

## IC-2300H

### CONTENTS

REPLACEMENT PAGES .....	5-3 and 7-1
PARTS LIST .....	1
VOLTAGE DIAGRAM .....	6

### [VERSION LIST]

MODEL	VERSION NUMBER	VERSION	TX POWER	MICROPHONE
IC-2300H	#04	TPE	25W	HM-133V
	#05	USA	65W	
	#06	KOR	50W	
	#08	CHN	65W	-
	#10	EXP-01		HM-133V
	#11	EXP-02		HM-154
	#20	EXP-03		HM-154
#12	SAU	23W	HM-133V	
IC-2300-T	#09	THA-01		10W
	#19	THA-02		

### 5-3 TRANSMIT ADJUSTMENTS

- 1) Select an adjustment item using [BANK] or [V/MHz].
- 2) Set or modify the adjustment value as specified using [DIAL], and then push [S.MW].

ADJUSTMENT	TRANSCEIVER'S CONDITION	OPERATION	ADJUSTMENT ITEM	VALUE		
<b>TX OUTPUT POWER</b> (High power) -Band low- ----- -Band center- ----- -Band high- ----- (Mid power) -Band low- ----- -Band center- ----- -Band high- ----- (Mid-Low power) -Band low- ----- -Band center- ----- -Band high- ----- (Low power) -Band low- ----- -Band center- ----- -Band high- -----	1	<b>NOTE:</b> Rotating [DIAL] in the TX adjustment mode without actually transmitting will result in an inaccurate adjustment.				
		• Transmitting	1) Connect an RF power meter to the antenna connector. 2) While transmitting, adjust the frequency using [DIAL], and then push [S.MW] to store the adjustment value.	$[P_o]$	(See the table below.)	
	2					
	3					
	4					
	5					
	6					
	7					
	8					
	9					
	10					
	11					
12						
<b>FM DEVIATION</b> -Band low- ----- -Band center- ----- -Band high- -----	1	• Transmitting	1) Connect a modulation analyzer to the antenna connector, through an attenuator, and then set it to; Detector : +Peak HPF : OFF LPF : 20 kHz 2) Connect an audio generator to the JIG cable, and set it to; Frequency : 1 kHz Level : 20 mVrms (80 mVrms*) 3) While transmitting, adjust the deviation using [DIAL], and then push [S.MW] to store the adjustment value.	$[dE]$	±4.2 kHz ± 0.1 kHz	
	2					
	3					
<b>MODULATION BALANCE</b> -Band low- ----- -Band center- ----- -Band high- -----	1	• Transmitting	1) Connect a modulation analyzer to the antenna connector, through an attenuator, and then set it to; Detector : +Peak HPF : OFF LPF : 20 kHz 2) While transmitting, adjust the deviation using [DIAL], and then push [S.MW] to store the adjustment value.	$[dB]$	±1.55 kHz ± 0.05 kHz	
	2					
	3					
<b>TONES DEVIATION</b> ----- CTCSS ----- DTCS ----- DTMF ----- EUR	1	• Transmitting	1) Connect a modulation analyzer to the antenna connector, through an attenuator, and then set it to; Detector : +Peak HPF : OFF LPF : 20 kHz 2) While transmitting, adjust the deviation using [DIAL], and then push [S.MW] to store the adjustment value.	$[dC]$	±0.75 kHz ± 0.05 kHz	
	2					
	3					
	4					
	5					
				$[dD]$		
				$[dF]$	±3.5 kHz ± 0.1 kHz	
				$[dU]$	±3.5 kHz ± 0.1 kHz	

Power level	[USA], [CHN], [EXP-01/02/03]	[TPE], [SAU]	[KOR]	[THA-01/02]
High	Band high: 59–61 W		51–53 W	11–13 W
	Band center: 65–67 W			
	Band low: 54–56 W			
Mid	24–26 W	21–23 W	25–26 W	4–6 W
Mid-Low	9–11 W			4–6 W
Low	4–6 W			

# SECTION 7 MECHANICAL PARTS

## [CHASSIS PARTS]

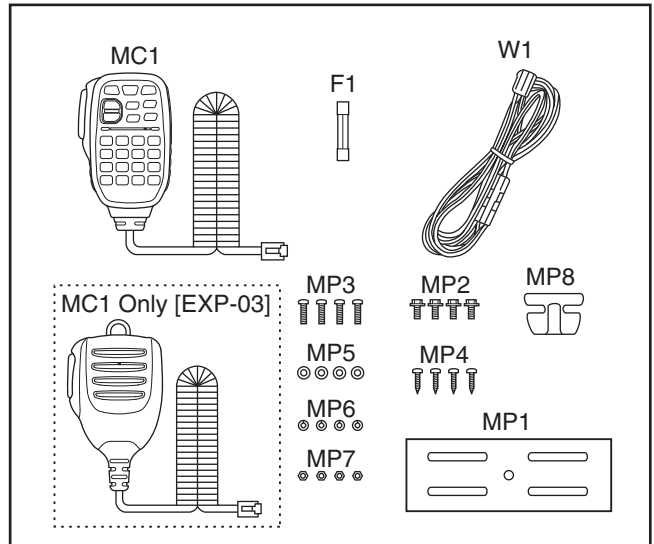
REF NO.	ORDER NO.	DESCRIPTION	QTY.
W1	8600036881	SP CABLE-1 (FX2493 P01LO)<PHL>	1
J1	6510004881	MR-DSE-01-1 <GA>	1
SP1	2510001160	057P0802	1
MP1	8010022230	3251 CHASSIS <STM>	1
MP2	8110010130	3251 COVER ASSEMBLY Y2160	1
MP3	8930083860	3251 SP RUBBER <KRI>	1
MP4	8930062130	THERMAL SHEET (AP)TC200HS-1.4 (15X23)	1
MP6	8810008661	PHBT M3 X 8 NI-ZC3	11
MP7	8810009611	FLAT M2.6X 6 ZK3	8
MP8	8810005161	CAPBOLT M3 X20 ZK3BLACK	2
MP9	8810009050	SET SCREWH M3 X10 NI	4

## [LOGIC UNIT]

REF NO.	ORDER NO.	DESCRIPTION	QTY.
J1	6450002210	3017-8821 <KIN>	1
J3*	6510028390	04-6294-036-000-800	1
DS1	5030003530	L1-1207TVM-1 <TES>	1
S1*	2260002740	LS8J2M-T	1
S2*	2260002740	LS8J2M-T	1
S3*	2260002740	LS8J2M-T	1
S4*	2260002740	LS8J2M-T	1
S5*	2260002740	LS8J2M-T	1
S6*	2260002740	LS8J2M-T	1
S7*	2260002740	LS8J2M-T	1
S8*	2260002740	LS8J2M-T	1
S9	2250000790	EC12E24204A9	1
S10*	2260002740	LS8J2M-T	1
EP9	8930084270	SRCN-3251-SP-N-W SHJ	1
MP1	8210027220	3251 FRONT PANEL [TPE]	1
	8210027220	3251 FRONT PANEL [USA]	1
	8210027220	3251 FRONT PANEL [KOR]	1
	8210027220	3251 FRONT PANEL [CHN]	1
	8210029150	3251 FRONT PANEL (A) [THA-01]	1
	8210027220	3251 FRONT PANEL [EXP-01]	1
	8210027220	3251 FRONT PANEL [EXP-02]	1
	8210027220	3251 FRONT PANEL [SAU]	1
	8210029150	3251 FRONT PANEL (A) [THA-02]	1
	8210027220	3251 FRONT PANEL [EXP-03]	1
MP2	8210027230	3251 REFLECTOR	1
MP3	8930083840	3251 2-KEY	1
MP4	8930083850	3251 7-KEY	1
MP5	8930084140	3251 LCD FILTER	1
MP6	8810008761	PHBT M2 X 8 NI-ZC3	4
MP7	8930083870	3251 LCD PLATE	1
MP8	8610014400	KNOB N-400	1
MP9	8610014410	KNOB N-401	2
MP11	8930057890	THERMAL SHEET CF	1

## [ACCESSORIES]

REF NO.	ORDER NO.	DESCRIPTION	QTY.
MC1	(Optional)	HM-133V [TPE]	1
	(Optional)	HM-133V [USA]	1
	(Optional)	HM-133V [KOR]	1
	(Optional)	HM-133V [THA-01]	1
	(Optional)	HM-133V [EXP-01]	1
	(Optional)	HM-133V [EXP-02]	1
	(Optional)	HM-133V [SAU]	1
	(Optional)	HM-133V [THA-02]	1
F1	5210000080	FGB 20A (FGB0 125V)	1
	(Optional)	OPC-1132A	1
W1	8010019260	2633 MOBILE BRACKET	1
	8820000530	FLANGE BOLT M4 X 8 NI	4
	8810000471	PH M5 X12 ZC3	4
	8810000951	PHA M5 X16 ZC3	4
	8850000150	FLAT WASHER M 5 NI BS	4
	8850000391	S-WASHER M5 ZC3	4
	8830000121	NUT M 5 ZC3	4
	8930007300	MIC HANGER Only [USA]	1



## [MAIN UNIT]

REF NO.	ORDER NO.	DESCRIPTION	QTY.
J1*	6510028390	04-6294-036-000-800+	1
J2*	6510014961	B2B-ZR-SM4-TF (LF) (SN)	1
J3	6510025940	PJ-3047S <XIN>	1
W1	8900011882	OPC-1210A-1 (P0.5N36L70)	1
W2	7030012290	RDS2TOR0	1
W6	8900015130	OPC-1131A	1
MP2	8510019350	3179 VCO COVER Y1143	1
MP3*	8410002720	3251 PA HEATSINK	1
MP5*	8510019340	3179 VCO CASE Y1142	1

\*: Refer to "BOARD LAYOUTS" for the location.

Screw abbreviations A, B0, BT: Self-tapping PH: Pan head ZK: Black NI-ZU: Nickel-Zinc SUS: Stainless



[LOGIC UNIT]

REF NO.	PARTS NO.	DESCRIPTION	M.	H/V LOCATION
C16	4030017460	S.CER C1005 JB 1H 102K-T	B	2.9/13.0
C20	4030017460	S.CER C1005 JB 1H 102K-T	B	6.0/6.0
C23	4030017460	S.CER C1005 JB 1H 102K-T	B	8.4/6.9
C28	4030017460	S.CER C1005 JB 1H 102K-T	B	11.9/16.8
C30	4030017420	S.CER C1005 CH 1H 470J-T	B	65.3/13.2
C31	4030017420	S.CER C1005 CH 1H 470J-T	B	16.1/11.8
C33	4030013960	S.CER C1005 JB 1C 473K-T	B	13.1/17.0
C34	4030017790	S.CER C1005 JB 1H 682K-T	B	54.6/14.0
C35	4030017040	S.CER C1005 JB 1A 333K-T	B	52.8/11.6
C37	4030016790	S.CER C1005 JB 1E 103K-T	B	50.0/10.7
C38	4030018080	S.CER C1005 JB 1H 182K-T	B	51.6/11.6
C39	4030017460	S.CER C1005 JB 1H 102K-T	B	95.6/7.5
C41	4030016930	S.CER C1005 JB 1A 104K-T	B	33.8/22.5
C42	4030016950	S.CER C1005 JB 1A 473K-T	T	25.9/13.2
C43	4030016950	S.CER C1005 JB 1A 473K-T	B	44.0/11.8
C44	4030018390	S.CER C1005 JB 1A 563K-T	T	28.3/13.2
C45	4030016790	S.CER C1005 JB 1E 103K-T	B	96.5/5.0
C46	4030016970	S.CER C1005 JB 1E 223K-T	B	56.6/8.1
C47	4030016930	S.CER C1005 JB 1A 104K-T	B	34.9/17.6
C48	4030017760	S.CER C1005 JB 1H 222K-T	B	56.6/7.2
C49	4030016930	S.CER C1005 JB 1A 104K-T	B	109.8/22.7
C51	4030017030	S.CER C1005 JB 1A 273K-T	B	111.4/25.0
C52	4030017420	S.CER C1005 CH 1H 470J-T	T	7.3/27.6
C53	4030017690	S.CER C1005 CH 1H 121J-T	B	86.1/6.7
C54	4030016790	S.CER C1005 JB 1E 103K-T	B	33.4/21.2
C55	4030017620	S.CER C1005 CH 1H 100C-T	B	92.9/10.1
C56	4030017760	S.CER C1005 JB 1H 222K-T	B	32.1/20.8
C57	4030018110	S.CER C1005 JB 1H 272K-T	B	33.4/19.6
C58	4030017780	S.CER C1005 JB 1H 472K-T	T	106.1/17.1
C59	4030017640	S.CER C1005 CH 1H 150J-T	B	94.0/9.5
C60	4030017780	S.CER C1005 JB 1H 472K-T	B	110.7/13.2
C61	4030017780	S.CER C1005 JB 1H 472K-T	T	110.3/12.7
C62	4030016930	S.CER C1005 JB 1A 104K-T	B	110.7/6.5
C64	4030016790	S.CER C1005 JB 1E 103K-T	B	85.9/13.5
C66	4030016790	S.CER C1005 JB 1E 103K-T	B	43.5/15.0
C67	4030019560	S.CER GRM21BB31C106KE15L	T	95.4/17.6
C68	4030016930	S.CER C1005 JB 1A 104K-T	T	99.0/10.9
C69	4030016960	S.CER C1005 JB 1E 183K-T	B	42.6/23.3
C70	4030016790	S.CER C1005 JB 1E 103K-T	T	111.7/24.2
C71	4030016790	S.CER C1005 JB 1E 103K-T	B	40.2/14.1
C73	4030019620	S.CER GRM188B31C225KE14D	B	40.7/13.0
C74	4030018920	S.CER C1005 JB 1H 392K-T	B	20.5/20.5
C75	4030017450	S.CER C1005 JB 1H 271K-T	B	22.6/19.3
C76	4030017040	S.CER C1005 JB 1A 333K-T	B	21.4/22.2
C77	4030019620	S.CER GRM188B31C225KE14D	T	31.3/20.0
C78	4030016790	S.CER C1005 JB 1E 103K-T	B	26.1/14.4
C79	4030017440	S.CER C1005 CH 1H 221J-T	B	21.7/16.0
C80	4030019990	S.CER C1005 JB 1C 104K-T	B	82.7/6.1
C82	4030017460	S.CER C1005 JB 1H 102K-T	B	83.6/7.7
C83	4030016930	S.CER C1005 JB 1A 104K-T	T	29.4/19.5
C85	4030019990	S.CER C1005 JB 1C 104K-T	B	22.1/14.8
C86	4030017460	S.CER C1005 JB 1H 102K-T	B	10.1/23.7
C87	4030018890	S.CER C1005 JB 0J 224K-T	B	108.1/8.0
C88	4030018890	S.CER C1005 JB 0J 224K-T	B	45.2/27.5
C89	4030016930	S.CER C1005 JB 1A 104K-T	B	46.2/15.4
C90	4030017780	S.CER C1005 JB 1H 472K-T	T	100.4/11.6
C91	4030017780	S.CER C1005 JB 1H 472K-T	B	109.4/9.6
C92	4030017780	S.CER C1005 JB 1H 472K-T	T	104.5/10.9
C94	4030017780	S.CER C1005 JB 1H 472K-T	B	110.0/12.3
C95	4030017780	S.CER C1005 JB 1H 472K-T	B	110.0/11.4
C96	4030017780	S.CER C1005 JB 1H 472K-T	B	109.4/10.5
C97	4030017780	S.CER C1005 JB 1H 472K-T	T	106.1/10.7
C99	4030017770	S.CER C1005 JB 1H 332K-T	B	56.8/12.1
C100	4030017720	S.CER C1005 JB 1H 331K-T	B	57.6/10.0
C101	4030016930	S.CER C1005 JB 1A 104K-T	B	53.0/21.9
C102	4030018890	S.CER C1005 JB 0J 224K-T	B	106.9/6.8
C103	4030017460	S.CER C1005 JB 1H 102K-T	B	58.0/13.4
C104	4030017460	S.CER C1005 JB 1H 102K-T	B	111.7/19.4
C105	4030016930	S.CER C1005 JB 1A 104K-T	B	44.4/24.3
C108	4550007080	S.TAN TEESVA 1C 106M8R	B	9.5/17.4
Eqv.	4550008220	S.TAN F931C106MAA		
C109	4030016970	S.CER C1005 JB 1E 223K-T	B	36.1/20.9
J1	6450002210	CON 3017-8821 <KIN>		
J3	6510028390	S.CON 04-6294-036-000-800	B	66.0/16.9
DS1	5030003530	LCD L1-1207TVM-1 <TES>		
DS3	5040003470	S.LED HT-297UY/YUG <KOU>	T	44.0/20.0
DS5	5040003470	S.LED HT-297UY/YUG <KOU>	T	55.0/20.0
DS6	5040003470	S.LED HT-297UY/YUG <KOU>	T	66.0/20.0
DS7	5040003470	S.LED HT-297UY/YUG <KOU>	T	77.0/20.0
DS8	5040003470	S.LED HT-297UY/YUG <KOU>	T	88.0/20.0
DS9	5040003470	S.LED HT-297UY/YUG <KOU>	T	99.0/20.0
S1	2260002740	S.SWI LS8J2M-T	T	10.0/30.6
S2	2260002740	S.SWI LS8J2M-T	T	101.5/4.8
S3	2260002740	S.SWI LS8J2M-T	T	89.5/4.8
S4	2260002740	S.SWI LS8J2M-T	T	77.5/4.8
S5	2260002740	S.SWI LS8J2M-T	T	65.5/4.8
S6	2260002740	S.SWI LS8J2M-T	T	53.5/4.8
S7	2260002740	S.SWI LS8J2M-T	T	41.5/4.8
S8	2260002740	S.SWI LS8J2M-T	T	10.0/21.3
S9	2250000790	ENC EC12E24204A9		
S10	2260002740	S.SWI LS8J2M-T	T	111.8/4.8
EP1	6910018460	S.BEA MMZ1005Y102C-T	B	15.6/13.2
EP2	6910012350	S.BEA MMZ1608Y 102BT	T	11.5/14.6
EP3	6910018460	S.BEA MMZ1005Y102C-T	B	12.2/15.4
EP4	6910018460	S.BEA MMZ1005Y102C-T	T	9.7/14.4
EP5	6910018460	S.BEA MMZ1005Y102C-T	B	8.4/8.5
EP6	6910018460	S.BEA MMZ1005Y102C-T	B	7.1/8.5

Eqv.= This component is equivalent to the REF No. component listed above, and may be substituted on parts orders and repairs.

[LOGIC UNIT]

REF NO.	PARTS NO.	DESCRIPTION	M.	H/V LOCATION
EP7	6910018460	S.BEA MMZ1005Y102C-T	T	6.4/14.7
EP8	6910012350	S.BEA MMZ1608Y 102BT	B	4.6/8.0
EP9	8930084270	LCD SRCN-3251-SP-N-W SHJ		

M.=Mounted side (T: Mounted on the Top side, B: Mounted on the Bottom side) S.=Surface mount



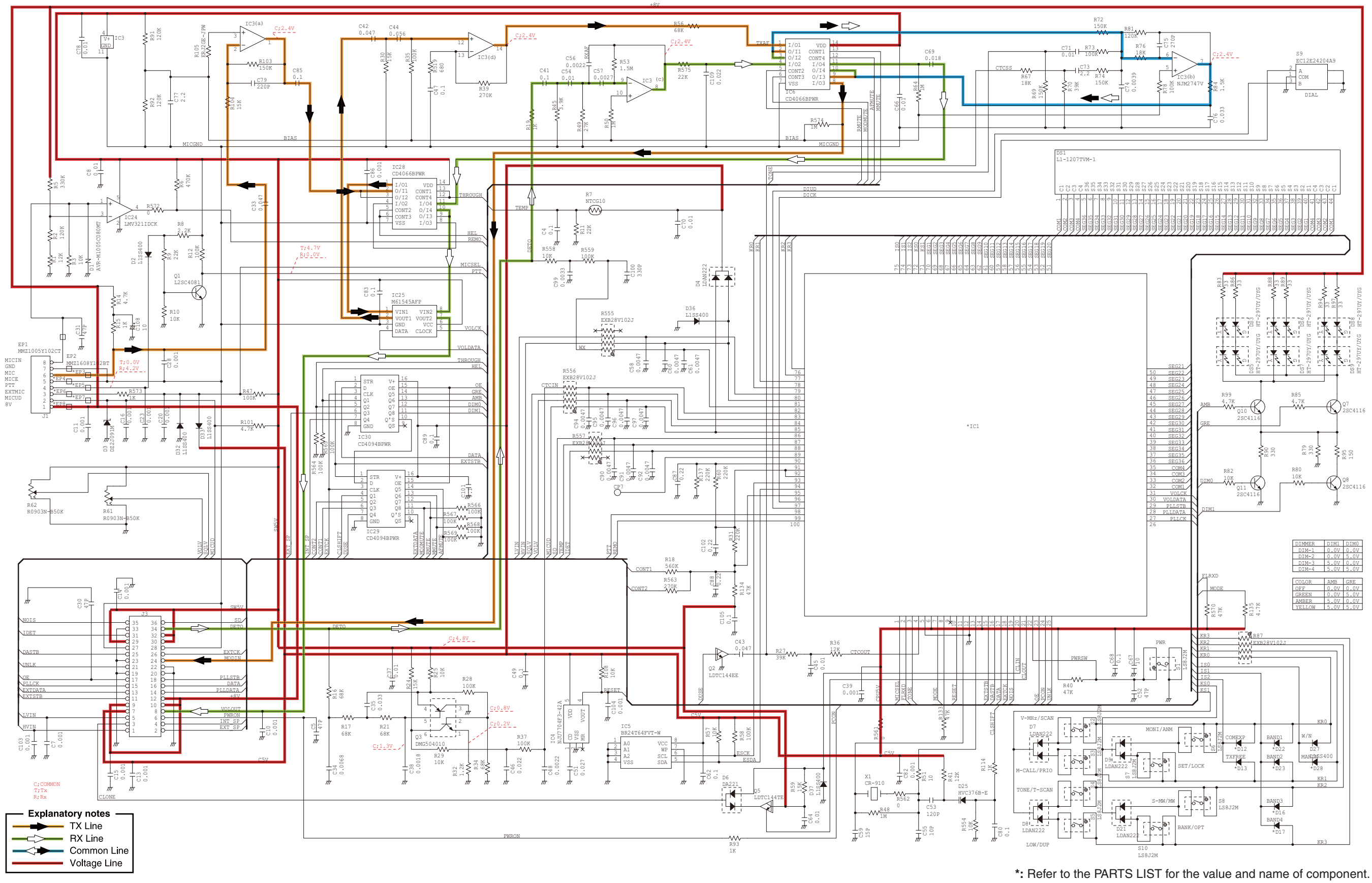






# VOLTAGE DIAGRAM

## • LOGIC UNIT



\*: Refer to the PARTS LIST for the value and name of component.



# SERVICE MANUAL ADDENDUM

## IC-2300H

### CONTENTS

REPLACEMENT PAGE ..... 7-1  
 PARTS LIST ..... 1  
 BOARD LAYOUTS ..... 6

[VERSION LIST]

MODEL	VERSION	TX POWER	MICROPHONE
IC-2300H	TPE	25W	HM-133V
	USA	65W	
	KOR	50W	
	CHN	65W	-
	EXP-01		HM-133V
	EXP-02		HM-154
	EXP-03		

# SECTION 7

# MECHANICAL PARTS

### [CHASSIS PARTS]

REF NO.	ORDER NO.	DESCRIPTION	QTY.
W1	8600036881	SP CABLE-1 (FX2493 P01LO)	1
J1	6510004881	MR-DSE-01-1 <GA>	1
SP1	2510001160	057P0802	1
MP1	8010022230	3251 CHASSIS <STM>	1
MP2	8110010130	3251 COVER ASSEMBLY Y2160	1
MP3	8930083860	3251 SP RUBBER <KRI>	1
MP4	8930062130	THERMAL SHEET (AP)TC200HS-1.4 (15X23)	1
MP6	8810008661	PHBT M3 X 8 NI-ZC3	11
MP7	8810009611	FLAT M2.6X 6 ZK3	8
MP8	8810005161	CAPBOLT M3 X20 ZK3BLACK	2
MP9	8810009050	SET SCREWH M3 X10 NI	4

### [LOGIC UNIT]

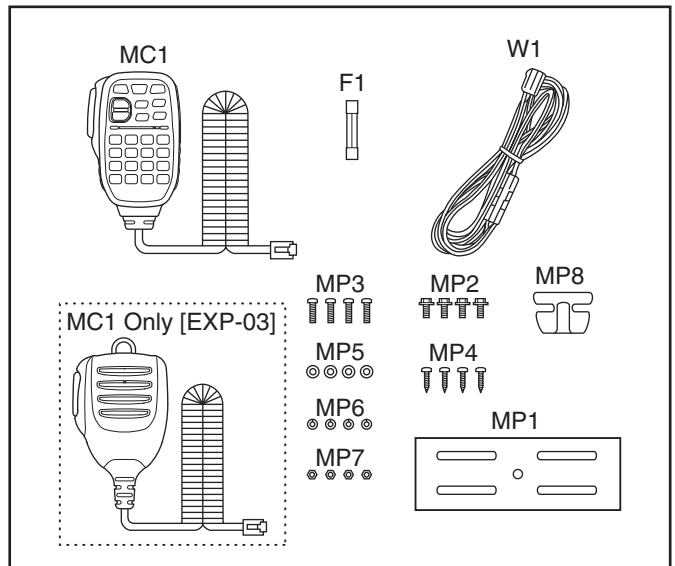
REF NO.	ORDER NO.	DESCRIPTION	QTY.
J1	6450002210	3017-8821 <KIN>	1
J3*	6510028390	04-6294-036-000-800+	1
DS1	5030003530	L1-1207TVM-1 <TES>	1
S1*	2260002740	LS8J2M-T	1
S2*	2260002740	LS8J2M-T	1
S3*	2260002740	LS8J2M-T	1
S4*	2260002740	LS8J2M-T	1
S5*	2260002740	LS8J2M-T	1
S6*	2260002740	LS8J2M-T	1
S7*	2260002740	LS8J2M-T	1
S8*	2260002740	LS8J2M-T	1
S9	2250000790	EC12E24204A9	1
S10*	2260002740	LS8J2M-T	1
EP9	8930084270	SRCN-3251-SP-N-W SHJ	1
MP1	8210027220	3251 FRONT PANEL	1
MP2	8210027230	3251 REFLECTOR	1
MP3	8930083840	3251 2-KEY	1
MP4	8930083850	3251 7-KEY	1
MP5	8930084140	3251 LCD FILTER	1
MP6	8810008761	PHBT M2 X 8 NI-ZC3	4
MP7	8930083870	3251 LCD PLATE	1
MP8	8610014400	KNOB N-400	1
MP9	8610014410	KNOB N-401	2
MP11	8930057890	THERMAL SHEET CF	1

### [MAIN UNIT]

REF NO.	ORDER NO.	DESCRIPTION	QTY.
J1*	6510028390	04-6294-036-000-800+	1
J2*	6510014961	B2B-ZR-SM4-TF (LF) (SN)	1
J3	6510025940	PJ-3047S <XIN>	1
W1	8900011882	OPC-1210A-1 (P0.5N36L70)	1
W2	7030012290	RDS2T0R0	1
W6	8900015130	OPC-1131A	1
MP2	8510019350	3179 VCO COVER Y1143	1
MP3*	8410002720	3251 PA HEATSINK	1
MP5*	8510019340	3179 VCO CASE Y1142	1

### [ACCESSORIES]

REF NO.	ORDER NO.	DESCRIPTION	QTY.
MC1	(Optional)	HM-133V [TPE]	1
	(Optional)	HM-133V [USA]	1
	(Optional)	HM-133V [KOR]	1
	(Optional)	HM-133V [EXP-01]	1
	(Optional)	HM-133V [EXP-02]	1
	(Optional)	HM-133V [THA-01]	1
	(Optional)	HM-133V [THA-02]	1
	(Optional)	HM-154 [EXP-03]	1
	F1	5210000080	FGB 20A (FGB0 125V)
W1	(Optional)	OPC-1132A	1
MP1	8010019260	2633 MOBILE BRACKET	1
MP2	8820000530	FLANGE BOLT M4 X 8 NI	4
MP3	8810000471	PH M5 X12 (+-) ZC3	4
MP4	8810000951	PHA M5 X16 ZC3	4
MP5	8850000150	FLAT WASHER M 5 NI BS	4
MP6	8850000391	S-WASHER M5 ZC3	4
MP7	8830000121	NUT M 5 ZC3	4
MP8	8930007300	MIC HANGER	1



\*: Refer to "BOARD LAYOUTS" for the location.

Screw abbreviations A, B0, BT: Self-tapping PH: Pan head ZK: Black NI-ZU: Nickel-Zinc SUS: Stainless





[MAIN UNIT]

Table with columns: REF NO., PARTS NO., DESCRIPTION, M., H/V LOCATION. Rows include components like CR-875 TTS14VSB-A3 15.3 MHz, MLG1608S R18J-T, and various ERJ2GGEJ resistors.

