



Jul. 2011

SERVICE MANUAL ADDENDUM

HM-133 HM-133S HM-133V

CONTENTS

PARTS LIST	1
BOARD LAYOUTS	5

PARTS LIST

[UNIT LIST]

Model	Version	UNITS		
		MAIN	MAIN-A	MAIN-B
HM-133	GEN	O	—	—
	GEN-1	O	—	—
	GEN-2	—	O	—
	GEN-3	—	O	—
	EXP-01	—	—	O
	EXP-02	—	—	O
HM-133S	GEN	O	—	—
	GEN-1	O	—	—
	GEN-2	—	O	—
	GEN-3	—	O	—
	EXP-01	—	—	O
	EXP-02	—	—	O
HM-133V	GEN	O	—	—
	GEN-1	O	—	—
	GEN-2	—	O	—
	GEN-3	—	O	—
	EXP-01	—	—	O
	EXP-02	—	—	O

[MAIN UNIT]

REF NO.	PARTS NO.	DESCRIPTION	M.	H/V LOCATION
IC1	1140005870	S.IC UPD7564AG-555-E1	B	34.7/33.5
IC2	1130008630	S.IC MC14028BF-EL	B	50.2/22.4
IC3	1110006011	S.IC S-80845CLUA-B66-T2G	B	66.9/35.6
Q1	1530001941	S.TRA 2SC2712-BL(TE85LF)	B	26.1/11.0
Q2	1590000680	S.TRA DTC114EUA T106	B	21.6/34.8
Q3	1590001330	S.TRA DTA114EUA T106	B	58.0/22.9
Q4	1510000771	S.TRA 2SA1586-GR(TE85LF)	B	24.7/34.8
Q5	1510000771	S.TRA 2SA1586-GR(TE85LF)	B	54.7/34.9
Q6	1510000771	S.TRA 2SA1586-GR(TE85LF)	B	54.3/37.5
Q7	1510000771	S.TRA 2SA1586-GR(TE85LF)	B	48.5/5.8
Q8	1530001941	S.TRA 2SC2712-BL(TE85LF)	B	48.5/3.3
Q9	1590001010	S.TRA DTB113ZK T146	B	19.5/9.9
			B	22.9/11.0
D1	1790000951	S.ZEN MAZ8056GML	B	23.1/17.0
D3	1750000550	S.DIO 1SS355 TE-17	B	58.0/21.1
D4	1750000550	S.DIO 1SS355 TE-17	B	58.0/22.9
D5	1750000550	S.DIO 1SS355 TE-17	B	58.0/17.7
D6	1750000550	S.DIO 1SS355 TE-17	B	58.0/15.9
D7	1750000550	S.DIO 1SS355 TE-17	B	58.0/14.1
D8	1750000550	S.DIO 1SS355 TE-17	B	37.6/17.8
D9	1750000550	S.DIO 1SS355 TE-17	B	37.6/16.0
D10	1750000550	S.DIO 1SS355 TE-17	B	43.4/15.1
D11	1750000550	S.DIO 1SS355 TE-17	B	37.6/14.2
D12	1750000550	S.DIO 1SS355 TE-17	B	58.0/24.7
D13	1750000550	S.DIO 1SS355 TE-17	B	58.7/27.3
D14	1750000550	S.DIO 1SS355 TE-17	B	42.7/5.9
D15	1750000550	S.DIO 1SS355 TE-17	B	42.7/4.1
D16	1730002281	S.ZEN MAZ8091GML	B	54.8/14.2
D17	1730002281	S.ZEN MAZ8091GML	B	48.4/14.2
D18	1730002281	S.ZEN MAZ8091GML	B	12.5/13.9
D19	1750000550	S.DIO 1SS355 TE-17	B	29.0/40.6
X1	6060000530	CER CSBLB600KJ28T-B0 (CSB600J200T)		
L1	6200001520	S.COI MLF2012D R82K-T	B	12.0/28.9
L2	6200001520	S.COI MLF2012D R82K-T	B	10.7/13.9
R2	7030000400	S.RES MCR10EZHZ 1.5K (152)	B	24.2/8.3
R3	7030000400	S.RES MCR10EZHZ 1.5K (152)	B	41.9/8.4
R4	7030000400	S.RES MCR10EZHZ 1.5K (152)	B	57.3/8.3
R5	7030003400	S.RES ERJ3GEYJ 471 V (470)	B	28.6/11.2
R6	7030003620	S.RES ERJ3GEYJ 333 V (33K)	B	26.8/34.7
R7	7030003620	S.RES ERJ3GEYJ 333 V (33K)	B	23.3/36.8
R8	7030003570	S.RES ERJ3GEYJ 123 V (12K)	B	19.2/33.7
R9	7030003560	S.RES ERJ3GEYJ 103 V (10K)	B	57.6/35.6
R10	7030003420	S.RES ERJ3GEYJ 681 V (680)	B	57.6/34.3
R11	7030003420	S.RES ERJ3GEYJ 681 V (680)	B	57.6/36.9
R12	7030003560	S.RES ERJ3GEYJ 103 V (10K)	B	58.3/39.0
R13	7030003560	S.RES ERJ3GEYJ 103 V (10K)	B	45.7/5.5
R14	7030003420	S.RES ERJ3GEYJ 681 V (680)	B	51.5/6.0
R15	7030003400	S.RES ERJ3GEYJ 471 V (470)	B	51.5/3.3
R16	7030003560	S.RES ERJ3GEYJ 103 V (10K)	B	45.7/4.2
R18	7030003760	S.RES ERJ3GEYJ 474 V (470K)	B	43.6/29.2
R19	7030003760	S.RES ERJ3GEYJ 474 V (470K)	B	42.3/29.2
R20	7030003760	S.RES ERJ3GEYJ 474 V (470K)	B	39.2/26.6
R21	7030003760	S.RES ERJ3GEYJ 474 V (470K)	B	39.9/28.1
R22	7030003680	S.RES ERJ3GEYJ 104 V (100K)	B	26.3/37.7
R23	7030003680	S.RES ERJ3GEYJ 104 V (100K)	B	27.0/39.0
R24	7030003680	S.RES ERJ3GEYJ 104 V (100K)	B	32.1/39.2
R25	7030003680	S.RES ERJ3GEYJ 104 V (100K)	B	32.1/40.6
R26	7030003640	S.RES ERJ3GEYJ 473 V (47K)	B	27.9/27.3
R27	7030003800	S.RES ERJ3GEYJ 105 V (1M)	B	57.1/27.7
R29	7030003320	S.RES ERJ3GEYJ 101 V (100)	B	58.4/29.6
R30	7030003530	S.RES ERJ3GEYJ 562 V (5.6K)	B	37.0/39.9
R31	7030003640	S.RES ERJ3GEYJ 473 V (47K)	B	34.8/40.6
R32	7030003640	S.RES ERJ3GEYJ 473 V (47K)	B	34.8/39.2
R33	7030003640	S.RES ERJ3GEYJ 473 V (47K)	B	24.3/39.7
R34	7030003640	S.RES ERJ3GEYJ 473 V (47K)	B	23.3/38.1
R35	7030000400	S.RES MCR10EZHZ 1.5K (152)	B	69.2/13.6
R36	7030003560	S.RES ERJ3GEYJ 103 V (10K)	B	20.5/30.6
R37	7030003460	S.RES ERJ3GEYJ 152 V (1.5K)	B	19.2/30.6
R38	7030003720	S.RES ERJ3GEYJ 224 V (220K)	B	17.5/7.7
R39	7030003480	S.RES ERJ3GEYJ 222 V (2.2K)	B	24.4/5.7
R40	7030003480	S.RES ERJ3GEYJ 222 V (2.2K)	B	24.4/3.0
R41	7030003560	S.RES ERJ3GEYJ 103 V (10K)	B	17.0/32.7
C1	4030006850	S.CER C1608 JB 1H 471K-T	B	52.0/16.9
C2	4510008500	S.ELE EEE1CA101WP	B	35.5/5.8
C3	4030007130	S.CER C1608 CH 1H 101J-T	B	41.4/40.6
C4	4030007130	S.CER C1608 CH 1H 101J-T	B	38.4/39.9
C5	4030007050	S.CER C1608 CH 1H 220J-T	B	14.9/30.4
C9	4030007050	S.CER C1608 CH 1H 220J-T	B	16.3/16.9
C10	4030007050	S.CER C1608 CH 1H 220J-T	B	15.6/15.5
C11	4030007050	S.CER C1608 CH 1H 220J-T	B	15.6/7.2
C12	4030006860	S.CER C1608 JB 1H 102K-T	B	53.6/28.4
C13	4030006860	S.CER C1608 JB 1H 102K-T	B	39.7/39.9
C14	4030008920	S.CER C1608 JB 1H 473K-T	B	55.8/29.6
C15	4030006860	S.CER C1608 JB 1H 102K-T	B	62.3/35.9
C16	4030006860	S.CER C1608 JB 1H 102K-T	B	14.1/13.6
C17	4030006860	S.CER C1608 JB 1H 102K-T	B	11.7/17.4

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
C18	4030006860	S.CER C1608 JB 1H 102K-T	B	10.4/17.4
C19	4030006860	S.CER C1608 JB 1H 102K-T	B	13.0/25.8
C21	4030006860	S.CER C1608 JB 1H 102K-T	B	11.7/25.8
C22	4030006860	S.CER C1608 JB 1H 102K-T	B	10.4/28.5
C23	4030006860	S.CER C1608 JB 1H 102K-T	B	23.1/14.0
C24	4030006860	S.CER C1608 JB 1H 102K-T	B	67.0/13.8
C25	4030006860	S.CER C1608 JB 1H 102K-T	B	25.6/32.2
C26	4030006860	S.CER C1608 JB 1H 102K-T	B	53.0/4.6
C27	4030006860	S.CER C1608 JB 1H 102K-T	B	60.6/38.3
C29	4510008540	S.ELE EEE1CA100SR	B	26.4/16.0
C30	4030011600	S.CER C1608 JB 1E 104K-T	B	23.0/3.0
C31	4510008540	S.ELE EEE1CA100SR	B	28.3/4.9
J1	6510023110	CON 3008L-8P8C <KIN>		
DS1	5010000120	S.LED LN1371G-(TR)	T	22.0/11.1
DS2	5010000120	S.LED LN1371G-(TR)	T	22.0/32.1
DS3	5010000120	S.LED LN1371G-(TR)	T	39.4/11.1
DS4	5010000120	S.LED LN1371G-(TR)	T	39.4/32.1
DS5	5010000120	S.LED LN1371G-(TR)	T	56.0/2.5
DS6	5010000120	S.LED LN1371G-(TR)	T	56.3/26.8
DS7	5010000120	S.LED LN1371G-(TR)	T	71.8/14.9
DS8	5010000120	S.LED LN1371G-(TR)	T	72.3/33.9
DS10	5010000150	S.LED LT1EP53A	T	51.6/5.1
DS11	5010000150	S.LED LT1EP53A	T	51.6/38.1
MC1	7700002850	MIC EM6022P-65B-G <HOR>		
S1	2260000980	SWI SKHHL P014A		
EP1	6910012350	S.BEA MMZ1608Y 102BT	B	10.4/25.8
EP2	6910012350	S.BEA MMZ1608Y 102BT	B	14.3/17.4
EP3	6910012350	S.BEA MMZ1608Y 102BT	B	13.0/17.4
EP4	6910012350	S.BEA MMZ1608Y 102BT	B	14.5/11.0

[MAIN-A UNIT]

