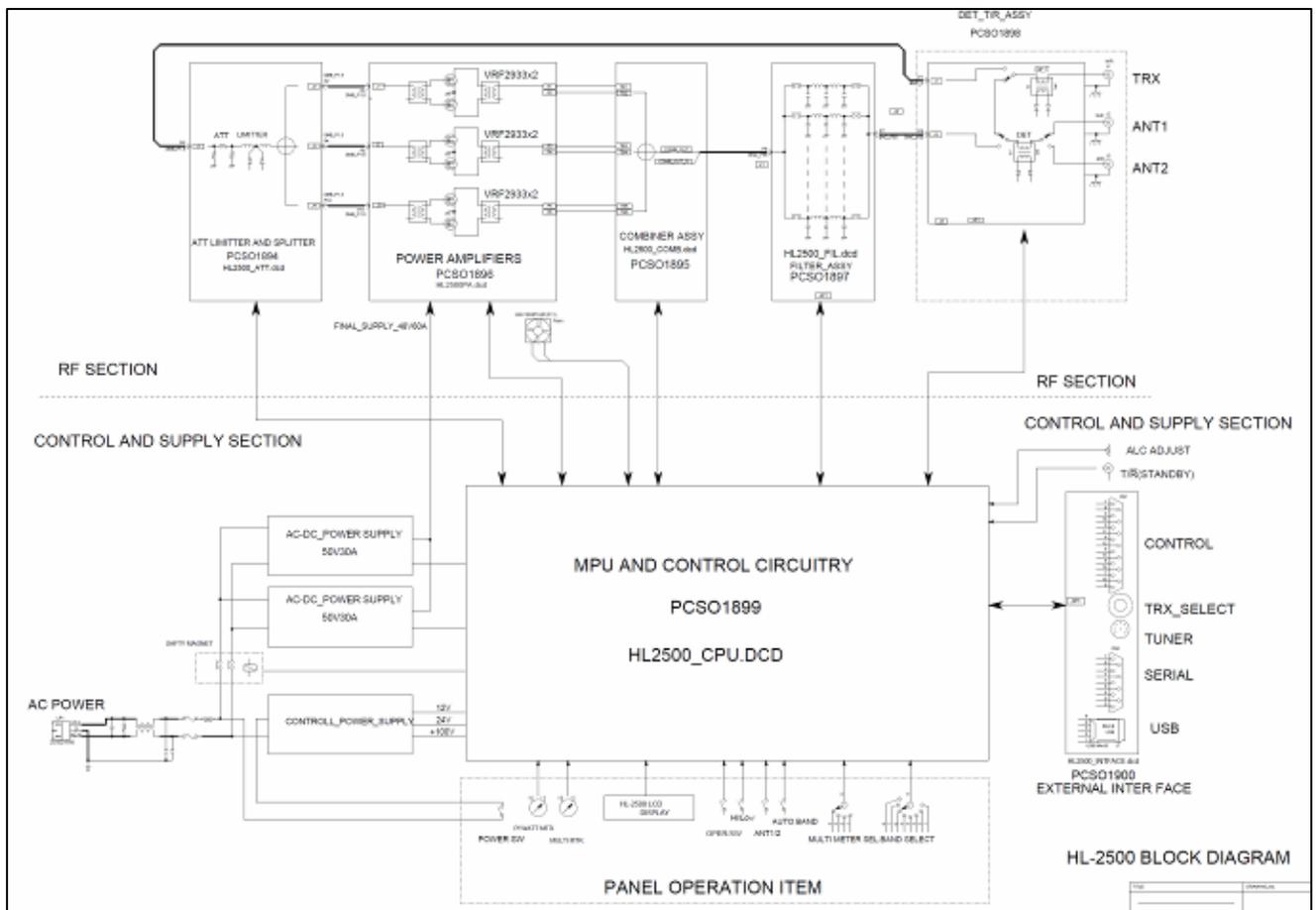


14 Block Diagram and Explanation of Major Circuitry



14-A RF Amp

Driving RF signal transmitted from the transceiver is lead to the ATT/ Limiter board via T/R-Assy unit, where there is 3dB attenuator as well as RF limiter. These circuitry properly levels the magnitude of RF signal and also instantly shuts down the input to protect the amplifier.

There is a three port splitter located in this board that sprits a driving signal equally into three components, which are then fed to final PA module.

PA module consists of three sets of wide band class AB1 linear amp. using THP2933 FET's in the push-pull form. 500W is achieved per one basic amp. board. Then the three outputs from the PA module is sent to the combiner unit, where three 500W components are combined to become 1,500W.

Operating status of three PA's are strictly monitored in the combiner stage with regard to heat balancing of respective amps.

Finally 1,500W of RF output is lead to LPF (low pass filter) unit, where harmonics and spurious signals are reduced to FCC rules. Filtered output signal is sent to T/R ASSY unit again and is lead to antenna terminal by way of antenna relay.

14 Block Diagram and Explanation of Major Circuitry

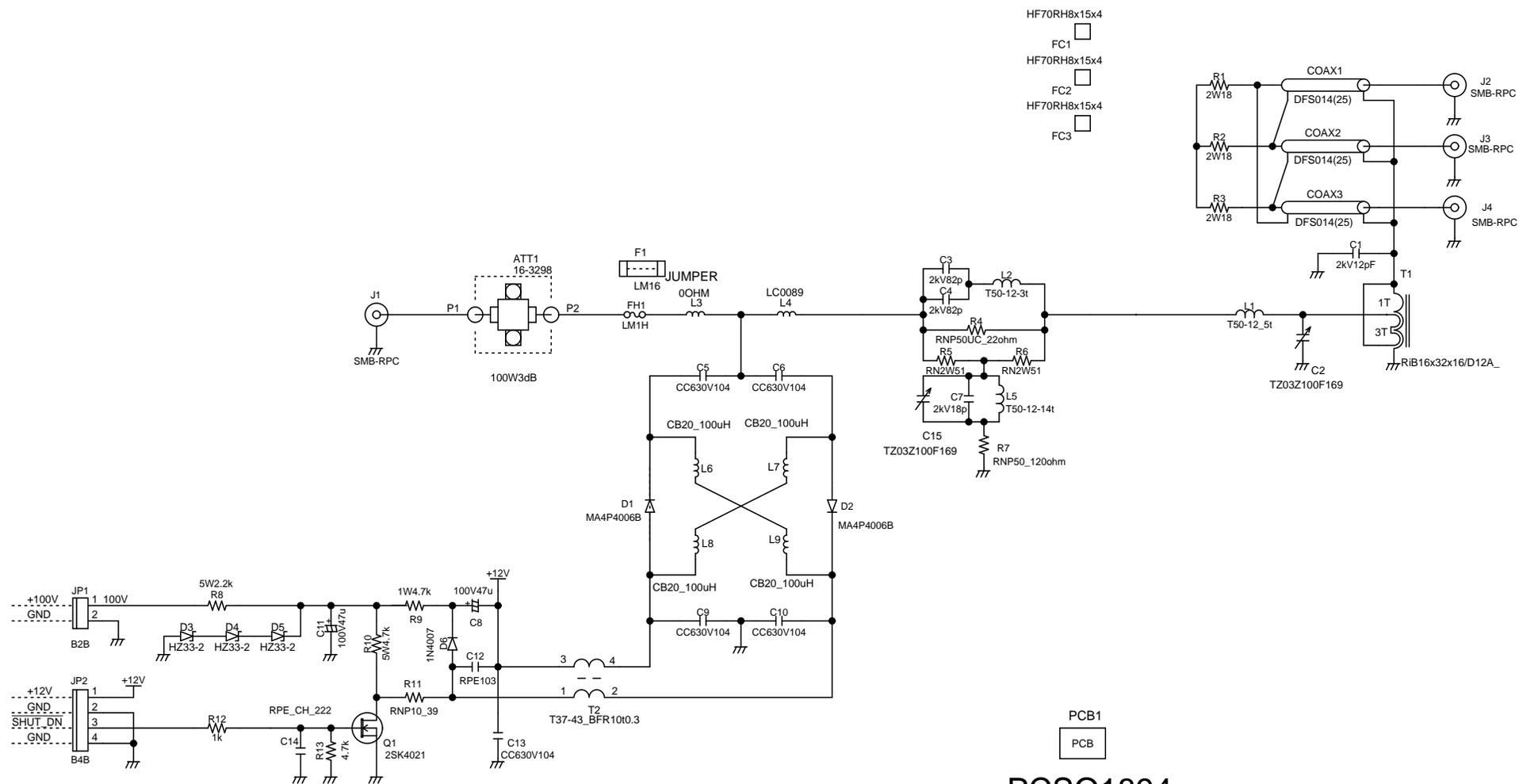
14-B DC Power Supply

AC power is received at the IEC socket intake and passes the line filter. There are safety fuses on both lines. There are control power supply and FET drain power supply . Start up is usually made by turning on and off of control power supply. DC 12V, 24V and 100V are available when control power supply is turned on, and are always outputted once the POWER is turned on.

There are a magnet relay at primary side and DC ON/OFF function at secondary side. Depending on the operating condition, this power supply is turned on and off through the control circuit, and is provided in this power supply to meet IEC61000-3-2 harmonics regulation.

14-C Control Circuit

Control circuit performs various control using micro-processor PIC18F8722 chip. Also, basic interface meet the necessary rules and conditions using the specialized semiconductor devices.



- HF70RH8x15x4
- FC1
- HF70RH8x15x4
- FC2
- HF70RH8x15x4
- FC3

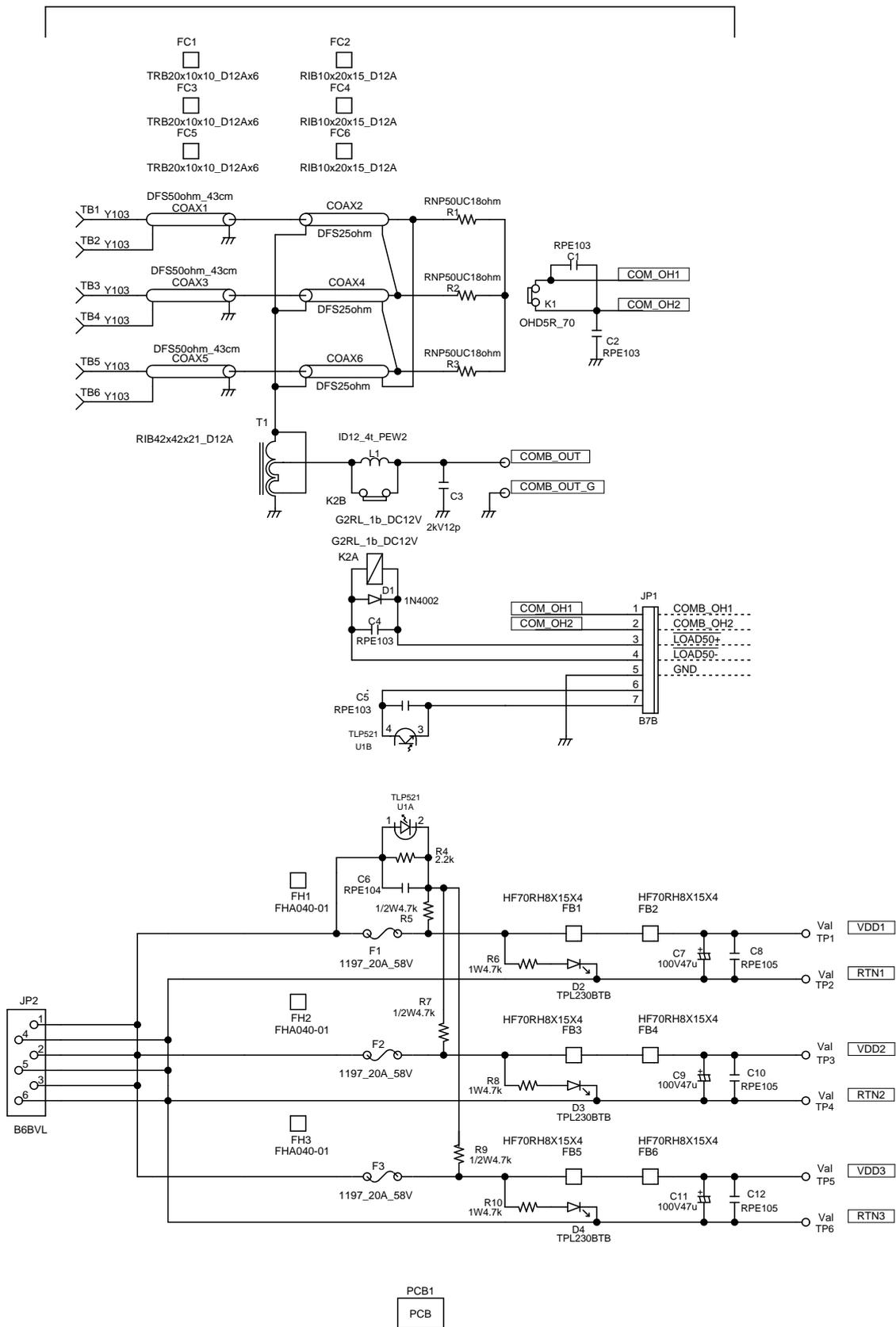
PCB1
PCB

PCSO1894

REVISED : OCT. 17, 2012

TITLE		ATT UNIT		DRAWING_No.		HL2500_ATT.dcd	
		HL-2500FX		TOKYO HY-POWER			
SHEET		DATE					
/		AUG. 17, 2012		T. OHSAWA			

