

AIWA®

S/M Code No. 85-024

DATE OF ISSUE 5/1985

SERVICE MANUAL

**STEREO CASSETTE
DECK****MODEL NO.**

AD-F640, S40

**TYPE. HB,EB,KB,GB,ZB
UB(AD-S40)**

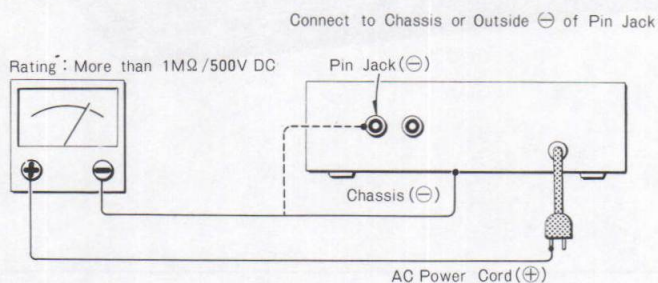
Type	Stereo cassette deck	Inputs	LINE IN maximum input sensitivity: 50 mV (over 50 k-ohms)
Track format	4 tracks 2 channels	Outputs	LINE OUT standard output level: 0.41 V (0 VU); Suitable load impedance: over 50 k-ohms;
Power supply	AD-F640E, Z AC 220 V 50 Hz AD-F640K, G AC 240 V 50 Hz AD-S40 U AC 120 V 60 Hz AD-F640H AC 120 V/220 V/240 V switchable, 50/60 Hz	Dimensions	Headphones: 8 ohms 420(W) × 110(H) × 299.5(D) mm [16-5/8" (W) × 4-3/8" (H) × 11-7/8" (D)]
Power consumption	20 W	Weight	4.7 kg (10.3 lbs.)
Frequency response	METAL tape: 20—18,000 Hz CrO ₂ position tape: 20—17,000 Hz NORMAL tape: 20—16,000 Hz	Accessories	Stereo pin cord..... 2
Signal-to-noise ratio	75 dB (METAL tape DOLBY C NR ON)		
Wow and flutter	According to DIN 45 500 0.09% 0.028% (WRMS)		
Tape speed	4.8 cm/sec. (1-7/8 ips)		
Rewind time	60 sec. (C-60)		
Fast forward time	60 sec. (C-60)		
Recording system	AC bias (frequency 85 kHz)		
Erase system	AC erase		
Motor	DC Servomotor for capstan DC motor for reels		
Head	Recording, playback head: DX combination head Erase head: Double gap ferrite head		

- Design and specifications are subject to change without notice.
- Noise Reduction manufactured under license from Dolby Laboratories Licensing Corporation.
- HX PRO headroom extension originated by Bang & Olufsen and manufactured under license from Dolby Laboratories Licensing Corporation.
- "Dolby," the double-D symbol, and "HX PRO" are trademarks of Dolby Laboratories Licensing Corporation.

Follow the instructions carefully, which will allow the user to optimise the products' performance and give many years of service.

1. No scratch and melting shall be made to covered lead-wires of an a.c. primary circuit including mains leads.
2. No illegibility shall be given to the specification plate, the caution labels, the fuse labels and others.
3. When, on pattern sides of circuit boards, additional repair-parts have been made up, the parts shall be firmly glued to circuit boards or other components, unless the parts can be attached firmly.
4. The following matters shall be maintained as they are, when repairing.
 - 1) Soldering of lead-wire ends
 - * Care should be taken of the space distance in an a.c. primary circuit as well as soldering.
 - 2) Wiring and holding of lead-wires with wire-clips and binders
 - 3) Materials of lead-wires
 - * e.g.; For UL models, lead-wires to be used shall be approved or accepted by the UL.
 - 4) Location of all kinds of insulators
 - 5) Setting of voltage selector switch
 - * Set the Voltage Selector Switch to 240V, 220V, or 120V, According to your Local Voltage.
5. After repaired, the insulation resistance or leakage current shall be measured with $500 \pm 5V$ D.C and shall be not less than $1M\Omega$.

Measuring Point



6. General instructions for mechanism repair

- 1) The heads, capstan and pinch roller shall be cleaned of good quality alcohol after repaired, because dirty heads shall cause distorted sounds while dirty capstan and pinch roller shall occur wow/flutter and take-up fault.
- 2) Lubricants been stained the surfaces of transmitting portion of the belts, idlers, capstan and pinch roller shall be removed, because slippery and faulty tape travel shall be caused.
- 3) When oiling, only one or two drops shall be applied so as not to run over and be dispersed. Note should be taken of the metal fitting for the capstan and rotating portions of the idlers and pinch roller, especially.
- 4) E-rings and poly slider washers shall be replaced with new ones, if once those have been removed. — No re-utilization due to unreliability.
- 5) Regular spare-parts shall always be used for repair, because using irregular parts and tampering with the products shall cause deterioration, malfunction and damage.

ELECTRICAL MAIN PARTS LIST

- +++ mark denotes a component of assembled part which part code is represented by a previously stated component.
- *mark means less required items and availabilities may be limited.

CAPACITORS
No mark, U, UF: μ F
P, PF : pF

COILS
MMH: mH
UH : μ H

FUSE
MMA: mA

Ref. No.	Part No.	Description	Ref.No.	Part No.	Description	Ref. No.	Part No.	Description
=== IC ===			L511	* 82-196-649	COIL OSC LC6502C	S48	87-031-807	SLIDE SW 2-2-3 (TIMER)
	87-020-503	IC,AN78M07	L701	* 82-132-644	COIL ,OSC EH-85K	S49	87-031-807	SLIDE SW 2-2-3 (COUNTER)
	87-020-504	IC,AN79M07	L702	* 87-003-051	COIL,CHOKE 470MMH	=== HX CIRCUIT BOARD SECTION ===		
	87-020-180	IC,BA6146	L703	* 87-003-051	COIL,CHOKE 470MMH	PCB-E	82-132-620	HX CIRCUIT BOARD
	87-020-372	IC,L78N05				C1	* 87-014-041	CAP,PP 220P
④	82-100-630	IC,LC6502B-724	AR705	87-029-089	RES,FUSIBLE ,1/4W4.7	C2	* 87-014-041	CAP,PP 220P
	87-027-895	IC,M521BL	S1	82-100-631	PUSH SW-SUL 2-2-2 (MPX)	C3	* 87-014-131	CAP,PP 0.0018
	87-027-925	IC,M5220	S2	82-100-632	PUSH SW-SUL 2-4-2 (MONITOR)			
	87-027-909	IC,M54523P				C4	* 87-014-131	CAP,PP 0.0018
	87-020-052	IC,NJM4556S	S6	87-031-752	SLIDE SW (CrO ₂ /CO SELECTOR) (Z ONLY)	D1	87-020-156	DIODE MC931
	87-027-986	IC,NJM4560S	SFR101	* 87-021-734	SFR 100	D2	87-020-156	DIODE MC931
	87-027-937	IC,TC4030BP	SFR102	* 87-021-734	SFR 100	L1	* 82-132-643	COIL,OSC 85K-HX
	87-027-656	IC,TC4066BP	SFR103	* 87-021-743	SFR 22K			
=== TRANSISTOR ===						L2	* 82-132-643	COIL,OSC 85K-HX
	89-108-854	TRANSISTOR,2SA885R,S	SFR104	* 87-021-743	SFR 22K	AR5	87-029-082	RES,FUSIBLE,1/4W-100
	89-109-521	TRANSISTOR,2SA952K	SFR401	* 87-021-744	SFR 33K	AR6	87-029-082	RES,FUSIBLE,1/4W-100
	89-110-155	TRANSISTOR,2SA1015,GR	SFR402	* 87-021-744	SFR 33K	SFR1	* 87-021-869	SFR 220K
	89-318-155	TRANSISTOR,2SC1815GR,BL	SFR601	* 87-021-743	SFR 22K			
	89-320-011	TRANSISTOR,2SC2001K				SFR2	* 87-021-869	SFR 220K
	89-321-204	TRANSISTOR,2SC2120Y	=== FRONT CIRCUIT BOARD SECTION ===					
	89-412-753	TRANSISTOR,2SD1275	PCB-B	*	FRONT CIRCUIT BOARD			
=== MAIN CIRCUIT BOARD SECTION ===			C301	* 87-015-695	CAP,ELECT 1-50			
PCB-A	*	MAIN CIRCUIT BOARD	C302	* 87-015-695	CAP,ELECT 1-50			
C51	* 87-018-044	CAP,CERA-SOL S 1000P	C303	* 87-015-684	CAP,ELECT,47-16V			
C101	* 87-018-033	CAP,CERA-SOL S 120P						
C102	* 87-018-033	CAP,CERA-SOL S 120P	C307	* 87-015-682	CAP,ELECT 22-16			
			C308	* 87-015-682	CAP,ELECT 22-16			
C103	* 87-018-040	CAP,CERA-SOL S 470P	D601	87-027-301	DIODE,ZENER HZ 3A1			
C104	* 87-018-040	CAP,CERA-SOL S 470P	D618	* 87-027-543	LED,LN317GP (B-TYPE)			
C109	* 87-010-132	CAP,ELECT BP 1-50						
C110	* 87-010-132	CAP,ELECT BP 1-50	D619	* 87-027-542	LED,LN217RP (C-TYPE)			
			D620	* 87-027-543	LED,LN317GP (TAPE)			
C201	* 87-018-034	CAP,CERA-SOL S 150P	D621	* 87-027-671	LED,LN417YP (SOURCE)			
C202	* 87-018-034	CAP,CERA-SOL S 150P	D622	* 87-027-542	LED,LN217RP (ADMS)			
C309	* 87-018-034	CAP,CERA-SOL S 150P						
C310	* 87-018-034	CAP,CERA-SOL S 150P	D628	87-020-110	DIODE 1SS177			
			D629	87-020-110	DIODE 1SS177			
C505	* 87-018-044	CAP,CERA-SOL S 1000P	D630	87-020-110	DIODE 1SS177			
C506	* 87-018-044	CAP,CERA-SOL S 1000P	D631	* 87-027-543	LED,LN317GP (NORMAL)			
C705	* 87-010-138	CAP,ELECT BP 22-25						
C713	* 87-014-159	CAP,PP 0.012G-100V	D632	* 87-027-671	LED,LN417YP (CrO ₂)			
			D633	* 87-027-542	LED,LN217RP (METAL)			
C809	* 87-010-231	CAP,ELECT 220-10 KS	FL601	* 82-197-631	FL 9-ST-10AK (TAPE COUNTER)			
C810	* 87-010-231	CAP,ELECT 220-10 KS	FL602	* 82-199-635	FL BG-2322K 12DOT (PEAK PROGRAM METER)			
D51	* 87-020-110	DIODE 1SS177						
D52	* 87-020-110	DIODE 1SS177	R609	* 87-025-154	RES,MF ,1W-270			
			S601	87-031-930	TACT SW,KH115912 (COUNTER RESET)			
D701	* 87-020-110	DIODE 1SS177	VR301	82-100-633	SLIDE VR,100KA (REC LEVEL)			
D702	* 87-020-110	DIODE 1SS177	=== VOLUME CIRCUIT BOARD SECTION ===					
D801	* 87-027-815	DIODE 1B4B1 LC-2	PCB-C	*	VOLUME CIRCUIT BOARD			
D802	* 87-020-110	DIODE 1SS177	S3	87-031-807	SLIDE SW 2-2-3 (DOLBY B-C NR)			
			VR302	82-199-632	VR,250K-BAL (REC BALANCE)			
D803	* 87-020-110	DIODE 1SS177	VR601	82-197-632	VR 50K CC (BIAS FINE)			
D804	* 87-020-110	DIODE 1SS177						
D805	87-027-702	DIODE,ZENER HZ6C2L	=== KEY CIRCUIT BOARD SECTION ===					
J1	87-049-055	JACK,4P (LINE IN)	PCB-D	*	KEY CIRCUIT BOARD			
			D41	* 87-027-731	LED SR-535D (RECORD)			
J2	+++	JACK,4P (LINE IN)	D42	* 87-027-731	LED SR-535D (REC MUTE)			
J3	+++	JACK,4P (LINE OUT)	D44	* 87-027-732	LED SG-235D (PLAY)			
J4	+++	JACK,4P (LINE OUT)						
J501	87-049-394	6.3 JACK (PHONE)	D43	* 87-027-733	LED SY-435 (PAUSE)			
			S41	87-031-771	TACT SW EVQ-QSK04M (REW/REVIEW)			
L101	* 82-190-629	FILTER LP,85K-2	S42	87-031-771	TACT SW EVQ-QSK04M (PLAY)			
L102	* 82-190-629	FILTER LP,85K-2	S43	87-031-771	TACT SW EVQ-QSK04M (STOP)			
L301	* 82-135-632	FILTER MPX 85K						
L302	* 82-135-632	FILTER MPX 85K	S44	87-031-771	TACT SW EVQ-QSK04M (F.FWD/CUE)			
			S45	87-031-771	TACT SW EVQ-QSK04M (PAUSE)			
L401	* 82-132-631	COIL 4.7MMH,J	S46	87-031-771	TACT SW EVQ-QSK04M (RECORD)			
L402	* 82-132-631	COIL 4.7MMH,J	S47	87-031-771	TACT SW EVQ-QSK04M (REC MUTE)			
L403	* 82-135-631	FILTER TRAP 85K						
L404	* 82-135-631	FILTER TRAP 85K						

