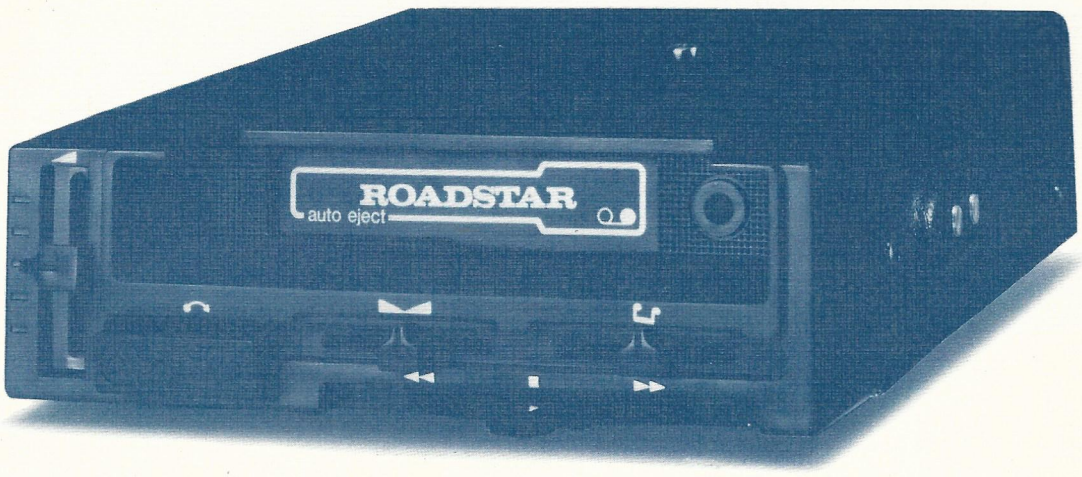
SERVICE MANUAL

Super-Mini "Auto-Eject" Cassette Car Stereo Tape Player

RS-1000



ROADSTAR®

Specifications

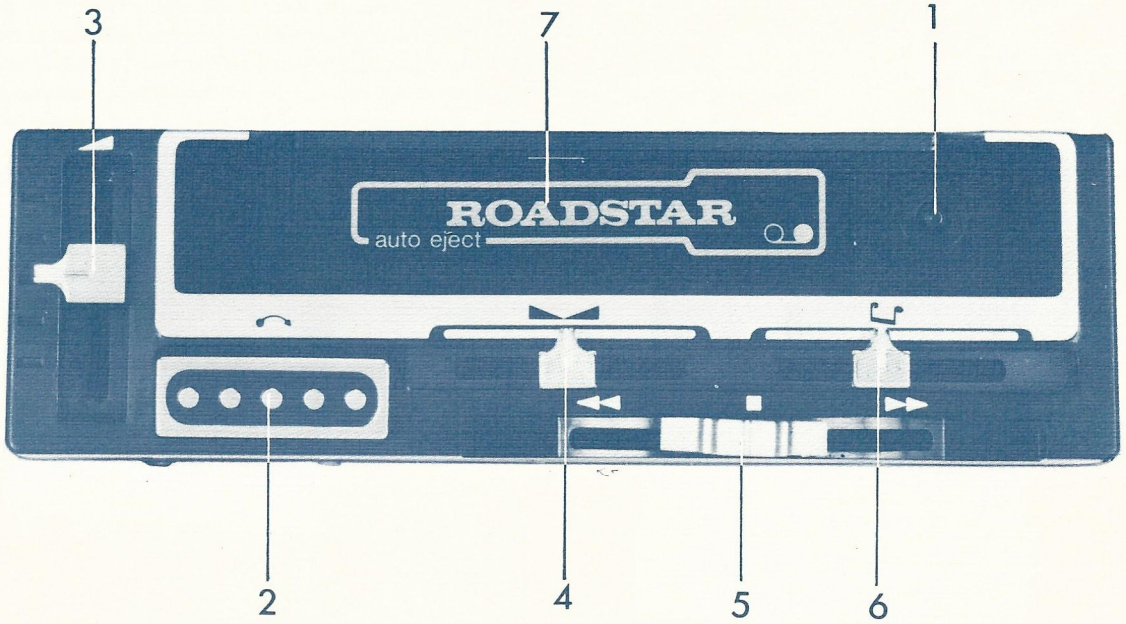
Item	Condition	Unit	Limit	Nominal
Tape speed	3kHz	%	−1 +3	+1
Wow/flutter (W.RMS)	3kHz	%	0.35	0.15
Output power (at 1kHz)	MAX.	W	4.5	5.5
	10% THD	W	3.5	4.0
Distortion (at ref. output)	1kHz	%	3.0	1.5
S/N ratio (at ref. output)	1kHz	dB	40	45
Separation (at ref. output)	1kHz	dB	35	40
Track crosstalk (at ref. output)	1kHz	dB	35	40
Tone effect (at ref. output)	6.3kHz	dB	12	15
Channel balance (L & R) (at ref. output)	1kHz	dB	3	1
Noise level (empty tape)	MIN.	mV	10	3
	MAX.	mV	50	30
Frequency response (1kHz 0.775V = 0dB)	125Hz	dB	±6	+1
	6.3kHz	dB	±6	−1
Current drain (at 1kHz)	R.O.	mA	800	500
	MAX.	mA	1,500	800
F.F. time	C-60	SEC.	180	150
Rewind time	C-60	SEC.	150	120
Take up torque		gcm	40–60	45

