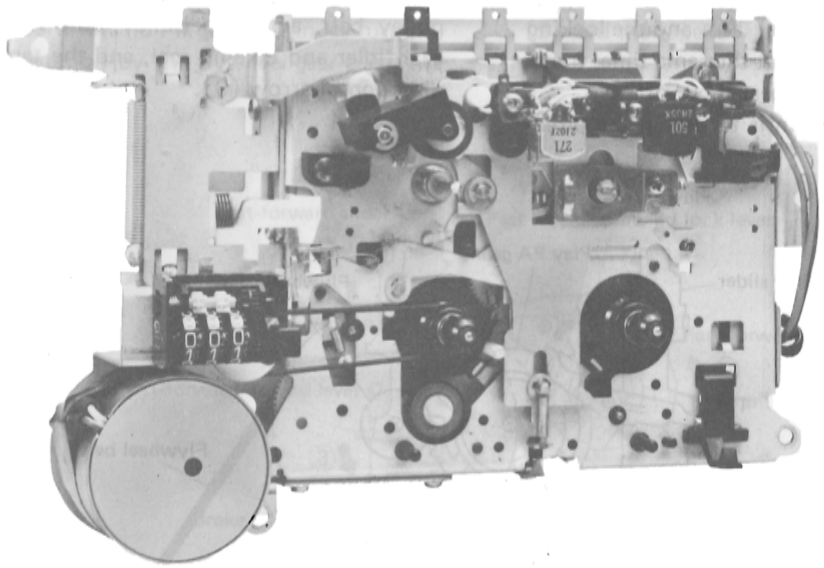
HITACHI
SERVICE MANUAL

TK | No. 1881E

GT-5000 Mechanism

TECHNICAL INFORMATION

This technical information describes the GT-5000 mechanism used in Models TRK-6700, TRK-6701, etc.
Refer to respective service manual for other items.



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SPECIFICATIONS AND PARTS ARE SUBJECT TO CHANGE FOR IMPROVEMENT

GT-5000 Mechanism

Jan. 1983 TOKAI WORKS

DESCRIPTION OF NEW MECHANISM

1. Play mode

When the play button is pressed, the play slider is pushed up in the direction of arrow ①, so the brake plate is depressed to set S8 (motor switch) to ON and simultaneously it is released from the reel and the brake is released. The play lock arm is turned in the direction of arrow ② by the projection of the play slider and releases locking of the play PA gear, so the play PA gear turns a little in the direction of arrow ③ and engages with the flywheel gear. The flywheel turns in the direction of arrow ④, so the play PA gear continues to turn in the direction of arrow ③ and then it is locked by the play lock arm and the locking projection of the play PA gear, and at the same time, transmission of rotation by the flywheel gear is cut off.
In the meantime, the operation arm is turned in the direction of arrow ⑤ by the rotation of the operation arm operating cam of the play PA gear, and by this, the head plate coupled with the operation arm is depressed in the direction of arrow ⑥. When the head plate is depressed, the pressure roller turns in the direction of arrow ⑦ and is compressed against the capstan, and at the same time the idler is turned in the direction of arrow ⑧ and is compressed against the take-up reel. The idler gear and the auto-stop pulley gear are engaged with each other, and motor rotation is transmitted to the flywheel, auto-stop pulley belt, auto-stop pulley, auto-stop pulley gear, idler gear, idler and take-up reel, and the tape is taken up in the direction of arrow ⑨.

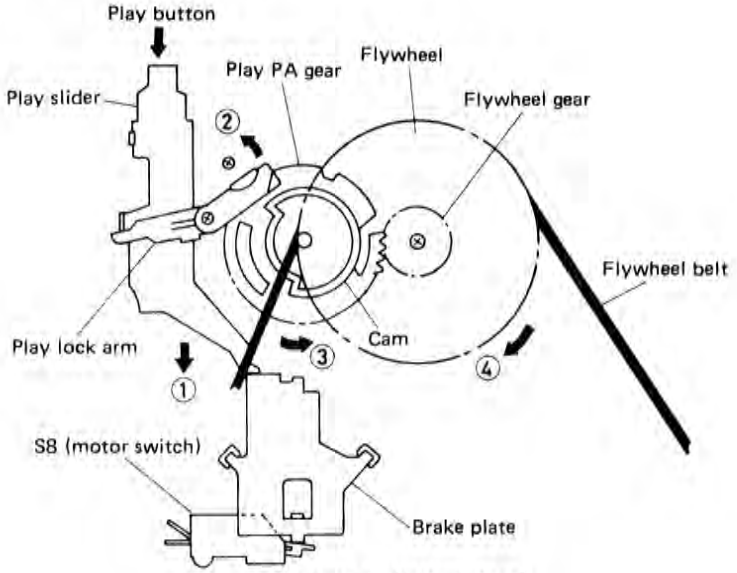


Fig. 1 Play mode (initial stage)

