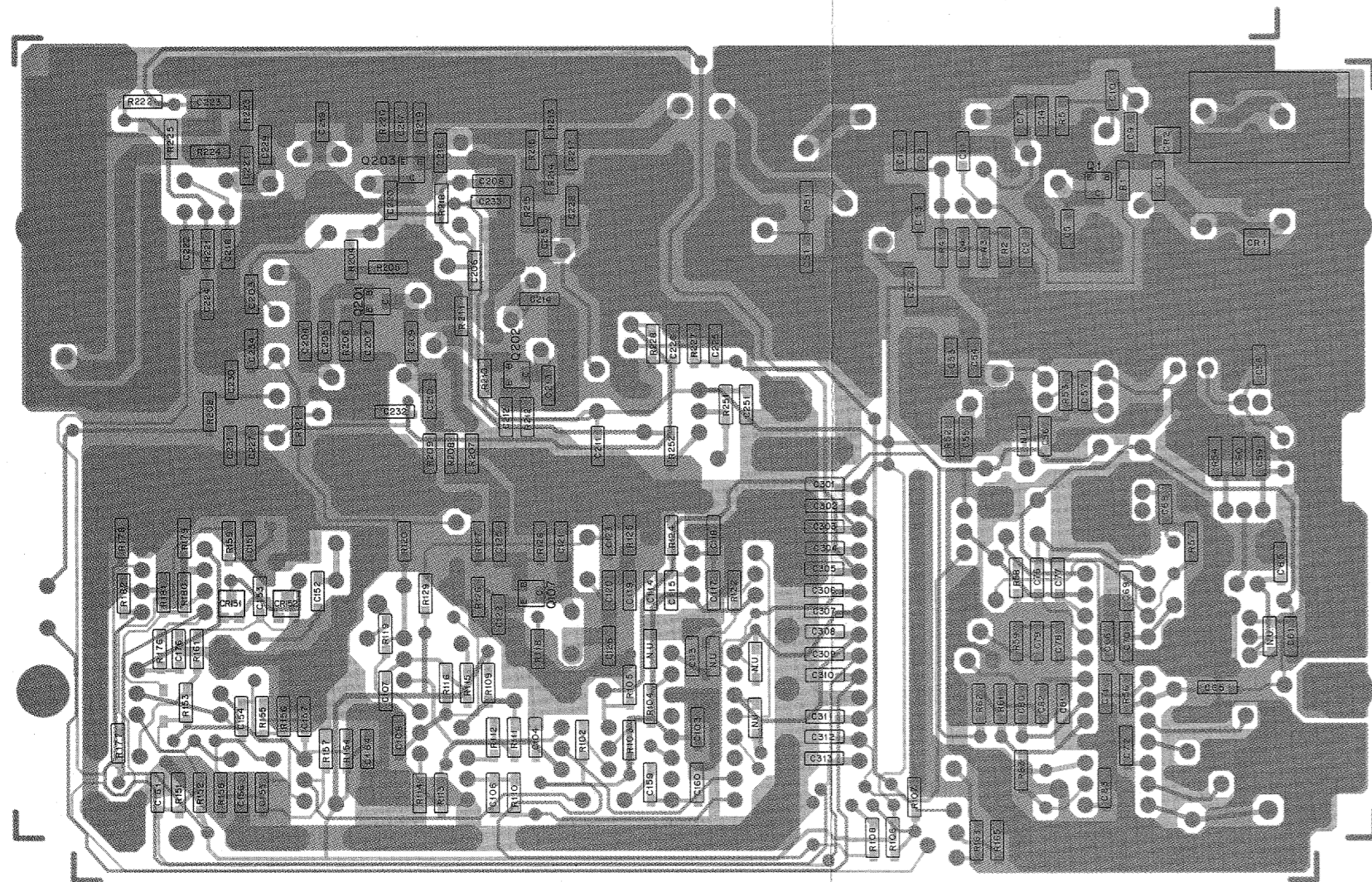


**IMPORTANT**  
COMPONENTS WITHIN SHADED AREA ARE NOT FIELD-SERVICEABLE. IF SERVICING IS REQUIRED, THE ENTIRE MODULE MUST BE REPLACED. REFER TO SECTION 6.

