Calculator Service Bulletin No. ED3-04

MONROE
300 Series
Model 392
Tape Cassette Drive

SERVICE MANUAL - PARTS

MONROE The Calculator Company
Service Operations Department - Technical Publications - Orange, N. J., U.S.A.

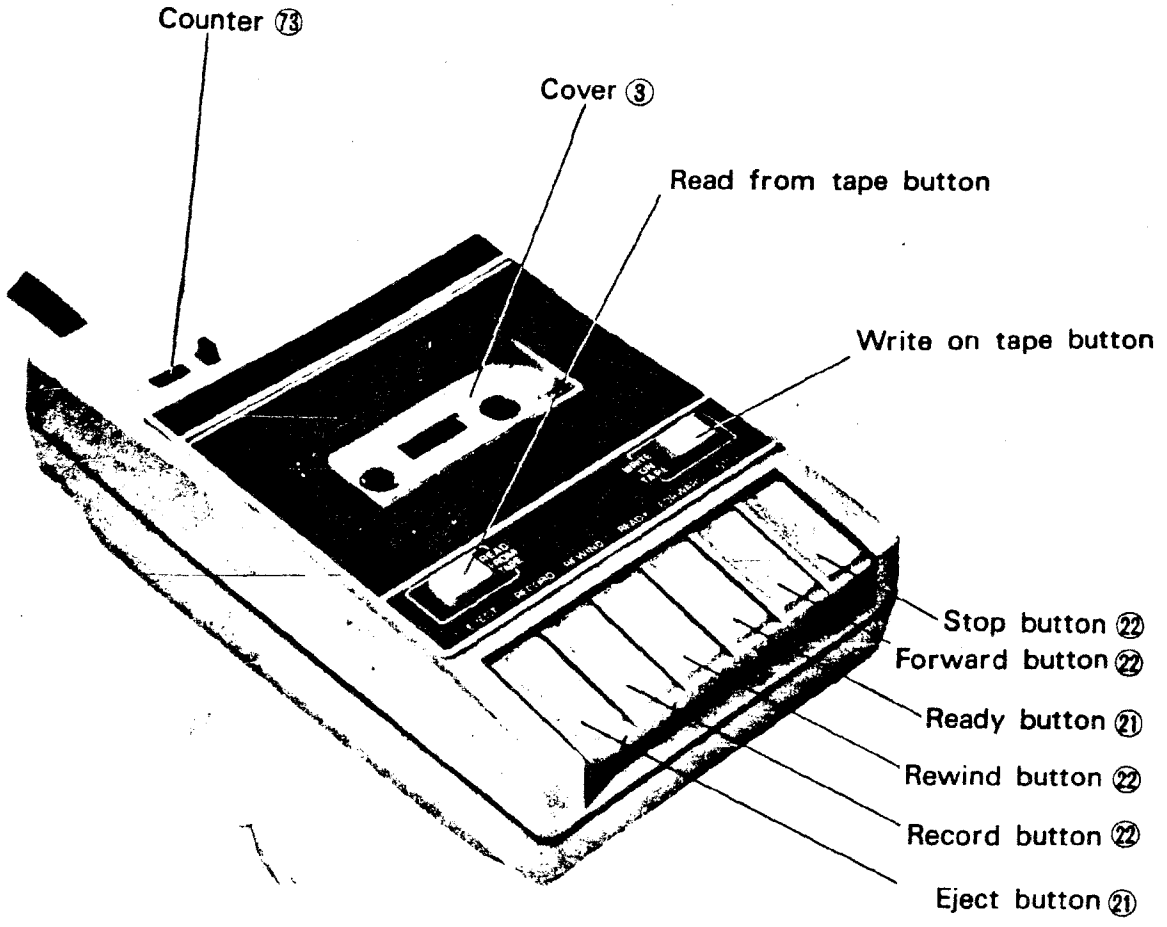
CONTENTS

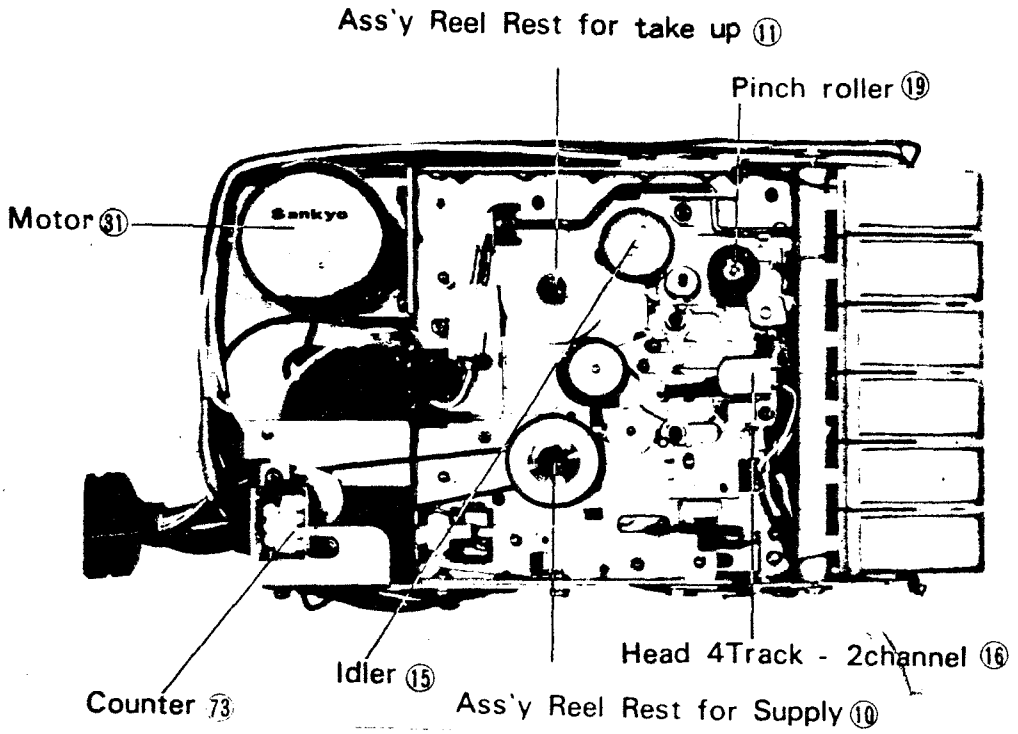
1.SPECIFICATIONS

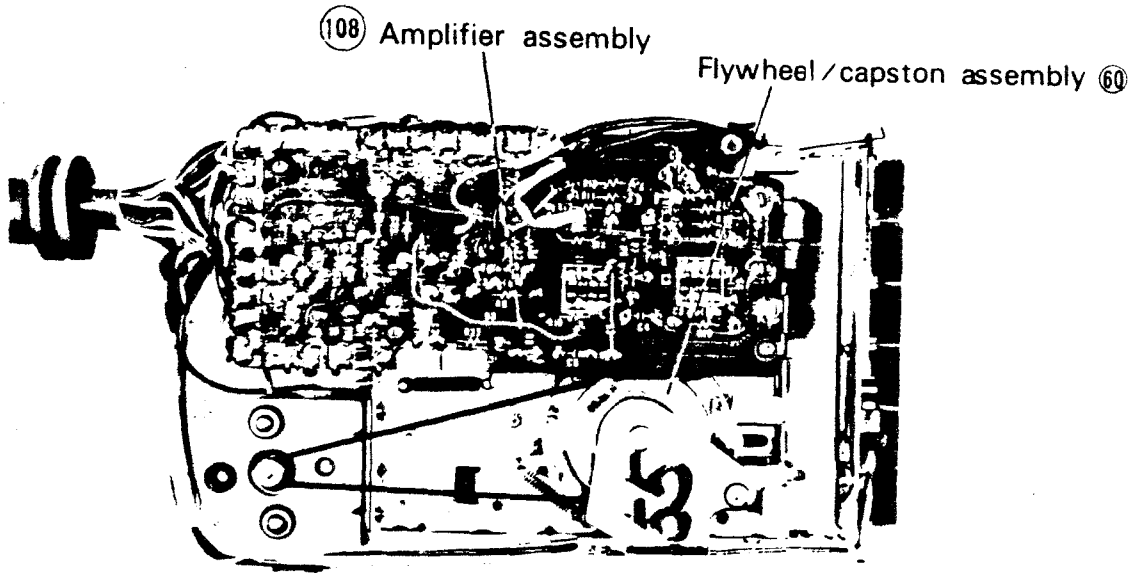
SPECIFICATIONS

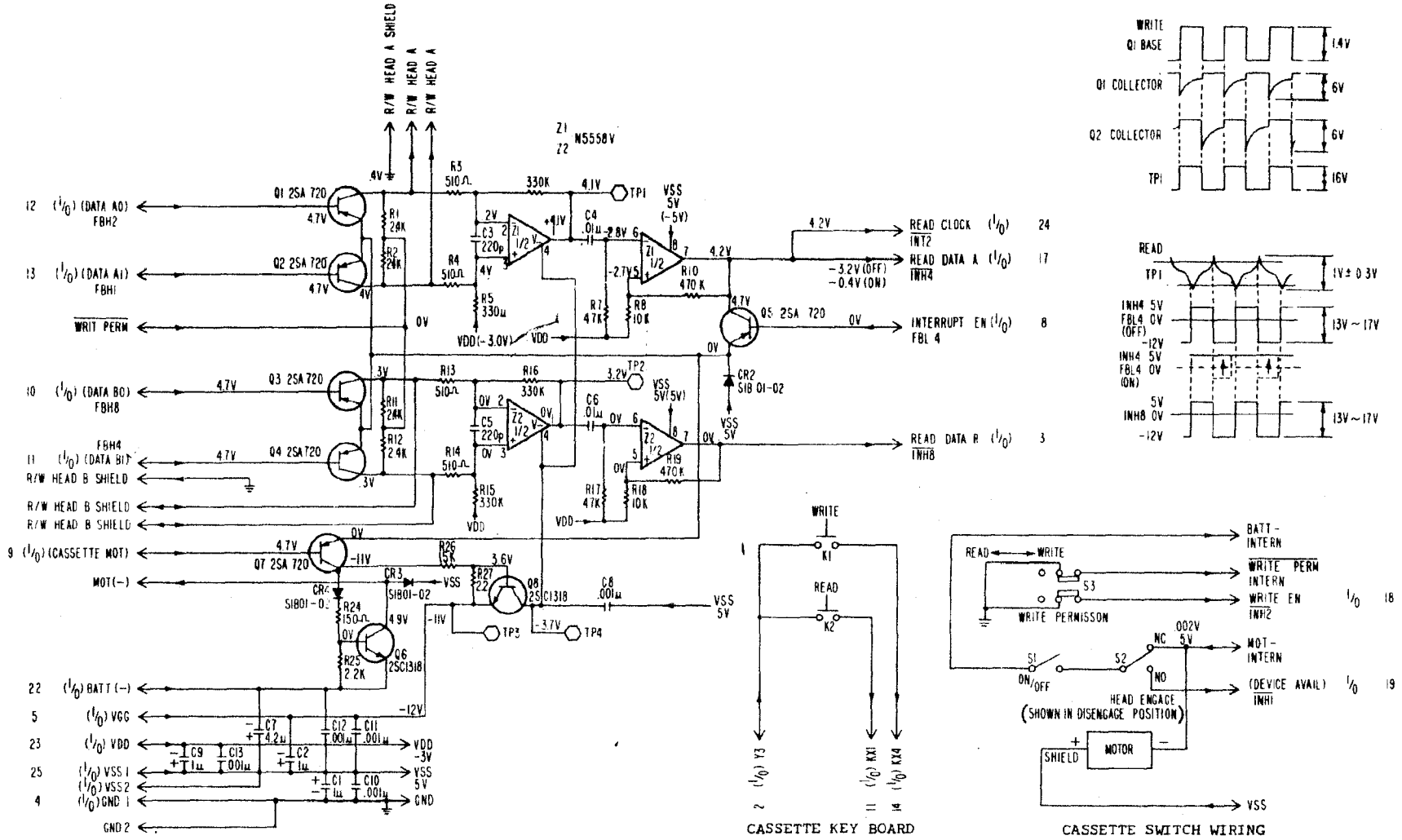
Type	:	Phillips cassette data recorder
Tape Speed	:	1 – 7/8 ips
Power Source	:	External power supply
Track system	:	4 – track, 2 – channel
Write system	:	DC saturating bias
Bit Density	:	550 flux reversals per inch per channel
Data transfer rate	:	maximum of 100 flux reversals per second per channel
Cassette used	:	C– 30 and endless cassette (1 minute)
Fast forward time	:	120 sec with C – 60 cassette
Rewind time	:	120 sec with C – 60 cassette
Wow & flutter	:	0.45% RMS

