

# instruction manual revision

## GENERAL

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

## INSTRUCTION MANUAL AFFECTED:

68-80101W58-A      Radius Two-Way Radio Service Manual

## REVISION DETAILS:

1. Radius UHF 35W models are now available in the 403-430 MHz frequency range, in the following three models:

D44LRA7329AK	Radius M100 2-Freq PL/DPL/CSQ
D44LRA7729AK	Radius M206 6-Freq PL/DPL/CSQ
D44LRA7P29AK	Radius M214 14-Freq PL/DPL/CSQ, Scan

The model chart on the following page includes these three models, in addition to the three existing 449-470 MHz models.

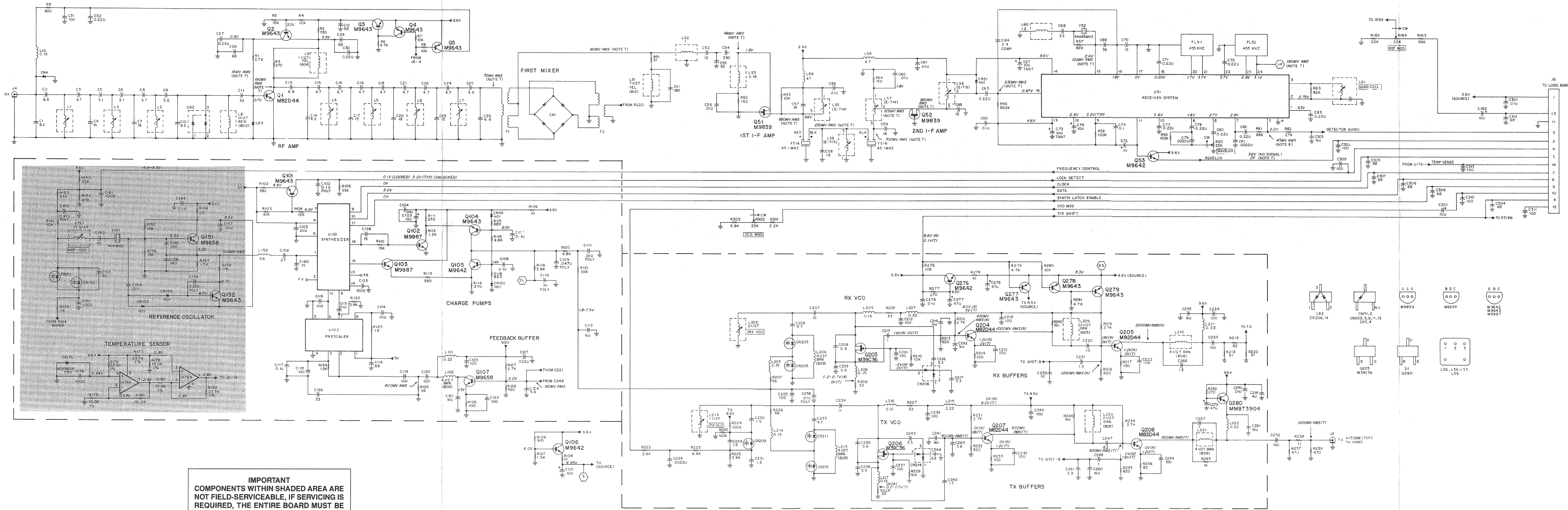
This chart replaces the model chart on page 7 of service manual revision MMR005, and also adds new housing kit HHN9370A.

2. This revision contains the schematics, circuit board diagrams, and/or parts lists for the following new 403-430 MHz kits:

HLE4424A	RF Board, 403-430 MHz
HLE4430A	35 Watt Power Amplifier Board, 403-430 MHz
HLN9153A	35 Watt Heatsink Hardware Kit, 403-430 MHz

MODEL		FREQ.	VERSION	<b>UHF Radius Mobile Radio</b> <b>35 Watt RF Power</b> <b>403-430 MHz</b> <b>449-470 MHz</b>	
MODEL		FREQ.	VERSION		
	D44LR47329AK	2	Radius M100 (PL/DPL/CSO)	<b>X = ONE ITEM SUPPLIED.</b>	
	D44LR4729AK	6	Radius M206 (PL/DPL/CSO)		
	D44LR47P29AK	14	Radius M214 (PL/DPL/CSO, Scan)		
	D44LR473A5BK	2	Radius M100 (PL/DPL/CSO)		
	D44LR47A5BK	6	Radius M206 (PL/DPL/CSO)		
	D44LR47PA5BK	14	Radius M214 (PL/DPL/CSO, Scan)		
ITEM	DESCRIPTION	ITEM	DESCRIPTION		
X	HUE2063A	HLE4424A	RF BOARD 403-430 MHz	X	
X	HLE3025A	HLE4425B	RF BOARD 449-470 MHz		
	HUE2066A	HLN9123A	LOGIC BOARD (MASKED)	X	X
	X HUE2064B	HLN5179B	LOGIC BOARD (EXPANDED)		
	X HUE2064B	HLN5174A	DISPLAY BOARD 2 FREQ.		
	X HLE3011A	HLN5175A	DISPLAY BOARD 6/14 FREQ.		
X	HCN3032A	HLN9141A	FRONT PANEL HDWR 2 FREQ.	X	X
	X HCN3033A	HLN9142A	FRONT PANEL HDWR 6 FREQ.		
	X HCN3034A	HLN9143A	FRONT PANEL HDWR 14 FREQ.		
X	HLN9180A	HLN5184A	FRONT PANEL SWITCH BOARD	X	
	X HHN9370A	HLN5188A	CHASSIS HDWR		
X	X HHN4029A	HLE4430A	35W PA BOARD 403-430 MHz	X	X
X	X HMN1056A	HLN9153A	35W HEATSINK HDWR 403-430 MHz		
X	X HLN9073A	HLE4432A	35W PA BOARD 449-470 MHz	X	X
X	X HKN4137A	HLN5274A	35W HEATSINK HDWR 449-470 MHz		
X	X HLN5189A	HLN1245A	MICROPHONE		
X	X HBN4040A	HLN5301A	COILED CORD		
X	X HLN9277A				

