

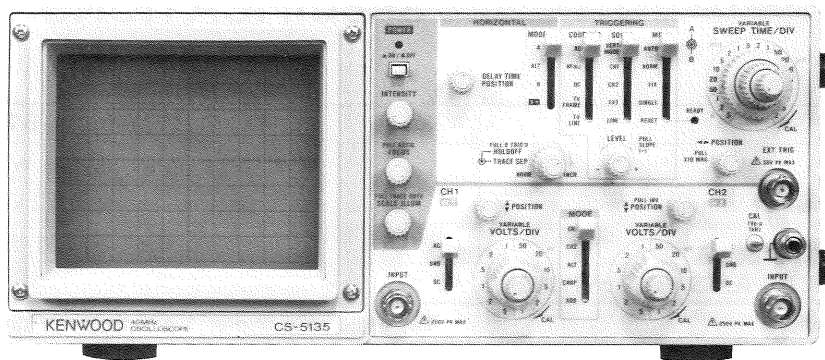
40MHz OSCILLOSCOPE

CS-5135

SERVICE MANUAL

S/No. 1030001 ~

KENWOOD CORPORATION



KENWOOD

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

		CS-5135
CRT		150 mm rectangular with internal graticule
Acceleration Voltage		12 kV
Display Area		8 × 10 div (1 div = 10 mm)
VERTICAL AXIS (CH1 and CH2)		
Sensitivity		1 mV/div to 5 V/div: 1 mV to 2 mV/div ± 5%, 5 mV/div to 5 V/div ± 3%
Attenuator		12 steps, 1 mV/div to 5 V/div in 1-2-5 sequence Vernier control for fully adjustable sensitivity between steps
Input Impedance		1 MΩ ± 2%, approx. 30 pF
Frequency Response	DC	DC to 40 MHz, within -3 dB (5 mV/div to 5 V/div) DC to 15 MHz, within -3 dB (1 mV/div to 2 mV/div)
	AC	5 Hz to 40 MHz, within -3 dB (5 mV/div to 5 V/div) 5 Hz to 15 MHz, within -3 dB (1 mV/div to 2 mV/div)
Rise Time		8.7 ns (5 mV/div to 5 V/div) 17.5 ns (1 mV/div & 2 mV/div)
Signal Delay Time		Adequate to identify leading edge
Crosstalk		-40 dB or less (at 1 kHz)
Operating Modes	CH1	Single trace
	CH2	Single trace
	ALT	Two-waveform display, alternately
	CHOP	Two-waveform display, chopped
	ADD	CH1 + (±CH2) added display

SPECIFICATIONS

		CS-5135
Chop Frequency		Approx. 300 kHz
Channel Polarity		Normal or inverted, channel 2 only inverted
Maximum Input Voltage		500 Vp-p or 250 V (DC + AC peak)
HORIZONTAL AXIS Input thru CH2, × 10 MAG not included		
Operating Modes		X-Y operation is selectable with HORIZ MODE switch CH1 : Y axis CH2 : X axis
Sensitivity		Same as vertical axis (CH2)
Input Impedance		Same as vertical axis (CH2)
Frequency Response	DC	DC to 1 MHz, within - 3 dB
	AC	5 Hz to 1 MHz, within - 3 dB
X-Y Phase Difference		3° or less at 100 kHz
Maximum Input Voltage		Same as vertical axis (CH2)
SWEEP		
Type	A	A sweep
	ALT	A sweep (intensified for duration of B sweep) and B sweep (delayed sweep) alternating
	B	Delayed sweep
	X-Y	X-Y oscilloscope operation
Sweep Time	A	0.2 μs/div to 0.5 s/div ± 3%, in 20 ranges, in 1-2-5 sequence Vernier control for fully adjustable sweep time between steps
	B	0.2 μs/div to 50 ms/div ± 3%, in 17 ranges, in 1-2-5 sequence
Sweep Magnification		× 10 (ten times) ± 5% (± 8% in 0.2 μs-to-0.5 μs range)
Linearity		± 3% (± 5% for × 10 magnification)
Holdoff		Continuously variable from NORM to more than ten time (MAX)
Trace Separation		Shifts B sweep trace continuously in vertical direction by 4 divisions or more with respect to A sweep
Delayed Sweep		Continuous delay (AFTER DELAY) & triggered delay (B TRIG' D: triggered by A trigger)
Delay Time		Continuous adjustable from 0.2 μs/div to 0.5 s/div
Delay Accuracy		± 4% of reading on CRT
Delayed Jitter		10000 : 1 of decoupled time axis A set value
TRIGGERING		
Modes		AUTO, NORM, FIX, & SINGLE-RESET
Trigger Source	VERT MODE	Triggered by input signal selected with vertical MODE selector
	CH1	Triggered by CH1 vertical signal
	CH2	Triggered by CH2 vertical signal
	LINE	Triggered by line frequency
	EXT	Triggered by external trigger signal
External Trigger Input Impedance		1 MΩ ± 2%, approx. 25 pF
MAX. EXT. Input Voltage		50 V (DC + AC peak)
Coupling		AC, HFREJ, DC, TV-FRAME, & TV-LINE

SPECIFICATIONS

CS-5135	
Trigger Sensitivity	At NORM position
	AC Trigger frequency range 10 Hz to 20 MHz (INT: 1 div, EXT: 0.15 Vp-p) 10 Hz to 40 MHz (INT: 1.5 div, EXT: 0.2 Vp-p)
	DC Trigger frequency range DC to 20 MHz (INT: 1 div, EXT: 0.15 Vp-p) DC to 40 MHz (INT: 1.5 div, EXT: 0.2 Vp-p)
	HFREJ Trigger frequency range is more than 50 kHz, and minimum amplitude (voltage) required for sync is increased.
	TV FRAME, LINE INT: 1.0 div, EXT: 0.15 Vp-p
AUTO: Same as above specifications for above 50 Hz FIX: 50 Hz to 20 MHz (INT: 1.5 div, EXT: 200 mV) 50 Hz to 40 MHz (INT: 2.0 div, EXT: 250 mV)	
CALIBRATION VOLTAGE	
1 V p-p ± 3%, square wave, positive polarity, approx. 1 kHz	
INTENSITY MODULATION	
Sensitivity	+ 5 V, positive voltage decreases brightness
Input Impedance	Approx. 10 kΩ
Usable Frequency Range	DC to 5 MHz
Maximum Input Voltage	50 V (DC + AC peak)
VERTICAL AXIS SIGNAL OUTPUT (CH1 only)	
Output voltage	Approx. 50 mVp-p/div (50 Ω termination)
Output Impedance	Approx. 50 Ω
Frequency Response	100 Hz to 40 MHz, - 3 dB/50 Ω termination (1 mV/div, 2 mV/div: 100 Hz to 15 MHz, - 3 dB)
TRACE ROTATION (Electrical, adjustable from front panel)	
POWER REQUIREMENT	
Line Voltage	100 V/120 V/220 V/240 V ± 10%
Line Frequency	50/60 Hz
Power Consumption	Approx. 41 W
DIMENSIONS (W × H × D)	319 (341) × 132 (145) × 380 (455) mm () dimensions include protrusion from basic outline dimensions
WEIGHT	8.5 kg
ENVIRONMENTAL	
Within Specifications	10°C to 35°C, 85% max. relative humidity
Full Operation	0°C to 40°C, 85% max. relative humidity
ACCESSORIES SUPPLIED	
Probe	PC-30 × 2
Attenuation	1/1, 1/10
Input impedance	1 MΩ, 200 pF or less 10 MΩ, 22 pF ± 10%
Power supply cable	1
Replacement Fuse	1 A × 2, 0.5 A × 2
Instruction Manual	1

* Circuit and rating are subject to change without notice due to developments in technology.

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 on the rear panel. 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 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. Replace fuse F 1 with a fuse of appropriate value, 1 amp for 100 VAC to 120 VAC operation, 0.5 amp for 220 VAC to 240 VAC operation.
2. When performing the reinsertion of leadwire for the voltage conversion, the appropriate power cord should be used. (See Fig. 1.)





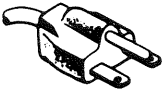
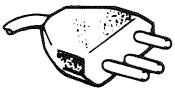
Plug configuration	Power cord and plug type	Factory installed instrument fuse	Line cord plug fuse	Parts No. for power cord set
	North American 120 volt/60 Hz Rated 15 amp (12 amp max; NEC)	1 A, 250 V Fast blow 6 × 30 mm	None	Cord: E30-1820-05
	Universal Europe 220 volt/50 Hz Rated 16 amp	North Europe 500 mA, 250 V Slow blow 5 × 20 mm	None	Cord: E30-1819-05
		Other Europe 0.5 A, 250 V Fast blow 6 × 30 mm		
	U.K. 240 volt/50 Hz Rated 13 amp	0.5 A, 250 V Fast blow 6 × 30 mm	0.8 A Type C	—
	Australian 240 volt/50 Hz Rated 10 amp	0.5 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)	0.5 A, 250 V Fast blow 6 × 30 mm	None	—
	Switzerland 240 volt/50 Hz Rated 10 amp	0.5 A, 250 V Fast blow 6 × 30 mm	None	—

Fig. 1 Power Input Voltage Configuration

CIRCUIT DESCRIPTION

Vertical Preamp Circuit (X73-1790-00)

The signal from the input terminals of CH1 or Y and CH2 or X is attenuated to the appropriate value by ATT and sent to head amplifiers Q3 to Q5 (CH2: Q103 to Q105). The signal is then sent to the cascade U2 (CH2: U102) through the GAIN switch (connected to the ATT).

The feedback of the direct current component is applied by the operation amplifier U1 (CH2: U101) to reduce the drift in the head amplifier.

The cascade amplifier U2 (CH2: U102) is a gain switch type of amplifier. The amplification degree (at X5 MAG) reaches five times the normal level (5 mV/div to 5V/div range) within the range of 1 mV/div, 2 mV/div. The output signal from the cascade AMP U1 (CH2: U101) is input to the second cascade amplifier Q6 to Q9 (CH2: Q106 to Q111).

The CH1 and CH2 signals are selected by the V-MODE switch and applied to the delay line driver Q201 and Q202. The Q110 and Q111 of CH2 are used for inversion.

Trigger Signal Switch Circuit (X73-1790-00)

The signal output by the emitter of the CH1 and CH2 second cascade amplifier is used as the trigger signal for CH1 OUT/CH1 TRIG pickoff amplifiers Q11 and Q12 and CH2 TRIG pickoff amplifiers Q112 and Q113. The signal amplified by each pickoff amplifier for CH1 and CH2 is selected by the switch signal from the horizontal unit through P7 and applied to the trigger preamplifier of the horizontal unit through P4.

The signal that is picked up from the Q12 collector of the CH1 trigger pickoff amplifier is output from P1 through emitter follower Q13.

Vertical Final Amplifier (X73-1790-00)

The signal from the delay line is amplified in the terminal by cascade amplifiers Q205 to Q207. The signal converted to the low impedance by the Q209 and Q210 emitter follower is amplified to an adequate level to drive the CRT tydeflection by final stage amplifiers Q211 to Q220.

Power Supply Circuit (X73-1790-00)

The power supply consists of four stabilization and two destabilization systems. The standard power supply is +12V and has a voltage adjustment circuit. The -12V power supply uses a +12V reference voltage for stabilization. The +5V and +145V power supply uses a -12V reference voltage for stabilization. The scale illumination circuit power supply is $\pm 18V$. The voltage rectified by D301 is applied to the horizontal unit scale illumination circuit through P12.

The +18V is supplied to the primary side of the horizontal unit high-voltage oscillation circuit through P10.

CAL Circuit (X73-1790-00)

The oscillation circuit produces a 1 kHz square wave by the c-mos IC U351a and U351b multivibrator. The waveform is produced by the U351c and U351d and outputs the 1Vp-p CAL signal from P13 by the low-resistance separation.

Trigger Circuit (X74-1490-00)

The trigger signal from the vertical section is sent to the source coupling switch through signal comparators Q1 and Q2 and added to the Q4 and Q5 level comparator by the low impedance signal of the differential amplifier at FET Q3. This signal is formed by the Schmidt trigger circuit that ter-

minates the slope switch, activates the A and B sweep gate and automatic free run circuits in the oscillation circuit.

Q6 and Q7 are the signal differential detection circuits for the FIX synchronization amplified at Q8 and Q9. The mid-range voltage at this point is applied to the Schmidt simulation circuit. Q10, Q12 and the U1c are the synchronization signal separation circuit for the television synchronization. The X-signal for the X-Y operation is obtained from the CH2 trigger pickoff and applied to the horizontal amplifier Q301 at the Q16 to Q18 output circuit.

Horizontal Sweep Circuit (X74-1490-00)

If the trigger pulse is applied to the U102a flip-flop, the output is switched and the Miller integrator, consisting of Q104 to Q108 and U103, starts the sweep. The sweep length of this sweep signal is determined at Q113 and the flip-flop U102b. After the stand-by time is determined by the Q110, Q111, and U112 hold-off circuits, the units waits for the trigger signal.

After the delay time is determined by the voltage from the delay pickoff comparator Q211 to Q215 and the delay time position, the flip-flop U201a output is switched and the Miller integrator consisting of Q204 to Q208 and U202 starts the B-sweep.

The A- and B-sweep signals are switched by the horizontal switching circuit that includes the H-MODE switch, U203, U104 and applied to the horizontal amplifier Q301.

Horizontal Amplifier Circuit (X74-1490-00)

The sweep signal of the sweep circuit is applied to the drive amplifier Q301 to Q304. The X1 or X10 gain setting is selected at this time. The current amplification signal is converted to the voltage signal at Q305 and Q306, and then amplified enough to drive the CRT deflection by the high amplification ratio and low-output impedance of the final amplifier Q307 to Q312.

Z-axis Amplifier and High-voltage Circuit (X74-1490-00)

The unblanking signal from the blanking control circuit is inversion amplified by the blanking amplifier Q401, Q403, Q405 and Q407. It layers the cathode voltage at the direct current reproduction circuit at D405 and D406 and drives the first grid cathode of the CRT.

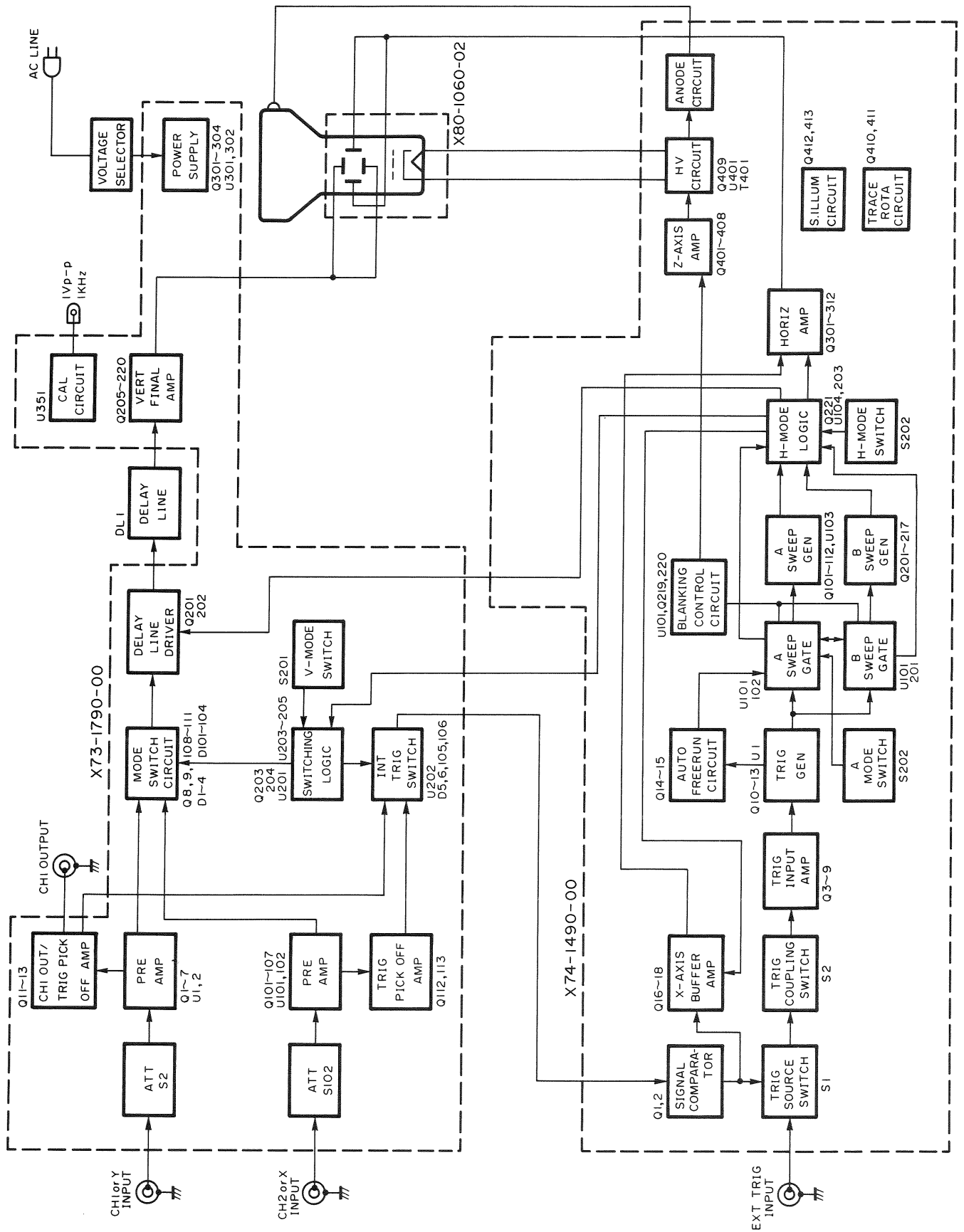
Q404, Q406 and Q408 produce the focus voltage from the blanking signal by the phase inversion amplifier for the linear focus.

The focus voltage is layered in the high-voltage in the direct current reproduction circuit D410 and D411 and drives the positive pole of the CRT terminal. The -1700V used for the cathode pole drive is produced by the control circuit U401 and the DC-DC converter at the blocking oscillator Q409. The third positive cathode voltage is produced by rectifying the DC-DC converter second side coil voltage six times.

Trace Rotation Circuit and Scale Illumination Circuit (X74-1490-00)

The trace rotation circuit drives the rotation coil located in the CRT cone by the current from the common emitter of the complementary transistors Q410 and Q411. The scale illumination circuit performs the light adjustment by Q412 and Q413.

BLOCK DIAGRAM



ADJUSTMENT

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

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

Before calibrating the scope, check the power supply voltage.

TEST EQUIPMENT REQUIRED

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

Test Equipment	Model	Minimum Specification
Digital Multi-Meter	DL-706 (KENWOOD)	Impedance: More than 10 M Ω , Measuring range: 0.01 V to 199 V
Sine-Wave Generator	651 B (YHP)	Frequency: 10 Hz to 10 MHz, constant voltage over tuning range
Sine-Wave Generator	SG-503 (Tektronix)	Frequency: 50 kHz to 100 MHz, Output impedance: 50 Ω , constant voltage over tuning range
Square-Wave Generator	PG-506 (Tektronix)	Output signal: 1 kHz, Amplitude: 10 mVp-p to 10 Vp-p, Accuracy: within $\pm 1\%$, Rise time: 35ns or less 100 kHz, Rise time: 1 ns or less
Q Meter	4343B (YHP)	—
Color Pattern Generator	CG-911A (KENWOOD)	—
Oscilloscope	CS-2110 (KENWOOD)	Sensitivity: more than 5 mV Frequency response: More than 100 MHz
Time-Marker Generator	TG-501 (Tektronix)	Time mark: 0.5 s to 0.1 μ s repetitive waveform
High-Voltage Probe	—	Input Impedance: 1000 M Ω
Termination	—	Impedance: 50 Ω Accuracy: within 3%
Termination	—	3 watts type impedance: 50 Ω
Attenuator	—	- 20 dB attenuation (50 Ω)

Table 1

PREPARATION FOR ADJUSTMENT

Control Settings

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

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

NAME OF KNOBS	POSITION
INTEN	12 o'clock
FOCUS, ASTIG	Optimum position
CH1, CH2 \updownarrow POSITION	Mechanical center
CH1, CH2 STORAGE POSI	Mechanical center
$\blacktriangleleft \blacktriangleright$ POSITION/PULL $\times 10$ MAG	Mechanical center, push
VARIABLE, H.VARIABLE (VOLTS/DIV, SWEEP TIME/DIV)	CAL
AC-GND-DC (CH1 and CH2)	DC (GND at no signal)
Vertical MODE	CH1
CH2 PULL INV	Push (NORM)
TRIGGERING COUPLING	AC
TRIGGERING SOURCE	CH1
TRIGGERING LEVEL	Mechanical center, push
TRIGGERING MODE	AUTO
VOLTS/DIV (CH1 and CH2)	5 mV/DIV
A, B SWEEP TIME/DIV	1 ms/DIV
TRACE SEP	Fully CCW
HOLDOFF	Fully CCW, NORM, Push
HORIZONTAL MODE	A
DELAY TIME POSITION	Optimum position

Table 2

ADJUSTMENT

1. POWER SUPPLY AND CRT SECTION ADJUSTMENTS

Item	Adjustment VR (TC)	P.C.B.	Procedure
+ 12 V	VR301	X73-1790	Adjust VR301 so that the voltage at pin 5 of the connector P14 is + 12 V.
CRT Center	VR202	X73-1790	By CH2 post, locate a point at which luminance line does not move on the PULL and PUSH setting of CH2 INV. Keep CH2 post as it is, and adjust VR202 to center on the screen.
Vertical Center Voltage	VR204	X73-1790	With short-circuiting held as it is, adjust VR204 so that the voltage between CRT socket pin "9" and GND is 75 V. * CRT socket pin "9" refers to titanium oxide porcelain capacitor C5. After adjustment, undo the short-circuiting.
Focus Center	VR402	X74-1490	Push the FOCUS knob in (for the FOCUS operation) and then set it to the mechanical center position. Pull the knob out (for the ASTIG operation), display a spot on the screen, and adjust the ASTIG control and VR402 to minimize the dimension of the spot.
B Intensity	VR403	X74-1490	SWEEP A : 0.1 ns/div. SWEEP B : 1 μ s/div. HORIZONTAL MODE ALT Set VR404 nearly at the center. (At that time, check that the difference in luminance between SWEEP A and SWEEP B is explicitly known.)
Intensity	VR401	X74-1490	Display the spot on the CRT screen, and adjust VR401 so that the spot disappears when the INTEN knob is set to the 10-o'clock position.

2. VERTICAL SECTION ADJUSTMENTS

Item	Adjustment VR (TC)	P.C.B.	Procedure
CH1 Waveform Shaping	TC2 TC4	X73-1790	AC-GND-DC : DC Apply 10 kHz square wave to CH1 INPUT (with the amplitude extending over 4 to 6 div). Set CH1 VOLTS/DIV to 0.1 V range (and 1 V range), and adjust TC2 (and TC4) so that the waveform becomes flat in both ranges.
CH2 Waveform Shaping	TC102 TC104	X73-1790	Adjust in the same way as for CH1.
CH1 Input Capacity	TC1 TC3	X73-1790	AC-GND-DC : DC CH1 VOLTS/DIV : 5 mV Connect the capacity meter to the CH1 INPUT, and measure the input capacity in the 5 mV range. Adjust TC1 and TC3, alternately, so that the input capacity in the 0.1 V and the 1 V ranges equals the same capacity as in the 5 mV range.
CH2 Input Capacity	TC101 TC103	X73-1790	Adjust in the same way as for CH1.
CH1 Step ATT Balance	VR1 VR3	X73-1790	Adjust VR3 so that the position of the luminescent line does not change even when the vertical attenuator is selected between 1 and 2 mV range. Switch the range between 2 and 5 mV ranges, and perform the same adjustment using VR1.
CH1 Variable Balance	VR6	X73-1790	VOLTS/DIV : 10 mV Adjust VR6 so that the position of the luminescent line does not change even if the VARIABLE knob is rotated. Vary the settings of the VOLTS/DIV and VARIABLE controls and see if the trace position also moves; if it does, adjust VR1, 3 and 6 again.

ADJUSTMENT

Item	Adjustment VR (TC)	P.C.B.	Procedure
CH2 Step ATT Balance	VR101 VR103	X73-1790	Adjust in the same way as for CH1.
CH2 Variable Balance	VR106	X73-1790	Adjust in the same way as for CH1.
CH1 Position Center	VR7	X73-1790	CH1 POSITION : Mechanical center position CH1 VOLTS/DIV : 5 mV Adjust VR7 so that the trace is located on the center of the screen.
CH2 Position Center	VR107	X73-1790	Adjust in the same way as for CH1.
ADD position	VR201	X73-1790	Set the channel 1 and channel 2 position controls so that the trace is located on the center of the screen and select the vertical MODE switch to ADD position. Adjust VR201 to center the trace vertically.
CH1 Gain	VR9	X73-1790	CH1 VOLTS/DIV : 5 mV Input a square wave signal having an amplitude of 20 mV, and adjust VR9 so that the CRT amplitude becomes 4 div.
CH1 1 mV Range Gain	VR4	X73-1790	CH1 VOLTS/DIV : 1 mV Input a square wave signal having an amplitude of 5 mV, and adjust VR4 so that the CRT amplitude becomes 5 div.
CH2 Gain	VR109	X73-1790	Adjust in the same way as for CH1.
CH2 1 mV Range Gain	VR104	X73-1790	Adjust in the same way as for CH1.
X Gain	VR2	X74-1490	CH2 VOLTS/DIV : 5 mV HORIZONTAL MODE: X-Y Input the square wave signal having an amplitude of 20 mV into CH2 INPUT, and adjust VR2 so that the CRT amplitude in the horizontal direction becomes 4 div.

ADJUSTMENT

3. TRIGGER SECTION ADJUSTMENTS

Item	Adjustment VR (TC)	P.C.B.	Procedure
Trigger Level Center	VR1	X74-1490	<p>TRIGGERING MODE : AUTO SOURCE : CH1 COUPLING : AC LEVEL : Mechanical center position CH1 VOLTS/DIV : 5 mV</p> <p>Input a 1 kHz sine wave into CH1 INPUT, and adjust the oscillator so that the CRT amplitude becomes 6 div. Adjust VR1 so that start point of the luminescent line is at the center of the CRT (vertical direction).</p>
CH1 Trigger DC Coupling	VR11	X73-1790	<p>After adjusting the trigger level center, set the TRIGGERING COUPLING to the DC position. Adjust VR11 so that the start point of the luminescent line is at the same position as in the AC mode.</p>
CH2 Trigger DC Coupling	VR111	X73-1790	<p>TRIGGERING MODE : AUTO SOURCE : CH2 COUPLING : AC CH2 VOLTS/DIV : 5 mV</p> <p>Input a 1 kHz sine wave to CH2 INPUT, and adjust the oscillator so that the CRT amplitude becomes 6 div. Adjust the TRIGGERING LEVEL so that the start point of the luminescent line is at the center of the CRT. Set the TRIGGERING COUPLING to the DC position. Adjust VR111 so that the start point of the luminescent line is at the same position as in the AC mode.</p>

4. HORIZONTAL SECTION ADJUSTMENTS

Item	Adjustment VR (TC)	P.C.B.	Procedure
B Sweep Start Point	VR202	X74-1490	<p>HORIZONTAL MODE : ALT A and B SWEEP TIME/DIV: 1 ms Adjust VR202 to coincide the start point of B sweep with that of A sweep.</p>
1 ms Range Sweep Time	VR101 VR201	X74-1490	<p>SWEEP TIME/DIV : 1 ms Input a 1 ms marker signal into CH1 INPUT. Adjust VR201 so that the peak of the marker signal matches the CRT scale divided in 1 div.</p>
10 μ s Range Sweep Time	TC101 TC201	X74-1490	<p>SWEEP TIME/DIV : 10 μs Input a 10 μs marker signal into CH1 INPUT, and adjust in the same way as for 1 μs adjustment.</p>
$\times 10$ MAG Gain	VR302	X74-1490	<p>HORIZONTAL MODE : A A SWEEP TIME/DIV : 1 ms Input a 1 ms marker signal into CH1 INPUT, and match the peak of the marker signal with the CRT scale divided in 1 div. Pull the PULL $\times 10$ MAG knob (to set to the $\times 10$ MAG status), and adjust VR302 so that the interval between peaks becomes 10 div.</p>
$\times 10$ MAG Center	VR301	X74-1490	<p>A SWEEP TIME/DIV : 1 ms Input a 5 ms marker signal into CH1 INPUT. Pull the PULL $\times 10$ MAG knob (to set to the $\times 10$ MAG status), and adjust the horizontal POSITION so that the peak of the waveform is at the vertical scale line at the center of the CRT. Push the PULL $\times 10$ MAG knob (to release the $\times 10$ MAG mode) and adjust VR301 so that the peak of the waveform matches the vertical scale line at the center of the CRT.</p>

ADJUSTMENT

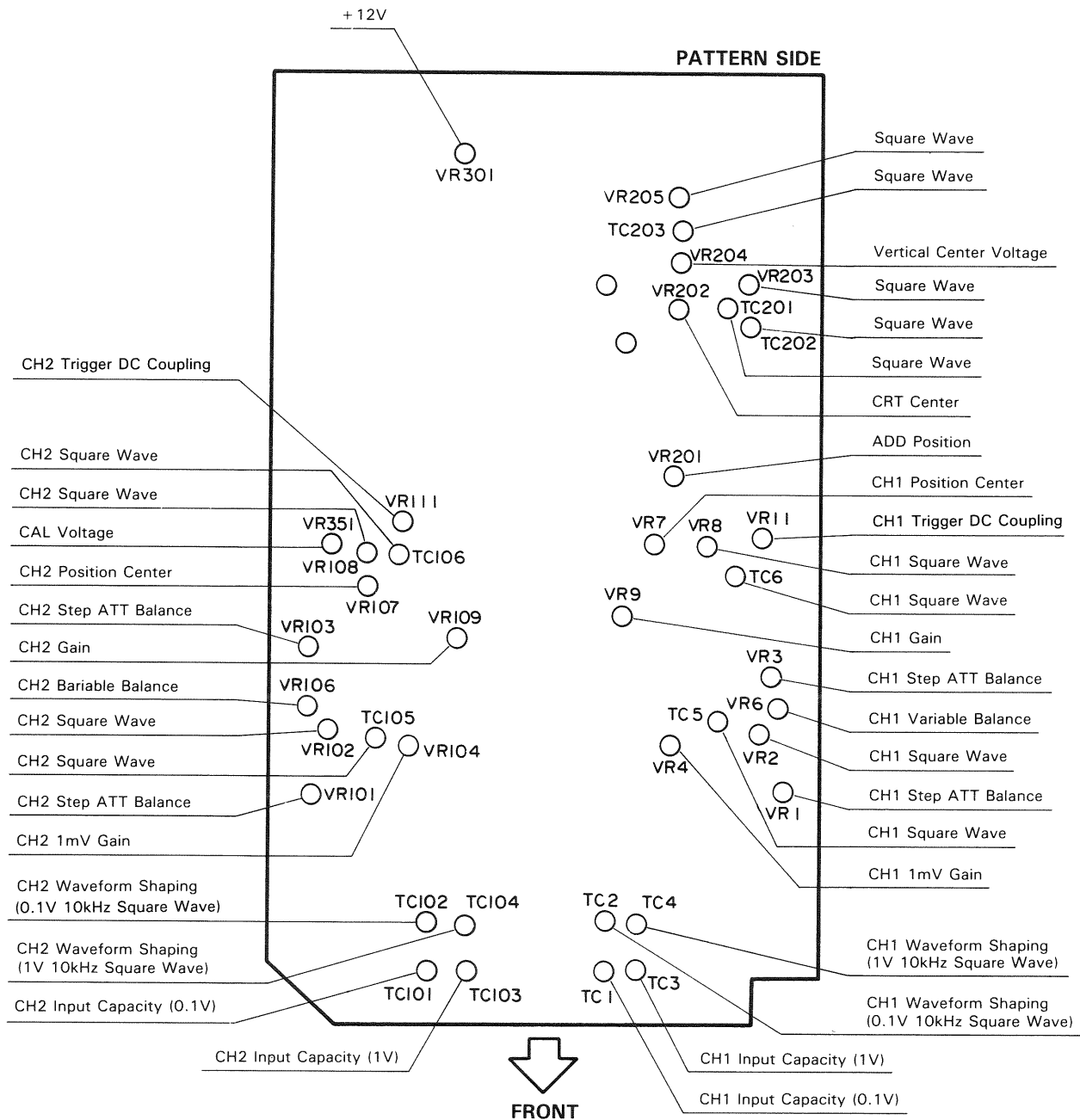
Item	Adjustment VR (TC)	P.C.B.	Procedure
Delay Time Position	VR203 VR204	X74-1490	<p>HORIZONTAL MODE : ALT A SWEEP TIME/DIV : 0.1 ms B SWEEP TIME/DIV : 1 μs</p> <p>Operate ◀▶ POSITION to bring the starting point of A trace to the left end of the graticule line on the CRT screen.</p> <p>Adjust VR203 so that B trace may appear on 0.2 div position when rotated the DELAY TIME POSITION control to counter-clockwise.</p> <p>Adjust VR204 so that B trace may appear on 10.2 div position when rotated the DELAY TIME POSITION control to clockwise.</p> <p>Repeat above 2 or 3 times.</p>
X Position Center	VR3	X74-1490	<p>Adjust the horizontal POSITION knob so that the sweep start point moves to the vertical scale line at the left end of CRT.</p> <p>Switch to the X-Y mode and adjust VR3 to bring the spot to the center of CRT screen.</p>

5. OVERSHOOT AND CAL ADJUSTMENTS

Item	Adjustment VR (TC)	P.C.B.	Procedure
Overshoot	<For CH1 > VR205 TC203 VR203 TC201 TC202 VR8 TC6 VR2 TC5 <For CH2 > VR108 TC106 VR102 TC105	X73-1790	<p>CH1, 2 VOLTS/DIV : 5 mV CH1, 2 AC-GND-DC : DC SWEEP TIME/DIV : 0.2 μs PULL X10 MAG : PULL CH1/2 ATT : 6 mV/div. AC-GND-DC : DC Sweep time : 0.2 μs/div.</p> <p>Connect the oscilloscope to CH1 OUT on the rear. (5 mV/div range) Input a 1 MHz square wave signal to CH1 INPUT 6 divisions.</p> <ul style="list-style-type: none"> • Perform a rough adjustment in the following procedure so as to suppress overshoot down to as less as possible. <ol style="list-style-type: none"> 1. VR205 and TC203 for low frequency band. 2. VR203, TC201 and TC202 for middle to high frequency band. 3. VR5 and TC6 for middle frequency band. • Set the square wave at CH1 OUT to a quantity of 6 divisions, and adjust VR2 and TC5 so that the square wave at CH1 out is formed as shown on the right. • Adjust the waveform in the following procedure. <ol style="list-style-type: none"> 1. VR8 and TC6 for middle frequency band. 2. VR203, TC201 and TC202 for middle to high frequency band. 3. VR205 and TC203 for low frequency band. • Input a 1 MHz square wave signal to CH2 INPUT 6 divisions. • Adjust the waveform. <ol style="list-style-type: none"> 1. TC106 and VR108 for middle frequency band. 2. TC105 and VR102 for high frequency band. <p>After adjustment, check if the frequency response is adequate in more than 4.8 divisions.</p>
CAL Adjustment	VR351	X73-1790	<p>Connect the oscilloscope to the CAL terminal and set it to 0.2 V/div. Adjust VR351 so that the amplitude is of 5 divisions for 40 MHz input.</p>

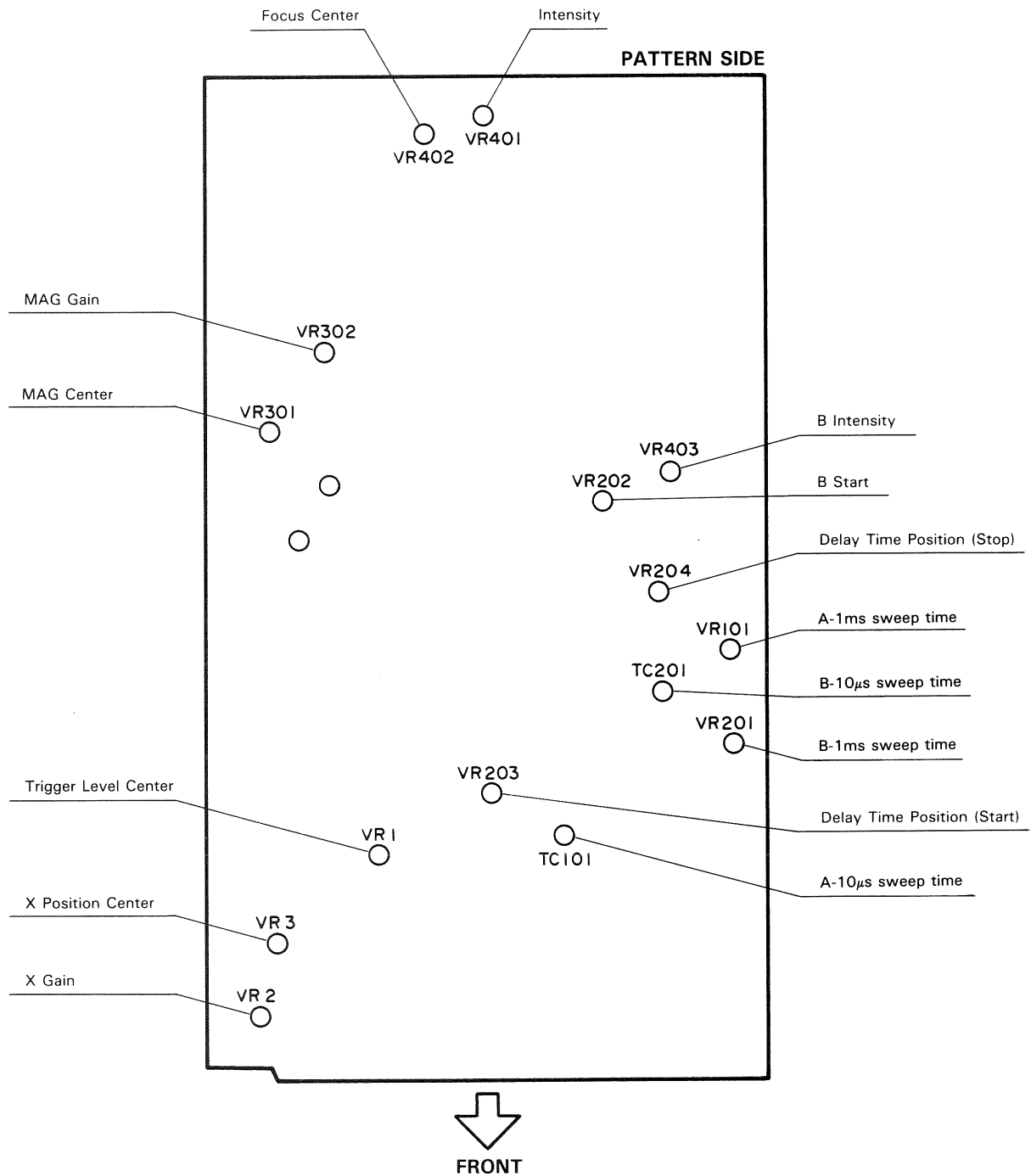
ADJUSTMENT

VERTICAL UNIT (X73-1790-00)

