

REGULATED DC POWER SUPPLY

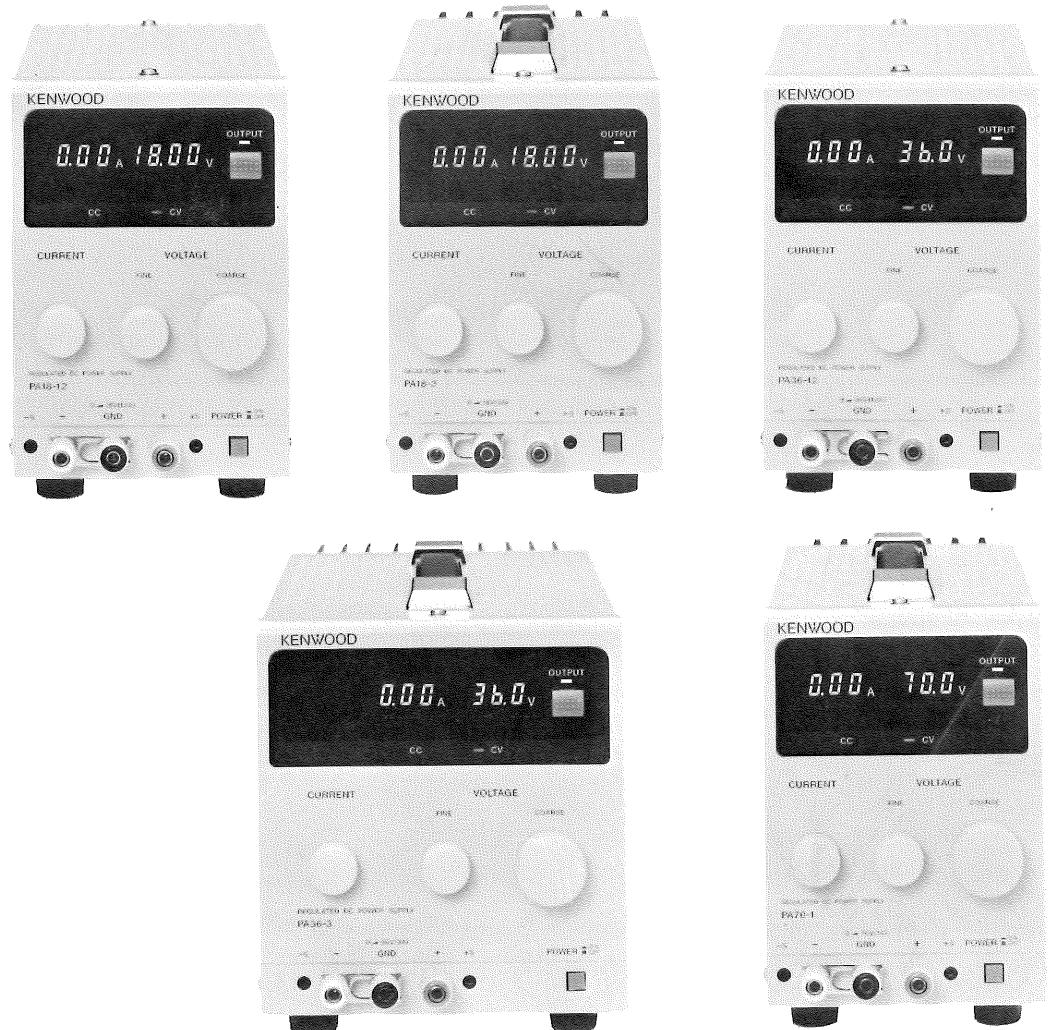
PA18-1.2 PA18-3
PA36-1.2 PA36-3
PA70-1

OPTION
EXTERNAL I/O UNIT
OP-13

SERVICE MANUAL

S/No. 2080001 ~

KENWOOD CORPORATION



WARNING

The following instructions are for use by qualified personnel only. To avoid electric shock, do not perform any servicing other than contained in the operating instructions unless you are qualified to do so.

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ADJUSTMENT

To obtain the best performance, periodically calibrate the unit. Sometimes, only one mode need be calibrated, while at other times, all modes should be calibrated. When one mode is calibrated, it must be noted that the other modes may be affected. When calibrating all modes, perform the calibration in the specified sequence.

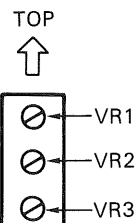
The following calibration required an accurate measuring instrument and an insulated adjusting flat blade screwdriver. If they are not available, contact your dealer. For optimum adjustment, turn the power on and warm up the unit sufficiently (more than 30 minutes) before starting.

Before calibrating the unit, check the power supply voltage.

TEST EQUIPMENT REQUIRED

The following instrument or their equivalent should be used for making adjustment.

Multimeter 45 Fluke

Item	Adjustment VR	P.C.B.	Procedure
V. OFF	VR4	PA18-1.2 W02-2082-08	Set the COARSE and FINE potentiometers on the front panel to the minimum positions, and adjust VR4 so that the output Voltage reads 0.000 V.
A. OFF	VR5	PA18-3 W02-2083-08	Set the CURRENT potentiometer to the minimum position, and adjust VR5 so that the output current reads $-0.000 \square$ A (\square : 1 to 4).
Output voltage (V. ADJ)	VR1	PA36-1.2 W02-2084-08	Set the COARSE and FINE potentiometers to the maximum positions, and adjust VR1 to read the rated output voltage.
Output current (A. ADJ)	VR2	PA36-3 W02-2085-08	Set the CURRENT potentiometer to the maximum position, and adjust VR2 to read the rated output current.
CV	VR1 VR2	PA70-1 W02-2086-08	<ul style="list-style-type: none"> Set the multimeter to 19.00 V, and adjust VR1 (CV_L) on the digital panel meter so that the voltage reads 19.00 V. With the PA36-1.2, PA36-3 and PA70-1 the output voltages of which are above 19 V, use the similar procedure as above but adjust VR2 (CV_H). With the PA18-1.2 and PA18-3, set the Power switch ON/OFF and adjust to 18.5 V.
CC	VR3	 W02-2039-08	Adjust VR3 (CC) so that the CC display becomes the same at the maximum output current.

PARTS LIST

PA18-1.2 UNIT Y86-1480-00

REF. NO	PARTS NO	NAME & DESCRIPTION
	A01-1236-08	COVER
	A10-1472-08	CHASSIS
	A63-0020-08	FRONT PANEL
	B11-0525-08	FILTER
	B40-2737-24	SERIAL NO. PLATE
	B42-3735-08	FUSE RATING LABEL
	B42-3808-08	EXTERNAL CONTROL LABEL
	B63-0033-08	INSTRUCTION MANUAL; JAPANESE
	B63-0034-08	INSTRUCTION MANUAL; ENGLISH
	E12-0401-15	SENSOR PLUG
	E21-0670-03	TERMINAL, RED
	E21-0671-03	TERMINAL, BLACK
	E21-0672-03	TERMINAL, WHITE
	E29-0506-04	SHORTING BAR
	E29-0542-08	LUG; M3
	E30-0027-35	UL/CSA POWER CORD
	E30-0545-05	J1S POWER CORD
	E30-0571-15	SAA POWER CORD
	E30-1815-05	CEE POWER CORD
	E30-1867-05	BS POWER CORD
	E38-0396-08	WIRE ASS'Y; AC SWITCH TO AC IN
	E38-0397-08	WIRE ASS'Y; AC SWITCH TO ...V
	E38-0398-08	WIRE ASS'Y; AC CHANGING, WHITE
	E38-0399-08	WIRE ASS'Y; AC CHANGING, BLACK
	E38-0402-08	WIRE ASS'Y; CN7 TO POWER TRANS.
	E38-0408-08	WIRE ASS'Y; GREEN
	E38-0409-08	WIRE ASS'Y; GRAY
	E38-0414-08	WIRE ASS'Y; CN1 TO POWER TRANS.
	E38-0416-08	WIRE ASS'Y; CN4 TO CN12-1/-OUT
	E38-0417-08	WIRE ASS'Y; CN3 TO CN13
	E38-0419-08	WIRE ASS'Y; CN2 TO D.P.M/ETC.
	F01-0884-08	HEAT SINK
	F05-8013-08	FUSE(5X20MM) 800MA/250V
	F05-8015-08	FUSE(6X30MM) 0.8A/250V
	F11-1243-08	SHIELD CASE
	F29-0515-08	INSULATOR; FOR Q6
	F51-0007-08	FUSE 1.5A/125V
	H10-2853-08	FOAMED STYRENE PAD (FRONT)
	H10-2854-08	FOAMED STYRENE PAD (REAR)
	H10-2855-08	STYRENE PAD; 83X115X30MM
	H10-2858-08	STYRENE PAD; 154X205X30MM
	H20-1734-08	VINYL COVER
	H53-0026-08	CARFON BOX
	J02-0529-08	LEG
	J19-1671-08	CLAMPER; FOR 2-CORE AC CORD
	J19-1672-08	CLAMPER; FOR 3-CORE AC CORD
	J21-4720-08	BRACKET; FOR P.C.B
	J21-4758-08	BRACKET; FOR AC CORD BUSHING
	J29-0516-08	BRACKET; FOR EXT. CONTROL BOARD
	J30-0634-08	SPACER; FOR AC CHANGING UNIT
	J30-0635-08	VOLUME SPACER; FOR VR01
	J31-0617-08	VOLUME SPACER; FOR VR02
	J39-0531-08	SPACER; FOR RELAY UNIT
	J42-0083-05	BUSHING; FOR 2-CORE AC CORD
	J42-0085-05	BUSHING; FOR 3-CORE AC CORD
	J61-0408-05	WIRE WRAPPING BAND
	K21-0907-04	KNOB; COARSE
	K21-0911-04	KNOB; FINE/CURRENT
	K27-0509-04	PUSH BOTTON, ORANGE; POWER
	K27-0557-04	BOTTON, RED; OUTPUT
	L01-9962-08	POWER TRANSFORMER
	N09-0718-05	SCREW, SEMS PAN HD M3X6
	N09-0720-05	SCREW, SEMS PAN HD M4X10
	N09-0757-05	SCREW, SEMS BINDING TAPTITE 3X6
	N09-0789-08	SCREW, SEMS PAN HD M3X10
	N09-0797-08	SCREW, SEMS TAPTITE 3X10
	N14-0404-04	FLANGE NUT M3
	N32-3006-41	SCREW, FLAT HD M3X6
	N89-3006-41	SCREW, BINDING TAPTITE 3X6
	N89-3010-41	SCREW, BINDING TAPTITE 3X10
	S40-2533-08	PUSH SWITCH; POWER
	W02-2039-08	DIGITAL PANEL METER UNIT
	W02-2082-08	AMP/ETC. UNIT
	W02-2087-08	RELAY/EXT. CONTROL UNIT
C02	C90-3018-08	CAP. ELECTRO 1 105°C 100V
RO1	RN14BK2E1003F	RES. METAL FILM 100K 1% 1/4W
VR01	R29-3503-08	VOLUME
VR02	R29-1508-08	VOLUME
VR03	R29-3504-08	VOLUME

PA18-1.2 AMP/ETC. UNIT W02-2082-08

REF. NO	PARTS NO	NAME & DESCRIPTION
	E18-0162-08	SENSING TERMINAL
	E21-0674-08	EXTERNAL OUTPUT TERMINAL
	E38-0394-08	WIRE ASS'Y; U1 TO U2
	E38-0395-08	WIRE ASS'Y; Z1 TO Z2
	E38-0400-08	WIRE ASS'Y; CN5
	E38-0413-08	WIRE ASS'Y; M1 TO M2
	E40-7140-08	PIN CONNECTOR 3P
	E40-7141-08	PIN CONNECTOR 2P
	E40-7142-08	PIN CONNECTOR 1P
	E40-7171-08	PIN CONNECTOR 2P
	J13-0518-08	FUSE HOLDER; FOR 6X30MM
	J73-0133-28	PCB (UNMOUNTED)
	R92-0150-05	JUMPING RES. ZERO OHM(10MM)
	C90-3023-08	CAP. ELECTRO 470 105°C 35V
C1	CF92V1H102K	CAP. POLYESTER 1000P 10% 50V
C2	C91-1315-05	CAP. CERAMIC 0.1 80/-10% 50V
C3	CF92V1H472K	CAP. POLYESTER 4700P 10% 50V
C4	CF92V1H103K	CAP. POLYESTER 0.01 10% 50V
C5	NO USE	
C6	NO USE	
C7	C90-3020-08	CAP. ELECTRO 100 105°C 25V
C8	CF93AN2E224K	CAP. POLYESTER 0.22 10% 250V
C9	NO USE	
C10	C90-3021-08	CAP. ELECTRO 2200 105°C 35V
C11	C90-3022-08	CAP. ELECTRO 4.7 105°C 50V
C12	C90-3033-08	CAP. ELECTRO 220 105°C 25V
C13	C90-3033-08	CAP. ELECTRO 220 105°C 25V
C14	CF93AN1J104K	CAP. POLYESTER 0.1 10% 63V
C15	CF93AN1J104K	CAP. POLYESTER 0.1 10% 63V
C16	NO USE	
C17	C90-3034-08	CAP. ELECTRO 100 105°C 16V
C18	C90-3034-08	CAP. ELECTRO 100 105°C 16V
C19	C90-3022-08	CAP. ELECTRO 4.7 105°C 50V
C20	CF93AN1J104K	CAP. POLYESTER 0.1 10% 63V
C21	NO USE	
C22	C91-1315-05	CAP. CERAMIC 0.1 80/-10% 50V
C01	C91-1323-08	CAP. CERAMIC 0.1 20% 250V
C02	NO USE	
C03	C90-3041-08	CAP. ELECTRO 2.2 105°C 50V
CN1	E40-7184-08	PIN CONNECTOR 5P
CN2	E40-7185-08	PIN CONNECTOR 20P
CN3	E40-7222-08	PIN CONNECTOR 14P
CN4	E40-7126-08	PIN CONNECTOR 2P
CN5	E40-7219-08	PIN CONNECTOR 3P
CN6	NO USE	
CN7	E40-7220-08	PIN CONNECTOR 4P
D1	1B2B42	DIODE, STACK
D2	ERA15-01	DIODE
D3	1SS270A	DIODE
D4	1SS270A	DIODE
D5	1SS270A	DIODE
D6	1SS270A	DIODE
D7	1SS270A	DIODE
D8	NO USE	
D9	D3SB60	DIODE, STACK
D10	NO USE	
D11	1B2B42	DIODE, STACK
D14	1SS270A	DIODE
D15	1SS270A	DIODE
D16	1SS270A	DIODE
D24	1SS270A	DIODE
D25	1SS270A	DIODE
D01	ERA15-01	DIODE
IC1	UPC151C	IC, OP AMP
IC2	UPC151C	IC, OP AMP
IC3	UPC1093J	IC, VARIABLE SHUNT REGULATOR
IC4	UPC78N05H	IC, 3-TERMINAL REGULATOR
IC5	UPC79N05H	IC, 3-TERMINAL REGULATOR
IC6	UPC1093J	IC, VARIABLE SHUNT REGULATOR
IC7	LM607CN	IC, OP AMP
IC8	UPC1093J	IC, VARIABLE SHUNT REGULATOR
IC9	HA178L12A	IC, TERMINAL FIXED VOLTAGE REG.
Q1	2SC1815(GR)	TR. SI, NPN
Q2	2SC1815(GR)	TR. SI, NPN

PARTS LIST

REF. NO	PARTS NO	NAME & DESCRIPTION
Q3	2SC1815(GR)	TR. SI, NPN
Q4	2SC1815(GR)	TR. SI, NPN
Q5	2SC1815(GR)	TR. SI, NPN
Q6	2SD1148(O)	TR. SI, NPN
Q7	NO USE	
Q8	2SC3421(Y)	TR. SI, NPN
Q13	2SC1815(GR)	TR. SI, NPN
R1	RD14BB2E122J	RES. CARBON 1.2K 5% 1/4W
R2	RD14BB2E123J	RES. CARBON 12K 5% 1/4W
R3	RD14BB2E302J	RES. CARBON 3K 5% 1/4W
R4	RD14BB2E510J	RES. CARBON 51 5% 1/4W
R5	RD14BB2E682J	RES. CARBON 6.8K 5% 1/4W
R6	RD14BB2E273J	RES. CARBON 27K 5% 1/4W
R7	RN14BK2E5101F	RES. METAL FILM 5.1K 1% 1/4W
R8	RD14BB2E202J	RES. CARBON 2K 5% 1/4W
R9	RD14BB2E102J	RES. CARBON 1K 5% 1/4W
R10	RD14BB2E513J	RES. CARBON 51K 5% 1/4W
R11	RD14BB2E513J	RES. CARBON 51K 5% 1/4W
R12	RD14BB2E102J	RES. CARBON 1K 5% 1/4W
R13	RD14BB2E202J	RES. CARBON 2K 5% 1/4W
R14	RD14BB2E152J	RES. CARBON 1.5K 5% 1/4W
R15	RD14BB2E511J	RES. CARBON 510 5% 1/4W
R16	RD14BB2E512J	RES. CARBON 5.1K 5% 1/4W
R17	NO USE	
R18	RD14BB2E513J	RES. CARBON 51K 5% 1/4W
R19	RD14BB2E103J	RES. CARBON 10K 5% 1/4W
R20	RD14BB2E102J	RES. CARBON 1K 5% 1/4W
R21	RN14BK2E1603F	RES. METAL FILM 160K 1% 1/4W
R22	RD14BB2E102J	RES. CARBON 1K 5% 1/4W
R23	RN14BK2E9101F	RES. METAL FILM 9.1K 1% 1/4W
R24	RN14BK2E3001F	RES. METAL FILM 3K 1% 1/4W
R27	RD14BB2E102J	RES. CARBON 1K 5% 1/4W
R28	RD14BB2E103J	RES. CARBON 10K 5% 1/4W
R29	RS14GB3D152J	RES. METAL FILM 1.5K 5% 2W
R44	RD14BB2E101J	RES. CARBON 100 5% 1/4W
R45	RD14DB2H202J	RES. CARBON 2K 5% 1/2W
R51	RN14BK2E2401F	RES. METAL FILM 2.4K 1% 1/4W
R52	RN14BK2E3001F	RES. METAL FILM 3K 1% 1/4W
R53	RD14BB2E911J	RES. CARBON 910 5% 1/4W
R54	RD14BB2E101J	RES. CARBON 100 5% 1/4W
R55	RD14BB2E103J	RES. CARBON 10K 5% 1/4W
R56	RD14BB2E103J	RES. CARBON 10K 5% 1/4W
R57	NO USE	
R58	RD14BB2E103J	RES. CARBON 10K 5% 1/4W
R59	RD14BB2E103J	RES. CARBON 10K 5% 1/4W
R60	RD14BB2E202J	RES. CARBON 2K 5% 1/4W
R61	RN14BK2E9101F	RES. METAL FILM 9.1K 1% 1/4W
R62	RD14BB2E302J	RES. CARBON 3K 5% 1/4W
R63	NO USE	
R64	RN14BK2E1802F	RES. METAL FILM 18K 1% 1/4W
R65	RD14BB2E225J	RES. CARBON 2.2K 5% 1/4W
R66	NO USE	
R67	RS14GB3DR43J	RES. METAL FILM 0.43 5% 2W
R68	RD14BB2E333J	RES. CARBON 33K 5% 1/4W
R69	RD14BB2E821J	RES. CARBON 820 5% 1/4W
RTH1	100D-5	THERMISTER
RY1	S51-1530-08	RELAY
SW2	S31-1512-08	MASTER/SLAVE SWITCH
VR1	R12-1564-08	RES. SEMI FIXED 1KB
VR2	R12-3568-08	RES. SEMI FIXED 30KB
VR3	NO USE	
VR4	R12-3567-08	RES. SEMI FIXED 10KB
VR5	R12-3567-08	RES. SEMI FIXED 10KB