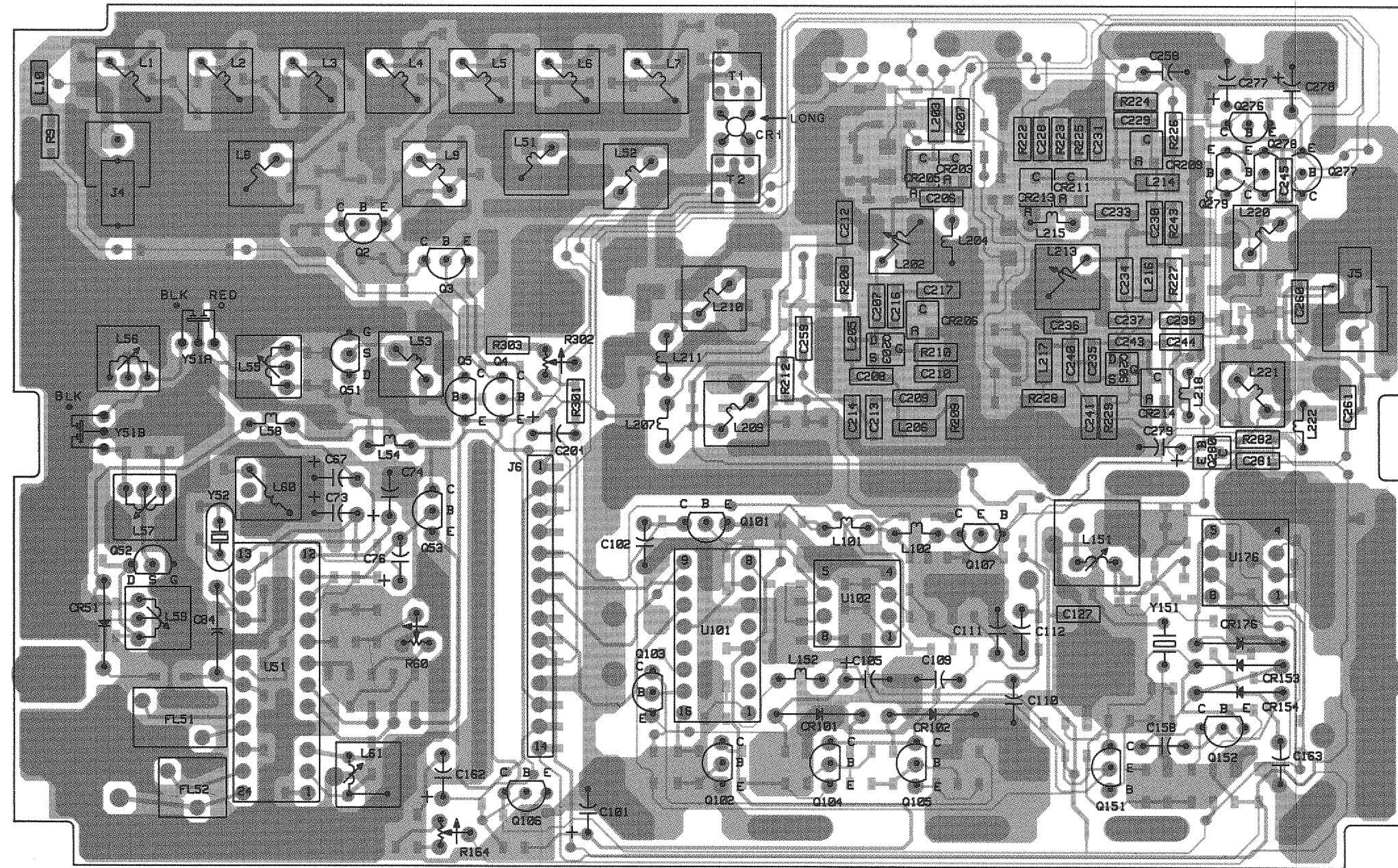
NOTE: HLE3025A IS PART OF HUE2063A.  
HLE3011A IS PART OF HUE2066A OR HUE2064B.



