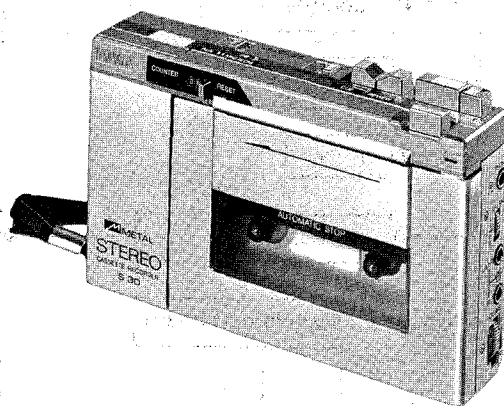


STEREO CASSETTE TAPE RECORDER

MODEL NO. **TP-S30Y, YU, YG**

AIWA® **(SERVICE MANUAL)**

Code No. 23-300-000-55



DATE OF ISSUE 9/1980

SPECIFICATIONS

< Tape recorder section >

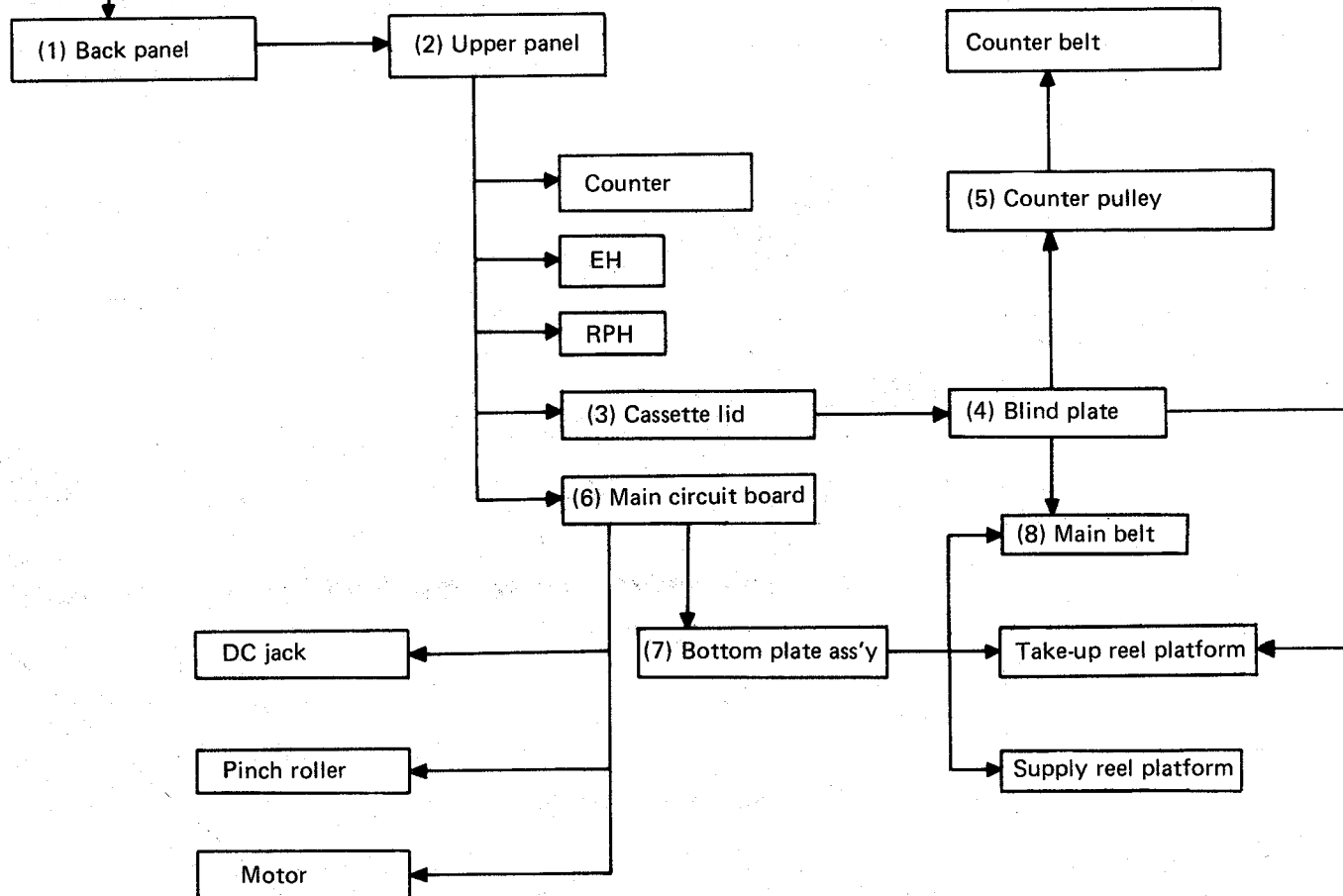
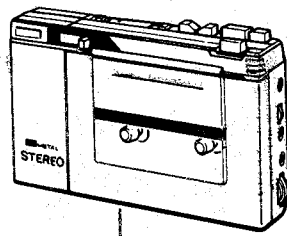
Type:	Stereo cassette tape recorder
Semiconductors:	3 IC's, 6 transistors, 2 diodes, 1 LED
Power source:	Batteries DC 3V (SUMx2) Household AC power (thru AC adaptor)
Dimensions:	139.9(W) x 80.8(H) x 26.8(D) mm [5-1/2"(W) x 3-1/4"(H) x 1-1/8"(D)]
Weight:	365 g (0.8 lbs) (W/batteries)
Track type:	4 tracks, 2 channel
Recording system:	AC bias
Erasing system:	MAGNET erasure
Tape speed:	4.8 cm/s (1-7/8 ips)
Record bias frequency:	41.5 kHz
Signal to noise ratio:	50 ± 3 dB (PB)
(Unweighted)	41 ± 4 dB (REC/PB)
Frequency response:	40 ~ 12,500 Hz (NORMAL) 40 ~ 16,000 Hz (METAL)
Output power:	33 mW + 33 mW (MAX)
Erasing ratio:	59 ± 6 dB (1 kHz)
Distortion:	Less than 2% (PB) Less than 8% (RE/PB)
Motor:	DC electrical governor motor
Wow & flutter:	Less than 0.2% (WRMS) Less than 0.37% (RMS)
Auto stop system:	Mechanical full auto

