



SERVICE MANUAL

FISH FINDER

MXF-5000

S-14907XZ-C1
Jun. 2012

Icom Inc.

INTRODUCTION

This service manual describes the latest technical information for the **MXF-5000** FISH FINDER, at the time of publication.

MODEL	VERSION
MXF-5000	EXP
	USA
	EUR

CAUTION

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

DO NOT reverse the polarities of the power supply when connecting the unit.

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



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	MXF-5000	MAIN UNIT	5 pieces
8820001210	Screw	2438 screw	MXF-5000	Top cover	10 pieces

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

REPAIR NOTES

1. Make sure that the problem is internal before disassembling the unit.
2. **DO NOT** open the unit, until the unit 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 unit is defective.
6. **READ** the instructions of the test equipment thoroughly before connecting it to the unit.

TABLE OF CONTENTS

SECTION 1 SPECIFICATIONS

SECTION 2 INSIDE VIEWS

SECTION 3 CIRCUIT DESCRIPITON

3-1	RECEIVER CIRCUITS.....	3-1
3-2	TRANSMITTER CIRCUITS.....	3-1
3-3	PORT ALLOCATION.....	3-2
3-4	VOLTAGE DIAGRAMS.....	3-2

SECTION 4 ADJUSTMENT PROCEDURES

4-1	PREPARATION.....	4-1
4-2	FREQUENCY ADJUSTMENT.....	4-2

SECTION 5 PARTS LIST

SECTION 6 MECHANICAL PARTS

SECTION 7 BOARD LAYOUTS

SECTION 8 BLOCK DIAGRAM

SECTION 9 GENERAL WIRING

SECTION 10 VOLTAGE DIAGRAM

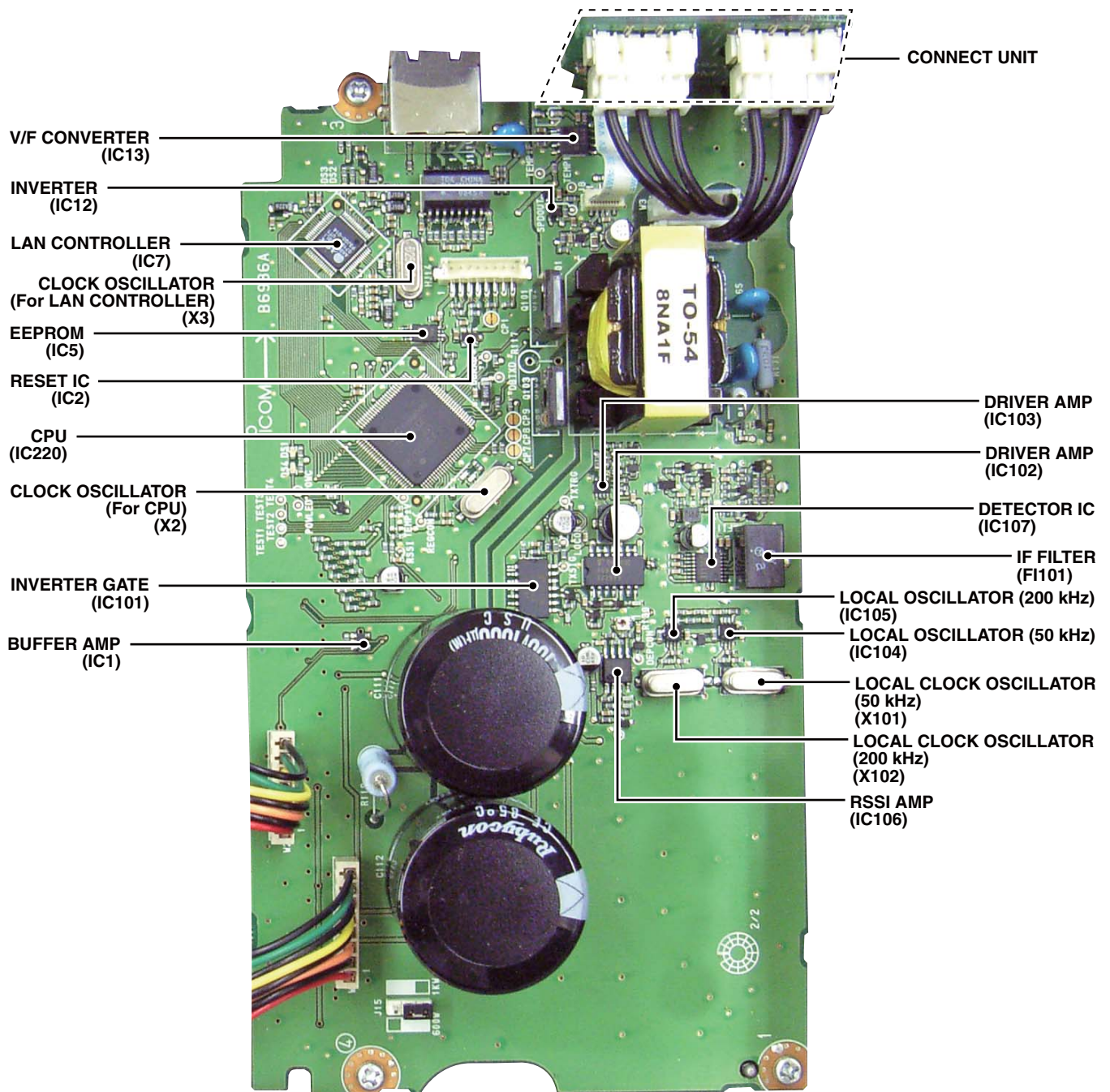
■ GENERAL

- Power supply : 10.8 V to 31.2 V DC
- Current drain : Less than 0.6 A (water depth range: 40 m/output power: 600 W at 12 V DC)
Less than 1.0 A (water depth range: 40 m/output power: 1 kW at 12 V DC)
- Output power : 600 W/1 kW
- Transmission frequency : 50 kHz \pm 1 kHz
200 kHz \pm 1 kHz
- Usable temperature range : -20°C to $+60^{\circ}\text{C}$; -4°F to $+140^{\circ}\text{F}$
- Dimensions : 250(W) \times 67(H) \times 200(D) mm; 9.8(W) \times 2.6(H) \times 7.9(D) in
(Projections not included)
- Weight (approximately) : 2.18 kg; 4.8 lb

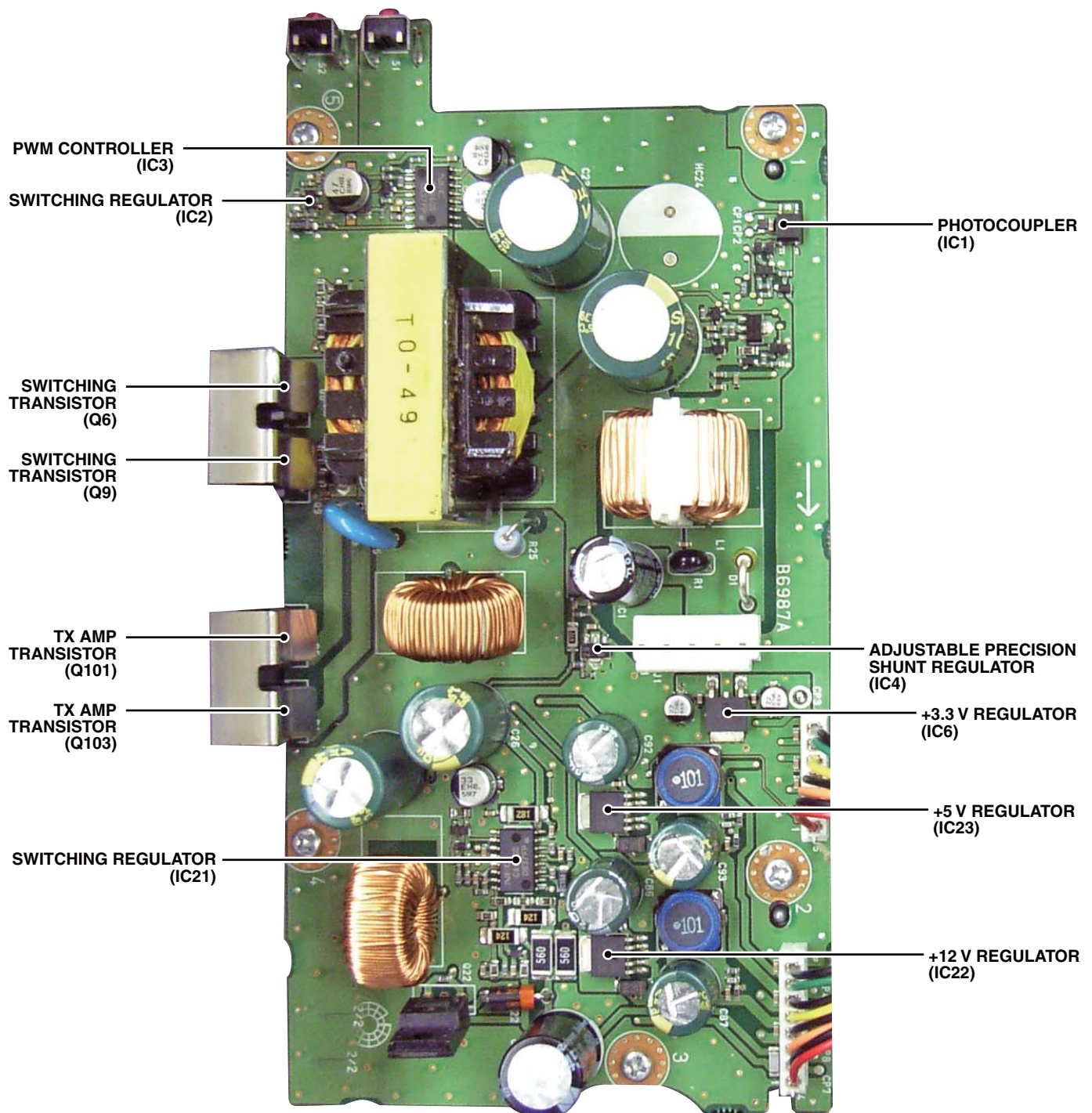
SECTION 2

INSIDE VIEWS

• MAIN UNIT



• REG UNIT



3-1 TRANSMIT CIRCUITS

• Transmit pulse timing adjustment circuits

The 200 kHz or 50 kHz pulse signal from pin 37 of IC220 is applied to pin 9 and pin 13 of the inverting buffer (IC101), and then output from pin 8 and pin 10 as 180 degree phase-shifted pulse signals.

The integral circuit (D103, R105, C104, and D104, R106, C105) removes the duplicated part from the switching pulse (preventing Q101 and Q103 from simultaneously turning ON).

The pulse signal, whose duty cycle is 50%, is adjusted to a slow rising edge and fast falling edge waveform.

IC101a and D101 prevent saturation of T101, which is caused by turning ON the FET, when transmission starts. The TX trigger signal narrows the width of only the first pulse. The pulse signal, which has a slow rising curve, is applied to pin 5 of the Schmitt NAND gate (IC102.)

The TX trigger signal from pin 28 of IC220 is applied to the both pin 2 and pin 6 on IC102, through C101. The TX signal is output only while the TX trigger signal is high.

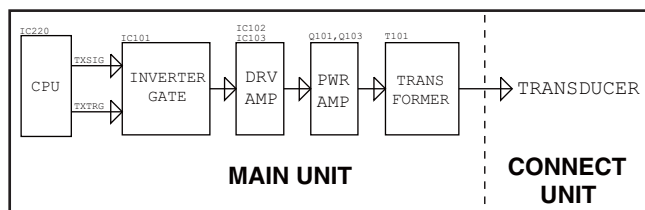
• Transmit circuits

The transmit output circuit is composed of the driver and power amplifier circuits.

The driver amplifier is driven by the buffer (IC103) to generate the pulse signals of fast rising and falling edges.

The power AMP is composed of Q101, Q103 and T101. By instantaneously releasing the electric charge in C111 and C112, the TX signal is output. By controlling the gate voltages of Q101 and Q103, Q102, R113, Q104 and R116 change the output power level.

• TRANSMIT CIRCUITS



3-2 RECEIVE CIRCUITS

• Differential amplifier for receive

The received signal from the I/O connector is amplified by the differential amplifier (Q110–Q113), and then applied to the STC (Sensitivity Time Control) circuit.

• STC (Sensitivity Time Control) circuit

The STC circuit (Q107–Q109, R151, R152 and C151) decreases the sensitivity nearby the transducer, to obtain a clear image at a shallow depth.

While transmitting, the TX trigger signal becomes high to turn ON Q107, then Q108 and Q109 also turn ON. When the transmission stops, the TX trigger signal becomes low to turn OFF Q107, then Q108 and Q109 are slowly turned OFF to obtain the STC (Sensitivity Time Control) effect.

• Mixer and detector circuits

The mixer and detector circuits are composed of IC107 and some external components. IC107 is an IF IC which contains a mixer, 455 kHz IF AMP and RSSI circuit in its package.

The RX signal is applied to pin 16 of IC107, and mixed with the LO signal from pin 2 by the internal mixer, resulting in the 455 kHz IF signal. The IF signal is output from pin 3, and filtered by the narrow band ceramic filter (F1101).

The filtered signal is applied to pin 5 of IC107, and then amplified by the internal IF AMP. The RSSI voltage, which is in proportion to the RX signal level, is output from pin 12, and adjusted in level by the DC AMP (IC106b), and then applied to pin 99 of IC220, through the LPF (IC106a).

• Local oscillator (LO) circuit

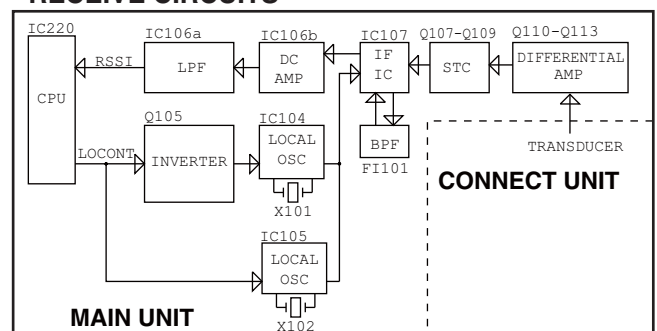
The LO circuit for the 200 kHz RX is composed of IC104, X101 and some external components. The 50 kHz circuit is composed of IC105, X102 and some external components.

IC104 and IC105 are oscillators which contain the divider. When each pin 1 of IC104 and IC105 becomes high, the oscillator activates, and stops when they become low.

While transmitting or receiving in 200 kHz, the “LOCON” signal becomes low to turn ON IC104. X101 generates the 5.24 MHz signal, and it is divided down into 1/8 (655 kHz), and then output from pin 5 as the LO signal.

While transmitting or receiving in 50 kHz, the “LOCON” signal becomes high to turn ON IC105. X102 generates 4.04 MHz signal, and it is divided down into 1/8 (505 kHz), and output from pin 5 as the LO signal.

