

REGULATED DC POWER SUPPLY

P A R 1 8 - 5

P A R 3 6 - 3

SERVICE MANUAL

(TEMPORARY VERSION)

KENWOOD CORPORATION

Y86-1530-00 (PAR18-5)

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P A R T S L I S T

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REF. NO	PARTS NO	NAME & DESCRIPTION
	A01-1226-02	CASE
	A10-1460-22	CHASSIS
	A63-0045-03	FRONT PANEL
	B11-0533-03	FILTER
	B40-2737-24	SERIAL NO. PLATE
	B41-0841-14	AC100V 50/60HZ 213W
	B41-0848-04	FUSE RATING LABEL
	B41-2035-04	CAUTION LABEL
	B42-3743-04	REMOTE LABEL
	B63-0072-00	INSTRUCTION MANUAL; JAPANESE
	B63-0073-00	INSTRUCTION MANUAL; ENGLISH
	B63-0074-00	INSTRUCTION MANUAL; JAPANESE
	B63-0075-00	INSTRUCTION MANUAL; ENGLISH
	CF93AN2J153K	CAP. POLYESTER 0.015 10% 630V
	C90-0298-05	CAP. CERAMIC 0.1 20% 12V
	D21-0926-04	EXTENSION SHAFT
	D6K20	DIODE
	E04-0253-15	BNC RECEPTACLE
	E18-0351-05	AC INLET 3P
	E20-5817-05	TERMINAL, FOR TRANSFORMER
	E21-0670-03	TERMINAL, RED
	E21-0671-03	TERMINAL, BLACK
	E21-0672-03	TERMINAL, WHITE
	E23-0015-04	EARTH LUG
	E29-0506-04	SHORTING BAR
	E29-0551-04	SHORTING BAR
	E30-1644-15	BS POWER CORD
	E30-1818-05	JIS POWER CORD SET
	E30-1819-15	IEC POWER CORD SET
	E30-1820-05	UL/CSA POWER CORD SET
	E30-1821-05	SAA POWER CORD SET
	E31-5811-15	WIRE ASS'Y; PIERCED CAP. TO CPU
	E31-5812-15	WIRE ASS'Y; P1 TO TR
	E31-5813-15	WIRE ASS'Y
	E31-5815-15	WIRE ASS'Y; PIERCED CAP. TO CPU
	E31-5862-05	WIRE ASS'Y; CHANGING VOLTAGE
	E38-0109-15	WIRE ASS'Y
	E38-0153-05	WIRE ASS'Y; COMMUNICATION CABLE
	E38-0440-05	WIRE ASS'Y; OUTPUT
	E38-0441-05	WIRE ASS'Y
	E38-0483-05	WIRE ASS'Y; FOR CONTROL OF COMM
	E38-0484-05	WIRE ASS'Y
	E38-0485-05	WIRE ASS'Y; PIERCED CAP. TO GND
	E38-0486-05	WIRE ASS'Y; PIERCED CAP. TO CPU
	F01-0877-03	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
	H10-2846-02	FOAMED STYRENE PAD (FRONT)
	H10-2847-02	FOAMED STYRENE PAD (REAR)
	H20-1725-04	VINYL COVER
	H53-0053-04	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, TOP

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

Y86-1530-00

REF. NO	PARTS NO	NAME & DESCRIPTION
	J21-4700-14	BRACKET
	J21-4701-03	BRACKET
	J21-4702-03	BRACKET, BOTTOM
	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
	K01-0544-05	HANDLE
	K21-0907-04	KNOB; COARSE
	K27-0509-04	PUSH BOTTON, ORANGE; POWER
	K27-0555-04	BOTTON (4 USED)
	K27-0556-04	BOTTON (5 USED)
	K27-0557-04	BOTTON, RED; OUTPUT
	L01-9975-05	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
	N09-0731-05	SCREW, SEMS PAN HD M3X12
	N09-0735-05	SCREW, SEMS PAN HD
	N09-0739-05	SCREW, SEMS BINDING TAPTITE 3X8
	N09-0754-05	SCREW, OVAL TAPTITE
	N09-0757-05	SCREW, SEMS BINDING TAPTITE 3X6
	N09-0776-05	SCREW, SEMS PAN HD
	N10-2030-41	NUT, HEX M3
	N14-0404-04	FLANGE NUT M3
	N17-1030-41	LOCK WASHER M3
	N89-3006-41	SCREW, BINDING TAPTITE M3X6
	N89-3010-41	SCREW, BINDING TAPTITE
	S10VB10	DIODE
	S40-2524-05	PUSH SWITCH; POWER
	X66-1220-01	PANEL UNIT
	X73-1970-00	AMPLIFIER UNIT
	X81-2890-00	BUFFER UNIT
	X81-3080-00	TERMINAL UNIT
	2SC3281(R)	TR. SI, NPN

Y86-1540-00 (PAR36-3)

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P A R T S L I S T

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REF. NO	PARTS NO	NAME & DESCRIPTION
	A01-1226-02	CASE
	A10-1460-22	CHASSIS
	A63-0046-03	FRONT PANEL
	B11-0533-03	FILTER
	B40-2737-24	SERIAL NO. PLATE
	B41-0841-14	AC100V 50/60HZ 213W
	B41-0848-04	FUSE RATING LABEL
	B41-2036-04	CAUTION LABEL
	B42-3743-04	REMOTE LABEL
	B63-0072-00	INSTRUCTION MANUAL; JAPANESE
	B63-0073-00	INSTRUCTION MANUAL; ENGLISH
	B63-0074-00	INSTRUCTION MANUAL; JAPANESE
	B63-0075-00	INSTRUCTION MANUAL; ENGLISH
	CF93AN2J153K	CAP. POLYESTER 0.015 10% 630V
	C90-0298-05	CAP. CERAMIC 0.1 20% 12V
	D21-0926-04	EXTENSION SHAFT
	D6K20	DIODE
	E04-0253-15	BNC RECEPTACLE
	E18-0351-05	AC INLET 3P
	E20-5817-05	TERMINAL, FOR TRANSFORMER
	E21-0670-03	TERMINAL, RED
	E21-0671-03	TERMINAL, BLACK
	E21-0672-03	TERMINAL, WHITE
	E23-0015-04	EARTH LUG
	E29-0506-04	SHORTING BAR
	E29-0551-04	SHORTING BAR
	E30-1644-15	BS POWER CORD
	E30-1818-05	JIS POWER CORD SET
	E30-1819-15	IEC POWER CORD SET
	E30-1820-05	UL/CSA POWER CORD SET
	E30-1821-05	SAA POWER CORD SET
	E31-5811-15	WIRE ASS'Y; PIERCED CAP. TO CPU
	E31-5812-15	WIRE ASS'Y; P1 TO TR
	E31-5813-15	WIRE ASS'Y
	E31-5815-15	WIRE ASS'Y; PIERCED CAP. TO CPU
	E31-5862-05	WIRE ASS'Y; CHANGING VOLTAGE
	E38-0109-15	WIRE ASS'Y
	E38-0153-05	WIRE ASS'Y; COMMUNICATION CABLE
	E38-0440-05	WIRE ASS'Y; OUTPUT
	E38-0441-05	WIRE ASS'Y
	E38-0483-05	WIRE ASS'Y; FOR CONTROL OF COMM
	E38-0484-05	WIRE ASS'Y
	E38-0485-05	WIRE ASS'Y; PIERCED CAP. TO GND
	E38-0486-05	WIRE ASS'Y; PIERCED CAP. TO CPU
	F01-0877-03	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
	H10-2846-02	FOAMED STYRENE PAD(FRONT)
	H10-2847-02	FOAMED STYRENE PAD(REAR)
	H20-1725-04	VINYL COVER
	H53-0054-04	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, TOP

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

Y86-1540-00

REF. NO	PARTS NO	NAME & DESCRIPTION
	J21-4700-14	BRACKET
	J21-4701-03	BRACKET
	J21-4702-03	BRACKET, BOTTOM
	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
	K01-0544-05	HANDLE
	K21-0907-04	KNOB; COARSE
	K27-0509-04	PUSH BOTTON, ORANGE; POWER
	K27-0555-04	BOTTON (4 USED)
	K27-0556-04	BOTTON (5 USED)
	K27-0557-04	BOTTON, RED; OUTPUT
	L01-9976-05	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
	N09-0731-05	SCREW, SEMS PAN HD M3X12
	N09-0735-05	SCREW, SEMS PAN HD
	N09-0739-05	SCREW, SEMS BINDING TAPTITE 3X8
	N09-0754-05	SCREW, OVAL TAPTITE
	N09-0757-05	SCREW, SEMS BINDING TAPTITE 3X6
	N09-0776-05	SCREW, SEMS PAN HD
	N10-2030-41	NUT, HEX M3
	N14-0404-04	FLANGE NUT M3
	N17-1030-41	LOCK WASHER M3
	N89-3006-41	SCREW, BINDING TAPTITE M3X6
	N89-3010-41	SCREW, BINDING TAPTITE
	S10VB10	DIODE
	S40-2524-05	PUSH SWITCH; POWER
	X66-1220-00	PANEL UNIT
	X73-1970-01	AMPLIFIER UNIT
	X81-2890-00	BUFFER UNIT
	X81-3080-01	TERMINAL UNIT
	2SC3281(R)	TR. SI, NPN

X66-1220-01 (PAR/8-5 PANEL UNIT)		* * * P A R T S L I S T * * *			
REF. NO	PARTS NO	NAME & DESCRIPTION			
	E31-5853-15	WIRE ASS'Y; FOR D107			
	F15-0744-05	BLIND PLATE			
	J73-0155-12	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
C106	CE04EW1A101M	CAP. ELECTRO	100	20%	10V
C123	CF92V1H104J	CAP. POLYESTER	0.1	5%	50V
C124	NO USE				
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			
D60	NO USE				
D61	B30-0995-05	LED, GREEN/YELLOW			

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X66-1220-01

REF. NO	PARTS NO	NAME & DESCRIPTION
D62	NO USE	
D63	B30-0995-05	LED, GREEN/YELLOW
D64	NO USE	
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	B30-0994-05	LED, RED
D101	S1VB10	DIODE
D102	NO USE	
D103	1SS132	DIODE
D109	1SS132	DIODE
D110	NO USE	
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	NO USE	
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
P104	NO USE	
P105	E38-0487-05	WIRE ASS'Y
P110	E40-3239-05	PIN CONNECTOR 4P
P116	E40-3237-05	PIN CONNECTOR 2P
P120	E23-0581-05	LUG TERMINAL
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

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X66-1220-01

REF. NO	PARTS NO	NAME & DESCRIPTION			
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	
Q102	2SC1815(Y)	TR.	SI,	NPN	
Q103	NO USE				
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	R92-1061-05	JUMPING RES.		ZERO OHM	(5MM)
R9	R92-1061-05	JUMPING RES.		ZERO OHM	(5MM)
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

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X66-1220-01

REF. NO	PARTS NO	NAME & DESCRIPTION			
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	RD14BB2C361J	RES. CARBON	360	5%	1/6W
R102	RD14BB2C361J	RES. CARBON	360	5%	1/6W
R103	RD14BB2C361J	RES. CARBON	360	5%	1/6W
R104	NO USE				
R105	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R109	RD14BB2C431J	RES. CARBON	430	5%	1/6W
R110	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
R126	RD14BB2C304J	RES. CARBON	300K	5%	1/6W
R127	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R128	NO USE				
R129	RD14BB2E220J	RES. CARBON	22	5%	1/4W
R130	R92-0150-05	JUMPING RES.	ZERO OHM	(10MM)	
R131	R92-1061-05	JUMPING RES.	ZERO OHM	(5MM)	
R132	R92-1061-05	JUMPING RES.	ZERO OHM	(5MM)	
R133	R92-1061-05	JUMPING RES.	ZERO OHM	(5MM)	
S51	S50-1426-05	TACT SWITCH			
S55	S50-1426-05	TACT SWITCH			
S56	NO USE				
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 ENCORDER			
S65	S50-1426-05	TACT SWITCH			
S66	S50-1426-05	TACT SWITCH			
U1	TC74HC14AP	IC, HEX SCHMITT INVERTER			
U2	T93-0768-14	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-CHANNEL MPX(3-STATE)			
U8	TC74HC259AP	IC, 8-BIT ADDRESSABLE LATCHES			
U9	TC74HC139AP	IC, DUAL 2 TO 4 DEMULTIPLEXERS			
U10	TC74HC257AP	IC, QUAD 2-CHANNEL MPX(3-STATE)			
U11	TC74HC74AP	IC, DUAL D FLIP-FLOP			
U12	NO USE				
U13	TC74HC32AP	IC, QUAD 2 INPUT OR			

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

X66-1220-01

REF. NO	PARTS NO	NAME & DESCRIPTION
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	NO USE	
U104	PC837	IC, PHOTO COUPLER
U105	NO USE	
U106	PC827	IC, PHOTO COUPLER
X1	L78-0114-05	CERAMIC OSCILLATOR

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

X66-1220-00 (PAR36-3 PANEL UNIT)

REF. NO	PARTS NO	NAME & DESCRIPTION			
	E31-5853-15	WIRE ASS'Y; FOR D107			
	F15-0744-05	BLIND PLATE			
	J73-0155-12	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
C106	CE04EW1A101M	CAP. ELECTRO	100	20%	10V
C123	CF92V1H104J	CAP. POLYESTER	0.1	5%	50V
C124	NO USE				
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			
D60	NO USE				
D61	B30-0995-05	LED, GREEN/YELLOW			

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

X66-1220-00

REF. NO	PARTS NO	NAME & DESCRIPTION
D62	NO USE	
D63	B30-0995-05	LED, GREEN/YELLOW
D64	NO USE	
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	B30-0994-05	LED, RED
D101	S1VB10	DIODE
D102	NO USE	
D103	1SS132	DIODE
D109	1SS132	DIODE
D110	NO USE	
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	NO USE	
K103	S51-2508-05	RELAY
K104	S76-0610-05	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
P104	NO USE	
P105	E38-0487-05	WIRE ASS'Y
P110	E40-3239-05	PIN CONNECTOR 4P
P116	E40-3237-05	PIN CONNECTOR 2P
P120	E23-0581-05	LUG TERMINAL
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

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

X66-1220-00

REF. NO	PARTS NO	NAME & DESCRIPTION				
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		
Q102	2SC1815(Y)	TR.	SI,	NPN		
Q103	NO USE					
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	R92-1061-05	JUMPING RES.		ZERO OHM	(5MM)	
R9	R92-1061-05	JUMPING RES.		ZERO OHM	(5MM)	
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	