COMBINER

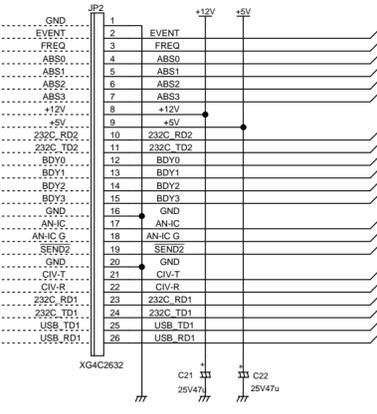


PCSO1897

REVISED : OCT. 10, 2012

TITLE		COMBINER UNIT		DRAWING_No.		HL2500_COMB.dcd	
		HL-2500FX				TOKYO HY-POWER	
SHEET	DATE	DESIGN					
/	AUG. 17, 2012	T. OHSAWA					

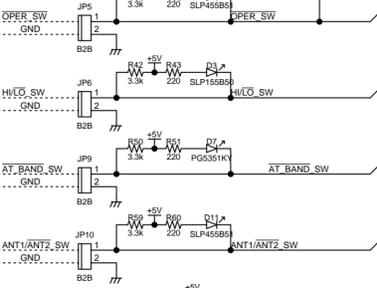
INTER-FACE



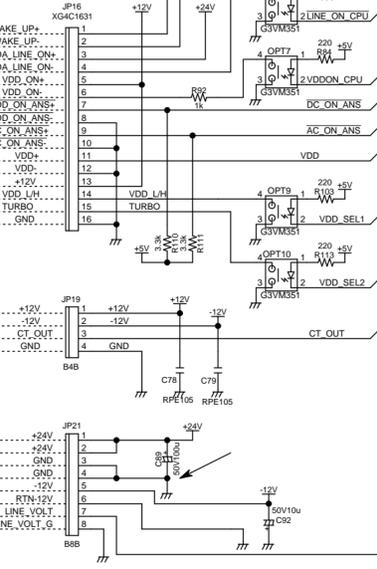
REMOTE_CONT



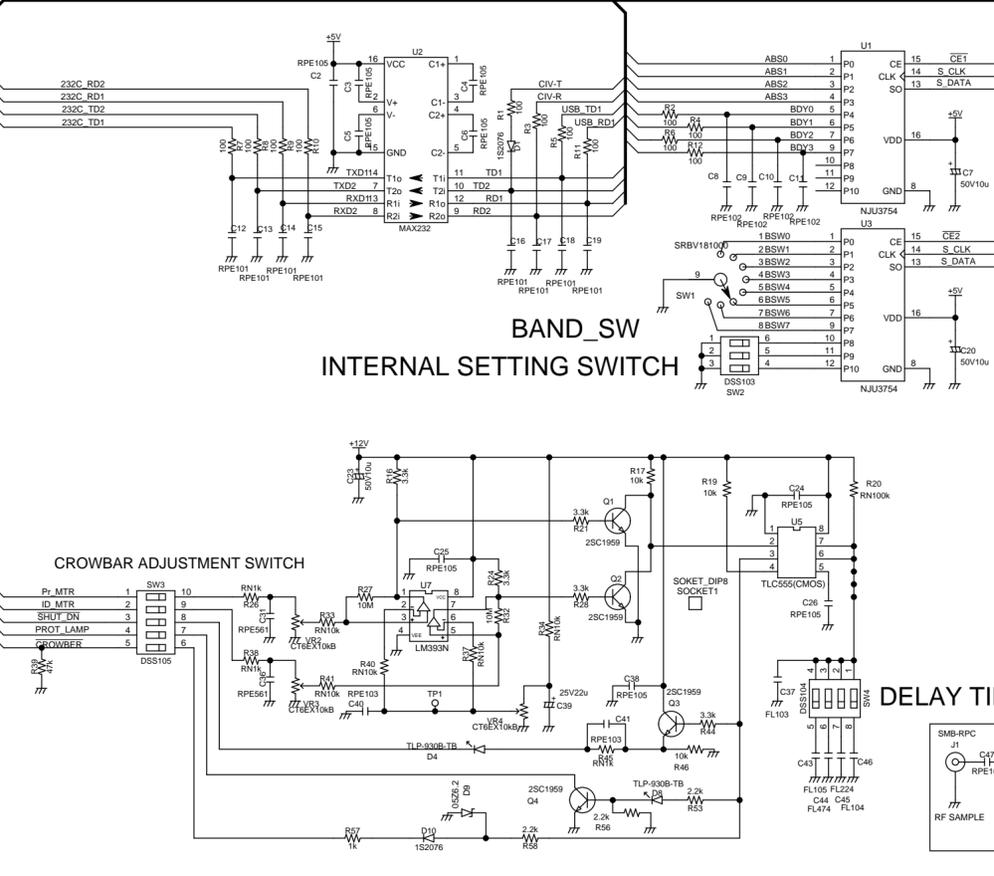
PANEL_SW



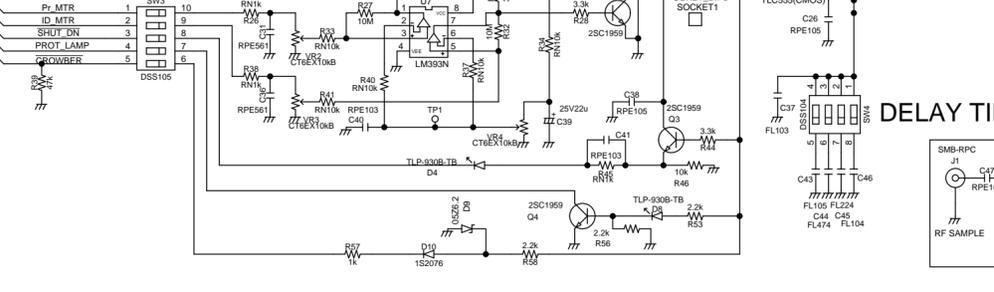
POWER_SUPPLY



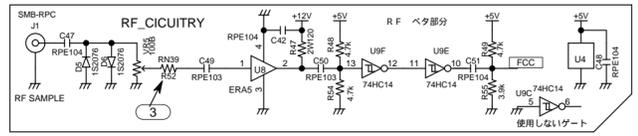
BAND_SW
INTERNAL SETTING SWITCH



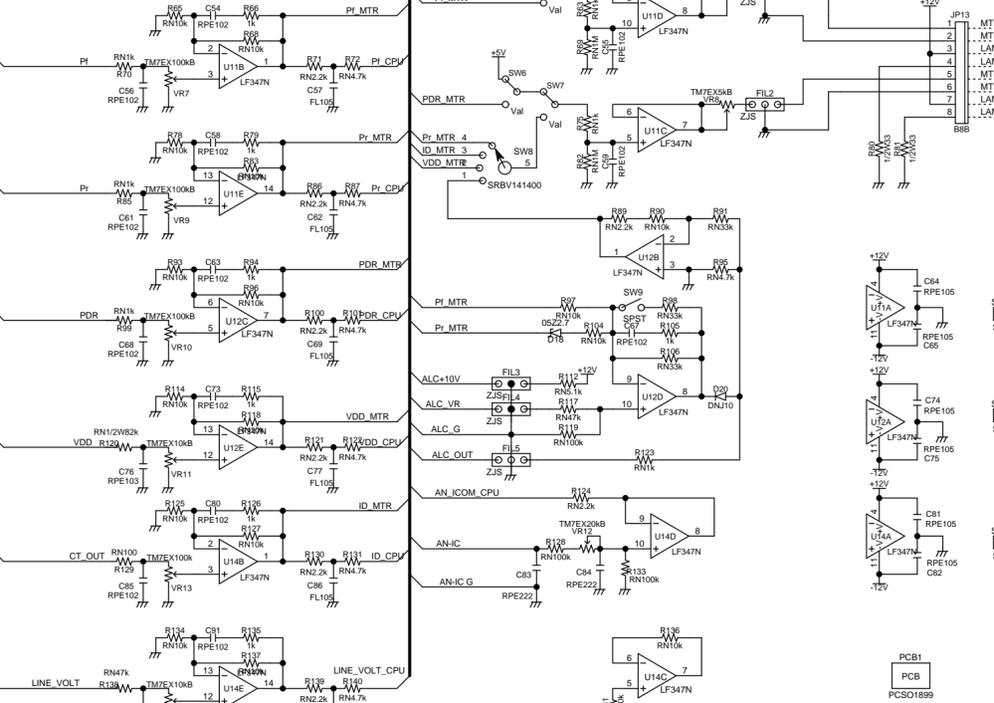