Eqv.= This component is equivalent to the REF No. component listed above, and may be substituted on parts orders and repairs.

[MAIN UNIT]

Table with columns: REF NO., PARTS NO., DESCRIPTION, M., H/V LOCATION. Rows include components like ERJ2GGEJ 472 X (4.7K), ERJ2GGEJ 121 X (120), and various ERJ2GGEJ and ERJ2GEEJ resistors.

M.=Mounted side (T: Mounted on the Top side, B: Mounted on the Bottom side) S.=Surface mount



[MAIN UNIT]

REF NO.	PARTS NO.	DESCRIPTION	M.	H/V LOCATION
C251	4030016790	S.CER C1005 JB 1E 103K-T	B	100.4/20.5
C254	4030011240	S.CER GRM31M2C2H470JV01L (GRM42-6)	T	80.2/47.6
C255	4030017460	S.CER C1005 JB 1H 102K-T	T	81.6/31.8
C256	4030017460	S.CER C1005 JB 1H 102K-T	B	102.2/20.5
C257	4030017460	S.CER C1005 JB 1H 102K-T	T	81.3/30.6
C258	4030017460	S.CER C1005 JB 1H 102K-T	B	97.0/22.0
C260	4030011060	S.CER GRM31M2C2H4R0CY21L (GRM42-6 CH)	T	95.7/49.8
C261	4030020000	S.CER C1005 JB 1A 105K-T	B	97.9/22.0
C262	4030017460	S.CER C1005 JB 1H 102K-T	B	106.7/20.4
C263	4030017460	S.CER C1005 JB 1H 102K-T	T	82.5/27.6
C265	4030011060	S.CER GRM31M2C2H4R0CY21L (GRM42-6 CH)	T	95.7/47.7
C266	4030011060	S.CER GRM31M2C2H4R0CY21L (GRM42-6 CH)	T	95.7/45.6
C267	4030017460	S.CER C1005 JB 1H 102K-T	T	80.1/30.2
C269	4030019990	S.CER C1005 JB 1C 104K-T	T	82.3/26.0
C270	4030017640	S.CER C1005 CH 1H 150J-T	B	106.3/23.4
C271	4030017460	S.CER C1005 JB 1H 102K-T	T	78.9/30.6
C272	4030011060	S.CER GRM31M2C2H4R0CY21L (GRM42-6 CH)	T	92.1/43.5
C274	4030011060	S.CER GRM31M2C2H4R0CY21L (GRM42-6 CH)	T	92.1/41.4
C275	4030017460	S.CER C1005 JB 1H 102K-T	T	86.4/27.9
C276	4030017460	S.CER C1005 JB 1H 102K-T	B	112.0/19.5
C277	4030017460	S.CER C1005 JB 1H 102K-T	T	84.7/26.2
C278	4030011060	S.CER GRM31M2C2H4R0CY21L (GRM42-6 CH)	T	92.1/39.3
C279	4030017680	S.CER C1005 CH 1H 820J-T	B	110.8/21.5
C280	4030017460	S.CER C1005 JB 1H 102K-T	T	89.0/37.7
C281	4030018940	S.CER GRM31A7U2J331JW31D	T	98.1/35.9
C282	4030018940	S.CER GRM31A7U2J331JW31D	T	96.0/35.9
C283	4030018940	S.CER GRM31A7U2J331JW31D	T	93.7/35.9
C284	4030017460	S.CER C1005 JB 1H 102K-T	T	68.7/24.3
C285	4030019990	S.CER C1005 JB 1C 104K-T	T	86.4/28.8
C287	4030017380	S.CER C1005 CH 1H50B-T	B	110.8/23.1
C288	4030019420	S.CER GRM31A7U2J102JW31D	T	104.3/32.0
C291	4030011170	S.CER GRM31M2C2H180JV01L (GRM42-6)	B	104.3/34.6
C292	4030017460	S.CER C1005 JB 1H 102K-T	B	111.2/26.3
C293	4030017550	S.CER C1005 CH 1H 1R5B-T	T	110.2/23.1
C295	4030011020	S.CER GRM31M4C2H1R0CY21L (GRM42-6 CK)	B	109.1/41.9
C296	4030007020	S.CER C1608 CH 1H 120J-T	B	104.7/41.5
C298	4030011230	S.CER GRM31M2C2H390JV01L (GRM42-6)	B	104.3/39.8
C299	4030017460	S.CER C1005 JB 1H 102K-T	B	101.9/42.4
C300	4030011230	S.CER GRM31M2C2H390JV01L (GRM42-6)	B	100.3/51.6
C302	4030017390	S.CER C1005 CH 1H 180J-T	T	108.8/26.9
C303	4030011020	S.CER GRM31M4C2H1R0CY21L (GRM42-6 CK)	B	103.4/47.8
C304	4030007020	S.CER C1608 CH 1H 120J-T	B	99.4/49.4
C305	4030011050	S.CER GRM31M3C2H3R0CY21L (GRM42-6 C.J)	T	98.7/29.9
C306	4030011210	S.CER GRM31M2C2H330JV01L (GRM42-6)	B	100.3/56.9
C307	4030011160	S.CER GRM31M2C2H150JV01L (GRM42-6)	B	104.2/63.1
C308	4030017450	S.CER C1005 JB 1H 271K-T	B	98.6/4.1
C309	4030017460	S.CER C1005 JB 1H 102K-T	T	97.9/1.2
C310	4030019990	S.CER C1005 JB 1C 104K-T	T	108.0/8.8
C311	4030019990	S.CER C1005 JB 1C 104K-T	T	99.7/5.6
C312	4030019990	S.CER C1005 JB 1C 104K-T	T	100.0/11.8
C313	4030019990	S.CER C1005 JB 1C 104K-T	T	111.5/10.0
C314	4030007140	S.CER C1608 CH 1H 121J-T	B	48.9/48.9
C315	4030007140	S.CER C1608 CH 1H 121J-T	B	48.9/60.5
C319	4510010010	S.ELE 25 CE 220 LX	T	22.4/16.6
C321	4030020000	S.CER C1005 JB 1A 105K-T	T	23.2/52.4
C322	4030019990	S.CER C1005 JB 1C 104K-T	B	14.6/16.5
C323	4030011230	S.CER GRM31M2C2H390JV01L (GRM42-6)	T	86.3/45.6
C332	4550007090	S.TAN TEESVA 1A 226M8R	T	68.5/10.7
Eqv.	4550008160	S.TAN F931A226MAA		
C333	4030016970	S.CER C1005 JB 1E 223K-T	B	25.6/3.6
C334	4030019460	S.CER C1608 JBJ 106M-T	T	71.7/16.4
J1	6510028390	S.CON 04-6294-036-000-800	T	60.0/6.8
J2	6510014961	S.CON B2B-ZR-SM4-TF(LF)(SN)	T	8.9/56.5
J3	6510025940	CON PJ-3047S <XIN>		
W1	8900011882	CAB OPC-1210A-1(P0.5N36L70) <TJM>		
W2	7030012290	JUM RDS2T0R0		
W6	8900015130	CAB OPC-1131A <TJM>		
EP3	6910018460	S.BEA MMZ1005Y102C-T	T	24.8/51.5
EP4	6910014730	S.BEA MPZ2012S331A-T	T	34.7/64.6
EP5	6910020610	S.BEA BLM15BD102SN1D	B	45.7/26.3

Eqv.= This component is equivalent to the REF No. component listed above, and may be substituted on parts orders and repairs.

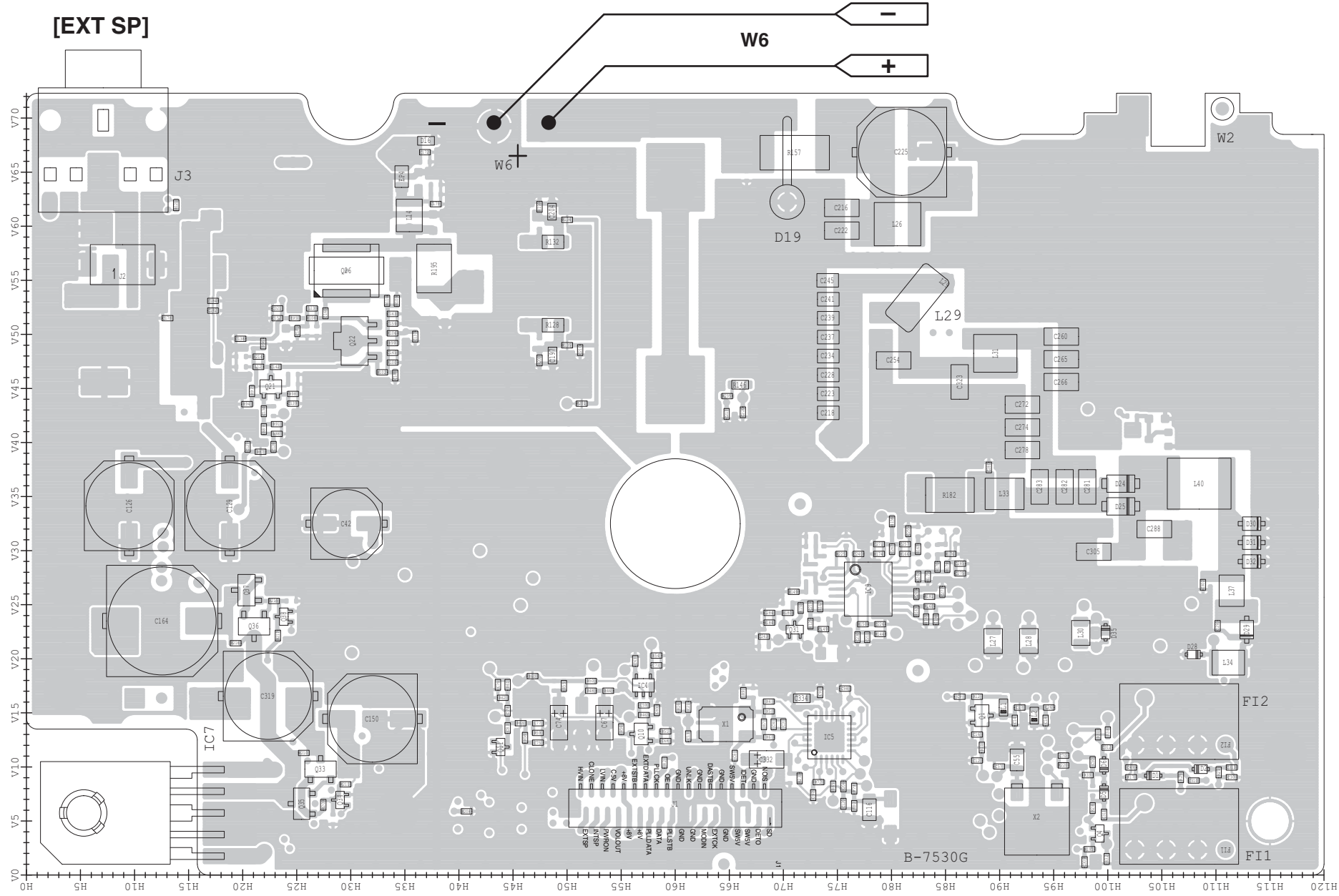
M.=Mounted side (T: Mounted on the Top side, B: Mounted on the Bottom side)  
S.=Surface mount



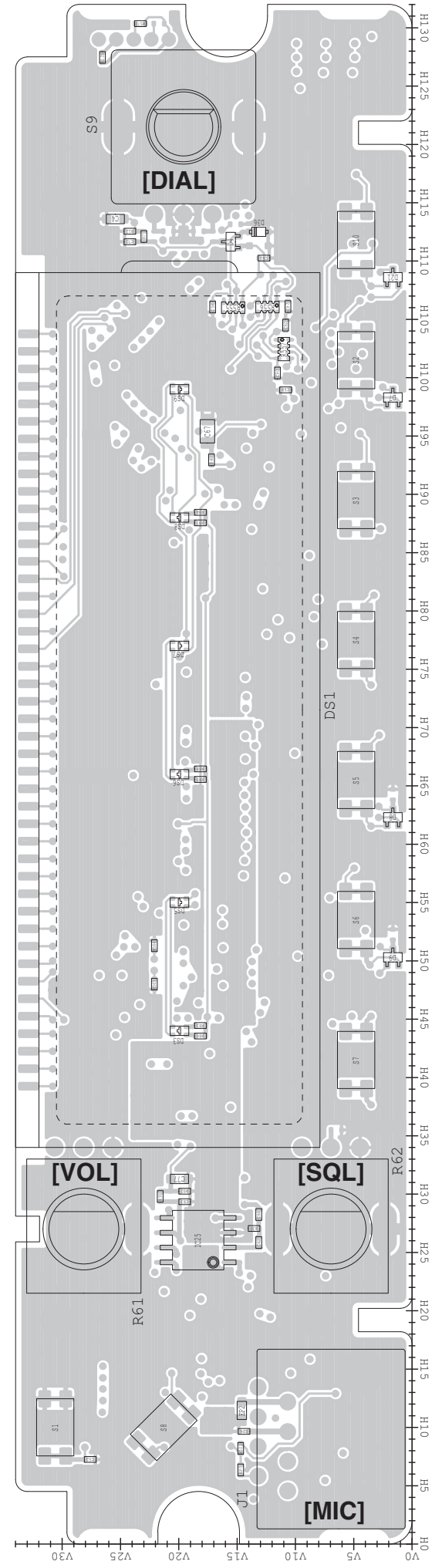
# BOARD LAYOUTS

The combination of top side and bottom side of this page shows the actual configuration of P.C. board.

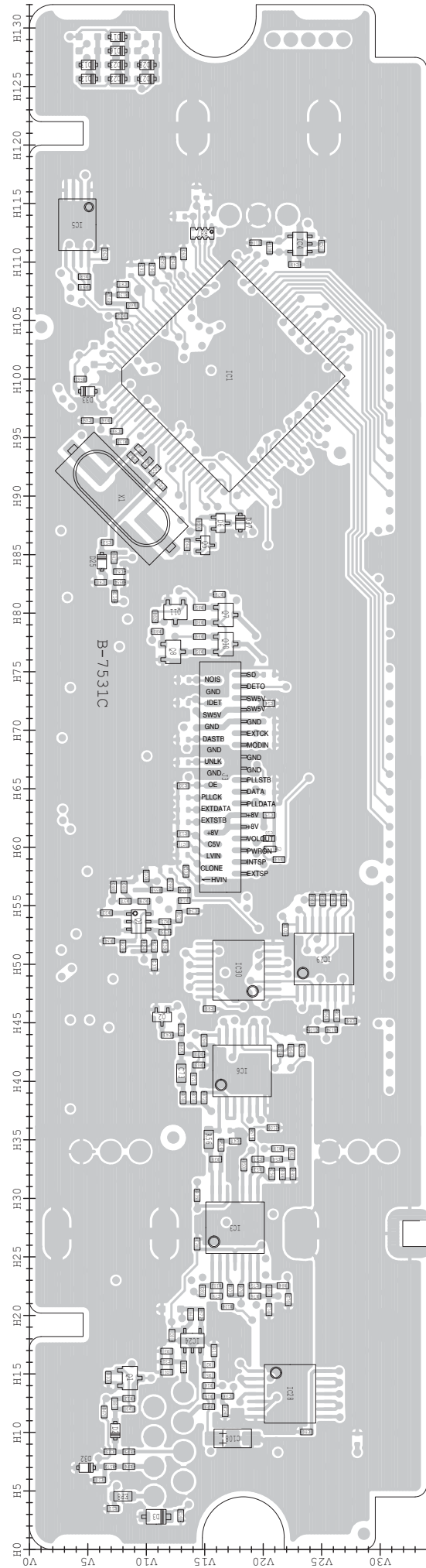
## • MAIN UNIT (TOP VIEW)



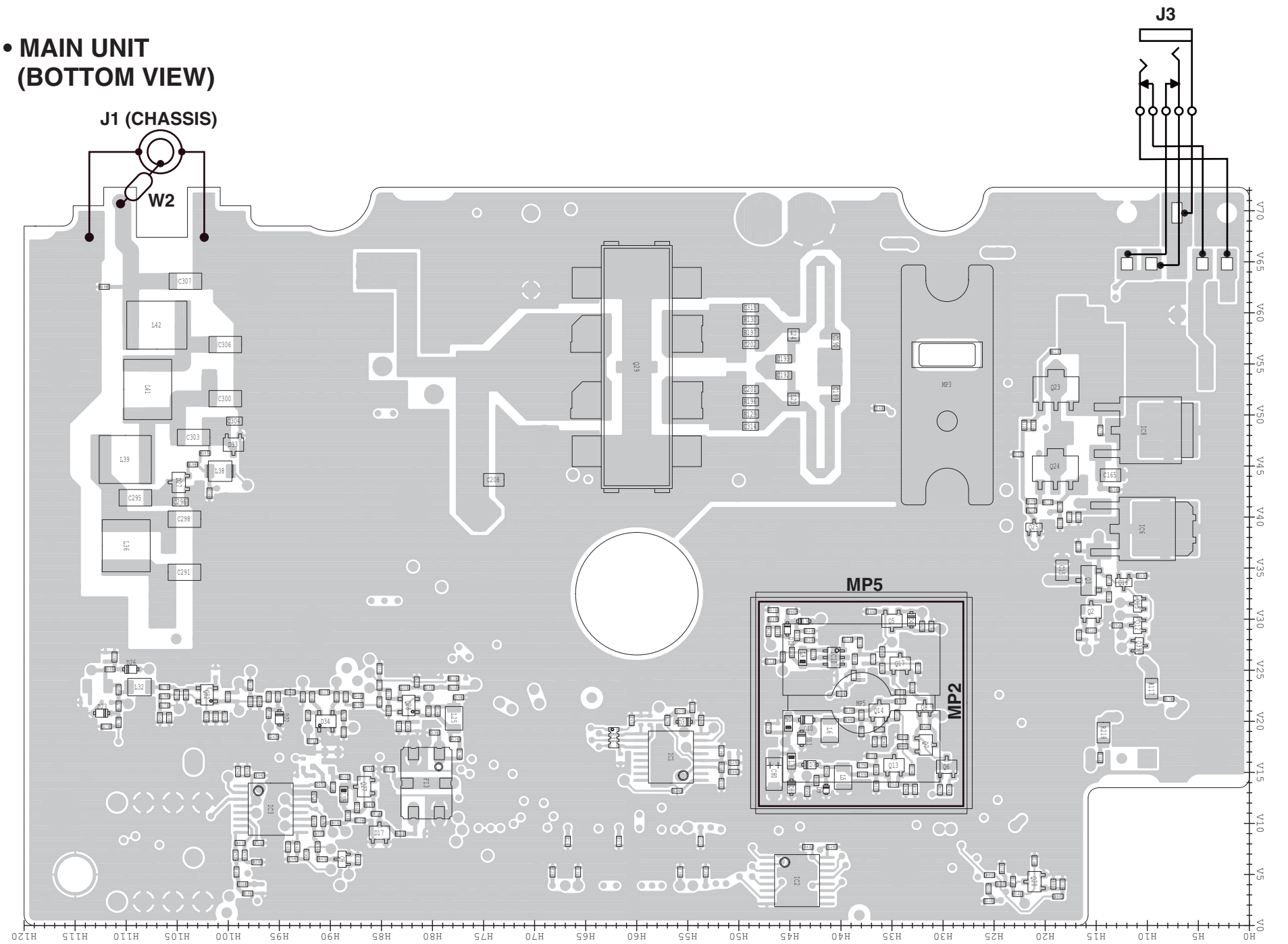
## • LOGIC UNIT (TOP VIEW)



• LOGIC UNIT (BOTTOM VIEW)



• MAIN UNIT (BOTTOM VIEW)



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## IC-2300H

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### CONTENTS

REPLACEMENT PAGES .....	1-1 and 5-3
PARTS LIST .....	1
BOARD LAYOUTS .....	6
VOLTAGE DIAGRAM .....	8

### [VERSION LIST]

MODEL	VERSION	TX POWER	MICROPHONE
IC-2300H	TPE	24 W	HM-133V
	USA	65 W	
	KOR	50 W	
	CHN	65 W	-
	EXP-01		HM-133V
	EXP-02		

# SECTION 1 SPECIFICATIONS

## ■ GENERAL

- Frequency coverage : (unit: MHz)  
 USA Tx: 144–148/Rx: 136–174\*  
 Export, China Tx: 136–174\*/Rx: 136–174\*  
 Taiwan, Korea Tx/Rx: 144–146  
 \*Guaranteed: 144–148 MHz range only.
- Type of emission : FM
- Number of memory channels : 207 (incl. 6 scan edges and 1 Call)
- Scan types : Full, Program, Priority, Memory channel, Bank, Skip, Tone scans
- Frequency resolution : 5, 6.25, 10, 12.5, 15, 20, 25, 30, 50 kHz
- Operating temperature range : -10°C to +60°C; +14°F to +140°F
- Frequency stability : ±3 ppm (-10°C to +60°C)
- Power supply requirement : 13.8 V DC ±15%
- Current drain (at 13.8 V DC: approximately):  
 Transmit at 65 W 11 A  
 (less than 9 A at 24 W for the Taiwan version)  
 Receive standby 0.4 A  
 max. audio 1.5 A
- Antenna connector : SO-239 (50 Ω)
- Dimensions (proj. not included) : 140.0(W)×40.0(H)×118.0(D) mm;  
 5.5(W)×1.6(H)×4.6(D) in
- Weight (approximately) : 1.1 kg; 2.4 lb

## ■ TRANSMITTER

- Modulation system : Variable reactance frequency mod.
- Output power (approximately) :

	USA, Export, China	Taiwan	Korea
High:	65 W	24 W	50 W
Mid:	25 W	10 W	25 W
Mid-Low:	10 W	–	10 W
Low:	5 W	5 W	5 W

- Max. frequency deviation : ±5.0 kHz (Wide)/±2.5 kHz (Narrow)
- Spurious emissions : Less than -60 dBc
- Microphone connector : 8-pin modular (600 Ω)

## ■ RECEIVER

- Receive system : Double-conversion superheterodyne
- Intermediate frequencies : 1st: 46.35 MHz, 2nd: 450 kHz
- Sensitivity (at 12 dB SINAD) : Less than 0.18 μV
- Squelch sensitivity : Less than 0.13 μV (threshold)
- Selectivity :  
 [Wide] More than ±6 kHz/6 dB  
 Less than ±14 kHz/60 dB  
 [Narrow] More than ±3 kHz/6 dB  
 Less than ±9 kHz/55 dB
- Spurious and image rejection : More than 60 dB
- AF output power (at 13.8 V DC): More than 3.5 W (4.5 W typical)  
 (at 10% distortion with a 4 Ω load)
- External speaker connector : 3-conductor 3.5 (d) mm (1/8 inch)/4 Ω

**All stated specifications are subject to change without notice or obligation.**

### 5-3 TRANSMIT ADJUSTMENTS

- 1) Select an adjustment item using [BANK] or [V/MHz].
- 2) Set or modify the adjustment value as specified using [DIAL], and then push [S.MW].

ADJUSTMENT	TRANSCEIVER'S CONDITION	OPERATION	ADJUSTMENT ITEM	VALUE	
<b>TX OUTPUT POWER (Hi power)</b> -Band low- ----- -Band center- ----- -Band high- ----- (Mid power) -Band low- ----- -Band center- ----- -Band high- ----- (Mid-Low power) -Band low- ----- -Band center- ----- -Band high- ----- (Low power) -Band low- ----- -Band center- ----- -Band high-	1	<b>NOTE:</b> Rotating [DIAL] in the TX adjustment mode without actually transmitting will result in an inaccurate adjustment.			
	• Transmitting	1) Connect an RF power meter to the antenna connector. 2) While transmitting, adjust the frequency using [DIAL], and then push [S.MW] to store the adjustment value.	<b>[Po]</b>	59–61 W (51–53 W <sup>**</sup> )	
	2			65–67 W (51–53 W <sup>**</sup> )	
	3			54–56 W (51–53 W <sup>**</sup> )	
	4			24–26 W (21–23 W <sup>***</sup> )	
	5				
	6				
	7			9–11 W	
	8				
	9				
	10			4–6 W	
	11				
12					
<b>FM DEVIATION</b> -Band low- ----- -Band center- ----- -Band high-	1	• Transmitting 1) Connect a modulation analyzer to the antenna connector, through an attenuator, and then set it to; HPF : OFF LPF : 20 kHz 2) Connect an audio generator to the JIG cable, and set it to; Frequency : 1 kHz Level : 20 mVrms (80 mVrms*) 3) While transmitting, adjust the deviation using [DIAL], and then push [S.MW] to store the adjustment value.	<b>[dE]</b>	4.1–4.3 kHz	
	2				
	3				
<b>MODULATION BALANCE</b> -Band low- ----- -Band center- ----- -Band high-	1	• Transmitting 1) Connect a modulation analyzer to the antenna connector, through an attenuator, and then set it to; HPF : OFF LPF : 20 kHz 2) While transmitting, adjust the deviation using [DIAL], and then push [S.MW] to store the adjustment value.	<b>[dE]</b>	1.50–1.60 kHz	
	2				
	3				
<b>TONES DEVIATION</b> ----- CTCSS ----- DTCS ----- DTMF ----- EUR	1	• Transmitting 1) Connect a modulation analyzer to the antenna connector, through an attenuator, and then set it to; HPF : OFF LPF : 20 kHz 2) While transmitting, adjust the deviation using [DIAL], and then push [S.MW] to store the adjustment value.	<b>[dE]</b>	0.70–0.80 kHz	
	2				
	3		<b>[dd]</b>		
	4		<b>[dF]</b>	3.4–3.6 kHz	
	5		<b>[dU]</b>		

\*: For [USA]    \*\*: For [KOR]    \*\*\*: For [TPE]











[MAIN UNIT]