2. Photograph




Ass'y Reel Rest for take up ⑪
Pinch roller ⑲
Motor ㉛
Sankyo
Head 4Track - 2channel ⑯
Idler ⑮
Counter 73
Ass'y Reel Rest for Supply ⑩

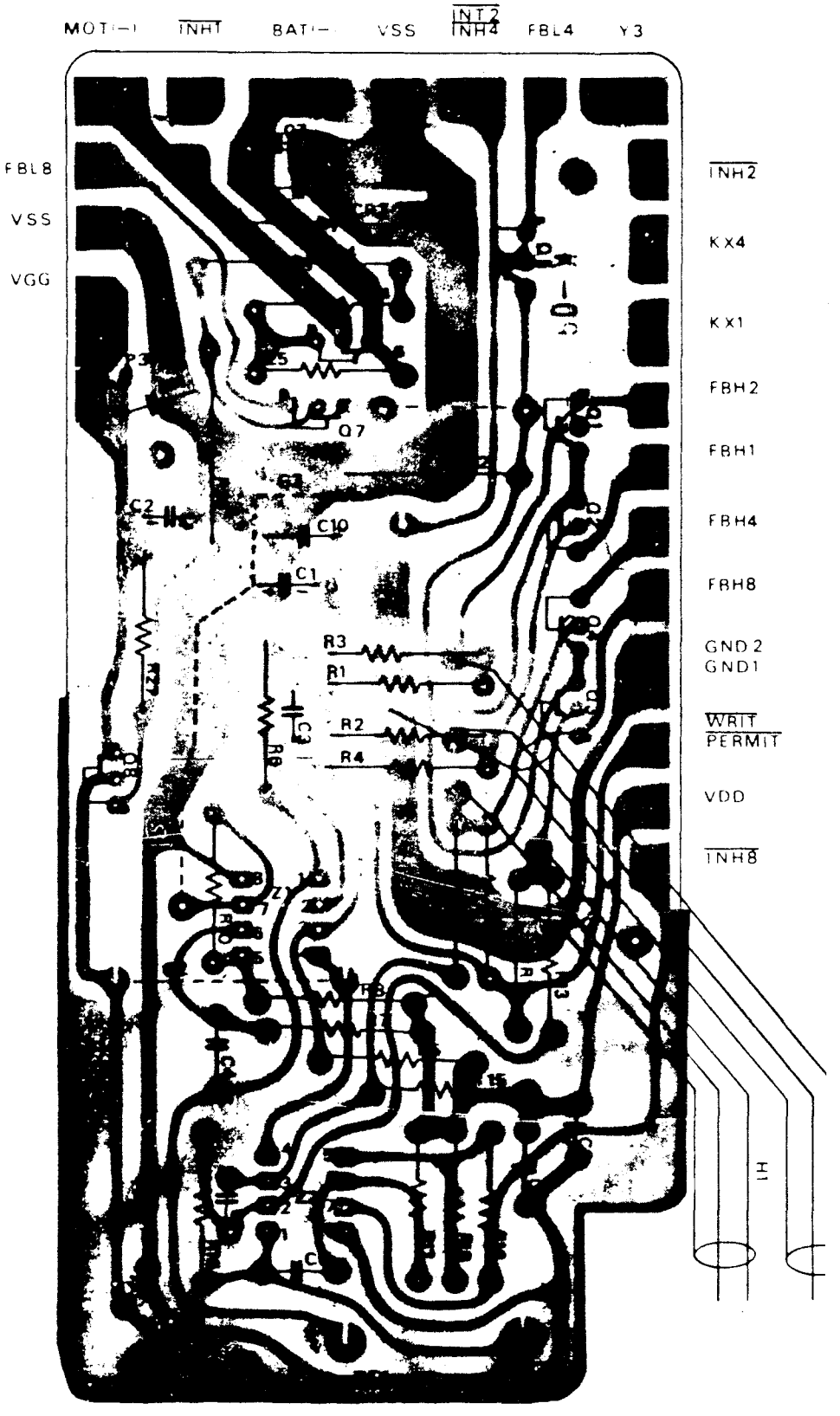

⑱⑧ Amplifier assembly
Flywheel / capston assembly ⑥⓪



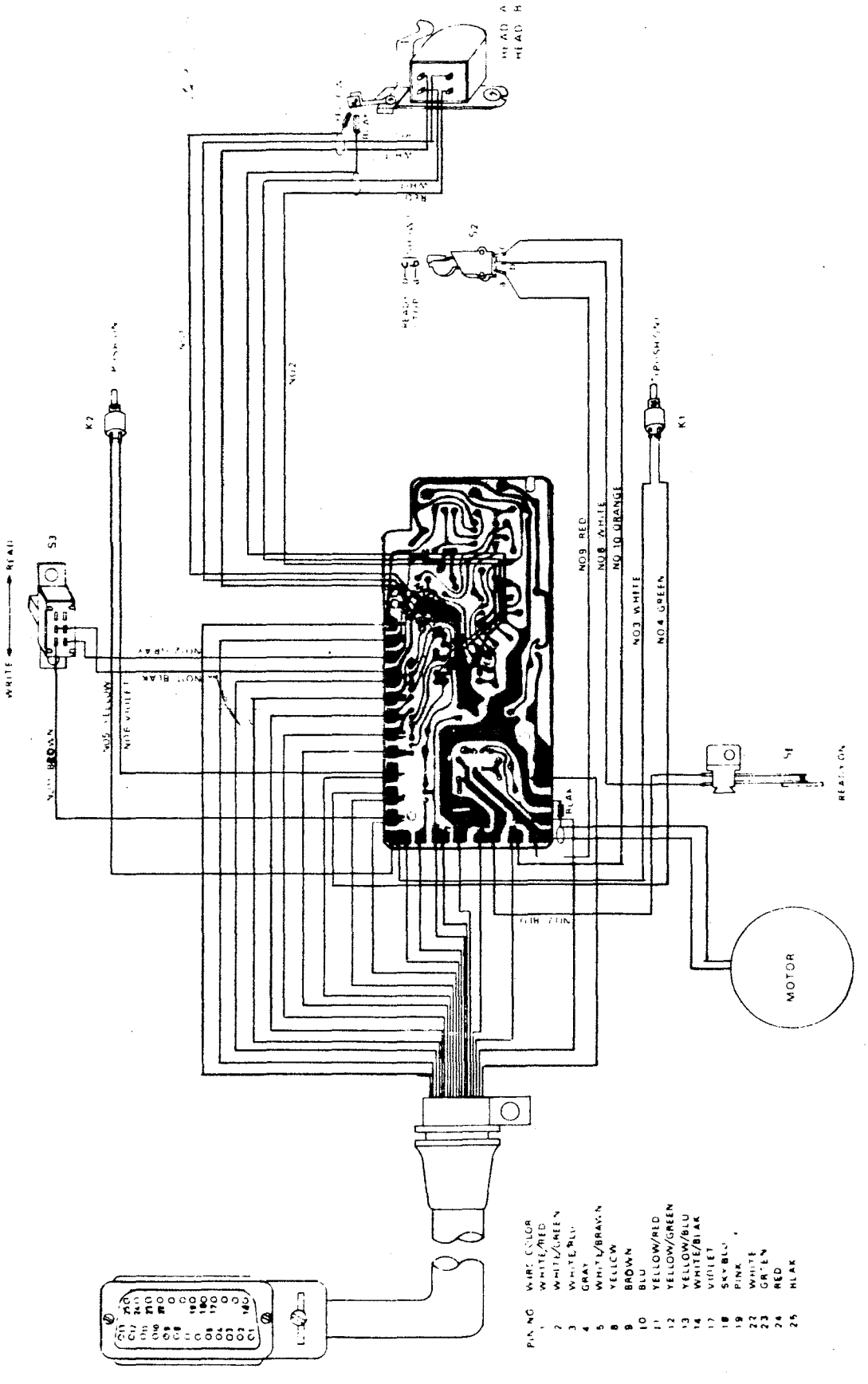
NOTE:

1. ALL VOLTAGE READINGS ARE OBTAINED WITH CASSETTE TAPE DRIVE IN STANDBY AND GND REFERENCE OF THE VOLT METER CONNECTED TO GND.
2. TRANSISTOR 2N4403 IS AN ACCEPTABLE SUBSTITUTE FOR TRANSISTOR 2SA720 (Q1-Q5 AND Q7).
3. TRANSISTOR 2N4401 IS AN ACCEPTABLE SUBSTITUTE FOR TRANSISTOR 2SC1318 (Q6 AND Q8).
4. DIODE 1N4148 IS AN ACCEPTABLE SUBSTITUTE FOR DIODE S1B01-02 (CR2-CR4).