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

X66-1220-00

REF. NO	PARTS NO	NAME & DESCRIPTION
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	RD14BB2C361J	RES. CARBON 360 5% 1/6W
R102	RD14BB2C361J	RES. CARBON 360 5% 1/6W
R103	RD14BB2C361J	RES. CARBON 360 5% 1/6W
R104	NO USE	
R105	RD14BB2C102J	RES. CARBON 1K 5% 1/6W
R109	RD14BB2C431J	RES. CARBON 430 5% 1/6W
R110	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
R126	RD14BB2C304J	RES. CARBON 300K 5% 1/6W
R127	RD14BB2C102J	RES. CARBON 1K 5% 1/6W
R128	NO USE	
R129	RD14BB2E390J	RES. CARBON 39 5% 1/4W
R130	R92-0150-05	JUMPING RES. ZERO OHM (10MM)
R131	R92-1061-05	JUMPING RES. ZERO OHM (5MM)
R132	R92-1061-05	JUMPING RES. ZERO OHM (5MM)
R133	R92-1061-05	JUMPING RES. ZERO OHM (5MM)
S51	S50-1426-05	TACT SWITCH
S55	S50-1426-05	TACT SWITCH
S56	NO USE	
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 ENCORDER
S65	S50-1426-05	TACT SWITCH
S66	S50-1426-05	TACT SWITCH
U1	TC74HC14AP	IC, HEX SCHMITT INVERTER
U2	T93-0767-04	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-CHANNEL MPX (3-STATE)
U8	TC74HC259AP	IC, 8-BIT ADDRESSABLE LATCHES
U9	TC74HC139AP	IC, DUAL 2 TO 4 DEMULTIPLEXERS
U10	TC74HC257AP	IC, QUAD 2-CHANNEL MPX (3-STATE)
U11	TC74HC74AP	IC, DUAL D FLIP-FLOP
U12	NO USE	
U13	TC74HC32AP	IC, QUAD 2 INPUT OR

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

X66-1220-00

REF. NO	PARTS NO	NAME & DESCRIPTION
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	NO USE	
U104	PC837	IC, PHOTO COUPLER
U105	NO USE	
U106	PC827	IC, PHOTO COUPLER
X1	L78-0114-05	CERAMIC OSCILLATOR

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

X73-1970-00 (PAR18-5 AMP UNIT)

REF. NO	PARTS NO	NAME & DESCRIPTION
	F02-0522-05	HEAT SINK
	J73-0156-12	PCB (UNMOUNTED)
	N09-0626-04	SCREW, SEMS PAN HD M3X10
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	CE04EW1A101M	CAP. ELECTRO 100 20% 10V
C6	C90-0298-05	CAP. CERAMIC 0.1 20% 12V
C7	CK45FF1H103Z	CAP. CERAMIC 0.01 10% 50V
C8	CF92V1H474J	CAP. POLYESTER 0.47 5% 50V
C9	CF92V1H105J	CAP. POLYESTER 1 5% 50V
C10	CE04BW1H2R2M	CAP. ELECTRO 2.2 20% 50V
C11	CF92V1H474J	CAP. POLYESTER 0.47 5% 50V
C12	CF92V1H105J	CAP. POLYESTER 1 5% 50V
C13	CE04EW1A101M	CAP. ELECTRO 100 20% 10V
C14	CE04BW1E330M	CAP. ELECTRO 33 20% 25V
C15	CE04EW1C100M	CAP. ELECTRO 10 20% 16V
C16	CE04EW1C100M	CAP. ELECTRO 10 20% 16V
C17	CE04EW1C100M	CAP. ELECTRO 10 20% 16V
C18	CE04EW1C100M	CAP. ELECTRO 10 20% 16V
C19	C90-0298-05	CAP. CERAMIC 0.1 20% 12V
C20	C90-0298-05	CAP. CERAMIC 0.1 20% 12V
C21	C90-0298-05	CAP. CERAMIC 0.1 20% 12V
C22	CK45FF1H103Z	CAP. CERAMIC 0.01 10% 50V
C23	CK45FF1H103Z	CAP. CERAMIC 0.01 10% 50V
C24	CK45FF1H103Z	CAP. CERAMIC 0.01 10% 50V
C25	CK45FF1H103Z	CAP. CERAMIC 0.01 10% 50V
C26	CE04EW1A470M	CAP. ELECTRO 47 20% 10V
C27	C90-0298-05	CAP. CERAMIC 0.1 20% 12V
C28	C90-0298-05	CAP. CERAMIC 0.1 20% 12V
C29	CE04EW1C100M	CAP. ELECTRO 10 20% 16V
C30	CK45FF1H103Z	CAP. CERAMIC 0.01 10% 50V
C31	CK45FF1H103Z	CAP. CERAMIC 0.01 10% 50V
C32	CK45FF1H103Z	CAP. CERAMIC 0.01 10% 50V
C51	CF93AN2E104K	CAP. METAL FILM 0.1 10% 250V
C52	C90-3010-05	CAP. ELECTRO 10000 20% 50V
C53	C90-3010-05	CAP. ELECTRO 10000 20% 50V
C54	C90-3010-05	CAP. ELECTRO 10000 20% 50V
C101	CE04EW1E101M	CAP. ELECTRO 100 20% 25V
D1	S1VB10	DIODE
D2	MTZ9.1JC	DIODE, ZENER 9V
D3	HZT7A3	DIODE, ZENER 6.75V
D4	NO USE	
D5	1SS132	DIODE
D6	1SS132	DIODE
D7	1SS132	DIODE
D8	1SS132	DIODE
D9	1SS132	DIODE
D10	1SS132	DIODE
D11	1SS132	DIODE
D12	1SS132	DIODE
D52	DSA1A2	DIODE
D53	1SS132	DIODE
D54	1SS132	DIODE

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

X73-1970-00

REF. NO	PARTS NO	NAME & DESCRIPTION			
D101	W06C	DIODE			
JL1	E23-0401-05	PIN TERMINAL			
JW1	E38-0443-05	WIRE ASS'Y			
JW2	E38-0110-05	WIRE ASS'Y; JW2,3 TO Q15,16			
JW3	E38-0019-15	WIRE ASS'Y; JW3 TO Q16			
K1	S76-0611-05	RELAY			
K2	S76-0611-05	RELAY			
L1	L40-4701-03	FERRI INDUCTOR	47UH	10%	
P1	E23-0581-05	LUG TERMINAL			
P2	E23-0582-05	TERMINAL			
P3	E23-0581-05	LUG TERMINAL			
P4	E40-3238-05	PIN CONNECTOR	3P		
P5	NO USE				
P6	E40-3237-05	PIN CONNECTOR	2P		
P7	E23-0581-05	LUG TERMINAL			
P8	E23-0581-05	LUG TERMINAL			
P9	E23-0581-05	LUG TERMINAL			
P10	E23-0581-05	LUG TERMINAL			
P11	E23-0581-05	LUG TERMINAL			
P12	E23-0581-05	LUG TERMINAL			
P13	E40-3237-05	PIN CONNECTOR	2P		
P14	E40-3238-05	PIN CONNECTOR	3P		
P20	E40-5066-05	PIN CONNECTOR	9P		
P101	E40-3237-05	PIN CONNECTOR	2P		
P102	E40-3239-05	PIN CONNECTOR	4P		
Q1	2SC2911(R)	TR. SI, NPN			
Q2	2SC1815(Y)	TR. SI, NPN			
Q3	2SC1815(Y)	TR. SI, NPN			
Q101	2SC2911(R)	TR. SI, NPN			
R1	RD14BB2C181J	RES. CARBON	180	5%	1/6W
R2	RD14BB2C221J	RES. CARBON	220	5%	1/6W
R3	RN14BK2C6651F	RES. METAL FILM	6.65K	1%	1/6W
R4	NO USE				
R5	RN14BK2C1002F	RES. METAL FILM	10K	1%	1/6W
R6	RN14BK2E2004F	RES. METAL FILM	2M	1%	1/4W
R7	RN14BK2C1004F	RES. METAL FILM	1M	1%	1/6W
R8	RN14BK2C1602F	RES. METAL FILM	16K	1%	1/6W
R9	RN14BK2C1801F	RES. METAL FILM	1.8K	1%	1/6W
R10	RN14BK2C1602F	RES. METAL FILM	16K	1%	1/6W
R11	RN14BK2C1801F	RES. METAL FILM	1.8K	1%	1/6W
R12	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R13	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R14	NO USE				
R15	RD14BB2E242J	RES. CARBON	2.4K	5%	1/4W
R16	RD14BB2C200J	RES. CARBON	20	5%	1/6W
R17	RN14BK2C9530F	RES. METAL FILM	953	1%	1/6W
R18	RN14BK2C1001F	RES. METAL FILM	1K	1%	1/6W
R19	RN14BK2C9530F	RES. METAL FILM	953	1%	1/6W

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X73-1970-00

REF. NO	PARTS NO	NAME & DESCRIPTION
R20	RD14BB2E152J	RES. CARBON 1.5K 5% 1/4W
R21	R90-1120-05	RES. NETWORK 2X270
R22	R90-1121-05	RES. NETWORK 2X430
R23	RD14BB2C103J	RES. CARBON 10K 5% 1/6W
R24	R92-1465-05	RES. NETWORK 2K,10K
R25	RD14BB2C102J	RES. CARBON 1K 5% 1/6W
R26	RD14BB2C331J	RES. CARBON 330 5% 1/6W
R27	RD14BB2C103J	RES. CARBON 10K 5% 1/6W
R28	RD14BB2C511J	RES. CARBON 510 5% 1/6W
R29	RD14BB2C162J	RES. CARBON 1.6K 5% 1/6W
R30	RD14BB2C332J	RES. CARBON 3.3K 5% 1/6W
R31	RD14BB2C223J	RES. CARBON 22K 5% 1/6W
R32	RD14BB2E152J	RES. CARBON 1.5K 5% 1/4W
R33	RD14BB2C361J	RES. CARBON 360 5% 1/6W
R34	RD14BB2C361J	RES. CARBON 360 5% 1/6W
R35	R90-1118-05	RES. NETWORK 3K,12K
R36	RD14BB2C181J	RES. CARBON 180 5% 1/6W
R37	R92-1476-05	RES. CEMENT 1.2 5% 10W
R38	R92-1476-05	RES. CEMENT 1.2 5% 10W
R39	R92-1476-05	RES. CEMENT 1.2 5% 10W
R40	NO USE	
R41	RD14BB2C754J	RES. CARBON 750K 5% 1/6W
R42	RD14BB2C754J	RES. CARBON 750K 5% 1/6W
R51	RD14DB3DR43J	RES. CARBON 0.43 5% 2W
R52	RD14DB3DR43J	RES. CARBON 0.43 5% 2W
R53	RD14DB3DR43J	RES. CARBON 0.43 5% 2W
R54	RD14DB3DR43J	RES. CARBON 0.43 5% 2W
R55	RD14BB2E101J	RES. CARBON 100 5% 1/4W
R56	RD14BB2E101J	RES. CARBON 100 5% 1/4W
R57	RD14BB2E101J	RES. CARBON 100 5% 1/4W
R58	RD14BB2E101J	RES. CARBON 100 5% 1/4W
R59	RD14BB2C102J	RES. CARBON 1K 5% 1/6W
R60	RD14DB3D331J	RES. CARBON 330 5% 2W
R61	RD14DB3DR43J	RES. CARBON 0.43 5% 2W
R62	RD14BB2E101J	RES. CARBON 100 5% 1/4W
R63	RD14BB2E101J	RES. CARBON 100 5% 1/4W
R64	RD14DB3DR43J	RES. CARBON 0.43 5% 2W
R101	RD14BB2C472J	RES. CARBON 4.7K 5% 1/6W
R102	RD14BB2C751J	RES. CARBON 750 5% 1/6W
TP1	E23-0401-05	PIN TERMINAL
TP2	E23-0401-05	PIN TERMINAL
U1	NJM7812FA	IC,3-TERMINAL REGULATOR
U2	NJM7912FA	IC,3-TERMINAL REGULATOR
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	NJM7805FA	IC,3-TERMINAL REGULATOR
U10	NJM2068D	IC,LOW NOISE DUAL OP AMP
U11	NJM4558D	IC,DUAL OP AMP
U12	NJM4558D	IC,DUAL OP AMP
U13	NJM072BD	IC,JFET INPUT OP AMP
U14	NJM4558D	IC,DUAL OP AMP

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

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REF. NO	PARTS NO	NAME & DESCRIPTION
U15	NJM4560D	IC, OP AMP
U16	PC619	IC, PHOTO COUPLER
U17	PC619	IC, PHOTO COUPLER
U18	TC74HC04AP	IC, HEX INVERTER
U101	PC817	IC, PHOTO COUPLER
VR1	R12-0556-05	RES. SEMI FIXED 100 B
VR2	R12-0556-05	RES. SEMI FIXED 100 B
VR3	R12-0541-05	RES. SEMI FIXED 100 B

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

X73-1970-01 (PAR36-3 AMP UNIT)

REF. NO	PARTS NO	NAME & DESCRIPTION			
	F02-0522-05	HEAT SINK			
	J73-0156-12	PCB (UNMOUNTED)			
	N09-0626-04	SCREW, SEMS PAN HD M3X10			
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	CE04EW1A101M	CAP. ELECTRO	100	20%	10V
C6	C90-0298-05	CAP. CERAMIC	0.1	20%	12V
C7	CK45FF1H103Z	CAP. CERAMIC	0.01	10%	50V
C8	CF92V1H474J	CAP. POLYESTER	0.47	5%	50V
C9	CF92V1H105J	CAP. POLYESTER	1	5%	50V
C10	CE04BW1H2R2M	CAP. ELECTRO	2.2	20%	50V
C11	CF92V1H474J	CAP. POLYESTER	0.47	5%	50V
C12	CF92V1H105J	CAP. POLYESTER	1	5%	50V
C13	CE04EW1A101M	CAP. ELECTRO	100	20%	10V
C14	CE04BW1H220M	CAP. ELECTRO	22	20%	50V
C15	CE04EW1C100M	CAP. ELECTRO	10	20%	16V
C16	CE04EW1C100M	CAP. ELECTRO	10	20%	16V
C17	CE04EW1C100M	CAP. ELECTRO	10	20%	16V
C18	CE04EW1C100M	CAP. ELECTRO	10	20%	16V
C19	C90-0298-05	CAP. CERAMIC	0.1	20%	12V
C20	C90-0298-05	CAP. CERAMIC	0.1	20%	12V
C21	C90-0298-05	CAP. CERAMIC	0.1	20%	12V
C22	CK45FF1H103Z	CAP. CERAMIC	0.01	10%	50V
C23	CK45FF1H103Z	CAP. CERAMIC	0.01	10%	50V
C24	CK45FF1H103Z	CAP. CERAMIC	0.01	10%	50V
C25	CK45FF1H103Z	CAP. CERAMIC	0.01	10%	50V
C26	CE04EW1A470M	CAP. ELECTRO	47	20%	10V
C27	C90-0298-05	CAP. CERAMIC	0.1	20%	12V
C28	C90-0298-05	CAP. CERAMIC	0.1	20%	12V
C29	CE04EW1C100M	CAP. ELECTRO	10	20%	16V
C30	CK45FF1H103Z	CAP. CERAMIC	0.01	10%	50V
C31	CK45FF1H103Z	CAP. CERAMIC	0.01	10%	50V
C32	CK45FF1H103Z	CAP. CERAMIC	0.01	10%	50V
C51	CF93AN2E104K	CAP. METAL FILM	0.1	10%	250V
C52	C90-3058-05	CAP. ELECTRO	4700	20%	80V
C53	C90-3058-05	CAP. ELECTRO	4700	20%	80V
C54	C90-3058-05	CAP. ELECTRO	4700	20%	80V
C101	CE04EW1E101M	CAP. ELECTRO	100	20%	25V
D1	S1VB10	DIODE			
D2	MTZ9.1JC	DIODE, ZENER	9V		
D3	HZT7A3	DIODE, ZENER	6.75V		
D4	NO USE				
D5	1SS132	DIODE			
D6	1SS132	DIODE			
D7	1SS132	DIODE			
D8	1SS132	DIODE			
D9	1SS132	DIODE			
D10	1SS132	DIODE			
D11	1SS132	DIODE			
D12	1SS132	DIODE			
D52	DSA1A2	DIODE			
D53	1SS132	DIODE			
D54	1SS132	DIODE			

