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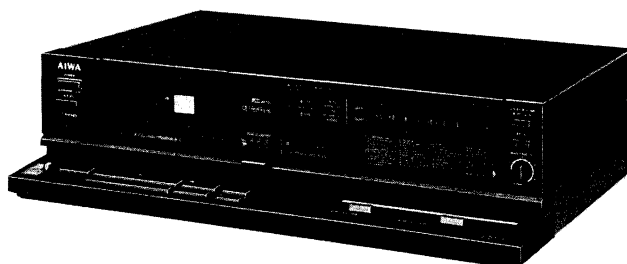
SERVICE MANUAL

S/M Code No. 84-021
DATE OF ISSUE 8/1984

**STEREO CASSETTE
DECK**

MODEL NO.

AD-F350



REFRESH MODEL OF AD-F330

**TYPE. HB, HUB, HJS, HJB, CB, UB, EJB, KB,
GB, ZB**

SPECIFICATIONS

Type	Stereo cassette tape deck
Track format	4 tracks 2 channels
Circuitry	AD-F350 E, K, G, U, C, H 11 ICs, 28 transistors, 10 diodes, 25 LEDs
	AD-F350 Z 11 ICs, 32 transistors, 11 diodes, 25 LEDs
Power supply	AD-F350 E, Z AC 220 V, 50/60 Hz AD-F350 K, G AC 240 V, 50/60 Hz AD-F350 U, C AC 120 V, 60 Hz AD-F350 H AC 120 V/220 V/240 V switchable, 50/60 Hz
Power consumption	16 W
Frequency response	METAL tape: 20—18,000 Hz CrO ₂ position tape: 20—17,000 Hz NORMAL tape: 20—16,000 Hz
Signal-to-noise ratio	73 dB (METAL tape DOLBY C NR ON)
Wow and flutter	According to DIN 45 500 0.1% 0.035% (WRMS)
Tape speed	4.8 cm/sec. (1-7/8 ips)
Rewind time	70 sec. (C-60)
Fast forward time	70 sec. (C-60)
Recording system	AC bias (frequency 85 kHz)
Erase system	AC erase
Motor	DC Servomotor
Head	DX head

Inputs	LINE IN maximum input sensitivity: 50 mV (over 50 k Ω) DIN max sensitivity (Z model only): 0.1 mV/k Ω (3.3 k Ω)
Outputs	LINE OUT standard output level: 0.41 V (0 VU); suitable load impedance: over 50 k Ω ; DIN standard level (Z model only): 0.41 V (0 VU) Headphones: 8 Ω
Dimensions	420(W) $\times$ 110(H) $\times$ 303(D) mm
Weight	4.3 kg
Accessories	Stereo pin cord (2)

- Specifications and external appearance are subject to change without notice due to product improvement.
- The Dolby noise reduction system is provided under licence from Dolby Laboratories.
- 'Dolby' and 'Double D' are trademarks of Dolby Laboratories.
- These spec. values are reproduced from the instruction booklet.

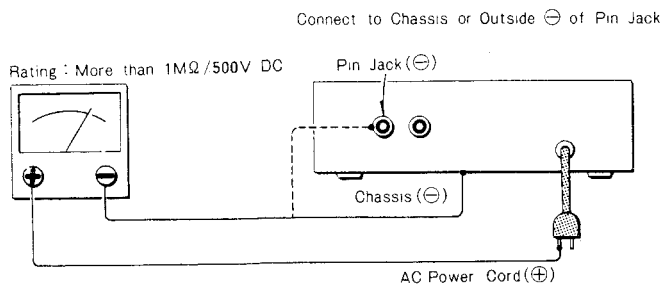
Follow the instructions carefully, which will allow the user to optimise the products' performance and give many years of service.

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 $1M\Omega$.

6. General instructions for mechanism repair

- 1) 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.
- 2) 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.
- 3) E-rings and poly slider washers shall be replaced with new ones, if once those have been removed. — No re-utilization due to unreliability.
- 4) Regular spare-parts shall always be used for repair, because using irregular parts and tampering with the products shall cause deterioration, malfunction and damage.