• RECEIVE CIRCUITS



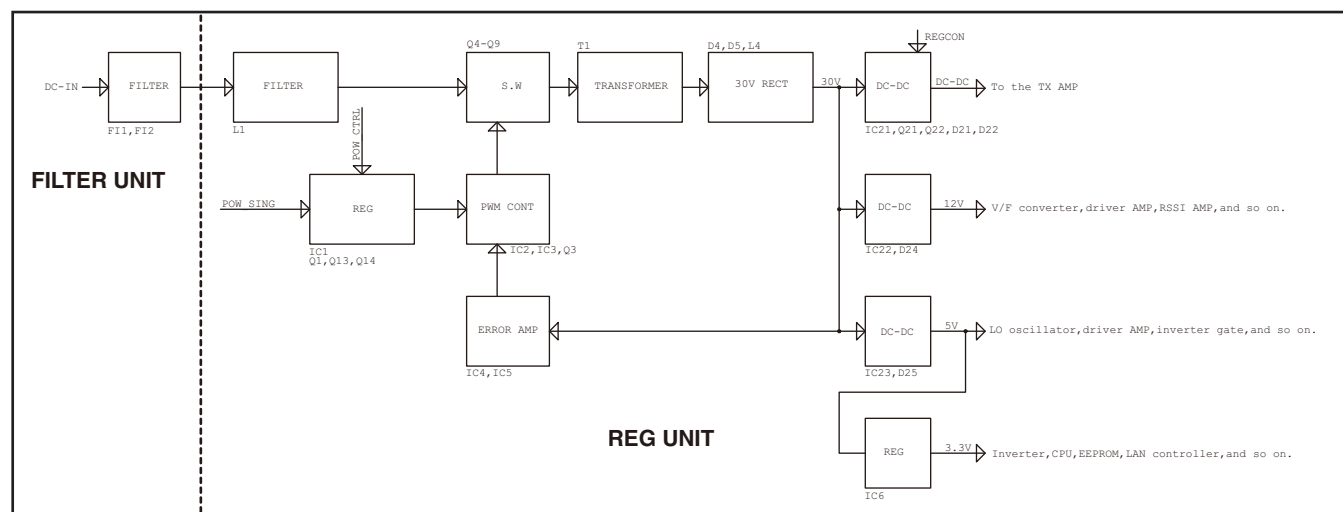
3-3 PORT ALLOCATION

• CPU (MAIN UNIT: IC220)

PIN No.	LINE NAME	DESCRIPTION	I/O
3	REGCON	TX output power control.	O
25	QB2TXD	MINI CUBE2 communication.	O
26	QB2RXD	MINI CUBE2 communication.	I
28	TXTRG	TX trigger. H=Pulse output.	O
29	SPDIN	Ship speed sensing pulse.	I
32	POWOFF	Power OFF control.	I
37	TXSIG	50 kHz or 200 kHz TX pulse (50% duty ratio).	O
38	LOCON	TX frequency switching. H=50 kHz L=200 kHz	O
41	ECK	EEPROM (IC5) serial clock.	O
42	EDA	EEPROM (IC5) serial data.	I/O
43–49	A0–A6	LAN controller (IC7) address bus.	O
54	L_RES	LAN controller (IC7) reset. L=Reset.	O
56	L_INT	LAN controller (IC7) interrupt.	I

PIN No.	LINE NAME	DESCRIPTION	I/O
60	POWSL	TX output power select. H=1 kW L=600 W	I
65	L_WR	Write strobe for LAN controller (IC7).	O
67	L_RD	Read strobe for LAN controller (IC7).	O
68	L_CS	Chip select for LAN controller (IC7).	O
71–86	D0–D15	LAN controller (IC7) address bus.	I/O
89	POWC	Main power supply line control. H=Power ON L=Power OFF	O
90	POWLED	Power ON LED (DS4) control. H=LED lights.	O
98	TEMP_W	Water temperature sensing voltage.	I
99	RSSI	RSSI signal from IF IC (IC107).	I
100	TEMP_V	Body temperature sensing voltage.	I

3-4 VOLTAGE BLOCK DIAGRAM



SECTION 4

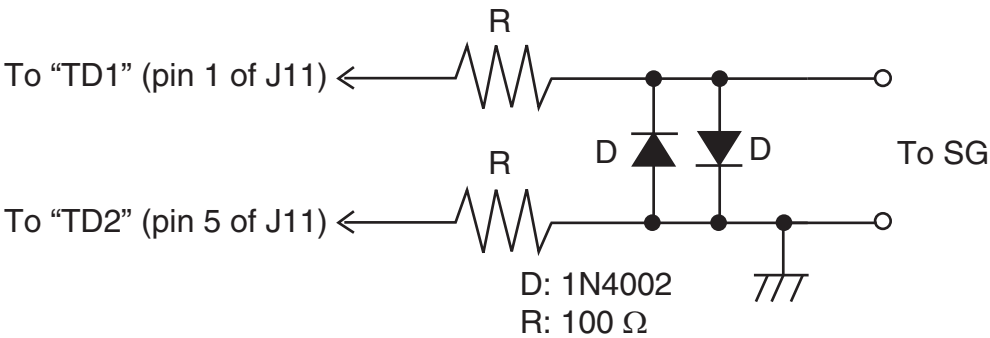
ADJUSTMENT PROCEDURE

4-1 PREPARATION

■ REQUIRED EQUIPMENTS

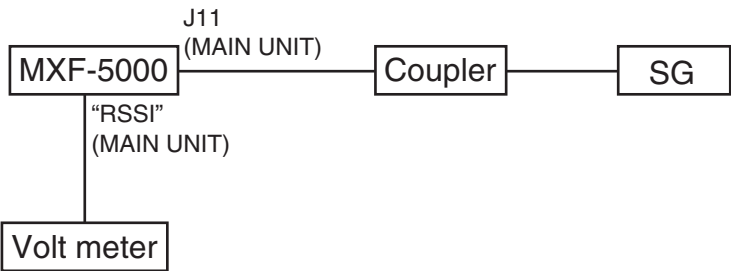
EQUIPMENT	GRADE AND RANGE	EQUIPMENT	GRADE AND RANGE
Coupler	(See the illustration shown below.)	Digital voltmeter	Measuring range : 0–10 V Input impedance : More than 50 kΩ
Standard signal generator (SSG)	Frequency range : 0.1–300 MHz Output level : –20 dBμ to 90 dBμ (–127 to –17 dBm)		

■ COUPLER



This coupler will protect the connected SG from the transmit signal.

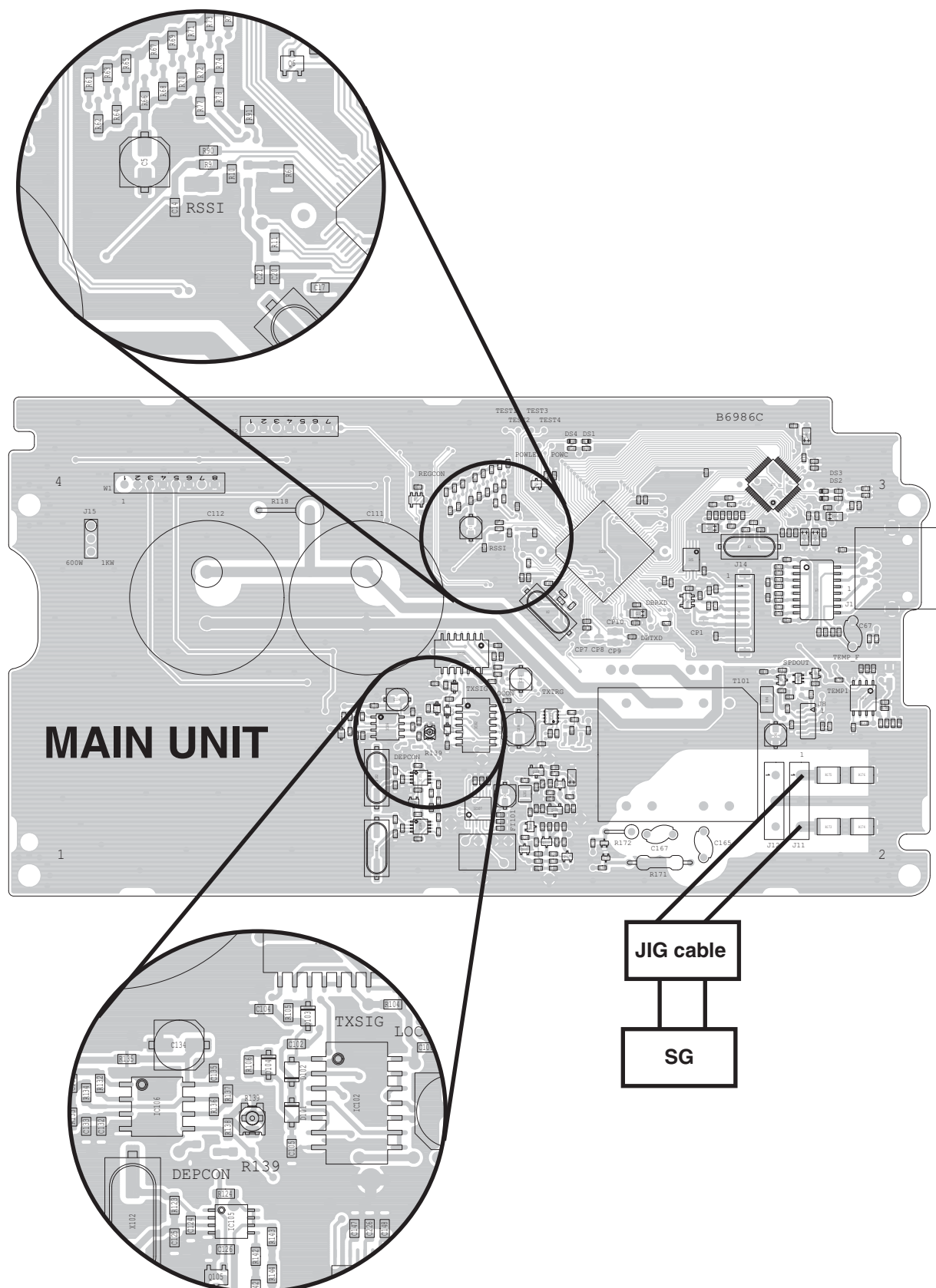
■ CONNECTION



4-2 RECEIVE ADJUSTMENT

ADJUSTMENT	CONDITION	OPERATION	ADJUSTMENT ITEM	VALUE
RX SENSITIVITY	<ul style="list-style-type: none"> Depth range : 500 m Frequency : 200 kHz 	<ul style="list-style-type: none"> Connect a voltmeter to the check point "RSSI" on the MAIN UNIT. Connect an SG to J11 on the MAIN UNIT, and then set it as shown below. Frequency : 200 kHz Level : 60 dBμ emf (−47 dBm) 	R139 (MAIN UNIT)	2.1–2.3 V ("RSSI")

LOCATION



SECTION 5

PARTS LIST

[MAIN UNIT]

REF NO.	PARTS NO.	DESCRIPTION	M.	H/V LOCATION
IC1	1120002830	S.IC NJM2125F-TE1-#FZZB	T	79.2/77.0
IC2	1110005731	S.IC S-80928CNMC-G8Y-G	T	131.8/57.4
IC5	1130016400	S.IC BR24T32FVT-WE2	T	132.6/65.4
IC7	1130014500	S.IC AX88796BLI	T	148.5/80.0
IC12	1130007431	S.IC TC7S14FU(Te85RF)	T	153.4/42.3
IC13	1190000730	S.IC NJM4151M-TE1-#ZZZB	T	166.0/38.5
IC101	1130004922	S.IC TC74HC04AF(ELF)	T	88.0/47.1
IC102	1130006371	S.IC TC4093BF (NF)	T	90.8/33.2
IC103	1110007410	S.IC TND322VD-TL-E	T	105.4/34.9
IC104	1130007991	S.IC TC3W03FU(Te12LF)	T	80.0/13.5
IC105	1130007991	S.IC TC3W03FU(Te12LF)	T	80.0/23.0
IC106	1110001241	S.IC UPC358G2-E1-A	T	73.6/32.9
IC107	1110003491	S.IC TA31136FNG(DEL)	T	91.2/17.0
IC220	1140014780	S.IC UPD70F3740GC(S)-UEU-AX	T	115.5/67.0
Q6	1590003580	S.TRA KRC404 RTK/P	T	102.5/80.1
Q101	1560001680	FET 2SK3743(Q)		
Q103	1560001680	FET 2SK3743(Q)		
Q105	1590003580	S.TRA KRC404 RTK/P	T	78.7/18.2
Q107	1530002060	S.TRA 2SC4081 T106 R	T	107.1/21.7
Eqv.	1530004140	S.TRA L2SC4081RT1G <SLVJ>		
Q108	1530002551	S.TRA 2SC3326-B(Te85RF)	T	102.5/24.2
Q109	1530002551	S.TRA 2SC3326-B(Te85RF)	T	106.1/16.7
Q110	1530002060	S.TRA 2SC4081 T106 R	T	101.4/13.5
Eqv.	1530004140	S.TRA L2SC4081RT1G <SLVJ>		
Q111	1530002601	S.TRA 2SC4215-O(Te85RF)	T	100.2/9.1
Q112	1530002601	S.TRA 2SC4215-O(Te85RF)	T	108.5/7.7
Q113	1530002060	S.TRA 2SC4081 T106 R	T	104.5/10.5
Eqv.	1530004140	S.TRA L2SC4081RT1G <SLVJ>		
D1	1750000130	S.DIO DA204U T106	T	156.7/43.3
Eqv.	1750001180	S.DIO KDS122 RTK/P		
D2	1750000130	S.DIO DA204U T106	T	150.2/42.0
Eqv.	1750001180	S.DIO KDS122 RTK/P		
D101	1750001320	S.DIO KDS4148U RTK/P	T	85.2/32.4
D102	1750001320	S.DIO KDS4148U RTK/P	T	85.2/35.9
D103	1750001320	S.DIO KDS4148U RTK/P	T	86.6/40.7
D104	1750001320	S.DIO KDS4148U RTK/P	T	83.2/36.5
D105	1730002451	S.ZEN MAZ8043GHL	T	64.6/31.6
D106	1750000370	S.DIO DA221 TL	T	116.0/7.4
D107	1750000370	S.DIO DA221 TL	T	115.7/10.3
FI101	2020001640	CER CFWLA455KG1Y-B0 (CFWS455GY)		
X3	6050012410	S.XTA CR-751A SMD-49 25.000 MHz <KDS>	T	143.9/67.9
X101	6050012890	S.XTA CR-881 SMD-49 5.24 MHz	T	71.5/9.3
X102	6050012880	S.XTA CR-880 SMD-49 4.04 MHz	T	71.5/23.0
R1	7030003560	S.RES ERJ3GEYJ 103 V (10K)	T	137.4/50.5
R2	7030003560	S.RES ERJ3GEYJ 103 V (10K)	T	137.3/56.4
R3	7030003560	S.RES ERJ3GEYJ 103 V (10K)	T	136.1/59.4
R4	7030003560	S.RES ERJ3GEYJ 103 V (10K)	T	137.4/59.7
R6	7030003560	S.RES ERJ3GEYJ 103 V (10K)	T	102.2/70.6
R8	7030003560	S.RES ERJ3GEYJ 103 V (10K)	T	136.0/56.4
R9	7030003560	S.RES ERJ3GEYJ 103 V (10K)	T	95.3/71.4
R10	7030003610	S.RES ERJ3GEYJ 273 V (27K)	T	97.3/70.6
R11	7030003320	S.RES ERJ3GEYJ 101 V (100)	T	101.0/64.7
R14	7030003860	S.RES ERJ3GE JPW V	T	109.4/56.4
R15	7030003840	S.RES ERJ3GEYJ 225 V (2.2M)	T	79.5/79.4
R21	7030003520	S.RES ERJ3GEYJ 472 V (4.7K)	T	139.9/77.5
R22	7030003640	S.RES ERJ3GEYJ 473 V (47K)	T	128.7/60.9
R23	7030003560	S.RES ERJ3GEYJ 103 V (10K)	T	127.4/61.3
R24	7030003800	S.RES ERJ3GEYJ 105 V (1M)	T	143.2/71.2
R25	7030004180	S.RES ERJ3EKF 1212 V (12.1K)	T	150.3/70.6
R26	7030003640	S.RES ERJ3GEYJ 473 V (47K)	T	140.4/76.1
R29	7030003320	S.RES ERJ3GEYJ 101 V (100)	T	149.6/64.0
R32	7030003320	S.RES ERJ3GEYJ 101 V (100)	T	149.6/62.8
R33	7030003320	S.RES ERJ3GEYJ 101 V (100)	T	149.6/60.2
R34	7030003320	S.RES ERJ3GEYJ 101 V (100)	T	149.6/61.5
R35	7030003320	S.RES ERJ3GEYJ 101 V (100)	T	149.6/58.8
R36	7030003320	S.RES ERJ3GEYJ 101 V (100)	T	149.6/57.5
R37	7030003320	S.RES ERJ3GEYJ 101 V (100)	T	149.6/56.2
R38	7030003320	S.RES ERJ3GEYJ 101 V (100)	T	149.6/54.9
R43	7030003680	S.RES ERJ3GEYJ 104 V (100K)	T	154.5/85.2
R44	7030003380	S.RES ERJ3GEYJ 331 V (330)	T	112.2/87.0
R45	7030003340	S.RES ERJ3GEYJ 151 V (150)	T	157.4/51.3
R46	7030003340	S.RES ERJ3GEYJ 151 V (150)	T	158.7/51.3
R47	7030003380	S.RES ERJ3GEYJ 331 V (330)	T	161.2/77.3
R48	7030003340	S.RES ERJ3GEYJ 151 V (150)	T	161.3/51.3
R49	7030003380	S.RES ERJ3GEYJ 331 V (330)	T	161.2/78.7
R50	7030003560	S.RES ERJ3GEYJ 103 V (10K)	T	163.8/75.9
R51	7030003340	S.RES ERJ3GEYJ 151 V (150)	T	160.1/51.3
R52	7030003680	S.RES ERJ3GEYJ 104 V (100K)	T	136.1/74.0
R53	7030003560	S.RES ERJ3GEYJ 103 V (10K)	T	166.5/79.2
R54	7030003560	S.RES ERJ3GEYJ 103 V (10K)	T	166.5/77.9
R55	7030003340	S.RES ERJ3GEYJ 151 V (150)	T	167.2/50.0
R56	7030003640	S.RES ERJ3GEYJ 473 V (47K)	T	127.8/53.0
R58	7030003380	S.RES ERJ3GEYJ 331 V (330)	T	109.4/87.0
R59	7030003440	S.RES ERJ3GEYJ 102 V (1K)	T	104.4/81.7
R60	7030003680	S.RES ERJ3GEYJ 104 V (100K)	T	106.0/81.7
R61	7030003640	S.RES ERJ3GEYJ 473 V (47K)	T	85.0/78.5

