Service Manual

Panasonic

COMPACT STEREO

Panasonic

K



MODEL SE-1040/1040C

SPECIFICATIONS

AMPLIFIER SECTION

Power Output:	7W--7W (PMPO)
Frequency Response:	40Hz ~ 15kHz, −3dB
Tone Control:	12dB at 10kHz

FM TUNER SECTION

Frequency Range:	88MHz ~ 108MHz
Intermediate Frequency:	10.7MHz
Sensitivity:	5μV (S/N 30dB)
Harmonic Distortion: (at 1kHz, 60dB 30%)	Less than 1%
Stereo Separation: (at 1kHz, 60db 30%)	35dB

AM TUNER SECTION

Frequency Range:	525 ~ 1605kHz
Sensitivity:	100μV/m for 50mW

RECORD PLAYER SECTION

Type:	Automatic Record Changer
Turntable:	8"
Turntable Speeds:	33-1/3, 45 and 78RPM
Phonomotor:	2-Pole AC
Cartridge:	Solid State
Stylus:	Diamond

TAPE DECK SECTION:

Deck System:	Auto Stop Cassette System
Track System:	4-Track 2-Channel Stereo
Recording System:	AC Bias 47kHz
Erasing System:	AC Erase
Tape Speed:	1-7/8 ips. (4.8 cm/sec)
Frequency Response:	70Hz ~ 10kHz
Motor:	Mechanical Governor Controlled, DC

SPEAKER SYSTEM

Type:	Air Suspension
Woofer:	6-1/2" PM Dynamic
Input Impedance:	8Ω

POWER SUPPLY	AC 120V, 60Hz
POWER CONSUMPTION	39W

DIMENSIONS (W x D x H)

Center Unit:	19-7/16" x 4-3/4" x 13-3/16" (494mm) (121mm) (334mm)
Speaker System:	9-1/4" x 14-7/16" x 4-15/16" (234mm)(366mm) (125mm)

WEIGHT:

Center Unit:	21 lb. (9.6Kg)
Speaker System:	4 lb. 14 oz (2.2kg) each

MATSUSHITA ELECTRIC CORP. OF AMERICA
MATSUSHITA ELECTRIC OF HAWAII, INC.
MATSUSHITA ELECTRIC OF CANADA LTD.

Pan-Am Bldg. 200 Park Ave. New York, N.Y. 10017
320 Waiakamilo Road, Honolulu, Hawaii 96817
40 Ronson Drive, Rexdale, Ontario M9W 1B5

ORDER NO. TSD-559

ALIGNMENT INSTRUCTIONS (TAPE RECORDER)

CONTROL SETTING & PROCEDURE

- Set function selector switch to TAPE.
- Depress push buttons PLAY and REC at the same time.
- Set power source switch to ON.

Refer to Fig. 12.

STEP	CIRCUITS	VTVM CONNECTION	VOLUME CONTROL	ADJUSTMENT	REMARKS
1	AC BIAS OSCILLATOR & ERASE	Connect positive side to TP5 (+) and negative side to TP5 (–). (Refer to VTVM-1 in Fig. 12)	MIN.	T14 (AC Bias OSC) R64 (Voltage Control)	Adjust T14 for maximum indication of VTVM-1. Adjust R64 for 6V reading on VTVM-1.
2	AC BIAS OSCILLATOR & ERASE	Connect positive side to TP6 and negative side to lug. (Refer to VTVM-2 in Fig. 12)	MIN.	L11 (AC Bias Trap Coil)	Adjust L11 for 5mV reading on VTVM-2.
3	AC BIAS OSCILLATOR & ERASE	Connect positive side to TP7 and negative side to lug. (Refer to VTVM-3 in Fig. 12)	MIN.	L10 (AC Bias Trap Coil)	Adjust L10 for 5mV reading on VTVM-3. Repeat steps (2) and (3). When adjusting steps (1) and (2), disconnect VTVM-1.
4	AC BIAS OSCILLATOR & ERASE	Connect positive side to TP7 and negative side to lug. (Refer to VTVM-3 in Fig. 12)	MIN.	T14	Adjust T14 for maximum indications on VTVM-2 and 3.
5	AC BIAS OSCILLATOR & ERASE	Connect positive side to TP5 (+) and negative side to TP5 (–). (Refer to VTVM-1 in Fig. 12)	MIN.	R64 (Voltage Control)	Adjust R64 for 6V reading on VTVM-1. Repeat steps (2) and (3).

Notes: 1. Cement part of semi-fixed volume control (R64), as shown in Fig. 13.
2. Do not touch R/P head and Erase head when adjusting.

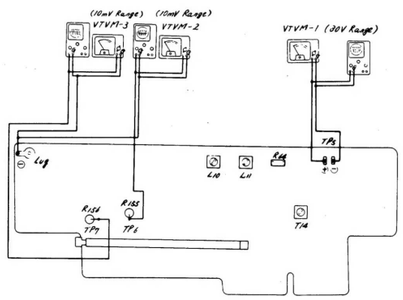


Fig. 12 RECOMMENDED EQUIPMENT CONNECTIONS

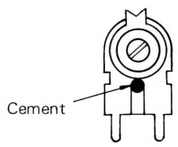


Fig. 13

RECORD/PLAYBACK HEAD AZIMUTH ADJUSTMENT

Play back a Standard Alignment Tape and turn head adjustment screw for maximum loudness.

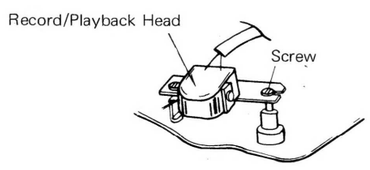


Fig. 14

MECHANICAL ADJUSTMENT-TAPE RECORDER

PINCH ROLLER ADJUSTMENT (Refer to Fig. 15)

1. Switch set to PLAY.
2. Pull pinch roller in the direction of arrows with spring gauge, as shown in Fig. 15.
3. Pull the pinch roller away from the capstan, start motor, permit the pinch roller to make contact with the capstan and measure tension at time of contact.
4. The standard pressure of pinch roller should be 300 ~ 400 g.
5. If pressure is beyond limits, change the fixed position of pinch roller spring and repeat the above measurement or replace pinch roller assembly.

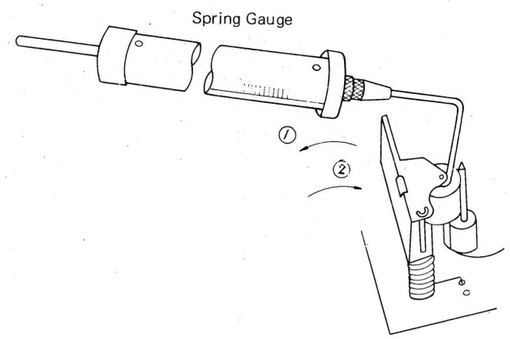


Fig. 15

TAKE-UP TORQUE ADJUSTMENT

Take-up Torque Measurement with Torque Meter (Refer to Fig. 16)

Equipment Required:

- Torque Meter (having a range of 20 ~ 100g/cm)
- Attachment (Take reel out of cassette tape, make 2 holes through its frame, and attach it to the torque meter with wire.)

1. Switch set to PLAY and put attachment with the torque meter onto take-up reel.
2. The standard take-up tension of the take-up reel should be 35 ~ 75g/cm.

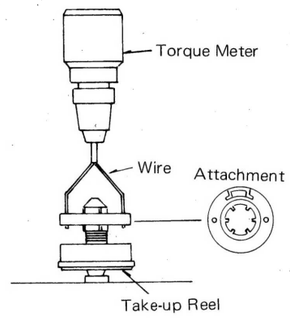


Fig. 16

Take-up Torque Measurement with Tension Gauge (Refer to Fig. 17)

Equipment Required:

- Tension Gauge
- Attachment

1. Switch set to PLAY.
2. Put attachment which is connected to tension gauge by cord (about 30cm) onto the take-up reel.
3. To read the number of the tension gauge, move the gauge in direction of arrow without slackening the cord.
4. The standard take-up tension of the take-up reel should be 35 ~ 75g/cm.

