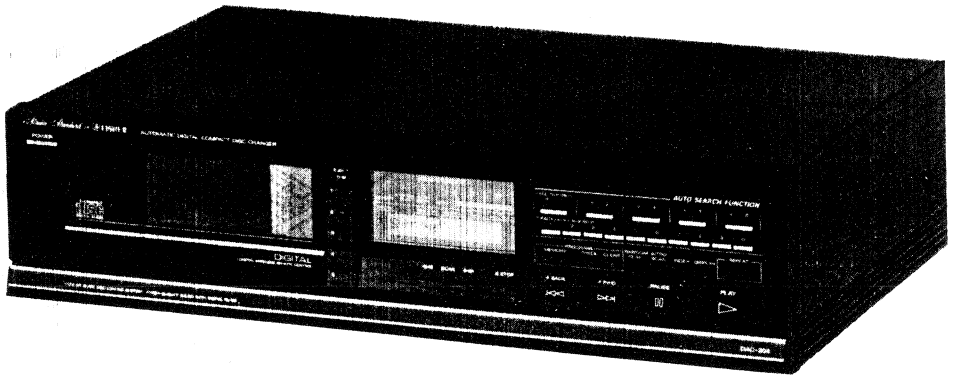
SERVICE MANUAL

FISHER

DIGITAL COMPACT DISC PLAYER

DAC-204

(EUROPE)



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SPECIFICATIONS

System ..... Compact disc digital audio system

AUDIO CHARACTERISTICS

Frequency Response ..... 20 Hz – 20 kHz
Harmonic Distortion ..... Less than 0.006 % (1 kHz)
S/N Ratio ..... More than 90 dB
Wow and Flutter ..... Below measurable limits
Channel Separation ..... More than 80 dB (1 kHz)

FUNCTIONS

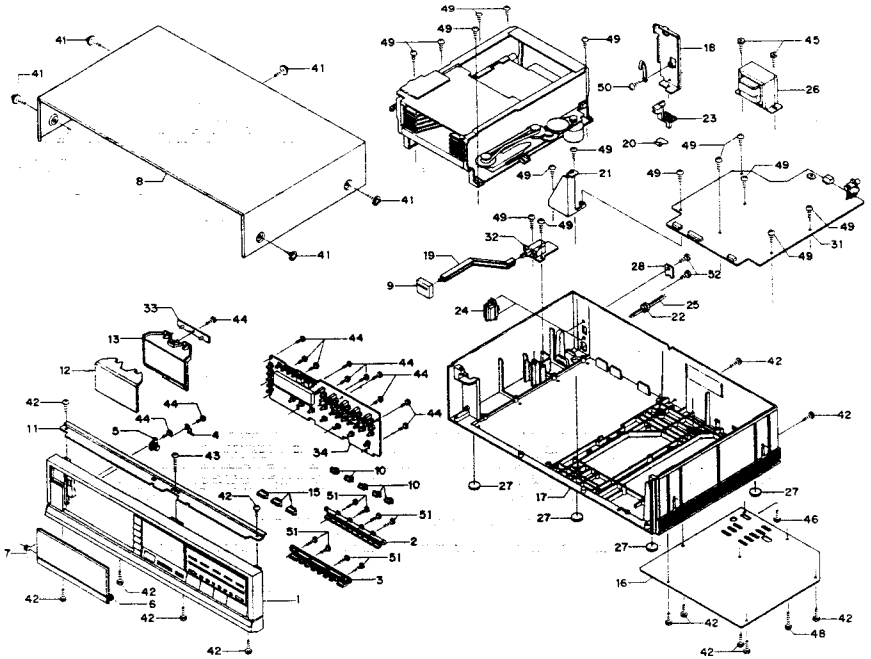
Disc Selection ..... With DISC NUMBER (1 ~ 5) buttons
Track Selection ..... With TRACK/INDEX NUMBER (0 ~ 9) buttons
Index Selection ..... With INDEX and TRACK/INDEX NUMBER (0 ~ 9) buttons (normal disc play only)
Program Selection ..... With DISC NUMBER (1 ~ 5), TRACK/INDEX NUMBER (0 ~ 9)
Program Functions ..... 32 selections
Program Reset ..... Press CLEAR button
Checking Program ..... With CHECK button (in STOP mode)
Intro Scan ..... 1 ~ 99 sec. programable
Scanning ..... 2 speed fast-forward/back with sound, 2 speed search in PAUSE mode
Random Disc Play ..... Press RANDOM PLAY button
Total Disc Time Display .... Press DISPLAY button twice
Repeat ..... All tracks, all programmed tracks

GENERAL

Power Requirements (50 Hz) ..... AC 110/220V 20 Watts
Dimensions (W x H x D) ..... 440 x 113 x 290 mm
Weight (approx.) ..... 5.0 kg

REFERENCE No. WM-19866

CABINET EXPLODED VIEW



CABINET PARTS LIST

Ref. No.	Part No.	Description	Q'ty
	PACKAGE		
	131-2-7103-54600	Label (50th)	2
	131-6-1169-20909	Box Corrugate-Exp.	1
	131-6-3009-36570	Pad (Left)	1
	131-6-3009-36580	Pad (Right)	1
	131-6-3069-16350	Patching Sheet	1
	141-6-2519-22290	Sheet Polyethylene	1
	141-6-4559-03300	Serial No. Sheet	2
	ACCESSORIES		
	4-2359-79410	Connector 5P Assy	1
	4-2369-74132	Plug Cord RCA 1.0 BK	1
	131-6-2719-10401	Bag Fan	1
	141-6-4159-00645	Notes	1
	142-6-4119-33475	Explanatory Booklet	1
	CABINET & CHASSIS		
	4-2352-02179	Connector 6P Assy [CN6]	1
	4-2352-02474	*Connector 2P Assy [CN7]*	*1*
	4-2352-02348	Connector 4P Assy [CN8]	1
	4-2352-02333	Connector 5P Assy [CN9]	1
	4-2352-02178	*Connector 6P Assy [CN10]*	*1*
	4-2352-02722	Connector 1P Assy	1
	4-2352-02665	Connector 1P Assy	1
	4-2352-02864	Connector 1P Assy	1
	4-2352-02866	Connector 1P Assy	1
	4-2352-02867	Connector 1P Assy	1
	131-2-1310-40571	Name Plate (Rating)	1
	131-6-4159-39600	Notes (Laser)	1
	131-6-4159-40200	Notes (Laser)	1
	131-6-4159-40300	Notes (Laser)	1
	141-2-4459-44000	Cushion (Escutcheon Dial)	1
	141-2-4459-44100	Cushion (Escutcheon Dial)	1
	141-2-4729-04200	Lug	1
	141-6-4559-03300	Serial No. Sheet	1
1	131-0-1015-12206	Escutcheon Dial Assy	1
2	131-0-1001-64400	Knob Track No. Assy	1
3	131-0-1001-64500	Knob Function Assy	1
4	131-2-4119-10800	Metal Mount Shaft	1
5	141-0-5519-08507	Gear Eject Assy	1
6	141-0-1249-46902	Lid Disc Assy	1
7	141-2-8529-40300	Spring Door	1
8	131-2-1410-32800	Cover	1
9	131-2-1601-90903	Knob Power	1
10	131-2-1601-97800	Knob Push (L)	5
11	*131-2-3201-12800*	*Angle Reinf*	*1*
12	131-2-3602-12701	Filter (Index)	1
13	141-0-1149-17800	Mount Screen Assy	1
15	141-2-1659-83200	Knob Scan	3
16	131-2-1105-32400	Plate Bottom	1
17	131-2-3301-33006	Chassis Main	1
18	131-2-3311-10900	Metal Mount Cover	1

CABINET PARTS LIST (Continued)

Ref. No.	Part No.	Description	Q'ty
19	131-2-4219-20400	Shaft	1
20	134-2-5103-11700	Spring Plate	1
21	141-2-3519-84400	Bracket Chassis	1
22	141-2-3899-10400	Heyco Bushing	1
23	141-2-7429-06500	Lever Lock	1
24	⚠ 4-2312-02650	Switch Slide 3P (AC SELECTOR) [SW602]	1
25	⚠ 4-2432-00500	Power Cord	1
26	⚠ 4-2512-34620	Power Trans	1
27	131-2-1801-16200	Leg	4
28	131-2-7104-00500	Plate Pad Switch	1
31	141-0-1939-20515	Main P.C.B. Assy	1
32	141-0-1939-20542	Power P.C.B. Assy	1
33	141-0-1939-20550	Lamp P.C.B. Assy	1
34	141-0-1939-20522	Control P.C.B. Assy	1
41	141-2-4219-33101	Screw, Bind Hd. Tapping-B, +M3.0x8	5
42	411 099 9803	SCR S-TPG BRZ 3X8	14
43	411 064 3607	SCR TPG BIN 3X16	1
44	411 020 5508	SCR S-TPG BRZ 2.6X6	13
45	411 006 2804	SCR TPG BIN 4X10	2
46	411 020 6406	SCR S-TPG BRZ 3X12	1
48	143-3-1903-02518	Screw, Brazier Hd. Tapping-B, +M3.0x25	1
49	411 020 8004	SCR S-TPG BRZ 3X8	14
50	411 020 7700	SCR S-TPG BRZ 3X6	1
51	411 021 0809	SCR S-TPG BIN 2X6	8
52	411 002 9104	SCR PAN 3X8	2

NOTES:

1. Parts order must contain Model Number, Part Number and Description.
2. Ordering quantity of screws and resistors must be multiple of 10 pcs.

PRODUCT SAFETY NOTICE

Each precaution in this manual should be followed during servicing. Components identified with the IEC symbol ⚠ in the parts list and the schematic diagram designate components in which safety can be of special significance. When replacing a component identified with ⚠, use only the replacement parts designated, or parts with the same ratings of resistance, wattage or voltage that are designated in the parts list in this manual.
Leakage-current or resistance measurements must be made to determine that exposed parts are acceptably insulated from the supply circuit before returning the product to the customer.

SAFETY INTERLOCK

The Digital Compact Disc Player reads the disc signal by detecting the laser beam. It must be avoided for the human body to directly receive the beam. Especialy human eyes are badly affected by the beam. Therefore, the unit is equipped with an interlock to prevent the unnecessary laser outputs.

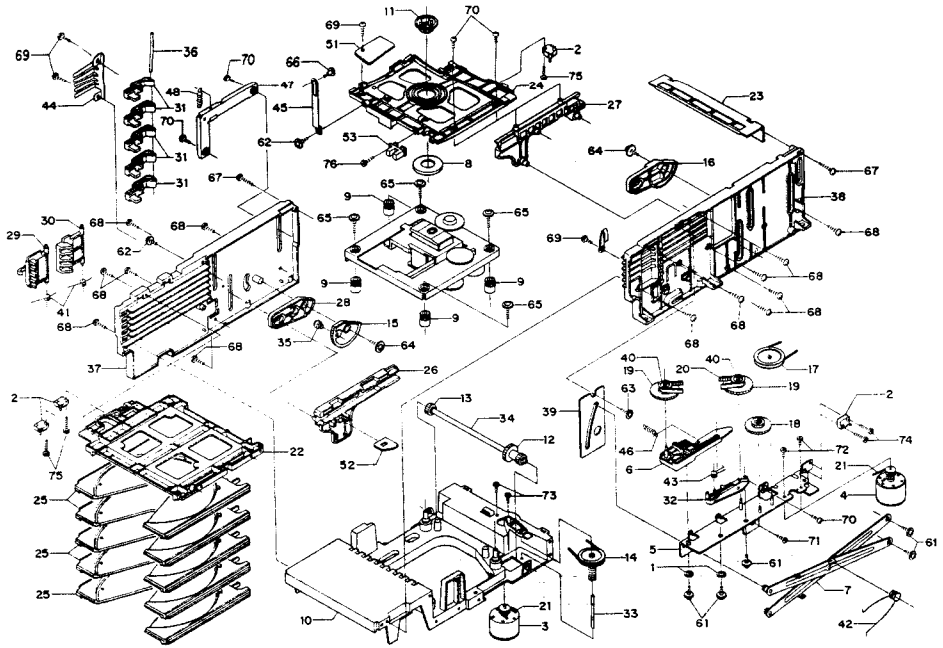
The laser outputs are controled by the injection or cutoff of the constant voltage source to the laser diode with Pin 16 of IC 901 (μPD75206G). When Pin 16 is in "L" (Low) level, the laser emits the beam. When Pin 16 is in "H" (High) level, the laser does not emit the beam.
Pin 16 is set in "H" level when the unit is loaded with the disc and it reads the index signals or when the unit is set in the play mode after that. When the unit reads the index signals and the following two conditions are met, the laser emits the beam.

