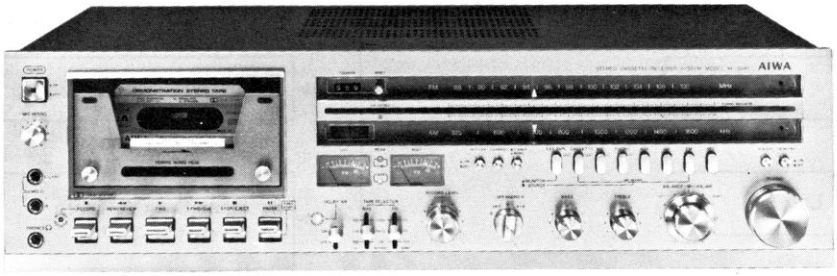
FM/AM STEREO CASSETTE RECEIVER

MODEL NO. AF-3090U

AIWA®

(SERVICE MANUAL)



DATE OF ISSUE 9/1978

SPECIFICATIONS

GENERAL

Semicondouctors:	6 IC's, 1 FET, 112 transistors, 67 diodes, 9 LED's
Power source:	AC 120V, 60 Hz
Power consumption:	170 W
Dimensions:	23-1/4"(W) x 6-3/8"(H) x 17"(D) (590 x 161 x 432 mm)
Weight:	44 lbs (20 kg)

FM TUNER SECTION

Frequency range:	87.4~109.2 MHz
Intermediate frequency:	10.7 MHz ± 0.2 MHz (at 98 MHz)
Frequency scale accuracy:	±150 kHz (at 88,98,108 MHz)
Noise limit sensitivity:	(at S/N 30 dB, div 75 kHz, THD 3%) MONO 6 ± 2 dB (at 88,98,108 MHz) STEREO 12 ± 2 dB (at 88,98,108 MHz)
Image frequency inteference ratio:	$85\ ^{+20}_{-5}$ dB (at 98 MHz)
Intermediate frequency interference ratio:	$90\ ^{+20}_{-5}$ dB (at 98 MHz)
Muting response:	$22\ ^{+3}_{-2}$ dB (at 98 MHz)
Effective selectivity: (input 40 dB, ±400 kHz, div. 75 kHz)	$65\ ^{+10}_{-5}$ dB (at 98 MHz)
Capture ratio:	1.5 ± 0.5 dB (input 60 dB, 98 MHz)
SN ratio: (used filter)	MONO $78\ ^{+12}_{-8}$ dB STEREO $70\ ^{+10}_{-5}$ dB
Separation: (input 60 dB, 98 MHz)	More than 40 dB (at 1 kHz)
Dolby effect:	MONO 5.5 ± 0.5 dB STEREO 5.0 ± 0.5 dB

AM TUNER SECTION

Frequency range:	515~1650 kHz
Intermediate frequency:	455 kHz ± 5 kHz
Frequency scale accuracy:	±10 kHz (at 600 kHz) ±15 kHz (at 1000 kHz, 1400 kHz)
Noise limit sensitivity: (S/N 20 dB)	$48\ ^{+4}_{-3}$ dB (at 600, 1000, 1400 kHz)
Image frequency interference ratio:	More than 40 dB (at 1400 kHz)
Intermediate frequency interference ratio:	30 ± 5 dB (at 600 kHz)
IF selectivity:	25 ± 5 dB (at 1000 kHz)

TAPE DECK SECTION

Track system:	4-track 2-channel stereo
Tape speed:	4.75 cm/sec ±1%
Wow & flutter:	Less than 0.05% (WRMS) at PB
Automatic shut-off action time:	4 ± 1 sec
Pich roller pressure:	375 ± 30 g
Take-up torque:	50 ± 10 g-cm
FF & rewind torque:	125 ± 25 g-cm
FF & rewind time:	Less than 95 sec (W/C-60 cassette)
Playback output: (TTA-161)	11.75 ± 0.5 dB (REC OUT)
Playback noise: (Dolby: OFF)	Less than 4 mV (LH) Less than 3.0 mV (Fe-Cr, CrO_2)
Rec./pb. output: (400 Hz, 0 VU)	0 VU ± 0.5 dB (REC OUT)
Rec./pb. distortion: (400 Hz, 0 VU)	Less than 2.0% (LH) Less than 1.5% (Fe-Cr) Less than 3.0% (CrO_2)
Rec./pb. S/N: (400 Hz, 0 VU) (Un-Weighted)	More than 43/45 dB (LH, Dolby Off/On) More than 45/48 dB (Fe-Cr, Dolby Off/On) More than 45/48 dB (CrO_2 Dolby Off/On)
Channel separation:	More than 28 dB (at 1 kHz, 0 VU)
Cross talk:	$65\ ^{+10}_{-5}$ dB (at 1 kHz, 0 VU)
Erasing ratio:	More than 60 dB (at 400 Hz, 0 VU + 10 dB)
Bias frequency:	61 kHz ± 2 kHz
Frequency response: (at Dolby Off, Rec./pb.)	LH tape, 20~15 kHz (at −10 dB) Fe-Cr tape, 20~17 kHz (at −10 dB) CrO_2 tape, 20~17 kHz (at −10 dB)
Motor:	38 pulse FG servo motor
Head:	Ferrite guard head (FGH)

PRE AMP SECTION

Input sensitivity/impedance:	PHONO: Less than 2.5 mV/50 kΩ AUX, TAPE PLAY, DIN: Less than 150 mV/50 kΩ MIC: Less than 0.3 mV/5 kΩ
Output level/impedance:	TAPE REC: More than 150 mV/2 kΩ DIN: More than 30 mV/80 kΩ
SN ratio: (IHF A-curve)	PHONO: More than 73.5 dB AUX, TAPE PLAY, DIN: More than 95 dB MIC: More than 80 dB
Tone controls:	BASS: ±10 ±1 dB (at 100 Hz: turnover frequency) TREBLE: ±8 ±1 dB (at 10 kHz: turnover frequency)
Loudness response: (Volume: −40 dB)	+8 ±1 dB (at 100 Hz) +3 ±1 dB (at 10 kHz)
Separation:	More than 40 dB (at 1 kHz, 1 W)

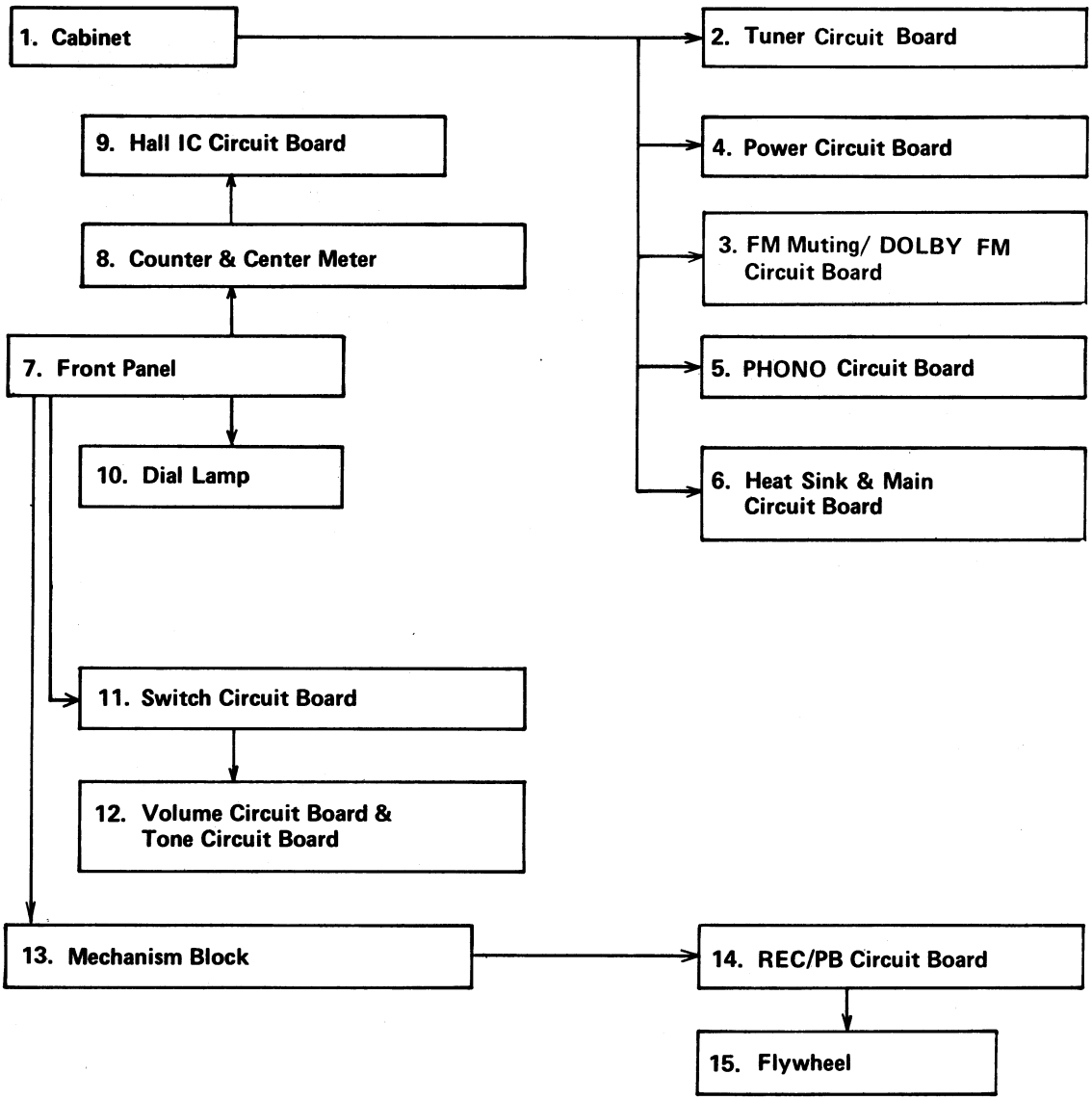
POWER AMP SECTION

Continuous power output:	More than 50 W (at 20 Hz~20 kHz, distortion 0.1%)
Distortion:	Less than 0.1% (at 20 Hz~ 20 kHz)
SN ratio: (IHF A-curve)	More than 95 dB (at 1 kHz)
Damping factor:	More than 50 (at 1 kHz)
Power bandwidth:	5 Hz~55 kHz (at 20 W, distortion 0.2%)

- Specifications and external appearance are subject to change without notice due to product improvement.
- Dolby Noise Reduction System is licensed from Dolby Laboratories Incorporated.
- The name "Dolby" and the "Double D" symbol are trademarks of Dolby Laboratories Incorporated.

MAIN PARTS REMOVAL PROCEDURE

- **Follow the flow chart below for the removal of all the parts.**



DISASSEMBLY INSTRUCTIONS

1. To Remove Cabinet

1) Remove 8 screws. (Refer to Fig. 1)

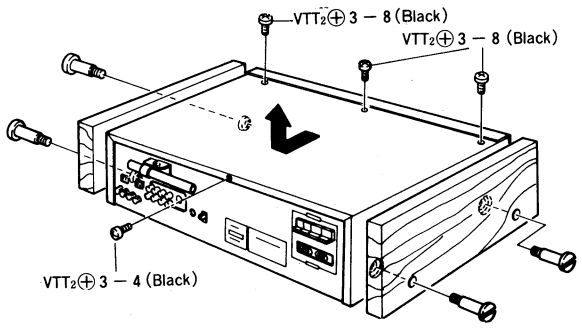


Fig. 1

2. To Remove Tuner Circuit Board

1) In order to prevent the thread from working free from the dial drum when circuit board removed, loosen the mounting screw for the dial drum with a hexagonal wrench (1.5 mm), insert it into the driver as shown in the figure and tighten temporarily. (Refer to Fig. 2)

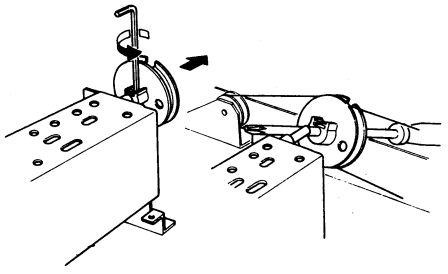


Fig. 2

2) Remove the connector. (Refer to Fig. 3)
3) Detach the two FM front-end wires with a soldering iron. (Refer to Fig. 3)

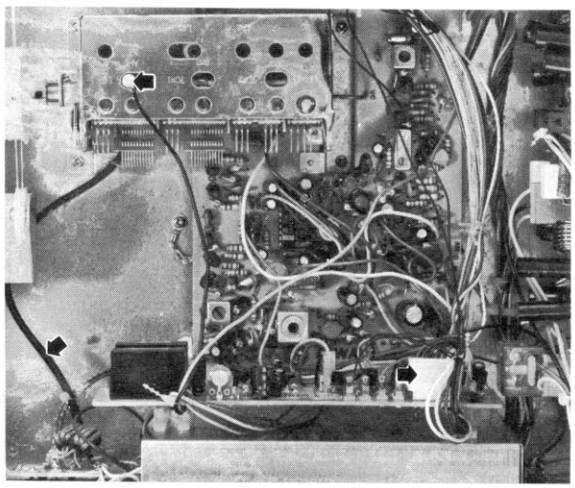


Fig. 3

4) Remove 8 screws. (Refer to Fig. 4)

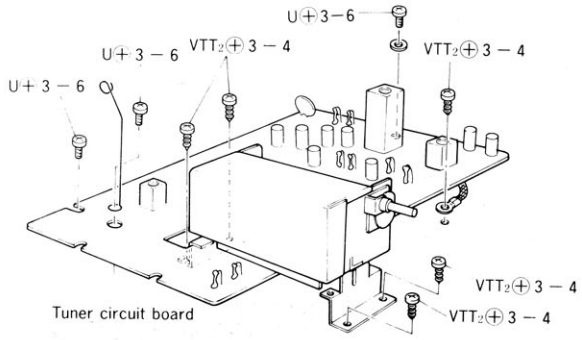


Fig. 4

3. To Remove FM Muting/ DOLBY FM Circuit Board

1) Pull out the circuit board in the direction indicated by the arrow. (Refer to Fig. 5)

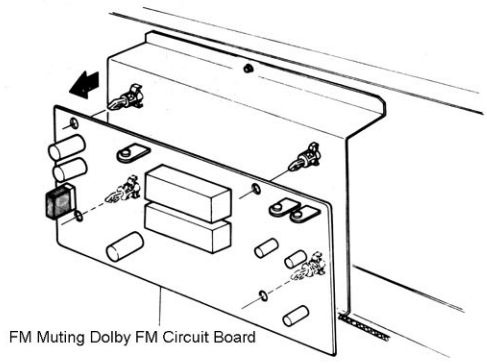


Fig. 5

4. To Remove Power Circuit Board

1) Remove 7 connectors. (Refer to Fig. 6)
2) Remove 2 screws, and pull the circuit board in the direction indicated by the arrow to remove. (Refer to Fig. 6)

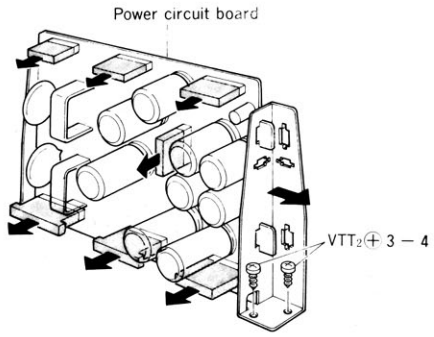


Fig. 6

5. To Remove Bias/Eq. Circuit Board

1) Remove 3 screws and remove the shield plate. (Refer to Fig. 7)

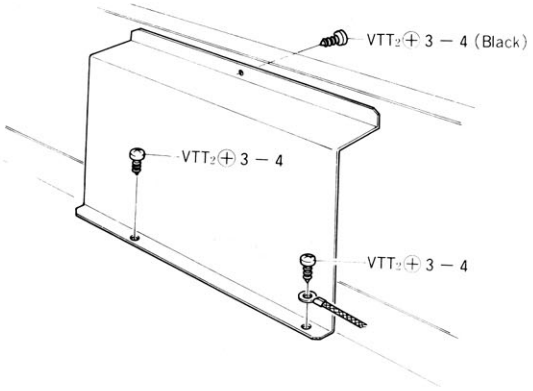


Fig. 7

2) Remove 4 nylon rivets. (Refer to Fig. 8)
3) Detach the ceramic capacitor with a soldering iron. (Refer to Fig. 8)

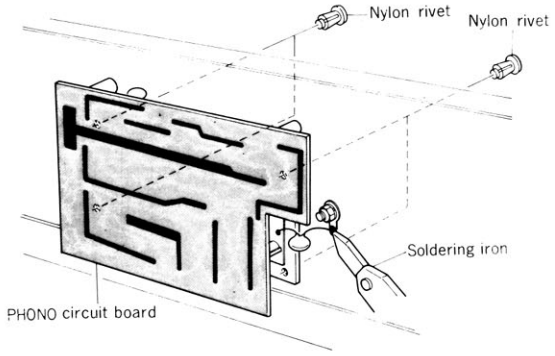


Fig. 8

6. To Remove Heat Sink and Main Circuit Board

1) Remove 4 connectors. (Refer to Fig. 9)
2) Remove 4 screws of the heat sink. (Refer to Fig. 9)
3) Remove 4 screws of the circuit board. (Refer to Fig. 9)

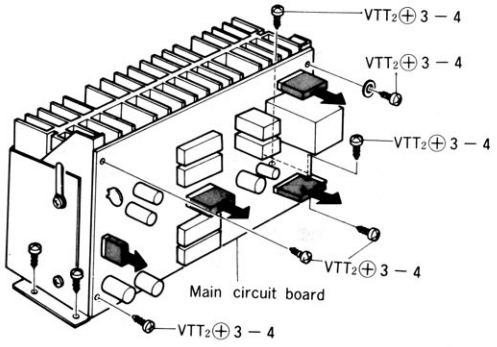


Fig. 9

7. To Remove Front Panel

1) Remove 2 decorative screws and remove cassette lid cover. (Refer to Fig. 10)

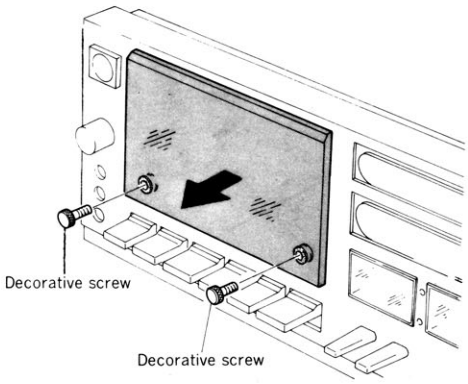


Fig. 10

2) Remove 13 knobs.

