

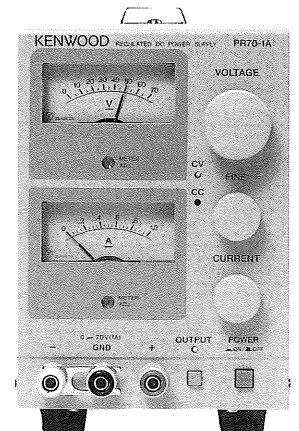
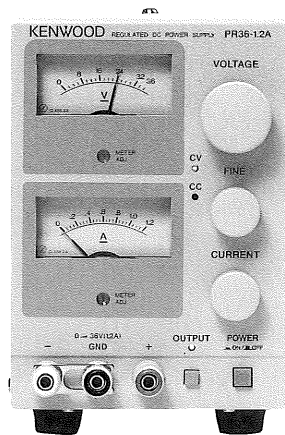
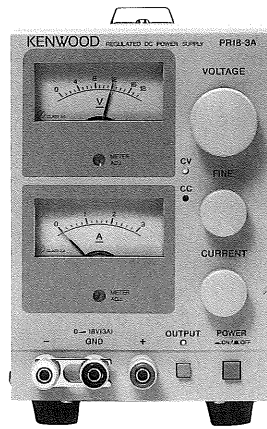
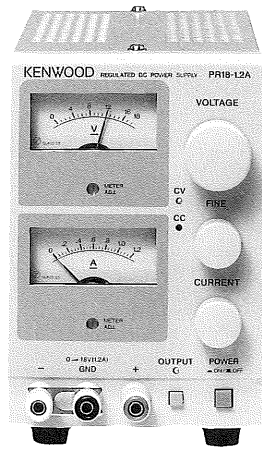
KENWOOD

REGULATED DC POWER SUPPLY

PR18-1.2A PR18-3A  
PR18-5A PR36-1.2A  
PR36-3A PR70-1A

# SERVICE MANUAL

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 scope sufficiently (more than 30 minutes) before starting.

Before calibrating the scope, check the power supply voltage.

## TEST EQUIPMENT REQUIRED

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

Multimeter 45 FLUKE

## PREPARATION FOR ADJUSTMENT

### Control Settings

The control settings listed below must be used for each adjustment procedure.

Exceptions to these settings will be noted as they occur. After completing an adjustment, return the controls to the following settings.

NAME OF KNOBS	POSITION
CURRENT FINE VOLTAGE	Fully Clockwise

Item	Adjustment VR	Procedure	Refer to Table 1.
Voltage	VR1 (V. ADJ)	Turn VR1 clockwise to adjust the to the output voltage setting, then turn the FINE control to adjust to the rated voltage. (Before this adjustment, set VR1 to VR3 to the fully counterclockwise positions.)	
Current	VR2 (A. ADJ)	Connect a load and turn VR2 to adjust to the output current setting.	
A meter	VR3 (AM. CAL)	Set the load for the rated current, and adjust the swing of the ammeter of the main unit with VR3.	

Model	Output voltage setting	Output current setting
	[V]	[A]
PR18-1.2A	18.5	1.28
PR18-3A		3.19
PR18-5A		5.3
PR36-1.2A	37	1.28
PR36-3A		3.19
PR70-1A	72	1.06

Table 1

# PARTS LIST

## PR18-1.2A Y86-1850-00

REF. NO	PARTS NO	NAME & DESCRIPTION
	A01-1236-08	COVER
	A63-0112-08	FRONT PANEL
	B31-0755-08	METER;VOLT
	B31-0756-08	METER;CURRENT
	B40-2737-24	SERIAL NO. PLATE
	B42-3731-08	MASTER/SLAVE LABEL
	B42-3734-08	RATING;AC100V 50/60HZ 45W
	B42-3735-08	FUSE RATING LABEL
	B42-3749-08	RATING;AC120V 50/60HZ 45W
	B42-3750-08	RATING;AC220V 50/60HZ 45W
	B42-3751-08	RATING;AC240V 50/60HZ 45W
	B42-3752-08	RATING;AC120V 60HZ 45W
	B63-0173-00	INSTRUCTION MANUAL;JAPANESE
	B63-0174-00	INSTRUCTION MANUAL;ENGLISH
	E21-0670-03	TERMINAL,RED
	E21-0671-03	TERMINAL,BLACK
	E21-0672-03	TERMINAL,WHITE
	E29-0506-04	SHORTING BAR
	E29-0542-08	LUG;H3
	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
	F01-0884-08	HEAT SINK
	F05-8013-08	FUSE(5X20MM) 0.8A/250V
	F05-8015-08	FUSE(6X32MM) 0.8A/250V
	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
	H53-0111-08	CARTON BOX
	J02-0529-08	FOOT
	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
	J30-0635-08	VOLUME SPACER;FOR VRO1
	J42-0083-05	BUSHING;FOR 2-CORE AC CORD
	J42-0085-05	BUSHING;FOR 3-CORE AC CORD
	K21-0907-14	KNOB
	K21-0911-04	KNOB;FINE/CURRENT
	K24-3006-04	KNOB;OUTPUT
	K27-0509-04	PUSH BUTTON,ORANGE;POWER
	L07-1516-08	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
	N09-0789-05	SCREW,SEMS PAN HD M3X10
	N09-0797-08	SCREW,SEMS TAPTITE 3X10
	N14-0404-04	FLANGE NUT M3
	N89-3006-41	SCREW,BINDING TAPTITE 3X6
	N89-3010-41	SCREW,BINDING TAPTITE 3X10
	S40-2533-08	PUSH SWITCH;POWER
	W02-2267-08	AMP UNIT
VRO1	R29-3503-08	VOLUME 10K
VRO2	R39-0800-08	VOLUME 1K
VRO3	R29-3504-08	VOLUME 10K

## PR18-1.2A AMP UNIT W02-2267-08

REF. NO	PARTS NO	NAME & DESCRIPTION
	E21-0674-08	EXTERNAL OUTPUT TERMINAL
	E40-7141-08	PIN CONNECTOR 2P(LINE VOLTAGE)
	E40-7142-08	PIN CONNECTOR 1P(LINE VOLTAGE)
	J13-0518-08	FUSE CLIP;FOR 6X30MM
	J73-0326-08	PCB (UNMOUNTED)
	R92-0150-05	JUMPING RES. ZERO OHM (100M)
	R92-1061-05	JUMPING RES. ZERO OHM (50M)
C1	C90-3023-08	CAP. ELECTRO 470 105°C 35V
C2	CQ92M1H102K	CAP. MYLAR 1000P 10% 50V
C3	C91-2559-08	CAP. CERAMIC 0.1 0.25P 50V
C4	CQ92M1H472K	CAP. MYLAR 4700P 10% 50V
C5	CQ92M1H103K	CAP. MYLAR 0.01 10% 50V
C6	NO USE	
C7	C90-3020-08	CAP. ELECTRO 100 105°C 25V
C8	CF93AN2ER22K	CAP. POLYESTER 0.22P 10% 250V
C9	NO USE	
C10	C90-3021-08	CAP. ELECTRO 2200 105°C 35V
C11	CF93AN1JR22K	CAP. POLYESTER 0.22P 10% 63V
C22	C91-2559-08	CAP. CERAMIC 0.1 0.25P 50V
C26	C90-3174-08	CAP. ELECTRO 10 1% 50V
C27	NO USE	
C28	C90-3020-08	CAP. ELECTRO 100 105°C 25V
C29	C91-2559-08	CAP. CERAMIC 0.1 0.25P 50V
C32	CF93AN1J1R0K	CAP. POLYESTER 1P 10% 63V
CN1	E40-7218-08	PIN CONNECTOR 2P
CN2	E40-7344-08	PIN CONNECTOR 3P
CN3	NO USE	
CN4	E40-7126-08	PIN CONNECTOR 2P
CN5	E40-7219-08	PIN CONNECTOR 3P
CN6	NO USE	
CN7	E40-7229-08	PIN CONNECTOR 4P
CN11	E40-7332-08	PIN CONNECTOR 4P
CN12	E40-7333-08	PIN CONNECTOR 2P
CN13	E40-7333-08	PIN CONNECTOR 2P
CN18	E40-7440-08	CONNECTOR
CN23	E40-3240-05	PIN CONNECTOR 5P
CN24	E40-7333-08	PIN CONNECTOR 2P
C01	C90-3018-08	CAP. ELECTRO 1 105°C 50V
C01	C91-1323-08	CAP. CERAMIC 0.1 20% 250V
C02	NO USE	
C03	C90-3046-08	CAP. ELECTRO 100 105°C 50V
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
D14	1SS270A	DIODE
D15	1SS270A	DIODE
D16	1SS270A	DIODE
D28	1SS270A	DIODE
D33	ERA15-01	DIODE
D34	1SS270A	DIODE
D37	ERA15-01	DIODE
D38	1SS270A	DIODE
D39	ERA15-01	DIODE
D01	ERA15-01	DIODE
IC1	UPC151C	IC,OP AMP
IC2	UPC151C	IC,OP AMP
IC3	UPC1093J	IC,VARIABLE SHUNT REGULATOR
IC9	NA178L12A	IC,TERMINAL FIXED VOLTAGE REG.
LED1	LN222RP	LED;RED
LED2	LN322GP	LED;GREEN
LED01	LN222RP	LED;RED
Q1	2SC1815(GR)	TR. SI, NPN
Q2	2SC1815(GR)	TR. SI, NPN
Q3	2SC1815(GR)	TR. SI, NPN
Q4	2SC1815(GR)	TR. SI, NPN

# PARTS LIST

REF. NO	PARTS NO	NAME & DESCRIPTION
Q5	2SC1815 (GR)	TR. SI, NPN
Q6	2SD1148 (O)	TR. SI, NPN
Q7	NO USE	
Q8	2SC3421 (Y)	TR. SI, NPN
Q15	2SC1815 (GR)	TR. SI, NPN
Q16	NO USE	
Q17	DTA143EF	TR. DIGITAL
R1	RD14BB2C122J	RES. CARBON 1.2K 5% 1/6W
R2	RD14BB2C123J	RES. CARBON 12K 5% 1/6W
R2	RD14BB2H302J	RES. CARBON 3K 5% 1/2W
R3	RD14BB2C302J	RES. CARBON 3K 5% 1/6W
R4	RD14BB2C510J	RES. CARBON 51 5% 1/6W
R5	RD14BB2C682J	RES. CARBON 6.8K 5% 1/6W
R6	RD14BB2C273J	RES. CARBON 27K 5% 1/6W
R7	RN14BK2C5101F	RES. METAL FILM 5.1K 1% 1/6W
R8	RD14BB2C202J	RES. CARBON 2K 5% 1/6W
R9	RD14BB2C102J	RES. CARBON 1K 5% 1/6W
R10	RD14BB2C472J	RES. CARBON 4.7K 5% 1/6W
R11	RD14BB2C513J	RES. CARBON 51K 5% 1/6W
R12	NO USE	
R13	RD14BB2C202J	RES. CARBON 2K 5% 1/6W
R14	RD14BB2C152J	RES. CARBON 1.5K 5% 1/6W
R15	RD14BB2C511J	RES. CARBON 510 5% 1/6W
R16	RD14BB2C512J	RES. CARBON 5.1K 5% 1/6W
R17	NO USE	
R18	RD14BB2C513J	RES. CARBON 51K 5% 1/6W
R19	RD14BB2C103J	RES. CARBON 10K 5% 1/6W
R20	RD14BB2C102J	RES. CARBON 1K 5% 1/6W
R21	RN14BK2C1603F	RES. METAL FILM 160K 1% 1/6W
R22	RD14BB2C102J	RES. CARBON 1K 5% 1/6W
R23	RN14BK2C9101F	RES. METAL FILM 9.1K 1% 1/6W
R24	RN14BK2C3001F	RES. METAL FILM 3K 1% 1/6W
R27	RD14BB2C102J	RES. CARBON 1K 5% 1/6W
R28	RD14BB2C103J	RES. CARBON 10K 5% 1/6W
R29	RS14GB3D152J	RES. METAL FILM 1.5K 5% 2W
R40	RN14BK2C1800F	RES. METAL FILM 180 1% 1/6W
R44	RD14BB2C101J	RES. CARBON 100 5% 1/6W
R45	RD14DB2H202J	RES. CARBON 2K 5% 1/2W
R67	RS14GR3DR43J	RES. METAL FILM 0.43 5% 2W
R74	RD14BB2C102J	RES. CARBON 1K 5% 1/6W
R75	RD14DB2H202J	RES. CARBON 2K 5% 1/2W
R76	RD14BB2C102J	RES. CARBON 1K 5% 1/6W
R77	NO USE	
R78	RD14BB2C102J	RES. CARBON 1K 5% 1/6W
R79	RD14DB2H102J	RES. CARBON 1K 5% 1/2W
R85	RD14DB2H101J	RES. CARBON 100 5% 1/2W
R88	RD14BB2C104J	RES. CARBON 100K 5% 1/6W
R89	NO USE	
R90	RD14BB2C102J	RES. CARBON 1K 5% 1/6W
R91	RD14BB2C103J	RES. CARBON 10K 5% 1/6W
R92	RD14BB2C102J	RES. CARBON 1K 5% 1/6W
R93	RD14BB2C205J	RES. CARBON 2M 5% 1/6W
R94	RD14BB2C100J	RES. CARBON 10 5% 1/6W
R95	NO USE	
R96	RD14BB2C912J	RES. CARBON 9.1K 5% 1/6W
R01	RN14BK2C1003F	RES. METAL FILM 100K 1% 1/6W
RY1	S76-0604-08	RELAY
RY2	NO USE	
RY3	S76-0604-08	RELAY
RY4	S76-0630-08	RELAY
SW1	S68-0631-05	OUTPUT SW
SW2	S31-1512-08	MASTER/SLAVE SWITCH
VR1	R12-1565-08	RES. SEMI FIXED 2KB
VR2	R12-3568-08	RES. SEMI FIXED 30KB
VR3	R12-0597-08	RES. SEMI FIXED 100
ZD1	HZSGA	DIODE, ZENER 5.75V