If the take-up tension is beyond these limits;

a) remove oil and dirt from flywheel belt (38) and/or
b) remove oil and dirt from the rubber part of the take-up reel and/or
c) remove rust from pinch roller or replace with new one and/or
d) replace clutch felt (54) or take-up arm (51).

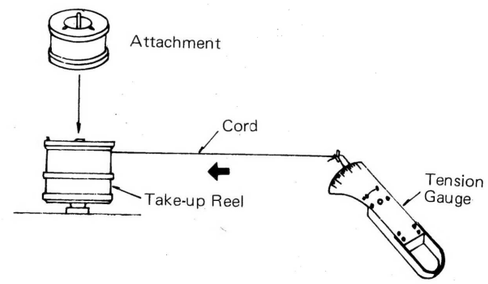


Fig. 17

SERVICING THE RECORD CHANGER

SPECIFICATIONS

Operating Voltage . . . . . 120 volts, AC
Turntable Speeds . . . . . 33-1/3, 45 and 78 RPM
Record Load Capacity . . . . Up to six 7", 10" or 12" records with any intermix at same speed.

LUBRICATION

The record changer mechanism is well lubricated before leaving the factory; after prolonged use, certain parts must be re-lubricated such as turntable shaft, cam gear assembly (cam only) and idler pulley shaft.

CAUTION

IT IS RECOMMENDED THAT LUBRICATION BE DONE BY EXPERIENCED SERVICE TECHNICIANS ONLY.
A medium grease should be applied to the points as shown in Fig. 22.

ADJUSTMENT

Stylus Set-Down: During automatic operation the stylus sets down 1/8 inch from edge of record. Turning the stylus set-down adjustment screw counter-clockwise causes the stylus to set down further in from the edge of the record. (See Fig. 19)
Pickup Arm Height: To raise, turn screw head by hand counter-clockwise; to lower, turn screw head clockwise. Adjust stylus to clear a full stack of records by 1/8 inch. (See Fig. 19)
Stylus Pressure: The needle pressure is adjusted at the factory for the correct pressure of 6 grams. Move the spring to different holes to set different pressure. (See Fig. 19)

DISASSEMBLY INSTRUCTIONS

1. Turntable Assembly
Remove Circlip and carefully lift Turntable Assembly off its bearing. When replacing Turntable Assembly, push the Idler Wheel Assembly towards the Turntable Center. This action will allow turntable to drop in position without damaging Idler Wheel.

2. Record Support Arm Assembly
Make sure the Unit has completed its cycle and the Pickup Arm returned to the Arm Rest. Remove the Circlip and Washer from the bottom of the Record Support Arm Spindle. The Record Support Arm Assembly can then be removed from the top of the Unit.

3. Pickup Arm Assembly
The Unit should be disconnected from power supply before attempting to remove the Pickup Arm Assembly. The Pickup Arm leads should be detached from the Terminal. Remove the Pickup Arm Spindle Nut and pull the Pickup Arm Assembly upward.

4. Center Spindle Assembly
Move the Feed Link fully toward the Switch, then release. Remove the Center Spindle Assembly.

5. Idler Wheel
Remove the turntable (step 1). Remove Circlip carefully and lift off the Idler Wheel. Replace new Idler Wheel carefully on shaft.
DO NOT TOUCH OUTSIDE EDGE OF IDLER WHEEL OR LET IT CONTACT ANY OIL OR GREASE.

Note:
Please see note attached to exploded view of changer. (Page 12)
Refer to FA-707A Service Manual for more detailed service information.

REPLACING CARTRIDGE AND STYLUS

Stylus
1. Lift the Pickup Arm to a position that will make the stylus accessible.
2. Gently remove Stylus and place new Stylus in to correct position as shown in Fig. 21.

Cartridge
1. Lift the Pickup Arm to a position that will make the Cartridge accessible.
2. The leads are removed gently by pulling the connectors off the Cartridge terminals.
3. Loosen cartridge holding screw, as shown in Fig. 20.

