

JVC

SERVICE MANUAL

AUTO-RETURN TURNTABLE

MODEL L-AX1/L-AX1B



Model	Color Version
L-AX1	Silver
L-AX1B	Black

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Safety Precautions

1. The design of this product contains special hardware, many circuits and components specially for safety purposes.

For continued protection, no changes should be made to the original design unless authorized in writing by the manufacturer. Replacement parts must be identical to those used in the original circuits. Service should be performed by qualified personnel only.

2. Alterations of the design or circuitry of the product should not be made. Any design alterations or additions will void the manufacturer's warranty and will further relieve the manufacturer of responsibility for personal injury or property damage resulting therefrom.
3. Many electrical and mechanical parts in the product have special safety-related characteristics. These characteristics are often not evident from visual inspection nor can the protection afforded by them necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in the parts list of Service manual. Electrical components having such features are identified by shading on the schematics and by (Δ) on the parts list in Service manual. The use of a substitute replacement which does not have the same safety characteristics as the recommended replacement part shown in the parts list in Service manual may create shock, fire, or other hazards.
4. The leads in the products are routed and dressed with ties, clamps, tubings, barriers and/or the like to be separated from live parts, high temperature parts, moving parts and/or sharp edges for the prevention of electric shock and fire hazard.

When service is required, the original lead routing and dress should be observed, and they should be confirmed to be returned to normal, after re-assembling.

5. Leakage current check

(Safety for electrical shock hazard)

After re-assembling the product, always perform an isolation check on the exposed metal parts of the

Products (antenna terminals, knobs, metal cabinet, screw heads, headphone jack, control shafts, etc.) to be sure the product is safe to operate without danger of electrical shock.

Do not use a line isolation transformer during this check.

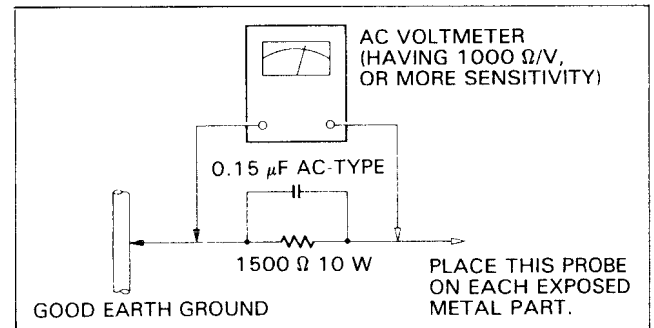
- Plug the AC line cord directly into the AC outlet. Using a "Leakage Current Tester", measure the leakage current from each exposed metal part of the cabinet, particularly any exposed metal part having a return path to the chassis, to a known good earth ground. Any leakage current must not exceed 0.5 mA AC (r.m.s.).

- Alternate check method

Plug the AC line cord directly into the AC outlet. Use an AC voltmeter having 1,000 ohms per volt or more sensitivity in the following manner. Connect a 1500 Ω 10 W resistor paralleled by a 0.15 μ F AC-type capacitor between an exposed metal part and a known good earth ground.

Measure the AC voltage across the resistor with the AC voltmeter.

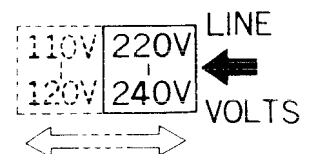
Move the resistor connection to each exposed metal part, particularly any exposed metal part having a return path to the chassis, and measure the AC voltage across the resistor. Now, reverse the plug in the AC outlet and repeat each measurement. Any voltage measured must not exceed 0.75 V AC (r.m.s.). This corresponds to 0.5 mA AC (r.m.s.).



CHECKING YOUR LINE VOLTAGE (Except for U.S.A., Canada, Australia, U.K. and Continental Europe.)

Before inserting the power plug, please check this setting to see that it corresponds with the line voltage in your area. If it doesn't, be sure to adjust the voltage selector switch to the proper setting before operating this equipment. The voltage selector switch is located underneath the platter.

CAUTION: Before selecting the "Voltage selector switch" to proper voltage, disconnect the power plug.



1. Specifications

MOTOR AND PLATTER

Drive system	: Belt drive system
Driver Motor	: DC servo motor
Speeds	: 33-1/3 rpm and 45 rpm
Wow and Flutter	: 0.07% (DIN)
Signal to Noise Ratio	: 65 dB (DIN-B)
Platter	: 11-13/16 inch (30 cm) diameter die-cast aluminium alloy

TONEARM

Type	: Statically balanced and integrated straight tubular arm with JVC developed TH (Tracing Hold) balancing system.
Effective Arm Length	: 220 mm
Overhang	: 15 mm
Applicable Cartridge Weight	: 5.15 grams

CARTRIDGE

Type	: Moving magnet (MD1055B)
Stylus	: 0.6 mil. diamond for DT-55B
Optimum Tracking Force	: 2.0 ± 0.25 grams
Output	: 2.5 mV (1 kHz 50 mm/sec. lateral)
Frequency Response	: 10 Hz to 22,000 Hz
Separation	: 25 dB (1 kHz)
Load Resistance	: 47 kohms
Compliance	: 7×10^{-6} cm/dyne (100 Hz Dynamic)
Tracking Ability	: 70 μ m at 315 Hz

GENERAL

Dimensions	: 43.5(W) \times 35.5(D) \times 10(H) cm
Net Weight	: 2.8 kg (6.2 lbs)

POWER SPECIFICATIONS

Countries	Line Voltage & Frequency	Power Consumption
U.S.A. & CANADA	AC 120 V, 60 Hz	3 watts
CONTINENTAL EUROPE	AC 220 V \sim , 50 Hz	
U.K. & AUSTRALIA	AC 240 V \sim , 50 Hz	
U.S. MILITARY MARKET	AC 110 V—120 V / 220 V—240 V selectable, 50/60 Hz	
OTHER AREAS	AC 110 V—120 V / 220 V—240 V selectable, 50/60 Hz	

Design and specifications subject to change without notice.