General Instructions

Prior to servicing, check the following:

- Check that the head is not dirty. If it is dirty, either the level of the sound will drop or the high frequencies will deteriorate.
  Clean the head with a cleaner pen or a Q-top dipped in alcohol.
- Check that the speakers are connected correctly. (Refer to the speaker connection diagram in the Owner's Manual.)
- Check that the grounding is completely satisfactory. If not grounded properly, the required power will not be supplied.
- Check that the fuse is not blown.
  Never use a fuse with a larger rating than specified. Do not by-pass the fuse.
- Check if the pinch roller or capstan is contaminated with oil, dust or any other substance. Clean them with a Q-tip dipped in alcohol to reduce wow-flutter and to maintain the correct tape speed.
- If the pinch roller stays pressed to the capstan for a long period of time, it may cause the pinch roller to be deformed. Be careful!
- Care should be excercised not to scratch the tape head surface nor to bring any magnetic object near it.
- The speakers should be used in the range of 4 to 8 ohm of impedance.
  Note that a speaker impedance lower than 4 ohm may cause damage.

Parts & Constrols



1 Indication Lamp
2 Eject Switch
3 Volume Control
4 Balance Control
5 Fast Forward & Rewind Control
6 Tone Control
7 Tape Slot

Fig. 1

Disassembly Instructions

When inspecting or repairing, disassemble the player as follows:

1. **Removal of Top Cover:**
   Remove 4 top cover holding screws as shown in figure. (Fig. 2)

2. **Removal of Mechanism:**
   Remove 4 bottom cover holding screws after top cover/front removal. (Fig. 3)

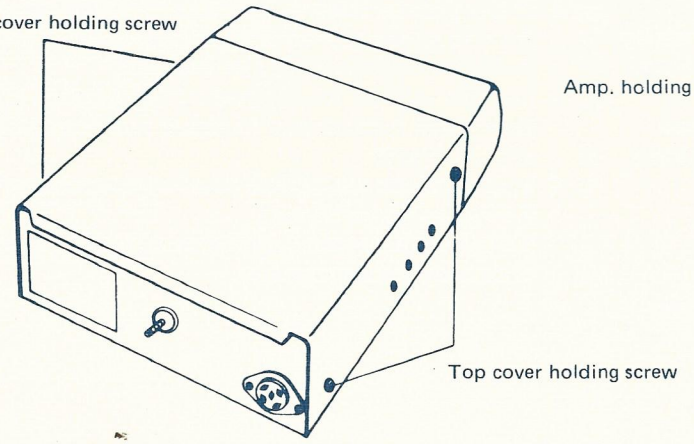


Fig. 2

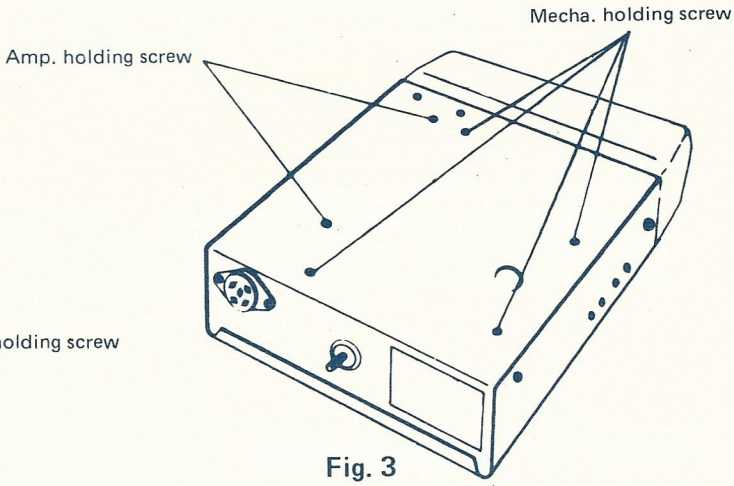
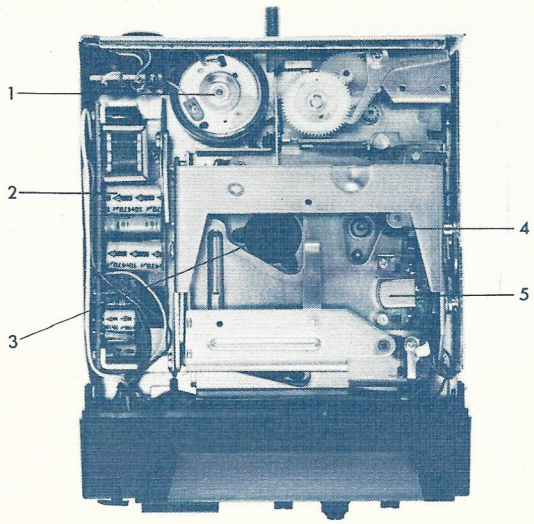
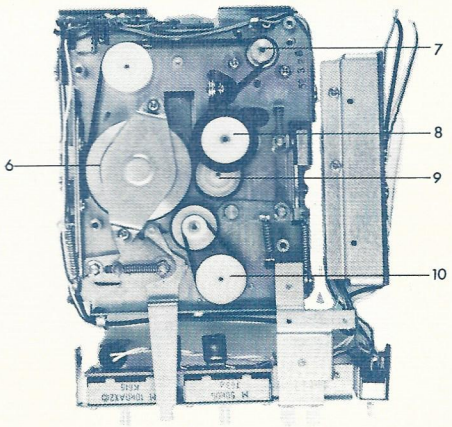


Fig. 3

Assembly Diagram





1 Motor
2 Amplifier Assembly
3 Reel Assembly
4 Capstan Shaft
5 Head

6 Flywheel
7 Motor Pulley
8 Clutch Pulley
9 Reel Assembly
10 Supply Reel Assembly

Fig. 4

Standard Maintenace Procedures

1. **Cleaning the Head:**
   For obtaining good-quality sound, the head surface must be cleaned regularly: Wrap a soft cloth containing alcohol on one end of a non-magnetic tool and use it to wipe dust and dirt off the head surface.

