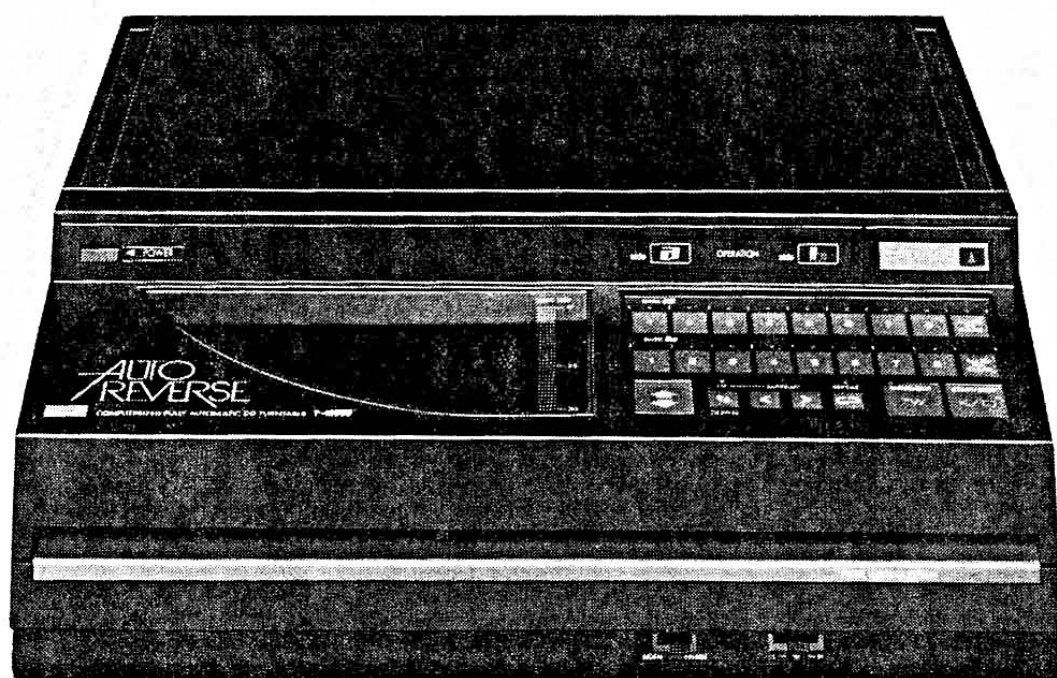


SERVICE MANUAL

COMPUTERIZED FULLY AUTOMATIC
DD TURNTABLE

SANSUI P-M900 (Black Model)



NOTE

P-M900 is additional model which external appearances are different from those of P-M90.

This manual contains OTHER PARTS LIST, PACKING LIST and ACCESSORY LIST in which changed parts are printed with bold-face.

For other parts list, refer to P-M90 service manual previously issued.

•SPECIFICATIONS

Type.....	Direct-drive turntable
Rated speeds.....	33-1/3, 45 rpm
Platter.....	76 mm (3") diameter, 0.37 kg weight
Motor	Brushless & Coreless DC (FG-Servo)
Wow/flutter	0.08% (WRMS)
Signal-to-noise ratio	Better than 72 dB (DIN-B) Better than 60 dB (IEC-B)
Tonearm	Dynamically-balanced straight type
Effective tonearm length ...	70 mm (2-3/4")
Cartridge	
Type.....	Dual Magnet type
Output voltage.....	2.5 mV (1,000 Hz, 35.4 mm/sec)
Correct load impedance	47 kohms
Frequency response.....	10 ~ 20,000 Hz
Stylus	0.6 mil diamond stylus (SN-909 replacement stylus)
Power voltage	110 ~ 120V/220 ~ 240V (50/60 Hz)
For U.S.A. and Canada	
.....	120V (60 Hz)
Power consumption	25W
Dimensions	350 mm (13-13/16") W 120 mm (4-3/4") H 355 mm (14") D
Weight.....	7.2 kg (15.9 lbs.) net 8.6 kg (19.0 lbs.) packed

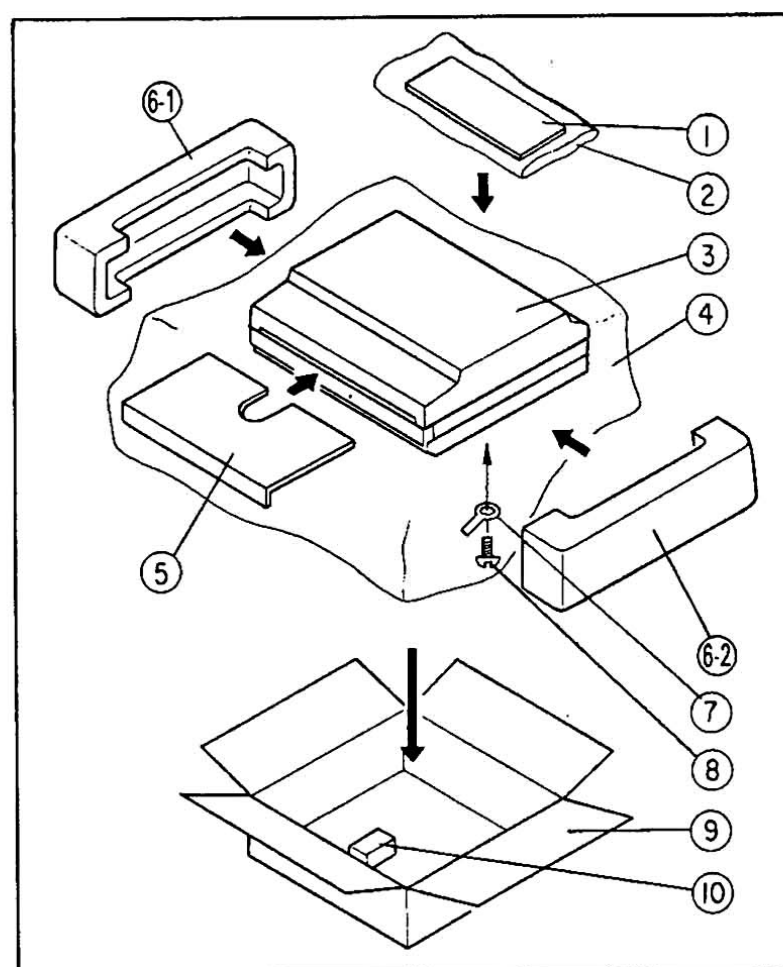
- * Design and specifications subject to change without notice for improvements.
- * Due to local laws and regulations, this unit sold in some areas are not equipped with variable voltage selectors.



SANSUI ELECTRIC CO., LTD.

1. PACKING LIST

Parts No.	Stock No.	Description
1	—	Accessories (Sound Absorber)
2	—	Polyethlen Bag
3	—	Turntable
4	47859600	Vinyl Bag
5	13285400	Corrugated Board
6-1	13287710	Styrofoam Packing (Left Side)
6-2	13287810	Styrofoam Packing (Right Side)
7	—	Tag
8	00423400	Transit Screw, 4X16 Binding
9	47942100	Carton Case
10	—	Bottom Packing