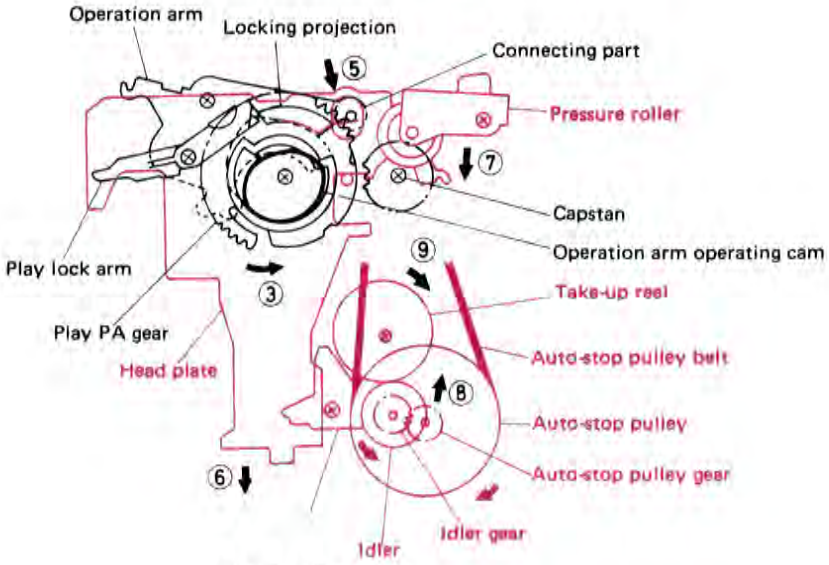


Fig. 2 Play mode

2. Fast-forward mode

When the fast-forward button is pressed, the fast-forward slider is depressed in the direction of arrow ①, so the brake plate is depressed and brake is released, and at the same time the fast-forward gear arm turns in the direction of arrow ② and is engaged with the take-up reel gear. Meanwhile, the fast-forward/rewind lever is turned in the direction of arrow ③ by the fast-forward slider and turns the fast-forward/rewind lock lever in the direction of arrow ④. Locking of the fast-forward/rewind PA gear is released by rotation of the fast-forward/rewind lock lever, so the fast-forward/rewind PA gear turns a little in the direction of arrow ⑤ and is engaged with the flywheel. The flywheel turns, so the fast-forward/rewind PA gear continues turning, and transmission of rotation by the flywheel gear is cut off when the locking projection touches the fast-forward/rewind lock lever and is locked. At the same time, the fast-forward/rewind operation arm is turned in the direction of arrow ⑥ by rotation of the operating cam of the fast-forward/rewind PA gear, so the intermediate pulley arm is turned in the direction of arrow ⑦, and the intermediate pulley gear and the gear of the fast-forward gear arm are engaged with each other.

As the intermediate pulley is turning in the direction of arrow ⑧, rotation is transmitted to the intermediate pulley, gear, fast-forward gear arm gear and take-up reel gear, and the take-up reel turns in the direction of arrow ⑨ and the tape is fast-forwarded.

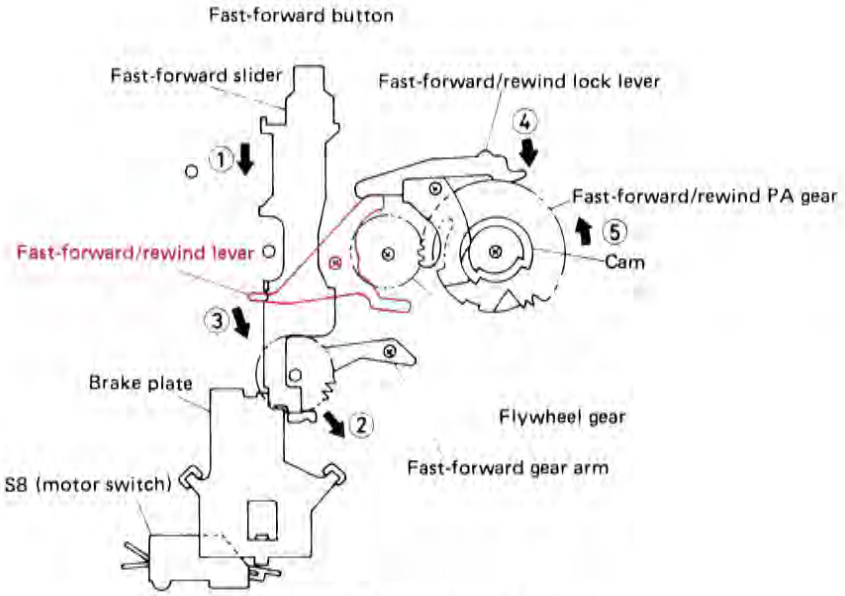


Fig. 3 Fast-forward mode (initial stage)

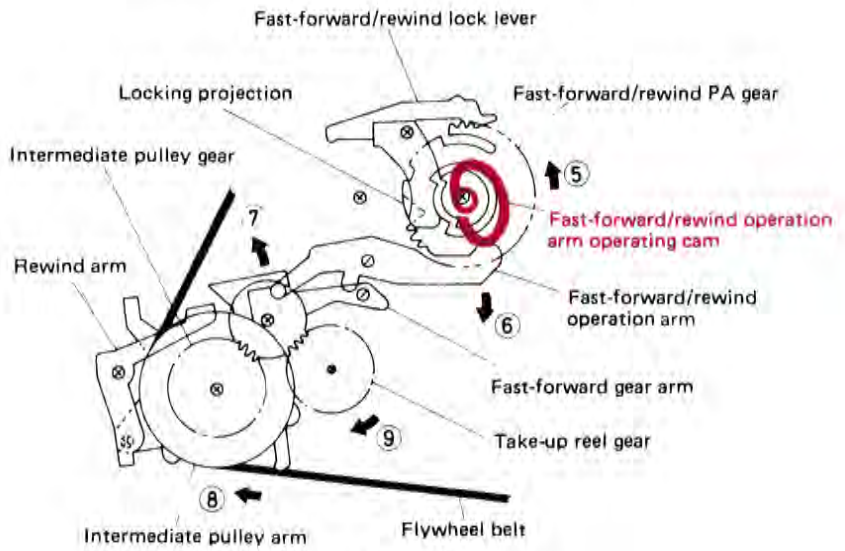


Fig. 4 Fast-forward mode

3. Rewind mode

When the rewind button is pressed, the rewind slider is depressed in the direction of arrow ①, so the brake plate is depressed and brake is released, and at the same time, the fast-forward/rewind operation arm is turned in the direction of arrow ② by rotation of the fast-forward/rewind lock lever the same as in the fast-forward mode. The rewind arm slides in the direction of arrow ④ due to the coupling pin of the rewind slider to the extent that the intermediate pulley gear and supply reel gear engage with each other, the intermediate pulley arm turns in the direction of arrow ③ and gears are engaged with each other, before the intermediate pulley arm is turned in the direction of arrow ③ by rotation of the fast-forward/rewind operation arm.

Rotation of the intermediate pulley is transmitted to the supply reel gear via the intermediate pulley gear, so the supply reel turns in the direction of arrow ⑤ and tape is rewound.