1) When the Loading Limit Switch is set in "ON". (The disc is set to the turntable.)
2) The pickup is located at the area of the minimum internal circumference.

After the above conditions are met and the index signals have been read, the laser emits the beam when the following two conditions are met.

1. When the PLAY button is pressed.
2. When the PLAY indicator is ON.

CD INDEX MECHANISM EXPLODED VIEW



CD INDEX MECHANISM PARTS LIST

Ref. No.	Part No.	Description	Q'ty
	CD INDEX MECHANISM		
	141-2-2449-55200	Sheet	1
	141-2-4729-04200	Lug	1
	141-2-4729-07100	Wire Band	7
1	141-2-4579-05900	Washer, M4.7x9.0x0.13	2
2	4-2319-79910	Lever Switch (Open/Close) [SW1]	1
2	4-2319-79910	Lever Switch (Store Point) [SW2]	1
2	4-2319-79910	Lever Switch (Loading Limit) [SW3]	1
2	4-2319-79910	Lever Switch (Playback Point) [SW4]	1
3	4-5279-71630	Motor (Index) [M3]	1
4	4-5279-71631	Motor Load (Load) [M4]	1
5	141-0-7319-36100	Slide Plate Assy	1
6	141-0-7419-44200	Lever Index Assy	1
7	141-0-7439-20900	Arm Index Assy	1
8	141-0-8619-00300	Magnet Assy	1
9	141-2-4459-42000	Cushion Rubber	4
10	141-2-3119-30200	Chassis (Load)	1
11	141-2-3519-83800	Holder Disc	1
12	141-2-5519-73000	Gear Wormwheel	1
13	141-2-5519-73100	Gear Index	1
14	141-2-5519-73200	Gear Worm	1
15	141-2-5519-73300	Gear Cam Left	1
16	141-2-5519-73400	Gear Cam Right	1
17	141-2-5519-73500	Gear Pulley	1
18	141-2-5519-73600	Gear Load	1
19	141-2-5519-73700	Gear Pinion	2
20	141-2-5619-02800	Belt (Timing)	1
21	141-2-5649-30300	Belt	2
22	141-2-6229-01600	Support Front	1
23	141-2-6229-01700	Support Rear	1
24	141-2-6229-01800	Flap Disc Cramp	1
25	141-2-7319-85800	Tray	5
26	141-2-7319-85900	Slide Left	1
27	141-2-7319-86000	Slide Right	1
28	141-2-7429-05800	Lever Cam Left	1
29	141-2-7429-05900	Lever Eject	1
30	141-2-7429-06000	Lever Stop	1
31	141-2-7429-06100	Lever Rock	5
32	141-2-7429-06200	Lever Adjust	1
33	141-2-7519-83000	Shaft Gear Worm	1
34	141-2-7519-83100	Shaft Index	1
35	141-2-7519-83200	Pin Adjust	1
36	141-2-7519-83300	Shaft Lever Rock	1
37	141-2-8219-37500	Guide Left	1
38	141-2-8219-37600	Guide Right	1
39	141-2-8219-37700	Guide Plate	1
40	141-2-8459-04900	Cap Gear Pinion	2
41	141-2-8529-39500	Spring Lever Stop	2
42	141-2-8529-39600	Spring Arm Index	1
43	141-2-8529-39700	Spring Lever Adjust	1

CD INDEX PARTS LIST (Continued)

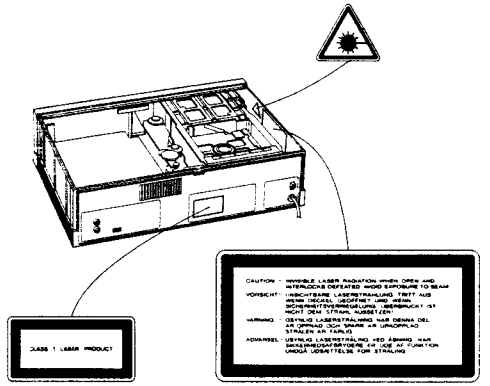
Ref. No.	Part No.	Description	Q'ty
44	141-2-8539-61300	Spring Lever Rock	1
45	141-2-8539-61400	Spring Plate	1
46	141-2-8549-39200	Spring Lever Index	1
47	141-2-7319-89600	Slide Plate Left	1
48	141-2-8549-41900	Spring Slide Plate Left	1
51	141-0-1939-19830	LED P.C.B. Assy	1
52	141-0-1939-19840	Photo Transistor P.C.B. Assy	1
53	141-0-1939-19850	Photo Sensor P.C.B. Assy	1
61	141-2-4219-04200	Screw	5
62	141-2-4219-05400	Screw Washer	2
63	131-2-4201-28201	Screw(b Tite Sems)	1
64	131-2-4201-28300	Screw(b Tite Sems) Z	2
65	141-2-4219-44800	+BRTS-B M2.6X14 Sems	4
66	141-2-4219-23000	Screw	1
67	411 020 7007	SCR S-TPG BRZ 3X20	2
68	411 020 5904	SCR S-TPG BRZ 3X10	13
69	411 020 7700	SCR S-TPG BRZ 3X6	4
70	411 020 5508	SCR S-TPG BRZ 2.6X6	5
71	411 022 1904	SCR S-TPG FLT 2.6X6	1
72	411 031 0103	SCR BIN 2.6X3	2
73	411 031 0905	SCR BIN 2.6X4	2
74	411 030 7707	SCR BIN 2X8	2
75	411 063 7309	SCR TPG BIN 2X10	3
76	411 063 8504	SCR TPG BIN 2X8	1

NOTES:

1. Parts order must contain Model Number, Part Number and Description.
2. Ordering quantity of screws and resistors must be multiple of 10 pcs.

SAFETY CERTIFICATION

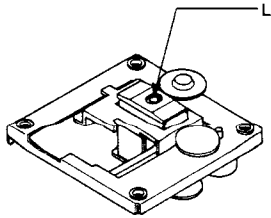
This Compact Disc Player is made and tested to meet exacting safety standards. It meets UL and FCC requirements and complies with safety performance standards of the U.S. Department of Health and Human Services.



CAUTION – USE OF CONTROLS OR ADJUSTMENTS OR PERFORMANCE OF PROCEDURES OTHER THAN THOSE SPECIFIED HEREIN MAY RESULT IN HAZARDOUS RADIATION EXPOSURE.

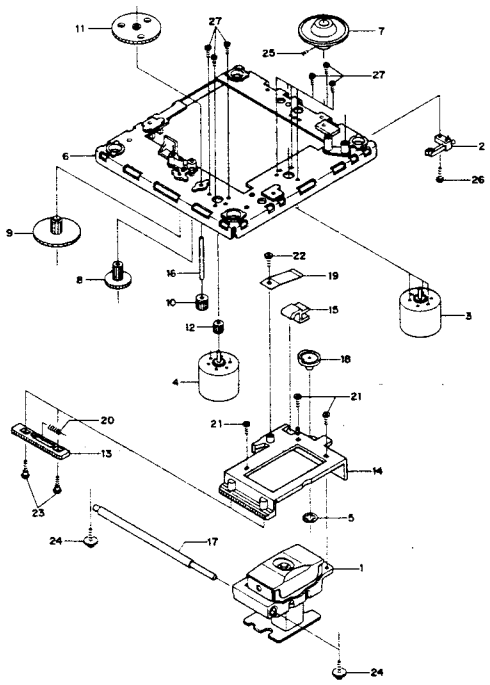
THE COMPACT DISC PLAYER SHOULD NOT BE ADJUSTED OR REPAIRED BY ANYONE EXCEPT QUALIFIED SERVICE PERSONNEL.

LASER BEAM RADIATION SPOT



Laser Diode Properties
Material : Ga-Al-As
Wavelength : 755 – 815 nm (25°C)
Laser Output : Continuous Wave max. 0.5 mW

CD MECHANISM EXPLODED VIEW



CD MECHANISM PARTS LIST

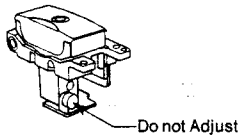
Ref. No.	Part No.	Description	Q'ty
	CD MECHANISM		
1	134-0-4009-04001	Pick-up Assy T 84.5	1
2	4-2319-78750	Leaf Switch (Pick-up Limit) [SW7]	1
3	4-5279-71421	Motor (Disc) [M2]	1
4	4-5279-71431	Motor (Sled) [M1]	1
5	131-2-4220-10507	Ring Snap	1
6	141-0-3119-26601	Chassis Assy	1
7	141-2-5229-01300	Turntable	1
8	141-2-5519-66400	Gear Pick-up	1
9	141-2-5519-66500	Gear Load D	1
10	141-2-5519-66600	Gear Pinion	1
11	141-2-5519-66700	Gear Load S	1
12	141-2-5519-66800	Gear Motor	1
13	141-2-5519-67000	Gear Support Pick-up	1
14	141-2-7319-76000	Slide Base Pick-up	1
15	141-2-7319-76100	Slide	1
16	141-2-7519-76600	Shaft Gear Load S	1
17	141-2-7519-76700	Shaft Pick-up	1
18	141-2-8259-13800	Guide Slide Base PI	1
19	141-2-8539-57500	Spring Plate	1
20	141-2-8559-15100	Spring Slide Base P	1
21	411 031 1605	SCR BIN 2.6X6	3
22	411 021 2704	SCR S-TPG BIN 2.6X6	1
23	141-2-4219-42300	Screw	2
24	141-2-4219-05400	Screw Washer M2.0x4	2
25	141-2-4219-36700	Set Screw V-cone M2.0X4	1
26	411 023 3303	SCR S-TPG PAN 2.6X8	1
27	411 019 9401	SCR PAN PCS 1.7X2.5	6

NOTES:
1. Parts order must contain Model Number, Part Number and Description.
2. Ordering quantity of screws and resistors must be multiple of 10 pcs.

ADJUSTMENT PROCEDURES

PRECAUTIONS REGARDING ADJUSTMENT

- Adjustment is performed in the indicated order.
- When adjustment is mode for one item, check the other items which follow.
- The laser pick-up has already been precisely adjusted. Do not touch its mounting screws controls.



- Refer to the schematic diagram and printed circuit board.
- The ground point for the measurement equipment is the test point indicated as **GND**.

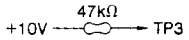
REQUIRED EQUIPMENTS

- DC Voltmeter
- Dualtrace Oscilloscope
- Frequency Counter
- Signal Generator
- Plastic Screwdriver
- Diffraction Grating Adjustment Jig
- Test Disc (SONY:YEDS4)
- Test Disc (SONY:YEDS7)

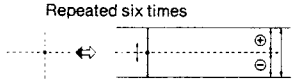
CHECKING FOCUS ERROR SIGNAL

Checking the focus error signal of the pick-up allows for an evaluation of the pick-up. Be sure this is carried out before repair.

1. Turn on the power switch and set the unit to the STOP mode.
2. Connect an oscilloscope between test pin **FE** of connector CN15 and test pin **GND**. (Set the time axis to 0.5 seconds/division.)
3. Connect the +10V supply voltage to test pin **TP3** through a 47kΩ resistor.

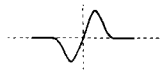


4. Press the EJECT 1 button and place the test disc YEDS4 on the table load. Press the PLAY button.
5. The waveform shown below is displayed six times on the oscilloscope. Check that the p-p voltage is about 8V and that the top and bottom of the waveform are symmetrical.



(When recorded on a memory scope)

6. This allows for confirmation to be made. The pick-up is faulty if confirmation cannot be made.



* p-p voltage of 8V
* + and – voltage roughly same

SETTING OF INITIAL POSITION OF VOLUME

1. The variable resistors are set to the following initial positions.

P101 (E-F BALANCE)	Mechanical Center
P102 (FOCUS GAIN)	Mechanical Center
P103 (TRACKING GAIN)	Mechanical Center
P104 (KICK GAIN)	Mechanical Center
P105 (FOCUS OFFSET)	Mechanical Center
P106 (TRACKING OFFSET)	Mechanical Center
P107 (DAC)	Mechanical Center

FREE RUN FREQUENCY ADJUSTMENT

1. Turn on the power switch and set the unit to the STOP mode.
2. Connect the frequency counter between test pin **VCO** of connector CN10 and test pin **GND** (use probes).
3. Rotate the core of the PLL OSC coil (T102) with a plastic screwdriver so that the frequency counter indicates 4.3218MHz.

FOCUS OFFSET ADJUSTMENT

1. Turn on the power switch and set the unit to the STOP mode.
2. Connect a DC Voltmeter and oscilloscope between test pin **FC** of connector CN14 and test pin **GND**.
3. Adjust P105 so that the indication on the DC Voltmeter and oscilloscope is 0V±10mV.