REF NO.	PARTS NO.	DESCRIPTION	M.	H/V LOCATION
C251	4030016790	S.CER C1005 JB 1E 103K-T	B	100.4/20.5
C254	4030011240	S.CER GRM31M2C2H470JV01L (GRM42-6 CH)	T	80.2/47.6
C255	4030017460	S.CER C1005 JB 1H 102K-T	B	81.6/31.8
C256	4030017460	S.CER C1005 JB 1H 102K-T	B	102.2/20.5
C257	4030017460	S.CER C1005 JB 1H 102K-T	T	81.3/30.6
C258	4030017460	S.CER C1005 JB 1H 102K-T	B	97.0/22.0
C260	4030011060	S.CER GRM31M2C2H4R0CY21L (GRM42-6 CH)	T	95.7/49.8
C261	4030020000	S.CER C1005 JB 1A 105K-T	B	97.9/22.0
C262	4030017460	S.CER C1005 JB 1H 102K-T	B	106.7/20.4
C263	4030017460	S.CER C1005 JB 1H 102K-T	T	82.5/27.6
C265	4030011060	S.CER GRM31M2C2H4R0CY21L (GRM42-6 CH)	T	95.7/47.7
C266	4030011060	S.CER GRM31M2C2H4R0CY21L (GRM42-6 CH)	T	95.7/45.6
C267	4030017460	S.CER C1005 JB 1H 102K-T	T	80.1/30.2
C269	4030019990	S.CER C1005 JB 1C 104K-T	T	82.3/26.0
C270	4030017640	S.CER C1005 CH 1H 150J-T	B	106.3/23.4
C271	4030017460	S.CER C1005 JB 1H 102K-T	T	78.9/30.6
C272	4030011060	S.CER GRM31M2C2H4R0CY21L (GRM42-6 CH)	T	92.1/43.5
C274	4030011060	S.CER GRM31M2C2H4R0CY21L (GRM42-6 CH)	T	92.1/41.4
C275	4030017460	S.CER C1005 JB 1H 102K-T	T	86.4/27.9
C276	4030017460	S.CER C1005 JB 1H 102K-T	B	112.0/19.5
C277	4030017460	S.CER C1005 JB 1H 102K-T	T	84.7/26.2
C278	4030011060	S.CER GRM31M2C2H4R0CY21L (GRM42-6 CH)	T	92.1/39.3
C279	4030017680	S.CER C1005 CH 1H 820J-T	B	110.8/21.5
C280	4030017460	S.CER C1005 JB 1H 102K-T	T	89.0/37.7
C281	4030018940	S.CER GRM31A7U2J331JW31D	T	98.1/35.9
C282	4030018940	S.CER GRM31A7U2J331JW31D	T	96.0/35.9
C283	4030018940	S.CER GRM31A7U2J331JW31D	T	93.7/35.9
C284	4030017460	S.CER C1005 JB 1H 102K-T	T	68.7/24.3
C285	4030019990	S.CER C1005 JB 1C 104K-T	T	86.4/28.8
C287	4030017380	S.CER C1005 CH 1H 050B-T	B	110.8/23.1
C288	4030019420	S.CER GRM31A7U2J102JW31D	T	104.3/32.0
C291	4030011170	S.CER GRM31M2C2H180JV01L (GRM42-6 CH)	B	104.3/34.6
C292	4030017460	S.CER C1005 JB 1H 102K-T	B	111.2/26.3
C293	4030017550	S.CER C1005 CH 1H 1R5B-T	T	110.2/23.1
C295	4030011020	S.CER GRM31M4C2H1R0CY21L (GRM42-6 CK)	B	109.1/41.9
C296	4030007020	S.CER C1608 CH 1H 120J-T	B	104.7/41.5
C298	4030011230	S.CER GRM31M2C2H390JV01L (GRM42-6 CH)	B	104.3/39.8
C299	4030017460	S.CER C1005 JB 1H 102K-T	B	101.9/42.4
C300	4030011230	S.CER GRM31M2C2H390JV01L (GRM42-6 CH)	B	100.3/51.6
C302	4030017390	S.CER C1005 CH 1H 180J-T	T	108.8/26.9
C303	4030011020	S.CER GRM31M4C2H1R0CY21L (GRM42-6 CK)	B	103.4/47.8
C304	4030007020	S.CER C1608 CH 1H 120J-T	B	99.4/49.4
C305	4030011050	S.CER GRM31M3C2H3R0CY21L (GRM42-6 C.J)	T	98.7/29.9
C306	4030011210	S.CER GRM31M2C2H330JV01L (GRM42-6 CH)	B	100.3/56.9
C307	4030011160	S.CER GRM31M2C2H150JV01L (GRM42-6 CH)	B	104.2/63.1
C308	4030017450	S.CER C1005 JB 1H 271K-T	B	98.6/4.1
C309	4030017460	S.CER C1005 JB 1H 102K-T	T	97.9/1.2
C310	4030019990	S.CER C1005 JB 1C 104K-T	T	108.0/8.8
C311	4030019990	S.CER C1005 JB 1C 104K-T	T	99.7/5.6
C312	4030019990	S.CER C1005 JB 1C 104K-T	T	100.0/11.8
C313	4030019990	S.CER C1005 JB 1C 104K-T	T	111.5/10.0
C314	4030007140	S.CER C1608 CH 1H 121J-T	B	48.9/48.9
C315	4030007140	S.CER C1608 CH 1H 121J-T	B	48.9/60.5
C319	4510010010	S.ELE 25 CE 220 LX	T	22.4/16.6
C321	4030020000	S.CER C1005 JB 1A 105K-T	T	23.2/52.4
C322	4030019990	S.CER C1005 JB 1C 104K-T	B	14.6/16.5
C323	4030011230	S.CER GRM31M2C2H390JV01L (GRM42-6 CH)	T	86.3/45.6
C332	4550007090	S.TAN TEESVA 1A 226M8R	T	68.5/10.7
Eqv.	4550008160	S.TAN F931A226MAA		
C333	4030016970	S.CER C1005 JB 1E 223K-T	B	25.6/3.6
C334	4030019460	S.CER C1608 JB 0J 106M-T	T	71.7/16.4
J1	6510028390	S.CON 04-6294-036-000-800	T	60.0/6.8
J2	6510014961	S.CON B2B-ZR-SM4-TF(LF)(SN)	T	8.9/56.5
J3	6510025940	CON PJ-3047S <XIN>		
W1	8900011882	CAB OPC-1210A-1(P0.5N36L70) <TJM>		
W2	7030012290	JUM RDS2T0R0		
W6	8900015130	CAB OPC-1131A <TJM>		
EP3	6910018460	S.BEA MMZ1005Y102C-T	T	24.8/51.5
EP4	6910014730	S.BEA MPZ2012S331A-T	T	34.7/64.6
EP5	6910020610	S.BEA BLM15BD102SN1D	B	45.7/26.3

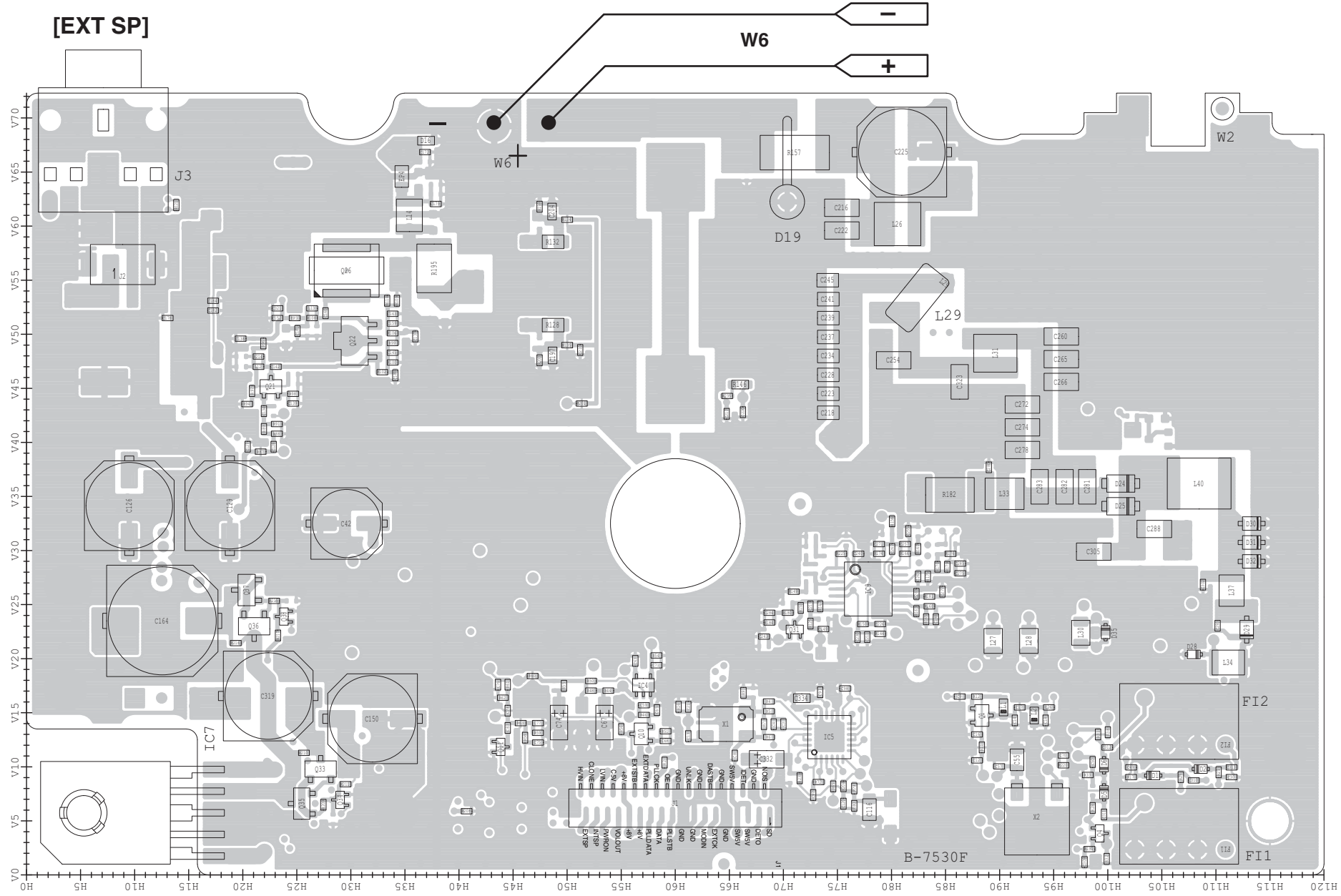
Eqv.= This component is equivalent to the REF No. component listed above, and may be substituted on parts orders and repairs.

M.=Mounted side (T: Mounted on the Top side, B: Mounted on the Bottom side) S.=Surface mount

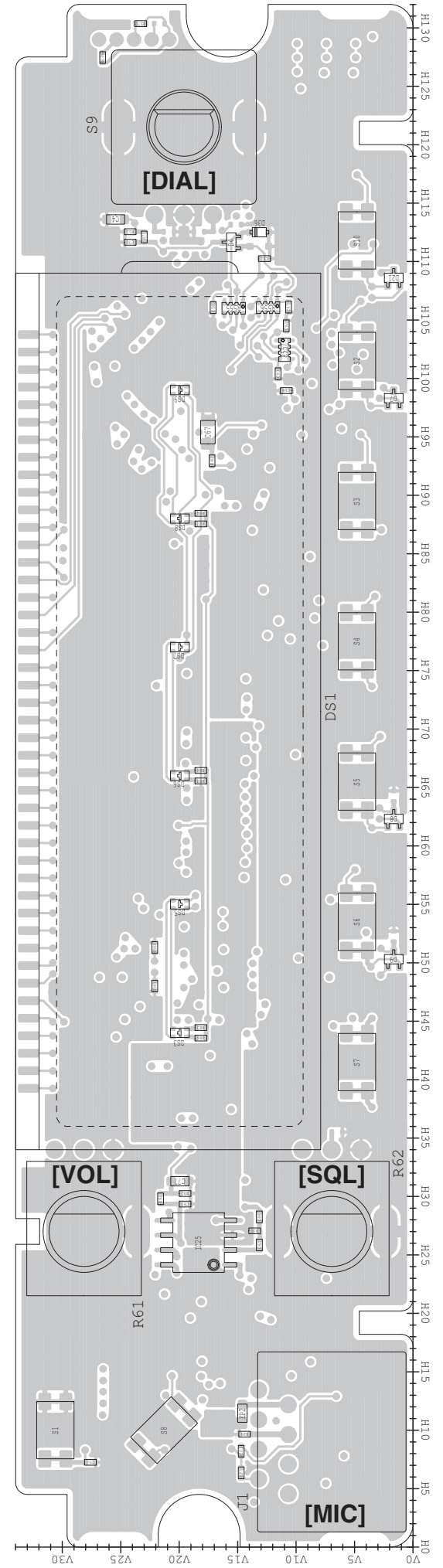
# BOARD LAYOUTS

The combination of top side and bottom side of this page shows the actual configuration of P.C. board.

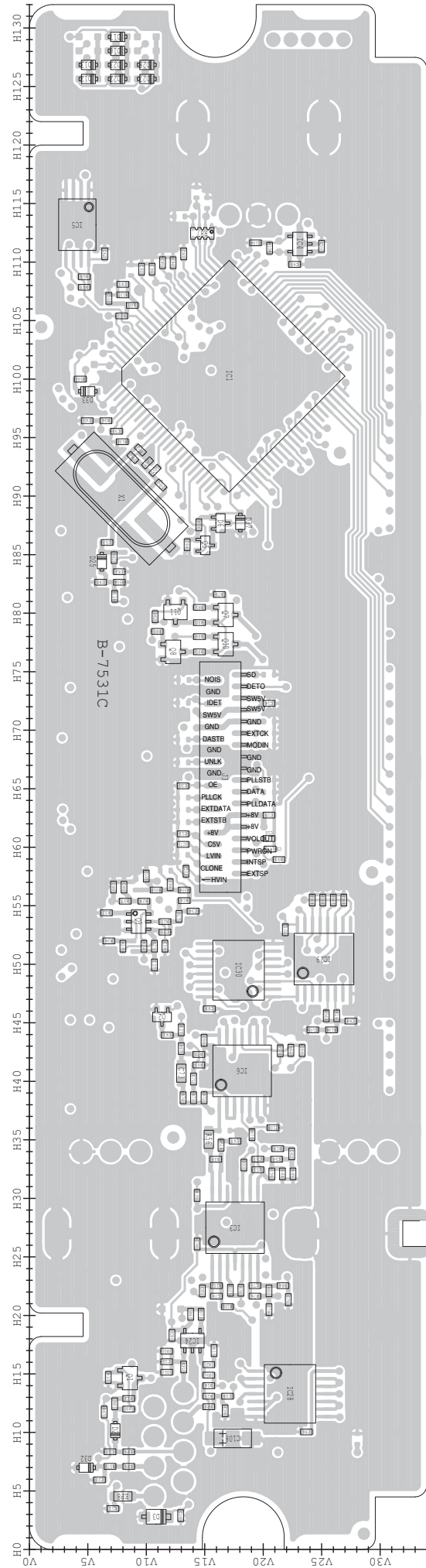
• **MAIN UNIT (TOP VIEW)**



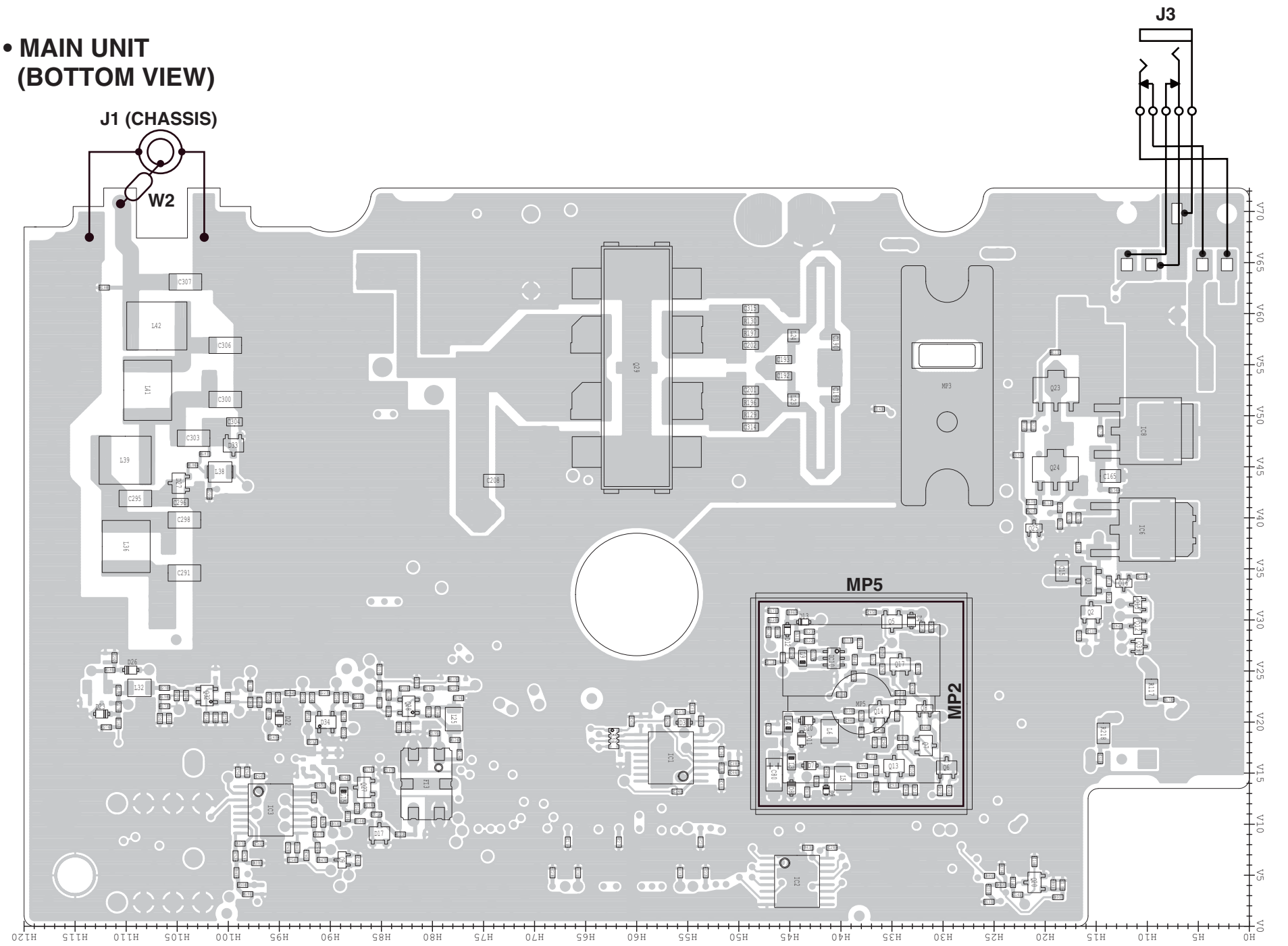
• **LOGIC UNIT (TOP VIEW)**



• LOGIC UNIT  
(BOTTOM VIEW)



• MAIN UNIT  
(BOTTOM VIEW)



July 2012



# SERVICE MANUAL ADDENDUM

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## IC-2300H

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### CONTENTS

REPLACEMENT PAGE .....	7-1
PARTS LIST .....	1
BOARD LAYOUTS .....	6
VOLTAGE DIAGRAM .....	8

# SECTION 7 MECHANICAL PARTS

## [CHASSIS PARTS]

REF NO.	ORDER NO.	DESCRIPTION	QTY.
W1	8600036881	SP CABLE-1 (FX2493 P01LO)	1
J1	6510004881	MR-DSE-01-1 <GA>	1
SP1	2510001160	057P0802	1
MP1	8010022230	3251 CHASSIS <STM>	1
MP2	8110010130	3251 COVER ASSEMBLY	1
MP3	8930083860	3251 SP RUBBER <KRI>	1
MP4	8930062130	THERMAL SHEET (AP)TC200HS-1.4 (15X23)	1
MP6	8810008661	PHBT M3 X 8 NI-ZC3	11
MP7	8810009611	FLAT M2.6X 6 ZK3	8
MP8	8810005161	CAPBOLT M3 X20 ZK3BLACK	2
MP9	8810009050	SETSCREWH M3 X10 NI	4

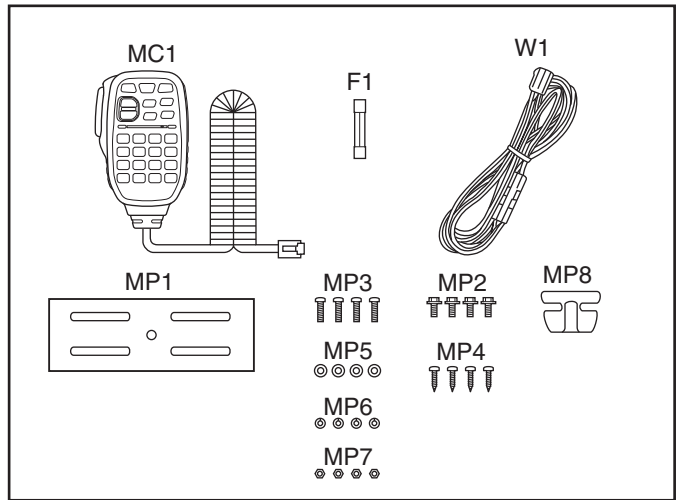
## [ACCESSORIES]

REF NO.	ORDER NO.	DESCRIPTION	QTY.
F1	5210000080	FGB 20A (FGB0 125V)	1
MC1	(Optional)	HM-133V	1
W1	(Optional)	OPC-1132A	1
MP1	8010019260	2633 MOBILE BRACKET MOQ	1
MP2	8820000530	FLANGE BOLT M4 X 8 NI	4
MP3	8810000471	PH M5 X12 (+-) ZC3	4
MP4	8810000951	PHA M5 X16 ZC3	4
MP5	8850000150	FLAT WASHER M5 NI BS	4
MP6	8850000391	S-WASHER M5 ZC3	4
MP7	8830000121	NUT M5 ZC3	4
MP8	8930007300	MIC HANGER	1

[USA] only

## [LOGIC UNIT]

REF NO.	ORDER NO.	DESCRIPTION	QTY.
J1*	6450002210	3017-8821 <KIN>	1
J3*	6510028390	04-6294-036-000-800	1
DS1	5030003530	L1-1207TVM-1 <TES>	1
S1*	2260002740	LS8J2M-T	1
S2*	2260002740	LS8J2M-T	1
S3*	2260002740	LS8J2M-T	1
S4*	2260002740	LS8J2M-T	1
S5*	2260002740	LS8J2M-T	1
S6*	2260002740	LS8J2M-T	1
S7*	2260002740	LS8J2M-T	1
S8*	2260002740	LS8J2M-T	1
S9*	2250000700	EC12E24204A8	1
S10*	2260002740	LS8J2M-T	1
EP9	8930084270	SRCN-3251-SP-N-W	1
MP1	8210027220	3251 FRONT PANEL	1
MP2	8210027230	3251 REFLECTOR	1
MP3	8930083840	3251 2-KEY	1
MP4	8930083850	3251 7-KEY	1
MP5	8930084140	3251 LCD FILTER	1
MP6	8810008761	PHBT M2 X 8 NI-ZC3	4
MP7	8930083870	3251 LCD PLATE	1
MP8	8610014400	KNOB N-400	1
MP9	8610014410	KNOB N-401	2
MP11	8930057890	THERMAL SHEET CF	1



## [MAIN UNIT]

REF NO.	ORDER NO.	DESCRIPTION	QTY.
J1*	6510028390	04-6294-036-000-800	1
J2*	6510014961	B2B-ZR-SM4-TF (LF) (SN)	1
J3*	6510025940	PJ-3047S <XIN>	1
W1	8900011882	OPC-1210A-1 (P0.5N36L70)	1
W2*	7030012290	RDS2T0R0	1
W6	8900015130	OPC-1131A	1
MP2*	8510019350	3179 VCO COVER Y1143	1
MP3*	8410002720	3251 PA HEATSINK	1
MP5*	8510019340	3179 VCO CASE Y1142	1

\*: Refer to "BOARD LAYOUTS" for the location.

Screw abbreviations A, B0, BT: Self-tapping PH: Pan head ZK: Black NI-ZU: Nickel-Zinc SUS: Stainless











[MAIN UNIT]

REF NO.	PARTS NO.	DESCRIPTION	M.	H/V LOCATION
C251	4030016790	S.CER C1005 JB 1E 103K-T	B	100.4/20.5
C254	4030011240	S.CER GRM31M2C2H470JV01L (GRM42-6 CH)	T	80.2/47.6
C255	4030017460	S.CER C1005 JB 1H 102K-T	B	81.6/31.8
C256	4030017460	S.CER C1005 JB 1H 102K-T	B	102.2/20.5
C257	4030017460	S.CER C1005 JB 1H 102K-T	T	81.3/30.6
C258	4030017460	S.CER C1005 JB 1H 102K-T	B	97.0/22.0
C260	4030011060	S.CER GRM31M2C2H4R0CY21L (GRM42-6 CH)	T	95.7/49.8
C261	4030020000	S.CER C1005 JB 1A 105K-T	B	97.9/22.0
C262	4030017460	S.CER C1005 JB 1H 102K-T	B	106.7/20.4
C263	4030017460	S.CER C1005 JB 1H 102K-T	T	82.5/27.6
C265	4030011060	S.CER GRM31M2C2H4R0CY21L (GRM42-6 CH)	T	95.7/47.7
C266	4030011060	S.CER GRM31M2C2H4R0CY21L (GRM42-6 CH)	T	95.7/45.6
C267	4030017460	S.CER C1005 JB 1H 102K-T	T	80.1/30.2
C269	4030019990	S.CER C1005 JB 1C 104K-T	T	82.3/26.0
C270	4030017640	S.CER C1005 CH 1H 150J-T	B	106.3/23.4
C271	4030017460	S.CER C1005 JB 1H 102K-T	T	78.9/30.6
C272	4030011060	S.CER GRM31M2C2H4R0CY21L (GRM42-6 CH)	T	92.1/43.5
C274	4030011060	S.CER GRM31M2C2H4R0CY21L (GRM42-6 CH)	T	92.1/41.4
C275	4030017460	S.CER C1005 JB 1H 102K-T	T	86.4/27.9
C276	4030017460	S.CER C1005 JB 1H 102K-T	B	112.0/19.5
C277	4030017460	S.CER C1005 JB 1H 102K-T	T	84.7/26.2
C278	4030011060	S.CER GRM31M2C2H4R0CY21L (GRM42-6 CH)	T	92.1/39.3
C279	4030017680	S.CER C1005 CH 1H 820J-T	B	110.8/21.5
C280	4030017460	S.CER C1005 JB 1H 102K-T	T	89.0/37.7
C281	4030018940	S.CER GRM31A7U2J331JW31D	T	98.1/35.9
C282	4030018940	S.CER GRM31A7U2J331JW31D	T	96.0/35.9
C283	4030018940	S.CER GRM31A7U2J331JW31D	T	93.7/35.9
C284	4030017460	S.CER C1005 JB 1H 102K-T	T	68.7/24.3
C285	4030019990	S.CER C1005 JB 1C 104K-T	T	86.4/28.8
C287	4030017380	S.CER C1005 CH 1H 050B-T	B	110.8/23.1
C288	4030019420	S.CER GRM31A7U2J102JW31D	T	104.3/32.0
C291	4030011170	S.CER GRM31M2C2H180JV01L (GRM42-6 CH)	B	104.3/34.6
C292	4030017460	S.CER C1005 JB 1H 102K-T	B	111.2/26.3
C293	4030017550	S.CER C1005 CH 1H 1R5B-T	T	110.2/23.1
C295	4030011020	S.CER GRM31M4C2H1R0CY21L (GRM42-6 CK)	B	109.1/41.9
C296	4030007020	S.CER C1608 CH 1H 120J-T	B	104.7/41.5
C298	4030011230	S.CER GRM31M2C2H390JV01L (GRM42-6 CH)	B	104.3/39.8
C299	4030017460	S.CER C1005 JB 1H 102K-T	B	101.9/42.4
C300	4030011230	S.CER GRM31M2C2H390JV01L (GRM42-6 CH)	B	100.3/51.6
C302	4030017390	S.CER C1005 CH 1H 180J-T	T	108.8/26.9
C303	4030011020	S.CER GRM31M4C2H1R0CY21L (GRM42-6 CK)	B	103.4/47.8
C304	4030007020	S.CER C1608 CH 1H 120J-T	B	99.4/49.4
C305	4030011050	S.CER GRM31M3C2H3R0CY21L (GRM42-6 C.J)	T	98.7/29.9
C306	4030011210	S.CER GRM31M2C2H330JV01L (GRM42-6 CH)	B	100.3/56.9
C307	4030011160	S.CER GRM31M2C2H150JV01L (GRM42-6 CH)	B	104.2/63.1
C308	4030017450	S.CER C1005 JB 1H 271K-T	B	98.6/4.1
C309	4030017460	S.CER C1005 JB 1H 102K-T	T	97.9/1.2
C310	4030019990	S.CER C1005 JB 1C 104K-T	T	108.0/8.8
C311	4030019990	S.CER C1005 JB 1C 104K-T	T	99.7/5.6
C312	4030019990	S.CER C1005 JB 1C 104K-T	T	100.0/11.8
C313	4030019990	S.CER C1005 JB 1C 104K-T	T	111.5/10.0
C314	4030007140	S.CER C1608 CH 1H 121J-T	B	48.9/48.9
C315	4030007140	S.CER C1608 CH 1H 121J-T	B	48.9/60.5
C319	4510010010	S.ELE 25 CE 220 LX	T	22.4/16.6
C321	4030020000	S.CER C1005 JB 1A 105K-T	T	23.2/52.4
C322	4030019990	S.CER C1005 JB 1C 104K-T	B	14.6/16.5
C323	4030011230	S.CER GRM31M2C2H390JV01L (GRM42-6 CH)	T	86.3/45.6
C332	4550007090	S.TAN TEESVA 1A 226M8R	T	68.5/10.7
Eqv.	4550008160	S.TAN F931A226MAA		
C333	4030016970	S.CER C1005 JB 1E 223K-T	B	25.6/3.6
C334	4030019460	S.CER C1608 JB 0J 106M-T	T	71.7/16.4
J1	6510028390	S.CON 04-6294-036-000-800	T	60.0/6.8
J2	6510014961	S.CON B2B-ZR-SM4-TF(LF)(SN)	T	8.9/56.5
J3	6510025940	CON PJ-3047S <XIN>		
W1	8900011882	CAB OPC-1210A-1(P0.5N36L70) <TJM>		
W2	7030012290	JUM RDS2T0R0		
W6	8900015130	CAB OPC-1131A <TJM>		
EP3	6910018460	S.BEA MMZ1005Y102C-T	T	24.8/51.5
EP4	6910014730	S.BEA MPZ2012S331A-T	T	34.7/64.6
EP5	6910020610	S.BEA BLM15BD102SN1D	B	45.7/26.3

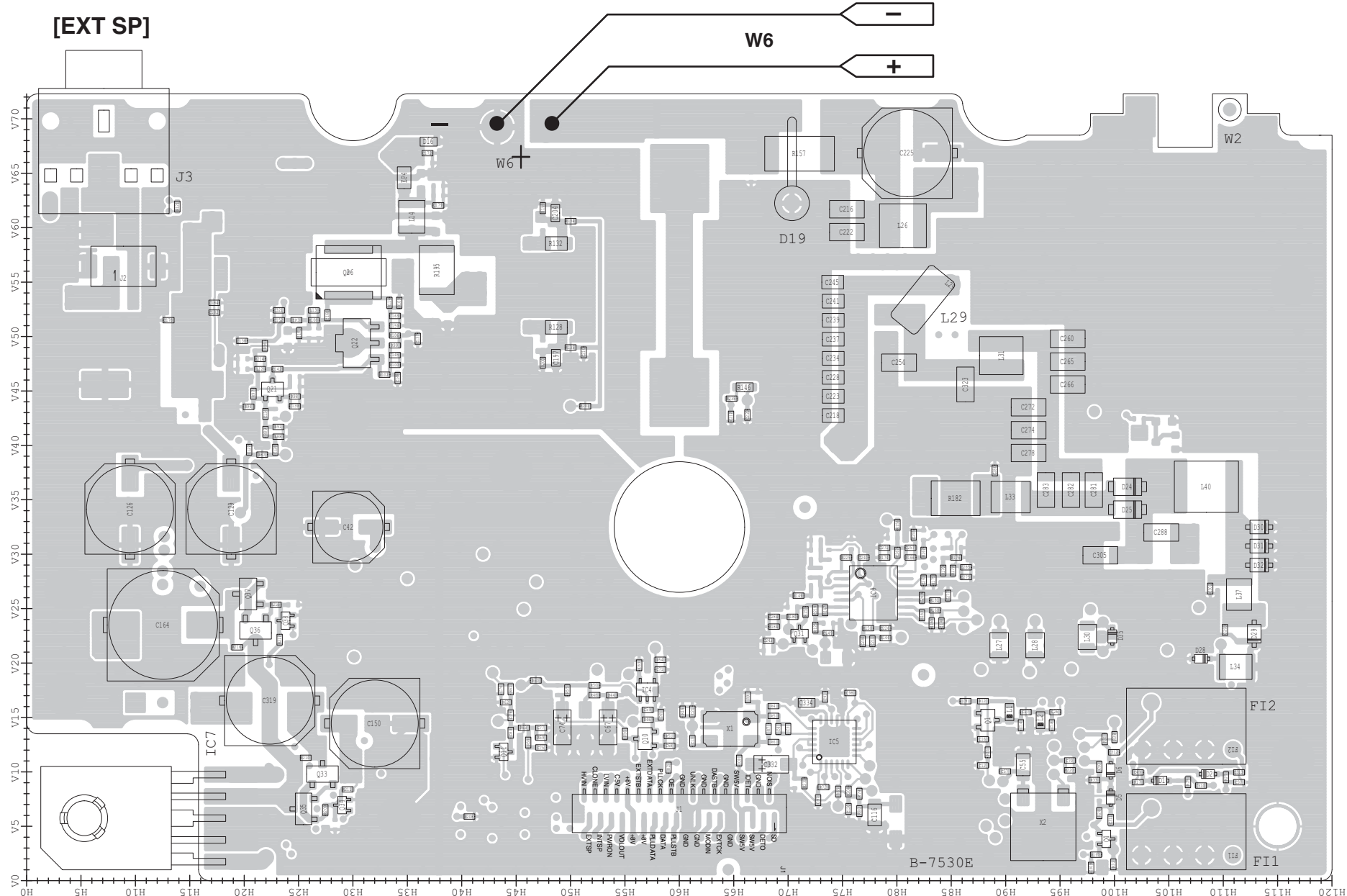
Eqv.= This component is equivalent to the REF No. component listed above, and may be substituted on parts orders and repairs.