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

X73-1970-01

REF. NO	PARTS NO	NAME & DESCRIPTION				
D101	W06C	DIODE				
JL1	E23-0401-05	PIN TERMINAL				
JW1	E38-0443-05	WIRE ASS'Y				
JW2	E38-0110-05	WIRE ASS'Y; JW2,3 TO Q15,16				
JW3	E38-0019-15	WIRE ASS'Y; JW3 TO Q16				
K1	S76-0611-05	RELAY				
K2	S76-0611-05	RELAY				
L1	L40-4701-03	FERRI INDUCTOR	47UH	10%		
P1	E23-0581-05	LUG TERMINAL				
P2	E23-0582-05	TERMINAL				
P3	E23-0581-05	LUG TERMINAL				
P4	E40-3238-05	PIN CONNECTOR	3P			
P5	NO USE					
P6	E40-3237-05	PIN CONNECTOR	2P			
P7	E23-0581-05	LUG TERMINAL				
P8	E23-0581-05	LUG TERMINAL				
P9	E23-0581-05	LUG TERMINAL				
P10	E23-0581-05	LUG TERMINAL				
P11	E23-0581-05	LUG TERMINAL				
P12	E23-0581-05	LUG TERMINAL				
P13	E40-3237-05	PIN CONNECTOR	2P			
P14	E40-3238-05	PIN CONNECTOR	3P			
P20	E40-5066-05	PIN CONNECTOR	9P			
P101	E40-3237-05	PIN CONNECTOR	2P			
P102	E40-3239-05	PIN CONNECTOR	4P			
Q1	2SC2911(R)	TR. SI, NPN				
Q2	2SC1815(Y)	TR. SI, NPN				
Q3	2SC1815(Y)	TR. SI, NPN				
Q101	2SC2911(R)	TR. SI, NPN				
R1	RD14BB2C181J	RES. CARBON	180	5%	1/6W	
R2	RD14BB2C221J	RES. CARBON	220	5%	1/6W	
R3	RN14BK2C6651F	RES. METAL FILM	6.65K	1%	1/6W	
R4	NO USE					
R5	RN14BK2C1002F	RES. METAL FILM	10K	1%	1/6W	
R6	RN14BK2E2004F	RES. METAL FILM	2M	1%	1/4W	
R7	RN14BK2C1004F	RES. METAL FILM	1M	1%	1/6W	
R8	RN14BK2C1602F	RES. METAL FILM	16K	1%	1/6W	
R9	RN14BK2C1801F	RES. METAL FILM	1.8K	1%	1/6W	
R10	RN14BK2C1602F	RES. METAL FILM	16K	1%	1/6W	
R11	RN14BK2C1801F	RES. METAL FILM	1.8K	1%	1/6W	
R12	RD14BB2C102J	RES. CARBON	1K	5%	1/6W	
R13	RD14BB2C102J	RES. CARBON	1K	5%	1/6W	
R14	NO USE					
R15	RD14BB2E242J	RES. CARBON	2.4K	5%	1/4W	
R16	RD14BB2C200J	RES. CARBON	20	5%	1/6W	
R17	RN14BK2C9530F	RES. METAL FILM	953	1%	1/6W	
R18	RN14BK2C1001F	RES. METAL FILM	1K	1%	1/6W	
R19	RN14BK2C9530F	RES. METAL FILM	953	1%	1/6W	

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

X73-1970-01

REF. NO	PARTS NO	NAME & DESCRIPTION			
R20	RD14BB2E152J	RES. CARBON	1.5K	5%	1/4W
R21	R90-1120-05	RES. NETWORK	2X270		
R22	R90-1121-05	RES. NETWORK	2X430		
R23	RD14BB2C103J	RES. CARBON	10K	5%	1/6W
R24	R92-1472-05	RES. NETWORK	1K,10K		
R25	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R26	RD14BB2C331J	RES. CARBON	330	5%	1/6W
R27	RD14BB2C103J	RES. CARBON	10K	5%	1/6W
R28	RD14BB2C511J	RES. CARBON	510	5%	1/6W
R29	RD14BB2C162J	RES. CARBON	1.6K	5%	1/6W
R30	RD14BB2C332J	RES. CARBON	3.3K	5%	1/6W
R31	RD14BB2C223J	RES. CARBON	22K	5%	1/6W
R32	RD14BB2E152J	RES. CARBON	1.5K	5%	1/4W
R33	RD14BB2C361J	RES. CARBON	360	5%	1/6W
R34	RD14BB2C361J	RES. CARBON	360	5%	1/6W
R35	R90-1119-05	RES. NETWORK	2K,18K		
R36	RD14BB2C181J	RES. CARBON	180	5%	1/6W
R37	R92-1477-05	RES. FIXED			
R38	R92-1477-05	RES. FIXED			
R39	R92-1477-05	RES. FIXED			
R40	NO USE				
R41	RD14BB2C754J	RES. CARBON	750K	5%	1/6W
R42	RD14BB2C754J	RES. CARBON	750K	5%	1/6W
R51	RD14DB3AR68J	RES. CARBON	0.68	5%	1W
R52	RD14DB3AR68J	RES. CARBON	0.68	5%	1W
R53	RD14DB3AR68J	RES. CARBON	0.68	5%	1W
R54	RD14DB3AR68J	RES. CARBON	0.68	5%	1W
R55	RD14BB2E121J	RES. CARBON	120	5%	1/4W
R56	RD14BB2E121J	RES. CARBON	120	5%	1/4W
R57	RD14BB2E121J	RES. CARBON	120	5%	1/4W
R58	RD14BB2E121J	RES. CARBON	120	5%	1/4W
R59	RD14BB2C102J	RES. CARBON	1K	5%	1/6W
R60	RD14DB3D122J	RES. CARBON	1.2K	5%	2W
R61	RD14DB3AR68J	RES. CARBON	0.68	5%	1W
R62	RD14BB2E121J	RES. CARBON	120	5%	1/4W
R63	RD14BB2E121J	RES. CARBON	120	5%	1/4W
R64	RD14DB3AR68J	RES. CARBON	0.68	5%	1W
R101	RD14BB2C472J	RES. CARBON	4.7K	5%	1/6W
R102	RD14BB2C751J	RES. CARBON	750	5%	1/6W
TP1	E23-0401-05	PIN TERMINAL			
TP2	E23-0401-05	PIN TERMINAL			
U1	NJM7812FA	IC,3-TERMINAL REGULATOR			
U2	NJM7912FA	IC,3-TERMINAL REGULATOR			
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	NJM7805FA	IC,3-TERMINAL REGULATOR			
U10	NJM2068D	IC,LOW NOISE DUAL OP AMP			
U11	NJM4558D	IC,DUAL OP AMP			
U12	NJM4558D	IC,DUAL OP AMP			
U13	NJM072BD	IC,JFET INPUT OP AMP			
U14	NJM4558D	IC,DUAL OP AMP			

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

X73-1970-01

REF. NO	PARTS NO	NAME & DESCRIPTION
U15	NJM4560D	IC,OP AMP
U16	PC619	IC,PHOTO COUPLER
U17	PC619	IC,PHOTO COUPLER
U18	TC74HC04AP	IC,HEX INVERTER
U101	PC817	IC,PHOTO COUPLER
VR1	R12-0556-05	RES. SEMI FIXED 100 B
VR2	R12-0556-05	RES. SEMI FIXED 100 B
VR3	R12-0541-05	RES. SEMI FIXED 100 B

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

X81-3080-00 (PAR18-5 BUFFER UNIT)

REF. NO	PARTS NO	NAME & DESCRIPTION				
	J73-0157-03	PCB (UNMOUNTED)				
C1	CE04BW1V471M					
C2	CE04BW1V471M					
C3	CE04BW1A470M	CAP. ELECTRO	47	20%	10V	
C4	CE04BW1A470M	CAP. ELECTRO	47	20%	10V	
C51	CF92V1H564J	CAP. POLYESTER	0.56	5%	50V	
C52	CF92V1H564J	CAP. POLYESTER	0.56	5%	50V	
C53	CK45F1H103Z	CAP. CERAMIC	0.01	+80-20%	50	
C54	CK45F1H103Z	CAP. CERAMIC	0.01	+80-20%	50	
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	
JL1	E38-0442-05	WIRE ASS'Y				
JL2	E38-0442-05	WIRE ASS'Y				
JL3	NO USE					
JL4	E38-0020-15	WIRE ASS'Y				
JL5	NO USE					
JL6	E38-0482-05	WIRE ASS'Y				
JW3	E38-0482-05	WIRE ASS'Y				
JW4	NO USE					
JW5	E38-0442-05	WIRE ASS'Y				
R2	RD14BB2E220J	RES. CARBON	22	5%	1/4W	
R3	RD14DB3D331J	RES. CARBON	330	5%	2W	

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

X81-3080-01 (PAR36-3 BUFFER UNIT)

REF. NO	PARTS NO	NAME & DESCRIPTION			
	J73-0157-03	PCB (UNMOUNTED)			
C1	CE04BW1H331M	CAP. ELECTRO	330	20%	50V
C2	NO USE				
C3	CE04BW1A470M	CAP. ELECTRO	47	20%	10V
C4	CE04BW1A470M	CAP. ELECTRO	47	20%	10V
C51	CF92V1H564J	CAP. POLYESTER	0.56	5%	50V
C52	CF92V1H564J	CAP. POLYESTER	0.56	5%	50V
C53	CK45F1H103Z	CAP. CERAMIC	0.01	+80-20%	50
C54	CK45F1H103Z	CAP. CERAMIC	0.01	+80-20%	50
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
JL1	E38-0442-05	WIRE ASS'Y			
JL2	E38-0442-05	WIRE ASS'Y			
JL3	NO USE				
JL4	E38-0020-15	WIRE ASS'Y			
JL5	NO USE				
JL6	E38-0482-05	WIRE ASS'Y			
JW3	E38-0482-05	WIRE ASS'Y			
JW4	NO USE				
JW5	E38-0442-05	WIRE ASS'Y			
R2	RD14BB2E390J	RES. CARBON	39	5%	1/4W
R3	RD14DB3D122J	RES. CARBON	1.2K	5%	2W

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

X81-2890-00 (PAR18-5/36-3 TERMINAL 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			

ADJUSTMENT

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

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

Before calibrating the unit, check the power supply voltage.

TEST EQUIPMENT REQUIRED

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

Multimeter	45	FLUKE
Oscilloscope	CS-4025	KENWOOD

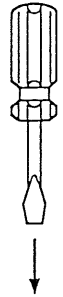
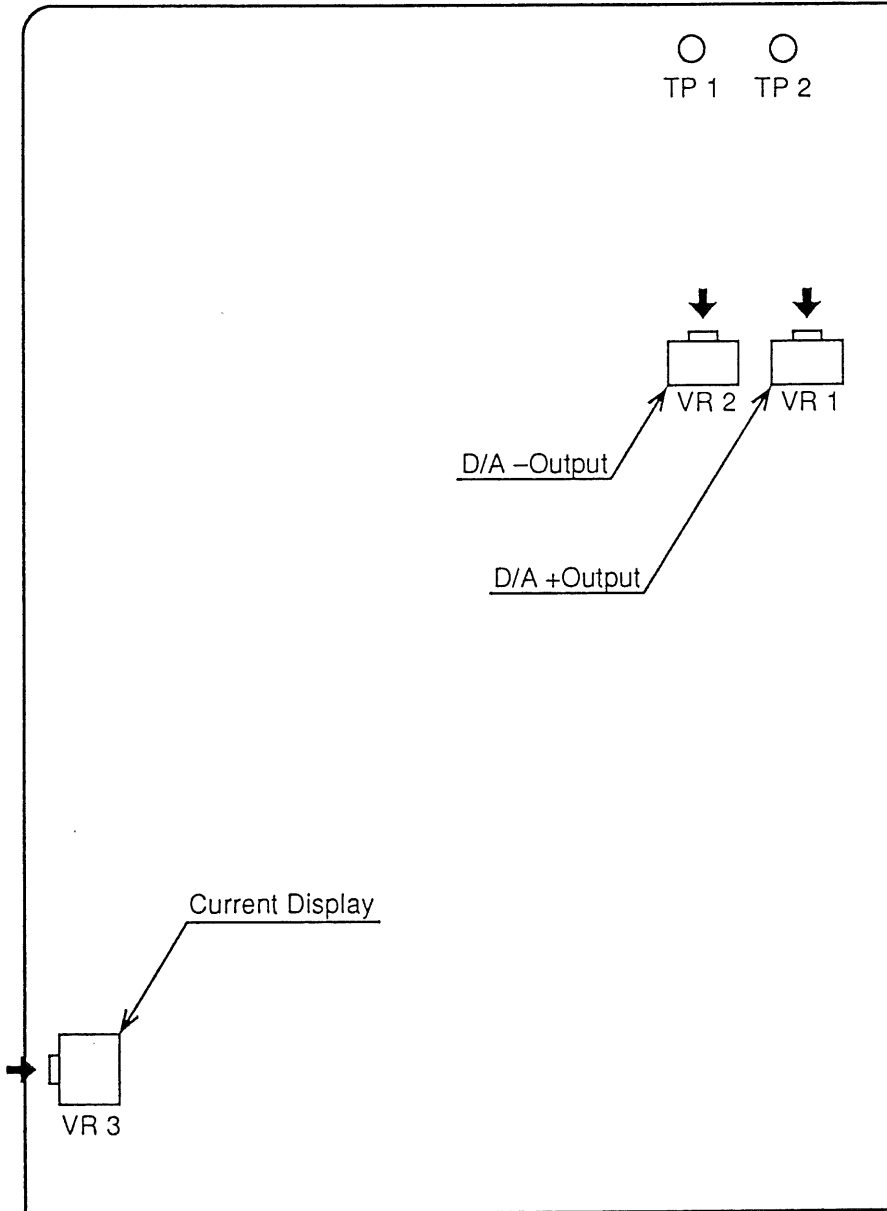
Item	Adjustment VR	P.C.B	Procedure						
D/A + Output	VR1	X73-1970	<ol style="list-style-type: none"> 1. Connect the multimeter as follows: <table border="0" style="margin-left: 20px;"> <tr> <td>Multimeter</td> <td>PAR</td> </tr> <tr> <td>+</td> <td>to X73-1970 (TP1)</td> </tr> <tr> <td>COM</td> <td>to COM terminal on the panel (TP2)</td> </tr> </table> At this point, set the multimeter to the voltage measurement mode. 2. Set the PAR 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". 3. Press the PRESET1 and observe the multimeter. Assume that the value at this point is P. 4. Press the PRESET2. Then adjust the VR1 so that the multimeter indicates (P + 4.096) V. $\pm 2mV$ 	Multimeter	PAR	+	to X73-1970 (TP1)	COM	to COM terminal on the panel (TP2)
Multimeter	PAR								
+	to X73-1970 (TP1)								
COM	to COM terminal on the panel (TP2)								
D/A - Output	VR2	<ol style="list-style-type: none"> 1. Press the PRESET3 and observe the multimeter. Assume that the value at this point is Q. 2. Press the VARIABLE. Then adjust the VR2 so that the multimeter indicates (Q + 4.096) V. $\pm 2mV$ 3. Cancel the voltage adjustment mode by pressing the V switch. (Cancellation will take about 10 seconds.) 							
+ 18 V (+ 36 V) Current Display	VR3	<ol style="list-style-type: none"> 1. Connect the multimeter as follows: <table border="0" style="margin-left: 20px;"> <tr> <td>Multimeter</td> <td>PAR</td> </tr> <tr> <td>+</td> <td>to + 18 V (+ 36 V) terminal on the panel</td> </tr> <tr> <td>COM</td> <td>to COM terminal on the panel</td> </tr> </table> At this point, set the multimeter to the current measurement mode. 2. Turn the OUTPUT switch ON. Then adjust the multimeter by turning the rotary knob so that it indicates 5.00 A (3.00 A). At this point, make sure that the + 18 V (+ 36 V) LED blinks and the unit maintains a constant current. 3. Adjust the VR3 so that the multimeter indicates 5.00 A (3.00 A). 	Multimeter	PAR	+	to + 18 V (+ 36 V) terminal on the panel	COM	to COM terminal on the panel	
Multimeter	PAR								
+	to + 18 V (+ 36 V) terminal on the panel								
COM	to COM terminal on the panel								