PA18-1.2 RELAY/EXT. CONTROL UNIT W02-2087-08

REF. NO	PARTS NO	NAME & DESCRIPTION
	E29-0544-08	EXTERNAL CONTROL TERMINAL
	J73-0131-28	PCB (UNMOUNTED)
C16	C90-3020-08	CAP. ELECTRO 100 105°C 25V
C22	C90-3044-08	CAP. ELECTRO 470 105°C 10V
CN11	E40-7198-08	PIN CONNECTOR 6P
CN12	E40-7126-08	PIN CONNECTOR 2P
CN13	E40-7223-08	PIN CONNECTOR 14P
D12	ERA15-01	DIODE
D13	1SS270A	DIODE
D17	ERA15-01	DIODE
D18	ERA15-01	DIODE
D19	ERA15-01	DIODE
D20	ERA15-01	DIODE
D21	ERA15-01	DIODE
D22	ERA15-01	DIODE
D23	ERA15-01	DIODE
Q12	2SC1815(GR)	TR. SI, NPN
R41	RD14BB2E512J	RES. CARBON 5.1K 5% 1/4W
R47	RD14BB2E622J	RES. CARBON 6.2K 5% 1/4W
R48	RS14AB3A102J	RES. METAL FILM 1K 5% 1W
R49	RS14AB3A102J	RES. METAL FILM 1K 5% 1W
R50	RD14DB2H101J	RES. CARBON 100 5% 1/2W
R63	RD14DB2H202J	RES. CARBON 2K 5% 1/2W
RY3	S76-0605-08	RELAY
SW3	S62-0606-08	MASTER/SLAVE SWITCH
SW4	S62-0606-08	MASTER/SLAVE SWITCH
SW5	S62-0606-08	MASTER/SLAVE SWITCH
SW6	S62-0606-08	MASTER/SLAVE SWITCH

PARTS LIST

PA18-3 UNIT Y86-1490-00

REF. NO	PARTS NO	NAME & DESCRIPTION
	A01-1237-08	CASE
	A10-1474-08	CHASSIS
	A63-0021-08	FRONT PANEL
	B11-0525-08	FILTER
	B40-2737-24	SERIAL NO. PLATE
	B42-3733-08	FUSE RATING LABEL
	B42-3808-08	EXTERNAL CONTROL LABEL
	B63-0033-08	INSTRUCTION MANUAL;JAPANESE
	B63-0034-08	INSTRUCTION MANUAL;ENGLISH
	E12-0401-15	SENSOR PLUG
	E21-0670-03	TERMINAL,RED
	E21-0671-03	TERMINAL,BLACK
	E21-0672-03	TERMINAL,WHITE
	E29-0506-04	SHORTING BAR
	E29-0542-08	LUG;M3
	E30-0027-35	UL/CSA POWER CORD
	E30-0545-05	JIS POWER CORD
	E30-0571-15	SAA POWER CORD
	E30-1815-05	CEE POWER CORD
	E30-1867-05	BS POWER CORD
	E38-0396-08	WIRE ASS'Y;AC SWITCH TO AC IN
	E38-0397-08	WIRE ASS'Y;AC SWITCH TO ...V
	E38-0398-08	WIRE ASS'Y;AC CHANGING,WHITE
	E38-0399-08	WIRE ASS'Y;AC CHANGING,BLACK
	E38-0403-08	WIRE ASS'Y;CN7 TO POWER TRANS.
	E38-0408-08	WIRE ASS'Y;GREEN
	E38-0409-08	WIRE ASS'Y;GRAY
	E38-0415-08	WIRE ASS'Y;CN1 TO POWER TRANS.
	E38-0416-08	WIRE ASS'Y;CN4 TO CN12-1/-OUT
	E38-0417-08	WIRE ASS'Y;CN3 TO CN13
	E38-0418-08	WIRE ASS'Y;CN10 TO +OUT
	E38-0420-08	WIRE ASS'Y;CN2 TO D.P.H/ETC.
	F01-0885-08	HEAT SINK
	F05-2021-05	FUSE(5X20MM) 2A/250V
	F05-2023-05	FUSE(6X30MM) 2A/250V
	F11-1243-08	SHIELD CASE
	F29-0515-08	INSULATOR;FOR Q6
	F29-0517-08	INSULATOR;FOR Q6/Q11
	F51-0009-08	FUSE(6X30MM) 3A/125V
	H10-2853-08	FOAMED STYRENE PAD (FRONT)
	H10-2854-08	FOAMED STYRENE PAD (REAR)
	H20-1734-08	VINYL COVER
	H53-0027-08	CARTON BOX
	J02-0529-08	LEG
	J19-1671-08	CLAMPER;FOR 2-CORE AC CORD
	J19-1672-08	CLAMPER;FOR 3-CORE AC CORD
	J21-4720-08	BRACKET;FOR P.C.B
	J21-4758-08	BRACKET;FOR AC CORD BUSHING
	J29-0516-08	BRACKET;FOR EXT. CONTROL BOARD
	J29-0519-08	BRACKET;FOR P.C.B
	J30-0634-08	SPACER;FOR AC CHANGING UNIT
	J30-0635-08	VOLUME SPACER;FOR VR01
	J31-0617-08	VOLUME SPACER;FOR VR02
	J39-0531-08	SPACER;FOR RELAY UNIT
	J42-0083-05	BUSHING;FOR 2-CORE AC CORD
	J42-0085-05	BUSHING;FOR 3-CORE AC CORD
	J61-0408-05	WIRE WRAPPING BAND
	K01-0411-05	HANDLE
	K21-0907-04	KNOB;COARSE
	K21-0911-04	KNOB;FINE/CURRENT
	K27-0509-04	PUSH BOTTON,ORANGE;POWER
	K27-0557-04	BOTTON;RED;OUTPUT
	L01-9971-08	POWER TRANSFORMER
	N09-0718-05	SCREW,SEMS PAN HD M3X6
	N09-0757-05	SCREW,SEMS BINDING TAPTITE 3X6
	N09-0776-05	SCREW,SEMS PAN HD M5X10
	N09-0777-05	SCREW,SEMS PAN HD M4X6
	N09-0789-08	SCREW,SEMS PAN HD M3X10
	N09-0797-08	SCREW,SEMS TAPTITE 3X10
	N14-0404-04	FLANGE NUT M3
	N32-3006-41	SCREW, FLAT HD M3X6
	N89-3006-41	SCREW, BINDING TAPTITE 3X6
	N89-3010-41	SCREW, BINDING TAPTITE 3X10
	N89-3012-41	SCREW, BINDING TAPTITE 3X12
	S40-2533-08	PUSH SWITCH;POWER
	W02-2039-08	DIGITAL PANEL METER UNIT
	W02-2083-08	ANP/ETC. UNIT
	W02-2087-08	RELAY/EXT. CONTROL UNIT
C02	C90-3018-08	CAP. ELECTRO 1 105°C 100V
RO1	RN14BK2E1003F	RES. METAL FILM 100K 1% 1/4W

REF. NO	PARTS NO	NAME & DESCRIPTION
	VR01	R29-3503-08 VOLUME
	VR02	R29-1508-08 VOLUME
	VR03	R29-3504-08 VOLUME

PARTS LIST

PA18-3 AMP/ETC. UNIT W02-2083-08

REF. NO	PARTS NO	NAME & DESCRIPTION
	E18-0162-08	SENSING TERMINAL
	E21-0674-08	EXTERNAL OUTPUT TERMINAL
	E38-0393-08	WIRE ASS'Y;X1 TO X2
	E38-0394-08	WIRE ASS'Y;U1 TO U2
	E38-0395-08	WIRE ASS'Y;Z1 TO Z2
	E38-0400-08	WIRE ASS'Y;CN5
	E38-0401-08	WIRE ASS'Y;CN6
	E38-0405-08	WIRE ASS'Y;CN8
	E38-0413-08	WIRE ASS'Y;M1 TO M2
	E40-7140-08	PIN CONNECTOR 3P
	E40-7141-08	PIN CONNECTOR 2P
	E40-7142-08	PIN CONNECTOR 1P
	E40-7171-08	PIN CONNECTOR 2P
	J13-0518-08	FUSE HOLDER;FOR 6X30HM
	J73-0133-28	PCB (UNMOUNTED)
	R92-0150-05	JUMPING RES. ZERO OHM(10HM)
C1	C90-3019-08	CAP. ELECTRO 1000 105°C 35V
C2	CF92V1H102K	CAP. POLYESTER 1000P 10% 50V
C3	C91-1315-05	CAP. CERAMIC 0.1 80/-10% 50V
C4	CF92V1H472K	CAP. POLYESTER 4700P 10% 50V
C5	CF92V1H103K	CAP. POLYESTER 0.01 10% 50V
C6	NO USE	
C7	C90-3020-08	CAP. ELECTRO 100 105°C 25V
C8	CF93AN2E224K	CAP. POLYESTER 0.22 10% 250V
C9	NO USE	
C10	C90-3021-08	CAP. ELECTRO 2200 105°C 35V
C11	C90-3022-08	CAP. ELECTRO 4.7 105°C 50V
C12	C90-3033-08	CAP. ELECTRO 220 105°C 25V
C13	C90-3033-08	CAP. ELECTRO 220 105°C 25V
C14	CF93AN1J104K	CAP. POLYESTER 0.1 10% 63V
C15	CF93AN1J104K	CAP. POLYESTER 0.1 10% 63V
C16	NO USE	
C17	C90-3034-08	CAP. ELECTRO 100 105°C 16V
C18	C90-3034-08	CAP. ELECTRO 100 105°C 16V
C19	C90-3022-08	CAP. ELECTRO 4.7 105°C 50V
C20	CF93AN1J104K	CAP. POLYESTER 0.1 10% 63V
C21	NO USE	
C22	C91-1315-05	CAP. CERAMIC 0.1 80/-10% 50V
C01	C91-1323-08	CAP. CERAMIC 0.1 20% 250V
C02	NO USE	
C03	C90-3041-08	CAP. ELECTRO 2.2 105°C 50V
CN1	E40-7184-08	PIN CONNECTOR 5P
CN2	E40-7185-08	PIN CONNECTOR 20P
CN3	E40-7222-08	PIN CONNECTOR 14P
CN4	E40-7126-08	PIN CONNECTOR 2P
CN5	E40-7219-08	PIN CONNECTOR 3P
CN6	E40-7219-08	PIN CONNECTOR 3P
CN7	E40-7220-08	PIN CONNECTOR 4P
CN8	E40-7220-08	PIN CONNECTOR 4P
CN9	NO USE	
CN10	E29-0549-08	TERMINAL
D1	1B4B42	DIODE,STACK
D2	ERA15-01	DIODE
D3	1SS270A	DIODE
D4	1SS270A	DIODE
D5	1SS270A	DIODE
D6	1SS270A	DIODE
D7	1SS270A	DIODE
D8	NO USE	
D9	D15XB40	DIODE,STACK
D10	ERA15-01	DIODE
D11	1B4B42	DIODE,STACK
D14	1SS270A	DIODE
D15	1SS270A	DIODE
D16	1SS270A	DIODE
D24	1SS270A	DIODE
D25	1SS270A	DIODE
D01	30D1	DIODE
IC1	UPC151C	IC,OP AMP
IC2	UPC151C	IC,OP AMP
IC3	UPC1093J	IC,VARIABLE SHUNT REGULATOR
IC4	UPC78N05H	IC,3-TERMINAL REGULATOR
IC5	UPC78N05H	IC,3-TERMINAL REGULATOR
IC6	UPC1093J	IC,VARIABLE SHUNT REGULATOR

REF. NO	PARTS NO	NAME & DESCRIPTION
IC7	LM607CN	IC,OP AMP
IC8	UPC1093J	IC,VARIABLE SHUNT REGULATOR
IC9	HA178L12A	IC,TERMINAL FIXED VOLTAGE REG.
Q1	2SC1815(GR)	TR. SI, NPN
Q2	2SC1815(GR)	TR. SI, NPN
Q3	2SC1815(GR)	TR. SI, NPN
Q4	2SC1815(GR)	TR. SI, NPN
Q5	2SC1815(GR)	TR. SI, NPN
Q6	2SD1148(O)	TR. SI, NPN
Q7	2SC2238(Y)	TR. SI, NPN
Q8	2SC3421(Y)	TR. SI, NPN
Q9	2SC1815(GR)	TR. SI, NPN
Q10	2SC1815(GR)	TR. SI, NPN
Q13	2SC1815(GR)	TR. SI, NPN
Q11A	2SD1148(O)	TR. SI, NPN
Q11B	2SD1148(O)	TR. SI, NPN
R1	RD14BB2E122J	RES. CARBON 1.2K 5% 1/4W
R2	RD14BB2E123J	RES. CARBON 12K 5% 1/4W
R3	RD14BB2E302J	RES. CARBON 3K 5% 1/4W
R4	RD14BB2E510J	RES. CARBON 51 5% 1/4W
R5	RD14BB2E102J	RES. CARBON 1K 5% 1/4W
R6	RD14BB2E273J	RES. CARBON 27K 5% 1/4W
R7	RN14BK2E5101F	RES. METAL FILM 5.1K 1% 1/4W
R8	RD14BB2E202J	RES. CARBON 2K 5% 1/4W
R9	RD14BB2E102J	RES. CARBON 1K 5% 1/4W
R10	RD14BB2E511J	RES. CARBON 510 5% 1/4W
R11	RD14BB2E513J	RES. CARBON 51K 5% 1/4W
R12	RD14BB2E102J	RES. CARBON 1K 5% 1/4W
R13	RD14BB2E202J	RES. CARBON 2K 5% 1/4W
R14	RD14BB2E152J	RES. CARBON 1.5K 5% 1/4W
R15	RD14BB2E102J	RES. CARBON 1K 5% 1/4W
R16	RD14BB2E512J	RES. CARBON 5.1K 5% 1/4W
R17	NO USE	
R18	RD14BB2E513J	RES. CARBON 51K 5% 1/4W
R19	RD14BB2E103J	RES. CARBON 10K 5% 1/4W
R20	RD14BB2E102J	RES. CARBON 1K 5% 1/4W
R21	RN14BK2E3303F	RES. METAL FILM 330K 1% 1/4W
R22	RD14BB2E102J	RES. CARBON 1K 5% 1/4W
R23	RN14BK2E9101F	RES. METAL FILM 9.1K 1% 1/4W
R24	RN14BK2E3001F	RES. METAL FILM 3K 1% 1/4W
R27	RD14BB2E102J	RES. CARBON 1K 5% 1/4W
R28	RD14BB2E103J	RES. CARBON 10K 5% 1/4W
R29	RS14GB3D152J	RES. METAL FILM 1.5K 5% 2W
R30	RS14AB3AR33J	RES. METAL FILM 0.33 5% 1W
R34	RD14BB2E122J	RES. CARBON 1.2K 5% 1/4W
R35	RD14BB2E123J	RES. CARBON 12K 5% 1/4W
R36	RD14BB2E302J	RES. CARBON 3K 5% 1/4W
R37	RD14BB2E510J	RES. CARBON 51 5% 1/4W
R38	RD14BB2E133J	RES. CARBON 13K 5% 1/4W
R39	RD14BB2E273J	RES. CARBON 27K 5% 1/4W
R43	RD14BB2E103J	RES. CARBON 10K 5% 1/4W
R44	RD14BB2E101J	RES. CARBON 100 5% 1/4W
R45	RD14DB2H202J	RES. CARBON 2K 5% 1/2W
R51	RN14BK2E2401F	RES. METAL FILM 2.4K 1% 1/4W
R52	RN14BK2E3001F	RES. METAL FILM 3K 1% 1/4W
R53	RD14BB2E911J	RES. CARBON 910 5% 1/4W
R54	RD14BB2E101J	RES. CARBON 100 5% 1/4W
R55	RD14BB2E103J	RES. CARBON 10K 5% 1/4W
R56	RD14BB2E103J	RES. CARBON 10K 5% 1/4W
R57	NO USE	
R58	RD14BB2E103J	RES. CARBON 10K 5% 1/4W
R59	RD14BB2E103J	RES. CARBON 10K 5% 1/4W
R60	RD14BB2E202J	RES. CARBON 2K 5% 1/4W
R61	RN14BK2E9101F	RES. METAL FILM 9.1K 1% 1/4W
R62	RD14BB2E302J	RES. CARBON 3K 5% 1/4W
R63	NO USE	
R64	RN14BK2E7500F	RES. METAL FILM 750 1% 1/4W
R65	RD14BB2E225J	RES. CARBON 2.2M 5% 1/4W
R66	NO USE	
R67	RS14GB3DR15J	RES. METAL FILM 0.15 5% 2W
R68	RD14BB2E333J	RES. CARBON 33K 5% 1/4W
R32A	RS14AB3AR33J	RES. METAL FILM 0.33 5% 1W
R32B	RS14AB3AR33J	RES. METAL FILM 0.33 5% 1W
RTH1	100D-5	THERMISTER