2. **Cleaning the Pinch Roller, Rubber Belts and Rubber Wheels:**
   If the pinch roller, reel board or rubber wheels, including the Fast Rewind pulley and rubber belts, are contaminated, the transmission of driving power is effected. Be sure to clean them regularly with a soft cloth and alcohol.

3. **Demagnetizing the Head:**
   The playback head used in this set can not be magnetized under normal conditions. However it may be magnetized when a magnet is brought close to it or when a DC current flows through the head coil (in the circuit-tester conduction check and similar tests). In such an event, demagnetize the head by applying an AC magnetic field to it in the following way: Leaving the power switch turned off, turn on the demagnetizer, fit the demagnetizer to the head slit surface, and gradually separate the demagnetizer from the head. (Fig. 5)

4. **Lubrication:**
   A new set requires no lubrication. After the set has been operated for 800 to 1,000 hours, however, supply spindle oil to the capstan metal as shown in figure. (Fig. 6)

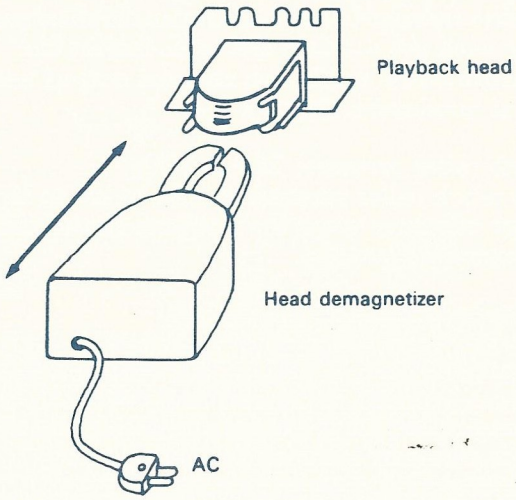


Fig. 5

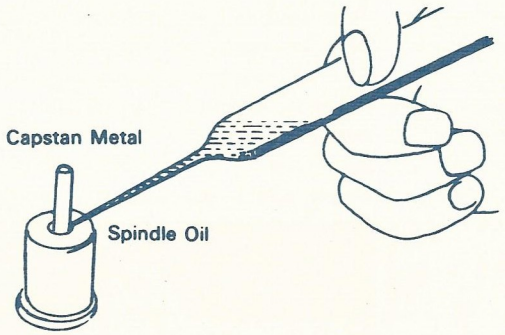


Fig. 6

Mechanical Check Points and Adjustment Procedures

1. **Azimuth of the Playback Head**
   Set the balance control to the mechanical center. Play back the 6.3KHz test tape. Adjust the azimuth screw until both channel output levels are at maximum. (Fig. 7)

2. **Pinch roller pressure: 250 to 300g**
   The pinch roller pressure should be set to this range of values when the test tape running speed becomes abnormal.

3. **Take-up torque: 40 to 70 g/cm**
   The torque of the take-up reel should be within 40 and 70 g/cm, in play. If it is less than 40 g/cm there is a danger of tape entanglement. If necessary, adjust the torque to within the above limits either by cleaning the clutch or by adjusting the spring tension.

4. **Cassette insertion and stability**
   Insert the cassette, making sure that is slides in smoothly, and that in the locked (drop-down) position, it is flush against the frame, particularly at the right side at the front. If this condition is not met, problems such as instability of output balance, poor ejection, wow and flutter may occur. In this case distortion of the frame or misfunction of the cam mechanism must be corrected, to restore operation to normal.

5. **Eject**
   Check manual eject, auto-eject and power switch-off eject. Also make repeated operation of the fast-forward and rewind functions in normal operation. Check for failure to eject, and when re-inserting the cassette after manual ejection, check for failure to stop, and similar conditions.

