

REGULATED DC POWER SUPPLY

P W R 1 8 - 2 P

P W R 1 8 - 2 T P

SERVICE MANUAL

(TEMPORARY VERSION)

KENWOOD CORPORATION

		* * * P A R T S L I S T * * *		
Y86-1560-00 ( PWR18-2P UNIT )				
REF. NO	PARTS NO	NAME & DESCRIPTION		
	A01-1218-02	CASE		
	A10-1457-12	CHASSIS		
	A63-0049-03	FRONT PANEL		
	B11-0535-04	FILTER		
	B40-2737-24	SERIAL NO. PLATE		
	B41-0813-14	LABEL;AC100V 50/60HZ 165W		
	B41-0814-04	LABEL;AC120V 50/60HZ 165W		
	B41-0815-04	LABEL;AC220V 50/60HZ 165W		
	B41-0816-04	LABEL;AC240V 50/60HZ 165W		
	B41-0817-14	FUSE RATING LABEL		
	B41-0822-04	LABEL;AC120V 60HZ 165W		
	B42-3743-04	REMOTE LABEL		
	B63-0089-00	INSTRUCTION MANUAL;JAPANESE		
	B63-0091-00	INSTRUCTION MANUAL;JAPANESE		
	C90-0298-05	CAP. CERAMIC	0.1	20% 12V
	D21-0926-04	EXTENSION SHAFT		
	E18-0351-05	AC INLET	3 P	
	E20-5817-05	TERMINAL, FOR TRANSFORMER		
	E21-0670-03	TERMINAL, RED		
	E21-0671-03	TERMINAL, BLACK		
	E21-0673-03	TERMINAL, BLUE		
	E29-0506-04	SHORTING BAR		
	E30-1644-15	BS	POWER CORD	
	E30-1818-05	JIS	POWER CORD SET	
	E30-1819-15	CEE	POWER CORD SET	
	E30-1820-05	UL/CSA	POWER CORD SET	
	E30-1821-05	SAA	POWER CORD SET	
	E31-5809-15	WIRE ASS'Y; AC INLET TO TR.		
	E31-5810-15	WIRE ASS'Y; P103 TO C113-C120		
	E31-5811-15	WIRE ASS'Y; P102 TO PIERCED CAP		
	E31-5812-15	WIRE ASS'Y; P1 TO TR		
	E31-5813-15	WIRE ASS'Y; P51 TO PIERCED CAP.		
	E31-5814-15	WIRE ASS'Y; CPU TO PIERCED CAP.		
	E31-5815-15	WIRE ASS'Y; PIERCED CAP. TO CPU		
	E31-5862-05	WIRE ASS'Y; CHANGING VOLTAGE		
	E38-0013-05	WIRE ASS'Y; P11, 106 TO OUTPUT		
	E38-0149-05	WIRE ASS'Y; FOR CONTROL OF COMM		
	E38-0153-05	WIRE ASS'Y; COMMUNICATION CABLE		
	F01-0875-03	HEAT SINK		
	F05-1524-05	FUSE(6.3X32MM)	1.5A/250V	
	F11-1234-03	SHIELD CASE		
	F20-0689-05	INSULATOR		
	F20-0691-04	INSULATOR		
	F20-0692-05	INSULATOR		
	F51-0006-05	FUSE(6.3X32MM)	T2A/250V	
	H10-2843-02	FOAMED STYRENE PAD, FRONT		
	H10-2844-02	FOAMED STYRENE PAD, REAR		
	H20-1725-04	VINYL COVER		
	H53-0060-04	CARTON BOX		
	J02-0323-05	RUBBER FOOT; RIGHT		
	J13-0038-05	FUSE HOLDER		
	J21-4676-03	BRACKET, FOR P. C. B		
	J21-4677-13	BRACKET, FOR P. C. B		
	J21-4678-04	BRACKET, FOR P. C. B		
	J21-4679-04	BRACKET		
	J21-4725-04	BRACKET, FOR BAFFER UNIT		
	J30-0632-04	SPACER		
	J32-0893-04	HEX. STUD		
	J32-0894-04	HEX. STUD		

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Y86-1560-00

REF. NO	PARTS NO	NAME & DESCRIPTION
	J61-0049-05	WIRE BAND
	K01-0410-05	HANDLE
	K21-0907-04	KNOB; COARSE
	K27-0509-04	PUSH BOTTON, ORANGE; POWER
	K27-0555-04	BOTTON(6 USED)
	K27-0556-04	BOTTON(5 USED)
	K27-0557-04	BOTTON, RED; OUTPUT
	L01-9916-15	POWER TRANSFORMER
	NJM7805FA	IC, 3-TERMINAL REGULATOR
	N09-0718-05	SCREW, SEMS PAN HD M3X6
	N09-0723-05	SCREW, SEMS PAN HD M5X10
	N09-0725-05	SCREW, SEMS PAN HD M4X12
	N09-0731-05	SCREW, SEMS PAN HD M3X12
	N09-0735-05	SCREW, SEMS PAN HD M4X6
	N09-0739-05	SCREW, SEMS BINDING TAPTITE 3X8
	N09-0754-05	SCREW, OVAL TAPTITE 3X8
	N09-0757-05	SCREW, SEMS BINDING TAPTITE 3X6
	N10-2030-41	NUT, HEX M3
	N10-2040-41	NUT, HEX M4
	N14-0404-04	FLANGE NUT M3
	N14-0620-05	FLANGE NUT M4
	N19-0712-04	WASHER D=7, M3
	N19-0728-04	WASHER D=10, M3
	N89-3006-41	SCREW, BINDING TAPTITE 3X6
	N89-3010-41	SCREW, BINDING TAPTITE 3X10
	S40-2524-05	PUSH SWITCH; POWER
	X66-1130-02	PANEL UNIT
	X73-1980-00	AMP UNIT
	X81-2880-04	TERMINAL UNIT
	X81-2890-00	BUFFER UNIT
	2SA1302(R)	TR. SI, PNP

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X66-1130-02 (PWR 18-ZP PANEL UNIT)

REF. NO	PARTS NO	NAME & DESCRIPTION
	E31-5821-15	WIRE ASS'Y; P104 TO P20
	E31-5841-05	WIRE ASS'Y; JW101 TO NJM7805FA
	E31-5842-05	WIRE ASS'Y; JW102 TO JW102
	F15-0744-05	BLIND PLATE
	J30-0627-04	SPACER; FOR 7 SEGMENTS
	J73-0037-02	PCB (UNMOUNTED)
C1	CE04EW1A471M	CAP. ELECTRO 470 20% 10V
C2	CE04EW1A471M	CAP. ELECTRO 470 20% 10V
C3	CC45CH1H100D	CAP. CERAMIC 10P 0.5P 50V
C4	CC45CH1H100D	CAP. CERAMIC 10P 0.5P 50V
C5	CF92V1H474J	CAP. POLYESTER 0.47 5% 50V
C6	C91-1310-05	CAP. DOUBLE 0.1F -20/+80% 5.5V
C7	C90-0298-05	CAP. CERAMIC 0.1 20% 12V
C8	C90-0298-05	CAP. CERAMIC 0.1 20% 12V
C9	C90-0298-05	CAP. CERAMIC 0.1 20% 12V
C10	C90-0298-05	CAP. CERAMIC 0.1 20% 12V
C11	C90-0298-05	CAP. CERAMIC 0.1 20% 12V
C12	C90-0298-05	CAP. CERAMIC 0.1 20% 12V
C13	C90-0298-05	CAP. CERAMIC 0.1 20% 12V
C14	C90-0298-05	CAP. CERAMIC 0.1 20% 12V
C15	C90-0298-05	CAP. CERAMIC 0.1 20% 12V
C16	C90-0298-05	CAP. CERAMIC 0.1 20% 12V
C17	C90-0298-05	CAP. CERAMIC 0.1 20% 12V
C18	C90-0298-05	CAP. CERAMIC 0.1 20% 12V
C51	CE04EW1A221M	CAP. ELECTRO 220 20% 10V
C52	CE04EW1A221M	CAP. ELECTRO 220 20% 10V
C53	C90-0298-05	CAP. CERAMIC 0.1 20% 12V
C54	C90-0298-05	CAP. CERAMIC 0.1 20% 12V
C55	C90-0298-05	CAP. CERAMIC 0.1 20% 12V
C56	C90-0298-05	CAP. CERAMIC 0.1 20% 12V
C57	C90-0298-05	CAP. CERAMIC 0.1 20% 12V
C58	C90-0298-05	CAP. CERAMIC 0.1 20% 12V
C59	C90-0298-05	CAP. CERAMIC 0.1 20% 12V
C60	CC45SL1H101J	CAP. CERAMIC 100P 5% 50V
C61	CC45SL1H101J	CAP. CERAMIC 100P 5% 50V
C62	C90-0298-05	CAP. CERAMIC 0.1 20% 12V
C63	C90-0298-05	CAP. CERAMIC 0.1 20% 12V
C101	C90-3008-05	CAP. ELECTRO 3900 20% 16V
C102	CE04EW1A471M	CAP. ELECTRO 470 20% 10V
C103	C90-0298-05	CAP. CERAMIC 0.1 20% 12V
C104	CE04EW1A101M	CAP. ELECTRO 100 20% 10V
C105	C90-0298-05	CAP. CERAMIC 0.1 20% 12V
C124	CF92V1H104J	CAP. POLYESTER 0.1 5% 50V
D1	1SS132	DIODE
D2	1SS132	DIODE
D51	B30-0974-05	LED, RED
D52	B30-0974-05	LED, RED
D53	B30-0974-05	LED, RED
D54	B30-0974-05	LED, RED
D55	B30-0974-05	LED, RED
D56	B30-0974-05	LED, RED
D57	B30-0974-05	LED, RED
D58	B30-0974-05	LED, RED
D59	B30-0994-05	LED, RED

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X66-1130-02

REF. NO	PARTS NO	NAME & DESCRIPTION
D60	B30-0995-05	LED, GREEN/YELLOW
D61	B30-0994-05	LED, RED
D62	B30-0995-05	LED, GREEN/YELLOW
D63	B30-0995-05	LED, GREEN/YELLOW
D64	B30-0995-05	LED, GREEN/YELLOW
D65	B30-0994-05	LED, RED
D66	B30-0986-05	LED, GREEN/YELLOW AND RED
D67	B30-0994-05	LED, RED
D68	B30-0995-05	LED, GREEN/YELLOW
D69	B30-0995-05	LED, GREEN/YELLOW
D70	B30-0995-05	LED, GREEN/YELLOW
D71	B30-0986-05	LED, GREEN/YELLOW AND RED
D101	S1VB10	DIODE
D102	1SS132	DIODE
D103	NO USE	
D104	S3V10	DIODE
D105	S3V10	DIODE
D108	1SS132	DIODE
D109	NO USE	
D110	1SS132	DIODE
JW1	E31-5869-05	WIRE ASS'Y; JW1 TO JW1
JW2	E31-5873-05	WIRE ASS'Y; JW2 TO JW2
K101	S51-2508-05	RELAY
K102	S51-2511-05	RELAY
L1	L40-4701-03	FERRI INDUCTOR 47UH 10%
L51	L40-4701-03	FERRI INDUCTOR 47UH 10%
P1	E40-3237-05	PIN CONNECTOR 2P
P4	E40-3243-05	PIN CONNECTOR 8P
P5	E40-3237-05	PIN CONNECTOR 2P
P51	E40-3237-05	PIN CONNECTOR 2P
P101	E40-3237-05	PIN CONNECTOR 2P
P102	E40-3239-05	PIN CONNECTOR 4P
P103	E40-3243-05	PIN CONNECTOR 8P
P106	E40-3239-05	PIN CONNECTOR 4P
P107	NO USE	
P108	E40-4248-05	PIN CONNECTOR 2P
P109	E40-3911-05	PIN CONNECTOR 3P
Q1	2SC2785(F)	TR. SI, NPN
Q2	2SC2785(F)	TR. SI, NPN
Q3	2SC2785(F)	TR. SI, NPN
Q51	2SC2785(F)	TR. SI, NPN
Q52	2SC2785(F)	TR. SI, NPN
Q53	2SC2785(F)	TR. SI, NPN
Q54	2SC2785(F)	TR. SI, NPN
Q55	2SC2785(F)	TR. SI, NPN
Q56	2SC2785(F)	TR. SI, NPN

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X66-1130-02

REF. NO	PARTS NO	NAME & DESCRIPTION				
Q57	2SC2785(F)	TR.	SI,	NPN		
Q58	2SC2785(F)	TR.	SI,	NPN		
Q59	2SC2785(F)	TR.	SI,	NPN		
Q60	2SC2785(F)	TR.	SI,	NPN		
Q61	NO USE					
Q62	2SC2785(F)	TR.	SI,	NPN		
Q63	2SC2785(F)	TR.	SI,	NPN		
Q64	2SA1175(F)	TR.	SI,	PNP		
Q65	2SA1175(F)	TR.	SI,	PNP		
Q101	2SC1815(Y)	TR.	SI,	NPN		
Q102	NO USE					
Q103	2SC1815(Y)	TR.	SI,	NPN		
R1	RD14BB2C102J	RES.	CARBON	1K	5% 1/6W	
R2	RD14BB2C472J	RES.	CARBON	4.7K	5% 1/6W	
R3	RD14BB2C222J	RES.	CARBON	2.2K	5% 1/6W	
R4	RD14BB2C472J	RES.	CARBON	4.7K	5% 1/6W	
R5	RD14BB2C472J	RES.	CARBON	4.7K	5% 1/6W	
R6	R90-0612-05	RES.	NETWORK	8X4.7K		
R7	R90-0612-05	RES.	NETWORK	8X4.7K		
R8	NO USE					
R9	RD14BB2C751J	RES.	CARBON	750	5% 1/6W	
R51	RD14BB2C472J	RES.	CARBON	4.7K	5% 1/6W	
R52	RD14BB2C472J	RES.	CARBON	4.7K	5% 1/6W	
R53	RD14BB2C472J	RES.	CARBON	4.7K	5% 1/6W	
R54	RD14BB2C472J	RES.	CARBON	4.7K	5% 1/6W	
R55	RD14BB2C472J	RES.	CARBON	4.7K	5% 1/6W	
R56	RD14BB2C472J	RES.	CARBON	4.7K	5% 1/6W	
R57	RD14BB2C472J	RES.	CARBON	4.7K	5% 1/6W	
R58	RD14BB2C472J	RES.	CARBON	4.7K	5% 1/6W	
R59	RD14BB2C472J	RES.	CARBON	4.7K	5% 1/6W	
R60	RD14BB2C472J	RES.	CARBON	4.7K	5% 1/6W	
R61	RD14BB2C151J	RES.	CARBON	150	5% 1/6W	
R62	RD14BB2C151J	RES.	CARBON	150	5% 1/6W	
R63	RD14BB2C151J	RES.	CARBON	150	5% 1/6W	
R64	RD14BB2C151J	RES.	CARBON	150	5% 1/6W	
R65	RD14BB2C151J	RES.	CARBON	150	5% 1/6W	
R66	RD14BB2C151J	RES.	CARBON	150	5% 1/6W	
R67	RD14BB2C151J	RES.	CARBON	150	5% 1/6W	
R68	RD14BB2C151J	RES.	CARBON	150	5% 1/6W	
R69	RD14BB2C151J	RES.	CARBON	150	5% 1/6W	
R70	RD14BB2C151J	RES.	CARBON	150	5% 1/6W	
R71	RD14BB2C151J	RES.	CARBON	150	5% 1/6W	
R72	RD14BB2C151J	RES.	CARBON	150	5% 1/6W	
R73	RD14BB2C151J	RES.	CARBON	150	5% 1/6W	
R74	RD14BB2C151J	RES.	CARBON	150	5% 1/6W	
R75	RD14BB2C151J	RES.	CARBON	150	5% 1/6W	
R76	RD14BB2C151J	RES.	CARBON	150	5% 1/6W	
R79	RD14BB2C472J	RES.	CARBON	4.7K	5% 1/6W	
R80	RD14BB2C472J	RES.	CARBON	4.7K	5% 1/6W	
R81	RD14BB2C472J	RES.	CARBON	4.7K	5% 1/6W	
R82	RD14BB2C472J	RES.	CARBON	4.7K	5% 1/6W	
R83	RD14BB2C104J	RES.	CARBON	100K	5% 1/6W	
R84	RD14BB2C104J	RES.	CARBON	100K	5% 1/6W	
R85	R90-0612-05	RES.	NETWORK	8X4.7K		
R86	RD14BB2C472J	RES.	CARBON	4.7K	5% 1/6W	

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X66-1130-02

REF. NO	PARTS NO	NAME & DESCRIPTION			
R87	RD14BB2C151J	RES. CARBON	150	5%	1/6W
R88	RD14BB2C472J	RES. CARBON	4.7K	5%	1/6W
R89	RD14BB2C151J	RES. CARBON	150	5%	1/6W
R101	RD14BB2C361J	RES. CARBON	360	5%	1/6W
R102	RD14BB2C361J	RES. CARBON	360	5%	1/6W
R103	RD14BB2C361J	RES. CARBON	360	5%	1/6W
R104	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R105	NO USE				
R106	RD14BB2C431J	RES. CARBON	430	5%	1/6W
R107	RD14BB2C431J	RES. CARBON	430	5%	1/6W
R108	RD14BB2C431J	RES. CARBON	430	5%	1/6W
R111	RD14BB2C431J	RES. CARBON	430	5%	1/6W
R112	RD14BB2C431J	RES. CARBON	430	5%	1/6W
R113	RD14BB2C431J	RES. CARBON	430	5%	1/6W
R117	R92-1061-05	JUMPING RES.	ZERO	OHM	(5MM)
R118	R92-1061-05	JUMPING RES.	ZERO	OHM	(5MM)
R119	R92-1061-05	JUMPING RES.	ZERO	OHM	(5MM)
R122	RD14BB2E220J	RES. CARBON	22	5%	1/4W
R123	RD14BB2E220J	RES. CARBON	22	5%	1/4W
R124	RD14BB2C154J	RES. CARBON	150K	5%	1/6W
R125	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
S51	S50-1426-05	TACT SWITCH			
S52	S50-1426-05	TACT SWITCH			
S53	S50-1426-05	TACT SWITCH			
S54	S50-1426-05	TACT SWITCH			
S55	S50-1426-05	TACT SWITCH			
S56	S50-1426-05	TACT SWITCH			
S57	S50-1426-05	TACT SWITCH			
S58	S50-0503-05	TACT SWITCH			
S59	S50-1426-05	TACT SWITCH			
S60	S50-1426-05	TACT SWITCH			
S61	S50-1426-05	TACT SWITCH			
S62	S50-1426-05	TACT SWITCH			
S63	S50-1426-05	TACT SWITCH			
S64	W02-0388-05	ROTARY ENCODER			
U1	TC74HC14AP	IC, HEX SCHMITT INVERTER			
U2	T93-0769-04	PROGRAMMED ROM			
U3	HM6264ALP-15L	IC, C-MOS STATIC RAM			
U4	HD64180R1P6	IC, CPU			
U5	MB3773P-G	IC, RESET			
U6	TC74HC139AP	IC, DUAL 2 TO 4 DEMULTIPLEXERS			
U7	TC74HC257AP	IC, QUAD 2-DATA SELECT. /MPX(3-S			
U8	TC74HC259AP	IC, 8-BIT ADDRESSABLE LATCHES			
U9	TC74HC139AP	IC, DUAL 2 TO 4 DEMULTIPLEXERS			
U10	TC74HC257AP	IC, QUAD 2-DATA SELECT. /MPX(3-S			
U11	TC74HC74AP	IC, DUAL D FLIP-FLOP			
U12	NO USE				
U13	TC74HC32AP	IC, QUAD 2 INPUT OR			
U51	TC9191P	IC, DRIVER			
U52	TC9191P	IC, DRIVER			
U53	TC74HC374AP	IC, OCTAL 3-STATE D-FFS			
U54	TC74HC541AP	IC, OCTAL 3-STATE BUFFER			

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X66-1130-02

REF. NO	PARTS NO	NAME & DESCRIPTION
U55	TC74HC30AP	IC,8 INPUT NAND
U56	TC74HC74AP	IC,DUAL D FLIP-FLOP
U57	TC74HC14AP	IC,HEX SCHMITT INVERTER
U102	TC74HC125AP	IC,QUAD 3 STATE BUS BUFFERS
U103	PC837	IC,PHOTO COUPLER
U104	NO USE	
U105	PC837	IC,PHOTO COUPLER
X1	L78-0114-05	CERAMIC OSCILLATOR



\* \* \* P A R T S L I S T \* \* \*

X73-1980-00 (PWR18-2P AMP UNIT)

REF. NO	PARTS NO	NAME & DESCRIPTION			
	E31-5818-15	WIRE ASS'Y; P17 TO P108, ETC.,			
	F01-0895-04	HEAT SINK			
	F02-0520-05	HEAT SINK			
	F20-0647-05	INSULATOR			
	J73-0161-02	PCB (UNMOUNTED)			
	N09-0626-04	SCREW, SEMS PAN HD M3X10			
	N09-0776-05	SCREW, SEMS PAN HD M3X16			
	N14-0404-04	FLANGE NUT M3			
	N19-0191-05	WASHER NONMETAL			
C1	C90-3009-05	CAP. ELECTRO	2700	20%	25V
C2	C90-3009-05	CAP. ELECTRO	2700	20%	25V
C3	CE04EW1C331M	CAP. ELECTRO	330	20%	16V
C4	CE04EW1C221M	CAP. ELECTRO	220	20%	16V
C5	CE04EW1A470M	CAP. ELECTRO	47	20%	10V
C6	CE04EW1A101M	CAP. ELECTRO	100	20%	10V
C7	CE04EW1A101M	CAP. ELECTRO	100	20%	10V
C8	CE04EW1H2R2M	CAP. ELECTRO	2.2	20%	50V
C9	CE04EW1H2R2M	CAP. ELECTRO	2.2	20%	50V
C10	CE04EW1C100M	CAP. ELECTRO	10	20%	16V
C11	CE04EW1C100M	CAP. ELECTRO	10	20%	16V
C12	CE04EW1C100M	CAP. ELECTRO	10	20%	16V
C13	C90-0298-05	CAP. CERAMIC	0.1	20%	12V
C14	C90-0298-05	CAP. CERAMIC	0.1	20%	12V
C15	C90-0298-05	CAP. CERAMIC	0.1	20%	12V
C16	C90-0298-05	CAP. CERAMIC	0.1	20%	12V
C17	CK45FF1H103Z	CAP. CERAMIC	0.01		50V
C18	NO USE				
C19	CF92V1H105J	CAP. POLYESTER	1	5%	50V
C20	CF92V1H474J	CAP. POLYESTER	0.47	5%	50V
C21	CF92V1H105J	CAP. POLYESTER	1	5%	50V
C22	CF92V1H474J	CAP. POLYESTER	0.47	5%	50V
C23	CK45FF1H103Z	CAP. CERAMIC	0.01		50V
C24	CK45FF1H103Z	CAP. CERAMIC	0.01		50V
C25	CK45FF1H103Z	CAP. CERAMIC	0.01		50V
C26	CK45FF1H103Z	CAP. CERAMIC	0.01		50V
C27	CK45FF1H103Z	CAP. CERAMIC	0.01		50V
C28	CK45FF1H103Z	CAP. CERAMIC	0.01		50V
C29	CF92V1H474J	CAP. POLYESTER	0.47	5%	50V
C30	CF92V1H474J	CAP. POLYESTER	0.47	5%	50V
C31	C90-3010-05	CAP. ELECTRO	10000	20%	50V
C32	C90-3010-05	CAP. ELECTRO	10000	20%	50V
C33	CF93AN2E104K	CAP. METAL FILM	0.1	10%	250V
C34	CF93AN2E104K	CAP. METAL FILM	0.1	10%	250V
C41	CE04EW1H470M	CAP. ELECTRO	47	20%	50V
C42	NO USE				
C43	CE04EW1H470M	CAP. ELECTRO	47	20%	50V
D1	S1VB10	DIODE			
D2	MTZ13JB	DIODE, ZENER	12.88V		
D3	MTZ13JB	DIODE, ZENER	12.88V		
D4	MTZ5.1JB	DIODE, ZENER	5.07V		
D5	MTZ9.1JC	DIODE, ZENER	9.6V		
D6	HZT7A3	DIODE, ZENER			
D7	MTZ5.1JA	DIODE, ZENER	4.94V		
D8	1SS132	DIODE			
D9	1SS132	DIODE			
D10	1SS132	DIODE			
D11	1SS132	DIODE			

\* \* \* P A R T S L I S T \* \* \*

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REF. NO	PARTS NO	NAME & DESCRIPTION				
D12	1SS132	DIODE				
D13	1SS132	DIODE				
D14	1SS132	DIODE				
D15	1SS132	DIODE				
D16	1SS132	DIODE				
D17	1SS132	DIODE				
D18	1SS132	DIODE				
D21	S10VB10F1	DIODE				
D22	S10VB10F1	DIODE				
D23	DSA1A2	DIODE				
D24	DSA1A2	DIODE				
D25	1SS132	DIODE				
D26	1SS132	DIODE				
JW2	E38-0110-05	WIRE ASS'Y; JW2,3 TO Q15,16				
JW3	E38-0110-05	WIRE ASS'Y; JW2,3 TO Q15,16				
K1	S51-1528-05	RELAY				
K2	S51-1528-05	RELAY				
L1	L40-4701-03	FERRI INDUCTOR	47UH	10%		
P1	E23-0581-05	LUG TERMINAL				
P2	E23-0581-05	LUG TERMINAL				
P3	E23-0581-05	LUG TERMINAL				
P11	E40-3238-05	PIN CONNECTOR	3P			
P12	NO USE					
P13	E40-3237-05	PIN CONNECTOR	2P			
P14	E40-3911-05	PIN CONNECTOR	3P			
P15	E40-3911-05	PIN CONNECTOR	3P			
P16	E40-3238-05	PIN CONNECTOR	3P			
P17	E40-4248-05	PIN CONNECTOR	2P			
P18	E40-4248-05	PIN CONNECTOR	2P			
P19	NO USE					
P20	E40-5067-05	PIN CONNECTOR	10P			
P21	NO USE					
P22	E40-3237-05	PIN CONNECTOR	2P			
P23	E23-0401-05	PIN TERMINAL				
P24	E23-0401-05	PIN TERMINAL				
Q1	2SA1111(Q)	TR. SI, PNP				
Q2	2SC2591(Q)	TR. SI, NPN				
Q3	2SA1209(R)	TR. SI, PNP				
Q4	2SA1209(R)	TR. SI, PNP				
Q5	2SC1815(Y)	TR. SI, NPN				
Q6	2SC1815(Y)	TR. SI, NPN				
Q7	2SC1815(Y)	TR. SI, NPN				
R1	RD14BB2E361J	RES. CARBON	360	5%	1/4W	
R2	RD14BB2E361J	RES. CARBON	360	5%	1/4W	
R3	RD14BB2C431J	RES. CARBON	430	5%	1/6W	
R4	RD14BB2C431J	RES. CARBON	430	5%	1/6W	
R5	RD14BB2C512J	RES. CARBON	5.1K	5%	1/6W	
R6	RN14BK2C1002F	RES. METAL FILM	10K	1%	1/6W	
R7	RN14BK2C1002F	RES. METAL FILM	10K	1%	1/6W	
R8	RN14BK2C6801F	RES. METAL FILM	6.8K	1%	1/6W	
R9	RN14BK2C5101F	RES. METAL FILM	5.1K	1%	1/6W	

