

KENWOOD

AC VOLTMETER

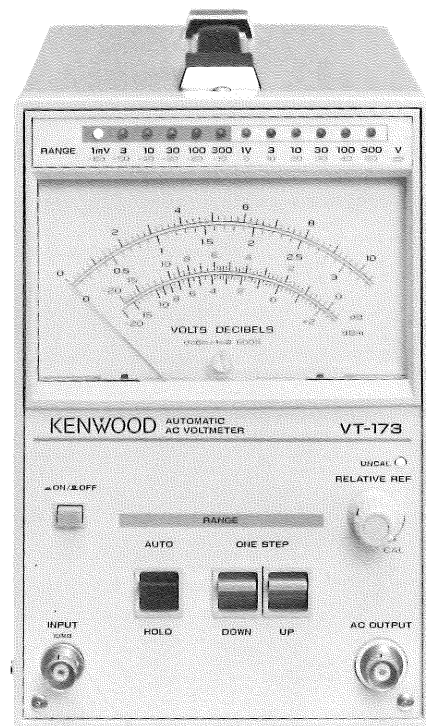
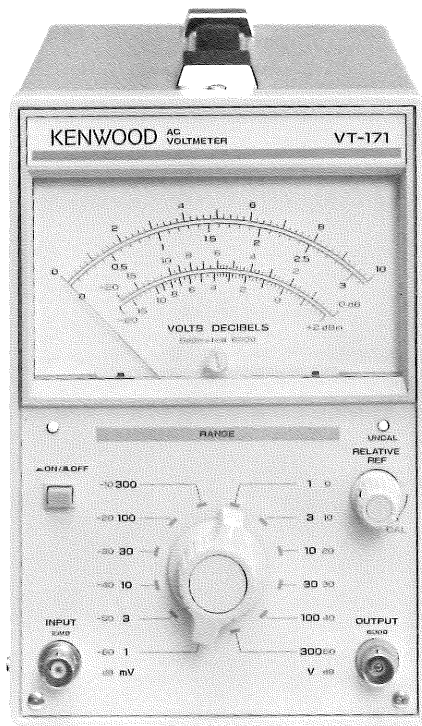
VT-171

AUTOMATIC AC VOLTMETER

VT-173

SERVICE MANUAL

KENWOOD CORPORATION



WARNING

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

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SPECIFICATIONS

Model	VT-171	VT-173
Meter Section		
Measurable voltage	1 mV - 300 V in 12 ranges: 1 mV, 3 mV, 10 mV, 30 mV, 100 mV, 300 mV, 1 V, 3 V, 10 V, 30 V, 100 V and 300 V full scales	
dB	- 80 to + 50 dB (0 dB = 1 V)	
dBm	- 80 to + 52 dBm (0 dBm = 1 mW, 600Ω)	
Error	Within ± 3% of full scale at 1 kHz	
Frequency response	± 10% at 5 Hz – 1 MHz, ± 5% at 10 Hz – 500 kHz and ± 2% at 20 Hz – 100 kHz as referenced to 1 kHz response	± 10% at 10 Hz – 1 MHz, ± 3% at 20 Hz – 200 kHz and ± 2% at 50 Hz – 100 kHz as referenced to 1 kHz response
Input impedance	10 MΩ ± 5%, with less than 45 pF parallel capacitance	
Durable input voltage	500 V (DC + AC peak) 1 V to 300 V range 100 V (DC + AC peak) 1 mV to 300 mV range	
Stability	Within ± 0.5% of full scale for ± 10% line voltage fluctuation	
Residual voltage	Less than 20 μV with input shorted on 1 mV range	
AC Output Amplifier Section		
Gain	Approx. 60 dB	
Output voltage	1 V _{rms} ± 20%	
Output resistance	600 Ω ± 20%	
Frequency response	Within ± 3 dB at 5 Hz – 500 kHz	Within ± 3 dB at 10 Hz – 500 kHz
Distortion	Less than 1% at full scale (Rated by signal-noise ratio in 1 mV range)	
Signal-to-noise ratio	Over 40 dB at full scale	
DC Output Amplifier Section		
Output voltage	—	1 V ± 20% + offset voltage at fullscale
Offset voltage	—	± 100 mV
Output resistance	—	600 Ω ± 20%
Ripple	—	Less than 10 mV _{rms}
Frequency response	—	Within ± 3 dB at 10 Hz to 1 MHz
Environment		
Temperature coefficient	± 0.08%/°C	

SPECIFICATIONS

Model	VT-171	VT-173
Within specifications temperature	10 to 40°C	
Full operating temperature	0 to 50°C	
Relative humidity	Less than 80%	
Power Supply Section		
Line voltage	100/120/220/240 VAC ± 10%, 50/60 Hz	
Power consumption	Approx. 4 W	Approx. 5 W
Dimensions		
W×H×D (mm) Values in () include protrusions	128 (130)×190 (215)×238 (260)	128 (130)×190 (215)×238 (270)
Net weight	2.9 kg	3.2 kg
Accessories		
Power cable	1 pc.	
Input cable	CA-41, 1 pc.	
Replacement fuse	0.1A 2 pcs. 0.2A 2 pcs.	0.3A 2 pcs. 0.5A 2 pcs.
Instruction manual	1 copy	

SAFETY

SAFETY

Before connecting the instrument to a power source, carefully read the following information, then verify that the proper power cord is used and the proper line fuse is installed for power source. The specified voltage is shown at the fuse holder of the AC inlet. If the power cord is not applied for specified voltage, there is always a certain amount of danger from electric shock.

Line voltage

This instrument operates using ac-power input voltages that 100/120/220/240 V at frequencies from 50 Hz to 60 Hz.

Power cord

The ground wire of the 3-wire ac power plug places the chassis and housing of the oscilloscope at earth ground. Do not attempt to defeat the ground wire connection or float the oscilloscope; to do so may pose a great safety hazard. The appropriate power cord is supplied by an option that is specified when the instrument is ordered.

The optional power cords are shown as follows in Fig. 1.

Line fuse

The fuse holder is located on the rear panel and contains the line fuse. Verify that the proper fuse is installed by replacing the line fuse.

Voltage conversion

This oscilloscope may be operated from either a 100 V to 240 V, 50/60 Hz power source. Use the following procedure to change from 100 to 240 volt operation or vice versa.

1. Remove the fuse holder.
2. Replace fuse F 1 with a fuse of appropriate value.
3. Reinsert it for appropriate voltage range.
4. When performing the reinsertion of fuse holder for the voltage conversion, the appropriate power cord should be used. (See Fig. 1.)


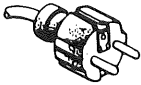
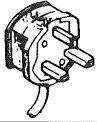



Plug configuration	Power cord and plug type	Factory installed instrument fuse	Line cord plug fuse	Parts No. for power cord
	North American 120 volt/60 Hz Rated 15 amp (12 amp max; NEC)	VT-171: 0.2 A, 250 V VT-173: 0.5 A, 250 V Fast blow 6 × 30 mm	None	Cord: E30-1820-05
	Universal Europe 220 volt/50 Hz Rated 16 amp	North Europe VT-171: 100 mA, 250 V VT-173: 315 mA, 250 V Slow blow 5 × 20 mm Other Europe VT-171: 0.1 A, 250 V VT-173: 0.3 A, 250 V Fast blow 6 × 30 mm	None	Cord: E30-1819-05
	U.K. 240 volt/50 Hz Rated 13 amp	VT-171: 0.1 A, 250 V VT-173: 0.3 A, 250 V Fast blow 6 × 30 mm	0.8 A Type C	—
	Australian 240 volt/50 Hz Rated 10 amp	VT-171: 0.1 A, 250 V VT-173: 0.3 A, 250 V Fast blow 6 × 30 mm	None	Cord: E30-1821-05
	North American 240 volt/60 Hz Rated 15 amp (12 amp max; NEC)	VT-171: 0.1 A, 250 V VT-173: 0.3 A, 250 V Fast blow 6 × 30 mm	None	—
	Switzerland 240 volt/50 Hz Rated 10 amp	VT-171: 0.1 A, 250 V VT-173: 0.3 A, 250 V Fast blow 6 × 30 mm	None	—

Fig. 1 Power Input Voltage Configuration

PARTS LIST

VT-171 UNIT

Y80-1360-00

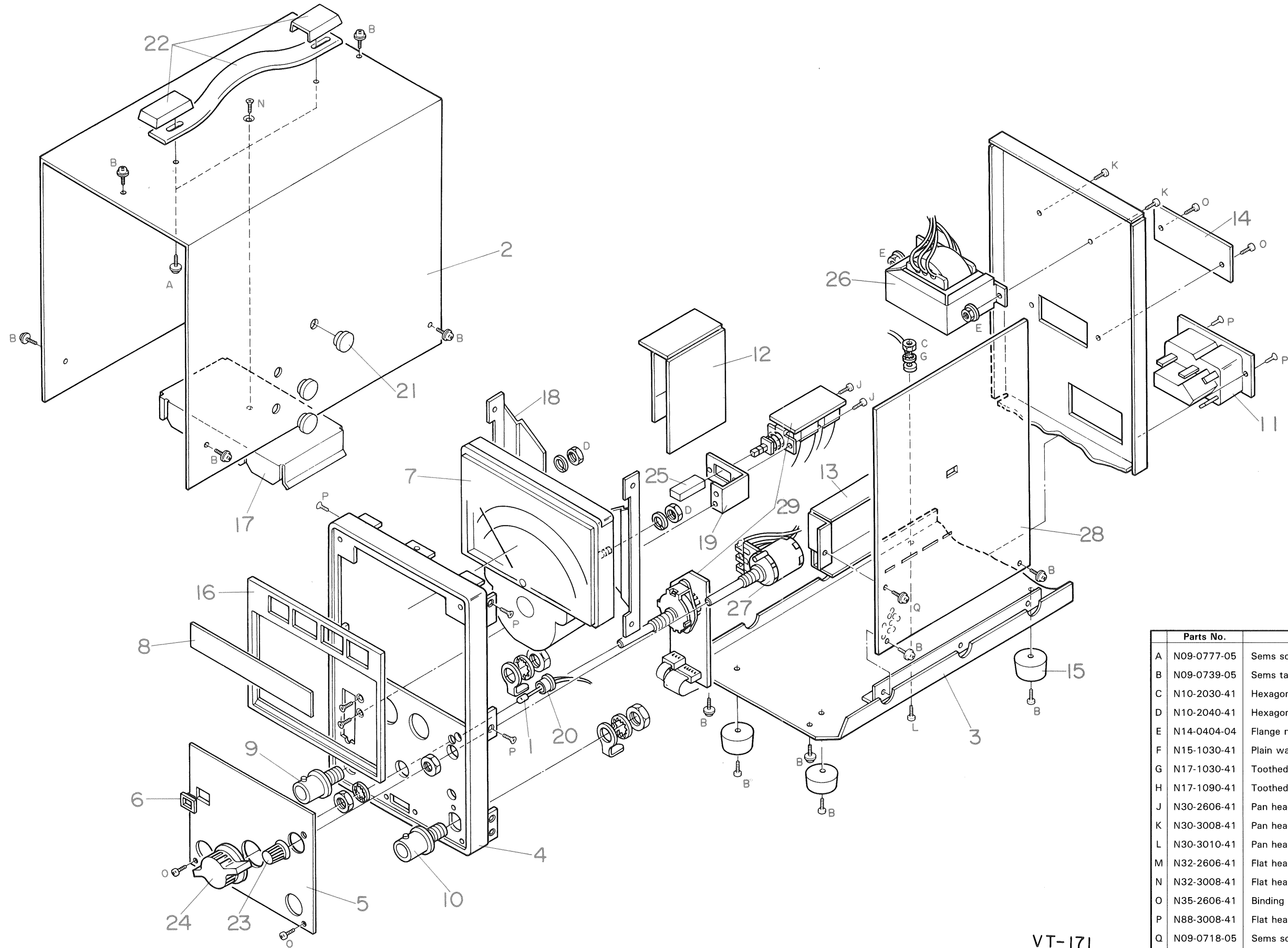
REF.NO	PARTS NO	NAME & DESCRIPTION
	B41-0812-04	
	B50-7710-00	INSTRUCTION MANUAL;JAP./ENG.
	E23-0513-05	EARTH LUG;BNC
	E30-1644-15	BS POWER CORD
	E30-1818-05	JIS POWER CORD
	E30-1819-05	CEE POWER CORD
	E30-1820-05	UL/CSA POWER CORD
	E30-1821-05	SAA POWER CORD
	E31-0564-05	WIRE ASS'Y(GND GREEN)
	E31-5747-05	WIRE ASS'Y:P9 TO VR
	E31-5748-05	WIRE ASS'Y:P3 TO VR AND LED
	E31-5749-05	WIRE ASS'Y:P5 TO POWER LED
	E31-5750-05	WIRE ASS'Y:P4 TO METER
	E31-5751-05	WIRE ASS'Y:P5 TO METER
	E31-5752-05	WIRE ASS'Y:P1 TO BNC
	E31-5753-05	WIRE ASS'Y:P2 TO BNC
	F05-1012-05	FUSE(6X30MM) 0.1A(FAST BLOW)
	F05-1014-05	FUSE(5X20MM) 0.1A(SLOW BLOW)
	F05-2012-05	FUSE(6X30MM) 0.2A(FAST BLOW)
	H01-5917-04	CARTON BOX
	H10-2802-02	FOAMED STYRENE PAD
	H20-1703-04	VINYL COVER
	J10-0423-03	BEZEL ASS'Y
	J19-1620-05	CORD KEEP
	J61-0049-05	WIRE BAND
	W03-2309-05	ACCESSORY CORD CA-41
	AR4133S	LED (RED),UNCAL
1		
2	A01-0818-32	CASE
3	A10-1417-52	CHASSIS
4	A20-2715-42	DIECAST PANEL
5	A21-1160-04	DECORATIVE PANEL
6	B07-0706-04	ESCUTCHEON
7	B31-0708-15	METER
8	B40-2926-04	NAME PLATE;MODEL NO.
9	E04-0251-05	BNC RECEPTACLE
10	E04-0253-15	BNC RECEPTACLE
11A	E18-0365-05	AC SELECTOR WITH 6X30MM FUSE
11B	E18-0366-15	AC SELECTOR WITH 5X20MM FUSE
12	F11-0914-04	SHIELD CASE
13	F11-0915-04	SHIELD CASE
14	F15-0703-04	BLIND PLATE
15	J02-0363-04	RUBBER FOOT
16	J10-0422-03	BEZEL
17	J21-2840-04	PCB HOLDER
18	J21-2843-04	BLACKET FOR METER
19	J21-2844-04	BLACKET FOR SW
20	J21-2912-05	HOLDER FOR LED
21	J42-0038-04	BUSHING
22	K01-0532-05	HANDLE
23	K21-0908-04	KNOB
24	K21-0909-04	KNOB
25	K27-0506-04	BUTTON;ORANGE
26	L01-9906-05	POWER TRANSFORMER
27	R01-1501-05	V.R.
28	X65-1370-02	MAIN UNIT
29	X66-1070-01	PANEL UNIT