## PR18-3A

### Y86-1860-00

REF. NO	PARTS NO	NAME & DESCRIPTION
	A01-1237-08	CASE
	A63-0113-08	FRONT PANEL
	B31-0754-08	METER; CURRENT
	B31-0755-08	METER; VOLT
	B40-2737-24	SERIAL NO. PLATE
	B42-3731-08	MASTER/SLAVE LABEL
	B42-3733-08	FUSE RATING LABEL
	B42-6035-08	RATING; AC100V 50/60HZ 100W
	B42-6036-08	RATING; AC120V 50/60HZ 100W
	B42-6037-08	RATING; AC220V 50/60HZ 100W
	B42-6038-08	RATING; AC240V 50/60HZ 100W
	B42-6039-08	RATING; AC120V 60HZ 100W
	B63-0173-00	INSTRUCTION MANUAL; JAPANESE
	B63-0174-00	INSTRUCTION MANUAL; ENGLISH
	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
	F01-0885-08	HEAT SINK
	F05-2021-08	FUSE (5X20MM) 2A/250V
	F05-2023-05	FUSE (6X32MM) 2A/250V
	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
	H53-0112-08	CANTON BOX
	J02-0529-08	FOOT
	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
	J29-0519-08	BRACKET; FOR P.C.B
	J30-0635-08	VOLUME SPACER; FOR VR01
	J42-0083-05	BUSHING; FOR 2-CORE AC CORD
	J42-0085-05	BUSHING; FOR 3-CORE AC CORD
	K01-0417-05	HANDLE
	K21-0907-14	KNOB
	K21-0911-04	KNOB; FINE/CURRENT
	K24-3006-04	KNOB, OUTPUT
	K27-0509-04	PUSH BUTTON, ORANGE; POWER
	L07-1517-08	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 M3X10
	N09-0777-05	SCREW, SEMS PAN HD M4X6
	N09-0789-05	SCREW, SEMS PAN HD M3X10
	N09-0797-08	SCREW, SEMS TAPTITE 3X10
	N14-0404-04	FLANGE NUT M3
	N89-3006-41	SCREW, BINDING TAPTITE 3X6
	N89-3012-41	SCREW, BINDING TAPTITE 3X12
	S40-2533-08	PUSH SWITCH; POWER
	W02-2268-08	AMP UNIT
VR01	R29-3503-08	VOLUME 10K
VR02	R29-1508-08	VOLUME 1K
VR03	R29-3504-08	VOLUME 10K

# PARTS LIST

## PR18-3A AMP UNIT W02-2268-08

REF. NO	PARTS NO	NAME & DESCRIPTION
	E21-0674-08	EXTERNAL OUTPUT TERMINAL
	E40-7141-08	PIN CONNECTOR 2P(LINE VOLTAGE)
	E40-7142-08	PIN CONNECTOR 1P(LINE VOLTAGE)
	J13-0518-08	FUSE CLIP;FOR 6X30MM
	R92-0150-05	JUMPING RES. ZERO OHM (10MM)
	R92-1061-05	JUMPING RES. ZERO OHM (5MM)
C1	C90-3019-08	CAP. ELECTRO 1000 105°C 35V
C2	C92M1H102K	CAP. MYLAR 1000P 10% 50V
C3	C91-2559-08	CAP. CERAMIC 0.1 0.25P 50V
C4	C92M1H472K	CAP. MYLAR 4700P 10% 50V
C5	C92M1H103K	CAP. MYLAR 0.01 10% 50V
C6		NO USE
C7	C90-3020-08	CAP. ELECTRO 100 105°C 25V
C8	CF93AN2ER22K	CAP. POLYESTER 0.22P 10% 250V
C9		NO USE
C10	C90-3021-08	CAP. ELECTRO 2200 105°C 35V
C11	CF93AN1JR22K	CAP. POLYESTER 0.22P 10% 63V
C22	C91-2559-08	CAP. CERAMIC 0.1 0.25P 50V
C26	C90-3174-08	CAP. ELECTRO 10 1% 50V
C27		NO USE
C28	C90-3020-08	CAP. ELECTRO 100 105°C 25V
C29	C91-2559-08	CAP. CERAMIC 0.1 0.25P 50V
C32	CF93AN1J1R0K	CAP. POLYESTER 1P 10% 63V
CN1	E40-7218-08	PIN CONNECTOR 2P
CN2	E40-7344-08	PIN CONNECTOR 3P
CN3		NO USE
CN4	E40-7126-08	PIN CONNECTOR 2P
CN5	E40-7219-08	PIN CONNECTOR 3P
CN6	E40-7219-08	PIN CONNECTOR 3P
CN7	E40-7229-08	PIN CONNECTOR 4P
CN8	E40-7229-08	PIN CONNECTOR 4P
CN11	E40-7332-08	PIN CONNECTOR 4P
CN12	E40-7333-08	PIN CONNECTOR 2P
CN13	E40-7333-08	PIN CONNECTOR 2P
CN18	E40-7440-08	CONNECTOR
CN23	E40-3240-05	PIN CONNECTOR 5P
CN24	E40-7333-08	PIN CONNECTOR 2P
C01	C90-3018-08	CAP. ELECTRO 1 105°C 50V
C01	C91-1323-08	CAP. CERAMIC 0.1 20% 250V
C02		NO USE
C03	C90-3046-08	CAP. ELECTRO 100 105°C 50V
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	D10XB40	DIODE, STACK
D10	ERA15-01	DIODE
D14	1SS270A	DIODE
D15	1SS270A	DIODE
D16	1SS270A	DIODE
D28	1SS270A	DIODE
D33	ERA15-01	DIODE
D34	1SS270A	DIODE
D37	ERA15-01	DIODE
D38	1SS270A	DIODE
D39	ERA15-01	DIODE
D01	30D1	DIODE
IC1	UPC151C	IC, OP AMP
IC2	UPC151C	IC, OP AMP
IC3	UPC1093J	IC, VARIABLE SHUNT REGULATOR
IC9	HA178L12A	IC, TERMINAL FIXED VOLTAGE REG.
LED1	LN222RP	LED; RED
LED2	LN322GP	LED; GREEN
LED0	LN222RP	LED; RED
LED01	LN222RP	LED; RED
Q1	2SC1815(GR)	TR. SI, NPN
Q2	2SC1815(GR)	TR. SI, NPN
Q3	2SC1815(GR)	TR. SI, NPN

REF. NO	PARTS NO	NAME & DESCRIPTION
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
Q15	2SC1815(GR)	TR. SI, NPN
Q16		NO USE
Q17	DTA143EF	TR. DIGITAL
Q11A	2SD1148(O)	TR. SI, NPN
Q11B	2SD1148(O)	TR. SI, NPN
R1	RD14BB2C122J	RES. CARBON 1.2K 5% 1/6W
R2	RD14BB2C123J	RES. CARBON 12K 5% 1/6W
R2	RD14BB2H302J	RES. CARBON 3K 5% 1/2W
R3	RD14BB2C302J	RES. CARBON 3K 5% 1/6W
R4	RD14BB2C510J	RES. CARBON 51 5% 1/6W
R5	RD14BB2C102J	RES. CARBON 1K 5% 1/6W
R6	RD14BB2C273J	RES. CARBON 27K 5% 1/6W
R7	RN14BK2C5101F	RES. METAL FILM 5.1K 1% 1/6W
R8	RD14BB2C202J	RES. CARBON 2K 5% 1/6W
R9	RD14BB2C102J	RES. CARBON 1K 5% 1/6W
R10	RD14BB2C511J	RES. CARBON 510 5% 1/6W
R11	RD14BB2C513J	RES. CARBON 51K 5% 1/6W
R12		NO USE
R13	RD14BB2C202J	RES. CARBON 2K 5% 1/6W
R14	RD14BB2C152J	RES. CARBON 1.5K 5% 1/6W
R15	RD14BB2C102J	RES. CARBON 1K 5% 1/6W
R16	RD14BB2C512J	RES. CARBON 5.1K 5% 1/6W
R17		NO USE
R18	RD14BB2C513J	RES. CARBON 51K 5% 1/6W
R19	RD14BB2C103J	RES. CARBON 10K 5% 1/6W
R20	RD14BB2C102J	RES. CARBON 1K 5% 1/6W
R21	RN14BK2C3303F	RES. METAL FILM 330K 1% 1/6W
R22	RD14BB2C102J	RES. CARBON 1K 5% 1/6W
R23	RN14BK2C9101F	RES. METAL FILM 9.1K 1% 1/6W
R24	RN14BK2C3001F	RES. METAL FILM 3K 1% 1/6W
R27	RD14BB2C102J	RES. CARBON 1K 5% 1/6W
R28	RD14BB2C103J	RES. CARBON 10K 5% 1/6W
R29	RS14GB3D152J	RES. METAL FILM 1.5K 5% 2W
R30	RS14GB3AR33J	RES. METAL FILM 0.33 5% 1W
R34	RD14BB2C122J	RES. CARBON 1.2K 5% 1/6W
R35	RD14BB2C123J	RES. CARBON 12K 5% 1/6W
R36	RD14BB2C302J	RES. CARBON 3K 5% 1/6W
R37	RD14BB2C510J	RES. CARBON 51 5% 1/6W
R38	RD14BB2C133J	RES. CARBON 13K 5% 1/6W
R39	RD14BB2C273J	RES. CARBON 27K 5% 1/6W
R40	RN14BK2C51R0F	RES. METAL FILM 51.0 1% 1/6W
R43	RD14BB2C103J	RES. CARBON 10K 5% 1/6W
R44	RD14BB2C101J	RES. CARBON 100 5% 1/6W
R45	RD14BB2H202J	RES. CARBON 2K 5% 1/2W
R67	RS14GB3DR15J	RES. METAL FILM 0.15 5% 2W
R74	RD14BB2C102J	RES. CARBON 1K 5% 1/6W
R75	RD14BB2H202J	RES. CARBON 2K 5% 1/2W
R76	RD14BB2C102J	RES. CARBON 1K 5% 1/6W
R77		NO USE
R78	RD14BB2C102J	RES. CARBON 1K 5% 1/6W
R79	RD14BB2H102J	RES. CARBON 1K 5% 1/2W
R85	RD14BB2H101J	RES. CARBON 100 5% 1/2W
R88	RD14BB2C104J	RES. CARBON 100K 5% 1/6W
R89		NO USE
R90	RD14BB2C102J	RES. CARBON 1K 5% 1/6W
R91	RD14BB2C103J	RES. CARBON 10K 5% 1/6W
R92	RD14BB2C102J	RES. CARBON 1K 5% 1/6W
R93	RD14BB2C205J	RES. CARBON 2M 5% 1/6W
R94	RD14BB2C100J	RES. CARBON 10 5% 1/6W
R95		NO USE
R96	RD14BB2C912J	RES. CARBON 9.1K 5% 1/6W
R32A	RS14GB3AR33J	RES. METAL FILM 0.33 5% 1W
R32B	RS14GB3AR33J	RES. METAL FILM 0.33 5% 1W
R01	RN14BK2C1003F	RES. METAL FILM 100K 1% 1/6W
RY1	S76-0604-08	RELAY
RY2	S76-0604-08	RELAY
RY3	S76-0604-08	RELAY
RY4	S76-0630-08	RELAY
SW1	S68-0631-05	OUTPUT SW
SW2	S31-1512-08	MASTER/SLAVE SWITCH
VR1	R12-1565-08	RES. SEMI FIXED 2KB
VR2	R12-5547-08	RES. SEMI FIXED 100KB
VR3	R12-0597-08	RES. SEMI FIXED 100
ZD1	HZ56A	DIODE, ZENER 5.75V

