

SERVICE MANUAL

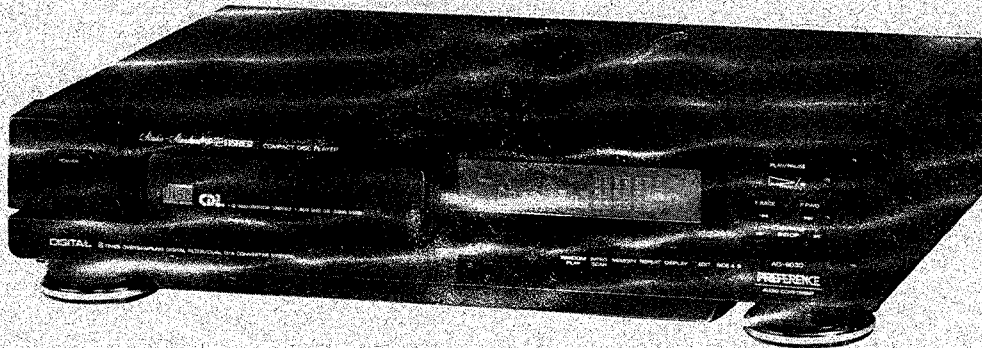


FISHER

COMPACT DISC PLAYER

AD-9030

(EUROPE)



137 350 40

SPECIFICATIONS

System Compact disc digital audio
Remote Control (RAD-752) 25-function, wireless remote control

AUDIO CHARACTERISTICS

Frequency Response 20 Hz - 20 kHz ± 0.5 dB
Harmonic Distortion Less than 0.005% (1 kHz)
(20kHz Low Pass filter)
Dynamic Range More than 92 dB
S/N Ratio More than 100 dB
Wow and Flutter Below measurable limits
Channel Separation More than 95 dB (1 kHz)
Output Voltage (maximum) 2 Vrms

FUNCTIONS

Track/Program Selection With FFWD and FRACK buttons
Index Selection With SCAN/INDEX \blacktriangleright and \blacktriangleleft buttons
Scanning (fast forward/fast back)
Play mode: 2-speed search with sound
Pause mode: 2-speed search without sound
Each/Remain/Total Time Display With DISPLAY button during the PLAY mode

PROGRAM FUNCTIONS

Program Memory 16 selections

Edit Disc Play
Tape Length Selection C-46, C-60, C-90
Display Side AB editing time display
Introscan Play 10 seconds/track
Random Play With the RANDOM PLAY button during the PLAY mode
Repeat Play One track/all tracks/all programmed tracks
Program Reset With STOP button during PROGRAMMED PLAY mode
Pause Each track
Disc Loading Motor-driven horizontal loading

DIGITAL SIGNAL PROCESSING

Optical Pickup 3-beam laser
Sampling Frequency 44.1 kHz
Filters 18-bit, 8 times oversampling digital filter
2-pole active filter

D/A Conversion Two 16-bit, linear, D/A converters

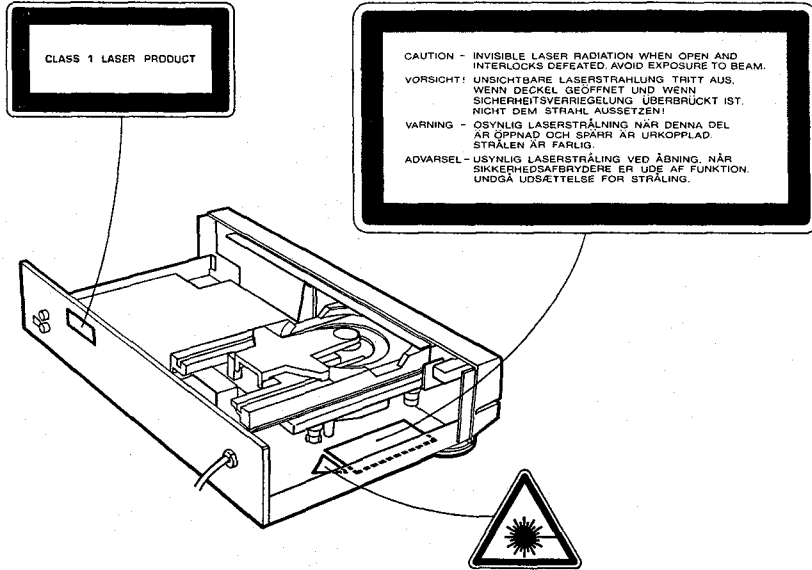
GENERAL

Power Requirements (50 Hz) AC 110/220V
20 Watts
Dimensions (WxHxD) 17.33" x 3.74" x 10.87"
Weight (approximate) 8.1 lbs.

- Specifications and design are subject to change without notice. -

REFERENCE No. WM-570339

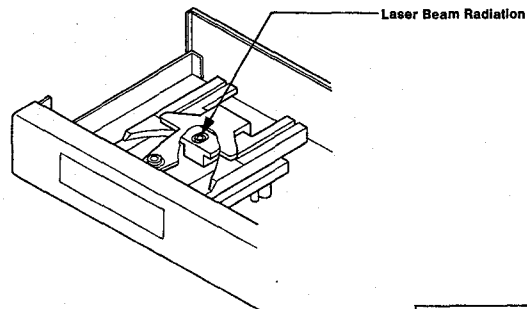
SAFETY CERTIFICATION



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

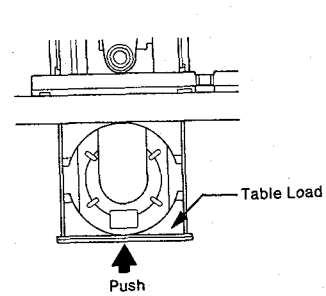


Laser Diode Properties
 Material: Ga-Al-As
 Wavelength: 755 - 815 nm (25°C)
 Laser Output: Continuous Wave max.0.5 mW

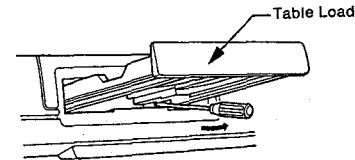
DISASSEMBLY PROCEDURES

REMOVING THE DISC TRAY

1. Apply Power Switch to the set and press the OPEN/CLOSE button to open the table load.
2. Apply OFF the Power Switch while the table load is open, and push the table load back in by hand to close it.

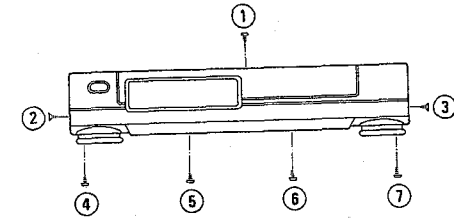


3. Pull out the table load by hand to open it again. The table load will disengage easily and come out smoothly.
4. Now remove the table load from the cabinet while pressing the tab in the direction of the arrow in the diagram below.

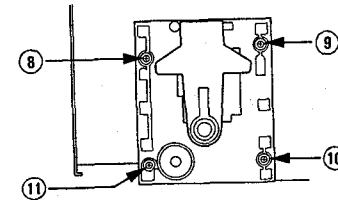


REMOVING THE MECHANISM

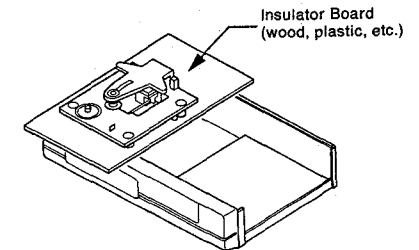
1. Take out the seven screws (1 ~ 7 in the diagram below) with which the Cabinet Front is mounted in place and remove the Cabinet Front.



2. Take out the four screws (8 ~ 11 in the diagram below) with which the mechanism is mounted in place and remove the mechanism.



- The mechanism should be removed with the lead wires still attached, and then placed on a wooden or plastic sheet as shown below to adjust the mechanism.



CD PLAYER ADJUSTMENT PROCEDURES

BEFORE CHECKING OR ADJUSTING CD PLAYER

- Procedures for all adjustments for the CD player from start to finish are described below.
- If no problems are found after each item is checked when the pick-up is replaced, there is no need to adjust all items again.

SETTING OF INITIAL POSITION OF VOLUME

- Set the variable resistors to the initial positions listed below:

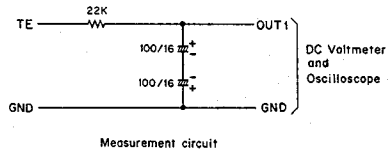
P101 (FOCUS GAIN)	Mechanical Center
P102 (TRACKING GAIN)	Mechanical Center
P103 (E/F BALANCE)	Mechanical Center
P104 (KICK GAIN)	Mechanical Center
P105 (TRACKING OFFSET)	Mechanical Center

FREE RUN FREQUENCY ADJUSTMENT

- Connect the frequency counter to VCO test terminal (CN11-3) PCK test pin and to GND. (Use a 10:1 probe.)
- Short the test terminal (CN12-4) HF test pin to GND. (Use 0.1µF Capacitor.)
- Push the POWER button to switch the power on and push the STOP button.
- Adjust the PLL coil T101 using a plastic screwdriver until the frequency counter indicator reads 4.3218MHz \pm 5kHz.

