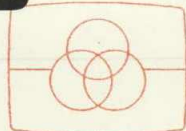


SERVICE MANUAL

MODEL NO.

CARRY COMPONENT SYSTEM

CA-W10



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Code No. 37-100-000-18

TYPE.E,K

DATE OF ISSUE 7/1982

SPECIFICATION

GENERAL

Semiconductors:	13 ICs, 70 transistors, 42 diodes, 21 LED
Power source:	Batteries, DC13.5V (UM-1 x 9) E model AC 110 ~ 120V/220 ~ 240V switchable, 50/60 Hz K model AC 120V/240V switchable, 50/60 Hz
Power consumption:	E model 36W K model 43W
Dimensions:	332.8(W) x 250(H) x 198(D) mm
Weight:	7.2kg (W/Batteries)
RADIO SECTION	
Circuit:	Superheterodyne
Frequency range:	FM 87.4 ~ 108.3 MHz SW 5.8 ~ 18.5 MHz MW 515 ~ 1650 kHz LW 145 ~ 320 kHz
Intermediate frequency:	FM 10.7 MHz SW, MW, LW 468 kHz
Sensitivity: (IHF, THD 3%)	FM 15 ± 4dB (at 88 MHz) 17 ± 4dB (at 100 MHz) 13 ± 4dB (at 108 MHz)
(S/N 10 dB)	SW 28 ± 5dB (at 5.9 MHz) 20 ± 5dB (at 12.0 MHz) 15 ± 5dB (at 18.0 MHz)
(S/N 10 dB)	MW 42 ± 4dB (at 600, 100, 1400 kHz)
(S/N 10 dB)	LW 52 ± 5dB (at 150 kHz) 50 ± 5dB (at 200, 300 kHz)
Image rejection:	FM 39 ± 5dB (at 108.0 MHz) SW 6 ± 3dB (at 18.0 MHz) MW 41 ± 5dB (at 1400 kHz) LW 46 ± 4dB (at 300 kHz)
IF rejection:	FM 73 ± 6dB (at 88.0 MHz) MW 28 ± 4dB (at 600 kHz) 20 ± 3dB (at 1 kHz)
FM stereo separation:	
Antenna:	FM, SW whip antenna and external antenna terminal MW, LW ferrite bar antenna

Signal noise ratio:	More than 47/46 dB (at PB, DC/AC) More than 42/42 dB (at REC/PB, DC/AC) (□ deck)
Noise level:	Less than 1.25/2.0 mV (DC/AC, MIN.)
Frequency response:	30 ~ 16,000 Hz (METAL) 30 ~ 14,000 Hz (CrO ₂) 30 ~ 13,000 Hz (LH)
Output power:	MAX. 28W (14W + 14W)
Head:	[A] deck PB head Hard permalloy head [B] deck REC/PB head Hard permalloy head Erase head Sendust head DC electric governor
Motor:	0.045% (WRMS)
Wow and Flutter:	Mechanical auto stop system
Auto stop:	125 ± 15g (1.23 ± 0.15N)
Pinch roller pressure:	+15 35 - 5g-cm (343 - 49mN·m)
Take up torque:	110 ± 20g-cm (1078 ± 196mN·m)
FF & rewind torque:	90 ± 5S (C-60)
FF & rewind time:	MIX MIC φ6.3 jack
Input terminals:	LINE IN pin jack PHONO pin jack
Input sensitivity/impedance:	MIC 1.4mV/3KΩ LINE IN 300mV/100KΩ PHONO 5mV/47KΩ
Output terminals:	LINE OUT pin jack EXT. SP φ3.5 jack PHONES φ6.3 jack

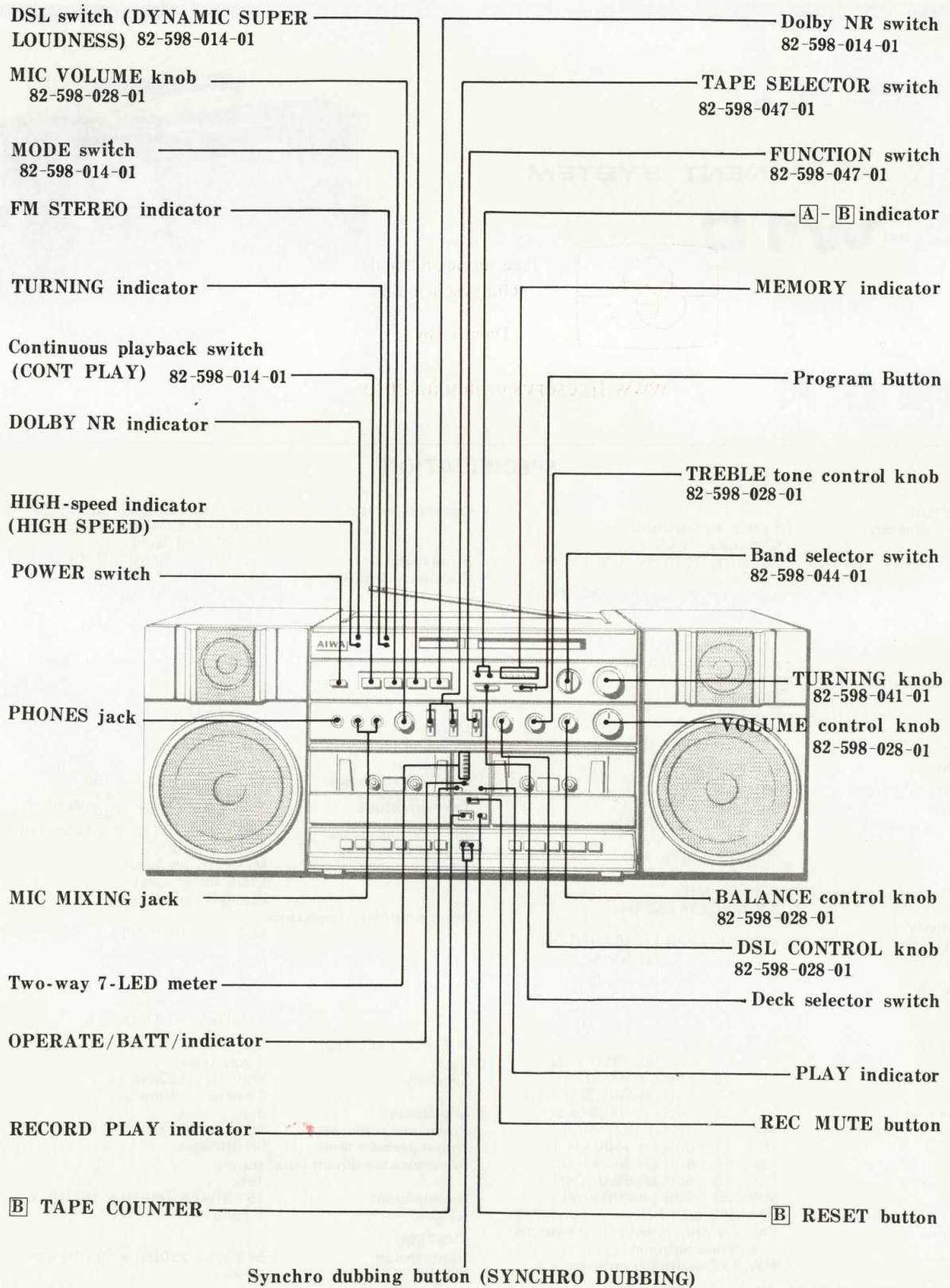
SPEAKER SECTION

Type:	2 way type
Speakers:	Woofer 120mmφ x 2 Tweeter 50mmφ x 2
Impedance:	8Ω
Frequency response:	50 ~ 18,000 Hz
Sound pressure level:	88 dB/W/m
Allowance maximum input power:	15W
Dimmension:	162.5(W) x 250(H) x 182(D) mm
Weight:	1.75kg
SYSTEM	
Dimmension:	645(W) x 250(H) x 198(D) mm
Weight:	10.7kg

- Noise reduction system manufactured under license from Dolby Laboratories Licensing Corporation.
- Dolby and the □ symbol are trademarks of Dolby Laboratories Licensing Corporation.
- Specifications and external appearance are subject to change without notice due to product improvement.