# PARTS LIST

## PR18-5A Y86-1870-00

REF. NO	PARTS NO	NAME & DESCRIPTION
	A01-1238-08	COVER
	A63-0114-08	FRONT PANEL
	B31-0757-08	METER;VOLT
	B31-0758-08	METER;CURRENT
	B40-2737-24	SERIAL NO. PLATE
	B42-3731-08	MASTER/SLAVE LABEL
	B42-3738-08	FUSE RATING LABEL
	B42-6055-08	RATING;AC100V 50/60HZ 165W
	B42-6056-08	RATING;AC120V 50/60HZ 165W
	B42-6057-08	RATING;AC220V 50/60HZ 165W
	B42-6058-08	RATING;AC240V 50/60HZ 165W
	B42-6059-08	RATING;AC120V 60HZ 165W
	B63-0173-00	INSTRUCTION MANUAL;JAPANESE
	B63-0174-00	INSTRUCTION MANUAL;ENGLISH
	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	SAE POWER CORD
	E30-1815-05	CEE POWER CORD
	E30-1867-05	BS POWER CORD
	F01-0886-08	HEAT SINK
	F05-3022-05	FUSE(6X32MM) 3A/250V
	F29-0517-08	INSULATOR;FOR Q6/Q11
	F29-0518-08	INSULATOR;FOR Q11A/Q11B/Q11C
	F50-0004-08	FUSE(6X20MM) 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
	H53-0113-08	CARTON BOX
	J02-0529-08	FOOT
	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
	J30-0635-08	VOLUME SPACER;FOR VR01
	J42-0083-05	BUSHING;FOR 2-CORE AC CORD
	J42-0085-05	BUSHING;FOR 3-CORE AC CORD
	K01-0417-05	HANDLE
	K21-0907-14	KNOB
	K21-0911-04	KNOB;FINE/CURRENT
	K24-3006-04	KNOB,OUTPUT
	K27-0509-04	PUSH BUTTON,ORANGE;POWER
	L07-1518-08	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 M3X10
	N09-0777-05	SCREW,SEMS PAN HD M4X6
	N09-0789-05	SCREW,SEMS PAN HD M3X10
	N09-0797-08	SCREW,SEMS TAPTITE 3X10
	N14-0404-04	FLANGE NUT M3
	N89-3006-41	SCREW,BINDING TAPTITE 3X6
	N89-3012-41	SCREW,BINDING TAPTITE 3X12
	S40-2533-08	PUSH SWITCH;POWER
	W02-2269-08	AMP UNIT
VR01	R29-3503-08	VOLUME 10K
VR02	R29-1508-08	VOLUME 1K
VR03	R29-3504-08	VOLUME 10K

## PR18-5A AMP UNIT W02-2269-08

REF. NO	PARTS NO	NAME & DESCRIPTION
	E21-0674-08	EXTERNAL OUTPUT TERMINAL
	E40-7141-08	PIN CONNECTOR 2P(LINE VOLTAGE)
	E40-7142-08	PIN CONNECTOR 1P(LINE VOLTAGE)
	J13-0518-08	FUSE CLIP;FOR 6X30MM
	J73-0326-08	PCB (UNMOUNTED)
	R92-0150-05	JUMPING RES. ZERO OHM(10MM)
	R92-1061-05	JUMPING RES. ZERO OHM(5MM)
C1	C90-3019-08	CAP. ELECTRO 1000 105°C 35V
C2	C992H1H102K	CAP. NYLAR 1000P 10% 50V
C3	C91-2559-08	CAP. CERAMIC 0.1 0.25P 50V
C4	C992H1H472K	CAP. NYLAR 4700P 10% 50V
C5	C992H1H103K	CAP. NYLAR 0.01 10% 50V
C6		NO USE
C7	C90-3020-08	CAP. ELECTRO 100 105°C 25V
C8	CF93AN2ER22K	CAP. POLYESTER 0.22P 10% 250V
C9		NO USE
C10	C90-3024-08	CAP. ELECTRO 3300 105°C 35V
C11	CF93AN1JR22K	CAP. POLYESTER 0.22P 10% 63V
C22	C91-2559-08	CAP. CERAMIC 0.1 0.25P 50V
C26	C90-3174-08	CAP. ELECTRO 10 1% 50V
C27		NO USE
C28	C90-3020-08	CAP. ELECTRO 100 105°C 25V
C29	C91-2559-08	CAP. CERAMIC 0.1 0.25P 50V
C32	CF93AN1J1R0K	CAP. POLYESTER 1P 10% 63V
CN1	E40-7218-08	PIN CONNECTOR 2P
CN2	E40-7344-08	PIN CONNECTOR 3P
CN3		NO USE
CN4	E40-7126-08	PIN CONNECTOR 2P
CN5	E40-7219-08	PIN CONNECTOR 3P
CN6	E40-7219-08	PIN CONNECTOR 3P
CN7	E40-7229-08	PIN CONNECTOR 4P
CN8	E40-7229-08	PIN CONNECTOR 4P
CN11	E40-7332-08	PIN CONNECTOR 4P
CN12	E40-7333-08	PIN CONNECTOR 2P
CN13	E40-7333-08	PIN CONNECTOR 2P
CN18	E40-7440-08	CONNECTOR
CN23	E40-3240-05	PIN CONNECTOR 5P
CN24	E40-7333-08	PIN CONNECTOR 2P
C01	C90-3018-08	CAP. ELECTRO 1 105°C 50V
C01	C91-1323-08	CAP. CERAMIC 0.1 20% 250V
C02		NO USE
C03	C90-3046-08	CAP. ELECTRO 100 105°C 50V
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
D14	1SS270A	DIODE
D15	1SS270A	DIODE
D16	1SS270A	DIODE
D28	1SS270A	DIODE
D33	ERA15-01	DIODE
D34	1SS270A	DIODE
D37	ERA15-01	DIODE
D38	1SS270A	DIODE
D39	ERA15-01	DIODE
D01	30D1	DIODE
IC1	UPC151C	IC,OP AMP
IC2	UPC151C	IC,OP AMP
IC3	UPC1093J	IC,VARIABLE SHUNT REGULATOR
IC9	HA178L12A	IC,TERMINAL FIXED VOLTAGE REG.
LED1	LN322GP	LED;GREEN
LED2	LN222RP	LED;RED
LED0	LN222RP	LED;RED
LED01	LN222RP	LED;RED
Q1	2SC1815(GR)	TR. S1, NPN
Q2	2SC1815(GR)	TR. S1, NPN
Q3	2SC1815(GR)	TR. S1, NPN

# PARTS LIST

W02-2269-08

REF. NO	PARTS NO	NAME & DESCRIPTION
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
Q15	2SC1815 (GR)	TR. SI, NPN
Q16	NO USE	
Q17	DTA143EF	TR. DIGITAL
Q11A	2SD1148 (O)	TR. SI, NPN
Q11B	2SD1148 (O)	TR. SI, NPN
Q11C	2SD1148 (O)	TR. SI, NPN
R1	RD14BB2C122J	RES. CARBON 1.2K 5% 1/6W
R2	RD14BB2C123J	RES. CARBON 12K 5% 1/6W
R2	RD14BB2H302J	RES. CARBON 3K 5% 1/2W
R3	RD14BB2C302J	RES. CARBON 3K 5% 1/6W
R4	RD14BB2C510J	RES. CARBON 51 5% 1/6W
R5	RD14BB2C102J	RES. CARBON 1K 5% 1/6W
R6	RD14BB2C273J	RES. CARBON 27K 5% 1/6W
R7	RN14BK2C5101F	RES. METAL FILM 5.1K 1% 1/6W
R8	RD14BB2C202J	RES. CARBON 2K 5% 1/6W
R9	RD14BB2C102J	RES. CARBON 1K 5% 1/6W
R10	RD14BB2C101J	RES. CARBON 100 5% 1/6W
R11	RD14BB2C513J	RES. CARBON 51K 5% 1/6W
R12	NO USE	
R13	RD14BB2C202J	RES. CARBON 2K 5% 1/6W
R14	RD14BB2C152J	RES. CARBON 1.5K 5% 1/6W
R15	RD14BB2C102J	RES. CARBON 1K 5% 1/6W
R16	RD14BB2C512J	RES. CARBON 5.1K 5% 1/6W
R17	NO USE	
R18	RD14BB2C513J	RES. CARBON 51K 5% 1/6W
R19	RD14BB2C103J	RES. CARBON 10K 5% 1/6W
R20	RD14BB2C102J	RES. CARBON 1K 5% 1/6W
R21	RN14BK2C3303F	RES. METAL FILM 330K 1% 1/6W
R22	RD14BB2C102J	RES. CARBON 1K 5% 1/6W
R23	RN14BK2C9101F	RES. METAL FILM 9.1K 1% 1/6W
R24	RN14BK2C3001F	RES. METAL FILM 3K 1% 1/6W
R27	RD14BB2C102J	RES. CARBON 1K 5% 1/6W
R28	RD14BB2C103J	RES. CARBON 10K 5% 1/6W
R29	RS14GB3D152J	RES. METAL FILM 1.5K 5% 2W
R30	RS14GB3AR33J	RES. METAL FILM 0.33 5% 1W
R31	NO USE	
R32	RS14GB3AR33J	RES. METAL FILM 0.33 5% 1W
R33	NO USE	
R34	RD14BB2C122J	RES. CARBON 1.2K 5% 1/6W
R35	RD14BB2C123J	RES. CARBON 12K 5% 1/6W
R36	RD14BB2C302J	RES. CARBON 3K 5% 1/6W
R37	RD14BB2C510J	RES. CARBON 51 5% 1/6W
R38	RD14BB2C133J	RES. CARBON 13K 5% 1/6W
R39	RD14BB2C273J	RES. CARBON 27K 5% 1/6W
R40	RN14BK2C5110F	RES. METAL FILM 51.0 1% 1/6W
R43	RD14BB2C103J	RES. CARBON 10K 5% 1/6W
R44	RD14BB2C101J	RES. CARBON 100 5% 1/6W
R45	RD14BB2H202J	RES. CARBON 2K 5% 1/2W
R67	RS14GB3DR12J	RES. METAL FILM 0.12 5% 2W
R74	RD14BB2C102J	RES. CARBON 1K 5% 1/6W
R75	RD14BB2H202J	RES. CARBON 2K 5% 1/2W
R76	RD14BB2C102J	RES. CARBON 1K 5% 1/6W
R77	NO USE	
R78	RD14BB2C102J	RES. CARBON 1K 5% 1/6W
R79	RD14BB2H102J	RES. CARBON 1K 5% 1/2W
R85	RD14BB2H101J	RES. CARBON 100 5% 1/2W
R88	RD14BB2C104J	RES. CARBON 100K 5% 1/6W
R89	NO USE	
R90	RD14BB2C102J	RES. CARBON 1K 5% 1/6W
R91	RD14BB2C103J	RES. CARBON 10K 5% 1/6W
R92	RD14BB2C102J	RES. CARBON 1K 5% 1/6W
R93	RD14BB2C205J	RES. CARBON 2M 5% 1/6W
R94	RD14BB2C100J	RES. CARBON 10 5% 1/6W
R95	NO USE	
R96	RD14BB2C912J	RES. CARBON 9.1K 5% 1/6W
R32A	RS14GB3AR33J	RES. METAL FILM 0.33 5% 1W
R32B	RS14GB3AR33J	RES. METAL FILM 0.33 5% 1W
R32C	RS14GB3AR33J	RES. METAL FILM 0.33 5% 1W
R01	RN14BK2C4003F	RES. METAL FILM 100K 1% 1/6W
RY1	S76-0604-08	RELAY
RY2	S76-0604-08	RELAY
RY3	S76-0604-08	RELAY
RY4	S76-0630-08	RELAY

REF. NO	PARTS NO	NAME & DESCRIPTION
SW1	S68-0631-05	OUTPUT SW
SW2	S31-1512-08	MASTER/SLAVE SWITCH
VR1	R12-1565-08	RES. SEMI FIXED 2KB
VR2	R12-5547-08	RES. SEMI FIXED 100KB
VR3	R12-0597-08	RES. SEMI FIXED 100
ZD1	HZSGA	DIODE, ZENER 5.75V