\* \* \* P A R T S L I S T \* \* \*

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REF. NO	PARTS NO	NAME & DESCRIPTION			
R10	RD14BB2C512J	RES. CARBON	5.1K	5%	1/6W
R11	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R12	RD14BB2C181J	RES. CARBON	180	5%	1/6W
R13	RD14BB2C221J	RES. CARBON	220	5%	1/6W
R14	NO USE				
R15	RN14BK2C6651F	RES. METAL FILM	6.65K	1%	1/6W
R16	RN14BK2C1002F	RES. METAL FILM	10K	1%	1/6W
R17	RN14BK2C9530F	RES. METAL FILM	953	1%	1/6W
R18	RN14BK2C9530F	RES. METAL FILM	953	1%	1/6W
R19	RD14BB2C112J	RES. CARBON	1.1K	5%	1/6W
R20	RN14BK2C8200F	RES. METAL FILM	820	1%	1/6W
R21	RN14BK2C3001F	RES. METAL FILM	3K	1%	1/6W
R22	RN14BK2C1500F	RES. METAL FILM	150	1%	1/6W
R28	R92-1465-05	RES. NETWORK	2K, 10K		
R29	NO USE				
R30	R92-1465-05	RES. NETWORK	2K, 10K		
R31	RD14BB2C361J	RES. CARBON	360	5%	1/6W
R32	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R33	RD14BB2C361J	RES. CARBON	360	5%	1/6W
R34	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R35	R90-1118-05	RES. NETWORK	3K, 12K		
R36	RD14BB2C432J	RES. CARBON	4.3K	5%	1/6W
R37	R90-1118-05	RES. NETWORK	3K, 12K		
R38	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R39	RD14BB2C512J	RES. CARBON	5.1K	5%	1/6W
R40	R92-1061-05	JUMPING RES.	ZERO OHM		(5MM)
R41	RD14BB2C203J	RES. CARBON	20K	5%	1/6W
R42	NO USE				
R43	RD14BB2E152J	RES. CARBON	1.5K	5%	1/4W
R44	RD14BB2E152J	RES. CARBON	1.5K	5%	1/4W
R45	RD14BB2C162J	RES. CARBON	1.6K	5%	1/6W
R46	RD14BB2C162J	RES. CARBON	1.6K	5%	1/6W
R47	R92-0150-05	JUMPING RES.	ZERO OHM		(10MM)
R48	R92-1061-05	JUMPING RES.	ZERO OHM		(5MM)
R49	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R50	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R51	RD14BB2C103J	RES. CARBON	10K	5%	1/6W
R52	RD14BB2C103J	RES. CARBON	10K	5%	1/6W
R53	RD14BB2C103J	RES. CARBON	10K	5%	1/6W
R54	RD14BB2C103J	RES. CARBON	10K	5%	1/6W
R55	RD14BB2C181J	RES. CARBON	180	5%	1/6W
R56	RD14BB2C181J	RES. CARBON	180	5%	1/6W
R57	R92-1455-05	RES. CEMENT	0.47	5%	5W
R58	R92-1455-05	RES. CEMENT	0.47	5%	5W
R59	RD14BB2C122J	RES. CARBON	1.2K	5%	1/6W
R60	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R63	RD14BB2C361J	RES. CARBON	360	5%	1/6W
R64	RN14BK2C1602F	RES. METAL FILM	16K	1%	1/6W
R65	RN14BK2C1801F	RES. METAL FILM	1.8K	1%	1/6W
R66	RN14BK2C1602F	RES. METAL FILM	16K	1%	1/6W
R67	RN14BK2C1801F	RES. METAL FILM	1.8K	1%	1/6W
R68	RN14BK2C1004F	RES. METAL FILM	1M	1%	1/6W
R69	RN14BK2C1004F	RES. METAL FILM	1M	1%	1/6W
R70	RN14BK2E2004F	RES. METAL FILM	2M	1%	1/4W
R71	RN14BK2E2004F	RES. METAL FILM	2M	1%	1/4W
R72	RD14BB2C511J	RES. CARBON	510	5%	1/6W
R73	RD14BB2C511J	RES. CARBON	510	5%	1/6W

\* \* \* P A R T S L I S T \* \* \*

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REF. NO	PARTS NO	NAME & DESCRIPTION
R74	RD14BB2C331J	RES. CARBON 330 5% 1/6W
R75	RD14BB2C331J	RES. CARBON 330 5% 1/6W
R76	R92-1061-05	JUMPING RES. ZERO OHM (5MM)
R81	R92-0150-05	JUMPING RES. ZERO OHM (10MM)
R82	R92-1061-05	JUMPING RES. ZERO OHM (5MM)
R154	E31-2170-05	JUMPING WIRE
R155	E31-2170-05	JUMPING WIRE
R156	E31-2170-05	JUMPING WIRE
R157	RD14DB3AR62J	RES. CARBON 0.62 5% 1W
R158	RD14DB3AR62J	RES. CARBON 0.62 5% 1W
R159	RD14DB2H1R2J	RES. CARBON 1.2 5% 1/2W
R160	RD14BB2E121J	RES. CARBON 120 5% 1/4W
R161	RD14BB2E121J	RES. CARBON 120 5% 1/4W
R162	RD14BB2C241J	RES. CARBON 240 5% 1/6W
R163	RD14BB2C102J	RES. CARBON 1K 5% 1/6W
R164	RD14DB3AR62J	RES. CARBON 0.62 5% 1W
R165	RD14DB3AR62J	RES. CARBON 0.62 5% 1W
R166	RD14DB2H1R2J	RES. CARBON 1.2 5% 1/2W
R167	RD14BB2E121J	RES. CARBON 120 5% 1/4W
R168	RD14BB2E121J	RES. CARBON 120 5% 1/4W
R169	RD14BB2C241J	RES. CARBON 240 5% 1/6W
R170	RD14BB2C102J	RES. CARBON 1K 5% 1/6W
R174	RD14DB3A681J	RES. CARBON 680 5% 1W
R175	RD14DB3A681J	RES. CARBON 680 5% 1W
U1	NJM7805FA	IC, 3-TERMINAL REGULATOR
U2	NJM4558D	IC, DUAL OP AMP
U3	TC4094BP	IC, 8-STAGE SHIFT/STORE REGISTE
U4	TC4094BP	IC, 8-STAGE SHIFT/STORE REGISTE
U5	TC4094BP	IC, 8-STAGE SHIFT/STORE REGISTE
U6	AM6012DC	IC, 12-BIT D/A CONVERTER
U7	HD14053BP	IC, TRIPLE 2CH ANALOG MPX/DE-MP
U8	HD14052BP	IC, DUAL ANALOG MULTIPLEXER
U9	NJM4558D	IC, DUAL OP AMP
U10	NJM072BD	IC, JFET INPUT OP AMP
U11	NJM072BD	IC, JFET INPUT OP AMP
U12	NJM4558D	IC, DUAL OP AMP
U13	NJM4558D	IC, DUAL OP AMP
U14	NJM4560D	IC, OP AMP
U15	PC619	IC, PHOTO COUPLER
U16	PC619	IC, PHOTO COUPLER
U17	TC74HC11AP	IC, TRIPLE 3 INPUT AND
VR1	R12-0556-05	RES. SEMI FIXED 100
VR2	R12-0556-05	RES. SEMI FIXED 100
VR3	R12-0541-05	RES. SEMI FIXED 100 B
VR4	R12-0541-05	RES. SEMI FIXED 100 B

* * * P A R T S L I S T * * *						
X81-2880-04 ( PWR 18-2 ) TERMINAL UNIT )						
REF. NO	PARTS NO	NAME & DESCRIPTION				
	E38-0014-05	WIRE ASS'Y; JL2,3,9 TO P109				
	E38-0015-05	WIRE ASS'Y; JL4,5 TO P2,3				
	E38-0016-15	WIRE ASS'Y; JW6 TO P23,24				
	J73-0018-03	PCB (UNMOUNTED)				
C2	CE04EW1E471M	CAP. ELECTRO	470	20%	25V	
C3	CE04EW1E471M	CAP. ELECTRO	470	20%	25V	
C111	C91-0579-05	CAP. CERAMIC	1000P	500V		
C112	C91-0579-05	CAP. CERAMIC	1000P	500V		
C113	C91-0579-05	CAP. CERAMIC	1000P	500V		
C114	C91-0579-05	CAP. CERAMIC	1000P	500V		
C115	C91-0579-05	CAP. CERAMIC	1000P	500V		
C116	C91-0579-05	CAP. CERAMIC	1000P	500V		
C117	C91-0579-05	CAP. CERAMIC	1000P	500V		
C118	C91-0579-05	CAP. CERAMIC	1000P	500V		
C119	C91-0579-05	CAP. CERAMIC	1000P	500V		
C120	C91-0579-05	CAP. CERAMIC	1000P	500V		
C121	C91-0579-05	CAP. CERAMIC	1000P	500V		
C122	C91-0579-05	CAP. CERAMIC	1000P	500V		
R2	RD14DB3D301J	RES. CARBON	300	5%	2W	
R3	RD14DB3D301J	RES. CARBON	300	5%	2W	

\* \* \* P A R T S L I S T \* \* \*

X81-2890-00 (PWR 18-2P BUFFER UNIT)

REF. NO	PARTS NO	NAME & DESCRIPTION			
	J73-0030-03	PCB (UNMOUNTED)			
C1	CE04EW1A100M	CAP. ELECTRO	10	20%	10V
C2	CE04EW1C220M	CAP. ELECTRO	22	20%	16V
C3	CE04EW1C220M	CAP. ELECTRO	22	20%	16V
C4	CE04EW1C220M	CAP. ELECTRO	22	20%	16V
C5	CE04JW1A100M	CAP. ELECTRO	10	20%	10V
C6	CE04EW1C220M	CAP. ELECTRO	22	20%	16V
D901	1SS132	DIODE			
P1	E40-3303-05	PIN CONNECTOR	6P		
P2	E58-0606-05	MODULE CONNECTOR			
Q1	2SC2785(F)	TR. SI, NPN			
R1	RD14BB2C222J	RES. CARBON	2.2K	5%	1/6W
R2	RD14BB2C222J	RES. CARBON	2.2K	5%	1/6W
R3	RD14BB2C472J	RES. CARBON	4.7K	5%	1/6W
U1	MAX232CPE	IC, RS-232C DRIVERS/RECEIVERS			

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Y86-1550-00 (PWR18-2TP)		* * * P A R T S L I S T * * *	
REF. NO	PARTS NO	NAME & DESCRIPTION	
	A01-1226-02	CASE	
	A10-1460-22	CHASSIS	
	A63-0048-03	FRONT PANEL	
	B11-0534-03	FILTER	
	B40-2737-24	SERIAL NO. PLATE	
	B41-0848-04	FUSE RATING LABEL	
	B41-2019-04	LABEL; AC100V 50/60HZ 208W	
	B41-2020-04	LABEL; AC120V 50/60HZ 208W	
	B41-2021-04	LABEL; AC220V 50/60HZ 208W	
	B41-2022-04	LABEL; AC240V 50/60HZ 208W	
	B41-2023-04	LABEL; AC120V 60HZ 208W	
	B42-3743-04	REMOTE LABEL	
	B63-0087-00	INSTRUCTION MANUAL; JAPANESE	
	B63-0089-00	INSTRUCTION MANUAL; JAPANESE	
	C90-0298-05	CAP. CERAMIC	0.1 20% 12V
	D21-0926-04	EXTENSION SHAFT	
	E18-0351-05	AC INLET	3 P
	E20-5817-05	TERMINAL, FOR TRANSFORMER	
	E21-0670-03	TERMINAL, RED	
	E21-0671-03	TERMINAL, BLACK	
	E21-0673-03	TERMINAL, BLUE	
	E29-0506-04	SHORTING BAR	
	E30-1644-15	BS	POWER CORD
	E30-1818-05	JIS	POWER CORD SET
	E30-1819-15	CEE	POWER CORD SET
	E30-1820-05	UL/CSA	POWER CORD SET
	E30-1821-05	SAA	POWER CORD SET
	E31-5811-15	WIRE ASS'Y; P102 TO PIERCED CAP	
	E31-5812-15	WIRE ASS'Y; P1 TO TR	
	E31-5813-15	WIRE ASS'Y; P51 TO PIERCED CAP.	
	E31-5815-15	WIRE ASS'Y; PIERCED CAP. TO CPU	
	E31-5858-15	WIRE ASS'Y; +/-18V, COM1	
	E31-5859-25	WIRE ASS'Y; AC PRIMARY	
	E31-5861-05	WIRE ASS'Y; P103 TO PIERCED CAP	
	E31-5862-05	WIRE ASS'Y; CHANGING VOLTAGE	
	E31-5863-15	WIRE ASS'Y; WITH 10P HOUSING	
	E31-5864-05	WIRE ASS'Y; +6V, COM2	
	E38-0151-05	WIRE ASS'Y; CONTROLLED COMMUNI.	
	E38-0153-05	WIRE ASS'Y; COMMUNICATION CABLE	
	E38-0478-05	WIRE ASS'Y; DISPLAY TO MAIN GND	
	F01-0877-03	HEAT SINK	
	F01-0878-03	HEAT SINK	
	F10-1626-03	SHIELD PLATE	
	F11-1240-13	SHIELD CASE	
	F20-0689-05	INSULATOR	
	F20-0692-05	INSULATOR	
	F51-0004-05	FUSE(6.3X32MM)	T3A/250V
	F51-0005-05	FUSE(6.3X32MM)	T1.5A/250V
	H10-2846-02	FOAMED STYRENE PAD(FRONT)	
	H10-2847-02	FOAMED STYRENE PAD(REAR)	
	H20-1725-04	VINYL COVER	
	H53-0059-04	CARTON BOX	
	J02-0323-05	RUBBER FOOT; RIGHT	
	J13-0038-05	FUSE HOLDER	
	J19-1620-05	CORD KEEP	
	J21-4678-04	BRACKET, FOR P.C.B	
	J21-4697-03	BRACKET	
	J21-4700-14	BRACKET	
	J21-4701-03	BRACKET	

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Y86-1550-00

REF. NO	PARTS NO	NAME & DESCRIPTION
	J21-4702-03	BRACKET
	J21-4725-04	BRACKET, FOR BAFFER UNIT
	J30-0632-04	SPACER
	J32-0122-04	BOSS
	J32-0893-04	HEX. STUD
	J32-0894-04	HEX. STUD
	J61-0049-05	WIRE BAND
	K01-0410-05	HANDLE
	K21-0907-04	KNOB; COARSE
	K27-0509-04	PUSH BOTTON, ORANGE; POWER
	K27-0555-04	BOTTON (8 USED)
	K27-0556-04	BOTTON (5 USED)
	K27-0557-04	BOTTON, RED; OUTPUT
	L01-9977-05	POWER TRANSFORMER
	NJM7805FA	IC, 3-TERMINAL REGULATOR
	N09-0626-04	SCREW, SEMS PAN HD M3X10
	N09-0718-05	SCREW, SEMS PAN HD M3X6
	N09-0723-05	SCREW, SEMS PAN HD M5X10
	N09-0731-05	SCREW, SEMS PAN HD M3X12
	N09-0735-05	SCREW, SEMS PAN HD M4X6
	N09-0739-05	SCREW, SEMS BINDING TAPTITE 3X8
	N09-0754-05	SCREW, OVAL TAPTITE 3X8
	N09-0757-05	SCREW, SEMS BINDING TAPTITE 3X6
	N09-0776-05	SCREW, SEMS PAN HD M3X16
	N10-2030-41	NUT, HEX M3
	N14-0404-04	FLANGE NUT M3
	N17-1030-41	LOCK WASHER M3
	N19-0712-04	WASHER D=7, M3
	N19-0728-04	WASHER D=10, M3
	N89-3006-41	SCREW, BINDING TAPTITE 3X6
	N89-3010-41	SCREW, BINDING TAPTITE 3X10
	N89-3012-41	SCREW, BINDING TAPTITE M3X12
	S40-2524-05	PUSH SWITCH; POWER
	X66-1140-02	PANEL UNIT
	X73-1980-01	AMP UNIT
	X73-1980-02	AMP UNIT
	X81-2880-05	TERMINAL UNIT
	X81-2890-00	BUFFER UNIT
	2SA1301(R)	TR. SI, PNP
	2SC3281(R)	TR. SI, NPN



\* \* \* P A R T S L I S T \* \* \*

X66-1140-02 (PWR(8-2TP PANEL UNIT)

REF. NO	PARTS NO	NAME & DESCRIPTION			
	E31-5856-15	WIRE ASS'Y; P104 TO P20			
	E31-5857-15	WIRE ASS'Y; P105 TO P20			
	F15-0744-05	BLIND PLATE			
	J73-0038-02	PCB (UNMOUNTED)			
C1	CE04EW1A471M	CAP. ELECTRO	470	20%	10V
C2	CE04EW1A471M	CAP. ELECTRO	470	20%	10V
C3	CC45CH1H100D	CAP. CERAMIC	10P	0.5P	50V
C4	CC45CH1H100D	CAP. CERAMIC	10P	0.5P	50V
C5	CF92V1H474J	CAP. POLYESTER	0.47	5%	50V
C6	C91-1310-05	CAP. DOUBLE	0.1F	-20/+80%	5.5V
C7	C90-0298-05	CAP. CERAMIC	0.1	20%	12V
C8	C90-0298-05	CAP. CERAMIC	0.1	20%	12V
C9	C90-0298-05	CAP. CERAMIC	0.1	20%	12V
C10	C90-0298-05	CAP. CERAMIC	0.1	20%	12V
C11	C90-0298-05	CAP. CERAMIC	0.1	20%	12V
C12	C90-0298-05	CAP. CERAMIC	0.1	20%	12V
C13	C90-0298-05	CAP. CERAMIC	0.1	20%	12V
C14	C90-0298-05	CAP. CERAMIC	0.1	20%	12V
C15	C90-0298-05	CAP. CERAMIC	0.1	20%	12V
C16	C90-0298-05	CAP. CERAMIC	0.1	20%	12V
C17	C90-0298-05	CAP. CERAMIC	0.1	20%	12V
C18	C90-0298-05	CAP. CERAMIC	0.1	20%	12V
C51	CE04EW1A221M	CAP. ELECTRO	220	20%	10V
C52	CE04EW1A221M	CAP. ELECTRO	220	20%	10V
C53	C90-0298-05	CAP. CERAMIC	0.1	20%	12V
C54	C90-0298-05	CAP. CERAMIC	0.1	20%	12V
C55	C90-0298-05	CAP. CERAMIC	0.1	20%	12V
C56	C90-0298-05	CAP. CERAMIC	0.1	20%	12V
C57	C90-0298-05	CAP. CERAMIC	0.1	20%	12V
C58	C90-0298-05	CAP. CERAMIC	0.1	20%	12V
C59	C90-0298-05	CAP. CERAMIC	0.1	20%	12V
C60	CC45CH1H101J	CAP. CERAMIC	100P	5%	50V
C61	CC45CH1H101J	CAP. CERAMIC	100P	5%	50V
C101	C90-3008-05	CAP. ELECTRO	3900	20%	16V
C102	CE04EW1A471M	CAP. ELECTRO	470	20%	10V
C103	C90-0298-05	CAP. CERAMIC	0.1	20%	12V
C104	CE04EW1A101M	CAP. ELECTRO	100	20%	10V
C105	C90-0298-05	CAP. CERAMIC	0.1	20%	12V
C106	CE04EW1A101M	CAP. ELECTRO	100	20%	10V
C123	CF92V1H104J	CAP. POLYESTER	0.1	5%	50V
C124	CF92V1H104J	CAP. POLYESTER	0.1	5%	50V
C125	C90-0298-05	CAP. CERAMIC	0.1	20%	12V
C126	C90-0298-05	CAP. CERAMIC	0.1	20%	12V
D1	1SS132	DIODE			
D2	1SS132	DIODE			
D51	GL8D03D	LED, RED			
D52	GL8D03D	LED, RED			
D53	GL8D03D	LED, RED			
D54	GL8D03D	LED, RED			
D55	GL8D03D	LED, RED			
D56	GL8D03D	LED, RED			
D57	GL8D03D	LED, RED			
D58	GL8D03D	LED, RED			
D59	B30-0994-05	LED, RED			

\* \* \* P A R T S L I S T \* \* \*

X66-1140-02

REF. NO	PARTS NO	NAME & DESCRIPTION
D60	B30-0995-05	LED, GREEN/YELLOW
D61	B30-0994-05	LED, RED
D62	B30-0995-05	LED, GREEN/YELLOW
D63	B30-0995-05	LED, GREEN/YELLOW
D64	B30-0995-05	LED, GREEN/YELLOW
D65	B30-0994-05	LED, RED
D66	B30-0986-05	LED, GREEN/YELLOW AND RED
D67	B30-0994-05	LED, RED
D68	B30-0995-05	LED, GREEN/YELLOW
D69	B30-0995-05	LED, GREEN/YELLOW
D70	B30-0995-05	LED, GREEN/YELLOW
D71	B30-0986-05	LED, GREEN/YELLOW AND RED
D72	B30-0995-05	LED, GREEN/YELLOW
D73	B30-0995-05	LED, GREEN/YELLOW
D101	S1VB10	DIODE
D102	1SS132	DIODE
D103	1SS132	DIODE
D104	S3V10	DIODE
D105	S3V10	DIODE
D106	NO USE	
D107	S3V10	DIODE
D108	1SS132	DIODE
D109	1SS132	DIODE
D110	1SS132	DIODE
D111	1SS132	DIODE
JW1	E31-5870-05	WIRE ASS'Y; JW1 TO P52
JW2	E31-5872-05	WIRE ASS'Y; JW2 TO P52
JW101	E31-5841-05	WIRE ASS'Y; JW101 TO NJM7805FA
JW102	E31-5842-05	WIRE ASS'Y; JW102 TO JW102
K101	S51-2508-05	RELAY
K102	S51-2511-05	RELAY
K103	S51-2508-05	RELAY
K104	S51-1529-05	RELAY
L1	L40-4701-03	FERRI INDUCTOR 47UH 10%
L51	L40-4701-03	FERRI INDUCTOR 47UH 10%
P1	E40-3237-05	PIN CONNECTOR 2P
P4	E40-5067-05	PIN CONNECTOR 10P
P5	E40-3237-05	PIN CONNECTOR 2P
P51	E40-3237-05	PIN CONNECTOR 2P
P101	E40-3237-05	PIN CONNECTOR 2P
P102	E40-3239-05	PIN CONNECTOR 4P
P103	E40-5067-05	PIN CONNECTOR 10P
P106	E40-3239-05	PIN CONNECTOR 4P
P107	NO USE	
P108	E40-4248-05	PIN CONNECTOR 2P
P109	E40-3911-05	PIN CONNECTOR 3P
P110	E40-3239-05	PIN CONNECTOR 4P
P111	NO USE	

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X66-1140-02

REF. NO	PARTS NO	NAME & DESCRIPTION				
P112	E40-4248-05	PIN CONNECTOR	2P			
P113	E40-4248-05	PIN CONNECTOR	2P			
P116	E40-3237-05	PIN CONNECTOR	2P			
P121	E23-0581-05	LUG TERMINAL				
Q1	2SC2785(F)	TR. SI, NPN				
Q2	2SC2785(F)	TR. SI, NPN				
Q3	2SC2785(F)	TR. SI, NPN				
Q51	2SC2785(F)	TR. SI, NPN				
Q52	2SC2785(F)	TR. SI, NPN				
Q53	2SC2785(F)	TR. SI, NPN				
Q54	2SC2785(F)	TR. SI, NPN				
Q55	2SC2785(F)	TR. SI, NPN				
Q56	2SC2785(F)	TR. SI, NPN				
Q57	2SC2785(F)	TR. SI, NPN				
Q58	2SC2785(F)	TR. SI, NPN				
Q59	2SC2785(F)	TR. SI, NPN				
Q60	2SC2785(F)	TR. SI, NPN				
Q61	NO USE					
Q62	2SC2785(F)	TR. SI, NPN				
Q63	2SC2785(F)	TR. SI, NPN				
Q64	2SA1175(F)	TR. SI, PNP				
Q65	2SA1175(F)	TR. SI, PNP				
Q101	2SC1815(Y)	TR. SI, NPN				
Q102	2SC1815(Y)	TR. SI, NPN				
Q103	2SC1815(Y)	TR. SI, NPN				
Q104	2SC1815(Y)	TR. SI, NPN				
R1	RD14BB2C102J	RES. CARBON	1K	5%	1/6W	
R2	RD14BB2C472J	RES. CARBON	4.7K	5%	1/6W	
R3	RD14BB2C222J	RES. CARBON	2.2K	5%	1/6W	
R4	RD14BB2C472J	RES. CARBON	4.7K	5%	1/6W	
R5	RD14BB2C472J	RES. CARBON	4.7K	5%	1/6W	
R6	R90-0612-05	RES. NETWORK	8X4.7K			
R7	R90-0612-05	RES. NETWORK	8X4.7K			
R8	NO USE					
R9	RD14BB2C751J	RES. CARBON	750	5%	1/6W	
R51	RD14BB2C472J	RES. CARBON	4.7K	5%	1/6W	
R52	RD14BB2C472J	RES. CARBON	4.7K	5%	1/6W	
R53	RD14BB2C472J	RES. CARBON	4.7K	5%	1/6W	
R54	RD14BB2C472J	RES. CARBON	4.7K	5%	1/6W	
R55	RD14BB2C472J	RES. CARBON	4.7K	5%	1/6W	
R56	RD14BB2C472J	RES. CARBON	4.7K	5%	1/6W	
R57	RD14BB2C472J	RES. CARBON	4.7K	5%	1/6W	
R58	RD14BB2C472J	RES. CARBON	4.7K	5%	1/6W	
R59	RD14BB2C472J	RES. CARBON	4.7K	5%	1/6W	
R60	RD14BB2C472J	RES. CARBON	4.7K	5%	1/6W	
R61	RD14BB2C151J	RES. CARBON	150	5%	1/6W	
R62	RD14BB2C151J	RES. CARBON	150	5%	1/6W	
R63	RD14BB2C151J	RES. CARBON	150	5%	1/6W	
R64	RD14BB2C151J	RES. CARBON	150	5%	1/6W	
R65	RD14BB2C151J	RES. CARBON	150	5%	1/6W	
R66	RD14BB2C151J	RES. CARBON	150	5%	1/6W	
R67	RD14BB2C151J	RES. CARBON	150	5%	1/6W	