REF NO.	PARTS NO.	DESCRIPTION	M.	H/V LOCATION
IC1	1140011491	S.IC UPD789071MC-041-5A4-E1-A	B	51.1/24.5
IC3	1110006310	S.IC BD5245G-TR	B	67.3/34.8
IC6	1130012030	S.IC BR24L02FV-WE2	B	39.4/30.1
Q1	1530001941	S.TRA 2SC2712-BL(TE85LF)	B	26.1/11.0
Q2	1590000680	S.TRA DTC114EUA T106	B	21.6/34.8
Q3	1590001330	S.TRA DTA114EUA T106	B	24.7/34.8
Q4	1510000771	S.TRA 2SA1586-GR(TE85LF)	B	54.7/34.9
Q5	1510000771	S.TRA 2SA1586-GR(TE85LF)	B	54.5/37.5
Q6	1510000771	S.TRA 2SA1586-GR(TE85LF)	B	48.5/5.8
Q7	1510000771	S.TRA 2SA1586-GR(TE85LF)	B	48.5/3.3
Q8	1530001941	S.TRA 2SC2712-BL(TE85LF)	B	19.5/9.9
Q9	1590001010	S.TRA DTB113ZK T146	B	22.9/11.0
D1	1790000951	S.ZEN MAZ8056GML	B	23.1/17.0
D3	1750000940	S.DIO 1SS400 TE61	B	64.7/23.2
D4	1750000940	S.DIO 1SS400 TE61	B	64.7/29.2
D5	1750000940	S.DIO 1SS400 TE61	B	59.6/25.5
D6	1750000940	S.DIO 1SS400 TE61	B	58.7/20.8
D7	1750000940	S.DIO 1SS400 TE61	B	42.8/16.7
D9	1750000940	S.DIO 1SS400 TE61	B	34.1/16.3
D10	1750000940	S.DIO 1SS400 TE61	B	34.9/17.8
D11	1750000940	S.DIO 1SS400 TE61	B	38.8/14.5
D12	1750000940	S.DIO 1SS400 TE61	B	57.2/29.0
D16	1730002281	S.ZEN MAZ8091GML	B	55.2/14.5
D17	1730002281	S.ZEN MAZ8091GML	B	48.8/14.5
D18	1730002281	S.ZEN MAZ8091GML	B	12.5/13.9
X1	6060000610	S.CER EFOS4914E3	B	47.8/37.5
L1	6200001520	S.COI MLF2012D R82K-T	B	12.0/28.9
L2	6200001520	S.COI MLF2012D R82K-T	B	10.7/13.9
R2	7030000400	S.RES MCR10EZJH 1.5K (152)	B	24.2/8.3
R3	7030000400	S.RES MCR10EZJH 1.5K (152)	B	41.9/8.4
R4	7030000400	S.RES MCR10EZJH 1.5K (152)	B	57.3/8.3
R5	7030003400	S.RES ERJ3GEYJ 471 V (470)	B	28.6/11.2
R6	7030003620	S.RES ERJ3GEYJ 333 V (33K)	B	26.8/34.7
R7	7030003620	S.RES ERJ3GEYJ 333 V (33K)	B	23.3/36.8
R8	7030003570	S.RES ERJ3GEYJ 123 V (12K)	B	19.2/33.7
R9	7030003560	S.RES ERJ3GEYJ 103 V (10K)	B	57.6/35.6
R10	7030003440	S.RES ERJ3GEYJ 102 V (1K)	B	57.6/34.3
R11	7030003480	S.RES ERJ3GEYJ 222 V (2.2K)	B	57.6/36.9
R12	7030003560	S.RES ERJ3GEYJ 103 V (10K)	B	60.4/37.2
R13	7030003560	S.RES ERJ3GEYJ 103 V (10K)	B	45.7/5.5
R14	7030003440	S.RES ERJ3GEYJ 102 V (1K)	B	51.5/6.0
R15	7030003480	S.RES ERJ3GEYJ 222 V (2.2K)	B	51.5/3.3
R16	7030003560	S.RES ERJ3GEYJ 103 V (10K)	B	45.7/4.2
R18	7030003560	S.RES ERJ3GEYJ 103 V (10K)	B	41.6/33.6
R19	7030003640	S.RES ERJ3GEYJ 473 V (47K)	B	38.4/34.5
R22	7030003520	S.RES ERJ3GEYJ 472 V (4.7K)	B	37.9/18.7
R23	7030003520	S.RES ERJ3GEYJ 472 V (4.7K)	B	56.1/18.1
R24	7030003520	S.RES ERJ3GEYJ 472 V (4.7K)	B	58.0/18.6
R25	7030003520	S.RES ERJ3GEYJ 472 V (4.7K)	B	59.8/18.9
R27	7030003560	S.RES ERJ3GEYJ 103 V (10K)	B	68.1/32.5
R35	7030000400	S.RES MCR10EZJH 1.5K (152)	B	69.1/11.9
R36	7030003560	S.RES ERJ3GEYJ 103 V (10K)	B	20.5/30.6
R37	7030003460	S.RES ERJ3GEYJ 152 V (1.5K)	B	19.2/30.6
R38	7030003720	S.RES ERJ3GEYJ 224 V (220K)	B	17.5/7.7
R39	7030003480	S.RES ERJ3GEYJ 222 V (2.2K)	B	24.4/5.7
R40	7030003480	S.RES ERJ3GEYJ 222 V (2.2K)	B	24.4/3.0
R41	7030003560	S.RES ERJ3GEYJ 103 V (10K)	B	17.0/32.7
R42	7030003860	S.RES ERJ3GE JPW V	B	68.4/21.6
R43	7030003440	S.RES ERJ3GEYJ 102 V (1K)	B	57.4/27.5
R44	7030003440	S.RES ERJ3GEYJ 102 V (1K)	B	57.3/22.1
R45	7030003440	S.RES ERJ3GEYJ 102 V (1K)	B	53.9/18.1
R46	7030003440	S.RES ERJ3GEYJ 102 V (1K)	B	37.8/15.8
R47	7030003440	S.RES ERJ3GEYJ 102 V (1K)	B	37.6/17.1
R48	7030003440	S.RES ERJ3GEYJ 102 V (1K)	B	45.3/17.6
R49	7030003440	S.RES ERJ3GEYJ 102 V (1K)	B	57.3/26.2
R50	7030003440	S.RES ERJ3GEYJ 102 V (1K)	B	58.1/23.4
R51	7030003440	S.RES ERJ3GEYJ 102 V (1K)	B	57.4/24.7
C1	4030006850	S.CER C1608 JB 1H 471K-T	B	51.6/16.6
C2	4510008500	S.ELE EEE1CA101WP	B	35.5/5.8
C5	4030007050	S.CER C1608 CH 1H 220J-T	B	14.9/30.4
C9	4030007050	S.CER C1608 CH 1H 220J-T	B	16.3/16.9
C10	4030007050	S.CER C1608 CH 1H 220J-T	B	15.6/15.5
C11	4030007050	S.CER C1608 CH 1H 220J-T	B	15.6/7.2
C12	4030006860	S.CER C1608 JB 1H 102K-T	B	64.9/34.4
C13	4030006860	S.CER C1608 JB 1H 102K-T	B	44.3/27.6
C14	4030006900	S.CER C1608 JB 1H 103K-T	B	67.5/37.2
C15	4030006860	S.CER C1608 JB 1H 102K-T	B	41.9/29.7
C16	4030006860	S.CER C1608 JB 1H 102K-T	B	14.1/13.6
C17	4030006860	S.CER C1608 JB 1H 102K-T	B	11.7/17.4
C18	4030006860	S.CER C1608 JB 1H 102K-T	B	10.4/17.4
C19	4030006860	S.CER C1608 JB 1H 102K-T	B	13.0/25.8
C21	4030006860	S.CER C1608 JB 1H 102K-T	B	11.7/25.8
C22	4030006860	S.CER C1608 JB 1H 102K-T	B	10.4/28.5
C23	4030006860	S.CER C1608 JB 1H 102K-T	B	23.1/14.0
C24	4030006860	S.CER C1608 JB 1H 102K-T	B	67.2/12.1
C25	4030006860	S.CER C1608 JB 1H 102K-T	B	25.6/32.2
C26	4030006860	S.CER C1608 JB 1H 102K-T	B	53.0/4.6
C27	4030006860	S.CER C1608 JB 1H 102K-T	B	60.9/35.9
C29	4510008540	S.ELE EEE1CA100SR	B	26.4/16.0
C30	4030011600	S.CER C1608 JB 1E 104K-T	B	23.0/3.0
C31	4510008540	S.ELE EEE1CA100SR	B	28.3/4.9

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

[MAIN-A UNIT]

REF NO.	PARTS NO.	DESCRIPTION	M.	H/V LOCATION
J1	6510023110	CON 3008L-8P8C <KIN>		
DS1	5010000120	S.LED LN1371G-(TR)	T	22.0/11.1
DS2	5010000120	S.LED LN1371G-(TR)	T	22.0/32.1
DS3	5010000120	S.LED LN1371G-(TR)	T	39.4/11.1
DS4	5010000120	S.LED LN1371G-(TR)	T	39.4/32.1
DS5	5010000120	S.LED LN1371G-(TR)	T	56.0/2.5
DS6	5010000120	S.LED LN1371G-(TR)	T	56.3/26.8
DS7	5010000120	S.LED LN1371G-(TR)	T	71.8/14.9
DS8	5010000120	S.LED LN1371G-(TR)	T	72.3/33.9
DS10	5040003160	S.LED BRPY1211C-TR	T	51.6/5.1
DS11	5040003160	S.LED BRPY1211C-TR	T	51.6/38.1
MC1	7700002850	MIC EM6022P-65B-G <HOR>		
S1	2260000980	SWI SKHHLP014A		
EP1	6910012350	S.BEA MMZ1608Y 102BT	B	10.4/25.8
EP2	6910012350	S.BEA MMZ1608Y 102BT	B	14.3/17.4
EP3	6910012350	S.BEA MMZ1608Y 102BT	B	13.0/17.4
EP4	6910012350	S.BEA MMZ1608Y 102BT	B	14.5/11.0

[MAIN-B UNIT]

REF NO.	PARTS NO.	DESCRIPTION	M.	H/V LOCATION
IC1	1140011491	S.IC UPD789071MC-041-5A4-E1-A	B	51.1/24.5
IC3	1110006310	S.IC BD5245G-TR	B	67.3/34.8
IC6	1130012030	S.IC BR24L02FV-WE2	B	39.4/30.1
Q1	1530001820	S.TRA 2SC2412K WT T147 S	B	26.1/11.0
Q2	1590000680	S.TRA DTC114EUA T106	B	21.6/34.8
Q3	1590001330	S.TRA DTA114EUA T106	B	24.7/34.8
Q4	1510000510	S.TRA 2SA1576A T106R	B	54.7/34.9
Q5	1510000510	S.TRA 2SA1576A T106R	B	54.5/37.5
Q6	1510000510	S.TRA 2SA1576A T106R	B	48.5/5.8
Q7	1510000510	S.TRA 2SA1576A T106R	B	48.5/3.3
Q8	1530001820	S.TRA 2SC2412K WT T147 S	B	19.5/9.9
Q9	1590001010	S.TRA DTB113ZK T146	B	22.9/11.0
D1	1730002750	S.ZEN UdzSTE-17 5.6B	B	23.1/17.0
D3	1750000940	S.DIO 1SS400 TE61	B	64.7/23.2
D4	1750000940	S.DIO 1SS400 TE61	B	64.7/29.2
D5	1750000940	S.DIO 1SS400 TE61	B	59.6/25.5
D6	1750000940	S.DIO 1SS400 TE61	B	58.7/20.8
D7	1750000940	S.DIO 1SS400 TE61	B	42.8/16.7
D9	1750000940	S.DIO 1SS400 TE61	B	34.1/16.3
D10	1750000940	S.DIO 1SS400 TE61	B	34.9/17.8
D11	1750000940	S.DIO 1SS400 TE61	B	38.8/14.5
D12	1750000940	S.DIO 1SS400 TE61	B	57.2/29.0
D16	1730002760	S.ZEN UdzSTE-17 9.1B	B	55.2/14.5
D17	1730002760	S.ZEN UdzSTE-17 9.1B	B	48.8/14.5
D18	1730002760	S.ZEN UdzSTE-17 9.1B	B	12.5/13.9
X1	6060000790	S.CER CSTCR4M91G53-R0	B	42.6/22.3
L1	6200001520	S.COI MLF2012D R82K-T	B	12.0/28.9
L2	6200001520	S.COI MLF2012D R82K-T	B	10.7/13.9
R2	7030012200	S.RES MCR10EZP 1.5K (152) <TJM>	B	24.2/8.3
R3	7030012200	S.RES MCR10EZP 1.5K (152) <TJM>	B	41.9/8.4
R4	7030012200	S.RES MCR10EZP 1.5K (152) <TJM>	B	57.3/8.3
R5	7030012150	S.RES MCR03EZPJ 470 (471)	B	28.6/11.2
R6	7030012140	S.RES MCR03EZPJ 33 K (333)	B	26.8/34.7
R7	7030012140	S.RES MCR03EZPJ 33 K (333)	B	23.3/36.8
R8	7030012130	S.RES MCR03EZPJ 12 K (123)	B	19.2/33.7
R9	7030012120	S.RES MCR03EZPJ 10 K (103)	B	57.6/35.6
R10	7030012110	S.RES MCR03EZPJ 1 K (102)	B	57.6/34.3
R11	7030012100	S.RES MCR03EZPJ 2.2K (222)	B	57.6/36.9
R12	7030012120	S.RES MCR03EZPJ 10 K (103)	B	60.4/37.2
R13	7030012120	S.RES MCR03EZPJ 10 K (103)	B	45.7/5.5
R14	7030012110	S.RES MCR03EZPJ 1 K (102)	B	51.5/6.0
R15	7030012100	S.RES MCR03EZPJ 2.2K (222)	B	51.5/3.3
R16	7030012120	S.RES MCR03EZPJ 10 K (103)	B	45.7/4.2
R18	7030012120	S.RES MCR03EZPJ 10 K (103)	B	41.6/33.6
R19	7030012090	S.RES MCR03EZPJ 47 K (473)	B	38.4/34.5
R22	7030012080	S.RES MCR03EZPJ 4.7K (472)	B	37.9/18.7
R23	7030012080	S.RES MCR03EZPJ 4.7K (472)	B	56.1/18.1
R24	7030012080	S.RES MCR03EZPJ 4.7K (472)	B	58.0/18.6
R25	7030012080	S.RES MCR03EZPJ 4.7K (472)	B	59.8/18.9
R27	7030012120	S.RES MCR03EZPJ 10 K (103)	B	68.1/32.5
R35	7030012200	S.RES MCR10EZP 1.5K (152) <TJM>	B	69.1/11.9
R36	7030012120	S.RES MCR03EZPJ 10 K (103)	B	25.0/30.6
R37	7030012070	S.RES MCR03EZPJ 1.5K (152)	B	19.2/30.6
R38	7030012060	S.RES MCR03EZPJ 150 K (154)	B	17.5/7.7
R39	7030012100	S.RES MCR03EZPJ 2.2K (222)	B	24.4/5.7
R40	7030012100	S.RES MCR03EZPJ 2.2K (222)	B	24.4/3.0
R41	7030012120	S.RES MCR03EZPJ 10 K (103)	B	17.0/32.7
R42	7030012050	S.RES MCR03EZPJ JPW (000)	B	68.4/21.6
R43	7030012110	S.RES MCR03EZPJ 1 K (102)	B	57.4/27.5
R44	7030012110	S.RES MCR03EZPJ 1 K (102)	B	57.3/22.1
R45	7030012110	S.RES MCR03EZPJ 1 K (102)	B	53.9/18.1
R46	7030012110	S.RES MCR03EZPJ 1 K (102)	B	37.8/15.8
R47	7030012110	S.RES MCR03EZPJ 1 K (102)	B	37.6/17.1
R48	7030012110	S.RES MCR03EZPJ 1 K (102)	B	45.3/17.6
R49	7030012110	S.RES MCR03EZPJ 1 K (102)	B	57.3/26.2
R50	7030012110	S.RES MCR03EZPJ 1 K (102)	B	58.1/23.4
R51	7030012110	S.RES MCR03EZPJ 1 K (102)	B	57.4/24.7
C1	4030006850	S.CER C1608 JB 1H 471K-T	B	52.0/16.9
C2	4510008500	S.ELE EEE1CA101WP	B	35.5/5.8
C5	4030007050	S.CER C1608 CH 1H 220J-T	B	14.9/30.4
C9	4030007050	S.CER C1608 CH 1H 220J-T	B	16.3/16.9
C10	4030007050	S.CER C1608 CH 1H 220J-T	B	15.6/15.5
C11	4030007050	S.CER C1608 CH 1H 220J-T	B	15.6/7.2
C12	4030006860	S.CER C1608 JB 1H 102K-T	B	64.9/34.4
C13	4030006860	S.CER C1608 JB 1H 102K-T	B	44.3/27.6
C14	4030006900	S.CER C1608 JB 1H 103K-T	B	67.5/37.2
C15	4030006860	S.CER C1608 JB 1H 102K-T	B	41.9/29.7
C16	4030006860	S.CER C1608 JB 1H 102K-T	B	14.1/13.6
C17	4030006860	S.CER C1608 JB 1H 102K-T	B	11.7/17.4
C18	4030006860	S.CER C1608 JB 1H 102K-T	B	10.4/17.4
C19	4030006860	S.CER C1608 JB 1H 102K-T	B	13.0/25.8
C21	4030006860	S.CER C1608 JB 1H 102K-T	B	11.7/25.8
C22	4030006860	S.CER C1608 JB 1H 102K-T	B	10.4/28.5
C23	4030006860	S.CER C1608 JB 1H 102K-T	B	23.1/14.0
C24	4030006860	S.CER C1608 JB 1H 102K-T	B	67.2/12.1
C25	4030006860	S.CER C1608 JB 1H 102K-T	B	25.6/32.2
C26	4030006860	S.CER C1608 JB 1H 102K-T	B	53.0/4.6
C27	4030006860	S.CER C1608 JB 1H 102K-T	B	60.9/35.9
C29	4510008540	S.ELE EEE1CA100SR	B	26.4/16.0
C30	4030011600	S.CER C1608 JB 1E 104K-T	B	23.0/3.0
C31	4510008540	S.ELE EEE1CA100SR	B	28.3/4.9