ADJUSTMENT

AMP UNIT (A/5)



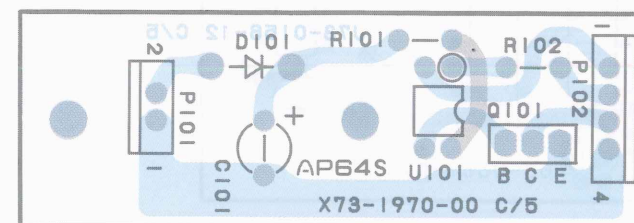
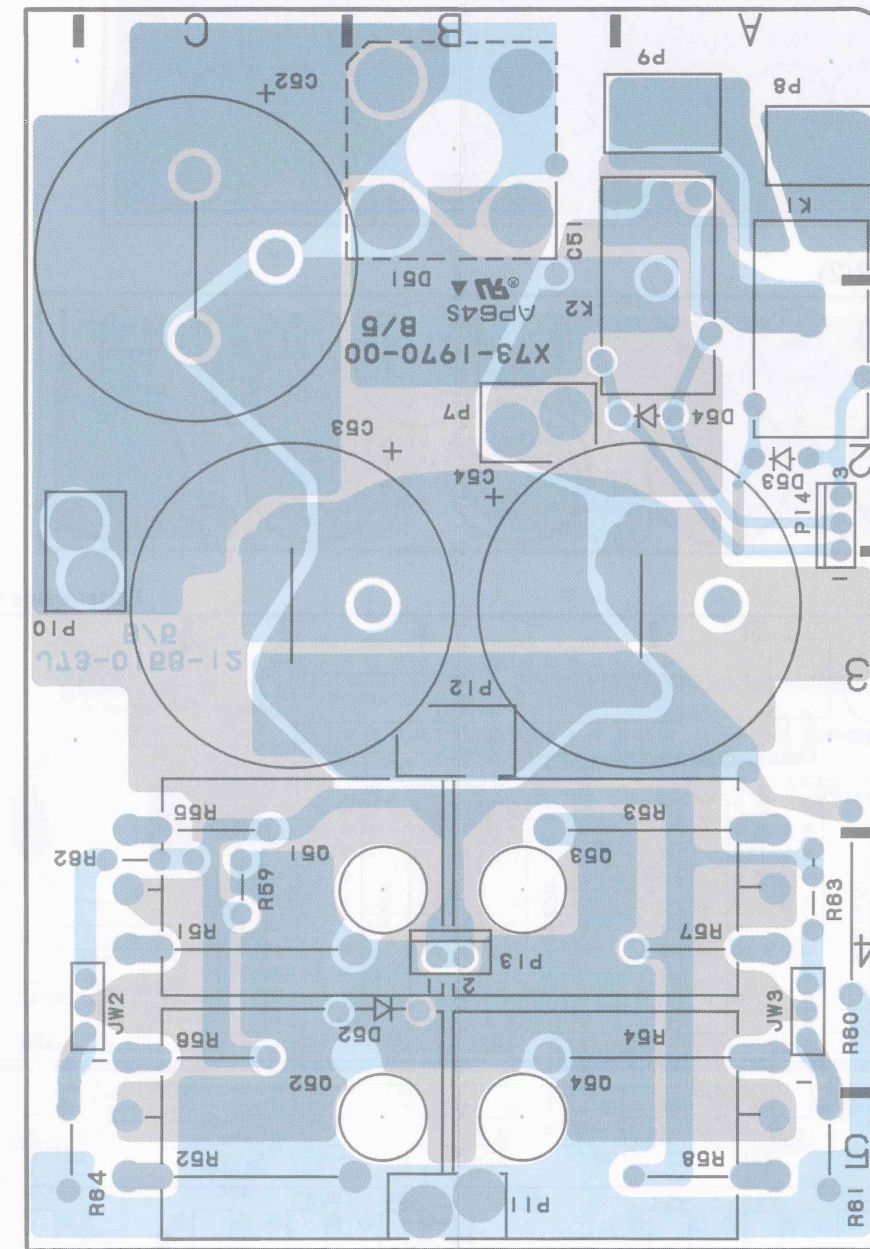
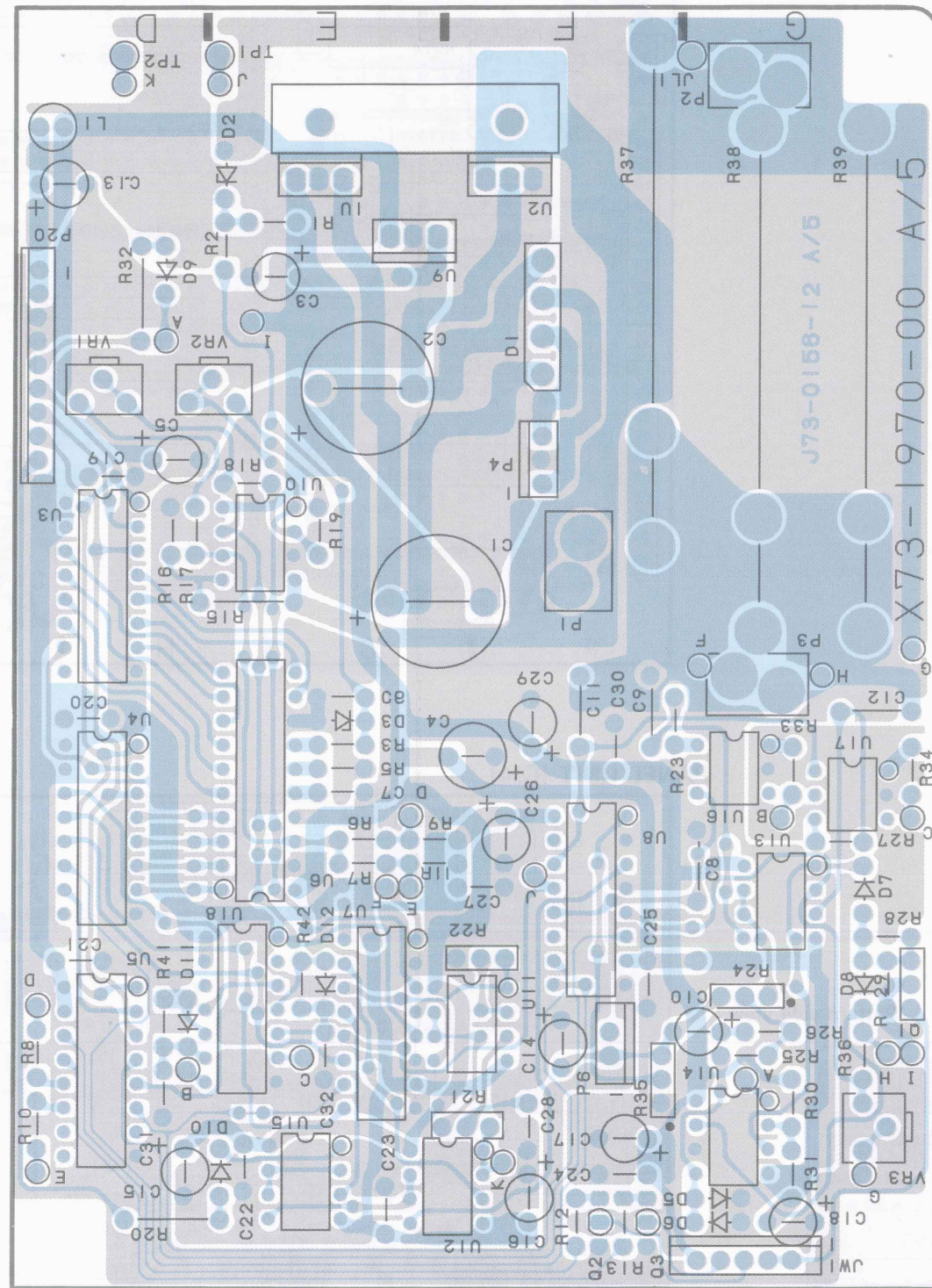
Parts Side View



P.C.BOARD

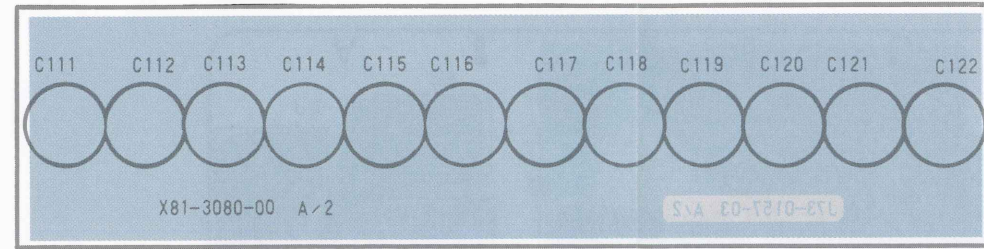
AMP UNIT (X73-1970-00)

Pattern side view

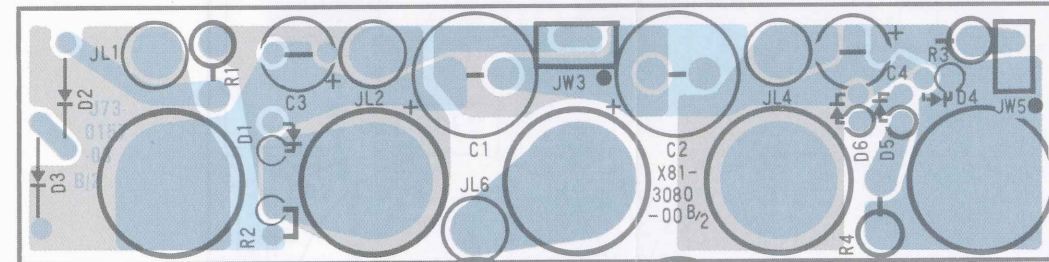


P.C.BOARD

TERMINAL UNIT (A/2)

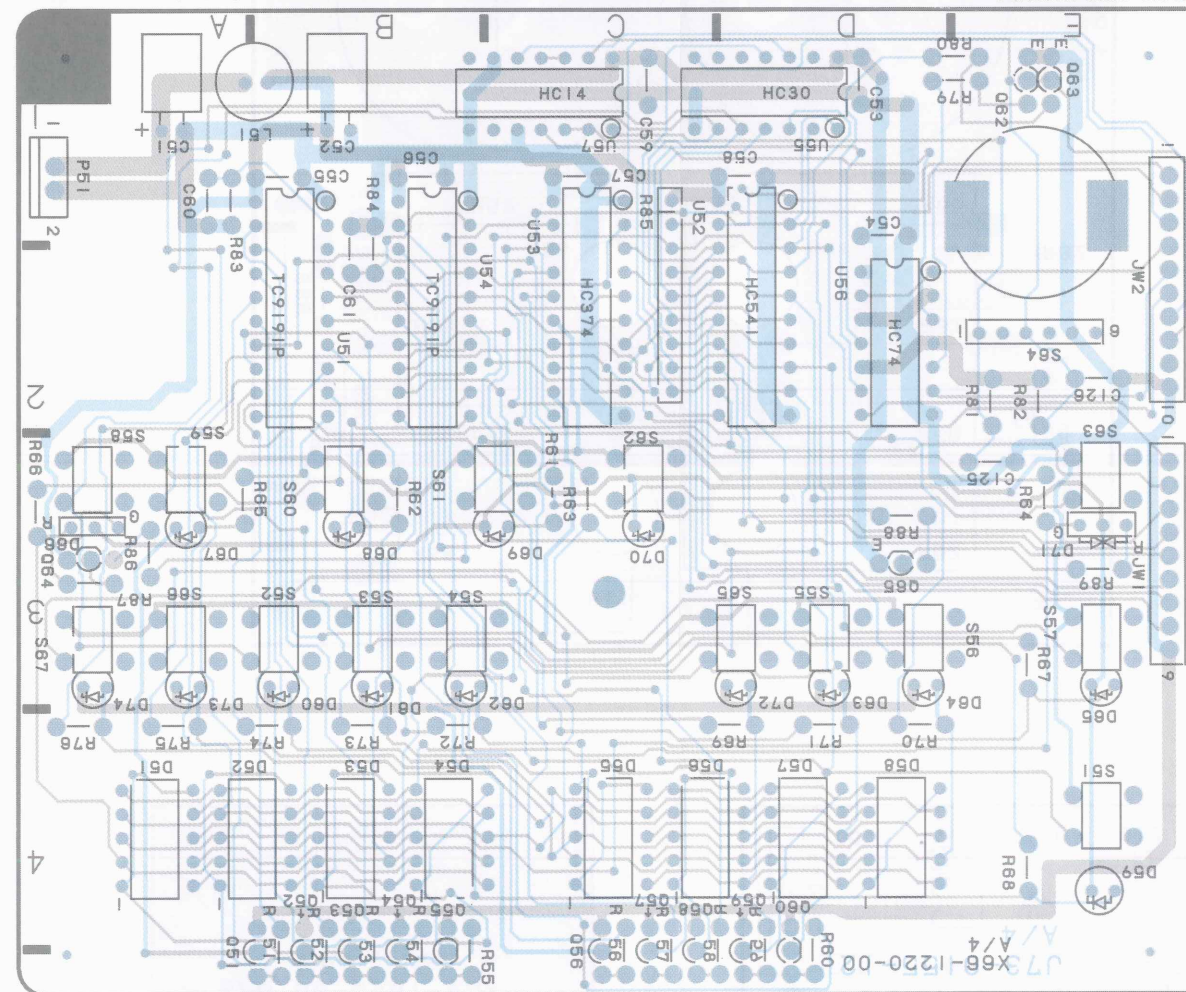


TERMINAL UNIT (B/2)