Auto stop action time:	5 \pm 3 s. (at PLAY/REC)
Pinch roller pressure:	220 ± 30 g
Take-up torque:	40 ± 5 g-cm
FF torque:	More than 70 g-cm
Rewind torque:	More than 70 g-cm
Rewind, FF time:	110 ± 20 s.
Input:	MIC/AUX 3.5 ϕ jack
Max. input sensitivity:	MIC 0.3 mV/3.3 k Ω AUX 150 mV/1k Ω
Output:	Headphone jack (3.5 ϕ)
Battery life under continuous use:	Recording—approximately 2 hours (EIAJ) with AIWA EXTRA batteries Playback—approximately 5 hours (EIAJ) with alkaline batteries

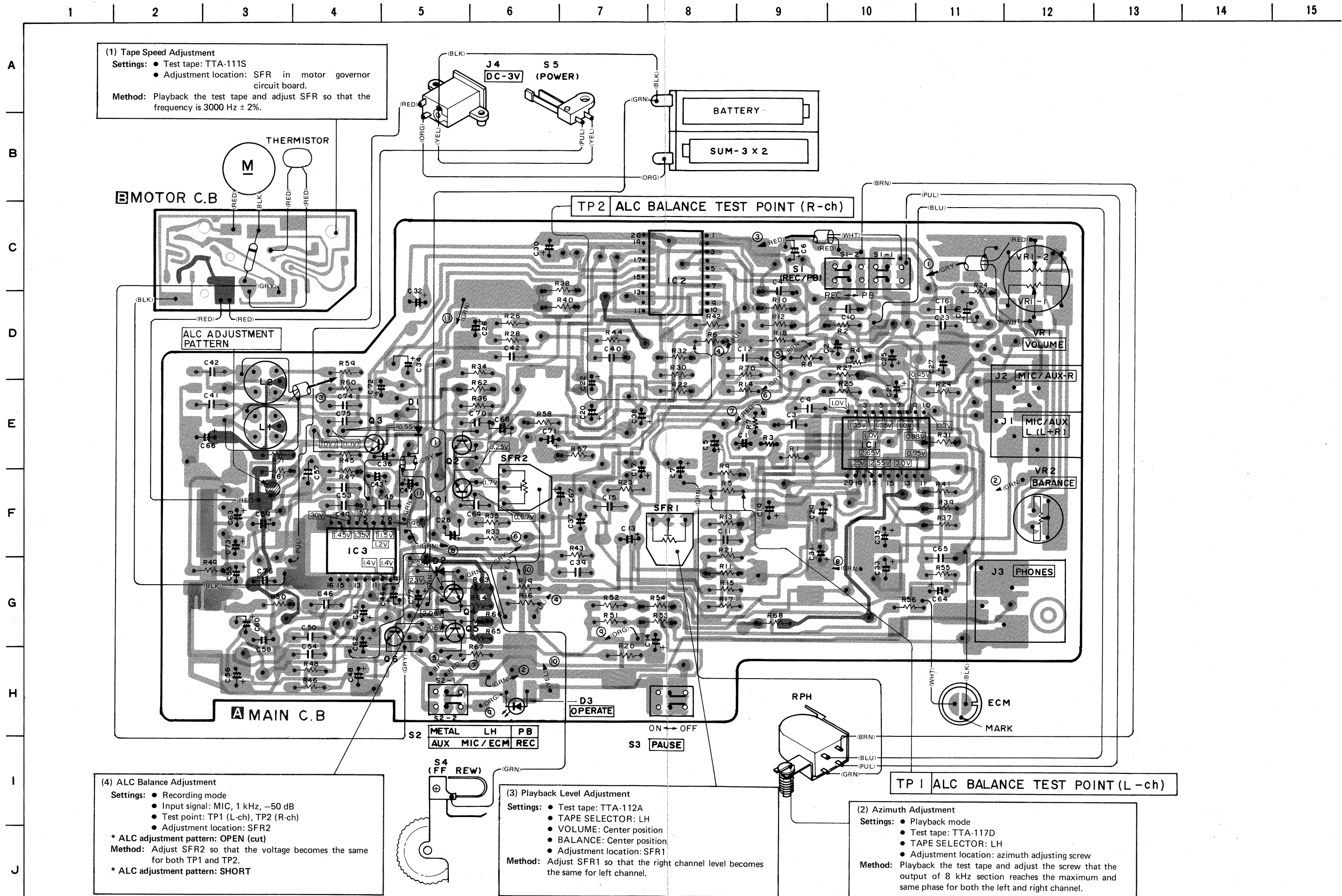
< Headphone section >

Type:	Dynamic type
Impedance:	28 ohms
Frequency response:	20 ~ 20,000 Hz
Sensitivity:	100 dB/mW
Maximum input:	100 mW
Cord length:	1.1 meter
Weight:	38 g (without cord)