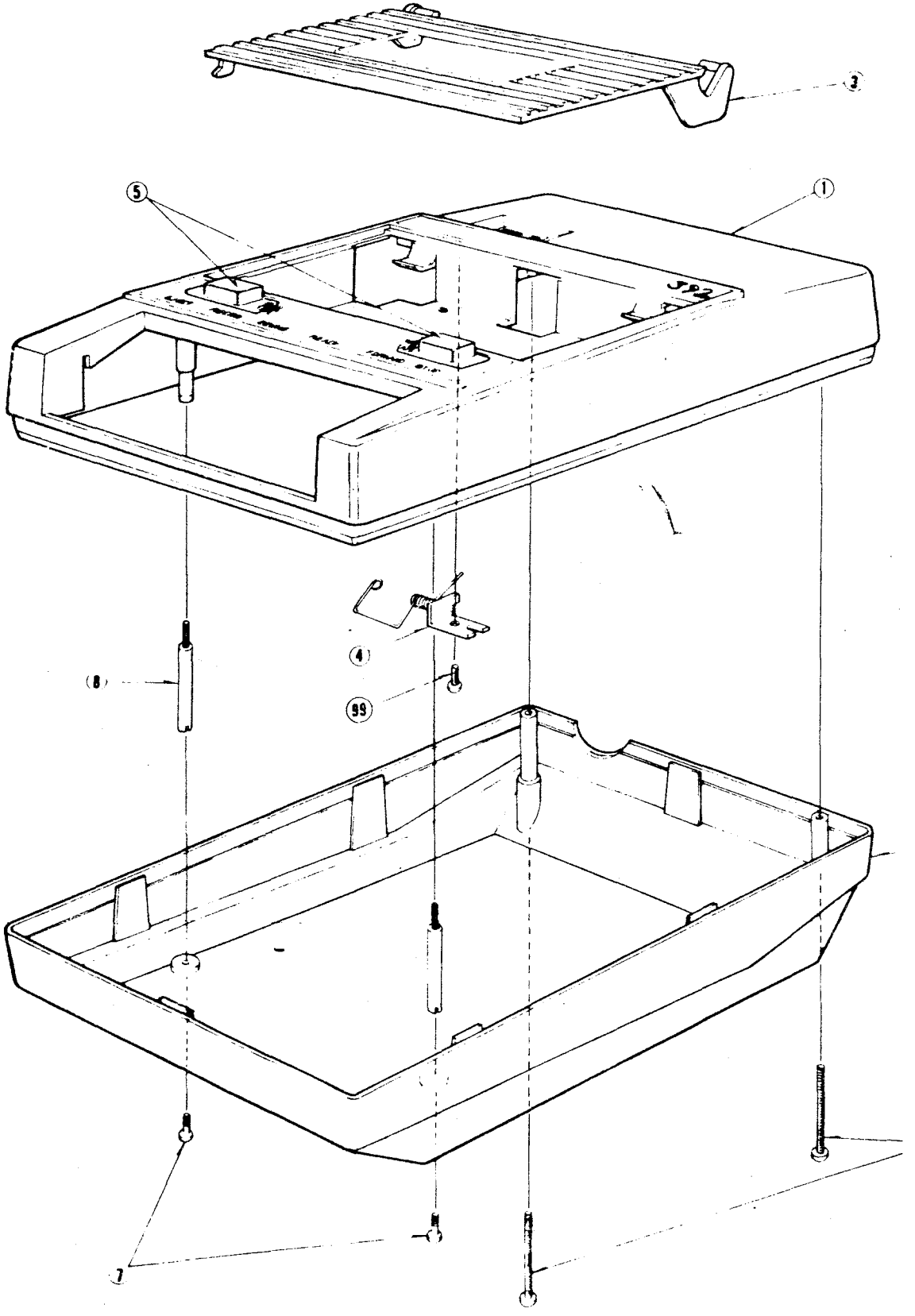
3.2 Printed Circuit Board

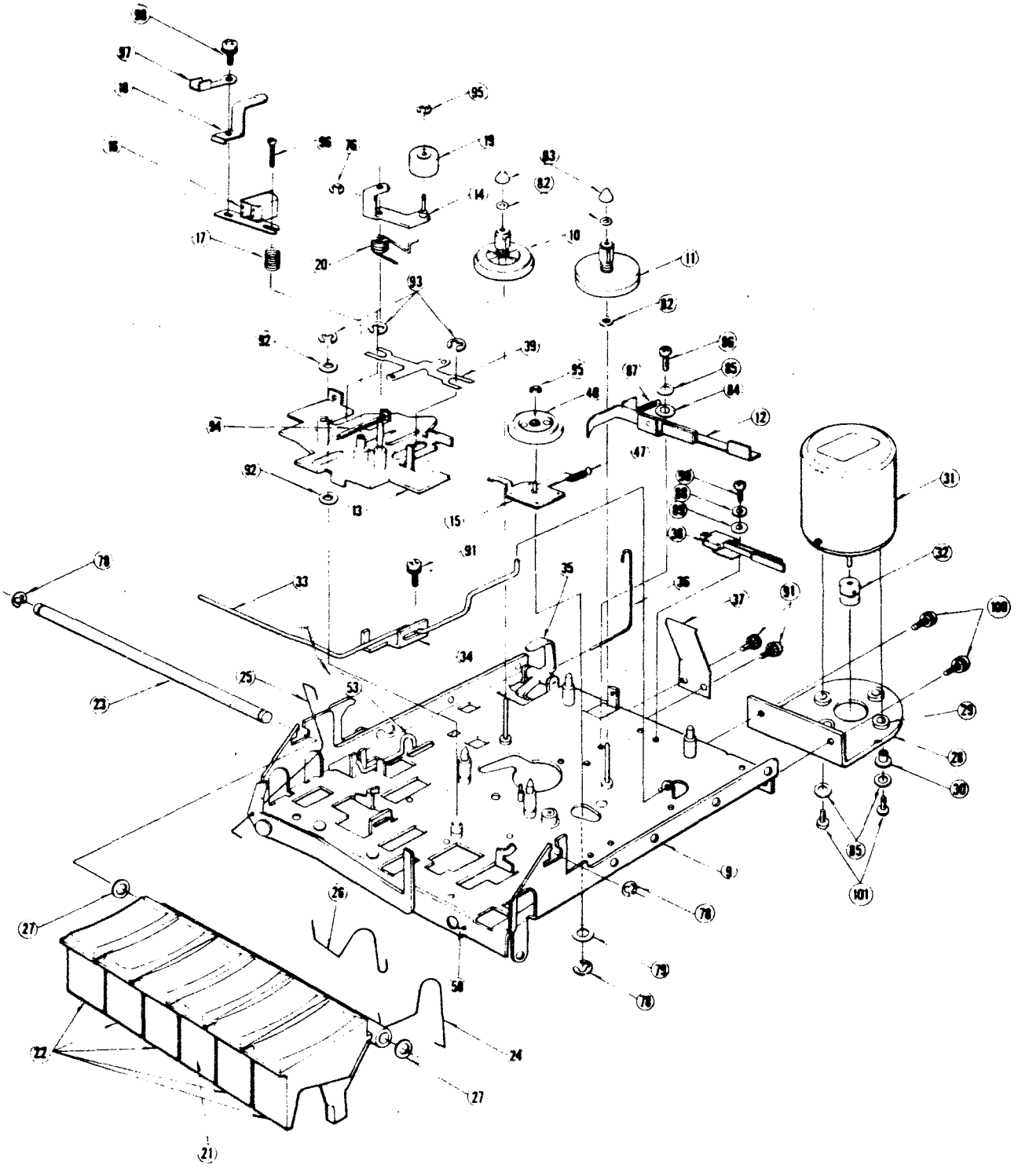


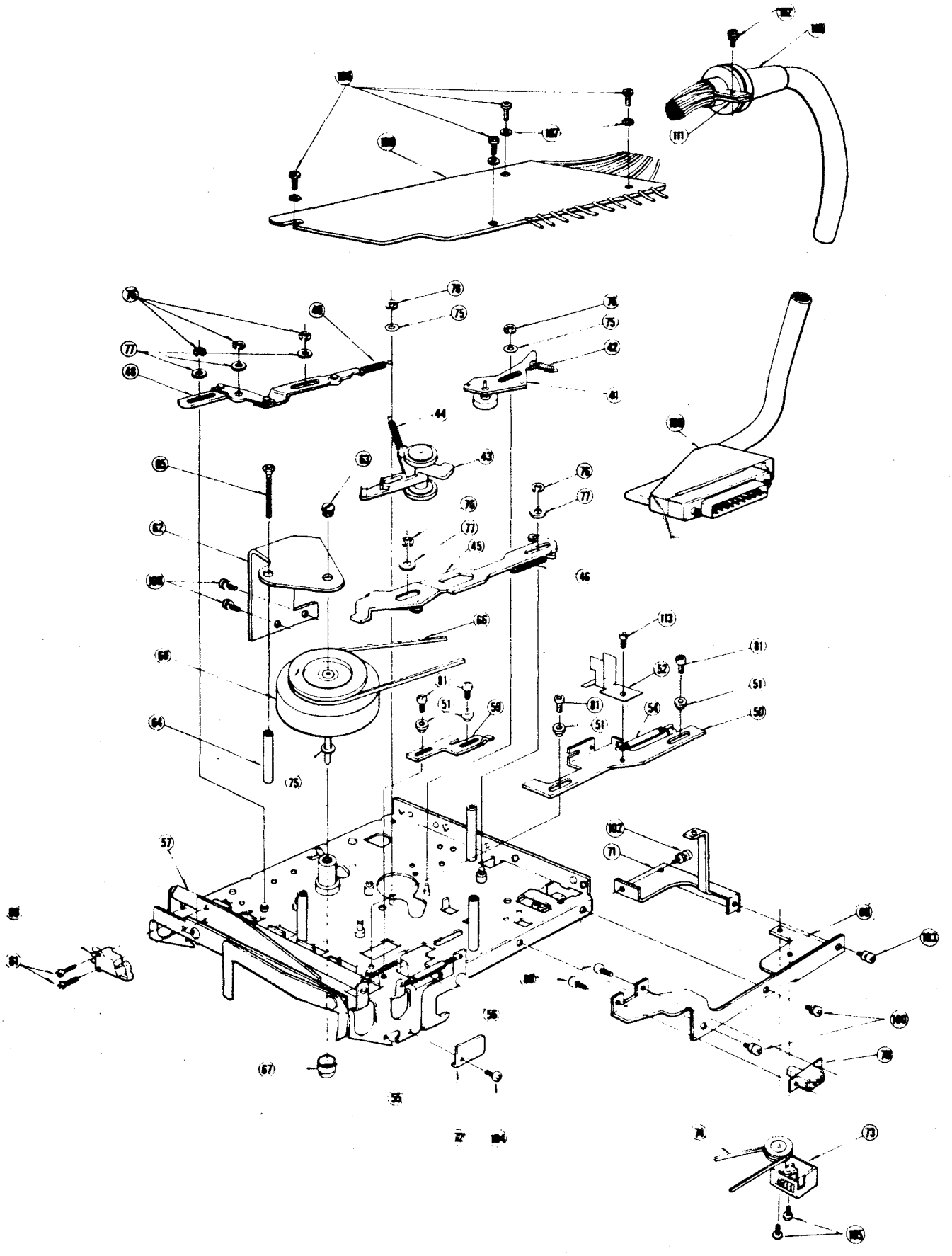
3.3 PCB Wiring Diagram



3.4 Exploded Drawing





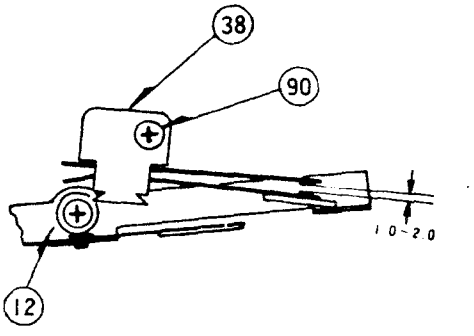


4.ADJUSTMENTS

4.1 MECHANICAL SYSTEM

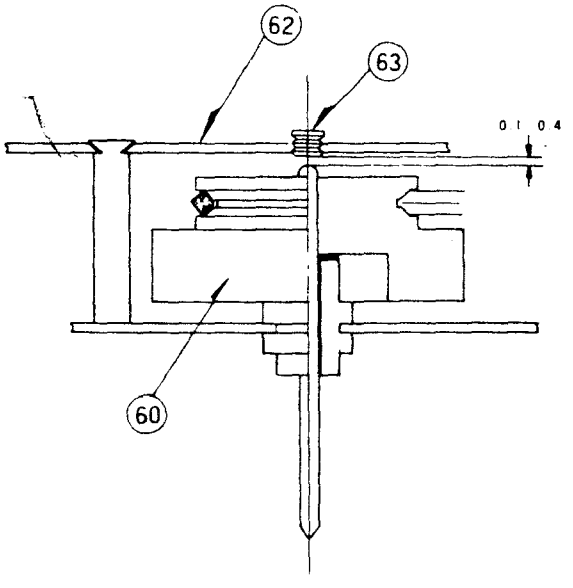
4.1.1 Adjusting the position of the leaf switch