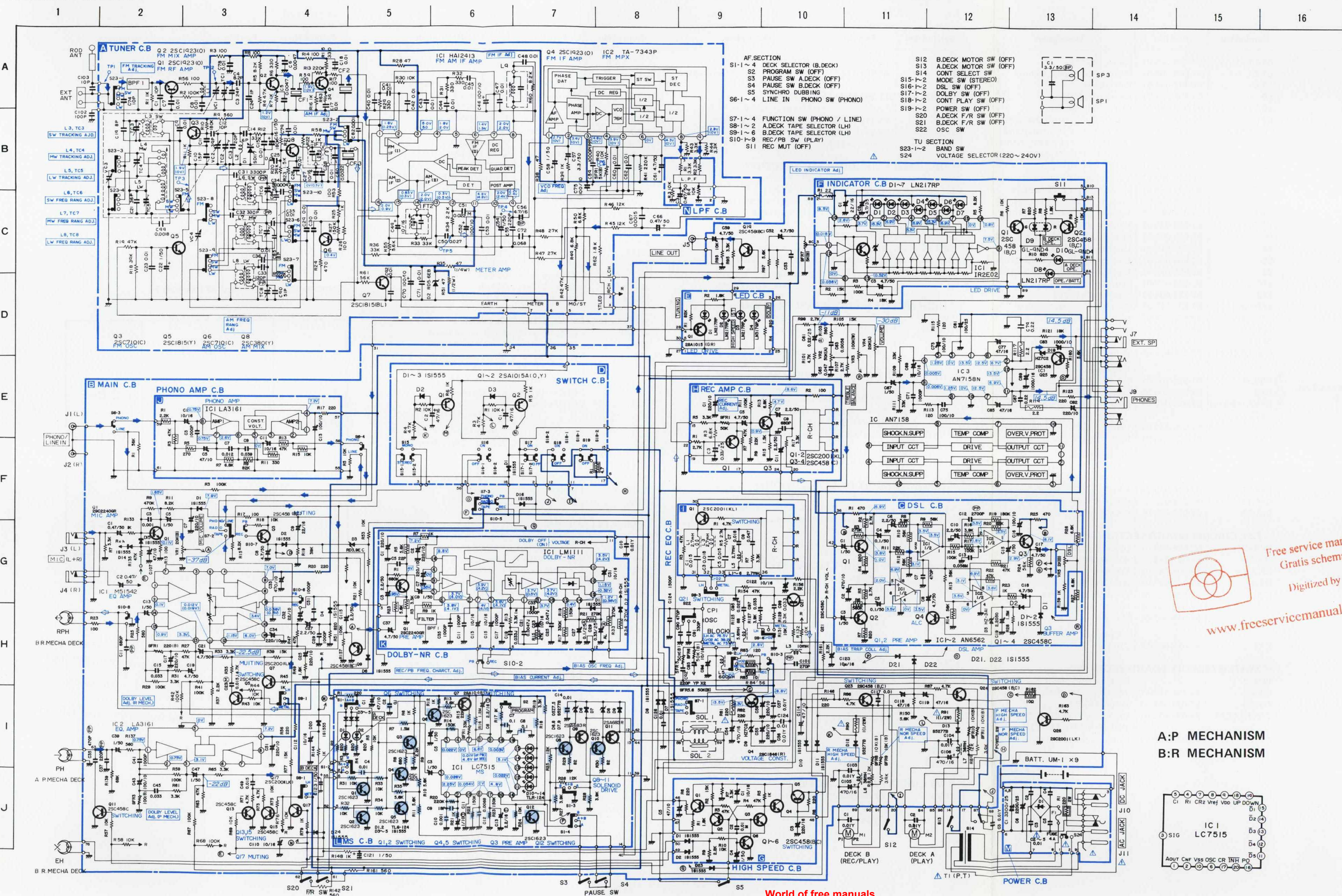
AIWA Co., Ltd. Tokyo Japan

DESCRIPTION



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SCHEMATIC DIAGRAM



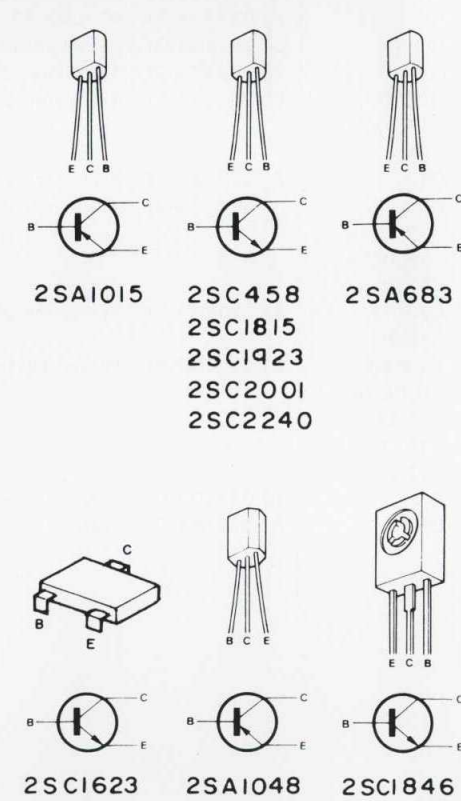
NOTES:

- 1) B (+) power supply
- 2) Signal path
- 3) Rec path, AM signal path.
- 4) 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.
- 5) Resistor with no designation have a rated power of 1/4W and a tolerance of $\pm 5\%$.
- 6) Capacitors with no designation have a dielectric strength of less than 50WV.
- 7) The only capacitor tolerance indicated are $\pm 5\%$ (J) and $\pm 10\%$ (K).
- 8) 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)
- 9) Explanation of symbols:
 - Mylar capacitor
 - Aluminum solid capacitor
 - Polypropylene film capacitor
 - Bi-polarized capacitor
 - Printed resistor
 - Fuse resistor
 - Nonflammable resistor
 - Chip parts
 - Chip capacitor
 - Chip tantalum capacitor
 - Chip resistor
 - Chip diode
 - Chip transistor

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.