SERVICING THE RECORD CHANGER

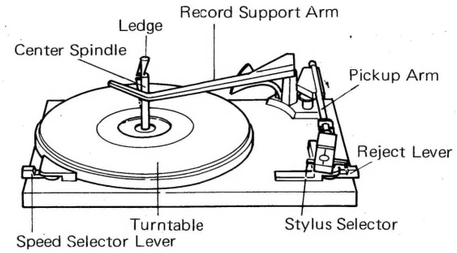


Fig. 18

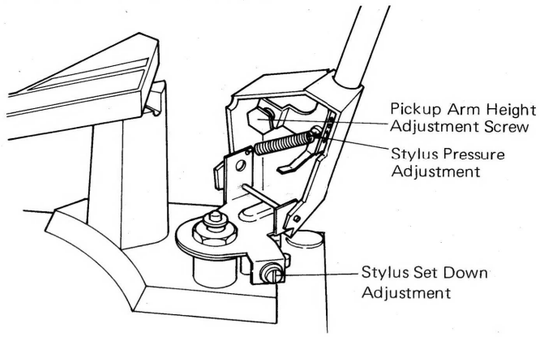


Fig. 19 PICKUP ARM ADJUSTMENT

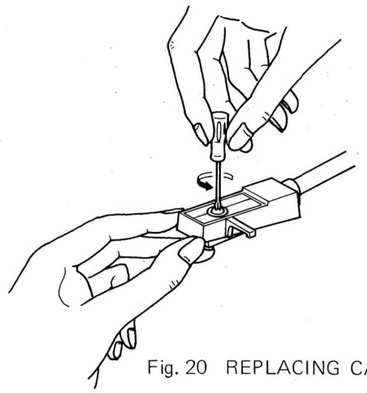


Fig. 20 REPLACING CARTRIDGE

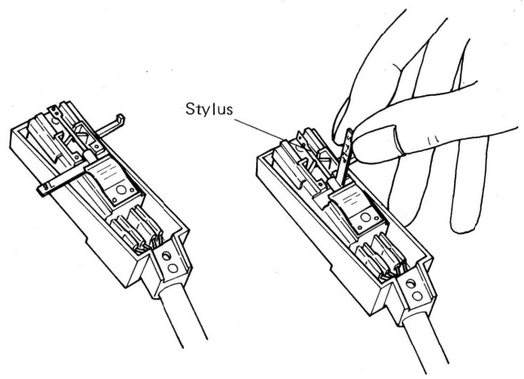


Fig. 21 REPLACING STYLUS

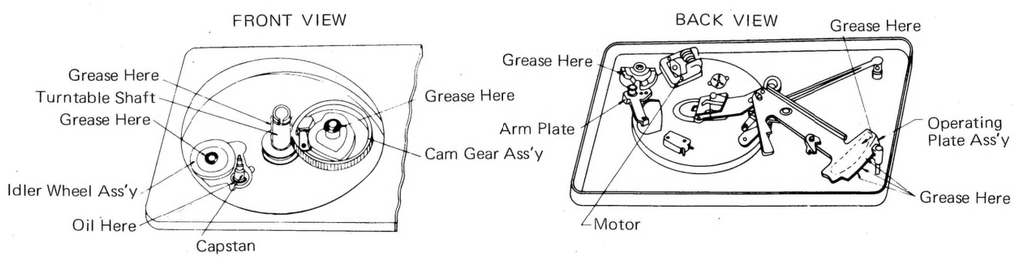
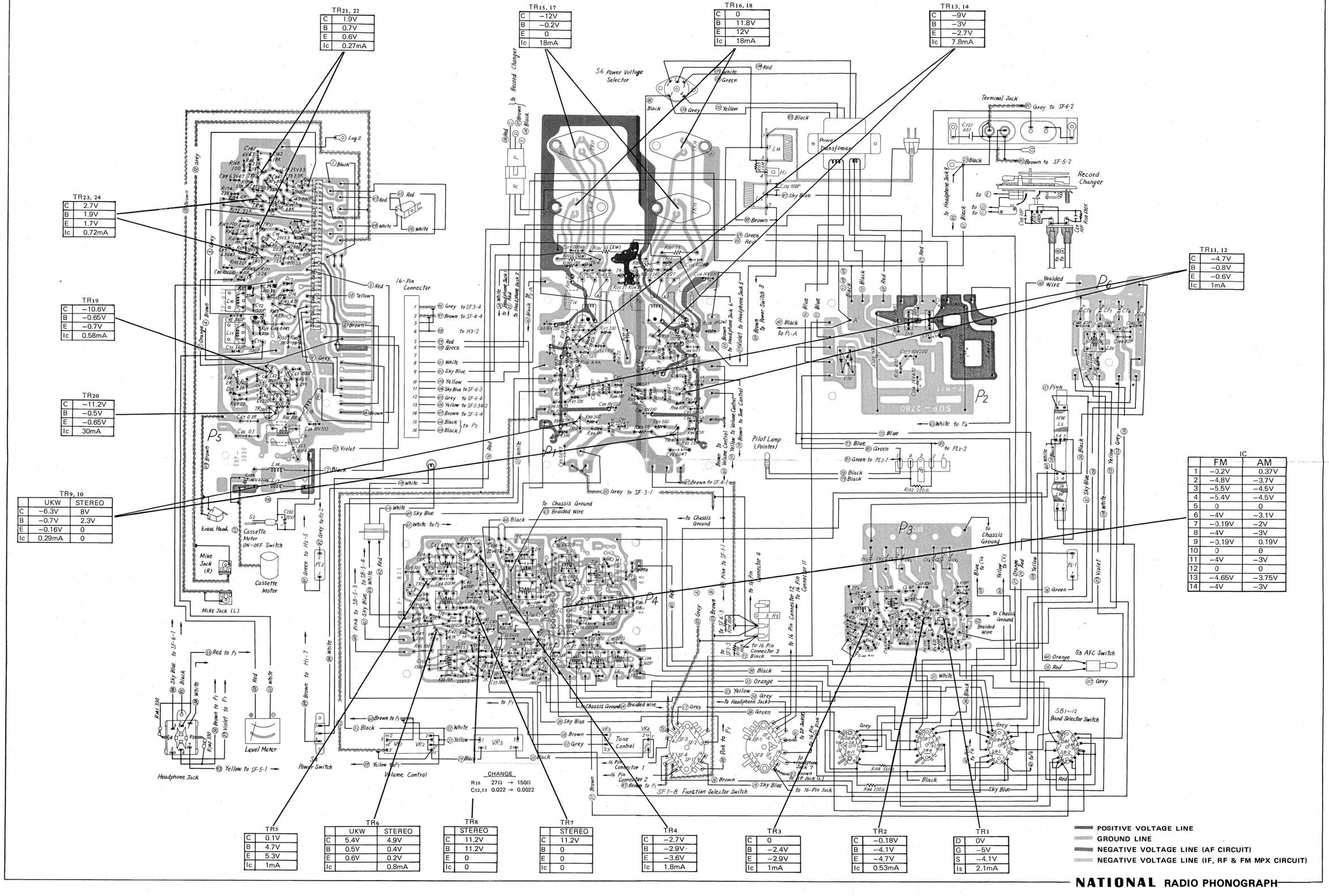


Fig. 22 LUBRICATION

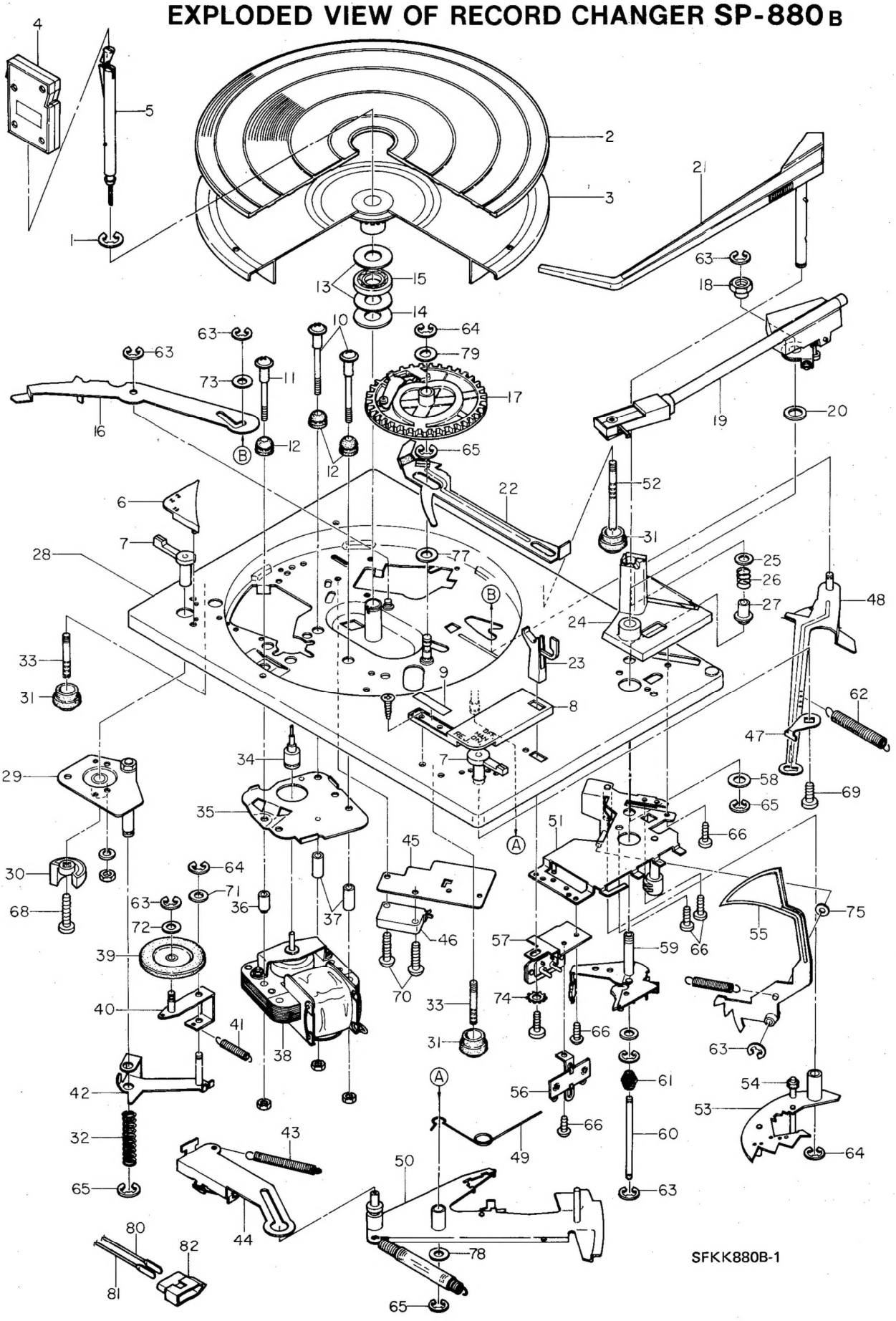
CIRCUIT BOARD WIRING VIEW



NATIONAL RADIO PHONOGRAPH

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EXPLODED VIEW OF RECORD CHANGER SP-880B