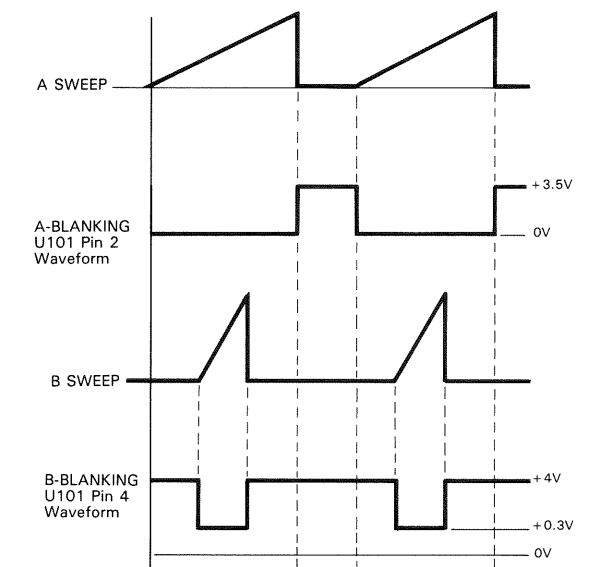
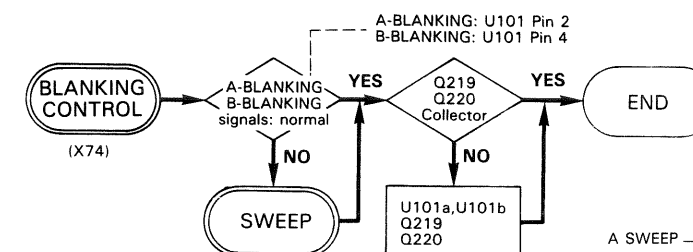
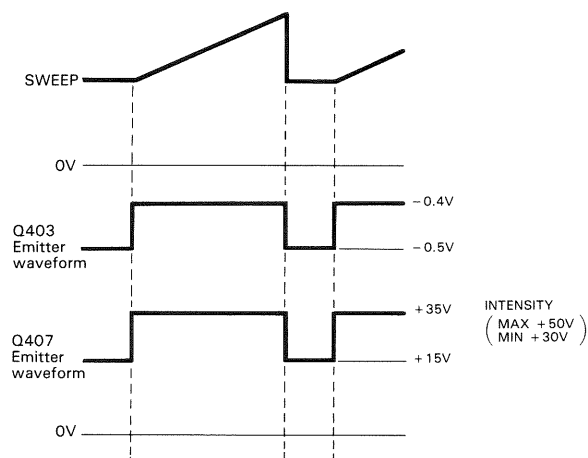
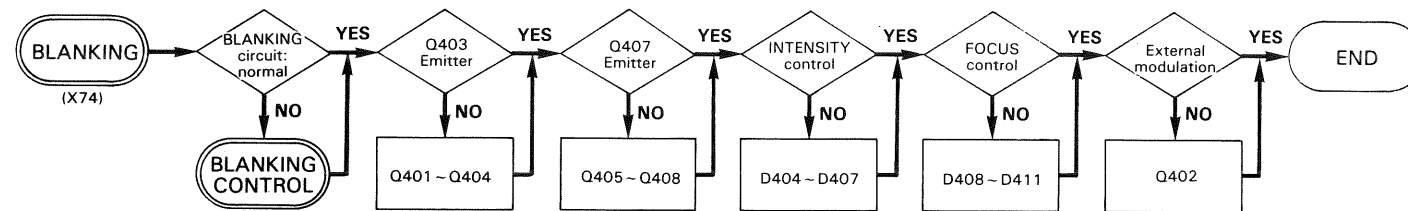
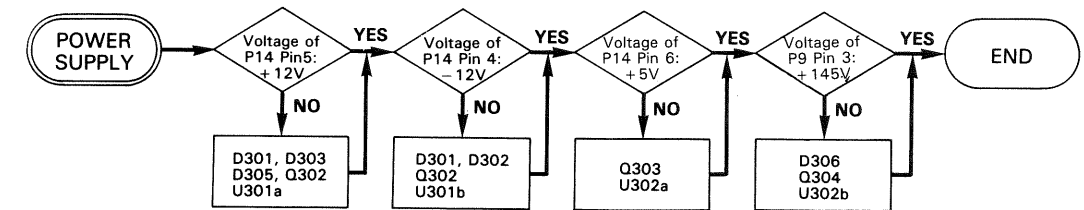
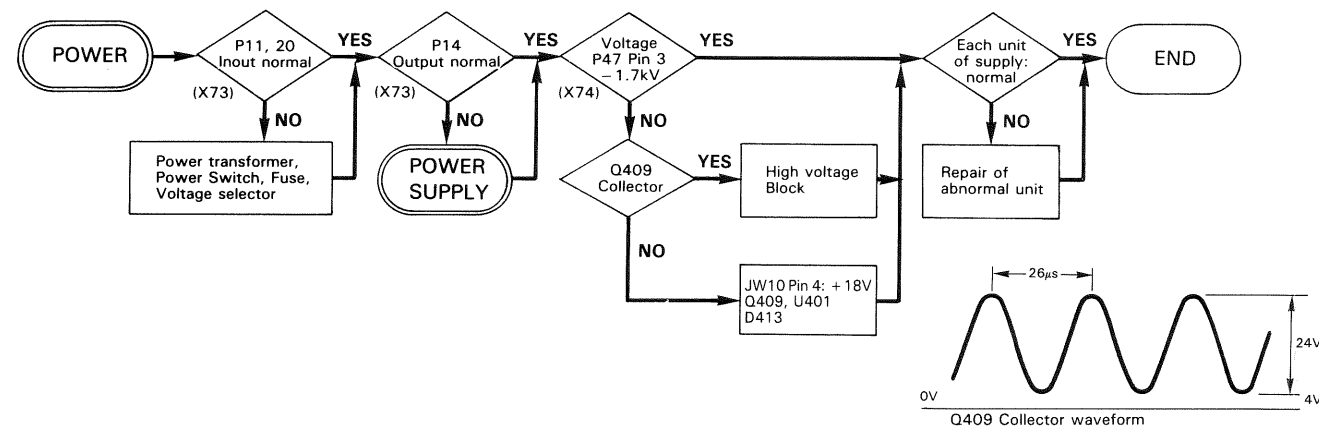
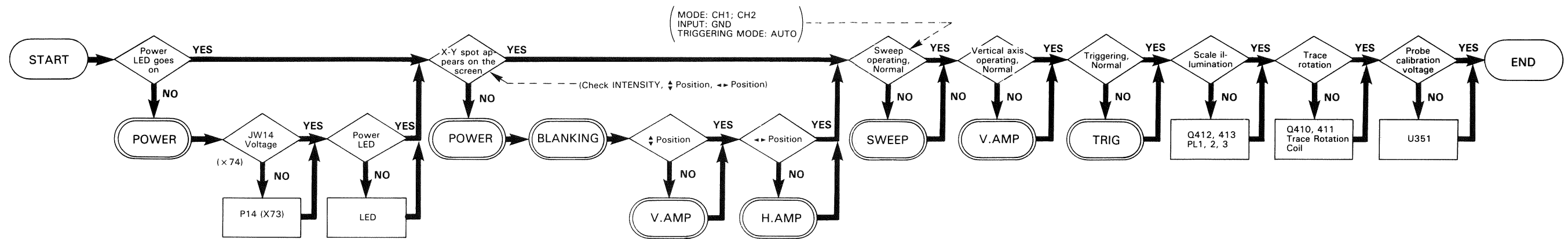


ADJUSTMENT

HORIZONTAL UNIT (X74-1490-00)



TROUBLESHOOTING



TROUBLESHOOTING

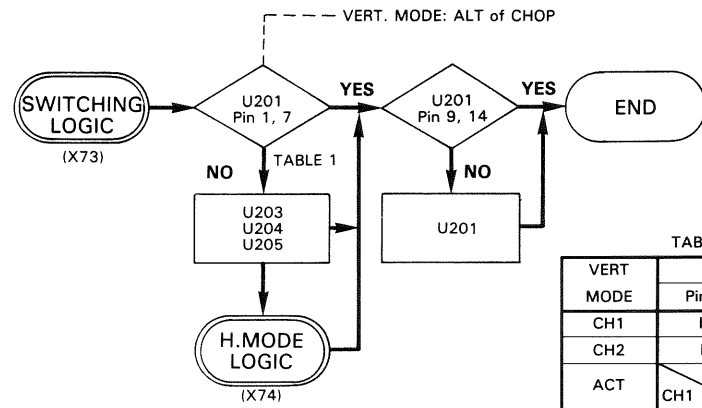
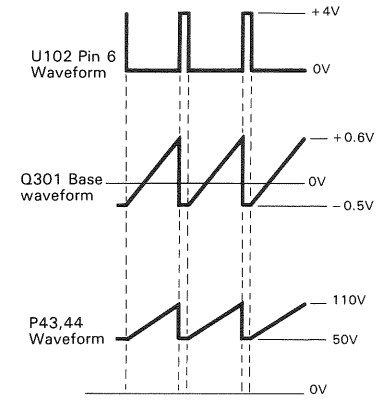
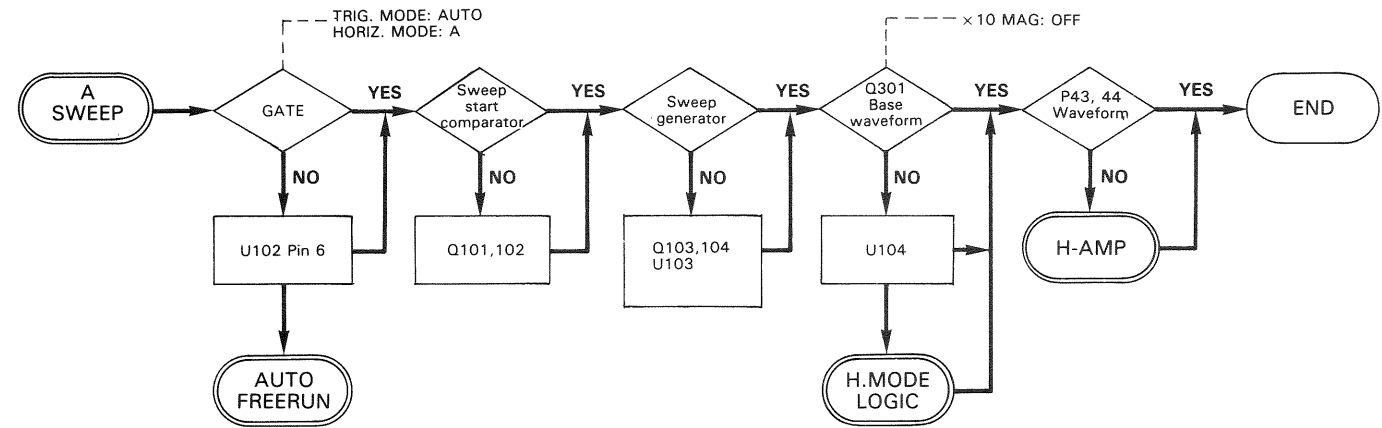
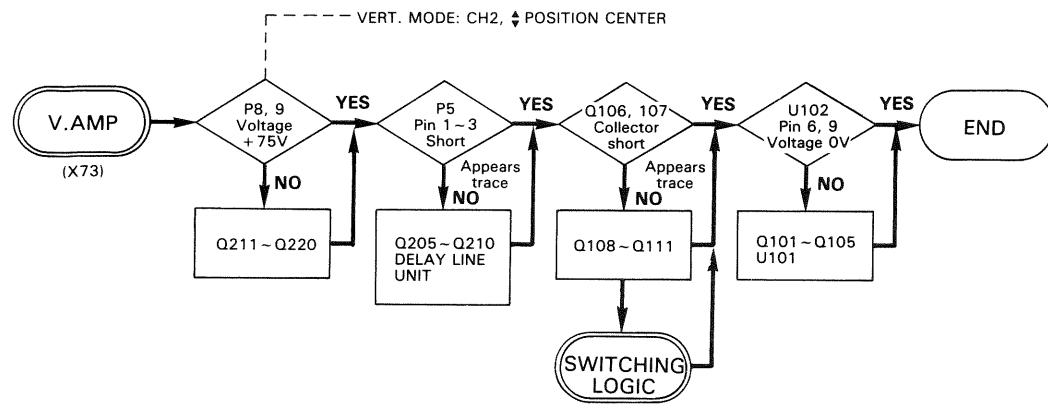


TABLE 1

VERT MODE	U201	
	Pin 1	Pin 7
CH1	H	H
CH2	L	L
ACT	CH1 / CH2	CH1 / CH2
CHOD	CH1 / CH2	CH1 / CH2
ADD	L	H

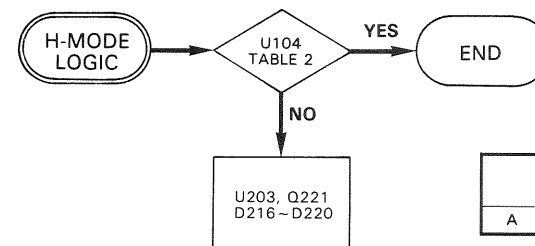
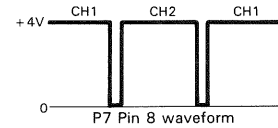
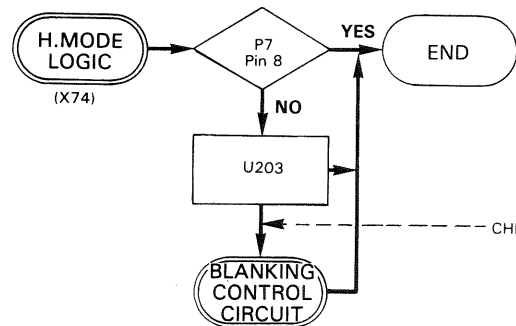
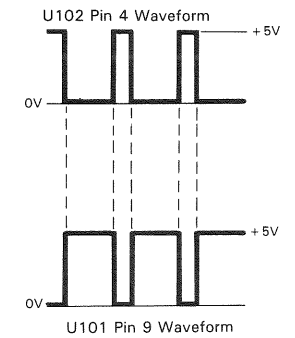
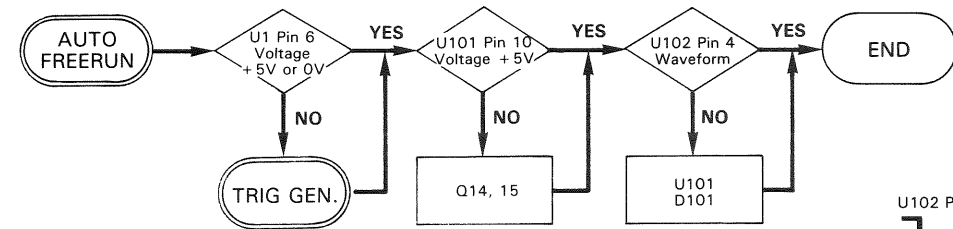


TABLE 2

	U104			
	Pin 9	Pin 10	Pin 11	Pin 15
A	H	H	L	L

TROUBLESHOOTING

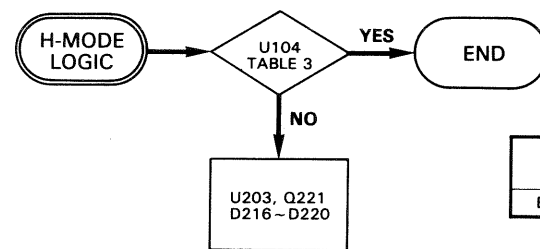
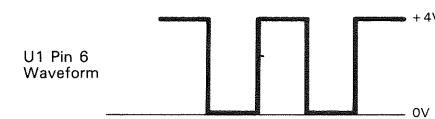
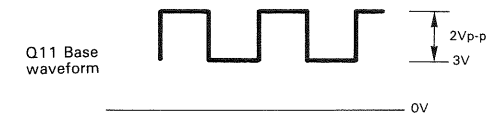
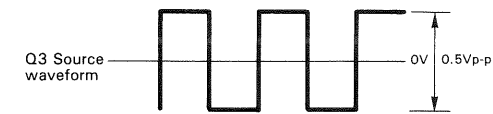
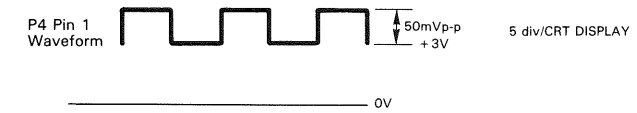
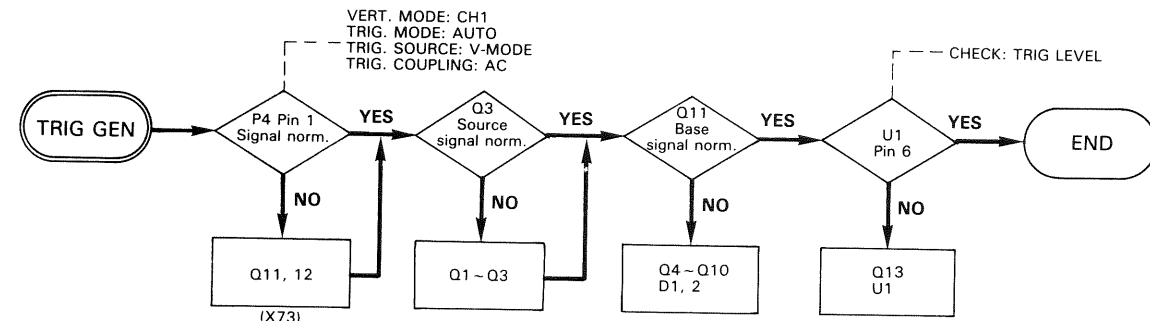
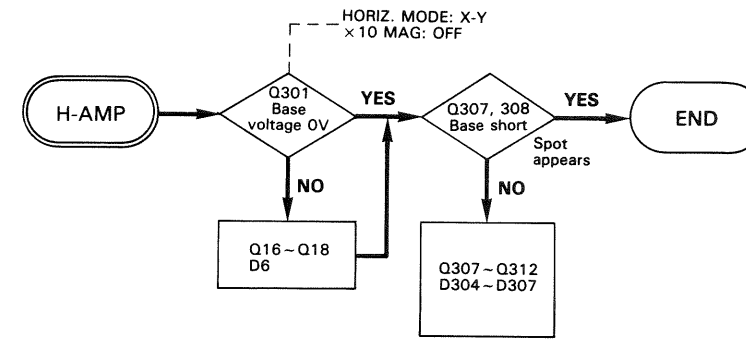
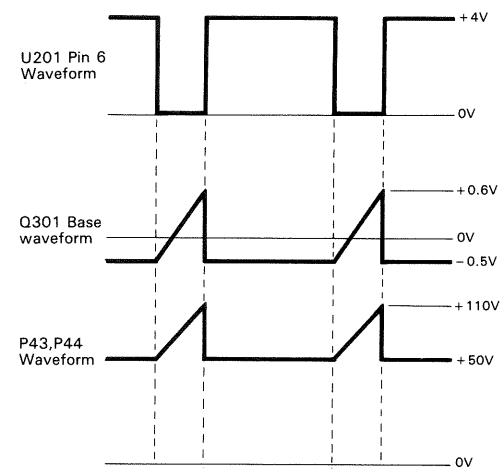
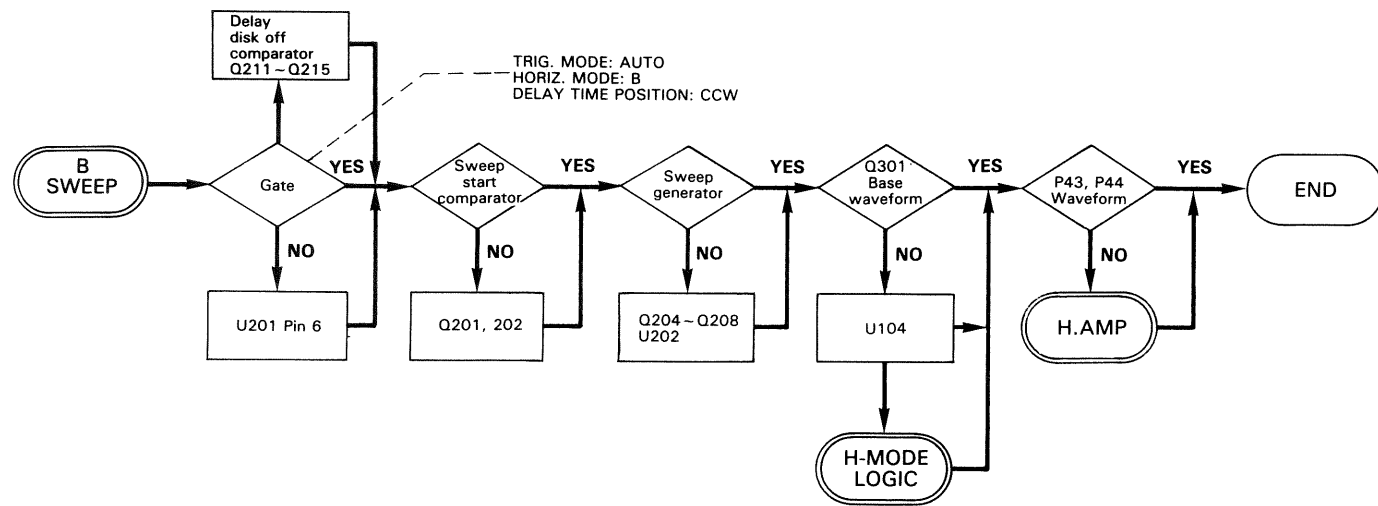


TABLE 3

U104				
	Pin 9	Pin 10	Pin 11	Pin 15
B	H	L	H	H

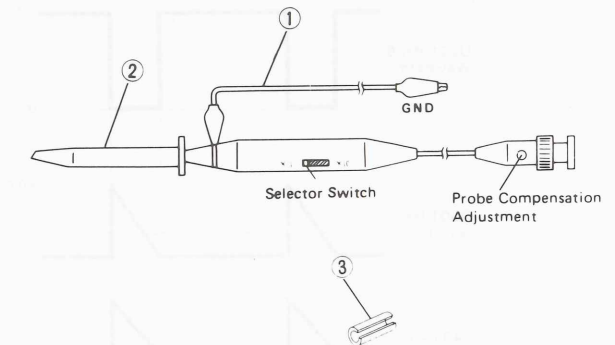
PARTS LIST

CS-5135 UNIT Y70-1600-00

REF. NO	PARTS NO	NAME & DESCRIPTION
	A20-2825-03	PANEL ASS'Y
	B30-0952-05	LAMP (T4.2 BV 0.15A)
	B41-0710-04	CAUTION LABEL (HIGH VOLTAGE)
	B50-7666-10	INSTRUCTION MANUAL (JAPANESE)
	E31-0564-05	WIRE ASS'Y(GND GREEN)
	E31-5502-05	WIRE ASS'Y(CH1 OUT P1)
	E31-5509-05	WIRE ASS'Y(CAL)
	E31-5516-05	WIRE ASS'Y(EXT. TRIG)
	E31-5519-05	WIRE ASS'Y(READY LED)
	E31-5521-05	WIRE ASS'Y(DELAY LINE)
	E31-5526-05	WIRE ASS'Y(Z AXIS P45)
	E31-5543-05	WIRE HARNESS
	F05-1023-05	FUSE(6X30MM) 1A
	F05-5013-05	FUSE(6X30MM) 0.5A
	F05-5016-05	FUSE(SX20MM) 500MAT
	H01-5887-04	CARTON BOX
	H10-2828-12	FOAMED STYRENE PAD (FRONT)
	H10-2829-12	FOAMED STYRENE PAD (REAR)
	H20-1727-04	VINYL COVER
	H25-0029-04	POLYETHYLENE BAG (FUSE)
	J61-0408-05	WIRE WRAPPING BAND
	W03-2308-05	PROBE (PC-30)
C1	CC45CH1H101J	CAP. CERAMIC 100P 5% 50V
C2	CC45CH1H101J	CAP. CERAMIC 100P 5% 50V
R1	RD148B2E220J	RES. CARBON 22 5% 1/4W
R2	RD148B2E220J	RES. CARBON 22 5% 1/4W
1	A01-1154-22	CASE(BOTTOM)
2	A01-1193-02	CASE(TOP)
3	A13-0914-02	FRAME (L)
4	A13-0917-02	FRAME (R,LOWER)
5	A13-0922-22	FRAME (CENTER)
6	A13-0923-02	FRAME (R,UPPER)
7	A20-2822-21	MOLDED PANEL
8	A21-1134-03	DECORATIVE PANEL
9	A22-0870-02	SUB PANEL
10	A23-1682-02	REAR PANEL
11	B07-0716-03	FILTER FRAME
12	B19-0749-04	FILTER
13	B30-0951-25	SCALE ILLUMI LAMP ASS'Y
14	B30-0957-05	LED (LN322GPT)
15	B40-2765-04	NAME PLATE (SERIAL NO)
16	B40-2908-03	NAME PLATE (MODEL)
17	B41-0801-04	CAUTION LABEL
18	D21-0915-04	EXTENSION SHAFT
19	D22-0501-04	JOINT & COUPLING
20	E04-0259-05	BNC RECEPTACLE
21A	E18-0365-05	AC SELECTOR WITH 6X30MM FUSE
21B	E18-0366-15	AC SELECTOR WITH 5X20MM FUSE
22	E21-0660-04	TERMINAL,CAL
23	E21-0667-05	METAL TERMINAL
24	E23-0513-05	EARTH LUG,BNC
25	E23-0552-04	EARTH TERMINAL
26A	E30-1818-05	JIS POWER CORD
26B	E30-1819-05	CEE POWER CORD
26C	E30-1820-05	UL/CSA POWER CORD
26D	E30-1821-05	SAA POWER CORD
26E	E30-1644-15	BS POWER CORD
27	F09-0512-04	EDGING
28	F11-1206-03	CRT SHIELD
29	F15-0733-04	FELT (CRT SHIELD)
30	F20-0658-04	INSULATED SHEET
31	F20-0667-04	INSULATED SHEET
32	F20-0685-14	INSULATED SHEET
33	G01-0909-04	COIL SPRING (CAL SHIELD)
34	J02-0089-05	RUBBER FOOT(REAR)
35	J02-0512-05	FOOT(SMALL)
36	J02-0515-04	TILT STAND
37	J10-0418-12	BEZEL
38	J19-1651-04	BLACKET
39	J19-1652-04	BLACKET FOR P.C.B.
40	J19-1653-13	HOLDER FOR CRT
41	J19-1654-14	HOLDER FOR LED
42	J21-2573-04	HOLDER FOR LEG
43	J21-4594-23	BRACKET FOR CRT
45	J30-0623-04	SPACER
46	J42-0533-04	BUSHING (FREE)
47	J59-0403-05	NYLON RIVET (ILLUMI)
48	J61-0509-05	WIRE WRAPPING BAND
49	K01-0409-05	HANDLE
50	K21-0892-03	KNOB (VOLTS/DIV)
51	K21-0895-13	KNOB
52	K21-0896-13	KNOB
53	K21-0897-14	KNOB
54	K21-0899-04	KNOB
55	K23-0808-03	KNOB

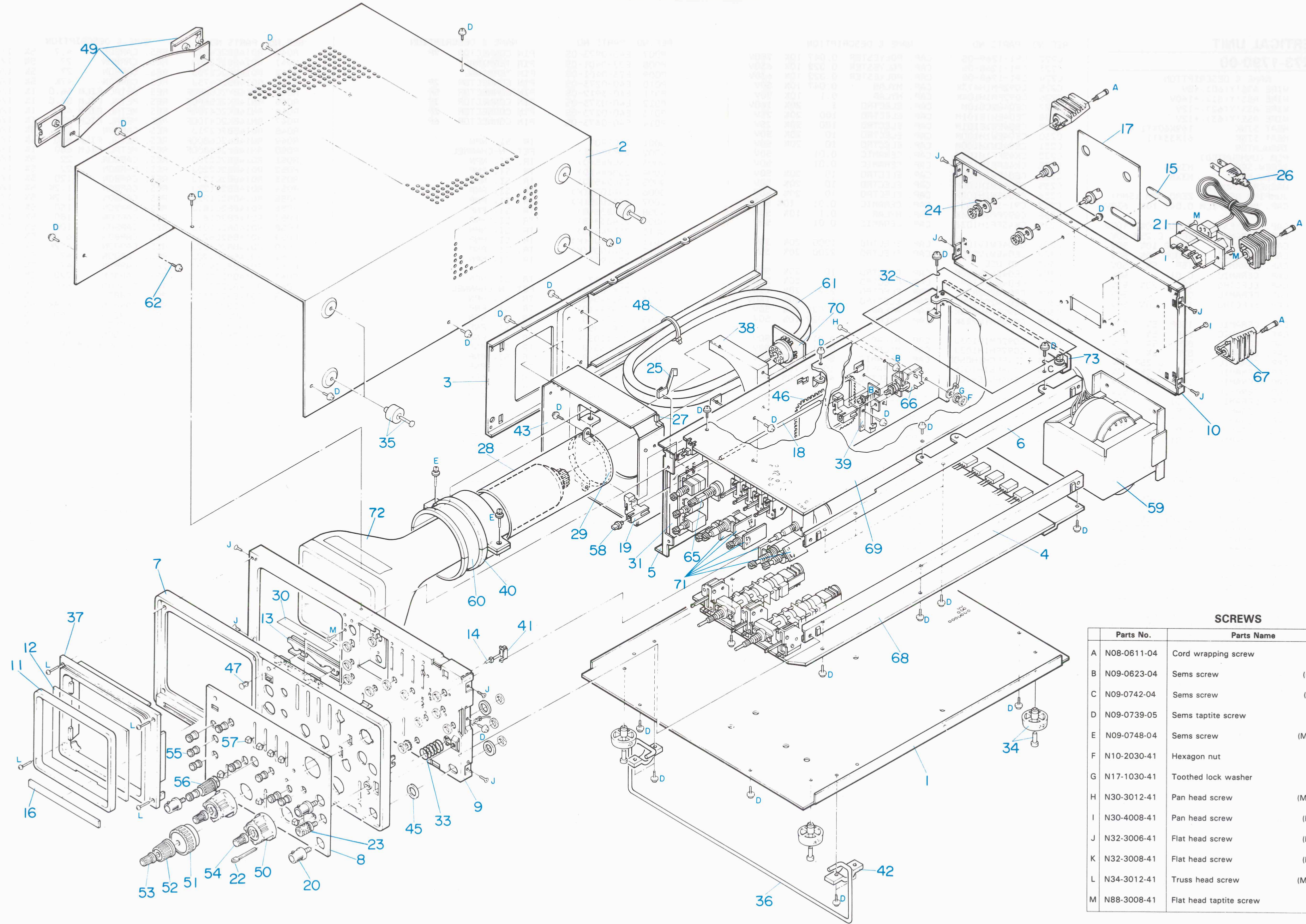
REF. NO	PARTS NO	NAME & DESCRIPTION
56	K23-0809-03	KNOB
57	K27-0537-04	KNOB, FOR LEVER SWITCH
58	K27-0538-04	KNOB (FOR PUSH SWITCH)
59	L01-9736-05	POWER TRANSFORMER
60	L39-0526-25	ROTATOR COIL
61	L76-0114-05	DELAY LINE
62	N09-0777-05	SEMS SCREW(M4X6)
65	R29-1501-05	V.R. 1KB
66	S40-2524-05	PUSH SWITCH (POWER)
67	W01-0503-04	REAR RUBBER FOOT/CORD WRAP
68	X73-1790-00	VERTICAL UNIT
69	X74-1490-00	HORIZONTAL UNIT
70	X80-1060-02	LINE FILTER UNIT
71	X81-2710-00	VR UNIT
72	150VTM31	CRT
73	A13-0942-13	FRAME

MODEL PC-30 (LOW CAPACITY PROBE)



ITEM	DESCRIPTION	PARTS NO.
①	Ground Wire Assembly	E30-1883-08
②	Retractable Hook Tip	E29-0540-08
③	Marker (Orange)	B42-1950-08

DISASSEMBLY



SCREWS

Parts No.	Parts Name	Figure
A N08-0611-04	Cord wrapping screw	
B N09-0623-04	Sems screw (M3 x 8)	
C N09-0742-04	Sems screw (M3 x 8)	
D N09-0739-05	Sems taptite screw (3 x 8)	
E N09-0748-04	Sems screw (M4 x 12)	
F N10-2030-41	Hexagon nut	
G N17-1030-41	Toothed lock washer	
H N30-3012-41	Pan head screw (M3 x 12)	
I N30-4008-41	Pan head screw (M4 x 8)	
J N32-3006-41	Flat head screw (M3 x 6)	
K N32-3008-41	Flat head screw (M3 x 8)	
L N34-3012-41	Truss head screw (M3 x 12)	
M N88-3008-41	Flat head taptite screw (3 x 8)	

PARTS LIST

PARTS LIST

VERTICAL UNIT

X73-1790-00

REF. NO	PARTS NO	NAME & DESCRIPTION
	E31-5544-05	WIRE ASS'Y(60).+5V
	E31-5545-05	WIRE ASS'Y(61).+160V
	E31-5546-05	WIRE ASS'Y(62).-12V
	E31-5547-05	WIRE ASS'Y(63).+12V
	F01-0863-03	HEAT SINK 169X60XT1.6
	F01-0864-04	HEAT SINK 61X33XT1
	F20-0516-05	INSULATOR
	J25-5258-12	PCB (UNMOUNTED)
	N09-0626-04	SCREW,SEMS M3X10
	N09-0742-04	SCREW,SEMS M3X8
	N19-0191-05	WASHER NONMETAL
	R92-1061-05	JUMPING RES. ZERO OHM (SMM)
C001	C91-0501-05	CAP. METAL FILM 0.047 10% 630V
C004	C91-1270-05	CAP. POLYESTER 0.001 10% 400V
C005	CC45FCH1H020C	CAP. CERAMIC 2P 0.25P 50V
C006	CK45FB1H102K	CAP. CERAMIC 1000P 10% 50V
C007	CK45FB1H102K	CAP. CERAMIC 1000P 10% 50V
C008	CC45FCH1H150J	CAP. CERAMIC 15P 5% 50V
C009	CK45FF1H103Z	CAP. CERAMIC 0.01 50V
C010	CE04EW1H100M	CAP. ELECTRO 10 20% 50V
C011	CK45FF1H103Z	CAP. CERAMIC 0.01 50V
C012	CE04EW1H100M	CAP. ELECTRO 10 20% 50V
C015	CC45FSL1H151J	CAP. CERAMIC 150P 5% 50V
C016	CC45FCH1H560J	CAP. CERAMIC 56P 5% 50V
C017	CC45FCH1H820J	CAP. CERAMIC 82P 5% 50V
C018	CC45FCH1H820J	CAP. CERAMIC 82P 5% 50V
C019	CC45FCH1H050C	CAP. CERAMIC 5P 0.25P 50V
C020	CC45FCH1H050C	CAP. CERAMIC 5P 0.25P 50V
C021	CC45FCH1H101J	CAP. CERAMIC 100P 5% 50V
C022	CK45FF1H103Z	CAP. CERAMIC 0.01 50V
C023	CK45FF1H103Z	CAP. CERAMIC 0.01 50V
C024	CC45FCH1H270J	CAP. CERAMIC 27P 5% 50V
C025	CK45FF1H103Z	CAP. CERAMIC 0.01 50V
C026	CC45FCH1H470J	CAP. CERAMIC 47P 5% 50V
C027	CK45FF1H103Z	CAP. CERAMIC 0.01 50V
C028	NO USE	
C029	CE04BW1E330M	CAP. ELECTRO 33 20% 25V
C030	CE04EW1H100M	CAP. ELECTRO 10 20% 50V
C031	CK45FB1H102K	CAP. CERAMIC 1000P 10% 50V
C101	C91-0501-05	CAP. METAL FILM 0.047 10% 630V
C104	C91-1270-05	CAP. POLYESTER 0.001 10% 400V
C105	CC45FCH1H020C	CAP. CERAMIC 2P 0.25P 50V
C106	CK45FB1H102K	CAP. CERAMIC 1000P 10% 50V
C107	CK45FB1H102K	CAP. CERAMIC 1000P 10% 50V
C108	CC45FCH1H150J	CAP. CERAMIC 15P 5% 50V
C109	CK45FF1H103Z	CAP. CERAMIC 0.01 50V
C110	CE04EW1H100M	CAP. ELECTRO 10 20% 50V
C111	CK45FF1H103Z	CAP. CERAMIC 0.01 50V
C112	CE04EW1H100M	CAP. ELECTRO 10 20% 50V
C115	CC45FSL1H151J	CAP. CERAMIC 150P 5% 50V
C116	CC45FCH1H560J	CAP. CERAMIC 56P 5% 50V
C117	CC45FCH1H820J	CAP. CERAMIC 82P 5% 50V
C118	CC45FCH1H820J	CAP. CERAMIC 82P 5% 50V
C119	CC45FCH1H050C	CAP. CERAMIC 5P 0.25P 50V
C120	CC45FCH1H050C	CAP. CERAMIC 5P 0.25P 50V
C121	CC45FCH1H101J	CAP. CERAMIC 100P 5% 50V
C122	CK45FF1H103Z	CAP. CERAMIC 0.01 50V
C123	CK45FF1H103Z	CAP. CERAMIC 0.01 50V
C124	CK45FF1H103Z	CAP. CERAMIC 0.01 50V
C125	CK45FF1H103Z	CAP. CERAMIC 0.01 50V
C126	CC45FCH1H470J	CAP. CERAMIC 47P 5% 50V
C127	CK45FF1H103Z	CAP. CERAMIC 0.01 50V
C128	CK45FB1H102K	CAP. CERAMIC 1000P 10% 50V
C129	CC45FCH1H470J	CAP. CERAMIC 47P 5% 50V
C205	CK45FF1H103Z	CAP. CERAMIC 0.01 50V
C206	CK45FF1H103Z	CAP. CERAMIC 0.01 50V
C207	CC45FSL1H681J	CAP. CERAMIC 680P 5% 50V
C208	CK45FF1H103Z	CAP. CERAMIC 0.01 50V
C209	CK45FF1H103Z	CAP. CERAMIC 0.01 50V
C210	CK45FF1H103Z	CAP. CERAMIC 0.01 50V
C211	CK45FF1H103Z	CAP. CERAMIC 0.01 50V
C214	CC45FCH1H070D	CAP. CERAMIC 7P 0.5P 50V
C215	CC45FCH1H070D	CAP. CERAMIC 7P 0.5P 50V
C216	CK45FF1H103Z	CAP. CERAMIC 0.01 50V
C217	CK45FF1H103Z	CAP. CERAMIC 0.01 50V
C218	CC45FCH1H150J	CAP. CERAMIC 15P 5% 50V
C219	CC45FCH1H0R5C	CAP. CERAMIC 0.5P 0.25P 50V
C220	CC45FCH1H0R5C	CAP. CERAMIC 0.5P 0.25P 50V
C221	C91-1269-05	CAP. POLYESTER 0.047 10% 250V