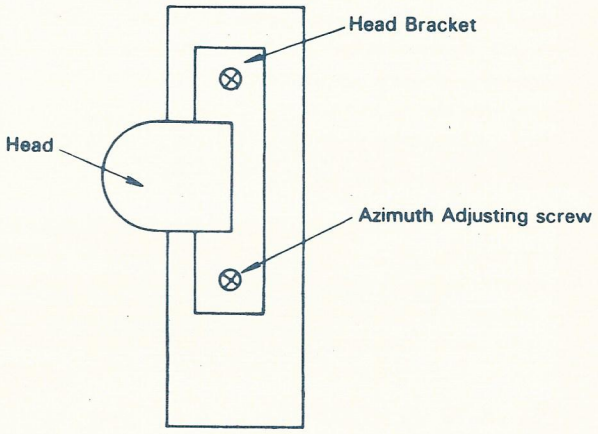
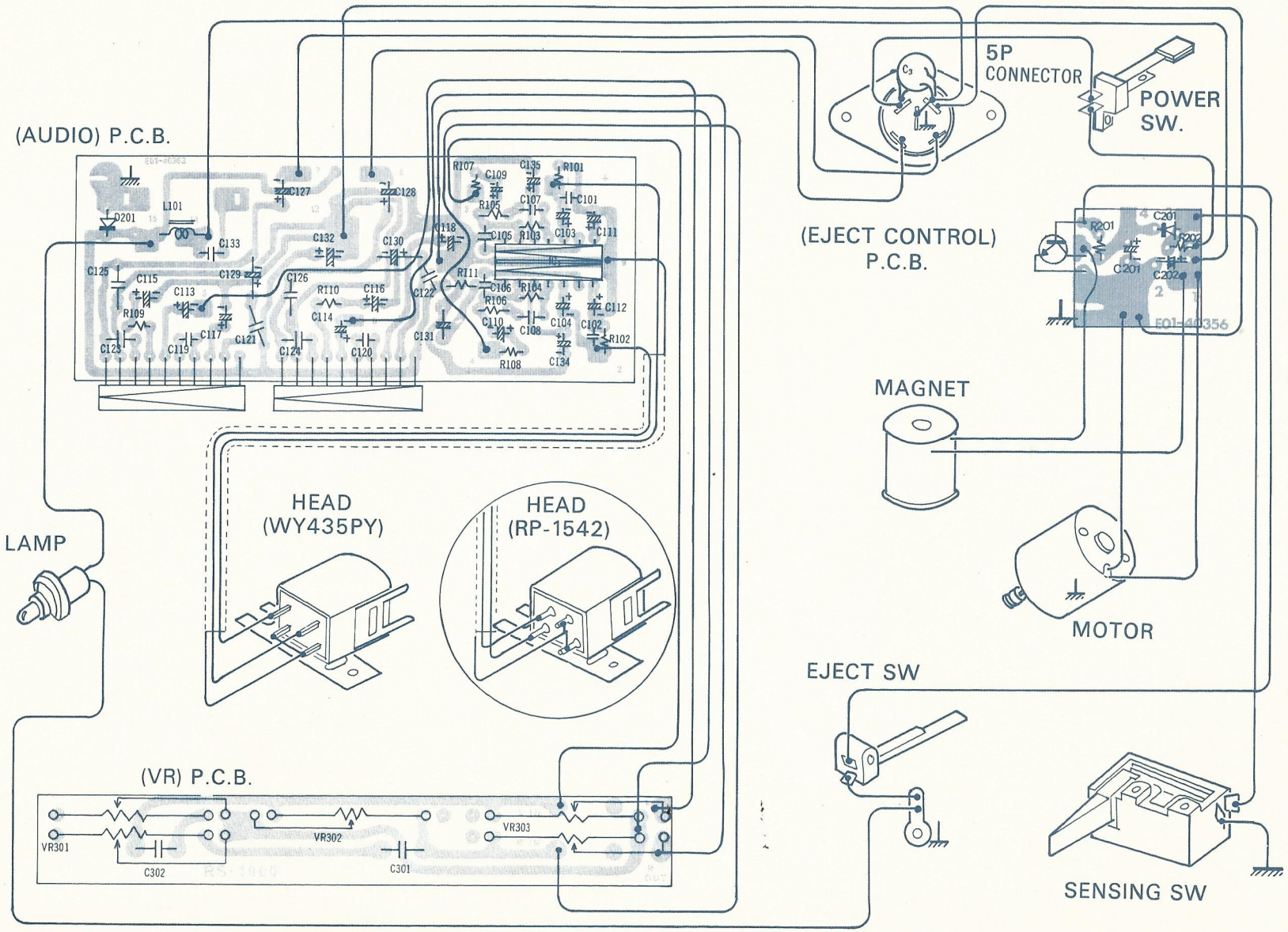