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

[MAIN-B UNIT]

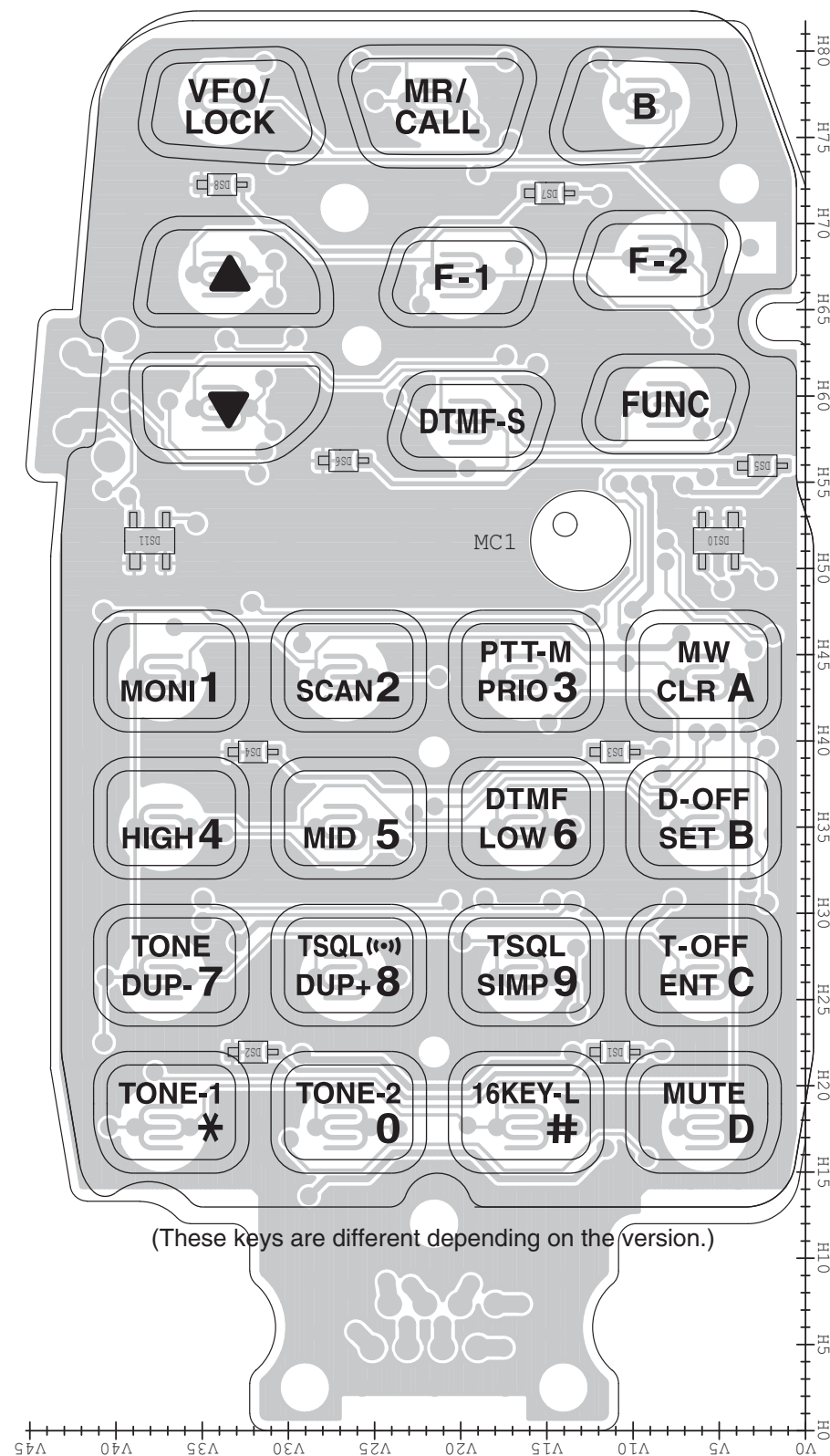
REF NO.	PARTS NO.	DESCRIPTION	M.	H/V LOCATION
J1	6510023110	CON 3008L-8P8C <KIN>		
DS1	5010000120	S.LED LN1371G-(TR)	T	22.0/11.1
DS2	5010000120	S.LED LN1371G-(TR)	T	22.0/32.1
DS3	5010000120	S.LED LN1371G-(TR)	T	39.4/11.1
DS4	5010000120	S.LED LN1371G-(TR)	T	39.4/32.1
DS5	5010000120	S.LED LN1371G-(TR)	T	56.0/2.5
DS6	5010000120	S.LED LN1371G-(TR)	T	56.3/26.8
DS7	5010000120	S.LED LN1371G-(TR)	T	71.8/14.9
DS8	5010000120	S.LED LN1371G-(TR)	T	72.3/33.9
DS10	5040003160	S.LED BRPY1211C-TR	T	51.6/5.1
DS11	5040003160	S.LED BRPY1211C-TR	T	51.6/38.1