Note:Combination Circuit Board

The parts on the electrical parts list which are indicated by an asterisk (*) are supplied as one single combined circuit board. Therefore, they will not be supplied separately. If this becomes necessary,please order the entire circuit board.

Combination circuit board A 82-100-601

PCB-A 82-100-602

PCB-F 82-100-603

Combination circuit board B 82-100-611

PCB-B 82-100-612

PCB-C 82-100-613

PCB-D 82-100-614

PCB-G 82-100-615

C-MOS IC handling precaution

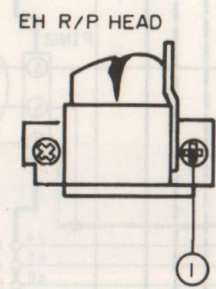
The C-MOS IC's construction makes this part susceptible to damage by static electricity and so take sufficient care in regard to following articles.

1. Need to be put on conductive sheet, to be put in a metallic box and to be wrapped by aluminium foil for transportation and deposit.
2. To use solder iron less than 40W (less than 260°C) of power consumption for soldering. But do not overheat more than 10 second.
3. Do not perform a conductivity test with a tester, etc. Refer to the circuit voltages of each part.
4. The ICs on the electrical parts which are indicated by an C-MOS IC symbol mark (Φ).

⚠ Safety component symbol

This symbol is given to important parts which serve to maintain the safety of the product, and which are made to conform to special safety specifications. Therefore, when replacing a component with this symbol, make absolutely sure that you use a designated part.

ADJUSTMENT



1. Azimuth Adjustment

- Test tape: TTA-317E

2. PB Frequency Response Adjustment

- Settings:
- Test tape: TTA-317E
 - Test point: LINE OUT
 - DOLBY NR switch: OFF
- Adjustment locations: SFR101 (L-ch)
SFR102 (R-ch)

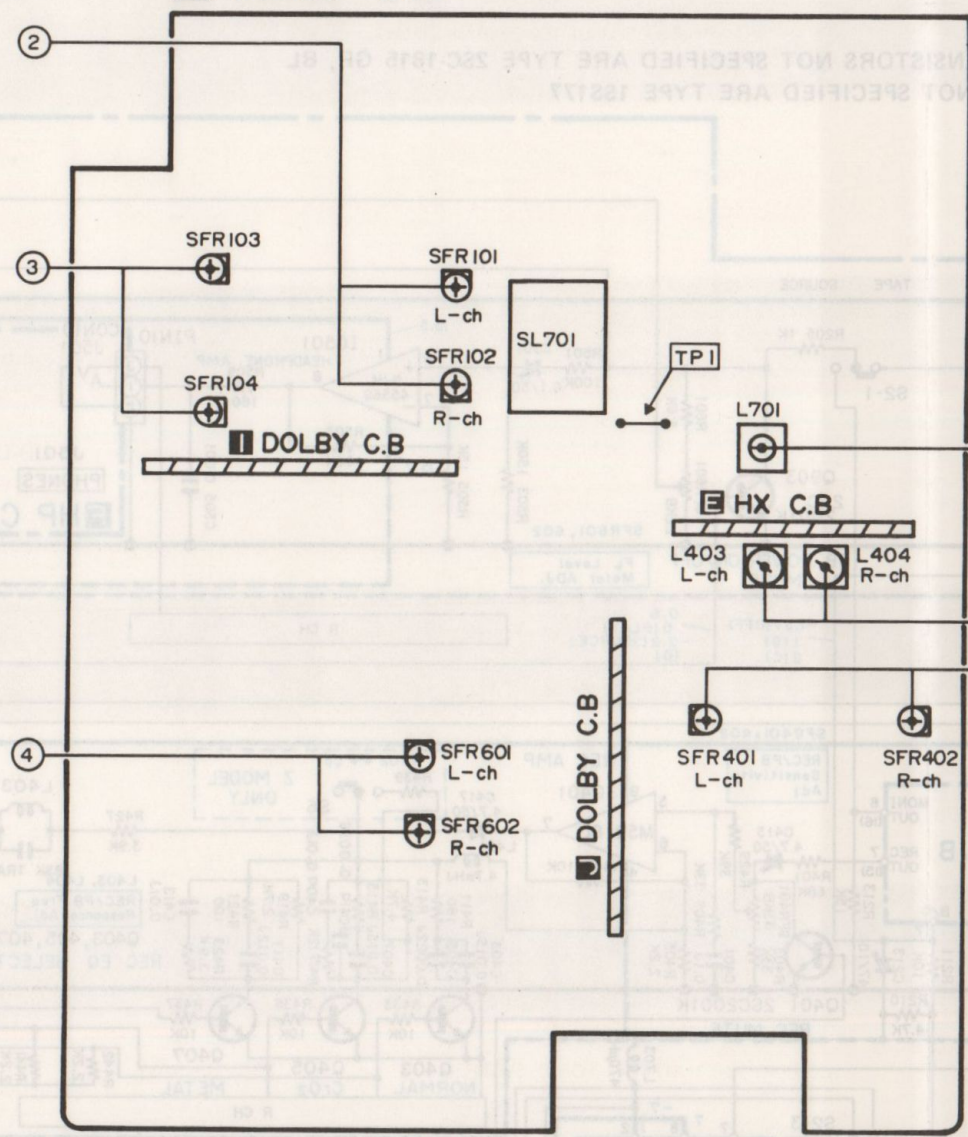
Method: Play back the test tape, then adjust so that the output difference between 1kHz and 10kHz is 0 $\pm$ 0.5 dB.

