

AIWA® **SERVICE MANUAL**

S/M Code No. 85-007
DATE OF ISSUE 3/1985

TYPE. HB, UB, EB, KB

**STEREO TURNTABLE
SYSTEM**

MODEL NO.

LX-80



**STEREO TURNTABLE
SYSTEM**

MODEL NO.

LX-120



SPECIFICATIONS

LX-80

<Turntable Section> Drive system

Motor
Turntable platter
Speeds
Wow & flutter
S/N ratio

Fully automatic belt-drive turntable system
DC electronically regulated motor
Aluminum alloy diecast
33-1/3 and 45 rpm
0.055% (WRMS)
70 dB (DIN-B)

<Tonearm Section>

Type
Effective arm length
Tracking error

Linear tracking type,
straight Dynamic type
139.5 mm
10'

<Cartridge>

Type
Frequency response
Output voltage

VM type
20—20,000 Hz
2.5 mV

<General>

Power requirements

LX-80 U

AC 120 V, 60 Hz

LX-80 E,

AC 220 V, 50/60 Hz

LX-80 K

AC 240 V, 50/60 Hz

LX-80 H

AC 120 V/220 V/240 V

switchable, 50/60 Hz

10 W

Power consumption

Dimensions

330(W) × 85(H) × 330(D) mm

(13" × 3-3/8" × 13")

Weight

Accessories

3.2 kg (7 lbs.)

EP adaptor

- Design and specifications are subject to change without notice.

LX-120

<Turntable Section> Drive system

Motor

Frequency generated direct drive system
4-phase 8-pole linear torque DD
hall motor
33-1/3 and 45 rpm
0.045% (WRMS)
75 dB (DIN-B)

Speeds

Wow & flutter

S/N ratio

<Tonearm Section>

Type

Linear tracking type,
straight dynamic type
139.5 mm
10'

Effective arm length

Tracking error

<Cartridge>

Type

Frequency response

Output voltage

VM type
20—20,000 Hz
2.5 mV (1 kHz 3.45 cm/sec)

<General>

Power requirements

LX-120 U

AC 120 V, 60 Hz

LX-120 E,

AC 220 V, 50/60 Hz

LX-120 K

AC 240 V, 50/60 Hz

LX-120 H

AC 120 V/220 V/240 V

switchable, 50/60 Hz

15 W

Power consumption

Dimensions

330(W) × 85(H) × 330(D) mm

(13" × 3-3/8" × 13")

Weight

Accessories

3.5 kg (7.7 lbs.)

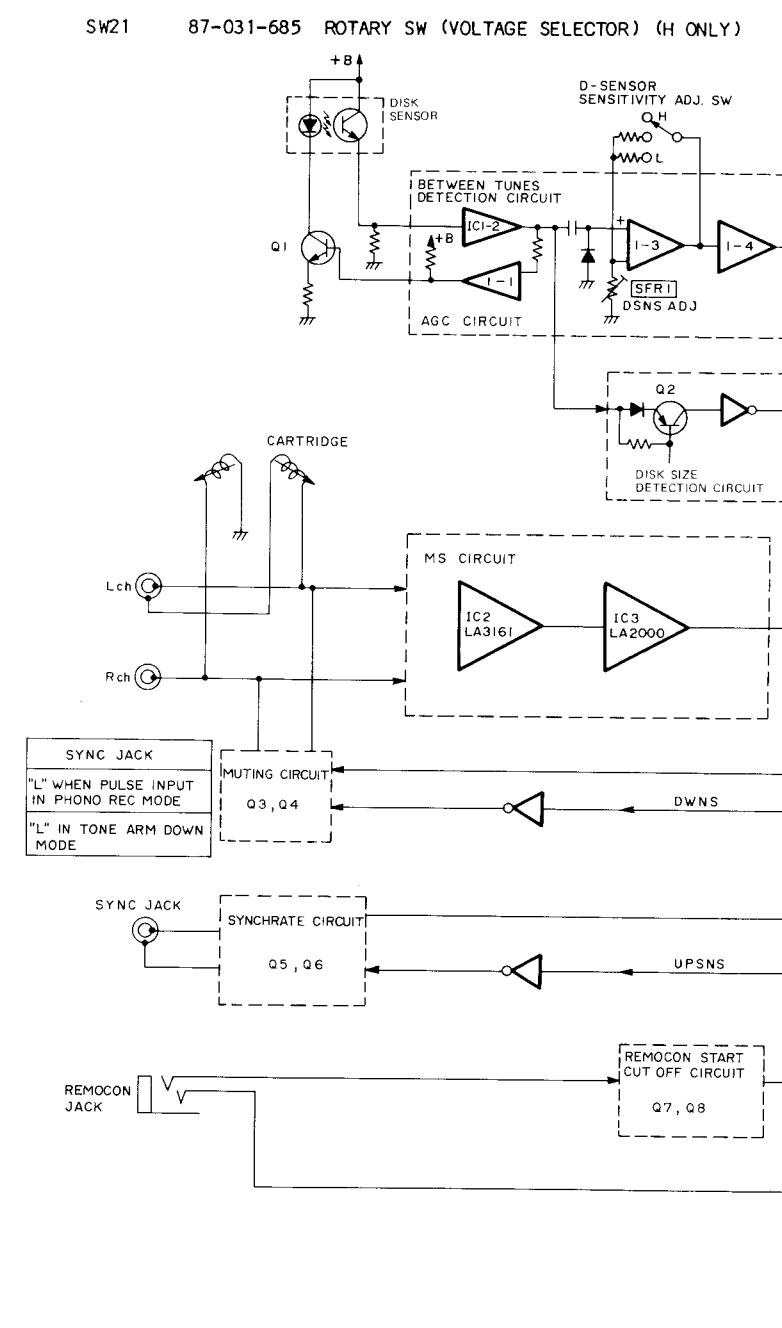
EP adaptor

- Design and specifications are subject to change without notice.

ELECTRICAL MAIN PARTS LIST (LX-80, 120)

• +++ mark denotes a component of assembled part which part code is represented by a previously stated component.
• * -mark means less required items and availabilities may be limited.