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X66-1140-02

REF. NO	PARTS NO	NAME & DESCRIPTION				
R68	RD14BB2C151J	RES.	CARBON	150	5%	1/6W
R69	RD14BB2C151J	RES.	CARBON	150	5%	1/6W
R70	RD14BB2C151J	RES.	CARBON	150	5%	1/6W
R71	RD14BB2C151J	RES.	CARBON	150	5%	1/6W
R72	RD14BB2C151J	RES.	CARBON	150	5%	1/6W
R73	RD14BB2C151J	RES.	CARBON	150	5%	1/6W
R74	RD14BB2C151J	RES.	CARBON	150	5%	1/6W
R75	RD14BB2C151J	RES.	CARBON	150	5%	1/6W
R76	RD14BB2C151J	RES.	CARBON	150	5%	1/6W
R79	RD14BB2C472J	RES.	CARBON	4.7K	5%	1/6W
R80	RD14BB2C472J	RES.	CARBON	4.7K	5%	1/6W
R81	RD14BB2C472J	RES.	CARBON	4.7K	5%	1/6W
R82	RD14BB2C472J	RES.	CARBON	4.7K	5%	1/6W
R83	RD14BB2C104J	RES.	CARBON	100K	5%	1/6W
R84	RD14BB2C104J	RES.	CARBON	100K	5%	1/6W
R85	R90-0612-05	RES.	NETWORK	8X4.7K		
R86	RD14BB2C472J	RES.	CARBON	4.7K	5%	1/6W
R87	RD14BB2C151J	RES.	CARBON	150	5%	1/6W
R88	RD14BB2C472J	RES.	CARBON	4.7K	5%	1/6W
R89	RD14BB2C151J	RES.	CARBON	150	5%	1/6W
R101	RD14BB2C221J	RES.	CARBON	220	5%	1/6W
R102	RD14BB2C221J	RES.	CARBON	220	5%	1/6W
R103	RD14BB2C221J	RES.	CARBON	220	5%	1/6W
R104	RD14BB2C102J	RES.	CARBON	1K	5%	1/6W
R105	RD14BB2C102J	RES.	CARBON	1K	5%	1/6W
R106	RD14BB2C431J	RES.	CARBON	430	5%	1/6W
R107	RD14BB2C431J	RES.	CARBON	430	5%	1/6W
R108	RD14BB2C431J	RES.	CARBON	430	5%	1/6W
R109	RD14BB2C431J	RES.	CARBON	430	5%	1/6W
R110	RD14BB2C431J	RES.	CARBON	430	5%	1/6W
R111	RD14BB2C431J	RES.	CARBON	430	5%	1/6W
R112	RD14BB2C431J	RES.	CARBON	430	5%	1/6W
R113	RD14BB2C431J	RES.	CARBON	430	5%	1/6W
R114	RD14BB2C431J	RES.	CARBON	430	5%	1/6W
R115	RD14BB2C431J	RES.	CARBON	430	5%	1/6W
R116	RD14BB2C431J	RES.	CARBON	430	5%	1/6W
R122	RD14BB2E390J	RES.	CARBON	39	5%	1/4W
R123	RD14BB2E220J	RES.	CARBON	22	5%	1/4W
R124	RD14BB2C154J	RES.	CARBON	150K	5%	1/6W
R125	RD14BB2C102J	RES.	CARBON	1K	5%	1/6W
R126	RD14BB2C154J	RES.	CARBON	150K	5%	1/6W
R127	RD14BB2C102J	RES.	CARBON	1K	5%	1/6W
R128	NO USE					
R129	RD14BB2E220J	RES.	CARBON	22	5%	1/4W
S51	S50-1426-05	TACT	SWITCH			
S52	S50-1426-05	TACT	SWITCH			
S53	S50-1426-05	TACT	SWITCH			
S54	S50-1426-05	TACT	SWITCH			
S55	S50-1426-05	TACT	SWITCH			
S56	S50-1426-05	TACT	SWITCH			
S57	S50-1426-05	TACT	SWITCH			
S58	S50-0503-05	TACT	SWITCH			
S59	S50-1426-05	TACT	SWITCH			
S60	S50-1426-05	TACT	SWITCH			
S61	S50-1426-05	TACT	SWITCH			

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X66-1140-02

REF. NO	PARTS NO	NAME & DESCRIPTION
S62	S50-1426-05	TACT SWITCH
S63	S50-1426-05	TACT SWITCH
S64	W02-0388-05	ROTARY ENCODER
S65	S50-1426-05	TACT SWITCH
S66	S50-1426-05	TACT SWITCH
U1	TC74HC14AP	IC,HEX SCHMITT INVERTER
U2	T93-0770-04	PROGRAMMED ROM
U3	HM6264ALP-15L	IC,C-MOS STATIC RAM
U4	HD64180R1P6	IC,CPU
U5	MB3773P-G	IC,RESET
U6	TC74HC139AP	IC,DUAL 2 TO 4 DEMULTIPLEXERS
U7	TC74HC257AP	IC,QUAD 2-DATA SELECT./MPX(3-S
U8	TC74HC259AP	IC,8-BIT ADDRESSABLE LATCHES
U9	TC74HC139AP	IC,DUAL 2 TO 4 DEMULTIPLEXERS
U10	TC74HC257AP	IC,QUAD 2-DATA SELECT./MPX(3-S
U11	TC74HC74AP	IC,DUAL D FLIP-FLOP
U12	NO USE	
U13	TC74HC32AP	IC,QUAD 2 INPUT OR
U51	TC9191P	IC,DRIVER
U52	TC74HC541AP	IC,OCTAL 3-STATE BUFFER
U53	TC74HC374AP	IC,OCTAL 3-STATE D-FFS
U54	TC9191P	IC,DRIVER
U55	TC74HC30AP	IC,8 INPUT NAND
U56	TC74HC74AP	IC,DUAL D FLIP-FLOP
U57	TC74HC14AP	IC,HEX SCHMITT INVERTER
U102	TC74HC125AP	IC,QUAD 3 STATE BUS BUFFERS
U103	PC837	IC,PHOTO COUPLER
U104	NO USE	
U105	PC837	IC,PHOTO COUPLER
U106	PC827	IC,PHOTO COUPLER
X1	L78-0114-05	CERAMIC OSCILLATOR

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\* \* \* P A R T S L I S T \* \* \*

X73-1980-01 (PWR 18-2TP AMP UNIT)

REF. NO	PARTS NO	NAME & DESCRIPTION			
	E38-0019-15	WIRE ASS'Y; JW3 TO Q16			
	E38-0480-05	WIRE ASS'Y; P18,22 TO JL11,12			
	F01-0894-04	HEAT SINK			
	F02-0520-05	HEAT SINK			
	F20-0647-05	INSULATOR			
	J73-0161-02	PCB (UNMOUNTED)			
	N09-0626-04	SCREW, SEMS PAN HD M3X10			
	N09-0776-05	SCREW, SEMS PAN HD M3X16			
	N14-0404-04	FLANGE NUT M3			
	N19-0191-05	WASHER NONMETAL			
C1	C90-3009-05	CAP. ELECTRO	2700	20%	25V
C2	C90-3009-05	CAP. ELECTRO	2700	20%	25V
C3	CE04EW1C331M	CAP. ELECTRO	330	20%	16V
C4	CE04EW1CZ21M	CAP. ELECTRO	220	20%	16V
C5	CE04EW1A470M	CAP. ELECTRO	47	20%	10V
C6	CE04EW1A101M	CAP. ELECTRO	100	20%	10V
C7	CE04EW1A101M	CAP. ELECTRO	100	20%	10V
C8	CE04EW1H2R2M	CAP. ELECTRO	2.2	20%	50V
C9	CE04EW1H2R2M	CAP. ELECTRO	2.2	20%	50V
C10	CE04EW1C100M	CAP. ELECTRO	10	20%	16V
C11	CE04EW1C100M	CAP. ELECTRO	10	20%	16V
C12	CE04EW1C100M	CAP. ELECTRO	10	20%	16V
C13	C90-0298-05	CAP. CERAMIC	0.1	20%	12V
C14	C90-0298-05	CAP. CERAMIC	0.1	20%	12V
C15	C90-0298-05	CAP. CERAMIC	0.1	20%	12V
C16	C90-0298-05	CAP. CERAMIC	0.1	20%	12V
C17	CK45FF1H103Z	CAP. CERAMIC	0.01		50V
C18	NO USE				
C19	CF92V1H105J	CAP. POLYESTER	1	5%	50V
C20	CF92V1H474J	CAP. POLYESTER	0.47	5%	50V
C21	CF92V1H105J	CAP. POLYESTER	1	5%	50V
C22	CF92V1H474J	CAP. POLYESTER	0.47	5%	50V
C23	CK45FF1H103Z	CAP. CERAMIC	0.01		50V
C24	CK45FF1H103Z	CAP. CERAMIC	0.01		50V
C25	CK45FF1H103Z	CAP. CERAMIC	0.01		50V
C26	CK45FF1H103Z	CAP. CERAMIC	0.01		50V
C27	CK45FF1H103Z	CAP. CERAMIC	0.01		50V
C28	CK45FF1H103Z	CAP. CERAMIC	0.01		50V
C29	CF92V1H474J	CAP. POLYESTER	0.47	5%	50V
C30	CF92V1H474J	CAP. POLYESTER	0.47	5%	50V
C31	C90-3011-05	CAP. ELECTRO	2200	20%	80V
C32	C90-3010-05	CAP. ELECTRO	10000	20%	50V
C33	CF93AN2E104K	CAP. METAL FILM	0.1	10%	250V
C34	CF93AN2E104K	CAP. METAL FILM	0.1	10%	250V
C41	CE04EW1H220M	CAP. ELECTRO	22	20%	50V
C42	NO USE				
C43	CE04EW1H470M	CAP. ELECTRO	47	20%	50V
C51	C91-0579-05	CAP. CERAMIC	1000P		500V
C52	C91-0579-05	CAP. CERAMIC	1000P		500V
D1	S1VB10	DIODE			
D2	MTZ13JB	DIODE, ZENER	12.88V		
D3	MTZ13JB	DIODE, ZENER	12.88V		
D4	MTZ5.1JB	DIODE, ZENER	5.07V		
D5	MTZ9.1JC	DIODE, ZENER	9.6V		
D6	HZT7A3	DIODE, ZENER			
D7	MTZ5.1JA	DIODE, ZENER	4.94V		

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X73-1980-01

REF. NO	PARTS NO	NAME & DESCRIPTION			
D8	1SS132	DIODE			
D9	1SS132	DIODE			
D10	1SS132	DIODE			
D11	1SS132	DIODE			
D12	1SS132	DIODE			
D13	1SS132	DIODE			
D14	1SS132	DIODE			
D15	1SS132	DIODE			
D16	1SS132	DIODE			
D17	1SS132	DIODE			
D18	1SS132	DIODE			
D21	S4VB20F1	DIODE			
D22	S10VB10F1	DIODE			
D23	DSA1A2	DIODE			
D24	DSA1A2	DIODE			
D25	1SS132	DIODE			
D26	1SS132	DIODE			
JW2	E38-0110-05	WIRE ASS'Y; JW2,3 TO Q15,16			
JW3	E38-0110-05	WIRE ASS'Y; JW2,3 TO Q15,16			
K1	S51-1528-05	RELAY			
K2	S51-1528-05	RELAY			
L1	L40-4701-03	FERRI INDUCTOR	47UH	10%	
P1	E23-0581-05	LUG TERMINAL			
P2	E23-0581-05	LUG TERMINAL			
P3	E23-0581-05	LUG TERMINAL			
P11	E40-3238-05	PIN CONNECTOR	3P		
P12	NO USE				
P13	E40-3237-05	PIN CONNECTOR	2P		
P14	E40-3911-05	PIN CONNECTOR	3P		
P15	E40-3911-05	PIN CONNECTOR	3P		
P16	E40-3238-05	PIN CONNECTOR	3P		
P17	E40-4248-05	PIN CONNECTOR	2P		
P18	E40-4248-05	PIN CONNECTOR	2P		
P19	NO USE				
P20	E40-5067-05	PIN CONNECTOR	10P		
P21	NO USE				
P22	E40-3237-05	PIN CONNECTOR	2P		
P23	E23-0401-05	PIN TERMINAL			
P24	E23-0401-05	PIN TERMINAL			
Q1	2SA1111(Q)	TR. SI, PNP			
Q2	2SC2591(Q)	TR. SI, NPN			
Q3	2SA1209(R)	TR. SI, PNP			
Q4	2SA1209(R)	TR. SI, PNP			
Q5	2SC1815(Y)	TR. SI, NPN			
Q6	2SC1815(Y)	TR. SI, NPN			
Q7	2SC1815(Y)	TR. SI, NPN			
R1	RD14BB2E361J	RES. CARBON	360	5%	1/4W
R2	RD14BB2E361J	RES. CARBON	360	5%	1/4W
R3	RD14BB2C431J	RES. CARBON	430	5%	1/6W
R4	RD14BB2C431J	RES. CARBON	430	5%	1/6W
R5	RD14BB2C512J	RES. CARBON	5.1K	5%	1/6W

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\* \* \* P A R T S L I S T \* \* \*

X73-1980-01

REF. NO	PARTS NO	NAME & DESCRIPTION				
R6	RN14BK2C1002F	RES. METAL FILM	10K	1%	1/6W	
R7	RN14BK2C1002F	RES. METAL FILM	10K	1%	1/6W	
R8	RN14BK2C6801F	RES. METAL FILM	6.8K	1%	1/6W	
R9	RN14BK2C5101F	RES. METAL FILM	5.1K	1%	1/6W	
R10	RD14BB2C512J	RES. CARBON	5.1K	5%	1/6W	
R11	RD14BB2C102J	RES. CARBON	1K	5%	1/6W	
R12	RD14BB2C181J	RES. CARBON	180	5%	1/6W	
R13	RD14BB2C221J	RES. CARBON	220	5%	1/6W	
R14	NO USE					
R15	RN14BK2C6651F	RES. METAL FILM	6.65K	1%	1/6W	
R16	RN14BK2C1002F	RES. METAL FILM	10K	1%	1/6W	
R17	RN14BK2C9530F	RES. METAL FILM	953	1%	1/6W	
R18	RN14BK2C9530F	RES. METAL FILM	953	1%	1/6W	
R19	RD14BB2C112J	RES. CARBON	1.1K	5%	1/6W	
R20	RN14BK2C8200F	RES. METAL FILM	820	1%	1/6W	
R21	RN14BK2C3001F	RES. METAL FILM	3K	1%	1/6W	
R22	RN14BK2C1500F	RES. METAL FILM	150	1%	1/6W	
R28	R92-1472-05	RES. NETWORK	1K, 10K			
R29	NO USE					
R30	R92-1465-05	RES. NETWORK	2K, 10K			
R31	RD14BB2C361J	RES. CARBON	360	5%	1/6W	
R32	RD14BB2C102J	RES. CARBON	1K	5%	1/6W	
R33	RD14BB2C361J	RES. CARBON	360	5%	1/6W	
R34	RD14BB2C102J	RES. CARBON	1K	5%	1/6W	
R35	R90-1119-05	RES. NETWORK	2K, 18K			
R36	RD14BB2C432J	RES. CARBON	4.3K	5%	1/6W	
R37	R90-1118-05	RES. NETWORK	3K, 12K			
R38	RD14BB2C102J	RES. CARBON	1K	5%	1/6W	
R39	RD14BB2C512J	RES. CARBON	5.1K	5%	1/6W	
R40	R92-1061-05	JUMPING RES.	ZERO OHM	(5MM)		
R41	RD14BB2C203J	RES. CARBON	20K	5%	1/6W	
R42	NO USE					
R43	RD14BB2E152J	RES. CARBON	1.5K	5%	1/4W	
R44	RD14BB2E152J	RES. CARBON	1.5K	5%	1/4W	
R45	RD14BB2C162J	RES. CARBON	1.6K	5%	1/6W	
R46	RD14BB2C162J	RES. CARBON	1.6K	5%	1/6W	
R47	R92-0150-05	JUMPING RES.	ZERO OHM	(10MM)		
R48	R92-1061-05	JUMPING RES.	ZERO OHM	(5MM)		
R49	RD14BB2C102J	RES. CARBON	1K	5%	1/6W	
R50	RD14BB2C102J	RES. CARBON	1K	5%	1/6W	
R51	RD14BB2C103J	RES. CARBON	10K	5%	1/6W	
R52	RD14BB2C103J	RES. CARBON	10K	5%	1/6W	
R53	RD14BB2C103J	RES. CARBON	10K	5%	1/6W	
R54	RD14BB2C103J	RES. CARBON	10K	5%	1/6W	
R55	RD14BB2C181J	RES. CARBON	180	5%	1/6W	
R56	RD14BB2C181J	RES. CARBON	180	5%	1/6W	
R57	R92-1456-05	RES. CEMENT	1	5%	3W	
R58	R92-1455-05	RES. CEMENT	0.47	5%	5W	
R59	RD14BB2C122J	RES. CARBON	1.2K	5%	1/6W	
R60	RD14BB2C102J	RES. CARBON	1K	5%	1/6W	
R63	RD14BB2C361J	RES. CARBON	360	5%	1/6W	
R64	RN14BK2C1602F	RES. METAL FILM	16K	1%	1/6W	
R65	RN14BK2C1801F	RES. METAL FILM	1.8K	1%	1/6W	
R66	RN14BK2C1602F	RES. METAL FILM	16K	1%	1/6W	
R67	RN14BK2C1801F	RES. METAL FILM	1.8K	1%	1/6W	
R68	RN14BK2C1004F	RES. METAL FILM	1M	1%	1/6W	
R69	RN14BK2C1004F	RES. METAL FILM	1M	1%	1/6W	

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\* \* \* P A R T S L I S T \* \* \*

X73-1980-01

REF. NO	PARTS NO	NAME & DESCRIPTION		
R70	RN14BK2E2004F	RES. METAL FILM	2M	1% 1/4W
R71	RN14BK2E2004F	RES. METAL FILM	2M	1% 1/4W
R72	RD14BB2C511J	RES. CARBON	510	5% 1/6W
R73	RD14BB2C511J	RES. CARBON	510	5% 1/6W
R74	RD14BB2C331J	RES. CARBON	330	5% 1/6W
R75	RD14BB2C331J	RES. CARBON	330	5% 1/6W
R76	R92-1061-05	JUMPING RES.	ZERO OHM	(5MM)
R81	R92-0150-05	JUMPING RES.	ZERO OHM	(10MM)
R82	R92-1061-05	JUMPING RES.	ZERO OHM	(5MM)
R154	E31-2170-05	JUMPING WIRE		
R155	E31-2170-05	JUMPING WIRE		
R156	E31-2170-05	JUMPING WIRE		
R157	RD14DB2H1R5J	RES. CARBON	1.5	5% 1/2W
R158	RD14DB2H1R5J	RES. CARBON	1.5	5% 1/2W
R159	RD14DB2H1R5J	RES. CARBON	1.5	5% 1/2W
R160	RD14BB2C271J	RES. CARBON	270	5% 1/6W
R161	RD14BB2C271J	RES. CARBON	270	5% 1/6W
R162	RD14BB2C271J	RES. CARBON	270	5% 1/6W
R163	RD14BB2C102J	RES. CARBON	1K	5% 1/6W
R164	RD14DB3AR75J	RES. CARBON	0.75	5% 1W
R165	RD14DB3AR75J	RES. CARBON	0.75	5% 1W
R166	RD14DB3AR75J	RES. CARBON	0.75	5% 1W
R167	RD14BB2E131J	RES. CARBON	130	5% 1/4W
R168	RD14BB2E131J	RES. CARBON	130	5% 1/4W
R169	RD14BB2E131J	RES. CARBON	130	5% 1/4W
R170	RD14BB2C102J	RES. CARBON	1K	5% 1/6W
R174	RD14DB3D132J	RES. CARBON	1.3K	5% 2W
R175	RD14DB3A681J	RES. CARBON	680	5% 1W
TP1	E23-0401-05	PIN TERMINAL		
U1	NJM7805FA	IC, 3-TERMINAL REGULATOR		
U2	NJM4558D	IC, DUAL OP AMP		
U3	TC4094BP	IC, 8-STAGE SHIFT/STORE REGISTE		
U4	TC4094BP	IC, 8-STAGE SHIFT/STORE REGISTE		
U5	TC4094BP	IC, 8-STAGE SHIFT/STORE REGISTE		
U6	AM6012DC	IC, 12-BIT D/A CONVERTER		
U7	HD14053BP	IC, TRIPLE 2CH ANALOG MPX/DE-MP		
U8	HD14052BP	IC, DUAL ANALOG MULTIPLEXER		
U9	NJM4558D	IC, DUAL OP AMP		
U10	NJM072BD	IC, JFET INPUT OP AMP		
U11	NJM072BD	IC, JFET INPUT OP AMP		
U12	NJM4558D	IC, DUAL OP AMP		
U13	NJM4558D	IC, DUAL OP AMP		
U14	NJM4560D	IC, OP AMP		
U15	PC619	IC, PHOTO COUPLER		
U16	PC619	IC, PHOTO COUPLER		
U17	TC74HC11AP	IC, TRIPLE 3 INPUT AND		
VR1	R12-0556-05	RES. SEMI FIXED	100	
VR2	R12-0556-05	RES. SEMI FIXED	100	
VR3	R12-0541-05	RES. SEMI FIXED	100 B	
VR4	R12-0541-05	RES. SEMI FIXED	100 B	

\* \* \* P A R T S L I S T \* \* \*

X73-1980-02 ( PWR 18-2TP AMP UNIT )

REF. NO	PARTS NO	NAME & DESCRIPTION			
	E38-0481-05	WIRE ASS'Y;P18,22 TO JL12,JW1			
	F02-0520-05	HEAT SINK			
	F20-0647-05	INSULATOR			
	J73-0161-02	PCB (UNMOUNTED)			
	N09-0626-04	SCREW,SEMS PAN HD M3X10			
	N19-0191-05	WASHER NONMETAL			
C1	C90-3009-05	CAP. ELECTRO	2700	20%	25V
C2	C90-3009-05	CAP. ELECTRO	2700	20%	25V
C3	CE04EW1C331M	CAP. ELECTRO	330	20%	16V
C4	CE04EW1C221M	CAP. ELECTRO	220	20%	16V
C5	CE04EW1A470M	CAP. ELECTRO	47	20%	10V
C6	CE04EW1A101M	CAP. ELECTRO	100	20%	10V
C7	CE04EW1A101M	CAP. ELECTRO	100	20%	10V
C8	NO USE				
C9	CE04EW1H2R2M	CAP. ELECTRO	2.2	20%	50V
C10	CE04EW1C100M	CAP. ELECTRO	10	20%	16V
C11	CE04EW1C100M	CAP. ELECTRO	10	20%	16V
C12	CE04EW1C100M	CAP. ELECTRO	10	20%	16V
C13	C90-0298-05	CAP. CERAMIC	0.1	20%	12V
C14	C90-0298-05	CAP. CERAMIC	0.1	20%	12V
C15	C90-0298-05	CAP. CERAMIC	0.1	20%	12V
C16	C90-0298-05	CAP. CERAMIC	0.1	20%	12V
C17	CK45FF1H103Z	CAP. CERAMIC	0.01		50V
C21	CF92V1H105J	CAP. POLYESTER	1	5%	50V
C22	CF92V1H474J	CAP. POLYESTER	0.47	5%	50V
C23	CK45FF1H103Z	CAP. CERAMIC	0.01		50V
C24	CK45FF1H103Z	CAP. CERAMIC	0.01		50V
C25	CK45FF1H103Z	CAP. CERAMIC	0.01		50V
C26	CK45FF1H103Z	CAP. CERAMIC	0.01		50V
C27	CK45FF1H103Z	CAP. CERAMIC	0.01		50V
C28	CK45FF1H103Z	CAP. CERAMIC	0.01		50V
C29	CF92V1H474J	CAP. POLYESTER	0.47	5%	50V
C32	C90-0973-05	CAP. ELECTRO	6800	20%	25V
C33	NO USE				
C34	CF93AN2E104K	CAP. METAL FILM	0.1	10%	250V
C43	CE04EW1H470M	CAP. ELECTRO	47	20%	50V
D1	S1VB10	DIODE			
D2	MTZ13JB	DIODE, ZENER	12.88V		
D3	MTZ13JB	DIODE, ZENER	12.88V		
D4	MTZ5.1JB	DIODE, ZENER	5.07V		
D5	MTZ9.1JC	DIODE, ZENER	9.6V		
D6	HZT7A3	DIODE, ZENER			
D7	MTZ5.1JA	DIODE, ZENER	4.94V		
D10	1SS132	DIODE			
D11	1SS132	DIODE			
D14	1SS132	DIODE			
D15	1SS132	DIODE			
D16	NO USE				
D17	1SS132	DIODE			
D18	1SS132	DIODE			
D24	DSA1A2	DIODE			

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\* \* \* P A R T S L I S T \* \* \*