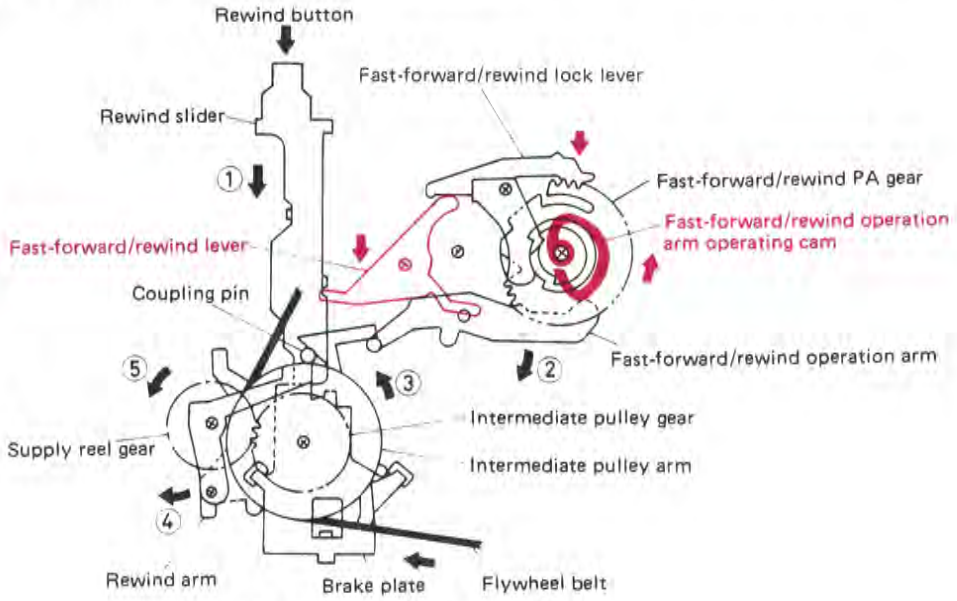


Fig. 5 Rewind mode

4. 3-tune selection mode (when tune selection mechanism is provided)

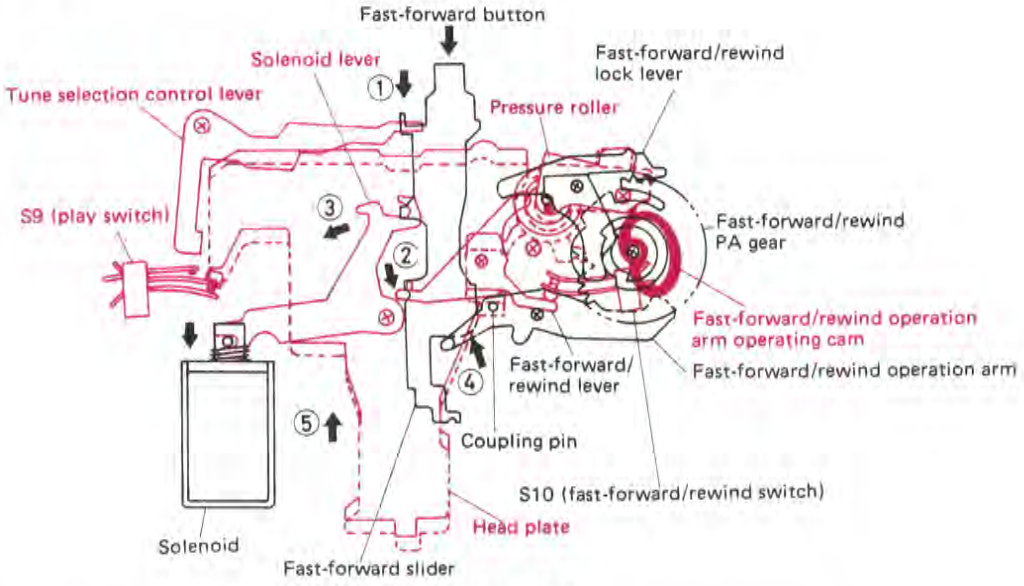


Fig. 6 3-tune selection mode

When the fast-forward button is pressed in the play mode, the fast-forward slider is depressed in the direction of arrow ① and the fast-forward/rewind lever turns in the direction of arrow ②, so S10 (fast-forward/rewind switch) is closed and the solenoid operates. When the solenoid operates, the solenoid lever turns in the direction of arrow ③ to lock

the fast-forward slider. At the same time, the fast-forward/rewind operation arm is turned in the direction of arrow ④ by the rotation of the fast-forward/rewind operation arm operating cam, the same as in the fast-forward mode, so the fast-forward mode is entered, and at the same time, the head plate is pushed up in the direction of arrow ⑤ by the coupling pin of the fast-forward/rewind operation arm. Because of this, the pressure roller is released from the capstan and the unit enters the tune selection mode.

Rewind tune selection is done in the same way. The tune selection control lever prevents the tune selection operation during recording; when the fast-forward (or rewind) button is pressed during recording, it cannot be pushed in because rotation is controlled by the record slider.

5. Record mode

When the record button is pressed with a cassette loaded, the record slider is depressed in the direction of arrow ① and the record arm is turned in the direction of arrow ② by the projection of the record slider. At the same time, the play slider is also depressed by the projection of the record slider, so the same operation as in the play mode is performed. (Refer to "1. Play mode" on Page 2).

The record arm is pushed out in the direction of arrow ③ by the tension of the spring, so it is connected with the concave (⊏) section of the operation arm but slides due to the rotation of the operation arm in the direction of arrow ④ turning the record lever in the direction of arrow ⑤. The record/play switch connected via the record spring is changed over to the recording side by the rotation of the record lever and the unit enters the record mode.