# PARTS LIST

## PR36-1.2A Y86-1880-00

REF. NO	PARTS NO	NAME & DESCRIPTION
	A01-1236-08	COVER
	A63-0115-08	FRONT PANEL
	B31-0756-08	METER;CURRENT
	B31-0759-08	METER;VOLT
	B40-2787-24	SERIAL NO. PLATE
	B42-3731-08	MASTER/SLAVE LABEL
	B42-3740-08	FUSE RATING LABEL
	B42-6025-08	RATING;AC100V 50/60HZ 73W
	B42-6026-08	RATING;AC120V 50/60HZ 73W
	B42-6027-08	RATING;AC220V 50/60HZ 73W
	B42-6028-08	RATING;AC240V 50/60HZ 73W
	B42-6029-08	RATING;AC120V 60HZ 73W
	B63-0173-00	INSTRUCTION MANUAL;JAPANESE
	B63-0174-00	INSTRUCTION MANUAL;ENGLISH
	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
	F01-0884-08	HEAT SINK
	F05-1521-08	FUSE(6X32MM) 1.5A/250V
	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
	H53-0114-08	CARTON BOX
	J02-0529-08	FOOT
	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
	J30-0635-08	VOLUME SPACER;FOR VR01
	J42-0083-05	BUSHING;FOR 2-CORE AC CORD
	J42-0085-05	BUSHING;FOR 3-CORE AC CORD
	K21-0907-14	KNOB
	K21-0911-04	KNOB;FINE/CURRENT
	K24-3006-04	KNOB, OUTPUT
	K27-0509-04	PUSH BUTTON, ORANGE;POWER
	L07-1519-08	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
	N09-0789-05	SCREW, SEMS PAN HD M3X10
	N09-0797-08	SCREW, SEMS TAPTITE 3X10
	N14-0404-04	FLANGE NUT M3
	N89-3006-41	SCREW, BINDING TAPTITE 3X6
	N89-3010-41	SCREW, BINDING TAPTITE 3X10
	S40-2533-08	PUSH SWITCH;POWER
	W02-2270-08	AMP UNIT
VR01	R29-3503-08	VOLUME 10K
VR02	R39-0800-08	VOLUME 1K
VR03	R29-3504-08	VOLUME 10K

## PR36-1.2A AMP UNIT W02-2270-08

REF. NO	PARTS NO	NAME & DESCRIPTION
	E21-0674-08	EXTERNAL OUTPUT TERMINAL
	E40-4142-08	PIN CONNECTOR 1P
	E40-7141-08	PIN CONNECTOR 2P(LINE VOLTAGE)
	J13-0518-08	FUSE CLIP;FOR 6X30MM
	J73-0326-08	PCB (UNMOUNTED)
	R92-0150-05	JUMPING RES. ZERO OHM(10MM)
	R92-1061-05	JUMPING RES. ZERO OHM(5MM)
C1	C90-3023-08	CAP. ELECTRO 470 105°C 35V
C2	G992H1H102K	CAP. NYLAR 1000P 10% 50V
C3	C91-2559-08	CAP. CERAMIC 0.1 0.25P 50V
C4	G992H1H472K	CAP. NYLAR 4700P 10% 50V
C5	G992H1H103K	CAP. NYLAR 0.01 10% 50V
C6	NO USE	
C7	C90-3020-08	CAP. ELECTRO 100 105°C 25V
C8	CF93ANZER22K	CAP. POLYESTER 0.22P 10% 63V
C9	NO USE	
C10	C90-3025-08	CAP. ELECTRO 1000 105°C 25V
C11	CF93AN1JR22K	CAP. POLYESTER 0.22P 10% 63V
C22	C91-2559-08	CAP. CERAMIC 0.1 0.25P 50V
C26	C90-3174-08	CAP. ELECTRO 10 1% 50V
C27	NO USE	
C28	C90-3020-08	CAP. ELECTRO 100 105°C 25V
C29	C91-2559-08	CAP. CERAMIC 0.1 0.25P 50V
C32	GF93AN1J1R0K	CAP. POLYESTER 1P 10% 63V
CN1	E40-7218-08	PIN CONNECTOR 2P
CN2	E40-7344-08	PIN CONNECTOR 3P
CN3	NO USE	
CN4	E40-7126-08	PIN CONNECTOR 2P
CN5	E40-7219-08	PIN CONNECTOR 3P
CN6	NO USE	
CN7	E40-7229-08	PIN CONNECTOR 4P
CN11	E40-7332-08	PIN CONNECTOR 4P
CN12	E40-7333-08	PIN CONNECTOR 2P
CN13	E40-7333-08	PIN CONNECTOR 2P
CN18	E40-7440-08	CONNECTOR
CN23	E40-3240-05	PIN CONNECTOR 5P
CN24	E40-7333-08	PIN CONNECTOR 2P
C01	C90-3018-08	CAP. ELECTRO 1 105°C 50V
C01	C91-1323-08	CAP. CERAMIC 0.1 20% 250V
C02	NO USE	
C03	C90-3046-08	CAP. ELECTRO 100 105°C 50V
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
D14	1SS270A	DIODE
D15	1SS270A	DIODE
D16	1SS270A	DIODE
D28	1SS270A	DIODE
D33	ERA15-01	DIODE
D34	1SS270A	DIODE
D37	ERA15-01	DIODE
D38	1SS270A	DIODE
D39	ERA15-01	DIODE
D01	ERA15-01	DIODE
IC1	UPC151C	IC, OP AMP
IC2	UPC151C	IC, OP AMP
IC3	UPC1093J	IC, VARIABLE SHUNT REGULATOR
IC9	HA178L12A	IC, TERMINAL FIXED VOLTAGE REG.
LED1	LN222RP	LED; RED
LED2	LN322GP	LED; GREEN
LED01	LN222RP	LED; RED
Q1	2SC1815(GR)	TR. S1, NPN
Q2	2SC1815(GR)	TR. S1, NPN
Q3	2SC1815(GR)	TR. S1, NPN

# PARTS LIST

REF. NO	PARTS NO	NAME & DESCRIPTION
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
Q15	2SC1815 (GR)	TR. SI, NPN
Q16	NO USE	
Q17	DTA143EF	TR. DIGITAL
R1	RD14BB2C122J	RES. CARBON 1.2K 5% 1/6W
R2	RD14BB2C123J	RES. CARBON 12K 5% 1/6W
R2	RD14DB2H302J	RES. CARBON 3K 5% 1/2W
R3	RD14BB2C302J	RES. CARBON 3K 5% 1/6W
R4	RD14BB2C510J	RES. CARBON 51 5% 1/6W
R5	RD14BB2C123J	RES. CARBON 12K 5% 1/6W
R6	RD14BB2C273J	RES. CARBON 27K 5% 1/6W
R7	RN14BK2C2401F	RES. METAL FILM 2.4K 1% 1/6W
R8	RD14BB2C202J	RES. CARBON 2K 5% 1/6W
R9	RD14BB2C102J	RES. CARBON 1K 5% 1/6W
R10	RD14BB2C103J	RES. CARBON 10K 5% 1/6W
R11	RD14BB2C513J	RES. CARBON 51K 5% 1/6W
R12	NO USE	
R13	RD14BB2C202J	RES. CARBON 2K 5% 1/6W
R14	RD14BB2C152J	RES. CARBON 1.5K 5% 1/6W
R15	RD14BB2C102J	RES. CARBON 1K 5% 1/6W
R16	RD14BB2C512J	RES. CARBON 5.1K 5% 1/6W
R17	NO USE	
R18	RD14BB2C513J	RES. CARBON 51K 5% 1/6W
R19	RD14BB2C103J	RES. CARBON 10K 5% 1/6W
R20	RD14BB2C102J	RES. CARBON 1K 5% 1/6W
R21	RN14BK2C3303F	RES. METAL FILM 330K 1% 1/6W
R22	RD14BB2C102J	RES. CARBON 1K 5% 1/6W
R23	RN14BK2C9101F	RES. METAL FILM 9.1K 1% 1/6W
R24	RN14BK2C3001F	RES. METAL FILM 3K 1% 1/6W
R27	RD14BB2C102J	RES. CARBON 1K 5% 1/6W
R28	RD14BB2C103J	RES. CARBON 10K 5% 1/6W
R29	RS14GB3D392J	RES. METAL FILM 3.9K 5% 2W
R30	RS14GB3AR47J	RES. METAL FILM 0.47 5% 1W
R31	NO USE	
R32	RS14GB3AR47J	RES. METAL FILM 0.47 5% 1W
R33	NO USE	
R34	RD14BB2C122J	RES. CARBON 1.2K 5% 1/6W
R35	RD14BB2C123J	RES. CARBON 12K 5% 1/6W
R36	RD14BB2C302J	RES. CARBON 3K 5% 1/6W
R37	RD14BB2C510J	RES. CARBON 51 5% 1/6W
R38	RD14BB2C333J	RES. CARBON 33K 5% 1/6W
R39	RD14BB2C273J	RES. CARBON 27K 5% 1/6W
R40	RN14BK2C51R0F	RES. METAL FILM 51.0 1% 1/6W
R43	RD14BB2C103J	RES. CARBON 10K 5% 1/6W
R44	RD14BB2C101J	RES. CARBON 100 5% 1/6W
R45	RD14DB2H822J	RES. CARBON 8.2K 5% 1/2W
R67	RS14GB3DR22J	RES. METAL FILM 0.22 5% 2W
R74	RD14BB2C102J	RES. CARBON 1K 5% 1/6W
R75	RD14DB2H822J	RES. CARBON 8.2K 5% 1/2W
R76	RD14BB2C102J	RES. CARBON 1K 5% 1/6W
R77	NO USE	
R78	RD14BB2C102J	RES. CARBON 1K 5% 1/6W
R79	RD14DB2H102J	RES. CARBON 1K 5% 1/2W
R85	RD14DB2H101J	RES. CARBON 100 5% 1/2W
R88	RD14BB2C104J	RES. CARBON 100K 5% 1/6W
R89	NO USE	
R90	RD14BB2C102J	RES. CARBON 1K 5% 1/6W
R91	RD14BB2C103J	RES. CARBON 10K 5% 1/6W
R92	RD14BB2C102J	RES. CARBON 1K 5% 1/6W
R93	RD14BB2C205J	RES. CARBON 2K 5% 1/6W
R94	RD14BB2C510J	RES. CARBON 51 5% 1/6W
R95	NO USE	
R96	RD14BB2C912J	RES. CARBON 9.1K 5% 1/6W
R01	RN14BK2C1003F	RES. METAL FILM 100K 1% 1/6W
RY1	S76-0604-08	RELAY
RY2	S76-0604-08	RELAY
RY3	S76-0604-08	RELAY
RY4	S76-0630-08	RELAY
SW1	S68-0631-05	OUTPUT SW
SW2	S31-1512-08	MASTER/SLAVE SWITCH
VR1	R12-1564-08	RES. SEMI FIXED 1KB
VR2	R12-5547-08	RES. SEMI FIXED 100KB
VR3	R12-0597-08	RES. SEMI FIXED 100
ZD1	HZSGA	DIODE, ZENER 5.75V

## PR36-3A Y86-1890-00

REF. NO	PARTS NO	NAME & DESCRIPTION
	A01-1238-08	COVER
	A63-0116-08	FRONT PANEL
	B31-0760-08	METER; VOLT
	B31-0761-08	METER; CURRENT
	B40-2737-24	SERIAL NO. PLATE
	B42-3731-08	MASTER/SLAVE LABEL
	B42-3738-08	FUSE RATING LABEL
	B42-6045-08	RATING; AC100V 50/60HZ 170W
	B42-6046-08	RATING; AC120V 50/60HZ 170W
	B42-6047-08	RATING; AC220V 50/60HZ 170W
	B42-6048-08	RATING; AC240V 50/60HZ 170W
	B42-6049-08	RATING; AC120V 60HZ 170W
	B63-0173-00	INSTRUCTION MANUAL; JAPANESE
	B63-0174-00	INSTRUCTION MANUAL; ENGLISH
	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/GSA 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
	F01-0886-08	HEAT SINK
	F05-3022-05	FUSE(6X32MM) 3A/250V
	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
	H53-0115-08	CARTON BOX
	J02-0529-08	FOOT
	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
	J30-0635-08	VOLUME SPACER; FOR VR01
	J42-0083-05	BUSHING; FOR 2-CORE AC CORD
	J42-0085-05	BUSHING; FOR 3-CORE AC CORD
	K01-0417-05	HANDLE
	K21-0907-14	KNOB
	K21-0911-04	KNOB; FINE/CURRENT
	K24-3006-04	KNOB, OUTPUT
	K27-0509-04	PUSH BUTTON, ORANGE; POWER
	L07-1520-08	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 M3X10
	N09-0777-05	SCREW, SEMS PAN HD M4X6
	N09-0789-05	SCREW, SEMS PAN HD M3X10
	N09-0797-08	SCREW, SEMS TAPTITE 3X10
	N14-0404-04	FLANGE NUT M3
	N89-3006-41	SCREW, BINDING TAPTITE 3X6
	N89-3012-41	SCREW, BINDING TAPTITE 3X12
	S40-2533-08	PUSH SWITCH; POWER
	W02-2271-08	AMP UNIT
VR01	R29-3503-08	VOLUME 10K
VR02	R29-1508-08	VOLUME 1K
VR03	R29-3504-08	VOLUME 10K