3. PB Sensitivity Adjustment

- Settings:
- Test tape: TTA-161
 - Test point: LINE OUT
 - DOLBY NR switch: OFF
- Adjustment locations: SFR103 (L-ch)
SFR104 (R-ch)

Method: Adjust so that output is 560mV.

A MAIN C.B



4. FL Level Meter Adjustment

- Settings:
- Recording mode
 - MONITOR switch: SOURCE
 - Input signal: 1kHz, 380mV
 - Test point: LINE OUT
 - Adjustment locations: SFR601 (L-ch)
SFR602 (R-ch)

Method: Adjust RECORD VOLUME so that the output is 380mV. Adjust SFR601, 602 so that 0dB LED light up.

5. Bias OSC Frequency Adjustment

- Settings:
- Test tape: TTA-119MP
 - Test point: TP1
 - Adjustment location: L701

Method: Adjust so that the OSC frequency is 85kHz $\pm$ 0.1kHz.

Practical Service Figure

Pinch roller pressure: F side 350 $\pm$ 30g(3.43 $\pm$ 0.29N)
T side 165 $\pm$ 15g(1.62 $\pm$ 0.15N)

Take-up torque: 38 $\pm$ 10g $\cdot$ cm (0.37 $\pm$ 0.098mN $\cdot$ m)

FF & REW torque: 150 $\pm$ 40 g $\cdot$ cm (1.47 $\pm$ 0.39 mN $\cdot$ m)

Counter indication 0 $\pm$ 3 digit (C-60)

error:

PB output: 560 $\pm$ 68mV (LINE)

(TTA-161)

REC/PB output: LINE 380 $\pm$ 30mV

(NORMAL)

REC/PB distortion: Less than 1.5% (NORMAL)

Playback noise: Less than 4.0/2.0/1.7mV

(Unweighted) (NORMAL DOLBY-NR

OFF/B/C)

(WTD)

Less than 1.5/0.7mV

(NORMAL DOLBY-NR

OFF/B, C)

REC/PB SN ratio: More than 42/45/48dB

(Unweighted) (NORMAL DOLBY-NR

OFF/B/C)

More than 60dB

Erasing ratio:

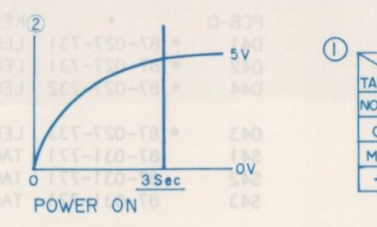
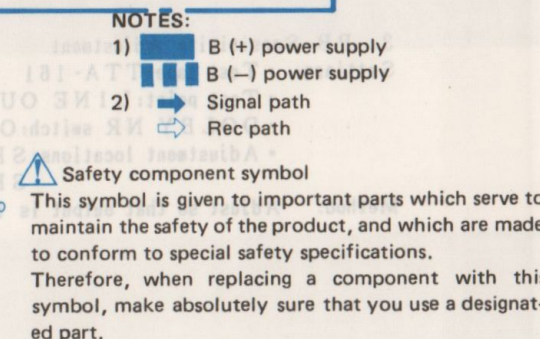
(125 Hz) 85kHz

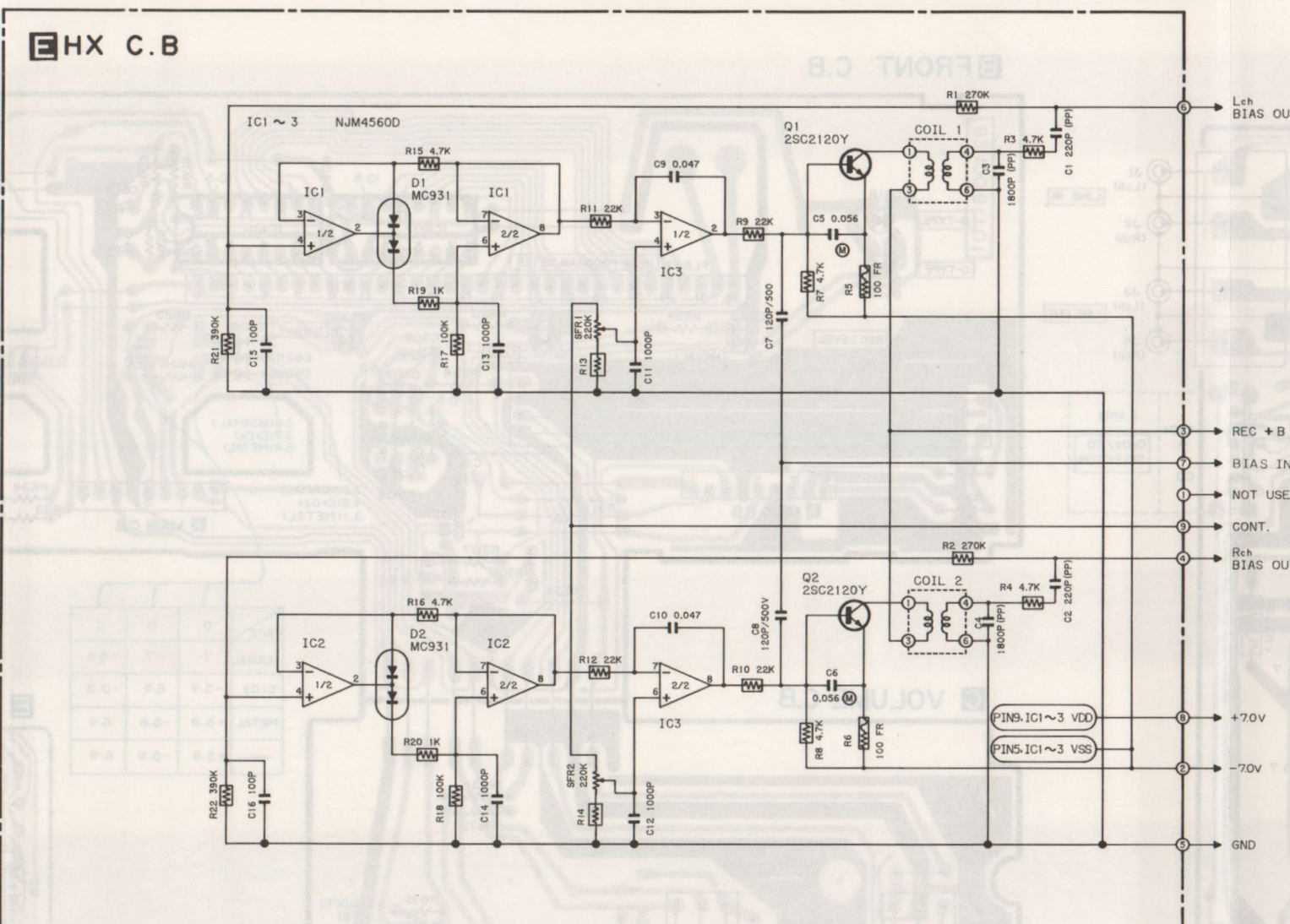
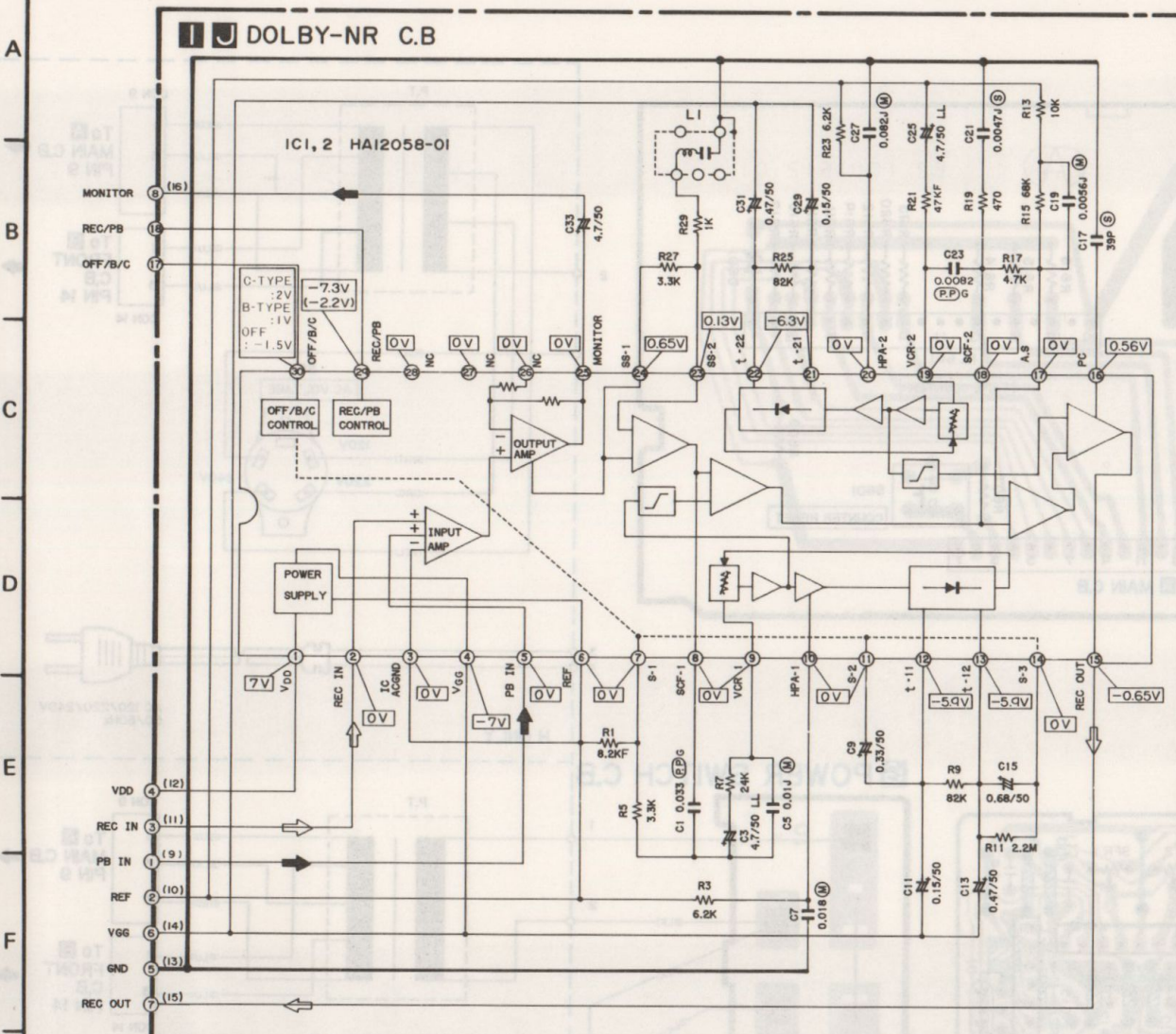
Bias frequency:

