

AIWA®

S/M Code No. 83-019
DATA OF ISSUE 6/1983

SERVICE MANUAL

STEREO CASSETTE RECEIVER

MODEL NO.
CX-60



TYPE. H,U,E,K,G,Z

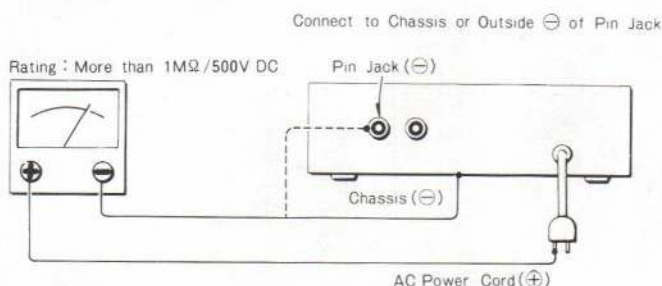
Follow the instructions carefully, which will allow the user to optimise the products' performance and give many years of service.

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) 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.

Measuring Point



SPECIFICATIONS – 1

GENERAL

Semiconductors:	H, U, G models 251Cs, 83 transistors, 6FET, 78 diodes, 16 LEDs E, Z models 251Cs, 85 transistors, 6FET, 73 diodes, 16 LEDs K model 251Cs, 85 transistors, 6FET, 74 diodes, 16 LEDs
Power source:	H model 120V/220V/240V switchable 50/60 Hz U model 120V, 60 Hz E, Z models 220V, 50/60 Hz K, G models 240V, 50/60 Hz
Power consumption:	H model 75 W U model 80 W E, K, G, Z models 160 W
Dimensions:	330(W) x 106.5(H) x 260(D) mm (13" x 4 1/4" x 10 1/4")
Weight:	4.9 kg (10.79 lbs)

< TUNER SECTION >

Frequency ranges:	FM 87.5 ~ 108.0 MHz AM 530 ~ 1,605 kHz E, K, Z models LW 150 ~ 285 kHz
IHF sensitivity: (THD 3%)	7 ⁺³ ₋₂ dB (at 87.5 MHz)
DIN sensitivity: (S/N 26 dB)	3 ⁺³ ₋₂ dB (at 98.0 MHz)
50dB quieting Sensitivity:	FM (MONAURAL) 13 ± 2 dB (at 87.5 MHz) 13 ± 2 dB (at 98.0 MHz) 13 ± 2 dB (at 108.0 MHz) 50 ± 3 dB (at 603 kHz) 49 ± 3 dB (at 999 kHz) 49 ± 3 dB (at 1404 kHz) U model 50 ± 3 dB (at 600 kHz) 49 ± 3 dB (at 1000 kHz) 49 ± 3 dB (at 1400 kHz) E, K, Z models 59 ± 3 dB (at 150 kHz) 57 ± 3 dB (at 200 kHz) 57 ± 3 dB (at 350 kHz)
Signal-to-noise ratio: (60 dB) input)	FM (MONAURAL) More than 70 dB (at 87.5, 98.0, 108.0 MHz) (STEREO) More than 65 dB (at 98.0 MHz) AM More than 42 dB (at 999 kHz) U model AM More than 42 dB (at 1000 kHz) E, K, Z models LW More than 40 dB (INPUT 80 dB) (at 200 kHz) More than 48 dB (INPUT 106 dB) (at 200 kHz)
Image Rejection:	FM More than 45 dB (at 98.0 MHz) AM More than 40 dB (at 999 kHz) U model AM More than 40 dB (at 1000 kHz) E, K, Z models LW More than 40 dB
IF Rejection:	FM More than 70 dB (at 98.0 MHz) H, E, K, G, Z models AM More than 40 dB (at 999 kHz) U model AM More than 40 dB (at 1000 kHz)

Total harmonic distortion:	(MONAURAL) FM Less than 3% (at 60 dB) (STEREO) FM Less than 0.4% (at 98.0 MHz) AM Less than 1% (at 74 dB) E, K, Z models LW Less than 1.5%
Capture ratio:	Less than 2.5 dB (at 98.0 MHz)
Selectivity:	FM More than 60 dB (at 98.0 MHz) AM More than 25 dB (at 999 kHz) U model AM More than 25 dB (at 1000 kHz) More than 48 dB (at 98.0 MHz)
AM suppression ratio: (40 dB input)	
Frequency response:	FM 30 ~ 15,000 Hz
AGC range:	H, E, K, G, Z models 55 ± 10 dB (at 999 kHz) U model 55 ± 10 dB (at 1000 kHz) More than 30 dB (at 100 kHz) More than 35 dB (at 1 kHz) More than 30 dB (at 10 kHz) -1 ~ 6 dB (at 98.0 MHz)
FM Stereo separation :	
Stereo indicator level:	

< TPAE RECORDER SECTION >

Track type:	4 track 2 channels
Tape speed:	4.8 cm/s.
Recording time:	60 min. (C-60)
Frequency response:	NORMAL 20 ~ 13,000 Hz CrO ₂ 20 ~ 15,000 Hz METAL 20 ~ 16,000 Hz
Erasing system:	AC erase
Motor:	DC servo motor
REC/PB distortion:	CrO ₂ Less than 2.0% METAL Less than 2.0% NORMAL Less than 2.0%
Play back noise:	70μs. Less than 0.35mV (CrO ₂ , METAL DOLBY ON) 120μs. (NORMAL DOLBY ON)
Erasing ratio: (125 Hz)	More than 58 dB
Channel separation:	More than 35 dB (1 kHz, 0VU)
Level drift:	0 ± 1 dB (10 kHz)
REC/PB S/N:	More than 40/43 dB
(Un weighted)	(CrO ₂ , DOLBY C OFF/ON) More than 40/43 dB (METAL DOLBY C OFF/ON) More than 39/42 dB (LH, DOLBY C OFF/ON)
Rec. bias frequency:	85 kHz
Play back output:	90 ± 5mV REC OUT
Rec./PB output:	63 ± 5mV REC OUT (0VU)
Output level/inpedance:	410mV REC OUT (0VU)
Wow and flutter:	0.035% (WRMS)
Take up torque:	40 ± 10 g·cm (0.39 ± 0.098 mN·m)
FF torque:	160 ⁺⁴⁰ ₋₂₀ g·cm (1.59 ^{+0.39} _{-0.2} mN·m)
Rewind torque :	160 ⁺⁴⁰ ₋₂₀ g·cm (1.57 ^{+0.39} _{-0.2} mN·m)
CUE take up torque:	160 ⁺⁴⁰ ₋₂₀ g·cm (1.57 ^{+0.39} _{-0.2} mN·m)
REV take up torque:	160 ⁺⁴⁰ ₋₂₀ g·cm (1.57 ^{+0.39} _{-0.2} mN·m)
FF time:	65 ± 10s (C-60)
REW time:	65 ± 10s (C-60)
Pinch roller pressure:	155 ± 10g (1.52 ± 0.098N)
Automatic shut-off action time:	3 ± 1s.
Cassette lid action time:	0.6 ^{+0.4} _{-0.2} s.
Cross talk:	More than 60 dB

DISASSEMBLY INSTRUCTIONS

1. To remove Steel Cabinet

- 1) Remove the 8 screws. (See Figure 1)

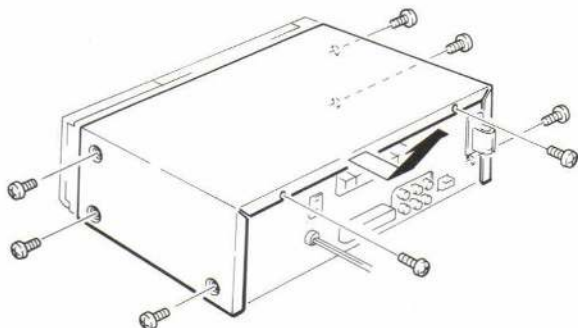


Fig. 1

2. To remove Front Panel

- 1) Remove the 6 screws to detach the front panel in the direction of the arrow. (See Figure 2)

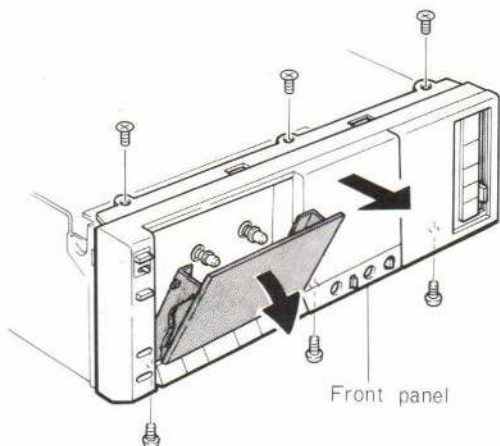


Fig. 2

3. To remove Tuner and FL Circuit Board

- 1) Remove the 3 screws, single rivet and two connectors. (See Figure 3)
- 2) Remove the screw and detach the power switch by removing the mounting screw to separate the tuner circuit board and FL circuit board with together. (See Figure 3)