CAPACITORS
No mark, U, UF: μ F
P, PF : pF
COILS
MMH: mH
UH : μ H
FUSE
MMA: mA

Ref.No.	Part.No.	Description	Ref.No.	Part.No.	Description	Ref.No.	Part.No.	Description			
=== IC ===			D135	* 87-020-383	LED,PR57571-20 (PRG-4)	=== MISCELLANEOUS ===					
④	87-020-380	IC,LA2000S	D136	* 87-020-383	LED,PR57571-20 (PRG-5)	④	87-034-578	AC CORD (U) (U ONLY)			
	87-027-539	IC,LA3161	D137	* 87-020-383	LED,PR57571-20 (PRG-6)		87-034-877	AC CORD (EE) (E ONLY)			
	87-020-096	IC,M4066BP (LX-80 ONLY)	D138	* 87-020-383	LED,PR57571-20 (PRG-7)		87-034-958	AC CORD (H ONLY)			
	87-020-148	IC,M5224P					87-085-199	CORD BUSHING,2271			
④	87-020-147	IC,M54547	D139	* 87-020-377	LED,PG5731KY (OPERATE)	④	* 84-133-617	SYNCHRATE CORD (CN) (H,E,K ONLY)			
	84-127-650	IC,M58103-403SP	D140	* 87-027-943	LED,PR5751K (FG LOCK LX-120 ONLY)		* 84-133-637	SYNCHRATE CORD (U) (U ONLY)			
	87-020-343	IC,TA7354	D141	87-027-097	DIODE,1S1555		* 84-133-618	PIN CORD (CN) (H,E,K ONLY)			
	87-027-827	IC,TC4069UBP	D142	87-027-097	DIODE,1S1555		* 84-133-638	PIN CORD (U) (U ONLY)			
=== TRANSISTOR ===			D143	87-027-097	DIODE,1S1555 (LX-80 ONLY)	M1	84-133-627	MOTOR DC PHONO,MM1-5 ASSY (LX-80 ONLY)			
	89-110-154	TRANSISTOR,2SA1015,Y	D144	87-027-349	DIODE,ZENER HZ6A1L	M1	84-131-625	MOTOR DC PHONO,SS09AA (LX-120 ONLY)			
	89-318-154	TRANSISTOR,2SC1815,Y	D145	87-027-556	DIODE,ZENER HZ11B3L (LX-80 ONLY)	M2	84-133-614	MOTOR DC,MMN-S (LINEAR DRIVE)			
	89-318-464	TRANSISTOR,2SC1846 (U ONLY)	D145	87-027-676	DIODE,ZENER HZ12B3LT2 (LX-120 ONLY)	M3	84-133-613	MOTOR DC,PON-8 (UD) (UP/DOWN)			
	89-320-011	TRANSISTOR,2SC2001K				PT1	84-131-602	TRANSFORMER,PT (U) (U ONLY)			
	89-412-753	TRANSISTOR,2SD1275	D146	87-027-676	DIODE,ZENER HZ12B3LT2	PT1	84-131-603	TRANSFORMER,PT (E) (E ONLY)			
	89-414-063	TRANSISTOR,2SD1406 OY	D147	87-027-365	DIODE,S5277B	PT1	84-131-605	TRANSFORMER,PT (H) (H ONLY)			
			D148	87-027-376	DIODE,1B4B41	SW19	87-031-871	LEAF SW1-2 (UP/DOWN)			
			D149	87-027-097	DIODE,1S1555	SW21	87-031-685	ROTARY SW (VOLTAGE SELECTOR) (H ONLY)			
=== MAIN CIRCUIT BOARD SECTION ===			L101	* 84-131-620	COIL,OSC 490K(T)						
PCB-A	*	MAIN CIRCUIT BOARD	L102	* 87-003-051	COIL CHOKE 470UH						
C102	* 87-018-044	CAP,CERA-SOL S 1000P	L103	87-005-126	COIL CHOKE 1000UH						
C103	* 87-010-134	CAP,ELECT BP,4.7-35V	R221	87-025-277	RES,MF 1/4W-2.2KF (LX-80 ONLY)						
C107	* 87-018-044	CAP,CERA-SOL S 1000P	SFR1	* 87-021-747	SFR 220K						
C109	* 87-018-044	CAP,CERA-SOL S 1000P	SFR2	* 87-021-745	SFR 47KB						
C110	* 87-010-134	CAP,ELECT BP,4.7-35V	SFR3	* 87-021-743	SFR 22K						
C111	* 87-010-134	CAP,ELECT BP,4.7-35V	SFR4	* 87-021-743	SFR 22K (LX-80 ONLY)						
C120	* 87-018-047	CAP,CERA-SOL 0.01Y/16	SFR5	* 87-021-741	SFR 4.7K (LX-80 ONLY)						
C122	* 87-018-045	CAP,CERA-SOL 2200P	SW1	84-131-621	PUSH SW,2-2 SUN 12.5 (POWER)						
C124	* 87-018-047	CAP,CERA-SOL 0.01Y/16	SW2	87-031-741	TACT SW (PRG1)						
C126	* 87-018-045	CAP,CERA-SOL 2200P	SW3	87-031-741	TACT SW (PRG2)						
C134	* 87-018-047	CAP,CERA-SOL 0.01Y/16	SW4	87-031-741	TACT SW (PRG3)						
C135	* 87-018-044	CAP,CERA-SOL S 1000P	SW5	87-031-741	TACT SW (PRG4)						
C141	* 87-010-242	CAP,ELECT,1000-35VS (LX-80 ONLY)	SW6	87-031-741	TACT SW (PRG5)						
C141	* 87-010-280	CAP,ELECT,2200-35V (LX-120 ONLY)	SW7	87-031-741	TACT SW (PRG6)						
C147	* 87-018-047	CAP,CERA-SOL 0.01Y/16	SW8	87-031-741	TACT SW (PRG7)						
C148	* 87-018-047	CAP,CERA-SOL 0.01Y/16	SW9	87-031-741	TACT SW (CLEAR)						
C154	* 87-018-047	CAP,CERA-SOL S 0.01Y/16 (LX-8 ONLY)	SW10	87-031-741	TACT SW (INTRO PLAY/LIST)						
D101	87-027-097	DIODE,1S1555	SW11	87-031-741	TACT SW (LEFT)						
D102	87-027-097	DIODE,1S1555	SW12	87-031-741	TACT SW (RIGHT)						
D103	87-027-097	DIODE,1S1555	SW13	87-031-741	TACT SW (REPEAT)						
D104	87-027-097	DIODE,1S1555	SW14	87-031-741	TACT SW (F.SKIP)						
D105	87-027-097	DIODE,1S1555	SW15	87-031-741	TACT SW (B.SKIP)						
D106	87-027-097	DIODE,1S1555	SW16	87-031-741	TACT SW (START/CUT)						
D107	87-027-097	DIODE,1S1555	SW17	87-031-870	SLIDE SW 2-3 SSY (SENSOR)						
D108	87-027-097	DIODE,1S1555	SW18	87-031-869	SLIDE SW 2-2 SSY (SPEED)						
D109	87-027-097	DIODE,1S1555	SW20	87-031-741	TACT SW (UP/DOWN)						
D110	87-027-097	DIODE,1S1555	=== REMOTE CIRCUIT BOARD SECTION ===								
D111	87-027-097	DIODE,1S1555	PCB-B	*	REMOTE CIRCUIT BOARD						
D112	87-027-097	DIODE,1S1555	J1	84-131-617	STEREO JACK 3.5,M7T (REMOTE)						
D113	87-027-097	DIODE,1S1555	=== POWER CIRCUIT BOARD SECTION ===								
D114	87-027-097	DIODE,1S1555	PCB-C	*	POWER CIRCUIT BOARD						
D115	87-027-097	DIODE,1S1555	=== POSITION SENSOR CIRUCIT BOARD SECTION ===								
D116	87-027-097	DIODE,1S1555	PCB-D	*	POSITION SENSOR CIRCUIT BOARD						
D117	87-027-097	DIODE,1S1555	CP102	* 87-020-448	PHOTO INTERRUPTER GP-2S04CB						
D118	87-027-097	DIODE,1S1555	CP103	* 87-020-448	PHOTO INTERRUPTER GP-2S04CB						
D119	87-027-097	DIODE,1S1555	=== ANGLE SENSOR CIRCUIT BOARD SECTION ===								
D120	87-027-097	DIODE,1S1555	PCB-E	*	ANGLE SENSOR CIRCUIT BOARD						
D129	87-027-097	DIODE,1S1555	CP101	* 87-020-150	PHOTO INTERRUPTER KU107						
D130	87-027-097	DIODE,1S1555									
D131	* 87-027-943	LED,PR5751K (REPEAT)									
D132	* 87-020-383	LED,PR57571-20 (PRG-1)									
D133	* 87-020-383	LED,PR57571-20 (PRG-2)									
D134	* 87-020-383	LED,PR57571-20 (PRG-3)									

Note; Combination Circuit Board
The parts on the electrical parts list which are indicated by an asterisk (*) are supplied as one single combined circuit board. Therefore, they will not be supplied separately. If this becomes necessary,please order the entire circuit board.

- Combination Circuit Board:84-131-610**
PCB-A 84-131-611
PCB-B 84-131-612
PCB-C 84-131-613
Combination Circuit Board:84-133-630
PCB-D 84-133-630
PCB-E 84-133-632

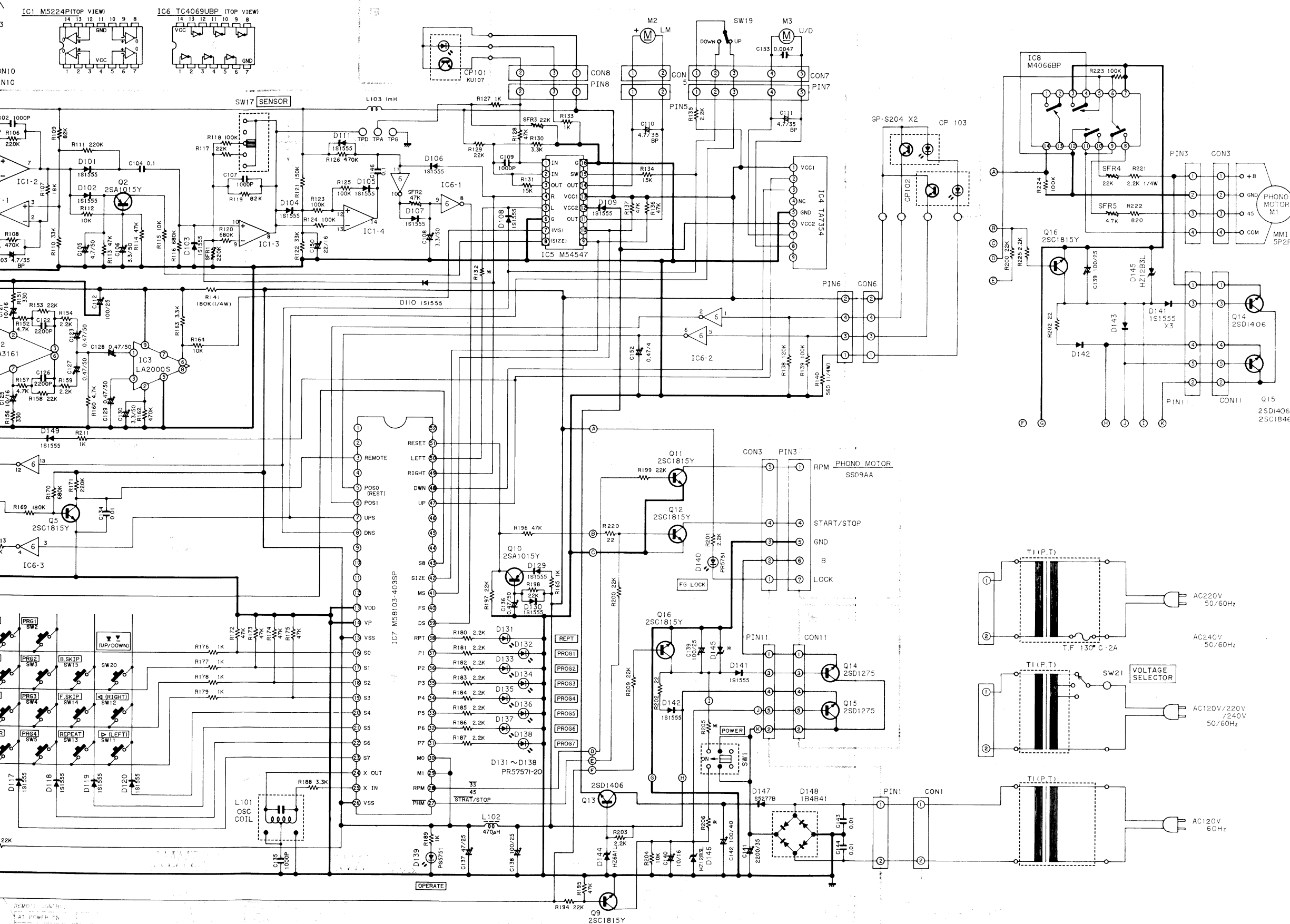
CAPACITORS	COILS	FUSE
No mark, U, UF: μF	MMH: mH	MMA: mA
P, PF: pF	UH: μH	

PCB-E 84-133-632

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.