2. Operation of Automatic Mechanism

2-(1) Change Cycle Mechanism:

- During playing, the notch of the main gear position relative to the turntable spindle gear is as shown in Fig. 1. As the projection is away from the engagement, the main gear does not rotate even though the turntable.
- As playing proceeds, the trip slide moves toward the center of the turntable following the movement of the tonearm.
- The engagement is very easy to move as it simply rests on the lower trip. On the music section of the record groove the engagement moves so slightly that it is returned by the tip of the projection. Consequently, the turntable spindle gear does not engage with the main gear and thus does not trigger the auto-return operation as shown in Fig. 2.
- When playing ends and the pick-up cartridge enters the lead-out groove which is spaced out, the engagement advances more than it is returned by the projection. Because of this, the engagement is pressed by the projection as shown in Fig. 3, causing the main gear to turn and engage with the turntable spindle gear. Thus the change cycle is started.

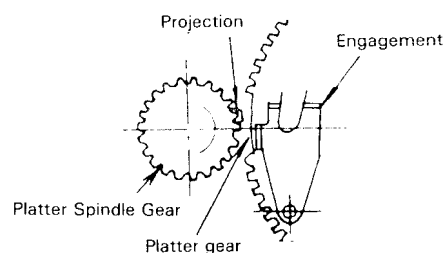


Fig. 1

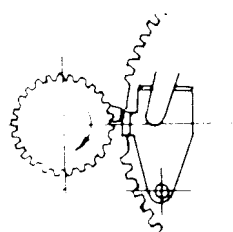


Fig. 2

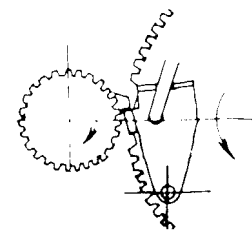
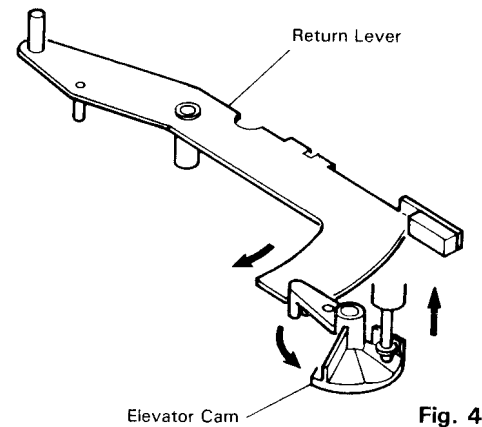


Fig. 3

5. During the return operation the engagement and lower trip which have moved are returned to their original position by the reject button coming into contact with the bottom of the lower trip. At this moment the switch lever operates with the help of the main gear cam, switching off the power just before the rotation should stop. This completes the automatic cycle.

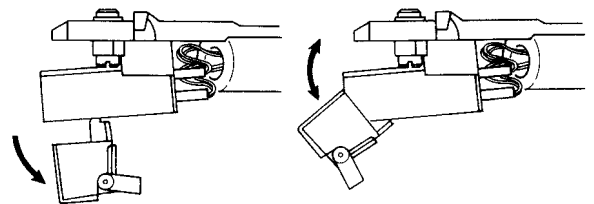
2-(2) Tonearm Lift and Return Mechanism

1. When the main gear starts to rotate at the end of playing, the return lever rotates under the action of the main gear cam to press the elevator cam. The upward movement of the elevator cam is directly converted into movement of the elevator, lifting up the tonearm. (Fig. 4)
2. The tonearm is returned by the arm lever the end of which presses it as the main gear rotates.



3. Stylus Replacement (DT-55B)

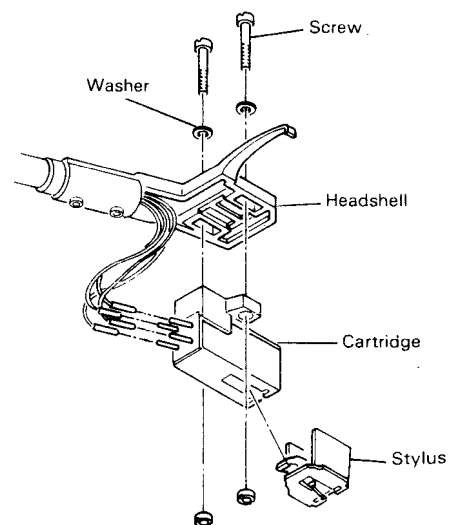
Replacement of the stylus can normally be done easily by removing the worn stylus from the cartridge body and replacing it with a new stylus as shown in Fig. 5.



4. Cartridge Mounting

1. Remove the 2 screws securing the cartridge to the headshell.
2. Install the cartridge onto the headshell provided.
3. The four headshell lead wires are colour-coded as follows; connect them correctly :

White(+)	.....L	Red(+)	.....R
Blue(-)	.....LE	Green(-)	.....RE
	(Left)		(Right)
4. Mount the cartridge onto the headshell correctly and leave the screws slightly loose, then, after completing the "overhang adjustment", tighten them firmly.



5. Adjustment

5-(1) Overhang Adjustment

The overhang is the distance between the stylus tip and the center spindle when the cartridge is above the center spindle, and it is about 15 mm as shown in Fig. 7. An error of ± 1 mm will not degrade performance. To adjust the overhang, loosen the screws holding the cartridge to the head shell, slide the cartridge to the correct position and then retighten the screws.

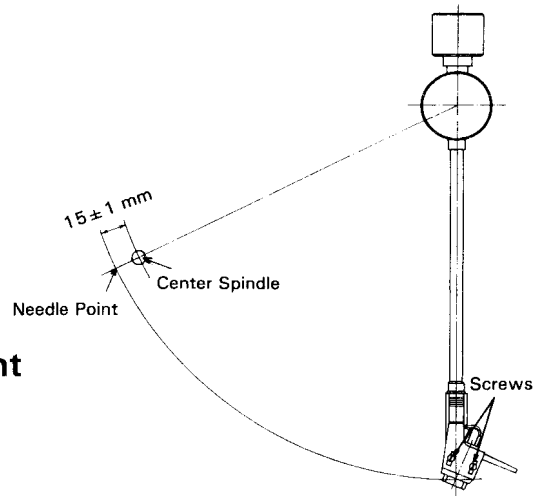


Fig. 7

5-(2) Tonearm Elevator-height Adjustment

The optimum clearance between the stylus tip and the record surface is about 6 mm (Fig. 8) when the tonearm is resting on the tonearm elevator (with the UP/DOWN knob switched to the UP position). Turning the adjusting screw clockwise lowers the height of the tonearm elevator and turning it counterclockwise increases it.

