

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

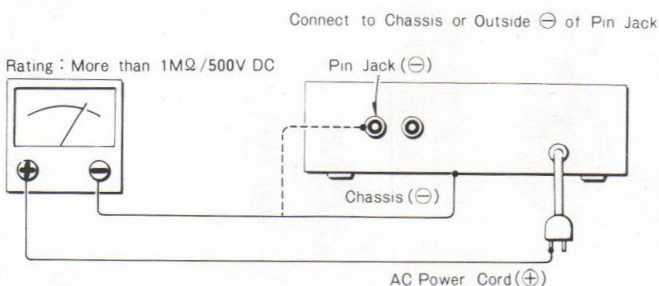
Follow the instructions carefully, which will allow the user to optimise the products' performance and give many years of service.

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	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%
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	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)
Power consumption:	H model 75 W U model 80 W E, K, G, Z models 160 W	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)
Dimensions:	330(W) x 106.5(H) x 260(D) mm (13" x 4 1/4" x 10 1/4")	FM Stereo separation : More than 30 dB (at 100 kHz) More than 35 dB (at 1 kHz) More than 30 dB (at 10 kHz)
Weight:	4.9 kg (10.79 lbs)	Stereo indicator level: -1 ~ 6 dB (at 98.0 MHz)
< TUNER SECTION >		
Frequency ranges:	FM 87.5 ~ 108.0 MHz AM 530 ~ 1,605 kHz E, K, Z models LW 150 ~ 285 kHz	< TPAE RECORDER SECTION >
IHF sensitivity:	7 ⁺³ / ₋₂ dB (at 87.5 MHz) (THD 3%)	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
DIN sensitivity:	3 ⁺³ / ₋₂ dB (at 98.0 MHz) (S/N 26 dB)	Erasing system: AC erase Motor: DC servo motor
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)	REC/PB distortion: CrO ₂ Less than 2.0% METAL Less than 2.0% NORMAL Less than 2.0% 70µs. Less than 0.35mV (CrO ₂ , METAL DOLBY ON) 120µs. (NORMAL DOLBY ON)
AM sensitivity:	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)	Erasing ratio: (125 Hz) Channel separation: More than 35 dB (1 kHz, 0VU) Level drift: 0 ± 1 dB (10 kHz) REC/PB S/N: (Un weighted) More than 40/43 dB (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)
Signal-to-noise ratio:	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)	Play back noise: 70µs. Less than 0.35mV (CrO ₂ , METAL DOLBY ON) 120µs. (NORMAL DOLBY ON)
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	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)
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)	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)

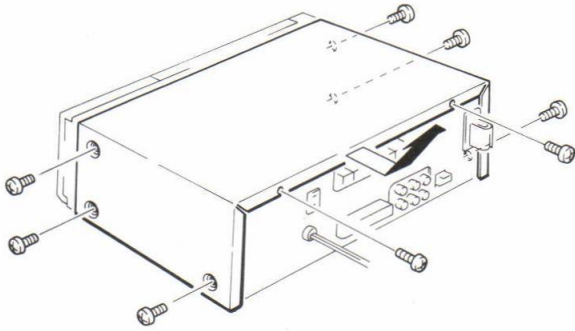


Fig. 1

2. To remove Front Panel

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

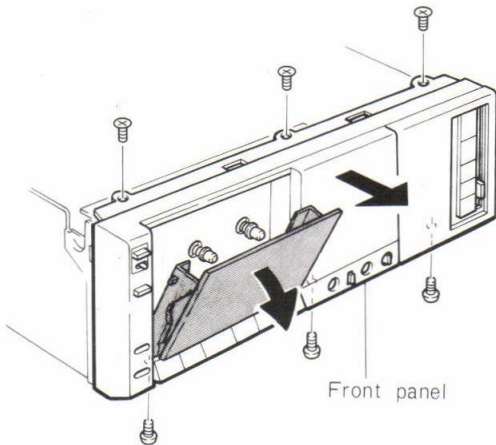


Fig. 2

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)

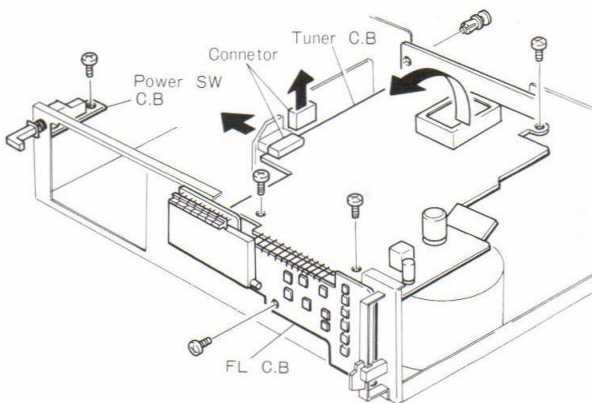


Fig. 3

4. To remove Main Circuit Board

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

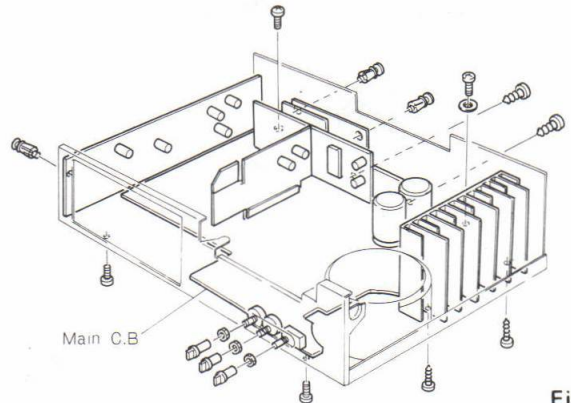


Fig. 4

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

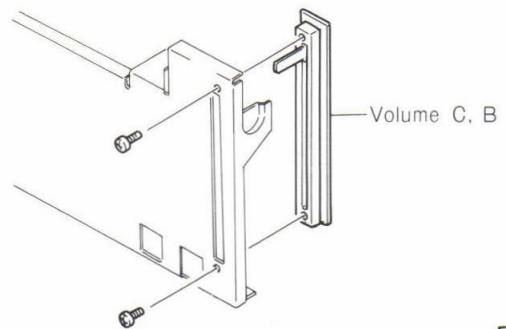


Fig. 5

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)

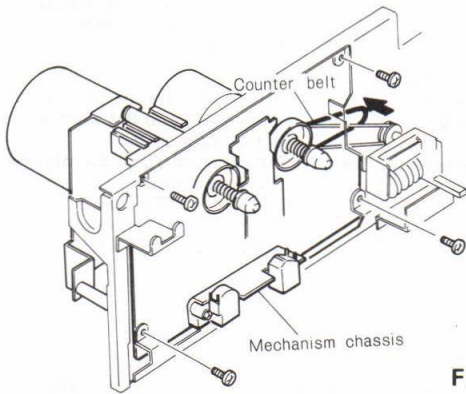


Fig. 6

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).