X73-1980-02

REF. NO	PARTS NO	NAME & DESCRIPTION			
L1	L40-4701-03	FERRI INDUCTOR	47UH	10%	
P1	E23-0581-05	LUG TERMINAL			
P2	NO USE				
P3	E23-0581-05	LUG TERMINAL			
P11	E40-3238-05	PIN CONNECTOR	3P		
P12	NO USE				
P13	E40-3237-05	PIN CONNECTOR	2P		
P14	NO USE				
P15	E40-4248-05	PIN CONNECTOR	2P		
P16	NO USE				
P17	E40-4248-05	PIN CONNECTOR	2P		
P18	E40-4248-05	PIN CONNECTOR	2P		
P19	NO USE				
P20	E40-5067-05	PIN CONNECTOR	10P		
P21	NO USE				
P22	E40-3237-05	PIN CONNECTOR	2P		
P23	NO USE				
P24	E23-0401-05	PIN TERMINAL			
Q1	2SA1111(Q)	TR. SI, PNP			
Q2	2SC2591(Q)	TR. SI, NPN			
Q3	NO USE				
Q4	2SC2911(R)	TR. SI, NPN			
R1	RD14BB2E361J	RES. CARBON	360	5%	1/4W
R2	RD14BB2E361J	RES. CARBON	360	5%	1/4W
R3	RD14BB2C431J	RES. CARBON	430	5%	1/6W
R4	RD14BB2C431J	RES. CARBON	430	5%	1/6W
R5	RD14BB2C512J	RES. CARBON	5.1K	5%	1/6W
R6	RN14BK2C1002F	RES. METAL FILM	10K	1%	1/6W
R7	RN14BK2C1002F	RES. METAL FILM	10K	1%	1/6W
R8	RN14BK2C6801F	RES. METAL FILM	6.8K	1%	1/6W
R9	RN14BK2C5101F	RES. METAL FILM	5.1K	1%	1/6W
R10	RD14BB2C512J	RES. CARBON	5.1K	5%	1/6W
R11	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R12	RD14BB2C181J	RES. CARBON	180	5%	1/6W
R13	RD14BB2C221J	RES. CARBON	220	5%	1/6W
R14	NO USE				
R15	RN14BK2C6651F	RES. METAL FILM	6.65K	1%	1/6W
R16	RN14BK2C1002F	RES. METAL FILM	10K	1%	1/6W
R17	RN14BK2C9530F	RES. METAL FILM	953	1%	1/6W
R18	RN14BK2C9530F	RES. METAL FILM	953	1%	1/6W
R19	RD14BB2C112J	RES. CARBON	1.1K	5%	1/6W
R20	RN14BK2C8200F	RES. METAL FILM	820	1%	1/6W
R21	RN14BK2C3001F	RES. METAL FILM	3K	1%	1/6W
R22	RN14BK2C1500F	RES. METAL FILM	150	1%	1/6W
R30	R92-1465-05	RES. NETWORK	2K, 10K		
R33	RD14BB2C361J	RES. CARBON	360	5%	1/6W
R34	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R37	R90-1118-05	RES. NETWORK	3K, 12K		
R38	NO USE				
R39	RD14BB2C512J	RES. CARBON	5.1K	5%	1/6W
R40	RD14BB2C153J	RES. CARBON	15K	5%	1/6W
R41	RD14BB2C512J	RES. CARBON	5.1K	5%	1/6W

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\* \* \* P A R T S L I S T \* \* \*

X73-1980-02

REF. NO	PARTS NO	NAME & DESCRIPTION			
R44	RD14BB2E152J	RES. CARBON	1.5K	5%	1/4W
R45	NO USE				
R46	RD14BB2C162J	RES. CARBON	1.6K	5%	1/6W
R47	R92-1061-05	JUMPING RES.	ZERO	OHM	(5MM)
R48	R92-0150-05	JUMPING RES.	ZERO	OHM	(10MM)
R53	RD14BB2C103J	RES. CARBON	10K	5%	1/6W
R54	RD14BB2C103J	RES. CARBON	10K	5%	1/6W
R55	NO USE				
R56	RD14BB2C181J	RES. CARBON	180	5%	1/6W
R57	NO USE				
R58	R92-1455-05	RES. CEMENT	0.47	5%	5W
R59	RD14BB2C122J	RES. CARBON	1.2K	5%	1/6W
R60	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R63	RD14BB2C361J	RES. CARBON	360	5%	1/6W
R64	RN14BK2C1602F	RES. METAL FILM	16K	1%	1/6W
R65	RN14BK2C1801F	RES. METAL FILM	1.8K	1%	1/6W
R66	RN14BK2C1602F	RES. METAL FILM	16K	1%	1/6W
R67	RN14BK2C1801F	RES. METAL FILM	1.8K	1%	1/6W
R68	RN14BK2C1004F	RES. METAL FILM	1M	1%	1/6W
R69	RN14BK2C1004F	RES. METAL FILM	1M	1%	1/6W
R70	RN14BK2E2004F	RES. METAL FILM	2M	1%	1/4W
R71	RN14BK2E2004F	RES. METAL FILM	2M	1%	1/4W
R72	NO USE				
R73	RD14BB2C511J	RES. CARBON	510	5%	1/6W
R74	NO USE				
R75	RD14BB2C331J	RES. CARBON	330	5%	1/6W
R76	NO USE				
R77	R92-1061-05	JUMPING RES.	ZERO	OHM	(5MM)
R78	R92-1061-05	JUMPING RES.	ZERO	OHM	(5MM)
R81	R92-1061-05	JUMPING RES.	ZERO	OHM	(5MM)
R82	R92-0150-05	JUMPING RES.	ZERO	OHM	(10MM)
R164	RD14DB3AR51J	RES. CARBON	0.51	5%	1W
R165	RD14DB3AR51J	RES. CARBON	0.51	5%	1W
R166	NO USE				
R167	RD14BB2E101J	RES. CARBON	100	5%	1/4W
R168	RD14BB2E101J	RES. CARBON	100	5%	1/4W
R169	NO USE				
R170	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R175	RD14BB2E561J	RES. CARBON	560	5%	1/4W
R213	E31-2170-05	JUMPING WIRE			
R214	E31-2170-05	JUMPING WIRE			
TP1	E23-0401-05	PIN TERMINAL			
U1	NJM7805FA	IC, 3-TERMINAL REGULATOR			
U2	NJM4558D	IC, DUAL OP AMP			
U3	TC4094BP	IC, 8-STAGE SHIFT/STORE REGISTE			
U4	TC4094BP	IC, 8-STAGE SHIFT/STORE REGISTE			
U5	TC4094BP	IC, 8-STAGE SHIFT/STORE REGISTE			
U6	AM6012DC	IC, 12-BIT D/A CONVERTER			
U7	HD14053BP	IC, TRIPLE 2CH ANALOG MPX/DE-MP			
U8	HD14052BP	IC, DUAL ANALOG MULTIPLEXER			

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\* \* \* P A R T S L I S T \* \* \*

X73-1980-02

REF. NO	PARTS NO	NAME & DESCRIPTION
U9	NJM4558D	IC,DUAL OP AMP
U10	NO USE	
U11	NJM072BD	IC,JFET INPUT OP AMP
U12	NO USE	
U13	NJM4558D	IC,DUAL OP AMP
U14	NJM4560D	IC,OP AMP
U15	NO USE	
U16	PC619	IC,PHOTO COUPLER
U17	TC74HC11AP	IC,TRIPLE 3 INPUT AND
VR1	R12-0556-05	RES. SEMI FIXED 100
VR2	R12-0556-05	RES. SEMI FIXED 100
VR3	NO USE	
VR4	R12-0541-05	RES. SEMI FIXED 100 B

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\* \* \* P A R T S L I S T \* \* \*

X81-2880-05 (PWR18-2TP) TERMINAL UNIT

REF. NO	PARTS NO	NAME & DESCRIPTION			
	E38-0017-05	WIRE ASS'Y; JL1,2,3 TO P109			
	E38-0020-15	WIRE ASS'Y; JL9 TO P121			
	E38-0479-05	WIRE ASS'Y; JL4,5,12,13 JW6 TO			
	J73-0019-03	PCB (UNMOUNTED)			
C1	CE04EW1H221M	CAP. ELECTRO	220	20%	50V
C2	CE04EW1E471M	CAP. ELECTRO	470	20%	25V
C3	NO USE				
C4	CE04EW1C471M	CAP. ELECTRO	470	20%	16V
C111	C91-0579-05	CAP. CERAMIC	1000P		500V
C112	C91-0579-05	CAP. CERAMIC	1000P		500V
C113	C91-0579-05	CAP. CERAMIC	1000P		500V
C114	C91-0579-05	CAP. CERAMIC	1000P		500V
C115	C91-0579-05	CAP. CERAMIC	1000P		500V
C116	C91-0579-05	CAP. CERAMIC	1000P		500V
C117	C91-0579-05	CAP. CERAMIC	1000P		500V
C118	C91-0579-05	CAP. CERAMIC	1000P		500V
C119	C91-0579-05	CAP. CERAMIC	1000P		500V
C120	C91-0579-05	CAP. CERAMIC	1000P		500V
C121	C91-0579-05	CAP. CERAMIC	1000P		500V
C122	C91-0579-05	CAP. CERAMIC	1000P		500V
R1	RD14DB3D122J	RES. CARBON	1.2K	5%	2W
R2	RD14DB3D301J	RES. CARBON	300	5%	2W
R3	NO USE				
R4	R92-1061-05	JUMPING RES.	ZERO	OHM	(5MM)
R5	R92-1061-05	JUMPING RES.	ZERO	OHM	(5MM)
R6	RD14BB2E561J	RES. CARBON	560	5%	1/4W

\* \* \* P A R T S L I S T \* \* \*

X81-2890-00 (PWR18-2TP BUFFER UNIT)

REF. NO	PARTS NO	NAME & DESCRIPTION			
	J73-0030-03	PCB (UNMOUNTED)			
C1	CE04EW1A100M	CAP. ELECTRO	10	20%	10V
C2	CE04EW1C220M	CAP. ELECTRO	22	20%	16V
C3	CE04EW1C220M	CAP. ELECTRO	22	20%	16V
C4	CE04EW1C220M	CAP. ELECTRO	22	20%	16V
C5	CE04JW1A100M	CAP. ELECTRO	10	20%	10V
C6	CE04EW1C220M	CAP. ELECTRO	22	20%	16V
D901	1SS132	DIODE			
P1	E40-3303-05	PIN CONNECTOR	6P		
P2	E58-0606-05	MODULE CONNECTOR			
Q1	2SC2785(F)	TR. SI, NPN			
R1	RD14BB2C222J	RES. CARBON	2.2K	5%	1/6W
R2	RD14BB2C222J	RES. CARBON	2.2K	5%	1/6W
R3	RD14BB2C472J	RES. CARBON	4.7K	5%	1/6W
U1	MAX232CPE	IC, RS-232C DRIVERS/RECEIVERS			

## PWR18-2P 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 unit, check the power supply voltage.

### TEST EQUIPMENT REQUIRED

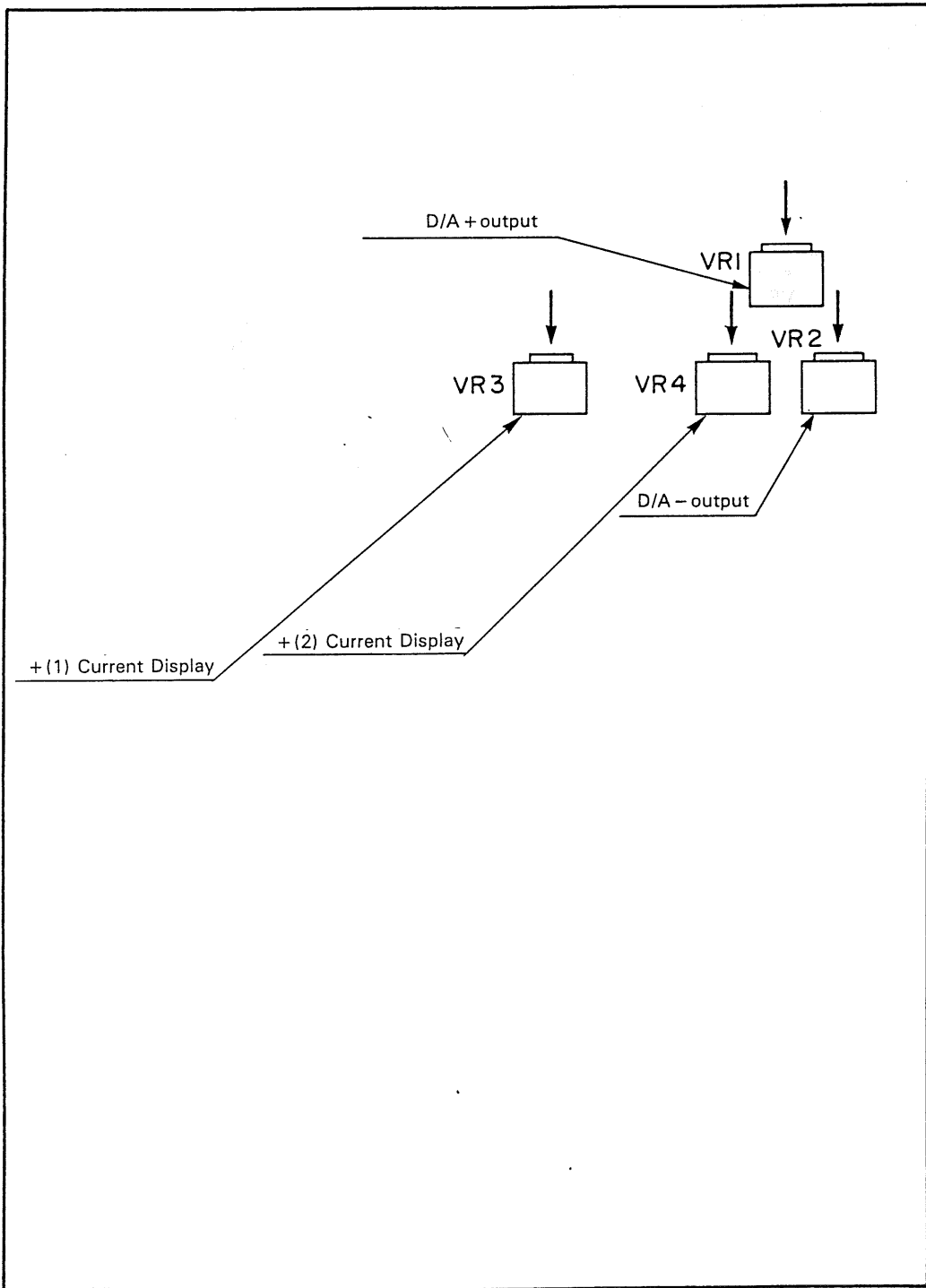
The following instrument or their equivalent should be used for making adjustment.

Multimeter	45	FLUKE
Oscilloscope	CS-4025	KENWOOD

Item	Adjustment VR	P.C.B	Procedure						
D/A + Output	VR1	X73-1980-00	<ol style="list-style-type: none"> <li>1. Connect the multimeter as follows:  <table style="margin-left: 20px; border: none;"> <tr> <td>Multimeter</td> <td style="padding-left: 20px;">PWR</td> </tr> <tr> <td style="padding-left: 20px;">+</td> <td style="padding-left: 20px;">to X73-1980-00 TP1</td> </tr> <tr> <td>COM</td> <td style="padding-left: 20px;">to COM terminal on the panel</td> </tr> </table>                     At this point, set the multimeter to the voltage measurement mode.                 </li> <li>2. Set the PW to the voltage adjustment mode.                      Turn the power switch ON pressing the KEYLOCK switch.                      Set the KEYLOCK switch free when the LEDs go on.                      At this point, all the 7-segment LEDs display "8".</li> <li>3. Press the PRESET1 and observe the multimeter.                      Assume that the value at this point is P.</li> <li>4. Press the PRESET2. Then adjust the VR1 so that the multimeter indicates (P + 4.096) V. <math>\pm 2mV</math></li> </ol>	Multimeter	PWR	+	to X73-1980-00 TP1	COM	to COM terminal on the panel
Multimeter	PWR								
+	to X73-1980-00 TP1								
COM	to COM terminal on the panel								
D/A - Output	VR2	<ol style="list-style-type: none"> <li>1. Press the PRESET3 and observe the multimeter.                      Assume that the value at this point is Q.</li> <li>2. Press the VARIABLE. Then adjust the VR2 so that the multimeter indicates (Q + 4.096) V. <math>\pm 2mV</math></li> <li>3. Cancel the voltage adjustment mode by pressing the V switch.                      (Cancellation will take about 10 seconds.)</li> </ol>							
+ (1) Current Display	VR3	<ol style="list-style-type: none"> <li>1. Connect the multimeter as follows:  <table style="margin-left: 20px; border: none;"> <tr> <td>Multimeter</td> <td style="padding-left: 20px;">PWR</td> </tr> <tr> <td style="padding-left: 20px;">+</td> <td style="padding-left: 20px;">to +18 V terminal on the panel</td> </tr> <tr> <td>COM</td> <td style="padding-left: 20px;">to COM terminal on the panel</td> </tr> </table>                     At this point, set the multimeter to the current measurement mode.                 </li> <li>2. Turn the OUTPUT switch ON. Then adjust the multimeter by turning the rotary knob so that it indicates 2.00 A. At this point, make sure that the +18 V LED blinks and the unit maintains a constant current.</li> <li>3. Adjust the VR3 so that the multimeter indicates 2.00 A.</li> </ol>	Multimeter	PWR	+	to +18 V terminal on the panel	COM	to COM terminal on the panel	
Multimeter	PWR								
+	to +18 V terminal on the panel								
COM	to COM terminal on the panel								
+ (2) Current Display	VR4	<ol style="list-style-type: none"> <li>1. Connect the multimeter as follows:  <table style="margin-left: 20px; border: none;"> <tr> <td>Multimeter</td> <td style="padding-left: 20px;">PWR</td> </tr> <tr> <td style="padding-left: 20px;">+</td> <td style="padding-left: 20px;">to +18 V terminal on the panel</td> </tr> <tr> <td>COM</td> <td style="padding-left: 20px;">to COM terminal on the panel</td> </tr> </table>                     At this point, set the multimeter to the current measurement mode.                 </li> <li>2. Display +18 V on the 7-segment LED by pressing the -18 V switch.</li> <li>3. Turn the OUTPUT switch ON. Then adjust the multimeter by turning the rotary knob so that it indicates 2.00 A. At this point, make sure that the +18 V LED blinks and the unit maintains a constant current.</li> <li>4. Adjust the VR4 so that the multimeter indicates 2.00 A.</li> </ol>	Multimeter	PWR	+	to +18 V terminal on the panel	COM	to COM terminal on the panel	
Multimeter	PWR								
+	to +18 V terminal on the panel								
COM	to COM terminal on the panel								



# PWR18-2P ADJUSTMENT



# PWR18-2TP 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 unit, check the power supply voltage.

## TEST EQUIPMENT REQUIRED

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

Multimeter	45	FLUKE
Oscilloscope	CS-4025	KENWOOD

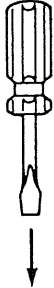
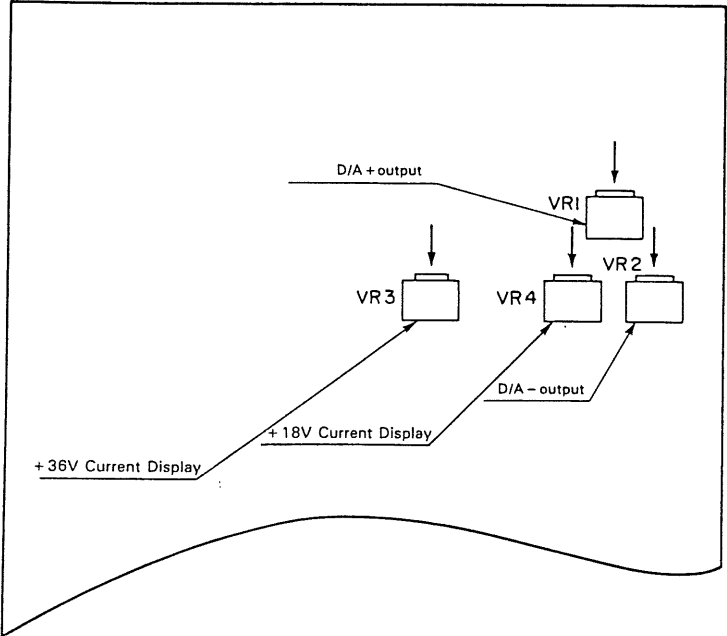
Item	Adjustment VR	P.C.B	Procedure
D/A + Output	VR1	X73-1980-01	<ol style="list-style-type: none"> <li>1. Connect the multimeter as follows:  Multimeter            PWR  +                        to    X73-1980-01 TP1  COM                    to    COM<sub>1</sub> terminal on the panel  At this point, set the multimeter to the voltage measurement mode.</li> <li>2. Set the PW to the voltage adjustment mode.  Turn the power switch ON pressing the KEYLOCK switch.  Set the KEYLOCK switch free when the LEDs go on.  At this point, all the 7-segment LEDs display "8".</li> <li>3. Press the PRESET1 and observe the multimeter.  Assume that the value at this point is P.</li> <li>4. Press the PRESET2. Then adjust the VR1 so that the multimeter indicates (P + 4.096) V. ± 2mV</li> </ol>
D/A - Output	VR2		<ol style="list-style-type: none"> <li>1. Press the PRESET3 and observe the multimeter.  Assume that the value at this point is Q.</li> <li>2. Press the VARIABLE. Then adjust the VR2 so that the multimeter indicates (Q + 4.096) V. ± 2mV</li> <li>3. Cancel the voltage adjustment mode by pressing the V switch.  (Cancellation will take about 10 seconds.)</li> </ol>
+ 36 V Current Display	VR3		<ol style="list-style-type: none"> <li>1. Connect the multimeter as follows:  Multimeter            PWR  +                        to    +36 V terminal on the panel  COM                    to    COM<sub>1</sub> terminal on the panel  At this point, set the multimeter to the current measurement mode.</li> <li>2. Turn the OUTPUT switch ON. Then adjust the multimeter by turning the rotary knob so that it indicates 1.00 A. At this point, make sure that the + 36 V LED blinks and the unit maintains a constant current.</li> <li>3. Adjust the VR3 so that the multimeter indicates 1.00 A.</li> </ol>
+ 18 V Current Display	VR4		<ol style="list-style-type: none"> <li>1. Connect the multimeter as follows:  Multimeter            PWR  +                        to    +18 V terminal on the panel  COM                    to    COM<sub>1</sub> terminal on the panel  At this point, set the multimeter to the current measurement mode.</li> <li>2. Display + 18 V on the 7-segment LED by pressing the + 18 V switch.</li> <li>3. Turn the OUTPUT switch ON. Then adjust the multimeter by turning the rotary knob so that it indicates 2.00 A. At this point, make sure that the + 18 V LED blinks and the unit maintains a constant current.</li> <li>4. Adjust the VR4 so that the multimeter indicates 2.00 A.</li> </ol>

## PWR18-2TP ADJUSTMENT

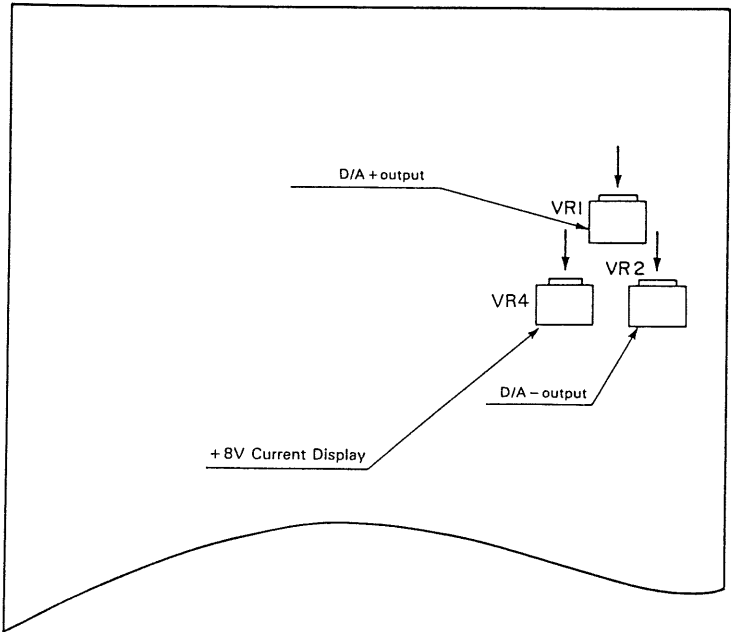
Item	Adjustment VR	P.C.B	Procedure						
D/A + Output	VR1	X73-1980-02	<ol style="list-style-type: none"> <li>1. Connect the multimeter as follows:  <div style="margin-left: 40px;"> <table style="border: none;"> <tr> <td>Multimeter</td> <td style="padding-left: 20px;">PWR</td> </tr> <tr> <td style="padding-left: 40px;">+</td> <td style="padding-left: 20px;">to X73-1980-02 TP</td> </tr> <tr> <td style="padding-left: 40px;">COM</td> <td style="padding-left: 20px;">to +8 V terminal on the panel</td> </tr> </table> </div>                     At this point, set the multimeter to the voltage measurement mode.                 </li> <li>2. Set the PW to the voltage adjustment mode.                      Turn the power switch ON pressing the KEYLOCK switch.                      Set the KEYLOCK switch free when the LEDs go on.                      At this point, all the 7-segment LEDs display "8".                 </li> <li>3. Press the PRESET1 and observe the multimeter.                      Assume that the value at this point is P.                 </li> <li>4. Press the PRESET2. Then adjust the VR1 so that the multimeter indicates <math>(P + 4.096) \text{ V} \pm 2\text{mV}</math></li> </ol>	Multimeter	PWR	+	to X73-1980-02 TP	COM	to +8 V terminal on the panel
Multimeter	PWR								
+	to X73-1980-02 TP								
COM	to +8 V terminal on the panel								
D/A - Output	VR2	<ol style="list-style-type: none"> <li>1. Press the PRESET3 and observe the multimeter.                      Assume that the value at this point is Q.</li> <li>2. Press the VARIABLE. Then adjust the VR2 so that the multimeter indicates <math>(Q + 4.096) \text{ V} \pm 2\text{mV}</math></li> <li>3. Cancel the voltage adjustment mode by pressing the V switch.                      (Cancellation will take about 10 seconds.)</li> </ol>							
+8 V Current Display	VR4	<ol style="list-style-type: none"> <li>1. Connect the multimeter as follows:  <div style="margin-left: 40px;"> <table style="border: none;"> <tr> <td>Multimeter</td> <td style="padding-left: 20px;">PWR</td> </tr> <tr> <td style="padding-left: 40px;">+</td> <td style="padding-left: 20px;">to +8 V terminal on the panel</td> </tr> <tr> <td style="padding-left: 40px;">COM</td> <td style="padding-left: 20px;">to COM<sub>2</sub> terminal on the panel</td> </tr> </table> </div>                     At this point, set the multimeter to the current measurement mode.                 </li> <li>2. Display +8 V on the 7-segment LED by pressing the +8 V switch.</li> <li>3. Turn the OUTPUT switch ON. Then adjust the multimeter by turning the rotary knob so that it indicates 2.00 A. At this point, make sure that the +8 V LED blinks and the unit maintains a constant current.</li> <li>4. Adjust the VR4 so that the multimeter indicates 2.00 A.</li> </ol>	Multimeter	PWR	+	to +8 V terminal on the panel	COM	to COM <sub>2</sub> terminal on the panel	
Multimeter	PWR								
+	to +8 V terminal on the panel								
COM	to COM <sub>2</sub> terminal on the panel								