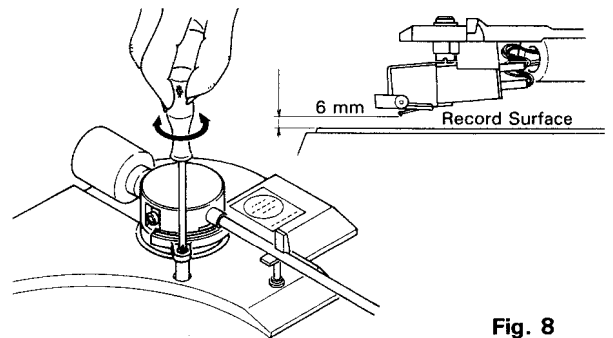


Fig. 8

5-(3) Lead-out Adjustment

If auto-return functions early or late adjust as shown in Fig. 9.
 —When auto-return functions too late, turn the screw counterclockwise with a screwdriver.
 —When auto-return functions too early, turn the screw clockwise.

When using test record, confirm the autoreturn functions as follows.

Test record	Auto-return function
RG652	To be returned
RG653	Not to be returned

5-(4) Speed Adjustment

Adjust the speed by screwdriver as shown in Fig. 10.
 When increasing the speed Turn the speed adjustment volume to the clockwise direction.

When decreasing the speed Turn the speed adjustment volume to the counter clockwise direction.

33 : 33 1/3 RPM (VR 802)
 45 : 45 RPM (VR 801)

Note: Be sure to adjust the 33 rpm adjustment after completing the 45 rpm adjustment.

1. When using test record (RG 2056)
 Reproduce 3,150 Hz, then adjust the speed adjustment volume. So that, the counter reads 3,150 Hz \pm 0.5%

- A side — 33 1/3 RPM ... Band 2
- 45 RPM Band 3
- B side — 33 1/3 RPM ... Band 4
- 45 RPM Band 5

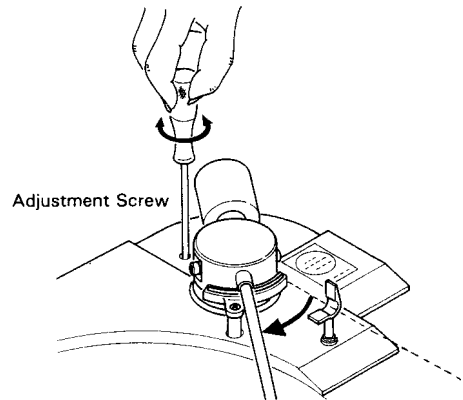
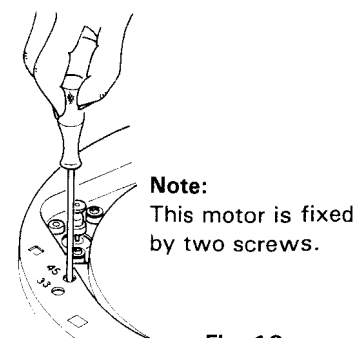


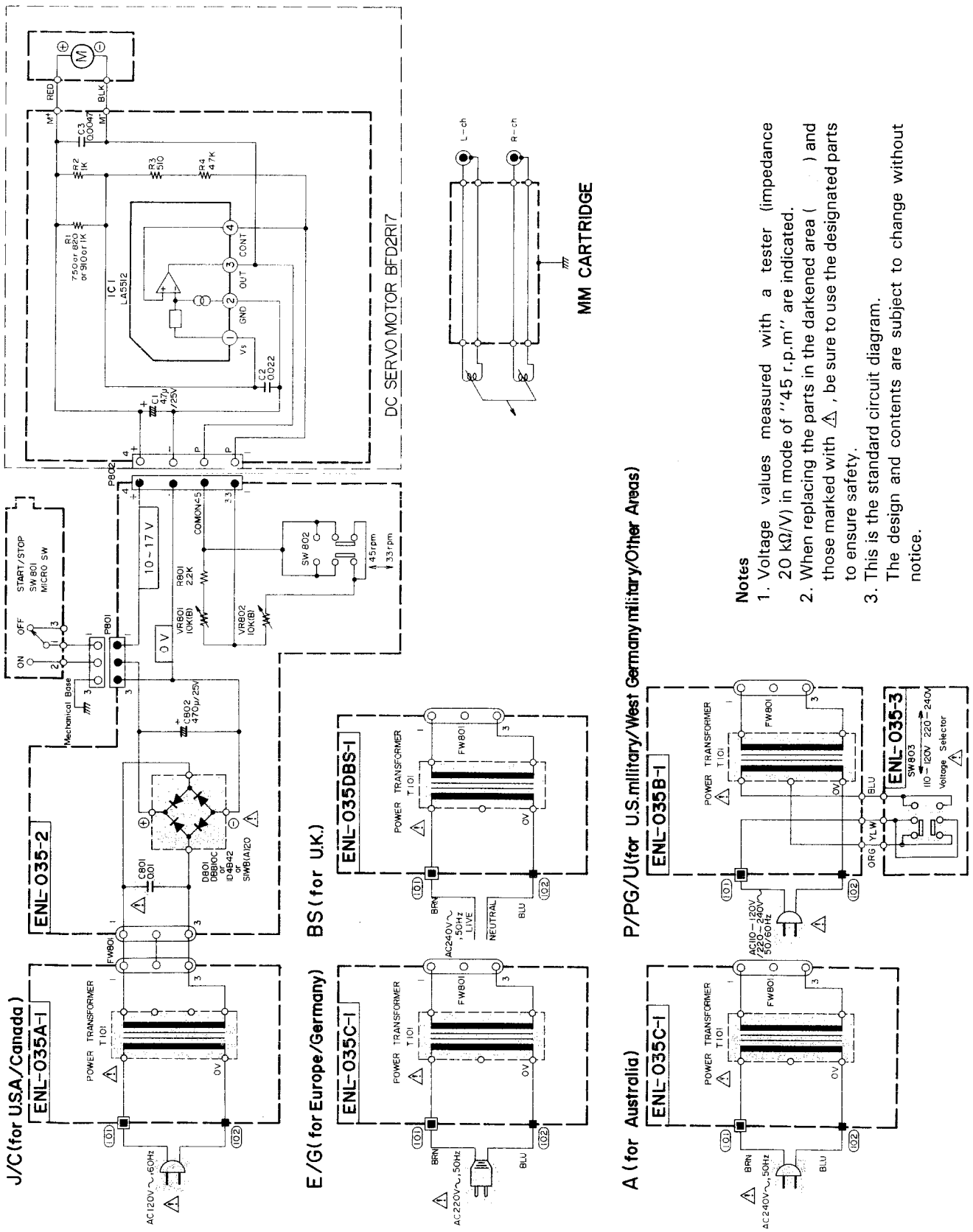
Fig. 9



Note:
 This motor is fixed by two screws.