1) Set the unit in the Stop mode. Loosen the Leaf switch holding screw (90) and adjust so that the leaf switch plastic plate is just in contact with the brake plate.
2) The position of the leaf switch is normal if the fixed contact can be moved by an additional 1.0 ~ 2.0mm when it is engaged with the movable contact in READY, REWIND and FORWARD.



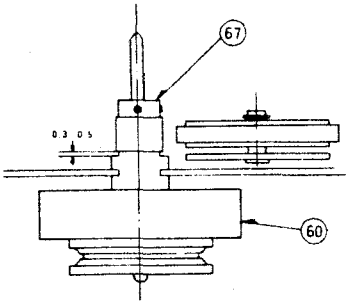
4.1.2 Adjusting the flyweel thrust

Loosen the thrust screw (plastic screw) (63) and adjust so the thrust of the flywheel (60) is between 0.1 ~ 0.4mm. After adjustment, fasten the thrust screw.



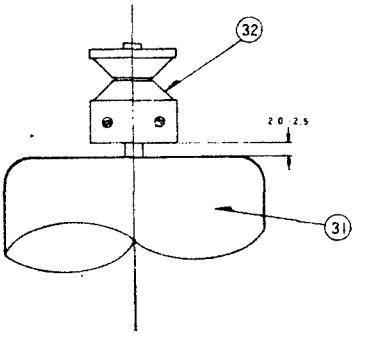
4.1.3 Adjusting the position of the capstan pulley

Loosen the screws fastening the pulley. While turning the flywheel put it in contact Lower the capstan pulley as far as you can, then raise it by 0.3 ~ 0.5mm. Fix it with the capstan pulley fastening screws.