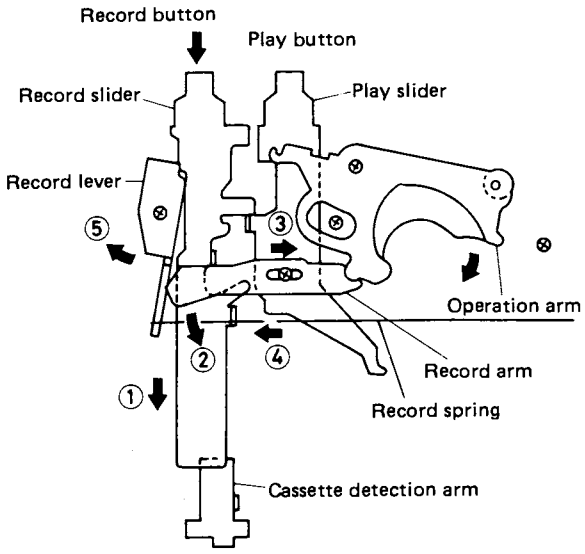


Fig. 7 Record mode

6. Auto-stop mechanism

Motor rotation is transmitted to the auto-stop pulley via the belt, and then rotation in the direction of the arrow is transmitted to the auto-stop pulley gear and auto-stop cam gear. The floating arm repeats movement by the rotation of the cam of the auto-stop cam gear but the floating lever is controlled by the rotation of the projection of the reel.

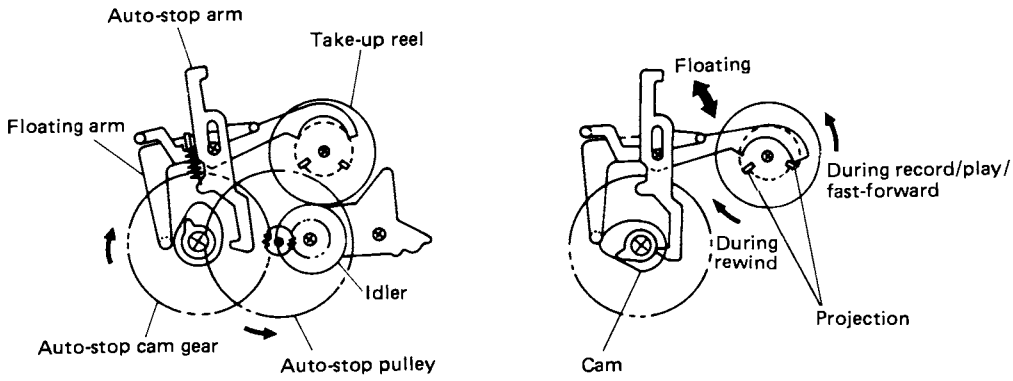


Fig. 8 Floating mode

When the tape is taken up and the take-up reel stops turning, there is no rotation force of the reel projection and the floating arm is released from control. The floating arm continues rotation in the direction of arrow ① until it touches both projections of the reel, so the auto-stop arm is turned in the direction of arrow ② by the tension of the spring and engages with the projection of the auto-stop cam gear and the projection of the stop slider. The auto-stop cam gear continues to rotate in the direction of arrow ③, so the auto-stop arm is drawn in the direction of arrow ④. As a result, the stop slider is also drawn downward, so all operation sliders are released from locking to enter the stop mode.

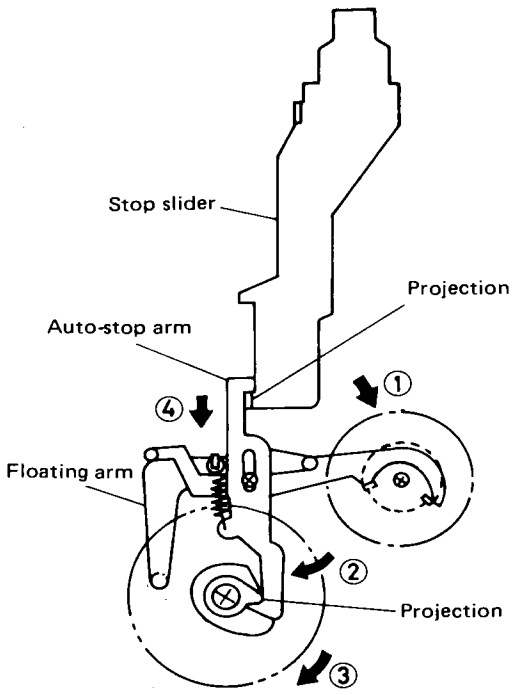


Fig. 9 Auto-stop operation

● Controlling auto-stop operation during pause

When the pause button is pressed, the pause slider is depressed in the direction of arrow ①, so the auto-stop control lever is turned in the direction of arrow ②. The auto-stop arm remains in the position turned in the direction of arrow ③ by this auto-stop control lever, so the auto-stop arm does not operated when the reel stops and the floating arm turns.

The auto-stop control arm returns to its original position when the pause mode is released, so the auto-stop arm is released from control and enters the auto-stop operation mode.

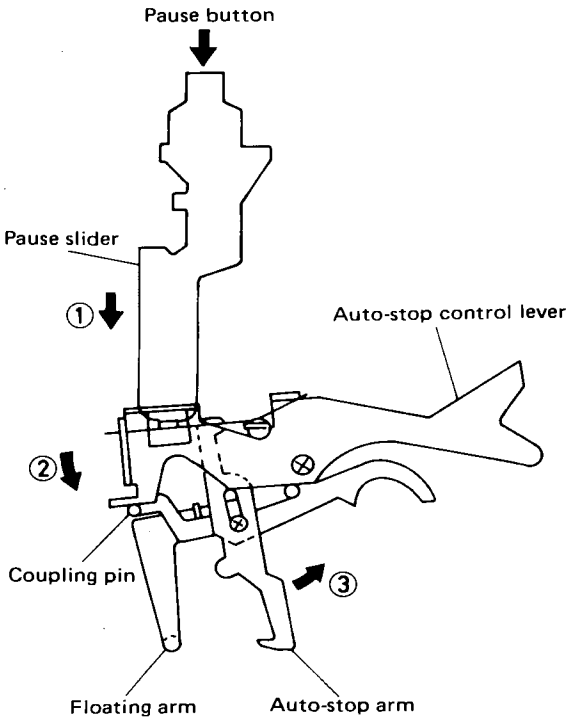
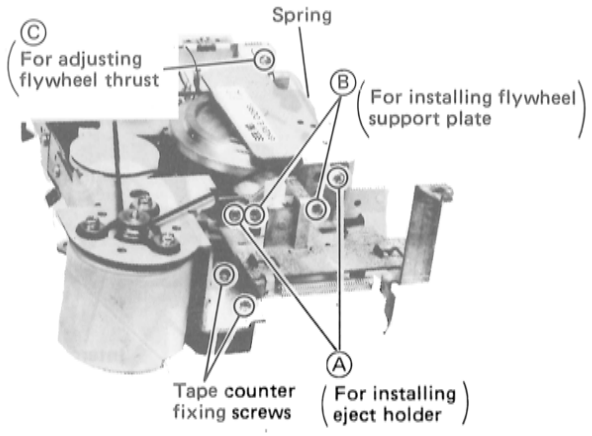