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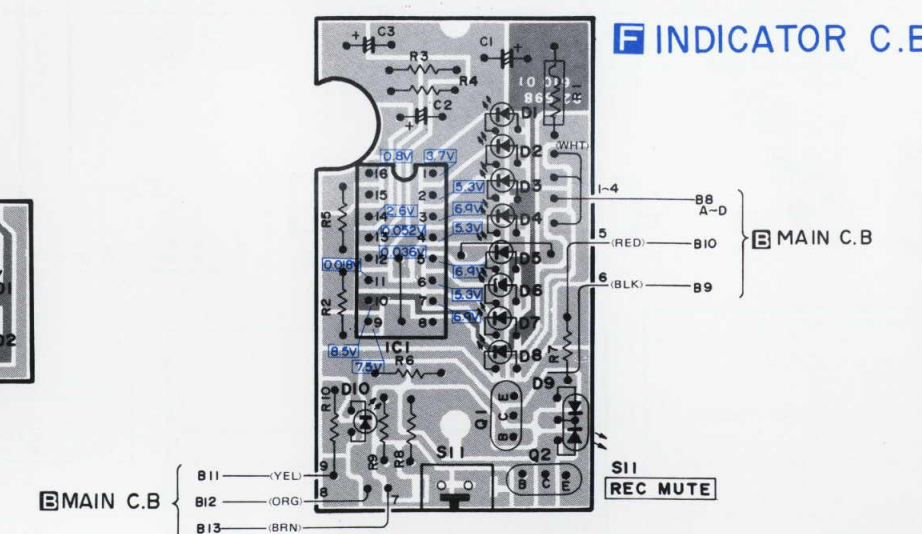
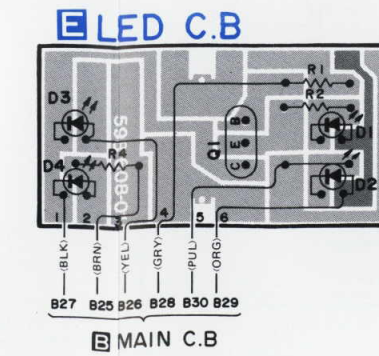
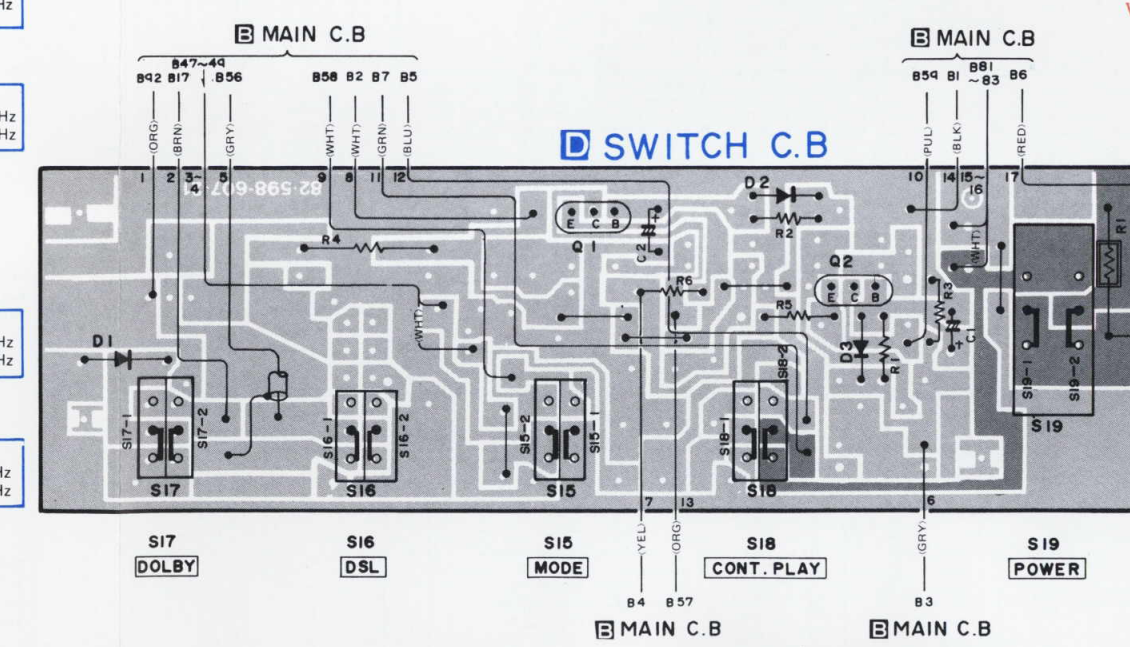
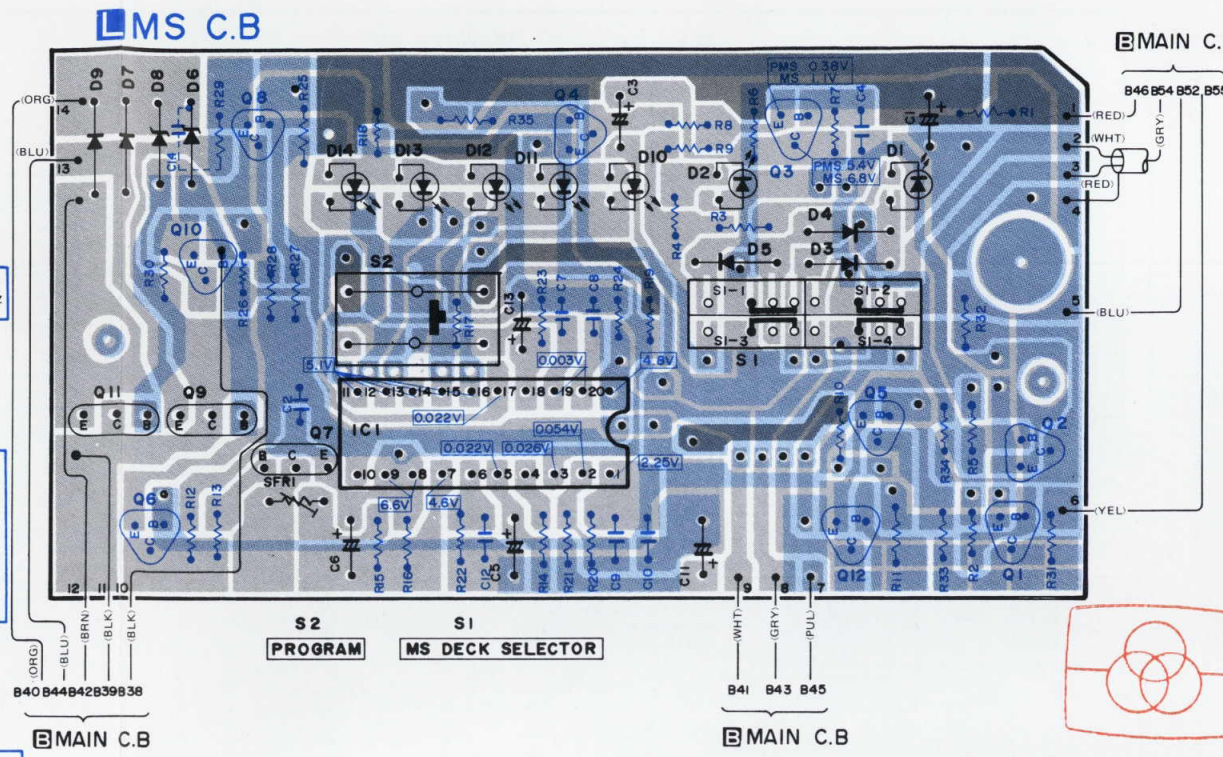
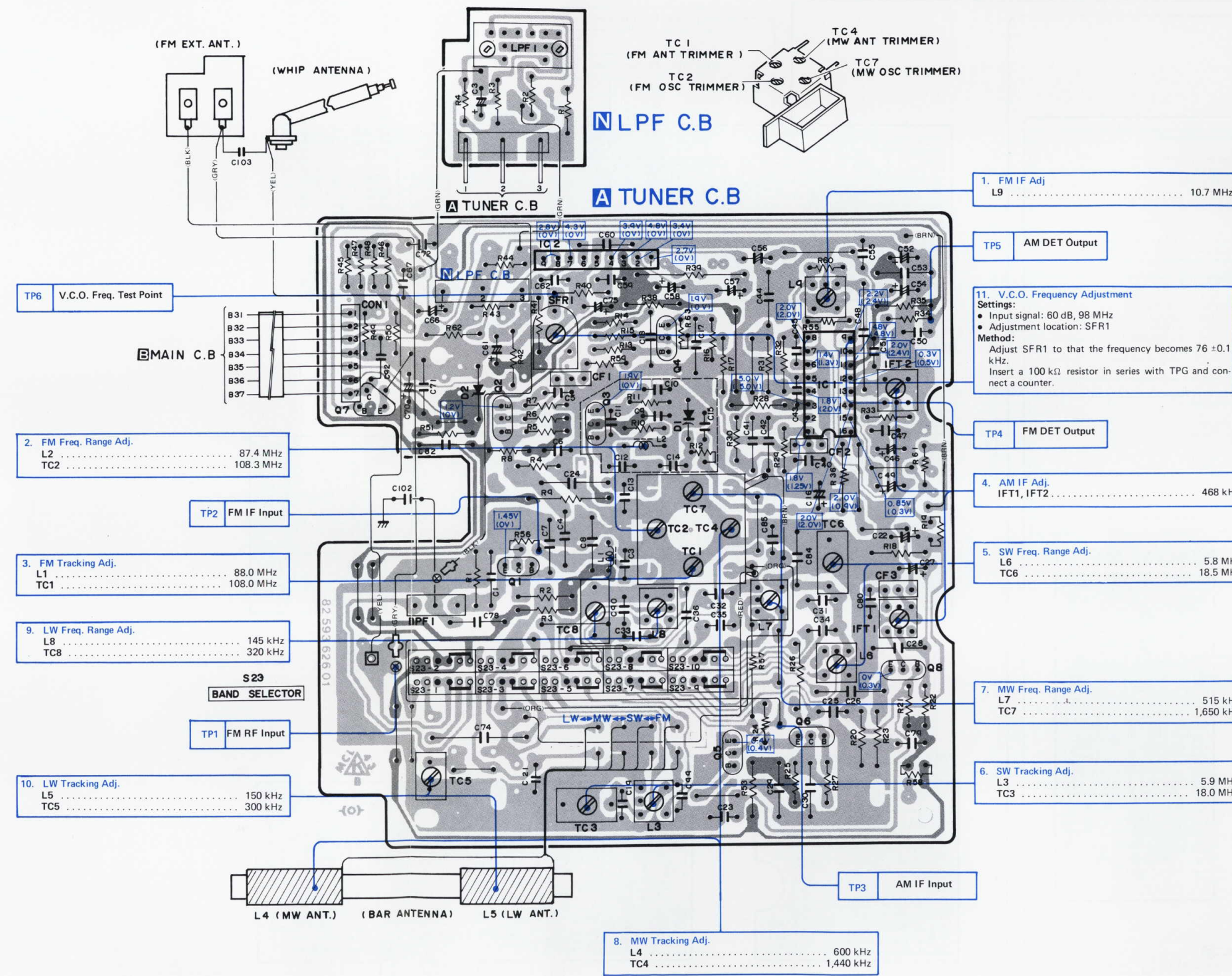
WIRING-2

NOTES (1) B(+) Pattern Component side 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.