VT-173 UNIT

Y80-1380-00

REF.NO	PARTS NO	NAME & DESCRIPTION
	B41-0818-04	NAME PLATE;LINE VOLTAGE
	B50-7719-00	INSTRUCTION MANUAL;JAP./ENG.
	E23-0513-05	EARTH LUG;BNC
	E30-1644-15	BS POWER CORD
	E30-1818-05	JIS POWER CORD
	E30-1819-05	CEE POWER CORD
	E30-1820-05	UL/CSA POWER CORD
	E30-1821-05	SAA POWER CORD
	E31-0564-05	WIRE ASS'Y(GND GREEN)
	E31-5750-05	WIRE ASS'Y:P4 TO METER
	E31-5751-05	WIRE ASS'Y:P5 TO METER
	E31-5752-05	WIRE ASS'Y:P1 TO BNC
	E31-5753-05	WIRE ASS'Y:P2 TO BNC
	E31-5792-05	WIRE ASS'Y:P3 TO VR AND LED
	E31-5793-05	WIRE ASS'Y:P10 TO VR
	E31-5794-05	WIRE ASS'Y:P202 TO LED
	E31-5795-05	WIRE ASS'Y:P101 TO P201
	E31-5796-05	WIRE ASS'Y:P203 TO P8.9 ETC.
	F05-3011-05	FUSE(6X30MM) 0.3A
	F05-3112-05	FUSE(5X20MM) 0.3AT
	F05-5013-05	FUSE(6X30MM) 0.5A
	H01-5919-04	CARTON BOX
	H10-2802-02	FOAMED STYRENE PAD
	H20-1703-04	VINYL COVER
	J10-0425-03	BEZEL ASS'Y
	J19-1620-05	CORD KEEP
	J61-0049-05	WIRE BAND
	W03-2309-05	ACCESSORY CORD CA-41
	AR4133S	LED (RED),UNCAL
1		
2	A01-0823-32	CASE
3	A10-1423-42	CHASSIS
4	A20-2728-12	DIECAST PANEL
5	A21-1163-04	DECORATIVE PANEL
6	B07-0706-04	ESCUTCHEON
7	B07-0721-04	ESCUTCHEON
8	B30-0917-05	LED.12 PIECES
9	B31-0716-15	METER
10	B40-2928-04	NAME PLATE;MODEL NO.
11	E04-0251-05	BNC RECEPTACLE
12A	E18-0365-05	AC SELECTOR WITH 6X30MM FUSE
12B	E18-0366-15	AC SELECTOR WITH 5X20MM FUSE
13	F11-0914-04	SHIELD CASE
14	F15-0703-04	BLIND PLATE
15	F31-0603-14	BLACKET
16	J02-0363-04	RUBBER FOOT
17	J10-0428-03	BEZEL
18	J21-2840-04	PCB HOLDER
19	J21-2843-04	BLACKET FOR METER
20	J21-2844-04	BLACKET FOR SW
21	J21-2859-04	BLACKET FOR SW
22	J21-2912-05	HOLDER FOR LED
23	J29-0503-04	GUIDE
24	J30-0604-04	SPACER
25	J42-0038-04	BUSHING
26	J42-0507-04	BUSHING (FOR BNC)
27	K01-0532-05	HANDLE
28	K21-0908-04	KNOB
29	K27-0506-04	BUTTON;ORANGE
30	L01-9906-05	POWER TRANSFORMER
31	R01-1501-05	V.R.
32	S33-1502-05	LEVER SWITCH
33	S33-1503-05	LEVER SWITCH
34	X65-1370-05	MAIN UNIT
35	X66-1070-04	PANEL UNIT
36	X77-1610-00	CONTROL UNIT

VT-171 DISASSEMBLY

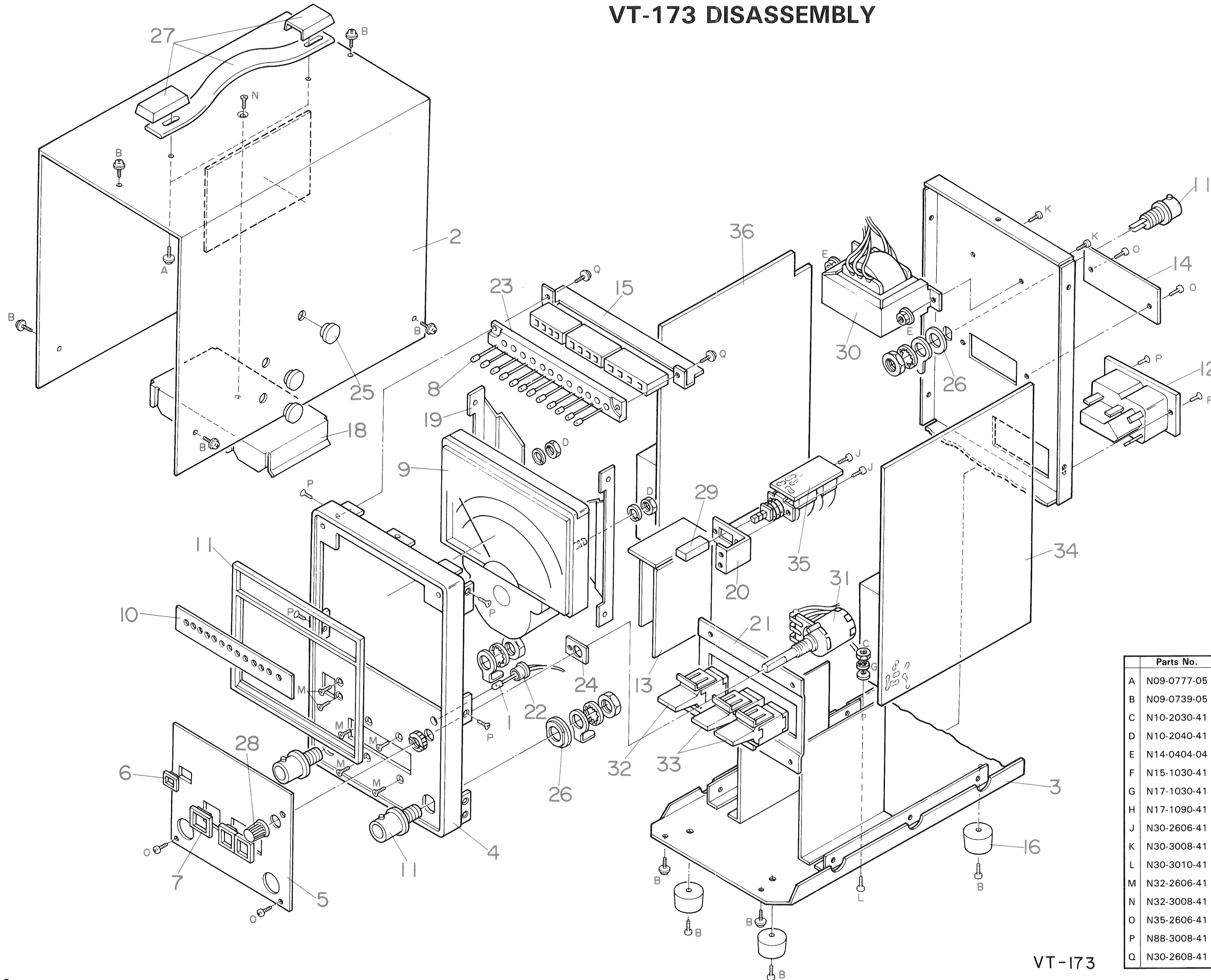


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SCREWS

Parts No.	Parts Name	Figure
A	N09-0777-05 Sems screw (M4 × 6)	
B	N09-0739-05 Sems taptite screw (3 × 8)	
C	N10-2030-41 Hexagon nut (M3)	
D	N10-2040-41 Hexagon nut (M4)	
E	N14-0404-04 Flange nut (M3)	
F	N15-1030-41 Plain washer (φ3)	
G	N17-1030-41 Toothed lock washer (φ3)	
H	N17-1090-41 Toothed lock washer (φ9)	
J	N30-2606-41 Pan head screw (M2.6 × 6)	
K	N30-3008-41 Pan head screw (M3 × 8)	
L	N30-3010-41 Pan head screw (M3 × 10)	
M	N32-2606-41 Flat head screw (M2.6 × 6)	
N	N32-3008-41 Flat head screw (M3 × 8)	
O	N35-2606-41 Binding head screw (M2.6 × 6)	
P	N88-3008-41 Flat head taptite screw (3 × 8)	
Q	N09-0718-05 Sems screw (M3 × 6)	

VT-173 DISASSEMBLY



SCREWS

Parts No.	Parts Name	Figure
A	N09-0777-05 Sems screw (M4 × 6)	
B	N09-0739-05 Sems taptime screw (3 × 8)	
C	N10-2030-41 Hexagon nut (M3)	
D	N10-2040-41 Hexagon nut (M4)	
E	N14-0404-04 Flange nut (M3)	
F	N15-1030-41 Plain washer (φ3)	
G	N17-1030-41 Toothed lock washer (φ3)	
H	N17-1090-41 Toothed lock washer (φ9)	
J	N30-2606-41 Pan head screw (M2.6 × 6)	
K	N30-3008-41 Pan head screw (M3 × 8)	
L	N30-3010-41 Pan head screw (M3 × 10)	
M	N32-2606-41 Flat head screw (M2.6 × 6)	
N	N32-3008-41 Flat head screw (M3 × 8)	
O	N35-2606-41 Binding head screw (M2.6 × 6)	
P	N88-3008-41 Flat head taptime screw (3 × 8)	
Q	N30-2608-41 Pan head screw (M2.6 × 8)	

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PARTS LIST

VT-171 MAIN UNIT (X65-1370-02)