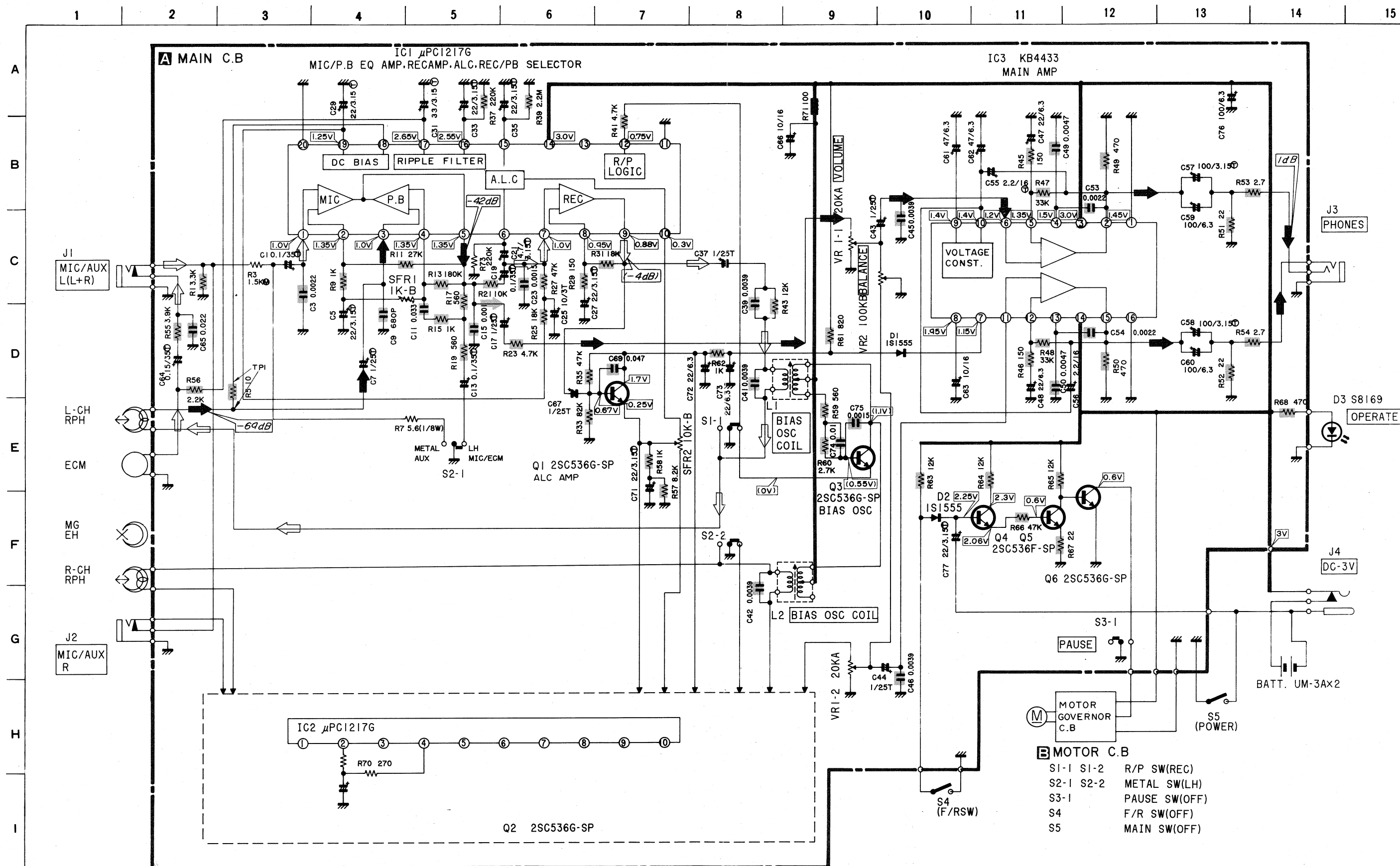
* The specifications and external appearance of this set are subject to change without prior notice.



WIRING



SCHEMATIC DIAGRAM



NOTES:

- 1) B (+) power supply
- 2) Signal path
- 3) The voltage is the reference value measured with a tester (20 k-ohms/V DC) when there are no signals. But () is with 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 1/16W and a tolerance of $\pm 5\%$.
- 5) Capacitors with no designation have a dielectric strength of less than 50WV.
- 6) The only capacitor tolerances indicated are $\pm 5\%$ (J) and $\pm 10\%$ (K).
- 7) Ceramic capacitor symbols:
— High dielectric constant system (YW, YP, YZ)

- 8) Explanation of symbols
M Mylar capacitor
T Tantalum capacitor
Chip parts

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



To disassemble the main parts

(1) Back panel

Remove the eight screws and take off the back panel cautiously as shown by the arrow. Since the sockets and the volume knobs are easily caught by the back panel, (See Figure 1.)

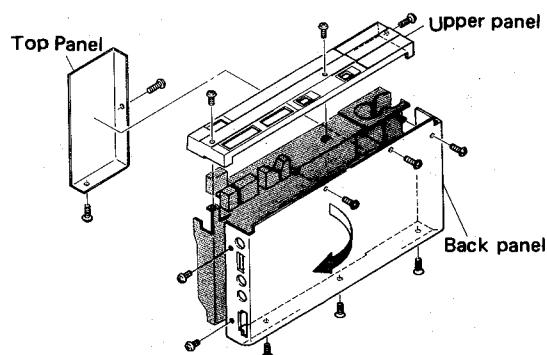


Fig. 1

— Note —

- * If it is difficult to fix the position of the sockets when refitting the back panel, put a plug into a socket after mounting the back panel temporarily, then locate the socket positions.
- * See the exploded view to determine proper screw size.

(2) Upper panel

Remove the three screws to take off the upper panel. (See Figure 1.)

— Note —

- * Two switch-knobs must be fitted as illustrated. (See Figure 2.)

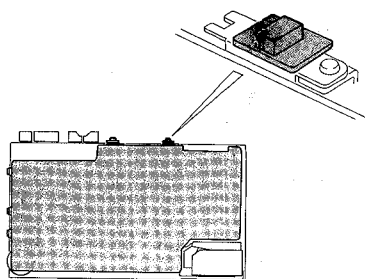


Fig. 2

(3) Cassette lid

- * It is easier to detach the top panel when removing and refitting the cassette lid. But do not force the top panel as it is fixed with double-sided tape. (See Figure 1.)

1) Remove the spring. (See Figure 3.)

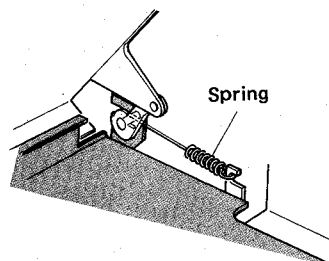


Fig. 3

2) Slide the cassette lid in the direction of the arrow and take it off. (See Figure 4.)

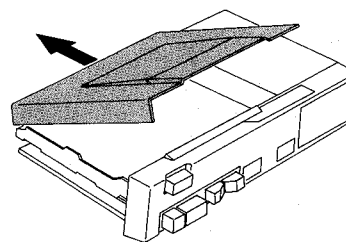


Fig. 4

— Note —

- * When refitting the cassette lid, fix properly the spindle of the cassette lid in the U-gap of the chassis. (See Figure 5.)
- * Make sure that the position of the spring is correct. (See Figure 3.)