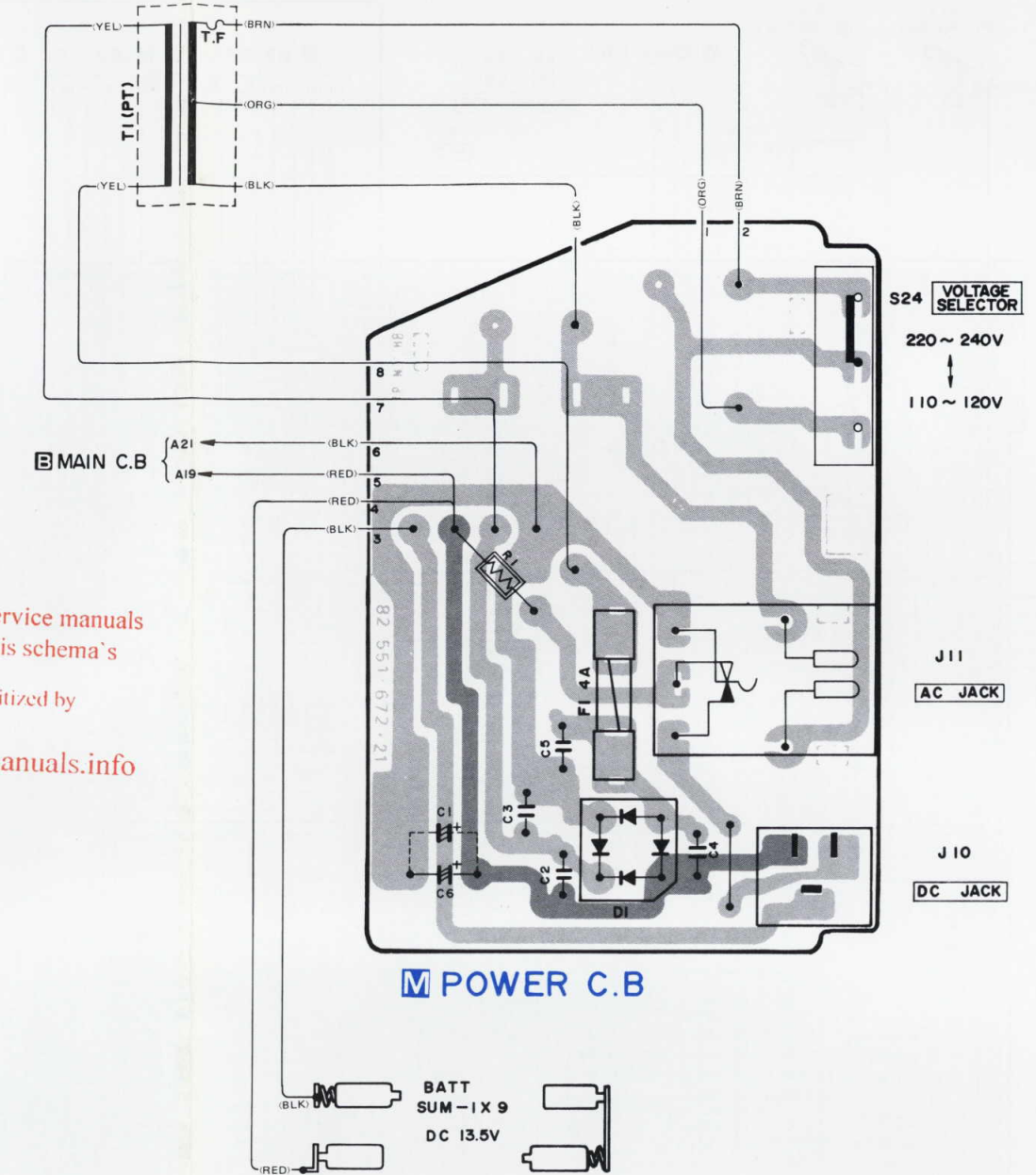
CA-W10E, K

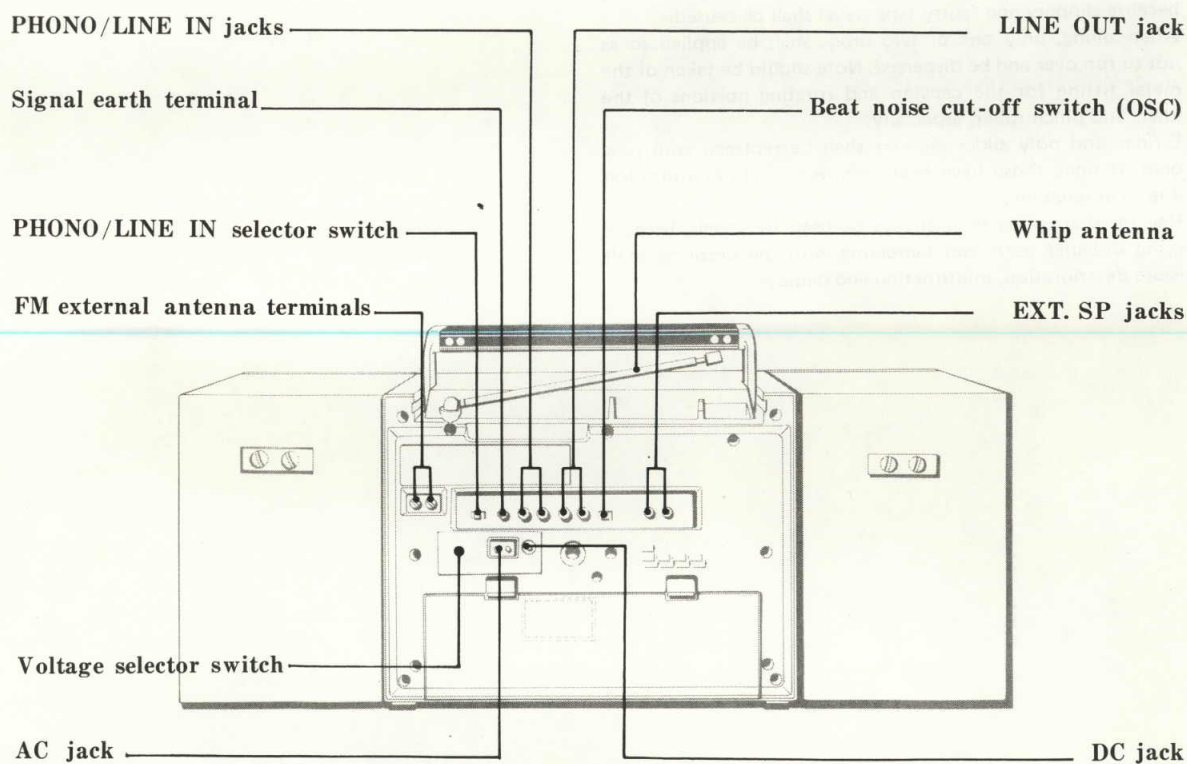
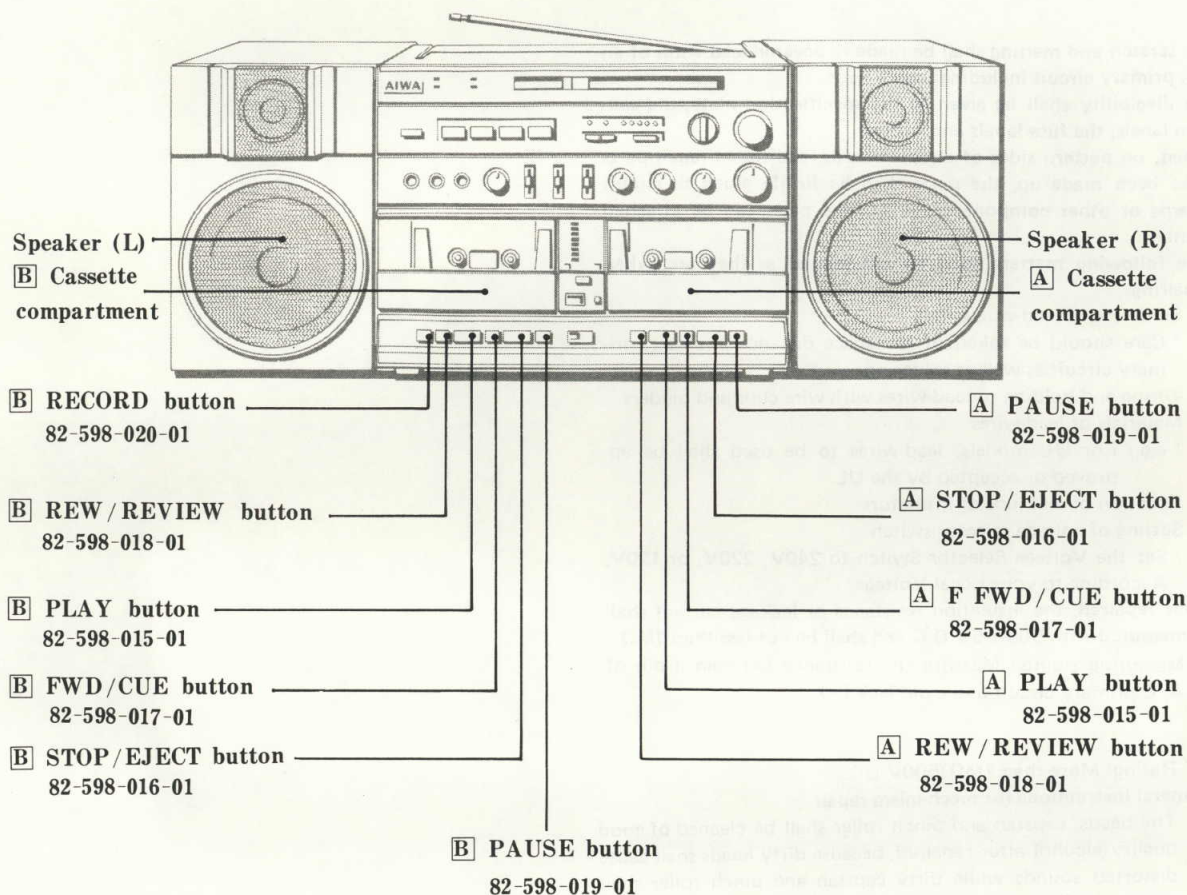
CA-W10E, K

A
B
C
D
E
F
G
H
I



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

1. No scratch and melting shall be made to covered lead-wires of an a.c. primary circuit including mains leads.
2. No illegibility shall be given to the specification plate, the caution labels, the fuse labels and others.
3. When, on pattern sides of circuit boards, additional repair-parts have been made up, the parts shall be firmly glued to circuit boards or other components, unless the parts can be attached firmly.
4. The following matters shall be maintained as they are, when repairing.
 - 1) Soldering of lead-wire ends
* Care should be taken of the space distance in an a.c. primary circuit as well as soldering.
 - 2) Wiring and holding of lead-wires with wire-clips and binders
 - 3) Materials of lead-wires
* e.g.; For UL models, lead-wires to be used shall be approved or accepted by the UL.
 - 4) Location of all kinds of insulators
 - 5) Setting of voltage selector switch
* Set the Voltage Selector Switch to 240V, 220V, or 120V, According to your Local Voltage.
5. After repaired, the insulation resistance or leakage current shall be measured with $500 \pm 5V$ D.C and shall be not less than $1M\Omega$.
Measuring points: Measure the resistance between a pin of A, C primary circuit and a pin jack (—)

Rating: More than $1M\Omega/500V$ DC.