PARTS LIST

REF. NO	PARTS NO	NAME & DESCRIPTION
RY1	S51-1530-08	RELAY
RY2	S76-0604-08	RELAY
SW2	S31-1512-08	MASTER/SLAVE SWITCH
VR1	R12-1564-08	RES. SEMI FIXED 1KB
VR2	R12-5547-08	RES. SEMI FIXED 100KB
VR3	NO USE	
VR4	R12-3567-08	RES. SEMI FIXED 10KB
VR5	R12-3567-08	RES. SEMI FIXED 10KB

PA18-3 RELAY/EXT. CONTROL UNIT W02-2087-08

REF. NO	PARTS NO	NAME & DESCRIPTION
	E29-0544-08	EXTERNAL CONTROL TERMINAL
	J73-0131-28	PCB (UNMOUNTED)
C16	C90-3020-08	- CAP. ELECTRO 100 105°C 25V
C22	C90-3044-08	CAP. ELECTRO 470 105°C 10V
CN11	E40-7198-08	PIN CONNECTOR 6P
CN12	E40-7126-08	PIN CONNECTOR 2P
CN13	E40-7223-08	PIN CONNECTOR 14P
D12	ERA15-01	DIODE
D13	1SS270A	DIODE
D17	ERA15-01	DIODE
D18	ERA15-01	DIODE
D19	ERA15-01	DIODE
D20	ERA15-01	DIODE
D21	ERA15-01	DIODE
D22	ERA15-01	DIODE
D23	ERA15-01	DIODE
Q12	2SC1815(GR)	TR. S1, NPN
R41	RD14BB2E512J	RES. CARBON 5.1K 5% 1/4W
R47	RD14BB2E622J	RES. CARBON 6.2K 5% 1/4W
R48	RS14AB3A102J	RES. METAL FILM 1K 5% 1W
R49	RS14AB3A102J	RES. METAL FILM 1K 5% 1W
R50	RD14DB2H101J	RES. CARBON 100 5% 1/2W
R63	RD14DB2H202J	RES. CARBON 2K 5% 1/2W
RY3	S76-0605-08	RELAY
SW3	S62-0606-08	MASTER/SLAVE SWITCH
SW4	S62-0606-08	MASTER/SLAVE SWITCH
SW5	S62-0606-08	MASTER/SLAVE SWITCH
SW6	S62-0606-08	MASTER/SLAVE SWITCH

PARTS LIST

PA36-1.2 UNIT Y86-1500-00

REF. NO	PARTS NO	NAME & DESCRIPTION
	A01-1236-08	COVER
	A10-1472-08	CHASSIS
	A63-0022-08	FRONT PANEL
	B11-0525-08	FILTER
	B40-2737-24	SERIAL NO. PLATE
	B42-3740-08	FUSE RATING LABEL
	B42-3808-08	EXTERNAL CONTROL LABEL
	B63-0033-08	INSTRUCTION MANUAL; JAPANESE
	B63-0034-08	INSTRUCTION MANUAL; ENGLISH
	E12-0401-15	SENSOR PLUG
	E21-0670-03	TERMINAL, RED
	E21-0671-03	TERMINAL, BLACK
	E21-0672-03	TERMINAL, WHITE
	E29-0506-04	SHORTING BAR
	E29-0542-08	LUG; M3
	E30-0027-35	UL/CSA POWER CORD
	E30-0545-05	JIS POWER CORD
	E30-0571-15	SAA POWER CORD
	E30-1815-05	CEE POWER CORD
	E30-1867-05	BS POWER CORD
	E38-0396-08	WIRE ASS'Y; AC SWITCH TO AC IN
	E38-0397-08	WIRE ASS'Y; AC SWITCH TO ...V
	E38-0398-08	WIRE ASS'Y; AC CHANGING, WHITE
	E38-0399-08	WIRE ASS'Y; AC CHANGING, BLACK
	E38-0403-08	WIRE ASS'Y; CN7 TO POWER TRANS.
	E38-0408-08	WIRE ASS'Y; GREEN
	E38-0409-08	WIRE ASS'Y; GRAY
	E38-0414-08	WIRE ASS'Y; CN1 TO POWER TRANS.
	E38-0416-08	WIRE ASS'Y; CN4 TO CN12-1/-OUT
	E38-0417-08	WIRE ASS'Y; CN3 TO CN13
	E38-0419-08	WIRE ASS'Y; CN2 TO D.P.M./ETC.
	F01-0884-08	HEAT SINK
	F05-1521-08	FUSE(6X30MM) 1.5A/250V
	F11-1243-08	SHIELD CASE
	F29-0517-08	INSULATOR; FOR Q6/Q11
	F50-0003-08	FUSE(5X20MM) 1.5A/250V
	F51-0008-08	FUSE(6X30MM) 2.5A/125V
	H10-2853-08	FOAMED STYRENE PAD (FRONT)
	H10-2854-08	FOAMED STYRENE PAD (REAR)
	H10-2855-08	STYRENE PAD; 83X115X30MM
	H10-2858-08	STYRENE PAD; 154X205X30MM
	H20-1734-08	VINYL COVER
	H53-0028-08	CARTON BOX
	J02-0529-08	LEG
	J19-1671-08	CLAMPER; FOR 2-CORE AC CORD
	J19-1672-08	CLAMPER; FOR 3-CORE AC CORD
	J21-4720-08	BRACKET; FOR P.C.B
	J21-4758-08	BRACKET; FOR AC CORD BUSHING
	J29-0516-08	BRACKET; FOR EXT. CONTROL BOARD
	J30-0634-08	SPACER; FOR AC CHANGING UNIT
	J30-0635-08	VOLUME SPACER; FOR VR01
	J31-0617-08	VOLUME SPACER; FOR VR02
	J39-0531-08	SPACER; FOR RELAY UNIT
	J42-0083-05	BUSHING; FOR 2-CORE AC CORD
	J42-0085-05	BUSHING; FOR 3-CORE AC CORD
	J61-0408-05	WIRE WRAPPING BAND
	K21-0907-04	KNOB; COARSE
	K21-0911-04	KNOB; FINE/CURRENT
	K27-0509-04	PUSH BOTTON, ORANGE; POWER
	K27-0557-04	BOTTON, RED; OUTPUT
	L01-9972-08	POWER TRANSFORMER
	N09-0718-05	SCREW, SEMS PAN HD M3X6
	N09-0720-05	SCREW, SEMS PAN HD M4X10
	N09-0757-05	SCREW, SEMS BINDING TAPTITE 3X6
	N09-0789-08	SCREW, SEMS PAN HD M3X10
	N09-0797-08	SCREW, SEMS TAPTITE 3X10
	N14-0404-04	FLANGE NUT M3
	N32-3006-41	SCREW, FLAT HD M3X6
	N89-3006-41	SCREW, BINDING TAPTITE 3X6
	N89-3010-41	SCREW, BINDING TAPTITE 3X10
	S40-2533-08	PUSH SWITCH; POWER
	W02-2039-08	DIGITAL PANEL METER UNIT
	W02-2084-08	AMP/ETC. UNIT
	W02-2089-08	RELAY/EXT. CONTROL UNIT
C02	C90-3018-08	CAP. ELECTRO 1 105°C 100V
RO1	RN14BK2E1003F	RES. METAL FILM 100K 1% 1/4W
VR01	R29-3503-08	VOLUME
VR02	R29-1508-08	VOLUME
VR03	R29-3504-08	VOLUME

PA36-1.2 AMP/ETC. UNIT W02-2084-08

REF. NO	PARTS NO	NAME & DESCRIPTION
	E18-0162-08	SENSING TERMINAL
	E21-0674-08	EXTERNAL OUTPUT TERMINAL
	E38-0394-08	WIRE ASS'Y; U1 TO U2
	E38-0395-08	WIRE ASS'Y; Z1 TO Z2
	E38-0400-08	WIRE ASS'Y; CN5
	E38-0405-08	WIRE ASS'Y; CN8
	E38-0413-08	WIRE ASS'Y; M1 TO M2
	E40-7140-08	PIN CONNECTOR 3P
	E40-7141-08	PIN CONNECTOR 2P
	E40-7142-08	PIN CONNECTOR 1P
	E40-7171-08	PIN CONNECTOR 2P
	J13-0518-08	FUSE HOLDER; FOR 6X30MM
	J73-0133-28	PCB (UNMOUNTED)
	R92-0150-05	JUMPING RES. ZERO OHM(10MM)
C1	C90-3023-08	CAP. ELECTRO 470 105°C 35V
C2	CF92V1H102K	CAP. POLYESTER 1000P 10% 50V
C3	C91-1315-05	CAP. CERAMIC 0.1 80/-10% 50V
C4	CF92V1H472K	CAP. POLYESTER 4700P 10% 50V
C5	CF92V1H103K	CAP. POLYESTER 0.01 10% 50V
C6	NO USE	
C7	C90-3020-08	CAP. ELECTRO 100 105°C 25V
C8	CF93AN2E224K	CAP. POLYESTER 0.22 10% 250V
C9	NO USE	
C10	C90-3025-08	CAP. ELECTRO 1000 105°C 63V
C11	C90-3022-08	CAP. ELECTRO 4.7 105°C 50V
C12	C90-3033-08	CAP. ELECTRO 220 105°C 25V
C13	C90-3033-08	CAP. ELECTRO 220 105°C 25V
C14	CF93AN1J104K	CAP. POLYESTER 0.1 10% 63V
C15	CF93AN1J104K	CAP. POLYESTER 0.1 10% 63V
C16	NO USE	
C17	C90-3034-08	CAP. ELECTRO 100 105°C 16V
C18	C90-3034-08	CAP. ELECTRO 100 105°C 16V
C19	C90-3022-08	CAP. ELECTRO 4.7 105°C 50V
C20	CF93AN1J104K	CAP. POLYESTER 0.1 10% 63V
C21	NO USE	
C22	C91-1315-05	CAP. CERAMIC 0.1 80/-10% 50V
C01	C91-1323-08	CAP. CERAMIC 0.1 20% 250V
C02	NO USE	
C03	C90-3041-08	CAP. ELECTRO 2.2 105°C 50V
CN1	E40-7184-08	PIN CONNECTOR 5P
CN2	E40-7185-08	PIN CONNECTOR 20P
CN3	E40-7222-08	PIN CONNECTOR 14P
CN4	E40-7126-08	PIN CONNECTOR 2P
CN5	E40-7219-08	PIN CONNECTOR 3P
CN6	NO USE	
CN7	E40-7220-08	PIN CONNECTOR 4P
D1	1B4B42	DIODE, STACK
D2	ERA15-01	DIODE
D3	1SS270A	DIODE
D4	1SS270A	DIODE
D5	1SS270A	DIODE
D6	1SS270A	DIODE
D7	1SS270A	DIODE
D8	NO USE	
D9	D15XB40	DIODE, STACK

PARTS LIST

REF. NO	PARTS NO	NAME & DESCRIPTION
D9	D3SB60	DIODE, STACK
D10	ERA15-01	DIODE
D11	1B4B42	DIODE, STACK
D14	1SS270A	DIODE
D15	1SS270A	DIODE
D16	1SS270A	DIODE
D24	1SS270A	DIODE
D25	1SS270A	DIODE
D01	ERA15-01	DIODE
IC1	UPC151C	IC, OP AMP
IC2	UPC151C	IC, OP AMP
IC3	UPC1093J	IC, VARIABLE SHUNT REGULATOR
IC4	UPC78N05H	IC, 3-TERMINAL REGULATOR
IC5	UPC79N05H	IC, 3-TERMINAL REGULATOR
IC6	UPC1093J	IC, VARIABLE SHUNT REGULATOR
IC7	LM607CN	IC, OP AMP
IC8	UPC1093J	IC, VARIABLE SHUNT REGULATOR
IC9	HA178L12A	IC, TERMINAL FIXED VOLTAGE REG.
Q1	2SC1815 (GR)	TR. SI, NPN
Q2	2SC1815 (GR)	TR. SI, NPN
Q3	2SC1815 (GR)	TR. SI, NPN
Q4	2SC1815 (GR)	TR. SI, NPN
Q5	2SC1815 (GR)	TR. SI, NPN
Q6	2SD1148 (O)	TR. SI, NPN
Q7	2SC2238 (Y)	TR. SI, NPN
Q8	2SC3421 (Y)	TR. SI, NPN
Q9	2SC1815 (GR)	TR. SI, NPN
Q10	2SC1815 (GR)	TR. SI, NPN
Q11	2SD1148 (O)	TR. SI, NPN
Q12	NO USE	
Q13	2SC1815 (GR)	TR. SI, NPN
R1	RD14BB2E122J	RES. CARBON 1.2K 5% 1/4W
R2	RD14BB2E123J	RES. CARBON 12K 5% 1/4W
R3	RD14BB2E302J	RES. CARBON 3K 5% 1/4W
R4	RD14BB2E510J	RES. CARBON 51 5% 1/4W
R5	RD14BB2E123J	RES. CARBON 12K 5% 1/4W
R6	RD14BB2E273J	RES. CARBON 27K 5% 1/4W
R7	RN14BK2E2401F	RES. METAL FILM 2.4K 1% 1/4W
R8	RD14BB2E202J	RES. CARBON 2K 5% 1/4W
R9	RD14BB2E102J	RES. CARBON 1K 5% 1/4W
R10	RD14BB2E513J	RES. CARBON 51K 5% 1/4W
R11	RD14BB2E513J	RES. CARBON 51K 5% 1/4W
R12	RD14BB2E102J	RES. CARBON 1K 5% 1/4W
R13	RD14BB2E202J	RES. CARBON 2K 5% 1/4W
R14	RD14BB2E152J	RES. CARBON 1.5K 5% 1/4W
R15	RD14BB2E102J	RES. CARBON 1K 5% 1/4W
R16	RD14BB2E512J	RES. CARBON 5.1K 5% 1/4W
R17	NO USE	
R18	RD14BB2E513J	RES. CARBON 51K 5% 1/4W
R19	RD14BB2E103J	RES. CARBON 10K 5% 1/4W
R20	RD14BB2E102J	RES. CARBON 1K 5% 1/4W
R21	RN14BK2E3303F	RES. METAL FILM 330K 1% 1/4W
R22	RD14BB2E102J	RES. CARBON 1K 5% 1/4W
R23	RN14BK2E9101F	RES. METAL FILM 9.1K 1% 1/4W
R24	RN14BK2E3001F	RES. METAL FILM 3K 1% 1/4W
R27	RD14BB2E102J	RES. CARBON 1K 5% 1/4W
R28	RD14BB2E103J	RES. CARBON 10K 5% 1/4W
R29	RS14GB3D392J	RES. METAL FILM 3.9K 5% 2W
R30	RS14AB3AR47J	RES. METAL FILM 0.47 5% 1W
R31	NO USE	
R32	RS14AB3AR47J	RES. METAL FILM 0.47 5% 1W
R33	NO USE	
R34	RD14BB2E122J	RES. CARBON 1.2K 5% 1/4W
R35	RD14BB2E123J	RES. CARBON 12K 5% 1/4W
R36	RD14BB2E302J	RES. CARBON 3K 5% 1/4W
R37	RD14BB2E510J	RES. CARBON 51 5% 1/4W
R38	RD14BB2E333J	RES. CARBON 33K 5% 1/4W
R39	RD14BB2E273J	RES. CARBON 27K 5% 1/4W
R43	RD14BB2E103J	RES. CARBON 10K 5% 1/4W
R44	RD14BB2E101J	RES. CARBON 100 5% 1/4W
R45	RD14DB2H822J	RES. CARBON 8.2K 5% 1/2W
R51	RN14BK2E2401F	RES. METAL FILM 2.4K 1% 1/4W
R52	RN14BK2E3001F	RES. METAL FILM 3K 1% 1/4W
R53	RD14BB2E911J	RES. CARBON 910 5% 1/4W
R54	RD14BB2E101J	RES. CARBON 100 5% 1/4W

REF. NO	PARTS NO	NAME & DESCRIPTION
R55	RD14BB2E103J	RES. CARBON 10K 5% 1/4W
R56	RD14BB2E103J	RES. CARBON 10K 5% 1/4W
R57	NO USE	
R58	RD14BB2E103J	RES. CARBON 10K 5% 1/4W
R59	RD14BB2E103J	RES. CARBON 10K 5% 1/4W
R60	RD14BB2E202J	RES. CARBON 2K 5% 1/4W
R61	RN14BK2E9101F	RES. METAL FILM 9.1K 1% 1/4W
R62	RD14BB2E302J	RES. CARBON 3K 5% 1/4W
R63	NO USE	
R64	RN14BK2E8201F	RES. METAL FILM 8.2K 1% 1/4W
R65	RD14BB2E225J	RES. CARBON 2.2K 5% 1/4W
R66	NO USE	
R67	RS14GB3DR22J	RES. METAL FILM 0.22 5% 2W
R68	RD14BB2E333J	RES. CARBON 33K 5% 1/4W
RTH1	100D-5	THERMISTER
RY1	S51-1530-08	RELAY
RY2	S76-0604-08	RELAY
SW2	S31-1512-08	MASTER/SLAVE SWITCH
VR1	R12-1564-08	RES. SEMI FIXED 1KB
VR2	R12-5547-08	RES. SEMI FIXED 100KB
VR3	NO USE	
VR4	R12-3567-08	RES. SEMI FIXED 10KB
VR5	R12-3567-08	RES. SEMI FIXED 10KB

