ORDER NO. MB9301038C2

Service Manual

Compact Disc Player

SL-PG340A

COMPACT disc DIGITAL AUDIO

DIGITAL

MASH* multi-stage noise shaping

Colour

(K)	Black Type

Area

Suffix for Model No.	Area	Colour
(E)	Europe	(K)
(EB)	Great Britain	
(EG)	Germany and Italy	

* •Technics (or Panasonic) developed the world's first MASH type DAC and ADC. MASH technology was invented by NTT (LSI Labs).
•MASH is a trademark of NTT.

SL-PG320A TRAVERSE DECK SERIES (RAD0301-1)

SPECIFICATIONS

(DIN 45 500)

■ Audio

No. of channels	2 (left and right, stereo)
Frequency response	2–20,000 Hz, ±0.5 dB
Output voltage	2 V (at 0 dB)
Dynamic range	96 dB)
S/N	100 dB
Harmonic distortion	0.0025% (1 kHz, 0 dB)
Total harmonic distortion	0.004% (1 kHz, 0 dB)
Wow and flutter	Below measurable limit
DA converter	MASH (1 bit)
Output impedance	600Ω
Load impedance	More than 10 kΩ

■ Pickup

Wavelength	780 nm
Laser Power	No hazardous radiation is emitted (with safety protection)

■ General

Power consumption	10 W
Power supply	AC 50/60 Hz, 230–240 V
Dimensions (W×H×D)	430×92×283 mm
Weight	3.6 kg

Note:
Specifications are subject to change without notice.
Weight and dimensions are approximate.

Technics

■ SCHEMATIC DIAGRAM

(Parts list on pages 35, 36, 41, 42)

(This schematic diagram may be modified at any time with development of new technology.)

Notes:

- **S601~612** : Numeric (>10, 0, 1~10) switches.
  (S601: 0, S602: 1, S603: 2,
  S604: 3, S605: 4, S606: 5,
  S607: >10, S608: 10, S609: 9,
  S610: 8, S611: 7, S612: 6)
- **S613** : Play (▶ PLAY) switch.
- **S614** : Skip (⏮ SKIP) switch.
- **S615** : Search (◀◀) switch.
- **S616** : Program (PROGRAM) switch.
- **S617** : Disc link (DISC LINK) switch.
- **S619** : Stop (■ STOP) switch.
- **S620** : Skip (⏭ SKIP) switch.
- **S621** : Search (▶▶) switch.
- **S622** : Recall (RECALL) switch.
- **S623** : Tape-side select (SIDE A/B) switch.
- **S624** : Random (RANDOM) switch.
- **S625** : Time fade (TIME FADE) switch.
- **S626** : Disc tray open/close (⏏ OPEN/CLOSE) switch.
- **S627** : Pause (❚❚ PAUSE) switch.
- **S628** : Repeat (REPEAT) switch.
- **S629** : Clear (CLEAR) switch.
- **S630** : Edit tape length (TAPE LENGTH) switch.
- **S631** : Time mode select (TIME MODE) switch.
- **S632** : Peak level search (PEAK SEARCH) switch.
- **S635** : Auto cue (AUTO CUE) switch.
- **S651** : Power "**STANDBY** ⏻ /**ON**" (POWER) switch in "**on**" position.
- **S1001** : Tray (OPEN/CLOSE) switch.

- The voltage value and waveforms are the reference voltage of this unit measured by DC electronic voltmeter (high impedance) and oscilloscope on the basis of chassis.
  Accordingly, there may arise some error in voltage values and waveforms depending upon the internal impedance of the tester or the measuring unit.
  *The parenthesized are the values of voltage generated during playing (Test disc 1 kHz, L+R, 0 dB), others are voltage values in stop mode.
- Important safety notice:
  Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.
- The supply part number is described alone in the replacement parts list.

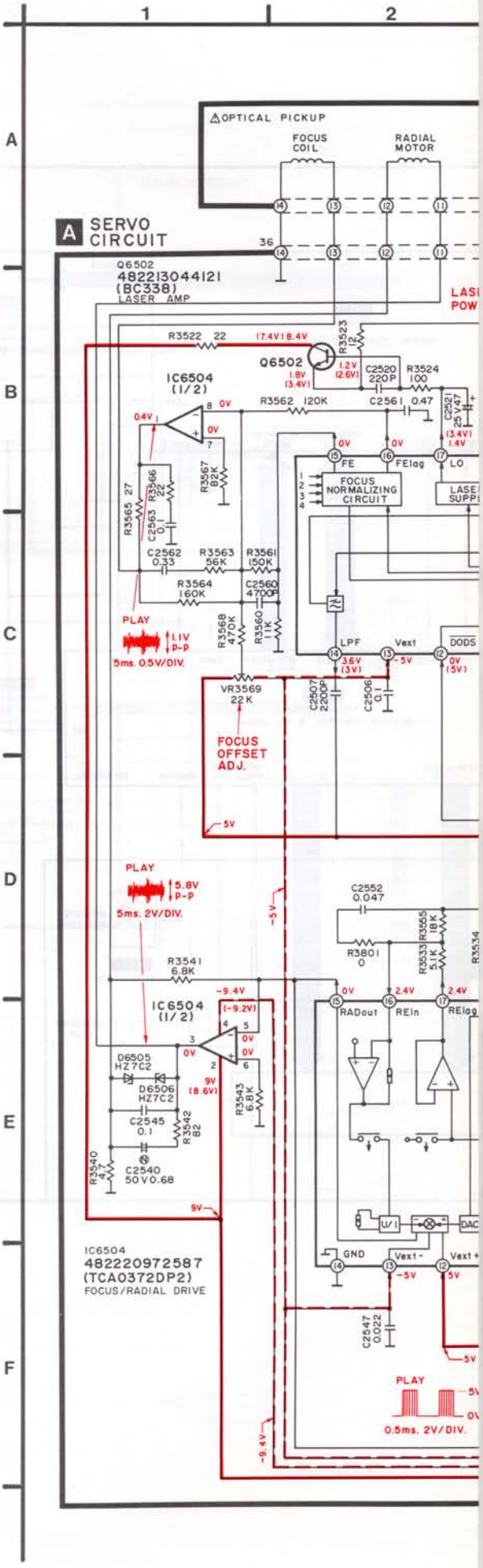
Part No.	Production Part No.	Supply Part No.
IC11	LM2940T5M	LM2940T5
IC802, 803	BA4560FT1	SVIBA4560FT1