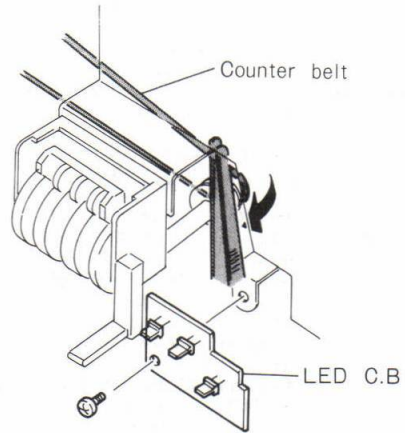


Fig. 8

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

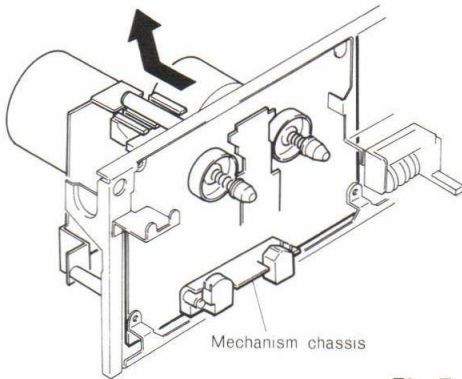


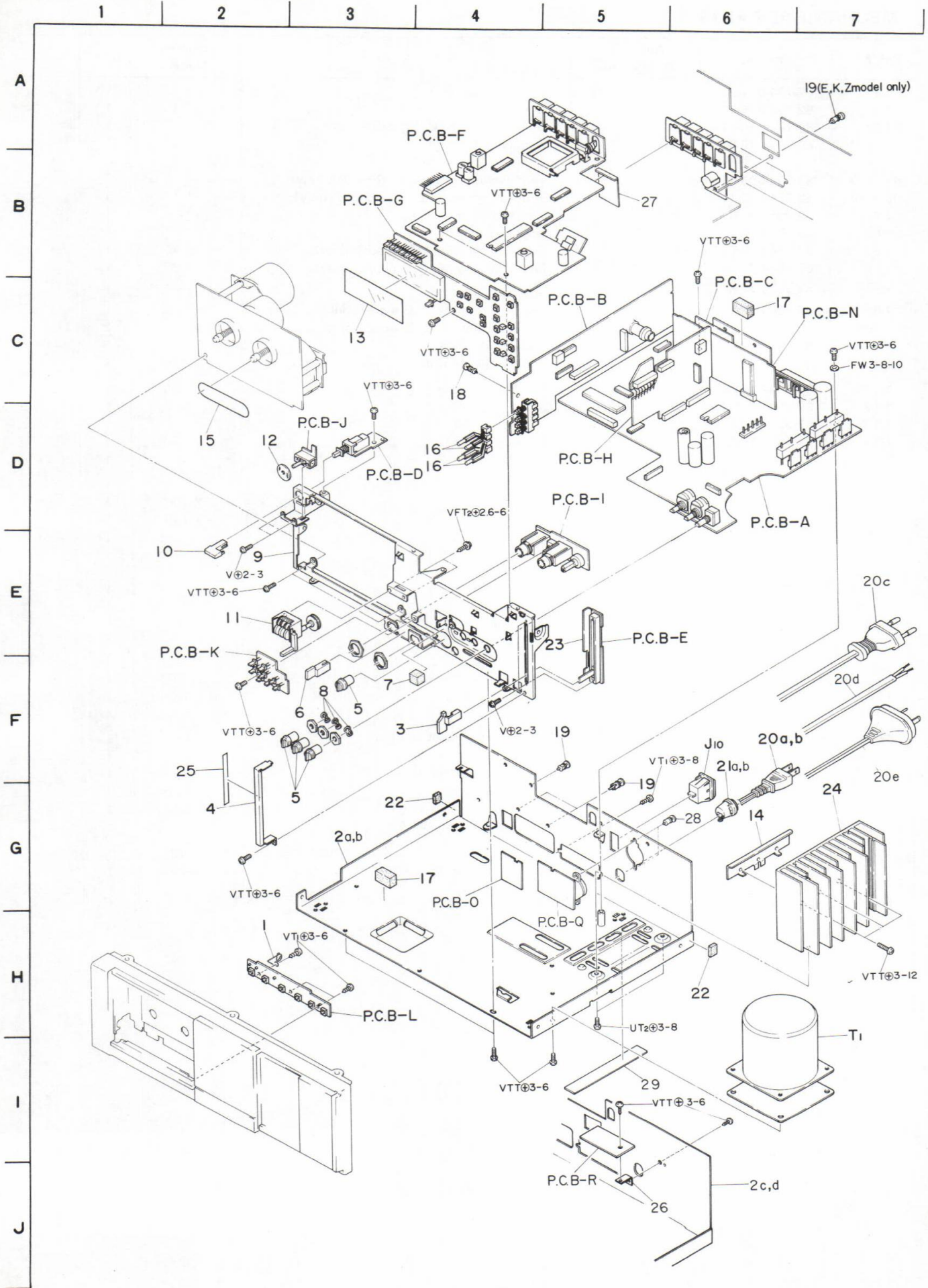
Fig. 7

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

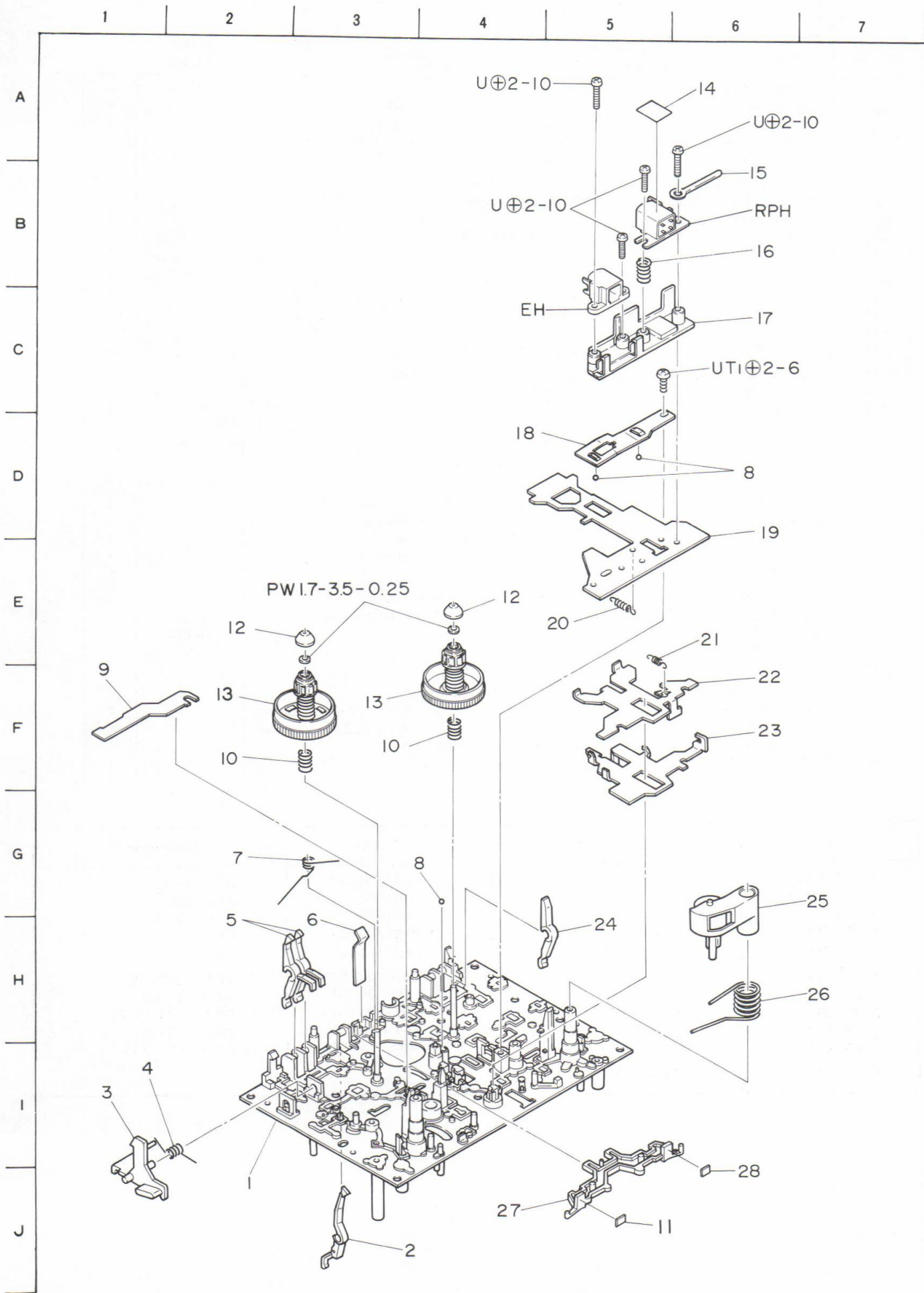


Ref. No.	Part No.	Part No. Changed to	Description	Com Mo
2-1	82-794-216-01		Wire clip	
2-2a	82-794-203-01		Amp. chassis ass'y (H model only)	
b	82-794-205-01		Amp. chassis ass'y (U model only)	
c	82-794-221-01		Amp. chassis ass'y (E, K, Z models only)	
d	82-794-224-01		Amp. chassis ass'y (G model only)	
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.	Description
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 2.5
87-087-052-01	PW 2.6