Test tape: METAL TTA-119MP

NORMAL TTA-119J

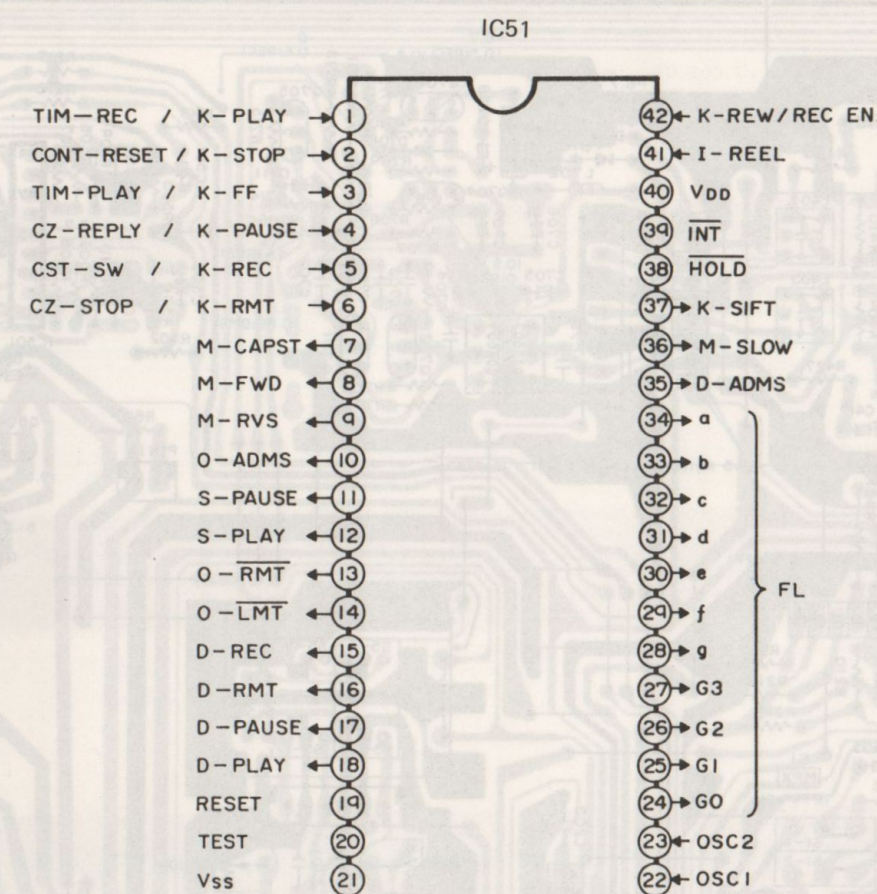
CrO₂ TTA-119G





1. DESCRIPTION OF IC LC6502B-724

1-1. Terminal name

Signal flow in the direction
indicated by the arrow

Mechanical control + FL driver (Counter)

- * Mechanism 9ME-2 (used in AD-F660, F770, F990)
3-Head Dual Capstan
- * FL counter Directly driven by this CPU

- * CONT: Counter "0000"
- TIM: Timer
- PLY: Play
- CZ: Counter Zero("0000")
- CST: Cassette

NOTES:

- 1) B (+) power supply
- 2) B (-) power supply

- 3) The voltage is the reference value measured with a tester (20 k-ohms/V DC) when there are no signals. But () is with AM reception or recording. An asterisk (*) indicates that the value was measured with a vacuum-tube voltmeter during recording.

- 4) Resistors with no designation have a rated power of 1/8W and a tolerance of $\pm 5\%$.

- 5) Capacitors with no designation have a dielectric strength of less than 50WV.

- 6) The only capacitor tolerance indicated are $\pm 5\%$ (J) and $\pm 10\%$ (K).

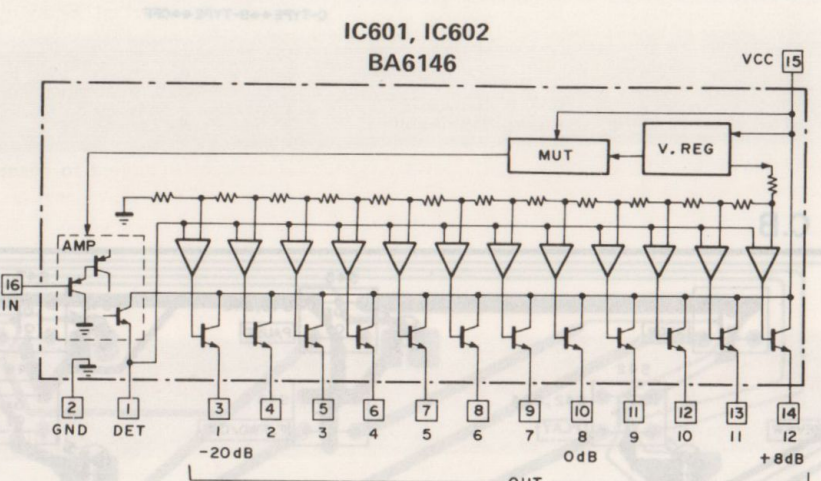
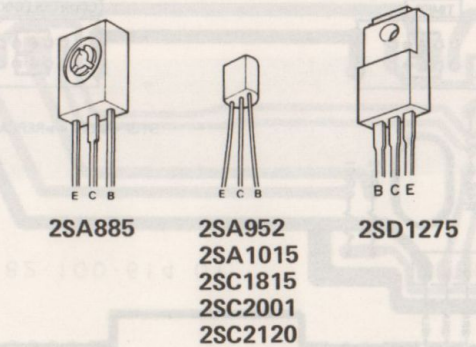
- 7) Ceramic capacitor symbols:
 - For temperature compensation (SL)
 - High dielectric constant system (YY)
 - High dielectric constant system (YW, YP, YZ)
 - Semiconductor ceramic
 - For temperature compensation (SH)

- 8) Explanation of symbols
 - Mylar capacitor
 - Aluminum solid capacitor
 - Polypropylene film capacitor
 - Bi-polarized capacitor
 - Low-leakage capacitor
 - Tantalum capacitor
 - Styrol capacitor
 - Fuse resistor
 - Nonflammable resistor

