



# SERVICE MANUAL

COMMANDMICIV™

**HM-195B**  
**HM-195SW**

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S-14908XZ-C1  
Jun. 2012

Icom Inc.

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## INTRODUCTION

This service manual describes the latest technical information for the **IC-HM-195B/HM-195SW** COMMANDMICIV™, at the time of publication.

MODEL	VERSION	CHANNEL SPACING
HM-195B	[EXP]	Black
HM-195SW		Super white

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

## CAUTION

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

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

## ORDERING PARTS

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 HM-195B MAIN UNIT 3 pieces  
8820001210 Screw 2438 screw HM-195SW Top cover 5 pieces

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



## REPAIR NOTES

1. Make sure that the problem is internal before dis-assembling the microphone.
2. **DO NOT** open the microphone until the microphone 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 microphone is defective.
6. **READ** the instructions of the test equipment thoroughly before connecting it to the microphone.

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**■ GENERAL**

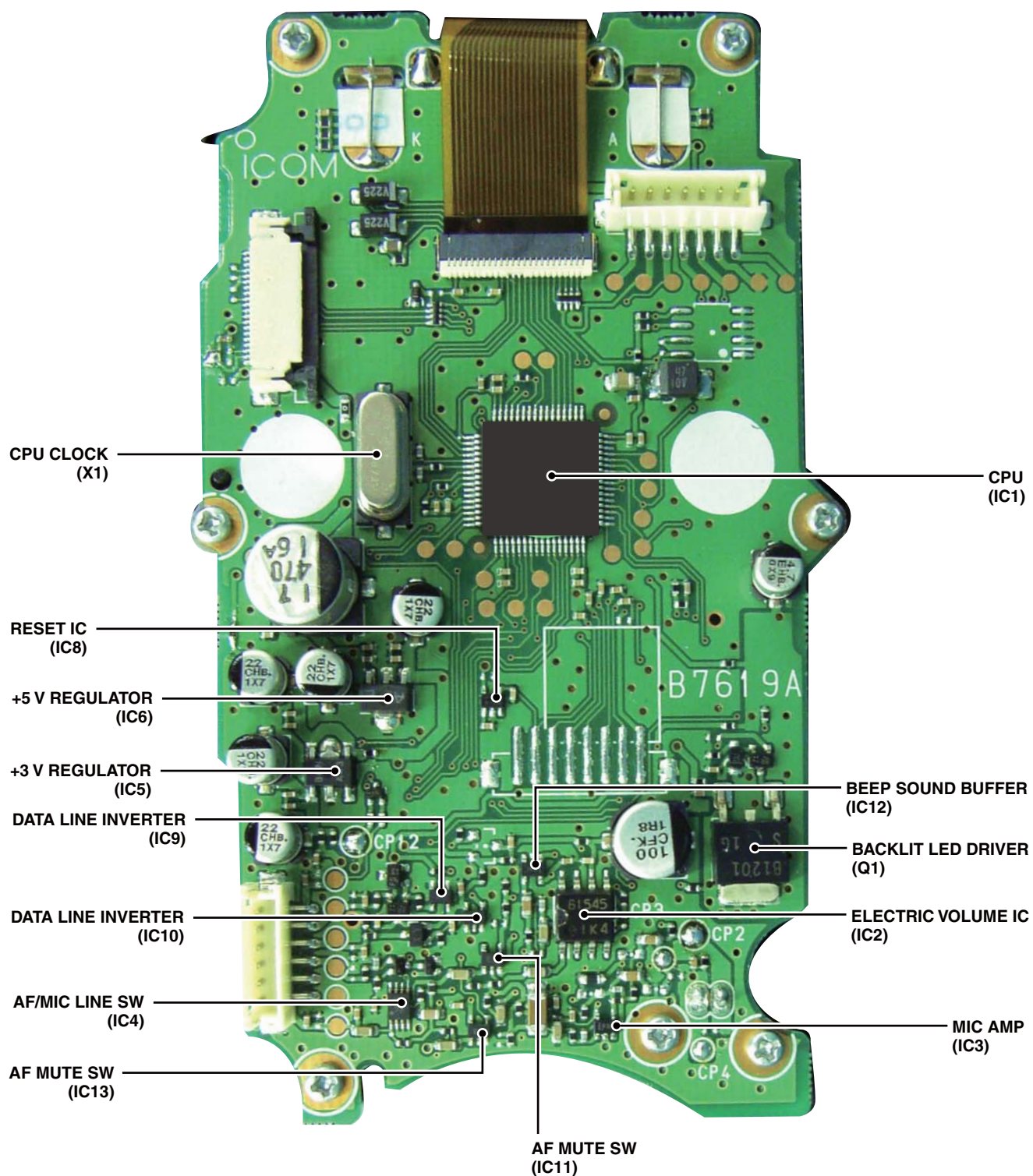
• Operating temperature range	: -20°C to +60°C; -4°F to +140°F
• Power supply voltage (negative ground)	: Supplied from the radio.
• Current drain Receive	: Less than 0.7 A (at maximum audio output)
• Audio output impedance	: 4 $\Omega$
• Audio power output	: 2.0 W (at 10% distortion with 4 $\Omega$ load)
• Hum and noise	: 40 dB
• Amplitude modulation*	: 1.5–3.0 kHz (at 94 dBA, 1 kHz)
• Residual modulation	: 40 dB
• Dimensions (projections not included)	: 67.5(W) × 144.5(H) × 37(D) mm; 2.7(W) × 5.7(H) × 1.5(D) in
• Weight (approximately)	: 400 g; 14.1 oz

\*; When used with IC-M423/IC-M424.