Note: When attaching the knobs again, leave a clearance of 1 mm with the front panel. (Refer to Fig. 11)

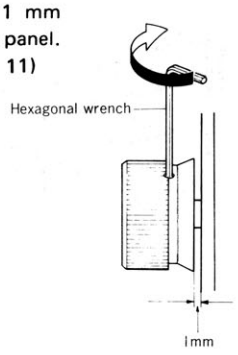


Fig. 11

3) Remove 9 screws. (Refer to Fig. 12)

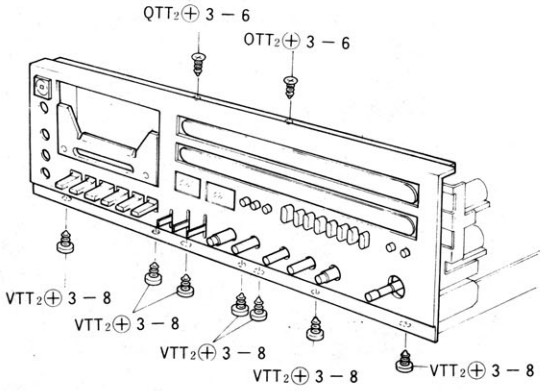


Fig. 12

8. To Remove Counter and Center Meter

1) Remove the E-ring off and hold the pulley, Tuning dial at the chassis with the screw (VTT_2+3-8) (Refer to Fig. 13)

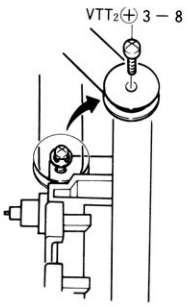


Fig. 13

2) Arrange the relay belt on the mechanism boss. (Refer to Fig. 14)

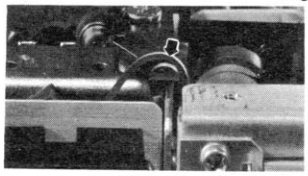


Fig. 14

3) Remove 2 screws. (Refer to Fig. 15 and Fig. 16)

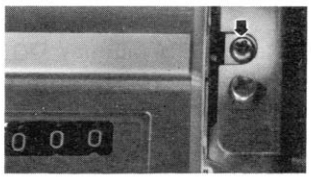


Fig. 15

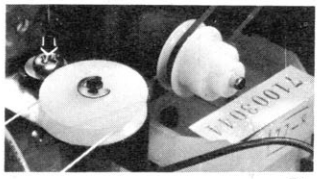


Fig. 16

9. To Remove Hall IC Circuit Board

1) Remove 2 screws. (Refer to Fig. 17)

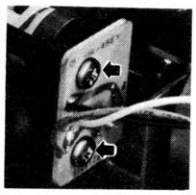


Fig. 17

Note: When mounting the circuit board, check that there is a clearance of 1 mm between the magnet and the hall IC. (Refer to Fig. 18)

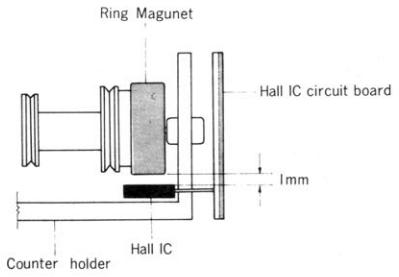


Fig. 18

10. To Remove Dial Lamp

1) Remove the dial lamp tube. (Refer to Fig. 19)
2) Remove the pointer lock plate. (Refer to Fig. 19)

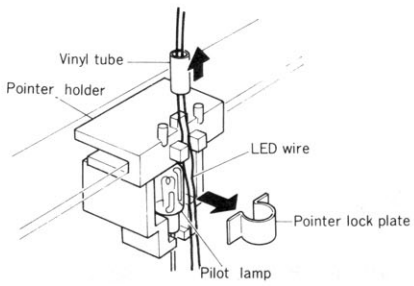


Fig. 19

3) Hold the pointer holder are pull the carsor. (The poly-slider washer in the position in the figure will also be removed, and so take care when replacing.) (Refer to Fig. 20)

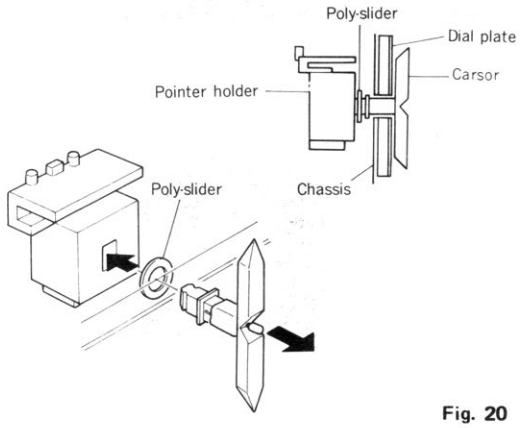


Fig. 20

11. To Remove Switch Circuit Board

1) Remove 12 connectors. (Refer to Fig. 21)

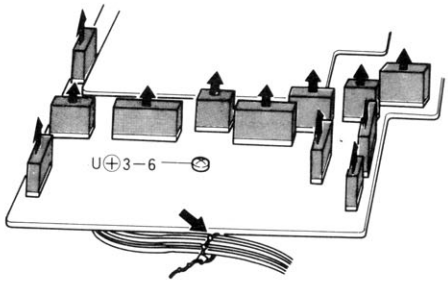


Fig. 21

2) Cut the cable and remove 5 screws. (Refer to Fig. 21 and 22)

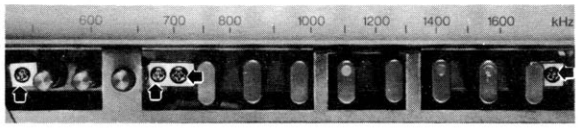


Fig. 22

12. To Remove Volume and Tone Circuit Board

1) Remove 4 screws and pull the circuit board toward you remove. (Refer to Fig. 23)

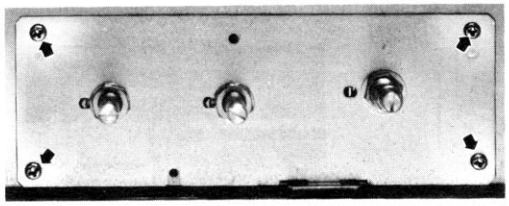


Fig. 23

13. To Remove Mechanism Block

1) Remove mounting stopper, and pull out rod (power switch). (Refer to Fig. 24)

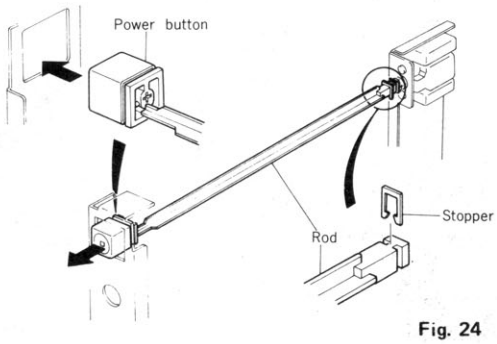


Fig. 24

Note: When replacing, make sure that the block returns to its former position.

2) Remove 2 screws of the shield plate. (Refer to Fig. 25)

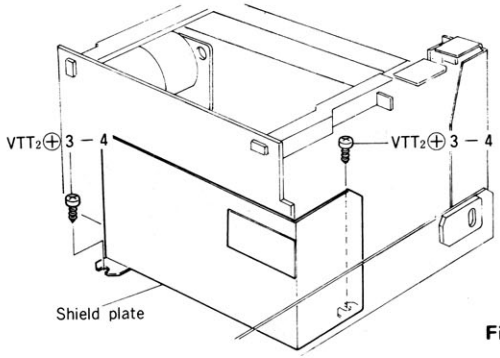


Fig. 25

3) Cut the cable in four places. (Refer to Fig. 26)

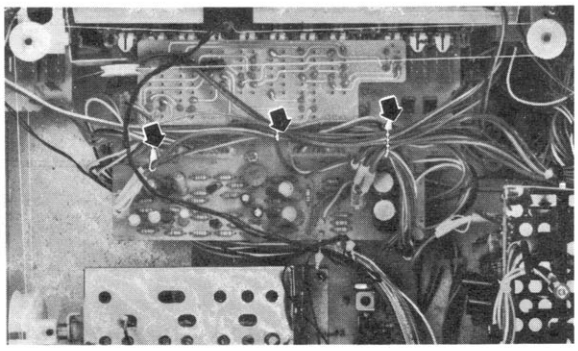


Fig. 26

4) Arrange the relay belt on the mechanism boss. (Refer to Fig. 27)

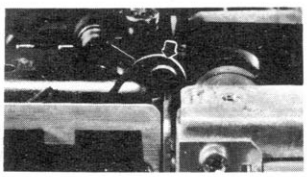


Fig. 27

5) Remove 13 screws. (Refer to Fig. 28, 29 and 30)

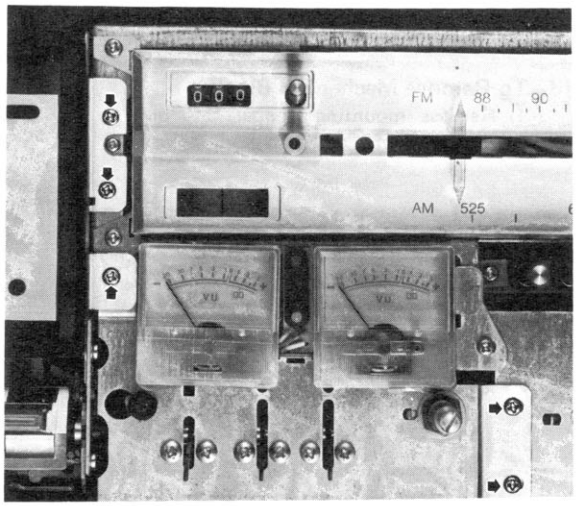


Fig. 28

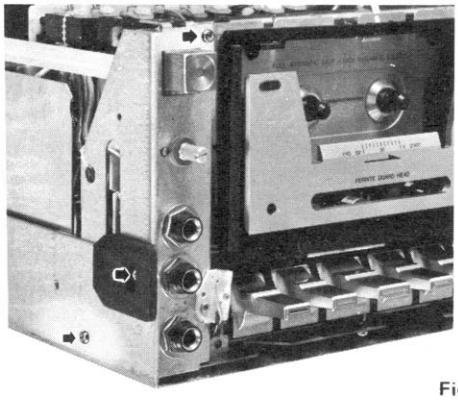


Fig. 29

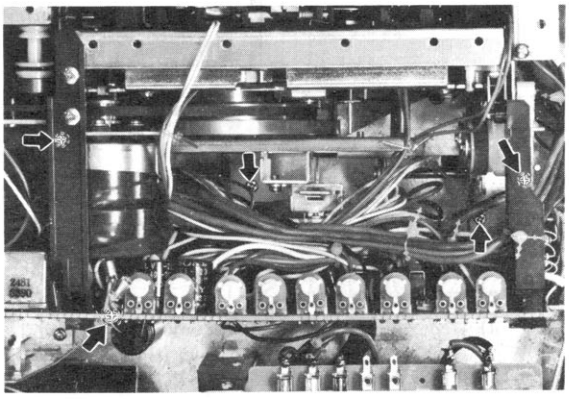


Fig. 30

6) Lift up the front chassis in the direction of arrow 1 and lift up the mechanism block in the direction of arrow 2. (Refer to Fig. 31)

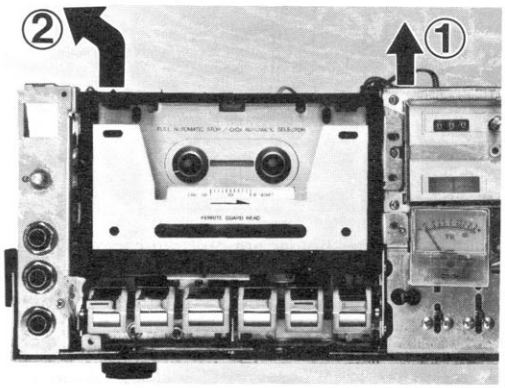


Fig. 31

7) Remove 2 screws of the hall IC circuit board. (Refer to Fig. 32)

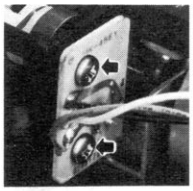


Fig. 32

8) Short the pattern and release the auto-stop operation. (Refer to Fig. 33)

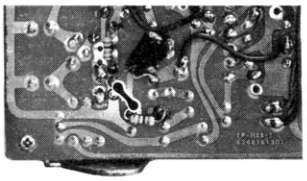


Fig. 33

14. To Remove REC/PB Circuit Board

1) Remove 3 screws. (Refer to Fig. 34)

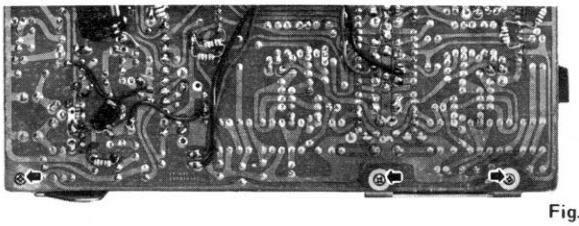


Fig. 34

2) Remove 2 rubber cushions, bend the pawl inside and remove the circuit board. (Refer to Fig. 35)

Note: When replacing, return the rubber cushions to its original position.

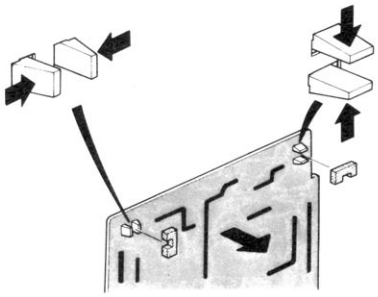


Fig. 35

15. To Remove Flywheel

1) Loosen the plunger holder screw, and drop in the holder. (Refer to Fig. 36) (Make sure that the plunger is not brought into contact with the flywheel).