6. General instructions for mechanism repair

- 1) The heads, capstan and pinch roller shall be cleaned of good quality alcohol after repaired, because dirty heads shall cause distorted sounds while dirty capstan and pinch roller shall occur wow/flutter and take-up fault.
- 2) Lubricants been stained the surfaces of transmitting portion of the belts, idlers, capstan and pinch roller shall be removed, because slippery and faulty tape travel shall be caused.
- 3) When oiling, only one or two drops shall be applied so as not to run over and be dispersed. Note should be taken of the metal fitting for the capstan and rotating portions of the idlers and pinch roller, especially.
- 4) E-rings and poly slider washers shall be replaced with new ones, if once those have been removed. — No re-utilization due to unreliability.
- 5) Regular spare-parts shall always be used for repair, because using irregular parts and tampering with the products shall cause deterioration, malfunction and damage.

DISASSEMBLY INSTRUCTIONS

To remove the main cabinet

- 1) Pull out ten pcs. of the respective knobs (See figure 1)

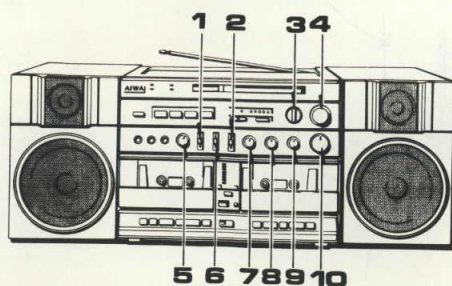


Fig. 1

- 2) Unfasten the six screws. (See figure 2)

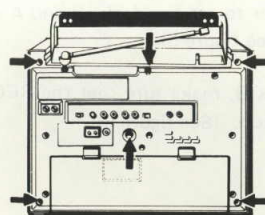


Fig. 2

- 3) Open the cassette lid by pressing the button, and remove the main cabinet in the direction of the arrows. (See figure 3 and figure 4)

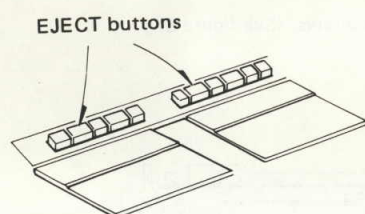


Fig. 3

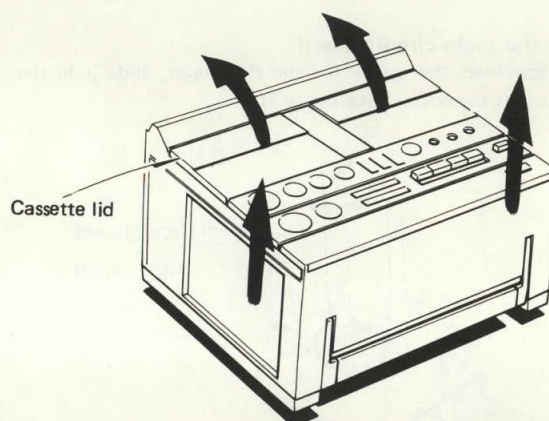


Fig. 4

To remove the mechanisms

1. To remove the dubbing chassis

- 1) Unfasten the three screws A to C. (See figure 5)

2. To remove the deck B

- 1) Unfasten the two screws D and E to remove the deck B in the direction of the arrows. (See figure 5)

3. To remove the deck A

- 1) Unfasten the two screws F and G to remove the deck A in the direction of the arrows. (See figure 5)

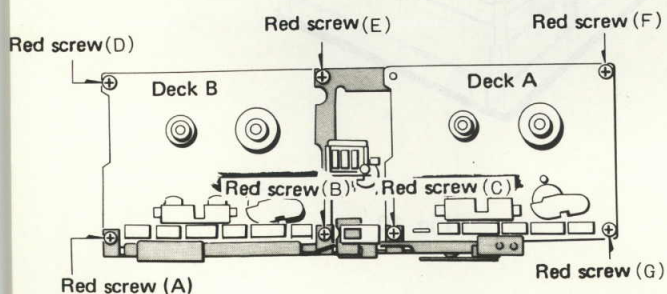


Fig. 5

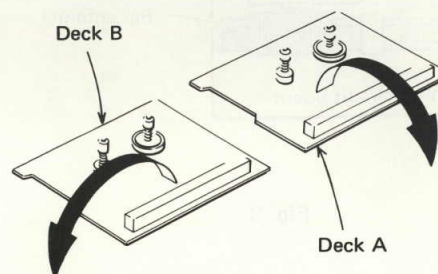


Fig. 5

N.B.

- 1) When removing the mechanisms, the deck B is prior to the deck A. (See figure 5)
- 2) When mounting the mechanisms, fasten the screws B and C in the first place in order to set the decks B and A correctly in the fixing position. (See figure 5)
- 3) When mounting the deck B, make sure that the REC lever is set to the illustrate position. (See figure 6)

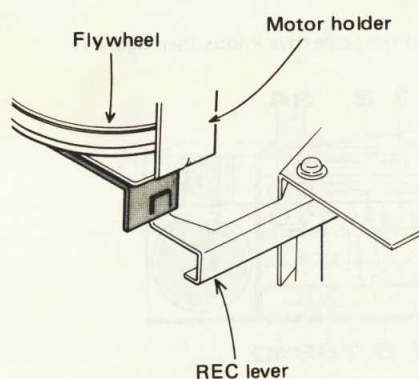


Fig. 6

To remove the main circuit board

- 1) After loosened the screw for the REC lever, slide it in the direction of the arrow. (See figure 7)

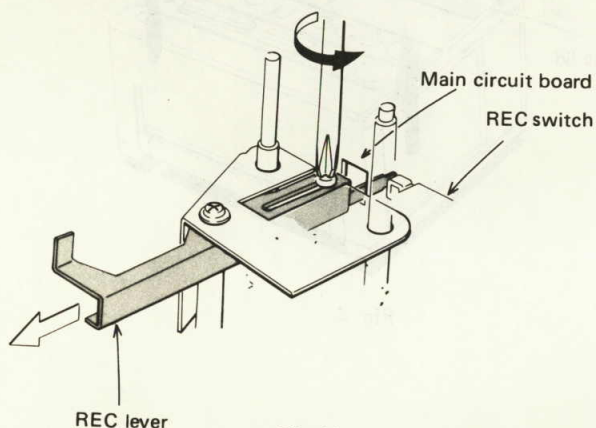


Fig. 7

- 2) Unfasten the three screws. (See figure 8)

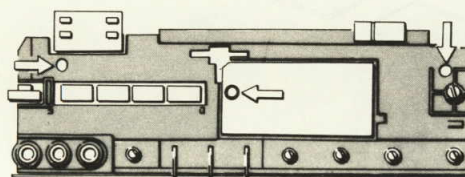


Fig. 8

- 3) Disconnect the three wires. (See figure 9)

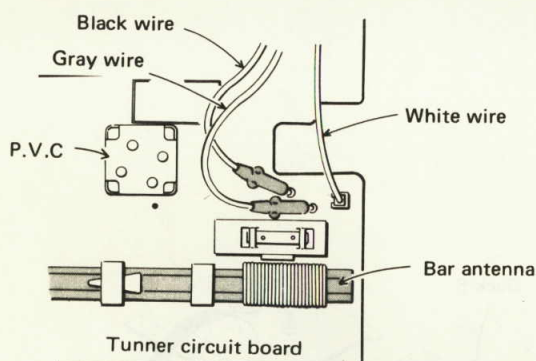


Fig. 9

- 4) Remove the main circuit board in the direction of the arrow. (See figure 10)

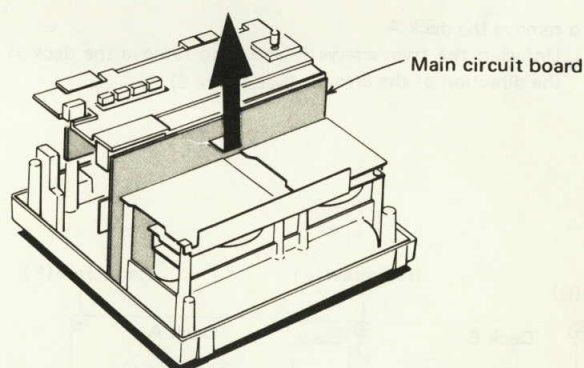


Fig. 10

To remove the tuner circuit board

1) Unfasten the screw. (See figure 11)

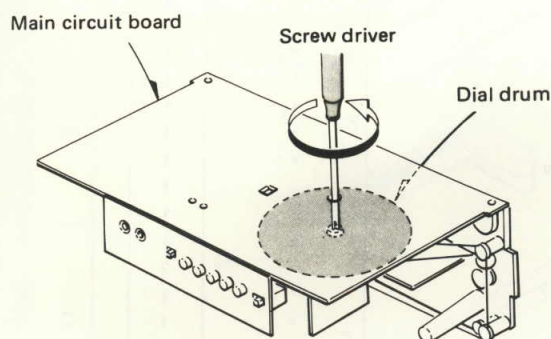


Fig. 11

2) After unfastened the two screws, pull out the p.v.c. from the dial drum to remove the tuner circuit board. (See figure 12)