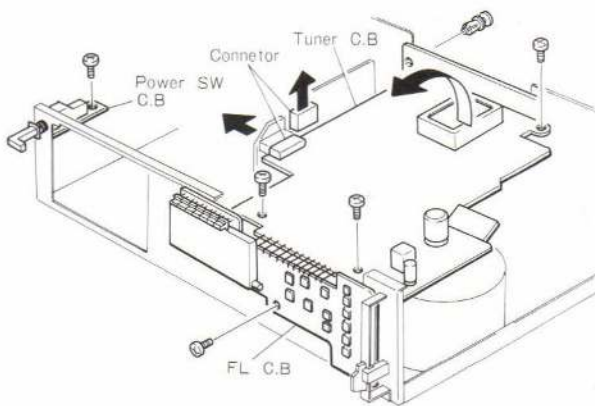


Fig. 3

4. To remove Main Circuit Board

- 1) Remove the 8 screws and 3 nylon rivets. (See Figure 4)

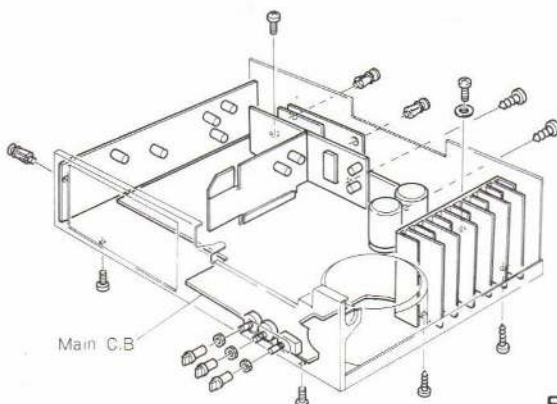


Fig. 4

- 2) Remove the 2 screws. (See Figure 5)

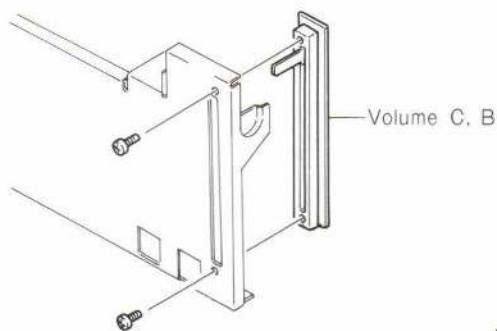


Fig. 5

CAUTION

1. Detach the respective circuit boards so as to perform a power-supplying check.
2. Do not detach the IC radiator from the main circuit board, because the ICs might be broken by overheating if a continuous check is carried out.

5. To remove Mechanism

- 1) Detach the counter belt and remove the 4 screws. (See Figure 6)

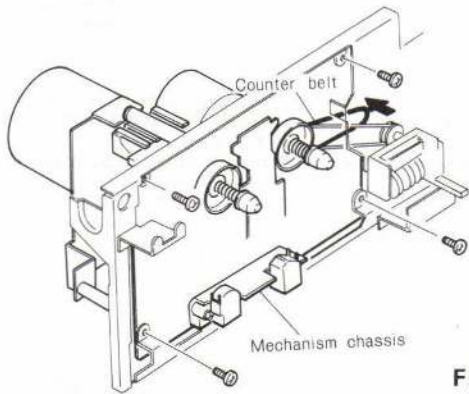


Fig. 6

- 2) Slide the mechanism in the direction of the arrow out of the frame. (See Figure 7)

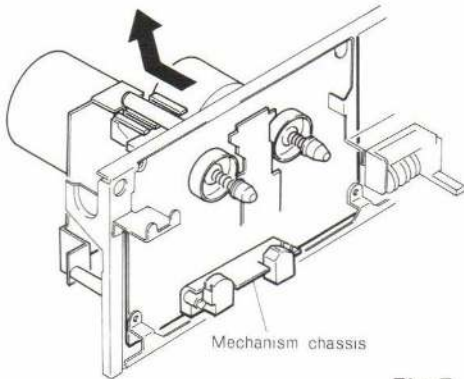


Fig. 7

6. To install Counter Belt

- 1) The counter belt can be installed with using of tweezers through the cutout behind the LED circuit board. (See Figure 8).