PA36-1.2 RELAY/EXT. CONTROL UNIT

W02-2089-08

REF. NO	PARTS NO	NAME & DESCRIPTION
	E29-0544-08	EXTERNAL CONTROL TERMINAL
	J73-0131-28	PCB (UNMOUNTED)
C16	C90-3046-08	CAP. ELECTRO 100 105°C 50V
C22	C90-3044-08	CAP. ELECTRO 470 105°C 10V
CN11	E40-7198-08	PIN CONNECTOR 6P
CN12	E40-7126-08	PIN CONNECTOR 2P
CN13	E40-7223-08	PIN CONNECTOR 14P
D12	ERA15-01	DIODE
D13	1SS270A	DIODE
D17	ERA15-01	DIODE
D18	ERA15-01	DIODE
D19	ERA15-01	DIODE
D20	ERA15-01	DIODE
D21	ERA15-01	DIODE
D22	ERA15-01	DIODE
D23	ERA15-01	DIODE
Q12	2SC1815 (GR)	TR. SI, NPN
R41	RD14BB2E512J	RES. CARBON 5.1K 5% 1/4W
R47	RD14BB2E622J	RES. CARBON 6.2K 5% 1/4W
R48	RS14GB3A102J	RES. METAL FILM 1K 5% 1W
R49	RS14GB3A102J	RES. METAL FILM 1K 5% 1W
R50	RD14DB2H101J	RES. CARBON 100 5% 1/2W
R63	RD14DB2H822J	RES. CARBON 8.2K 5% 1/2W
RY3	S76-0605-08	RELAY
SW3	S62-0606-08	MASTER/SLAVE SWITCH
SW4	S62-0606-08	MASTER/SLAVE SWITCH
SW5	S62-0606-08	MASTER/SLAVE SWITCH
SW6	S62-0606-08	MASTER/SLAVE SWITCH

PARTS LIST

PA36-3 UNIT Y86-1510-00

REF. NO	PARTS NO	NAME & DESCRIPTION
	A01-1238-08	COVER
	A10-1473-08	CHASSIS
	A63-0023-08	FRONT PANEL
	B11-0528-08	FILTER
	B40-2737-24	SERIAL NO. PLATE
	B42-3738-08	FUSE RATING LABEL
	B42-3808-08	EXTERNAL CONTROL LABEL
	B63-0033-08	INSTRUCTION MANUAL;JAPANESE
	B63-0034-08	INSTRUCTION MANUAL;ENGLISH
	E12-0401-15	SENSOR PLUG
	E21-0670-03	TERMINAL,RED
	E21-0671-03	TERMINAL,BLACK
	E21-0672-03	TERMINAL,WHITE
	E29-0506-04	SHORTING BAR
	E29-0542-08	LUG;M3
	E30-0027-35	UL/CSA POWER CORD
	E30-0545-05	JIS POWER CORD
	E30-0571-15	SAA POWER CORD
	E30-1815-05	CEE POWER CORD
	E30-1867-05	BS POWER CORD
	E38-0396-08	WIRE ASS'Y;AC SWITCH TO AC IN
	E38-0397-08	WIRE ASS'Y;AC SWITCH TO ...V
	E38-0398-08	WIRE ASS'Y;AC CHANGING,WHITE
	E38-0399-08	WIRE ASS'Y;AC CHANGING,BLACK
	E38-0403-08	WIRE ASS'Y;CN7 TO POWER TRANS.
	E38-0408-08	WIRE ASS'Y;GREEN
	E38-0409-08	WIRE ASS'Y;GRAY
	E38-0415-08	WIRE ASS'Y;CN1 TO POWER TRANS.
	E38-0416-08	WIRE ASS'Y;CN4 TO CN12-1/-OUT
	E38-0417-08	WIRE ASS'Y;CN3 TO CN13
	E38-0418-08	WIRE ASS'Y;CN10 TO +OUT
	E38-0421-08	WIRE ASS'Y;CN2 TO D.P.M/ETC.
	F01-0886-08	HEAT SINK
	F05-3022-05	FUSE(6X30MM) 3A/250V
	F11-1244-08	SHIELD CASE
	F29-0517-08	INSULATOR;FOR Q6/Q11
	F29-0518-08	INSULATOR;FOR Q11A/Q11B/Q11C
	F50-0004-08	FUSE(5X20MM) 3A/250V
	F51-0010-08	FUSE(6X30MM) 5A/125V
	H10-2856-08	FOAMED STYRENE PAD (FRONT)
	H10-2857-08	FOAMED STYRENE PAD (REAR)
	H20-1734-08	VINYL COVER
	H53-0029-08	CARTON BOX
	J02-0529-08	LEG
	J19-1671-08	CLAMPER;FOR 2-CORE AC CORD
	J19-1672-08	CLAMPER;FOR 3-CORE AC CORD
	J21-4720-08	BRACKET;FOR P.C.B
	J21-4758-08	BRACKET;FOR AC CORD BUSHING
	J29-0516-08	BRACKET;FOR EXT. CONTROL BOARD
	J30-0634-08	SPACER;FOR AC CHANGING UNIT
	J30-0635-08	VOLUME SPACER;FOR VR01
	J31-0617-08	VOLUME SPACER;FOR VR02
	J39-0531-08	SPACER;FOR RELAY UNIT
	J42-0083-05	BUSHING;FOR 2-CORE AC CORD
	J42-0085-05	BUSHING;FOR 3-CORE AC CORD
	J61-0408-05	WIRE WRAPPING BAND
	K01-0411-05	HANDLE
	K21-0907-04	KNOB;COARSE
	K21-0911-04	KNOB;FINE/CURRENT
	K27-0509-04	PUSH BOTTON,ORANGE;POWER
	K27-0557-04	BOTTON,RED;OUTPUT
	L01-8961-08	POWER TRANSFORMER
	N09-0718-05	SCREW,SEMS PAN HD M3X6
	N09-0757-05	SCREW,SEMS BINDING TAPTITE 3X6
	N09-0776-05	SCREW,SEMS PAN HD M5X10
	N09-0777-05	SCREW,SEMS PAN HD M4X6
	N09-0789-08	SCREW,SEMS PAN HD M3X10
	N09-0797-08	SCREW,SEMS TAPTITE 3X10
	N14-0404-04	FLANGE NUT M3
	N32-3006-41	SCREW, FLAT HD M3X6
	N89-3006-41	SCREW, BINDING TAPTITE 3X6
	N89-3010-41	SCREW, BINDING TAPTITE 3X10
	N89-3012-41	SCREW, BINDING TAPTITE 3X12
	S40-2533-08	PUSH SWITCH;POWER
	W02-2039-08	DIGITAL PANEL METER UNIT
	W02-2085-08	AMP/ETC. UNIT
	W02-2089-08	RELAY/EXT. CONTROL UNIT
C02	C90-3018-08	CAP. ELECTRO 1 105°C 100V
RO1	RN14BK2E1003F	RES. METAL FILM 100K 1% 1/4W

REF. NO	PARTS NO	NAME & DESCRIPTION
VR01	R29-3503-08	VOLUME
VR02	R29-1508-08	VOLUME
VR03	R29-3504-08	VOLUME

PARTS LIST

PA36-3 AMP/ETC. UNIT W02-2085-08

REF. NO	PARTS NO	NAME & DESCRIPTION
	E18-0162-08	SENSING TERMINAL
	E21-0674-08	EXTERNAL OUTPUT TERMINAL
	E38-0393-08	WIRE ASS'Y; X1 TO X2
	E38-0394-08	WIRE ASS'Y; U1 TO U2
	E38-0395-08	WIRE ASS'Y; Z1 TO Z2
	E38-0400-08	WIRE ASS'Y; CN5
	E38-0405-08	WIRE ASS'Y; CN8
	E38-0413-08	WIRE ASS'Y; M1 TO M2
	E40-7140-08	PIN CONNECTOR 3P
	E40-7141-08	PIN CONNECTOR 2P
	E40-7142-08	PIN CONNECTOR 1P
	E40-7171-08	PIN CONNECTOR 2P
	J13-0518-08	FUSE HOLDER; FOR 6X30MM
	J13-0519-08	FUSE HOLDER; FOR 5X20MM
	J73-0133-28	PCB (UNMOUNTED)
	R92-0150-05	JUMPING RES. ZERO OHM(10MM)
C1	C90-3019-08	CAP. ELECTRO 1000 105°C 35V
C2	CF92V1H102K	CAP. POLYESTER 1000P 10% 50V
C3	C91-1315-05	CAP. CERAMIC 0.1 80/-10% 50V
C4	CF92V1H472K	CAP. POLYESTER 4700P 10% 50V
C5	CF92V1H103K	CAP. POLYESTER 0.01 10% 50V
C6		NO USE
C7	C90-3020-08	CAP. ELECTRO 100 105°C 25V
C8	CF93AN2E224K	CAP. POLYESTER 0.22 10% 250V
C9		NO USE
C10	C90-3042-08	CAP. ELECTRO 2200 105°C 63V
C11	C90-3022-08	CAP. ELECTRO 4.7 105°C 50V
C12	C90-3033-08	CAP. ELECTRO 220 105°C 25V
C13	C90-3033-08	CAP. ELECTRO 220 105°C 25V
C14	CF93AN1J104K	CAP. POLYESTER 0.1 10% 63V
C15	CF93AN1J104K	CAP. POLYESTER 0.1 10% 63V
C16		NO USE
C17	C90-3034-08	CAP. ELECTRO 100 105°C 16V
C18	C90-3034-08	CAP. ELECTRO 100 105°C 16V
C19	C90-3022-08	CAP. ELECTRO 4.7 105°C 50V
C20	CF93AN1J104K	CAP. POLYESTER 0.1 10% 63V
C21		NO USE
C22	C91-1315-05	CAP. CERAMIC 0.1 80/-10% 50V
C01	C91-1323-08	CAP. CERAMIC 0.1 20% 250V
C02		NO USE
C03	C90-3041-08	CAP. ELECTRO 2.2 105°C 50V
CN1	E40-7184-08	PIN CONNECTOR 5P
CN2	E40-7185-08	PIN CONNECTOR 20P
CN3	E40-7222-08	PIN CONNECTOR 14P
CN4	E40-7126-08	PIN CONNECTOR 2P
CN5	E40-7219-08	PIN CONNECTOR 3P
CN6	E40-7219-08	PIN CONNECTOR 3P
CN7	E40-7220-08	PIN CONNECTOR 4P
CN8	E40-7220-08	PIN CONNECTOR 4P
CN9		NO USE
CN10	E29-0549-08	TERMINAL
D1	1B4B42	DIODE, STACK
D2	ERA15-01	DIODE
D3	1SS270A	DIODE
D4	1SS270A	DIODE
D5	1SS270A	DIODE
D6	1SS270A	DIODE
D7	1SS270A	DIODE
D8		NO USE
D9	D15XB40	DIODE, STACK
D10	ERA15-01	DIODE
D11	1B4B42	DIODE, STACK
D14	1SS270A	DIODE
D15	1SS270A	DIODE
D16	1SS270A	DIODE
D24	1SS270A	DIODE
D25	1SS270A	DIODE
D01	30D1	DIODE
IC1	UPC151C	IC, OP AMP
IC2	UPC151C	IC, OP AMP
IC3	UPC1093J	IC, VARIABLE SHUNT REGULATOR
IC4	UPC78N05H	IC, 3-TERMINAL REGULATOR
IC5	UPC79N05H	IC, 3-TERMINAL REGULATOR
IC6	UPC1093J	IC, VARIABLE SHUNT REGULATOR

REF. NO	PARTS NO	NAME & DESCRIPTION
IC7	LM607CN	IC, OP AMP
IC8	UPC1093J	IC, VARIABLE SHUNT REGULATOR
IC9	HA178L12A	IC, TERMINAL FIXED VOLTAGE REG.
Q1	2SC1815(GR)	TR. SI, NPN
Q2	2SC1815(GR)	TR. SI, NPN
Q3	2SC1815(GR)	TR. SI, NPN
Q4	2SC1815(GR)	TR. SI, NPN
Q5	2SC1815(GR)	TR. SI, NPN
Q6	2SD1148(O)	TR. SI, NPN
Q7	2SC2238(Y)	TR. SI, NPN
Q8	2SC3421(Y)	TR. SI, NPN
Q9	2SC1815(GR)	TR. SI, NPN
Q10	2SC1815(GR)	TR. SI, NPN
Q11	2SD1148(O)	TR. SI, NPN
Q12		NO USE
Q13	2SC1815(GR)	TR. SI, NPN
Q11A	2SD1148(O)	TR. SI, NPN
Q11B	2SD1148(O)	TR. SI, NPN
Q11C	2SD1148(O)	TR. SI, NPN
R1	RD14BB2E122J	RES. CARBON 1.2K 5% 1/4W
R2	RD14BB2E123J	RES. CARBON 12K 5% 1/4W
R3	RD14BB2E302J	RES. CARBON 3K 5% 1/4W
R4	RD14BB2E510J	RES. CARBON 51 5% 1/4W
R5	RD14BB2E123J	RES. CARBON 12K 5% 1/4W
R6	RD14BB2E273J	RES. CARBON 27K 5% 1/4W
R7	RN14BK2E2401F	RES. METAL FILM 2.4K 1% 1/4W
R8	RD14BB2E202J	RES. CARBON 2K 5% 1/4W
R9	RD14BB2E102J	RES. CARBON 1K 5% 1/4W
R10	RD14BB2E242J	RES. CARBON 2.4K 5% 1/4W
R11	RD14BB2E513J	RES. CARBON 51K 5% 1/4W
R12	RD14BB2E102J	RES. CARBON 1K 5% 1/4W
R13	RD14BB2E202J	RES. CARBON 2K 5% 1/4W
R14	RD14BB2E152J	RES. CARBON 1.5K 5% 1/4W
R15	RD14BB2E102J	RES. CARBON 1K 5% 1/4W
R16	RD14BB2E512J	RES. CARBON 5.1K 5% 1/4W
R17		NO USE
R18	RD14BB2E513J	RES. CARBON 51K 5% 1/4W
R19	RD14BB2E103J	RES. CARBON 10K 5% 1/4W
R20	RD14BB2E102J	RES. CARBON 1K 5% 1/4W
R21	RN14BK2E3303F	RES. METAL FILM 330K 1% 1/4W
R22	RD14BB2E102J	RES. CARBON 1K 5% 1/4W
R23	RN14BK2E9101F	RES. METAL FILM 9.1K 1% 1/4W
R24	RN14BK2E3001F	RES. METAL FILM 3K 1% 1/4W
R27	RD14BB2E102J	RES. CARBON 1K 5% 1/4W
R28	RD14BB2E103J	RES. CARBON 10K 5% 1/4W
R29	RS14GB3D392J	RES. METAL FILM 3.9K 5% 2W
R30	RS14AB3AR51J	RES. METAL FILM 0.51 5% 1W
R31		NO USE
R32	RS14AB3AR51J	RES. METAL FILM 0.51 5% 1W
R33		NO USE
R34	RD14BB2E122J	RES. CARBON 1.2K 5% 1/4W
R35	RD14BB2E123J	RES. CARBON 12K 5% 1/4W
R36	RD14BB2E302J	RES. CARBON 3K 5% 1/4W
R37	RD14BB2E510J	RES. CARBON 51 5% 1/4W
R38	RD14BB2E333J	RES. CARBON 33K 5% 1/4W
R39	RD14BB2E273J	RES. CARBON 27K 5% 1/4W
R43	RD14BB2E103J	RES. CARBON 10K 5% 1/4W
R44	RD14BB2E101J	RES. CARBON 100 5% 1/4W
R45	RD14DB2H822J	RES. CARBON 8.2K 5% 1/2W
R51	RN14BK2E2401F	RES. METAL FILM 2.4K 1% 1/4W
R52	RN14BK2E3001F	RES. METAL FILM 3K 1% 1/4W
R53	RD14BB2E911J	RES. CARBON 910 5% 1/4W
R54	RD14BB2E101J	RES. CARBON 100 5% 1/4W
R55	RD14BB2E103J	RES. CARBON 10K 5% 1/4W
R56	RD14BB2E103J	RES. CARBON 10K 5% 1/4W
R57		NO USE
R58	RD14BB2E103J	RES. CARBON 10K 5% 1/4W
R59	RD14BB2E103J	RES. CARBON 10K 5% 1/4W
R60	RD14BB2E202J	RES. CARBON 2K 5% 1/4W
R61	RN14BK2E9101F	RES. METAL FILM 9.1K 1% 1/4W
R62	RD14BB2E302J	RES. CARBON 3K 5% 1/4W
R63		NO USE
R64	RN14BK2E7500F	RES. METAL FILM 750 1% 1/4W
R65	RD14BB2E225J	RES. CARBON 2.2M 5% 1/4W
R66		NO USE
R67	RS14GB3DR15J	RES. METAL FILM 0.15 5% 2W
R68	RD14BB2E333J	RES. CARBON 33K 5% 1/4W
R32A	RS14AB3AR51J	RES. METAL FILM 0.51 5% 1W

PARTS LIST

REF. NO	PARTS NO	NAME & DESCRIPTION		
R32B	RS14AB3AR51J	RES. METAL FILM 0.51	5%	1W
R32C	RS14AB3AR51J	RES. METAL FILM 0.51	5%	1W
RTH1	100D-5	THERMISTER		
RY1	S51-1530-08	RELAY		
RY2	S76-0604-08	RELAY		
SW2	S31-1512-08	MASTER/SLAVE SWITCH		
VR1	R12-1564-08	RES. SEMI FIXED 1KB		
VR2	R12-5547-08	RES. SEMI FIXED 100KB		
VR3	NO USE			
VR4	R12-3567-08	RES. SEMI FIXED 10KB		
VR5	R12-3567-08	RES. SEMI FIXED 10KB		