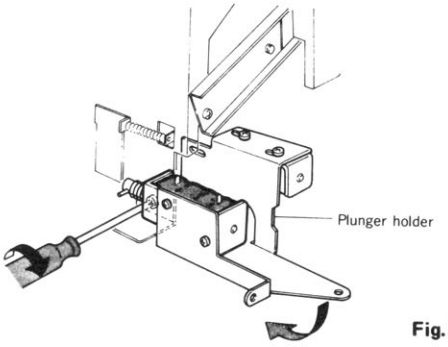


Fig. 36

2) Remove the main belt, rotate the motor in the direction of the arrow, and pull toward you to remove. (Refer to Fig. 37)

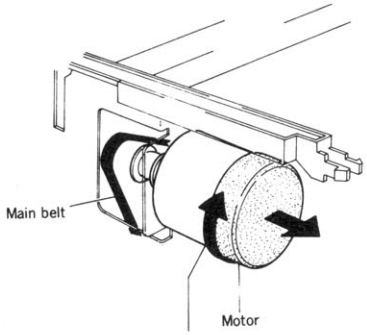


Fig. 37

3) Remove 2 screws of the flywheel bearing plate. (Refer to Fig. 38)
4) Remove poly-slider washer of the flywheel shaft, and then pull out the flywheel. (Refer to Fig. 38)

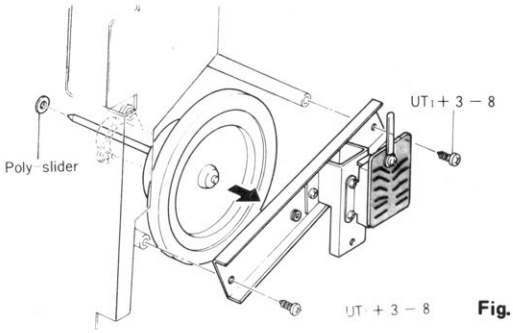


Fig. 38

Note: When replacing the flywheel, first check that the muting switch lever is positioned as indicated in the figure. (Refer to Fig. 39)

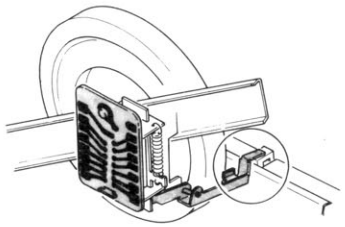
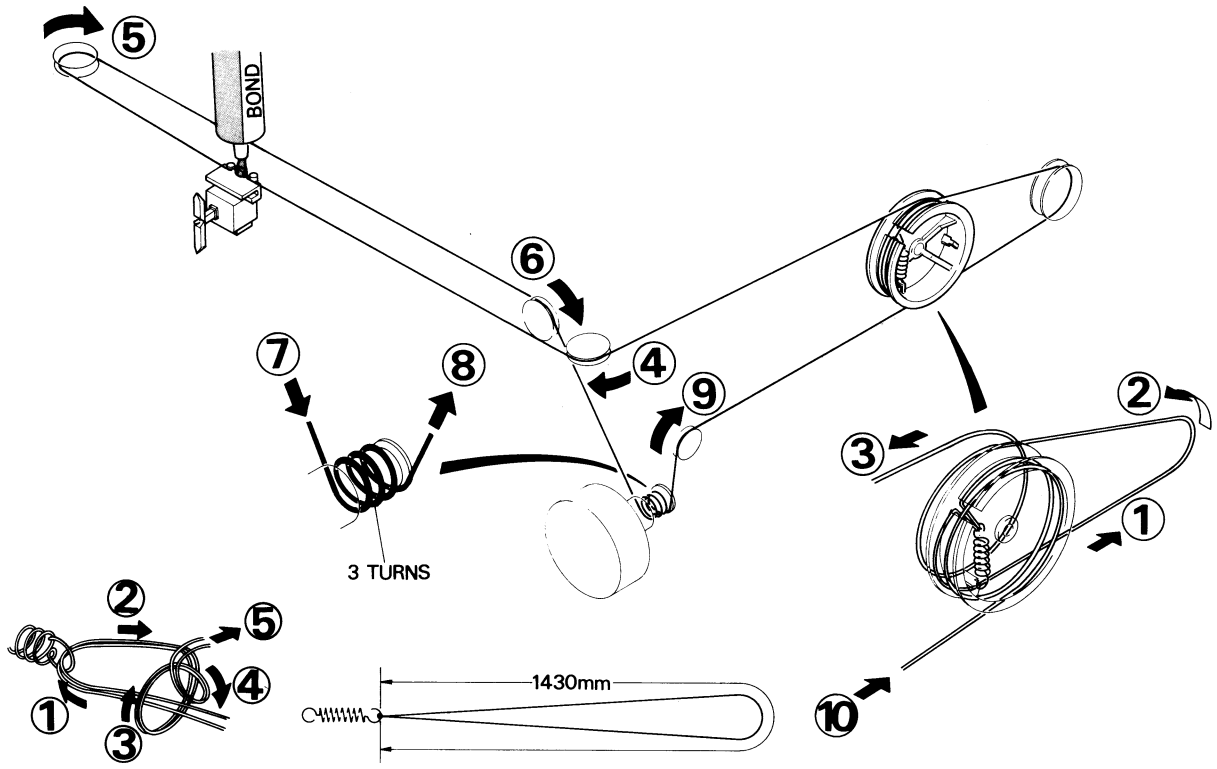


Fig. 39

DIAL CORD STRINGING



ACCESSORIES/PACKAGE

Ref. No.	Part No.	Part No. Changed to	Description	Common Model	Q'ty
1	82-481-863-01		Printed indiv., Packing	*	1
2	82-481-859-01		Cushion L, Printed indiv.	*	1
3	82-481-860-01		Cushion R, Printed indiv.	*	1
4	87-051-131-01		Poly-vinyl sack (for AC power cord)		1
5	87-056-564-01		Curl stopper		2
6	82-481-858-01		Poly-vinyl sack (for case)	*	1
7	82-473-861-01		Cushion, Bar antenna		1
8	87-056-571-01		Label, Cassette lid		2
9	82-481-919-01		Instructions booklet	*	1
10	87-051-171-01		Poly-vinyl sack (for instruction)		1
11	87-056-034-01		Service station list		1
12	87-056-035-01		Card, Limited warranty		1
13	87-056-036-01		Guarantee card		1
14	87-043-025-01		FM antenna		1
15	87-058-023-01		Cord binder		1
16	87-058-025-01		Head cleaning pole ass'y		1

HARDWARE NOMENCLATURE

V: Pan head screw

U: Binding head screw

Q: Flat countersunk head screw

VT1: Pan head tapping screw

UT1: Binding head tapping screw

QT1: Flat countersunk head tapping screw

VT2: Pan head tapping screw

UT2: Binding head tapping screw

VTT, VTT2: Pan head tap-tight screw

QTT, QTT2: Flat countersunk tap-tight screw

VFT2: Flange and Pan head tapping screw

UFT2: Flange and Binding head tapping screw

VS: Pan head screw with spring washer

SSH: Hexagon Socket SET screw

STP: Powerful stop ring

STE: E ring

W: Washer

FW: Fiber washer

PW: Poly-slider washer

TW: Tefron washer

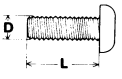
SW: Spring washer

WTI: Crown washer

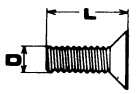
N: Nut

LB: Lug terminal plate

Example:

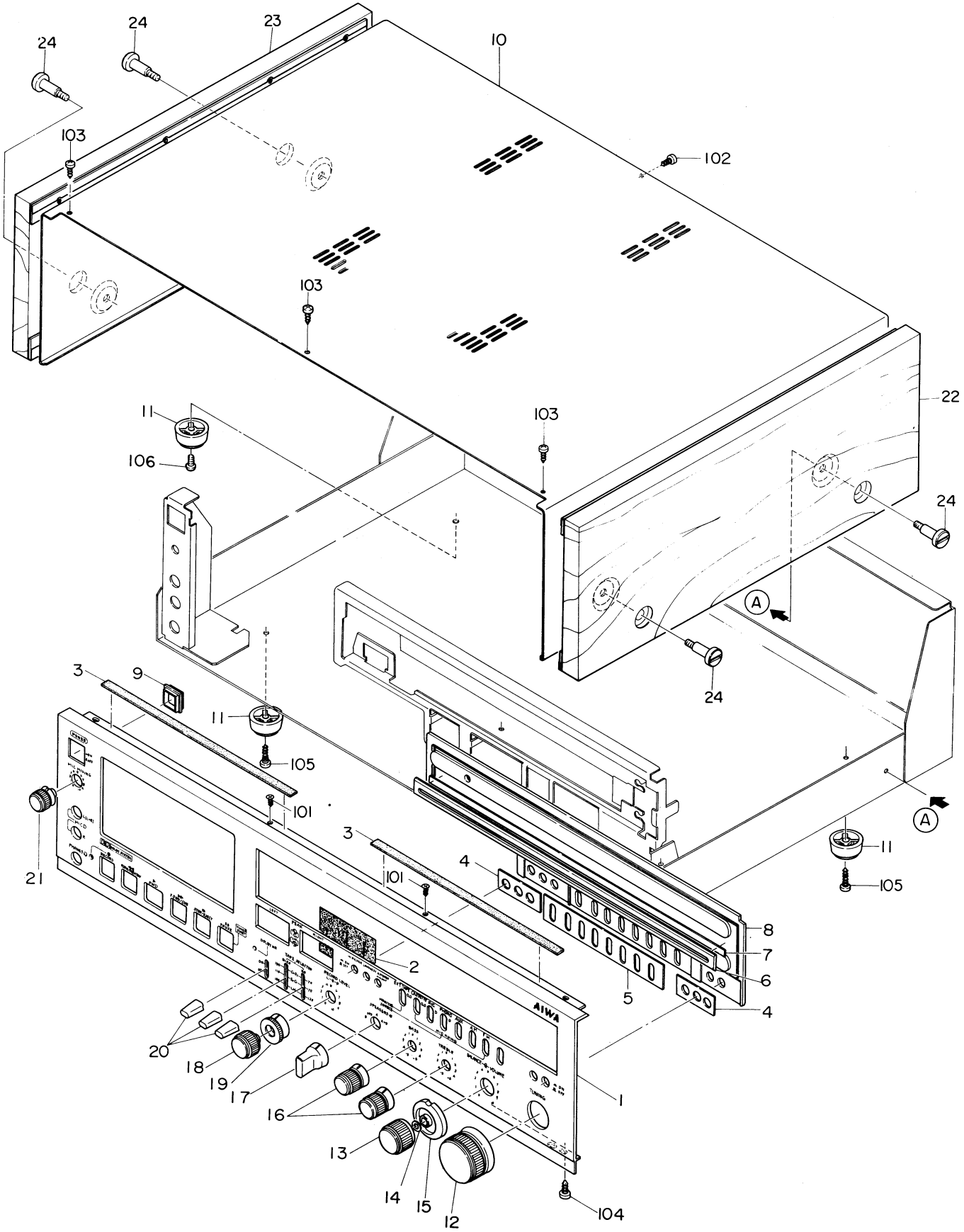


V + 3 – 6
- Length in mm
- Diameter in mm
- Type of Slot
- Type of Head



Q + 3 – 6
- Length in mm
- Diameter in mm
- Type of Slot
- Type of Head

EXPLODED VIEW–1



PARTS LIST

MECHANICAL PARTS

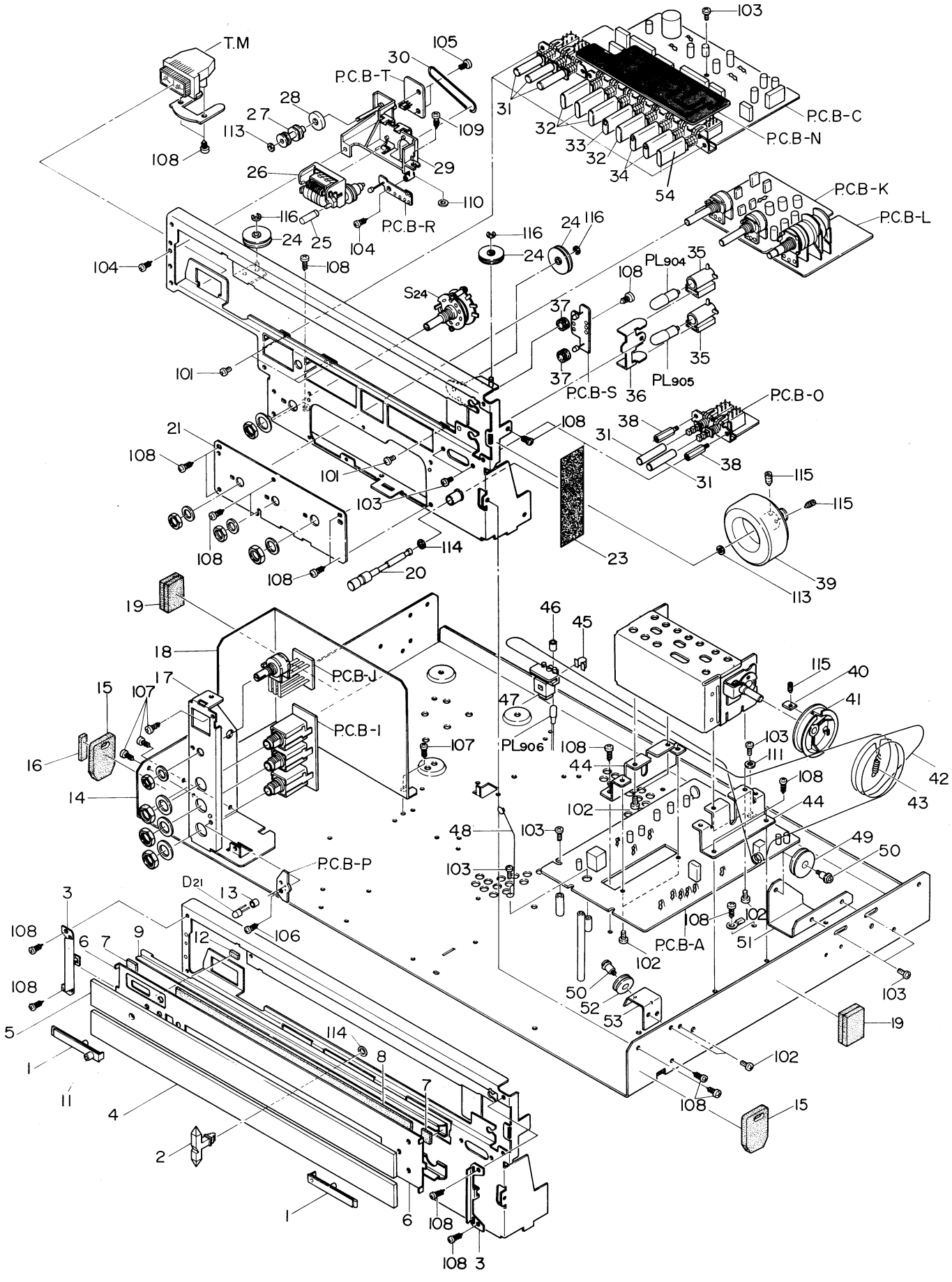
■ * mark in this part list shows exclusive part (which is used) for only Model AF-3090.

Ref. No.	Part No.	Part No. Changed to	Description	Common Model	Q'ty
1~9	09-047-110-01		Panel Assembly		
1-1	82-481-067-01		Panel, Front	*	1
1-2	82-481-283-01		Himeron cloth, Lever switch	*	1
1-3	82-481-313-01		Rubber sheet, Steel cabinet	*	2
1-4	82-481-254-01		Guide, Button	*	2
1-5	82-481-332-01		Guide, Push button		1
1-6	82-481-069-01		Plate, Scale	*	1
1-7	82-481-008-01		Half mirror	*	1
1-8	82-481-006-01		Window, Tuning dial		1
1-9	82-380-026-01		Guide, Power button	AD-6500	1
1-10	82-481-059-01		Steel cabinet ass'y	*	1
1-11	82-481-047-01		Foot	*	5
1-12	82-481-052-01		Tuning knob ass'y	*	1
1-13	82-481-016-01		Knob A ass'y	*	1
1-14	82-481-317-01		Himeron cloth, Knob	*	1
1-15	82-481-018-01		Knob B ass'y	*	1
1-16	82-481-050-01		Knob E ass'y	*	1
1-17	82-481-020-01		Knob C ass'y	*	1
1-18	82-481-024-01		Knob R ass'y	*	1
1-19	82-481-022-01		Knob L ass'y	*	1
1-20	82-485-020-01		Lever key		3
1-21	82-481-026-01		Knob D ass'y	*	1
1-22	82-481-061-01		Panel R, Side	*	1
1-23	82-481-065-01		Panel L, Side	*	1
1-24	82-481-071-01		Screw, Side panel	*	4

Ref. No.	Part No.	Description	Q'ty
1-101	87-081-794-01	QTT_2 + 3-6	2
1-102	87-081-818-01	VTT_2 + 3-4(Black)	1
1-103	87-081-785-01	VTT_2 + 3-8(Black)	3

Ref. No.	Part No.	Description	Q'ty
1-104	87-081-785-01	VTT_2 + 3-8	7
1-105	87-081-813-01	VTT_2 + 4-12	3