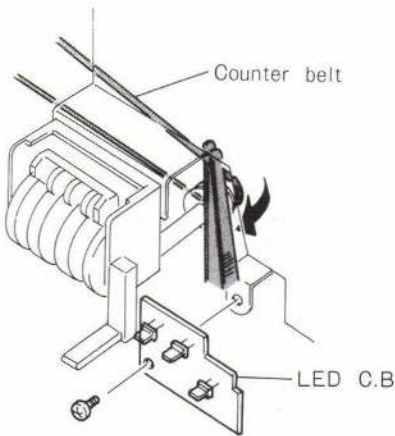


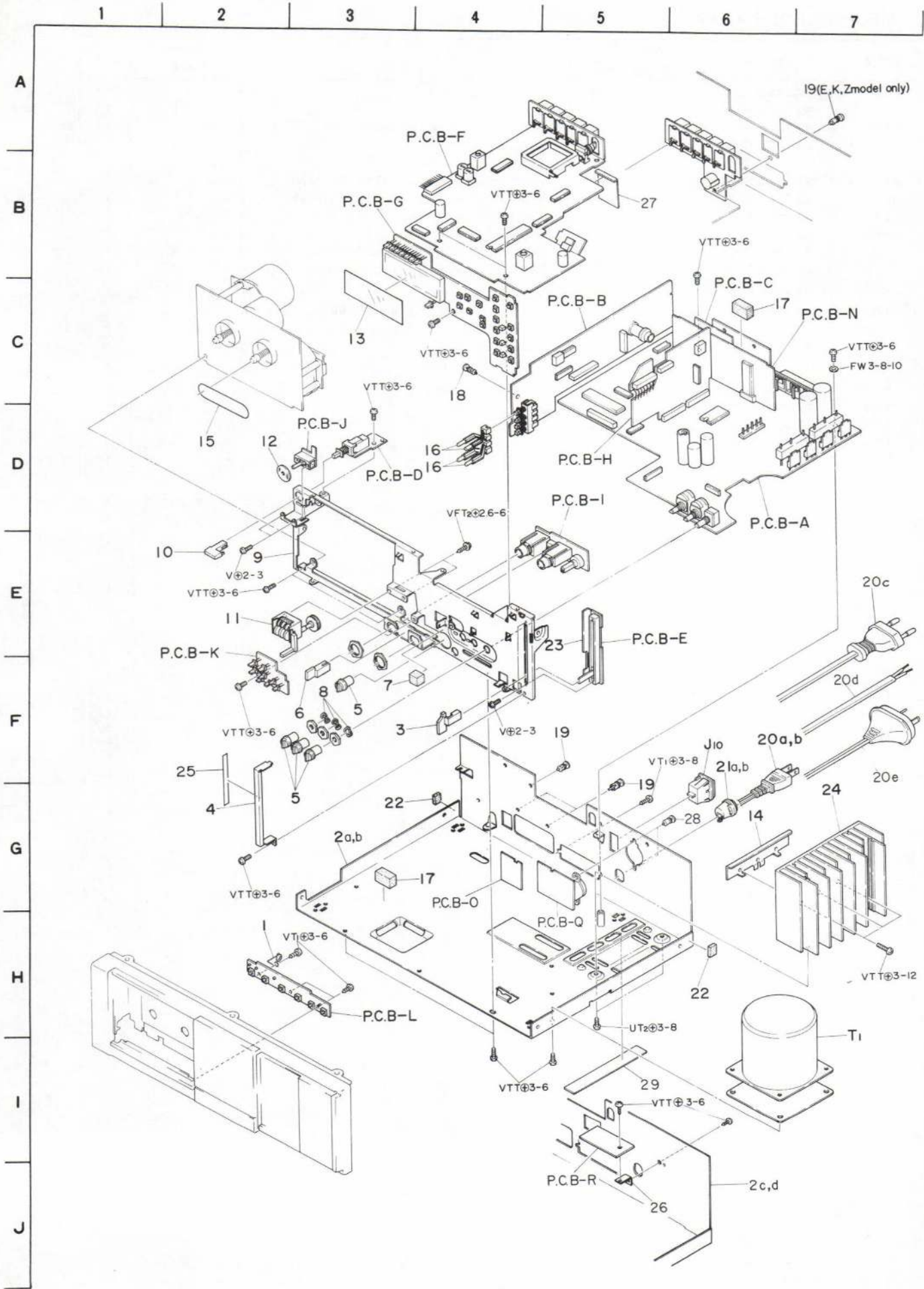
Fig. 8

PARTS LIST

MECHANICAL PARTS

Ref. No.	Part No.	Part No. Changed to	Description	Common Model	Q'ty
1-1	82-794-007-21		Cassette holder ass'y	*	1
1-2	82-794-215-01		T-spring	*	1
1-3a	82-794-045-11		Window (H, E, K, G, Z models only)	*	1
b	82-794-079-01		Window N (U model only)	*	1
4a ~ 20	82-794-005-41		Front cabinet ass'y (H, U, G models only)	*	1
4b ~ 20	82-794-003-11		Front cabinet ass'y (E, K, Z models only)	*	1
1-4	82-794-041-01		Plate, Indicator	*	1
1-5	82-794-019-01		Decorative plate	*	1
1-6a	82-794-020-01		Hinge FM ass'y (H, U, G models only)	*	1
b	82-794-021-01		Hinge MW ass'y (E, K, Z models only)	*	1
1-7	82-794-030-01		Hinge PLAY ass'y	*	1
1-8a	82-794-070-11		Cabinet, Front (H, U, G models only)	*	1
b	82-794-078-01		Cabinet, Front (E, K, Z models only)	*	1
1-9	82-794-039-01		Guide, Button MS	*	1
1-10	82-794-073-01		Guide, Power button	*	1
1-11	82-794-015-01		Push-button, Eject	*	1
1-12	82-794-210-01		C-spring, Eject	*	1
1-13	87-027-944-01		LED SLF 301C	*	1
1-14	82-794-016-01		Push-key, T1	*	1
1-15	82-794-017-01		Push-key, T2	*	1
1-16	82-794-018-01		Push-key, PRE	*	1
1-17	82-789-225-01		Plate	TX-100	1
1-18	82-789-224-01		Magnet	TX-100	1
1-19	87-086-014-01		Stopper ring	*	1
1-20	82-794-043-01		Frame	*	1
1-21a	82-794-060-11		Lid ass'y (H, U, G models only)	*	1
b	82-794-069-01		Lid ass'y (E, K, Z models only)	*	1
1-22	82-794-077-01		Label, Timer	*	1
1-23	82-585-357-01		Myler 4—6—0.1	*	1
1-24	82-534-264-01		Gear, Oil-damp	*	1
1-25	82-175-207-11		Shaft bearing, Oil-damp	AD-3500	1
1-26	82-175-210-11		Holder, Oil-damp	AD-3500	1
1-27	87-085-186-01		Foot	*	4
1-28a	82-794-053-01		Jack palte (H model only)	*	1
b	82-794-054-01		Jack plate (U model only)	*	1
c	82-794-050-01		Jack plate (E model only)	*	1
d	82-794-051-01		Jack plate (K model only)	*	1
e	82-794-052-01		Jack plate (G model only)	*	1
f	82-794-072-01		Jack plate (Z model only)	*	1
1-29a	82-791-652-01		Loop antenna ass'y (H, E, K, G, Z models only)	TX-70	1
b	82-791-657-01		Loop antenna ass'y (U model only)	TX-70	1
1-30	82-794-074-01		Cabinet, Steel	*	1
1-31	87-057-642-01		TEMP label, AMP	*	1

EXPLODED VIEW-2

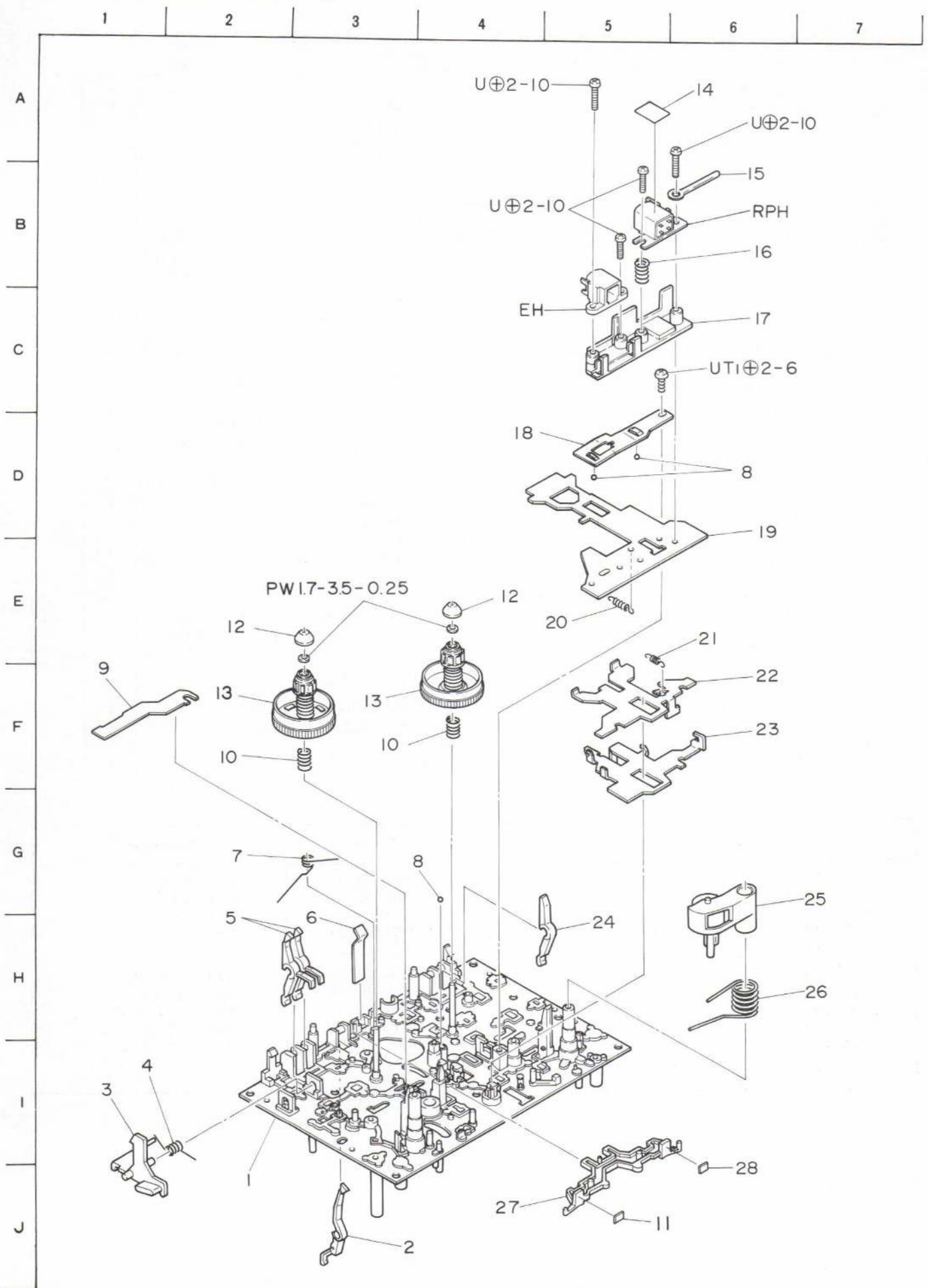


Ref. No.	Part No.	Part No. Changed to	Description	Com Mo
2-1	82-794-216-01		Wire clip	
2-2a	82-794-203-01		Amp. chassis ass'y (H model only)	
b	82-794-205-01		Amp. chassis ass'y (U model only)	
c	82-794-221-01		Amp. chassis ass'y (E, K, Z models only)	
d	82-794-224-01		Amp. chassis ass'y (G model only)	
2-3	82-794-013-11		Knob, Volume	
2-4	82-794-040-01		Plate, Volume	
2-5	82-794-014-11		Knob	
2-6	82-794-011-01		Push-button, DSL	
2-7	82-735-209-11		Cushion T	
2-8	87-067-088-01		Wave washer 8.5	
2-9	82-794-201-11		Front chassis ass'y	
2-10	82-794-048-01		Push-button, POWER	
2-11	87-040-164-01		Counter	
2-12	82-422-073-11		Blind himeron B	
2-13	82-794-047-01		Sheet (H, E, K, G, Z models only)	
2-14	82-794-223-11		Holder N	
2-15	82-446-205-01		Relay belt, Counter	
2-16	82-794-012-01		Push-button MS	
2-17	82-774-214-11		Cushion	AA-
2-18	87-084-063-01		Nylon rivet 3-5.5	
2-19	87-085-102-01		Nylon rivet 3.5-5.5	H,U
2-20a	87-034-956-01		AC power cord (H model only)	
b	87-034-935-01		AC power cord (U model only)	
c	87-034-877-01		AC power cord (E, Z models only)	
d	87-034-975-01		AC power cord (K model only)	
e	87-034-892-01		AC power cord (G model only)	
2-21a	87-085-184-01		Cord bushing (H, U models only)	
b	87-085-185-01		Cord bushing (E, K, G, Z models only)	
2-22	82-749-208-01		G cushion	SA
2-23	82-794-602-11		Shield plate	
2-24	82-794-601-11		Heat sink	
2-25	82-794-222-01		Sheet 3-80-0.1	
2-26	82-498-203-01		Holder, Circuit board (E, K, G, Z models only)	
2-27	82-794-226-01		Cover, AC power cord (E, K, G, Z models only)	
2-28	87-085-090-01		Nylon rivet (H model only)	
2-29	82-794-213-01		Sheet A (U model only)	

Part No.	Description
87-251-037-21	U + 2 - 10
87-261-032-21	V + 2 - 3
87-341-035-21	UT ₁ + 2 - 6
87-351-034-21	VT ₁ + 2 - 5
87-351-074-21	VT ₁ + 2.6 - 8
87-261-075-21	VT ₁ + 2.6 - 10
87-351-094-21	VT ₁ + 3 - 6
87-351-095-21	VT ₁ + 3 - 8
87-081-511-01	VTT + 3 - 6
87-067-072-01	VTT + 3 - 12
87-081-919-01	UTT + 3 - 5