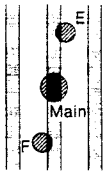
TRACKING OFFSET ADJUSTMENT

1. Turn on the power switch and set the unit to the STOP mode.
2. Connect a DC Voltmeter and oscilloscope between test point **TC** of connector CN14 and test pin **GND.**
3. Adjust P106 so that the indication on the DC Voltmeter and oscilloscope is 0V±50mV.

NOTE:
This adjustment should be mode again after the adjustment of Tracking Gain.

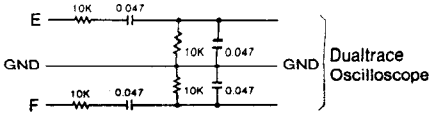
ADJUSTMENT OF DIFFRACTION GRID

This unit uses a three beam method for the laser pick-up. Diffraction grid adjustment involves adjusting the position of the E and F beams in relation to the main beam so that they are in the same line.

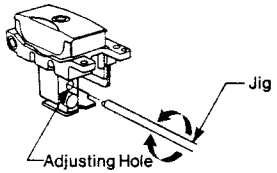


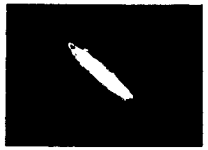
The following is the adjustment procedure. This is a precise adjustment and must be made carefully.

1. Turn on the power switch, place test disc YEDS4 on the table load and set the unit to the STOP mode.
2. Short test pins **TEST1** and **GND** of connector CN16.
3. Short test pin **TP1** and test pin **GND.** Pass test pins **E** (TP13) and **F** (TP14) through the band pass filter, and connect to the channels of the dualtrace oscilloscope. The ground is obtained from test point **GND.**

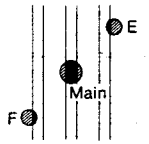


4. Press the F FWD button. The TRACK No. indication is "2" and the disc begins to rotate. Continue to press the PLAY button. The unit is rotating in this state with the tracking servo turned off.
5. Observe the resurge waveform of the waveform indicated on the oscilloscope and insert the adjustment jig into the diffraction grid holes to adjust the diffraction grid so that the phase difference is 180°.





6. Even if the phase difference is 180° in the above step, the E and F beams may be mistakenly on two different beam pit lines as shown below.



Be sure that the E and F beams are in the same pit line for subsequent adjustments.

7. Remove the short between test pin **TP1** and **GND**, and **TEST 1** and **GND**, and play back the fourth selection on YEDS4.
8. Observe the waveform of the signal between test pin **E** and test pin **F** using the dualtrace oscilloscope (Monitored in ALT mode). The beam **E** and beam **F** are in the same pit line if the trigger of waveform **F** is approximately 25μs behind the point (Position where waveform hollows out) where the waveform **E** is triggered.

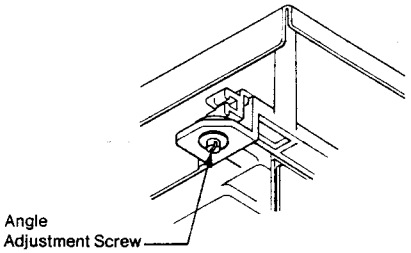
The two beam are on the same pit line.
(100mV/DIV : 5μSec/DIV)

When observation of the waveform is difficult, the trigger level can be varied. When the beams are not in the same line, return to step 1, and rotate the adjustment jig at the 180° point. Confirm that the beams are in line at the 180° point. Repeat steps 1 to 7 until confirmation of this is possible.

Note:
When the pick-up is replaced, it is adjusted as a unit, and beams E and F can be brought in line and the phase made 180° by a slight adjustment. Slightly rotate the adjustment jig when making adjustment. If the beams come out of line, it is difficult to bring them back into the same pit line.

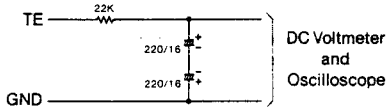
ADJUSTMENT OF PICK-UP ANGLE

1. Mount the test disc YEDS4 on the turntable.
2. Turn on the power and play back the fourth selection.
3. Connect the oscilloscope between test pin **HF** and test pin **GND**. Monitor the waveform of **HF** and rotate the angle adjustment screw so that the waveform is at its maximum.



E-F BALANCE ADJUSTMENT

1. Turn on the power switch and mount test disc YEDS4 on the table load. Set the unit to the STOP mode.
2. Short test pins **TEST1** and **GND** of connector CN16.
3. Short test pin **TP1** and test pin **GND**, and connect a DC Voltmeter and oscilloscope to test pin **TE** of connector CN15 through the low-pass filter shown below.

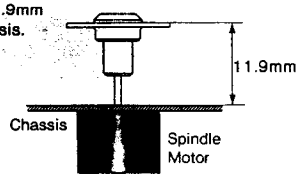


4. Press the F FWD button. The TRACK No. indication is "2" and the disc begins to rotate. Continue to press the PLAY button. The unit is rotating in this state with the tracking servo turned off.
5. Adjust P101 so that the DC Voltmeter and oscilloscope is 0V±15mV.

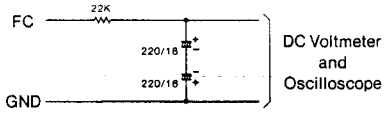
ADJUSTMENT OF TURNTABLE HEIGHT

This adjustment must be made when the motor is replaced.

1. Attach the turntable so that its top surface is 11.9mm from the top of the chassis.



2. Connect test pin **FC** of connector CN14 to a DC Voltmeter and oscilloscope through the low-pass filter.

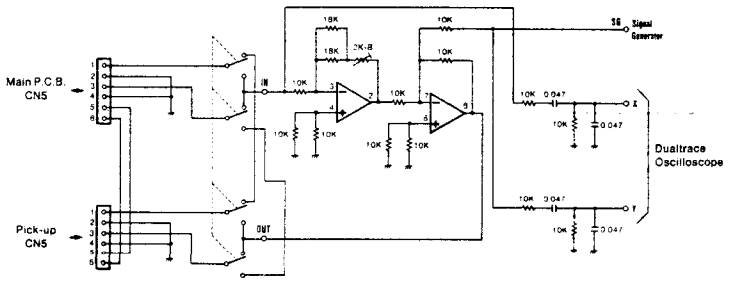


3. Turn on the power switch and playback the first selection on test disc YEDS4.
4. Readjust the height of the turntable if the reading on the DC Voltmeter is not in the range of 0V±0.25V. (Increase the height of the turntable when the DC Voltmeter reading is positive, and decrease it when negative.)

ADJUSTMENT OF FOCUS/TRACKING GAIN

The measurement circuit shown below is necessary for accurate adjustment of the focus and tracking gain. If this circuit cannot be made, make adjustments using the simplified procedure.

- Remove connector CN5 from the pick-up and connect the measurement circuit between the PCB and pick-up.
- The IC used is TA7256P.
- Volume control 2kΩ-B shorts **IN** and **SG**. 1kHz 1Vp-p is supplied from the signal generator, and adjustment is made for minimum output from **OUT**.

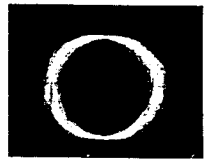


Simplified adjustment Procedure

- Focus gain adjustment
  P102 is set to a mechanical center.
- Tracking gain adjustment
  P103 is set to a mechanical center.

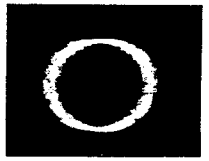
Precise adjustment procedure

- Focus gain adjustment



1. Connect the measurement circuit shown above, turn on the power switch, and mount the test disc YEDS4.
2. Playback the first selection on the test disc, and apply a 1,000Hz 0.5Vp-p signal from the signal generator.
3. Observe the resurge waveforms on the oscilloscope, and adjust P102 so that the phase difference of outputs **X** and **Y** from the measurement circuit is 90°.

- Tracking gain adjustment



1. Adjustment is made in the same manner as for focus gain. The input from the frequency generator is set to 1,000Hz, 0.5Vp-p, and P103 is adjusted so that the phase difference is 90°.

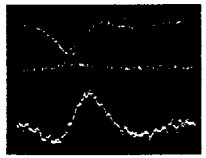
ADJUSTMENT PROCEDURES (Continued)

ADJUSTMENT OF KICK GAIN

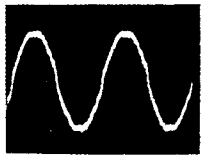
1. Load the test disc YEDS4 on the turntable.
2. Set the oscilloscope at the NORMAL TRIG. and connect the **TRHD** of connector CN16 to the external trigger terminal. Then, connect the channels, 1 and 2, to the test pin, **HF** and **TE**, respectively.
3. Switch on the power. In the start of playing the first tune, make it pause and observe the waveforms of **HF** and **TE** triggered by **TRHD**.
4. Adjust the P104 for making a track jump between 1 and 1.5 track.

HF (1V/DIV 50μSec/DIV)

TE (0.5V/DIV 50μSec/DIV)

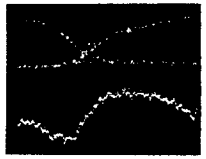


Proper Waveform



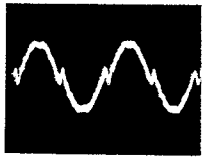
HF (1V/DIV 50μSec/DIV)

TE (0.5V/DIV 50μSec/DIV)



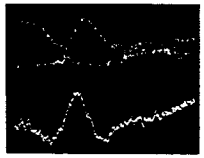
Waveform showing short Kick Gain

Interrupted Waveform



HF (1V/DIV 50μSec/DIV)

TE (0.5V/DIV 50μSec/DIV)



Waveform showing Excessive Kick Gain

Interrupted Waveform

ADJUSTMENT OF DAC

1. Connect the outlet of the unit to the oscilloscope.
2. Turn on the power and mount the test disc YEDS7 on the table load.
3. Play back the twentieth selection (1kHz : −60dB) on the test disc and apply a reasonable output to the oscilloscope with the volume knob of the premain amplifier.
4. Adjust the P107 for getting sine waveform on the oscilloscope.

P.C.BOARD PARTS LIST

Ref. No.	Part No.	Description	Q'ty
	MAIN P.C.B. ASSY		
31	141-0-1935-20515	Main P.C.B. Assy	1
	111-2-6220-11100	Wire Wrap Terminal	14
	141-2-3229-60200	Plate Earth	1
	4-2352-01940	Fuse Clip	8
	⚠ 4-2349-20131	Fuse T400mA	2
	⚠ 4-2349-70040	Fuse T500mA	2
CN1	4-2352-02520	Socket 13P	1
CN2	4-2352-02510	Socket 6P	1
CN3	4-2352-02500	Socket 7P	1
CN4	4-2369-74990	Plug 8P	1
CN5	4-2369-74920	Plug 6P	1
CN6	4-2369-73160	Plug 6P	1
CN7	4-2362-00770	Plug 2P	1
CN8	4-2369-73140	Plug 4P	1
CN9	4-2369-73150	Plug 5P	1
CN10	4-2369-75120	Plug 6P	1
CN11	4-2369-73160	Plug 6P	1
CN13	4-2369-75940	Plug 9P	1
CN14	4-2369-72920	Plug 5P	1
CN15	4-2369-71851	Plug 4P	1
CN16	4-2369-71881	Plug 8P	1
CN17	4-2369-71482	Plug 3P	1
CN18	4-2369-76010	Plug 5P	1
CN21	4-2369-73130	Plug 3P	1
CN22	4-2369-73130	Plug 3P	1
JK101	4-2352-01631	Pin Jack 2P (LINE OUT)	1
L101	4-2529-70460	Filter WIP20D5B8	1
L102	4-2539-71420	Choke Coil (100μH)	1
T101	4-2539-72160	RF Filter	1
T102	4-2589-73250	OSC Coil	1
P101	4-2229-76740	Potentiometer (B-100kΩ)	1
P102	4-2229-76561	Potentiometer (B-10kΩ)	1
P103	4-2229-76561	Potentiometer (B-10kΩ)	1
P104	4-2229-76563	Potentiometer (B-200kΩ)	1
P105	4-2229-76560	Potentiometer (B-100kΩ)	1
P106	4-2229-76562	Potentiometer (B-20kΩ)	1
P107	4-2229-76740	Potentiometer (B-100kΩ)	1
X101	4-2259-71010	Crystal	1
D101	407 061 2200	DIODE 1SS254-TA	1
or	407 007 9904	DIODE GMA01-BT	1
D102	407 061 2200	DIODE 1SS254-TA	1
or	407 007 9904	DIODE GMA01-BT	1
D103	407 061 2200	DIODE 1SS254-TA	1
or	407 007 9904	DIODE GMA01-BT	1
D104	407 005 3805	DIODE DS442-BT	1
D105	407 061 2200	DIODE 1SS254-TA	1
or	407 007 9904	DIODE GMA01-BT	1
D106	407 061 2200	DIODE 1SS254-TA	1
or	407 007 9904	DIODE GMA01-BT	1
D107	407 061 2200	DIODE 1SS254-TA	1
or	407 007 9904	DIODE GMA01-BT	1
D108	407 061 2200	DIODE 1SS254-TA	1
or	407 007 9904	DIODE GMA01-BT	1
D109	407 061 2200	DIODE 1SS254-TA	1
or	407 007 9904	DIODE GMA01-BT	1
D110	407 061 2200	DIODE 1SS254-TA	1
or	407 007 9904	DIODE GMA01-BT	1
D111	407 061 2200	DIODE 1SS254-TA	1
or	407 007 9904	DIODE GMA01-BT	1
D112	407 061 2200	DIODE 1SS254-TA	1
or	407 007 9904	DIODE GMA01-BT	1
D113	407 061 2200	DIODE 1SS254-TA	1
or	407 007 9904	DIODE GMA01-BT	1
D114	407 061 2200	DIODE 1SS254-TA	1
or	407 007 9904	DIODE GMA01-BT	1