PCB-E * ANGLE SENSOR CIRCUIT BOARD
CP101 * 87-020-150 PHOTO INTERRUPTER KU107





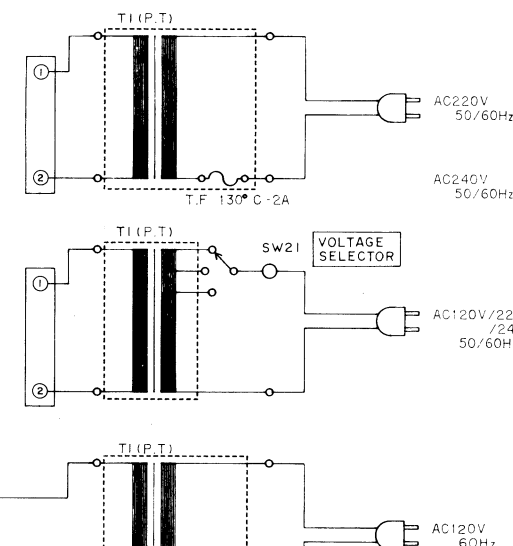
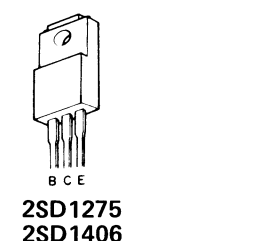
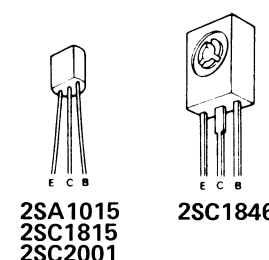
NOTES:

- 1) B (+) power supply
- 2) The voltage is the reference value measured with a tester (20 k-ohms/V DC) when there are no signals.
- 3) Resistors with no designation have a rated power of 1/8W and a tolerance of $\pm 5\%$.
- 4) Capacitors with no designation have a dielectric strength of less than 50WV.
- 5) The only capacitor tolerance indicated are $\pm 5\%$ (J) and $\pm 10\%$ (K).
- 6) 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)
 Explanation of symbols
 BP Bi-polarized capacitor

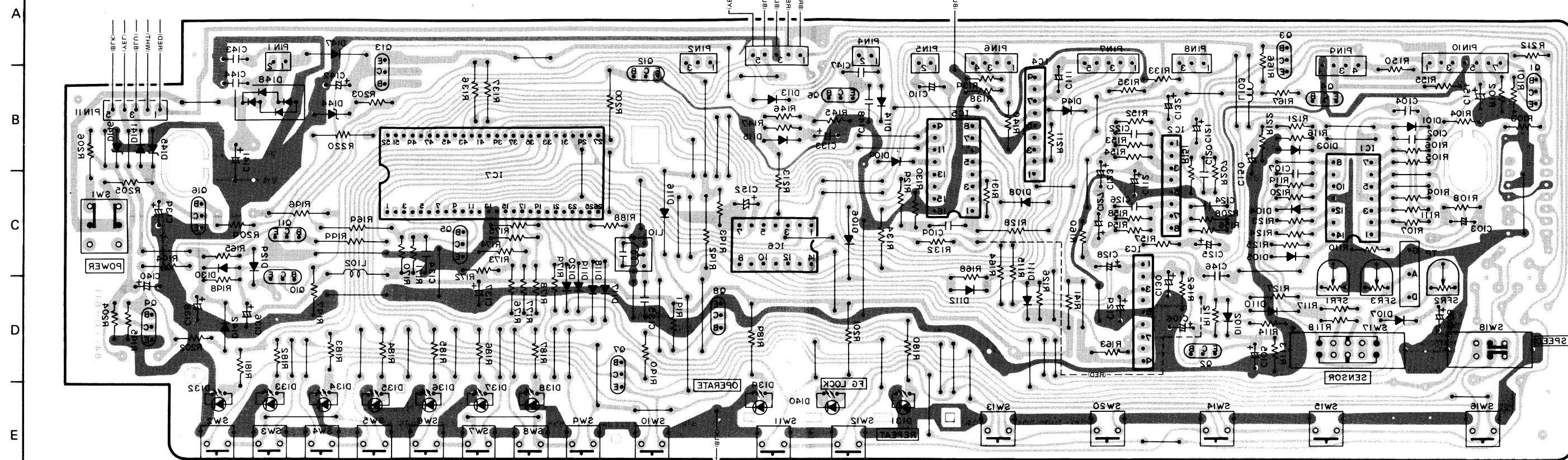
Safety component symbol

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.



● COMPONENT VIEW (Reverse print: LX-120)

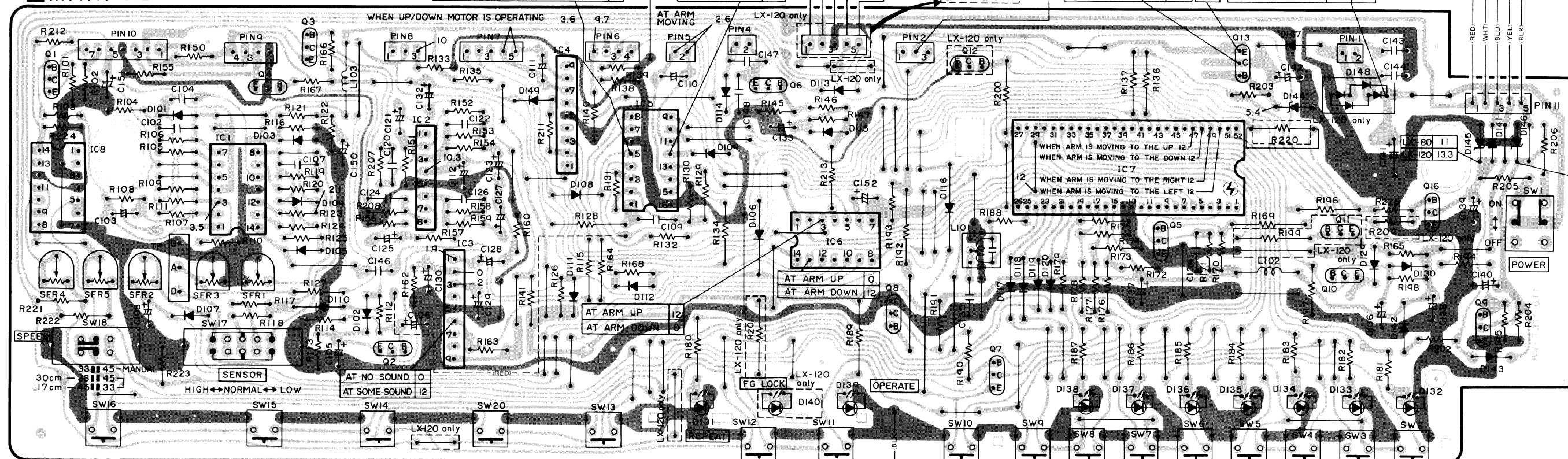


NOTES

- (1) ■ Earth pattern ■ Others pattern
 (2) The voltage is the reference value measured with a tester (20 K ohms/V DC) when there are no signals.