EXPLODED VIEW-3

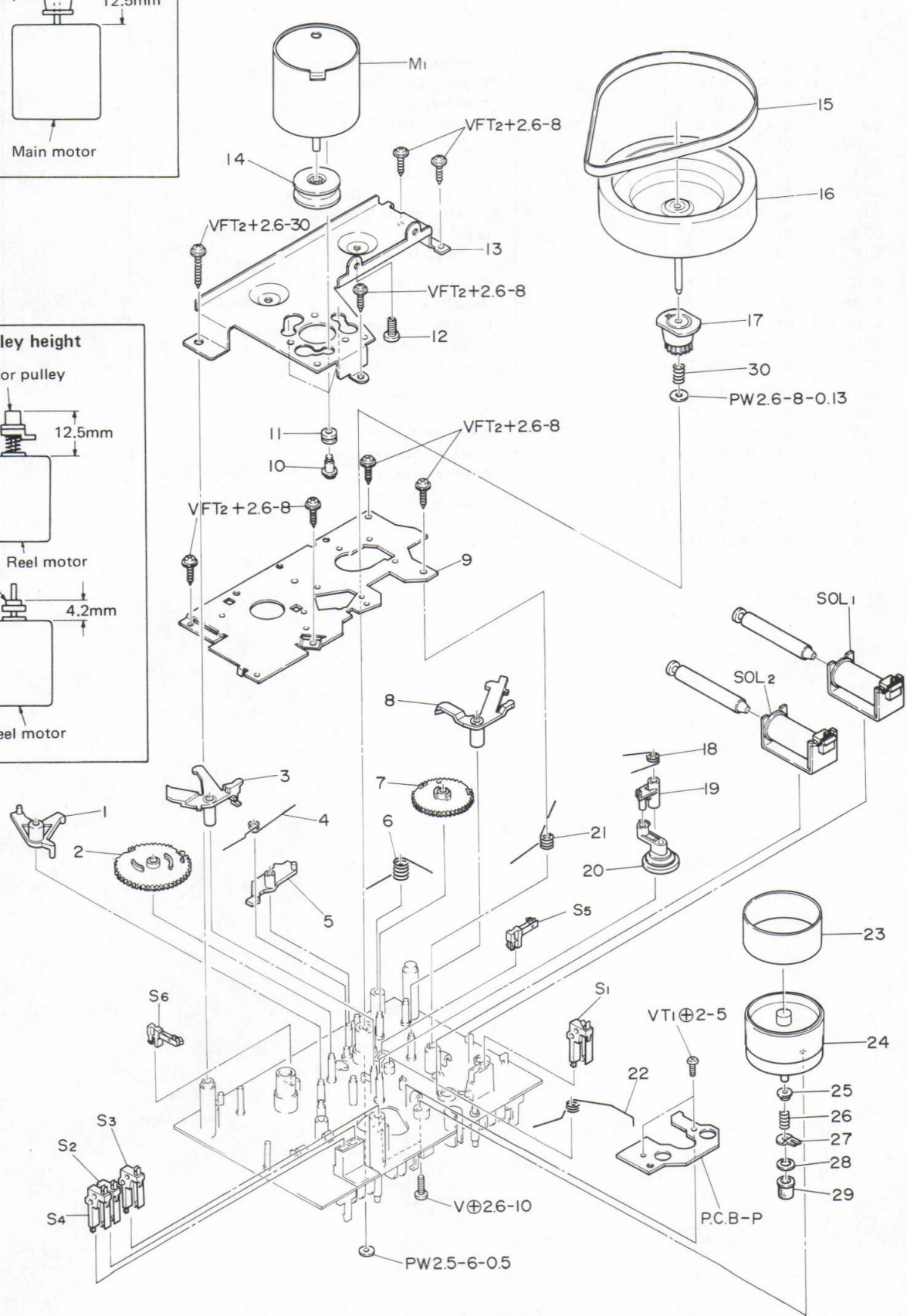
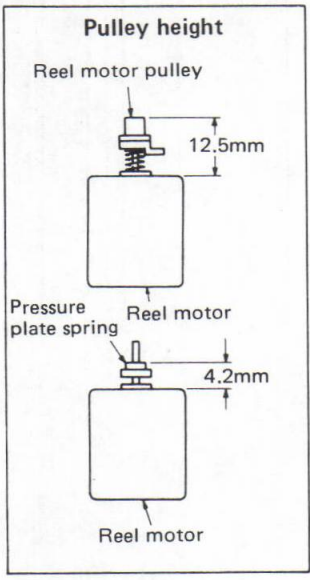
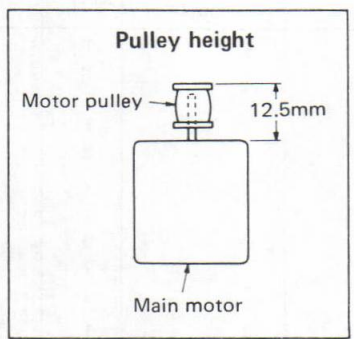


Ref. No.	Part No.	Part No. Changed to	Description	Common Model	Q'ty
3-1	81-505-201-31		Outsert chassis ass'y		1
3-2	81-505-242-11		Lever, Metal		1
3-3	81-505-239-01		Lever, Eject		1
3-4	81-505-273-01		T-spring, Lid lock		1
3-5	81-505-241-21		REC blocking lever		2
3-6	81-505-260-01		P-spring, Pressure 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

1 2 3 4 5 6 7

A
B
C
D
E
F
G
H
I
J



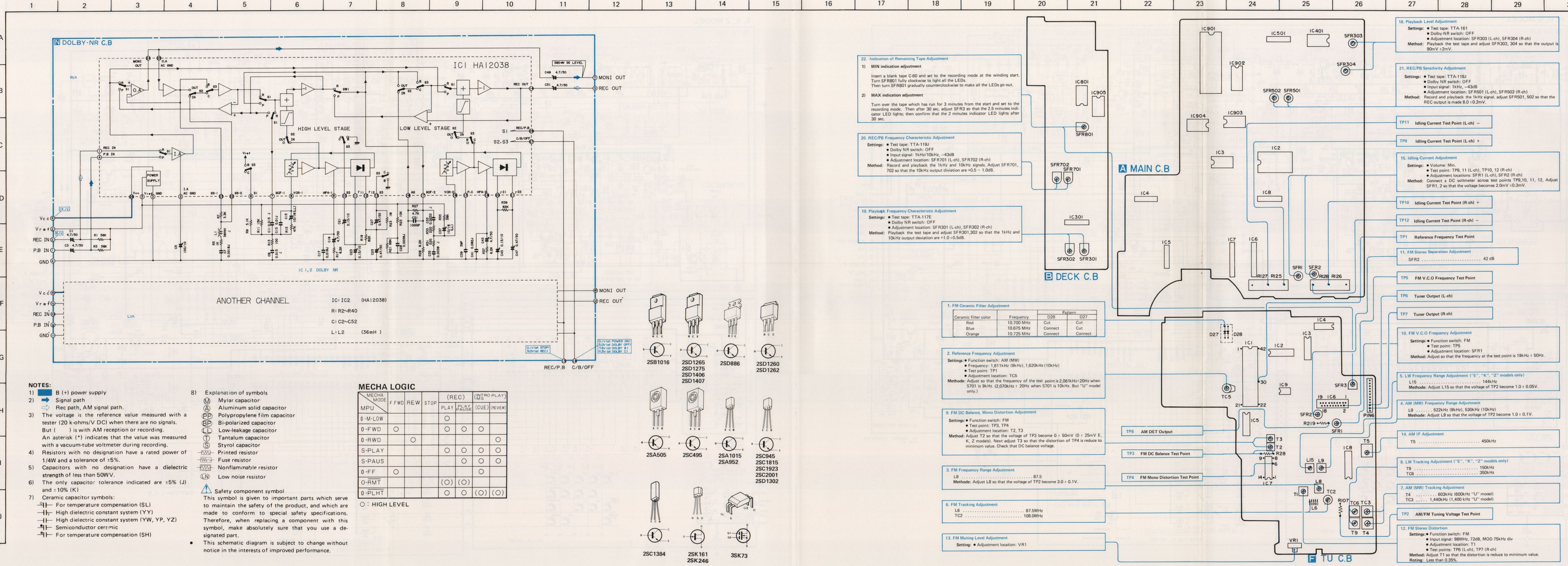
Ref. No.	Part No.	Part No. Changed to	Description	Common Model	Q'ty
4-1	81-505-230-01		Lever, PLAY		1
4-2	81-505-234-01		Gear, PLAY cam		1
4-3	81-505-231-01		Trigger lever, PLAY		1
4-4	81-505-272-01		T-spring, cam		1
4-5	81-505-232-01		Lever, PAUSE		1
4-6	81-505-283-01		T-spring, PAUSE lever		1
4-7	81-505-235-01		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	81-505-221-01		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

SCHEMATIC DIAGRAM-2



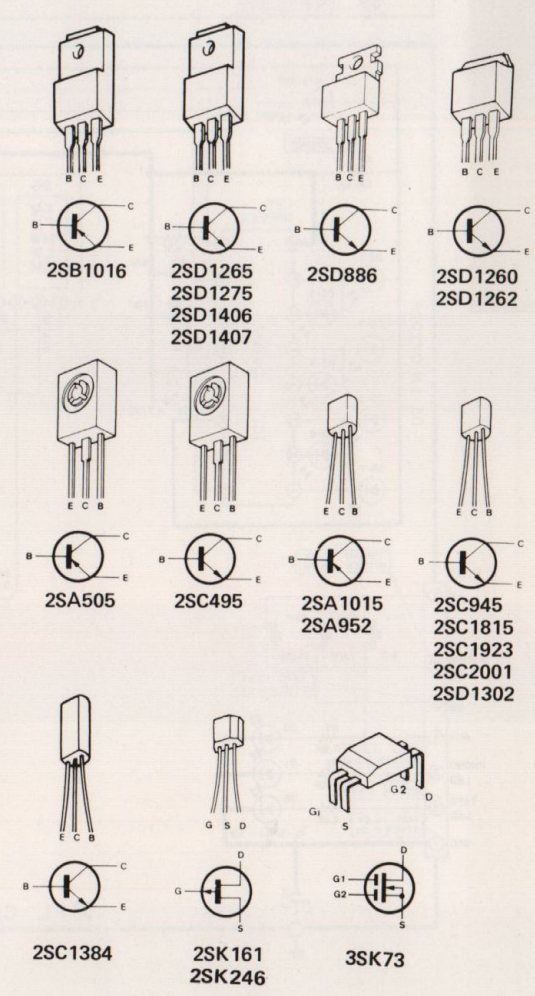
- NOTES:**
- 1) B (+) power supply
 - 2) Signal path
 - 3) The voltage is the reference value measured with a tester (20 k-ohms/V DC) when there are no signals. But () is with AM reception or recording. An asterisk (*) indicates that the value was measured with a vacuum-tube voltmeter during recording.
 - 4) Resistors with no designation have a rated power of 1/4W and a tolerance of ±5%.
 - 5) Capacitors with no designation have a dielectric strength of less than 50WV.
 - 6) The only capacitor tolerance indicated are ±5% (J) and ±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
 - Printed resistor
 - Fuse resistor
 - Nonflammable resistor
 - Low noise resistor

