

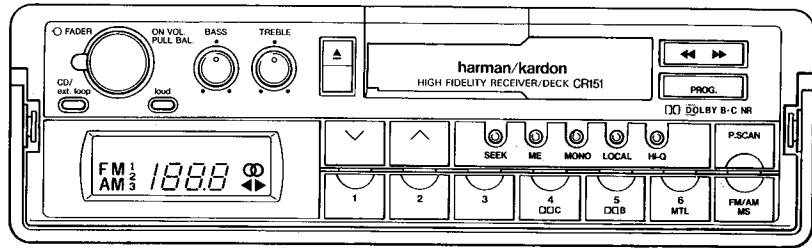
The Harman Kardon Model CR151

1614-00601

Manual 131A

HIGH FIDELITY RECEIVER/DECK

Technical Manual



harman/kardon

240 Crossways Park West, Woodbury, N.Y. 11797
1112-3152131A5 P-078804 1200 Printed in Japan

SPECIFICATIONS

● **FM SECTION**

	Nominal	Limit
Tuning Range	87.9MHz	~ 107.9MHz
Usable Sensitivity	12dBf	≧ 18dBf
Quieting Sensitivity		
Mono	12dBf	≧ 18dBf
Stereo	30dBf	≧ 35dBf
Signal to Noise Ratio		
Mono	74dB	≧ 68dB
Stereo	69dB	≧ 60dB
IF Rejection (88.1MHz)	83dB	≧ 75dB
Image Rejection (98.1MHz)	57dB	≧ 50dB
AM Suppression	45dB	≧ 40dB
Capture Ratio	1.8dB	≧ 3dB
Selectivity (±400kHz)	66dB	≧ 56dB
Distortion (Stereo) (65dBf, 100%)	0.18%	≧ 0.4%
Frequency Response (±3dB)	20Hz	~ 15kHz
MPX Separation at 1kHz	45dB	≧ 35dB
Output Level (75kHz dev.)	550mV	± 3dB

● **AM SECTION**

Tuning Range	530kHz	~ 1620 kHz
Signal to Noise Ratio	49dB	≧ 45dB
IF Rejection (600kHz)	60dB	≧ 50dB
Image Rejection (1400kHz)	55dB	≧ 50dB
Selectivity (±9kHz)	50dB	≧ 45dB
Sensitivity (1000kHz)	32 μV	≧ 50 μV

● **AUDIO SECTION**

	Nominal	Limit
Tone Control Action		
Bass (50Hz)	12dB	± 1.5dB
Treble (10kHz)	12dB	± 1.5dB
Loudness Action (50Hz/30kHz)	11dB	± 3dB/3dB ± 2dB
Output Impedance	680 Ω	
Line Output Level/Load	0.8V/10kohm	
Power Output per channel, 4ohm at 1% THD, 20Hz to 20kHz	12Watts	

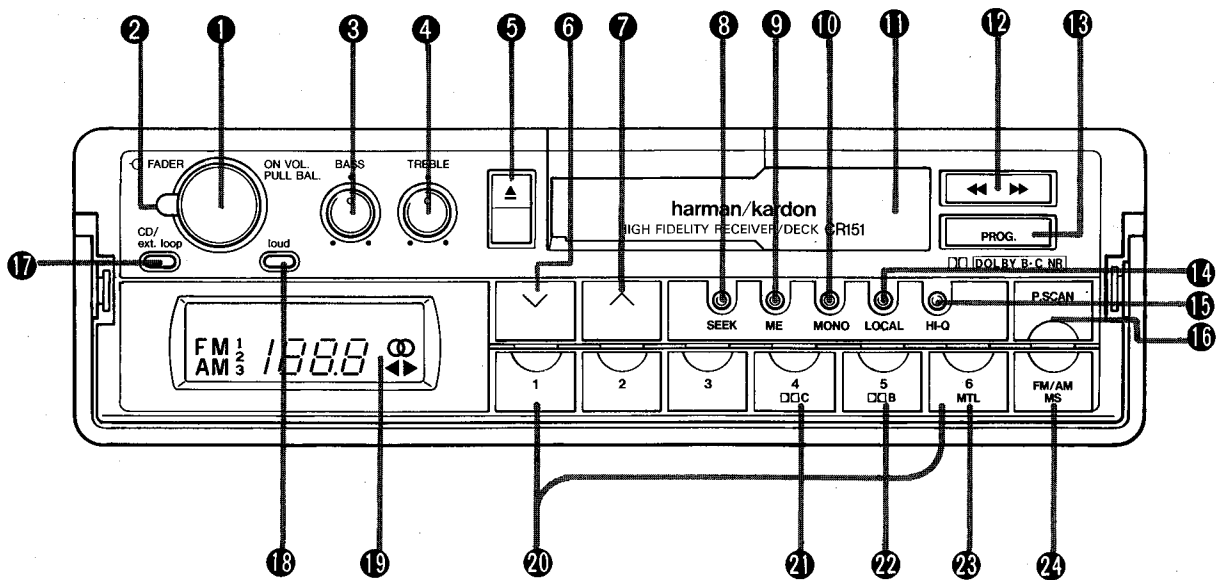
● **CASSETTE TAPE DECK SECTION**

Wow and Flutter (WRMS)	0.11%	≧ 0.2%
Tape Speed (4.75cm/sec.)	+1%	≧ +3% -1%
FF and REW Time (for C-60 tape)	100sec.	< 120sec.
Signal to Noise Ratio (CrO ₂)		
Dolby* NR Off	54dB	≧ 50dB
Dolby NR Type B	64dB	≧ 58dB
Dolby NR Type C	72dB	≧ 66dB
Distortion	1.2%	≧ 2%
Frequency Response	30Hz	~ 18kHz
Separation	46dB	≧ 35dB
Crosstalk	56dB	≧ 50dB
Output Level (Volume Max.)	775mV	± 3dB

These specifications are service target specs. Specifications and components are subject to change without notice. Overall performance will be maintained or improved.

*Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation. "Dolby" and the double-D symbol are trademarks of Dolby Laboratories Licensing Corporation.

CONTROLS & INDICATORS



1 ON-OFF switch/VOLUME control/BALANCE control
Push this knob to turn on the tuner. Push again to turn it off. This knob controls the sound level. Turning clockwise increases the sound volume and turning counterclockwise decreases it. This also controls the balance of the left and right channels. Pull it out and turn it clockwise or counterclockwise to balance the sound. It has center click to indicate the balance of the left and right channels.

2 FADER control
This control adjusts the balance of front and rear level

when using a four-speaker system. Turn this control downward to increase the front level or upward to increase the rear level. Master volume can be adjusted using the VOLUME control knob. Set it to the center click position when using a control two-speaker system.

3 BASS control
This knob controls the low frequency sounds. Access the knob by pushing it, then turn it clockwise to boost or counterclockwise to reduce the low frequency sound level. It has center click to indicate flat frequency response.

4 TREBLE control

This knob controls the high frequency sounds. Access the knob by pushing it, then turn it clockwise to boost or counterclockwise to reduce the high frequency sound level. It has center click to indicate flat frequency response.

5 ▲ (eject) button

Push this button to eject the cassette.

6 ∨ (tuning down) button

When this is pressed, the tuner frequency decreases. In FM mode, frequency display moves in 0.2MHz steps. In AM, the display moves in 10kHz steps. If this button is pressed continuously, the frequencies are displayed in backwards order.

7 ∧ (tuning up) button

When this is pressed, the tuner frequency increases. If this button is pressed continuously, the frequencies are displayed in forwards order.

8 SEEK button

Press this button to search for a broadcast station. When this is pressed, the button illuminates, and activates the automatic seek function. Press the ∧ or ∨ button while the indicator is lit, to activate automatic scan. Once the broadcast signal is found, scanning stops automatically. To cancel the automatic seek mode, press this button once again.

9 ME(memory) button

This button is used to enter the preset stations. When this button is pressed, it illuminates for 5 seconds. This indicates that the memory standby state is activated.

10 MONO button

When an FM stereo signal is received poorly, press this button. The button will light and the signal will be received as a monaural broadcast.

11 Cassette loading slot

Insert a cassette here with the tape side to the right.

12 ◀▶ (rewind, fast forward) button

Press the ▶ side of the button to advance the tape at fast speed. Press the ◀ side of the button to rewind the tape.

13 PROG. button

This is the switch for switching between the A and B sides of the cassette tape. Every time this button is pressed, the LCD display changes the indicator ◀ or ▶.

14 LOCAL button

This feature allows the seek function to only stop at strong broadcasts.

15 HI-Q button

Press this button when the station you want to receive is being interfered with by a powerful nearby station. The button lights up and the signal from the powerful nearby station is eliminated, so you can receive the desired station.

16 P. SCAN button

This button is used to briefly sample the six stations that have been preset in the selected band.

17 CD/ext. loop button


Press this button when using a CD player connected to the EXT. INPUT jacks or a graphic equalizer or surround processor connected to the EXT. INPUT and EXT. OUTPUT jacks.

While using CD input, operation of tape or tuner functions may cause muting circuits to activate. This is normal operation.

18 Loud button

When listening at a low level, the loudness switch will create a more natural sound by emphasizing the low and high frequency ranges.

19 LCD display

When a broadcast is being received, the band (FM1, FM2, FM3, AM) and the frequency will be displayed. The  indicator will illuminate when an FM stereo broadcast is received. During playback, the ◀ or ▶ indicator will light and indicate the playback direction.

20 Preset memory button (1-6)

Press preset memory buttons to memorize a station, or to select the same station after it has been memorized. A total of 18 FM stations and 6 AM stations can be memorized.

21 Dolby C NR button

This button is used to play back a tape which has been recorded with Dolby C NR. When this button is pressed, the indicator lights up. If you are not using Dolby C NR, press this button once again.

22 Dolby B NR button

This button is used to play back a tape that has been recorded with Dolby B NR. When this button is pressed, the indicator lights up. If you are not using Dolby B NR, press this button once again.

23 MTL button

Press when using metal or CrO₂ tape. The indicator illuminates.

24 FM/AM (band)/MS (music search) button

In the tuner mode, press this button to select FM1, FM2, FM3 or AM. Each of these bands has six memory presets. The P. SCAN button will only scan the preset in the band selected.

In the tape playback mode, press this button to activate the music search mode. The indicator will light up. During this mode, pressing ▶▶ or ◀◀ button will advance the tape to the beginning of the next song, or the beginning of the current song, respectively.

DISASSEMBLY PROCEDURES (REFER TO PAGES 4, 5, 6 AND 27)

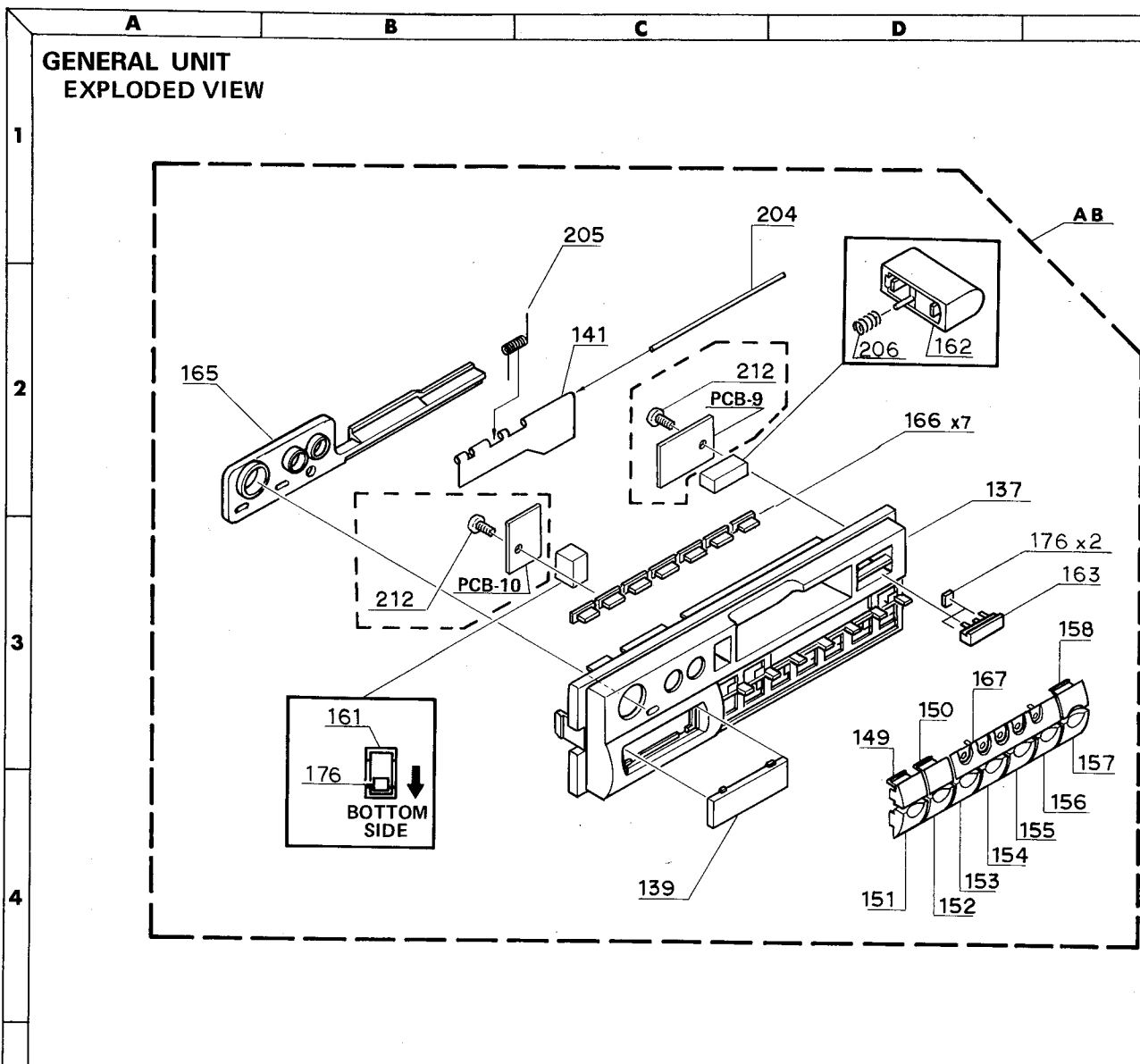
1 CASSETTE TAPE PLAYER MECHANICAL ASSEMBLY (221) REMOVAL

1. Remove 2 screws (A), then remove Cabinet Top Assembly (AA).
2. Remove 2 screws (B) and 1 screw (C). Remove the Cabinet Bottom (136).
3. Remove 4 screws (D), then remove the Handle (169) and the Front Frame (140).
4. Pull out the Volume Knob (143), Fader Knob (144) and Bass and Treble Knobs (145). Also disconnect the connectors (LCN702 and LCN704) from CN702 and CN704 on the PCB-8.
5. With releasing the right and left catches, remove the Front Panel Assembly (AB).
6. Remove 3 screws (E) and then remove the Cassette Tape Player Mechanical Assembly (221). Also disconnect the connector (LCN201) from CN201 on the PCB-1 and disconnect the connector (LCN202) from CN703 on the PCB-8 and unsolder the lead wire from Cassette Tape Player Mechanical Assembly (221) and then remove 1 screw (J) and slide the PCB-8 and remove the PCB-8 from Cassette Tape Player Mechanical Assembly (221).

Unsolder the lead wire with connector (LCN701) on the PCB-8. Remove 4 screws (K), then remove Metal Fitting (184) from Cassette Tape Player Mechanical Assembly (221).

2 P.C. BOARDS REMOVAL

1. Remove the Cassette Tape Player Mechanical Assembly (221), referring to the previous step 1.
2. Remove 2 screws (G) and unsolder PCB-7, PCB-8 soldered pattern side of PCB-1, then remove the PCB-7.
3. Remove 15 screws (F). Remove the Metal Fittings (182) (183).
4. Remove CD/ext. loop and Loudness Knobs (147), 3 nuts (H) and 1 screw (I), and then remove PCB-5 and PCB-6. Also disconnect the connectors (LCN101, LCN103 and LCN502) from CN301, CN302 and CN303 on the PCB-5, then disconnect the connectors (LCN102 and LCN501) from CN402 and CN401 on the PCB-6. Pull out the PCB-4 from PCB-1. Unsolder pins' of connectors CN501, CN502 and CN503 soldered pattern side of PCB-1, then remove the PCB-2 and PCB-3.



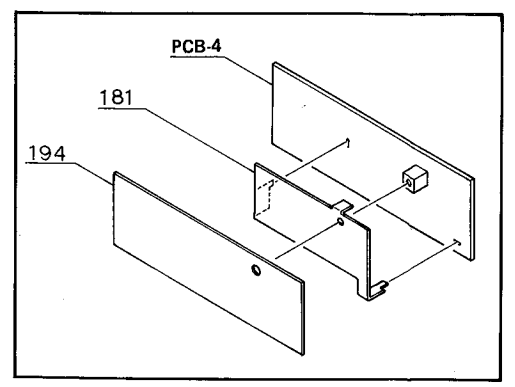
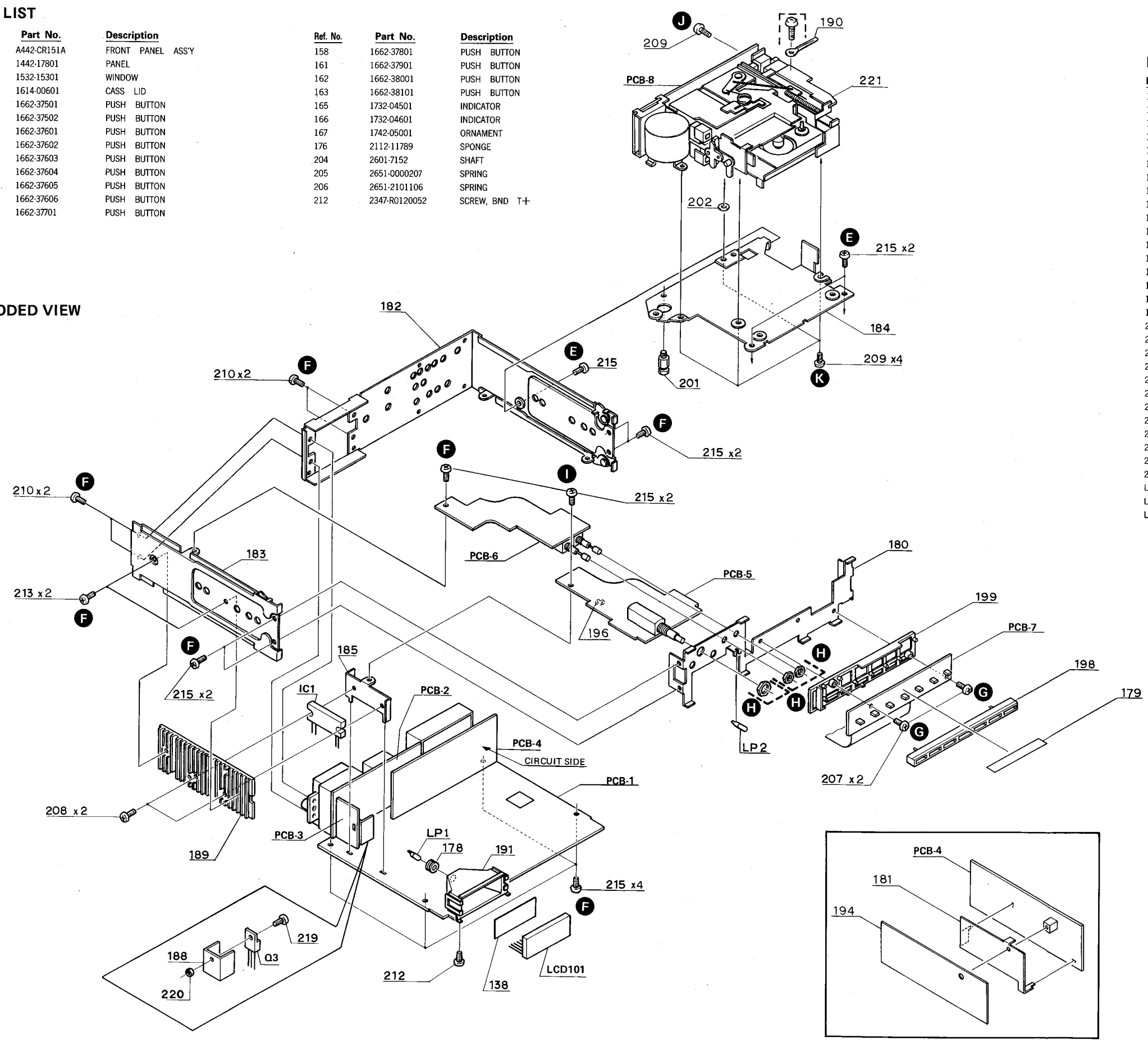
PARTS LIST

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
AB	A442-CR151A	FRONT PANEL ASS'Y	158	1662-37801	PUSH BUTTON
137	1442-17801	PANEL	161	1662-37901	PUSH BUTTON
139	1532-15301	WINDOW	162	1662-38001	PUSH BUTTON
141	1614-00601	CASS LID	163	1662-38101	PUSH BUTTON
149	1662-37501	PUSH BUTTON	165	1732-04501	INDICATOR
150	1662-37502	PUSH BUTTON	166	1732-04601	INDICATOR
151	1662-37601	PUSH BUTTON	167	1742-05001	ORNAMENT
152	1662-37602	PUSH BUTTON	176	2112-11789	SPONGE
153	1662-37603	PUSH BUTTON	204	2601-7152	SHAFT
154	1662-37604	PUSH BUTTON	205	2651-0000207	SPRING
155	1662-37605	PUSH BUTTON	206	2651-2101106	SPRING
156	1662-37606	PUSH BUTTON	212	2347-R0120052	SCREW, BND T+
157	1662-37701	PUSH BUTTON			

PARTS LIST

Ref. No.	Part No.	Description
138	1511-14701	PLATE
178	2114-01306	BUSHING
179	2132-7158	SPACER
180	2211-7301	CHASSIS
181	2216-7171	SHIELD PLATE
182	2219-8224	METAL FITTG
183	2219-8225	METAL FITTG
184	2219-8221	METAL FITTG
185	2219-8222	METAL FITTG
188	2222-7194	HEAT SINK
189	2222-7242	HEAT SINK
190	2218-47	BRACKET, FIX
191	2223-7059	REFLECTOR
194	2224-7123	INSULATOR
196	2402-0374	WASHER, PLSTC
198	2240-7343	HOLDER
199	2240-7344	HOLDER
201	2362-96742	BOSS, THREAD
202	2401-028	WASHER, METAL
207	2327-260829	SCREW, BND+
208	2327-261029	SCREW, BND+
209	2327-R0126042	SCREW, BND+
210	2347-300827	SCREW, BND T+
211	2347-R0120052	SCREW, BND T+
213	2347-R0126082	SCREW, BND T+
215	2342-260527	SCREW, PAN T+
219	2327-R0130082	SCREW, BND+
220	2440-7016	NUT, SPECIAL
221	3115-00201	TAPE PLAYER MECHA.
LCD101	5791-TP4K6011	LCD
LP1	5731-00501141	LAMP
LP2	5731-00402141	LAMP