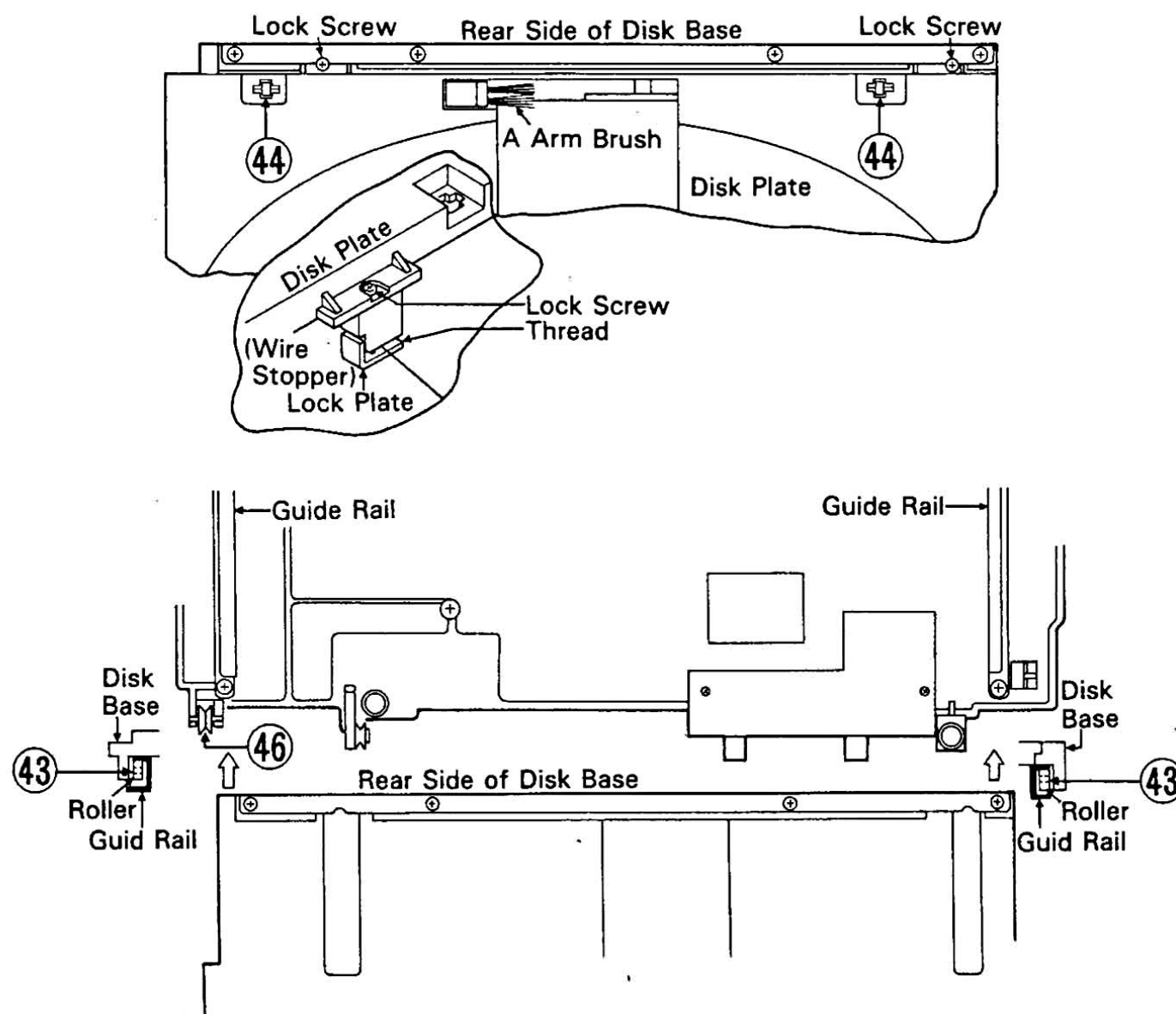


2. ACCESSORY LIST

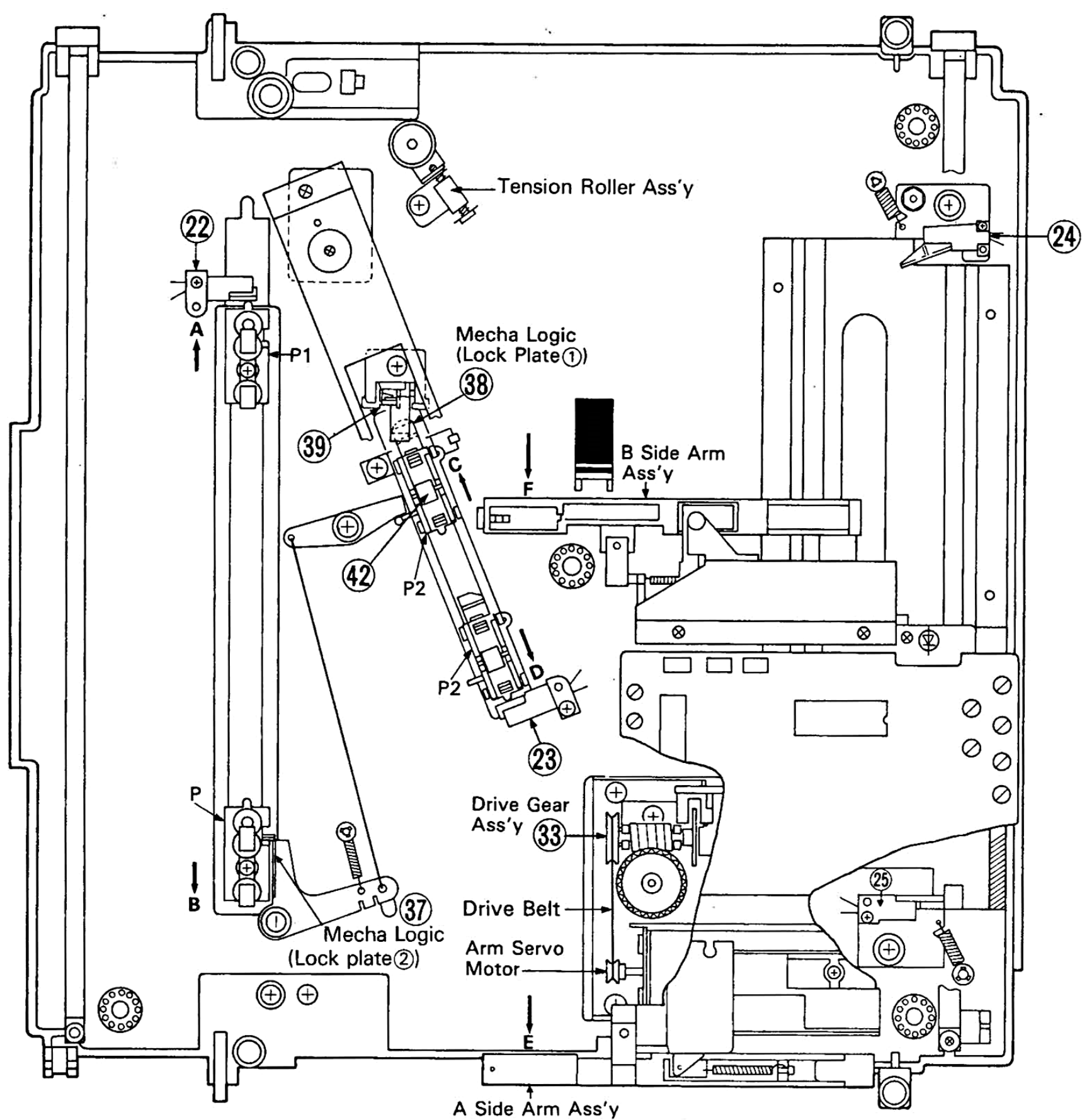
Stock No.	Description
48181600	2P Plug Cord
46980600	Operating Instruction
	Accessories (Sound Absorber)
13308100	Wooden Board (Front Side)
13308000	Wooden Board (Rear Side)
13307900	Pipe
13145100	Insulator
46971900	Operating Sheet