Measuring Point



NOTE

This service manual contains detailed service information for only modified section of AD-F350. The following information is covered in the service manual of AD-F330

1. Exploded View and Parts List of Deck Mechanism. (Exploded View -2 & -3)

2. Pattern View and Wiring

- 1) **A** MAIN C. B
- The Microphone circuit is omitted in this model AD-F350, and the Bias Fine circuit is added up in the separated board.
- Correction (AD-F330)
Resistance values, R703 & 704
Z model, 1Ω → 0Ω
other model, 0Ω → 1Ω

- 2) **B** DOLBY C. B
- Two types of Dolby circuit board is used in the model AD-F350.
- See the service manual of AD-F330 and the issued suppliment service manual of Dolby circuit board. (issued, Feb. 1984)

- 3) Transformer, AC cord and Miscellaneous Section.

- 4) Tape Recorder Section (Heads, Motors, Solenoids and Switches)

3. Adjustment

ELECTRICAL MAIN PARTS LIST

●★mark means less required items and availabilities may be limited.

Symbol No.	Part No.	Description
<MAIN CIRCUIT BOARD SECTION>		
S501	87-031-840	PUSH-SWITCH (DOLBY ON/OFF)
J701	★87-049-420	PIN JACK, 4P (LINE IN, LINE OUT)
Other parts are listed in the S/M AD-F330.		
<DOLBY-NR CIRCUIT BOARD SECTION>		
	87-027-905	DOLBY UNIT 2H Ass'y
	87-020-086	DOLBY UNIT 2H-S
<VL CIRCUIT BOARD SECTION>		
PCB-C	*	VL CIRCUIT BOARD
VR861	82-194-641	VOLUME, 50kΩ-A (REC LEVEL)
VR862	82-194-642	VOLUME, 150kΩ-W (REC BALANCE)
<DISPLAY CIRCUIT BOARD SECTION>		
PCB-D	*	DISPLAY CIRCUIT BOARD
IC801.802	87-027-879	IC, AN6882
D801.802.	★87-027-542	LED, LN217RP (LEVEL) (C-TYPE, METAL)
803.808.		
809.810.		
818.821		
D804.805.	★87-027-543	LED, LN317GP (LEVEL) (B-TYPE, NORMAL)
806.807.		
811.812.		
813.814.		
815.816.		
817.819		
D820	★87-027-671	LED, LN417Y (CrO ₂)
<KEY BOARD CIRCUIT BOARD SECTION>		
PCB-E	*	KEY BOARD CIRCUIT BOARD
D841.844	★87-027-731	LED, SR-535D (REC, REC MUT)
D842	★87-027-732	LED, SG-235D (PLAY)
D843	★87-027-733	LED, SY-435D
S841	87-031-849	SLIDE SWITCH (TIMER)
S842.843.	87-031-863	TACT SWITCH (REC, REWIND, PLAY, FF, STOP, PAUSE, REC MUT)
844.845.		
846.847.		
848		
<POWER CIRCUIT BOARD SECTION>		
PCB-F	*	POWER CIRCUIT BOARD
F881	87-035-222	FUSE "T" 1A (EXCEPT U, C)
	87-035-298	FUSE 1.25A (U, C only)
	87-033-147	FUSE CLAMP
J881	★87-049-297	JACK, 6.3φ (PHONE)
S881	87-031-809	PUSH-SWITCH (POWER)
<AUTO STOP CIRCUIT BOARD SECTION>		
PCB-G	81-505-605	AUTO STOP CIRCUIT BOARD