CROWBAR ADJUSTMENT SWITCH



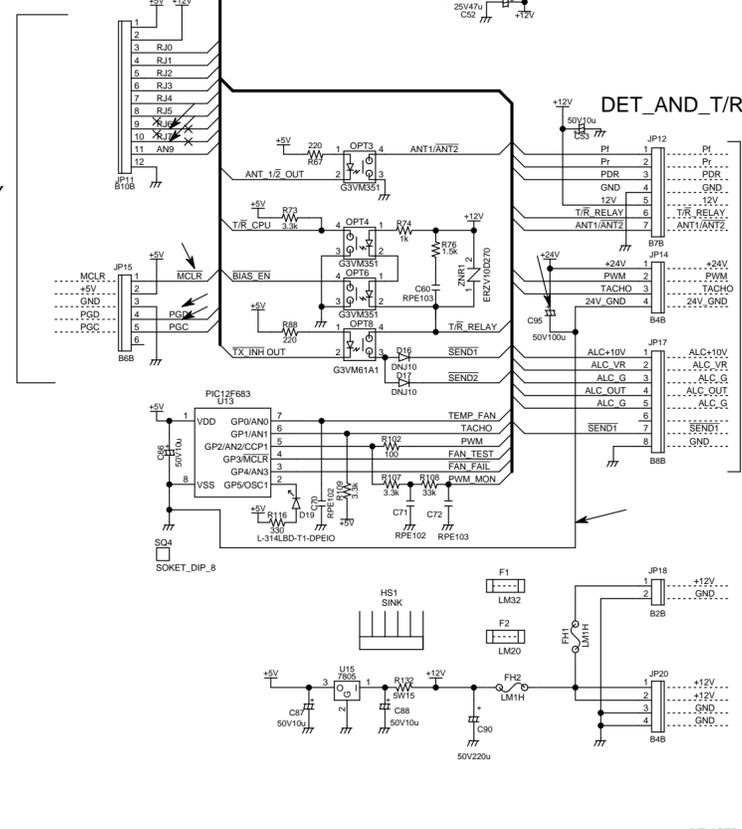
DELAY TIME



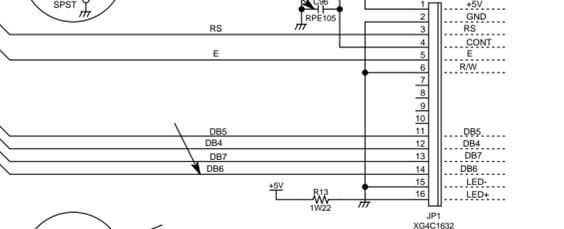
METER SEL



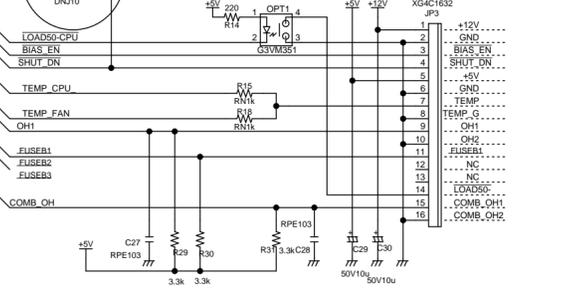
UTILITY



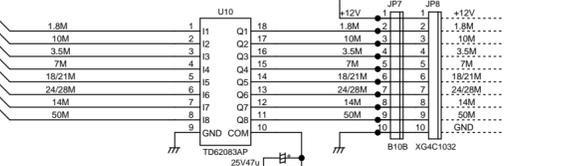
LCD_DISPLAY



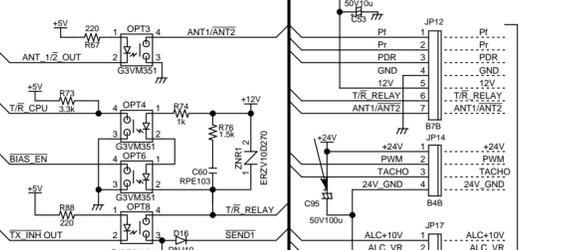
PA_UNIT



FILTER_UNIT

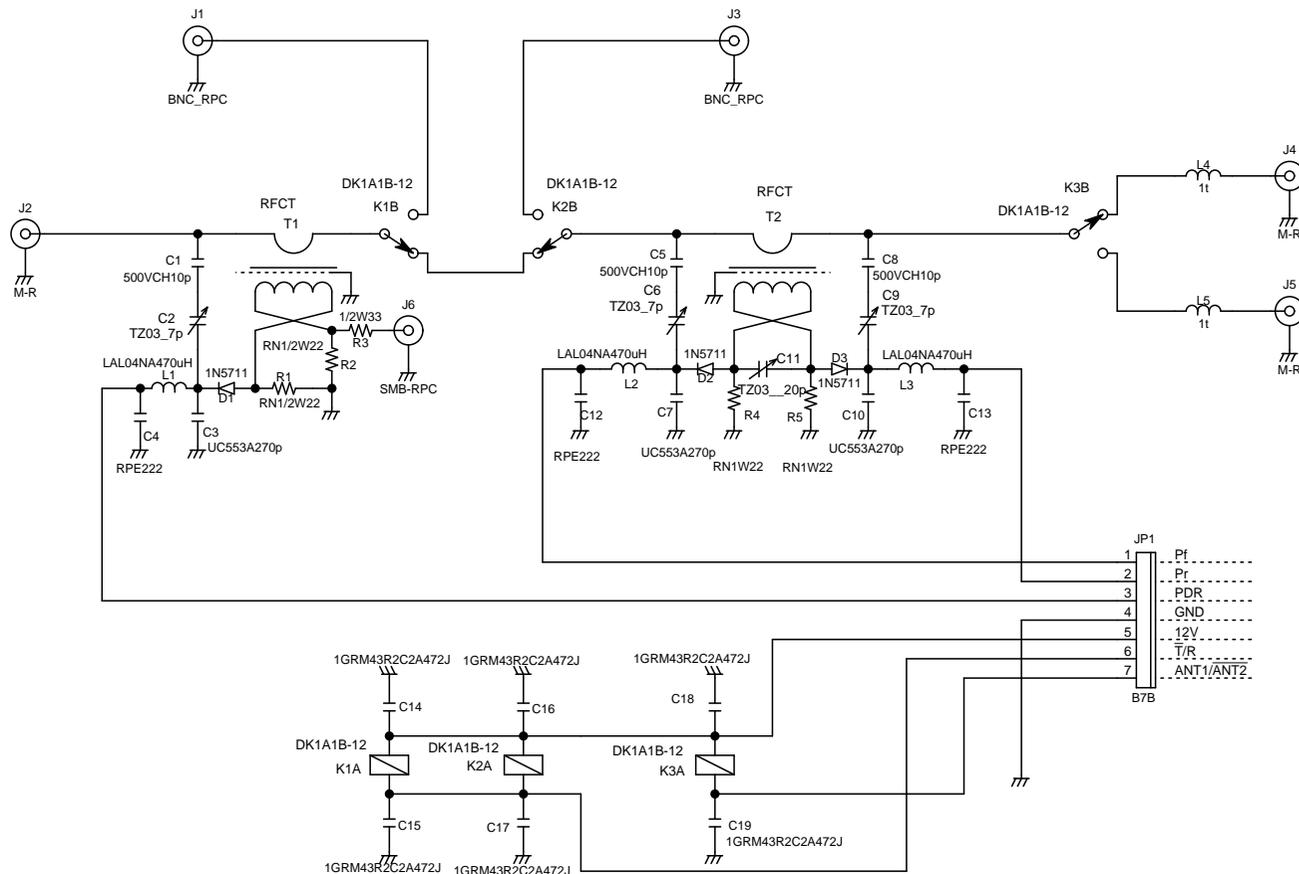


DET_AND_T/R



REVISED : NOV. 15, 2012

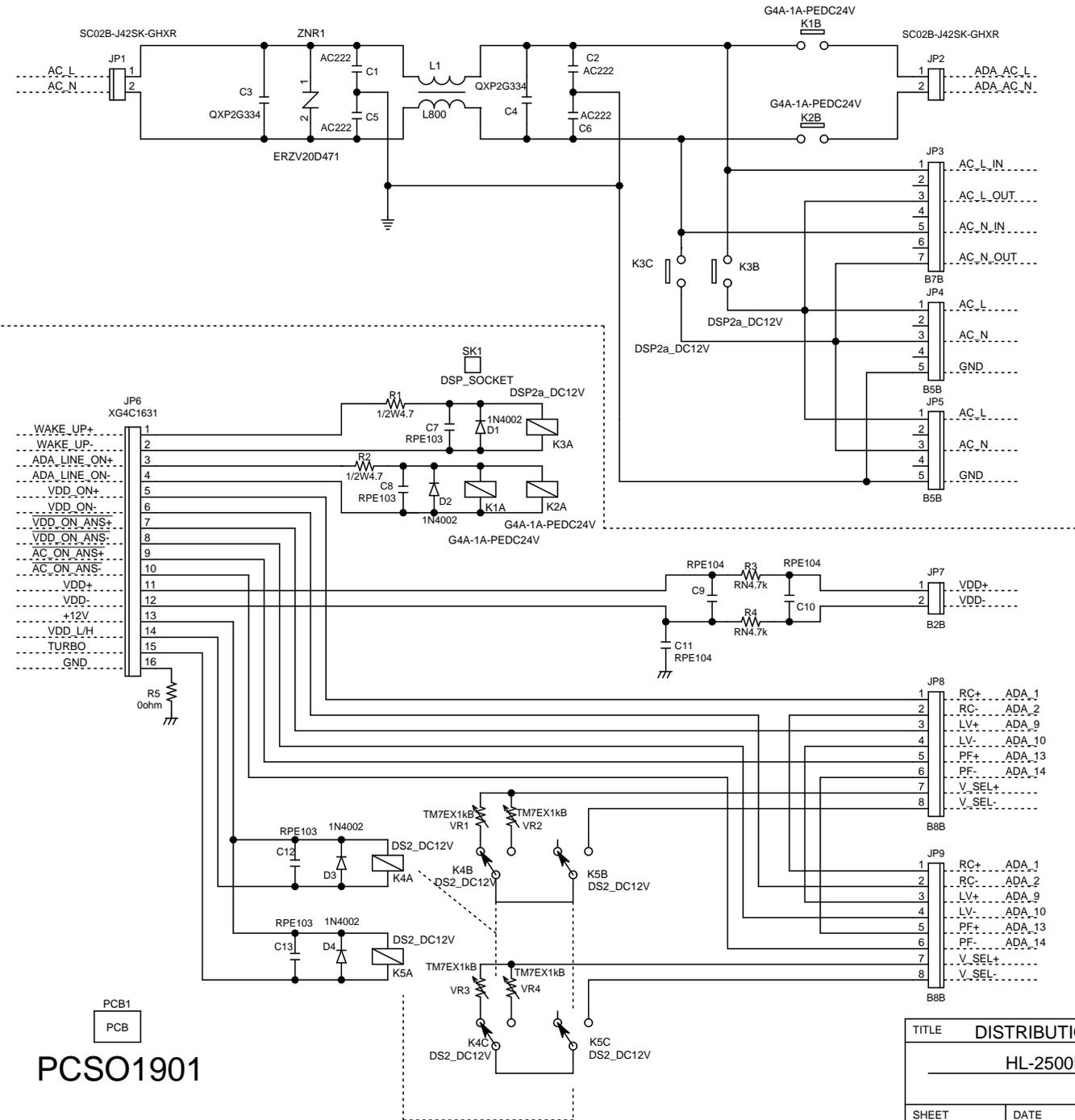
TITLE		CPU UNIT		DRAWING_No		HL2500_CPU.dcd	
		HL-2500FX				TOKYO HY-POWER	
SHEET	DATE	DESIGN					
	AUG. 17, 2012	T. OHSAWA					