REF. NO	PARTS NO	NAME & DESCRIPTION
C222	C91-1269-05	CAP. POLYESTER 0.047 10% 250V
C223	C91-1268-05	CAP. POLYESTER 0.022 10% 630V
C224	C91-1268-05	CAP. POLYESTER 0.022 10% 630V
C225	C092FM1H473K	CAP. MYLAR 0.047 10% 50V
C226	C092FM1H104K	CAP. MYLAR 0.1 10% 50V
C227	CE04W2C010M	CAP. ELECTRO 1 20% 160V
C228	CE04EW1E101M	CAP. ELECTRO 100 20% 25V
C229	CE04EW1E101M	CAP. ELECTRO 100 20% 25V
C230	CE04EW1H100M	CAP. ELECTRO 10 20% 50V
C231	CE04EW1H100M	CAP. ELECTRO 10 20% 50V
C232	CK45FF1H103Z	CAP. CERAMIC 0.01 50V
C233	CK45FF1H103Z	CAP. CERAMIC 0.01 50V
C234	CE04EW1H100M	CAP. ELECTRO 10 20% 50V
C235	CE04EW1H100M	CAP. ELECTRO 10 20% 50V
C236	CE04EW1H100M	CAP. ELECTRO 10 20% 50V
C237	C91-1309-05	CAP. CERAMIC 0.01 10% 500V
C238	C092FM1H104K	CAP. MYLAR 0.1 10% 50V
C239	CK45FF1H103Z	CAP. CERAMIC 0.01 50V
C301	CE04EW1V102M	CAP. ELECTRO 1000 20% 35V
C302	CE04EW1V222M	CAP. ELECTRO 2200 20% 35V
C303	NO USE	
C304	CE04EW1H100M	CAP. ELECTRO 10 20% 50V
C305	CE04W2E470M	CAP. ELECTRO 47 20% 250V
C306	CE04W2E2R2M	CAP. ELECTRO 2.2 20% 250V
C307	CE04W2C010M	CAP. ELECTRO 1 20% 160V
C308	C092FM1H223K	CAP. MYLAR 0.022 10% 50V
C309	C092FM1H223K	CAP. MYLAR 0.022 10% 50V
C351	C092FM1H103J	CAP. MYLAR 0.01 5% 50V
C352	C092FM1H103J	CAP. MYLAR 0.01 5% 50V
C353	CC45FCH1H050C	CAP. CERAMIC 5P 0.25P 50V
C354	CK45FB1H102K	CAP. CERAMIC 1000P 10% 50V
C355	CE04EW1E470M	CAP. ELECTRO 47 20% 25V
C804	CK45F1H103Z	CAP. CERAMIC 0.01 50V
D001	1S1588	DIODE
D002	1S1588	DIODE
D003	1S1588	DIODE
D004	1S1588	DIODE
D005	1SS132	DIODE
D006	1SS132	DIODE
D007	1SS132	DIODE
D101	1S1588	DIODE
D102	1S1588	DIODE
D103	1S1588	DIODE
D104	1S1588	DIODE
D105	1SS132	DIODE
D106	1SS132	DIODE
D201	1SS132	DIODE
D202	1SS132	DIODE
D203	1SS132	DIODE
D204	1SS132	DIODE
D205	MA700	DIODE
D206	MA700	DIODE
D207	H22(B3)	DIODE, ZENER 2.2V
D208	H22(B3)	DIODE, ZENER 2.2V
D209	1S1588	DIODE
D210	1S1588	DIODE
D211	1S1588	DIODE
D212	1S1588	DIODE
D301	1G4B42	DIODE
D302	H2S13J(B2)	DIODE, ZENER 13.21V
D303	H2S13J(B2)	DIODE, ZENER 13.21V
D304	1SS132	DIODE
D305	H2S5.6J(B2)	DIODE, ZENER 5.62V
D306	1G4B42	DIODE
D307	1SS132	DIODE
D403	MA700	DIODE
D404	MA700	DIODE
D405	MA700	DIODE
D406	MA700	DIODE
JW071	E31-5766-05	WIRE ASS'Y(FOR 2SD1666)
L201	L40-2282-13	AXIAL COIL 0.22UH
L202	L40-2282-13	AXIAL COIL 0.22UH
P001	E40-0273-05	PIN CONNECTOR 2P
P002	E40-0373-05	PIN CONNECTOR 3P
P003	E40-0773-05	PIN CONNECTOR 7P
P004	E40-0273-05	PIN CONNECTOR 2P
P005	E40-0373-05	PIN CONNECTOR 3P
P006	E40-0373-05	PIN CONNECTOR 3P

REF. NO	PARTS NO	NAME & DESCRIPTION
P007	E40-0973-05	PIN CONNECTOR 9P
P008	E23-0401-05	PIN TERMINAL
P009	E23-0401-05	PIN TERMINAL
P010	E40-0273-05	PIN CONNECTOR 2P
P011	E40-3912-05	PIN CONNECTOR 5P
P012	E40-0373-05	PIN CONNECTOR 3P
P013	E40-0273-05	PIN CONNECTOR 2P
P014	E40-0673-05	PIN CONNECTOR 6P
Q001	2SC1907	TR. SI. NPN
Q002	2SK304(E)	FET. N-CHANNEL
Q003	2SC945(Q)	TR. SI. NPN
Q004	2SA844(D)	TR. SI. PNP
Q005	2SC945(Q)	TR. SI. NPN
Q006	2SA1005(K)	TR. SI. PNP
Q007	2SA1005(K)	TR. SI. PNP
Q008	2SA838(B)	TR. SI. PNP
Q009	2SA838(B)	TR. SI. PNP
Q010	2SC945(Q)	TR. SI. NPN
Q011	2SA1005(K)	TR. SI. PNP
Q012	2SA1005(K)	TR. SI. PNP
Q013	2SC1907	TR. SI. NPN
Q101	2SC1907	TR. SI. NPN
Q102	2SK304(E)	FET. N-CHANNEL
Q103	2SC945(Q)	TR. SI. NPN
Q104	2SA844(D)	TR. SI. PNP
Q105	2SC945(Q)	TR. SI. NPN
Q106	2SA1005(K)	TR. SI. PNP
Q107	2SA1005(K)	TR. SI. PNP
Q108	2SA838(B)	TR. SI. PNP
Q109	2SA838(B)	TR. SI. PNP
Q110	2SA838(B)	TR. SI. PNP
Q111	2SA838(B)	TR. SI. PNP
Q112	2SA1005(K)	TR. SI. PNP
Q113	2SA1005(K)	TR. SI. PNP
Q201	2SA1206(K)	TR. SI. PNP
Q202	2SA1206(K)	TR. SI. PNP
Q203	2SC945(Q)	TR. SI. NPN
Q204	2SA844(D)	TR. SI. PNP
Q205	2SC1907	TR. SI. NPN
Q206	2SC1907	TR. SI. NPN
Q207	2SC1907	TR. SI. NPN
Q208	2SC1907	TR. SI. NPN
Q209	2SC1907	TR. SI. NPN
Q210	2SC1907	TR. SI. NPN
Q211	2SA1206(K)	TR. SI. PNP
Q212	2SA1206(K)	TR. SI. PNP
Q213	2SC2570A	TR. SI. NPN
Q214	2SC2570A	TR. SI. NPN
Q215	2SC3423(Y)	TR. SI. NPN
Q216	2SC3423(Y)	TR. SI. NPN
Q217	2SA1360(Y)	TR. SI. PNP
Q218	2SA1360(Y)	TR. SI. PNP
Q219	2SC2570A	TR. SI. NPN
Q220	2SC2570A	TR. SI. NPN
Q301	2SD880(Y)	TR. SI. NPN
Q302	2SB834(Y)	TR. SI. PNP
Q303	2SD880(Y)	TR. SI. NPN
Q304	2SB861(C)	TR. SI. PNP
Q801	2SD1666	TR. SI. NPN
R001	RD148B2C220J	RES. CARBON 22 5% 1/6W
R012	RN148K2E1004F	RES. METAL FILM 1M 1% 1/4W
R013	RD148B2E824J	RES. CARBON 820K 5% 1/6W
R014	RD148B2C102J	RES. CARBON 1K 5% 1/6W
R015	RD148B2C102J	RES. CARBON 1K 5% 1/6W
R016	RD148B2C101J	RES. CARBON 100 5% 1/6W
R017	RD148B2C681J	RES. CARBON 680 5% 1/6W
R018	RD148B2C392J	RES. CARBON 3.9K 5% 1/6W
R019	RD148B2C822J	RES. CARBON 8.2K 5% 1/6W
R020	RD148B2C562J	RES. CARBON 5.6K 5% 1/6W
R021	NO USE	
R022	RD148B2C391J	RES. CARBON 390 5% 1/6W
R023	RD148B2C122J	RES. CARBON 1.2K 5% 1/6W
R024	RD148B2C100J	RES. CARBON 10 5% 1/6W
R025	RD148B2C100J	RES. CARBON 10 5% 1/6W
R033	RD148B2C121J	RES. CARBON 120 5% 1/6W
R034	RD148B2C121J	RES. CARBON 120 5% 1/6W
R035	RD148B2C681J	RES. CARBON 680 5% 1/6W
R036	RD148B2C562J	RES. CARBON 5.6K 5% 1/6W
R037	RD148B2C562J	RES. CARBON 5.6K 5% 1/6W
R038	RD148B2C101J	RES. CARBON 100 5% 1/6W
R039	RD148B2C473J	RES. CARBON 47K 5% 1/6W
R040	RD148B2C4R7J	RES. CARBON 4.7 5% 1/6W
R041	RD148B2C270J	RES. CARBON 27 5% 1/6W
R042	RD148B2C270J	RES. CARBON 27 5% 1/6W
R043	RD148B2C473J	RES. CARBON 47K 5% 1/6W
R044	RN148K2C56R0F	RES. METAL FILM 56.0 1% 1/6W
R045	RN148K2C56R0F	RES. METAL FILM 56.0 1% 1/6W
R046	RN148K2C4700F	RES. METAL FILM 470 1% 1/6W
R047	RN148K2C4700F	RES. METAL FILM 470 1% 1/6W
R048	RD148B2C271J	RES. CARBON 270 5% 1/6W
R049	RN148K2C6800F	RES. METAL FILM 680 1% 1/6W
R050	RN148K2C6800F	

PARTS LIST

REF. NO	PARTS NO	NAME & DESCRIPTION	REF. NO	PARTS NO	NAME & DESCRIPTION
R165	RD148B2C122J	RES. CARBON 1.2K 5% 1/6W	R304	RN148K2C1202F	RES. METAL FILM 12K 1% 1/6W
R166	RD148B2C221J	RES. CARBON 220 5% 1/6W	R305	RN148K2C1202F	RES. METAL FILM 12K 1% 1/6W
R167	RD148B2C221J	RES. CARBON 220 5% 1/6W	R306	RS14GB3A1ROJ	RES. METAL FILM 1 5% 1W
R168	RD148B2C151J	RES. CARBON 150 5% 1/6W	R307	RD148B2C101J	RES. CARBON 100 5% 1/6W
R169	RD148B2C151J	RES. CARBON 150 5% 1/6W	R308	RS14GB3A101J	RES. METAL FILM 100 5% 1W
R170	RD148B2C820J	RES. CARBON 82 5% 1/6W	R309	RD148B2C562J	RES. CARBON 5.6K 5% 1/6W
R171	RN148K2C1001F	RES. METAL FILM 1K 1% 1/6W	R310	RD148B2C562J	RES. CARBON 5.6K 5% 1/6W
R172	RN148K2C1001F	RES. METAL FILM 1K 1% 1/6W	R311	RD148B2C562J	RES. CARBON 5.6K 5% 1/6W
R173	RD148B2C221J	RES. CARBON 220 5% 1/6W	R312	RS14GB3A330J	RES. METAL FILM 33 5% 1W
R174	RD148B2C221J	RES. CARBON 220 5% 1/6W	R313	RD148B2C151J	RES. CARBON 150 5% 1/6W
R201	RD148B2C221J	RES. CARBON 220 5% 1/6W	R314	RN148K2C3901F	RES. METAL FILM 3.9K 1% 1/6W
R202	RD148B2C221J	RES. CARBON 220 5% 1/6W	R315	RN148K2C9101F	RES. METAL FILM 9.1K 1% 1/6W
R203	RN148K2C4700F	RES. METAL FILM 470 1% 1/6W	R316	RS14GB3D272J	RES. METAL FILM 2.7K 5% 2W
R204	RN148K2C4700F	RES. METAL FILM 470 1% 1/6W	R317	RS14GB3D272J	RES. METAL FILM 2.7K 5% 2W
R205	RD148B2C682J	RES. CARBON 6.8K 5% 1/6W	R318	RD148B2C100J	RES. CARBON 10 5% 1/6W
R206	RD148B2C682J	RES. CARBON 6.8K 5% 1/6W	R319	RD148B2C101J	RES. CARBON 100 5% 1/6W
R207	RD148B2C122J	RES. CARBON 1.2K 5% 1/6W	R320	RD148B2C221J	RES. CARBON 220 5% 1/6W
R208	RD148B2C122J	RES. CARBON 1.2K 5% 1/6W	R321	RN148K2C1203F	RES. METAL FILM 120K 1% 1/6W
R209	RD148B2C820J	RES. CARBON 82 5% 1/6W	R322	RN148K2C1002F	RES. METAL FILM 10K 1% 1/6W
R210	RD148B2C820J	RES. CARBON 82 5% 1/6W	R323	RD148B2C561J	RES. CARBON 560 5% 1/6W
R211	RD148B2C681J	RES. CARBON 680 5% 1/6W	R324	RD148B2E225J	RES. CARBON 2.2M 5% 1/4W
R212	RD148B2C103J	RES. CARBON 10K 5% 1/6W	R325	RD148B2E225J	RES. CARBON 2.2M 5% 1/4W
R213	RD148B2C103J	RES. CARBON 10K 5% 1/6W	R351	RD148B2C154J	RES. CARBON 150K 5% 1/6W
R214	RD148B2C103J	RES. CARBON 10K 5% 1/6W	R352	RD148B2C103J	RES. CARBON 10K 5% 1/6W
R215	RD148B2C103J	RES. CARBON 10K 5% 1/6W	R353	RD148B2C103J	RES. CARBON 10K 5% 1/6W
R216	R90-0645-05	RES. NETWORK 4X10K 5%	R354	RD148B2C104J	RES. CARBON 100K 5% 1/6W
R217	RD148B2C102J	RES. CARBON 1K 5% 1/6W	R355	RD148B2C104J	RES. CARBON 100K 5% 1/6W
R218	RD148B2C103J	RES. CARBON 10K 5% 1/6W	R356	RD148B2C224J	RES. CARBON 220K 5% 1/6W
R219	RD148B2C102J	RES. CARBON 1K 5% 1/6W	R357	RD148B2C474J	RES. CARBON 470K 5% 1/6W
R220	RD148B2C102J	RES. CARBON 1K 5% 1/6W	R358	RD148B2C474J	RES. CARBON 470K 5% 1/6W
R221	RN148K2C91ROF	RES. METAL FILM 91.0 1% 1/6W	R359	RD148B2C471J	RES. CARBON 470 5% 1/6W
R222	RN148K2C91ROF	RES. METAL FILM 91.0 1% 1/6W	R360	RN148K2C1102F	RES. METAL FILM 11K 1% 1/6W
R223	RD148B2C470J	RES. CARBON 47 5% 1/6W	R361	RN148K2C7500F	RES. METAL FILM 750 1% 1/6W
R224	RD148B2C470J	RES. CARBON 47 5% 1/6W	R362	NO USE	
R225	RD148B2C471J	RES. CARBON 470 5% 1/6W	R363	RD148B2C100J	RES. CARBON 10 5% 1/6W
R226	RD148B2C102J	RES. CARBON 1K 5% 1/6W	R808	RD148B2C105J	RES. CARBON 1M 5% 1/6W
R227	RD148B2C102J	RES. CARBON 1K 5% 1/6W	S001	S32-2012-05	LEVER SWITCH 2-3
R228	RD148B2C122J	RES. CARBON 1.2K 5% 1/6W	S002	S02-4509-05	ROTARY SWITCH WITH V.R
R229	RD148B2C104J	RES. CARBON 100K 5% 1/6W	S101	S32-2012-05	LEVER SWITCH 2-3
R230	RD148B2C104J	RES. CARBON 100K 5% 1/6W	S102	S02-4509-05	ROTARY SWITCH WITH V.R
R231	RD148B2C470J	RES. CARBON 47 5% 1/6W	S201	S32-4008-05	LEVER SWITCH 4-5
R232	RD148B2C470J	RES. CARBON 47 5% 1/6W	TC005	C05-0455-05	CAP. TRIMMER 30PF
R233	RD148B2C562J	RES. CARBON 5.6K 5% 1/6W	TC006	C05-0456-05	CAP. TRIMMER 60PF
R234	RD148B2C682J	RES. CARBON 6.8K 5% 1/6W	TC105	C05-0455-05	CAP. TRIMMER 30PF
R235	RD148B2C102J	RES. CARBON 1K 5% 1/6W	TC106	C05-0456-05	CAP. TRIMMER 60PF
R236	RD148B2C102J	RES. CARBON 1K 5% 1/6W	TC201	C05-0454-05	CAP. TRIMMER 20PF
R237	RD148B2C470J	RES. CARBON 47 5% 1/6W	TC202	C05-0454-05	CAP. TRIMMER 20PF
R238	RD148B2C470J	RES. CARBON 47 5% 1/6W	TC203	C05-0455-05	CAP. TRIMMER 30PF
R239	RD148B2C152J	RES. CARBON 1.5K 5% 1/6W	TH021	112-251-2	THERMISTOR
R240	RD148B2C152J	RES. CARBON 1.5K 5% 1/6W	TH121	112-251-2	THERMISTOR
R241	RD148B2C102J	RES. CARBON 1K 5% 1/6W	U001	LF411CN	IC, DUAL JFET INPUT OP AMP
R242	RD148B2C102J	RES. CARBON 1K 5% 1/6W	U002	CA3086	IC, NPN TRANSISTOR ARRAY
R243	RD148B2C102J	RES. CARBON 1K 5% 1/6W	U101	LF411CN	IC, DUAL JFET INPUT OP AMP
R244	RD148B2C102J	RES. CARBON 1K 5% 1/6W	U102	CA3086	IC, NPN TRANSISTOR ARRAY
R245	RD148B2C220J	RES. CARBON 22 5% 1/6W	U201	SN74LS47N	IC, DECODER/DRIVER
R246	RD148B2C220J	RES. CARBON 22 5% 1/6W	U202	SN74LS00N	IC, QUAD 2 INPUT NAND
R249	RD148B2C103J	RES. CARBON 10K 5% 1/6W	U203	SN74LS00N	IC, QUAD 2 INPUT NAND
R250	RD148B2C4R7J	RES. CARBON 4.7 5% 1/6W	U204	SN74LS112AN	IC, DUAL JK-FF
R251	RD148B2C4R7J	RES. CARBON 4.7 5% 1/6W	U205	SN74LS00N	IC, QUAD 2 INPUT NAND
R252	RS14GB3A333J	RES. METAL FILM 33K 5% 1W	U301	UPC4558C	IC, OP AMP
R253	RS14GB3A333J	RES. METAL FILM 33K 5% 1W	U302	UPC4558C	IC, OP AMP
R254	RD148B2C820J	RES. CARBON 82 5% 1/6W	U351	TC4011BP	IC, QUAD 2-INPUT NAND GATE
R255	RD148B2C820J	RES. CARBON 82 5% 1/6W	VR001	R12-3550-05	RES. SEMI FIXED 20K B
R256	RD148B2H473J	RES. CARBON 47K 5% 1/2W	VR002	R12-0577-05	RES. SEMI FIXED 500 B
R257	RD148B2H473J	RES. CARBON 47K 5% 1/2W	VR003	R12-3550-05	RES. SEMI FIXED 20K B
R258	RD148B2C4R7J	RES. CARBON 4.7 5% 1/6W	VR004	R12-0575-05	RES. SEMI FIXED 100 B
R259	RD148B2C4R7J	RES. CARBON 4.7 5% 1/6W	VR005	S02-4509-05	ROTARY SWITCH WITH V.R
R260	RD148B2C102J	RES. CARBON 1K 5% 1/6W	VR006	R12-3550-05	RES. SEMI FIXED 20K B
R261	RD148B2C102J	RES. CARBON 1K 5% 1/6W	VR007	R12-0577-05	RES. SEMI FIXED 500 B
R262	RD148B2C332J	RES. CARBON 3.3K 5% 1/6W	VR008	R12-0577-05	RES. SEMI FIXED 500 B
R263	RD148B2C332J	RES. CARBON 3.3K 5% 1/6W	VR009	R12-1545-05	RES. SEMI FIXED 1K B
R264	RD148B2C4R7J	RES. CARBON 4.7 5% 1/6W	VR010	NO USE	
R265	RD148B2C3R3J	RES. CARBON 3.3 5% 1/6W	VR011	R12-1545-05	RES. SEMI FIXED 1K B
R266	RD148B2C331J	RES. CARBON 330 5% 1/6W			
R267	RD148B2C100J	RES. CARBON 10 5% 1/6W			
R268	RD148B2C100J	RES. CARBON 10 5% 1/6W			
R269	RD148B2C100J	RES. CARBON 10 5% 1/6W			
R270	RD148B2C100J	RES. CARBON 10 5% 1/6W			
R271	RD148B2C100J	RES. CARBON 10 5% 1/6W			
R272	RD148B2C100J	RES. CARBON 10 5% 1/6W			
R273	RD148B2C100J	RES. CARBON 10 5% 1/6W			
R274	RD148B2C100J	RES. CARBON 10 5% 1/6W			
R275	RD148B2C100J	RES. CARBON 10 5% 1/6W			
R301	RD148B2H2R2J	RES. CARBON 2.2 5% 1/2W			
R302	RD148B2C101J	RES. CARBON 100 5% 1/6W			
R303	RS14GB3A101J	RES. METAL FILM 100 5% 1W			

PARTS LIST

REF.NO	PARTS NO	NAME & DESCRIPTION
VR101	R12-3550-05	RES. SEMI FIXED 20K B
VR102	R12-0577-05	RES. SEMI FIXED 500 B
VR103	R12-3550-05	RES. SEMI FIXED 20K B
VR104	R12-0575-05	RES. SEMI FIXED 100 B
VR105	S02-4509-05	ROTARY SWITCH WITH V.R
VR106	R12-3550-05	RES. SEMI FIXED 20K B
VR107	R12-0577-05	RES. SEMI FIXED 500 B
VR108	R12-0577-05	RES. SEMI FIXED 500 B
VR109	R12-1545-05	RES. SEMI FIXED 1K B
VR110	NO USE	
VR111	R12-1545-05	RES. SEMI FIXED 1K B
VR201	R12-0577-05	RES. SEMI FIXED 500 B
VR202	R12-0576-05	RES. SEMI FIXED 200 B
VR203	R12-0577-05	RES. SEMI FIXED 500 B
VR204	R12-0576-05	RES. SEMI FIXED 200 B
VR205	R12-1546-05	RES. SEMI FIXED 2K B
VR301	R12-1545-05	RES. SEMI FIXED 1K B
VR351	R12-0577-05	RES. SEMI FIXED 500 B

HORIZONTAL UNIT

X74-1490-00

REF.NO	PARTS NO	NAME & DESCRIPTION			
	F01-0867-05	HEAT SINK			
	F11-1208-13	SHIELD CASE			
	F15-0727-04	HOLDER (NEON LAMP)			
	F20-0516-05	INSULATOR			
	F20-0675-04	INSULATED SHEET			
	J25-5259-12	PCB (UNMOUNTED)			
	J42-0538-04	BUSHING			
	J61-0501-05	BOARD SUPPORT			
	N19-0191-05	WASHER NONMETAL			
	N30-3006-41	SCREW, PAN HD	M3X6		
	R92-0150-05	JUMPING RES.	ZERO OHM(10MM)		
	R92-1061-05	JUMPING RES.	ZERO OHM (5MM)		
C002	CK45FF1H103Z	CAP. CERAMIC	0.01		50V
C003	CE04EW1H100M	CAP. ELECTRO	10	20%	50V
C004	C092FM1H223K	CAP. MYLAR	0.022	10%	50V
C005	CC45FCH1H221J	CAP. CERAMIC	220P	5%	50V
C006	CC45FCH1H470J	CAP. CERAMIC	47P	5%	50V
C007	CC45CH1H101J	CAP. CERAMIC	100P	5%	50V
C008	CC45FSL1H271J	CAP. CERAMIC	270P	5%	50V
C009	CE04EW1H100M	CAP. ELECTRO	10	20%	50V
C010	CE04EW1E470M	CAP. ELECTRO	47	20%	25V
C011	CE04EW1E470M	CAP. ELECTRO	47	20%	25V
C012	CE04EW1H100M	CAP. ELECTRO	10	20%	50V
C013	CS15E1V010M	CAP. TANTALUM	1	20%	35V
C014	CC45FCH1H030C	CAP. CERAMIC	3P	0.25P	50V
C015	C092FM1H103K	CAP. MYLAR	0.01	10%	50V
C016	CC45FCH1H470J	CAP. CERAMIC	47P	5%	50V
C017	CE04EW1E470M	CAP. ELECTRO	47	20%	25V
C018	CE04EW1H100M	CAP. ELECTRO	10	20%	50V
C019	CE04EW1H100M	CAP. ELECTRO	10	20%	50V
C020	CK45FF1H103Z	CAP. CERAMIC	0.01		50V
C021	CC45FCH1H101J	CAP. CERAMIC	100P	5%	50V
C022	CE04EW1H100M	CAP. ELECTRO	10	20%	50V
C023	CK45FF1H103Z	CAP. CERAMIC	0.01		50V
C101	CC45FSL1H561J	CAP. CERAMIC	560P	5%	50V
C102	NO USE				
C103	C092FM1H104K	CAP. MYLAR	0.1	10%	50V
C104	CK45FF1H103Z	CAP. CERAMIC	0.01		50V
C105	CE04EW1H100M	CAP. ELECTRO	10	20%	50V
C106	CE04EW1H100M	CAP. ELECTRO	10	20%	50V
C107	CC45FCH1H820J	CAP. CERAMIC	82P	5%	50V
C108	CK45FF1H103Z	CAP. CERAMIC	0.01		50V
C109	C91-0574-05	CAP. MYLAR	1	5%	100V
C110	NO USE				
C111	CC45FCH1H050C	CAP. CERAMIC	5P	0.25P	50V
C112	CE04EW1H100M	CAP. ELECTRO	10	20%	50V
C113	CC45FCH1H221J	CAP. CERAMIC	220P	5%	50V
C114	CK45FF1H103Z	CAP. CERAMIC	0.01		50V
C115	CE04EW1E470M	CAP. ELECTRO	47	20%	25V
C116	CK45FF1H103Z	CAP. CERAMIC	0.01		50V
C117	C092FM1H473K	CAP. MYLAR	0.047	10%	50V
C118	CC45FCH1H100D	CAP. CERAMIC	10P	0.5P	50V
C119	CC45FCH1H470J	CAP. CERAMIC	47P	5%	50V
C120	C092FM1H104K	CAP. MYLAR	0.1	10%	50V
C121	CK45FB1H102K	CAP. CERAMIC	1000P	10%	50V
C122	CE04EW1H100M	CAP. ELECTRO	10	20%	50V
C123	CE04EW1H100M	CAP. ELECTRO	10	20%	50V
C124	CE04EW1H100M	CAP. ELECTRO	10	20%	50V
C125	CK45FF1H103Z	CAP. CERAMIC	0.01		50V
C126	CE04EW1H100M	CAP. ELECTRO	10	20%	50V
C127	CK45FF1H103Z	CAP. CERAMIC	0.01		50V
C128	CE04EW1H100M	CAP. ELECTRO	10	20%	50V
C201	CC45FSL1H561J	CAP. CERAMIC	560P	5%	50V
C202	CE04EW1H100M	CAP. ELECTRO	10	20%	50V
C203	C092FM1H104K	CAP. MYLAR	0.1	10%	50V
C204	CE04EW1H100M	CAP. ELECTRO	10	20%	50V
C205	CE04EW1H100M	CAP. ELECTRO	10	20%	50V
C206	CE04EW1H100M	CAP. ELECTRO	10	20%	50V
C207	CC45FCH1H820J	CAP. CERAMIC	82P	5%	50V
C208	CK45FF1H103Z	CAP. CERAMIC	0.01		50V
C209	C91-0574-05	CAP. MYLAR	1	5%	100V
C210	NO USE				
C211	CC45FCH1H050C	CAP. CERAMIC	5P	0.25P	50V
C212	CE04EW1E101M	CAP. ELECTRO	100	20%	25V
C213	CC45FCH1H050C	CAP. CERAMIC	5P	0.25P	50V
C214	CC45FCH1H100D	CAP. CERAMIC	10P	0.5P	50V
C215	NO USE				
C216	CE04BW1E100M	CAP. ELECTRO	10	20%	25V
C217	CC45FCH1H470J	CAP. CERAMIC	47P	5%	50V
C218	CK45FF1H103Z	CAP. CERAMIC	0.01		50V
C219	CK45FF1H103Z	CAP. CERAMIC	0.01		50V
C220	CK45FF1H103Z	CAP. CERAMIC	0.01		50V
C221	CC45FCH1H151J	CAP. CERAMIC	150P	5%	50V
C222	CK45FF1H103Z	CAP. CERAMIC	0.01		50V

PARTS LIST

REF.NO	PARTS NO	NAME & DESCRIPTION				REF.NO	PARTS NO	NAME & DESCRIPTION			
C223	CK45FF1H103Z	CAP. CERAMIC	0.01		50V	D214	1S1588	DIODE			
C224	CK45FF1H103Z	CAP. CERAMIC	0.01		50V	D215	1S1588	DIODE			
C225	CK45FF1H103Z	CAP. CERAMIC	0.01		50V	D216	1S1588	DIODE			
C226	CK45FF1H103Z	CAP. CERAMIC	0.01		50V	D217	1S1588	DIODE			
C227	CE04EW1H100M	CAP. ELECTRO	10	20%	50V	D218	1S1588	DIODE			
C228	CK45FF1H103Z	CAP. CERAMIC	0.01		50V	D219	1S1588	DIODE			
C229	NO USE					D220	1S1588	DIODE			
C230	CE04EW1H100M	CAP. ELECTRO	10	20%	50V	D301	1S1588	DIODE			
C231	CE04EW1H100M	CAP. ELECTRO	10	20%	50V	D302	MA700	DIODE			
C301	CC45FCH1H820J	CAP. CERAMIC	82P	5%	50V	D303	MA700	DIODE			
C302	CC45FSL1H471J	CAP. CERAMIC	470P	5%	50V	D304	1SS86	DIODE			
C303	C91-1309-05	CAP. CERAMIC	0.01	10%	500V	D305	1S1588	DIODE			
C304	C91-1309-05	CAP. CERAMIC	0.01	10%	500V	D306	1S1588	DIODE			
C305	C91-1309-05	CAP. CERAMIC	0.01	10%	500V	D307	1SS83	DIODE			
C306	CE04EW1H100M	CAP. ELECTRO	10	20%	50V						
C307	C91-1309-05	CAP. CERAMIC	0.01	10%	500V	D401	1SS132	DIODE			
C308	C91-1309-05	CAP. CERAMIC	0.01	10%	500V	D402	H22(B3)	DIODE, ZENER	2.2V		
C401	CK45FF1H103Z	CAP. CERAMIC	0.01		50V	D403	H22(B3)	DIODE, ZENER	2.2V		
C402	CC45FCH1H221J	CAP. CERAMIC	220P	5%	50V	D404	1SS83	DIODE			
C403	CE04EW1H100M	CAP. ELECTRO	10	20%	50V	D405	1SS83	DIODE			
C404	CE04EW1H100M	CAP. ELECTRO	10	20%	50V	D406	1SS83	DIODE			
C405	CK45FF1H103Z	CAP. CERAMIC	0.01		50V	D407	1SS83	DIODE			
C406	CK45FF1H103Z	CAP. CERAMIC	0.01		50V	D408	1SS83	DIODE			
C407	C91-1309-05	CAP. CERAMIC	0.01	10%	500V	D409	1SS83	DIODE			
C408	C91-1309-05	CAP. CERAMIC	0.01	10%	500V	D410	1SS83	DIODE			
C409	C91-1266-05	CAP. CERAMIC	1000P		6KV	D411	1SS83	DIODE			
C410	C91-1266-05	CAP. CERAMIC	1000P		6KV	D412	1SS132	DIODE			
C411	C91-1266-05	CAP. CERAMIC	1000P		6KV	D413	H2S5.6J(B2)	DIODE, ZENER	5.62V		
C412	C91-1309-05	CAP. CERAMIC	0.01	10%	500V	D414	1SS132	DIODE			
C413	C91-1266-05	CAP. CERAMIC	1000P		6KV	D415	1SS132	DIODE			
C414	C91-1266-05	CAP. CERAMIC	1000P		6KV	D416	Y10GA	DIODE			
C415	C91-1309-05	CAP. CERAMIC	0.01	10%	500V	D423	H236L(2)	DIODE, ZENER	36V		
C416	C91-1267-05	CAP. CERAMIC	4700P		3KV	D424	H236L(2)	DIODE, ZENER	36V		
C417	C91-1267-05	CAP. CERAMIC	4700P		3KV	D425	H236L(2)	DIODE, ZENER	36V		
C418	CS15E1V010M	CAP. TANTALUM	1	20%	35V	D426	B30-0957-05	LED (LN322GPT)			
C419	CK45FB1H222K	CAP. CERAMIC	2200P	10%	50V	D801	RD30E(B3)	DIODE, ZENER	29.09V		
C420	C092FM1H223K	CAP. MYLAR	0.022	10%	50V	D802	1S1588	DIODE			
C421	CE04EW1H220M	CAP. ELECTRO	22	20%	50V	D803	1S1588	DIODE			
C422	C91-1264-05	CAP. CERAMIC	22P		3KV	JW001	E31-5539-05	LEAD WIRE WITH CONNECTOR			
C423	C91-1267-05	CAP. CERAMIC	4700P		3KV	JW002	E31-5540-05	LEAD WIRE WITH CONNECTOR			
C424	C91-1267-05	CAP. CERAMIC	4700P		3KV	JW003	E31-5541-05	LEAD WIRE WITH CONNECTOR			
C425	C91-1267-05	CAP. CERAMIC	4700P		3KV	JW010	E31-5514-15	LEAD WIRE WITH CONNECTOR, P10			
C426	CE04W2C100M	CAP. ELECTRO	10	20%	160V	JW014	E31-5510-25	LEAD WIRE WITH CONNECTOR			
C427	C91-1309-05	CAP. CERAMIC	0.01	10%	500V	L101	L40-2292-02	FERRI INDUCTOR	2.2UH 20%		
C434	C91-1309-05	CAP. CERAMIC	0.01	10%	500V	L201	L40-2292-02	FERRI INDUCTOR	2.2UH 20%		
C801	CE04EW1C102M	CAP. ELECTRO	1000	20%	16V	L401	L40-1011-13	FERRI INDUCTOR	100UH 10%		
C802	CC45CH1H101J	CAP. CERAMIC	100P	5%	50V	NE401	NE-2B	NEON LAMP			
C803	CK45F1H103Z	CAP. CERAMIC	0.01		50V	NE402	NE-2B	NEON LAMP			
C804	NO USE					P004	E40-0273-05	PIN CONNECTOR	2P		
C805	CK45F1H103Z	CAP. CERAMIC	0.01		50V	P007	E40-0973-05	PIN CONNECTOR	9P		
D001	1SS132	DIODE				P022	E40-0673-05	PIN CONNECTOR	6P		
D002	1SS132	DIODE				P023	E23-0401-05	PIN TERMINAL			
D003	1SS86	DIODE				P024	E40-0373-05	PIN CONNECTOR	3P		
D004	1SS132	DIODE				P025	E40-0573-05	PIN CONNECTOR	5P		
D005	1S1588	DIODE				P026	E40-0273-05	PIN CONNECTOR	2P		
D006	1SS132	DIODE				P027	E40-0373-05	PIN CONNECTOR	3P		
D101	1SS132	DIODE				P028	E40-0373-05	PIN CONNECTOR	3P		
D102	1SS132	DIODE				P029	E40-0873-05	PIN CONNECTOR	8P		
D103	1S1588	DIODE				P030	E40-0273-05	PIN CONNECTOR	2P		
D104	1S1588	DIODE				P031	E40-0373-05	PIN CONNECTOR	3P		
D105	1SS132	DIODE				P043	E23-0401-05	PIN TERMINAL			
D106	1SS132	DIODE				P044	E23-0401-05	PIN TERMINAL			
D107	1SS132	DIODE				P045	E40-0273-05	PIN CONNECTOR	2P		
D108	1SS132	DIODE				P046	E40-7033-05	PIN CONNECTOR	2P		
D109	1SS132	DIODE				P047	E40-5331-05	PIN CONNECTOR	5P		
D110	1SS132	DIODE				P048	E40-0273-05	PIN CONNECTOR	2P		
D111	1SS132	DIODE				P049	NO USE				
D112	1SS132	DIODE				P050	E40-0473-05	PIN CONNECTOR	4P		
D113	H2S6.8J(B2)	DIODE, ZENER			6.79V	P051	E40-0273-05	PIN CONNECTOR	2P		
D201	1S1588	DIODE				P052	E40-0473-05	PIN CONNECTOR	4P		
D202	1S1588	DIODE				P053	E40-0273-05	PIN CONNECTOR	2P		
D203	1S1588	DIODE				P081	E40-0216-05	PIN CONNECTOR	2P		
D204	1SS132	DIODE				P412	E40-0373-05	PIN CONNECTOR	3P		
D205	1SS132	DIODE									
D206	1S1588	DIODE									
D207	1S1588	DIODE									
D208	1S1588	DIODE									
D209	1S1588	DIODE									
D210	1S1588	DIODE									
D211	1S1588	DIODE									
D212	1S1588	DIODE									
D213	1S1588	DIODE									