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

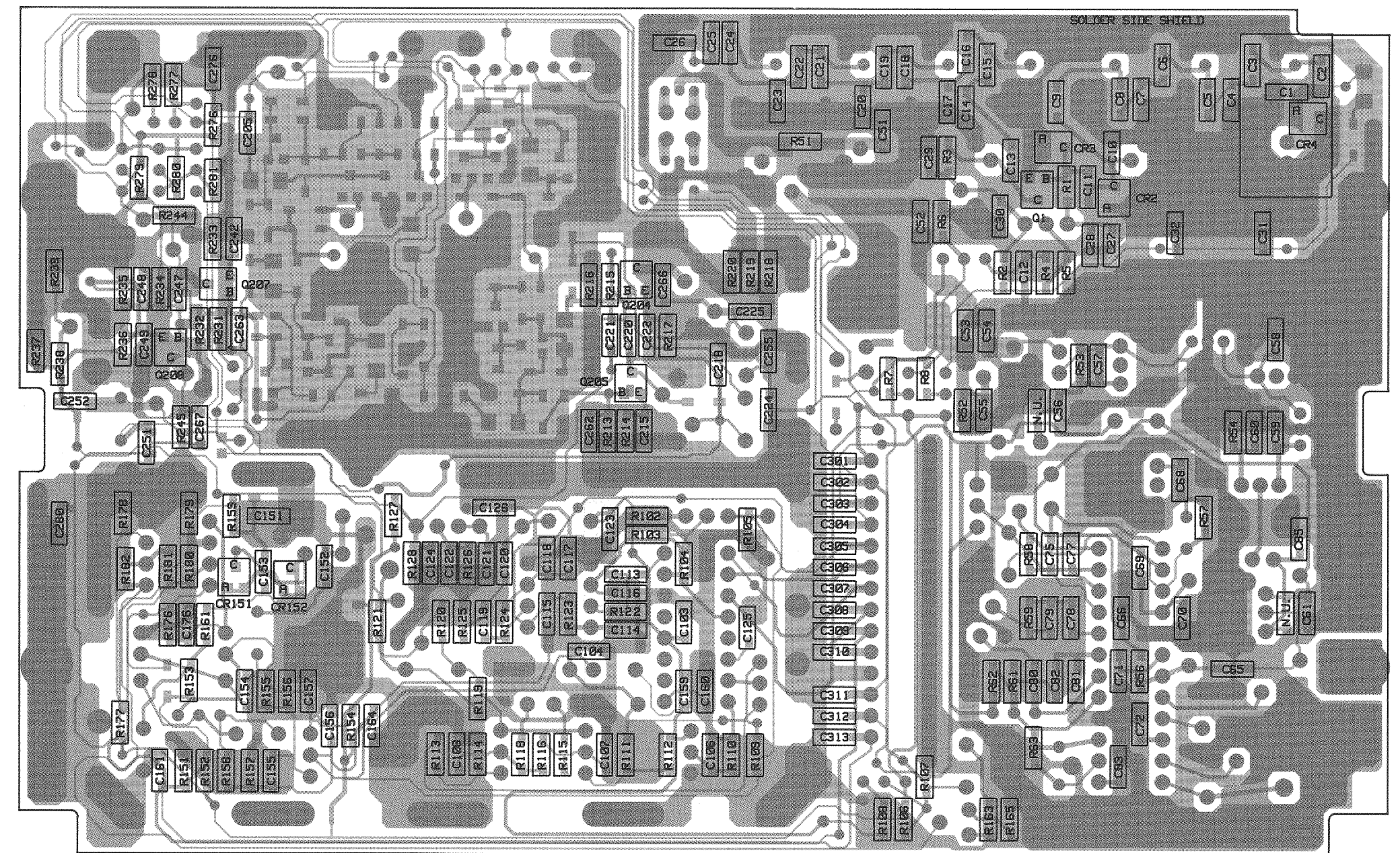
- NOTES:
- UNLESS OTHERWISE INDICATED, RESISTOR VALUES ARE IN OHMS. CAPACITOR VALUES ARE IN PICOFRADS, INDUCTOR VALUES ARE IN MICROHENRIES.
  - NON-POLARIZED CAPACITORS ARE CHIP-TYPE UNLESS OTHERWISE INDICATED.
  - POLARIZED CAPACITORS ARE ALUMINUM ELECTROLYTIC TYPE UNLESS OTHERWISE INDICATED.
  - DC 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 ●  
 SOLDER SIDE ●  
 OVERLAY —