**NOTES:**

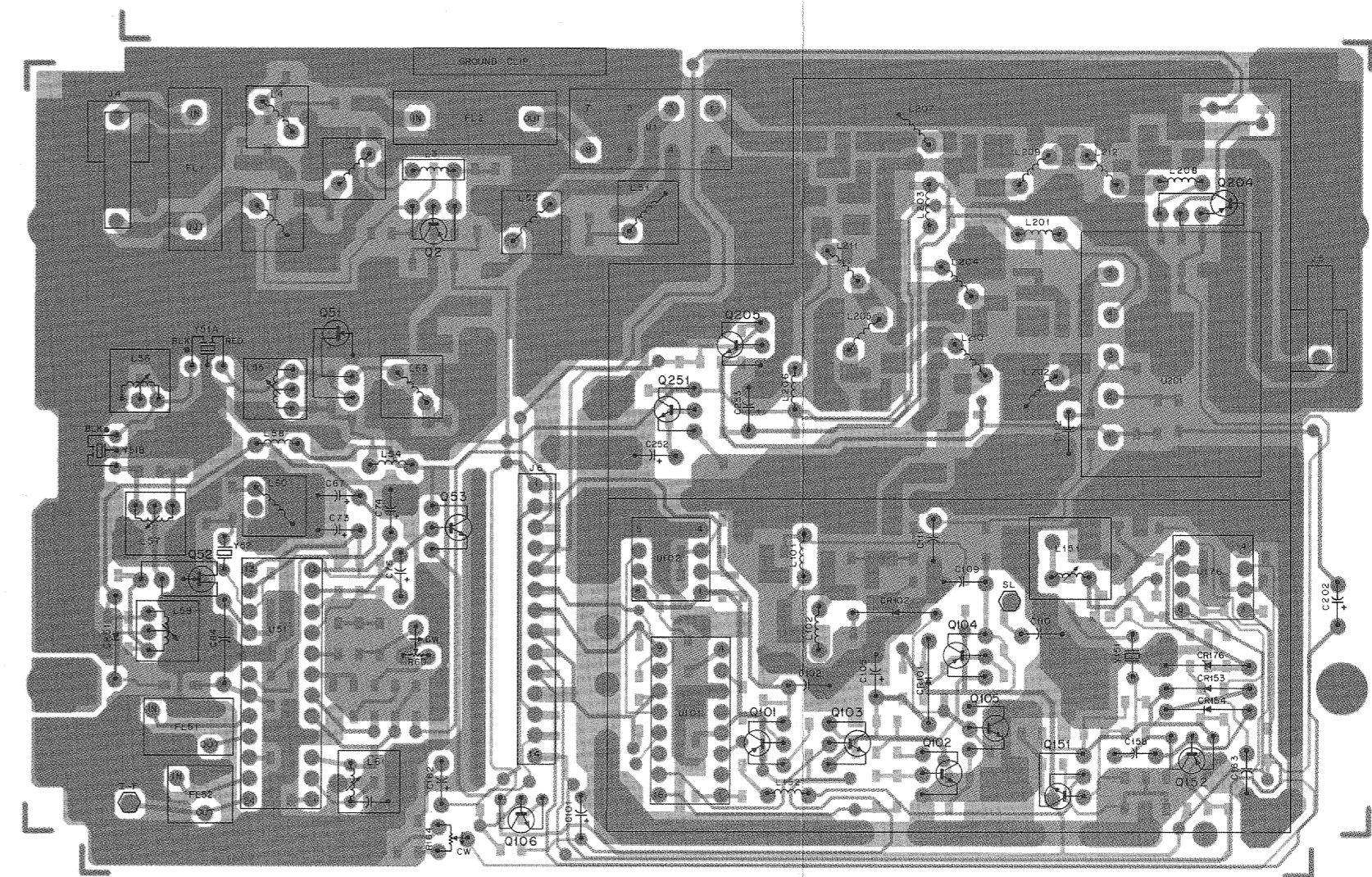
- UNLESS OTHERWISE INDICATED, RESISTOR VALUES ARE IN OHMS, CAPACITOR VALUES ARE IN MICROFARADS, INDUCTOR VALUES ARE IN MICRohenRIES.
- NON-POLARIZED CAPACITORS ARE CHIPTYPE UNLESS OTHERWISE INDICATED.
- POLARIZED CAPACITORS ARE ALUMINUM ELECTROLYTIC TYPE UNLESS OTHERWISE INDICATED.
- DC VOLTAGES ARE MEASURED WITH A HIGH IMPEDANCE (10 MEGOHM) DC VOLTMETER.
- AC RF VOLTAGES ARE MEASURED WITH A HIGH IMPEDANCE RF MILLIVOLTMETER.
- ALL VOLTAGE MEASUREMENTS ARE IN THE RECEIVE MODE UNLESS INDICATED AS FOLLOWS:  
(R) RECEIVE MODE  
(T) TRANSMIT MODE
- MEASURED IN THE RECEIVE MODE WITH AN ON-CHANNEL UNMODULATED SIGNAL AT A LEVEL OF -20 DBM.
- MEASURED IN THE RECEIVE MODE WITH AN ON-CHANNEL SIGNAL AT A LEVEL OF -20 DBM, MODULATED WITH 1 KHZ AT 3 KHZ DEVIATION. MEASURED WITH AN AC RMS VOLTMETER.





