

4-BAND STEREO RADIO CASSETTE RECORDER

MODEL NO. **TPR-955H,E,K,G**

AIWA®

[SERVICE MANUAL]

Code No. 03-955-000-53



Shown above is TPR-955H

DATE OF ISSUE 5/1980

SPECIFICATIONS

GENERAL

Semiconductors: H, G model
11 ICs, 54 transistors, 1 FET, 34 diodes, 5 LED's
E, K model
11 ICs, 56 transistors, 1 FET, 34 diodes, 5 LED's

Power source: Batteries DC 9 V (UM-1 x 6)
H, E model: AC 110 ~ 120V/220 ~ 240V
K, G model: AC 120V/240V (switchable) 50-60 Hz

Power consumption: H model 19W
E model 17W
K model 20W
G model 23W

Speakers: Woofer 160 mmφ x 2
Tweeter 52 mmφ x 2

Dimensions (W x H x D): 490 x 370 x 130 (mm)

Weight: 7.2 kg

RADIO SECTION

Frequency range: H, G model
FM 87.0 ~ 109.0 MHz
SW₂ 6.8 ~ 22.5 MHz
SW₁ 2.1 ~ 7.3 MHz
MW 515 ~ 1,650 kHz
E, K model
FM 87.4 ~ 108.3 MHz
SW 5.7 ~ 18.5 MHz
MW 515 ~ 1,650 kHz
LW 145 ~ 320 kHz

Intermediate frequency: FM 10.7 MHz
SW, SW₂, SW₁, MW, LW
H, G model: 455 kHz
E, K model: 468 kHz
FM (S/N 6 dB)
4 ± 3 dB (at 88,98,108 MHz)
SW (S/N 10 dB)
26 ± 5 dB (at 5.9 MHz)
17 ± 5 dB (at 12 MHz)
15 ± 5 dB (at 18 MHz)
SW₂ (S/N 10 dB)
28 ± 5 dB (at 7 MHz)
17 ± 5 dB (at 14,22 MHz)
SW₁ (S/N 10 dB)
40 ± 4 dB (at 2.3,7.0 MHz)
38 ± 4 dB (at 4.0 MHz)
MW (S/N 10 dB)

H, G model
44 ± 4 dB (at 600, 1,000, 1,400 kHz)

E, K model
43 ± 4 dB (at 600 kHz)
42 ± 4 dB (at 1,000, 1,400 kHz)

LW (S/N 10 dB)
52 ± 5 dB (at 150 kHz)
50 ± 5 dB (at 220,300 kHz)

25 ± 5 dB (at 1 kHz)

H, G model
Built-in whip antenna for FM, SW₂
Built-in ferrite bar antenna for SW₁, MW
External antenna terminals for FM
E, K model
Built-in whip antenna for FM, SW
Built-in ferrite bar antenna for MW, LW
External antenna terminals for FM

FM stereo separation: Antennas:

TAPE RECORDER SECTION

Recording system: AC bias

Erasing system: AC erase

Recording bias frequency: 54.5 ± 1 kHz

Distortion: Less than 1.7% (PB)
Less than 3.0% (REC/PB)

Frequency response: H, G model
Normal tape 40 ~ 12,500 Hz
CrO₂ tape 40 ~ 14,000 Hz
E, K model
Normal tape 50 ~ 12,000 Hz
CrO₂ tape 50 ~ 14,000 Hz
Fe-Cr tape 50 ~ 14,000 Hz

Signal to noise ratio: More than 50/47 dB
(Un-Weighted) [DC/AC] (PB)
More than 43/42 dB [DC/AC] (PB)

Erasing ratio: More than 55 dB (at 400 Hz)

Separation: More than 35 dB (at 400 Hz, PB)

Maximum output power: 10W (5W + 5W)

Head: Ferrite guard head (F.G.H)

Pinch roller pressure: 350 ± 25 g (3.43 ± 0.25 N)

Wow and Flutter: 0.07% (WRMS)

Take-up torque: 50 ± 10 g-cm (0.49 ± 0.1 mN·m)

FF & rewind torque: 100⁺²⁰₋₁₀ g-cm (0.98^{+0.2}_{-0.1} mN·m)

• The specifications and external appearance of this set are subject to change without prior notice.

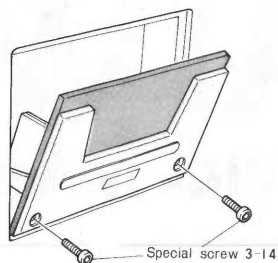
TPR-955H,E,K,G

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DISASSEMBLY INSTRUCTIONS

1. To Remove Back Cover

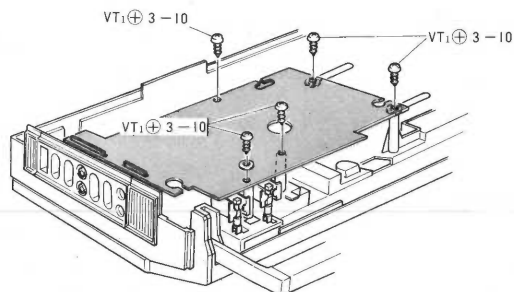
- 1) Remove the 2 screws.
(See figure 1)



< Fig. 1 >

2. To Remove REC/PB Circuit Board

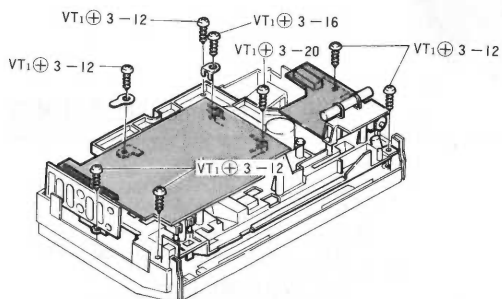
- 1) Remove the 5 screws.
(See figure 2)



< Fig. 2 >

3. To Remove Main Case

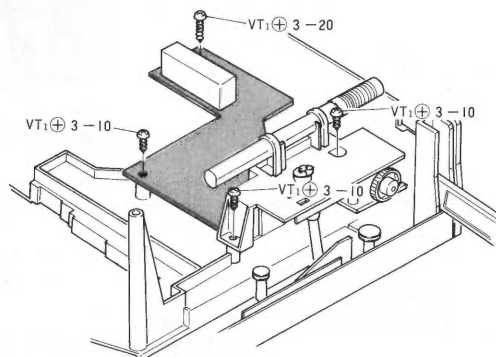
- 1) Remove the 8 screws.
(See figure 3)



< Fig. 3 >

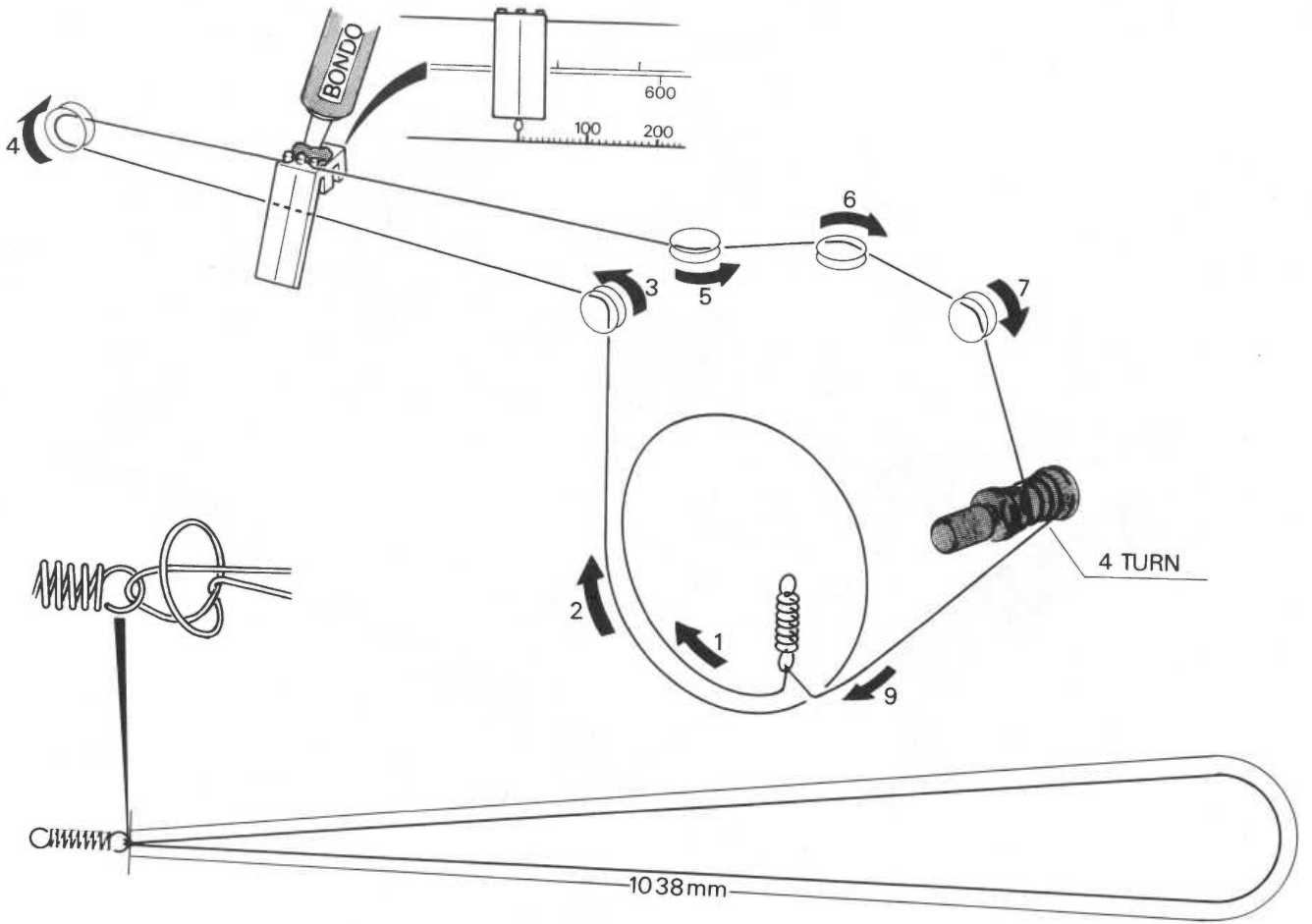
4. To Remove Tuner Circuit Board

- 1) Remove the 4 screws.
(See figure 4)