SHOWN FROM COMPONENT SIDE

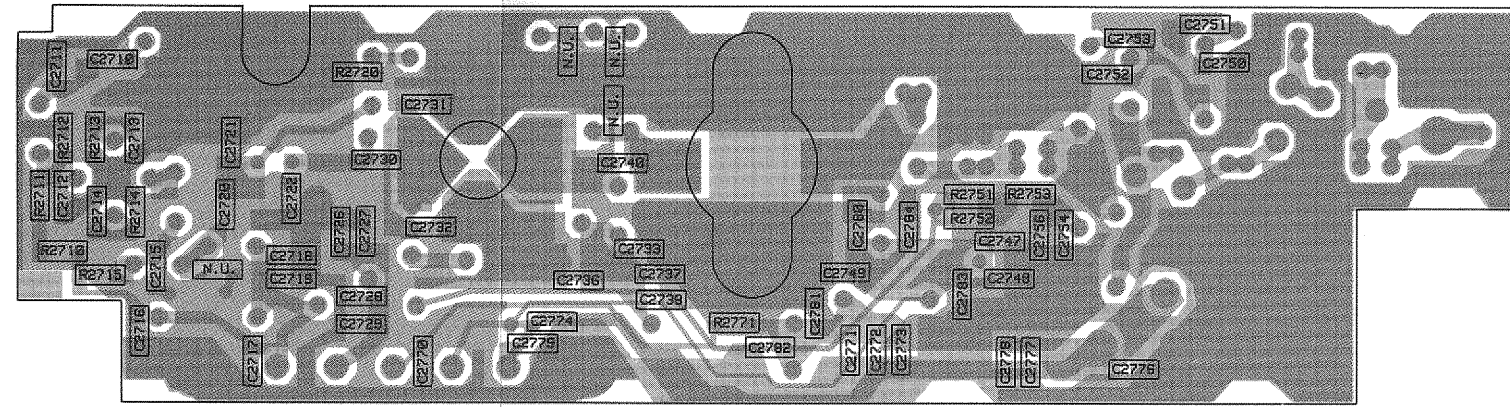


COMPONENT ●  
 SOLDER SIDE ●  
 OVERLAY —

SHOWN FROM SOLDER SIDE

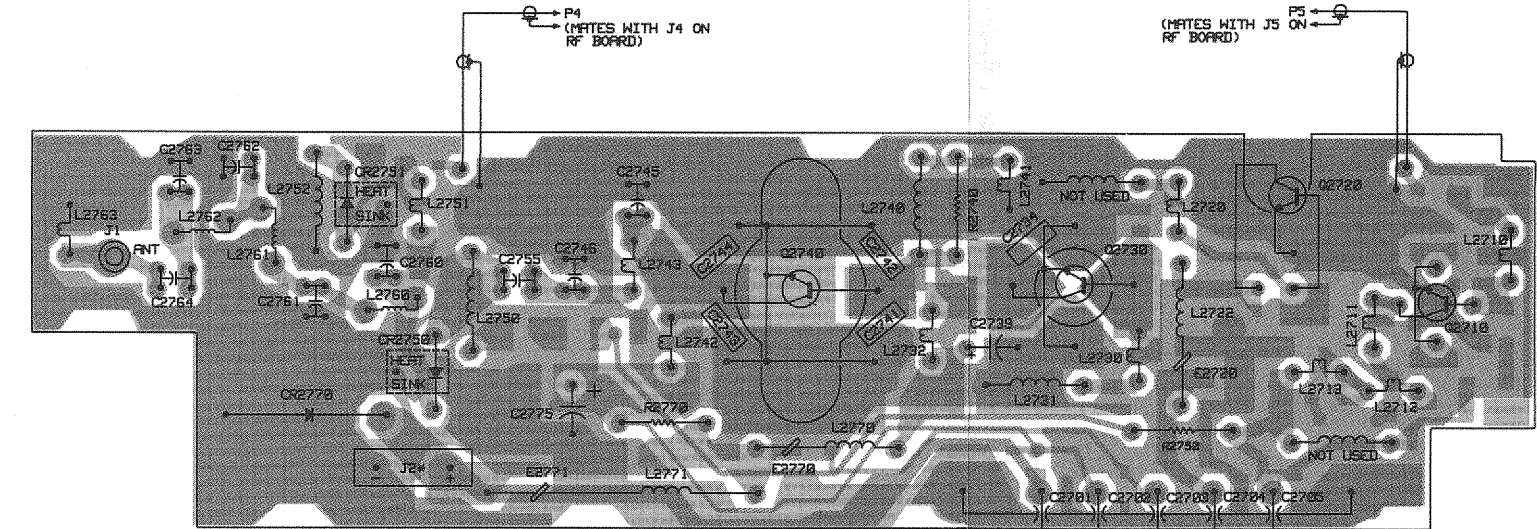
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SHOWN FROM SOLDER SIDE