REF.NO	PARTS NO	NAME & DESCRIPTION.
	E31-2170-05	JUMPING WIRE
	F01-0832-14	HEAT SINK
	F11-0915-14	SHIELD CASE
	J25-5375-03	PCB (UNMOUNTED)
	N09-0718-05	SCREW,SEMS PAN HD M3X6
C101	C91-0501-05	CAP. METAL FILM 0.047 10% 630V
C102	C093M1H332K	CAP. MYLAR 3300P 10% 50V
C103	C092FM1H222K	CAP. MYLAR 2200P 10% 50V
C104	C092FM1H222J	CAP. MYLAR 2200P 5% 50V
C105	CE04EW1A331M	CAP. ELECTRO 330 20% 10V
C106	CE04EW1A331M	CAP. ELECTRO 330 20% 10V
C107	CC45FCH1H070D	CAP. CERAMIC 7P 0.5P 50V
C108	CE04EW1A331M	CAP. ELECTRO 330 20% 10V
C109	NO USE	
C110	CE04EW1E100M	CAP. ELECTRO 10 20% 25V
C111	CC45FCH1H010C	CAP. CERAMIC 1P 0.25P 50V
C112	CC45FCH1H020C	CAP. CERAMIC 2P 0.25P 50V
C113	CE04EW1A331M	CAP. ELECTRO 330 20% 10V
C114	CE04EW1A331M	CAP. ELECTRO 330 20% 10V
C115	CE04EW1A331M	CAP. ELECTRO 330 20% 10V
C116	CC45FCH1H120J	CAP. CERAMIC 12P 5% 50V
C117	CC45FCH1H120J	CAP. CERAMIC 12P 5% 50V
C118	CE04EW1A331M	CAP. ELECTRO 330 20% 10V
C119	CE04EW1A101M	CAP. ELECTRO 100 20% 10V
C120	NO USE	
C121	CE04EW1A470M	CAP. ELECTRO 47 20% 10V
C122	CE04EW1A471M	CAP. ELECTRO 470 20% 10V
C123	CE04EW1A470M	CAP. ELECTRO 47 20% 10V
C124	CC45FCH1H220J	CAP. CERAMIC 22P 5% 50V
C125	NO USE	
C126	CE04EW1A331M	CAP. ELECTRO 330 20% 10V
C129	CE04HW1H010M	CAP. ELECTRO 1 20% 50V
C130	CE04HW1H010M	CAP. ELECTRO 1 20% 50V
C131	NO USE	
C132	CE04EW1A470M	CAP. ELECTRO 47 20% 10V
C133	CE04EW1A470M	CAP. ELECTRO 47 20% 10V
C134	CE04EW1C102M	CAP. ELECTRO 1000 20% 16V
C135	CE04EW1C102M	CAP. ELECTRO 1000 20% 16V
C136	C092FM1H104K	CAP. MYLAR 0.1 10% 50V
C137	C092FM1H104K	CAP. MYLAR 0.1 10% 50V
C138	C092FM1H104K	CAP. MYLAR 0.1 10% 50V
C139	C092FM1H104K	CAP. MYLAR 0.1 10% 50V
C140	C092FM1H222K	CAP. MYLAR 2200P 10% 50V
C141	CF93AN2E104K	CAP. METAL FILM 0.1 10% 250V
C142	CC45FCH1H120J	CAP. CERAMIC 12P 5% 50V
C143	CC45FCH1H070D	CAP. CERAMIC 7P 0.5P 50V
C147	C092FM1H103K	CAP. MYLAR 0.01 10% 50V
C148	CC45FCH1H100D	CAP. CERAMIC 10P 0.5P 50V
C149	NO USE	
C150	C093BP2A122F	CAP. MYLAR 1200P 1% 100V
C153	CC45FCH1H010C	CAP. CERAMIC 1P 0.25P 50V
D101	1S1588	DIODE
D102	1S1588	DIODE
D103	1S1588	DIODE
D106	1S1588	DIODE
D107	1S1588	DIODE
D108	1S1588	DIODE
D109	1S1588	DIODE
D110	1S1588	DIODE
D111	1S1588	DIODE
D112	1S1588	DIODE
D113	NO USE	
D114	1S1588	DIODE
D115	1S1588	DIODE
D116	NO USE	
D117	1S1588	DIODE
D118	1S1588	DIODE
D119	1S1588	DIODE
D120	1S1588	DIODE
D121	1S1588	DIODE
D122	1S1588	DIODE
D123	1S1588	DIODE
D124	1S1588	DIODE

REF.NO	PARTS NO	NAME & DESCRIPTION
D134	W02	DIODE
K101	SS1-1503-05	RELAY
K102	SS1-1503-05	RELAY
P001	E40-3237-05	PIN CONNECTOR 2P
P002	E40-3237-05	PIN CONNECTOR 2P
P003	E40-3239-05	PIN CONNECTOR 4 P
P004	E40-3237-05	PIN CONNECTOR 2P
P005	E40-3237-05	PIN CONNECTOR 2P
P006	E40-3238-05	PIN CONNECTOR 3 P
P009	E40-3239-05	PIN CONNECTOR 4 P
P010	NO USE	
P011	E40-3237-05	PIN CONNECTOR 2P
P101	E40-3751-05	PIN CONNECTOR 15P
P102	E40-0811-05	PIN CONNECTOR 8P
P103	E40-0811-05	PIN CONNECTOR 8P
Q101	2SK68A(M)	FET, N-CHANNEL
Q102	2SK68A(M)	FET, N-CHANNEL
Q103	2SA970(BL)	TR. SI, PNP
Q104	2SC1923(O)	TR. SI, NPN
Q105	2SA1015(Y)	TR. SI, PNP
Q106	2SA1015(Y)	TR. SI, PNP
Q107	2SA1015(Y)	TR. SI, PNP
Q108	2SA1015(Y)	TR. SI, PNP
Q109	2SA1015(Y)	TR. SI, PNP
Q110	2SA1015(Y)	TR. SI, PNP
Q111	2SC1815(Y)	TR. SI, NPN
Q112	2SA970(BL)	TR. SI, PNP
Q113	2SA970(BL)	TR. SI, PNP
Q114	2SC1923(O)	TR. SI, NPN
Q115	2SC1923(O)	TR. SI, NPN
Q116	2SA970(BL)	TR. SI, PNP
Q117	2SA970(BL)	TR. SI, PNP
Q118	2SC1923(O)	TR. SI, NPN
Q119	2SA970(BL)	TR. SI, PNP
Q120	2SA970(BL)	TR. SI, PNP
Q121	2SK30A(Y)	FET, N-CHANNEL
Q122	2SC1923(O)	TR. SI, NPN
Q123	2SC1923(O)	TR. SI, NPN
Q124	2SK30A(Y)	FET, N-CHANNEL
R101	R92-0744-05	RES. FIXED 9.99M 1% 1/2W
R102	RN14BK2C9531F	RES. METAL FILM 9.53K 1% 1/6W
R103	R92-1450-05	RES. SPECIAL POWER 6.8K 5% 1W
R104	RD14BB2C681J	RES. CARBON 680 5% 1/6W
R105	NO USE	
R106	RD14BB2E335J	RES. CARBON 3.3M 5% 1/4W
R107	RD14BB2C472J	RES. CARBON 4.7K 5% 1/6W
R108	RD14BB2C201J	RES. CARBON 200 5% 1/6W
R109	RD14BB2E102J	RES. CARBON 1K 5% 1/4W
R110	RD14BB2E750J	RES. CARBON 75 5% 1/4W
R111	RN14BK2C1100D	RES. METAL FILM 110 0.5% 1/6W
R112	RN14BK2C1561D	RES. METAL FILM 1.56K 0.5% 1/6W
R113	RN14BK2C60R0D	RES. METAL FILM 60.0 0.5% 1/6W
R114	RN14BK2C2780D	RES. METAL FILM 278 0.5% 1/6W
R115	RN14BK2C2780D	RES. METAL FILM 278 0.5% 1/6W
R116	RN14BK2E1900D	RES. METAL FILM 190 0.5% 1/4W
R117	RD14BB2C151J	RES. CARBON 150 5% 1/6W
R118	RN14BK2C4110D	RES. METAL FILM 411 0.5% 1/6W
R119	RN14BK2C4110D	RES. METAL FILM 411 0.5% 1/6W
R120	RN14BK2C4110D	RES. METAL FILM 411 0.5% 1/6W
R121	RD14BB2C150J	RES. CARBON 15 5% 1/6W
R122	RD14BB2C472J	RES. CARBON 4.7K 5% 1/6W
R123	RD14BB2C472J	RES. CARBON 4.7K 5% 1/6W
R124	RD14BB2C472J	RES. CARBON 4.7K 5% 1/6W
R125	RD14BB2C472J	RES. CARBON 4.7K 5% 1/6W
R126	RD14BB2C114J	RES. CARBON 110K 5% 1/6W
R127	RD14BB2C114J	RES. CARBON 110K 5% 1/6W
R128	RD14BB2C114J	RES. CARBON 110K 5% 1/6W
R129	RD14BB2C114J	RES. CARBON 110K 5% 1/6W
R130	RD14BB2C114J	RES. CARBON 110K 5% 1/6W
R131	RD14BB2C114J	RES. CARBON 110K 5% 1/6W
R132	RD14BB2C114J	RES. CARBON 110K 5% 1/6W
R133	RD14BB2C114J	RES. CARBON 110K 5% 1/6W
R134	RD14BB2C114J	RES. CARBON 110K 5% 1/6W
R135	RD14BB2C114J	RES. CARBON 110K 5% 1/6W
R136	RD14BB2C114J	RES. CARBON 110K 5% 1/6W
R137	RD14BB2C114J	RES. CARBON 110K 5% 1/6W
R138	RD14BB2C334J	RES. CARBON 330K 5% 1/6W

PARTS LIST

REF.NO	PARTS NO	NAME & DESCRIPTION
R139	RD14BB2C683J	RES. CARBON 68K 5% 1/6W
R140	RD14BB2E432J	RES. CARBON 4.3K 5% 1/4W
R141	RD14BB2C121J	RES. CARBON 120 5% 1/6W
R142	RD14BB2E432J	RES. CARBON 4.3K 5% 1/4W
R143	RD14BB2C272J	RES. CARBON 2.7K 5% 1/6W
R144	RN14BK2C6191F	RES. METAL FILM 6.19K 1% 1/6W
R145	RD14BB2C681J	RES. CARBON 680 5% 1/6W
R146	RN14BK2C2900F	RES. METAL FILM 290 1% 1/6W
R147	RD14BB2C121J	RES. CARBON 120 5% 1/6W
R148	RD14BB2E3R3J	RES. CARBON 3.3 5% 1/4W
R149	RD14BB2E432J	RES. CARBON 4.3K 5% 1/4W
R150	RD14BB2C390J	RES. CARBON 39 5% 1/6W
R151	RD14BB2E432J	RES. CARBON 4.3K 5% 1/4W
R152	RD14BB2C220J	RES. CARBON 22 5% 1/6W
R153	NO USE	
R154	RD14BB2C220J	RES. CARBON 22 5% 1/6W
R155	RD14BB2C272J	RES. CARBON 2.7K 5% 1/6W
R156	RD14BB2E3R3J	RES. CARBON 3.3 5% 1/4W
R157	RD14BB2C681J	RES. CARBON 680 5% 1/6W
R158	RN14BK2C1692F	RES. METAL FILM 16.9K 1% 1/6W
R159	RN14BK2C3010F	RES. METAL FILM 301 1% 1/6W
R160	RD14BB2C681J	RES. CARBON 680 5% 1/6W
R161	RN14BK2C5230F	RES. METAL FILM 523 1% 1/6W
R162	RD14BB2C472J	RES. CARBON 4.7K 5% 1/6W
R163	RN14BK2C3010F	RES. METAL FILM 301 1% 1/6W
R164	RN14BK2C3480F	RES. METAL FILM 348 1% 1/6W
R165	RD14BB2E432J	RES. CARBON 4.3K 5% 1/4W
R166	RD14BB2E432J	RES. CARBON 4.3K 5% 1/4W
R167	RD14BB2C390J	RES. CARBON 39 5% 1/6W
R168	RD14BB2C681J	RES. CARBON 680 5% 1/6W
R169	RD14BB2C114J	RES. CARBON 110K 5% 1/6W
R170	RD14BB2C683J	RES. CARBON 68K 5% 1/6W
R171	RD14BB2C331J	RES. CARBON 330 5% 1/6W
R172	RD14BB2C331J	RES. CARBON 330 5% 1/6W
R173	RN14BK2C10R0F	RES. METAL FILM 10.0 1% 1/6W
R174	RD14BB2C331J	RES. CARBON 330 5% 1/6W
R177	RD14BB2C472J	RES. CARBON 4.7K 5% 1/6W
R178	RD14BB2C472J	RES. CARBON 4.7K 5% 1/6W
R179	RD14BB2C331J	RES. CARBON 330 5% 1/6W
R180	RD14BB2C472J	RES. CARBON 4.7K 5% 1/6W
R181	RD14BB2C201J	RES. CARBON 200 5% 1/6W
TC101	C05-0404-05	CAP. TRIMMER 10P.
U101	MC14066BCP	IC, QUAD. ANALOG SW/QUAD. MPX
U102	LM78M05CT	IC, POSITIVE VOLTAGE REGULATOR
U103	LM79M05CT	
VR101	R12-1545-05	RES. SEMI FIXED 1K B
VR102	R12-0575-05	RES. SEMI FIXED 100 B