M.=Mounted side (T: Mounted on the Top side, B: Mounted on the Bottom side)  
S.=Surface mount

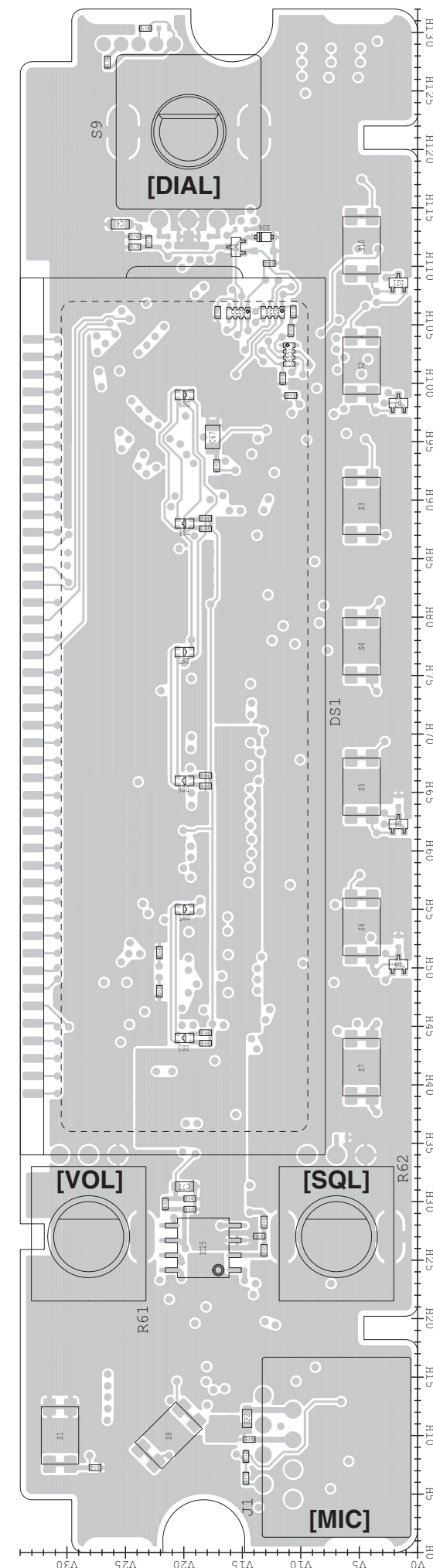
# BOARD LAYOUTS

The combination of top side and bottom side of this page shows the actual configuration of P.C. board.

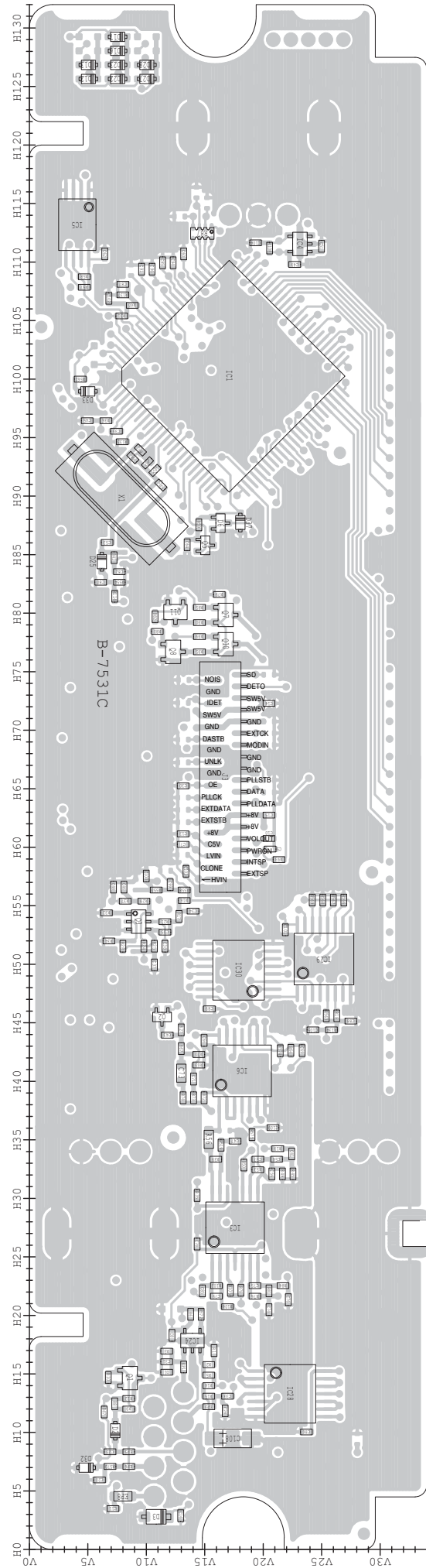
## • MAIN UNIT (TOP VIEW)



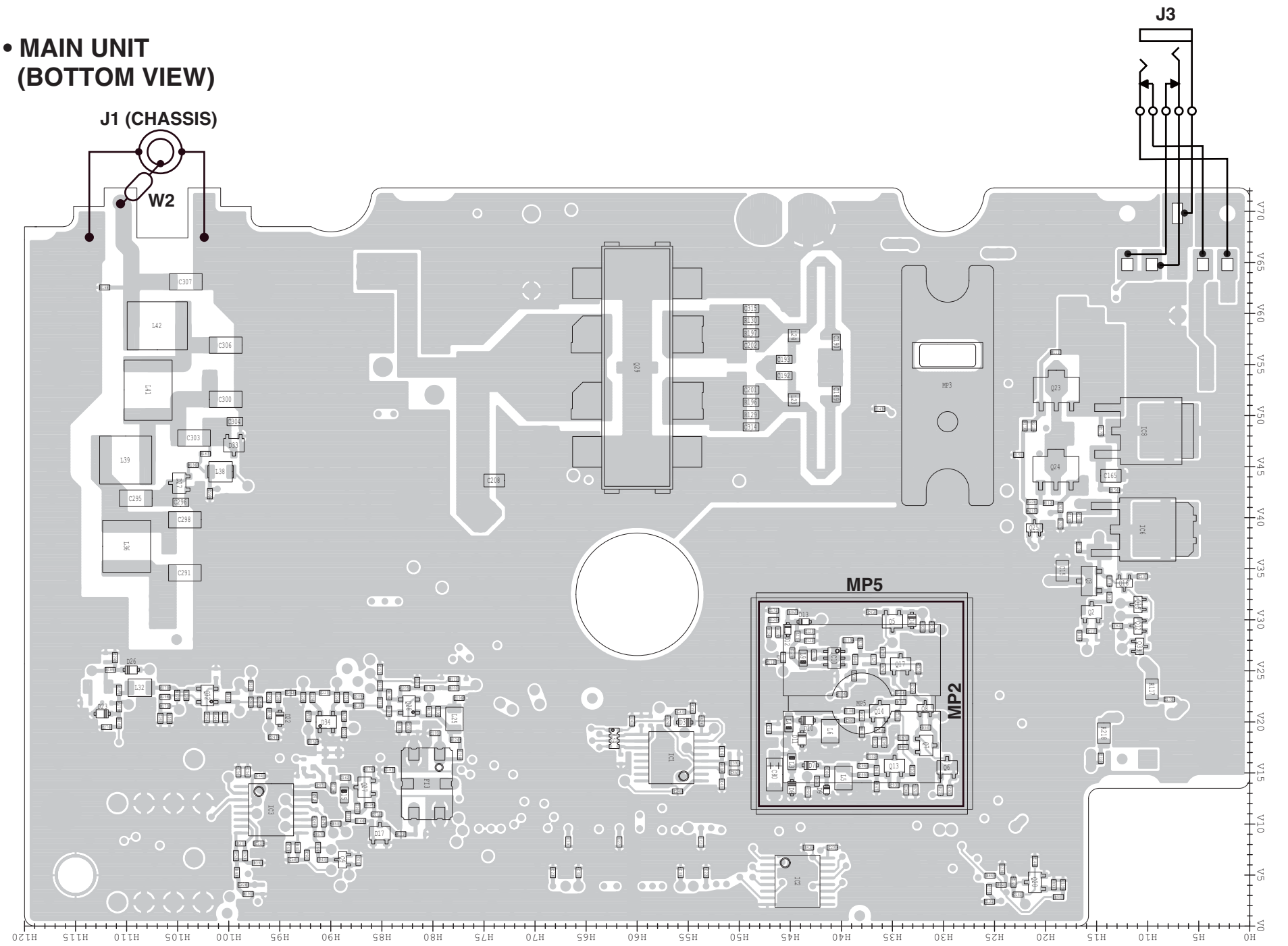
## • LOGIC UNIT (TOP VIEW)



• LOGIC UNIT  
(BOTTOM VIEW)

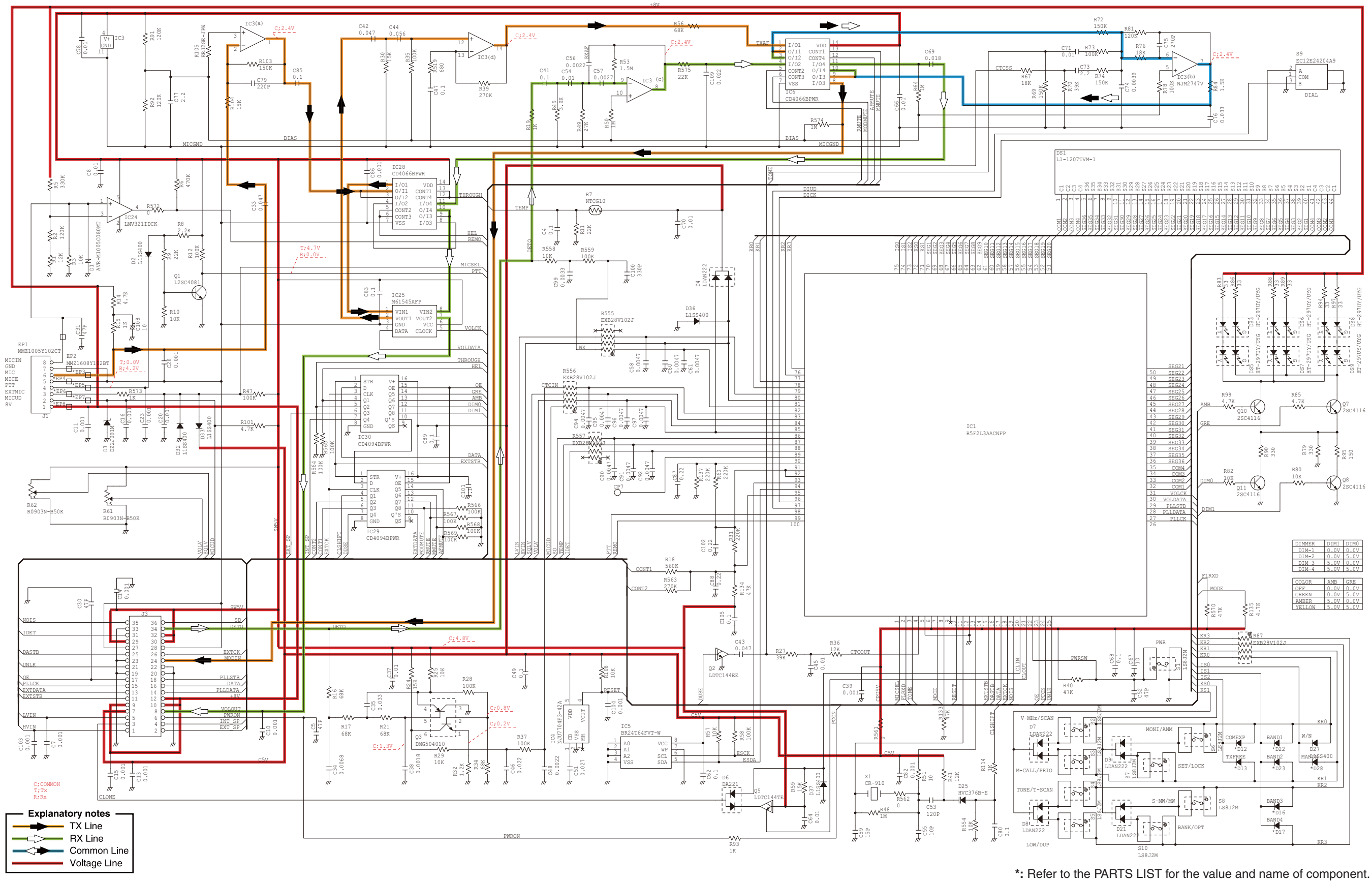


• MAIN UNIT  
(BOTTOM VIEW)



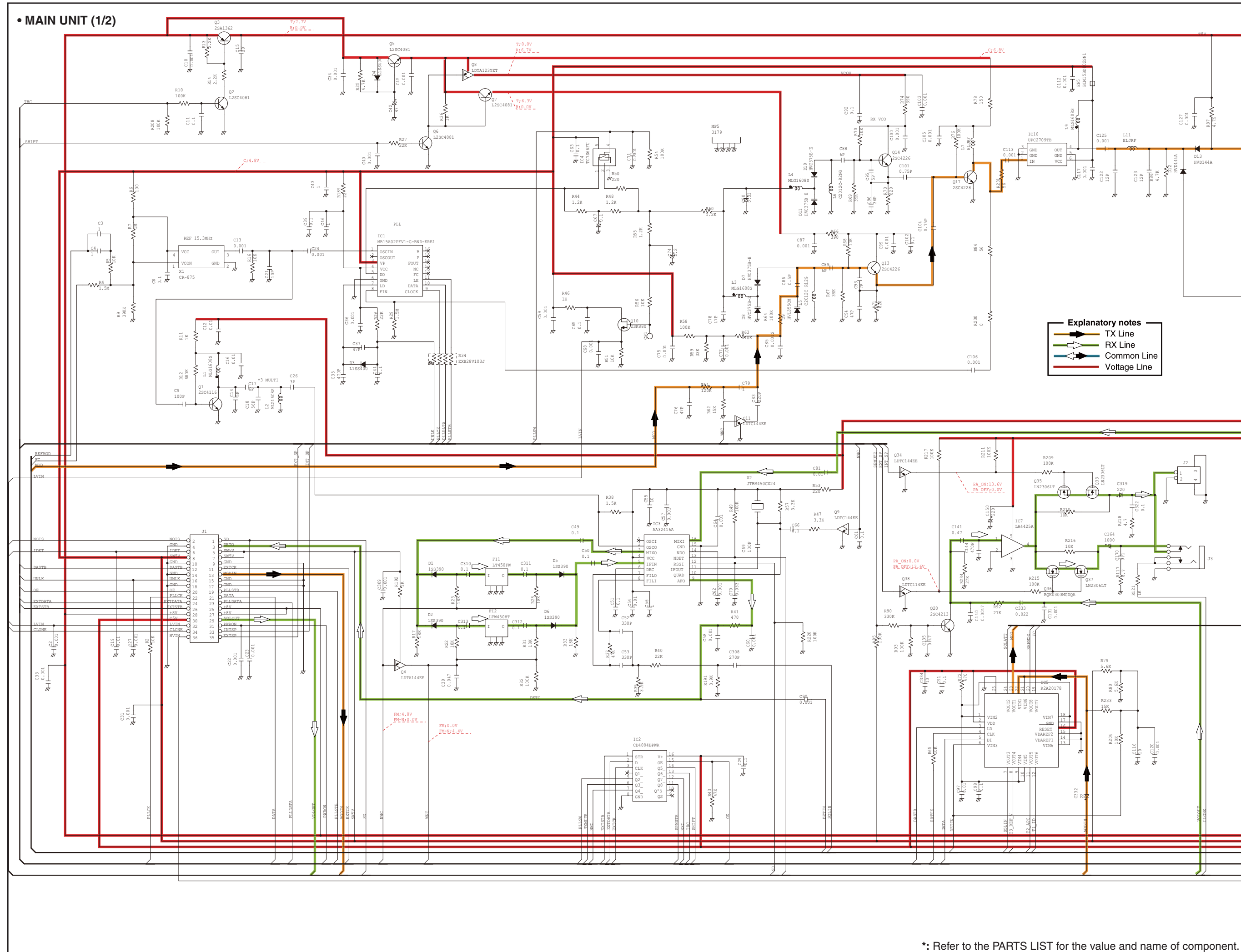
# VOLTAGE DIAGRAM

## • LOGIC UNIT



\*: Refer to the PARTS LIST for the value and name of component.

• MAIN UNIT (1/2)

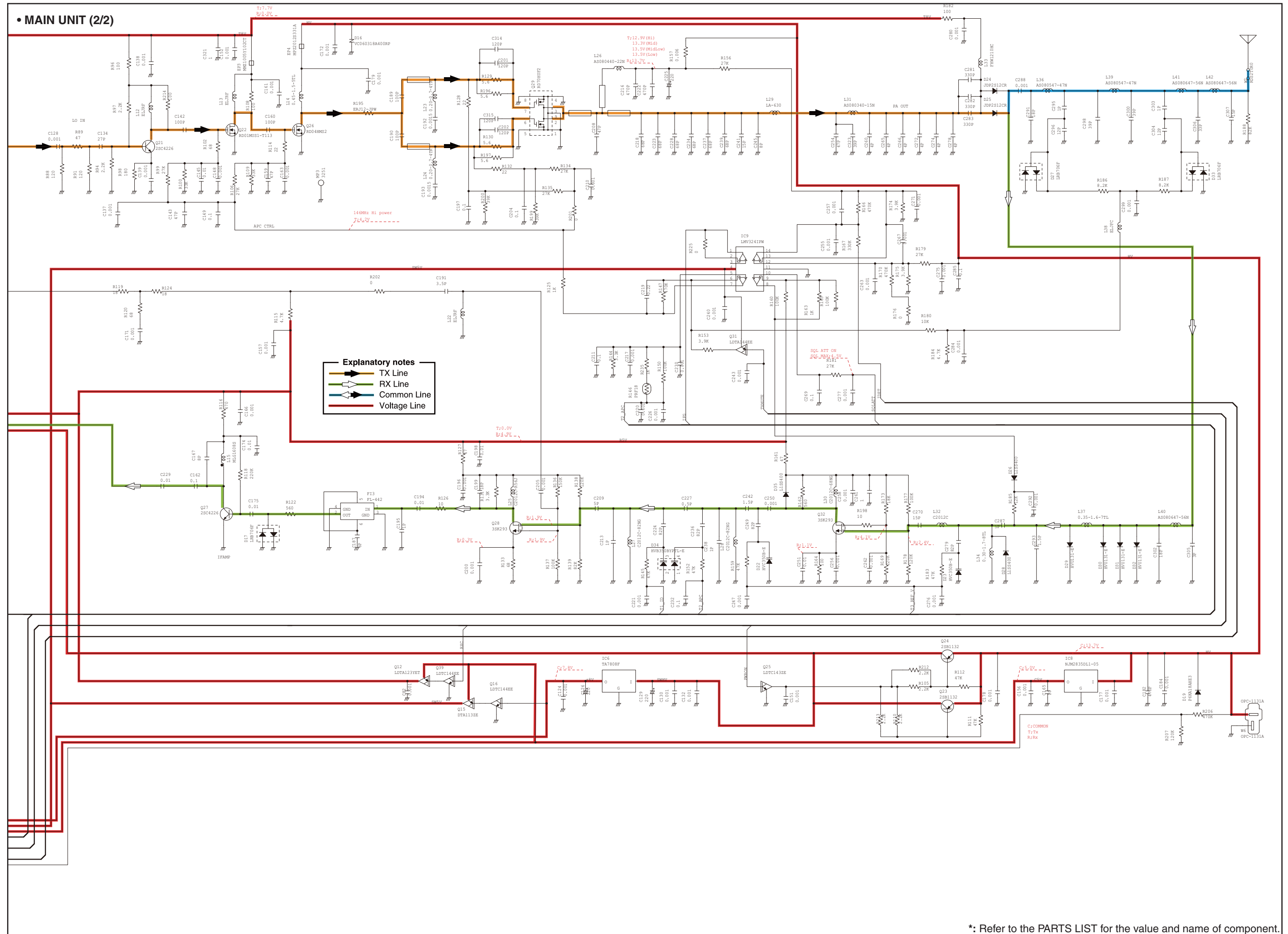


**Explanatory notes**

- TX Line
- RX Line
- Common Line
- Voltage Line

\*: Refer to the PARTS LIST for the value and name of component.

• MAIN UNIT (2/2)



\*: Refer to the PARTS LIST for the value and name of component.



Feb. 2012



# SERVICE MANUAL ADDENDUM

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## IC-2300H

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### CONTENTS

PARTS LIST .....	1
BOARD LAYOUTS .....	6
VOLTAGE DIAGRAM .....	8









[MAIN UNIT]

REF NO.	PARTS NO.	DESCRIPTION	M.	H/V LOCATION
C229	4030016790	S.CER C1005 JB 1E 103K-T	B	89.8/13.6
C230	4030017460	S.CER C1005 JB 1H 102K-T	T	76.9/22.0
C232	4030016930	S.CER C1005 JB 1A 104K-T	B	91.8/18.1
C234	4030020230	S.CER GQM2192C1H680JB01D	T	74.2/48.0
C236	4030017680	S.CER C1005 CH 1H 820J-T	B	91.8/22.4
C237	4030020230	S.CER GQM2192C1H680JB01D	T	74.2/49.8
C238	4030017340	S.CER C1005 CH 1H 010B-T	B	92.7/22.4
C239	4030020230	S.CER GQM2192C1H680JB01D	T	74.2/51.5
C240	4030017460	S.CER C1005 JB 1H 102K-T	T	77.0/29.7
C241	4030020210	S.CER GQM2192C2A150JB01D	T	74.2/53.3
C242	4030017550	S.CER C1005 CH 1H 1R5B-T	B	94.0/22.9
C243	4030017460	S.CER C1005 JB 1H 102K-T	T	68.2/22.1
C245	4030020200	S.CER GQM2192C2A8R0CB01D	T	74.1/55.0
C247	4030017460	S.CER C1005 JB 1H 102K-T	B	95.6/18.5
C249	4030017680	S.CER C1005 CH 1H 820J-T	B	95.2/22.4
C250	4030017460	S.CER C1005 JB 1H 102K-T	B	96.1/22.4
C251	4030016790	S.CER C1005 JB 1E 103K-T	B	100.4/20.5
C254	4030011240	S.CER GRM31M2C2H470JV01L (GRM42-6 CH)	T	80.2/47.6
C255	4030017460	S.CER C1005 JB 1H 102K-T	T	81.6/31.8
C256	4030017460	S.CER C1005 JB 1H 102K-T	B	102.2/20.5
C257	4030017460	S.CER C1005 JB 1H 102K-T	T	81.3/30.6
C258	4030017460	S.CER C1005 JB 1H 102K-T	B	97.0/22.0
C260	4030011060	S.CER GRM31M2C2H4R0CY21L (GRM42-6 CH)	T	95.7/49.8
C261	4030020000	S.CER C1005 JB 1A 105K-T	B	97.9/22.0
C262	4030017460	S.CER C1005 JB 1H 102K-T	B	106.7/20.4
C263	4030017460	S.CER C1005 JB 1H 102K-T	T	82.5/27.6
C265	4030011060	S.CER GRM31M2C2H4R0CY21L (GRM42-6 CH)	T	95.7/47.7
C266	4030011060	S.CER GRM31M2C2H4R0CY21L (GRM42-6 CH)	T	95.7/45.6
C267	4030017460	S.CER C1005 JB 1H 102K-T	T	80.1/30.2
C269	4030019990	S.CER C1005 JB 1C 104K-T	T	82.3/26.0
C270	4030017640	S.CER C1005 CH 1H 150J-T	B	106.3/23.4
C271	4030017460	S.CER C1005 JB 1H 102K-T	T	78.9/30.6
C272	4030011060	S.CER GRM31M2C2H4R0CY21L (GRM42-6 CH)	T	92.1/43.5
C274	4030011060	S.CER GRM31M2C2H4R0CY21L (GRM42-6 CH)	T	92.1/41.4
C275	4030017460	S.CER C1005 JB 1H 102K-T	T	86.4/27.9
C276	4030017460	S.CER C1005 JB 1H 102K-T	B	112.0/19.5
C277	4030017460	S.CER C1005 JB 1H 102K-T	T	84.7/26.2
C278	4030011060	S.CER GRM31M2C2H4R0CY21L (GRM42-6 CH)	T	92.1/39.3
C279	4030017680	S.CER C1005 CH 1H 820J-T	B	110.8/21.5
C280	4030017460	S.CER C1005 JB 1H 102K-T	T	89.0/37.7
C281	4030018940	S.CER GRM31A7U2J331JW31D	T	98.1/35.9
C282	4030018940	S.CER GRM31A7U2J331JW31D	T	96.0/35.9
C283	4030018940	S.CER GRM31A7U2J331JW31D	T	93.7/35.9
C284	4030017460	S.CER C1005 JB 1H 102K-T	T	68.7/24.3
C285	4030019990	S.CER C1005 JB 1C 104K-T	T	86.4/28.8
C287	4030017380	S.CER C1005 CH 1H 050B-T	B	110.8/23.1
C288	4030019420	S.CER GRM31A7U2J102JW31D	T	104.3/32.0
C291	4030011170	S.CER GRM31M2C2H180JV01L (GRM42-6 CH)	B	104.3/34.6
C292	4030017460	S.CER C1005 JB 1H 102K-T	B	111.2/26.3
C293	4030017550	S.CER C1005 CH 1H 1R5B-T	T	110.2/23.1
C295	4030011020	S.CER GRM31M4C2H1R0CY21L (GRM42-6 CK)	B	109.1/41.9
C296	4030007020	S.CER C1608 CH 1H 120J-T	B	104.7/41.5
C298	4030011230	S.CER GRM31M2C2H390JV01L (GRM42-6 CH)	B	104.3/39.8
C299	4030017460	S.CER C1005 JB 1H 102K-T	B	101.9/42.4
C300	4030011230	S.CER GRM31M2C2H390JV01L (GRM42-6 CH)	B	100.3/51.6
C302	4030017390	S.CER C1005 CH 1H 180J-T	T	108.8/26.9
C303	4030011020	S.CER GRM31M4C2H1R0CY21L (GRM42-6 CK)	B	103.4/47.8
C304	4030007020	S.CER C1608 CH 1H 120J-T	B	99.4/49.4
C305	4030011050	S.CER GRM31M3C2H3R0CY21L (GRM42-6 CJ)	T	98.7/29.9
C306	4030011210	S.CER GRM31M2C2H330JV01L (GRM42-6 CH)	B	100.3/56.9
C307	4030011160	S.CER GRM31M2C2H150JV01L (GRM42-6 CH)	B	104.2/63.1
C308	4030017450	S.CER C1005 JB 1H 271K-T	B	98.6/4.1
C309	4030017460	S.CER C1005 JB 1H 102K-T	T	97.9/1.2
C310	4030019990	S.CER C1005 JB 1C 104K-T	T	108.0/8.8
C311	4030019990	S.CER C1005 JB 1C 104K-T	T	99.7/5.6
C312	4030019990	S.CER C1005 JB 1C 104K-T	T	100.0/11.8
C313	4030019990	S.CER C1005 JB 1C 104K-T	T	111.5/10.0
C314	4030007140	S.CER C1608 CH 1H 121J-T	B	48.9/48.9
C315	4030007140	S.CER C1608 CH 1H 121J-T	B	48.9/60.5
C319	4510010010	S.ELE 25 CE 220 LX	T	22.4/16.6
C321	4030020000	S.CER C1005 JB 1A 105K-T	T	23.2/52.4
C322	4030019990	S.CER C1005 JB 1C 104K-T	B	14.6/16.5
C323	4030011230	S.CER GRM31M2C2H390JV01L (GRM42-6 CH)	T	86.3/45.6
C332	4550007090	S.TAN TEESVA 1A 226M8R	T	68.5/10.7
Eqv.	4550008160	S.TAN F931A226MAA		
C333	4030016970	S.CER C1005 JB 1E 223K-T	B	25.6/3.6
C334	4030019460	S.CER C1608 JB 0J 106M-T	T	71.7/16.4
J1	6510028390	S.CON 04-6294-036-000-800	T	60.0/6.8
J2	6510014961	S.CON B2B-ZR-SM4-TF(LF)(SN)	T	8.9/56.5
J3	6510025940	CON PJ-3047S <XIN>		
W1	8900011882	CAB OPC-1210A-1(P0.5N36L70) <TJM>		
W2	7030012290	JUM RDS2T0R0		
W6	8900015130	CAB OPC-1131A <TJM>		

Eqv.= This component is equivalent to the REF No. component listed above, and may be substituted on parts orders and repairs.