EXPLODED VIEW OF CASSETTE TAPE DECK

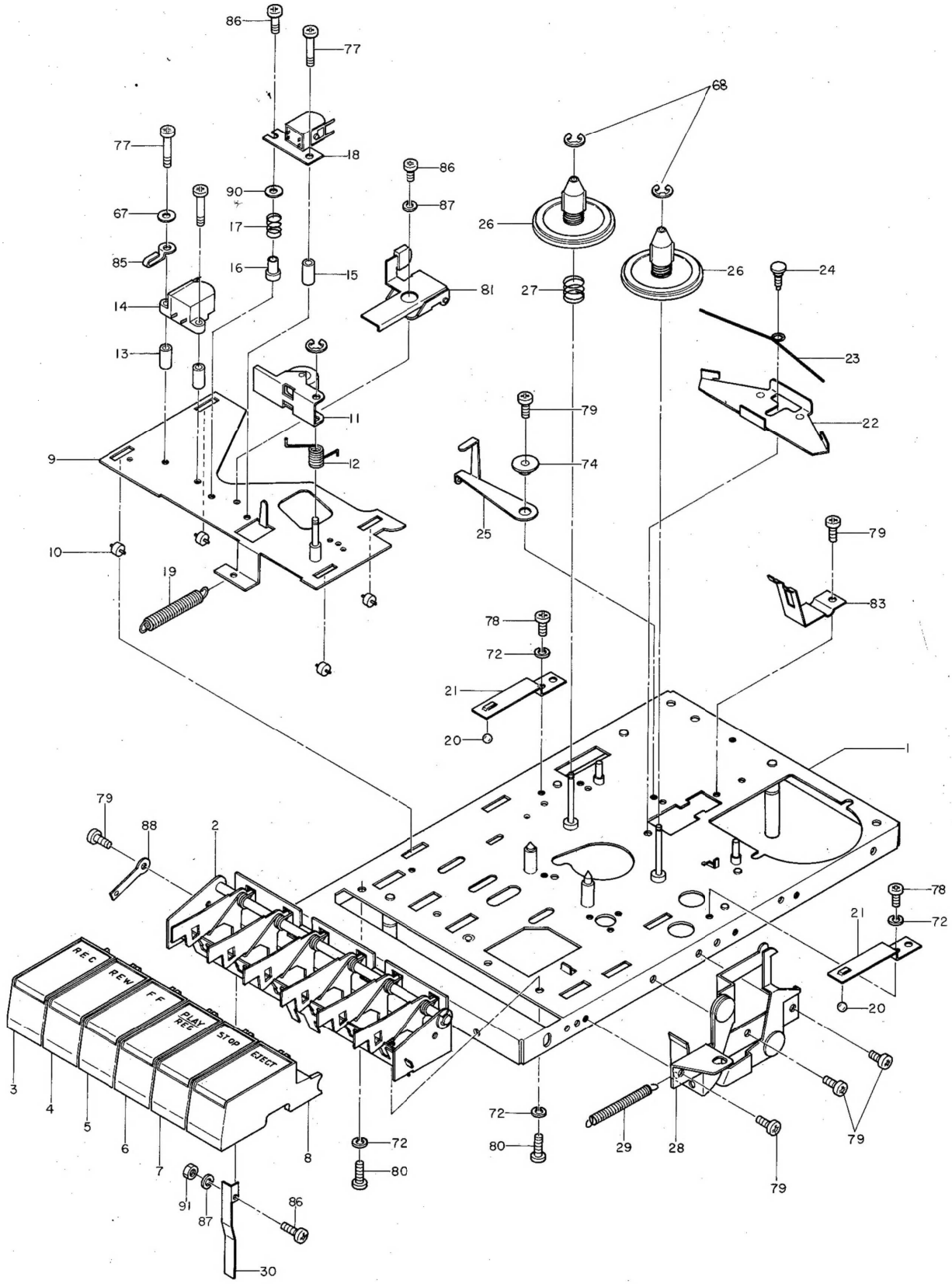


Fig. 23 TOP VIEW

EXPLODED VIEW OF CASSETTE TAPE DECK

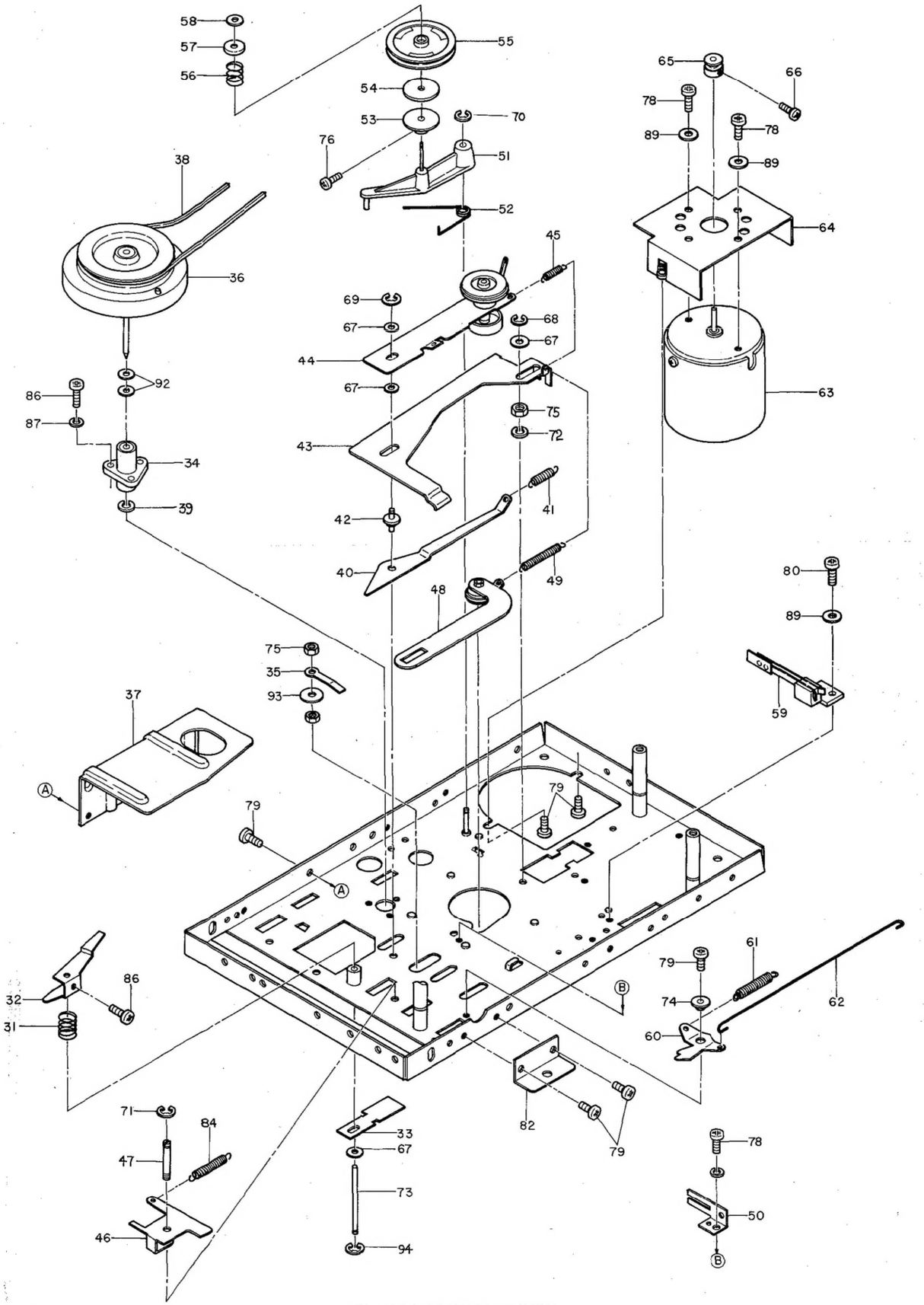


Fig. 24 BOTTOM VIEW

RECORD CHANGER REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	PER SET (pcs.)	REMARKS
1	SFXW702-4	Circlip	1	FU-PWR009
2	SFTG880-1E	Turntable Rubber	1	New
3	SFTE880-1E	Turntable Ass'y	1	New
4	SFVA701-1E	45 R.P.M Adapter, Complete	1	FU-ADA005
5	SFVS701-1E	Center Spindle	1	FU-JSA004
6	SFKC880-1	Speed Change Moulding	1	New
7	SFKT880-1	Speed Select Lever	2	New
8	SFKC880-2	Reject Mounting	1	New
9	SFK880B-1	Reject Label	1	New
10	SFXG701-2	Joggled Screw	2	FU-JIK076
11	SFXG702C1	Joggled Screw	1	New
12	SFGC701-1	Cushion Rubber	4	FU-JBS044
13	SFXW831-3	Turntable Washer	2	FU-PWM018
14	SFXW831-4	Felt Washer	1	FU-PWF009
15	SFUP831-1E	Ball Race Ass'y	1	FU-PTD043
16	SFUP703-1	Idler Off Lever	1	FU-PZB093
17	SFUG702-1E	Cam Gear Ass'y	1	FU-GAA010
18	SFXN701-1	Nut, Pickup	1	FU-GBS138
19	EPU-13TTID	Pickup Arm Ass'y	1	New
20	SFXW702-2	Washer, Pickup	2	FU-PWF042A
21	SFKD702-1E	Record Support Arm	1	FU-ETA112
22	SFUC701-1E	Actuating Slide Ass'y	1	FU-NPA012
23	SFKU702-1E	Pickup Arm Rest Ass'y	1	FU-RSA033
24	SFKC701-2	Record Support Housing	1	FU-MPL079
25	SFXW701-3	Washer, Record Support	1	FU-PWM049
26	SFQS701-3	Spring, Record Support	1	FU-BWR081
27	SFXB701-3	Boss, Record Support	1	FU-JBS150
28	SFBP880-1A	Main Plate Ass'y	1	New
29	SFMT880-E	Ar n Plate Holder Ass'y	1	New
30	SFMK703-1	Cam, Speed Change	1	FU-MPL128
31	SFGC701-2	Rubber Cushion	4	FU-GBS039
32	SFQA-701-1	Spring, Arm Plate	1	FU-BCP059
33	SFXG701-1	Screw A, Rubber	3	FU-JSC086
34	SFMC703-1	Capstan	1	FU-CPC7N
35	SFMF701-1	Motor Plate Holder	1	FU-PSP042
36	SFXO701-1	Stud A	2	FU-JPC091
37	SFXO701-2	Stud	2	FU-JPC092
38	2E-10GPL	Motor Ass'y	1	
39	SFMI703-1E	Idler Wheel Ass'y	1	FU-IPA011
40	SFMS703-1E	Idler Holder Ass'y	1	FU-UPA040
41	SFQH701-1	Spring, Idler Holder	1	FU-STN095
42	SFMU701-1E	Arm Plate Ass'y	1	FU-UPA036
43	SFQH327-51	Spring, Feed Link	1	FU-BTN101

REF. NO.	PART NO.	DESCRIPTION	PER SET (pcs.)	REMARKS
44	SFUP701-9E	Feed Link Ass'y	1	EU-ETA105
45	SFUP701-2	Switch Base Ass'y	1	FU-PFT239
46	SFDS-AM77909	Micro Switch	1	AM77909
47	SFUP701-4	Operation Lever A	1	FU-PRD013
48	SFUP7015E	Operation Lever B	1	FU-ETA102
49	SFQS702-1	Spring	1	FU-BWR096
50	SFUB701-1A	Operating Plate Ass'y	1	FU-ETA143
51	SFUK701-1E	Main Sub Plate Ass'y	1	FU-PKA010
52	SFXG707D1	Screw B, Rubber	1	FU-JSC087
53	SFUP702-1E	Index Plate Ass'y	1	FU-ETA142
54	SFGH701-1	Rubber Cushion	1	FU-GPL012
55	SFUM701-1E	Selector Ass'y	1	FU-ETA354
56	SFER3A	Terminal	1	FLPV-3N
57	SFUP701-12E	Socket Holder Ass'y	1	FU-ETA133
58	SFXW701-4	Washer, Record Support	1	FU-PWM059