# PARTS LIST

## PR36-3A AMP UNIT W02-2271-08

REF. NO	PARTS NO	NAME & DESCRIPTION
	E21-0674-08	EXTERNAL OUTPUT TERMINAL
	E40-7141-08	PIN CONNECTOR 2P(LINE VOLTAGE)
	E40-7142-08	PIN CONNECTOR 1P(LINE VOLTAGE)
	J13-0518-08	FUSE CLIP;FOR 6X30MM
	J73-0326-08	PCB (UNMOUNTED)
	R92-0150-05	JUMPING RES. ZERO OHM(10MM)
	R92-1061-05	JUMPING RES. ZERO OHM (5MM)
C1	C90-3019-08	CAP. ELECTRO 1000P 10% 50V
C2	CQ92M1H102K	CAP. MYLAR 0.1 0.25P 50V
C3	C91-2559-08	CAP. CERAMIC 4700P 10% 50V
C4	CQ92M1H472K	CAP. MYLAR 0.01 10% 50V
C5	CQ92M1H103K	CAP. MYLAR 100 105°C 25V
C6	NO USE	
C7	C90-3020-08	CAP. ELECTRO 0.22P 10% 250V
C8	CF93AN2ER22K	CAP. POLYESTER 2200 105°C 63V
C9	NO USE	
C10	C90-3042-08	CAP. ELECTRO 0.22P 10% 63V
C11	CF93AN1JR22K	CAP. POLYESTER 0.1 0.25P 50V
C22	C91-2559-08	CAP. CERAMIC 10 1% 50V
C26	C90-3174-08	CAP. ELECTRO 100 105°C 25V
C27	NO USE	
C28	C90-3020-08	CAP. ELECTRO 0.1 0.25P 50V
C29	C91-2559-08	CAP. CERAMIC 1P 10% 63V
C32	CF93AN1JR22K	CAP. POLYESTER 2P
CN1	E40-7218-08	PIN CONNECTOR 3P
CN2	E40-7344-08	PIN CONNECTOR 2P
CN3	NO USE	
CN4	E40-7126-08	PIN CONNECTOR 3P
CN5	E40-7219-08	PIN CONNECTOR 3P
CN6	E40-7219-08	PIN CONNECTOR 4P
CN7	E40-7229-08	PIN CONNECTOR 4P
CN8	E40-7229-08	PIN CONNECTOR 4P
CN11	E40-7332-08	PIN CONNECTOR 2P
CN12	E40-7333-08	PIN CONNECTOR 2P
CN13	E40-7333-08	PIN CONNECTOR 2P
CN18	E40-7440-08	CONNECTOR
CN23	E40-3240-05	PIN CONNECTOR 5P
CN24	E40-7333-08	PIN CONNECTOR 2P
C01	C90-3018-08	CAP. ELECTRO 1 105°C 50V
C02	C91-1323-08	CAP. CERAMIC 0.1 20% 250V
C03	C90-3046-08	CAP. ELECTRO 100 105°C 50V
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	D10XB40	DIODE,STACK
D10	ERA15-01	DIODE
D14	1SS270A	DIODE
D15	1SS270A	DIODE
D16	1SS270A	DIODE
D28	1SS270A	DIODE
D33	ERA15-01	DIODE
D34	1SS270A	DIODE
D37	ERA15-01	DIODE
D38	1SS270A	DIODE
D39	ERA15-01	DIODE
D01	30D1	DIODE
IC1	UPC151C	IC,OP ANP
IC2	UPC151C	IC,OP ANP
IC3	UPC1093J	IC,VARIABLE SHUNT REGULATOR
IC9	HA178L12A	IC,TERMINAL FIXED VOLTAGE REG.
LED1	LN322GP	LED;GREEN
LED2	LN222RP	LED;RED
LEDO	LN222RP	LED;RED
LEDO1	LN222RP	LED;RED
Q1	2SC1815(GR)	TR. SI, NPN
Q2	2SC1815(GR)	TR. SI, NPN

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	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
Q15	2SC1815(GR)	TR. SI, NPN
Q16	NO USE	
Q17	DTA143EF	TR. DIGITAL
Q11A	2SD1148(O)	TR. SI, NPN
Q11B	2SD1148(O)	TR. SI, NPN
Q11C	2SD1148(O)	TR. SI, NPN
R1	RD14BB2C122J	RES. CARBON 1.2K 5% 1/6W
R2	RD14BB2C123J	RES. CARBON 12K 5% 1/6W
R2	RD14BB2H302J	RES. CARBON 3K 5% 1/2W
R3	RD14BB2C302J	RES. CARBON 3K 5% 1/6W
R4	RD14BB2C510J	RES. CARBON 51 5% 1/6W
R5	RD14BB2C123J	RES. CARBON 12K 5% 1/6W
R6	RD14BB2C273J	RES. CARBON 27K 5% 1/6W
R7	RN14BK2C2401F	RES. METAL FILM 2.4K 1% 1/6W
R8	RD14BB2C202J	RES. CARBON 2K 5% 1/6W
R9	RD14BB2C102J	RES. CARBON 1K 5% 1/6W
R10	RD14BB2C302J	RES. CARBON 3K 5% 1/6W
R11	RD14BB2C513J	RES. CARBON 51K 5% 1/6W
R12	NO USE	
R13	RD14BB2C202J	RES. CARBON 2K 5% 1/6W
R14	RD14BB2C152J	RES. CARBON 1.5K 5% 1/6W
R15	RD14BB2C102J	RES. CARBON 1K 5% 1/6W
R16	RD14BB2C512J	RES. CARBON 5.1K 5% 1/6W
R17	NO USE	
R18	RD14BB2C513J	RES. CARBON 51K 5% 1/6W
R19	RD14BB2C103J	RES. CARBON 10K 5% 1/6W
R20	RD14BB2C102J	RES. CARBON 1K 5% 1/6W
R21	RN14BK2C3303F	RES. METAL FILM 330K 1% 1/6W
R22	RD14BB2C102J	RES. CARBON 1K 5% 1/6W
R23	RN14BK2C9102F	RES. METAL FILM 91K 1% 1/6W
R24	RN14BK2C3001F	RES. METAL FILM 3K 1% 1/6W
R27	RD14BB2C102J	RES. CARBON 1K 5% 1/6W
R28	RD14BB2C103J	RES. CARBON 10K 5% 1/6W
R29	RS14GB3D392J	RES. METAL FILM 3.9K 5% 2W
R30	RS14GB3AR51J	RES. METAL FILM 0.51 5% 1W
R31	NO USE	
R32	RS14GB3AR51J	RES. METAL FILM 0.51 5% 1W
R33	NO USE	
R34	RD14BB2C122J	RES. CARBON 1.2K 5% 1/6W
R35	RD14BB2C123J	RES. CARBON 12K 5% 1/6W
R36	RD14BB2C302J	RES. CARBON 3K 5% 1/6W
R37	RD14BB2C510J	RES. CARBON 51 5% 1/6W
R38	RD14BB2C333J	RES. CARBON 33K 5% 1/6W
R39	RD14BB2C273J	RES. CARBON 27K 5% 1/6W
R40	RN14BK2C510F	RES. METAL FILM 51.0 1% 1/6W
R43	RD14BB2C103J	RES. CARBON 10K 5% 1/6W
R44	RD14BB2C101J	RES. CARBON 100 5% 1/6W
R45	RD14BB2H822J	RES. CARBON 8.2K 5% 1/2W
R67	RS14GB3DR15J	RES. METAL FILM 0.15 5% 2W
R74	RD14BB2C102J	RES. CARBON 1K 5% 1/6W
R75	RD14BB2H822J	RES. CARBON 8.2K 5% 1/2W
R76	RD14BB2C102J	RES. CARBON 1K 5% 1/6W
R77	NO USE	
R78	RD14BB2C102J	RES. CARBON 1K 5% 1/6W
R79	RD14BB2H102J	RES. CARBON 1K 5% 1/2W
R85	RD14BB2H101J	RES. CARBON 100 5% 1/2W
R88	RD14BB2C104J	RES. CARBON 100K 5% 1/6W
R89	NO USE	
R90	RD14BB2C102J	RES. CARBON 1K 5% 1/6W
R91	RD14BB2C103J	RES. CARBON 10K 5% 1/6W
R92	RD14BB2C102J	RES. CARBON 1K 5% 1/6W
R93	RD14BB2C205J	RES. CARBON 2M 5% 1/6W
R94	RD14BB2C510J	RES. CARBON 51 5% 1/6W
R95	NO USE	
R96	RD14BB2C912J	RES. CARBON 9.1K 5% 1/6W
R32A	RS14GB3AR51J	RES. METAL FILM 0.51 5% 1W
R32B	RS14GB3AR51J	RES. METAL FILM 0.51 5% 1W
R32C	RS14GB3AR51J	RES. METAL FILM 0.51 5% 1W
R01	RN14BK2C1003F	RES. METAL FILM 100K 1% 1/6W
RY1	S76-0604-08	RELAY
RY2	S76-0604-08	RELAY
RY3	S76-0604-08	RELAY
RY4	S76-0604-08	RELAY

# PARTS LIST

W02-2271-08

REF. NO	PARTS NO	NAME & DESCRIPTION
SW1	S68-0631-05	OUTPUT SW
SW2	S31-1512-08	MASTER/SLAVE SWITCH
VR1	R12-1564-08	RES. SEMI FIXED 1KB
VR2	R12-5547-08	RES. SEMI FIXED 100KB
VR3	R12-0597-08	RES. SEMI FIXED 100
ZD1	HZSGA	DIODE, ZENER 5.75V

PR70-1A

Y86-1900-00

REF. NO	PARTS NO	NAME & DESCRIPTION
	A01-1237-08	CASE
	A63-0117-08	FRONT PANEL
	B31-0761-08	METER; CURRENT
	B31-0762-08	METER; VOLT
	B40-2737-24	SERIAL NO. PLATE
	B42-3731-08	MASTER/SLAVE LABEL
	B42-3733-08	FUSE RATING LABEL
	B42-6050-08	RATING; AC100V 50/60HZ 110W
	B42-6051-08	RATING; AC120V 50/60HZ 110W
	B42-6052-08	RATING; AC220V 50/60HZ 110W
	B42-6053-08	RATING; AC240V 50/60HZ 110W
	B42-6054-08	RATING; AC120V 60HZ 110W
	B63-0173-00	INSTRUCTION MANUAL; JAPANESE
	B63-0174-00	INSTRUCTION MANUAL; ENGLISH
	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
	F01-0885-08	HEAT SINK
	F05-2021-08	FUSE (5X20MM) 2A/250V
	F05-2023-05	FUSE (6X32MM) 2A/250V
	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
	H53-0116-08	CARTON BOX
	J02-0529-08	FOOT
	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
	J29-0519-08	BRACKET; FOR P.C.B
	J30-0635-08	VOLUME SPACER; FOR VR01
	J42-0083-05	BUSHING; FOR 2-CORE AC CORD
	J42-0085-05	BUSHING; FOR 3-CORE AC CORD
	K01-0417-05	HANDLE
	K21-0907-14	KNOB
	K21-0911-04	KNOB; FINE/CURRENT
	K24-3006-04	KNOB; OUTPUT
	K27-0509-04	PUSH BUTTON, ORANGE; POWER
	L07-1521-08	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 M3X10
	N09-0777-05	SCREW, SENS PAN HD M4X6
	N09-0789-05	SCREW, SENS PAN HD M3X10
	N09-0797-08	SCREW, SENS TAPTITE 3X10
	N14-0404-04	FLANGE NUT M3
	N89-3006-41	SCREW, BINDING TAPTITE 3X6
	N89-3012-41	SCREW, BINDING TAPTITE 3X12
	S40-2533-08	PUSH SWITCH; POWER
	W02-2272-08	AMP UNIT
VR01	R29-3503-08	VOLUME 10K
VR02	R29-1508-08	VOLUME 1K
VR03	R29-3504-08	VOLUME 10K