# PWR18-2TP ADJUSTMENT

+36/+18 V AMP UNIT (X73-1980-01)



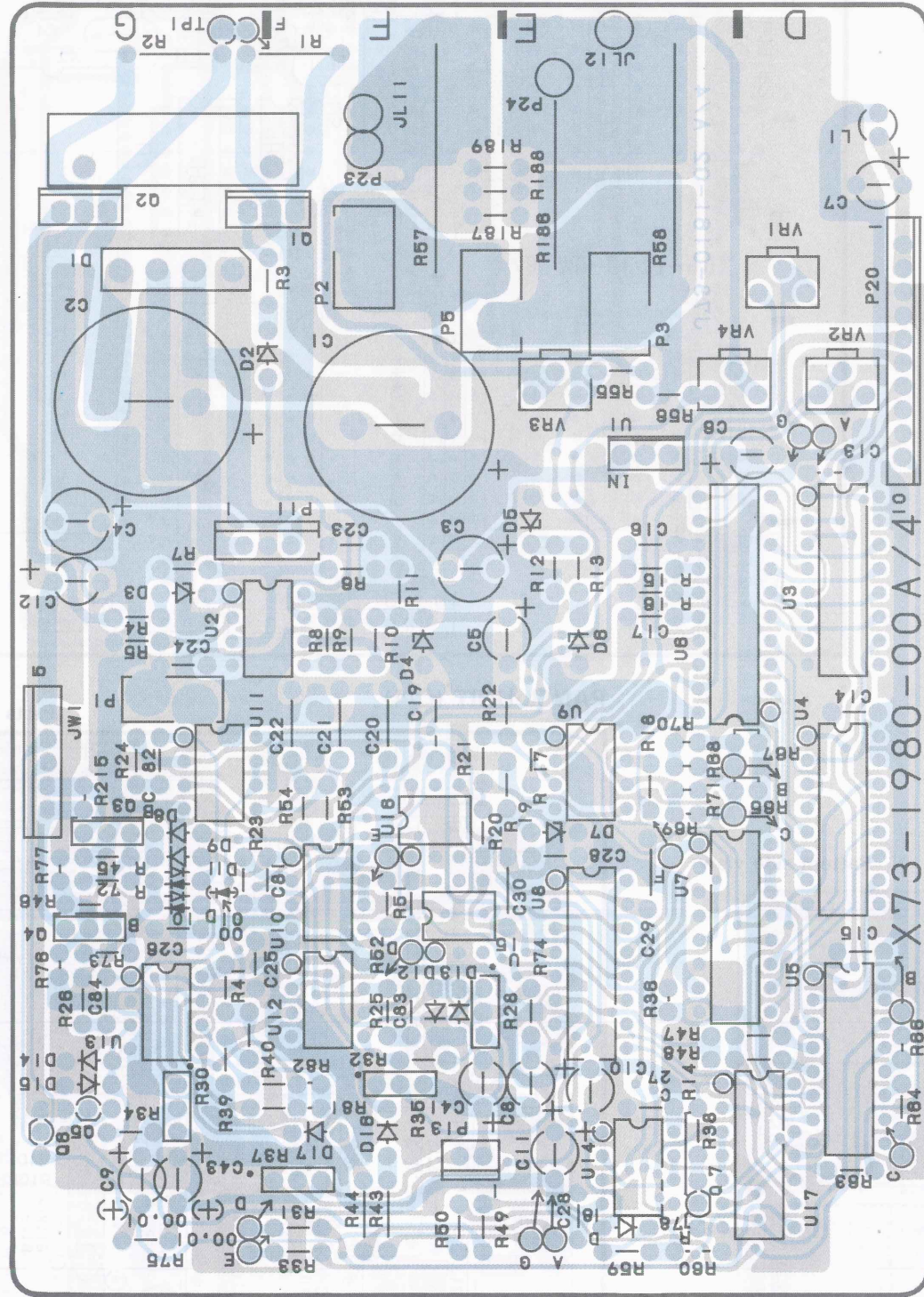
+8 V AMP UNIT (X73-1980-02)



# PWR18-2P P.C. BOARD

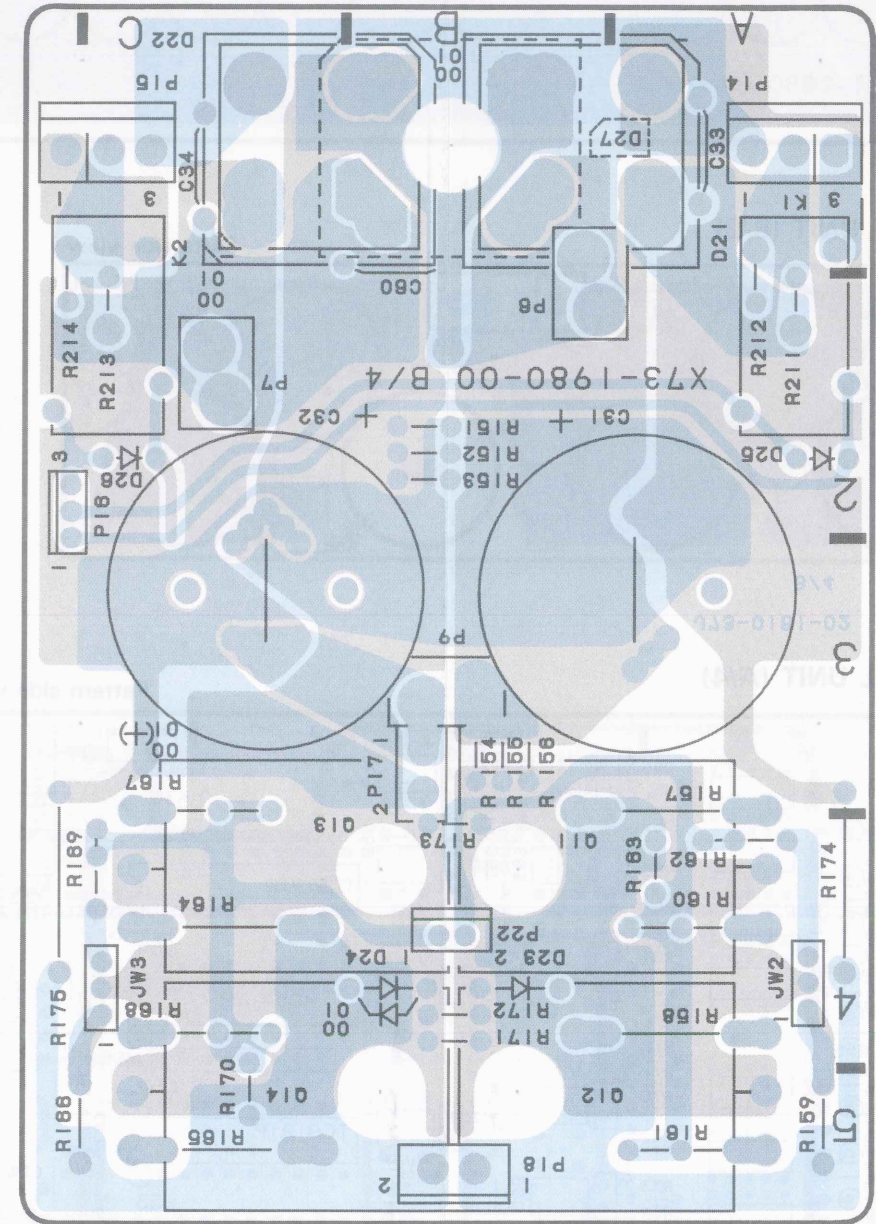
AMP UNIT (A/4)

Parts side view



AMP UNIT (B/4)

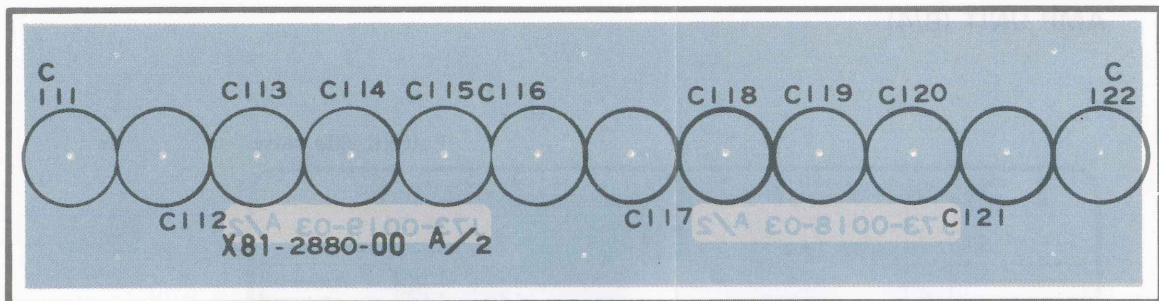
Pattern side view



# PWR18-2P P.C. BOARD

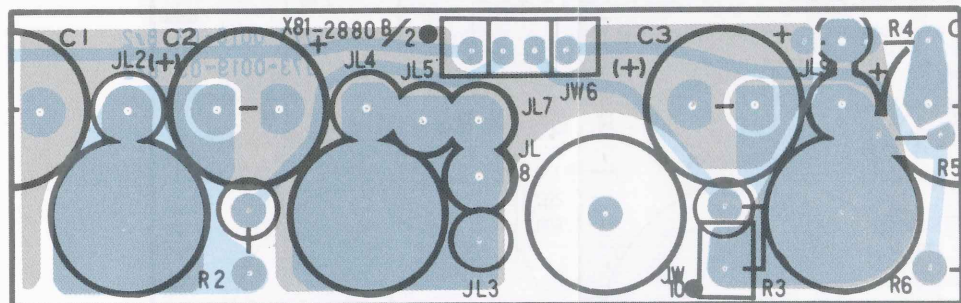
TERMINAL UNIT (A/2)

Parts side view



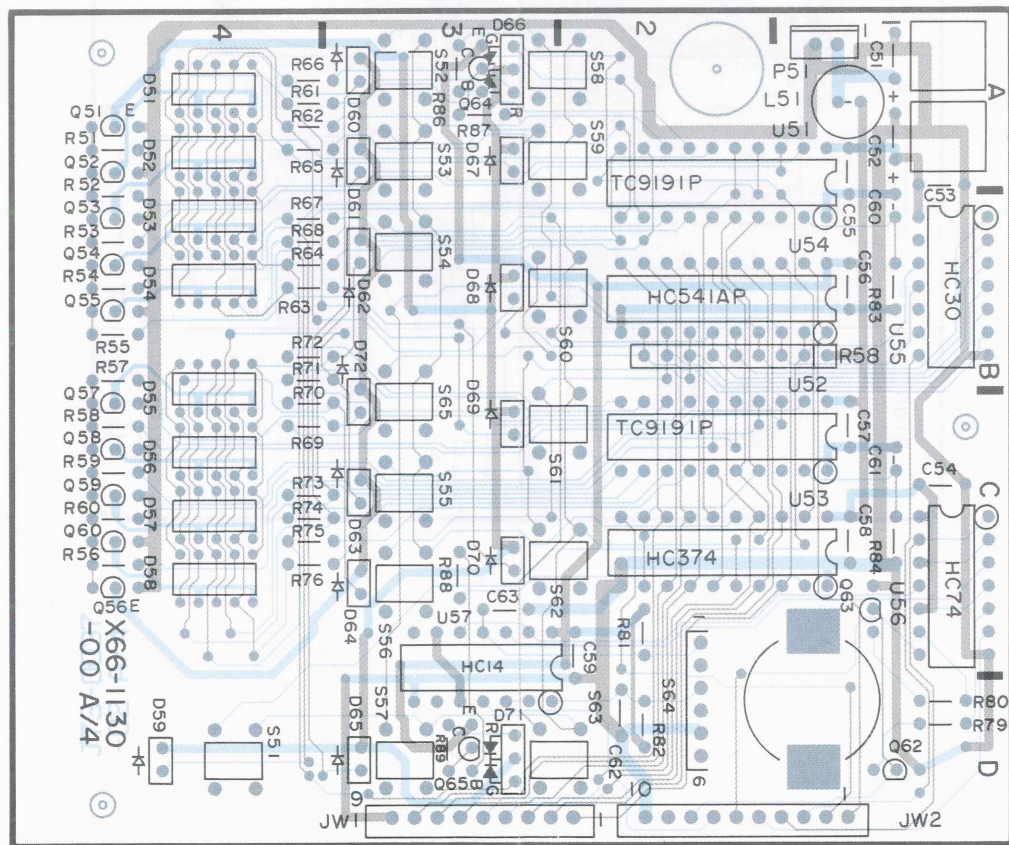
TERMINAL UNIT (B/2)

Parts side view



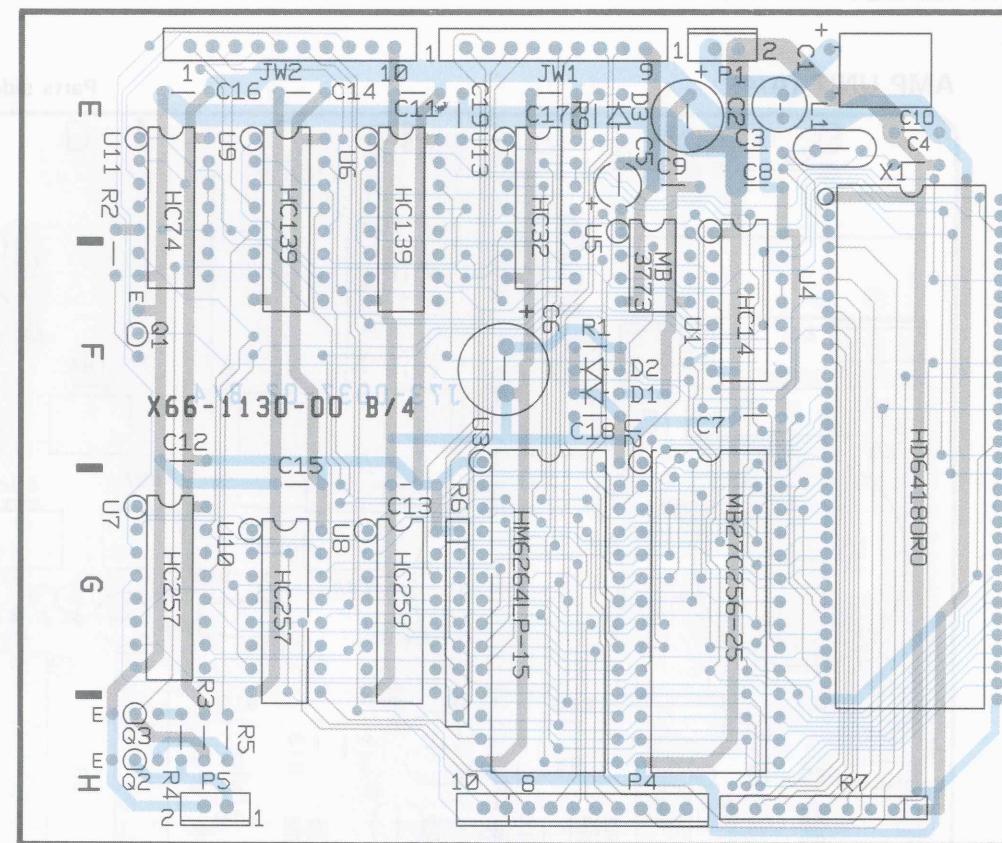
PANEL UNIT (A/4)

Pattern side view



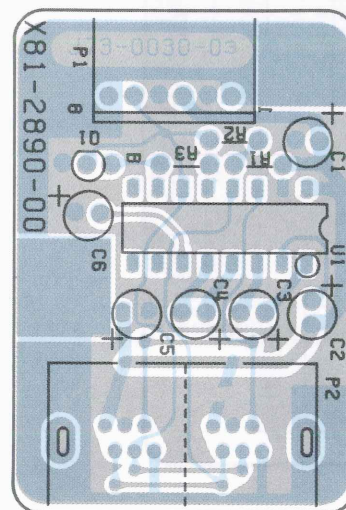
PANEL UNIT (B/4)

Parts side view



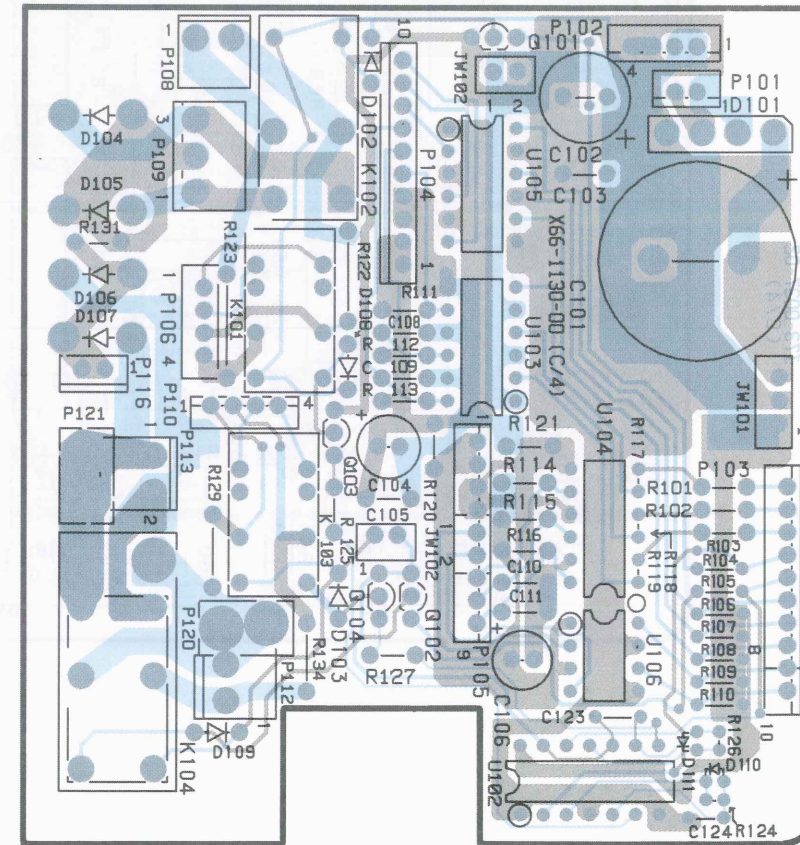
BUFFER UNIT

Pattern side view



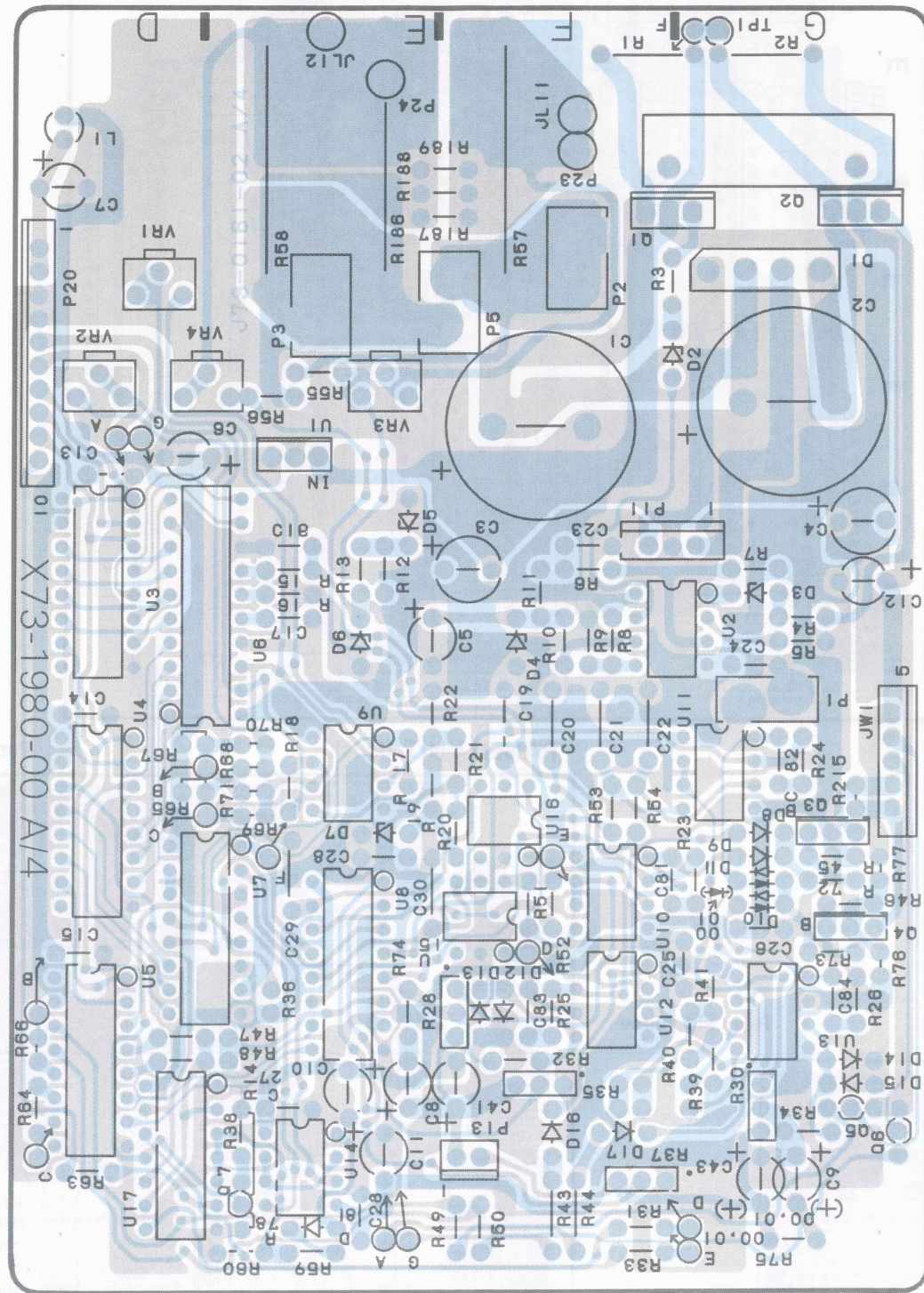
PANEL UNIT (C/4)

Parts side view



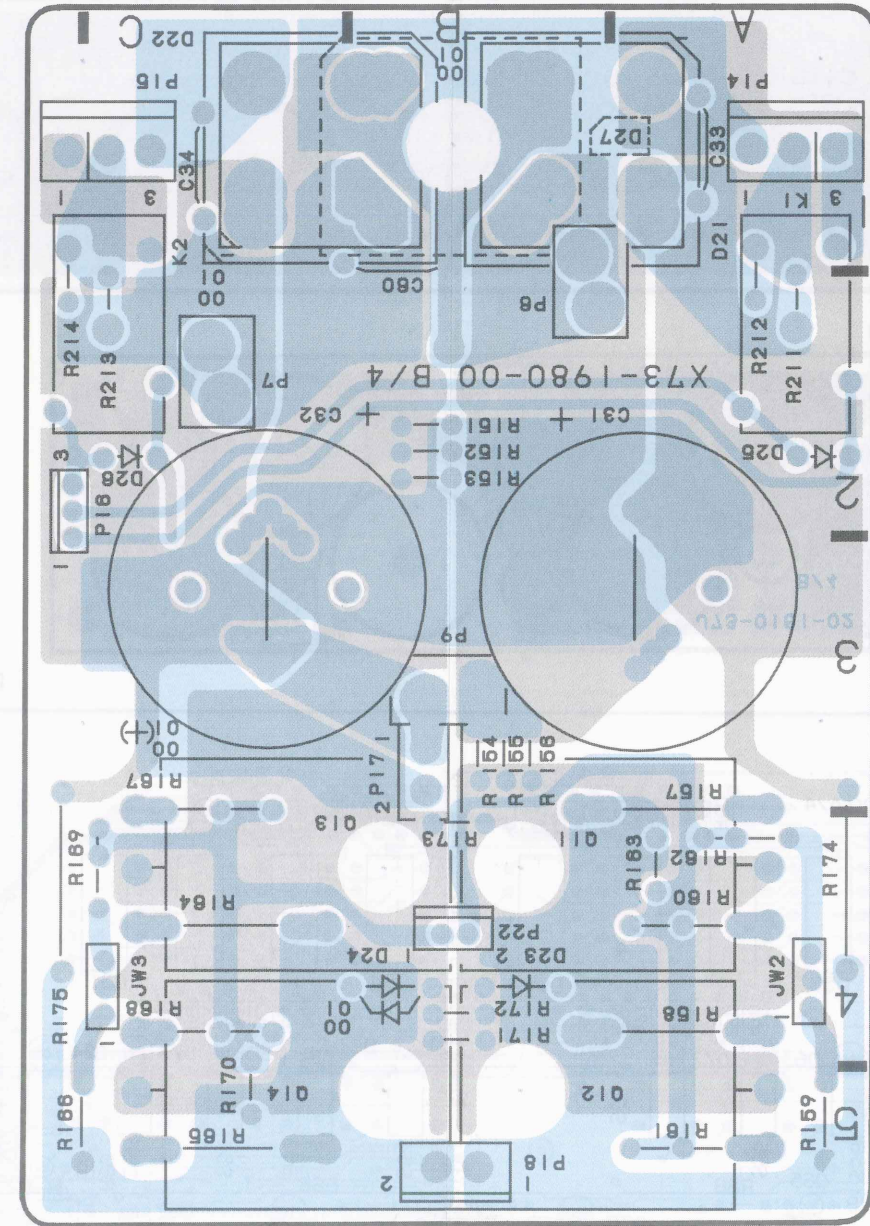
# PWR18-2TP P.C. BOARD

AMP UNIT (A/4)