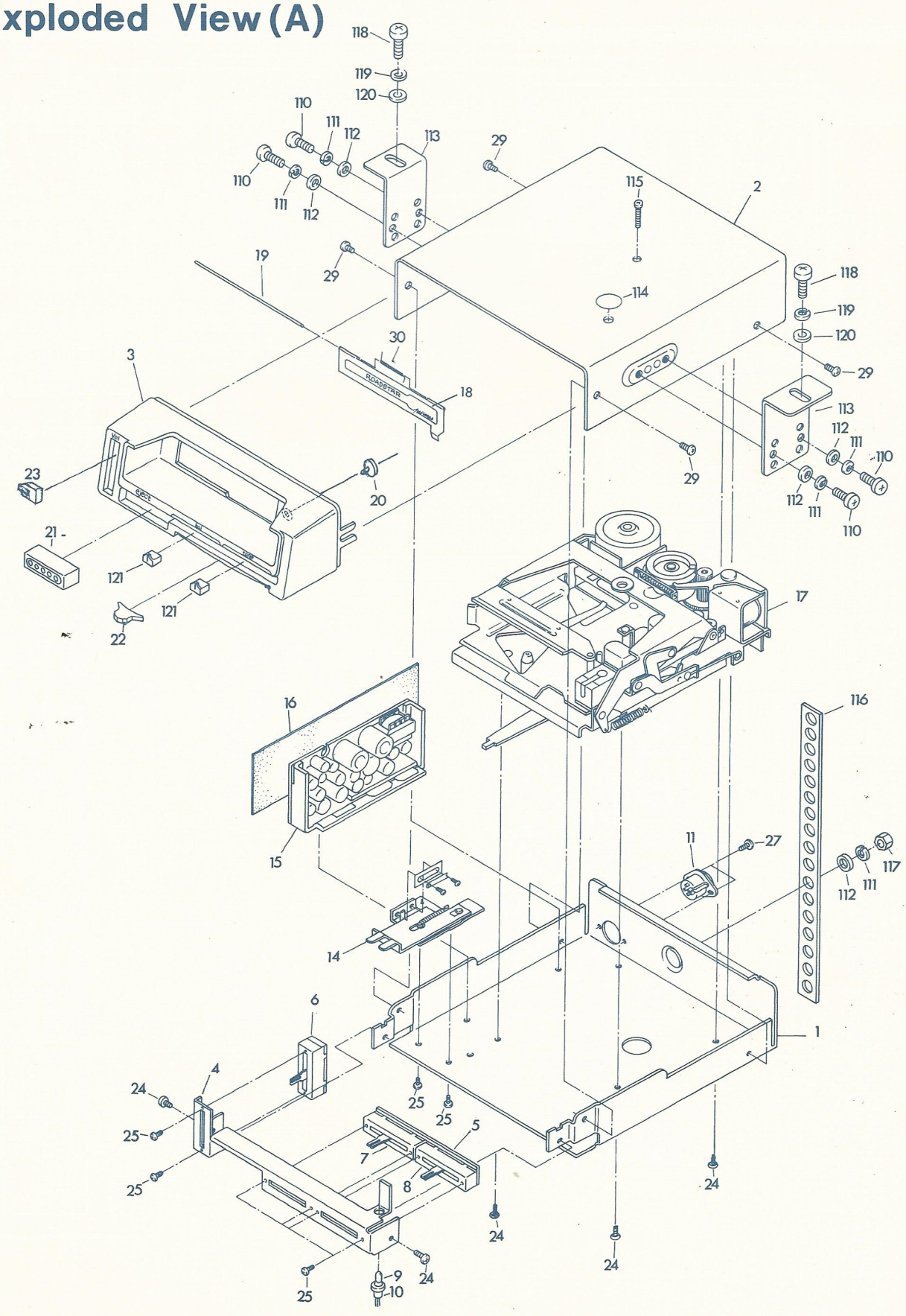