Fig. 10

6. Schematic Diagram



- Notes**
1. Voltage values measured with a tester (impedance 20 kΩ/V) in mode of "45 r.p.m" are indicated.
 2. When replacing the parts in the darkened area () and those marked with Δ, be sure to use the designated parts to ensure safety.
 3. This is the standard circuit diagram. The design and contents are subject to change without notice.

Fig. 11

7. Power Cord Connections in Different Areas

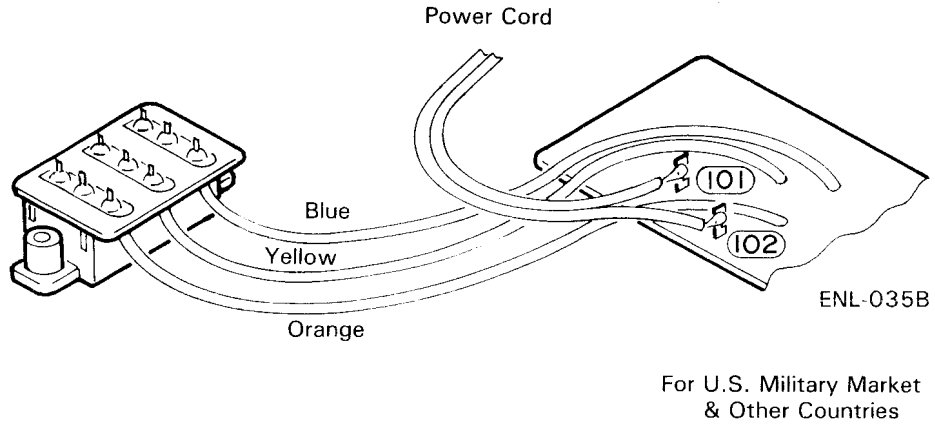


Fig. 12

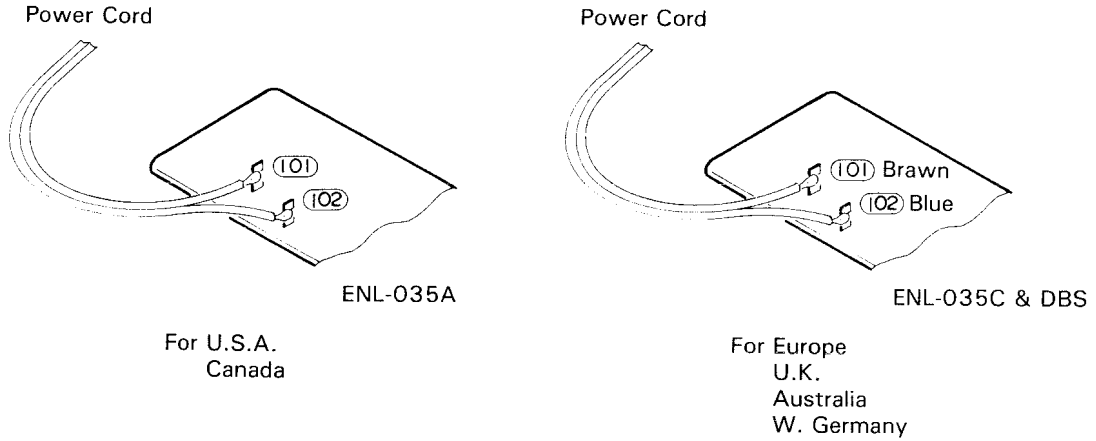


Fig. 13



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VICTOR COMPANY OF JAPAN, LIMITED
STEREO DIVISION, YAMATO PLANT, 1644, SHIMOTSURUMA, YAMATO-SHI, KANAGAWA-KEN, 242, JAPAN