Safety component symbol

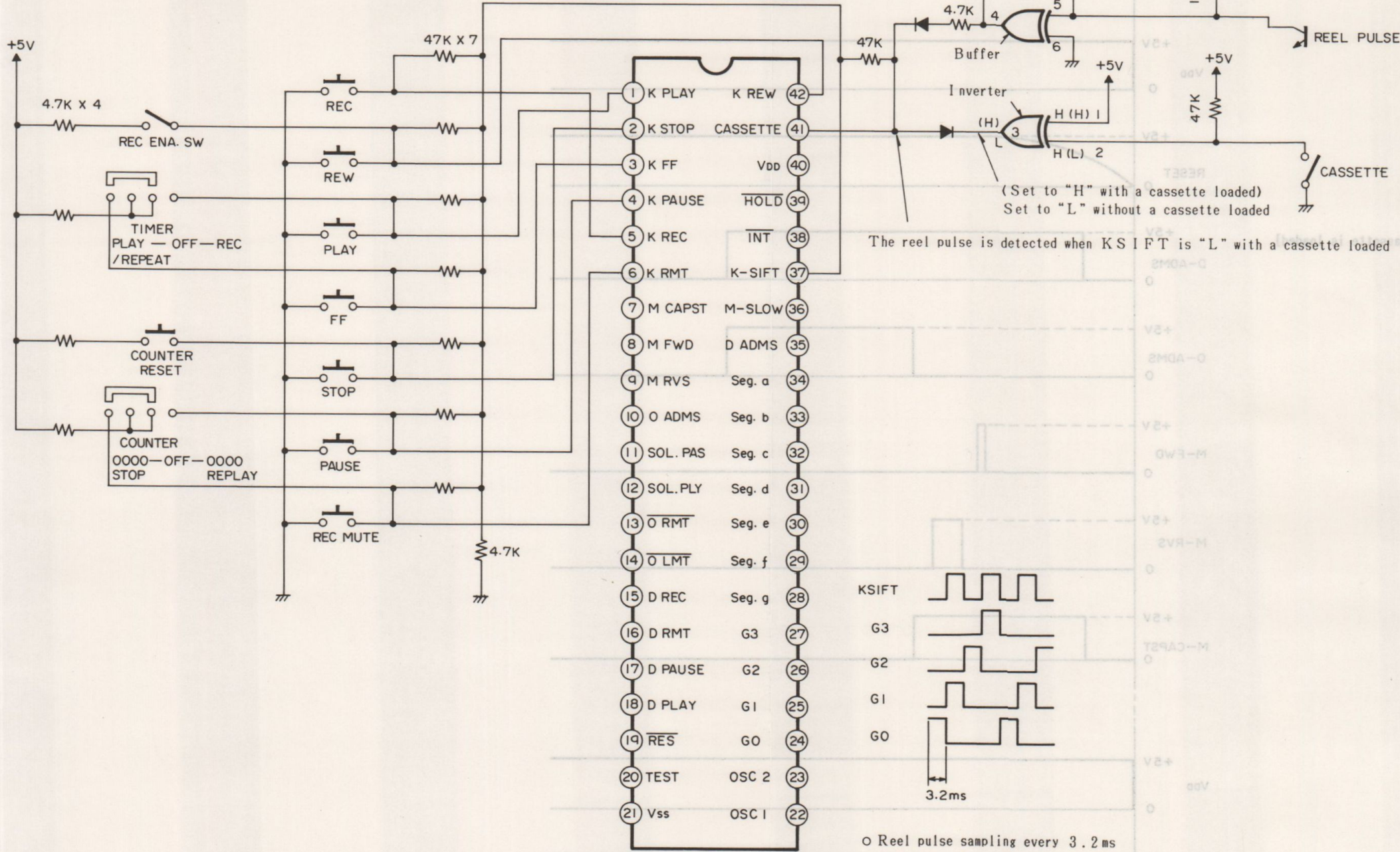
This symbol is given to important parts which serve to maintain the safety of the product, and which are made to conform to special safety specifications. Therefore, when replacing a component with this symbol, make absolutely sure that you use a designated part.

- This schematic diagram is subject to change without notice in the interests of improved performance.



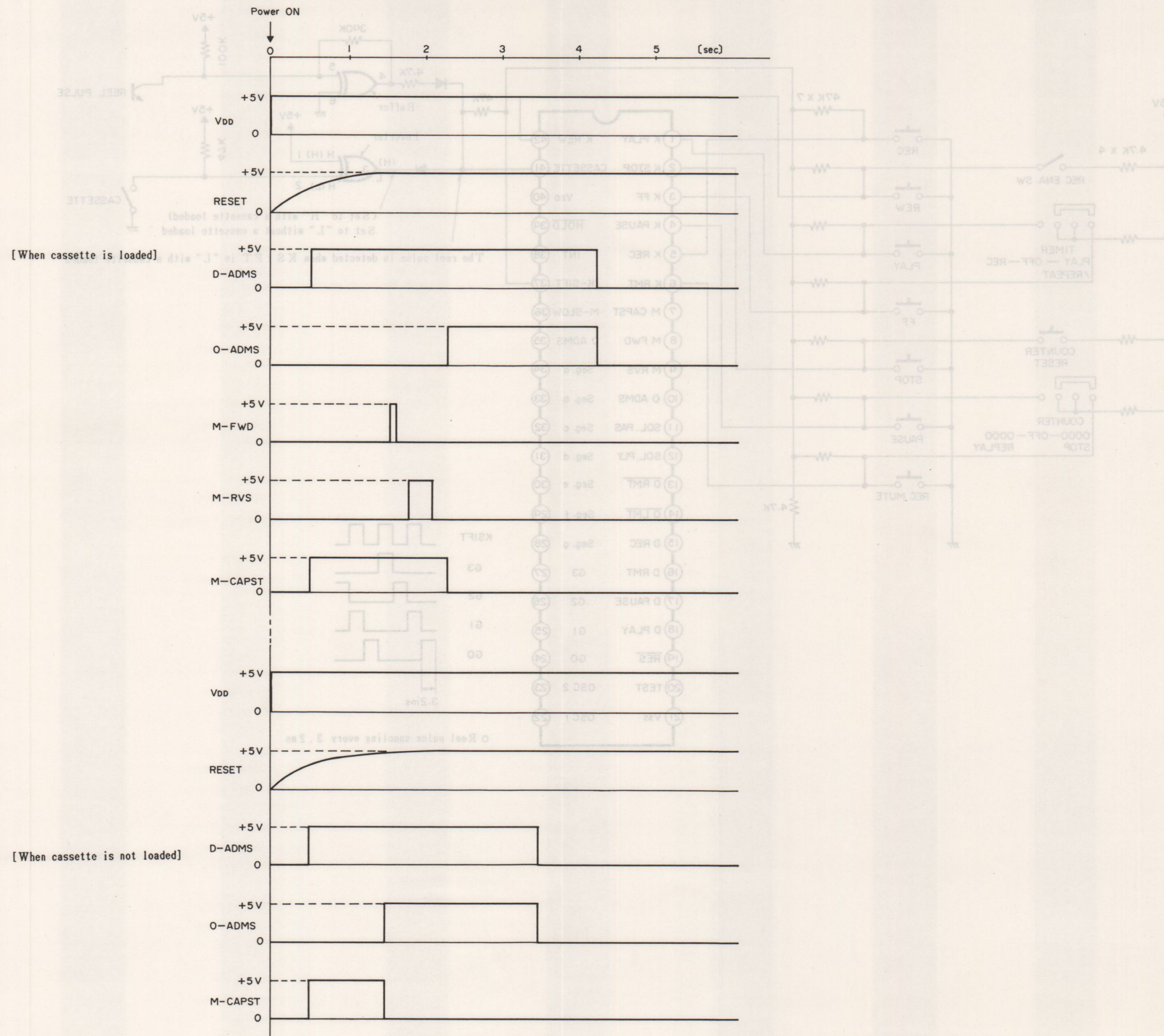
Pin No.	Symbol	Description	
		When K-SIFT is set to "H"	When K-SIFT is set to "L"
42	K-REW/ K-REC EN.	REW key input (Active Low)	REC EN key input (Active High) [REC enabled at "H"]
1	K-PLAY/ K-TIM-REC	PLAY key input (Active Low)	TIMER REC input (Active High)
2	K-STOP/ K-CNT-RES	STOP key input (Active Low)	Counter Reset input (Active High)
3	K-FF/ K-TIM-PLY	FF key input (Active Low)	TIMER PLAY/Repeat input (Active High)
4	K-PAUSE/ K-CZ-PLY	PAUSE key input (Active Low)	Counter "0000" replay input (Active High)
5	K-REC/K-CST	REC key input (Active Low)	Cassette switch input (Active High) [Set to "H" level with cassette]
6	K-RMT/ K-CZ-STP	REC MUTE key input (Active Low)	Counter "0000" stop input (Active High)
41	I-REEL	Take-up reel rotation pulse input. Auto stop, FL counter and slack tape removal control.	
7	M-CAPST	Capstan motor control input. Motor turns at "H" level.	
8	M-FWD	Sub-motor forward rotation output. Set to "H" in PLAY/REC, FF and CUE modes.	
9	M-RVS	Sub-motor reverse rotation output. Set to "H" in REW/REV modes.	
10	O-ADMS	ADMS output. Set to "H" for 2 sec after power is turned on. (When cassette is loaded, set to "H" after slack tape removal.)	
11	S-PAUSE	Pause plunger output. Set to "H" in PAUSE, PLAY PAUSE, R/P PAUSE, FF, REW, CUE and REV modes.	
12	S-PLAY	Play plunger output. Set to "H" in PLAY, PLAY PAUSE, R/P PAUSE, CUE and REV modes.	
13	O-RMT	REC MUTE output. Set to "H" when the mechanism is stabilized in the REC/PLAY modes.	
14	O-LMT	PLAY MUTE output. Set to "H" when the mechanism is stabilized in PLAY, REC/PLAY, Cue and REV modes.	
15	D-REC	REC LED output. Used in O-REC also. Set to "H" in REC, REC/PLAY, REC/PLAY-PAUSE, REC/PAUSE, REC/PLAY/REC MUTE modes.	
16	D-RMT	REC MUTE LED output. Set to "H" in REC/PLAY/RMT modes. Set to "H" every 1 sec when the RMT key is pressed continuously for 4 sec or more.	
17	D-PAUSE	Pause LED output. Set to "H" in PAUSE, R/P PAUSE, PLAY/PAUSE modes.	
18	D-PLAY	Play LED output. Set to "H" in PLAY, REC/PLAY, PLAY/PAUSE, R/P PAUSE modes.	
35	D-ADMS	ADMS LED output. Set to "H" during slack tape removal and ADMS modes after power is turned on.	