Fig. 7

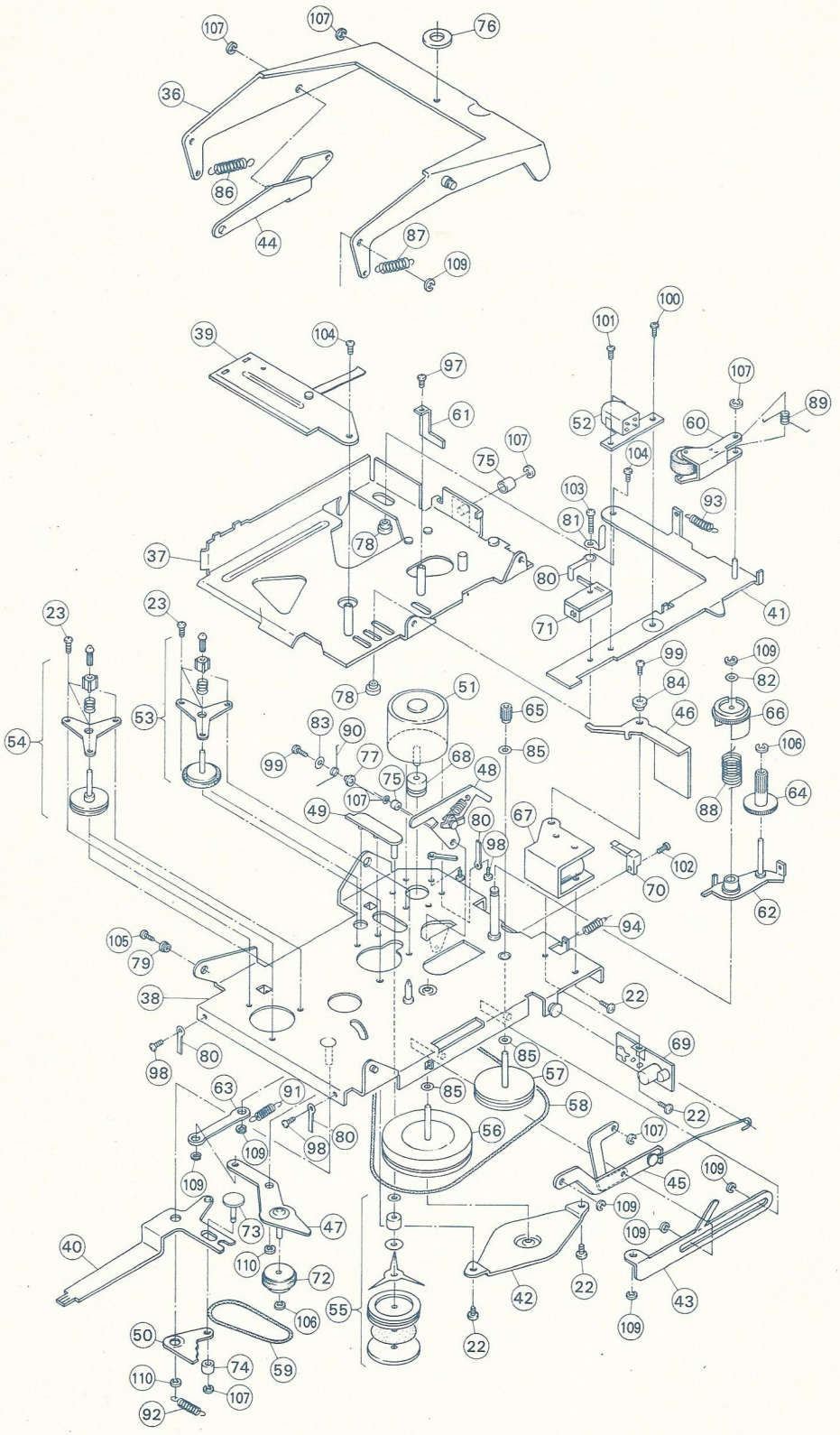
Wiring Connections



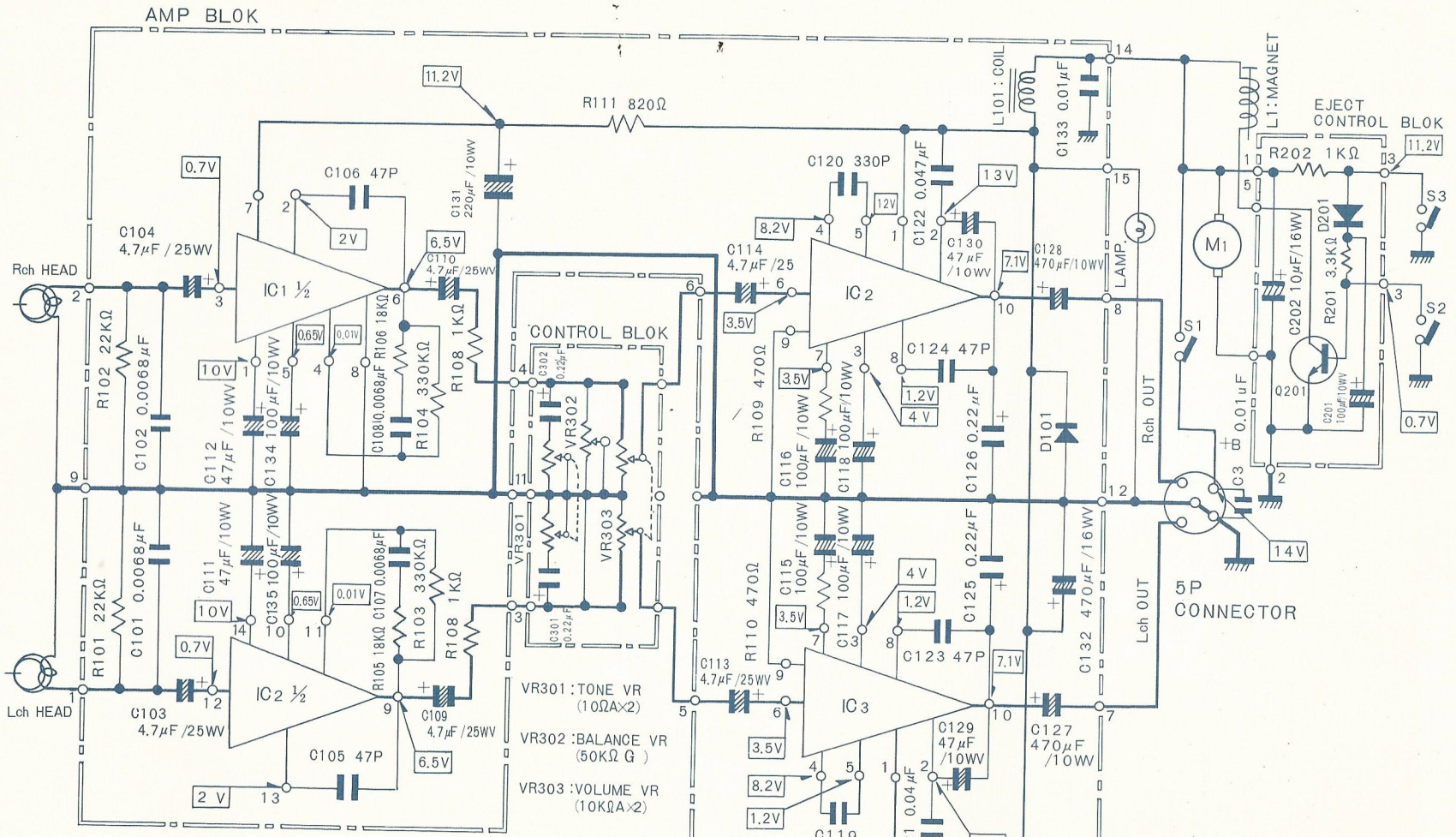
Exploded View (A)



Exploded View (B)