PA36-3 RELAY/EXT. CONTROL UNIT W02-2089-08

REF. NO	PARTS NO	NAME & DESCRIPTION			
	E29-0544-08	EXTERNAL CONTROL TERMINAL			
	J73-0131-28	PCB (UNMOUNTED)			
C16	C90-3046-08	CAP. ELECTRO	100	105°C	50V
C22	C90-3044-08	CAP. ELECTRO	470	105°C	10V
CN11	E40-7198-08	PIN CONNECTOR	6P		
CN12	E40-7126-08	PIN CONNECTOR	2P		
CN13	E40-7223-08	PIN CONNECTOR	14P		
D12	ERA15-01	DIODE			
D13	1SS270A	DIODE			
D17	ERA15-01	DIODE			
D18	ERA15-01	DIODE			
D19	ERA15-01	DIODE			
D20	ERA15-01	DIODE			
D21	ERA15-01	DIODE			
D22	ERA15-01	DIODE			
D23	ERA15-01	DIODE			
Q12	2SC1815(GR)	TR. SI, NPN			
R41	RD14BB2E512J	RES. CARBON	5.1K	5%	1/4W
R47	RD14BB2E622J	RES. CARBON	6.2K	5%	1/4W
R48	RS14GB3A102J	RES. METAL FILM	1K	5%	1W
R49	RS14GB3A102J	RES. METAL FILM	1K	5%	1W
R50	RD14DB2H101J	RES. CARBON	100	5%	1/2W
R63	RD14DB2H822J	RES. CARBON	8.2K	5%	1/2W
RY3	S76-0605-08	RELAY			
SW3	S62-0606-08	MASTER/SLAVE SWITCH			
SW4	S62-0606-08	MASTER/SLAVE SWITCH			
SW5	S62-0606-08	MASTER/SLAVE SWITCH			
SW6	S62-0606-08	MASTER/SLAVE SWITCH			

PARTS LIST

PA70-1 UNIT

Y86-1520-00

REF. NO	PARTS NO	NAME & DESCRIPTION
	A01-1237-08	CASE
	A10-1474-08	CHASSIS
	A63-0024-08	FRONT PANEL
	B11-0525-08	FILTER
	B40-2737-24	SERIAL NO. PLATE
	B42-3733-08	FUSE RATING LABEL
	B42-3808-08	EXTERNAL CONTROL LABEL
	B63-0033-08	INSTRUCTION MANUAL; JAPANESE
	B63-0034-08	INSTRUCTION MANUAL; ENGLISH
	E12-0401-15	SENSOR PLUG
	E21-0670-03	TERMINAL, RED
	E21-0671-03	TERMINAL, BLACK
	E21-0672-03	TERMINAL, WHITE
	E29-0506-04	SHORTING BAR
	E29-0542-08	LUG; M3
	E30-0027-35	UL/CSA POWER CORD
	E30-0545-05	JIS POWER CORD
	E30-0571-15	SAA POWER CORD
	E30-1815-05	CEE POWER CORD
	E30-1867-05	BS POWER CORD
	E38-0396-08	WIRE ASS'Y; AC SWITCH TO AC IN
	E38-0397-08	WIRE ASS'Y; AC SWITCH TO ...V
	E38-0398-08	WIRE ASS'Y; AC CHANGING, WHITE
	E38-0399-08	WIRE ASS'Y; AC CHANGING, BLACK
	E38-0403-08	WIRE ASS'Y; CN7 TO POWER TRANS.
	E38-0408-08	WIRE ASS'Y; GREEN
	E38-0409-08	WIRE ASS'Y; GRAY
	E38-0415-08	WIRE ASS'Y; CN1 TO POWER TRANS.
	E38-0416-08	WIRE ASS'Y; CN4 TO CN12-1/-OUT
	E38-0417-08	WIRE ASS'Y; CN3 TO CN13
	E38-0420-08	WIRE ASS'Y; CN2 TO D. P. M/ETC.
	F01-0885-08	HEAT SINK
	F05-2021-05	FUSE (5X20MM) 2A/250V
	F05-2023-05	FUSE (6X30MM) 2A/250V
	F11-1243-08	SHIELD CASE
	F29-0517-08	INSULATOR; FOR Q6/Q11
	F29-0518-08	INSULATOR; FOR Q11A/Q11B/Q11C
	F51-0009-08	FUSE (6X30MM) 3A/125V
	H10-2853-08	FOAMED STYRENE PAD (FRONT)
	H10-2854-08	FOAMED STYRENE PAD (REAR)
	H20-1734-08	VINYL COVER
	H53-0030-08	CARTON BOX
	J02-0529-08	LEG
	J19-1671-08	CLAMP; FOR 2-CORE AC CORD
	J19-1672-08	CLAMP; FOR 3-CORE AC CORD
	J21-4720-08	BRACKET; FOR P. C. B
	J21-4758-08	BRACKET; FOR AC CORD BUSHING
	J29-0516-08	BRACKET; FOR EXT. CONTROL BOARD
	J29-0519-08	BRACKET; FOR P. C. B
	J30-0634-08	SPACER; FOR AC CHANGING UNIT
	J30-0635-08	VOLUME SPACER; FOR VR01
	J31-0617-08	VOLUME SPACER; FOR VR02
	J39-0531-08	SPACER; FOR RELAY UNIT
	J42-0083-05	BUSHING; FOR 2-CORE AC CORD
	J42-0085-05	BUSHING; FOR 3-CORE AC CORD
	J61-0408-05	WIRE WRAPPING BAND
	K01-0411-05	HANDLE
	K21-0907-04	KNOB; COARSE
	K21-0911-04	KNOB; FINE/CURRENT
	K27-0509-04	PUSH BOTTON, ORANGE; POWER
	K27-0557-04	BOTTON, RED; OUTPUT
	L01-9973-08	POWER TRANSFORMER
	N09-0718-05	SCREW, SENS PAN HD M3X6
	N09-0757-05	SCREW, SENS BINDING TAPTITE 3X6
	N09-0776-05	SCREW, SENS PAN HD M5X10
	N09-0777-05	SCREW, SENS PAN HD M4X6
	N09-0789-08	SCREW, SENS PAN HD M3X10
	N09-0797-08	SCREW, SENS TAPTITE 3X10
	N14-0404-04	FLANGE NUT M3
	N32-3006-41	SCREW, FLAT HD M3X6
	N89-3006-41	SCREW, BINDING TAPTITE 3X6
	N89-3010-41	SCREW, BINDING TAPTITE 3X10
	N89-3012-41	SCREW, BINDING TAPTITE 3X12
	S40-2533-08	PUSH SWITCH; POWER
	W02-2039-08	DIGITAL PANEL METER UNIT
	W02-2086-08	AMP/ETC. UNIT
	W02-2091-08	RELAY/EXT. CONTROL UNIT
C02	C90-3038-08	CAP. ELECTRO 1 105°C 100V
RO1	RN14BK2E1003F	RES. METAL FILM 100K 1% 1/4W

REF. NO	PARTS NO	NAME & DESCRIPTION
VR01	R29-3503-08	VOLUME
VR02	R29-1508-08	VOLUME
VR03	R29-3504-08	VOLUME

PARTS LIST

PA70-1 AMP/ETC. UNIT W02-2086-08

REF. NO	PARTS NO	NAME & DESCRIPTION
	E18-0162-08	SENSING TERMINAL
	E21-0674-08	EXTERNAL OUTPUT TERMINAL
	E38-0394-08	WIRE ASS'Y;U1 TO U2
	E38-0395-08	WIRE ASS'Y;Z1 TO Z2
	E38-0400-08	WIRE ASS'Y;CN5
	E38-0401-08	WIRE ASS'Y;CN6
	E38-0413-08	WIRE ASS'Y;M1 TO M2
	E40-7140-08	PIN CONNECTOR 3P
	E40-7141-08	PIN CONNECTOR 2P
	E40-7142-08	PIN CONNECTOR 1P
	E40-7171-08	PIN CONNECTOR 2P
	J13-0518-08	FUSE HOLDER;FOR 6X30MM
	J13-0519-08	FUSE HOLDER;FOR 5X20MM
	J73-0133-28	PCB (UNMOUNTED)
	R92-0150-05	JUMPING RES. ZERO OHM(10HM)
C1	C90-3023-08	CAP. ELECTRO 470 105°C 35V
C2	CF92V1H102K	CAP. POLYESTER 1000P 10% 50V
C3	C91-1315-05	CAP. CERAMIC 0.1 80/-10% 50V
C4	CF92V1H472K	CAP. POLYESTER 4700P 10% 50V
C5	CF92V1H103K	CAP. POLYESTER 0.01 10% 50V
C6		NO USE
C7	C90-3020-08	CAP. ELECTRO 100 105°C 25V
C8	CF93AN2E224K	CAP. POLYESTER 0.22 10% 250V
C9		NO USE
C10	C90-3039-08	CAP. ELECTRO 330 105°C 160V
C11	C90-3022-08	CAP. ELECTRO 4.7 105°C 50V
C12	C90-3033-08	CAP. ELECTRO 220 105°C 25V
C13	C90-3033-08	CAP. ELECTRO 220 105°C 25V
C14	CF93AN1J104K	CAP. POLYESTER 0.1 10% 63V
C15	CF93AN1J104K	CAP. POLYESTER 0.1 10% 63V
C16		NO USE
C17	C90-3034-08	CAP. ELECTRO 100 105°C 16V
C18	C90-3034-08	CAP. ELECTRO 100 105°C 16V
C19	C90-3022-08	CAP. ELECTRO 4.7 105°C 50V
C20	CF93AN1J104K	CAP. POLYESTER 0.1 10% 63V
C21		NO USE
C22	C91-1315-05	CAP. CERAMIC 0.1 80/-10% 50V
C01	C91-1323-08	CAP. CERAMIC 0.1 20% 250V
C02		NO USE
C03	C90-3047-08	CAP. ELECTRO 2.2 105°C 100V
CN1	E40-7184-08	PIN CONNECTOR 5P
CN2	E40-7185-08	PIN CONNECTOR 20P
CN3	E40-7222-08	PIN CONNECTOR 14P
CN4	E40-7126-08	PIN CONNECTOR 2P
CN5	E40-7219-08	PIN CONNECTOR 3P
CN6	E40-7219-08	PIN CONNECTOR 3P
CN7	E40-7220-08	PIN CONNECTOR 4P
D1	1B4B42	DIODE, STACK
D2	ERA15-01	DIODE
D3	1SS270A	DIODE
D4	1SS270A	DIODE
D5	1SS270A	DIODE
D6	1SS270A	DIODE
D7	1SS270A	DIODE
D8		NO USE
D9	D3SB60	DIODE, STACK
D10	ERA15-01	DIODE
D11	1B4B42	DIODE, STACK
D14	1SS270A	DIODE
D15	1SS270A	DIODE
D16	1SS270A	DIODE
D24	1SS270A	DIODE
D25	1SS270A	DIODE
DO1	ERA15-01	DIODE
IC1	UPC151C	IC, OP AMP
IC2	UPC151C	IC, OP AMP
IC3	UPC1093J	IC, VARIABLE SHUNT REGULATOR
IC4	UPC78N05H	IC, 3-TERMINAL REGULATOR
IC5	UPC79N05H	IC, 3-TERMINAL REGULATOR
IC6	UPC1093J	IC, VARIABLE SHUNT REGULATOR
IC7	LM607CN	IC, OP AMP
IC8	UPC1093J	IC, VARIABLE SHUNT REGULATOR
IC9	HA178L12A	IC, TERMINAL FIXED VOLTAGE REG.

REF. NO	PARTS NO	NAME & DESCRIPTION
Q1	2SC1815(GR)	TR. SI, NPN
Q2	2SC1815(GR)	TR. SI, NPN
Q3	2SC1815(GR)	TR. SI, NPN
Q4	2SC1815(GR)	TR. SI, NPN
Q5	2SC1815(GR)	TR. SI, NPN
Q6	2SD1148(O)	TR. SI, NPN
Q7	2SC2238(Y)	TR. SI, NPN
Q8	2SC3421(Y)	TR. SI, NPN
Q9	2SC1815(GR)	TR. SI, NPN
Q10	2SC1815(GR)	TR. SI, NPN
Q11	2SD1148(O)	TR. SI, NPN
Q12		NO USE
Q13	2SC1815(GR)	TR. SI, NPN
Q11A	2SD1148(O)	TR. SI, NPN
Q11B	2SD1148(O)	TR. SI, NPN
Q11C	2SD1148(O)	TR. SI, NPN
R1	RD14BB2E122J	RES. CARBON 1.2K 5% 1/4W
R2	RD14BB2E123J	RES. CARBON 12K 5% 1/4W
R3	RD14BB2E102J	RES. CARBON 1K 5% 1/4W
R4	RD14BB2E510J	RES. CARBON 51 5% 1/4W
R5	RD14BB2E303J	RES. CARBON 30K 5% 1/4W
R6	RD14BB2E273J	RES. CARBON 27K 5% 1/4W
R7	RN14BK2E1001F	RES. METAL FILM 1K 1% 1/4W
R8	RD14BB2E202J	RES. CARBON 2K 5% 1/4W
R9	RD14BB2E102J	RES. CARBON 1K 5% 1/4W
R10	RD14BB2E243J	RES. CARBON 24K 5% 1/4W
R11	RD14BB2E513J	RES. CARBON 51K 5% 1/4W
R12	RD14BB2E102J	RES. CARBON 1K 5% 1/4W
R13	RD14BB2E202J	RES. CARBON 2K 5% 1/4W
R14	RD14BB2E152J	RES. CARBON 1.5K 5% 1/4W
R15	RD14BB2E102J	RES. CARBON 1K 5% 1/4W
R16	RD14BB2E512J	RES. CARBON 5.1K 5% 1/4W
R17		NO USE
R18	RD14BB2E513J	RES. CARBON 51K 5% 1/4W
R19	RD14BB2E103J	RES. CARBON 10K 5% 1/4W
R20	RD14BB2E102J	RES. CARBON 1K 5% 1/4W
R21	RN14BK2E3903F	RES. METAL FILM 390K 1% 1/4W
R22	RD14BB2E102J	RES. CARBON 1K 5% 1/4W
R23	RN14BK2E9101F	RES. METAL FILM 9.1K 1% 1/4W
R24	RN14BK2E3001F	RES. METAL FILM 3K 1% 1/4W
R27	RD14BB2E102J	RES. CARBON 1K 5% 1/4W
R28	RD14BB2E103J	RES. CARBON 10K 5% 1/4W
R29	RS14GB3D123J	RES. METAL FILM 12K 5% 2W
R30	RS14AB3A1R5J	RES. METAL FILM 1.5 5% 1W
R31		NO USE
R32	RS14AB3A1R5J	RES. METAL FILM 1.5 5% 1W
R33		NO USE
R34	RD14BB2E122J	RES. CARBON 1.2K 5% 1/4W
R35	RD14BB2E123J	RES. CARBON 12K 5% 1/4W
R36	RD14BB2E102J	RES. CARBON 1K 5% 1/4W
R37	RD14BB2E510J	RES. CARBON 51 5% 1/4W
R38	RD14BB2E753J	RES. CARBON 75K 5% 1/4W
R39	RD14BB2E273J	RES. CARBON 27K 5% 1/4W
R43	RD14BB2E103J	RES. CARBON 10K 5% 1/4W
R44	RD14BB2E101J	RES. CARBON 100 5% 1/4W
R45	RD14DB2H303J	RES. CARBON 30K 5% 1/2W
R51	RN14BK2E2401F	RES. METAL FILM 2.4K 1% 1/4W
R52	RN14BK2E3001F	RES. METAL FILM 3K 1% 1/4W
R53	RD14BB2E911J	RES. CARBON 910 5% 1/4W
R54	RD14BB2E101J	RES. CARBON 100 5% 1/4W
R55	RD14BB2E103J	RES. CARBON 10K 5% 1/4W
R56	RD14BB2E103J	RES. CARBON 10K 5% 1/4W
R57		NO USE
R58	RD14BB2E103J	RES. CARBON 10K 5% 1/4W
R59	RD14BB2E103J	RES. CARBON 10K 5% 1/4W
R60	RD14BB2E202J	RES. CARBON 2K 5% 1/4W
R61	RN14BK2E9101F	RES. METAL FILM 9.1K 1% 1/4W
R62	RD14BB2E302J	RES. CARBON 3K 5% 1/4W
R63		NO USE
R64	RN14BK2E8201F	RES. METAL FILM 8.2K 1% 1/4W
R65	RD14BB2E225J	RES. CARBON 2.2K 5% 1/4W
R66		NO USE
R67	RS14GB3DR22J	RES. METAL FILM 0.22 5% 2W
R68	RD14BB2E333J	RES. CARBON 33K 5% 1/4W
R32A	RS14AB3A1R5J	RES. METAL FILM 1.5 5% 1W
R32B	RS14AB3A1R5J	RES. METAL FILM 1.5 5% 1W
R32C	RS14AB3A1R5J	RES. METAL FILM 1.5 5% 1W
RTH1	100D-5	THERMISTOR

PARTS LIST

REF. NO	PARTS NO	NAME & DESCRIPTION
RY1	S51-1530-08	RELAY
RY2	S76-0604-08	RELAY
SW2	S31-1512-08	MASTER/SLAVE SWITCH
VR1	R12-1564-08	RES. SEMI FIXED 1KB
VR2	R12-5547-08	RES. SEMI FIXED 100KB
VR3	NO USE	
VR4	R12-3567-08	RES. SEMI FIXED 10KB
VR5	R12-3567-08	RES. SEMI FIXED 10KB