EXPLODED VIEW–2

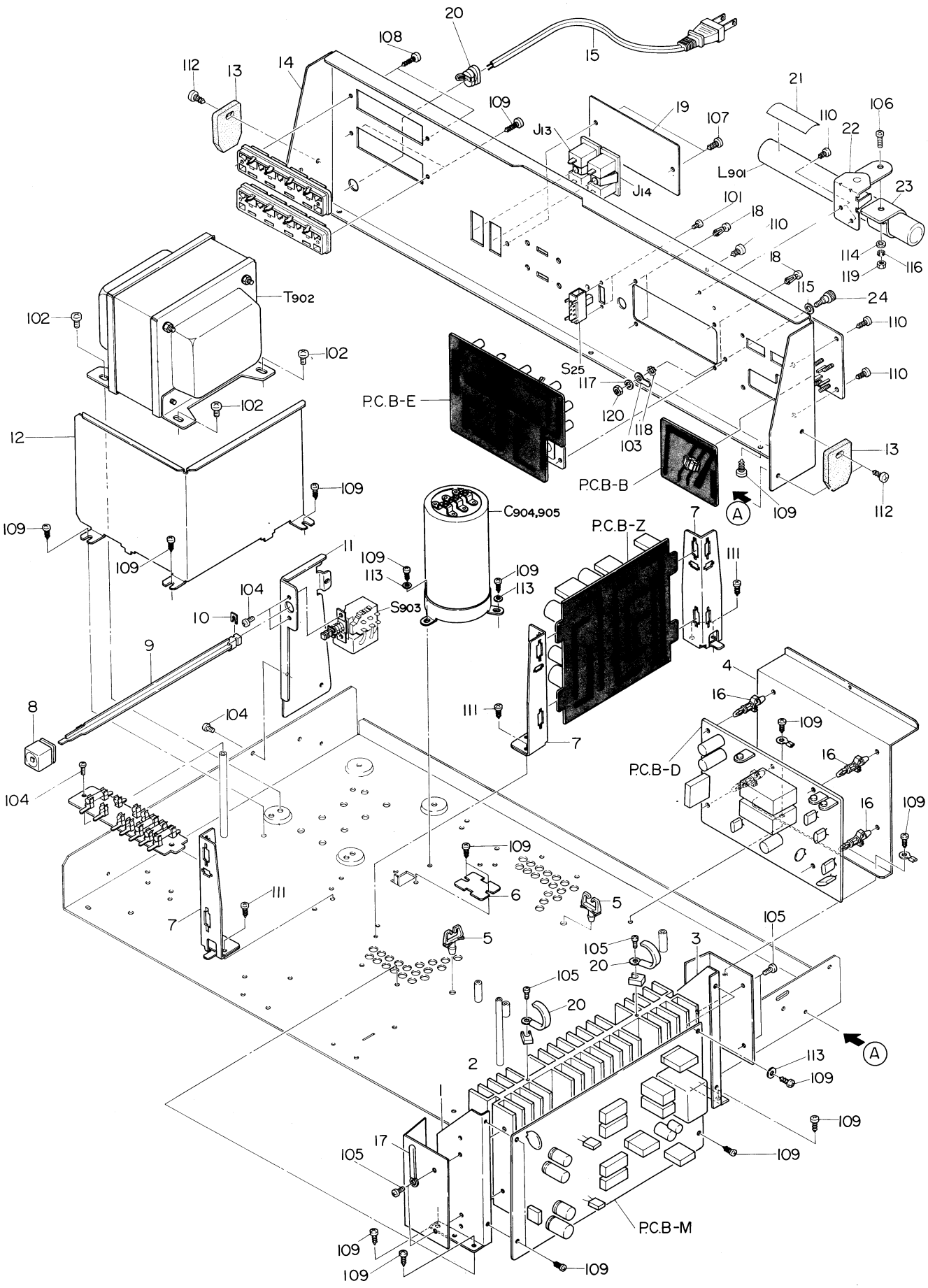


Ref. No.	Part No.	Part No. Changed to	Description	Common Model	Q'ty
2-1	82-473-043-01		Spacer, Tuning dial plate	AX-7500	2
2-2	82-481-070-01		Tuning pointer ass'y	*	1
2-3	82-481-015-01		Frame, Tuning dial (Side)	*	2
2-4	82-481-009-01		Dial plate AM	*	1
2-5	82-481-046-01		Dial palte FM	*	1
2-6	82-481-011-01		Decorative plate, Tuning dial	*	1
2-7	82-481-042-01		Cushion B, Tuning dial	*	4
2-8	82-481-072-01		Cushion L, Tuning dial	*	2
2-9	82-481-014-01		Frame, Tuning dial FM	*	1
2-10	82-481-013-01		Frame, Tuning dial AM	*	1
2-11	82-481-321-01		Spacer (ST LED)	*	1
2-12	82-370-361-01		Rubber cushion		1
2-13	82-481-320-01		Spacer (REC LED)	*	1
2-14	82-481-329-01		Main chassis ass'y	*	1
2-15	82-473-245-01		Spacer A, Side		2
2-16	82-481-295-01		Rubber sheet (Steel cabinet)	*	1
2-17	82-481-258-01		Holder, Jack	*	1
2-18	82-481-306-01		Shield plate, Deck	*	1
2-19	82-473-333-01		Spacer, Side	AX-7500	2
2-20	82-481-298-01		Tuning shaft ass'y	*	1
2-21	82-481-250-01		Holder, Volume	*	1
2-22	82-481-207-01		Front chassis ass'y	*	1
2-23	82-481-322-01		Himeron cloth, Pilot lamp	*	1
2-24	82-481-234-01		Pulley, Tuning dial	*	3
2-25	82-481-033-01		Push button, Counter	*	1
2-26	82-385-271-01		Counter		1
2-27	82-481-238-01		Pulley A, Relay	*	1
2-28	82-379-612-01		Ring magnet		1
2-29	82-481-235-01		Counter holder ass'y	*	1
2-30	82-481-265-01		Belt, Counter	*	1
2-31	82-481-032-01		Push button, MODE	*	5
2-32	82-481-028-01		Push button	*	4
2-33	82-481-031-01		Push button (ORG)	*	1
2-34	82-481-029-01		Push button (GRN)	*	2
2-35	87-032-503-01		Pilot lamp socket		2
2-36	82-481-248-01		Holder, Pilot lamp	*	1
2-37	82-481-275-01		Rubber holder B (LED)	*	2
2-38	82-481-263-01		Shaft, Switch	*	2
2-39	82-481-302-01		Tuning flywheel ass'y	*	1
2-40	82-461-378-01		Leaf nut		1
2-41	82-470-240-01		Drum, Tuning dial	AF-3030	1
2-42	87-096-086-01		Dial string 0.4ϕ		1
2-43	82-439-359-01		Spring, Drum	TPR-300	1
2-44	82-481-223-01		Holder, Front end	*	2
2-45	82-473-019-01		Lock plate, Tuning pointer	AX-7500	1
2-46	87-819-401-01		Vinyl tube 4ϕ x 10		1
2-47	82-473-018-01		Holder, Tuning pointer	AX-7500	1
2-48	82-481-304-01		Wire holder, Tuning pointer	*	1
2-49	82-332-231-01		Pulley, REV		1
2-50	87-081-483-01		Motor screw M2.6		2
2-51	82-481-232-01		Holder, Drum	*	1
2-52	82-473-220-01		Roller	AX-7500	1
2-53	82-481-227-01		Holder, Pulley B	*	1
2-54	82-481-030-01		Push button (Blue)		1

Ref. No.	Part No.	Description	Q'ty
2-101	87-261-094-21	V + 3-6	4
2-102	87-251-092-01	U + 3-4	6
2-103	87-251-094-21	U + 3-6	8
2-104	87-352-073-21	VT_2 + 2.6-6	4
2-105	87-342-094-21	UT_2 + 3-6	2
2-106	87-081-762-01	VTT_2 + 2.6-4	1
2-107	87-081-852-01	VTT_2 + 3-4(Red)	5
2-108	87-081-782-01	VTT_2 + 3-4	19

Ref. No.	Part No.	Description	Q'ty
2-109	87-081-784-01	VTT_2 + 3-6	1
2-110	87-081-015-01	FW 3-8-0.5	1
2-111	87-081-147-01	FW3-10-1	1
2-112	87-081-489-01	PW1.7-3.5-0.25	1
2-113	87-081-569-01	PW3.6-7-0.5	2
2-114	87-081-825-01	PW5.2-8-0.25	1
2-115	87-081-598-01	SSH3-5	3
2-116	87-441-006-01	STE-2.3	3

EXPLODED VIEW–3

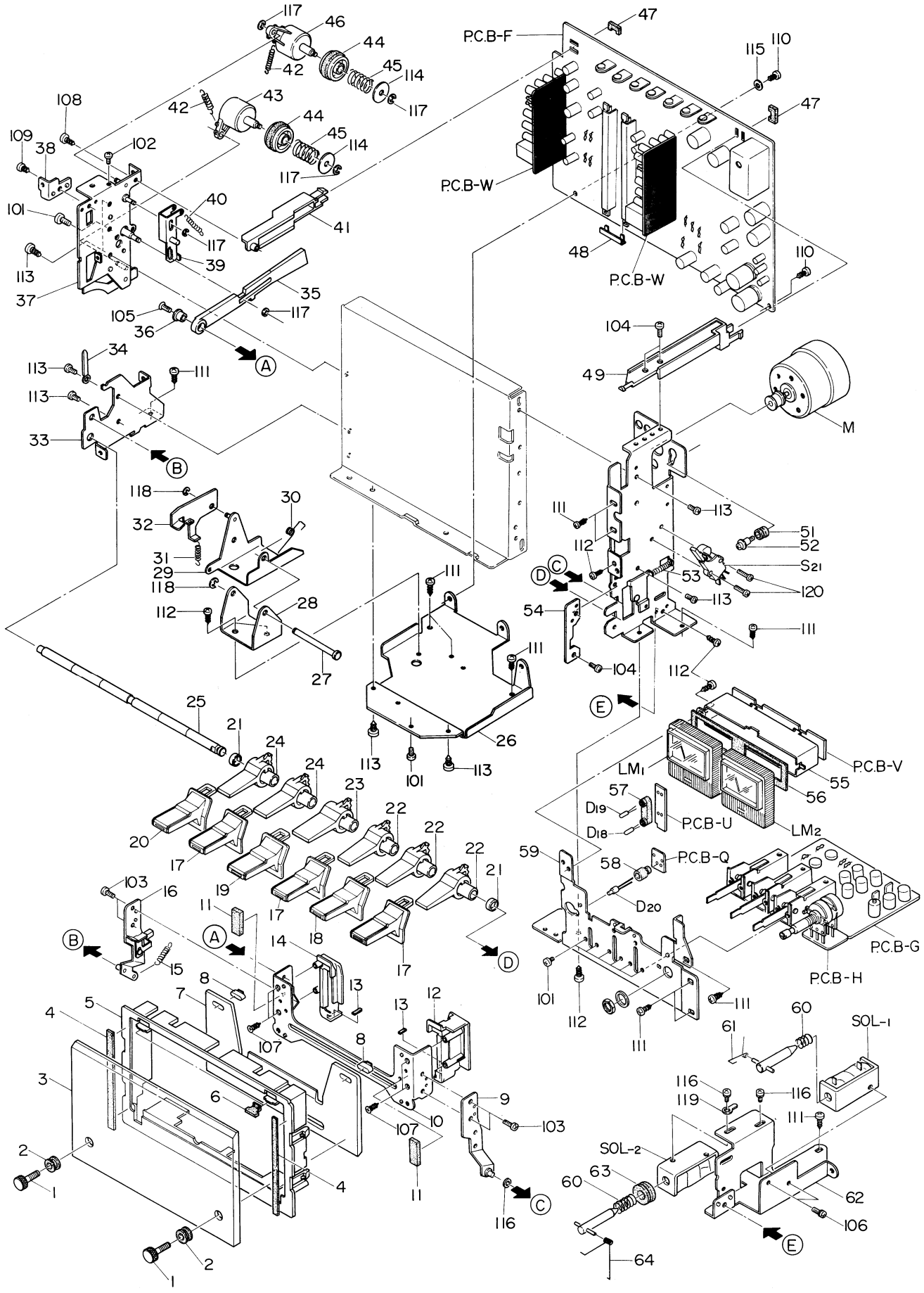


Ref. No.	Part No.	Part No. Changed to	Description	Common Model	Q'ty	
3-1	82-481-229-01		Holder A, Heat sink	*	1	
3-2	82-481-615-01		Heat sink	*	1	
3-3	87-481-230-01		Holder B, Heat sink	*	1	
3-4	82-481-284-01		Shield plate (EQ)	*	1	
3-5	87-064-038-01		Wire clip A		2	
3-6	82-481-262-01		Auxiliary plate, Chassis	*	1	
3-7	82-481-214-01		Holder P, circuit board	*	3	
3-8	82-387-049-01		AC button B ass'y		1	
3-9	82-385-382-01		Rod, P	AD-6300	1	
3-10	82-385-383-01		Stopper, Rod	AD-6300	1	
3-11	82-481-228-01		Holder, AC switch	*	1	
3-12	82-481-249-01		Shield plate (P,T)	*	1	
3-13	82-473-245-01		Spacer A, Side	AX-7500	2	
3-14	82-481-005-01		Back panel	*	1	
3-15	87-034-826-01		AC power cord		1	
3-16	87-064-061-01		Holder B, Circuit board		4	
3-17	82-038-039-01		Wire binder		3	
3-18	87-085-102-01		Nylon rivet 3.5—5.5		10	
3-19	82-481-068-01		Name plate, Spec.	*	1	
3-20	87-085-101-01		Cord bushing		1	
3-21	82-473-051-01		Caution label, Antenna	AX-7500	1	
3-22	82-473-010-01		Antenna holder Ass'y	AX-7500	1	
3-23	82-473-013-01		Antenna holder G	AX-7500	1	
3-24	87-033-088-01		Earth terminal		1	

Ref. No.	Part No.	Description	Q'ty	
3-101	87-267-070-01	V + 2.6-3(Black)	2	
3-102	87-261-236-21	V + 5-6	4	
3-103	87-450-416-01	LB-6	1	
3-104	87-251-094-21	U + 3-6	5	
3-105	87-251-095-21	U + 3-8	2	
3-106	87-257-097-11	U + 3-12(Black)	1	
3-107	87-358-033-01	VT_2 + 2-4(Black)	2	
3-108	87-357-096-01	VT_2 + 3-10(Black)	2	
3-109	87-081-782-01	VTT_2 + 3-4	18	
3-110	87-081-818-01	VTT_2 + 3-4(Black)	5	

Ref. No.	Part No.	Description	Q'ty	
3-111	87-081-784-01	VTT_2 + 3-6	6	
3-112	87-081-820-01	Special Screw +3-8	4	
3-113	87-410-314-01	W3-8-0.3	3	
3-114	87-410-316-01	W3-8-0.8	1	
3-115	87-410-324-01	W4-10-0.4	1	
3-116	87-421-306-01	SW-3	1	
3-117	87-422-306-01	SW-4	1	
3-118	87-431-906-01	WTI-4	1	
3-119	87-391-017-11	N-3	1	
3-120	87-391-034-11	N-4	1	