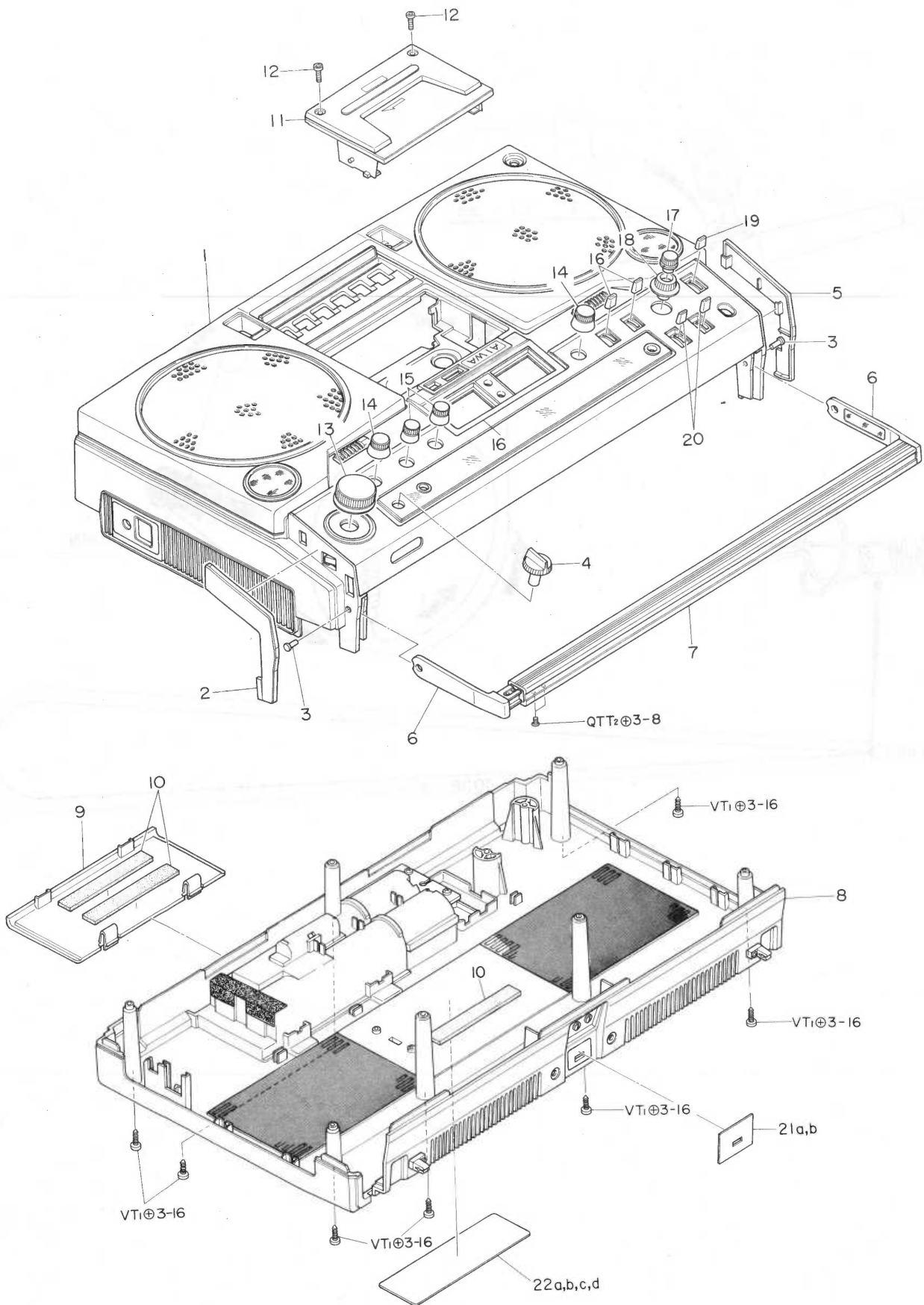


< Fig. 4 >

DIAL CORD STRINGING



EXPLODED VIEW-1



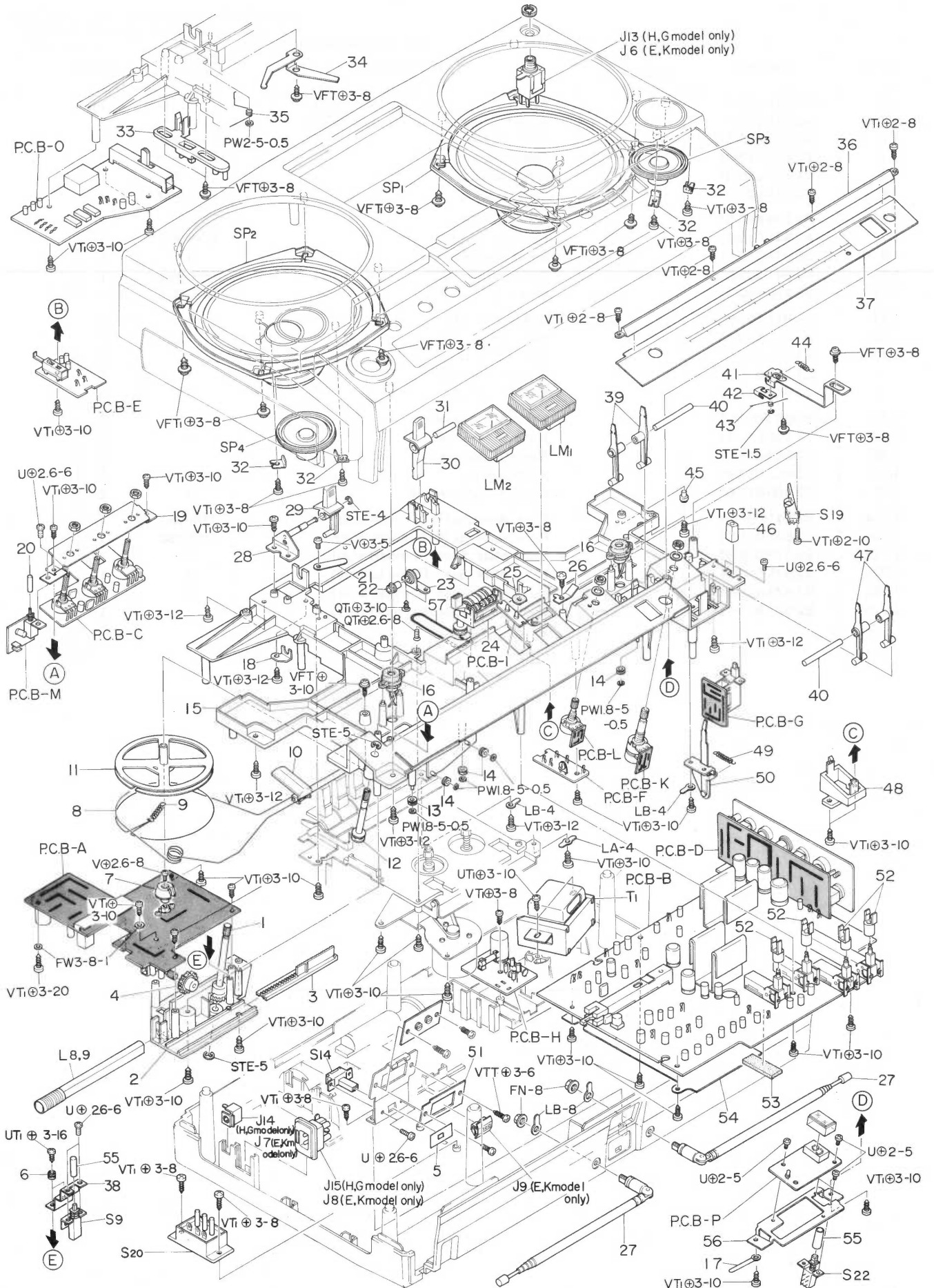
PARTS LIST

MECHANICAL PARTS

■ * mark in this part list shows exclusive part (which is used) for only Model TPR-955.

Ref. No.	Part No.	Part No. Changed to	Description	Common Model	Q'ty
1-1a	09-017-789-01		Main cabinet ass'y. (H,G model only)	*	1
1-1b	09-017-788-01		Main cabinet ass'y (E.K model only)	*	1
1-2	82-541-019-01		Panel,R, Side	TPR-950	1
1-3	82-541-267-01		Shaft, Carrying handle	TPR-950	2
1-4	82-541-025-01		Knob, band	TPR-950	1
1-5	82-541-020-01		Panel L, Side	TPR-950	1
1-6	82-534-013-01		Handle arm R		2
1-7	82-541-013-01		Handle grip	TPR-950	1
1-8	09-017-790-01		Back cover ass'y	*	1
1-9	82-541-003-01		Battery room lid	TPR-950	1
1-10	82-416-260-01		M cushion	TPR-601	3
1-11	09-017-791-01		Cassette lid ass'y	*	1
1-12	87-081-895-01		Allen screw 3-14		2
1-13	82-538-041-01		Knob, Tuning		1
1-14	82-560-013-01		Knob A, Volume	*	2
1-15	82-560-014-01		Knob B, Volume	*	2
1-16	82-560-017-01		Knob A, Lever switch	*	2
1-17	82-560-016-01		Knob D, Volume	*	1
1-18	82-560-015-01		Knob C, Volume	*	1
1-19	82-560-019-01		Knob, Sleep	*	1
1-20	82-560-018-01		Knob, B, Lever switch	*	2
1-21a	82-541-094-01		Plate, Antenna (H, G model only)	TPR-950	1
1-21b	82-541-075-01		Plate, Antenna (E, K model only)	TPR-950	1
1-22a	82-573-009-01		Name plate, Spec. (H model only)	*	1
1-22b	82-573-010-01		Name plate, Spec. (E model only)	*	1
1-22c	82-573-011-01		Name plate, Spec. (K model only)	*	1
1-22d	82-573-013-01		Name plate, Spec. (G model only)	*	1