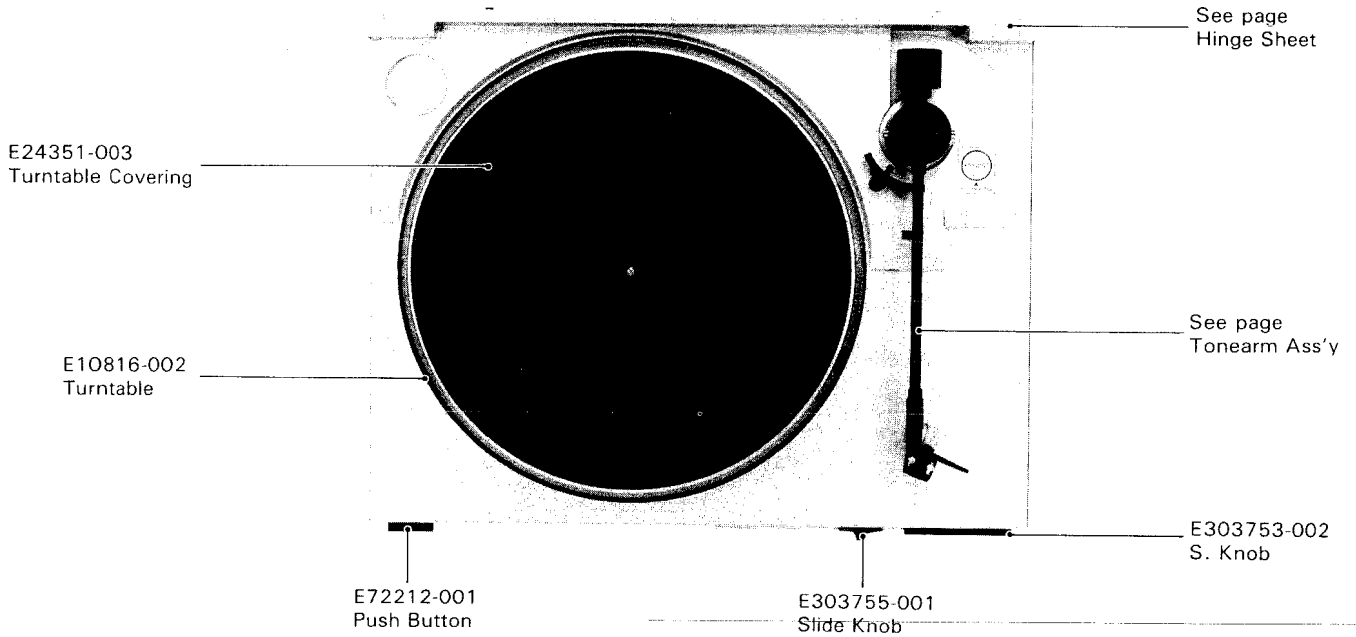
PARTS LIST

Contents

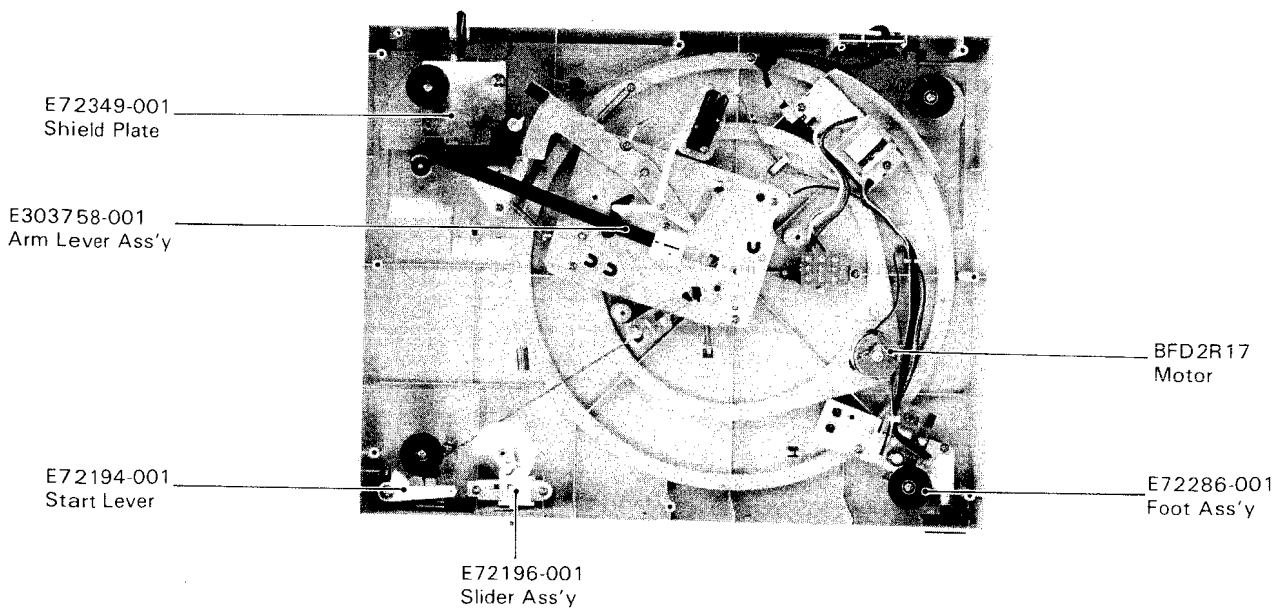
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- Exploded View and Part Numbers 2-3
 - Mechanism Base Ass'y 2-3
 - Tonearm Ass'y 2-3
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Main Parts Location