## SECTION 2

## INSIDE VIEWS

### • MAIN UNIT



## SECTION 3

## PARTS LIST

## [MAIN UNIT]

REF NO.	PARTS NO.	DESCRIPTION	M.	H/V LOCATION
IC1	1140016261	S.IC STM32F100RBT6B(EX3384A1) <AMSC>	B	41.2/26.6
IC2	1110007200	S.IC M61545AFP#DF0R	B	78.2/23.1
IC3	1110006490	S.IC LMV321IDCKR	B	87.7/21.4
IC4	1130009981	S.IC TC7W53FK(TE85LF)	B	85.8/39.0
IC5	1180002421	S.IC S-818A33AUC-BGN-T2G	B	65.9/44.7
IC6	1180000421	S.IC TA78L05F(TE12RF)	B	59.6/39.8
IC8	1110007620	S.IC NUJ7704F3-42A-TE1-#ZZZB	B	60.0/30.8
IC9	1130008711	S.IC TC7SET04FU(T5LJF)	B	76.5/35.4
IC10	1130007431	S.IC TC7S14FU(TE85RF)	B	78.3/32.5
IC11	1130007021	S.IC TC7S66FU(TE85LF)	B	81.9/31.0
IC12	1110006490	S.IC LMV321IDCKR	B	74.7/27.5
IC13	1130007021	S.IC TC7S66FU(TE85LF)	B	88.0/32.2
Q1	1520000651	S.TRA 2SB1201S-TL-E	B	71.6/8.9
Q2	1530004140	S.TRA L2SC4081RT1G <SLVJ>	B	65.2/7.8
Q6	1560000541	S.FET 2SK880-Y(T5RICOMF)	B	79.7/37.5
Q7	1530004140	S.TRA L2SC4081RT1G <SLVJ>	B	77.5/39.0
Q8	1510001151	S.TRA L2SA1576AST1G <SLVJ>	B	74.7/39.3
Q9	1590004070	S.TRA LDTC144EET1G <SLVJ>	B	82.4/36.4
D1	1750002030	S.ZEN DZ2J068M0L	B	65.0/10.0
D2	1750001810	S.DIO L1SS400T1G <SLVJ>	B	25.0/37.1
D3	1750001850	S.DIO LDAN222T1G <SLVJ>	B	67.7/40.8
D4	1750001850	S.DIO LDAN222T1G <SLVJ>	B	82.4/39.0
X1	6050012460	S.XTA CR-834(SMD-49/7.9872 MHz) <JJE>	B	39.4/39.9
R1	7030005090	S.RES ERJ2GEJ 104 X (100K)	B	27.0/17.5
R2	7030005240	S.RES ERJ2GEJ 473 X (47K)	B	28.0/17.5
R3	7030005120	S.RES ERJ2GEJ 102 X (1K)	B	32.4/27.9
R8	7030012350	S.RES ERJ2GEJ 335 X (3.3M)	B	22.1/38.5
R9	7410001140	S.ARR EXB28V104JX	B	25.5/23.9
R10	7030010040	S.RES ERJ2GEJ-JPW	B	30.5/18.0
R21	7410001130	S.ARR EXB28V102JX	B	26.7/35.3
R23	7030005090	S.RES ERJ2GEJ 104 X (100K)	B	74.4/35.6
R34	7030004980	S.RES ERJ2GEJ 101 X (100)	B	40.0/35.4
R35	7030004980	S.RES ERJ2GEJ 101 X (100)	B	41.7/34.9
R36	7030005050	S.RES ERJ2GEJ 103 X (10K)	B	43.4/36.4
R41	7030009320	S.RES ERJ2GEJ 4R7 X (4.7)	B	67.0/13.1
R42	7030005110	S.RES ERJ2GEJ 224 X (220K)	B	51.9/14.5
R43	7030004990	S.RES ERJ2GEJ 221 X (220)	B	64.8/11.8
R44	7030005090	S.RES ERJ2GEJ 104 X (100K)	B	50.5/15.0
R45	7030005000	S.RES ERJ2GEJ 471 X (470)	B	57.0/10.5
R46	7030005000	S.RES ERJ2GEJ 471 X (470)	B	61.4/7.4
R47	7030005000	S.RES ERJ2GEJ 471 X (470)	B	62.3/10.5
R48	7030005000	S.RES ERJ2GEJ 471 X (470)	B	76.1/13.7
R49	7030007280	S.RES ERJ2GEJ 331 X (330)	B	10.0/44.9
R50	7030007280	S.RES ERJ2GEJ 331 X (330)	B	11.0/44.9
R51	7030007280	S.RES ERJ2GEJ 331 X (330)	B	12.0/44.9
R52	7030005090	S.RES ERJ2GEJ 104 X (100K)	B	69.9/41.3
R53	7030005000	S.RES ERJ2GEJ 471 X (470)	B	15.0/13.4
R70	7030005090	S.RES ERJ2GEJ 104 X (100K)	B	71.3/33.7
R72	7030007300	S.RES ERJ2GEJ 332 X (3.3K)	B	81.5/27.2
R76	7030005310	S.RES ERJ2GEJ 124 X (120K)	B	80.0/27.9
R77	7030005120	S.RES ERJ2GEJ 102 X (1K)	B	54.7/52.7
R78	7030003860	S.RES ERJ3GE JPW V	B	34.9/43.2
R81	7030005090	S.RES ERJ2GEJ 104 X (100K)	B	78.8/19.7
R82	7030005090	S.RES ERJ2GEJ 104 X (100K)	B	77.0/19.7
R83	7030007260	S.RES ERJ2GEJ 330 X (33)	B	71.9/23.0
R84	7030005160	S.RES ERJ2GEJ 105 X (1M)	B	84.0/30.8
R85	7030005240	S.RES ERJ2GEJ 473 X (47K)	B	77.6/29.8
R86	7030005160	S.RES ERJ2GEJ 105 X (1M)	B	84.2/32.6
R87	7030005240	S.RES ERJ2GEJ 473 X (47K)	B	75.8/29.8
R88	7030005090	S.RES ERJ2GEJ 104 X (100K)	B	85.5/31.5
R89	7030005090	S.RES ERJ2GEJ 104 X (100K)	B	88.0/34.9
R91	7030005530	S.RES ERJ2GEJ 100 X (10)	B	69.9/40.3
R92	7030005530	S.RES ERJ2GEJ 100 X (10)	B	71.4/45.5
R93	7030010040	S.RES ERJ2GEJ-JPW	B	71.4/44.5
R94	7030005530	S.RES ERJ2GEJ 100 X (10)	B	64.3/41.3
R95	7030010040	S.RES ERJ2GEJ-JPW	B	73.5/29.6
R101	7030009140	S.RES ERJ2GEJ 272 X (2.7K)	B	79.7/15.6
R102	7030008010	S.RES ERJ2GEJ 123 X (12K)	B	82.4/12.8
R103	7030005050	S.RES ERJ2GEJ 103 X (10K)	B	86.2/28.8
R104	7030005050	S.RES ERJ2GEJ 103 X (10K)	B	88.8/29.5
R106	7030005050	S.RES ERJ2GEJ 103 X (10K)	B	88.6/24.2
R107	7030005060	S.RES ERJ2GEJ 333 X (33K)	B	85.0/18.9
R108	7030008310	S.RES ERJ2GEJ 564 X (560K)	B	85.6/20.3
R109	7030005050	S.RES ERJ2GEJ 103 X (10K)	B	86.6/23.2
R111	7030005160	S.RES ERJ2GEJ 105 X (1M)	B	89.0/38.7
R112	7030005160	S.RES ERJ2GEJ 105 X (1M)	B	84.9/37.2
R113	7030005160	S.RES ERJ2GEJ 105 X (1M)	B	84.4/36.2
R114	7030005090	S.RES ERJ2GEJ 104 X (100K)	B	83.9/40.9
R115	7030004980	S.RES ERJ2GEJ 101 X (100)	B	83.0/41.9
R121	7030005040	S.RES ERJ2GEJ 472 X (4.7K)	B	77.0/37.2
R122	7030004970	S.RES ERJ2GEJ 470 X (4.7)	B	76.8/40.8
R123	7030005040	S.RES ERJ2GEJ 472 X (4.7K)	B	80.1/35.4
R124	7030005240	S.RES ERJ2GEJ 473 X (47K)	B	78.6/41.8
R125	7030005120	S.RES ERJ2GEJ 102 X (1K)	B	79.8/41.4
R126	7030011210	S.RES ERJ2GEJ 1R0 X (1)	B	74.9/31.8
C1	4030016930	S.CER C1005 JB 1A 104K-T	B	43.4/34.4