# PARTS LIST

## PR70-1A AMP UNIT

### W02-2272-08

REF. NO	PARTS NO	NAME & DESCRIPTION
	E21-0674-08	EXTERNAL OUTPUT TERMINAL
	E40-7141-08	PIN CONNECTOR 2P(LINE VOLTAGE)
	E40-7142-08	PIN CONNECTOR 1P(LINE VOLTAGE)
	J13-0518-08	FUSE CLIP;FOR 6X30MM
	J73-0326-08	PCB (UNMOUNTED)
	R92-0150-05	JUMPING RES. ZERO OHM(10MM)
	R92-1061-05	JUMPING RES. ZERO OHM(5MM)
C1	C90-3023-08	CAP. ELECTRO 470 105°C 35V
C2	CQ92N1H102K	CAP. MYLAR 1000P 10% 50V
C3	C91-2559-08	CAP. CERAMIC 0.1 0.25P 50V
C4	CQ92N1H472K	CAP. MYLAR 4700P 10% 50V
C5	CQ92N1H103K	CAP. MYLAR 0.01 10% 50V
C6	NO USE	
C7	C90-3020-08	CAP. ELECTRO 100 105°C 25V
C8	CF93AN2ER22K	CAP. POLYESTER 0.22P 10% 250V
C9	NO USE	
C10	C90-3039-08	CAP. ELECTRO 330 105°C 160V
C11	CF93AN1JR22K	CAP. POLYESTER 0.22P 10% 63V
C22	C91-2559-08	CAP. CERAMIC 0.1 0.25P 50V
C26	C90-4504-08	CAP. ELECTRO 10 100V
C27	NO USE	
C28	C90-3020-08	CAP. ELECTRO 100 105°C 25V
C29	C91-2559-08	CAP. CERAMIC 0.1 0.25P 50V
C32	CF93AN1J1R0K	CAP. POLYESTER 1P 10% 63V
C101	C91-2588-08	CAP. CERAMIC 0.1 10% 630V
CN1	E40-7218-08	PIN CONNECTOR 2P
CN2	E40-7344-08	PIN CONNECTOR 3P
CN3	NO USE	
CN4	E40-7126-08	PIN CONNECTOR 2P
CN5	E40-7219-08	PIN CONNECTOR 3P
CN6	E40-7219-08	PIN CONNECTOR 3P
CN7	E40-7229-08	PIN CONNECTOR 4P
CN11	E40-7332-08	PIN CONNECTOR 4P
CN12	E40-7333-08	PIN CONNECTOR 2P
CN13	E40-7333-08	PIN CONNECTOR 2P
CN18	E40-7440-08	CONNECTOR
CN23	E40-3240-05	PIN CONNECTOR 5P
CN24	E40-7333-08	PIN CONNECTOR 2P
C01	C90-3038-08	CAP. ELECTRO 1 105°C 100V
C01	C91-1323-08	CAP. CERAMIC 0.1 20% 250V
C02	NO USE	
C03	C90-3048-08	CAP. ELECTRO 100 105°C 100V
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
D14	1SS270A	DIODE
D15	1SS270A	DIODE
D16	1SS270A	DIODE
D28	1SS270A	DIODE
D33	ERA15-01	DIODE
D34	1SS270A	DIODE
D37	ERA15-01	DIODE
D38	1SS270A	DIODE
D39	ERA15-01	DIODE
D01	ERA15-01	DIODE
IC1	UPC151C	IC,OP AMP
IC2	UPC151C	IC,OP AMP
IC3	UPC1093J	IC,VARIABLE SHUNT REGULATOR
IC9	HA178L12A	IC,TERMINAL FIXED VOLTAGE REG.
LED1	LN222RP	LED;RED
LED2	LN322GP	LED;GREEN
LEDO	LN222RP	LED;RED
LEDO1	LN222RP	LED;RED

REF. NO	PARTS NO	NAME & DESCRIPTION			
Q1	2SC1815(GR)	TR. S1, NPN			
Q2	2SC1815(GR)	TR. S1, NPN			
Q3	2SC1815(GR)	TR. S1, NPN			
Q4	2SC1815(GR)	TR. S1, NPN			
Q5	2SC1815(GR)	TR. S1, NPN			
Q6	2SD1148(O)	TR. S1, NPN			
Q7	2SC2238(Y)	TR. S1, NPN			
Q8	2SC3421(Y)	TR. S1, NPN			
Q9	2SC1815(GR)	TR. S1, NPN			
Q10	2SC1815(GR)	TR. S1, NPN			
Q11	2SD1148(O)	TR. S1, NPN			
Q15	2SC1815(GR)	TR. S1, NPN			
Q16	NO USE				
Q17	DTA143EF	TR. DIGITAL			
Q11A	2SD1148(O)	TR. S1, NPN			
Q11B	2SD1148(O)	TR. S1, NPN			
Q11C	2SD1148(O)	TR. S1, NPN			
R1	RD14BB2C122J	RES. CARBON	1.2K	5%	1/6W
R2	RD14BB2C123J	RES. CARBON	12K	5%	1/6W
R2	RD14BB2H302J	RES. CARBON	3K	5%	1/2W
R3	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R4	RD14BB2C510J	RES. CARBON	51	5%	1/6W
R5	RD14BB2C303J	RES. CARBON	30K	5%	1/6W
R6	RD14BB2C273J	RES. CARBON	27K	5%	1/6W
R7	RN14BK2C1001F	RES. METAL FILM	1K	1%	1/6W
R8	RD14BB2C202J	RES. CARBON	2K	5%	1/6W
R9	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R10	RD14BB2C243J	RES. CARBON	24K	5%	1/6W
R11	RD14BB2C6513J	RES. CARBON	5.1K	5%	1/6W
R12	NO USE				
R13	RD14BB2C202J	RES. CARBON	2K	5%	1/6W
R14	RD14BB2C152J	RES. CARBON	1.5K	5%	1/6W
R15	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R16	RD14BB2C512J	RES. CARBON	5.1K	5%	1/6W
R17	NO USE				
R18	RD14BB2C513J	RES. CARBON	5.1K	5%	1/6W
R19	RD14BB2C103J	RES. CARBON	10K	5%	1/6W
R20	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R21	RN14BK2C3903F	RES. METAL FILM	390K	1%	1/6W
R22	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R23	RN14BK2C9101F	RES. METAL FILM	9.1K	1%	1/6W
R24	RN14BK2C3001F	RES. METAL FILM	3K	1%	1/6W
R27	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R28	RD14BB2C103J	RES. CARBON	10K	5%	1/6W
R29	RS14GB3D123J	RES. METAL FILM	12K	5%	2W
R30	RS14GB3A1R5J	RES. METAL FILM	1.5	5%	1W
R31	NO USE				
R32	RS14GB3A1R5J	RES. METAL FILM	1.5	5%	1W
R33	NO USE				
R34	RD14BB2C122J	RES. CARBON	1.2K	5%	1/6W
R35	RD14BB2C123J	RES. CARBON	12K	5%	1/6W
R36	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R37	RD14BB2C510J	RES. CARBON	51	5%	1/6W
R38	RD14BB2C753J	RES. CARBON	75K	5%	1/6W
R39	RD14BB2C273J	RES. CARBON	27K	5%	1/6W
R40	RN14BK2C51R0F	RES. METAL FILM	51.0	1%	1/6W
R43	RD14BB2C103J	RES. CARBON	10K	5%	1/6W
R44	RD14BB2C101J	RES. CARBON	100	5%	1/6W
R45	RD14BB2H303J	RES. CARBON	30K	5%	1/2W
R67	RS14GB3DR22J	RES. METAL FILM	0.22	5%	2W
R74	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R75	RD14BB2H303J	RES. CARBON	30K	5%	1/2W
R76	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R77	NO USE				
R78	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R79	RD14BB2H102J	RES. CARBON	1K	5%	1/2W
R85	RD14BB2H101J	RES. CARBON	100	5%	1/2W
R88	RD14BB2C104J	RES. CARBON	100K	5%	1/6W
R89	NO USE				
R90	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R91	RD14BB2C103J	RES. CARBON	10K	5%	1/6W
R92	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R93	RD14BB2C205J	RES. CARBON	20K	5%	1/6W
R94	RD14BB2C101J	RES. CARBON	100	5%	1/6W
R95	NO USE				
R96	RD14BB2C912J	RES. CARBON	9.1K	5%	1/6W
R32A	RS14GB3A1R5J	RES. METAL FILM	1.5	5%	1W
R32B	RS14GB3A1R5J	RES. METAL FILM	1.5	5%	1W
R32C	RS14GB3A1R5J	RES. METAL FILM	1.5	5%	1W
R01	RN14BK2C1003F	RES. METAL FILM	100K	1%	1/6W
RY1	S76-0604-08	RELAY			
RY2	S76-0604-08	RELAY			
RY3	S76-0604-08	RELAY			

# SCHEMATIC DIAGRAM

## PARTS LIST

REF. NO	PARTS NO	NAME & DESCRIPTION
RY4	S76-0630-08	RELAY
SW1	S68-0631-08	MASTER/SLAVE SWITCH
SW2	S31-1512-08	
VR1	R12-1564-08	RES. SEMI FIXED 1KB
VR2	R12-5547-08	RES. SEMI FIXED 100KB
VR3	R12-0597-08	RES. SEMI FIXED 100
ZD1	HZSGA	DIODE, ZENER 5.75V

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# SCHEMATIC DIAGRAM PR18-1.2A

LED1 :LN222RP  
LED2 :LN322GP

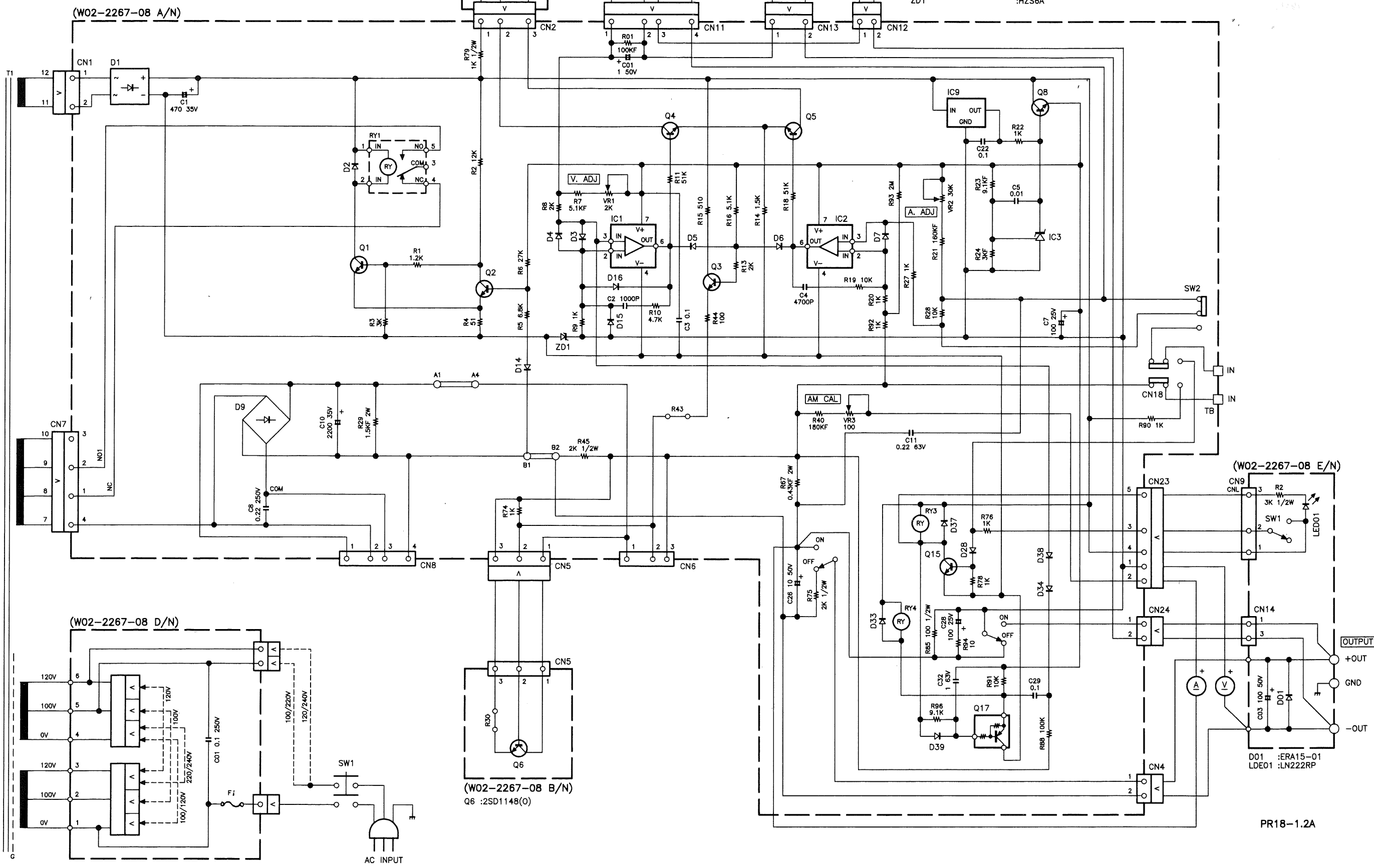
(W02-2267-08 H/N)