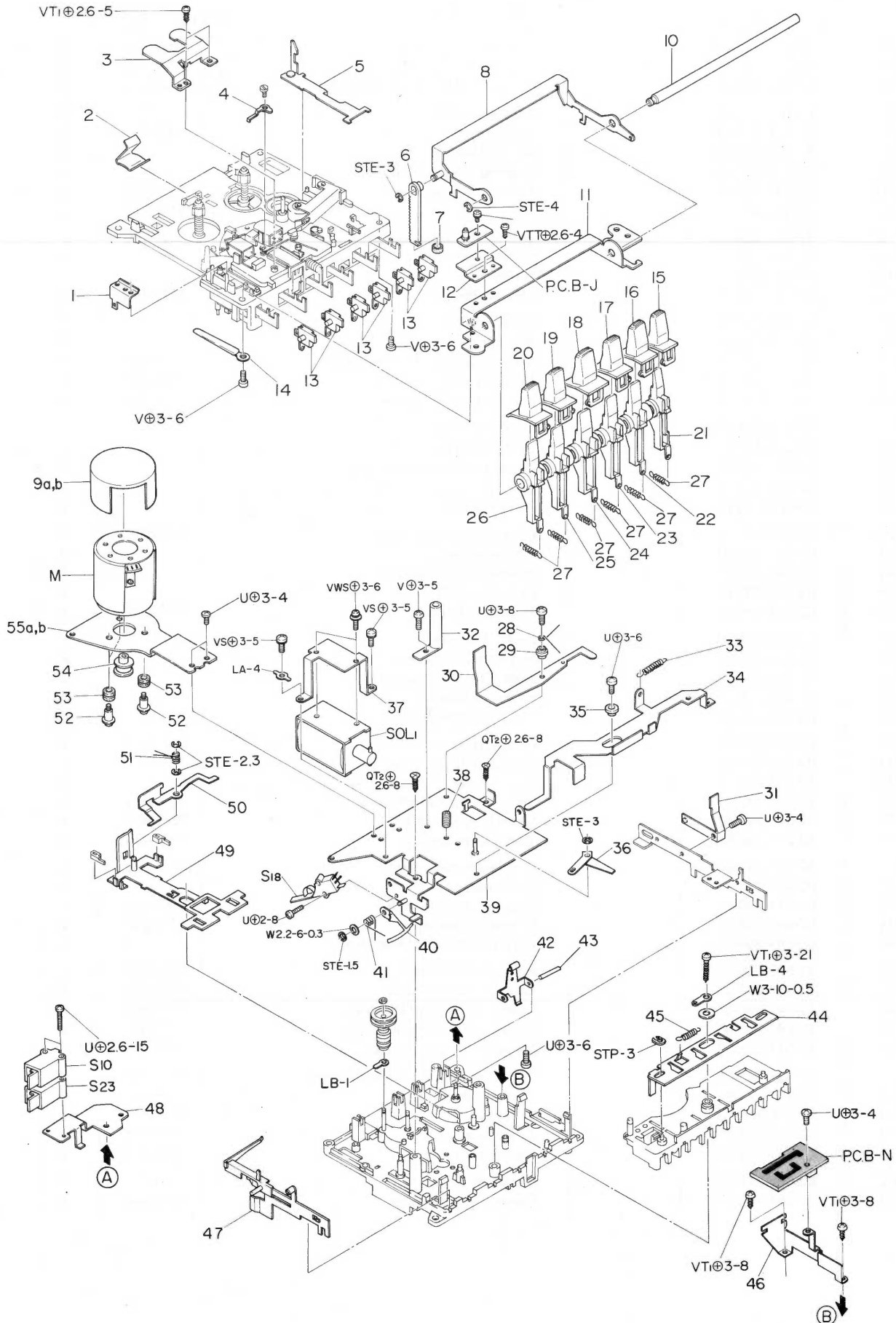
EXPLODED VIEW-2



Ref. No.	Part No.	Part No. Changed to	Description	Common Model	Q'ty
2-1	82-541-205-01		Gear C, Band selector	TPR-950	1
2-2	82-541-301-01		Chassis, Tuning	TPR-950	1
2-3	82-541-204-01		Gear B, Band selector	TPR-950	1
2-4	82-541-203-01		Gear A, Band selector	TPR-950	1
2-5	82-541-058-01		Himeron cloth, Antenna switch	TPR-950	1
2-6	87-087-027-01		Rubber cushion		2
2-7	82-439-311-01		Joint, Drum	TPR-300	1
2-8	87-096-045-01		String, Dial		1
2-9	82-534-290-01		E-spring, Tuning brum		1
2-10	82-541-014-01		Pointer, Tuning	TPR-950	1
2-11	82-439-310-01		Drum	TPR-300	1
2-12	82-541-232-01		Shaft, Tuning	TPR-950	1
2-13	81-302-107-01		Roller		1
2-14	81-385-014-01		Roller		4
2-15	82-541-201-01		Chassis, Radio	TPR-950	1
2-16	87-064-084-01		Holder, ECM		2
2-17	87-038-039-01		Wire binder		2
2-18	82-541-280-01		Metal fitting, Push-button shaft	TPR-950	1
2-19	82-541-298-01		Metal fitting E, Volume	TPR-950	1
2-20	82-545-016-01		Push-button, REC mute	TPR-980	1
2-21	82-560-224-01		P-spring, Cassette up	*	1
2-22	82-534-264-01		Gear, oil damp		1
2-23	82-534-250-01		Oil damp metal fitting ass'y		1
2-24	87-040-113-01		Counter		1
2-25	87-064-059-01		Holder, ECM		1
2-26	82-541-275-01		Plate spring, Earth plate	TPR-950	1
2-27	87-043-050-01		Rod antenna		2
2-28	82-560-209-01		Holder ass'y, ATS knob	*	1
2-29	82-560-007-01		Push-key, ATS	*	1
2-30	82-541-026-01		Push-key, Stand-by	TPR-950	1
2-31	82-541-231-01		Shaft, Stand-by		1
2-32	82-541-235-01		Metal fitting, Tweeter		4
2-33	82-560-207-01		Slide lever, ATS switch	*	1
2-34	82-560-208-01		Lever, ATS plate	*	1
2-35	82-560-225-01		T-spring, Change lever	*	1
2-36	82-541-012-01		Reflect plate	TPR-950	1
2-37a	82-573-007-01		Dial plate (H, G model only)	*	1
2-37b	82-573-008-01		Dial plate (E, K model only)	*	1
2-38	82-541-299-01		Metal fitting, 49mm band	TPR-950	1
2-39	82-541-251-01		Lever B, Lever switch	TPR-950	2
2-40	82-541-246-01		Shaft, Lever switch	TPR-950	2
2-41	82-541-233-01		Slide lever ass'y, Sleep	TPR-950	1
2-42	82-530-223-01		Lock plate		1
2-43	82-541-250-01		T-spring, Sleep switch	TPR-950	1
2-44	82-541-243-01		E-spring, Sleep lever	TPR-950	1
2-45	82-534-254-01		Lock pin, Power switch lever		1
2-46	82-541-043-01		Knob, Light switch	TPR-950	1
2-47	82-541-244-01		Lever A, Lever switch	TPR-950	2
2-48	82-541-308-01		Holder, Peak circuit board	TPR-950	1
2-49	82-541-245-01		E-spring, Sleep metal fitting	TPR-950	1
2-50	82-541-236-01		Metal fitting ass'y, Sleep	TPR-950	1
2-51	82-463-088-01		Terminal plate (E, K model only)	TPR-900	1
2-52	82-541-241-01		Joint, Lever switch	TPR-950	4
2-53	82-416-260-01		M cushion	TPR-601	2
2-54	82-541-638-01		Shield paper A	TPR-950	1
2-55	82-541-061-01		Knob, 49mm band	TPR-950	2
2-56	82-560-218-01		Metal fitting	*	1
2-57	82-541-268-01		Rubber belt, Counter	TPR-950	1

EXPLODED VIEW-3





As this is a PM-1 mechanism, the exploded view is omitted (see the supplement PM-1 mechanism adjustment manual). The exploded view below shows the additional mechanism of the PM-1. Also shown are the attachments of the motor and a list of such.



Ref. No.	Part No.	Part No. Changed to	Description	Common Model	Q'ty
3-1	82-541-284-01		Plate spring, Wire holder	TPR-950	1
3-2	82-563-292-01		P-spring, Cassette hold		1
3-3	82-541-628-01		Shield plate, Head	TPR-950	1
3-4	82-539-206-01		Earth plate, EH		1
3-5	82-541-221-01		Cassette lock lever	TPR-950	1
3-6	82-541-240-01		Oil damp lever	TPR-950	1
3-7	82-461-319-01		Cushion, Cassette lid	TPR-930	1
3-8	82-541-212-01		Cassette box lever ass'y	TPR-950	1
3-9a	82-541-612-01		Motor shield cap (H, G model only)	TPR-950	1
3-9b	82-551-629-01		Motor shield cap (E, K model only)	TPR-935	1
3-10	82-541-216-01		Shaft, Push-button	TPR-950	1
3-11	82-541-218-01		Metal fitting, Push-button	TPR-950	1
3-12	82-541-273-01		Metal fitting, LED	TPR-950	1
3-13	82-541-229-01		Knob, Change	TPR-950	6
3-14	87-038-039-01		Wire binder		1
3-15	82-541-031-01		Push-switch, PAUSE	TPR-950	1
3-16	82-541-030-01		Push-key, STOP	TPR-950	1
3-17	82-541-028-01		Push-key, FF	TPR-950	1
3-18	82-541-027-01		Push-key, FWD	TPR-950	1
3-19	82-541-032-01		Push-key, REW	TPR-950	1
3-20	82-541-029-01		Push-key, REC	TPR-950	1
3-21	82-541-257-01		Push-lever, PAUSE	TPR-950	1
3-22	82-541-255-01		Push-lever, STOP	TPR-950	1
3-23	82-541-254-01		Push-lever, FF	TPR-950	1
3-24	82-541-252-01		Push-lever, FWD	TPR-950	1
3-25	82-541-253-01		Push-lever, REW	TPR-950	1
3-26	82-541-256-01		Push-lever, REC	TPR-950	1
3-27	82-541-288-01		E-spring, Push-key	TPR-950	6
3-28	82-534-271-01		T-spring, REC lever		1
3-29	82-534-212-01		Collar, REC lever		1
3-30	82-541-224-01		REC lever	TPR-950	1
3-31	82-560-217-01		P-spring, REC	*	1
3-32	82-541-274-01		Circuit board supporter	TPR-950	1
3-33	82-560-230-01		E-spring, Eject lever	*	1
3-34	82-560-238-01		Eject lever ass'y	*	1
3-35	82-560-219-01		Collar, Eject lever	*	1
3-36	82-560-206-01		Change lever, Solenoid	*	1
3-37	82-560-204-01		Holder, Solenoid	*	1
3-38	82-385-311-01		Thrust screw	AD-6300	1
3-39	82-560-201-01		Flywheel bearing plate ass'y	*	1
3-40	82-560-212-01		Lock plate, Stand-by	*	1
3-41	82-560-231-01		T-spring, Pause lock plate	*	1
3-42	82-541-297-01		P-spring, CrO ₂ switch	TPR-950	1
3-43	82-439-398-01		Shaft, CrO ₂ selector	TPR-300	1
3-44	82-560-220-01		ATS plate	*	1
3-45	82-283-289-01		Spring, Play idler lever		1
3-46	82-541-296-01		Metal fitting, CrO ₂ switch	TPR-950	1
3-47	82-560-213-01		Pause lever ass'y	*	1
3-48	82-560-223-01		Metal fitting, Power switch	*	1
3-49	82-560-236-01		Brake plate ass'y	*	1
3-50	82-439-271-01		Lever, CrO ₂ selector	TPR-300	1
3-51	82-534-266-01		T-spring, CrO ₂ selector lever		1
3-52	87-081-483-01		Motor screw, M2.6		3
3-53	87-087-029-01		Rubber cushion		3
3-54	87-071-025-01		Motor pulley		1
3-55a	82-560-216-01		Holder, Motor (H, G model only)	*	1
3-55b	82-541-316-01		Holder, Motor (E, K model only)	TPR-950	1

