



SERVICE MANUAL ADDENDUM

HM-169/170GPS/171GPS/174/175GPS/184/189GPS/169IS

CONTENTS

PARTS LIST 1
BOARD LAYOUTS 4
VOLTAGE DIAGRAM 6

[VERSION LIST]

Model	Version	GPS
HM-169	[EXP]	N/A
HM-170GP		Yes
HM-171GP		
HM-174		N/A
HM-175GPS		Yes
HM-184		N/A
HM-189GPS		Yes
HM-169IS		N/A

PARTS LIST

[MAIN-A UNIT] (for HM-169, HM-174, HM-184, HM-169IS)

REF NO.	PARTS NO.	DESCRIPTION	M.	H/V LOCATION
IC1	1180002690	S.REG S-812C36AMC-C2Q-T2G	T	34.1/45.9
IC2	1110006490	S.IC LMV321IDCKR	T	28.6/39.9
IC3	1130007021	S.IC TC7S66FU(TE85LF) [HM-174] only	T	28.7/31.1
Q3	1590003231	S.TRA UNR9113G0L [HM-174] only	T	31.1/29.7
R1	7030003500	S.RES ERJ3GEYJ 332 V (3.3K)	T	29.5/52.7
R2	7030003320	S.RES ERJ3GEYJ 101 V (100)	T	29.5/49.3
R3	7030003620	S.RES ERJ3GEYJ 333 V (33K)	T	28.8/41.8
R4	7030003620	S.RES ERJ3GEYJ 333 V (33K)	T	25.6/41.8
R5	7030003320	S.RES ERJ3GEYJ 101 V (100) [HM-169]	T	24.4/39.2
	7030003320	S.RES ERJ3GEYJ 101 V (100) [HM-174]	T	
	7030003500	S.RES ERJ3GEYJ 332 V (3.3K) [HM-184]	T	
R6	7310004790	S.TRI EVM-3YSX50 B14 (103)	B	35.5/48.5
R7	7030003680	S.RES ERJ3GEYJ 104 V (100K)	T	25.6/35.4
R8	7030003420	S.RES ERJ3GEYJ 681 V (680)	T	25.6/33.0
R9	7030003620	S.RES ERJ3GEYJ 333 V (33K) [HM-174] only	T	25.6/30.6
R13	7030003860	S.RES ERJ3GE JPW V	T	30.8/51.4
R14	7030003860	S.RES ERJ3GE JPW V [HM-169]	T	20.0/29.8
	7030003860	S.RES ERJ3GE JPW V [HM-184]	T	
R16	7030003700	S.RES ERJ3GEYJ 154 V (150K) [HM-174] only	T	20.9/14.8
R17	7030003320	S.RES ERJ3GEYJ 101 V (100)	T	29.5/46.1
R19	7030003760	S.RES ERTJJOEP 473J	T	25.3/36.6
R20	7030003760	S.RES ERJ3GEYJ 474 V (470K)	T	25.6/37.7
R21	7030003560	S.RES ERJ3GEYJ 103 V (10K) [HM-174] only	T	28.8/29.1
R22	7030003860	S.RES ERJ3GE JPW V [HM-169]	T	28.5/33.0
	7030003860	S.RES ERJ3GE JPW V [HM-184]	T	
R23	7030003860	S.RES ERJ3GE JPW V [HM-174] only	T	30.4/35.2
C1	4030006850	S.CER C1608 JB 1H 471K-T	T	31.6/54.6
C2	4030012660	S.CER C1608 JB 1E 683K-T	T	31.6/53.4
C3	4510008540	S.ELE EEE1CA100SR	T	26.0/51.9
C4	4030006900	S.CER C1608 JB 1H 103K-T	T	32.0/48.7
C5	4030007090	S.CER C1608 CH 1H 470J-T	T	26.3/39.9
C6	4030011600	S.CER C1608 JB 1E 104K-T	T	37.3/45.2
C7	4030006870	S.CER C1608 JB 1H 222K-T	T	25.6/34.2
C8	4510008540	S.ELE EEE1CA100SR	T	26.0/46.5
C9	4030017490	S.CER C1608 JB 1A 105K-T	T	25.6/31.8
C10	4030017490	S.CER C1608 JB 1A 105K-T	T	35.0/43.5
C13	4030006850	S.CER C1608 JB 1H 471K-T	T	23.4/22.0
C14	4030006850	S.CER C1608 JB 1H 471K-T	T	24.6/25.1
C15	4030006850	S.CER C1608 JB 1H 471K-T	T	23.4/20.3
C16	4030006850	S.CER C1608 JB 1H 471K-T	T	23.4/18.6
C17	4030006850	S.CER C1608 JB 1H 471K-T	T	20.7/17.8
	4030006850	S.CER C1608 JB 1H 471K-T [HM-169]	T	22.2/14.8
	4030006850	S.CER C1608 JB 1H 471K-T [HM-184]	T	
C19	4030011600	S.CER C1608 JB 1E 104K-T	T	23.5/13.3
C20	4030017490	S.CER C1608 JB 1A 105K-T	T	31.6/46.1
C21	4030006850	S.CER C1608 JB 1H 471K-T	T	11.4/31.7
C23	4030006850	S.CER C1608 JB 1H 471K-T	T	28.8/43.6
J1	6510019421	S.CON B8B-ZR-SM4-TF(LF)(SN)	T	29.6/17.8
MC1	7700002770	MIC AM-627P-462C33-1		
S1	2260003120	SWI SKQJLBA010		
EP1	6910012350	S.BEA MMZ1608Y 102BT	T	28.8/55.3

[MAIN-B UNIT] (for HM-170GP, HM-171GP, HM-175GPs, HM-189GPs)

REF NO.	PARTS NO.	DESCRIPTION	M.	H/V LOCATION
IC2	1110006490	S.IC LMV321IDCKR	T	18.3/42.6
IC4	1190002581	S.IC ITRAX03S1/IT03S341BPSS2766 <MRF>	B	30.5/35.5
IC6	1130014070	S.IC SN74LVC1G38DCKR	B	28.8/24.1
IC8	1190002620	S.IC S-8521F33MC-BPST2G	T	8.2/23.5
IC9	1130007431	S.IC TC7S14FU(TE85RF) [HM-175GPs]	B	23.2/47.8
	1130007431	S.IC TC7S14FU(TE85RF) [HM-189GPs]	B	
IC10	1130007261	S.IC TC7W74FU(TE12LF) [HM-175GPs]	B	26.6/50.3
	1130007261	S.IC TC7W74FU(TE12LF) [HM-189GPs]	B	
IC11	1110005731	S.IC S-80928CNMC-G8Y-G [HM-175GPs]	B	31.2/50.3
	1110005731	S.IC S-80928CNMC-G8Y-G [HM-189GPs]	B	
IC13	1130012600	S.IC SN74AHC1G04DCKR	B	28.8/21.3
IC14	1130007021	S.IC TC7S66FU(TE85LF) [HM-171GP]	T	14.6/47.9
	1130007021	S.IC TC7S66FU(TE85LF) [HM-175GPs]	T	
	1130007021	S.IC TC7S66FU(TE85LF) [HM-189GPs]	T	
Q3	1530002851	S.TRA 2SC4116-BL(TE85RF)	T	14.6/42.8
Q4	1590001170	S.TRA XP1501-(TX).AB [HM-171GP]	B	23.0/53.1
	1590001170	S.TRA XP1501-(TX).AB [HM-175GPs]	B	
	1590001170	S.TRA XP1501-(TX).AB [HM-189GPs]	B	
Q5	1550000140	S.FET CPH6316-TL-E	T	16.1/20.0
Q6	1590003231	S.TRA UNR9113G0L [HM-171GP]	T	17.0/48.1
	1590003231	S.TRA UNR9113G0L [HM-175GPs]	T	
	1590003231	S.TRA UNR9113G0L [HM-189GPs]	T	
D1	1730002321	S.ZEN MAZ8051GML [HM-170GP] only	B	31.9/22.1
D4	1790001251	S.DIO MA2S1110GL [HM-170GP]	B	24.3/24.9
	1750002020	S.DIO DA2S10100L [HM-171GP]	B	
	1790001251	S.DIO MA2S1110GL [HM-175GPs]	B	
	1790001251	S.DIO MA2S1110GL [HM-189GPs]	B	
D5	1750001110	S.DIO SM240A-T	T	9.5/20.0
D6	1790001251	S.DIO MA2S1110GL [HM-170GP] only	B	25.4/19.2
D7	1790001241	S.DIO MA2S7280GL [HM-171GP]	T	15.5/50.4
	1790001241	S.DIO MA2S7280GL [HM-175GPs]	T	
	1790001241	S.DIO MA2S7280GL [HM-189GPs]	T	
D8	1790001241	S.DIO MA2S7280GL [HM-171GP]	B	21.4/45.6
	1790001241	S.DIO MA2S7280GL [HM-175GPs]	B	
	1790001241	S.DIO MA2S7280GL [HM-189GPs]	B	
D9	1790001810	S.VAR AVR-M1005C080MTABB [HM-171GP] only	T	24.4/14.6
D10	1790001810	S.VAR AVR-M1005C080MTABB [HM-171GP] only	T	22.5/17.1
L1	6200003960	S.COI MLF1608A 1R0K-T	T	24.5/18.6
L2	6200003960	S.COI MLF1608A 1R0K-T	T	23.7/16.0
L3	6200013250	S.COI SLF6025T-330MR59-PF	T	14.5/25.7
L4	6200003960	S.COI MLF1608A 1R0K-T [HM-170GP] only	T	23.7/13.2
L5	6200005011	S.COI NLV25T-100J	T	23.4/22.3
R4	7030005060	S.RES ERJ2GEJ 333 X (33K)	T	18.8/40.9
R5	7030005060	S.RES ERJ2GEJ 333 X (33K)	T	22.5/42.3
R6	7030004980	S.RES ERJ2GEJ 101 X (100)	T	20.6/46.7
R7	7030005070	S.RES ERJ2GEJ 683 X (68K)	T	17.8/44.4
R8	7030005010	S.RES ERJ2GEJ 681 X (680)	T	16.5/45.7
R9	7030005040	S.RES ERJ2GEJ 472 X (4.7K)	B	26.5/46.2
R12	7030005050	S.RES ERJ2GEJ 103 X (10K)	T	11.8/39.5
R13	7030004990	S.RES ERJ2GEJ 221 X (220)	B	28.9/46.2
R14	7030004990	S.RES ERJ2GEJ 221 X (220)	B	40.0/34.0
R16	7310004790	S.TRI EVM-3YSX50 B14 (103) [HM-170GP]	B	35.5/48.5
	7310004870	S.TRI EVM-3YSX50 B54 (503) [HM-171GP]	B	
	7310004790	S.TRI EVM-3YSX50 B14 (103) [HM-175GPs]	B	
	7310004790	S.TRI EVM-3YSX50 B14 (103) [HM-189GPs]	B	
R17	7030005090	S.RES ERJ2GEJ 104 X (100K)	B	26.1/23.2
R19	7030004990	S.RES ERJ2GEJ 221 X (220) [HM-175GPs]	B	30.2/46.6
	7030004990	S.RES ERJ2GEJ 221 X (220) [HM-189GPs]	B	
R20	7030005050	S.RES ERJ2GEJ 103 X (10K) [HM-171GP] only	B	24.1/49.6
R21	7030004980	S.RES ERJ2GEJ 101 X (100)	T	26.8/28.5
R22	7030004980	S.RES ERJ2GEJ 101 X (100)	T	24.2/28.2
R23	7030004990	S.RES ERJ2GEJ 221 X (220) [HM-171GP]	T	24.1/44.7
	7030004990	S.RES ERJ2GEJ 221 X (220) [HM-175GPs]	T	
	7030004990	S.RES ERJ2GEJ 221 X (220) [HM-189GPs]	T	
R24	7030007290	S.RES ERJ2GEJ 222 X (2.2K)	B	15.5/47.5
R25	7030004980	S.RES ERJ2GEJ 101 X (100)	T	11.9/41.1

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

[MAIN-B UNIT] (for HM-170GP, HM-171GP, HM-175GSP, HM-189GSP)