3. OTHER PARTS

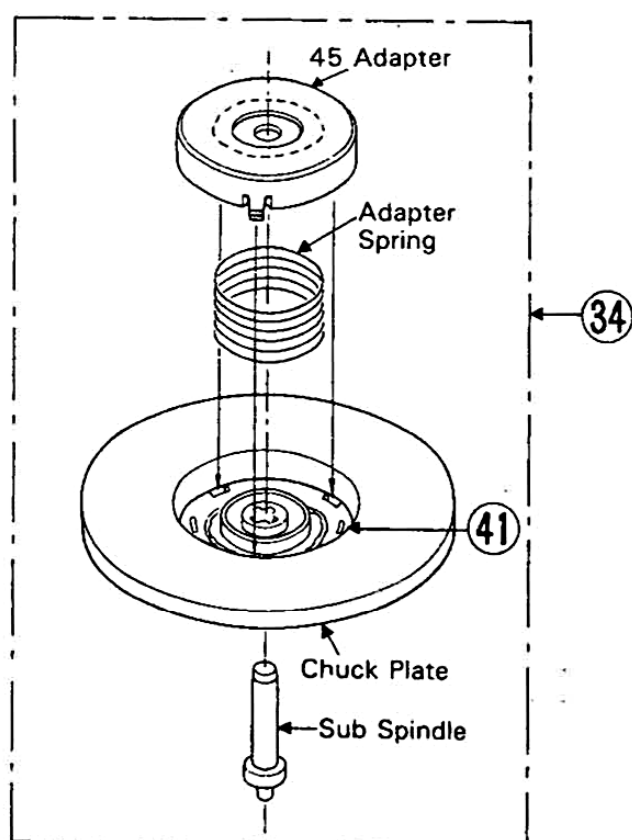
3-1. Disk Base and Disk Plate



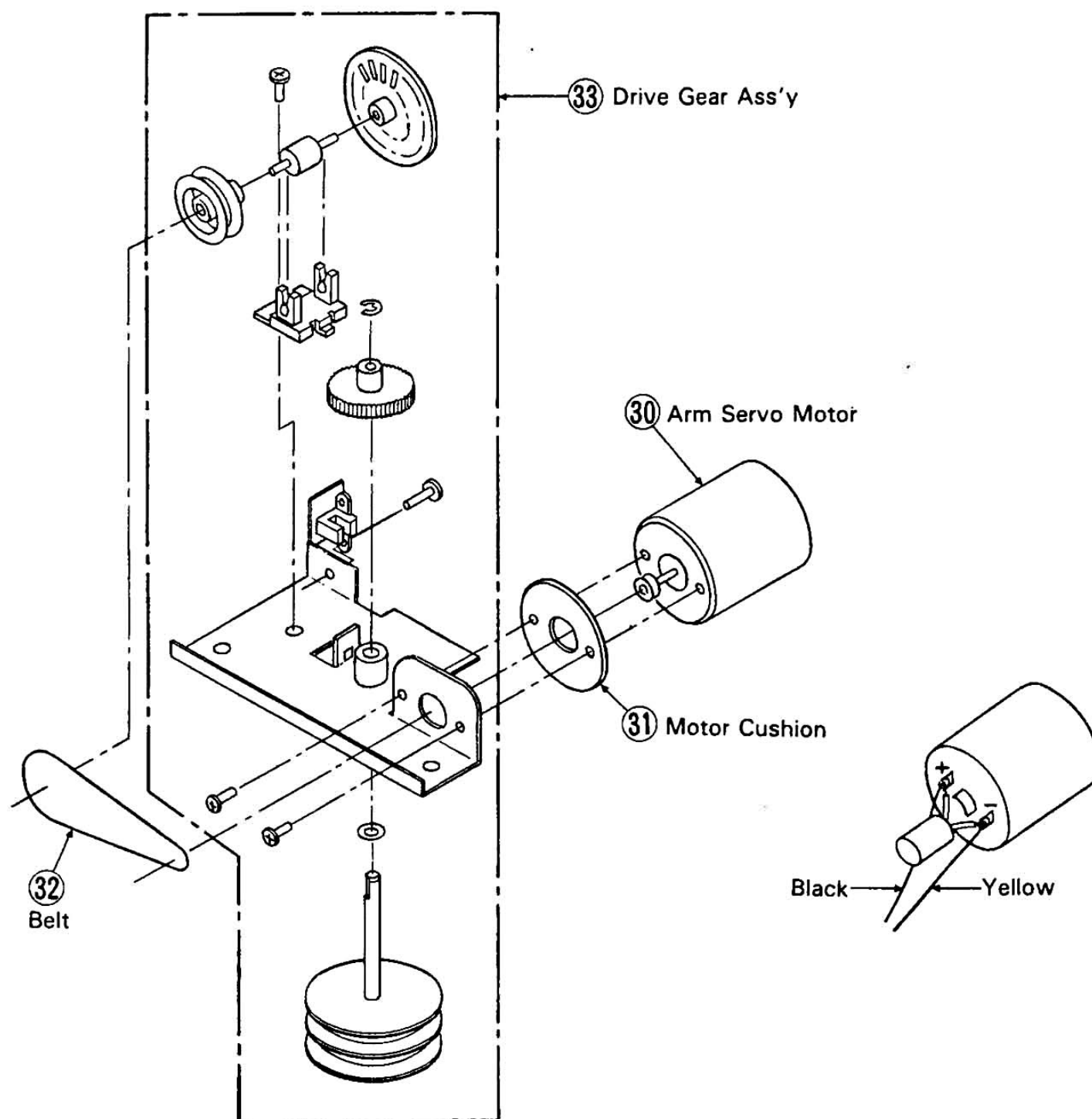
3-4. Top View of Main Chassis



3-5. Chuck Plate Ass'y



3-6. Arm Servo Motor



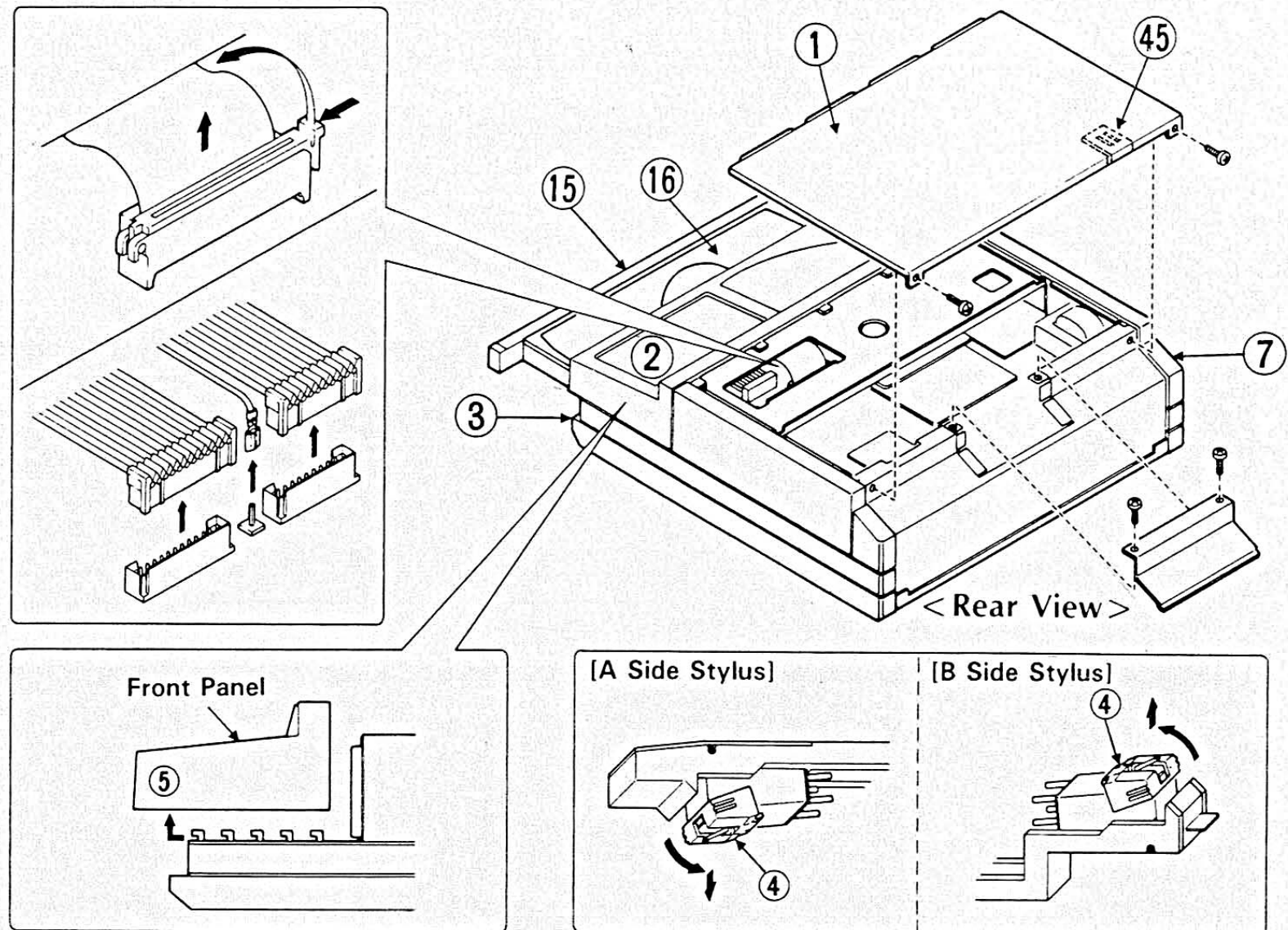
Parts List

Parts No.	Stock No.	Description
1	13290020	Top Plate
2	13294840	Key Board Ass'y <XX,CSA,EU,BS, AS>
	13310530	Key Board Ass'y
3	13273800	Front Cover
4	13303300	Stylus SN-909, for A arm and B arm
5	47746500	Front Panel Ass'y <XX,CSA,EU,BS,AS>
	47942700	Front Panel Ass'y
6	13291200	Side Panel, right side
7	13291100	Side Panel, left side
△ 8	15014901	Power Transformer <XX>
△ 8	15014902	Power Transformer <UL,CSA>
△ 8	15014905	Power Transformer <EU,BS,AS>
△ 9	46413200	Power Supply Cord <XX>
△ 9	38004700	Power Supply Cord
△ 9	38004500	Power Supply Cord <EU>
△ 9	38004300	Power Supply Cord <BS>
△ 9	07204200	Power Supply Cord <AS>
△ 9	48187400	Power Supply Cord <CSA>
△ 10	46941300	Switch for Power Supply
11	13278800	Cord Cover
12	13234400	Output Cord with Pin Plug <XX,CSA,EU,BS,AS>
	13234500	Output Cord with Pin Plug
△ 13	46413900	Push SW., POWER
14	47745700	Knob, POWER Switch
15	18096400	Disk Base Ass'y
16	18096600	Disk Plate Ass'y
17	13274000	Pick-up Brush A
18	13274100	Pick-up Brush B

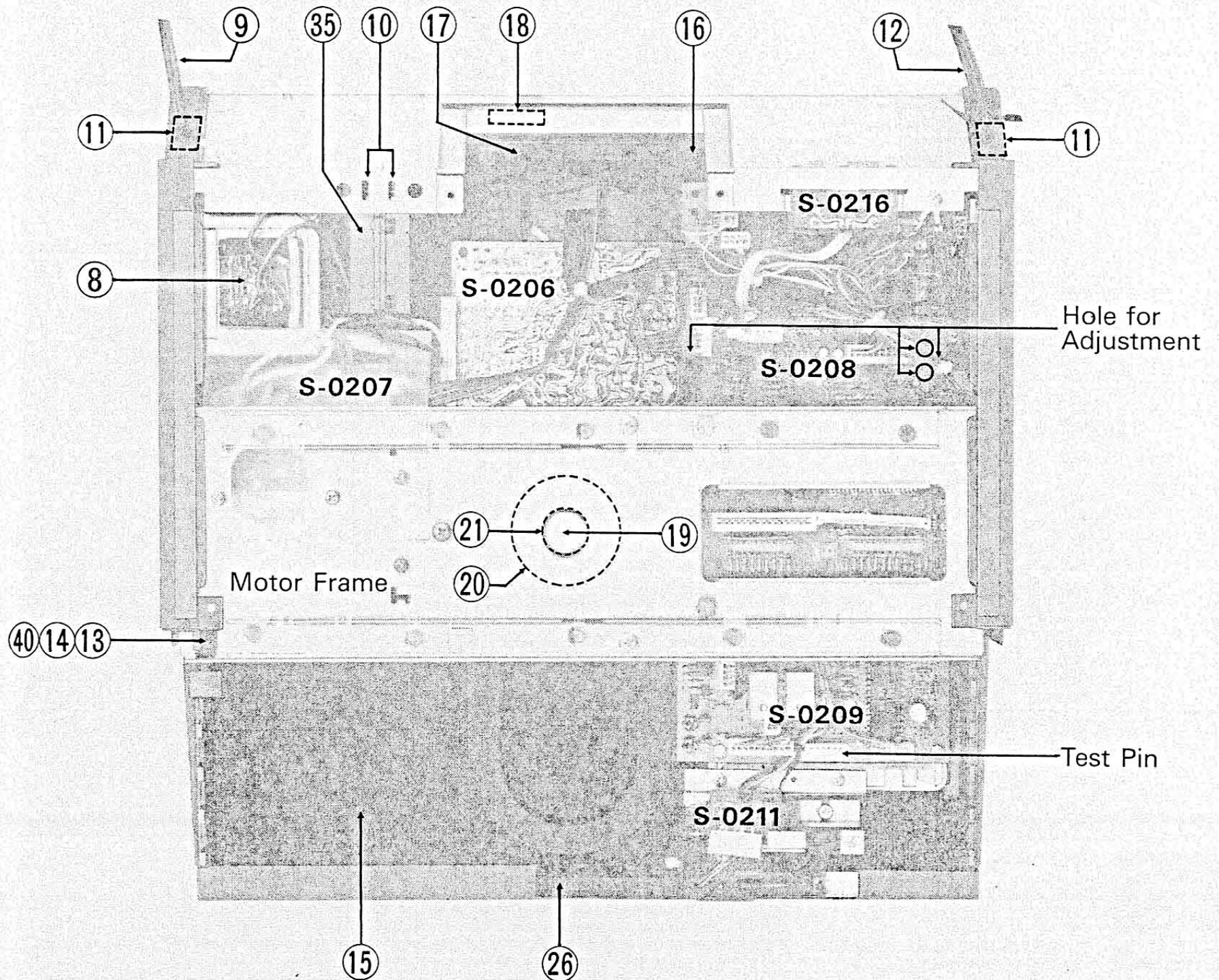
Parts No.	Stock No.	Description
19	18083900	DD Motor for Disk Driver (with S-0260)
20	13260300	T.T. Sheet
21	13260410	Lock Bush
22	46926900	Micro Switch, disk open
23	46926900	Micro Switch, chuck ON
24	46925200	Micro Switch, B arm reset
25	46925200	Micro Switch, A arm reset
26	18095700	A Side Arm Ass'y
27	13284410	A Side Lifter Ass'y with Plunger A
28	18095400	B Side Arm Ass'y
29	13284510	B Side Lifter Ass'y with Plunger B,C
30	46935700	Arm Servo Motor
31	13288900	Motor Cushion
32	13281100	Drive Belt
33	18085600	Drive Gear Ass'y
34	18086300	Chuck Plate Ass'y
35	13289100	Switch Case
36	13266710	Wire Stopper (L plate) (Refer Fig:8-6 on page 16)
37	13265300	Lock Plate, ②
38	13265010	Lock Plate, ①
39	13265700	Hook Arm Spring
40	13281000	Joint Bar
41	13279100	Guide Ring
42	13264800	Thrust
43	13265400	Side Roller Ass'y
45	13289000	Power Supply Switch Knob
46	13274500	V Roller

Note: Although Parts (No.37 ~ 46) are used in model P-M90, not listed on Service Manual of P-M90.
However added as Service Parts for the reference.