ELECTRICAL MAIN PARTS LIST = H, G MODEL

Symbol No.	Part No.	Description	Symbol No.	Part No.	Description
◀TUNER CIRCUIT BOARD SECTION▶					
PCB-A	82-541-702-11	Tuner circuit board	S6	82-541-605-11	Lever switch (MODE)
IC1	87-027-285-01	IC, HA-11251	SFR1,2	82-542-623-01	Semi-fixed resistor, 100KΩ-B
IC2	87-027-296-01	IC, HA-11227	SFR3,4	82-542-624-01	Semi-fixed resistor, 10KΩ-B
Q1	87-026-109-01	FET, 2SK49 (E2)	SFR5	87-021-596-01	Semi-fixed resistor, 20KΩ-B
Q2	89-319-232-01	Transistor, 2SC1923 (R)	SFR6	82-542-612-01	Semi-fixed resistor, 200KΩ-B
Q3	89-305-352-01	Transistor, 2SC535 (B)		82-541-687-01	Heat sink plate
Q4,5	89-316-752-01	Transistor, 2SC1675 (L)	< Capacitors >		
Q6	89-110-153-01	Transistor, 2SA1015 (O)	C87,88	87-015-311-01	0.1μF 10V Aluminum solid
Q7	89-309-455-01	Transistor, 2SC945L (Q)	C103,104	87-014-065-01	2200pF PP
D1	87-017-004-01	Diode, SD117	◀VOLUME CIRCUIT BOARD SECTION▶		
D2,5	88-051-060-01	Diode, 1N60	PCB-C	82-541-700-01	Volume circuit board
D3	87-027-097-01	Diode, 1S1555	Q1,2	89-307-325-01	Transistor, 2SC732 (G)
D4	87-027-286-01	Zener diode, HZ5C1	VR1,2,3,4	82-541-623-01	Volume, 50KΩ-A (BASS, TREBLE)
L1	82-539-657-01	FM antenna coil	VR5,6	82-541-646-01	Volume, 20KΩ-B (VOLUME)
L2	82-546-601-01	FM RF coil	< Capacitor >		
L3	87-007-088-01	FM OSC coil, 2½t	C307,308	87-015-314-01	0.47μF 10V Aluminum solid
L4	87-005-101-01	FM choke coil, 2.2μH	317,318		
L5	87-005-136-01	Coil, 20μH	◀JACK CIRCUIT BOARD SECTION▶		
L6	87-008-182-01	FM quad coil	PCB-D	82-541-619-11	Jack circuit board
L7	82-541-675-01	SW ₂ antenna coil	J1~12	82-541-601-11	Jack plate ass'y
L8,9	82-541-674-01	SW ₁ , MW bar antenna coil	S15	82-541-627-01	Slide switch (OSC)
L10,11	87-007-058-01	SW ₁ , SW ₂ OSC coil	◀REC MUTE CIRCUIT BOARD SECTION▶		
L12	87-007-057-01	MW OSC coil	PCB-E	82-541-636-11	REC MUTE circuit board
VC1,2,3,4	87-011-105-01	Poly-variable capacitor	Q1,2	89-318-154-01	Transistor, 2SC1815 (Y)
TC2,3,4,8	87-011-099-01	Trimmer	S8	82-541-626-01	Slide switch (REC MUTE)
TC1,5,6,7,9					
CF1,2	87-008-153-01	Ceramic filter	◀PEAK CIRCUIT BOARD SECTION▶		
CFT1	87-008-162-01	AM ceramic filter transformer	PCB-F	82-541-630-11	Peak circuit board
IFT1	87-008-174-01	FM IFT	Q35~38	89-318-154-01	Transistor, 2SC1815 (Y)
IFT2	87-008-164-01	AM IFT	SFR1	87-021-434-01	Semi-fixed resistor, 20KΩ-B
LPF1,2	87-028-038-01	Low-pass filter	◀SWITCH CIRCUIT BOARD SECTION▶		
SFR1	87-021-357-01	Semi-fixed resistor, 10KΩ-B	PCB-G	82-541-701-01	Switch circuit board
SFR2	87-021-527-01	Semi-fixed resistor, 500Ω-B	D1,2	87-027-097-01	Diode, 1S1555
S1	87-031-441-01	Rotary switch (BAND SELECTOR)	S7	82-541-603-01	Slide switch (TUNE/BATT)
< Capacitors >			◀POWER CIRCUIT BOARD SECTION▶		
C36	87-014-045-01	330pF PP	PCB-H	87-033-153-01	Power circuit board
C81	87-014-049-01	470pF PP	D1~4	87-027-445-01	Diode, 10E-2
C34	87-014-061-01	1500pF PP	F1	87-035-144-01	Fuse, "T" 250mA
C28	87-014-065-01	2200pF PP	F2	87-098-010-01	Fuse label, "T" 250mA
C89	87-015-311-01	0.1μF 10V Aluminum solid		87-035-118-01	Fuse, "T" 2.5A
C83	87-015-320-01	0.33μF 10V Aluminum solid		87-098-020-01	Fuse label, "T" 2.5A
				87-032-323-01	Fuse clamp
◀REC/PB CIRCUIT BOARD SECTION▶			◀PEAK LED CIRCUIT BOARD SECTION▶		
PCB-B	82-541-615-71	REC/PB circuit board	PCB-I	82-541-632-11	Peak LED circuit board
IC1,2	87-027-227-01	IC, TA-7215P	D1	87-027-262-01	LED, TLR-124 (+7dB)
Q1,2,11,12,19,20	89-307-326-01	Transistor, 2SC732 (BL)	D2	87-027-263-01	LED, TLY-124 (+3dB)
Q3,4,7,8,13,14	89-307-325-01	Transistor, 2SC732 (G)	◀REC LED CIRCUIT BOARD SECTION▶		
Q5,6	89-310-006-01	Transistor, 2SC1000 (BL)	PCB-J	82-541-631-01	REC LED circuit board
Q9,10,21,22,23,24,29,30	89-318-154-01	Transistor, 2SC1815 (Y)	D1	82-300-622-01	LED, SLP-132B (REC)
Q15,16,25,26	89-104-954-01	Transistor, 2SA495 (Y)	◀REC VR CIRCUIT BOARD SECTION▶		
Q27,28	89-318-155-01	Transistor, 2SC1815 (GR)	PCB-K	82-541-618-11	REC VR circuit board
Q31,32	89-200-562-01	Transistor, 2SB56 (B)	VR1,2	82-541-625-01	Volume, 20KΩ-A (REC VOLUME)
Q39	89-404-005-01	Transistor, 2SD400 (E)	◀BALANCE VR CIRCUIT BOARD SECTION▶		
D1,2,5,6,7,8	88-051-060-01	Diode, 1N60	PCB-L	82-541-671-11	Balance VR circuit board
D3,4	87-027-097-01	Diode, 1S1555	VR7,8	82-541-624-01	Volume, 100KΩ-A,C (BALANCE)
D9	87-027-228-01	Zener diode, 05Z-7.5U			
L1,2	87-003-044-01	Trap coil			
L3	82-401-661-01	Choke coil, 600μH			
L4	87-003-039-01	Choke coil, 36μH			
L5	82-418-612-01	Bias OSC coil			
S2	82-533-608-01	Slide switch (REC/PB)			
S3,4	82-541-604-11	Lever switch (ALC, TAPE)			
S5	82-541-606-11	Lever switch (FUNCTION)			

Symbol No.	Part No.	Description	Symbol No.	Part No.	Description
«LOUDNESS CIRCUIT BOARD SECTION»			«MISCELLANEOUS»		
PCB-M	82-541-653-01	Loudness circuit board	 T1	82-555-619-01	Power transformer (H model only)
S16	82-541-644-01	Push-switch (LOUDNESS)	 T1	82-555-620-01	Power transformer (G model only)
		< Capacitor >	RPH	87-046-163-01	REC/PB head
C3,4	87-015-367-01	0.15 μ F 10V Aluminum solid	EH	87-046-127-01	Erase head
«CHROME CIRCUIT BOARD SECTION»			SOL1	82-560-610-21	Solenoid
PCB-N	82-541-654-01	Chrome circuit board	M	87-045-117-21	Motor
S17	87-031-381-01	Slide switch (CrO ₂ BIAS)	LM1	87-040-111-01	Level meter L
«MS CIRCUIT BOARD SECTION»			LM2	87-040-112-01	Level meter R
PCB-O	82-560-606-31	MS circuit board	ECM1,2	85-868-019-01	ECM, CMU-9 (B)
IC1,2	87-027-538-01	IC, μ PD-4069	SP1,2	82-541-685-01	Speaker (Woofer)
IC3	87-027-439-01	IC, CMOS 4020	SP3,4	82-560-631-01	Speaker (Tweeter)
IC4,5	87-027-298-01	IC, CMOS 4001 NOR	J13	87-032-881-01	Jack, 6.3 ϕ (PHONES)
IC6	87-027-441-01	IC, TC4029	J14	82-266-214-11	DC jack (DC 9V)
IC7	87-027-422-01	IC, TC5022	 J15	87-032-853-01	AC jack
Q1,2,3,4,5,7	89-318-154-01	Transistor, 2SC1815 (Y)	S9	82-541-679-01	Push-switch (AFC)
Q6	89-110-154-01	Transistor, 2SA1015 (Y)	S10,23	87-031-493-01	Micro switch (PLAY, MOTOR, SOLENOID)
Q8	89-311-623-01	Transistor, 2SC1162 (C)	S11	87-031-393-01	Leaf switch (AUTO STOP)
Q9	89-318-156-01	Transistor, 2SC1815 (BL)	S14	82-541-607-01	Slide switch (ANT SELECTOR)
D1,2,3,4,5,10 11,13,14	87-027-097-01	Diode, 1S1555	S18,19	87-031-418-01	Micro switch (PAUSE, TIMER STAND BY)
D6,7,8,9	88-052-188-11	Diode, 1S188 (FM)	 S20	87-031-393-01	Slide switch (VOLTAGE SELECTOR)
RY1	82-555-622-01	Relay	S22	82-560-609-01	Push-switch (PROGRAM)
S21	82-560-608-01	Slide switch (MS/SLEEP)		87-033-139-11	External antenna terminal
SFR1	87-021-570-01	Semi-fixed resistor, 100K Ω -B	D1	87-027-365-01	Diode, S5277B
SFR2	87-021-588-01	Semi-fixed resistor, 200K Ω -B	C1,2	82-981-610-01	< Capacitor > 3.3 μ F 50V Electrolytic BP
C5	87-015-518-01	1.5 μ F 25V Tantalum			
«DIGITAL IND CIRCUIT BOARD SECTION»					
PCB-P	82-560-607-21	Digital IND circuit board			
D1	87-027-506-01	LED (DIGITAL IND)			
D2	87-027-687-01	LED, SR505D (FM STEREO, OPERATE)			

 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.