Symbol No.	Part No.	Description
CP901	87-027-644	PHOTO SENSOR, NJL-5141EA
<BIAS CIRCUIT BOARD SECTION>		
PCB-H	*	BIAS CIRCUIT BOARD
VR401	82-135-643	VOLUME 50kΩ-B (BIAS FINE)
<MISCELLANEOUS>		
△PT901	82-194-615	POWER TRANSFORMER (H, HU only)
△PT901	82-194-612	POWER TRANSFORMER (U, C only)
△PT901	82-194-613	POWER TRANSFORMER (E, Z only)
△PT901	82-194-614	POWER TRANSFORMER (K, G only)
RPH	87-046-226	REC/PB HEAD
EH	★87-046-196	ERASE HEAD
M901	87-045-135	MOTOR, DC EG
M902	09-011-038	REEL MOTOR
SOL901, 902	★81-505-603	SOLENOID, 9ME-A
S901.902	81-505-601	LEAF SWITCH (PLAY, PAUSE)
S903.906	81-505-607	LEAF SWITCH (CASSETTE, REC)
S904.905	81-505-602	LEAF SWITCH (CrO ₂ , METAL)
△S907	87-031-586	ROTARY SWITCH (VOLTAGE SELECTOR) (H, HU only)
△	★87-034-958	AC POWER CORD (H, HU only)
△	★87-034-578	AC POWER CORD (U, C only)
△	★82-187-797	AC POWER CORD (E, Z only)
△	★82-187-796	AC POWER CORD (K only)
△	★82-187-795	AC POWER CORD (G only)
△	★87-085-184	AC POWER CORD BUSHING (H, HU, U only)
△	★87-085-185	AC POWER CORD BUSHING (E, K, G, Z only)

Note; Combination Circuit Board

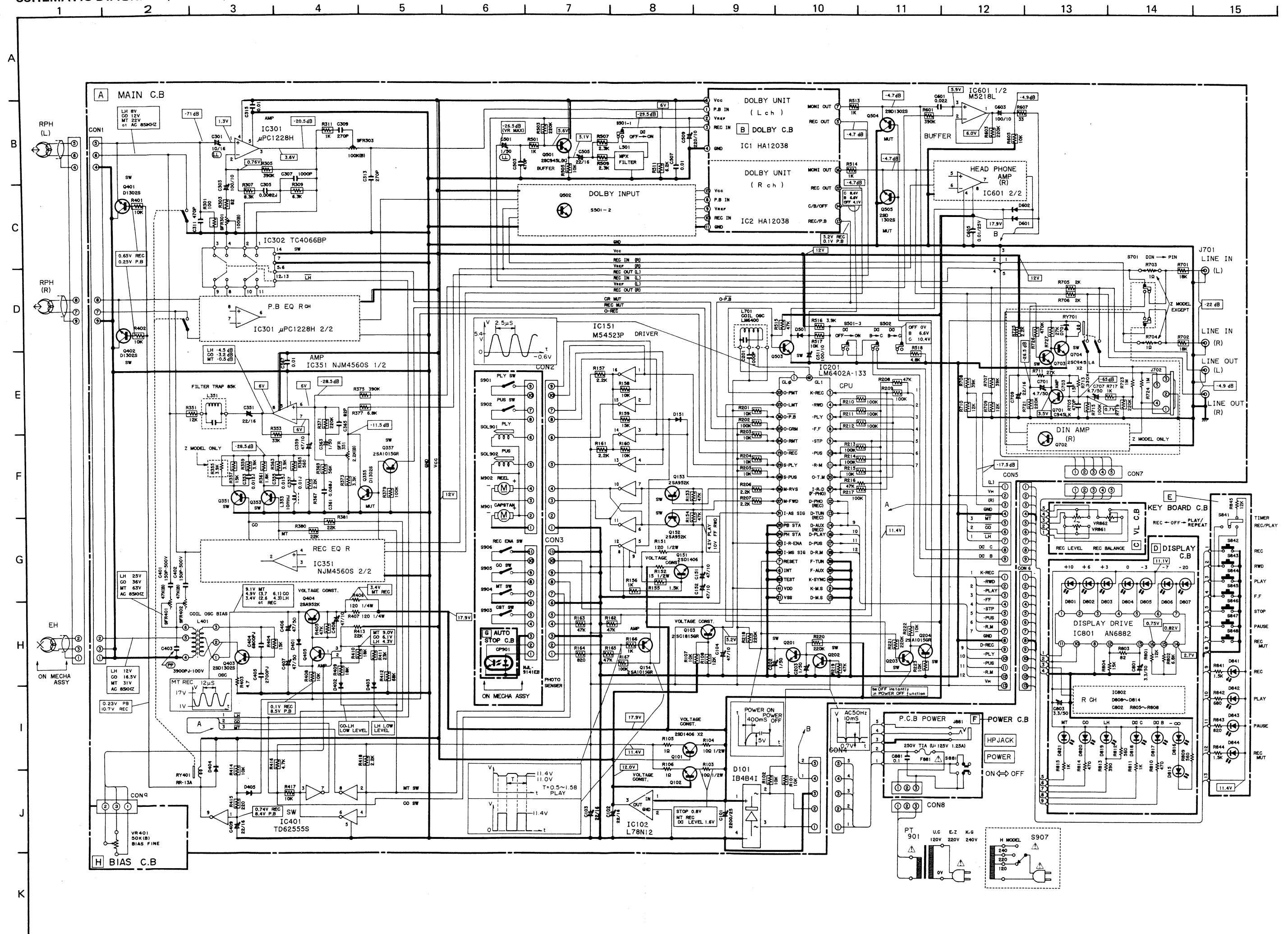
The parts on the electrical parts list which are indicated by an asterisk (*) are supplied as one single combined circuit board. Therefore, they will not be supplied separately. If this becomes necessary, please order the entire circuit board.