VT-171 PANEL UNIT

(X66-1070-01)

REF.NO	PARTS NO	NAME & DESCRIPTION
JW103	J25-5376-13	PCB (UNMOUNTED)
	R92-1061-05	JUMPING RES. ZERO OHM (5MM)
	E31-5754-05	LEAD WIRE WITH CONNECTOR
P003	E40-3239-05	PIN CONNECTOR 4 P
P004	NO USE	
P005	E40-3239-05	PIN CONNECTOR 4 P
S003	S40-6501-05	PUSH SWITCH
S101	S01-1518-05	ROTARY SWITCH

VT-173 MAIN UNIT

(X65-1370-05)

REF.NO	PARTS NO	NAME & DESCRIPTION
	F01-0832-14	HEAT SINK
	F10-1518-04	SHIELD PLATE
	J25-5375-03	PCB (UNMOUNTED)
	N09-0718-05	SCREW, SEMS PAN HD M3X6
C101	C91-0501-05	CAP. METAL FILM 0.047 10% 630V
C102	C093M1H332K	CAP. MYLAR 3300P 10% 50V
C103	C092FM1H222K	CAP. MYLAR 2200P 10% 50V
C104	C092FM1H222J	CAP. MYLAR 2200P 5% 50V
C105	CE04EW1A331M	CAP. ELECTRO 330 20% 10V
C106	CE04EW1A331M	CAP. ELECTRO 330 20% 10V
C107	CC45FCH1H070D	CAP. CERAMIC 7P 0.5P 50V
C108	CE04EW1A221M	CAP. ELECTRO 220 20% 10V
C109	NO USE	
C110	CE04EW1E100M	CAP. ELECTRO 10 20% 25V
C111	CC45FCH1H010C	CAP. CERAMIC 1P 0.25P 50V
C112	CC45FCH1H020C	CAP. CERAMIC 2P 0.25P 50V
C113	CE04EW1A331M	CAP. ELECTRO 330 20% 10V
C114	CE04EW1A331M	CAP. ELECTRO 330 20% 10V
C115	CE04EW1A331M	CAP. ELECTRO 330 20% 10V
C116	CC45FCH1H120J	CAP. CERAMIC 12P 5% 50V
C117	CC45FCH1H120J	CAP. CERAMIC 12P 5% 50V
C118	CE04EW1A331M	CAP. ELECTRO 330 20% 10V
C119	CE04EW1A101M	CAP. ELECTRO 100 20% 10V
C120	NO USE	
C121	CE04EW1A470M	CAP. ELECTRO 47 20% 10V
C122	CE04EW1A331M	CAP. ELECTRO 330 20% 10V
C123	CE04EW1A470M	CAP. ELECTRO 47 20% 10V
C124	CC45FCH1H220J	CAP. CERAMIC 22P 5% 50V
C125	NO USE	
C126	CE04EW1A101M	CAP. ELECTRO 100 20% 10V
C129	CE04HW1H010M	CAP. ELECTRO 1 20% 50V
C130	CE04HW1H010M	CAP. ELECTRO 1 20% 50V
C131	NO USE	
C132	CE04EW1A470M	CAP. ELECTRO 47 20% 10V
C133	CE04EW1A470M	CAP. ELECTRO 47 20% 10V
C134	CE04EW1C102M	CAP. ELECTRO 1000 20% 16V
C135	CE04EW1C102M	CAP. ELECTRO 1000 20% 16V
C136	C092FM1H104K	CAP. MYLAR 0.1 10% 50V
C137	C092FM1H104K	CAP. MYLAR 0.1 10% 50V
C138	C092FM1H104K	CAP. MYLAR 0.1 10% 50V
C139	C092FM1H104K	CAP. MYLAR 0.1 10% 50V
C140	C092FM1H222K	CAP. MYLAR 2200P 10% 50V
C141	NO USE	
C142	CC45FCH1H120J	CAP. CERAMIC 12P 5% 50V
C143	CC45FCH1H070D	CAP. CERAMIC 7P 0.5P 50V
C147	C092FM1H103K	CAP. MYLAR 0.01 10% 50V
C148	CC45FCH1H100D	CAP. CERAMIC 10P 0.5P 50V
C149	NO USE	
C150	C093BP2A122F	CAP. MYLAR 1200P 1% 100V
C151	C092FM1H104K	CAP. MYLAR 0.1 10% 50V
C152	NO USE	
C153	CC45FCH1H010C	CAP. CERAMIC 1P 0.25P 50V
D101	1S1588	DIODE
D106	1S1588	DIODE
D107	1S1588	DIODE
D108	1S1588	DIODE
D109	1S1588	DIODE
D110	1S1588	DIODE
D111	1S1588	DIODE
D112	1S1588	DIODE
D113	NO USE	
D114	1S1588	DIODE
D115	1S1588	DIODE
D116	NO USE	
D117	1S1588	DIODE
D118	1S1588	DIODE
D119	1S1588	DIODE
D120	1S1588	DIODE
D121	1S1588	DIODE
D122	1S1588	DIODE
D123	1S1588	DIODE
D124	1S1588	DIODE
D125	1S1588	DIODE
D126	1S1588	DIODE
D127	1S1588	DIODE

PARTS LIST

REF.NO	PARTS NO	NAME & DESCRIPTION
D128	1S1588	DIODE
D129	1S1588	DIODE
O130	1S1588	DIODE
O131	1S1588	DIODE
O132	1S1588	DIODE
O133	1S1588	DIODE
O134	W02	DIODE
O135	NO USE	
O136	1S1588	DIODE
O137	1S1588	DIODE
O138	1S1588	DIODE
O139	1S1588	DIODE
O140	1S1588	DIODE
O141	1S1588	DIODE
O142	1S1588	DIODE
O143	1S1588	DIODE
J801	R92-0150-05	JUMPING RES. ZERO OHM(10MM)
K101	S51-1503-05	RELAY
K102	S51-1503-05	RELAY
P001	E40-3237-05	PIN CONNECTOR 2P
P002	E40-3237-05	PIN CONNECTOR 2P
P003	E40-3239-05	PIN CONNECTOR 4 P
P004	E40-3237-05	PIN CONNECTOR 2P
P005	NO USE	
P006	E40-3238-05	PIN CONNECTOR 3 P
P007	NO USE	
P008	E40-3238-05	PIN CONNECTOR 3 P
P009	E40-3239-05	PIN CONNECTOR 4 P
P010	E40-3238-05	PIN CONNECTOR 3 P
P011	E40-3237-05	PIN CONNECTOR 2P
P101	E40-3751-05	PIN CONNECTOR 15P
P102	E40-0811-05	PIN CONNECTOR 8P
P103	E40-0811-05	PIN CONNECTOR 8P
Q101	2SK68A(M)	FET, N-CHANNEL
Q102	2SK68A(M)	FET, N-CHANNEL
Q103	2SA970(BL)	TR. SI, PNP
Q104	2SC1923(O)	TR. SI, NPN
Q105	2SA1015(Y)	TR. SI, PNP
Q106	2SA1015(Y)	TR. SI, PNP
Q107	2SA1015(Y)	TR. SI, PNP
Q108	2SA1015(Y)	TR. SI, PNP
Q109	2SA1015(Y)	TR. SI, PNP
Q110	2SA1015(Y)	TR. SI, PNP
Q111	2SC1815(Y)	TR. SI, NPN
Q112	2SA970(BL)	TR. SI, PNP
Q113	2SA970(BL)	TR. SI, PNP
Q114	2SC1923(O)	TR. SI, NPN
Q115	2SC1923(O)	TR. SI, NPN
Q116	2SA970(BL)	TR. SI, PNP
Q117	2SA970(BL)	TR. SI, PNP
Q118	2SC1923(O)	TR. SI, NPN
Q119	2SA970(BL)	TR. SI, PNP
Q120	2SA970(BL)	TR. SI, PNP
Q121	2SK30A(Y)	FET, N-CHANNEL
Q122	2SC1923(O)	TR. SI, NPN
Q123	2SC1923(O)	TR. SI, NPN
Q124	2SK30A(Y)	FET, N-CHANNEL
R101	R92-0744-05	RES. FIXED 9.99M 1% 1/2W
R102	RN14BK2C9531F	RES. METAL FILM 9.53K 1% 1/6W
R103	R92-1450-05	RES. SPECIAL POWER 6.8K 5% 1W
R104	RD14BB2C681J	RES. CARBON 680 5% 1/6W
R105	NO USE	
R106	RD14BB2E335J	RES. CARBON 3.3M 5% 1/4W
R107	RD14BB2C472J	RES. CARBON 4.7K 5% 1/6W
R108	RD14BB2C201J	RES. CARBON 200 5% 1/6W
R109	RD14BB2E102J	RES. CARBON 1K 5% 1/4W
R110	RD14BB2E750J	RES. CARBON 75 5% 1/4W
R111	RN14BK2C11000	RES. METAL FILM 110 0.5% 1/6W
R112	RN14BK2C15610	RES. METAL FILM 1.56K 0.5% 1/6W
R113	RN14BK2C60R00	RES. METAL FILM 60.0 0.5% 1/6W
R114	RN14BK2C27800	RES. METAL FILM 278 0.5% 1/6W
R115	RN14BK2C27800	RES. METAL FILM 278 0.5% 1/6W
R116	RN14BK2E19000	RES. METAL FILM 190 0.5% 1/4W
R117	RD14BB2C151J	RES. CARBON 150 5% 1/6W
R118	RN14BK2C41100	RES. METAL FILM 411 0.5% 1/6W
R119	RN14BK2C41100	RES. METAL FILM 411 0.5% 1/6W
R120	RN14BK2C41100	RES. METAL FILM 411 0.5% 1/6W