E/F BALANCE ADJUSTMENT

- Place the test disc (Modern Wave II) on the Disc Tray, and play the fourth item on the disc. Short the test terminal (CN11-1) TEST pin to GND, and test terminal (CN12-7) TROFF pin to GND to turn tracking servo OFF.
- Connect a DC Voltmeter and an oscilloscope via the low-pass filter like that shown in the illustration below to the test terminal (CN12-6) TE (tracking error) pin.

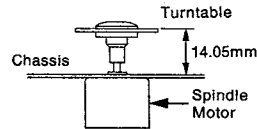


- Adjust P103 so that the DC Voltmeter reading is $0V \pm 50mV$ (oscilloscope waveform is symmetric to + and - about the zero level).

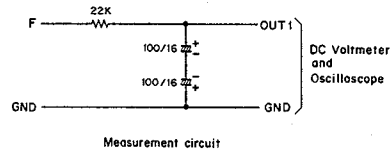
ADJUSTMENT OF TURNTABLE HEIGHT

This adjustment must be performed when the Spindle Motor is replaced.

- The turntable should be mounted so that its upper surface is $14.05mm \pm 0.1mm$ above the surface of the chassis.



- Place the test disc (Modern Wave II) on the turntable.
- Connect a DC Voltmeter and an oscilloscope via the low-pass filter shown below to test terminal (CN13-5) F (focus coil) pin.

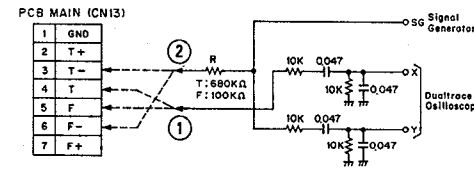


- Push the POWER button to switch the power on and PLAY the First and Last Track No. on the disc.
- If the DC Voltmeter reading is not in the ranges $0V \pm 0.2V$ for inner tracks and $0V \pm 0.35V$ for outer tracks, then the turntable height must be readjusted. Raise the turntable higher if the DC Voltmeter indicator is on the plus (+) side, and lower it if it is on the minus (-) side. (With this circuit 1V represents movement of approximately 0.55mm ~ 0.65mm.)

CD PLAYER ADJUSTMENT PROCEDURES (Continued)

ADJUSTMENT OF FOCUS/TRACKING GAIN

The measurement circuit diagrammed below must be used in order to adjust focus gain and tracking gain correctly.



FOCUS GAIN ADJUSTMENT

- Apply P101 to the position of Mechanical center position, and place the test disc (Modern Wave II) on the Disc Tray.
- Connect the measurement circuit described in the last section to the test terminal (CN13-5) F (focus coil) pin and (CN13-6) F- (minus) pin. (Use 100kΩ Resistor.)
- Push the POWER button to switch the power on and PLAY the first item on the test disc. Now apply a signal of 850Hz and 0.8Vp-p from the signal generator to the measurement circuit.
- Set the oscilloscope to X-Y operation, and while observing the lissajous waveform adjust P101 to the point where the phase difference is 90° as shown in Fig. 1 below.



Fig. 1

TRACKING GAIN ADJUSTMENT

- Apply P102 to the position of Mechanical center position, and place the test disc (Modern Wave II) on the Disc Tray.
- Connect the measurement circuit described in the last section to the test terminal (CN13-4) T (tracking coil) pin and (CN13-3) T- (minus) pin (Use 680kΩ Resistor.)
- Push the POWER button to switch the power on and PLAY the first item on the test disc. Now apply a signal of 850Hz and 0.8Vp-p from the signal generator to the measurement circuit.
- Set the oscilloscope to X-Y operation, and while observing the lissajous waveform adjust P102 to the point where the phase difference is 90° as shown in Fig. 1 above.

NOTE:
If these two adjustments are performed, the TRACKING OFFSET must also be adjusted.

TRACKING OFFSET ADJUSTMENT

- Push the POWER button to switch the power on and push the STOP button.
- Connect a DC Voltmeter to the test terminal (CN13-4) TC (tracking coil) pin and short the test terminal (CN12-2) TOF pin to GND.
- In this condition check that the DC Voltmeter indicator is in the range $150mV \pm 20mV$, and adjust P105 if it is not.

NOTE:
Perform this adjustment once again after adjusting the E/F BALANCE and TRACKING GAIN signals.

KICK GAIN ADJUSTMENT

- Place the test disc (Modern Wave II) on the Disc Tray.
- Set the oscilloscope to NORMAL TRIG., set the EXT. TRIG. pin to external trigger, and input the trigger from test terminal (CN11-4) THLD pin to the oscilloscope.
- Next connect test terminal (CN12-4) HF pin to Channel 1 of the oscilloscope, and connect test terminal (CN12-6) TE pin to Channel 2.
- Push the POWER button to switch the power on and PLAY the first item on the test disc, and the push the PAUSE button. Now observe the waveforms for HF and TE with triggers applied from test terminal (CN11-4) THLD pin. At this point, adjust P104 so that a kick pulse waveform of about 1 to 1.3 tracks as shown in Fig. 2 below is obtained.

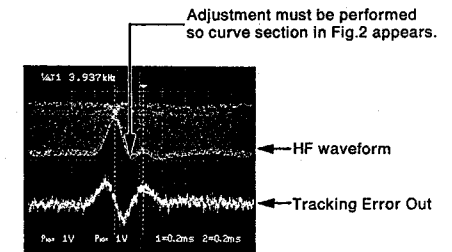
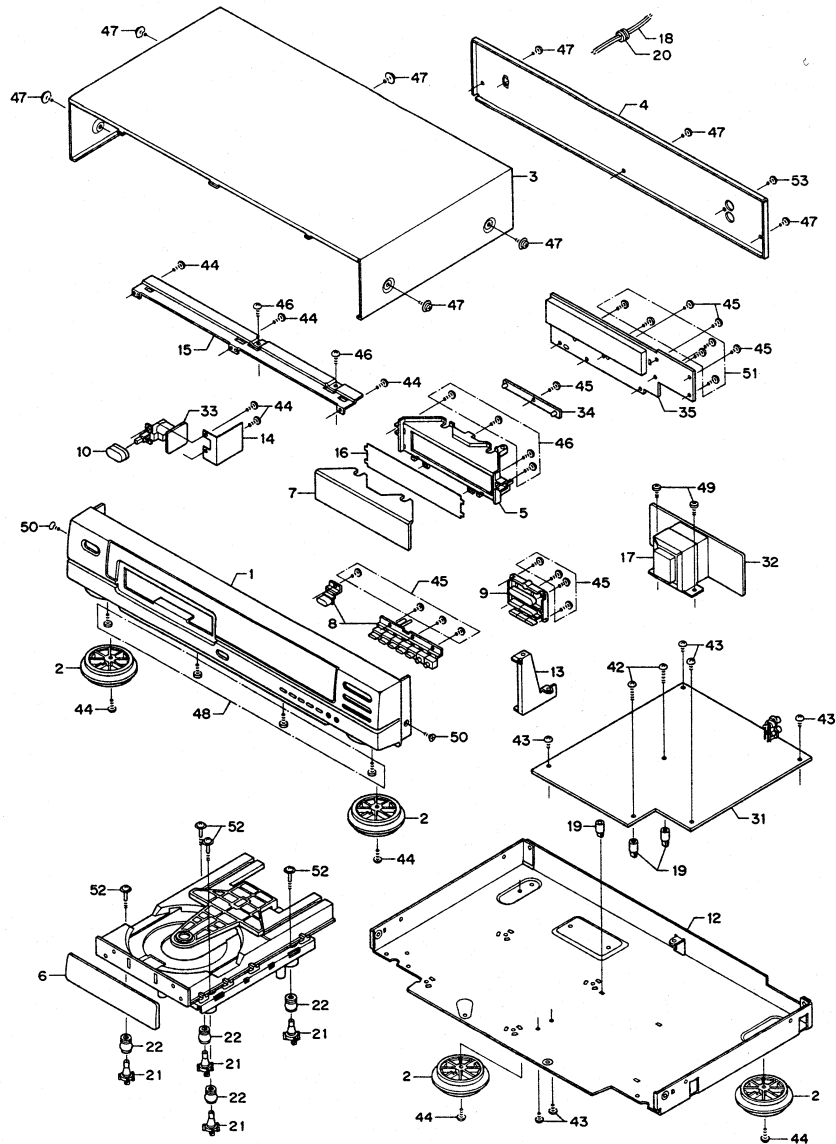