COMPONENT SIDE ●  
 SOLDER SIDE ◌  
 OVERLAY —

SHOWN FROM SOLDER SIDE



COMPONENT SIDE ●  
 SOLDER SIDE ◌  
 OVERLAY —

SHOWN FROM COMPONENT SIDE

REFERENCE NUMBER	MOTOROLA PART NO.	DESCRIPTION
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Capacitor, chip, 5%, 50V unless otherwise indicated

C401	21-11032A21	.01 uF 10%
C402	08-11051A09	poly .022 uF 63V
C403	21-11032A21	.01 uF 10%
C404	23-11048B19	lytic 47 uF 20% 16V
C405	23-11048B13	lytic 10 uF 20% 16V
C406	08-11051A15	poly .22 uF 63V
C407	23-11013A56	tantalum 47 uF 20% 6V
C408	23-11048B19	lytic 47 uF 20% 16V
C409	08-11051A17	poly .47 uF 63V
C451	23-11048B19	lytic 47 uF 20 % 16V
C452	21-11032A21	.01 uF 10%
C453	21-11032B14	.15 uF +80/-20%
C454	21-11032A21	.01 uF 10%
C455	08-11051A15	poly .22 uF 63V
C458	21-11031A26	30 pF
C459	21-11031A26	30 pF
C460	21-11032A21	.01 uF 10%
C461	21-11032A21	.01 uF 10%
C501	08-11051A13	poly .1 uF 63V
C502	08-11051A13	poly .1 uF 63V
C503	21-11031A39	100 pF
C504	23-11048B13	lytic 10 uF 20% 16V
C505	21-11031A39	100 pF
C506	21-11031A39	100 pF
C507	23-11013D13	tantalum 10 uF 10% 20V
C508	08-11051A15	poly .22 uF 63V
C509	23-11048B13	lytic 10 uF 20% 16V
C510	21-11031A51	330 pF
C511	21-11031A39	100 pF
C512	21-11031A39	100 pF
C513	21-11031A39	100 pF
C514	23-02308M01	lytic 1000 uF 20% 16V
C515	21-11031A39	100 pF
C551	23-11048A17	lytic 33 uF 20% 25V
C552	21-11031A23	22 pF
C553	21-11031A61	1000 pF
C554	08-11051A03	poly .0022 uF 63V
C555	21-11031A43	150 pF
C556	08-11051A12	poly .068 uF 63V
C557	08-11051A12	poly .068 uF 63V
C558	08-11051A12	poly .068 uF 63V
C559	08-11051A13	poly .1 uF 63V
C560	08-11051A13	poly .1 uF 63V
C561	23-11048B05	lytic 1 uF 20% 50V
C562	08-11051A09	poly .022 uF 63V
C563	21-11031A39	100 pF
C564	21-11031A39	100 pF
C565	23-11048B13	lytic 10 uF 20% 16V
C566	21-11032A21	.01 uF 10%
C567	21-11032A21	.01 uF 10%
C604	23-11048B05	lytic 1 uF 20% 50V
C605	23-11048B19	lytic 47 uF 20% 16V
C606	08-11044A22	poly .039 uF 63V
C607	08-11051A13	poly .1 uF 63V
C608	08-11051A05	poly .0047 uF 63V
C609	21-11031A45	180 pF
C610	08-11051A15	poly .22 uF 63V
C611	21-11031A36	75 pF
C612	23-11048B19	lytic 47 uF 20% 16V
C651	23-11048B19	lytic 47 uF 20% 16V
C652	08-11051A06	poly .0068 uF 63V
C653	08-11051A15	poly .22 uF 63V
C656	23-11048B13	lytic 10 uF 20% 16V
C657	21-11032B13	.1 uF +80/-20%
C658	21-11032A21	.01 uF 10%
C659	23-11013A56	tantalum 47 uF 20% 6V
C660	23-11048B13	lytic 10 uF 20% 50V
C661	21-11031A64	1500 pF
C662	21-11032A18	.0056 uF 10%
C663	21-11031A39	100 pF

C701	21-11031A39	100 pF
C703	21-11032B13	.1 uF +80/-20%
C704	21-11031A39	100 pF
C705	08-11051A09	poly .022 uF 63V
C706	08-11051A13	poly .1 uF 63V
C707	08-11051A01	poly .001 uF 63V
C801	21-11031A39	100 pF
C802	21-11031A39	100 pF
C805	21-11031A61	1000 pF
C808	21-11031A39	100 pF
C809	21-11031A39	100 pF
C819	21-11031A61	1000 pF
C824	21-11031A39	100 pF
C827	23-11048B05	lytic 1 uF 20% 50V
C828	21-11032B13	.1 uF +80/-20%
C829	21-11032A21	.01 uF 10%
C830	21-11031A21	18 pF
C831	21-11031F09	4.7 +/- .25 pF N750
C832	21-11031A20	16 pF
C834	21-11032B13	.1 uF +80/-20%
C835	21-11032B13	.1 uF +80/-20%
C836	21-11031A61	1000 pF
C841	21-11031A61	1000 pF
C843	21-11031A61	1000 pF
C844	21-11031A61	1000 pF
C845	21-11031A61	1000 pF
C846	21-11031A61	1000 pF
C847	21-11031A61	1000 pF
C851	21-11031A61	1000 pF
C854	21-11031A61	1000 pF
C855	23-11013A56	tantalum 47 uF 20% 6V
C856	21-11031A39	100 pF