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

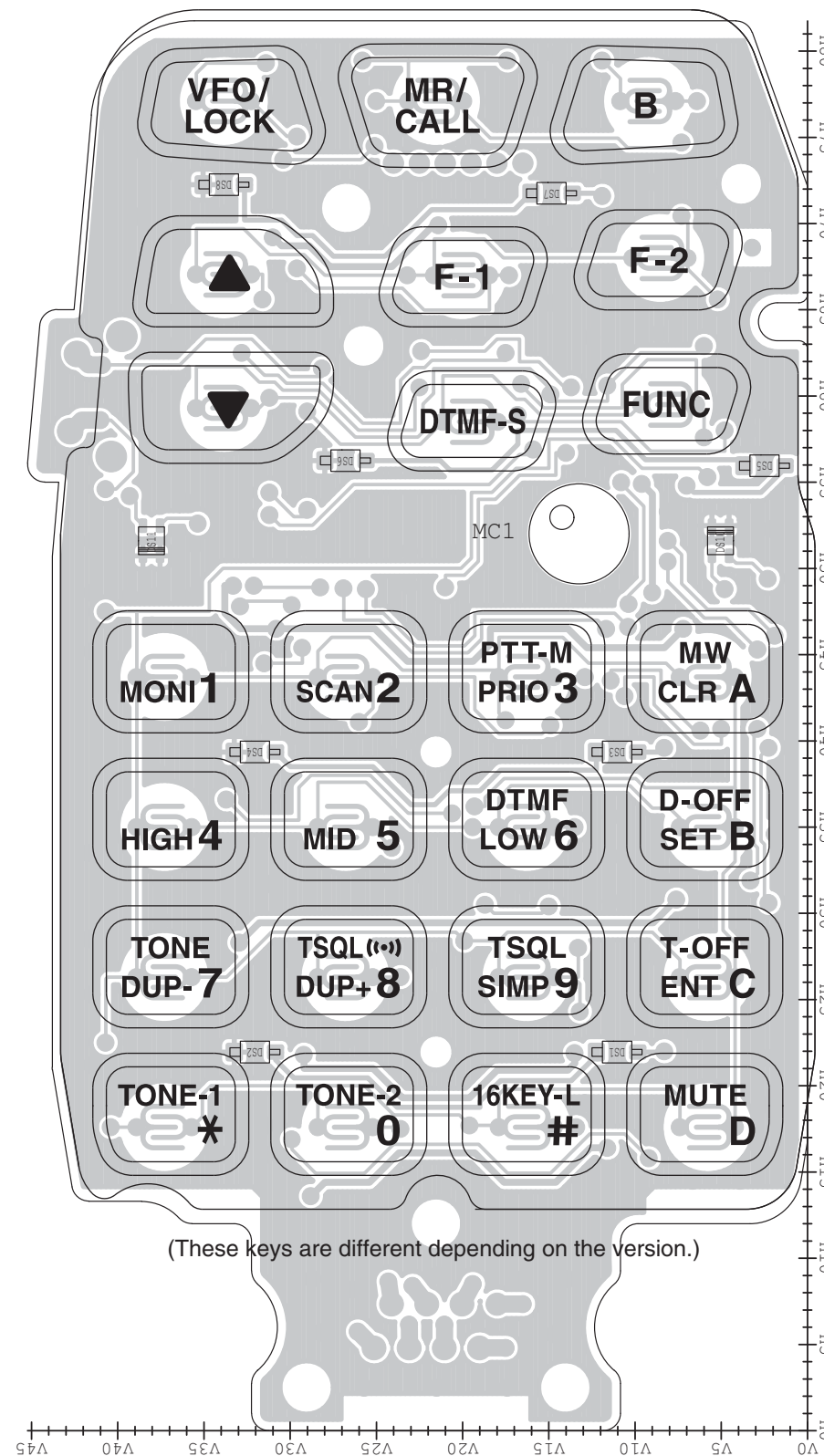
BOARD LAYOUTS

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

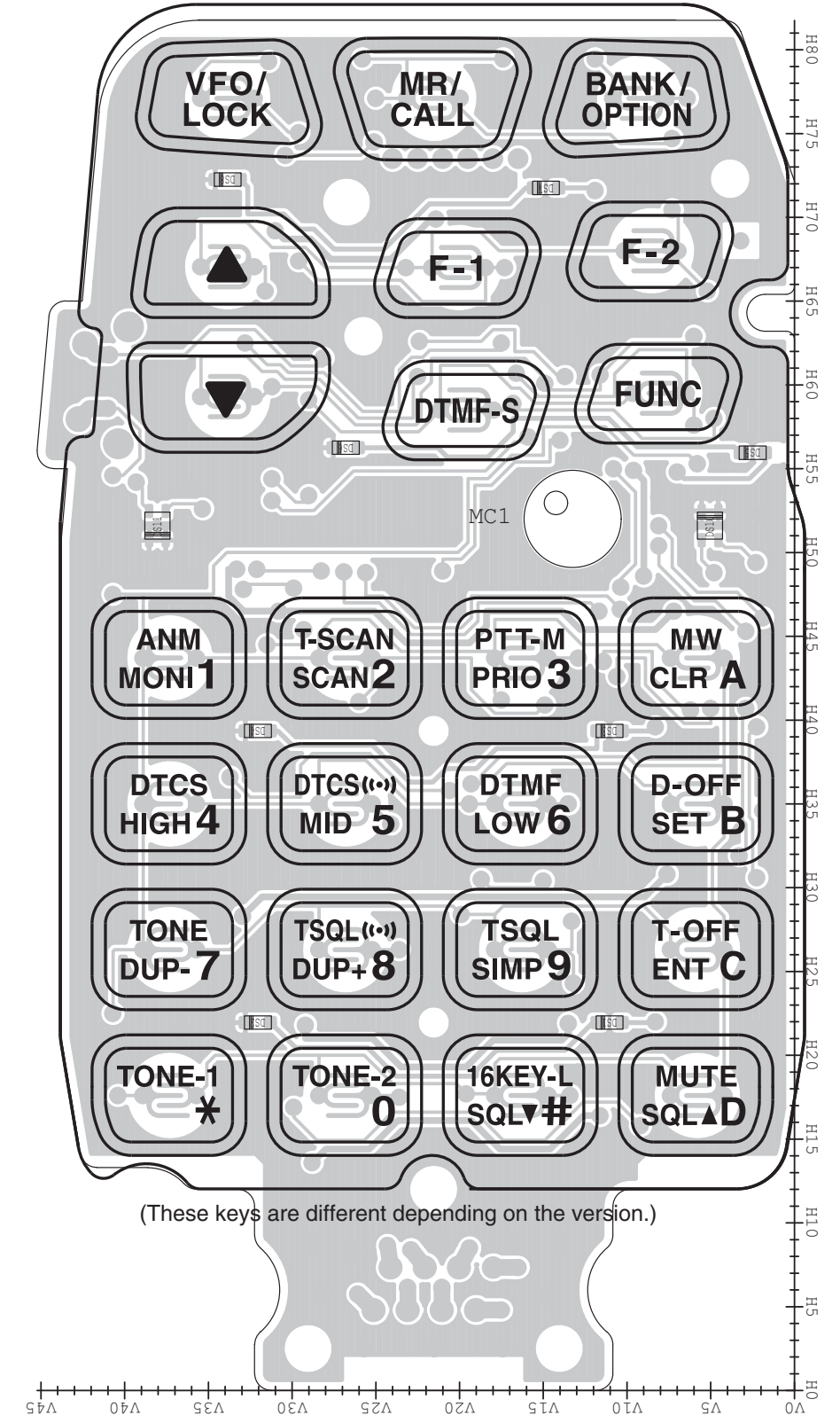
• MAIN UNIT (For [GEN], [GEN-1])
(TOP VIEW)



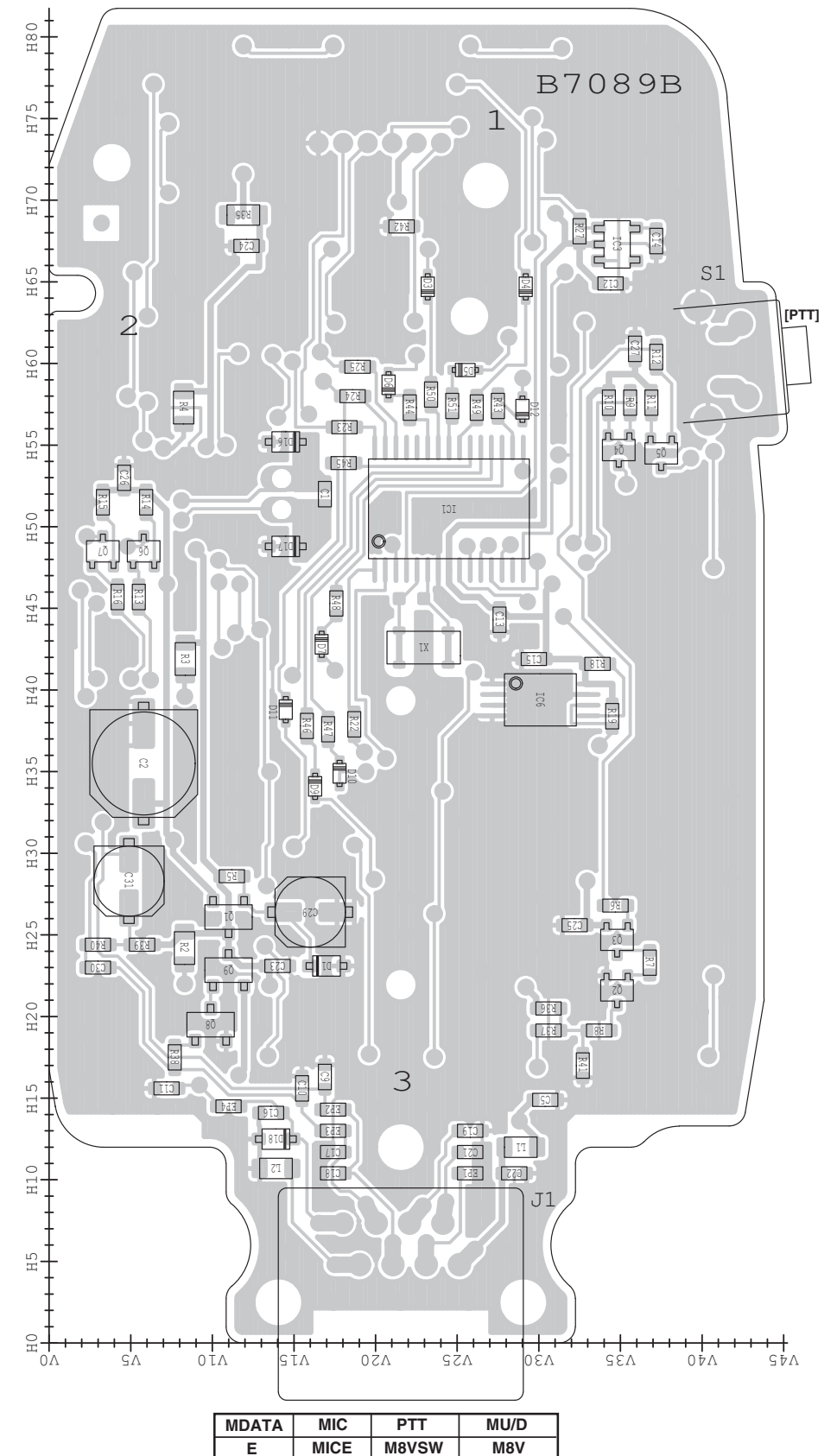
• MAIN-A UNIT (For [GEN-2], [GEN-3])
(TOP VIEW)



• MAIN-B UNIT (For [EXP-01], [EXP-02])
(TOP VIEW)



• MAIN UNIT (For [GEN], [GEN-1])
(BOTTOM VIEW)





SERVICE MANUAL

REMOTE-CONTROL MICROPHONE

HM-133
HM-133S
HM-133V

S-14702XZ-C1
Apr. 2010

INTRODUCTION

This service manual describes the latest technical information for the **HM-133/HM-133V/HM-133S** MICROPHONE, at the time of publication.

Model	Version
HM-133	[GEN]
	[GEN-1]
	[GEN-2]
	[GEN-3]
	[EXP-01]
	[EXP-02]
HM-133S	[GEN]
	[GEN-1]
	[GEN-2]
	[GEN-3]
	[EXP-01]
	[EXP-02]
HM-133V	[GEN]
	[GEN-1]
	[GEN-2]
	[GEN-3]
	[EXP-01]
	[EXP-02]

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 other than specified transceiver. Otherwise the microphone or transceiver may be damaged.

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

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>

8900011272 OPC-1153B HM-133 MAIN UNIT 2 pieces

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



(HM-133)

REPAIR NOTES

1. Make sure that the problem is internal before disassembling the microphone.
2. **DO NOT** open the microphone until the microphone is disconnected from the transceiver.
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.

TABLE OF CONTENTS

SECTION	1	SPECIFICATIONS
SECTION	2	INSIDE VIEWS
SECTION	3	PARTS LIST
SECTION	4	MECHANICAL PARTS
SECTION	5	BOARD LAYOUTS
SECTION	6	VOLTAGE DIAGRAM

■ GENERAL

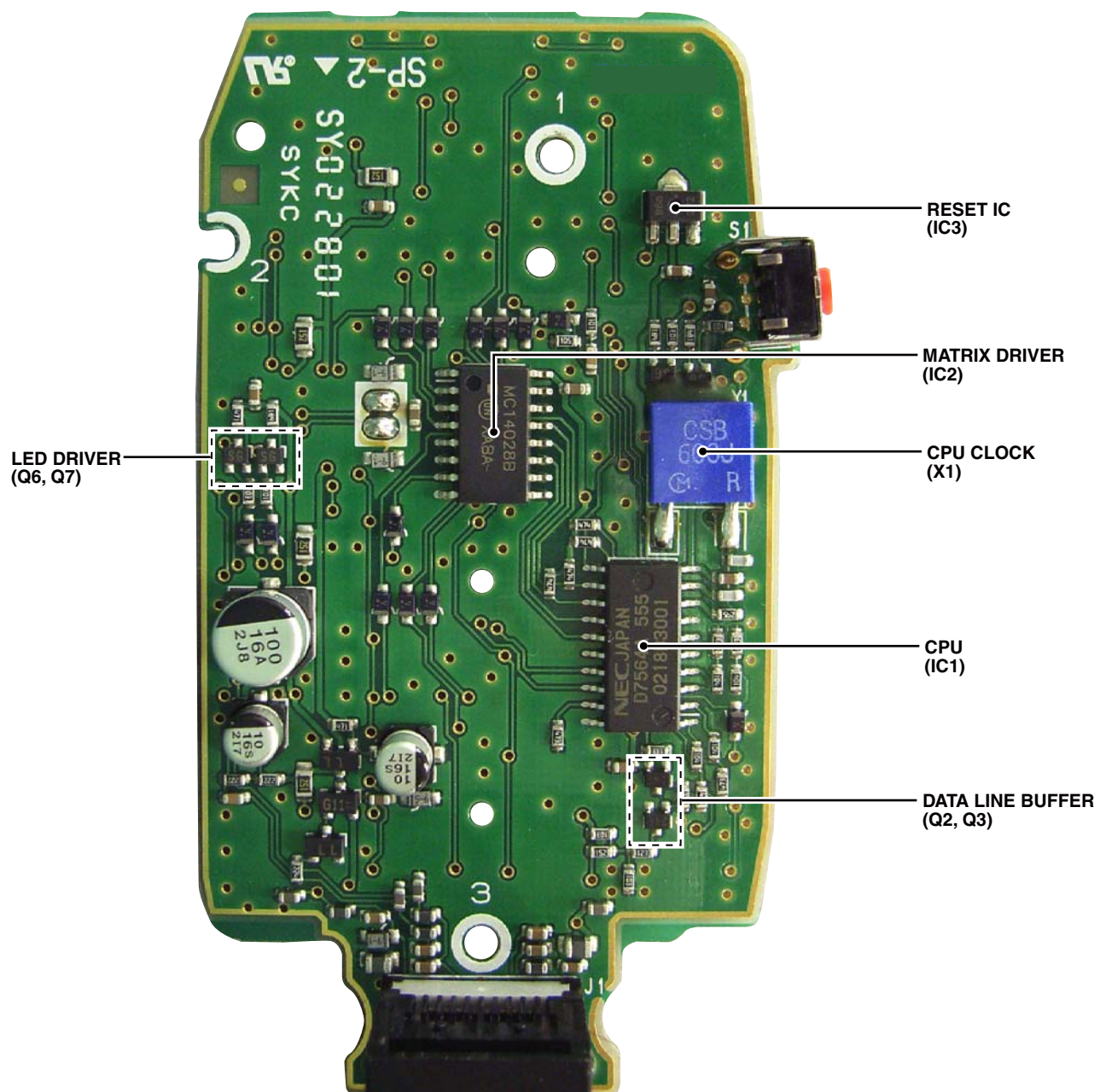
- Power supply : 8.8 V \pm 15%
- Current consumption : 65 mA
- Operating temperature range : -10°C to $+60^{\circ}\text{C}$; $+14^{\circ}\text{F}$ to $+140^{\circ}\text{F}$
- Dimensions (Projections not included) : 61 (W) \times 104 (H) \times 32 (D) mm; 2 $\frac{13}{32}$ (W) \times 4 $\frac{3}{32}$ (H) \times 1 $\frac{1}{4}$ (D) in.
- Weight (approx.) : 140 g (4 $\frac{15}{16}$ oz.)