## [MAIN UNIT]

REF NO.	PARTS NO.	DESCRIPTION		M.	H/V LOCATION
C2	4030017460	S.CER	C1005 JB 1H 102K-T	B	43.4/35.4
C3	4030016930	S.CER	C1005 JB 1A 104K-T	B	49.0/29.6
C4	4030017460	S.CER	C1005 JB 1H 102K-T	B	50.0/29.6
C5	4030016930	S.CER	C1005 JB 1A 104K-T	B	49.0/23.3
C6	4030017460	S.CER	C1005 JB 1H 102K-T	B	50.0/23.3
C7	4030016930	S.CER	C1005 JB 1A 104K-T	B	37.7/18.8
C8	4030017460	S.CER	C1005 JB 1H 102K-T	B	37.7/17.8
C9	4030016930	S.CER	C1005 JB 1A 104K-T	B	33.4/30.1
C10	4030017460	S.CER	C1005 JB 1H 102K-T	B	32.4/30.1
C11	4550007710	S.TAN	TEESVB2 1A 476M8R	B	32.9/14.3
Eqv.	4550008170	S.TAN	F931A476MBA		
C14	4030020300	S.CER	GRM21BB31C475KA87L	B	32.8/19.3
C15	4030016790	S.CER	C1005 JB 1E 103K-T	B	34.2/18.3
C16	4030016790	S.CER	C1005 JB 1E 103K-T	B	32.9/31.5
C21	4030019550	S.CER	C1608 JB 1E 334K-T	B	20.9/39.0
C22	4550007750	S.TAN	TEESVA 1V 225M8R	B	19.2/40.2
Eqv.	4550008330	S.TAN	F931V225MAA		
C23	4550007750	S.TAN	TEESVA 1V 225M8R	B	16.4/40.2
Eqv.	4550008330	S.TAN	F931V225MAA		
C24	4030017460	S.CER	C1005 JB 1H 102K-T	B	24.9/33.4
C25	4030016930	S.CER	C1005 JB 1A 104K-T	B	24.9/30.2
C43	4030017650	S.CER	C1005 CH 1H 270J-T	B	38.7/36.8
C44	4030017650	S.CER	C1005 CH 1H 270J-T	B	40.5/36.8
C51	4030017460	S.CER	C1005 JB 1H 102K-T	B	68.0/13.1
C52	4030018900	S.CER	C1005 JB 0J 474K-T	B	50.5/14.0
C53	4030017460	S.CER	C1005 JB 1H 102K-T	B	66.0/11.9
C54	4030019990	S.CER	C1005 JB 1C 104K-T	B	9.0/11.9
C55	4030017460	S.CER	C1005 JB 1H 102K-T	B	10.0/11.9
C56	4030017460	S.CER	C1005 JB 1H 102K-T	B	9.0/44.9
C62	4030016930	S.CER	C1005 JB 1A 104K-T	B	59.4/29.0
C63	4030017920	S.CER	C1005 JB 1A 683K-T	B	62.1/31.2
C69	4030016790	S.CER	C1005 JB 1E 103K-T	B	73.6/24.5
C72	4030019620	S.CER	GRM188B31C225KE14D	B	79.6/26.0
C73	4030017490	S.CER	C1608 JB 1A 105K-T	B	77.7/28.0
C75	4030017730	S.CER	C1005 JB 1H 471K-T	B	28.8/53.6
C76	4510010300	S.ELE	16 CE 470 AX	B	50.2/45.8
C77	4030017460	S.CER	C1005 JB 1H 102K-T	B	54.2/49.9
C81	4030019620	S.CER	GRM188B31C225KE14D	B	86.5/30.3
C82	4030019620	S.CER	GRM188B31C225KE14D	B	89.2/34.9
C83	4030016930	S.CER	C1005 JB 1A 104K-T	B	85.8/34.0
C84	4030017430	S.CER	C1005 CH 1H 101J-T	B	77.3/26.7
C91	4030016930	S.CER	C1005 JB 1A 104K-T	B	73.6/22.7
C92	4510009700	S.ELE	EEEFK1C101P	B	72.0/17.5
C93	4030019620	S.CER	GRM188B31C225KE14D	B	83.0/27.2
C95	4030019620	S.CER	GRM188B31C225KE14D	B	83.1/33.7
C101	4030016790	S.CER	C1005 JB 1E 103K-T	B	73.2/45.9
C102	4510009270	S.ELE	EEHCB1C220UR	B	71.6/49.1
C103	4030016930	S.CER	C1005 JB 1A 104K-T	B	67.7/48.1
C104	4030016930	S.CER	C1005 JB 1A 104K-T	B	61.9/48.0
C105	4510009270	S.ELE	EEHCB1C220UR	B	58.1/50.3
C106	4510009270	S.ELE	EEHCB1C220UR	B	52.4/37.2
C107	4030016930	S.CER	C1005 JB 1A 104K-T	B	56.3/39.0
C108	4030019990	S.CER	C1005 JB 1C 104K-T	B	56.3/41.4
C109	4510009270	S.ELE	EEHCB1C220UR	B	58.0/44.8
C110	4030016930	S.CER	C1005 JB 1A 104K-T	B	72.0/29.3
C111	4510009270	S.ELE	EEHCB1C220UR	B	64.8/50.2
C112	4030016790	S.CER	C1005 JB 1E 103K-T	B	68.7/48.1
C113	4030016790	S.CER	C1005 JB 1E 103K-T	B	60.9/48.0
C114	4030016790	S.CER	C1005 JB 1E 103K-T	B	55.3/39.0
C115	4030016790	S.CER	C1005 JB 1E 103K-T	B	55.3/41.4
C125	4030017730	S.CER	C1005 JB 1H 471K-T	B	82.4/13.7
C126	4030017460	S.CER	C1005 JB 1H 102K-T	B	86.8/24.2
C127	4030020310	S.CER	GRM31CB31C106KA88L	B	86.2/27.2
C128	4030017430	S.CER	C1005 CH 1H 101J-T	B	88.6/23.2
C129	4030017620	S.CER	C1005 CH 1H 100C-T	B	84.6/20.3
C130	4030019620	S.CER	GRM188B31C225KE14D	B	88.0/25.5
C131	4030019620	S.CER	GRM188B31C225KE14D	B	87.9/42.0
C132	4030017490	S.CER	C1608 JB 1A 105K-T	B	86.5/36.3
C133	4030016790	S.CER	C1005 JB 1E 103K-T	B	85.7/41.1
C134	4030017420	S.CER	C1005 CH 1H 470J-T	B	82.1/40.9
C135	4030016930	S.CER	C1005 JB 1A 104K-T	B	85.7/25.6
C136	4030011810	S.CER	C1608 JB 1A 224K-T	B	80.4/17.5
C137	4030017490	S.CER	C1608 JB 1A 105K-T	B	83.4/19.1
C141	4030016790	S.CER	C1005 JB 1E 103K-T	B	75.8/33.6
C142	4030016930	S.CER	C1005 JB 1A 104K-T	B	79.0/34.4
C143	4030016930	S.CER	C1005 JB 1A 104K-T	B	78.6/40.8
C151	4030017460	S.CER	C1005 JB 1H 102K-T	B	81.2/41.9
C152	4030017460	S.CER	C1005 JB 1H 102K-T	B	76.8/41.8
C153	4030016790	S.CER	C1005 JB 1E 103K-T	B	86.4/29.6
C154	4030017730	S.CER	C1005 JB 1H 471K-T	B	87.0/46.9
C155	4030017460	S.CER	C1005 JB 1H 102K-T	B	75.0/46.9
C156	4510009310	S.ELE	EEHCB1E4R7R	B	49.4/7.8
C162	4030017460	S.CER	C1005 JB 1H 102K-T	B	51.6/19.3
C163	4030017460	S.CER	C1005 JB 1H 102K-T	B	50.6/20.0
C164	4030017460	S.CER	C1005 JB 1H 102K-T	B	50.5/21.4
C165	4030017460	S.CER	C1005 JB 1H 102K-T	B	51.4/22.4
C166	4030017460	S.CER	C1005 JB 1H 102K-T	B	52.8/23.2
J3	6510028220	S.CON	AYF532265	B	21.6/28.4
J4	6510027910	S.CON	IMSA-9631S-20Y933	B	26.0/48.9
J5	6510021441	S.CON	B6B-ZR-SM4-TF(LF)(SN)	B	81.2/49.8
DS1	5030003510	LCD	8803L22012 <SKD>	T	48.1/17.2
DS2	5040003310	S.LED	L-C191KYCT <KOU>	T	48.1/39.6
DS3	5040003310	S.LED	L-C191KYCT <KOU>	T	48.1/39.6
DS4	5040003310	S.LED	L-C191KYCT <KOU>	T	64.0/8.4



## [MAIN UNIT]

REF NO.	PARTS NO.	DESCRIPTION	M.	H/V LOCATION
DS5	5040003310	S.LED L-C191KYCT <KOU>	T	64.9/36.9
DS6	5040003310	S.LED L-C191KYCT <KOU>	T	64.9/19.9
DS7	5040003310	S.LED L-C191KYCT <KOU>	T	64.0/48.4
DS8	5040003310	S.LED L-C191KYCT <KOU>	T	77.4/19.0
DS9	5040003310	S.LED L-C191KYCT <KOU>	T	77.4/37.8
MC1	7700002710	MIC EM6027P-46C33-G <HOR>		
S1	2260002740	S.SWI LS8J2M-T	T	48.0/11.9
S2	2260002740	S.SWI LS8J2M-T	T	48.3/22.8
S3	2260002740	S.SWI LS8J2M-T	T	48.3/34.0
S4	2260002740	S.SWI LS8J2M-T	T	48.0/44.9
S5	2260002740	S.SWI LS8J2M-T	T	58.3/12.4
S6	2260002740	S.SWI LS8J2M-T	T	59.7/28.4
S7	2260002740	S.SWI LS8J2M-T	T	58.4/44.4
S8	2260002740	S.SWI LS8J2M-T	T	70.7/13.4
S9	2260002740	S.SWI LS8J2M-T	T	70.7/28.4
S10	2260002740	S.SWI LS8J2M-T	T	70.7/43.4
S11	2260002740	S.SWI LS8J2M-T	T	81.7/28.4
S12	2260002740	S.SWI LS8J2M-T	T	83.1/43.3
W1	8900017660	CAB OPC-1877 (P0.5N20L100) <TJM>		
W2	7030012290	JUM RDS2T0R0		
EP3	6910018270	S.BEA MMZ1608Y301CT	B	83.7/22.6

## [AF UNIT]

REF NO.	PARTS NO.	DESCRIPTION	M.	H/V LOCATION
IC1	1110003091	IC LA4425A-E		
Q1	1530004140	S.TRA L2SC4081RT1G <SLVJ>	T	21.1/47.4
D1	1750001810	S.DIO L1SS400T1G <SLVJ>	T	18.5/46.5
R1	7030007630	S.RES MCR100JZHJ 0.68 (R68)	B	45.5/29.1
R2	7030009320	S.RES ERJ2GEJ 4R7 X (4.7)	T	30.7/41.0
R5	7030005240	S.RES ERJ2GEJ 473 X (47K)	T	18.3/48.1
R6	7030005120	S.RES ERJ2GEJ 102 X (1K)	T	19.3/48.1
R7	7030007270	S.RES ERJ2GEJ 151 X (150)	T	19.8/49.5
R9	7030010500	S.RES ERJ1TYJ 2R2U	T	12.6/35.5
R12	7030007300	S.RES ERJ2GEJ 332 X (3.3K)	B	44.2/32.0
R13	7030005120	S.RES ERJ2GEJ 102 X (1K)	T	51.4/34.1
R14	7030011140	S.RES ERJ8GEYJ 0R00V	T	49.0/39.0
R15	7030000010	S.RES MCR10EZJH JPW (000)	B	49.7/35.1
C2	4510008220	ELE 16 ME 2200 CA		
C3	4030017460	S.CER C1005 JB 1H 102K-T	B	53.8/34.0
C4	4030020250	S.CER GRM21BB11A225KA01L	B	45.6/32.9
C6	4510010300	S.ELE 16 CE 470 AX	T	32.8/45.9
C7	4030011600	S.CER C1608 JB 1E 104K-T	T	33.1/40.8
C8	4030017460	S.CER C1005 JB 1H 102K-T	T	27.3/6.7
C12	4030017780	S.CER C1005 JB 1H 472K-T	T	51.8/35.5
C13	4030011600	S.CER C1608 JB 1E 104K-T	T	53.0/38.2
C14	4030017460	S.CER C1005 JB 1H 102K-T	T	50.8/36.3
C15	4030016790	S.CER C1005 JB 1E 103K-T	T	32.7/14.1
C16	4030016790	S.CER C1005 JB 1E 103K-T	T	26.3/5.7
C17	4030006900	S.CER C1608 JB 1H 103K-T	T	52.8/45.0
C18	4030017460	S.CER C1005 JB 1H 102K-T	B	47.3/34.4
C19	4030017460	S.CER C1005 JB 1H 102K-T	B	47.9/35.8
C21	4030016790	S.CER C1005 JB 1E 103K-T	B	32.8/13.4
C23	4030006860	S.CER C1608 JB 1H 102K-T	T	53.0/35.4
C24	4030016790	S.CER C1005 JB 1E 103K-T	T	51.0/41.0
C25	4030006860	S.CER C1608 JB 1H 102K-T	T	53.0/41.0
RL1	6310000060	S.REL FTR-B3GA009Z-B10	T	19.6/40.3
J1	6510023092	S.CON 20FLT-SM2-TB(LF)(SN)(M)	T	19.1/10.5
J2	6510003521	CON S04B-EH-S(LF)(SN)	T	
J3	6510021601	S.CON S2B-PH-SM4-TB(LF)(SN)	T	20.0/28.5
J4	6510025142	S.CON 10FLT-SM2-TB(LF)(SN)(M)	T	5.3/15.0
DS2	5040003310	S.LED L-C191KYCT <KOU>	T	23.7/17.3
DS3	5040003310	S.LED L-C191KYCT <KOU>	B	17.9/26.6
S1	2260001900	SWI SW-149 (SKHLLD)		
S2	2260002740	S.SWI LS8J2M-T	B	11.8/26.6
EP5	6910014640	S.BEA MPZ2012S221A-T	B	48.8/41.3
EP8	6910019100	S.BEA MPZ1608S101AT	T	31.1/13.4
EP9	6910019100	S.BEA MPZ1608S101AT	T	34.3/13.4