• Top View

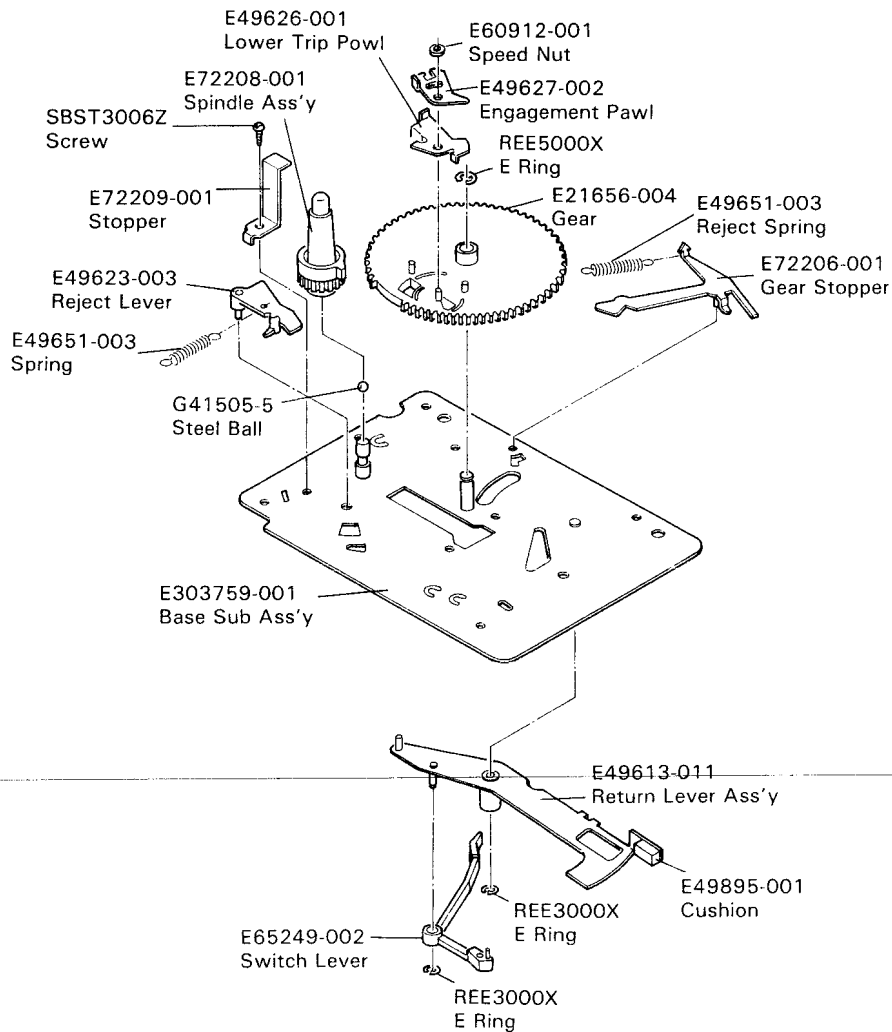


• Rear View

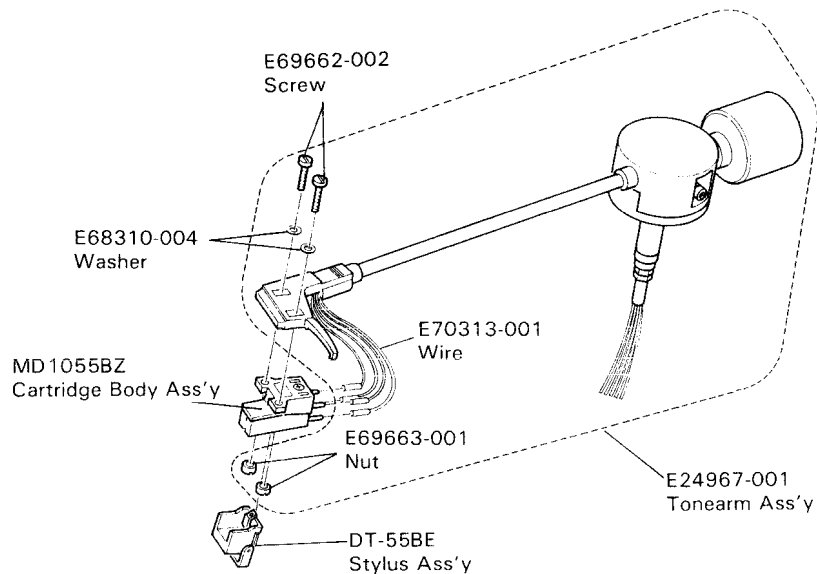


Exploded Views and Part Numbers

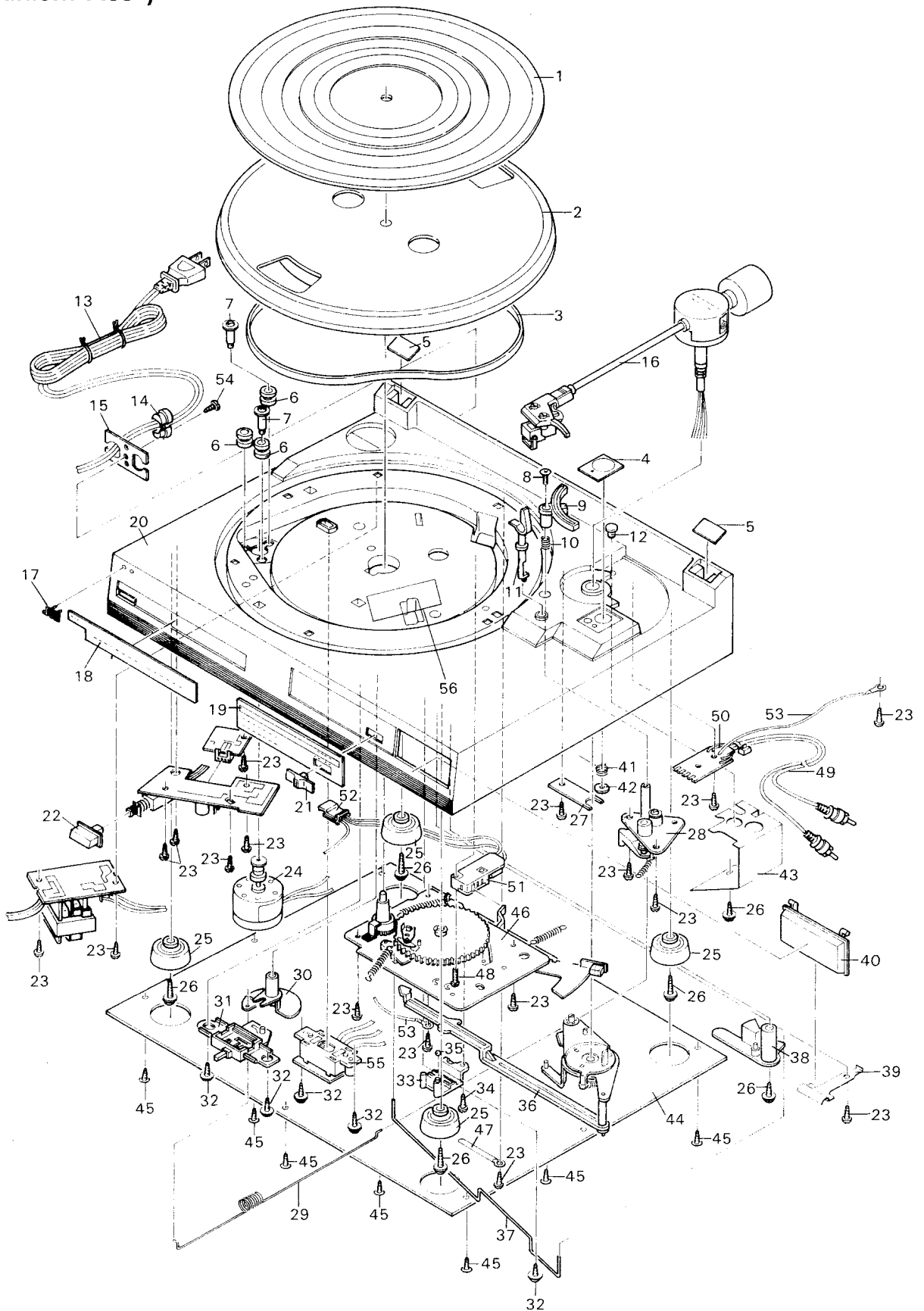
• Mechanism Base Ass'y



• Tonearm Ass'y



Mechanism Ass'y



Mechanism List

△	Item	Part Number	Part Name	Q'ty	Description	Areas
	1	E24351-003	Turntable Covering	1		
	2	E10816-002	Turntable	1		
	3	E301164-001	Belt	1		
	4	E72190-004	AS Plate	1	Silver	
		E72190-003	AS Plate	1	Black	
	5	E72191-001	Hinge Sheet	1	Silver	
		E72191-002	Hinge Sheet	1	Black	
	6	E66509-001	Rubber Busing	3		
	7	E66042-004	Screw	2		
	8	SSSP3016M	Screw	1		
	9	E65829-007	Elevator Ass'y	1		
	10	E49649-001	Spring	1		
	11	E72192-001	Rest	1		
	12	E65395-002	Mask Cap	1		JCT,C
△	13	QMP1200-200	Power Cord	1		JCT,C
△		QMP7600-250	Power Cord	1		U,P,PG
△		QMP3900-200	Power Cord	1		E,G,ES
△		QMP2560-244	Power Cord	1		A
△		QMP9017-008BS	Power Cord	1		BS
△	14	QHS3876-162	Cord Stopper	1		Except BS
△		QHS3876-162BS	Cord Stopper	1		BS only
	15	E69884-001	Cord Holder	1		
	16	See Page 2-3	Arm Ass'y	1	Silver	
	17	E71248-001	JVC Mark	1	Black	
		E71248-002	JVC Mark	1		
	18	E303751-004	Ornament	1		
	19	E303752-004	Ornament	1	Silver	
	20	ETA-LAX1E	Cabinet	1	Black	
		ETA-LAX1BE	Cabinet	1		
	21	E303755-001	Slide Knob	1		
	22	E72212-001	Push Button	1		
	23	SBSF3008Z	Screw	16		
	24	BFD2R17	Motor	1		
	25	E72286-001	Foot Ass'y	1		
	26	SDSF4008M	Screw	6		
	27	E70094-001	Stopper	1		
	28	E72201-001	Cueing Ass'y	1		
	29	E72211-001	Cueing Rod	1		