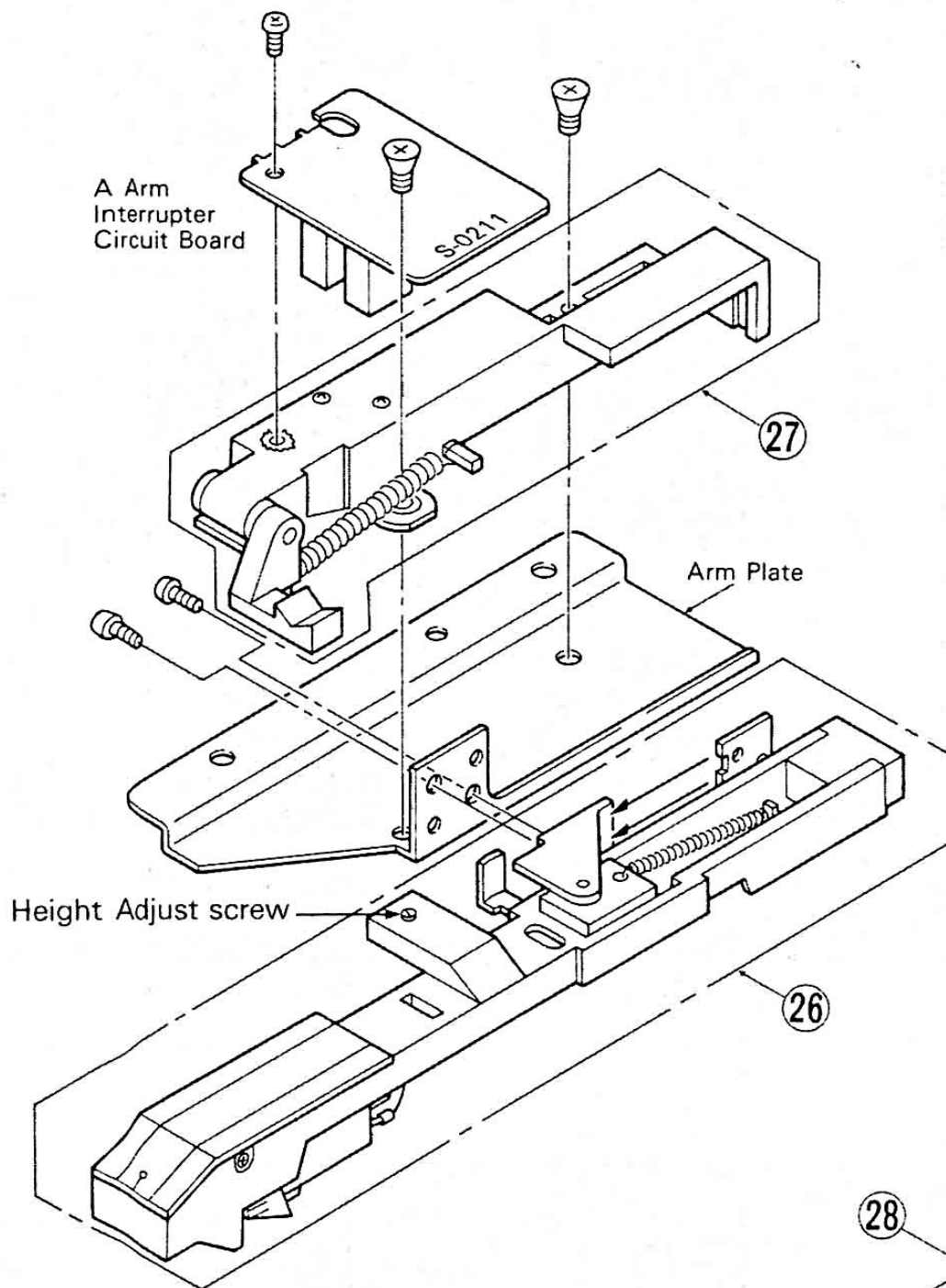
3-2. Front View



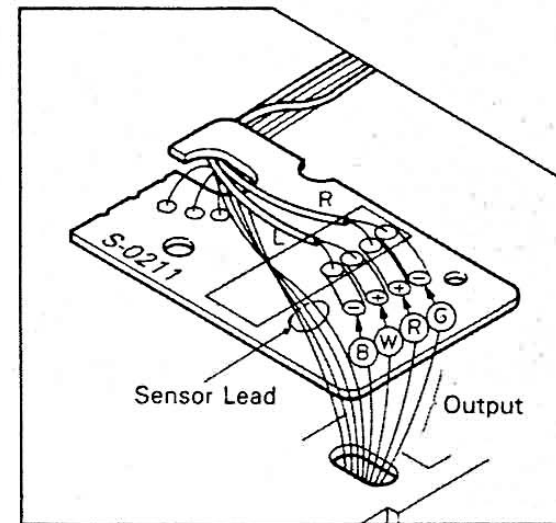
3-3. Top View



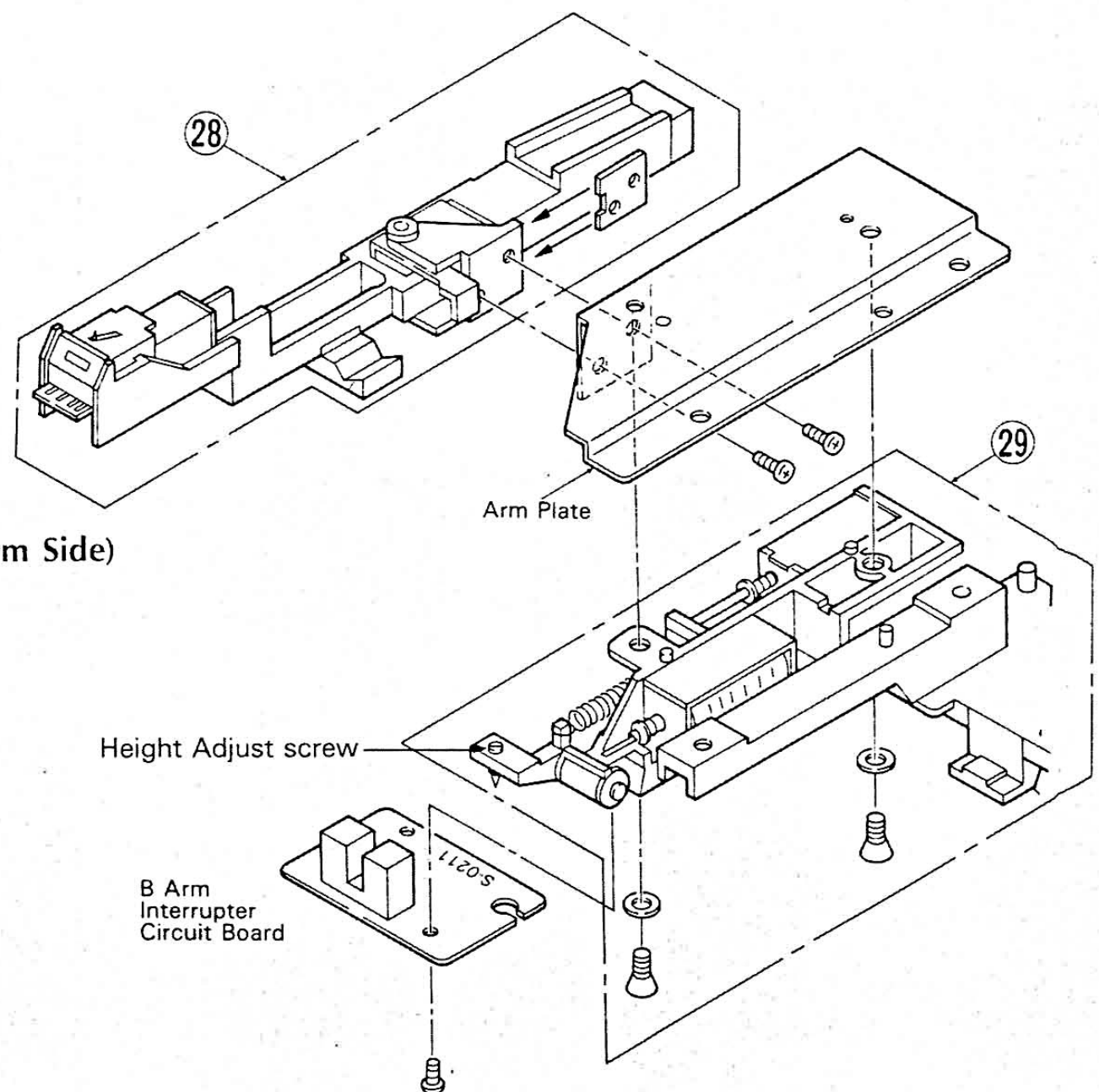
3-7. A Side Arm Ass'y & Lifter Ass'y



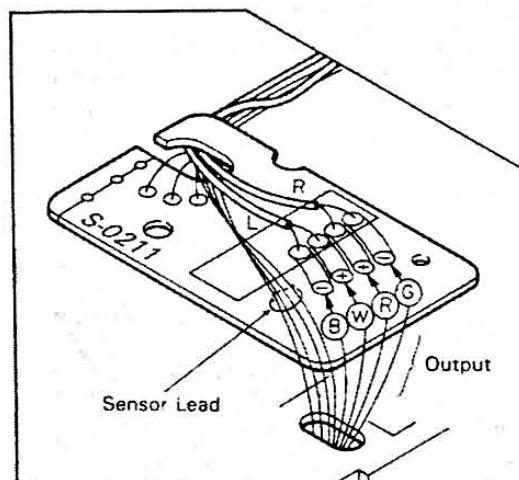
•Wiring Diagram of S-0211 (A Arm Side)



3-8. B Side Arm Ass'y & Lifter Ass'y



•Wiring Diagram of S-0211 (B Arm Side)



SANSUI ELECTRIC CO., LTD.:
SANSUI ELECTRONICS CORPORATION:
SANSUI ELECTRONICS (U.K.) LTD.:
SANSUI ELECTRONICS G.M.B.H.:

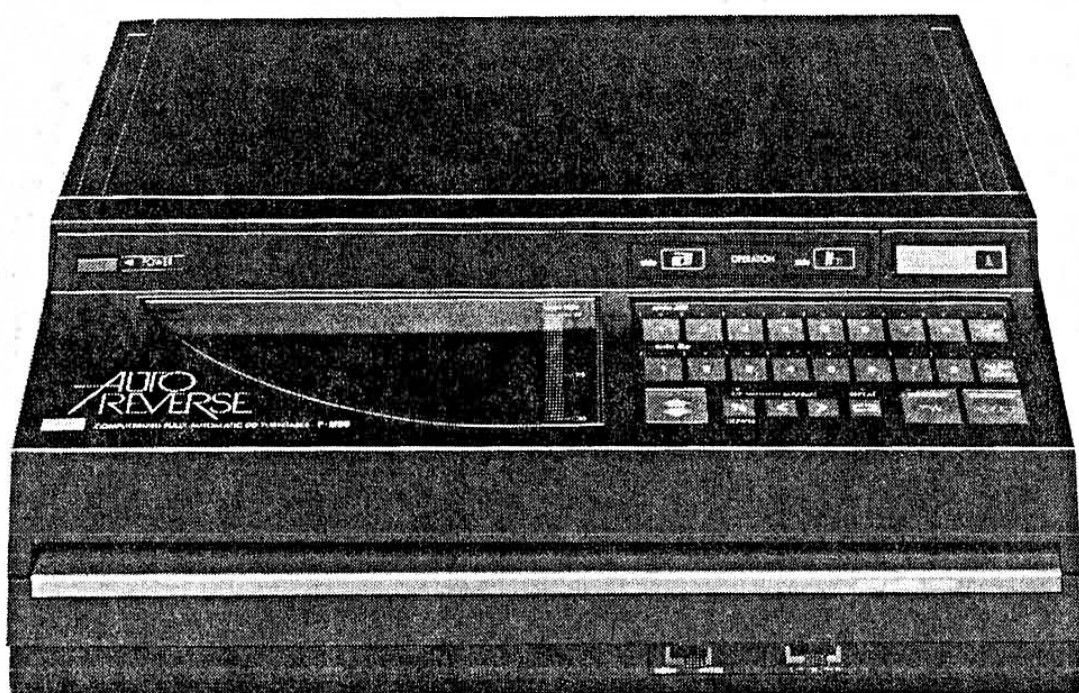
14-1, Izumi 2-chome, Suginami-ku, Tokyo 168 Japan
PHONE: (03) 324-8891/TELEX: 232-2076 (International Division)
1250 Valley Brook Ave. Lyndhurst, N.J. 07071 U.S.A.
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Pau Ehrich Strasse 8, 6074 Rödermark 2, West Germany

SERVICE MANUAL

COMPUTERIZED FULLY AUTOMATIC
DD TURNTABLE

SANSUI P-M90

(Silver & Black Model)



CAUTION

1. Parts identified by the $\triangle$ symbol on the schematic diagram and the parts list are critical for safety. Use only replacement parts that have critical characteristics recommended by the manufacturer.
2. Make leakage-current or resistance measurements to determine that exposed parts are acceptably insulated from the supply circuit before returning the appliance to the customer.