59	SFUP701-7Z	Pickup Plate A Ass'y	1	FU-ETA108
60	SFKP701-1	Pickup Arm Raising Spindle Ass'y	1	FU-JIK060
61	SFQA701-4	Spring, Actuating Slide	1	FU-BCP055
62	SFQH701-3	Spring, Feed Link	1	FU-BTN084
63	XUC3FY	Circlip 3φ	7	ER-30S
64	XUC4FY	Circlip 4φ	2	ER-40S
65	XUC5FY	Circlip 5φ	4	ER-50S
66	XTN3+8BFU	Self Tapping Screw 3mm x 8	5	JMP-3080UF2
67	XTN3+10BFU	Self Tapping Screw 3mm x 10	1	JMP-30100UF2
68	XTN4+10BFU	Self Tapping Screw 4mm x 10	1	JMP-40100UF2
69	XTN4+12BFU	Self Tapping Screw 4mm x 12	1	JMP-401200F2
70	XTV3+20BFU	Screw 3mm x 20	2	
71	SFXW701-2	Washer	1	FU-PWF062
72	SFXW551D2	Washer, Idler Wheel	2	
73	XWE4BM	Washer, Operating Lever B	1	
74	XWC3BFY	Toothed Lock Washer	1	OHW-30W
75	SFXW702-1	Washer, Selector	1	FU-PWF015
76	SFXW701-5	Washer, Actuating Slide A	1	FV-PWF059
77	SFXW702-2	Washer, Actuating Slide B	1	FU-PWF042A
78	SFXW017-1	Washer, Operating Plate	1	FU-PWF019
79	SFXW702-3	Washer, Cam Gear	1	FU-PWM032
80	SFEL17U495R	Lead Wire A, Red	1	New
81	SFEL17U495C	Lead Wire B, Brown	1	New
82	SFDK-1396P1	Plug Housing	1	EPG-1396P1
	ERD-12TK684	680kΩ, 1/2 Watt, ±10% Solid	1	
	ECK-D05100MY	10pF, 50WV, ±1pF Ceramic	1	
	EPC-34TTCAD	Cartridge, Magnistate	1	New
	EPS-13TTSD	Stylus, Diamond	1	

REF. NO.	PART NO.	DESCRIPTION	PER SET (pcs.)	REMARKS
		Cassette Tape Recorder SJD30		
1	SMQ574	Chassis Ass'y	1	
2	SMQ422	Push Button Frame Ass'y	1	
3	SYE146	Button Ass'y "REC"	1	
4	SYE148	Button Ass'y "REW"	1	
5	SYE150	Button Ass'y "FF"	1	
6	SYE152	Button Ass'y "PLAY"	1	
7	SYE154	Button Ass'y "STOP"	1	
8	SYE156	Button Ass'y "OPEN"	1	
9	SMQ576	Head Panel	1	
10	SMQ301	Pulley A	1	
11	SMQ38	Pinch Roller Ass'y	1	
12	SMQ578	Spring C, Pinch Roller Ass'y	1	
13	SMQ42	Stud A	2	
14	WY240X	Erase Head	1	
15	SMQ228	Stud B, Record-Playback Head	1	
16	SMQ230	Stud C, Record-Playback Head	1	
17	SMQ232	Coil Spring A	1	
18	WY425Z	Record-Playback Head	1	
19	SMQ52	Spring D, Head Panel Action Bracket	1	
20	SMQ54	Ball	2	
21	SMQ56	Head Panel Push Spring	2	
22	SMQ164	Brake Arm	1	
23	SMQ166	Spring E, Brake Arm	1	
24	SMQ168	Pivot, Brake Arm	1	
25	SMQ234	REC Safety Lever B	1	
26	SMQ170	Reel Ass'y	2	
27	SMQ186	Spring F, Reel	2	
28	SMQ236	Pop-up Lever Ass'y	1	
29	SMQ240	Spring I, Pop-up Lever	1	
30	SMQ242	Switch Holding Spring Ass'y	1	
31	SMQ448	Spring, Check Shaft	1	
32	SMQ450	Operating Lever	1	
33	SMQ452	Stop Plate	1	
34	SMQ124	Shaft A Ass'y	1	
35	SMQ414	Spring Q	1	
36	SMQ482	Flywheel Ass'y	1	
37	SMQ244	Bracket Ass'y	1	
38	SMQ140	Belt, Capstan	1	
39	SMQ148	Washer, Oil Thrower	1	
40	SMQ58	Actuating Lever "FF"	1	
41	SMQ72	Spring K, Actuating Lever "FF"	1	
42	SMQ60	Shaft B, Brake Operating Plate	1	
43	SMQ62	Brake Operating Plate	1	
44	SMQ246	FF Idler Ass'y	1	
45	SMQ74	Spring L	1	
46	SMQ248	FF Operating Plate	1	
47	SMQ104	Shaft C, FF Operating Plate	1	