■ MICROPHONE

- Microphone type : Unidirectional electret condensor microphone
- Output impedance : 600 Ω
- Frequency response : 100 Hz (+2 dB/−6 dB, at 1 kHz), 10 kHz (+8 dB/−4 dB, at 1 kHz)

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

• MAIN UNIT (HM-133)



(Some components are not mounted depending on the version.)

SECTION 3

PARTS LIST

[UNIT LIST]

Model	Version	UNITS		
		MAIN	MAIN-A	MAIN-B
HM-133	GEN	O	—	—
	GEN-1	O	—	—
	GEN-2	—	O	—
	GEN-3	—	O	—
	EXP-01	—	—	O
	EXP-02	—	—	O
HM-133S	GEN	O	—	—
	GEN-1	O	—	—
	GEN-2	—	O	—
	GEN-3	—	O	—
	EXP-01	—	—	O
	EXP-02	—	—	O
HM-133V	GEN	O	—	—
	GEN-1	O	—	—
	GEN-2	—	O	—
	GEN-3	—	O	—
	EXP-01	—	—	O
	EXP-02	—	—	O

[MAIN UNIT]

REF NO.	PARTS NO.	DESCRIPTION		M.	H/V LOCATION
IC1	1140005870	S.IC	UPD7564AG-555-E1	B	34.6/33.4
IC2	1130008630	S.IC	MC14028BF-EL	B	50.2/22.4
IC3	1110006011	S.IC	S-80845CLUA-B66-T2G	B	66.9/35.6
Q1	1530001941	S.TRA	2SC2712-BL(TE85L,F)	B	26.1/11
Q2	1590000680	S.TRA	DTC114EUA T106	B	21.6/34.8
Q3	1590001330	S.TRA	DTA114EUA T106	B	24.7/34.8
Q4	1510000771	S.TRA	2SA1586-GR(TE85L,F)	B	54.7/34.9
Q5	1510000771	S.TRA	2SA1586-GR(TE85L,F)	B	54.3/37.5
Q6	1510000771	S.TRA	2SA1586-GR(TE85L,F)	B	48.5/5.8
Q7	1510000771	S.TRA	2SA1586-GR(TE85L,F)	B	48.5/3.3
Q8	1530001941	S.TRA	2SC2712-BL(TE85L,F)	B	19.5/9.9
Q9	1590001010	S.TRA	DTB113ZK T146	B	22.8/11
D1	1790000951	S.ZEN	MAZ8056GML	B	23.1/17
D3	1750000550	S.DIO	1SS355 TE-17	B	58/21.1
D4	1750000550	S.DIO	1SS355 TE-17	B	58/22.9
D5	1750000550	S.DIO	1SS355 TE-17	B	58/17.7
D6	1750000550	S.DIO	1SS355 TE-17	B	58/15.9
D7	1750000550	S.DIO	1SS355 TE-17	B	58/14.1
D8	1750000550	S.DIO	1SS355 TE-17	B	37.6/17.8
D9	1750000550	S.DIO	1SS355 TE-17	B	37.6/16
D10	1750000550	S.DIO	1SS355 TE-17	B	43.4/15.1
D11	1750000550	S.DIO	1SS355 TE-17	B	37.6/14.2
D12	1750000550	S.DIO	1SS355 TE-17	B	58/24.7
D13	1750000550	S.DIO	1SS355 TE-17	B	58.7/27.3
D14	1750000550	S.DIO	1SS355 TE-17	B	42.7/5.9
D15	1750000550	S.DIO	1SS355 TE-17	B	42.7/4.1
D16	1730002281	S.ZEN	MAZ8091GML	B	54.8/14.2
D17	1730002281	S.ZEN	MAZ8091GML	B	48.4/14.2
D18	1730002281	S.ZEN	MAZ8091GML	B	12.5/13.9
D19	1750000550	S.DIO	1SS355 TE-17	B	29/40.6
X1	6060000530	CER	CSBLB600KJ28T-B0 (CSB600J200T)	B	47.8/37.5
L1	6200001520	S.COI	MLF2012D R82K-T	B	12/28.9
L2	6200001520	S.COI	MLF2012D R82K-T	B	10.7/13.9
R2	7030000400	S.RES	MCR10EZHZ 1.5K (152)	B	24.2/8.3
R3	7030000400	S.RES	MCR10EZHZ 1.5K (152)	B	41.9/8.3
R4	7030000400	S.RES	MCR10EZHZ 1.5K (152)	B	57.3/8.2
R5	7030003400	S.RES	ERJ3GEYJ 471 V (470)	B	28.6/11.2
R6	7030003620	S.RES	ERJ3GEYJ 333 V (33K)	B	26.8/34.7
R7	7030003620	S.RES	ERJ3GEYJ 333 V (33K)	B	23.3/36.8
R8	7030003570	S.RES	ERJ3GEYJ 123 V (12K)	B	19.1/33.7
R9	7030003560	S.RES	ERJ3GEYJ 103 V (10K)	B	57.6/35.6
R10	7030003420	S.RES	ERJ3GEYJ 681 V (680)	B	57.6/34.3
R11	7030003420	S.RES	ERJ3GEYJ 681 V (680)	B	57.6/36.9
R12	7030003560	S.RES	ERJ3GEYJ 103 V (10K)	B	58.3/39
R13	7030003560	S.RES	ERJ3GEYJ 103 V (10K)	B	45.7/5.5
R14	7030003420	S.RES	ERJ3GEYJ 681 V (680)	B	51.5/5.9
R15	7030003400	S.RES	ERJ3GEYJ 471 V (470)	B	51.5/3.3
R16	7030003560	S.RES	ERJ3GEYJ 103 V (10K)	B	45.7/4.2
R18	7030003760	S.RES	ERJ3GEYJ 474 V (470K)	B	43.6/29.2
R19	7030003760	S.RES	ERJ3GEYJ 474 V (470K)	B	42.3/29.2
R20	7030003760	S.RES	ERJ3GEYJ 474 V (470K)	B	39.2/26.6
R21	7030003760	S.RES	ERJ3GEYJ 474 V (470K)	B	39.9/28.1
R22	7030003680	S.RES	ERJ3GEYJ 104 V (100K)	B	26.3/37.7
R23	7030003680	S.RES	ERJ3GEYJ 104 V (100K)	B	27/39
R24	7030003680	S.RES	ERJ3GEYJ 104 V (100K)	B	32.1/39.2
R25	7030003680	S.RES	ERJ3GEYJ 104 V (100K)	B	32.1/40.6
R26	7030003640	S.RES	ERJ3GEYJ 473 V (47K)	B	27.9/27.3
R27	7030003800	S.RES	ERJ3GEYJ 105 V (1M)	B	57.1/27.7
R29	7030003320	S.RES	ERJ3GEYJ 101 V (100)	B	58.4/29.6
R30	7030003530	S.RES	ERJ3GEYJ 562 V (5.6K)	B	37/39.9
R31	7030003640	S.RES	ERJ3GEYJ 473 V (47K)	B	34.8/40.6
R32	7030003640	S.RES	ERJ3GEYJ 473 V (47K)	B	34.8/39.2
R33	7030003640	S.RES	ERJ3GEYJ 473 V (47K)	B	24.3/39.7
R34	7030003640	S.RES	ERJ3GEYJ 473 V (47K)	B	23.3/38.1
R35	7030000400	S.RES	MCR10EZHZ 1.5K (152)	B	69.1/13.6
R36	7030003560	S.RES	ERJ3GEYJ 103 V (10K)	B	20.5/30.6
R37	7030003460	S.RES	ERJ3GEYJ 152 V (1.5K)	B	19.1/30.6
R38	7030003720	S.RES	ERJ3GEYJ 224 V (220K)	B	17.5/7.7
R39	7030003480	S.RES	ERJ3GEYJ 222 V (2.2K)	B	24.4/5.7
R40	7030003480	S.RES	ERJ3GEYJ 222 V (2.2K)	B	24.4/3
R41	7030003560	S.RES	ERJ3GEYJ 103 V (10K)	B	17/32.7
C1	4030006850	S.CER	C1608 JB 1H 471K-T	B	51.6/16.6
C2	4510008500	S.ELE	EEE1CA101WP	B	35.5/5.8
C3	4030007130	S.CER	C1608 CH 1H 101J-T	B	41/40.6
C4	4030007130	S.CER	C1608 CH 1H 101J-T	B	38.4/39.9
C5	4030007050	S.CER	C1608 CH 1H 220J-T	B	14.9/30.4
C9	4030007050	S.CER	C1608 CH 1H 220J-T	B	16.3/16.9
C10	4030007050	S.CER	C1608 CH 1H 220J-T	B	15.6/15.5
C11	4030007050	S.CER	C1608 CH 1H 220J-T	B	15.6/7.2
C12	4030006860	S.CER	C1608 JB 1H 102K-T	B	53.6/28.4
C13	4030006860	S.CER	C1608 JB 1H 102K-T	B	39.7/39.9
C14	4030008920	S.CER	C1608 JB 1H 473K-T	B	55.8/29.6
C15	4030006860	S.CER	C1608 JB 1H 102K-T	B	62.3/35.9
C16	4030006860	S.CER	C1608 JB 1H 102K-T	B	14.1/13.6
C17	4030006860	S.CER	C1608 JB 1H 102K-T	B	11.7/17.4

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
C18	4030006860	S.CER C1608 JB 1H 102K-T	B	10.4/17.4
C19	4030006860	S.CER C1608 JB 1H 102K-T	B	13/25.8
C21	4030006860	S.CER C1608 JB 1H 102K-T	B	11.7/25.8
C22	4030006860	S.CER C1608 JB 1H 102K-T	B	10.4/28.5
C23	4030006860	S.CER C1608 JB 1H 102K-T	B	23.1/14
C24	4030006860	S.CER C1608 JB 1H 102K-T	B	66.9/13.7
C25	4030006860	S.CER C1608 JB 1H 102K-T	B	25.6/32.2
C26	4030006860	S.CER C1608 JB 1H 102K-T	B	53/4.6
C27	4030006860	S.CER C1608 JB 1H 102K-T	B	60.6/38.3
C29	4510008540	S.ELE EEE1CA100SR	B	26.4/16
C30	4030011600	S.CER C1608 JB 1E 104K-T	B	23/3
C31	4510008540	S.ELE EEE1CA100SR	B	28.3/4.9
J1	6510023110	CON 3008L-8P8C <KIN>		
DS1	5010000120	S.LED LN1371G-(TR)	T	21.9/11
DS2	5010000120	S.LED LN1371G-(TR)	T	21.9/32
DS3	5010000120	S.LED LN1371G-(TR)	T	39.3/11
DS4	5010000120	S.LED LN1371G-(TR)	T	39.3/32
DS5	5010000120	S.LED LN1371G-(TR)	T	55.9/2.5
DS6	5010000120	S.LED LN1371G-(TR)	T	56.2/26.8
DS7	5010000120	S.LED LN1371G-(TR)	T	71.7/14.8
DS8	5010000120	S.LED LN1371G-(TR)	T	72.2/33.8
DS10	5010000150	S.LED LT1EP53A	T	51.6/5
DS11	5010000150	S.LED LT1EP53A	T	51.6/38
MC1	7700002850	MIC EM6022P-65B-G <HOR>		
S1	2260000980	SWI SKHHL P014A		
EP1	6910012350	S.BEA MMZ1608Y 102BT	B	10.4/25.8
EP2	6910012350	S.BEA MMZ1608Y 102BT	B	14.3/17.4
EP3	6910012350	S.BEA MMZ1608Y 102BT	B	13/17.4
EP4	6910012350	S.BEA MMZ1608Y 102BT	B	14.5/11

[MAIN-A/MAIN-B UNIT]