•SPECIFICATIONS

Type..... Direct-drive turntable
Rated speeds..... 33-1/3, 45 rpm
Platter..... 76 mm (3") diameter,
0.37 kg weight
Motor Coreless and Brushless DC/FG
Servo
Wow/flutter 0.08% (WRMS)
Signal-to-noise ratio Better than 72 dB (DIN-B)
Better than 60 dB (IEC-B)
Effective tonearm length
..... 70 mm (2-3/4")

Cartridge
Type..... Dual Magnet type
Output voltage..... 2.5 mV
(1,000 Hz, 35.4 mm/sec)
Correct load impedance
..... 47 kohms
Frequency response..... 10 ~ 20,000 Hz
Stylus 0.6 mil diamond stylus
(SN-909 replacement stylus)

Others
Power voltage 110 ~ 120/220 ~ 240V
(50/60 Hz)
For U.S.A. and Canada
..... 120V (60 Hz)
Power consumption 25W
Dimensions 350 mm (13-13/16") W
120 mm (4-3/4") H
355 mm (14") D
Weight 7.2 kg (15.9 lbs.) net
8.6 kg (19.0 lbs.) packed

- * Design and specifications subject to change without notice for improvements.
- * In order to simplify the explanation illustrations may sometimes differ from the originals.

Sansui

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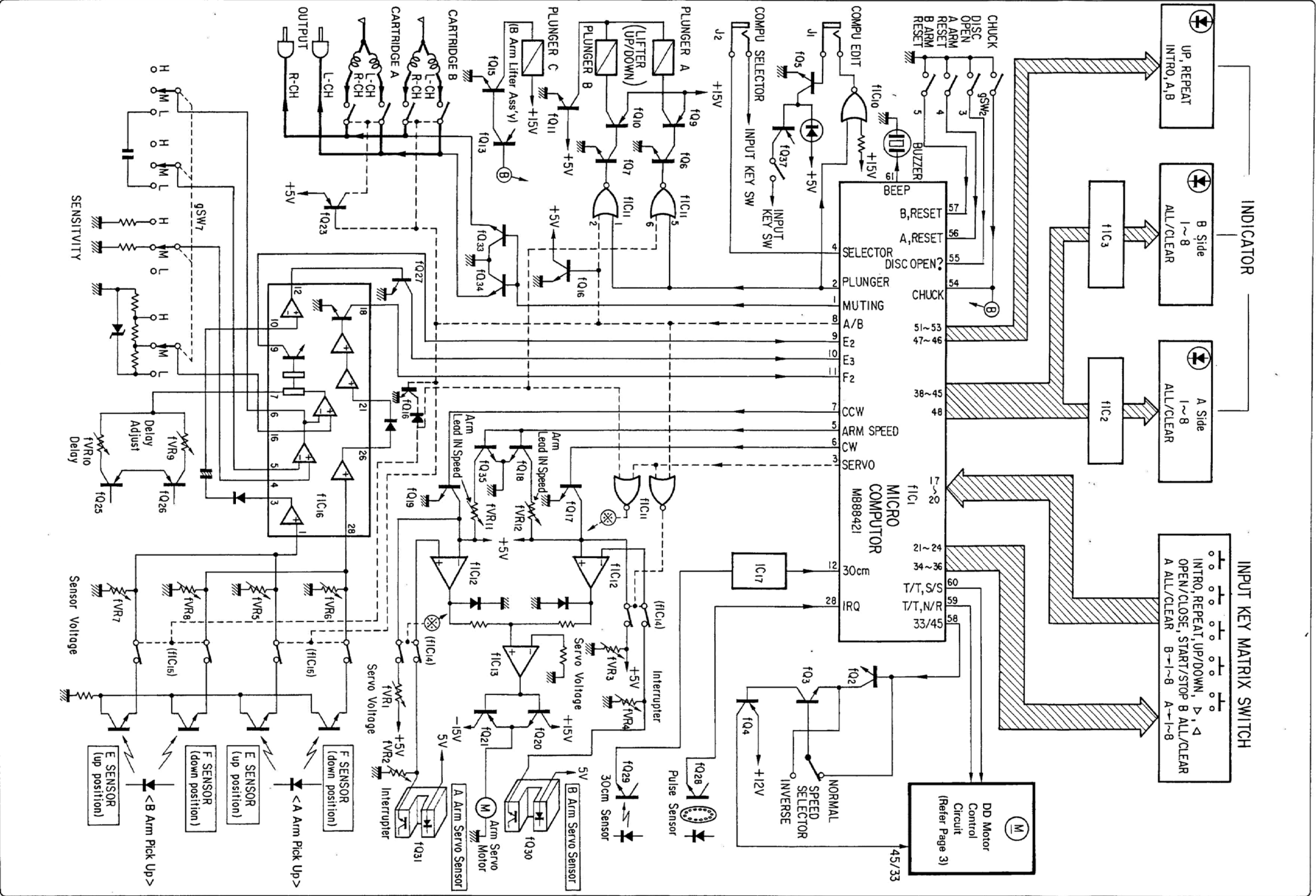
CAUTION

1. The symbols, UL, CSA, SA, BS, UK, EU, AS and XX on the parts list and the schematic diagram mean followings respectively.
UL..... Manufactured for U.S.A market.
(Underwriters Laboratories approved model.)
CSA Manufactured for Canadian market.
SA..... Manufactured for South African market.
BS, UK Manufactured for United Kingdom market.
EU Manufactured for European market.
AS..... Manufactured for Australian market.
XX..... Standard Version.
NON MARK Common Parts.
2. Some printed circuit boards are not supplied as the assembled.
To separate these in this service manual, the stock No's are not indicated at the ends of the board names. However, the individual parts on the circuit boards are provided by orders.
3. Since some of capacitors and resistors are omitted from parts lists in this service manual, refer to the Common Parts List for capacitors & resistors, which was issued on February 1983.
4. Abbreviations in this service manual are as follows.

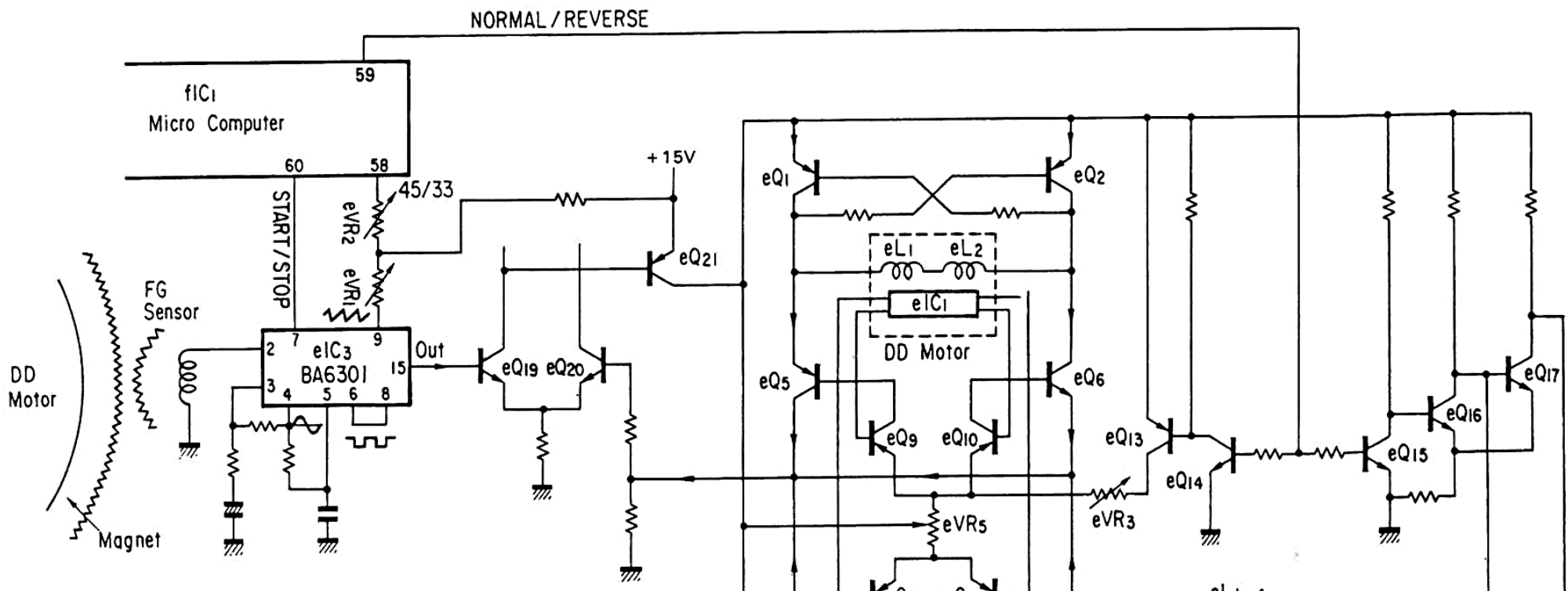
•Abbreviations List

C.R.	: Carbon Resistor	E.B.L.	: Low Leak Bi-Polar
S.R.	: Solid Resistor		Electrolytic Capacitor
Ce.R.	: Cement Resistor	Ta.C.	: Tantalum Capacitor
M.R.	: Metal Film Resistor	F.C.	: Film Capacitor
F.R.	: Fusing Resistor	M.P.	: Metalized Paper Capacitor
N.I.R.	: Non-Inflammable Resistor	P.C.	: Polystyrene Capacitor
A.R.	: Array Resistor	G.C.	: Gimmic Capacitor
C.C.	: Ceramic Capacitor	A.C.	: Array Capacitor
C.T.	: Ceramic Capacitor,	V.R.	: Variable Resistor
	Temperature Compensation	S.V.R.	: Semi Variable Resistor
E.C.	: Electrolytic Capacitor	SW.	: Switch
E.L.	: Low Leak Electrolytic	Chip R.	: Chip Resistor
	Capacitor	Chip C.	: Chip Capacitor
E.B.	: Bi-Polar Electrolytic		
	Capacitor		