	30	E303798-001	Cueing Lever	1		
	31	E72196-001	Slider Ass'y	1		
	32	E65923-004	Screw	5		
	33	E301454-001	Ball Holder	1		
	34	SBST3006Z	Screw	1		
	35	G41505-1	Steel Ball	1		
	36	E303758-001	Arm Lever Ass'y	1		
	37	E72210-001	Stop Rod	1		
	38	E72194-001	Stop Lever	1		
	39	E72193-001	Spring	1		
	40	E303753-002	S. Knob	1		
	41	E72202-001	AS Spring	1		
	42	E72203-001	AS Washer	1		
	43	E72339-001	Shield Plate	1		
	44	E25011-001	Bottom Board	1		
	45	SSSF4012M	Screw	10		
	46	See Page 2-3	Mechanism Ass'y	1		
	47	E50670-003	Wire Clamp	2		
	48	SBSF3020Z	Screw	1		
	49	EWP301-002	Signal Cord	1		JCT
		EWP303-006	Signal Cord	1		Except JCT
	50	E68441-002	Signal Circuit Board	1		
	51	QSM1V12-106	Micro Switch	1		
	52	EWS013-213	Socket Wire	1		
	53	EWT011-086	Terminal Wire	1		
	54	SBSF3010Z	Screw	1		
	55	QSS0045-002	Slide Switch	1		U,P,PG
	56	E72349-001	Shield Plate	1		

△ : Safety parts

The Marks for Designated Areas					
JCT	U.S.A. (with Cartridge)	ES	.....	Spain
C	Canada	BS	.....	U.K.
A	Australia	P,PG	.....	U.S. Military Market
E	Europe	U	.....	Other Countries
G	West Germany			

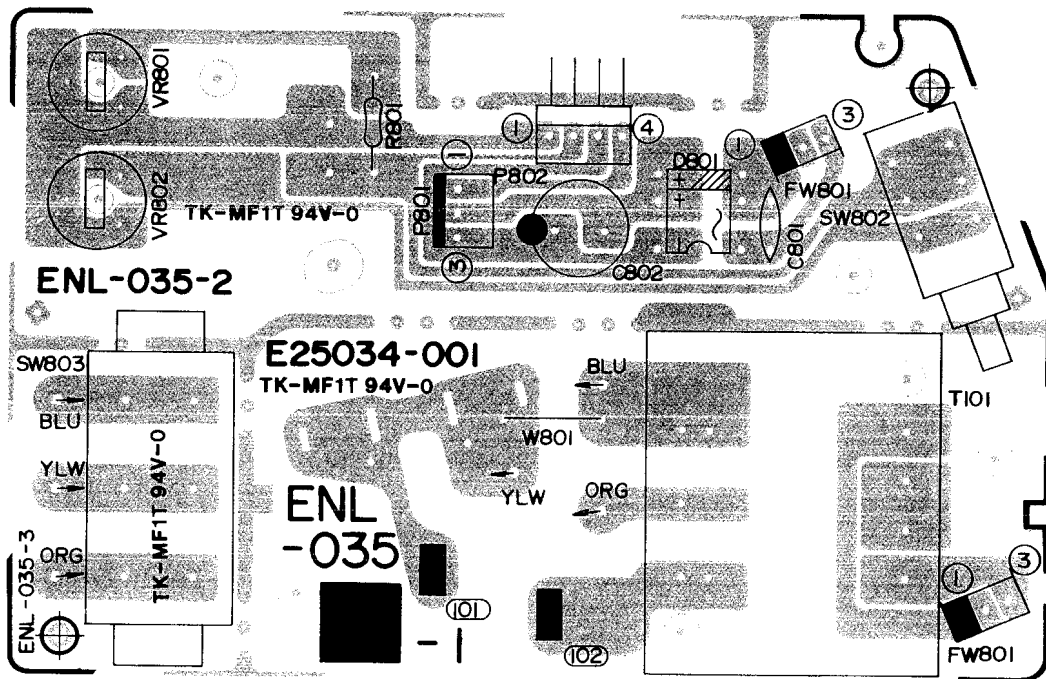
2. Printed Circuit Board Ass'y and Parts List

ENL-035□ Power Supply P.C. Board Ass'y

Note : ENL-035□ varies according to the areas employed. See Note (1).

Note (1)

P.C. Board Ass'y	Designated Areas
ENL-035 A	U.S.A. & Canada
ENL-035 B	U.S. Military Market & Other Countries
ENL-035 C	Europe, Australia & West Germany
ENL-035 DBS	U.K.