● PATTERN VIEW

A MAIN C.B



START / CUT

B. SKIP

F. SKIP

UP/DOWN

REPEAT

MANUAL

INTRO PLAY/LIST

CLEAR

PROG 7

PROG 6

PROG 5

PROG 4

PROG 3

PROG 2

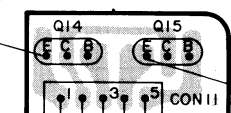
PROG 1

TO PLATE PANEL

REMOTE CONTROL	
AT POWER ON	0
AT POWER OFF	10 or MORE

	LX-80	AT STOP	0
	LX-120	AT PLAY	10
			11.8

C POWER C.B

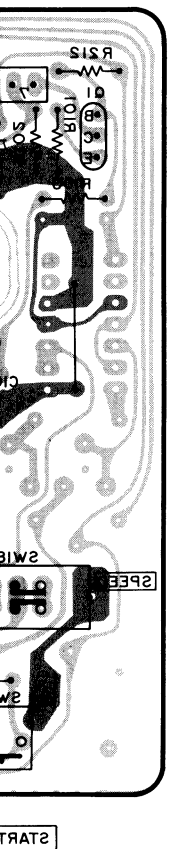


	LX-80	LX-120	LX-80	LX-120
AT ARM MOVING	18	26	4.8	
AT REST	21.8	30	5.1	

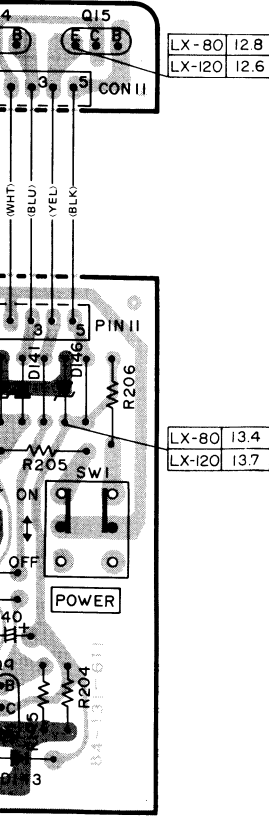
	LX-80	LX-120	LX-80	LX-120
AT POWER OFF	24.5	35		
REST POSITION	21	30		
AT PLAY	21	29		

LX-80	12.8
LX-120	12.6

LX-80	13.4
LX-120	13.7

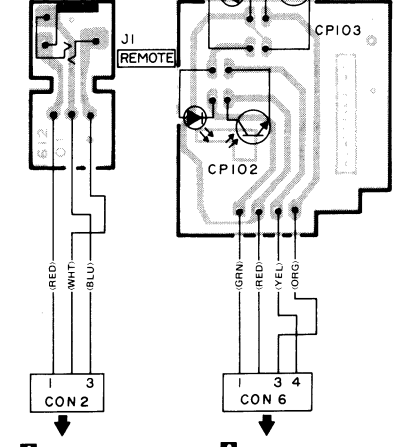


VER C.B

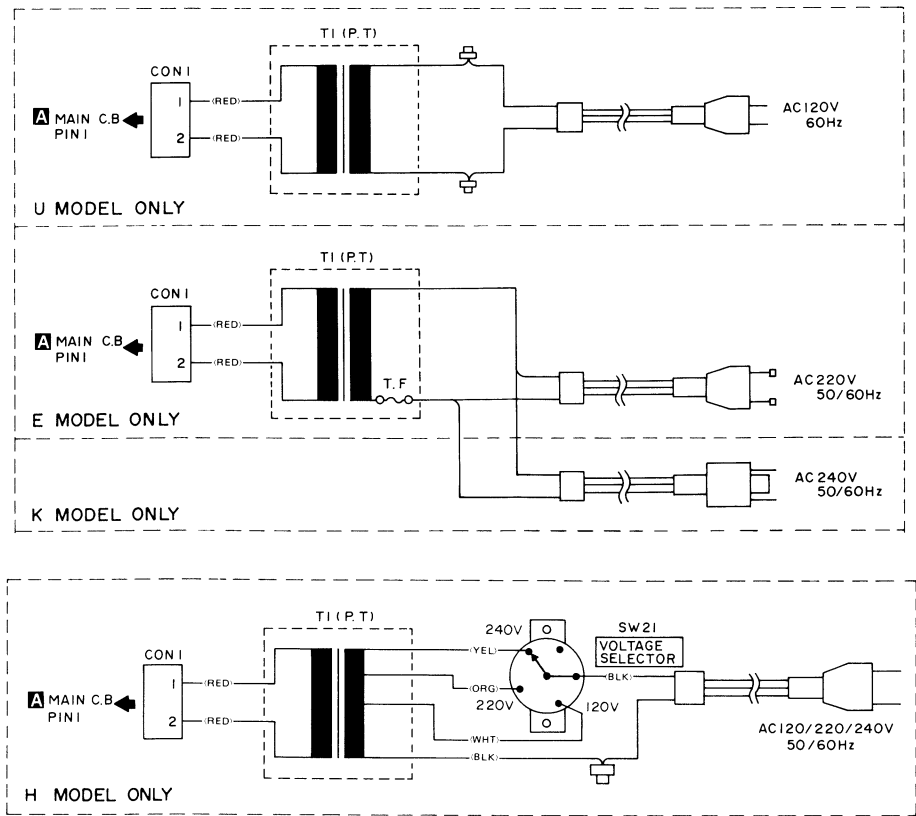
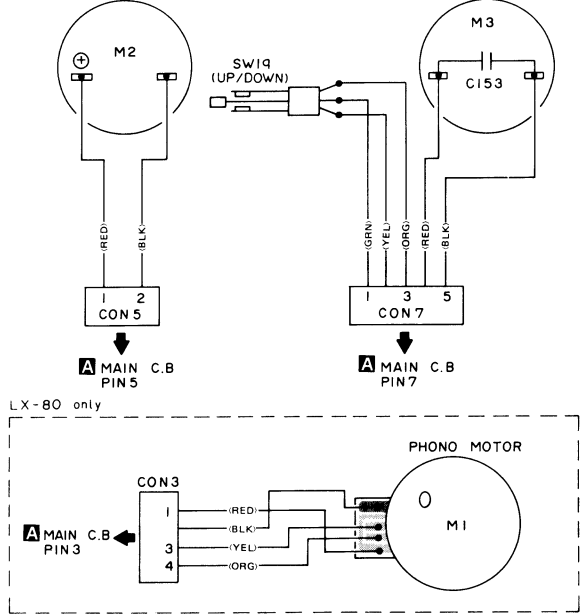
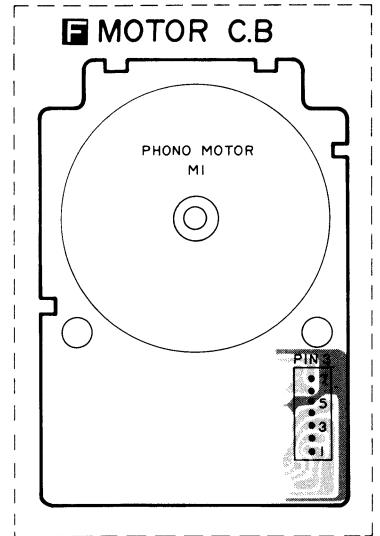
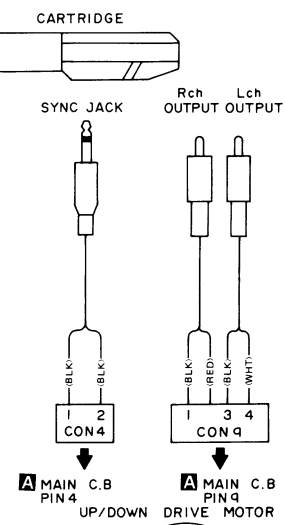
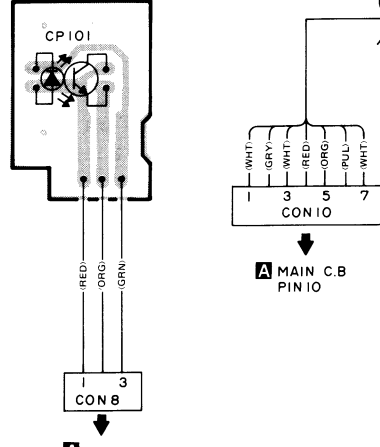


POSITION SENSOR C.B

REMOTE C.B



ANGLE SENSOR C.B



IC Pin Description

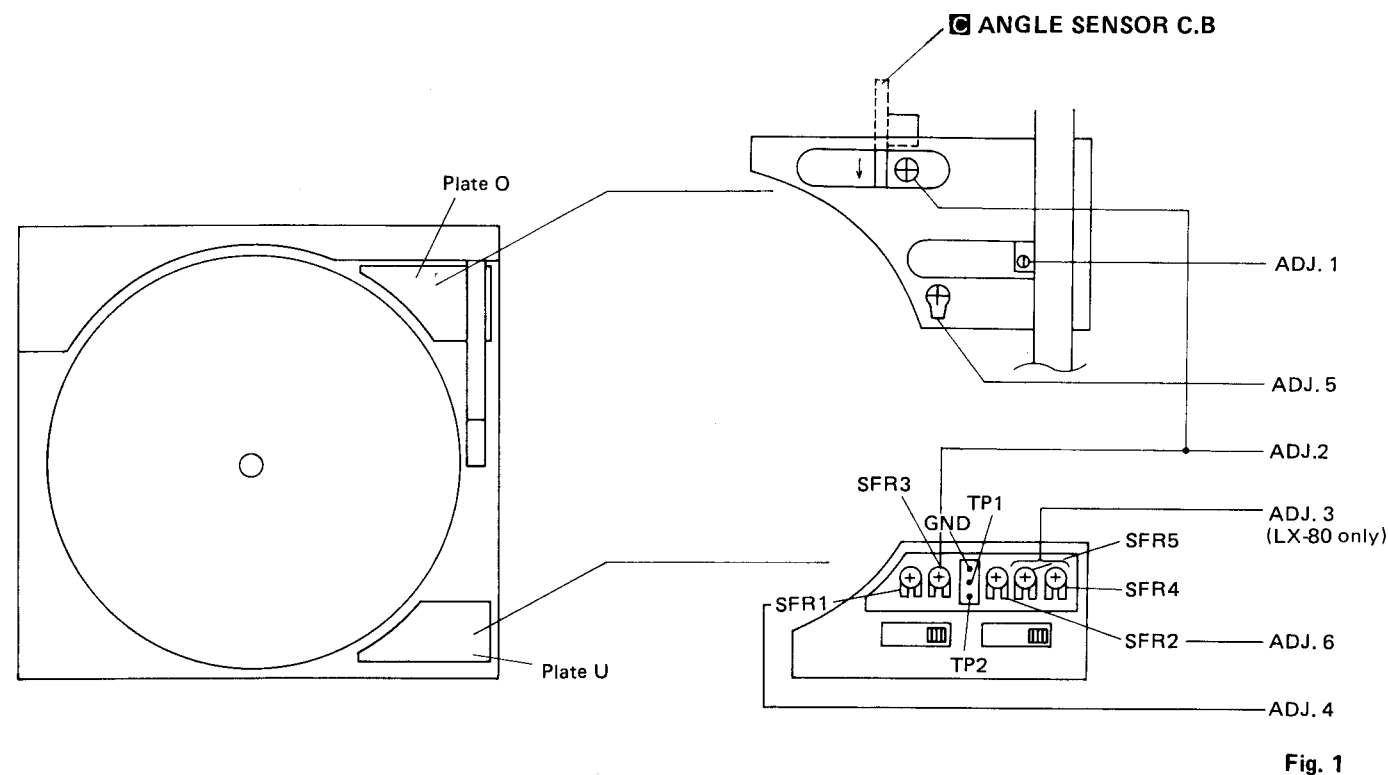
※ As to TA7354P (IC4) and M54547 (IC5), see the service manual of LX-20.