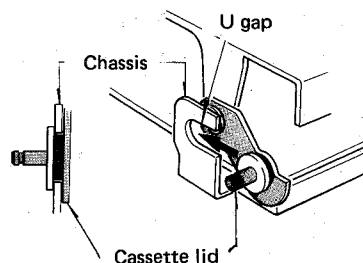


Fig. 5

(4) Blind plate

Remove the five screws. (See Figure 6.)

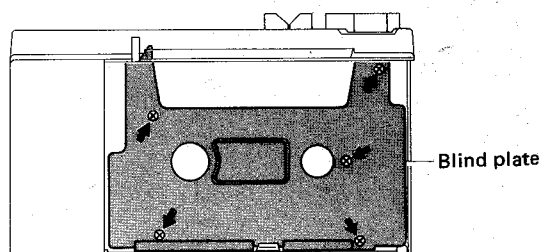


Fig. 6

— Note —

When refitting the blind plate, confirm the functions of the plate A and B, especially the spring positions. Because the plates are apt to become detached during function check. (See Figure 7.)

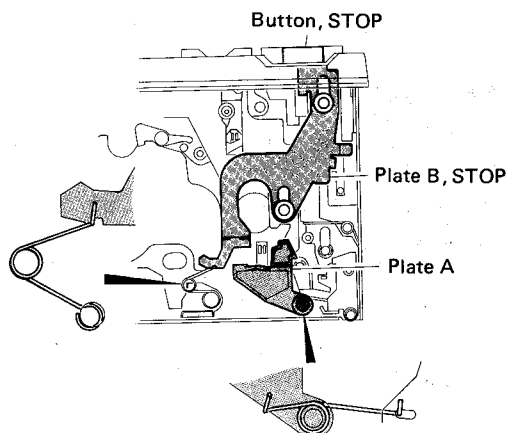


Fig. 7

(5) Counter pulley & Counter belt

- 1) Remove the poly-ethylene washer of the gear spindle.
- 2) Remove the counter belt. (See Figure 8.)

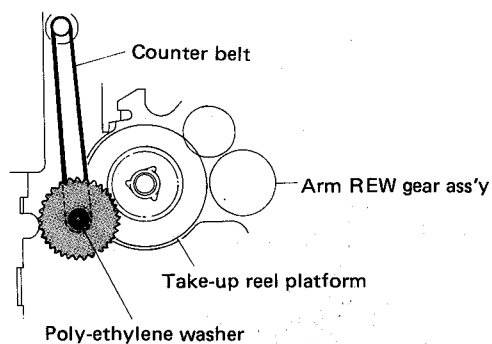


Fig. 8

(6) AF circuit board

- 1) Remove the two switch-knobs and the five screws.
- 2) Disconnect the two lead-wires from the ECM or take the ECM itself out of its supporter on the chassis.
- 3) Raise the circuit board in the direction of the arrow. (See Figure 9.)

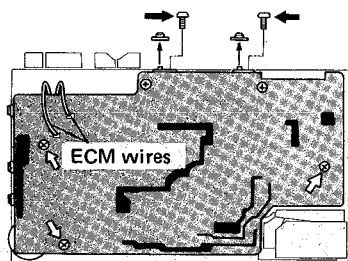


Fig. 9

(7) Bottom plate assembly

- 1) Set in FWD mode.
- 2) Remove the four screws.
- 3) Disconnect the black lead-wire and remove the bottom plate assembly. (See Figure 10.)

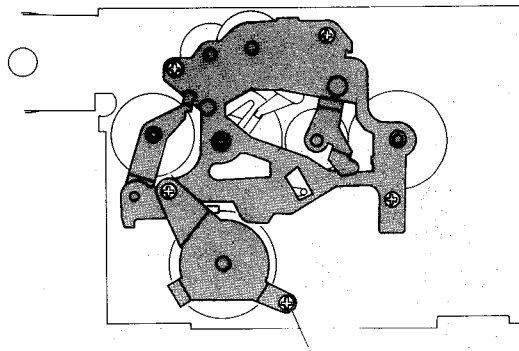


Fig. 10

— Note —

* When refitting the bottom plate, follow as stated;

- 1) Set the bottom plate to FWD mode.
- 2) Set lever indicated by the arrow "A" to the illustrated position.
- 3) Make sure that levers "B" and "C" are set in the illustrated positions.
- 4) Then fix the bottom plate with the four screws. (See Figure 11.)

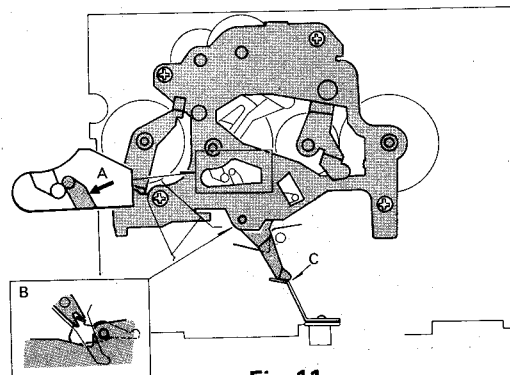


Fig. 11

(8) Main belt

- 1) Remove the bottom plate assembly. (See Figure 10.)
- 2) Remove the screw to take out the motor governor circuit board. (See Figure 12.)

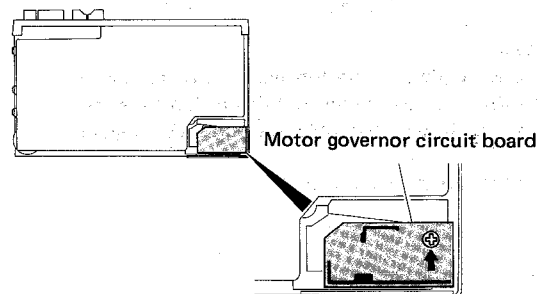


Fig. 12

— Note —

- * The main belt should be fitted correctly as illustrated.
(See Figure 13.)