Pattern side view

AMP UNIT (B/4)

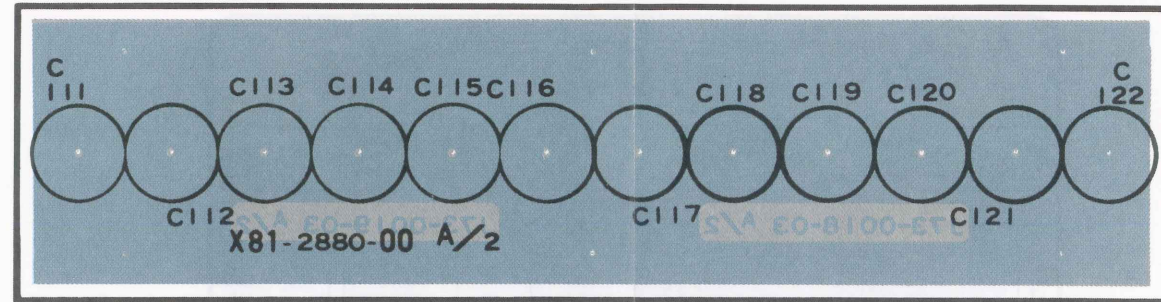


Parts side view

# PWR18-2TP P.C. BOARD

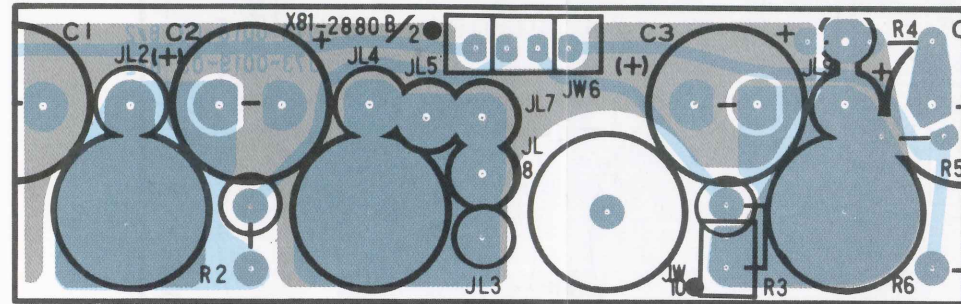
TERMINAL UNIT (A/2)

Parts side view



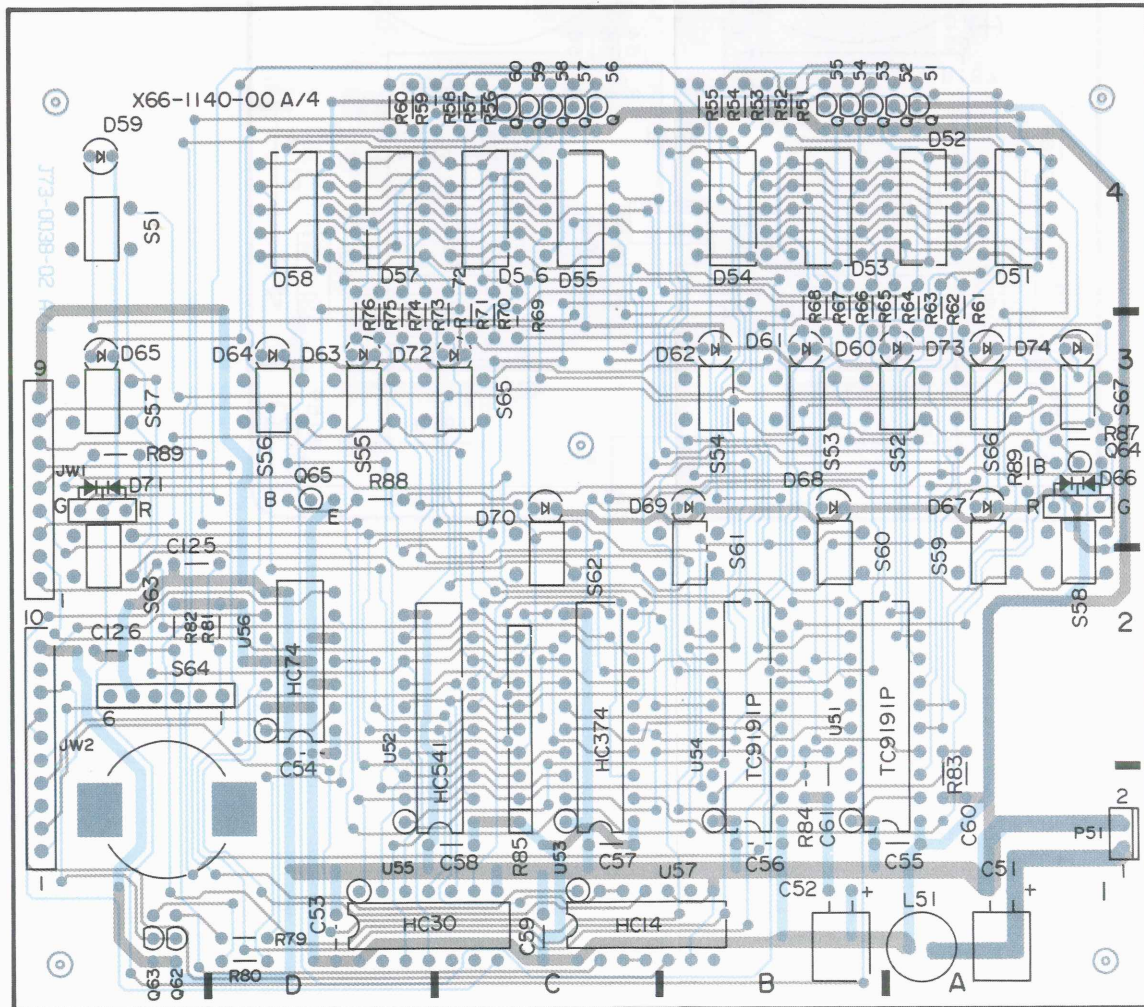
TERMINAL UNIT (B/2)

Parts side view



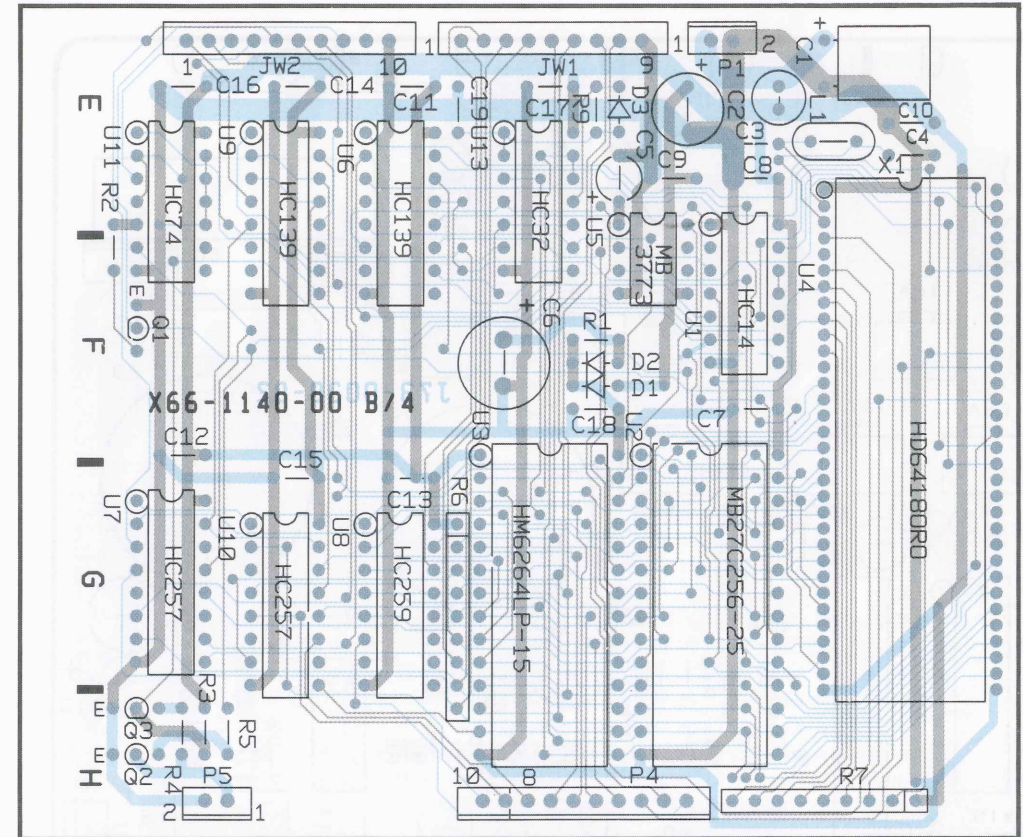
PANEL UNIT (A/4)

Pattern side view



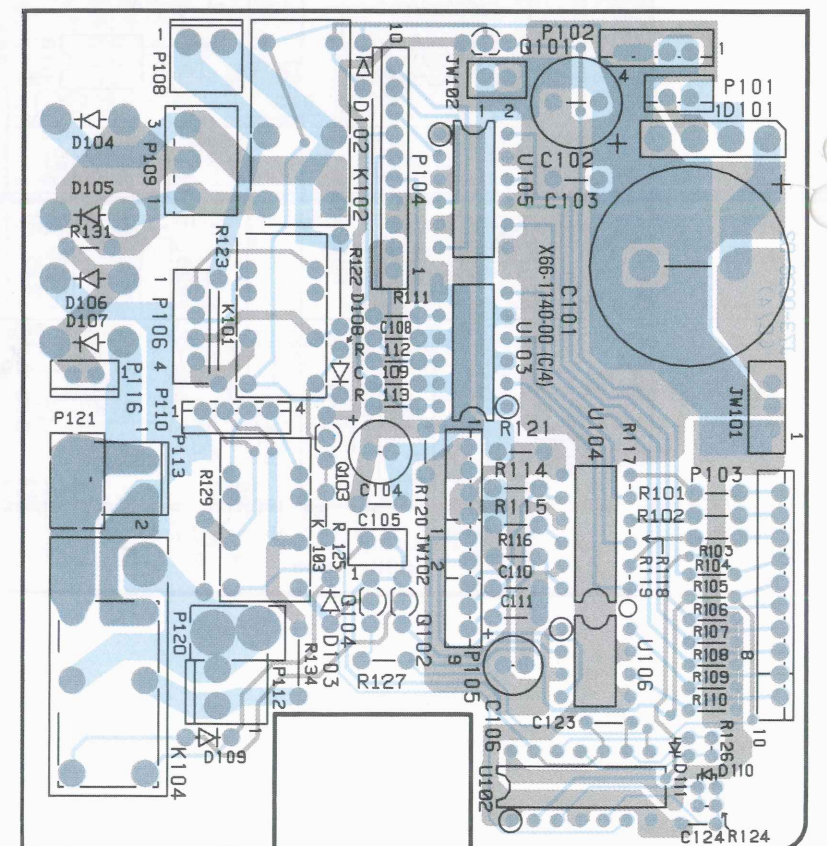
PANEL UNIT (B/4)

Pattern side view



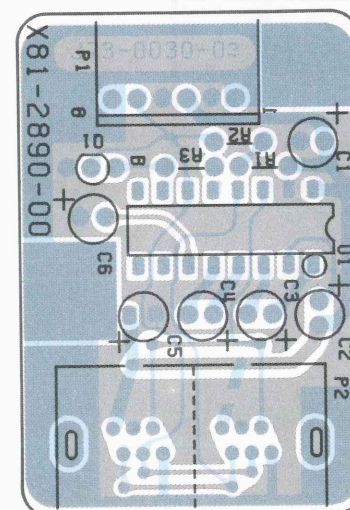
PANEL UNIT (C/4)

Parts side view



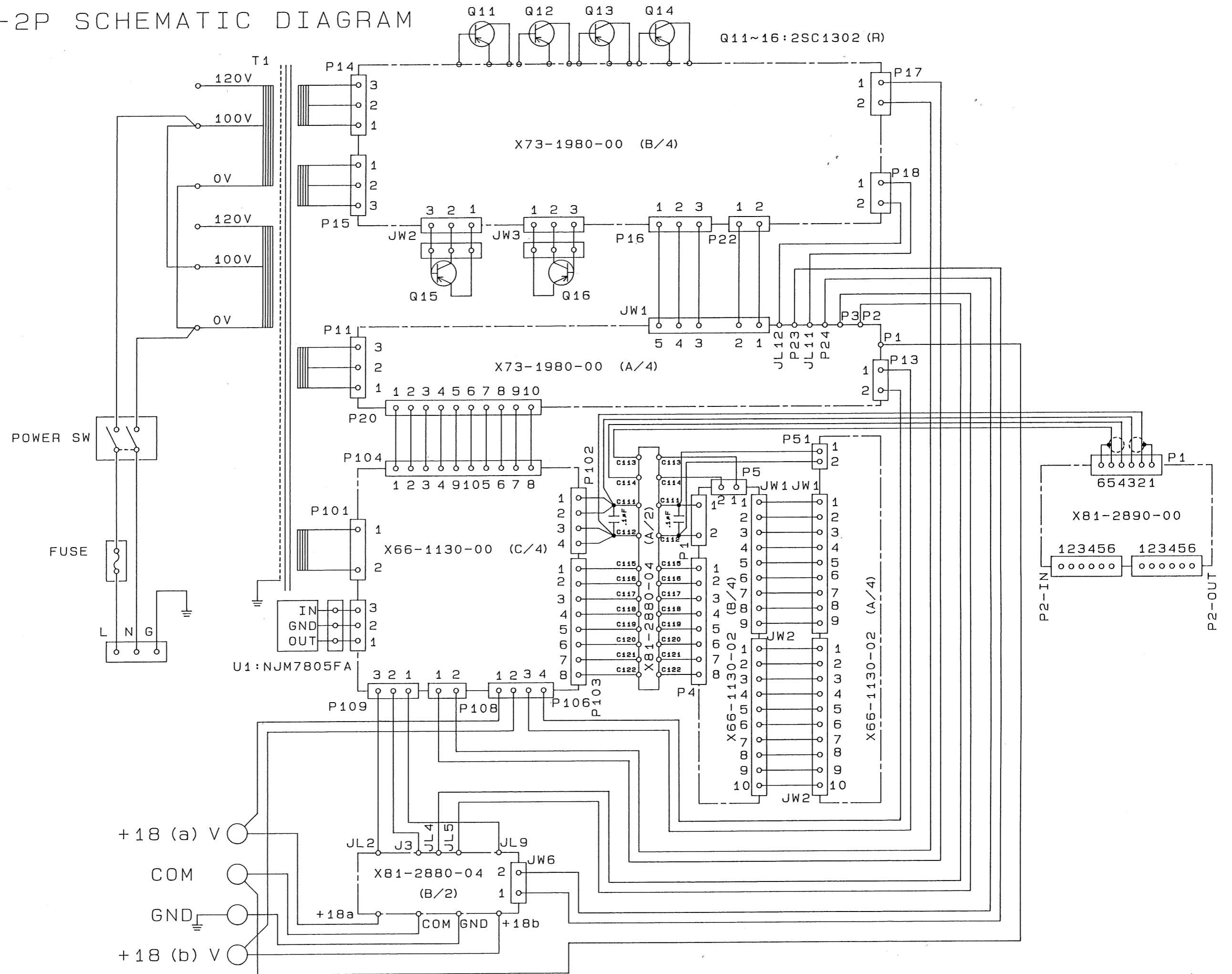
BUFFER UNIT

Parts side view

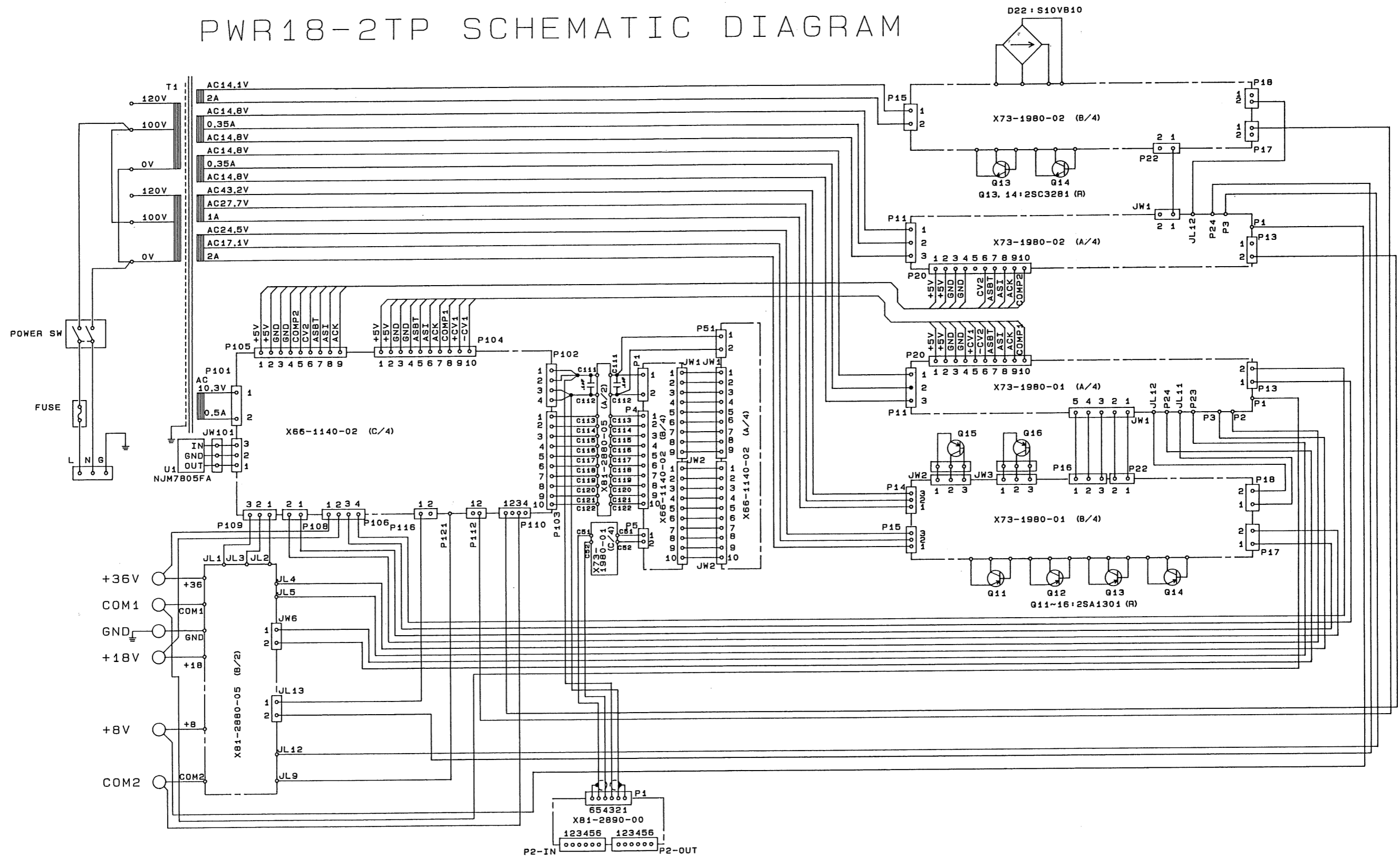


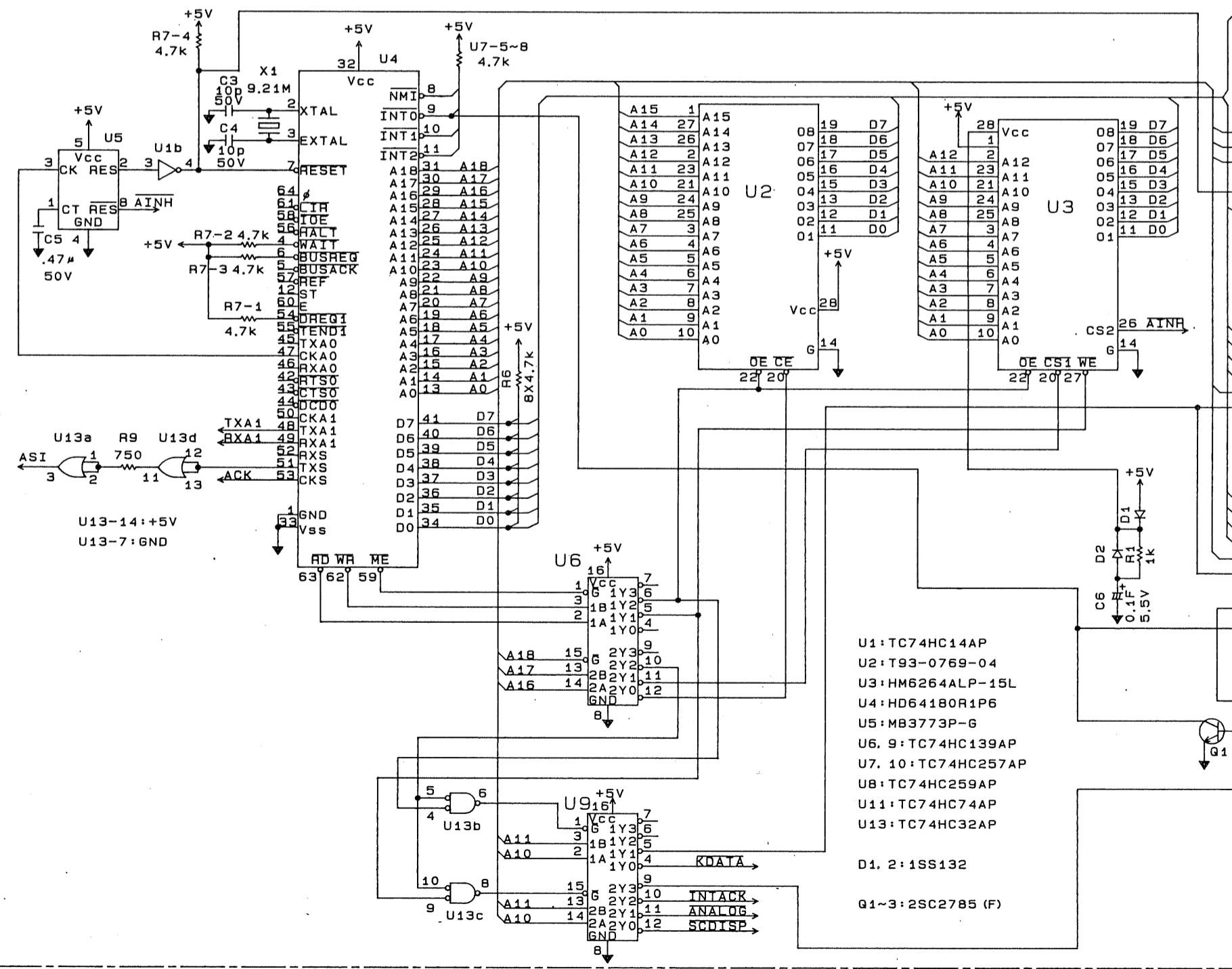
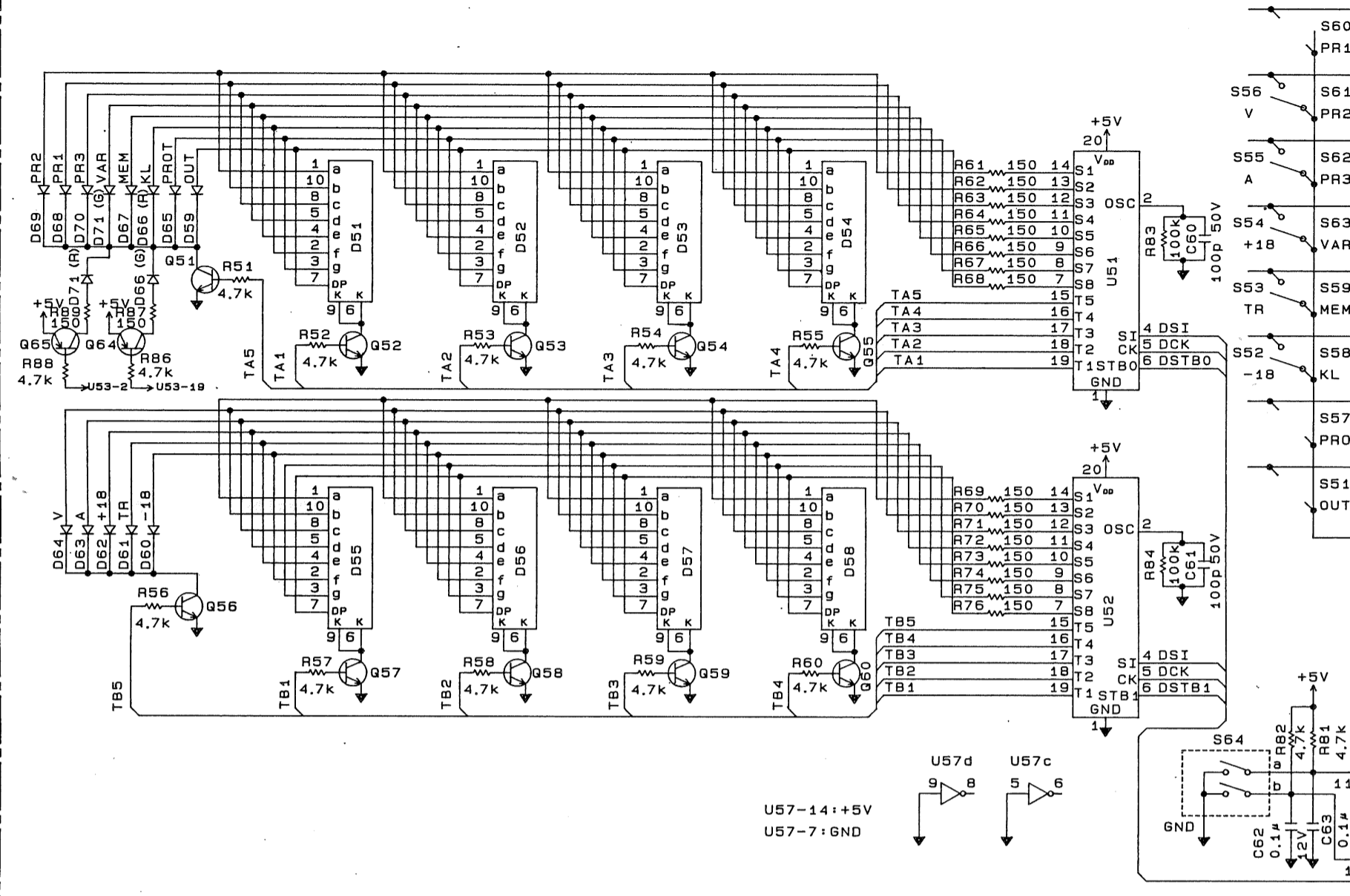