Fig. 10 Controlling auto-stop operation during pause

DISASSEMBLY

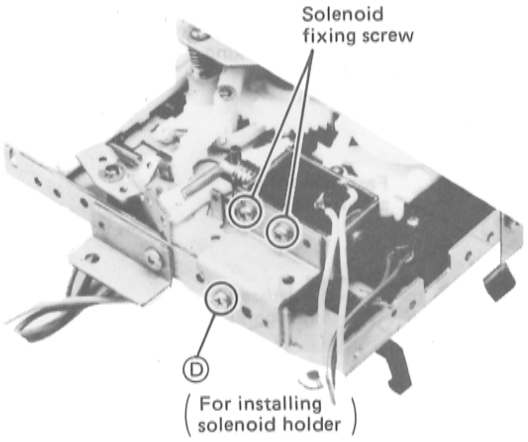
1. Flywheel

Remove 2 eject holder fixing screws (A), then remove 2 flywheel support plate fixing screws (B), one flywheel thrust adjusting screw (C) and spring, to remove the flywheel support plate.



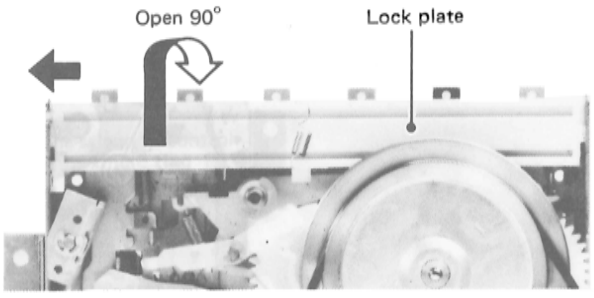
2. Solenoid (when tune selection mechanism is provided)

Remove one solenoid holder fixing screw (D).



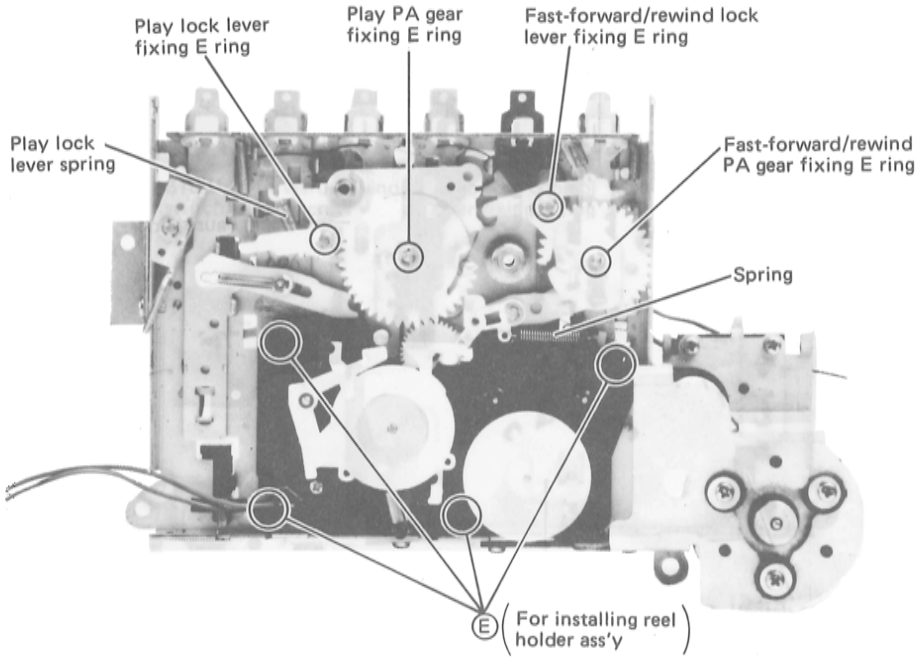
3. Lock plate

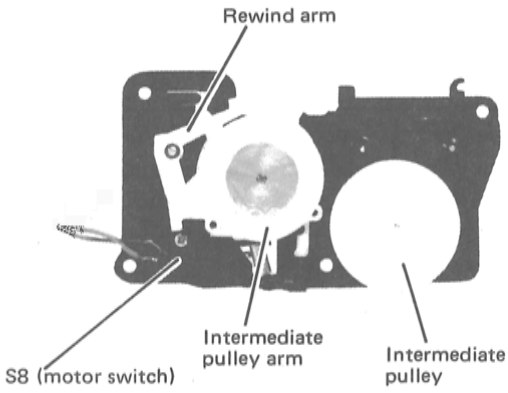
Open 90° in the direction of the arrow, then lift the left side of the lock plate and pull it to the left to remove it.