## Diodes (see note)

CR401	48-83654H01	silicon
CR402	48-83654H02	silicon
CR403	48-83654H01	silicon
CR451	48-83654H01	silicon
CR501	48-83654H02	silicon
CR502	48-83654H02	silicon
CR551	48-83654H01	silicon
CR603	48-83654H01	silicon
CR604	48-83654H01	silicon
CR651	48-83654H01	silicon
CR857	48-83654H01	silicon

## Connectors, receptacle

J3	28-80129M01	5-pin, accessories
J7	28-80128M01	5-pin, RF power amplifier
J8/J9	28-80126M01	23-pin, includes J8 and J9
J10	28-80128M02	2-pin, internal speaker

## Jumpers

JU601	09-84181L01	push-on jumper, 2-pin
JU801	06-11009B23	axial jumper
JU806		plating jumper

## Coils

L801	24-82723H35	23 uH
L802	24-83961B02	5 turns GRN
L803	24-83961B02	5 turns GRN

## Connectors, plug

P6	28-80127M01	14-pin, RF board
P601	28-80250M01	3-pin, for JU601

## Transistors (see note)

Q401	48-00869619	PNP; type M9619
Q402	48-80214G02	NPN; type MMBT3904
Q451	48-00869619	PNP; type M9619
Q452	48-00869619	PNP; type M9619
Q453	48-80214G02	NPN; type MMBT3904
Q454	48-80214G02	NPN; type MMBT3904

Q455	48-00869681	PNP; type M9681
Q501	48-05128M16	PNP; type MMBT3906
Q502	48-05128M16	PNP; type MMBT3906
Q503	48-80214G02	NPN; type MMBT3904
Q504	48-80214G02	NPN; type MMBT3904
Q505	48-05128M16	PNP; type MMBT3906
Q506	48-00869619	PNP; type M9619
Q507	48-00869618	NPN; type M9618
Q508	48-05128M16	PNP; type MMBT3906
Q509	48-80214G02	NPN; type MMBT3904
Q551	48-05128M16	PNP; type MMBT3906
Q552	48-80214G02	NPN; type MMBT3904
Q651	48-05128M16	PNP; type MMBT3906
Q652	48-80214G02	NPN; type MMBT3904
Q801	48-80214G02	NPN; type MMBT3904
Q802	48-00869681	PNP; type M9681
Q803	48-80214G02	NPN; type MMBT3904
Q804	48-80214G02	NPN; type MMBT3904
Q805	48-80214G02	NPN; type MMBT3904
Q806	48-80214G02	NPN; type MMBT3904
Q807	48-80214G02	NPN; type MMBT3904
Q808	48-80214G02	NPN; type MMBT3904
Q809	48-80214G02	NPN; type MMBT3904
Q810	48-80214G02	NPN; type MMBT3904
Q811	48-80214G02	NPN; type MMBT3904
Q812	48-80214G02	NPN; type MMBT3904

Resistors, chip, 5%, 1/8 watt, unless otherwise indicated

R401	06-11024A45	680
R402	06-02369M31	metal film 330 0.6 watt
R403	06-11024A45	680
R404	06-11024G18	1.74k 1%
R405	06-11024G28	2.21k 1%
R406	06-11024A73	10k
R407	06-11024A51	1.2k
R408	06-11024A73	10k
R409	06-11024A73	10k
R410	06-11024A55	1.8k
R451	06-02369M01	metal film 1 0.6 watt
R452	06-02369M01	metal film 1 0.6 watt
R453	06-11024A45	680
R454	06-02369M31	metal film 330 0.6 watt
R455	06-11024A45	680
R456	06-11024A57	2.2k
R457	06-11024A51	1.2k
R458	06-11024A65	4.7k
R459	06-11024A65	4.7k
R460	06-11024A75	12k
R461	06-11024A45	680
R462	06-11024B04	180k
R463	06-11024A99	120k
R464	06-11024H88	100k 1%
R465	06-11024H88	100k 1%
R466	06-11024G91	10.0k 1%
R467	06-11024G91	10.0k 1%
R468	06-11024A35	270
R469	06-11024A49	1k
R470	06-11024A73	10k
R471	06-11024A81	22k
R472	06-11024A67	5.6k
R473	06-11024A83	27k
R474	06-11024A73	10k
R501	06-11024A59	2.7k
R502	06-11024A81	22k
R503	06-11024A81	22k
R504	06-11024A73	10k
R505	06-11024A61	3.3k
R506	06-11024A53	1.5k
R507	06-11024A41	470
R508	06-11024A73	10k
R509	06-11024A47	820
R510	06-11024A47	820
R511	06-11024A81	22k
R512	06-11024A21	68
R513	06-00124B55	carbon 2.7 1/4 watt
R514	06-00124B55	carbon 2.7 1/4 watt
R515	06-11024A21	68

