

[FILTER BOARD]

REF NO.	ORDER NO.	DESCRIPTION	
C64	4030007090	S.CERAMIC	C1608 CH 1H 470J-T-A
C65	4030006850	S.CERAMIC	C1608 JB 1H 471K-T-A
C66	4030006850	S.CERAMIC	C1608 JB 1H 471K-T-A
C67	4030006850	S.CERAMIC	C1608 JB 1H 471K-T-A
C69	4030006880	S.CERAMIC	C1608 JB 1H 472K-T-A
C70	4030006880	S.CERAMIC	C1608 JB 1H 472K-T-A
C71	4030006880	S.CERAMIC	C1608 JB 1H 472K-T-A
C72	4030006880	S.CERAMIC	C1608 JB 1H 472K-T-A
C73	4030006880	S.CERAMIC	C1608 JB 1H 472K-T-A
C74	4030006880	S.CERAMIC	C1608 JB 1H 472K-T-A
C75	4030006880	S.CERAMIC	C1608 JB 1H 472K-T-A
C76	4030006880	S.CERAMIC	C1608 JB 1H 472K-T-A
C78	4010005850	CERAMIC	HM95SJ SL 181J 500V
C79	4010005860	CERAMIC	HM95SJ SL 201J 500V
C80	4010007590	CERAMIC	HM15SJ SL 681J 500V
C81	4010006410	CERAMIC	HM13SJ SL 471J 500V
C82	4010007500	CERAMIC	HM15SJ SL 751J 500V
C84	4010007490	CERAMIC	HM15SJ SL 561J 500V
C87	4030006880	S.CERAMIC	C1608 JB 1H 472K-T-A
C88	4030006880	S.CERAMIC	C1608 JB 1H 472K-T-A
C89	4030006880	S.CERAMIC	C1608 JB 1H 472K-T-A
C90	4030006880	S.CERAMIC	C1608 JB 1H 472K-T-A
C91	4030006880	S.CERAMIC	C1608 JB 1H 472K-T-A
C92	4030006880	S.CERAMIC	C1608 JB 1H 472K-T-A
C93	4030006880	S.CERAMIC	C1608 JB 1H 472K-T-A
C94	4030006880	S.CERAMIC	C1608 JB 1H 472K-T-A
C95	4030006880	S.CERAMIC	C1608 JB 1H 472K-T-A
C96	4030006880	S.CERAMIC	C1608 JB 1H 472K-T-A
C97	4030006880	S.CERAMIC	C1608 JB 1H 472K-T-A
C98	4030006880	S.CERAMIC	C1608 JB 1H 472K-T-A
C99	4030006880	S.CERAMIC	C1608 JB 1H 472K-T-A
C100	4030006880	S.CERAMIC	C1608 JB 1H 472K-T-A
C101	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C102	4030006880	S.CERAMIC	C1608 JB 1H 472K-T-A
C103	4030006880	S.CERAMIC	C1608 JB 1H 472K-T-A
C104	4030006880	S.CERAMIC	C1608 JB 1H 472K-T-A
C105	4030006880	S.CERAMIC	C1608 JB 1H 472K-T-A
C110	4030006880	S.CERAMIC	C1608 JB 1H 472K-T-A
C111	4030006880	S.CERAMIC	C1608 JB 1H 472K-T-A
C112	4030006880	S.CERAMIC	C1608 JB 1H 472K-T-A
C113	4030006880	S.CERAMIC	C1608 JB 1H 472K-T-A
C114	4030006880	S.CERAMIC	C1608 JB 1H 472K-T-A
C115	4030006880	S.CERAMIC	C1608 JB 1H 472K-T-A
C116	4030006880	S.CERAMIC	C1608 JB 1H 472K-T-A
C117	4030006880	S.CERAMIC	C1608 JB 1H 472K-T-A
C118	4030006880	S.CERAMIC	C1608 JB 1H 472K-T-A
C119	4030006880	S.CERAMIC	C1608 JB 1H 472K-T-A
C120	4030006880	S.CERAMIC	C1608 JB 1H 472K-T-A
C121	4030006880	S.CERAMIC	C1608 JB 1H 472K-T-A
C122	4030006880	S.CERAMIC	C1608 JB 1H 472K-T-A
C123	4030009110	S.CERAMIC	C3216 JB 1C 474K-T-A
C124	4030011600	S.CERAMIC	C1608 JB 1C 104KT-N
C125	4030011600	S.CERAMIC	C1608 JB 1C 104KT-N
C126	4030011600	S.CERAMIC	C1608 JB 1C 104KT-N
C127	4030011600	S.CERAMIC	C1608 JB 1C 104KT-N
C132	4010005640	CERAMIC	HM60SJ SL 180J 500V
C133	4030011600	S.CERAMIC	C1608 JB 1C 104KT-N
C134	4010005780	CERAMIC	HM60SJ SL 101J 500V
C135	4010005820	CERAMIC	HM74SJ SL 121J 500V
C136	4030001420	S.CERAMIC	GR44 Y5V 684Z
C137	4010005770	CERAMIC	HM60SJ SL 820J 500V
C140	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C141	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
C143	4010006410	CERAMIC	HM13SJ SL 471J 500V
C144	4030006880	S.CERAMIC	C1608 JB 1H 472K-T-A
C145	4030006880	S.CERAMIC	C1608 JB 1H 472K-T-A
C146	4030006880	S.CERAMIC	C1608 JB 1H 472K-T-A
C147	4030006880	S.CERAMIC	C1608 JB 1H 472K-T-A
C148	4030006880	S.CERAMIC	C1608 JB 1H 472K-T-A
C149	4030011600	S.CERAMIC	C1608 JB 1C 104KT-N
C150	4030011600	S.CERAMIC	C1608 JB 1C 104KT-N
C151	4010005540	CERAMIC	HM60SJ SL 030C 500V
C152	4030006860	S.CERAMIC	C1608 JB 1H 102K-T-A
RL1	6330001330	RELAY	AG 201344
RL2	6330001430	RELAY	NA-12W-K
RL3	6330001430	RELAY	NA-12W-K
RL4	6330001320	RELAY	AHY103
RL5	6330001320	RELAY	AHY103
RL6	6330001320	RELAY	AHY103
RL7	6330001320	RELAY	AHY103

[FILTER BOARD]

REF NO.	ORDER NO.	DESCRIPTION	
RL8	6330001320	RELAY	AHY103
RL9	6330001320	RELAY	AHY103
RL10	6330001320	RELAY	AHY103
RL11	6330001320	RELAY	AHY103
RL12	6330001320	RELAY	AHY103
RL13	6330001320	RELAY	AHY103
RL14	6330001320	RELAY	AHY103
RL15	6330001320	RELAY	AHY103
RL16	6330001320	RELAY	AHY103
J1	6510007900	CONNECTOR	TBP-P01X-A1
J2	6510007900	CONNECTOR	TBP-P01X-A1
J4	6450001490	CONNECTOR	HLJ7001-01-3010
J5	6450001640	CONNECTOR	TCS5044-01-4111
J7	6450001650	CONNECTOR	HSJ0836-01-500
J8	6450001660	CONNECTOR	EX345GLB
J9	6510020080	S.CONNECTOR	52808-2090
J10	6510009870	CONNECTOR	PD054-02M
J11	6510016170	CONNECTOR	52018-8835
J12	6510019970	S.CONNECTOR	52808-1090
J13	6510003250	CONNECTOR	TMP-J01X-A2
P1	6510003240	CONNECTOR	TMP-P01X-A1
P2	6510003240	CONNECTOR	TMP-P01X-A1
P3	6510018980	CONNECTOR	PHR-2
W1	7120000010	JUMPER	JPW 02A
W15	7030003860	S.JUMPER	ERJ3GE JPW V
W16	7030003860	S.JUMPER	ERJ3GE JPW V
W17	7030003860	S.JUMPER	ERJ3GE JPW V
W18	7120000010	JUMPER	JPW 02A
WS1	8970022491		(2)/FI
WS2	8600035690		P03XJ10FI
EP1	0910048525	PCB	B 4921E

S.=Surface mount

SECTION 6

MECHANICAL PARTS AND DISASSEMBLY

[CHASSIS PARTS]

REF. NO.	ORDER NO.	DESCRIPTION	QTY.
J3	6510000370	Connector MR-DS [ANT1]	1
J4	6510000370	Connector MR-DS [ANT2]	1
W1	8900006050	Flat Cable OPC-594	1
W2	8900006060	Flat Cable OPC-595	1
W3	8900006150	Flat Cable OPC-602	1
EP1	8930021010	Domed plug DP-500	1
EP2	0910045921	Flexible PCB B-4598A	1
MF1	2710000580	Fan FBA06T12HF	1
SP1	2510000990	Speaker VS-66Y0811	1
MP1	8410002062	1897 heatsink-2	1
MP2	8110006060	1897 upper-cover (incl. MP10 and MP38)	1
MP3	8510011450	1897 lower-cover	1
MP7	8930043950	1897 fan guard	1
MP8	8820000530	Flange bolt M4 x 8 NI	1
MP10	8930015850	SP net	1
MP11	8930018520	TR.clip (A)	1
MP12	8950004180	1691 contact base(A)	1
MP15	8930036980	1691 earth spring	1
MP17	8930037000	1691 earth plate	1
MP19	8810008630	Screw PH BT M3 x 6 NI-ZU	5
MP20	8810007410	Screw PH M3 x 6 NI	2
MP21	8810009020	Screw FH M2.6 x 5 ZK	5
MP22	8850000140	Flat washer M4 NI BS	1
MP24	8810008990	Screw PH BT M2 x 10 ZK	1
MP25	8850001560	Ster washer M4	1
MP26	8810008630	Screw PH BT M3 x 6 NI-ZU	4
MP27	8810008630	Screw PH BT M3 x 6 NI-ZU	5
MP28	8810008630	Screw PH BT M3 x 6 NI-ZU	6
MP32	8810007410	Screw PH M3 x 6 NI	2
MP33	8810008490	Setscrew H M2.6 x 8 NI	2
MP34	8810008490	Setscrew H M2.6 x 8 NI	2
MP35	8810008490	Setscrew H M2.6 x 8 NI	2
MP36	8810009020	Screw FH M2.6 x 5 ZK	5
MP37	8810008490	Setscrew H M2.6 x 8 NI	1
MP38	8930038650	Sheet BE	1
MP40	8930038820	Aluminum sheet V	1
MP49	8930028390	Sheet AH	5
MP51	8930039430	1691 B-sheet	1
MP56	8930040270	Embossed sheet (H)	2
MP60	8930042440	1897 SP hoder	1
MP61	8810009020	Screw FT M2.6 x 5 ZK	4
MP62	8810009390	Screw PH BT M3 x 18 NI-ZU	4
MP63	8810007410	Screw PH M3 x 6 NI	2
MP64	8810008490	Setscrew H M2.6 x 8 NI	1
MP65	8810008630	Screw PH BT M3 x 6 NI-ZU	2
MP67	8930001180	Earth plate	1
MP68	8930028840	Sponge (DF)	1
MP69	8930043960	Sheet BQ	2
MP70	8930033930	Sheet DN	1
MP71	8950004610	Wire sticker S-5	1