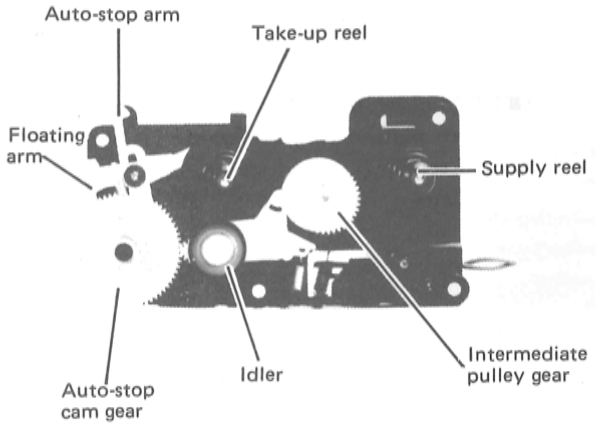


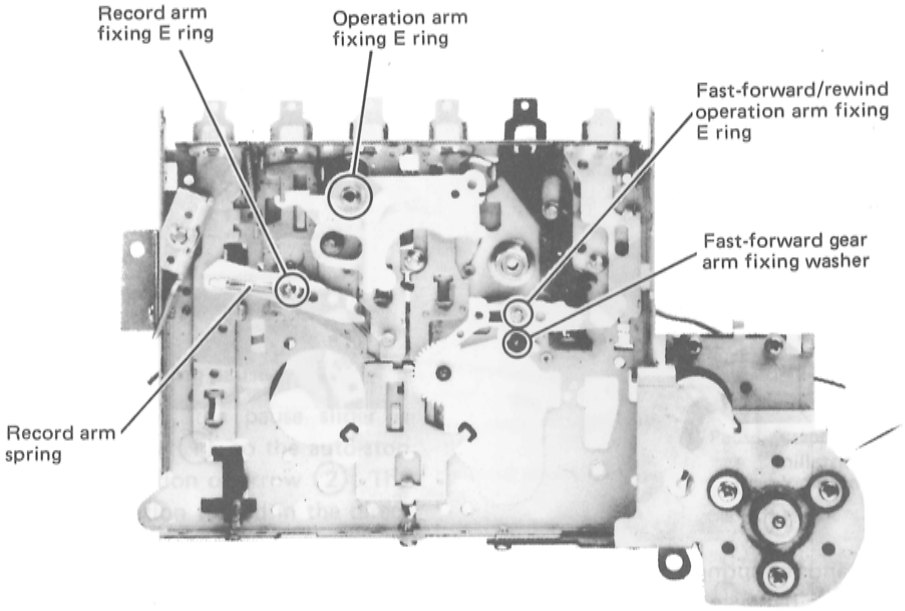
4. Reel holder ass'y

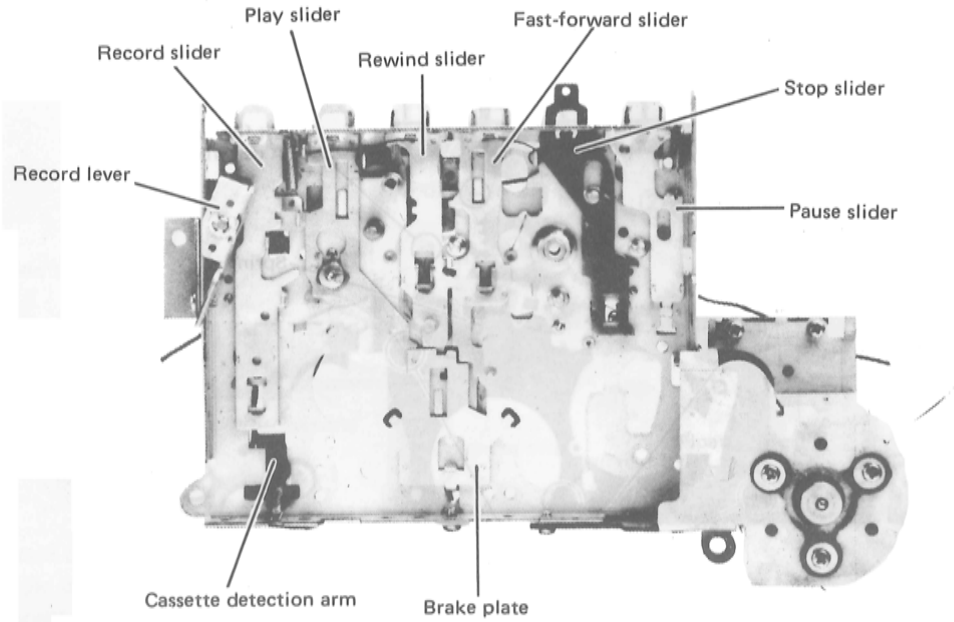
Remove 4 fixing screws (E) and the spring.
Check the coupling positions between the intermediate pulley arm and the fast-forward/rewind operation arm, the auto-stop control lever and the floating arm, the brake plate and S8 (motor switch) before installing the reel holder ass'y.

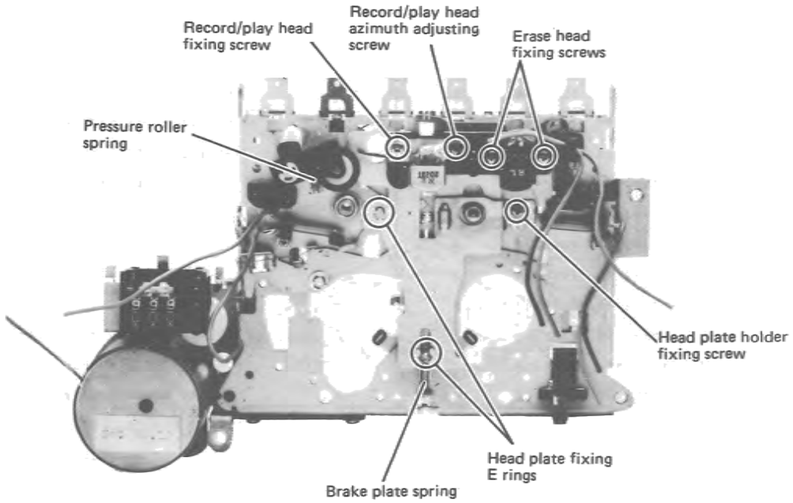


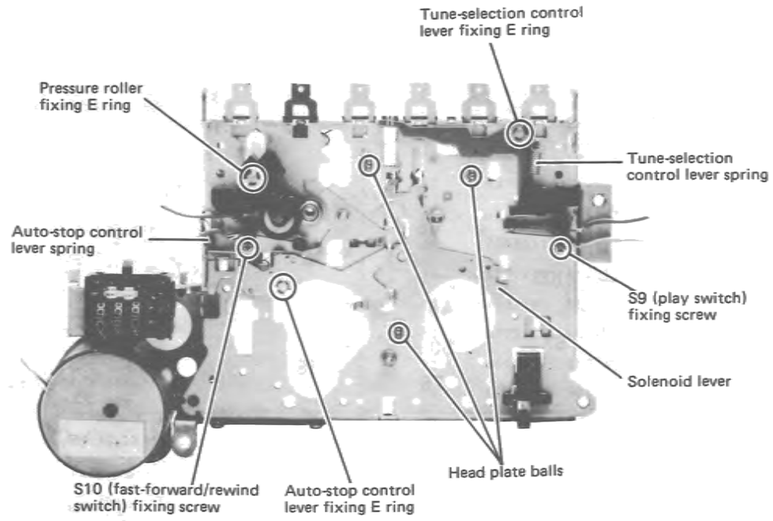

Rewind arm
S8 (motor switch)
Intermediate pulley arm
Intermediate pulley


Auto-stop arm
Take-up reel
Floating arm
Supply reel
Auto-stop cam gear
Idler
Intermediate pulley gear