MECHA LOGIC

MECHA MODE	F.FWD	REW	STOP	(REC)	(PLAY PAUSE)	(CUE)	(REVIEW)
0-M-LOW							
0-FWD	○			○	○	○	○
0-RWD		○					
S-PLAY				○	○	○	○
S-PAUS				○	○	○	○
0-FF							○
0-RMT				(○)	(○)		
0-PLHT				○	○	(○)	(○)

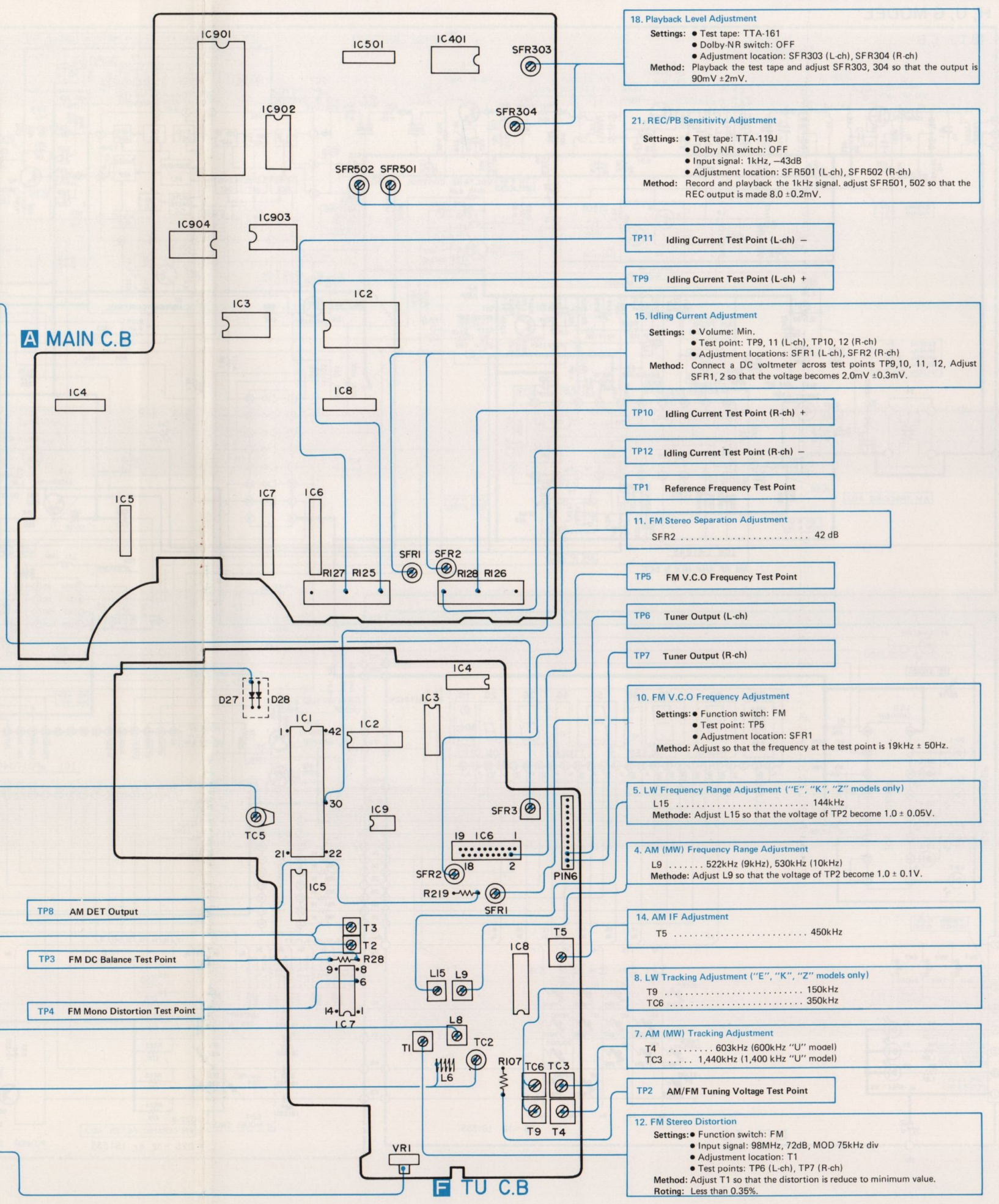
○ : HIGH LEVEL

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



- 22. Indication of Remaining Tape Adjustment**
- 1) MIN indication adjustment
Insert a blank tape C-60 and set to the recording mode at the winding start. Turn SFR801 fully clockwise to light all the LEDs. Then turn SFR801 gradually counterclockwise to make all the LEDs go out.
 - 2) MAX indication adjustment
Turn over the tape which has run for 3 minutes from the start and set to the recording mode. Then after 30 sec, adjust SFR3 so that the 2.5 minutes indicator LED lights; then confirm that the 2 minutes indicator LED lights after 30 sec.
- 20. REC/PB Frequency Characteristic Adjustment**
- Settings: • Test tape: TTA-119J
• Dolby NR switch: OFF
• Input signal: 1kHz/10kHz, -43dB
• Adjustment location: SFR701 (L-ch), SFR702 (R-ch)
Method: Record and playback the 1kHz and 10kHz signals. Adjust SFR701, 702 so that the 10kHz output deviation are +0.5 - 1.0dB.
- 19. Playback Frequency Characteristic Adjustment**
- Settings: • Test tape: TTA-117E
• Dolby NR switch: OFF
• Adjustment location: SFR301 (L-ch), SFR302 (R-ch)
Method: Playback the test tape and adjust SFR301,302 so that the 1kHz and 10kHz output deviation are +1.0±0.5dB.

- 1. FM Ceramic Filter Adjustment**
- | Ceramic filter color | Frequency | D28 | D27 | Pattern |
|----------------------|------------|---------|---------|---------|
| Red | 10.700 MHz | Cut | Cut | |
| Blue | 10.675 MHz | Connect | Cut | |
| Orange | 10.725 MHz | Connect | Connect | |
- 2. Reference Frequency Adjustment**
- Settings: • Function switch: AM (MW)
• Frequency: 1,611kHz (9kHz), 1,620kHz (10kHz)
• Test point: TP1
• Adjustment location: TC5
Method: Adjust so that the frequency of the test point is 2,061kHz±20Hz when S701 is 9kHz, (2,070kHz±20Hz when S701 is 10kHz. But "U" model only.)
- 9. FM DC Balance, Mono Distortion Adjustment**
- Settings: • Function switch: FM
• Test point: TP3, TP4
• Adjustment location: T2, T3
Method: Adjust T2 so that the voltage of TP3 become 0 ± 50mV (0 ± 25mV E, K, Z models). Next adjust T3 so that the distortion of TP4 is reduce to minimum value. Check that DC balance voltage.
- 3. FM Frequency Range Adjustment**
- L8 87.5
Method: Adjust L8 so that the voltage of TP2 become 3.0 ± 0.1V.
- 6. FM Tracking Adjustment**
- L6 87.5MHz
TC2 108.0MHz
- 13. FM Muting Level Adjustment**
- Setting: • Adjustment location: VR1