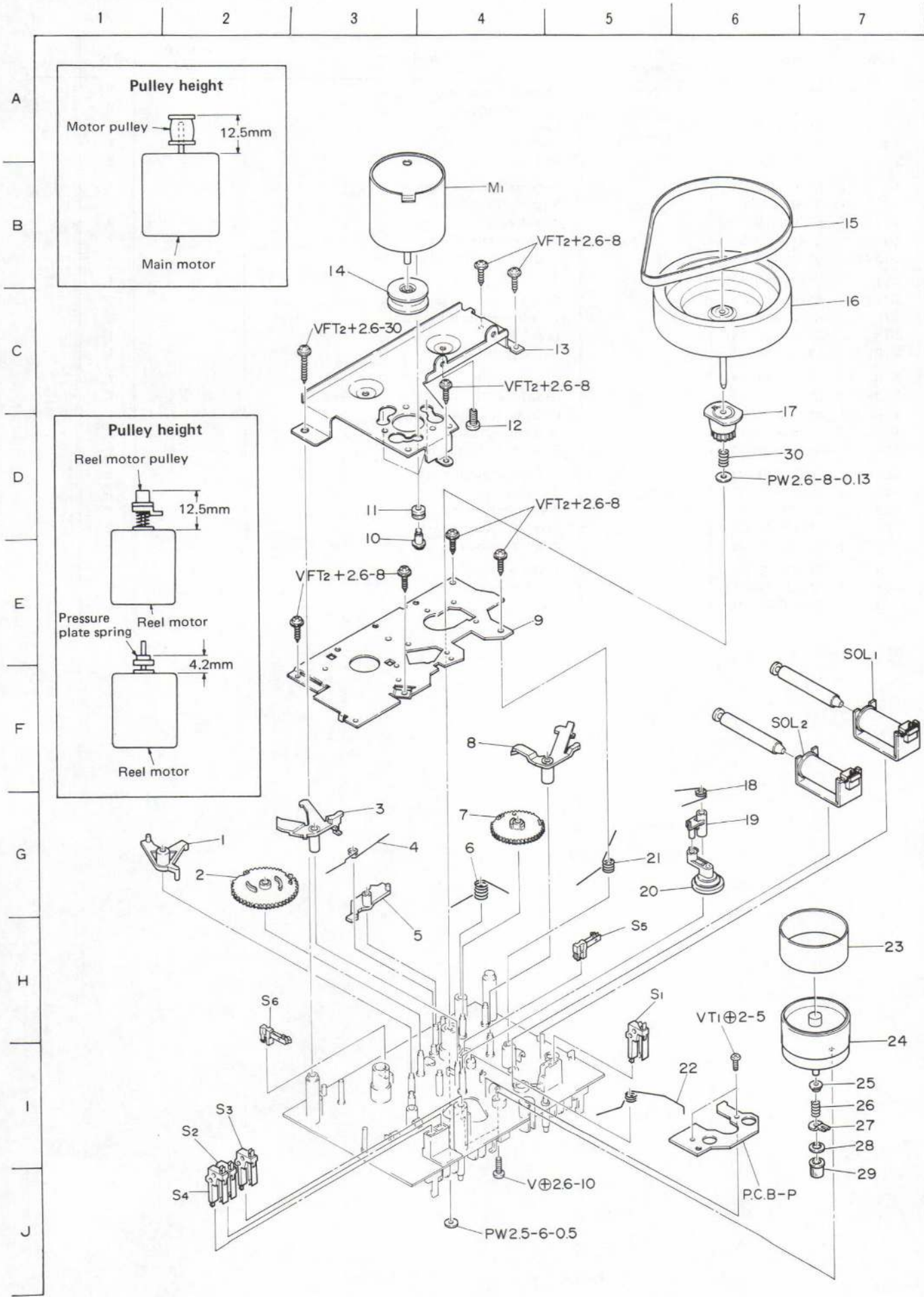
Part No.	
87-352-095-21	UT ₂ +
87-081-522-01	QTT +
87-511-095-21	VFT ₁
87-512-073-21	VFT ₂
87-512-074-01	VFT ₂
81-505-299-01	VFT ₂
87-081-255-01	FW 3 -
87-081-808-01	PW 1.7
82-416-358-01	PW 2.8
87-087-052-01	PW 2.6

EXPLODED VIEW-3



Ref. No.	Part No.	Part No. Changed to	Description	Common Model	Q'ty	
3-1	81-505-201-31		Outsert chassis ass'y		1	
3-2	81-505-242-11		Lever, Metal		1	
3-3	81-505-239-01		Lever, Eject		1	
3-4	81-505-273-01		T-spring, Lid lock		1	
3-5	81-505-241-21		REC blocking lever		2	
3-6	81-505-260-01		P-spring, Pressure cassette		1	
3-7	81-505-268-01		T-spring, Slide brake		1	
3-8	87-073-005-01		Steel ball 2φ		3	
3-9	81-505-238-01		Blocking plate, Eject		1	
3-10	81-507-274-01		C-spring, Supply reel platform		2	
3-11	81-505-313-01		Felt 6—3—3.3		1	
3-12	82-303-398-01		Cap, Take-up reel platform		2	
3-13	81-505-226-11		Take-up reel platform ass'y		2	
3-14	87-057-620-01		Label, Head		1	
3-15	82-357-487-11		Holder, Lead wire		1	
3-16	81-505-262-01		C-spring, RPH		1	
3-17	81-505-209-01		Head base, 2H		1	
3-18	81-505-259-01		P-spring, Actuating chassis		1	
3-19	81-505-206-11		Actuating chassis		1	
3-20	81-505-265-11		E-spring, Actuating chassis		1	
3-21	81-505-266-01		E-spring, PAUSE palte		1	
3-22	81-505-207-01		PAUSE plate		1	
3-23	81-505-208-01		Plate, Pinch lever		1	
3-24	81-505-240-21		Lever, Cassette sensor		1	
3-25	81-505-210-21		Pinch lever ass'y		1	
3-26	81-505-267-01		T-spring, Pinch F		1	
3-27	81-505-236-11		Lever, Slide brake		1	
3-28	81-505-315-01		Felt 6—3—2		1	

EXPLODED VIEW-4



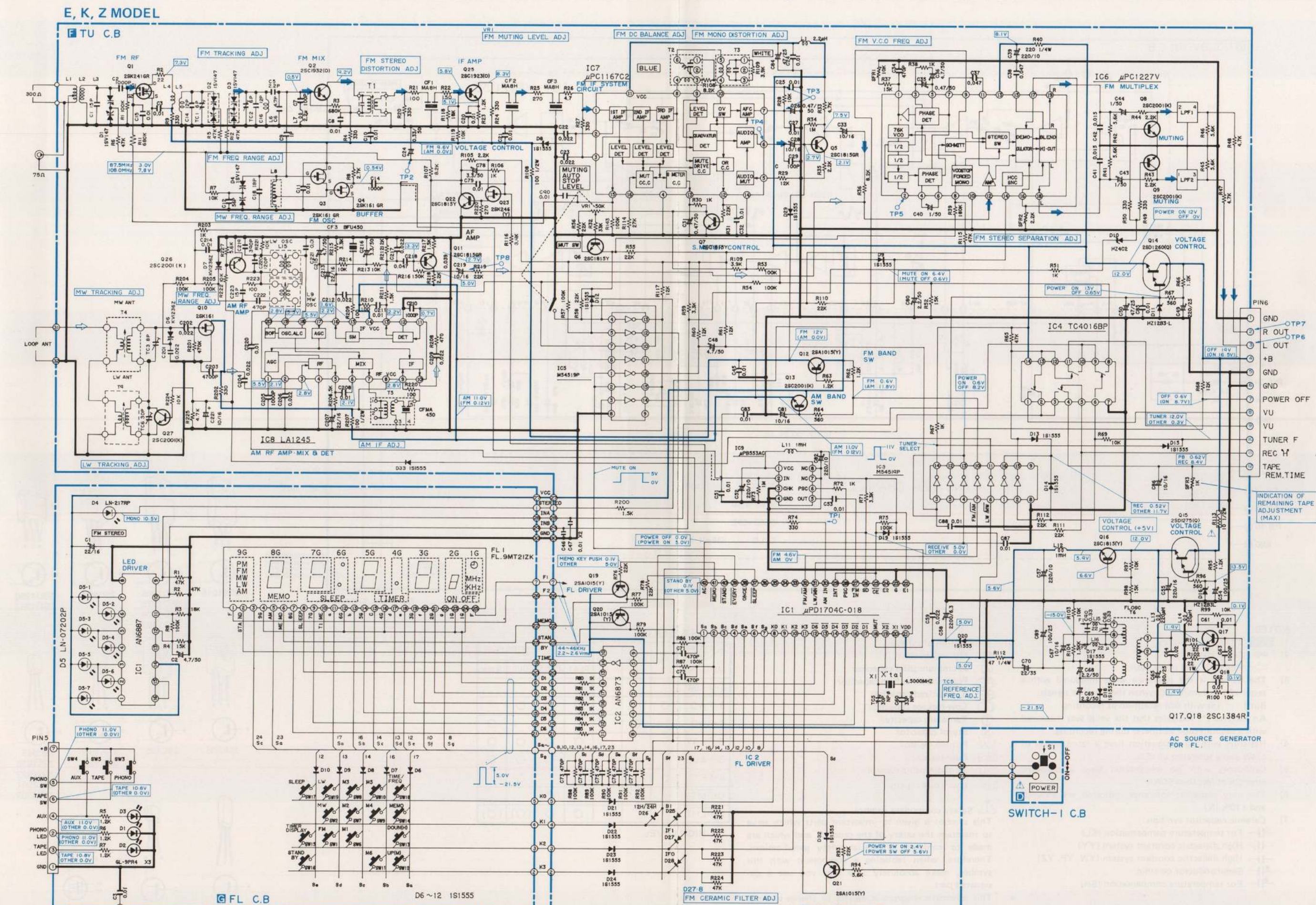
Ref. No.	Part No.	Part No. Changed to	Description	Common Model	Q'ty	
4-1	81-505-230-01		Lever, PLAY		1	
4-2	81-505-234-01		Gear, PLAY cam		1	
4-3	81-505-231-01		Trigger lever, PLAY		1	
4-4	81-505-272-01		T-spring, cam		1	
4-5	81-505-232-01		Lever, PAUSE		1	
4-6	81-505-283-01		T-spring, PAUSE lever		1	
4-7	81-505-235-01		Gear, PAUSE cam		1	
4-8	81-505-233-01		Trigger lever, PAUSE		1	
4-9	81-505-204-11		Mechanism chassis B		1	
4-10	87-081-483-01		Motor screw, M2.6		3	
4-11	87-087-029-01		Rubber cushion		3	
4-12	82-794-219-01		Thurust screw		1	
4-13	81-507-221-01		Holder, Motor		1	
4-14	81-505-245-01		Pulley, Motor		1	
4-15	81-507-216-01		Rubber belt A		1	
4-16	81-505-316-11		Flywheel ass'y		1	
4-17	81-505-225-01		Gear, Flywheel		1	
4-18	81-505-282-01		T-spring, FR idler		1	
4-19	81-505-254-11		Idler lever, FR A		1	
4-20	81-505-250-31		FR idler ass'y		1	
4-21	81-505-271-01		T-spring, Trigger lever		1	
4-22	81-505-269-01		T-spring, Pinch plate		1	
23 ~ 29	09-047-198-01		Reel motor ass'y		1	
4-23	81-505-606-01		Shield plate		1	
4-24	81-505-604-01		Reel motor		1	
4-25	81-505-289-01		Pressure plate spring		1	
4-26	81-505-290-01		C-spring, FR idler C		1	
4-27	81-505-287-11		Idler lever, FR C		1	
4-28	81-505-328-01		Felt 4.5—7.2—1.0		1	
4-29	81-505-257-01		Reel motor pulley		1	
4-30	81-505-261-01		C-spring, Flywheel		1	