Pin No.	Symbol	Description
24	G ₀	FL counter grid 0 Digit scan output 1 place digit
25	G ₁	FL counter grid 1 Digit scan output 10 place digit
26	G ₂	FL counter grid 2 Digit scan output 100 place digit
27	G ₃	FL counter grid 3 Digit scan output 1,000 place digit
28	SEG. g	FL segment output g
29	SEG. f	FL segment output f
30	SEG. e	FL segment output e
31	SEG. d	FL segment output d
32	SEG. c	FL segment output c
33	SEG. b	FL segment output b
34	SEG. a	FL segment output a
37	K-SIFT	Selects key input according to the "H" or "L" state.
36	M-SLOW	Reel motor voltage control output. Set to "H" in PLAY and REC/PB modes.
38	HOLD	Connected to +5 V
39	INT	
40	V _{DD}	
19	RESET	Microprocessor reset input. Gradually changes to +5 V from 0 V within 3 sec after power is turned on.
20	TEST	Connected to GND
21	V _{SS}	
22	OSC 1	Microprocessor clock input (400 kHz)
23	OSC 2	



TIMING CHART

Operation after power is turned on



DISASSEMBLY INSTRUCTIONS

1. Removing Steel Cabinet

1) Remove the 6 screws.

2. Removing Mechanism

- 1) Remove the 4 screws and open the cassette lid.
- 2) Lift up the mechanism in the direction of the arrow.
(See Figure-1)

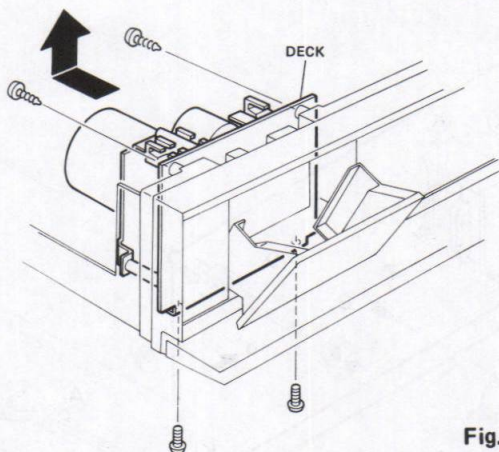


Fig. 1

3. Removing Front Cabinet

- 1) Removing the 8 screws.
- 2) Detach the front cabinet in the direction of the arrow.
(See Figure-2)

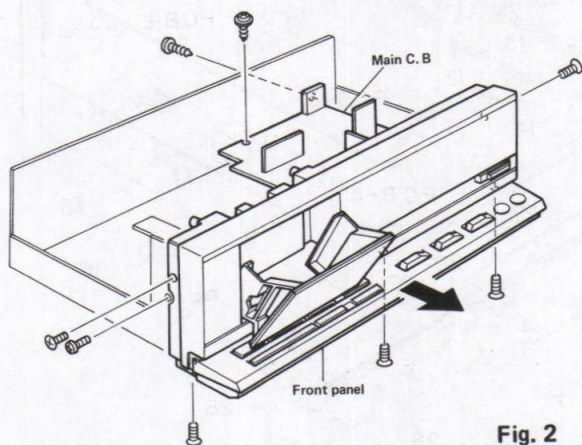


Fig. 2

4. Removing Circuit Boards

- 1) Remove the 3 screws and detach the bottom cabinet.
(See Figure-3)

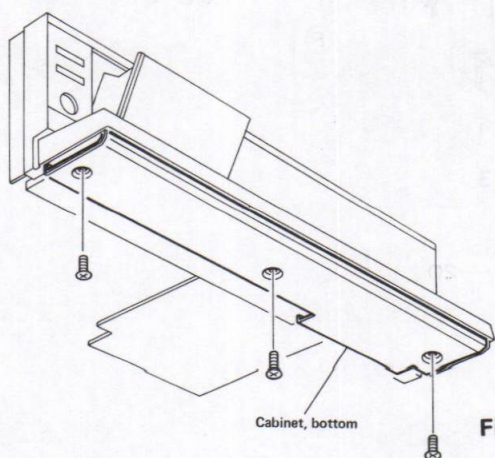


Fig. 3

2) Remove the 2 screws and 3 knobs. (See Figure-4)

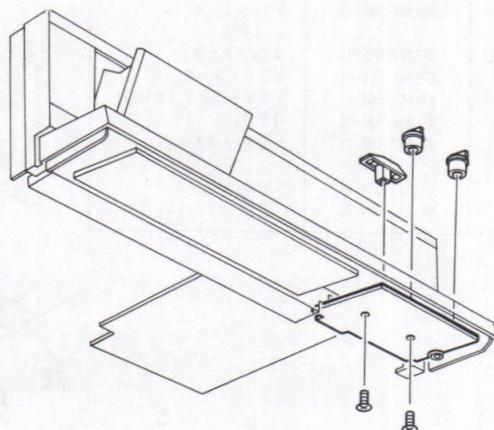


Fig. 4

3) Unfix the Front P.C.B. by loosening 6 plastic holders. (See Figure-5)

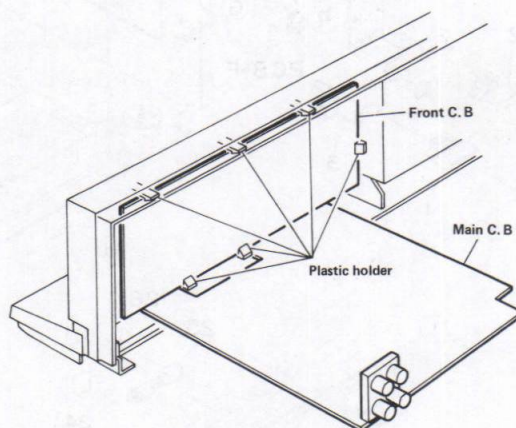


Fig. 5

5. Removing Reel Motor

- 1) Remove the 2 screws pushing the lever for brake release in the direction of the arrow. (See Figure-6)

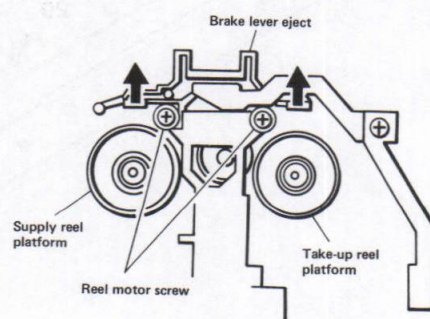
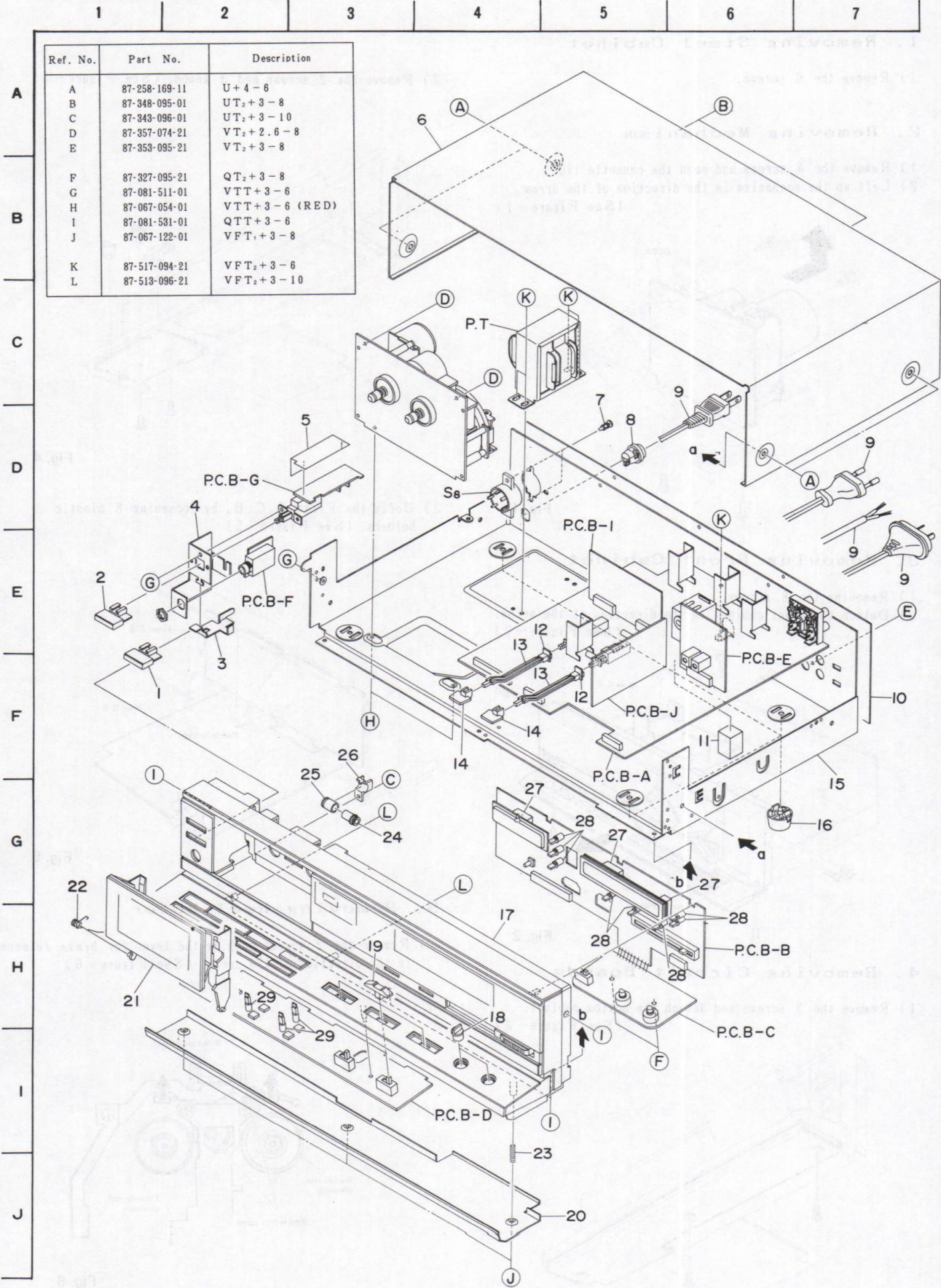


Fig. 6

EXPLODED VIEW-1



MECHANICAL PARTS LIST

- ※ mark in this part list shows exclusive part.
- ★-mark means less required items availabilities may be limited.
- No availability part is marked with — in Part No. list.