Ref. No.	Part No.	Description	Q'ty
D115	407 061 2200	DIODE 1SS254-TA	1
or	407 007 9904	DIODE GMA01-BT	1
D116	407 061 2200	DIODE 1SS254-TA	1
or	407 007 9904	DIODE GMA01-BT	1
D117	407 061 2200	DIODE 1SS254-TA	1
or	407 007 9904	DIODE GMA01-BT	1
D118	407 061 2200	DIODE 1SS254-TA	1
or	407 007 9904	DIODE GMA01-BT	1
D120	407 005 3805	DIODE DS442-BT	1
D121	407 000 3503	VARACTOR DI SVC211SP	1
D122	407 061 1500	DIODE 1SR35	1
D123	407 061 1500	DIODE 1SR35	1
D124	407 061 1500	DIODE 1SR35	1
D125	407 061 1500	DIODE 1SR35	1
D126	407 061 1500	DIODE 1SR35	1
D127	407 061 1500	DIODE 1SR35	1
D128	407 061 1500	DIODE 1SR35	1
D129	407 061 1500	DIODE 1SR35	1
D130	407 061 2200	DIODE 1SS254-TA	1
or	407 007 9904	DIODE GMA01-BT	1
D131	407 061 2200	DIODE 1SS254-TA	1
or	407 007 9904	DIODE GMA01-BT	1
D132	407 061 2200	DIODE 1SS254-TA	1
or	407 007 9904	DIODE GMA01-BT	1
D133	407 049 9504	ZENER DIODE GZA20Y	1
D134	407 050 4802	ZENER DIODE GZA5.1Y	1
D135	407 061 2200	DIODE 1SS254-TA	1
or	407 007 9904	DIODE GMA01-BT	1
D136	407 050 7704	ZENER DIODE GZA9.1Y	1
D137	407 050 7704	ZENER DIODE GZA9.1Y	1
D138	407 061 2200	DIODE 1SS254-TA	1
or	407 007 9904	DIODE GMA01-BT	1
D139	407 061 2200	DIODE 1SS254-TA	1
or	407 007 9904	DIODE GMA01-BT	1
IC101	409 004 8300	IC CX20109	1
IC102	409 018 5500	IC LA6510	1
or	409 071 4403	IC TA7256P	1
IC103	409 018 4206	IC LA6393S	1
or	409 039 6401	IC NJM2903S	1
or	409 049 4305	IC TA75393S	1
IC104	409 057 4601	IC UPC4570HA	1
IC105	409 057 4601	IC UPC4570HA	1
IC106	409 073 0304	IC YM3815	1
IC107	409 020 6205	IC LC3517AM-15	1
or	409 072 0008	IC TC5517BF-20	1
or	409 059 6702	IC UPD446G-20	1
or	409 004 5903	IC CXK5816M-15L	1
or	409 012 5209	IC HM6116FP-4	1
or	409 072 5003	IC TMM2116BF	1
IC108	409 070 7009	IC PCM56P	1
IC109	409 051 3006	IC TC4053BP	1
or	409 070 1106	IC MSM4053BRS	1
IC110	409 057 4403	IC UPC4570C	1
IC111	409 057 4403	IC UPC4570C	1
IC112	409 018 5500	IC LA6510	1
or	409 071 4403	IC TA7256P	1
IC113	409 072 9506	IC UPD74HCU04C	1
or	409 052 1407	IC TC74HCU04P	1
or	409 022 0805	IC LC74HCU04	1
or	409 110 4807	IC NJU74HCU04D	1
IC114	409 074 2208	IC NJM79M06A	1
or	409 118 0108	IC NJM79M06FA	1
or	409 074 0204	IC AN79M06	1
or	409 074 0303	IC AN79M06F	1
or	409 074 2000	IC NJM7906A	1
or	409 074 2109	IC NJM7906FA	1

P.C.BOARD PARTS LIST (Continued)

Ref. No.	Part No.	Description	Q'ty
IC115	409 050 0501	IC TA78L006AP	1
IC118	409 020 8704	IC LC4066B	1
Q101	405 024 9907	TR 2SD734-F	1
Q102	405 004 4502	TR 2SA608-F-NP	1
Q103	405 004 4502	TR 2SA608-F-NP	1
Q104	405 033 7000	TR 2SD1676	1
Q105	405 033 7000	TR 2SD1676	1
Q106	405 033 5006	TR 2SD1227-M	1
Q107	405 027 0505	TR 2SK246-GR	1
Q108	405 033 5006	TR 2SD1227-M	1
Q109	405 033 5006	TR 2SD1227-M	1
Q110	405 027 0505	TR 2SK246-GR	1
Q111	405 032 3102	TR 2SB911-M	1
Q112	405 032 3102	TR 2SB911-M	1
Q113	405 032 3102	TR 2SB911-M	1
Q114	405 019 2708	TR 2SC536-F-NP	1
Q115	405 019 2708	TR 2SC536-F-NP	1
Q116	405 004 4502	TR 2SA608-F-NP	1
Q117	405 004 4502	TR 2SA608-F-NP	1
Q118	405 021 0600	TR 2SD1012-G-SPA	1
Q119	405 021 0600	TR 2SD1012-G-SPA	1
Q120	405 019 2708	TR 2SC536-F-NP	1
Q121	405 019 2708	TR 2SC536-F-NP	1
Q122	405 021 0600	TR 2SD1012-G-SPA	1
Q123	405 033 7000	TR 2SD1676	1
Q124	405 033 7000	TR 2SD1676	1
Q125	405 021 0600	TR 2SD1012-G-SPA	1
Q126	405 021 0600	TR 2SD1012-G-SPA	1
Q127	405 004 3901	TR 2SA608-E-NP	1
Q128	405 018 2600	TR 2SC3400	1
Q129	405 032 8206	TR 2SC1846-Q	1
Q130	405 024 9907	TR 2SD734-F	1
Q131	405 034 7603	TR DTA124	1
or	405 001 1207	TR RN2203	1
Q132	405 018 2600	TR 2SC3400	1
Q135	405 004 3901	TR 2SA608-E-NP	1
C101	403 057 0908	POLYESTER 0.01U K 50V	1
C102	403 018 4204	CERAMIC 22P K 50V	1
C103	403 018 4204	CERAMIC 22P K 50V	1
C104	403 072 2703	CERAMIC 0.022U Z 50V	1
C105	403 039 2906	ELECT 47U M 6.3V	1
C106	403 050 7706	ELECT 3.3U M 50V	1
C107	403 067 7201	MT-COMPO 0.033U J 50V	1
C108	403 048 7602	ELECT 0.47U M 50V	1
C109	403 031 0306	CERAMIC 68P K 50V	1
C110	403 031 0306	CERAMIC 68P K 50V	1
C111	403 038 2303	ELECT 100U M 6.3V	1
C112	403 038 2303	ELECT 100U M 6.3V	1
C113	403 069 8404	CERAMIC 0.01U Z 50V	1
C114	403 067 5603	MT-COMPO 0.1U J 50V	1
C115	403 018 4204	CERAMIC 22P K 50V	1
C116	403 067 5603	MT-COMPO 0.1U J 50V	1
C117	403 026 8201	CERAMIC 470P K 50V	1
C118	403 086 2706	NP-ELECT 1U M 50V	1
C119	403 085 6408	NP-ELECT 4.7U M 16V	1
C120	403 026 9406	CERAMIC 5P C 50V	1
C121	403 042 3501	ELECT 100U M 16V	1
C122	403 042 3501	ELECT 100U M 16V	1
C123	403 057 0908	POLYESTER 0.01U K 50V	1
C124	403 038 9302	ELECT 33U M 6.3V	1
C125	403 038 2303	ELECT 100U M 6.3V	1
C126	403 038 2303	ELECT 100U M 6.3V	1
C127	403 057 8003	POLYESTER 0.012U K 50V	1
C128	403 057 8003	POLYESTER 0.012U K 50V	1
C129	403 059 4102	POLYESTER 2200P K 50V	1
C130	403 059 4102	POLYESTER 2200P K 50V	1
C131	403 086 2706	NP-ELECT 1U M 50V	1
C132	403 038 7209	ELECT 220U M 6.3V	1
C133	403 050 1209	ELECT 2.2U M 50V	1
C134	403 026 9406	CERAMIC 5P C 50V	1
C135	403 038 2303	ELECT 100U M 6.3V	1
C136	403 042 3501	ELECT 100U M 16V	1
C137	403 042 3501	ELECT 100U M 16V	1
C138	403 086 2706	NP-ELECT 1U M 50V	1
C139	403 086 2706	NP-ELECT 1U M 50V	1
C140	403 002 3602	CERAMIC 0.1U K 25V	1
C141	403 002 3602	CERAMIC 0.1U K 25V	1
C142	403 072 2703	CERAMIC 0.022U Z 50V	1
C143	403 072 2703	CERAMIC 0.022U Z 50V	1
C144	403 039 2906	ELECT 47U M 6.3V	1
C145	403 072 2703	CERAMIC 0.022U Z 50V	1
C146	403 038 2303	ELECT 100U M 6.3V	1
C147	403 074 2701	CERAMIC 0.047U Z 50V	1
C148	403 057 0908	POLYESTER 0.01U K 50V	1
C149	403 087 2507	STYRENE 1000P J 50V	1
C150	403 060 6607	POLYESTER 3300P K 50V	1
C151	403 018 8509	CERAMIC 220P K 50V	1
C152	403 026 8201	CERAMIC 470P K 50V	1
C153	403 039 2906	ELECT 47U M 6.3V	1
C154	403 039 2906	ELECT 47U M 6.3V	1
C155	403 022 0902	CERAMIC 30P J 50V	1
C156	403 022 0902	CERAMIC 30P J 50V	1
C157	403 040 4708	ELECT 220U M 10V	1
C158	403 040 4708	ELECT 220U M 10V	1
C159	403 050 7706	ELECT 3.3U M 50V	1
C160	403 050 7706	ELECT 3.3U M 50V	1
C161	403 086 2706	NP-ELECT 1U M 50V	1
C162	403 088 3107	STYRENE 390P J 50V	1
C163	403 088 3107	STYRENE 390P J 50V	1
C164	403 060 1008	POLYESTER 2700P K 50V	1
C165	403 060 1008	POLYESTER 2700P K 50V	1
C166	403 088 7402	STYRENE 82P J 50V	1
C167	403 088 7402	STYRENE 82P J 50V	1
C168	403 041 3304	ELECT 47U M 10V	1
C169	403 041 3304	ELECT 47U M 10V	1
C170	403 039 2906	ELECT 47U M 6.3V	1
C171	403 041 3304	ELECT 47U M 10V	1
C172	403 074 2701	CERAMIC 0.047U Z 50V	1
C173	403 041 3304	ELECT 47U M 10V	1
C174	403 058 1607	POLYESTER 1500P K 50V	1
C175	403 058 1607	POLYESTER 1500P K 50V	1
C176	403 041 3304	ELECT 47U M 10V	1
C177	403 041 3304	ELECT 47U M 10V	1
C178	403 085 6408	NP-ELECT 4.7U M 16V	1
C179	403 085 6408	NP-ELECT 4.7U M 16V	1
C180	403 056 8608	POLYESTER 1000P K 50V	1
C181	403 056 8608	POLYESTER 1000P K 50V	1
C182	403 040 4708	ELECT 220U M 10V	1
C183	403 042 0302	ELECT 10U M 16V	1
C184	403 038 2303	ELECT 100U M 6.3V	1
C185	403 038 2303	ELECT 100U M 6.3V	1
C186	403 038 2303	ELECT 100U M 6.3V	1
C187	403 072 2703	CERAMIC 0.022U Z 50V	1
C188	403 072 2703	CERAMIC 0.022U Z 50V	1
C189	403 038 2303	ELECT 100U M 6.3V	1
C190	403 040 4708	ELECT 220U M 10V	1
C191	403 072 2703	CERAMIC 0.022U Z 50V	1
C192	403 040 4708	ELECT 220U M 10V	1
C193	403 072 2703	CERAMIC 0.022U Z 50V	1
C194	4-2239-72280	Elect 2200MF 25V	1
C195	4-2239-72280	Elect 2200MF 25V	1
C196	4-2239-72280	Elect 2200MF 25V	1