Record arm fixing E ring
Operation arm fixing E ring
Fast-forward/rewind operation arm fixing E ring
Fast-forward gear arm fixing washer
Record arm spring


Play slider
Fast-forward slider
Record slider
Rewind slider
Stop slider
Record lever
Pause slider
Cassette detection arm
Brake plate





LUBRICATION

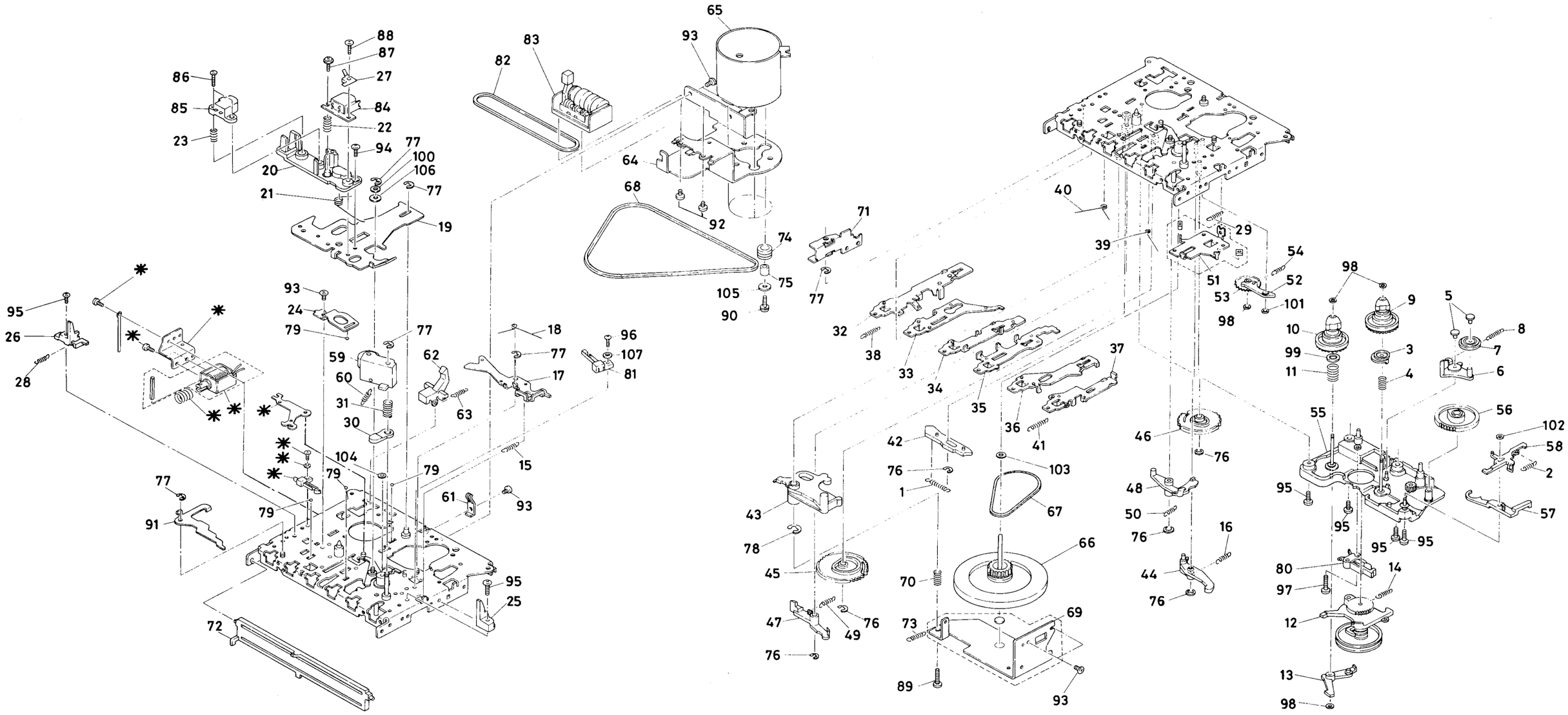
Lubricate one or two drops of oil to rotating point or lubricate grease to sliding point. Lubricate the respective parts listed once every 1000 hours or once a year under normal conditions of use. Avoid oiling them excessively, or rotation may become irregular because of oil splashes.

Lubrication		Oil or Grease
Spring resonance prevention		Floil (GB-TS-1)
Rotary section	Metal and metal	Pan motor oil (10W-40)
	Mold and metal	Sonic slider oil (# 1600)
Sliding section	Metal and metal	Hitasol (MO-138)
	Mold and mold Mold and metal	White grease (FL-LUBE-A)

INSPECTION OF MECHANISM

Item #	Inspection item		Reference value	Remarks
1	Pressure of pressure roller		300 ~ 500 g	
2	Take-up torque		35 ~ 75 g.cm	Measure using a cassette type torque gauge
3	Fast-forward/ rewind torque	Fast-forward	90 ~ 150 g.cm	Measure using a cassette type torque gauge
		Rewind	90 ~ 150 g.cm	
4	Back tension torque	Supply side	1.5 ~ 5.5 g.cm	Measure using a cassette type torque gauge
		Take-up side	2.0 ~ 6.5 g.cm	Measure using a fan type tension gauge with the counter belt applied
5	Brake torque		15 g.cm or more	Measure in the stop mode
6	Button operation force	Play button	0.4 kg or less	
		Fast-forward button	0.5 kg or less	
		Rewind button	0.6 kg or less	
		Fast-forward button (tune selection)	0.5 kg or less	Measure with the button completely pushed in.
		Rewind button (tune selection)	0.6 kg or less	
		Stop button	0.4 kg or less	Measure with the button pressed in the play mode.
		Record button	0.45 kg or less	Measure without the record/play select switch.
		Pause button	0.45 kg or less	
7	Flywheel thrust gap		0.05 ~ 0.3 mm	

EXPLODED VIEW



Parts marked ✱ : When tune selection mechanism is provided.
(Refer to respective service manual.)