[FRONT UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	QTY.
S1	2250000290	Encoder SW-159 (EC24B50B) (incl. nut, washer)	1
W1	8900006040	Flat cable OPC-593	1
W2	8900006250	Cable OPC-610	1
MP1	8210014212	1691 front panel (B)-2	1
MP2	8210012580	1691 rear panel	1
MP3	8930036720	1691 8-key	1
MP4	8930041650	1691 UP/DOWN key (A)	1
MP5	8930036731	1691 4-key-1	1
MP8	8930036751	Spring (Y)-1	1
MP9	8930032340	1424 N-spring	1
MP10	8830001010	Hex nut (A)	2
MP11	8610010000	Knob N237 (include. MP28)	1
MP12	8610010010	Knob N238	2
MP13	8610010021	Knob N239 base-1	1
MP14	8610010030	Knob N239 cover	1
MP15	8610010040	Knob N239 finger rest	1
MP16	8930036691	1691 release button-1	1
MP17	8930036700	1691 lens	3
MP18	8310036280	1691 window plate	1
MP19	8310036273	1691 brake plate-3	1
MP20	8950004191	1691 contact base(b)-1	1
MP21	8930036740	1691 brake pad	2
MP22	8930037111	1691 brake sheet-1	1
MP23	8310036583	1691 caution label (S)-3	1
MP24	8810008990	Screw PH BT M2 x 10 ZK	2
MP25	8930038940	Sponge (EF)	1
MP26	8830001100	Nut (for tube) M9 B11-H2	1
MP27	8610010360	Knob N260 (include. MP29)	1
MP28	8610007510	Knob spring No. 7800	1
MP29	8610007510	Knob spring No. 7800	1
	8210014470	1691 front panel (B)-2 assembly (include. MP1, 4, 5, 17 and 18)	1
	8610010111	Knob N239-1 assembly (include. MP9, 13, 14, 15 and 22)	1

[DISPLAY BOARD]

REF. NO.	ORDER NO.	DESCRIPTION	QTY.
J2	6450001630	Connector HJSJ1406-01-050 [PHONES]	1
DS4	5010000210	LCD DLC-7986YBGF	1
DS5	5030001290	LED D2264	1
EP2	8930039790	LCD contact SRCN-1691-ZSS-505	2
MP1	8930036710	1691 LCD holder	1
MP3	8810009040	Setscrew H M2.6 X 10 NI	1
MP4	8830000180	Nut M2.6 NI BS	1
MP5	8930043470	1897 front plate	1

[VR BOARD]

REF. NO.	ORDER NO.	DESCRIPTION	QTY.
R1	7210002780	Variable register RV-300	1
R2	7210002940	Variable register TP96D231E20-20F-10KB-1897	1
S1	2220000540	Switch SW-162 (SSSS22-2-11)	1

[MAIN BOARD]

REF. NO.	ORDER NO.	DESCRIPTION	QTY.
MP3	8510011420	1897 M-case	1
MP4	8930014140	Earth spring (D)	1
MP6	8510011250	1897 main S-plate	1
MP7	8930024170	Earth spring (G)	1
MP8	8930024170	Earth spring (G)	1
MP9	8510010460	1691 main shield plate	1
MP10	8510010460	1691 main shield plate	1
MP11	8930044650	1897 M-spring	1

[HPF BOARD]

REF. NO.	ORDER NO.	DESCRIPTION	QTY.
MP1	8510009180	1346 VCO case	1
MP2	8930028840	Sponge (DF)	1

[PLL UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	QTY.
MP1	8510010050	1691 shield case	1
MP2	8510010060	1691 shield cover	1
MP3	8510005980	724 shield case	1
MP4	8510011440	1897 P-cover	1
MP5	8510006970	VCO shield case	1
MP7	8510010050	1691 shield case	1
MP8	8510010060	1691 shield cover	1
MP9	8510005980	724 shield case	1
MP10	8510005990	724 shield case cover	1
MP15	8810003960	Setscrew A M2.6 $\diamond$ 5	3
MP16	8810003960	Setscrew A M2.6 $\diamond$ 5	3
MP17	8510010150	1691 D/A case	1
MP19	8820000900	1691 screw	1
MP22	8510011160	1897 PLL shield case	1
MP23	8510010850	1897 D/A case	1
MP24	8510010460	1691 main shield plate	1
MP25	8950000180	Cable tie-80	2
MP26	8930001170	Earth spring (A)	1
MP27	8930012270	575 CPU shield plate	1
MP28	8930001170	Earth spring (A)	1

[PA UNIT]

REF. NO.	ORDER NO.	DESCRIPTION	QTY.
J8	6450000140	Connector HSJ0807-01-010 [EXT SP]	1
J19	6510001920	Connector 1490R [TUNER]	1
P8	6510003780	Connector LLR-06 [DC 13.8V]	1
MP1	8950000180	Cable tie-80	1
MP3	8950000180	Cable tie-80	1
MP7	8860000100	Earth lug B 2 (M2.6) AG BS	1
MP8	8860000100	Earth lug B 2 (M2.6) AG BS	1
MP9	8860000100	Earth lug B 2 (M2.6) AG BS	1
MP10	8860000100	Earth lug B 2 (M2.6) AG BS	1
MP11	8860000100	Earth lug B 2 (M2.6) AG BS	1
MP12	8860000100	Earth lug B 2 (M2.6) AG BS	1
MP14	8930044800	1897 TR plate	1

[FILTER BOARD]

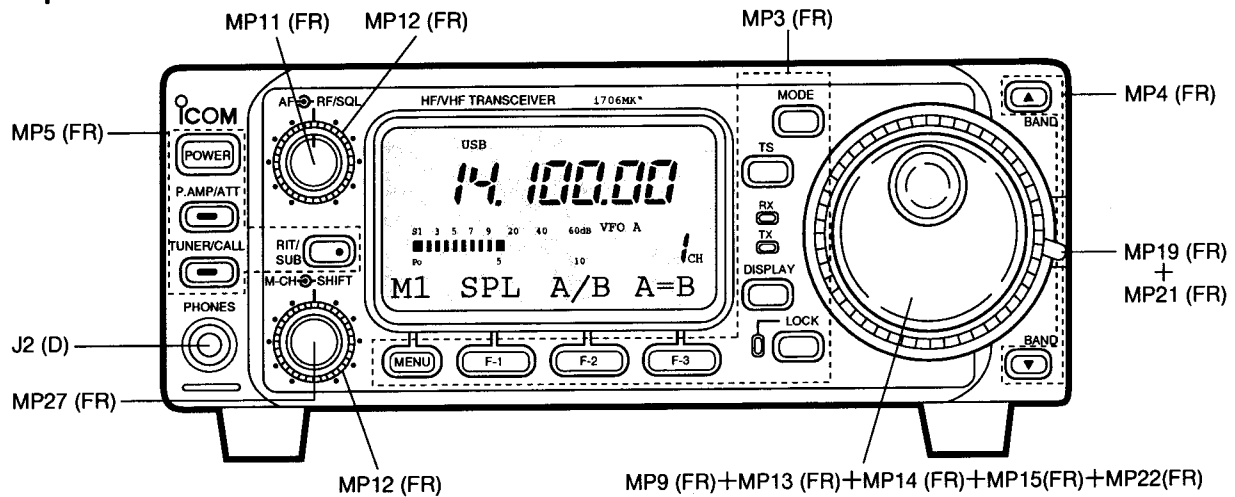
REF. NO.	ORDER NO.	DESCRIPTION	QTY.
J4	6450001490	Connector HLJ7001-01-3010 [ELEC-KEY]	1
J5	6450001640	Connector TCS5044-01-4111 [ACC]	1
J7	6450001650	Connector HSJ0836-01-500 [REMOTE]	1
J8	6450001660	Connector EX345GLB [RTTY]	1
J11	6510016170	Connector 52018-8835 [MIC]	1
MP2	8930014140	Earth spring (D)	1
MP3	8930014140	Earth spring (D)	1

[UNPACKING]