REF NO.	PARTS NO.	DESCRIPTION	M.	H/V LOCATION
IC1	1140011491	S.IC UPD789071MC-041-5A4-E1-A	B	51.1/24.5
IC3	1110006310	S.IC BD5245G-TR	B	67.3/34.8
IC6	1130012030	S.IC BR24L02FV-WE2	B	39.4/30.1
Q1	1530001820	S.TRA 2SC2412K WT T147 S	B	26.1/11
Q2	1590000680	S.TRA DTC114EUA T106	B	21.6/34.8
Q3	1590001330	S.TRA DTA114EUA T106	B	24.7/34.8
Q4	1510000510	S.TRA 2SA1576A T106R	B	54.7/34.9
Q5	1510000510	S.TRA 2SA1576A T106R	B	54.5/37.5
Q6	1510000510	S.TRA 2SA1576A T106R	B	48.5/5.8
Q7	1510000510	S.TRA 2SA1576A T106R	B	48.5/3.3
Q8	1530001820	S.TRA 2SC2412K WT T147 S	B	19.5/9.9
Q9	1590001010	S.TRA DTB113ZK T146	B	22.8/11
D1	1730002750	S.ZEN UdzSTE-17 5.6B	B	23.1/17
D3	1750000940	S.DIO 1SS400 TE61	B	64.7/23.2
D4	1750000940	S.DIO 1SS400 TE61	B	64.7/29.2
D5	1750000940	S.DIO 1SS400 TE61	B	59.6/25.5
D6	1750000940	S.DIO 1SS400 TE61	B	58.7/20.8
D7	1750000940	S.DIO 1SS400 TE61	B	42.8/16.7
D9	1750000940	S.DIO 1SS400 TE61	B	34.1/16.3
D10	1750000940	S.DIO 1SS400 TE61	B	34.9/17.8
D11	1750000940	S.DIO 1SS400 TE61	B	38.8/14.5
D12	1750000940	S.DIO 1SS400 TE61	B	57.2/29.9
D16	1730002760	S.ZEN UdzSTE-17 9.1B	B	55.2/14.5
D17	1730002760	S.ZEN UdzSTE-17 9.1B	B	48.8/14.5
D18	1730002760	S.ZEN UdzSTE-17 9.1B	B	12.5/13.9
X1	6060000610	S.CER EFOS4914E3	B	42.6/22.9
L1	6200001520	S.COI MLF2012D R82K-T	B	12/28.9
L2	6200001520	S.COI MLF2012D R82K-T	B	10.7/13.9
R2	7030012200	S.RES MCR10EzP 1.5K (152) <TJM>	B	24.2/8.3
R3	7030012200	S.RES MCR10EzP 1.5K (152) <TJM>	B	41.9/8.3
R4	7030012200	S.RES MCR10EzP 1.5K (152) <TJM>	B	57.3/8.2
R5	7030012150	S.RES MCR03EzPJ 470 (471)	B	28.6/11.2
R6	7030012140	S.RES MCR03EzPJ 33 K (333)	B	26.8/34.7
R7	7030012140	S.RES MCR03EzPJ 33 K (333)	B	23.3/36.8
R8	7030012130	S.RES MCR03EzPJ 12 K (123)	B	19.1/33.7
R9	7030012120	S.RES MCR03EzPJ 10 K (103)	B	57.6/35.6
R10	7030012110	S.RES MCR03EzPJ 1 K (102)	B	57.6/34.3
R11	7030012100	S.RES MCR03EzPJ 2.2K (222)	B	57.6/36.9
R12	7030012120	S.RES MCR03EzPJ 10 K (103)	B	60.4/37.2
R13	7030012120	S.RES MCR03EzPJ 10 K (103)	B	45.7/5.5
R14	7030012110	S.RES MCR03EzPJ 1 K (102)	B	51.5/5.9
R15	7030012100	S.RES MCR03EzPJ 2.2K (222)	B	51.5/3.3
R16	7030012120	S.RES MCR03EzPJ 10 K (103)	B	45.7/4.2
R18	7030012120	S.RES MCR03EzPJ 10 K (103)	B	41.6/33.6
R19	7030012090	S.RES MCR03EzPJ 47 K (473)	B	38.4/34.5
R22	7030012080	S.RES MCR03EzPJ 4.7K (472)	B	37.9/18.7
R23	7030012080	S.RES MCR03EzPJ 4.7K (472)	B	56.1/18.1
R24	7030012080	S.RES MCR03EzPJ 4.7K (472)	B	58/18.6
R25	7030012080	S.RES MCR03EzPJ 4.7K (472)	B	59.8/18.9
R27	7030012120	S.RES MCR03EzPJ 10 K (103)	B	68.1/32.5
R35	7030012200	S.RES MCR10EzP 1.5K (152) <TJM>	B	69.1/11.9
R36	7030012120	S.RES MCR03EzPJ 10 K (103)	B	20.5/30.6
R37	7030012070	S.RES MCR03EzPJ 1.5K (152)	B	19.1/30.6
R38	7030012060	S.RES MCR03EzPJ 150 K (154)	B	17.5/7.7
R39	7030012100	S.RES MCR03EzPJ 2.2K (222)	B	24.4/5.7
R40	7030012100	S.RES MCR03EzPJ 2.2K (222)	B	24.4/3
R41	7030012120	S.RES MCR03EzPJ 10 K (103)	B	17/32.7
R42	7030012050	S.RES MCR03EzPJ JPW (000)	B	68.4/21.6
R43	7030012110	S.RES MCR03EzPJ 1 K (102)	B	57.4/27.5
R44	7030012110	S.RES MCR03EzPJ 1 K (102)	B	57.3/22.1
R45	7030012110	S.RES MCR03EzPJ 1 K (102)	B	53.9/18
R46	7030012110	S.RES MCR03EzPJ 1 K (102)	B	37.8/15.8
R47	7030012110	S.RES MCR03EzPJ 1 K (102)	B	37.6/17.1
R48	7030012110	S.RES MCR03EzPJ 1 K (102)	B	45.3/17.6
R49	7030012110	S.RES MCR03EzPJ 1 K (102)	B	57.3/26.2
R50	7030012110	S.RES MCR03EzPJ 1 K (102)	B	58.1/23.4
R51	7030012110	S.RES MCR03EzPJ 1 K (102)	B	57.4/24.7
C1	4030006850	S.CER C1608 JB 1H 471K-T	B	52/16.9
C2	4510008500	S.ELE EEE1CA101WP	B	35.5/5.8
C5	4030007050	S.CER C1608 CH 1H 220J-T	B	14.9/30.4
C9	4030007050	S.CER C1608 CH 1H 220J-T	B	16.3/16.9
C10	4030007050	S.CER C1608 CH 1H 220J-T	B	15.6/15.5
C11	4030007050	S.CER C1608 CH 1H 220J-T	B	15.6/7.2
C12	4030006860	S.CER C1608 JB 1H 102K-T	B	64.9/34.4
C13	4030006860	S.CER C1608 JB 1H 102K-T	B	44.3/27.6
C14	4030006900	S.CER C1608 JB 1H 103K-T	B	67.5/37.2
C15	4030006860	S.CER C1608 JB 1H 102K-T	B	41.9/29.7
C16	4030006860	S.CER C1608 JB 1H 102K-T	B	14.1/13.6
C17	4030006860	S.CER C1608 JB 1H 102K-T	B	11.7/17.4
C18	4030006860	S.CER C1608 JB 1H 102K-T	B	10.4/17.4
C19	4030006860	S.CER C1608 JB 1H 102K-T	B	13/25.8
C21	4030006860	S.CER C1608 JB 1H 102K-T	B	11.7/25.8
C22	4030006860	S.CER C1608 JB 1H 102K-T	B	10.4/28.5
C23	4030006860	S.CER C1608 JB 1H 102K-T	B	23.1/14
C24	4030006860	S.CER C1608 JB 1H 102K-T	B	67.2/12.1
C25	4030006860	S.CER C1608 JB 1H 102K-T	B	25.6/32.2
C26	4030006860	S.CER C1608 JB 1H 102K-T	B	53/4.6
C27	4030006860	S.CER C1608 JB 1H 102K-T	B	60.9/35.9
C29	4510008540	S.ELE EEE1CA100SR	B	26.4/16
C30	4030011600	S.CER C1608 JB 1E 104K-T	B	23/3
C31	4510008540	S.ELE EEE1CA100SR	B	28.3/4.9

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

[MAIN-A/MAIN-B UNIT]

REF NO.	PARTS NO.	DESCRIPTION	M.	H/V LOCATION
J1	6510023110	CON 3008L-8P8C <KIN>		
DS1	5010000120	S.LED LN1371G-(TR)	T	21.9/11
DS2	5010000120	S.LED LN1371G-(TR)	T	21.9/32
DS3	5010000120	S.LED LN1371G-(TR)	T	39.3/11
DS4	5010000120	S.LED LN1371G-(TR)	T	39.3/32
DS5	5010000120	S.LED LN1371G-(TR)	T	55.9/2.5
DS6	5010000120	S.LED LN1371G-(TR)	T	56.2/26.8
DS7	5010000120	S.LED LN1371G-(TR)	T	71.7/14.8
DS8	5010000120	S.LED LN1371G-(TR)	T	72.2/33.8
DS10	5040003160	S.LED BRPY1211C-TR	T	51.6/5
DS11	5040003160	S.LED BRPY1211C-TR	T	51.6/38
MC1	7700002850	MIC EM6022P-65B-G <HOR>		
EP1	6910012350	S.BEA MMZ1608Y 102BT	B	10.4/25.8
EP2	6910012350	S.BEA MMZ1608Y 102BT	B	14.3/17.4
EP3	6910012350	S.BEA MMZ1608Y 102BT	B	13/17.4
EP4	6910012350	S.BEA MMZ1608Y 102BT	B	14.5/11

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

SECTION 4

MECHANICAL PARTS

[CHASSIS PARTS]

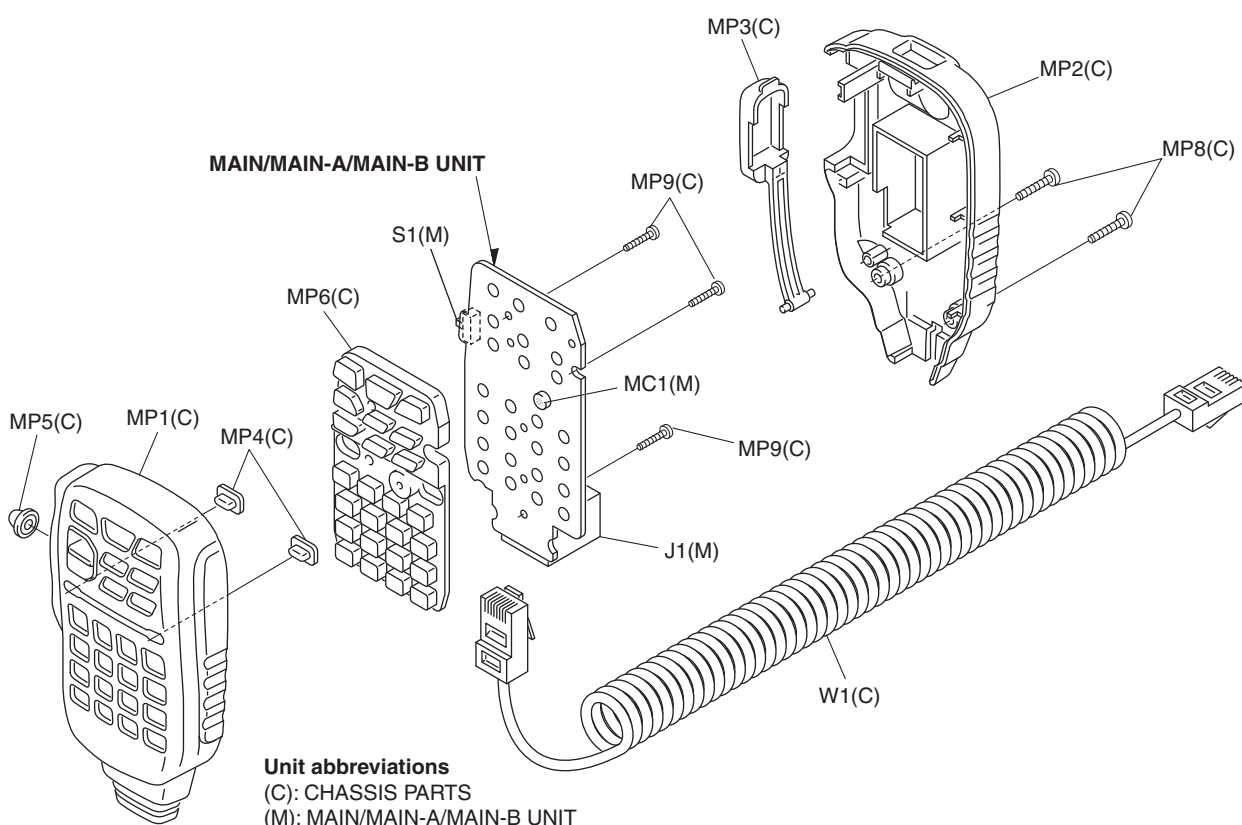
REF NO.	ORDER NO.	DESCRIPTION	QTY.
W1	8900011272	OPC-1153B	1
MP1	8210018830	2539 FRONT PANEL <KN> [HM-133 (GEN, GEN-1, GEN-2, GEN-3)]	1
	8210018890	2539 FRONT PANEL (A) <KN> [HM-133S (GEN, GEN-1, GEN-2, GEN-3)]	1
	8210018910	2539 FRONT PANEL (B) <KN> [HM-133V (GEN, GEN-1, GEN-2, GEN-3)]	1
	8210025190	2539 A-FRONT PANEL [HM-133 (EXP-01, EXP-02)]	1
	8210025500	2539 A-FRONT PANEL (A) [HM-133S (EXP-01, EXP-02)]	1
	8210025510	2539 A-FRONT PANEL (B) [HM-133V (EXP-01, EXP-02)]	1
MP2	8210018840	2539 REAR PANEL <KN> [GEN], [GEN-1], [GEN-2], [GEN-3]	1
	8210025200	2539 A-REAR PANEL [EXP-01], [EXP-02]	1
MP3	8930057380	2539 PTT BUTTON <KN> [GEN], [GEN-1], [GEN-2], [GEN-3]	1
	8930077320	2539 A-PTT BUTTON [EXP-01], [EXP-02]	1
MP4	8930057390	2539 LED LENS <KN> [GEN], [GEN-1], [GEN-2], [GEN-3]	2
	8930077300	2539 A-LENS [EXP-01], [EXP-02]	2
MP5	8930057570	2539 SW RUBBER	1
MP6	8930057520	2539 KEYBOARD [HM-133]	1
	8930057710	2539 KEYBOARD (A) [HM-133S]	1
	8930057700	2539 KEYBOARD (B) [HM-133V]	1
MP8	8810009371	SCREW BT B0 3X12NI-ZK3 (BT)	2
MP9	8810009561	SCREW BT B0 2X6 NI-ZK3 (BT)	3