PCB1
PCB

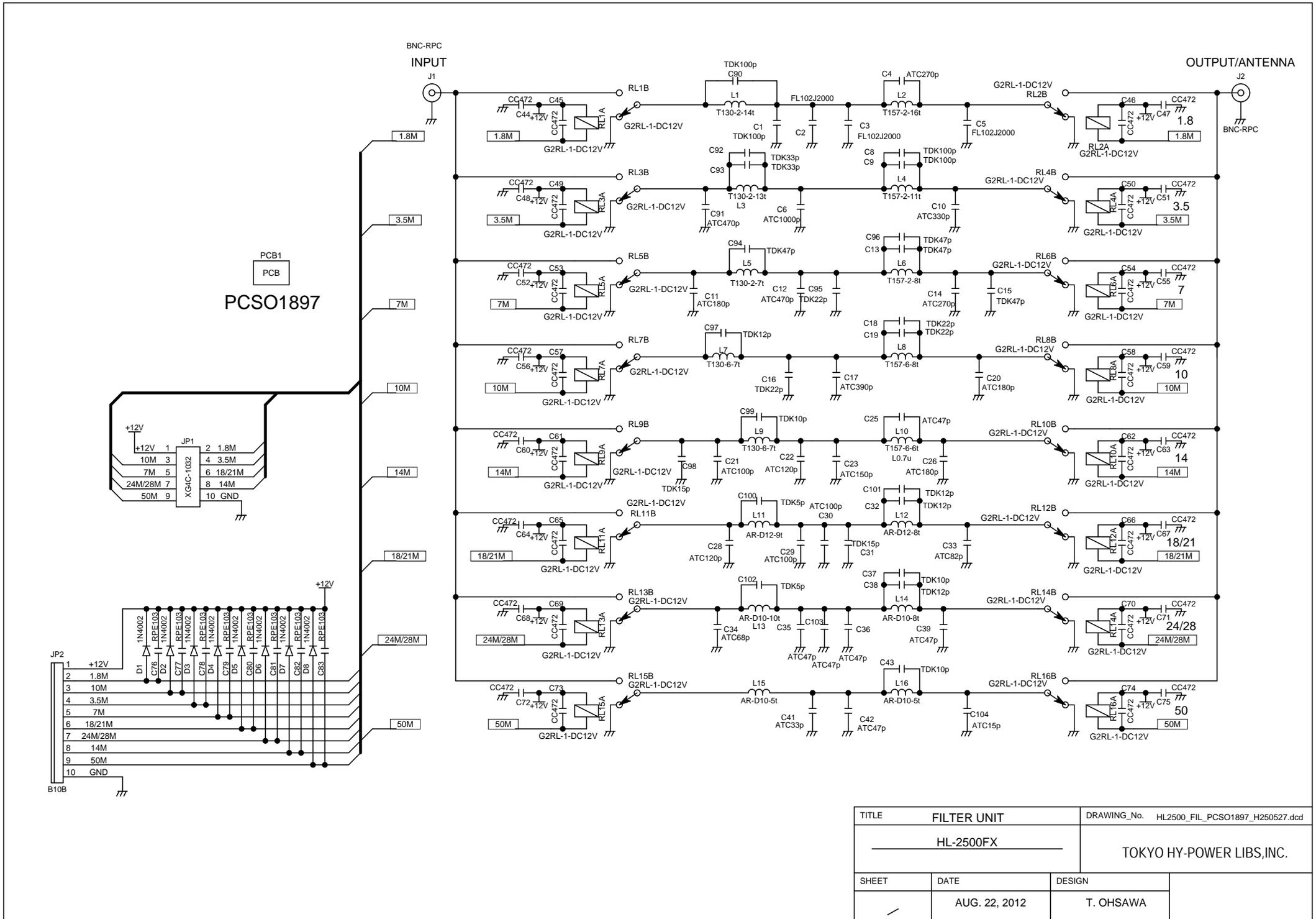
PCSO1898

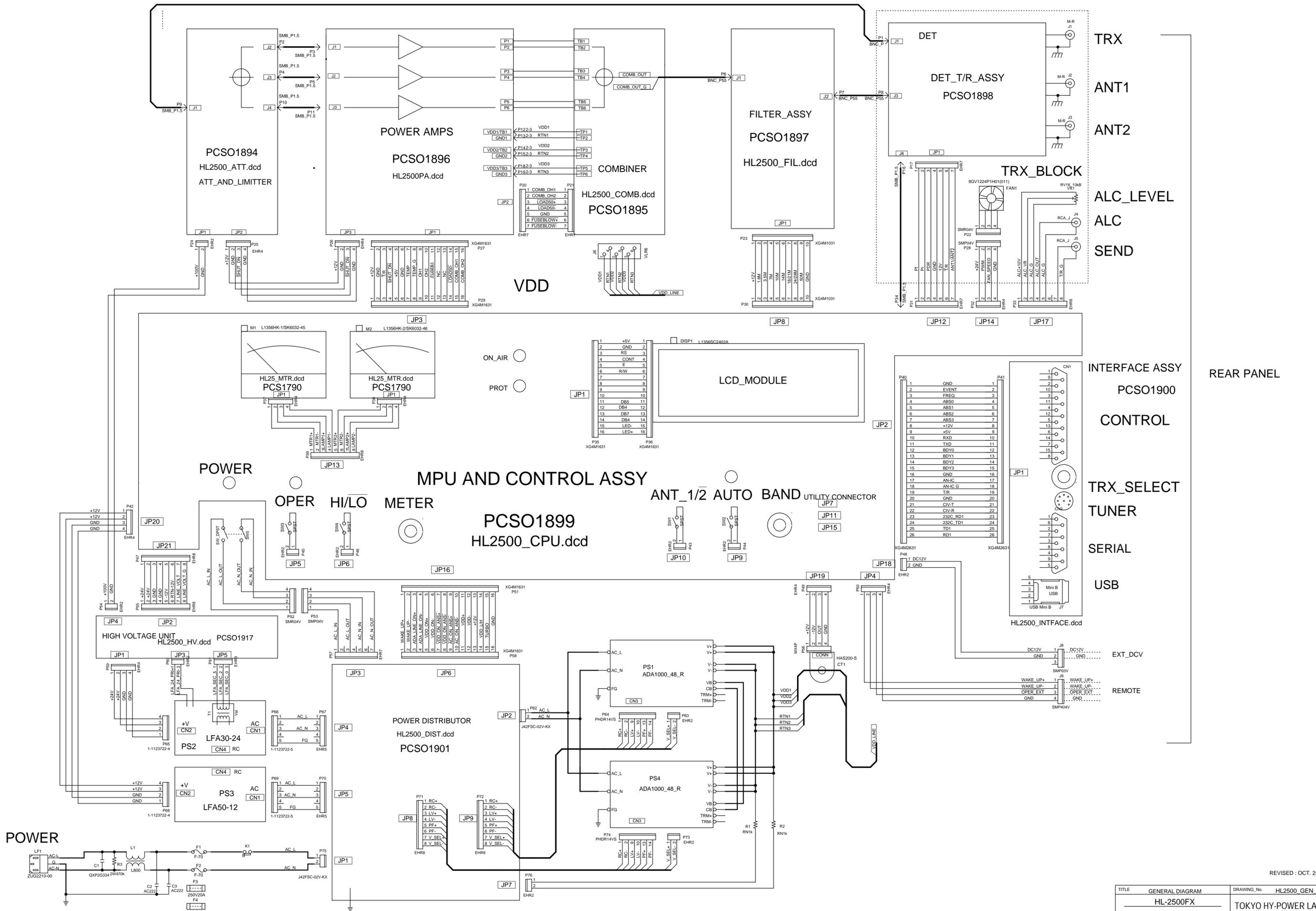
TITLE DETECTOR UNIT		DRAWING_No. HL2500_DET.dcd	
HL-2500FX		TOKYO HY-POWER	
SHEET	DATE	DESIGN	
/	AUG. 17, 2012	T. OHSAWA	



PCSO1901

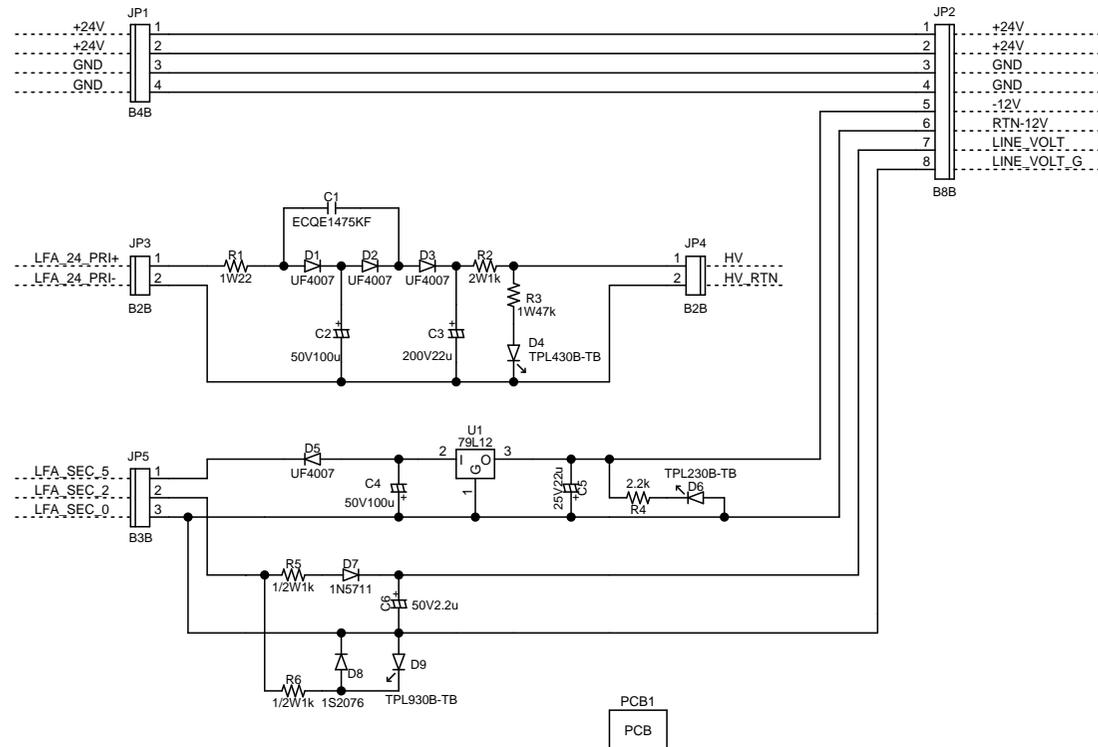
TITLE		DISTRIBUTION UNIT		DRAWING_No. HL2500_DIST.dcd	
		HL-2500FX		TOKYO HY-POWER LABS, INC.	
SHEET	DATE	DESIGN			
/	OCT. 18, 2012	T. OHSAWA			





REVISED : OCT. 25, 2012

TITLE	GENERAL DIAGRAM	DRAWING_No.	HL2500_GEN_E.dcd
	HL-2500FX		TOKYO HY-POWER LABS,INC.
SHEET	DATE	DESIGN	
	AUG. 22, 2012	T. OHSAWA	



PCSO1917

TITLE HIGH VOLTAGE UNIT		DRAWING_No. HL2500_HV.dcd	
HL-2500FX		TOKYO HY-POWER LABS,INC.	
SHEET	DATE	DESIGN	
/	AUG. 20, 2012	T. OHSAWA	

■ PARTS LIST ■

Model : HL-2500FX	<u>GENERAL</u>		Designer : J. Shimada		Revised : June 13, 2013		1 / 20
Reference/Symbol	Parts	Type/Model	Description	Quantity	Manufacturer	Vendor	Remarks
PS1,PS4,,,,,	Switching Power Supply	ADA1000_48_R	ADA1000F-48-XTKHA	2	Cosel		Special Specification
P12,P13,P14,P15,P18,P19,,	Crimping Terminal	2-3	2-3	6	Nichifu		
P1,,,,,	Coax Plug	BNC_P	BNC_P	1	Toh-Conne		
P6,P7,P8,,,,,	Coax Plug	BNC_P55	BNC_P55	3	Toh-Conne		
P2,P3,P4,P5,P9,P10,P11,P16,P34	Coax Plug	SMB_P1.5	SMB_P1.5	9	Toh-Conne		
K1,,,,,	Micro Switch	B	V-21-3CR6	1	Omron		
J6,,,,,	Connector	VLR6	VLR6	1	Nichiatsu		
J4,J5,,,,,	Connector	RCA_J	RCA_J	2	Marushin-Musen		
C2,C3,,,,,	AC Capacitor	AC222	CS11-E2GA222MYGS	2	TDK		
C1,,,,,	Fixed Film Dielectric Capacitors	QXP2G334	QXP2G334	1	Nichikon		
CT1,,,,,	Current Sensor	HAS200-S	HAS200-S	1	LEM Japan		
FAN1,,,,,	Cooling Fan	9GV1224P1H01(011)	9GV1224P1H01(011)	1	Sanyo Denki		
F1,F2,,,,,	Fuse Holder	F-70	F-70	2	Sato		
F3,F4,,,,,	Fuse Holder	250V20A(35SF20)	250V20A(35SF20)	2	Hinode Electric		
P23,P30,,,,,	Connector	XG4M1031	XG4M1031	2	Omron		
P27,P29,P35,P36,P51,P58,,,,	Connector	XG4M1631	XG4M1631	6	Omron		
P24,P43,P44,P45,P46,P48,P54,P60, P63,P73,P76	Connector	EHR2	EHR2	11	Nichiatsu		
P62,P75,,,,,	Connector	J42FSC-02V-KX	J42FSC-02V-KX	2	Nichiatsu		
P40,P41,,,,,	Connector	XG4M2631	XG4M2631	2	Omron		
P61,,,,,	Connector	EHR3	EHR3	1	Nichiatsu		
J8,,,,,	Connector	SMP03V	SMP03V	1	Nichiatsu		
P65,P68,,,,,	Connector	1-1123722-4	1-1123722-4	2	Taiko		
P25,P26,P32,P37,P38,P42,P49,P50, P59,,	Connector	EHR4	EHR4	9	Nichiatsu		
P56,,,,,	Connector	MX4P	MX4P	1	Molex		
P28,P53,,,,,	Connector	SMP04V	SMP04V	2	Nichiatsu		
J9,,,,	Connector	SMP404V	SMP404V	1	Nichiatsu		
P22,P52,,,,	Connector	SMR04V	SMR04V	2	Nichiatsu		
P66,P69,,,,	Connector	1-1123722-5	1-1123722-5	2	Nichiatsu		