ELECTRICAL MAIN PARTS LIST = E, K Model

Symbol No.	Part No.	Description	Symbol No.	Part No.	Description
◀TUNER CIRCUIT BOARD SECTION▶					
PCB-A	82-541-702-11	Tuner circuit board	S2	82-533-608-01	Slide switch (REC/PB)
IC1	87-027-285-01	IC, HA-11251	S3,4	82-541-604-11	Lever switch (ALC, TAPE)
IC2	87-027-296-01	IC, HA-11227	S5	82-541-606-11	Lever switch (FUNCTION)
Q1	87-026-109-01	FET, 2SK49 (E2)	S6	82-541-605-11	Lever switch (MODE)
Q2	89-319-232-01	Transistor, 2SC1923 (R)	SFR1,2	82-542-623-01	Semi-fixed resistor, 100KΩ-B
Q3	89-305-352-01	Transistor, 2SC535 (B)	SFR3,4	82-542-624-01	Semi-fixed resistor, 10KΩ-B
Q4,5	89-316-752-01	Transistor, 2SC1675 (L)	SFR5	87-021-596-01	Semi-fixed resistor, 20KΩ-B
Q6	89-110-153-01	Transistor, 2SA1015 (O)	SFR6	82-542-612-01	Semi-fixed resistor, 200KΩ-B
Q7	89-309-455-01	Transistor, 2SC945L (Q)		82-541-687-01	Heat sink plate
D1	87-017-004-01	Diode, SD117	< Capacitors >		
D2,5	88-051-060-01	Diode, 1N60	C109	87-015-141-01	10μF 16V Electrolytic BP
D3	87-027-097-01	Diode, 1S1555	C87,88,115	87-015-311-01	0.1μF 10V Aluminum solid
D4	87-027-286-01	Zener diode, HZ5C1	116		
L1	82-539-657-01	FM antenna coil	C103,104	87-014-065-01	2200pF PP
L2	82-546-601-01	FM RF coil	◀VOLUME CIRCUIT BOARD SECTION▶		
L3	87-007-088-01	FM OSC coil, 2½t	PCB-C	82-541-700-01	Volume circuit board
L4	87-005-101-01	FM choke coil, 2.2μH	Q1,2	89-307-325-01	Transistor, 2SC732 (G)
L5	87-005-136-01	Coil, 20μH	VR1,2,3,4	82-541-623-01	Volume, 50KΩ-A(BASS,TREBLE)
L6	87-008-182-01	FM quad coil	VR5,6	82-541-646-01	Volume, 20KΩ-B (VOLUME)
L7	82-539-651-01	SW antenna coil	< Capacitor >		
L8,9	82-541-642-01	LW, MW bar antennar coil	C307,308	87-015-314-01	0.47μF 10V Aluminum solid
L10	82-573-602-01	SW OSC coil	317,318		
L11	87-007-057-01	MW OSC coil	◀JACK CIRCUIT BOARD SECTION▶		
L12	82-479-664-11	LW OSC coil	PCB-D	82-541-658-01	Jack circuit board
VC1,2,3,4	87-011-105-01	Poly-variable capacitor	J1~5	82-541-639-11	Jack plate ass'y
TC2,3,7,8			S15	82-541-647-01	Slide switch (OSC)
TC1,4,5	87-011-099-01	Trimmer	◀REC MUTE CIRCUIT BOARD SECTION▶		
TC6	87-011-021-01	Trimmer, IAT-54	PCB-E	82-541-636-11	REC MUTE circuit board
TC9	85-708-604-01	Trimmer, 30P	Q1,2	89-318-154-01	Transistor, 2SC1815 (Y)
CF1,2	87-008-169-01	Ceramic filter	S8	82-541-626-01	Slide switch (REC MUTE)
CFT1	87-008-150-01	AM ceramic filter transformer	◀PEAK CIRCUIT BOARD SECTION▶		
IFT1	87-008-174-01	FM IFT	PCB-F	82-541-669-11	Peak circuit board
IFT2	87-008-164-01	AM IFT	Q35~38	89-318-154-01	Transistor, 2SC1815 (Y)
LPF1,2	87-028-038-01	Low-pass filter	SFR1	87-021-434-01	Semi-fixed resistor, 20KΩ-B
SFR1	87-021-357-01	Semi-fixed resistor, 10KΩ-B	◀SWITCH CIRCUIT BOARD SECTION▶		
SFR2	87-021-527-01	Semi-fixed resistor, 500Ω-B	PCB-G	82-541-701-01	Switch circuit board
S1	82-541-688-01	Rotary switch(BAND SELECTOR)	D1,2	87-027-097-01	Diode, 1S1555
		< Capacitors >	S7	82-541-603-01	Slide switch (TUNE/BATT)
C36	87-014-035-01	120pF PP	◀POWER CIRCUIT BOARD SECTION▶		
C34	87-014-045-01	330pF PP	△PCB-H	87-033-137-01	Power circuit board
C81	87-014-049-01	470pF PP	D1~4	87-027-445-01	Diode, 10E-2
C33	87-014-071-01	3900pF PP	△F1	87-035-145-01	Fuse, "T" 250mA
C89	87-015-311-01	0.1μF 10V Aluminum solid		87-098-010-01	Fuse label, "T" 250mA
C83	87-015-320-01	0.33μF 10V Aluminum solid	△F2	87-035-139-01	Fuse, "T" 2.5A
				87-098-020-01	Fuse label, "T" 2.5A
				87-032-323-01	Fuse clamp
◀REC/PB CIRCUIT BOARD SECTION▶					
PCB-B	82-541-652-41	REC/PB circuit board	◀PEAK LED CIRCUIT BOARD SECTION▶		
IC1,2	87-027-227-01	IC, TA-7215P	PCB-I	82-541-667-11	Peak LED circuit board
Q1,2,11,12	89-307-326-01	Transistor, 2SC732 (BL)	D1	87-027-262-01	LED, TLR-124 (+7dB)
19,20			D2	87-027-263-01	LED, TLY-124 (+3dB)
Q3,4,7,8,13,14	89-307-325-01	Transistor, 2SC732 (G)	◀REC LED CIRCUIT BOARD SECTION▶		
Q5,6	89-310-006-01	Transistor, 2SC1000 (BL)	PCB-J	82-541-631-11	REC LED circuit board
Q9,10,21,22	89-318-154-01	Transistor, 2SC1815 (Y)	D1	82-300-622-01	LED, SLP-132B (REC)
23,24,29,30			◀REC VR CIRCUIT BOARD SECTION▶		
Q15,16,25,26	89-104-954-01	Transistor, 2SA495 (Y)	PCB-K	82-541-668-11	REC VR circuit board
Q27,28	89-318-155-01	Transistor, 2SC1815 (GR)	VR1,2	82-541-625-01	Volume, 20KΩ-A (REC VOLUME)
Q31,32	89-200-562-01	Transistor, 2SB56 (B)			
Q39	89-404-005-01	Transistor, 2SD400 (E)			
D1,2,5,6,7,8	88-051-060-01	Diode, 1N60			
D3,4	87-027-097-01	Diode, 1S1555			
D9	87-027-228-01	Zener diode, 05Z-7.5U			
L1,2	87-003-044-01	Trap coil			
L3	82-401-661-01	Choke coil, 600μH			
L4	87-003-039-01	Choke coil, 36μH			
L5	82-418-612-01	Bias OSC coil			

Symbol No.	Part No.	Description
◀BALANCE VR CIRCUIT BOARD SECTION▶		
PCB-L	82-541-666-11	Balance VR circuit board
VR7,8	82-541-624-01	Volume, 100KΩ-A, C (BALANCE)
◀LOUDNESS CIRCUIT BOARD SECTION▶		
PCB-M	82-541-653-01	Loudness circuit board
S16	82-541-644-01	Push-switch (LOUDNESS)
		< Capacitor >
C3,4	87-015-367-01	0.1μF 10V Aluminum solid
◀CHROME CIRCUIT BOARD SECTION▶		
PCB-N	82-541-654-01	Chrome circuit board
Q501,502	89-318-155-01	Transistor, 2SC1815 (GR)
S17	87-031-381-01	Slide switch (CrO ₂ BIAS)
◀MS CIRCUIT BOARD SECTION▶		
PCB-0	82-560-606-31	MS circuit board
IC1,2	87-027-538-01	IC, μPD-4069
IC3	87-027-439-01	IC, CMOS 4020
IC4,5	87-027-298-01	IC, CMOS 4001 NOR
IC6	87-027-441-01	IC, TC4029
IC7	87-027-422-01	IC, TC5022
Q1,2,3,4,5,7	89-318-154-01	Transistor, 2SC1815 (Y)
Q6	89-110-154-01	Transistor, 2SA1015 (Y)
Q8	89-311-623-01	Transistor, 2SC1162 (C)
Q9	89-318-156-01	Transistor, 2SC1815 (BL)
D1,2,3,4,5,10 11,13,14	87-027-097-01	Diode, 1S1555
D6,7,8,9	88-052-188-11	Diode, 1S188 (FM)
RY1	82-555-622-01	Relay
S21	82-560-608-01	Slide switch (MS/SLEEP)
SFR1	87-021-570-01	Semi-fixed resistor, 100KΩ-B
SFR2	87-021-588-01	Semi-fixed resistor, 200KΩ-B
		< Capacitor >
C5	87-015-518-01	1.5μF 25V Tantalum
◀DIGITAL IND CIRCUIT BOARD SECTION▶		
PCB-P	82-560-607-21	Digital IND circuit board
D1	87-027-506-01	LED (DIGITAL IND)
D2	87-027-687-01	LED, SR505D (FM STEREO, OPERATE)
◀MISCELLANEOUS▶		
▲T1	82-555-620-01	Power transformer
RPH	87-046-163-01	REC/PB head
EH	87-046-127-01	Erase head
SOL1	82-560-610-21	Solenoid
M	87-045-117-21	Motor
LM1	87-040-111-01	Level meter L
LM2	87-040-112-01	Level meter R
ECM1,2	85-868-019-01	ECM, CMU-9 (B)
SP1,2	82-541-685-01	Speaker (Woofer)
SP3,4	82-560-631-01	Speaker (Tweeter)
J6	87-032-881-01	Jack, 6.3φ (PHONES)
J7	82-266-214-11	DC jack (DC 9V)
▲J8	87-032-434-01	AC jack
J9	82-488-656-01	Antenna terminal (DIN FM)
S9	82-541-679-01	Push-switch (AFC)
S10,23	87-031-493-01	Micro switch (PLAY, MOTOR, SOLENOID)
S11	87-031-393-01	Leaf switch (AUTO STOP)
S14	82-541-607-01	Slide switch (ANT SELECTOR)
S18,19	87-031-418-01	Micro switch (PAUSE, TIMER STAND BY)
▲S20	87-031-364-01	Slide switch (VOLTAGE SELECTOR)
S22	82-560-609-01	Push-switch (PROGRAM)
	87-036-013-01	RH core

Symbol No.	Part No.	Description
D1	87-027-365-01	Diode, S5277B
		< Capacitors >
C1,2	82-981-610-01	3.3μF 50V Electrolytic BP
C3	87-015-424-01	0.68μF 25V Aluminum solid