[MAIN UNIT] (For [GEN], [GEN-1])

REF NO.	ORDER NO.	DESCRIPTION	QTY.
J1	6510023110	3008L-8P8C	1
MC1	7700002850	EM6022P-65B-G	1
S1	2260000980	SKHHL014A	1

[MAIN-A/MAIN-B UNIT] (For except [GEN], [GEN-1])

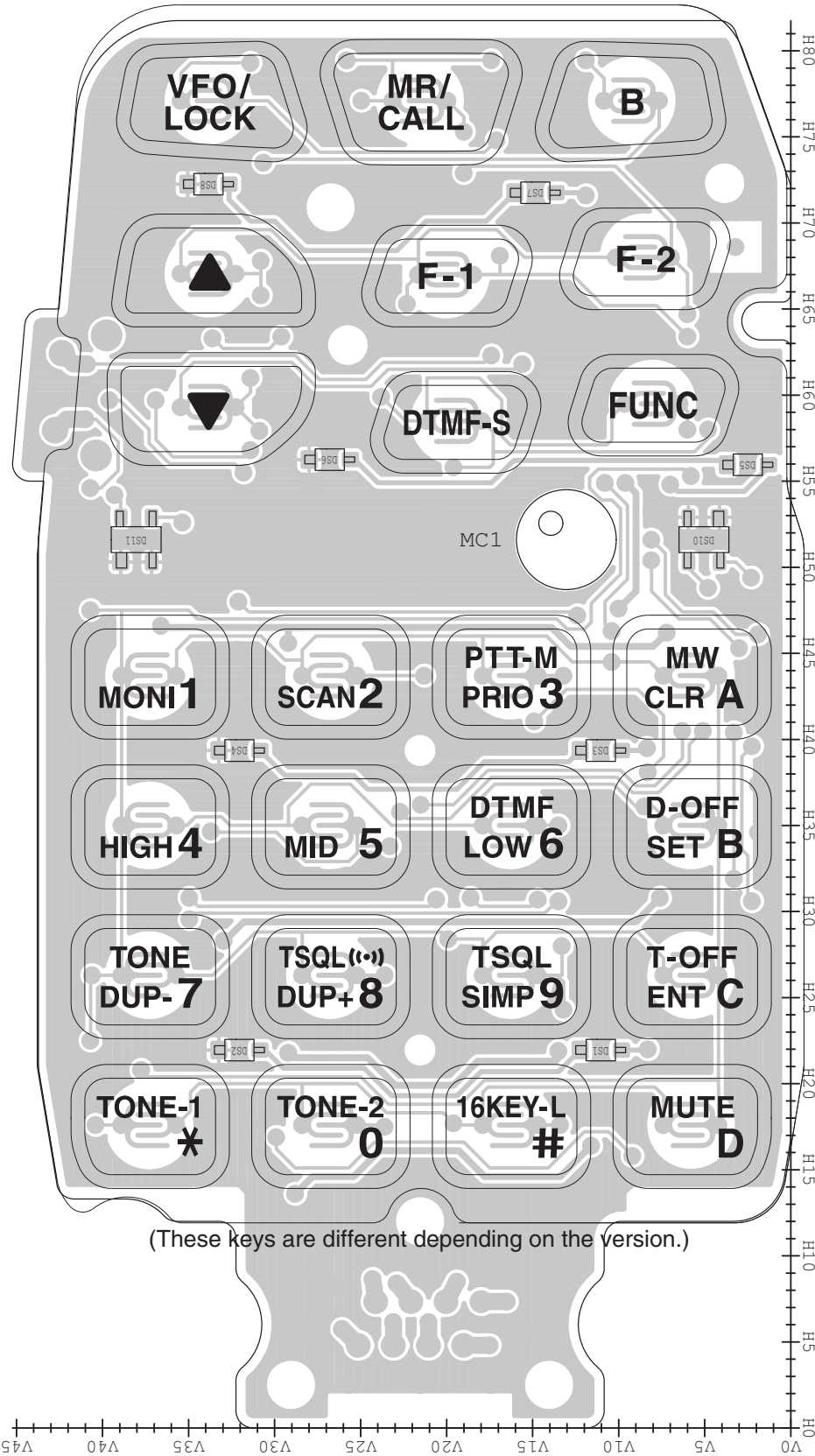
REF NO.	ORDER NO.	DESCRIPTION	QTY.
J1	6510023110	3008L-8P8C	1
MC1	7700002850	EM6022P-65B-G	1
S1	2260003120	SKQJLBA010	1



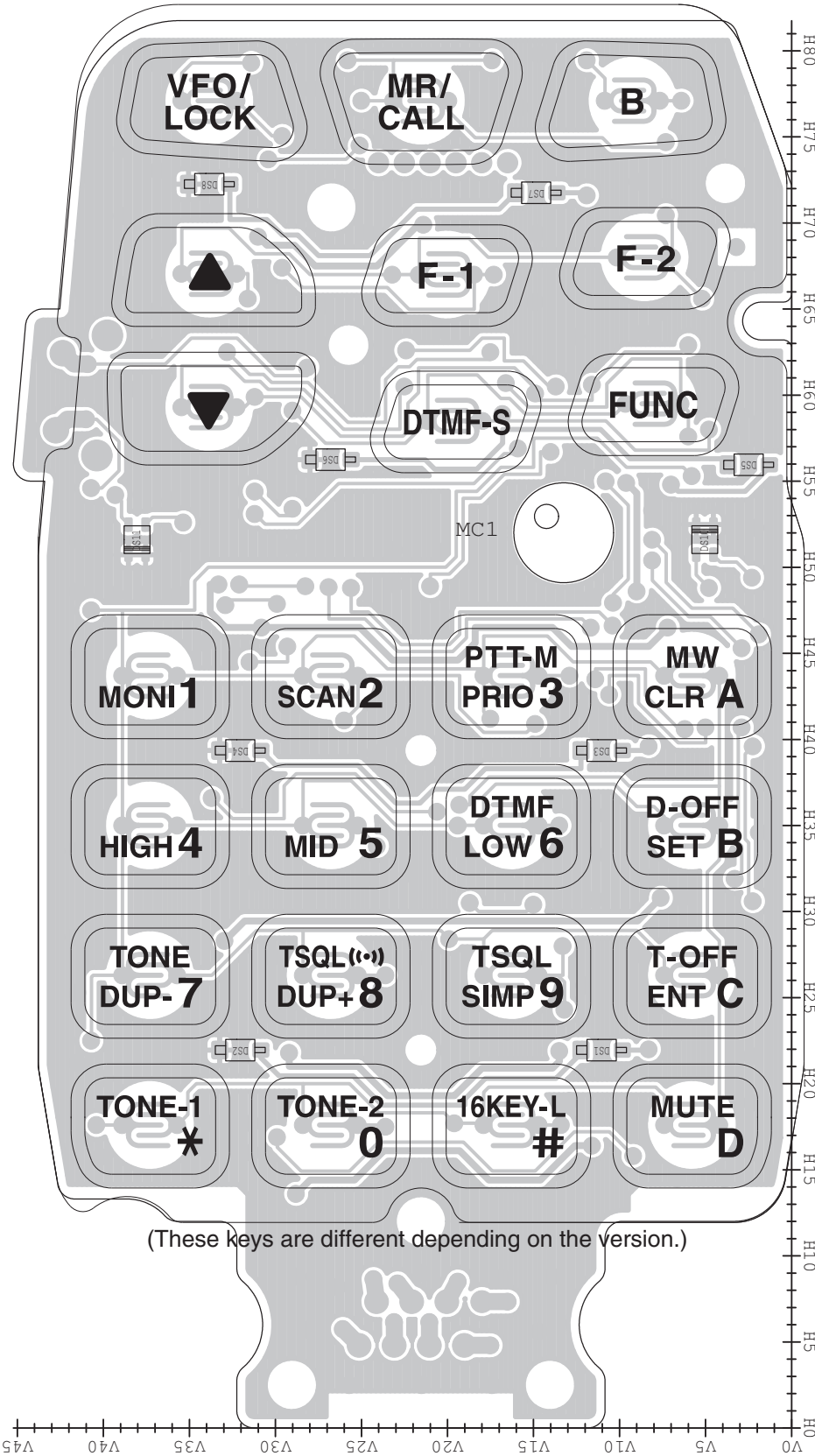
Screw abbreviations

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

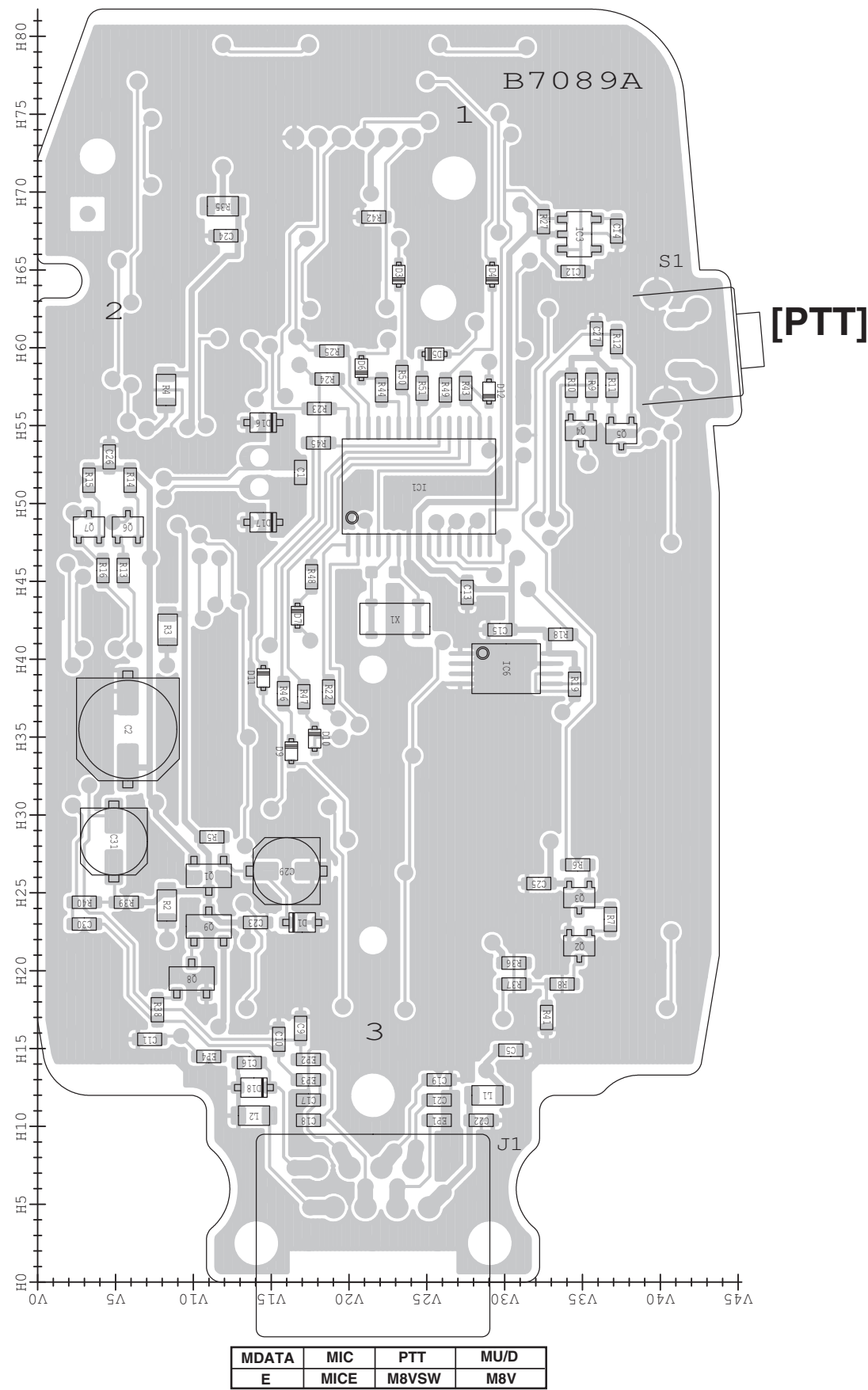
• MAIN UNIT (For [GEN], [GEN-1])
(TOP VIEW)