[MAIN UNIT]

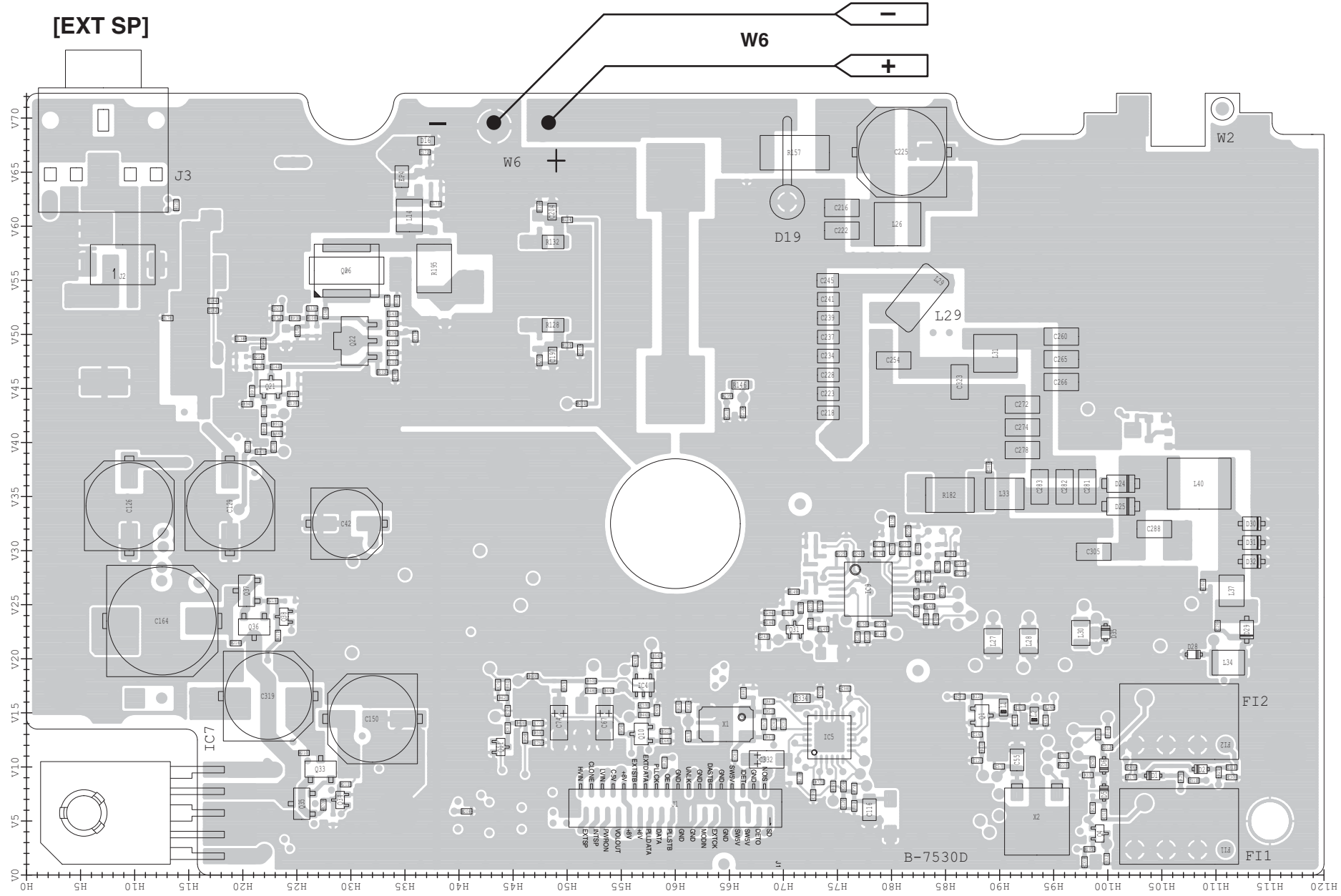
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EP3	6910018460	S.BEA MMZ1005Y102C-T	T	24.8/51.5
EP4	6910014730	S.BEA MPZ2012S331A-T	T	34.7/64.6
EP5	6910020610	S.BEA BLM15BD102SN1D	B	45.7/26.3

M.=Mounted side (T: Mounted on the Top side, B: Mounted on the Bottom side) S.=Surface mount

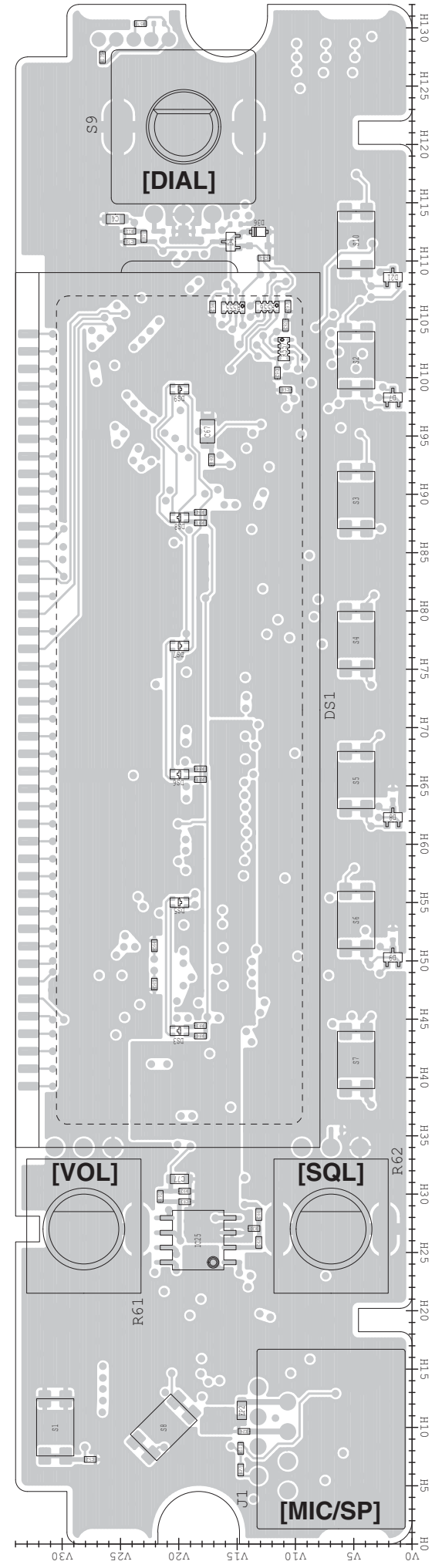
# BOARD LAYOUTS

The combination of top side and bottom side of this page shows the actual configuration of P.C. board.

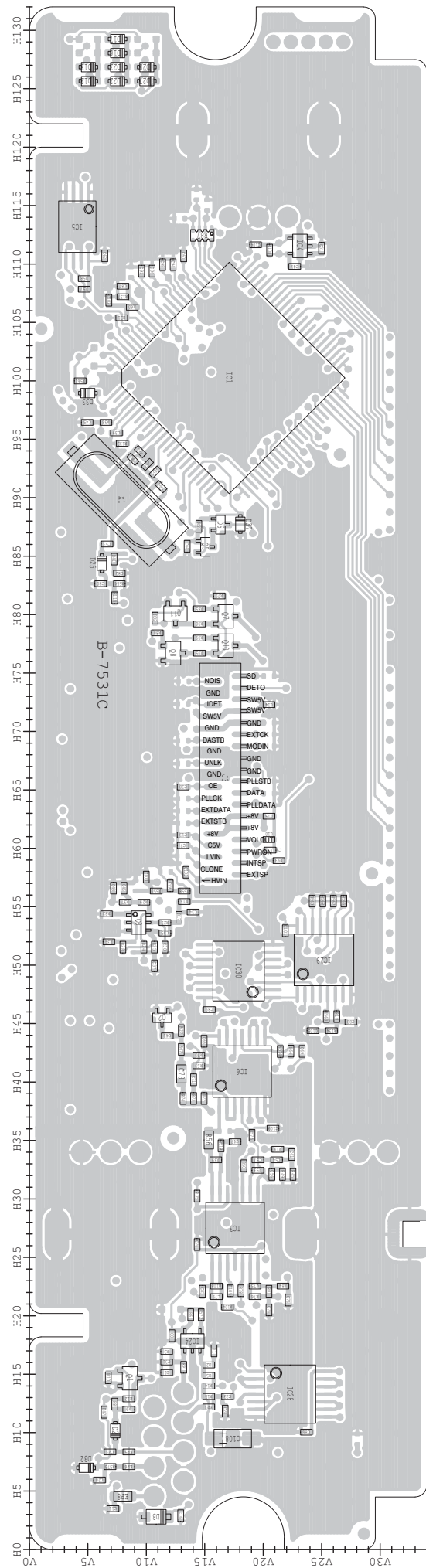
## • MAIN UNIT (TOP VIEW)



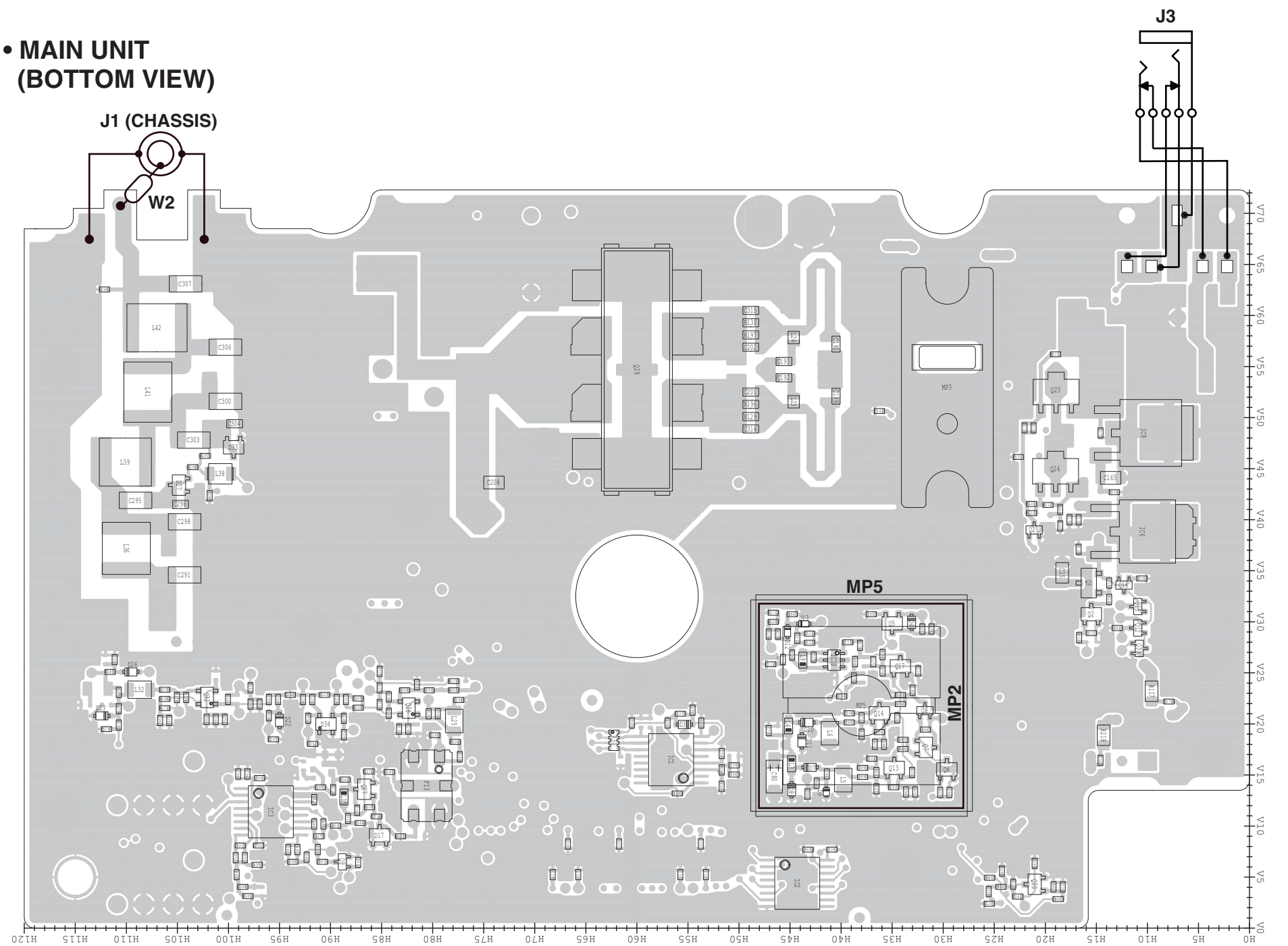
## • LOGIC UNIT (TOP VIEW)



• LOGIC UNIT  
(BOTTOM VIEW)



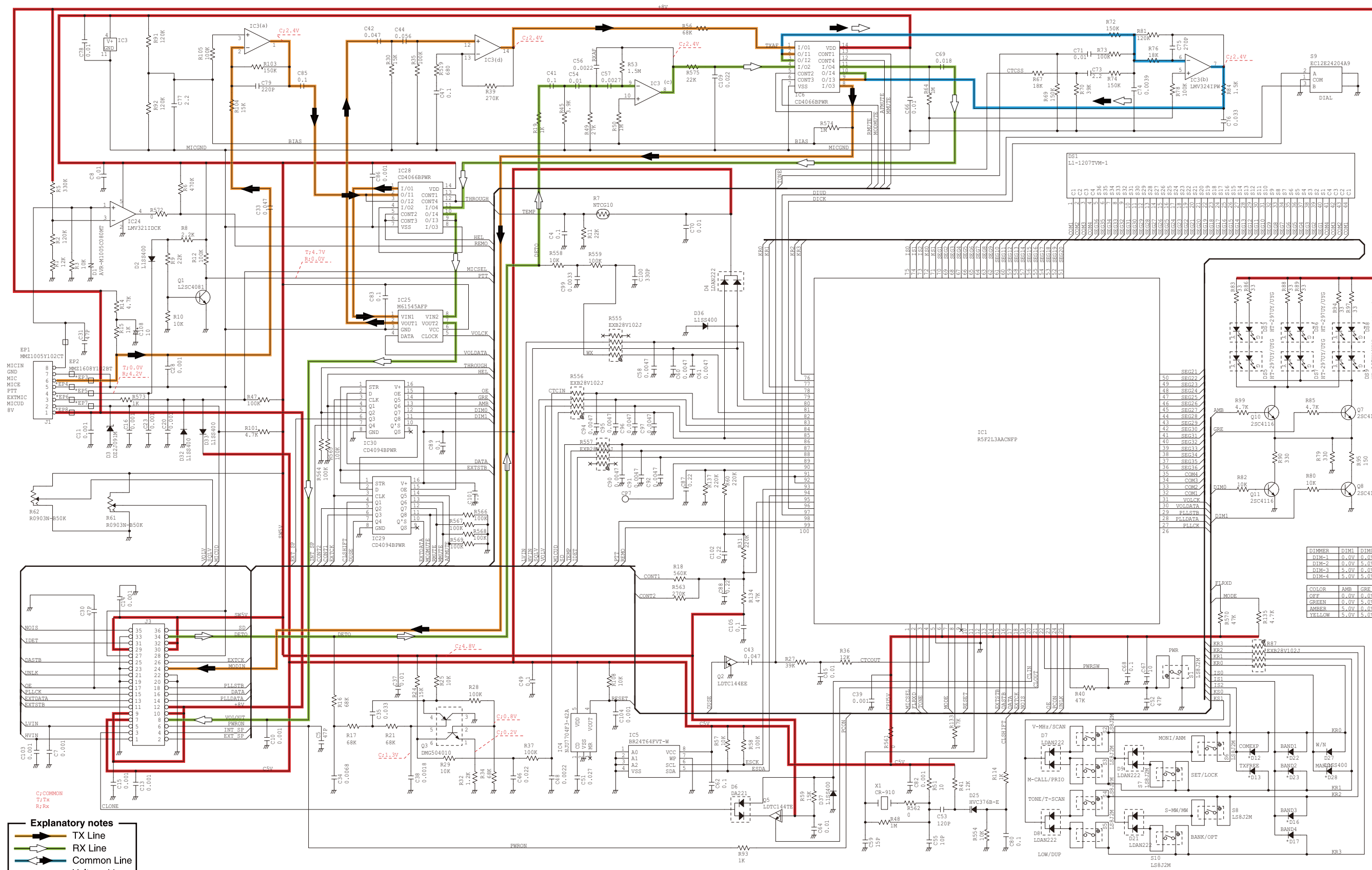
• MAIN UNIT  
(BOTTOM VIEW)





# VOLTAGE DIAGRAM

## • LOGIC UNIT



DIMMER	DIM1	DIM0
DIM-1	0.0V	0.0V
DIM-2	0.0V	5.0V
DIM-3	5.0V	0.0V
DIM-4	5.0V	5.0V

COLOR	AMB	GRN
OFF	0.0V	0.0V
GREEN	0.0V	5.0V
AMBER	5.0V	0.0V
YELLOW	5.0V	5.0V

\*: Refer to the PARTS LIST for the value and name of component.



# SERVICE MANUAL

FM TRANSCEIVER

# IC-2300H

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S-14811XZ-C1  
Dec. 2011

Icom Inc.

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## INTRODUCTION

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This service manual describes the latest technical information for the **IC-2300H** FM TRANSCEIVER, at the time of publication.

MODEL	VERSION	TX POWER
IC-2300H	TPE	24 W
	USA	65 W
	KOR	50 W
	EXP-01	65 W
	EXP-02	

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## CAUTION

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**NEVER** connect the transceiver to an AC outlet or to a DC power supply that uses more than the specified voltage. This will ruin the transceiver.

**DO NOT** expose the transceiver to rain, snow or any liquids.

**DO NOT** reverse the polarities of the power supply when connecting the transceiver.

**DO NOT** apply an RF signal of more than 20 dBm (100 mW) to the antenna connector. This could damage the transceiver's front-end.

To upgrade quality, any electrical or mechanical parts and internal circuits are subject to change without notice or obligation.



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## ORDERING PARTS

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Be sure to include the following four points when ordering replacement parts:

1. 10-digit Icom part number
2. Component name
3. Equipment model name and unit name
4. Quantity required

### <ORDER EXAMPLE>

1110003491 S.IC TA31136FNG IC-2300H MAIN UNIT 5 pieces  
8820001210 Screw 2438 screw IC-2300H Top cover 10 pieces

Addresses are provided on the inside back cover for your convenience.

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## REPAIR NOTES

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1. Make sure that the problem is internal before disassembling the transceiver.
2. **DO NOT** open the transceiver until the transceiver is disconnected from its power source.
3. **DO NOT** force any of the variable components. Turn them slowly and smoothly.
4. **DO NOT** short any circuits or electronic parts. An insulated tuning tool **MUST** be used for all adjustments.
5. **DO NOT** keep power ON for a long time when the transceiver is defective.
6. **DO NOT** transmit power into a Standard Signal Generator or a Sweep Generator.
7. **ALWAYS** connect a 40 to 60 dB attenuator between the transceiver and a Deviation Meter or Spectrum Analyzer, when using such test equipment.
8. **READ** the instructions of the test equipment thoroughly before connecting it to the transceiver.

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## TABLE OF CONTENTS

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**SECTION 1 SPECIFICATIONS**

**SECTION 2 INSIDE VIEWS**

**SECTION 3 DISASSEMBLY INSTRUCTION**

**SECTION 4 CIRCUIT DESCRIPITON**

4-1	RECEIVER CIRCUITS.....	4-1
4-2	TRANSMITTER CIRCUITS.....	4-2
4-3	FREQUENCY SYNTHESIZER.....	4-3
4-4	VOLTAGE DIAGRAMS.....	4-3
4-5	PORT ALLOCATIONS.....	4-4

**SECTION 5 ADJUSTMENT PROCEDURES**

5-1	PREPARATION.....	5-1
5-2	FREQUENCY ADJUSTMENT.....	5-2
5-3	TRANSMIT ADJUSTMENT.....	5-3
5-4	RECEIVE ADJUSTMENT.....	5-4

**SECTION 6 PARTS LIST**

**SECTION 7 MECHANICAL PARTS**

**SECTION 8 BOARD LAYOUTS**

**SECTION 9 BLOCK DIAGRAM**

**SECTION 10 VOLTAGE DIAGRAM**

# SECTION 1




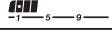
# SPECIFICATIONS

## ■ GENERAL

- Frequency coverage : (unit: MHz)
  - USA Tx: 144–148/Rx: 136–174\*
  - Export Tx: 136–174\*/Rx: 136–174\*
  - Taiwan, Korea Tx/Rx: 144–146
- \*Guaranteed: 144–148 MHz range only.
- Type of emission : FM
- Number of memory channels : 207 (incl. 6 scan edges and 1 Call)
- Scan types : Full, Program, Priority, Memory channel, Bank, Skip, Tone scans
- Frequency resolution : 5, 6.25, 10, 12.5, 15, 20, 25, 30, 50 kHz
- Operating temperature range : -10°C to +60°C; +14°F to +140°F
- Frequency stability : ±3 ppm (-10°C to +60°C)
- Power supply requirement : 13.8 V DC ±15%
- Current drain (at 13.8 V DC: approximately):
  - Transmit at 65 W 11 A  
(less than 9 A at 24 W for the Taiwan version)
  - Receive standby 0.4 A  
max. audio 1.5 A
- Antenna connector : SO-239 (50 Ω)
- Dimensions (proj. not included) : 140.0(W)×40.0(H)×118.0(D) mm;  
5.5(W)×1.6(H)×4.6(D) in
- Weight (approximately) : 1.1 kg; 2.4 lb

## ■ TRANSMITTER

- Modulation system : Variable reactance frequency mod.
- Output power (approximately) :

	USA, Export	Taiwan	Korea
High: 	65 W	24 W	50 W
Mid: 	25 W	10 W	25 W
Mid-Low: 	10 W	–	10 W
Low: 	5 W	5 W	5 W

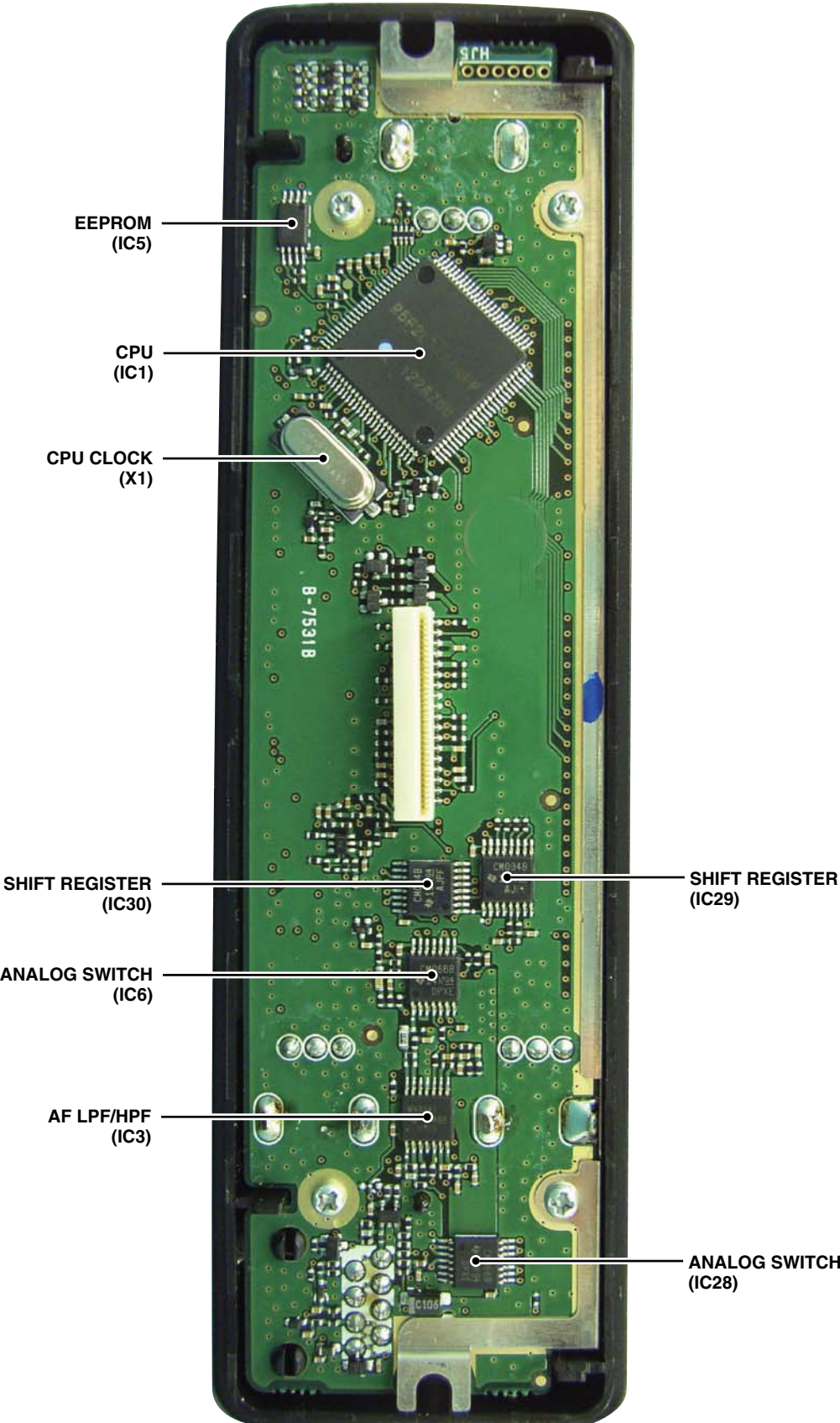
- Max. frequency deviation : ±5.0 kHz (Wide)/±2.5 kHz (Narrow)
- Spurious emissions : Less than -60 dBc
- Microphone connector : 8-pin modular (600 Ω)