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

[MAIN UNIT]

REF NO.	PARTS NO.	DESCRIPTION		M.	H/V LOCATION
R62	7030003640	S.RES	ERJ3GEYJ 473 V (47K)	T	85.8/74.9
R63	7030003640	S.RES	ERJ3GEYJ 473 V (47K)	T	86.6/79.3
R64	7030003640	S.RES	ERJ3GEYJ 473 V (47K)	T	87.4/75.7
R65	7030003640	S.RES	ERJ3GEYJ 473 V (47K)	T	88.2/80.1
R66	7030003640	S.RES	ERJ3GEYJ 473 V (47K)	T	89.8/76.9
R67	7030003640	S.RES	ERJ3GEYJ 473 V (47K)	T	90.6/81.3
R68	7030003640	S.RES	ERJ3GEYJ 473 V (47K)	T	91.4/77.7
R69	7030003640	S.RES	ERJ3GEYJ 473 V (47K)	T	92.2/82.1
R70	7030003640	S.RES	ERJ3GEYJ 473 V (47K)	T	93.0/78.5
R71	7030003640	S.RES	ERJ3GEYJ 473 V (47K)	T	93.8/82.9
R72	7030003640	S.RES	ERJ3GEYJ 473 V (47K)	T	94.6/79.3
R73	7030003640	S.RES	ERJ3GEYJ 473 V (47K)	T	95.4/83.7
R74	7030003640	S.RES	ERJ3GEYJ 473 V (47K)	T	96.2/80.1
R75	7030003640	S.RES	ERJ3GEYJ 473 V (47K)	T	97.0/84.1
R77	7030003640	S.RES	ERJ3GEYJ 473 V (47K)	T	94.6/76.4
R78	7030003640	S.RES	ERJ3GEYJ 473 V (47K)	T	96.2/77.2
R80	7030003600	S.RES	ERJ3GEYJ 223 V (22K)	T	146.7/43.6
R81	7030003600	S.RES	ERJ3GEYJ 223 V (22K)	T	150.3/43.9
R82	7030003560	S.RES	ERJ3GEYJ 103 V (10K)	T	155.9/39.2
R83	7030003400	S.RES	ERJ3GEYJ 471 V (470)	T	159.5/33.0
R84	7030001210	S.RES	MCR50JZHJ 470 (471)	T	147.3/38.2
R85	7030003680	S.RES	ERJ3GEYJ 104 V (100K)	T	121.8/53.1
R86	7030003370	S.RES	ERJ3GEYJ 271 V (270)	T	151.3/36.4
R87	7030003680	S.RES	ERJ3GEYJ 104 V (100K)	T	112.3/52.1
R88	7030003680	S.RES	ERJ3GEYJ 104 V (100K)	T	112.3/53.4
R89	7030003680	S.RES	ERJ3GEYJ 104 V (100K)	T	121.1/50.4
R90	7030003560	S.RES	ERJ3GEYJ 103 V (10K)	T	95.3/72.6
R91	7030003680	S.RES	ERJ3GEYJ 104 V (100K)	T	98.8/75.7
R101	7030003460	S.RES	ERJ3GEYJ 152 V (1.5K)	T	95.0/44.5
R102	7030003680	S.RES	ERJ3GEYJ 104 V (100K)	T	95.0/48.7
R103	7030003560	S.RES	ERJ3GEYJ 103 V (10K)	T	94.3/46.6
R104	7030003530	S.RES	ERJ3GEYJ 562 V (5.6K)	T	93.9/41.7
R105	7030003560	S.RES	ERJ3GEYJ 103 V (10K)	T	84.9/41.0
R106	7030003560	S.RES	ERJ3GEYJ 103 V (10K)	T	81.5/36.5
R107	7030003440	S.RES	ERJ3GEYJ 102 V (1K)	T	106.5/31.6
R108	7030003440	S.RES	ERJ3GEYJ 102 V (1K)	T	105.2/31.6
R109	7030003560	S.RES	ERJ3GEYJ 103 V (10K)	T	95.0/43.1
R111	7030003260	S.RES	ERJ3GEYJ 330 V (33)	T	109.9/34.3
R112	7030003380	S.RES	ERJ3GEYJ 331 V (330)	T	112.6/32.2
R114	7030003260	S.RES	ERJ3GEYJ 330 V (33)	T	109.4/35.7
R115	7030003380	S.RES	ERJ3GEYJ 331 V (330)	T	109.4/32.2
R118	7070000940	RES	ERG3SJ 331 (330)		
R121	7030003800	S.RES	ERJ3GEYJ 105 V (1M)	T	75.1/14.9
R122	7030003680	S.RES	ERJ3GEYJ 104 V (100K)	T	79.5/15.9
R123	7030003800	S.RES	ERJ3GEYJ 105 V (1M)	T	75.1/24.4
R124	7030003640	S.RES	ERJ3GEYJ 473 V (47K)	T	79.5/25.4
R131	7030003400	S.RES	ERJ3GEYJ 471 V (470)	T	65.1/34.9
R132	7030004820	S.RES	ERJ3GEYF 473 V (47K)	T	68.7/34.9
R133	7030004820	S.RES	ERJ3GEYF 473 V (47K)	T	66.3/32.0
R134	7030004820	S.RES	ERJ3GEYF 473 V (47K)	T	67.5/34.1
R135	7030003280	S.RES	ERJ3GEYJ 470 V (47)	T	71.0/37.0
R136	7030003630	S.RES	ERJ3GEYJ 393 V (39K)	T	78.5/32.9
R137	7030003580	S.RES	ERJ3GEYJ 153 V (15K)	T	79.7/34.0
R138	7030003600	S.RES	ERJ3GEYJ 223 V (22K)	T	79.7/31.1
R139	7310004610	S.TRI	EVM-2WSX80 B15 (104)	T	81.8/31.9
R141	7030003650	S.RES	ERJ3GEYJ 563 V (56K)	T	83.5/12.5
R142	7030003640	S.RES	ERJ3GEYJ 473 V (47K)	T	82.1/20.0
R143	7030003280	S.RES	ERJ3GEYJ 470 V (47)	T	83.5/21.7
R144	7030003440	S.RES	ERJ3GEYJ 102 V (1K)	T	83.5/18.5
R151	7030003680	S.RES	ERJ3GEYJ 104 V (100K)	T	106.1/23.8
R152	7030003680	S.RES	ERJ3GEYJ 104 V (100K)	T	105.2/20.1
R153	7030003420	S.RES	ERJ3GEYJ 681 V (680)	T	102.5/21.2
R154	7030003560	S.RES	ERJ3GEYJ 103 V (10K)	T	100.3/11.4
R155	7030003510	S.RES	ERJ3GEYJ 392 V (3.9K)	T	101.3/16.3
R156	7030003420	S.RES	ERJ3GEYJ 681 V (680)	T	102.5/17.0
R157	7030003700	S.RES	ERJ3GEYJ 154 V (150K)	T	105.2/21.9
R158	7030003640	S.RES	ERJ3GEYJ 473 V (47K)	T	105.2/18.9
R159	7030003640	S.RES	ERJ3GEYJ 473 V (47K)	T	106.1/25.0
R161	7030003510	S.RES	ERJ3GEYJ 392 V (3.9K)	T	106.5/10.5
R162	7030003450	S.RES	ERJ3GEYJ 122 V (1.2K)	T	105.1/13.5
R163	7030003510	S.RES	ERJ3GEYJ 392 V (3.9K)	T	103.7/13.5
R164	7030003200	S.RES	ERJ3GEYJ 100 V (10)	T	102.9/8.2
R165	7030003200	S.RES	ERJ3GEYJ 100 V (10)	T	105.8/8.2
R166	7030003560	S.RES	ERJ3GEYJ 103 V (10K)	T	107.9/10.5
R167	7030003520	S.RES	ERJ3GEYJ 472 V (4.7K)	T	102.5/10.5
R168	7030003680	S.RES	ERJ3GEYJ 104 V (100K)	T	102.9/6.8
R169	7030003680	S.RES	ERJ3GEYJ 104 V (100K)	T	105.8/6.8
R170	7030003520	S.RES	ERJ3GEYJ 472 V (4.7K)	T	102.9/5.4
R171	7070001080	RES	ERG1SJ 103 (10K)		
R172	7070001080	RES	ERG1SJ 103 (10K)		
R173	7030007980	S.RES	ERJ12YJ473U (47K)	T	159.3/13.5
R174	7030007980	S.RES	ERJ12YJ473U (47K)	T	165.8/13.5
R175	7030007980	S.RES	ERJ12YJ473U (47K)	T	159.3/23.5
R176	7030007980	S.RES	ERJ12YJ473U (47K)	T	165.8/23.5
R177	7030003520	S.RES	ERJ3GEYJ 472 V (4.7K)	T	109.0/19.3
R178	7030003560	S.RES	ERJ3GEYJ 103 V (10K)	T	109.7/17.0
R181	7030003580	S.RES	ERJ3GEYJ 153 V (15K)	T	165.6/44.2
R182	7030003540	S.RES	ERJ3GEYJ 682 V (6.8K)	T	166.2/33.6
R183	7030003680	S.RES	ERJ3GEYJ 104 V (100K)	T	166.8/44.2
R184	7030003680	S.RES	ERJ3GEYJ 104 V (100K)	T	170.2/36.5
R185	7030003620	S.RES	ERJ3GEYJ 333 V (33K)	T	171.8/33.6
R186	7510001661	S.THR	NTCG16 4LH 473JT	T	173.0/33.6
R187	7030003240	S.RES	ERJ3GEYJ 220 V (22)	T	169.4/33.6
R188	7510001491	S.THE	NTCG16 3NH 681JT	T	170.6/33.6
R189	7030003520	S.RES	ERJ3GEYJ 472 V (4.7K)	T	161.3/42.0
C2	4030008890	S.CER	C1608 JB 1H 273K-T	T	132.2/59.8

[MAIN UNIT]