R516	06-11024A41	470
R517	06-11024A73	10k
R518	06-11024A73	10k
R519	06-80185M01	metal plate 1 2 watt
R551	06-11024A67	5.6k
R552	06-11024B12	390k
R553	06-11024A92	62k
R554	06-11024A92	62k
R555	06-11024A92	62k
R556	06-11024G53	4.02k 1%
R557	06-11024G20	1.82k 1%
R558	06-11024H41	32.4k 1%
R559	06-11024H88	100k 1%
R560	06-11024F77	665 1%
R561	06-11024H91	107k 1%
R562	06-11024A90	51k
R563	06-11024A89	47k
R565	06-11024A73	10k
R566	06-11024A71	8.2k
R567	06-11024A61	3.3k
R568	06-11024A73	10k
R569	06-11024A25	100
R570	06-11024A97	100k
R573	06-11024A83	27k
R574	06-11024A75	12k
R575	06-11024A82	24k
R576	06-11024A82	24k
R604	06-11024A73	10k
R605	06-11024A49	1k
R606	06-11024A73	10k
R608	06-11024A97	100k
R609	06-11024A85	33k
R610	06-11024A81	22k
R611	06-11024H42	33.2k 1%
R612	06-11024H42	33.2k 1%
R613	06-11024H45	35.7k 1%
R615	06-11024J15	187k 1%
R616	06-11024H48	38.3k 1%
R617	06-11024A57	2.2k
R620	06-11024A73	10k
R621	06-11024A57	2.2k
R651	06-11024A43	560
R652	06-11024A25	100
R653	06-11024A73	10k
R654	06-11024A73	10k
R655	06-11024A65	4.7k
R656	06-11024B14	470k
R657	06-11024B17	620k
R658	06-11024B17	620k
R659	06-11024A57	2.2k
R660	06-11024A93	68k
R661	06-11024A77	15k
R662	06-11024A91	56k
R663	06-11024A92	62k
R664	06-11024A81	22k
R665	06-11024A59	2.7k
R666	06-11024A97	100k
R667	06-11024A97	100k
R668	06-11024A92	62k
R669	06-11024A92	62k
R670	06-11024A92	62k
R671	06-11024A25	100
R701	06-11024H88	100k 1%
R702	06-11024B04	180k
R703	06-11024A82	24k
R704		not used
R705	06-11024B06	220k
R706	06-11024H88	100k 1%
R707	06-11024J26	243k 1%
R709	06-11024A83	27k
R710	06-11024H68	61.9k 1%
R711	06-11024H68	61.9k 1%
R712	06-11024H68	61.9k 1%
R713	06-11024A61	3.3k
R714	06-11024A90	51k
R715	06-11024A79	18k
R801	06-11024A53	1.5k

R802	06-11024A59	2.7k
R803	06-11024A73	10k
R804	06-11024A65	4.7k
R805	06-11024A73	10k
R806	06-11024A73	10k
R807	06-11024A89	47k
R808	06-11024A65	4.7k
R809	06-11024A65	4.7k
R810	06-11024A91	56k
R811	06-11024A91	56k
R812	06-11024A65	4.7k
R813	06-11024A65	4.7k
R814	06-11024A65	4.7k
R815	06-11024A65	4.7k
R816	06-11024A97	100k
R817	06-11024A97	100k
R818	06-11024A97	100k
R820	06-11024A73	10k
R821	06-11024A73	10k
R822	06-11024A89	47k
R823	06-11024A73	10k
R824	06-11024A73	10k
R825	06-11024A89	47k
R826	06-11024A73	10k
R827	06-11024A73	10k
R828	06-11024A73	10k
R831	06-11024A49	1k
R832	06-11024A49	1k
R833	06-11024A73	10k
R836	06-11024A73	10k
R842	06-11024A49	1k
R845	06-11024A49	1k
R846	06-11024A73	10k
R847	06-11024A49	1k
R849	06-11024A73	10k
R850	06-11024A49	1k
R851	06-11024A89	47k
R852	06-11024A89	47k
R853	06-11024B20	820k
R854	06-11024A65	4.7k
R857	06-11024A73	10k
R858	06-11024A73	10k
R859	06-11024A73	10k
R860	06-11024A73	10k
R862	06-11024G95	11.0k 1%
R863	06-11024G91	10.0k 1%
R864	06-11024G20	1.82k 1%
R865	06-11024A73	10k
R866	06-11024A73	10k
R867	06-11024A73	10k
R868	06-11024A73	10k
R869	06-11024A73	10k
R870	06-11024A73	10k
R871	06-11024A73	10k
R872	06-11024A73	10k
R876	06-11024A73	10k
R877	06-11024A97	100k
R878	06-11024A97	100k
R879	06-11024A97	100k
R880	06-11024A89	47k
R881	06-11024A73	10k
R882	06-11024A81	22k
R883	06-11024A65	4.7k
R884	06-11024A89	47k
R885	06-11024A73	10k
R886	06-11024A81	22k
R887	06-11024A65	4.7k
R888		not used
R889	06-11024A73	10k
R890	06-11024A73	10k

Integrated Circuits (see note)

U401	51-80056M04	dual op-amp SOIC
U402	51-80942T01	regulator, 5 volts w/reset
U451	51-80056M04	dual op-amp SOIC
U551	51-80056M04	dual op-amp SOIC
U552	51-80056M04	dual op-amp SOIC