- 18. Playback Level Adjustment**
- Settings: • Test tape: TTA-161
• Dolby-NR switch: OFF
• Adjustment location: SFR303 (L-ch), SFR304 (R-ch)
Method: Playback the test tape and adjust SFR303, 304 so that the output is 90mV ± 2mV.
- 21. REC/PB Sensitivity Adjustment**
- Settings: • Test tape: TTA-119J
• Dolby NR switch: OFF
• Input signal: 1kHz, -43dB
• Adjustment location: SFR501 (L-ch), SFR502 (R-ch)
Method: Record and playback the 1kHz signal. adjust SFR501, 502 so that the REC output is made 8.0 ± 0.2mV.
- TP11** Idling Current Test Point (L-ch) -
- TP9** Idling Current Test Point (L-ch) +
- 15. Idling Current Adjustment**
- Settings: • Volume: Min.
• Test point: TP9, 11 (L-ch), TP10, 12 (R-ch)
• Adjustment locations: SFR1 (L-ch), SFR2 (R-ch)
Method: Connect a DC voltmeter across test points TP9,10, 11, 12, Adjust SFR1, 2 so that the voltage becomes 2.0mV ± 0.3mV.
- TP10** Idling Current Test Point (R-ch) +
- TP12** Idling Current Test Point (R-ch) -
- TP1** Reference Frequency Test Point
- 11. FM Stereo Separation Adjustment**
- SFR2 42 dB
- TP5** FM V.C.O Frequency Test Point
- TP6** Tuner Output (L-ch)
- TP7** Tuner Output (R-ch)
- 10. FM V.C.O Frequency Adjustment**
- Settings: • Function switch: FM
• Test point: TP6
• Adjustment location: SFR1
Method: Adjust so that the frequency at the test point is 19kHz ± 50Hz.
- 5. LW Frequency Range Adjustment ("E", "K", "Z" models only)**
- L15 144kHz
Method: Adjust L15 so that the voltage of TP2 become 1.0 ± 0.05V.
- 4. AM (MW) Frequency Range Adjustment**
- L9 522kHz (9kHz), 530kHz (10kHz)
Method: Adjust L9 so that the voltage of TP2 become 1.0 ± 0.1V.
- 14. AM IF Adjustment**
- T5 450kHz
- 8. LW Tracking Adjustment ("E", "K", "Z" models only)**
- T9 150kHz
TC8 350kHz
- 7. AM (MW) Tracking Adjustment**
- T4 603kHz (600kHz "U" model)
TC3 1,440kHz (1,400 kHz "U" model)
- TP2** AM/FM Tuning Voltage Test Point
- 12. FM Stereo Distortion**
- Settings: • Function switch: FM
• Input signal: 90mHz, 72dB, MOD 75kHz div
• Adjustment location: T1
• Test points: TP6 (L-ch), TP7 (R-ch)
Method: Adjust T1 so that the distortion is reduce to minimum value. Rating: Less than 0.35%.

ELECTRICAL MAIN PARTS LIST

Table with columns: Symbol No., Part No., Description. Includes sections for MAIN CIRCUIT BOARD SECTION, JACK CIRCUIT BOARD SECTION, SWITCH-2 CIRCUIT BOARD SECTION, LED CIRCUIT BOARD SECTION, KEY BOARD CIRCUIT BOARD SECTION, CON CIRCUIT BOARD SECTION, DOLBY-NR CIRCUIT BOARD SECTION, POWER CIRCUIT BOARD SECTION, and PHONO AMP CIRCUIT BOARD SECTION.

Table with columns: Symbol No., Part No., Description. Includes sections for DECK CIRCUIT BOARD SECTION, SWITCH-1 CIRCUIT BOARD SECTION, and VL CIRCUIT BOARD SECTION.

Table with columns: Symbol No., Part No., Description. Includes sections for TU CIRCUIT BOARD SECTION, FL CIRCUIT BOARD SECTION, and REC AMP CIRCUIT BOARD SECTION.

Table with columns: Symbol No., Part No., Description. Includes sections for TU CIRCUIT BOARD SECTION, FL CIRCUIT BOARD SECTION, and REC AMP CIRCUIT BOARD SECTION.

Table with columns: Symbol No., Part No., Description. Includes sections for JACK CIRCUIT BOARD SECTION, SWITCH-2 CIRCUIT BOARD SECTION, LED CIRCUIT BOARD SECTION, KEY BOARD CIRCUIT BOARD SECTION, CON CIRCUIT BOARD SECTION, DOLBY-NR CIRCUIT BOARD SECTION, and POWER CIRCUIT BOARD SECTION.

Table with columns: Symbol No., Part No., Description. Includes sections for AUTO STOP CIRCUIT BOARD SECTION, MISCELLANEOUS, and COMBINATION CIRCUIT BOARD SECTION.

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.

Combination circuit board A 82-794-610-21 PCB-A 82-794-611-21 PCB-B 82-794-614-21 PCB-E 82-794-613-21 PCB-I 82-794-618-21 PCB-J 82-794-615-21 PCB-K 82-794-612-21 PCB-L 82-794-656-21

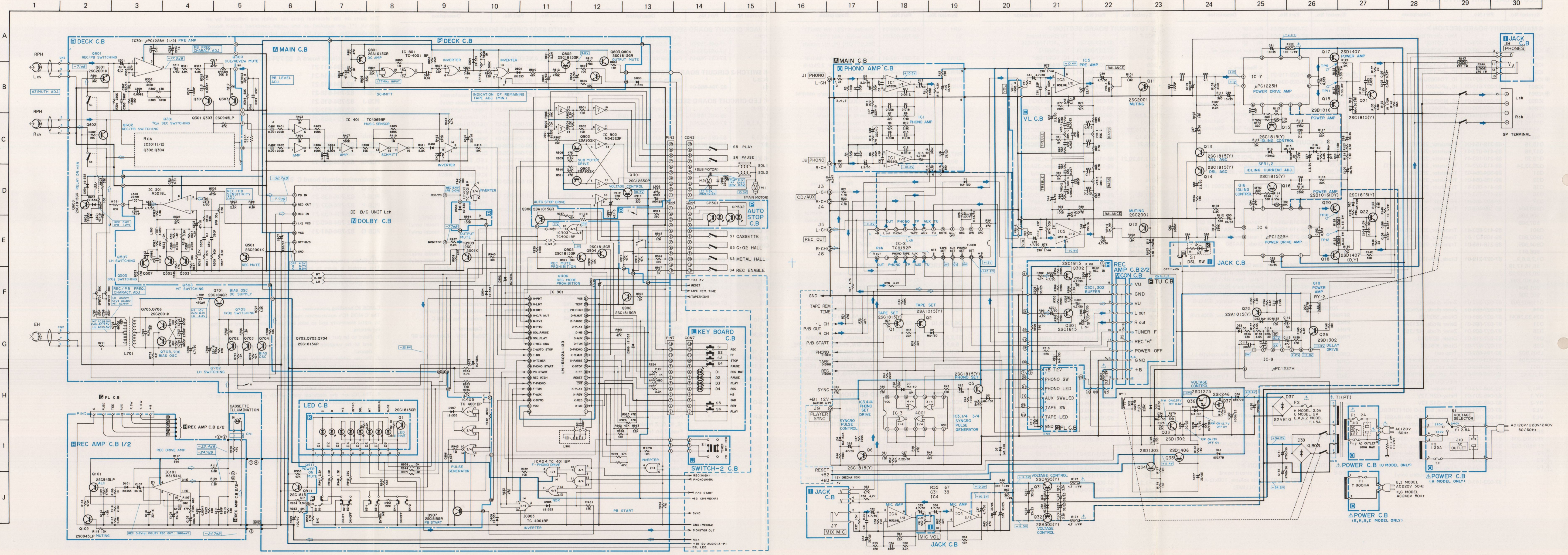
Combination circuit board B 82-794-626-11 PCB-C 82-794-628-11 PCB-H 82-794-627-11 PCB-M 82-794-629-11

Combination circuit board C 82-794-635-21 PCB-D 82-794-638-21 PCB-F 82-794-636-21 PCB-G 82-794-637-21 PCB-O 82-794-639-21 PCB-P 82-794-640-21 PCB-Q 82-794-641-21

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.

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.