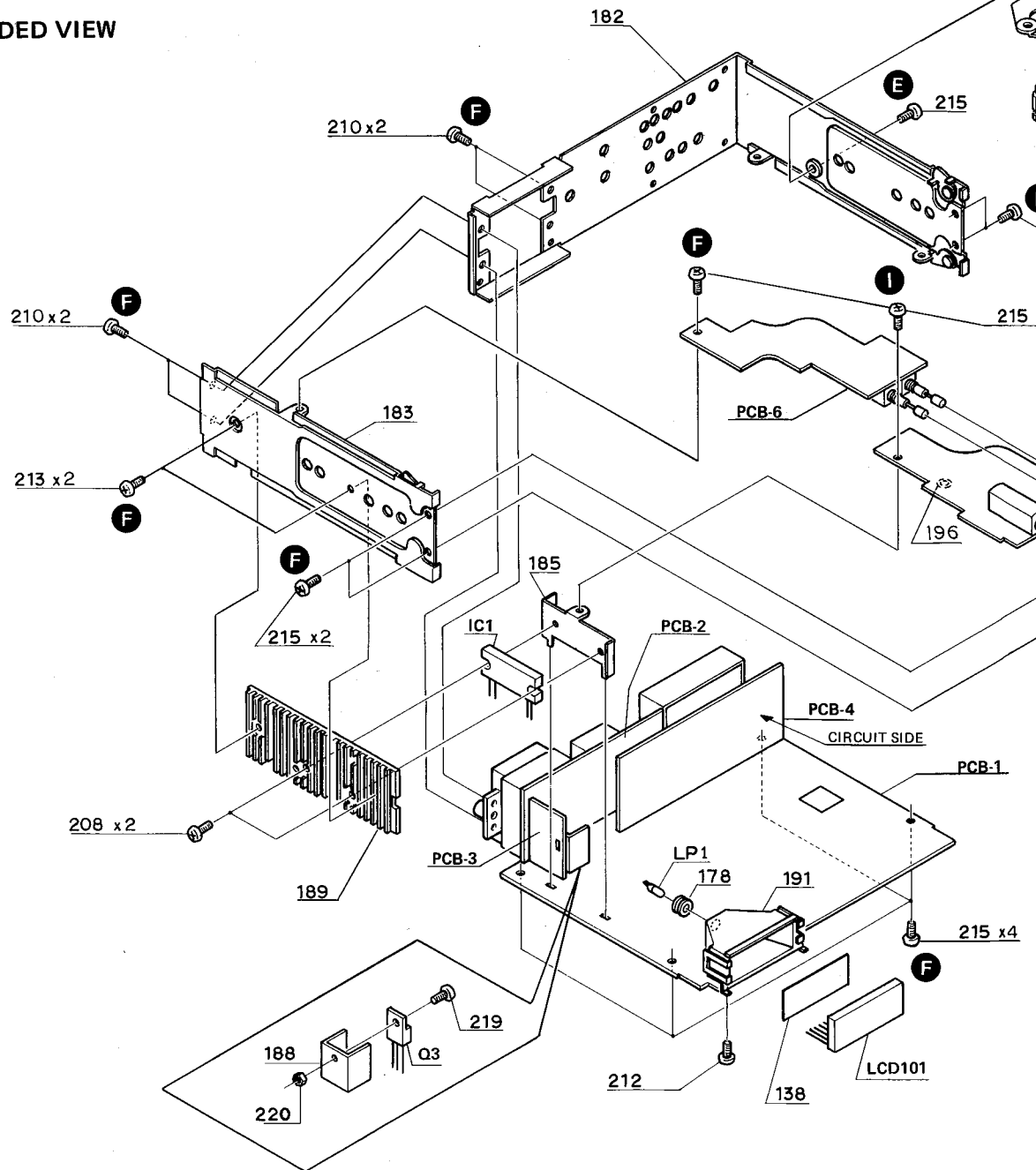
EXPLODED VIEW



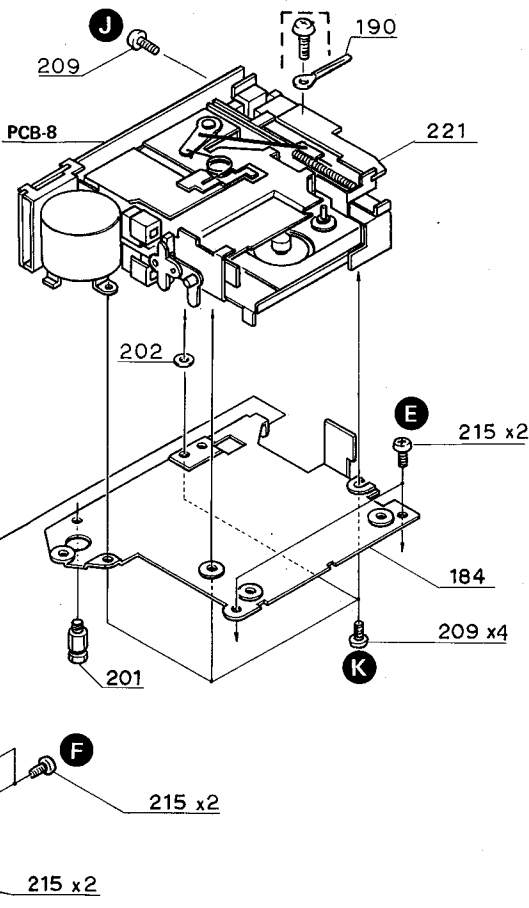
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153	1662-37603	PUSH BUTTON	204	2601-7152	SHAFT
154	1662-37604	PUSH BUTTON	205	2651-0000207	SPRING
155	1662-37605	PUSH BUTTON	206	2651-2101106	SPRING
156	1662-37606	PUSH BUTTON	212	2347-R0120052	SCREW, BND T+
157	1662-37701	PUSH BUTTON			

EXPLODED VIEW

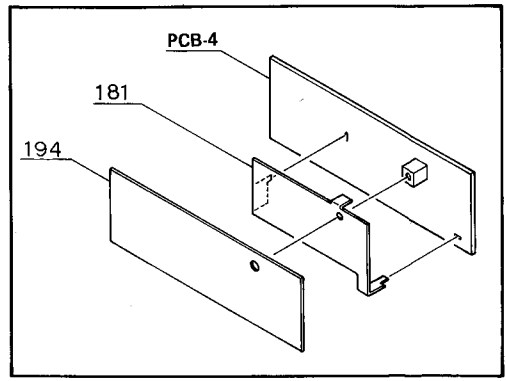
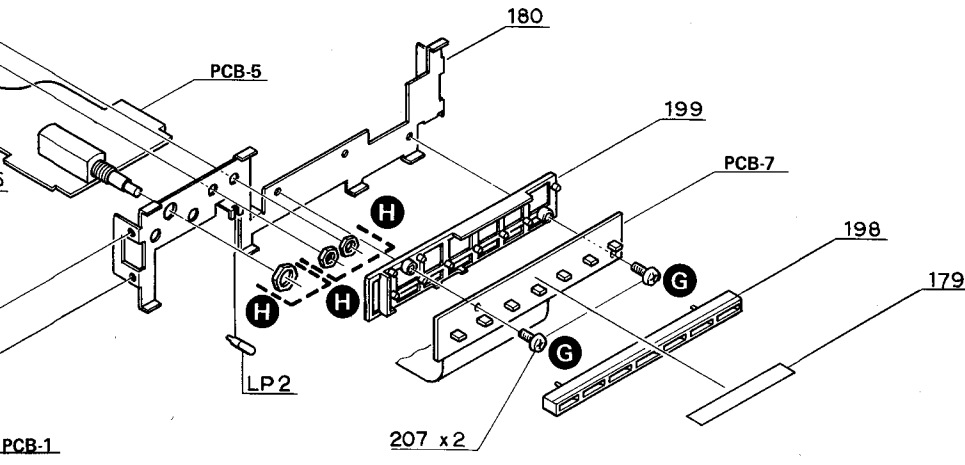


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PARTS LIST

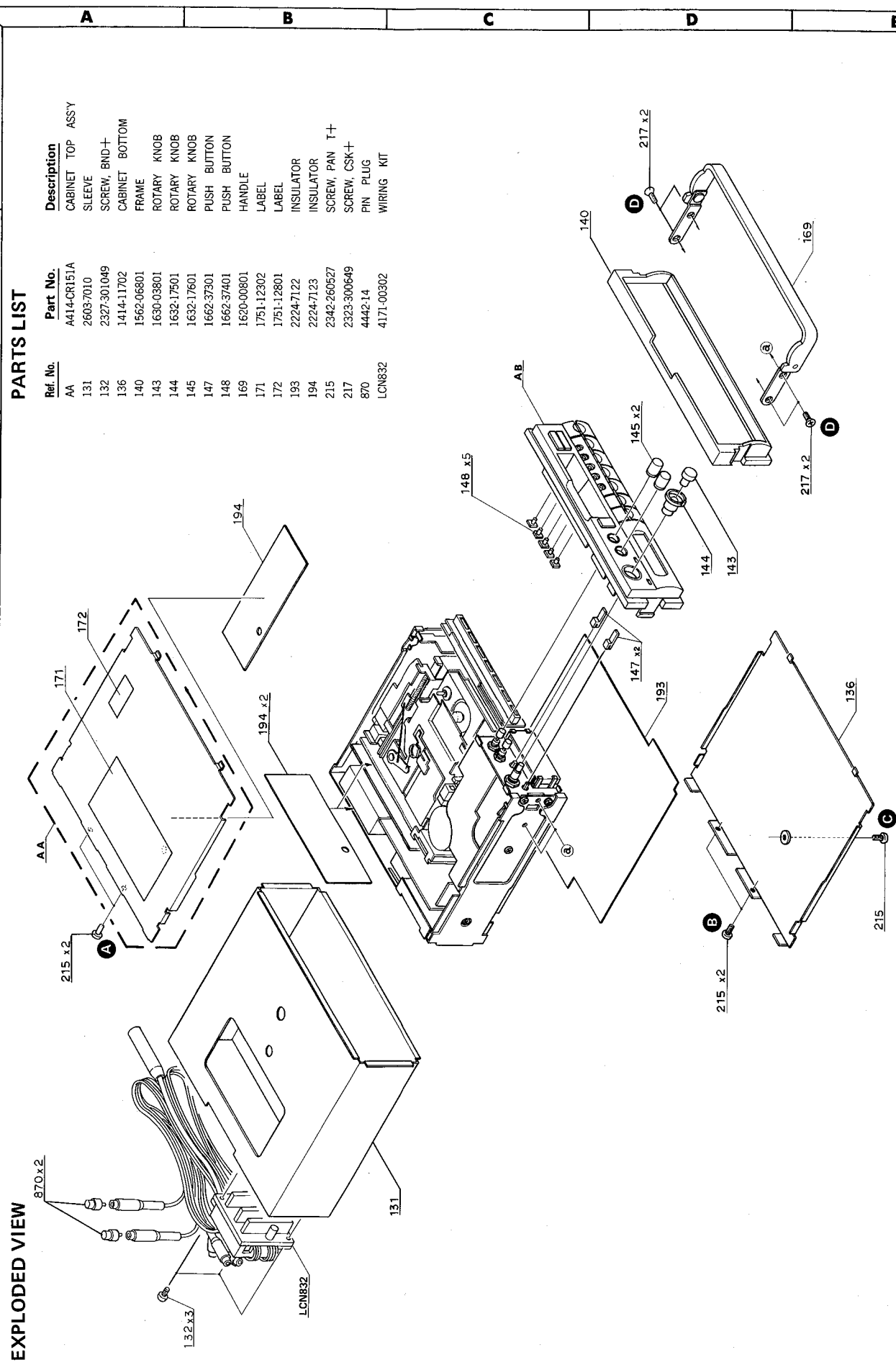
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211	2347-R0120052	SCREW, BND T+
213	2347-R0126082	SCREW, BND T+
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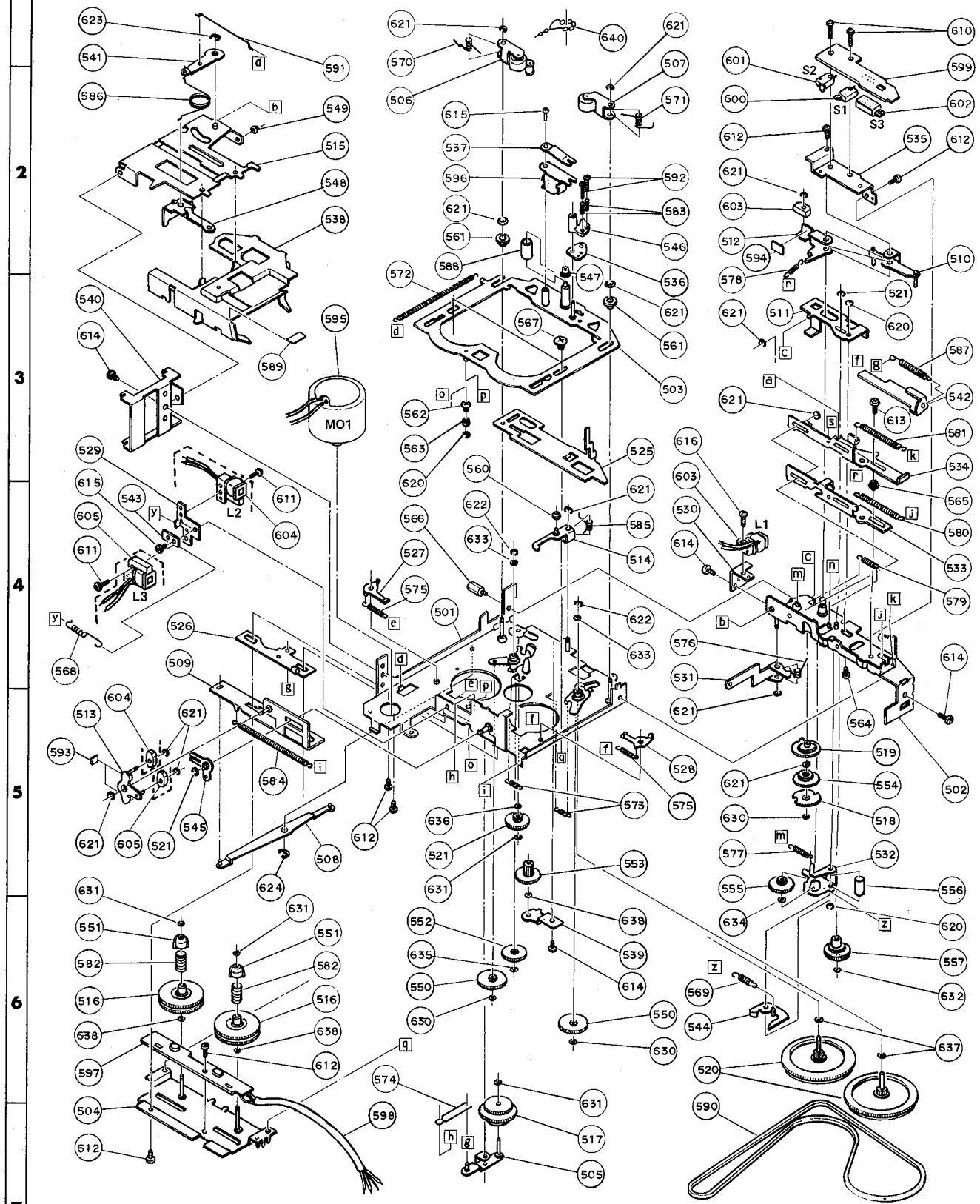
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PARTS LIST

Ref. No.	Part No.	Description
AA	A414-CR151A	CABINET TOP ASSY
131	2603-7010	SLEEVE
132	2327-301049	SCREW, BND+
136	1414-11702	CABINET BOTTOM
140	1562-06801	FRAME
143	1630-03801	ROTARY KNOB
144	1632-17601	ROTARY KNOB
145	1632-17601	ROTARY KNOB
147	1662-37301	PUSH BUTTON
148	1662-37401	PUSH BUTTON
169	1620-00801	HANDLE
171	1751-12302	LABEL
172	1751-12801	LABEL
193	2224-7122	INSULATOR
194	2224-7123	INSULATOR
215	2342-260527	SCREW, PAN T+
217	2323-300649	SCREW, CSK+
870	4442-14	PIN PLUG
LCN832	4171-00302	WIRING KIT



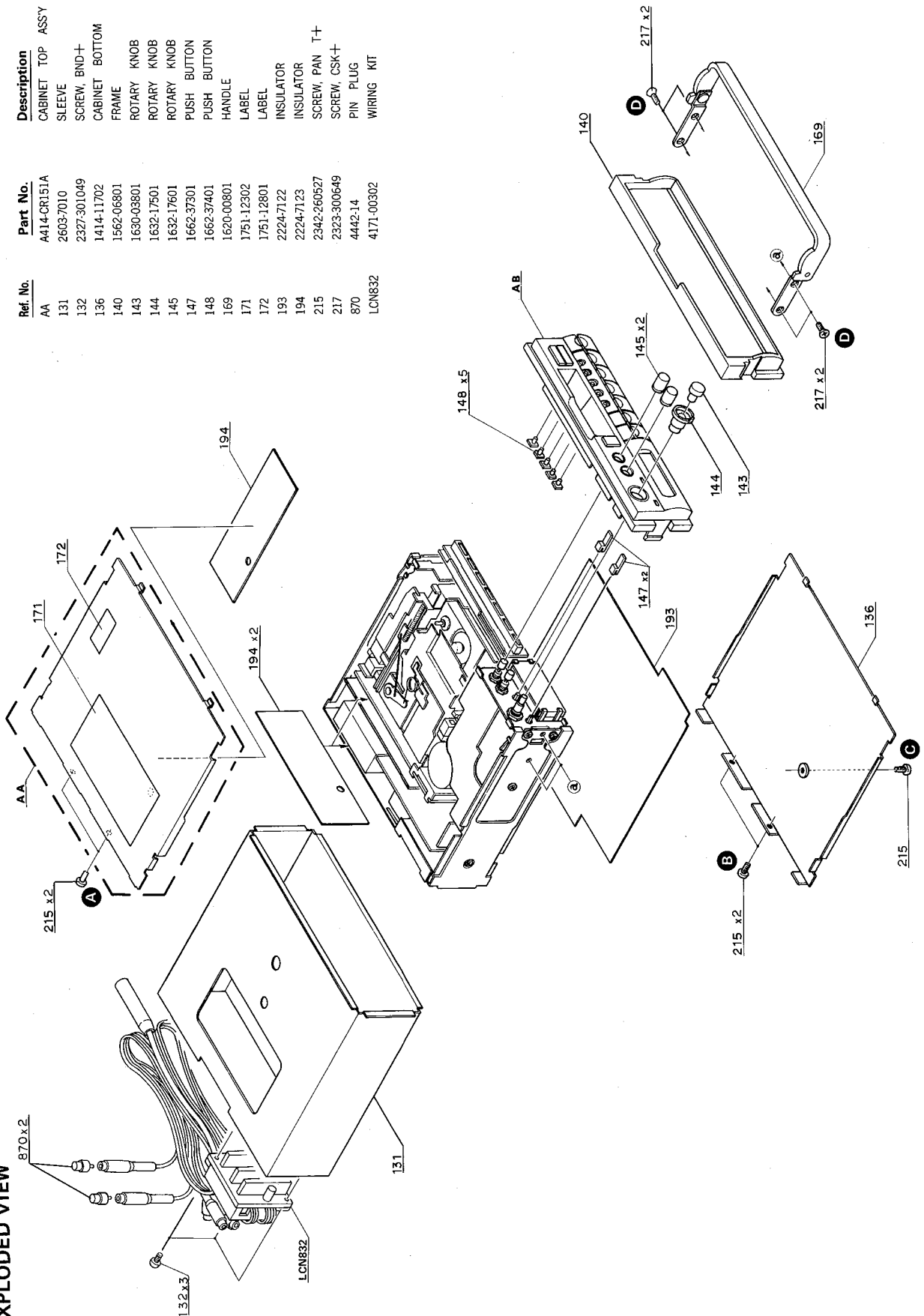
CASSETTE TAPE PLAYER MECHANISM EXPLODED VIEW



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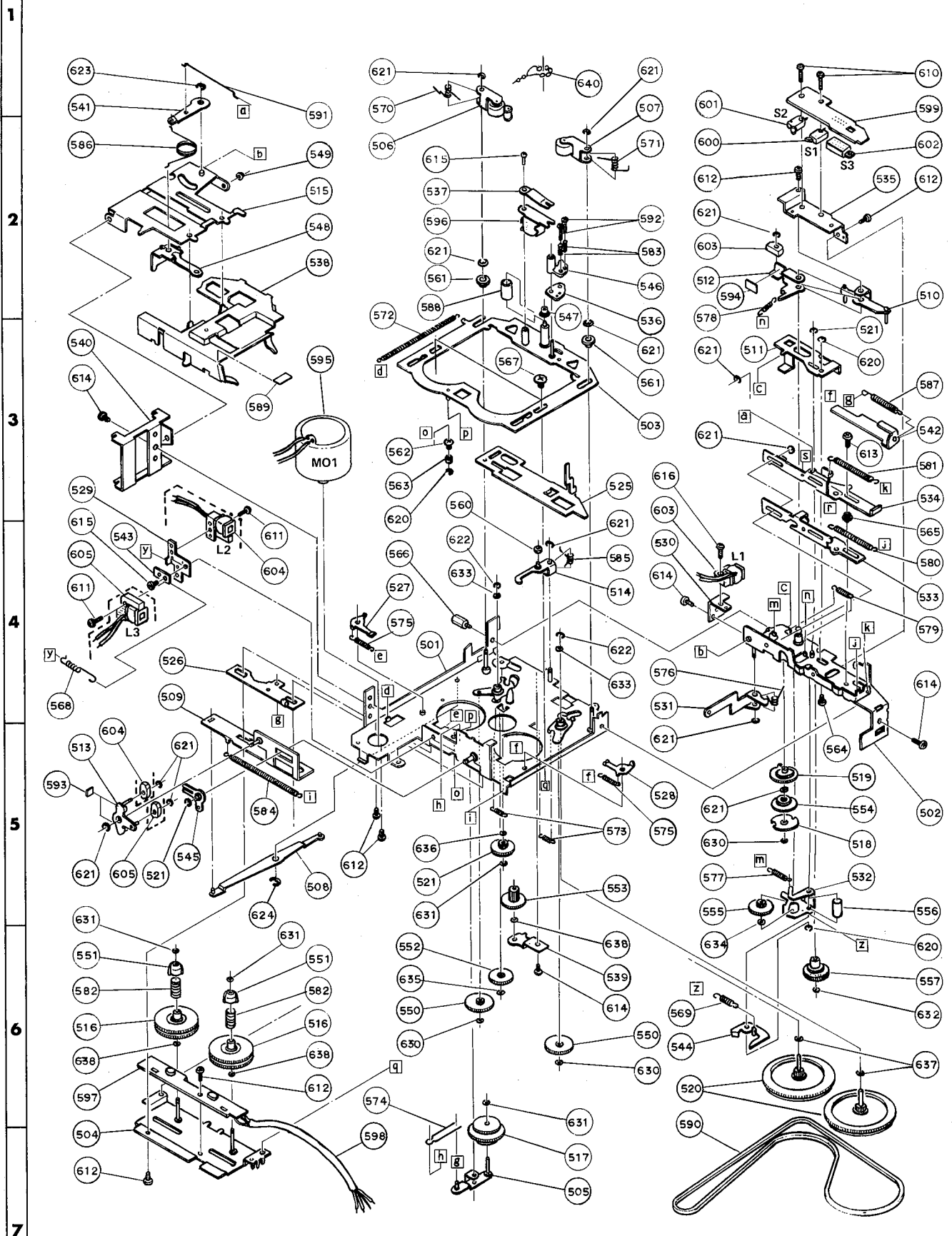
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145	1632-17601	ROTARY KNOB
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EXPLODED VIEW