PARTS LIST

REF.NO	PARTS NO	NAME & DESCRIPTION			
Q001	2SA1005(K)	TR. SI. PNP			
Q002	2SA1005(K)	TR. SI. PNP			
Q003	2SK304(E)	FET. N-CHANNEL			
Q004	2SC1907	TR. SI. NPN			
Q005	2SC1907	TR. SI. NPN			
Q006	2SA844(D)	TR. SI. PNP			
Q007	2SA844(D)	TR. SI. PNP			
Q008	2SA844(D)	TR. SI. PNP			
Q009	2SA844(D)	TR. SI. PNP			
Q010	2SK117(BL)	FET. N-CHANNEL			
Q011	2SA838(B)	TR. SI. PNP			
Q012	2SA1015(Y)	TR. SI. PNP			
Q013	2SC1907	TR. SI. NPN			
Q014	2SA844(D)	TR. SI. PNP			
Q015	2SC1907	TR. SI. NPN			
Q016	2SC945(Q)	TR. SI. NPN			
Q017	2SC945(Q)	TR. SI. NPN			
Q018	2SA844(D)	TR. SI. PNP			
Q101	2SA844(D)	TR. SI. PNP			
Q102	2SA844(D)	TR. SI. PNP			
Q103	2SA844(D)	TR. SI. PNP			
Q104	2SA838(B)	TR. SI. PNP			
Q105	2SC1843(E)	TR. SI. NPN			
Q106	2SK117(BL)	FET. N-CHANNEL			
Q107	2SK170(V)	FET. N-CHANNEL			
Q108	2SA844(D)	TR. SI. PNP			
Q109	2SA844(D)	TR. SI. PNP			
Q110	2SC945(Q)	TR. SI. NPN			
Q111	2SC945(Q)	TR. SI. NPN			
Q112	2SC945(Q)	TR. SI. NPN			
Q113	2SC945(Q)	TR. SI. NPN			
Q201	2SA844(D)	TR. SI. PNP			
Q202	2SA844(D)	TR. SI. PNP			
Q203	2SA844(D)	TR. SI. PNP			
Q204	2SA838(B)	TR. SI. PNP			
Q205	2SC1843(E)	TR. SI. NPN			
Q206	2SK117(BL)	FET. N-CHANNEL			
Q207	2SK170(V)	FET. N-CHANNEL			
Q208	2SA844(D)	TR. SI. PNP			
Q209	2SA844(D)	TR. SI. PNP			
Q210	2SA1015(Y)	TR. SI. PNP			
Q211	2SK170(V)	FET. N-CHANNEL			
Q212	2SK170(V)	FET. N-CHANNEL			
Q213	2SC945(Q)	TR. SI. NPN			
Q214	2SA844(D)	TR. SI. PNP			
Q215	2SA844(D)	TR. SI. PNP			
Q216	2SC945(Q)	TR. SI. NPN			
Q217	2SC945(Q)	TR. SI. NPN			
Q218	2SC945(Q)	TR. SI. NPN			
Q219	2SA1005(K)	TR. SI. PNP			
Q220	2SA1005(K)	TR. SI. PNP			
Q221	2SC945(Q)	TR. SI. NPN			
Q301	2SC945(Q)	TR. SI. NPN			
Q302	2SC945(Q)	TR. SI. NPN			
Q303	2SA1015(Y)	TR. SI. PNP			
Q304	2SA1015(Y)	TR. SI. PNP			
Q305	2SC1907	TR. SI. NPN			
Q306	2SC1907	TR. SI. NPN			
Q307	2SC1907	TR. SI. NPN			
Q308	2SA838(B)	TR. SI. PNP			
Q309	2SD668A(C)	TR. SI. NPN			
Q310	2SD668A(C)	TR. SI. NPN			
Q311	2SB648A(C)	TR. SI. PNP			
Q312	2SB648A(C)	TR. SI. PNP			
Q401	2SA1005(K)	TR. SI. PNP			
Q402	2SA1005(K)	TR. SI. PNP			
Q403	2SC1907	TR. SI. NPN			
Q404	2SC1907	TR. SI. NPN			
Q405	2SD668A(C)	TR. SI. NPN			
Q406	2SD668A(C)	TR. SI. NPN			
Q407	2SD668A(C)	TR. SI. NPN			
Q408	2SD668A(C)	TR. SI. NPN			
Q409	2SD880(Y)	TR. SI. NPN			
Q410	2SC945(Q)	TR. SI. NPN			
Q411	2SA1015(Y)	TR. SI. PNP			
R001	RD148B2C220J	RES. CARBON	22	5%	1/6W
R002	RD148B2C102J	RES. CARBON	1K	5%	1/6W
R003	RN148K2C1001F	RES. METAL FILM	1K	1%	1/6W
R004	RD148B2C681J	RES. CARBON	680	5%	1/6W
R005	RD148B2C912J	RES. CARBON	9.1K	5%	1/6W
R006	RD148B2C302J	RES. CARBON	3K	5%	1/6W
R007	RD148B2E220J	RES. CARBON	22	5%	1/4W
R008	RD148B2C560J	RES. CARBON	56	5%	1/6W
R009	RD148B2C103J	RES. CARBON	10K	5%	1/6W

REF.NO	PARTS NO	NAME & DESCRIPTION			
R010	RD148B2C473J	RES. CARBON	47K	5%	1/6W
R011	RN148K2E1004F	RES. METAL FILM	1M	1%	1/4W
R012	RD148B2C103J	RES. CARBON	10K	5%	1/6W
R013	RD148B2C330J	RES. CARBON	33	5%	1/6W
R014	RD148B2C152J	RES. CARBON	1.5K	5%	1/6W
R015	RD148B2C151J	RES. CARBON	150	5%	1/6W
R016	RD148B2C392J	RES. CARBON	3.9K	5%	1/6W
R017	RD148B2C392J	RES. CARBON	3.9K	5%	1/6W
R018	RD148B2C222J	RES. CARBON	2.2K	5%	1/6W
R019	RD148B2C102J	RES. CARBON	1K	5%	1/6W
R020	RD148B2C681J	RES. CARBON	680	5%	1/6W
R021	RD148B2C681J	RES. CARBON	680	5%	1/6W
R022	RD148B2C681J	RES. CARBON	680	5%	1/6W
R023	RD148B2C681J	RES. CARBON	680	5%	1/6W
R024	RD148B2C104J	RES. CARBON	100K	5%	1/6W
R025	RD148B2C104J	RES. CARBON	100K	5%	1/6W
R026	RD148B2C103J	RES. CARBON	10K	5%	1/6W
R027	RD148B2C222J	RES. CARBON	2.2K	5%	1/6W
R028	RD148B2C223J	RES. CARBON	22K	5%	1/6W
R029	RD148B2C474J	RES. CARBON	470K	5%	1/6W
R030	RD148B2C474J	RES. CARBON	470K	5%	1/6W
R031	RD148B2C301J	RES. CARBON	300	5%	1/6W
R032	RD148B2C910J	RES. CARBON	91	5%	1/6W
R033	RD148B2C271J	RES. CARBON	270	5%	1/6W
R034	RD148B2C201J	RES. CARBON	200	5%	1/6W
R035	RD148B2C102J	RES. CARBON	1K	5%	1/6W
R036	RD148B2C103J	RES. CARBON	10K	5%	1/6W
R037	RD148B2C222J	RES. CARBON	2.2K	5%	1/6W
R038	RD148B2C202J	RES. CARBON	2K	5%	1/6W
R039	RD148B2C474J	RES. CARBON	470K	5%	1/6W
R040	RD148B2C473J	RES. CARBON	47K	5%	1/6W
R041	RD148B2C331J	RES. CARBON	330	5%	1/6W
R042	RD148B2C220J	RES. CARBON	22	5%	1/6W
R043	RD148B2C561J	RES. CARBON	560	5%	1/6W
R044	RD148B2C391J	RES. CARBON	390	5%	1/6W
R045	RD148B2C272J	RES. CARBON	2.7K	5%	1/6W
R046	RD148B2C272J	RES. CARBON	2.7K	5%	1/6W
R047	RD148B2C102J	RES. CARBON	1K	5%	1/6W
R048	RD148B2C681J	RES. CARBON	680	5%	1/6W
R049	RD148B2C123J	RES. CARBON	12K	5%	1/6W
R050	RD148B2C152J	RES. CARBON	1.5K	5%	1/6W
R051	RD148B2C332J	RES. CARBON	3.3K	5%	1/6W
R052	RD148B2C223J	RES. CARBON	22K	5%	1/6W
R053	RD148B2C100J	RES. CARBON	10	5%	1/6W
R101	RD148B2C473J	RES. CARBON	47K	5%	1/6W
R102	RD148B2C151J	RES. CARBON	150	5%	1/6W
R103	RD148B2C181J	RES. CARBON	180	5%	1/6W
R104	RD148B2C470J	RES. CARBON	47	5%	1/6W
R105	RD148B2C470J	RES. CARBON	47	5%	1/6W
R106	RD148B2C152J	RES. CARBON	1.5K	5%	1/6W
R107	RD148B2C102J	RES. CARBON	1K	5%	1/6W
R108	RD148B2C470J	RES. CARBON	47	5%	1/6W
R109	RD148B2C102J	RES. CARBON	1K	5%	1/6W
R110	RD148B2C223J	RES. CARBON	22K	5%	1/6W
R111	RD148B2C331J	RES. CARBON	330	5%	1/6W
R112	RD148B2C330J	RES. CARBON	33	5%	1/6W
R113	RD148B2C153J	RES. CARBON	15K	5%	1/6W
R114	RD148B2C472J	RES. CARBON	4.7K	5%	1/6W
R115	RD148B2C333J	RES. CARBON	33K	5%	1/6W
R116	RD148B2C103J	RES. CARBON	10K	5%	1/6W
R117	RN148K2E3004F	RES. METAL FILM	3M	1%	1/4W
R118	RN148K2C1004F	RES. METAL FILM	1M	1%	1/6W
R119	RN148K2C5003F	RES. METAL FILM	500K	1%	1/6W
R120	RN148K2C3003F	RES. METAL FILM	300K	1%	1/6W
R121	RN148K2C1003F	RES. METAL FILM	100K	1%	1/6W
R122	RN148K2C5002F	RES. METAL FILM	50K	1%	1/6W
R123	RN148K2C3002F	RES. METAL FILM	30K	1%	1/6W
R124	RN148K2C1002F	RES. METAL FILM	10K	1%	1/6W
R125	RN148K2C5001F	RES. METAL FILM	5K	1%	1/6W
R126	RN148K2C3001F	RES. METAL FILM	3K	1%	1/6W
R127	RN148K2C1001F	RES. METAL FILM	1K	1%	1/6W
R128	RN148K2C1001F	RES. METAL FILM	1K	1%	1/6W
R129	RD148B2C392J	RES. CARBON	3.9K	5%	1/6W
R130	RD148B2C183J	RES. CARBON	18K	5%	1/6W
R131	RD148B2C121J	RES. CARBON	120	5%	1/6W
R132	RD148B2C222J	RES. CARBON	2.2K	5%	1/6W
R133	RD148B2C222J	RES. CARBON	2.2K	5%	1/6W
R134	RD148B2C103J	RES. CARBON	10K	5%	1/6W
R135	RD148B2C101J	RES. CARBON	100	5%	1/6W
R136	RD148B2C223J	RES. CARBON	22K	5%	1/6W
R137	RD148B2C561J	RES. CARBON	560	5%	1/6W
R138	RD148B2C103J	RES. CARBON	10K	5%	1/6W
R139	RD148B2C821J	RES. CARBON	820	5%	1/6W
R140	RD148B2C222J	RES. CARBON	2.2K	5%	1/6W
R141	RD148B2C102J	RES. CARBON	1K	5%	1/6W
R142	RD148B2C221J	RES. CARBON	220	5%	1/6W
R143	RN148K2C2002F	RES. METAL FILM	20K	1%	1/6W
R144	RN148K2C3302F	RES. METAL FILM	33K	1%	1/6W

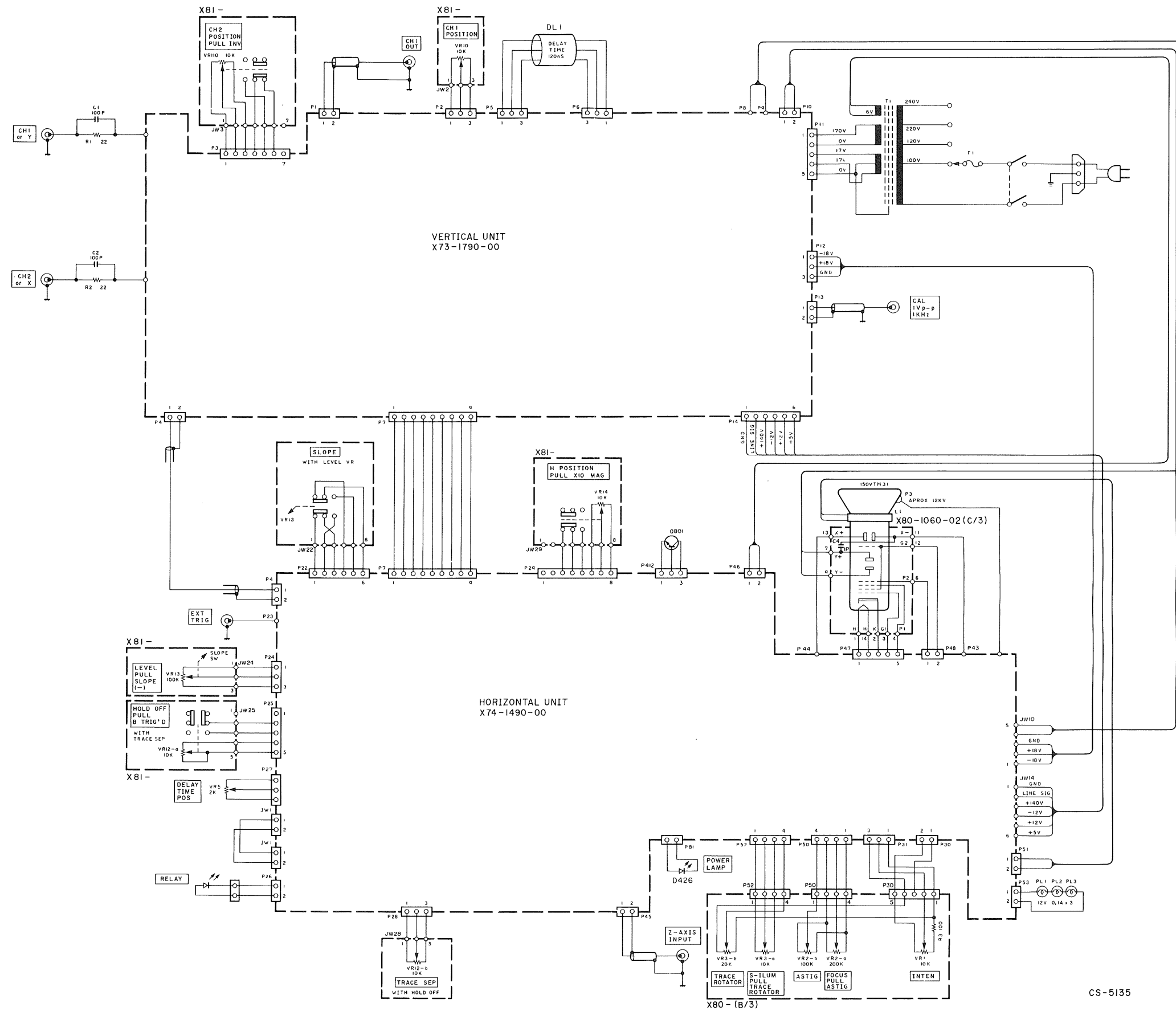
PARTS LIST

REF.NO	PARTS NO	NAME & DESCRIPTION	QTY	UNIT	REF.NO	PARTS NO	NAME & DESCRIPTION	QTY	UNIT
R145	RD14BB2C103J	RES. CARBON	10K	5%	1/6W				
R146	RD14BB2C103J	RES. CARBON	10K	5%	1/6W				
R147	RD14BB2C682J	RES. CARBON	6.8K	5%	1/6W				
R148	RD14BB2C392J	RES. CARBON	3.9K	5%	1/6W				
R149	RD14BB2C220J	RES. CARBON	22	5%	1/6W				
R150	RD14BB2C100J	RES. CARBON	10	5%	1/6W				
R151	RD14BB2C100J	RES. CARBON	10	5%	1/6W				
R201	RD14BB2C151J	RES. CARBON	150	5%	1/6W				
R202	RD14BB2C181J	RES. CARBON	180	5%	1/6W				
R203	RD14BB2C470J	RES. CARBON	47	5%	1/6W				
R204	RD14BB2C470J	RES. CARBON	47	5%	1/6W				
R205	RD14BB2C152J	RES. CARBON	1.5K	5%	1/6W				
R206	RD14BB2C102J	RES. CARBON	1K	5%	1/6W				
R207	RD14BB2C102J	RES. CARBON	1K	5%	1/6W				
R208	RD14BB2C470J	RES. CARBON	47	5%	1/6W				
R209	RD14BB2C223J	RES. CARBON	22K	5%	1/6W				
R210	RD14BB2C331J	RES. CARBON	330	5%	1/6W				
R211	RD14BB2C330J	RES. CARBON	33	5%	1/6W				
R212	RD14BB2C183J	RES. CARBON	18K	5%	1/6W				
R213	RD14BB2C183J	RES. CARBON	18K	5%	1/6W				
R214	RD14BB2C333J	RES. CARBON	33K	5%	1/6W				
R215	RD14BB2C103J	RES. CARBON	10K	5%	1/6W				
R216	RN14BK2E3004F	RES. METAL FILM	3M	1%	1/4W				
R217	RN14BK2C1004F	RES. METAL FILM	1M	1%	1/6W				
R218	RN14BK2C5003F	RES. METAL FILM	500K	1%	1/6W				
R219	RN14BK2C3003F	RES. METAL FILM	300K	1%	1/6W				
R220	RN14BK2C1003F	RES. METAL FILM	100K	1%	1/6W				
R221	RN14BK2C5002F	RES. METAL FILM	50K	1%	1/6W				
R222	RN14BK2C3002F	RES. METAL FILM	30K	1%	1/6W				
R223	RN14BK2C1002F	RES. METAL FILM	10K	1%	1/6W				
R224	RN14BK2C5001F	RES. METAL FILM	5K	1%	1/6W				
R225	RN14BK2C3001F	RES. METAL FILM	3K	1%	1/6W				
R226	RN14BK2C1001F	RES. METAL FILM	1K	1%	1/6W				
R227	RN14BK2C1001F	RES. METAL FILM	1K	1%	1/6W				
R228	RD14BB2C392J	RES. CARBON	3.9K	5%	1/6W				
R229	RD14BB2C183J	RES. CARBON	18K	5%	1/6W				
R230	RD14BB2C121J	RES. CARBON	120	5%	1/6W				
R231	RD14BB2C222J	RES. CARBON	2.2K	5%	1/6W				
R232	RD14BB2C182J	RES. CARBON	1.8K	5%	1/6W				
R233	RD14BB2C103J	RES. CARBON	10K	5%	1/6W				
R234	RD14BB2C471J	RES. CARBON	470	5%	1/6W				
R235	RD14BB2C153J	RES. CARBON	15K	5%	1/6W				
R236	RD14BB2C822J	RES. CARBON	8.2K	5%	1/6W				
R237	RD14BB2C122J	RES. CARBON	1.2K	5%	1/6W				
R238	RD14BB2C242J	RES. CARBON	2.4K	5%	1/6W				
R239	RD14BB2C472J	RES. CARBON	4.7K	5%	1/6W				
R240	RD14BB2C822J	RES. CARBON	8.2K	5%	1/6W				
R241	RD14BB2C561J	RES. CARBON	560	5%	1/6W				
R242	RD14BB2C563J	RES. CARBON	56K	5%	1/6W				
R243	RD14BB2C222J	RES. CARBON	2.2K	5%	1/6W				
R244	RD14BB2C221J	RES. CARBON	220	5%	1/6W				
R245	RD14BB2C561J	RES. CARBON	560	5%	1/6W				
R246	RN14BK2C4301F	RES. METAL FILM	4.3K	1%	1/6W				
R247	RN14BK2C4301F	RES. METAL FILM	4.3K	1%	1/6W				
R248	RN14BK2C2002F	RES. METAL FILM	20K	1%	1/6W				
R249	RN14BK2C3302F	RES. METAL FILM	33K	1%	1/6W				
R250	RD14BB2C103J	RES. CARBON	10K	5%	1/6W				
R251	RD14BB2C561J	RES. CARBON	560	5%	1/6W				
R252	RD14BB2C471J	RES. CARBON	470	5%	1/6W				
R253	RD14BB2C103J	RES. CARBON	10K	5%	1/6W				
R254	RD14BB2C103J	RES. CARBON	10K	5%	1/6W				
R255	RD14BB2C223J	RES. CARBON	22K	5%	1/6W				
R256	RD14BB2C333J	RES. CARBON	33K	5%	1/6W				
R257	RD14BB2C562J	RES. CARBON	5.6K	5%	1/6W				
R258	RD14BB2C332J	RES. CARBON	3.3K	5%	1/6W				
R259	RD14BB2C102J	RES. CARBON	1K	5%	1/6W				
R260	RD14BB2C472J	RES. CARBON	4.7K	5%	1/6W				
R261	RD14BB2C392J	RES. CARBON	3.9K	5%	1/6W				
R262	RD14BB2C103J	RES. CARBON	10K	5%	1/6W				
R263	RD14BB2C103J	RES. CARBON	10K	5%	1/6W				
R264	RD14BB2C102J	RES. CARBON	1K	5%	1/6W				
R265	RD14BB2C102J	RES. CARBON	1K	5%	1/6W				
R266	RD14BB2C102J	RES. CARBON	1K	5%	1/6W				
R267	RD14BB2C332J	RES. CARBON	3.3K	5%	1/6W				
R268	RD14BB2C100J	RES. CARBON	10	5%	1/6W				
R269	RD14BB2C100J	RES. CARBON	10	5%	1/6W				
R301	RD14BB2C471J	RES. CARBON	470	5%	1/6W				
R302	RD14BB2C392J	RES. CARBON	3.9K	5%	1/6W				
R303	RN14BK2E1501F	RES. METAL FILM	1.5K	1%	1/4W				
R304	RD14BB2C332J	RES. CARBON	3.3K	5%	1/6W				
R305	RD14BB2C332J	RES. CARBON	3.3K	5%	1/6W				
R306	RD14BB2C682J	RES. CARBON	6.8K	5%	1/6W				
R307	RD14BB2C471J	RES. CARBON	470	5%	1/6W				
R308	RD14BB2C102J	RES. CARBON	1K	5%	1/6W				
R309	RD14BB2C102J	RES. CARBON	1K	5%	1/6W				
R310	RN14BK2C470F	RES. METAL FILM	47.0	1%	1/6W				
R311	RD14BB2C122J	RES. CARBON	1.2K	5%	1/6W				

REF.NO	PARTS NO	NAME & DESCRIPTION	QTY	UNIT	REF.NO	PARTS NO	NAME & DESCRIPTION	QTY	UNIT
R312	RD14BB2C122J	RES. CARBON	1.2K	5%	1/6W				
R313	RN14BK2C1001F	RES. METAL FILM	1K	1%	1/6W				
R314	RN14BK2C1001F	RES. METAL FILM	1K	1%	1/6W				
R315	RN14BK2C7500F	RES. METAL FILM	750	1%	1/6W				
R316	RD14BB2C331J	RES. CARBON	330	5%	1/6W				
R317	RD14BB2C331J	RES. CARBON	330	5%	1/6W				
R318	RD14BB2C123J	RES. CARBON	12K	5%	1/6W				
R319	RD14BB2C222J	RES. CARBON	2.2K	5%	1/6W				
R320	RD14BB2C222J	RES. CARBON	2.2K	5%	1/6W				
R321	RD14BB2C104J	RES. CARBON	100K	5%	1/6W				
R322	RD14BB2C104J	RES. CARBON	100K	5%	1/6W				
R323	RD14BB2C104J	RES. CARBON	100K	5%	1/6W				
R324	RD14BB2C152J	RES. CARBON	1.5K	5%	1/6W				
R325	RD14BB2C152J	RES. CARBON	1.5K	5%	1/6W				
R326	RD14BB2C331J	RES. CARBON	330	5%	1/6W				
R327	RD14BB2C331J	RES. CARBON	330	5%	1/6W				
R328	RN14BK2C1003F	RES. METAL FILM	100K	1%	1/6W				
R329	RN14BK2C1003F	RES. METAL FILM	100K	1%	1/6W				
R330	RD14BB2C470J	RES. CARBON	47	5%	1/6W				
R331	RD14BB2C470J	RES. CARBON	47	5%	1/6W				
R401	RD14BB2C332J	RES. CARBON	3.3K	5%	1/6W				
R402	RD14BB2C561J	RES. CARBON	560	5%	1/6W				
R403	RD14BB2C101J	RES. CARBON	100	5%	1/6W				
R404	RD14BB2C123J	RES. CARBON	12K	5%	1/6W				
R405	RD14BB2C101J	RES. CARBON	100	5%	1/6W				
R406	RD14BB2C221J	RES. CARBON	220	5%	1/6W				
R407	RD14BB2C332J	RES. CARBON	3.3K	5%	1/6W				
R408	RD14BB2C331J	RES. CARBON	330	5%	1/6W				
R409	RD14BB2C472J	RES. CARBON	4.7K	5%	1/6W				
R410	RD14BB2C472J	RES. CARBON	4.7K	5%	1/6W				
R411	RD14BB2C473J	RES. CARBON	47K	5%	1/6W				
R412	RD14BB2C331J	RES. CARBON	330	5%	1/6W				
R413	RD14BB2C472J	RES. CARBON	4.7K	5%	1/6W				
R414	RD14BB2H473J	RES. CARBON	47K	5%	1/2W				
R415	RD14BB2H473J	RES. CARBON	47K	5%	1/2W				
R416	RD14BB2C222J	RES. CARBON	2.2K	5%	1/6W				
R417	RD14BB2H473J	RES. CARBON	47K	5%	1/2W				
R418	RD14BB2H473J	RES. CARBON	47K	5%	1/2W				
R419	RD14BB2C681J	RES. CARBON	680	5%	1/6W				
R420	RD14BB2C681J	RES. CARBON	680	5%	1/6W				
R421	RD14BB2C101J	RES. CARBON	100	5%	1/6W				
R422	RD14BB2C101J	RES. CARBON	100	5%	1/6W				
R423	RD14BB2E332J	RES. CARBON	3.3K	5%	1/4W				
R424	R92-1057-05	RES. METAL FILM	2.2M	5%	1/2W				
R425	RD14BB2C823J	RES. CARBON	82K	5%	1/6W				
R426	R92-1057-05	RES. METAL FILM	2.2M	5%	1/2W				
R427	R92-1007-05	RES. CARBON	10M	5%	1/2W				
R428	R92-1007-05	RES. CARBON	10M	5%	1/2W				
R429	RD14BB2E102J	RES. CARBON	1K	5%	1/4W				
R430	RD14BB2E102J	RES. CARBON	1K	5%	1/4W				
R431	RD14BB2C101J	RES. CARBON	100	5%	1/6W				
R432	RD14BB2C101J	RES. CARBON	100	5%	1/6W				
R433	R92-1057-05	RES. METAL FILM	2.2M	5%	1/2W				
R434	RD14BB2C103J	RES. CARBON	10K	5%	1/6W				
R435	R92-1007-05	RES. CARBON	10M	5%	1/2W				
R436	R92-1007-05	RES. CARBON	10M	5%	1/2W				
R437	R92-1418-05	RES. METAL FILM	6.8M	1%	1W				
R438	R92-1419-05	RES. METAL FILM	10M	1%	1W				
R439	RD14BB2C471J	RES. CARBON	470	5%	1/6W				
R440	RN14BK2C1103F	RES. METAL FILM	110K	1%	1/6W				
R441	RD14BB2C472J	RES. CARBON	4.7K	5%	1/6W				
R442	RN14BK2C8201F	RES. METAL FILM	8.2K	1%	1/6W				
R443	RN14BK2C1202F	RES. METAL FILM	12K	1%	1/6W				
R444	RD14BB2C102J	RES. CARBON	1K	5%	1/6W				
R445	RD14BB2C332J	RES. CARBON	3.3K	5%	1/6W				
R446	RS14GB3A1R0J	RES. METAL FILM	1	5%	1W				
R447	RD14BB2H223J	RES. CARBON	22K	5%	1/2W				
R448	RD14BB2C104J	RES. CARBON	100K	5%	1/6W				
R449	RD14BB2C473J	RES. CARBON	47K	5%	1/6W				
R450	NO USE								
R451	RD14BB2C681J	RES. CARBON	680	5%	1/6W				
R452	RD14BB2C470J	RES. CARBON	47	5%	1/6W				
R453	RS14GB3A102J	RES. METAL FILM	1K	5%	1W				
R454	RS14GB3A750J	RES. METAL FILM	75	5%	1W				
R455	RS14GB3A750J	RES. METAL FILM	75	5%	1W				
R456	RD14BB2C304J	RES. CARBON	300K	5%	1/6W				
R457	RD14BB2C682J	RES. CARBON	6.8K	5%	1/6W				
R801	RD14BB2C151J	RES. CARBON	150	5%	1/6W				
R802	RD14BB2C120J	RES. CARBON	12	5%	1/6W				
R803	RD14BB2C103J	RES. CARBON	10K	5%	1/6W				
R804	RD14BB2C561J	RES. CARBON	560	5%	1/6W				
R805	RD14BB2C163J	RES. CARBON	16K	5%	1/6W				
S001	S33-2501-05	LEVER SWITCH	2-5						
S002	S32-4008-05	LEVER SWITCH	4-5						
S101	S33-4503-05	LEVER SWITCH	4-5 (H.MODE)						

REF.NO	PARTS NO	NAME & DESCRIPTION	QTY	UNIT
S102	S29-4501-05	ROTARY SWITCH WITH V.R.(VR102)		
S202	S32-4009-05	LEVER SWITCH 4-4		
T401	L19-0421-05	CONVERTOR TRANSFORMER		
TC101	C05-0454-05	CAP. TRIMMER 20PF		
TC201	C05-0454-05	CAP. TRIMMER 20PF		
U001	SN74LS00N	IC. QUAD 2 INPUT NAND		
U101	SN74LS00N	IC. QUAD 2 INPUT NAND		
U102	SN74LS112AN	IC. DUAL JK-FF		
U103	TL081CP	IC. BI-FET D.P AMP		
U104	TC4053BP	IC. 2-CH ANALOG MULTIPLEXER		
U201	SN74LS112AN	IC. DUAL JK-FF		
U202	TL081CP	IC. BI-FET D.P AMP		
U203	SN74LS112AN	IC. DUAL JK-FF		
U401	LF13741N	IC. MONOLITHIC JFET INPUT OP		
VR001	R12-2522-05	RES. SEMI FIXED 5K B		
VR002	R12-0575-05	RES. SEMI FIXED 100 B		
VR003	R12-0577-05	RES. SEMI FIXED 500 B		
VR101	R12-3549-05	RES. SEMI FIXED 10K B		
VR102	R06-3502-05	V.R. 10K B		
VR201	R12-3549-05	RES. SEMI FIXED 10K B		
VR202	R12-1545-05	RES. SEMI FIXED 1K B		
VR203	R12-1545-05	RES. SEMI FIXED 1K B		
VR204	R12-3550-05	RES. SEMI FIXED 20K B		
VR301	R12-1546-05	RES. SEMI FIXED 2K B		
VR302	R12-0575-05	RES. SEMI FIXED 100 B		
VR401	R12-4516-05	RES. SEMI FIXED 50K B		
VR402	R12-8501-05	RES. SEMI FIXED 2.2M B		
VR403	R12-3549-05	RES. SEMI FIXED 10K B		
W001	W02-0488-05	HIGH VOLTAGE BLOCK		</

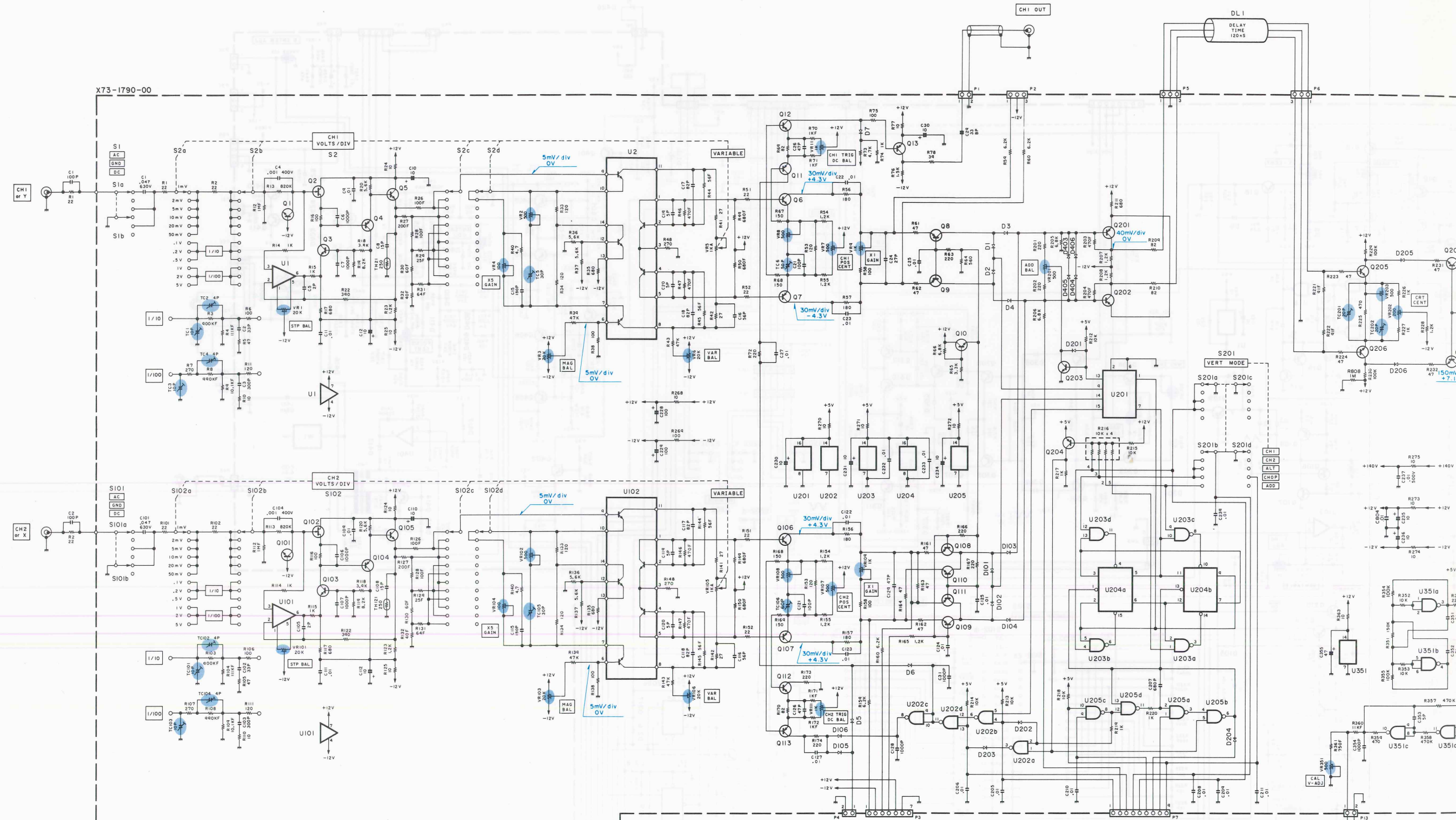
SCHEMATIC DIAGRAM



CS-5135

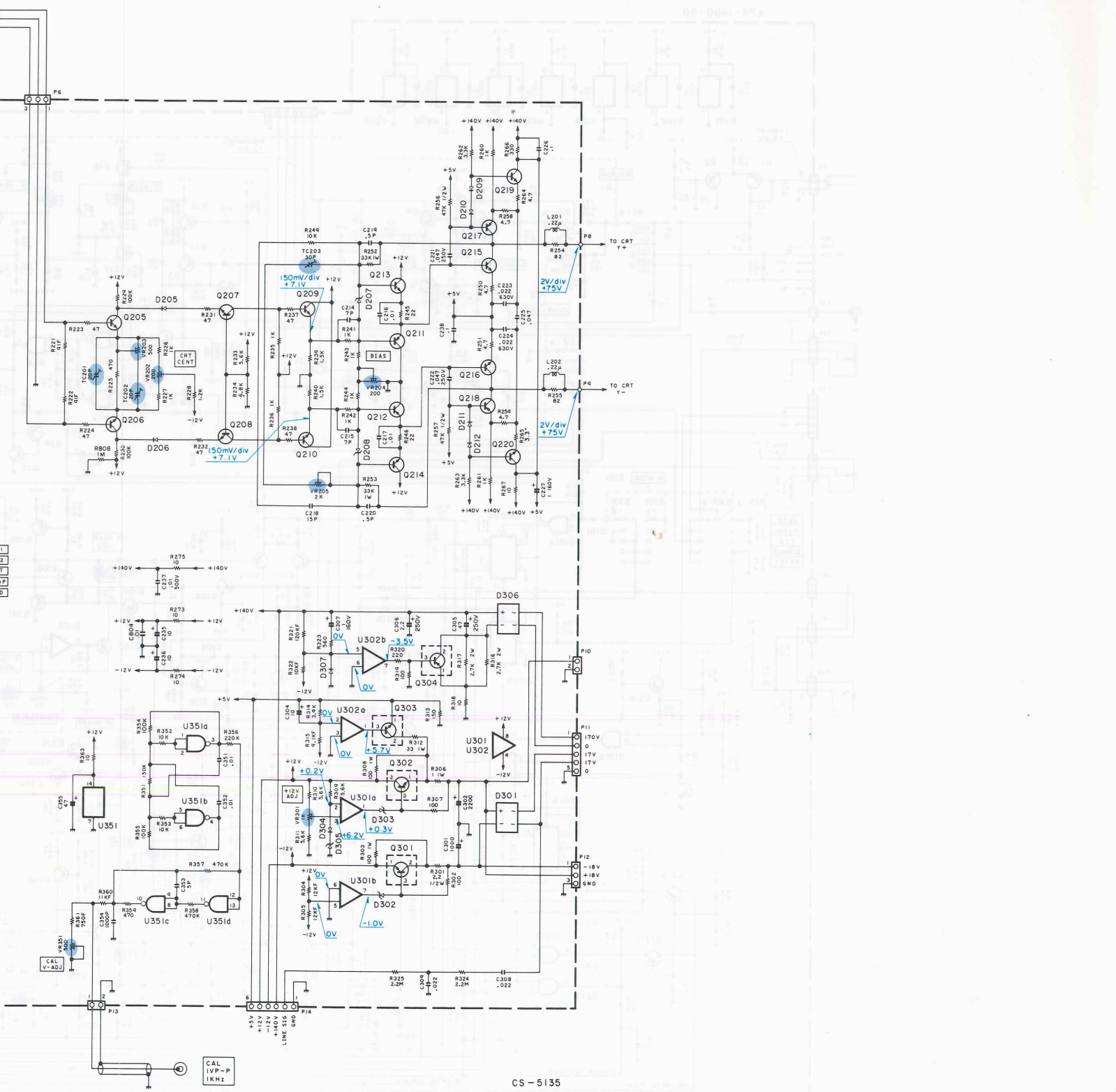
SCHEMATIC DIAGRAM

VERTICAL UNIT (X73-1790-00)