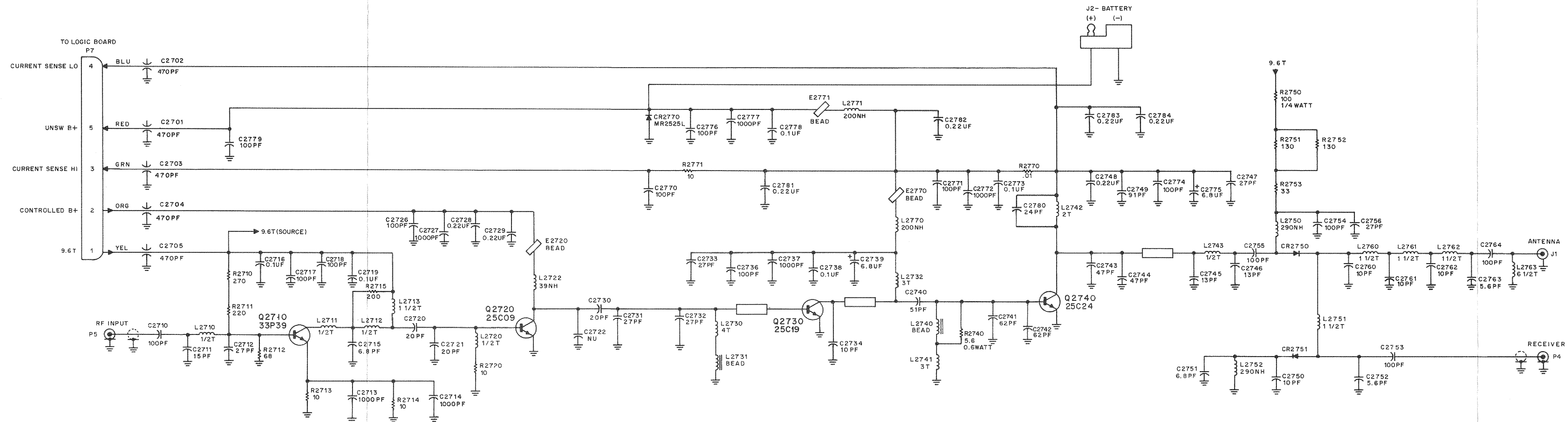
COMPONENT ●  
SOLDER SIDE ●  
OVERLAY —



SHOWN FROM COMPONENT SIDE

\* INCLUDES INTERGRAL  
FEEDTHRU CAPACITOR

COMPONENT ●  
SOLDER SIDE ●  
OVERLAY —



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

C1	21-11031A13	8.2 +/- .5 pF
C2	21-11031A11	6.8 +/- .5 pF
C3	21-11031A09	4.7 +/- .25 pF
C4	21-11031A20	16 pF
C5	21-11031A62	5.1 +/- .25 pF
C6	21-11031A62	5.1 +/- .25 pF
C7	21-11031A20	16 pF
C8	21-11031A09	4.7 +/- .25 pF
C9	21-11031A10	5.6 +/- .5 pF
C10	21-11031A13	8.2 +/- .5 pF
C11	21-11031A27	33 pF
C12	21-11031A35	68 pF
C13	21-11031A11	6.8 +/- .5 pF
C14	21-11031A13	8.2 +/- .5 pF
C15	21-11031A09	4.7 +/- .25 pF
C16	21-11031A09	4.7 +/- .25 pF
C17	21-11031A19	15 pF
C18	21-11031A09	4.7 +/- .25 pF
C19	21-11031A09	4.7 +/- .25 pF
C20	21-11031A21	18 pF
C21	21-11031A09	4.7 +/- .25 pF
C22	21-11031A09	4.7 +/- .25 pF
C23	21-11031A19	15 pF
C24	21-11031A09	4.7 +/- .25 pF
C25	21-11031A08	3.9 +/- .25 pF
C26	21-11031A11	6.8 +/- .5 pF
C27	21-11032B15	.22 uF + 80/-20%
C28	21-11031A35	68 pF
C29	21-11031A35	68 pF
C30	21-11032B15	.22 uF + 80/-20%
C31	21-11031A39	100 pF
C32	21-11032B15	.22 uF + 80/-20%
C51	21-11031A45	180 pF
C52	21-11031A17	12 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	21-11031A17	12 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	08-11051A11	poly .047 uF 63V
C110	08-11044A33	poly 1 uF 63V
C111	08-11051A07	poly .01 uF 63V
C112		not used
C113	21-11032A21	.01 uF 10%
C114	21-11032A21	.01 uF 10%
C115	21-11031A35	68 pF
C116	21-11031A39	100 pF
C117	21-11032B13	.1 uF + 80/-20%
C118	21-11031A39	100 pF
C119	21-11031A39	100 pF
C120	21-11031A39	100 pF
C121		not used
C122	21-11031A39	100 pF
C123	21-11031A39	100 pF
C124	21-11031A10	5.6 +/- .5 pF
C125	21-11031A61	1000 pF
C126	21-11031A27	33 pF
C127	21-11032B15	.22 uF + 80/-20%
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
C201	23-11048B13	lytic 10 uF 20% 16V
C205	21-11031A39	100 pF
C206	21-11031A09	4.7 +/- .25 pF
C207	21-11031A15	10 +/- .5 pF
C208	21-11031A10	5.6 +/- .5 pF
C209	21-11031A10	5.6 +/- .5 pF
C210	21-11031A39	100 pF
C212	21-11031A39	100 pF
C213	21-11031A01	1 +/- .25 pF
C214		not used
C215	21-11031A39	100 pF
C216	21-11031A07	3.3 +/- .25 pF
C217	21-11031A07	3.3 +/- .25 pF
C218	21-11031A39	100 pF
C220	21-11031A19	15 pF
C221	21-11031A03	1.5 +/- .25 pF
C222	21-11031A39	100 pF
C224	21-11031A39	100 pF
C225	21-11031A39	100 pF
C228	21-11032A13	.0022 uF 10%
C229	21-11031A03	1.5 +/- .25 pF
C230	21-11031A03	1.5 +/- .25 pF
C231	21-11031A03	1.5 +/- .25 pF
C233	21-11031A09	4.7 +/- .25 pF
C234	21-11031A16	11 pF
C235	21-11031A10	5.6 +/- .5 pF
C236	21-11031A10	5.6 +/- .5 pF
C237	21-11031A39	100 pF
C239	21-11031A39	100 pF
C240	21-11031A03	1.5 +/- .25 pF
C241		not used
C242	21-11031A39	100 pF
C243	21-11031A07	3.3 +/- .25 pF
C244	21-11031A07	3.3 +/- .25 pF
C245	21-11031A39	100 pF
C247	21-11031A13	8.2 +/- .5 pF
C248	21-11031A01	1 +/- .25 pF
C249	21-11031A39	100 pF
C251		not used
C252	21-11031A39	100 pF
C255		not used
C258	08-11051A07	poly .01 uF 63V