1. BLOCK DIAGRAM 1-1. Arm Control Circuit

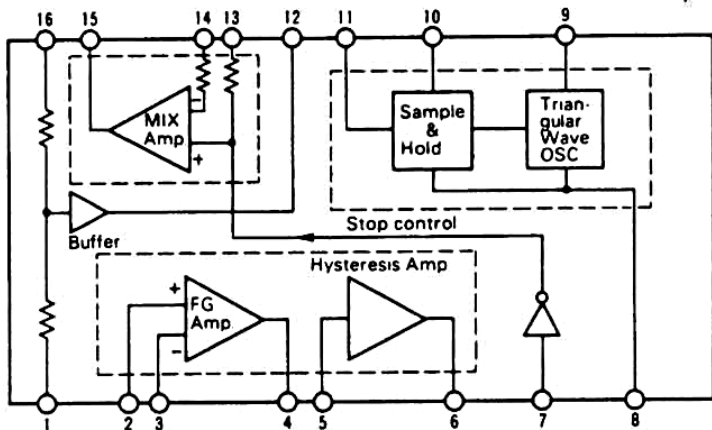


1-2. Motor Control Circuit <S-0206>



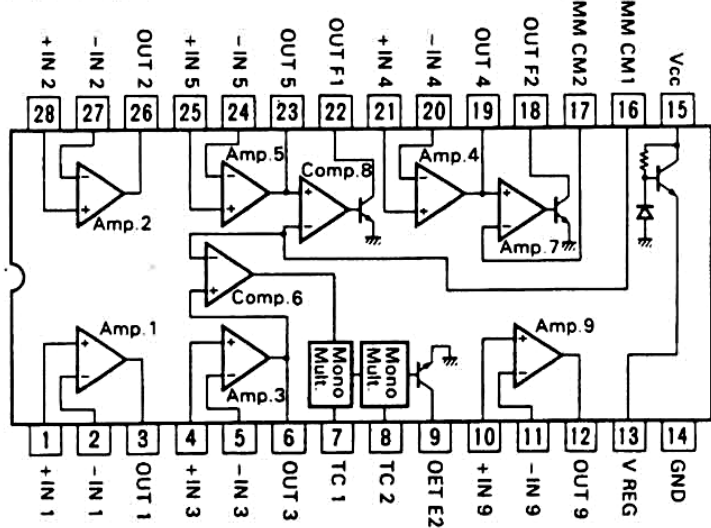
1-3. Interior Block Diagram

•BA-6301 (Motor Drive)

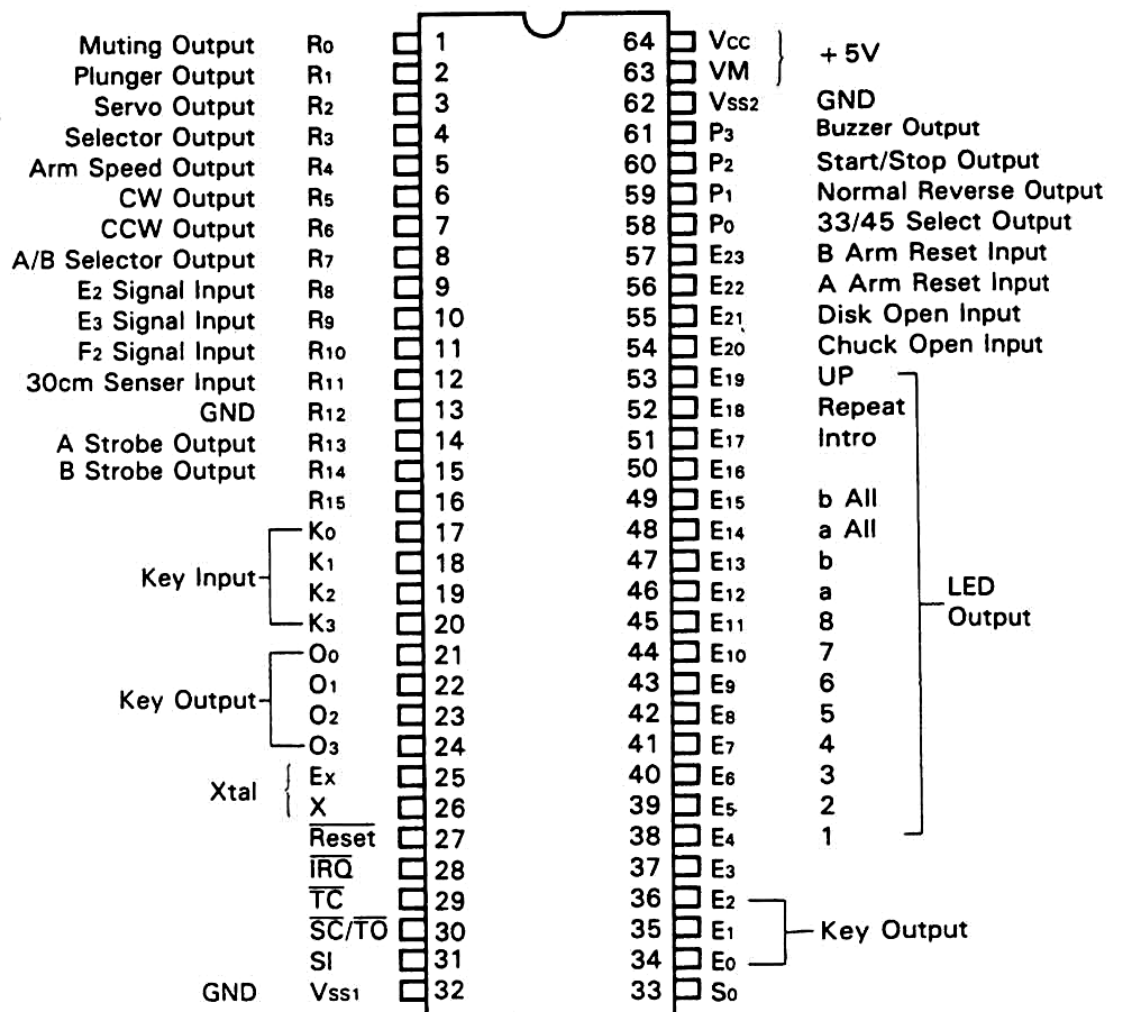
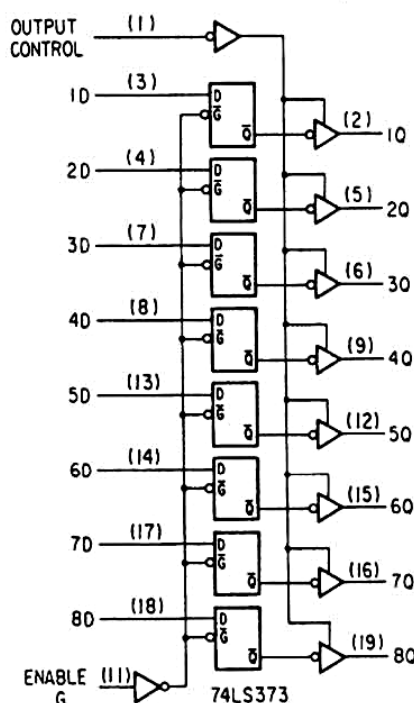


•MB88421 (Micro computer)

•BA-6150 (Tone Arm Servo Control)

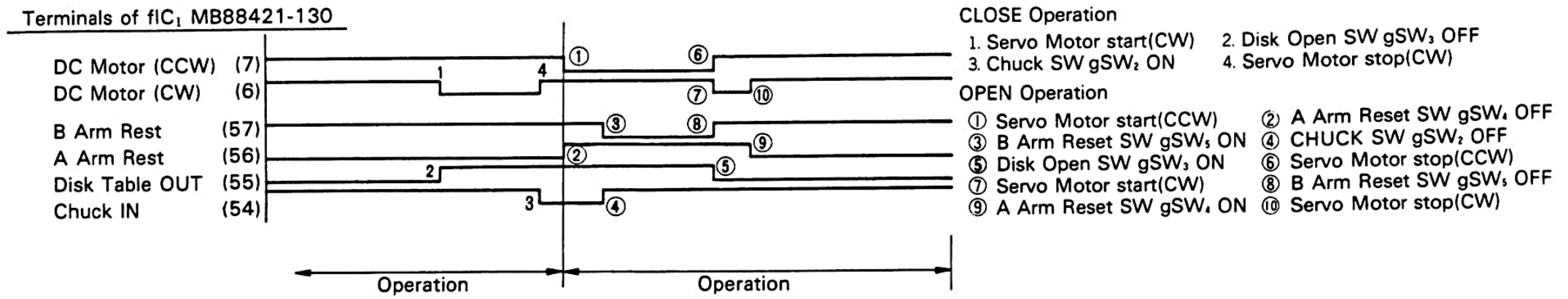


•74LS373 (Octal 3state D-latch)