Part No. changed to	Ref. No.	Part No.	Description	Common Model	Q'ty
	1-1	★82-134-022	KNOB, POWER SL	AD-F350	1
	1-2	★82-188-012	KNOB, POWER	AD-F990	1
	1-3	—	LEVER, EJECT		1
	1-4	—	HOLDER, POWER		1
	1-5	—	SHIELD, POWER		1
	1-6	★82-199-012	STEEL CABINET	AD-R550	1
	1-7	★87-085-090	NYLON RIVET (H only)		2
	1-8	★87-085-184	CORD BUSHING (H, S40U only)		1
		★87-085-185	CORD BUSHING (E, K, G, Z only)		1
	1-9	★87-034-958	AC POWER CORD (H only)		1
		★87-034-951	AC POWER CORD (S40U only)		1
		★87-034-877	AC POWER CORD (E, Z only)		1
		★87-034-975	AC POWER CORD (K only)		1
		★87-034-892	AC POWER CORD (G only)		1
	1-10	★82-100-023	JACK PLATE (H only)	※	1
		★82-100-024	JACK PLATE (S40U only)	※	1
		★82-100-025	JACK PLATE (E only)	※	1
		★82-100-026	JACK PLATE (K only)	※	1
		★82-100-029	JACK PLATE (G only)	※	1
		★82-100-027	JACK PLATE (Z only)	※	1
	1-11	—	G CUSHION, CIRCUIT BOARD		1
	1-12	★82-385-383	STOPPER, LOD		2
	1-13	★82-186-214	LOD, DOLBY		2
	1-14	★82-100-016	PUSH-BUTTON TS	※	2
	1-15	—	AMP. CHASSIS (H only)		1
		—	AMP. CHASSIS (EXCEPT H)		1
	1-16	★87-055-055	FOOT		3
	1-17	★82-100-030	FRONT CABINET B Ass'y	※	1
	1-18	82-100-015	KNOB, BIAS	※	2
	1-19	82-100-014	SLIDE KNOB, TIMER	※	3
	1-20	—	BOTTOM CABINET	※	1
	1-21	82-100-019	CASSETTE BOX Ass'y (EXCEPT S40U)	※	1
		82-100-040	CASSETTE BOX-U Ass'y (S40U only)	※	1
	1-22	★82-100-209	T-SPRING, EJECT	※	1
	1-23	★82-100-208	C-SPRING, EARTH B	※	3
	1-24	★82-534-264	GEAR, OIL-DAMP		1
	1-25	★82-175-207	SHAFT BEARING, OIL-DAMP		1
	1-26	★82-683-212	HOLDER, OIL-DAMP		1
	1-27	—	G CUSHION COUNTER		3
	1-28	—	COLLAR, LED B		8
	1-29	—	COLLAR, LED BF		4

EXPLODED VIEW-2

1 2 3 4 5 6 7

Ref. No.	Part No.	Description
A	87-081-954-01	V+1.6-3
B	87-251-037-21	U+2-10
C	87-341-035-21	UT,+2-6
D	87-341-038-21	UT,+2-12
E	87-067-006-01	W2-5-0.2
F	87-081-414-01	W2-6-0.4
G	87-081-808-01	PW1.7-3.5-0.25