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CASSETTE TAPE PLAYER MECHANISM EXPLODED VIEW



PARTS LIST

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
501	3-0050-100	MAIN CHASSIS ASS'Y	579	1-0050-409	STARTER SPG
502	3-0050-138	SUB CHASSIS ASS'Y (SNY)	580	1-0050-410	EJ/P SPG
503	3-0050-105	HEAD PLATE ASS'Y	581	1-0050-411	RESET/P SPG
504	3-0050-106	REEL BASE BRACKET ASS'Y	582	1-0050-412	SLEEVE SPG
505	3-0050-107	FF ARM ASS'Y	583	1-0050-415	AZIMUTH LOCK SPG
506	3-0050-108-5	PR ARM ASS'Y (F)	584	1-0050-416	POWER SPG
507	3-0050-109-5	PR ARM ASS'Y (R)	585	1-0050-417	TIMING ARM SPG
508	3-0050-110	POWER ARM ASS'Y	586	1-0050-418	REVERSE SPG
509	3-0050-111	MODE PLATE ASS'Y	587	1-0050-420	SLIDE PLATE SPG
510	3-0050-117	SELECT ARM ASS'Y	588	1-0050-519	TUBE
511	3-0050-118	POWER PLATE ASS'Y	589	1-0010-509	CH CUSHION
512	3-0050-119	CHIP ARM ASS'Y	590	1-0050-501	BELT
513	3-0050-128	T CRANK ASS'Y	591	1-0050-502	OVER CENTER ROD
514	3-0050-129	TIMING ARM ASS'Y	592	1-0050-503	AZIMUTH SCREW
515	3-0050-130	HOUSING ARM ASS'Y	593	1-0050-508	SPACER (T)
516	1-0050-223-5	REEL BUSH ASS'Y (PH)	594	1-0050-513	CUSHION
517	1-0050-617	FF GEAR ASS'Y	595	3-0050-705	MOTOR ASS'Y (MO1)
518	3-0050-219	RVS GEAR ASS'Y	596	3-0150-783-40	HEAD ASS'Y
519	3-0050-221	EJ GEAR ASS'Y	597	3-0050-721	SW P.W.B ASS'Y (PH1, 2)
520	1-0050-600	FLYWHEEL ASS'Y	598	1-0050-729	WIRE (PH)
521	1-0050-222	TENSION PULLEY	599	1-0050-711	MAIN P.W.B
525	1-0050-112	RVS PLATE	600	1-0050-749	LEAF SW (MLS-2AU) (S2)
526	1-0050-113	FF PLATE	601	1-0050-750	LEAF SW (MLS-4AU) (S1)
527	1-0050-114	BRAKE PLATE (F)	602	1-0025-704	SLIDE SW (S3)
528	1-0050-115	BRAKE PLATE (R)	603	1-0050-710	PLUNGER (DM05-200) (L1)
529	1-0050-146	PLUNGER BRACKET (AT)	604	1-0150-777-20	PLUNGER (DM05-200AC) (L2)
530	1-0050-120	PLUNGER BRACKET (B)	605	1-0150-777-40	PLUNGER (DM05-200BC) (L3)
531	1-0050-121	TRIGGER PLATE	610	2-101F-070-H2	+MACHINE SCREW #1 PLAIN M1.7 x 7
532	1-0050-122	RVS TRIGGER	611	2-1032-050-H2	+MACHINE SCREW #3 PLAIN M2 x 5.5
533	1-0050-123	EJ PLATE	612	2-1112-030-B1	+BIND SCREW M2 x 3
534	3-0050-124	RESET PLATE ASS'Y	613	2-1112-050-B1	+BIND SCREW M2 x 5
535	1-0050-125	SWITCH BRACKET	614	2-111L-030-B1	+BIND SCREW M2.6 x 3
536	1-0050-126	ADJUSTER SHIM	615	2-1112-040-B1	+BIND SCREW M2 x 4
537	1-0050-127	AZIMUTH PLATE SPG	616	1-0050-510	SCREW M2 x 5 P=0.25
538	1-0050-131	CASSETTE HOUSING	620	2-171B-030-06	E-RING ϕ 1.2
539	1-0050-132	GEAR SHAFT GUIDE	621	2-171D-040-06	E-RING ϕ 1.5
540	1-0050-133	BRACKET	622	2-171K-032-96	E-RING ϕ 1.6 x ϕ 3.2
541	1-0050-134	OVER CENTER PLATE	623	2-171K-060-06	E-RING ϕ 2.5
542	1-0050-141	SLIDE PLATE	624	2-1713-070-06	E-RING ϕ 3
543	1-0050-147	PLUNGER DEADEN SHOCK PLATE	630	2-1812-030-D2	ϕ 1.2 x ϕ 3 x t0.25 W/N
544	1-0050-153	RVS TRIGGER ARM	631	2-1816-032-D2	POLYWASHER ϕ 1.6 x 3.2 x t0.25 W/N
545	1-0050-200	FF CRANK	632	2-1816-032-52	POLYWASHER ϕ 1.6 x ϕ 3.2 x t0.5 W/N
546	1-0050-201	AZIMUTH ARM	633	2-1821-035-31	POLYWASHER ϕ 2.1 x ϕ 3.5 x t0.3
547	1-0050-202	H/P ROLLER (C)	634	2-1821-040-D1	POLYWASHER ϕ 2.1 x ϕ 4 x t0.25
548	1-0050-204	CATCH	635	2-1821-040-D2	POLYWASHER ϕ 2.1 x ϕ 4 x t0.25 W/N
549	1-0050-205	H/A ROLLER	636	2-1821-050-D1	POLYWASHER ϕ 2.1 x ϕ 5 x t0.25
550	1-0050-206	IDLER GEAR	637	2-1821-035-D1	POLYWASHER ϕ 2.1 x ϕ 3.5 x t0.25
551	1-0050-210	REEL DRIVER	638	2-1821-040-41	POLYWASHER ϕ 2.1 x ϕ 4 x t0.4
552	1-0050-214	ϕ 15.2 GEAR	640	1-0050-512	WIRE CLAMPER
553	1-0050-215	INPUT GEAR			
554	1-0050-216	GEAR (A)			
555	1-0050-217	GEAR (B)			
556	1-0050-218	GEAR (C)			
557	1-0050-220	MODE GEAR			
560	1-0050-323	TIMING/A ROLLER			
561	1-0050-367	P.R SHAFT COLLAR			
562	1-0050-331	H/P ROLLER (A)			
563	1-0050-332	H/P ROLLER (B)			
564	1-0050-342	MODE ROLLER			
565	1-0050-343	SPACER			
566	1-0050-350	SPECIAL STUD			
567	1-0050-355	SCREW			
568	1-0050-422	DEADEN SHOCK PLATE SPG			
569	1-0050-424	RVS TRIGGER ARM SPG			
570	1-0050-400	PR ARM (F) SPG			
571	1-0050-401	PR ARM (R) SPG			
572	1-0050-402	H/P SPG			
573	1-0050-403	IDLER SPG			
574	1-0050-404	FF ARM SPG			
575	1-0050-405	BRAKE SPG			
576	1-0050-406	TRIGGER SPG			
577	1-0050-407	RVS/T SPG			
578	1-0050-408	CHIP ARM SPG			

ALIGNMENT PROCEDURES (REFER TO PAGES 23 ~ 27)

■ ELECTRICAL ADJUSTMENT

1. Before adjustment

- Connect a 14V power supply to the Power Supply Lead (+ACC, +B and GND).
- Since head magnetization, dust accumulations, etc. are likely to introduce errors in the various characteristics, it is very important that the heads are properly demagnetized and cleaned before commencing any adjustment, particularly frequency response and head azimuth adjustment.

2. Instruments required

- Low frequency oscillator
- AC VTVM or dual channel AC VTVM
- Digital volt meter
- Oscilloscope
- Frequency counter

3. Test tapes

- Dolby NR level adjustment MTT-150 or TCC-130
- Azimuth adjustment TCC-153
- Playback frequency characteristic adjustment TCC-162C (NORMAL) TCC-262 (METAL)
- Music Search operation confirmation MTT-250B or MTT-112SP

4. Standard load

- Connect the resistor (10kΩ) and the capacitor (1000pF) to the line output.
- Standard output 200mV

FM Signal Generator	1kHz, 100% modulation
Stereo Modulator	L+R=45.5%, L-R=45.5%, 19kHz=9%

■ TUNER SECTION

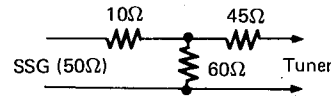
Step	Alignment	Connection Equipments	Mode	Measurement Frequency	Station Display	Adjustment	For
1	IF	<ul style="list-style-type: none"> ● Connect the FM Signal Generator to the Antenna jack through the FM dummy antenna. ● Connect Oscilloscope, Distortion Meter and AC Voltmeter to the line output. 	FM	98.1MHz (17dBf)	98.1MHz	T601	Maximum output
2				98.1MHz (65dBf)	98.1MHz	VR601	Minimum distortion
3				98.1MHz (65dBf)	98.1MHz	T601	Connect the digital Voltmeter to TP1 and TP2 on PCB-4. Adjust so that the reading of the digital Voltmeter is 0±25mV.
4	Sub-Carrier rejection	<ul style="list-style-type: none"> ● Connect the Stereo Modulator to FM Signal Generator. Connect the FM Signal Generator to the Antenna jack through the FM dummy antenna. 	FM Stereo	98.1MHz (65dBf)	98.1MHz	VR604	Minimum output at 19kHz pilot signal only by Stereo Modulator
5	Separation	<ul style="list-style-type: none"> ● Connect Oscilloscope, Distortion Meter and AC Voltmeter to the line output. 	FM Stereo	98.1MHz (71dBf)	98.1MHz	VR603	Adjust so that the right channel output becomes minimum when only the left channel of the Stereo Modulator is modulated
						VR603	Adjust so that the left channel output becomes minimum when only the right channel of the Stereo Modulator is modulated.
6				98.1MHz (51dBf)	98.1MHz	VR602	Adjust so that the Separation becomes 30dB
7				Repeat Step 5.			
8				Repeat Step 6 for optimum separation.			

5. General conditions (unless otherwise noted).

CONTROLS AND SWITCHES	SETTINGS
Balance	center
Bass	center
Treble	center
Fader	center
Dolby NR	off
ME	off
MS	off
MTL	off
Loudness	off
Ext. loop	Local
Mono	off

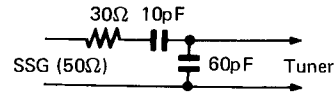
6. Dummy antenna

● FM:IHF



Measurement at receiver input level interm of available power.

● AM:IEC



Measurement at SSG terminal voltage (open).

■ TAPE SECTION

Step	Alignment	Connection Equipments	Test Tape	Mode	Adjustment	For
1	Dolby NR level	● Connect the AC VTVM or dual channel AC VTVM to TP3 (Lch), TP4 (Rch) and ground.	MTT-150 or TCC-130	PB	VR201 (L ch) VR202 (R ch)	245mV
2	Azimuth	● Connect the AC VTVM or dual channel AC VTVM to the line output.	TCC-153	PB	Azimuth screw	Maximum output (Refer to the next page for the details.)
3	Playback frequency characteristic		TCC-162C (NORMAL) TCC-262C (METAL)	PB	VR203 (L ch) VR204 (R ch)	Check if the specification is satisfied and if not, adjust as specified.
4	Music search (confirmation)		MTT-250B or MTT-112SP			Check to make sure that the music search operates properly.

HEAD REPLACEMENT AND ADJUSTMENT

1 Head replacement

1. Remove the Cassette Tape Player Mechanical Assembly from the main unit according to the disassembly procedure.
2. Remove the 1 screw (A) and the Gear Shaft Guide. (See Fig. 1)
3. Remove (B) portion of the spring.
4. Remove the 2 screws (C) and the 1 screw (D) and remove the PCB-8, the Housing Assembly, Housing Arm Assembly and Frame Assembly, and then replace the head.

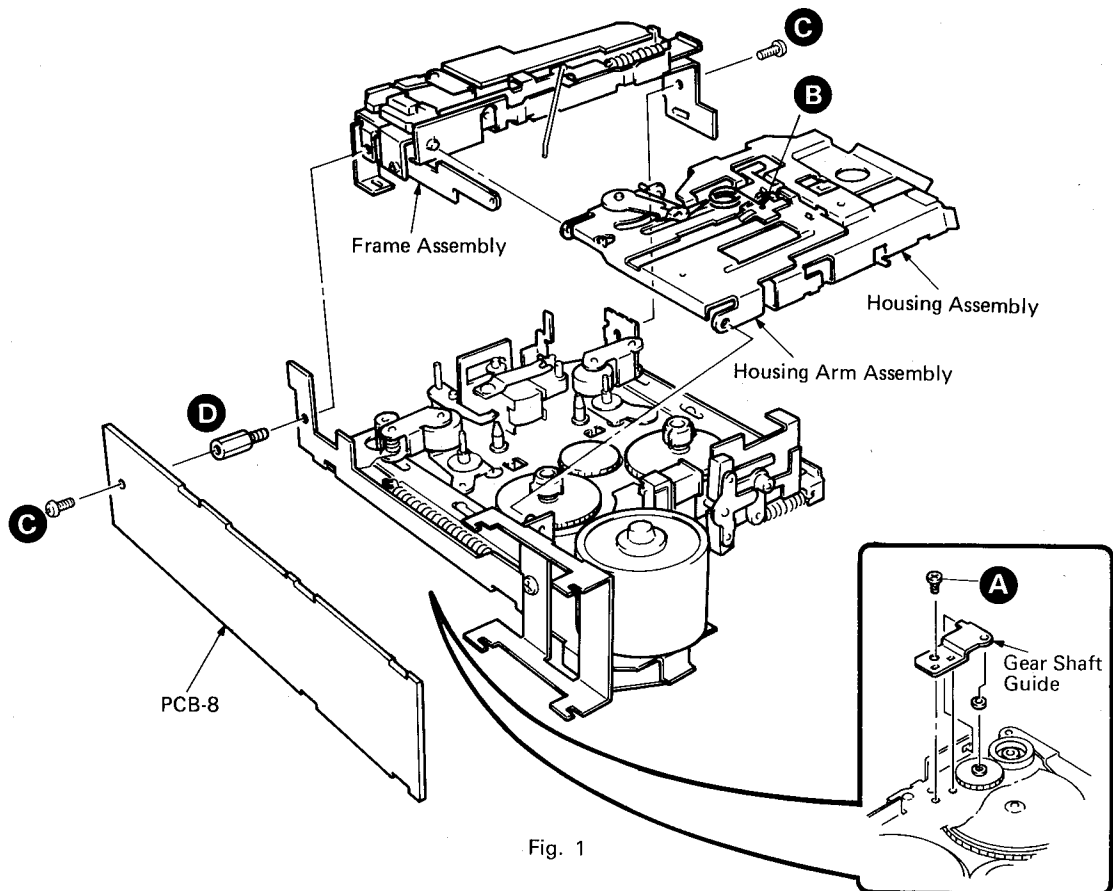


Fig. 1

2 Azimuth adjustment

- Adjust the azimuth upon completion of the main unit assembly (with both upper and lower covers installed).
1. Connect the power source (DC14V) to the power supply lead to make the main unit ready to operate.

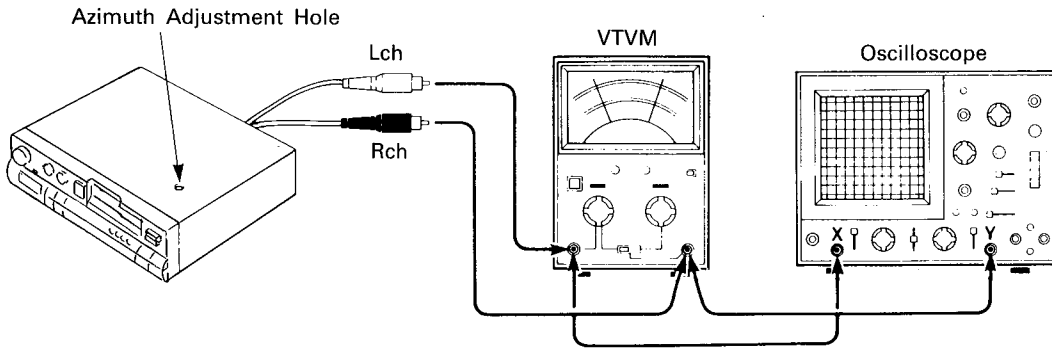


Fig. 2

2. Connect the dual channel AC VTVM and 2ch oscilloscope to the line output.
 3. Play back the test tape (TCC-153) and adjust the azimuth screw with a phillips screwdriver inserted into the azimuth adjustment hole in the upper cover. Adjust so that the same maximum VTVM value is indicated on both left channel and right channel and also so that the phase is within $0^\circ \pm 90^\circ$ while watching the lissajous's waveform.
- NOTE:** This adjustment needs in both forward and reverse directions.

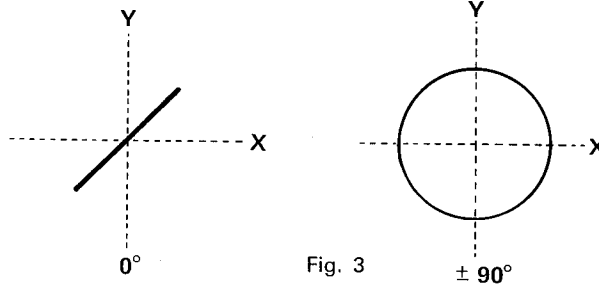
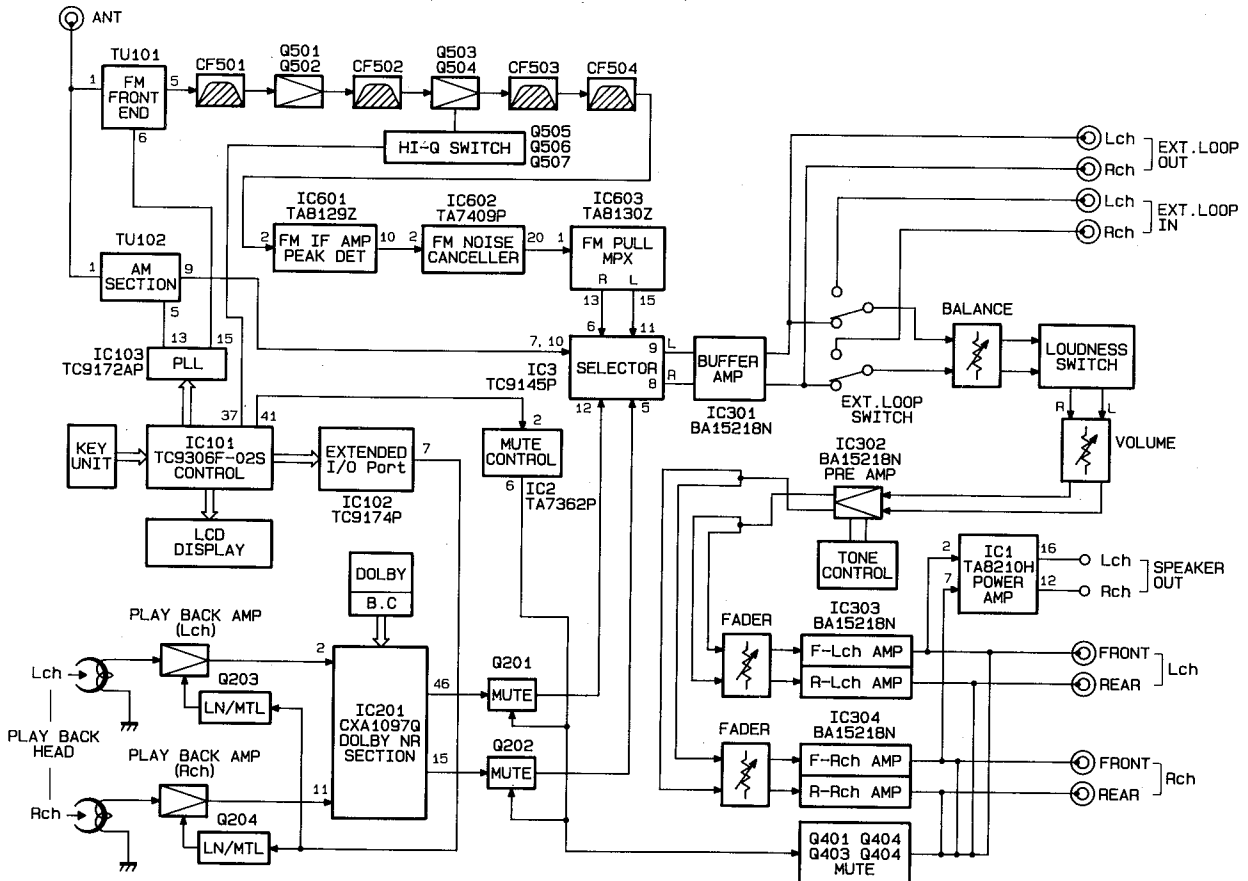


Fig. 3

BLOCK DIAGRAM



CIRCUIT DESCRIPTION

● FM Signal

The signal sent from the antenna is high frequency amplified in the front end (TU101), combined with the output of the local oscillator, converted into a signal of 10.7MHz intermediate frequency and output from pin 5. The 10.7MHz signal is amplified in the intermediate frequency amplifier consisting of CF501, Q501, Q502, CF502, Q503, Q504, CF503 and CF504 (CF503, CF504 ARE ENGAGED ONLY WHEN THE UNIT IS IN HI-Q MODE) and fed to pin 2 of IC601. There, it passes through the sextuple IF amplifier and is detected by differential peak detector and come out from pin 10 after passing through the AF amplifier. Then it is fed to pin 2 and come out from pin 20 of the noise canceller IC (IC602) and again fed to pin 1 of IC603. IC603 detects pilot signal from the signal which has been fed and produces 38kHz signal, whereby the stereo signal is demodulated and sent out from pin 13 for the right channel and pin 15 for the left into the selector.

● AM Signal

The signal fed from the antenna is tuned, high frequency amplified, combined, intermediate frequency amplified and detected in the AM section (TU102) and sent out from pin 9 into the selector.

● Muting Circuit

When tuning frequency is being scanned or preset channel is changed, pin 41 of IC101 becomes high level and Q107 turns ON. Then the output of the AM section is muted and at the same time, a high level is supplied to pin 2 of IC2, which causes pin 6 of IC2 to become low level and Q2, Q401 (front-L ch), Q402 (front-R ch), Q403 (rear-L ch), Q404 (rear-R ch) to turn ON. And thus the input lines of the power amplifier and pre output lines are muted.

● Muting While Operating Tape

When the operation is in FF or REW mode and tuner switch is off, cathode of D15 becomes high level. As the high level signal is supplied to pin 2 of IC2, its pin 6 becomes low level, and Q2, Q401 (front-L ch), Q402 (front-R ch), Q403 (rear-L ch), Q404 (rear-R ch) turn ON. As a result, the input lines of the power amplifier and pre output lines are muted and at the same time, Q201 (L ch) and Q202 (R ch) turn ON and thus the playback amplifier is also muted.

When tuner switch is on in FF or REW mode, Q9 turns on and anode of D15 becomes low level to disable muting. At the same time, Q10 turns on and Q11 and Q8 turn off to switch the SELECTOR into tuner mode. As a result, tuner sound come out.

● Playback Signal

The signal sent from the playback head is amplified by the playback amplifier consisting of IC201, and fed to pin 2 (L ch) and pin 11 (R ch) of IC201. After passing through the dolby circuit (B/C) in IC201, the signal is sent out from pin 46 (L ch), and pin 15 (R ch) into the selector.

TERMINAL FUNCTIONS

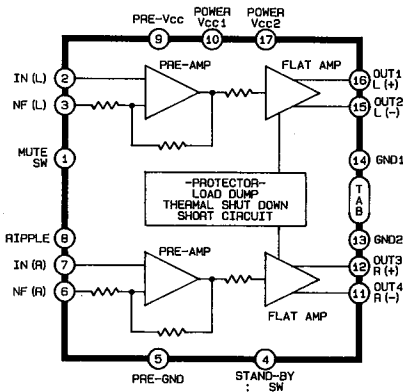
IC number	Terminal number	Port name	Terminal code	I/O	Outline of functions	
					Segment name COM1	Segment name COM2
IC101	1	S7	S7	O	Received frequency display	Point 2 on level meter
	2	S8	S8	O	Received frequency display	Received frequency display
	3	S9	S9	O	Point 1 on level meter	Received frequency display
	4	S10	S10	O	Received frequency display	Received frequency display
	5	S11	S11	O	Received frequency display	Received frequency display
	6	S12	S12	O	Received frequency display	Received frequency display
	7	S13	S13	O	Received frequency display	Received frequency display
	8	S14	S14	O	Received frequency display	Received frequency display
	9	S15	S15	O	Received frequency display	Received frequency display
	10	S16	S16	O	Received frequency display	Received frequency display
	11	S17	S17	O	Received frequency display	Received frequency display
	12	S18	S18	O	Received frequency display	Received frequency display
	13	S19	S19	O	Received frequency display	Received frequency display

IC number	Terminal number	Port name	Terminal code	I/O	Outline of functions	
					Segment name COM1	Segment name COM2
IC101	14	S20	S20	O	Received frequency display	Received frequency display
	15	S21	S21	O	Received frequency display	Received frequency display
	16	S22	S22	O	Point 5 on level meter	Store mode (MEMORY)
	17	S23	S23	O		Received frequency display
	18	S24	S24	O	Received frequency display	Received frequency display
	19	S25	S25	O	MW band	FM stereo
	20	S26	S26	O	MW band	FM band
	21	S27	S27	O	LW band	SW band
	22	COM1	COM1	O	Common 1	
	23	V _{DD}	V _{DD}	I	Power supply	
	24	K0	K0	I	Key input	
	25	K1	K1	I	Key input	
	26	K2	K2	I	Key input	
	27	K3	K3	I	Key input	
	28	T0	T0	O	Key timing output	
	29	T1	T1	O	Key timing output	
	30	T2	T2	O	Key timing output	
	31	T3	T3	O	Key timing output	
	32	T4	T4	O	Key timing output	
	33	T5	T5	O	Key timing output	
	34	T6	T6	O	Key timing output	
	35	P3-2	AD IN	I	AD IN signal strength display input	
	36	P3-1	VREF	I	AD IN reference voltage input	
	37	P2-4	LOCAL IF	O	LOCAL DX select control output (FM, MW, LW)	
	38	P2-3	MONO	O	Forced output of mono control (FM mode only)	
	39	P2-2	AUTO-STOP	I	Stop signal input	
	40	P2-1	R-I	I	Remote control serial data input	
	41	MUTE	MUTE	O	Mute output	
	42	STB	STB	I	Strobe signal input	
	43	CK	CK	I	Serial clock signal input	
	44	SO	SO	O	Serial data output	
	45	SI	SI	I	Serial data input	
46	REF	REF	I	Reference frequency input		