Schematic Diagram



Trouble Shooting

Symptoms	Possible Causes & Remedy
Player does not start after cassette insertion.	1. Lock screw for mecha. protection is not taken off. 2. Main switch finger's contact is open. 3. Broken fuse. 4. Power supply circuit's wire is snapped, shorted or faultly soldered.
Power supply is turned on, but no sound.	1. Motor is defective. 2. Rubber belt is broken. 3. Volume, balance or tone is defective. 4. Soldering of amp. p.c.b. is defective or some parts of transistor, condenser, resistor is defective.
Channel indicator does not light.	1. Bulb's filament is off. 2. Defective soldering or wire is snapped. 3. Defective wiring.
Fast Forward does not work.	1. When take-up reel is not operated. • Check operating clutch. • Check operating clutch lever. • Check whetehr clutch contacts with reel base. 2. When take-up reel base is operated. • Check take-up torque of 40 – 70 gcm. • Clean up clutch when torque is small. • Clean up reel base belt, etc. • Clutch board spring is to be stronger when torque is still low even after cleaning. 3. Is supply reel board operated smoothly? • Check whether supply reel base is operated smoothly when normal operation & torque.
Fast Rewind dies not work.	1. Check supply reel base/take up reel base are operated smoothly. 2. Belt is dislocated when it is smooth operation. 3. Check operating rewind lever. Rewind idler does not touch with capstan wheel in wrong operation.
Ununified output (right & left)	1. Dirty head (to be cleaned) 2. Ununified azimuth adjustment (to be adjusted correctly) 3. Distortion in cassette holder. Check whether right & left are touching tightly.
Small/ununified take up torque	1. Clean up clutch & adjust clutch spring. 2. Clutch & take up reel base are not in right position. If it is slipping, check/clean up clutch lever.
Unstable eject	1. Vertical operation of cassette holder is not correct. (put some grease into slide cam & head base) 2. Put some grease into sliding mechanical part.
Oscillation	1. Lug plate for binding is eating head shield wire. 2. Lug plate for binding is touching with head shield wire's earth side or head case. 3. Amp. resistor is touching with radiator.
Wow/flutter tape speed	1. Clean up each rolling part & belt 2. Clean up disassembled clutch. 3. Put some oil into capstan shaft bearing & 1st pulley shaft. 4. Change motor pulley. (To adjust tape speed) 5. Defective motor.
Heavy F. Rewind/play/F. Forward lever operation.	1. Put some grease into slide cam, head base, control lever.

Symptoms	Possible Cause & Remedy
Unstable cassette coming-down	1. 1st. gear unsufficiently touches with 2nd. one. 2. To adjust 2nd. gear lever.
Cassette does not coming out when ejection.	1. Head base movement is not smooth. • Head lead wire, senser lead wire are confused. • Put some grease into head guide part.
Not auto eject	1. Adjust space around senser switch. 2. Lead wire in senser switch is dislocated. 3. Senser switch connecting point is dirty.
Shock Noise	1. Connection of resistor with condenser, board with screw. Poor soldering of electrical parts.
Volume Noise (Balance tone)	1. Poor soldering of circuit. 2. Solder chip or dust are inside of player. 3. Defective carbon of control volume.
No sound	1. Check whether + B returned to amp. (when entirely no sound) 2. Is transistor voltage/currency correct in both L & R? (check lead wire location) 3. Check to distinct whether it is defect of pre-amp. or main amp. 4. Check abnormal bias.
One channel no sound	1. Defective transistor. 2. Defective condenser/resistor. 3. Poor soldering

Parts List

REF NO.	PART NO.	DESCRIPTION	Q'TY
GENERAL ASSEMBLY		EXPLODED VIEW (A)	
1	0010420	Outer chassis	1
2	0013755	Cover	1
3	0015457	Front	1
4	0015568	VR hanger	1
5	0015164	VR P.C. board	1
6	0010994	Volume 10 KOhms A	1
7	0010985	Balance 50 KOhms G	1
8	0010994	Tone 10 KOhms A	1
9	0012465	Lamp	1
10	0012465	Lamp holder	1
11	0012309	5P connector	1
14	0015577	SW base ass'y	1
15	0013931	Amp. P.C. board ass'y	1
16	0011046	Insulation board	1
17	0013912	Mechanism ass'y	1
18	0010468	Pack door	1
19	0010699	Pack door shaft	1
20	0015559	Indicator	1
21	0015531	Eject knob	1
22	0015541	Control knob	1
23	0015512	VR knob-A	1
24	0011554	Screw P.H. M2.6x4	10
25	0011536	Screw P.H. M2x3	12
27	0011665	Screw B-T 2.6ϕx5	2
29	0011656	Screw B.H. M3x5	4
30	0010660	Pack door spring	1
110	0011758	Screw M5x8	4
111	0011758	Spring washer 5ϕ	5
112	0011758	Plain washer 5ϕ	5
113	0010384	Side hunger	2
114	0013211	Ajimuth Hole lebel	1
115	0011629	Screw B.H. 2.6x10(P)	1
116	0010459	Rear hunger	1
117	0011758	Nut 5ϕ	1
118	0011758	Screw B-T 6x12	2
119	0011758	Spring washer 6ϕ	2
120	0011758	Plain washer 6ϕ	2
121	0015520	VR Knob-B	2