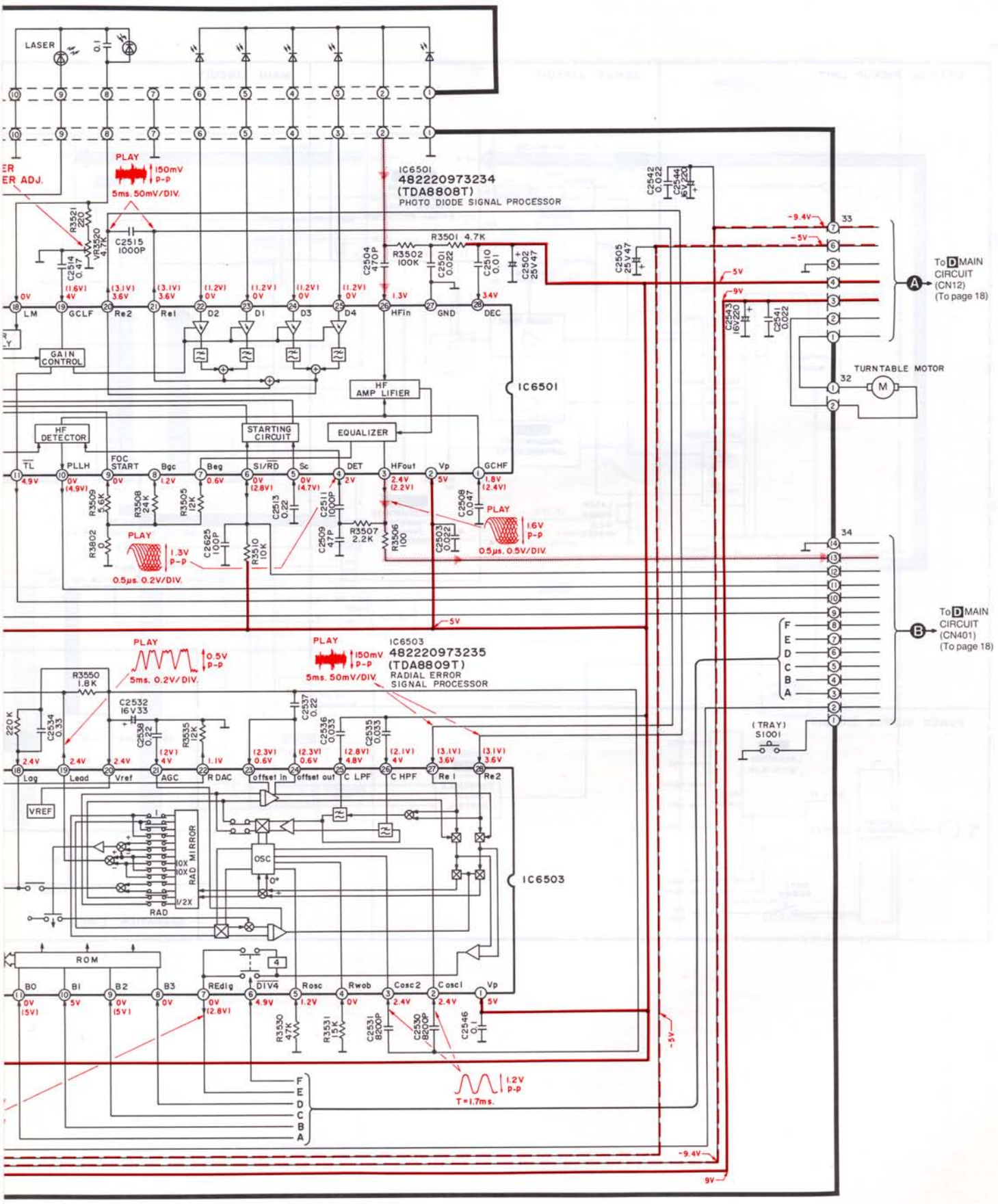
- ——— : Positive voltage lines
- - - - : Negative voltage lines
- ▨ : Audio signal lines

Caution!

IC and LSI are sensitive to static electricity.
Secondary trouble can be prevented by taking care during repair.