■ ACCESSORIES/PACKAGE LIST

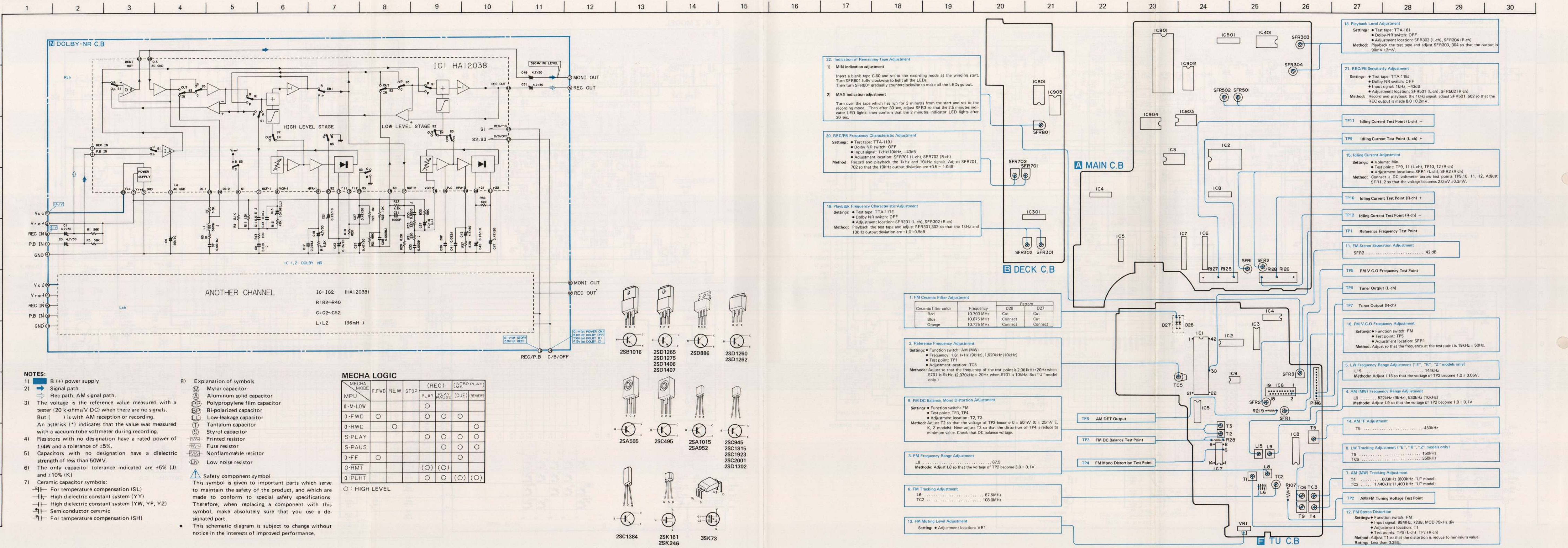
Ref. No.	Part No.	Part No. Changed to	Description	Common Model	Q'ty	
1	82-794-855-01		Printed indiv., Packing	*	1	
2	82-794-852-01		Cushion L, Printed indiv.	*	1	
3	82-794-853-01		Cushion R, Printed indiv.	*	1	
4	84-123-866-01		Sheet, Foamed mat		1	
5	87-056-644-01		Poly-vinyl sack		1	
6	82-794-904-01		Instructions booklet	*	1	
7	87-051-171-11		Poly-vinyl sack		1	
8	87-056-008-11		Label, AC power cord (K model only)		1	
9	87-056-009-51		Distributors list (H, E, K, G, Z models only)		1	
10	87-056-045-01		Guarantee card (U model only)		1	
11	87-056-050-11		Safety instructions booklet (U model only)		1	
12	87-056-057-01		Service station list (U model only)		1	
13	87-056-059-01		Guarantee card (G model only)		1	
14	82-791-652-01		Loop antenna ass'y (H, E, K, G, Z models only)		1	
15	82-791-657-01		Loop antenna ass'y (U model only)		1	
16	87-032-845-01		Siemens plug (H model only)		1	
17	87-043-065-01		FM feeder antenna (H, U, E, K, G models only)		1	

AIWA Co., Ltd. Tokyo Japan

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
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SCHEMATIC DIAGRAM-2



ELECTRICAL MAIN PARTS LIST

Symbol No.	Part No.	Description
≪ MAIN CIRCUIT BOARD SECTION ≫		
PCB-A	*	Main circuit board
IC2	87-027-978-01	IC, TC9152P
④ IC3,903,905	87-027-298-01	IC, C-MOS4001 NOR
IC4,5	87-027-895-01	IC, M5218L
IC6,7	87-027-897-01	IC, μ PC-1225H
IC8	87-027-787-01	IC, μ PC-1237H
④ IC401	87-027-827-01	IC, TC4069UBP
IC801	87-027-510-01	IC, μ PC4001
④ IC901	82-189-640-01	IC, LM6402A-133
IC902	87-027-909-01	IC, M54523P
IC904	87-027-706-01	IC, μ PC4011
Q1,6,21,22	89-318-154-01	Transistor, 2SC1815 Y
Q11,12,13, 14,501,505, 909,910	89-320-011-01	Transistor, 2SC2001 K
Q15,16	89-318-154-01	Transistor, 2SC1815 Y
Q17,18	89-414-073-41	Transistor, 2SD1407
Q19,20	89-210-163-41	Transistor, 2SB1016
Q26,33,34	89-413-022-41	Transistor, 2SD1302D (RST)
Q31	89-304-954-01	Transistor, 2SC495 (Y)
Q32	89-105-054-01	Transistor, 2SA505 Y
Q35	89-414-063-41	Transistor, 2SD1406 (OY)
Q36	89-412-753-41	Transistor, 2SD1275
Q37	89-502-465-01	FET, 2SK146 K GR
Q503,504, 505,506, 507,508	89-309-456-01	Transistor, 2SC945L (P)
Q901	89-412-653-41	Transistor, 2SD1265 (OP)
Q902,903	89-109-521-01	Transistor, 2SA952K
Q904,905, 906,911	89-318-155-01	Transistor, 2SC1815 (GR)
D1,2,5,6,9, 15,16,17,19, 20,21,22,23, 34,401,803, 901,904, 905,908	87-027-219-01	Diode, MA-150
D11,902,903	87-027-332-01	Zener diode, HZ6B1L
D14	87-027-555-01	Zener diode, HZ5C2
D24,33,36,41	87-027-365-01	Diode, S5277B
D31	87-027-686-01	Zener diode, HZ12A1
D35	87-027-509-01	Zener diode, HZ12B3
D37	87-027-315-01	Diode, S2VB10
D38	87-027-977-01	Diode, KBL02
L501,502	82-794-662-01	Trap coil
L503,504	87-003-070-01	Choke coil, 5.6mH
L901	82-189-642-01	OSC coil, LM6400
J1,2,3,4,	82-794-625-01	Pin jack ass'y (PHONO, AUX, REC OUT, PLAYER SYNC, GND)
TH1,2	82-304-722-01	Thermister, 42D26
RY-1	87-045-201-01	Relay-G2R 12V
RY-2	87-045-200-01	Relay-G4Z 12V
VL2	87-021-764-01	Volume, 50k Ω -G (O) (TREBLE)
VL3	87-021-765-01	Volume, 50k Ω -C (S) (BASS)
VL4	87-021-766-01	Volume, 10k Ω -MN (BALANCE)
SFR1,2	87-021-735-01	Semi-fixed resistor, 220 Ω -B
SFR303,304	87-021-744-01	Semi-fixed resistor, 33k Ω -B
SFR501,502	87-021-739-01	Semi-fixed resistor, 2.2k Ω -B
△ F2	87-035-254-01	Fuse, 2.5A (H model only)
△ F2	87-035-300-01	Fuse, 2.5A (U model only)
△ F2	87-035-224-01	Fuse, 1.6A (E, K, G, Z models only)
	87-033-147-01	Fuse clamp