REF.NO	PARTS NO	NAME & DESCRIPTION
R121	RD14BB2C150J	RES. CARBON 15 5% 1/6W
R122	RD14BB2C472J	RES. CARBON 4.7K 5% 1/6W
R123	RD14BB2C472J	RES. CARBON 4.7K 5% 1/6W
R124	RD14BB2C472J	RES. CARBON 4.7K 5% 1/6W
R125	RD14BB2C472J	RES. CARBON 4.7K 5% 1/6W
R126	RD14BB2C114J	RES. CARBON 110K 5% 1/6W
R127	RD14BB2C114J	RES. CARBON 110K 5% 1/6W
R128	RD14BB2C114J	RES. CARBON 110K 5% 1/6W
R129	RD14BB2C114J	RES. CARBON 110K 5% 1/6W
R130	RD14BB2C114J	RES. CARBON 110K 5% 1/6W
R131	RD14BB2C114J	RES. CARBON 110K 5% 1/6W
R132	RD14BB2C114J	RES. CARBON 110K 5% 1/6W
R133	RD14BB2C114J	RES. CARBON 110K 5% 1/6W
R134	RD14BB2C114J	RES. CARBON 110K 5% 1/6W
R135	RD14BB2C114J	RES. CARBON 110K 5% 1/6W
R136	RD14BB2C114J	RES. CARBON 110K 5% 1/6W
R137	RD14BB2C114J	RES. CARBON 110K 5% 1/6W
R138	RD14BB2C334J	RES. CARBON 330K 5% 1/6W
R139	RD14BB2C683J	RES. CARBON 68K 5% 1/6W
R140	RD14BB2E432J	RES. CARBON 4.3K 5% 1/4W
R141	RD14BB2C121J	RES. CARBON 120 5% 1/6W
R142	RD14BB2E432J	RES. CARBON 4.3K 5% 1/4W
R143	RD14BB2C272J	RES. CARBON 2.7K 5% 1/6W
R144	RN14BK2C6191F	RES. METAL FILM 6.19K 1% 1/6W
R145	RD14BB2C681J	RES. CARBON 680 5% 1/6W
R146	RN14BK2C2900F	RES. METAL FILM 290 1% 1/6W
R147	RD14BB2C121J	RES. CARBON 120 5% 1/6W
R148	RD14BB2E3R3J	RES. CARBON 3.3 5% 1/4W
R149	RD14BB2E432J	RES. CARBON 4.3K 5% 1/4W
R150	RD14BB2C390J	RES. CARBON 39 5% 1/6W
R151	RD14BB2E432J	RES. CARBON 4.3K 5% 1/4W
R152	RD14BB2C390J	RES. CARBON 39 5% 1/6W
R153	RD14BB2C390J	RES. CARBON 39 5% 1/6W
R154	RD14BB2C390J	RES. CARBON 39 5% 1/6W
R155	RD14BB2C272J	RES. CARBON 2.7K 5% 1/6W
R156	RD14BB2E3R3J	RES. CARBON 3.3 5% 1/4W
R157	RD14BB2C681J	RES. CARBON 680 5% 1/6W
R158	RN14BK2C1692F	RES. METAL FILM 16.9K 1% 1/6W
R159	RN14BK2C3010F	RES. METAL FILM 301 1% 1/6W
R160	RD14BB2C621J	RES. CARBON 620 5% 1/6W
R161	RN14BK2C5230F	RES. METAL FILM 523 1% 1/6W
R162	RD14BB2C472J	RES. CARBON 4.7K 5% 1/6W
R163	RN14BK2C3010F	RES. METAL FILM 301 1% 1/6W
R164	RN14BK2C3480F	RES. METAL FILM 348 1% 1/6W
R165	RD14BB2E432J	RES. CARBON 4.3K 5% 1/4W
R166	RD14BB2E432J	RES. CARBON 4.3K 5% 1/4W
R167	RD14BB2C390J	RES. CARBON 39 5% 1/6W
R168	RD14BB2C681J	RES. CARBON 680 5% 1/6W
R169	RD14BB2C114J	RES. CARBON 110K 5% 1/6W
R170	RD14BB2C683J	RES. CARBON 68K 5% 1/6W
R171	RD14BB2C331J	RES. CARBON 330 5% 1/6W
R172	RD14BB2C331J	RES. CARBON 330 5% 1/6W
R173	RN14BK2C10R0F	RES. METAL FILM 10.0 1% 1/6W
R174	RD14BB2C331J	RES. CARBON 330 5% 1/6W
R177	RD14BB2C472J	RES. CARBON 4.7K 5% 1/6W
R178	RD14BB2C472J	RES. CARBON 4.7K 5% 1/6W
R179	NO USE	
R180	RD14BB2C472J	RES. CARBON 4.7K 5% 1/6W
R181	RD14BB2C201J	RES. CARBON 200 5% 1/6W
R184	RD14BB2E102J	RES. CARBON 1K 5% 1/4W
TC101	C05-0404-05	CAP. TRIMMER 10P
U101	MC14066BCP	IC. QUAD. ANALOG SW/QUAD. MPX
U102	LM78M05CT	IC. POSITIVE VOLTAGE REGULATOR
U103	LM79M05CT	
VR101	R12-1545-05	RES. SEMI FIXED 1K B
VR102	R12-0575-05	RES. SEMI FIXED 100 B

PARTS LIST

VT-173 PANEL UNIT

(X66-1070-04)

REF. NO	PARTS NO	NAME & DESCRIPTION
	J25-5376-13	PCB (UNMOUNTED)
P003	E40-3239-05	PIN CONNECTOR 4 P
P004	NO USE	
P005	E40-3239-05	PIN CONNECTOR 4 P
S003	S40-6501-05	PUSH SWITCH

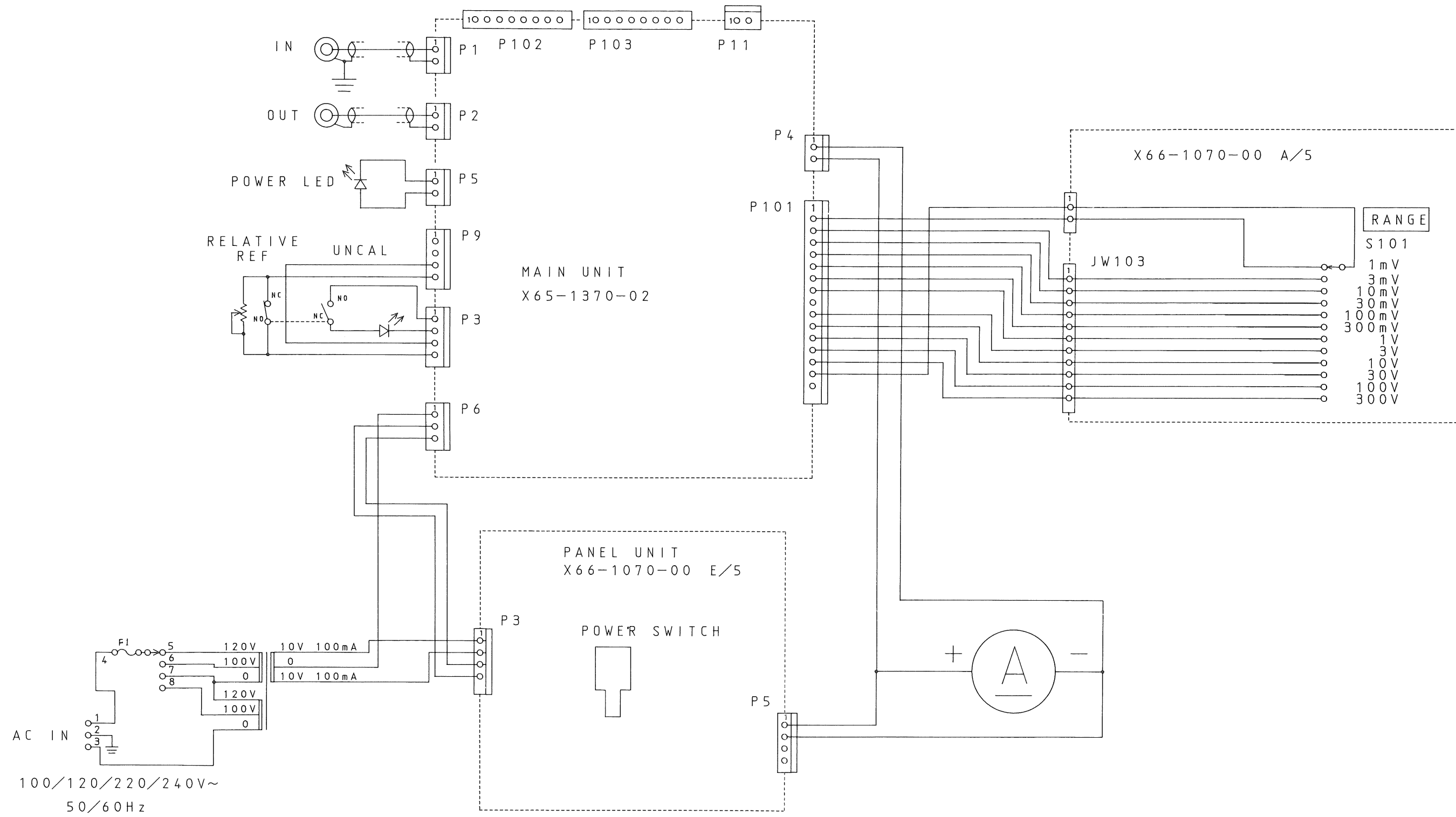
VT-173 CONTROL UNIT

(X77-1610-00)

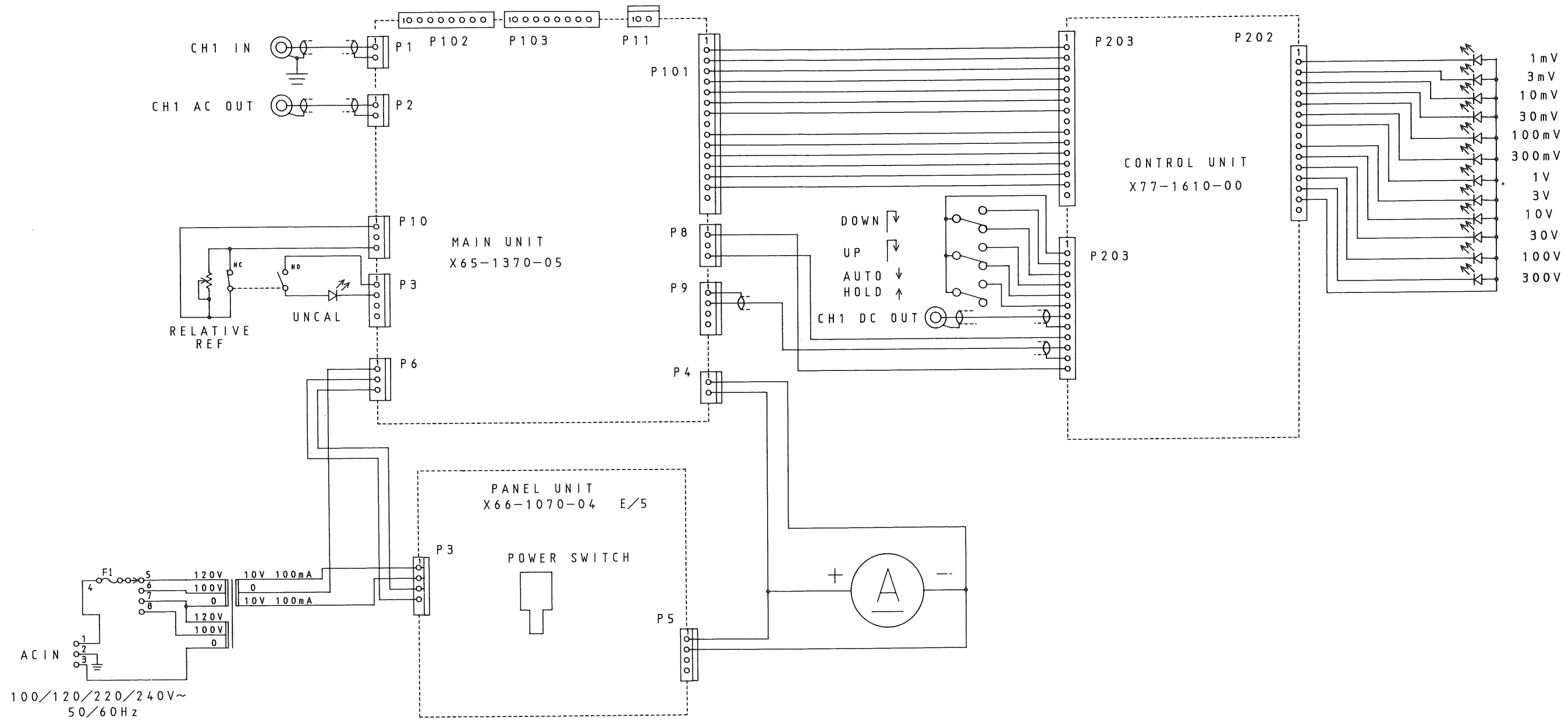
REF. NO	PARTS NO	NAME & DESCRIPTION
	J25-5389-03	PCB (UNMOUNTED)
	R92-0150-05	JUMPING RES. ZERO OHM(10MM)
C201	C092M1H104K	CAP. MYLAR 0.1 10% 50V
C202	C092M1H104K	CAP. MYLAR 0.1 10% 50V
C203	CC45CH1H010C	CAP. CERAMIC 1P 0.25P 50V
C204	CC45CH1H010C	CAP. CERAMIC 1P 0.25P 50V
C205	CE04EWOJ331M	CAP. ELECTRO 330 20% 6.3V
C206	CS15E1C4R7M	CAP. TANTALUM 4.7 20% 16V
C207	CS15E1C4R7M	CAP. TANTALUM 4.7 20% 16V
C208	CS15E1C4R7M	CAP. TANTALUM 4.7 20% 16V
C209	CS15E1C010M	CAP. TANTALUM 1 20% 16V
C210	CS15E1C4R7M	CAP. TANTALUM 4.7 20% 16V
C211	CS15E1C010M	CAP. TANTALUM 1 20% 16V
C212	C092M1H103K	CAP. MYLAR 0.01 10% 50V
C213	C092M1H154K	CAP. MYLAR 0.15 10% 50V
C214	C092M1H222K	CAP. MYLAR 2200P 10% 50V
C215	C092M1H222K	CAP. MYLAR 2200P 10% 50V
C216	C092M1H222K	CAP. MYLAR 2200P 10% 50V
C217	C092M1H222K	CAP. MYLAR 2200P 10% 50V
C218	CS15E1C4R7M	CAP. TANTALUM 4.7 20% 16V
C219	CS15E1C4R7M	CAP. TANTALUM 4.7 20% 16V
D201	1S1588	DIODE
D202	1S1588	DIODE
D203	1S1588	DIODE
D204	1S1588	DIODE
D205	1S1588	DIODE
D206	1S1588	DIODE
D207	1S1588	DIODE
P201	E40-1411-05	PIN CONNECTOR 14P
P202	E40-1411-05	PIN CONNECTOR 14P
P203	E40-1211-05	PIN CONNECTOR 12P
Q201	2SA970(BL)	TR. SI, PNP
Q202	2SA970(BL)	TR. SI, PNP
Q203	2SC1923(O)	TR. SI, NPN
Q204	2SC2240(BL)	TR. SI, NPN
Q205	2SC2240(BL)	TR. SI, NPN
Q206	2SC2240(BL)	TR. SI, NPN
Q207	2SC2240(BL)	TR. SI, NPN
Q208	2SC2240(BL)	TR. SI, NPN
Q209	2SC2240(BL)	TR. SI, NPN
Q210	2SC2240(BL)	TR. SI, NPN
R201	RD14BB2E432J	RES. CARBON 4.3K 5% 1/4W
R202	RD14BB2E390J	RES. CARBON 39 5% 1/4W
R203	RD14BB2E681J	RES. CARBON 680 5% 1/4W
R204	RD14BB2E432J	RES. CARBON 4.3K 5% 1/4W
R205	RN14BK2E1692F	RES. METAL FILM 16.9K 1% 1/4W
R206	RN14BK2E3010F	RES. METAL FILM 301 1% 1/4W
R207	RD14BB2E432J	RES. CARBON 4.3K 5% 1/4W
R208	RD14BB2E223J	RES. CARBON 22K 5% 1/4W
R209	RD14BB2E333J	RES. CARBON 33K 5% 1/4W
R210	RD14BB2E102J	RES. CARBON 1K 5% 1/4W
R211	RD14BB2E102J	RES. CARBON 1K 5% 1/4W
R212	RD14BB2E223J	RES. CARBON 22K 5% 1/4W
R213	RD14BB2E153J	RES. CARBON 15K 5% 1/4W
R214	RD14BB2E153J	RES. CARBON 15K 5% 1/4W
R215	RD14BB2E102J	RES. CARBON 1K 5% 1/4W
R216	RD14BB2E223J	RES. CARBON 22K 5% 1/4W
R217	RD14BB2E223J	RES. CARBON 22K 5% 1/4W
R218	RD14BB2E392J	RES. CARBON 3.9K 5% 1/4W
R219	RD14BB2E114J	RES. CARBON 110K 5% 1/4W
R220	RD14BB2E392J	RES. CARBON 3.9K 5% 1/4W