- | | | | | | |
|----------------|---------------|-----------------------------------|--------------|---------------------|--------------|
| U1, 101 | : LF411CN | Q6, 7, 11, 12, 106, 107, 112, 113 | : 2SA1005(K) | Q213, 214, 219, 220 | : 2SC2570A |
| U2, 102 | : CA3086 | Q3, 5, 10, 103, 105, 203 | : 2SC945(Q) | Q215, 216 | : 2SC3423(Y) |
| U201 | : SN74LS47N | Q4, 104, 204 | : 2SA844(D) | Q217, 218 | : 2SA1360(Y) |
| U202, 203, 205 | : SN74LS00N | Q8, 9, 108-111 | : 2SA838(B) | Q301, 303 | : 2SD880(Y) |
| U204 | : SN74LS112AN | Q13, 101, 205-210, 1 | : 2SC1907 | Q302 | : 2SB8834(Y) |
| U301, 302 | : µPC4558C | Q102, 2 | : 2SK304(E) | Q304 | : 2SB861(C) |
| U351 | : TC4011BP | Q201, 202, 211, 212 | : 2SA1206(K) | | |

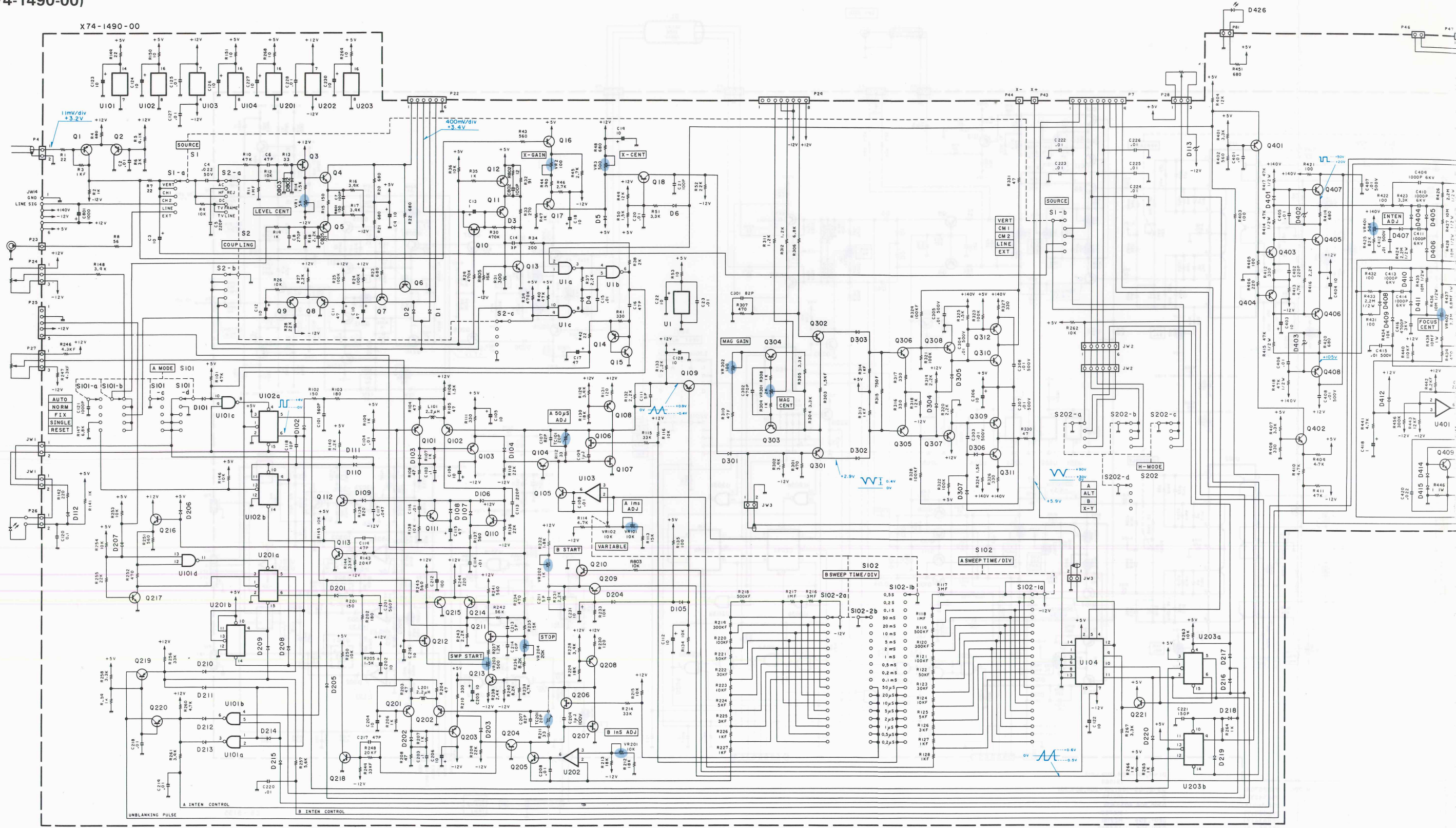
- D1-4, 101-104, 209-212 : 1S1588
D5-6, 105-106, 201-204, 304, 307 : ISS132
D : ISS132
D205, 206, 403-406 : MA700
D207, 208 : HZ2(B)
D301, 306 : IG4842
D302, 303 : HZ513J(B2)
D305 : HZ55.6J(B2)



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SCHEMATIC DIAGRAM

HORIZONTAL UNIT (X74-1490-00)



U1,101 : 5N74LS00N
 U102, 201, 203 : 5N74LS12AN
 U103, 202 : TL081CP
 U104 : TC4053BP
 U401 : LF1374IN

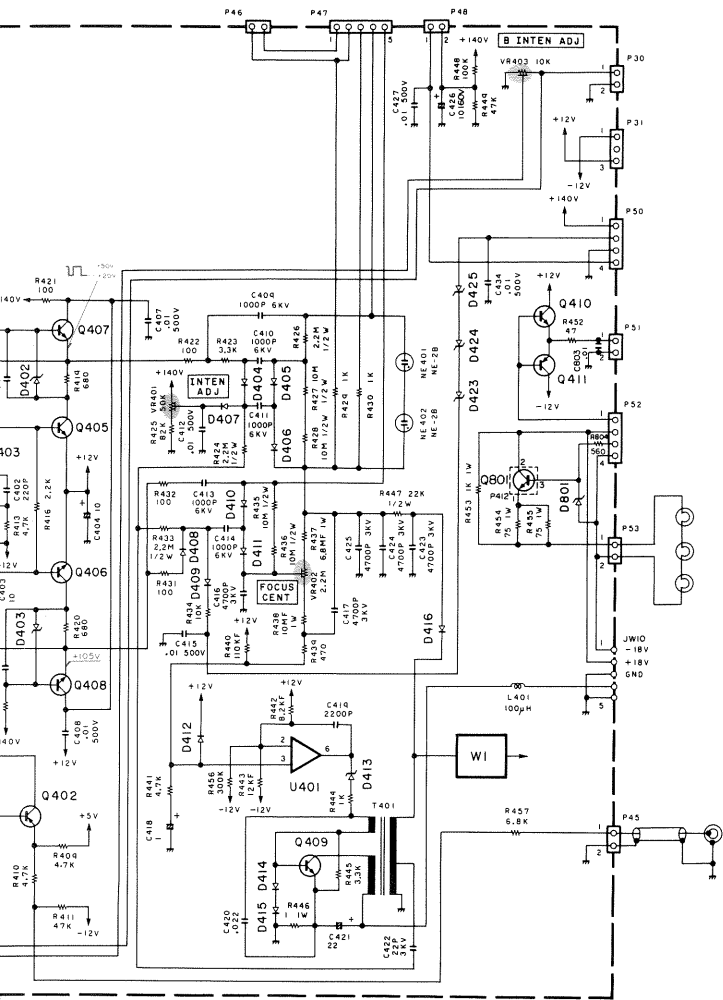
Q1, 2, 219, 220, 401, 402 : 2SA1005 (K)
 Q3 : 2SK304 (E)
 Q4, 5, 13, 15, 305~307, 403, 404 : 2SC1907
 Q6~9, 14, 18, 101~103, 108, 109, 201~203, 208, 209, 214, 215 : 2SA844 (D)
 Q10, 106, 206 : 2SK117 (BL)
 Q11, 104, 204, 308 : 2SA838 (B)
 Q12, 210, 303, 304, 411 : 2SA1015 (Y)
 Q16, 17, 110~113, 213, 216~218, 221, 301, 302, 410 : 2SC945 (Q)

Q105, 205 : 2SC1843 (E)
 Q107, 207, 211, 212 : 2SK170 (V)
 Q309, 310, 405~408 : 2SD668A (C)
 Q311, 312 : 2SB648A (C)
 Q409 : 2SD880 (Y)

D1, 2, 4~6, 101, 102, 105~112, 204, 205, 301, 305, 306, 401, 412, 414, 415 : 1S586
 D3, 304 : 1S586
 D113 : HZS6.8J (B2)
 D302, 303 : MA700
 D307, 404~411 : ISS83
 D402, 403 : HZ2 (B3)
 D413 : HZS5.6J (B2)
 D416 : Y10GA
 D5, 103, 104, 201~203, 206~220, 301, 305, 306, 802, 803 : 1S1588

: ISS32
 : 1S586
 : HZS6.8J (B2)
 : MA700
 : ISS83
 : HZ2 (B3)
 : HZS5.6J (B2)
 : Y10GA
 : 1S1588

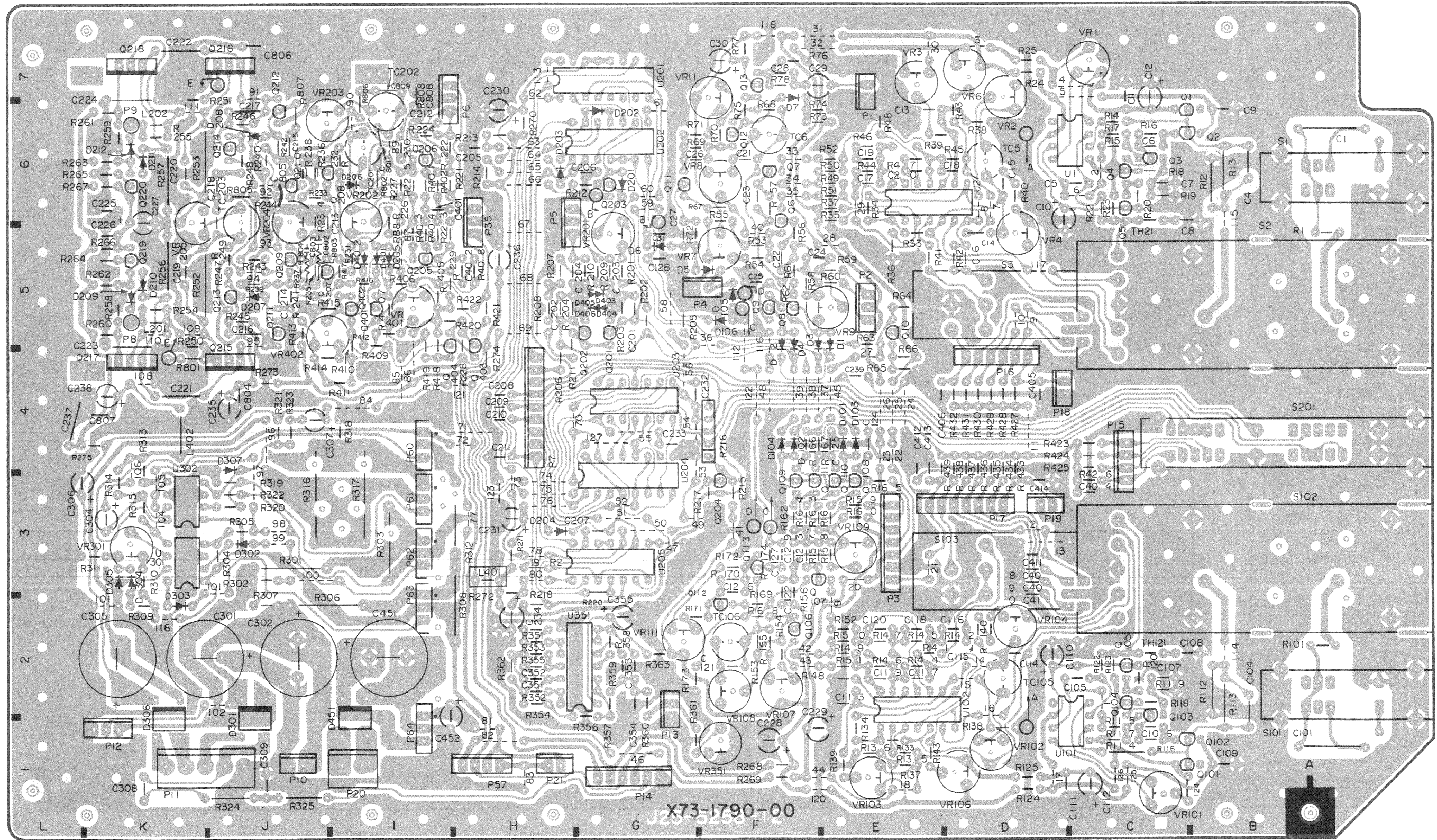
D423~425 : HZ36L (2)
 D426 : B30-0957-05
 D801 : RD30E



P.C. BOARD

VERTICAL UNIT (X73-1790-00)

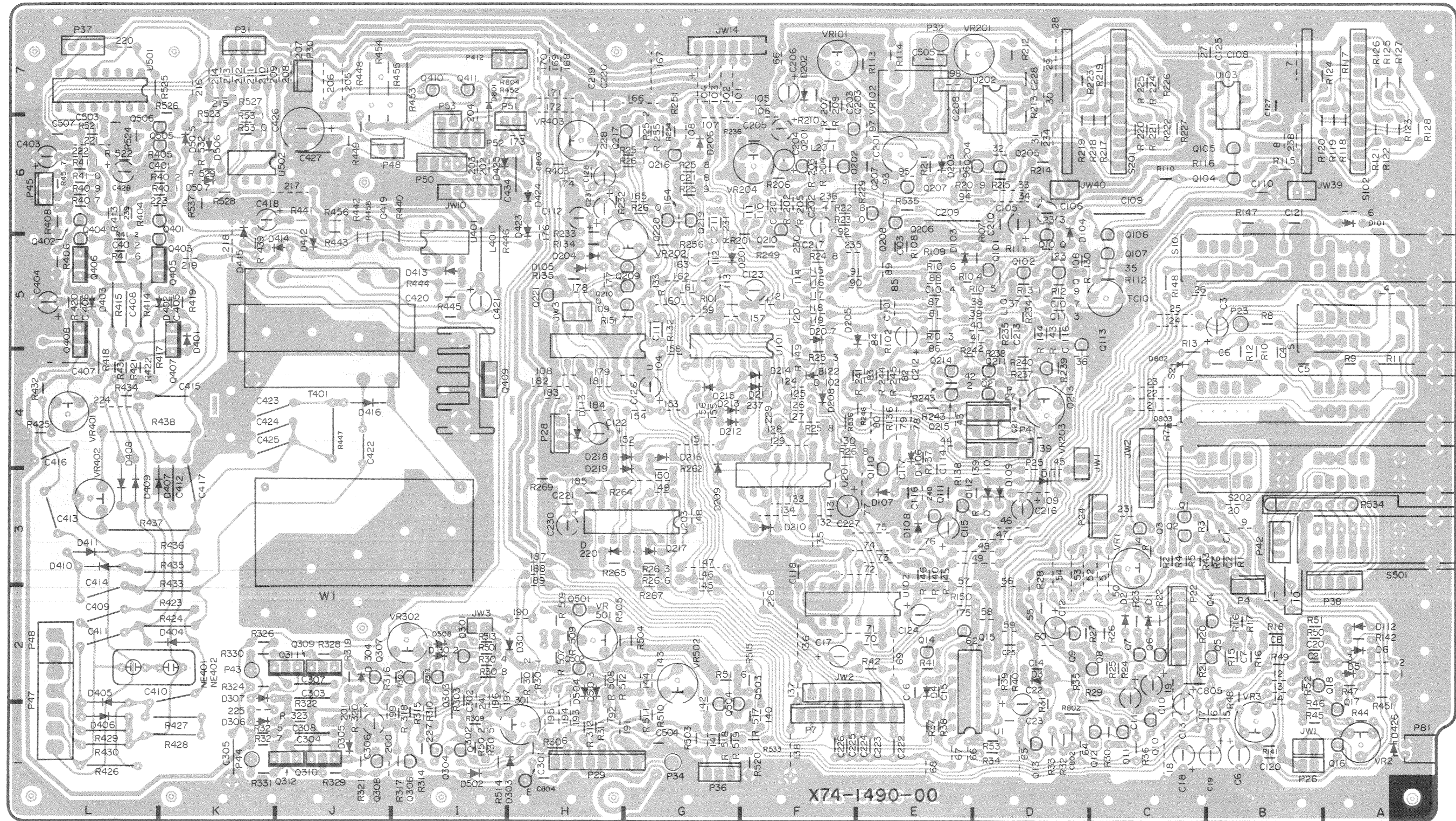
Pattern side view



P.C. BOARD

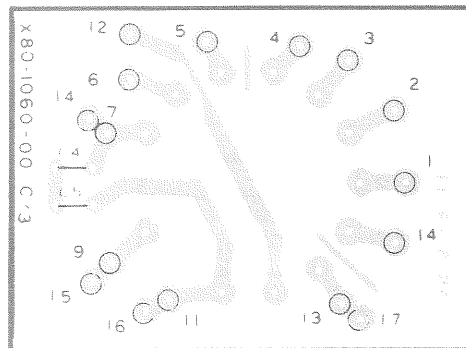
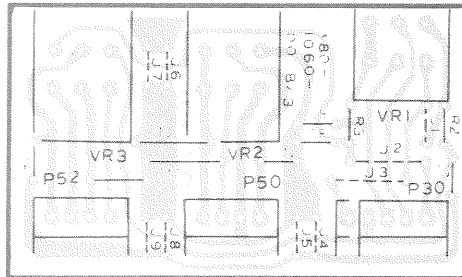
HORIZONTAL UNIT (X74-1490-00)

Pattern side view



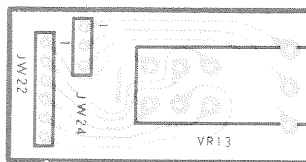
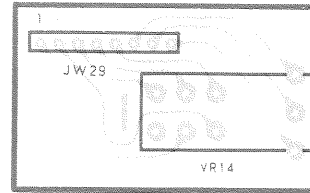
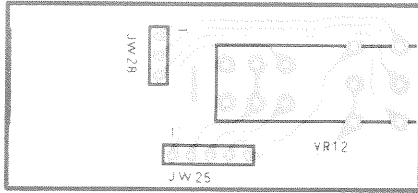
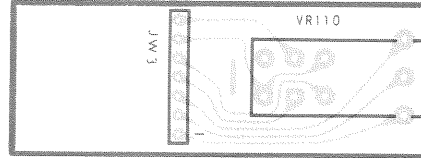
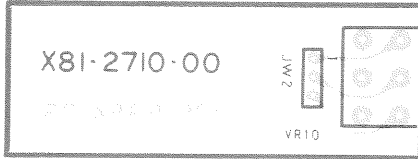
P.C. BOARD

LINE FILTER UNIT (X80-1060-02)

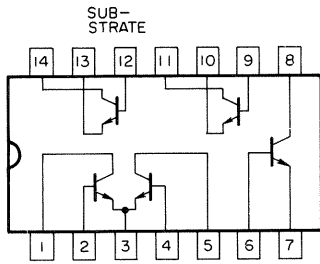


P.C. BOARD

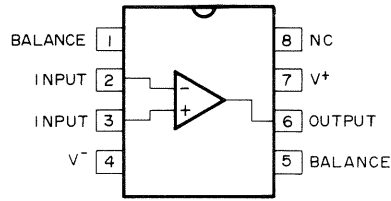
VR UNIT (X81-2710-00)



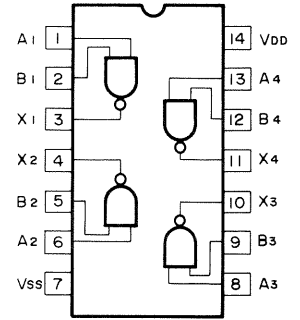
SEMICONDUCTORS



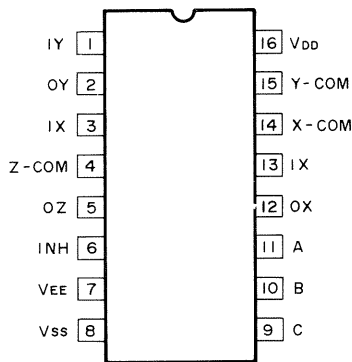
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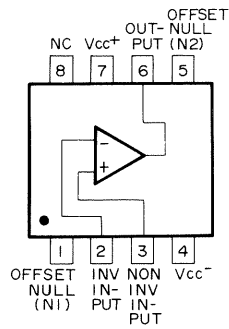
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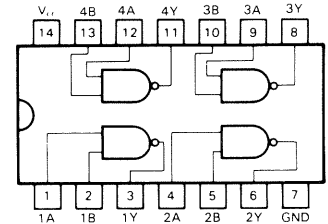
TC4011BP



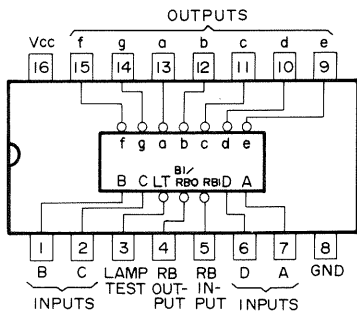
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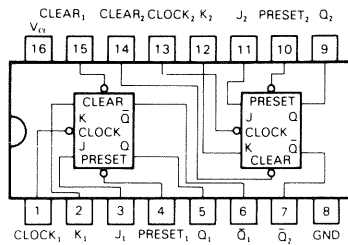
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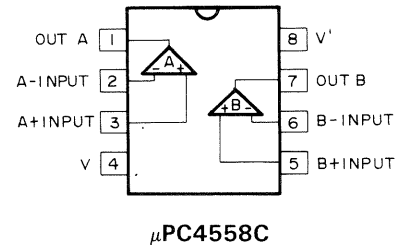
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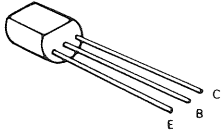


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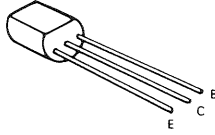


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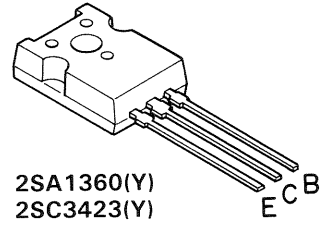
SEMICONDUCTORS



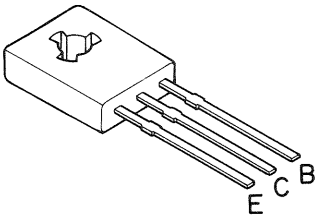
2SA1206(K)



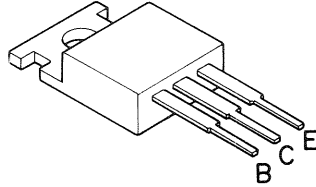
2SA838(B)
2SA844(D)
2SA1005(K)
2SA1015(Y)
2SC945(Q)
2SC1843(E)
2SC1907



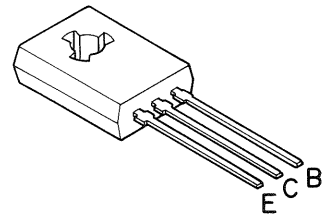
2SA1360(Y)
2SC3423(Y)



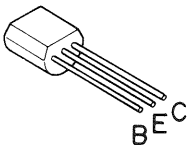
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2SD668A(C)



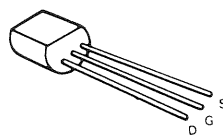
2SB834(Y)
2SB861(C)
2SD880(Y)



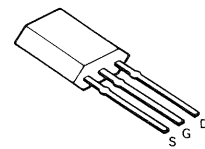
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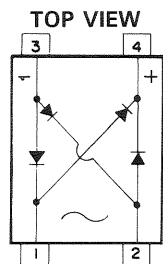
2SC2570A



2SK117(BL)
2SK170(V)



2SK304(E)



1G4B42

A product of
KENWOOD CORPORATION
17-5, 2-chome, Shibuya, Shibuya-ky, Tokyo 150, Japan

B51-1075-00 (T)

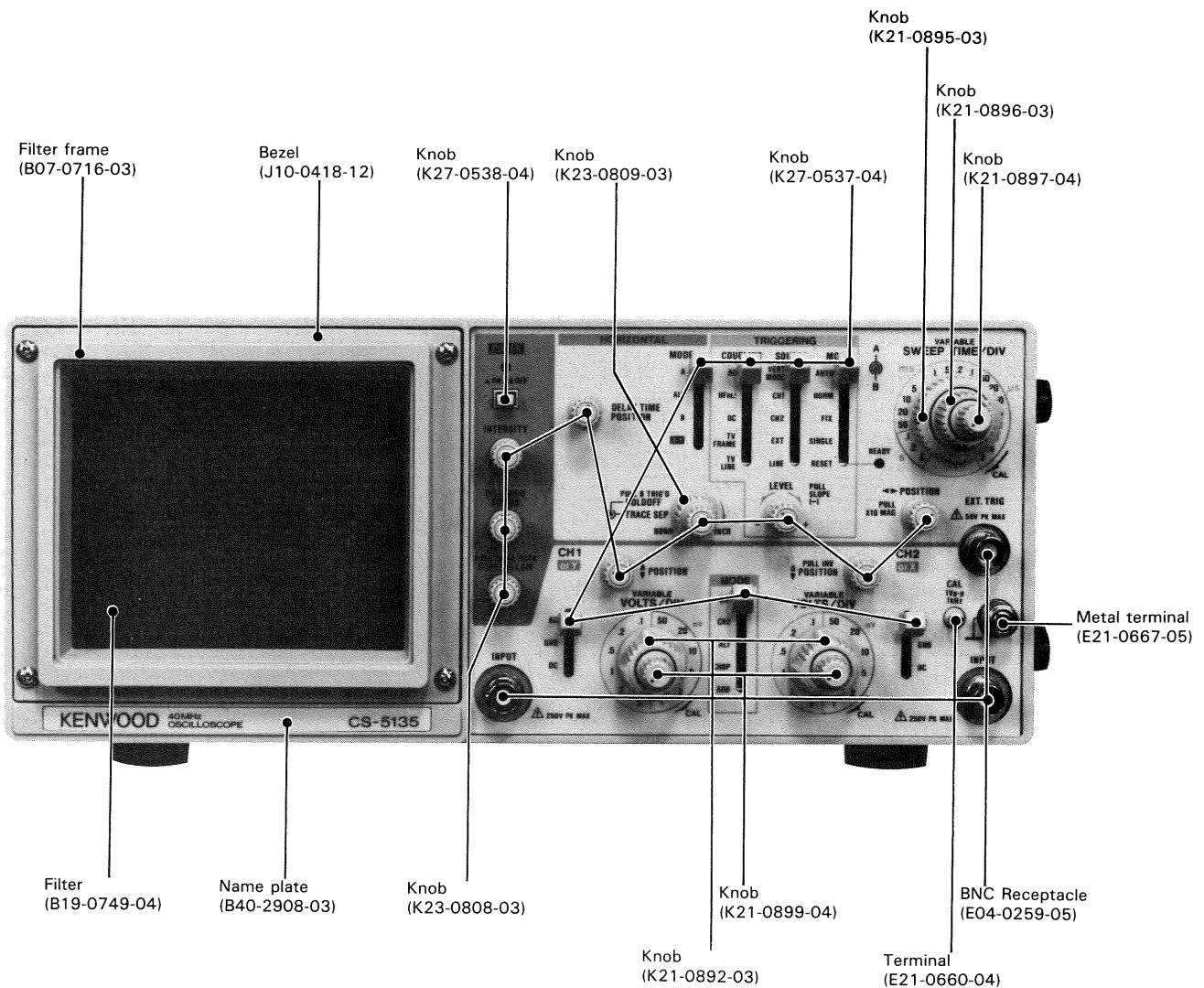
**SCHEMATIC DIAGRAM
PARTS LIST
P.C. BOARD
ADJUSTMENT LOCATIONS**

KENWOOD

CS-5135

40 MHz Oscilloscope

Serial No. 9090001 ~



PARTS LIST

CS-5135 UNIT

Y70-1600-00

REF. NO	PARTS NO	NAME & DESCRIPTION
	B30-0952-05	LAMP (T4.2 8V 0.15A)
	B41-0710-04	CAUTION LABEL (HIGH VOLTAGE)
	B50-7666-00	INSTRUCTION MANUAL (JAPANESE)
	B50-7667-00	INSTRUCTION MANUAL (ENGLISH)
	E31-0564-05	WIRE ASS'Y (GND)
	E31-5502-05	WIRE ASS'Y (CH1 OUT)
	E31-5509-05	WIRE ASS'Y (CAL)
	E31-5510-05	WIRE ASS'Y (V/H SUPPLY)
	E31-5514-05	WIRE ASS'Y (SCALE ILLUM. SUPPLY)
	E31-5516-05	WIRE ASS'Y (EXT. TRIG)
	E31-5519-05	WIRE ASS'Y (READY LED)
	E31-5521-05	WIRE ASS'Y (DELAY LINE)
	E31-5526-05	WIRE ASS'Y (Z AXIS)
	E31-5543-05	WIRE HARNESS
	F05-1023-05	FUSE (6X30MM) 1A
	F05-5013-05	FUSE (6X30MM) 0.5A
	F05-5016-05	FUSE (5X20MM) 0.5AT
	H01-5887-04	CARTON BOX
	H10-2828-12	FOAMED STYRENE PAD (FRONT)
	H10-2829-12	FOAMED STYRENE PAD (REAR)
	H20-1727-04	VINYL COVER
	H25-0029-04	POLYETHYLENE BAG (FUSE)
	J61-0408-05	WIRE WRAPPING BAND
	W03-2308-05	PROBE (PC-30)
C1	CC45FCH1H101J	CAP. CERAMIC 100P 5% 50V
C2	CC45FCH1H101J	CAP. CERAMIC 100P 5% 50V
C3	CK45B2H102K	CAP. CERAMIC 1000P 10% 500V
C4	CK45B2H102K	CAP. CERAMIC 1000P 10% 500V
R1	RD148B2E220J	RES. CARBON 22 5% 1/4W
R2	RD148B2E220J	RES. CARBON 22 5% 1/4W
1	A01-1154-22	CASE (BOTTOM)
2	A01-1193-02	CASE (TOP)
3	A13-0914-02	FRAME (L)
4	A13-0917-02	FRAME (R. LOWER)
5	A13-0922-02	FRAME (CENTER)
6	A13-0923-02	FRAME (R. UPPER)
7	A20-2822-21	MOLDED PANEL
8	A21-1134-03	DECORATIVE PANEL
9	A22-0870-02	SUB PANEL
10	A23-1682-02	REAR PANEL
11	B07-0716-03	FILTER FRAME
12	B19-0749-04	FILTER
13	B30-0951-25	SCALE ILLUMI LAMP ASS'Y
14	B30-0957-05	LED (LN322GPT)
15	B40-2765-04	NAME PLATE (SERIAL NO)
16	B40-2908-03	NAME PLATE (MODEL)
17	B41-0801-04	CAUTION LABEL
18	D21-0915-04	EXTENSION SHAFT
19	D22-0501-04	JOINT & COUPLING
20	E04-0259-05	BNC RECEPTACLE
21A	E18-0365-05	AC SELECTOR WITH 6X30MM FUSE
21B	E18-0366-05	AC SELECTOR FOR 5X20MM FUSE
22	E21-0660-04	TERMINAL (CAL)
23	E21-0667-05	METAL TERMINAL
24	E23-0513-05	EARTH LUG (BNC)
25	E23-0552-04	EARTH TERMINAL
26A	E30-1818-05	JIS POWER CORD
26B	E30-1819-05	CEE POWER CORD
26C	E30-1820-05	UL/CSA POWER CORD
26D	E30-1821-05	SA POWER CORD
26E	E30-1644-15	BS POWER CORD
27	F09-0512-04	EDGING
28	F11-1206-03	CRT SHIELD
29	F15-0733-04	FELT (CRT SHIELD)
30	F20-0658-04	INSULATED SHEET
31	F20-0667-04	INSULATED SHEET
32	F20-0672-14	INSULATED SHEET
33	G01-0909-04	COIL SPRING (CAL SHIELD)
34	J02-0089-05	FOOT
35	J02-0512-05	FOOT (SMALL)
36	J02-0515-04	TILT STAND
37	J10-0418-12	BEZEL
38	J19-1651-04	BLACKET
39	J19-1652-04	BLACKET FOR P.C.B.
40	J19-1653-13	HOLDER FOR CRT
41	J19-1654-14	HOLDER FOR LED
42	J21-2573-04	HOLDER FOR LEG
43	J21-4594-03	BRACKET FOR CRT
44	J30-0621-04	SPACER
45	J30-0623-04	SPACER
46	J42-0533-04	BUSHING (FREE)
47	J59-0403-05	NYLON RIVET (ILLUMI)
48	J61-0509-05	WIRE WRAPPING BAND
49	K01-0409-05	HANDLE

REF. NO	PARTS NO	NAME & DESCRIPTION
50	K21-0892-03	KNOB (VOLTS/DIV)
51	K21-0895-03	KNOB (A SWEEP)
52	K21-0896-03	KNOB (B SWEEP)
53	K21-0897-14	KNOB
54	K21-0899-04	KNOB
55	K23-0808-03	KNOB
56	K23-0809-03	KNOB
57	K27-0537-04	KNOB (FOR LEVER SWITCH)
58	K27-0538-04	KNOB (FOR PUSH SWITCH)
59	L01-9736-05	POWER TRANSFORMER
60	L39-0526-15	ROTATION COIL
61	L76-0114-05	DELAY LINE
62	N15-1040-41	WASHER
63	N16-0040-41	SPRING WASHER
64	N30-4006-41	SCREW, PAN HD M4X6
65	R29-1501-05	V.R. 1KB
66	S40-2524-05	PUSH SWITCH (POWER)
67	W01-0503-04	CORD WRAP
68	X73-1790-00	VERTICAL UNIT
69	X74-1490-00	HORIZONTAL UNIT
70	X80-1060-02	LINE FILTER UNIT
71	150VTM31	CRT

VERTICAL UNIT

X73-1790-00

REF. NO	PARTS NO	NAME & DESCRIPTION
	F01-0863-03	HEAT SINK 169X60XT1.6
	F01-0864-04	HEAT SINK 61X33XT1
	F20-0516-05	INSULATOR
	J25-5258-02	PCB (UNMOUNTED)
	N09-0626-04	SCREW, SEMS M3X10
	N09-0742-04	SCREW, SEMS M3X8
	N19-0191-05	WASHER NONMETAL
	R92-1061-05	JUMPING RES. ZERO OHM (5MM)
C001	C91-0501-05	CAP. METAL FILM 0.047 10% 630V
C004	C91-1270-05	CAP. POLYESTER 0.001 10% 400V
C005	CC45FCH1H020C	CAP. CERAMIC 2P 0.25P 50V
C006	CK45FB1H102K	CAP. CERAMIC 1000P 10% 50V
C007	CK45FB1H102K	CAP. CERAMIC 1000P 10% 50V
C008	CC45FCH1H150J	CAP. CERAMIC 15P 5% 50V
C009	CK45FF1H103Z	CAP. CERAMIC 0.01 50V
C010	CE04EW1H100M	CAP. ELECTRO 10 20% 50V
C011	CK45FF1H103Z	CAP. CERAMIC 0.01 50V
C012	CE04EW1H100M	CAP. ELECTRO 10 20% 50V
C015	CC45FSL1H151J	CAP. CERAMIC 150P 5% 50V
C016	CC45FCH1H560J	CAP. CERAMIC 56P 5% 50V
C017	CC45FCH1H820J	CAP. CERAMIC 82P 5% 50V
C018	CC45FCH1H820J	CAP. CERAMIC 82P 5% 50V
C019	CC45FCH1H050C	CAP. CERAMIC 5P 0.25P 50V
C020	CC45FCH1H050C	CAP. CERAMIC 5P 0.25P 50V
C021	CC45FCH1H101J	CAP. CERAMIC 100P 5% 50V
C022	CK45FF1H103Z	CAP. CERAMIC 0.01 50V
C023	CK45FF1H103Z	CAP. CERAMIC 0.01 50V
C024	CC45FCH1H470J	CAP. CERAMIC 47P 5% 50V
C025	CK45FF1H103Z	CAP. CERAMIC 0.01 50V
C026	CC45FCH1H470J	CAP. CERAMIC 47P 5% 50V
C027	CK45FF1H103Z	CAP. CERAMIC 0.01 50V
C028	NO USE	
C029	CE04BW1E330M	CAP. ELECTRO 33 20% 25V
C030	CE04EW1H100M	CAP. ELECTRO 10 20% 50V
C031	CK45FB1H102K	CAP. CERAMIC 1000P 10% 50V
C101	C91-0501-05	CAP. METAL FILM 0.047 10% 630V
C104	C91-1270-05	CAP. POLYESTER 0.001 10% 400V
C105	CC45FCH1H020C	CAP. CERAMIC 2P 0.25P 50V
C106	CK45FB1H102K	CAP. CERAMIC 1000P 10% 50V
C107	CK45FB1H102K	CAP. CERAMIC 1000P 10% 50V
C108	CC45FCH1H150J	CAP. CERAMIC 15P 5% 50V
C109	CK45FF1H103Z	CAP. CERAMIC 0.01 50V
C110	CE04EW1H100M	CAP. ELECTRO 10 20% 50V
C111	CK45FF1H103Z	CAP. CERAMIC 0.01 50V
C112	CE04EW1H100M	CAP. ELECTRO 10 20% 50V
C115	CC45FSL1H151J	CAP. CERAMIC 150P 5% 50V
C116	CC45FCH1H560J	CAP. CERAMIC 56P 5% 50V
C117	CC45FCH1H820J	CAP. CERAMIC 82P 5% 50V
C118	CC45FCH1H820J	CAP. CERAMIC 82P 5% 50V
C119	CC45FCH1H050C	CAP. CERAMIC 5P 0.25P 50V
C120	CC45FCH1H050C	CAP. CERAMIC 5P 0.25P 50V
C121	CC45FCH1H101J	CAP. CERAMIC 100P 5% 50V
C122	CK45FF1H103Z	CAP. CERAMIC 0.01 50V
C123	CK45FF1H103Z	CAP. CERAMIC 0.01 50V