REF NO.	PARTS NO.	DESCRIPTION	M.	H/V LOCATION
R26	7030005050	S.RES ERJ2GEJ 103 X (10K) [HM-175GSP]	B	20.1/50.5
	7030005050	S.RES ERJ2GEJ 103 X (10K) [HM-189GSP]		
R27	7030005090	S.RES ERJ2GEJ 104 X (100K) [HM-175GSP]	B	21.3/50.0
	7030005090	S.RES ERJ2GEJ 104 X (100K) [HM-189GSP]		
R28	7030010040	S.RES ERJ2GEJ-JPW [HM-170GP]	B	25.2/53.4
	7030005050	S.RES ERJ2GEJ 103 X (10K) [HM-175GSP]		
	7030005050	S.RES ERJ2GEJ 103 X (10K) [HM-189GSP]		
R29	7030005090	S.RES ERJ2GEJ 104 X (100K) [HM-175GSP]	B	26.5/47.1
	7030005090	S.RES ERJ2GEJ 104 X (100K) [HM-189GSP]		
R37	7030005090	S.RES ERJ2GEJ 104 X (100K) [HM-171GP]	B	21.5/51.3
	7030005090	S.RES ERJ2GEJ 104 X (100K) [HM-175GSP]		
	7030005090	S.RES ERJ2GEJ 104 X (100K) [HM-189GSP]		
R41	7030005060	S.RES ERJ2GEJ 333 X (33K) [HM-171GP]	T	22.9/19.8
	7030005060	S.RES ERJ2GEJ 333 X (33K) [HM-175GSP]		
	7030005060	S.RES ERJ2GEJ 333 X (33K) [HM-189GSP]		
R42	7030010040	S.RES ERJ2GEJ-JPW [HM-170GP] only	T	24.3/10.4
R43	7030005050	S.RES ERJ2GEJ 103 X (10K) [HM-175GSP]	B	22.5/49.6
	7030005050	S.RES ERJ2GEJ 103 X (10K) [HM-189GSP]		
R44	7030010040	S.RES ERJ2GEJ-JPW [HM-170GP]	B	23.3/50.5
	7030010040	S.RES ERJ2GEJ-JPW [HM-171GP]		
R47	7030005050	S.RES ERJ2GEJ 103 X (10K)	B	26.5/22.0
R48	7030010040	S.RES ERJ2GEJ-JPW [HM-175GSP]	B	26.1/54.3
	7030010040	S.RES ERJ2GEJ-JPW [HM-189GSP]		
R50	7030010040	S.RES ERJ2GEJ-JPW	B	15.9/48.7
R51	7030010040	S.RES ERJ2GEJ-JPW [HM-170GP]	B	28.9/47.1
	7030010040	S.RES ERJ2GEJ-JPW [HM-171GP]		
R53	7030005100	S.RES ERJ2GEJ 154 X (150K) [HM-175GSP]	T	23.4/11.8
	7030005100	S.RES ERJ2GEJ 154 X (150K) [HM-189GSP]		
R55	7510001730	S.THE ERTJOEP 473J	T	19.1/44.8
R56	7030005160	S.RES ERJ2GEJ 105 X (1M)	T	20.0/44.8
R57	7030005530	S.RES ERJ2GEJ 100 X (10)	T	24.3/20.5
R58	7030005050	S.RES ERJ2GEJ 103 X (10K)	B	25.9/11.7
R59	7030005050	S.RES ERJ2GEJ 103 X (10K) [HM-171GP]	T	18.3/47.0
	7030005050	S.RES ERJ2GEJ 103 X (10K) [HM-175GSP]		
	7030005050	S.RES ERJ2GEJ 103 X (10K) [HM-189GSP]		
R60	7030010040	S.RES ERJ2GEJ-JPW [HM-170GP] only	T	12.7/48.4
R61	7030010040	S.RES ERJ2GEJ-JPW [HM-170GP]	B	30.5/23.2
	7030010040	S.RES ERJ2GEJ-JPW [HM-171GP]		
	7030005010	S.RES ERJ2GEJ 681 X (680) [HM-175GSP]		
	7030007340	S.RES ERJ2GEJ 153 X (15K) [HM-189GSP]		
R62	7030005100	S.RES ERJ2GEJ 154 X (150K) [HM-171GP]	B	30.5/24.8
	7030007340	S.RES ERJ2GEJ 153 X (15K) [HM-175GSP]		
	7030005100	S.RES ERJ2GEJ 154 X (150K) [HM-189GSP]		
R65	7030005240	S.RES ERJ2GEJ 473 X (47K) [HM-171GP] only	B	37.9/46.0
C1	4030017730	S.CER C1005 JB 1H 471K-T	B	14.3/49.8
C2	4030017920	S.CER C1005 JB 1A 683K-T	B	14.3/48.9
C3	4030017420	S.CER C1005 CH 1H 470J-T	T	20.2/42.7
C4	4030017760	S.CER C1005 JB 1H 222K-T	T	17.8/45.3
C5	4030016930	S.CER C1005 JB 1A 104K-T	B	37.8/47.2
C6	4030017730	S.CER C1005 JB 1H 471K-T	T	23.1/24.5
C7	4030017330	S.CER C1005 JF 1C 104Z-T	T	12.7/44.0
C8	4030017730	S.CER C1005 JB 1H 471K-T	T	22.0/24.5
C9	4030017730	S.CER C1005 JB 1H 471K-T	T	25.7/24.7
C10	4030017330	S.CER C1005 JF 1C 104Z-T [HM-170GP] only	T	22.6/10.4
C11	4030017730	S.CER C1005 JB 1H 471K-T	T	33.8/21.4
C12	4030017730	S.CER C1005 JB 1H 471K-T	T	32.8/20.5
C14	4550006120	S.TAN TEESVA 0G 226M8R	B	11.5/42.7
C15	4030017430	S.CER C1005 CH 1H 101J-T [HM-170GP]	T	22.0/14.6
	4030017430	S.CER C1005 CH 1H 101J-T [HM-171GP]		
	4030018920	S.CER C1005 JB 1H 392K-T [HM-175GSP]		
	4030017760	S.CER C1005 JB 1H 222K-T [HM-189GSP]		
C16	4030018860	S.CER C1005 JB 0J 105K-T	T	11.8/47.8
C17	4030017730	S.CER C1005 JB 1H 471K-T	T	23.1/18.9
C18	4030017730	S.CER C1005 JB 1H 471K-T	T	23.2/18.0
C19	4030017330	S.CER C1005 JF 1C 104Z-T	B	25.2/22.8
C20	4030017430	S.CER C1005 CH 1H 101J-T	T	23.0/14.6
C21	4030016790	S.CER C1005 JB 1E 103K-T	B	19.6/42.5
C22	4030018910	S.CER C1608 JB 0J 475K-T	B	18.5/42.2

[MAIN-B UNIT] (for HM-170GP, HM-171GP, HM-175GSP, HM-189GSP)

REF NO.	PARTS NO.	DESCRIPTION	M.	H/V LOCATION
C24	4030017640	S.CER C1005 CH 1H 150J-T [HM-170GP]	B	21.2/37.5
	4030017640	S.CER C1005 CH 1H 150J-T [HM-175GSP]		
	4030017640	S.CER C1005 CH 1H 150J-T [HM-189GSP]		
C25	4030016790	S.CER C1005 JB 1E 103K-T	B	40.0/28.9
C26	4030018860	S.CER C1005 JB 0J 105K-T [HM-171GP]	B	21.0/52.8
	4030018860	S.CER C1005 JB 0J 105K-T [HM-175GSP]		
	4030018860	S.CER C1005 JB 0J 105K-T [HM-189GSP]		
C27	4030017330	S.CER C1005 JF 1C 104Z-T	B	26.1/24.8
C28	4030018860	S.CER C1005 JB 0J 105K-T	T	11.4/42.4
C29	4030016970	S.CER C1005 JB 1E 223K-T	T	21.2/42.7
C30	4030018860	S.CER C1005 JB 0J 105K-T [HM-175GSP]	B	20.4/49.1
	4030018860	S.CER C1005 JB 0J 105K-T [HM-189GSP]		
C31	4030017730	S.CER C1005 JB 1H 471K-T [HM-170GP]	B	28.9/50.7
	4030017730	S.CER C1005 JB 1H 471K-T [HM-171GP]		
	4030017330	S.CER C1005 JF 1C 104Z-T [HM-175GSP]		
	4030017330	S.CER C1005 JF 1C 104Z-T [HM-189GSP]		
C32	4030017330	S.CER C1005 JF 1C 104Z-T [HM-175GSP]	B	25.2/46.6
	4030017330	S.CER C1005 JF 1C 104Z-T [HM-189GSP]		
C33	4030017330	S.CER C1005 JF 1C 104Z-T [HM-175GSP]	B	32.3/48.1
	4030017330	S.CER C1005 JF 1C 104Z-T [HM-189GSP]		
C43	4030017730	S.CER C1005 JB 1H 471K-T [HM-170GP] only	T	22.5/11.8
C44	4030017730	S.CER C1005 JB 1H 471K-T [HM-170GP] only	T	24.3/11.8
C50	4550007310	S.TAN F930J227MNM8R	B	10.9/27.7
C51	4030017490	S.CER C1608 JB 1A 105K-T	B	17.2/17.6
C52	4550007310	S.TAN F930J227MNM8R	B	8.1/35.3
C53	4030018960	S.CER C3216 JB 1C 106MT-N	B	17.1/19.2
C54	4030017490	S.CER C1608 JB 1A 105K-T	B	24.3/25.0
C55	4030016930	S.CER C1005 JB 1A 104K-T	T	13.6/46.2
C56	4030017730	S.CER C1005 JB 1H 471K-T	T	7.1/54.2
C57	4510009010	S.ELE EEE1AA221P [HM-170GP]	B	7.5/10.2
	4510009020	S.ELE EEE0JA331P [HM-171GP]		
	4510009020	S.ELE EEE0JA331P [HM-175GSP]		
	4510009020	S.ELE EEE0JA331P [HM-189GSP]		
C58	4030017730	S.CER C1005 JB 1H 471K-T	T	14.0/40.5
C59	4030017730	S.CER C1005 JB 1H 471K-T	T	16.4/40.5
C60	4030017330	S.CER C1005 JF 1C 104Z-T [HM-175GSP]	B	30.5/48.1
	4030017330	S.CER C1005 JF 1C 104Z-T [HM-189GSP]		
C61	4030017460	S.CER C1005 JB 1H 102K-T	B	27.0/24.8
C62	4030017460	S.CER C1005 JB 1H 102K-T	B	22.3/24.9
C63	4030017460	S.CER C1005 JB 1H 102K-T [HM-170GP] only	B	24.2/20.3
C64	4030018910	S.CER C1608 JB 0J 475K-T [HM-171GP]	T	22.4/46.4
	4030018910	S.CER C1608 JB 0J 475K-T [HM-175GSP]		
	4030018910	S.CER C1608 JB 0J 475K-T [HM-189GSP]		
C65	4030017460	S.CER C1005 JB 1H 102K-T [HM-171GP]	B	20.6/47.0
	4030017460	S.CER C1005 JB 1H 102K-T [HM-175GSP]		
	4030017460	S.CER C1005 JB 1H 102K-T [HM-189GSP]		
J1	6510019421	S.CON B8B-ZR-SM4-TF(LF)(SN)	T	29.6/17.8
J2	6510026330	CON S02B-EH-S(LF)(SN)		
J6	6510025970	S.CON 41-002AA-R <MRF>	B	16.2/36.5
MC1	7700002770	MIC AM-627P-462C33-1		
S1	2260003120	SWI SKQJLBA010		
EP1	6910018460	S.BEA MMZ1005Y102C-T	B	15.5/49.9
EP2	6910018460	S.BEA MMZ1005Y102C-T	B	17.0/42.9

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

[SW UNIT] (for HM-170GP, HM-171GP, HM-175GPS, HM-189GPS)

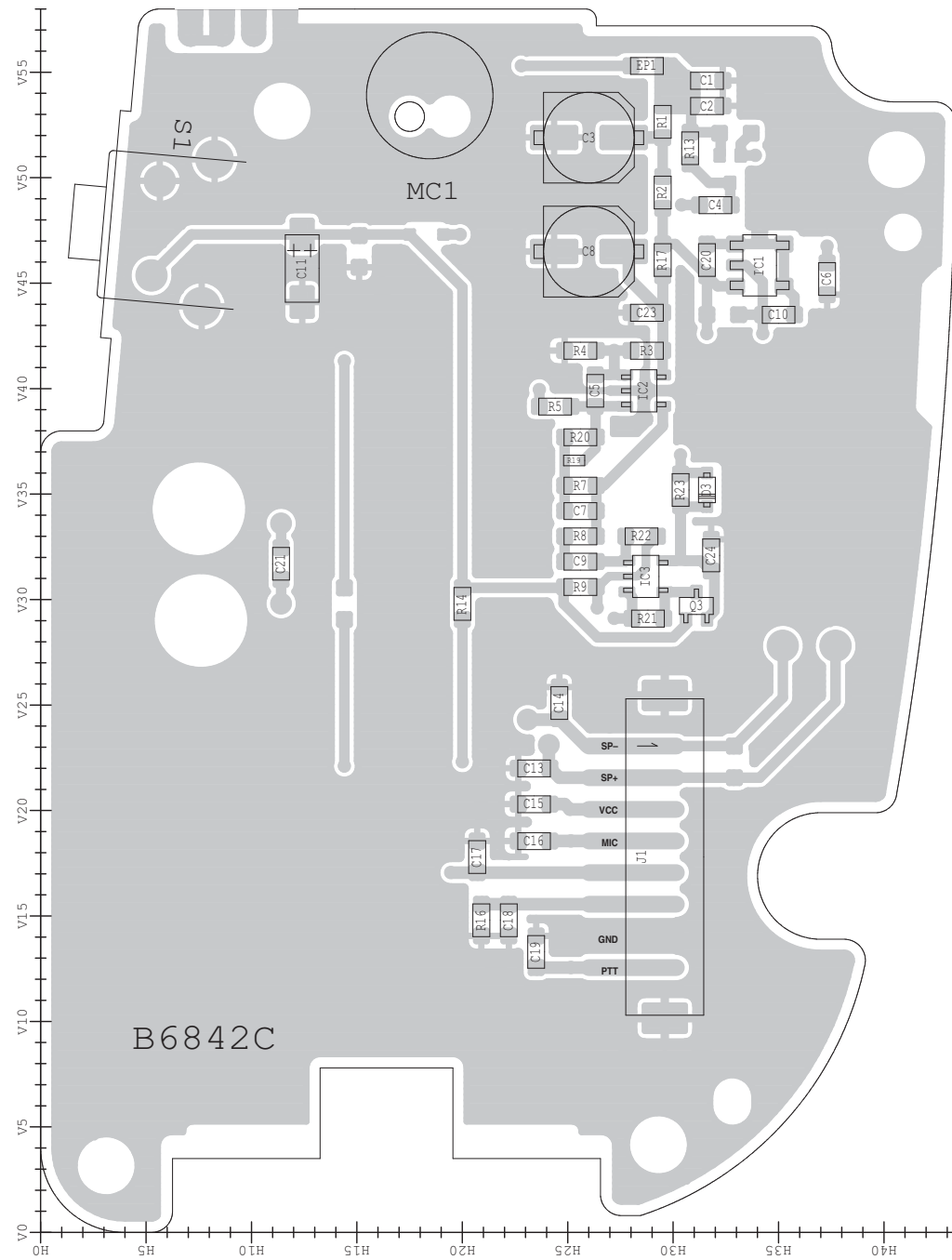
REF NO.	PARTS NO.	DESCRIPTION	M.	H/V LOCATION
R1	7030009160	S.RES ERJ2GEJ 181 X (180) [HM-171GP]	T	6.8/5.1
	7030009160	S.RES ERJ2GEJ 181 X (180) [HM-175GPS]		
	7030009160	S.RES ERJ2GEJ 181 X (180) [HM-189GPS]		
J1	6910017360	CON IMSA-9230B-04Z120-PT1		
DS1	5040003240	S.LED UY1113F-TR [HM-171GP]	T	8.9/8.7
	5040003240	S.LED UY1113F-TR [HM-175GPS]		
	5040003240	S.LED UY1113F-TR [HM-189GPS]		
S2	2260002710	S.SWI SKQLLCE012	B	8.9/6.6