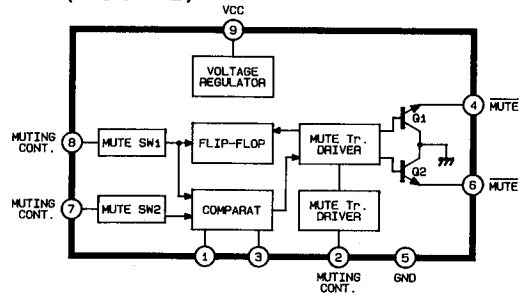
IC number	Terminal number	Port name	Terminal code	I/O	Outline of functions	
					Segment name COM1	Segment name COM2
IC101					Segment name COM1	Segment name COM2
	47	$\overline{\text{INT}}$	$\overline{\text{INT}}$	I	Initialize input terminal	
	48	$\overline{\text{INH}}$	$\overline{\text{INH}}$	I	Normal mode (H level) Inhibit mode (L level)	
	49	TEST	TEST	I	Test terminal	
	50	XT	XT	O	Clock output	
	51	$\overline{\text{XT}}$	$\overline{\text{XT}}$	O	Clock output	
	52	GND	GND	—	GND pin	
	53	V _{DD}	V _{DD}	I	Power supply	
	54	COM2	COM2	O		Common 2
	55	S1	S1	O	Preset ch	Received frequency display
	56	S2	S2	O	Received frequency display	Received frequency display
	57	S3	S3	O	Received frequency display	Received frequency display
	58	S4	S4	O	Received frequency display	Received frequency display
	59	S5	S5	O	Point 4 on level meter	FM/SW unit
60	S6	S6	O	Point 3 on level meter	MW/LW unit	
IC103	1	GND	GND	I	GND terminal	
	2	REF	Reference frequency	I	Input signal (reference frequency) is supplied from controller side. Built-in amplifier, C coupling, small amplitude.	
	3	SI	Serial input	I/O	Serial I/O port Set divide order and divide means, data for control IF counter and I/O port transmit and receive between controller and this terminal. SI, CK, STB=schmidt trigger input.	
	4	CK	Clock signal input			
	5	STB	Strove signal input			
	6	FM	Output port	O	General purpose output port, use high frequency selector and control signal output.	
	7	AM				
	8	LOCAL				
	9					
	10	Phase Comp. Output	Phase comparater output	O	Tri-state output of phase comparater, is parallel output.	
	11					
	12	TEST	Test terminal	I	Test mode control input, with built-in pull down resistor. Normally, this terminal use "open" "or" "GND".	
	13	AM _{IN}	AM local osc. input	I	Programable counter input, when AM band. Built-in amplifier, C coupling, small amplitude.	
	14	GND	Pre scaler section GND	I	Built-in pre scaler GND terminal.	
	15	FM _{IN}	FM local osc. input	I	Pre scaler input, when FM band. Built-in amplifier (f max=120 MHz), C coupling, small amplitude.	
	16	V _{DD}	Power supply	I	Voltage supply (5V ±10%)	

IC BLOCK DIAGRAM

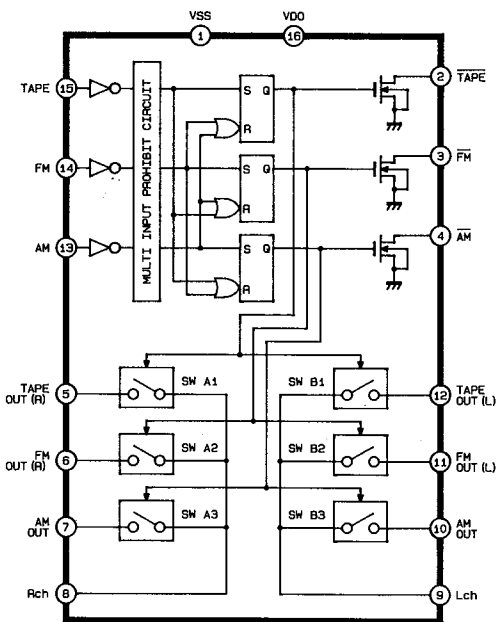
**IC1
TA8210H
(POWER AMP)**



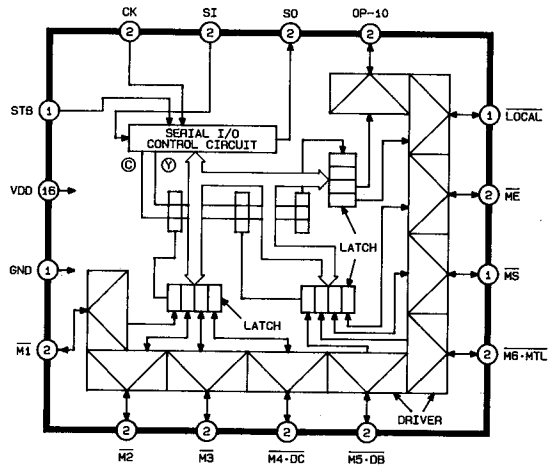
**IC2
TA7362P
(MUTING)**



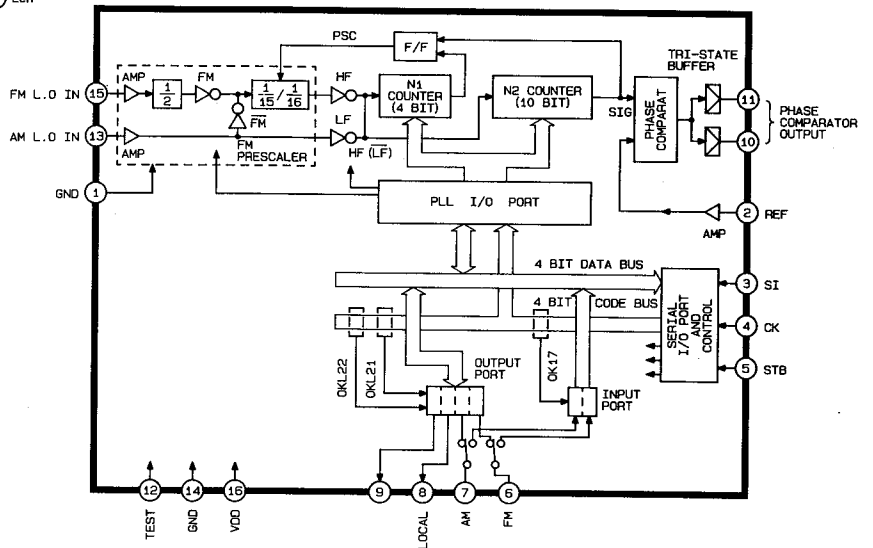
**IC3
TC9145P
(SIGNAL SELECTOR)**



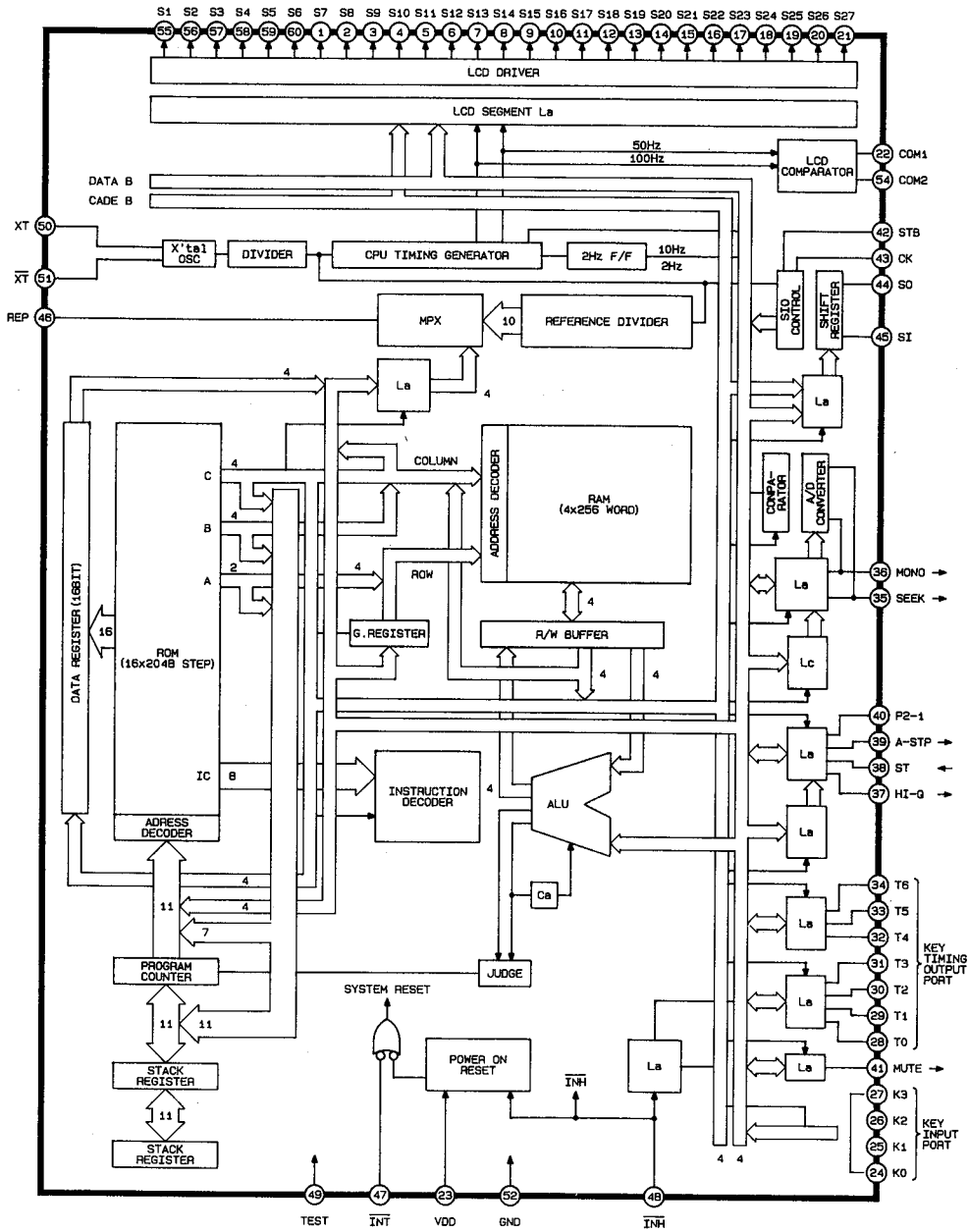
**IC102
TC9174P
(EXTENDED OUTPUT PORT)**



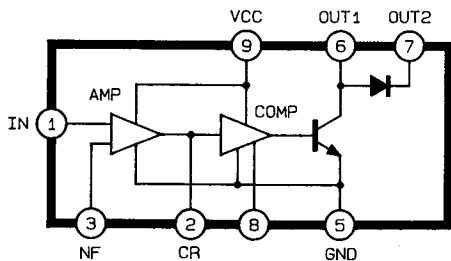
**IC103
TC9172AP
(PLL, PRE SCALER)**



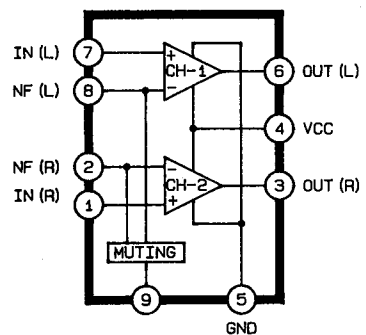
IC101
TC9306F-025
(DIGITAL TUNING SYSTEM CONTROLLER)



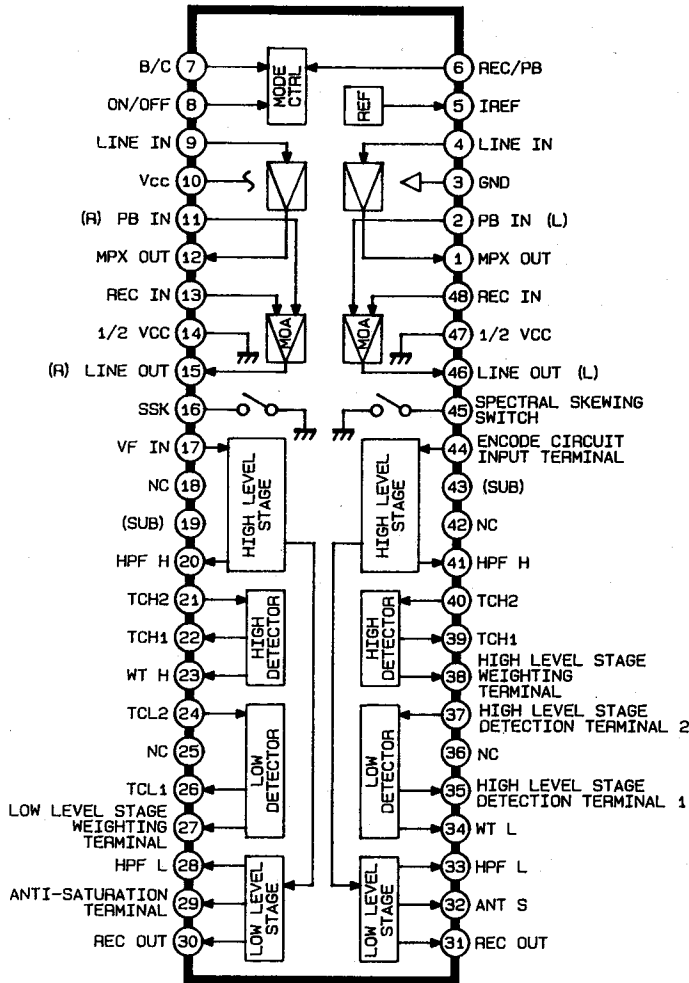
IC203
LA2000
(MUSIC SERCH)



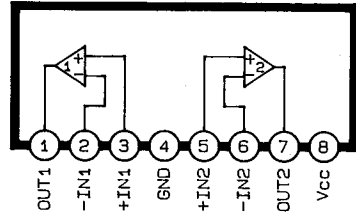
IC204
TA7325P
(PLAY BACK AMP)



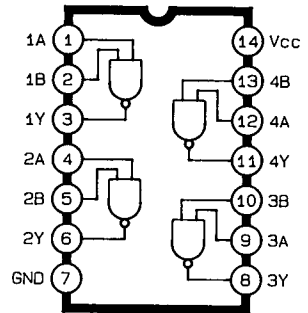
IC201
CXA1097Q
(DOLBY B/C NR)



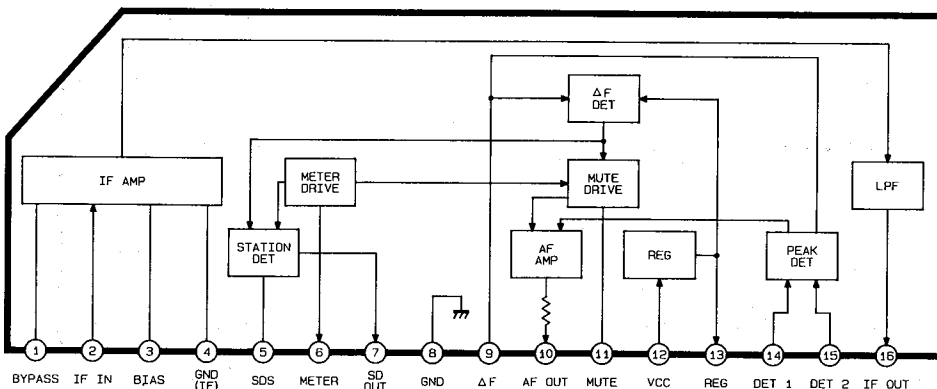
IC301 IC302
IC303 IC304
BA15218N
(OP AMP)



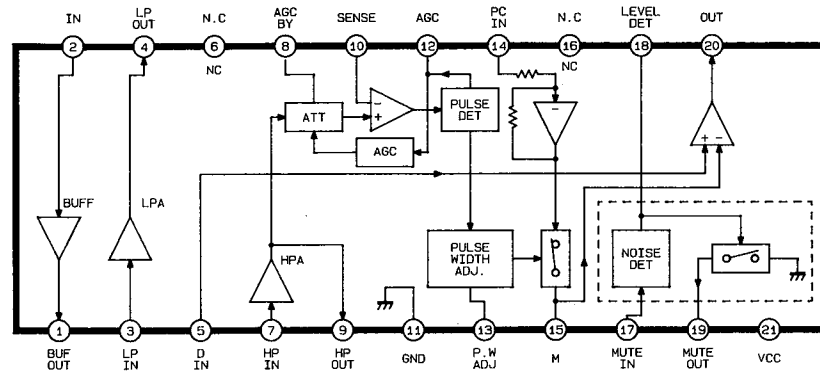
IC702
TC74HC00P/F
(QUAD NAND GATE)



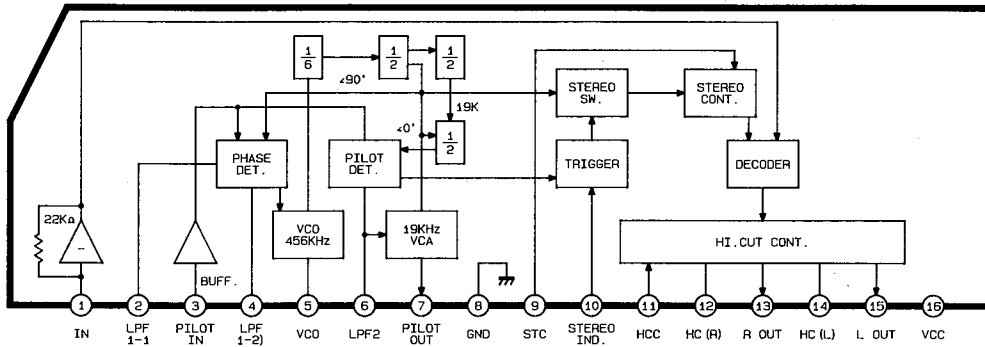
IC601
TA8129Z
(FM IF AMP, PEAK DET)



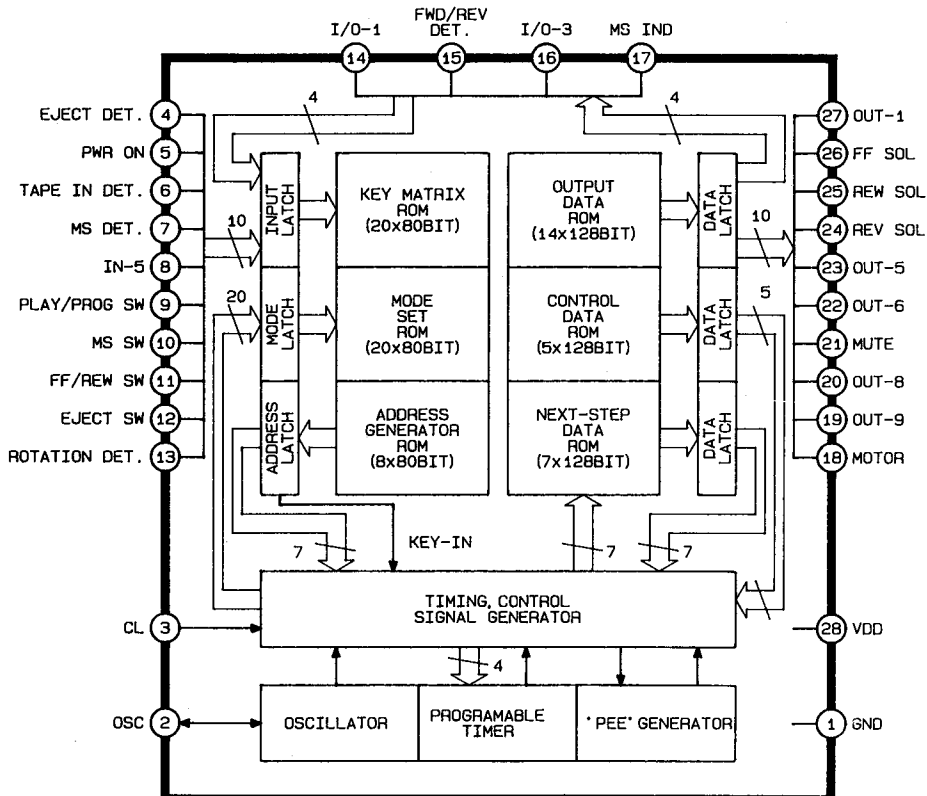
**IC602
TA7409P
(FM NOISE CANCELLER)**



**IC603
TA8130Z
(FM PLL MPX)**



**IC701
TC9310-036
(TAPE TRANSPORT CONTROLLER)**



ELECTRICAL PARTS LIST

Ser. No.	Ref. No.	Part No.	Description	Ser. No.	Ref. No.	Part No.	Description
PCB-1 MAIN P.C. BOARD							
CAPACITORS							
637	C1	5354-S010J124	CAP, MYL .12 μ	671	C227	5345-106C0356	CAP, MINI ELE 10 μ /16V
637	C2	5354-S010J124	CAP, MYL .12 μ	671	C228	5345-106C0356	CAP, MINI ELE 10 μ /16V
636	C3	5354-S010J124	CAP, MYL .12 μ	676	C229	5359-S040J183	CAP, PPP .018 μ
636	C4	5354-S010J124	CAP, MYL .12 μ	676	C230	5359-S040J183	CAP, PPP .018 μ
626	C5	5345-476C0356	CAP, MINI ELE 47 μ /16V	672	C231	5345-107A0356	CAP, MINI ELE 100 μ /6.3V
626	C6	5345-476C0356	CAP, MINI ELE 47 μ /16V	672	C232	5345-107A0356	CAP, MINI ELE 100 μ /6.3V
633	C7	5345-336B0356	CAP, MINI ELE 33 μ /10V	671	C233	5345-106C0356	CAP, MINI ELE 10 μ /16V
633	C8	5345-336B0356	CAP, MINI ELE 33 μ /10V	671	C234	5345-106C0356	CAP, MINI ELE 10 μ /16V
635	C9	5359-S040K151	CAP, PPP 150p	675	C235	5359-S040K101	CAP, PPP 100p
635	C10	5359-S040K151	CAP, PPP 150p	675	C236	5359-S040K101	CAP, PPP 100p
624	C11	5345-227B0962	CAP, MINI ELE 220 μ /10V	723	C237	5345-225F0356	CAP, MINI ELE 2.2 μ /50V
623	C12	5345-S04CM108	CAP, MINI ELE 1000 μ /16V	723	C238	5345-225F0356	CAP, MINI ELE 2.2 μ /50V
631	C13	5345-476C0356	CAP, MINI ELE 47 μ /16V	698	C240	5345-474F0356	CAP, MINI ELE .47 μ /50V
628	C14	5345-107A0356	CAP, MINI ELE 100 μ /6.3V	699	C241	5345-224F0356	CAP, MINI ELE .22 μ /50V
628	C15	5345-107A0356	CAP, MINI ELE 100 μ /6.3V	700	C242	5345-475F0356	CAP, MINI ELE 4.7 μ /50V
625	C16	5345-475D0356	CAP, MINI ELE 4.7 μ /25V	701	C243	5345-476C0356	CAP, MINI ELE 47 μ /16V
623	C17	5345-S04CM108	CAP, MINI ELE 1000 μ /16V	728	C244	5345-107B0356	CAP, MINI ELE 100 μ /10V
622	C18	5345-477B0962	CAP, MINI ELE 470 μ /10V	727	C245	5345-224F0356	CAP, MINI ELE .22 μ /50V
627	C19	5345-107B0356	CAP, MINI ELE 100 μ /10V	727	C246	5345-224F0356	CAP, MINI ELE .22 μ /50V
626	C20	5345-476C0356	CAP, MINI ELE 47 μ /16V	673	C247	5345-107B0356	CAP, MINI ELE 100 μ /10V
634	C23	5345-226C0356	CAP, MINI ELE 22 μ /16V	702	C250	5345-225F0356	CAP, MINI ELE 2.2 μ /50V
630	C24	5345-104F0356	CAP, MINI ELE .1 μ /50V	RESISTORS			
629	C25	5345-106C0356	CAP, MINI ELE 10 μ /16V	642	R1	5135-2R2522	RES, CBN 1/2P 2.2
632	C26	5345-106C0356	CAP, MINI ELE 10 μ /16V	642	R2	5135-2R2522	RES, CBN 1/2P 2.2
627	C27	5345-107B0356	CAP, MINI ELE 100 μ /10V	642	R3	5135-2R2522	RES, CBN 1/2P 2.2
632	C30	5345-106C0356	CAP, MINI ELE 10 μ /16V	642	R4	5135-2R2522	RES, CBN 1/2P 2.2
621	C31	5345-475D0356	CAP, MINI ELE 4.7 μ /25V	647	R5	5232-152J16P	RES, CBN 1/6P 1.5K
621	C32	5345-475D0356	CAP, MINI ELE 4.7 μ /25V	647	R6	5232-152J16P	RES, CBN 1/6P 1.5K
422	C101	5350-S010Z473	CAP, SPE .047F	648	R7	5232-152J16P	RES, CBN 1/6P 1.5K
424	C102	5345-107A0356	CAP, MINI ELE 100 μ /6.3V	648	R8	5232-152J16P	RES, CBN 1/6P 1.5K
423	C103	5345-476B0951	CAP, MINI ELE 47 μ /10V	649	R9	5232-102J16P	RES, CBN 1/6P 1K
431	C104	5354-S010J104	CAP, MYL .1 μ	649	R10	5232-102J16P	RES, CBN 1/6P 1K
434	C105	5361-390JCH	CAP, CER 39p	646	R12	5232-470J16P	RES, CBN 1/6P 47
435	C106	5361-330JCH	CAP, CER 33p	650	R13	5232-272J16P	RES, CBN 1/6P 2.7K
424	C107	5345-107A0356	CAP, MINI ELE 100 μ /6.3V	651	R14	5232-222J16P	RES, CBN 1/6P 2.2K
424	C108	5345-107A0356	CAP, MINI ELE 100 μ /6.3V	652	R15	5232-472J16P	RES, CBN 1/6P 4.7K
425	C109	5345-107B0356	CAP, MINI ELE 100 μ /10V	653	R16	5232-103J16P	RES, CBN 1/6P 10K
426	C110	5345-105F0356	CAP, MINI ELE 1 μ /50V	649	R17	5232-102J16P	RES, CBN 1/6P 1K
427	C111	5345-476C0356	CAP, MINI ELE 47 μ /16V	654	R18	5232-561J16P	RES, CBN 1/6P 560
428	C112	5345-335F0356	CAP, MYL ELE 3.3 μ /50V	653	R19	5232-103J16P	RES, CBN 1/6P 10K
432	C113	5359-S040J103	CAP, PPP .01 μ	655	R20	5232-333J16P	RES, CBN 1/6P 33K
429	C114	5345-336B0356	CAP, MINI ELE 33 μ /10V	656	R21	5232-223J16P	RES, CBN 1/6P 22K
430	C115	5345-106C0356	CAP, MINI ELE 10 μ /16V	643	R22	5135-152522	RES, CBN 1/2P 1.5K
425	C116	5345-107B0356	CAP, MINI ELE 100 μ /10V	652	R23	5232-472J16P	RES, CBN 1/6P 4.7K
433	C117	5361-223Z921	CAP, CER .022 μ	657	R24	5232-331J16P	RES, CBN 1/6P 330
729	C201	5345-106C0356	CAP, MINI ELE 10 μ /16V	646	R25	5232-470J16P	RES, CBN 1/6P 47
729	C202	5345-106C0356	CAP, MINI ELE 10 μ /16V	649	R26	5232-102J16P	RES, CBN 1/6P 1K
729	C203	5345-106C0356	CAP, MINI ELE 10 μ /16V	653	R27	5232-103J16P	RES, CBN 1/6P 10K
729	C204	5345-106C0356	CAP, MINI ELE 10 μ /16V	651	R28	5232-222J16P	RES, CBN 1/6P 2.2K
734	C205	5359-S040J103	CAP, PPP .01 μ	658	R29	5232-104J16P	RES, CBN 1/6P 100K
734	C206	5359-S040J103	CAP, PPP .01 μ	659	R32	5232-101J16P	RES, CBN 1/6P 100
733	C207	5359-S040J682	CAP, PPP 6800p	652	R33	5232-472J16P	RES, CBN 1/6P 4.7K
733	C208	5359-S040J682	CAP, PPP 6800p	641	R34	5135-390522	RES, CBN 1/2P 39
736	C209	5354-S010J473	CAP, MYL .047 μ	651	R35	5232-222J16P	RES, CBN 1/6P 2.2K
736	C210	5354-S010J473	CAP, MYL .047 μ	659	R36	5232-101J16P	RES, CBN 1/6P 100
735	C211	5354-S010J683	CAP, MYL .068 μ	653	R37	5232-103J16P	RES, CBN 1/6P 10K
735	C212	5354-S010J683	CAP, MYL .068 μ	656	R38	5232-223J16P	RES, CBN 1/6P 22K
724	C213	5345-107A0356	CAP, MINI ELE 100 μ /6.3V	658	R39	5232-104J16P	RES, CBN 1/6P 100K
724	C214	5345-107A0356	CAP, MINI ELE 100 μ /6.3V	659	R40	5232-101J16P	RES, CBN 1/6P 100
732	C215	5359-S040J153	CAP, PPP .015 μ	656	R41	5232-223J16P	RES, CBN 1/6P 22K
732	C216	5359-S040J153	CAP, PPP .015 μ	656	R42	5232-223J16P	RES, CBN 1/6P 22K
726	C217	5345-154F0356	CAP, MINI ELE .15 μ /50V	658	R43	5232-104J16P	RES, CBN 1/6P 100K
726	C218	5345-154F0356	CAP, MINI ELE .15 μ /50V	658	R44	5232-104J16P	RES, CBN 1/6P 100K
725	C219	5345-474F0356	CAP, MINI ELE .47 μ /50V	658	R45	5232-104J16P	RES, CBN 1/6P 100K
725	C220	5345-474F0356	CAP, MINI ELE .47 μ /50V	658	R46	5232-104J16P	RES, CBN 1/6P 100K
731	C221	5359-S040J472	CAP, PPP 4700p	653	R47	5232-103J16P	RES, CBN 1/6P 10K
731	C222	5359-S040J472	CAP, PPP 4700p	653	R49	5232-103J16P	RES, CBN 1/6P 10K
677	C223	5359-S040J102	CAP, PPP 1000p	653	R50	5232-103J16P	RES, CBN 1/6P 10K
677	C224	5359-S040J102	CAP, PPP 1000p	653	R51	5232-103J16P	RES, CBN 1/6P 10K
676	C225	5359-S040J183	CAP, PPP .018 μ	660	R52	5232-224J16P	RES, CBN 1/6P 220K
676	C226	5359-S040J183	CAP, PPP .018 μ	639	R53	5173-270571	RES, MTL 2P 27