Combination circuit board 82-134-601 (82-134-799)

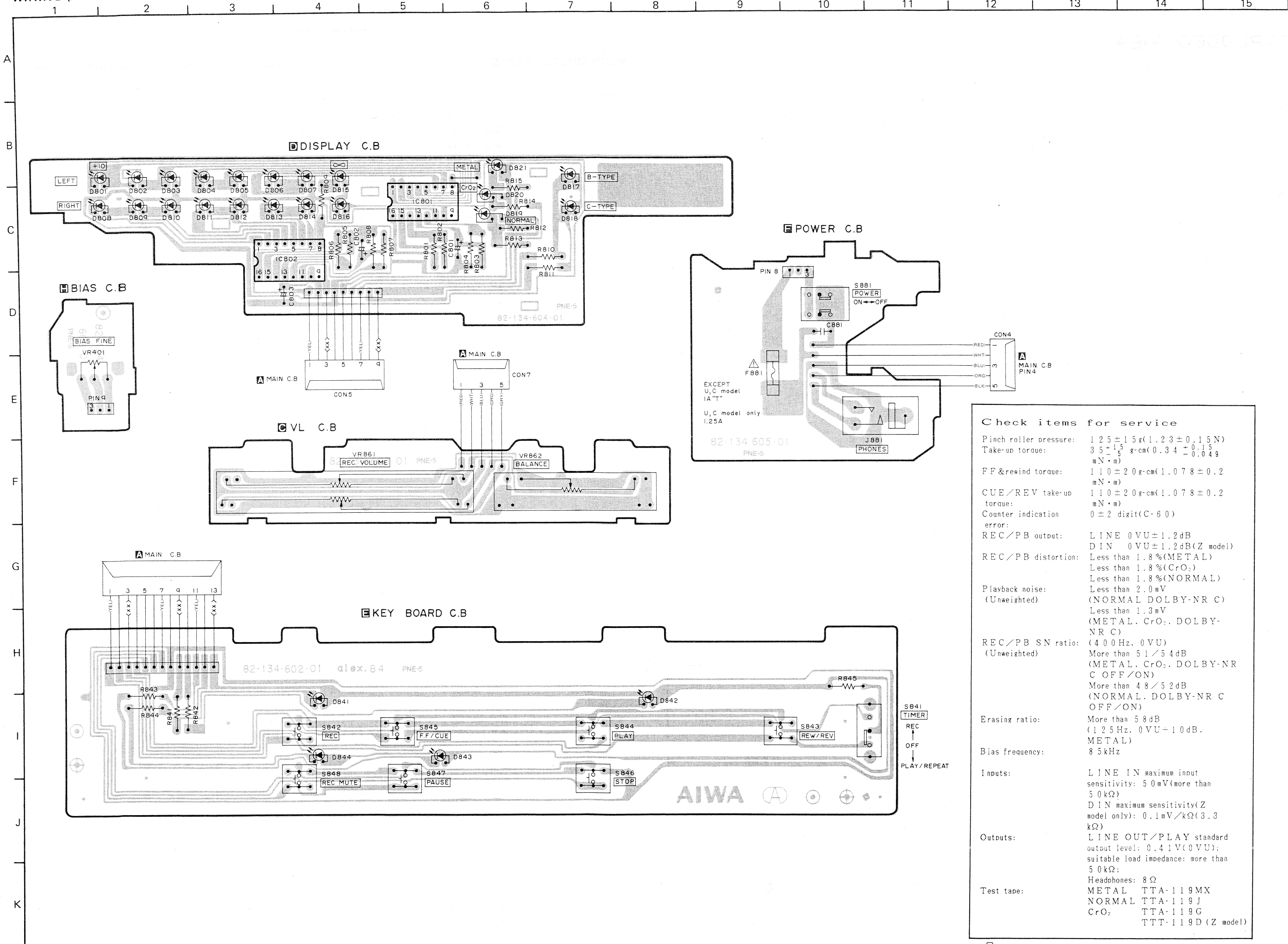
PCB-C	82-134-603 (82-134-797)	PCB-F	82-134-605 (82-134-795)
PCB-D	82-134-604 (82-134-796)	PCB-H	82-134-606 (82-134-794)
PCB-E	82-134-602 (82-134-798)		