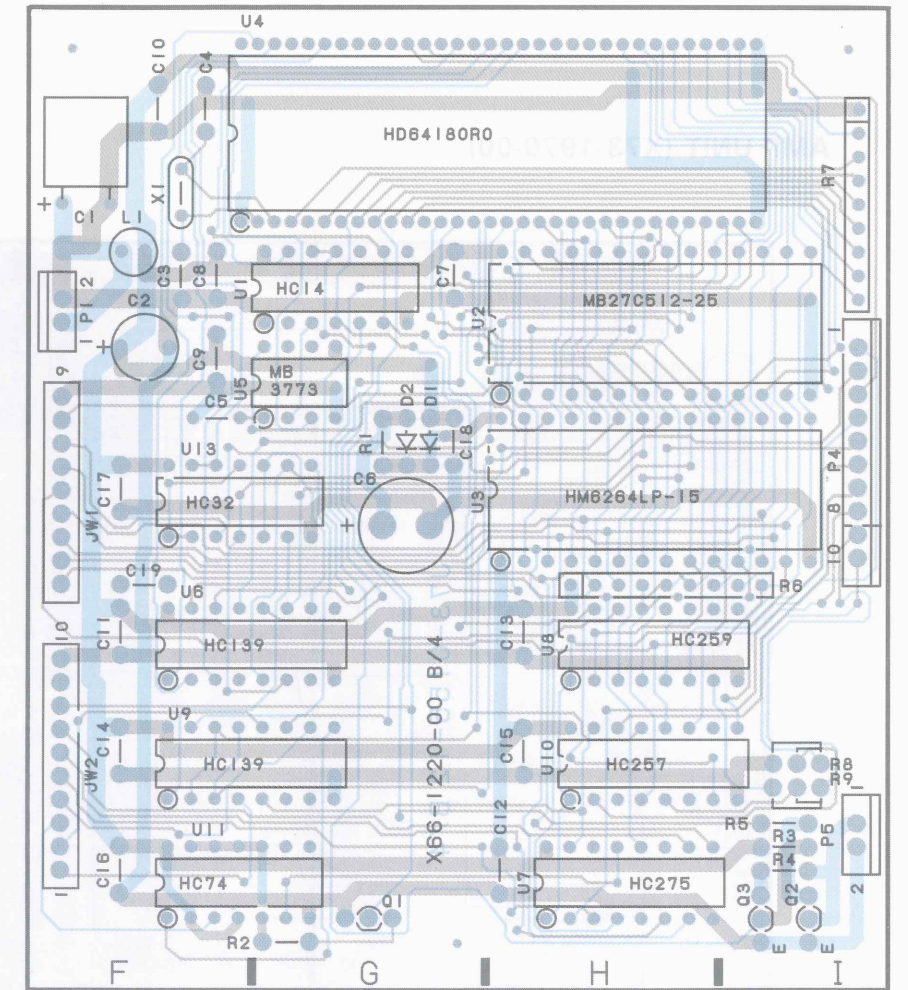


PANEL UNIT (A/4)

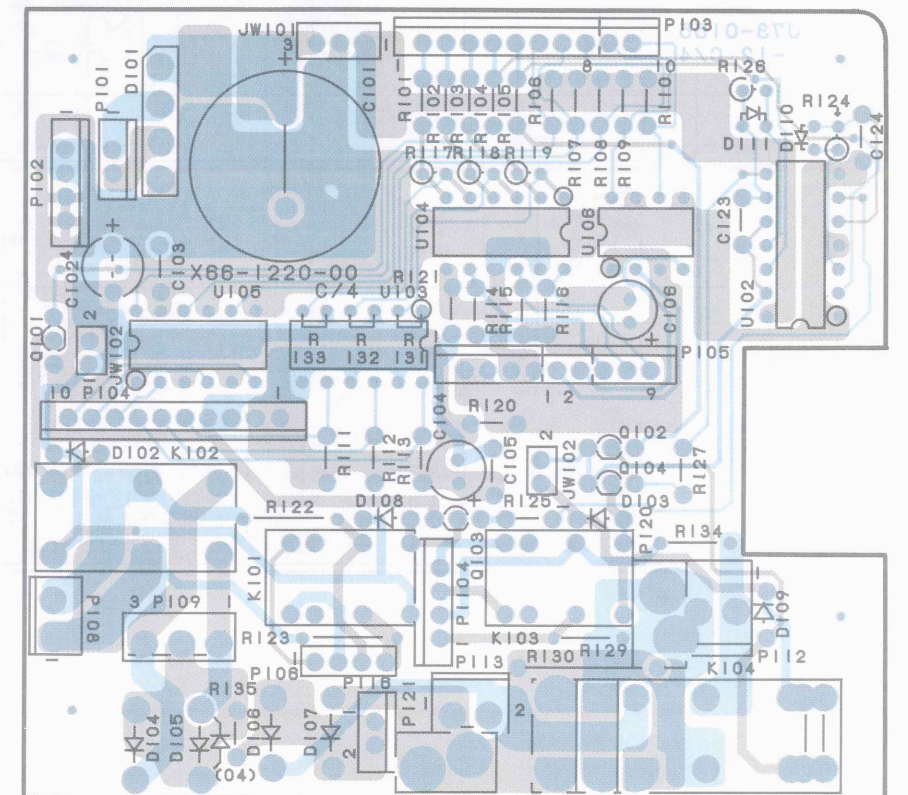
Pattern side view



PANEL UNIT (B/4)

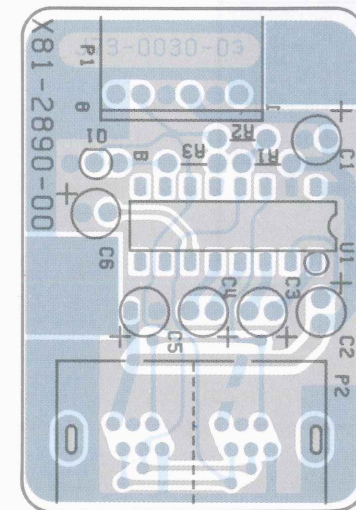


PANEL UNIT (C/4)