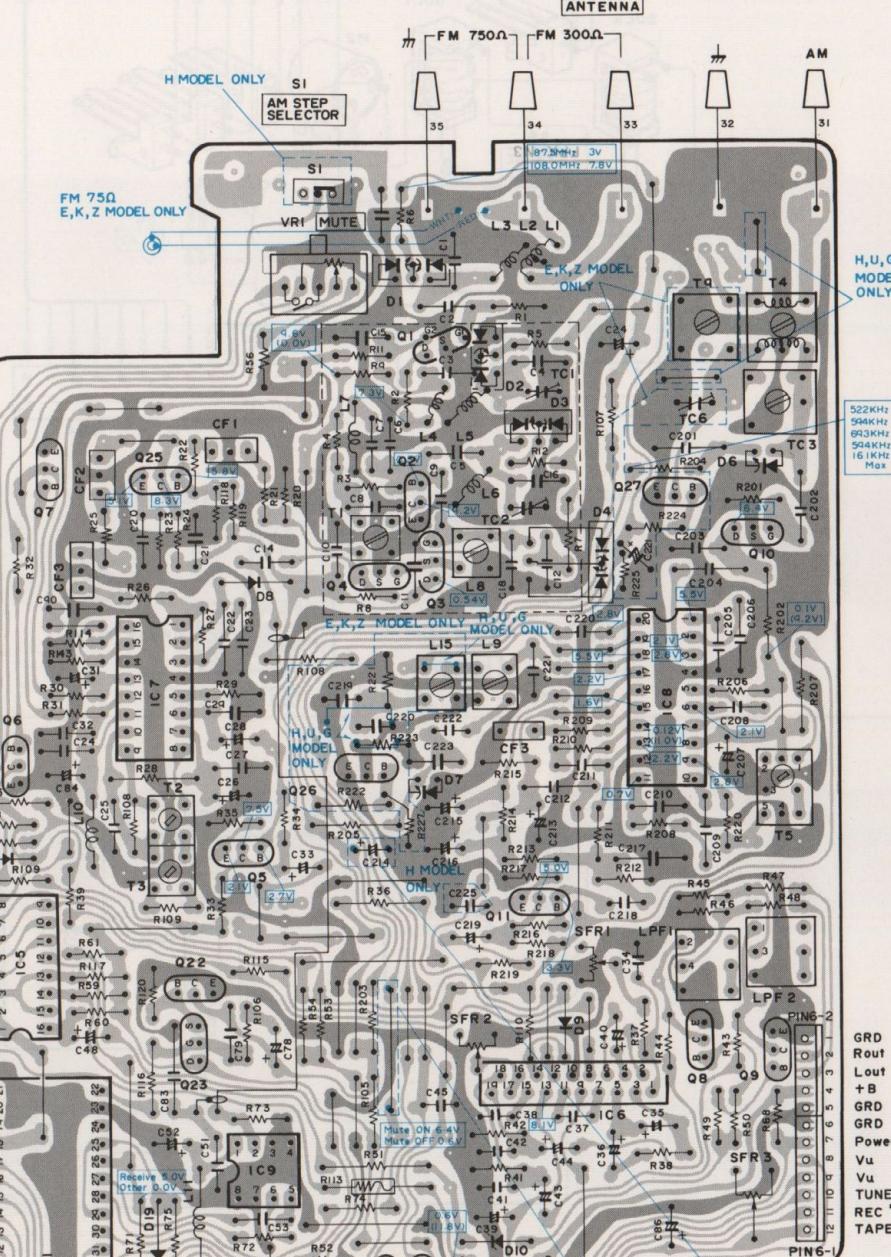
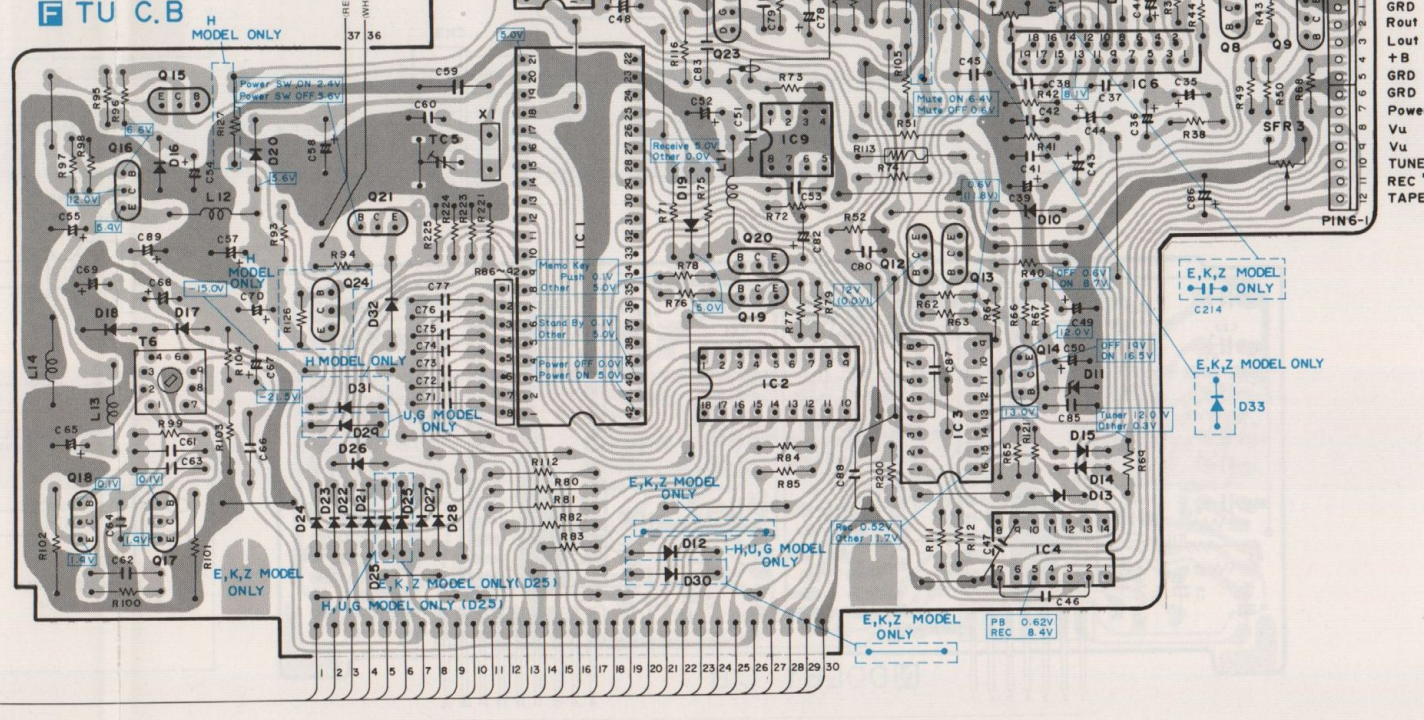
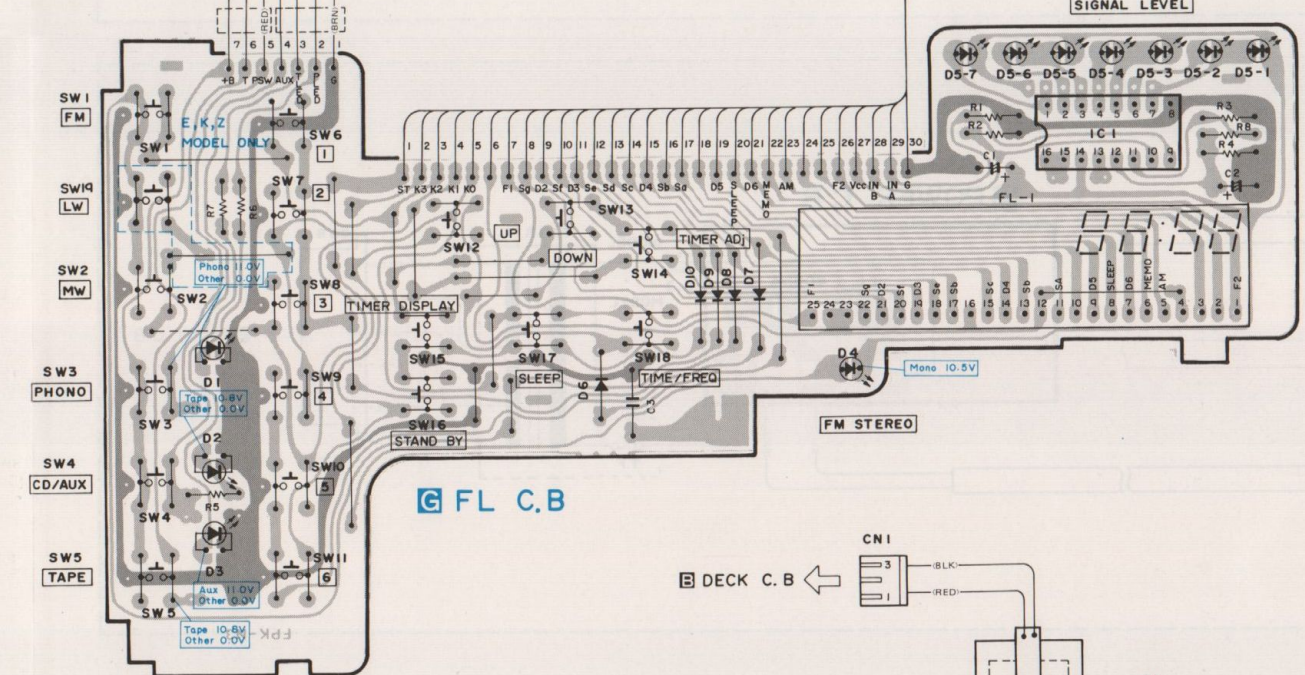
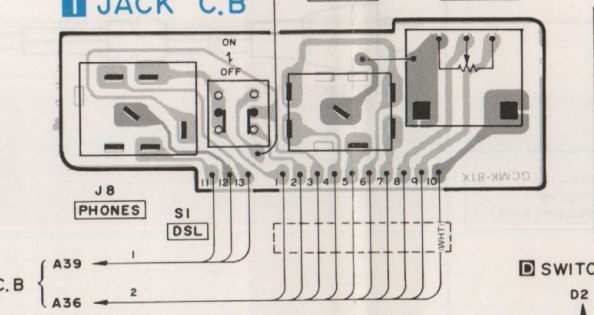
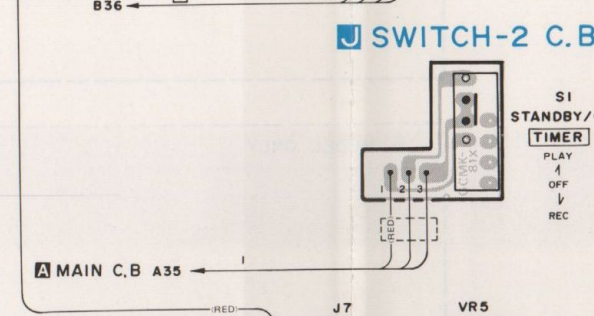
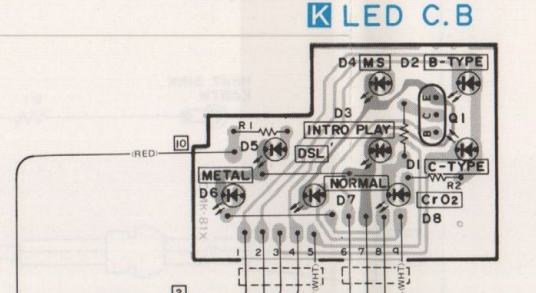