REF NO.	PARTS NO.	DESCRIPTION	M.	H/V LOCATION
C5	4510009270	S.ELE EEEHB1C220UR	T	89.8/71.6
C11	4030011600	S.CER C1608 JB 1E 104K-T	T	134.3/58.4
C12	4030007050	S.CER C1608 CH 1H 220J-T	T	107.7/58.8
C14	4030006860	S.CER C1608 JB 1H 102K-T	T	92.4/67.7
C16	4030007050	S.CER C1608 CH 1H 220J-T	T	107.3/57.4
C17	4030018910	S.CER C1608 JB 0J 475K-T	T	104.9/60.8
C18	4030011600	S.CER C1608 JB 1E 104K-T	T	122.4/77.0
C19	4030011600	S.CER C1608 JB 1E 104K-T	T	123.7/77.0
C20	4030011600	S.CER C1608 JB 1E 104K-T	T	101.0/61.9
C21	4030011600	S.CER C1608 JB 1E 104K-T	T	99.7/61.9
C22	4030011600	S.CER C1608 JB 1E 104K-T	T	122.0/56.6
C23	4550006050	S.TAN TEESVA 0J 106M8R	T	122.3/54.9
Eqv.	4550007480	S.TAN F930J106MAABMA		
C24	4030011600	S.CER C1608 JB 1E 104K-T	T	135.1/63.2
C25	4030007070	S.CER C1608 CH 1H 330J-T	T	144.7/72.6
C26	4030007070	S.CER C1608 CH 1H 330J-T	T	146.1/71.2
C27	4550006050	S.TAN TEESVA 0J 106M8R	T	136.3/71.5
Eqv.	4550007480	S.TAN F930J106MAABMA		
C29	4030011600	S.CER C1608 JB 1E 104K-T	T	142.6/74.0
C31	4030011600	S.CER C1608 JB 1E 104K-T	T	137.4/74.0
C33	4030011600	S.CER C1608 JB 1E 104K-T	T	138.7/74.0
C35	4030011600	S.CER C1608 JB 1E 104K-T	T	157.0/73.9
C36	4550006050	S.TAN TEESVA 0J 106M8R	T	154.6/69.8
Eqv.	4550007480	S.TAN F930J106MAABMA		
C38	4030011600	S.CER C1608 JB 1E 104K-T	T	151.6/70.6
C40	4030011600	S.CER C1608 JB 1E 104K-T	T	152.9/70.6
C41	4030011600	S.CER C1608 JB 1E 104K-T	T	147.5/61.0
C43	4030011600	S.CER C1608 JB 1E 104K-T	T	158.4/70.6
C45	4550006050	S.TAN TEESVA 0J 106M8R	T	156.7/69.8
Eqv.	4550007480	S.TAN F930J106MAABMA		
C48	4030011600	S.CER C1608 JB 1E 104K-T	T	147.5/58.0
C51	4030006900	S.CER C1608 JB 1H 103K-T	T	151.2/65.4
C52	4030011600	S.CER C1608 JB 1E 104K-T	T	159.1/75.5
C54	4030011600	S.CER C1608 JB 1E 104K-T	T	151.2/53.6
C55	4550006050	S.TAN TEESVA 0J 106M8R	T	160.4/73.8
Eqv.	4550007480	S.TAN F930J106MAABMA		
C59	4030011600	S.CER C1608 JB 1E 104K-T	T	156.5/83.2
C60	4030011600	S.CER C1608 JB 1E 104K-T	T	156.5/84.5
C61	4030011600	S.CER C1608 JB 1E 104K-T	T	141.3/74.0
C62	4030011600	S.CER C1608 JB 1E 104K-T	T	140.0/74.0
C64	4550007090	S.TAN TEESVA 1A 226M8R	T	155.0/89.4
Eqv.	4550008160	S.TAN F931A226MAA		
C65	4030011600	S.CER C1608 JB 1E 104K-T	T	152.5/91.4
C67	4010008500	CER DEBB33D102KA2B (DE0805B102K)		
C68	4030011600	S.CER C1608 JB 1E 104K-T	T	135.5/82.3
C69	4030011600	S.CER C1608 JB 1E 104K-T	T	165.2/75.9
C71	4030011600	S.CER C1608 JB 1E 104K-T	T	136.8/76.1
C73	4030011600	S.CER C1608 JB 1E 104K-T	T	168.6/50.0
C81	4030011600	S.CER C1608 JB 1E 104K-T	T	151.7/38.7
C82	4030006900	S.CER C1608 JB 1H 103K-T	T	156.7/41.3
C83	4030006860	S.CER C1608 JB 1H 102K-T	T	150.2/39.9
C84	4030006860	S.CER C1608 JB 1H 102K-T	T	158.1/33.0
C85	4030011600	S.CER C1608 JB 1E 104K-T	T	152.1/33.3
C86	4510009270	S.ELE EEEHB1C220UR	T	149.0/31.3
C91	4030006900	S.CER C1608 JB 1H 103K-T	T	164.1/32.8
C92	4030017490	S.CER C1608 JB 1A 105K-T	T	168.0/44.2
C93	4030006900	S.CER C1608 JB 1H 103K-T	T	170.2/37.7
C101	4510008970	S.ELE EEEHB1C100R	T	99.5/42.2
C102	4030006860	S.CER C1608 JB 1H 102K-T	T	85.6/38.3
C103	4030011600	S.CER C1608 JB 1E 104K-T	T	95.7/46.6
C104	4030007100	S.CER C1608 CH 1H 560J-T	T	82.8/41.3
C105	4030007100	S.CER C1608 CH 1H 560J-T	T	85.2/29.3
C106	4030011600	S.CER C1608 JB 1E 104K-T	T	96.8/38.0
C107	4030006860	S.CER C1608 JB 1H 102K-T	T	103.5/29.6
C108	4510009330	S.ELE EEEHA1E470WP	T	99.1/32.5
C111	4510009960	ELE 180 USC 1000M SN (30X30)		
C112	4510009960	ELE 180 USC 1000M SN (30X30)		
C121	4030009990	S.CER C1608 CH 1H 200J-T	T	76.5/13.2
C122	4030009990	S.CER C1608 CH 1H 200J-T	T	75.1/12.1
C123	4030011600	S.CER C1608 JB 1E 104K-T	T	79.5/11.1
C124	4030009990	S.CER C1608 CH 1H 200J-T	T	76.5/22.7
C125	4030009990	S.CER C1608 CH 1H 200J-T	T	75.1/21.6
C126	4030011600	S.CER C1608 JB 1E 104K-T	T	79.5/20.6
C131	4030006870	S.CER C1608 JB 1H 222K-T	T	66.3/34.9
C132	4030007140	S.CER C1608 CH 1H 121J-T	T	68.8/31.2
C133	4030007140	S.CER C1608 CH 1H 121J-T	T	67.5/31.2
C134	4510008970	S.ELE EEEHB1C100R	T	75.5/38.2
C135	4030006860	S.CER C1608 JB 1H 102K-T	T	78.5/35.8
C141	4030011600	S.CER C1608 JB 1E 104K-T	T	83.5/15.3
C142	4030011600	S.CER C1608 JB 1E 104K-T	T	82.1/17.2
C143	4510008970	S.ELE EEEHB1C100R	T	96.4/19.5
C144	4030006860	S.CER C1608 JB 1H 102K-T	T	95.5/15.8
C145	4030006900	S.CER C1608 JB 1H 103K-T	T	95.5/13.2
C146	4030006900	S.CER C1608 JB 1H 103K-T	T	95.5/14.5
C147	4030006900	S.CER C1608 JB 1H 103K-T	T	90.6/22.4
C148	4030006900	S.CER C1608 JB 1H 103K-T	T	93.2/22.4
C151	4550002980	S.TAN TEESVA 1C 225M8R	T	109.4/23.0
Eqv.	4550007390	S.TAN F931C225MAABMA		
C152	4030011600	S.CER C1608 JB 1E 104K-T	T	108.5/17.0
C153	4030009980	S.CER C1608 JB 1H 152K-T	T	100.3/22.5
C154	4030006860	S.CER C1608 JB 1H 102K-T	T	103.7/21.8
C155	4030006860	S.CER C1608 JB 1H 102K-T	T	103.7/17.0
C161	4030011600	S.CER C1608 JB 1E 104K-T	T	106.5/13.5
C162	4030011600	S.CER C1608 JB 1E 104K-T	T	107.9/13.5
C163	4030011600	S.CER C1608 JB 1E 104K-T	T	105.8/5.4
C164	4030006860	S.CER C1608 JB 1H 102K-T	T	115.3/5.5
C165	4010008500	CER DEBB33D102KA2B (DE0805B102K)		
C166	4030006860	S.CER C1608 JB 1H 102K-T	T	113.5/10.3
C167	4010008500	CER DEBB33D102KA2B (DE0805B102K)		
C226	4030006860	S.CER C1608 JB 1H 102K-T	T	91.9/22.4

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

[MAIN UNIT]

REF NO.	PARTS NO.	DESCRIPTION	M.	H/V LOCATION
J1	6510027380	CON MJ-88H-RD315K(LF)(SN)		
J8	6510025142	S.CON 10FLT-SM2-TB(LF)(SN)(M)	T	155.0/34.0
J11	6510027510	CON B3(5-2.4)B-EH(LF)(SN)		
J12	6510027510	CON B3(5-2.4)B-EH(LF)(SN)		
J14	6510019421	S.CON B8B-ZR-SM4-TF(LF)(SN)	T	143.0/55.0
J15	6910004741	CON IMSA-9202B-1-03Z041-PT1		
P1	6910003120	CON IMSA-9206H-T		
DS1	5040002420	S.LED SML-310MT T86	T	112.2/88.4
DS2	5040002420	S.LED SML-310MT T86	T	158.4/77.3
DS3	5040002420	S.LED SML-310MT T86	T	158.4/78.7
DS4	5040002420	S.LED SML-310MT T86	T	109.4/88.4
T1	5910001120	S.TRA TLA-6T133WLF-T	T	157.0/59.5
T101	5910001140	TRA TO-54		
W1	8900018310	CAB OPC-1905		
W2	8900018320	CAB OPC-1906		
EP2	6910013370	S.BEA BLM18BB221SN1D (BLM11B221SB)	T	140.4/71.9
EP3	6910013370	S.BEA BLM18BB221SN1D (BLM11B221SB)	T	155.4/73.9
EP4	6910013370	S.BEA BLM18BB221SN1D (BLM11B221SB)	T	162.0/67.3

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

[REG UNIT]

REF NO.	PARTS NO.	DESCRIPTION	M.	H/V LOCATION
IC1	1170000352	S.IC PC357N6J000F	T	35.0/80.7
IC2	1110002861	S.IC TA75S393F(TE85RF)	T	29.1/4.6
IC3	1110003071	S.IC UPC494GS-E1-A	T	29.2/24.3
IC4	1110001821	S.IC UPC1093T-E1-AZ	T	101.0/49.9
IC5	1170000352	S.IC PC357N6J000F	T	90.5/47.7
IC6	1180002020	S.REG BA033FP-E2	T	109.5/70.5
IC21	1110003071	S.IC UPC494GS-E1-A	T	134.0/37.5
IC22	1180003400	S.REG BD9703FP-E2	T	148.8/52.0
IC23	1180003400	S.REG BD9703FP-E2	T	126.3/52.0
Q1	1530000161	S.TRA 2SC2712-Y(TE85RF)	T	54.0/79.0
Q3	15900004010	S.TRA KRA302-RTK/P	T	27.6/16.8
Q4	1540000550	S.TRA 2SD1664 T100Q	T	50.2/9.8
Eqv.	1540000770	S.TRA 2SD1664L-Q-AB3-R <SLVJ>		
Q5	1520000460	S.TRA 2SB1132 T100 R	T	45.0/9.7
Eqv.	1520000910	S.TRA 2SB1132L-R-AB3-R <SLVJ>		
Q6	1560001670	FET 2SK2882(F)		
Q7	1540000550	S.TRA 2SD1664 T100Q	T	73.3/9.8
Eqv.	1540000770	S.TRA 2SD1664L-Q-AB3-R <SLVJ>		
Q8	1520000460	S.TRA 2SB1132 T100 R	T	68.0/9.7
Eqv.	1520000910	S.TRA 2SB1132L-R-AB3-R <SLVJ>		
Q9	1560001670	FET 2SK2882(F)		
Q10	1510000501	S.TRA 2SA1162-GR(TE85RF)	T	41.6/76.8
Q11	1590003680	S.TRA KRC402 RTK/P	T	44.5/80.0
Q13	1520000460	S.TRA 2SB1132 T100 R	T	50.7/75.2
Eqv.	1520000910	S.TRA 2SB1132L-R-AB3-R <SLVJ>		
Q14	1530003900	S.TRA KTC4075 BL-RTK/P	T	48.4/69.3
Q15	1530003900	S.TRA KTC4075 BL-RTK/P	T	54.0/69.5
Q21	1510000501	S.TRA 2SA1162-GR(TE85RF)	T	129.3/28.3
Q22	1560001670	FET 2SK2882(F)		
D1	1790000700	DIO DSA3A1		
D2	1730002611	S.ZEN MAZ8360GML	T	56.0/74.2
D3	1730002321	S.ZEN MAZ8051GML	T	34.2/76.4
D4	1790001730	DIO FMG-26R		
D5	1790001720	DIO FMG-26S		
D6	1750001320	S.DIO KDS4148U RTK/P	T	38.1/75.9
D7	1750001320	S.DIO KDS4148U RTK/P	T	38.1/77.7
D21	1750001320	S.DIO KDS4148U RTK/P	T	131.9/28.3
D22	1790000760	DIO RG-2A		
D23	1750000261	S.DIO 1SS352(TPH3F)	T	148.7/37.1
D24	1750000560	S.DIO RB050L-40 TE-25	T	153.9/55.6
D25	1750000560	S.DIO RB050L-40 TE-25	T	131.4/55.6
L1	5920000450	COI FK-080E-1020		
L2	62000006190	S.COI BLM21PG300SN1D (BLM21P300S)	T	50.5/6.4
L3	62000006190	S.COI BLM21PG300SN1D (BLM21P300S)	T	73.5/6.4
L4	6190001990	COI HK-10S070-3310		
L21	6190001480	COI HK-10S050-6010		
L22	6200011490	S.COI SLF10145T-101M1R0-PF	T	143.5/64.5
L23	6200011490	S.COI SLF10145T-101M1R0-PF	T	121.0/64.5
R1	7540000340	ABS ERZV05D560		
R5	7030003560	S.RES ERJ3GEYJ 103 V (10K)	T	56.4/78.6
R6	7030003560	S.RES ERJ3GEYJ 103 V (10K)	T	55.6/76.6
R7	7030000580	S.RES MCR10EZJH 47 K (473)	T	54.2/74.2
R8	7030010320	S.RES ERJ3GEYF 153 V (15K)	T	26.5/3.7
R9	7030005250	S.RES ERJ3GEYF 103 V (10K)	T	28.6/2.1
R10	7030003620	S.RES ERJ3GEYJ 333 V (33K)	T	33.3/7.5
R11	7030003560	S.RES ERJ3GEYJ 103 V (10K)	T	31.5/1.8
R12	7030003700	S.RES ERJ3GEYJ 154 V (150K)	T	31.5/4.6
R13	7030003650	S.RES ERJ3GEYJ 563 V (56K)	T	29.5/16.7
R14	7030003490	S.RES ERJ3GEYJ 272 V (2.7K)	T	31.6/16.0
R15	7030003560	S.RES ERJ3GEYJ 103 V (10K)	T	24.3/16.8
R16	7030003560	S.RES ERJ3GEYJ 103 V (10K)	T	23.0/21.4
R17	7030003530	S.RES ERJ3GEYJ 562 V (5.6K)	T	25.7/16.8
R18	7030003600	S.RES ERJ3GEYJ 223 V (22K)	T	26.4/19.0
R19	7030003550	S.RES ERJ3GEYJ 822 V (8.2K)	T	32.2/18.2
R21	7030000380	S.RES MCR10EZJH 1 K (102)	T	43.3/6.1
R22	7030000410	S.RES MCR10EZJH 1.8K (182)	T	46.9/6.1
R23	7030000380	S.RES MCR10EZJH 1 K (102)	T	64.5/11.0
R24	7030000410	S.RES MCR10EZJH 1.8K (182)	T	69.9/6.1
R25	7070000531	RES ERG2SJ 330 (33)		
R26	7030010310	S.RES ERJ3GEYF 223 V (22K)	T	103.3/47.1
R27	7030007220	S.RES ERA3YED 202V (2K)	T	104.9/48.6
R28	7030001570	S.RES MCR18EZJH 4.7K	T	98.9/46.3
R29	7030003440	S.RES ERJ3GEYJ 102 V (1K)	T	95.4/47.1
R31	7030003440	S.RES ERJ3GEYJ 102 V (1K)	T	42.1/80.0
R32	7030003640	S.RES ERJ3GEYJ 473 V (47K)	T	44.1/76.8
R33	7030003440	S.RES ERJ3GEYJ 102 V (1K)	T	45.4/77.0
R34	7030003440	S.RES ERJ3GEYJ 102 V (1K)	T	44.4/73.6
R41	7030003610	S.RES ERJ3GEYJ 273 V (27K)	T	51.0/71.7
R42	7030003610	S.RES ERJ3GEYJ 273 V (27K)	T	51.0/70.5
R43	7030003560	S.RES ERJ3GEYJ 103 V (10K)	T	51.8/68.5
R44	7030003440	S.RES ERJ3GEYJ 102 V (1K)	T	48.3/67.1
R61	7030003720	S.RES ERJ3GEYJ 224 V (220K)	T	136.1/42.9
R62	7030003550	S.RES ERJ3GEYJ 822 V (8.2K)	T	133.2/45.7
R63	7030003530	S.RES ERJ3GEYJ 562 V (5.6K)	T	132.1/42.9
R64	7030003770	S.RES ERJ3GEYJ 564 V (560K)	T	137.0/32.1
R65	7030003400	S.RES ERJ3GEYJ 471 V (470)	T	139.1/31.4
R67	7030001280	S.RES MCR50JZJH 1.8K (182)	T	126.7/38.5
R68	7030003600	S.RES ERJ3GEYJ 223 V (22K)	T	137.0/29.3
R69	7030003440	S.RES ERJ3GEYJ 102 V (1K)	T	137.0/27.9
R70	7030003560	S.RES ERJ3GEYJ 103 V (10K)	T	134.2/27.9
R71	7030000460	S.RES MCR10EZJH 4.7K (472)	T	126.6/28.3
R72	7030003560	S.RES ERJ3GEYJ 103 V (10K)	T	152.8/25.5
R73	7030001520	S.RES MCR50JZJH 120 K (124)	T	146.0/35.0
R74	7030000500	S.RES MCR10EZJH 10 K (103)	T	151.4/33.5
R75	7030010420	S.RES ERJ1TYJ 560U (56)	T	149.0/41.1

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

[REG UNIT]