△ 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.

SCHEMATIC DIAGRAM (AD-F350)



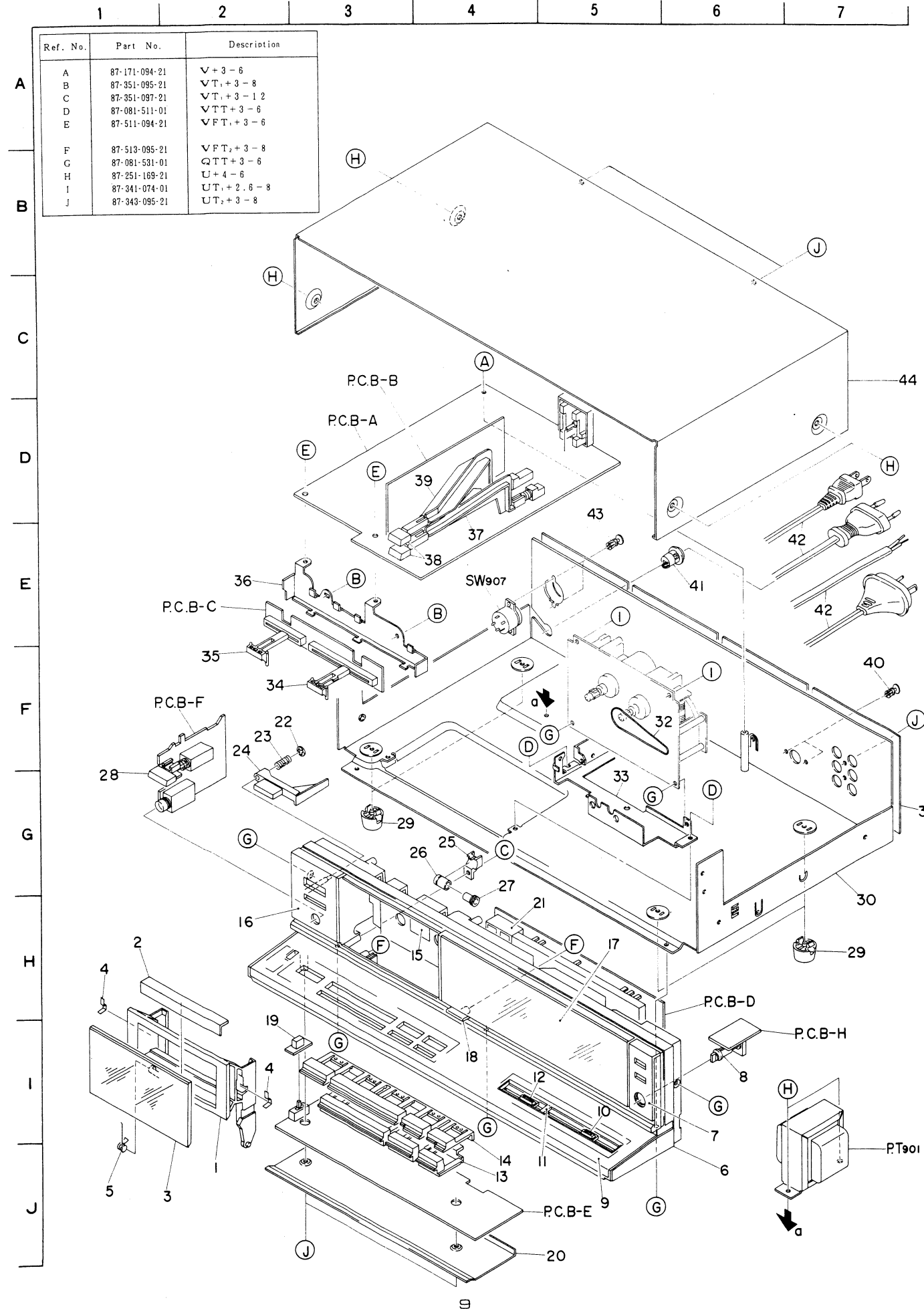
WIRING (AD-F350)