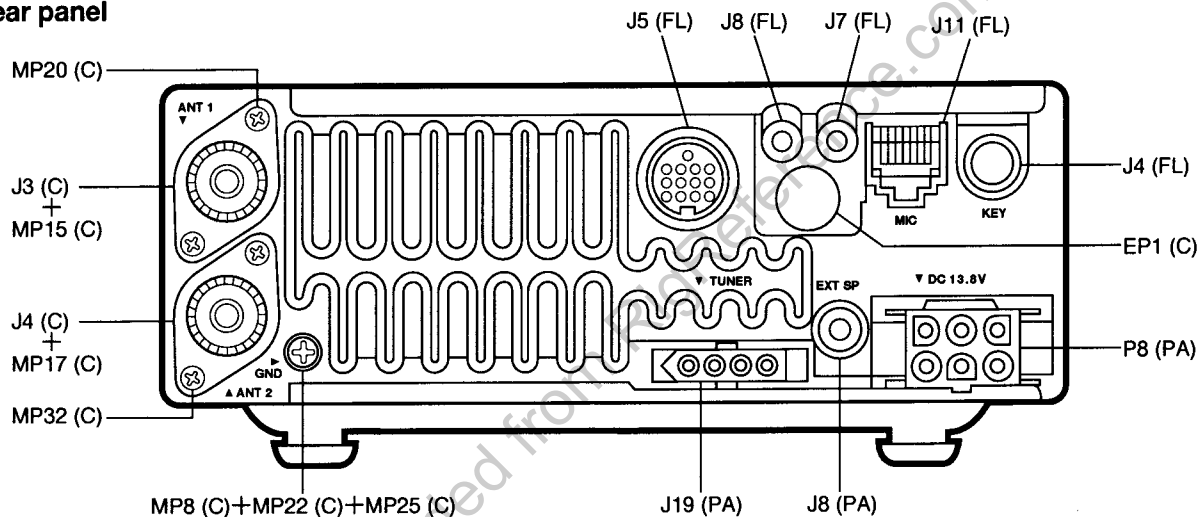
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F1	5210000090	Fuse FGB 30A	2
F2	5210000130	Fuse FGB 4A	1
P1	5610000050	Electronic keyer plug AP330	1
P2	5610000170	RTTY key plug AP370B	1
W1	8900006490	DC power cable OPC-025D [USA]	1
W2	8900006110	ACC cable OPC-596	1
MC1	7700002000	Hand microphone HM-103 ACC	1

Screw abbreviations BT: Self-tapping PH: Pan head
 NI: Nickel NI-ZU: Nickel-Zinc
 BS: Brass ZK: Black

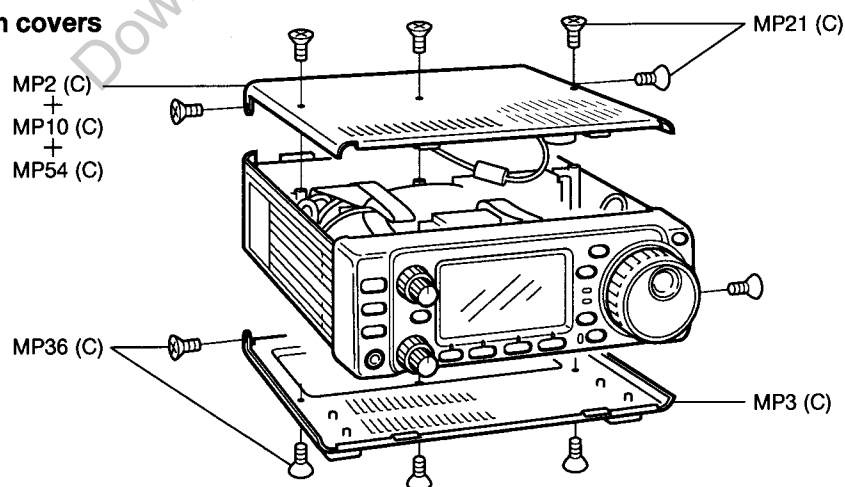
● Front panel



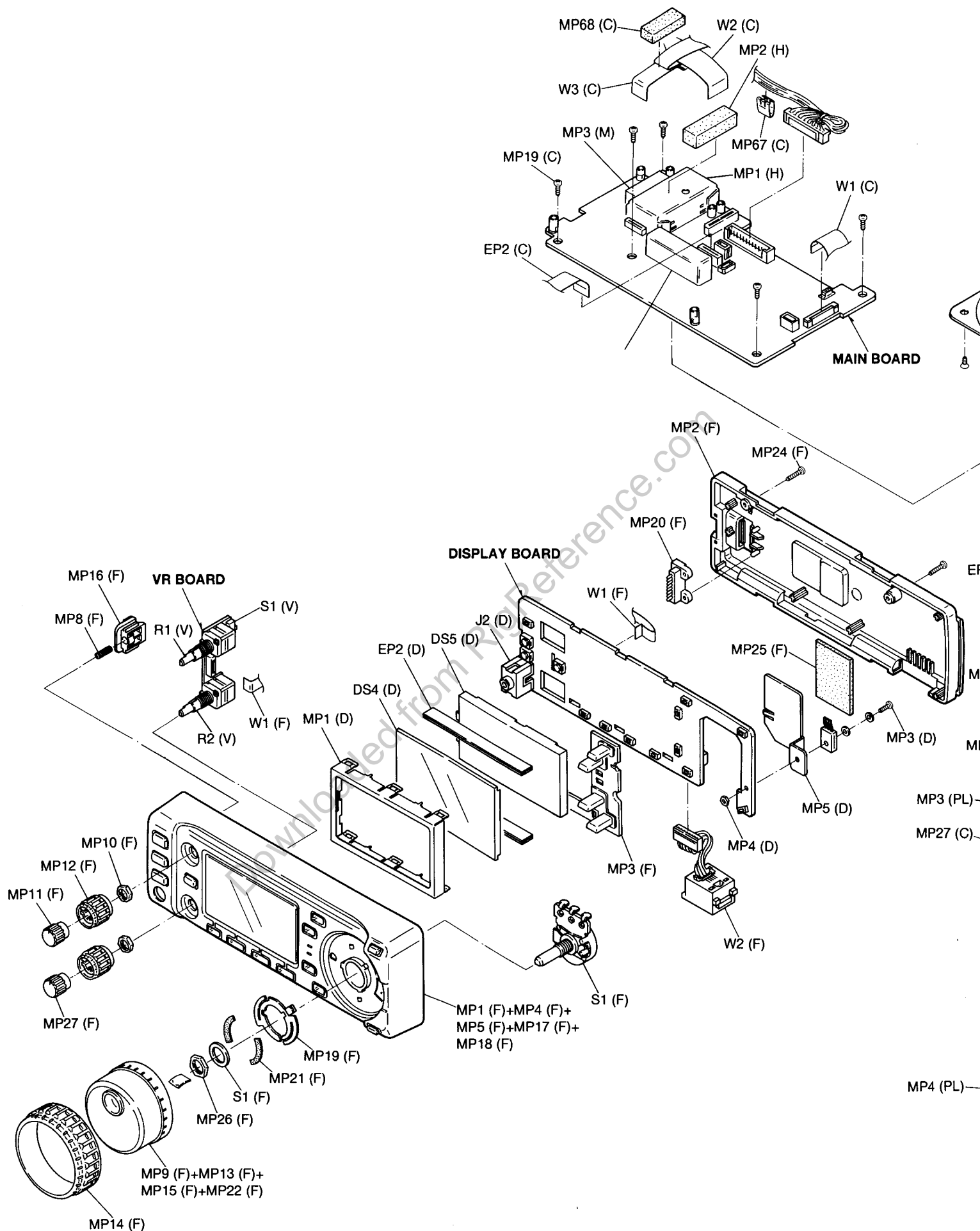
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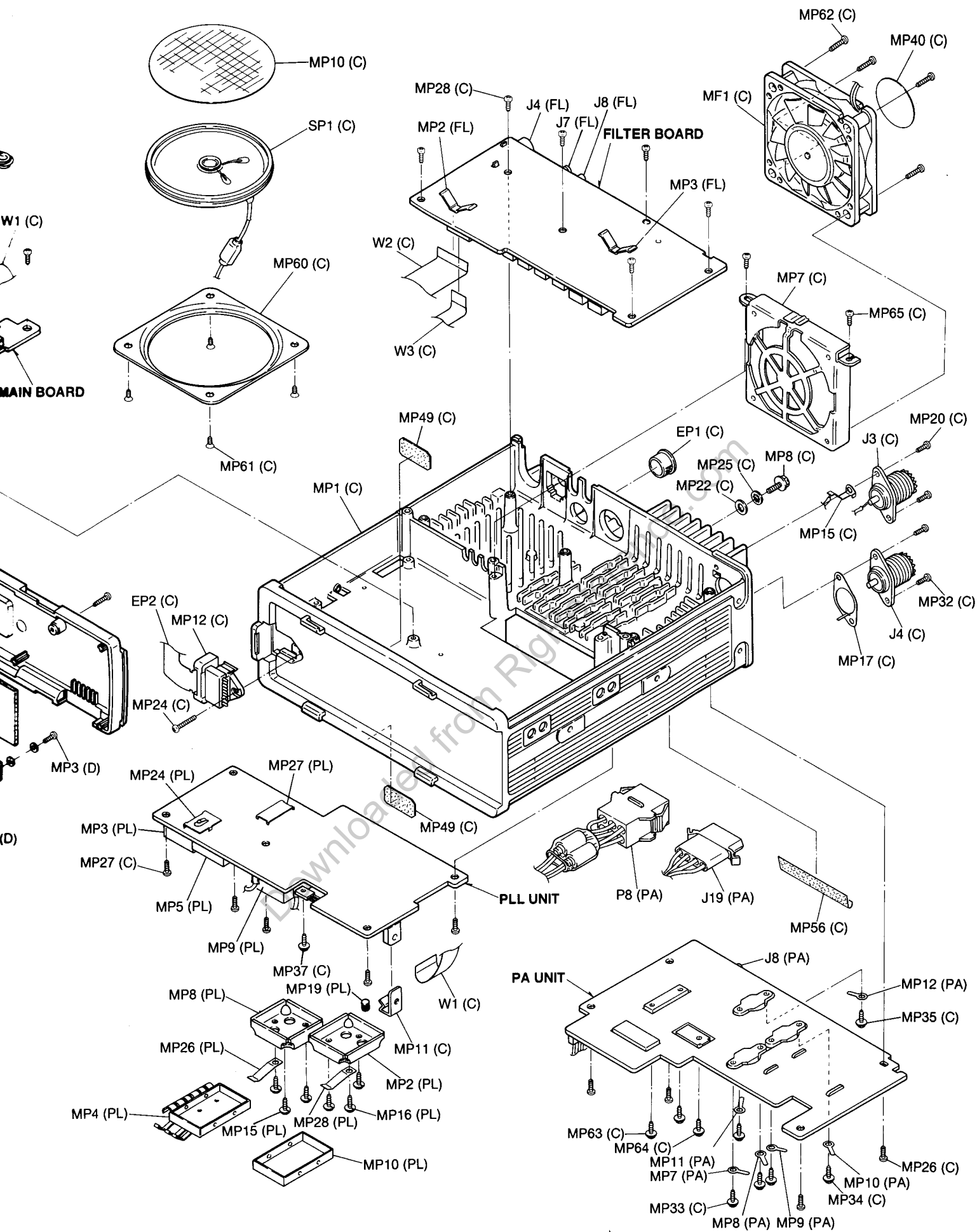
● Top and bottom covers