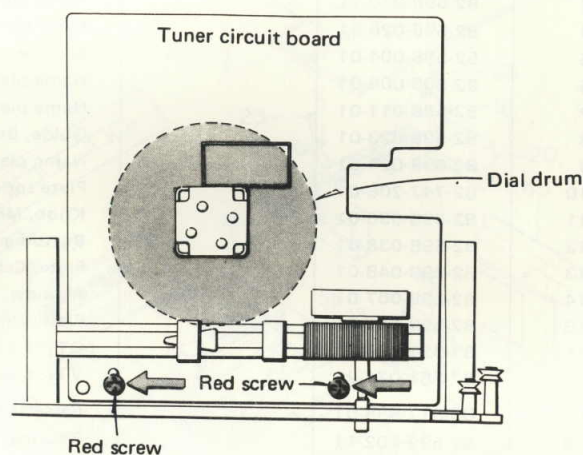


Fig. 12

To dismount the speaker

1) Unfasten the four decorative screws A to D by a hexagonal wrench of 2.5mm. (See figure 13)

2) Unfasten the two screws E and F. (See figure 13)

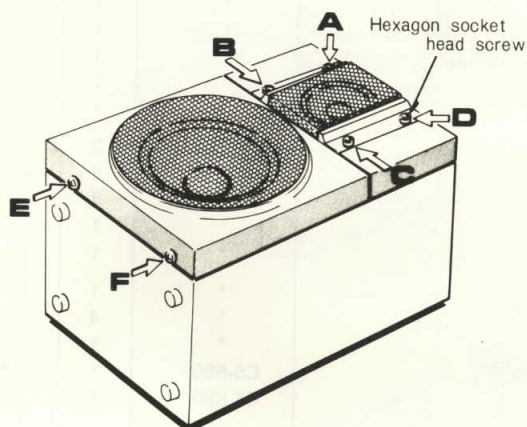


Fig. 13

3) Unfasten the two screws. (See figure 14)

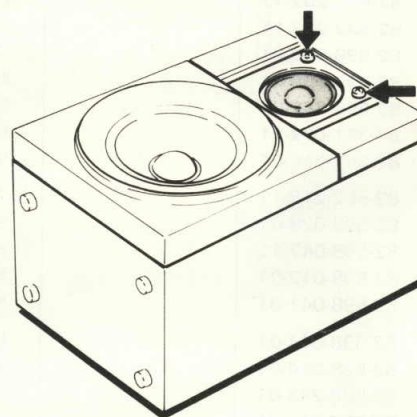


Fig. 14

4) Remove the front panel in the direction of the arrow (2) while distorting the enclosure by pressing the side board in the direction of the arrows (1). Because the front panel is attached to the enclosure with double-face adhesive tape.

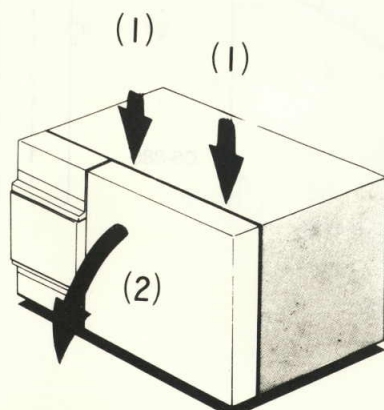
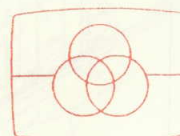


Fig. 15

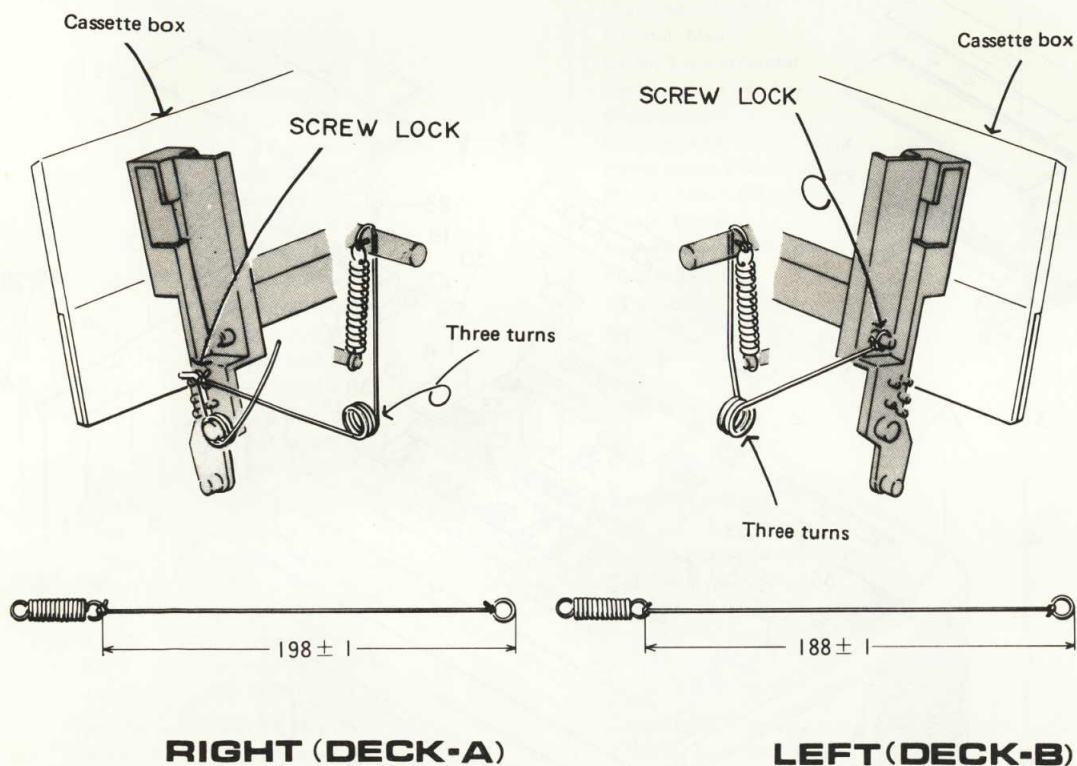


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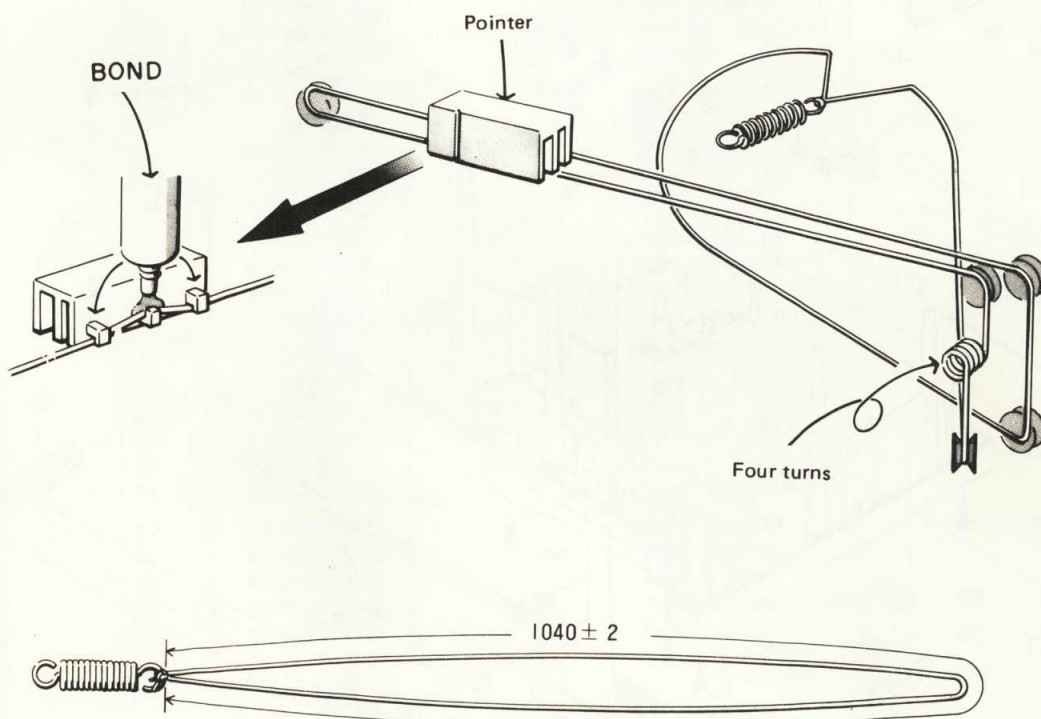
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AIR-DAMP CORD STRINGING

part.