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

**[DIAL UNIT]**

REF NO.	PARTS NO.	DESCRIPTION		M.	H/V LOCATION
S1	2250000730	ENC	TP90N245AE20PY-14.5F-3338		
W1	8900020400	CAB	OPC-2216 <TJM>		

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



## SECTION 4

## MECHANICAL PARTS

### [CHASSIS PARTS]

REF NO.	ORDER NO.	DESCRIPTION	QTY.
SP1	2510001350	045P0806-7-1	1
W1**	8900014950	OPC-1539 <KN> [HM-195B]	1
	8900014940	OPC-1538 <KN> [HM-195SW]	1
W2**	8900020620	OPC-2250	1
MP1	8210027670	3384 FRONT PANEL ASSEMBLY [HM-195B]	1
	8210027680	3384 FRONT PANEL (A) ASSEMBLY [HM-195SW]	1
MP3	8930084900	3384 WINDOW SHEET	1
MP4	8310079630	3384 WINDOW PLATE [HM-195B]	1
	8310079790	3384 WINDOW PLATE (A) [HM-195SW]	1
MP5	8930084890	3384 LCD SPONGE	1
MP7	8930084460	3384 KEY <KRI>	1
MP8	8930068980	2905 VENT SHEET	1
MP9	8930084990	3384 MIC SEAL (TOT)	1
MP10	8810008761	PHBT M2 X 8 NI-ZC3	7
MP11	8930084470	3384 MAIN SEAL	1
MP21	8210027690	3384 REAR PANEL ASSEMBLY [HM-195B]	1
	8210027700	3384 REAR PANEL (A) ASSEMBLY [HM-195SW]	1
MP25	8930068980	2905 VENT SHEET	1
MP26	8110010270	3054 D-COVER (A) ASSY	1
MP30	8930084450	3384 DISTRESS BUTTON <YAM>	1
MP31	8610014480	3384 HANGER KNOB	1
MP32	8930053740	O-RING (AJ) (TOP)	1
MP33	8850001800	FLAT WASHER M4 (4X12X0.8) SUS	1
MP34	8850000490	S-WASHER M4 SUS	1
MP35	8810009880	BIND M4 X 8 NI FE	1
MP36	8930084490	3384 BUSH PLATE	1
MP37	8930060560	O-RING (AX)	1
MP38	8930085390	3384 VOL PLATE	1
MP39	8830001140	VRNUT (J)	1
MP40	8610014450	KNOB N-404 [HM-195B]	1
	8610014470	KNOB N-404 (A) [HM-195SW]	1
MP42	8810009181	BT M2 X 5 NI-ZC3	4
MP43	8410002730	3384 HEATSINK Y1264	1
MP44	8930084940	THERMAL SHEET (CC)TC20CGAV (12X12)	1
MP45	8810008991	PHBT M2 X10 NI-ZK3	1
MP46	8810008761	PHBT M2 X 8 NI-ZC3	2
MP51	8810008751	PHBT M2 X15 NI-ZK3	6
MP52	8930084870	3384 REAR SHEET [HM-195B]	1
	8930084880	3384 REAR SHEET (A) [HM-195SW]	1

### [MAIN UNIT]

REF NO.	ORDER NO.	DESCRIPTION	QTY.
J3*	6510028220	AYF532265	1
J4*	6510027910	IMS-A-9631S-20Y933	1
J5*	6510021441	B6B-ZR-SM4-TF (LF) (SN)	1
DS1	5030003510	8803L22012 <SKD>	1
MC1	7700002710	EM6027P-46C33-G <HOR>	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*	2260002740	LS8J2M-T	1
S10*	2260002740	LS8J2M-T	1
S11*	2260002740	LS8J2M-T	1
S12*	2260002740	LS8J2M-T	1
W1**	8900017660	OPC-1877 (P0.5N20L100)	1
W2*	7030012290	RDS2T0R0	1

### [AF UNIT]

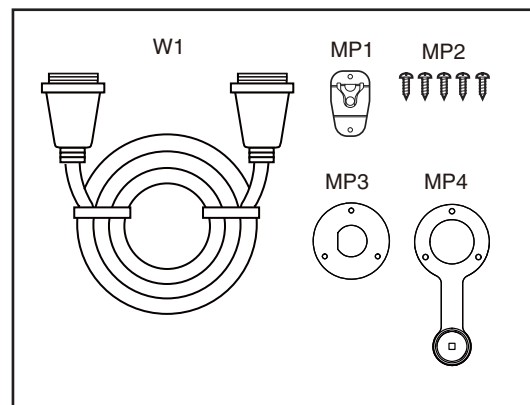
REF NO.	ORDER NO.	DESCRIPTION	QTY.
J1*	6510023092	20FLT-SM2-TB (LF) (SN) (M)	1
J2*	6510003521	S04B-EH-S (LF) (SN)	1
J3*	6510021601	S2B-PH-SM4-TB (LF) (SN)	1
J4*	6510025142	10FLT-SM2-TB (LF) (SN) (M)	1
S1*	2260001900	SW-149 (SKHLLD)	1
S2*	2260002740	LS8J2M-T	1

### [DIAL UNIT]

REF NO.	ORDER NO.	DESCRIPTION	QTY.
J1*	6510025142	10FLT-SM2-TB (LF) (SN) (M)	1
S1	2250000730	TP90N245AE20PY-14.5F-3338	1
W1*	8900020400	OPC-2216	1