# PWR18-2P SCHEMATIC DIAGRAM

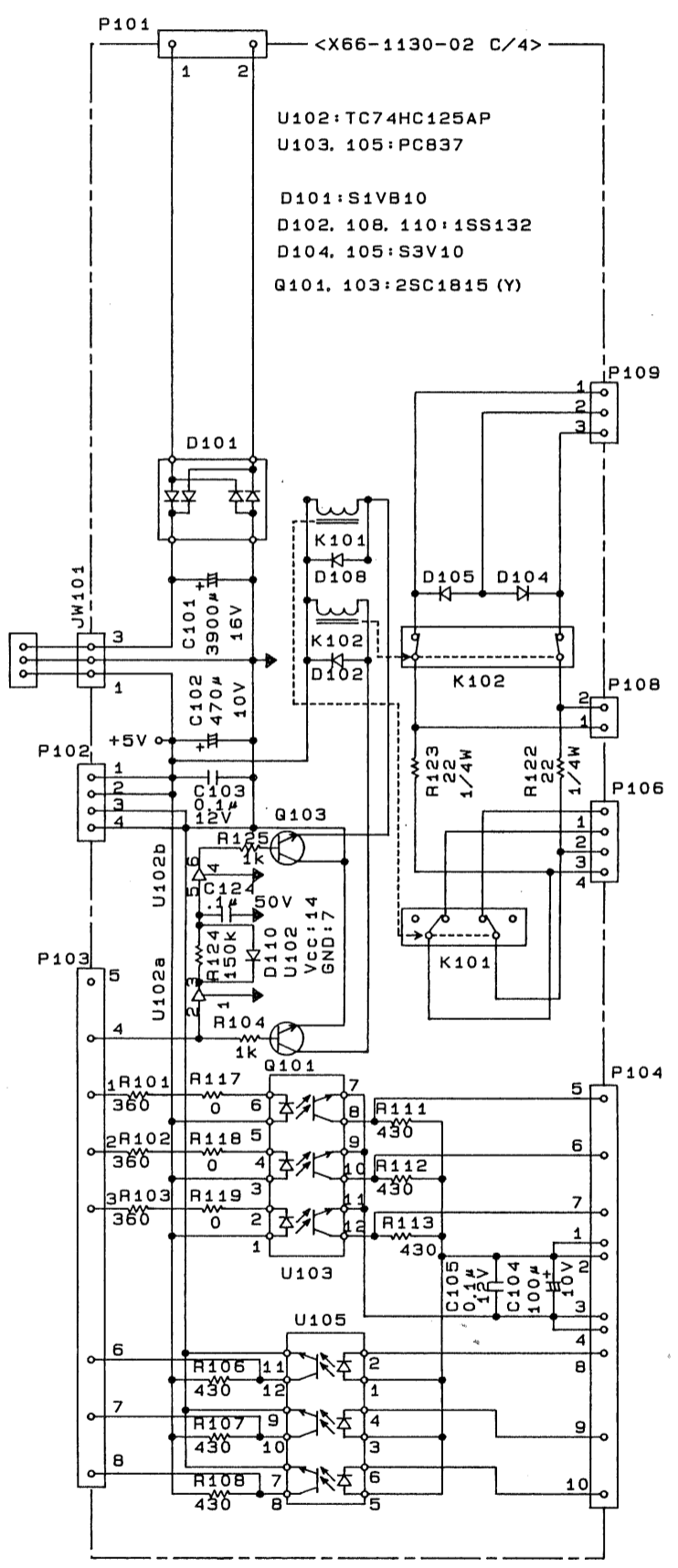
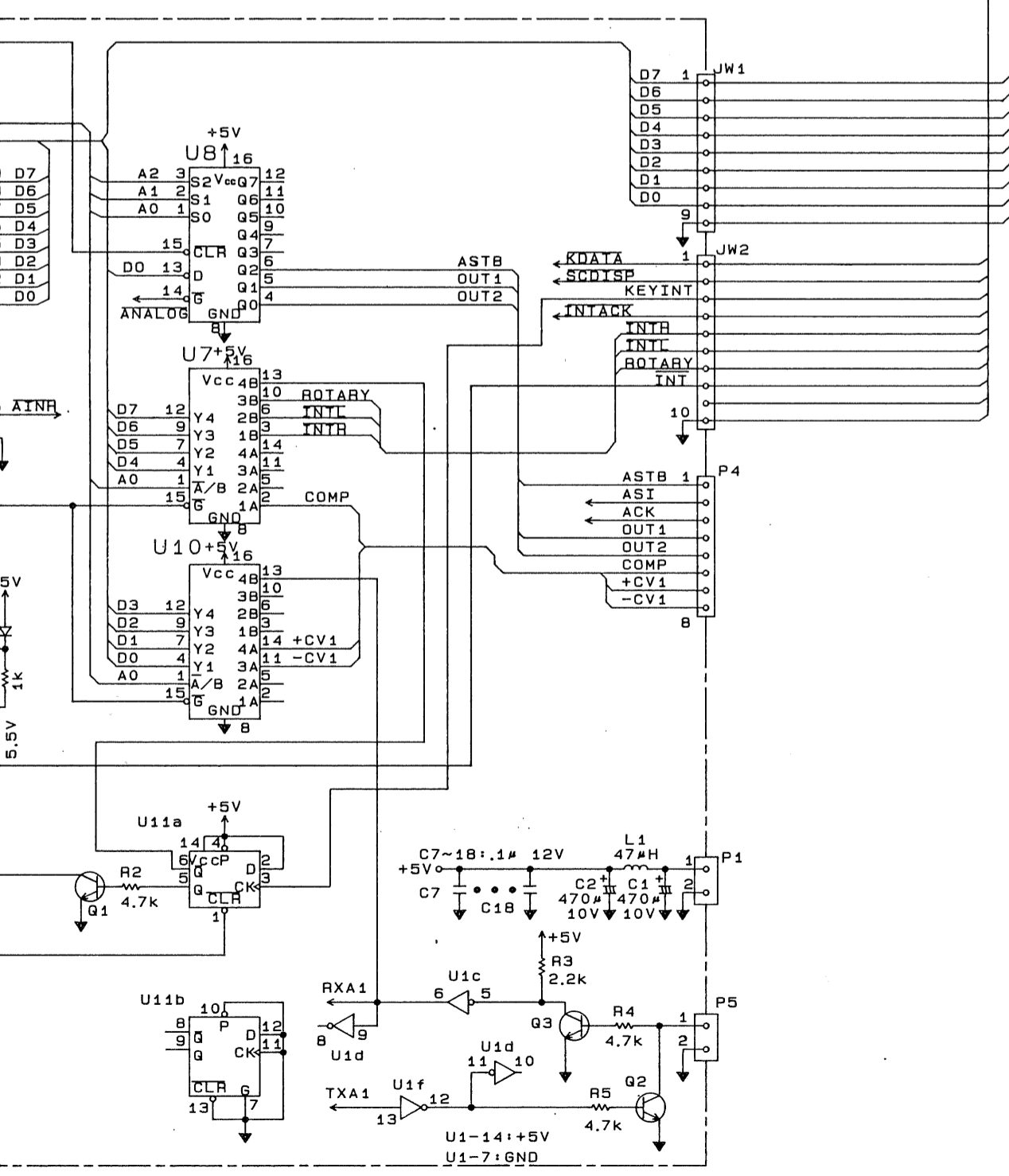
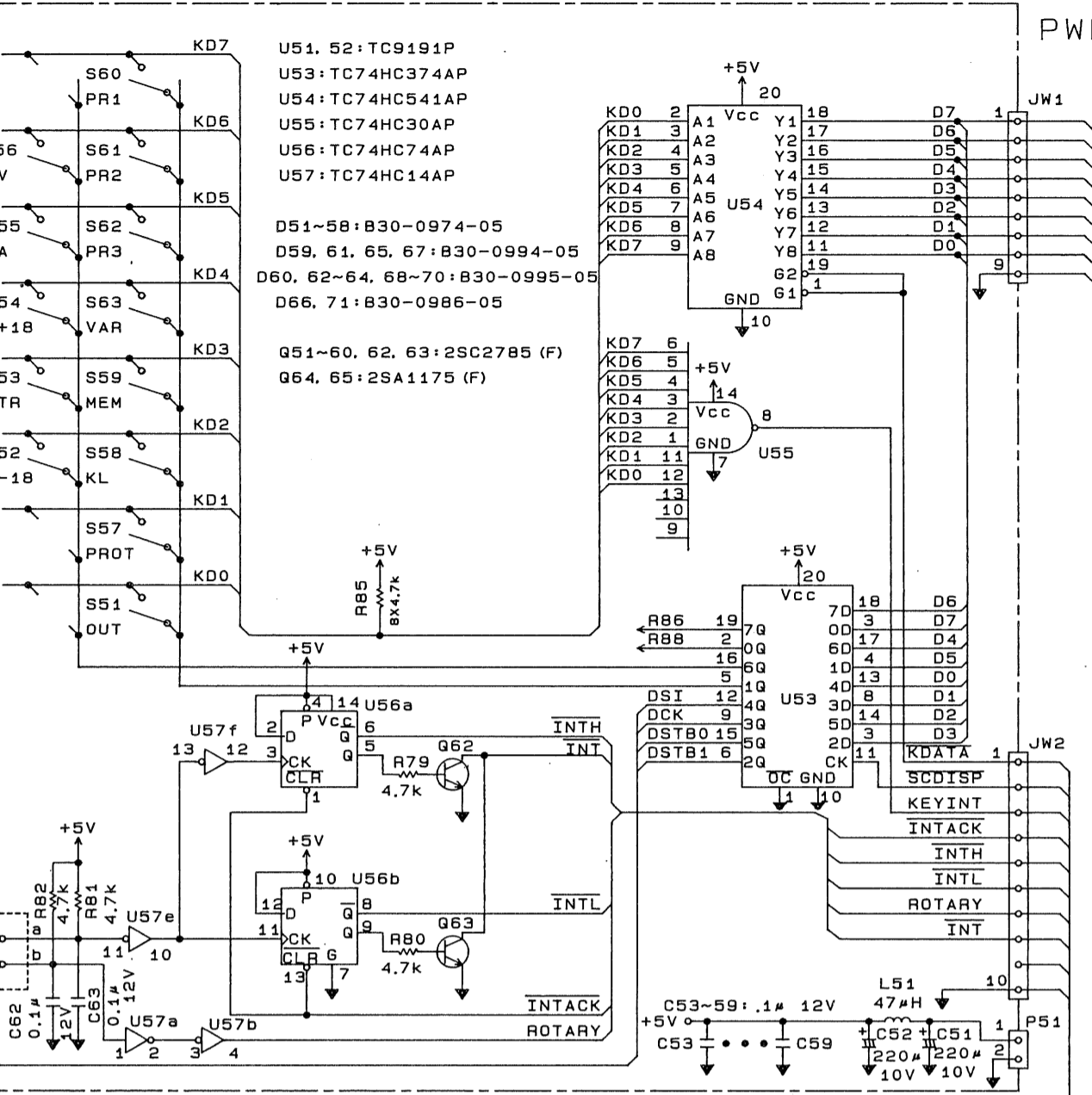


# PWR18-2TP SCHEMATIC DIAGRAM

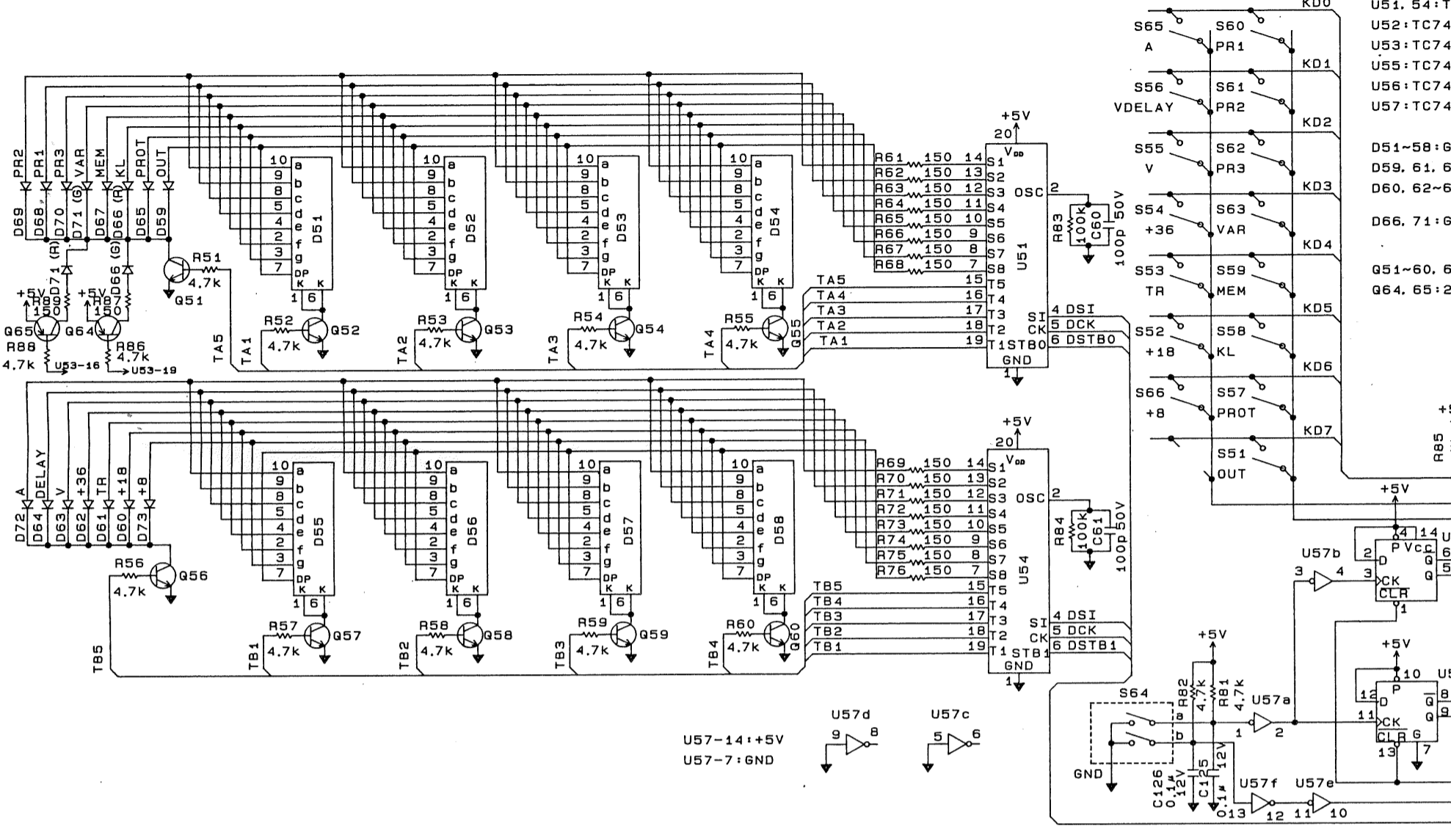




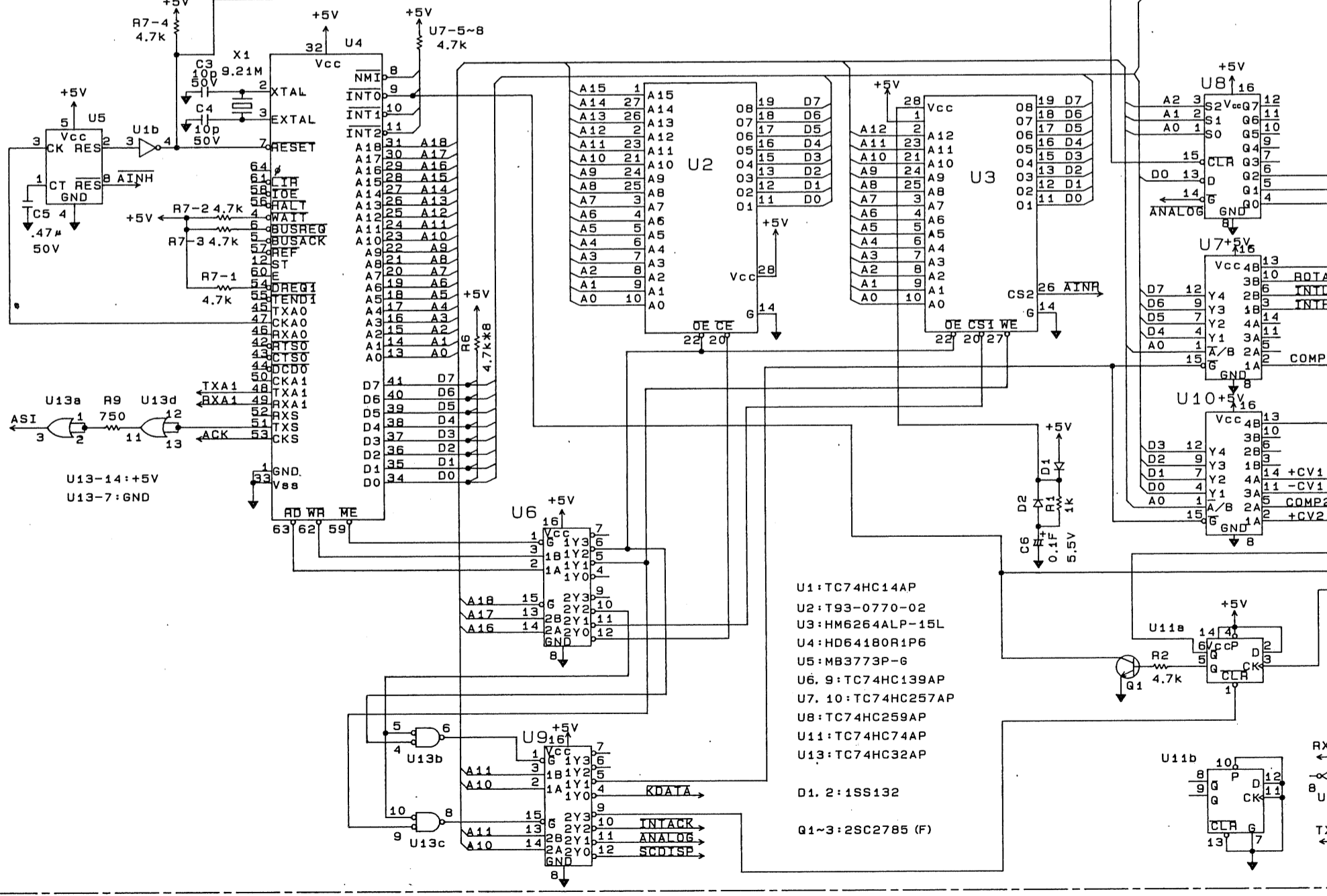
PWR18-2P SCHEMATIC DIAGRAM



<X66-1140-02 A/4>

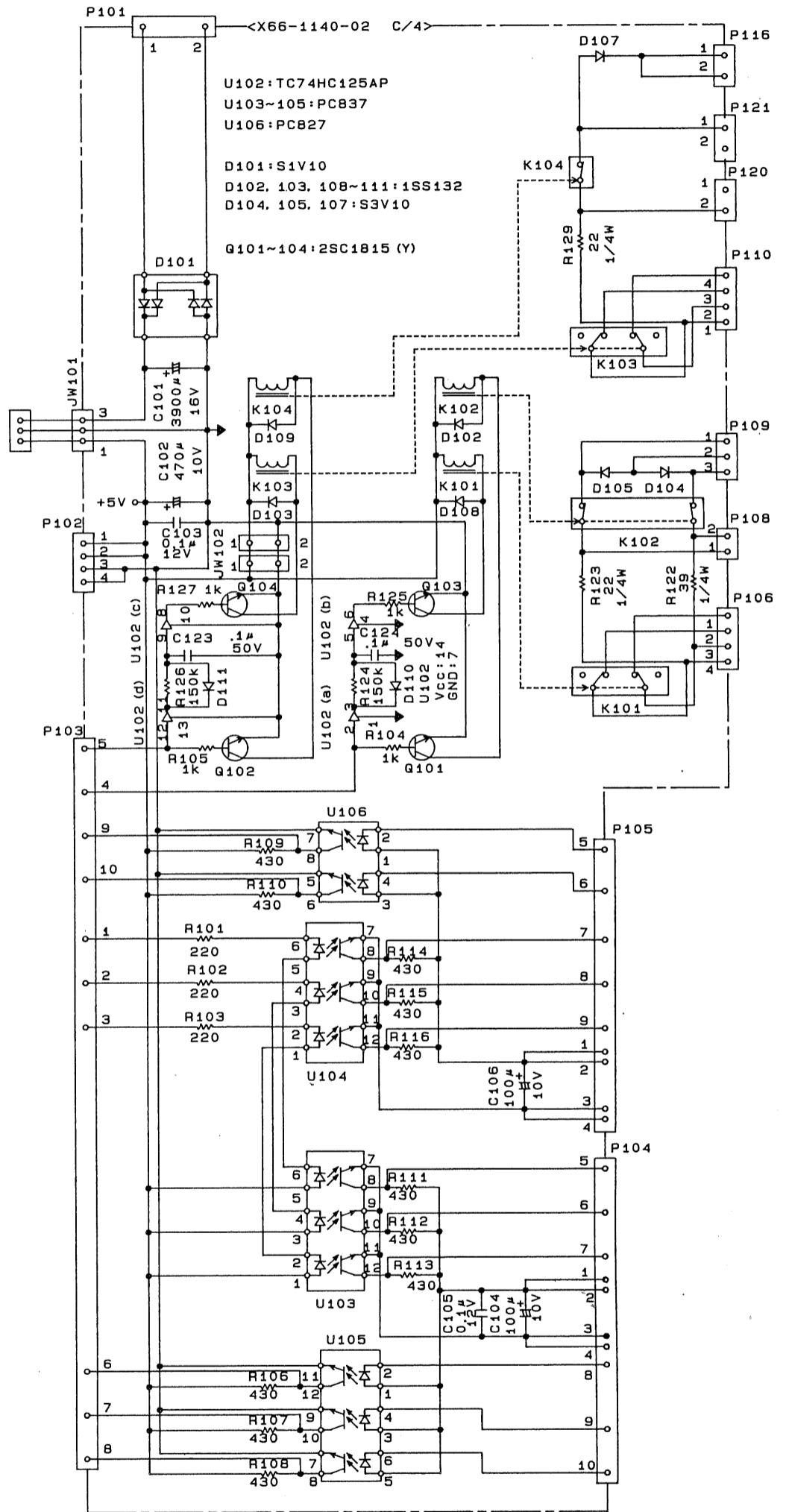
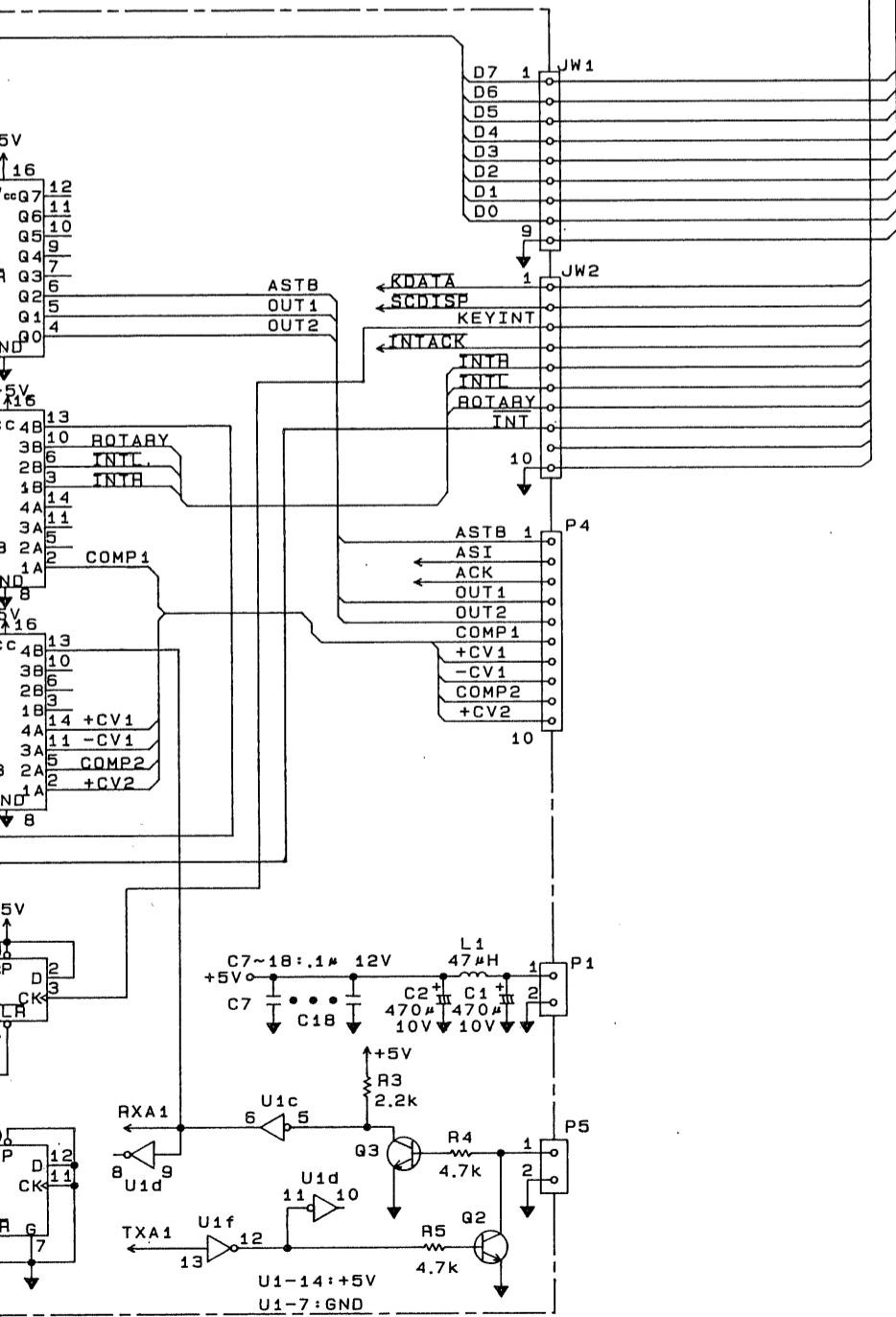
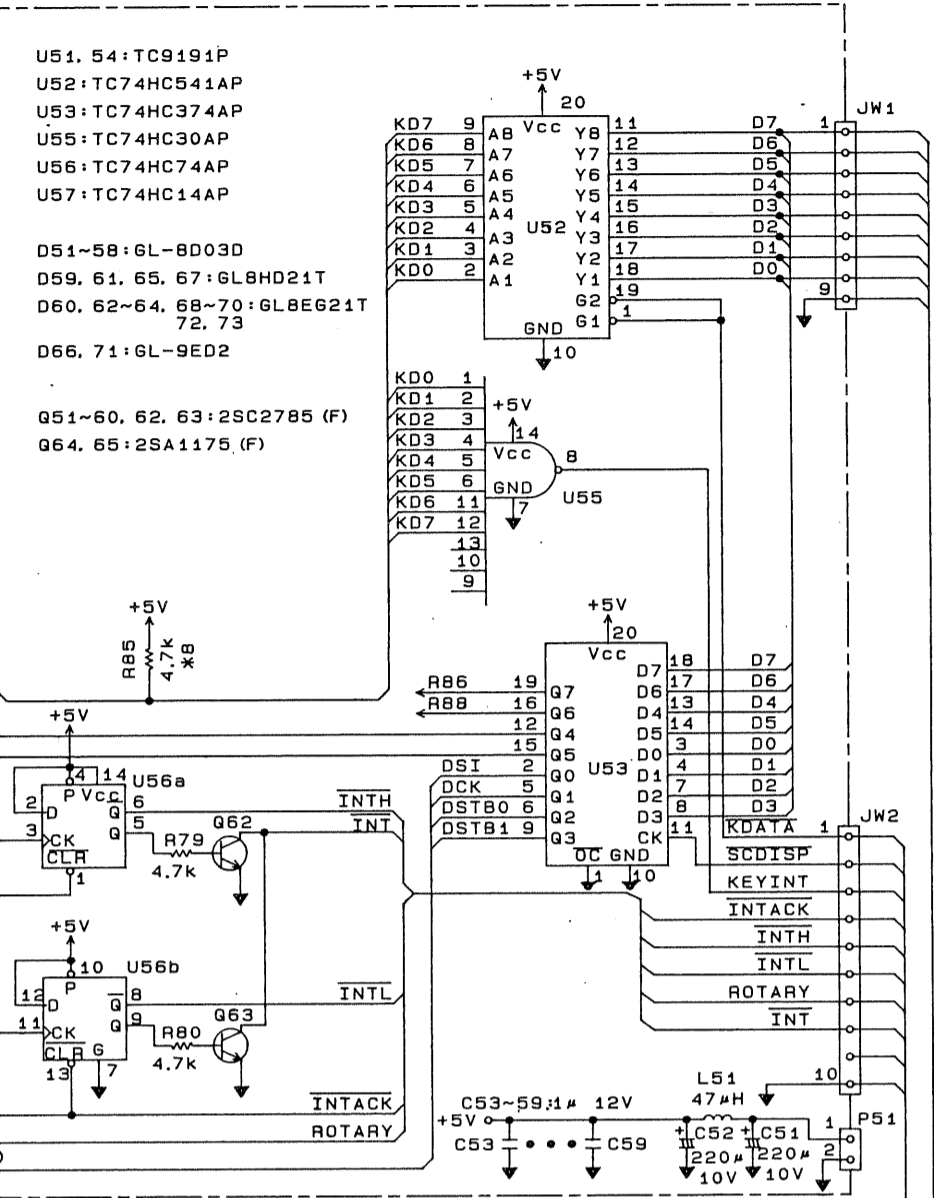