Unit abbreviations: (C): CHASSIS PARTS (FR): FRONT PARTS (D): DISPLAY BOARD (PA): PA UNIT (FL): FILTER BOARD



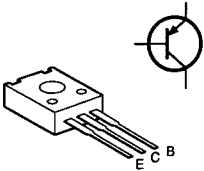
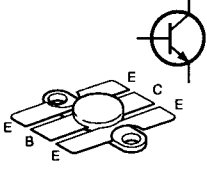
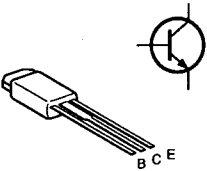
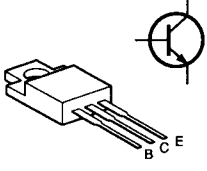
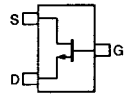
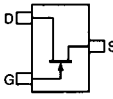
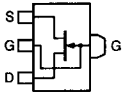
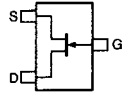
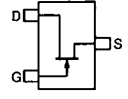
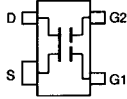
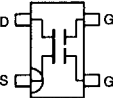
Unit abbreviations: (C): CHASSIS PARTS (FR): FRONT PARTS (D): DISPLAY BOARD (M): MAIN BOARD
(PL): PLL UNIT (PA): PA UNIT (FL): FILTER BOARD (H): HPF BOARD

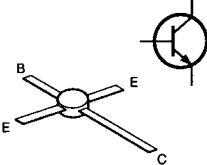


SECTION 7

SEMI-CONDUCTOR INFORMATION

• TRANSISTOR AND FET'S

2SA1576 R (Symbol: FR) 	2SB1132 Q (Symbol: BA) 	2SB1143 S 	2SB798 DK (Symbol: DK) 	2SC2694 
2SC4081 R (Symbol: BR) 	2SC4081 S (Symbol: BS) 	2SC4116 GR (Symbol: LG) 	2SC4117 BL (Symbol: DL) 	2SC4213 B (Symbol: AB) 
2SC4226 R25 (Symbol: R25) 	2SC4403 3 (Symbol: LY3) 	2SC4405 3 TL (Symbol: OY3) 	2SC4673D (Symbol: CO) 	2SD1221 Y 
2SD1406 	2SD1619 (Symbol: DB) 	2SD1623 (Symbol: DF) 	2SD999 CK (Symbol: CK) 	2SK1577 2 T7 (Symbol: P2) 
2SK210 GR (Symbol: YG) 	2SK2171 4 (Symbol: No symbol) 	2SK880 Y (Symbol: XY) 	2SK882 GR (Symbol: TG) 	3SK131 (Symbol: VIT) 
3SK228XR (Symbol: XR) 	DTA114EE (Symbol: 14) 	DTA114EU (Symbol: 14) 	DTA144EE TL (Symbol: 16) 	DTC114EE TL (Symbol: 24) 

DTA114TU (Symbol: 94) 	DTC114EU (Symbol: 24) 	DTC143TU (Symbol: 03) 	DTC144EE (Symbol: 24) 	DTC144EU (Symbol: 26) 
DTC144TU (Symbol: 06) 	MRF5015 	MRF581 	UMD6 (Symbol: D6) 	UN911F (Symbol: 6O) 

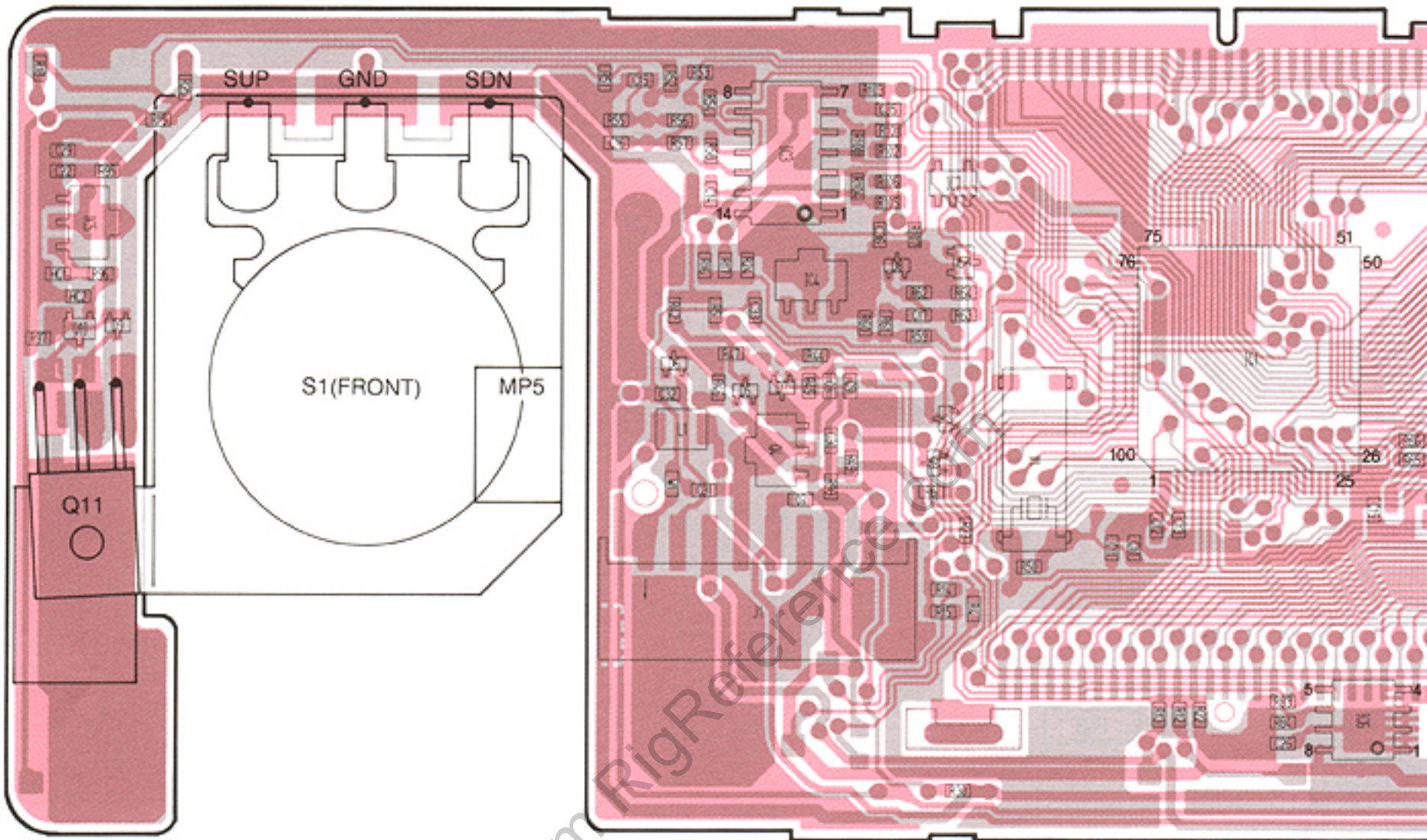
• DIODES

1SS319 (Symbol: A4) 	1SV237 (Symbol: BB) 	1SV265 TL (Symbol: LV) 	1SV271 (Symbol: TG) 	DA114 (Symbol: AV) 
DA204U (Symbol: K) 	DA221 (Symbol: K) 	DAN222 (Symbol: N) 	DAP222 (Symbol: FR) 	HSB88WSTR (Symbol: Silver line) 
HSM88AS (Symbol: C1) 	HVM17-01TR (Symbol: T6) 	MA862 (Symbol: M11) 	RD3.6M B2 (Symbol: 362) 	RD5.6M B2 (Symbol: 562) 
RD9.1M B2 (Symbol: 912) 				