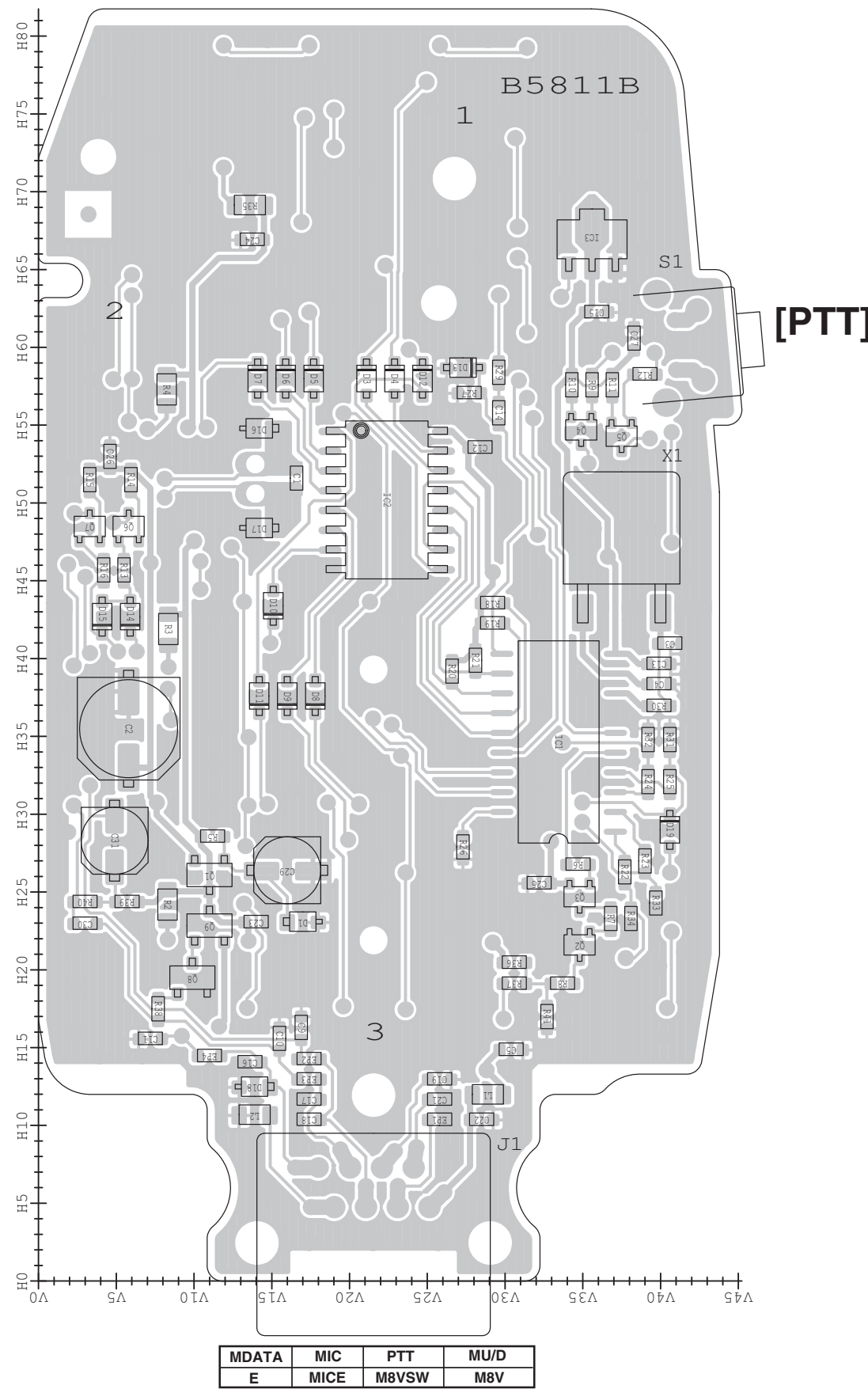
• MAIN-A/MAIN-B UNIT (For except [GEN], [GEN-1])
(TOP VIEW)



• MAIN-A/MAIN-B UNIT (For except [GEN], [GEN-1])
(BOTTOM VIEW)



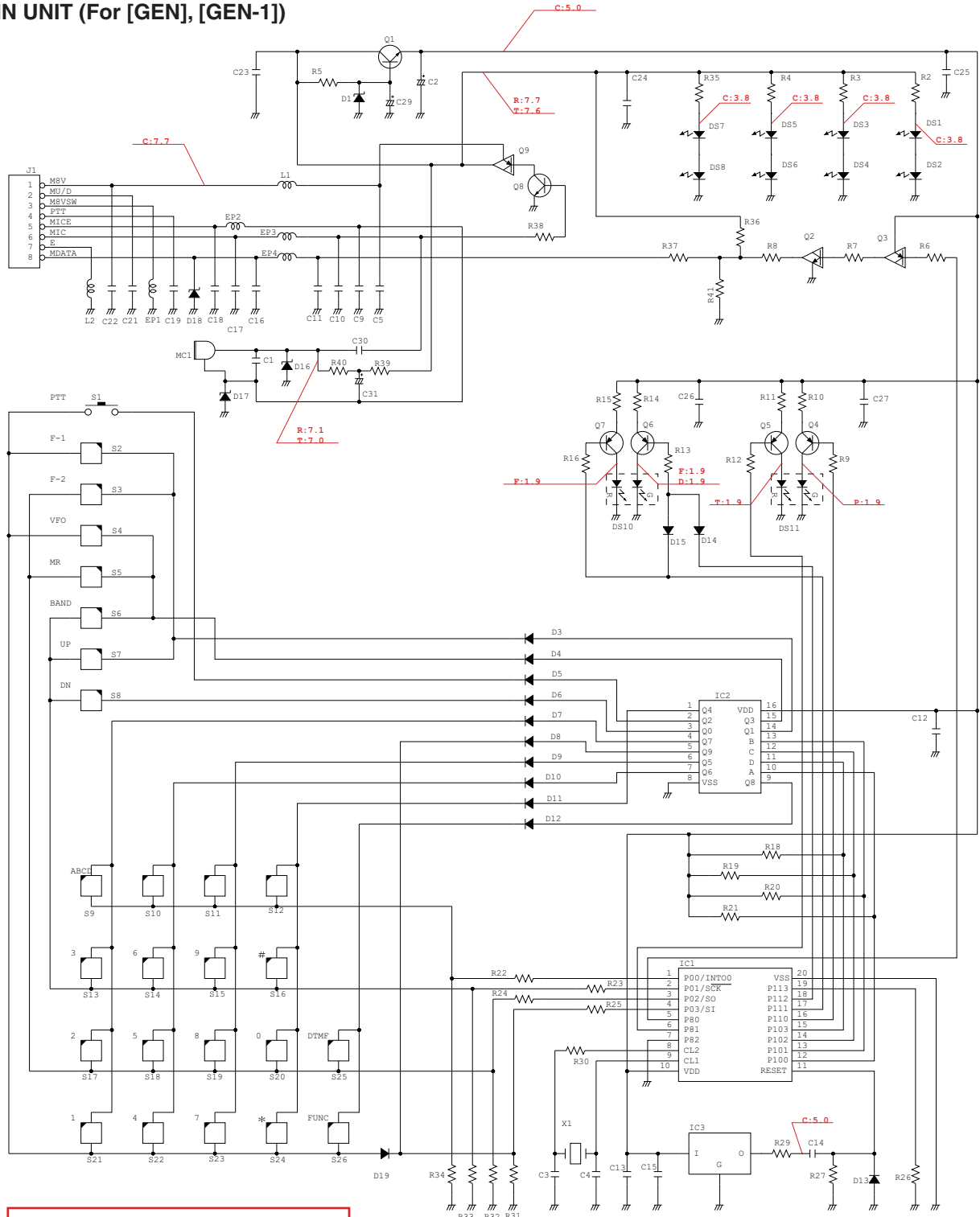
• MAIN UNIT (For [GEN], [GEN-1])
(BOTTOM VIEW)



SECTION 6

VOLTAGE DIAGRAM

• MAIN UNIT (For [GEN], [GEN-1])

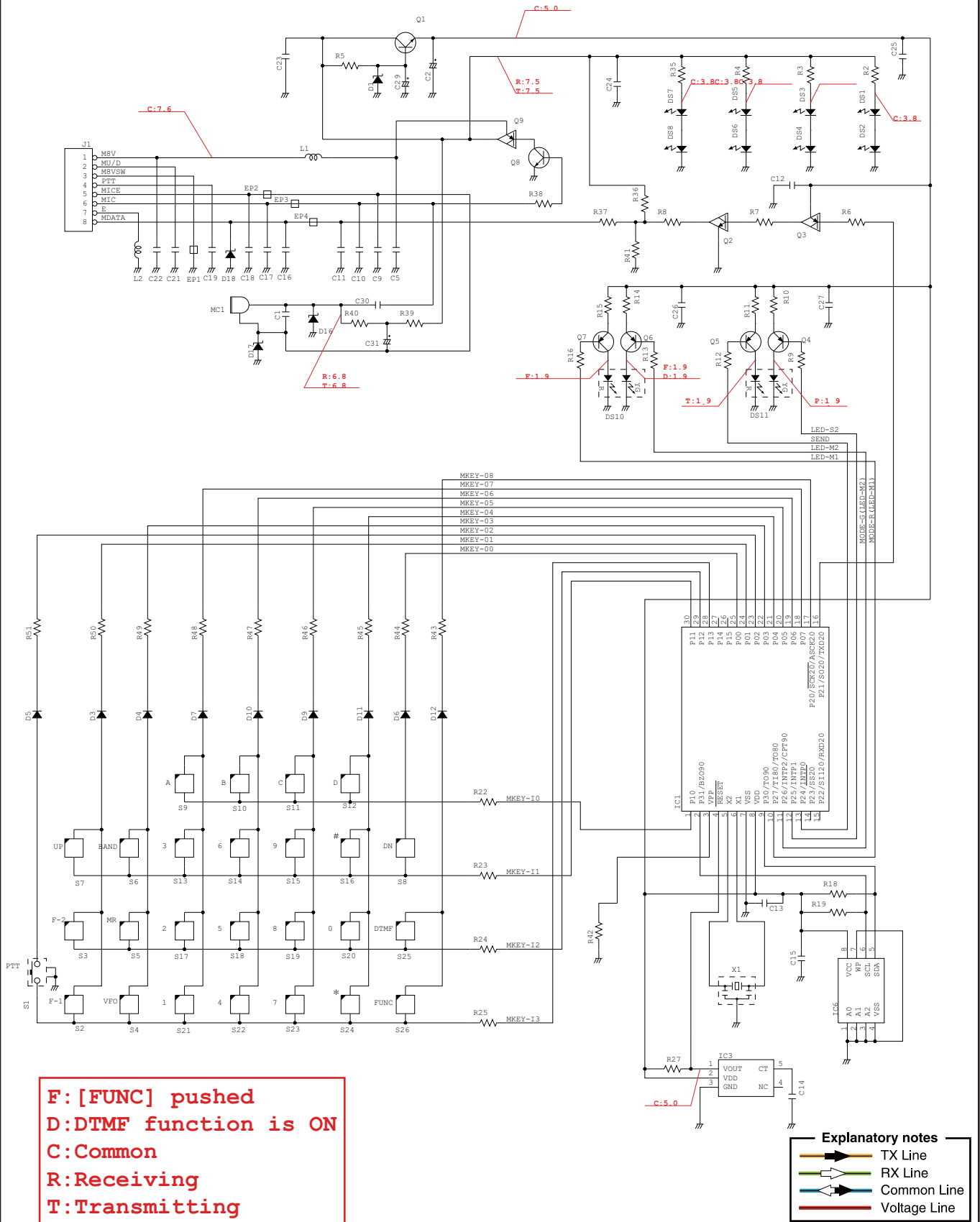


F:[FUNC] pushed
D:DTMF function is ON
C:Common
R:Receiving
T:Transmitting

Explanatory notes
 TX Line
 RX Line
 Common Line
 Voltage Line

NOTICE: Refer to the PARTS LIST for the value and name of each component.

• MAIN-A/MAIN-B UNIT (For except [GEN], [GEN-1])



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
<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

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

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

Beijing Icom Ltd.

10C07, Long silver Mansion, No.88, Yong Ding
Road, Haidian District, Beijing, 100039, China
Phone : +86 (010) 5889 5391/5392/5393
Fax : +86 (010) 5889 5395
E-mail : bjicom@bjicom.com
URL : <http://www.bjicom.com>

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

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

Icom (UK) Ltd.

Blacksole House, The Boulevard, Altira Business Park, Herne Bay, CT6 6GZ, UK
Phone : +44 (01227) 741741 Fax : +44 (01227) 741742
URL : <http://www.icomuk.co.uk>
E-mail : 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

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

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

Count on us!