## ■ RECEIVER

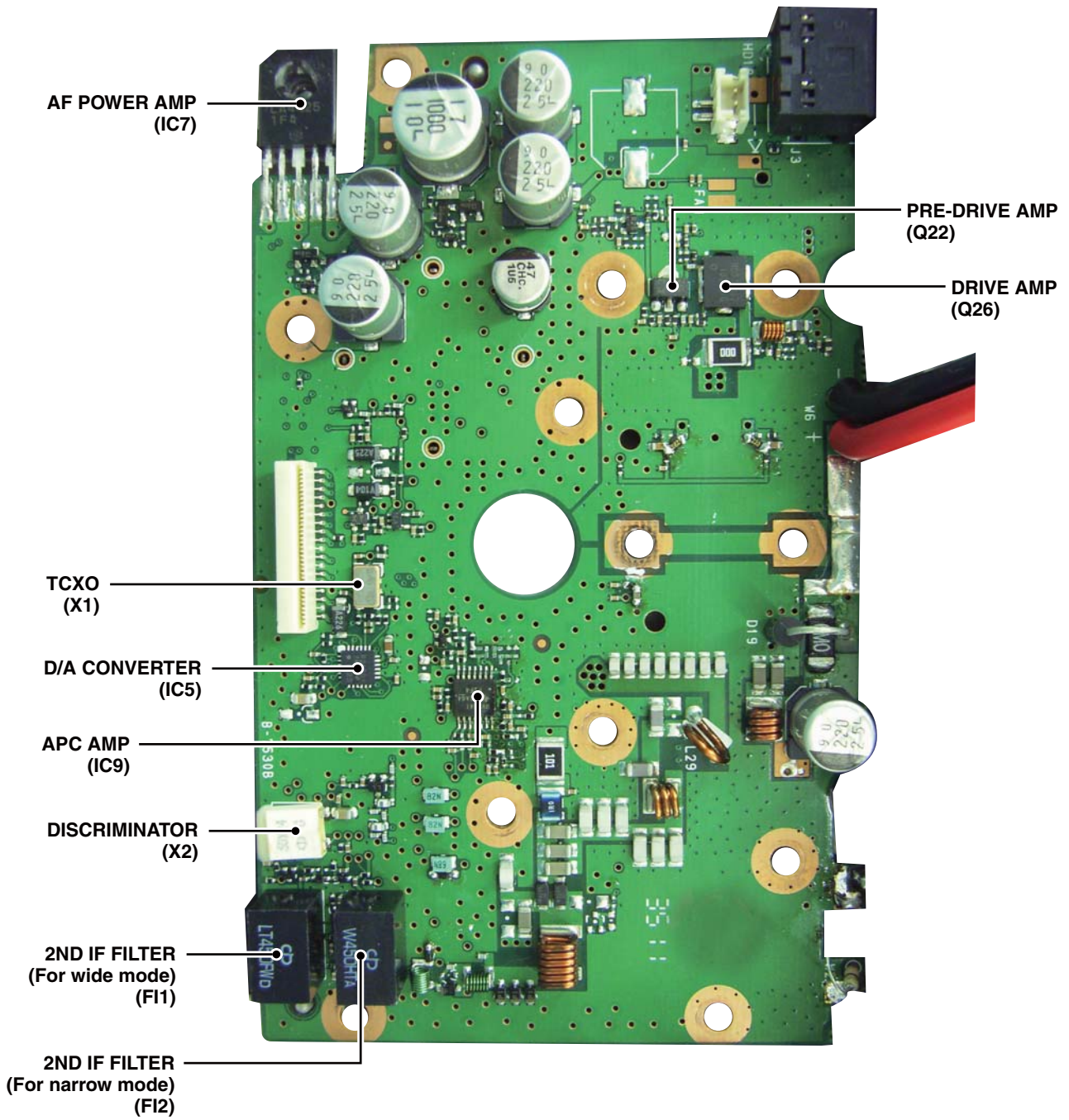
- Receive system : Double-conversion superheterodyne
- Intermediate frequencies : 1st: 46.35 MHz, 2nd: 450 kHz
- Sensitivity (at 12 dB SINAD) : Less than 0.18 μV
- Squelch sensitivity : Less than 0.13 μV (threshold)
- Selectivity :
  - [Wide] More than ±6 kHz/6 dB  
Less than ±14 kHz/60 dB
  - [Narrow] More than ±3 kHz/6 dB  
Less than ±9 kHz/55 dB
- Spurious and image rejection : More than 60 dB
- AF output power (at 13.8 V DC) : More than 3.5 W (4.5 W typical)  
(at 10% distortion with a 4 Ω load)
- External speaker connector : 3-conductor 3.5 (d) mm (1/8 inch)/4 Ω

**All stated specifications are subject to change without notice or obligation.**

• LOGIC UNIT



• MAIN UNIT  
(TOP VIEW)



• MAIN UNIT  
(BOTTOM VIEW)

8 V REGULATOR  
(IC6)

5 V REGULATOR  
(IC8)

AF POWER AMP  
(IC7)

VCO

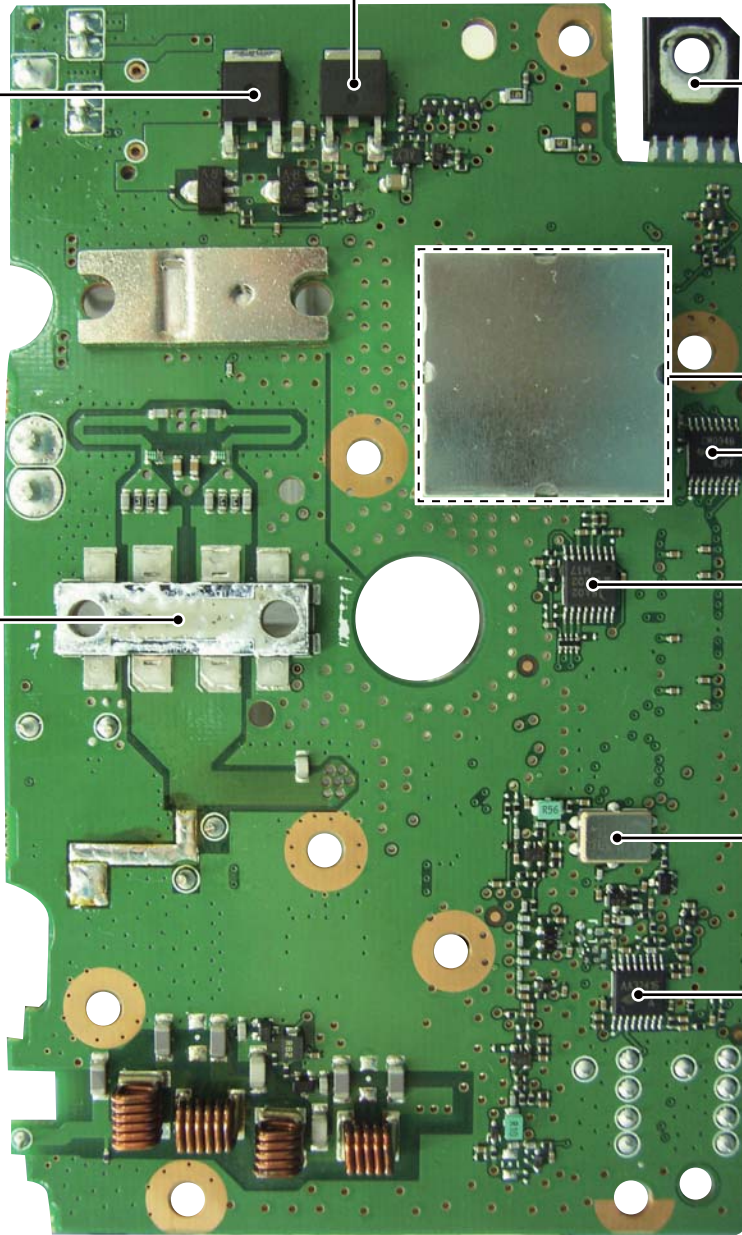
SHIF REGISTER  
(IC2)

POWER AMP  
(Q29)

PLL IC  
(IC1)

1ST IF FILYER  
(F13)

IF IC  
(IC3)

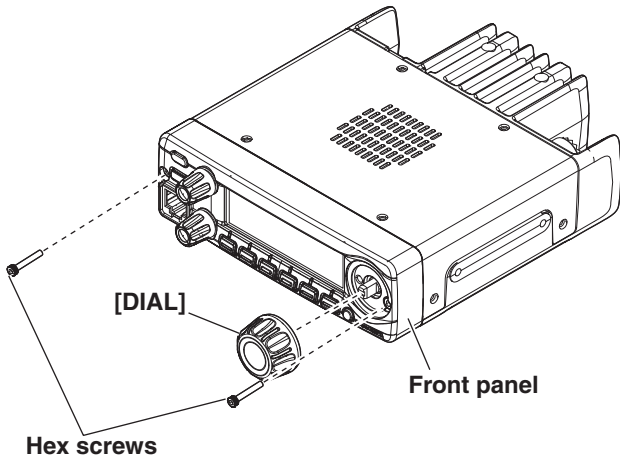




## SECTION 3 DISASSEMBLY INSTRUCTION

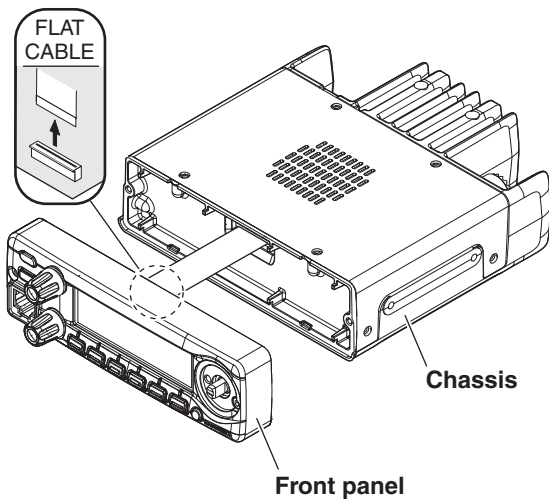
### REMOVING THE FRONT PANEL

- 1) Remove [DIAL] from the front panel.
- 2) Remove 2 hex screws from the front panel.



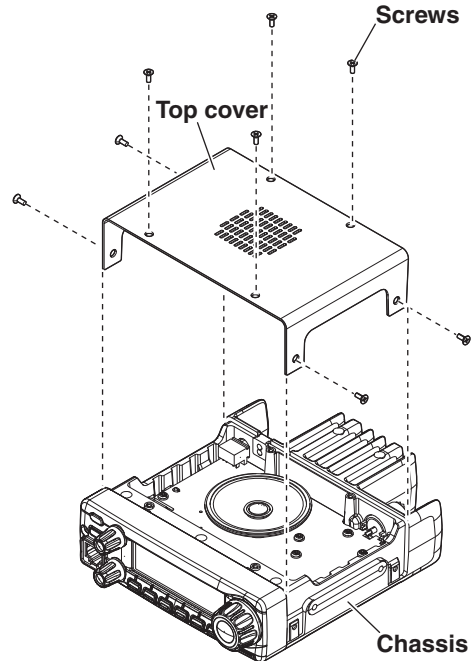
- 3) CAREFULLY separate the front panel from the chassis.
- 4) Disconnect the flat cable from the LOGIC UNIT.

**BE CAREFUL** about the **flat cable** and **connector** when separating the front panel from the chassis.

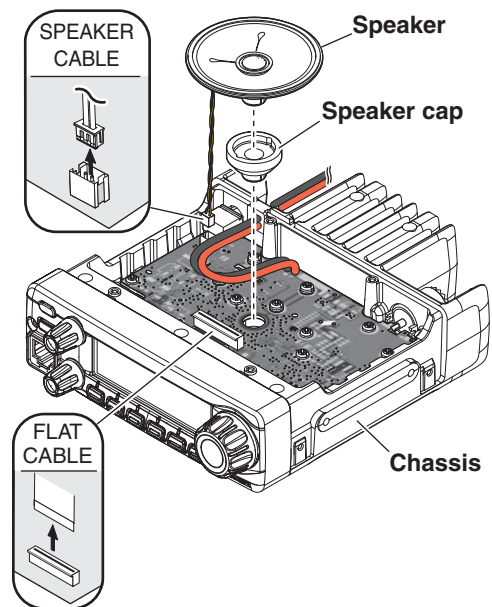


### REMOVING THE MAIN UNIT

- 1) Remove 8 screws from the top cover, and then remove the top cover from the chassis.



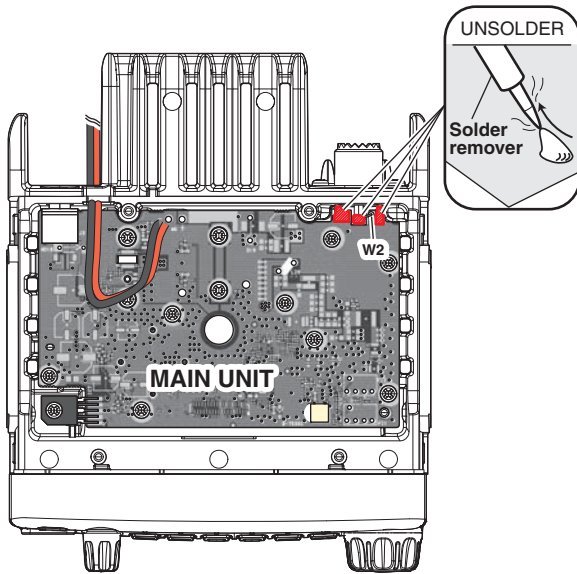
- 2) Disconnect the flat cable from the MAIN UNIT.
- 3) Disconnect the speaker cable from the MAIN UNIT.
- 4) Remove the speaker and speaker cap from the MAIN UNIT.



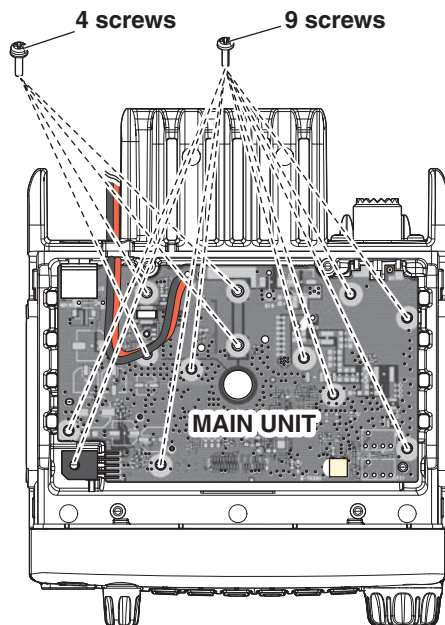
(Continued on page 3-2.)

REMOVING THE MAIN UNIT (Conitunued)

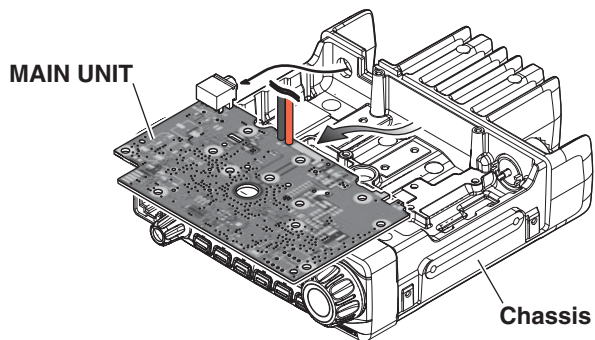
5) Unsolder 3 points at the antenna connector.



6) Remove the total of 13 screws from the MAIN UNIT.



7) Remove the MAIN UNIT from the chassis in the direction of the arrow.

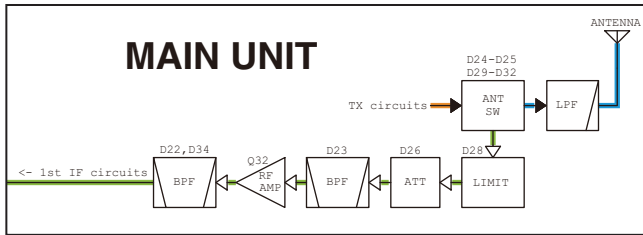


## 4-1 RF CIRCUITS

The RX signal from the antenna is passed through the LPF (L36, L39, L41, L42, C291, C295, C296, C298, C300, C303, C304, C306, C307), antenna SW (D29–D32) and tuned BPF (D23, L34, C279), and then applied to the RF AMP (Q32).

The amplified RX signal is passed through a two-staged tuned BPF (D22, D34, L27, L28, C213, C224, C227, C236, C238, C242, C249), and then applied to the 1st IF circuits.

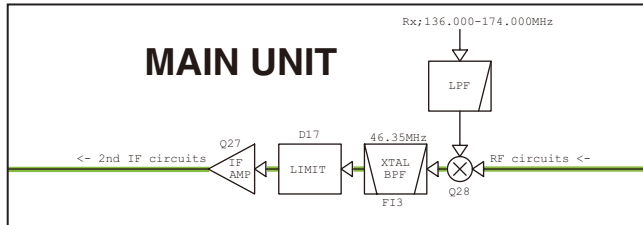
### • RF CIRCUITS



## 1ST IF CIRCUITS

The RX signal from the RF circuits is applied to the 1st mixer (Q28), to be mixed with the 1st LO signal from the RX VCO (Q14, D10–D11, L6), resulting in the 46.35 MHz 1st IF signal. The 1st IF signal is passed through the 1st IF filter (FI3) to remove unwanted signals, and then applied to the 1st IF AMP (Q27). The amplified 1st IF signal is applied to the 2nd IF circuits.

### • 1ST IF CIRCUITS



## 2ND IF CIRCUITS

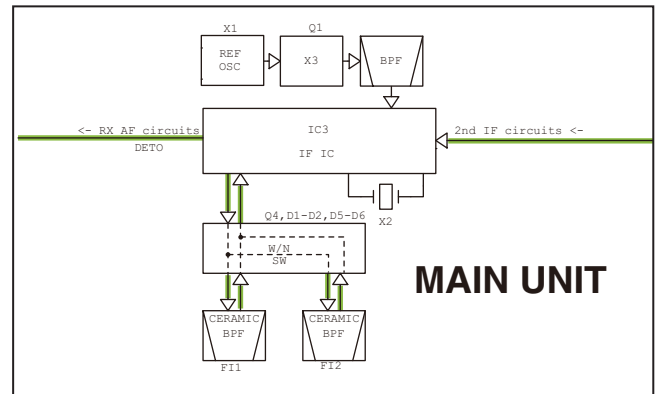
The 1st IF signal from the 1st IF circuits is applied to the IF IC (IC3).

The IF IC contains the 2nd mixer, 2nd IF AMP, detector, and so on, in its package.

The 1st IF signal is mixed with the 2nd LO signal at the internal 2nd mixer, resulting in the 455 kHz 2nd IF signal. The 2nd IF signal is passed through the 2nd IF filter (FI1: for wide mode, FI2: for narrow mode) to remove sideband noise, and then applied to the internal 2nd IF AMP. The amplified 2nd IF signal is applied to the quadrature detector circuit for frequency-demodulation.

The demodulated AF signal is output from the IF IC (pin 9), and then applied to the RX AF circuits on the LOGIC UNIT.

### • 2ND IF CIRCUITS

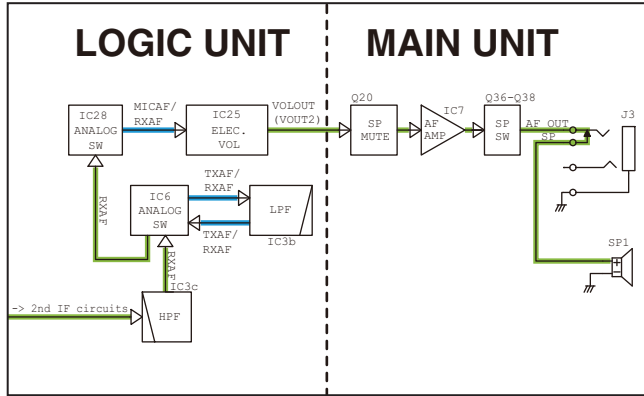


## RX AF CIRCUITS

The demodulated AF signal from the MAIN UNIT is passed through the HPF (IC3c), AF line SW (IC6), LPF (IC3d), AF line SW (IC6), another AF line SW (IC28) and the electronic volume (IC25) for adjustment in level. The level-adjusted AF signal is applied to the MAIN UNIT.

The AF signal is applied to the AF AMP (IC7), through the speaker mute SW (Q20). The amplified AF signal is output to the internal speaker through the speaker mute SWs (Q33, Q35–Q37), or external speaker through the speaker mute SW (Q36, Q37) and the [SP] connector.

### • RX AF CIRCUITS



## SQUELCH CIRCUIT

The squelch circuit cuts off the AF output signal while no RF signal is received. Detecting noise components in the demodulated AF signal, the squelch circuit stops audio signal from being emitted.

A portion of the demodulated AF signal from the IF IC (IC3) is passed through the D/A converter (IC5) for level (=threshold) adjustment. The level-adjusted AF signal is passed through the noise filter (IC3, pins 7, 8 and R37, R39, R40, R191, C52, C53, C308) to filter only the noise components (approximately 30 kHz signals). The noise components are rectified by the noise detector, resulting in a DC voltage corresponding to the noise level.

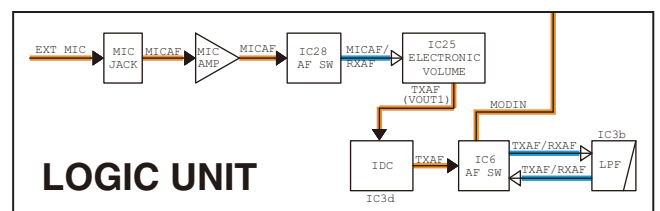
When the noise level is higher than the preset one, the internal comparator sets the "NOIS" signal to the CPU to "High," and then the CPU controls the speaker mute SW (Q20) to stop audio signal from being emitted.

## 4-2 TX AF CIRCUITS

The AF signal from the microphone (MIC signal) is applied to the MIC AMP (IC3a), through the [MIC] jack. The amplified MIC signal is passed through the AF line SW (IC28) and the electronic volume (IC25) for adjustment in level. The level-adjusted AF signal is applied to the IDC (IC3d) which functions as the splatter filter.

The filtered MIC signal is passed through another AF line SW (IC6) and LPF (IC3b), then fed back to the AF line SW (IC6), and then applied to the modulation circuit on the MAIN UNIT.

### • TX AF CIRCUITS

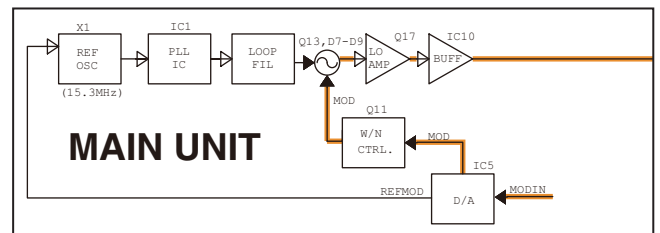


## MODULATION CIRCUIT

The MIC signal from the LOGIC UNIT is applied to the D/A converter (IC5) for adjustment in level (=deviation). The level-adjusted MIC signal is applied to the TX VCO (Q13, D7–D9) as a modulation signal.

The modulated TX VCO output signal is amplified by the LO AMP (Q17), and then applied to the TX AMP circuit as the TX signal, through the buffer (IC10), LO SW (D13) and another buffer (Q21).

### • MODULATION CIRCUITS



## TX AMP CIRCUITS

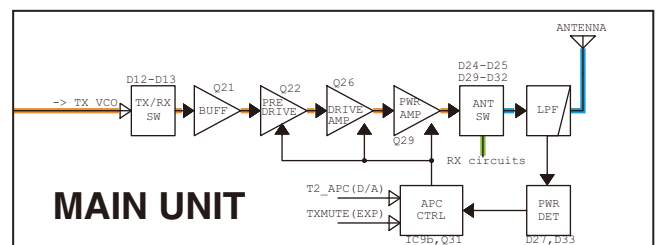
The TX signal is sequentially amplified by the pre-drive (Q22), drive (Q26) and power AMP (Q29). The amplified TX signal is applied to the antenna, through the ANT SW (D24, D25) and LPF (L36, L39, L41, L42, C291, C295, C296, C298, C300, C303, C304, C306, C307).

## APC CIRCUIT

The voltage produced on both sides of L39 is rectified by D27 and D33, and used as the TX power sensing voltage. The voltage is applied to the APC AMP (IC9b), and the output voltage controls the gate voltages of Q29, Q26 and Q22.

The voltage difference between both sides of R157 is detected by IC9d, to control the TX power when abnormal current is detected.

### • TX AMPLIFIER AND APC CIRCUITS



### 4-3 FREQUENCY SYNTHESIZER

The 2300H has two VCOs; TX VCO and RX VCO.

While transmitting, the TX VCO (Q13, D7–D9, L5) is activated. The oscillating frequency is set by the value of C89, L5, D7 and D8. Applying the voltage to both D7 and D8, the wide oscillating frequency range is obtained. The modulation signal is applied to D9 to obtain Frequency Modulation.

While receiving, the RX VCO (Q14, D10–D11, L6) is activated. The oscillating frequency is set by the value of C88, L6, D10 and D11. Applying the voltage to both D10 and D11, the wide oscillating frequency range is obtained.

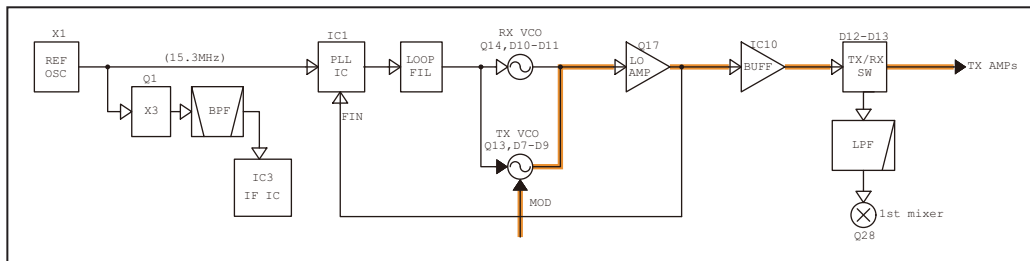
Q6, Q7 and Q8 compose a power supply line SW which toggles the TX and RX VCOs.

The output signal from each VCO is passed through the buffer (Q17) and applied to the PLL IC (IC1).

IC1 phase-compares the output of TCXO (X1) and VCO, and the phase-difference is output as the charge pump current. The current is passed through the loop filter to be converted into the lock voltage, which controls the oscillating frequency of each VCO.

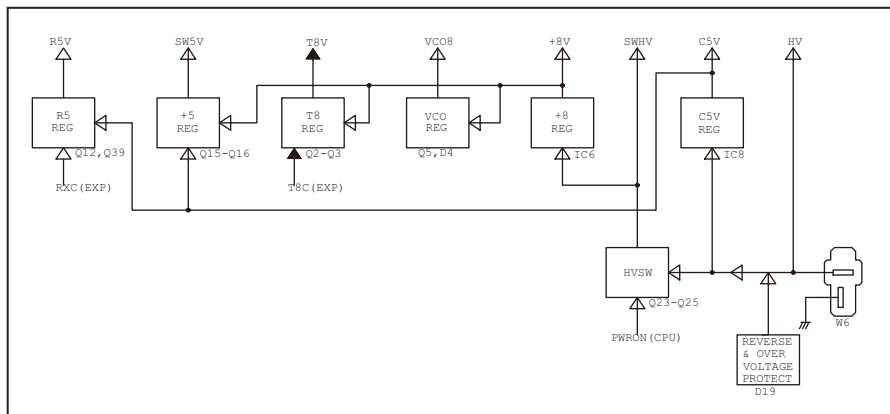
The output of Q17 is passed through the buffer (IC10), and used as the TX/RX LO signal.

#### • FREQUENCY SYNTHESIZER



### 4-4 VOLTAGE DIAGRAM

Voltage from the power supply is routed throughout the transceiver, via the regulators and switches.



## 4-5 PORT ALLOCATIONS

### • CPU (LOGIC UNIT: IC1)

Pin No.	Line Name	Description	I/O
1	MICSEL	Microphone connection detect.	I
3	TOINE	DTMF/BEEP/1750Hz tone signal.	O
4	CTCOUT	Tone signal (CTCSS/DTCS) encoding output.	O
10	RESET	CPU (LOGIC UNIT: IC1) reset signal. H=The CPU is reset.	I
15	EXTSTB	Shift register (MAIN UNIT: IC2) serial strobe.	O
16	DASTB	D/A converter (MAIN UNIT: IC5) strobe.	O
17	DATA	Shift register (MAIN UNIT: IC2) serial data.	O
18	EXTCK	Shift register (MAIN UNIT: IC2) serial clock.	O
19	NOIS	Noise level detect.	I
20	CLIN	Cloning data.	I
21	CLOUT	Cloning data.	O
22	PWRSW	[P] input. L= Pushed.	I
23	OE	Shift register (MAIN UNIT: IC2) chip enable.	O
24	PCON	Main power supply line control. H=During the transceiver is ON.	O
25	UNLK	PLL unlock detect. L=Unlocked.	I
26	PLLCK	PLL IC (MAIN UNIT: IC1) serial clock.	O
27	PLLDATA	PLL IC (MAIN UNIT: IC1) serial data.	O
28	PLLSTB	PLL IC (MAIN UNIT: IC1) strobe.	O
29	VOL-DATA	Electronic volume (LOGIC UNIT: IC25) serial data.	O
30	VOLCK	Electronic volume (LOGIC UNIT: IC25) serial clock.	O
71, 72	KS1, KS0	Key input ports.	I
76-79	KR3-KR0		I
80	LVIN		Lock voltage input.
81	HVIN	Power source voltage.	I
82	WX	Weather alert signal.	I
83	CTCIN	Tone signal (CTCSS/DTCS) decoding input.	I
84	SQLV	[SQL] input.	I
85	VOLV	[VOL] input.	I
86	MICUD	Up/down key on the microphone.	I
87	SD	RSSI voltage from the IF IC (MAIN UNIT: IC3).	I
88	TEMP	Temperature sensing voltage.	I
89	IDET	TX power AMP current flow sensing voltage.	I
94	ESCK	EEPROM (LOGIC UNIT: IC5) serial clock.	O
95	ESDA	EEPROM (LOGIC UNIT: IC5) serial data.	I/O
97	DICK	Rotary encoder (LOGIC UNIT: S9) pulse. (Phase A)	I
98	DIUD	Rotary encoder (LOGIC UNIT: S9) pulse. (Phase B)	I

Pin No.	Line Name	Description	I/O
99	PTT	[PTT] input. H= Pushed.	I
100	REMO	Microphone connection detect. H=Connected.	I

### • D/A CONVERTER (MAIN: IC5)

Pin No.	Line Name	Description
6, 7	SQLIN	Noise squelch level adjustment.
8	T3	Tuned BPF tracking voltage adjustment.
11	T2_APC	RX: Tuned BPF tracking voltage adjustment. TX: Transmit output power adjustment.
12	T1	Tuned BPF tracking voltage adjustment.
19	FC	Reference frequency adjustment.
20	REFMOD	Reference oscillator deviation adjustment.
22, 23	MOD	VCO deviation adjustment.
24	SQLATT	Squelch attenuator level adjustment.