REF NO.	PARTS NO.	DESCRIPTION	M.	H/V LOCATION
R76	7030010420	S.RES ERJ1TYJ 560U (56)	T	149.0/44.9
R77	7030000680	S.RES MCR10EZJH 330 K (334)	T	140.5/41.8
R78	7030000680	S.RES MCR10EZJH 330 K (334)	T	140.5/38.2
R79	7030000680	S.RES MCR10EZJH 330 K (334)	T	140.5/34.6
R80	7030004780	S.RES ERJ3GEYF 123 V (12K)	T	151.4/35.2
R81	70300001520	S.RES MCR50JZJH 120 K (124)	T	143.0/39.5
R82	7030000500	S.RES MCR10EZJH 10 K (103)	T	151.4/38.3
R83	7030000620	S.RES MCR10EZJH 100 K (104)	T	142.8/32.4
R85	7030010310	S.RES ERJ3GEYF 223 V (22K)	T	151.4/71.0
R86	7030007220	S.RES ERA3YED 202V (2K)	T	154.9/71.7
R91	7030009591	S.RES ERA3YED 472V (4.7K)	T	127.0/70.3
R92	7030009691	S.RES ERA3YED 101V (100)	T	127.7/72.4
R94	7030006581	S.RES ERA3YED 122V (1.2K)	T	131.1/71.8
C1	4510005680	ELE 50 ME 470 HC		
C2	4030006880	S.CER C1608 JB 1H 472K-T	T	84.5/63.9
C3	4030006880	S.CER C1608 JB 1H 472K-T	T	59.9/69.5
C4	4510007360	ELE 50 ME 1000 AX		
C5	4030006880	S.CER C1608 JB 1H 472K-T	T	57.9/69.5
C6	4030006880	S.CER C1608 JB 1H 472K-T	T	58.7/72.3
C10	4030011600	S.CER C1608 JB 1E 104K-T	T	34.5/78.0
C12	4030006900	S.CER C1608 JB 1H 103K-T	T	50.6/68.5
C13	4510009780	S.ELE EEEHB1V220P	T	30.6/33.2
C14	4550003250	S.TAN TEESVA 1V 474M8R	T	33.3/3.0
Eqv.	4550007590	S.TAN F931V474MAABMA		
C15	4030006900	S.CER C1608 JB 1H 103K-T	T	25.7/5.8
C16	4510008980	S.ELE EEEHB1C470P	T	28.2/10.9
C17	4030006860	S.CER C1608 JB 1H 102K-T	T	30.9/18.2
C18	4030011600	S.CER C1608 JB 1E 104K-T	T	23.0/27.4
C19	4510008980	S.ELE EEEHB1C470P	T	23.4/33.2
C21	4030006900	S.CER C1608 JB 1H 103K-T	T	53.1/7.1
C22	4030006900	S.CER C1608 JB 1H 103K-T	T	76.1/6.9
C23	4510007360	ELE 50 ME 1000 AX		
C25	4010008490	CER DEA1X3D471JA3B (DE1407SL471J)		
C26	4510007351	ELE 35 ME 1000 AX		
C27	4030006900	S.CER C1608 JB 1H 103K-T	T	97.3/49.4
C31	4510009270	S.ELE EEEHB1C220UR	T	108.9/77.8
C32	4030011600	S.CER C1608 JB 1E 104K-T	T	108.7/74.7
C33	4030011600	S.CER C1608 JB 1E 104K-T	T	108.7/66.3
C34	4510009270	S.ELE EEEHB1C220UR	T	110.0/63.2
C35	4030006900	S.CER C1608 JB 1H 103K-T	T	155.7/77.9
C36	4030006900	S.CER C1608 JB 1H 103K-T	T	150.8/77.9
C37	4030006900	S.CER C1608 JB 1H 103K-T	T	122.0/81.3
C38	4030006900	S.CER C1608 JB 1H 103K-T	T	119.0/81.3
C39	4030006900	S.CER C1608 JB 1H 103K-T	T	114.5/81.3
C61	4550007080	S.TAN TEESVA 1C 106M8R	T	137.3/44.7
Eqv.	4550008220	S.TAN F931C106MAA		
C62	4030006900	S.CER C1608 JB 1H 103K-T	T	133.2/44.3
C63	4030006900	S.CER C1608 JB 1H 103K-T	T	137.0/30.7
C64	4030006900	S.CER C1608 JB 1H 103K-T	T	129.3/42.9
C65	4030006900	S.CER C1608 JB 1H 103K-T	T	132.7/32.1
C66	4510009190	S.ELE EEEHB1E330P	T	122.1/31.0
C67	4030006900	S.CER C1608 JB 1H 103K-T	T	126.6/33.1
C68	4030017490	S.CER C1608 JB 1A 105K-T	T	134.2/29.3
C69	4030006900	S.CER C1608 JB 1H 103K-T	T	115.4/22.7
C70	4510007351	ELE 35 ME 1000 AX		
C71	4510007370	ELE 450 YK 10M (12.5X20)		
C72	4030011600	S.CER C1608 JB 1E 104K-T	T	151.4/31.8
C73	4030011600	S.CER C1608 JB 1E 104K-T	T	151.4/36.6
C85	4030006860	S.CER C1608 JB 1H 102K-T	T	144.5/53.2
C86	4510007930	ELE 35 ME 470CA		
C87	4510007340	ELE 16 ME 470 AX		
C88	4030006860	S.CER C1608 JB 1H 102K-T	T	154.9/70.3
C89	4030011340	S.CER C1608 CH 1H 471J-T	T	152.8/71.0
C91	4030006860	S.CER C1608 JB 1H 102K-T	T	122.0/53.2
C92	4510007930	ELE 35 ME 470CA		
C93	4510007340	ELE 16 ME 470 AX		
C94	4030006860	S.CER C1608 JB 1H 102K-T	T	131.6/70.4
C95	4030011340	S.CER C1608 CH 1H 471J-T	T	128.4/70.3
C101	4030018770	S.CER C3216 CH 2J 102J-T	T	165.7/77.5
C102	4030006900	S.CER C1608 JB 1H 103K-T	T	160.7/77.9
J1	6510011451	CON B5P-VH(LF)(SN)		
J4	6510003441	CON B08B-EH-S(LF)(SN)		
J5	6510003431	CON B07B-EH-S(LF)(SN)		
S1	22600000980	SWI SKHHL014A		
S2	22600000980	SWI SKHHL014A		
T1	5910000890	TRA TO-49		

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

[FILTER UNIT]

REF NO.	PARTS NO.	DESCRIPTION		M.	H/V LOCATION
FI1	2040001440	S.LC	NFE31PT152Z1E9L (NFM60R20T152)	T	19.0/30.4
FI2	2040001440	S.LC	NFE31PT152Z1E9L (NFM60R20T152)	T	19.0/33.7
C1	4510007330	ELE	50 ME 33HWN		
C3	4510005680	ELE	50 ME 470 HC		
C4	4510007330	ELE	50 ME 33HWN		
C6	4030006900	S.CER	C1608 JB 1H 103K-T	T	22.0/30.4
C7	4030006860	S.CER	C1608 JB 1H 102K-T	T	23.4/30.4
C8	4030011340	S.CER	C1608 CH 1H 471J-T	T	24.8/30.4
J1	6510011451	CON	B5P-VH(LF)(SN)		

[CONNECT UNIT]

REF NO.	PARTS NO.	DESCRIPTION		M.	H/V LOCATION
C1	4030006900	S.CER	C1608 JB 1H 103K-T	T	7.6/8.5
C2	4030006900	S.CER	C1608 JB 1H 103K-T	T	3.3/11.3
C6	4030006900	S.CER	C1608 JB 1H 103K-T	T	14.7/11.3
C7	4030006900	S.CER	C1608 JB 1H 103K-T	T	10.4/8.5
C11	4030006900	S.CER	C1608 JB 1H 103K-T	T	32.6/8.5
C12	4030006900	S.CER	C1608 JB 1H 103K-T	T	28.3/11.3
C16	4030006900	S.CER	C1608 JB 1H 103K-T	T	39.7/11.3
C17	4030006900	S.CER	C1608 JB 1H 103K-T	T	35.4/8.5
J1	6510000191	CON	FM214-8SS(P)-1		
J2	6510000191	CON	FM214-8SS(P)-1		
J3	6510025142	S.CON	10FLT-SM2-TB(LF)(SN)(M)	T	9.0/5.0
J4	6510027370	S.CON	BM05B-XASS-TF(LF)(SN)	T	10.1/27.8
J5	6510027370	S.CON	BM05B-XASS-TF(LF)(SN)	T	32.9/27.8

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 6

MECHANICAL PARTS

[CHASSIS PARTS]

REF NO.	ORDER NO.	DESCRIPTION	QTY.
J1	6510026561	N-04-5P-12C-AP-RH 3T1356Z	1
W1*	8900018300	OPC-1904	1
W2*	8900018330	OPC-1907	1
W3*	8900018330	OPC-1907	1
W4	8900018820	OPC-1975 (P0.5N10L40)	1
MP1	8510019220	3172 F-CASE	1
MP2	8930074560	3098 TERMINAL SEAL (TOT)	1
MP3	8510019270	3172 EARTH PLATE	1
MP4	8810008661	PHBT M3 X 8 NI-ZC3	2
MP5	8810008661	PHBT M3 X 8 NI-ZC3	5
MP6	8930074670	3123 IC CLIP	2
MP7	8810008661	PHBT M3 X 8 NI-ZC3	4
MP8	8850001730	SEALING WASHER (S)	2
MP9	8930055040	2438 CAP <JST>	1
MP11	8930074150	3098 MAIN SEAL (TOT)	1
MP12	8930074210	3098 ANGLE	1
MP13	8930058780	2577 SHEET	1
MP14	8810000580	PH M3 X 6 SUS	9
MP15	8930051430	O-RING (AA) (TOP)	2
MP16	8850002100	FLAT WASHER M5 (5X10X1.0)SUS	2
MP17	8810010030	SETSCREWC M5 X 8 SUS	2

[MAIN UNIT]

REF NO.	ORDER NO.	DESCRIPTION	QTY.
J1	6510027380	MJ-88H-RD315K (LF) (SN)	1
J8*	6510025142	10FLT-SM2-TB (LF) (SN) (M)	1
J11	6510027510	B3 (5-2.4)B-EH (LF) (SN)	1
J12	6510027510	B3 (5-2.4)B-EH (LF) (SN)	1
J14*	6510019421	B8B-ZR-SM4-TF (LF) (SN)	1
J15	6910004741	IMSA-9202B-1-03Z041-PT1	1
P1	6910003120	IMSA-9206H-T	1
T1*	5910001120	TLA-6T133WLF-T	1
T101	5910001140	TO-54	1
W1*	8900018310	OPC-1905	1
W2*	8900018320	OPC-1906	1
MP1	8930079600	SPONGE (KP)	1
MP2	8930062210	THERMAL SHEET (AL)TC-300HS-1.4	1
MP3	8930009440	INSULATION SHEET AK	1

[REG UNIT]

REF NO.	ORDER NO.	DESCRIPTION	QTY.
J1	6510011451	B5P-VH (LF) (SN)	1
J4	6510003441	B08B-EH-S (LF) (SN)	1
J5	6510003431	B07B-EH-S (LF) (SN)	1
S1	2260000980	SKHHL P014A	1
S2	2260000980	SKHHL P014A	1
T1	5910000890	TO-49	1

[FILTER UNIT]

REF NO.	ORDER NO.	DESCRIPTION	QTY.
J1	6510011451	B5P-VH (LF) (SN)	1

[CONNECT UNIT]

REF NO.	ORDER NO.	DESCRIPTION	QTY.
J1	6510000191	FM214-8SS (P)-1	1
J2	6510000191	FM214-8SS (P)-1	1
J3*	6510025142	10FLT-SM2-TB (LF) (SN) (M)	1
J4*	6510027370	BM05B-XASS-TF (LF) (SN)	1
J5*	6510027370	BM05B-XASS-TF (LF) (SN)	1

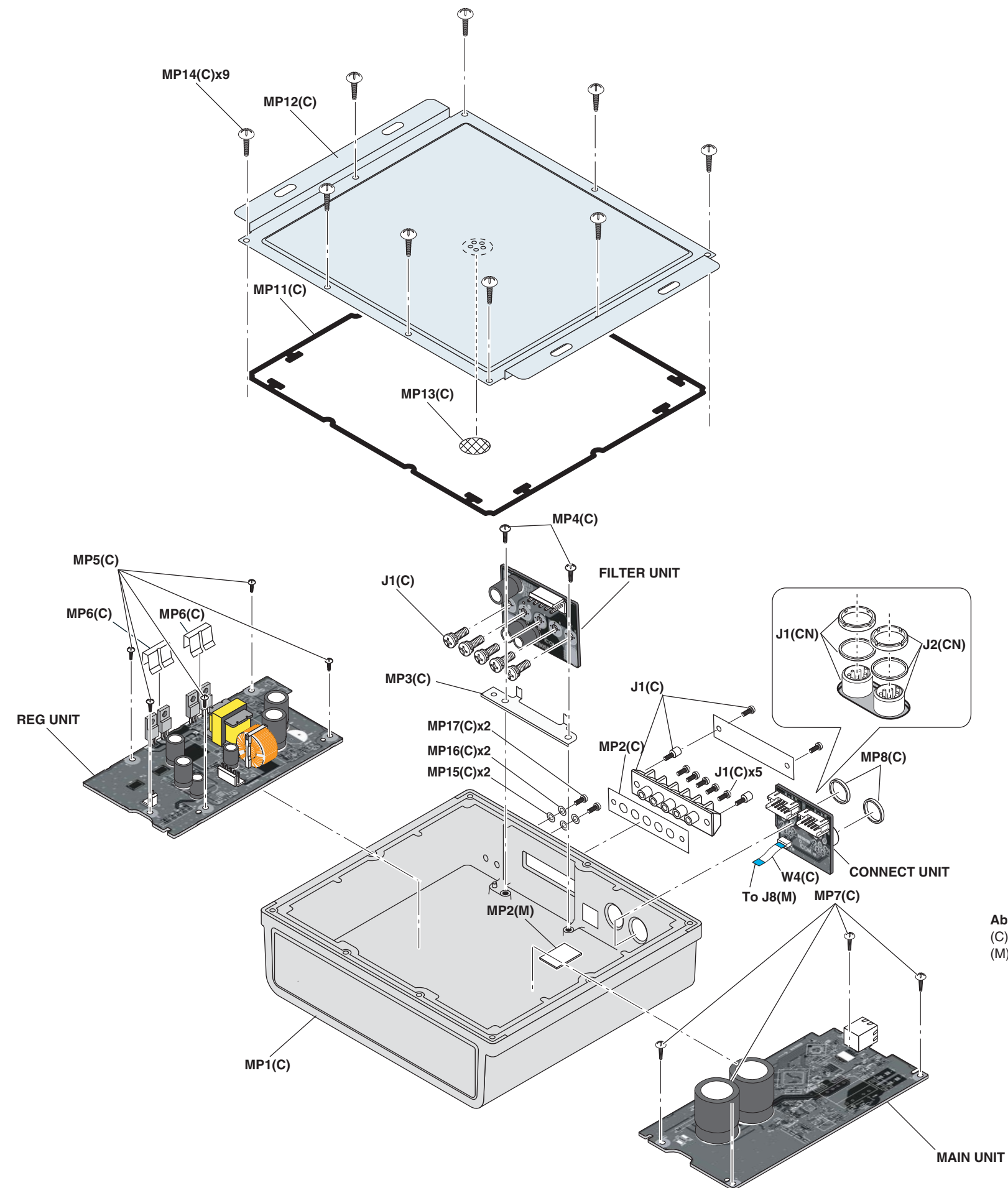
[ACCESSORIES]

REF NO.	ORDER NO.	DESCRIPTION	QTY.
F1	5210000061	FGB 5A PBF (FGB0 125V)	1
F2	5210000051	FGB 3A PBF (FGB0 125V)	1
W1	8900018860	OPC-1979	1
W2	8900018410	OPC-1927 W/COVER <WSE>	1
MP1	8810010970	HEX BOLT M5 X30 SUS	4
MP2	8850000180	FLAT WASHER M 5 SUS	8
MP3	8850000500	S-WASHER M 5 SUS	8
MP4	8830000250	NUT M 5 SUS	4