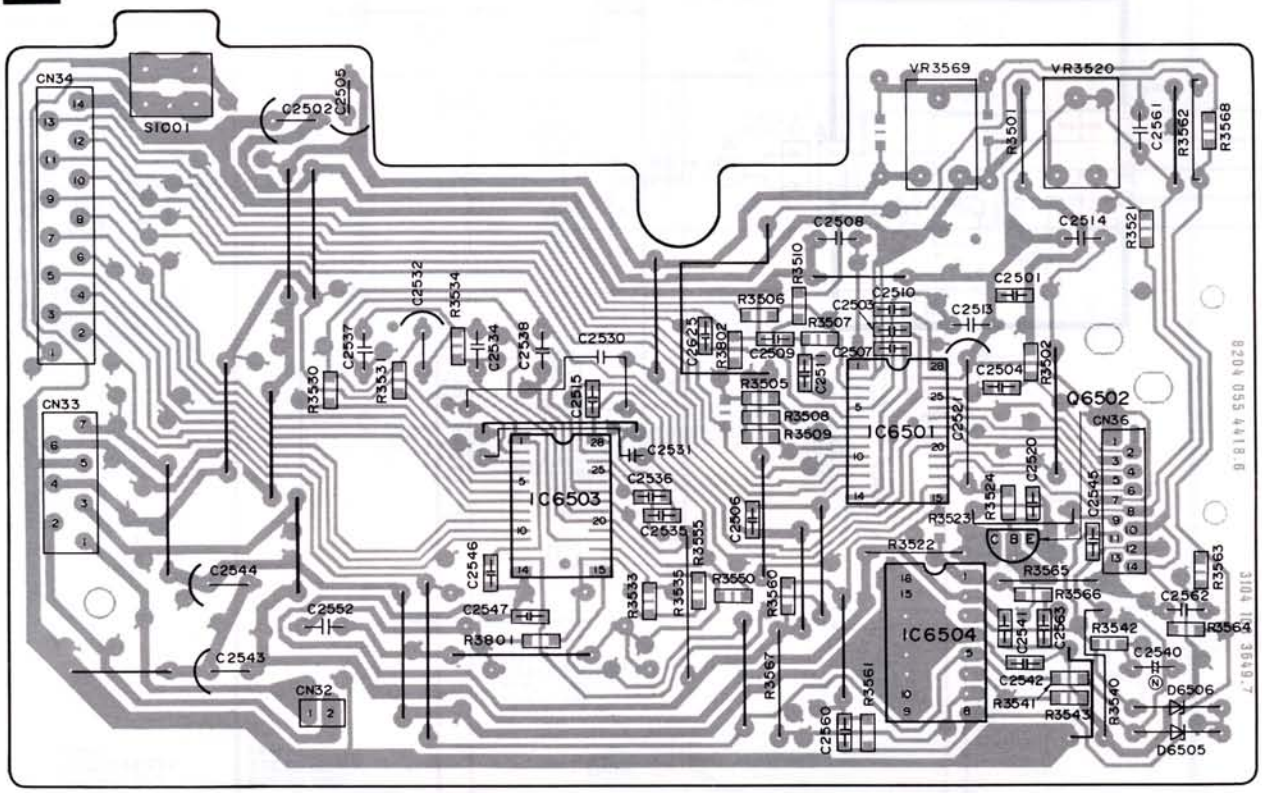
- Cover the parts boxes made of plastics with aluminum foil.
- Ground the soldering iron.
- Put a conductive mat on the work table.
- Do not touch the pins of IC or LSI with fingers directly.

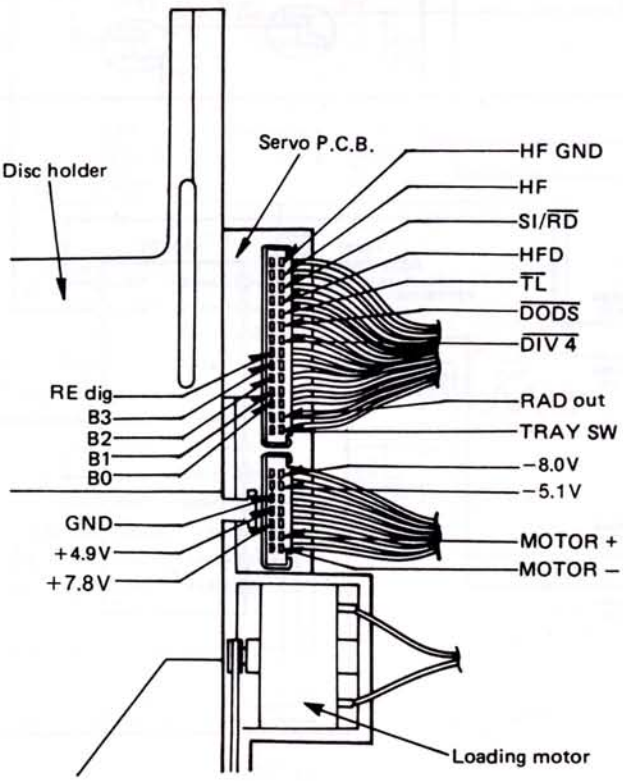



LASER
IC6501
482220973234
(TDA8808T)
PHOTO DIODE SIGNAL PROCESSOR
IC6503
482220973235
(TDA8809T)
RADIAL ERROR
SIGNAL PROCESSOR
GAIN CONTROL
HF AMP LIFIER
HF DETECTOR
STARTING CIRCUIT
EQUALIZER
VREF
OSC
ROM
RAD MIRROR
TURNTABLE MOTOR
(TRAY) S1001
To D MAIN CIRCUIT (CN12) (To page 18)
To D MAIN CIRCUIT (CN401) (To page 18)
LM
GCLF
Re2
Re1
D2
D1
D3
D4
HFin
GND
DEC
TL
PLLH
FOC START
Bgc
Beg
SI/RD
Sc
DET
HFout
Vp
GCHF
Log
Lead
Vref
AGC
R DAC
offset in
offset out
C LPF
C HPF
Re I
Re2
BO
BI
B2
B3
REdig
DIV4
Rosc
Rwob
Cosc2
Coscl
Vp
PLAY
150mV p-p
5ms. 50mV/DIV.
1.3V p-p
0.5µs. 0.2V/DIV.
1.6V p-p
0.5µs. 0.5V/DIV.
0.5V p-p
5ms. 0.2V/DIV.
1.2V p-p
T=1.7ms.
-9.4V
-5V
5V
9V