PA70-1 RELAY/EXT. CONTROL UNIT W02-2091-08

REF. NO	PARTS NO	NAME & DESCRIPTION
	E29-0544-08	EXTERNAL CONTROL TERMINAL
	J73-0131-28	PCB (UNMOUNTED)
C16	C90-3048-08	CAP. ELECTRO 100 105°C 100V
C22	C90-3044-08	CAP. ELECTRO 470 105°C 10V
CN11	E40-7198-08	PIN CONNECTOR 6P
CN12	E40-7126-08	PIN CONNECTOR 2P
CN13	E40-7223-08	PIN CONNECTOR 14P
D12	ERA15-01	DIODE
D13	1SS270A	DIODE
D17	ERA15-01	DIODE
D18	ERA15-01	DIODE
D19	ERA15-01	DIODE
D20	ERA15-01	DIODE
D21	ERA15-01	DIODE
D22	ERA15-01	DIODE
D23	ERA15-01	DIODE
Q12	2SC1815(GR)	TR. SI, NPN
R41	RD14BB2E512J	RES. CARBON 5.1K 5% 1/4W
R47	RD14BB2E622J	RES. CARBON 6.2K 5% 1/4W
R48	RS14GB3A102J	RES. METAL FILM 1K 5% 1W
R49	RS14GB3A102J	RES. METAL FILM 1K 5% 1W
R50	RD14DB2H101J	RES. CARBON 100 5% 1/2W
R63	RD14DB2H303J	RES. CARBON 30K 5% 1/2W
RY3	S76-0605-08	RELAY
SW3	S62-0606-08	MASTER/SLAVE SWITCH
SW4	S62-0606-08	MASTER/SLAVE SWITCH
SW5	S62-0606-08	MASTER/SLAVE SWITCH
SW6	S62-0606-08	MASTER/SLAVE SWITCH

PARTS LIST

DIGITAL PANEL METER UNIT W02-2039-08

REF. NO	PARTS NO	NAME & DESCRIPTION
	E38-0546-08	WIRE ASS'Y;24P JUMPER
	E40-7315-08	PIN CONNECTOR 12P
	J61-0532-08	PCB SUPPORT
	J73-0177-08	PCB (UNMOUNTED)
	N09-4501-08	SCREW, PAN HD TAPPING 3.5X6
	S74-0601-08	TACT SWITCH
C1	C90-3078-08	CAP. ELECTRO 100 20% 10V
C2	C90-3079-08	CAP. ELECTRO 4.7 20% 25V
C3	C91-1369-08	CAP. CERAMIC 0.1 80/-20% 50V
C4	C91-1369-08	CAP. CERAMIC 0.1 80/-20% 50V
C5	C91-1369-08	CAP. CERAMIC 0.1 80/-20% 50V
C6	CQ92M1H104K	CAP. MYLAR 0.1 10% 50V
C7	CQ92M1H104K	CAP. MYLAR 0.1 10% 50V
C8	CQ92M1H104K	CAP. MYLAR 0.1 10% 50V
C9	CQ92M1H104K	CAP. MYLAR 0.1 10% 50V
C10	CQ92M1H104K	CAP. MYLAR 0.1 10% 50V
C11	CQ92M1H104K	CAP. MYLAR 0.1 10% 50V
C12	C91-1369-08	CAP. CERAMIC 0.1 80/-20% 50V
C13	C90-3079-08	CAP. ELECTRO 4.7 20% 25V
C14	C90-3079-08	CAP. ELECTRO 4.7 20% 25V
C15	C90-3079-08	CAP. ELECTRO 4.7 20% 25V
C16	C91-1369-08	CAP. CERAMIC 0.1 80/-20% 50V
C17	C91-1369-08	CAP. CERAMIC 0.1 80/-20% 50V
C18	C91-1369-08	CAP. CERAMIC 0.1 80/-20% 50V
C19	CK45B1H471K	CAP. CERAMIC 470P 10% 50%
IC1	MC14433P	IC,3-1/2 DIGIT A/D CONVERTER
IC2	MC14433P	IC,3-1/2 DIGIT A/D CONVERTER
IC3	TC4066BP	IC,QUAD ANALOG SWITCH/MPX
IC4	TC74HC4511AP	IC,BCD 7 LATCH/DECODER/DRIVER
IC5	TC74HC4511AP	IC,BCD 7 LATCH/DECODER/DRIVER
IC6	MC1413P	IC,PERIPHERAL DRIVER ARRAY
IC7	TC74HC74AP	IC,DUAL D FLIP-FLOP
IC8	TC74HC10AP	IC,TRIPLE 3-INPUT NAND GATE
IC9	TC74HC14AP	IC,HEX SCHMITT INVERTER
L1	B30-0972-05	LED,RED
L2	B30-0972-05	LED,RED
L3	B30-0973-05	LED,GREEN
LE1	GL8D030	LED,RED
LE2	GL8D030	LED,RED
LE3	GL8D030	LED,RED
LE4	GL8D030	LED,RED
LE5	GL8D030	LED,RED
LE6	GL8D030	LED,RED
LE7	GL8D030	LED,RED
PC1	PC817	PHOTO COUPLER
R1	RN14BK2E1303F	RES. METAL FILM 130K 1% 1/4W
R2	RN14BK2E7501F	RES. METAL FILM 7.5K 1% 1/4W
R3	RN14BK2E4702F	RES. METAL FILM 47K 1% 1/4W
R4	RN14BK2E4701F	RES. METAL FILM 4.7K 1% 1/4W
R5	RN14BK2E2001F	RES. METAL FILM 2K 1% 1/4W
R6	RN14BK2E1001F	RES. METAL FILM 1K 1% 1/4W
R7	RN14BK2E3001F	RES. METAL FILM 3K 1% 1/4W
R8	RN14BK2E2001F	RES. METAL FILM 2K 1% 1/4W
R11	RD14BB2E103J	RES. CARBON 10K 5% 1/4W
R12	RD14BB2E103J	RES. CARBON 10K 5% 1/4W
R13	RD14BB2E561J	RES. CARBON 560 5% 1/4W
R14	RN14BK2E3003F	RES. METAL FILM 300K 1% 1/4W
R15	RN14BK2E5103F	RES. METAL FILM 510K 1% 1/4W
R16	RN14BK2E3003F	RES. METAL FILM 300K 1% 1/4W
R17	RN14BK2E5103F	RES. METAL FILM 510K 1% 1/4W
R18	RD14BB2E222J	RES. CARBON 2.2K 5% 1/4W
R19	RD14BB2E222J	RES. CARBON 2.2K 5% 1/4W
R20	RD14BB2E101J	RES. CARBON 100 5% 1/4W
R21	RD14BB2E821J	RES. CARBON 820 5% 1/4W
R22	RD14BB2E102J	RES. CARBON 1K 5% 1/4W
R23	RD14BB2E102J	RES. CARBON 1K 5% 1/4W
R24	RD14BB2E102J	RES. CARBON 1K 5% 1/4W
R25	RD14BB2E103J	RES. CARBON 10K 5% 1/4W
R26	RD14BB2E103J	RES. CARBON 10K 5% 1/4W
R27	RD14BB2E244J	RES. CARBON 240K 5% 1/4W
R28	RD14BB2E103J	RES. CARBON 10K 5% 1/4W
R29	RD14BB2E102J	RES. CARBON 1K 5% 1/4W
R30	RD14BB2E103J	RES. CARBON 10K 5% 1/4W
R31	RD14BB2E103J	RES. CARBON 10K 5% 1/4W

REF. NO	PARTS NO	NAME & DESCRIPTION
RA1	R90-1129-08	RES. NETWORK 4X330
RA2	R90-1129-08	RES. NETWORK 4X330
RA3	R90-1129-08	RES. NETWORK 4X330
RA4	R90-1129-08	RES. NETWORK 4X330
TR1	DTA114EFX	TR. DIGITAL
TR2	2SC1318A	TR. SI, NPN
VR1	R12-1566-08	RES. SEMI FIXED 1K
VR2	R12-1566-08	RES. SEMI FIXED 1K
VR3	R12-1566-08	RES. SEMI FIXED 1K
ZD	TL431CLPB	IC,3-TERMINAL SHUNT REGULATOR

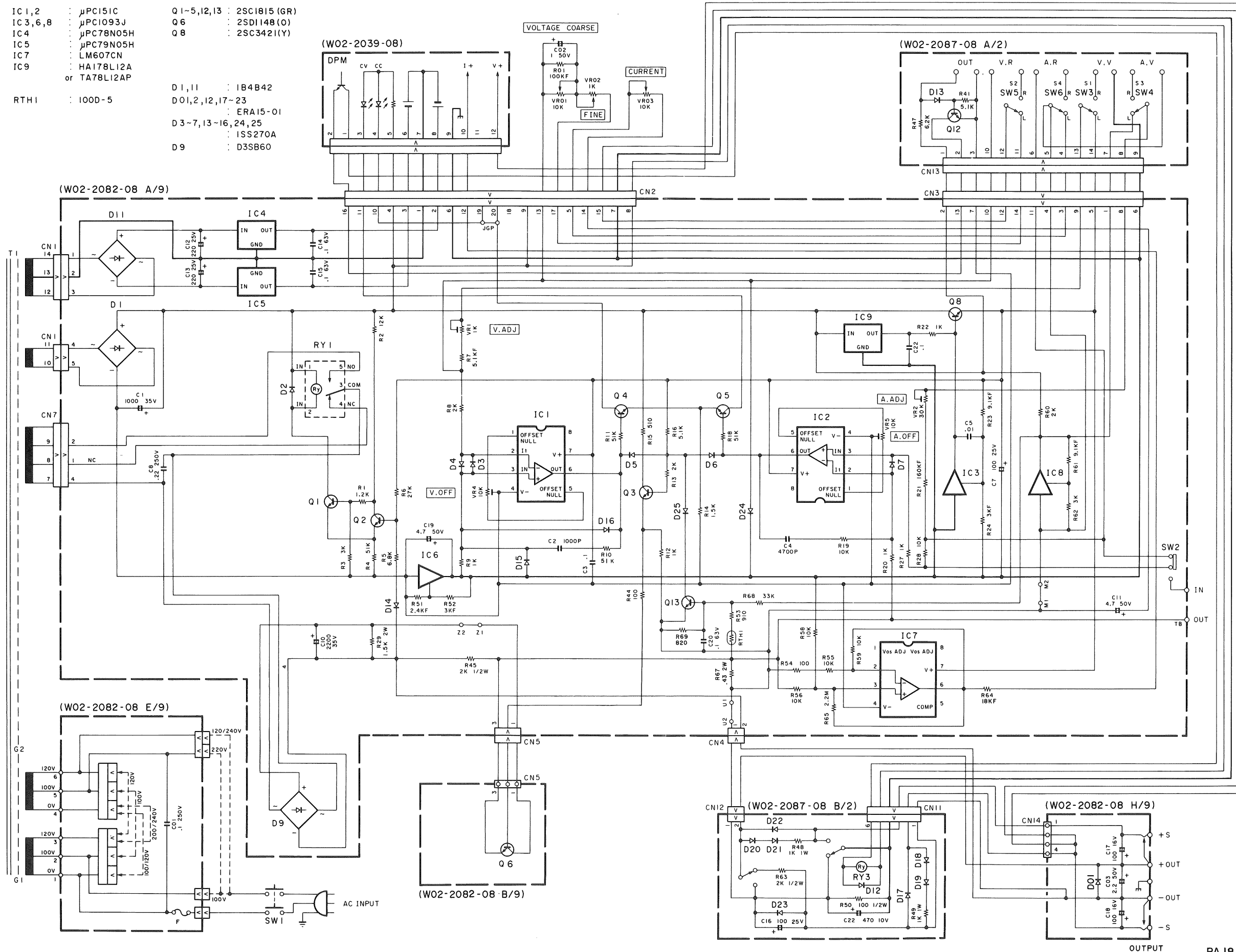
PARTS LIST

OP-13 UNIT Y87-2590-00

REF. NO	PARTS NO	NAME & DESCRIPTION
	B42-3828-08	GP-1B LABEL
	B63-0068-08	INSTRUCTION MANUAL;ENG./JAP.
	E29-0544-08	EXTERNAL CONTROL TERMINAL
	J73-0178-08	PCB (UNMOUNTED)
CN1	E40-7223-08	PIN CONNECTOR 14P
CN2	E38-0548-08	WIRE ASS'Y
D1	1S1588	DIODE
D2	1S1588	DIODE
PC1	TLP521-3	PHOTO COUPLER
Q	2SC1815(GR)	TR. SI, NPN
R1	RD14BB2E561J	RES. CARBON 560 5% 1/4W
R2	RD14BB2E512J	RES. CARBON 5.1K 5% 1/4W
R3	RD14BB2E622J	RES. CARBON 6.2K 5% 1/4W
R4	RD14DB2H302J	RES. CARBON 3K 5% 1/2W
SW1	S62-0606-08	MASTER/SLAVE SWITCH
SW2	S62-0606-08	MASTER/SLAVE SWITCH

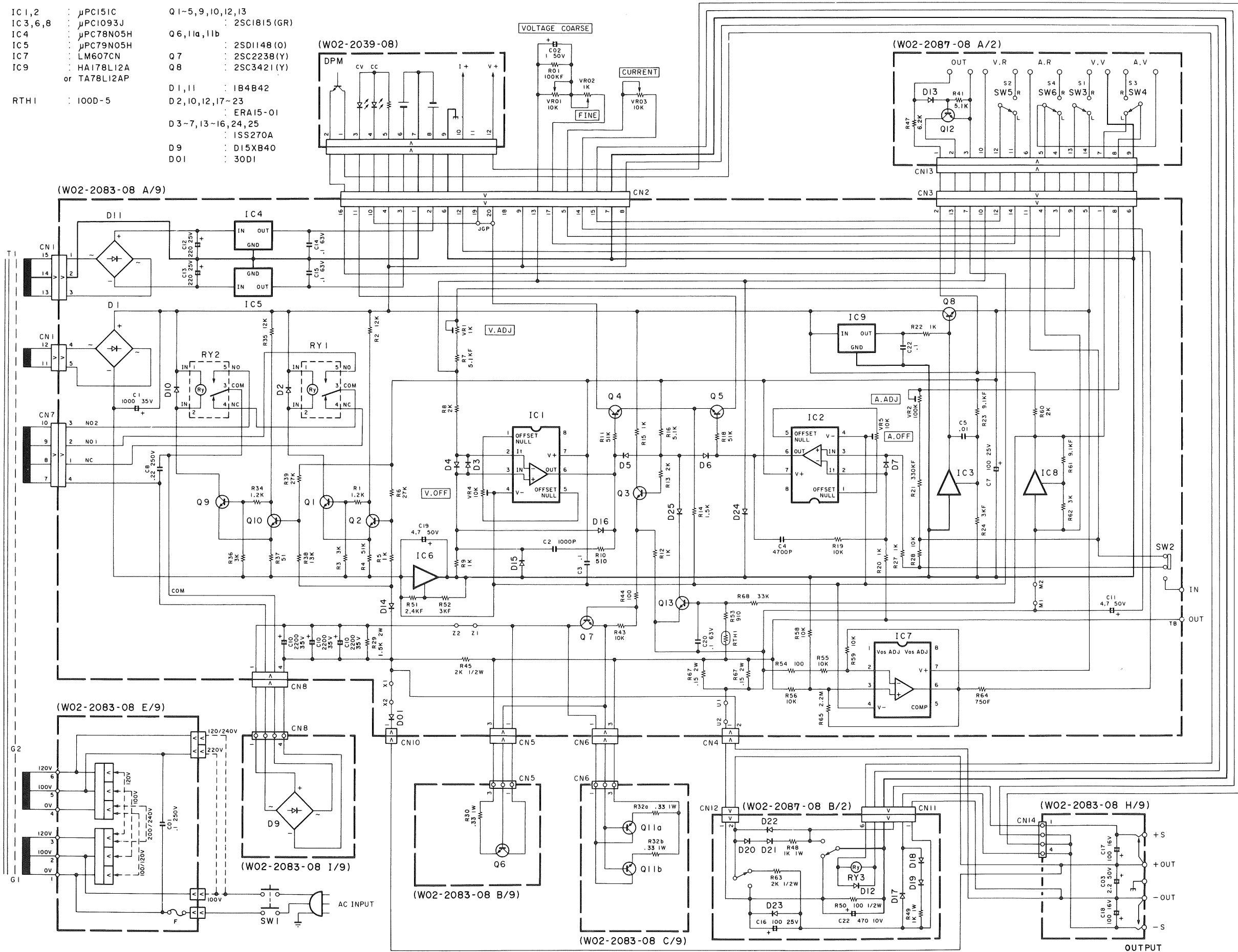
SCHEMATIC DIAGRAM PA18-1.2

- | | | | |
|----------|-----------------------------|-------------------|----------------|
| IC 1,2 | : μPC151C | Q 1~5,12,13 | : 2SC1815 (GR) |
| IC 3,6,8 | : μPC1093J | Q 6 | : 2SD1148 (O) |
| IC 4 | : μPC78N05H | Q 8 | : 2SC3421 (Y) |
| IC 5 | : μPC79N05H | | |
| IC 7 | : LM607CN | | |
| IC 9 | : HA178L12A
or TA78L12AP | | |
| RTH1 | : 100D-5 | D 1,11 | : 1B4B42 |
| | | DO1,2,12,17~23 | : ERA15-01 |
| | | D 3~7,13~16,24,25 | : ISS270A |
| | | D 9 | : D3S860 |