Symbol No.	Part No.	Description
PIN3	87-049-150-01	Pin, 10P
PIN7	87-049-153-01	Pin, 13P
PIN8	82-481-697-01	Pin, 5P
SP OUT	82-788-624-01	Speaker terminal, 4P
	82-794-601-01	Heat sink
< Resistors >		
△ R122	87-029-119-01	100 Ω 1/4W Fuse resistor
R125,126, 127,128	87-025-334-01	0.33 Ω 3W Cement resistor
R143,144	87-025-154-01	270 Ω 1W Metal film
△ R173,174	87-029-114-01	4.7 Ω 1/4W Fuse resistor
C114	87-015-450-01	220 μ F 25V Electrolytic BP
C131,132	82-794-622-01	4700pF 50V Electrolytic
≪ DECK CIRCUIT BOARD SECTION ≫		
PCB-B	*	DECK circuit board
IC301	87-027-910-01	IC, μ PC1228H
Q2,5,25	89-110-154-01	Transistor, 2SA1015Y
Q301,302, 303,304	89-309-456-01	Transistor, 2SC945L (P)
Q601,602, 705,706	89-320-011-01	Transistor, 2SC2001 (K)
Q603,702, 703,704, 803,804	89-318-155-01	Transistor, 2SC1815 (GR)
Q701	89-318-464-51	Transistor, 2SC1846R (S)
Q801,908	89-110-155-01	Transistor, 2SA1015 (GR)
Q802	89-318-154-01	Transistor, 2SC1815 (Y)
D601,602, 603,801, 802,906	87-027-219-01	Diode, MA150
L701	82-794-661-01	Bias OSC coil
L702	87-003-051-01	Choke coil, 470 μ H
RY-3	87-045-202-01	Relay, Reed RP-13A
S1,2,3,4	82-794-651-01	Switch ass'y (B/C, ON/OFF, MS/INTRO, ON/OFF)
SFR301,302 701,702	87-021-569-01	Semi-fixed resistor, 50k Ω -B
SFR801	87-021-572-01	Semi-fixed resistor, 500k Ω -B
PIN2	82-189-649-01	Pin, 9P
PIN4	87-049-152-01	Pin, 12P
PIN9	87-049-068-01	Pin, 3P
< Capacitors >		
C301,302	87-015-954-01	10 μ F 16V Electrolytic LL
C704	87-014-081-01	0.01 μ F PP
C705	87-014-077-01	0.068 μ F PP
C802	87-014-165-01	0.68 μ F 50V Film capacitor (TF)
≪ PHONO AMP CIRCUIT BOARD SECTION ≫		
PCB-C	*	Phono amp circuit board
IC1	87-027-925-01	IC, M5220
< Capacitor >		
C3,4	87-015-643-01	2.2 μ F 50V Electrolytic LL
≪ SWITCH-1 CIRCUIT BOARD SECTION ≫		
PCB-D	*	Switch-1 circuit board
S1	82-794-691-01	Push switch (POWER)
≪ VL CIRCUIT BOARD SECTION ≫		
PCB-E	*	VL circuit board
VL1	87-021-763-01	Slide volume, 100k Ω -A (VOLUME)

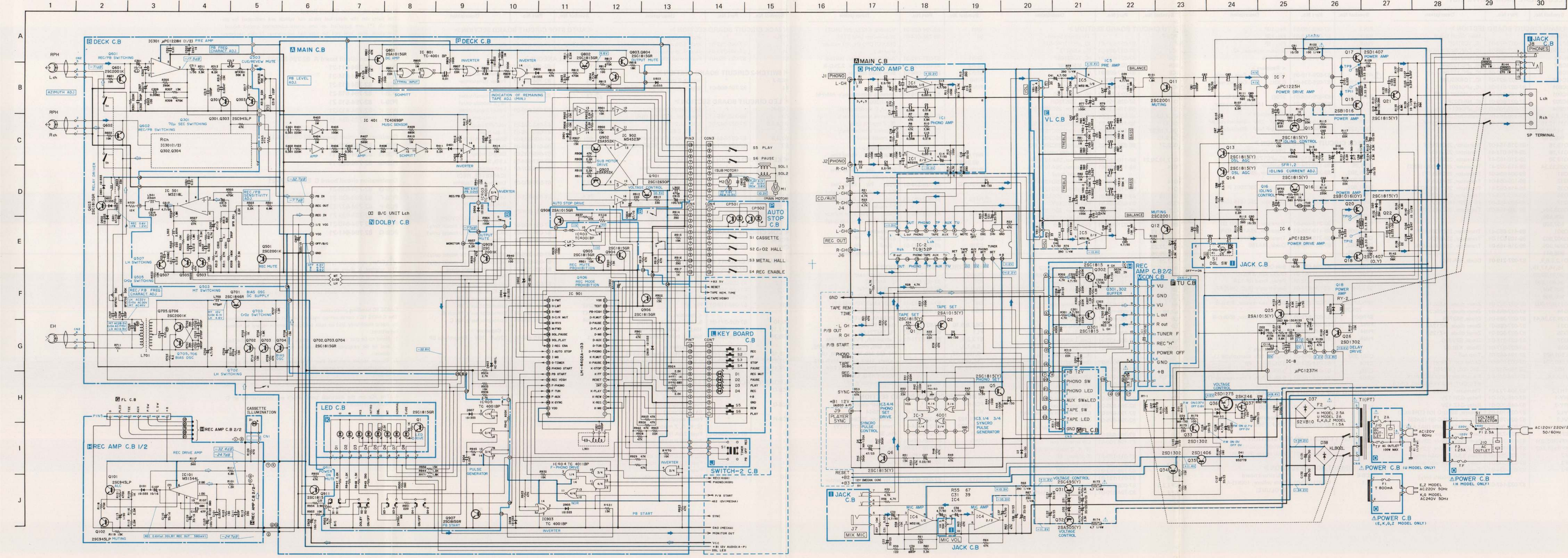
Symbol No.	Part No.	Description
≪ TU CIRCUIT BOARD SECTION ≫		
PCB-F	*	TU circuit board
④ IC1	87-027-997-01	IC, μ PD1704C-018
IC2	87-027-994-01	IC, AN6873
IC4	87-027-429-01	IC, TC4016BP
IC5	87-027-840-01	IC, M54519P
IC6	87-027-998-01	IC, μ PC1227V
IC7	87-027-993-01	IC, μ PC1167C2
IC8	87-027-996-01	IC, LA1245
IC9	87-027-752-01	IC, μ PB553AC
Q1	87-026-165-01	FET, 2SK73GR
Q2	89-319-233-01	Transistor, 2SC1923 (O)
Q3,4,10	89-501-615-01	FET, 2SK161GR
Q5,11	89-318-155-01	Transistor, 2SC1815 (GR)
Q6,7,16,22	89-318-154-01	Transistor, 2SC1815 (Y)
Q8,9,13	89-320-011-01	Transistor, 2SC2001 (K)
Q26,27	89-320-011-01	Transistor, 2SC2001 (K)
< Resistors >		
Q12,19,20,21	89-110-154-01	(E,K models only)
Q24	89-110-154-01	Transistor, 2SA1015 (Y)
		Transistor, 2SA1019 (Y)
		(H model only)
Q14	89-412-603-01	Transistor, 2SD1260 (Q)
Q15	89-412-753-01	Transistor, 2SD1275 (Q)
Q17,18	89-313-846-01	Transistor, 2SD1384 (R)
Q23	89-502-464-01	FET, 2SK246Y
Q25	89-319-233-01	Transistor, 2SD1923 (O)
D1,2,3,4	87-027-900-01	Diode, K-V-1236Z-2
D9,12,13, 14,15,17, 18,19,20, 21,22,23, 24,25,26, 27,28	87-027-097-01	Diode, 1S1555
D10	87-027-393-01	Zener diode, HZ4C2
D11,16	87-027-676-01	Zener diode, HZ12B3L
L1	82-791-631-01	FM antenna coil
L2	82-791-630-01	FM antenna coil
L3,5,6	82-791-629-01	FM antenna coil
L4	82-791-627-01	FM antenna coil
L7,10	87-005-151-01	Coil, 2.2 μ H
L8	82-761-633-01	FM OSC coil
L9	82-794-687-01	MW OSC coil
L11,12	87-005-126-01	Coil, 1mH
L13,14	87-005-135-01	Coil, LA04NA 221K-TP
L15	82-794-688-01	LW OSC coil
< Capacitors >		
L16,17	87-003-045-01	Coil, 22 μ F (E, K, Z models only)
X'tal	82-799-613-01	Crystal 4.5M
LPF1,2	82-794-684-01	Low-pass filter
T1	82-794-683-01	FM IFT 6T
T2	82-794-695-01	Coil, FM quad (P)
T3	82-794-696-01	Coil, FM quad (S)
T4	82-794-699-01	MW antenna coil
T5	82-794-689-01	CFMA 450 (H models only)
T5	82-795-675-01	CFMA 450 (U,E,K, G, Z models only)
T6	82-794-686-01	Coil FL
T9	82-794-700-01	LW antenna coil (E, K, Z models only)
TC1,2	87-011-139-01	Trimmer, 6P
TC3	87-011-108-01	Trimmer, 8P
TC5	82-785-703-01	Trimmer, 30P
TC6	87-011-131-01	Trimmer, 30P
CF1,2,3	87-008-238-01	Ceramic filter, MS-8H
CF4	82-794-670-01	Ceramic filter, BFU450C4N