VOLTAGE  
COARSE

CURRENT

FINE

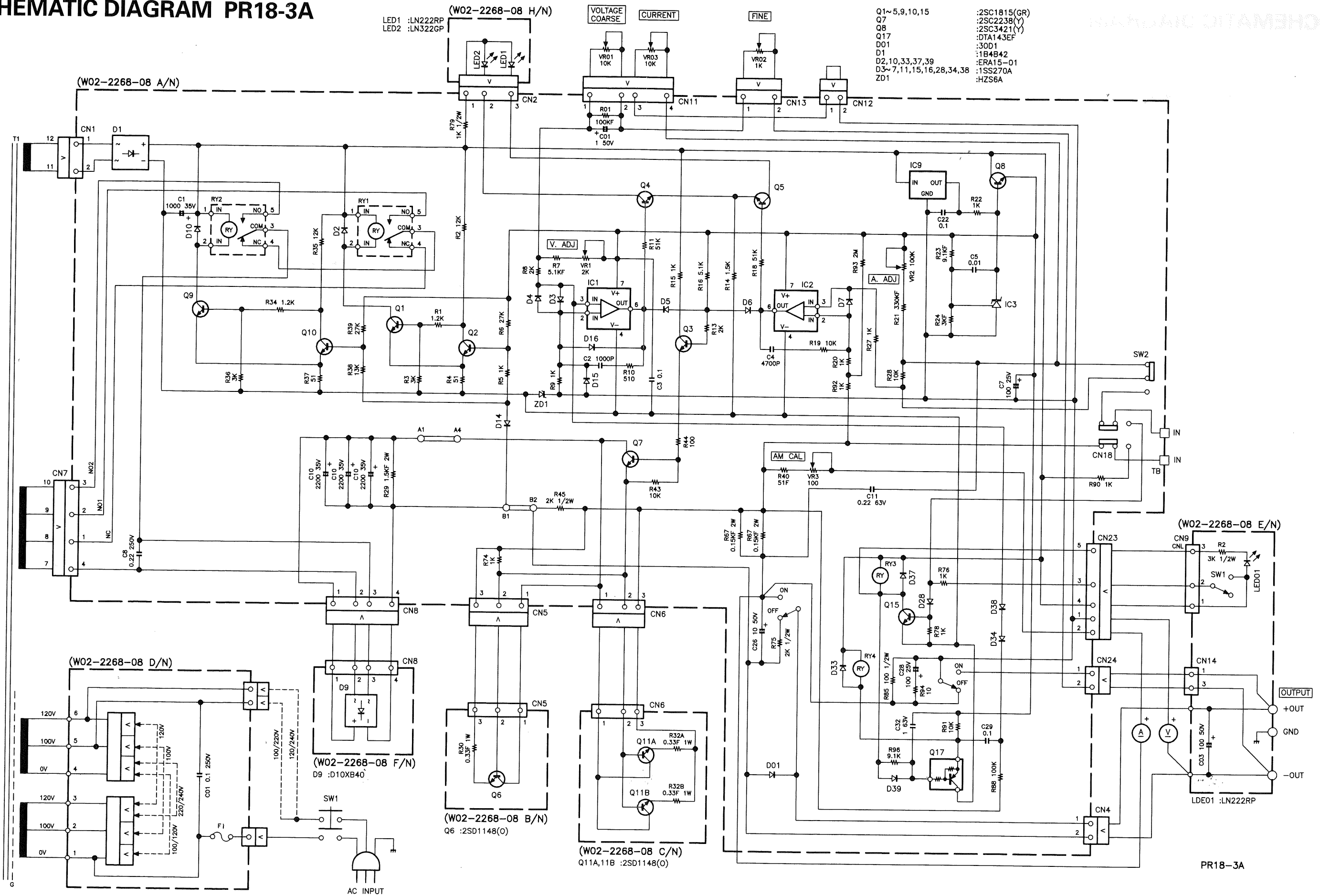
Q1~5,15 :2SC1815(GR)  
Q8 :2SC3421(Y)  
Q17 :DTA143EF  
D1 :1B4B42  
D2,33,37,39 :ERA15-01  
D3~7,11,15,16,28,34,38 :1SS270A  
D9 :D3SB60  
ZD1 :HZS6A



PR18-1.2A

# SCHEMATIC DIAGRAM PR18-3A

SCHEMATIC DIAGRAM



LED1 :LN222RP  
LED2 :LN322GP

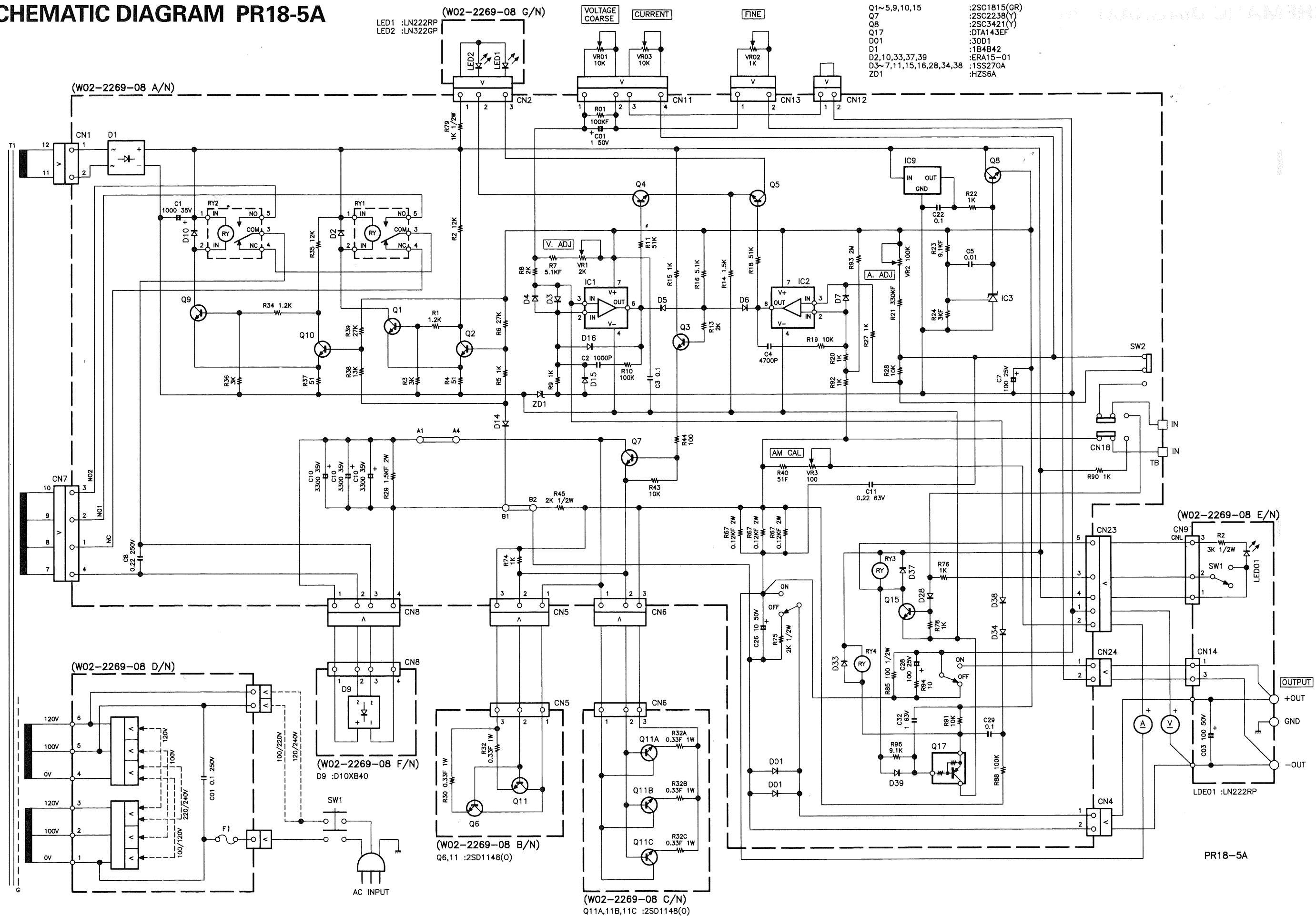
VOLTAGE COARSE  
CURRENT  
FINE

Q1~5,9,10,15 :2SC1815(GR)  
Q7 :2SC2238(Y)  
Q8 :2SC3421(Y)  
Q17 :DTA143EF  
D01 :30D1  
D1 :1B4B42  
D2,10,33,37,39 :ERA15-01  
D3~7,11,15,16,28,34,38 :1SS270A  
ZD1 :HVS6A