REF. NO	PARTS NO	NAME & DESCRIPTION
R221	RD14BB2E223J	RES. CARBON 22K 5% 1/4W
R222	RD14BB2E102J	RES. CARBON 1K 5% 1/4W
R223	RD14BB2E334J	RES. CARBON 330K 5% 1/4W
R224	RD14BB2E223J	RES. CARBON 22K 5% 1/4W
R225	RD14BB2E223J	RES. CARBON 22K 5% 1/4W
R226	RD14BB2E103J	RES. CARBON 10K 5% 1/4W
R227	RD14BB2E681J	RES. CARBON 680 5% 1/4W
R228	RD14BB2E223J	RES. CARBON 22K 5% 1/4W
R229	RN14BK2E2212F	RES. METAL FILM 22.1K 1% 1/4W
R230	RN14BK2E2212F	RES. METAL FILM 22.1K 1% 1/4W
R231	RN14BK2E3303F	RES. METAL FILM 330K 1% 1/4W
R232	RD14BB2E102J	RES. CARBON 1K 5% 1/4W
R233	RN14BK2E6040F	RES. METAL FILM 604 1% 1/4W
R234	RN14BK2E2431F	RES. METAL FILM 2.43K 1% 1/4W
R235	RN14BK2E1623F	RES. METAL FILM 162K 1% 1/4W
R236	RN14BK2E2212F	RES. METAL FILM 22.1K 1% 1/4W
R237	RD14BB2E223J	RES. CARBON 22K 5% 1/4W
R238	RD14BB2E223J	RES. CARBON 22K 5% 1/4W
R239	RD14BB2E223J	RES. CARBON 22K 5% 1/4W
R240	RD14BB2E223J	RES. CARBON 22K 5% 1/4W
R241	RD14BB2E223J	RES. CARBON 22K 5% 1/4W
R242	RD14BB2E223J	RES. CARBON 22K 5% 1/4W
R243	RD14BB2E334J	RES. CARBON 330K 5% 1/4W
R244	RD14BB2E223J	RES. CARBON 22K 5% 1/4W
R245	RD14BB2E223J	RES. CARBON 22K 5% 1/4W
R246	RD14BB2E102J	RES. CARBON 1K 5% 1/4W
U201	FUA3403PC	IC, QUAD OP AMP
U202	MC14011UB	IC, QUAD 2-INPUT NAND GATE
U203	F40193BPC	IC, 4-BIT SYNC COUNT UP/DOWN
U204	SN74LS156N	DUAL 2 TO 4 O.C. DEMULTIPLEXER
U205	SN74LS156N	DUAL 2 TO 4 O.C. DEMULTIPLEXER
VR201	R12-1538-05	RES. SEMI FIXED 1KB
VR202	R12-1538-05	RES. SEMI FIXED 1KB

VT-171 SCHEMATIC DIAGRAM

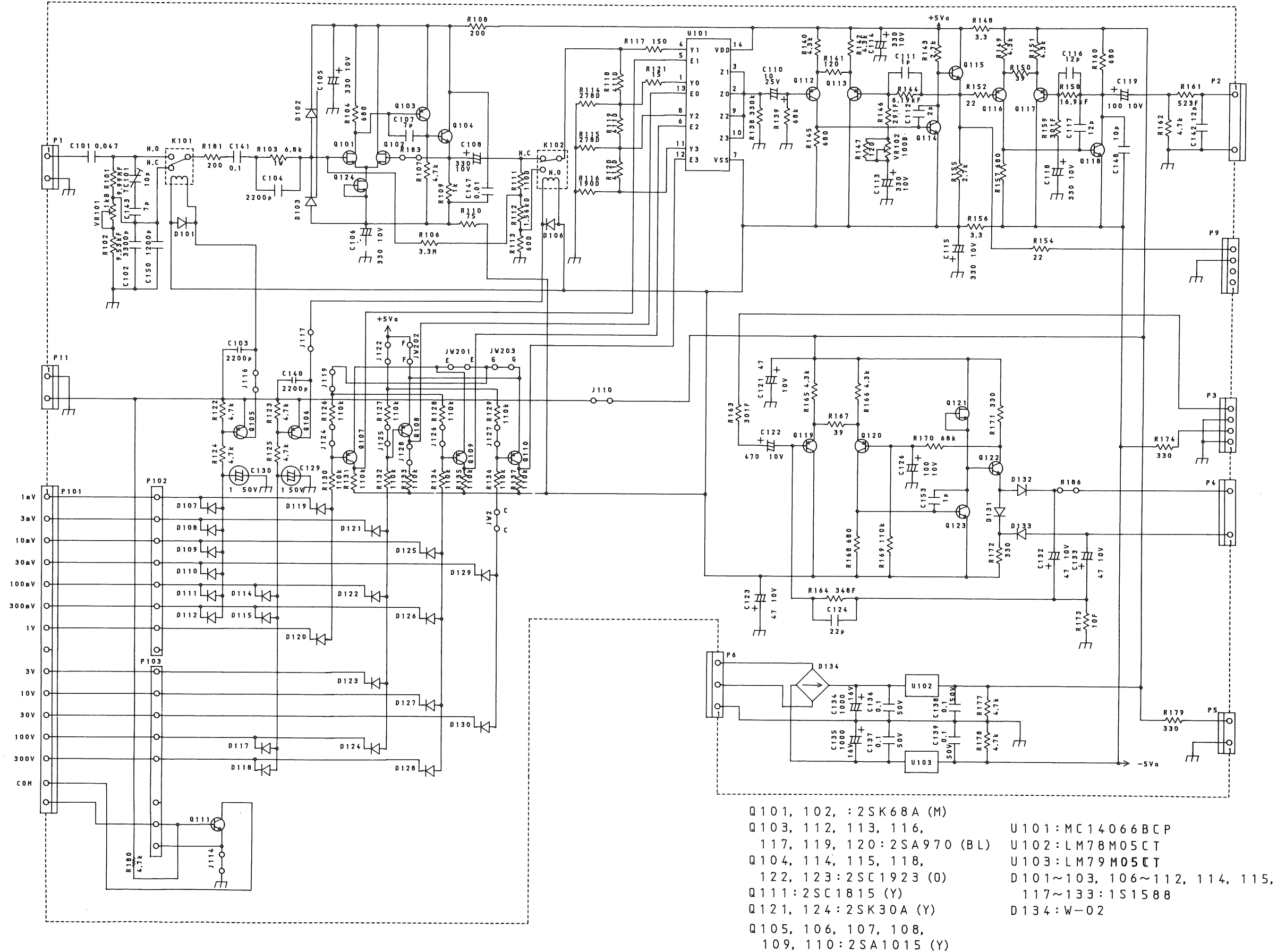


VT-173 SCHEMATIC DIAGRAM



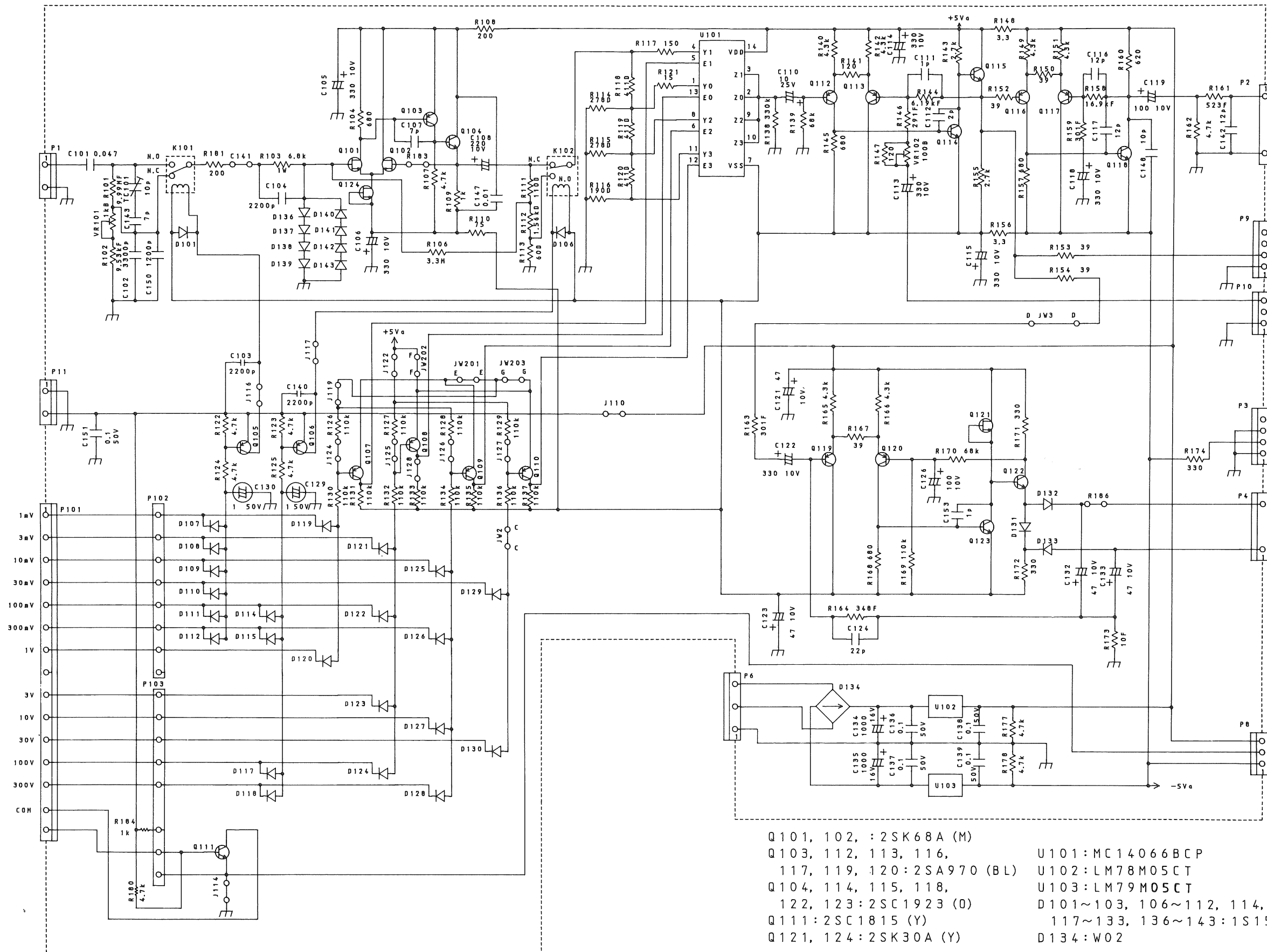
VT-171 SCHEMATIC DIAGRAM

MAIN UNIT (X65-1370-02)