### [ACCESSORIES]

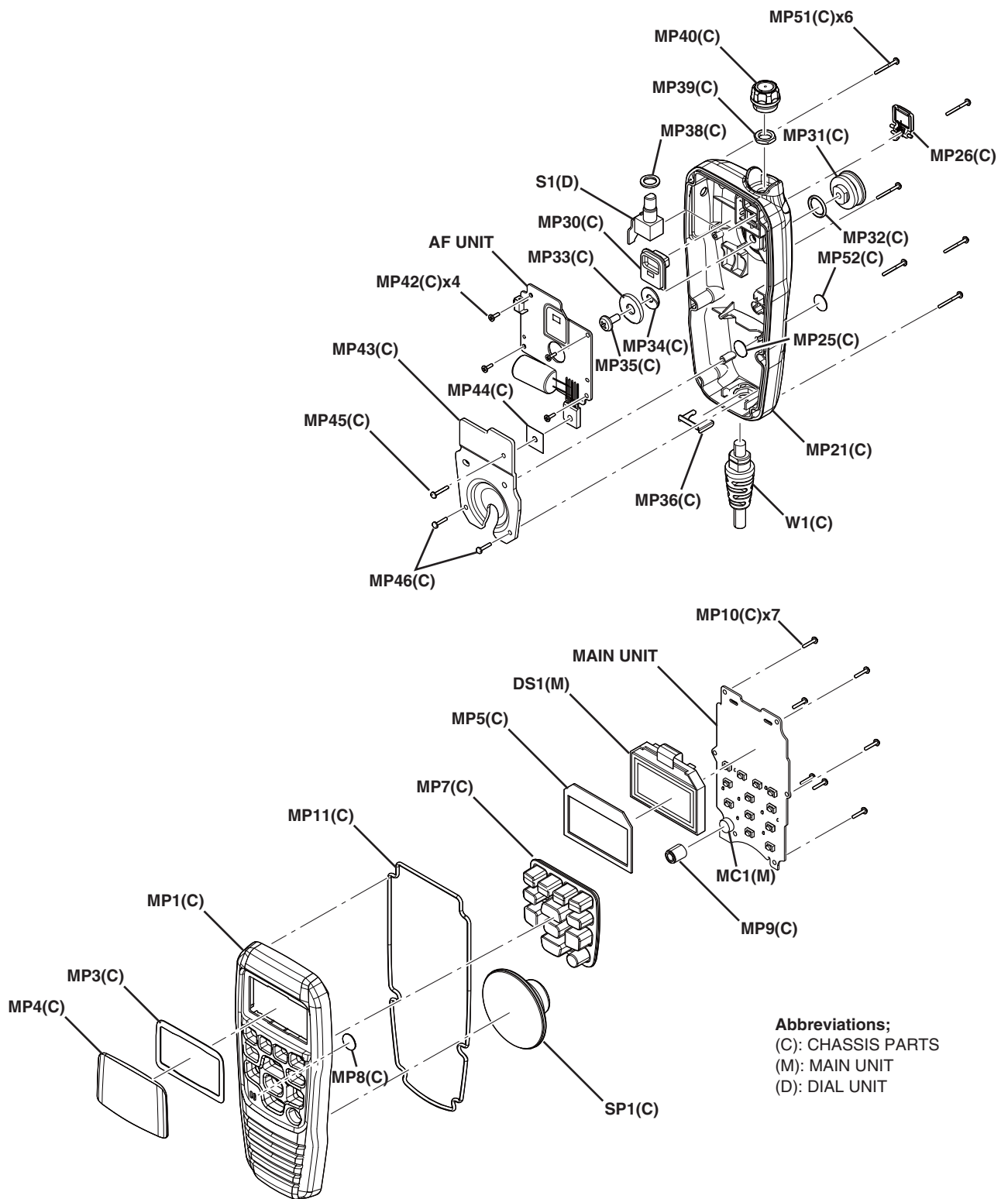
REF NO.	ORDER NO.	DESCRIPTION	QTY.
W1	8900014900	OPC-1540 <KN>	1
MP1	8950005110	2289 MIC HANGER Y468	1
MP2	8810004700	PHA M3 X16 SUS	5
MP3	8930084860	3384 C-PLATE Y1265	1
MP4	8930084840	3384 CONNECTOR CAP	1



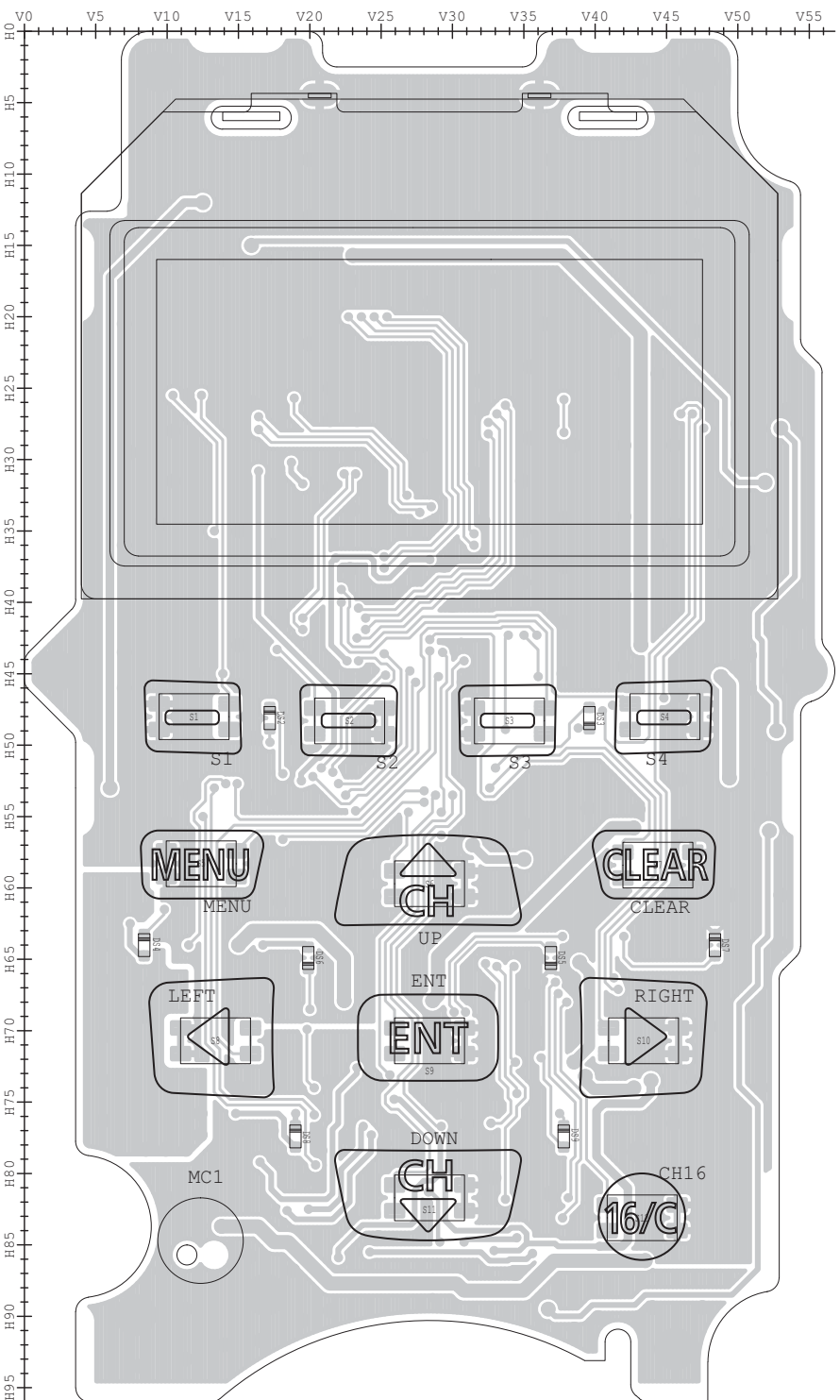
\*: Refer to "BOARD LAYOUTS" for the location.

\*\* : Refer to "GENERAL WIRING" for the connection

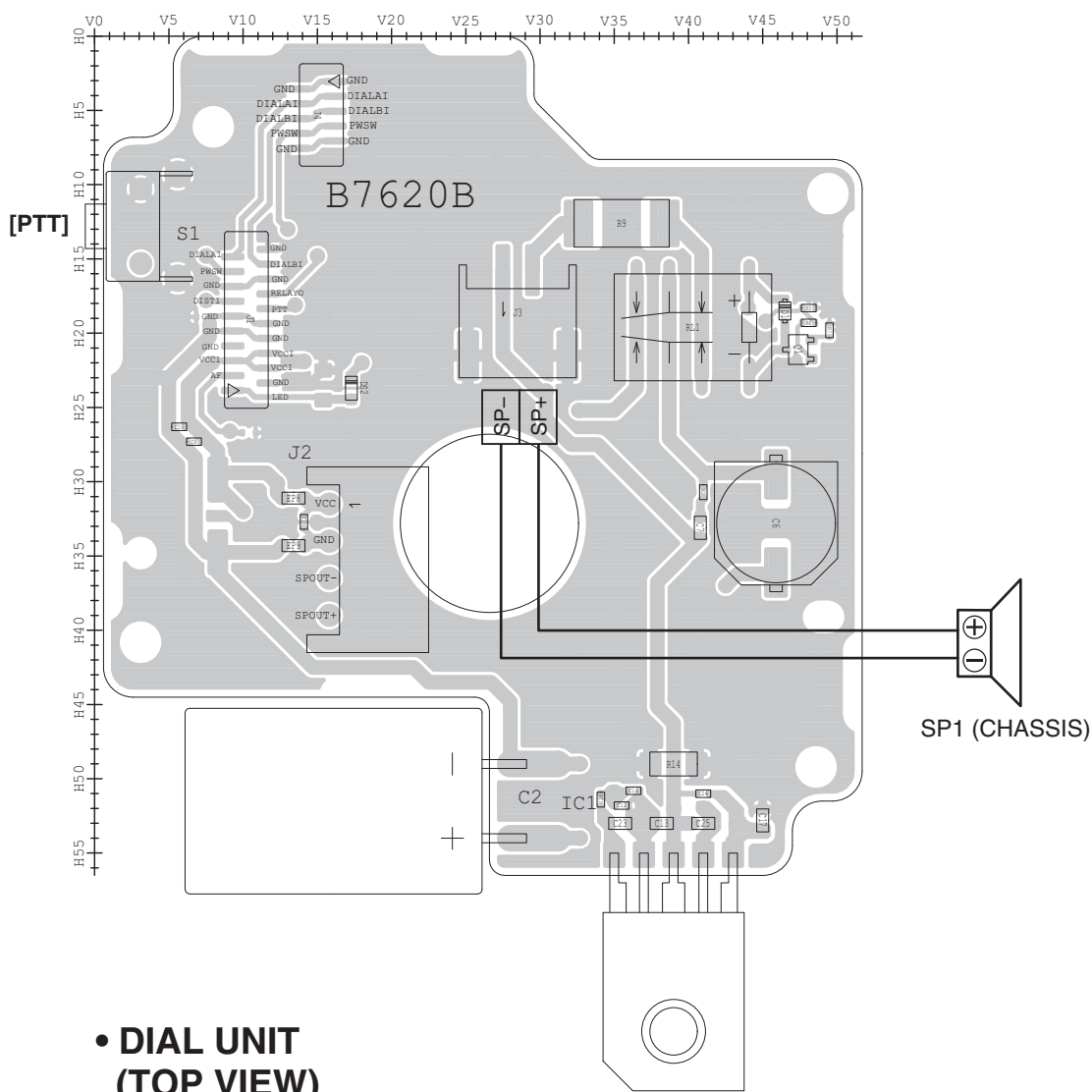
**Screw abbreviations** A, B0, BT: Self-tapping PH: Pan head ZK: Black NI-ZU: Nickel-Zinc SUS: Stainless