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

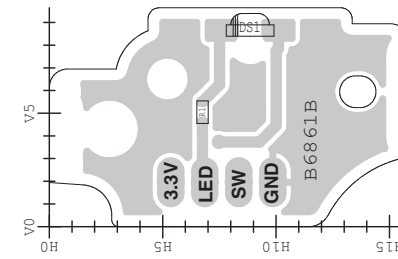
BOARD LAYOUTS

The combination of this side and the bottom side shows the board layout in the same configuration as the actual P.C.Board.

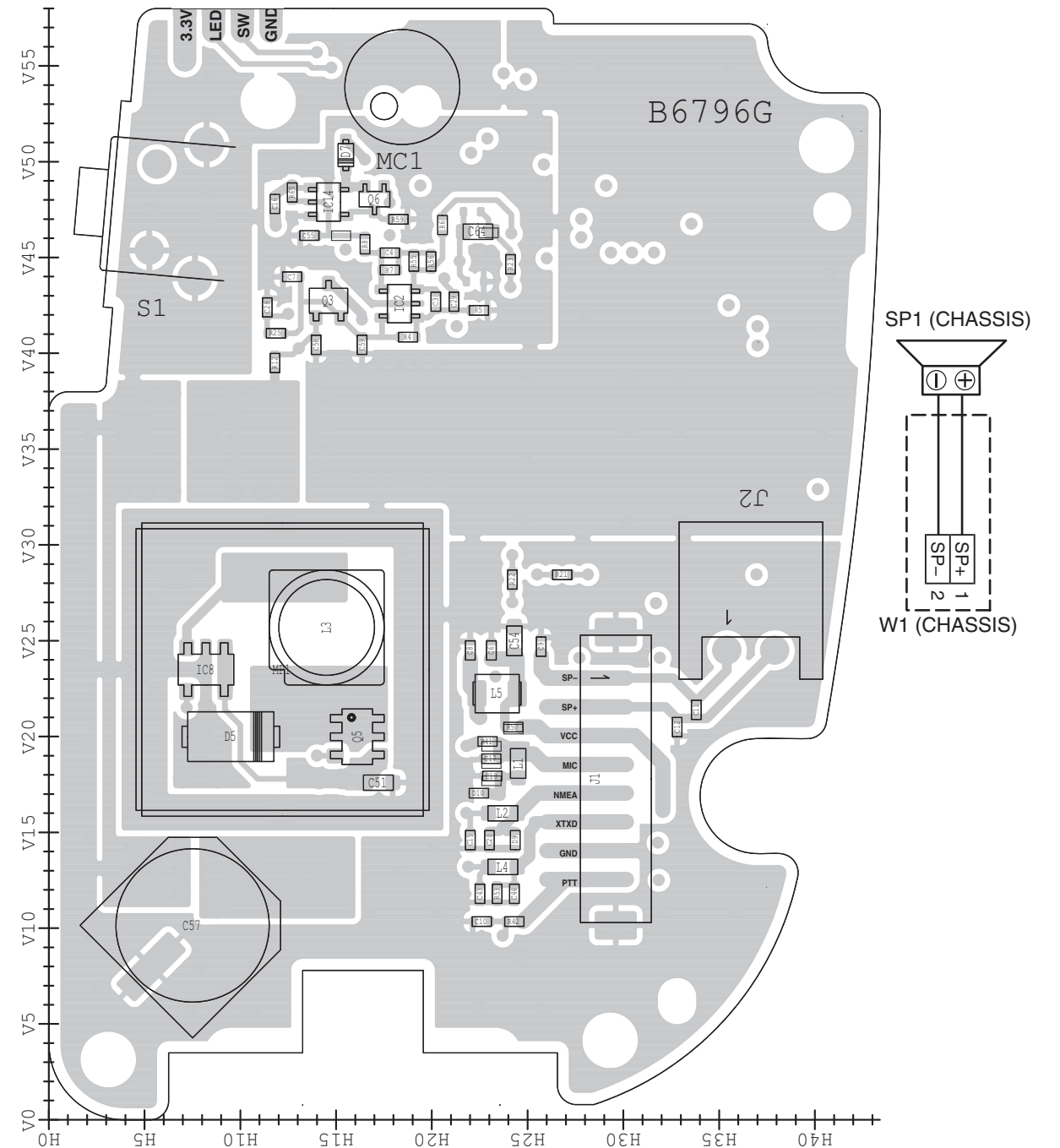
• **MAIN-A UNIT (for HM-170GP, HM-171GP, HM-175GPS, HM-189GPS) (TOP VIEW)**



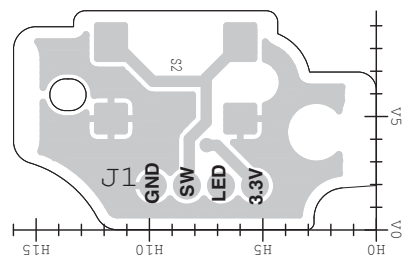
• **SW UNIT (for HM-170GP, HM-171GP, HM-175GPS, HM-189GPS) (TOP VIEW)**



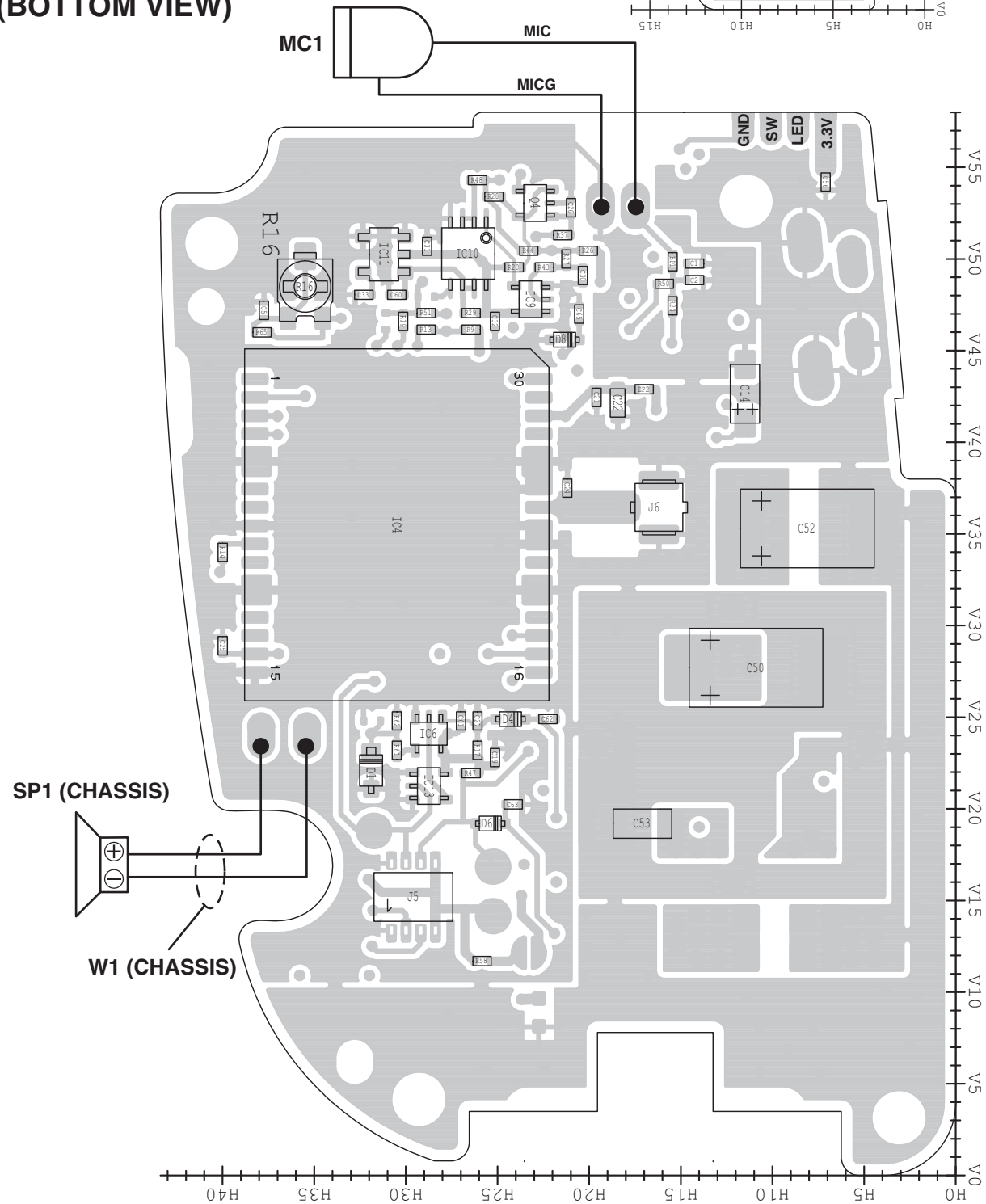
• **MAIN-B UNIT (for HM-170GP, HM-171GP, HM-175GPS, HM-189GPS) (TOP VIEW)**



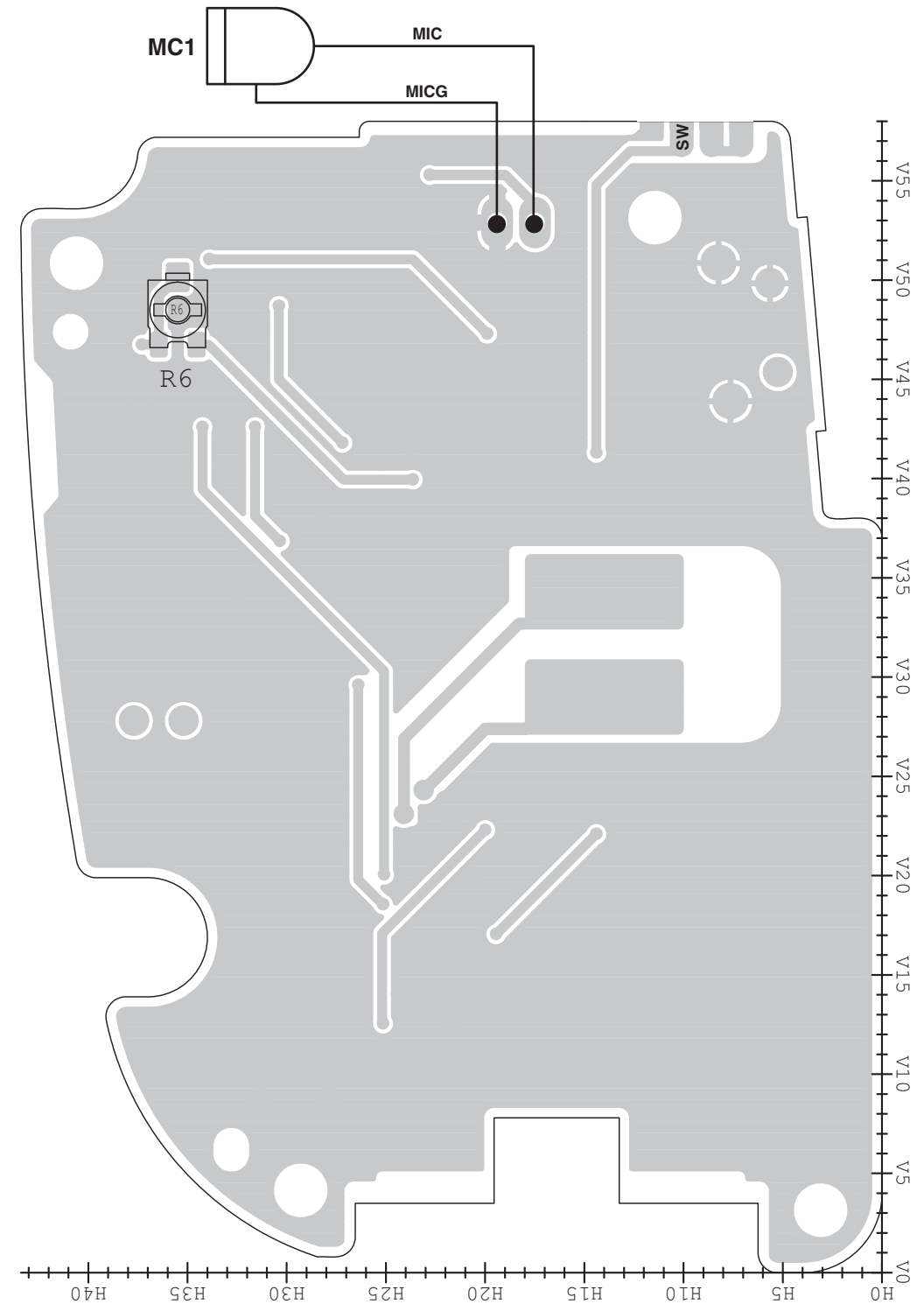
• SW UNIT (for HM-170GP, HM-171GP, HM-175GPS, HM-189GPS)
(BOTTOM VIEW) [GPS]