■ PARTS LIST ■

Model : HL-2500FX	<u>GENERAL</u>		Designer : J. Shimada		Revised : June 13, 2013		2 / 20
Reference/Symbol	Parts	Type/Model	Description	Quantity	Manufacturer	Vendor	Remarks
P67,P70,,,,	Connector	EHR5	EHR5	2	Nichiatsu		
P64,P74,,,,	Connector	PHDR14VS	PHDR14VS	2	Nichiatsu		
P17,P20,P21,P31,P57,	Connector	EHR7	EHR7	5	Nichiatsu		
P33,P39,P47,P55,P71,P72	Connector	EHR8	EHR8	6	Nichiatsu		
PS2,,,,	Switching Power Supply	LFA30-24	LFA30-24	1	Cosel		
PS3,,,,	Switching Power Supply	LFA50-12	LFA50-12	1	Cosel		
LF1,,,,	Line Filter	SUP-J15G-E	SUP-J15G-E	1	Okaya Electric Industries		
L1,,,,	Common Mode Choke Coil	L800	L800	1	THP		
R3,,,,	Metal Oxide Film Resistor	2W470k	2W470k	1	Takman		
R1,R2,,,,	Metal-Film Resistor	RN1k	RN1k	2	KOA		
M1,,,,	Panel Meter	L1356HK-1/SK6032-45	L1356HK-1/SK6032-45	1	Shinwa		Same HL-2K
M2,,,,	Panel Meter	L1356HK-2/SK6032-46	L1356HK-2/SK6032-46	1	Shinwa		Same HL-2K
DISP1,,,,	LCD Module	L1356SC2402A	L1356SC2402A	1	Sunlike		
SW1,SW2,SW3,SW4,SW5	Rocker Switch	DS850	DS850	5	Miyama		
VR1,,,	Potential Meter	RV16_10kB	RV16_10kB	1	Tokyo Cosmos		

■ PARTS LIST ■

Model : HL-2500FX	<u>METER UNIT</u>	Used by two combining.	Designer : J. Shimada	Revised : June 13, 2013		3 / 20	
Reference/Symbol	Parts	Type/Model	Description	Quantity	Manufacturer	Vendor	Remarks
C1	Multi Layer Ceramic Capacitor	RPE103	RPE103	1	Murata		
C2	Multi Layer Ceramic Capacitor	RPE104	RPE104	1	Murata		
JP1	Connector	S4B	S4B	1	Nichiatsu		
PCB1	PCB	PCS1790	PCS1790	1	Sanko Denki		
R1	Metal-Film Resistor	RN1/8W100	RN1/8W100	1	KOA		

■ PARTS LIST ■

Model : HL-2500FX	<u>ATT UNIT</u>		Designer : J. Shimada	Revised : June 13, 2013		4 / 20	
Reference/Symbol	Parts	Type/Model	Description	Quantity	Manufacturer	Vendor	Remarks
ATT1,,,,	Attenuator	100W3dB	100W3dB	1	Diconix(France)	Adforest	
Q1,,,,	MOSFET	2SK4021	2SK4021	1	Toshiba		
T1,,,,	RF Transformer	RiB16x32x16/D12A_	RiB16x32x16/D12A	1	THP		
JP1,,,,	Connector	B2B	B2B	1	Nichiatsu		
T2,,,,	RF Transformer	T37-43_BFR10t0.3	T37-43_BFR10t0.3	1	THP		
J1,J2,J3,J4	Coaxial Connector	SMB-P1.5	SMB-P1.5	4	Toh-Conne		
C7,,,,	Chemical Capacitor	2kV18p	2kV18p	1	TDK		
C3,C4,,,	Chemical Capacitor	2kV82p	2kV82p	2	TDK		
C1,,,,	Chemical Capacitor	2kV12pF	2kV12pF	1	TDK		
C5,C6,C9,C10,C13	Chemical Capacitor	CC630V104	GRM43DR72J104 KW01L	5	Murata		
C12,,,,	Chemical Capacitor	RPE103	RPE132R103K50	1	Murata		
C14,,,,	Chemical Capacitor	RPE_CH_222	RPE2C1H222	1	Murata		
COAX1,COAX2,COAX3,,	Coaxial Cable	DFS014(25)	DFS014(25)	3	Junkosha		
L3,,,	Carbon Resistor	0OHM	0OHM	1	Takman		
L6,L7,L8,L9	Choke Coil	CB20_100uH	CB20_100uH	4	Shichinohe Tsushin		
L4,,,	Choke Coil	LC0089	LC0089	1	Shichinohe Tsushin		
C8,C11,,	Chemical Capacitor	100V47u	EKMG101ELL470	2	Nippon Chemi-Con		
C2,C15	Trimmer Capacitor	TZ03Z100F169	TZ03Z100F169	2	Murata		
D6,,,	Diode	1N4007	1N4007	1	Rectron		
D1,D2,,	PIN Diode	MA4P4006B	MA4P4006B	2	MA-COM		
F1,,,	Fuse	LM16	LM16	1	Daito Communication Apparatus		
JP2,,,	Connector	B4B	B4B	1	Nichiatsu		
L1,,,	Coil	T50-12_5t	T50-12_5t	1	THP		
L5,,,	Coil	T50-12-14t	T50-12-14t	1	THP		
L2,,,	Coil	T50-12-3t	T50-12-3t	1	THP		
FH1,,,	Fuse Holder	LM1H	LM1H	1	Daito Communication Apparatus		

■ PARTS LIST ■

Model : HL-2500FX	<u>ATT UNIT</u>		Designer : J. Shimada	Revised : June 13, 2013		5 / 20	
Reference/Symbol	Parts	Type/Model	Description	Quantity	Manufacturer	Vendor	Remarks
PCB1,,	PC Board	PCSO1894	PCSO1894	1	Sanko Denki/Orion		
R9,,	Metal Oxide Film Resistor	1W4.7k		1	Takman		
R12,,	Carbon Resistor	1k		1	Takman		
R1,R2,R3	Metal Oxide Film Resistor	2W18		3	Takman		
R13,,	Carbon Resistor	4.7k		1	Takman		
R8,,	Metal Oxide Film Resistor	5W2.2k		1	Takman		
R10,,	Metal Oxide Film Resistor	5W4.7k		1	Takman		
R5,R6,	Metal-Film Resistor	RN2W51	SN3DDCF51 Ω	2	KOA		
R11,,	Power Resistor(High Power)	RNP10_39	RNP10_39	1	Nikkohm		
R4,,	Power Resistor(High Power)	RNP50UC_22ohm	RNP50UC_22ohm	1	Nikkohm		
R7,,	Power Resistor(High Power)	RNP50_120ohm	RNP50_120ohm	1	Nikkohm		
FC1,FC2,FC3	Ferrite Bead	HF70RH8x15x4	HF70RH8x15x4	3	TDK		
D3,D4,D5	Zener Diode	HZ33-2	HZ33-2	3	Renesas		

■ PARTS LIST ■

Model : HL-2500FX	<u>COMBINER UNIT</u>		Designer : J. Shimada		Revised : June 13, 2013		6 / 20
Reference/Symbol	Parts	Type/Model	Description	Quantity	Manufacturer	Vendor	Remarks
TB1,TB2,TB3,TB4,TB5,TB6	Terminal Screw	Y103	Y103	6	Morimatsu		
T1,,,,,	RF Transformer	RIB42x42x21_D12A	RIB42x42x21_D12A	1	THP		
K1,,,,,	Temperature Switch	OHD5R_70	OHD5R_70	1	TOKIN		
JP2,,,,,	Connector	B6BVL	B6BVL	1	Nichiatsu		
P1,,,,,	Connector	BNC_P55U	BNC_P55U	1	Toh-Conne		
C3,,,,,	Ceramic Capacitor	2kV12p	2kV12p	1	TDK		
C1,C2,C4,C5,,	Multi Layer Ceramic Capacitor	RPE103	RPE132R103K50	4	Murata		
C6,,,,,	Multi Layer Ceramic Capacitor	RPE104	RPE132R104K50	1	Murata		
C8,C10,C12,,	Multi Layer Ceramic Capacitor	RPE105	RPE123E105Z50	3	Murata		
COAX2,COAX4,COAX6,,	Coaxial Cable	DFS25ohm	DFS25ohm	3	Junkosha		
COAX1,COAX3,COAX5,,	Coaxial Cable	DFS50ohm_43cm	DFS50ohm_43cm	3	Junkosha		
COAX7,,,,,	Coaxial Cable	RG18x250mm	RG18x250mm	1	Fujikura		
C7,C9,C11,,,	Chemical Capacitor	100V47u	EKMG101ELL470	3	Nippon Chemi-Con		
D1,,,,,	Diode	1N4002	1N4002	1	Rectron		
FB1,FB2,FB3,FB4,FB5,FB6	Ferrite Fuse	HF70RH8X15X4	HF70RH8X15X4	6	TDK		
F1,F2,F3,,,	Fuse	1197_20A_58V	1197_20A_58V	3	Fujix		
JP1,,,,,	Connector	B7B	B7B	1	Nichiatsu		
L1,,,,,	Coil	ID12_4t_PEW2	ID12_4t_PEW2	1	THP		
R5,R7,R9,,,	Carbon Resistor	1/2W4.7k	1/2W4.7k	3	Takman		
R6,R8,R10,,,	Metal Oxide Film Resistor	1W4.7k	1W4.7k	3	Takman		
R4,,,,,	Carbon Resistor	2.2k	2.2k	1	Takman		
R1,R2,R3,,,	Power Resistor(High Power)	RNP50UC18ohm	RNP50UC18ohm	3	Nikkohm		
K2,,,,,	Relay	G2RL_1b_DC12V	G2RL_1b_DC12V	1	Omron		
FH1,FH2,FH3,,,	Fuse Holder	FHA040-01	FHA040-01	3	Fujix		
FC2,FC4,FC6,,,	Ferrite Core	RIB10x20x15_D12A	RIB10x20x15_D12A	3	Tomita		
FC1,FC3,FC5,,,	Ferrite Core	TRB20x10x10_D12Ax6	TRB20x10x10_D12Ax6	18	Tomita		

■ PARTS LIST ■

Model : HL-2500FX	<u>COMBINER UNIT</u>		Designer : J. Shimada		Revised : June 13, 2013		7 / 20
Reference/Symbol	Parts	Type/Model	Description	Quantity	Manufacturer	Vendor	Remarks
U1,,,,	Photo Cupler	TLP521	TLP521	1	Toshiba		
D2,D3,D4	LED	TPL-230BTB	TPL-230BTB (Green)	3	Sanyo/Stanley		
PCB1	PCB	PCSO1897	PCSO1897	1	Sanko Denki/Orion		