PARTS LIST

REF.NO	PARTS NO	NAME & DESCRIPTION	REF.NO	PARTS NO	NAME & DESCRIPTION
C124	CK45FF1H103Z	CAP. CERAMIC 0.01 50V	D301	1G4B42	DIODE
C125	CK45FF1H103Z	CAP. CERAMIC 0.01 50V	D302	H2S13J(B2)	DIODE ZENER 13.21V
C126	CC45FCH1H470J	CAP. CERAMIC 47P 5% 50V	D303	H2S13J(B2)	DIODE ZENER 13.21V
C127	CK45FF1H103Z	CAP. CERAMIC 0.01 50V	D304	1S1588	DIODE
C128	CK45FB1H102K	CAP. CERAMIC 1000P 10% 50V	D305	H2S5.6J(B2)	DIODE ZENER 5.62V
C129	CC45FCH1H270J	CAP. CERAMIC 27P 5% 50V	D306	1G4B42	DIODE
			D307	1S1588	DIODE
C205	CK45FF1H103Z	CAP. CERAMIC 0.01 50V	J003	E31-5503-05	LEAD WIRE WITH CONNECTOR
C206	CK45FF1H103Z	CAP. CERAMIC 0.01 50V	J010	E31-5507-05	LEAD WIRE WITH CONNECTOR
C207	CC45FSL1H681J	CAP. CERAMIC 680P 5% 50V	J024	E31-5517-05	LEAD WIRE WITH CONNECTOR
C208	CK45FF1H103Z	CAP. CERAMIC 0.01 50V	J025	E31-5518-05	LEAD WIRE WITH CONNECTOR
C209	CK45FF1H103Z	CAP. CERAMIC 0.01 50V	J026	NO USE	
C210	CK45FF1H103Z	CAP. CERAMIC 0.01 50V	J027	E31-5520-05	LEAD WIRE WITH CONNECTOR
C211	CK45FF1H103Z	CAP. CERAMIC 0.01 50V	J028	NO USE	
C212	CK45FF1H103Z	CAP. CERAMIC 0.01 50V	J029	E31-5522-05	LEAD WIRE WITH CONNECTOR
C213	CK45FF1H103Z	CAP. CERAMIC 0.01 50V	J030	E31-5523-05	LEAD WIRE WITH CONNECTOR
C214	CC45FCH1H070D	CAP. CERAMIC 7P 0.5P 50V	J060	E31-5544-05	LEAD WIRE WITH CONNECTOR
C215	CC45FCH1H070D	CAP. CERAMIC 7P 0.5P 50V	J061	E31-5545-05	LEAD WIRE WITH CONNECTOR
C216	CK45FF1H103Z	CAP. CERAMIC 0.01 50V	J062	E31-5546-05	LEAD WIRE WITH CONNECTOR
C217	CK45FF1H103Z	CAP. CERAMIC 0.01 50V	J063	E31-5547-05	LEAD WIRE WITH CONNECTOR
C218	CC45FCH1H150J	CAP. CERAMIC 15P 5% 50V	L201	L40-2282-13	AXIAL COIL 0.22UH
C219	CC45FCH1H0R5C	CAP. CERAMIC 0.5P 0.25P 50V	L202	L40-2282-13	AXIAL COIL 0.22UH
C220	CC45FCH1H0R5C	CAP. CERAMIC 0.5P 0.25P 50V	P001	E40-0273-05	PIN CONNECTOR 2P
C221	C91-1269-05	CAP. POLYESTER 0.047 10% 250V	P002	E40-0373-05	PIN CONNECTOR 3P
C222	C91-1269-05	CAP. POLYESTER 0.047 10% 250V	P003	E40-0773-05	PIN CONNECTOR 7P
C223	C91-1268-05	CAP. POLYESTER 0.022 10% 630V	P004	E40-0273-05	PIN CONNECTOR 2P
C224	C91-1268-05	CAP. POLYESTER 0.022 10% 630V	P005	E40-0373-05	PIN CONNECTOR 3P
C225	CQ92FM1H473K	CAP. MYLAR 0.047 10% 50V	P006	E40-0373-05	PIN CONNECTOR 3P
C226	CQ92FM1H104K	CAP. MYLAR 0.1 10% 50V	P007	E40-0973-05	PIN CONNECTOR 9P
C227	CE04W2C010M	CAP. ELECTRO 1 20% 160V	P008	E23-0401-05	PIN TERMINAL
C228	CE04EW1E101M	CAP. ELECTRO 100 20% 25V	P009	E23-0401-05	PIN TERMINAL
C229	CE04EW1E101M	CAP. ELECTRO 100 20% 25V	P010	E40-0273-05	PIN CONNECTOR 2P
C230	CE04EW1H100M	CAP. ELECTRO 10 20% 50V	P011	E40-7031-05	PIN CONNECTOR 5 P
C231	CE04EW1H100M	CAP. ELECTRO 10 20% 50V	P012	E40-0373-05	PIN CONNECTOR 3P
C232	CK45FF1H103Z	CAP. CERAMIC 0.01 50V	P013	E40-0273-05	PIN CONNECTOR 2P
C233	CK45FF1H103Z	CAP. CERAMIC 0.01 50V	P014	E40-0673-05	PIN CONNECTOR 6P
C234	CE04EW1H100M	CAP. ELECTRO 10 20% 50V	Q001	2SC1907	TR. SI. NPN
C235	CE04EW1H100M	CAP. ELECTRO 10 20% 50V	Q002	2SK304(E)	FET. N-CHANNEL
C236	CE04EW1H100M	CAP. ELECTRO 10 20% 50V	Q003	2SC945(Q)	TR. SI. NPN
C237	CK45B2H103K	CAP. CERAMIC 0.01 10% 500V	Q004	2SA844(D)	TR. SI. PNP
C238	CQ92FM1H104K	CAP. MYLAR 0.1 10% 50V	Q005	2SC945(Q)	TR. SI. NPN
C239	CK45FF1H103Z	CAP. CERAMIC 0.01 50V	Q006	2SA1005(K)	TR. SI. PNP
C301	CE04EW1V102M	CAP. ELECTRO 1000 20% 35V	Q007	2SA1005(K)	TR. SI. PNP
C302	CE04EW1V222M	CAP. ELECTRO 2200 20% 35V	Q008	2SA838(B)	TR. SI. PNP
C303	NO USE		Q009	2SA838(B)	TR. SI. PNP
C304	CE04EW1H100M	CAP. ELECTRO 10 20% 50V	Q010	2SC945(Q)	TR. SI. NPN
C305	CE04W2E470M	CAP. ELECTRO 47 20% 250V	Q011	2SA1005(K)	TR. SI. PNP
C306	CE04W2E2R2M	CAP. ELECTRO 2.2 20% 250V	Q012	2SA1005(K)	TR. SI. PNP
C307	CE04W2C010M	CAP. ELECTRO 1 20% 160V	Q013	2SC1907	TR. SI. NPN
C308	CQ92FM1H223K	CAP. MYLAR 0.022 10% 50V	Q101	2SC1907	TR. SI. NPN
C309	CQ92FM1H223K	CAP. MYLAR 0.022 10% 50V	Q102	2SK304(E)	FET. N-CHANNEL
C351	CQ92FM1H103J	CAP. MYLAR 0.01 5% 50V	Q103	2SC945(Q)	TR. SI. NPN
C352	CQ92FM1H103J	CAP. MYLAR 0.01 5% 50V	Q104	2SA844(D)	TR. SI. PNP
C353	CC45FCH1H050C	CAP. CERAMIC 5P 0.25P 50V	Q105	2SC945(Q)	TR. SI. NPN
C354	CK45FB1H102K	CAP. CERAMIC 1000P 10% 50V	Q106	2SA1005(K)	TR. SI. PNP
C355	CE04EW1E470M	CAP. ELECTRO 47 20% 25V	Q107	2SA1005(K)	TR. SI. PNP
C801	CK45F1H103Z	CAP. CERAMIC 0.01 50V	Q108	2SA838(B)	TR. SI. PNP
D001	1S1588	DIODE	Q109	2SA838(B)	TR. SI. PNP
D002	1S1588	DIODE	Q110	2SA838(B)	TR. SI. PNP
D003	1S1588	DIODE	Q111	2SA838(B)	TR. SI. PNP
D004	1S1588	DIODE	Q112	2SA1005(K)	TR. SI. PNP
D005	1S1588	DIODE	Q113	2SA1005(K)	TR. SI. PNP
D006	1S1588	DIODE	Q201	2SA1206(K)	TR. SI. PNP
D007	1S1588	DIODE	Q202	2SA1206(K)	TR. SI. PNP
D101	1S1588	DIODE	Q203	2SC945(Q)	TR. SI. NPN
D102	1S1588	DIODE	Q204	2SA844(D)	TR. SI. PNP
D103	1S1588	DIODE	Q205	2SC1907	TR. SI. NPN
D104	1S1588	DIODE	Q206	2SC1907	TR. SI. NPN
D105	1S1588	DIODE	Q207	2SC1907	TR. SI. NPN
D106	1S1588	DIODE	Q208	2SC1907	TR. SI. NPN
D201	1S1588	DIODE	Q209	2SC1907	TR. SI. NPN
D202	1S1588	DIODE	Q210	2SC1907	TR. SI. NPN
D203	1S1588	DIODE	Q211	2SA1206(K)	TR. SI. PNP
D204	1S1588	DIODE	Q212	2SA1206(K)	TR. SI. PNP
D205	MA700	DIODE	Q213	2SC2570A	TR. SI. NPN
D206	MA700	DIODE	Q214	2SC2570A	TR. SI. NPN
D207	H22(B3)	DIODE ZENER 2.2V	Q215	2SC3423(Y)	TR. SI. NPN
D208	H22(B3)	DIODE ZENER 2.2V	Q216	2SC3423(Y)	TR. SI. NPN
D209	1S1588	DIODE	Q217	2SA1360(Y)	TR. SI. PNP
D210	1S1588	DIODE			
D211	1S1588	DIODE			
D212	1S1588	DIODE			

PARTS LIST

REF.NO	PARTS NO	NAME & DESCRIPTION	REF.NO	PARTS NO	NAME & DESCRIPTION
Q218	2SA1360(Y)	TR. SI. PNP	R125	RD14BB2C100J	RES. CARBON 10 5% 1/6W
Q219	2SC2570A	TR. SI. NPN	R133	RD14BB2C121J	RES. CARBON 120 5% 1/6W
Q220	2SC2570A	TR. SI. NPN	R134	RD14BB2C121J	RES. CARBON 120 5% 1/6W
Q301	2SD880(Y)	TR. SI. NPN	R135	RD14BB2C681J	RES. CARBON 680 5% 1/6W
Q302	2SB834(Y)	TR. SI. PNP	R136	RD14BB2C562J	RES. CARBON 5.6K 5% 1/6W
Q303	2SD880(Y)	TR. SI. NPN	R137	RD14BB2C562J	RES. CARBON 5.6K 5% 1/6W
Q304	2SB861(C)	TR. SI. PNP	R138	RD14BB2C101J	RES. CARBON 100 5% 1/6W
R001	RD14BB2C220J	RES. CARBON 22 5% 1/6W	R139	RD14BB2C473J	RES. CARBON 47K 5% 1/6W
R012	RN14BK2E1004F	RES. METAL FILM 1M 1% 1/4W	R140	RD14BB2C4R7J	RES. CARBON 4.7 5% 1/6W
R013	RD14BB2E824J	RES. CARBON 820K 5% 1/4W	R141	RD14BB2C270J	RES. CARBON 27 5% 1/6W
R014	RD14BB2C102J	RES. CARBON 1K 5% 1/6W	R142	RD14BB2C270J	RES. CARBON 27 5% 1/6W
R015	RD14BB2C102J	RES. CARBON 1K 5% 1/6W	R143	RD14BB2C473J	RES. CARBON 47K 5% 1/6W
R016	RD14BB2C101J	RES. CARBON 100 5% 1/6W	R144	RN14BK2C56ROF	RES. METAL FILM 56.0 1% 1/6W
R017	RD14BB2C681J	RES. CARBON 680 5% 1/6W	R145	RN14BK2C56ROF	RES. METAL FILM 56.0 1% 1/6W
R018	RD14BB2C392J	RES. CARBON 3.9K 5% 1/6W	R146	RD14BK2C4700F	RES. METAL FILM 470 1% 1/6W
R019	RD14BB2C822J	RES. CARBON 8.2K 5% 1/6W	R147	RD14BK2C4700F	RES. METAL FILM 470 1% 1/6W
R020	RD14BB2C562J	RES. CARBON 5.6K 5% 1/6W	R148	RD14BB2C271J	RES. CARBON 270 5% 1/6W
R021	NO USE		R149	RN14BK2C6800F	RES. METAL FILM 680 1% 1/6W
R022	RD14BB2C391J	RES. CARBON 390 5% 1/6W	R150	RN14BK2C6800F	RES. METAL FILM 680 1% 1/6W
R023	RD14BB2C122J	RES. CARBON 1.2K 5% 1/6W	R151	RD14BB2C220J	RES. CARBON 22 5% 1/6W
R024	RD14BB2C100J	RES. CARBON 10 5% 1/6W	R152	RD14BB2C220J	RES. CARBON 22 5% 1/6W
R025	RD14BB2C100J	RES. CARBON 10 5% 1/6W	R153	RD14BB2C121J	RES. CARBON 120 5% 1/6W
R033	RD14BB2C121J	RES. CARBON 120 5% 1/6W	R154	RD14BB2C122J	RES. CARBON 1.2K 5% 1/6W
R034	RD14BB2C121J	RES. CARBON 120 5% 1/6W	R155	RD14BB2C122J	RES. CARBON 1.2K 5% 1/6W
R035	RD14BB2C681J	RES. CARBON 680 5% 1/6W	R156	RD14BB2C181J	RES. CARBON 180 5% 1/6W
R036	RD14BB2C562J	RES. CARBON 5.6K 5% 1/6W	R157	RD14BB2C181J	RES. CARBON 180 5% 1/6W
R037	RD14BB2C562J	RES. CARBON 5.6K 5% 1/6W	R158	RD14BB2C101J	RES. CARBON 100 5% 1/6W
R038	RD14BB2C101J	RES. CARBON 100 5% 1/6W	R159	RD14BB2C622J	RES. CARBON 6.2K 5% 1/6W
R039	RD14BB2C473J	RES. CARBON 47K 5% 1/6W	R160	RD14BB2C622J	RES. CARBON 6.2K 5% 1/6W
R040	RD14BB2C4R7J	RES. CARBON 4.7 5% 1/6W	R161	RD14BB2C470J	RES. CARBON 47 5% 1/6W
R041	RD14BB2C270J	RES. CARBON 27 5% 1/6W	R162	RD14BB2C470J	RES. CARBON 47 5% 1/6W
R042	RD14BB2C270J	RES. CARBON 27 5% 1/6W	R163	RD14BB2C470J	RES. CARBON 47 5% 1/6W
R043	RD14BB2C473J	RES. CARBON 47K 5% 1/6W	R164	RD14BB2C470J	RES. CARBON 47 5% 1/6W
R044	RN14BK2C56ROF	RES. METAL FILM 56.0 1% 1/6W	R165	RD14BB2C122J	RES. CARBON 1.2K 5% 1/6W
R045	RN14BK2C56ROF	RES. METAL FILM 56.0 1% 1/6W	R166	RD14BB2C221J	RES. CARBON 220 5% 1/6W
R046	RD14BK2C4700F	RES. METAL FILM 470 1% 1/6W	R167	RD14BB2C221J	RES. CARBON 220 5% 1/6W
R047	RD14BK2C4700F	RES. METAL FILM 470 1% 1/6W	R168	RD14BB2C151J	RES. CARBON 150 5% 1/6W
R048	RD14BB2C271J	RES. CARBON 270 5% 1/6W	R169	RD14BB2C151J	RES. CARBON 150 5% 1/6W
R049	RN14BK2C6800F	RES. METAL FILM 680 1% 1/6W	R170	RD14BB2C820J	RES. CARBON 82 5% 1/6W
R050	RN14BK2C6800F	RES. METAL FILM 680 1% 1/6W	R171	RN14BK2C1001F	RES. METAL FILM 1K 1% 1/6W
R051	RD14BB2C220J	RES. CARBON 22 5% 1/6W	R172	RN14BK2C1001F	RES. METAL FILM 1K 1% 1/6W
R052	RD14BB2C220J	RES. CARBON 22 5% 1/6W	R173	RD14BB2C221J	RES. CARBON 220 5% 1/6W
R053	RD14BB2C121J	RES. CARBON 120 5% 1/6W	R174	RD14BB2C221J	RES. CARBON 220 5% 1/6W
R054	RD14BB2C122J	RES. CARBON 1.2K 5% 1/6W	R201	RD14BB2C221J	RES. CARBON 220 5% 1/6W
R055	RD14BB2C122J	RES. CARBON 1.2K 5% 1/6W	R202	RD14BB2C221J	RES. CARBON 220 5% 1/6W
R056	RD14BB2C181J	RES. CARBON 180 5% 1/6W	R203	RN14BK2C4700F	RES. METAL FILM 470 1% 1/6W
R057	RD14BB2C181J	RES. CARBON 180 5% 1/6W	R204	RN14BK2C4700F	RES. METAL FILM 470 1% 1/6W
R058	RD14BB2C101J	RES. CARBON 100 5% 1/6W	R205	RD14BB2C682J	RES. CARBON 6.8K 5% 1/6W
R059	RD14BB2C622J	RES. CARBON 6.2K 5% 1/6W	R206	RD14BB2C682J	RES. CARBON 6.8K 5% 1/6W
R060	RD14BB2C622J	RES. CARBON 6.2K 5% 1/6W	R207	RD14BB2C122J	RES. CARBON 1.2K 5% 1/6W
R061	RD14BB2C470J	RES. CARBON 47 5% 1/6W	R208	RD14BB2C122J	RES. CARBON 1.2K 5% 1/6W
R062	RD14BB2C470J	RES. CARBON 47 5% 1/6W	R209	RD14BB2C820J	RES. CARBON 82 5% 1/6W
R063	RD14BB2C221J	RES. CARBON 220 5% 1/6W	R210	RD14BB2C820J	RES. CARBON 82 5% 1/6W
R064	RD14BB2C561J	RES. CARBON 560 5% 1/6W	R211	RD14BB2C681J	RES. CARBON 680 5% 1/6W
R065	RD14BB2C332J	RES. CARBON 3.3K 5% 1/6W	R212	RD14BB2C103J	RES. CARBON 10K 5% 1/6W
R066	RD14BB2C682J	RES. CARBON 6.8K 5% 1/6W	R213	RD14BB2C103J	RES. CARBON 10K 5% 1/6W
R067	RD14BB2C151J	RES. CARBON 150 5% 1/6W	R214	RD14BB2C103J	RES. CARBON 10K 5% 1/6W
R068	RD14BB2C151J	RES. CARBON 150 5% 1/6W	R215	RD14BB2C103J	RES. CARBON 10K 5% 1/6W
R069	RD14BB2C820J	RES. CARBON 82 5% 1/6W	R216	R90-0645-05	RES. NETWORK 10KX4 5%
R070	RN14BK2C1001F	RES. METAL FILM 1K 1% 1/6W	R217	RD14BB2C102J	RES. CARBON 1K 5% 1/6W
R071	RN14BK2C1001F	RES. METAL FILM 1K 1% 1/6W	R218	RD14BB2C103J	RES. CARBON 10K 5% 1/6W
R072	RD14BB2C221J	RES. CARBON 220 5% 1/6W	R219	RD14BB2C102J	RES. CARBON 1K 5% 1/6W
R073	RD14BB2C472J	RES. CARBON 4.7K 5% 1/6W	R220	RD14BB2C102J	RES. CARBON 1K 5% 1/6W
R074	RD14BB2C102J	RES. CARBON 1K 5% 1/6W	R221	RN14BK2C91ROF	RES. METAL FILM 91.0 1% 1/6W
R075	RD14BB2C101J	RES. CARBON 100 5% 1/6W	R222	RN14BK2C91ROF	RES. METAL FILM 91.0 1% 1/6W
R076	RD14BB2C152J	RES. CARBON 1.5K 5% 1/6W	R223	RD14BB2C470J	RES. CARBON 47 5% 1/6W
R077	RD14BB2C100J	RES. CARBON 10 5% 1/6W	R224	RD14BB2C470J	RES. CARBON 47 5% 1/6W
R078	RD14BB2C390J	RES. CARBON 39 5% 1/6W	R225	RD14BB2C471J	RES. CARBON 470 5% 1/6W
R101	RD14BB2C220J	RES. CARBON 22 5% 1/6W	R226	RD14BB2C102J	RES. CARBON 1K 5% 1/6W
R112	RN14BK2E1004F	RES. METAL FILM 1M 1% 1/4W	R227	RD14BB2C102J	RES. CARBON 1K 5% 1/6W
R113	RD14BB2E824J	RES. CARBON 820K 5% 1/4W	R228	RD14BB2C122J	RES. CARBON 1.2K 5% 1/6W
R114	RD14BB2C102J	RES. CARBON 1K 5% 1/6W	R229	RD14BB2C104J	RES. CARBON 100K 5% 1/6W
R115	RD14BB2C102J	RES. CARBON 1K 5% 1/6W	R230	RD14BB2C104J	RES. CARBON 100K 5% 1/6W
R116	RD14BB2C101J	RES. CARBON 100 5% 1/6W	R231	RD14BB2C470J	RES. CARBON 47 5% 1/6W
R117	RD14BB2C681J	RES. CARBON 680 5% 1/6W	R232	RD14BB2C470J	RES. CARBON 47 5% 1/6W
R118	RD14BB2C392J	RES. CARBON 3.9K 5% 1/6W	R233	RD14BB2C562J	RES. CARBON 5.6K 5% 1/6W
R119	RD14BB2C822J	RES. CARBON 8.2K 5% 1/6W	R234	RD14BB2C682J	RES. CARBON 6.8K 5% 1/6W
R120	RD14BB2C562J	RES. CARBON 5.6K 5% 1/6W	R235	RD14BB2C102J	RES. CARBON 1K 5% 1/6W
R121	NO USE		R236	RD14BB2C102J	RES. CARBON 1K 5% 1/6W
R122	RD14BB2C391J	RES. CARBON 390 5% 1/6W	R237	RD14BB2C470J	RES. CARBON 47 5% 1/6W
R123	RD14BB2C122J	RES. CARBON 1.2K 5% 1/6W	R238	RD14BB2C470J	RES. CARBON 47 5% 1/6W
R124	RD14BB2C100J	RES. CARBON 10 5% 1/6W	R239	RD14BB2C152J	RES. CARBON 1.5K 5% 1/6W
			R240	RD14BB2C152J	RES. CARBON 1.5K 5% 1/6W
			R241	RD14BB2C102J	RES. CARBON 1K 5% 1/6W
			R242	RD14BB2C102J	RES. CARBON 1K 5% 1/6W
			R243	RD14BB2C102J	RES. CARBON 1K 5% 1/6W

PARTS LIST

REF.NO	PARTS NO	NAME & DESCRIPTION	REF.NO	PARTS NO	NAME & DESCRIPTION
R244	RD148B2C102J	RES. CARBON 1K 5% 1/6W	TC203	C05-0455-05	CAP. TRIMMER 30PF
R245	RD148B2C220J	RES. CARBON 22 5% 1/6W	TH021	112-251-2	THERMISTOR
R246	RD148B2C220J	RES. CARBON 22 5% 1/6W	TH121	112-251-2	THERMISTOR
R249	RD148B2C103J	RES. CARBON 10K 5% 1/6W	U001	LF411CN	IC, DUAL JFET INPUT OP AMP
R250	RD148B2C4R7J	RES. CARBON 4.7 5% 1/6W	U002	CA3086	IC, NPN TRANSISTOR ARRAY
R251	RD148B2C4R7J	RES. CARBON 4.7 5% 1/6W	U101	LF411CN	IC, DUAL JFET INPUT OP AMP
R252	RS14GB3A333J	RES. METAL FILM 33K 5% 1W	U102	CA3086	IC, NPN TRANSISTOR ARRAY
R253	RS14GB3A333J	RES. METAL FILM 33K 5% 1W	U201	SN74LS47N	IC, DECODER/DRIVER
R254	RD148B2C820J	RES. CARBON 82 5% 1/6W	U202	SN74LS00N	IC, QUAD 2-INPUT NAND GATE
R255	RD148B2C820J	RES. CARBON 82 5% 1/6W	U203	SN74LS00N	IC, QUAD 2-INPUT NAND GATE
R256	RD14DB2H473J	RES. CARBON 47K 5% 1/2W	U204	SN74LS112AN	IC, DUAL JK-FF
R257	RD14DB2H473J	RES. CARBON 47K 5% 1/2W	U205	SN74LS00N	IC, QUAD 2-INPUT NAND GATE
R258	RD148B2C4R7J	RES. CARBON 4.7 5% 1/6W	U301	UPC4558C	IC, OP AMP
R259	RD148B2C4R7J	RES. CARBON 4.7 5% 1/6W	U302	UPC4558C	IC, OP AMP
R260	RD148B2C102J	RES. CARBON 1K 5% 1/6W	U351	TC4011BP	IC, QUAD 2-INPUT NAND GATE
R261	RD148B2C102J	RES. CARBON 1K 5% 1/6W	VR001	R12-3550-05	RES. SEMI FIXED 20K B
R262	RD148B2C332J	RES. CARBON 3.3K 5% 1/6W	VR002	R12-0577-05	RES. SEMI FIXED 500 B
R263	RD148B2C332J	RES. CARBON 3.3K 5% 1/6W	VR003	R12-3550-05	RES. SEMI FIXED 20K B
R264	RD148B2C4R7J	RES. CARBON 4.7 5% 1/6W	VR004	R12-0575-05	RES. SEMI FIXED 100 B
R265	RD148B2C4R7J	RES. CARBON 4.7 5% 1/6W	VR005	S02-4509-05	ROTARY SWITCH WITH V.R
R266	RD148B2C331J	RES. CARBON 330 5% 1/6W	VR006	R12-3550-05	RES. SEMI FIXED 20K B
R267	RD148B2C100J	RES. CARBON 10 5% 1/6W	VR007	R12-0577-05	RES. SEMI FIXED 500 B
R268	RD148B2C100J	RES. CARBON 10 5% 1/6W	VR008	R12-0577-05	RES. SEMI FIXED 500 B
R269	RD148B2C100J	RES. CARBON 10 5% 1/6W	VR009	R12-1545-05	RES. SEMI FIXED 1K B
R270	RD148B2C100J	RES. CARBON 10 5% 1/6W	VR010	R01-3522-05	V.R. 2X10K B
R271	RD148B2C100J	RES. CARBON 10 5% 1/6W	VR011	R12-1545-05	RES. SEMI FIXED 1K B
R272	RD148B2C100J	RES. CARBON 10 5% 1/6W	VR012	R06-2505-05	V.R. 2X10K B
R273	RD148B2C100J	RES. CARBON 10 5% 1/6W	VR013	R01-5513-05	V.R. 100K B
R274	RD148B2C100J	RES. CARBON 10 5% 1/6W	VR014	R01-3523-05	V.R. 10K B
R275	RD148B2C100J	RES. CARBON 10 5% 1/6W	VR101	R12-3550-05	RES. SEMI FIXED 20K B
R301	RD14DB2H2R2J	RES. CARBON 2.2 5% 1/2W	VR102	R12-0577-05	RES. SEMI FIXED 500 B
R302	RD148B2C101J	RES. CARBON 100 5% 1/6W	VR103	R12-3550-05	RES. SEMI FIXED 20K B
R303	RS14GB3A101J	RES. METAL FILM 100 5% 1W	VR104	R12-0575-05	RES. SEMI FIXED 100 B
R304	RN14BK2C1202F	RES. METAL FILM 12K 1% 1/6W	VR105	S02-4509-05	ROTARY SWITCH WITH V.R
R305	RN14BK2C1202F	RES. METAL FILM 12K 1% 1/6W	VR106	R12-3550-05	RES. SEMI FIXED 20K B
R306	RS14GB3A1R0J	RES. METAL FILM 1 5% 1W	VR107	R12-0577-05	RES. SEMI FIXED 500 B
R307	RD148B2C101J	RES. CARBON 100 5% 1/6W	VR108	R12-0577-05	RES. SEMI FIXED 500 B
R308	RS14GB3A101J	RES. METAL FILM 100 5% 1W	VR109	R12-1545-05	RES. SEMI FIXED 1K B
R309	RD148B2C562J	RES. CARBON 5.6K 5% 1/6W	VR110	R01-3523-05	V.R. 10K B
R310	RD148B2C562J	RES. CARBON 5.6K 5% 1/6W	VR111	R12-1545-05	RES. SEMI FIXED 1K B
R311	RD148B2C562J	RES. CARBON 5.6K 5% 1/6W	VR201	R12-0577-05	RES. SEMI FIXED 500 B
R312	RS14GB3A330J	RES. METAL FILM 33 5% 1W	VR202	R12-0576-05	RES. SEMI FIXED 200 B
R313	RD148B2C151J	RES. CARBON 150 5% 1/6W	VR203	R12-0577-05	RES. SEMI FIXED 500 B
R314	RN14BK2C3901F	RES. METAL FILM 3.9K 1% 1/6W	VR204	R12-0576-05	RES. SEMI FIXED 200 B
R315	RN14BK2C9101F	RES. METAL FILM 9.1K 1% 1/6W	VR205	R12-1546-05	RES. SEMI FIXED 2K B
R316	RS14GB3D272J	RES. METAL FILM 2.7K 5% 2W	VR301	R12-1545-05	RES. SEMI FIXED 1K B
R317	RS14GB3D272J	RES. METAL FILM 2.7K 5% 2W	VR351	R12-0577-05	RES. SEMI FIXED 500 B
R318	RD148B2C100J	RES. CARBON 10 5% 1/6W			
R319	RD148B2C101J	RES. CARBON 100 5% 1/6W			
R320	RD148B2C221J	RES. CARBON 220 5% 1/6W			
R321	RN14BK2C1203F	RES. METAL FILM 120K 1% 1/6W			
R322	RN14BK2C1002F	RES. METAL FILM 10K 1% 1/6W			
R323	RD148B2C561J	RES. CARBON 560 5% 1/6W			
R324	RD148B2E225J	RES. CARBON 2.2M 5% 1/4W			
R325	RD148B2E225J	RES. CARBON 2.2M 5% 1/4W			
R351	RD148B2C154J	RES. CARBON 150K 5% 1/6W			
R352	RD148B2C103J	RES. CARBON 10K 5% 1/6W			
R353	RD148B2C103J	RES. CARBON 10K 5% 1/6W			
R354	RD148B2C104J	RES. CARBON 100K 5% 1/6W			
R355	RD148B2C104J	RES. CARBON 100K 5% 1/6W			
R356	RD148B2C224J	RES. CARBON 220K 5% 1/6W			
R357	RD148B2C474J	RES. CARBON 470K 5% 1/6W			
R358	RD148B2C474J	RES. CARBON 470K 5% 1/6W			
R359	RD148B2C471J	RES. CARBON 470 5% 1/6W			
R360	RN14BK2C1102F	RES. METAL FILM 11K 1% 1/6W			
R361	RN14BK2C7500F	RES. METAL FILM 750 1% 1/6W			
R362	NO USE				
R363	RD148B2C100J	RES. CARBON 10 5% 1/6W			
S001	S32-2012-05	LEVER SWITCH 2-3			
S002	S02-4509-05	ROTARY SWITCH WITH V.R			
S101	S32-2012-05	LEVER SWITCH 2-3			
S102	S02-4509-05	ROTARY SWITCH WITH V.R			
S201	S32-4008-05	LEVER SWITCH 4-5			
TC005	C05-0455-05	CAP. TRIMMER 30PF			
TC006	C05-0456-05	CAP. TRIMMER 50PF			
TC105	C05-0455-05	CAP. TRIMMER 30PF			
TC106	C05-0456-05	CAP. TRIMMER 50PF			
TC201	C05-0454-05	CAP. TRIMMER 20PF			
TC202	C05-0454-05	CAP. TRIMMER 20PF			
TH021	112-251-2	THERMISTOR			
TH121	112-251-2	THERMISTOR			
U001	LF411CN	IC, DUAL JFET INPUT OP AMP			
U002	CA3086	IC, NPN TRANSISTOR ARRAY			
U101	LF411CN	IC, DUAL JFET INPUT OP AMP			
U102	CA3086	IC, NPN TRANSISTOR ARRAY			
U201	SN74LS47N	IC, DECODER/DRIVER			
U202	SN74LS00N	IC, QUAD 2-INPUT NAND GATE			
U203	SN74LS00N	IC, QUAD 2-INPUT NAND GATE			
U204	SN74LS112AN	IC, DUAL JK-FF			
U205	SN74LS00N	IC, QUAD 2-INPUT NAND GATE			
U301	UPC4558C	IC, OP AMP			
U302	UPC4558C	IC, OP AMP			
U351	TC4011BP	IC, QUAD 2-INPUT NAND GATE			
VR001	R12-3550-05	RES. SEMI FIXED 20K B			
VR002	R12-0577-05	RES. SEMI FIXED 500 B			
VR003	R12-3550-05	RES. SEMI FIXED 20K B			
VR004	R12-0575-05	RES. SEMI FIXED 100 B			
VR005	S02-4509-05	ROTARY SWITCH WITH V.R			
VR006	R12-3550-05	RES. SEMI FIXED 20K B			
VR007	R12-0577-05	RES. SEMI FIXED 500 B			
VR008	R12-0577-05	RES. SEMI FIXED 500 B			
VR009	R12-1545-05	RES. SEMI FIXED 1K B			
VR010	R01-3522-05	V.R. 2X10K B			
VR011	R12-1545-05	RES. SEMI FIXED 1K B			
VR012	R06-2505-05	V.R. 2X10K B			
VR013	R01-5513-05	V.R. 100K B			
VR014	R01-3523-05	V.R. 10K B			
VR101	R12-3550-05	RES. SEMI FIXED 20K B			
VR102	R12-0577-05	RES. SEMI FIXED 500 B			
VR103	R12-3550-05	RES. SEMI FIXED 20K B			
VR104	R12-0575-05	RES. SEMI FIXED 100 B			
VR105	S02-4509-05	ROTARY SWITCH WITH V.R			
VR106	R12-3550-05	RES. SEMI FIXED 20K B			
VR107	R12-0577-05	RES. SEMI FIXED 500 B			
VR108	R12-0577-05	RES. SEMI FIXED 500 B			
VR109	R12-1545-05	RES. SEMI FIXED 1K B			
VR110	R01-3523-05	V.R. 10K B			
VR111	R12-1545-05	RES. SEMI FIXED 1K B			
VR201	R12-0577-05	RES. SEMI FIXED 500 B			
VR202	R12-0576-05	RES. SEMI FIXED 200 B			
VR203	R12-0577-05	RES. SEMI FIXED 500 B			
VR204	R12-0576-05	RES. SEMI FIXED 200 B			
VR205	R12-1546-05	RES. SEMI FIXED 2K B			
VR301	R12-1545-05	RES. SEMI FIXED 1K B			
VR351	R12-0577-05	RES. SEMI FIXED 500 B			

HORIZONTAL UNIT

X74-1490-00

REF.NO	PARTS NO	NAME & DESCRIPTION
	E31-2948-05	ANODE CAP
	E31-5531-05	LEAD WIRE WITH CONNECTOR
	F01-0867-05	HEAT SINK
	F11-1208-03	SHIELD CASE
	F15-0727-04	HOLDER (NEON LAMP)
	F20-0516-05	INSULATOR
	J25-5259-02	PCB (UNMOUNTED)
	J25-5264-04	PCB (UNMOUNTED) 58X22
	J61-0501-05	BOARD SUPPORT
	N19-0191-05	WASHER NONMETAL
	N30-3006-41	SCREW, PAN HD M3X6
	R92-0150-05	JUMPING RES. ZERO OHM (10MM)
	R92-1061-05	JUMPING RES. ZERO OHM (5MM)
C002	CK45FF1H103Z	CAP. CERAMIC 0.01 50V
C003	CE04EW1H100M	CAP. ELECTRO 10 20% 50V
C004	C092M1H223K	CAP. MYLAR 0.022 10% 50V
C005	CC45FCH1H221J	CAP. CERAMIC 220P 5% 50V
C006	CC45FCH1H470J	CAP. CERAMIC 47P 5% 50V
C007	CC45FCH1H151J	CAP. CERAMIC 150P 5% 50V
C008	CC45FSL1H271J	CAP. CERAMIC 270P 5% 50V
C009	CE04EW1H100M	CAP. ELECTRO 10 20% 50V
C010	CE04EW1E470M	CAP. ELECTRO 47 20% 25V