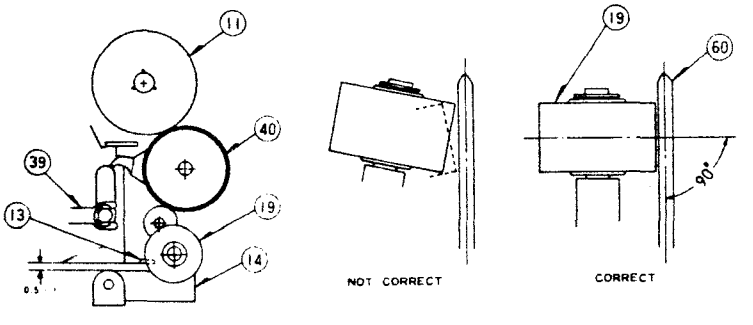
4.1.4 Adjusting the height of the motor pulley

Loosen the two screws holding the motor pulley and adjust the height of the motor motor shaft protrudes 1 ~ 1.5mm from the top surface of the motor pulley. Afte fasten the motor pulley fastening screws.



4.1.5 Adjusting the position of the pinch roller

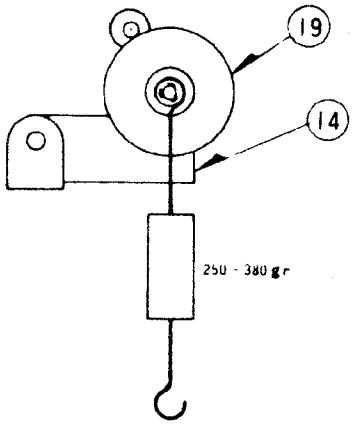
1) Set the unit in READY mode.
   Adjust the position of the pinch roller by bending the pinch roller stopper (part / so that the gap between the pinch roller arm (14) and the pinch roller stopper
2) After adjustment check that when the READY button is pressed, take-up reel res the pinch roller engages with the capstan.
3) Bend pinch roller arm (14) so that the pinch roller is parallel to the capstan.



4.1.6 Adjusting the pinch roller pressure

Set the unit in the READY mode. Measure the pinch roller pressure at the moment when the pinch roller (19) comes into contact with the capstan

The pinch roller pressure should be 250 ~ 380g.



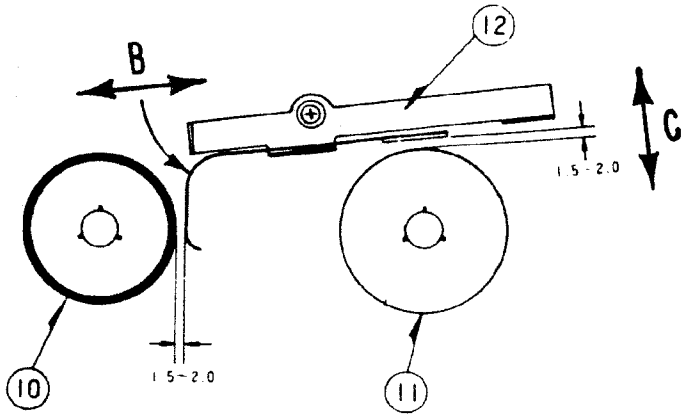
4.1.7 Adjusting the brake

(1) Set to the READY mode. Adjust by bending the brake (12) sc that the gaps between the brake and the supply reel rest (10) and the brake and the take up reel rest (11) are both 1.5 ~ 2.0mm.

(2) Adjust by bending the brake in direction A so the slack in the tape is minimized when the unit is switched from READY to STOP

(3) Adjust by bending the brake plate in direction B so the slack in the tape is minimized when the unit is switched from REWIND to STOP

(4) After adjustment check that the brake plate does not touch the reel rest during READY, FORWARD and REWIND.



5.MAINTENANCE

Maintenance of the STC-55 should be done periodically according to the following standard:

o Head	clean	once/day
o Pinch roller	clean	once/day
o Belt	replace	every 200hr
o Pinch roller	replace	every 200hr
o Idler	replace	every 300hr
o Head	replace	every 500hr
o Motor	replace	every 500hr
o Pulley arm assembly	replace	every 500hr
o REW pulley	replace	every 500hr
o Reel rest	replace	every 500hr

CAUTION :

- o Do not leave the recorder in the READY mode for more than 5 hours.
- o Press the STOP button immediately when the tape has finished.
- o Avoid using the recorder in extreme conditions.
- o Use alcohol for cleaning.
- o Do not use benzine or thinner for cleaning.

6. PARTS LIST

REF NO.	PART NUMBER	DESCRIPTION
1	KGC07708	Ass'y Cabinet, Upper
	KGE 7961	Reflection Plate
	GS-04-00053-00	Name Plate (Model No.)
	GS-04-00055-00	Name Plate (MONROE)
2	KGB14361	Cabinet Bottom
3	KGD07726	Ass'y Cassette Door
4	KGE07727	Ass'y Bracket
5	KGE14392	Knob for Momentary Switch
6	STC14601	Screw Pan Head M3 × 30 (ISO)
7	STC14554	Screw Bind Head M2.6 × 8
8	KGE13586	Pole
9	KGC07720	Ass'y Chassis Fixing
10	KGE03406	Ass'y Reel Rest for Supply
11	KGE02624	Ass'y Reel Rest for Take up
12	KGE01818	Ass'y Brake
13	KGD07721	Ass'y Head Base Fixing
14	KGE02568	Ass'y Pinch Arm Fixing
15	KGE01415	Ass'y Idler Bracket
16	KGE40827	Head 4 Track — 2 channel
17	KGE 3354	Spring
18	KGE12873	Pressure Plate for Cassette
19	KGE13934	Pinch Roller
20	KGE14396	Spring for pinch Arm
21	KGE07703	Button for Ready
22	KGD14397	Button
23	KGE 8155	Button Rod
24	PBE11965	Spring for Stop Button
25	KGE 8163	Spring for Eject Button
26	KGE12653	Spring for F. F. Button
27	KGE 9763	Washer
28	KGE11632	Bracket for Motor
29	PBE11045	Washer Gum
30	PBE11121	Collar for Motor
31	KGE40562	Motor
32	KGE07151	Pulley for Motor
33	KGE11831	Switch Rod
34	KGE13924	Rod Holder
35	KGE11642	Inter Rock Plate
36	PBE11963	Spring for Inter Lock Plate
37	KGE13327	Spring Plate
38	KGE42083	Leaf switch
39	KGE12459	Pressure Plate for Head Base
40	KGE07422	Ass'y Idler
41	KGE02574	Ass'y Rew. PulleyLever
42	KGE13921	Spring
43	KGE01413	Ass'y Pulley Arm