EXPLODED VIEW—4

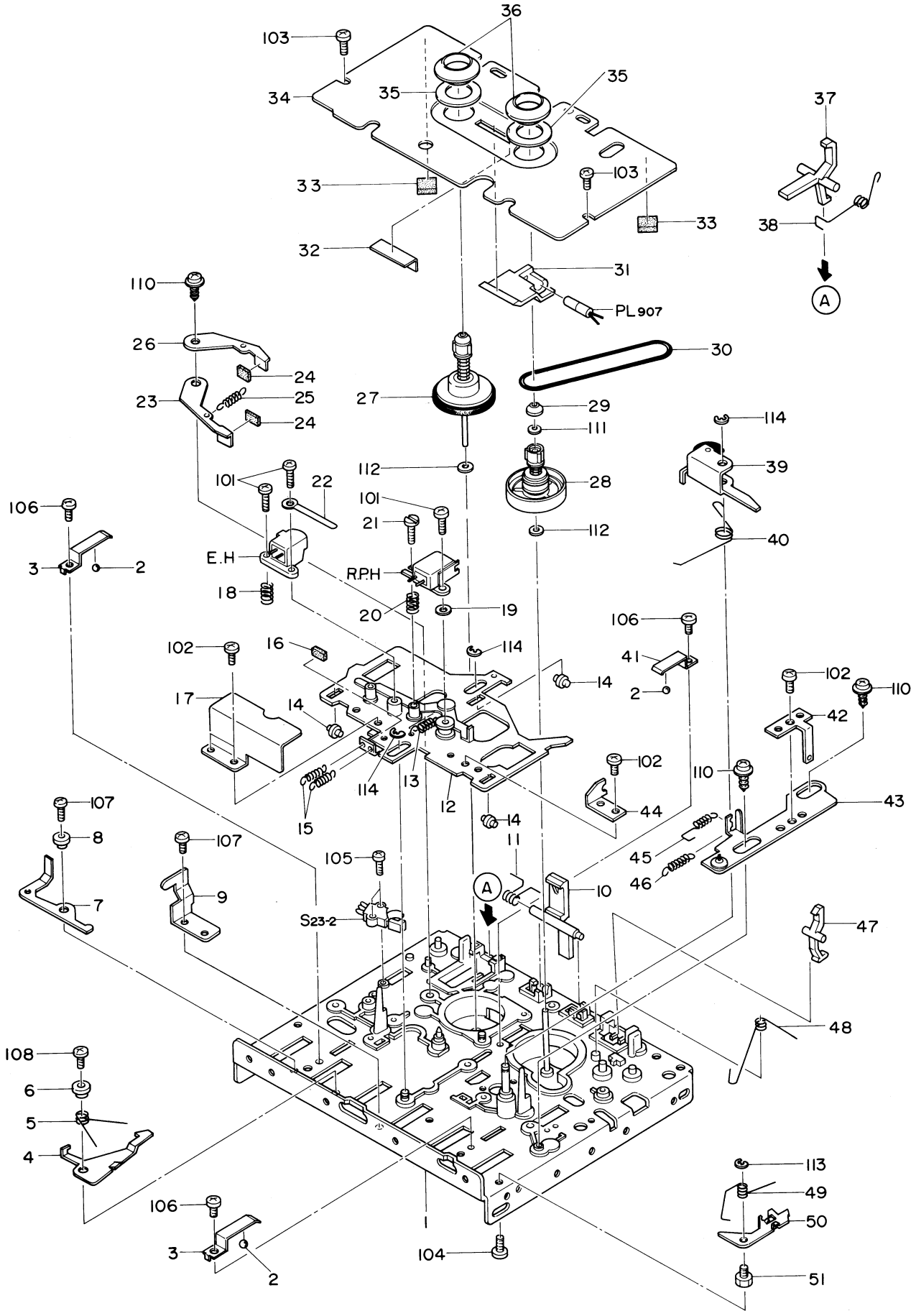


Ref. No.	Part No.	Part No. Changed to	Description	Common Model	Q'ty
4-1	82-397-040-01		Screw 4-13	AD-6550	2
4-2	82-397-053-01		Cushion, Cassette window	AD-6550	2
4-3	82-397-036-01		Cassette window	AD-6550	1
4-4	82-481-048-01		Spacer, Blinder	*	2
4-5	82-397-044-01		Blinder	AD-6550	1
4-6	82-397-055-01		Cushion, lid	AD-6550	2
4-7	82-397-056-01		Cassette lid ass'y	AD-6550	1
4-8	82-397-052-01		Bushing	AD-6550	2
4-9	82-397-264-01		Lever, Cassette lid R ass'y	AD-6550	1
4-10	82-397-364-01		Cassette B ass'y	AD-6550	1
4-11	82-397-339-01		Cushion, Cassette lid	AD-6550	2
4-12	82-397-042-01		Cassette case R	AD-6550	1
4-13	82-397-312-01		Cushion, Cassette case	AD-6550	2
4-14	82-397-043-01		Cassette case L	AD-6550	1
4-15	82-397-348-01		Spring, Lead arm	AD-6550	1
4-16	82-397-256-01		Lever, Cassette lid L ass'y	AD-6550	1
4-17	82-397-046-01		Push key, FF	AD-6550	3
4-18	82-397-048-01		Push key, STOP	AD-6550	1
4-19	82-397-045-01		Push key, PLAY	AD-6550	1
4-20	82-397-047-01		Push key, REC	AD-6550	1
4-21	82-397-279-01		Collar, Push key	AD-6550	2
4-22	82-397-275-01		Push key lever, STOP	AD-6550	3
4-23	82-397-274-01		Push key lever, PLAY	AD-6550	1
4-24	82-397-276-01		Push key lever, REW	AD-6550	2
4-25	82-397-278-01		Shaft, Push key	AD-6550	1
4-26	82-481-269-01		Holder, Mechanism	*	1
4-27	82-481-257-01		Shaft, REC lever	*	1
4-28	82-481-256-01		Holder, REC lever	*	1
4-29	82-481-278-01		Lever, REC switch ass'y	*	1
4-30	82-481-307-01		Spring, REC	*	1
4-31	82-481-251-01		Spring, REC	*	1
4-32	82-481-282-01		Lever D, REC switch	*	1
4-33	82-481-222-01		Holder L, Push key	*	1
4-34	82-038-039-01		Wire binder		1
4-35	82-397-280-01		Lock plate, Cassette lid	AD-6550	1
4-36	82-397-281-01		Flange collar, Cassette lid	AD-6550	1
4-37	82-397-218-01		Frame chassis L ass'y	AD-6550	1
4-38	82-481-296-01		Holder, Jack	*	1
4-39	82-397-261-01		Lock lever ass'y	AD-6550	1
4-40	82-397-301-01		Spring, Lock lever	AD-6550	1
4-41	82-481-285-01		Holder, Circuit board L	*	1
4-42	82-397-303-01		Spring, Oil	AD-6550	2
4-43	82-397-340-01		Drum, Oil B ass'y	AD-6550	1
4-44	82-397-271-01		Idler ass'y (Oil)	AD-6500	1
4-45	82-397-302-01		Spring, Oil	AD-6550	2
4-46	82-397-265-01		Drum Oil ass'y	AD-6550	1
4-47	82-481-309-01		Cushion, Holder (TOP)	*	2
4-48	87-397-334-01		Auxiliary plate, REC	AD-6550	1
4-49	82-481-219-01		Holder, Circuit board R	*	1
4-50	82-481-220-01		Frame chassis RC ass'y	*	1
4-51	87-087-029-01		Rubber cushion		3
4-52	87-081-483-01		Motor screw, M2.6		3
4-53	82-272-424-01		Spring, Brake		1
4-54	82-397-270-01		Stopper, C shaft	AD-6550	1
4-55	82-470-212-01		Reflector board, Meter	AF-3030	1
4-56	82-481-331-01		Cushion, Level meter	*	1
4-57	82-481-274-01		Rubber holder A, LED	*	1
4-58	82-380-279-01		Lamp bushing	AD-6500	1
4-59	82-481-210-01		Lever, Chassis	*	1
4-60	82-481-311-01		Spring, Plunger	*	2
4-61	82-481-277-01		Slide rod C, AUTO	*	1
4-62	82-481-224-01		Holder, Plunger	*	1
4-63	84-184-242-01		Rubber		1
4-64	82-481-276-01		Slide rod C, PAUSE	*	1

Ref. No.	Part No.	Description	Q'ty
4-101	87-251-092-21	V + 3-4	8
4-102	87-251-072-21	U + 2.6-5	1
4-103	87-257-073-01	U + 2.6-6(Black)	4
4-104	87-253-093-11	U + 3-5	4
4-105	87-233-074-01	Q + 2.6-8	1
4-106	87-481-072-01	VS + 2.6-5	4
4-107	87-329-036-01	QT_1 + 2-8(Black)	4
4-108	87-342-096-21	UT_2 + 3-10	1
4-109	87-081-762-01	VTT_2 + 2.6-4	1
4-110	87-081-764-01	VTT_2 + 2.6-6	3

Ref. No.	Part No.	Description	Q'ty
4-111	87-081-852-01	VTT_2 + 3-4(Red)	10
4-112	87-081-782-01	VTT_2 + 3-4	6
4-113	87-081-481-01	VTT_2 + 3-5	10
4-114	87-410-318-01	W3-13-0.8	2
4-115	87-081-197-01	FW2.6-8-1	2
4-116	87-028-499-01	PW4-8-0.25	1
4-117	87-441-006-01	STE-2.3	6
4-118	87-441-010-01	STE-3.2	2
4-119	87-450-412-01	LB-2	1
4-120	87-253-036-01	U + 2-8	2

EXPLODED VIEW–5

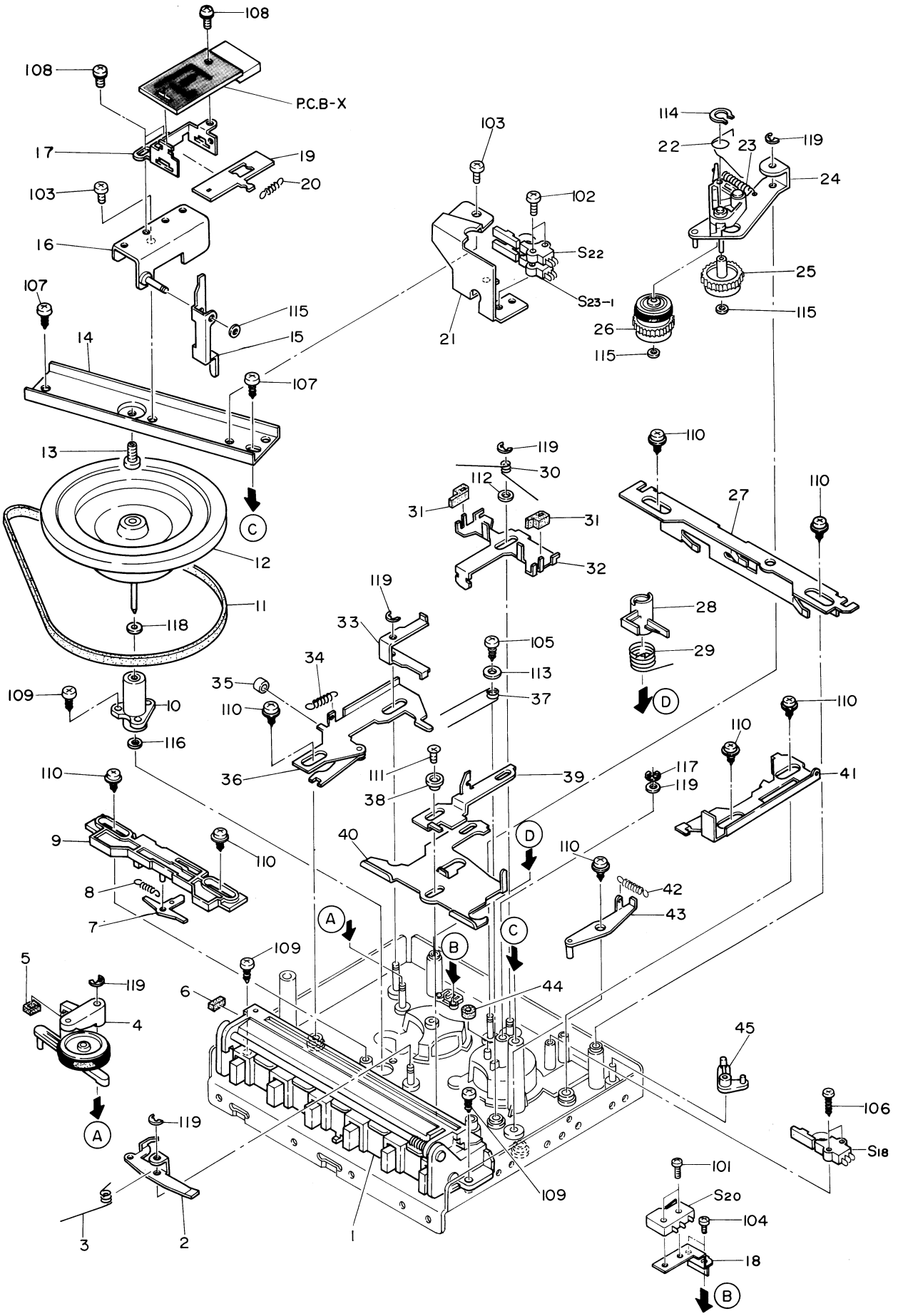


Ref. No.	Part No.	Part No. Changed to	Description	Common Model	Q'ty
5-1	82-392-202-01		Outsert chassis ass'y	AD 6550	1
5-2	82-215-341-01		Steel ball 3/32		3
5-3	82-392-317-01		Spring, Actuating chassis B	AD-6550	2
5-4	82-397-320-01		Stopper, Actuating chassis	AD-6550	1
5-5	82-397-299-01		Spring, Stopper	AD 6550	1
5-6	82-397-323-01		Flange collar B	AD-6550	1
5-7	82-397-321-01		Lever, Actuating chassis	AD-6550	1
5-8	82-397-322-01		Flange collar A	AD 6550	1
5-9	82-397-289-01		Stopper B, Push key shaft	AD 6550	1
5-10	82-397-286-01		Lever, Cassette holder	AD-6550	1
5-11	82-397-297-01		Spring, Cassette holder	AD-6550	1
5-12	82-481-290-01		Actuating chassis ass'y		1
5-13	82-392-343-01		Spring, Actuating	AD 6550	1
5-14	82-392-318-01		Roller, Actuating chassis	AD 6550	3
5-15	82-392-342-01		Return spring	AD-6550	2
5-16	82-370-361-01		Rubber cushion		1
5-17	82-397-291-01		Shield plate, Erase head	AD-6550	1
5-18	82-392-357-01		Spring, Erase head platform	AD 6550	1
5-19	82-392-318-01		Cushion, Erase head	AD-6550	1
5-20	82-392-347-01		Spring, Erase head	AD-6550	1
5-21	82-439-373-01		Shaft, Head adjusting	TPR 300	1
5-22	82-357-487-01		Holder D, Lead wire		1
5-23	82-392-359-01		Lever, Back tension C	AD-6550	1
5-24	82-392-350-01		Felt, Back tension	AD-6550	2
5-25	82-392-340-01		Spring, Back tension	AD 6550	1
5-26	82-392-360-01		Lever, Back tension D	AD-6550	1
5-27	82-399-211-01		Supply reel platform ass'y	AD-6400	1
5-28	82-392-283-01		Take-up reel platform ass'y	AD-6550	1
5-29	82-392-352-01		Cap, Take-up reel platform	AD 6550	1
5-30	82-481-266-01		Belt, Relay	*	1
5-31	82-397-041-01		Guide, Light	AD-6550	1
5-32	82-397-345-01		Lamp, Blinder	AD-6550	1
5-33	82-397-349-01		Cushion, Cassette plate	AD-6550	2
5-34	82-397-064-01		Cassette plate EE	AD-6550	1
5-35	82-397-290-01		Ring, Adhesive sheet	AD-6550	2
5-36	82-397-039-01		Ring, Reel platform	AD-6550	2
5-37	82-397-298-01		Spring, Blocking lever	AD-6550	1
5-38	82-397-287-01		Record-blocking lever	AD-6550	1
5-39	82-392-363-01		Pinch Roller ass'y	AD-6550	1
5-40	82-392-334-01		Spring, Pinch Roller	AD-6550	1
5-41	82-392-316-01		Spring, Actuating chassis A	AD-6550	1
5-42	82-397-233-01		Auxiliary plate, PAUSE	AD-6550	1
5-43	82-392-280-01		Slide plate pause ass'y	AD-6550	1
5-44	82-392-367-01		Plate, P spring	AD-6550	1
5-45	82-392-375-01		Spring, PAUSE B	AD-6550	1
5-46	82-392-374-01		Spring, PAUSE A	AD-6550	1
5-47	82-397-288-01		Detection lever, CrO_2	AD 6550	1
5-48	82-392-333-01		Spring, Take-up	AD-6550	1
5-49	82-392-335-01		Spring, Lock plate	AD 6550	1
5-50	82-392-213-01		Lock plate	AD-6550	1
5-51	82-392-211-01		Shaft, Lock plate	AD-6550	1

Ref. No.	Part No.	Description	Q'ty
5-101	87-253-034-01	V + 2-5	3
5-102	87-263-071-01	V + 2.6-4	4
5-103	87-253-031-01	U + 2-2	2
5-104	87-253-032-01	U + 2-3	1
5-105	87-341-036-21	UT_1 + 2-8	2
5-106	87-081-501-01	VTT + 2.6-4	3
5-107	87-081-480-01	VTT + 2.6-5	2

Ref. No.	Part No.	Description	Q'ty
5-108	87-081-503-01	VTT + 2.6-8	1
5-109	87-081-481-01	VTT + 3-5	2
5-110	87-051-074-01	UFT_2 + 2.6-8	3
5-111	87-081-489-01	PW1.7-3.5-0.25	1
5-112	87-081-319-01	TW2.3-8-0.2	2
5-113	87-441-005-01	STE-2	1
5-114	87-441-006-01	STE-2.3	3

EXPLODED VIEW–6



Ref. No.	Part No.	Part No. Changed to	Description	Common Model	Q'ty
6-1	82-392-235-01		Push switch proper ass'y	AD-6550	1
6-2	82-481-318-01		REV auxiliary lever C ass'y	*	1
6-3	82-392-331-01		Spring, REV auxiliary	AD-6550	1
6-4	82-392-262-01		Take-up idler ass'y	AD-6550	1
6-5	82-439-302-01		Switch pad	TPR-300	1
6-6	82-370-361-01		Rubber cushion		1
6-7	82-392-361-01		Lever, Main drive B	AD-6550	1
6-8	82-392-346-01		Spring, FF	AD-6550	1
6-9	82-392-313-01		Slide plate, FR	AD-6550	1
6-10	82-392-256-01		Shaft bearing ass'y	AD-6550	1
6-11	82-481-264-01		Belt, Main	*	1
6-12	82-392-371-01		Flywheel ass'y	AD-6550	1
6-13	82-331-107-01		Screw for thrust		1
6-14	82-392-321-01		Plate, Flywheel	AD-6550	1
6-15	82-397-240-01		Lever, MT switch	AD-6550	1
6-16	82-397-236-01		Holder, MT switch ass'y	AD-6550	1
6-17	82-374-248-01		Switch holder C	AF-5050	1
6-18	82-397-346-01		Holder, CrO_2 switch	AD-6550	1
6-19	82-397-242-01		Slider, MT switch	AD-6550	1
6-20	82-372-417-01		Spring B, Switch return		1
6-21	82-481-310-01		Holder, Bias switch	*	1
6-22	82-392-330-01		Spring, FR lever	AD-6550	1
6-23	82-392-339-01		Spring, FR	AD-6550	1
6-24	82-392-295-01		FR lever ass'y	AD-6550	1
6-25	82-392-315-01		Gear, REW	AD-6550	1
6-26	82-392-305-01		Pulley ass'y, FF	AD-6550	1
6-27	82-397-285-01		Slide plate, Eject	AD-6550	1
6-28	82-397-347-01		Lever, CrO_2	AD-6550	1
6-29	82-397-350-01		Spring, CrO_2	AD-6550	1
6-30	82-392-332-01		Brake spring	AD-6550	1
6-31	82-439-426-01		Brake shoe A	TPR-300	2
6-32	82-392-320-01		Slide plate, Brake	AD-6550	1
6-33	82-397-283-01		Eject lever B	AD-6550	1
6-34	82-397-300-01		Spring, Eject lever	AD-6550	1
6-35	82-819-200-01		Vinyl tube		1
6-36	82-397-253-01		Eject lever A ass'y	AD-6550	1
6-37	82-392-337-01		Spring, Senter sift	AD-6550	1
6-38	82-392-353-01		Collar, REW shaft	AD-6550	1
6-39	82-392-326-01		Slide plate, REW	AD-6550	1
6-40	82-392-323-01		Slide plate, Brake S	AD-6550	1
6-41	82-397-282-01		Slide plate, REC	AD-6550	1
6-42	82-392-345-01		Spring, REC lock	AD-6550	1
6-43	82-392-274-01		REC lock lever ass'y	AD-6550	1
6-44	82-392-373-01		Cushion, FR	AD-6550	1
6-45	82-397-284-01		Eject lever C	AD-6550	1
6-46	82-397-346-01		Holder, CrO_2 switch	AD-6550	1