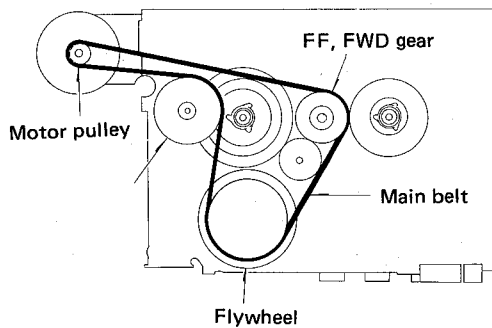


Fig. 13

Explanation of auto-stop function

(1) FWD/REC

- 1) By transmission from the take-up reel rotation, movement of lever W is of swinging "C ⇌ D" via cam on gear Y. On the other hand, plate X moves in the direction of "A" by means of slip torque from the take-up reel. But plate X is drawn back to the direction of "B" by stud on lever W when lever W swings in the direction of "C". Movement of the direction "D" of lever W releases plate X that is apt to move in the direction of "A". In this way, movement of "A ⇌ B" is generated. Stud on lever W, however, stops at gap "E" as long as the take-up is rotating.
(See Figure 14.)
- 2) When the take-up reel stops, that is, at the end of the tape, the movement of "A ⇌ B" of plate X stops as well, but the movement of "C ⇌ D" of lever W continues due to the mechanism structure. This means that stud on lever W can move into gap "F" without being caught in the gap "E".
(See Figure 14.)

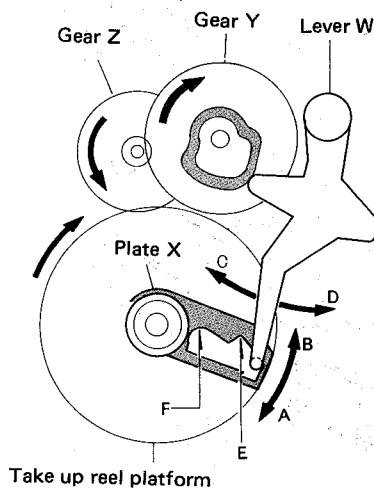


Fig. 14

- 3) When stud of lever W moves into gap "F", lever V for mechanism release is moved in the direction of "G", and then is engaged with gear Y. Finally, the other side of lever V is lifted in the direction of "H" and the FWD mechanism can be released.
(See Figure 15.)

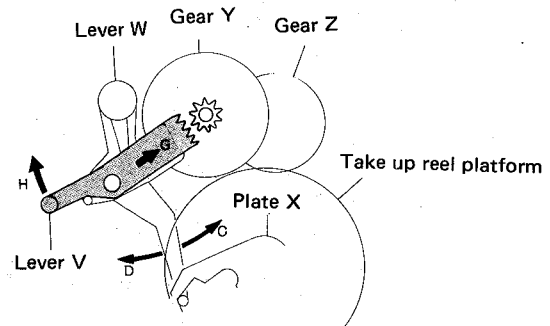


Fig. 15

— Note —

The auto-stop mechanism above works only on FWD & REC modes. On FF & REW modes, lever W is always pressed in the direction of "D" by a lever in order to avoid malfunction.

(2) FF & REW

(See the circuit diagram)

- 1) The FF/REW auto-stop works electronically by means of transistors Q4 to Q6. The auto-stop time takes ten to twenty minutes due to tolerances of Q4, Q5 and C77, after FF or REW start.
- 2) C77 is connected with power supply in parallel through R63 and D2, and then always charged. When the FF or REW button is depressed, the F/R SW4 is on and C77 starts discharging. As soon as the charged level of C77 reaches transistor Q4's shut-off level, Q4 turns off → Q5 turns off, too → Q6 turns on. Then the control section of the motor governor circuit works and shuts motor off. The above condition is, though, released when reaching the STOP mode.

Disassembling chart diagram of main parts

- * To avoid troubles when disassembling or replacing the main parts, follow the chart diagram as below.