Pin No.	Pin mark	Function
1,2	—	Not used.
3	REMOTE	Remote control input. Start performance at the rise to "HIGH" from "LOW".
4	—	Not used.
5	POST 0	Detects the amount of movement of the tone arm by counting the position sensor input pulses.
6	POST 1	Tone arm movement range detection input. The arm can move within a certain range at "L" level.
7	UP-S	Tone arm UP sensor input. "H" during UP operation.
8	DN-S	Tone arm DOWN sensor input. "H" during DOWN operation.
9,10,11	—	Not used.
12	—	Not used.
13	V _{PP}	GND
14	V _{SS}	+12V
15	—	Not used.
16~19	S ₀ ~S ₃	Key inputs
20~23	S ₄ ~S ₇	Key matrix outputs
24	X ₀	Clock output. 6V _{p-p} , 500kHz
25	X ₁	Clock input. 12V _{p-p} , 470kHz
26	V _{SS}	+12V
27	PHM	Phonomotor ON/OFF control output. Rotates at "L" and stops at "H"
28	RPM	Phonomotor speed control output. "L": 33rpm "H": 45rpm
29	M ₁	+12V
30	M ₀	+12V
31 37	PRG 7 PRG 1	Program No. LED indication outputs. Lit at "H".
38	REPEAT	REPEAT indication output. Lit at "H".
39	D.S	Disc sensor input. The rise to "H" from "L" is set to becomes the input.
40	—	Not used.
41	MS	Performance finish signal input.
42	SS	Record size detection input. The rise from "L" to "H" is the input.
43	S ₈	Key matrix output.
44~46	—	Not used.
47	UP	Arm UP output. "H" during arm UP operation.
48	DOWN	Arm DOWN output. "H" during arm DOWN operation.
49	RIGHT	Arm rightward movement output. "H" during arm movement to the right.
50	LEFT	Arm leftward movement output. "H" during arm movement to the left.
51	RST	RESET input. Reset when "H" level is applied for the period of 36μs or more.
52	—	Not used.

Preparation for Adjustment

Adjusting components are covered with two plates ... Plate O and Plate U. Before performing the following adjustment, remove the plate O, which is under the tonearm, by pushing against with a screwdriver from the bottom side, and take off the plate U, which is on the right hand corner, with a knife.

Plate O ... Refer to the paragraph of "Disassembly Instruction".
Plate U ... Detach the bottom steel plate to find out the adjusting components on the circuit board, if it is difficult to remove the plate U.



1 < Stylus Height Adjustment >

1) Using Jig

Move the tonearm near the lead-in position of 30cm disc size by pressing the "MANUAL" key, and switch power off. Place the height measuring jig under the stylus and turn the adjusting screw to locate the stylus between the steps (4.0 and 4.5mm) as illustrated.

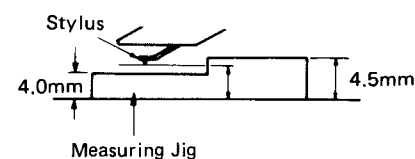


Fig. 2

2) Using EP Adaptor

Place the original EP adaptor of these models close to the cartridge, and turn the adjusting screw to locate the illustrated part of the cartridge at the shoulder of the EP adaptor.

※ In case the bottom steel plate is detached, the stylus height increases by 0.5mm even if the turntable is set flat.

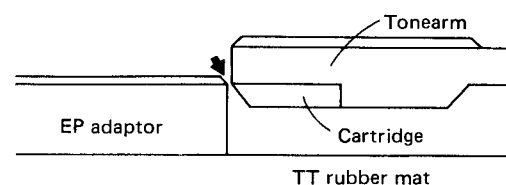


Fig. 3

2 < Angle Sensor Adjustment >

1) Remove the belt from the motor pulley and move the tonearm near the lead-in position of 30cm disc size by pressing the "MANUAL" key.

※ LX-120: To stop the turntable, pull off the connector for the phono-motor or catch the turntable by hand.

2) Turn the adjusting screw to locate the [C] angle sensor circuit board fully frontward. Then adjust SFR3 for 4.5 ± 0.5 V at the test point TP1.

3) Turn the adjusting screw again to obtain 1.0 ± 0.1 V at the same test point.

4) Confirm that the voltage satisfies 0.7 ± 1.2 V at the same test point when lowered the tonearm.

5) If the specified voltage is not satisfied in Step 4), swing the tonearm lightly to the left and right to get a good balance. Then perform the above procedure again.

3 < Motor Speed Adjustment >

(LX-80 only)

Play the 3kHz section of the test disc (ATR-003). Adjust SFR4 for 3.050 ± 10 Hz in the 33rpm speed mode, and adjust SFR5 for 4.060 ± 10 Hz in the 45rpm speed mode.

4 < Disc Sensor (D Sensor) Adjustment >

Complete the "Stylus Height" adjustment before performing the following procedure.

1) Switch the sensitivity selector to the "NORMAL" position.

2) LX-80: To stop the turntable, remove the belt from the motor pulley.

LX-120: To stop the turntable, catch the turntable by hand.

3) Put a mark on the test disc (ATR-004) as follows: Draw a line between the center hole and the halfway point of the 7th feed-groove, which is located between the 6th track "no sound groove" and the 7th track "wow and flutter check-3kHz", with eyes. Then put an arrow mark on the label at right angle against the above line as shown in Fig. 4.

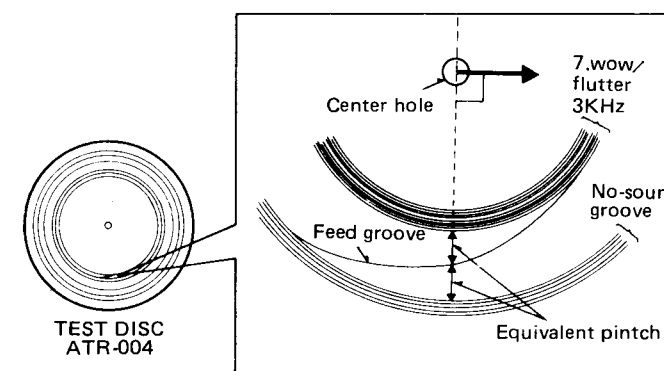


Fig. 4

4) Connect oscillator to the test point TP-2 (D sensor) with 10:1 probe.

5) Set the test disc so that the arrow mark points to the arm rest.

6) Move the tonearm by pressing the "MANUAL" key until it passes through the 7th feed-groove, observing waveforms in the oscilloscope. A waveform of 3.0 to 3.5 V will be occurred when the tonearm passed through the 7th feed-groove. If not, adjust SFR1 for the specified value.

Sensitivity selector	NORMAL
Speed mode	33rpm

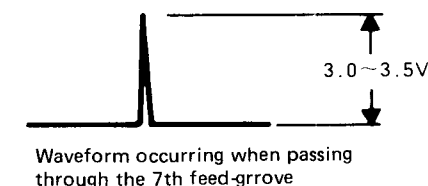


Fig. 5

7) Return the tonearm to the arm rest once and perform Step 6 again in order to confirm the specification.

5 < Auto-In/Out Adjustment >

Play the test disc (ATR-003) in the 45rpm speed mode. Turn the adjusting screw so that the auto-in count becomes 32 ± 2 in 17cm disc mode, and confirm that the auto-out count becomes 15 or more in 17cm disc mode. Then confirm, in 30cm disc mode, that the auto-in count becomes 20 to 28 and the auto-out count makes 11 to 14.

6 < Stylus Drop Position Fine Adjustment >

By adjusting SFR2, a drop position of the stylus enables to be varied by 1 to 2mm right or left.