U553	51-80056M04	dual op-amp SOIC
U601	51-80056M01	dual comparator SOIC
U602	51-80056M04	dual op-amp SOIC
U603	51-80056M04	dual op-amp SOIC
U651	51-80056M04	dual op-amp SOIC
U652	51-80056M04	dual op-amp SOIC
U653	51-80059M01	voltage-controlled attn
U701	51-80056M04	dual op-amp SOIC
U801	51-80135C10	D/A convertor
U802	51-80980T01	microcomputer MC68HC11A8 masked

Voltage Regulators, 5% unless otherwise specified

VR401	48-83461E40	zener diode 5.1V 1%
VR402	48-82256C15	zener diode 5.1V
VR551	48-82256C11	zener diode 10V
VR801	48-82256C20	zener diode 27V
VR802	48-82256C11	zener diode 10V
VR803	48-82256C11	zener diode 10V
VR804	48-82256C20	zener diode 27V
VR805	48-82256C20	zener diode 27V
VR807	48-82256C20	zener diode 27V

Crystals

Y801	48-80173D09	7.776 MHz
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Non-Referenced Items

03-10943M04	screw M2.5 X 8 (5 used)
04-00001718	washer (4 used)
07-80925T01	bracket, heat sink
14-80145M01	insulator accessory (under J3)
14-83820M05	insulator TO-118 (5 used)
15-80076M01	plastic housing 5 pin (for J3)
26-80125L02	heat sink, audio/regulator
42-80940T01	retaining ring (2 used)

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



REFERENCE NUMBER	MOTOROLA PART NO.	DESCRIPTION
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Capacitor, chip, 5%, 50V unless otherwise indicated

C1	21-11031A09	4.7 +/- .25 pF
C2	21-11031A29	39 pF
C3	21-11031A29	39 pF
C4	21-11031A29	39 pF
C5	21-11031A03	1.5 +/- .25 pF
C7	21-11031A29	39 pF
C9	21-11032B15	.22 uF +80/-20%
C10	21-11031A06	2.7 +/- .25 pF
C11	21-11032B15	.22 uF +80/-20%
C12	21-11032B15	.22 uF +80/-20%
C13	21-11032B15	.22 uF +80/-20%
C14	21-11031A07	3.3 +/- .25 pF
C51	21-11031A25	27 pF
C52	21-11031A25	27 pF
C53	21-11031A37	82 pF
C54	21-11031A51	330 pF
C55	21-11032A21	.01 uF 10%
C56	21-11032A21	.01 uF 10%
C57	21-11031A21	18 pF
C58	21-11031A13	8.2 +/- .5 pF
C59	21-11031A21	18 pF
C60	21-11032A21	.01 uF 10%
C61	21-11032A21	.01 uF 10%
C65	21-11032B15	.22 uF +80/-20%
C66	21-11032A21	.01 uF 10%
C67	23-11013D13	tantalum 10 uF 10% 20V
C68	21-11031A23	22 pF
C69	21-11031A29	39 pF
C70	21-11031A19	15 pF
C71	21-11032B15	.22 uF +80/-20%
C72	21-11032B15	.22 uF +80/-20%
C73	23-11013D13	tantalum 10 uF 10% 20V
C74	23-11048B13	lytic 10 uF 20% 16V
C75	21-11032B13	.1 uF +80/-20%
C76	23-11048B05	lytic 1 uF 20% 50V
C77	21-11032B15	.22 uF +80/-20%
C78	21-11032B15	.22 uF +80/-20%
C79	21-11032A13	.0022 uF 10%
C80	21-11032B15	.22 uF +80/-20%
C81	21-11032A13	.0022 uF 10%
C82	21-11032B15	.22 uF +80/-20%
C83	21-11032B15	.22 uF +80/-20%
C84	21-82450B14	composition 2.4 pF 500V
C85	21-11031A17	12 pF
C101	23-11048B13	lytic 10 uF 20% 16V
C102	08-11051A13	poly .1 uF 63V
C103	21-11032A21	.01 uF 10%
C104	21-11032A21	.01 uF 10%
C105	23-11048B13	lytic 10 uF 20% 16V
C106	21-11031A19	15 pF
C107	21-11032B13	.1 uF +80/-20%
C108	21-11032B13	.1 uF +80/-20%
C109	08-11051A09	poly .022 uF 63V
C110	08-11044A33	poly 1 uF 63V
C111	08-11051A07	poly .01 uF 63V
C112	08-11051A07	poly .01 uF 63V
C113	21-11032A21	.01 uF 10%
C114	21-11032A21	.01 uF 10%
C115	21-11031A29	39 pF
C117	21-11032B13	.1 uF +80/-20%
C118	21-11031A29	39 pF
C119	21-11031A29	39 pF
C120	21-11031A29	39 pF
C121	21-11031A06	2.7 +/- .25 pF
C122	21-11031A29	39 pF
C123	21-11031A29	39 pF
C125	21-11031A29	39 pF
C126	21-11031A09	4.7 +/- .25 pF
C151	21-11031A61	1000 pF
C152	21-11031A37	82 pF