*: 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

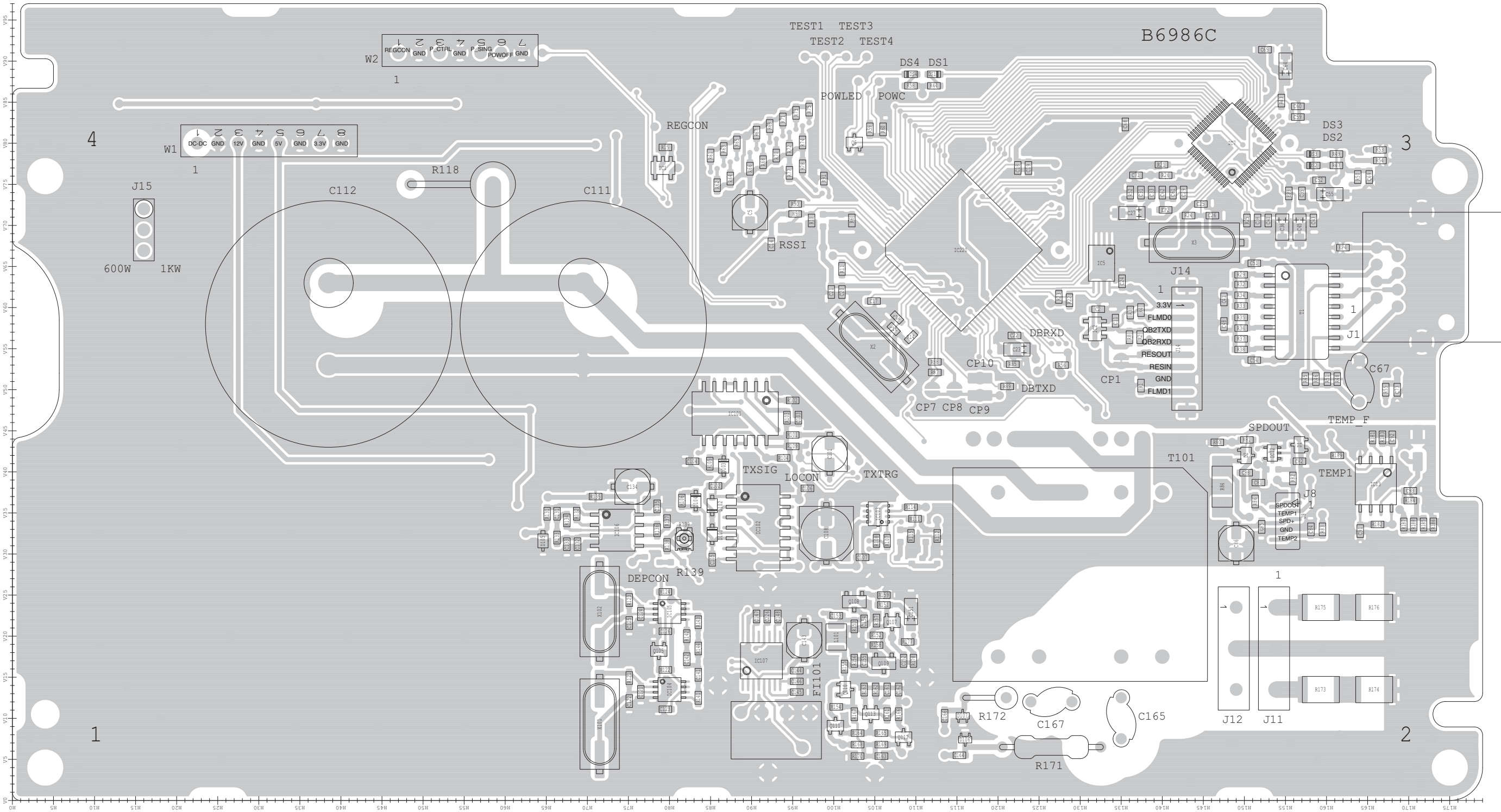


SECTION 7 BOARD LAYOUTS

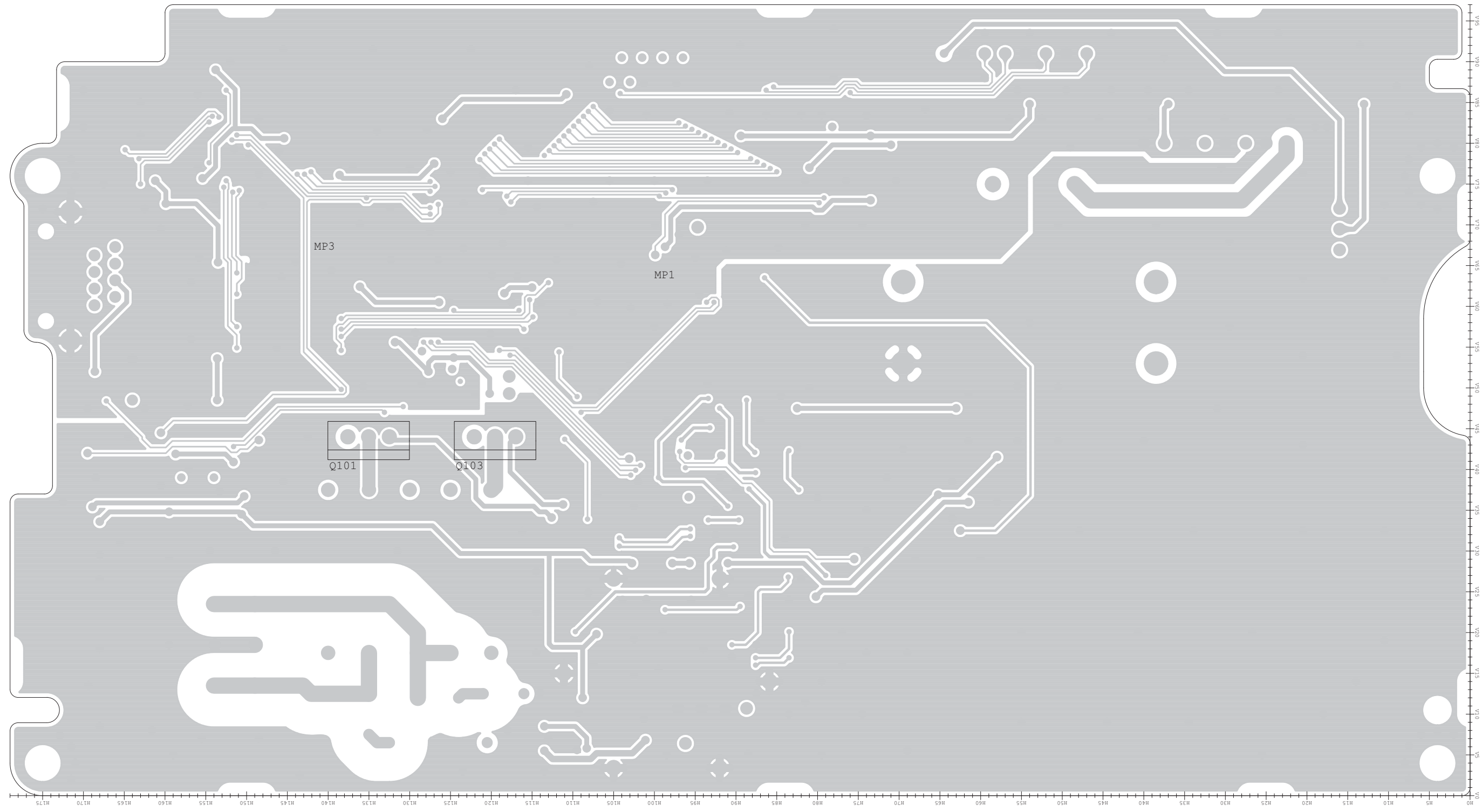
SECTION 7 BOARD LAYOUTS

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

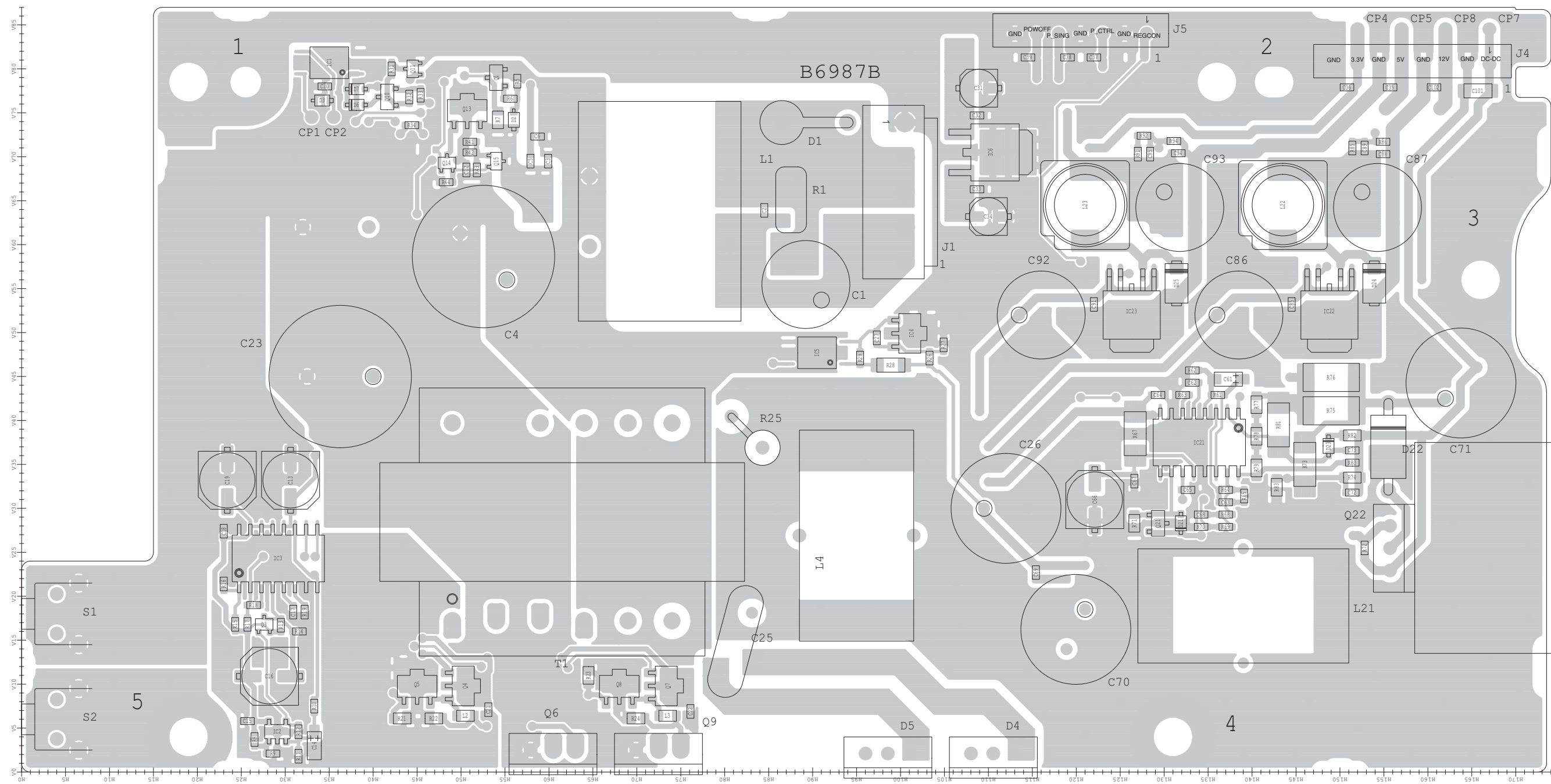
- **MAIN UNIT
(TOP VIEW)**



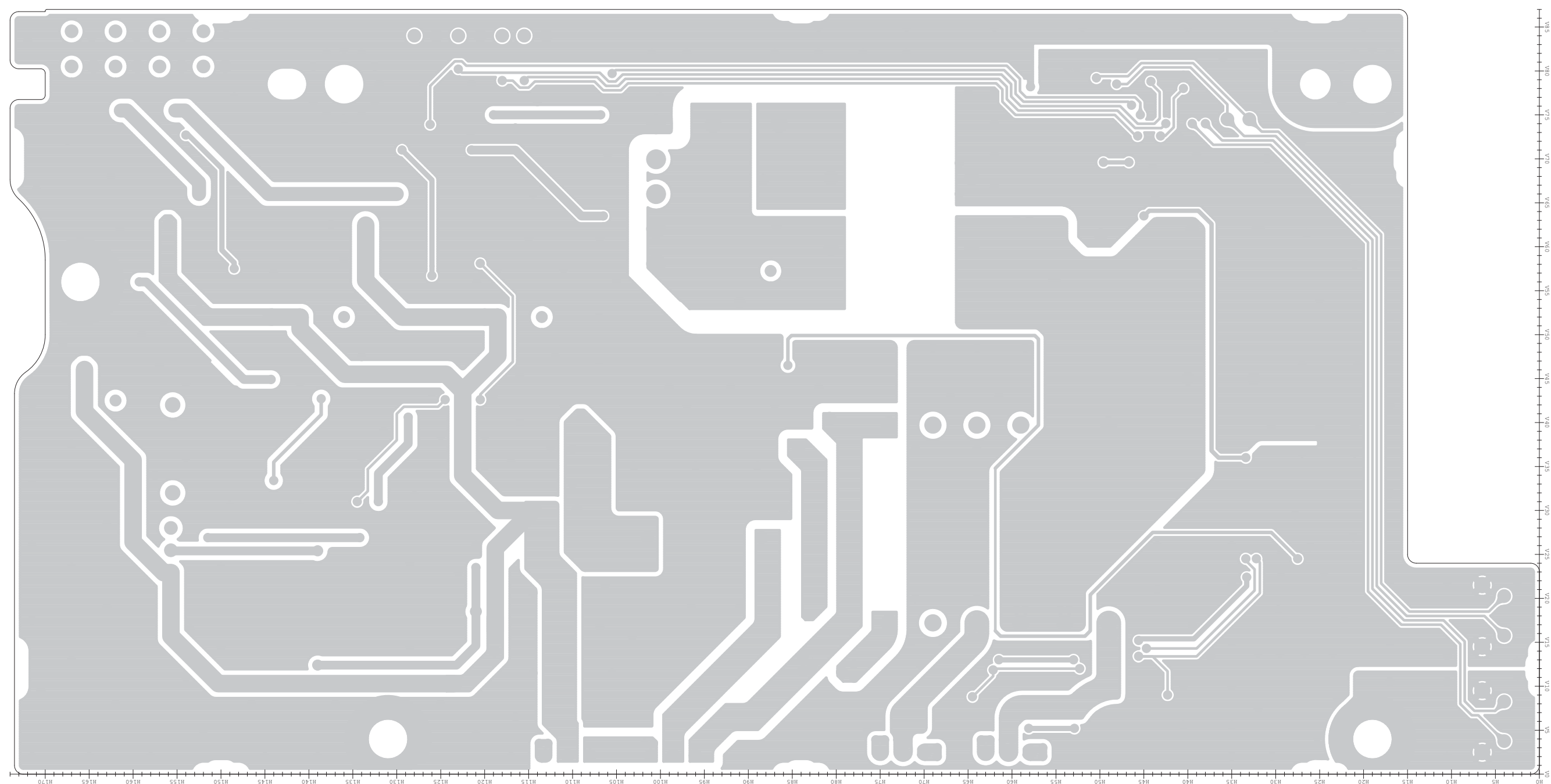
• MAIN UNIT
(BOTTOM VIEW)