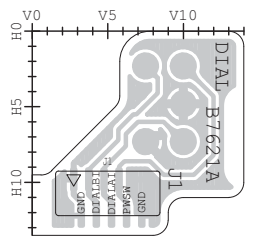
• MAIN UNIT  
(TOP VIEW)



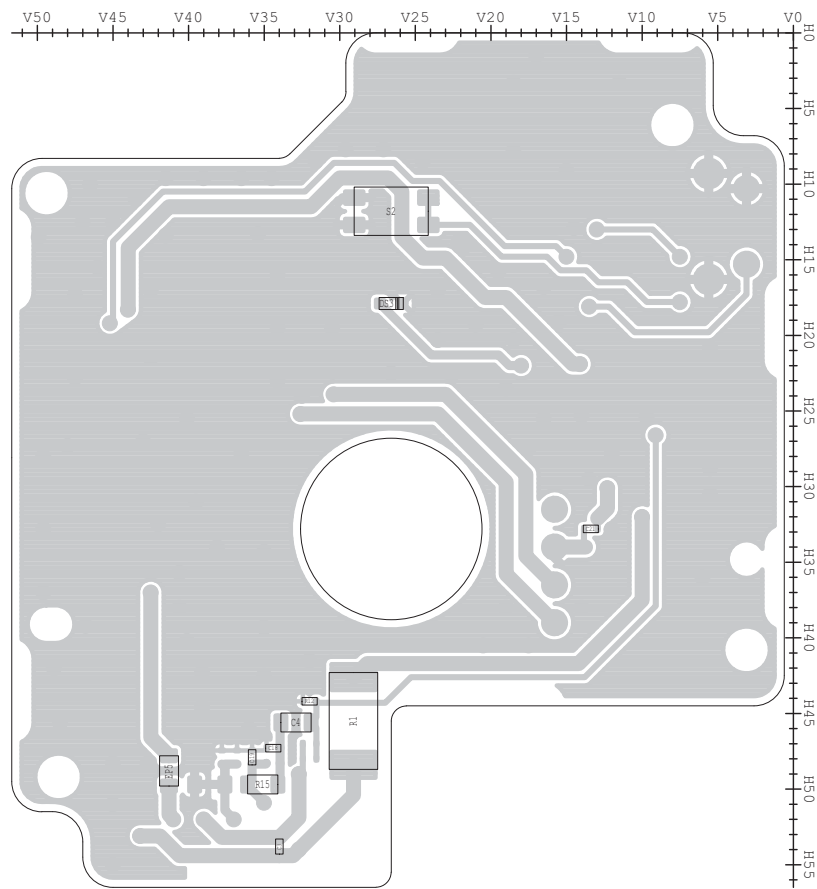
• AF UNIT  
(TOP VIEW)



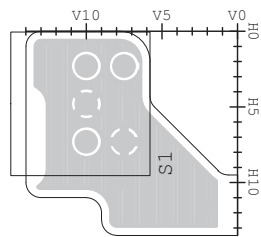
• DIAL UNIT  
(TOP VIEW)



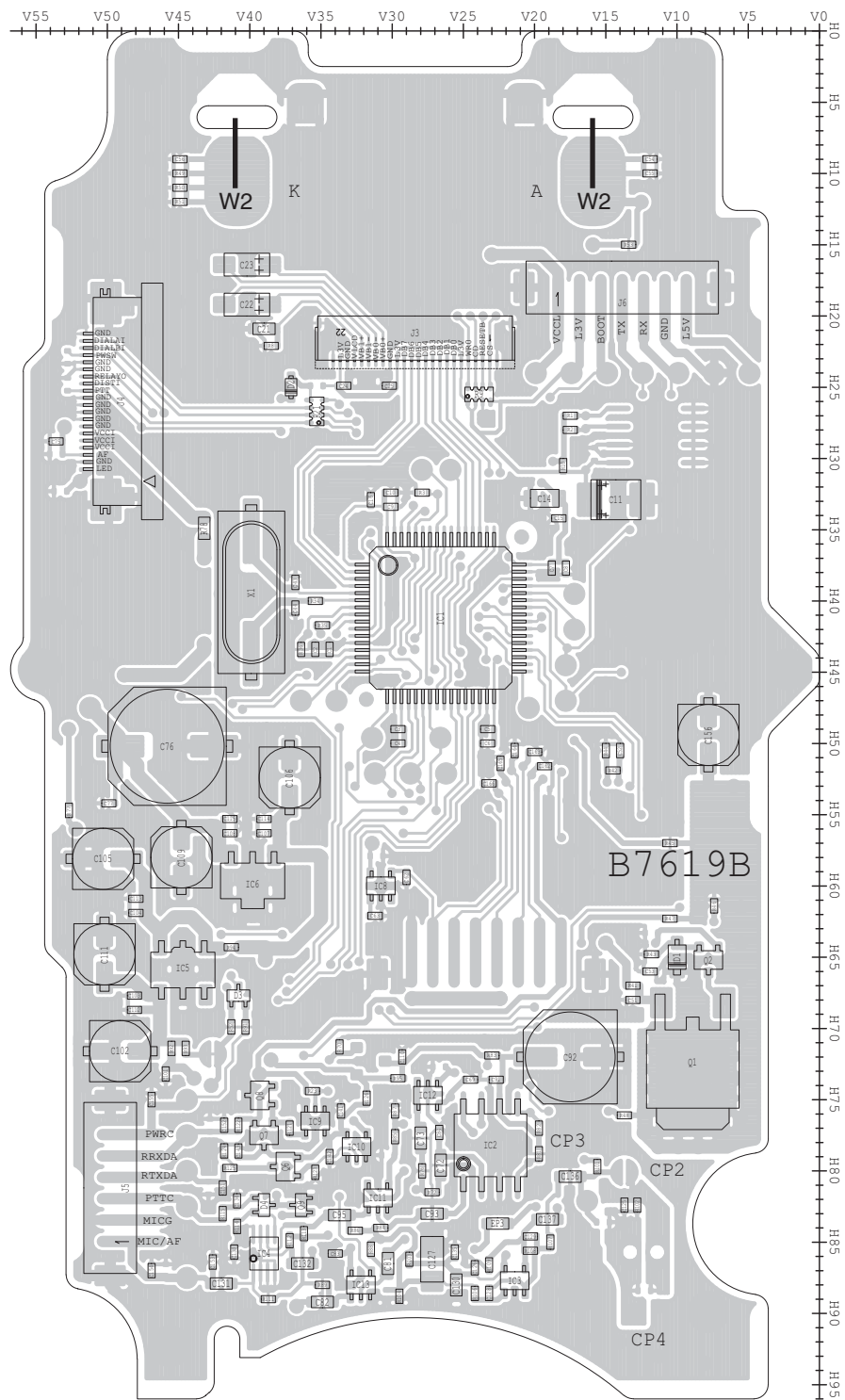
• AF UNIT  
(BOTTOM VIEW)