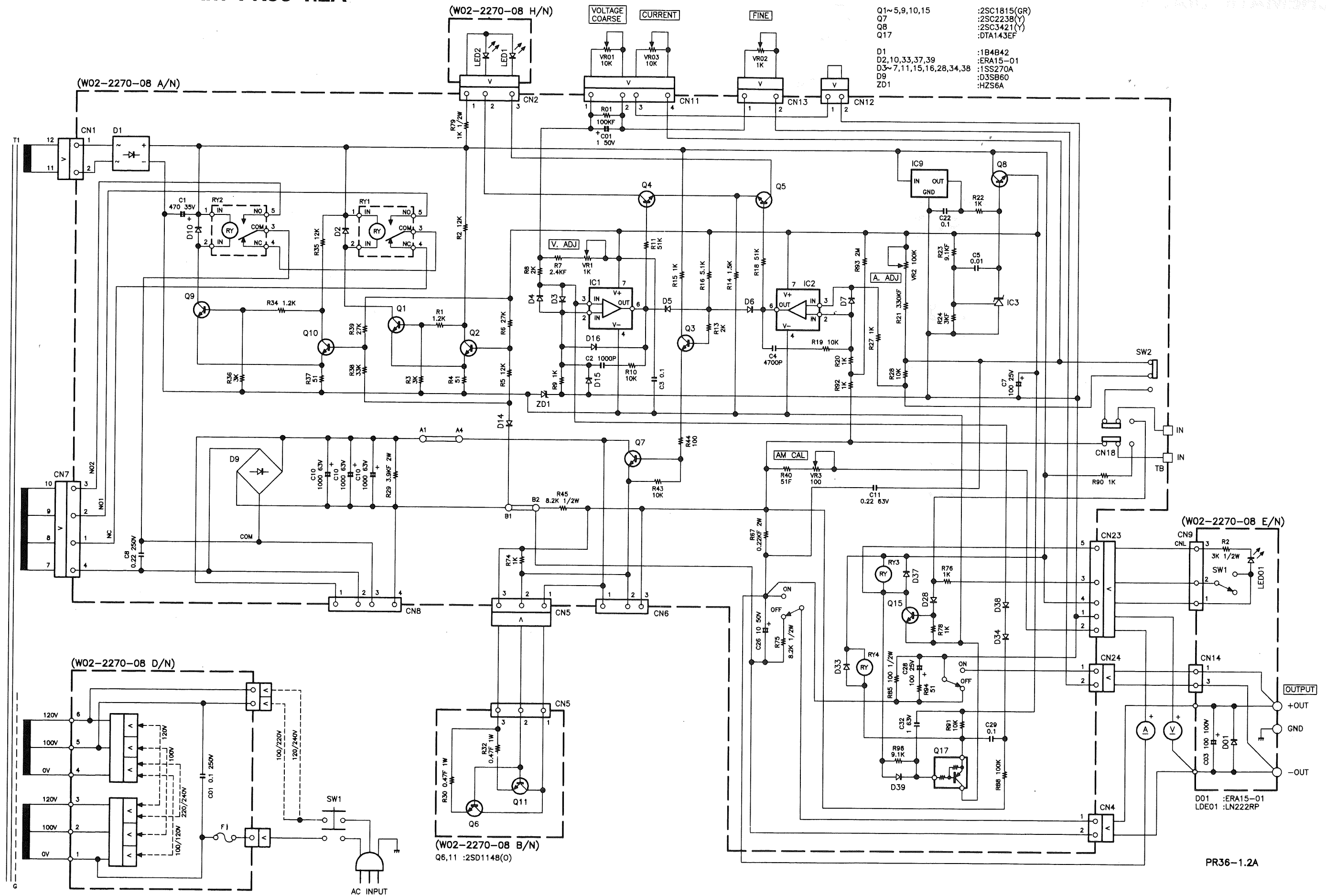
PR18-3A



# SCHEMATIC DIAGRAM PR18-5A

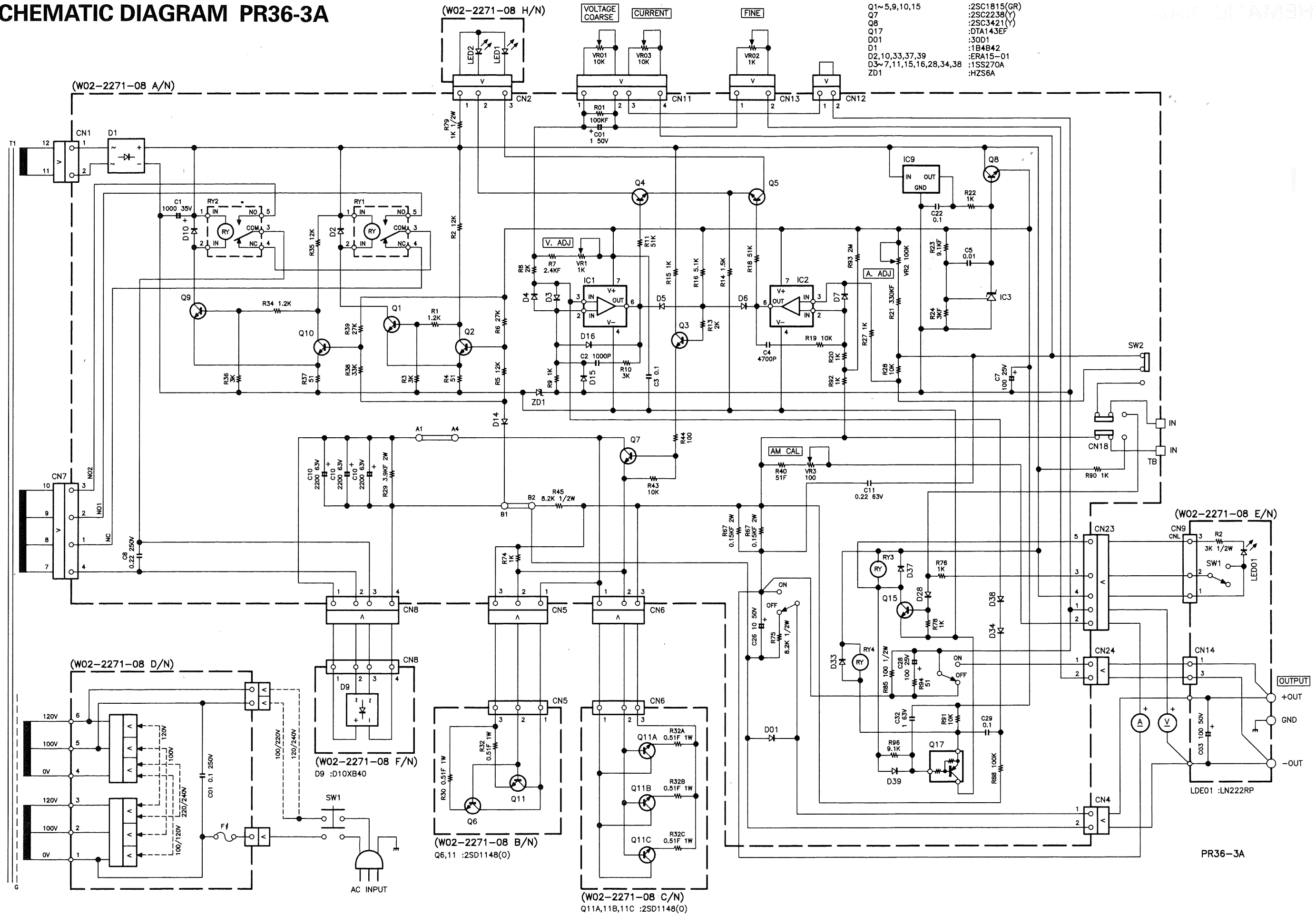


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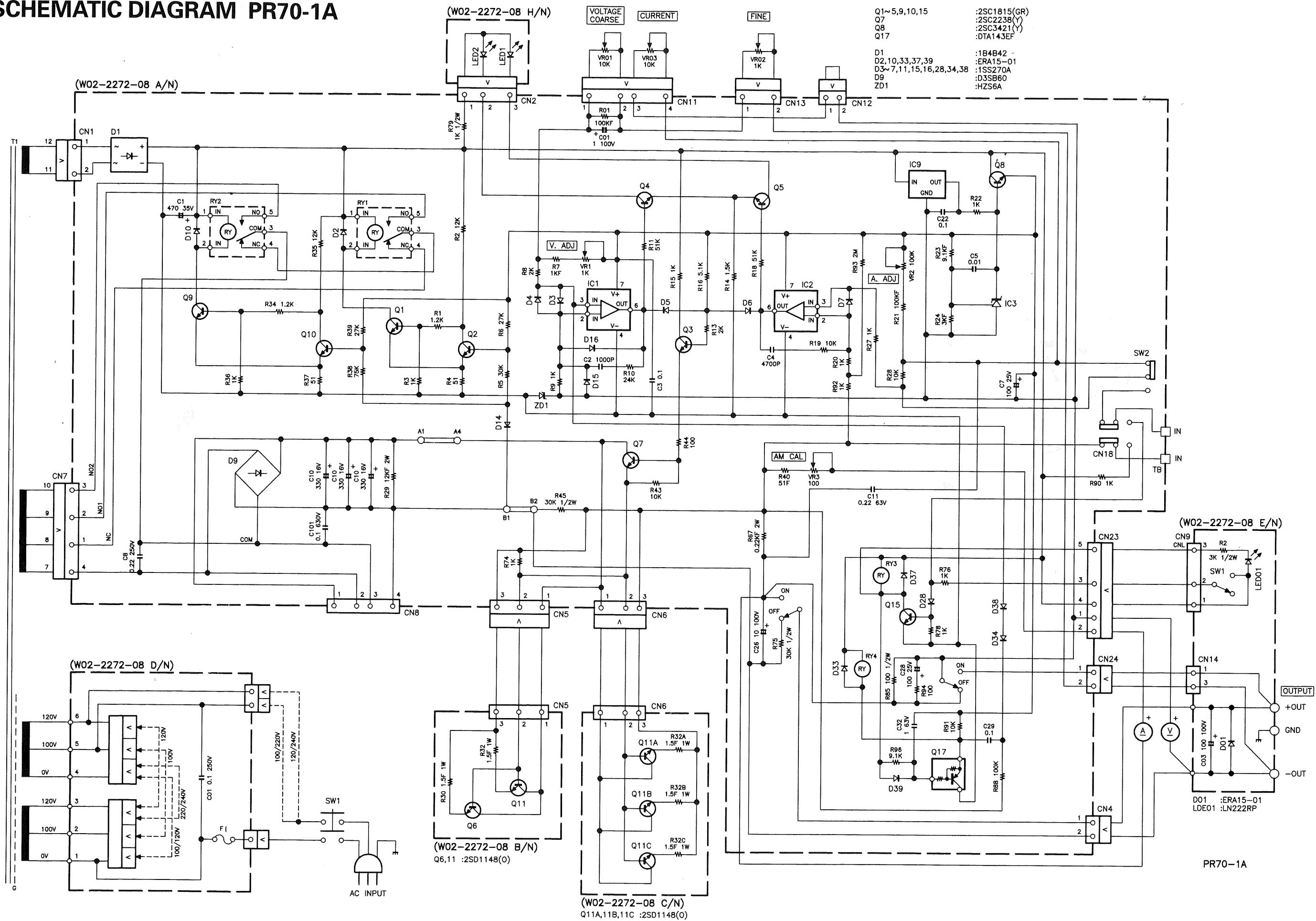


PR36-1.2A

# SCHEMATIC DIAGRAM PR36-3A



# SCHEMATIC DIAGRAM PR70-1A

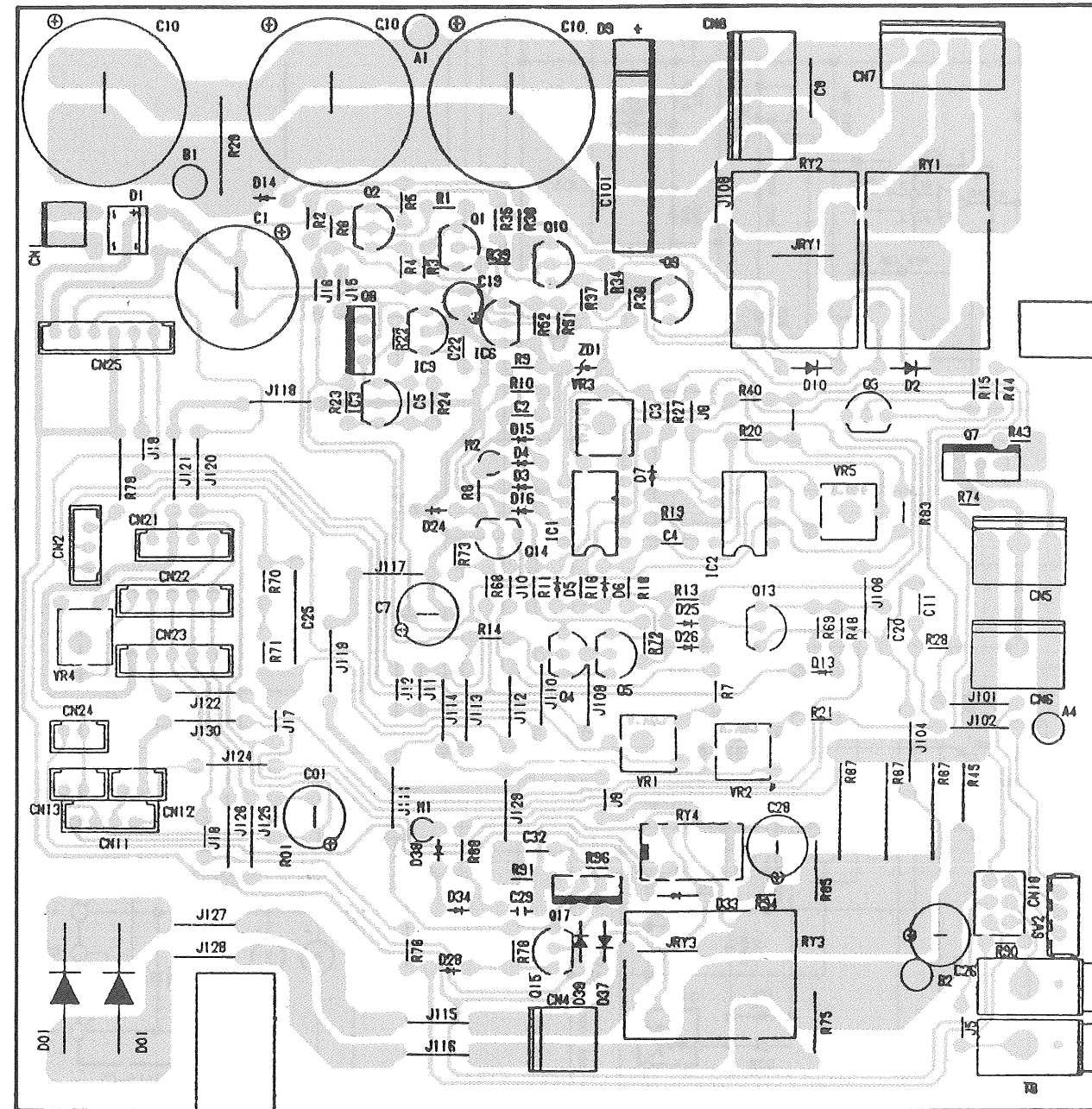


- Q1~5,9,10,15 :2SC1815(GR)  
 Q7 :2SC2238(Y)  
 Q8 :2SC3421(Y)  
 Q17 :DTA143EF
- D1 :1B4B42  
 D2,10,33,37,39 :ERA15-01  
 D3~7,11,15,16,28,34,38 :1SS270A  
 D9 :D3SB60  
 ZD1 :HZS6A

PR70-1A

# P.C. BOARD

AMP UNIT

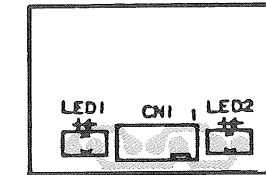
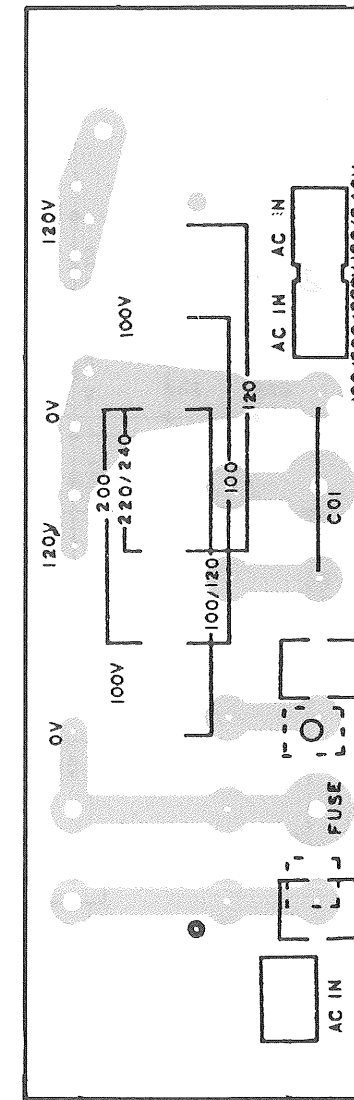
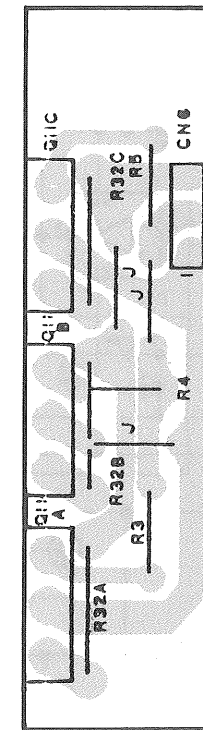


Pattern side view

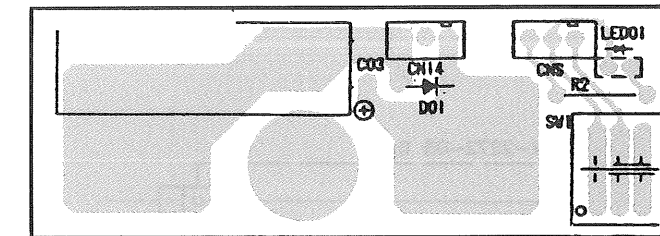
Pattern side view

Pattern side view

Pattern side view



Pattern side view



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A product of  
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