PARTS LIST

REF.NO	PARTS NO	NAME & DESCRIPTION				REF.NO	PARTS NO	NAME & DESCRIPTION			
C011	CE04EW1E470M	CAP. ELECTRO	47	20%	25V	C405	CK45FF1H103Z	CAP. CERAMIC	0.01		50V
C012	CE04EW1H100M	CAP. ELECTRO	10	20%	50V	C406	CK45FF1H103Z	CAP. CERAMIC	0.01		50V
C013	CS15E1V010M	CAP. TANTALUM	1	20%	35V	C407	CK45B2H103K	CAP. CERAMIC	0.01	10%	500V
C014	CC45FCH1H030C	CAP. CERAMIC	3P	0.25P	50V	C408	CK45B2H103K	CAP. CERAMIC	0.01	10%	500V
C015	C092FM1H103K	CAP. MYLAR	0.01	10%	50V	C409	C91-1266-05	CAP. CERAMIC	1000P		6KV
C016	CC45FCH1H470J	CAP. CERAMIC	47P	5%	50V	C410	C91-1266-05	CAP. CERAMIC	1000P		6KV
C017	CE04EW1E470M	CAP. ELECTRO	47	20%	25V	C411	C91-1266-05	CAP. CERAMIC	1000P		6KV
C018	CE04EW1H100M	CAP. ELECTRO	10	20%	50V	C412	CK45B2H103K	CAP. CERAMIC	0.01	10%	500V
C019	CE04EW1H100M	CAP. ELECTRO	10	20%	50V	C413	C91-1266-05	CAP. CERAMIC	1000P		6KV
C020	CK45FF1H103Z	CAP. CERAMIC	0.01		50V	C414	C91-1266-05	CAP. CERAMIC	1000P		6KV
C021	CC45FCH1H101J	CAP. CERAMIC	100P	5%	50V	C415	CK45B2H103K	CAP. CERAMIC	0.01	10%	500V
C022	CE04EW1H100M	CAP. ELECTRO	10	20%	50V	C416	C91-1267-05	CAP. CERAMIC	4700P		3KV
C023	CK45FF1H103Z	CAP. CERAMIC	0.01		50V	C417	C91-1267-05	CAP. CERAMIC	4700P		3KV
C101	CC45FSL1H561J	CAP. CERAMIC	560P	5%	50V	C418	CS15E1V010M	CAP. TANTALUM	1	20%	35V
C102	NO USE					C419	CK45FB1H222K	CAP. CERAMIC	2200P	10%	50V
C103	C092FM1H104K	CAP. MYLAR	0.1	10%	50V	C420	C092FM1H223K	CAP. MYLAR	0.022	10%	50V
C104	CK45FF1H103Z	CAP. CERAMIC	0.01		50V	C421	CE04EW1H220M	CAP. ELECTRO	22	20%	50V
C105	CE04EW1H100M	CAP. ELECTRO	10	20%	50V	C422	C91-1264-05	CAP. CERAMIC	22P		3KV
C106	CE04EW1H100M	CAP. ELECTRO	10	20%	50V	C423	C91-1267-05	CAP. CERAMIC	4700P		3KV
C107	CC45FCH1H820J	CAP. CERAMIC	82P	5%	50V	C424	C91-1267-05	CAP. CERAMIC	4700P		3KV
C108	CK45FF1H103Z	CAP. CERAMIC	0.01		50V	C425	C91-1267-05	CAP. CERAMIC	4700P		3KV
C109	C91-0574-05	CAP. MYLAR	1	5%	100V	C426	CE04W2C100M	CAP. ELECTRO	10	20%	160V
C110	NO USE					C427	CK45B2H103K	CAP. CERAMIC	0.01	10%	500V
C111	CC45FCH1H050C	CAP. CERAMIC	5P	0.25P	50V	C434	CK45B2H103K	CAP. CERAMIC	0.01	10%	500V
C112	CE04EW1H100M	CAP. ELECTRO	10	20%	50V	C601	C91-1266-05	CAP. CERAMIC	1000P		6KV
C113	CC45FCH1H221J	CAP. CERAMIC	220P	5%	50V	C602	C91-1266-05	CAP. CERAMIC	1000P		6KV
C114	CK45FF1H103Z	CAP. CERAMIC	0.01		50V	C603	C91-1266-05	CAP. CERAMIC	1000P		6KV
C115	CE04EW1E470M	CAP. ELECTRO	47	20%	25V	C604	C91-1266-05	CAP. CERAMIC	1000P		6KV
C116	CK45FF1H103Z	CAP. CERAMIC	0.01		50V	C605	C91-1266-05	CAP. CERAMIC	1000P		6KV
C117	C092FM1H473K	CAP. MYLAR	0.047	10%	50V	C606	C91-1266-05	CAP. CERAMIC	1000P		6KV
C118	CC45FCH1H100D	CAP. CERAMIC	10P	0.5P	50V	C801	CE04EW1C102M	CAP. ELECTRO	1000	20%	16V
C119	CC45FCH1H470J	CAP. CERAMIC	47P	5%	50V	C802	CK45F1H103Z	CAP. CERAMIC	0.01		50V
C120	C092FM1H104K	CAP. MYLAR	0.1	10%	50V	D001	1S1588	DIODE			
C121	CK45FB1H102K	CAP. CERAMIC	1000P	10%	50V	D002	1S1588	DIODE			
C122	CE04EW1H100M	CAP. ELECTRO	10	20%	50V	D003	1SS86	DIODE			
C123	CE04EW1H100M	CAP. ELECTRO	10	20%	50V	D004	1S1588	DIODE			
C124	CE04EW1H100M	CAP. ELECTRO	10	20%	50V	D005	1S1588	DIODE			
C125	CK45FF1H103Z	CAP. CERAMIC	0.01		50V	D006	1S1588	DIODE			
C126	CE04EW1H100M	CAP. ELECTRO	10	20%	50V	D101	1S1588	DIODE			
C127	CK45FF1H103Z	CAP. CERAMIC	0.01		50V	D102	1S1588	DIODE			
C128	CE04EW1H100M	CAP. ELECTRO	10	20%	50V	D103	1S1588	DIODE			
C201	CC45FSL1H561J	CAP. CERAMIC	560P	5%	50V	D104	1S1588	DIODE			
C202	CE04EW1H100M	CAP. ELECTRO	10	20%	50V	D105	1S1588	DIODE			
C203	C092FM1H104K	CAP. MYLAR	0.1	10%	50V	D106	1S1588	DIODE			
C204	CE04EW1H100M	CAP. ELECTRO	10	20%	50V	D107	1S1588	DIODE			
C205	CE04EW1H100M	CAP. ELECTRO	10	20%	50V	D108	1S1588	DIODE			
C206	CE04EW1H100M	CAP. ELECTRO	10	20%	50V	D109	1S1588	DIODE			
C207	CC45FCH1H820J	CAP. CERAMIC	82P	5%	50V	D110	1S1588	DIODE			
C208	CK45FF1H103Z	CAP. CERAMIC	0.01		50V	D111	1S1588	DIODE			
C209	C91-0574-05	CAP. MYLAR	1	5%	100V	D112	1S1588	DIODE			
C210	NO USE					D113	HZS6.8J(B2)	DIODE. ZENER	6.79V		
C211	CC45FCH1H050C	CAP. CERAMIC	5P	0.25P	50V	D201	1S1588	DIODE			
C212	CE04EW1E101M	CAP. ELECTRO	100	20%	25V	D202	1S1588	DIODE			
C213	CC45FCH1H050C	CAP. CERAMIC	5P	0.25P	50V	D203	1S1588	DIODE			
C214	CC45FCH1H100D	CAP. CERAMIC	10P	0.5P	50V	D204	1S1588	DIODE			
C215	NO USE					D205	1S1588	DIODE			
C216	CE04BW1E100M	CAP. ELECTRO	10	20%	25V	D206	1S1588	DIODE			
C217	CC45FCH1H470J	CAP. CERAMIC	47P	5%	50V	D207	1S1588	DIODE			
C218	CK45FF1H103Z	CAP. CERAMIC	0.01		50V	D208	1S1588	DIODE			
C219	CK45FF1H103Z	CAP. CERAMIC	0.01		50V	D209	1S1588	DIODE			
C220	CK45FF1H103Z	CAP. CERAMIC	0.01		50V	D210	1S1588	DIODE			
C221	CC45FCH1H151J	CAP. CERAMIC	150P	5%	50V	D211	1S1588	DIODE			
C222	CK45FF1H103Z	CAP. CERAMIC	0.01		50V	D212	1S1588	DIODE			
C223	CK45FF1H103Z	CAP. CERAMIC	0.01		50V	D213	1S1588	DIODE			
C224	CK45FF1H103Z	CAP. CERAMIC	0.01		50V	D214	1S1588	DIODE			
C225	CK45FF1H103Z	CAP. CERAMIC	0.01		50V	D215	1S1588	DIODE			
C226	CK45FF1H103Z	CAP. CERAMIC	0.01		50V	D216	1S1588	DIODE			
C227	CE04EW1H100M	CAP. ELECTRO	10	20%	50V	D217	1S1588	DIODE			
C228	CK45FF1H103Z	CAP. CERAMIC	0.01		50V	D218	1S1588	DIODE			
C229	NO USE					D219	1S1588	DIODE			
C230	CE04EW1H100M	CAP. ELECTRO	10	20%	50V	D220	1S1588	DIODE			
C231	CE04EW1H100M	CAP. ELECTRO	10	20%	50V	D301	1S1588	DIODE			
C301	CC45FCH1H820J	CAP. CERAMIC	82P	5%	50V	D302	MA700	DIODE			
C302	CK45FB1H471J	CAP. CERAMIC	470P	5%	50V	D303	MA700	DIODE			
C303	CK45B2H103K	CAP. CERAMIC	0.01	10%	500V	D304	1SS86	DIODE			
C304	CK45B2H103K	CAP. CERAMIC	0.01	10%	500V	D305	1S1588	DIODE			
C305	CK45B2H103K	CAP. CERAMIC	0.01	10%	500V	D306	1S1588	DIODE			
C306	CE04EW1H100M	CAP. ELECTRO	10	20%	50V	D307	1SS83	DIODE			
C307	CK45B2H103K	CAP. CERAMIC	0.01	10%	500V	D401	1S1588	DIODE			
C308	CK45B2H103K	CAP. CERAMIC	0.01	10%	500V	D402	HZ2(B2)	DIODE. ZENER	2.0V		
C401	CK45FF1H103Z	CAP. CERAMIC	0.01		50V						
C402	CC45FCH1H221J	CAP. CERAMIC	220P	5%	50V						
C403	CE04EW1H100M	CAP. ELECTRO	10	20%	50V						
C404	CE04EW1H100M	CAP. ELECTRO	10	20%	50V						

PARTS LIST

REF.NO	PARTS NO	NAME & DESCRIPTION	REF.NO	PARTS NO	NAME & DESCRIPTION
D403	HZ2(B2)	DIODE, ZENER 2.0V	Q014	2SAB44(D)	TR. SI, PNP
D404	1SS83	DIODE	Q015	2SC1907	TR. SI, NPN
D405	1SS83	DIODE	Q016	2SC945(Q)	TR. SI, NPN
D406	1SS83	DIODE	Q017	2SC945(Q)	TR. SI, NPN
D407	1SS83	DIODE	Q018	2SAB44(D)	TR. SI, PNP
D408	1SS83	DIODE	Q101	2SAB44(D)	TR. SI, PNP
D409	1SS83	DIODE	Q102	2SAB44(D)	TR. SI, PNP
D410	1SS83	DIODE	Q103	2SAB44(D)	TR. SI, PNP
D411	1SS83	DIODE	Q104	2SAB38(B)	TR. SI, PNP
D412	1S1588	DIODE	Q105	2SC1843(E)	TR. SI, NPN
D413	HZ55.6J(B2)	DIODE, ZENER 5.62V	Q106	2SK117(BL)	FET, N-CHANNEL
D414	1S1588	DIODE	Q107	2SK170(V)	FET, N-CHANNEL
D415	1S1588	DIODE	Q108	2SAB44(D)	TR. SI, PNP
D416	Y10GA	DIODE	Q109	2SAB44(D)	TR. SI, PNP
D423	HZ36L(2)	DIODE, ZENER 36V	Q110	2SC945(Q)	TR. SI, NPN
D424	HZ36L(2)	DIODE, ZENER 36V	Q111	2SC945(Q)	TR. SI, NPN
D425	HZ36L(2)	DIODE, ZENER 36V	Q112	2SC945(Q)	TR. SI, NPN
D426	B30-0957-05	LED (LN322GPT)	Q113	2SC945(Q)	TR. SI, NPN
D601	Y10GA	DIODE	Q201	2SAB44(D)	TR. SI, PNP
D602	Y10GA	DIODE	Q202	2SAB44(D)	TR. SI, PNP
D603	Y10GA	DIODE	Q203	2SAB44(D)	TR. SI, PNP
D604	Y10GA	DIODE	Q204	2SAB38(B)	TR. SI, PNP
D605	Y10GA	DIODE	Q205	2SC1843(E)	TR. SI, NPN
D606	Y10GA	DIODE	Q206	2SK117(BL)	FET, N-CHANNEL
DB01	RD30E(B3)	DIODE, ZENER 29.09V	Q207	2SK170(V)	FET, N-CHANNEL
JW001	E31-5539-05	LEAD WIRE WITH CONNECTOR	Q208	2SAB44(D)	TR. SI, PNP
JW002	E31-5540-05	LEAD WIRE WITH CONNECTOR	Q209	2SAB44(D)	TR. SI, PNP
JW003	E31-5541-05	LEAD WIRE WITH CONNECTOR	Q210	2SA1015(Y)	TR. SI, PNP
L101	L40-2292-02	FERRI INDUCTOR 2.2UH 20%	Q211	2SK170(V)	FET, N-CHANNEL
L201	L40-2292-02	FERRI INDUCTOR 2.2UH 20%	Q212	2SK170(V)	FET, N-CHANNEL
L401	L40-1011-13	FERRI INDUCTOR 100UH 10%	Q213	2SC945(Q)	TR. SI, NPN
NE401	NE-2B	NEON LAMP	Q214	2SAB44(D)	TR. SI, PNP
NE402	NE-2B	NEON LAMP	Q215	2SAB44(D)	TR. SI, PNP
P004	E40-0273-05	PIN CONNECTOR 2P	Q216	2SC945(Q)	TR. SI, NPN
P007	E40-0973-05	PIN CONNECTOR 9P	Q217	2SC945(Q)	TR. SI, NPN
P010	E40-0573-05	PIN CONNECTOR 5P	Q218	2SC945(Q)	TR. SI, NPN
P014	E40-0673-05	PIN CONNECTOR 6P	Q219	2SA1005(K)	TR. SI, PNP
P022	E40-0673-05	PIN CONNECTOR 6P	Q220	2SA1005(K)	TR. SI, PNP
P023	E23-0401-05	PIN TERMINAL	Q221	2SC945(Q)	TR. SI, NPN
P024	E40-0373-05	PIN CONNECTOR 3P	Q301	2SC945(Q)	TR. SI, NPN
P025	E40-0573-05	PIN CONNECTOR 5P	Q302	2SC945(Q)	TR. SI, NPN
P026	E40-0273-05	PIN CONNECTOR 2P	Q303	2SA1015(Y)	TR. SI, PNP
P027	E40-0373-05	PIN CONNECTOR 3P	Q304	2SA1015(Y)	TR. SI, PNP
P028	E40-0373-05	PIN CONNECTOR 3P	Q305	2SC1907	TR. SI, NPN
P029	E40-0873-05	PIN CONNECTOR 8P	Q306	2SC1907	TR. SI, NPN
P030	E40-0273-05	PIN CONNECTOR 2P	Q307	2SC1907	TR. SI, NPN
P031	E40-0373-05	PIN CONNECTOR 3P	Q308	2SAB38(B)	TR. SI, PNP
P043	E23-0401-05	PIN TERMINAL	Q309	2SD668A(C)	TR. SI, NPN
P044	E23-0401-05	PIN TERMINAL	Q310	2SD668A(C)	TR. SI, NPN
P045	E40-0273-05	PIN CONNECTOR 2P	Q311	2SB648A(C)	TR. SI, PNP
P046	E40-7033-05	PIN CONNECTOR 2P	Q312	2SB648A(C)	TR. SI, PNP
P047	E40-7032-05	PIN CONNECTOR 5P	Q401	2SA1005(K)	TR. SI, PNP
P048	E40-0273-05	PIN CONNECTOR 2P	Q402	2SA1005(K)	TR. SI, PNP
P049	E40-0473-05	PIN CONNECTOR 4P	Q403	2SC1907	TR. SI, NPN
P050	E40-0473-05	PIN CONNECTOR 4P	Q404	2SC1907	TR. SI, NPN
P051	E40-0273-05	PIN CONNECTOR 2P	Q405	2SD668A(C)	TR. SI, NPN
P052	E40-0473-05	PIN CONNECTOR 4P	Q406	2SD668A(C)	TR. SI, NPN
P053	E40-0273-05	PIN CONNECTOR 2P	Q407	2SD668A(C)	TR. SI, NPN
P081	E40-0216-05	PIN CONNECTOR 2P	Q408	2SD668A(C)	TR. SI, NPN
Q001	2SA1005(K)	TR. SI, PNP	Q409	2SD880(Y)	TR. SI, NPN
Q002	2SA1005(K)	TR. SI, PNP	Q410	2SC945(Q)	TR. SI, NPN
Q003	2SK304(E)	FET, N-CHANNEL	Q411	2SA1015(Y)	TR. SI, PNP
Q004	2SC1907	TR. SI, NPN	Q412	2SC1846(R)	TR. SI, NPN
Q005	2SC1907	TR. SI, NPN	Q413	2SC1846(R)	TR. SI, NPN
Q006	2SAB44(D)	TR. SI, PNP	R001	RD14BB2C220J	RES. CARBON 22 5% 1/6W
Q007	2SAB44(D)	TR. SI, PNP	R002	RD14BB2C102J	RES. CARBON 1K 5% 1/6W
Q008	2SAB44(D)	TR. SI, PNP	R003	RN14BK2C1001F	RES. METAL FILM 1K 1% 1/6W
Q009	2SAB44(D)	TR. SI, PNP	R004	RD14BB2C681J	RES. CARBON 680 5% 1/6W
Q010	2SK117(BL)	FET, N-CHANNEL	R005	RD14BB2C912J	RES. CARBON 9.1K 5% 1/6W
Q011	2SAB38(B)	TR. SI, PNP	R006	RD14BB2C302J	RES. CARBON 3K 5% 1/6W
Q012	2SA1015(Y)	TR. SI, PNP	R007	RD14BB2E220J	RES. CARBON 22 5% 1/4W
Q013	2SC1907	TR. SI, NPN	R008	RD14BB2C560J	RES. CARBON 56 5% 1/6W
			R009	RD14BB2C103J	RES. CARBON 10K 5% 1/6W
			R010	RD14BB2C473J	RES. CARBON 47K 5% 1/6W
			R011	RN14BK2E1004F	RES. METAL FILM 1M 1% 1/4W
			R012	RD14BB2C103J	RES. CARBON 10K 5% 1/6W
			R013	RD14BB2C330J	RES. CARBON 33 5% 1/6W
			R014	RD14BB2C152J	RES. CARBON 1.5K 5% 1/6W
			R015	RD14BB2C151J	RES. CARBON 150 5% 1/6W
			R016	RD14BB2C392J	RES. CARBON 3.9K 5% 1/6W
			R017	RD14BB2C392J	RES. CARBON 3.9K 5% 1/6W
			R018	RD14BB2C222J	RES. CARBON 2.2K 5% 1/6W
			R019	RD14BB2C102J	RES. CARBON 1K 5% 1/6W

PARTS LIST

REF.NO	PARTS NO	NAME & DESCRIPTION	REF.NO	PARTS NO	NAME & DESCRIPTION
R020	RD148B2C681J	RES. CARBON 680 5% 1/6W	R202	RD148B2C181J	RES. CARBON 180 5% 1/6W
R021	RD148B2C681J	RES. CARBON 680 5% 1/6W	R203	RD148B2C470J	RES. CARBON 47 5% 1/6W
R022	RD148B2C681J	RES. CARBON 680 5% 1/6W	R204	RD148B2C470J	RES. CARBON 47 5% 1/6W
R023	RD148B2C681J	RES. CARBON 680 5% 1/6W	R205	RD148B2C152J	RES. CARBON 1.5K 5% 1/6W
R024	RD148B2C104J	RES. CARBON 100K 5% 1/6W	R206	RD148B2C102J	RES. CARBON 1K 5% 1/6W
R025	RD148B2C104J	RES. CARBON 100K 5% 1/6W	R207	RD148B2C102J	RES. CARBON 1K 5% 1/6W
R026	RD148B2C103J	RES. CARBON 10K 5% 1/6W	R208	RD148B2C101J	RES. CARBON 100 5% 1/6W
R027	RD148B2C222J	RES. CARBON 2.2K 5% 1/6W	R209	RD148B2C223J	RES. CARBON 22K 5% 1/6W
R028	RD148B2C223J	RES. CARBON 22K 5% 1/6W	R210	RD148B2C331J	RES. CARBON 330 5% 1/6W
R029	RD148B2C474J	RES. CARBON 470K 5% 1/6W	R211	RD148B2C330J	RES. CARBON 33 5% 1/6W
R030	RD148B2C474J	RES. CARBON 470K 5% 1/6W	R212	RD148B2C183J	RES. CARBON 18K 5% 1/6W
R031	RD148B2C331J	RES. CARBON 330 5% 1/6W	R213	RD148B2C183J	RES. CARBON 18K 5% 1/6W
R032	RD148B2C101J	RES. CARBON 100 5% 1/6W	R214	RD148B2C333J	RES. CARBON 33K 5% 1/6W
R033	RD148B2C271J	RES. CARBON 270 5% 1/6W	R215	RD148B2C103J	RES. CARBON 10K 5% 1/6W
R034	RD148B2C201J	RES. CARBON 200 5% 1/6W	R216	RN148K2E3004F	RES. METAL FILM 3M 1% 1/4W
R035	RD148B2C102J	RES. CARBON 1K 5% 1/6W	R217	RN148K2C1004F	RES. METAL FILM 1M 1% 1/6W
R036	RD148B2C103J	RES. CARBON 10K 5% 1/6W	R218	RN148K2C5003F	RES. METAL FILM 500K 1% 1/6W
R037	RD148B2C222J	RES. CARBON 2.2K 5% 1/6W	R219	RN148K2C3003F	RES. METAL FILM 300K 1% 1/6W
R038	RD148B2C202J	RES. CARBON 2K 5% 1/6W	R220	RN148K2C1003F	RES. METAL FILM 100K 1% 1/6W
R039	RD148B2C474J	RES. CARBON 470K 5% 1/6W	R221	RN148K2C5002F	RES. METAL FILM 50K 1% 1/6W
R040	RD148B2C473J	RES. CARBON 47K 5% 1/6W	R222	RN148K2C3002F	RES. METAL FILM 30K 1% 1/6W
R041	RD148B2C331J	RES. CARBON 330 5% 1/6W	R223	RN148K2C1002F	RES. METAL FILM 10K 1% 1/6W
R042	RD148B2C220J	RES. CARBON 22 5% 1/6W	R224	RN148K2C5001F	RES. METAL FILM 5K 1% 1/6W
R043	RD148B2C561J	RES. CARBON 560 5% 1/6W	R225	RN148K2C3001F	RES. METAL FILM 3K 1% 1/6W
R044	RD148B2C391J	RES. CARBON 390 5% 1/6W	R226	RN148K2C1001F	RES. METAL FILM 1K 1% 1/6W
R045	RD148B2C272J	RES. CARBON 2.7K 5% 1/6W	R227	RN148K2C1001F	RES. METAL FILM 1K 1% 1/6W
R046	RD148B2C272J	RES. CARBON 2.7K 5% 1/6W	R228	RD148B2C392J	RES. CARBON 3.9K 5% 1/6W
R047	RD148B2C102J	RES. CARBON 1K 5% 1/6W	R229	RD148B2C183J	RES. CARBON 18K 5% 1/6W
R048	RD148B2C681J	RES. CARBON 680 5% 1/6W	R230	RD148B2C121J	RES. CARBON 120 5% 1/6W
R049	RD148B2C123J	RES. CARBON 12K 5% 1/6W	R231	RD148B2C222J	RES. CARBON 2.2K 5% 1/6W
R050	RD148B2C152J	RES. CARBON 1.5K 5% 1/6W	R232	RD148B2C182J	RES. CARBON 1.8K 5% 1/6W
R051	RD148B2C332J	RES. CARBON 3.3K 5% 1/6W	R233	RD148B2C103J	RES. CARBON 10K 5% 1/6W
R052	RD148B2C223J	RES. CARBON 22K 5% 1/6W	R234	RD148B2C471J	RES. CARBON 470 5% 1/6W
R053	RD148B2C100J	RES. CARBON 10 5% 1/6W	R235	RD148B2C153J	RES. CARBON 15K 5% 1/6W
R101	RD148B2C473J	RES. CARBON 47K 5% 1/6W	R236	RD148B2C103J	RES. CARBON 10K 5% 1/6W
R102	RD148B2C151J	RES. CARBON 150 5% 1/6W	R237	RD148B2C152J	RES. CARBON 1.5K 5% 1/6W
R103	RD148B2C181J	RES. CARBON 180 5% 1/6W	R238	RD148B2C242J	RES. CARBON 2.4K 5% 1/6W
R104	RD148B2C470J	RES. CARBON 47 5% 1/6W	R239	RD148B2C472J	RES. CARBON 4.7K 5% 1/6W
R105	RD148B2C470J	RES. CARBON 47 5% 1/6W	R240	RD148B2C822J	RES. CARBON 8.2K 5% 1/6W
R106	RD148B2C152J	RES. CARBON 1.5K 5% 1/6W	R241	RD148B2C561J	RES. CARBON 560 5% 1/6W
R107	RD148B2C102J	RES. CARBON 1K 5% 1/6W	R242	RD148B2C563J	RES. CARBON 56K 5% 1/6W
R108	RD148B2C101J	RES. CARBON 100 5% 1/6W	R243	RD148B2C222J	RES. CARBON 2.2K 5% 1/6W
R109	RD148B2C102J	RES. CARBON 1K 5% 1/6W	R244	RD148B2C221J	RES. CARBON 220 5% 1/6W
R110	RD148B2C223J	RES. CARBON 22K 5% 1/6W	R245	RD148B2C561J	RES. CARBON 560 5% 1/6W
R111	RD148B2C331J	RES. CARBON 330 5% 1/6W	R246	RN148K2C4301F	RES. METAL FILM 4.3K 1% 1/6W
R112	RD148B2C330J	RES. CARBON 33 5% 1/6W	R247	RN148K2C4301F	RES. METAL FILM 4.3K 1% 1/6W
R113	RD148B2C153J	RES. CARBON 15K 5% 1/6W	R248	RN148K2C2002F	RES. METAL FILM 20K 1% 1/6W
R114	RD148B2C472J	RES. CARBON 4.7K 5% 1/6W	R249	RN148K2C3302F	RES. METAL FILM 33K 1% 1/6W
R115	RD148B2C333J	RES. CARBON 33K 5% 1/6W	R250	RD148B2C103J	RES. CARBON 10K 5% 1/6W
R116	RD148B2C103J	RES. CARBON 10K 5% 1/6W	R251	RD148B2C561J	RES. CARBON 560 5% 1/6W
R117	RN148K2E3004F	RES. METAL FILM 3M 1% 1/4W	R252	RD148B2C471J	RES. CARBON 470 5% 1/6W
R118	RN148K2C1004F	RES. METAL FILM 1M 1% 1/6W	R253	RD148B2C103J	RES. CARBON 10K 5% 1/6W
R119	RN148K2C5003F	RES. METAL FILM 500K 1% 1/6W	R254	RD148B2C103J	RES. CARBON 10K 5% 1/6W
R120	RN148K2C3003F	RES. METAL FILM 300K 1% 1/6W	R255	RD148B2C223J	RES. CARBON 22K 5% 1/6W
R121	RN148K2C1003F	RES. METAL FILM 100K 1% 1/6W	R256	RD148B2C333J	RES. CARBON 33K 5% 1/6W
R122	RN148K2C5002F	RES. METAL FILM 50K 1% 1/6W	R257	RD148B2C562J	RES. CARBON 5.6K 5% 1/6W
R123	RN148K2C3002F	RES. METAL FILM 30K 1% 1/6W	R258	RD148B2C332J	RES. CARBON 3.3K 5% 1/6W
R124	RN148K2C1002F	RES. METAL FILM 10K 1% 1/6W	R259	RD148B2C102J	RES. CARBON 1K 5% 1/6W
R125	RN148K2C5001F	RES. METAL FILM 5K 1% 1/6W	R260	RD148B2C472J	RES. CARBON 4.7K 5% 1/6W
R126	RN148K2C3001F	RES. METAL FILM 3K 1% 1/6W	R261	RD148B2C392J	RES. CARBON 3.9K 5% 1/6W
R127	RN148K2C1001F	RES. METAL FILM 1K 1% 1/6W	R262	RD148B2C103J	RES. CARBON 10K 5% 1/6W
R128	RN148K2C1001F	RES. METAL FILM 1K 1% 1/6W	R263	RD148B2C103J	RES. CARBON 10K 5% 1/6W
R129	RD148B2C392J	RES. CARBON 3.9K 5% 1/6W	R264	RD148B2C102J	RES. CARBON 1K 5% 1/6W
R130	RD148B2C183J	RES. CARBON 18K 5% 1/6W	R265	RD148B2C102J	RES. CARBON 1K 5% 1/6W
R131	RD148B2C121J	RES. CARBON 120 5% 1/6W	R266	RD148B2C102J	RES. CARBON 1K 5% 1/6W
R132	RD148B2C222J	RES. CARBON 2.2K 5% 1/6W	R267	RD148B2C332J	RES. CARBON 3.3K 5% 1/6W
R133	RD148B2C222J	RES. CARBON 2.2K 5% 1/6W	R268	RD148B2C100J	RES. CARBON 10 5% 1/6W
R134	RD148B2C103J	RES. CARBON 10K 5% 1/6W	R269	RD148B2C100J	RES. CARBON 10 5% 1/6W
R135	RD148B2C101J	RES. CARBON 100 5% 1/6W	R301	RD148B2C471J	RES. CARBON 470 5% 1/6W
R136	RD148B2C223J	RES. CARBON 22K 5% 1/6W	R302	RD148B2C392J	RES. CARBON 3.9K 5% 1/6W
R137	RD148B2C561J	RES. CARBON 560 5% 1/6W	R303	RN148K2E1501F	RES. METAL FILM 1.5K 1% 1/4W
R138	RD148B2C103J	RES. CARBON 10K 5% 1/6W	R304	RD148B2C332J	RES. CARBON 3.3K 5% 1/6W
R139	RD148B2C821J	RES. CARBON 820 5% 1/6W	R305	RD148B2C332J	RES. CARBON 3.3K 5% 1/6W
R140	RD148B2C222J	RES. CARBON 2.2K 5% 1/6W	R306	RD148B2C682J	RES. CARBON 6.8K 5% 1/6W
R141	RD148B2C102J	RES. CARBON 1K 5% 1/6W	R307	RD148B2C471J	RES. CARBON 470 5% 1/6W
R142	RD148B2C221J	RES. CARBON 220 5% 1/6W	R308	RD148B2C102J	RES. CARBON 1K 5% 1/6W
R143	RN148K2C2002F	RES. METAL FILM 20K 1% 1/6W	R309	RD148B2C102J	RES. CARBON 1K 5% 1/6W
R144	RN148K2C3302F	RES. METAL FILM 33K 1% 1/6W	R310	RN148K2E47R0F	RES. METAL FILM 47.0 1% 1/4W
R145	RD148B2C103J	RES. CARBON 10K 5% 1/6W	R311	RD148B2C122J	RES. CARBON 1.2K 5% 1/6W
R146	RD148B2C103J	RES. CARBON 10K 5% 1/6W	R312	RD148B2C122J	RES. CARBON 1.2K 5% 1/6W
R147	RD148B2C682J	RES. CARBON 6.8K 5% 1/6W	R313	RN148K2C1001F	RES. METAL FILM 1K 1% 1/6W
R148	RD148B2C392J	RES. CARBON 3.9K 5% 1/6W	R314	RN148K2C1001F	RES. METAL FILM 1K 1% 1/6W
R149	RD148B2C220J	RES. CARBON 22 5% 1/6W	R315	RN148K2C7500F	RES. METAL FILM 750 1% 1/6W
R150	RD148B2C100J	RES. CARBON 10 5% 1/6W	R316	RD148B2C331J	RES. CARBON 330 5% 1/6W
R151	RD148B2C100J	RES. CARBON 10 5% 1/6W	R317	RD148B2C331J	RES. CARBON 330 5% 1/6W
R201	RD148B2C151J	RES. CARBON 150 5% 1/6W	R318	RD148B2C123J	RES. CARBON 12K 5% 1/6W
			R319	RD148B2C222J	RES. CARBON 2.2K 5% 1/6W

PARTS LIST

REF.NO	PARTS NO	NAME & DESCRIPTION
R320	RD14BB2C222J	RES. CARBON 2.2K 5% 1/6W
R321	RD14BB2C104J	RES. CARBON 100K 5% 1/6W
R322	RD14BB2C104J	RES. CARBON 100K 5% 1/6W
R323	RD14BB2C104J	RES. CARBON 100K 5% 1/6W
R324	RD14BB2C152J	RES. CARBON 1.5K 5% 1/6W
R325	RD14BB2C152J	RES. CARBON 1.5K 5% 1/6W
R326	RD14BB2C331J	RES. CARBON 330 5% 1/6W
R327	RD14BB2C331J	RES. CARBON 330 5% 1/6W
R328	RN14BK2C1003F	RES. METAL FILM 100K 1% 1/6W
R329	RN14BK2C1003F	RES. METAL FILM 100K 1% 1/6W
R330	RD14BB2C470J	RES. CARBON 47 5% 1/6W
R331	RD14BB2C470J	RES. CARBON 47 5% 1/6W
R401	RD14BB2C332J	RES. CARBON 3.3K 5% 1/6W
R402	RD14BB2C561J	RES. CARBON 560 5% 1/6W
R403	RD14BB2C101J	RES. CARBON 100 5% 1/6W
R404	RD14BB2C123J	RES. CARBON 12K 5% 1/6W
R405	RD14BB2C101J	RES. CARBON 100 5% 1/6W
R406	RD14BB2C221J	RES. CARBON 220 5% 1/6W
R407	RD14BB2C332J	RES. CARBON 3.3K 5% 1/6W
R408	RD14BB2C331J	RES. CARBON 330 5% 1/6W
R409	RD14BB2C472J	RES. CARBON 4.7K 5% 1/6W
R410	RD14BB2C472J	RES. CARBON 4.7K 5% 1/6W
R411	RD14BB2C473J	RES. CARBON 47K 5% 1/6W
R412	RD14BB2C331J	RES. CARBON 330 5% 1/6W
R413	RD14BB2C472J	RES. CARBON 4.7K 5% 1/6W
R414	RD14BB2H473J	RES. CARBON 47K 5% 1/2W
R415	RD14BB2H473J	RES. CARBON 47K 5% 1/2W
R416	RD14BB2C222J	RES. CARBON 2.2K 5% 1/6W
R417	RD14BB2H473J	RES. CARBON 47K 5% 1/2W
R418	RD14BB2H473J	RES. CARBON 47K 5% 1/2W
R419	RD14BB2C681J	RES. CARBON 680 5% 1/6W
R420	RD14BB2C681J	RES. CARBON 680 5% 1/6W
R421	RD14BB2C101J	RES. CARBON 100 5% 1/6W
R422	RD14BB2C101J	RES. CARBON 100 5% 1/6W
R423	RD14BB2E332J	RES. CARBON 3.3K 5% 1/4W
R424	R92-1057-05	RES. METAL FILM 2.2M 5% 1/2W
R425	RD14BB2C823J	RES. CARBON 82K 5% 1/6W
R426	R92-1057-05	RES. METAL FILM 2.2M 5% 1/2W
R427	R92-1007-05	RES. CARBON 10M 5% 1/2W
R428	R92-1007-05	RES. CARBON 10M 5% 1/2W
R429	RD14BB2E102J	RES. CARBON 1K 5% 1/4W
R430	RD14BB2E102J	RES. CARBON 1K 5% 1/4W
R431	RD14BB2C101J	RES. CARBON 100 5% 1/6W
R432	RD14BB2C101J	RES. CARBON 100 5% 1/6W
R433	R92-1057-05	RES. METAL FILM 2.2M 5% 1/2W
R434	RD14BB2C103J	RES. CARBON 10K 5% 1/6W
R435	R92-1007-05	RES. CARBON 10M 5% 1/2W
R436	R92-1007-05	RES. CARBON 10M 5% 1/2W
R437	R92-1418-05	RES. METAL 6.8M 1% 1W
R438	R92-1419-05	RES. METAL FILM 10M 1% 1W
R439	RD14BB2C471J	RES. CARBON 470 5% 1/6W
R440	RN14BK2C1103F	RES. METAL FILM 110K 1% 1/6W
R441	RD14BB2C472J	RES. CARBON 4.7K 5% 1/6W
R442	RN14BK2C8201F	RES. METAL FILM 8.2K 1% 1/6W
R443	RN14BK2C1202F	RES. METAL FILM 12K 1% 1/6W
R444	RD14BB2C102J	RES. CARBON 1K 5% 1/6W
R445	RD14BB2C332J	RES. CARBON 3.3K 5% 1/6W
R446	RS14GB3A1R0J	RES. METAL FILM 1 5% 1W
R447	RD14BB2H223J	RES. CARBON 22K 5% 1/2W
R448	RD14BB2C104J	RES. CARBON 100K 5% 1/6W
R449	RD14BB2C473J	RES. CARBON 47K 5% 1/6W
R450	NO USE	
R451	RD14BB2C681J	RES. CARBON 680 5% 1/6W
R452	RD14BB2C470J	RES. CARBON 47 5% 1/6W
R453	RS14GB3A102J	RES. METAL FILM 1K 5% 1W
R454	RS14GB3A750J	RES. METAL FILM 75 5% 1W
R455	RS14GB3A750J	RES. METAL FILM 75 5% 1W
R456	RD14BB2C304J	RES. CARBON 300K 5% 1/6W
R457	RD14BB2C682J	RES. CARBON 6.8K 5% 1/6W
R601	R92-1007-05	RES. CARBON 10M 5% 1/2W
R801	RD14BB2C561J	RES. CARBON 560 5% 1/6W
S001	S33-2501-05	LEVER SWITCH 2-5
S002	S32-4008-05	LEVER SWITCH 4-5
S101	S33-4503-05	LEVER SWITCH 4-5 (H.MODE)
S102	S29-4501-05	ROTARY SWITCH WITH V.R.(VR102)
S202	S32-4009-05	LEVER SWITCH 4-4
T401	L19-0421-05	CONVERTOR TRANSFORMER
TC101	C05-0454-05	CAP. TRIMMER 20PF
TC201	C05-0454-05	CAP. TRIMMER 20PF