Ser. No.	Ref. No.	Part No.	Description	Ser. No.	Ref. No.	Part No.	Description
440	R109	5232-121J16P	RES, CBN 1/6P 120	706	R246	5232-472J16P	RES, CBN 1/6P 4.7K
440	R110	5232-121J16P	RES, CBN 1/6P 120	705	R247	5232-101J16P	RES, CBN 1/6P 100
440	R111	5232-121J16P	RES, CBN 1/6P 120	709	R250	5232-682J16P	RES, CBN 1/6P 6.8K
440	R112	5232-121J16P	RES, CBN 1/6P 120	708	R255	5232-222J16P	RES, CBN 1/6P 2.2K
440	R113	5232-121J16P	RES, CBN 1/6P 120	703	R256	5232-104J16P	RES, CBN 1/6P 100K
441	R114	5232-181J16P	RES, CBN 1/6P 180	707	R257	5232-822J16P	RES, CBN 1/6P 8.2K
441	R115	5232-181J16P	RES, CBN 1/6P 180	706	R258	5232-472J16P	RES, CBN 1/6P 4.7K
441	R116	5232-181J16P	RES, CBN 1/6P 180	708	R259	5232-222J16P	RES, CBN 1/6P 2.2K
441	R117	5232-181J16P	RES, CBN 1/6P 180	INTEGRATED CIRCUITS			
443	R118	5232-472J16P	RES, CBN 1/6P 4.7K	603	IC1	5653-TA8210H	IC, LINEAR
444	R119	5232-102J16P	RES, CBN 1/6P 1K	604	IC2	5653-TA7362P	IC, LINEAR
445	R120	5232-471J16P	RES, CBN 1/6P 470	605	IC3	5654-TC9145P	IC, DIGITAL
446	R121	5232-103J16P	RES, CBN 1/6P 10K	403	IC101	5654-T9306F25	IC, DIGITAL
447	R122	5232-562J16P	RES, CBN 1/6P 5.6K	404	IC102	5654-TC9174P	IC, DIGITAL
444	R123	5232-102J16P	RES, CBN 1/6P 1K	405	IC103	5654-TC9172AP	IC, DIGITAL
448	R124	5232-332J16P	RES, CBN 1/6P 3.3K	712	IC201	5653-CXA1097Q	IC, LINEAR
445	R125	5232-471J16P	RES, CBN 1/6P 470	693	IC203	5653-LA2000	IC, LINEAR
444	R126	5232-102J16P	RES, CBN 1/6P 1K	664	IC204	5653-TA7325P	IC, LINEAR
449	R127	5232-152J16P	RES, CBN 1/6P 1.5K	TRANSISTORS			
450	R128	5232-332J16P	RES, CBN 1/6P 3.3K	607	Q1	5613-2603 (E) OR (F)	XISTOR, NPN R
451	R129	5232-333J16P	RES, CBN 1/6P 33K	612	Q2	5611-RN2201	XISTOR, PNP R
452	R130	5232-474J16P	RES, CBN 1/6P 470K	610	Q3	5612-1375	XISTOR, PNP A
448	R131	5232-332J16P	RES, CBN 1/6P 3.3K	607	Q4	5613-2603 (E) OR (F)	XISTOR, NPN R
446	R132	5232-103J16P	RES, CBN 1/6P 10K	607	Q5	5613-2603 (E) OR (F)	XISTOR, NPN R
442	R133	5232-101J16P	RES, CBN 1/6P 100	609	Q6	5613-3668 (O) OR (Y)	XISTOR, NPN R
444	R134	5232-102J16P	RES, CBN 1/6P 1K	611	Q8	5611-RN2203	XISTOR, PNP R
444	R135	5232-102J16P	RES, CBN 1/6P 1K	608	Q9	5613-RN1207	XISTOR, NPN R
453	R136	5232-104J16P	RES, CBN 1/6P 100K	608	Q10	5613-RN1207	XISTOR, NPN R
451	R137	5232-333J16P	RES, CBN 1/6P 33K	608	Q11	5613-RN1207	XISTOR, NPN R
444	R138	5232-102J16P	RES, CBN 1/6P 1K	611	Q12	5611-RN2203	XISTOR, PNP R
436	R139	5135-102522	RES, CBN 1/2P 1K	607	Q13	5613-2603 (E) OR (F)	XISTOR, NPN R
436	R140	5135-102522	RES, CBN 1/2P 1K	407	Q101	5613-RN1207	XISTOR, NPN R
436	R141	5135-102522	RES, CBN 1/2P 1K	408	Q102	5613-RN1201	XISTOR, NPN R
446	R142	5232-103J16P	RES, CBN 1/6P 10K	407	Q103	5613-RN1207	XISTOR, NPN R
446	R143	5232-103J16P	RES, CBN 1/6P 10K	414	Q104	5611-RN2203	XISTOR, PNP R
749	R201	5232-222J16P	RES, CBN 1/6P 2.2K	414	Q105	5611-RN2203	XISTOR, PNP R
749	R202	5232-222J16P	RES, CBN 1/6P 2.2K	407	Q106	5613-RN1207	XISTOR, NPN R
740	R203	5135-102522	RES, CBN 1/2P 1K	410	Q107	5613-2603 (E) OR (F)	XISTOR, NPN R
740	R204	5135-102522	RES, CBN 1/2P 1K	409	Q108	5613-RN1203	XISTOR, NPN R
742	R205	5232-104J16P	RES, CBN 1/6P 100K	411	Q109	5613-2320L (F)	XISTOR, NPN R
742	R206	5232-104J16P	RES, CBN 1/6P 100K	412	Q110	5613-1775 (F)	XISTOR, NPN R
739	R207	5135-471522	RES, CBN 1/2P 470	409	Q111	5613-RN1203	XISTOR, NPN R
739	R208	5135-471522	RES, CBN 1/2P 470	414	Q112	5611-RN2203	XISTOR, PNP R
748	R209	5232-681J16P	RES, CBN 1/6P 680	407	Q113	5613-RN1207	XISTOR, NPN R
748	R210	5232-681J16P	RES, CBN 1/6P 680	413	Q114	5613-3668 (O) OR (Y)	XISTOR, NPN R
747	R211	5232-682J16P	RES, CBN 1/6P 6.8K	415	Q115	5611-1428 (O) OR (Y)	XISTOR, PNP R
747	R212	5232-682J16P	RES, CBN 1/6P 6.8K	414	Q117	5611-RN2203	XISTOR, PNP R
746	R213	5232-432J16P	RES, CBN 1/6P 4.3K	714	Q201	5614-1450 (T)	XISTOR, NPN A
746	R214	5232-432J16P	RES, CBN 1/6P 4.3K	714	Q202	5614-1450 (T)	XISTOR, NPN A
745	R215	5232-431J16P	RES, CBN 1/6P 430	665	Q203	5613-RN1201	XISTOR, NPN R
745	R216	5232-431J16P	RES, CBN 1/6P 430	665	Q204	5613-RN1201	XISTOR, NPN R
744	R217	5232-272J16P	RES, CBN 1/6P 2.7K	667	Q205	5611-RN2203	XISTOR, PNP R
744	R218	5232-272J16P	RES, CBN 1/6P 2.7K	666	Q206	5613-RN1207	XISTOR, NPN R
742	R219	5232-104J16P	RES, CBN 1/6P 100K	715	Q207	5613-RN1201	XISTOR, NPN R
743	R220	5232-333J16P	RES, CBN 1/6P 33K	716	Q208	5613-RN1203	XISTOR, NPN R
690	R223	5232-105J16P	RES, CBN 1/6P 1M	717	Q209	5611-RN2203	XISTOR, PNP R
690	R224	5232-105J16P	RES, CBN 1/6P 1M	696	Q211	5611-1115 (E) OR (F)	XISTOR, PNP R
689	R225	5232-152J16P	RES, CBN 1/6P 1.5K	695	Q213	5613-RN1207	XISTOR, NPN R
689	R226	5232-152J16P	RES, CBN 1/6P 1.5K	697	Q217	5613-2603 (E) OR (F)	XISTOR, NPN R
688	R227	5232-272J16P	RES, CBN 1/6P 2.7K	DIODES			
688	R228	5232-272J16P	RES, CBN 1/6P 2.7K	615	D1	5631-1SS133	DIODE, DET
687	R229	5232-184J16P	RES, CBN 1/6P 180K	613	D2	5632-S5566B	DIODE, RECT
687	R230	5232-184J16P	RES, CBN 1/6P 180K	615	D3	5631-1SS133	DIODE, DET
686	R231	5232-122J16P	RES, CBN 1/6P 1.2K	618	D4	5635-RD5R1EB2	DIODE, ZENER
686	R232	5232-122J16P	RES, CBN 1/6P 1.2K	615	D5	5631-1SS133	DIODE, DET
685	R233	5232-181J16P	RES, CBN 1/6P 180	619	D6	5635-HZ6B-1L	DIODE, ZENER
685	R234	5232-181J16P	RES, CBN 1/6P 180	617	D7	5632-S5566B	DIODE, RECT
684	R235	5232-101J16P	RES, CBN 1/6P 100	615	D8	5631-1SS133	DIODE, DET
684	R236	5232-101J16P	RES, CBN 1/6P 100	616	D9	5631-S2473	DIODE, DET
684	R237	5232-101J16P	RES, CBN 1/6P 100	615	D10	5631-1SS133	DIODE, DET
691	R238	5232-332J16P	RES, CBN 1/6P 3.3K	620	D11	5635-HZ11B-2L	DIODE, ZENER
749	R240	5232-222J16P	RES, CBN 1/6P 2.2K	615	D14	5631-1SS133	DIODE, DET
703	R241	5232-104J16P	RES, CBN 1/6P 100K	615	D15	5631-1SS133	DIODE, DET
703	R242	5232-104J16P	RES, CBN 1/6P 100K	615	D16	5631-1SS133	DIODE, DET
704	R243	5232-274J16P	RES, CBN 1/6P 270K				

Ser. No.	Ref. No.	Part No.	Description
417	D101	5631-1SS133	DIODE, DET
417	D103	5631-1SS133	DIODE, DET
417	D104	5631-1SS133	DIODE, DET
417	D105	5631-1SS133	DIODE, DET
417	D106	5631-1SS133	DIODE, DET
417	D107	5631-1SS133	DIODE, DET
417	D108	5631-1SS133	DIODE, DET
417	D109	5631-1SS133	DIODE, DET
417	D110	5631-1SS133	DIODE, DET
418	D111	5631-1S2473	DIODE, DET
419	D112	5635-HZ6B-1L	DIODE, ZENER
420	D113	5635-RD5R1EB2	DIODE, ZENER
417	D117	5631-1SS133	DIODE, DET
668	D201	5631-1SS133	DIODE, DET
719	D202	5631-1SS133	DIODE, DET
719	D203	5631-1SS133	DIODE, DET
719	D204	5631-1SS133	DIODE, DET
719	D205	5631-1SS133	DIODE, DET
719	D206	5631-1SS133	DIODE, DET

COILS

456	L101	5995-221269	COIL W/CORE
721	L201	5214-11701	LC COMPOSITE
721	L202	5214-11701	LC COMPOSITE
682	L203	5995-223296	COIL W/CORE
682	L204	5995-223296	COIL W/CORE

CONTROLS

680	VR201	5101-20301934	RES, SEMI FIX 20K
680	VR202	5101-20301934	RES, SEMI FIX 20K
679	VR203	5101-20201934	RES, SEMI FIX 2K
679	VR204	5101-20201934	RES, SEMI FIX 2K

MISCELLANEOUS

850	CN201	4443-0301140	CONNECTOR
838	CN601	4443-01801006	CONNECTOR
839	CN602	4443-01801003	CONNECTOR
801	LP1	5731-00501141	LAMP
800	LP2	5731-00402141	LAMP
458	TU102	6110-004	AM TUNER
402	XL101	5691-00720027	XTAL, OSC
401	LCD101	5791-TP4K6011	LCD
853	LCN101	4163-S0204101	CONNECTOR W/W
854	LCN102	4163-S0204500	CONNECTOR W/W
855	LCN103	4163-02401003	CONNECTOR W/W
860	LCN108	4163-02901009	CONNECTOR W/W
858	LCN202	4163-02304008	CONNECTOR W/W

PCB-2-FM-RE-F.C. BOARD**CAPACITORS**

476	C501	5345-106C0356	CAP, MINI ELE 10 μ /16V
477	C502	5361-223Z921	CAP, CER .022 μ
477	C503	5361-223Z921	CAP, CER .022 μ
477	C504	5361-223Z921	CAP, CER .022 μ
477	C505	5361-223Z921	CAP, CER .022 μ
477	C506	5361-223Z921	CAP, CER .022 μ
477	C507	5361-223Z921	CAP, CER .022 μ
477	C508	5361-223Z921	CAP, CER .022 μ
477	C509	5361-223Z921	CAP, CER .022 μ

RESISTORS

479	R501	5232-101J16P	RES, CBN 1/6P 100
480	R502	5232-330J16P	RES, CBN 1/6P 33
481	R503	5232-331J16P	RES, CBN 1/6P 330
482	R504	5232-223J16P	RES, CBN 1/6P 22K
483	R505	5232-391J16P	RES, CBN 1/6P 390
481	R506	5232-331J16P	RES, CBN 1/6P 330
482	R507	5232-223J16P	RES, CBN 1/6P 22K
482	R508	5232-223J16P	RES, CBN 1/6P 22K
482	R509	5232-223J16P	RES, CBN 1/6P 22K
479	R510	5232-101J16P	RES, CBN 1/6P 100
481	R511	5232-331J16P	RES, CBN 1/6P 330
483	R512	5232-391J16P	RES, CBN 1/6P 390
485	R513	5232-183J16P	RES, CBN 1/6P 18K
484	R514	5232-332J16P	RES, CBN 1/6P 3.3K
481	R515	5232-331J16P	RES, CBN 1/6P 330

Ser. No.	Ref. No.	Part No.	Description
482	R516	5232-223J16P	RES, CBN 1/6P 22K
482	R517	5232-223J16P	RES, CBN 1/6P 22K
486	R518	5232-472J16P	RES, CBN 1/6P 4.7K
484	R519	5232-332J16P	RES, CBN 1/6P 3.3K
487	R520	5232-102J16P	RES, CBN 1/6P 1K

TRANSISTORS

469	Q501	5613-2058 (N) OR (P)	XISTOR, NPN R
469	Q502	5613-2058 (N) OR (P)	XISTOR, NPN R
470	Q503	5613-2058 (N) OR (P)	XISTOR, NPN R
469	Q504	5613-2058 (N) OR (P)	XISTOR, NPN R
472	Q505	5613-2603 (E) OR (F)	XISTOR, NPN R
471	Q506	5613-RN1207	XISTOR, NPN R
473	Q507	5611-RN2203	XISTOR, PNP R

DIODES

474	D501	5631-1SS133	DIODE, DET
474	D502	5631-1SS133	DIODE, DET

COILS

463	L501	5995-2R2269	COIL W/CORE
464	L502	5995-4R7269	COIL W/CORE

MISCELLANEOUS

466	CF501	5671-7217A	FILTER, CER S
466	CF502	5671-7217A	FILTER, CER S
467	CF503	5671-2036GKA	FILTER, CER S
467	CF504	5671-2036GKA	FILTER, CER S
835	CN502	4443-047175	CONNECTOR
837	CN503	4443-087175	CONNECTOR
832	CN832	4443-01901022	CONNECTOR
461	TU101	6114-7136	FM TUNER
852	LCN501	4163-S0206101	CONNECTOR W/W

PCB-3-I/O-F.C. BOARD**RESISTOR**

645	R11	5232-103J16P	RES, CBN 1/6P 10K
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DIODES

614	D17	5632-S5566B	DIODE, RECT
614	D18	5632-S5566B	DIODE, RECT

MISCELLANEOUS

836	CN501	4443-067175	CONNECTOR
851	LCN502	4163-S0106121	CONNECTOR W/W

PCB-4-FM-DET-&MPX-F.C. BOARD**CAPACITORS**

531	C601	5361-223Z921	CAP, CER .022 μ
533	C602	5361-103M920	CAP, CER .01 μ
516	C603	5359-S040K271	CAP, PPP 270p
533	C604	5361-103M920	CAP, CER .01 μ
509	C605	5345-106C0356	CAP, MINI ELE 10 μ /16V
530	C606	5361-120J922	CAP, CER 12p
531	C607	5361-223Z921	CAP, CER .022 μ
531	C608	5361-223Z921	CAP, CER .022 μ
531	C609	5361-223Z921	CAP, CER .022 μ
533	C610	5361-103M920	CAP, CER .01 μ
510	C611	5345-105F0356	CAP, MINI ELE 1 μ /50V
511	C612	5345-225F0356	CAP, MINI ELE 2.2 μ /50V
512	C613	5345-104F0356	CAP, MINI ELE .1 μ /50V
509	C614	5345-106C0356	CAP, MINI ELE 10 μ /16V
509	C615	5345-106C0356	CAP, MINI ELE 10 μ /16V
518	C616	5359-S040J103	CAP, PPP .01 μ
518	C617	5359-S040J103	CAP, PPP .01 μ
513	C618	5345-225F0356	CAP, MINI ELE 2.2 μ /50V
509	C619	5345-106C0356	CAP, MINI ELE 10 μ /16V
512	C620	5345-104F0356	CAP, MINI ELE 1 μ /50V
509	C621	5345-106C0356	CAP, MINI ELE 10 μ /16V
517	C622	5359-S040K271	CAP, PPP 270p
517	C623	5359-S040K271	CAP, PPP 270p
532	C624	5361-680J917	CAP, CER 68p
519	C625	5359-S040J681	CAP, PPP 680p
520	C626	5359-S040J122	CAP, PPP 1200p
519	C627	5359-S040J681	CAP, PPP 680p

Ser. No.	Ref. No.	Part No.	Description
517	C628	5359-S040K271	CAP, PPP 270p
516	C629	5359-S040K271	CAP, PPP 270p
521	C630	5359-S040J222	CAP, PPP 2200p
522	C631	5359-S040J682	CAP, PPP 6800p
512	C632	5345-104F0356	CAP, MINI ELE .1 μ /50V
512	C633	5345-104F0356	CAP, MINI ELE .1 μ /50V
509	C634	5345-106C0356	CAP, MINI ELE 10 μ /16V
523	C635	5359-S040J102	CAP, PPP 1000p
514	C636	5345-474F0356	CAP, MINI ELE .47 μ /50V
514	C637	5345-474F0356	CAP, MINI ELE .47 μ /50V
511	C638	5345-225F0356	CAP, MINI ELE 2.2 μ /50V
527	C639	5359-S040J273	CAP, PPP .027 μ
528	C640	5354-S010J104	CAP, MYL .1 μ
524	C641	5359-S040J273	CAP, PPP .027 μ
525	C642	5359-S040J333	CAP, PPP .033 μ
510	C643	5345-105F0356	CAP, MINI ELE 1 μ /50V
510	C644	5345-105F0356	CAP, MINI ELE 1 μ /50V
526	C645	5359-S040J183	CAP, PPP .018 μ
526	C646	5359-S040J183	CAP, PPP .018 μ
515	C647	5345-107B0356	CAP, MINI ELE 100 μ /10V
531	C648	5361-223Z921	CAP, CER .022 μ
531	C649	5361-223Z921	CAP, CER .022 μ