REF. NO.	PART NO.	DESCRIPTION	PER SET (pcs.)	REMARKS
48	SMQ90	REW Arm Ass'y	1	
49	SMQ92	Spring M, REW Arm Ass'y	1	
50	SMQ86	Holding Plate, FF Idler Ass'y	1	
51	SMQ108	Take-up Arm	1	
52	SMQ106	Spring N, Take-up Pulley	1	
53	SMQ110	Clutch Wheel	1	
54	SMQ112	Clutch Felt	1	
55	SMQ114	Take-up Idler	1	
56	SMQ116	Spring O, Take-up Idler	1	
57	SMQ118	Cap, Take-up Idler	1	
58	SMQ120	Washer, Cap	1	
59	SMQ122	Motor ON-OFF Switch	1	
60	SMQ152	REC Safety Lever A	1	
61	SMQ154	Spring P, REC Safety Lever A	1	
62	SMQ158	REC Safety Spoke	1	
63	MHT-5PS	DC Motor	1	
64	SMQ250	Bracket C, DC Motor	1	
65	SMQ502	Pulley, DC Motor	1	
66	XXA2A-3	Screw A, DC Motor	1	
67	SMQ64	Nylon Washer 2φ	5	
68	SNT440	Circlip 1.2 m/m	3	
69	SNT442	Circlip 1.5 m/m	3	
70	SNT444	Circlip 1.9 m/m	2	
71	SNT446	Circlip 2.3 m/m	1	
72	XWA26B	Spring Washer	5	
73	SMQ446	Check Shaft	1	
74	SMQ162	Spacer B	2	
75	XNG26B	Nut 2.6 m/m	2	
76	XSN17+4	Screw 1.7 mm x 4	1	
77	XSN2+12	Screw 8 mm x 12	3	
78	XSN26+3	Screw 2.6 mm x 3	7	
79	XSN26+4	Screw 2.6 mm x 4	9	
80	XSN26+6	Screw 2.6 mm x 6	6	
81	SMQ580	Auto Stop Lever Ass'y	1	
82	SMN334	Bracket F, CH	1	
83	SMQ258	Spring P, CH	1	
84	SMQ260	Coil Spring	1	
85	SMQ220	Lead Holder	1	
86	XSN2+5	Screw 2 mm x 5	7	
87	XWA2B	Spring Washer	5	
88	SMQ70	Plate Spring, REW	1	
89	XWE26B	Washer 2.6φ	8.3	
90	XWE2B	Washer 2φ	1	
91	XNG2B	Nut 2φ	2	
92	SMQ148	Washer, Oil Thrower	2	
93	SMQ416	Washer	1	
94	SMQ500	F. Washer	1	

REPLACEMENT PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	PER SET (pcs.)	REMARKS
TRANSISTORS				
TR1	2SK19GR	FM RF Amplifier (FET)	1	X
TR2	2SC920R	FM Mixer	1	X
TR3	2SC829C	FM Oscillator	1	X
TR4	2SC829B	Composite	1	X
TR5	2SC829C	19kHz Amplifier	1	X
TR6	2SA101C	38kHz Amplifier	1	X
TR7	2SC829C	DC Amplifier	1	X
TR8	2SC178A~D	Eye Switching	1	X
TR9,10	2SA666Q~S	Squelch & 1st AF Amplifier (L & R)	1	X
TR11,12	2SB346B	2nd AF Amplifier (L & R)	2	X
TR13,14	2SB176O or P	Driver (L & R)	2	X
TR15,16, 17,18	2SB473E,F,G,H, O,P	Power Output (L & R)	4	X
TR19	2SB175B	AC Bias Oscillator	1	X
TR20	2SB324V,K,L	AC Bias Amplifier	1	X
TR21,22	2SB346B	Equalizer Pre Amplifier (L & R)	2	X
TR23,24	2SB175B	Equalizer Pre Amplifier (L & R)	2	X
INTEGRATED CIRCUIT				
IC	AN-203AA	FM 1st-3rd IF Amp. & AM Converter AM 1st & 2nd IF Amp.	1	X
DIODES				
D1	RVDSC-15	AFC	1	X
D2	0A90	AM D.AGC	1	X
D5	0A90	AM Detector	1	X
D7,8	0A90	FM Detector (pair)	2	X
D9,10	0A90	Doubler (pair)	2	X
D11,12, 13,14	0A90	FM MPX (two pairs)	4	X
D15	1S1211	Rectifier	1	X
D16,17	0A90	Level Meter Det	2	X
D18	RVD10DC1	Rectifier	1	X
D19	RVD10DC1R	Rectifier	1	X
D20	SVD12B2BIP-M	Rectifier	1	X
THERMISTORS				
TH1~4	ERTD2FGK750S	Temperature Compensator	4	X
TH5	RRT103	Temperature Compensator	1	X
INDICATOR				
	SSM4	Level Meter	1	Y
COILS AND TRANSFORMERS				
L1	SLA4P4	FM Antenna Coil	1	Y
L2	SLD4Y6	FM Collector Coil	1	Y
L3	SLQY11G-2	FM IF Trap Coil	1	Y
L4	SLO4Y2	FM Oscillator Coil	1	Y
L5,19	SLF6G6	AM Ferrite Antenna Coil	1	X
L6	SLO2C14M	MW Oscillator Coil	1	Y
L7,8	SLQV393-4Y	MPX Filter	2	Y
L9	SLT6E2-D	Choke Coil	1	Y
L10,11	RLQC542-T	Bias Trap Coil	2	Y
L14,15	SLQY35G-2D	Radio Frequency Coil	2	Y
L16,17,18	ELQ250A999	Noise Filter Coil	3	Y
L20	SLOIC4M	LW Oscillator Coil	1	Y
T1,2	SLI4B102	FM 1st & 2nd IFT	2	X
T3	SLI4C32M	FM 3rd IFT	1	X
T4	SLI2C22M	AM 1st IFT	1	X
T5,7	SLI4C22M	FM 4th & 5th IFT	2	X
T6	SLI2C14M	AM 2nd IFT	1	X
T8	SLI4C56	FM Discriminator IFT	1	X
T9	SLI4C58	FM Discriminator IFT	1	X
T10	SLI2C48M	AM 3rd IFT	1	X
T11	SLM2C4K	MPX 19 kHz Coil	1	Y
T12	SLM2C2K	MPX 19 kHz Coil	1	Y
T13	SLM3C2K	MPX 38 kHz Coil	1	Y
T14	RLD9C2-T	AC Bias Oscillator	1	Y
T15	SLT3H6-D	Input Transformer	1	X
T16	SLT3H4-D	Input Transformer	1	X
T17	SLT5M8-D	Power Transformer	1	X
COMPONENT COMBINATION				
M1	EXAF203Z471	0.02μFZ, 470Ω (two)	1	Y
M2	EXA5DM04C	4.7kΩ (two), 330pF (three)	1	Y

REF. NO.	PART NO.	DESCRIPTION	PER SET (pcs.)	REMARKS						
				RF	IF	AF	P.S	TR	CH	
RESISTORS										
R67,115, 116	ERD14VJ220	22Ω, 1/4Watt, ±5%, Carbon	3			2		1		Z
R17,19, 122,124, 125,127	ERD14VJ270	27Ω, 1/4Watt, ±5%, Carbon	6		2	4				Z
R10	ERD14VJ470	47Ω, 1/4Watt, ±5%, Carbon	1	1						Z
R96,102	ERD14VJ560	56Ω, 1/4Watt, ±5%, Carbon	2			2				Z
R12,37	ERD14VJ121	120Ω, 1/4Watt, ±5%, Carbon	2	1	1					Z
R20,30,38, 45,66, 103,104, 167,168	ERD14VJ101	100Ω, 1/4Watt, ±5%, Carbon	9		2	4		3		Z
R18	ERD14VJ151	150Ω, 1/4Watt, ±5%, Carbon	1		1					Z
R11,22,30, 119,120, 152	ERD14VJ221	220Ω, 1/4Watt, ±5%, Carbon	6	1	1	2	1		1	Z
R16,21,92, 99,113, 114,117, 118,140, 141,151	ERD14VJ331	330Ω, 1/4Watt, ±5%, Carbon	11		2	6	1		2	Z
R3	ERD14VJ471	470Ω, 1/4Watt, ±5%, Carbon	1	1						Z
R9,82,88, 101,105, 154	ERD14VJ561	560Ω, 1/4Watt, ±5%, Carbon	6	1		4			1	Z
R46	ERD14VJ681	680Ω, 1/4Watt, ±5%, Carbon	1		1					Z