Diodes

△	Item No.	Part Number	Description		Areas
	D801	S1WB(A)20	Silicon	Marker	
	D801	DBB10C		Shindengen	
	D801	ID4B42		Hitachi	
	D801	ID4B42		Toshiba	

Capacitors

△	Item No.	Part Number	Description			Areas
	C801	QCF21HP-103	0.01MF	50V	Ceramic	
	C802	QETB1EM-477	470MF	25V			Electro

Resistors

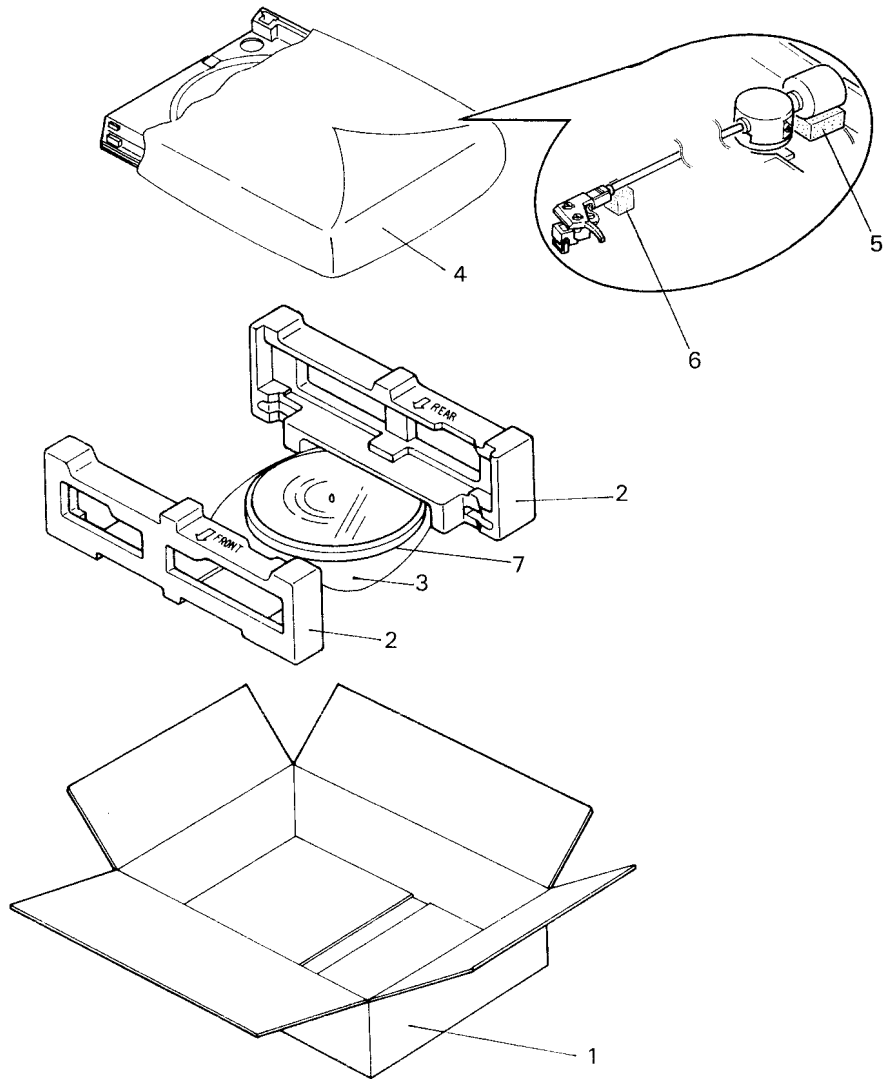
△	Item No.	Part Number	Description			Areas
	R801	QRD148J-222S	2.2K	1/4W	Carbon	
	VR801	QVP4A0B-103	10KB	Variable		
	VR802	QVP4A0B-103	10KB			

Others

△	Item No.	Part Number	Description	Areas
		E25034-001	Circuit Board	A
		E25034-001	Circuit Board	B
		E25034-001	Circuit Board	C
		E25034-001BS	Circuit Board	DBS
△		ETP1000-32EA	Power Transformer	C
△		ETP1000-32JA	Power Transformer	A
△		ETP1000-32LA	Power Transformer	B
△		ETP1000-32ZABS	Power Transformer	DBS
		E65508-002	Tab	
		Y40323-002	Jamp. Wire	A
		Y40323-002	Jamp. Wire	C
		Y40323-002	Jamp. Wire	DBS
	P801	QMV5005-003K	3P Plug Ass'y	
	P802	QMV5004-004K	4P Plug Ass'y	
	SW802	QST4101-E17	Push Switch	
	SW803	QSS0045-002	Slide Switch	B

△ : Safety Parts

Packing Materials and Parts List



Packing Parts List

△	Item	Part Number	Part Name	Description	Areas
	1	PK-LAX1E PK-LAX1BE PK-LAX1JCT PK-LAX1BJCT PL-LAX1ES	Packing Case Packing Case Packing Case Packing Case Packing Case	Silver Black Silver Black Silver	C,A,U,P,PG,E,G,BS C,A,U,P,PG,E,G,BS JCT JCT ES
	2	PK-LAX1BES NZ-LAX1E	Packing Case Packing Pad	Black E25012-001 (Front) E25012-002 (Rear)	ES
	3	E300196-039 E300196-039B	Envelope Envelope	Turntable Turntable	Except BS BS only
	4	E300196-053	Envelope	Set	Except BS
	5	E300196-053B	Envelope	Set	BS only
	6	E71531-003	Spacer		
	7	E71531-004 E72362-001 E72362-002	Spacer Envelope Envelope	Turntable Covering Turntable Covering	Except BS BS only

△ : Safety parts

The Marks for Designated Areas			
JCT	U.S.A. (with Cartridge)	ES	Spain
C	Canada	BS	U.K.
A	Australia	P,PG	U.S. Military Market
E	Europe	U	Other Countries
G	West Germany		

Accessories List

△	Part Number	Part Name	Description	Areas
	E30580-1246A E30580-1246ABS BT20047C BT20025H BT20029C	Instruction Book Instruction Book Warranty Card Warranty Card Warranty Card		Except BS BS only JCT,P,PG C A
	BT20060 BT20064 BT20066 BT20046B BT20044D	Warranty Card Warranty Card EEC Agency Service Information Card Safety Instruction		BS G G,BS JCT,P,PG JCT
	BT20071A E66329-001 E66329-002 E35497-022 E35492-021	Service Center EP Adaptor EP Adaptor Caution Sheet Caution Sheet	Silver Black	C U, PG P
△	E04056 E300196-010 E300196-010B	Siemens Plug Envelope Envelope		U,PG Except BS BS only

△ : Safety Parts

The Marks for Designated Areas

JCT	.....	U.S.A. (with Cartridge)
C	.....	Canada
A	.....	Australia
E	.....	Europe
G	.....	West Germany
ES	.....	Spain
BS	.....	U.K.
P,PG	.....	U.S. Military Market
U	.....	Other Countries