RESISTORS

535	R601	5232-332J16P	RES, CBN 1/6P 3.3K
536	R602	5232-391J16P	RES, CBN 1/6P 390
537	R603	5232-103J16P	RES, CBN 1/6P 10K
538	R604	5232-102J16P	RES, CBN 1/6P 1K
542	R605	5232-822J16P	RES, CBN 1/6P 8.2K
534	R606	5232-562J16P	RES, CBN 1/6P 5.6K
537	R607	5232-103J16P	RES, CBN 1/6P 10K
539	R608	5232-153J16P	RES, CBN 1/6P 15K
540	R609	5232-333J16P	RES, CBN 1/6P 33K
553	R610	5232-681J16P	RES, CBN 1/6P 680
542	R611	5232-822J16P	RES, CBN 1/6P 8.2K
537	R612	5232-103J16P	RES, CBN 1/6P 10K
537	R613	5232-103J16P	RES, CBN 1/6P 10K
544	R614	5232-473J16P	RES, CBN 1/6P 47K
548	R615	5232-104J16P	RES, CBN 1/6P 100K
541	R616	5232-222J16P	RES, CBN 1/6P 2.2K
545	R617	5232-472J16P	RES, CBN 1/6P 4.7K
545	R618	5232-472J16P	RES, CBN 1/6P 4.7K
545	R619	5232-472J16P	RES, CBN 1/6P 4.7K
545	R620	5232-472J16P	RES, CBN 1/6P 4.7K
546	R621	5232-223J16P	RES, CBN 1/6P 22K
547	R622	5232-272J16P	RES, CBN 1/6P 2.7K
541	R623	5232-222J16P	RES, CBN 1/6P 2.2K
537	R624	5232-103J16P	RES, CBN 1/6P 10K
543	R625	5232-682J16P	RES, CBN 1/6P 6.8K
550	R626	5232-392J16P	RES, CBN 1/6P 3.9K
551	R627	5135-104522	RES, CBN 1/2P 100K
548	R628	5232-104J16P	RES, CBN 1/6P 100K
549	R629	5232-183J16P	RES, CBN 1/6P 18K
545	R630	5232-472J16P	RES, CBN 1/6P 4.7K
537	R631	5232-103J16P	RES, CBN 1/6P 10K
550	R632	5232-392J16P	RES, CBN 1/6P 3.9K
550	R633	5232-392J16P	RES, CBN 1/6P 3.9K
537	R634	5232-103J16P	RES, CBN 1/6P 10K
537	R635	5232-103J16P	RES, CBN 1/6P 10K
554	R650	5232-224J16P	RES, CBN 1/6P 220K

INTEGRATED CIRCUITS

491	IC601	5653-TA8129Z	IC, LINEAR
492	IC602	5653-TA7409P	IC, LINEAR
493	IC603	5653-TA8130Z	IC, LINEAR

TRANSISTORS

495	Q601	5613-2603 (E) OR (F)	XISTOR, NPN R
496	Q602	5611-RN2201	XISTOR, PNP R
497	Q603	5611-RN2203	XISTOR, PNP R

DIODES

499	D601	5631-1SS133	DIODE, DET
499	D602	5631-1SS133	DIODE, DET
500	D603	5635-HZ6B-1L	DIODE, ZENER

Ser. No.	Ref. No.	Part No.	Description
TRANSFORMER			
502	T601	5572-10301	DISCRI 7
CONTROLS			
505	VR601	5101-50102934	RES, SEMI FIX 500
506	VR602	5101-10302934	RES, SEMI FIX 10K
506	VR603	5101-10302934	RES, SEMI FIX 10K
507	VR604	5101-50302934	RES, SEMI FIX 50K
MISCELLANEOUS			
840	CN603	4443-01701006	CONNECTOR
841	CN604	4443-01701003	CONNECTOR
503	CO601	5693-CSB456F4	OSC, CER

PCB-5 PRE AMP P.C. BOARD**CAPACITORS**

558	C301	5345-106C0356	CAP, MINI ELE 10 μ /16V
558	C302	5345-106C0356	CAP, MINI ELE 10 μ /16V
569	C303	5354-S010J823	CAP, MYL .082 μ
569	C304	5354-S010J823	CAP, MYL .082 μ
567	C305	5359-S040K331	CAP, PPP 330p
567	C306	5359-S040K331	CAP, PPP 330p
559	C307	5345-105F0356	CAP, MINI ELE 1 μ /50V
559	C308	5345-105F0356	CAP, MINI ELE 1 μ /50V
560	C309	5345-226C0356	CAP, MINI ELE 22 μ /16V
560	C310	5345-226C0356	CAP, MINI ELE 22 μ /16V
565	C311	5353-010934	CAP, MCA 1p
565	C312	5353-010934	CAP, MCA 1p
561	C313	5345-476C0356	CAP, MINI ELE 47 μ /16V
561	C314	5345-476C0356	CAP, MINI ELE 47 μ /16V
559	C315	5345-105F0356	CAP, MINI ELE 1 μ /50V
559	C316	5345-105F0356	CAP, MINI ELE 1 μ /50V
559	C317	5345-105F0356	CAP, MINI ELE 1 μ /50V
559	C318	5345-105F0356	CAP, MINI ELE 1 μ /50V
562	C319	5345-107B0356	CAP, MINI ELE 100 μ /10V
562	C320	5345-107B0356	CAP, MINI ELE 100 μ /10V
562	C321	5345-107B0356	CAP, MINI ELE 100 μ /10V
563	C322	5345-107A0356	CAP, MINI ELE 100 μ /6.3V

RESISTORS

571	R301	5232-331J16P	RES, CBN 1/6P 330
571	R302	5232-331J16P	RES, CBN 1/6P 330
572	R303	5232-681J16P	RES, CBN 1/6P 680
572	R304	5232-681J16P	RES, CBN 1/6P 680
573	R305	5232-102J16P	RES, CBN 1/6P 1K
573	R306	5232-102J16P	RES, CBN 1/6P 1K
575	R307	5232-392J16P	RES, CBN 1/6P 3.9K
575	R308	5232-392J16P	RES, CBN 1/6P 3.9K
576	R309	5232-333J16P	RES, CBN 1/6P 33K
576	R310	5232-333J16P	RES, CBN 1/6P 33K
571	R311	5232-331J16P	RES, CBN 1/6P 330
571	R312	5232-331J16P	RES, CBN 1/6P 330
577	R313	5232-473J16P	RES, CBN 1/6P 47K
577	R314	5232-473J16P	RES, CBN 1/6P 47K
578	R315	5232-274J16P	RES, CBN 1/6P 270K
578	R316	5232-274J16P	RES, CBN 1/6P 270K
573	R317	5232-102J16P	RES, CBN 1/6P 1K
573	R318	5232-102J16P	RES, CBN 1/6P 1K
574	R319	5232-104J16P	RES, CBN 1/6P 100K
574	R320	5232-104J16P	RES, CBN 1/6P 100K
579	R321	5232-562J16P	RES, CBN 1/6P 5.6K
579	R322	5232-562J16P	RES, CBN 1/6P 5.6K
579	R323	5232-562J16P	RES, CBN 1/6P 5.6K
579	R324	5232-562J16P	RES, CBN 1/6P 5.6K
574	R325	5232-104J16P	RES, CBN 1/6P 100K
574	R326	5232-104J16P	RES, CBN 1/6P 100K
574	R327	5232-104J16P	RES, CBN 1/6P 100K
574	R328	5232-104J16P	RES, CBN 1/6P 100K
581	R329	5232-101J16P	RES, CBN 1/6P 100
573	R330	5232-102J16P	RES, CBN 1/6P 1K
574	R331	5232-104J16P	RES, CBN 1/6P 100K
574	R332	5232-104J16P	RES, CBN 1/6P 100K
573	R335	5232-102J16P	RES, CBN 1/6P 1K
573	R336	5232-102J16P	RES, CBN 1/6P 1K
580	R337	5232-122J16P	RES, CBN 1/6P 1.2K

Ser. No.	Ref. No.	Part No.	Description
INTEGRATED CIRCUITS			
556	IC301	5653-BA15218N	IC, LINEAR
556	IC302	5653-BA15218N	IC, LINEAR
556	IC303	5653-BA15218N	IC, LINEAR
556	IC304	5653-BA15218N	IC, LINEAR

Ser. No.	Ref. No.	Part No.	Description
CONTROLS			
811	VR301	5112-S0201503	RES, V CBN 12 5 GANG w/SWITCH

Ser. No.	Ref. No.	Part No.	Description
MISCELLANEOUS			
809	S301	4431-S0601102	SWITCH, PUSH
808	S302	4431-S0608102	SWITCH, PUSH
842	CN301	4443-0301141	CONNECTOR
843	CN302	4443-0401141	CONNECTOR
844	CN303	4443-0601140	CONNECTOR
856	LCN503	4163-02601006	CONNECTOR W/W
861	LCN504	4163-02902005	CONNECTOR W/W

PCB-6 TONE & BUFFER P.C. BOARD

Ser. No.	Ref. No.	Part No.	Description
CAPACITORS			
586	C401	5345-106D0356	CAP, MINI ELE 10 μ /25V
586	C402	5345-106D0356	CAP, MINI ELE 10 μ /25V
586	C403	5345-106D0356	CAP, MINI ELE 10 μ /25V
586	C404	5345-106D0356	CAP, MINI ELE 10 μ /25V
588	C405	5359-S040J273	CAP, PPP .027 μ
588	C406	5359-S040J273	CAP, PPP .027 μ
591	C407	5354-154593	CAP, MYL .15 μ
591	C408	5354-154593	CAP, MYL .15 μ
589	C409	5359-S040J682	CAP, PPP 6800p
589	C410	5359-S040J682	CAP, PPP 6800p
590	C411	5354-S010J393	CAP, MYL .039 μ
590	C412	5354-S010J393	CAP, MYL .039 μ

Ser. No.	Ref. No.	Part No.	Description
RESISTORS			
593	R401	5232-681J16P	RES, CBN 1/6P 680
593	R402	5232-681J16P	RES, CBN 1/6P 680
593	R403	5232-681J16P	RES, CBN 1/6P 680
593	R404	5232-681J16P	RES, CBN 1/6P 680
594	R405	5232-223J16P	RES, CBN 1/6P 22K
594	R406	5232-223J16P	RES, CBN 1/6P 22K
595	R407	5232-122J16P	RES, CBN 1/6P 1.2K
595	R408	5232-122J16P	RES, CBN 1/6P 1.2K
596	R409	5232-222J16P	RES, CBN 1/6P 2.2K
596	R410	5232-222J16P	RES, CBN 1/6P 2.2K
596	R411	5232-222J16P	RES, CBN 1/6P 2.2K
596	R412	5232-222J16P	RES, CBN 1/6P 2.2K
597	R413	5232-153J16P	RES, CBN 1/6P 15K
597	R414	5232-153J16P	RES, CBN 1/6P 15K
598	R415	5232-272J16P	RES, CBN 1/6P 2.7K
598	R416	5232-272J16P	RES, CBN 1/6P 2.7K
595	R417	5232-122J16P	RES, CBN 1/6P 1.2K
595	R418	5232-122J16P	RES, CBN 1/6P 1.2K
599	R419	5232-121J16P	RES, CBN 1/6P 120
599	R420	5232-121J16P	RES, CBN 1/6P 120
600	R421	5232-331J16P	RES, CBN 1/6P 330
600	R422	5232-331J16P	RES, CBN 1/6P 330

Ser. No.	Ref. No.	Part No.	Description
TRANSISTORS			
584	Q401	5614-1450 (T)	XISTOR, NPN A
584	Q402	5614-1450 (T)	XISTOR, NPN A
584	Q403	5614-1450 (T)	XISTOR, NPN A
584	Q404	5614-1450 (T)	XISTOR, NPN A

Ser. No.	Ref. No.	Part No.	Description
CONTROLS			
812	VR401/402	5110-S0201104	RES, V CBN 9 100K
813	VR403/404	5110-S0201503	RES, V CBN 9 50K

Ser. No.	Ref. No.	Part No.	Description
MISCELLANEOUS			
846	CN401	4443-0601141	CONNECTOR
845	CN402	4443-0401141	CONNECTOR

PCB-7 FRONT P.C. BOARD

Ser. No.	Ref. No.	Part No.	Description
RESISTORS			
437	R101	5232-561J16P	RES, CBN 1/6P 560

Ser. No.	Ref. No.	Part No.	Description
438	R102	5232-681J16P	RES, CBN 1/6P 680
437	R103	5232-561J16P	RES, CBN 1/6P 560
437	R104	5232-561J16P	RES, CBN 1/6P 560

Ser. No.	Ref. No.	Part No.	Description
DIODES			
798	LED101	5637-851RCPP	LED
798	LED102	5637-851RCPP	LED
798	LED103	5637-851RCPP	LED
798	LED104	5637-851RCPP	LED
798	LED105	5637-851RCPP	LED
798	LED106	5637-851RCPP	LED
798	LED107	5637-851RCPP	LED
795	LED113	5637-LN01301C	LED
795	LED114	5637-LN01301C	LED
795	LED115	5637-LN01301C	LED
795	LED116	5637-LN01301C	LED
795	LED117	5637-LN01301C	LED
795	LED118	5637-LN01301C	LED
795	LED119	5637-LN01301C	LED
795	LED120	5637-LN01301C	LED
795	LED121	5637-LN01301C	LED
795	LED122	5637-LN01301C	LED
795	LED123	5637-LN01301C	LED
795	LED124	5637-LN01301C	LED
795	LED125	5637-LN01301C	LED
795	LED126	5637-LN01301C	LED
795	LED127	5637-LN01301C	LED

Ser. No.	Ref. No.	Part No.	Description
MISCELLANEOUS			
803	S101	4437-00301	SWITCH, PU-TC
803	S102	4437-00301	SWITCH, PU-TC
803	S103	4437-00301	SWITCH, PU-TC
803	S104	4437-00301	SWITCH, PU-TC
803	S105	4437-00301	SWITCH, PU-TC
803	S106	4437-00301	SWITCH, PU-TC
803	S107	4437-00301	SWITCH, PU-TC
803	S108	4437-00301	SWITCH, PU-TC
803	S109	4437-00301	SWITCH, PU-TC
803	S110	4437-00301	SWITCH, PU-TC
806	S111	4437-00201	SWITCH, PU-TC
806	S112	4437-00201	SWITCH, PU-TC
806	S113	4437-00201	SWITCH, PU-TC
806	S114	4437-00201	SWITCH, PU-TC
806	S115	4437-00201	SWITCH, PU-TC

PCB-8 FULL LOGIC P.C. BOARD

Ser. No.	Ref. No.	Part No.	Description
CAPACITORS			
772	C701	5345-476C0356	CAP, MINI ELE 47 μ /16V
772	C702	5345-476C0356	CAP, MINI ELE 47 μ /16V
773	C703	5345-107A0356	CAP, MINI ELE 100 μ /6.3V
774	C704	5345-106C0356	CAP, MINI ELE 10 μ /16V
777	C705	5361-562M919	CAP, CER 5600p
775	C706	5345-475D0356	CAP, MINI ELE 4.7 μ /25V
778	C707	5361-223Z921	CAP, CER .022 μ
779	C708	5361-103M920	CAP, CER .01 μ

Ser. No.	Ref. No.	Part No.	Description
RESISTORS			
782	R701	5232-102J16P	RES, CBN 1/6P 1K
783	R702	5232-103J16P	RES, CBN 1/6P 10K
783	R703	5232-103J16P	RES, CBN 1/6P 10K
783	R704	5232-103J16P	RES, CBN 1/6P 10K
784	R705	5232-333J16P	RES, CBN 1/6P 33K
783	R706	5232-103J16P	RES, CBN 1/6P 10K
783	R707	5232-103J16P	RES, CBN 1/6P 10K
783	R708	5232-103J16P	RES, CBN 1/6P 10K
783	R709	5232-103J16P	RES, CBN 1/6P 10K
785	R710	5232-104J16P	RES, CBN 1/6P 100K
785	R711	5232-104J16P	RES, CBN 1/6P 100K
786	R712	5232-332J16P	RES, CBN 1/6P 3.3K
787	R713	5232-223J16P	RES, CBN 1/6P 22K
782	R714	5232-102J16P	RES, CBN 1/6P 1K
788	R715	5232-822J16P	RES, CBN 1/6P 8.2K
789	R716	5232-561J16P	RES, CBN 1/6P 560
790	R717	5232-224J16P	RES, CBN 1/6P 220K
790	R718	5232-224J16P	RES, CBN 1/6P 220K

Ser. No.	Ref. No.	Part No.	Description
789	R720	5232-561J16P	RES, CBN 1/6P 560
785	R721	5232-104J16P	RES, CBN 1/6P 100K
781	R722	5135-471522	RES, CBN 1/2P 470
791	R723	5232-152J16P	RES, CBN 1/6P 1.5K
780	R724	5232-473J16P	RES, CBN 1/6P 47K

INTEGRATED CIRCUITS

761	IC701	5654-T9310N36	IC, DIGITAL
762	IC702	5654-T74HC00F	IC, DIGITAL

TRANSISTORS

767	Q701	5611-1428 (O) OR (Y)	XISTOR, PNP R
764	Q702	5613-RN1207	XISTOR, NPN R
764	Q703	5613-RN1207	XISTOR, NPN R
764	Q704	5613-RN1207	XISTOR, NPN R
764	Q705	5613-RN1207	XISTOR, NPN R
764	Q706	5613-RN1207	XISTOR, NPN R
766	Q707	5611-RN2203	XISTOR, PNP R
764	Q708	5613-RN1207	XISTOR, NPN R
764	Q709	5613-RN1207	XISTOR, NPN R
764	Q710	5613-RN1207	XISTOR, NPN R
765	Q711	5613-2603 (E) OR (F)	XISTOR, NPN R
765	Q712	5613-2603 (E) OR (F)	XISTOR, NPN R

DIODES

769	D701	5631-1SS133	DIODE, DET
769	D702	5631-1SS133	DIODE, DET
769	D703	5631-1SS133	DIODE, DET
769	D704	5631-1SS133	DIODE, DET
769	D705	5631-1SS133	DIODE, DET
769	D706	5631-1SS133	DIODE, DET
770	D707	5635-RD5R1EB2	DIODE, ZENER
770	D708	5635-RD5R1EB2	DIODE, ZENER

MISCELLANEOUS

849	CN702	4443-02701005	CONNECTOR
847	CN703	4443-0801141	CONNECTOR
848	CN704	4443-02701003	CONNECTOR
864	LCN701	4163-02801010	CONNECTOR W/W

PCB-9 PRO-FF/REW SWITCH P.C. BOARD**DIODES**

796	LED701	5637-LN01301C	LED
796	LED702	5637-LN01301C	LED
796	LED703	5637-LN01301C	LED
796	LED704	5637-LN01301C	LED

MISCELLANEOUS

804	S701	4437-00301	SWITCH, PU-TC
804	S702	4437-00301	SWITCH, PU-TC
804	S703	4437-00301	SWITCH, PU-TC
863	LCN702	4163-02702005	CONNECTOR W/W

PCB-10 EJECT SWITCH P.C. BOARD**RESISTOR**

792	R719	5232-122J16P	RES, CBN 1/6P 1.2K
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DIODE

797	LED705	5637-LN01301C	LED
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MISCELLANEOUS

805	S704	4437-00301	SWITCH, PU-TC
862	LCN704	4163-02701003	CONNECTOR W/W

Ser. No.	Ref. No.	Part No.	Description
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ABBREVIATIONS IN PARTS LIST**CAPACITORS**

CAP, MINI ELE	: Electrolytic
CAP, CER	: Ceramic
CAP, PPP	: Polypropylene
CAP, MYL	: Mylar
CAP, MCA	: Mica
CAP, MINI BP	: Bipolar
CAP, ELE BP	: Electrolytic Bipolar

470 μ	: 470 μ F
6800p	: 6800pF
.047 μ	: 0.047 μ F

RESISTORS

RES, CBN 1/6P	: Carbon 1/6W
RES, FUSE	: Fuse
RES, CEM 5P	: Cement 5W
RES, MTL 1P	: Metal 1W
2.2K	: 2.2k Ω
220	: 220 Ω

TRANSISTORS

XISTOR	: Transistor
FET	: Field Effect Transistor

CONTROLS

RES, SEMI FIX	: Semi-fixed Resistor
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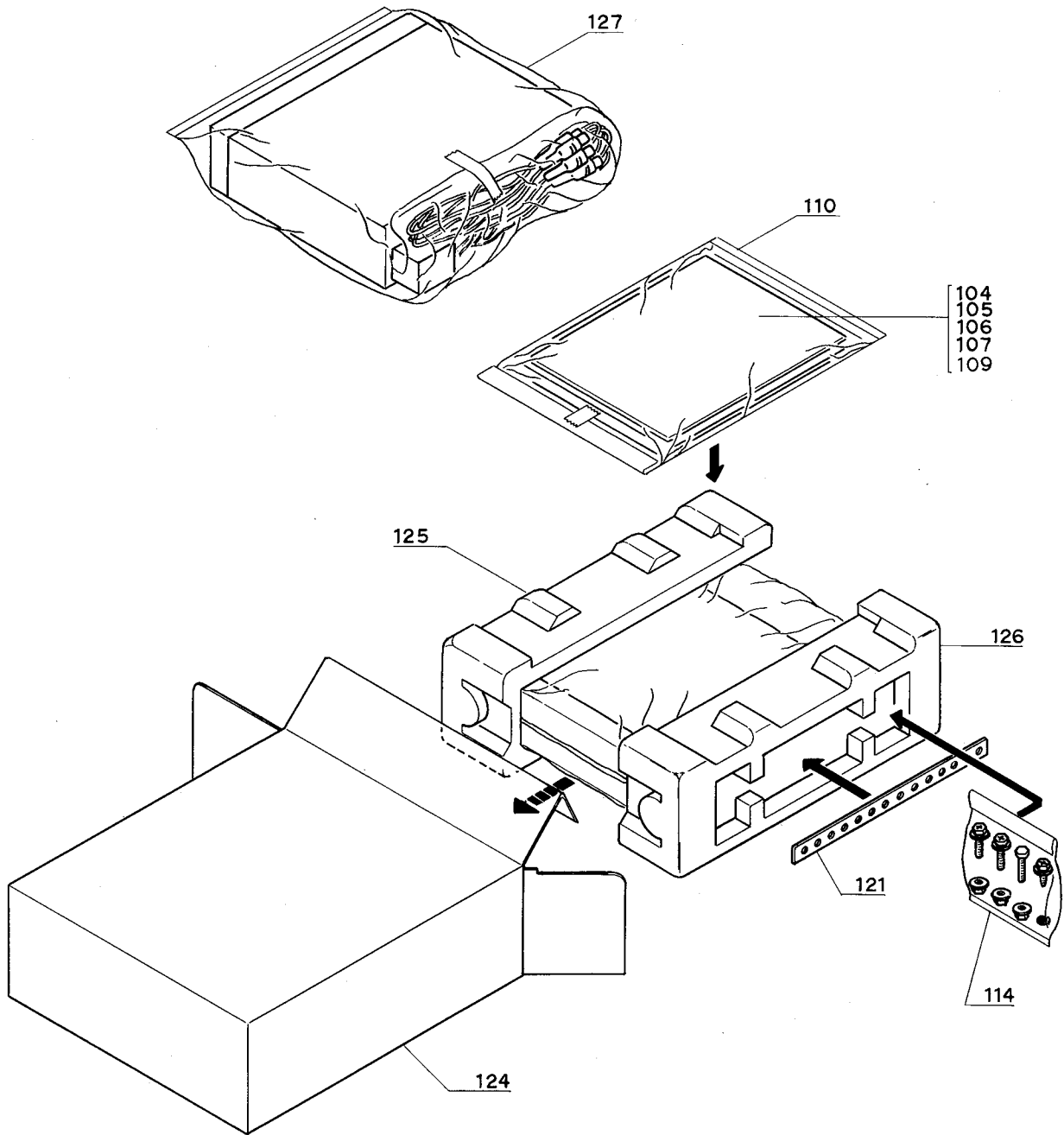
CHASSIS MISCELLANEOUS PARTS LIST

857	LCN201	4163-02501003	CONNECTOR W/W
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NOTE

SAFETY RELATED COMPONENT. USE ONLY EXACT REPLACEMENT PART AS SPECIFIED.