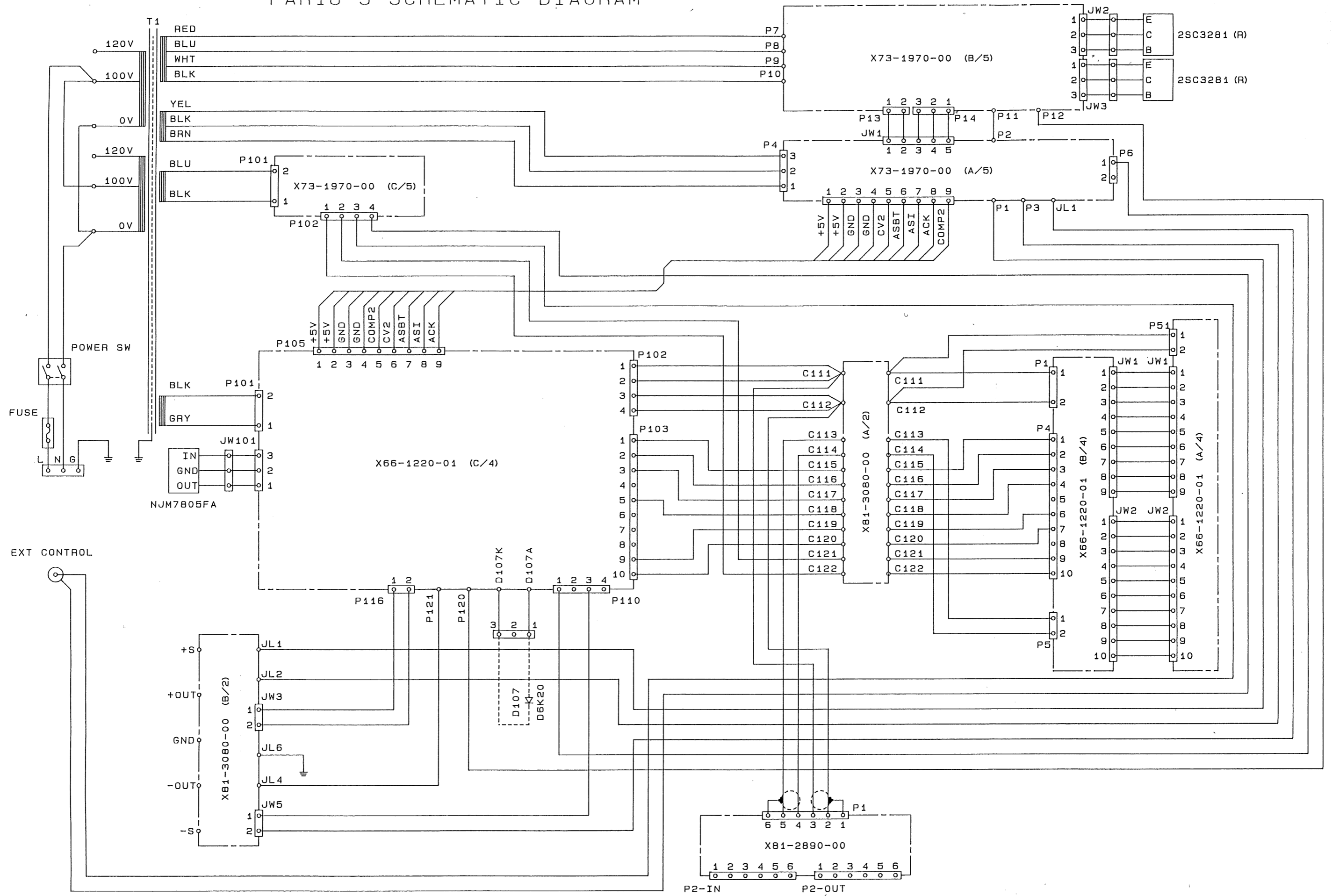


BUFFER UNIT

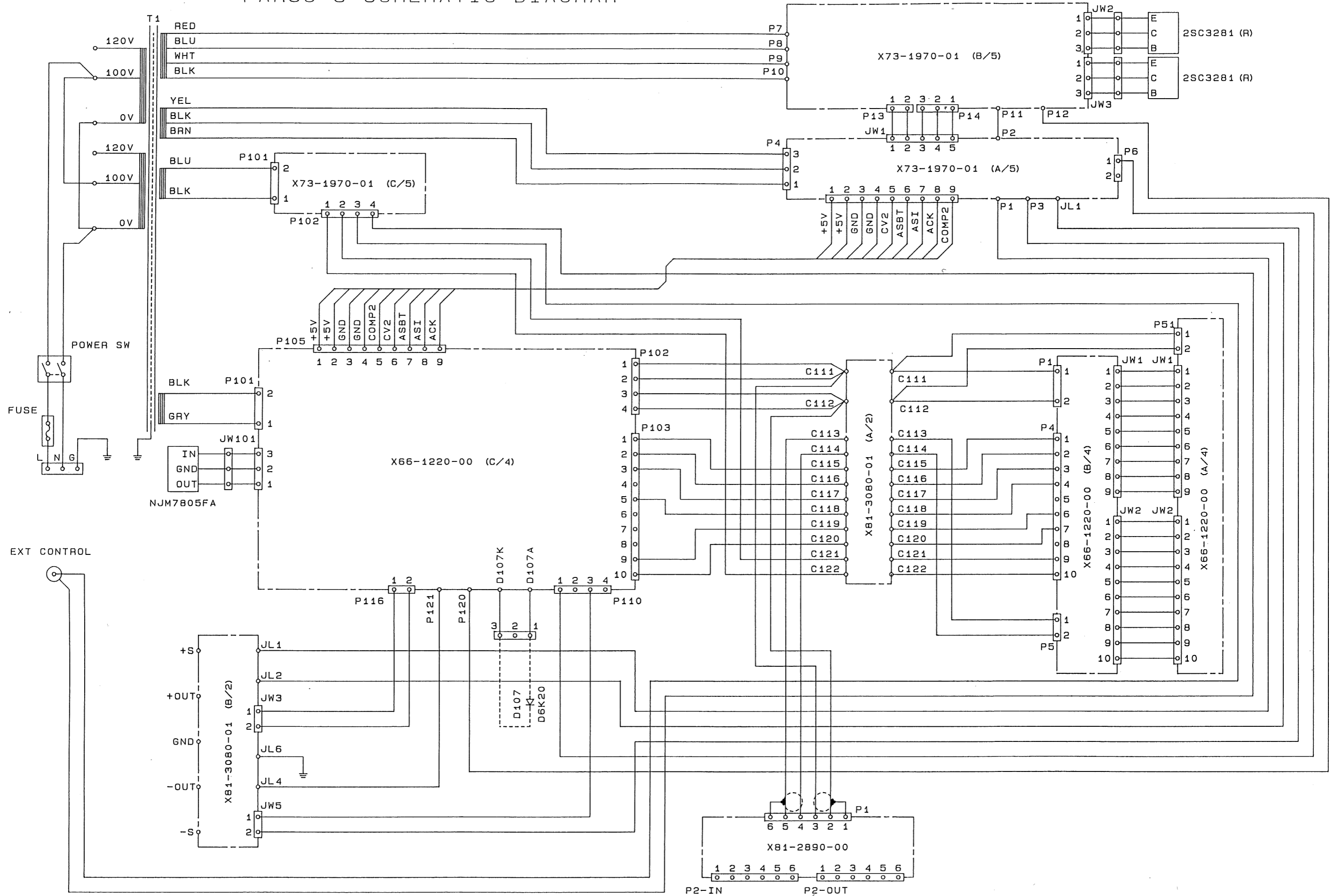
Pattern side view



PAR18-5 SCHEMATIC DIAGRAM

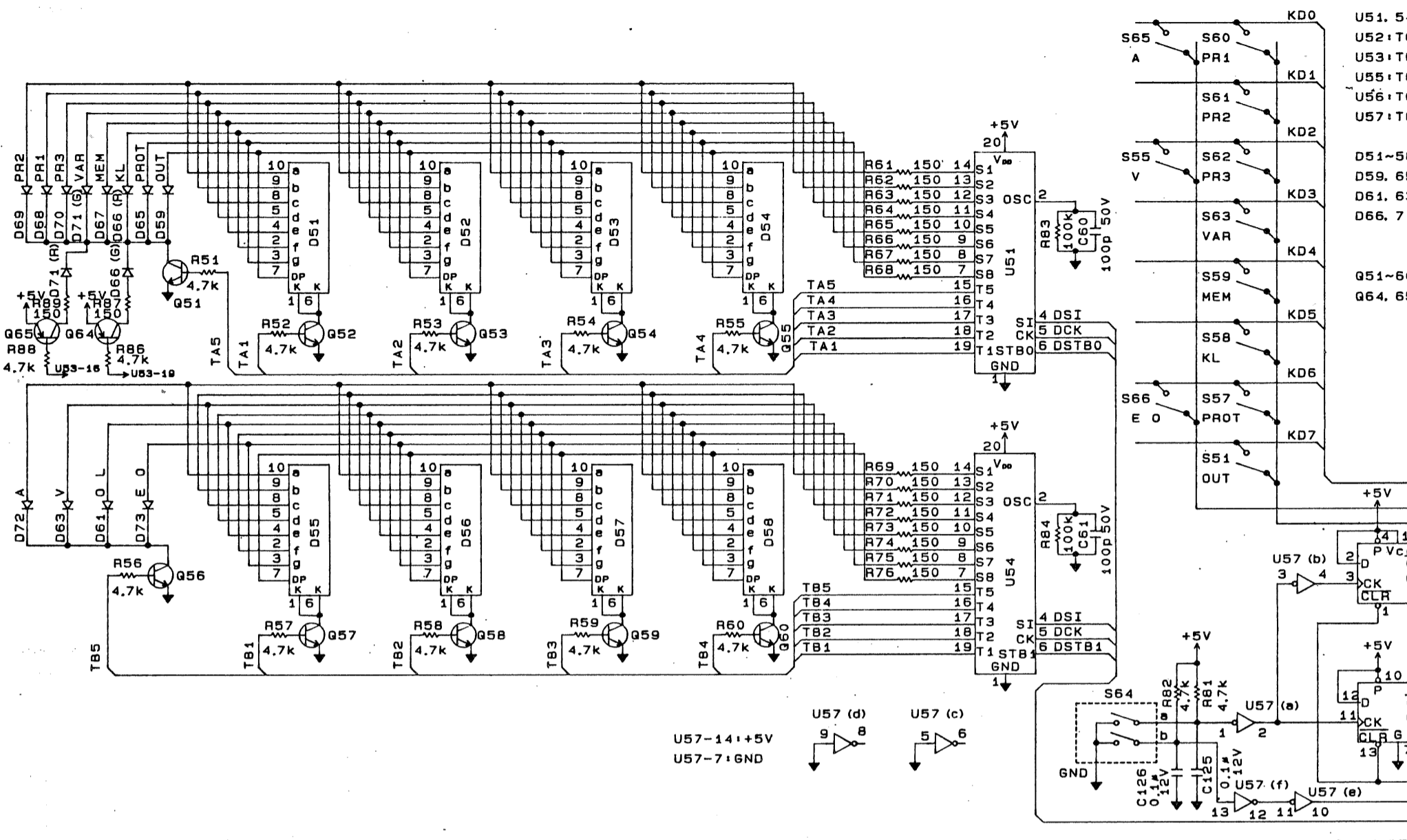


PAR36-3 SCHEMATIC DIAGRAM

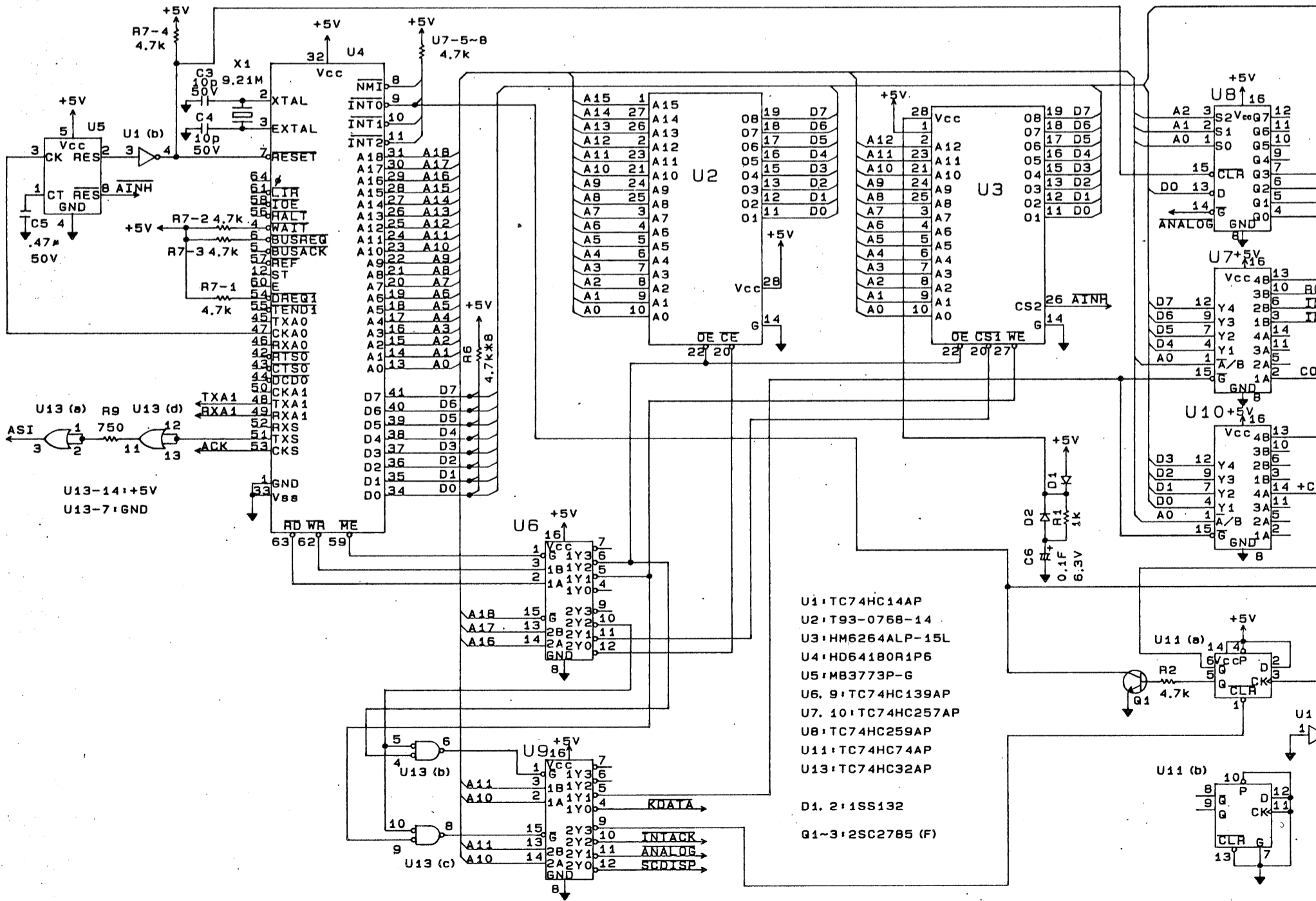


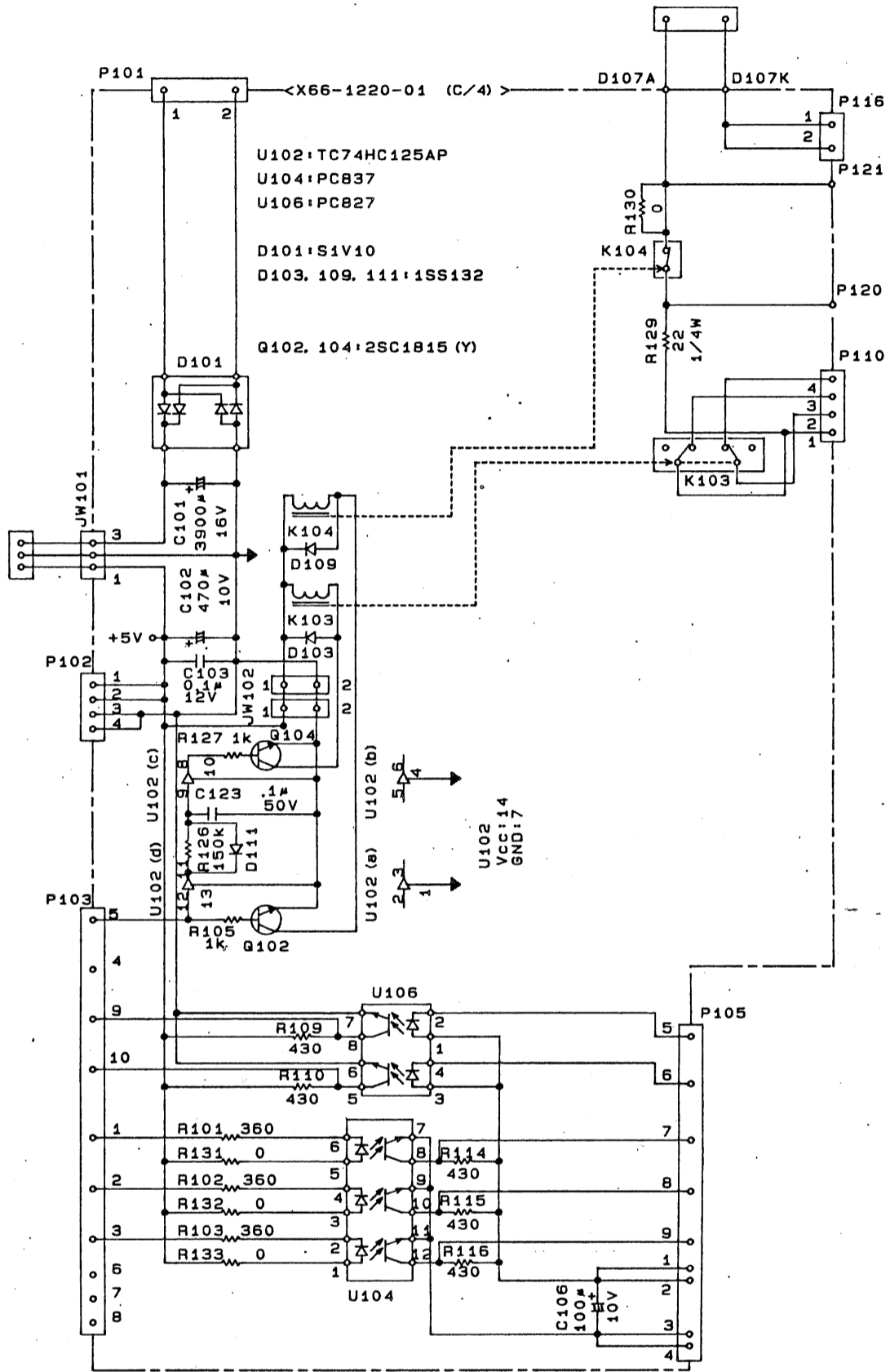
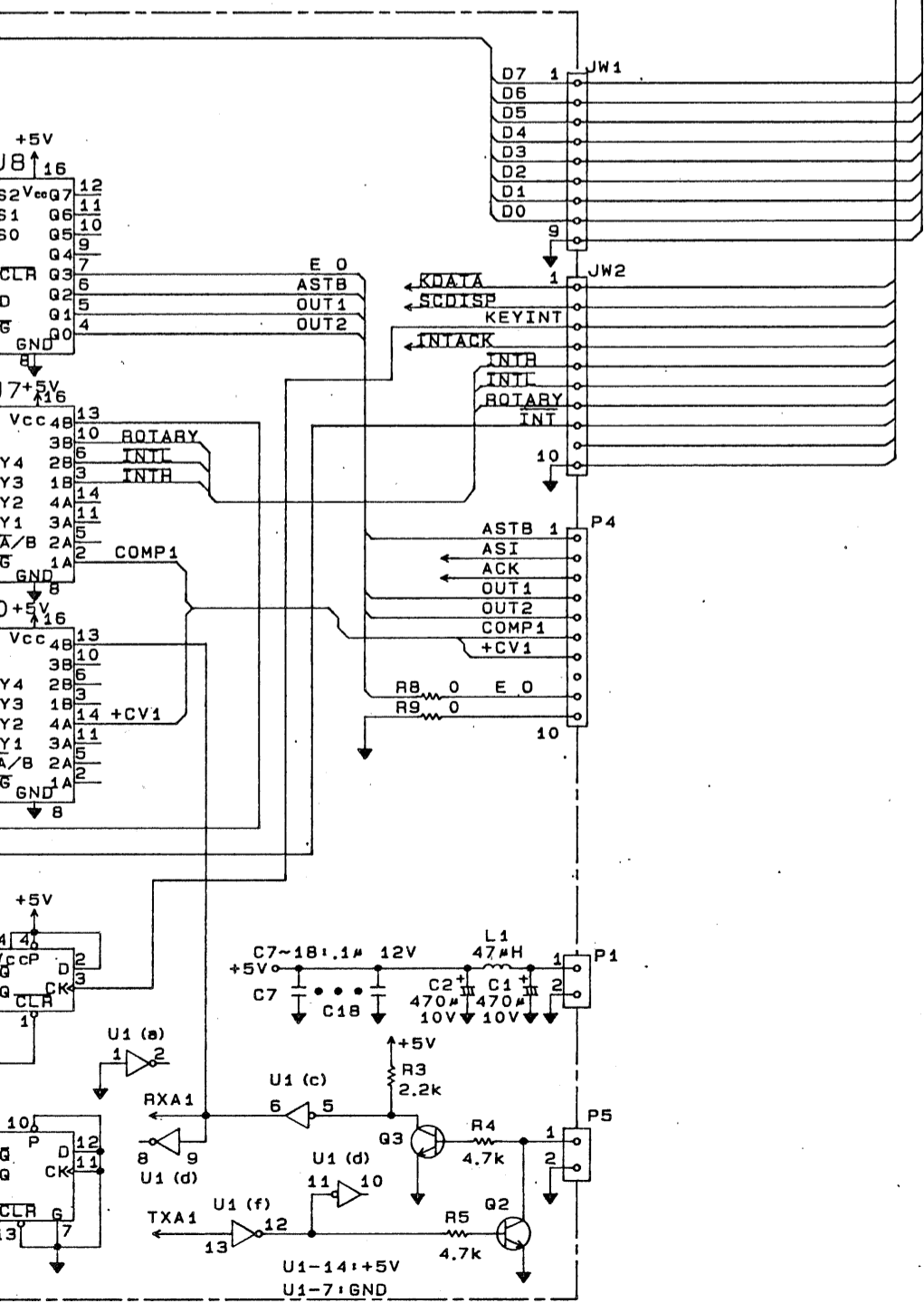
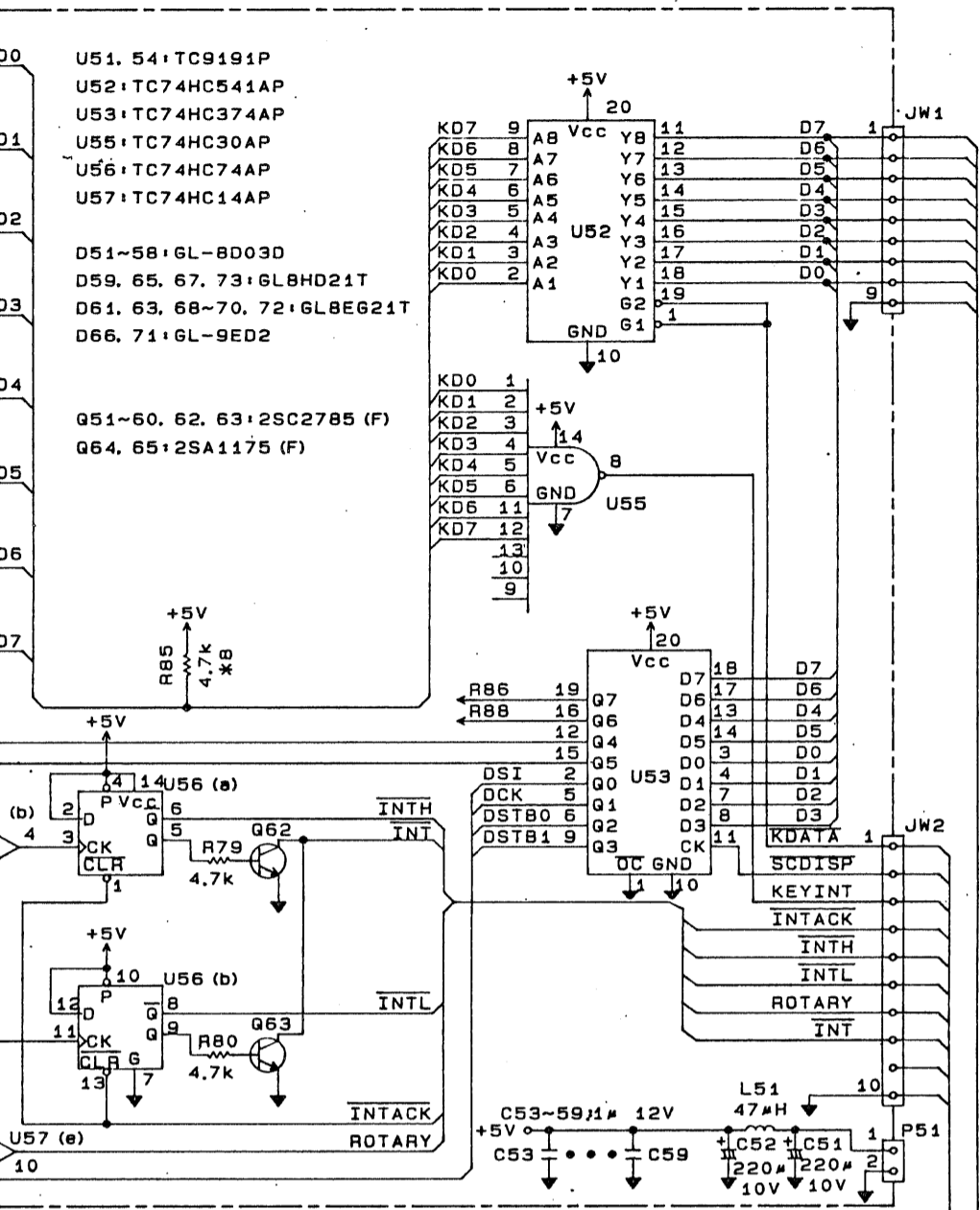
PAR18-5 SCHEMATIC DIAGRAM