C153	21-11031A15	10 +/- .5 pF
C154	21-11032A21	.01 uF 10%
C155	21-11031A45	180 pF
C156	21-11031A45	180 pF
C157	21-11032A21	.01 uF 10%
C158	08-11051A15	poly .22 uF 63V
C159	21-11031A25	27 pF
C160	21-11031A19	15 pF
C161	21-11031A61	1000 pF
C162	23-11048B13	lytic 10 uF 20% 16V
C163	08-11051A17	poly .47 uF 63V
C164	21-11032B13	.1 uF +80/-20%
C176	21-11031A61	1000 pF
C202	23-11048B19	lytic 47 uF 20% 16V
C203	21-11031A29	39 pF
C204	21-11031A29	39 pF
C205	21-11031A08	3.9 +/- .25 pF
C206	21-11031A29	39 pF
C207	21-11031A29	39 pF
C208	21-11031A29	39 pF
C209	21-11031A03	1.5 +/- .25 pF
C210	21-11031A05	2.2 +/- .25 pF
C211	21-11031A29	39 pF
C212	21-11031A29	39 pF
C213	21-11031A04	1.8 +/- .25 pF
C214	21-11031A12	7.5 +/- .5 pF
C215	21-11031A29	39 pF
C216	21-11031A29	39 pF
C217	21-11031A29	39 pF
C218	21-11031A29	39 pF
C219	21-11031A62	5.1 +/- .25 pF
C220	21-11031A01	1 +/- .25 pF
C221	21-11031A29	39 pF
C222	21-11031A29	39 pF
C223	21-11031A29	39 pF
C224	21-11032A21	.01 uF 10%
C225	21-11031A29	39 pF
C226	21-11031A29	39 pF
C227	21-11031A29	39 pF
C228	21-11031A08	3.9 +/- .25 pF
C229	21-11031A04	1.8 +/- .25 pF
C230	21-11031A29	39 pF
C231	21-11032A21	.01 uF 10%
C232	21-11031A29	39 pF
C233	21-11031A29	39 pF
C234	21-11031A29	39 pF
C251	21-11032A21	.01 uF 10%
C252	23-11048B19	lytic 47 uF 20% 16V
C253	23-11048B19	lytic 47 uF 20% 16V
C301	21-11031A29	39 pF
C302	21-11031A29	39 pF
C303	21-11031A29	39 pF
C304	21-11031A29	39 pF
C305	21-11031A29	39 pF
C306	21-11031A29	39 pF
C307	21-11031A29	39 pF
C308	21-11031A29	39 pF
C309	21-11031A29	39 pF
C310	21-11031A29	39 pF
C311	21-11031A29	39 pF
C312	21-11031A29	39 pF
C313	21-11031A29	39 pF

## Diodes (see note)

CR1	48-80939T01	Schottky SOT
CR2	48-80939T01	Schottky SOT
CR51	48-83654H01	silicon
CR101	48-83654H01	silicon
CR102	48-83654H01	silicon
CR151	48-82190H54	silicon varactor SOT
CR152	48-82190H54	silicon varactor SOT
CR153	48-83654H01	silicon
CR154	48-83654H01	silicon
CR176	48-82256C11	silicon zener 10V 5%