VT-173 SCHEMATIC DIAGRAM

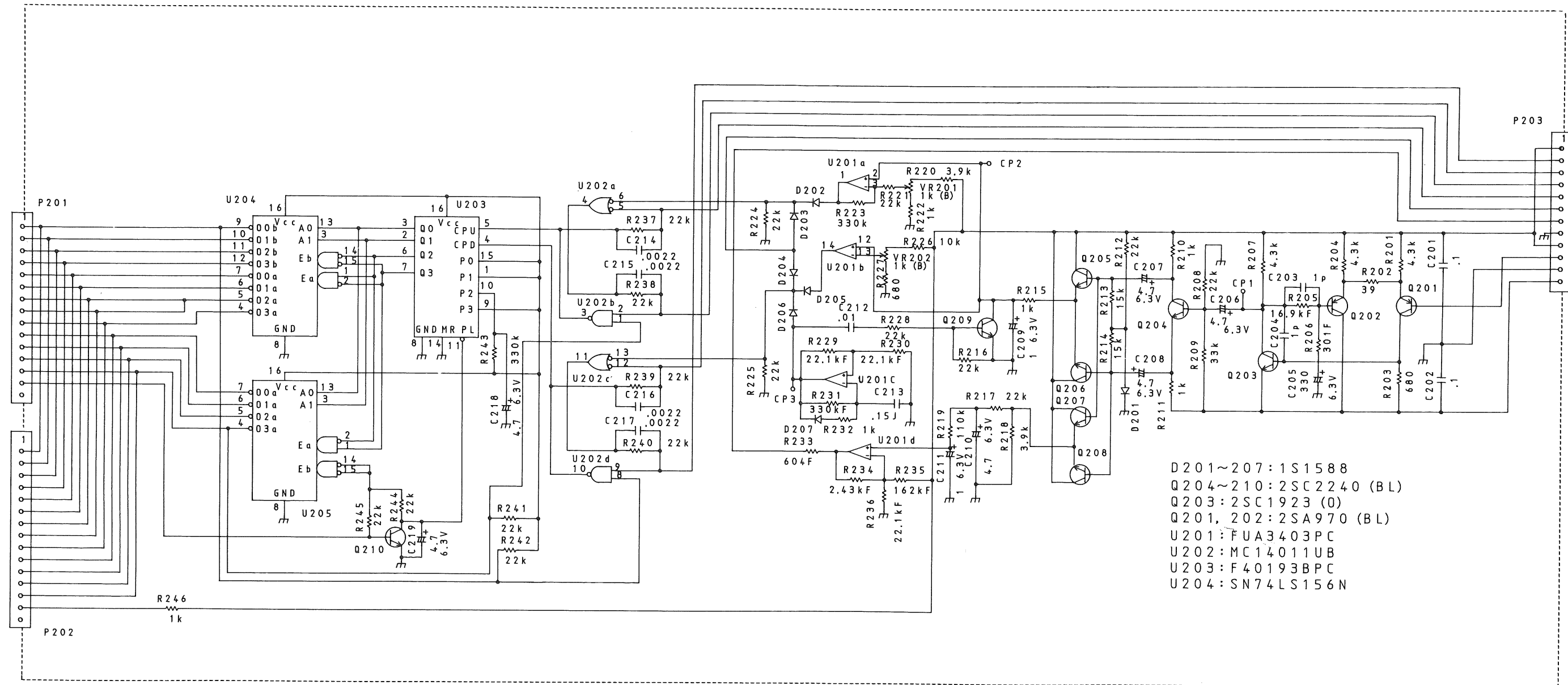
MAIN UNIT (X65-1370-05)



- | | |
|---|---|
| Q 101, 102, : 2SK68A (M) | U 101: MC14066BCP |
| Q 103, 112, 113, 116,
117, 119, 120: 2SA970 (BL) | U 102: LM78M05CT |
| Q 104, 114, 115, 118,
122, 123: 2SC1923 (O) | U 103: LM79M05CT |
| Q 111: 2SC1815 (Y) | D 101~103, 106~112, 114, 115,
117~133, 136~143: 1S1588 |
| Q 121, 124: 2SK30A (Y) | D 134: W02 |
| Q 105, 106, 107, 108,
109, 110: 2SA1015 (Y) | |

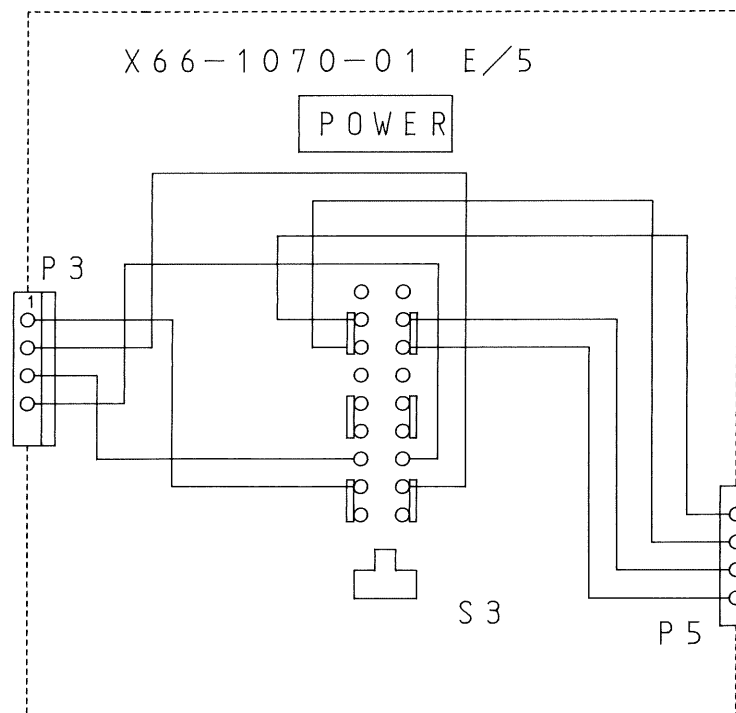
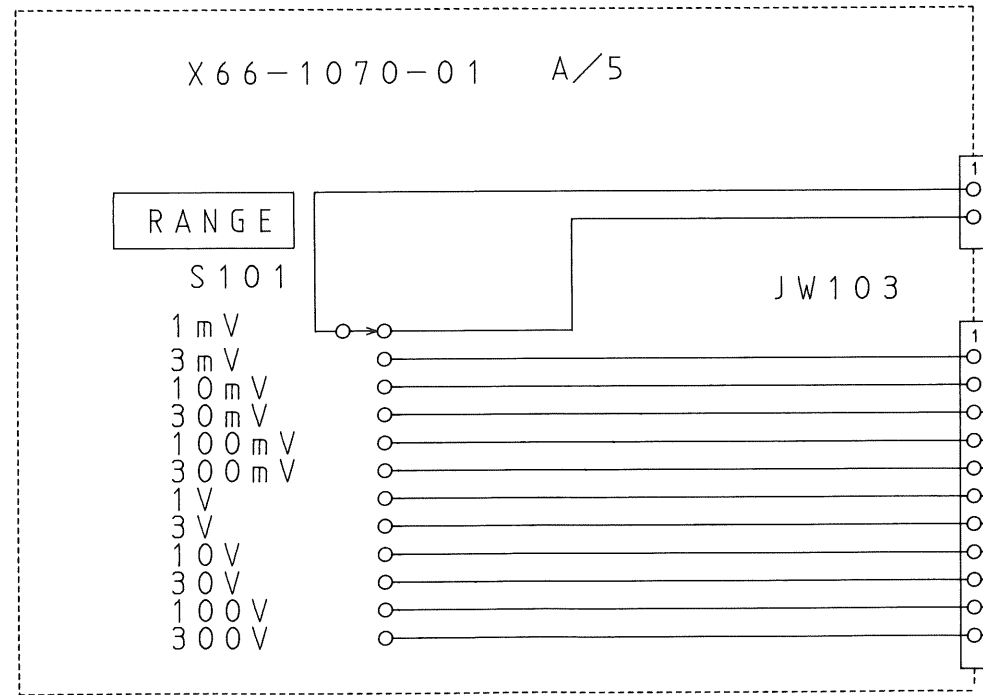
VT-173 SCHEMATIC DIAGRAM

CONTROL UNIT (X77-1010-00)



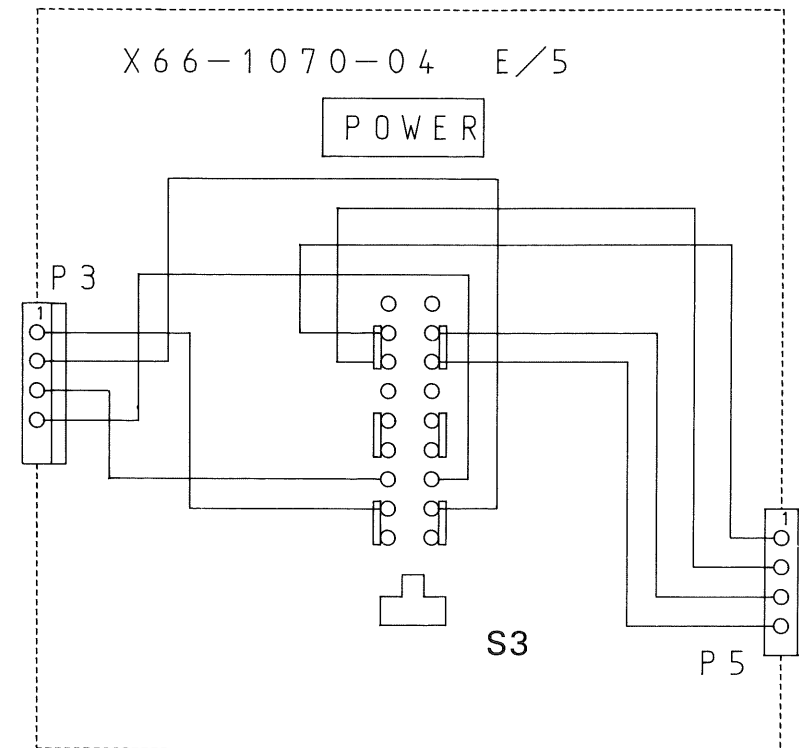
VT-171 SCHEMATIC DIAGRAM

PANEL UNIT (X66-1070-01)