DIAL CORD STRINGING



Ref. No.	Part No.	Part No. Changed to	Description	Common Model	Q'ty	
1-57	82-598-221-01		C-spring B	*	1	
1-58	82-222-036-01		Spring, Battery		1	
1-59	82-598-220-11		C-spring A	*	1	
1-60	82-551-213-01		Battery contact	TPR-935	1	
1-61	82-587-215-01		Battery terminal plate	CS-880	1	
1-62	82-598-235-11		REC lever ass'y	*	1	
1-63	82-598-231-01		E-spring, REC	*	1	
1-64a	82-598-064-01		Name plate, AC jack (E model only)	*	1	
b	82-598-065-01		Name plate, AC jack (K model only)	*	1	
1-65a	82-598-070-01		Name plate, Spec. (E model only)	*	1	
b	82-598-069-01		Name plate, Spec. (K model only)	*	1	
1-66	82-598-003-01		Battery room lid	*	1	
1-67	82-598-224-01		Cushion A, Battery	*	1	
1-68	82-598-225-01		Cushion B, Battery	*	1	
1-69	87-038-039-01		Wire binder		1	
1-70	82-598-022-01		Knob, REC MUTE	*	1	
1-71	82-598-250-01		Plate, REC A	*	1	

1	2	3	4	5	6	7
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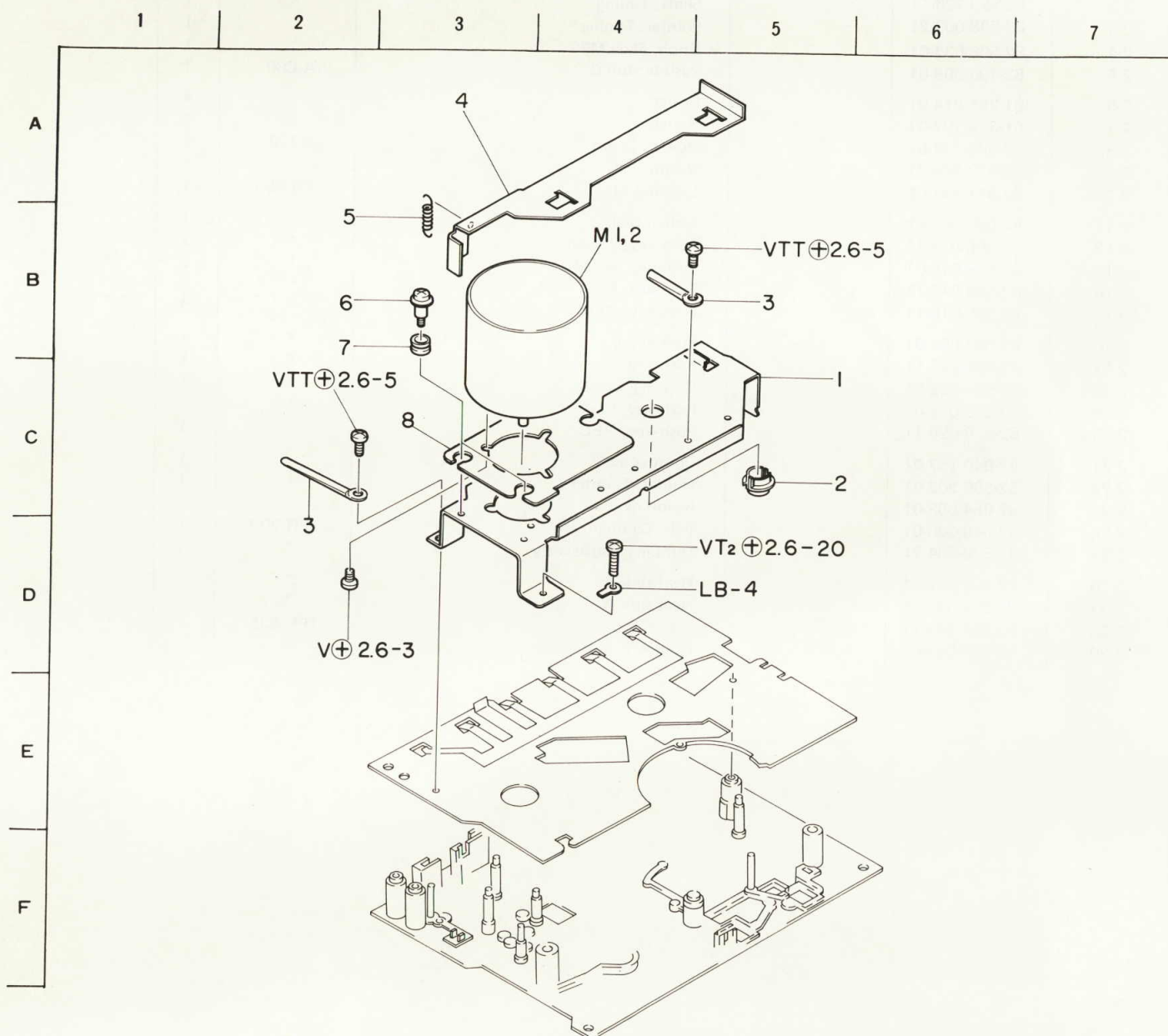


Ref. No.	Part No.	Part No. Changed to	Description	Common Model	Q'ty
2-1	82-598-201-01		Chassis, Radio	*	1
2-2	82-598-226-11		Shaft, Tuning	*	1
2-3	82-598-009-21		Pointer, Tuning	*	1
2-4	82-598-037-01		Knob, Slide MPS	*	1
2-5	82-780-008-01		Push-button C	SA-C80	1
2-6	81-385-014-01		Roller		4
2-7	81-302-107-01		Roller		1
2-8	82-588-204-01		Holder, Drum	CS-770	1
2-9	82-570-204-21		Drum, Dial		1
2-10	82-541-291-01		E-spring, Dial	TPR-950	1
2-11	87-096-045-01		String, Dial		1
2-12	82-598-019-11		Push-key, PAUSE	*	2
2-13	82-598-016-01		Push-key, STOP	*	2
2-14	82-598-017-11		Push-key, FF	*	2
2-15	82-598-018-11		Push-key, REW	*	2
2-16	82-598-034-01		Push-key L	*	1
2-17	82-598-035-11		Push-key S	*	1
2-18	82-598-232-01		C-spring, Button	*	1
2-19	82-598-015-01		Push-key, PLAY	*	2
2-20	82-598-020-11		Push-key, REC	*	1
2-21	87-040-157-01		Counter ass'y		1
2-22	82-598-202-01		Holder, Counter	*	1
2-23	87-084-088-01		Nylon rivet		2
2-24	82-548-205-01		Belt, Counter	TPR-200	1
2-25	82-598-204-21		Dubbing chassis ass'y	*	1
2-26	82-598-602-01		Heat sink B	*	1
2-27	82-598-601-01		Heat sink A	*	1
2-28	82-551-246-11		Cover, Fuse	TPR-935	1
2-29	82-598-217-01		Holder, circuit board	*	1

EXPLODED VIEW-3

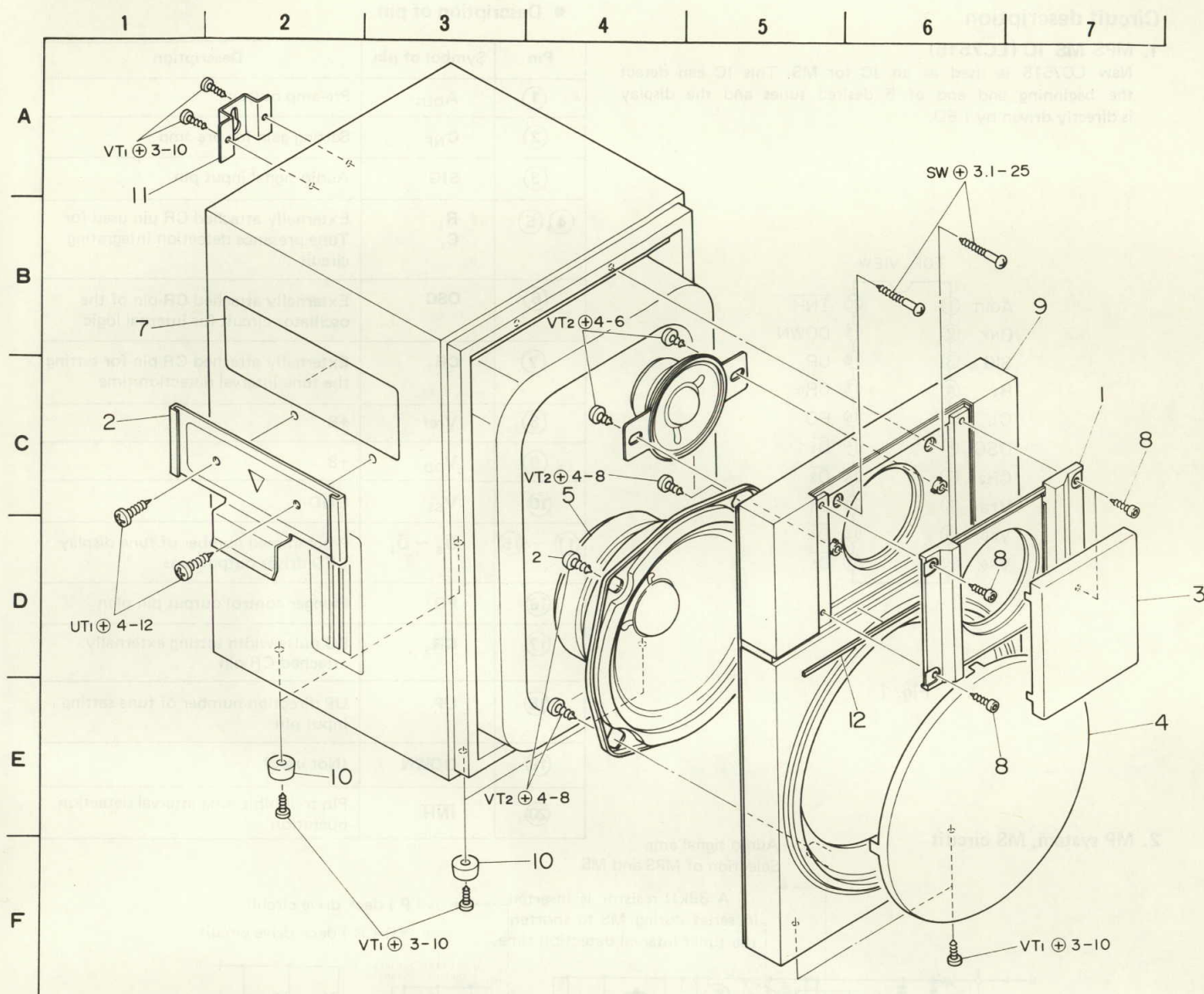
As the MD-3 Mechanism is adopted in this model, the exploded view is omitted --- See the supplement MD-3 Mechanism manual in case of repair and parts order.