C259	21-11031A15	10 +/- .5 pF	L57	24-80164M04	tunable E714
C260		not used	L58	24-80063M21	4.7 uH
C261	21-11031A07	3.3 +/- .25 pF	L59	24-80164M03	tunable E716
C262		not used	L60	24-80063M14	1.2 uH
C263	21-11031A10	5.6 +/- .5 pF	L61	25-8000E01	tunable 455 kHz with cap
C266	21-11031A02	1.2 +/- .25 pF	L101	24-80063M05	.22 uH
C267	21-11031A01	1 +/- .25 pF	L102	24-11030B08	4-1/2 turns BRN
C276	21-11032A21	.01 uF 10%	L151	24-80299D01	tunable 17-3/4 turns
C277	23-11048B19	lytic 47 uF 20% 16V	L152	24-80063M22	5.6 uH
C278	23-11048B19	lytic 47 uF 20% 16V	L202	24-80148M02	2-1/2 turns BRN
C279	23-11048B19	lytic 47 uF 20% 16V	L203	24-80989T02	.15 uH
C280	21-11032A21	.01 uF 10%	L204	24-11030B09	4-1/2 turns BRN
C281		not used	L205	24-80989T02	.15 uH
C301	21-11032A21	.01 uF 10%	L206	24-80989T02	.15 uH
C302	21-11031A39	100 pF	L207	24-80063M05	.22 uH
C303		not used	L209	24-11030B05	2-1/2 turns GRN
C304	21-11031A35	68 pF	L210	24-11030B08	4-1/2 turns BRN
C305	21-11031A35	68 pF	L211	24-80063M05	.22 uH
C306	21-11031A35	68 pF	L213	24-80148M01	tunable 1-1/2 turns BRN
C307	21-11031A35	68 pF	L214	24-80989T02	.15 uH
C308	21-11031A35	68 pF	L215	24-11030B08	4-1/2 turns BRN
C309	21-11031A39	100 pF	L216	24-80989T02	.15 uH
C310	21-11031A39	100 pF	L217	24-80989T02	.15 uH
C311	21-11031A39	100 pF	L218	24-80063M05	.22 uH
C312	21-11031A35	68 pF	L220	24-11030B05	2-1/2 turns GRN
C313	21-11031A39	100 pF	L221	24-11030B08	4-1/2 turns BRN
			L222	24-80063M05	.22 uH

Diodes (see note)

CR1	48-80236E16	quad Schottky crossed
CR2	48-80154K02	dual Schottky SOT
CR3	48-80939T01	Schottky SOT
CR4	48-84622E02	silicon PIN SOT
CR51	48-83654H01	silicon
CR101	48-83654H01	silicon
CR102	48-83654H01	silicon
CR151	48-05129M21	silicon varactor SOT
CR152	48-05129M21	silicon varactor SOT
CR153	48-83654H01	silicon
CR154	48-83654H01	silicon
CR176	48-83654H02	silicon
CR203	48-84534N02	silicon varactor
CR205	48-84534N02	silicon varactor
CR206	48-80154K02	dual Schottky SOT
CR209	48-84534N02	silicon varactor
CR211	48-84534N02	silicon varactor
CR213	48-84534N02	silicon varactor
CR214	48-80154K02	dual Schottky SOT

Filters

FL51	91-80097D06	455 kHz, 6D
FL52	91-80098D06	455 kHz, 4D

Connectors, receptacle

J4	09-80135M01	coaxial (RX)
J5	09-80135M01	coaxial (TX)
J6	09-80130M02	14-pin socket (logic board)

Coils

L1	24-80148M01	tunable 1-1/2 turns BRN
L2	24-80148M01	tunable 1-1/2 turns BRN
L3	24-80148M01	tunable 1-1/2 turns BRN
L4	24-80148M01	tunable 1-1/2 turns BRN
L5	24-80148M01	tunable 1-1/2 turns BRN
L6	24-80148M01	tunable 1-1/2 turns BRN
L7	24-80148M01	tunable 1-1/2 turns BRN
L8	24-11030B02	1-1/2 turns RED
L9	24-11030B04	1-1/2 turns YEL
L10	24-80989T02	.15 uH
L51	24-11030B12	7-1/2 turns YEL
L52	24-80063M13	1 uH
L53	24-80063M04	.18 uH
L54	24-80063M21	4.7 uH
L55	24-80164M04	tunable E714
L56	24-80164M01	tunable E713

Transistors (see note)

Q1	48-80182D44	NPN; type M82D44
Q2	48-00869643	PNP; type M9643
Q3	48-00869643	PNP; type M9643
Q4	48-00869643	PNP; type M9643
Q5	48-00869643	PNP; type M9643
Q51	48-11043C12	field effect; type M9839
Q52	48-11043C12	field effect; type M9839
Q53	48-00869642	NPN; type M9642
Q101	48-00869643	PNP; type M9643
Q102	48-00869987	NPN; type M9987
Q103	48-00869987	NPN; type M9987
Q104	48-00869643	PNP; type M9643
Q105	48-00869642	NPN; type M9642
Q106	48-00869642	NPN; type M9642
Q107	48-00869658	NPN; type M9658
Q151	48-00869658	NPN; type M9658
Q152	48-00869643	PNP; type M9643
Q203	48-05128M66	field effect; type M39C36
Q204	48-80182D44	NPN; type M82D44
Q205	48-80182D44	NPN; type M82D44
Q206	48-05128M66	field effect; type M39C36
Q207	48-80182D44	NPN; type M82D44
Q208	48-80182D44	NPN; type M82D44
Q276	48-00869642	NPN; type M9642
Q277	48-00869643	PNP; type M9643
Q278	48-00869643	PNP; type M9643
Q279	48-00869643	PNP; type M9643
Q280	48-80214G02	NPN; type MMBT3904

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

R1	06-11024A59	2.7k
R2	06-11024A37	330
R3	06-11024A35	270
R4	06-11024A75	12k
R5	06-11024A77	15k
R6	06-11024A65	4.7k
R7	06-11024A73	10k
R8	06-11024A73	10k
R9	06-11024A47	820
R51	06-11024A18	51
R52	06-11024A29	150
R53	06-11024A73	10k
R54	06-11024A29	150
R56	06-11024B20	820k
R57	06-11024A47	820
R58	06-11024A97	100k
R59	06-11024B02	150k