Fig. 2

CABINET & CHASSIS EXPLODED VIEW



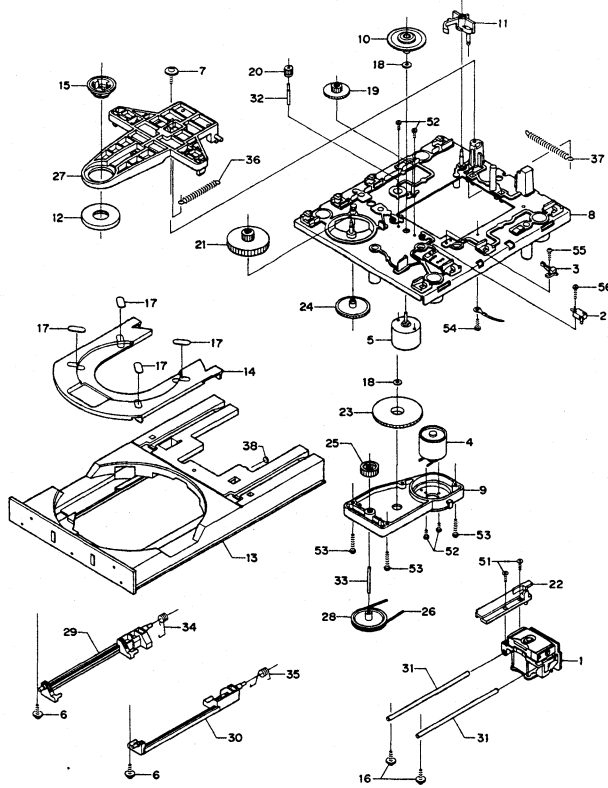
CABINET & CHASSIS PARTS LIST

Ref. No.	Part No.	Description	Q'ty	Ref. No.	Part No.	Description	Q'ty
PACKAGE							
	620 201 7556	Inner Carton	1	31	620 201 7242	Assy.PCB,Main-BB	1
	620 198 7225	Pad,Top	1	32	620 201 7259	Assy.PCB,Trans	1
	620 198 7232	Pad,Bottom	1	33	620 201 3695	Assy.PCB,Switch,Power	1
	620 202 6701	Reinforcement	2	34	620 200 0718	Assy.PCB,Lamp	1
	620 059 6596	Patching Sheet	1	35	620 200 0749	Assy.PCB,Display	1
	620 148 8012	Sheet Polyethylene	1				
ACCESSORIES							
	620 017 7955	Connector 4P Assy	1	42	411 020 7007	SCR S-TPG BRZ 3X20	2
	620 201 9895	Instruction Manual	1	43	411 020 7700	SCR S-TPG BRZ 3X6	6
	620 037 3500	RCA Cord 1000mm Black	1	44	411 020 8004	SCR S-TPG BRZ 3X8	9
or	620 021 7408	RCA Cord 1000mm Black	1	45	411 021 1202	SCR S-TPG BIN 2X8	12
	620 057 8783	Bag Fan	1	46	411 021 3107	SCR S-TPG BIN 2.6X8	6
	620 152 2624	Certificate Card	1	47	411 021 5903	SCR S-TPG BIN 3X6	8
	620 152 7452	Serial No. Sheet	1	48	411 021 6603	SCR S-TPG BIN 3X8	4
				49	411 021 9109	SCR S-TPG BIN 4X6	2
				50	411 022 4608	SCR S-TPG FLT 3X8	2
				51	411 023 3303	SCR S-TPG PAN 2.6X8	5
				52	412 024 6300	SPECIAL SCREW	4
				53	412 034 8509	SPECIAL SCREW	1
CABINET							
	620 061 2340	Notes (Laser)	1				
	620 061 2401	Notes (Laser)	1				
	620 061 2418	Notes (Laser)	1				
	620 125 8424	Wire Band	6				
	620 152 7452	Serial No. Sheet	2				
1	620 188 6191	Connector 9P Assy [CN3W]	1				
2	620 201 7525	Assy,Cabinet,Front	1				
3	620 198 6969	Assy,Front	4				
4	620 198 0639	Cover	1				
5	620 201 7518	Panel,Rear	1				
6	620 198 0585	Panel,Meter	1				
7	620 198 0808	Panel,Tray	1				
8	620 198 0578	Window,Meter	1				
9	620 198 0554	Button,Mode	1				
10	620 198 0561	Button,Select	1				
11	620 198 0622	Button,Power	1				
12	620 198 0646	Chassis,Main	1				
13	620 198 0660	Support,Front	1				
14	620 201 7112	Shield,Power Switch	1				
15	620 198 0684	Reinforcement,Front	1				
16	620 198 7201	Filter	1				
17	620 201 7228	Power Trans,SEV,10VA	1				
18	△ 620 023 7550	Power Cord	1				
19	620 050 4409	Mount P.C.B.	3				
20	620 053 2129	Bushing (Power Cord)	1				
or	620 053 2136	Bushing (Power Cord)	1				
21	620 115 4375	Holder Mecha	4				
22	620 124 3437	Cushion Rubber	4				

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 Δ in the parts list and the schematic diagram designate components in which safety can be of special significance. When replacing a component identified with Δ , 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.

MECHANISM PARTS LIST/EXPLODED VIEW



Ref. No.	Part No.	Description	Q'ty
MECHANISM			
	620 202 7210	Label, Identification	1
	620 125 8424	Wire Band	2
1	620 062 6170	Pick-up Assy 88	1
2	620 015 3744	Lever Switch 1P1T (Lid Open)	1
3	620 016 2401	Leaf Switch (Pick-up Inner)	1
4	620 189 0426	Motor (Sled Motor)	1
5	620 189 0433	Motor (Spindle Motor)	1
6	620 051 4279	Screw 3X8	2
7	620 051 4316	Screw 3X10	1
8	620 081 5963	Chassis Assy	1
9	620 185 9898	Chassis Sub Assy	1
10	620 082 7478	Turntable Assy	1
11	620 083 3974	Arm Assy	1
12	620 085 8583	Magnet Assy	1
13	620 190 8547	Table Load	1
14	620 185 9911	Table CD	1
15	620 119 1530	Holder Disc	1
16	620 123 0772	Screw Washer 2.6X6	2
17	620 184 9905	Pad Disc (Felt)	4
18	620 125 1487	Washer M1.9X7.0X0.25	2
19	620 127 9429	Gear Pick-up	1
20	620 127 9436	Gear Motor	1
21	620 127 9467	Gear Table Load	1
22	620 127 9474	Gear Pick-up Rack	1
23	620 185 9973	Gear Load Pick-up	1
24	620 185 9980	Gear Load T.L	1

Ref. No.	Part No.	Description	Q'ty
25	620 185 9997	Gear	1
26	620 186 0009	Belt	1
27	620 129 5986	Flap Disc Cramp	1
28	620 186 0023	Pulley	1
29	620 186 0030	Lever Hold Disc Left	1
30	620 186 0047	Lever Hold Disc Right	1
31	620 133 4081	Shaft Pick-up	2
32	620 133 4098	Shaft Gear S	1
33	620 186 0054	Shaft Pulley	1
34	620 186 0061	Spring Lever Left	1
35	620 186 0078	Spring Lever Right	1
36	620 139 1558	Spring Flap Disc CR	1
37	620 139 1566	Spring Arm	1
38	620 202 7203	Spacer	1
51	411 108 0104	SCR FLT PCS 2X5	2
52	411 099 0701	SCR PAN PCS 1.7X3	4
53	411 020 5409	SCR S-TPG BRZ 2.6X14	7
54	411 020 7700	SCR S-TPG BRZ 3X6	1
55	411 022 7807	SCR S-TPG PAN 2X6	3
56	411 104 6605	SCR TPG PAN 1.7X10	1

NOTES:

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

P.C.BOARD PARTS LIST

Ref. No.	Part No.	Description	Q'ty	Ref. No.	Part No.	Description	Q'ty
ASSY, PCB, MAIN-BB							
31	620 201 7242	Assy, PCB, Main-BB	1	D112	407 008 0405	DIODE GMB01-BT	1
	620 190 1092	Pin Jack 2P WH/RED	1	D113	407 008 0405	DIODE GMB01-BT	1
	620 053 9562	Plate Heatsink	2	D114	407 008 0405	DIODE GMB01-BT	1
CN1	620 021 8337	Plug 6P	1	D115	407 008 0405	DIODE GMB01-BT	1
CN2	620 021 8610	Plug 6P	1	D116	407 008 0405	DIODE GMB01-BT	1
CN3	620 021 9976	Plug 9P	1	D117	407 050 0200	ZENER DIODE GZA24Z	1
CN5	620 021 6555	Plug 4P	1	D118	407 050 5502	ZENER DIODE GZA5.6V-BT	1
CN6	620 021 8405	Plug 8P	1	D119	407 005 8602	DIODE ERA15-02	1
CN7	620 021 8344	Plug 10P	1	D120	407 005 8602	DIODE ERA15-02	1
CN8	620 022 0132	Plug 12P	1	D121	407 005 8602	DIODE ERA15-02	1
CN9	620 021 5954	Plug 6P	1	D122	407 005 8602	DIODE ERA15-02	1
CN10	620 021 5954	Plug 6P	1	D123	407 005 8602	DIODE ERA15-02	1
CN11	620 021 5589	Plug 5P	1	D124	407 005 8602	DIODE ERA15-02	1
CN12	620 021 4377	Plug 7P	1	D125	407 005 8602	DIODE ERA15-02	1
CN13	620 021 4377	Plug 7P	1	C101	403 009 1809	CERAMIC	2P C 50V
P101	620 006 1940	Potentiometer 10KB (F-Gain)	1	C102	403 016 1602	CERAMIC	10P J 50V
P102	620 006 1957	Potentiometer 20KB (T-Gain)	1	C103	403 030 8309	CERAMIC	68P J 50V
P103	620 006 1933	Potentiometer 100KB (E/F Balance)	1	C104	403 030 8309	CERAMIC	68P J 50V
P104	620 006 1933	Potentiometer 100KB (Kick-Gain)	1	C105	403 071 2001	CERAMIC	180P K 50V
P105	620 006 1957	Potentiometer 20KB (T-Offset)	1	C106	403 086 1907	NP-ELECT	0.47U M 50V
RB101	620 190 4062	Resistor 10X10K	1	C107	403 003 8705	CERAMIC	0.039U K 25V
RB102	620 190 4062	Resistor 10X10K	1	C108	403 071 6207	CERAMIC	220P K 50V
T101	620 028 8699	OSC Coil	1	C109	403 087 2507	STYRENE	1000P J 50V
or	620 028 8774	OSC Coil	1	C110	403 001 1906	CERAMIC	0.01U M 16V
X101	620 007 3172	Crystal 8.6436MHz	1	C111	404 028 9302	CERAMIC	0.1U Z 50V
or	620 182 6999	Crystal 8.6436MHz	1	C112	403 001 1906	CERAMIC	0.01U M 16V
X102	620 189 5117	Ceramic OSC 6MHz	1	C113	403 088 7105	STYRENE	680P J 50V
IC101	409 124 6507	IC LA9200NM	1	C114	403 067 5603	MT-COMPO	0.1U J 50V
IC102	409 168 1308	IC LC7860J	1	C115	403 003 8701	CERAMIC	0.033U K 25V
IC103	409 123 7109	IC LC3517BS-15	1	C116	403 009 1809	CERAMIC	10P J 50V
IC104	409 018 5104	IC LA8458SS	1	C117	404 028 9302	CERAMIC	0.1U Z 50V
or	409 057 4601	IC UPC4570HA	1	C118	403 042 0302	ELECT	10U M 16V
IC105	409 136 9206	IC FA5205P	1	C119	403 042 0302	ELECT	10U M 16V
IC106	409 203 8507	IC M50854-12SSP	1	C120	403 022 7703	CERAMIC	33P J 50V
IC107	409 195 4105	IC M5294P	1	C121	403 022 7703	CERAMIC	33P J 50V
IC108	409 022 0904	IC L374HC00	1	C122	404 028 9302	CERAMIC	0.1U Z 50V
IC109	409 195 4204	IC PD0050	1	C124	403 001 1906	CERAMIC	0.01U M 16V
IC110	409 070 7009	IC PCM456P	1	C125	403 069 1207	CERAMIC	1000P K 50V
IC111	409 070 7009	IC PCM456P	1	C126	403 067 8204	MT-COMPO	0.15U J 50V
IC112	409 018 5104	IC LA8458SS	1	C127	403 086 1402	NP-ELECT	0.22U M 50V
or	409 057 4601	IC UPC4570HA	1	C128	403 086 1600	NP-ELECT	0.33U M 50V
IC113	409 018 5104	IC LA8458SS	1	C129	403 039 2906	ELECT	47U M 6.3V
or	409 057 4601	IC UPC4570HA	1	C130	403 067 5603	MT-COMPO	0.1U J 50V
Q101	405 019 2807	TR 2SC536-F-SPA-AC	1	C131	403 059 8205	POLYESTER	0.022U K 50V
or	405 019 3903	TR 2SC536-G-SPA-AC	1	C132	403 067 5603	MT-COMPO	0.1U J 50V
Q102	405 021 0204	TR 2SD1012-F-SPA-AC	1	C133	403 049 1609	ELECT	1U M 50V
or	405 021 0600	TR 2SD1012-G-SPA-AC	1	C134	403 159 7201	NP-ELECT	1U M 50V
Q103	405 004 4007	TR 2SA608-E-SPA-AC	1	or	403 086 2706	NP-ELECT	1U M 50V
or	405 004 4601	TR 2SA608-F-SPA-AC	1	C135	403 042 0302	ELECT	10U M 16V
Q104	405 004 4007	TR 2SA608-E-SPA-AC	1	C136	403 073 7004	CERAMIC	470P K 50V
or	405 004 4601	TR 2SA608-F-SPA-AC	1	C137	403 073 7004	CERAMIC	470P K 50V
Q106	405 018 2600	TR 2SC3400-AC	1	C138	404 028 9302	CERAMIC	0.1U Z 50V
Q107	405 004 4007	TR 2SA608-E-SPA-AC	1	C139	404 028 9302	CERAMIC	0.1U Z 50V
or	405 004 4601	TR 2SA608-F-SPA-AC	1	C140	403 009 1809	CERAMIC	10P J 50V
Q108	405 019 3903	TR 2SC536-G-SPA-AC	1	C141	403 071 6207	CERAMIC	220P K 50V
Q109	405 019 3903	TR 2SC536-G-SPA-AC	1	C142	403 159 7201	NP-ELECT	1U M 50V
Q110	405 021 0907	TR 2SD1012-H-SPA-AC	1	or	403 086 2706	NP-ELECT	1U M 50V
or	405 021 0600	TR 2SD1012-G-SPA-AC	1	C143	403 159 7201	NP-ELECT	1U M 50V
Q111	405 021 0907	TR 2SD1012-H-SPA-AC	1	or	403 086 2706	NP-ELECT	1U M 50V
or	405 021 0600	TR 2SD1012-G-SPA-AC	1	C144	403 071 7501	CERAMIC	2200P K 50V
Q112	405 018 2600	TR 2SC3400-AC	1	C145	403 071 7501	CERAMIC	2200P K 50V
Q113	405 004 4007	TR 2SA608-E-SPA-AC	1	C146	403 002 8207	CERAMIC	0.012U K 25V
or	405 004 4601	TR 2SA608-F-SPA-AC	1	C147	403 002 8207	CERAMIC	0.012U K 25V
Q114	405 024 9709	TR 2SD734-E	1	C148	403 159 7201	NP-ELECT	1U M 50V
or	405 024 9907	TR 2SD734-F	1	or	403 086 2706	NP-ELECT	1U M 50V
Q115	405 024 9709	TR 2SD734-E	1	C149	403 042 0302	ELECT	10U M 16V
or	405 024 9907	TR 2SD734-F	1	C150	403 042 0302	ELECT	10U M 16V
D101	407 000 3503	VARACTOR DI SVC211SP	1	C151	403 001 1906	CERAMIC	0.01U M 16V
D102	407 008 0405	DIODE GMB01-BT	1	C152	404 028 9302	CERAMIC	0.1U Z 50V
D103	407 008 0405	DIODE GMB01-BT	1	C154	403 073 7004	CERAMIC	470P K 50V
D104	407 008 0405	DIODE GMB01-BT	1	C155	403 073 7004	CERAMIC	470P K 50V
D105	407 008 0405	DIODE GMB01-BT	1	C156	403 073 7004	CERAMIC	470P K 50V
D106	407 008 0405	DIODE GMB01-BT	1	C157	403 073 7004	CERAMIC	470P K 50V
D107	407 008 0405	DIODE GMB01-BT	1	C158	404 028 9302	CERAMIC	0.1U Z 50V
D108	407 008 0405	DIODE GMB01-BT	1	C159	403 072 2703	CERAMIC	0.022U Z 50V
D109	407 008 0405	DIODE GMB01-BT	1	C160	403 069 1207	CERAMIC	1000P K 50V
D110	407 008 0405	DIODE GMB01-BT	1	C161	404 028 9302	CERAMIC	0.1U Z 50V
D111	407 008 0405	DIODE GMB01-BT	1	C162	403 039 2906	ELECT	47U M 6.3V
				C163	403 159 7201	NP-ELECT	1U M 50V