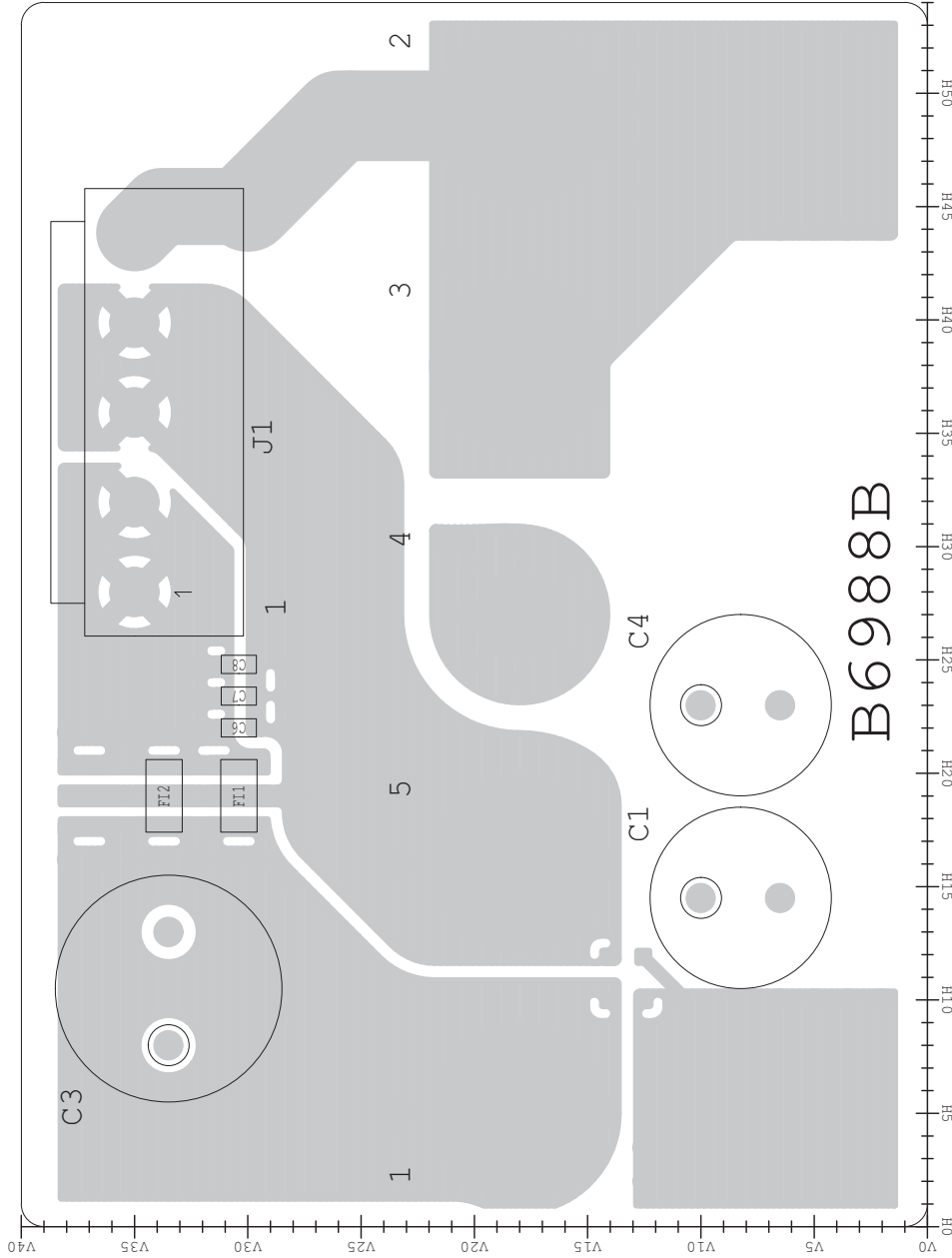
• REG UNIT
(TOP VIEW)



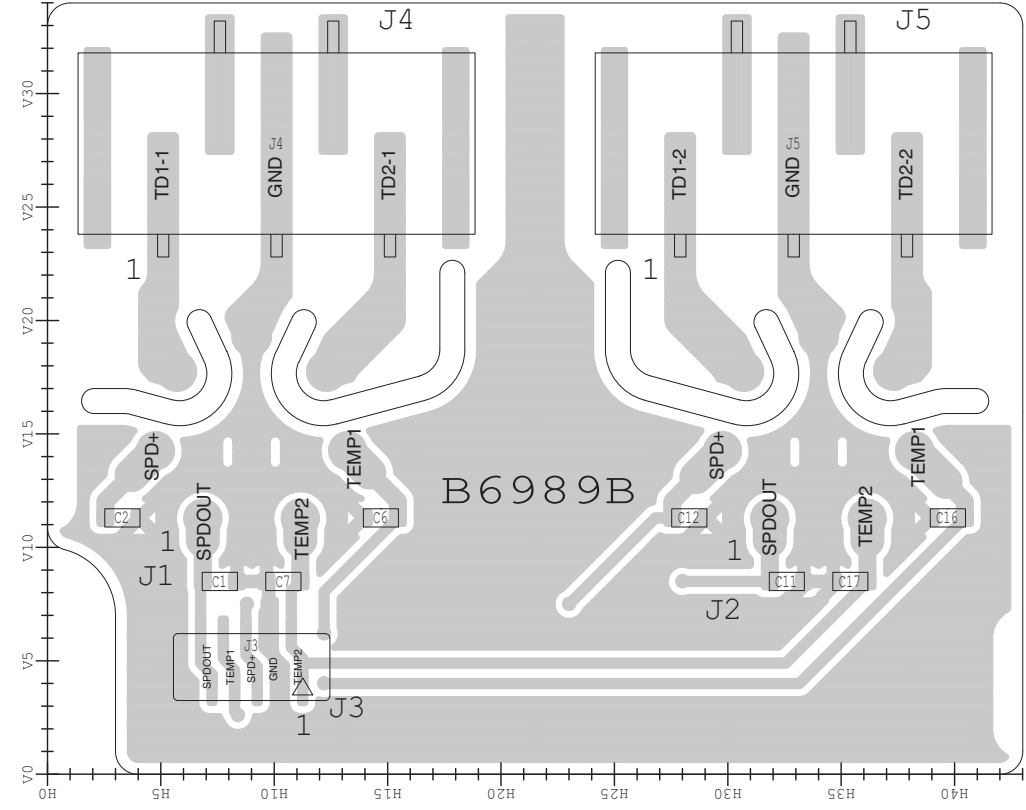
• REG UNIT
(BOTTOM VIEW)



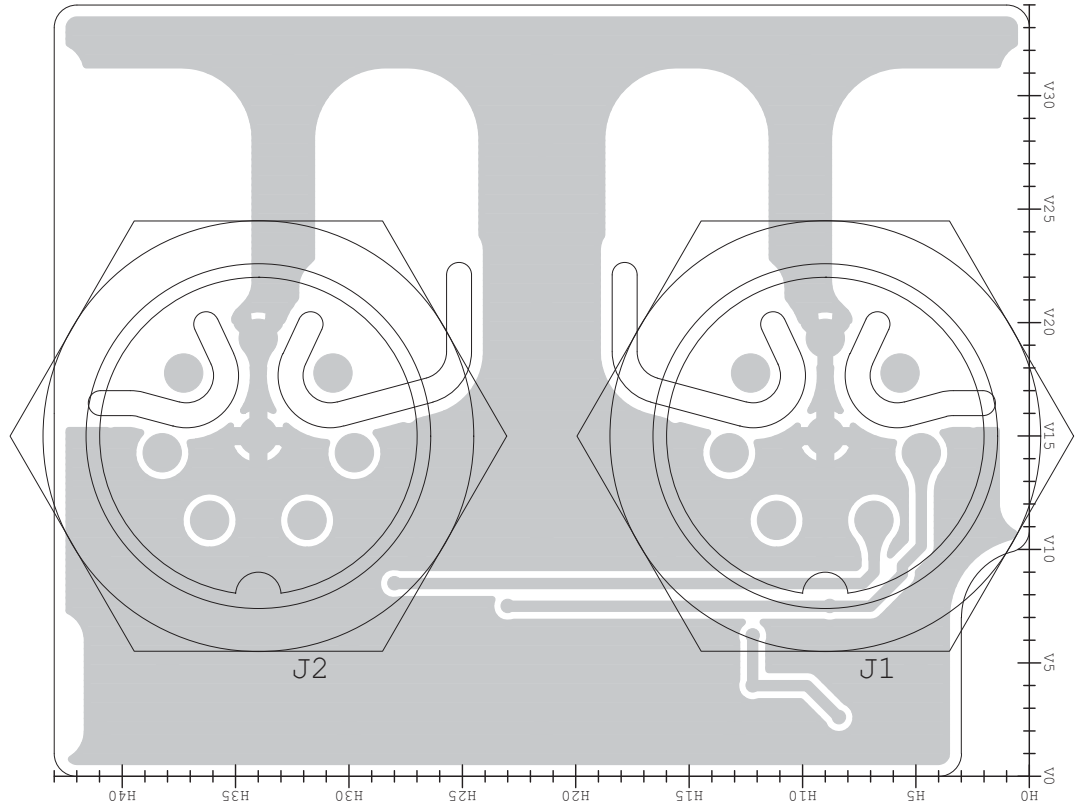
• FILTER UNIT
(TOP VIEW)



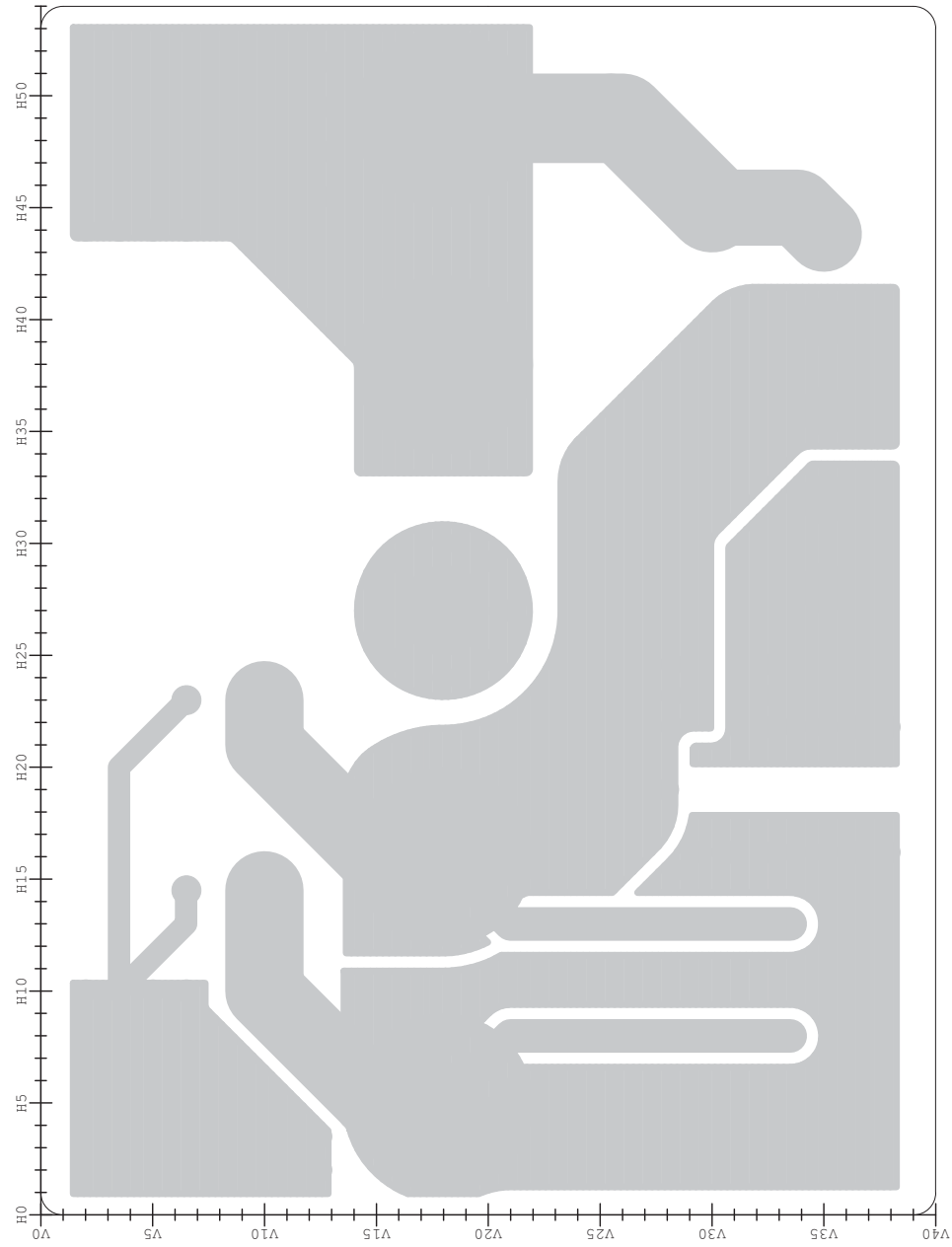
• CONNECT UNIT
(TOP VIEW)

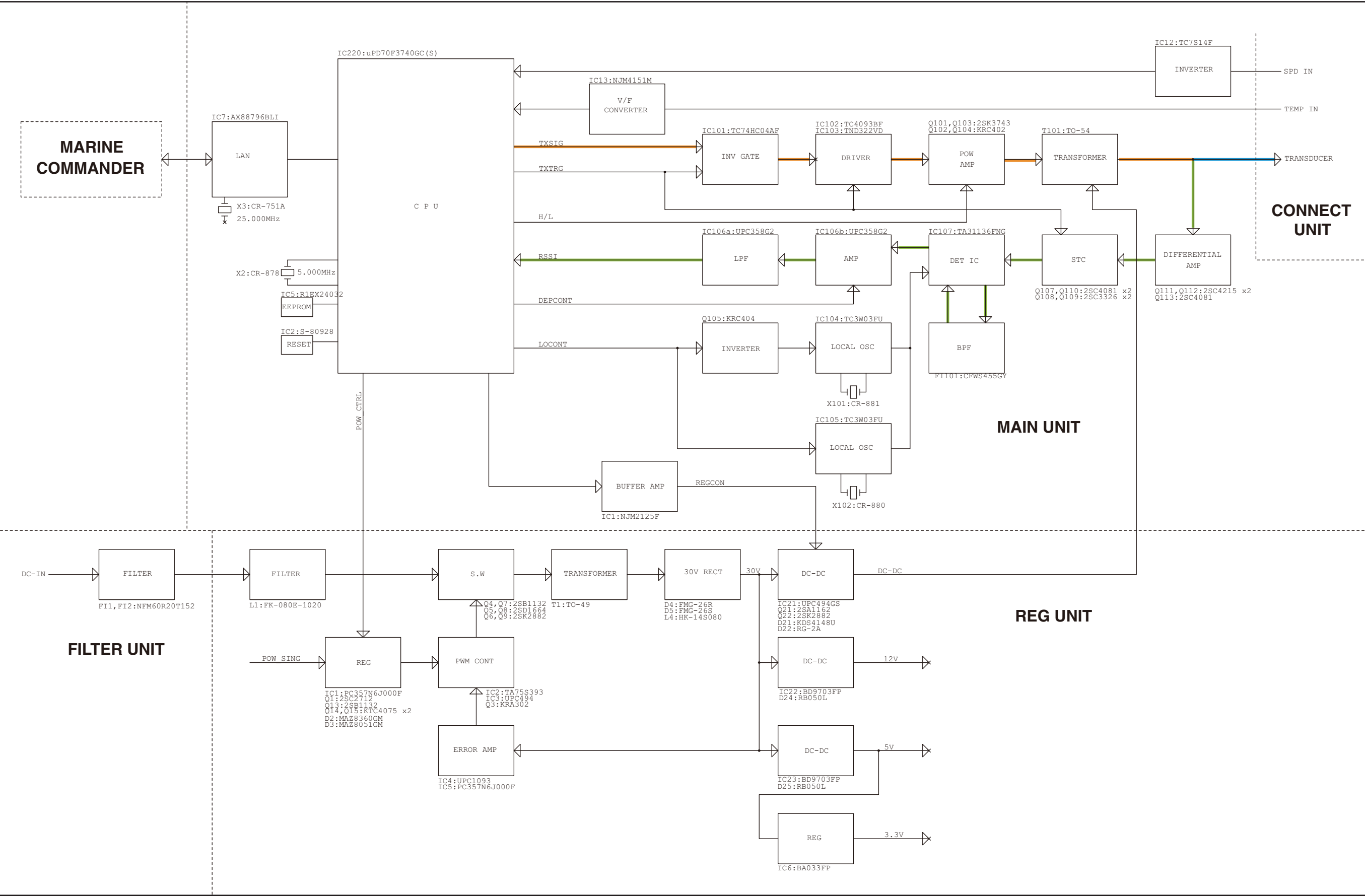


• CONNECT UNIT
(BOTTOM VIEW)