A

B

C

D

E

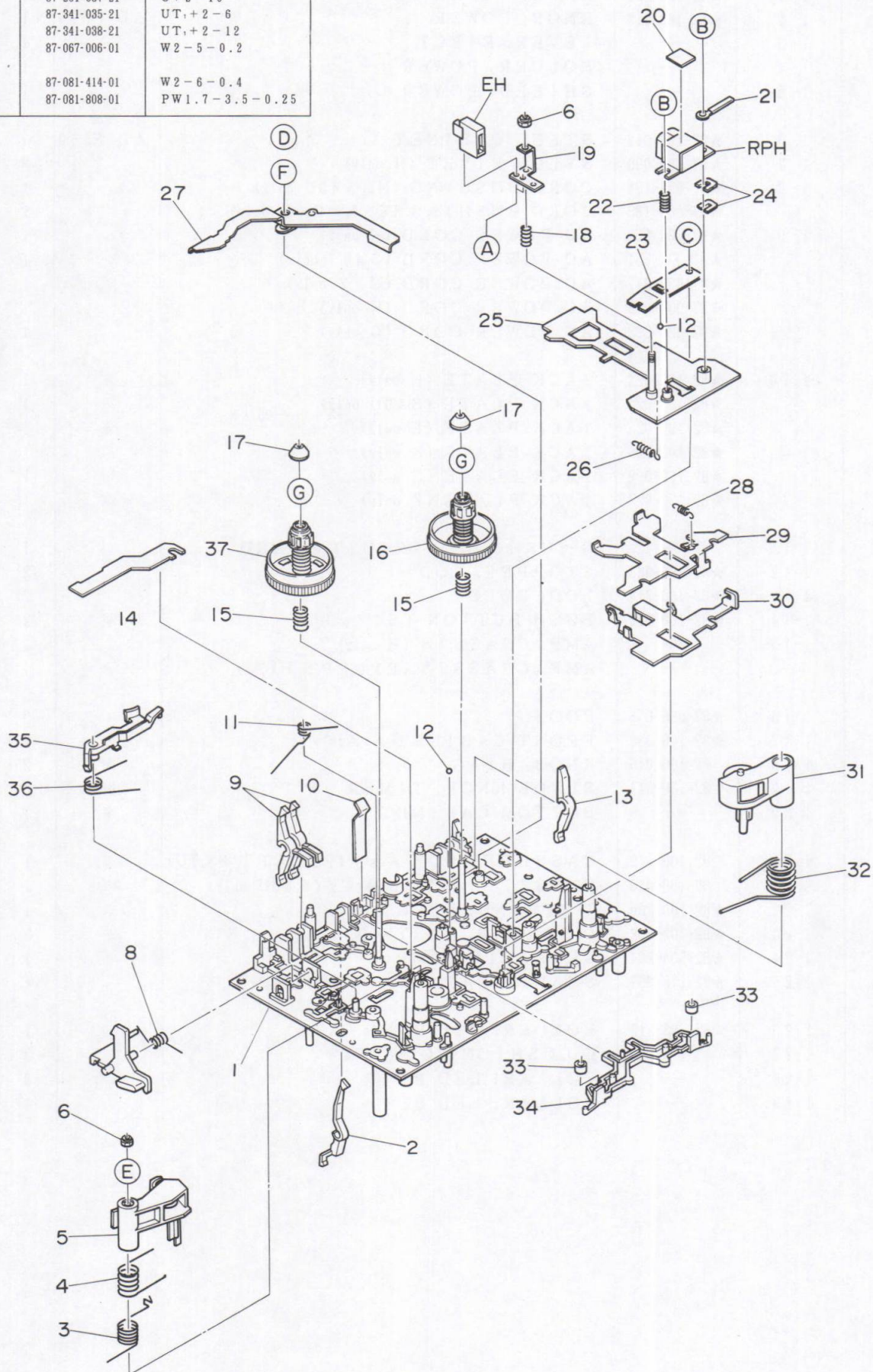
F

G

H

I

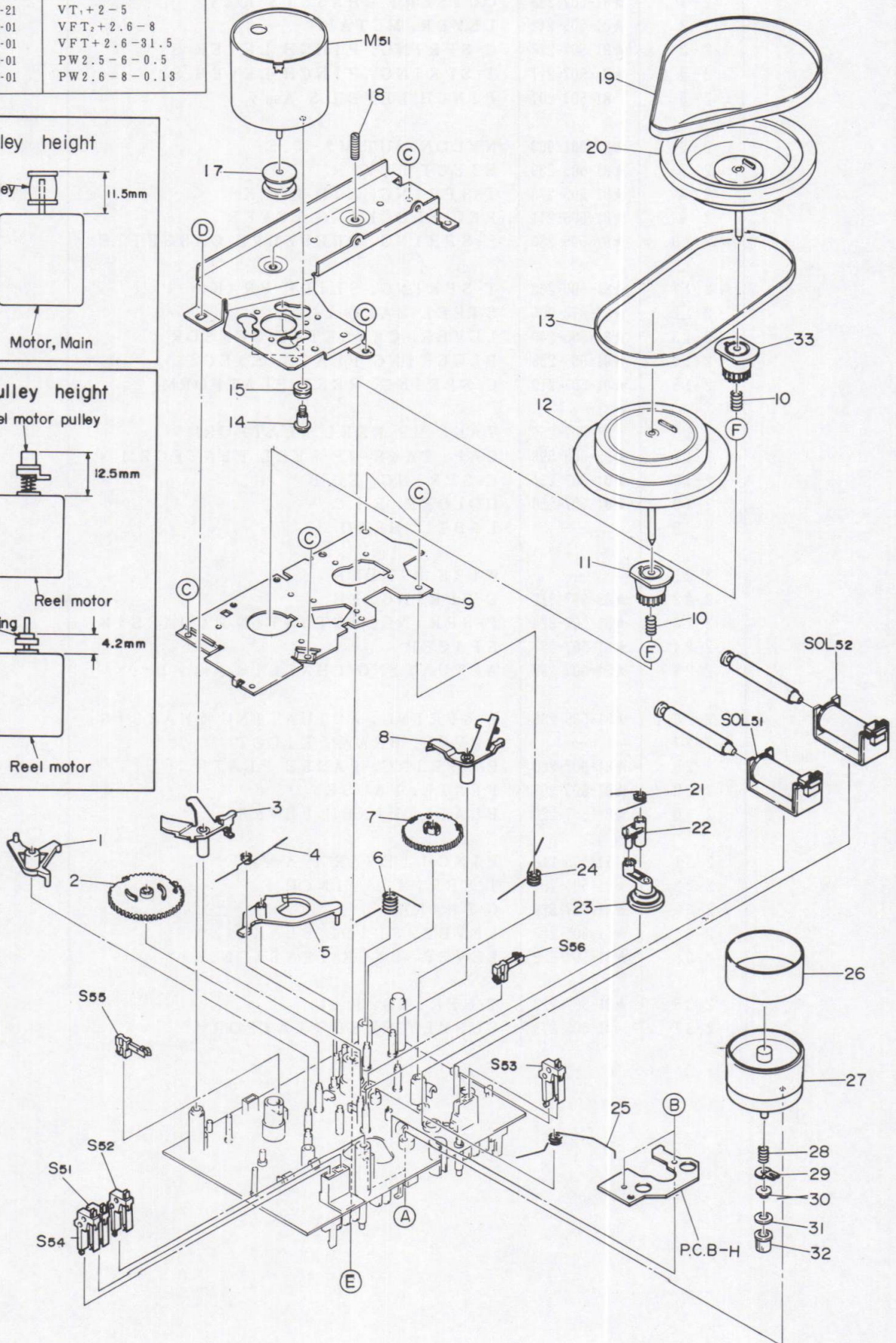
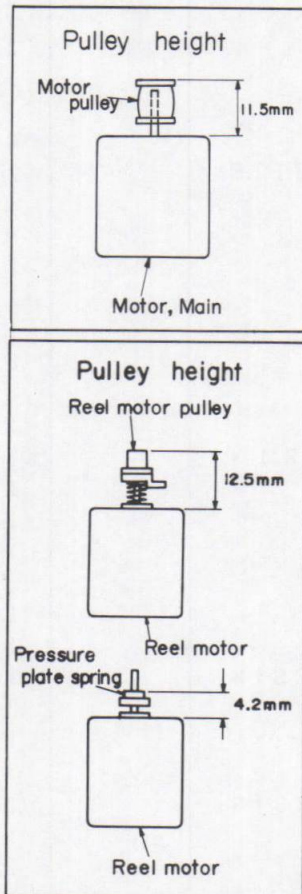
J



Part No. changed to	Ref. No.	Part No.	Description	Common Model	Q'ty
	2-1	★81-507-225	OUTSERT CHASSIS Ass'y		1
	2-2	★81-505-242	LEVER, METAL		1
	2-3	★81-507-228	C-SPRING, PINCH LEVER S		1
	2-4	★81-507-217	T-SPRING, PINCH LEVER S		1
	2-5	81-507-207	PINCH LEVER S Ass'y		1
	2-6	★87-081-963	NYLON NUT M2-3.5		2
	2-7	★81-505-239	EJECT LEVER		1
	2-8	★81-505-273	T-SPRING, LID LOCK		1
	2-9	★81-505-241	REC BLOCKING LEVER		2
	2-10	★81-505-260	P-SPRING, PRESSURE CASSETTE		1
	2-11	★81-505-268	T-SPRING, SLIDE BRAKE		1
	2-12	★87-073-005	STEEL BALL 2ø		2
	2-13	★81-505-240	LEVER, CASSETTE SENSOR		1
	2-14	★81-505-238	BLOCKING PLATE, EJECT		1
	2-15	★81-507-219	C-SPRING, REEL PLATFORM		2
	2-16	81-507-256	TAKE-UP REEL PLATFORM		1
	2-17	★82-303-398	CAP, TAKE-UP REEL PLATFORM		2
	2-18	★81-507-251	C-SPRING, EH B		1
	2-19	★81-507-250	HOLDER, EH C		1
	2-20	—	LABEL, HEAD		1
	2-21	—	WIRE BINDER		1
	2-22	★82-307-212	C-SPRING, EH		1
	2-23	★81-507-224	P-SPRING, ACTUATING CHASSIS		1
	2-24	★81-507-227	SPACER		2
	2-25	★81-507-252	ACTUATING CHASSIS Ass'y B		1
	2-26	★81-505-265	E-SPRING, ACTUATING CHASSIS		1
	2-27	—	LEVER, BRAKE EJECT		1
	2-28	★81-507-266	E-SPRING, PAUSE PLATE		1
	2-29	★81-505-207	PLATE, PAUSE		1
	2-30	★81-507-220	PLATE, PINCH LEVER		1
	2-31	81-505-210	PINCH LEVER F Ass'y		1
	2-32	★81-505-267	T-SPRING, PINCH F		1
	2-33	★81-507-229	G BRAKE		2
	2-34	★81-505-236	LEVER, SLIDE BLAKE		1
	2-35	★81-507-222	LEVER, BACK TENSION		1
	2-36	★81-507-223	T-SPRING, B. T		1
	2-37	81-505-275	SUPPLY REEL PLATFORM		1

EXPLODED VIEW-3

Ref. No.	Part No.	Description
A	87-261-075-21	V + 2.6 - 10
B	87-351-034-21	VT, + 2 - 5
C	87-512-074-01	VFT ₂ + 2.6 - 8
D	81-505-341-01	VFT + 2.6 - 31.5
E	82-416-358-01	PW 2.5 - 6 - 0.5
F	87-067-052-01	PW 2.6 - 8 - 0.13



Part No. changed to	Ref. No.	Part No.	Description	Common Model	Q'ty
	3-1	★81-505-230	LEVER, PLAY		1
	3-2	81-505-234	GEAR, PLAY CAM		1
	3-3	★81-505-231	TRIGGER LEVER, PLAY		1
	3-4	★81-505-272	T-SPRING, CAM		1
	3-5	★81-505-308	LEVER B, PAUSE		1
	3-6	★81-505-283	T-SPRING, PAUSE LEVER		1
	3-7	81-505-235	GEAR, PAUSE CAM		1
	3-8	★81-505-233	TRIGGER LEVER PAUSE		1
	3-9	—	CHASSIS B, MECHANISM		1
	3-10	★81-505-261	C-SPRING, FLYWHEEL F		2
	3-11	★81-505-225	GEAR, FLYWHEEL		1
	3-12	81-507-205	FLYWHEEL S Ass'y FD		1
	3-13	81-507-247	RUBBER BELT B		1
	3-14	★87-081-483	MOTOR SCREW, M2.6		3
	3-15	—	RUBBER CUSHION		3
	3-16	—	HOLDER, MOTOR		1
	3-17	★81-505-245	MOTOR PULLEY 2-10-6.8		1
	3-18	★82-565-373	SCREW, THRUST		2
	3-19	81-507-216	RUBBER BELT A		1
	3-20	81-507-242	FLYWHEEL T Ass'y FD		1
	3-21	★81-505-361	T-SPRING, FR IDLER B		1
	3-22	★81-505-359	LEVER C, FR IDLER		1
	3-23	81-505-356	FR IDLER Ass'y B		1
	3-24	★81-505-271	T-SPRING, TRIGGER LEVER		1
	3-25	★81-505-269	T-SPRING, PINCH PLATE		1
26~32		09-047-198	REEL MOTOR Ass'y		1
3-26		—	SHIELD PLATE		1
3-27		—	MOTOR, REEL		1
3-28		—	C-SPRING, FR IDLER C		1
3-29		—	LEVER C, FR IDLER		1
3-30		—	PRESSURE PLATE SPRING		1
3-31		—	FELT 4.5-7.2-1.0		1
3-32		—	PULLEY, REEL MOTOR		1
3-33		★81-505-354	GEAR, FLYWHEEL		1

■ ACCESSORIES/PACKAGE LIST

Part No. changed to	Ref. No.	Part No.	Description	Common Model	Q'ty	
	1	★82-100-904	INSTRUCTION BOOKLET	※	1	
	2	★87-032-845	SIEMENS PLUG (HB only)		1	
	3	★87-034-978	CONNECTION CORD CW-254BSK		2	

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