Filters			R51	06-11024A18	51
FL1	91-80054M01	ceramic, 3-cell	R52	06-11024A29	150
FL2	91-80054M01	ceramic, 3-cell	R53	06-11024A73	10k
FL51	91-80097D06	455 kHz, 6D	R54	06-11024A29	150
FL52	91-80098D06	455 kHz, 4D	R56	06-11024B20	820k
			R57	06-11024A47	820
			R58	06-11024A97	100k
Connectors, receptacle			R59	06-11024B02	150k
J4	09-80135M01	coaxial (RX)	R60	18-05500L08	variable 22k
J5	09-80135M01	coaxial (TX)	R61	06-11024A93	68k
J6	09-80130M02	14-pin socket (logic board)	R62	06-11024A83	27k
Coils			R63	06-11024A95	82k
L1	24-11030E03	1/2 turn ORG	R102	06-11024A37	330
L2	24-11030E08	1/2 turn WHT	R103	06-11024A73	10k
L3	24-11030A04	5 turns GRN	R104	06-11024A73	10k
L4	24-11030E03	1/2 turn ORG	R105	06-11024A85	33k
L51	24-80063M09	.47 uH	R106	06-11024A49	1k
L52	24-80063M09	.47 uH	R107	06-11024A53	1.5k
L53	24-80063M04	.18 uH	R108	06-11024A01	10
L54	24-80063M21	4.7 uH	R109	06-11024A01	10
L55	24-80164M04	tunable .7 uH E714	R110	06-11024A77	15k
L56	24-80164M01	tunable .7 uH E713	R111	06-11024A41	470
L57	24-80164M04	tunable .7 uH E714	R112	06-11024A53	1.5k
L58	24-80063M21	4.7 uH	R113	06-11024A41	470
L59	24-80164M03	tunable .7 uH E716	R114	06-11024A41	470
L60	24-80063M14	1.2 uH	R115	06-11024A47	820
L61	25-80000E01	tunable 455 kHz with cap	R116	06-11024A67	5.6k
L101	24-11030A04	5 turns GRN	R118	06-11024A47	820
L102	24-11030E04	1/2 turn YEL	R119	06-11024A63	3.9k
L151	24-80299D01	tunable 17-3/4 turns	R120	06-11024A71	8.2k
L152	24-80063M22	5.6 uH	R121	06-11024A71	8.2k
L201	24-11030A04	5 turns GRN	R122	06-11024A63	3.9k
L202	24-11030E02	1/2 turn RED	R124	06-11024A35	270
L203	24-11030A04	5 turns GRN	R125	06-11024A18	51
L204	24-11030E03	1/2 turn ORN	R126	06-11024A25	100
L205	24-11030E04	1/2 turn YEL	R127	06-11024A59	2.7k
L206	24-11030A04	5 turns GRN	R128	06-11024A47	820
L207	24-11030E01	1/2 turn BRN	R129	06-11024A33	220
L208	24-11030A04	5 turns GRN	R151	06-11024A89	47k
L209	24-11030E08	1/2 turn WHT	R152	06-11024A85	33k
L210	21-11030E05	1/2 turn GRN	R153	06-11024A89	47k
L211	21-11030E01	1/2 turn BRN	R154	06-11024A09	22
L212	21-11303E04	1/2 turn YEL	R155	06-11024A73	10k
			R156	06-11024A77	15k
			R157	06-11024A53	1.5k
			R158	06-11024A49	1k
			R159	06-11024A49	1k
Transistors (see note)			R161	06-11024A73	10k
Q1	48-80182D44	NPN; type M82D44	R163	06-11024A93	68k
Q2	48-00869643	PNP; type M9643	R164	18-05500L08	variable 22k
Q51	48-00869839	field effect; type M9839	R165	06-11024A71	8.2k
Q52	48-00869839	field effect; type M9839	R176	06-11024H26	22.6k 1%
Q53	48-00869642	NPN; type M9642	R177	06-11024H18	18.7k 1%
Q101	48-00869643	PNP; type M9643	R178	06-11024G91	10.0k 1%
Q102	48-00869987	NPN; type M9987	R179	06-11024G91	10.0k 1%
Q103	48-00869987	NPN; type M9987	R180	06-11024H52	42.2k 1%
Q104	48-00869643	PNP; type M9643	R181	06-11024G91	10.0k 1%
Q105	48-00869642	NPN; type M9642	R182	06-11024H28	23.7k 1%
Q106	48-00869642	NPN; type M9642	R202	06-11024A67	5.6k
Q107	48-80182D44	NPN; type M82D44	R204	06-11024A61	3.3k
Q151	48-00869658	NPN; type M9658	R205	06-11024A51	1.2k
Q152	48-00869643	PNP; type M9643	R206	06-11024A25	100
Q201	48-80182D44	NPN; type M82D44	R207	06-11024A19	56
Q202	48-80182D44	NPN; type M82D44	R208	06-11024A37	330
Q203	48-80182D44	NPN; type M82D44	R209	06-11024A19	56
Q204	48-00869643	PNP; type M9643	R210	06-11024A63	3.9k
Q205	48-00869642	NPN; type M9642	R211	06-11024A51	1.2k
Q251	48-00869642	NPN; type M9642	R212	06-11024A25	100
			R213	06-11024A21	68
			R214	06-11024A13	33
Resistors, chip, 5%, 1/8 watt, unless otherwise indicated			R215	06-11024A05	15
R1	06-11024A59	2.7k	R216	06-11024A05	15
R2	06-11024A77	15k	R217	06-11024A07	18
R3	06-11024A61	3.3k	R218	06-11024A63	3.9k
R4	06-11024A21	68	R219	06-11024A51	1.2k
R5	06-11024A18	51	R220	06-11024A25	100
			R221	06-11024A63	3.9k

R222	06-11024A63	3.9k
R223	06-11024A41	470
R224	06-11024A03	12
R225	06-11024A41	470
R227	06-11024A73	10k
R228	06-11024A53	1.5k
R251	06-11024A35	270
R252	06-11024A01	10

Integrated Circuits and Modules (see note)

U1	51-80058M01	mixer, double-balanced
U51	51-05479G05	receiver system
U101	51-84704M75	synthesizer
U102	51-84810F63	prescaler
U176	51-84621K89	dual op-amp
U201	51-80934T01	VCO, talkaround

Crystals

Y51	91-80022M02	filter 45.1 MHz (includes Y51A, Y51B)
Y52	48-80008K02	44.645 MHz
Y151	48-80174D05	14.4 MHz

Non-Referenced Items

14-05160A01	insulator (for Y151)
26-80097M01	shield coil can (for L151)
26-80098M01	shield coil can (7 used)
26-80228L01	shield can (two used, for J4 and J5)
26-80229L03	shield VCO frame
26-80256L01	shield solder side (under J4)
42-80047N01	grounding clip
75-05295B07	insulator (3 used, for Y51A/B and Y52)

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