REF. NO.	PART NO.	DESCRIPTION	Q'TY
GENERAL ASSEMBLY		EXPLODED VIEW (B)	
36	0014315	Lift arm ass'y	1
37	0014306	Cassette holder ass'y	1
38	0013617	Mechanism chassis ass'y	1
39	0010290	Bridge	1
40	0013746	Control lever ass'y	1
41	0013694	Head base ass'y	1
42	0014047	CP plate	1
43	0013701	Slide cam	1
44	0013670	Rink lever	1
45	0012928	Rink lever ass'y (R)	1
46	0010523	Stop lever	1
47	0013681	R lever ass'y	1
48	0013635	Eject lever ass'y	1
49	0013728	Clutch lever ass'y	1
50	0010321	Lick board	1
51	0011019	Motor	1
52	0010967	Head	1
53	0010780	Take-up reel place	1
54	0010791	Supply reel plate	1
55	0014029	Clutch ass'y	1
56	0011139	CP wheel ass'y	1
57	0013404	1st gear pulley	1
58	0010949	Cross belt	1
59	0010958	R belt	1
60	0010931	Pinch roller ass'y	1
61	0010393	Head base holder	1
62	0013662	2nd gear lever	1
63	0010348	Joint lever	1
64	0010856	2nd gear	1
65	0010865	1st gear	1
66	0010772	Cam gear	1
67	0014001	MAG ass'y	1
68	0015781	Motor pulley	1
69	0014065	Control PCB ass'y	1
70	0014056	Leaf SW	1
71	0014149	Sensing SW ass'y	1
72	0013413	R idler	1
73	0011481	Sliding shaft	1
74	0011471	Sliding board	1
75	0010718	Guide Roller	2
76	0010811	Felt 6ϕ x 14ϕ x 1.0ϕ	1
77	0011499	Eject lever shaft	1
78	0010212	Guide washer	2
79	0011443	Hinge C	2
80	0010495	Bind lug	4
81	0010412	Lug terminal	1
82	0015078	Washer 4ϕ	1
83	0011692	Washer 2.6ϕ	1
84	0011518	Spacer	1
85	0011064	Poli slide washer 2.28ϕ	4
86	0015734	Lift arm spring (L)	1
87	0015688	Lift arm spring (R)	1
88	0010643	Cam spring	1
89	0010652	Pinch spring	1
90	0010634	Eject spring	1
91	0010579	Spring A	1
92	0010588	Spring A	1
93	0010607	Spring B	1
94	0010625	Spring B	1

REF. NO.	PART NO.	DESCRIPTION	Q'TY
97	0013109	Screw PHM2 x 4	1
98	0011545	Screw PHM2.6 x 3	5
99	0011563	Screw PHM2.6 x 6	2
100	0011580	Bind M2 x 2	1
101	0011591	Bind M2 x 3	1
102	0015189	Bind M2 x 5	1
103	0011601	Bind M2 x 13	1
104	0011638	Screw M2 x 4	2
105	0015171	Screw M3 x 5	2
106	0011767	E-ring 1.5ϕ	3
107	0011776	E-ring 2ϕ	6
108	0015124	E-ring 2.5ϕ	1
109	0011785	E-ring 3ϕ	10
110	0011794	E-ring 4ϕ	2

PART NO.	SYMBOL NO.	DESCRIPTION	Q'TY
	ELECTRICAL PARTS		
	PCB-1	Audio P.C.B.	1
	PCB-2	VR P.C.B.	1
	PCB-3	Eject control P.C.B.	1
TA-7108P	IC1		1
TA-7205P	IC2, 3		2
2SC2120	Q201	Transistor	1
S1B-01-02	D101	Diode	1
TD960016-1	D201	Diode	1
SCH-081 (E1/19)	L101	Choke coil	1
	R101,102	Carbon resistor 1/4W 22 KOhms (J)	2
	R103,104	Carbon resistor 1/4W 330 KOhms (J)	2
	R105,106	Carbon resistor 1/4W 18 KOhms (J)	2
	R107,108, R202	Carbon resistor 1/4W 1 KOhm (J)	3
	R111	Carbon resistor 1/4W 820 Ohms (J)	1
	R109,110	Carbon resistor 1/4W 470 Ohms (J)	2
	R201	Carbon resistor 1/4W 3.3 KOhms (J)	1
	C101,102, C107,108	Mylar capacitor 0.0068μF (K)	4
	C103,104, C109,110, C113,114	Electric capacitor 4.7μF 10V	6
ELC-DIH470K	C105,106, C123,124	Ceramic capacitor 47pF 50V (K)	4
	C111,112, C129,130	Electric capacitor 47μF 10V	4
	C115,116, C117,118, C134,135, C201	Electric capacitor 100μF 10V	7
LK-DIE473ZFZ	C121,122	Ceramic capacitor 0.047μF 25V (Z)	2
DD350B331K50V02	C120,119	Ceramic capacitor 330pF 50V (K)	2
	C125,126	Mylar Capacitor 0.068μF 50V (K)	2
	C127,128	Electric capacitor 470μF 10V	2
	C131	Electric capacitor 220μF 10V	1
	C132	Electric capacitor 470μF 16V	1
DD106FZ103Z50V02	C133, 3	Ceramic capacitor 0.01μF 50V (Z)	2
	C202	Electric Capacitor 10μF 16V	1
	C301,302	Tantalum capacitor 0.22μF 35V (K)	2
EVB-LOA-S10A14	VR301,303	Variable resistor 10 KOhms A x 2	2
EVA-LOA-S10G54	VR302	Variable resistor 50 KOhms G	1