P.C.BOARD PARTS LIST (Continued)

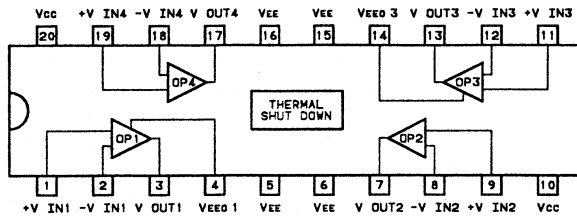
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or	403 086 2706	NP-ELECT	1U M 50V	1	R122	401 025 2305	CARBON 150K JA 1/6W	1
C164	403 159 7201	NP-ELECT	1U M 50V	1	R123	401 024 7707	CARBON 100K JA 1/6W	1
or	403 086 2706	NP-ELECT	1U M 50V	1	R124	401 025 7805	CARBON 2.2K JA 1/6W	1
C165	403 069 9402	CERAMIC	100P K 50V	1	R125	401 026 0807	CARBON 270 JA 1/6W	1
C166	403 001 1906	CERAMIC	0.01U M 16V	1	R126	401 025 8703	CARBON 220K JA 1/6W	1
C167	404 028 9302	CERAMIC	0.1U Z 50V	1	R127	401 024 9701	CARBON 12K JA 1/6W	1
C168	403 039 2906	ELECT	47U M 6.3V	1	R128	401 026 7408	CARBON 39K JA 1/6W	1
C169	403 019 9703	CERAMIC	27P J 50V	1	R129	401 026 7408	CARBON 39K JA 1/6W	1
C170	403 019 9703	CERAMIC	27P J 50V	1	R130	401 025 1902	CARBON 15K JA 1/6W	1
C171	404 028 9302	CERAMIC	0.1U Z 50V	1	R131	401 025 8703	CARBON 220K JA 1/6W	1
C172	404 028 9302	CERAMIC	0.1U Z 50V	1	R132	401 024 7400	CARBON 10K JA 1/6W	1
C173	404 028 9302	CERAMIC	0.1U Z 50V	1	R133	401 026 1604	CARBON 270K JA 1/6W	1
C174	404 028 9302	CERAMIC	0.1U Z 50V	1	R134	401 026 1604	CARBON 270K JA 1/6W	1
C175	404 028 9302	CERAMIC	0.1U Z 50V	1	R135	401 025 2305	CARBON 150K JA 1/6W	1
C176	404 028 9302	CERAMIC	0.1U Z 50V	1	R136	401 012 4503	CARBON 100 JA 1/4W	1
C177	403 057 0601	POLYESTER	0.01U K 50V	1	R137	401 025 8208	CARBON 22K JA 1/6W	1
C178	403 057 0601	POLYESTER	0.01U K 50V	1	R138	401 016 4806	CARBON 22K JA 1/4W	1
C179	403 058 1300	POLYESTER	1500P K 50V	1	R139	401 016 4806	CARBON 22K JA 1/4W	1
C180	403 058 1300	POLYESTER	1500P K 50V	1	R140	401 025 9007	CARBON 2.2M JA 1/6W	1
C181	403 026 2209	CERAMIC	47P J 50V	1	R141	401 025 8208	CARBON 22K JA 1/6W	1
C182	403 026 2209	CERAMIC	47P J 50V	1	R142	401 028 0309	CARBON 91K JA 1/6W	1
C183	403 088 7105	STYRENE	680P J 50V	1	R143	401 026 4308	CARBON 3.3K JA 1/6W	1
C184	403 088 7105	STYRENE	680P J 50V	1	R144	401 025 4903	CARBON 180K JA 1/6W	1
C185	403 158 3600	NP-ELECT	4.7U M 16V	1	R145	401 027 0309	CARBON 47K JA 1/6W	1
or	403 085 6408	NP-ELECT	4.7U M 16V	1	R146	401 025 4903	CARBON 180K JA 1/6W	1
C186	403 158 3600	NP-ELECT	4.7U M 16V	1	R147	401 024 7707	CARBON 100K JA 1/6W	1
or	403 085 6408	NP-ELECT	4.7U M 16V	1	R148	401 024 7707	CARBON 100K JA 1/6W	1
C187	404 028 9302	CERAMIC	0.1U Z 50V	1	R149	401 016 4806	CARBON 22K JA 1/4W	1
C188	404 028 9302	CERAMIC	0.1U Z 50V	1	R150	401 025 8208	CARBON 22K JA 1/6W	1
C189	403 038 7209	ELECT	220U M 6.3V	1	R151	401 027 0309	CARBON 47K JA 1/6W	1
C190	403 039 2906	ELECT	47U M 6.3V	1	R152	401 027 9005	CARBON 82K JA 1/6W	1
C191	403 001 1906	CERAMIC	0.01U M 16V	1	R153	401 025 0004	CARBON 120K JA 1/6W	1
C192	403 069 1207	CERAMIC	1000P K 50V	1	R154	401 026 1604	CARBON 270K JA 1/6W	1
C193	403 073 7004	CERAMIC	470P K 50V	1	R155	401 025 0004	CARBON 120K JA 1/6W	1
C194	403 073 7004	CERAMIC	470P K 50V	1	R156	401 025 4903	CARBON 180K JA 1/6W	1
C197	403 042 0302	ELECT	10U M 16V	1	R157	401 026 1307	CARBON 27K JA 1/6W	1
C198	403 042 0302	ELECT	10U M 16V	1	R158	401 024 7004	CARBON 1K JA 1/6W	1
C200	403 042 0302	ELECT	10U M 16V	1	R159	401 024 7400	CARBON 10K JA 1/6W	1
C203	403 039 2906	ELECT	47U M 6.3V	1	R160	401 026 1307	CARBON 27K JA 1/6W	1
C204	403 038 7209	ELECT	220U M 6.3V	1	R161	401 024 6403	CARBON 10 JA 1/6W	1
C205	403 047 1502	ELECT	4.7U M 25V	1	R162	401 025 5405	CARBON 2.2 JA 1/6W	1
C206	403 049 1609	ELECT	1U M 50V	1	R163	401 024 6403	CARBON 10 JA 1/6W	1
C207	403 042 0302	ELECT	10U M 16V	1	R164	401 026 1307	CARBON 27K JA 1/6W	1
C208	403 069 1207	CERAMIC	1000P K 50V	1	R165	401 026 4902	CARBON 330K JA 1/6W	1
C209	403 044 0300	ELECT	47U M 16V	1	R166	401 024 7400	CARBON 10K JA 1/6W	1
C210	403 044 0300	ELECT	47U M 16V	1	R167	401 027 0309	CARBON 47K JA 1/6W	1
C211	403 043 3104	ELECT	2200U M 16V	1	R168	401 027 5205	CARBON 680 JA 1/6W	1
C212	403 043 3104	ELECT	2200U M 16V	1	R169	401 025 5405	CARBON 2.2 JA 1/6W	1
C213	403 054 1304	ELECT	47U M 35V	1	R170	401 027 3003	CARBON 56K JA 1/6W	1
C214	403 054 1304	ELECT	47U M 35V	1	R171	401 021 5003	CARBON 560K JA 1/4W	1
C215	403 054 1304	ELECT	47U M 35V	1	R172	401 021 5003	CARBON 560K JA 1/4W	1
C216	403 054 1304	ELECT	47U M 35V	1	R173	401 025 5405	CARBON 2.2 JA 1/6W	1
C217	403 054 1304	ELECT	47U M 35V	1	R174	401 025 4200	CARBON 1.8K JA 1/6W	1
C218	403 072 2703	CERAMIC	0.022U Z 50V	1	R175	401 025 3807	CARBON 180 JA 1/6W	1
C219	403 072 2703	CERAMIC	0.022U Z 50V	1	R176	401 024 9701	CARBON 12K JA 1/6W	1
C220	403 072 2703	CERAMIC	0.022U Z 50V	1	R177	401 024 9701	CARBON 12K JA 1/6W	1
C221	404 028 9302	CERAMIC	0.1U Z 50V	1	R178	401 024 5604	CARBON 1 JA 1/6W	1
C222	404 028 9302	CERAMIC	0.1U Z 50V	1	R179	401 027 0309	CARBON 47K JA 1/6W	1
R101	401 026 9003	CARBON	24K JA 1/6W	1	R180	401 027 0309	CARBON 47K JA 1/6W	1
R102	401 024 7400	CARBON	10K JA 1/6W	1	R181	401 026 4605	CARBON 33K JA 1/6W	1
R103	401 024 7400	CARBON	10K JA 1/6W	1	R182	401 026 4605	CARBON 33K JA 1/6W	1
R104	401 027 2600	CARBON	5.6K JA 1/6W	1	R183	401 012 8105	CARBON 100K JA 1/4W	1
R105	401 024 6700	CARBON	100 JA 1/6W	1	R184	401 012 8105	CARBON 100K JA 1/4W	1
R106	401 025 7409	CARBON	220 JA 1/6W	1	R185	401 026 4605	CARBON 33K JA 1/6W	1
R107	401 027 9005	CARBON	82K JA 1/6W	1	R186	401 026 1307	CARBON 27K JA 1/6W	1
R108	401 024 7707	CARBON	100K JA 1/6W	1	R187	401 025 4903	CARBON 180K JA 1/6W	1
R109	401 024 7707	CARBON	100K JA 1/6W	1	R188	401 025 6709	CARBON 200K JA 1/6W	1
R110	401 026 9907	CARBON	4.7K JA 1/6W	1	R189	401 026 1000	CARBON 2.7K JA 1/6W	1
R111	401 026 4308	CARBON	3.3K JA 1/6W	1	R190	401 024 7400	CARBON 10K JA 1/6W	1
R112	401 025 7409	CARBON	220 JA 1/6W	1	R191	401 026 4308	CARBON 3.3K JA 1/6W	1
R113	401 025 8208	CARBON	22K JA 1/6W	1	R192	401 027 0309	CARBON 47K JA 1/6W	1
R114	401 024 7004	CARBON	1K JA 1/6W	1	R193	401 016 3809	CARBON 2.2K JA 1/4W	1
R115	401 025 1902	CARBON	15K JA 1/6W	1	R194	401 024 8001	CARBON 1M JA 1/6W	1
R116	401 025 7805	CARBON	2.2K JA 1/6W	1	R196	401 024 7707	CARBON 100K JA 1/6W	1
R117	401 025 8208	CARBON	22K JA 1/6W	1	R197	401 024 7707	CARBON 100K JA 1/6W	1
R118	401 025 8208	CARBON	22K JA 1/6W	1	R198	401 024 7707	CARBON 100K JA 1/6W	1
R119	401 024 7707	CARBON	100K JA 1/6W	1	R199	401 024 7707	CARBON 100K JA 1/6W	1
R120	401 024 7707	CARBON	100K JA 1/6W	1	R200	401 020 2904	CARBON 47K JA 1/4W	1
R121	401 024 7400	CARBON	10K JA 1/6W	1	R201	401 027 2303	CARBON 560 JA 1/6W	1