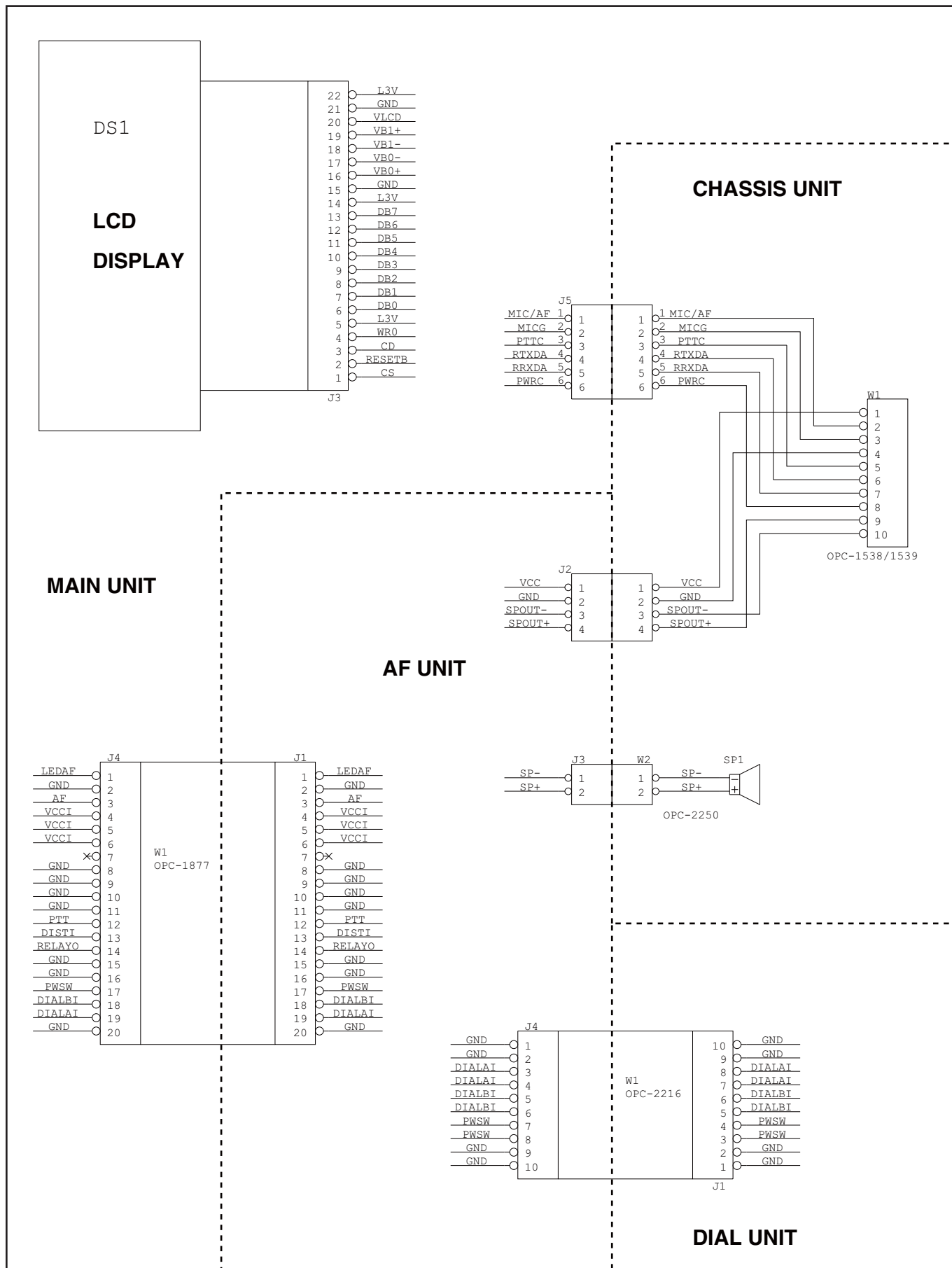


• DIAL UNIT  
(BOTTOM VIEW)



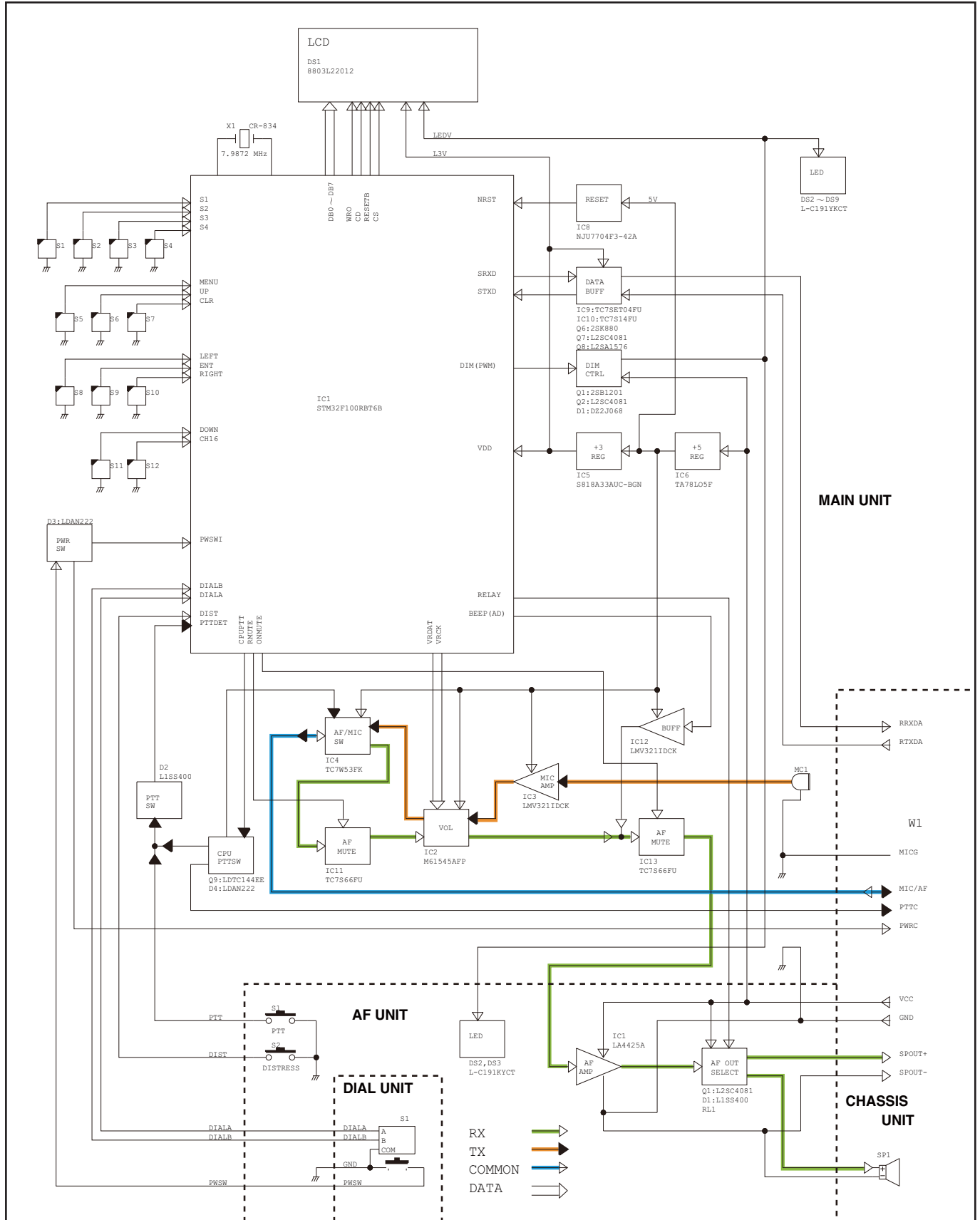
• MAIN UNIT  
(BOTTOM VIEW)