R60	18-05500L08	variable 22k
R61	06-11024A93	68k
R62	06-11024A83	27k
R63	06-11024A95	82k
R102	06-11024A37	330
R103	06-11024A73	10k
R104	06-11024A73	10k
R105	06-11024A85	33k
R106	06-11024A48	910
R107	06-11024A53	1.5k
R108	06-11024A01	10
R109	06-11024A01	10
R110	06-11024A77	15k
R111	06-11024A35	270
R112	06-11024A51	1.2k
R113	06-11024A39	390
R114	06-11024A35	270
R115	06-11024A47	820
R116	06-11024A69	6.8k
R118	06-11024A47	820
R119	06-11024A63	3.9k
R120	06-11024A69	6.8k
R121	06-11024A73	10k
R122	06-11024A63	3.9k
R123	06-11024A49	1k
R124	06-11024A53	1.5k
R125	06-11024A19	56
R126	06-11024A25	100
R127	06-11024A59	2.7k
R128	06-11024A47	820
R151	06-11024A89	47k
R152	06-11024A85	33k
R153	06-11024A89	47k
R154	06-11024A09	22
R155	06-11024A73	10k
R156	06-11024A77	15k
R157	06-11024A53	1.5k
R158	06-11024A49	1k
R159	06-11024A49	1k
R161	06-11024A73	10k
R163	06-11024A91	56k
R164	18-05500L08	variable 22k
R165	06-11024A81	22k
R176	06-11024H26	22.6k 1%
R177	06-11024H28	23.7k 1%
R178	06-11024G91	10.0k 1%
R179	06-11024G91	10.0k 1%
R180	06-11024H52	42.2k 1%
R181	06-11024G91	10.0k 1%
R182	06-11024H28	23.7k 1%
R207	06-11024A19	56
R208	06-11024A13	33
R209	06-11024A13	33
R210	06-11024A73	10k
R212	06-11024A59	2.7k
R213	06-11024A47	820
R214	06-11024A25	100
R215	06-11024A59	2.7k
R216	06-11024A47	820
R217	06-11024A25	100
R218	06-11024A24	91
R219	06-11024A23	82
R220	06-11024A24	91
R222	06-11024A63	3.9k
R223	06-11024A69	6.8k
R224	06-11024A97	100k
R225	06-11024A63	3.9k
R226	06-11024A19	56
R227	06-11024A13	33
R228	06-11024A13	33
R229	06-11024A73	10k
R231	06-11024A59	2.7k
R232	06-11024A47	820
R233	06-11024A25	100
R234	06-11024A59	2.7k
R235	06-11024A47	820
R236	06-11024A23	82
R237	06-11024A41	470

R238	06-11024A03	12
R239	06-11024A41	470
R243	06-11024A97	100k
R244		not used
R245	06-11024A49	1k
R276	06-11024A73	10k
R277	06-11024A35	270
R278	06-11024A01	10
R279	06-11024A65	4.7k
R280	06-11024A73	10k
R281	06-11024A65	4.7k
R282	06-11024A35	270
R301	06-11024A57	2.2k
R302	18-05500L08	variable 22k
R303	06-11024A69	6.8k

#### Transformers

T1	25-80163M02	balun
T2	25-80163M02	balun

#### Integrated Circuits (see note)

U51	51-05479G05	receiver system
U101	51-84704M75	synthesizer
U102	51-83977M45	prescaler
U176	51-84621K89	dual op-amp

#### 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

26-80097M01	shield coil can (for L151)
26-80098M01	shield coil can (10 used)
26-80228L01	shield can (for J4 & J5, 2 used)
26-80229L02	shield VCO frame
26-80256L02	shield RF front end
75-05295B02	insulator (for Y151)
75-05295B07	insulator (3 used, for Y51A/B, Y52)

**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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Capacitors, chip, 5%, 50 volt, unless otherwise indicated