• MAIN-B UNIT (for HM-170GP, HM-171GP, HM-175GPS, HM-189GPS)
(BOTTOM VIEW)

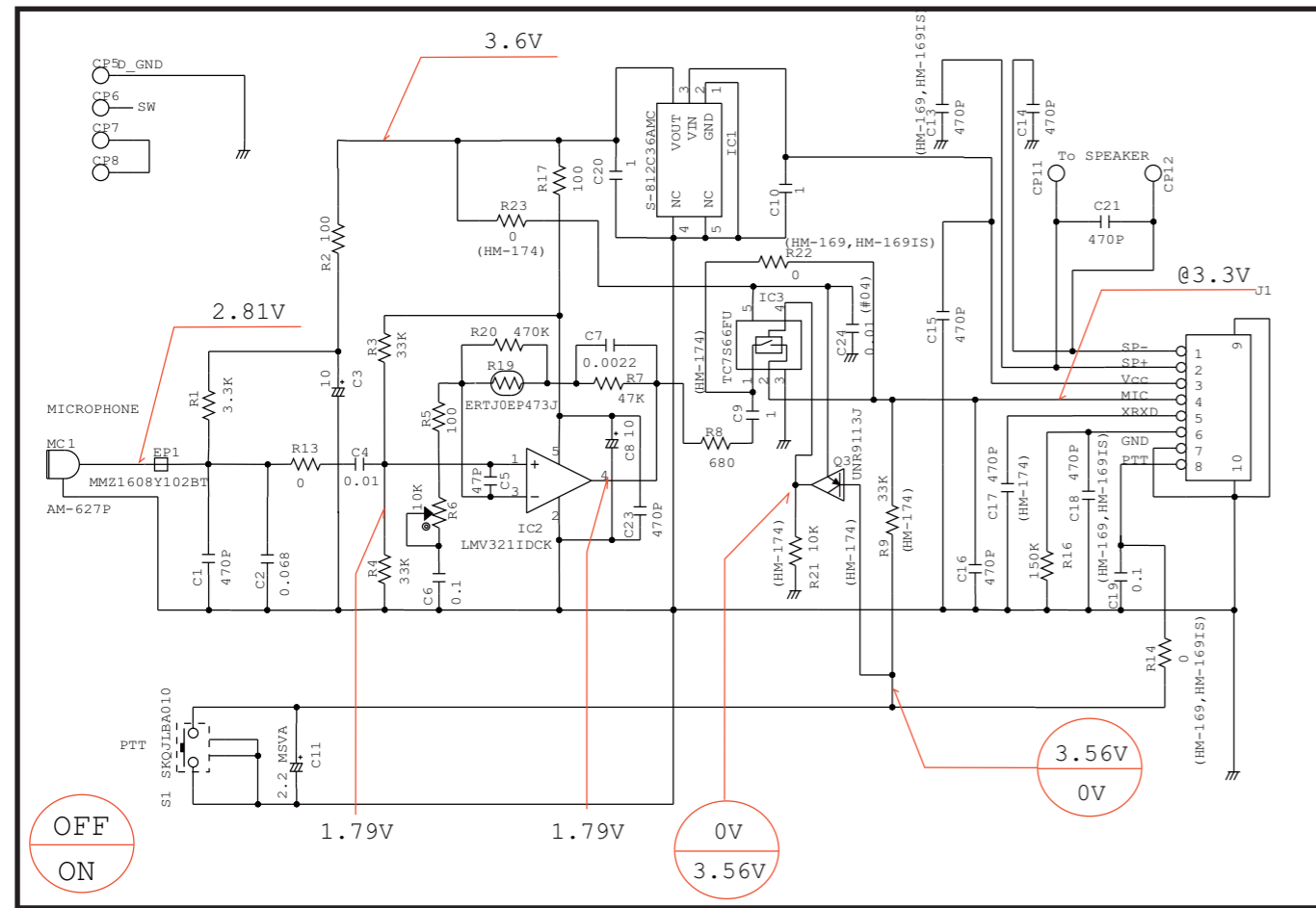


• MAIN-A UNIT (for HM-170GP, HM-171GP, HM-175GPS, HM-189GPS)
(BOTTOM VIEW)

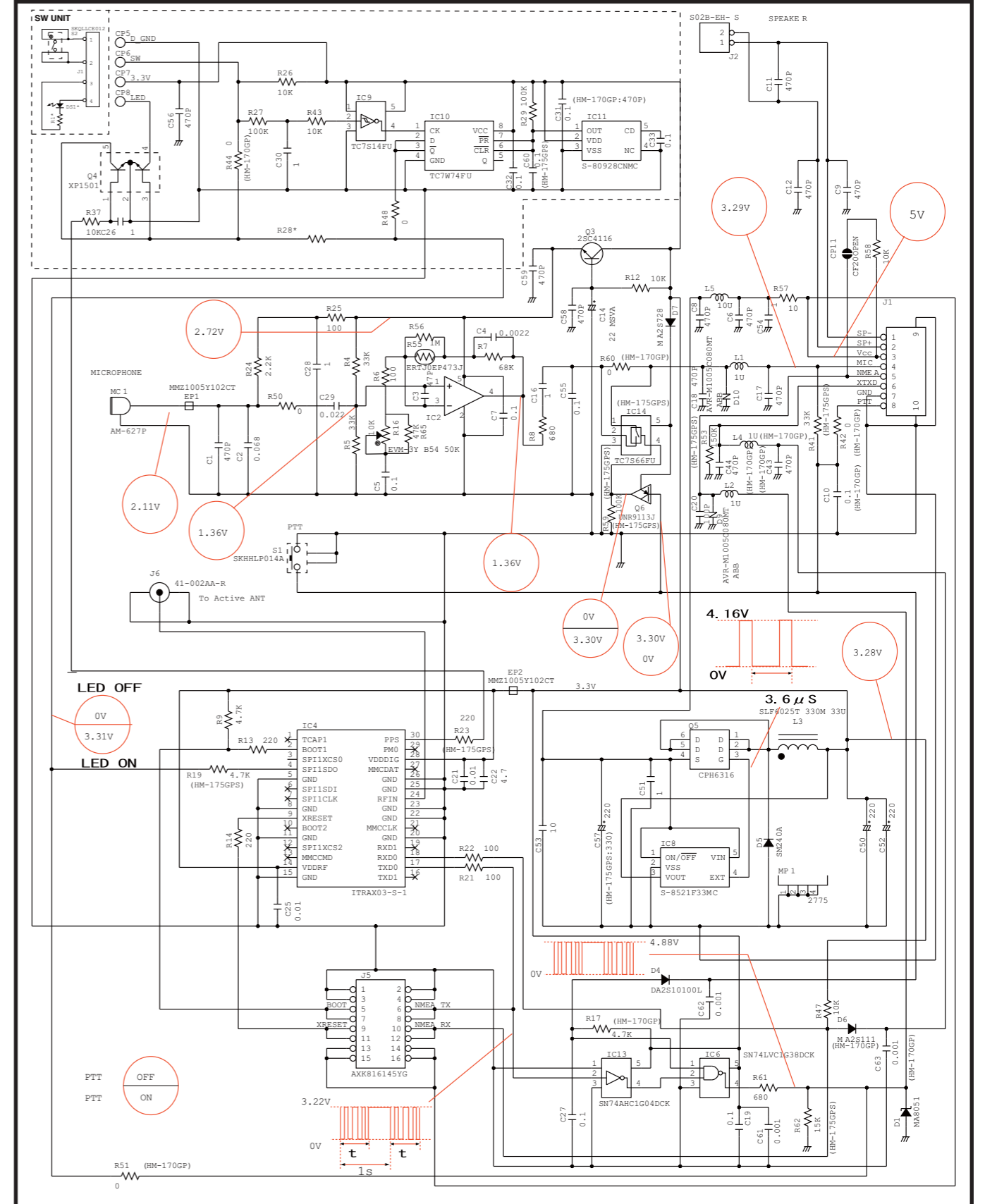


VOLTAGE DIAGRAMS

• MAIN-A UNIT (for HM-169, HM-174, HM-184, HM-169IS)



• MAIN-B UNIT (for HM-170GP, HM-171GP, HM-175GPS, HM-189GPS)



*; Refer to "PARTS LIST."



SERVICE MANUAL

SPEAKER MICROPHONE

HM-169
HM-174

GPS SPEAKER MICROPHONE

HM-170GP
HM-175GPS

S-14421XZ-C1
Dec. 2007

Icom Inc.

INTRODUCTION

This service manual describes the latest service information for the HM-169/HM-174 SPEAKER MICROPHONE and HM-170GP/HM-175GPS GPS SPEAKER MICROPHONE at the time of publication.

MODEL	GPS
HM-169	N/A
HM-174	
HM-170GP	Yes
HM-175GPS	

UNIT ABBREVIATIONS:
SW=SW UNIT
M=MAIN-A/B UNIT



ORDERING PARTS

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

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

<ORDER EXAMPLE>

1110006490 S.IC LMV321DCKR HM-175GPS MAIN-A UNIT 1 piece

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

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

REPAIR NOTES

1. Make sure the problem is internal before disassembling the speaker microphone.
2. **DO NOT** open the speaker microphone 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 speaker microphone is defective.
6. **READ** the instructions of test equipment thoroughly before connecting a test equipment to the speaker microphone.

CONTENTS

- SECTION 1 SPECIFICATIONS
- SECTION 2 ELECTRICAL PARTS LIST
- SECTION 3 MECHANICAL PARTS LIST
- SECTION 4 EXPLOADED VIEW
- SECTION 5 BOARD LAYOUTS
- SECTION 6 BLOCK DIAGRAM
- SECTION 7 VOLTAGE DIAGRAMS

SECTION 1

SPECIFICATIONS

■ GENERAL

• Power supply	: HM-169/HM-170GP	5.0–8.4 V DC
(Supplied from the connected transceiver)	HM-174/HM-175GPS	5 V DC
• Current drain	: HM-169/HM-174	4 mA max. (at 5 V)
	HM-170GP/HM-175GPS	65 mA max. (at 5 V)
• Dimensions (Projections not included)	: HM-169/HM-174	62 (W)×89 (H)×40 (D) mm; (2 7/16 (W)×3 1/2 (H)×1 9/16 (D) in.)
	HM-170GP/HM-175GPS	62 (W)×105 (H)×40 (D) mm (2 7/16 (W)×4 1/8 (H)×1 9/16 (D) in.)
• Curly cable length	: 300 mm (±20 mm); 11 13/16 in. (±2/32 in.)	
• Operating temperature range	: –30°C to +60°C (–22°F to +140°F)	
• Weight (approx.)	: HM-169/HM-174	200 g (7 17/32 oz.)
	HM-170GP/HM-175GPS	220 g (7 3/4 oz.)
• Speaker impedance	: 8 Ω	
• Rated output	: 1 W (at 5% distortion)	
	2 W (at maximum)	

■ GPS RECEIVER

• Time to first fix (TTFF)	: Cold start	40 sec. typical
(open space)	Worm start	36 sec. typical
	Hot start	4 sec. typical

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

SECTION 2

ELECTRICAL PARTS LIST

[MAIN-A UNIT] (for HM-169, HM-174)