P.C.BOARD PARTS LIST (Continued)

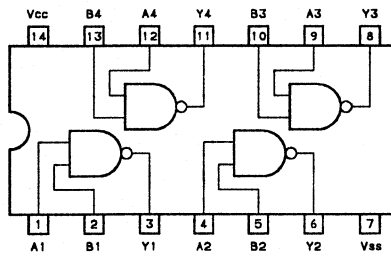
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R203	401 024 7400	CARBON	10K JA 1/6W	1	R203	401 024 7400	CARBON 10K JA 1/6W	1
R204	401 024 8001	CARBON	1M JA 1/6W	1	R204	401 024 8001	CARBON 1M JA 1/6W	1
R205	401 024 6700	CARBON	100 JA 1/6W	1	R205	401 024 6700	CARBON 100 JA 1/6W	1
R206	401 027 2303	CARBON	560 JA 1/6W	1	R206	401 027 2303	CARBON 560 JA 1/6W	1
R207	401 027 2303	CARBON	560 JA 1/6W	1	R207	401 027 2303	CARBON 560 JA 1/6W	1
R208	401 027 2303	CARBON	560 JA 1/6W	1	R208	401 027 2303	CARBON 560 JA 1/6W	1
R209	401 016 2604	CARBON	220 JA 1/4W	1	R209	401 016 2604	CARBON 220 JA 1/4W	1
R210	401 019 1000	CARBON	390 JA 1/4W	1	R210	401 019 1000	CARBON 390 JA 1/4W	1
R211	401 016 2604	CARBON	220 JA 1/4W	1	R211	401 016 2604	CARBON 220 JA 1/4W	1
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R213	401 024 6403	CARBON	10 JA 1/6W	1	R213	401 024 6403	CARBON 10 JA 1/6W	1
R214	401 024 6403	CARBON	10 JA 1/6W	1	R214	401 024 6403	CARBON 10 JA 1/6W	1
R215	401 024 6403	CARBON	10 JA 1/6W	1	R215	401 024 6403	CARBON 10 JA 1/6W	1
R216	401 024 6403	CARBON	10 JA 1/6W	1	R216	401 024 6403	CARBON 10 JA 1/6W	1
R217	401 025 1605	CARBON	1.5K JA 1/6W	1	R217	401 025 1605	CARBON 1.5K JA 1/6W	1
R218	401 025 1605	CARBON	1.5K JA 1/6W	1	R218	401 025 1605	CARBON 1.5K JA 1/6W	1
R219	401 025 1605	CARBON	1.5K JA 1/6W	1	R219	401 025 1605	CARBON 1.5K JA 1/6W	1
R220	401 025 1605	CARBON	1.5K JA 1/6W	1	R220	401 025 1605	CARBON 1.5K JA 1/6W	1
R221	401 025 1605	CARBON	1.5K JA 1/6W	1	R221	401 025 1605	CARBON 1.5K JA 1/6W	1
R222	401 025 1605	CARBON	1.5K JA 1/6W	1	R222	401 025 1605	CARBON 1.5K JA 1/6W	1
R223	401 027 0309	CARBON	47K JA 1/6W	1	R223	401 027 0309	CARBON 47K JA 1/6W	1
R224	401 027 0309	CARBON	47K JA 1/6W	1	R224	401 027 0309	CARBON 47K JA 1/6W	1
R225	401 027 1801	CARBON	51K JA 1/6W	1	R225	401 027 1801	CARBON 51K JA 1/6W	1
R226	401 027 1801	CARBON	51K JA 1/6W	1	R226	401 027 1801	CARBON 51K JA 1/6W	1
R227	401 025 8208	CARBON	22K JA 1/6W	1	R227	401 025 8208	CARBON 22K JA 1/6W	1
R228	401 025 8208	CARBON	22K JA 1/6W	1	R228	401 025 8208	CARBON 22K JA 1/6W	1
R229	401 024 8001	CARBON	1M JA 1/6W	1	R229	401 024 8001	CARBON 1M JA 1/6W	1
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R233	401 025 7805	CARBON	2.2K JA 1/6W	1	R233	401 025 7805	CARBON 2.2K JA 1/6W	1
R234	401 025 7805	CARBON	2.2K JA 1/6W	1	R234	401 025 7805	CARBON 2.2K JA 1/6W	1
R235	401 025 7805	CARBON	2.2K JA 1/6W	1	R235	401 025 7805	CARBON 2.2K JA 1/6W	1
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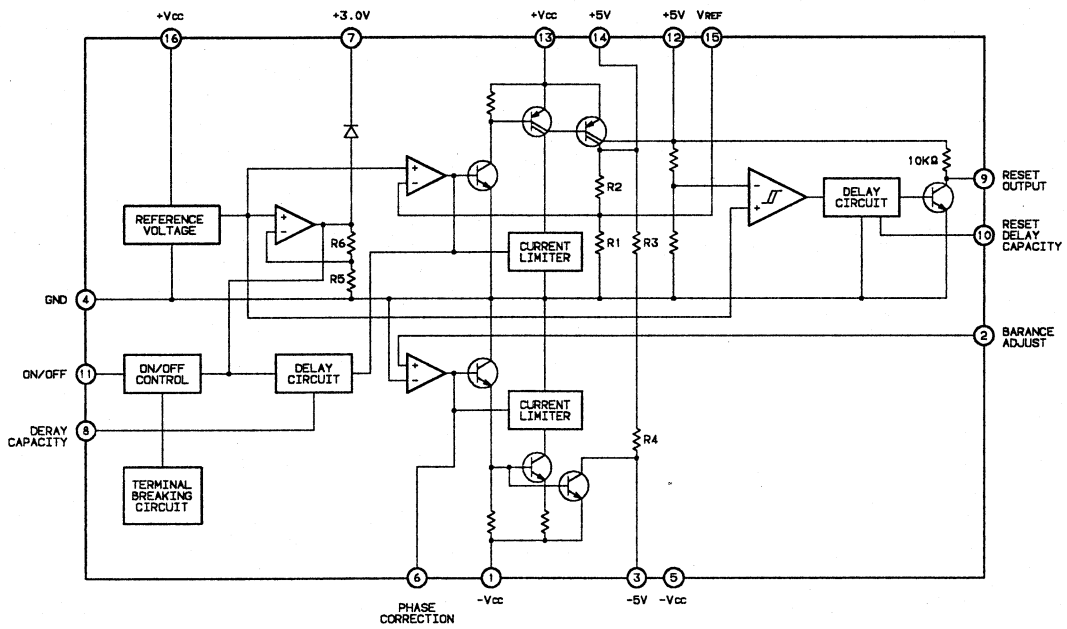
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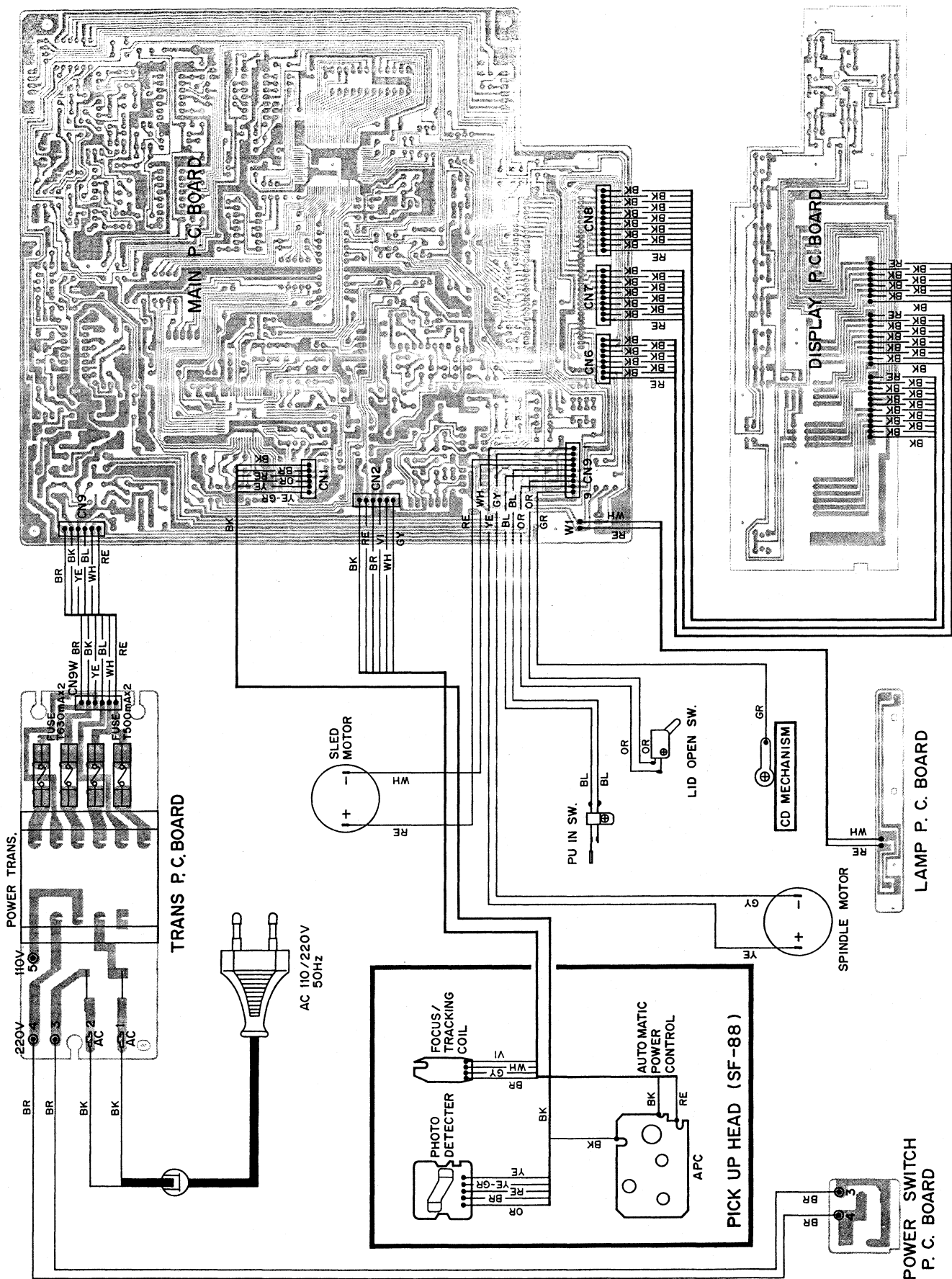
LC74HC00 BLOCK DIAGRAM