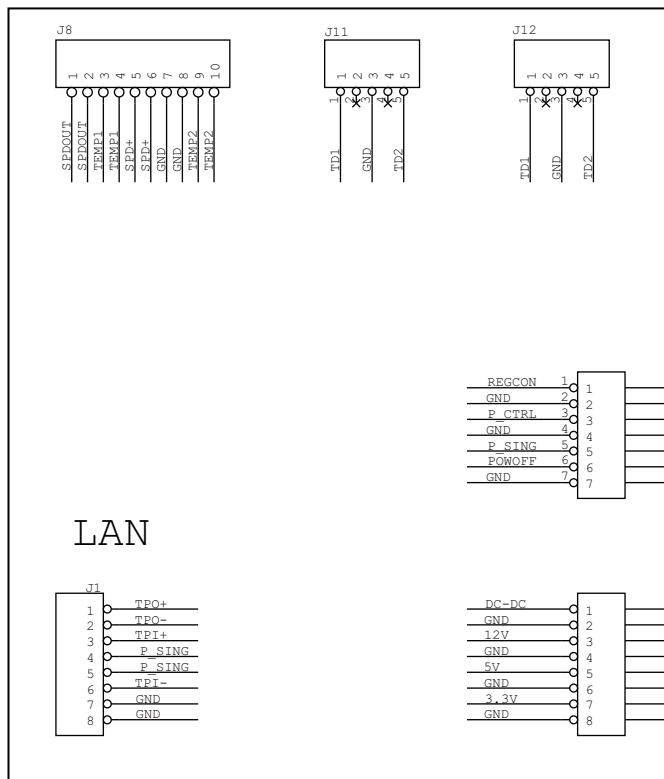
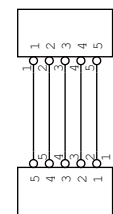
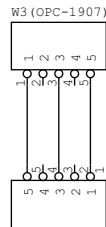
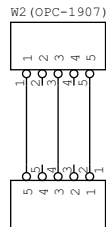
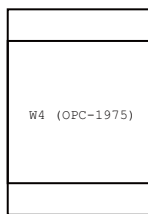
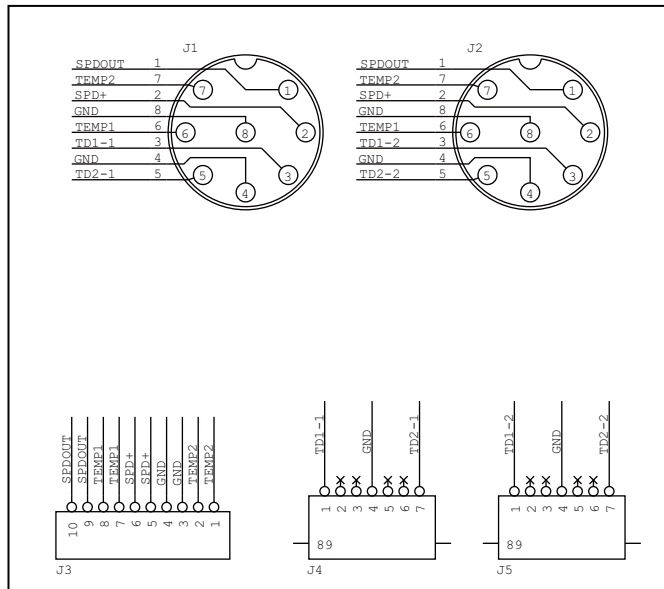


• FILTER UNIT
(BOTTOM VIEW)



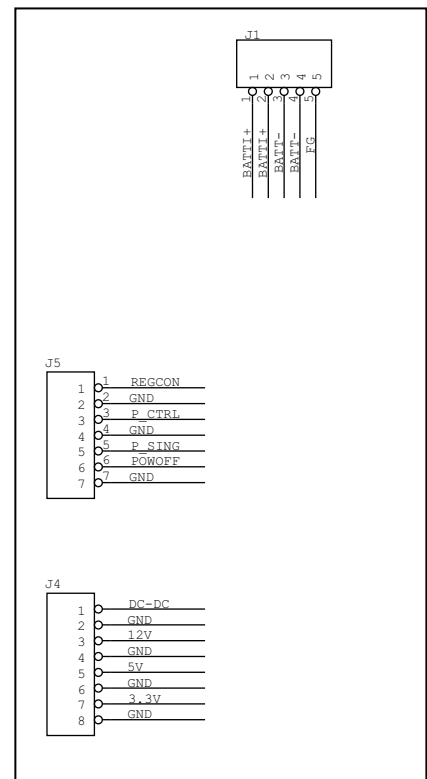
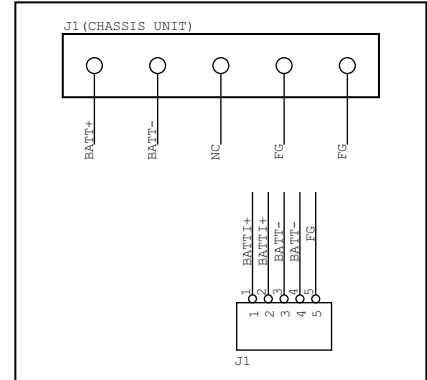


CONNECT UNIT



MAIN UNIT

FILTER UNIT

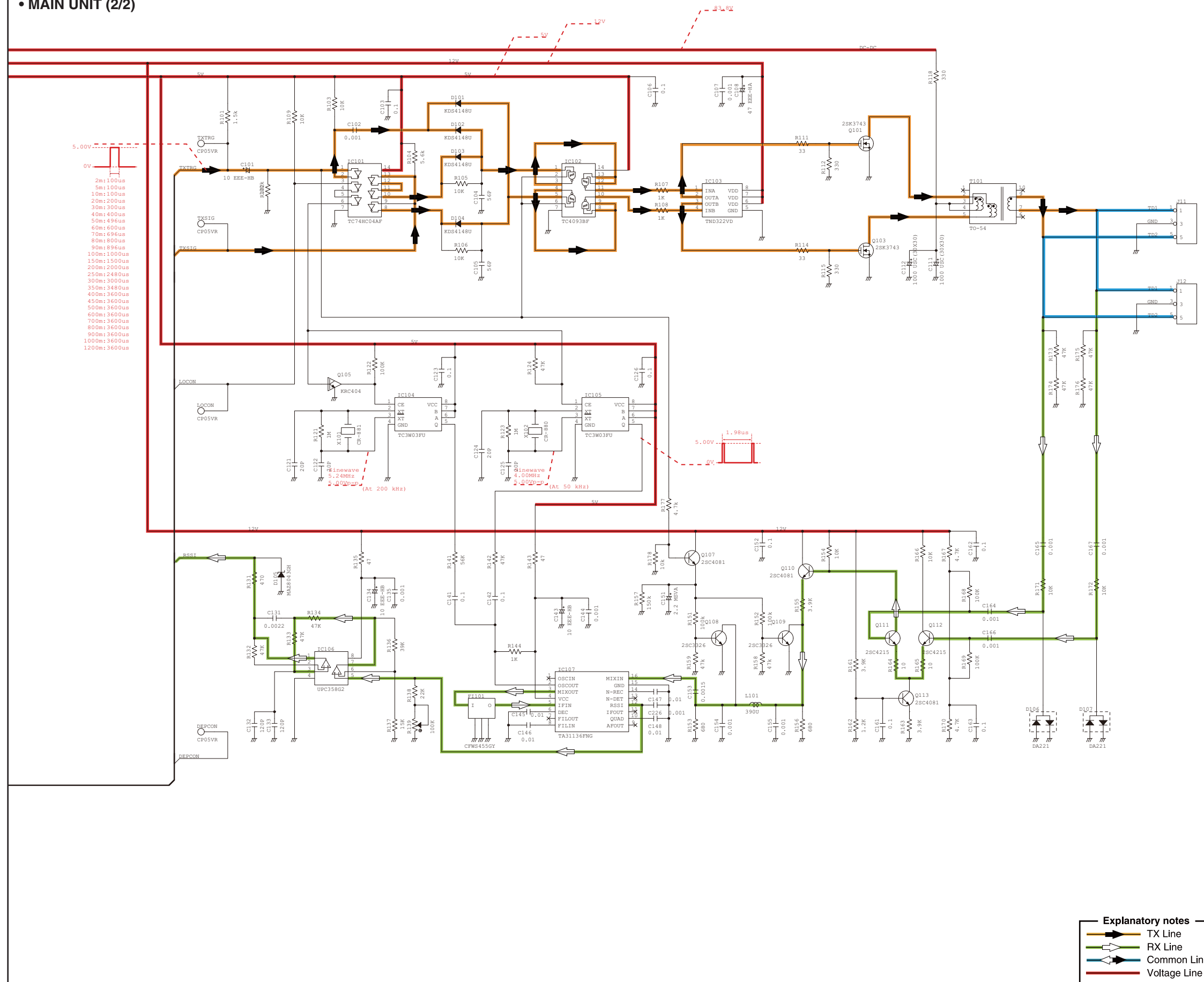


REG UNIT

VOLTAGE DIAGRAM

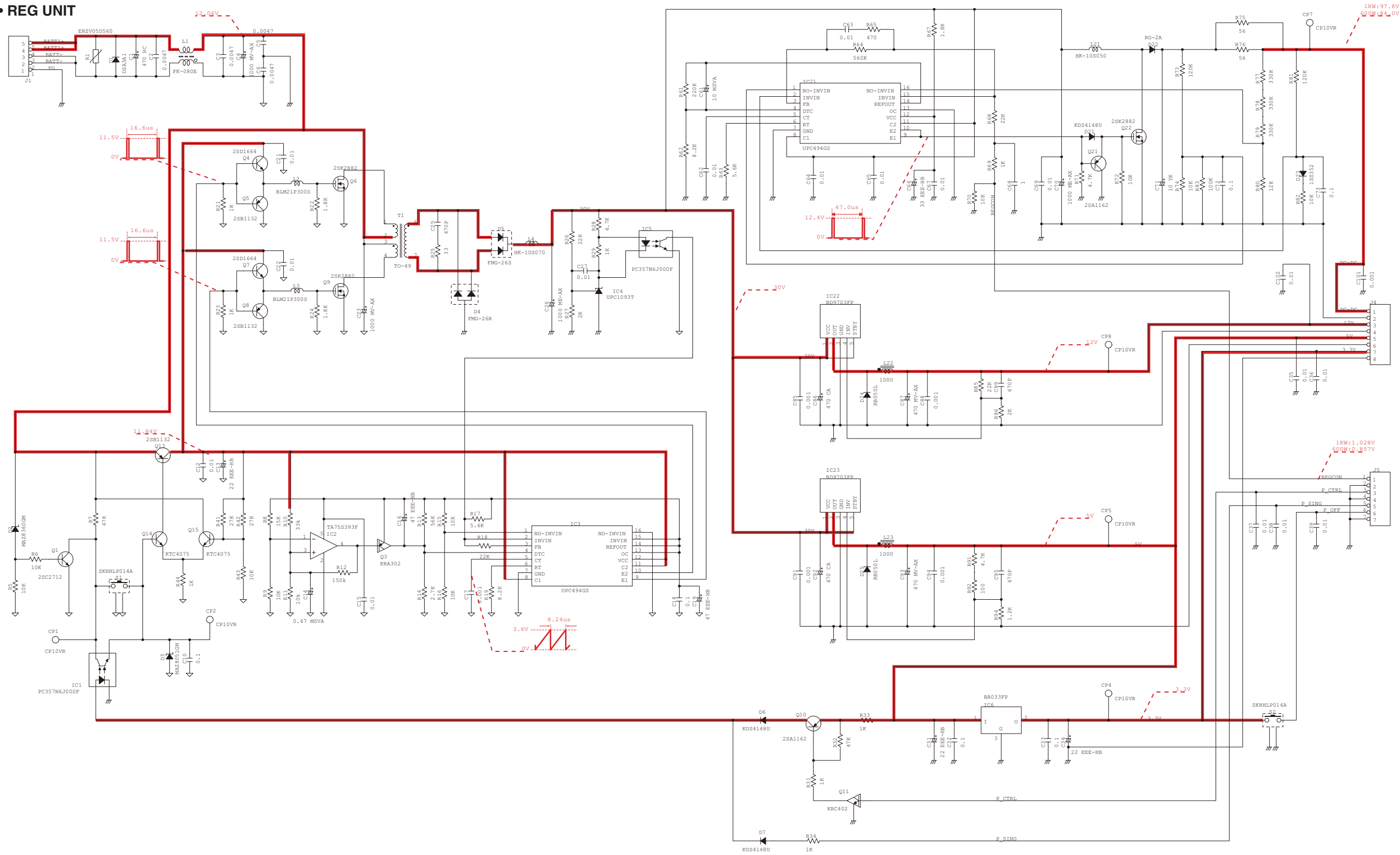
*: Refer to the PARTS LIST for the value and name of component.

- **MAIN UNIT (2/2)**



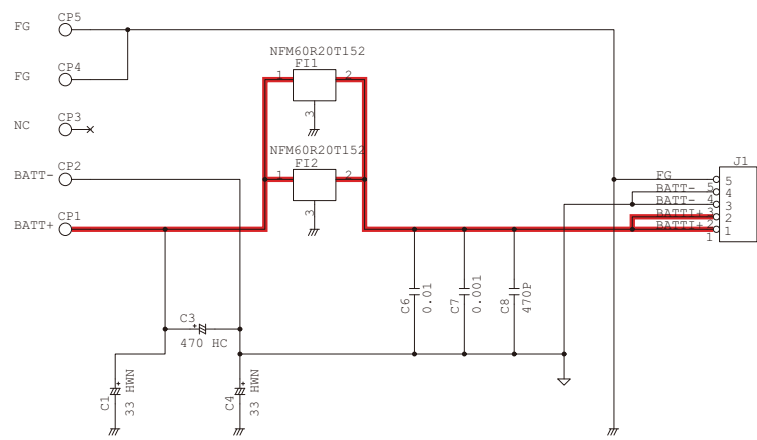
*: Refer to the PARTS LIST for the value and name of component.

- REG UNIT

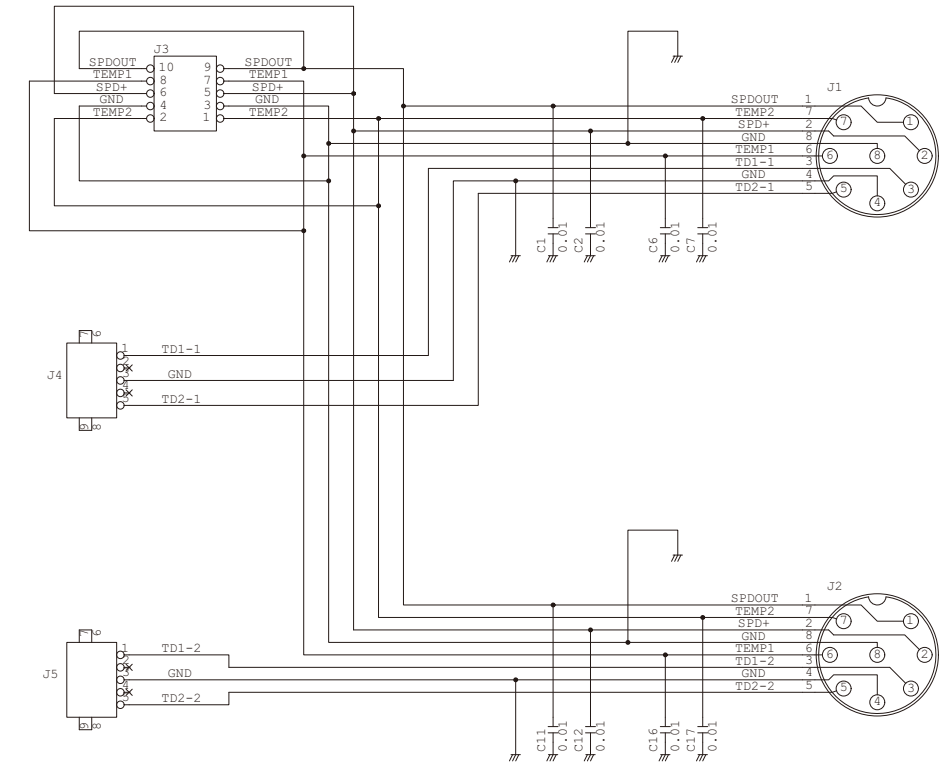


*: Refer to the PARTS LIST for the value and name of component.

• FILTER UNIT



• CONNECT 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
<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

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

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, 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

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

Count on us!