SECTION 8 BOARD LAYOUTS

8-1 DISPLAY BOARD

• DISPLAY BOARD

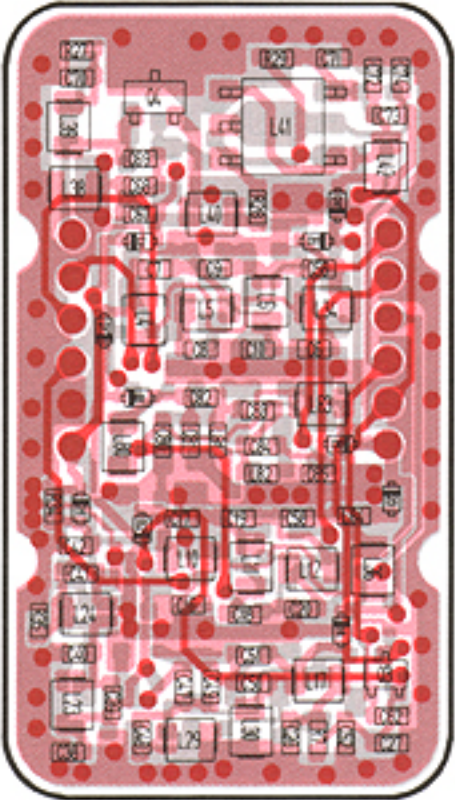


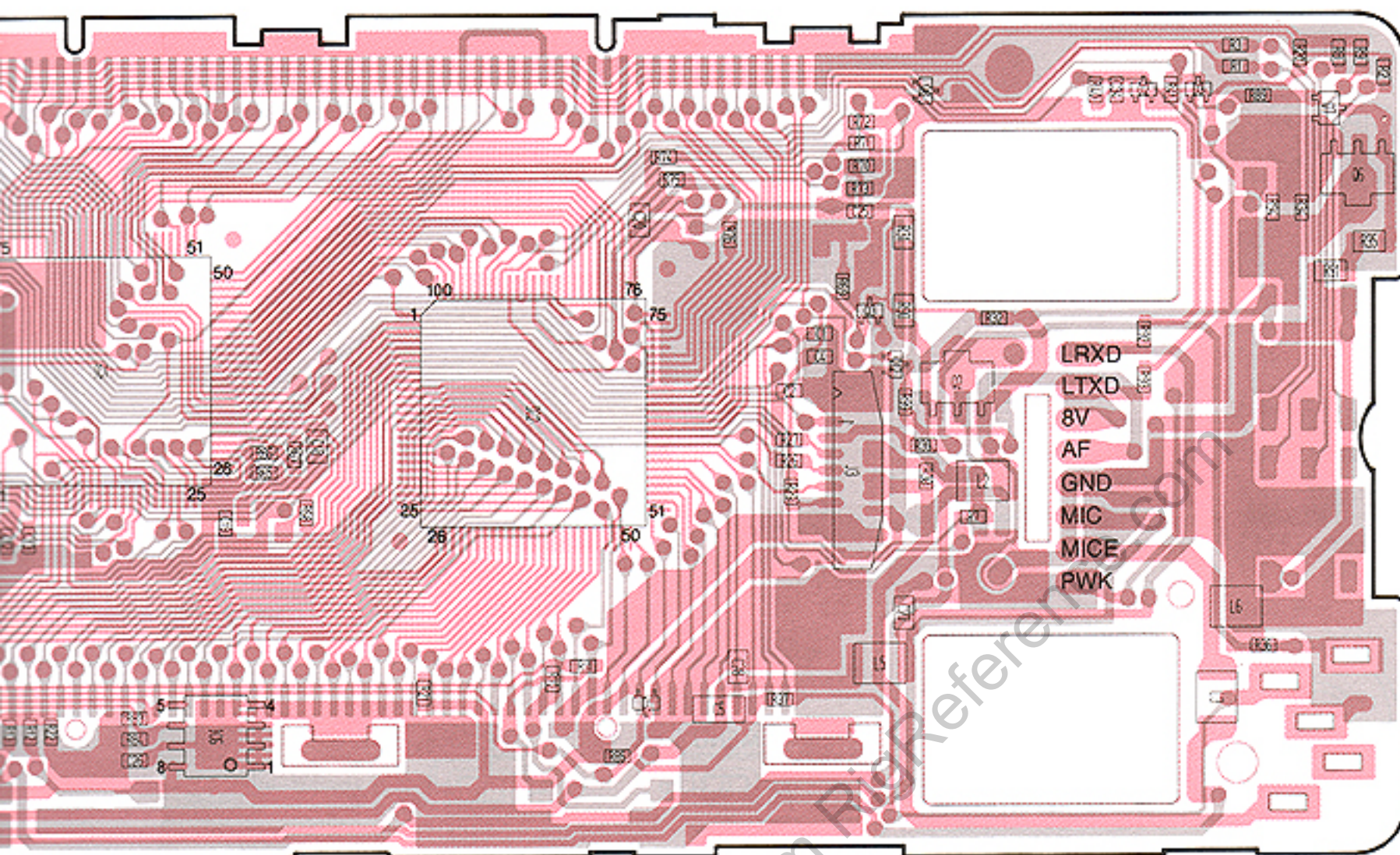
J1

1	8
8V	SQLS
U/D	
AF	
PTT	
MICE	
MIC	
GND	

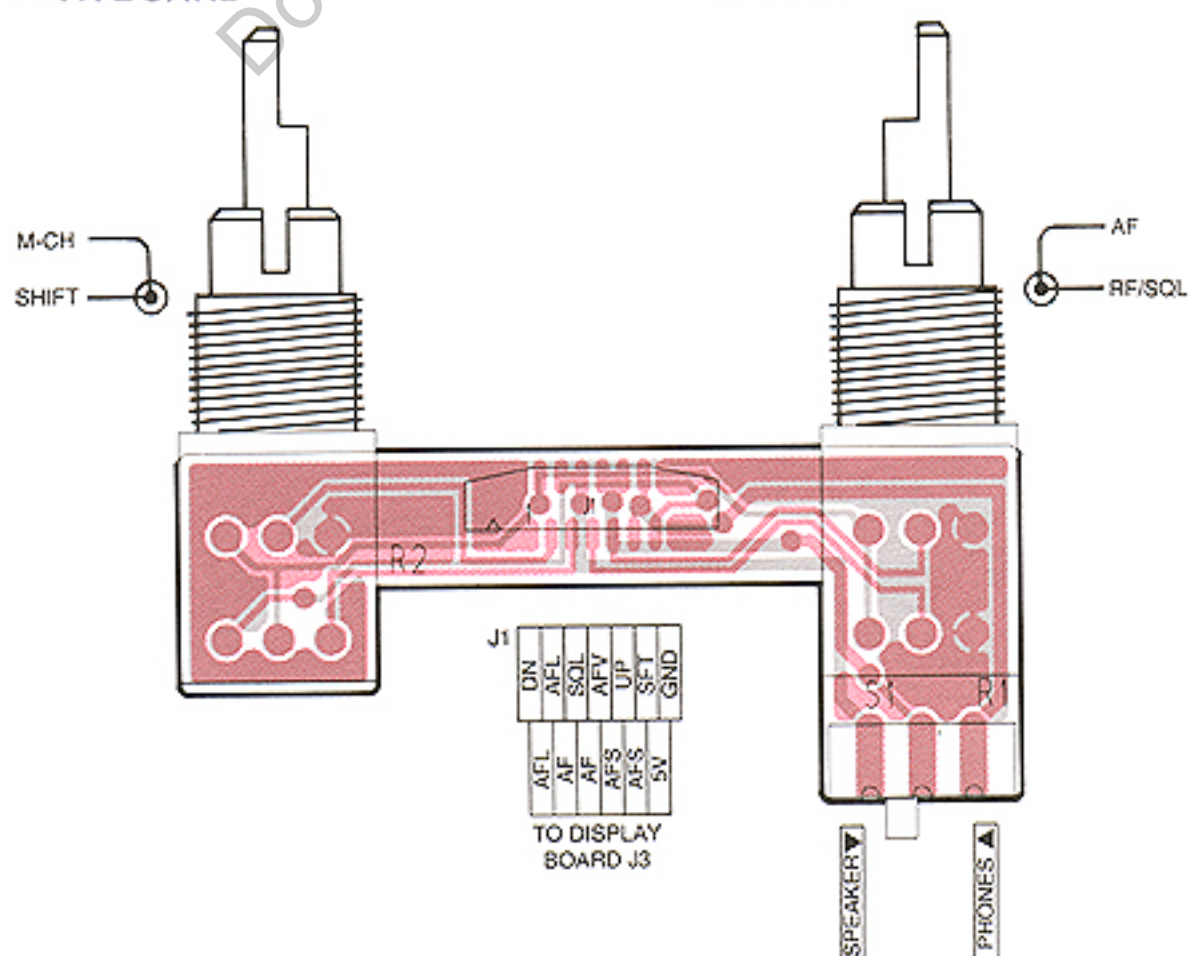
TO FRONT
UNIT W2

• HPF BOARD

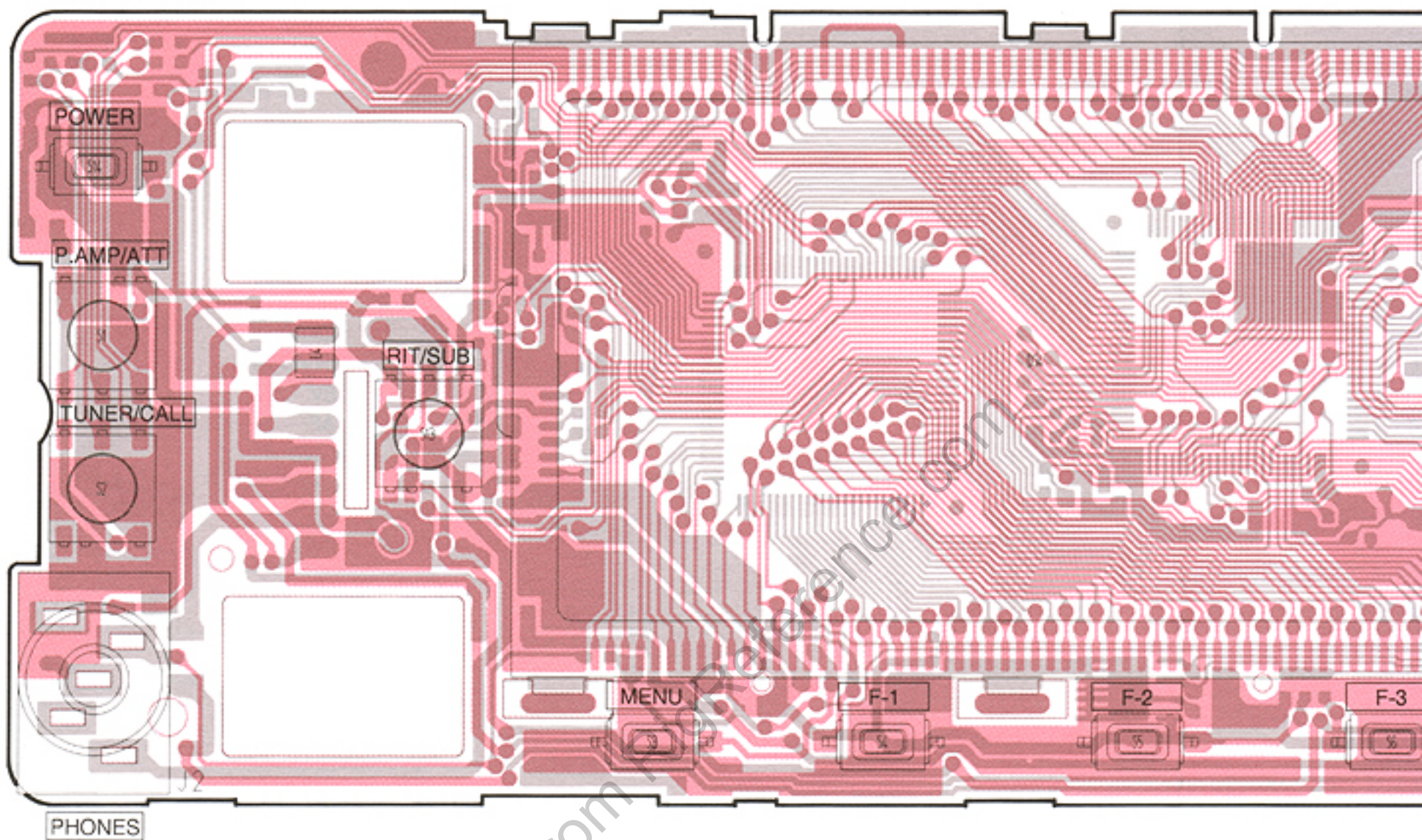


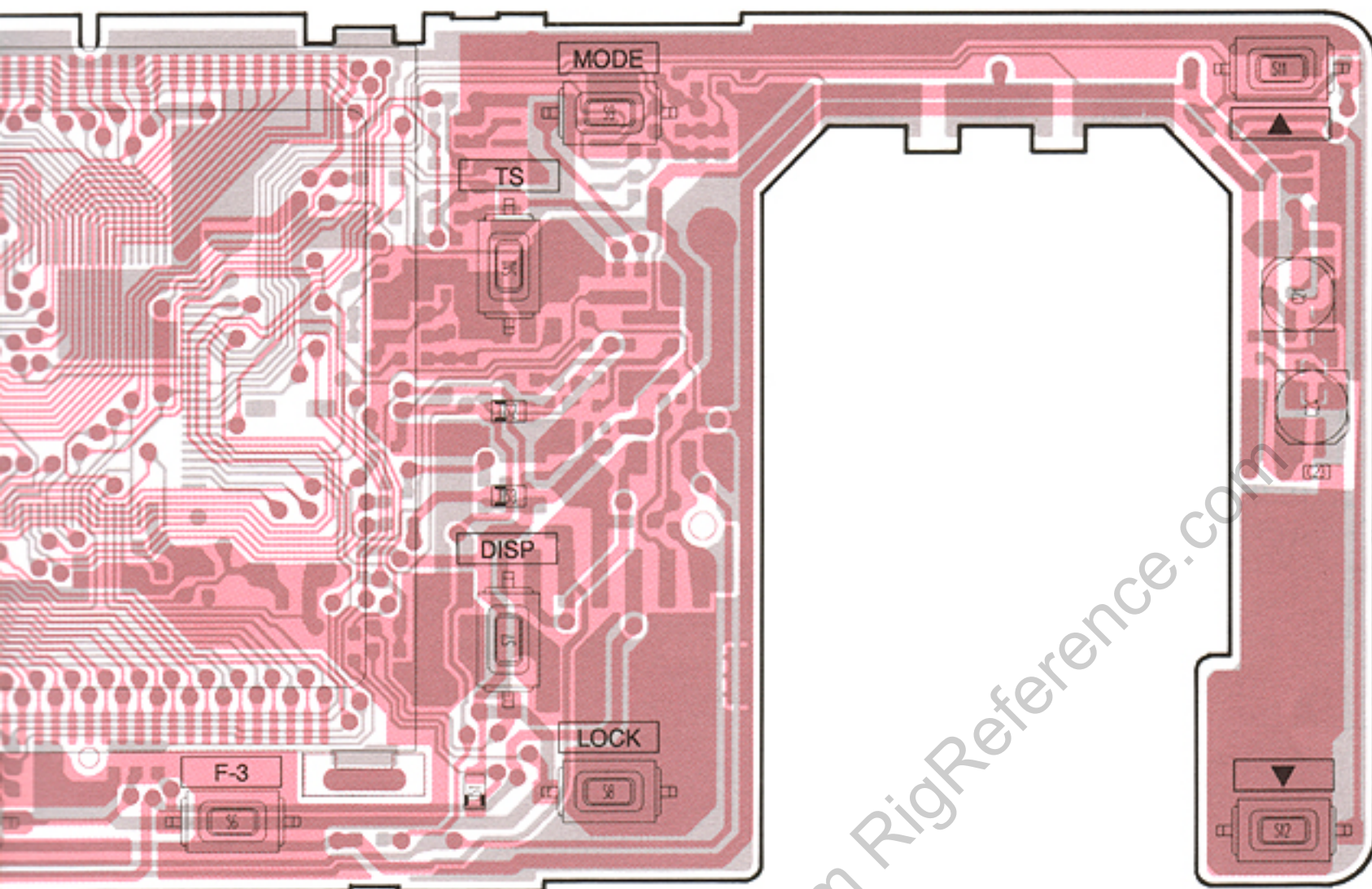


• VR BOARD

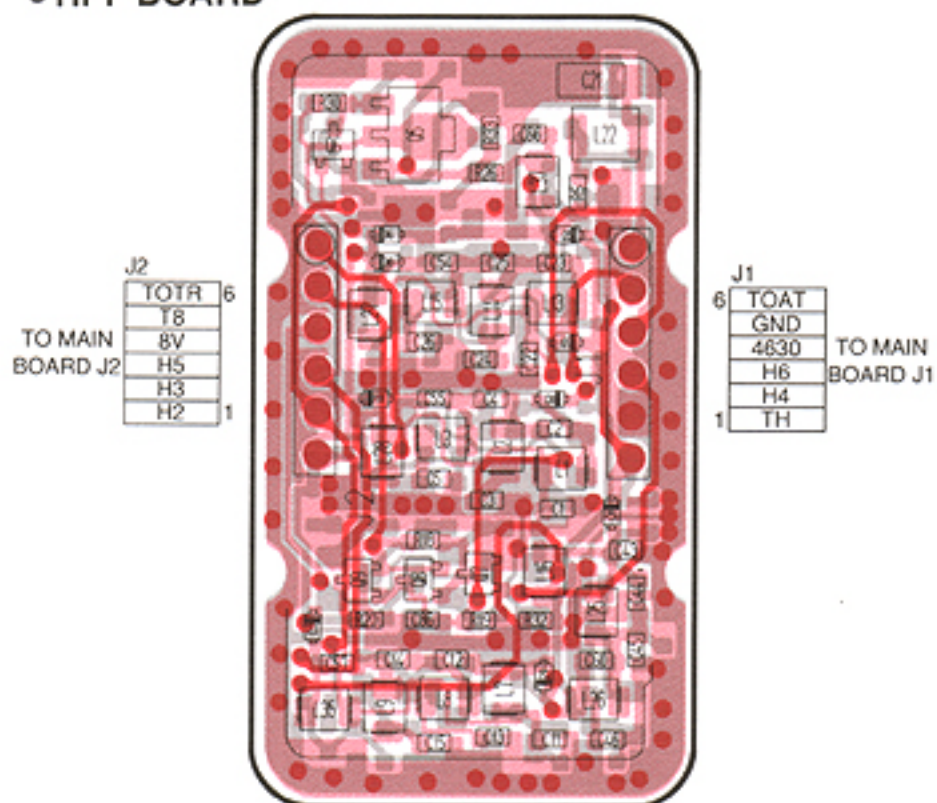


• DISPLAY BOARD

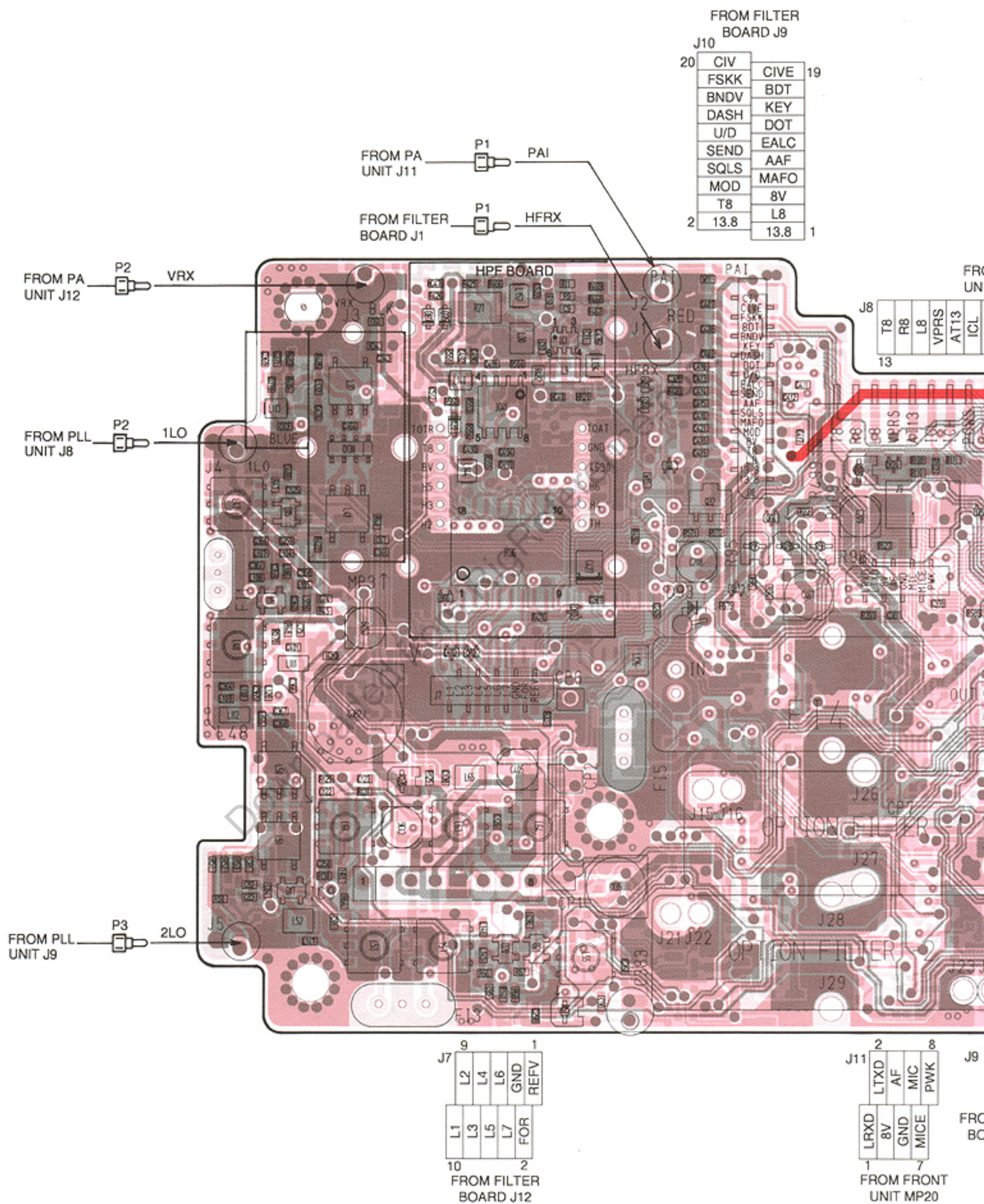




• HPF BOARD



8-2 MAIN BOARD



FROM PA
UNIT J2,4

J8	T8	R8	L8	VPRS	AT13	ICL	ICH	POWS	KEY	STRT	VFOR	GND	8V
13												1	

FROM optional
UT-86

J25	14	NC	NC	13
		DETO	NC	
		GND	GND	
		TSQL	NC	
		TSTB	NC	
		EDTO	OPU	
2		ECK	5V	1

FROM optional
UT-102

J14	7	GND	SPCH	14
		5V	SPCE	
		BUSY	ICK	
1		IDT	SPST	2

FROM PLL
UNIT J2

J13	30	H5V	DRES	29
		PDST	CON2	
		CON1	CON0	
		PCK	PDT	
		PBST	PCE	
		MLLV	SPS	
		AFGC	5V	
		DSPS	SLLV	
		AFBP	8V	
		8V	8V	
		AAF	GND	
		DINT	ICK	
		IMST	DDT	
		FSKK	13.8	
2		13.8	HV	1