■ PARTS LIST ■

Model : HL-2500FX	<u>CPU UNIT</u>		Designer : J. Shimada		Revised : June 13, 2013		8 / 20
Reference/Symbol	Parts	Type/Model	Description	Quantity	Manufacturer	Vendor	Remarks
Q1,Q2,Q3,Q4,,,,,,,,,,,,,	Transistor	2SC1959	2SC1959	4	Toshiba		
U9,,,,,,,,,,,,,	Logic IC	74HC14A	74HC14A	1	TI		
U15,,,,,,,,,,,,,	3-Terminal Regulator	7805	NJM7805	1	New JRC		
J1,,,,,,,,,,,,,	Connector	SMB-RPC	SMB-RPC	1	Toh-Conne		
C33,,,,,,,,,,,,,	Ceramic Capacitor	CH10p	CH10p	1	Maruwa		
C34,,,,,,,,,,,,,	Ceramic Capacitor	CH27p	CH27p	1	Maruwa		
C37,,,,,,,,,,,,,	Fixed Film Dielectric Capacitors	FL103	ECQV1H103JL	1	Panasonic		
C46,,,,,,,,,,,,,	Fixed Film Dielectric Capacitors	FL104	ECQV1H104JL	1	Panasonic		
C43,C57,C62,C69,C77,C86,C94,,,,,,,,,	Fixed Film Dielectric Capacitors	FL105	ECQV1H105JL	7	Panasonic		
C45,,,,,,,,,,,,,	Fixed Film Dielectric Capacitors	FL224	ECQV1H224JL	1	Panasonic		
C44,,,,,,,,,,,,,	Fixed Film Dielectric Capacitors	FL474	ECQV1H474JL	1	Panasonic		
C12,C13,C14,C15,C16,C17,C18,C19 ,,,,,,,,,,,,,	Multi Layer Ceramic Capacitor	RPE101	RPE2CH101J	8	Murata		
C8,C9,C10,C11,C54,C55,C56,C58,C 59,C61,C63,C67,C68,C70,C71,C73, C80,C85,C91	Multi Layer Ceramic Capacitor	RPE102	RPE132R102K50	19	Murata		
C27,C28,C40,C41,C49,C50,C60,C72 ,C76,C93,,,,,,,,,	Multi Layer Ceramic Capacitor	RPE103	RPE132R103K50	10	Murata		
C42,C47,C48,C51,,,,,,,,,,,,,	Multi Layer Ceramic Capacitor	RPE104	RPE132R105K50	4	Murata		
C2,C3,C4,C5,C6,C24,C25,C26,C38, C64,C65,C74,C75,C78,C79,C81,C82	Multi Layer Ceramic Capacitor	RPE105	RPE123E105Z50	17	Murata		
C83,C84,,,,,,,,,,,,,	Multi Layer Ceramic Capacitor	RPE222	RPE132R222K50	2	Murata		
C31,C36,,,,,,,,,,,,,	Multi Layer Ceramic Capacitor	RPE561	RPE2CH561J	2	Murata		
C39,,,,,,,,,,,,,	Chemical Capacitor	25V22u	EKMG250ELL220	1	Nippon Chemi-Con		
C21,C22,C35,C52,,,,,,,,,,,,,	Chemical Capacitor	25V47u	EKMG250ELL470	4	Nippon Chemi-Con		
C89,,,,,,,,,,,,,	Chemical Capacitor	50V100u	EKMG500ELL101	1	Nippon Chemi-Con		
C1,C7,C20,C23,C29,C30,C53,C66,C 87,C88,C92,,,,,,,,,	Chemical Capacitor	50V10u	EKMG500ELL100	11	Nippon Chemi-Con		
C90,,,,,,,,,,,,,	Chemical Capacitor	50V220u	EKMG500ELL221	1	Nippon Chemi-Con		
C32,,,,,,,,,,,,,	Trimmer Capacitor	TZ03_47p	TZ0Z500F169B00	1	Murata		

■ PARTS LIST ■

Model : HL-2500FX	<u>CPU UNIT</u>		Designer : J. Shimada	Revised : June 13, 2013		9 / 20	
Reference/Symbol	Parts	Type/Model	Description	Quantity	Manufacturer	Vendor	Remarks
D1,D5,D6,D10,,,,,,,,,,,,,	Diode	1S2076A	1S2076A	4	Renesas		
D16,D17,D20,,,,,,,,,,,,,	Diode	DNJ10	DNJ10	3	Shidengen		
SW2,,,,,,,,,,,,,	DIP Switch	DSS103	DSS103	1	Omron		
SW4,,,,,,,,,,,,,	DIP Switch	DSS104	DSS104	1	Omron		
SW3,,,,,	DIP Switch	DSS105	DSS105	1	Omron		
U5,,,,	Timer IC	TLC555(CMOS)	TLC555(CMOS)	1	Texas		
U7,,,,	Comparator	LM393N	LM393N	1	National Semiconductor		
JP7,,,,	Connector	B10B	B10B	1	Nichiastu		
JP8,,,,	Connector	XG4C1032	XG4C1032	1	Omron		
U8,,,,	RF Amplifier	ERA5	ERA5	1	Mini-Circuits		
FH1,FH2,,,	Fuse Holder	LM1H	LM1H	2	Daito Communication Apparatus		
F2,,,,	Fuse	LM20	LM20	1	Daito Communication Apparatus		
F1,,,,	Fuse	LM32	LM32	1	Daito Communication Apparatus		
JP11,,,,	Connector	B10B	B10B	1	Nichiastu		
JP16,,,,	Connector	XG4C1631	XG4C1631	1	Omron		
JP1,JP3,,,	Connector	XG4C1632	XG4C1632	2	Omron		
JP5,JP6,JP9,JP10,JP18	Connector	B2B	B2B	5	Nichiastu		
JP2,,,,	Connector	XG4C2632	XG4C2632	1	Omron		
JP4,JP14,JP19,JP20,	Connector	B4B	B4B	4	Nichiastu		
JP15,,,,	Connector	B6B	B6B	1	Nichiastu		
JP12,,,,,,,,,,,,,	Connector	B7B	B7B	1	Nichiastu		
JP13,JP17,JP21,,,,,,,,,,,,,	Connector	B8B	B8B	3	Nichiastu		
D2,,D11,	LED	SLP455B-51	SLP455B-51	2	Sanyo		Orange
D4,D8,D12,,,,,,,,,,,,,	LED	TPL-930B-TB	TPL-930B-TB	3	Sanyo		Red
D3	LED	SLP-155B-50	SLP-155B-50	1	Sanyo		Red
D7,D14	LED	PG5351KY	PG5351KY	2	Stanley		Green
D19	LED	L-314LBD-T1-DPE10	L-314LBD-T1-DPE1	1	PARA China		Blue

■ PARTS LIST ■

Model : HL-2500FX	<u>CPU UNIT</u>		Designer : J. Shimada	Revised : June 13, 2013		10 / 20	
Reference/Symbol	Parts	Type/Model	Description	Quantity	Manufacturer	Vendor	Remarks
D13	LED	UC3803X	UC3803X	1	Stanley		Pure Green
U2,,,,,,,,,,,,,	Interface IC	MAX232	MAX232C	1	Maxim		
U1,U3,,,,,,,,,,,,,	Port Extended IC	NJU3754	NJU3754	2	New JRC		
U11,U12,U14,,,,,,,,,,,,,	Operational Amplifier	LF347N	LF347N	3	National Semiconductor		
PCB1,,,,,,,,,,,,,	PCB	PCSO1899	PCSO1899	1	Sanko Denki/Orion		
OPT1,OPT2,OPT3,OPT4,OPT5,OPT6,OPT7,OPT9,OPT10,,,,,	Photo MOS Relay	G3VM351	G3VM351	9	Omron		
OPT8,,,,,,,,,,,,,	Photo MOS Relay	G3VM61A1	G3VM61A1	1	Omron		
U13,,,,,,,,,,,,,	Micro Processor	PIC12F683	PIC12F683	1	Microchip		
U4,,,,,,,,,,,,,	Micro Processor	18F8722-I/PT	18F8722-I/PT	1	Microchip		
R76,,,,,,,,,,,,,	Carbon Resistor	1.5k		1	Takman		
R80,R81,,,,,,,,,,,,,	Carbon Resistor	1/2W33		2	Takman		
R1,R2,R3,R4,R5,R6,R7,R8,R9,R10,R11,R12,R102	Carbon Resistor	100		13	Takman		
R27,R32,,,,,,,,,,,,,	Metal-Film Resistor	10M		2	KOA		
R17,R19,R23,R46,,,,,,,,,,,,,	Carbon Resistor	10k		4	Takman		
R13,,,,,,,,,,,,,	Metal Oxide Film Resistor	1W22		1	KOA		
R25,R57,R64,R66,R74,R79,R92,R94,R105,R115,R126,R135,,,,,	Carbon Resistor	1k		12	Takman		
R53,R56,R58,,,,,,,,,,,,,	Carbon Resistor	2.2k		3	Takman		
R14,R22,R36,R43,R51,R60,R67,R77,R84,R88,R103,R113,,,,,	Carbon Resistor	220		12	Takman		
R47,,,,,,,,,,,,,	Metal Oxide Film Resistor	2W120		1	KOA		
R16,R21,R24,R28,R29,R30,R31,R35,R42,R44,R50,R59,R73,R107,R109,R110,R111	Carbon Resistor	3.3k		17	Takman		
R55,,,,,,,,,,,,,	Carbon Resistor	3.9k		1	Takman		
R61,R116,,,,,,,,,,,,,	Carbon Resistor	330		2	Takman		
R108,,,,,,,,,,,,,	Carbon Resistor	33k		1	Takman		

■ PARTS LIST ■

Model : HL-2500FX	<u>CPU UNIT</u>		Designer : J. Shimada	Revised : June 13, 2013		11 / 20	
Reference/Symbol	Parts	Type/Model	Description	Quantity	Manufacturer	Vendor	Remarks
R48,R49,R54,R62,,,,,,,,,,,,,	Carbon Resistor	4.7k		4	Takman		
R39,,,,,,,,,,,,,	Carbon Resistor	47k		1	Takman		
R132,,,,,,,,,,,,,	Metal Oxide Film Resistor	5W15		1	KOA		
R120,,,,,,,,,,,,,	Metal-Film Resistor	RN1/2W82k		1	KOA		
R129,,,,,,,,,,,,,	Metal-Film Resistor	RN100		1	KOA		
R20,R119,R128,R133,,,,,,,,,,,,,	Metal-Film Resistor	RN100k		4	KOA		
R33,R34,R37,R40,R41,R65,R68,R78, R83,R90,R93,R96,R97,R104,R114,R 118,R125,R127,R134,R136,R137,R1 41	Metal-Film Resistor	RN10k		22	KOA		
R69,R82,,,,,,,,,,,,,	Metal-Film Resistor	RN1M		2	KOA		
R15,R18,R26,R38,R45,R63,R70,R75, R85,R99,R123,,,,,,,,,,,,,	Metal-Film Resistor	RN1k		11	KOA		
R71,R86,R89,R100,R121,R124,R130, R139,,,,,,,,,,,,,	Metal-Film Resistor	RN2.2k		8	KOA		
R91,R98,R106,,,,,,,,,,,,,	Metal-Film Resistor	RN33k		3	KOA		
R52,,,,,,,,,,,,,	Metal-Film Resistor	RN39		1	KOA		
R72,R87,R95,R101,R122,R131,R140, ,,,,,,,,,,,,,	Metal-Film Resistor	RN4.7k		7	KOA		
R117,R138,,,,,,,,,,,,,	Metal-Film Resistor	RN47k		2	KOA		
R112,,,,,,,,,,,,,	Metal-Film Resistor	RN5.1k		1	KOA		
SW8,,,,,,,,,,,,,	Rotary Switch	SRBV141400	SRBV141400	1	Alps		
SW1,,,,,,,,,,,,,	Rotary Switch	SRBV181000	SRBV181000	1	Alps		
HS1,,,,,,,,,,,,,	Heat Sink	SINK		1	LSI-Cooler		
SOCKET1,,,,,,,,,,,,,	IC Socket	SOCKET_DIP8	SOCKET_DIP8	1	KEL		
SQ1,SQ2,SQ3,,,,,,,,,,,,,	IC Socket	SOCKET_DIP_14	SOCKET_DIP_14	3	KEL		
SQ4,,,,,,,,,,,,,	IC Socket	SOCKET_DIP_8	SOCKET_DIP_8	1	KEL		
SW5,SW6,SW7,,,,,,,,,,,,,	Slide Switch	SS-12SDH2	SS-12SDH2	3	Alps		
SW9,,	Slide Switch	SS-12SDP2	SS-12SDP2	1	Alps		
U6,,	Reset IC	TCM809JVLB713	TCM809JVLB713	1	Microchip		