REF NO.	ORDER NO.	DESCRIPTION	M.	H/V LOCATION
IC1	1180002690	S.REG S-812C36AMC-C2Q-T2G	T	34.1/45.8
IC2	1110006490	S.IC LMV321IDCKR	T	28.6/39.9
IC3	1130007021	S.IC TC7S66FU (TE85L,F) [HM-174] only	T	28.7/31.1
Q3	1590003230	S.TR UNR9113J-(TX) [HM-174] only	T	31.1/29.7
R1	7030003500	S.RES ERJ3GEYJ 332 V (3.3 k)	T	29.5/52.6
R2	7030003320	S.RES ERJ3GEYJ 101 V (100)	T	29.5/49.3
R3	7030003620	S.RES ERJ3GEYJ 333 V (33 k)	T	28.7/41.8
R4	7030003620	S.RES ERJ3GEYJ 333 V (33 k)	T	25.6/41.8
R5	7030003320	S.RES ERJ3GEYJ 101 V (100)	T	24.4/39.1
R6	7310004790	S.TRI EVM-3YSX50 B14 (103)	B	35.5/48.5
R7	7030003680	S.RES ERJ3GEYJ 104 V (100 k)	T	25.6/35.4
R8	7030003420	S.RES ERJ3GEYJ 681 V (680)	T	25.6/33
R9	7030003620	S.RES ERJ3GEYJ 333 V (33 k) [HM-174] only	T	25.6/30.6
R13	7030003860	S.RES ERJ3GE JPW V	T	30.8/51.4
R14	7030003860	S.RES ERJ3GE JPW V [HM-169] only	T	20/29.8
R16	7030003700	S.RES ERJ3GEYJ 154 V (150 k) [HM-174] only	T	20.9/14.8
R17	7030003320	S.RES ERJ3GEYJ 101 V (100)	T	29.5/46.1
R19	7510001730	S.TMR ERTJOEP 473J	T	25.3/36.6
R20	7030003760	S.RES ERJ3GEYJ 474 V (470 k)	T	25.6/37.7
R21	7030003560	S.RES ERJ3GEYJ 103 V (10 k) [HM-174] only	T	28.8/29.1
R22	7030003860	S.RES ERJ3GE JPW V [HM-169] only	T	28.5/33
C1	4030006850	S.CER C1608 JB 1H 471K-T	T	31.6/54.6
C2	4030012660	S.CER C1608 JB 1E 683K-T	T	31.6/53.4
C3	4510008540	S.ELE EEE1CA100SR	T	26/51.9
C4	4030006900	S.CER C1608 JB 1H 103K-T	T	32/48.7
C5	4030007090	S.CER C1608 CH 1H 470J-T	T	26.3/39.9
C6	4030011600	S.CER C1608 JB 1E 104K-T	T	37.3/45.2
C7	4030006870	S.CER C1608 JB 1H 222K-T	T	25.6/34.2
C8	4510008540	S.ELE EEE1CA100SR	T	26/46.5
C9	4030017490	S.CER C1608 JB 1A 105K-T	T	25.6/31.8
C10	4030017490	S.CER C1608 JB 1A 105K-T	T	35/43.5
C13	4030006850	S.CER C1608 JB 1H 471K-T	T	23.4/22
C14	4030006850	S.CER C1608 JB 1H 471K-T	T	24.6/25.1
C15	4030006850	S.CER C1608 JB 1H 471K-T	T	23.4/20.3
C16	4030006850	S.CER C1608 JB 1H 471K-T	T	23.4/18.5
C17	4030006850	S.CER C1608 JB 1H 471K-T	T	20.7/17.8
C18	4030006850	S.CER C1608 JB 1H 471K-T [HM-169] only	T	22.2/14.8
C19	4030011600	S.CER C1608 JB 1E 104K-T	T	23.5/13.3
C20	4030017490	S.CER C1608 JB 1A 105K-T	T	31.6/46.1
C21	4030006850	S.CER C1608 JB 1H 471K-T	T	11.4/31.7
C23	4030006850	S.CER C1608 JB 1H 471K-T	T	28.7/43.6
J1	6510019421	S.CNR B8B-ZR-SM4-TF (LF) (SN)	T	29.6/17.8
MC1	7700002770	MIC AM-627P-462C33-1		
S1	2260000980	SW SKHHLPO14A		
EP1	6910012350	S.BEA MMZ1608Y 102BT	T	28.7/55.3

[MAIN-B UNIT] (for HM-170GP, HM-175GPS)

REF NO.	ORDER NO.	DESCRIPTION	M.	H/V LOCATION
IC2	1110006490	S.IC LMV321IDCKR	T	18.3/42.6
IC4	1190002580	S.IC ITRAX03-S	B	30.5/35.5
IC6	1130014070	S.IC SN74LVC1G38DCKR	B	28.7/24.1
IC8	1190002620	S.IC S-8521F33MC-BPST2G	T	8.2/23.5
IC9	1130007431	S.IC TC7S14FU (TE85R,F) [HM-175GPS] only	B	23.2/47.8
IC10	1130007261	S.IC TC7W74FU (TE12L,F) [HM-175GPS] only	B	26.6/50.3
IC11	1110005731	S.IC S-80928CNMC-G8Y-G [HM-175GPS] only	B	31.2/50.2
IC13	1130012600	S.IC SN74AHC1G04DCKR	B	28.7/21.2
IC14	1130007021	S.IC TC7S66FU (TE85L,F) [HM-175GPS] only	T	14.6/47.9
Q3	1530002851	S.TR 2SC4116-BL (TE85R,F)	T	14.6/42.7
Q4	1590001170	S.TR XP1501-(TX) [HM-175GPS] only	B	22.9/53
Q5	1550000140	S.FET CPH6316-TL-E	T	16.1/20
Q6	1590003230	S.TR UNR9113J-(TX) [HM-175GPS] only	T	17/48
D1	1730002320	S.ZEN MA8051-M (TX) [HM-170GP] only	B	31.9/22.1
D4	1790001250	S.DIO MA2S111-(TX)	B	24.3/24.9
D5	1750001110	S.DIO SM240A-T	T	9.5/20
D6	1790001250	S.DIO MA2S111-(TX) [HM-170GP] only	B	25.4/19.2
D7	1790001240	S.DIO MA2S728-(TX) [HM-175GPS] only	T	15.5/50.3
L1	6200003960	S.COL MLF1608A 1R0K-T	T	24.5/18.6
L2	6200003960	S.COL MLF1608A 1R0K-T	T	23.7/16
L3	6200013250	S.COL SLF6025T-330MR59-PF	T	14.5/25.7
L4	6200003960	S.COL MLF1608A 1R0K-T [HM-170GP] only	T	23.7/13.2
L5	6200005011	S.COL NLV25T-100J	T	23.4/22.2
R4	7030005060	S.RES ERJ2GEJ 333 X (33 k)	T	18.7/40.8
R5	7030005060	S.RES ERJ2GEJ 333 X (33 k)	T	22.4/42.2
R6	7030004980	S.RES ERJ2GEJ 101 X (100)	T	22.9/44.3
R7	7030005070	S.RES ERJ2GEJ 683 X (68 k)	T	17.8/46.3
R8	7030005010	S.RES ERJ2GEJ 681 X (680)	T	16.5/45.7
R9	7030005040	S.RES ERJ2GEJ 472 X (4.7 k)	B	26.4/46.1
R12	7030005050	S.RES ERJ2GEJ 103 X (10 k)	T	11.8/39.5
R13	7030004990	S.RES ERJ2GEJ 221 X (220)	B	28.9/46.1
R14	7030004990	S.RES ERJ2GEJ 221 X (220)	B	40/34
R16	7310004790	S.TRI EVM-3YSX50 B14 (103)	B	35.5/48.5
R17	7030005090	S.RES ERJ2GEJ 104 X (100 k)	B	26.1/23.2
R19	7030004990	S.RES ERJ2GEJ 221 X (220) [HM-175GPS] only	B	30.1/46.6
R21	7030004980	S.RES ERJ2GEJ 101 X (100)	T	26.8/28.4
R22	7030004980	S.RES ERJ2GEJ 101 X (100)	T	24.2/28.2
R23	7030004990	S.RES ERJ2GEJ 221 X (220) [HM-175GPS] only	T	24.1/44.6
R24	7030007290	S.RES ERJ2GEJ 222 X (2.2 k)	B	15.4/47.4
R25	7030004980	S.RES ERJ2GEJ 101 X (100)	T	11.8/41
R26	7030005050	S.RES ERJ2GEJ 103 X (10 k) [HM-175GPS] only	B	20.3/50
R27	7030005090	S.RES ERJ2GEJ 104 X (100 k) [HM-175GPS] only	B	21.2/50
R28	7030005050	S.RES ERJ2GEJ 103 X (10 k) [HM-175GPS] only	B	24.8/53
R28	7030010040	S.RES ERJ2GEJ-JPW [HM-170GP] only	B	24.8/53
R29	7030005090	S.RES ERJ2GEJ 104 X (100 k) [HM-175GPS] only	B	26.4/47
R37	7030005050	S.RES ERJ2GEJ 103 X (10 k) [HM-175GPS] only	B	21.4/51.3
R41	7030005060	S.RES ERJ2GEJ 333 X (33 k) [HM-175GPS] only	T	23.1/19.5
R42	7030010040	S.RES ERJ2GEJ-JPW [HM-170GP] only	T	24.3/10.3
R43	7030005050	S.RES ERJ2GEJ 103 X (10 k) [HM-175GPS] only	B	22.4/49.5
R44	7030010040	S.RES ERJ2GEJ-JPW [HM-170GP] only	B	23.2/50.4
R47	7030005050	S.RES ERJ2GEJ 103 X (10 k)	B	26.4/21.9
R48	7030010040	S.RES ERJ2GEJ-JPW [HM-175GPS] only	B	26.1/54.3
R50	7030010040	S.RES ERJ2GEJ-JPW	B	15.9/48.6
R51	7030010040	S.RES ERJ2GEJ-JPW [HM-170GP] only	B	28.9/47
R53	7030005100	S.RES ERJ2GEJ 154 X (150 k) [HM-175GPS] only	T	23.4/11.8
R55	7510001730	S.TMR ERTJOEP 473J	T	19/44.8
R56	7030005160	S.RES ERJ2GEJ 105 X (1 M)	T	19.9/44.8
R57	7030005530	S.RES ERJ2GEJ 100 X (10)	T	24.2/20.4
R58	7030005050	S.RES ERJ2GEJ 103 X (10 k)	B	25.8/11.7
R59	7030005050	S.RES ERJ2GEJ 103 X (10 k) [HM-175GPS] only	T	18.2/47
R60	7030010040	S.RES ERJ2GEJ-JPW [HM-170GP] only	T	12.7/48.4
R61	7030005010	S.RES ERJ2GEJ 681 X (680) [HM-175GPS] only	B	30.5/23.2
R62	7030007340	S.RES ERJ2GEJ 153 X (15 k) [HM-175GPS] only	B	30.5/24.8
C1	4030017730	S.CER ECJ0EB1E471K	B	14.2/49.7
C2	4030017920	S.CER ECJ0EB1A683K	B	14.2/48.8
C3	4030017420	S.CER ECJ0EC1H470J	T	20.2/42.7
C4	4030017760	S.CER ECJ0EB1H222K	T	17.8/45.2
C5	4030016930	S.CER ECJ0EB1A104K	B	37.7/47.2
C6	4030017730	S.CER ECJ0EB1E471K	T	23.1/24.5

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

[MAIN-B UNIT] (for HM-170GP, HM-175GPS)

REF NO.	ORDER NO.	DESCRIPTION	M.	H/V LOCATION
C7	4030017330	S.CER ECJ0EF1C104Z	T	12.7/44
C8	4030017730	S.CER ECJ0EB1E471K	T	22/24.5
C9	4030017730	S.CER ECJ0EB1E471K	T	25.7/24.7
C10	4030017330	S.CER ECJ0EF1C104Z [HM-170GP] only	T	22.6/10.3
C11	4030017730	S.CER ECJ0EB1E471K	T	33.8/21.4
C12	4030017730	S.CER ECJ0EB1E471K	T	32.8/20.5
C14	4550006120	S.TAN TEESVA 0G 226M8R	B	11.5/42.6
C15	4030017430	S.CER ECJ0EC1H101J [HM-170GP]	T	22/14.6
	4030018920	S.CER ECJ0EB1H392K [HM-175GPS]	T	22/14.6
C16	4030018860	S.CER ECJ0EB0J105K	T	15.2/46.1
C17	4030017730	S.CER ECJ0EB1E471K	T	23.1/18.6
C18	4030017730	S.CER ECJ0EB1E471K	T	23.1/17.7
C19	4030017330	S.CER ECJ0EF1C104Z	B	25.1/22.8
C20	4030017430	S.CER ECJ0EC1H101J	T	23/14.6
C21	4030016790	S.CER ECJ0EB1C103K	B	19.6/42.4
C22	4030018910	S.CER C1608 JB 0J 475K-T	B	18.4/42.1
C24	4030017640	S.CER ECJ0EC1H150J	B	21.2/37.5
C25	4030016790	S.CER ECJ0EB1C103K	B	40/28.9
C26	4030018860	S.CER ECJ0EB0J105K [HM-175GPS] only	B	21/52.8
C27	4030017330	S.CER ECJ0EF1C104Z	B	26.1/24.8
C28	4030018860	S.CER ECJ0EB0J105K	T	11.4/42.4
C29	4030016970	S.CER ECJ0EB1C223K	T	21.1/42.7
C30	4030018860	S.CER ECJ0EB0J105K		
C31	4030017330	S.CER ECJ0EF1C104Z [HM-175GPS] only	B	20.3/48.4
	4030017730	S.CER ECJ0EB1E471K [HM-175GPS]	B	28.8/50.7
	4030017730	S.CER ECJ0EB1E471K [HM-170GP]	B	28.8/50.7
C32	4030017330	S.CER ECJ0EF1C104Z		
C33	4030017330	S.CER ECJ0EF1C104Z [HM-175GPS] only	B	25.1/46.6
		[HM-175GPS] only	B	32.3/48
C43	4030017730	S.CER ECJ0EB1E471K [HM-170GP] only	T	22.5/11.8
C44	4030017730	S.CER ECJ0EB1E471K [HM-170GP] only	T	24.3/11.8
C50	4550007310	S.TAN F930J227MNMAMA	B	10.9/27.7
C51	4030017490	S.CER C1608 JB 1A 105K-T	T	17.2/17.6
C52	4550007310	S.TAN F930J227MNMAMA	B	8.1/35.3
C53	4030018960	S.CER C3216 JB 1C 106MT-N	B	17.1/19.2
C54	4030017490	S.CER C1608 JB 1A 105K-T	T	24.3/25
C55	4030016930	S.CER ECJ0EB1A104K	T	13.6/46.1
C56	4030017730	S.CER ECJ0EB1E471K	B	7.1/54.2
C57	4510009010	S.ELE EEE1AA221P [HM-170GP]	T	7.5/10.1
	4510009020	S.ELE EEE0JA331P [HM-175GPS]	T	7.5/10.1
C58	4030017730	S.CER ECJ0EB1E471K	T	13.9/40.4
C59	4030017730	S.CER ECJ0EB1E471K	T	16.3/40.4
C60	4030017330	S.CER ECJ0EF1C104Z		
C61	4030017460	S.CER ECJ0EB1E102K [HM-175GPS] only	B	30.5/48
C62	4030017460	S.CER ECJ0EB1E102K	B	27/24.8
C63	4030017460	S.CER ECJ0EB1E102K [HM-170GP] only	B	22.2/24.9
			B	24.1/20.2
J1	6510019421	S.CNR B8B-ZR-SM4-TF	T	29.6/17.8
J2	6510026330	CNR S02B-EH-S		
J6	6510025970	S.CNR 41-002AA-R	B	16.2/36.4
MC1	7700002770	MIC AM-627P-462C33-1		
S1	2260000980	SW SKHHLPO14A		
EP1	6910018460	S.BEA MMZ1005Y102C-T	B	15.4/49.8
EP2	6910018460	S.BEA MMZ1005Y102C-T	B	17/42.9