P.C.BOARD PARTS LIST (Continued)

Ref. No.	Part No.	Description	Q'ty
C197	4-2239-72280	Elect 2200MF 25V	1
C198	403 072 2703	CERAMIC 0.022U Z 50V	1
C199	403 072 2703	CERAMIC 0.022U Z 50V	1
C200	403 072 2703	CERAMIC 0.022U Z 50V	1
C201	403 072 2703	CERAMIC 0.022U Z 50V	1
C202	403 038 2303	ELECT 100U M 6.3V	1
C203	403 044 8207	ELECT 10U M 25V	1
C204	403 051 2007	ELECT 4.7U M 50V	1
C205	403 060 1008	POLYESTER 2700P K 50V	1
C206	403 067 8208	MT-COMPO 0.068U J 50V	1
C207	403 031 0306	CERAMIC 68P K 50V	1
C208	403 002 3602	CERAMIC 0.1U K 25V	1
C209	403 002 3602	CERAMIC 0.1U K 25V	1
C210	403 039 7802	ELECT 100U M 10V	1
C211	403 039 7802	ELECT 100U M 10V	1
C212	403 044 0201	ELECT 47U M 16V	1
C213	403 047 4206	ELECT 47U M 25V	1
C214	403 023 1700	CERAMIC 33P K 50V	1
C215	403 023 1700	CERAMIC 33P K 50V	1
C216	403 072 2703	CERAMIC 0.022U Z 50V	1
C217	403 072 2703	CERAMIC 0.022U Z 50V	1
C218	403 072 2703	CERAMIC 0.022U Z 50V	1
C219	403 072 2703	CERAMIC 0.022U Z 50V	1
C220	403 072 2703	CERAMIC 0.022U Z 50V	1
C222	403 072 2703	CERAMIC 0.022U Z 50V	1
C223	403 072 2703	CERAMIC 0.022U Z 50V	1
C224	403 074 2701	CERAMIC 0.047U Z 50V	1
C225	403 072 2703	CERAMIC 0.022U Z 50V	1
C226	403 074 2701	CERAMIC 0.047U Z 50V	1
C227	403 068 9105	CERAMIC 100P K 50V	1
C228	403 068 9105	CERAMIC 100P K 50V	1
C229	403 068 9105	CERAMIC 100P K 50V	1
C230	403 072 9603	CERAMIC 3300P K 50V	1
R101	401 026 9907	CARBON 4.7K JA 1/6W	1
R102	401 027 5205	CARBON 680 JA 1/6W	1
R103	401 026 1307	CARBON 27K JA 1/6W	1
R104	401 025 4903	CARBON 180K JA 1/6W	1
R105	401 025 0905	CARBON 130K JA 1/6W	1
R106	401 024 7004	CARBON 1K JA 1/6W	1
R107	401 024 7707	CARBON 100K JA 1/6W	1
R108	401 024 7707	CARBON 100K JA 1/6W	1
R109	401 025 7805	CARBON 2.2K JA 1/6W	1
R110	401 025 8703	CARBON 220K JA 1/6W	1
R111	401 024 7400	CARBON 10K JA 1/6W	1
R112	401 024 7400	CARBON 10K JA 1/6W	1
R113	401 025 7805	CARBON 2.2K JA 1/6W	1
R114	401 024 7707	CARBON 100K JA 1/6W	1
R115	401 025 0004	CARBON 120K JA 1/6W	1
R116	401 027 3201	CARBON 560K JA 1/6W	1
R117	401 027 9005	CARBON 82K JA 1/6W	1
R118	401 016 3809	CARBON 2.2K JA 1/4W	1
R119	401 025 8208	CARBON 22K JA 1/6W	1
R120	401 025 7805	CARBON 2.2K JA 1/6W	1
R121	401 026 8108	CARBON 4.7 JA 1/6W	1
R122	401 025 8208	CARBON 22K JA 1/6W	1
R123	401 016 4806	CARBON 22K JA 1/4W	1
R124	401 025 8208	CARBON 22K JA 1/6W	1
R125	401 025 2305	CARBON 150K JA 1/6W	1
R126	401 025 1902	CARBON 15K JA 1/6W	1
R127	401 012 7009	CARBON 10K JA 1/4W	1
R128	401 025 7805	CARBON 2.2K JA 1/6W	1
R129	401 025 8208	CARBON 22K JA 1/6W	1
R130	401 025 8208	CARBON 22K JA 1/6W	1
R131	401 026 9600	CARBON 470 JA 1/6W	1
R132	401 012 8105	CARBON 100K JA 1/4W	1
R133	401 021 5003	CARBON 560K JA 1/4W	1
R134	401 020 2904	CARBON 47K JA 1/4W	1
R135	401 027 5908	CARBON 68K JA 1/6W	1
R136	401 025 4903	CARBON 180K JA 1/6W	1
R137	401 026 4308	CARBON 3.3K JA 1/6W	1
R138	401 025 4200	CARBON 1.8K JA 1/6W	1
R139	401 020 2904	CARBON 47K JA 1/4W	1
R140	401 025 8208	CARBON 22K JA 1/6W	1
R141	401 025 8208	CARBON 22K JA 1/6W	1
R142	401 025 1902	CARBON 15K JA 1/6W	1
R143	401 025 1605	CARBON 1.5K JA 1/6W	1
R144	401 024 8001	CARBON 1M JA 1/6W	1
R145	401 024 7400	CARBON 10K JA 1/6W	1
R146	401 024 7400	CARBON 10K JA 1/6W	1
R147	401 024 7400	CARBON 10K JA 1/6W	1
R148	401 024 7400	CARBON 10K JA 1/6W	1
R149	401 027 0309	CARBON 47K JA 1/6W	1
R150	401 025 8208	CARBON 22K JA 1/6W	1
R151	401 025 8703	CARBON 220K JA 1/6W	1
R152	401 013 6407	CARBON 12K JA 1/4W	1
R153	401 016 4806	CARBON 22K JA 1/4W	1
R154	401 025 8208	CARBON 22K JA 1/6W	1
R155	401 016 4806	CARBON 22K JA 1/4W	1
R156	401 025 8208	CARBON 22K JA 1/6W	1
R157	401 025 4606	CARBON 18K JA 1/6W	1
R158	401 026 4605	CARBON 33K JA 1/6W	1
R159	401 025 8703	CARBON 220K JA 1/6W	1
R160	401 027 0507	CARBON 470K JA 1/6W	1
R161	401 026 1307	CARBON 27K JA 1/6W	1
R162	401 026 1307	CARBON 27K JA 1/6W	1
R163	401 026 1604	CARBON 270K JA 1/6W	1
R164	401 012 8105	CARBON 100K JA 1/4W	1
R165	401 015 6504	CARBON 2.2 JA 1/4W	1
R166	401 026 1307	CARBON 27K JA 1/6W	1
R167	401 026 1307	CARBON 27K JA 1/6W	1
R168	401 025 7805	CARBON 2.2K JA 1/6W	1
R169	401 027 3201	CARBON 560K JA 1/6W	1
R170	401 027 3201	CARBON 560K JA 1/6W	1
R171	401 027 3003	CARBON 56K JA 1/6W	1
R172	401 012 8105	CARBON 100K JA 1/4W	1
R173	401 012 8105	CARBON 100K JA 1/4W	1
R174	401 026 4902	CARBON 330K JA 1/6W	1
R175	401 025 8208	CARBON 22K JA 1/6W	1
R176	401 025 8208	CARBON 22K JA 1/6W	1
R177	401 027 0309	CARBON 47K JA 1/6W	1
R178	401 027 0309	CARBON 47K JA 1/6W	1
R179	401 025 8208	CARBON 22K JA 1/6W	1
R180	401 024 7707	CARBON 100K JA 1/6W	1
R181	401 024 7707	CARBON 100K JA 1/6W	1
R182	401 024 7400	CARBON 10K JA 1/6W	1
R183	401 024 7400	CARBON 10K JA 1/6W	1
R184	401 024 7400	CARBON 10K JA 1/6W	1
R185	401 025 7805	CARBON 2.2K JA 1/6W	1
R186	401 024 7400	CARBON 10K JA 1/6W	1
R187	401 025 8703	CARBON 220K JA 1/6W	1
R188	401 052 1203	MT-FILM 91K FA 1/4W	1
R189	401 052 1203	MT-FILM 91K FA 1/4W	1
R190	401 013 7305	CARBON 120K JA 1/4W	1
R191	401 013 7305	CARBON 120K JA 1/4W	1
R192	401 053 4708	MT-FILM 6.8K FA 1/6W	1
R193	401 053 4708	MT-FILM 6.8K FA 1/6W	1
R194	401 027 5502	CARBON 6.8K JA 1/6W	1
R195	401 027 5502	CARBON 6.8K JA 1/6W	1
R196	401 025 5405	CARBON 2.2 JA 1/6W	1
R197	401 025 5405	CARBON 2.2 JA 1/6W	1
R198	401 052 9803	MT-FILM 180 FA 1/6W	1
R199	401 041 0309	MT-FILM 1.5 FA 1/4W	1

P.C.BOARD PARTS LIST (Continued)

Ref. No.	Part No.	Description	Q'ty
R200	401 025 3807	CARBON 180 JA 1/6W	1
R201	401 012 1106	CARBON 1.5 JA 1/4W	1
R202	401 043 9706	MT-FILM 1.8K FA 1/4W	1
R203	401 025 4200	CARBON 1.8K JA 1/6W	1
R204	401 024 6403	CARBON 10 JA 1/6W	1
R205	401 024 6403	CARBON 10 JA 1/6W	1
R206	401 024 7004	CARBON 1K JA 1/6W	1
R207	401 026 4902	CARBON 330K JA 1/6W	1
R208	401 025 8208	CARBON 22K JA 1/6W	1
R209	401 027 0309	CARBON 47K JA 1/6W	1
R210	401 024 7004	CARBON 1K JA 1/6W	1
R211	401 026 4902	CARBON 330K JA 1/6W	1
R212	401 025 8208	CARBON 22K JA 1/6W	1
R213	401 025 8208	CARBON 22K JA 1/6W	1
R214	401 025 8208	CARBON 22K JA 1/6W	1
R215	401 025 8208	CARBON 22K JA 1/6W	1
R216	401 025 8208	CARBON 22K JA 1/6W	1
R217	401 025 8208	CARBON 22K JA 1/6W	1
R218	401 025 8208	CARBON 22K JA 1/6W	1
R221	401 025 8208	CARBON 22K JA 1/6W	1
R222	401 025 8208	CARBON 22K JA 1/6W	1
R223	401 024 7707	CARBON 100K JA 1/6W	1
R224	401 024 7707	CARBON 100K JA 1/6W	1
R225	401 025 2305	CARBON 150K JA 1/6W	1
R226	401 027 5908	CARBON 68K JA 1/6W	1
R227	401 024 7004	CARBON 1K JA 1/6W	1
R228	401 024 8001	CARBON 1M JA 1/6W	1
R229	401 025 8208	CARBON 22K JA 1/6W	1
R230	401 025 7409	CARBON 220 JA 1/6W	1
R231	401 024 7707	CARBON 100K JA 1/6W	1
R232	401 026 9907	CARBON 4.7K JA 1/6W	1
R233	401 025 7805	CARBON 2.2K JA 1/6W	1
R234	401 053 1301	MT-FILM 22K FA 1/6W	1
R235	401 053 1301	MT-FILM 22K FA 1/6W	1
R236	401 053 1301	MT-FILM 22K FA 1/6W	1
R237	401 053 1301	MT-FILM 22K FA 1/6W	1
R238	401 026 4308	CARBON 3.3K JA 1/6W	1
R239	401 024 8001	CARBON 1M JA 1/6W	1
R240	401 026 2403	CARBON 3.9 JA 1/6W	1
R241	401 012 4503	CARBON 100 JA 1/4W	1
R242	401 012 4503	CARBON 100 JA 1/4W	1
R243	401 026 8108	CARBON 4.7 JA 1/6W	1
R244	401 026 8108	CARBON 4.7 JA 1/6W	1
R245	401 012 4503	CARBON 100 JA 1/4W	1
R246	401 012 4503	CARBON 100 JA 1/4W	1
R247	401 012 4503	CARBON 100 JA 1/4W	1
R248	401 012 4503	CARBON 100 JA 1/4W	1
R249	401 024 7707	CARBON 100K JA 1/6W	1
R250	401 025 4903	CARBON 180K JA 1/6W	1
R251	401 012 5708	CARBON 1K JA 1/4W	1
R252	401 012 4503	CARBON 100 JA 1/4W	1
R253	401 026 9907	CARBON 4.7K JA 1/6W	1
R254	401 026 9907	CARBON 4.7K JA 1/6W	1
R255	401 025 1605	CARBON 1.5K JA 1/6W	1
R256	401 025 1605	CARBON 1.5K JA 1/6W	1
R257	401 025 7409	CARBON 220 JA 1/6W	1
R258	401 025 7409	CARBON 220 JA 1/6W	1
R259	401 024 7400	CARBON 10K JA 1/6W	1
R260	401 024 7400	CARBON 10K JA 1/6W	1
R261	401 024 7400	CARBON 10K JA 1/6W	1
R262	401 024 7400	CARBON 10K JA 1/6W	1
R263	401 025 7805	CARBON 2.2K JA 1/6W	1
R264	401 016 4806	CARBON 22K JA 1/4W	1
R265	401 025 8208	CARBON 22K JA 1/6W	1
R266	401 024 7400	CARBON 10K JA 1/6W	1
R267	401 024 7400	CARBON 10K JA 1/6W	1