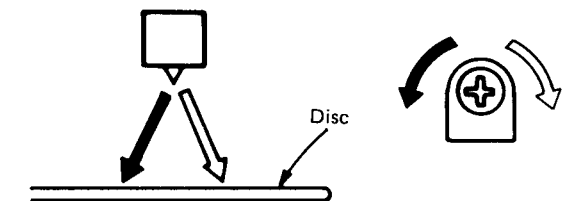


Fig. 6

CIRCUIT DESCRIPTION

PROGRAM TUNE-SELECTION MECHANISM

1. Outline

When the tuner is selected by the program button operation and the START button is pressed, the arm moves to the internal circumference while it is kept in the UP state. The inter-tune position is detected by the disc sensor during this movement and memorized by the microcomputer. The size is sensed simultaneously at this time. The arm moved to the internal circumference moves to the 1st tune of the program and is lowered. When the performance starts (when the arm is lowered), the MS circuit works; when the no-signal state continues for 1.5sec or more, the circuit makes the arm move UP and the arm moves to the 2nd tune. (It moves to the next tune directly without returning to the arm rest.)

2. Memorizing inter-tune position

Slits are engraved with a pitch of 1mm on the mark (black metal plate) of the position sensor as well as holes which sense the rest position, 30cm records and 17cm records. The number of slits before the slit where the inter-tune signal is output is sensed by the microcomputer, to sense the inter-tune position. (The microcomputer, counts 1, 2, 3, 4... every time the position sensor passes the slit.)

a. Inter-tune position sensing slit

Note) LX-80 and 120 are provided with a reflective type of element. An accurate clearance (0.5 to 1.5mm), therefore, must be required between this element and the reflection plate.

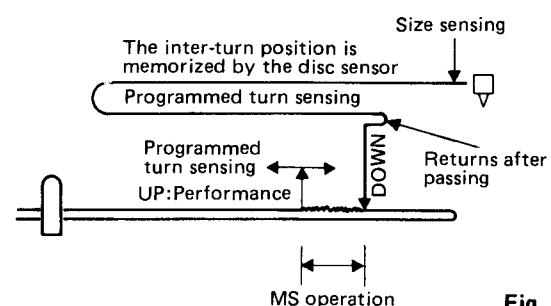


Fig. 1

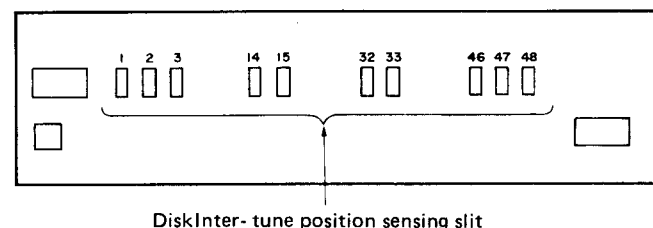


Fig. 2

3. Disc sensor circuit

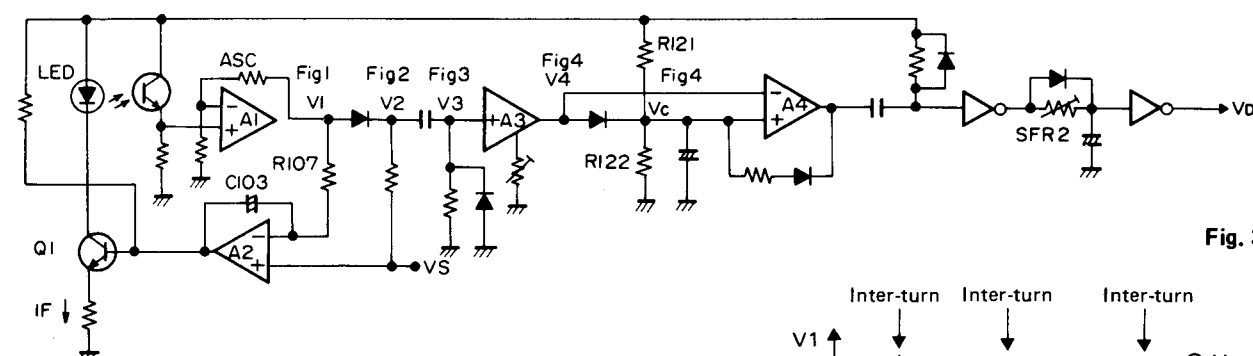


Fig. 3

- 1) Light from the LED is reflected by the record, enters the phototransistor and is converted to current. This signal is amplified by A1 of IC205, and V_1 is obtained. This output V_1 is compared with the reference voltage V_s , and controlled by the time constant of $R107$ and $C103$ so that $V_1 = V_s$. (When the amount of light entering the photo transistor increases, the internal resistance of $Q1$ is increased to dim the LED so that the amount of light incident on the photo transistor is always kept constant.)
- 2) When the arm passes the inter-tune, the incident amount of light is increased, but the time constant T is smaller than $R107 \cdot C103$, so the waveform as V_1 shown in Fig. 1 is obtained.
- 3) When the waveform is sliced by the dot line (a) via the slice circuit, the waveform shown as V_2 in Fig. 2 is obtained.
- 4) By differentiating this, the waveform shown as V_3 in Fig. 3 is obtained.
- 5) By amplifying this via A3, the waveform shown as V_4 in Fig. 4 is obtained: V_c is obtained by peak-holding this.

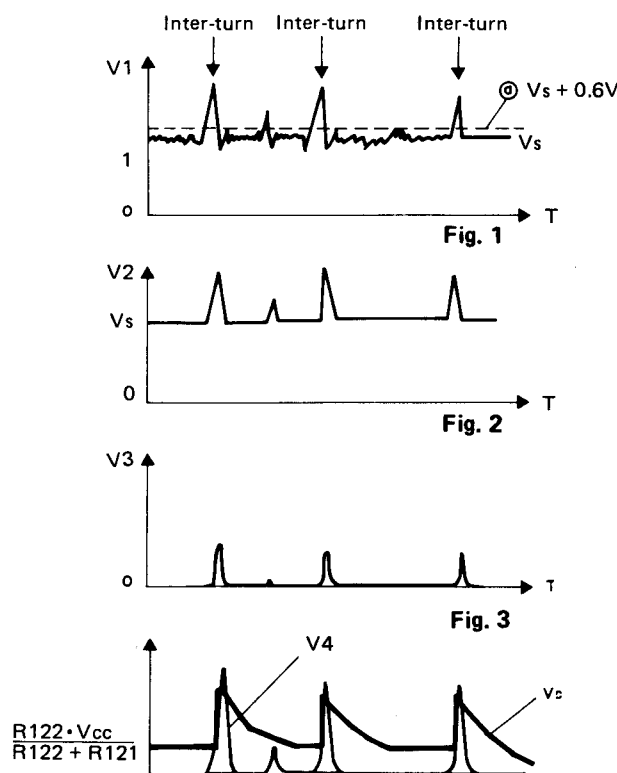


Fig. 4

- 6) A_4 is a comparator with hysteresis, and it compares V_4 and V_c , and makes the rise of its output V_0 the inter-tune sensing signal. (Refer to Fig. 5)
- 7) The signal V_0 is differentiated to rectify the waveform and is led into the IC7 as an inter-tune signal, adjusting the drop position of the stylus with SFR2.

Note) The drop position of the stylus enables to be varied in the range of 1 to 1.5mm.

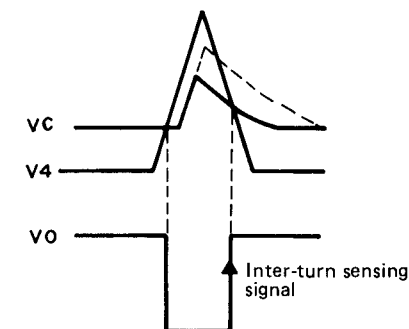


Fig. 5

4. MS circuit

- 1) When the arm is lowered, muting of Q211, Q212 is released and the signal enters the MS circuit.
- 2) When the arm comes the ± 1 count (Slit No. of the mask sensor) of the inter-tune position which was sensed previously during the arm UP operation, the microcomputer (IC7) starts to monitor the MS signal.
- 3) When the no-sound state continues for 1.5sec or more, it is judged as inter-tune and the arm lifts. (However, when the programmed numbers continue, the arm does not lift but the performance is continued as it is.) (MS sensitivity is not related to the positions of SW17 and the sensor switch (LOW, NOR, HIGH).)

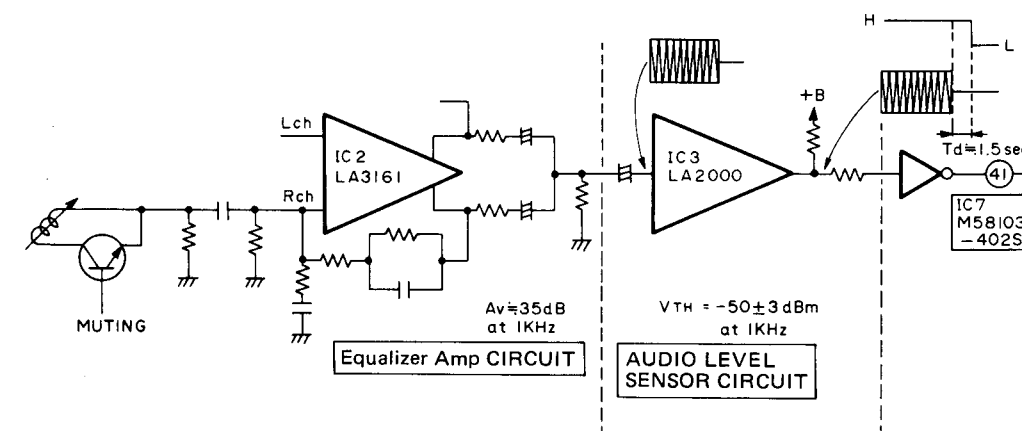


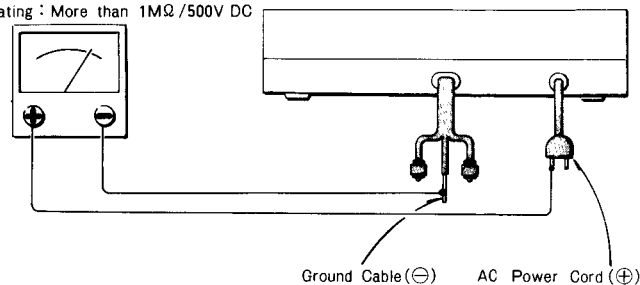
Fig. 6

- 4) Connect the both output cords, Lch and Rch, to the input pins of the amplifier, or connect the earth side of the output cords to ground. Otherwise, the MS circuit may cause malfunction.