■ PRINTED CIRCUIT BOARD DIAGRAM

A SERVO P.C.B. (310 411 802 431)



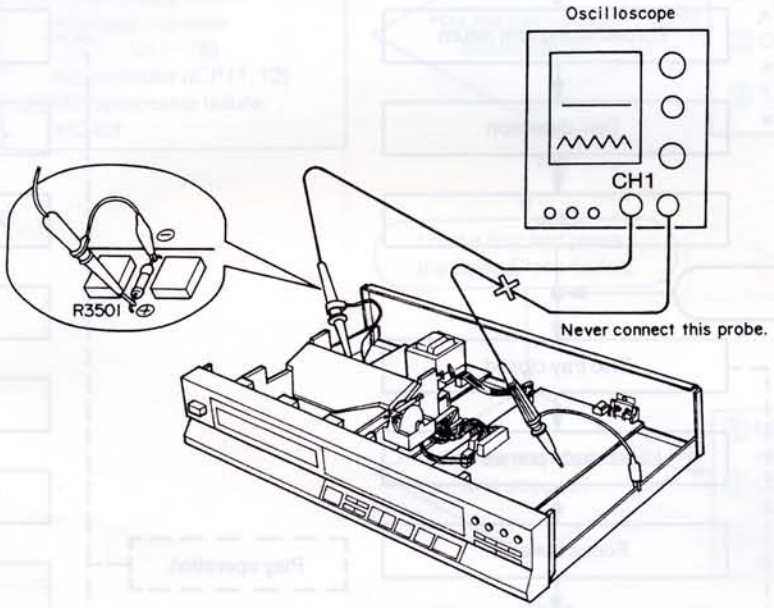


Note: Use connector pins to check servo circuit voltages and waveforms.

■ MEASUREMENTS AND ADJUSTMENTS

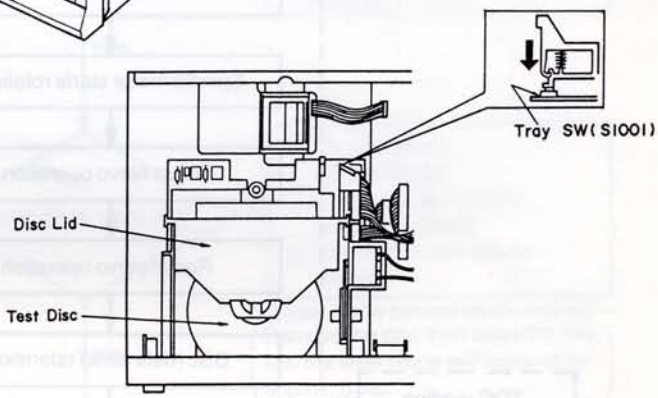
Caution:

1. It is very dangerous to look at or touch the laser beam. (Laser radiation is invisible.) With the unit turned "on", laser radiation is emitted from the pickup lens. Avoid exposure to the laser beam, especially when performing adjustments.
2. During laser power or focus offset adjustment, never connect the other probe to the unit. (Otherwise the unit's power supply will sustain damage.)



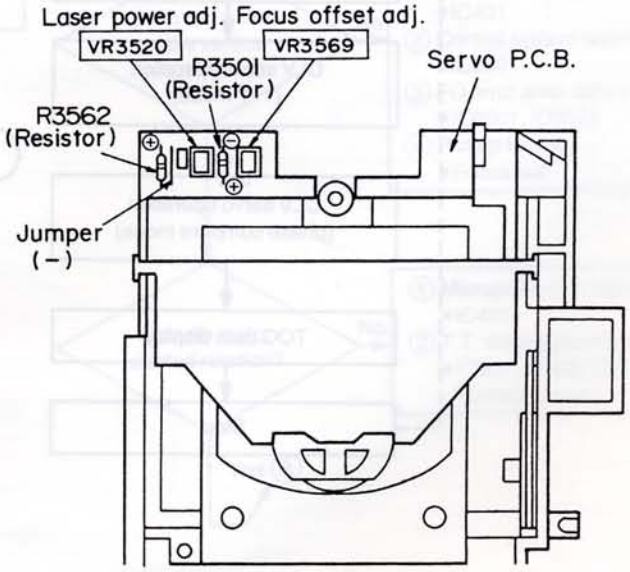
PREPARATION

1. Remove the cabinet (see Ref No. 1 of the disassembly instructions).
2. Remove the disc holder (see Ref No. 9 of the same).
3. Place the test disc on the turntable.
4. Turn "ON" the power switch at the player.
5. Push the bracket of tray SW (S1001) in the direction of the arrow and release it.
   Note: If the test disc fails to rotate, press the tray switch again.



ADJUSTMENT POINTS

• **Servo P.C.B.**



Measuring Instruments

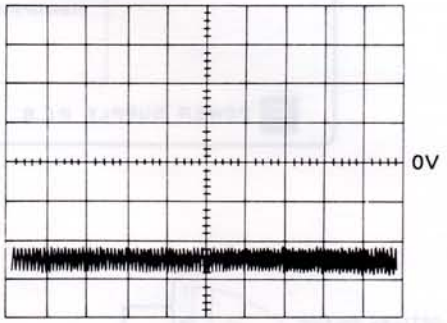
* Playability test disc (SZZP1054C).
* Normal disc (Ordinary musical program disc).
* Dual-beam oscilloscope with bandwidth of 30 MHz or better (with EXT trigger and 1: 1 probe).