### • SHIF REGISTER (MAIN: IC2)

Pin No.	Line Name	Description
5	PLLWSW	PLL lockup time control. H=Fast lockup mode.
6	TXMUTE	TX mute control. L=Mute.
7	NWC	Narrow/Wide mode switching control. H=Wide mode.
11	SHIFT	VCO switching control. H=While receiving. (The RX VCO (Q14, D10-D11, L6) is activated) L=While transmitting. (The TX VCO (Q13, D7-D9, L5) is activated)
12	T8C	Power supply line "T8C" control. H=While transmitting.
13	RXC	Power supply line "R5V" control. H=While receiving.
14	SPMUTE	Speaker mute control. H=Mute.

# SECTION 5 ADJUSTMENT PROCEDURE

## 5-1 PREPARATION

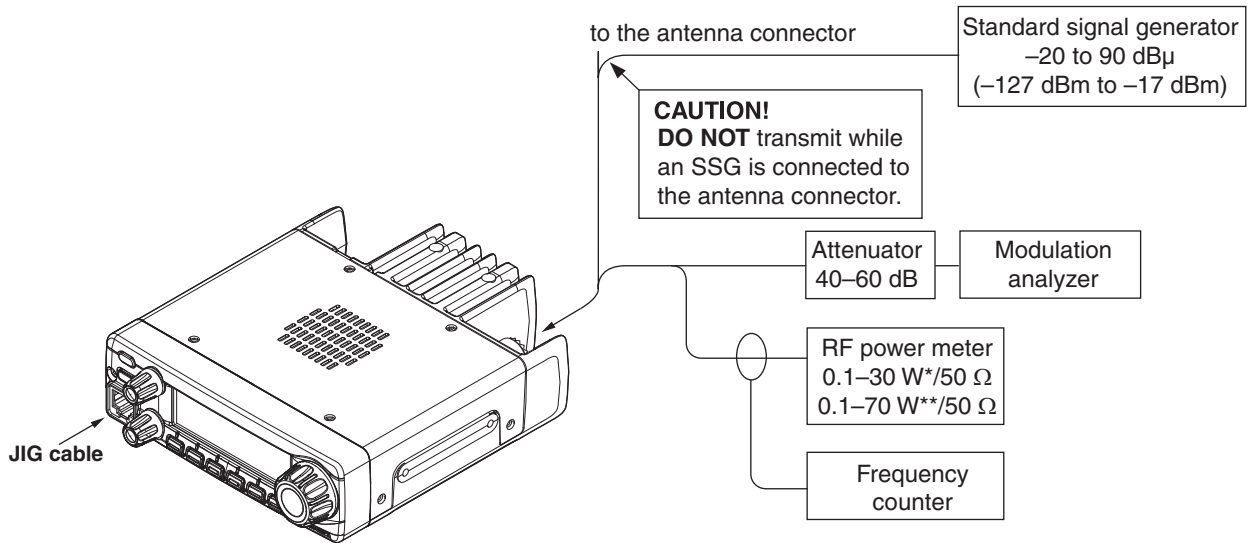
### REQUIRED EQUIPMENT

EQUIPMENT	GRADE AND RANGE	EQUIPMENT	GRADE AND RANGE
RF power meter (50 Ω terminated)	Measuring range : 0.1–30 W*	JIG cable	Modified 8-pin modular plug. (See the illustration shown below.)
	Frequency range : 100–300 MHz SWR : Less than 1.2 : 1	Frequency counter	Range : 0.1–300 MHz Accuracy : ±1 ppm or better Input level : Less than 1 mW
Modulation analyzer	Frequency range : 30–300 MHz Measuring range : 0 to ±10 kHz	Standard signal generator (SSG)	Frequency range : 0.1–300 MHz Output level : –20 dBμ to 90 dBμ (–127 to –17 dBm)
Oscilloscope	Frequency range : DC–20 MHz Measuring range : 0.01–20 V	Attenuator	Attenuation : 40–60 dB Capacity : More than 30 W* More than 70 W**
Audio generator (AG)	Frequency range : 300–3000 Hz Output level : 1–500 mV	External speaker	Input impedance : 4 Ω
		AC millivoltmeter	Measuring range : 10 mV to 10 V

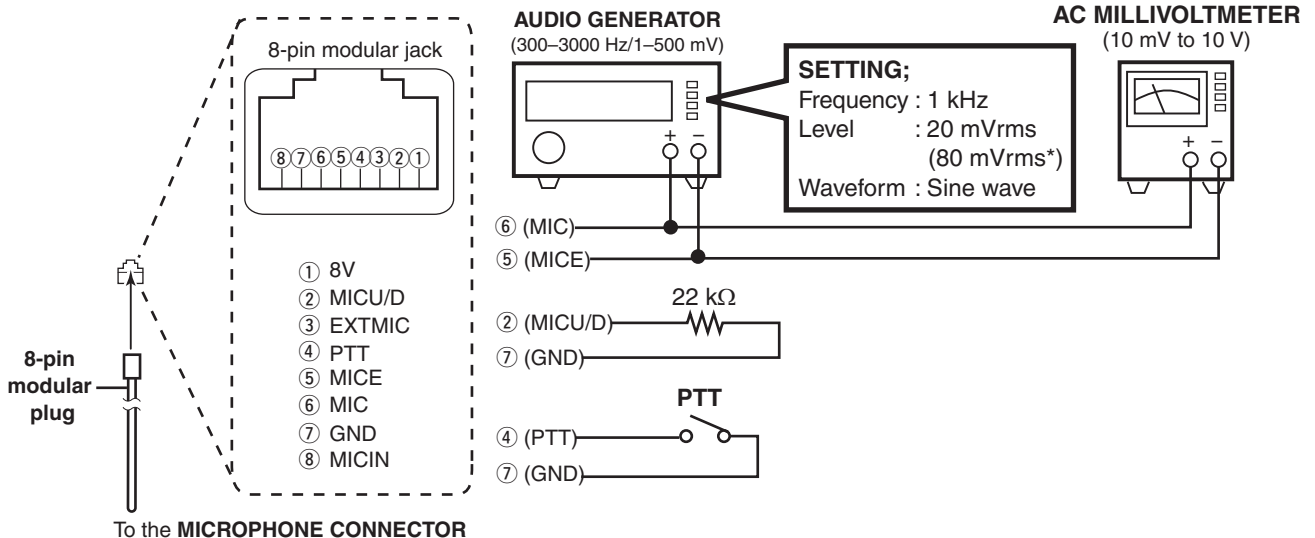
\*; For [TPE]. \*\*; All models except [TPE].

**CAUTION!!: BACK UP** the originally programmed memory data in the transceiver, before starting the adjustments. When the adjustment is finished, the memory data may be cleared.

### CONNECTION



### JIG CABLE



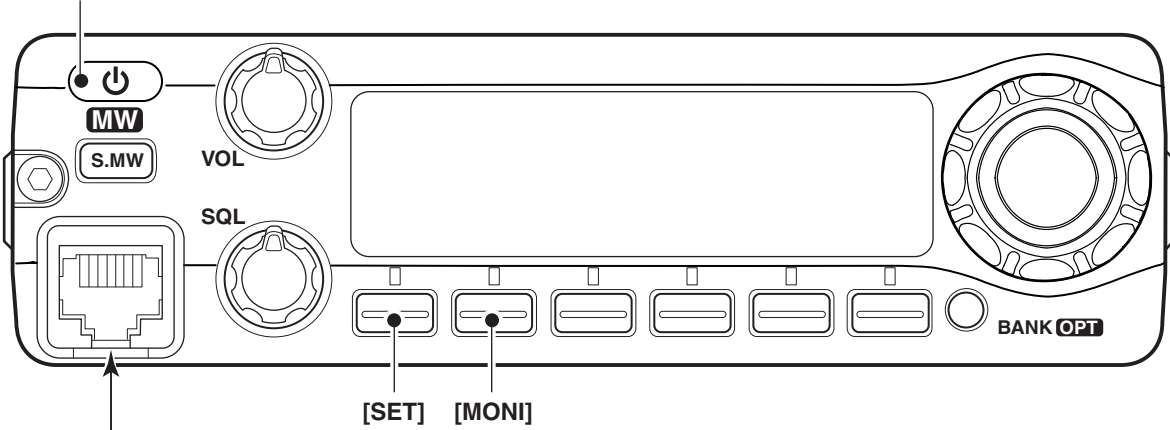
\*; For [USA].

## 5-1 PREPARATION (continued)

### ENTERING THE ADJUSTMENT MODE

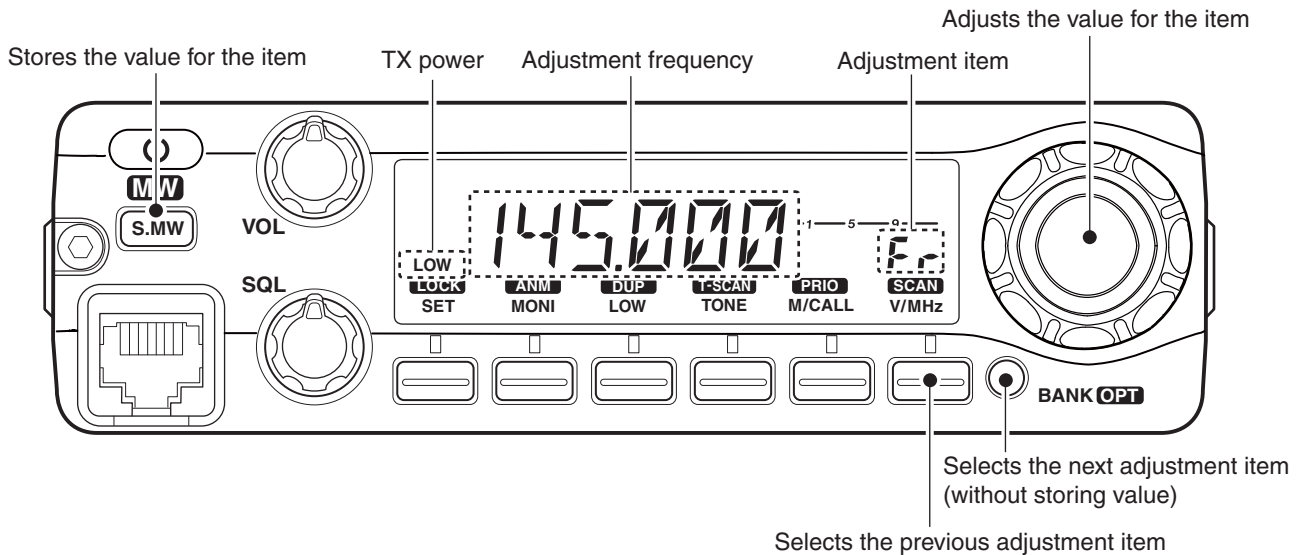
- 1) Turn OFF the power.
- 2) Connect the JIG cable (See page 6-1) to the microphone connector.
- 3) While holding down **[SET]** and **[MONI]**, turn ON the power.

Push to turn ON the power.



Connect the JIG cable (See page 6-1) here.

### KEY ASSIGNMENTS FOR THE ADJUSTMENT MODE



### QUITTING THE ADJUSTMENT MODE

- 1) Turn OFF the power.
- 2) Disconnect the JIG cable, and then turn ON the power.

## 5-2 FREQUENCY ADJUSTMENT

- 1) Select an adjustment item using **[BANK]** or **[V/MHz]**.
- 2) Set or modify the adjustment value as specified using **[DIAL]**, and then push **[S.MW]**.

ADJUSTMENT	TRANSCIVER'S CONDITION	OPERATION	ADJUSTMENT ITEM	VALUE
REFERENCE FREQUENCY	1 • Transmitting	<ol style="list-style-type: none"> <li>1) Connect a power meter or dummy load to the antenna connector.</li> <li>2) Loosely couple a frequency counter to the antenna connector.</li> <li>3) While transmitting, adjust the frequency using <b>[DIAL]</b>, and then push <b>[S.MW]</b> to store the adjustment value.</li> </ol>	<b>[F<sub>r</sub>]</b>	145.000000 MHz (146.000000 MHz*) (±100 Hz)

\*: For [USA]



### 5-3 TRANSMIT ADJUSTMENTS

1) Select an adjustment item using [BANK] or [V/MHz].

2) Set or modify the adjustment value as specified using [DIAL], and then push [S.MW].

ADJUSTMENT	TRANSCEIVER'S CONDITION	OPERATION	ADJUSTMENT ITEM	VALUE	
<b>TX OUTPUT POWER (Hi power)</b> -Band low- ----- -Band center- ----- -Band high- ----- (Mid power) -Band low- ----- -Band center- ----- -Band high- ----- (Mid-Low power) -Band low- ----- -Band center- ----- -Band high- ----- (Low power) -Band low- ----- -Band center- ----- -Band high-	1	NOTE: Rotating [DIAL] in the TX adjustment mode without actually transmitting will result in an inaccurate adjustment.  • Transmitting  1) Connect an RF power meter to the antenna connector.  2) While transmitting, adjust the frequency using [DIAL], and then push [S.MW] to store the adjustment value.	[Po]	59–61 W (51–53 W <sup>**</sup> )	
	2			65–67 W (51–53 W <sup>**</sup> )	
	3			54–56 W (51–53 W <sup>**</sup> )	
	4			24–26 W (21–23 W <sup>***</sup> )	
	5				
	6				
	7			9–11 W	
	8				
	9				
	10			4–6 W	
	11				
	12				
<b>DV DEVIATION</b> -Band low- ----- -Band center- ----- -Band high-	1	• Transmitting  1) Connect a modulation analyzer to the antenna connector, through an attenuator, and then set it to; HPF : OFF LPF : 20 kHz  2) Connect an audio generator to the JIG cable, and set it to; Frequency : 1 kHz Level : 20 mVrms (80 mVrms*)  3) While transmitting, adjust the deviation using [DIAL], and then push [S.MW] to store the adjustment value.	[dE]	4.1–4.3 kHz	
	2				
	3				
<b>MODULATION BALANCE</b> -Band low- ----- -Band center- ----- -Band high-	1	• Transmitting  1) Connect a modulation analyzer to the antenna connector, through an attenuator, and then set it to; HPF : OFF LPF : 20 kHz  2) While transmitting, adjust the deviation using [DIAL], and then push [S.MW] to store the adjustment value.	[dE]	1.50–1.60 kHz	
	2				
	3				
<b>TONES DEVIATION</b> ----- CTCSS ----- DTCS ----- DTMF ----- EUR	1	• Transmitting  1) Connect a modulation analyzer to the antenna connector, through an attenuator, and then set it to; HPF : OFF LPF : 20 kHz  2) While transmitting, adjust the deviation using [DIAL], and then push [S.MW] to store the adjustment value.	[dE]	0.70–0.80 kHz	
	2				
	3		[dE]	3.4–3.6 kHz	
	4		[dE]		
	5		[dE]		

\*: For [USA] \*\*: For [KOR] \*\*\*: For [TPE]

## 5-4 RECEIVE ADJUSTMENTS

1) Select an adjustment item using [BANK] or [V/MHz].

2) Set or modify the adjustment value as specified using [DIAL], and then push [S.MW].

ADJUSTMENT	TRANSCEIVER'S CONDITION	OPERATION	ADJUSTMENT ITEM	VALUE	
RX SENSITIVITY -Band low-	1	<b>NOTE:</b> "RX SENSITIVITY" must be adjusted before "S-METER." And when "RX SENSITIVITY" is re-adjusted, "S-METER" must be re-adjusted too.			
		• Receiving	1) Connect an SSG to the antenna connector, and then set it to; Frequency : 136.020 MHz Level† : 0 dBμ (-107 dBm) Modulation : 1 kHz Deviation : ±3.5 kHz 2) Push [S.MW].	[5 1] Push [S.MW]. (Automatic adjustment)	
	-Band center-	2	1) Set the SSG to; Frequency : 155.020 MHz 2) Push [S.MW].	[5 2]	
-Band high-	3	1) Set the SSG to; Frequency : 173.980 MHz 2) Push [S.MW].	[5 3]		
SQUELCH (Wide)	1	• Receiving	1) Connect an SSG to the antenna connector, and then set it to; SSG output : OFF	[5 9]	Push [S.MW]. (Automatic adjustment)
	(Narrow)		2) Push [S.MW].	[5 7]	
S-METER (S1 level setting)	1	<b>NOTE:</b> "RX SENSITIVITY" must be adjusted before "S-METER." And when "RX SENSITIVITY" is re-adjusted, "S-METER" must be re-adjusted too.			
		• Receiving	1) Connect an SSG to the antenna connector and set it to; Frequency : 145.020 MHz (146.020 MHz*) Level† : -7 dBμ (-114 dBm) Deviation : None 2) Push [S.MW].	[5 1] Push [S.MW]. (Automatic adjustment)	
	(S2 level setting)	3	1) Set the SSG to; Level† : -2 dBμ (-109 dBm) Deviation : None 2) Push [S.MW].	[5 2]	
	(S3 level setting)	4	1) Set the SSG to; Level† : +12 dBμ (-95 dBm) Deviation : None 2) Push [S.MW].		
	(S3 level setting) -Band low-	5	1) Connect an SSG to the antenna connector and set it to; Frequency : 136.020 MHz Level† : -2 dBμ (-109 dBm) Deviation : None 2) Push [S.MW].	[5 3]	
	-Band center-	6	1) Set the SSG to; Frequency : 145.020 MHz 2) Push [S.MW].		
	-Band high-	7	1) Set the SSG to; Frequency : 173.980 MHz 2) Push [S.MW].		

†; The output level of the standard signal generator (SSG) is indicated as the SSG's open circuit (emf).









[MAIN UNIT]

REF NO.	PARTS NO.	DESCRIPTION	M.	H/V LOCATION
C271	4030017460	S.CER C1005 JB 1H 102K-T	T	78.9/30.6
C272	4030011060	S.CER GRM31M2C2H4R0CY21L (GRM42-6 CH)	T	92.1/43.5
C274	4030011060	S.CER GRM31M2C2H4R0CY21L (GRM42-6 CH)	T	92.1/41.4
C275	4030017460	S.CER C1005 JB 1H 102K-T	T	86.4/27.9
C276	4030017460	S.CER C1005 JB 1H 102K-T	B	112.0/19.5
C277	4030017460	S.CER C1005 JB 1H 102K-T	T	84.7/26.2
C278	4030011060	S.CER GRM31M2C2H4R0CY21L (GRM42-6 CH)	T	92.1/39.3
C279	4030017680	S.CER C1005 CH 1H 820J-T	B	110.8/21.5
C280	4030017460	S.CER C1005 JB 1H 102K-T	T	89.0/37.7
C281	4030018940	S.CER GRM31A7U2J331JW31D	T	98.1/35.9
C282	4030018940	S.CER GRM31A7U2J331JW31D	T	96.0/35.9
C283	4030018940	S.CER GRM31A7U2J331JW31D	T	93.7/35.9
C284	4030017460	S.CER C1005 JB 1H 102K-T	T	68.7/24.3
C285	4030019990	S.CER C1005 JB 1C 104K-T	T	86.4/28.8
C287	4030017380	S.CER C1005 CH 1H 050B-T	B	110.8/23.1
C288	4030019420	S.CER GRM31A7U2J102JW31D	T	104.3/32.0
C291	4030011170	S.CER GRM31M2C2H180JV01L (GRM42-6 CH)	B	104.3/34.6
C292	4030017460	S.CER C1005 JB 1H 102K-T	B	111.2/26.3
C293	4030017550	S.CER C1005 CH 1H 1R5B-T	T	110.2/23.1
C295	4030011020	S.CER GRM31M4C2H1R0CY21L (GRM42-6 CK)	B	109.1/41.9
C296	4030007020	S.CER C1608 CH 1H 120J-T	B	104.7/41.5
C298	4030011230	S.CER GRM31M2C2H390JV01L (GRM42-6 CH)	B	104.3/39.8
C299	4030017460	S.CER C1005 JB 1H 102K-T	B	101.9/42.4
C300	4030011230	S.CER GRM31M2C2H390JV01L (GRM42-6 CH)	B	100.3/51.6
C302	4030017390	S.CER C1005 CH 1H 180J-T	T	108.8/26.9
C303	4030011020	S.CER GRM31M4C2H1R0CY21L (GRM42-6 CK)	B	103.4/47.8
C304	4030007020	S.CER C1608 CH 1H 120J-T	B	99.4/49.4
C305	4030011050	S.CER GRM31M3C2H3R0CY21L (GRM42-6 CJ)	T	98.7/29.9
C306	4030011210	S.CER GRM31M2C2H330JV01L (GRM42-6 CH)	B	100.3/56.9
C307	4030011160	S.CER GRM31M2C2H150JV01L (GRM42-6 CH)	B	104.2/63.1
C308	4030017450	S.CER C1005 JB 1H 271K-T	B	98.6/4.1
C309	4030017460	S.CER C1005 JB 1H 102K-T	T	97.9/1.2
C310	4030019990	S.CER C1005 JB 1C 104K-T	T	108.0/8.8
C311	4030019990	S.CER C1005 JB 1C 104K-T	T	99.7/5.6
C312	4030019990	S.CER C1005 JB 1C 104K-T	T	100.0/11.8
C313	4030019990	S.CER C1005 JB 1C 104K-T	T	111.5/10.0
C314	4030007140	S.CER C1608 CH 1H 121J-T	B	48.9/48.9
C315	4030007140	S.CER C1608 CH 1H 121J-T	B	48.9/60.5
C319	4510010010	S.ELE 25 CE 220 LX	T	22.4/16.6
C321	4030020000	S.CER C1005 JB 1A 105K-T	T	23.2/52.4
C322	4030019990	S.CER C1005 JB 1C 104K-T	B	14.6/16.5
C323	4030011230	S.CER GRM31M2C2H390JV01L (GRM42-6 CH)	T	86.3/45.6
C332	4550007090	S.TAN TEESVA 1A 226M8R	T	68.5/10.7
C333	4030016970	S.CER C1005 JB 1E 223K-T	B	25.6/3.6
C334	4030019460	S.CER C1608 JB 0J 106M-T	T	71.7/16.4
J1	6510028390	S.CON 04-6294-036-000-800	T	60.0/6.8
J2	6510014961	S.CON B2B-ZR-SM4-TF(LF)(SN)	T	8.9/56.5
J3	6510025940	CON PJ-3047S <XIN>		
W1	8900011882	CAB OPC-1210A-1(P0.5N36L70) <TJM>		
W2	7030012290	JUM RDS2T0R0		
W6	8900015130	CAB OPC-1131A <TJM>		
EP3	6910018460	S.BEA MMZ1005Y102C-T	T	24.8/51.5
EP4	6910014730	S.BEA MPZ2012S331A-T	T	34.7/64.6
EP5	6910020610	S.BEA BLM15BD102SN1D	B	45.7/26.3

M.=Mounted side (T: Mounted on the Top side, B: Mounted on the Bottom side)  
S.=Surface mount

# SECTION 7

# MECHANICAL PARTS

## [CHASSIS PARTS]

REF NO.	ORDER NO.	DESCRIPTION	QTY.
W1	8600036881	SP CABLE-1 (FX2493 P01LO)	1
J1	6510004881	MR-DSE-01-1 <GA>	1
SP1	2510001160	057P0802	1
MP1	8010022230	3251 CHASSIS <STM>	1
MP2	8110010130	3251 COVER ASSEMBLY	1
MP3	8930083860	3251 SP RUBBER <KRI>	1
MP4	8930062130	THERMAL SHEET (AP)TC200HS-1.4 (15X23)	1
MP6	8810008661	PHBT M3 X 8 NI-ZC3	11
MP7	8810009611	FLAT M2.6X 6 ZK3	8
MP8	8810005161	CAPBOLT M3 X20 ZK3BLACK	2
MP9	8810009050	SETSCREWH M3 X10 NI	4

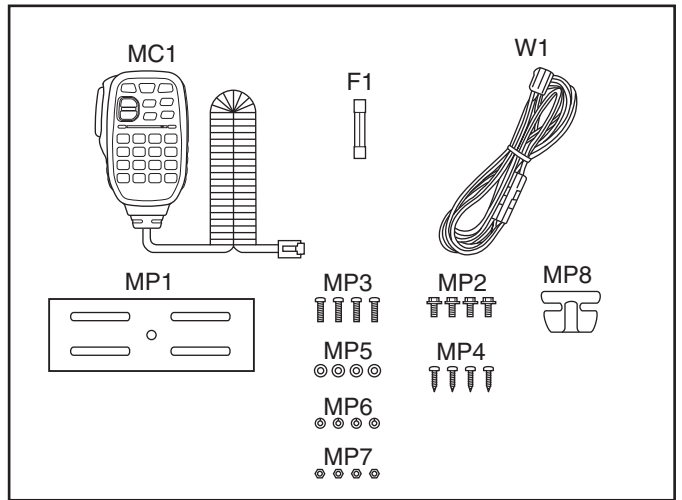
## [ACCESSORIES]

REF NO.	ORDER NO.	DESCRIPTION	QTY.
F1	5210000080	FGB 20A (FGB0 125V)	1
MC1	(Optional)	HM-133V	1
W1	8900016610	OPC-1132A ACC	1
MP1	8010019260	2633 MOBILE BRACKET MOQ	1
MP2	8820000530	FLANGE BOLT M4 X 8 NI	4
MP3	8810000471	PH M5 X12 (+-) ZC3	4
MP4	8810000951	PHA M5 X16 ZC3	4
MP5	8850000150	FLAT WASHER M5 NI BS	4
MP6	8850000391	S-WASHER M5 ZC3	4
MP7	8830000121	NUT M 5 ZC3	4
MP8	8930007300	MIC HANGER	1

[USA] only

## [LOGIC UNIT]

REF NO.	ORDER NO.	DESCRIPTION	QTY.
J1*	6450002210	3017-8821 <KIN>	1
J3*	6510028390	04-6294-036-000-800	1
DS1	5030003530	L1-1207TVM-1 <TES>	1
S1*	2260002740	LS8J2M-T	1
S2*	2260002740	LS8J2M-T	1
S3*	2260002740	LS8J2M-T	1
S4*	2260002740	LS8J2M-T	1
S5*	2260002740	LS8J2M-T	1
S6*	2260002740	LS8J2M-T	1
S7*	2260002740	LS8J2M-T	1
S8*	2260002740	LS8J2M-T	1
S9*	2250000700	EC12E24204A8	1
S10*	2260002740	LS8J2M-T	1
EP9	8930084270	SRCN-3251-SP-N-W	1
MP1	8210027220	3251 FRONT PANEL	1
MP2	8210027230	3251 REFLECTOR	1
MP3	8930083840	3251 2-KEY	1
MP4	8930083850	3251 7-KEY	1
MP5	8930084140	3251 LCD FILTER	1
MP6	8810008761	PHBT M2 X 8 NI-ZC3	4
MP7	8930083870	3251 LCD PLATE	1
MP8	8610014400	KNOB N-400	1
MP9	8610014410	KNOB N-401	2
MP11	8930057890	THERMAL SHEET CF	1