▲ Safety component symbol

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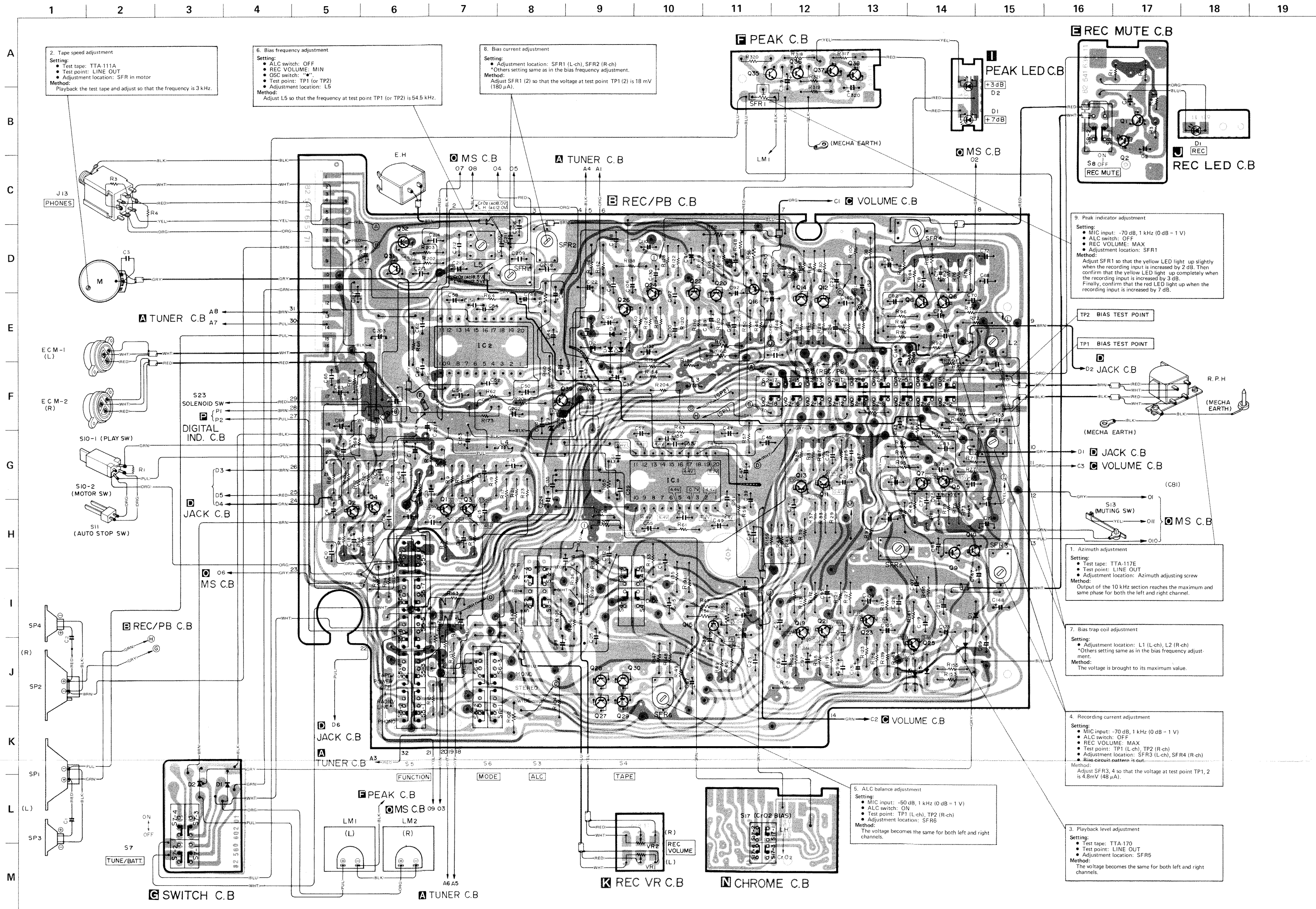
The following is the part number of the ☆☆☆ marked parts of the PM-1 mechanism.

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
1-13	82-385-332-11	Spring B, Head adjusting	2-50	82-439-489-01	Flywheel ass'y
1-14	87-046-163-01	Rec./pb head	2-51	82-439-314-21	Rubber belt
1-31	87-046-127-01	Erase head	2-60	82-385-309-21	Worm gear ass'y
2-33	82-560-227-01	REC lever			
2-49	82-562-227-01	Main belt			

ACCESSORIES/PACKAGE

Ref. No.	Part No.	Part No. Changed to	Description	Common Model	Q'ty
1	82-573-851-01		Printed indiv., Packing		1
2	82-541-852-01		Cushion L, Printed indiv.	TPR-950	1
3	82-541-853-01		Cushion R, Printed indiv.	TPR-950	1
4	87-051-137-11		Poly-vinyl sack (for AC power cord) (H, E, K model only)		1
5	87-056-607-01		Poly-vinyl sack (for case)		1
6a	82-573-901-21		Instructions booklet (H model only)	*	1
6b	82-573-903-01		Instructions booklet (E model only)	*	1
6c	82-573-904-01		Instructions booklet (K model only)	*	1
6d	82-573-906-01		Instructions booklet (G model only)	*	1
7	87-051-171-11		Poly-vinyl sack (for instruction)		1
8	82-573-902-01		Label, POP	*	1
9	87-056-008-11		Label, AC power cord (K model only)		1
10	87-056-009-41		Distributors list		1
11	87-056-016-01		Tag, Main voltage (K model only)		1
12	87-056-032-01		Guarantee card (G model only)		1
13	87-056-046-01		Label, Main supply (K model only)		1
14	87-056-535-01		Air-cap sack (G model only)		1
15	82-916-640-01		Tape cassette, DMC-154		1
16	87-032-845-01		Siemens plug (H model only)		1
17a	87-034-880-01		AC power cord (H model only)		1
17b	87-034-883-01		AC power cord (E model only)		1
17c	87-034-871-01		AC power cord (K model only)		1
17d	87-034-879-01		AC power cord (G model only)		1
18	87-047-061-01		Battery, SUM-IAE		6

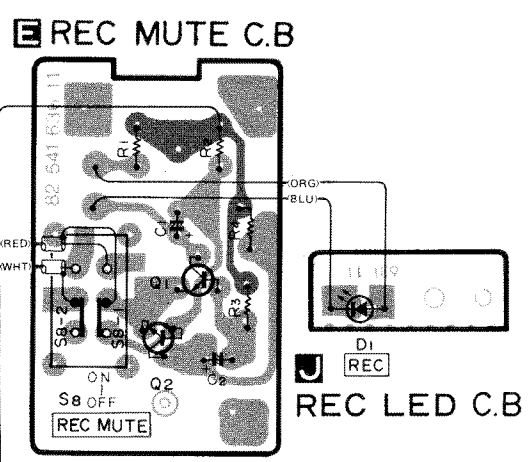
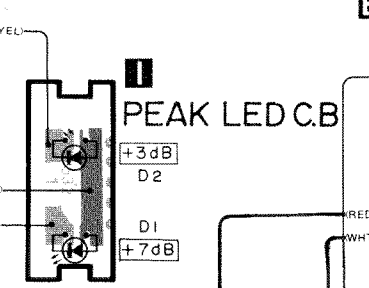
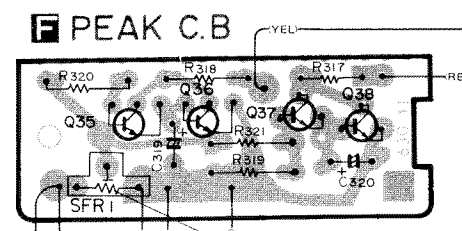
WIRING-3



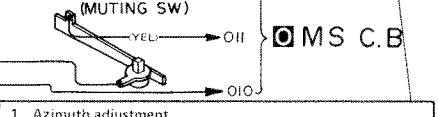
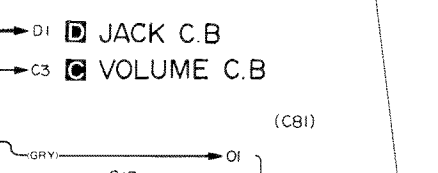
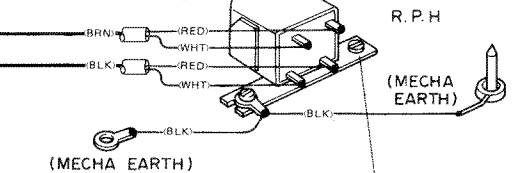
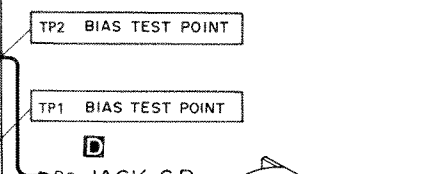
2. Tape speed adjustment
Setting:
 • Test tape: TTA-111A
 • Test point: LINE OUT
 • Adjustment location: SFR in motor
Method:
 Playback the test tape and adjust so that the frequency is 3 kHz.

6. Bias frequency adjustment
Setting:
 • ALC switch: OFF
 • REC VOLUME: MIN
 • OSC switch: *
 • Test point: TP1 (or TP2)
 • Adjustment location: L5
Method:
 Adjust L5 so that the frequency at test point TP1 (or TP2) is 54.5 kHz.

8. Bias current adjustment
Setting:
 • Adjustment location: SFR1 (L-ch), SFR2 (R-ch)
 • Others setting same as in the bias frequency adjustment.
Method:
 Adjust SFR1 (2) so that the voltage at test point TP1 (2) is 18 mV (180 μA).



9. Peak indicator adjustment
Setting:
 • MIC input: -70 dB, 1 kHz (0 dB = 1 V)
 • ALC switch: OFF
 • REC VOLUME: MAX
 • Adjustment location: SFR1
Method:
 Adjust SFR1 so that the yellow LED light up slightly when the recording input is increased by 2 dB. Then confirm that the yellow LED light up completely when the recording input is increased by 3 dB. Finally, confirm that the red LED light up when the recording input is increased by 7 dB.



1. Azimuth adjustment
Setting:
 • Test tape: TTA-117E
 • Test point: LINE OUT
 • Adjustment location: Azimuth adjusting screw
Method:
 Output of the 10 kHz section reaches the maximum and same phase for both the left and right channel.

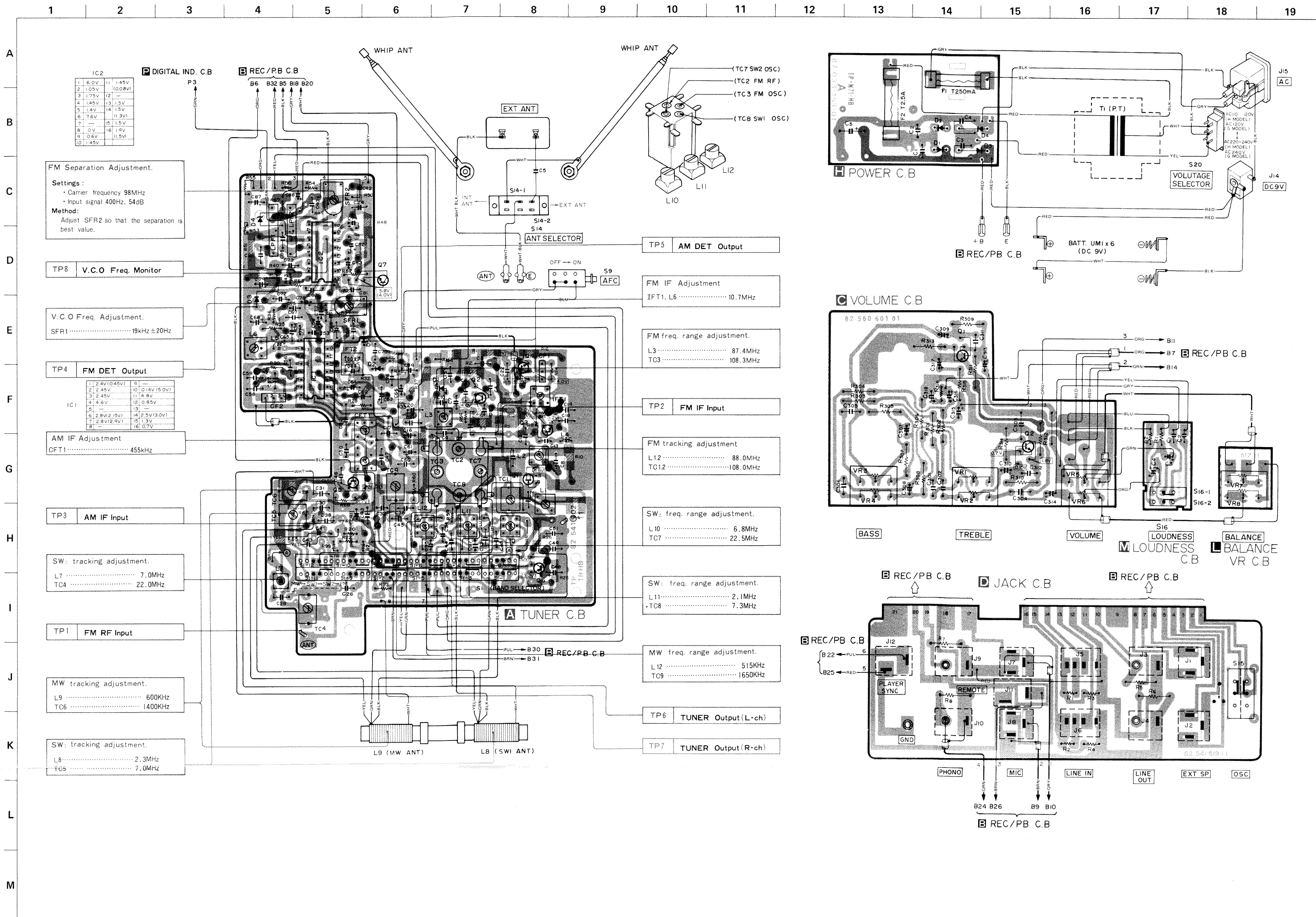
7. Bias trap coil adjustment
Setting:
 • Adjustment location: L1 (L-ch), L2 (R-ch)
 • Others setting same as in the bias frequency adjustment.
Method:
 The voltage is brought to its maximum value.