(1) LASER POWER ADJUSTMENT

1. Connect the oscilloscope's CH1 probe across (+) and (−) of **R3501** (Resistor) on the servo P.C.B.
2. Switch the player power ON, and play track No. 1 on the test disc (SZZP1054C).
3. Adjust **VR3520** so that the voltage is **−50 ± 2 mV**.

Oscilloscope setting:

VOLT .....20 mV
SWEEP.....0.2 msec.
INPUT.....DC

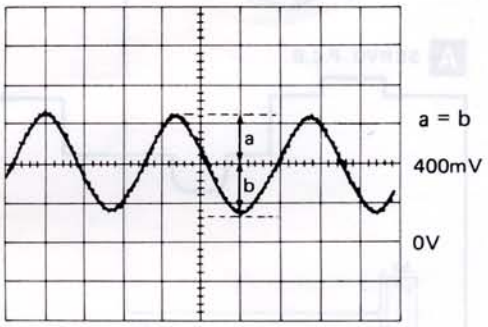


(2) FOCUS OFFSET ADJUSTMENT

1. Connect the oscilloscope's CH1 probe across **R3562** (Resistor) (+) and **Jumper** (−) on the servo P.C.B.
2. Switch the player power ON, and play track No. 1 on the test disc (SZZP1054C).
3. Adjust **VR3569** until the signal amplitude become in the center of **400 mV**.

Oscilloscope setting:

VOLT .....200 mV
SWEEP.....5 msec.
INPUT.....DC



(3) CHECK OF PLAY OPERATION AFTER ADJUSTMENT

*** Checking Skip Search**

1. Play an ordinary musical program disc.
2. Press the skip button to check for normal skip search operation (in both the forward and reverse directions).

*** Checking Manual Search**

1. Play an ordinary musical program disc.
2. Press the manual search button to check for smooth manual search operations at either low or high speed (in both the forward and reverse directions).

*** Playability check by test disc**

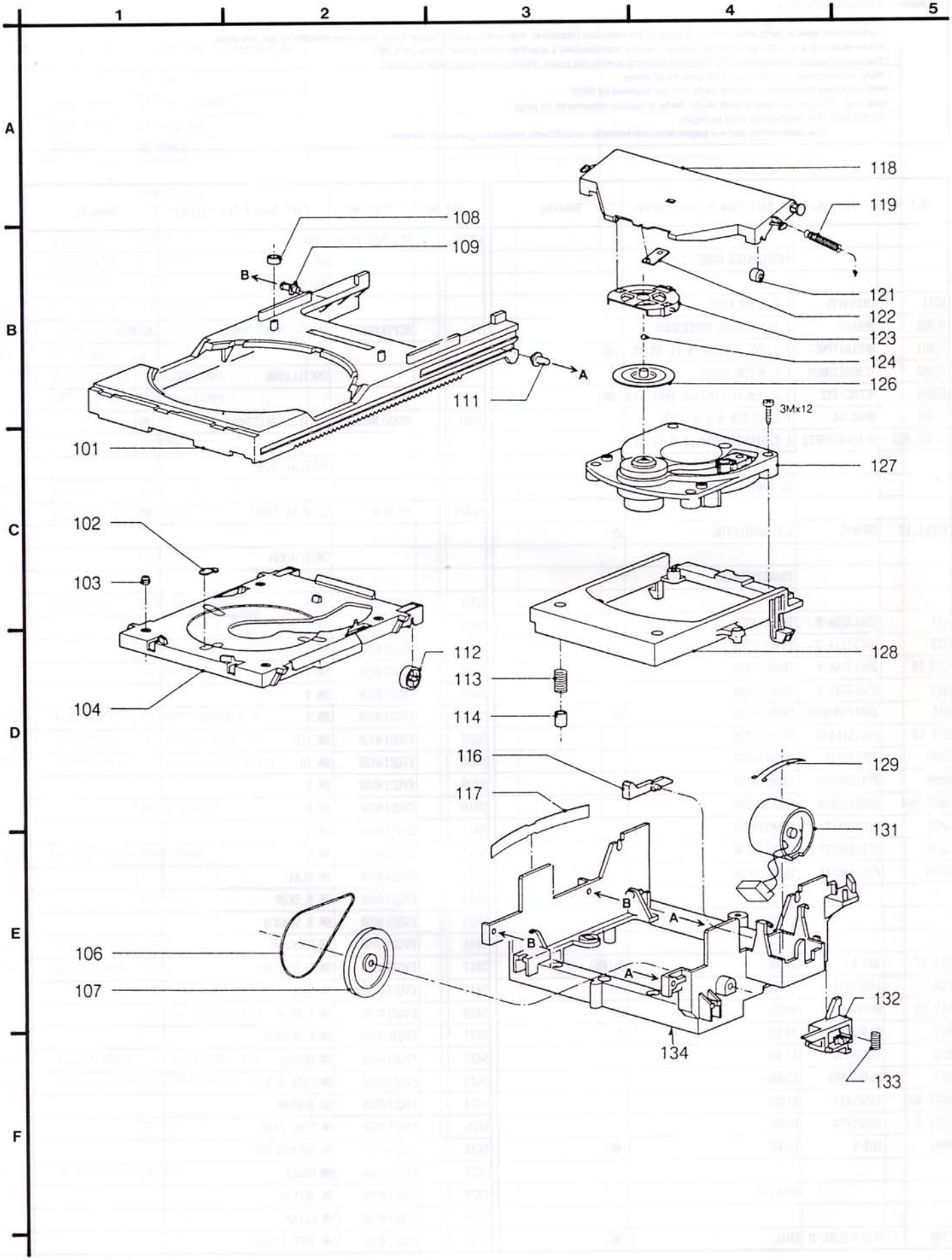
1. Play the 0.7 mm black dot and the 0.7 mm wedge on the playability test disc (SZZP1054C) and verify that no sound skip or noise occurs.