1	2	3	4	5	6	7
---	---	---	---	---	---	---



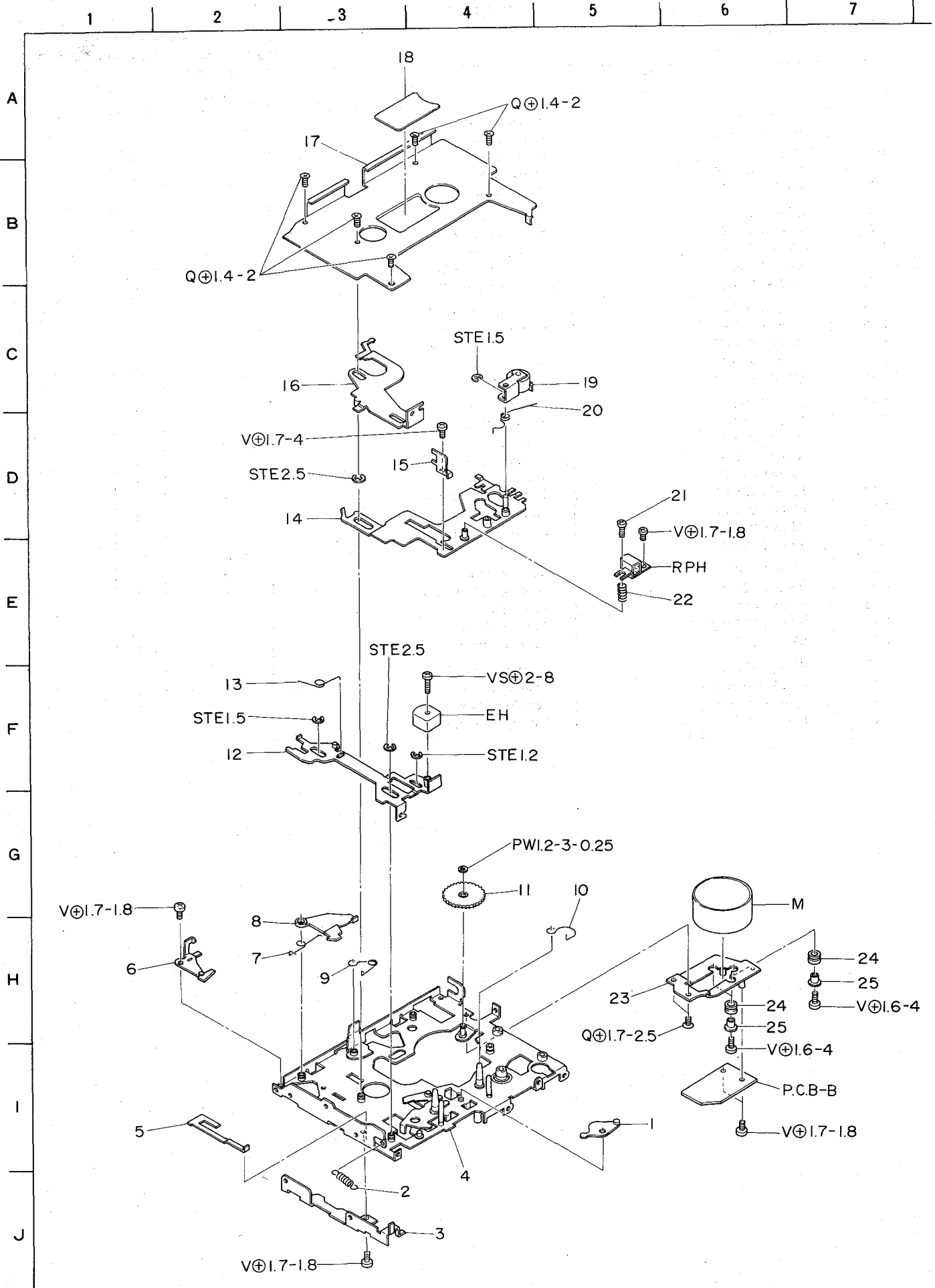
MECHANICAL PARTS

PARTS LIST

■ * mark in this part list shows exclusive part
(which is used) for only Model No. TP-S30.

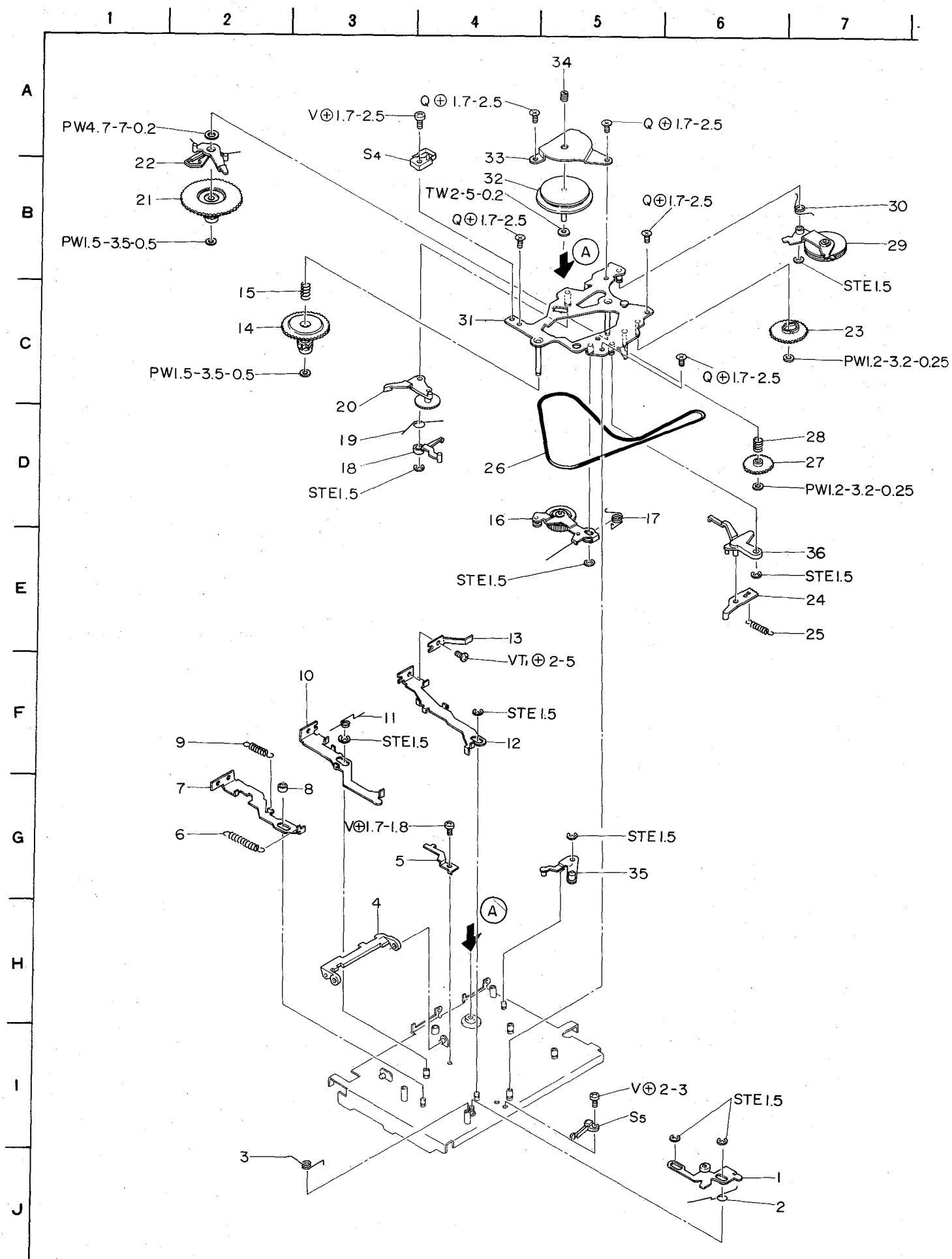
Ref. No.	Part No.	Part No. Changed to	Description	Common Model	Q'ty
1-1	82-641-004-01		Panel, Control	*	1
1-2	82-641-228-01		Nylon sheet, 12-3-0.3	*	1
1-3	82-641-012-01		Window, Counter	*	1
1-4	82-641-003-01		Panel, Rear	*	1
1-5	82-641-220-01		Sheet A, Mylar	*	1
1-6	82-641-011-01		Knob, Slide	*	2
1-7	82-641-010-01		Knob, Volume	*	1
1-8	82-641-020-01		Knob, Balance	*	1
1-9	82-641-006-01		Push-Button, REC	*	1
1-10	82-641-007-01		Push-Button, FWD	*	1
1-11	82-641-019-01		Push-Button, REW	*	1
1-12	82-641-009-01		Push-Button, FF	*	1
1-13	82-641-008-01		Push-Button, STOP	*	1
1-14	82-641-229-11		Holder, Wire	*	1
1-15	82-641-210-01		Holder, ECM	*	1
1-16	09-027-190-01		Cassette lid ass'y	*	1
	82-641-013-01		Window, Cassette	*	1
	82-641-217-01		Adhesive sheet	*	1
	82-641-016-01		Cassette lid ass'y	*	1
	82-641-235-01		Sheet D, Mylar	*	1
1-17	82-641-204-01		E-spring, Cassette lid	*	1
1-18	82-641-022-01		Strap ass'y	*	1
1-19	82-641-014-01		Button, RESET	*	1
1-20	87-040-135-01		Counter		1
1-21	82-641-214-01		Belt, Counter	*	1
1-22	82-641-225-01		Counter holder ass'y	*	1
1-23	82-641-001-01		Panel, Top	*	1
1-24	82-641-212-01		Sub-chassis	*	1
1-25	82-641-207-01		Terminal plate B	*	1
1-26	82-641-208-01		Terminal plate C	*	1
1-27	82-641-205-01		Holder, Battery	*	1
1-28	82-641-206-01		Terminal plate A	*	1
1-29	82-641-005-01		Battery room lid	*	1