[SW UNIT] (for HM-170GP, HM-175GPS only)

REF NO.	ORDER NO.	DESCRIPTION	M.	H/V LOCATION
R1	7030009160	S.RES ERJ2GEJ 181 X (180) [HM-175GPS] only	T	6.7/5
J1	6910017360	CNR IMSA-9230B-04Z120-PT1		
DS1	5040003240	S.LED UY1113F-TR [HM-175GPS] only	T	8.8/8.6
S2	2260002710	S.SW SKQLLCE012	B	8.8/6.6

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

SECTION 3

MECHANICAL PARTS

[CHASSIS PARTS]

REF NO.	ORDER NO.	DESCRIPTION	QTY.
SP1	2510001330	036D0803	1
W1	7120000470	ERDS2T0 [HM-169], [HM-174]	1
	8900014920	OPC-1565 [HM-170GP], [HM-175GPS]	1
W2	7120000470	ERDS2T0 [HM-169], [HM-174] only	1
W3	8900016770	OPC-1734 [HM-169], [HM-170GP]	1
	8900017190	OPC-1755 [HM-174], [HM-175GPS]	1
W4	8900016560	OPC-1716 [HM-170GP], [HM-175GPS] only	1
EP1	3310003720	GEOHELIX-S [HM-170GP], [HM-175GPS] only	1
MP1	8210024390	3065 A-FRONT PANEL (Inc. MP16)	1
		[HM-169], [HM-174]	1
	8210024370	3065 FRONT PANEL (Inc. MP16) [HM-170GP]	1
	8210024380	3065 FRONT PANEL (A) (Inc. MP16) [HM-175GPS]	1
MP2	8210024330	3065 REAR PANEL	1
MP3	8930073590	3065 PTT BUTTON	1
MP4	8930073600	3065 ANT CAP [HM-170GP], [HM-175GPS] only	1
MP5	8930073650	3065 MAIN SEAL	1
MP6	8930073660	3065 PTT RUBBER	1
MP7	8930073670	3065 TOP BUTTON [HM-170GP]	1
	8930073680	3065 TOP BUTTON (A) [HM-175GPS]	1
MP8	8930073840	3065 MIC RUBBER	1
MP9	8930074240	O-RING (BX) [HM-170GP], [HM-175GPS] only	1
MP10	8930073760	3065 PTT PLATE	1
MP11	8930073830	3065 ANT PLATE [HM-170GP], [HM-175GPS] only	1
MP12	8930073770	3065 TOP PLATE [HM-170GP], [HM-175GPS] only	1
MP13	8930073780	3065 BUSH PLATE	1
MP14	8930073690	3065 SPRING	1
MP15	8930073960	3065 BELT CLIP	1
MP16	8930073610	SP NET (D)	1
MP17	8930068980	2905 VENT SHEET	2
MP20	8930055920	INSULATION SHEET (GQ)	1
MP21	8810009561	SCREW BT B0 2X6 NI-ZK3 (BT)	4
MP22	8810009561	SCREW BT B0 2X6 NI-ZK3 (BT)	4
		[HM-170GP], [HM-175GPS] only	2
MP23	8810010121	SCREW PH B0 2X8 SUS SSBC	2
MP24	8820001320	2795 SCREW	4
MP25	8930063690	O-RING (BA)	2

[MAIN-A UNIT] (for [HM-169], [HM-174])

REF NO.	ORDER NO.	DESCRIPTION	QTY.
J1*	6510019421	B8B-ZR-SM4-TF (LF) (SN)	1
MC1	7700002770	AM-627P-462C33-1	1
S1*	2260003120	SKQJLBA010	1

[MAIN-B UNIT] (for [HM-170GP], [HM-175GPS])

REF NO.	ORDER NO.	DESCRIPTION	QTY.
J1*	6510019421	B8B-ZR-SM4-TF (LF) (SN)	1
J2*	6510026330	S02B-EH-S (LF) (SN)	1
J6*	6510025970	41-002AA-R	1
MC1	7700002770	AM-627P-462C33-1	1
S1*	2260003120	SKQJLBA010	1
MP1*	8510016470	2775 VCO CASE	1

[SW UNIT] (for [HM-170GP], [HM-175GPS] only)

REF NO.	ORDER NO.	DESCRIPTION	QTY.
J1	6910017360	IMSA-9230B-04Z120-PT1	1
S2*	2260002710	SKQLLCE012	1

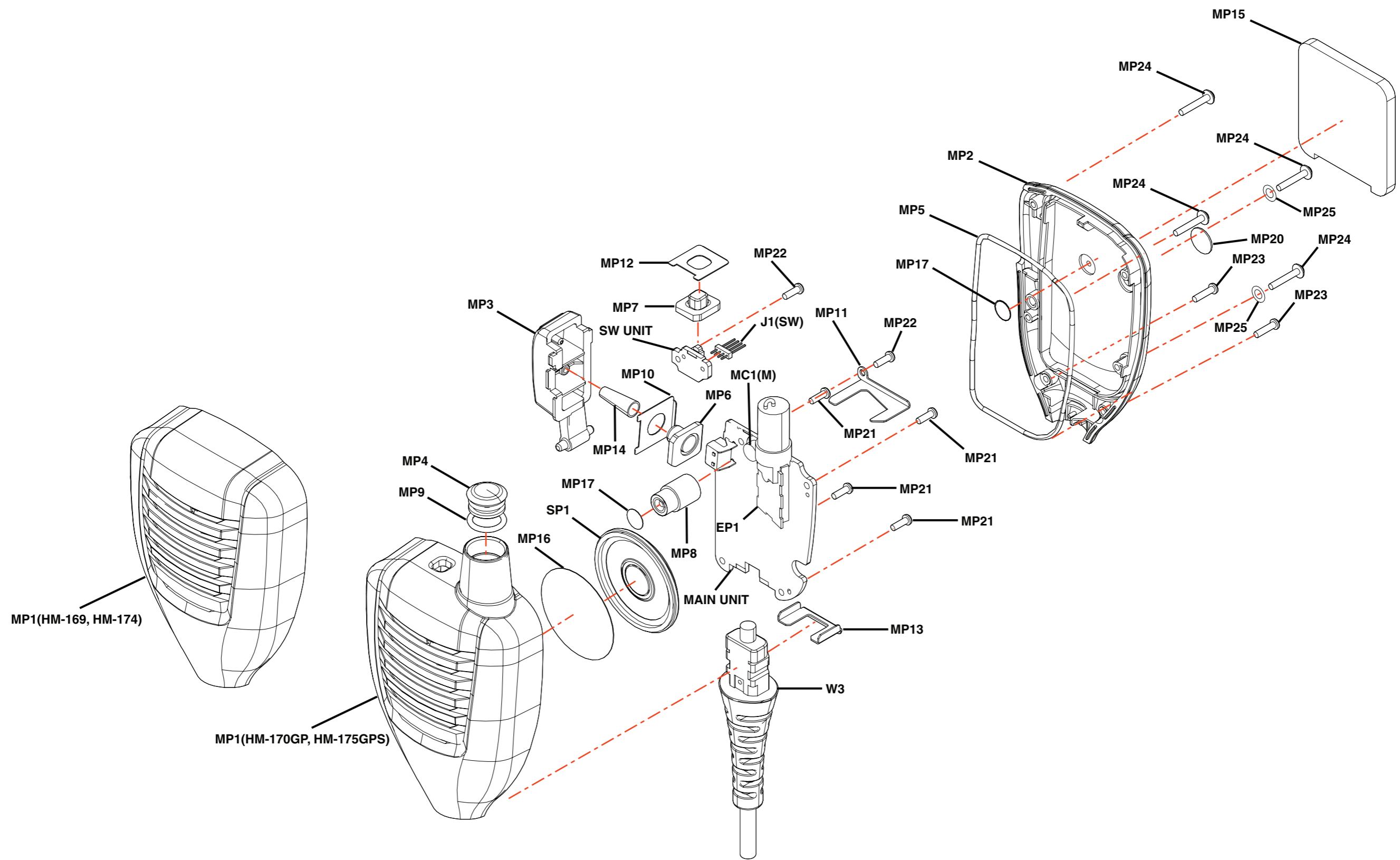
*: Refer to SECTION 5 "BOARD LAYOUTS."

Screw abbreviations

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

SECTION 4

EXPLODED VIEW

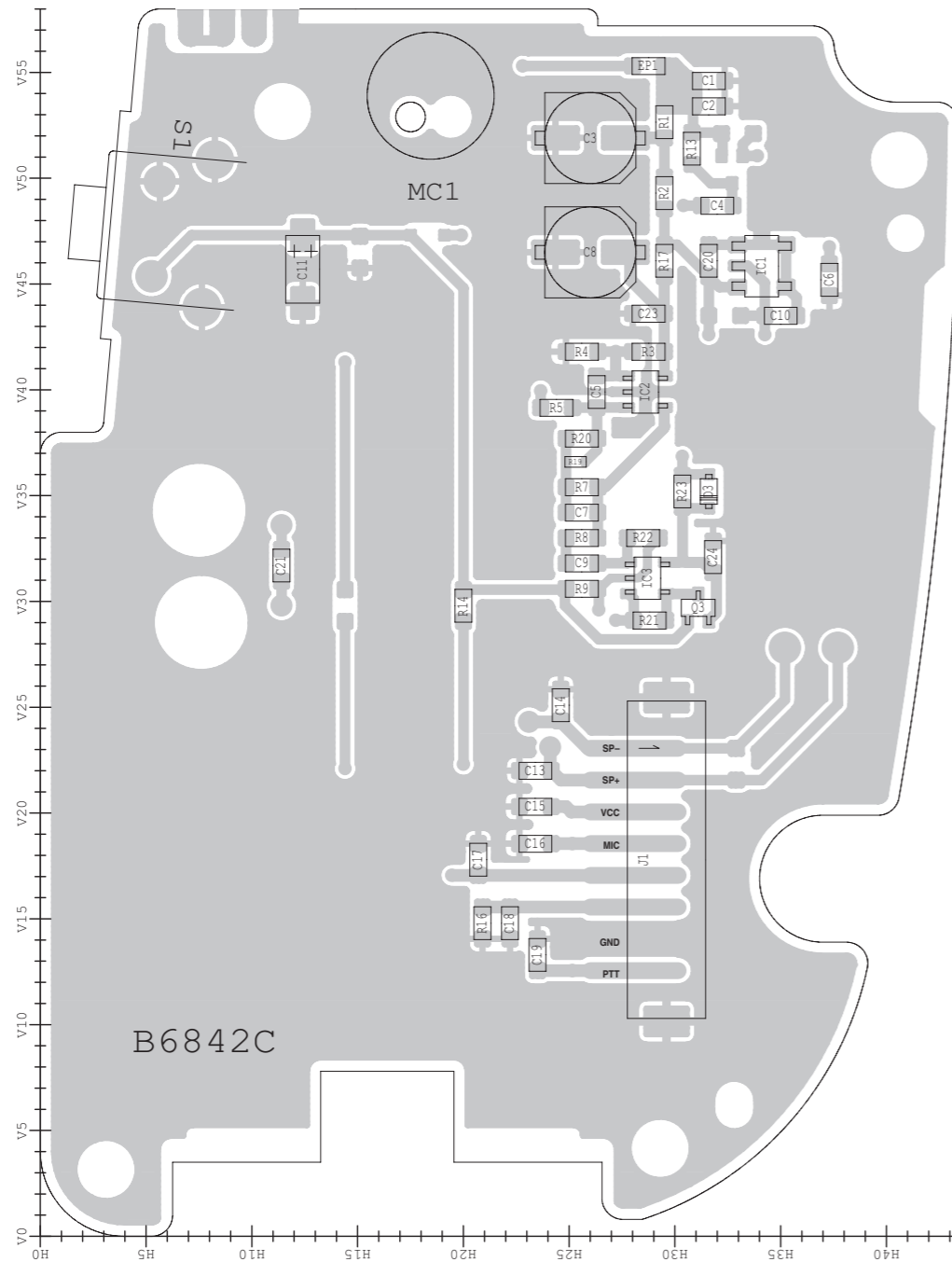


SECTION 5

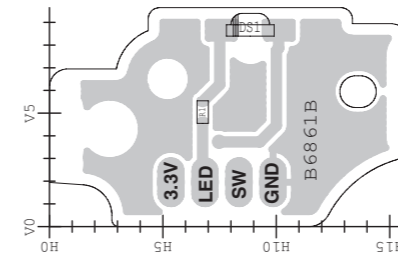
BOARD LAYOUTS

The combination of this side and the bottom side shows the board layout in the same configuration as the actual P.C.Board.