Symbol No.	Part No.	Description
VR1	82-794-698-01	Volume, K122J, SW (MUT)
S1	82-795-624-01	Slide switch (AM STEP SELECTOR) (H, HU models selector)
SFR1	87-021-742-01	Semi-fixed resistor, 10k Ω -B
SFR2	87-021-739-01	Semi-fixed resistor, 2.2k Ω -B
SFR3	87-021-564-01	Semi-fixed resistor, 1k Ω -B
PIN6-1	82-794-692-01	Pin, 7P
PIN6-2	82-188-618-01	Pin, 5P
	82-794-676-01	Antenna terminal ass'y AM/FM (75 Ω /300 Ω) (H, U, G models only)
	82-794-677-01	Antenna terminal ass'y (E, Z models only)
	82-794-678-01	Antenna terminal ass'y (K model only)
< Resistors >		
R87,88,89, 90,91,92	82-794-681-01	100k Ω 1W Metal film
R101,102	87-025-069-01	22 Ω 1W Metal film (H model only)
R101,102	87-025-339-01	22 Ω 1W Metal film (U, E, K, G, Z models only)
△ R113	87-029-083-01	10 Ω 1/2W Fuse resistor (H model only)
△ R113	87-029-105-01	10 Ω 1/2W Fuse resistor (U, E, K, G, Z models only)
C34	87-014-049-01	470pF PP
C219	87-014-047-01	39pF PP (E, K, Z models only)
≪ FL CIRCUIT BOARD SECTION ≫		
PCB-G	*	FL circuit board
IC1	87-027-995-01	IC, AN6887
D1,2,3	87-027-772-01	LED, GL-9PR4 (PHONO, AUX, TAPE)
D4	87-027-542-01	LED, LN217RP (FM ST)
D5-1 ~ 5-7	82-553-603-01	LED, LN07202 (P)
D6,7,8,9,10	87-027-097-01	Diode, 1S1555
FL1	82-795-620-01	FL, 9MT21ZK
S1,2,3,4, 5,6,7,8, 9,10,11,12, 13,14,15,16, 17,18,19	87-031-771-01	Tact switch, EVQ-OSK04M (FM, MW, PHONO, AUX, TAPE, M1, M2, M3, M4, M5, M6, UP, DOWN, TIME SET, TIMER DIS PLAY, STAND BY, SLEEP TIME/FREQ, LW)
CN5	89-051-025-01	Connector ass'y, 7P
≪ REC AMP CIRCUIT BOARD SECTION ≫		
PCB-H	*	REC AMP circuit board
IC101	87-027-952-01	IC, M51544
Q101,102	89-309-456-01	Transistor, 2SC945L (P)
Q301,302	89-318-154-01	Transistor, 2SC1815 (Y)
PIN1	87-049-068-01	Pin, 3P
PIN5	87-049-169-01	Pin, 7P
	87-049-113-01	Pin, 3P
	87-049-115-01	Pin, 5P
	87-049-119-01	Pin, 9P
< Resistor >		
△ R312	87-029-361-01	3.3 Ω 1/2W Fuse resistor

Symbol No.	Part No.	Description
≪ JACK CIRCUIT BOARD SECTION ≫		
PCB-I	*	Jack circuit board
J7	87-049-252-01	Jack, 6.3 ϕ w/switch (MIX MIC)
J8	87-049-253-01	Jack, 6.3 ϕ w/switch (PHONE)
S1	87-031-760-01	Push-switch (DSL)
≪ SWITCH-2 CIRCUIT BOARD SECTION ≫		
PCB-J	*	Switch-2 circuit board
S1	82-794-666-01	Slide switch (PB $\leftrightarrow$ OFF $\rightarrow$ REC)
≪ LED CIRCUIT BOARD SECTION ≫		
PCB-K	*	LED circuit board
Q1	89-318-155-01	Transistor, 2SC1815 (GR)
D1,4,5,6	87-027-542-01	LED, LN217RP (C, MS, DSL, MT)
D2,3,8	87-027-543-01	LED, LN317GP (B, INTRO, Cr)
D7	87-027-671-01	LED, LN417YP (NORMAL)
≪ KEY BOARD CIRCUIT BOARD SECTION ≫		
PCB-L	*	Key-board circuit board
D1,4	87-027-921-01	LED, SR506D (REC MUTE, REC)
D3	87-027-922-01	LED, SR206D (PLAY)
D5	87-027-923-01	LED, SY406D (PAUSE)
S1,2,3,4, 5,6	87-031-771-01	Tact switch (REC, FF, STOP, PAUSE, REW, PLAY)
CN7	89-051-010-01	Connector ass'y, 13P
≪ CON CIRCUIT BOARD SECTION ≫		
PCB-M	*	CON circuit board
CN6	82-794-685-01	Connector ass'y, 12P
≪ DOLBY-NR CIRCUIT BOARD SECTION ≫		
	87-027-905-01	Dolby-NR unit 2H ass'y (W/PCB-N)
IC1,2	87-027-862-01	IC, HA12038
L1,2	87-005-155-01	Coil, 36mH
PIN	87-049-117-01	Pin, 7P
PIN	87-049-119-01	Pin, 9P
< Resistors >		
R9,10	87-025-271-01	5.1k Ω 1/4W Metal film
R11,12	87-025-295-01	15k Ω 1/4W Metal film
R35,36	87-025-296-01	56k Ω 1/4W Metal film
< Capacitors >		
C15,16	87-015-617-01	10 μ F 16V Electrolytic LL
C21,22,23, 24,45,46	87-015-366-01	0.15 μ F 10V Aluminum solid
≪ POWER CIRCUIT BOARD SECTION ≫		
PCB-O	*	Power circuit board (U model only)
PCB-Q	*	Power circuit board (H model only)
PCB-R	*	Power circuit board (E, K, G, Z models only)
F1	87-035-254-01	Fuse, 2.5A (H model only)
F1	87-035-300-01	Fuse, 2A (UL) (U model only)
F1	87-035-221-01	Fuse, "T" 800mA (E, K, G, Z models only)
F3	87-035-250-01	Fuse, 1.25A (H model only)
	87-033-147-01	Fuse clamp
J10	87-049-017-01	AC outlet (H, U models only)

Symbol No.	Part No.	Description
≪ AUTO STOP CIRCUIT BOARD SECTION ≫		
PCB-P	81-505-605-01	Auto stop circuit board
CP501,502	87-027-644-01	Photo sensor, NJL-5141EA
≪ MISCELLANEOUS ≫		
T1	82-794-606-11	Power transformer (H model only)
T1	82-794-607-01	Power transformer (U model only)
T1	82-794-608-01	Power transformer (E, Z models only)
T1	82-794-609-01	Power transformer (K, G models only)
RPH	87-046-226-01	REC/PB head
EH	87-046-196-01	Erase head
SOL1,2	81-505-603-01	Solenoid, 9ME-A
M2	09-011-038-01	Reel motor
M1	87-045-135-01	DC-EG motor
D1	87-027-944-01	LED, SLF 301C
S1,4	81-505-607-01	Leaf switch, AU (CASSETTE, REC)
S2,3	81-505-602-01	Leaf switch, Cassette (CrO ₂ , METAL)
S5,6	81-505-601-01	Leaf switch, Gear cam (PAUSE, PLAY)
S901	87-031-551-01	Rotary switch (VOLTAGE SELECTOR)
	87-034-956-01	AC power cord (H model only)
	87-034-935-01	AC power cord (U model only)
	87-034-877-01	AC power cord (E, Z models only)
	87-034-975-01	AC power cord (K model only)
	87-034-892-01	AC power cord (G model only)
	87-085-184-01	AC power cord bushing (H, U models only)
	87-085-185-01	AC power cord bushing (E, K, G, Z models only)
CN1	89-051-003-01	Connector ass'y, 3P
CN2	82-794-655-01	Connector ass'y, 9P
CN3	82-794-657-01	Connector ass'y, Motor B
CN4	82-794-658-01	Connector ass'y, SW C
		< Capacitor >
C1	87-015-450-01	220μF 25V Electrolytic BP