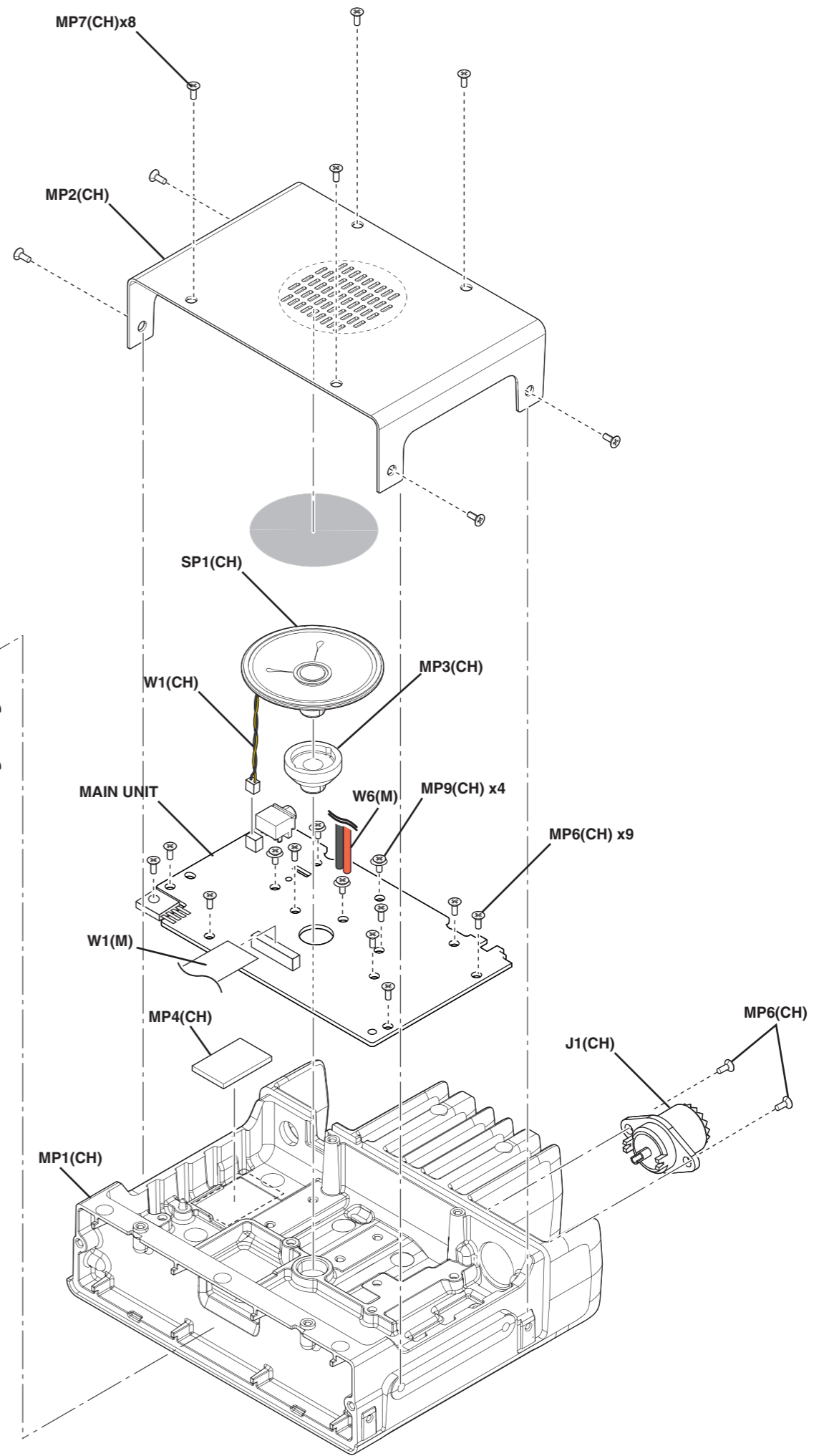
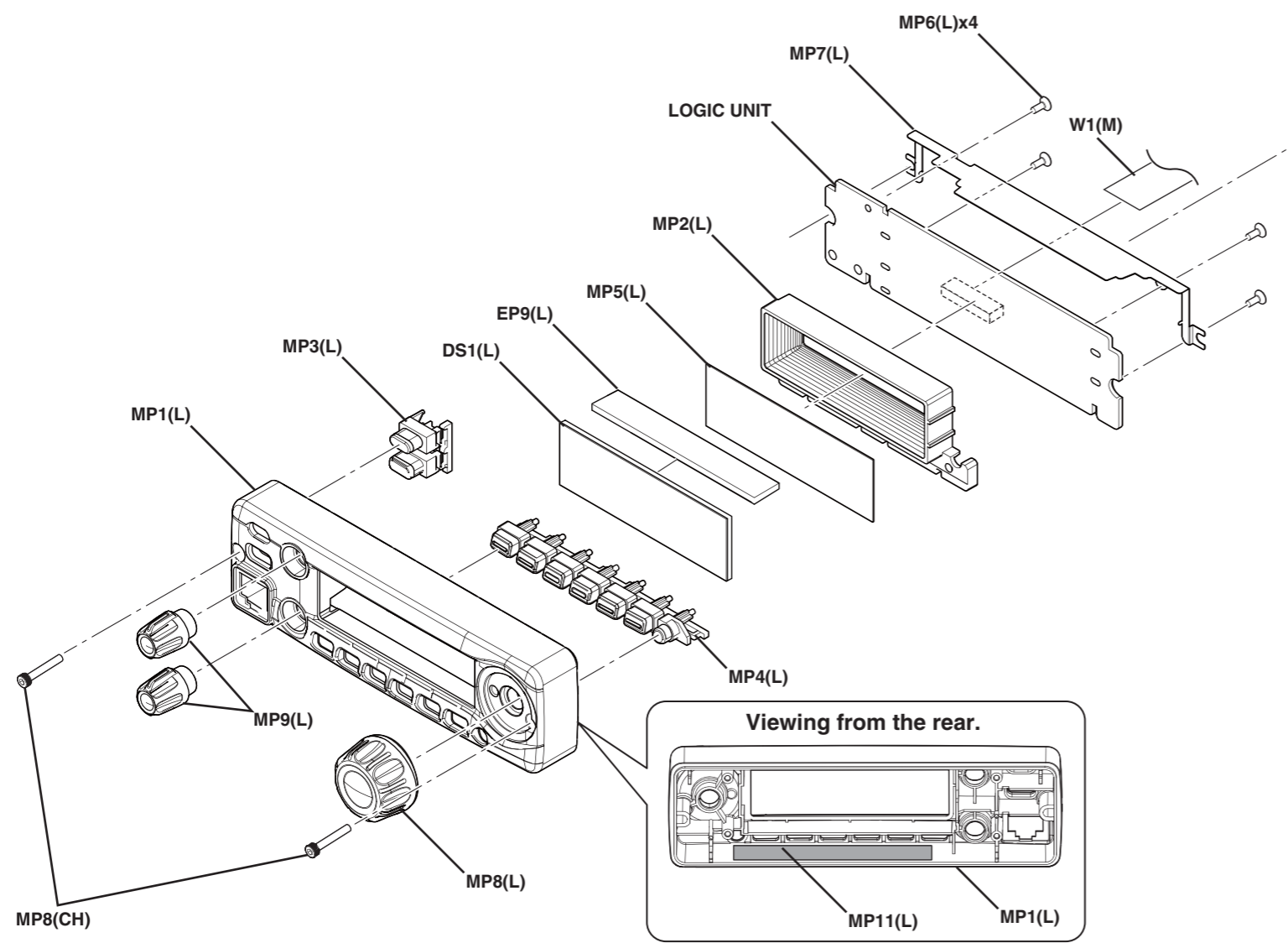
## [MAIN UNIT]

REF NO.	ORDER NO.	DESCRIPTION	QTY.
J1*	6510028390	04-6294-036-000-800	1
J2*	6510014961	B2B-ZR-SM4-TF (LF) (SN)	1
J3*	6510025940	PJ-3047S <XIN>	1
W1	8900011882	OPC-1210A-1 (P0.5N36L70)	1
W2*	7030012290	RDS2T0R0	1
W6	8900015130	OPC-1131A	1
MP2*	8510019350	3179 VCO COVER Y1143	1
MP3*	8410002720	3251 PA HEATSINK	1
MP5*	8510019340	3179 VCO CASE Y1142	1

\*: Refer to "BOARD LAYOUTS" for the location.

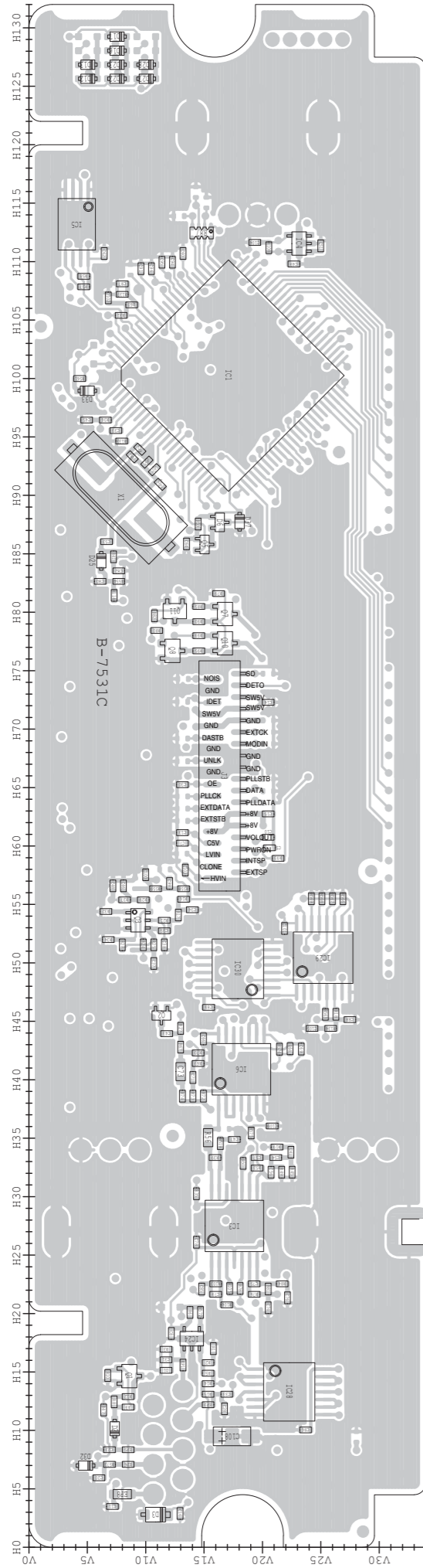
**Screw abbreviations** A, B0, BT: Self-tapping PH: Pan head ZK: Black NI-ZU: Nickel-Zinc SUS: Stainless



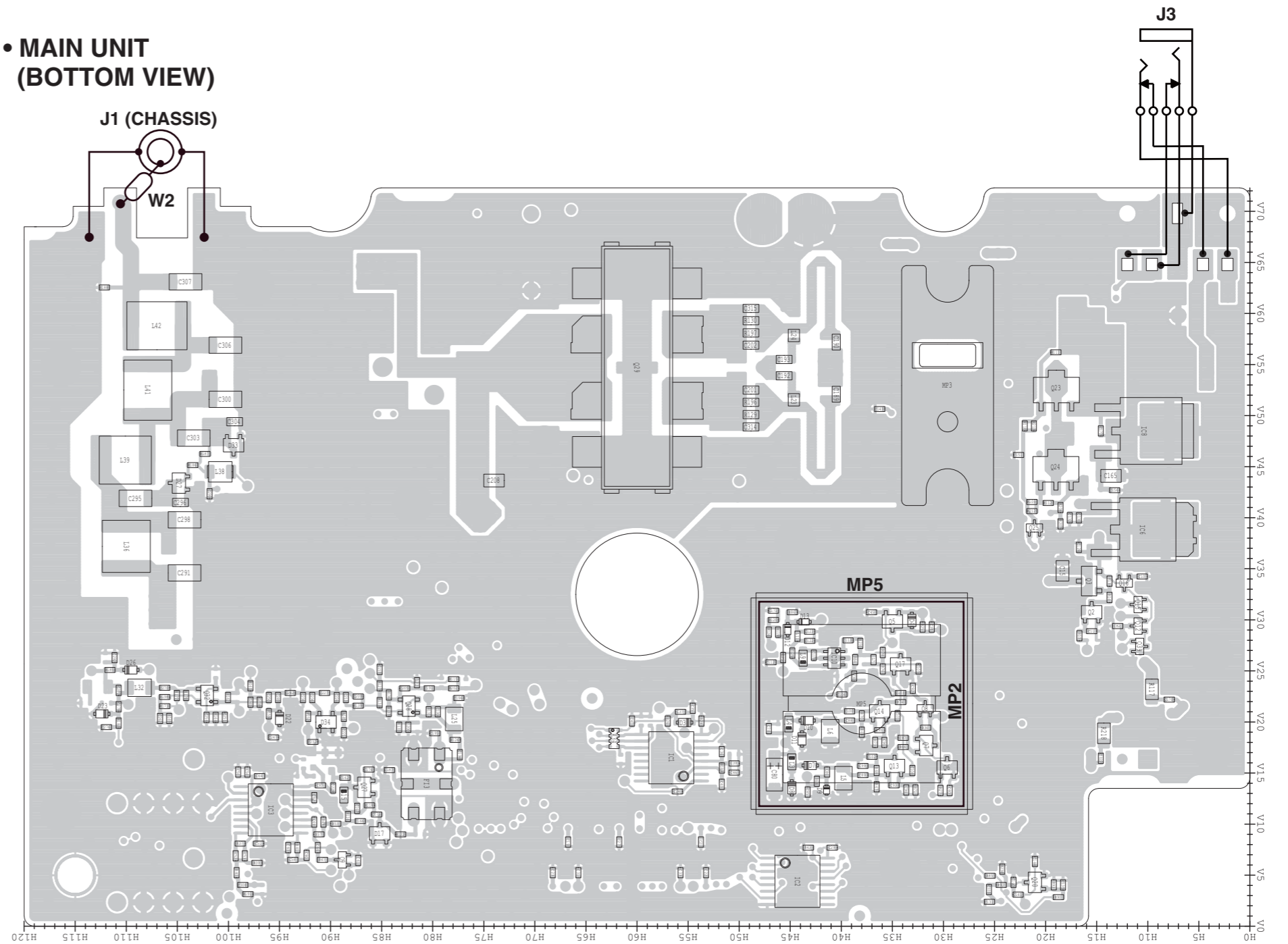




• LOGIC UNIT  
(BOTTOM VIEW)

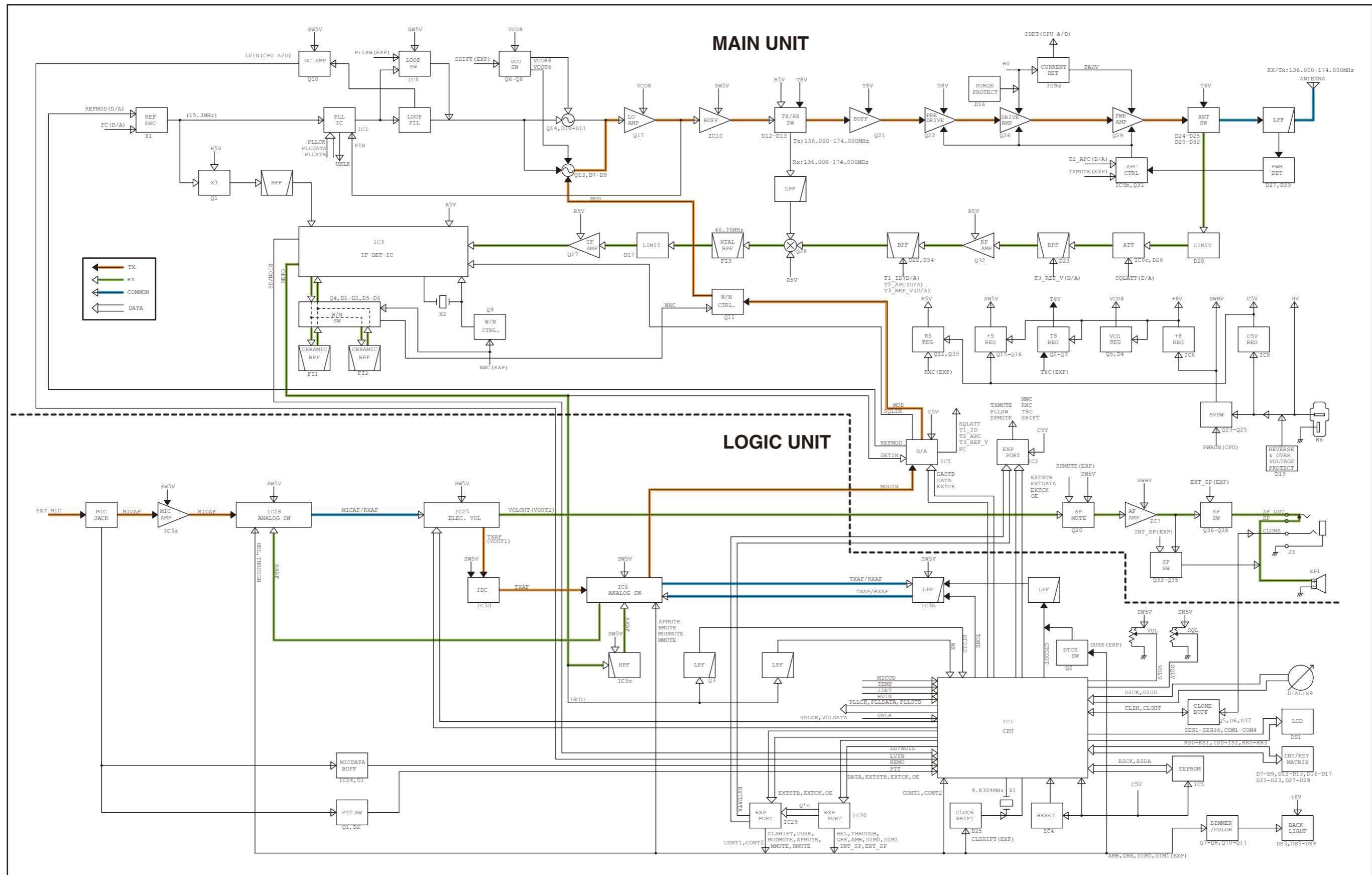


• MAIN UNIT  
(BOTTOM VIEW)



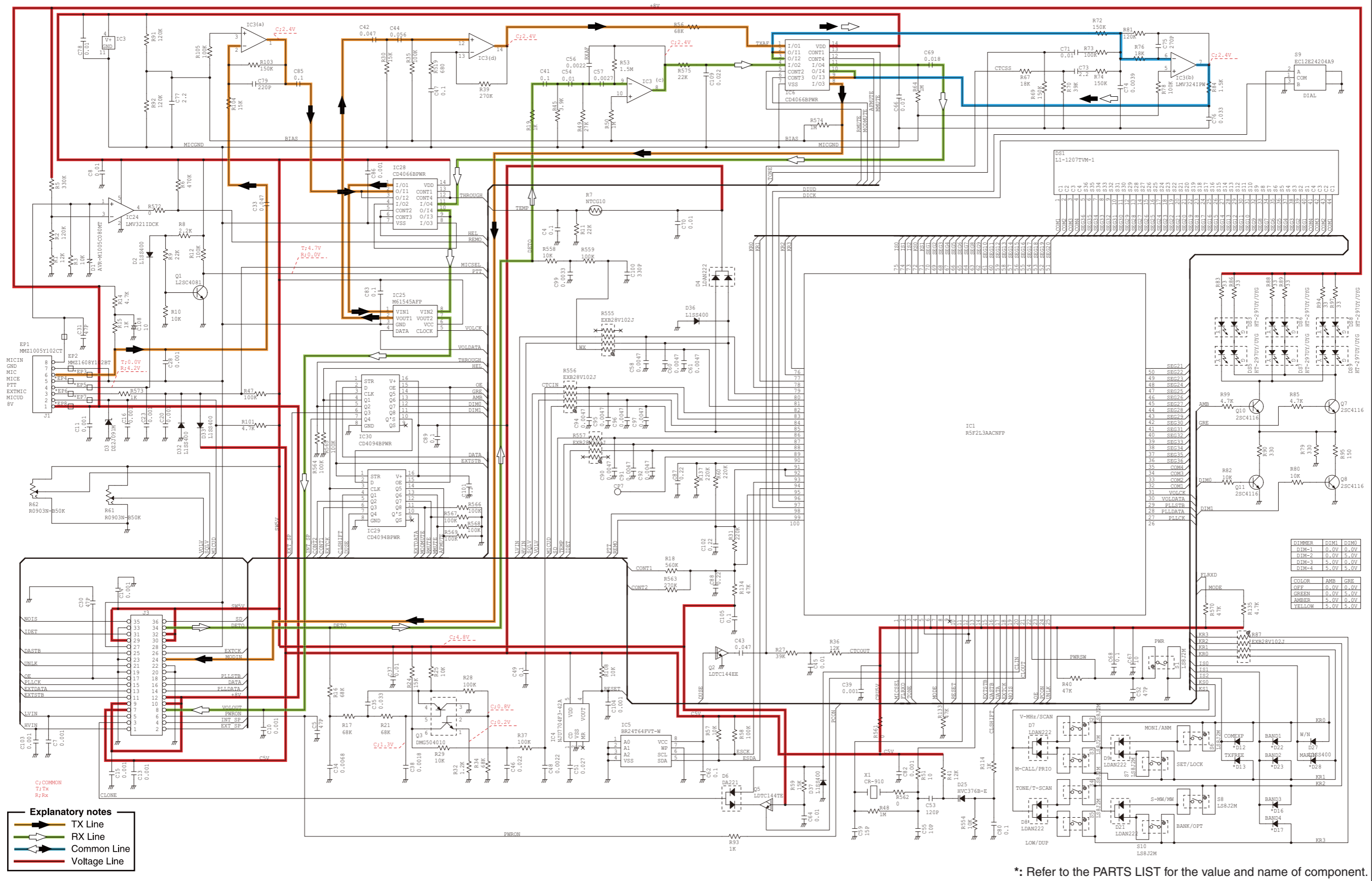
# SECTION 9

# BLOCK DIAGRAM

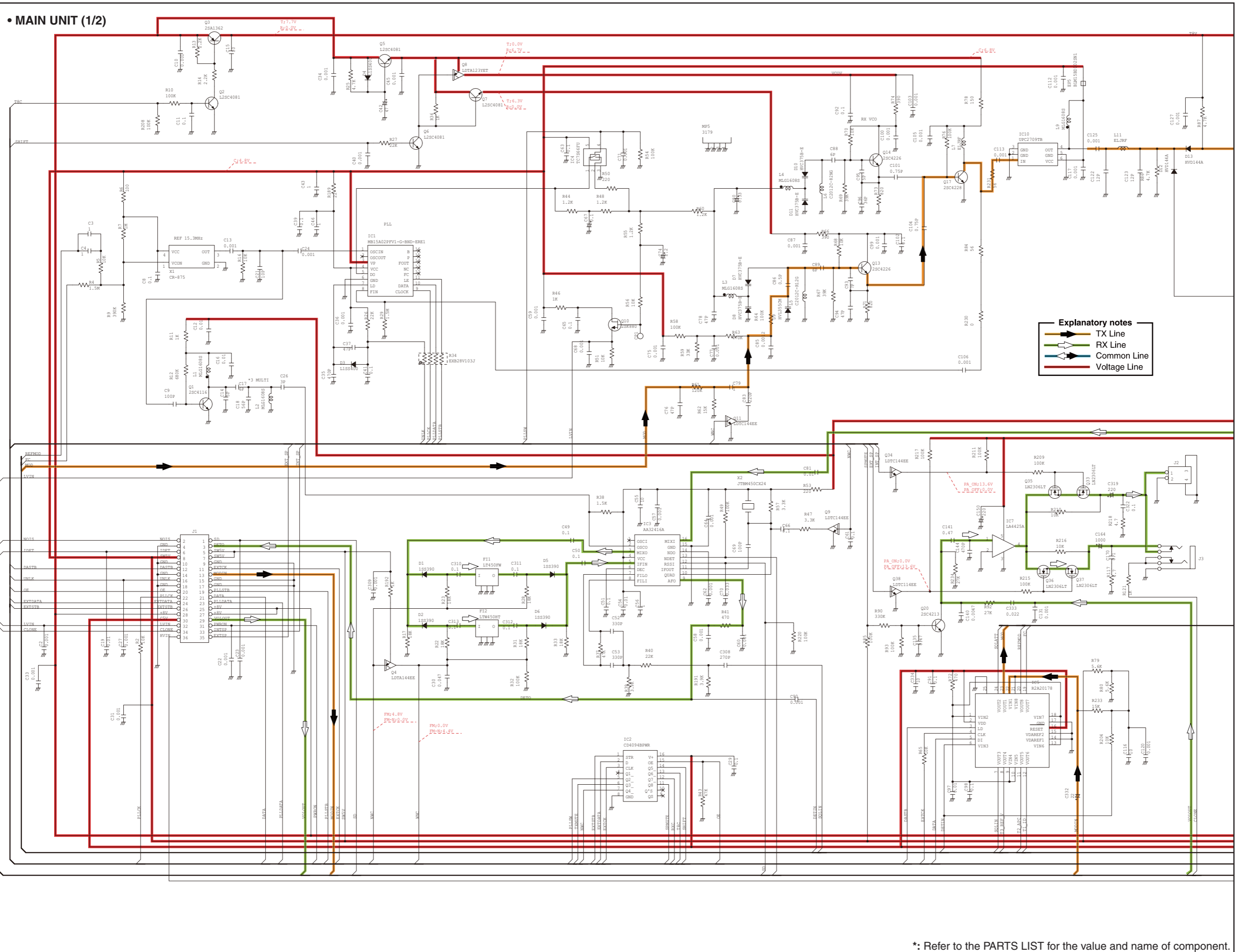


# SECTION 10 VOLTAGE DIAGRAM

## • LOGIC UNIT



• MAIN UNIT (1/2)

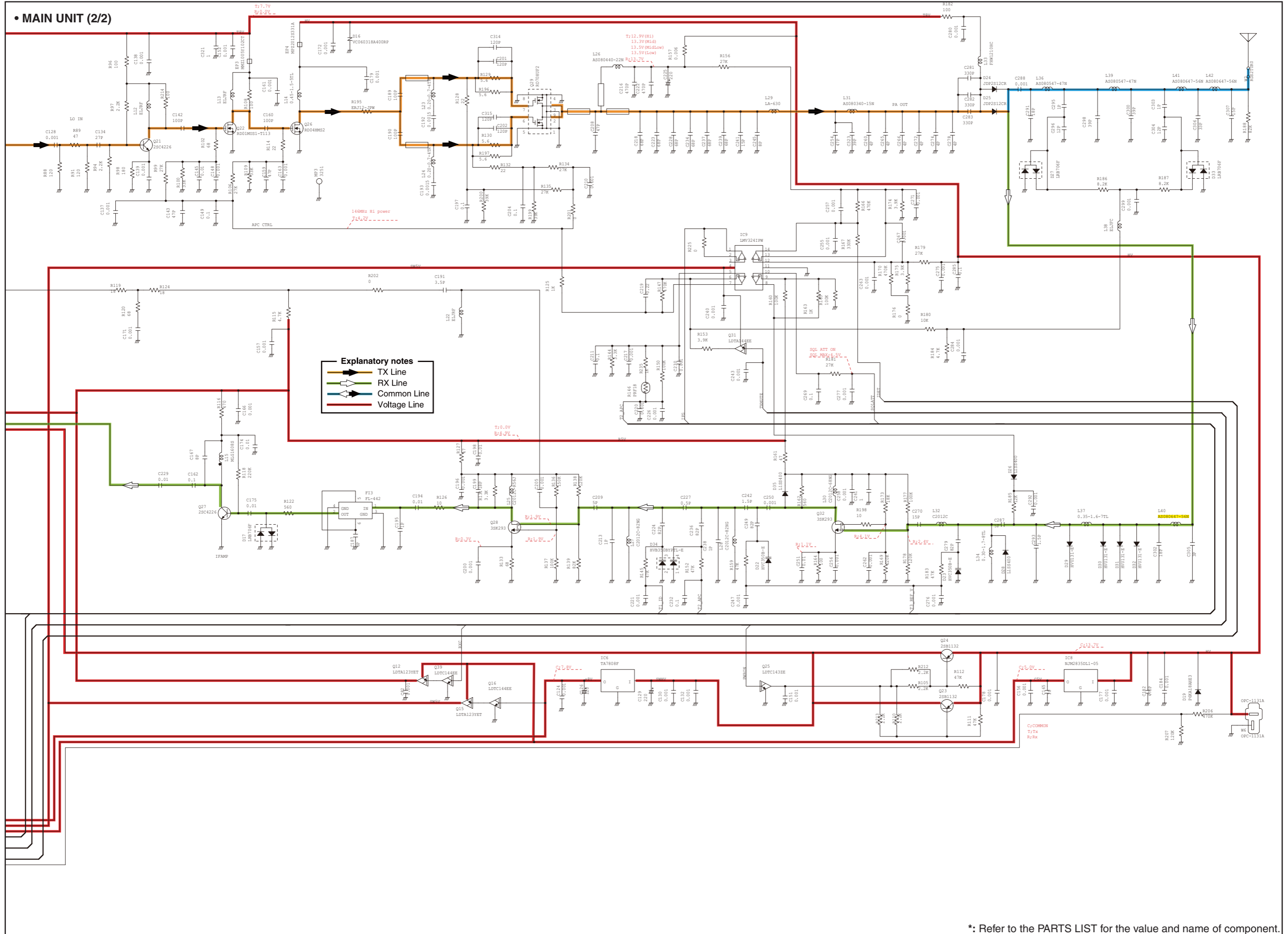


**Explanatory notes**

- TX Line
- RX Line
- Common Line
- Voltage Line

\*: Refer to the PARTS LIST for the value and name of component.

• MAIN UNIT (2/2)



\*: Refer to the PARTS LIST for the value and name of component.

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