Ref. No.	Part No.	Description	Q'ty
R268	401 026 7002	CARBON 3.9K JA 1/6W	1
R269	401 026 7002	CARBON 3.9K JA 1/6W	1
R270	401 026 4605	CARBON 33K JA 1/6W	1
R271	401 027 3201	CARBON 560K JA 1/6W	1
R272	401 027 3201	CARBON 560K JA 1/6W	1
R273	401 026 4605	CARBON 33K JA 1/6W	1
R274	401 016 3809	CARBON 2.2K JA 1/4W	1
R275	401 016 3809	CARBON 2.2K JA 1/4W	1
R276	401 025 7805	CARBON 2.2K JA 1/6W	1
R277	401 025 7805	CARBON 2.2K JA 1/6W	1
R278	401 024 7707	CARBON 100K JA 1/6W	1
R279	401 024 7707	CARBON 100K JA 1/6W	1
R280	401 024 7004	CARBON 1K JA 1/6W	1
R281	401 024 7004	CARBON 1K JA 1/6W	1
R282	401 024 7400	CARBON 10K JA 1/6W	1
R283	401 024 7400	CARBON 10K JA 1/6W	1
R284	401 024 7707	CARBON 100K JA 1/6W	1
R285	401 024 7707	CARBON 100K JA 1/6W	1
R286	401 025 8208	CARBON 22K JA 1/6W	1
R287	401 025 7409	CARBON 220 JA 1/6W	1
R288	401 027 0309	CARBON 47K JA 1/6W	1
R289	401 018 2800	CARBON 330 JA 1/4W	1
R290	401 018 2800	CARBON 330 JA 1/4W	1
R291	402 032 7703	FUSIBLE RES 22 JA 1/2W	1
R292	402 016 5008	FUSIBLE RES 33 J- 1/2W	1
R293	401 063 0202	OXIDE-MT 68 JB 1W	1
R294	401 063 0202	OXIDE-MT 68 JB 1W	1
R295	401 025 8208	CARBON 22K JA 1/6W	1
R296	401 025 7409	CARBON 220 JA 1/6W	1
R297	401 027 2303	CARBON 560 JA 1/6W	1
R300	402 016 4506	FUSIBLE RES 10 J- 1/2W	1
R301	402 016 4506	FUSIBLE RES 10 J- 1/2W	1
R302	401 022 1905	CARBON 680 JA 1/4W	1
R303	401 024 7707	CARBON 100K JA 1/6W	1
R304	401 012 5708	CARBON 1K JA 1/4W	1
R305	401 016 5803	CARBON 220K JA 1/4W	1

POWER P.C.B. ASSY

32	141-0-1939-20542	Power P.C.B. Assy	1
	4-2372-00830	EC Terminal 1P	2
	111-2-6220-11100	Wire Wrap Terminal	2
SW601	⚠ 4-2312-05711	Power Switch (Power)	1
C601	⚠ 4-2239-70970	Capacitor 0.01MF 400V	1

LAMP P.C.B. ASSY

33	141-0-1939-20550	Lamp P.C.B. Assy	1
CN22	4-2359-77390	Connector 3P Assy	1
L801	4-6129-70670	Lamp	1
L802	4-6129-70670	Lamp	1

CONTROL P.C.B. ASSY

34	141-0-1939-20522	Control P.C.B. Assy	1
	131-2-4208-46800	Spacer (LED)	4
	131-2-4208-50100	Spacer	2
	131-2-4208-50700	Spacer LED	5
	131-2-5205-35800	Cushion	1
CN1	4-2369-76580	Plug 13P	1
CN2	4-2369-76590	Plug 6P	1
CN3	4-2369-76570	Plug 7P	1
CN13	4-2352-02232	Connector 9P Assy	1
FL901	4-2149-70080	Digitron	1
SW901	4-2319-78470	Tact Switch (Eject 4)	1
SW902	4-2319-78470	Tact Switch (Eject 3)	1
SW903	4-2319-78470	Tact Switch (Eject 2)	1
SW904	4-2319-78470	Tact Switch (Eject 1)	1
SW905	4-2319-78470	Tact Switch (7)	1

P.C.BOARD PARTS LIST (Continued)

Ref. No.	Part No.	Description	Q'ty
SW906	4-2319-78470	Tact Switch (Display)	1
SW907	4-2319-78470	Tact Switch (6)	1
SW908	4-2319-78470	Tact Switch (B. Scan)	1
SW909	4-2319-78470	Tact Switch (5)	1
SW910	4-2319-78470	Tact Switch (F. Scan)	1
SW911	4-2319-78470	Tact Switch (4)	1
SW912	4-2319-78470	Tact Switch (3)	1
SW913	4-2319-78470	Tact Switch (0)	1
SW914	4-2319-78470	Tact Switch (2)	1
SW915	4-2319-78470	Tact Switch (9)	1
SW916	4-2319-78470	Tact Switch (1)	1
SW917	4-2319-78470	Tact Switch (8)	1
SW918	4-2319-78470	Tact Switch (Index)	1
SW919	4-2319-78470	Tact Switch (Eject 5)	1
SW920	4-2319-78470	Tact Switch (Disc 1)	1
SW921	4-2319-78470	Tact Switch (Disc 2)	1
SW922	4-2319-78470	Tact Switch (Disc 3)	1
SW923	4-2319-78470	Tact Switch (Disc 4)	1
SW924	4-2319-78470	Tact Switch (Disc 5)	1
SW925	4-2319-78470	Tact Switch (Repeat)	1
SW926	4-2319-78470	Tact Switch (Random Play)	1
SW927	4-2319-78470	Tact Switch (Intro Scan)	1
SW928	4-2319-78470	Tact Switch (Clear)	1
SW929	4-2319-78470	Tact Switch (Check)	1
SW930	4-2319-78470	Tact Switch (Memory)	1
SW931	4-2319-78470	Tact Switch (F. Foward)	1
SW932	4-2319-78470	Tact Switch (F. Back)	1
SW933	4-2319-78470	Tact Switch (Pause)	1
SW934	4-2319-78470	Tact Switch (Play)	1
SW935	4-2319-78470	Tact Switch (Stop)	1
D901	407 027 7102	LED SLP-153B-01 (Disc 5)	1
D902	407 027 7102	LED SLP-153B-01 (Disc 4)	1
D903	407 027 7102	LED SLP-153B-01 (Disc 3)	1
D904	407 027 7102	LED SLP-153B-01 (Disc 2)	1
D905	407 027 7102	LED SLP-153B-01 (Disc 1)	1
D906	407 062 9307	LED SLB-55VR3 (Intro Scan)	1
D907	407 062 9307	LED SLB-55VR3 (Random Play)	1
D908	407 062 9307	LED SLB-55VR3 (Repeat)	1
D909	407 062 9307	LED SLB-55VR3 (Memory)	1
D910	407 024 6405	LED SLF-102B (Pause)	1
D911	407 024 7709	LED SLF-202B (Play)	1
D912	407 005 3805	DIODE DS442-BT	1
D913	407 005 3805	DIODE DS442-BT	1
D914	407 005 3805	DIODE DS442-BT	1
D915	407 005 3805	DIODE DS442-BT	1
D916	407 005 3805	DIODE DS442-BT	1
D917	407 005 3805	DIODE DS442-BT	1
D918	407 005 3805	DIODE DS442-BT	1
D919	407 005 3805	DIODE DS442-BT	1
D920	407 005 3805	DIODE DS442-BT	1
D922	407 005 3805	DIODE DS442-BT	1
D923	407 005 3805	DIODE DS442-BT	1
D924	407 061 2200	DIODE 1SS254-TA	1
or	407 007 9904	DIODE GMA01-BT	1
D925	407 061 2200	DIODE 1SS254-TA	1
or	407 007 9904	DIODE GMA01-BT	1
D926	407 061 2200	DIODE 1SS254-TA	1
or	407 007 9904	DIODE GMA01-BT	1
D927	407 061 2200	DIODE 1SS254-TA	1
or	407 007 9904	DIODE GMA01-BT	1
D928	407 061 2200	DIODE 1SS254-TA	1
or	407 007 9904	DIODE GMA01-BT	1
D929	407 061 2200	DIODE 1SS254-TA	1
or	407 007 9904	DIODE GMA01-BT	1
D930	407 061 2200	DIODE 1SS254-TA	1
or	407 007 9904	DIODE GMA01-BT	1

Ref. No.	Part No.	Description	Q'ty
D931	407 061 2200	DIODE 1SS254-TA	1
or	407 007 9904	DIODE GMA01-BT	1
D932	407 061 2200	DIODE 1SS254-TA	1
or	407 007 9904	DIODE GMA01-BT	1
IC901	410 026 8407	IC UPD75206G-516	1
IC902	409 072 5300	IC TMP4270N1	1
Q901	405 006 2704	TR 2SA937-R	1
Q902	405 006 2704	TR 2SA937-R	1
Q903	405 006 2704	TR 2SA937-R	1
Q904	405 006 2704	TR 2SA937-R	1
Q905	405 006 2704	TR 2SA937-R	1
Q906	405 006 2704	TR 2SA937-R	1
Q907	405 006 2704	TR 2SA937-R	1
Q908	405 006 2704	TR 2SA937-R	1
Q909	405 006 2704	TR 2SA937-R	1
Q910	405 006 2704	TR 2SA937-R	1
Q911	405 006 2704	TR 2SA937-R	1
Q912	405 006 2704	TR 2SA937-R	1
Q913	405 006 2704	TR 2SA937-R	1
Q914	405 035 0207	TR DTC143-EF	1
Q915	405 035 0207	TR DTC143-EF	1
C901	403 074 2701	CERAMIC 0.047U Z 50V	1
R901	4-2219-71750	RM8-223J 22kΩx8	1
R902	4-2219-71750	RM8-223J 22kΩx8	1
R903	4-2219-71750	RM8-223J 22kΩx8	1
R904	401 025 8208	CARBON 22K JA 1/6W	1
R905	401 025 8208	CARBON 22K JA 1/6W	1
R906	401 025 8208	CARBON 22K JA 1/6W	1
R907	401 025 8208	CARBON 22K JA 1/6W	1
R908	401 025 8208	CARBON 22K JA 1/6W	1
R909	401 025 8208	CARBON 22K JA 1/6W	1
R910	401 025 8208	CARBON 22K JA 1/6W	1
R911	401 025 8208	CARBON 22K JA 1/6W	1
R912	401 025 8208	CARBON 22K JA 1/6W	1
R913	401 025 8208	CARBON 22K JA 1/6W	1
R914	401 025 8208	CARBON 22K JA 1/6W	1
R915	401 025 8208	CARBON 22K JA 1/6W	1
R916	401 025 8208	CARBON 22K JA 1/6W	1
R917	401 025 8208	CARBON 22K JA 1/6W	1
R918	401 025 8208	CARBON 22K JA 1/6W	1
R919	401 025 8208	CARBON 22K JA 1/6W	1
R920	401 025 8208	CARBON 22K JA 1/6W	1
R921	401 025 8208	CARBON 22K JA 1/6W	1
R922	401 024 7004	CARBON 1K JA 1/6W	1
R923	401 024 7004	CARBON 1K JA 1/6W	1
R924	401 012 5708	CARBON 1K JA 1/4W	1
R925	401 024 7004	CARBON 1K JA 1/6W	1
R926	401 012 5708	CARBON 1K JA 1/4W	1
R927	401 024 7004	CARBON 1K JA 1/6W	1
R928	401 012 5708	CARBON 1K JA 1/4W	1
R929	401 024 7004	CARBON 1K JA 1/6W	1
R930	401 012 5708	CARBON 1K JA 1/4W	1
R931	401 027 2303	CARBON 560 JA 1/6W	1
R932	401 012 5708	CARBON 1K JA 1/4W	1
R933	401 025 7409	CARBON 220 JA 1/6W	1
R934	401 025 7805	CARBON 2.2K JA 1/6W	1
R935	401 025 7805	CARBON 2.2K JA 1/6W	1
R936	401 025 7805	CARBON 2.2K JA 1/6W	1

NOTES:

1. Parts order must contain Model Number, Part Number and Description.
2. Ordering quantity of screws and resistors must be multiple of 10 pcs.