EXPLODED VIEW-2



Ref. No.	Part No.	Part No. Changed to	Description	Common Model	Q'ty	
2-1	82-639-232-01		Arm actuating chassis B ass'y		1	
2-2	82-639-396-01		E-spring, Eject		1	
2-3	82-641-209-01		Jack holder	*	1	
2-4	82-639-201-01		Chassis ass'y		1	
2-5	82-639-252-01		Cam, Eject		1	
2-6	82-639-378-01		Arm, REC blocking		1	
2-7	82-639-261-01		T-spring, REC lock		1	
2-8	82-639-255-01		Arm, REC lock		1	
2-9	82-639-251-01		T-spring, Stop lever		1	
2-10	82-639-416-01		T-spring, Slide chassis		1	
2-11	82-639-283-01		Gear, Counter		1	
2-12	82-639-367-01		Lever, REC ass'y		1	
2-13	82-639-246-01		T-spring, REC lever		1	
2-14	82-639-263-01		Actuating chassis ass'y		1	
2-15	82-639-405-01		Guide, Tape		1	
2-16	82-639-384-01		Stop lever ass'y		1	
2-17	82-639-278-01		Plate H, Decorative plate		1	
2-18	82-641-017-01		Label, Tape indication	*	1	
2-19	82-639-281-01		Pinch lever ass'y		1	
2-20	82-639-285-01		T-spring, Pinch lever		1	
2-21	87-081-955-01		Adjuster screw		1	
2-22	82-299-354-01		C-spring, Head		1	
2-23	82-639-399-01		Motor holder ass'y		1	
2-24	82-299-321-01		Rubber		3	
2-25	82-299-336-01		Collar, Motor		3	

EXPLODED VIEW-3



Ref. No.	Part No.	Part No. Changed to	Description	Common Model	Q'ty
3-1	82-639-273-01		Brake ass'y		1
3-2	82-639-262-01		T-spring, Eject arm		1
3-3	82-639-416-01		T-spring, REC		1
3-4	82-639-270-01		Button, Lock plate		1
3-5	82-639-271-01		P-spring, Lock plate		1
3-6	82-639-243-01		E-spring, Play lever		1
3-7	83-639-386-01		Play lever ass'y		1
3-8	82-639-276-01		Roller, Brake		1
3-9	82-639-244-01		E-spring, Slide chassis		1
3-10	82-639-381-01		REW lever ass'y		1
3-11	82-639-241-01		T-spring, FF REW lever		1
3-12	82-639-237-01		FF lever ass'y		1
3-13	82-639-239-01		P-spring, FF lever		1
14~31	82-639-299-01		Bottom plate ass'y		1
3-14	82-639-325-01		Supply reel platform ass'y		1
3-15	82-639-375-01		C-spring, Back tension		1
3-16	82-639-340-01		Arm REW gear ass'y		1
3-17	82-639-345-01		T-spring, REW gear		1
3-18	82-639-354-01		Arm, Sensor eject		1
3-19	82-639-408-01		T-spring, FF gear		1
3-20	82-639-349-01		FF gear ass'y		1
3-21	82-639-313-01		Take-up reel platform ass'y		1
3-22	82-639-390-01		Sensor ass'y		1
3-23	82-639-360-01		Cam, Auto stop		1
3-24	820639-357-01		Arm, Eject gear		1
3-25	82-639-358-01		E-spring, Eject gear		1
3-26	82-639-298-01		Belt, Main		1
3-27	82-639-359-01		Gear, Auto stop		1
3-28	82-639-421-01		C-spring, Cam auto gear		1
3-29	82-639-330-01		Take-up ass'y		1
3-30	82-639-339-01		T-spring, Take-up arm		1
3-31	82-639-300-01		Bottom plate semi ass'y		1
3-32	82-639-289-01		Flywheel ass'y		1
3-33	82-639-287-01		Flywheel plate ass'y		1
3-34	82-639-361-01		Adjuster screw		1
3-35	82-639-267-01		Take-up lever ass'y		1
3-36	82-639-356-01		Arm, Sensor		1

ACCESSORIES/PACKAGE

Ref. No.	Part No.	Part No. Changed to	Description	Common Model	Q'ty
1	82-614-856-01		Printed div., Packing	*	1
2	92-641-852-01		Cushion down, Printed indiv.	*	1
3	82-641-855-01		Air-cap sheet	*	1
4	87-051-136-11		Poly-vinyl sack (for carrying case)		1
5	87-051-136-11		Poly-vinyl sack		1
6	82-641-904-01		Instructions booklet	*	1
7	87-056-009-41		Distributors list (Y, YG model only)		1
8	87-056-034-01		Service station list (YU model only)		1
9	87-056-035-01		Card, Limited warranty (YU model only)		1
10	87-056-045-01		Guarantee card (YU model only)		1
11	87-056-032-01		Guarantee card (YG model only)		1
12	82-641-952-01		Carrying case Y	*	1
13	82-916-670-01		Tape cassette, DMC-157		1
14	86-348-001-01		Headphone HP-M3		1