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 $1M\Omega$.

Rating : More than 1M Ω /500V DC

[illegible]

DISASSEMBLY INSTRUCTIONS

1. Bottom Lid Removal

- 1) Remove the dust cover and turntable.
- 2) Remove the 5 screws to detach the bottom lid.
(See Figure-1)

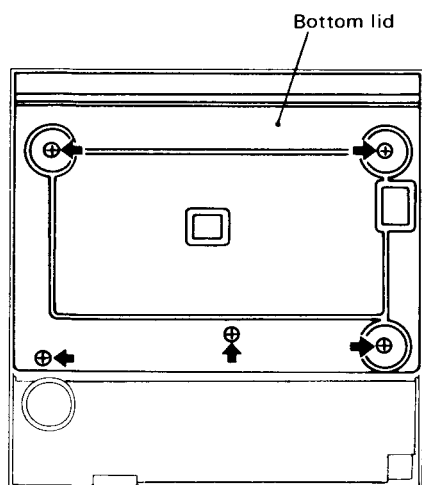


Fig. 1

3. Bottom Cabinet Removal

- 1) Remove the 5 screws. (See Figure-3)

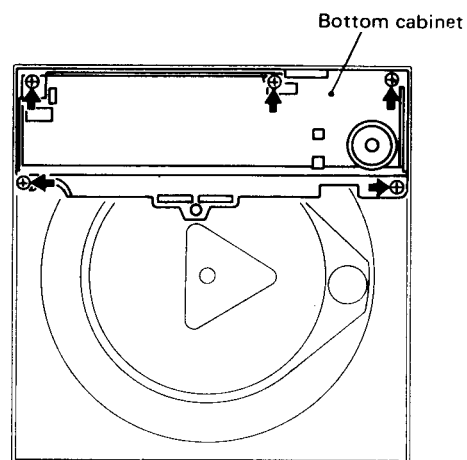


Fig. 3

2. Main C.B. Removal

- 1) Remove the 2 screws and unhook the 3 holders.
(See Figure-2)

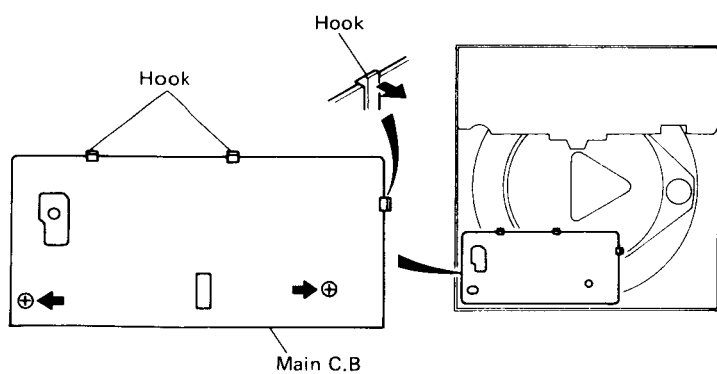


Fig. 2

- 2) Move the tonearm to the illustrated position to detach the main cabinet upward.

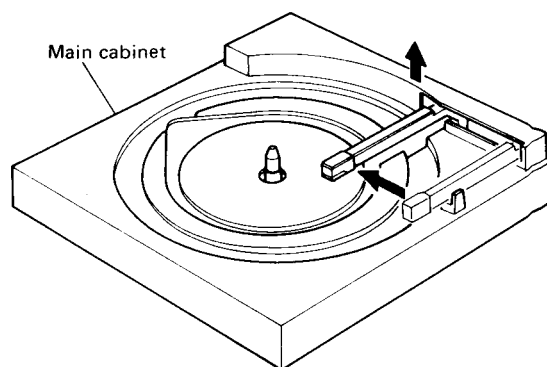


Fig. 4

The following check method may be useful for servicing, because these models (LX-80,120) are provided with no main bottom chassis.

4. C.B. Check by Turntable Operation

- 1) General operation enables to be performed even though raised the front side of the cabinet by 7~8 cm. So, set the turntable with using of cassette cases as shown and check the circuit board from the component side. (See Figure-5)

Note: Set the turntable flat when performing the adjustments, otherwise correct figures can not be obtained.

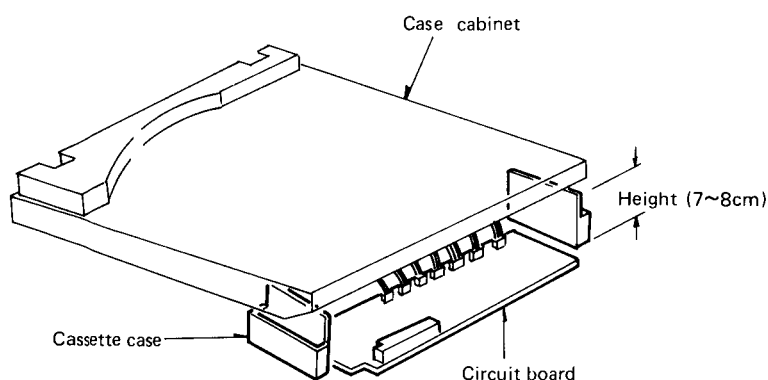


Fig.5

5. Mechanism Part Replacement and C.B. Check by Tonearm Operation (with Turntable Removed)

- 1) Detach the turntable and turn the cabinet upside down.
- 2) Remove the mechanism chassis and set it as illustrated, placing in parallel with the circuit board. Take care of the tonearm leadwires, otherwise the tonearm may be stuck.

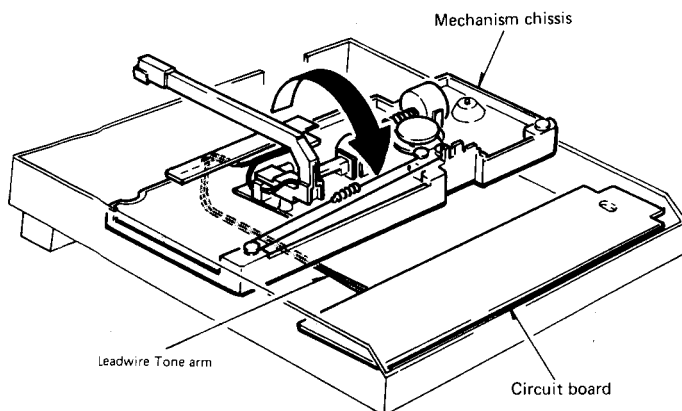


Fig.6

6. Blind Plate Removal

Before performing the adjustment, remove the blind plate because the adjusting pins are situated underneath this plate. Proceed as follows:

- 1) Move the tonearm to the illustrated position. (See Figure-7)

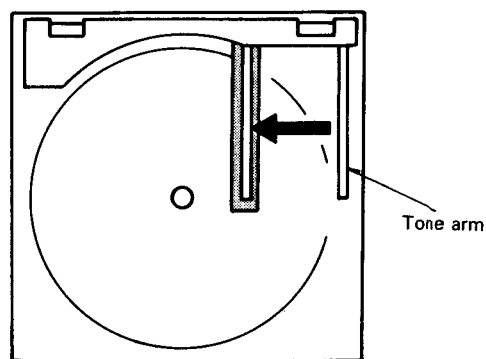


Fig.7

- 2) Insert a screwdriver into the illustrated opening on the bottom cabinet and push against the blind plate to take off. (See Figure-8)