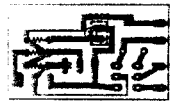
P.C.BOARD PARTS LIST (Continued)

Ref. No.	Part No.	Description	Q'ty
	LED P.C.B. ASSY		
51	141-0-1939-19830	LED P.C.B. Assy	1
D502	4-2029-75040	LED, SLR 34 VC	1
R501	401 025 3807	CARBON 180 JA 1/6W	1
R502	401 026 4605	CARBON 33K JA 1/6W	1
R503	401 025 3807	CARBON 180 JA 1/6W	1
	PHOTO TRANSISTOR P.C.B. ASSY		
52	141-0-1939-19840	Photo Transistor P.C.B. Assy	1
Q501	4-2039-73120	Photo Transistor, TPS606	1
	PHOTO SENSOR P.C.B. ASSY		
53	141-0-1939-19850	Photo Sensor P.C.B. Assy	1
D501	4-2039-73130	Photo Interrupter	1

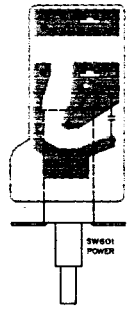
NOTES:

1. Parts order must contain Model Number, Part Number and Description.
2. Ordering quantity of screws and resistors must be multiple of 10 pcs.

LED P.C.BOARD
(BOTTOM VIEW)

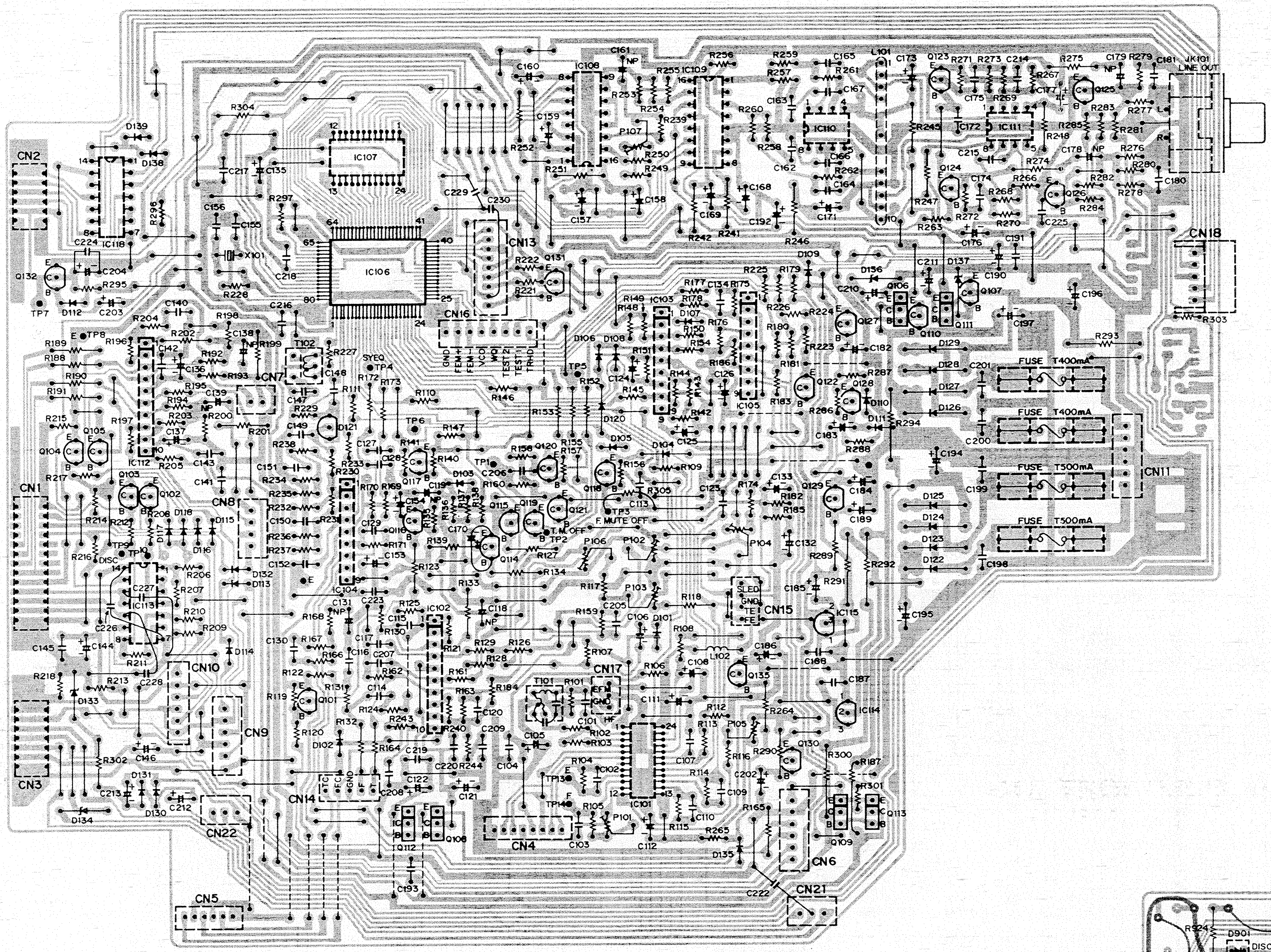


POWER P.C.BOARD
(BOTTOM VIEW)



LAMP P.C.BOARD
(BOTTOM VIEW)

MAIN P.C.BOARD
(BOTTOM VIEW)

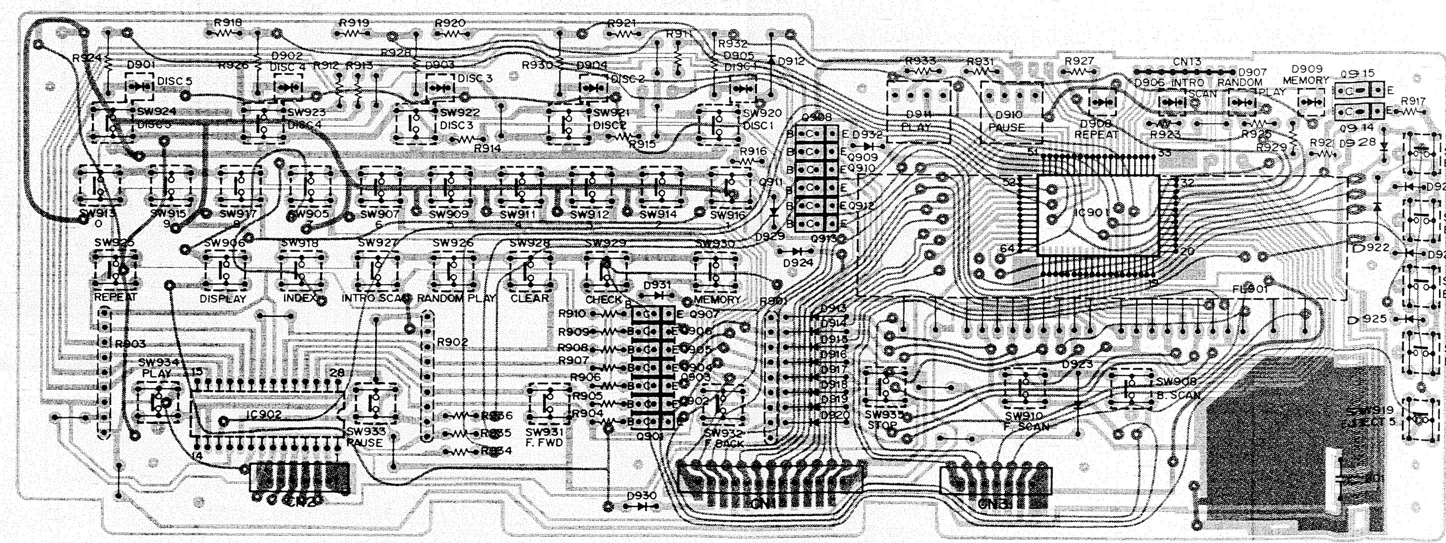


IC PIN NUMBERS DC VOLTAGES																					
SYMBOL No.	DEVICE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
IC101	CX20109	–5.6V	0V	0V	0V	0V	0V	0V	0V	0V	0V	0V	0V	–6.0V	0V	0V	0V	0V	0.4V	–3.0V	0V
		21	22	23	24																
		0V	0V	5.2V	5.9V																
IC102	LA6510	0V	0V	0V	0V	–14.4V	0V	0V	0V	0V	13.9V										
IC103	LA6393S	5.9V	–5.9V	1.6V	0V	–6.0V	0V	0V	5.1V	5.9V											
IC104	μPC4570HA	5.9V	2.6V	2.6V	2.6V	–6.0V	0V	0V	0.2V	5.9V											
IC105	μPC4570HA	5.9V	0V	0V	0V	–6.0V	0V	0V	0.5V	5.9V											
IC107	LC3517	2.5V	2.6V	2.5V	2.5V	2.5V	2.5V	2.5V	2.5V	4.3V	1.3V	3.9V	0V	4.5V	4.1V	1.1V	–	–	0V	–	3.0V
		21	22	23	24																
		4.8V	0V	0V	5.2V																
IC108	PCM56P	–8.7V	0V	6.4V	0V	2.1V	3.4V	0V	–7.7V	0V	0V	0V	0V	0V	–6.3V	–1.3V	8.7V				
IC109	TC4053BP	0V	0V	0V	0V	0V	0V	–8.6V	0V	1.7V	1.7V	0V	–8.6V	8.6V	–8.6V	0V	8.6V				
IC110	μPC4570C	0V	0V	0V	–7.3V	0V	0V	0V	7.3V												
IC111	μPC4570C	0V	0V	0V	–8.2V	0V	0V	0V	8.1V												
IC112	LA6510	0V	0V	0V	0V	–14.5V	0V	0V	0V	0V	13.9V										
IC113	μPD74HCU04C	5.2V	0V	0V	5.2V	5.1V	0V	0V	5.2V	0V	2.3V	2.6V	2.7V	2.2V	5.2V						