■ PARTS LIST ■

Model : HL-2500FX	<u>CPU UNIT</u>		Designer : J. Shimada	Revised : June 13, 2013		12 / 20	
Reference/Symbol	Parts	Type/Model	Description	Quantity	Manufacturer	Vendor	Remarks
U10,,	Relay Driver IC	TD62083AP	TD62083AP	1	Toshiba		
TP1,,	Check Point Terminal	LC-3-S	LC-3-S	1	Mac-Eight		
VR5,,	Semi Fixed Resistor	CT6EP100Ω	CT6EP100Ω	1	Copal		
VR1,,	Semi Fixed Resistor	CT6EP10k	CT6EP10k	1	Copal		
VR2,VR3,VR4	Semi Fixed Resistor	CT6EX10kB	CT6EX10kB	3	Copal		
VR13,,	Semi Fixed Resistor	TM7EX100k	TM7EX100k	1	Copal		
VR7,VR9,VR10	Semi Fixed Resistor	TM7EX100kB	TM7EX100kB	3	Copal		
VR11,VR14,	Semi Fixed Resistor	TM7EX10kB	TM7EX10kB	2	Copal		
VR12,,	Semi Fixed Resistor	TM7EX20kB	TM7EX20kB	1	Copal		
VR6,VR8,	Semi Fixed Resistor	TM7EX5kB	TM7EX5kB	2	Copal		
X1,,	Quartz Unit	20.000MHz	20.000MHz	1		Akizuki	
D18,,	Zener Diode	05Z2.7	05Z2.7	1	Toshiba		
D9,D14	Zener Diode	05Z6.2	05Z6.2	2	Toshiba		
FIL1,FIL2,FIL3,FIL4,FIL5	ZJS	ZJSR5101-222-01	ZJSR5101-222-01	5	TDK		
ZNR1,,,,	ZNR	ERZV10D270	ERZV10D270	1	Panasonic		

■ PARTS LIST ■

Model HL-2500FX	<u>DETECTOR UNIT</u>		Designer : J. Shimada		Revised : June 13, 2013		13 / 20
Reference/Symbol	Parts	Type/Model	Description	Quantity	Manufacturer	Vendor	Remarks
J1,J3,,,	Connector	BNC_RPC	BNC_RPC	2	Toh-Conne		
J2,J4,J5,,	Connector	SO-239	SO-239	3	AIMMET		
J6,,,,	Connector	SMB-RPC	SMB-RPC	1	Toh-Conne		
C14,C15,C16,C17,C18,C19	Chip Ceramic Capacitor	1GRM43R2C2A472J	1GRM43R2C2A472	6	Murata		
C1,C5,C8,,	Ceramic Capacitor	500VCH10p	500VCH10p	3	Maruwa		
C4,C12,C13,,	Multi Layer Ceramic Capacitor	RPE222	RPE222	3	Murata		
C3,C7,C10,,	Chip Mica Capacitor	UC553A270p	UC553A270p	3	Soshin Electric		
C2,C6,C9,,	Trimmer Capacitor	TZ03_7p	TZ03_7p	3	Murata		
C11,,,,	Trimmer Capacitor	TZ03_20p	TZ03_20p	1	Murata		
D1,D2,D3,,	Diode	1N5711	1N5711	3	Stmicro		
JP1,,,,	Connector	B7B	B7B	1	Nichiatsu		
L4,L5,,,	Correction Coil	1t	1t	2	THP		
L1,L2,L3,,	Inductor	LAL04NA470uH	LAL04NA470uH	3	Taiyo Yuden		
R3,,	Carbon Resistor	1/2W33	1/2W33	1	Takman		
R1,R2,	Metal-Film Resistor	RN1/2W22	RN1/2W22	2	KOA		
R4,R5,	Metal-Film Resistor	RN1W22	RN1W22	2	KOA		
T1,T2,	RF Transformer	T50-61#	T50-61#0.3 × 30t	2	Micro Metal		
K1,K2,K3	Relay	DK1A1B-12	DK1A1B-12	3	Panasonic		
PCB1	PC Board		PCS01898	1	Sanko-Denki/Orion		

■ PARTS LIST ■

Model : HL-2500FX	<u>DISTRIBUTION UNIT</u>		Designer : J. Shimada		Revised : June 13, 2013		14 / 20
Reference/Symbol	Parts	Type/Model	Description	Quantity	Manufacturer	Vendor	Remarks
C1,C2,C5,C6	AC Condenser	AC222	CS11-E2GA222MYGS	4	TDK		
C3,C4,,	Fixed Film Dielectric Capacitors	QXP2G334	QXP2G334	2	Nichicon		
C7,C8,C12,C13	Multi Layer Ceramic Capacitor	RPE103	RPE132R103K50	4	Murata		
C9,C10,C11,	Multi Layer Ceramic Capacitor	RPE104	RPE132R104K50	3	Murata		
D1,D2,D3,D4	Diode	1N4002	1N4002	4	RECTRON		
JP6,,,	Connector	XG4C1631	XG4C1631	1	Omron		
JP7,,,	Connector	B2B	B2B	1	Nichiatsu		
JP1,JP2,,	Connector	SC02B-J42SK-GHXR	SC02B-J42SK-GHXR	2	Nichiatsu		
JP4,JP5,,	Connector	B5B	B5B	2	Nichiatsu		
JP3,,,	Connector	B7B	B7B	1	Nichiatsu		
JP8,JP9,,	Connector	B8B	B8B	2	Nichiatsu		
L1,,,	Filter Coil	L800	L800	1	THP		
PCB1,,,	PCB	PCSO1901	PCSO1901	1	Sanko Denki/Orion		
R5,,,	Carbon Resistor	0ohm	0ohm	1	Takman		
R1,R2,,	Carbon Resistor	1/2W4.7	1/2W4.7	2	Takman		
R3,R4,,	Metal-Film Resistor	RN4.7k	RN4.7k	2	KOA		
K1,K2,,	Relay	G4A-1A-PEDC24V	G4A-1A-PEDC24V	2	Omron		
K3,K3C,,	Relay	DSP2a_DC12V	DSP2a_DC12V	2	Panasonic		
K4,K5,,	Relay	DS2_DC12V	DS2_DC12V	2	Panasonic		
SK1,,,	Relay Socket	DSP_SOCKET	DSP_SOCKET	1	Panasonic		
VR1,VR2,VR3,VR4	Semi Fixed Resistor	TM7EX1kB	TM7EX1kB	4	Copal		
ZNR1,,,	ZNR	ERZV20D471	ERZV20D471	1	Panasonic		

■ PARTS LIST ■								
Model : HL-2500FX		<u>FILTER UNIT</u>		Designer : J. Shimada		Revised : June 13, 2013		15 / 20
Reference/Symbol	Parts	Type/Model	Description	Quantity	Manufacturer	Vendor	Remarks	
J1,J2,,,	Connector	BNC-RPC	BNC-RPC	2	Toh-Conne			
C6,,,,	Chip Ceramic Capacitor	ATC1000p	ATC800C1000p	1	ATC		ATC-100C	
C21,C29,C30,,	Chip Ceramic Capacitor	ATC100p	ATC800C100p	3	ATC			
C22,C28,,,	Chip Ceramic Capacitor	ATC120p	ATC800C120p	2	ATC			
C23,,,,	Chip Ceramic Capacitor	ATC150p	ATC800C150p	1	ATC			
C104,,,,	Chip Ceramic Capacitor	ATC15p	ATC800C15p	1	ATC			
C11,C20,C26,,	Chip Ceramic Capacitor	ATC180p	ATC800C180p	3	ATC			
C4,C14,,,	Chip Ceramic Capacitor	ATC270p	ATC800C270p	2	ATC			
C10,,,,	Chip Ceramic Capacitor	ATC330p	ATC800C330p	1	ATC			
C41,,,,	Chip Ceramic Capacitor	ATC33p	ATC800C33p	1	ATC			
C17,,,,	Chip Ceramic Capacitor	ATC390p	ATC800C390p	1	ATC			
C12,C91,,,	Chip Ceramic Capacitor	ATC470p	ATC800C470p	2	ATC			
C25,C35,C36,C39,C42,C103	Chip Ceramic Capacitor	ATC47p	ATC800C47p	6	ATC			
C34,,,,,,,,,,,,,,,,,,,,,	Chip Ceramic Capacitor	ATC68p	ATC800C68p	1	ATC			
C33,,,,,,,,,,,,,,,,,,,,,	Chip Ceramic Capacitor	ATC82p	ATC800C82p	1	ATC			
C44,C45,C46,C47,C48,C49,C50,C51, C52,C53,C54,C55,C56,C57,C58,C59, C60,C61,C62,C63,C64,C65,C66,C67, C68,C69,C70,C71,C72,C73,C74,C75	Chip Ceramic Capacitor	CC472	GRM	32	Murata			
C2,C3,C5,,,,,,,,,,,,,,,,,,,,,	Fixed Film Dielectric Capacitors	FL102J2000	FHGD202V102J	3	Nippon Chemi-Con			
C76,C77,C78,C79,C80,C81,C82,C83, ,,,,,,,,,,,,,,,,,,,,,	Multi Layer Ceramic Capacitor	RPE103	RPER11H103K2M1A01A	8	Murata			
C1,C8,C9,C90,,,,,,,,,,,,,,,,,,,,,	Ceramic Capacitor	TDK100p	TDK100p	4	TDK			
C37,C43,C99,,,,,,,,,,,,,,,,,,,,,	Ceramic Capacitor	TDK10p	TDK10p	3	TDK			
C32,C38,C97,C101,,,,,,,,,,,,,,,,,,,,,	Ceramic Capacitor	TDK12p	TDK12p	4	TDK			
C31,C98,,,,,,,,,,,,,,,,,,,,,	Ceramic Capacitor	TDK15p	TDK15p	2	TDK			
C16,C18,C19,C95,,,,,,,,,,,,,,,,,,,,,	Ceramic Capacitor	TDK22p	TDK22p	4	TDK			

■ PARTS LIST ■															
Model : HL-2500FX		<u>FILTER UNIT</u>		Designer : J. Shimada		Revised : June 13, 2013									
Reference/Symbol		Parts		Type/Model		Description		Quantity		Manufacturer		Vendor		Remarks	
C92,C93,,,,,,,,,,,,,		Ceramic Capacitor		TDK33p		TDK33p		2		TDK					
C13,C15,C94,C96,,,,,,,,,,,,,		Ceramic Capacitor		TDK47p		TDK47p		4		TDK					
C100,C102,,,,,,,,,,,,,		Ceramic Capacitor		TDK5p		TDK5p		2		TDK					
JP1,,,,,,,,,,,,,		CONN 5x2		XG4C-1032		XG4C-1032		1		OMRON					
D1,D2,D3,D4,D5,D6,D7,D8,,,,,,,,,,,,,		Diode		1N4002		1N4002		8		RECTRON					
JP2,,,,,,,,,,,,,		Connector		B10B		B10B		1		Nichiatzu					
L13,,,,,,,,,,,,,		Coil		AR-D10-10t		AR-D10-10t		1		Shichinohe Tsushin					
L15,L16,,,,,,,,,,,,,		Coil		AR-D10-5t		AR-D10-5t		2		Shichinohe Tsushin					
L14,,,,,,,,,,,,,		Coil		AR-D10-8t		AR-D10-8t		1		Shichinohe Tsushin					
L12,,,,,,,,,,,,,		Coil		AR-D12-8t		AR-D12-8t		1		Shichinohe Tsushin					
L11,,,,,,,,,,,,,		Coil		AR-D12-9t		AR-D12-9t		1		Shichinohe Tsushin					
L3,,,,,,,,,,,,,		Coil		T130-2-13t		T130-2-13t		1		Shichinohe Tsushin					
L1,,,,,,,,,,,,,		Coil		T130-2-14t		T130-2-14t		1		Shichinohe Tsushin					
L5,,,,,,,,,,,,,		Coil		T130-2-7t		T130-2-7t		1		Shichinohe Tsushin					
L7,L9,,,,,,,,,,,,,		Coil		T130-6-7t		T130-6-7t		2		Shichinohe Tsushin					
L4,,,,,,,,,,,,,		Coil		T157-2-11t		T157-2-11t		1		Shichinohe Tsushin					
L2,,,,,,,,,,,,,		Coil		T157-2-16t		T157-2-16t		1		Shichinohe Tsushin					
L6,,,,,,,,,,,,,		Coil		T157-2-8t		T157-2-8t		1		Shichinohe Tsushin					
L8,,,,,,,,,,,,,		Coil		T157-6-8t		T157-6-8t		1		Shichinohe Tsushin					
L10,,,,,,,,,,,,,		Coil		T157-6-6t		T157-6-6t		1		Shichinohe Tsushin					
PCB1,,,,,,,,,,,,,		PCB		PCSO1897		PCSO1897		1		Sanko- Denki/ORION					
RL1,RL2,RL3,RL4,RL5,RL6,RL7,RL8, RL9,RL10,RL11,RL12,RL13,RL14,RL 15,RL16		RL1C		G2RL-1-DC12V		G2RL-1-DC12V		16		OMRON					