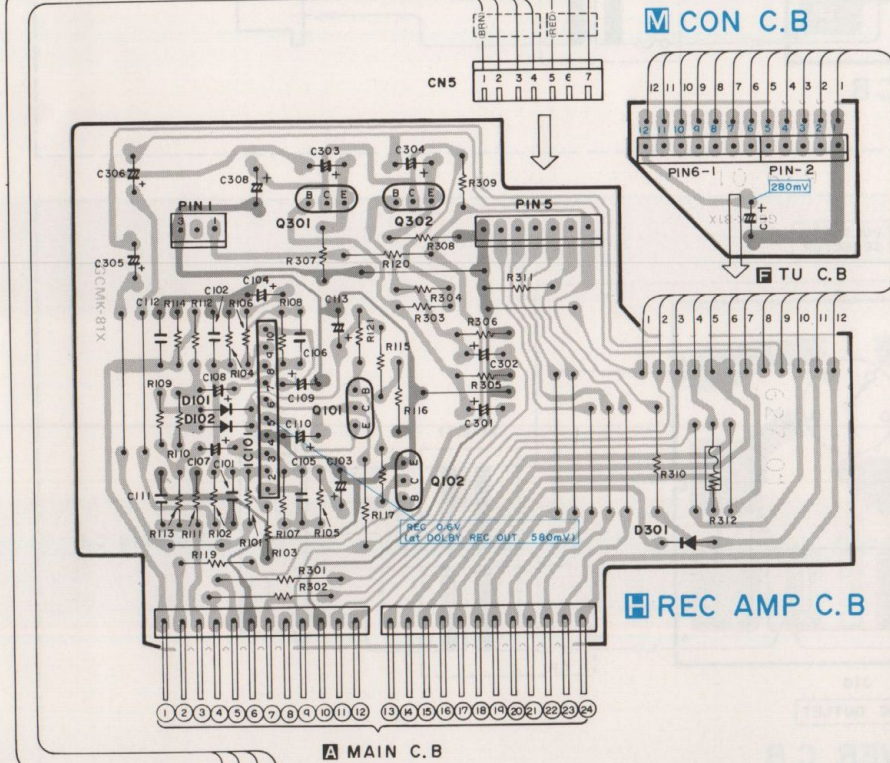
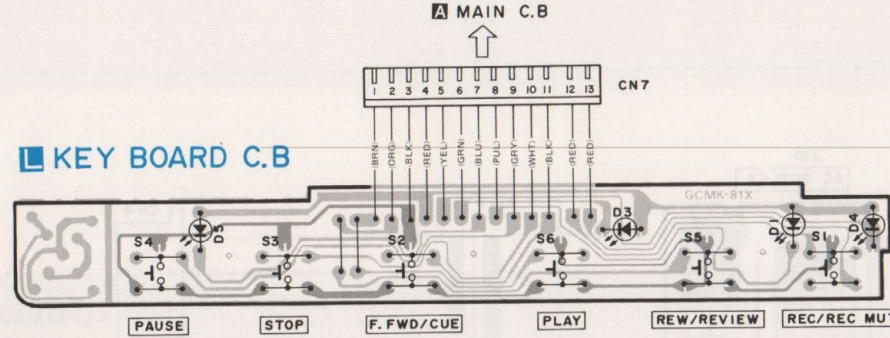
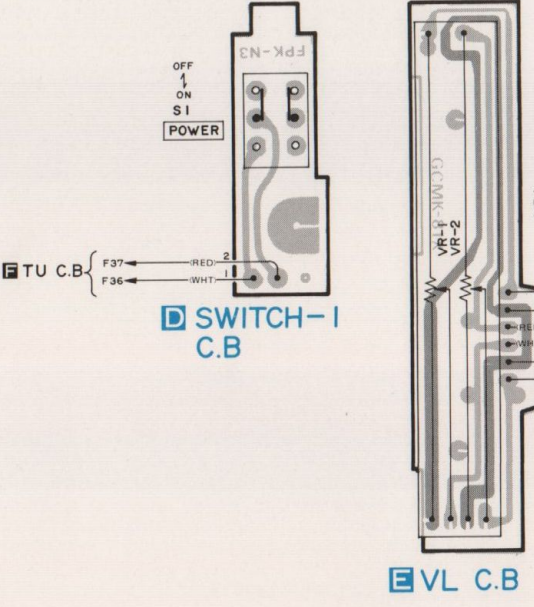
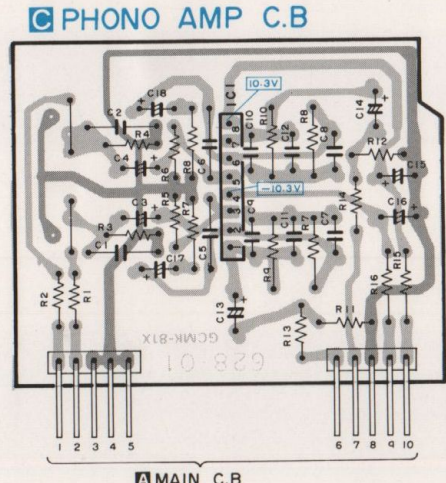
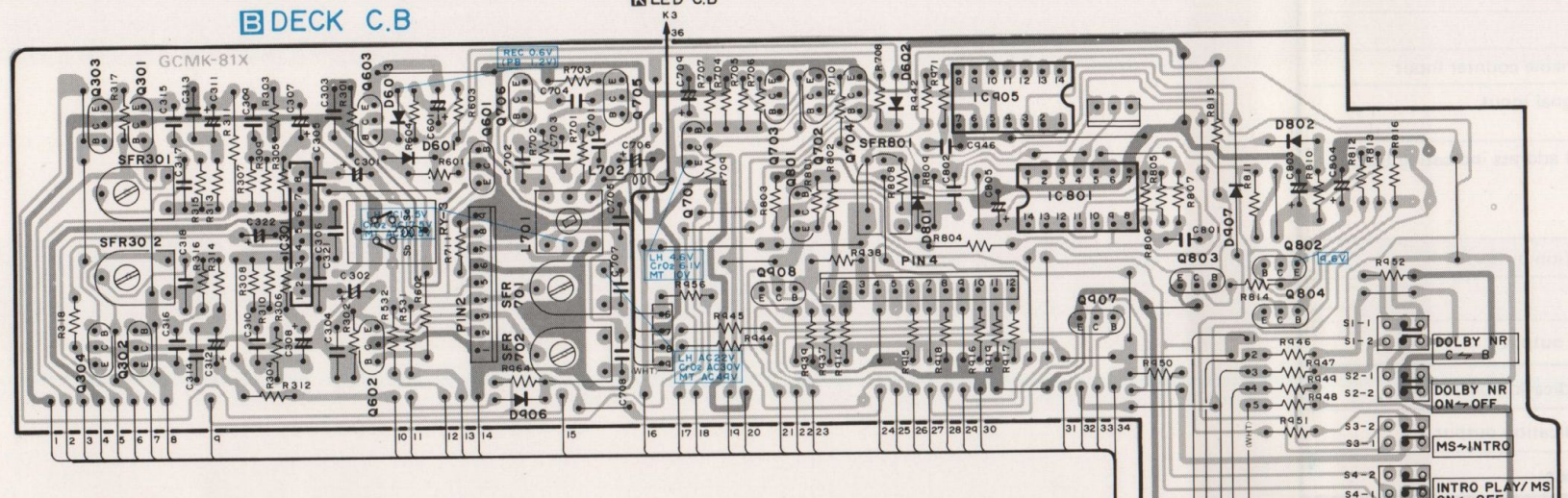
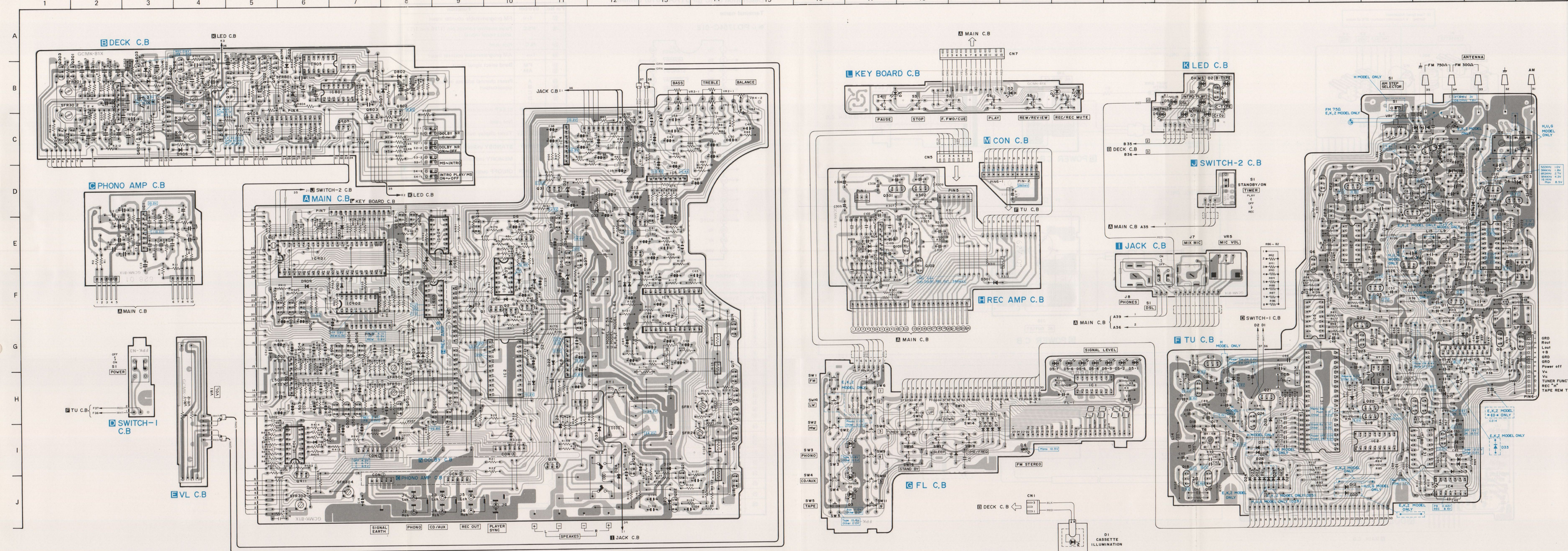
SCHEMATIC DIAGRAM-3