Ref. No.	Part No.	Description	Q'ty
6-101	87-253-036-01	V + 2-8	2
6-102	87-251-038-21	U + 2-12	2
6-103	87-253-093-11	U + 3-5	2
6-104	87-341-034-01	VT_1 + 2-5	2
6-105	87-351-074-01	VT_1 + 2.6-8	1
6-106	87-341-037-01	UT_1 + 2-10	2
6-107	87-341-095-01	UT_1 + 3-8	2
6-108	87-480-072-01	VS + 2.6-5	3
6-109	87-081-480-01	VTT + 2.6-5	5
6-110	87-510-074-01	VFT_2 + 2.6-8	8

Ref. No.	Part No.	Description	Q.ty
6-111	87-081-523-01	QTT + 2.6-8	1
6-112	87-410-312-01	W3-6-0.3	1
6-113	87-410-317-01	W3-10-0.8	1
6-114	87-442-005-01	STP-5	1
6-115	87-081-489-01	PW1.7-3.5-0.25	3
6-116	87-416-358-01	PW6-25-0.5	1
6-117	87-081-319-01	TW2.3-8-0.2	1
6-118	87-031-362-01	TW3-8-0.3	1
6-119	87-441-006-01	STE-2.3	6

ELECTRICAL MAIN PARTS LIST

Symbol No.	Part No.	Description
≪TUNER CIRCUIT BOARD SECTION≫		
PCB-A	82-481-714-11	Tuner circuit board
	82-481-808-01	FM front end
IC1	82-481-727-01	IC, HA1156 W
Q3,4,5,6,7	89-303-813-01	Transistor, 2SC381 (O)
Q8,14	87-026-045-01	Transistor, 2SC380A (O)
Q10,15	89-309-456-01	Transistor, 2SC945L (P)
Q11, 13	89-303-804-01	Transistor, 2SC380 (Y)
Q12	89-303-803-01	Transistor, 2SC380 (O)
Q16	89-315-676-01	Transistor, 2SC1567 (R)
D2,3,8,10, 11,12,13, 17,18	87-027-097-01	Diode, 1S1555
D4,5,6,9	88-052-188-11	Diode, 1S188 (FM)
D7	87-026-069-01	Zener diode, WZ-052
D14	87-027-215-01	Zener diode, WZ-130
L5	82-457-699-01	AM OSC coil
L6	82-473-628-01	Choke coil, 8.2 mH
L7	87-005-088-01	Choke coil, 5.6 mH
IFT2	84-173-614-01	FM IFT
IFT3	87-008-159-01	FM IFT (ratio)
IFT4	87-008-160-01	AM IFT (DET)
CFT1	87-008-118-01	AM ceramic filter transformer
CF1,2,3,4	87-030-054-01	FM ceramic filter
SFR1	87-021-406-01	Semi-fixed resistor, 4.7kΩ-B
SFR2	87-021-378-01	Semi-fixed resistor, 200kΩ-B
		< **Resistors** >
R95	87-025-070-01	33Ω 1W Metal film resistor
R83	87-025-072-01	100Ω 1W Metal film resistor
E38	87-025-073-01	150Ω 1W Metal film resistor
R108	82-473-617-01	220Ω 1W Metal film resistor
R96,97	87-025-198-01	5.6kΩ 1/4W Metal film resistor
R98	87-029-060-01	33Ω 1/4W Fuse resistor
		< **Capacitors** >
C90,91	87-015-241-01	1μF 50V Electrolytic LL
C78	87-014-033-01	100pF PP
C79	87-014-043-01	270pF PP
C77	87-014-047-01	390pF PP
C83	87-014-049-01	470pF PP
C75	87-014-051-01	560pF PP
C76	87-014-055-01	820pF PP
C88,89	82-481-710-01	0.015μF PP
≪ANTENNA CIRCUIT BOARD SECTION≫		
PCB-B	82-481-720-11	Antenna circuit board
T901	87-006-047-01	Balun transformer
L9	82-470-604-01	Choke coil, 2.2mH
≪SWITCH (A) CIRCUIT BOARD SECTION≫		
PCB-C	82-481-799-01	Switch (A) circuit board
Q1,2	89-314-005-01	Transistor, 2SC1400 (E)
Q3,4	89-107-505-01	Transistor, 2SA750 (E)
Q5,6	89-317-353-01	Transistor, 2SC1735 (D)
S2,3,14	82-481-621-01	Push switch (LOUDNESS, ST/ MONO, HIGH FILTER)
S4,5,6,7,8, 9,10,11	82-481-807-01	Push switch (EXT TAPE, INT TAPE, MIC, PHONO, AUX, AM, FM, DOLBY FM)
PIN-11	87-032-773-01	Pin, 3P
PIN-1,12	87-032-774-01	Pin, 4P
PIN-10	87-032-775-01	Pin, 5P
PIN-3,5,7	87-032-776-01	Pin, 6P
PIN-8	87-032-777-01	Pin, 7P
PIN-9	87-032-778-01	Pin, 8P
PIN-2	87-032-779-01	Pin, 9P
PIN-4,6	87-032-781-01	Pin, 11P
		< **Resistors** >
R42	87-025-119-01	560Ω 1W Metal film resistor
R25,26,41	87-025-078-01	3.3kΩ 1W Metal film resistor
		< **Capacitors** >
C9,10	87-015-242-01	2.2μF 50V Electrolytic LL
C1,2,3,4	87-015-244-01	4.7μF 50V Electrolytic LL
C15,16	82-473-681-01	4.7μF 50V Electrolytic BP
≪FM MUTING/DOLBY FM CIRCUIT BOARD SECTION≫		
PCB-D	82-481-758-01	FM muting/Dolby FM circuit board
IC2,3	82-481-826-01	IC, NE-645B, Mark 2
Q1	89-315-834-01	Transistor, 2SC1583 (F)
Q2,3,5,8,9, 10,11,12,13	89-309-456-01	Transistor, 2SC945L (P)
Q4	89-107-336-01	Transistor, 2SA733 (P)
Q6,7	89-402-275-01	Transistor, 2SD227 (V)
Q14	89-402-344-01	Transistor, 2SD234 (Y)
D1,2,3,5	88-052-188-11	Diode, 1S188 (FM)
D4,6,7	87-027-097-01	Diode, 1S1555
D8	82-481-637-01	Zener diode, WZ-167
D9	82-481-638-01	Zener diode, XZ-080
LPF1,2	82-481-709-01	Low pass filter
SFR1	87-021-375-01	Semi-fixed resistor, 20kΩ-B
SFR2,3	87-021-374-01	Semi-fixed resistor, 10kΩ-B
PIN-14	87-032-773-01	Pin, 3P
PIN-15	87-032-778-01	Pin, 8P
		< **Resistors** >
R60,61	82-371-652-01	3.3kΩ 1/4W ±1%
⚠R50	87-029-065-01	68Ω 1/2W Fuse resistor
R42,43	87-025-196-01	237Ω Metal film
R39,40	87-025-197-01	511Ω Metal film
R51	82-473-707-01	2.2kΩ 1W Metal film
		< **Capacitors** >
C11,12	87-015-242-01	2.2μF 50V Electrolytic
C18,19	87-015-247-01	10μF 25V Electrolytic
C20,21	82-371-643-01	0.0047μF PP
C16,17	82-371-642-01	0.0056μF PP
C22,23	82-371-641-01	0.027μF PP
≪PHONO CIRCUIT BOARD SECTION≫		
PCB-E	82-481-608-01	Phono circuit board
Q1,2,3,4	82-473-644-01	Transistor, 2SA750 (DA)
Q5,6,7,8	82-473-645-01	Transistor, 2SC1400 (DA)
Q9,10	89-317-354-01	Transistor, 2SC1735 (E)
	82-481-629-01	Pin jack, 8P
		< **Resistors** >
R29,30	82-473-676-01	3.9kΩ 1W Metal film resistor
R19,20	82-473-683-01	68.1kΩ ±1% Metal film resistor
R17,18	82-473-716-01	953kΩ ±1% Metal film resistor
		< **Capacitors** >
C1,2	87-015-244-01	4.7μF 50V Electrolytic LL
C11,12	82-473-685-01	1100pF ±2% PP
C9,10	82-473-684-01	3900pF ±2% PP
C15,16	82-475-628-01	2.2μF 50V Electrolytic BP
C7,8	82-473-715-01	15μF 16V Electrolytic BP

Symbol No.	Part No.	Description
≪REC/PB CIRCUIT BOARD SECTION≫		
PCB-F	82-481-613-11	REC/PB circuit board
Q1,2,3,4, 19,20	89-314-005-01	Transistor, 2SC1400 (E)
Q5,6,9,10,11, 12,13,14,15, 16,17,18,21, 22,23,24,25, 26,27,28,29, 32,34,35,36, 37,38	89-309-456-01	Transistor, 2SC945L (P)
Q7,8	89-402-275-01	Transistor, 2SD227 (V)
Q30,31,39, 40,41	89-405-712-01	Transistor, 2SD571 (L)
Q33	89-206-052-01	Transistor, 2SB605 (L)
D1,2	82-481-638-01	Zener diode, XZ-080
D3,4,5,6	88-051-060-01	Diode, 1N60
D7,8,13,14, 15	87-027-097-01	Diode, 1S1555
D10	82-481-636-01	Zener diode, WZ-240
D11 16	87-027-083-01	Diode, 1S1885
D12	87-026-069-01	Zener diode, WZ-052
D17	82-481-637-01	Zener diode, WZ-167
L1,2	82-371-644-01	Coil, 22mH
L9	82-401-661-01	Choke coil, 600μH
S1	82-481-751-01	Slide switch (REC/PB)
SFR1,2	87-021-378-01	Semi-fixed resistor, 200kΩ-B
SFR3,4,5,6	87-021-376-01	Semi-fixed resistor, 50kΩ-B
SFR7,8	87-021-374-01	Semi-fixed resistor, 10kΩ-B
SFR15	87-021-375-01	Semi-fixed resistor, 20kΩ-B
OSC UNIT	82-481-639-01	OSC unit
		< **Resistors** >
R110	87-025-108-01	1.2kΩ 1W Metal film resistor
R90,92	82-473-708-01	1.5kΩ 1W Metal film resistor
R115,128	87-025-109-01	2.7kΩ 1W Metal film resistor
R92	87-025-078-01	3.3kΩ 1W Metal film resistor
R125	87-025-110-01	10kΩ 1W Metal film resistor
⚠R129	87-029-036-01	100Ω 1/2W Fuse resistor
		< **Capacitors** >
C19,20	87-014-049-01	470pF PP
C15,16	87-015-328-01	0.22μF 50V Electrolytic LL
C39,40	87-015-240-01	0.47μF 50V Electrolytic LL
C25,26,41,42	87-015-241-01	1μF 50V Electrolytic LL
C7,8	87-015-244-01	4.7μF 50V Electrolytic LL
≪BIAS/EQ CIRCUIT BOARD SECTION≫		
PCB-G	82-481-640-11	Bias/EQ circuit board
D9	87-027-097-01	Diode, 1S1555
L3,4	82-385-636-01	Variable inductor 6.8mH
L5,6,7,8	82-385-634-01	Variable inductor 4.7mH
S16	82-481-660-01	Lever switch (DOLBY NR)
S17,19	82-481-659-01	Lever switch (EQ, BIAS)
SFR9,10,11, 12	87-021-366-01	Semi-fixed resistor, 10kΩ-B
SFR13,14	87-021-363-01	Semi-fixed resistor, 47kΩ-B
≪REC VOLUME CIRCUIT BOARD SECTION≫		
PCB-H	82-481-641-11	REC volume circuit board
VR903,904	82-481-630-01	Volume 50kΩ-B (REC VOL)
≪JACK CIRCUIT BOARD SECTION≫		
PCB-I	82-481-690-01	Jack circuit board
J10	87-032-673-01	Jack 6.3φ (PHONES)
J11,12	87-032-677-01	Jack 6.3φ (MIC L,R)

Symbol No.	Part No.	Description
		< **Resistor** >
R903,904	87-025-112-01	220Ω 1W Metal film resistor
≪MIC VOLUME CIRCUIT BOARD SECTION≫		
PCB-J	82-481-601-01	MIC volume circuit board
VR901,902	82-481-653-01	Volume, 250kΩ-B (MIC MIXING)
≪TONE CIRCUIT BOARD SECTION≫		
PCB-K	82-481-602-11	Tone circuit board
Q1,2	89-107-505-01	Transistor, 2SA750 (E)
Q3,4	89-314-005-01	Transistor, 2SC1400 (E)
VR5,6,7,8	82-481-650-01	Volume, 50kΩ-B (TREBLE, BASS)
		< **Resistor** >
R7,8	82-473-705-01	6.8kΩ 1W Metal film resistor
		< **Capacitors** >
C1,2	87-015-244-01	4.7μF 50V Electrolytic LL
C9,10	82-473-681-01	4.7μF 50V Electrolytic BP
≪VOLUME CIRCUIT BOARD SECTION≫		
PCB-L	82-481-607-11	Volume circuit board
VR1,2,3,4	82-481-619-01	Volume, 250kΩ-B, MN (VOLUME, BALANCE)
≪MAIN CIRCUIT BOARD SECTION≫		
PCB-M	82-481-762-01	Main circuit board
Q1,2	89-107-336-01	Transistor, 2SA733 (P)
Q3,4	89-107-985-01	Transistor, 2SA798 (G)
Q5,6	87-026-163-01	Transistor, 2SD666A (C)
Q7,8	89-406-692-31	Transistor, 2SD669 (B,C)
Q9,10	89-206-492-31	Transistor, 2SB649 (B,C)
Q11,12	87-026-151-01	Transistor, 2SD675A (C)
Q13,14	87-026-150-01	Transistor, 2SB655A (C)
Q15,16	89-309-456-01	Transistor, 2SC945L (P)
Q17	89-405-712-01	Transistor, 2SD571 (L)
D1,2	87-027-143-01	Zener diode, WZ-150
D3,4	82-473-611-01	Diode, STV-3H
D5,6,7,8	87-026-066-01	Diode, M8513A (O)
RY1	82-473-610-11	Relay
CB1,2	82-481-812-01	Circuit braker, 3.5A
L1,2	82-478-632-01	Inductor, 2.2mH
SFR1,2	87-021-437-01	Semi-fixed resistor, 2.2kΩ B
SFR3,4	82-481-648-01	Semi-fixed resistor 220Ω-B
PIN	82-481-649-01	Pin, 2P
PIN-17,18,19	87-032-897-01	Pin, 3P
PIN-16	87-032-774-01	Pin, 4P
	82-473-677-01	Transistor socket
		< **Resistors** >
R35,36,37,38, 44	82-473-616-01	10Ω 1W Metal film resistor
R27,28,29,30	87-025-088-01	220Ω 2W Metal film resistor
R21,22	82-473-707-01	2.2kΩ 1W Metal film resistor
R19,20	82-473-676-01	3.9kΩ 1W Metal film resistor
R31,32,33,34	82-481-617-01	0.47Ω 5W Cement resistor
		< **Capacitors** >
C1,2	87-015-245-01	10μF 50V Electrolytic LL
C20	82-473-619-01	100μF 25V Electrolytic BP
≪SWITCH (B) CIRCUIT BOARD SECTION≫		
PCB-N	82-481-605-01	Switch (B) circuit board
≪SWITCH (C) CIRCUIT BOARD SECTION≫		
PCB-O	82-481-604-11	Switch (C) circuit board
S12,13	82-481-622-01	Push switch (FM MUTING, HI-BLEND)