FROM PLL
UNIT J4

J12	1	AFI	4
		AFIE	
		AFOE	
		AFO	

FROM FILTER
BOARD J10

J9	1	MIC	2
		MICE	

J11	2	LTXD	8
		AF	
		MIC	
		PWK	

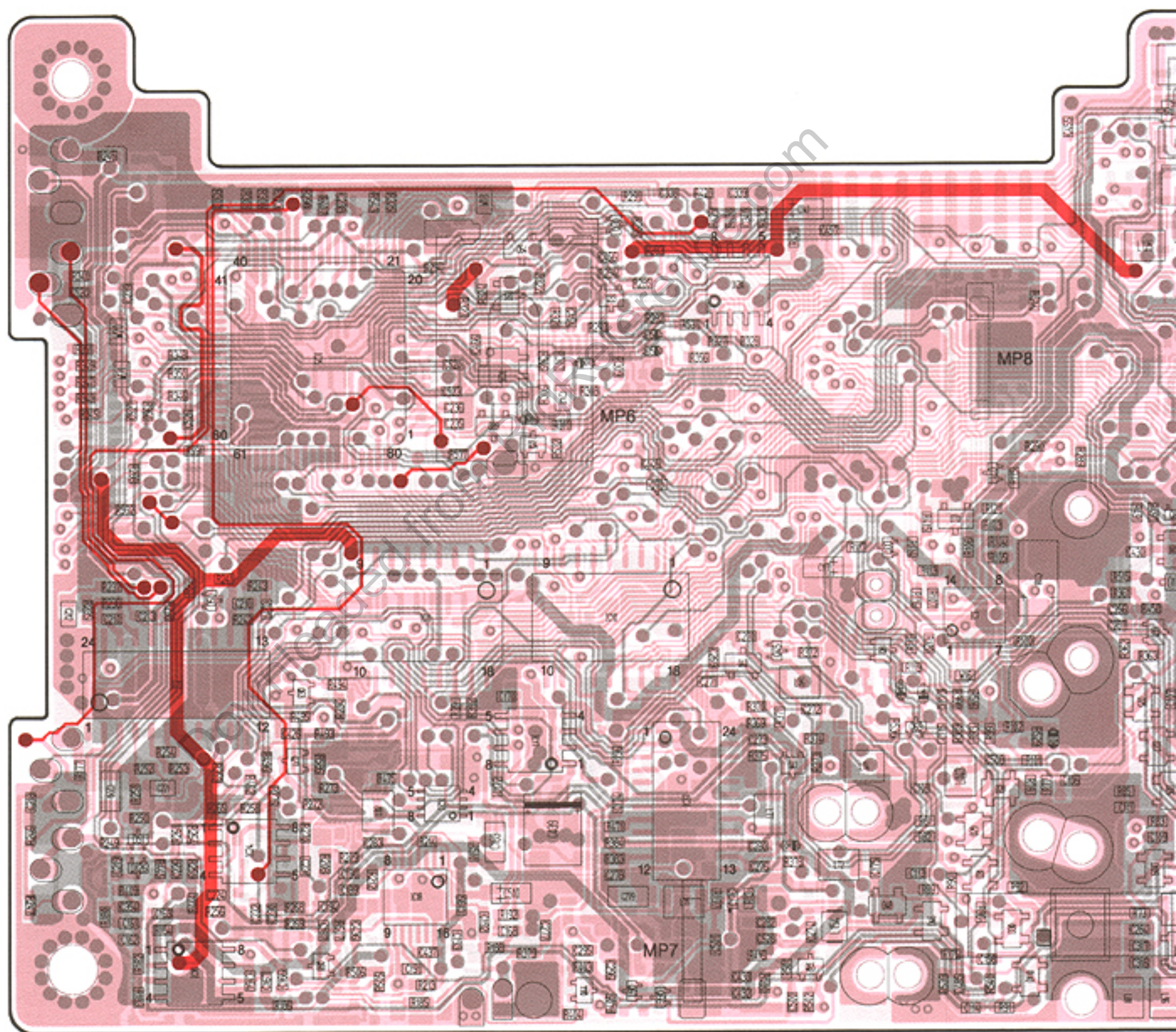
FROM FRONT
UNIT MP20