VT-173 SCHEMATIC DIAGRAM

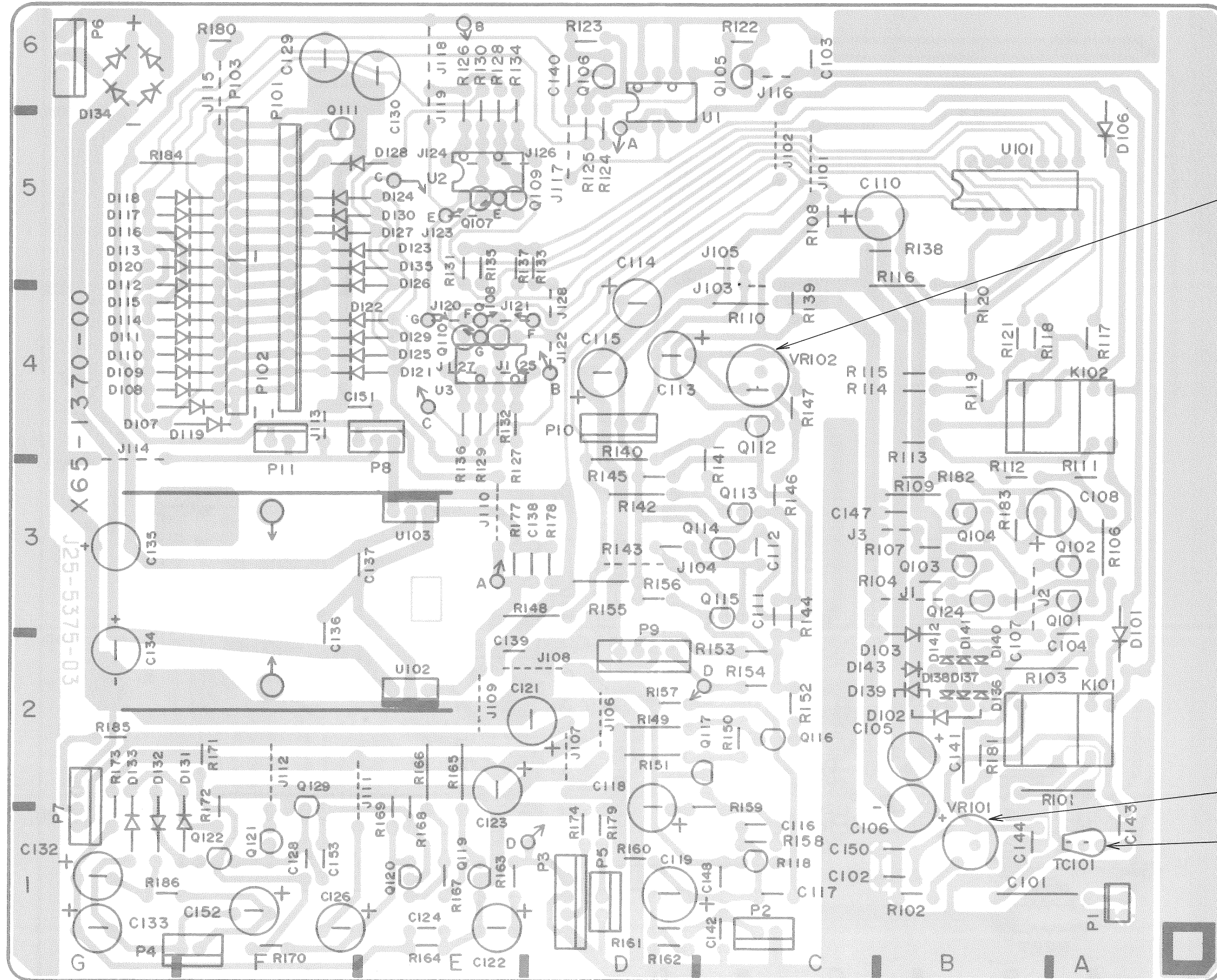
PANEL UNIT (X66-1070-04)



P.C. BOARD

MAIN UNIT

Pattern side view



Meter Amplifier Gain

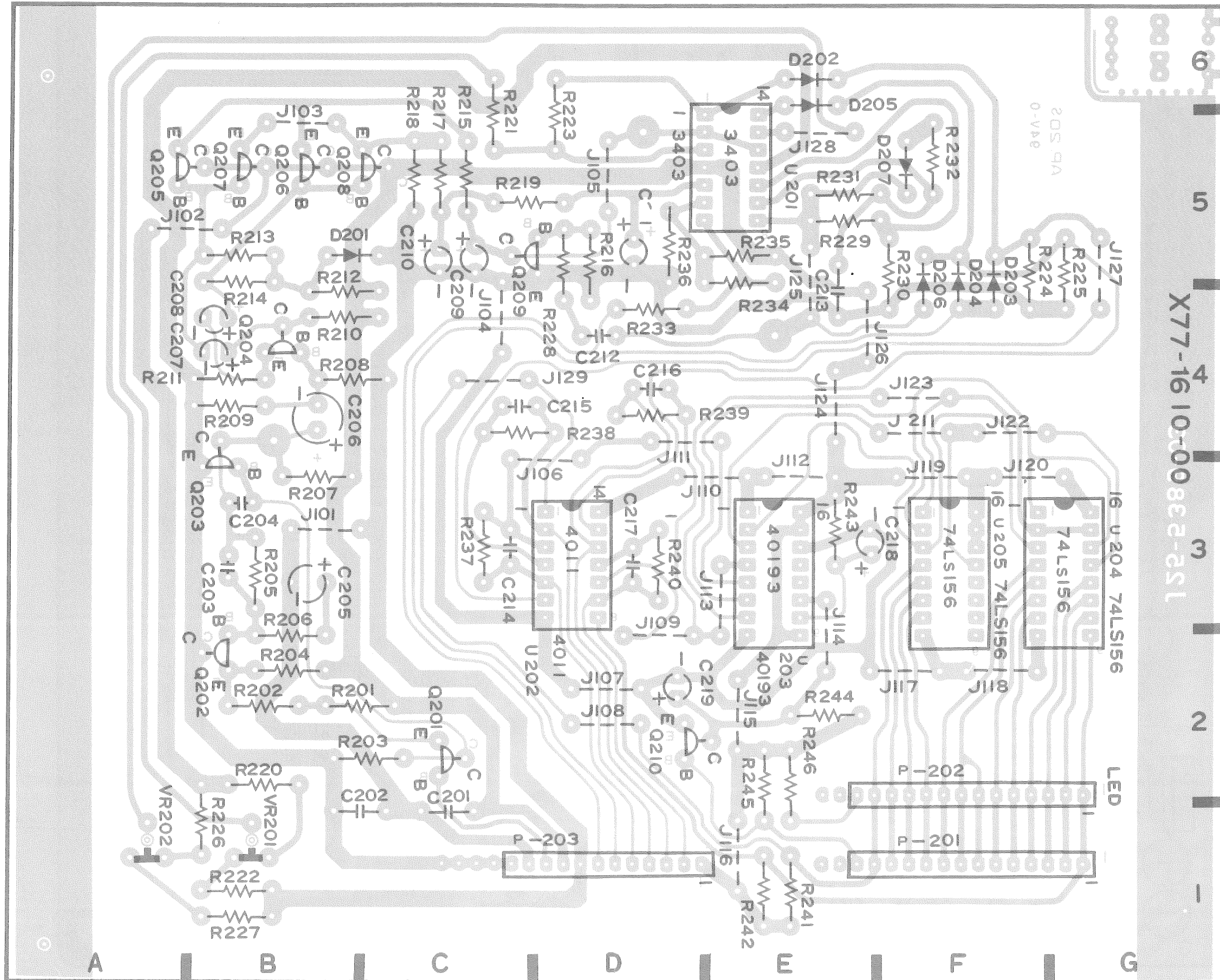
First Attenuator Preset

First Attenuator Preset

P.C. BOARD

Parts side view

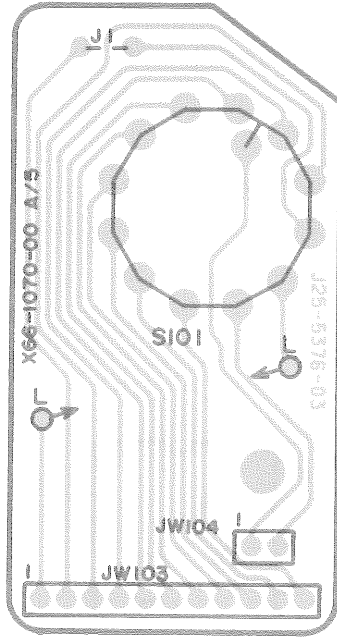
CONTROL UNIT



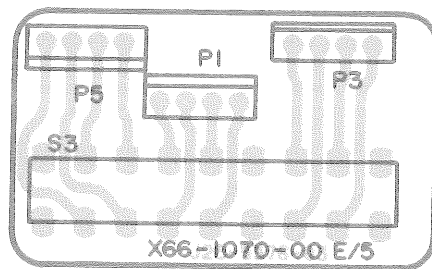
P.C. BOARD

PANEL UNIT

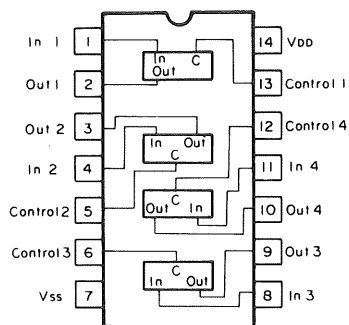
Pattern side view



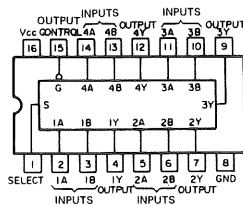
Pattern side view



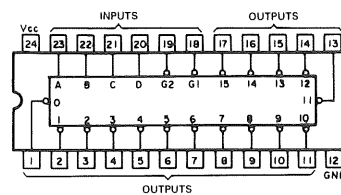
SEMICONDUCTORS



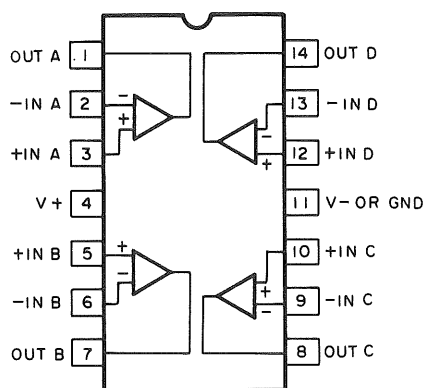
MC14066BCP



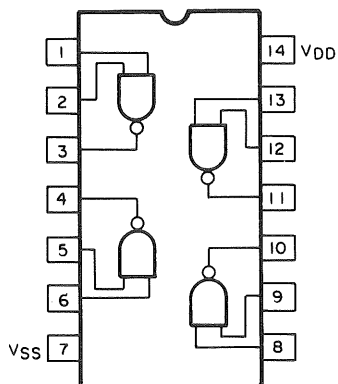
TC74HC257AP



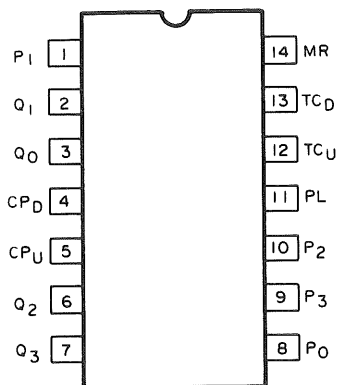
SN74159N



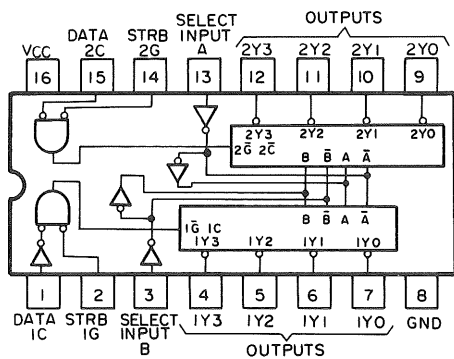
FμA3403PC



MC14011UB

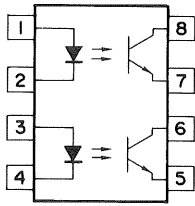


F40193BPC

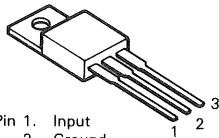


SN74LS156N

SEMICONDUCTORS

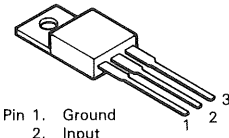


TLP521-2 (BL)



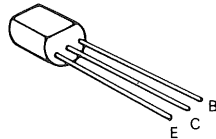
Pin 1. Input
2. Ground
3. Output

LM78M05CT

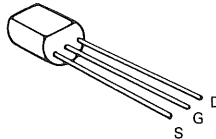


Pin 1. Ground
2. Input
3. Output

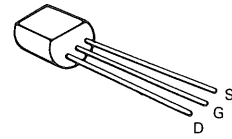
LM79M05CT



2SA970 (BL)
2SA1015 (Y)
2SC945 (P)
2SC1815 (Y)
2SC1923 (O)
2SC2240 (BL)



2SK30A (Y)



2SK68A (M)

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