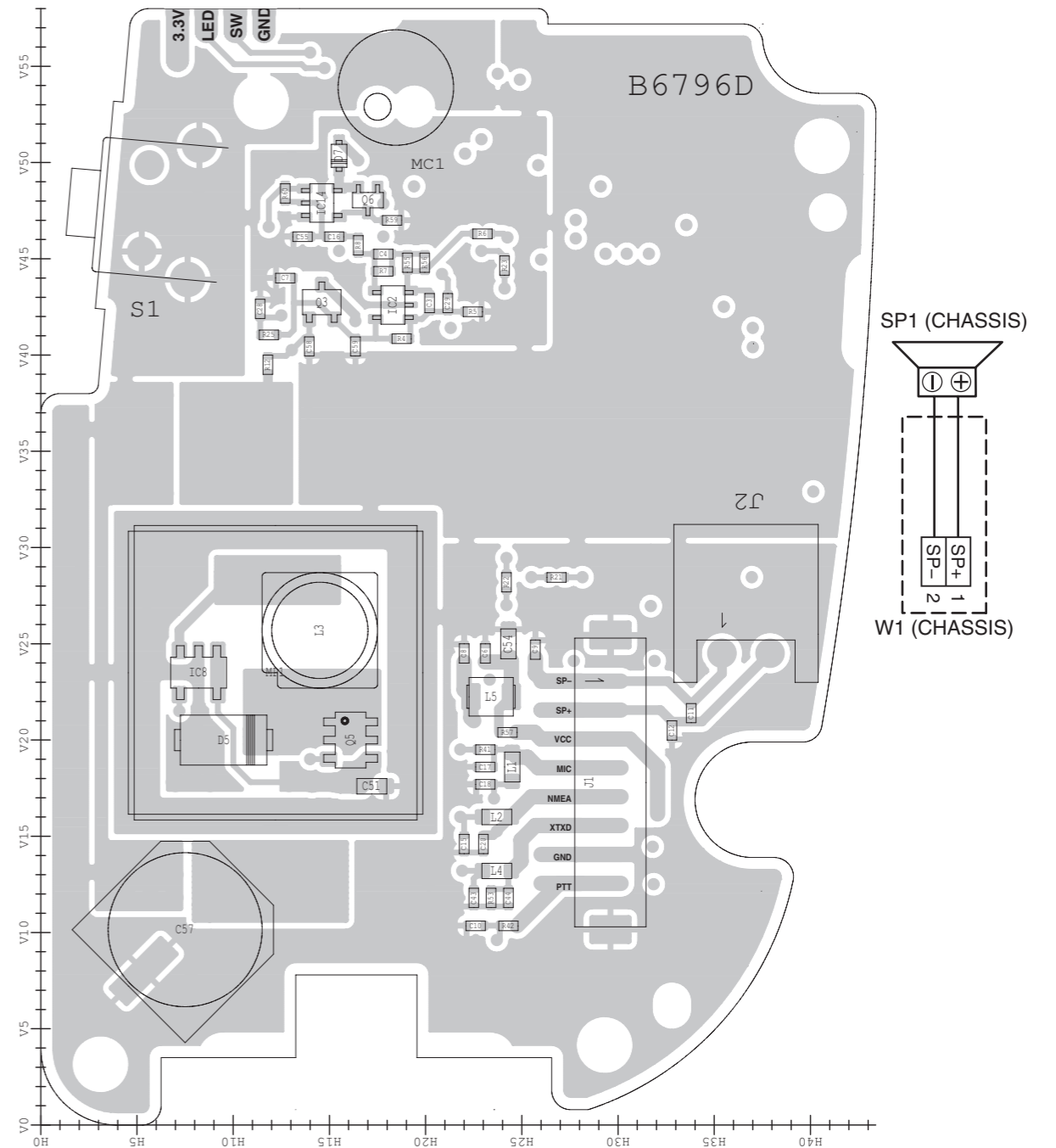
• MAIN-A UNIT (for HM-169, HM-174)
(TOP VIEW)



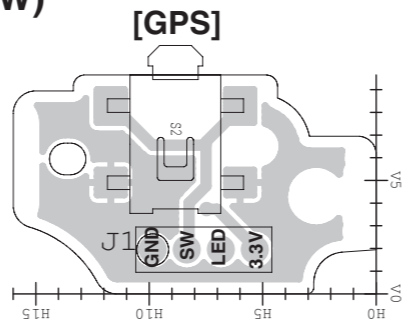
• SW UNIT (for HM-170GP HM-175GPS only)
(TOP VIEW)



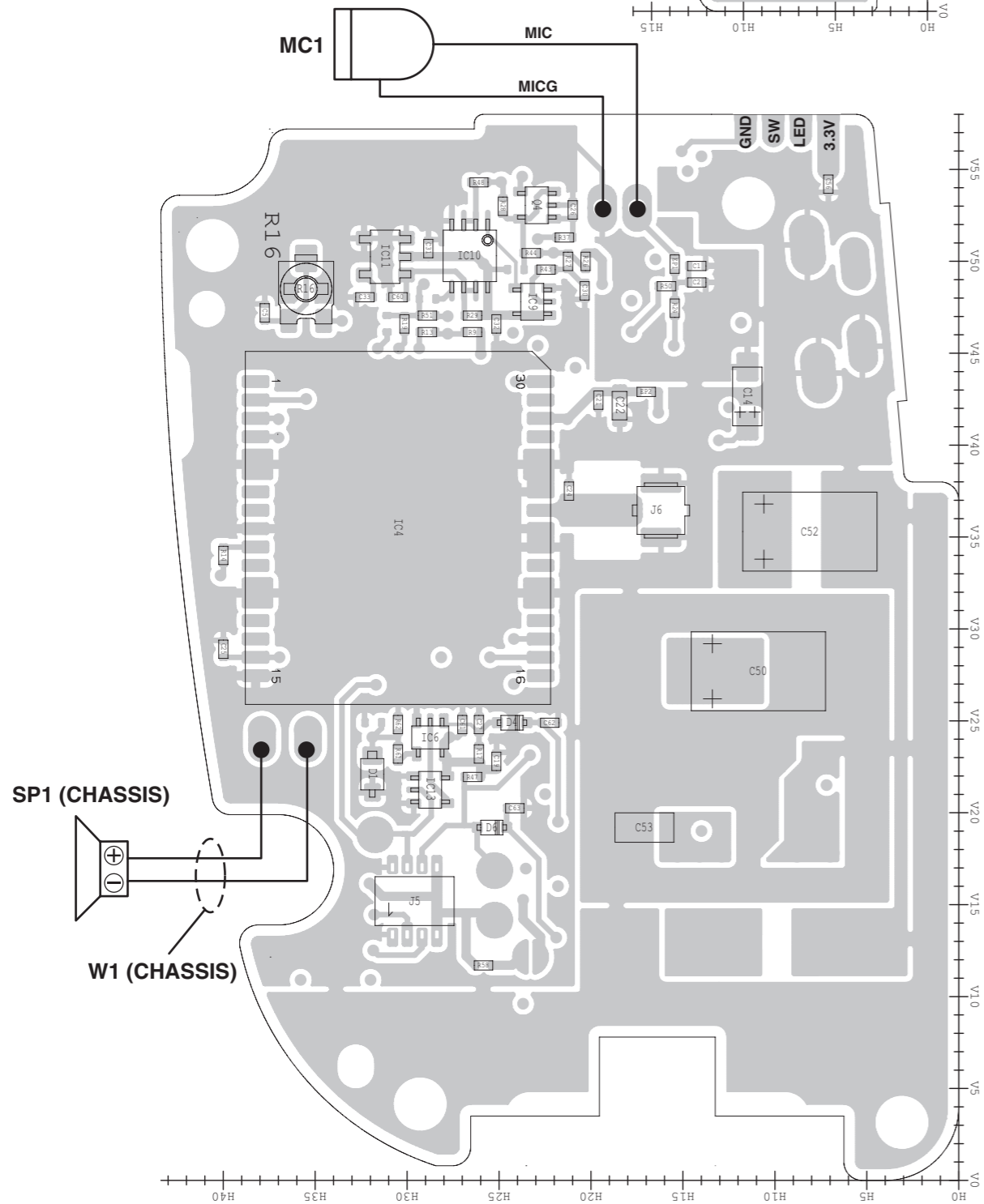
• MAIN-B UNIT (for HM-170GP HM-175GPS)
(TOP VIEW)



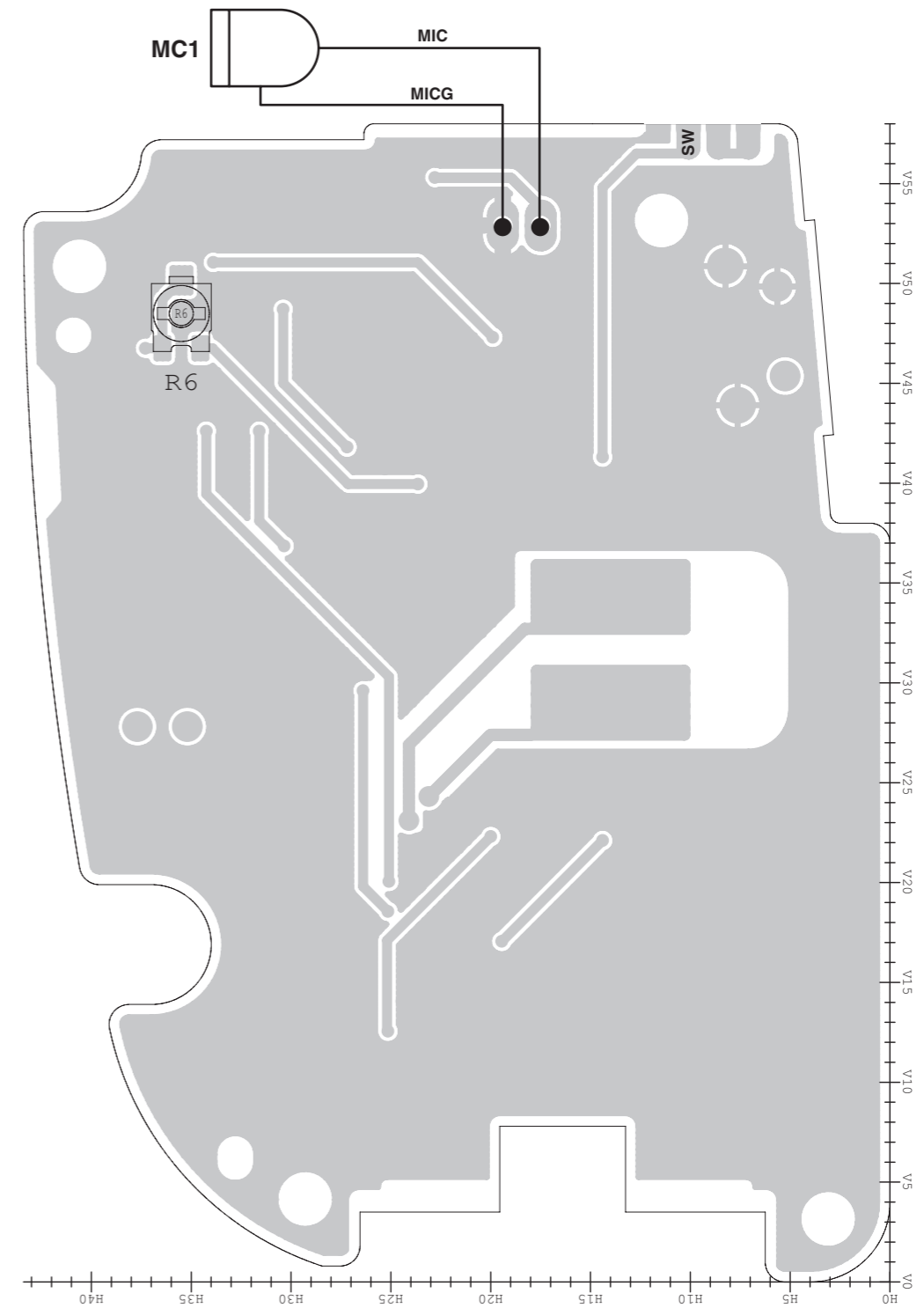
• SW UNIT (for HM-170GP HM-175GPS only)
(BOTTOM VIEW)



• MAIN-B UNIT (for HM-170GP HM-175GPS)
(BOTTOM VIEW)