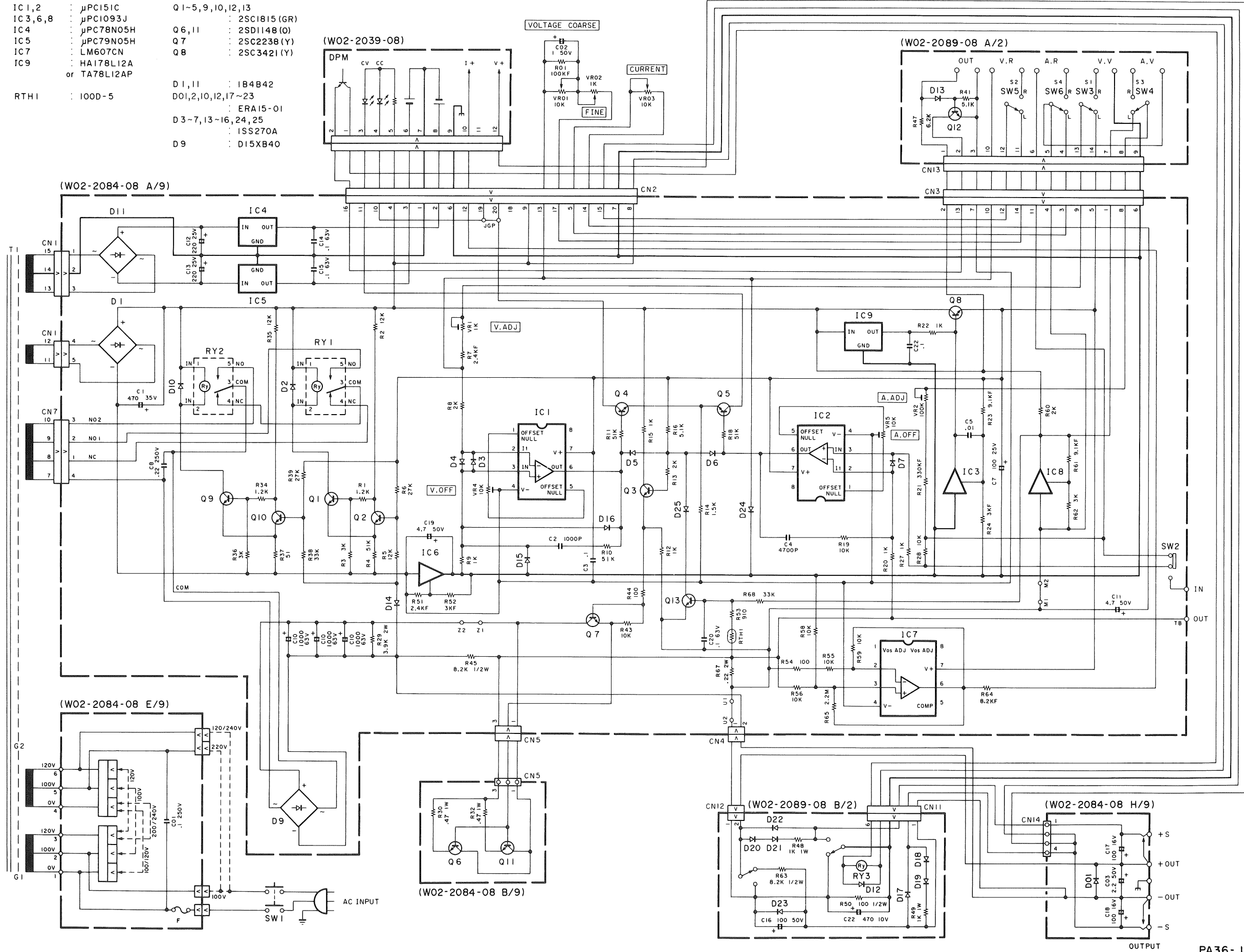
SCHEMATIC DIAGRAM PA18-3

- | | | |
|----------|-----------------------------|-------------------|
| IC 1,2 | : μPCI51C | Q 1-5,9,10,12,13 |
| IC 3,6,8 | : μPCI093J | Q 6,11a,11b |
| IC 4 | : μPC78N05H | Q 7 |
| IC 5 | : μPC79N05H | Q 8 |
| IC 7 | : LM607CN | D 1,11 |
| IC 9 | : HA178L12A
or TA78L12AP | D 2,10,12,17-23 |
| | | D 3-7,13-16,24,25 |
| | | D 9 |
| | | D 01 |
| RTH1 | : 100D-5 | |



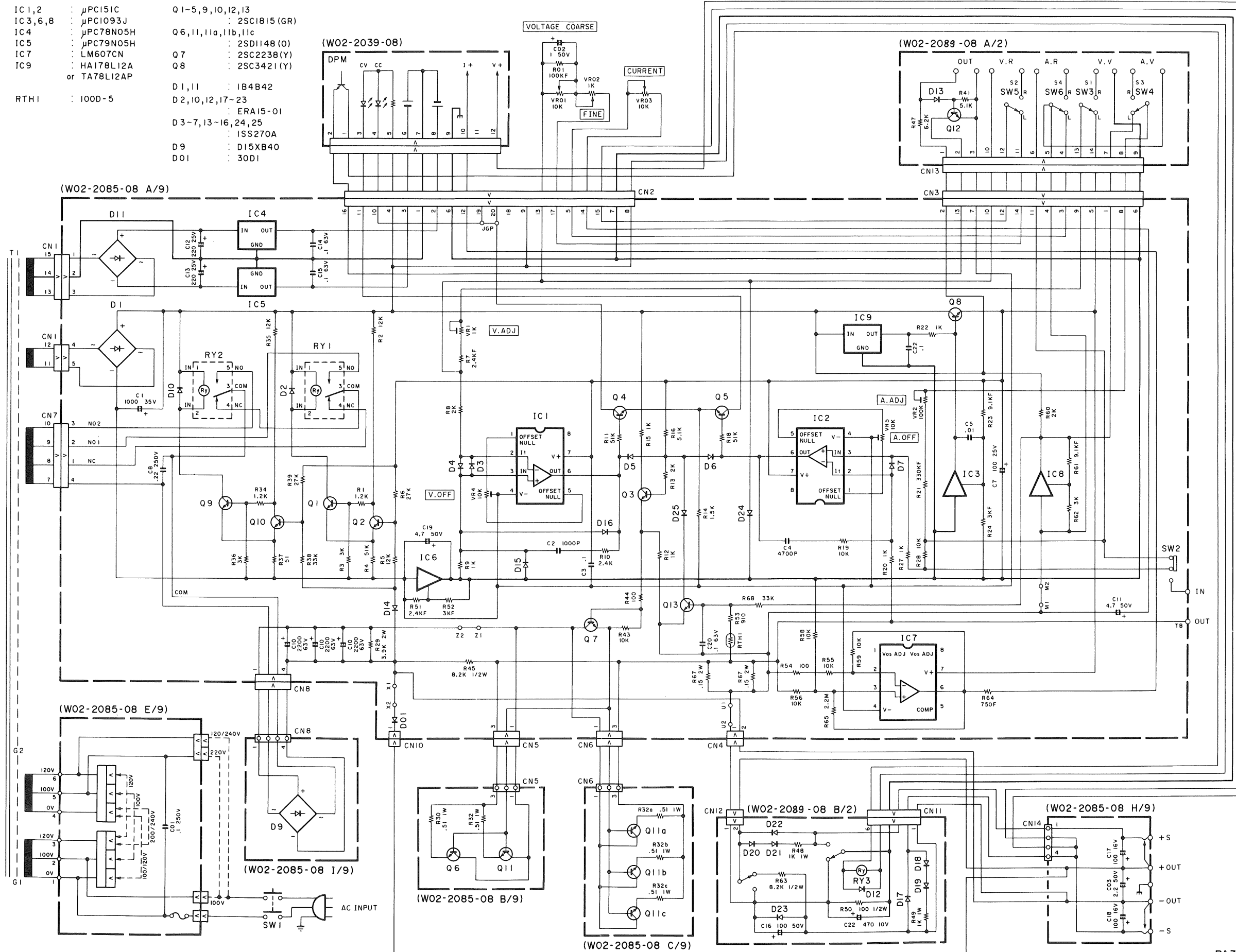
SCHEMATIC DIAGRAM PA36-1.2

- | | | |
|----------|-----------------------------|------------------|
| IC 1,2 | : μPC151C | Q 1-5,9,10,12,13 |
| IC 3,6,8 | : μPC1093J | Q 6,11 |
| IC 4 | : μPC78N05H | Q 7 |
| IC 5 | : μPC79N05H | Q 8 |
| IC 7 | : LM607CN | |
| IC 9 | : HA178L12A
or TA78L12AP | |
| RTH1 | : 100D-5 | |
| | D 1,11 | : 1B4B42 |
| | DO1,2,10,12,17~23 | : ERA15-01 |
| | D 3-7,13-16,24,25 | : ISS270A |
| | D 9 | : DI5XB40 |



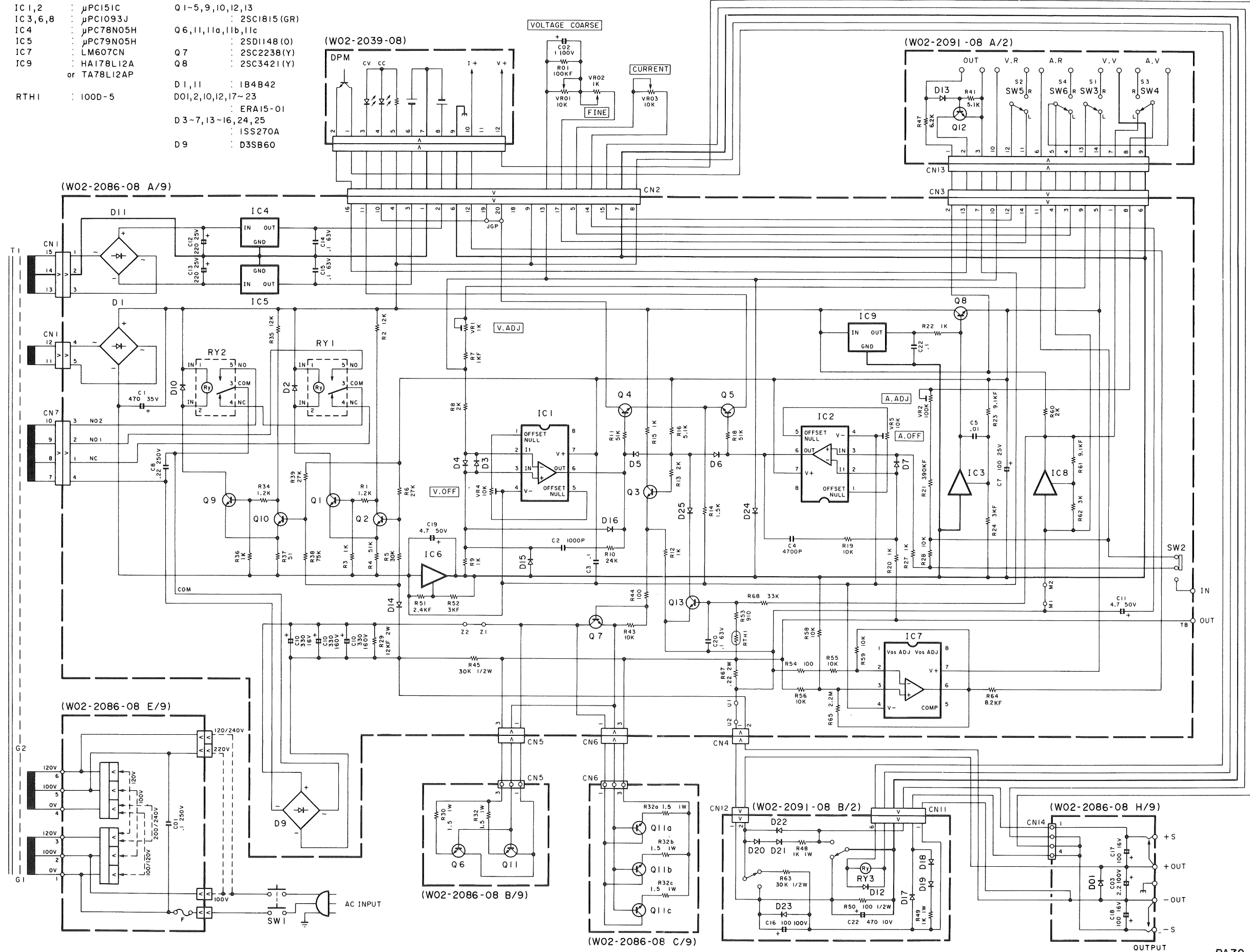
SCHEMATIC DIAGRAM PA36-3

- | | | | |
|----------|-----------------------------|--------------------|----------------|
| IC 1,2 | : μPC151C | Q 1-5,9,10,12,13 | : 2SC1815 (GR) |
| IC 3,6,8 | : μPC1093J | Q 6,11,11a,11b,11c | : 2SD1148 (O) |
| IC 4 | : μPC78N05H | Q 7 | : 2SC2238 (Y) |
| IC 5 | : μPC79N05H | Q 8 | : 2SC3421 (Y) |
| IC 7 | : LM607CN | | |
| IC 9 | : HA178L12A
or TA78L12AP | | |
| RTH 1 | : 100D-5 | D 1,11 | : 1B4B42 |
| | | D 2,10,12,17-23 | : ERA15-O1 |
| | | D 3-7,13-16,24,25 | : ISS270A |
| | | D 9 | : D15XB40 |
| | | D 01 | : 30D1 |

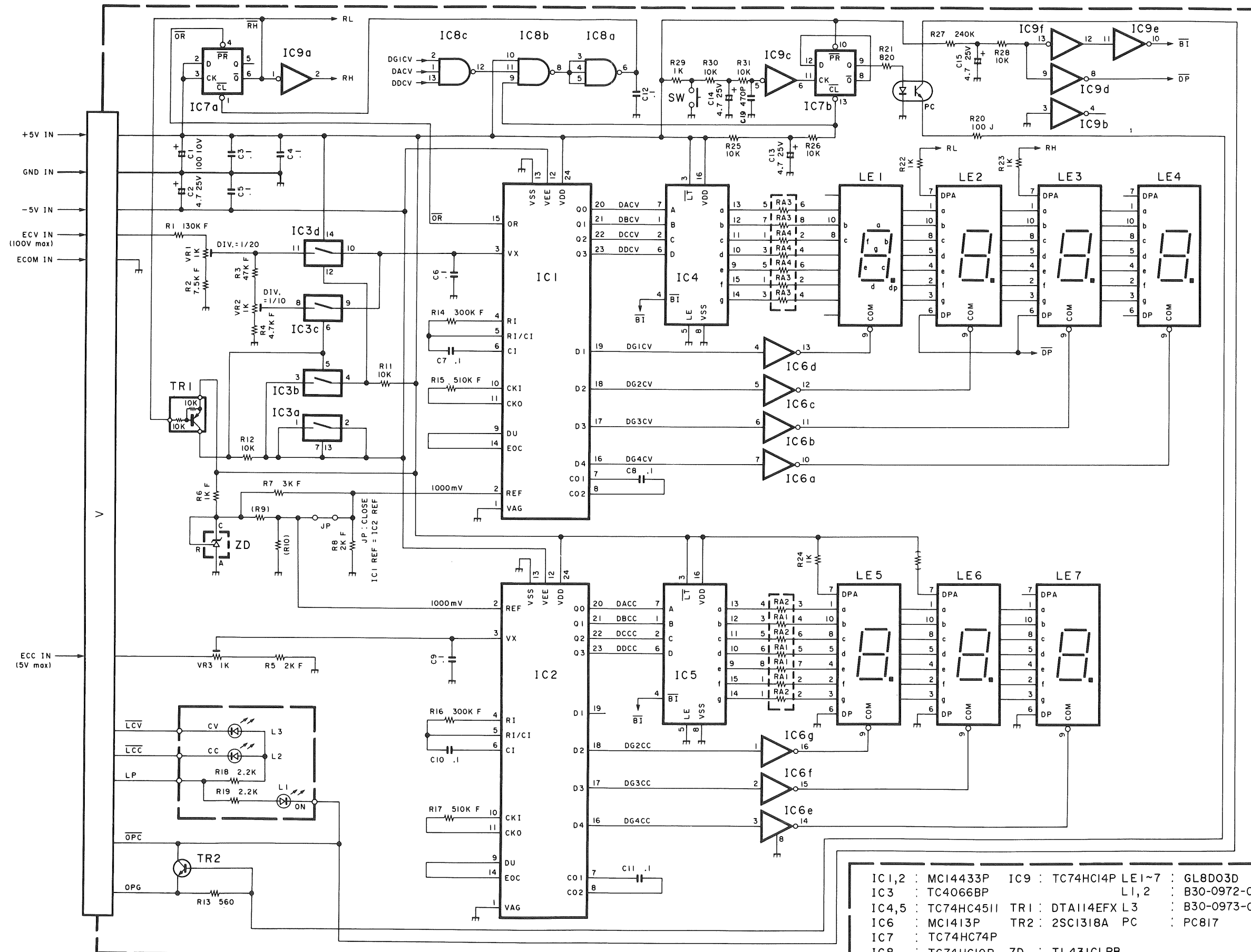


SCHEMATIC DIAGRAM PA70-1

- | | | |
|----------|-----------------------------|-------------------|
| IC 1,2 | : μPC151C | Q1-5,9,10,12,13 |
| IC 3,6,8 | : μPC1093J | Q6,11,11a,11b,11c |
| IC 4 | : μPC78N05H | Q7 |
| IC 5 | : μPC79N05H | Q8 |
| IC 7 | : LM607CN | D1,11 |
| IC 9 | : HA178L12A
or TA78L12AP | DO1,2,10,12,17~23 |
| | | D3-7,13~16,24,25 |
| | | D9 |
| RTH1 | : 100D-5 | |