The following is the exploded view of the exclusive mechanism and the motor attachments. The part-code list of such is described as well.



Ref. No.	Part No.	Part No. Changed to	Description	Common Model	Deck A	Deck B
3-1	82-598-229-01		Holder, Motor	AD-3500	1	1
3-2	82-585-326-11		Thrust bearing B		1	1
3-3	87-038-039-01		Wire binder		2	2
3-4	82-598-218-01		Slide plate REC	*	—	1
3-5	82-587-241-01		E-spring, Slide plate	CS-880	—	1
3-6	87-081-483-01		Motor screw, M2.6		3	3
3-7	87-087-029-01		Rubber cushion		3	3
3-8	82-598-228-01		Plate, Motor	*	1	1

EXPLODED VIEW SC-W10



Ref. No.	Part No.	Part No. Changed to	Description	Common Model	Q'ty
1	83-061-012-01		Decorative, Tweeter	*	2
2	83-061-014-01		Joint	*	2
3	83-061-016-01		Grille, Tweeter	*	2
4	83-061-017-01		Grille, Woofer	*	2
5	83-061-601-01		Speaker woofer	*	2
6	82-563-602-01		Speaker tweeter	CS-990	2
7	83-061-027-01		Name plate, Spec.	*	2
8	83-061-024-01		Hexagon socket head screw 3-10	*	8
9	83-061-011-01		Baffle	*	2
10	83-061-013-01		Foot	*	8
11	83-061-050-01		Metal fitting, Carrying handle	*	2
12	83-061-023-01		Decorative plate (Stripe)	*	2

Circuit description

1. MPS MS IC (LC7515)

New LC7515 is used as an IC for MS. This IC can detect the beginning and end of 5 desired tunes and the display is directly driven by LED.

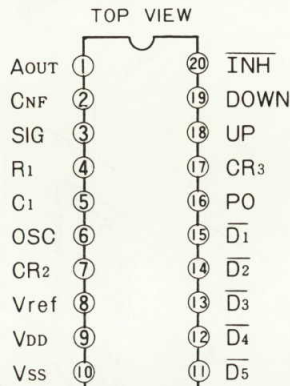


Fig. 1

• Description of pin

Pin	Symbol of pin	Description
①	A _{OUT}	Pre-amp output
②	C _{NF}	Setting gain for pre-amp
③	SIG	Audio signal input pin
④, ⑤	R ₁ C ₁	Externally attached CR pin used for Tune presence detection integrating circuit
⑥	OSC	Externally attached CR pin of the oscillator circuit for internal logic
⑦	CR ₂	Externally attached CR pin for setting the tune interval detection time
⑧	V _{ref}	+B
⑨	V _{DD}	+B
⑩	V _{SS}	GND
⑪ ~ ⑮	D ₅ ~ D ₁	Programmed number of tune display LED driver output pins
⑯	PO	Plunger control output pin plan
⑰	CR ₃	PO pulse width setting externally attached CR pin
⑱	UP	UP direction number of tune setting input pin
⑲	DOWN	(Not used)
⑳	INH	Pin to inhibit tune interval detection operation

2. MP system, MS circuit

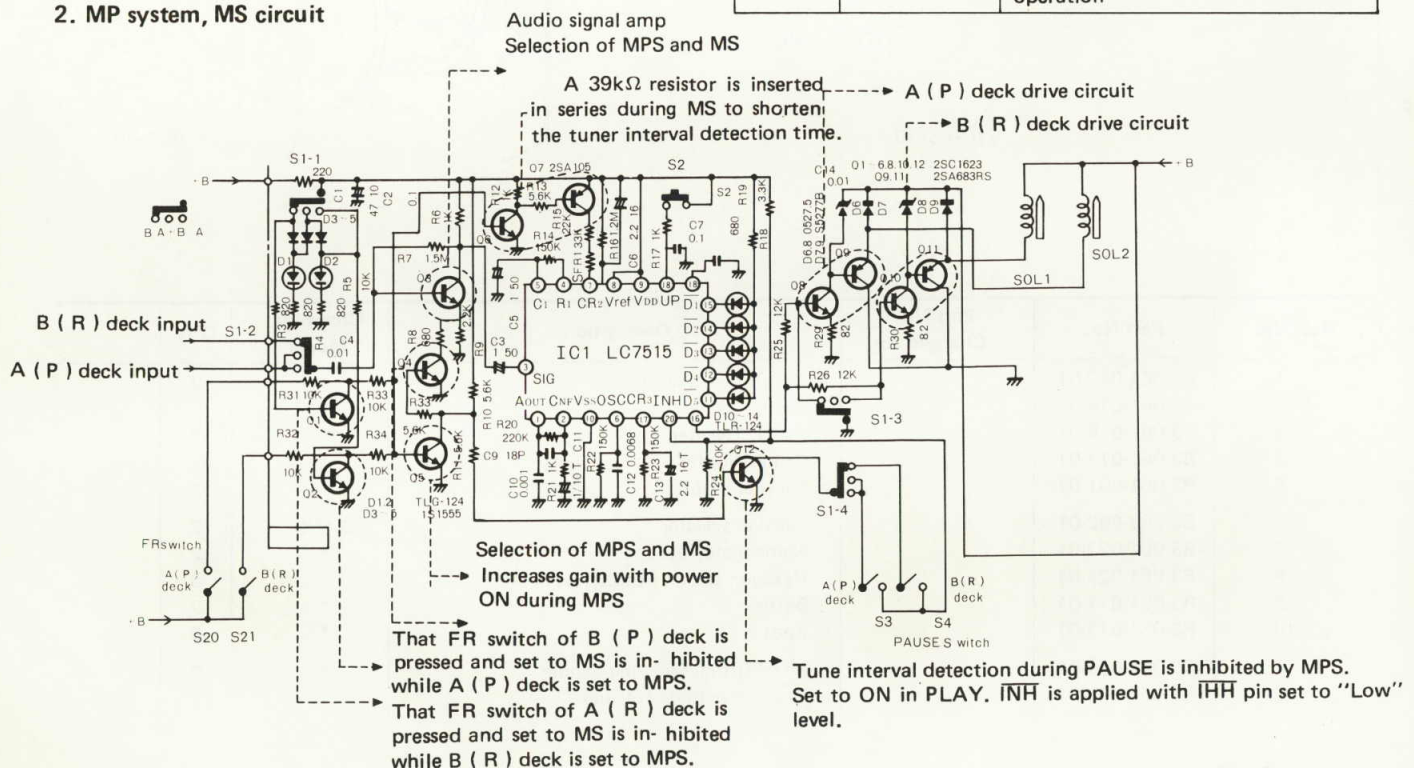


Fig. 2

Tune selection operation is done by setting pin ⑳ INH to 'High' level from 'Low' level when power is supplied. The 1μF capacitor is discharged when a tune is present, and when the audio signal is input from SIG pin ③, the 1μF capacitor is charged by R1 pin ④ via the resistor. When C1 pin is set to 1/2 of Vref, it is judged by the IC that a tune is present.

Between CR₂ pin ⑦ and GND is set to ON inside IC when a tune is present, so the capacitor is charged. It is set to OFF during the tune interval and the voltage at CR₂ pin ⑦ is boosted; when it is set to 1/2 of Vref, it is judged to be the tune interval and DOWN count is performed. When the count is set to 0, a pulse is generated from PO pin ⑩ to drive the plunger.

ACCESSORIES/PACKAGE

Ref. No.	Part No.	Part No. Changed to	Description	Common Model	Q'ty	
1	82-598-857-01		Printed indiv., Packing	*	1	
2	81-508-856-01		Cushion R down, Printed indiv.	CA-100	1	
3	81-508-857-01		Cushion L down, Printed indiv.	CA-100	1	
4	81-508-858-01		Cushion R up, Printed indiv.	CA-100	1	
5	81-508-859-01		Cushion L up, Printed indiv.	CA-100	1	
6	87-056-628-01		Poly-vinyl sack		1	
7	82-598-905-01		Instructions booklet	*	1	
8	87-051-171-11		Poly-vinyl sack		1	
9	87-056-009-51		Distributors list		1	
10	87-056-008-11		Label, AC power cord (K model only)		1	
11	87-056-016-01		Tag. Main voltage (K model only)		1	
12	83-061-002-01		Speaker, SC-W10		1	
13	87-034-883-01		AC power cord (E model only)		1	
14	87-034-871-01		AC power cord (K model only)		1	
15	87-034-972-01		Connection cord CW-2534SK		1	