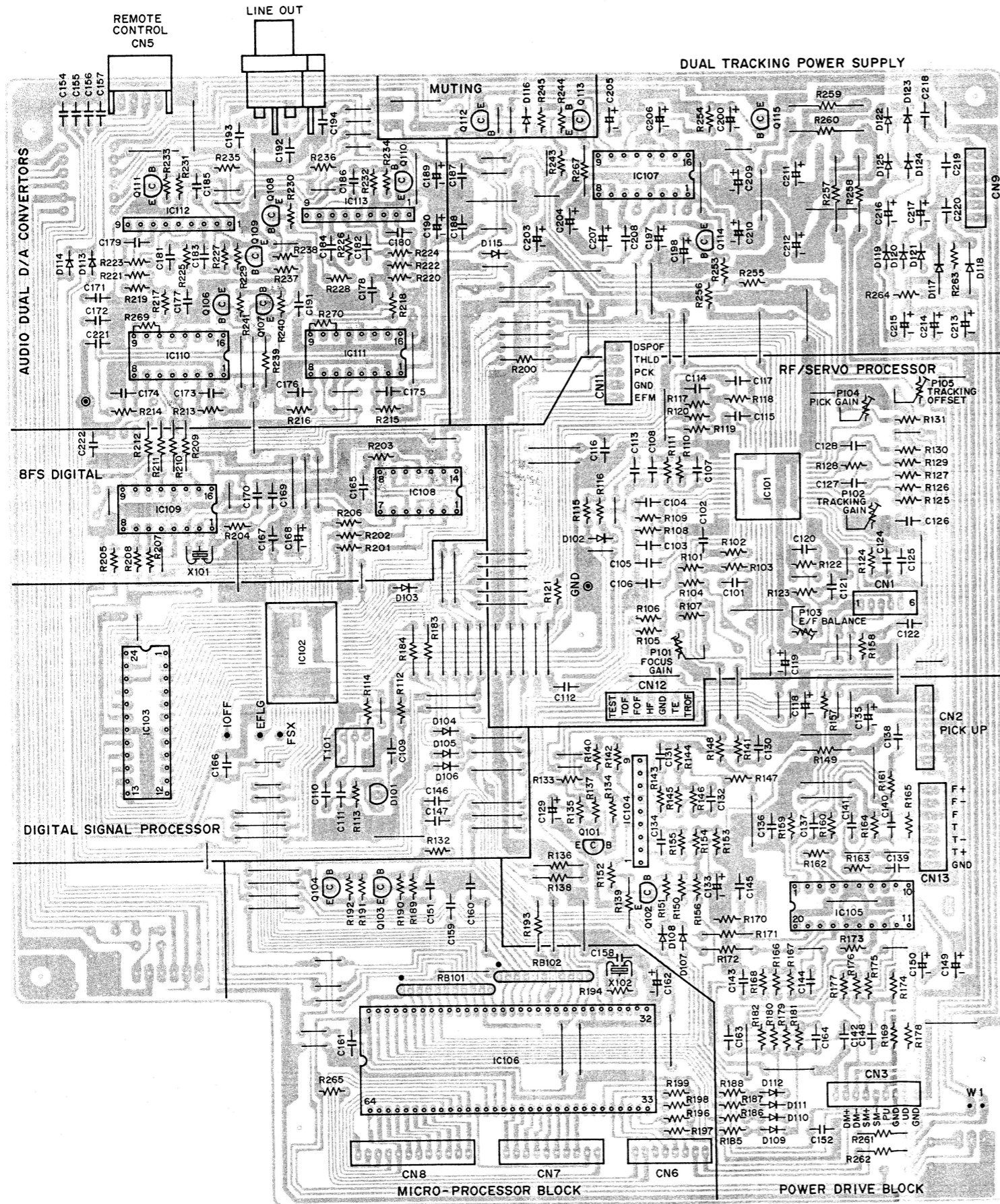
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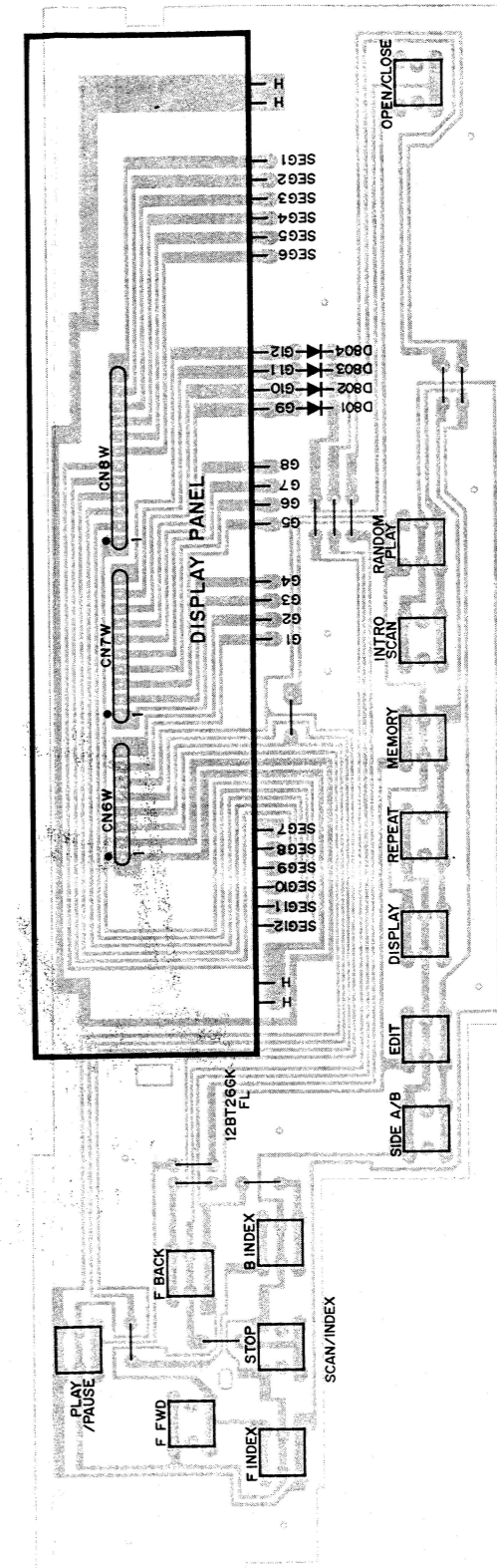
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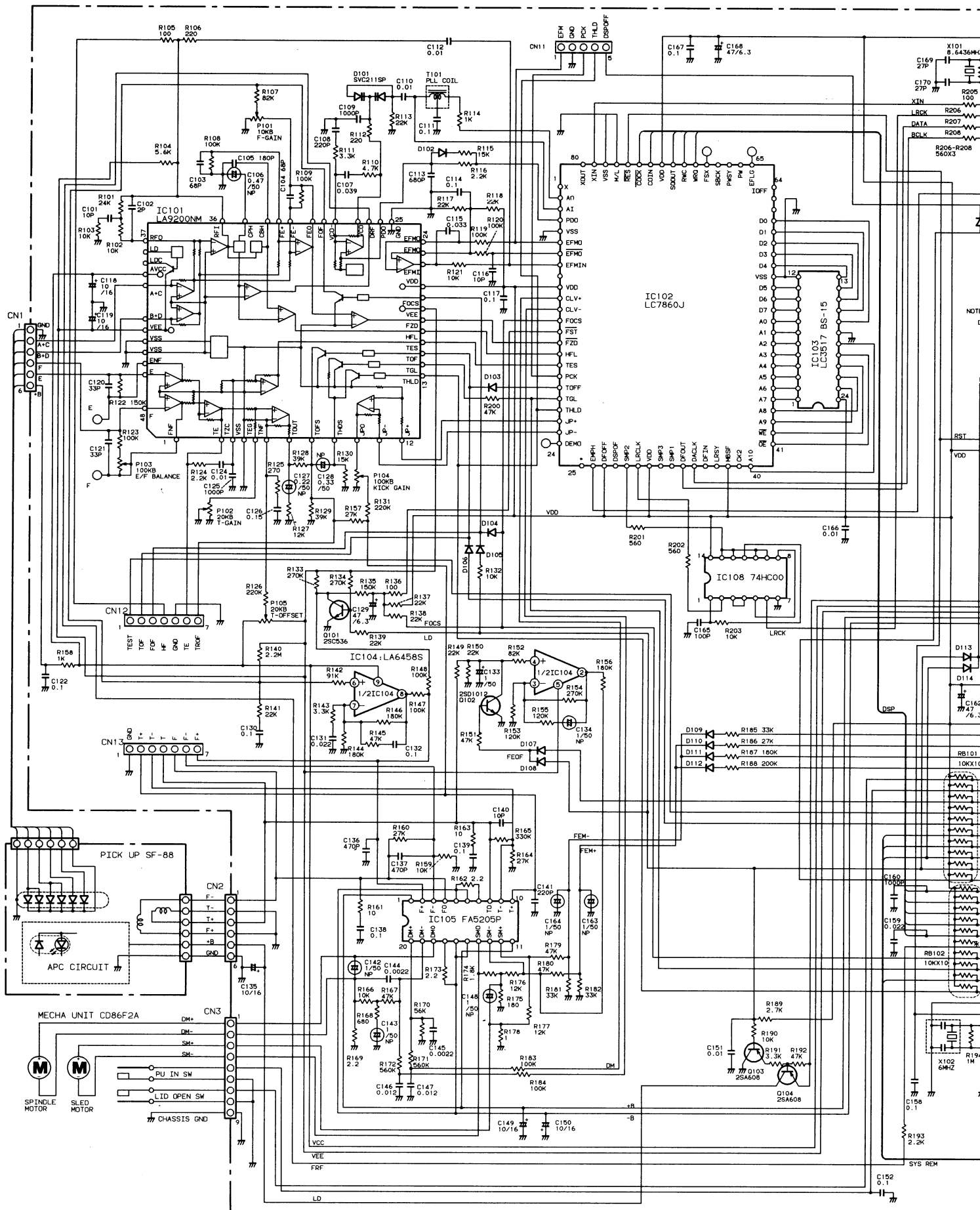