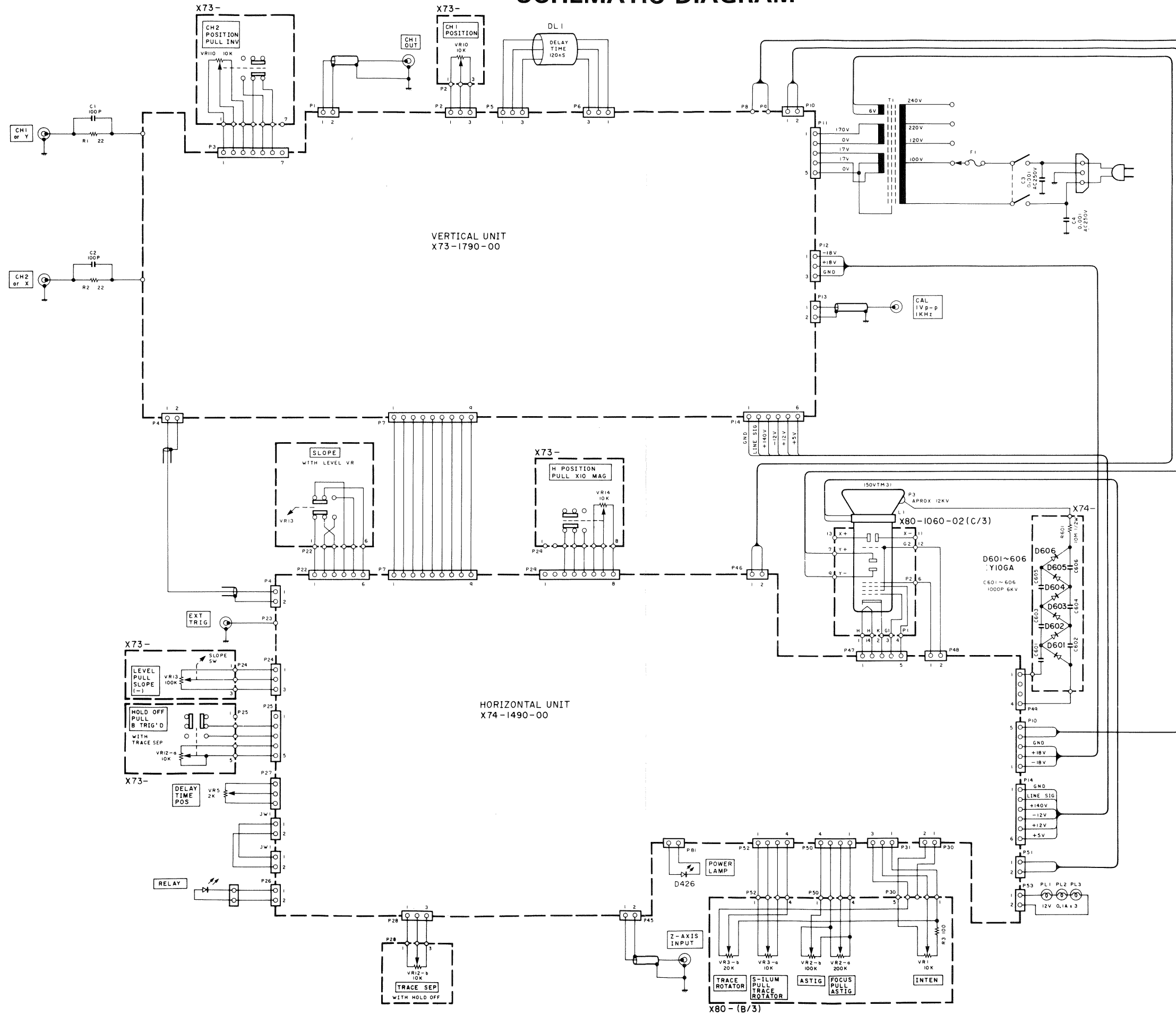
REF.NO	PARTS NO	NAME & DESCRIPTION
U001	SN74LS00N	IC. QUAD 2-INPUT NAND GATE
U101	SN74LS00N	IC. QUAD 2-INPUT NAND GATE
U102	SN74LS112AN	IC. DUAL JK-FF
U103	TLO81CP	IC. BI-FET O.P AMP
U104	TC4053BP	IC. 2-CH ANALOG MULTIPLEXER
U201	SN74LS112AN	IC. DUAL JK-FF
U202	TLO81CP	IC. BI-FET O.P AMP
U203	SN74LS112AN	IC. DUAL JK-FF
U401	LF13741N	IC. MONOLITHIC JFET INPUT OP
VR001	R12-2522-05	RES. SEMI FIXED 5K B
VR002	R12-0575-05	RES. SEMI FIXED 100 B
VR003	R12-0577-05	RES. SEMI FIXED 500 B
VR101	R12-3549-05	RES. SEMI FIXED 10K B
VR102	R06-3502-05	V.R. 10K B
VR201	R12-3549-05	RES. SEMI FIXED 10K B
VR202	R12-1545-05	RES. SEMI FIXED 1K B
VR203	R12-0577-05	RES. SEMI FIXED 500 B
VR204	R12-3549-05	RES. SEMI FIXED 10K B
VR301	R12-1546-05	RES. SEMI FIXED 2K B
VR302	R12-0575-05	RES. SEMI FIXED 100 B
VR401	R12-4516-05	RES. SEMI FIXED 50K B
VR402	R12-8501-05	RES. SEMI FIXED 2.2M B
VR403	R12-3549-05	RES. SEMI FIXED 10K B

LINE FILTER UNIT

X80-1060-02

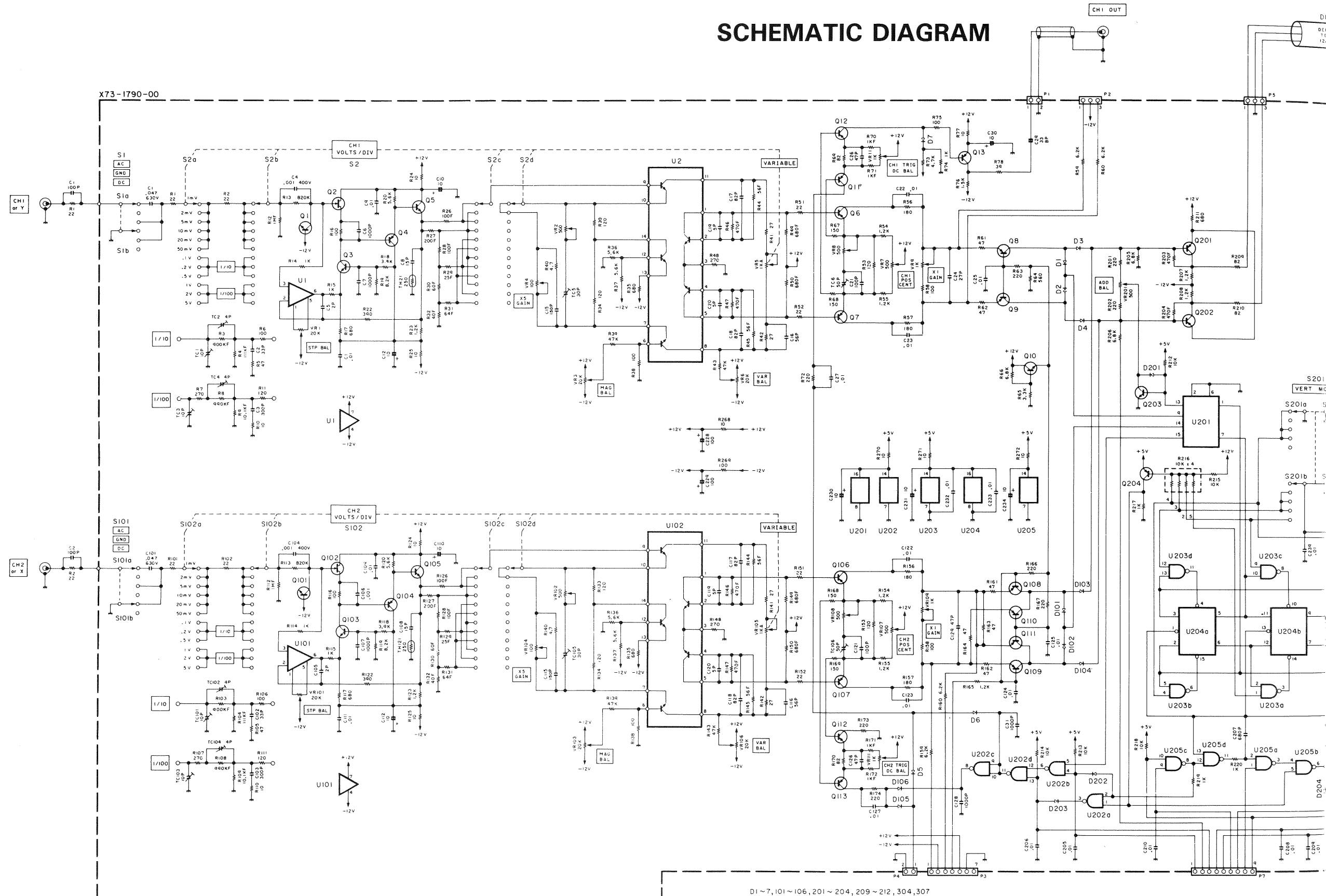
REF.NO	PARTS NO	NAME & DESCRIPTION
E01	E01-0103-05	CRT SOCKET
E31	E31-5505-05	WIRE ASS'Y (+Y,-Y)
E31	E31-5524-05	WIRE ASS'Y (+X,-X)
E31	E31-5528-05	WIRE ASS'Y (P2,G2)
E31	E31-5532-05	WIRE ASS'Y (P1,G1,K)
J25	J25-5179-23	PCB (UNMOUNTED)
R92	R92-0150-05	JUMPING RES. ZERO OHM(10MM)
R92	R92-1061-05	JUMPING RES. ZERO OHM (5MM)
P030	E40-0574-05	PIN CONNECTOR 5P
P050	E40-0474-05	PIN CONNECTOR 4P
P051	NO USE	
P052	E40-0474-05	PIN CONNECTOR 4P
R003	RD14BB2C101J	RES. CARBON 100 5% 1/6W
VR001	R05-3513-05	V.R.(INTEN) 10KB
VR002	R10-9506-05	V.R.(FOCUS/ASTIG) 200KB/100KB
VR003	R10-9507-05	V.R.(ILLUM/ROTA) 10KB/20KB

SCHEMATIC DIAGRAM



VERTICAL UNIT (X73-1790-00)

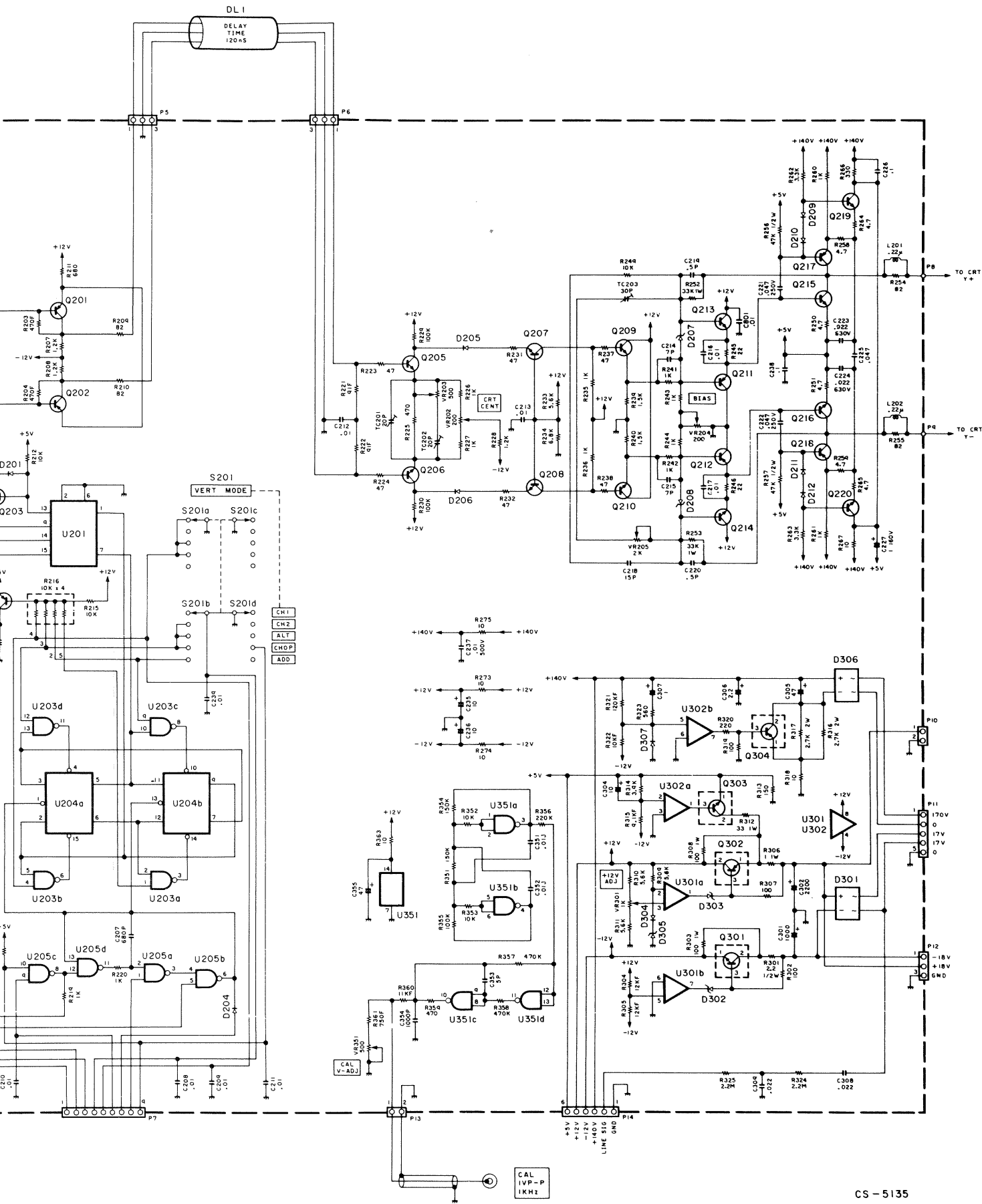
SCHMATIC DIAGRAM



U1, 101	: LF411CN	Q6, 7, 11, 12, 106, 107, 112, 113	: 2SA1005(K)	Q213, 214, 219, 220	: 2SC2570A
U2, 102	: CA3086	Q3, 5, 10, 103, 105, 203	: 2SC945(Q)	Q215, 216	: 2SC3423(Y)
U201	: SN74LS47N	Q4, 104, 204	: 2SAB44(D)	Q217, 218	: 2SA1360(Y)
U202, 203, 205	: SN74LS00N	Q8, 9, 108-111	: 2SAB38(B)	Q301, 303	: 2SD880(Y)
U204	: SN74LS112AN	Q13, 101, 205-210, 1	: 2SC1907	Q302	: 2SB834(Y)
U301, 302	: μPC4558C	Q102, 2	: 2SK304(E)	Q304	: 2SB861(C)
U351	: TC4011BP	Q201, 202, 211, 212	: 2SA1206(K)		

D1-7, 101-106, 201-204, 209-212, 304, 307

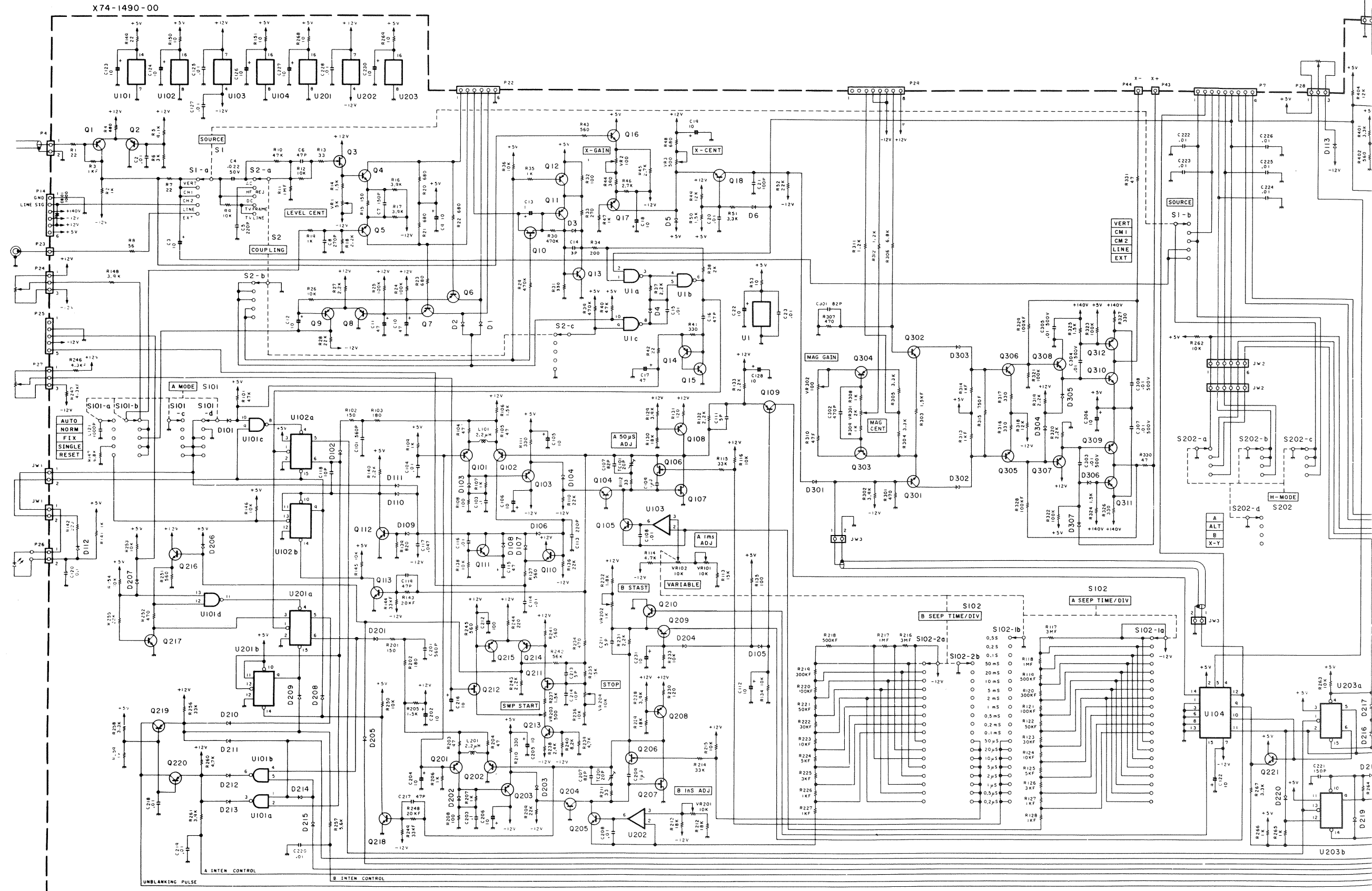
DI1588
D205, 206 : MA700
D207, 208 : HZ21(B3)
D301, 306 : 1G4B42
D302, 303 : HZS13J(B2)
D305 : HZS5.6J(B2)



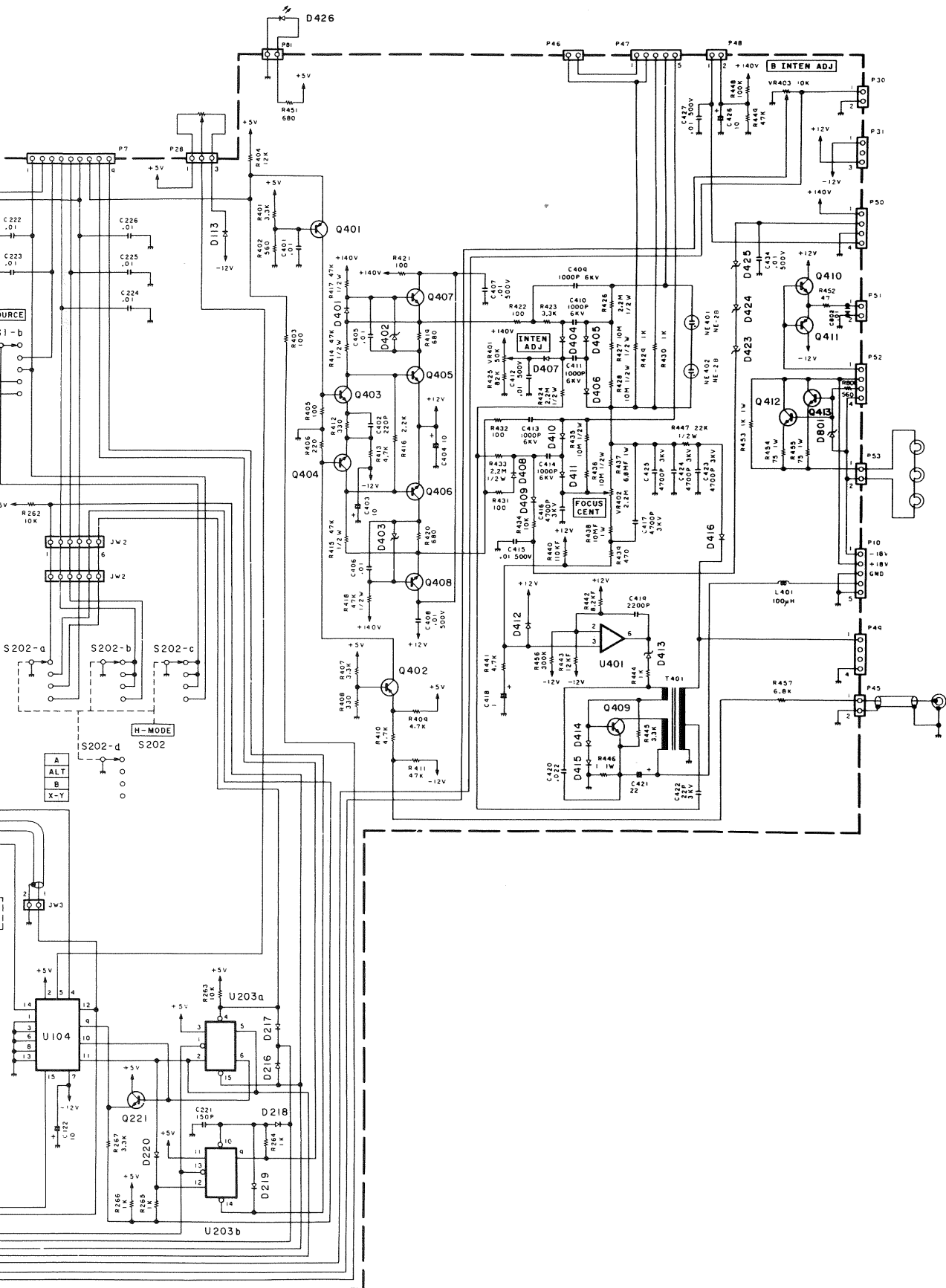
CS-5135

SCHEMATIC DIAGRAM

HORIZONTAL UNIT (X74-1490-00)

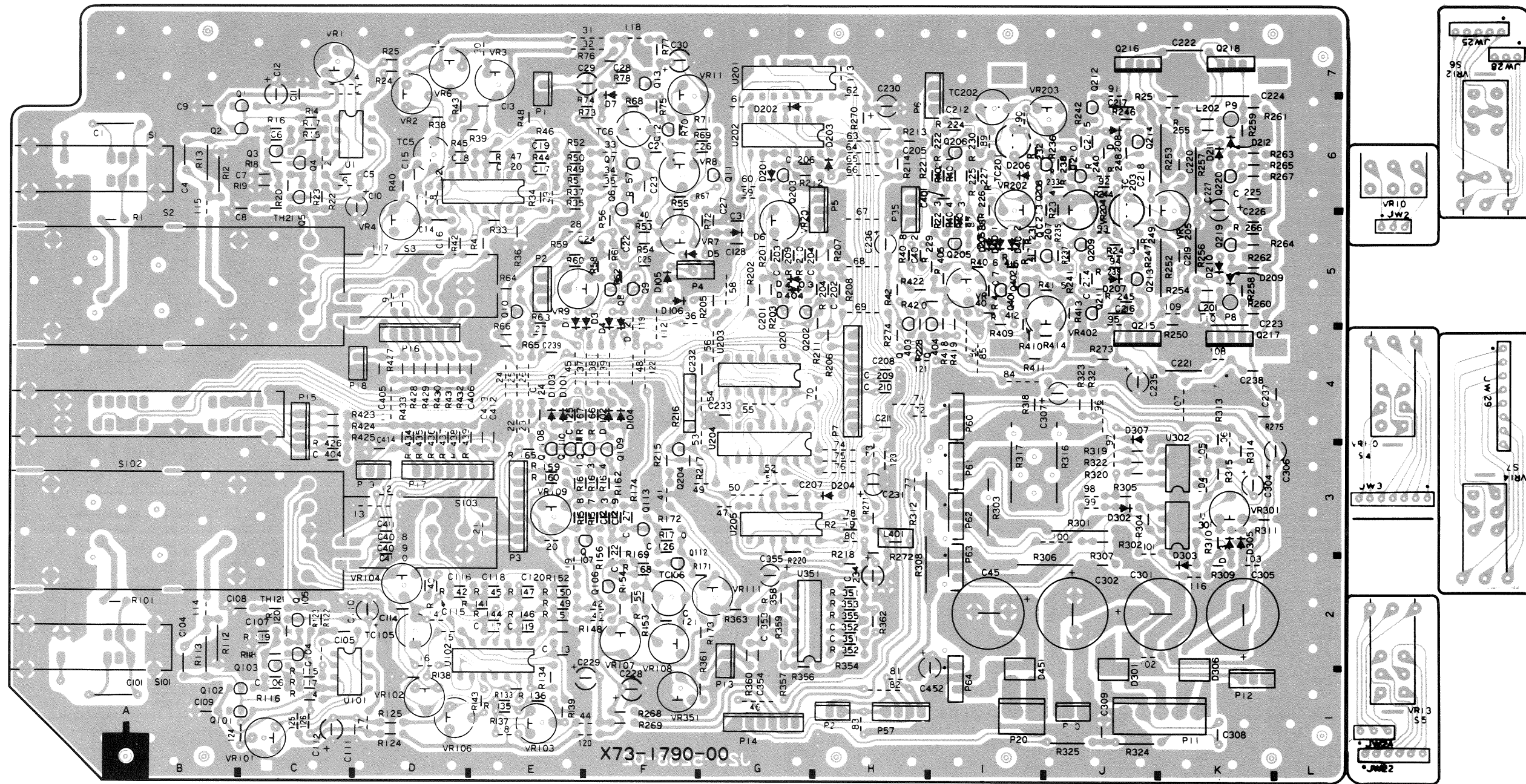


- | | | | | |
|---|--|---|---|---|
| U1, U101 : SN74LS00N
U102, 201, 203 : SN74LS122AN
U103, 202 : TL081CP
U104 : TC4053BP
U401 : LF1374IN | Q1, 2, 219, 220, 401, 402 : 2SA1005(K)
Q3 : 2SK170(E)
Q4, 5, 13, 15, 305~307, 403, 404 : 2SC1907
Q6~9, 14, 18, 101~103, 108, 109, 201~203, 208, 209, 214, 215 : 2SA844(D)
Q10, 106, 206 : 2SK117(BL)
Q11, 104, 204, 308 : 2SA838(B)
Q12, 210, 303, 304, 411 : 2SA1015(Y)
Q16, 17, 110~113, 213, 216~218, 221, 301, 302, 410 : 2SC945(O) | Q105, 205 : 2SC1843(F)
Q107, 207, 211, 212 : 2SK170(E)
Q309, 310, 405~408 : 2SD0688A(C)
Q311, 312 : 2SB648A(C)
Q409 : 2SD880(Y)
Q412, 413 : 2SC1846(R) | D1, 2, 4, 5, 6, 101~112, 201~220, 301, 305, 306, 401, 412, 414, 415 : ISS86
D3, 304 : HZ56-8J(B2)
D113 : MA700
D302, 303 : ISS83
D307, 404~411 : HZ2(B3)
D402, 403 : HZ55-6J(B2)
D413 : Y10GA
D416 : | S101588 : D423~425: HZ36L(2)
S1SS86 : D426 : B30-0957-05
S1HZ56-8J(B2) : D801 : RD30E(B3) |
|---|--|---|---|---|



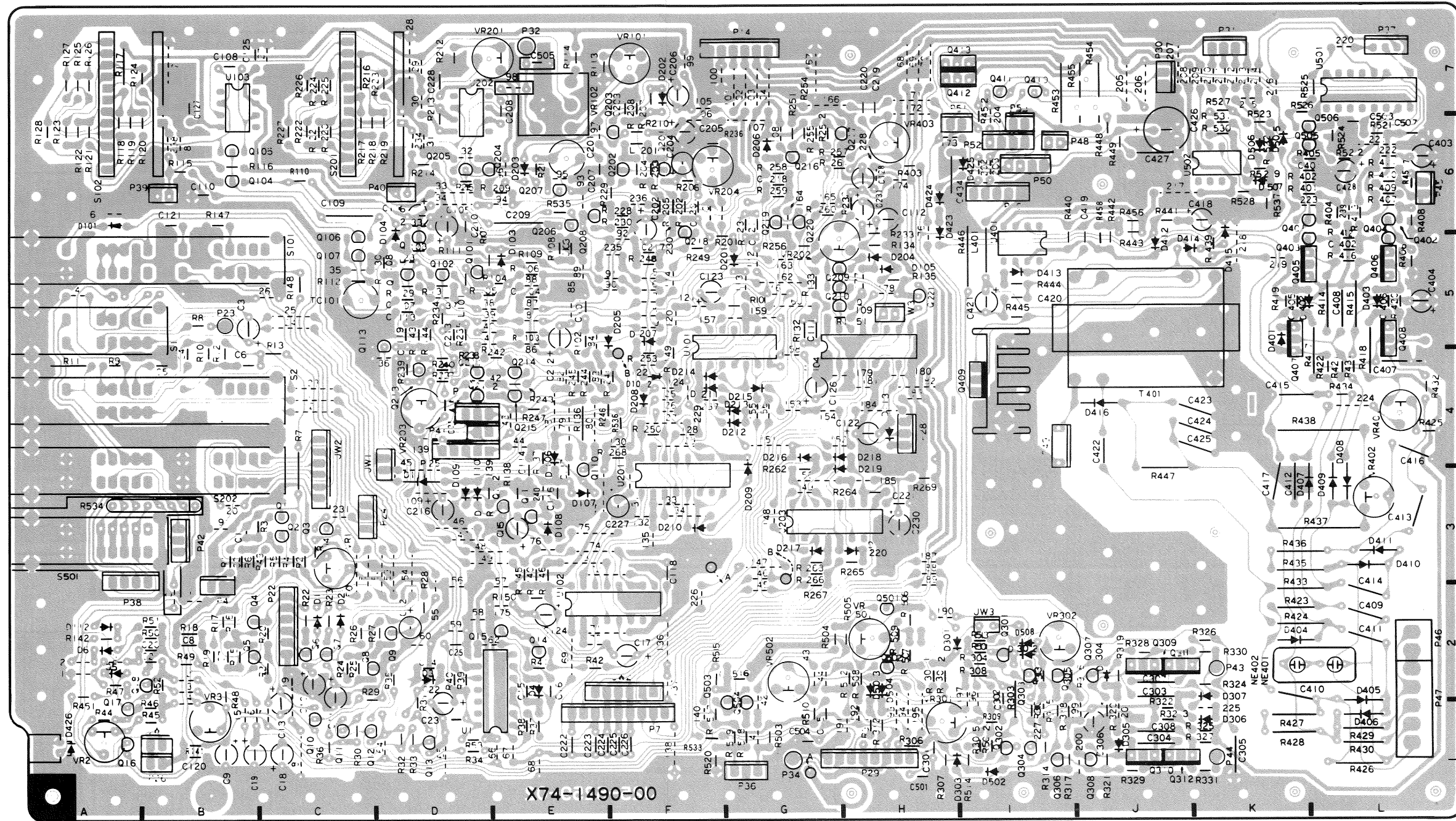
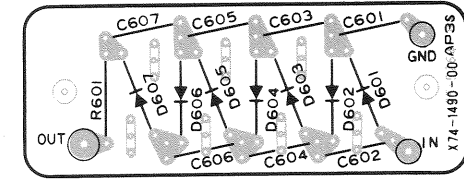
P.C. BOARD

VERTICAL UNIT (X73-1790-00)



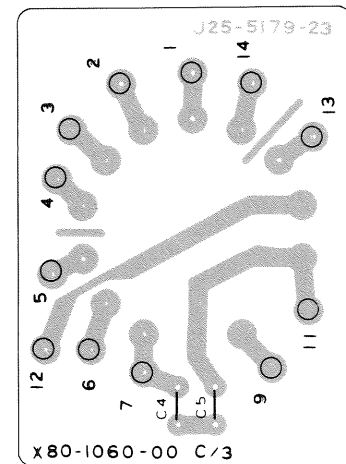
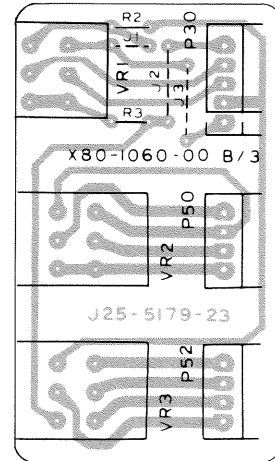
P.C. BOARD

HORIZONTAL UNIT (X74-1490-00)



P.C. BOARD

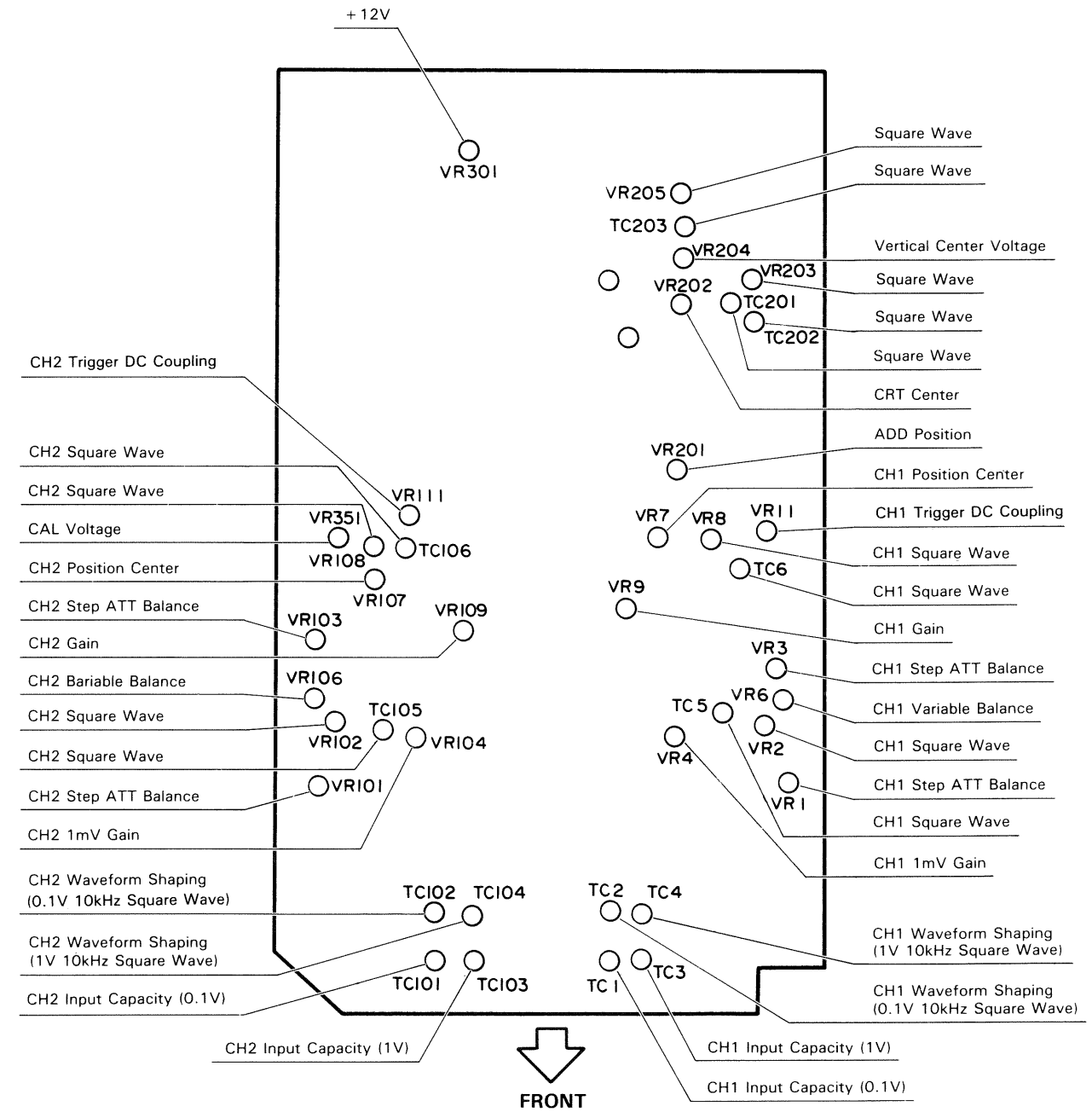
LINE FILTER UNIT (X80-1060-02)



ADJUSTMENT

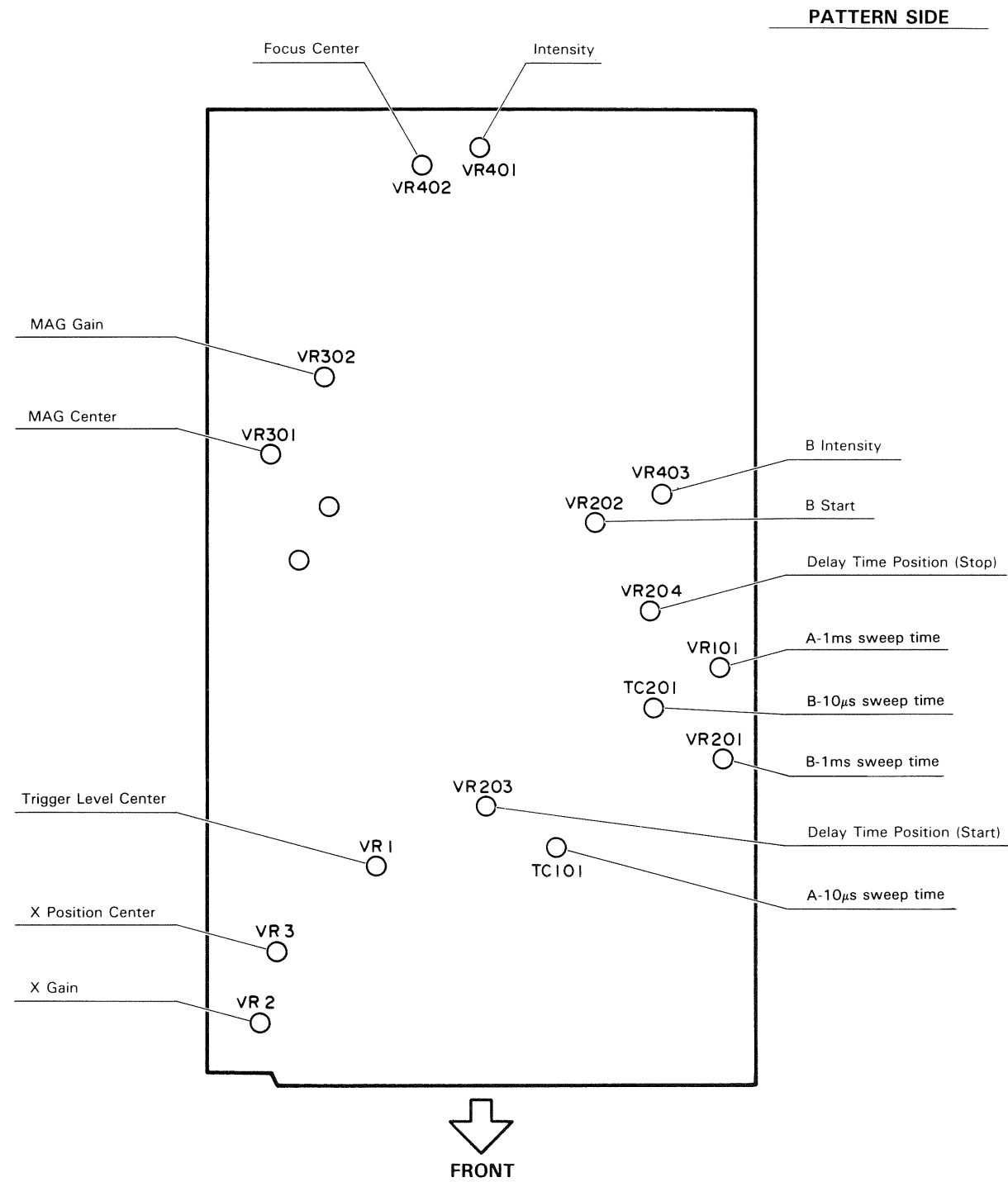
VERTICAL UNIT (X73-1790-00)

PATTERN SIDE



ADJUSTMENT

HORIZONTAL UNIT (X74-1490-00)



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