Note: Components marked without numbers in this drawing are not specified as replacement parts.

REPLACEMENT PARTS LIST

SYMBOL-NO	P-NO	DESCRIPTION
		MECHANISM (GT-5000)
1	6543251	SPRING FOR RECORD ARM
2	6543401	SPRING FOR AUTO ARM
3	6775281	AUTO CLUTCH ASSEMBLY
4	6521191	TENSION SPRING
5	6794491	BUSH
6	6775271	PLAY ARM
7	6382241	PLAY IDLER
8	6543231	SPRING FOR PLAY ARM
9	6432831	TAKE UP REEL ASSEMBLY
10	6432841	SUPPLY REEL ASSEMBLY
11	6521231	BACK TENSION SPRING
12	6775251	FR PULLEY ARM ASSEMBLY
13	6775291	REWIND ARM
14	6543321	SPRING FOR FR PULLEY ARM
15	6543281	SPRING FOR AUTO LOCK ARM
16	6543421	SPRING FOR FF/REWIND ARM
17	7353221	AUTO STOP PREVENTION LEVER
18	6548741	SPRING FOR AUTO STOP PREVENTION LEVER
19	7130031	HEAD PLATE
20	6775411	HEAD BASE
21	6548711	HEAD BASE SPRING
22	6521251	HEAD SPRING
23	6521221	HEAD SPRING
24	7353201	HEAD PLATE HOLDER
25	6775401	CASSETTE GUIDE(R)
26	6775391	CASSETTE GUIDE(L)
27	7351741	EARTH PLATE
28	6543221	SPRING
29	6543381	BRAKE SPRING
30	6775371	PAUSE CAM
31	6521201	SPRING FOR PAUSE CAM
32	7353131	RECORD SLIDER
33	7353141	PLAY SLIDER
34	7353101	REWIND SLIDER ASSEMBLY
35	7353251	FF SLIDER
36	7353121	STOP SLIDER
37	7353111	PAUSE SLIDER ASSEMBLY
38	6543261	SPRING FOR RECORD SLIDER
39	6548731	LEVER SPRING
40	6548721	LEVER SPRING
41	6543301	SPRING FOR PAUSE SLIDER
42	6775331	RECORD ARM
43	6775351	FUNCTION ARM
44	6775361	FF/REWIND ARM
45	6432851	PLAY PA GEAR
46	6432861	FF/REWIND PA GEAR
47	6775321	PLAY LOCK ARM
48	6775341	FF/REWIND LOCK ARM
49	6543391	SPRING FOR FUNCTION ARM
50	6543241	SPRING FOR FF/REWIND LOCK ARM
51	7353291	BRAKE PLATE ASSEMBLY
52	6775301	FF GEAR ARM
53	6432821	FF GEAR
54	6543311	SPRING FOR FF GEAR
55	6775261	TURNTABLE HOLDER ASSEMBLY
56	6432811	AUTO GEAR
57	6775311	SENSER ARM
58	6775431	AUTO STOP ARM
59	6775231	PRESSURE ROLLER ARM ASSEMBLY
60	6543271	SPRING FOR PRESSURE ROLLER ARM
61	7353211	CASSETTE HOLDER
62	6775241	RECORD PREVENTION ARM
63	6543291	SPRING FOR RECORD PREVENTION ARM
64	7350491	MOTOR BRACKET
65	6428571	DC MOTOR ASSEMBLY
66	6374351	FLYWHEEL
67	6355831	BELT
68	6355811	BELT
69	7353311	FLYWHEEL BRACKET ASSEMBLY
70	6521211	ADJUST SPRING
71	7353261	RECORD LEVER
72	6775381	LOCK PLATE
73	6543411	SPRING FOR LOCK PLATE
74	6590961	MOTOR CUSHION
75	7353181	MOTOR RING
76	7778395	E RING
77	7774641	E RING-2.5MMD
78	7230903	E RING - 4MMD
79	0948492	BALL - 2MMD
80	5603671	LEAF SWITCH (S8, MOTOR SWITCH)
81	5603651	LEAF SWITCH
82	6355821	COUNTER BELT
83	5559611	COUNTER
84	5449271	RECORD PLAYBACK HEAD
85	5445501	ERASE HEAD
86	7782901	BIND SCREW-2MMDX9.5MM
87	7782911	PAN HEAD SCREW WITH LOCKING WASHER
88	8741108	BIND SCREW-2MMDx8MM

SYMBOL-NO	P-NO	DESCRIPTION
89	0741310	BIND SCREW-2.6MMDX10MM
90	8650908	SCREW WITH SPRING WASHER-2.6MMDX8MM
91	7353281	FR LOCK ARM
92	8781335	TAPPING SCREW 2.6MMD X 5MM
93	0671304	DT SCREW-2.6MMDX4MM
94	0678304	DT SCREW-2.6MMDX4MM(BLACK)
95	0678308	DT SCREW-2.6MMDX8MM(BLACK)
96	7780883	TAPPING SCREW-2MMDX6MM
97	7780916	BIND TAPPING SCREW-2MMDX12MM
98	7788541	WASHER
99	7788551	REEL WASHER
100	7788531	NYLON WASHER
101	7786211	POLYESTER WASHER
102	7786624	POLY SLIDER WASHER
103	7787418	POLY SLIDER WASHER
104	7786623	POLY SLIDER WASHER
105	8811113	WASHER - 2.6MMD
106	8811114	3D WASHER
107	8812111	WASHER-2MMD

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