4. Recording current adjustment
Setting:
 • MIC input: -70 dB, 1 kHz (0 dB = 1 V)
 • ALC switch: OFF
 • REC VOLUME: MAX
 • Test point: TP1 (L-ch), TP2 (R-ch)
 • Adjustment location: SFR3 (L-ch), SFR4 (R-ch)
 • Bias circuit pattern is out.
Method:
 Adjust SFR3, 4 so that the voltage at test point TP1, 2 is 4.8mV (48 μA).

3. Playback level adjustment
Setting:
 • Test tape: TTA-170
 • Test point: LINE OUT
 • Adjustment location: SFR5
Method:
 The voltage becomes 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 (20 K ohm/V DC) when there are no signals.
 An asterisk (*) indicates that the value was measured with a vacuum-tube voltmeter during recording.

WIRING-2



IC2

1	6.0V	11	1.45V
2	1.05V	12	(0.08V)
3	1.75V	13	—
4	1.45V	14	1.5V
5	1.4V	15	1.5V
6	7.6V	16	11.3V
7	—	17	1.5V
8	0.0V	18	1.0V
9	0.6V	19	11.5V
10	1.45V	20	11.5V

FM Separation Adjustment.
Settings:
 • Carrier frequency 98MHz
 • Input signal 400Hz, 54dB
Method:
 Adjust SFR2 so that the separation is best value.

TP8 V.C.O Freq. Monitor

V.C.O Freq. Adjustment.
 SFR1 19kHz ± 20Hz

TP4 FM DET Output

IC1

1	2.4V(0.45V)	5	—
2	2.45V	10	0.14V(15.0V)
3	2.45V	11	4.8V
4	4.6V	12	0.85V
5	—	13	—
6	2.8V(2.15V)	14	2.5V(3.0V)
7	2.8V(2.9V)	15	1.3V
8	—	16	0.7V

AM IF Adjustment
 CFT1 455kHz

TP3 AM IF Input

SW₂ tracking adjustment.
 L7 7.0MHz
 TC4 22.0MHz

TP1 FM RF Input

MW tracking adjustment.
 L9 600KHz
 TC6 1400KHz

SW₁ tracking adjustment.
 L8 2.3MHz
 FC5 7.0MHz

(TC7 SW2 OSC)
 (TC2 FM RF)
 (TC3 FM OSC)
 (TC8 SW1 OSC)

TP5 AM DET Output

FM IF Adjustment
 IFT1, L6 10.7MHz

FM freq. range adjustment.
 L3 87.4MHz
 TC3 108.3MHz

TP2 FM IF Input

FM tracking adjustment
 L12 88.0MHz
 TC12 108.0MHz

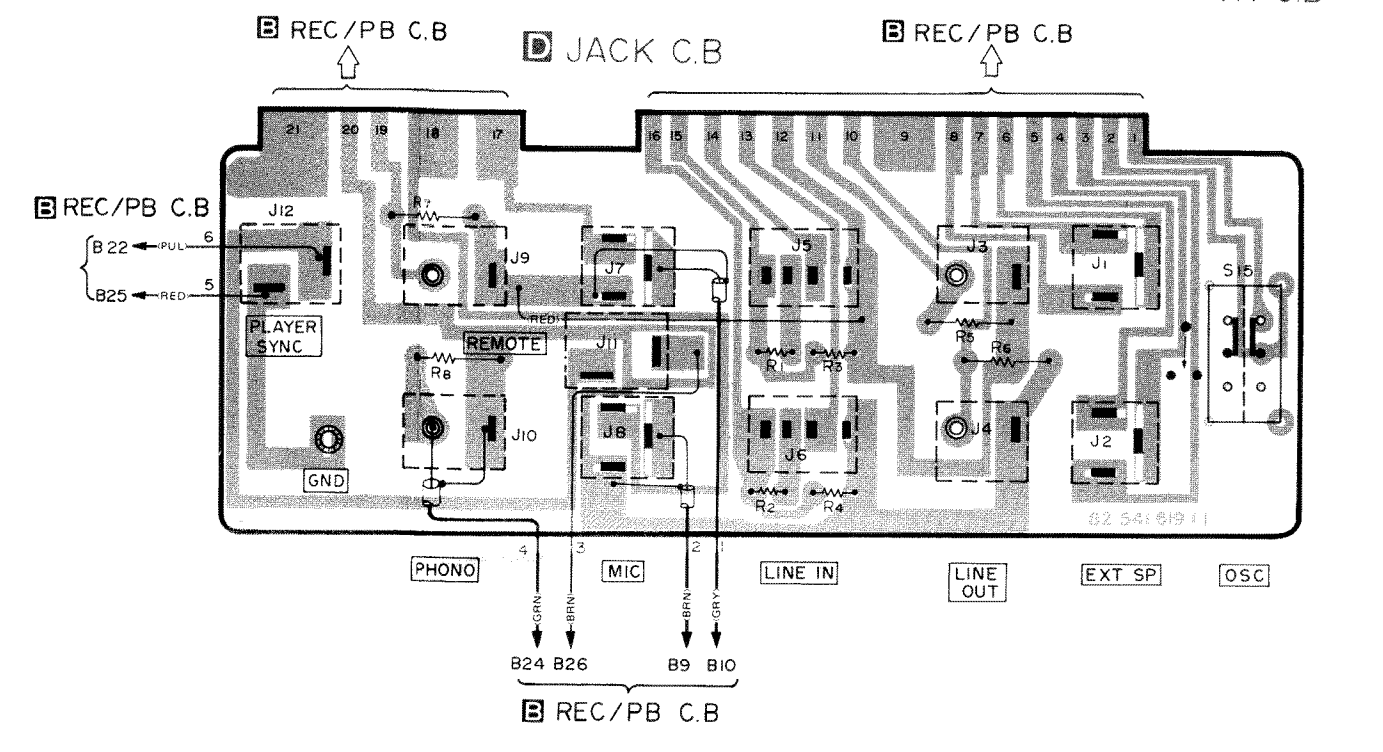
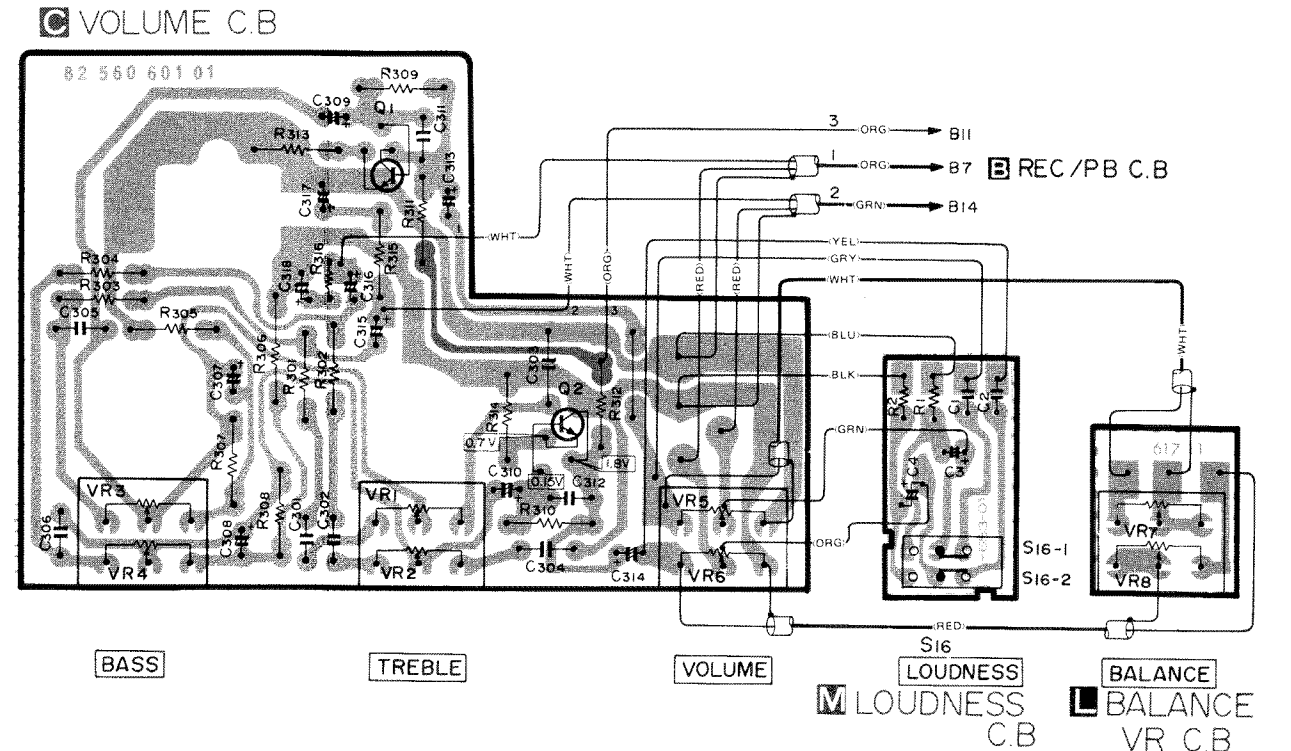
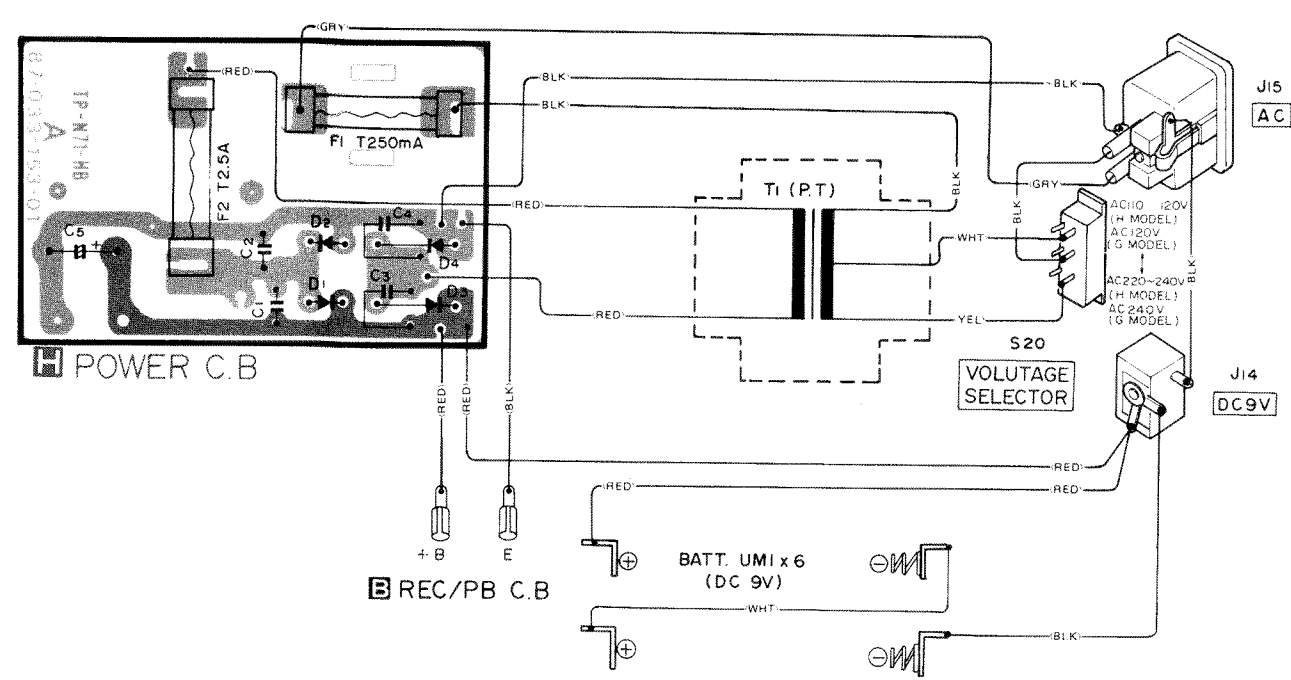
SW₂ freq. range adjustment.
 L10 6.8MHz
 TC7 22.5MHz