■ PARTS LIST ■

Model : HL-2500FX	<u>HIGH-VOLTAGE UNIT</u>		Designer : J. Shimada		Revised : June 13, 2013		17 / 20
Reference/Symbol	Parts	Type/Model	Description	Quantity	Manufacturer	Vendor	Remarks
U1,,,	3-Terminal Regulator	79L12	79L12	1	New JRC		
C1,,,	Fixed Film Dielectric Capacitors	ECQE1475KF	ECQE1475KF	1	Panasonic		
C3,,,	Chemical Capacitor	200V22u	EKMG201ELL220	1	Nippon Chemi-Con		
C5,,,	Chemical Capacitor	25V22u	EKMG250ELL220	1	Nippon Chemi-Con		
C2,C4,,	Chemical Capacitor	50V100u	EKMG500ELL101	2	Nippon Chemi-Con		
C6,,,	Chemical Capacitor	50V2.2u	EKMG500ELL2R2	1	Nippon Chemi-Con		
D7,,,	Diode	1N5711	1N5711	1	ST Micro		
D8,,,	Diode	1S2076	1S2076A	1	Renesas		
D1,D2,D3,D5	Diode	UF4007	UF4007	4	RECTRON		
JP3,JP4,,	Connector	B2B	B2B	2	Nichiatsu		
JP5,,,	Connector	B3B	B3B	1	Nichiatsu		
JP1,,,	Connector	B4B	B4B	1	Nichiatsu		
JP2,,,	Connector	B8B	B8B	1	Nichiatsu		
D6,	LED	TPL230B-TB	TPL230B-TB	1	Sanyo		
D4,	LED	TPL430B-TB	TPL430B-TB	1	Sanyo		
D9,	LED	TPL930B-TB	TPL930B-TB	1	Sanyo		
PCB1,	PCB	PCSO1917	PCSO1917	1	Sanko-Denki/ORION		
R5,R6	Carbon Resistor	1/2W1k	1/2W1k	2	Takman		
R1,	Metal Oxide Film Resistor	1W22	1W22	1	Takman		
R3,	Metal Oxide Film Resistor	1W47k	1W47k	1	Takman		
R4,	Carbon Resistor	2.2k	2.2k	1	Takman		
R2,	Metal Oxide Film Resistor	2W1k	2W1k	1	Takman		

■ PARTS LIST ■

Model : HL-2500FX	<u>INTERFACE UNIT</u>		Designer : J. Shimada	Revised : June 13, 2013		18 / 20	
Reference/Symbol	Parts	Type/Model	Description	Quantity	Manufacturer	Vendor	Remarks
C3	Multi Layer Ceramic Capacitor	RPE103	RPE103	1	Murata		
C5,C6	Multi Layer Ceramic Capacitor	RPE105	RPE105	2	Murata		
C1	Chemical Capacitor	25V100u	25V100u	1	Nippon Chemi-Con		
C2	Chemical Capacitor	25V47u	25V47u	1	Nippon Chemi-Con		
C4	Chemical Capacitor	50V4.7u	50V4.7u	1	Nippon Chemi-Con		
J2	D-SUB15	17LE-13090-27(D3CB)F/	17LE-13090-27(D3CB)F/	1	DDK		
J3	D-SUB9	17LE-13090-27(D3CB)F/	17LE-13090-27(D3CB)F/	1	DDK		
J1	DIN 7 Pins	TCS4470-0140577	TCS4470-0140577	1	Hoshiden		
FB1	EX35	EXCELSA35	EXCELSA35	1	Panasonic		
U1	USB Interface	FT232RL	FT232RL	1	FTDI		
JP1	Connector	XG4C2631	XG4C2631	1	Omron		
D1	LED	SLP-178B(R)	SLP-178B(R)	1	Sanyo		
D2	LED	SLP-278B(G)	SLP-278B(G)	1	Sanyo		
PCB1	PCB	PCSO1900	PCSO1900	1	Omron		
R1,R2	Carbon Resistor	330	330	2	Takman		
SW1	BND Switch	RD1-112R-R15	RD1-112R-R15	1	Nihon Kaiheiki		
J4	USB Mini-B	C-02235	C-02235	1		Akizuki	
F1	Fuse	LM10	LM10	1	Daito Communication Apparatus		
FH1	Fuse Holder	LM1H	LM1H	1	Daito Communication Apparatus		
D3	Zener Diode	1Z6.2	1Z6.2	1	Renesas		
D4	Diode	SR140	SR140	1	RECTRON		

■ PARTS LIST ■

Model : HL-2500FX	<u>PA UNIT</u>		Designer : J. Shimada	Revised : June 13, 2013	19 / 20		
Reference/Symbol	Parts	Type/Model	Description	Quantity	Manufacturer	Vendor	Remarks
Q1,,,,,,,,,,,,,,,,,,,,,	Transistor	2SC1959Y	2SC1959Y	1	Toshiba		
U1,,,,,,,,,,,,,,,,,,,,,	3-Terminal Regulator	78L08	78L08	1	New JRC		
P1,P2,P3,P4,P5,P6,,,,,,,,,,,,,,,,,,,,,	Crimp Type Terminal	2-3	2-3	6	Nichiatsu		
TB1,TB2,TB3,,,,,,,,,,,,,,,,,,,,,	Screw Terminal	Y103	Y103	3	Morimatsu		
K1,,,,,,,,,,,,,,,,,,,,,	Temperature Switch	OHD7R80B	OHD7R80B	1	TOKIN		
J1,J2,J3,,,,,,,,,,,,,,,,,,,,,	Connector	SMB-RPC	SMB-RPC	3	Toh-Conne		
C11,C20,C31,C40,C51,C60,,,,,,,,,,,,,,,,,,,,,	Ceramic Capacitor	CK45B3AD103KYANB	CK45B3AD103KYANB	6	TDK		
C14,C15,C17,C18,C22,C23,C24,C25,C26,C27,C28,C29,C34,C35,C37,C38,C42,C43,C44,C45,C46,C47,C48,C49,C54,C55,C57,C58,C62,C63,C64,C65,C66,C67,C68,C69	Chip Ceramic Capacitor	CC630V104	GRM43DR72J104KW01L	36	Murata		
C16,C36,C56,,,,,,,,,,,,,,,,,,,,,	Dip Mica Capacitor	UC342H3300J	UC342H3300J	3	Soshin		
C30,C50,C70,,,,,,,,,,,,,,,,,,,,,	Fixed Film Dielectric Capacitors	ECQE1225KF	ECQE1225KF	3	Panasonic		
C3,C5,C6,C7,C8,C10,,,,,,,,,,,,,,,,,,,,,	Multi Layer Ceramic Capacitor	RPE103	RPE132R103K50	6	Murata		
C9,C12,C13,C19,C21,C32,C33,C39,C41,C52,C53,C59,C61,,,,,,,,,,,,,,,,,,,,,	Multi Layer Ceramic Capacitor	RPE104	RPE132R104K50	13	Murata		
C1,C2,,,,,,,,,,,,,,,,,,,,,	Chemical Capacitor	25V10u	EKMG250ELL100	2	Nippon Chemi-Con		
C4,,,,,	Chemical Capacitor	50V4.7u	EKMG500ELL4R7	1	Nippon Chemi-Con		
D1,D2,D4,D5,D7,D8	Diode	1S2076A	1S2076A	6	Renesas		
FB1,,,,,	Ferrite Bead	EX35	ECSELSA35	1	Panasonic		
FB2,FB3,FB4,FB5,FB6,FB7	Ferrite Bead	HF70RH8X15X4	HF70RH8X15X4	6	TDK		
JP1,,,,,	Connector	XG4C1631	XG4C1631	1	Omron		
JP3,,,,,	Connector	B4B	B4B	1	Nichiatsu		
JP2,,,,,	Connector	B7B	B7B	1	Nichiatsu		
LED1,,,,,	LED	TPL230B-TB	TPL230B-TB	1	Sanyo		
U3,,,,,	IC	LM35DT	LM35DT	1	National Semiconductor		
Q2,Q3,Q4,Q5,Q6,Q7	MOSFET	THP2933	THP2933	6	ST Micro or Micro Semi		
PCB1,,,,,	PCB	PCSO1896	PCSO1896	1	Sanko-Denki/Orion		

■ PARTS LIST ■

Model : HL-2500FX	<u>PA UNIT</u>		Designer : J. Shimada	Revised : June 13, 2013	20 / 20		
Reference/Symbol	Parts	Type/Model	Description	Quantity	Manufacturer	Vendor	Remarks
R6,,,,	Carbon Resistor	0		1	Takman		
R15,R17,R30,R32,R45,R47	Carbon Resistor	1/2W2.2k		6	Takman		
R8,,,,	Carbon Resistor	1k		1	Takman		
R4,,,,	Carbon Resistor	2.2		1	Takman		
R2,R5,R7,,	Carbon Resistor	2.2k		3	Takman		
R12,R20,R27,R35,R42,R50,,,,	Metal Oxide Film Resistor	2W47		6	Takman		
R1,,,,,,,,	Metal Oxide Film Resistor	2W82		1	Takman		
R3,,,,,,,,	Carbon Resistor	2k		1	Takman		
R16,R31,R46,,,,,	Metal Oxide Film Resistor	5W220		3	Takman		
R9,R10,R22,R23,R24,R25,R37,R38,R39,R40,R52,R53	Metal Oxide Film Resistor	5W24		12	Takman		
R11,R21,R26,R36,R41,R51,,,,	Metal Oxide Film Resistor	5W470		6	Takman		
R13,R14,R18,R19,R28,R29,R33,R34,R43,R44,R48,R49	Chip Resistor	MCR1W1	MCR1W1	12	Nikkohm		
T3,T6,T9,,,,,	RF Transformer	RIB21x42x40_D12A_1:2	RIB21x42x40_D12A_1:2	3	THP/Tomita		
RT1,,,,,	Thermistor	158-402-83007	158-402-83007	1	Kindai-denshi		
U2,,,,,	Shunt Regulator	TL431	TL431	1	TI		
TP1,TP2,TP3,TP4,TP5,TP6,TP7,,,,	Check Terminal	LC-3-G	LC-3-G	7	Mac-Eight		
T1,T4,T7,,,,,	RF Transformer	RIB10x20x15_D12A_3:1	RIB10x20x15_D12A_3:1	3	THP		
T2,T5,T8,,,,,	RF Transformer	RIB10x20x15_D12A1:3:3	RIB10x20x15_D12A1:3:3	3	THP		
VR2,VR3,VR4,VR5,VR6,VR7,,,,	Semi Fixed Resistor	CT6EP2kB	CT6EP2kB	6	Copal		
VR1,,,,,	Semi Fixed Resistor	TM7EP10kB	TM7EP10kB	1	Copal		
D3,D6,D9,,,,,	Zener Diode	1.5KE150A	1.5KE150A	3	Stmicro		