PACKAGE

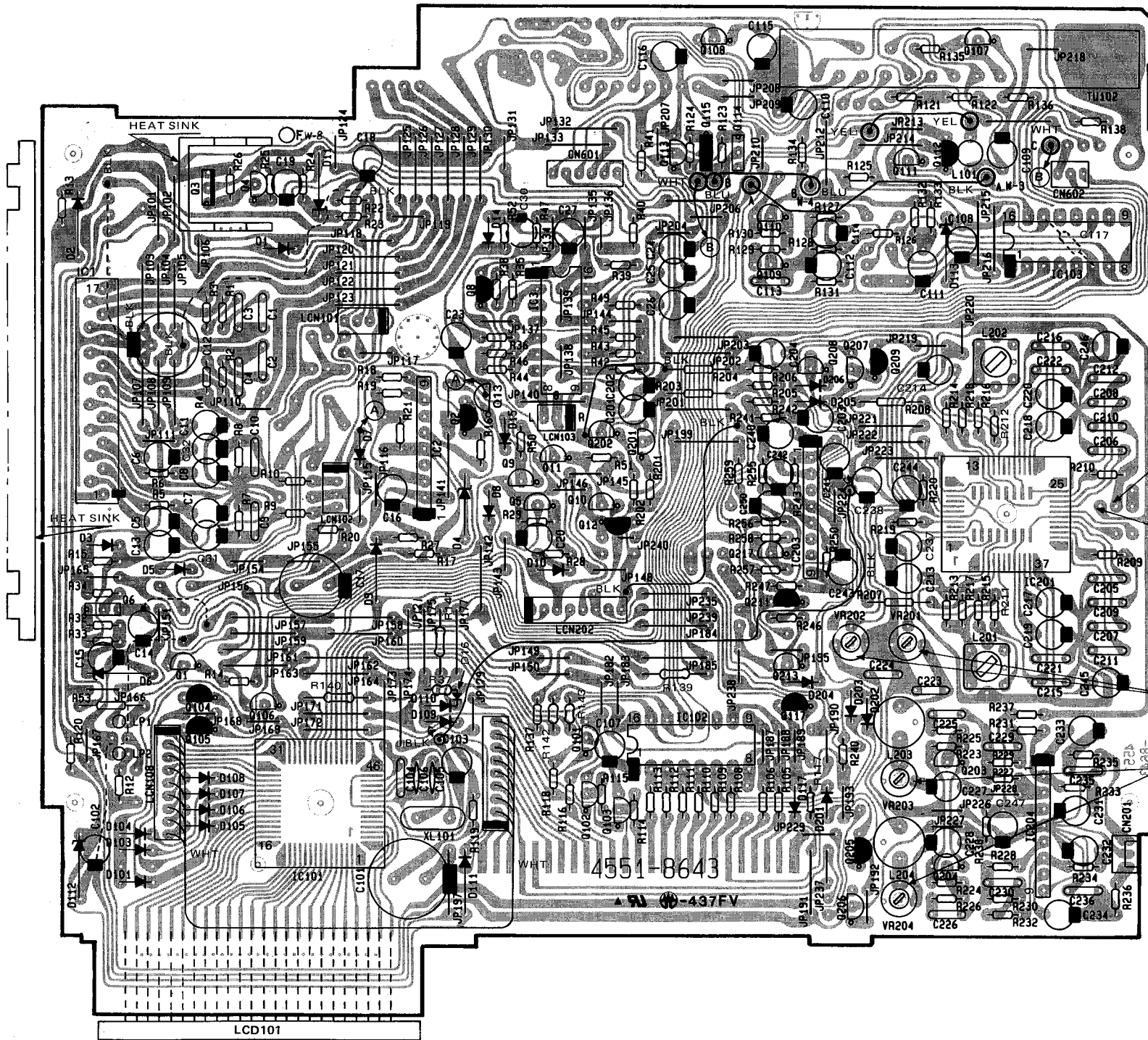


Ref. No.	Part No.	Description
104	1111-J30291	OWNER GUIDE
105	1113-717004	OWNER CARD
106	1113-727004	OWNER CARD
107	1119-0138	ATTACH SHEET
109	5732-102037	FUSE
110	1241-C12742	POLYETHY BAG

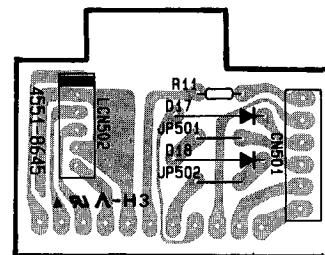
Ref. No.	Part No.	Description
114	2310-7037	SCREW, SPE
121	2219-8053	METAL FITTG
124	1221-737179	CARTON BOX
125	1222-7335	CUSHION
126	1222-7336	CUSHION
127	1241-C1266	POLYETHY BAG

P.C. BOARDS (1)

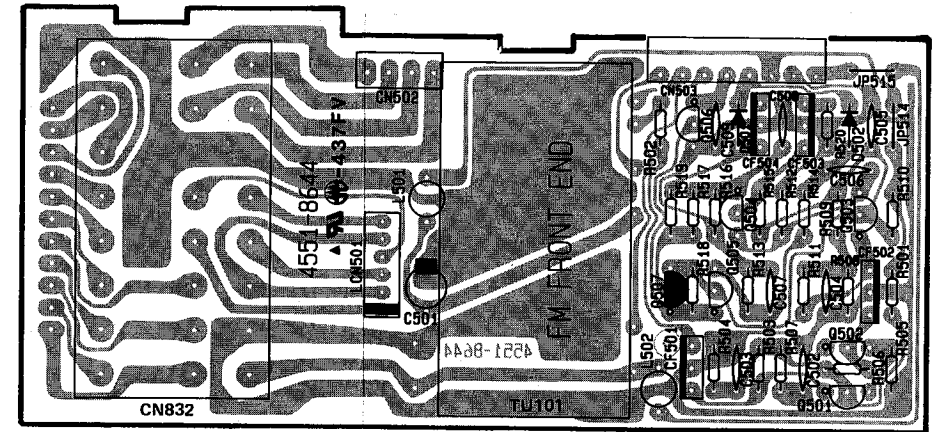
PCB-1 MAIN P.C. BOARD



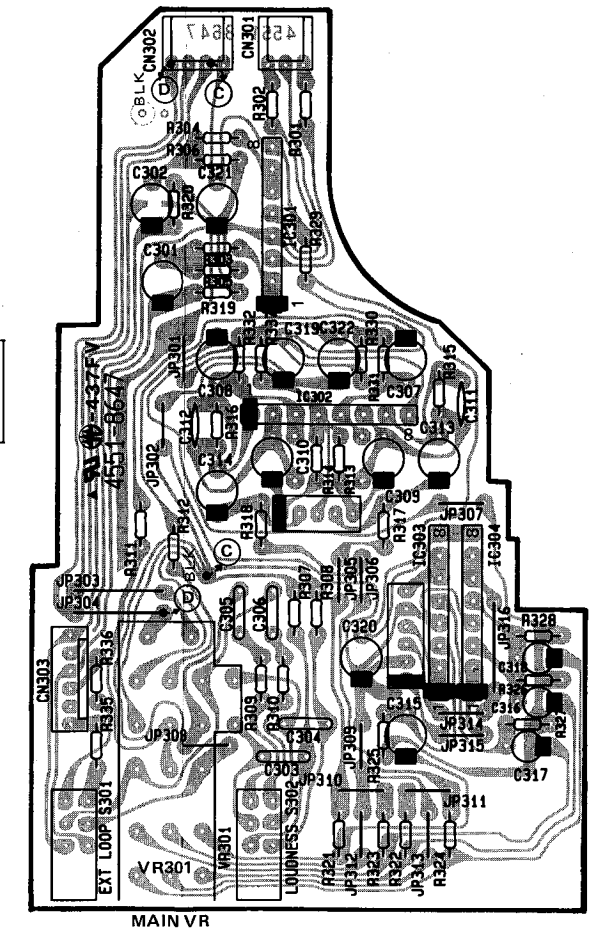
PCB-3 I/O P.C. BOARD



PCB-2 FM RF P.C. BOARD



PCB-5 PRE AMP P.C. BOARD



TP4
TP3

DOLBY NR LEVEL ADJ.

PLAYBACK FREQUENCY CHARACTERISTIC ADJ.

MAIN VR

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4
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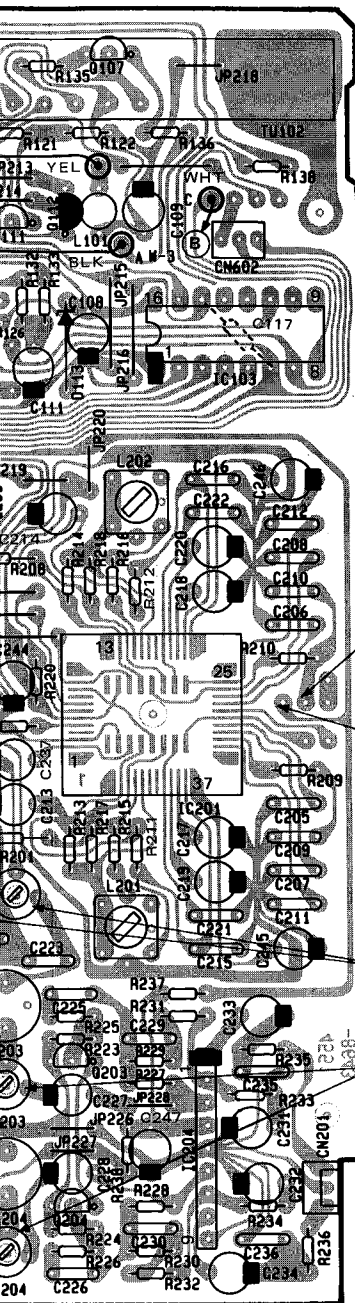
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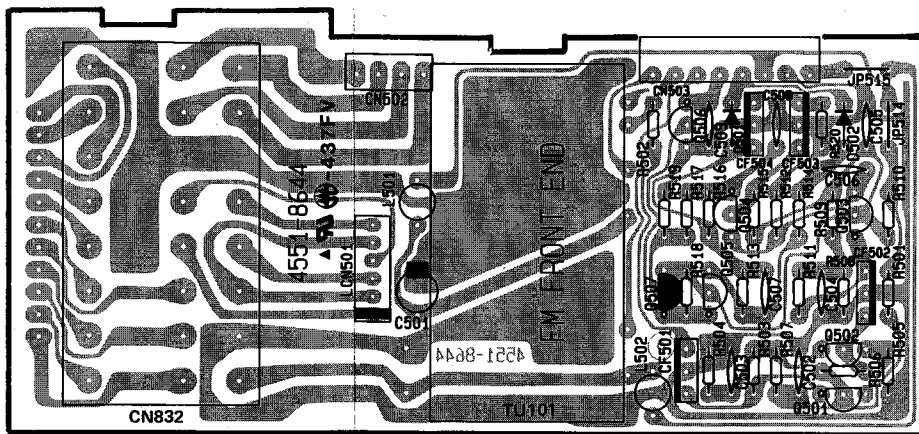
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PCB-2 FM RF P.C. BOARD



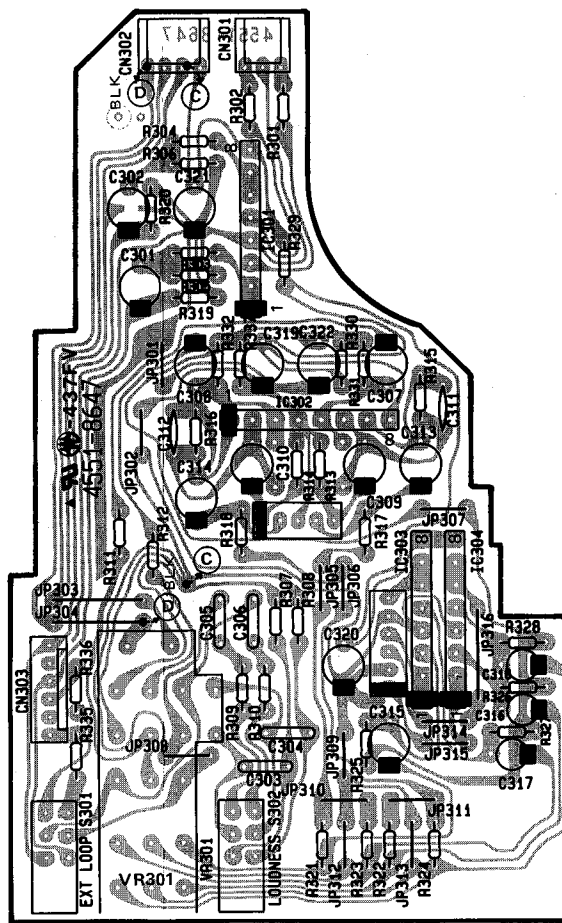
PCB-5 PRE AMP P.C. BOARD

TP4

TP3

DOLBY NR LEVEL ADJ.

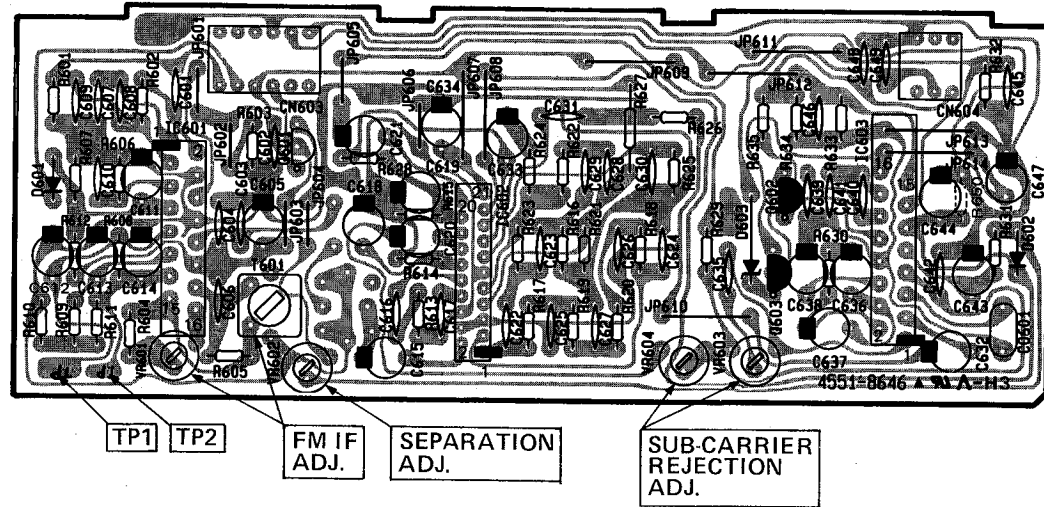
PLAYBACK FREQUENCY CHARACTERISTIC ADJ.



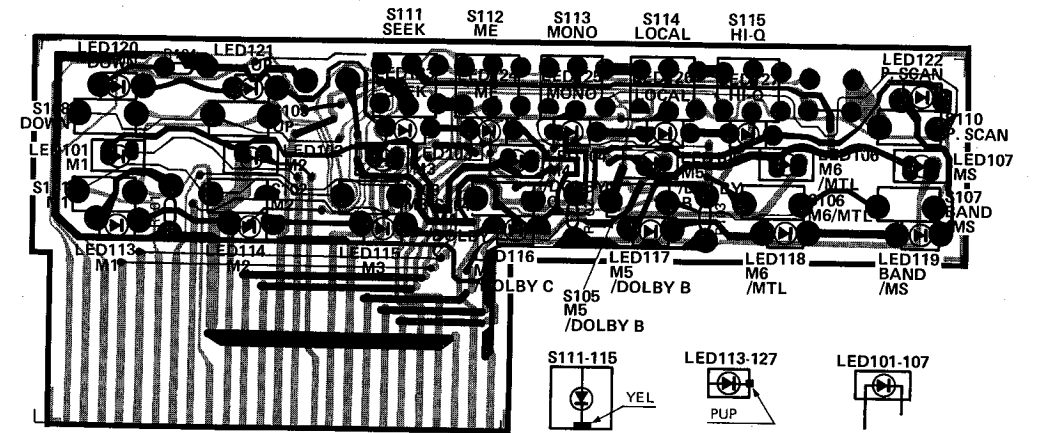
MAIN VR

P.C. BOARDS (2)

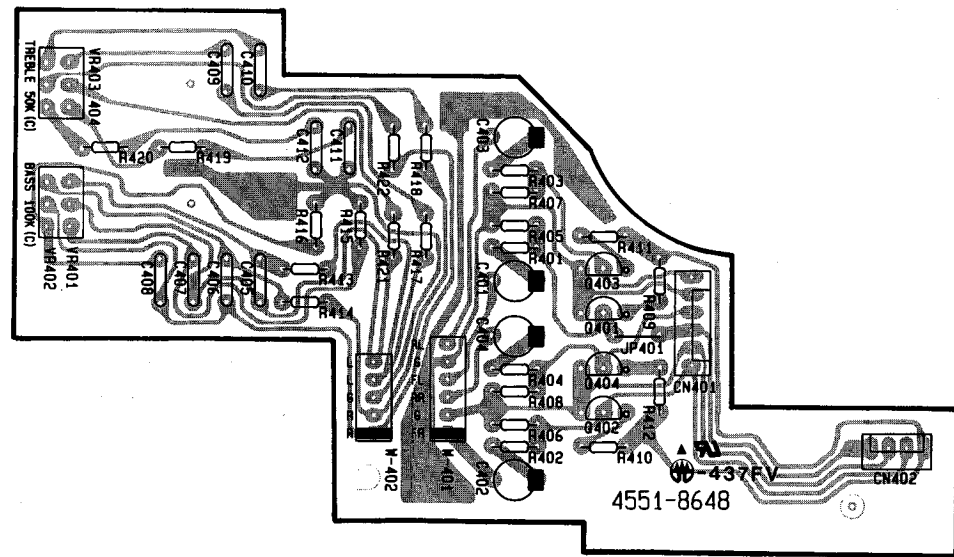
PCB-4 FM DET AND MPX P.C. BOARD



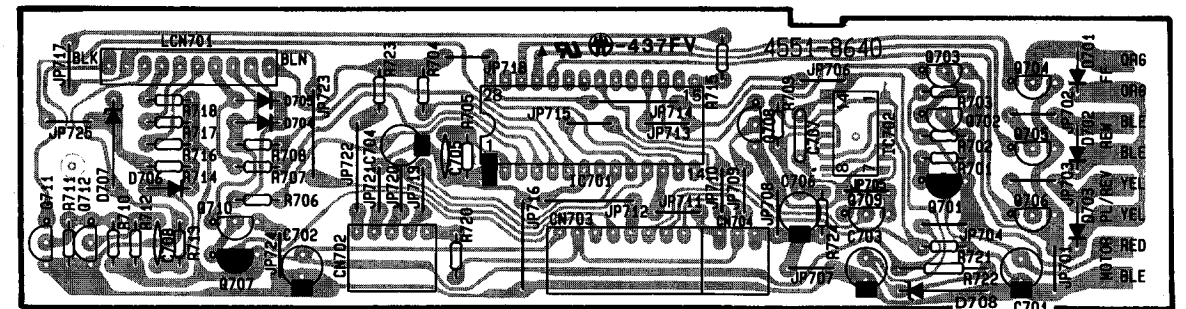
PCB-7 FRONT P.C. BOARD



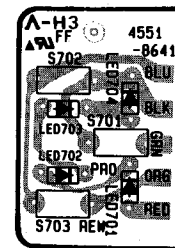
PCB-6 TONE AND BUFFER P.C. BOARD



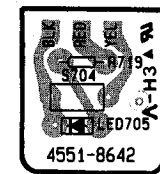
PCB-8 FULL LOGIC P.C. BOARD



PCB-9 PRO/FF/REW SWITCH P.C. BOARD



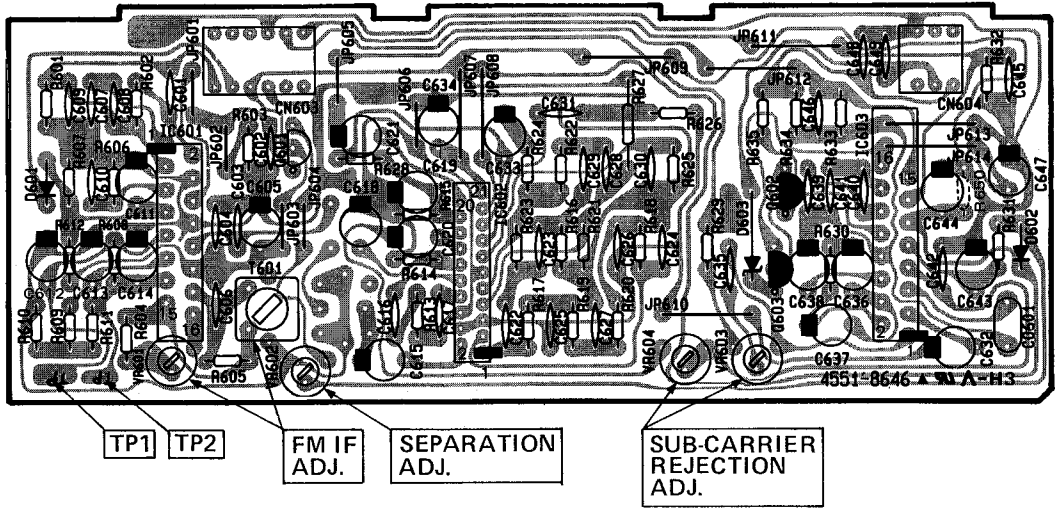
PCB-10 EJECT SWITCH P.C. BOARD



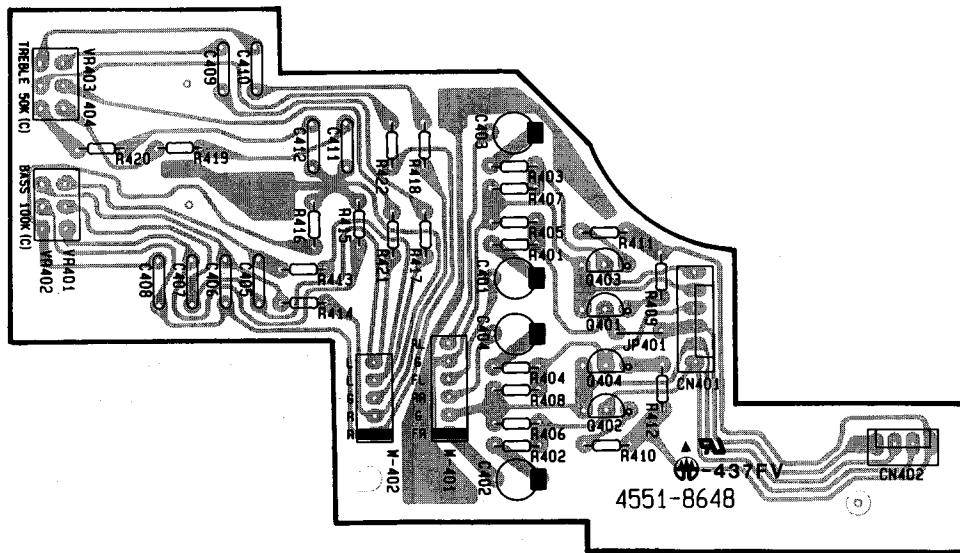
A B C D E

P.C. BOARDS (2)

PCB-4 FM DET AND MPX P.C. BOARD

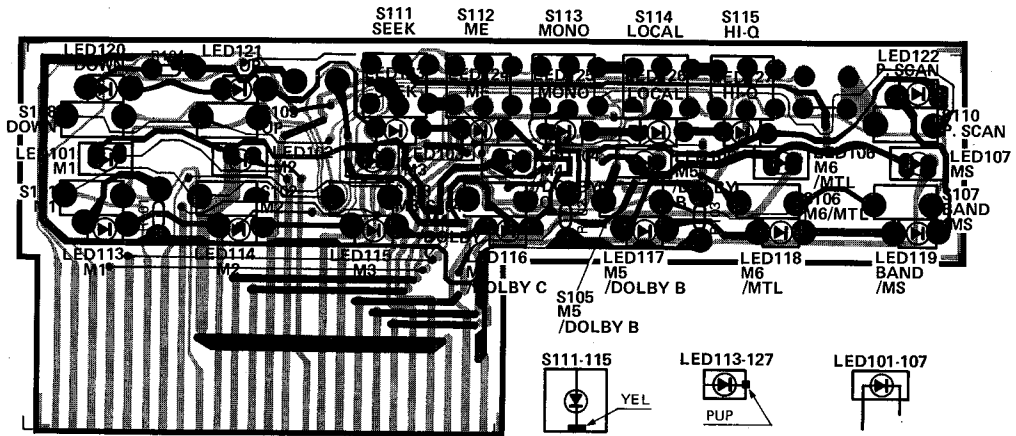


PCB-6 TONE AND BUFFER P.C. BOARD

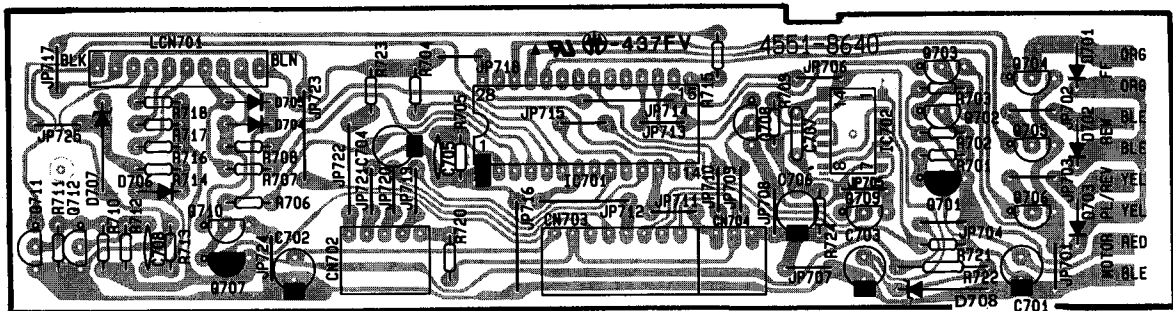


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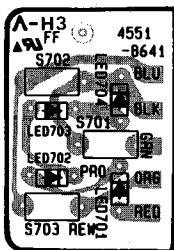
PCB-7 FRONT P.C. BOARD