SW₁ freq. range adjustment.
 L11 2.1MHz
 TC8 7.3MHz

MW freq. range adjustment.
 L12 515KHz
 TC9 1650KHz

TP6 TUNER Output (L-ch)

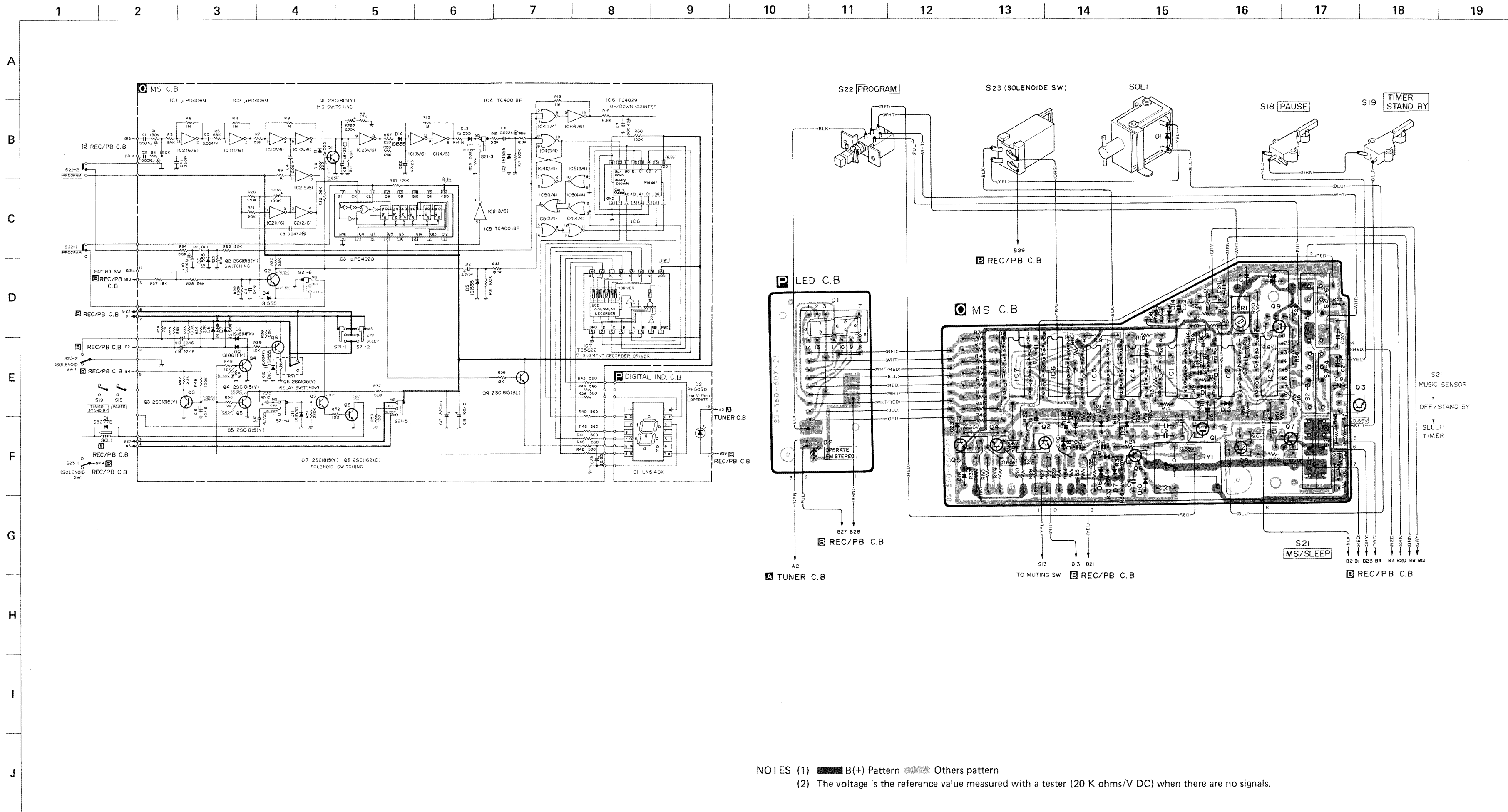
TP7 TUNER Output (R-ch)



NOTES (1) [Pattern] B(+) Pattern [Pattern] Component side pattern [Pattern] Others pattern
 (2) 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.

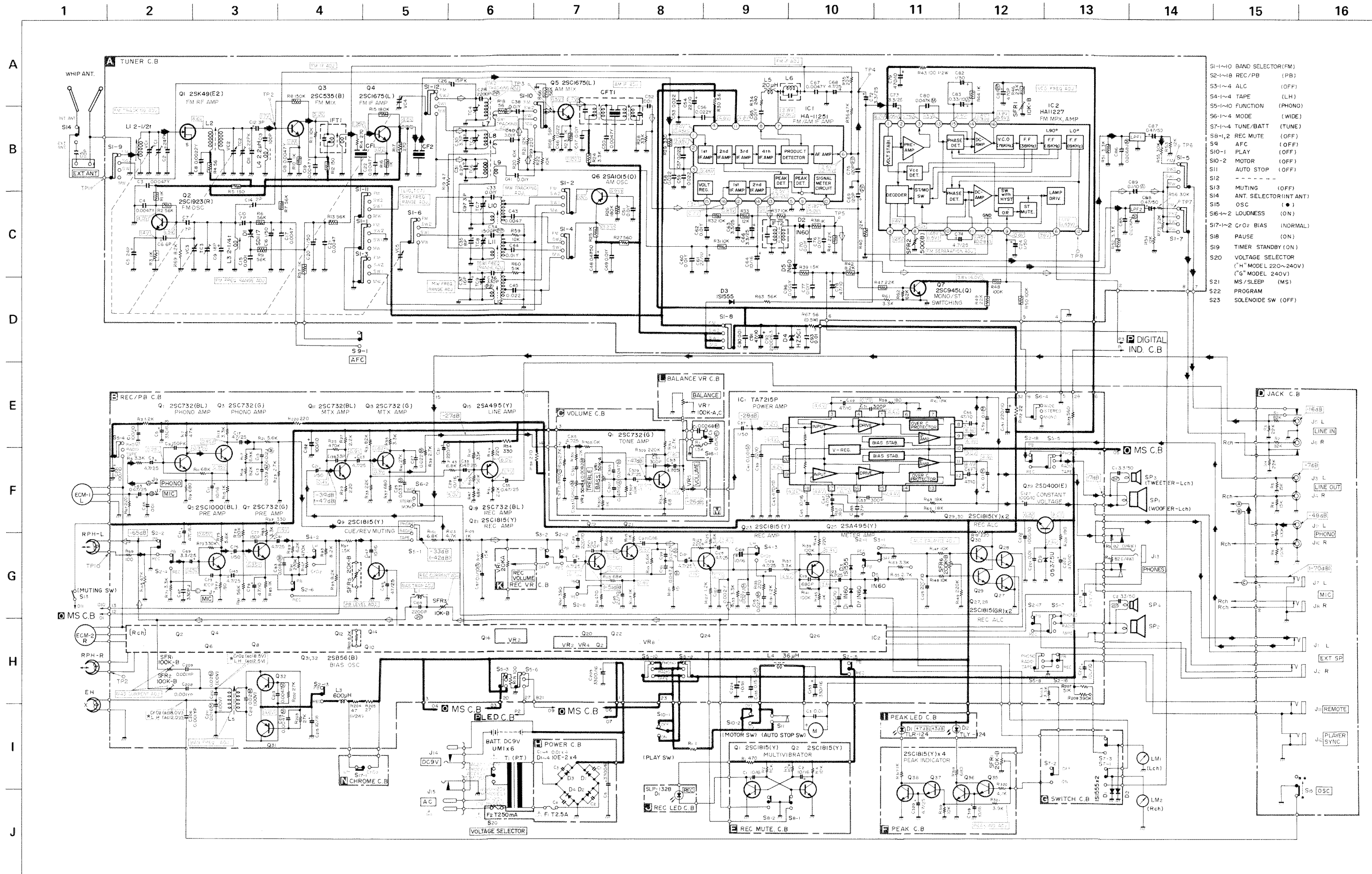
SCHEMATIC DIAGRAM-1

WIRING-1



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

SCHMATIC DIAGRAM-2



- NOTES:
- 1) — B (+) power supply
 - 2) → Signal path
⇨ Rec path, AM 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 tolerances 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
⊖ Tantalum capacitor
▭ Printed resistor
▭ Fuse resistor
⚠ Safety component symbol

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

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

2SK49	2SC1923 2SC1675 2SC945 2SC1815 2SC535 2SD400	2SC732 2SC1000
2SA495	2SA1015	2SB56
SD117	10E2	IS1555
HZ5C1 05Z-7.5	IS188 IN60	