**MAIN P.C. BOARD
(BOTTOM VIEW)**

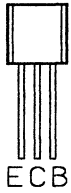


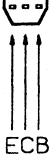


**DISPLAY P.C. BOARD
(BOTTOM VIEW)**

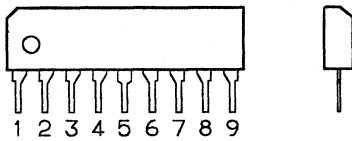




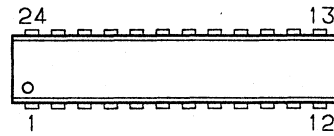
IC & TRANSISTOR LEAD IDENTIFICATION

TRANSISTOR	FRONT VIEW	BOTTOM VIEW	TRANSISTOR	FRONT VIEW	BOTTOM VIEW
2SD734			2SA608 2SC3400 2SC536 2SD1012		
TERMINAL NAME					
B → BASE C → COLLECTOR E → EMITTER					

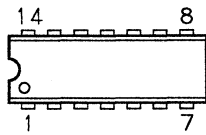
LA6458SS FRONT/SIDE VIEWS



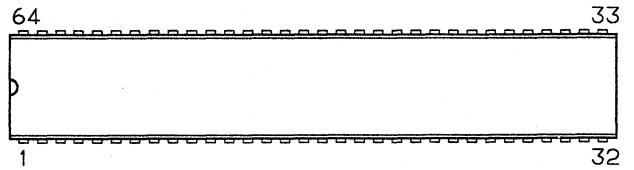
LC3517BS-15 TOP VIEW



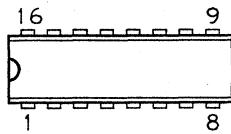
LC74HC00 TOP VIEW



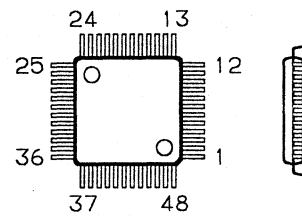
M50954-125SP TOP VIEW



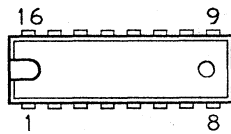
**PCM56P TOP VIEW
PD0050 TOP VIEW**



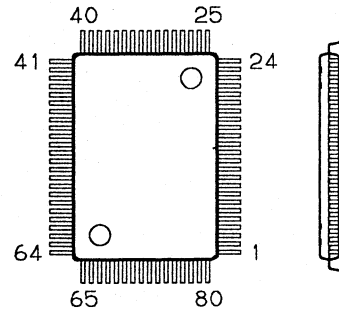
LA9200NM TOP/SIDE VIEWS



M5294P TOP VIEW



LC7860J TOP/SIDE VIEWS



FA5205P TOP VIEW