REF. NO.	PART NO.	DESCRIPTION	PER SET (pcs.)	REMARKS						
				RF	IF	AF	P.S	TR	CH	
R23,24,40, 50,51,52, 53,56,59, 62,65	ERD14VJ102	1kΩ, 1/4Watt, ±5%, Carbon	11		9			2		Z
R121,123, 126,128	ERD14VJ122	1.2kΩ, 1/4Watt, ±5%, Carbon	4			4				Z
R74,77,78	ERD14VJ152	1.5kΩ, 1/4Watt, ±5%, Carbon	3					3		Z
R34	ERD14VJ182	1.8kΩ, 1/4Watt, ±5%, Carbon	1		1					Z
R4,47,54, 55,57, 58,165, 166, 171, 174	ERD14VJ222	2.2kΩ, 1/4Watt, ±5%, Carbon	11	1	5			5		Z
R39	ERD14VJ272	2.7kΩ, 1/4Watt, ±5%, Carbon	1		1					Z
R35,72,73	ERD14VJ332	3.3kΩ, 1/4Watt, ±5%, Carbon	3		1			2		Z
R100,106	ERD14VJ392	3.9kΩ, 1/4Watt, ±5%, Carbon	2			2				Z
R6,42,86, 89,143, 145	ERD14VJ472	4.7kΩ, 1/4Watt, ±5%, Carbon	6	1	1	2		2		Z
R5,60,61, 110,111, 160,176	ERD14VJ562	5.6kΩ, 1/4Watt, ±5%, Carbon	7	2	3	2				Z
R76,79, 133,136	ERD14VJ682	6.8kΩ, 1/4Watt, ±5%, Carbon	4			4				Z
R81	ERD14VJ822	8.2kΩ, 1/4Watt, ±5%, Carbon	1			1				Z
R27,28,94, 97,109, 163,164	ERD14VJ103	10kΩ, 1/4Watt, ±5%, Carbon	8		2	3		2		Z
R48,49, R161, R162	ERD14VJ183	18kΩ, 1/4Watt, ±5%, Carbon	4		2			2		Z
R7,68,69	ERD14VJ223	22kΩ, 1/4Watt, ±5%, Carbon	3	1	2					Z
R63	ERD14VJ273	27kΩ, 1/4Watt, ±5%, Carbon	1					1		Z
R169,170	ERD14VJ333	33kΩ, 1/4Watt, ±5%, Carbon	2					2		Z
R31	ERD14VJ393	39kΩ, 1/4Watt, ±5%, Carbon	1			1				Z
R41	ERD14VJ473	47kΩ, 1/4Watt, ±5%, Carbon	1		1					Z
R8	ERD14VJ683	68kΩ, 1/4Watt, ±5%, Carbon	1	1						Z
R93,98, 135,179	ERD14VJ823	82kΩ, 1/4Watt, ±5%, Carbon	4			4				Z
R13,26,75, 80	ERD14VJ104	100kΩ, 1/4Watt, ±5%, Carbon	4	1	1			2		Z
R134,137	ERD14VJ154	150kΩ, 1/4Watt, ±5%, Carbon	2			2				Z
R2,14	ERD14VJ224	220kΩ, 1/4Watt, ±5%, Carbon	2	2						Z
R32	ERD14VJ274	270kΩ, 1/4Watt, ±5%, Carbon	1		1					Z
R36	ERD14VJ334	330kΩ, 1/4Watt, ±5%, Carbon	1		1					Z
R1,15	ERD14VJ474	470kΩ, 1/4Watt, ±5%, Carbon	2	1	1					Z
R83,84	ERD14VJ105	1MΩ, 1/4Watt, ±5%, Carbon	2			2				Z
R155,156	ERD14TJ100	10Ω, 1/4Watt, ±5%, Carbon	2					2		Z
R44	ERD14TJ221	220Ω, 1/4Watt, ±5%, Carbon	1						1	Z
R29	ERD14TJ102	1kΩ, 1/4Watt, ±5%, Carbon	1		1					Z
R172	ERD14TJ222	2.2kΩ, 1/4Watt, ±5%, Carbon	1					1		Z
R177,178	ERD14TJ184	180kΩ, 1/4Watt, ±5%, Carbon	2						2	Z
R82,85, 153	ERC12GK155	1.5MΩ, 1/2Watt, ±10%, Solid	3			2			1	Z
R129,130, 131,132	ERW12L1R5	1.5Ω, 1/2Watt, ±10%, Wire	4			4				Z
R138,139, 149,150	ERX2PSK180	18Ω, 2Watt, ±10%, Metal Film	4			2		2		Z
R148	ERD1PZK680	68Ω, 1Watt, ±10%, Carbon	1				1			Z
CAPACITORS										
C3	ECCD1H050C	5pF 50WV,±0.25pF,Ceramic	1	1						Z
C7,9,145	ECCD1H010C	1pF, 50WV,±0.25pF,Ceramic	3	3						Z
C5,30	ECCD1H040C	4pF, 50WV,±0.25pF,Ceramic	2	1	1					Z
C12,135, 154	ECCD1H070D	7pF, 50WV,±1pF, Ceramic	3	3						Z
C14,150	ECCD1H100K	10pF, 50WV,±5%, Ceramic	2	1	1					Z
C1	ECCD1H180K	18pF, 50WV,±5%, Ceramic	1	1						Z
C11	ECCD1H150K	15pF, 50WV,±10%, Ceramic	1	1						Z
C29,148	ECCD1H470K	47pF, 50WV,±10%, Ceramic	2	1	1					Z
C40,149	ECCD1H820K	82pF, 50WV,±10%, Ceramic	1		1					Z
C31	ECCD1H331K	330pF, 50WV,±10%, Ceramic	1		1					Z
C15	ECCD1H120K	12pF, 50WV,±10%, Ceramic	1	1						Z
C39	ECQS1121JZ	120pF,100WV,±5%, Styrol	1		1					Z
C155	ECQS1151JZ	150pF,100WV,±5%, Ceramic	1		1					Z
C6	ECQS1181KZ	180pF,100WV,±5%, Styrol	1	1						Z
C134	ECQS1361JZ	360pF,100WV,±5%, Styrol	1		1					Z
C70,71	ECQS1561JZ	560pF,100WV,±5%, Styrol	1		1					Z
C72,73, 120,133	ECQS02152KZ	1500pF, 50WV,±10%, Styrol	4		2	2				Z
C43,54,55, 57,58,63	ECQS02182JZ	1800pF, 50WV,±5%, Styrol	6		5			1		Z
C56,59	ECQS02392JZ	3900pF, 50WV,±5%, Styrol	2		2					Z
C42,45	ECQS02472KZ	4700pF, 50WV,±10%, Styrol	2		2					Z
C10,16,17, 21,27,37, 90	ECKD1H223ZFZ	0.022μF,50WV,+80%,−20% Ceramic	7	2	5					Z
C8,121, 127,128, 129,130, 156	ECKD05103ZFZ	0.01μF, 50WV,+100%,−0% Ceramic	7	1	1		4			Z
C2,4,13	ECKD1HZ102MD	0.001μF,50WV,±20%, Ceramic	3	3						Z
C19,20,24, 25,151	ECKD1H223MD	0.002μF,50WV,±20%, Ceramic	5	1	4					Z
C131	ECKDES101MB	100pF, 1400WV,+100%, −0% Mica	1						1	Z
C142,143	ECQM05102MZ	0.001μF, 50WV,±20%,Polyester	2					2		Z
C74,75,85, 86	ECQM05332MZ	0.0033μF,50WV,±20%,Polyester	4					4		Z
C77,78, 116,117	ECQM05682MZ	0.0068μF,50WV,±20%,Polyester	4			2		2		Z
C44,146, 147	ECQM05103MZ	0.01μF, 50WV,±20%,Polyester	3		1	2				Z
C41,46	ECQM05223MZ	0.022μF, 50WV,±20%,Polyester	2		2					Z
C83,84	ECQM05333MZ	0.033μF, 50WV,±20%,Polyester	2					2		Z
C66	ECQM05104MZ	0.1μF, 50WV,±20%,Polyester	1					1		Z
C92,93, 157,158	ECQM05473MZ	0.047μF, 50WV,±20%,Polyester	2			2				Z
C52,53	ECQM05222MZ	0.0022μF,50WV,±20%,Polyester	2					2		Z