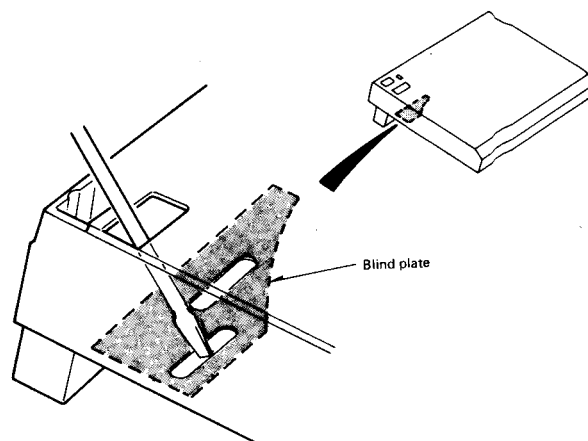


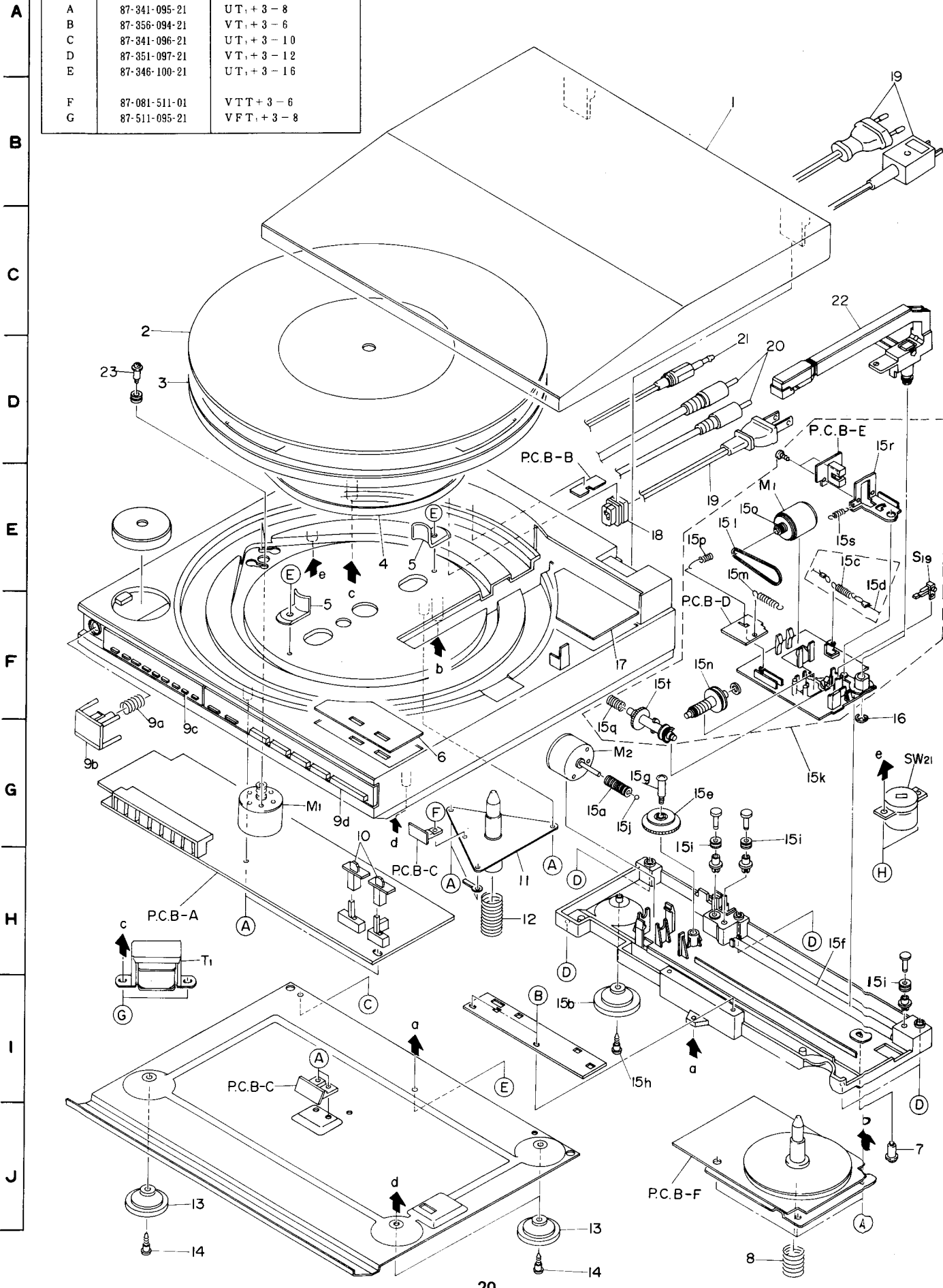
Fig.8

- 3) Stop the phono motor by pulling off the motor connector, if necessary.

EXPLODED VIEW

1 2 3 4 5 6 7

Ref. No.	Part No.	Description
A	87-341-095-21	UT ₁ +3-8
B	87-356-094-21	VT ₁ +3-6
C	87-341-096-21	UT ₁ +3-10
D	87-351-097-21	VT ₁ +3-12
E	87-346-100-21	UT ₁ +3-16
F	87-081-511-01	VTT+3-6
G	87-511-095-21	VFT ₁ +3-8



PARTS LIST

MECHANICAL PARTS

● * mark in this part list shows exclusive part.
● ★ mark means less required items and availabilities may be limited.

Part No. changed to	Ref. No.	Part No.	Description	Common Model	Q'ty
	1	84-133-011	DUST COVER Ass'y (LX-80)	LX-30	1
		84-131-018	DUST COVER Ass'y (LX-120)	※	1
	2	★84-132-016	RUBBER SHEET (LX-80) (H, E, K only)	※	1
		★84-132-017	RUBBER SHEET (LX-80) (U only)	※	1
		★84-131-043	RUBBER SHEET (LX-120) (H, E, K only)	※	1
		★84-131-044	RUBBER SHEET (LX-120) (U only)	※	1
	3	★84-133-008	TURN-TABLE (LX-80)	LX-30	1
		★84-128-001	TURN-TABLE (LX-120)	LX-50	1
	4	84-133-213	RUBBER BELT T.T (LX-80)	LX-30	1
	5	★84-124-239	SPACER T.T	LX-70	2
	6	★84-131-035	PLATE U B	※	1
	7	★84-124-238	SCREW	LX-70	1
	8	★84-131-204	C-SPRING, EARTH (LX-120)	※	1
	9	★84-132-018	MAIN CABINET Ass'y F (LX-80)	※	1
		★84-131-046	MAIN CABINET Ass'y F (LX-120)	※	1
	9a	★82-798-209	C-SPRING, POWER	MX-90	1
	9b	★84-131-031	POWER KNOB B Ass'y	※	1
	9c	★84-131-020	PUSH-KEY, L	※	1
	9d	★84-131-040	PUSH-KEY, R	※	1
	10	★84-133-009	KNOB, SPEED	LX-30	2
	11	★84-133-224	HOLDER SHAFT Ass'y F (LX-80)	LX-30	1
	12	★84-133-225	C-SPRING, EARTH (LX-80)	LX-30	1
	13	★84-130-012	RUBBER FOOT		3
	14	★84-133-223	HEADER SCREW, RUBBER FOOT	LX-30	3
	15	★84-131-202	BOTTOM CABINET Ass'y F	※	1
	15a	84-122-210	GEAR A, WORM	AP-D80	1
	15b	★84-130-012	RUBBER FOOT		1
	15c	★84-133-203	E-SPRING, LINEAR	LX-30	1
	15d	★84-133-204	WIRE ROPE	LX-30	1
	15e	★84-133-212	PULLEY A, WORM	LX-30	1
	15f	★84-133-215	PIPE	LX-30	1
	15g	★84-133-222	HEADER SCREW	LX-30	1
	15h	★84-133-223	HEADER SCREW, RUBBER FOOT	LX-30	1
	15i	87-071-019	ROLLER #7		3
	15j	★87-073-006	STEEL BALL 3		1
	15k	★84-131-205	MECHANISM CHASSIS Ass'y F12		1
	15l	82-439-342	COUNTER BELT		1
	15m	★84-123-238	E-SPRING, SENSOR	LX-100	1
	15n	84-124-204	GEAR A, WORM	LX-70	1
	15o	★84-127-206	MOTOR PULLEY S		1
	15p	★84-131-206	E-SPRING, P CIRCUIT BOARD	※	1
	15q	★84-131-208	C-SPRING, UP	※	1
	15r	★84-133-207	LEVER A	LX-30	1
	15s	★84-131-217	E-SPRING, P	※	1
	15t	★84-133-221	CAM A, UP-DOWN	LX-30	1
	16	★87-067-171	STE-6		1
	17	★84-135-013	PLATE O B		1
	18	87-085-199	CORD BUSHING		1
	19	★87-034-958	AC POWER CORD (H only)		1
		★87-034-578	AC POWER CORD (U only)		1
		★87-034-877	AC POWER CORD (E only)		1
		★87-034-711	AC POWER CORD (K only)		1
	20	★84-133-618	PIN CORD CN (H, E, K only)	LX-30	1
		★84-133-638	PIN CORD U CN (U only)	LX-30	1
	21	★84-133-617	SYNCHRATE CORD CN (H, E, K only)	LX-30	1
		★84-133-637	SYNCHRATE CORD U CN (U only)	LX-30	1
	22	★84-131-101	TONE-ARM Ass'y		1
	23	★87-081-483	MOTOR SCREW M2.6		2

ACCESSORIES/PACKAGE LIST

LX-80

Part No. changed to	Ref. No.	Part No.	Description	Common Model	Q'ty	
	1	★84-132-904	INSTRUCTION BOOKLET	※	1	
	2	★84-190-978	45 ADAPTOR, S BLACK		1	

LX-120

Part No. changed to	Ref. No.	Part No.	Description	Common Model	Q'ty	
	1	★84-131-904	INSTRUCTION BOOKLET	※	1	
	2	★84-190-978	45 ADAPTOR, S BLACK		1	

AIWA Co., Ltd. Tokyo Japan