ELECTRICAL MAIN PARTS LIST

Symbol No.	Part No.	Description	Symbol No.	Part No.	Description
◀ MAIN CIRCUIT BOARD SECTION ▶					
PCB-A	82-641-601-11	Main circuit board	C59,60,76	87-015-655-01	100μF 6.3V Electrolytic
IC1,2	87-027-697-01	IC, 1217G	C1,2,13,14,19,20	87-015-445-01	0.1μF 35V Tantalum
IC3	87-027-696-01	IC, KB4433	C64	87-015-444-01	0.15μF 35V Tantalum
Q1,2,3,6	87-026-134-01	Transistor, 2SC536 (G,SP)	C7,8,17	87-015-376-01	1μF 25V Tantalum
Q4,5	87-026-182-01	Transistor, 2SC536 (F-FT)	18,37,38,43,44,67,68		
D1,2	87-027-097-01	Diode, 1S1555	C55,56	87-015-551-01	2.2μF 16V Tantalum
D3	87-026-082-01	LED, S8169 (OPERATE)	C21,22	87-015-440-01	4.7μF 3.15V Tantalum
L1,2	82-641-602-01	Bias OSC coil	C25,26	87-015-373-01	10μF 3.15V Tantalum
J1,2	87-032-978-01	Jack, 3.5φ (MIC/AUX-L,R)	C5,6,29,30	87-015-297-01	22μF 3.15V Tantalum
J3	87-049-012-01	Jack, 3.5φ (PHONES)	33,34,35,36,77		
VR1	82-641-603-01	Volume, 10kΩ-A (VOLUME)	C27,28,71	87-015-737-01	22μF 3.15V Tantalum
VR2	87-021-640-01	Volume, 100kΩ-B (BALANCE)	C31,32	87-015-738-01	33μF 3.15V Tantalum
S1	87-031-593-01	Slide switch (REC/PB)	C57,58	87-015-301-01	100μF 3.15V Tantalum
S2,3	87-031-594-01	Slide switch (TAPE/INPUT SELECTOR, PAUSE)	C9,10	87-015-814-01	680pF Chip capacitor
SFR1	87-021-650-01	Semi-fixed resistor, 1kΩ-B	C15,16	87-015-816-01	0.001μF Chip capacitor
SFR2	87-021-644-01	Semi-fixed resistor, 10kΩ-B	C23,24,75	87-015-825-01	0.0015μF Chip capacitor
		< Resistors >	C3,4,53,54	87-015-817-01	0.0022μF Chip capacitor
R7,8	88-121-569-01	5.6Ω 1/8W ±5%	C39,40,41,42,45,46	87-015-824-01	0.0039μF Chip capacitor
R3,4	88-121-152-01	1.5kΩ 1/8W ±5%	C49,50	87-015-818-01	0.0047μF Chip capacitor
R73,74	88-121-224-01	220kΩ 1/8W ±5%	C74	87-015-779-01	0.01μF Chip capacitor
R53,54	88-129-279-01	2.7Ω Chip resistor	C65	87-015-822-01	0.022μF Chip capacitor
R56	88-129-100-01	10Ω Chip resistor	C11,12	87-015-828-01	0.033μF Chip capacitor
R51,52,67	88-129-220-01	22Ω Chip resistor	C69,70	87-015-821-01	0.047μF Chip capacitor
R71	88-129-101-01	100Ω Chip resistor			
R29,30,45,46	88-129-151-01	150Ω Chip resistor	◀ MISCELLANEOUS ▶		
R70	88-129-271-01	270Ω Chip resistor	RPH	87-046-186-01	REC/PB head
R49,50,68	88-129-471-01	470Ω Chip resistor	EH	82-424-625-01	Erase head
R17,18,19,20,59	88-129-561-01	560Ω Chip resistor	PCB-B,M	82-641-605-01	Motor, w/Motor circuit board
R61	88-129-821-01	820Ω Chip resistor	ECM	87-041-019-01	ECM
R9,10,15,16,58,62	88-129-102-01	1kΩ Chip resistor	J4	87-049-013-01	DC jack
R56	88-129-222-01	2.2kΩ Chip resistor	S4	82-641-604-01	Leaf switch (F/R SW)
R60	88-129-272-01	2.7kΩ Chip resistor	S5	87-031-548-01	Leaf switch (MAIN SW)
R1,2	88-129-332-01	3.3kΩ Chip resistor			
R55	88-129-392-01	3.9kΩ Chip resistor	◀ HEADPHONE SECTION ▶		
R23,24,41,42	88-129-472-01	4.7kΩ Chip resistor	SP1,2	86-384-010-01	Driver unit
R57	88-129-822-01	8.2kΩ Chip resistor		86-384-026-01	Cord ass'y w/3.5φ stereo jack
R21,22	88-129-103-01	10kΩ Chip resistor			
R43,44,63,64,65	88-129-123-01	12kΩ Chip resistor			
R25,26,31,32	88-129-183-01	18kΩ Chip resistor			
R11,12	88-129-273-01	27kΩ Chip resistor			
R47,48	88-129-333-01	33kΩ Chip resistor			
R27,28,35,36,66	88-129-473-01	47kΩ Chip resistor			
R33,34	88-129-823-01	82kΩ Chip resistor			
R13,14	88-129-124-01	120kΩ Chip resistor			
R37,38	88-129-224-01	220kΩ Chip resistor			
R39,40	88-129-225-01	2.2MΩ Chip resistor			
		< Capacitors >			
C63,66	87-015-665-01	10μF 16V Electrolytic			
C47,48,72,73	87-015-708-01	22μF 6.3V Electrolytic			
C61,62	87-015-654-01	47μF 6.3V Electrolytic			