REPLACEMENT PARTS LIST (Cont'd)

REF. NO.	PART NO.	DESCRIPTION	PER SET (pcs.)	REMARKS						
				RF	IF	AF	P.S	TR	CH	
C67	ECQM05393MZ	0.039μF, 50WV, ±20%, Polyester	1					1		Z
C22,109, 111	ECE16V10L	10μF, 16WV, Electrolytic	3		1	2				Y
C18,87,88, 100,103, 140,141	ECEA6V47L	47μF, 6WV, Electrolytic	7	1		2		4		Y
C36,65, 112,113	ECEA6V220L	220μF, 6WV, Electrolytic	4		1	2		1		Y
C91,136	ECEA25V4R7L	4.7μF, 25WV, Electrolytic	2		1		1			Y
C64	ECEA10V100L	100μF, 10WV, Electrolytic	1					1		Y
C26,80,96, 99,106, 107,123	ECEA10V220L	220μF, 10WV, Electrolytic	7		1	4	1	1		Y
C114,115, 153	ECEA16V220L	220μF, 16WV, Electrolytic	3			2	1			Y
C124,152	ECEA50V1L	470μF, 16WV, Electrolytic	2				2			Y
C125,126	ECEA16V470L	2200μF, 16WV, Electrolytic	2				2			Y
C47,132	ECEA50V1L	1μF, 50WV, Electrolytic	2		1				1	Y
C50,51,76, 79,81,82, 94,95,97, 98	ECEA25V3R3L	3.3μF, 25WV, Electrolytic	10		2	4		4		Y
C61,62, 104,105	ECAG10ER1-Y	0.1μF, 10WV, Electrolytic	4			2		2		Y
C38,101 102	ECAG10ER33-Y	0.33μF, 10WV, Electrolytic	3		1	2				Y
VARIABLE RESISTORS										
VR1,2	EVBQ1AA01A54	50kΩ Volume Control (R90,91)	1				X			
VR3,4	EVBQ0AA01D14	10kΩ Tone Control (R107,108)	1				X			
VR5	EVAQ0AA01G15	100kΩ Balance Control (R95)	1				X			
VR6	EVLS0AA00B13	1kΩ FM Separation Adjust (R33)	1				Y			
VR7	EVLT0AA00B23	2kΩ AC Bias Control (R64)	1				Y			
VARIABLE CAPACITORS										
CT1,2,4	ECV5LD34X21G	Tuning Capacitor	1				X			
CT3,5	ECV1ZW10P32	Trimmer Capacitor	1				Y			
CT4~7	SCV4T10S	Trimmer Capacitor	1				Y			
SWITCHES										
SB1~8	ESRE4C4L15BE	Band Selector Switch	1				X			
SF1~8	ESRE283L15BE	Function Selector Switch	1				X			
S3	SSH20	"PLAY-REC" Switch	1				X			
S4	EST1030DU	Power Switch	1	New			X			
S5	SSH16	AFC Switch	1				X			
S6	SSR6	Power Voltage Selector	1				Z			
SPEAKERS										
SP1,2	EAS16PL33SH	16cm PM Dynamic Speaker, 16Ω	2	New			X			
MISCELLANEOUS										
CH1	SUZ68	Guide, Dial Pointer	1				Z			
CH2	SHR718-1	Cushion, Level Meter	1				Z			
CH3	SDD1030-3	Drum	1				Y			
CH4	RDS309	Drum Spring	2				Y			
	RHG6	Rubber Cushion, Tuning Capacitor	5				Y			
CH5	SDT1324	Tuning Shaft	1				Y			
	RDY8	Pulley Shaft	3				Y			
	RDY13	Pulley Shaft	1				Y			
	RDR8	Pulley	2				Y			
	RDR13	Pulley	1				Y			
	RDR14	Pulley D	6				Y			
CH6	SXE401	Dial Pointer Ass'y	1				Y			
	SUS72	Plate Spring, Dial Pointer	1				Z			
	SDA4	Holder B, Dial Pointer	1				Z			
CH7	SJE76-1	Jack Plate	1				Z			
	SNE905	Rivet, Jack Plate	4				Z			
	RJP5	Pin Plug	2				Z			
	SJJ38	2 Pin Socket, Stereo Eye	1				Z			
CH8	RJJ25	M2 Jack	2				Z			
CH9	SJJ32	Headphone Jack	1				Y			
CH10	XAM43T	Dial Light	2				X			
CH11	SWE4	Stereo Eye Ass'y	1				X			
	SWJ38	Changer Power Lead	1				Z			
	SWJ40	Cassette Connecting Lead	1				Z			
	XSN3+6RS	Screw, Chassis M'tg	7				Y			

REF. NO.	PART NO.	DESCRIPTION	PER SET (pcs.)	REMARKS	
ACCESSORIES					
A1	WM2201N	Mike	1		
A2	WN123N	Mike Stand	1		
A3	SQX5444	Operating Instructions	1	New	Z
PACKINGS					
P1	SPG1104	Carton	1	New	Z
P2	SPN1352	Side Pad (R)	1		Z
P3	SPN1354	Side Pad (L)	1		Z
P4	SPN1330	Pad, Speaker System	2		Z

REF. NO.	PART NO.	DESCRIPTION	PER SET (pcs.)	REMARKS	
CABINET					
CA1	SKM3560 *	Main Cabinet	1		
CA2	SYE158	Translucent Plate Ass'y	1		Y
CA3	SKM3521 *	Side Board (L)	1	New	
CA4	SKM3541 *	Side Board (R)	1	New	
CA5	SGX590	Trim, Tape Deck	1		Y
CA6	SYP110	Panel Ass'y	1	New	Y
	SYK980	Main Cabinet, Complete	1	New	Z
CA7	SXE22	Cassette Cover Shaft Ass'y (L)	1		Z
CA8	SXE24	Cassette Cover Shaft Ass'y (R)	1		Z
CA9	SUS66-1	Cassette Spring	1		Y
CA10	SGE278	Cassette Cover	1		
CA11	SGK276	Stereo Eye	1		Z
CA12	SGK274	Jack Indicator	1		Y
CA13	SGS208	Dirt Protector Sheet	1		Z
CA14	SKM2540-1 *	Bottom Cover			
	SYK982	Bottom Cover, Complete	1	New	Z
CA15	SHG314	Rubber Foot	4		Z
CA16	SGN781	Specification Plate	1	New	Y
CA17	SKM3781	Speaker Enclosure	2		Z
CA18	SYU184	Rear Board Ass'y	2		Z
	SYK984	Speaker System Excluding Speaker, Complete	1		Z
CA19	SYB62	Baffle Board Ass'y	1		Y
CA20	SKE198	Mike Jack Holder	1		Z
CA21	SKD3001	Dial Plate	1	New	Y
CA22	SDH108	Dial Back Plate	1		Y
CA23	SBN348	Tuning Knob	1		X
CA24	SBN310	Knob, Volume	3		X
CA25	SBN308	Knob, Selector	2		X
CA26	SGX386	Cover, Power Switch	1		X
	SYK708-1	Top Cover, Complete	1		Z

1. Replacement parts with " * " mark are to be ordered in the form of assembly.
2. As to following service information, refer to Model SE-990L Service Manual.
   (1) Tape transport operations.
   (2) Tape recorder Circuits.
   (3) Trouble shooting guide of cassette tape deck.
   (4) Exploded view of cabinet.
3. The part numbers of record changer have been changed to standardize parts, starting with the November 1971 production.
   Old part numbers are listed in REMARKS.
   When ordering replacement parts, use these new part numbers.

Notes:

1. Part numbers are indicated on most mechanical parts.
   Please use this part number for parts orders.
2. X – Y rank:
   X rank parts will cover 80% of repair needs.
   X + Y rank parts will cover 95% of repair needs.
   Z rank parts are less necessary.