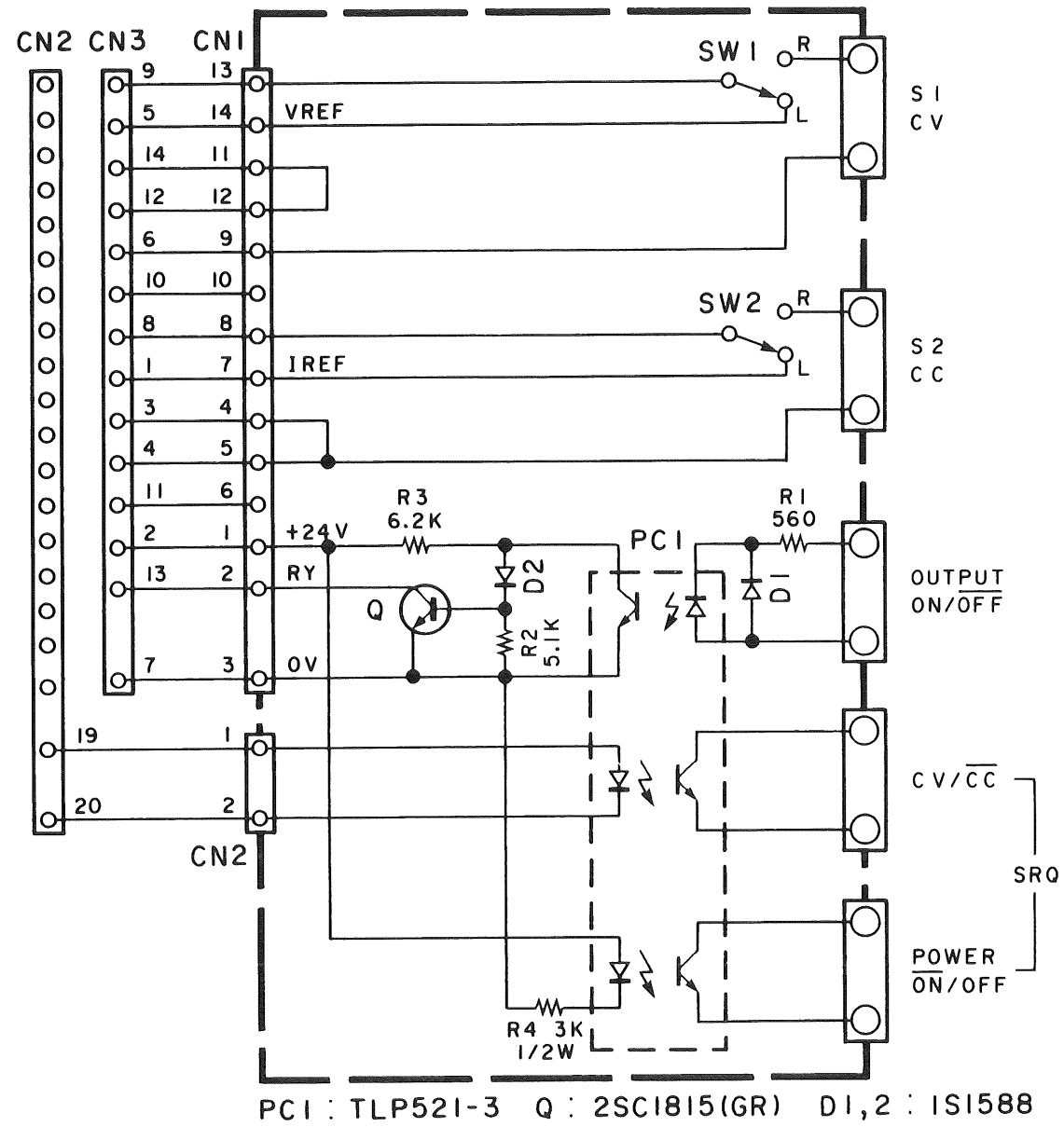


SCHMATIC DIAGRAM



- IC1,2 : MCI4433P IC9 : TC74HC14P LE1~7 : GL8D03D
- IC3 : TC4066BP LI,2 : B30-0972-05
- IC4,5 : TC74HC4511 TR1 : DT114EFX L3 : B30-0973-05
- IC6 : MCI413P TR2 : 2SC1318A PC : PC817
- IC7 : TC74HC74P
- IC8 : TC74HC10P ZD : TL431CLPB

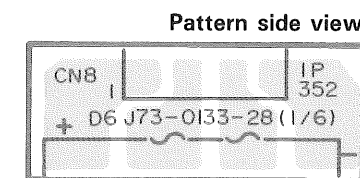
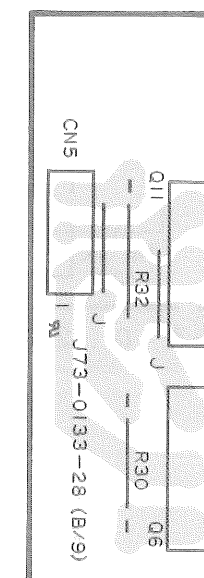
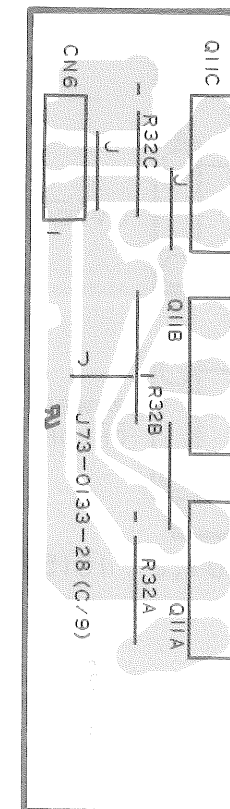
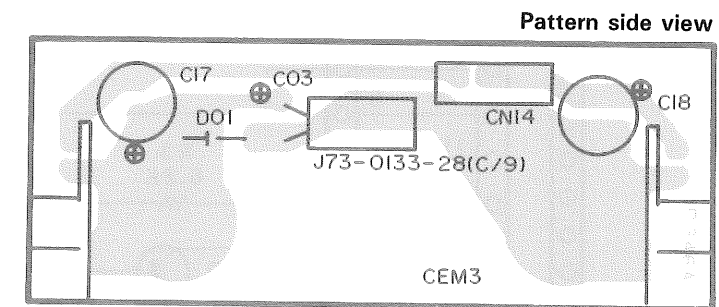
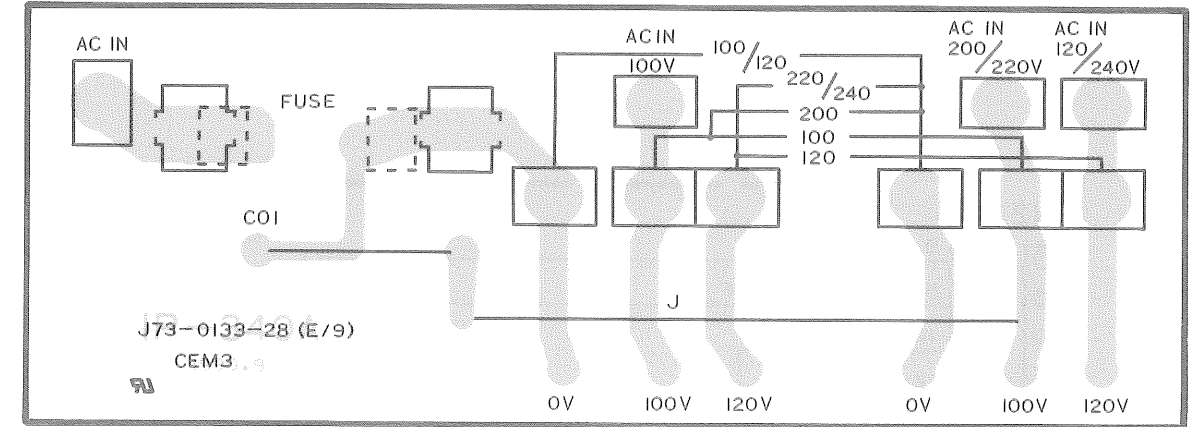
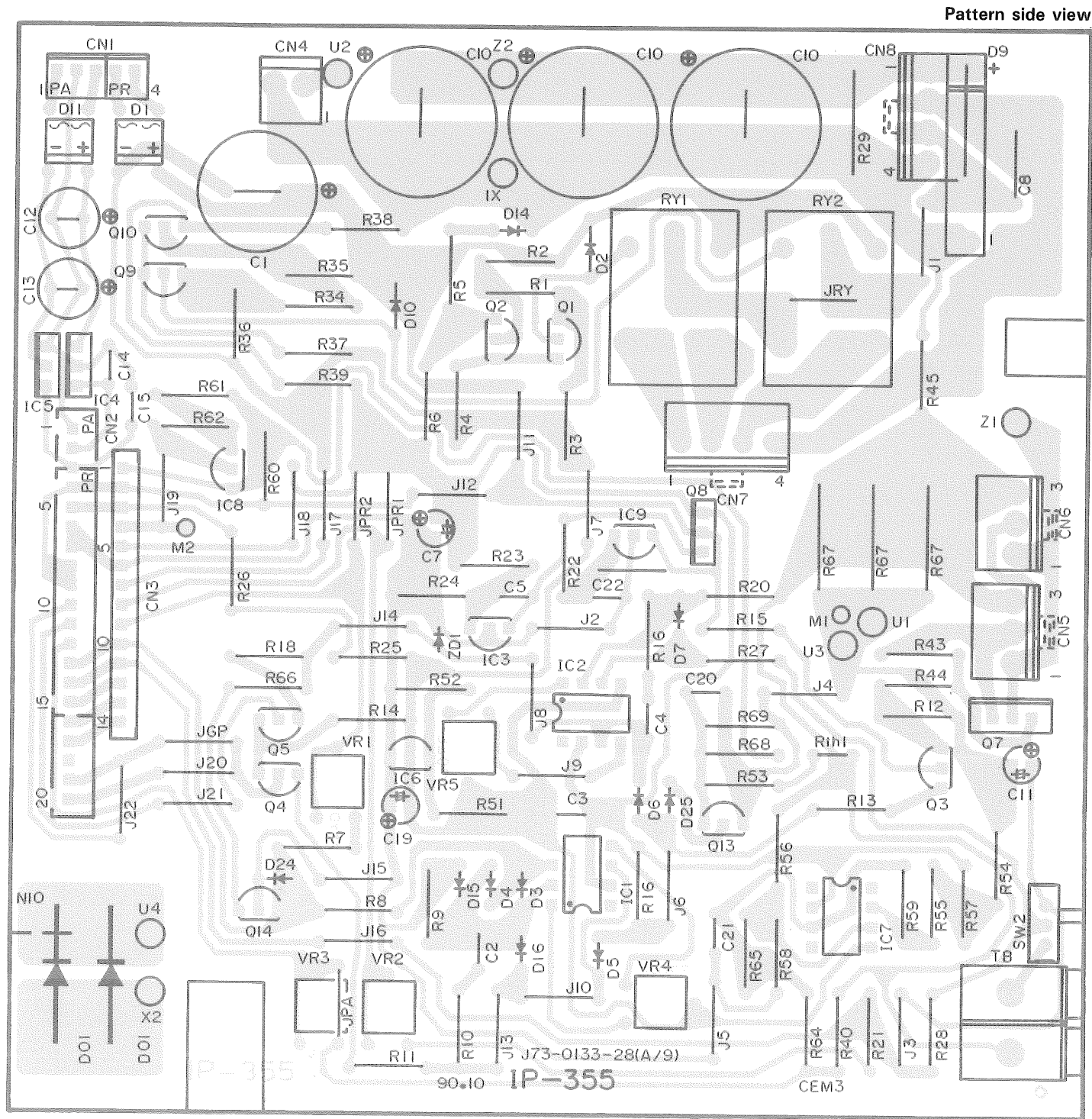
SCHEMATIC DIAGRAM (OPTION OP-13)



OP-13

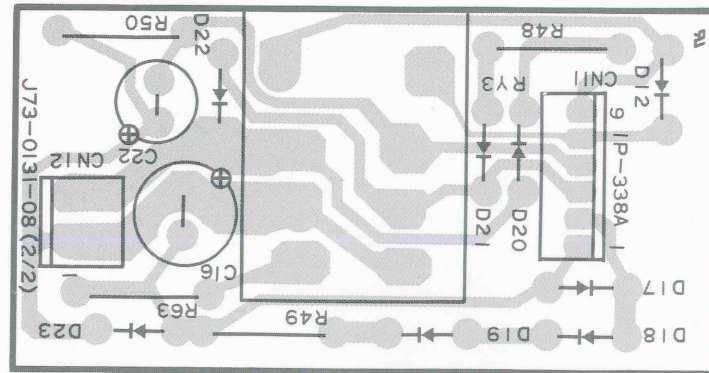
P.C. BOARD

AMP/ETC. UNIT

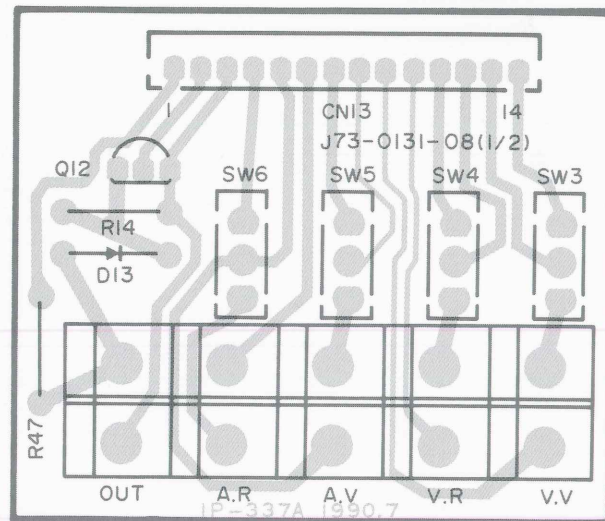


P.C. BOARD

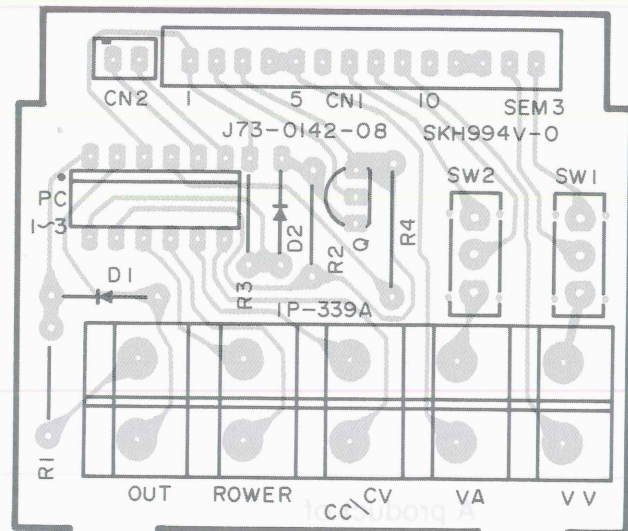
RELAY/EXT. CONTROL UNIT



Pattern side view

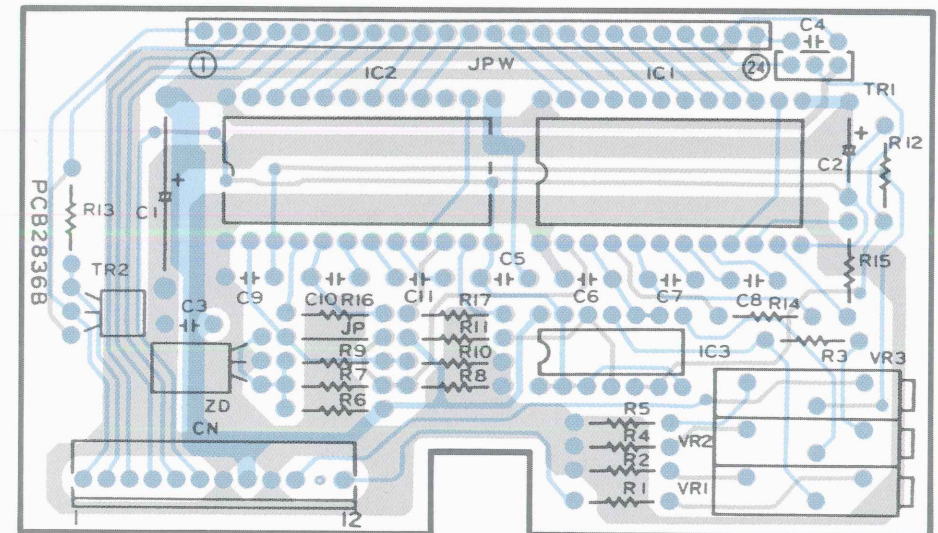
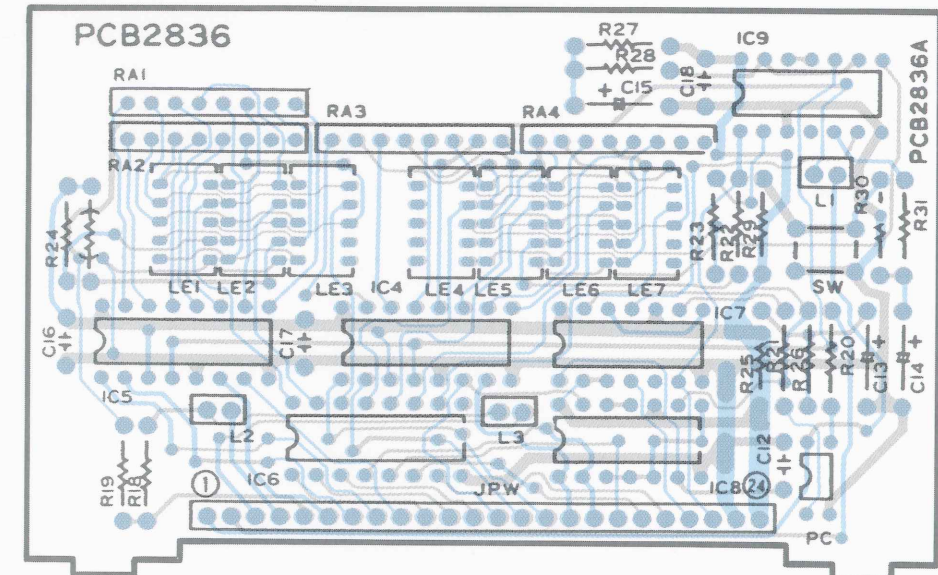


Pattern side view



OP-13 UNIT

DIGITAL PANEL METER UNIT (W02-2039-08)



A product of
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