# SECTION 7

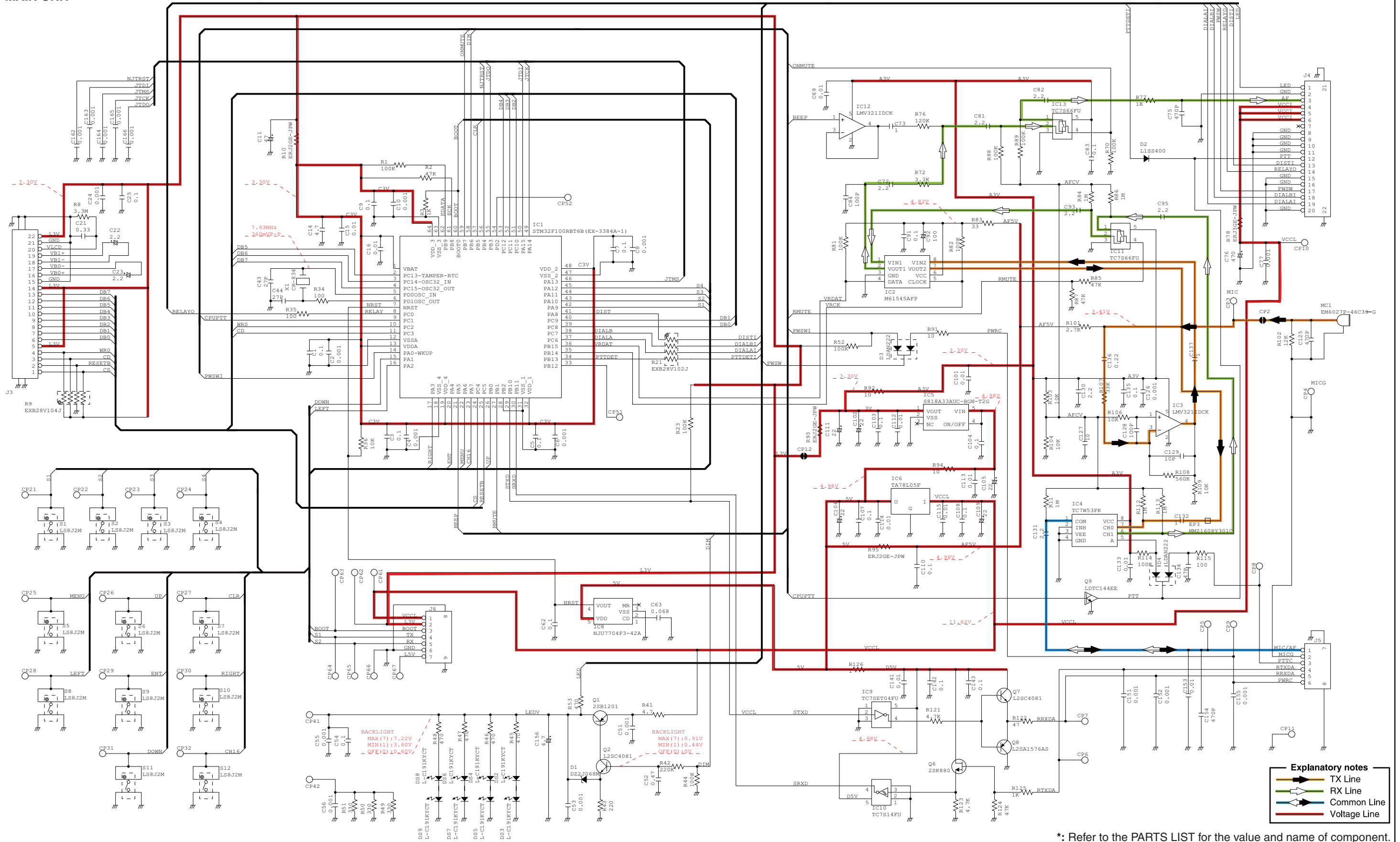
# BLOCK DIAGRAM



# SECTION 8

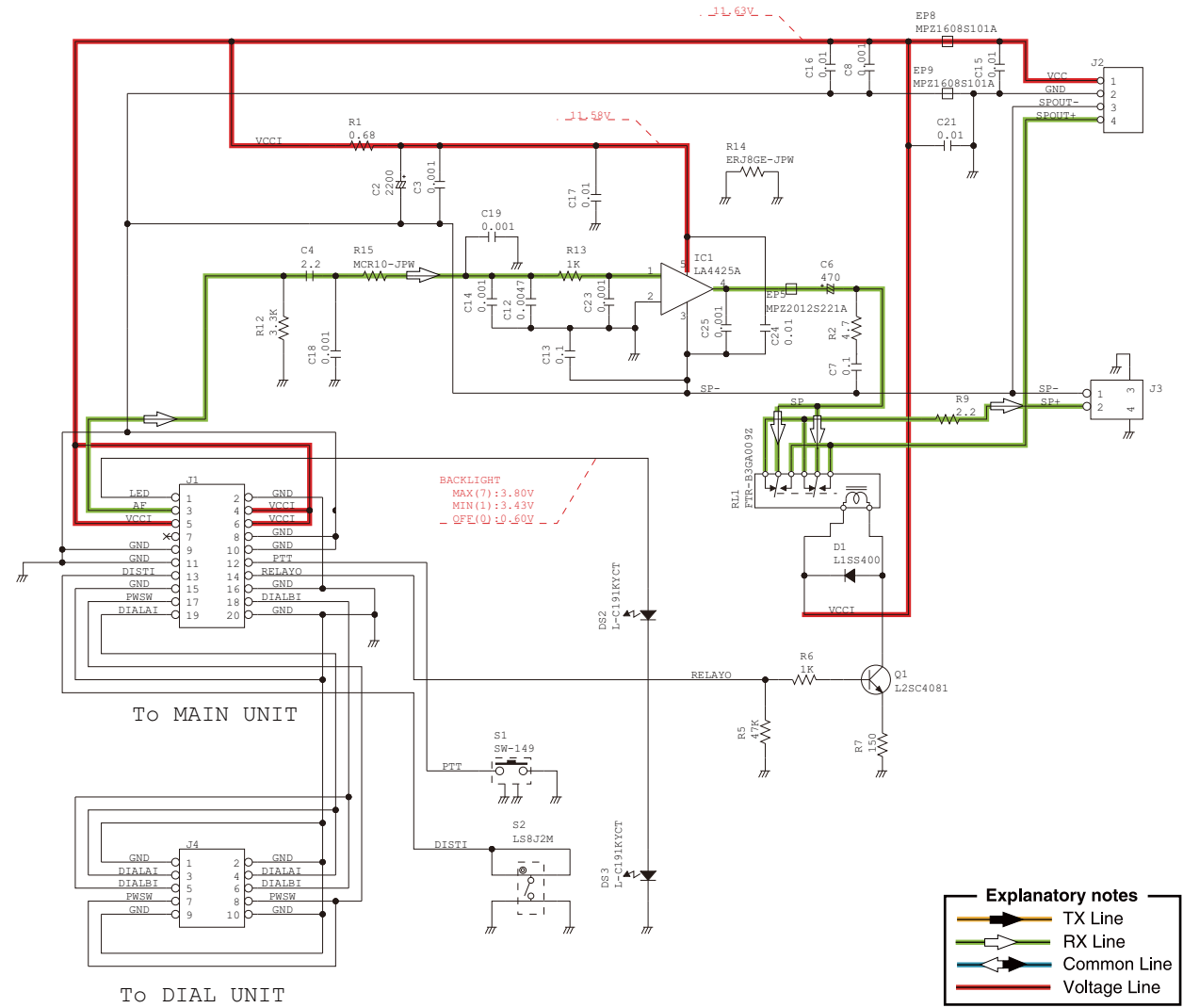
# VOLTAGE DIAGRAM

## • MAIN UNIT





• AF UNIT



## Icom Inc.

1-1-32, Kamiminami, Hirano-ku, Osaka 547-0003, Japan  
Phone : +81 (06) 6793 5302  
Fax : +81 (06) 6793 0013  
URL : <http://www.icom.co.jp/world/index.html>

### Icom America Inc.

<Corporate Headquarters>  
2380 116th Avenue N.E., Bellevue, WA 98004, U.S.A.  
Phone : +1 (425) 454-8155 Fax : +1 (425) 454-1509  
URL : <http://www.icomamerica.com>  
E-mail : [sales@icomamerica.com](mailto:sales@icomamerica.com)  
<Customer Service>  
Phone : +1 (425) 454-7619

### Icom Canada

Glenwood Centre #150-6165  
Highway 17 Delta, B.C., V4K 5B8, Canada  
Phone : +1 (604) 952-4266 Fax : +1 (604) 952-0090  
URL : <http://www.icomcanada.com>  
E-mail : [info@icomcanada.com](mailto:info@icomcanada.com)

### Icom (Australia) Pty. Ltd.

Unit 1 / 103 Garden Road, Clayton VIC 3168 Australia  
Phone : +61 (03) 9549-7500 Fax : +61 (03) 9549-7505  
URL : <http://www.icom.net.au>  
E-mail : [sales@icom.net.au](mailto:sales@icom.net.au)

### Icom New Zealand

146A Harris Road, East Tamaki,  
Auckland, New Zealand  
Phone : +64 (09) 274 4062 Fax : +64 (09) 274 4708  
URL : <http://www.icom.co.nz>  
E-mail : [inquiries@icom.co.nz](mailto:inquiries@icom.co.nz)

### Icom Polska

81-850 Sopot, ul. 3 Maja 54, Poland  
Phone : +48 (58) 550 7135 Fax : +48 (58) 551 0484  
E-mail : [icompolska@icompolska.com.pl](mailto:icompolska@icompolska.com.pl)

### Icom (Europe) GmbH

Communication Equipment  
Auf der Krautweide 24  
65812 Bad Soden am Taunus, Germany  
Phone : +49 (6196) 76685-0 Fax : +49 (6196) 76685-50  
URL : <http://www.icomeurope.com>  
E-mail : [info@icomeurope.com](mailto:info@icomeurope.com)

### Icom Spain S.L

Ctra. Rubi, No. 88 Bajos A 08174, Sant Cugat del Valles, Barcelona, Spain  
Phone : +34 (93) 590 26 70 Fax : +34 (93) 589 04 46  
URL : <http://www.icomspain.com>  
E-mail : [icom@icomspain.com](mailto:icom@icomspain.com)

### Icom (UK) Ltd.

Blacksole House, Altira Park, Herne Bay, Kent CT6 6GZ, UK  
Phone : +44 (0) 1227 741741 Fax : +44 (0) 1227 741742  
URL : <http://www.icomuk.co.uk>  
E-mail : [info@icomuk.co.uk](mailto:info@icomuk.co.uk)

### Icom France s.a.s.

Zac de la Plaine  
1 Rue Brindejonc des Moulinais BP 5804  
31505 Toulouse Cedex, France  
Phone : +33 (5) 61 36 03 03 Fax : +33 (5) 61 36 03 00  
URL : <http://www.icom-france.com>  
E-mail : [icom@icom-france.com](mailto:icom@icom-france.com)

### Asia Icom Inc.

6F No.68, Sec. 1 Cheng-Teh Road, Taipei, Taiwan, R.O.C.  
Phone : +886 (02) 2559 1899 Fax : +886 (02) 2559 1874  
URL : <http://www.asia-icom.com>  
E-mail : [sales@asia-icom.com](mailto:sales@asia-icom.com)

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