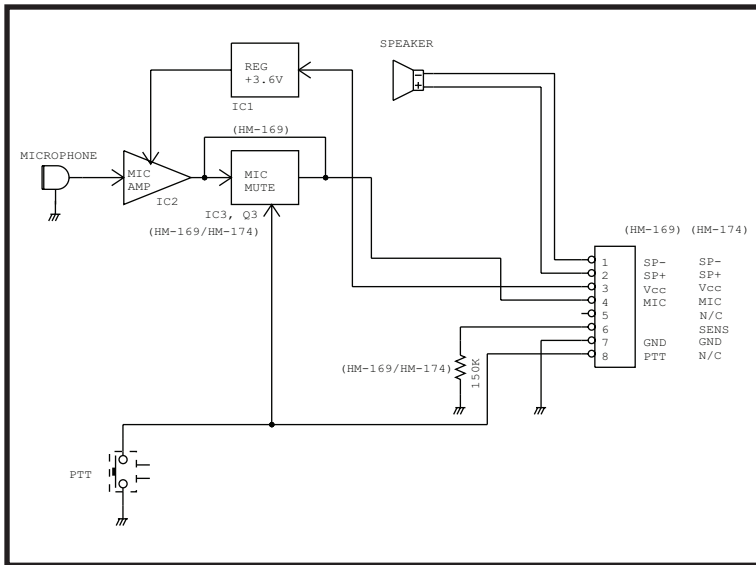
• MAIN-A UNIT (for HM-169, HM-174)
(BOTTOM VIEW)



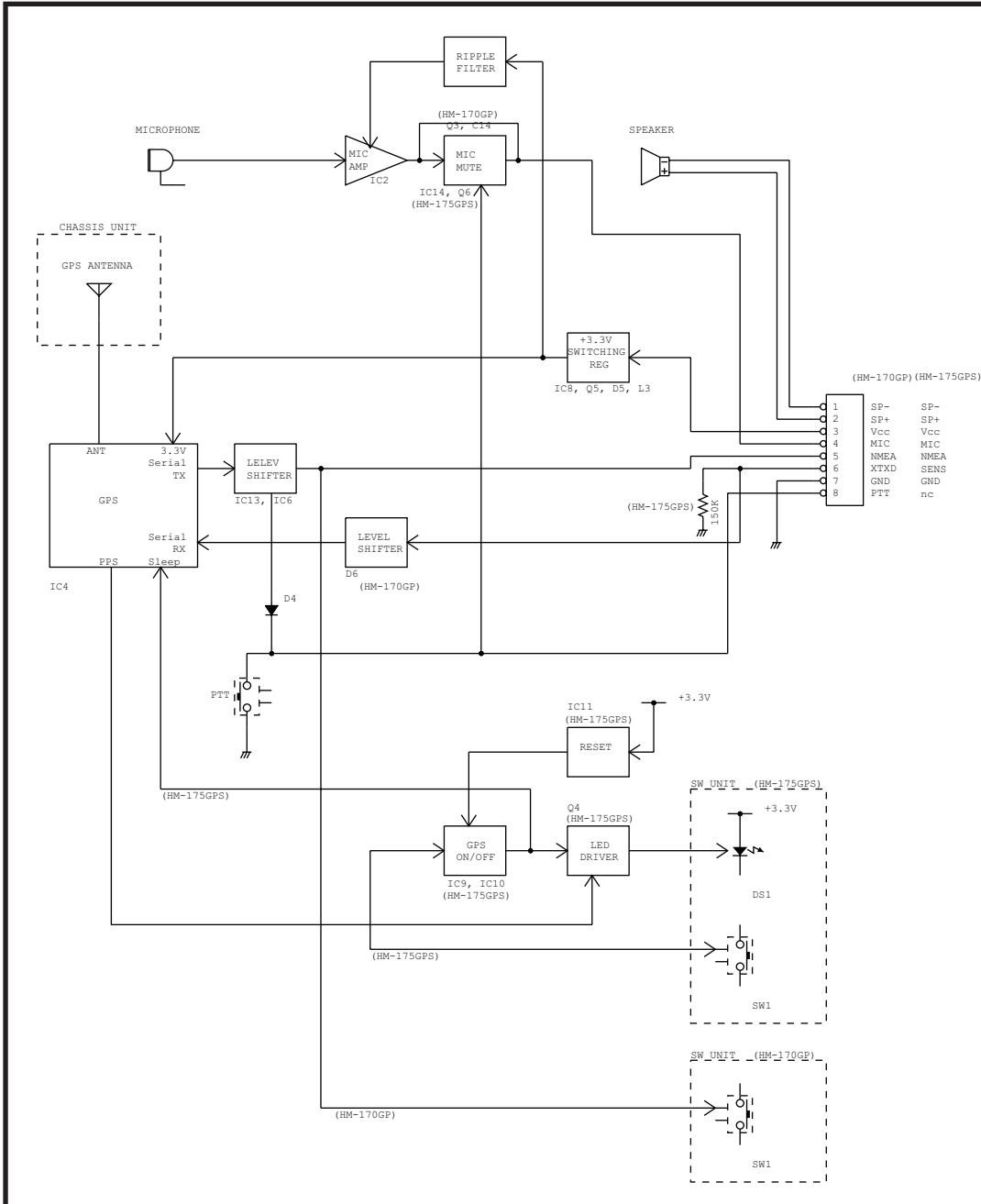
SECTION 6

BLOCK DIAGRAMS

• MAIN-A UNIT (for [HM-169], [HM-174])



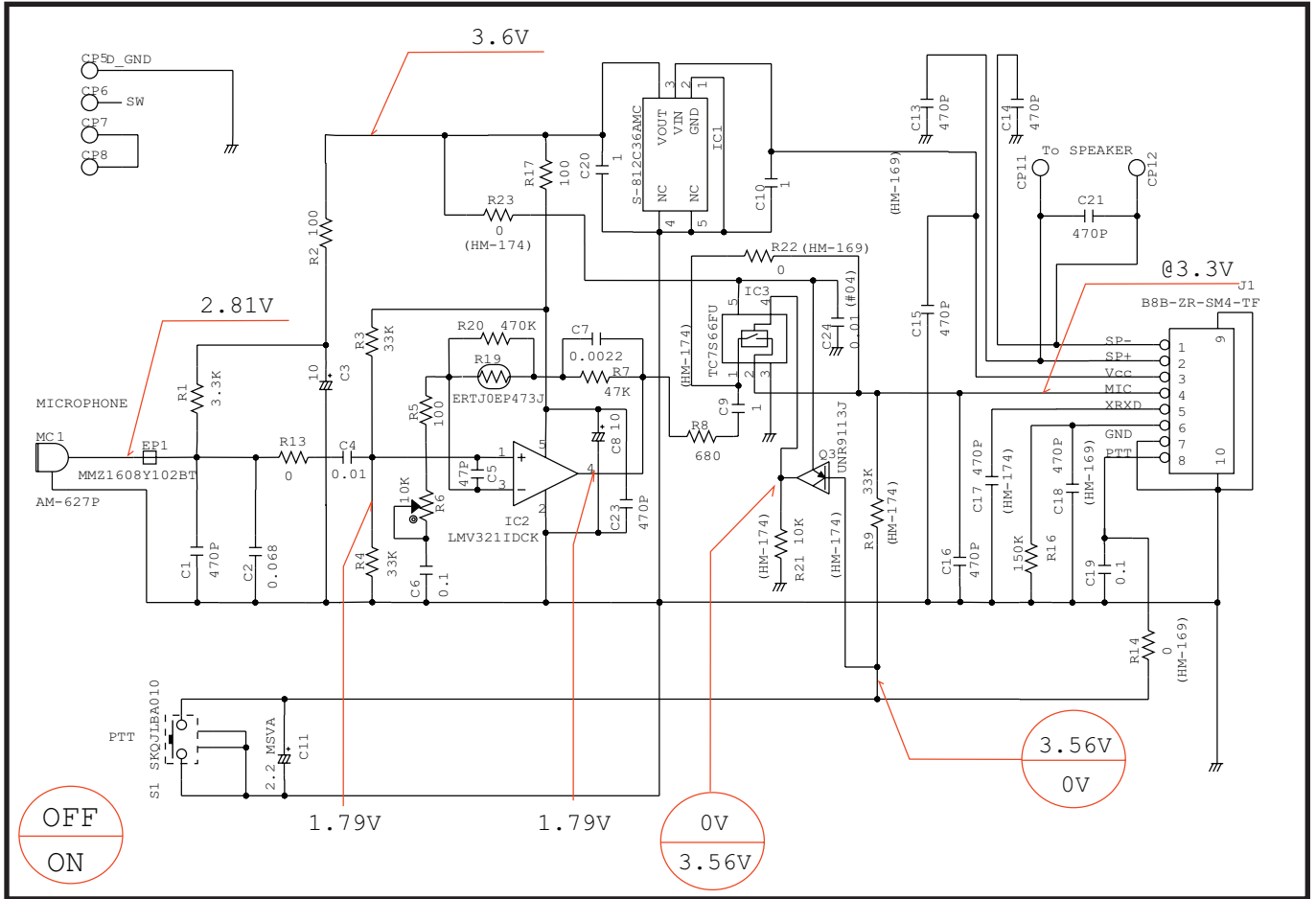
• MAIN-B UNIT (for [HM-170GP], [HM-175GPS])



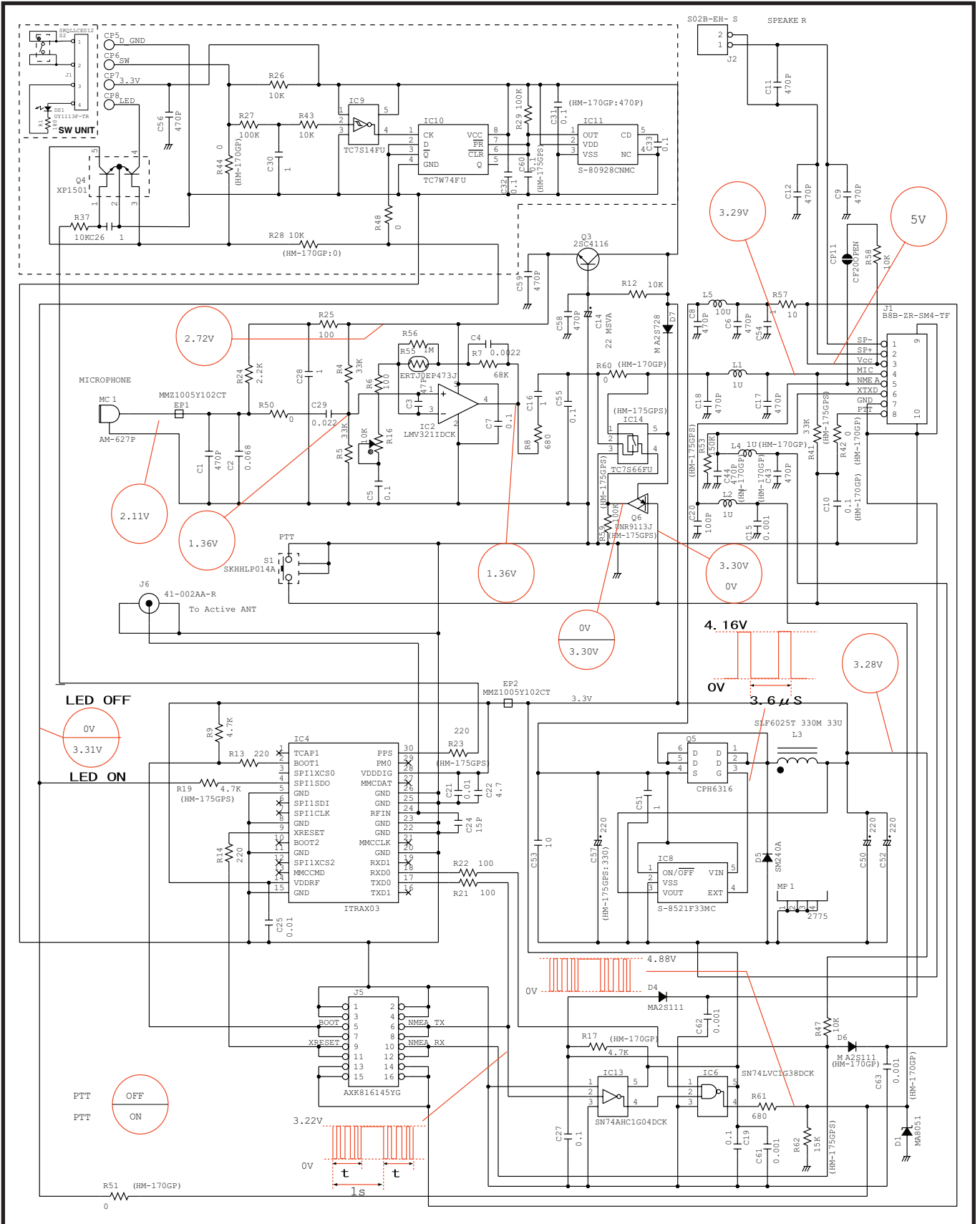
SECTION 7

VOLTAGE DIAGRAMS

• MAIN-A UNIT (for [HM-169], [HM-174])



• MAIN-B UNIT (for [HM-170GP], [HM-175GPS])



*; Refer to "PARTS LIST."

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!

Icom Inc.

1-1-32, Kamiminami, Hirano-ku, Osaka 547-0003, Japan

S-14421XZ-C1
© 2007 Icom Inc.