Ref. No.	Part No.	Part Name & Description	Remarks
S631	EVQ21405R	SW, TIME MODE	
S632	EVQ21405R	SW, PEAK SEARCH	
S635	EVQ21405R	SW, AUTO CUE	
S651	RSP2B010	SW, POWER	⚠
		CONNECTOR(S)	
CN11	RJS1A6605	SOCKET(5P)	
CN12	RJT001H007	SOCKET(7P)	[MB]
CN21	RJS1A6605	SOCKET(5P)	
CN401	RJT001H014	SOCKET(14P)	[MB]
CN411-414	RJU003K010M1	SOCKET(10P)	
CN431	RJT001H003	SOCKET(3P)	[MB]
CN611-614	RJT003K010M1	CONNECTOR(10P)	
FC651	RWJ1804200XX	FLAT CABLE(4P)	
		JACK(S)	
JK201	RJJ33T01	JACK, SYNCHRO EDIT	
JK801	RJH3201N	JACK, LINE OUT	
		FUSE	
F1	XBA2C01TB0	FUSE, 250V T100mA	⚠
		<SERVO P. C. B.>	
		INTEGRATED CIRCUIT(S)	
IC6501	482220973234	I. C, PHOTO DIODE S. P.	[MB]
IC6503	482220973235	I. C, RADIAL ERROR S. P.	[MB]
IC6504	482220972587	I. C, FOCUS/RADIAL DRIVE	[MB]
		TRANSISTOR(S)	
Q6502	482213044121	TRANSISTOR	[MB]
		DIODE(S)	
D6505	482213030861	DIODE	[MB]
D6506	482213030861	DIODE	[MB]
		VARIABLE RESISTOR(S)	
VR3520	482210110685	V. R, LASER POWER ADJ.	[MB]
VR3569	482210011193	V. R, FOCUS OFFSET ADJ.	[MB]
		SWITCH	
S1001	482227612523	SW, TRAY	[MB]

Ref. No.	Part No.	Part Name & Description	Remarks
		CABINET PARTS	
1	RKM0098-K	CABINET	[MB]
2	RFKHLPG340AE	REAR PANEL ASS'Y	[MB]
2	RFKHLPG340AB	REAR PANEL ASS'Y	[MB]
3	SNE2129-1	SCREW	
4	XTBS3+8JFZ1	SCREW	
5	RMR0659-K	FL HOLDER	[MB]
6	EYF52BC	FUSE HOLDER	
7	REX0007	FLAT CABLE(7P)	[MB]
8	RGK0499-K	TRAY LID	[MB]
9	RKA0040B	FOOT	[MB]
10	RMK0178	BOTTOM BOARD	[MB]
11	RMR0020	SPACER(A)	[MB]
12	RMR0021	SPACER(B)	[MB]
13	RMR0377	PCB SUPPORT	[MB]
14	RMR0573-K1	SPACER(C)	[MB]
15	RWJ6405130XX	FLAT CABLE(5P)	[MB]
16	RGU0030	BUTTON, POWER	
17	RYP0403Z-K	FRONT PANEL ASS'Y	[MB]
17-1	RGU0807-K	BUTTON, PLAY etc.	[MB]
17-2	RGU0808-K	BUTTON, DISC LINK etc.	[MB]
17-3	RKW0245B-R	FL PANEL	[MB]
18	XTBS26+8J	SCREW	
20	XTB3+20JFZ	SCREW	
21	XTB3+35JFZ	SCREW	
23	XTB3+8JFZ	SCREW	
24	REX0285	FLAT CABLE(14P)	[MB]
25	SJS9236	AC INLET	⚠
		LOADING UNIT PARTS	
101	482244450603	DISC HOLDER	[MB]
102	482232550176	GROMMET, CABLE	[MB]
103	482232550177	GROMMET, CABLE	[MB]
104	482246692251	DISC TRAY	[MB]
106	482235810115	DRIVE BELT	[MB]
107	482252232359	WHEEL, GEAR	[MB]
108	482253251518	RING, RUBBER	[MB]
109	482240261081	GUIDE	[MB]
111	482240261132	GUIDE	[MB]
112	482252890638	ROLLER	[MB]
113	482249251902	SPRING, COMPRES.	[MB]
114	482246661587	FOAM	[MB]
116	482240261107	LEVER	[MB]
117	482249263659	SPRING, BLADE	[MB]
118	482244460568	DISC LID	[MB]
119	482249232883	SPRING, TENSION	[MB]
121	482252890639	ROLLER	[MB]
122	482246692257	PLATE	[MB]
123	482240261207	HOLDER	[MB]