Check items for service

Pinch roller pressure:	$1.25 \pm 1.5 \text{ g} (1.23 \pm 0.15 \text{ N})$
Take-up torque:	$3.5 \pm 1.5 \text{ g-cm} (0.34 \pm 0.15 \text{ mN} \cdot \text{m})$
FF&rewind torque:	$1.10 \pm 2.0 \text{ g-cm} (1.078 \pm 0.2 \text{ mN} \cdot \text{m})$
CUE/REV take-up torque:	$1.10 \pm 2.0 \text{ g-cm} (1.078 \pm 0.2 \text{ mN} \cdot \text{m})$
Counter indication error:	$0 \pm 2 \text{ digit} (C-60)$
REC/PB output:	LINE $0 \text{ VU} \pm 1.2 \text{ dB}$ DIN $0 \text{ VU} \pm 1.2 \text{ dB} (Z \text{ model})$
REC/PB distortion:	Less than 1.8% (METAL) Less than 1.8% (CrO_2) Less than 1.8% (NORMAL)
Playback noise: (Unweighted)	Less than 2.0 mV (NORMAL DOLBY-NR C) Less than 1.3 mV (METAL, CrO_2 , DOLBY-NR C)
REC/PB SN ratio: (Unweighted)	(400 Hz, 0 VU) More than 51/54 dB (METAL, CrO_2 , DOLBY-NR C OFF/ON) More than 48/52 dB (NORMAL, DOLBY-NR C OFF/ON)
Erasing ratio:	More than 58 dB (125 Hz, 0 VU - 10 dB, METAL)
Bias frequency:	8.5 kHz
Inputs:	LINE IN maximum input sensitivity: 50 mV (more than 50 k Ω) DIN maximum sensitivity (Z model only): 0.1 mV/k Ω (3.3 k Ω)
Outputs:	LINE OUT/PLAY standard output level: 0.41 V (0 VU); suitable load impedance: more than 50 k Ω Headphones: 8 Ω
Test tape:	METAL TTA-119MX NORMAL TTA-119J CrO_2 TTA-119G TTT-119D (Z model)

EXPLODED VIEW



PARTS LIST

MECHANICAL PARTS LIST

●★mark means less required items and availabilities may be limited.