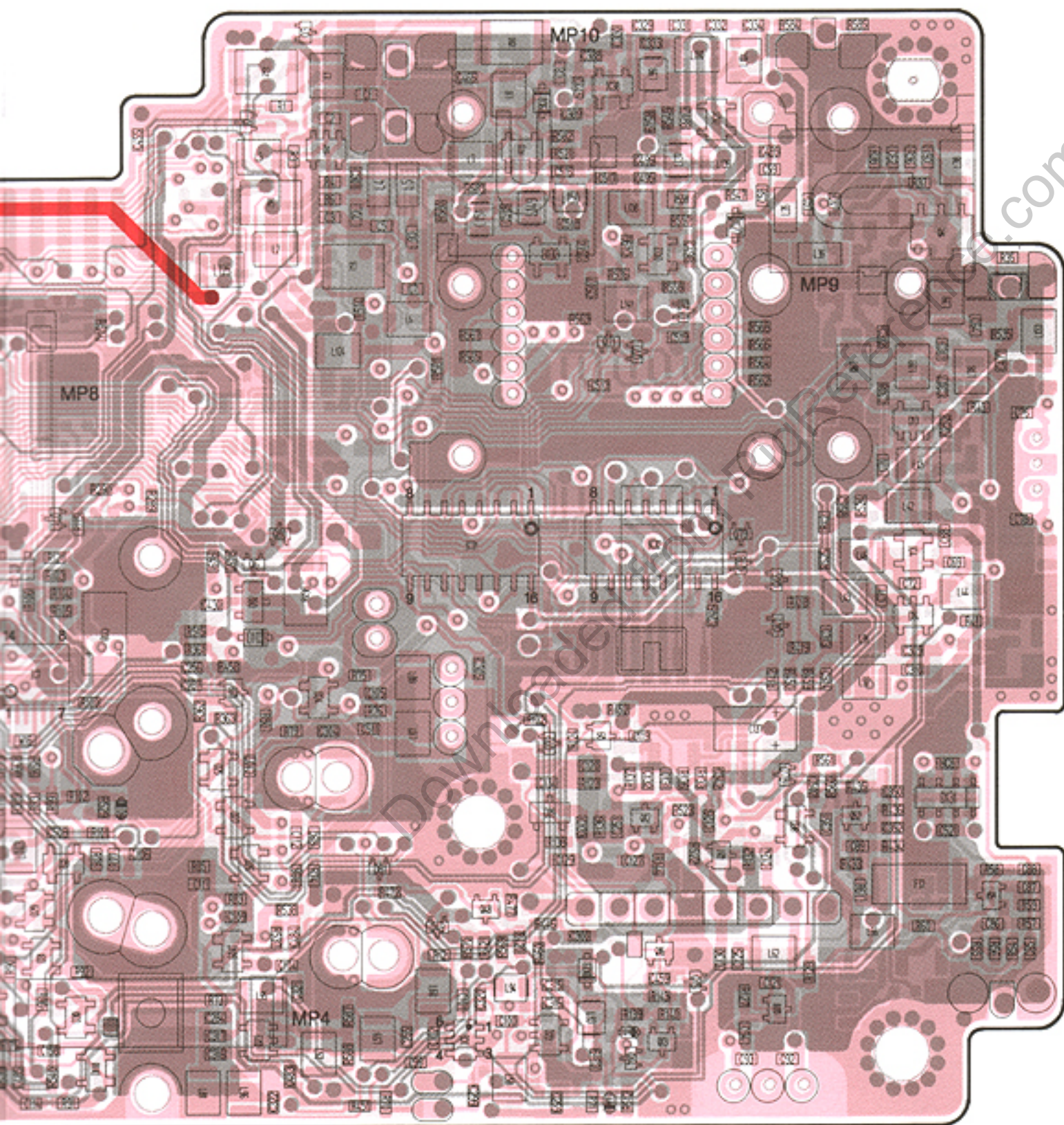
BFO

P4

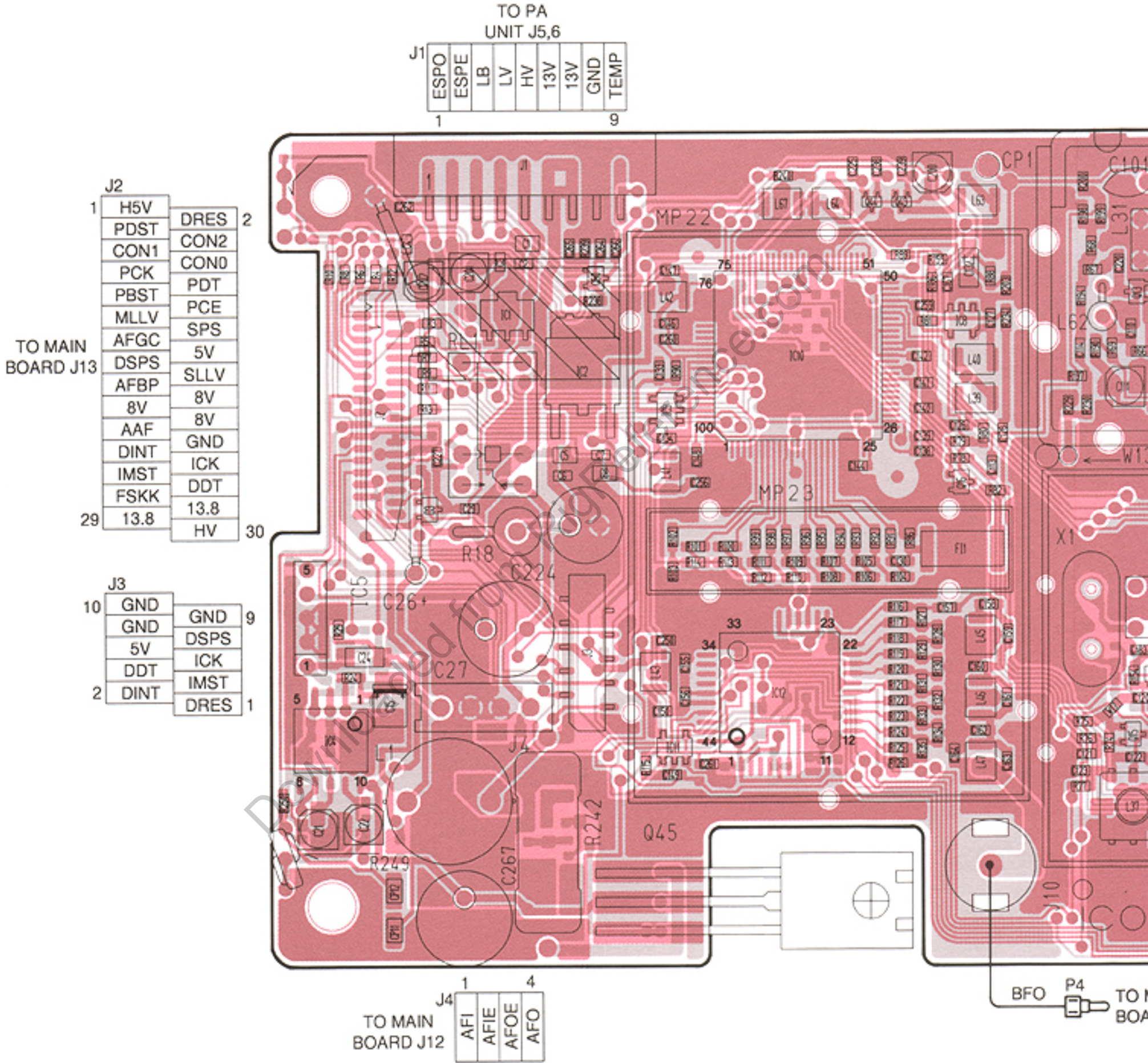
FROM PLL
UNIT J10

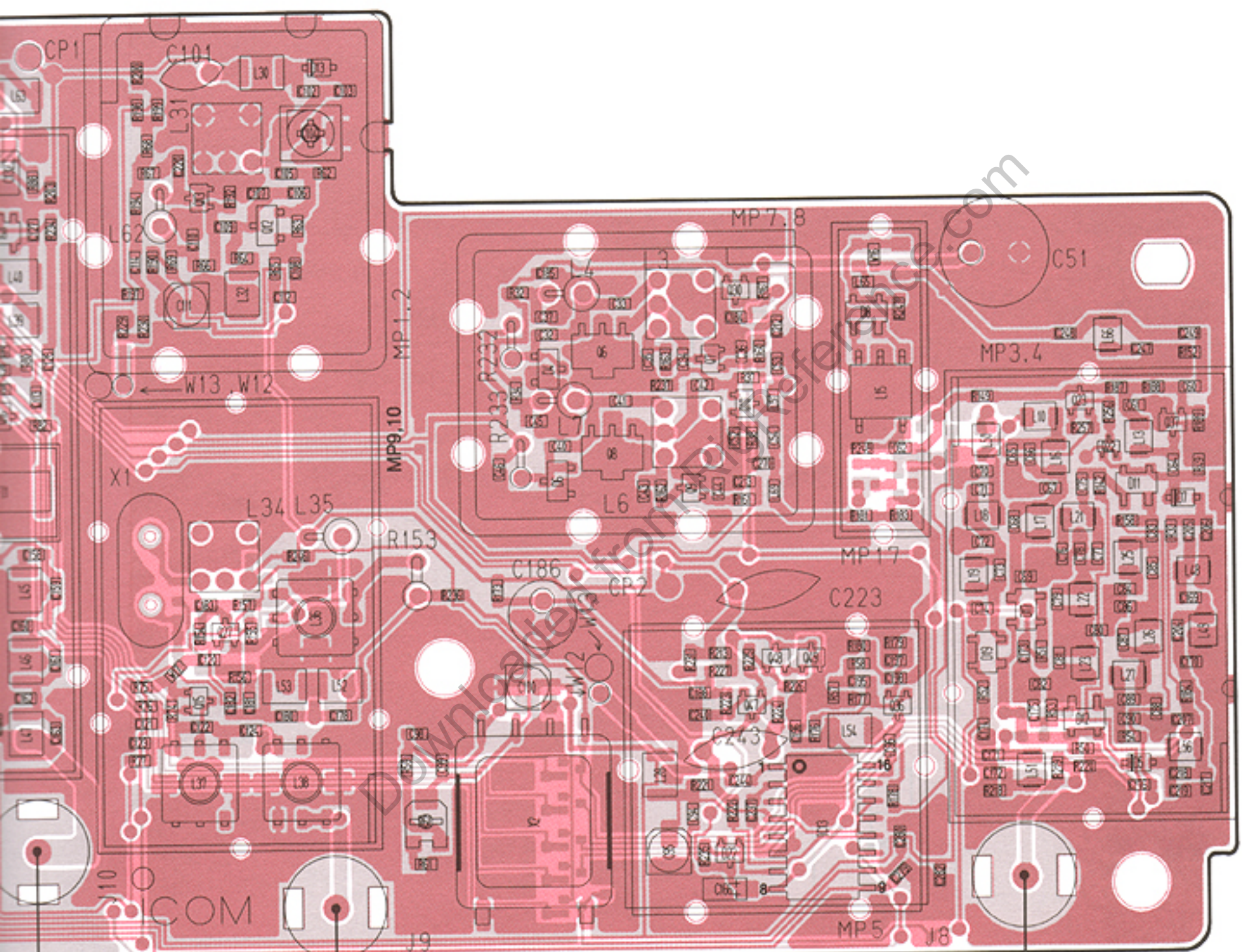
MAIN BOARD





8-3 PLL UNIT





• PLL UNIT