<X66-1220-01 A/4>



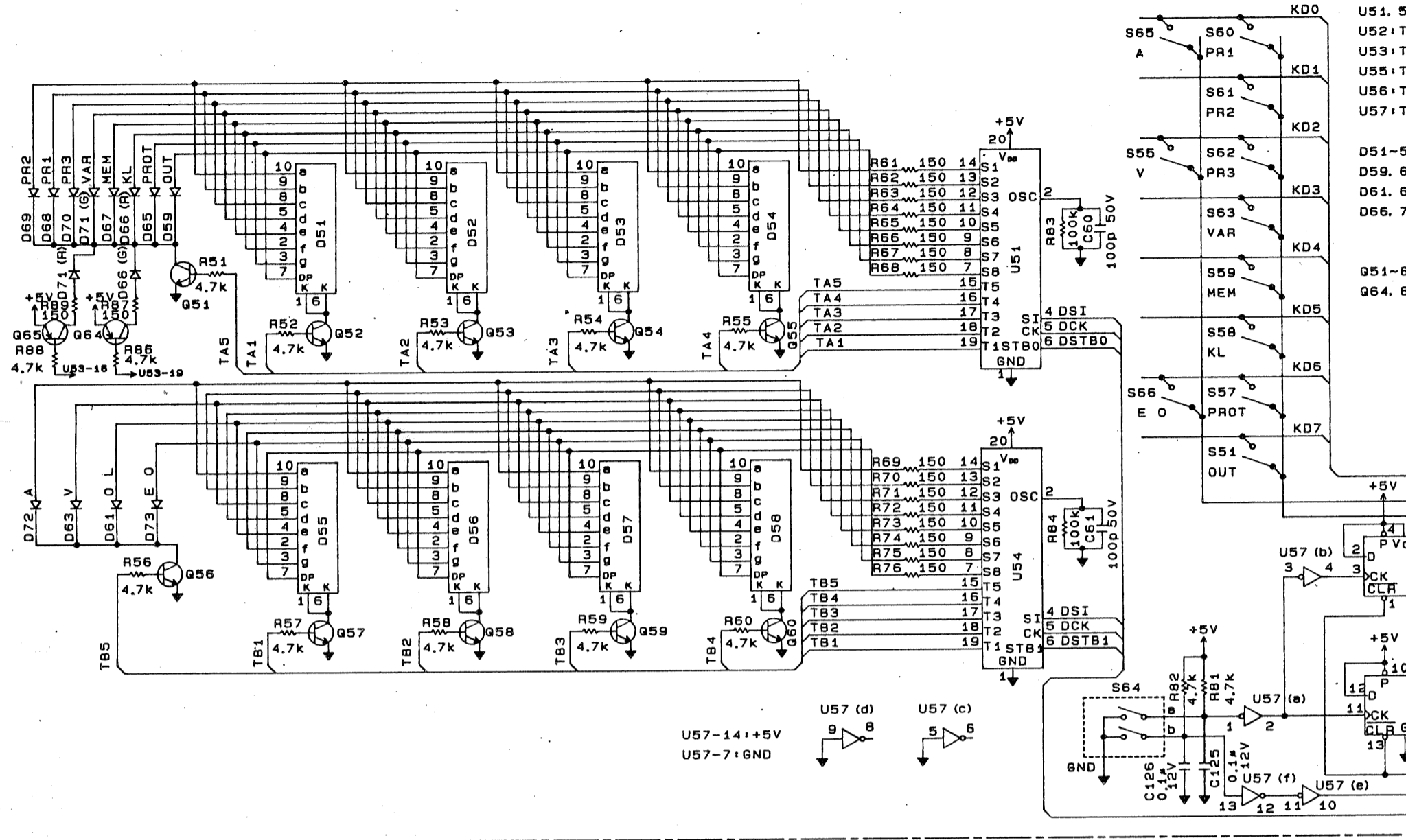
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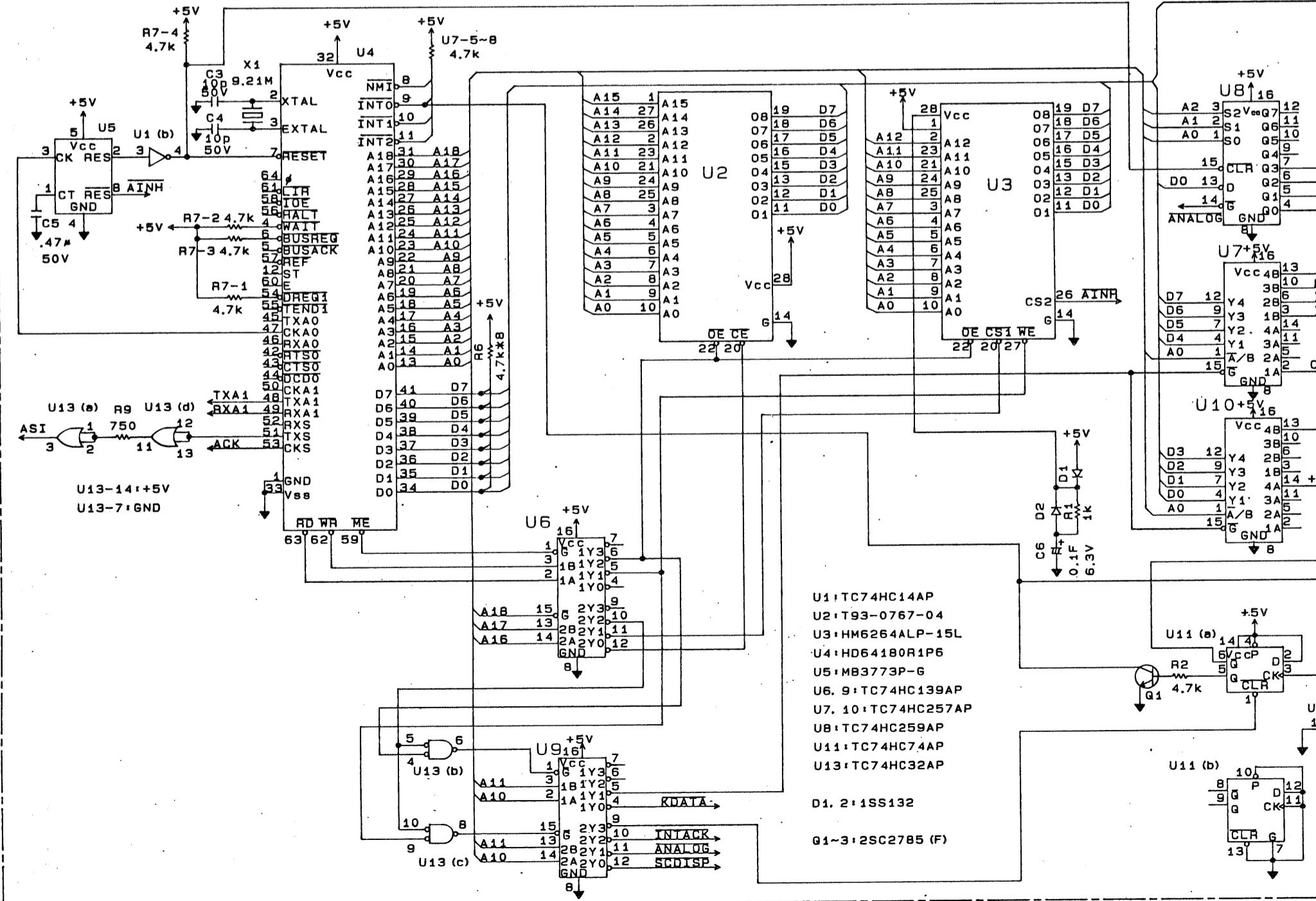


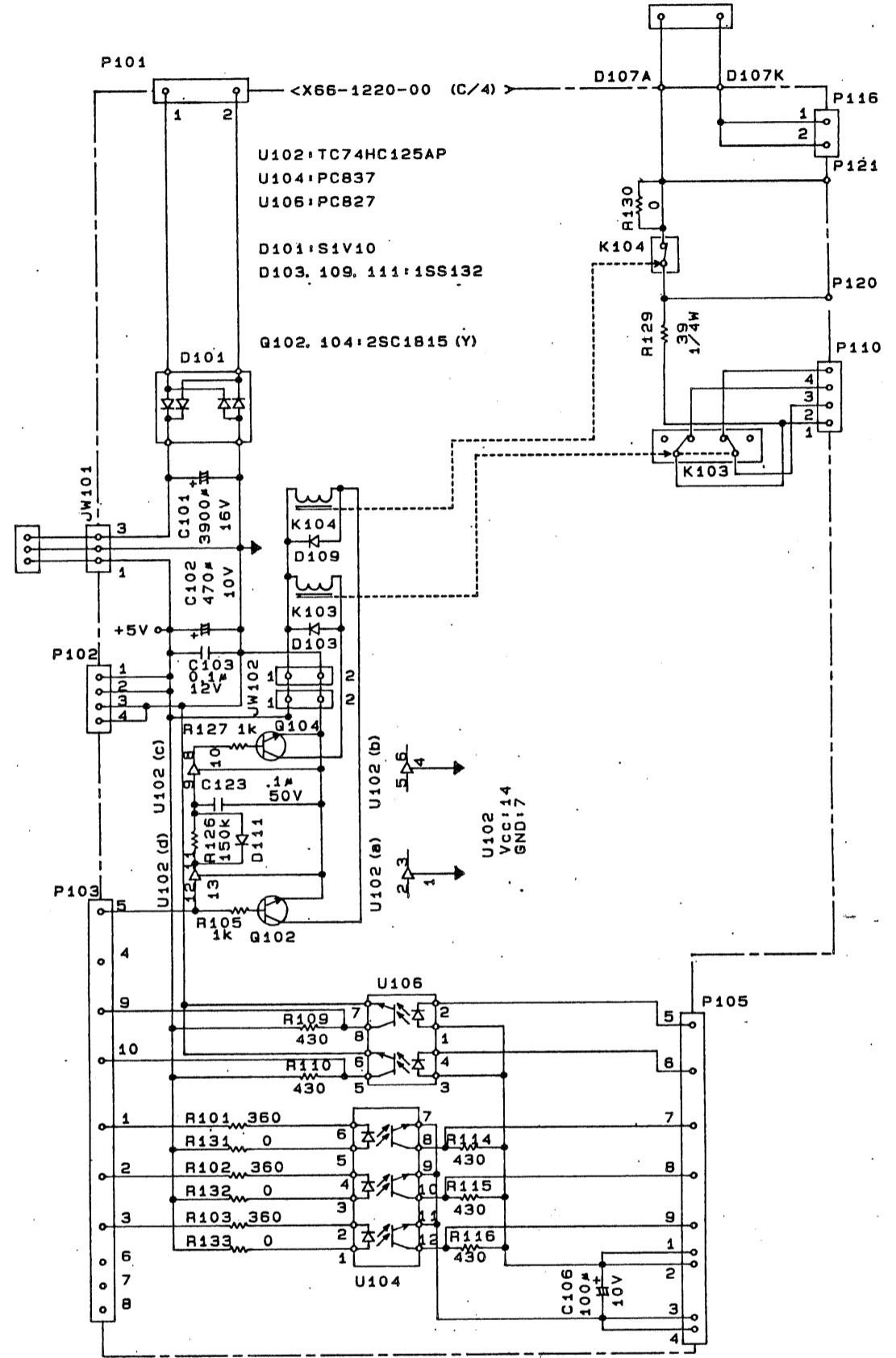
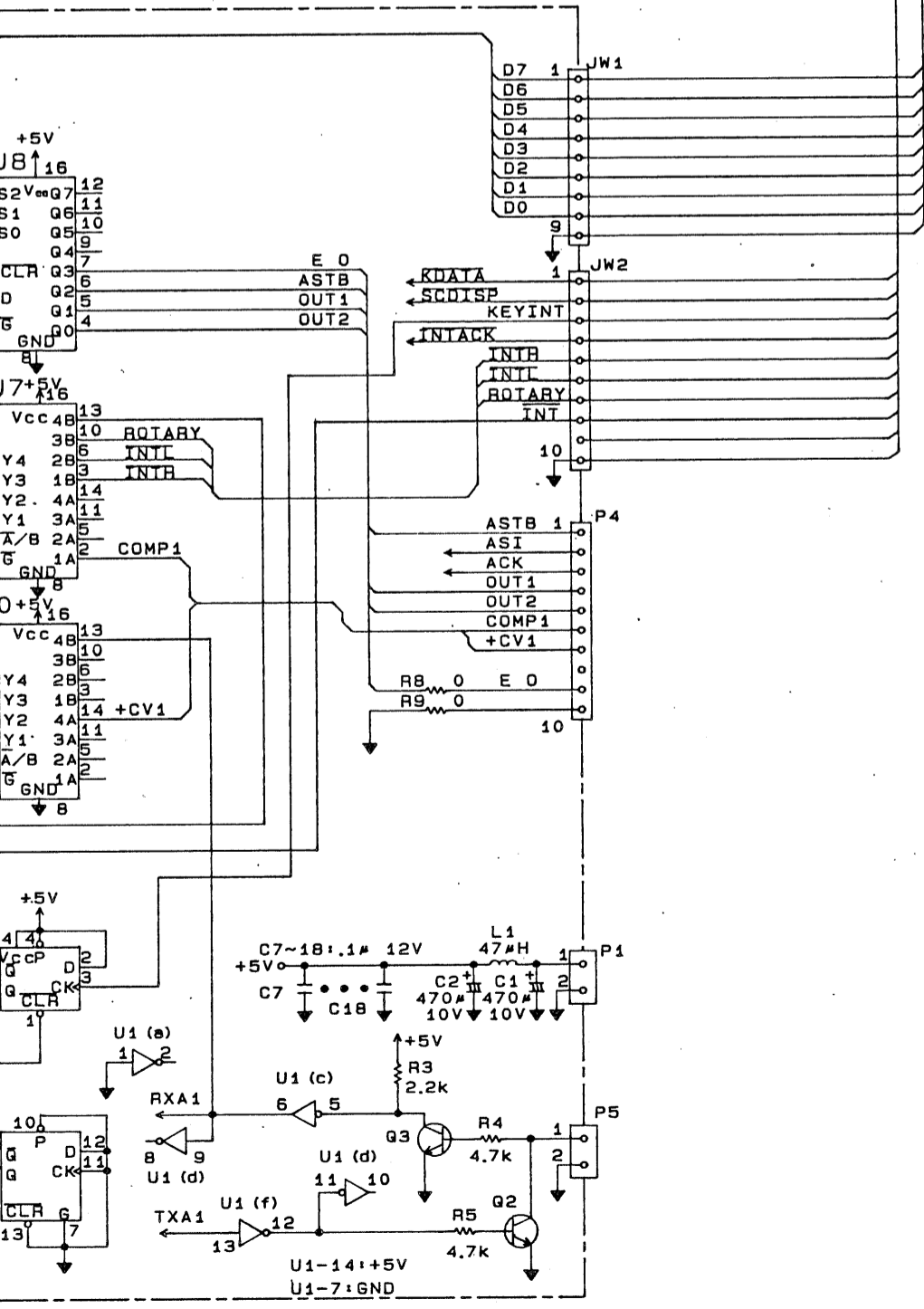
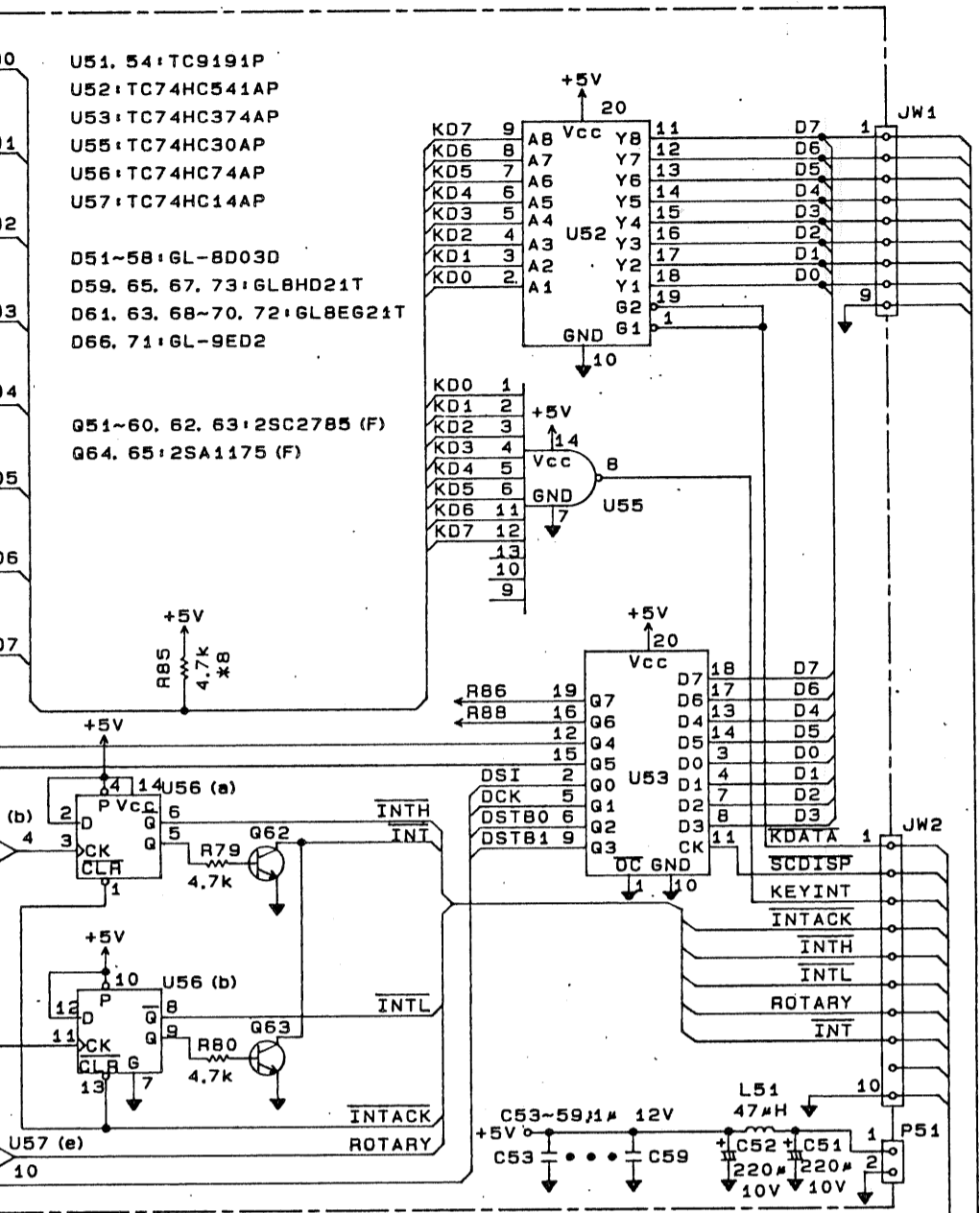
PAR36-3 SCHEMATIC DIAGRAM