Part No. changed to	Ref. No.	Part No.	Description	Common Model	Q'ty
	1-1	82-197-008	CASSETTE BOX	FX-90	1
	1-2	★82-134-007	CASSETTE PLATE S	※	1
	1-3	★82-134-008	CASSETTE WINDOW S	※	1
	1-4	★82-192-218	P-SPRING, CASSETTE HOLDER	FX-30	1
	1-5	★82-135-210	T-SPRING, CASSETTE BOX		1
	1-6	★82-134-002	FRONT CABINET C	※	1
	1-7	★82-134-020	FRONT PANEL R [SILVER]	※	1
		★82-135-004	FRONT PANEL R [BLACK]		1
	1-8	82-134-025	KNOB [SILVER]	※	1
		82-798-070	KNOB B [BLACK]	MX-90	1
	1-9	★82-134-021	FRONT PANEL FS [SILVER]	※	1
		★82-134-003	FRONT PANEL FS [BLACK]	※	1
	1-10	82-194-005	KNOB, REC	AD-F330	1
	1-11	★82-194-012	GUIDE, VR	AD-F330	1
	1-12	82-194-006	KNOB, BALANCE	AD-F330	1
	1-13	82-134-010	TOUCH-KEY, STOP C 2	※	1
	1-14	82-134-005	TOUCH-KEY, PLAY S	※	1
	1-15	★82-648-025	LABEL, TAPE INDICATION	HS-F01	1
	1-16	★82-134-019	FRONT PANEL L [SILVER]	※	1
		★82-135-003	FRONT PANEL L [BLACK]		1
	1-17	★82-134-004	METER, WINDOW S	※	1
	1-18	★87-040-172	COUNTER		1
	1-19	82-197-021	KNOB, TIMER [SILVER]	FX-90	1
		82-135-031	KNOB, TIMER [BLACK]		1
	1-20	★82-135-014	BOTTOM COVER		1
	1-21	★82-135-206	GUIDE, LED		1
	1-22	★87-081-903	STOPPER RING, CS-2		1
	1-23	★82-135-209	C-SPRING, EJECT		1
	1-24	82-134-023	EJECT BUTTON [SILVER]	※	1
		82-135-008	EJECT BUTTON [BLACK]		1
	1-25	★82-175-212	HOLDER, OIL-DAMP	AD-3500	1
	1-26	★82-175-207	OIL-DAMP BEARING	AD-3500	1
	1-27	82-534-264	GEAR, OIL-DAMP		1
	1-28	82-134-022	KNOB, POWER [SILVER]	※	1
		82-188-012	KNOB, POWER [BLACK]		1
	1-29	★87-055-055	FOOT		4
	1-30	★82-134-202	AMP. CHASSIS (HB, HUB, HJS, HJB only)	※	1
		★82-134-201	AMP. CHASSIS (CB, UB, EJB, KB, GB only)	※	1
		★82-134-203	AMP. CHASSIS (ZB only)	※	1
	1-31	★82-134-009	JACK PLATE (HB, HUB only)	※	1
		★82-134-026	JACK PLATE (HJS only)	※	1
		★82-134-016	JACK PLATE (HJB only)	※	1
		★82-134-017	JACK PLATE (CB only)	※	1
		★82-134-015	JACK PLATE (UB only)	※	1
		★82-134-011	JACK PLATE (EJB only)	※	1
		★82-134-012	JACK PLATE (KB only)	※	1
		★82-134-013	JACK PLATE (GB only)	※	1
		★82-134-014	JACK PLATE (ZB only)	※	1

Part No. changed to	Ref. No.	Part No.	Description	Common Model	Q'ty	
	1-32	82-542-209	BELT. COUNTER	FX-90	1	
	1-33	★82-197-203	HOLDER. MECHANISM		1	
	1-34	★82-135-218	SLIDER VOLUME R		1	
	1-35	★82-135-208	SLIDER VOLUME L		1	
	1-36	★82-135-207	HOLDER. CIRCUIT BOARD		1	
	1-37	82-135-205	ROD, B/C	※	1	
	1-38	82-134-024	PUSH-BUTTON, DOLBY [SILVER]		2	
		82-135-012	PUSH-BUTTON, DOLBY [BLACK]		2	
	1-39	82-135-204	ROD, ON/OFF		1	
	1-40	★87-085-102	NYLON RIVET 3.5-5.5 (ZB only)		2	
	1-41	★87-085-184	CORD BUSHING (HB, HUB, HJS, HJB, CB, UB only)	AD-R550	1	
		★87-085-185	CORD BUSHING (EJB, KB, GB, ZB only)		1	
	1-42	★87-034-958	AC POWER CORD (HB, HUB, HJS, HJB only)		1	
		★87-034-578	AC POWER CORD (CB, UB only)		1	
		★87-034-877	AC POWER CORD (EJB, ZB only)		1	
		★87-034-975	AC POWER CORD (KB only)		1	
		★87-034-892	AC POWER CORD (GB only)		1	
	1-43	★87-085-090	NYLON RIVET 3-6.5 (HB, HUB, HJS, HJB only)		2	
	1-44	★82-133-027	STEEL CABINET [SILVER]		1	
		★82-199-012	STEEL CABINET [BLACK]		1	

■ ACCESSORIES/PACKAGE LIST

Part No. changed to	Ref. No.	Part No.	Description	Common Model	Q'ty	
	1	82-134-901	INSTRUCTIONS BOOKLET	※	1	
	2	★87-034-978	CONNECTION CORD CW-254BSK		2	
	3	★87-049-137	SIEMENS PLUG (HB, HJS, HJB, HUB only)		1	