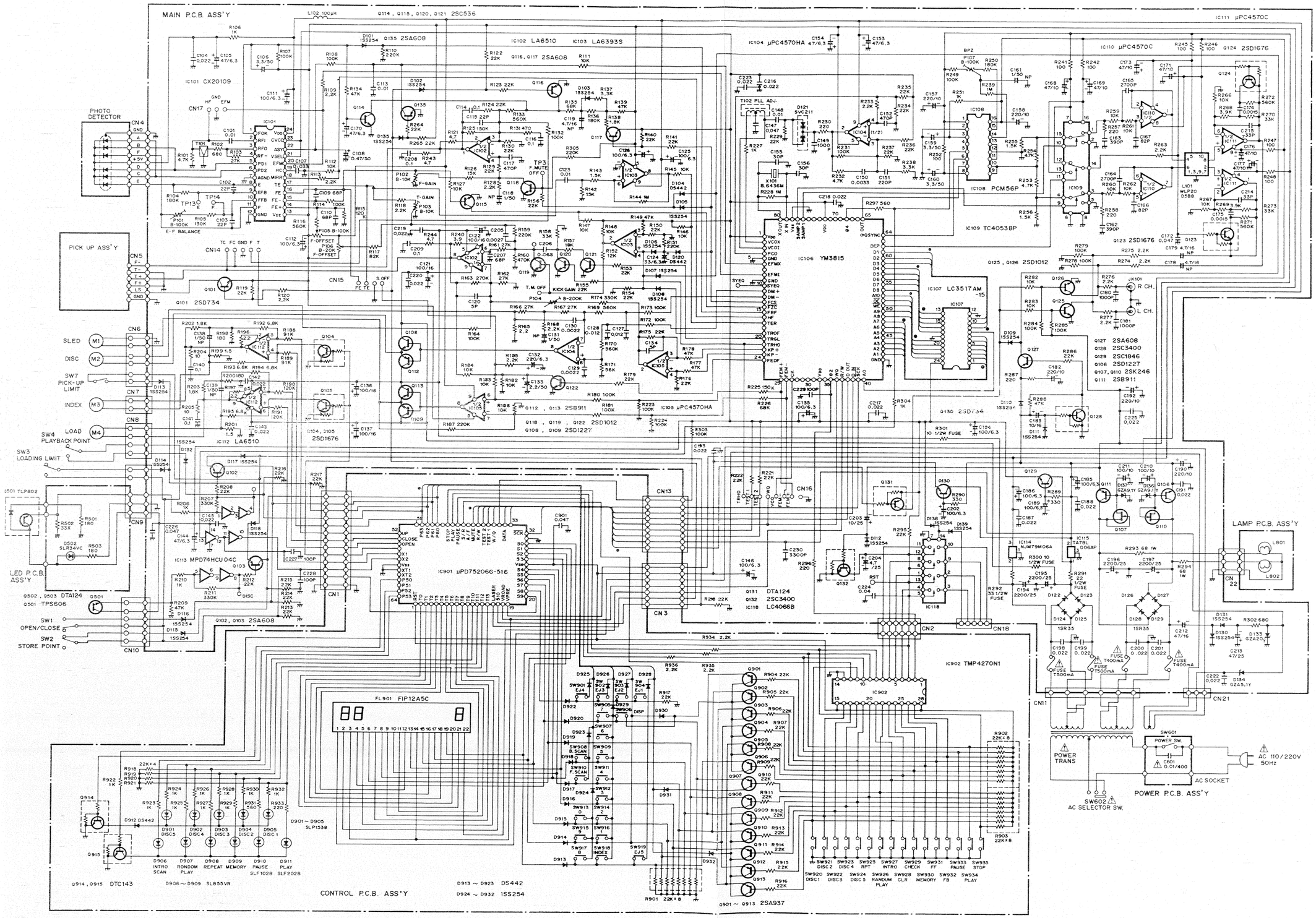
TRANSISTOR DC VOLTAGES				
SYMBOL No.	DEVICE	B	C	E
Q106	2SD1227	9.3V	12.6V	8.7V
Q111	2SB911	–9.3V	–12.6V	–8.7V

IC PIN NUMBERS DC VOLTAGES																					
SYMBOL No.	DEVICE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
IC106	YM3815	5.2V	2.3V	2.3V	2.6V	0V	5.2V	0V	4.4V	0V	0V	0V	0V	0V	5.2V	0V	0.3V	5.2V	5.2V	0V	5.2V
		21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
		0V	0V	0V	5.2V	0V	0V	1.9V	1.3V	0.2V	0V	0.2V	5.2V	5.1V	1.7V	0V	0V	0V	0V	5.3V	2.5V
		41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
		0V	2.6V	2.5V	2.5V	2.6V	2.6V	2.6V	2.5V	2.6V	2.9V	4.8V	2.9V	–	–	–	–	–	–	–	–
		61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
		4.3V	0V	3.4V	0V	0V	0V	2.5V	2.0V	5.2V	5.1V	0V	5.2V	3.5V	0V	5.1V	1.7V	1.1V	0V	2.3V	1.8V

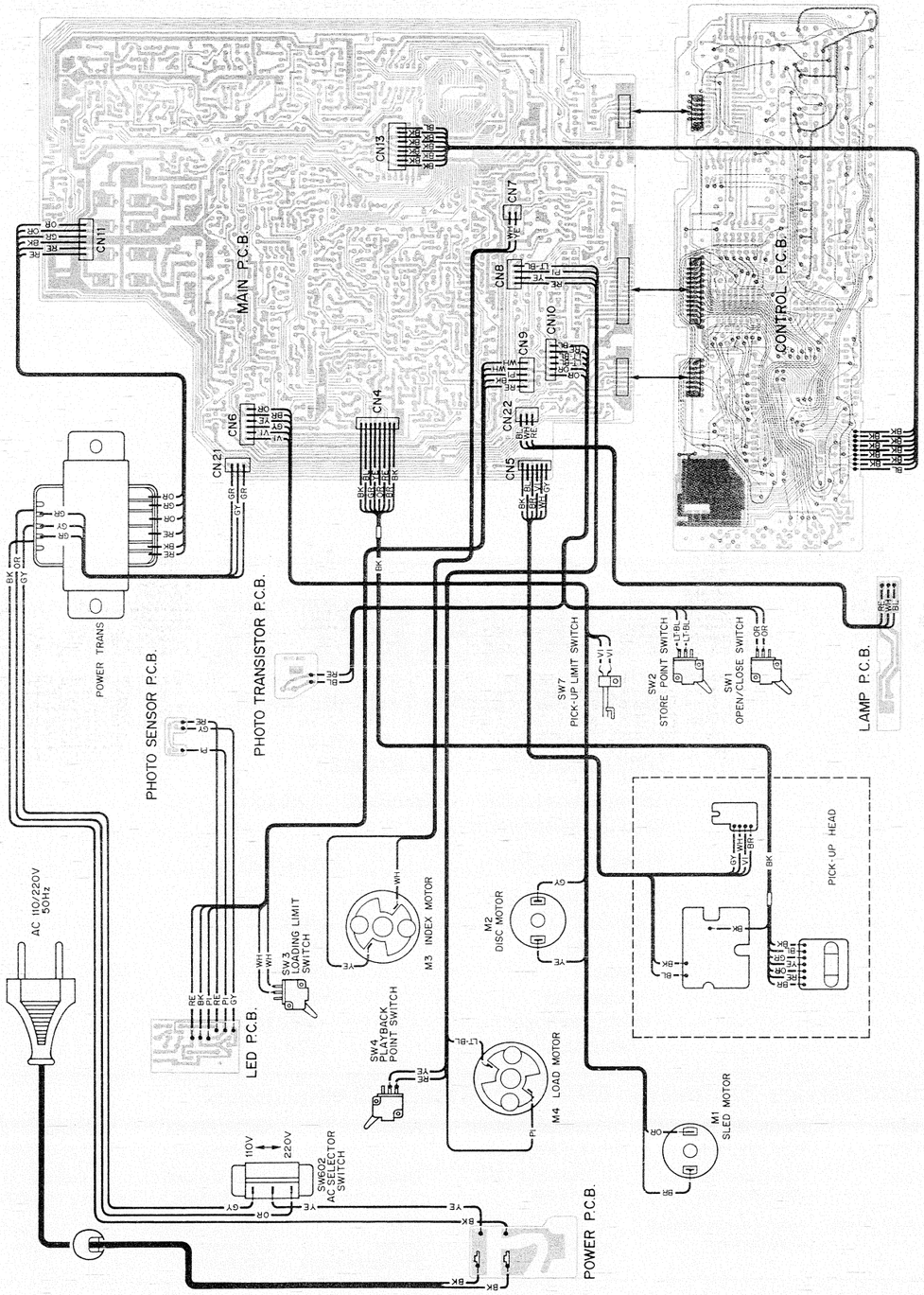
CONTROL P.C.BOARD
(BOTTOM VIEW)



SCHEMATIC DIAGRAM

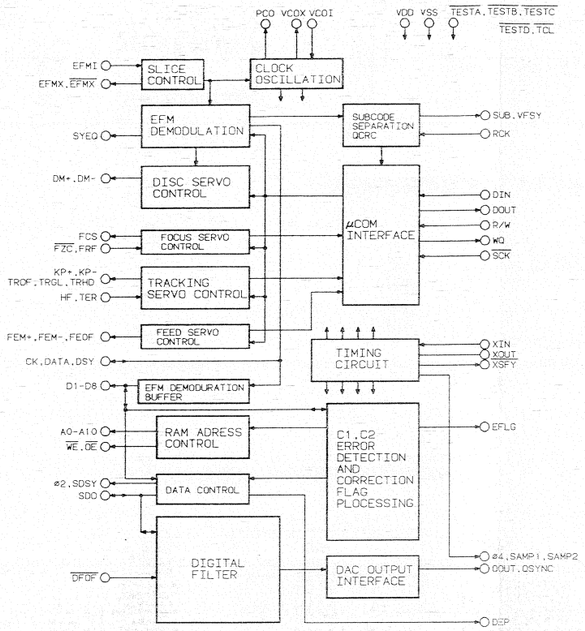


POINT TO POINT WIRING DIAGRAM

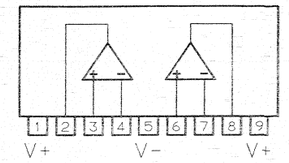


INTEGRATED CIRCUIT BLOCK DIAGRAM

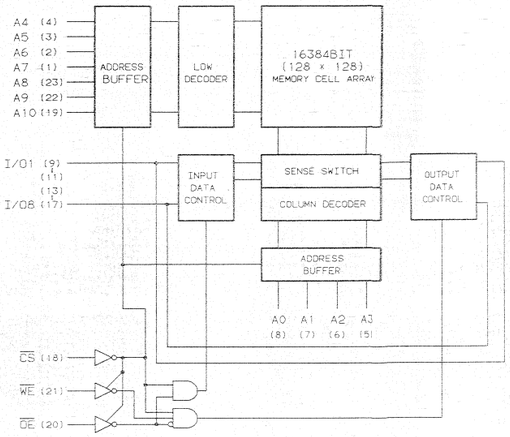
YM3815 BLOCK DIAGRAM



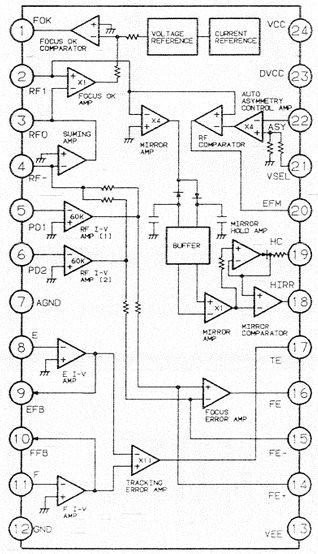
μPC4570HA/LA6393S BLOCK DIAGRAM



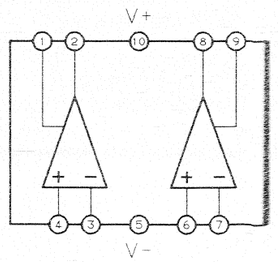
LC3517AM-15 BLOCK DIAGRAM



CX20109 BLOCK DIAGRAM

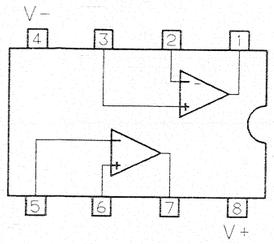


LA6510 BLOCK DIAGRAM

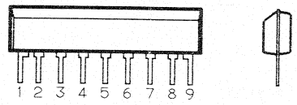


SEMICONDUCTOR LEAD IDENTIFICATION

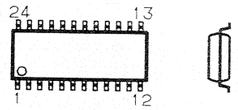
μPC4570C BLOCK DIAGRAM



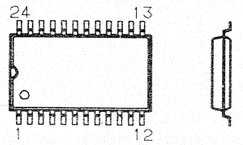
μPC4570HA TOP/SIDE VIEWS

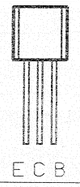
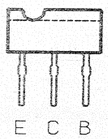
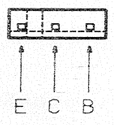


CX20109 TOP/SIDE VIEWS



LC3517AM-15 TOP/SIDE VIEWS

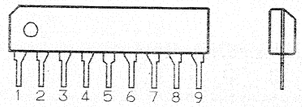


TRANSISTOR	FRONT VIEW	BOTTOM VIEW
2SA608 2SC536 2SD734		
2SC3400 2SD1012		
DTA124 DTC143		

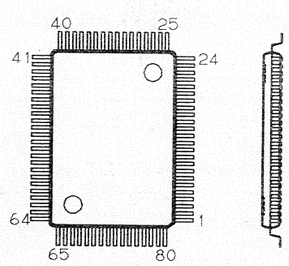
TERMINAL NAME

B → BASE
C → COLLECTOR
E → EMITTER

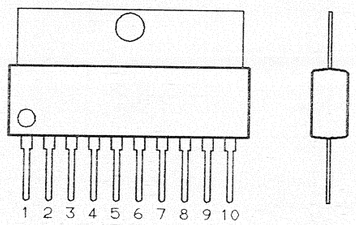
LA6393S FRONT/SIDE VIEWS



YM3815 TOP/SIDE VIEWS



LA6510 FRONT/SIDE VIEWS



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Bitte geben Sie unbedingt die Ersatzteil-Nummer und die Modellbezeichnung an.
Sie sparen so wertvolle Zeit. Vielen Dank.

April/'87/2,000/K **Printed in Japan**