Ref. No.	Part No.	Part Name & Description	Remarks
124	482252040177	SMALL BALL	[MB]
126	482253080503	RING, PRESSURE	[MB]
127	482269130209	OPTICAL PICKUP UNIT	[MB]
128	482240261196	SUPPORT	[MB]
129	482249263746	CLAMPING SPRING	[MB]
131	482236120998	LOADING MOTOR	[MB]
132	482240250244	BRACKET	[MB]
133	482249251935	SPRING, COMPRES.	[MB]
134	482270112729	CHASSIS	[MB]
		PACKING MATERIALS	
P1	RPG1377	PACKING CASE	[MB]
P2	RPN0647	CUSHION	[MB]
P3	RMR0024	LOCK SHAFT	[MB]
P4	XZB26X17C03	PROTECTION BAG(TRANSMITT)	
P5	XZB23X35C03	PROTECTION BAG(F.B)	
P6	XZB60X65A01Z	PROTECTION BAG	
		ACCESSORIES	
A1	RQT1681-B	INSTRUCTIONS MANUAL	(EB) [MB]
A1	RFKSLPG440AE	INSTRUCTIONS MANUAL	(E) [MB]
A1	RFKSLPG440AG	INSTRUCTIONS MANUAL	(EG) [MB]
A2	RJA0018-1K	AC POWER SUPPLY CORD	⚠(E, EG)
A2	VJA0733	AC POWER SUPPLY CORD	⚠(EB)
A3	RQA0013	WARRANTY CARD	
A4	RQCB0169	SERVICE CENTER LIST	
A5	SJP2249-3	STEREO CONNECTION CABLE	
A6	RQCA0059	LOCK CAUTION SHEET	[MB]

■ LOADING UNIT PARTS LOCATION



Notes : * Capacity values are in microfarads (uF) unless specified otherwise, P=Pico-farads(pF) F=Farads(F)
* Resistance values are in ohms, unless specified otherwise, 1K=1,000(OHM) , 1M=1,000k(OHM)

Ref. No.	Part No.	Values & Remarks
		RESISTORS
R11	ERDS2TJ182	1/4W 1.8K
R12, 13	ERDS2TJ102	1/4W 1K
R14	ERDS2TJ103	1/4W 10K
R15	ERDS2TJ822	1/4W 8.2K
R16, 17	ERDS2TJ103	1/4W 10K
R20	ERDS2TJ102	1/4W 1K
R23	ERDS2TJ222	1/4W 2.2K
R25	ERDS2TJ222	1/4W 2.2K
R51	ERDS2TJ331	1/4W 330
R52	ERDS2TJ272T	1/4W 2.7K
R53, 54	ERDS2TJ472	1/4W 4.7K
R201	ERDS2TJ100	1/4W 10
R202	ERDS2TJ102	1/4W 1K
R203	ERDS2TJ273	1/4W 27K
R301	ERDS2TJ182	1/4W 1.8K
R302	ERDS2TJ823T	1/4W 82K
R303	ERDS2TJ104	1/4W 100K
R304	ERDS2TJ471	1/4W 470
R315	ERDS2TJ104	1/4W 100K
R351	ERDS2TJ103	1/4W 10K
R352	ERDS2TJ104	1/4W 100K
R353	ERDS2TJ123	1/4W 12K
R354	ERDS2TJ104	1/4W 100K
R355, 356	ERDS2TJ333	1/4W 33K
R357	ERD25FJ6R8	1/4W 6.8 ⚠
R401	ERDS2TJ104	1/4W 100K
R411, 412	ERDS2TJ472	1/4W 4.7K
R431, 432	ERDS2TJ223	1/4W 22K
R433	ERDS2TJ104	1/4W 100K
R434	ERDS2TJ224T	1/4W 220K
R435	ERDS2TJ104	1/4W 100K
R436	ERDS2TJ224T	1/4W 220K
R437, 438	ERDS2TJ223	1/4W 22K
R601	ERDS2TJ120T	1/4W 12
R801, 802	ERDS2TJ163T	1/4W 16K
R803-806	ERDS2TJ472	1/4W 4.7K
R807, 808	ERDS2TJ163T	1/4W 16K
R809-812	ERDS2TJ393	1/4W 39K
R813, 814	ERDS2TJ153	1/4W 15K
R815, 816	ERDS2TJ183T	1/4W 18K
R817, 818	ERDS2TJ153	1/4W 15K
R819, 820	ERDS2TJ471	1/4W 470
R821, 822	ERDS2TJ473	1/4W 47K
R823, 824	ERDS2TJ331	1/4W 330
R825, 826	ERDS2TJ102	1/4W 1K
R831, 832	ERDS2TJ470	1/4W 47
R833	ERDS2TJ472	1/4W 4.7K
R834	ERDS2TJ102	1/4W 1K
R840	ERDS2TJ181T	1/4W 180
R851	ERDS2TJ471	1/4W 470
R854	ERDS2TJ472	1/4W 4.7K
R861	ERDS2TJ102	1/4W 1K
		CAPACITORS
C1, 2	ECFTD103KXL	50V 0.01U
C10	ECFR1E104ZF5	25V 0.1U
C11	ECA1CM222B	16V 2200U ⚠
C12	ECEA1CU102	16V 1000U ⚠
C14, 15	ECEA0JKA470B	6.3V 47U
C16	ECEA1EU101	25V 100U
C17, 18	ECEA1HU101	50V 100U
C19	ECEA1CKA101B	16V 100U
C51	ECEA1AKA220B	10V 22U
C201, 202	ECBT1C103NS5	16V 0.01U
C301	ECBT1C103NS5	16V 0.01U
C302	ECBT1H270J5	50V 27P
C303, 304	ECFR1E104ZF5	25V 0.1U
C305	ECBT1H102KB5	50V 1000P
C306	ECFR1E223KB	25V 0.022U
C307	ECQV1H474JM3	50V 0.47U
C308	ECBT1H102KB5	50V 1000P
C309	ECFR1E104ZF5	25V 0.1U
C312	ECBT1C103NS5	16V 0.01U
C351	ECBT1H102KB5	50V 1000P
C401	ECFR1E104ZF5	25V 0.1U
C402	ECEA0JKA470B	6.3V 47U
C404	ECFR1E104ZF5	25V 0.1U
C405	ECEA0JKA470B	6.3V 47U
C406	ECBT1H102KB5	50V 1000P
C651, 652	ECBT1H102KB5	50V 1000P
C801, 802	ECBT1H121KB5	50V 120P
C803, 804	ECBT1H102KB5	50V 1000P
C805, 806	ECBT1H121KB5	50V 120P
C813, 814	ECEA1CKN220B	16V 22U
C815, 816	ECBT1H102KB5	50V 1000P
C817	ECFR1E104ZF5	25V 0.1U
C831, 832	ECEA0JU331B	6.3V 330U
C833, 834	ECFR1E104ZF5	25V 0.1U
C838	ECBT1H5R6K5	50V 5.6P
C840	ECBT1H5R6K5	50V 5.6P
C841	ECEA0JKA101B	6.3V 100U
C842	ECFR1E104ZF5	25V 0.1U
C844	ECBT1H270J5	50V 27P
C851	ECEA0JU471	6.3V 470U
		<SERVO P.C.B.>
		RESISTORS
R3501	482205024702	1/8W 4.7K [MB]
R3502	482205110104	1/8W 100K [MB]
R3505	482205110123	1/4W 12K [MB]
R3506	482205110101	1/8W 100 [MB]
R3507	482205120222	1/8W 2.2K [MB]
R3508	482205110243	1/4W 24K [MB]
R3509	482205110562	1/8W 5.6K [MB]
R3510	482205110103	1/8W 10K [MB]
R3521	482205110221	1/8W 220 [MB]
R3522	482205210229	1/3W 22 [MB]
R3523	482205210129	1/3W 12 [MB]
R3524	482205110101	1/8W 100 [MB]
R3530	482205110473	1/4W 47K [MB]
R3531	482205110153	1/4W 15K [MB]
R3533	482205110152	1/4W 5.1K [MB]
R3534	482205110224	1/8W 220K [MB]
R3535	482205021203	3/5W 12K [MB]
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R3566	482205110229	1/8W 22 [MB]
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R3568	482205110474	1/4W 470K [MB]
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		CAPACITORS
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C2503	482212232863	50V 0.022U [MB]
C2504	482212231727	63V 470P [MB]
C2505	482212440433	25V 47U [MB]