C2701	21-00821474	feedthru 470 pF
C2702	21-00821474	feedthru 470 pF
C2703	21-00821474	feedthru 470 pF
C2704	21-00821474	feedthru 470 pF
C2705	21-00821474	feedthru 470 pF
C2710	21-11031A39	100 pF
C2711	21-11031A19	15 pF
C2712	21-11031A25	27 pF
C2713	21-11031A61	1000 pF
C2714	21-11031A61	1000 pF
C2715	21-11031A11	6.8 +/- .5 pF
C2716	21-11032B13	.1 uF +80/-20%
C2717	21-11031A39	100 pF
C2718	21-11031A39	100 pF
C2719	21-11032B13	.1 uF +80/-20%
C2720	21-11031A22	20 pF
C2721	21-11031A22	20 pF
C2722		not used
C2726	21-11031A39	100 pF
C2727	21-11031A61	1000 pF
C2728	21-11032B15	.22 uF +80/-20%
C2729	21-11032B15	.22 uF +80/-20%
C2730	21-11031A22	20 pF
C2731	21-11078B25	27 pF 100V
C2732	21-11078B25	27 pF 100V
C2733	21-11031A61	1000 pF
C2736	21-11031A39	100 pF
C2737	21-11032B15	.22 uF +80/-20%
C2738	21-11032B13	.1 uF +80/-20%
C2739	23-80217J08	tantalum 6.8 uF 20% 20V
C2740	21-11078B35	51 pF 100V
C2745	21-80240G33	mica 13 pF 250V
C2746	21-80240G33	mica 13 pF 250V
C2747	21-11031A25	27 pF
C2748	21-11032B15	.22 uF +80/-20%
C2749	21-11078B41	91 pF 100V
C2750	21-11078B13	10 pF 100V
C2751	21-11031A11	6.8 +/- .5 pF
C2752	21-11031A10	5.6 +/- .5 pF
C2753	21-11031A39	100 pF
C2754	21-11031A39	100 pF
C2755	21-80240G48	mica 100 pF 250V
C2756	21-11031A25	27 pF
C2760	21-80240G16	mica 10 +/-1 pF 250V
C2761	21-80240G16	mica 10 +/-1 pF 250V
C2762	21-80240G16	mica 10 +/-1 pF 250V
C2763	21-80240G10	mica 5.6 +/- .25 pF 250V
C2764	21-80240G48	mica 100 pF 250V
C2770	21-11031A39	100 pF
C2771	21-11031A39	100 pF
C2772	21-11031A61	1000 pF
C2773	21-11032B13	.1 uF +80/-20%
C2774	21-11031A39	100 pF
C2775	23-80217J08	tantalum 6.8 uF 20% 20V
C2776	21-11031A39	100 pF
C2777	21-11031A61	1000 pF
C2778	21-11032B13	.1 uF +80/-20%
C2779	21-11031A39	100 pF
C2780	21-11078B23	24 pF 100V
C2781	21-11032B15	.22 uF +80/-20%
C2782	21-11032B15	.22 uF +80/-20%
C2783	21-11032B15	.22 uF +80/-20%
C2784	21-11032B15	.22 uF +80/-20%

Diodes (see note)

CR2750	48-80010E01	silicon PIN
CR2751	48-80010E01	silicon PIN
CR2770	48-80236E07	transient suppressor MR2525L

Ferrite beads

E2720	76-83960B01	ferrite bead
E2770	76-83960B01	ferrite bead
E2771	76-83960B01	ferrite bead

Coils

L2710	24-11030E02	1/2 turn RED
L2711	24-11030E05	1/2 turn GRN
L2712	24-11030E06	1/2 turn BLU
L2713	24-11030B01	1-1/2 turns BRN
L2720	24-11030E01	1/2 turn BRN
L2722	24-82723H44	39 nH
L2730	24-11030A03	4 turns YEL
L2731	24-80036A01	ferrite bead 1/2 turn
L2732	24-11030A02	3 turns ORG
L2740	24-80036A01	ferrite bead 1/2 turn
L2741	24-11030A02	3 turns ORG
L2742	24-11030A01	2 turns RED
L2743	24-11030E02	1/2 turn RED
L2750	24-82723H40	290 nH
L2751	24-11030B03	1-1/2 turns ORG
L2752	24-82723H40	290 nH
L2760	24-80908T09	1-1/2 turns RED
L2761	24-80908T12	1-1/2 turns GRN
L2762	24-80908T12	1-1/2 turns GRN
L2763	24-11030B11	6-1/2 turns ORG
L2770	24-82723H46	200 nH
L2771	24-84346A02	200 nH

Transistors (see note)

Q2710	48-82233P39	NPN; type M33P39
Q2720	48-80225C09	NPN; type M25C09

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

R2710	06-11024A35	270
R2711	06-11024A33	220
R2712	06-11024A21	68
R2713	06-11024A01	10
R2714	06-11024A01	10
R2715	06-11024A32	200
R2720	06-11024A01	10
R2740	06-02369M10	metal film 5.6 0.6 watt
R2750	06-11009A25	carbon film 100 1/4 watt
R2751	06-11024A28	130
R2752	06-11024A28	130
R2753	06-11024A13	33
R2770	06-80147M02	metal plate .01 10% 2 watt
R2771	06-11024A01	10

Non-referenced items

07-80222M01	feedthru bracket
26-80158L01	heat sink (for Q2720)
26-80275M01	heat sink, diode (2 used)
29-80014A01	clip coax terminal (2 used)

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

HLN9153A PA Hardware Kit (35 Watt UHF)

REFERENCE NUMBER	MOTOROLA PART NO.	DESCRIPTION
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Capacitors, chip, 5%, 100V

C2734	21-11078B13	10 pF
C2741	21-11078B37	62 pF
C2742	21-11078B37	62 pF
C2743	21-11078B34	47 pF
C2744	21-11078B34	47 pF

Connector, receptacle

J1	09-80131M01	mini UHF coax
J2	09-80255E01	power (includes feedthru)

Connector, plug

P4	30-80138M08	coaxial cable 200 mm with plug
P5	30-80138M07	coaxial cable 150 mm with plug
P7	15-80075M01	housing connector, 5 pin

Transistors (see note)

Q2730	48-80225C19	NPN; type M25C19
Q2740	48-80225C24	NPN; type M25C24

Non-referenced items

02-00007003	nut 8-32x5/16x1/8
03-10943M10	screw M3x.5x8 (8 used)
03-10943M11	screw M3x.5x10 (2 used for J2)
04-00131974	washer (2 used for J2)
04-80943V01	lockwasher 3/8" (for J1)
09-80133M01	receptacle connector (5 used for P7)
26-80124L01	heat sink
26-80223M05	PA shield
32-80014N02	gasket, accessory connector
42-80281L01	ground clip (2 used)

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