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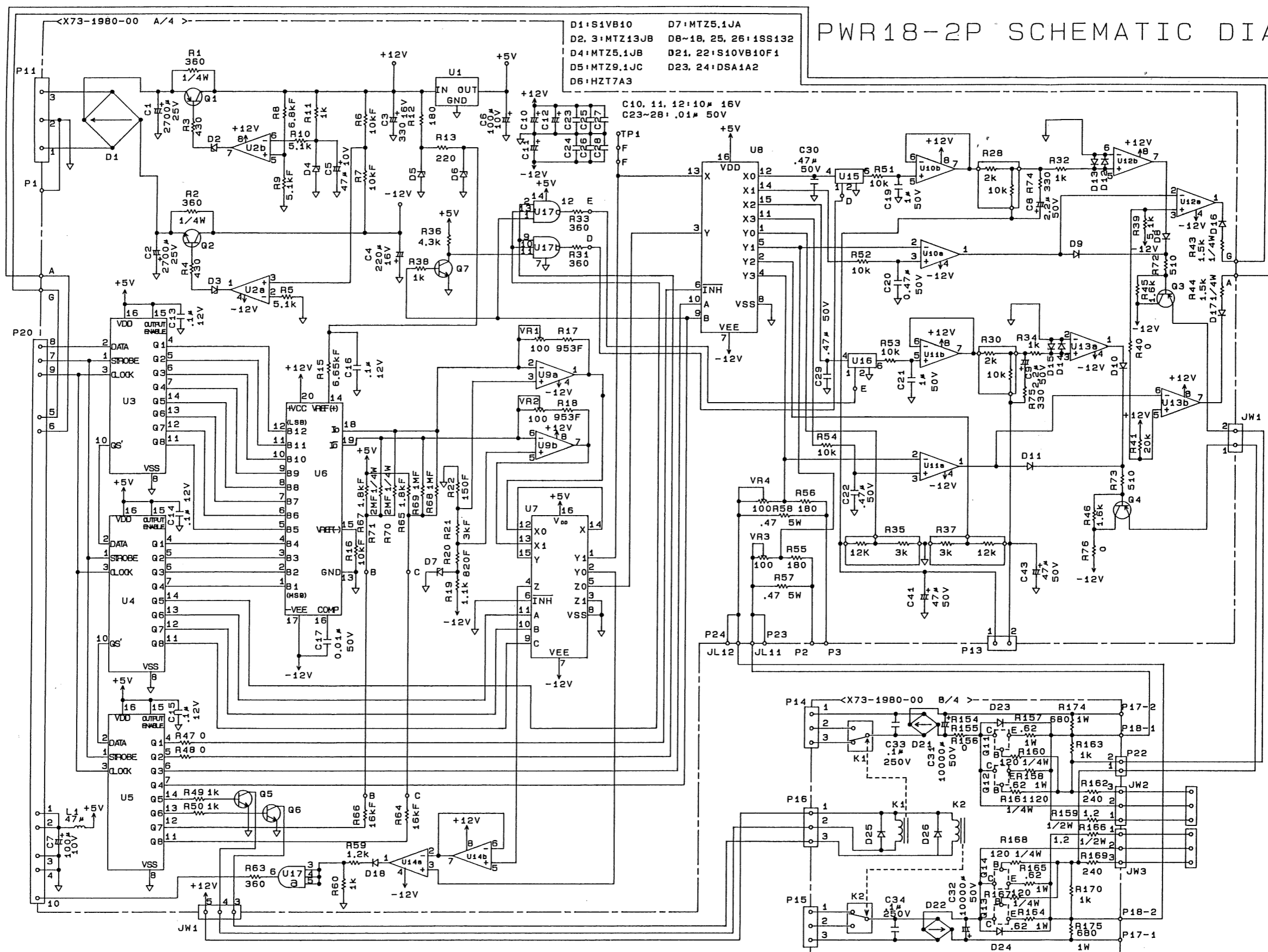


- U1: TC74HC14AP
- U2: T93-0770-02
- U3: HM6264ALP-15L
- U4: HD64180R1P6
- U5: MB3773P-6
- U6: 9: TC74HC139AP
- U7: 10: TC74HC257AP
- U8: TC74HC259AP
- U11: TC74HC74AP
- U13: TC74HC32AP
- D1: 2: 1SS132
- Q1-3: 2SC2785 (F)

# PWR18-2TP SCHEMATIC DIAGRAM



# PWR18-2P SCHEMATIC DIAGRAM

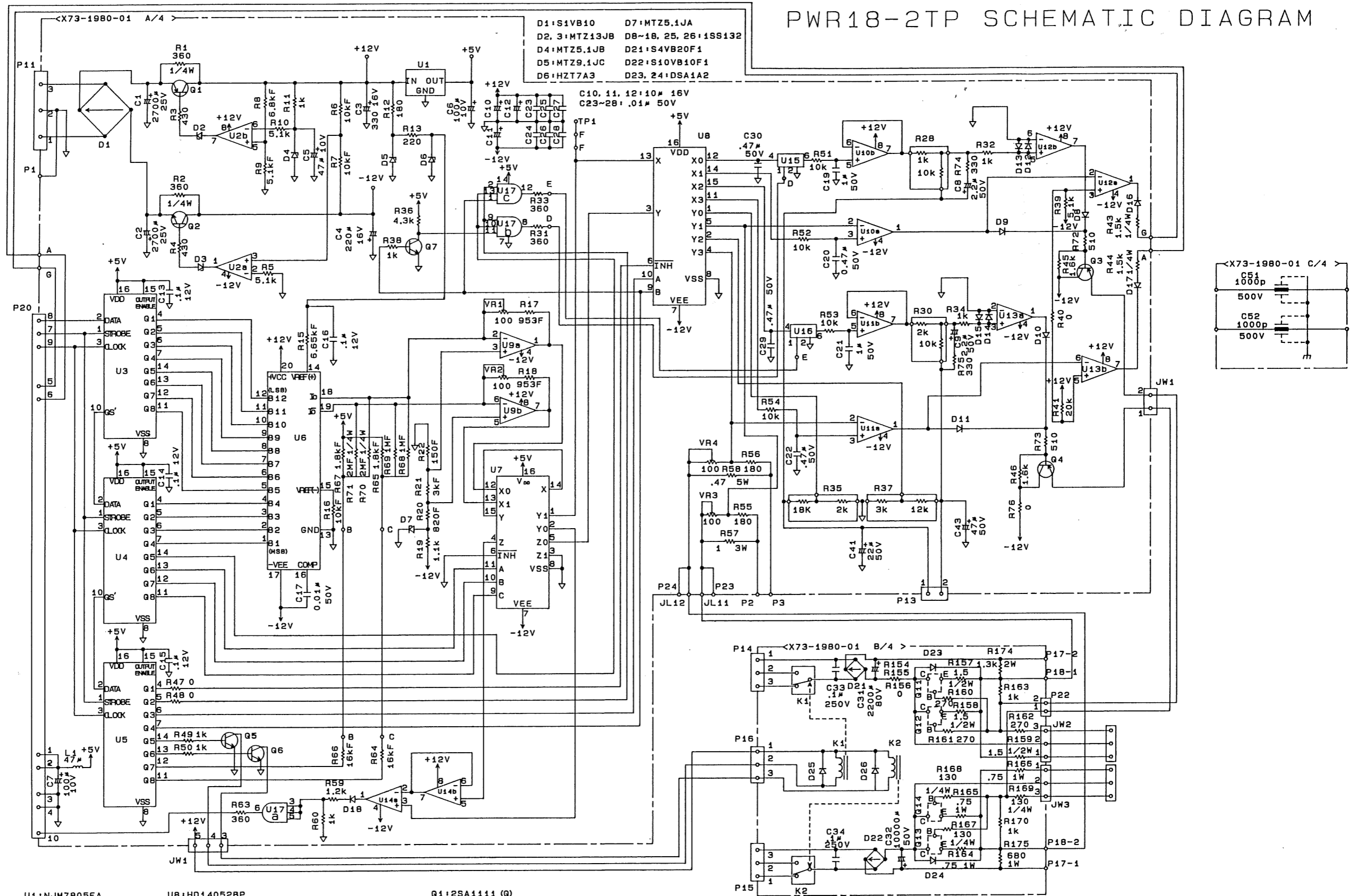


- D1: S1VB10
- D2: 3: MTZ13JB
- D4: MTZ5.1JB
- D5: MTZ9.1JC
- D6: HZT7A3
- D7: MTZ5.1JA
- D8-18, 25, 26: 1SS132
- D21, 22: S10VB10F1
- D23, 24: DSA1A2

- C10, 11, 12: 10μF 16V
- C23-28: .01μF 50V

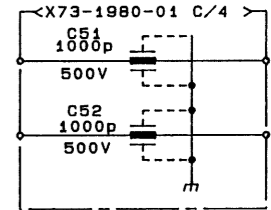
- U1: NJM7805FA
- U2, 9, 12, 13: NJM4558D
- U3, 4, 5: TC4094BP
- U6: AM6012DC
- U7: HD140538P
- U8: HD140528P
- U10, 11: NJM0728D
- U14: NJM4560D
- U15, 16: PC619
- U17: TC74HC11AP
- Q1: 2SA1111 (Q)
- Q2: 2SC2591 (Q)
- Q3, 4: 2SA1209 (R)
- Q5-7: 2SC1815 (Y)
- Q11-14: 2SA1302 (R)

# PWR18-2TP SCHEMATIC DIAGRAM



D1: S1VB10 D7: MTZ5.1JA  
 D2, 3: MTZ13JB D8~18, 25, 26: 1SS132  
 D4: MTZ5.1JB D21: S4VB20F1  
 D5: MTZ9.1JC D22: S10VB10F1  
 D6: HZT7A3 D23, 24: DSA1A2

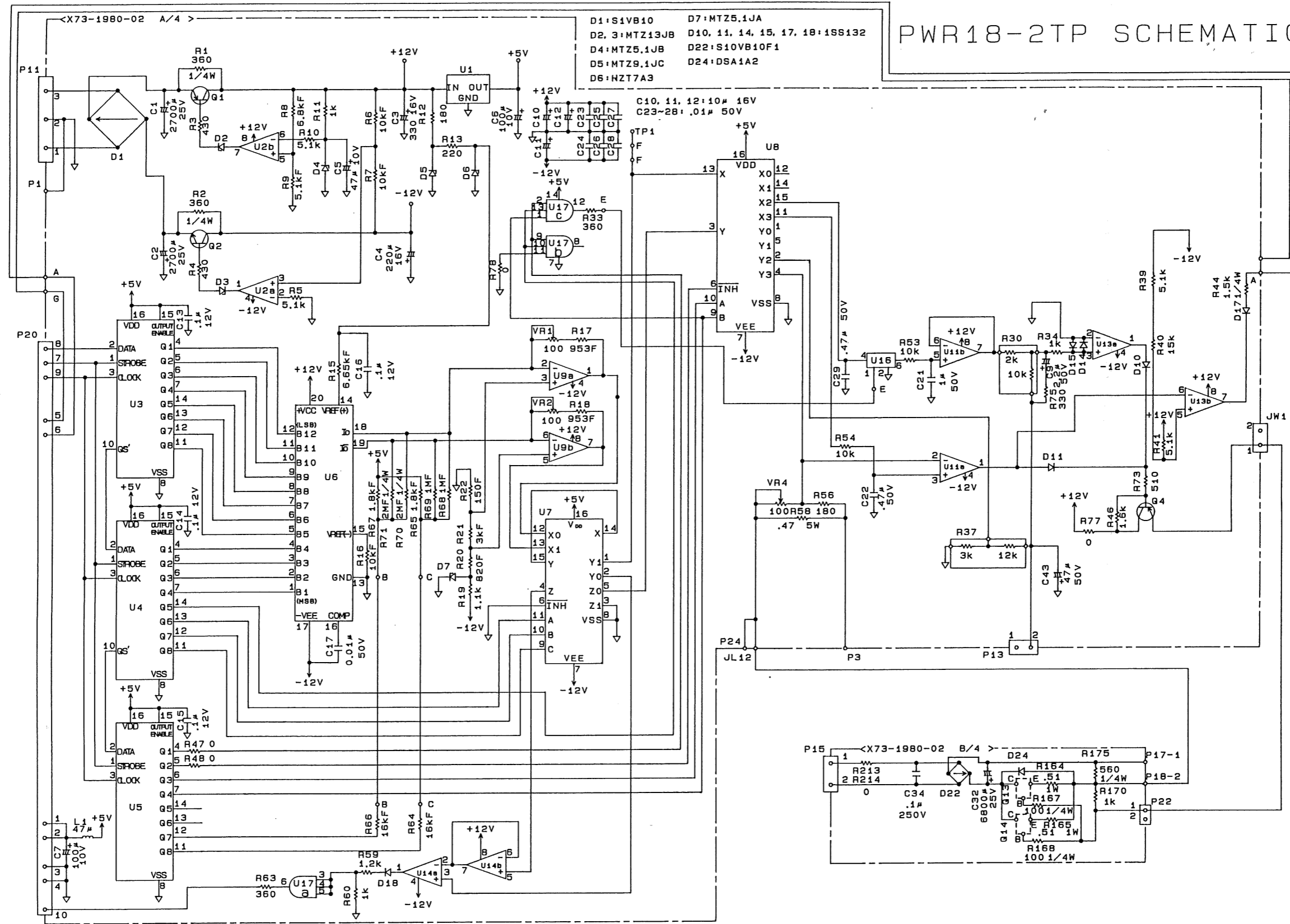
C10, 11, 12: 10 $\mu$  16V  
 C23~28: .01 $\mu$  50V



- |                         |                   |                     |
|-------------------------|-------------------|---------------------|
| U1: NJM7805FA           | U8: HD14052BP     | Q1: 2SA1111 (Q)     |
| U2, 9, 12, 13: NJM4558D | U10, 11: NJM0728D | Q2: 2SC2591 (Q)     |
| U3, 4, 5: TC4094BP      | U14: NJM4560D     | Q3, 4: 2SA1209 (R)  |
| U6: AM6012DC            | U15, 16: PC619    | Q5~7: 2SC1815 (Y)   |
| U7: HD14053BP           | U17: TC74HC11AP   | Q11~14: 2SA1302 (R) |



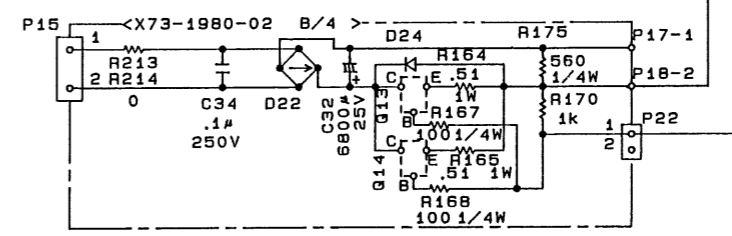
# PWR18-2TP SCHEMATIC DIAGRAM



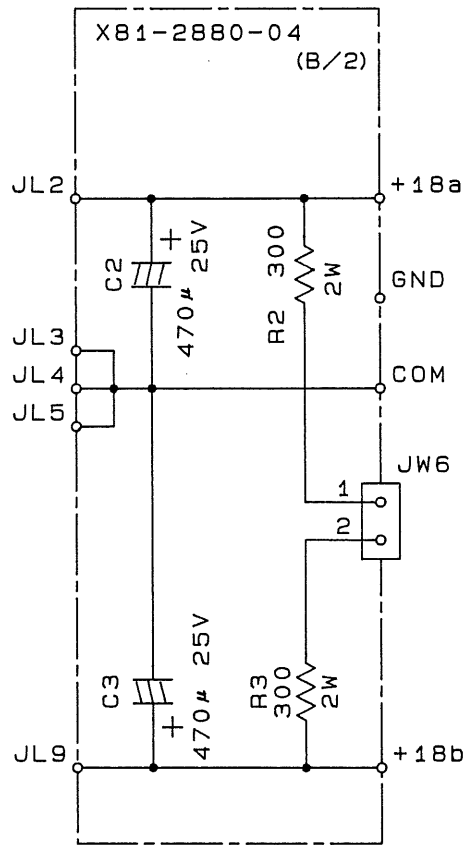
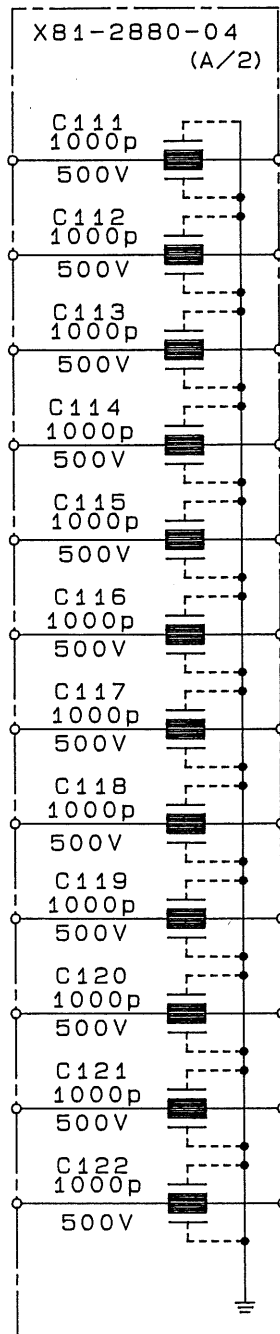
- U1: NJM7805FA
- U2, 9, 13: NJM4558D
- U3, 4, 5: TC4094BP
- U6: AM6012DC
- U7: HD14053BP

- U8: HD14052BP
- U11: NJM072BD
- U14: NJM4560D
- U16: PC619
- U17: TC74HC11AP

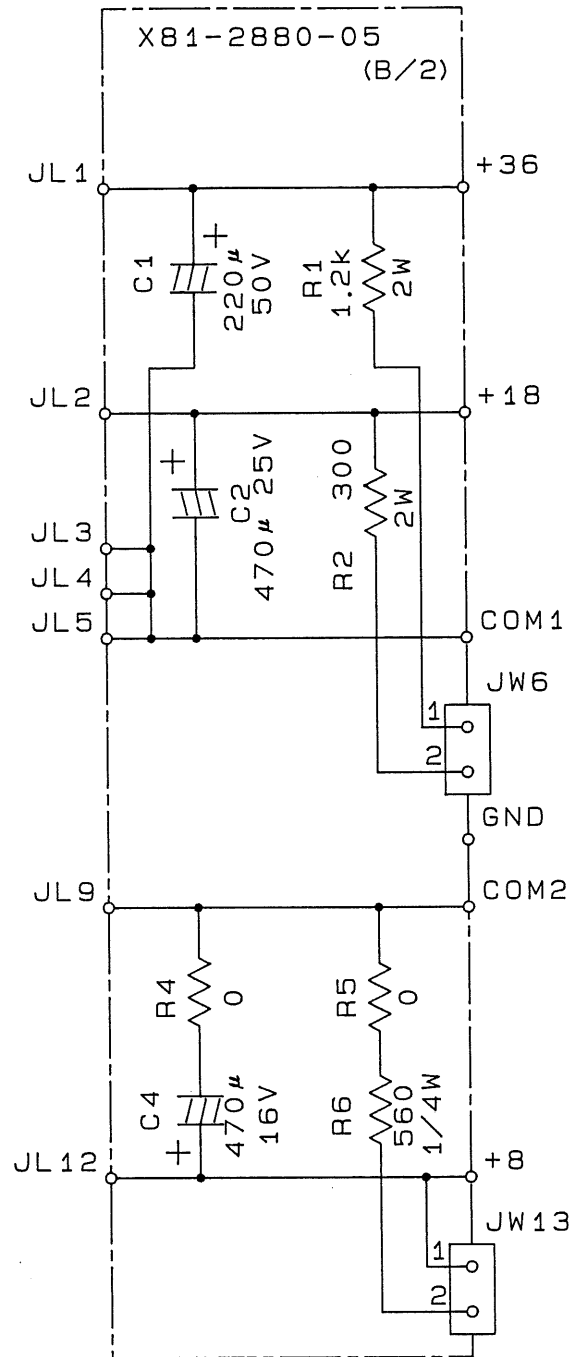
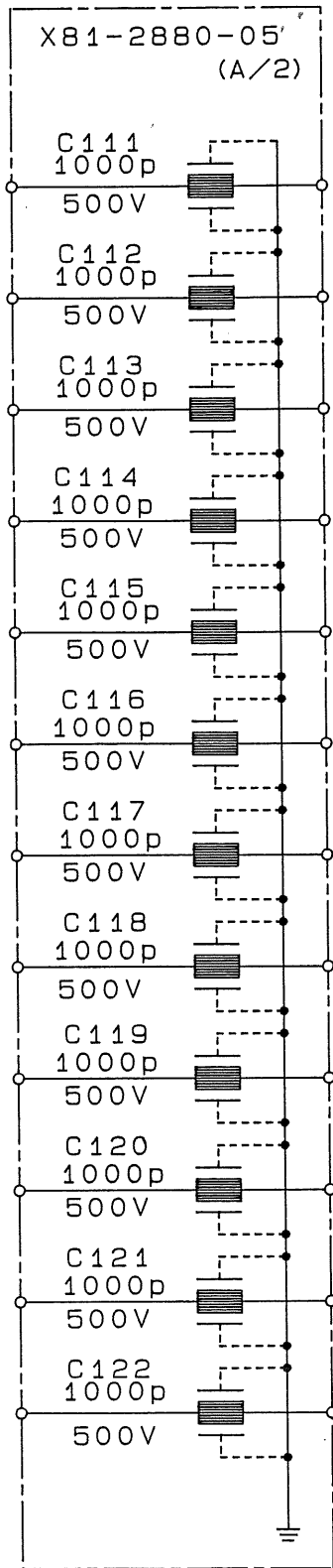
- Q1: 2SA1111 (Q)
- Q2: 2SC2591 (Q)
- Q4: 2SC2911 (R)
- Q13, 14: 2SC3281 (R)



# PWR18-2P SCHEMATIC DIAGRAM



# PWR18-2TP SCHEMATIC DIAGRAM



# PWR18-2P/18-2TP SCHEMATIC DIAGRAM