Symbol No.	Part No.	Description
≪REC LED CIRCUIT BOARD SECTION≫		
PCB-P	82-481-633-01	REC LED circuit board
D21	87-026-083-01	Light emitting diode, SLP-114 (RECORD)
≪DOLBY LED CIRCUIT BOARD SECTION≫		
PCB-Q	82-481-658-01	Dolby LED circuit board
D20	87-026-088-01	Light emitting diode, GD-4-203GD (DOLBY)
≪FM-ST/DOLBY FM LED CIRCUIT BOARD SECTION≫		
PCB-R	82-481-611-01	FM-ST/Dolby LED circuit board
D901	87-026-083-01	Light emitting diode, SLP-114 (FM-STEREO)
D905	87-027-284-01	Light emitting diode, SLP-214B (DOLBY FM)
≪FM/AM LED CIRCUIT BOARD SECTION≫		
PCB-S	82-481-610-01	FM/AM LED circuit board
D903,904	87-026-083-01	Light emitting diode SLP-114 (FM, AM)
≪HALL IC CIRCUIT BOARD SECTION≫		
PCB-T	82-481-703-01	Hall IC circuit board
IC1	87-027-160-01	Hall IC, DN835
≪PEAK LED CIRCUIT BOARD SECTION≫		
PCB-U	82-481-612-01	Peak LED circuit board
D18	87-026-086-01	Light emitting diode, SLP-614B (+3 dB)
D19	87-026-083-01	Light emitting diode, SLP-114 (+7 dB)
≪LAMP CIRCUIT BOARD SECTION≫		
PCB-V	82-473-670-01	Lamp circuit board
PL902,903	82-471-660-01	Pilot lamp (METER)
	87-032-527-01	Lamp clamp
≪DOLBY-NR CIRCUIT BOARD SECTION≫		
PCB-W	82-385-650-11	Dolby-NR circuit board
IC1	87-027-151-01	IC, NE545B
D1	88-051-060-01	Diode, 1N60
LPF1	82-474-749-01	Low pass filter
PIN	87-032-640-01	Pin, 10P
		< **Resistor** >
R2	82-371-652-01	3.3kΩ 1/4W ±1%
		< **Capacitors** >
C1	87-015-328-01	0.22μF 50V Electrolytic LL
C6	82-371-643-01	4700pF ±2% PP
C2	82-371-642-01	5600pF ±2% PP
C7	82-371-641-01	0.027μF ±2% PP
≪PLAY MUTING CIRCUIT BOARD SECTION≫		
PCB-X	82-481-798-01	Play muting circuit board
S15	87-031-239-01	Slide switch (PLAY/STOP)
PIN-13	87-032-764-01	Pin, 14P
≪POWER CIRCUIT BOARD SECTION≫		
PCB-Z	82-481-603-11	Power circuit board
Q1	89-313-846-01	Transistor, 2SC1384 (R)
Q2	89-106-844-01	Transistor, 2SA684 (R)
Q3	89-315-675-01	Transistor, 2SC1567 (Q)
D1,2,3,4,5,6, 7,8,9,10	87-027-083-01	Diode, 1S1885

Symbol No.	Part No.	Description
D11,12	87-027-144-01	Zener diode, WZ-350
D13	82-481-636-01	Zener diode, WZ-240
D14	87-027-230-01	Diode, SS-5
D15	87-027-231-01	Diode, SS-5R
PIN-22	82-481-649-01	Pin, 2P
PIN-21,23,26	87-032-897-01	Pin, 3P
PIN-20,24	82-481-647-01	Pin, 4P
PIN-25	82-481-697-01	Pin, 5P
	87-038-036-01	Fine
		< **Resistors** >
R1,2,7	82-473-708-01	1.5kΩ 1W Metal film resistor
⚠R10	87-029-017-01	10Ω 1/4W Fuse resistor
≪MISCELLANEOUS≫		
⚠T902	82-481-797-01	Power transformer
D902	82-473-042-01	Light emitting diode, GD2RD (TUNING IND)
RPH	87-046-149-01	Rec./pb head
EH	87-046-147-01	Erase head
LM1,2	82-481-634-01	Level meter
PL904,905	82-481-657-01	Pilot lamp (TUNING DIAL)
PL906	82-481-809-01	Pilot lamp (DIAL NEEDLE)
PL907	82-397-646-01	Pilot lamp (CASSETTE)
M	82-399-610-11	Motor
SOL1,2	82-397-633-01	Solenoid
TM	82-481-627-01	Tuning meter
L8	82-470-604-01	Choke coil, 2.2μH
L901	82-481-730-01	AM bar antenna coil
S18,21,22	87-031-418-01	Micro switch (MOTOR, PAUSE,
23-1		CUE/REV, AUTO STOP)
S23-2	87-031-419-01	Micro switch (AUTO STOP)
S20	87-031-377-01	Micro switch (CrO_2 AUTO)
S24	82-481-698-01	Rotary switch (SPEAKERS)
S25	82-481-635-01	Slide switch (OSC)
⚠S903	87-031-372-01	Push switch (POWER)
⚠F901	87-035-303-01	Fuse, 4A
	87-098-046-01	Fuse label, 4A
⚠F902,903,904	87-035-302-01	Fuse, 3.15A
	87-098-045-01	Fuse label, 3.15A
⚠	82-481-747-01	Fuse holder, 7P
	87-032-894-01	Pilot lamp socket
J1,2,3,4,5,6, 7,8,9	82-481-629-01	8P pin jack (PHONO, AUX, EXT TAPE, PLAY, REC, DIN REC/PB)
	82-481-699-01	Speaker terminal (SPEAKERS A; L,R B; L,R)
⚠J13,14	87-032-674-01	UL, AC outlet
	82-481-702-01	Antenna terminal 4P
CON-22	82-481-668-01	Connector ass'y 2P
CON-18	82-481-661-01	Connector ass'y 3P
CON-17	82-481-663-01	Connector ass'y 3P
CON-11	82-481-671-11	Connector ass'y 3P
CON-21	82-481-665-11	Connector ass'y 3P
CON-26	82-481-666-11	Connector ass'y 3P
CON-19	82-481-667-01	Connector ass'y 3P
CON-1	82-481-673-11	Connector ass'y 4P
CON-13	82-481-733-01	Connector ass'y 4P
CON-16	82-481-676-01	Connector ass'y 4P
CON-12	82-481-674-31	Connector ass'y 4P
CON-10	82-481-765-01	Connector ass'y 5P
CON-20	82-481-768-01	Connector ass'y 5P
CON-3	82-481-766-01	Connector ass'y 6P
CON-5	82-481-685-11	Connector ass'y 6P
CON-7	82-481-679-21	Connector ass'y 6P
CON-8	82-481-764-01	Connector ass'y 7P

Symbol No.	Part No.	Description
CON-15	82-481-794-01	Connector ass'y 8P
CON-9	82-481-680-21	Connector ass'y 8P
CON-2	82-481-795-01	Connector ass'y 9P
CON-4	82-481-796-01	Connector ass'y 11P
CON-6	82-481-687-11	Connector ass'y 11P

Symbol No.	Part No.	Description
CON-13	82-481-806-01	Connector ass'y 14P
⚠ CP901	87-028-036-01	Combination parts
		< **Capacitor** >
C904,905	82-481-625-01	10000μF×2 50V Electrolytic

⚠: Symbol is used to indicate that a specific component must be replaced only by the component for safety reasons.

ADJUSTMENTS

- **Instruments Required**

Signal Source

1. RF signal generator (AM, FM).
2. IF sweep generator (Centered 455 kHz for AM and 10.7 MHz for FM).

Output Indicator

1. V.T.V.M.
2. Oscilloscope

- **Regulator Adjusting Steps**

For band	For stages on each band
1. AM	1st: IF 2nd: RF frequency range 3rd: RF tracking
2. FM	1st: IF 2nd: RF frequency range 3rd: RF tracking

AM-IF Alignment

Step	Signal source Connect to	Set signal to	Alignment indicator Connect to	Set radio dial to	Adjust	Adjust for
1	AM IF sweep gen. TP3 (AM IF input)	Sweep centered 455 kHz	Oscilloscope TP4 (AM DET output)	Min. Freq.	CFT1 IFT4	Maximum

AM-RF Alignment

Step	Signal source Connect to	Set signal to	Alignment indicator Connect to	Set radio dial to	Adjust	Adjust for
1	AM signal gen. Loop antenna	515 kHz (Modulated)	V.T.V.M. TP4 (AM DET output)	515 kHz (Low end)	L5 (OSC coil)	Maximum
2	Loop antenna	1650 kHz (Modulated)	TP4 (AM DET output)	1650 kHz (High end)	VCT6 (OSC trim.)	Maximum
3	(Repeat steps 1 and 2 to obtain frequency range.)					
4	Loop antenna	600 kHz (Modulated)	TP4 (AM DET output)	600 kHz	L901 (ANT coil)	Maximum
5	Loop antenna	1400 kHz (Modulated)	TP4 (AM DET output)	1400 kHz	VCT5 (ANT trim.)	Maximum
6	(Repeat steps 4 and 5 to minimize tracking error, and also step 3 if necessary.)					

FM-IF Alignment

Step	Signal source Connect to	Set signal to	Alignment indicator Connect to	Set radio dial to	Adjust	Adjust for
1	FM IF sweep gen. TP1 (FM IF input)	Sweep centered 10.7 MHz	Oscilloscope TP2 (FM DET output)	Max. Freq.	IFT1 IFT2	Max. Symmetrical response equal height
2	TP1 (FM IF input)	Sweep centered 10.7 MHz	TP2 (FM DET output)	Max. Freq.	IFT3	Symmetrical response, centered 10.7 MHz
3	(Repeat 1 and 2 to obtain a balanced "S" curve linearity.)					

FM-RF Alignment

Step	Signal source / Connect to	Set signal to	Alignment indicator / Connect to	Set radio dial to	Adjust	Adjust for
1	FM signal gen. / Antenna terminal	87.4 MHz (Modulated)	V.T.V.M. / TP2 (FM DET output)	87.4 MHz (Low end)	L4 (OSC coil)	Maximum
2	Antenna terminal	109.2 MHz (Modulated)	TP2 (FM DET output)	109.2 MHz (High end)	VCT4 OSC trim.)	Maximum
3	(Repeat steps 1 and 2 to obtain frequency range.)					
4	Antenna terminal	88 MHz (Modulated)	TP2 (FM DET output)	88 MHz	L1 (ANT coil) L2(P),L2(S) (RF coil)	Maximum
5	Antenna terminal	108 MHz (Modulated)	TP2 (FM DET output)	108 MHz	VCT1 (ANT trim.) VCT2, VCT3 (RF trim.)	Maximum
6	(Repeat steps 4 and 5 to minimize tracking error, and step 3 if necessary.)					

Bias Trap Adjustment

Settings:
TAPE SELECTOR switch: CrO_2
VOLUME control: MAX
RECORD LEVEL control: MAX
Method:
Set the unit to the recording mode and adjust L1 and 2 so that the voltage of TP3 and 4 is at a minimum.

Fe-Cr Recording Equalizer Adjustment

Settings:
Same as in the Fe-Cr Bias Adjustment.
Method:
Record and playback the 500 Hz and 13 kHz signals. While repeating the recording and playback, adjust L5 and 6 so that the Dolby-out output (TP1, 2) of the 13 kHz portion is flat as compared with that of the 500 Hz portion.
Rating:
Level of 13 kHz as compared with 500 Hz: 0 dB $^{+0.5}_{-1.0}$ dB

CrO_2 Recording Equalizer Adjustment

Settings:
Same as in the CrO_2 Bias Adjustment
Method:
Adjust L7 and 8 the same as in the Fe-Cr Recording Equalizer Adjustment.
Rating:
Level of 13 kHz as compared with 500 Hz: 0 dB $^{+0.5}_{-1.0}$ dB

LH Recording Equalizer Adjustment

Settings:
Same as in the LH Bias Adjustment.
Method:
Adjust L3 and 4 the same as in the Fe-Cr Recording Equalizer Adjustment.
Rating:
Level of 13 kHz as compared with 500 Hz: 0 dB $^{+1.0}_{-2.0}$ dB

CrO_2 Rec./Pb. Sensitivity Adjustment

Settings:
TAPE SELECTOR switch: CrO_2
VOLUME control: MAX
DOLBY NR switch: OFF
Record inputs: OVU
Test tape: CS-20
Method:
Record and playback the 400 Hz signal.
While repeating the recording and playback, adjust SFR13 and 14 so that the Dolby-out output (TP1, 2) is 410 mV ±0.25 dB

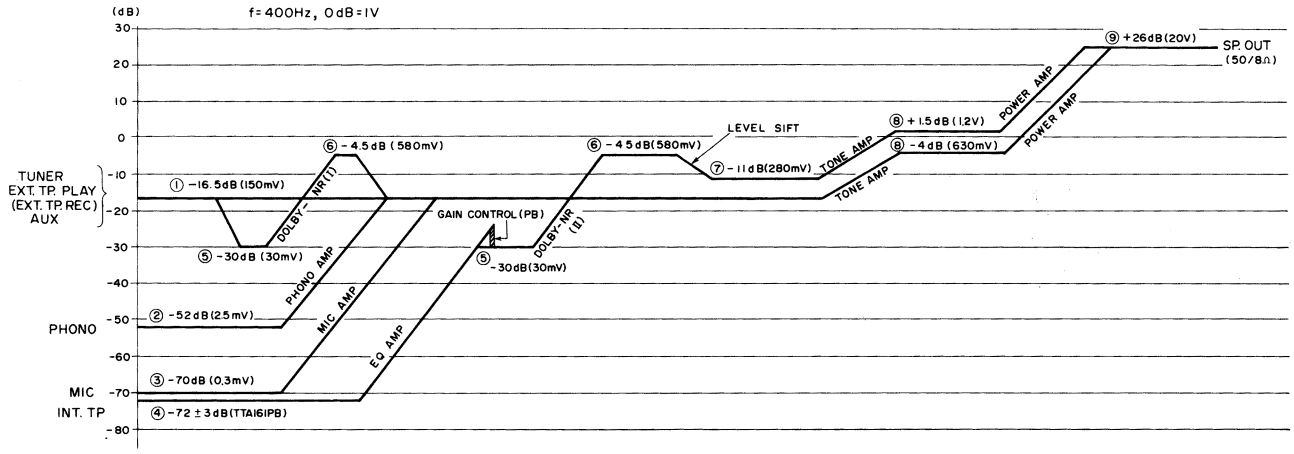
Fe-Cr Rec./Pb. Sensitivity Adjustment

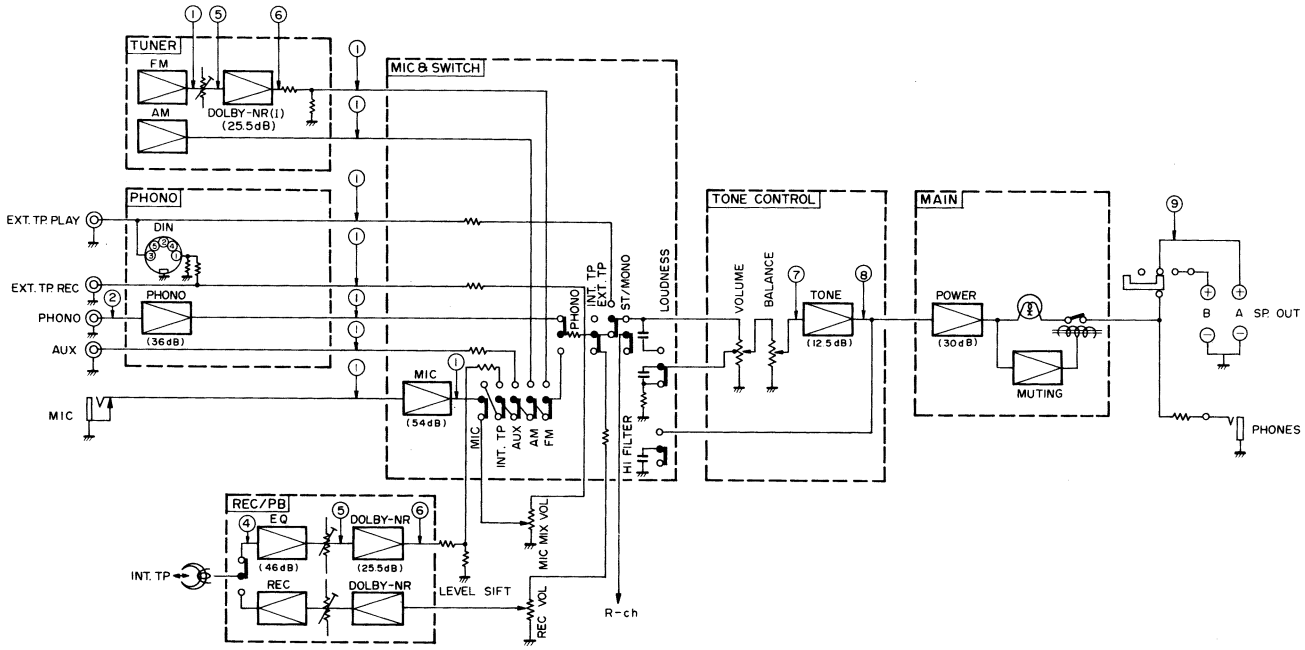
Settings:
TAPE SELECTOR switch: Fe-Cr
VOLUME control: MAX
DOLBY NR switch: OFF
Record inputs: OVU
Test tape: CS-30
Method:
Adjust SFR11 and 12 the same as in the CrO_2 Rec./Pb. Sensitivity Adjustment.