REF NO.	PART NUMBER	DESCRIPTION
44	KGE 8081	Spring
45	KGE07413	Ass'y Rew. Lever
46	KGE 8386	Spring
47	KGE12713	Spring
48	KGD01412	Ass'y F. F. Lever
49	KGE11957	Spring
50	KGD 7368	Inter Lever
51	PBE12018	Spacer
52	KGE14395	Spring for Slide Switch
53	KGE 8065	Eject Rod
54	KGE12707	Spring for Inter Lever
55	KGE 8405	Spring for Eject Rod
56	KGE 8406	Spring for Lach Lever
57	KGD11646	Button Stopper
58	PBE12475	Spring for Button stopper
59	PBE11841	Eject Lever
60	KGE03424	Flywheel
61	STC19086	Screw Pan Head with Washer
62	KGE13014	Bracket for Flywheel
63	KGE14112	Screw Plastic
64	KGE14161	Collar
65	STC14599	Screw Flat Head M3 × 30 (ISO)
66	KGE14055	Motor Belt
67	KGE02659	Ass'y Capstan Pulley
68	KGD14398	Skelten Switch
69	KGD14370	Bracket for Counter
70	KGE12345	Slide Switch
71	KGE14458	Bracket for PWB
72	KGE13033	Holder for Latch Lever
73	KCD13074	Counter
74	KGE14373	Counter Belt
75	KGE 1122	Washer Plastic Film
76	STC22135	Retaining Ring E2
77	STC22030	Washer 2.3 × 8 × 0.5
78	STC22147	Retaining Ring E4
79	KGE 8108	Washer Plastic Film
80	STC19077	Screw Pan Head with Washer M2 × 6
81	STC14276	Screw Pan Head M2 × 5
82	KGE15352	Washer Plastic Film
83	PBE11144	Real Cap
84	KGE 7841	Collar
85	STC22137	Washer 2.9 × 7.5 × 0.5
86	STC14269	Screw Pan Head M2.6 × 4
87	KGE 3172	Spring
88	STC22094	Washer Spring 2.6
89	STC22058	Washer 2.9 × 5 × 0.5
90	STC14542	Screw Pan Head M2.6 × 10
91	STC19017	Screw Pan Head with Washer M2.6 × 4

REF NO.	PART NUMBER	DESCRIPTION
92	STC22132	Washer 4.5 · 8 · 0.5
93	STC22140	Retaining Ring E3
94	KGE 6778	Spring for Head Base
95	STC22134	Retaining Ring E1.5
96	STC15029	Screw Cylinder Head M2 · 8
97	STC70014	Terminal
98	STC19034	Screw Pan Head with Washer M2 · 6
99	STC13052	Screw Self Tapping 2.6 · 6
100	STC19016	Screw Pan Head with Washer M3 · 6 (ISO)
101	STC14543	Screw Pan Head M2.6 · 9
102	STC19015	Screw Pan Head with Washer M3 · 5 (ISO)
103	STC19026	Screw Pan Head with Washer M2.6 · 5
104	STC14250	Screw Pan Head M2 · 3
105	STC19077	Screw Pan Head with Washer M2 · 6
106	STC14540	Screw Pan Head M2.6 · 5
107	SBE 3472	Washer Fiber
108	KGE07723	Ass'y PWB
	KGC14402	Printed Wiring Board
	KGE46103	IC N5558 V (MC1458CP) ①
	KGE41379	Transistor 2SC1318 ②
	KGE41388	Transistor 2SA720 ③
	KGE41001	Diode SIB01-02 ④
	KGE14454	Terminal for Test Point
	KGE 6626	Resistor Fixed Carbon Film 1.4W150 ΩJ
	KGE22086	" 1.4W510 ΩJ
	KGE21753	" 1.4W 1KΩJ
	KGE21761	" 1.4W 2.2KΩJ
	KGE22102	" 1.4W 2.4KΩJ
	KGE10162	" 1.4W 15KΩJ
	KGE21793	" 1.4W 47KΩJ
	KGE22151	" 1.4W270KΩJ
	KGE34067	Capacitor Electrolytic 4.7μF 25WV
	KGE34078	Capacitor Electrolytic 1μF 50WV
	KGE32928	Capacitor Fixed Mica 220PF 50V
	KGE33867	Capacitor Ceramic YYO 01μF 50V
	KGE34732	Capacitor Ceramic YPO 01μF 50V
	KGE31148	Capacitor Plastic Film 0.1μF 50V
109	KGD07707	Ass'y Connector
	KGD14400	Connector CANNON DB-25P
	KGE14401	Junction Shell DP51213-1
	KGD14441	Cable
110	KGE14375	Bushing
111	KGE14374	Binder for Cable
112	STC19028	Screw Pan Head with Washer M3 · 8 (ISO)
	KGE07724	Ass'y Momentary Switch (Write On Tape)
	KGE07725	Ass'y Momentary Switch (Read On Tape)
	KGE14379	Name Plate
	GS-04-00057-00	Name Plate (serial No. plate)
113	STC14254	Screw Pan Head M2 · 4

① IC N5558V (CD0440081) is an acceptable substitute for IC MC 1458CP or N5558V (KGE46103).

② Transistor 2N4401 (CD1730258) can be used to substitute transistor 2SC1318 (KGE41379).

③ Transistor 2N4403 (CD1730308) can be used to substitute transistor 2SA720 (KGE41388).

④ Diode 1N4148 (CD0610014) can be used to substitute diode SIB01-02 (KGE41001).