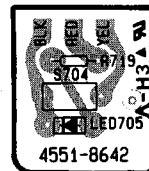
PCB-8 FULL LOGIC P.C. BOARD



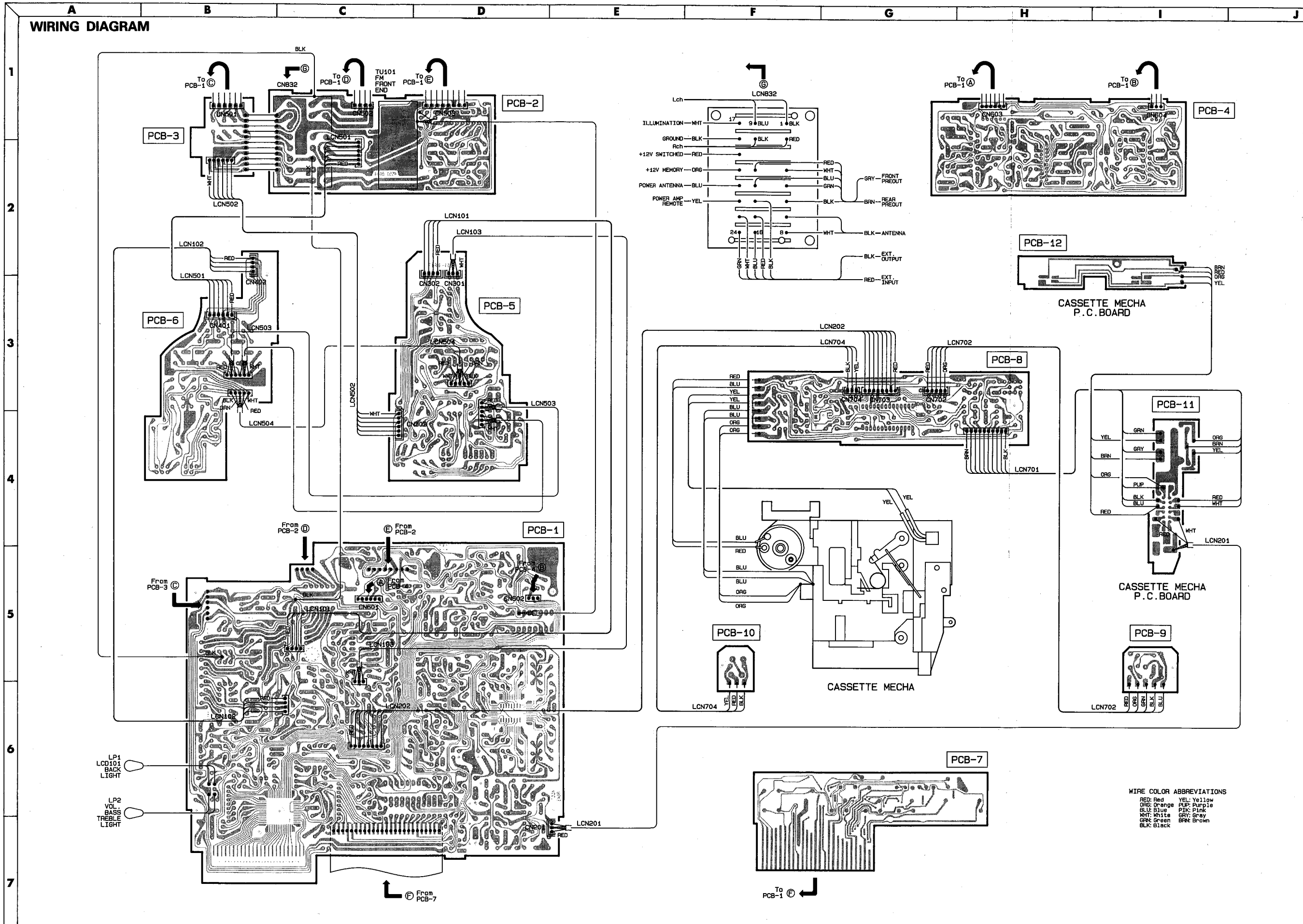
PCB-9 PRO/FF/REW SWITCH P.C. BOARD



PCB-10 EJECT SWITCH P.C. BOARD



WIRING DIAGRAM

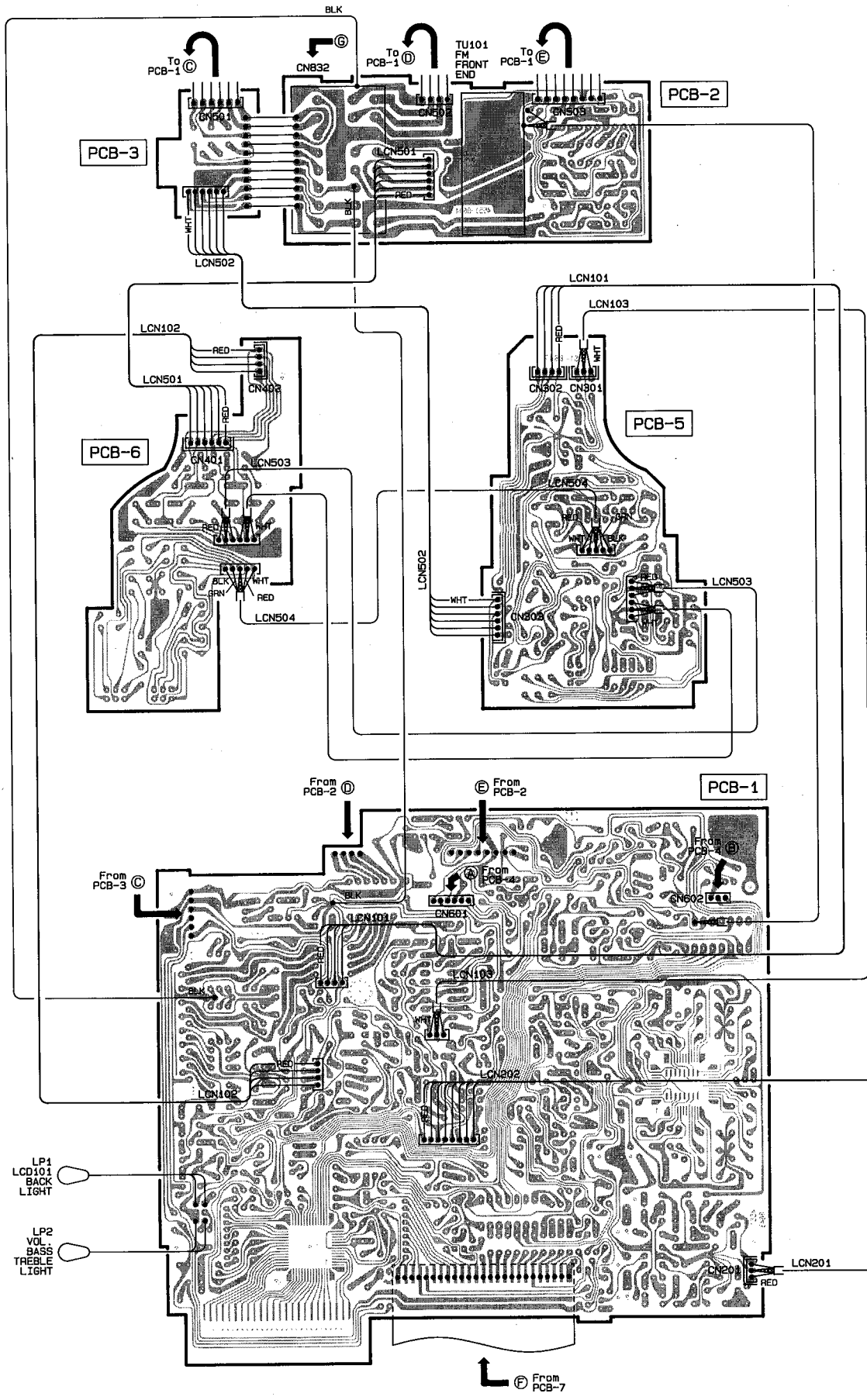


WIRE COLOR ABBREVIATIONS

RED: Red	YEL: Yellow
ORG: Orange	PUP: Purple
BLU: Blue	PK: Pink
WHT: White	GRY: Gray
GRN: Green	BRN: Brown
BLK: Black	

WIRING DIAGRAM

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ILLUMINA
GR
+12V SWIT
+12V ME
POWER ANT
POWER RE

LP1
LCD101
BACK
LIGHT

LP2
VOL.
BASS
TREBLE
LIGHT

From PCB-7

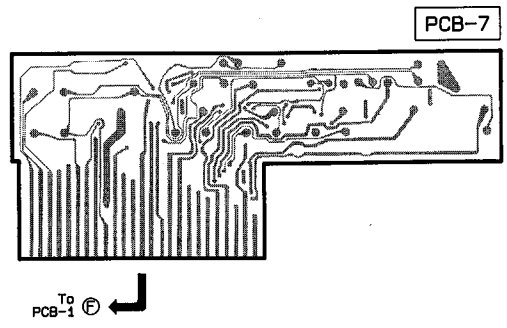
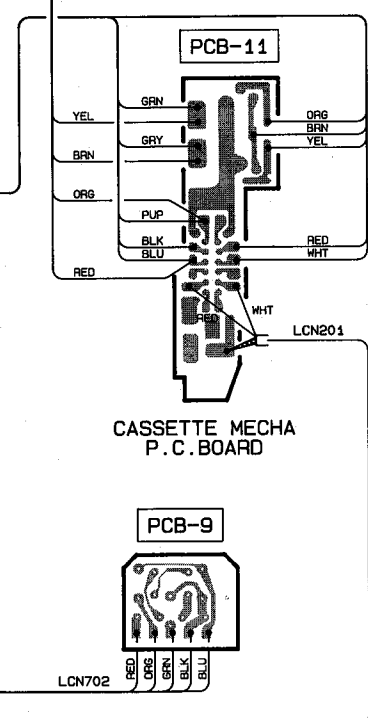
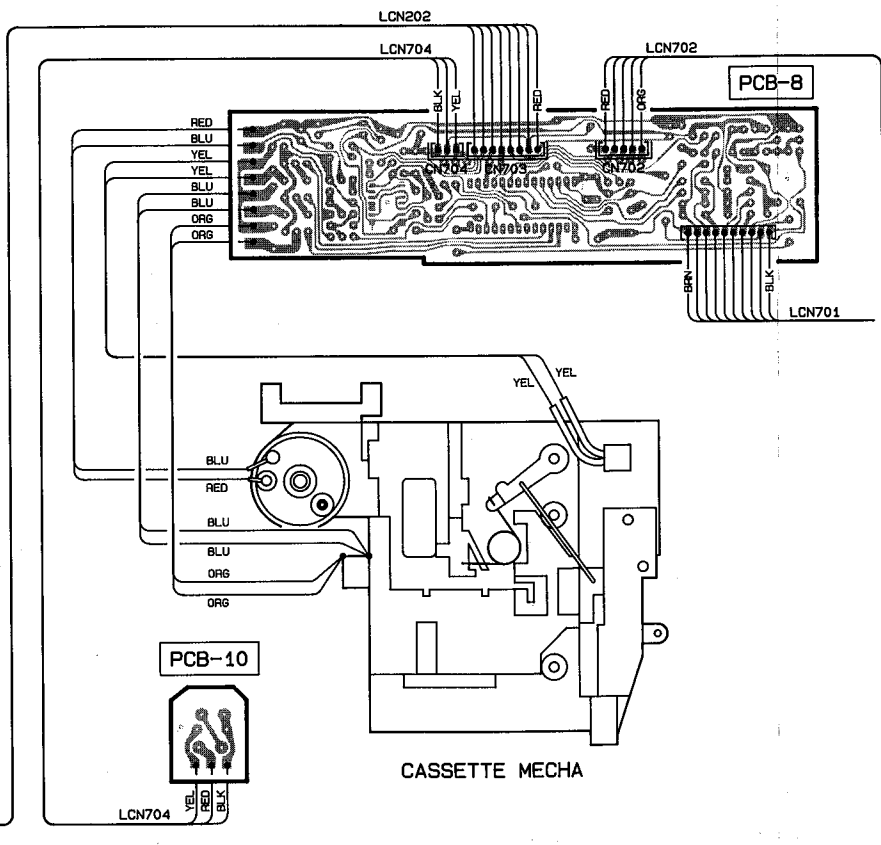
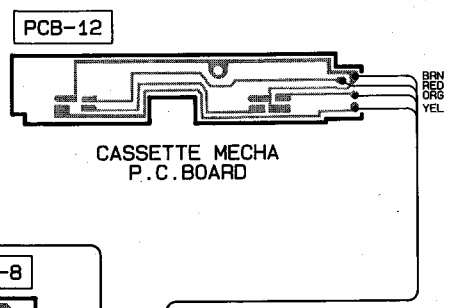
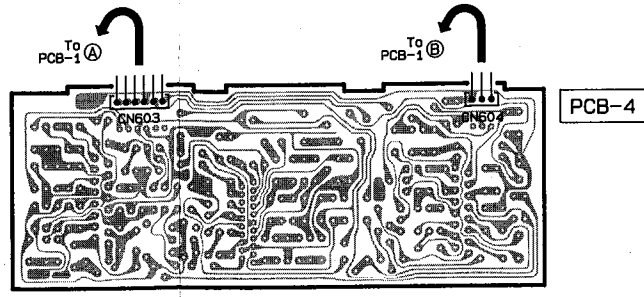
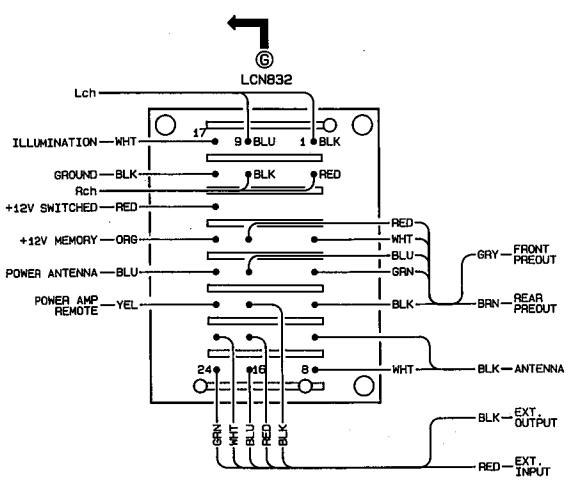
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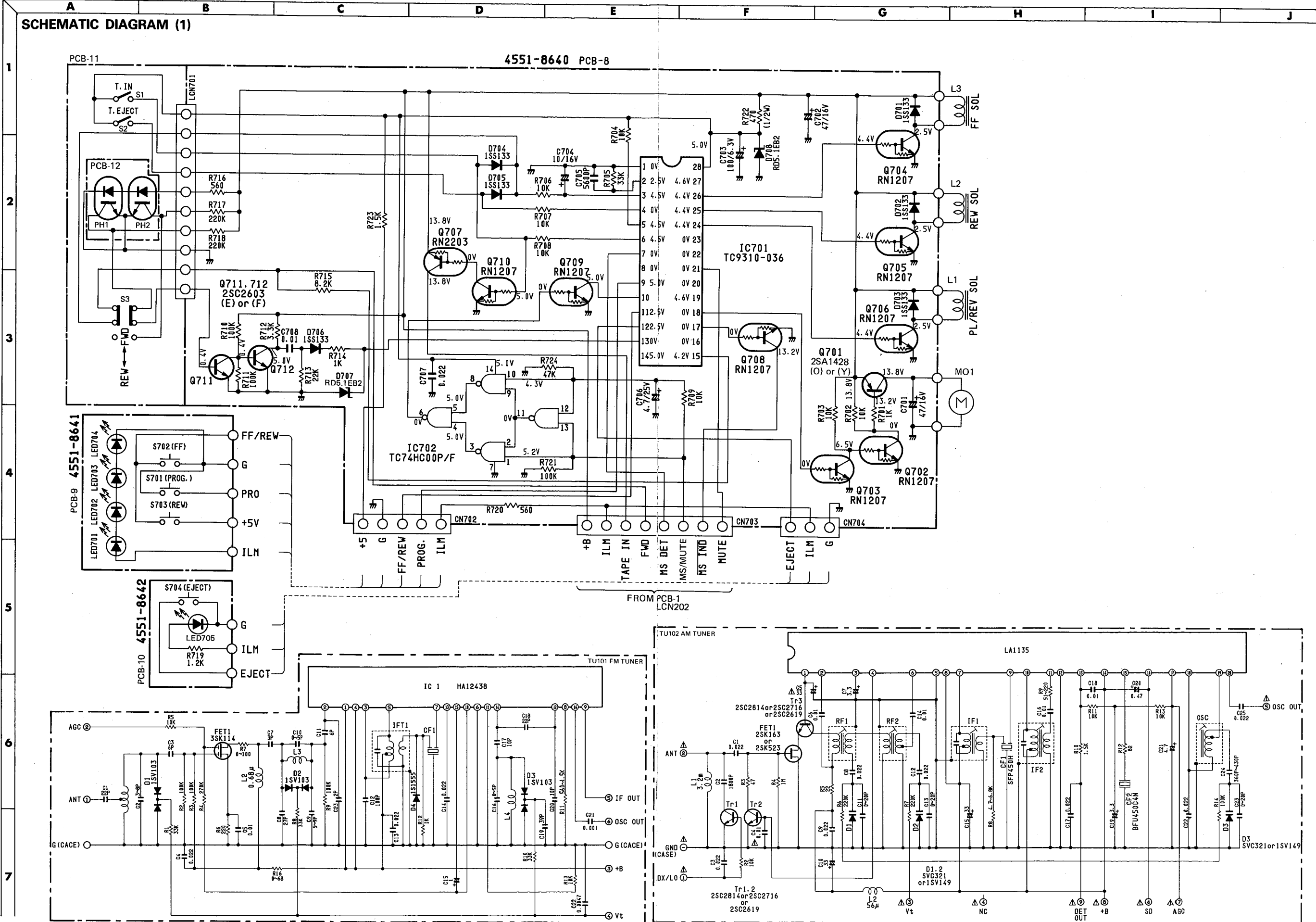
J



WIRE COLOR ABBREVIATIONS

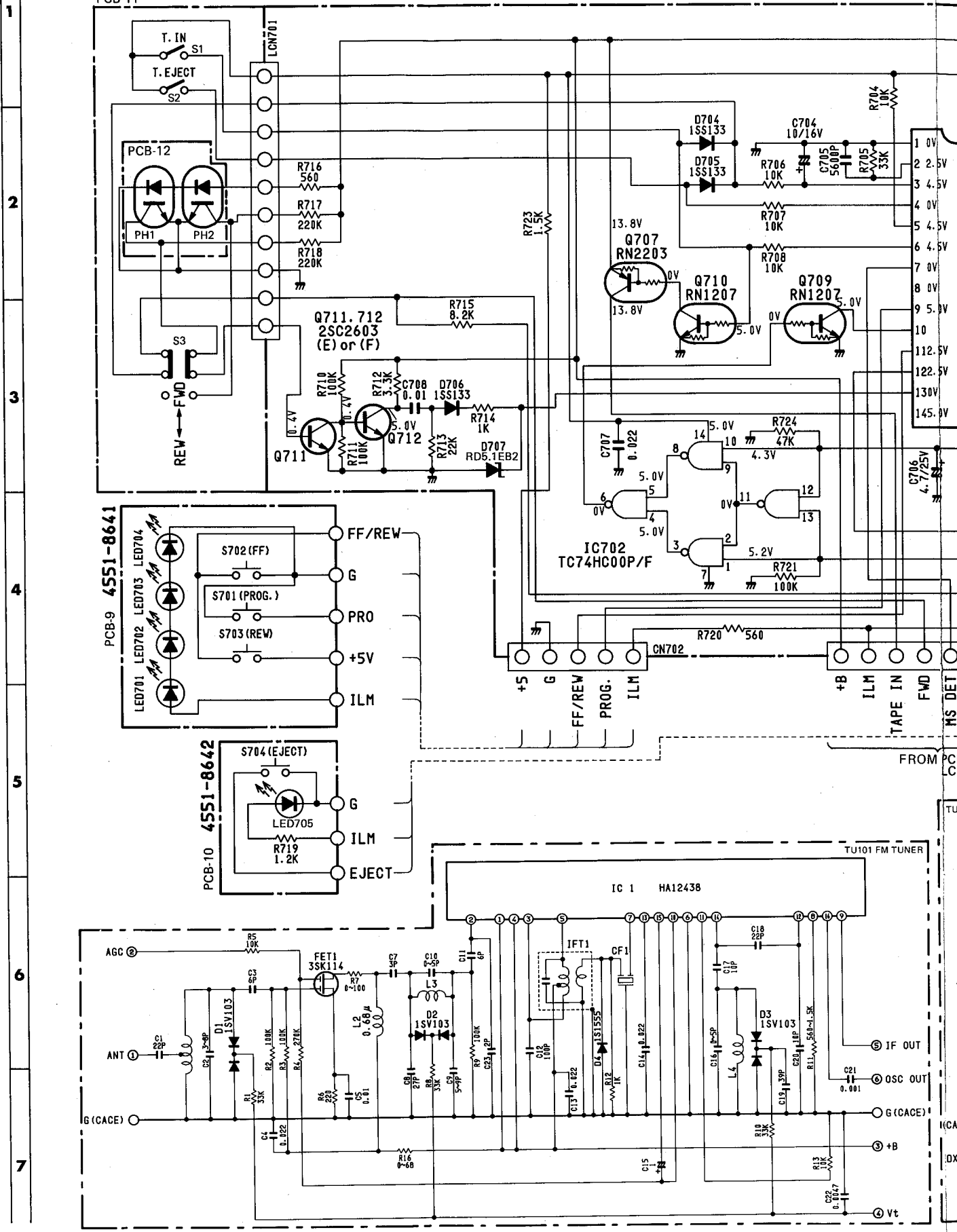
RED: Red	YEL: Yellow
ORG: Orange	PUR: Purple
BLU: Blue	PK: Pink
WHT: White	GRY: Gray
GRN: Green	BRN: Brown
BLK: Black	

SCHEMATIC DIAGRAM (1)



SCHEMATIC DIAGRAM (1)

4551-8640 PCB-8



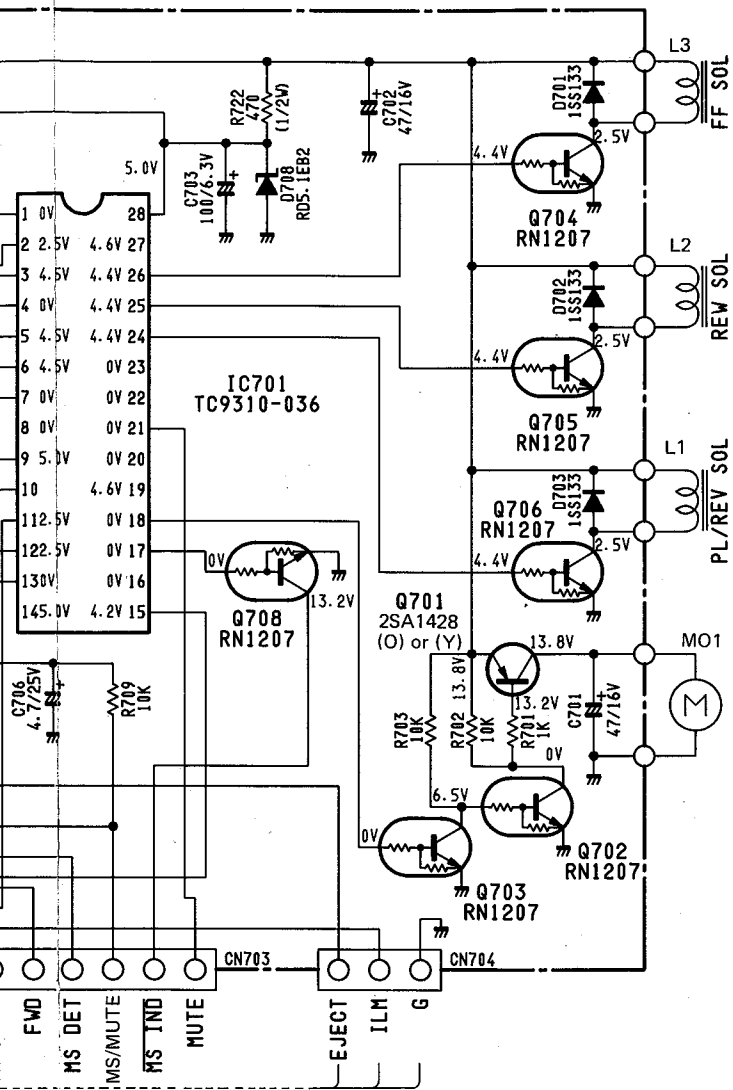
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FROM PCB-1
LCN202