LH Rec./Pb. Sensitivity Adjustment

Settings:
TAPE SELECTOR switch: LH
VOLUME control: MAX
DOLBY NR switch: OFF
Record inputs: OVU
Test tape: CS-10
Method:
Adjust SFR9 and 10 the same as in the CrO_2 Rec./Pb. Sensitivity Adjustment.

LEVEL DIAGRAM

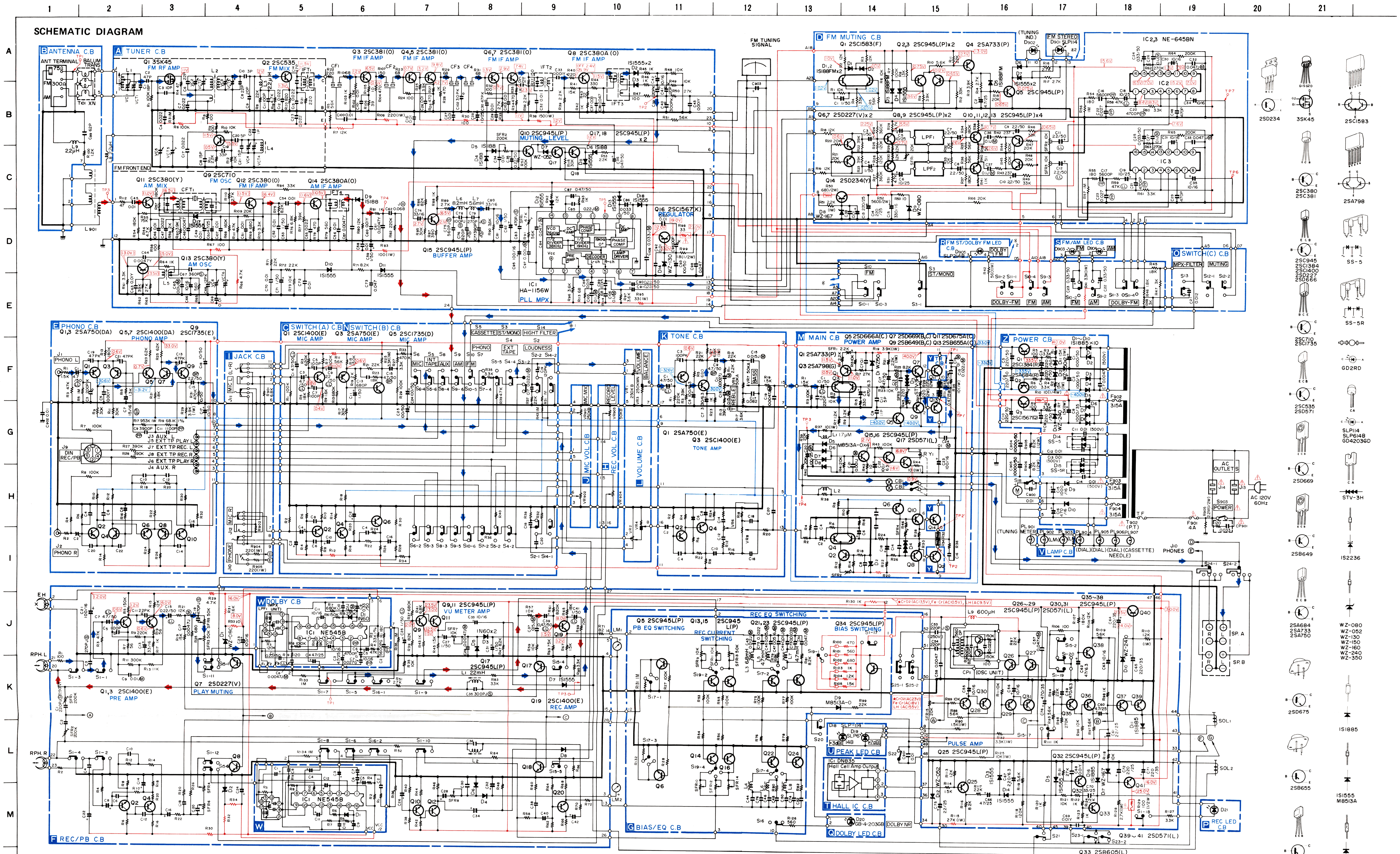




AIWA

MODEL NO. AF-3090U

SCHEMATIC DIAGRAM



NOTES:

1) —— B (+) power supply —— B (−) power supply
2) ➡ Signal path
➡ Rec. path
3) 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.
4) Resistors with no designation have a rated power of ¼W and a tolerance of ±5%.
5) Capacitors with no designation have a dielectric strength of less than 50WV.
6) Ceramic capacitor symbols:
For temperature compensation (SH)
For temperature compensation (SL)
High dielectric constant system (YY)
High dielectric constant system (YP, YZ)
7) The only capacitor tolerances indicated are ±2% (G), ±5% (J) and ±10% (K).
8) Explanation of symbols
Ⓜ Mylar capacitor
Ⓢ Styrol capacitor
Ⓣ Tantalum capacitor
(LL) Low-leakage capacitor
(PP) Polypropylene film capacitor
(LN) Low-noise resistor

9) Switches are set to the following pasitions

S1−1~16	REC/P.B	(PB)
S2−1~2	LOUDNESS	(OFF)
S3−1~2	ST/MONO	(ST)
S4~10	SELECTOR	(FM)
S4−1~2	EXT. TAPE	
S5−1~4	CASSETTE	
S6−1~2	MIC	
S7−1~2	PHONO	
S8−1~2	AUX	
S9−1~6	AM	
S10−1~6	FM	
S11	DOLBY FM	(OFF)
S12	FM MUTING	(OFF)
S13	HI-BLEND	(OFF)
S14−1~7	HIGH FILTER	(OFF)
S15−1~7	PLAY/STOP	(PLAY)
S16−1~3	DOLBY NR	(ON)
S17−1~4	EQ	(LH)
S18	MOTOR	(ON)
S19−1~3	BIAS	(LH)
S20	CrO_2 AUTO	(CrO_2)
S21	PAUSE	(OFF)
S22	CUE/REV	(OFF)
S23	AUTO STOP	(ON)
S24	SPEAKERS	(A)
S25−1~2	BIAS BEAT	
S903	POWER	(ON)

⚠ : 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.

WIRING–1

FM Muting Level Adjustment

Settings:
- Input signal: 20 dB
- FM muting switch: ON
- Adjustment location: SFR2

All the other settings are the same as those for FM MPX Adjustment.

Method:
Adjust so that the REC PLAY jack output is not fed out when the input signals are reduced by 1 dB

FM19kHz Adjustment

Settings:
- Selector button: FM • ST MONO switch: ST
- Dial: Detuned position • Test point: TP5
- Adjustment location: SFR1

Method:
Adjust so that the frequency at the test point is 19 kHz ± 10 Hz or less.

FM Separation Adjustment

Settings:
- Selector button: FM • ST/MONO switch: ST
- Carrier frequency: 98 MHz
- Input signal: 60 dB
- Modulation frequency: 1 kHz
- Modulation degree: 75 kHz, Pilot dev. 7.5 kHz
- Test points: TP7 (L ch), TP6 (R ch)
- Adjustment location: SFR1

Method:
Adjust so that the separation at the test points is at its maximum.

DOLBY FM Adjustment

Settings:
- DOLBY FM switch: OFF
- Carrier frequency: 98 MHz
- Input signal: 72 dB
- Modulation frequency: 1 kHz
- Test point: TP6 (R-ch), TP7 (L-ch)
- Adjustment locations: SFR2 (L-ch), SFR3 (R-ch)

Method:
Adjust SFR2 and SFR3 so that the voltage becomes 580 mV. The same for both left and right channels.

NOTES (1) B(+) Pattern, Component side pattern, Others pattern (2) The voltage is the reference value measured with a tester (20K ohms/VDC) when there are no signals.

WIRING-2

Fe-Cr Bias Adjustment

Settings:
TAPE SELECTOR switch: Fe-Cr
VOLUME control: MAX
DOLBY NR switch: OFF
Record inputs: OVU-20 dB
Test tape: CS-30

Method:
Record and playback the 500 Hz and 5 kHz signals. While repeating the recording and playback, adjust SFR1 and 2 so that the Dolby-out output (TP1, 2) of the 5 kHz portion is flat as compared with that of the 500 Hz portion.

Rating:
Level of 5 kHz as compared with 500 Hz: 0 dB ±0.5 dB

Playback Frequency Characterristic Adjustment

Settings:
TAPE SELECTOR swtich: CrO_2
VOLUME control: MAX
DOLBY NR switch: OFF

Method:
While playing back the 1 kHz and 10 kHz portions of the test tape (TTA-117E), adjust SFR 5 and 6 so that the Dolby-out output (TP1, 2) of the 10 kHz portions is +1.0 dB higher than that of the 1 kHz portion.

Rating:
Level of 10 kHz as compared with 1 kHz: 0 dB +1.0 dB

Level Meter Adjustment

Settings:
VOLUME control: MAX
DOLBY NR switch: OFF
Dolby-out output (TP1, 2): 410mV

Method:
Adjust the SFR 7 and 8 so that the indicator of the level meter points to OVU by the 1 kHz signal.

Rating:
OVU ±0.3 dB

Peak Indicator Adjustment

Settings:
Same as in the Level Meter Adjustment.

Method:
Adjust SFR 15 so that the yellow LED Lights up slightly when the recording input is increased by 2 dB. Then confirm that the yellow LED Lights up completely when the recording input is increased by 3 dB. Finally, confirm that the LED lights up when the recording input is increased by 7 dB.

Dolby Level Adjustment

Settings:
TAPE SELECTOR switch: LH
VOLUME control: MAX
DOLBY NR switch: OFF

Method:
While playing back the test tape (TTA-161), adjust SFR3 and SFR4 so that the voltage of TP1 and 2 is 580mV

Rating:
Dolby out output (TP1, 2): 580mV ±0.2 dB

Bias Trap Adjustment.

(See Page 27)

LH Bias Adjustment

Settings:
TAPE SELECTOR switch: EQ ... LH
BIAS ... Fe-Cr
VOLUME control: MAX
DOLBY NR switch: OFF
Record inputs: OVU-20 dB
Test tape: CS-10

Method:
Adjust R103, 104 and 105 the same as in the Fe-Cr Bias Adjustment

Rating:
Level of 5 kHz as compared with 500 Hz: 0.5 dB ±0.5 dB

CrO_2 Bias Adjustment

Settings:
TAPE SELECTOR switch: CrO
VOLUME control: MAX
DOLBY NR switch: OFF
Record inputs: OVU-20 dB
Test tape: CS-20

Method:
Adjust R100, 101 and 102 the same as in the Fe-Cr Bias Adjustment

Rating:
Level of 5 kHz as compared with 500 Hz: 0 dB ±0.5 dB

Azimuth Adjustment

Settings:
TAPE SELECTOR switch: CrO_2
VOLUME control: MAX
DOLBY NR switch: OFF

Method:
Play back the 10 kHz part of the test tape (TTA-117E) and adjust the adjusting screw of the RPH so that the Dolby-out output (TP1, 2) is at a maximum.

Tape Speed Adjustment

Settings:
TAPE SELECTOR Switch: LH
VOLUME control: MAX
DOLBY NR switch: OFF

Method:
Playback the test tape (TTA-111A) and adjust the SFR inside the motor for a value of 3 kHz ±1% or less at the beginning and end of the tape.

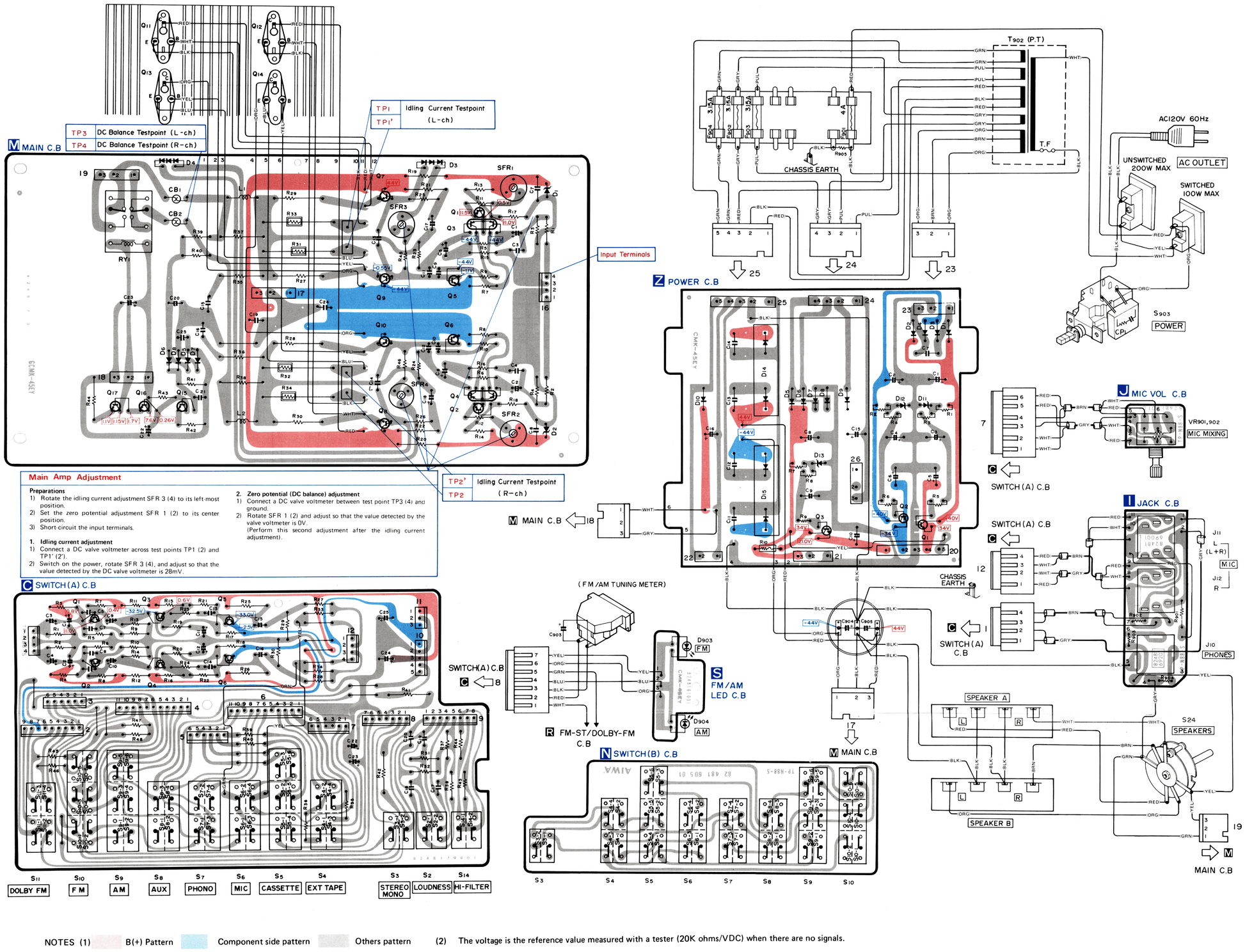
LH Recording Egualizer Adjustment See Page 27
Fe-Cr Recording Egualizer Adjustment (See Pag 27)
CrO_2 Recording Egualizer Adjustment See Page 27)
LH Rec./Pb. Sensitivity Adjustment. (See Page27)
Fe-Cr Rec./Pb. Sensitivity Adjustment. (See Page 27)
CrO_2 Rec./Pb. Sensitivity Adjustment. (See Page27)

TP1 Dolby-out output (L-ch)
TP2 Dolby-out output (R-ch)
TP3 Bias Trap Testpoint (L-ch)
TP4 Bias Trap Testpoint (R-ch)

F REC/PB C.B
W DOLBY NR C.B
P REC LED C.B
U PEAK LED C.B
Z POWER C.B
V LAMP C.B
T HALL IC C.B
C SWITCH (A) C.B
X PLAY MUTING C.B
H REC VOLUME C.B
G BIAS/EQ C.B
Q DOLBY LED C.B
M (DC F.G MOTOR)

NOTES (1) B(+) Pattern B(−) Pattern Others pattern (2) The voltage is the reference value measured with a tester (20K ohms/DVC) when there are no signals.

WIRING–3



NOTES (1) B(+) Pattern Component side pattern Others pattern (2) The voltage is the reference value measured with a tester (20K ohms/VDC) when there are no signals.