■ PACKAGING

Ref. No.	Part No.	Values & Remarks
C2506	482212233496	63V 0.1U [MB]
C2507	482212231644	63V 2200P [MB]
C2508	532212142491	100V 0.047U [MB]
C2509	482212231772	50V 47P [MB]
C2510	482212232442	50V 0.01U [MB]
C2511	482212231746	50V 1000P [MB]
C2513	482212143375	63V 0.22U [MB]
C2514	482212151252	63V 0.47U [MB]
C2515	482212231746	50V 1000P [MB]
C2520	482212231965	63V 220P [MB]
C2521	482212422027	25V 47U [MB]
C2530	482212151321	63V 8200P [MB]
C2531	482212151321	63V 8200P [MB]
C2532	482212440272	16V 33U [MB]
C2534	532212142661	63V 0.33U [MB]
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C2543	482212440196	16V 220U [MB]
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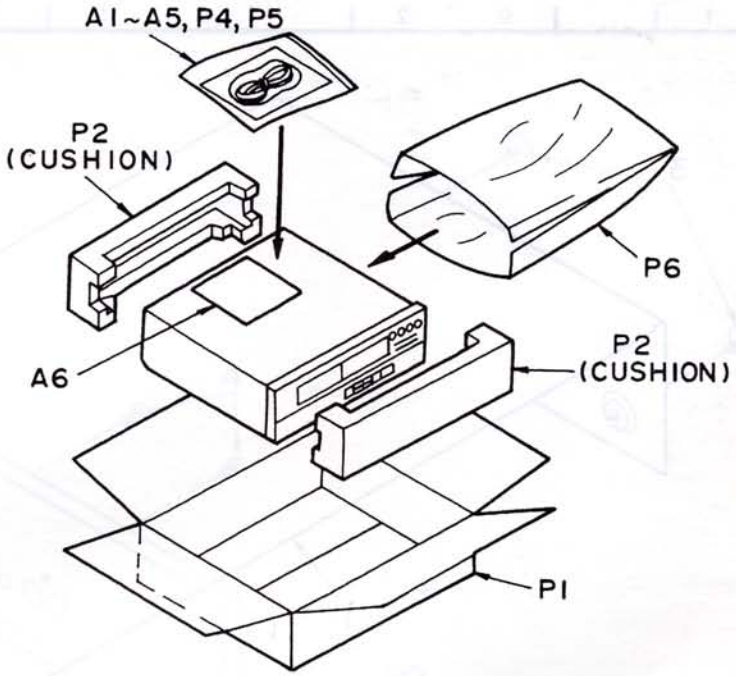

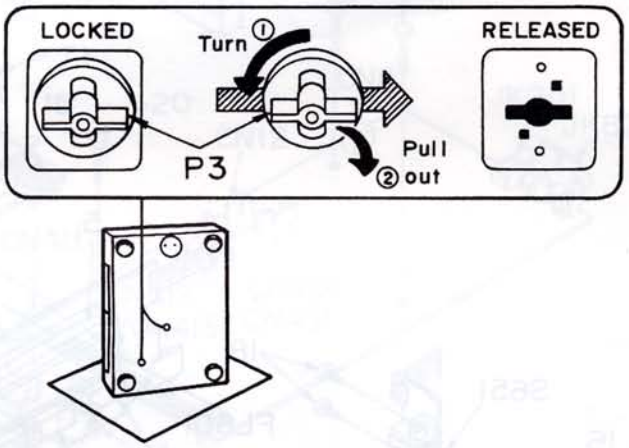

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