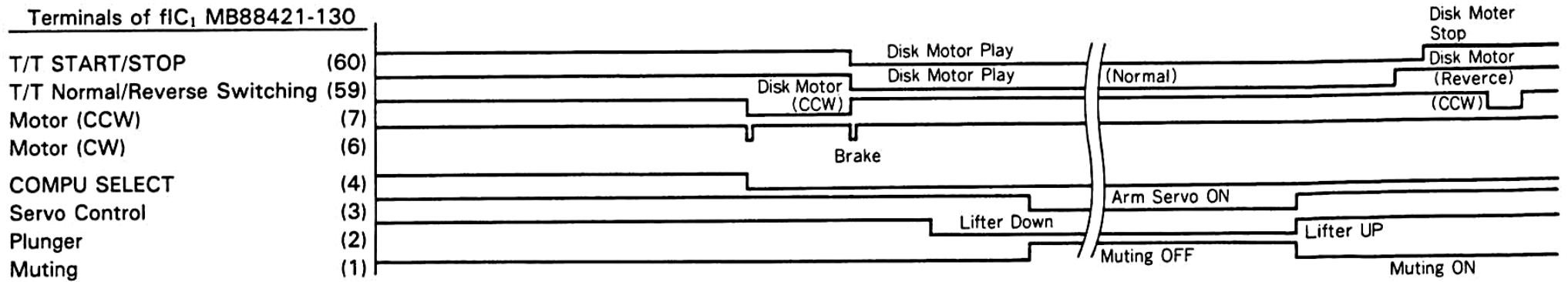


3. MAIN OPERATION TIMING CHART

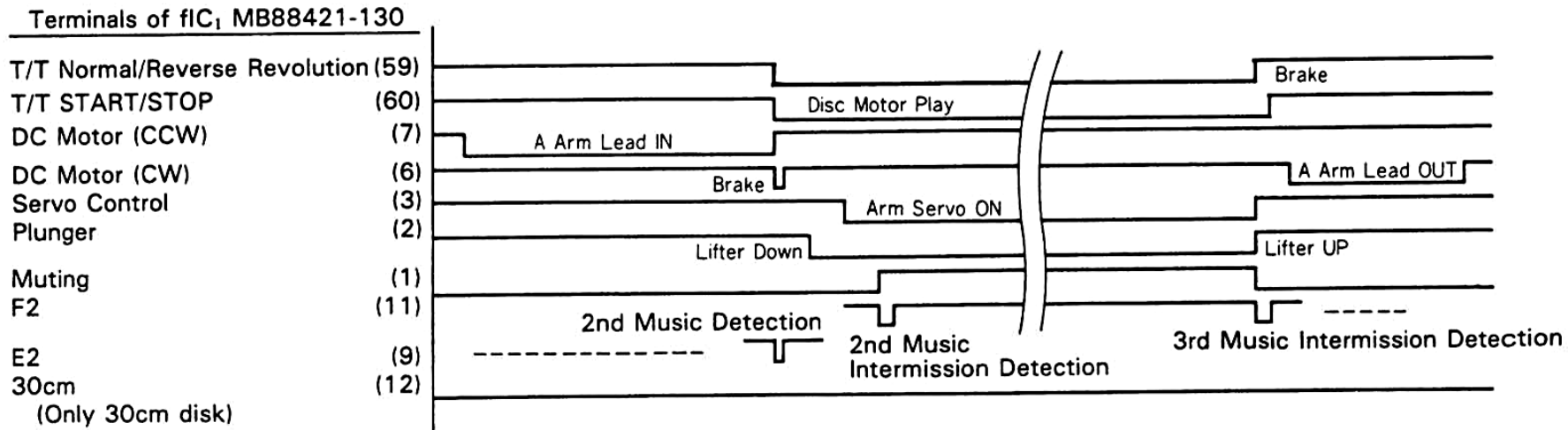
3-1. Loading Timing



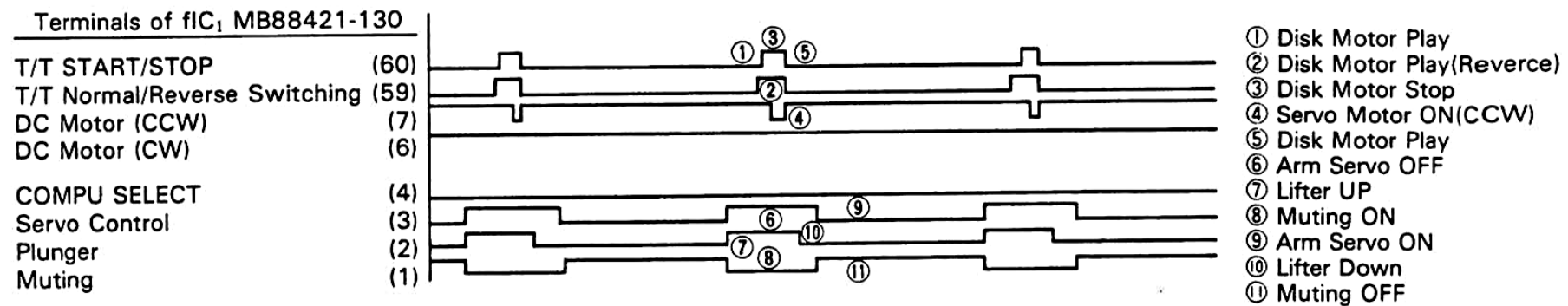
3-2. 30cm Disk Selection Lead-in, End Timing



3-3. 2nd Music Selection Timing on 30cm Disk of A Side



3-4. ALL INTRO SKIP Timing



4. ADJUSTMENT

A. Preparation

1. Remove the top plate (No.1 in Part list excluding circuit boards). See "How to replace the main parts" on page 16.
2. Remove only the key board from the front panel, and then connect three connectors extending from the key board to the S-0208 computer board.
3. Since the TP pins of S-0209 board may disappear under the motor frame when the arm moves, connect some wires to the TP pins necessary for adjustment. (See Fig. 4-1)
4. Turn on the interlock switch in accordance with the following procedure:
 - 1) Remove two small screws for mounting the interlock switch.
 - 2) Roll up an appropriately sized paper as shown, insert the rolled paper into the contact portion of the microswitches, and then fixed it by an adhesive tape.

B. Caution

1. The A-arm and B-arm are mechanically linked with each other. Further, the reset position of A-arm corresponds to the lead-out position of B-arm.
Therefore, it is possible to know the B-arm position on the basis of the A-arm position. However, positively depress each key ALL a, ALL b, , and .
2. The adjusting control knob (variable resistor) of S-0209 may disappear under the motor frame as the arm moves.
Therefore, adjust it through an adjusting aperture formed in S-0208. (See Fig. 4-3)
3. In case the operation keys are inoperative, turn off the main power switch and then turn on it again before depressing the operation keys.
4. Perform the adjustment in accordance with the determined procedure.