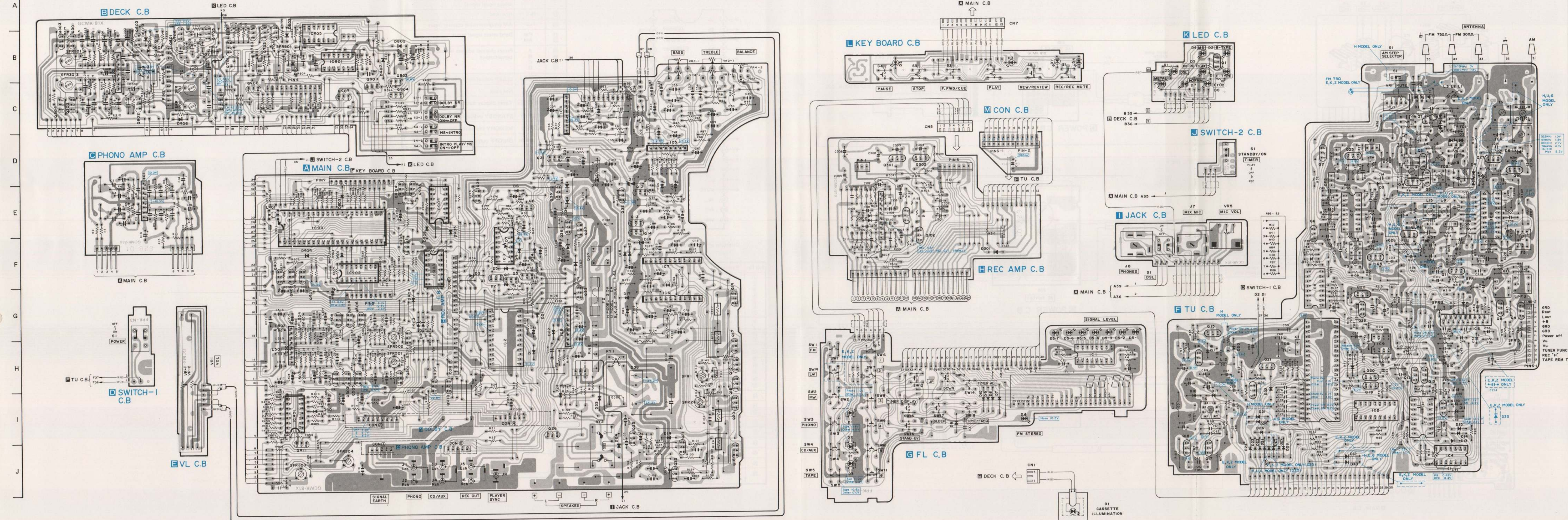
SCHEMATIC DIAGRAM-3



WIRING-1

NOTES (1) Earth pattern Others pattern
(2) The voltage is the reference value measured with a tester (20 K ohms/V DC) when there are no signals.
An asterisk (*) indicates that the value was measured with a vacuum-tube voltmeter during recording.

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.

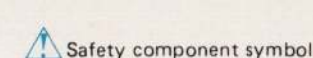


500KΩ 1.0W
100KΩ 0.5W
50KΩ 0.25W
10KΩ 0.1W
1KΩ 0.05W

GRD
Rout
Lout
+B
GRD
GRD
Power off
Vu
TUNER FUNCTION
REC "H"
TAPE REM TIME

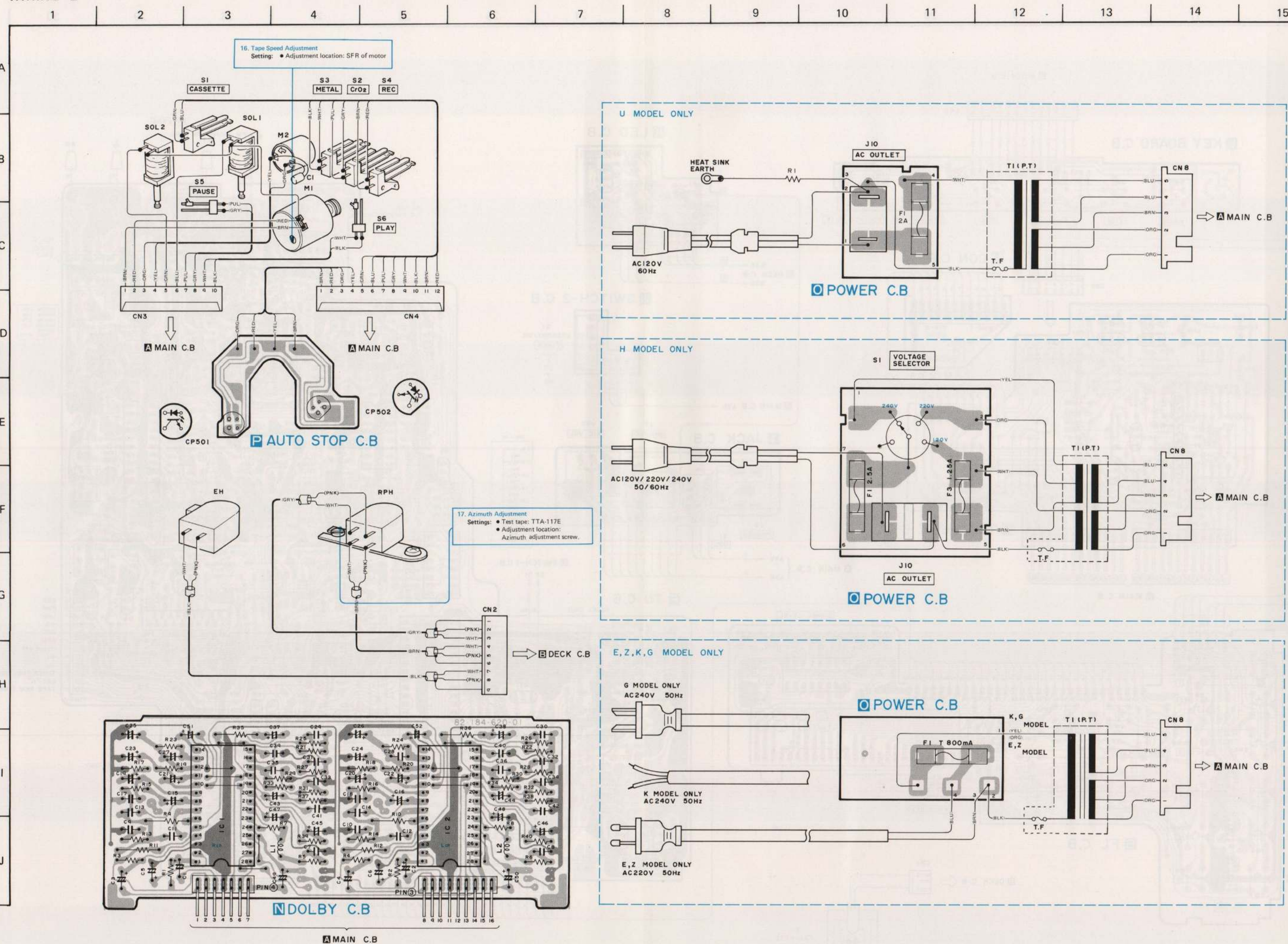
D1 CASSETTE ILLUMINATION

WIRING-2



Safety component symbol

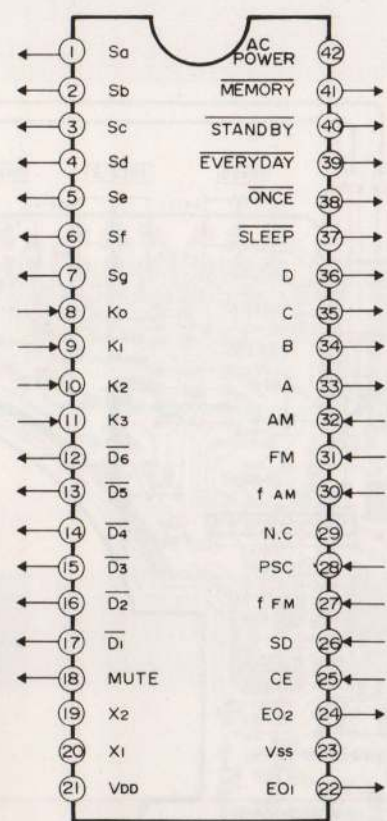
This symbol is given to important parts which serve to maintain the safety of the product, and which are made to conform to special safety specifications. Therefore, when replacing a component with this symbol, make absolutely sure that you use a designated part.



Description of IC (μPD1704C-018) terminal

Terminal name

● μ PD 1704C-018



Direction of arrow shows the signal flow

Pin No.	Symbol	Function
①	Sa	Segment output for frequency indication and time indication, and key matrix key-return signal source. Active: High
②	Sb	
③	Sc	
④	Sd	
⑤	Se	
⑥	Sf	
⑦	Sg	
⑧	K ₀	Key matrix input pin
⑨	K ₁	
⑩	K ₂	
⑪	K ₃	
⑫	D ₆	Frequency indication/time indication digit signal output. Active: Low
⑬	D ₅	
⑭	D ₄	
⑮	D ₃	
⑯	D ₂	
⑰	D ₁	
⑱	MUTE	Mute output
⑲	X ₂	Crystal oscillator pin. 4.5MHz
⑳	X ₁	
㉑	V _{DD}	Power pin. 5V ± 10%
㉒	EO ₁	Phase detector output. Same output as EO ₂ .
㉓	V _{SS}	GND pin
㉔	EO ₂	Phase detector output. Same output as EO ₁ .
㉕	CE	Chip ENABLE input
㉖	SD	Station detector input. (Stop input signal pin during auto-tuning)

TC 9152P