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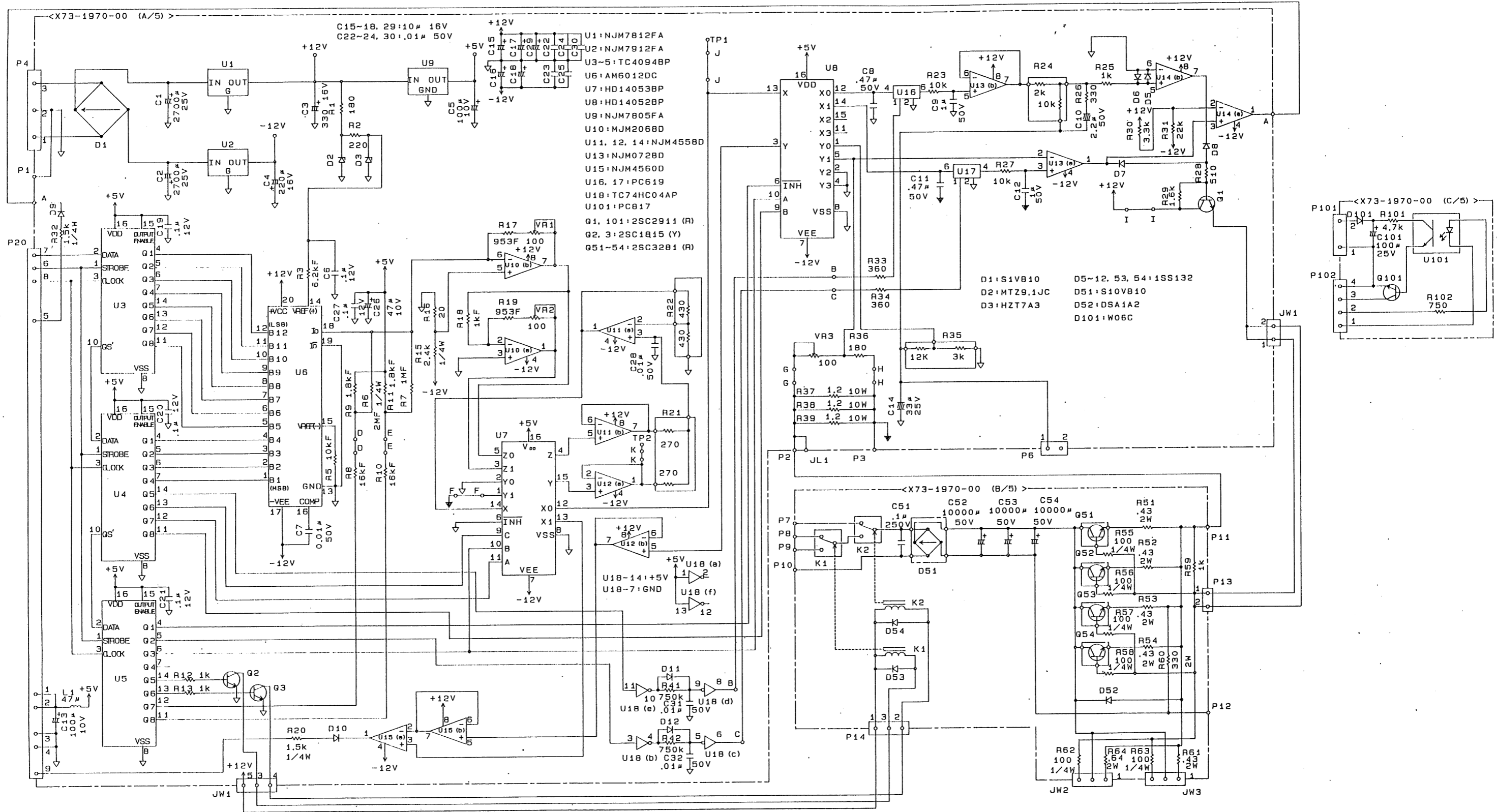


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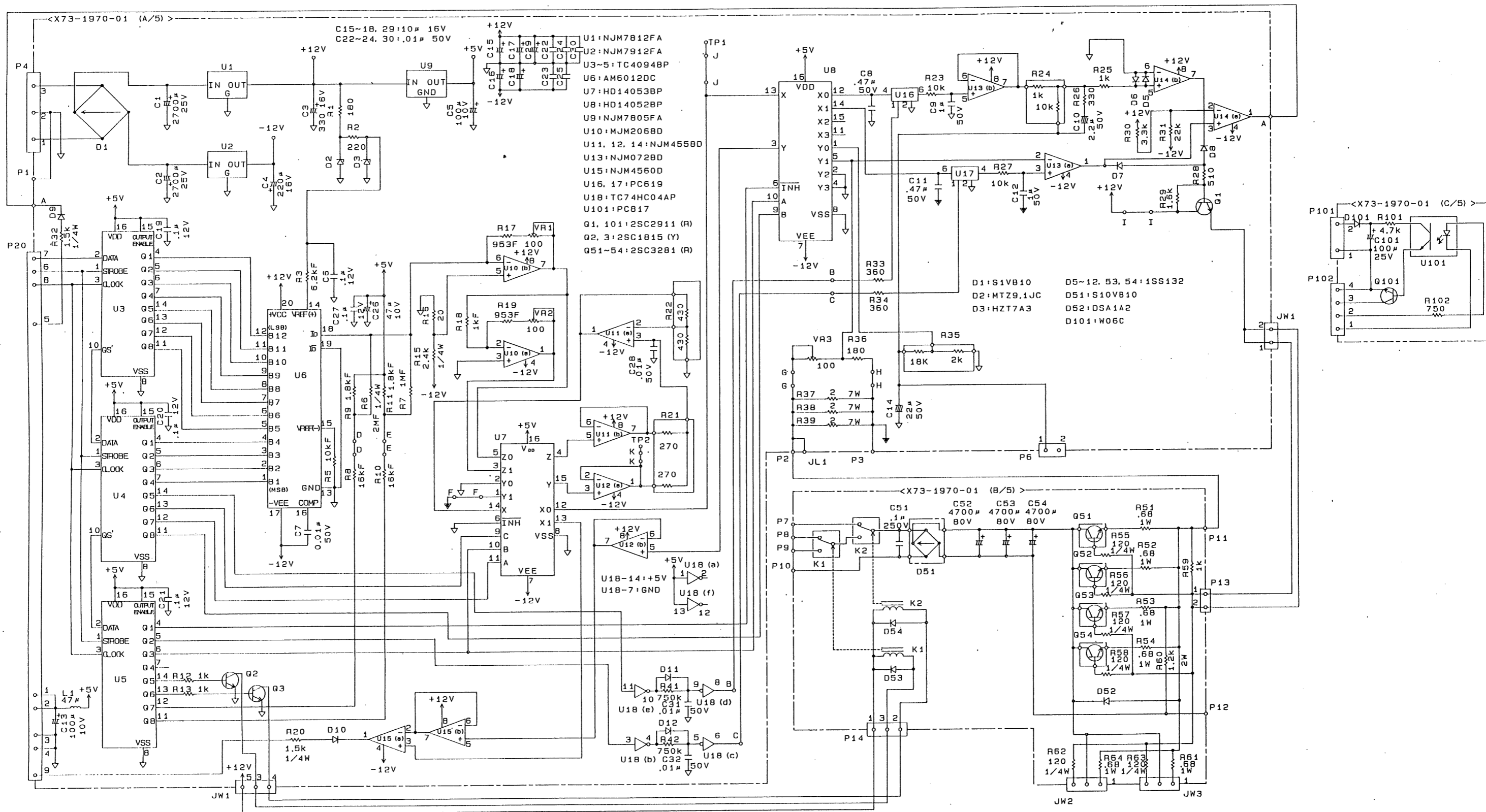




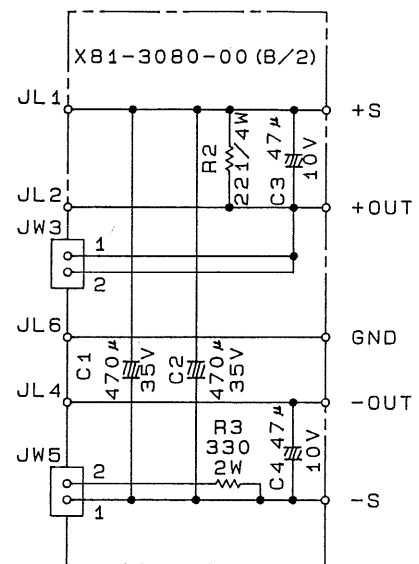
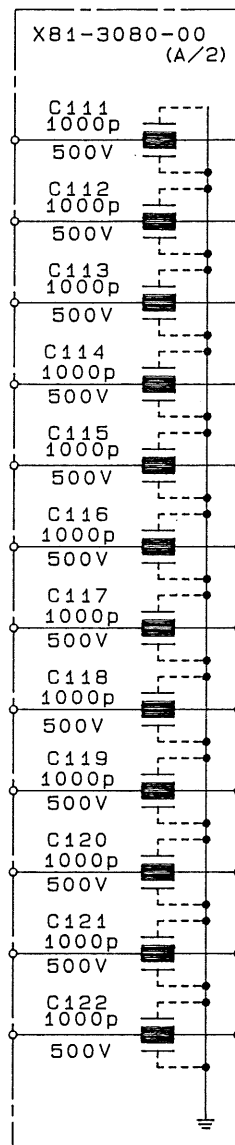
PAR18-5 SCHEMATIC DIAGRAM



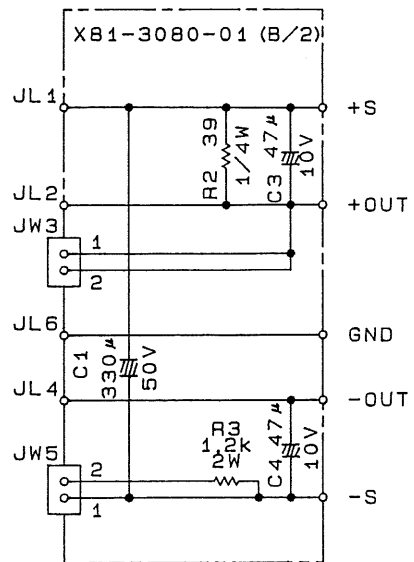
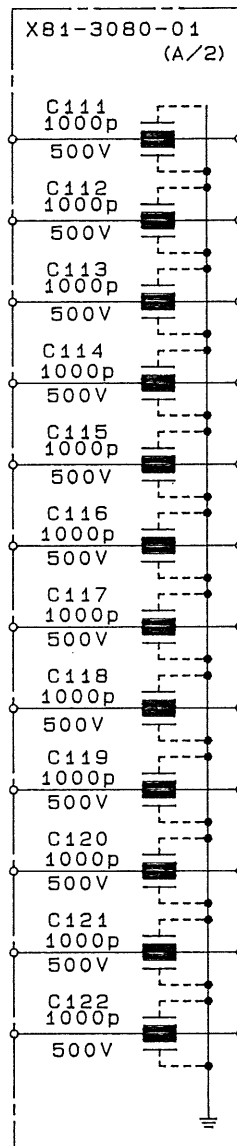
PAR36-3 SCHEMATIC DIAGRAM



PAR18-5 SCHEMATIC DIAGRAM



PAR36-3 SCHEMATIC DIAGRAM



PAR18-5/36-3 SCHEMATIC DIAGRAM