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.

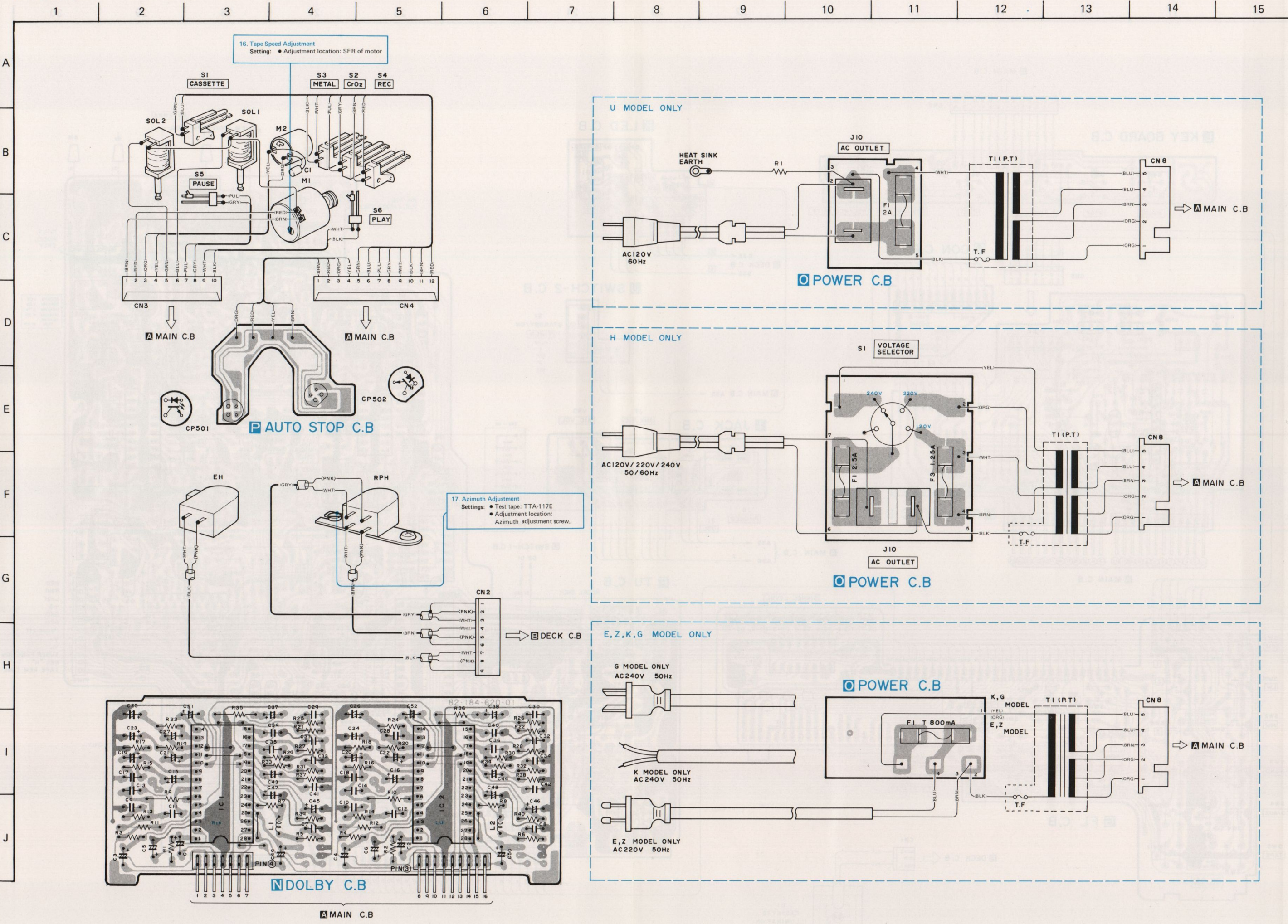
WIRING-1



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

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.

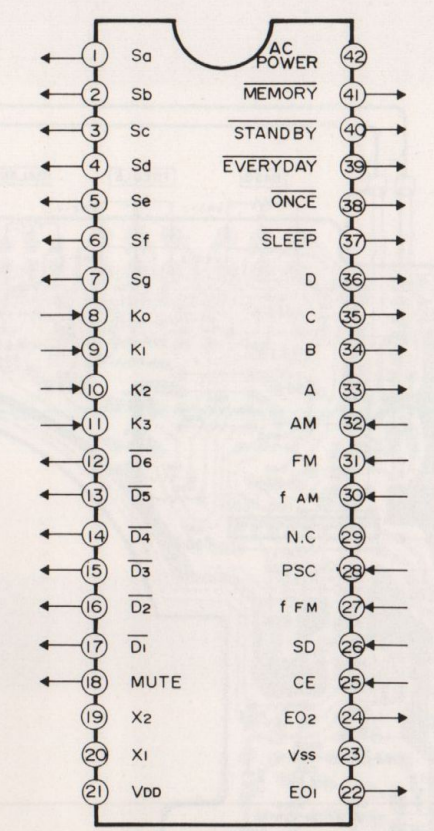
WIRING-2



Description of IC (μ PD1704C-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	K0	Key matrix input pin
9	K1	
10	K2	
11	K3	
12	D6	Frequency indication/time indication digit signal output. Active: Low
13	D5	
14	D4	
15	D3	
16	D2	
17	D1	
18	MUTE	Mute output
19	X2	Crystal oscillator pin. 4.5MHz
20	X1	
21	VDD	Power pin. 5V \pm 10%
22	E01	Phase detector output. Same output as E02
23	VSS	GND pin
24	E02	Phase detector output. Same output as E01
25	CE	Chip ENABLE input
26	SD	Station detector input. (Stop input signal pin during auto-tuning)

Pin No.	Symbol	Function
27	f _{FM}	FM programmable counter input
28	PSC	Pulse swallow control pin (1/16 and 1/17 select signal input)
29	N.C.	Not used
30	f _{AM}	AM programmable counter input
31	FM	Band select signal input
32	AM	
33	A	Preset channel address indicating BCD signal output
34	B	
35	C	
36	D	
37	SLEEP	SLEEP indication output
38	ONCE	Not used
39	EVERY DAY	Timer display output
40	STANDBY	STANDBY indication output
41	MEMORY	MEMORY indication output
42	AC POWER	ON/OFF output

TC 9152P