Fig. 4-1

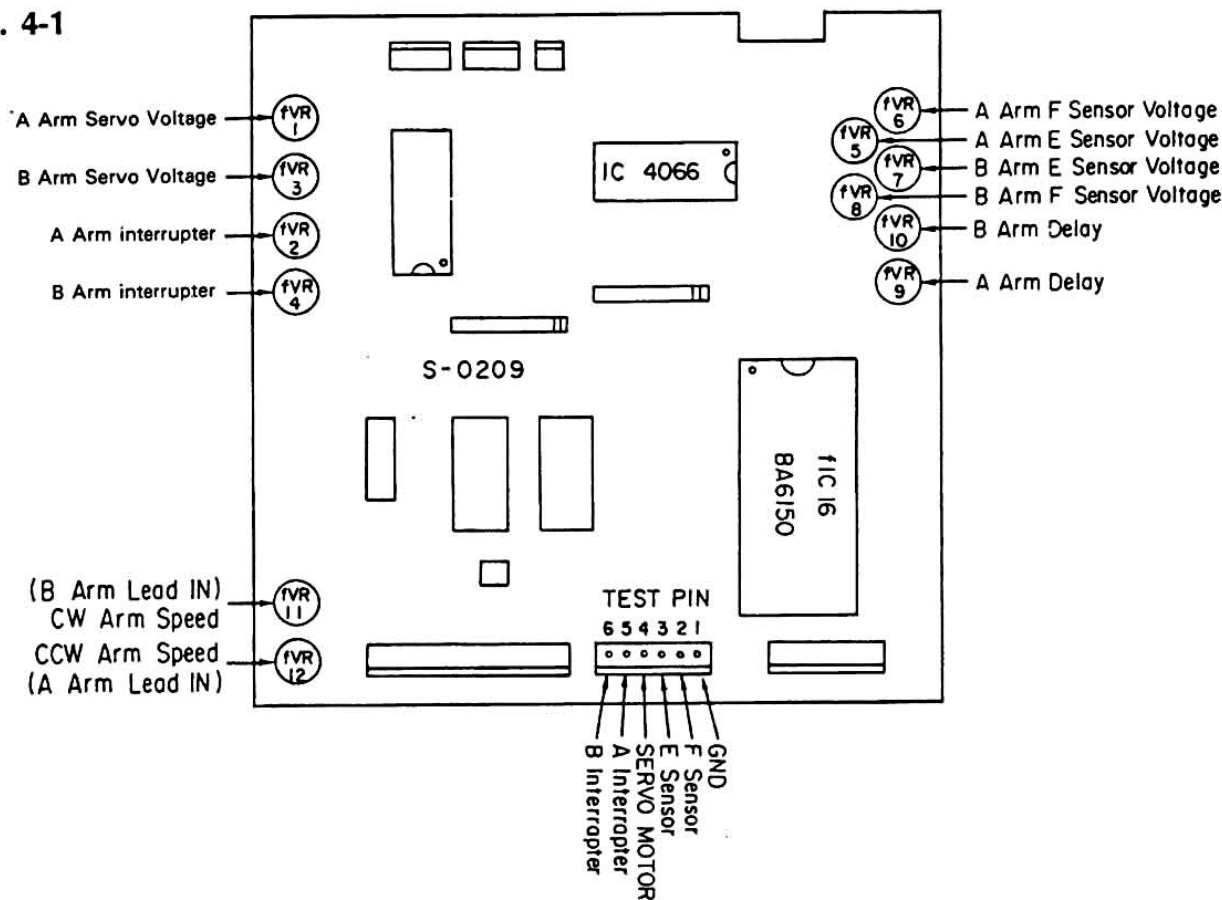


Fig. 4-2

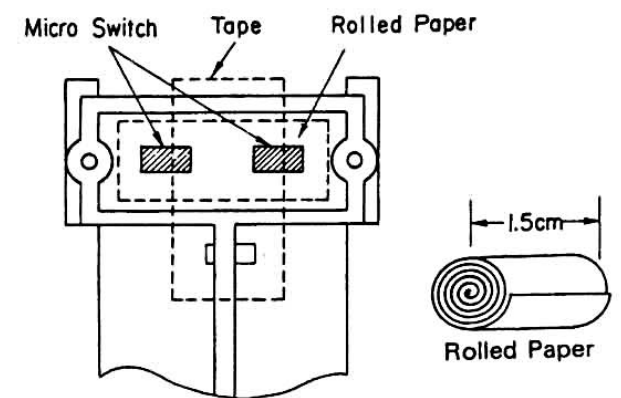
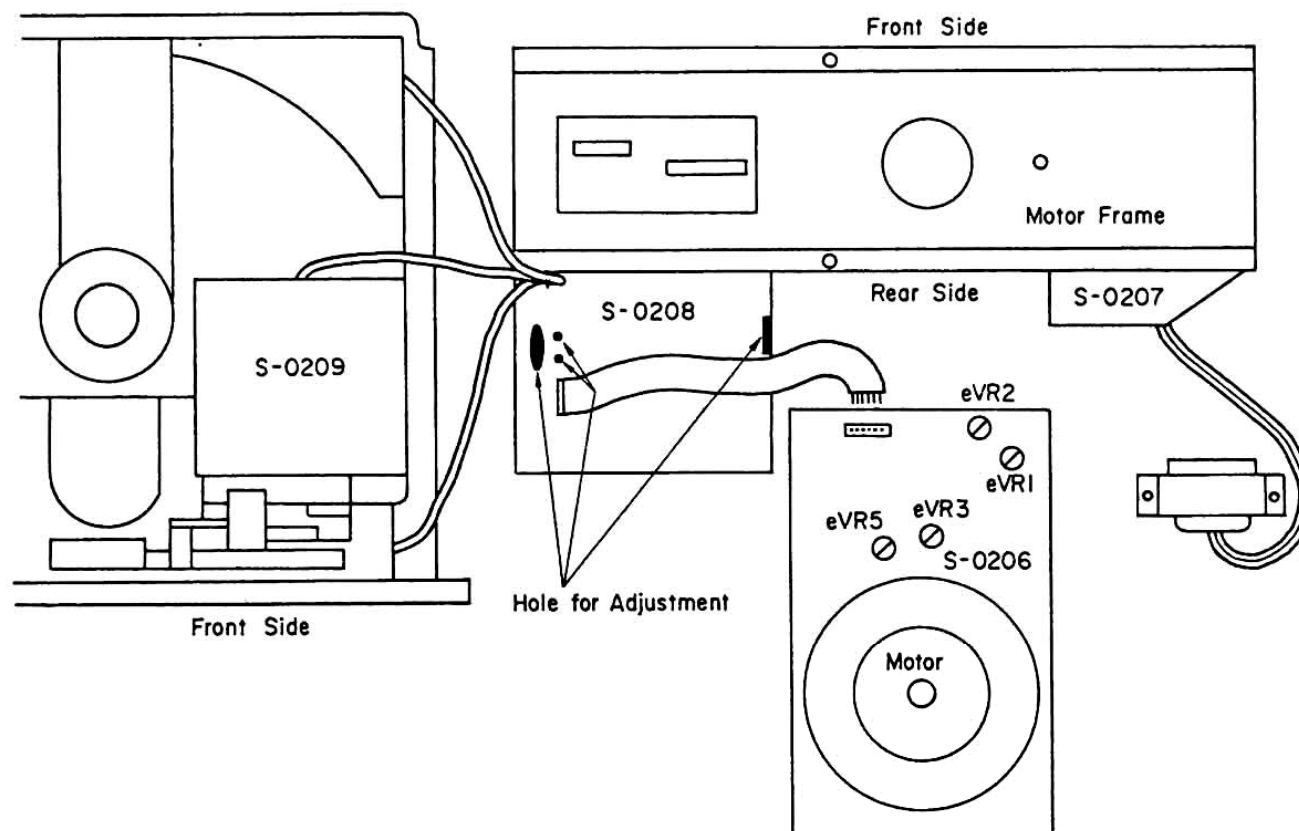
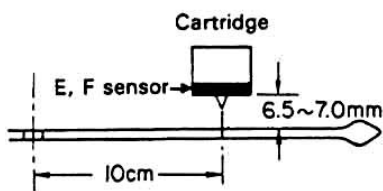
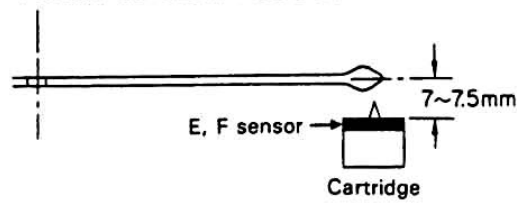
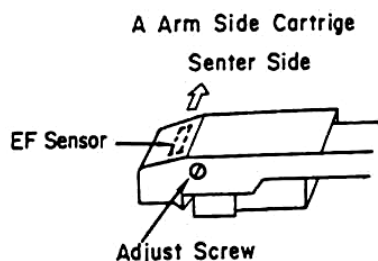
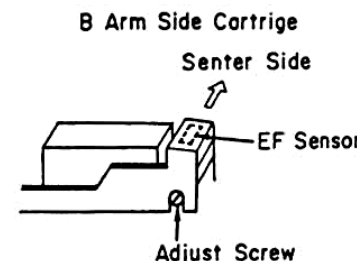
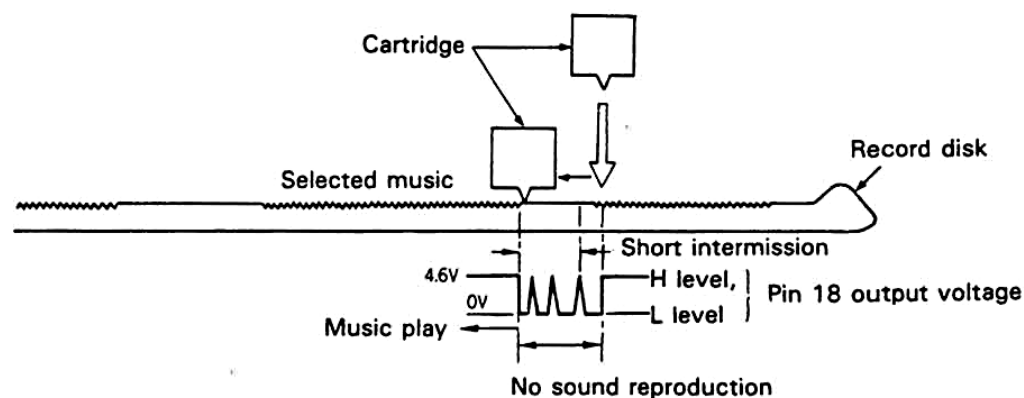
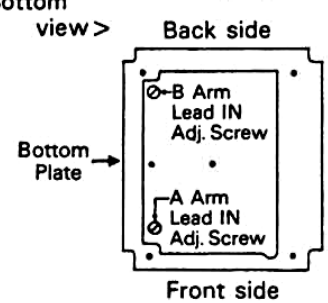
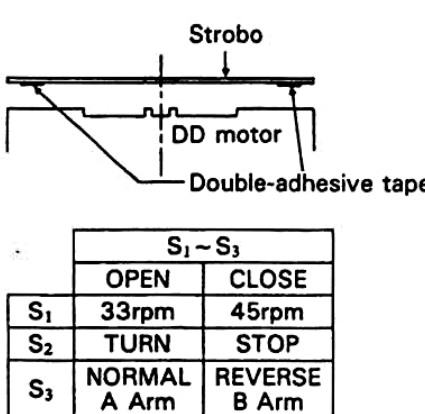
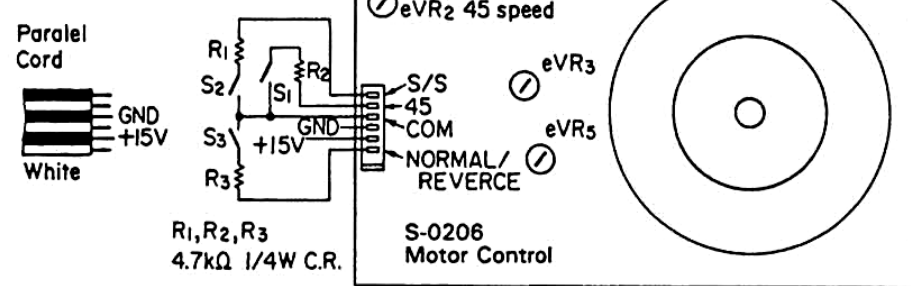


Fig. 4-3



•Adjustment List (See Figs. 4-1 and 4-3 for points to be checked and adjusted)

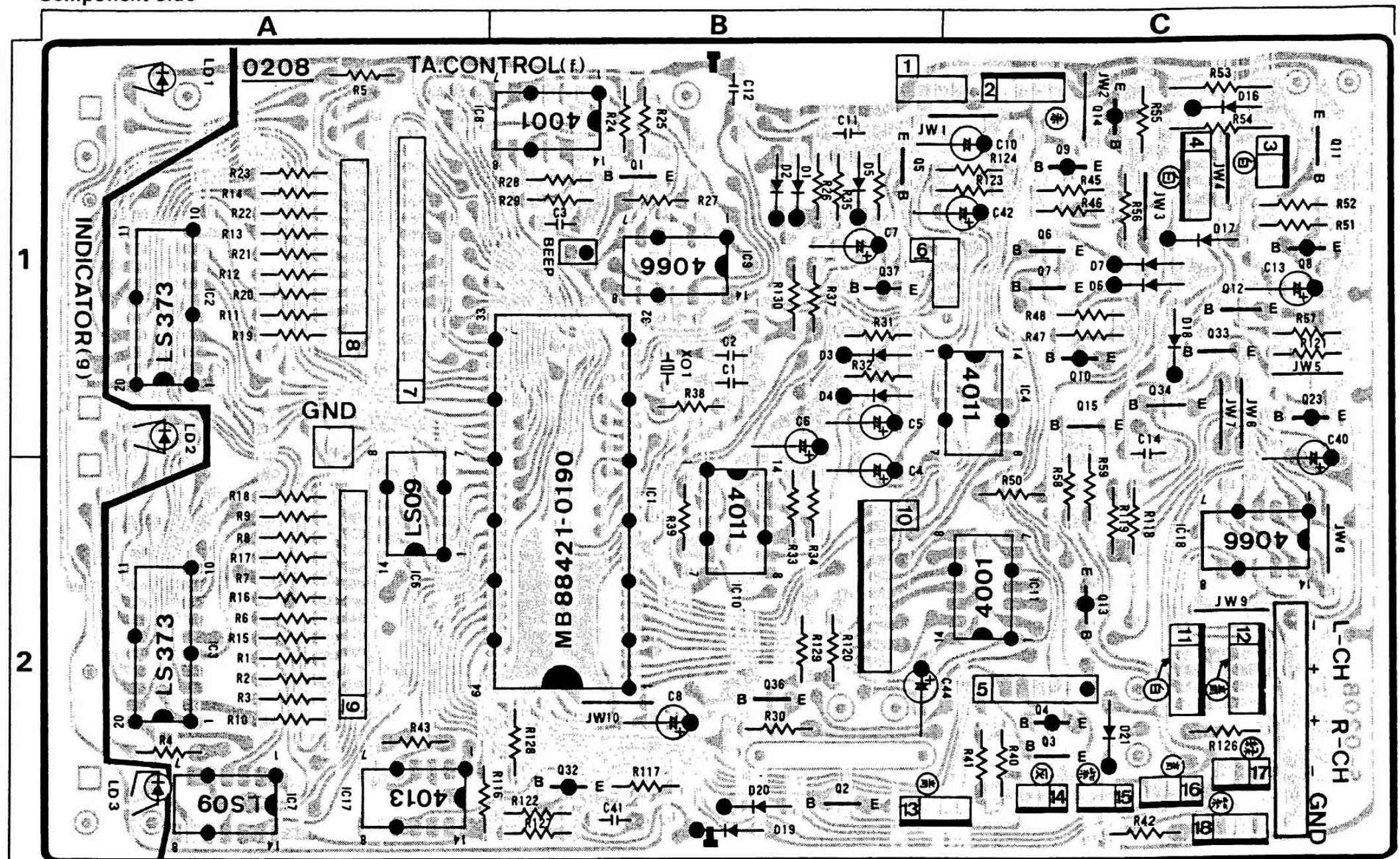
	Adjustment Procedure	Checked Position	Adjusted Parts	Adjustment Contents	Adjusting Conditions
1	A-arm interrupter voltage adjustment	Between S-0209 TP5 and GND (fQ31 emitter) DC voltmeter	fVR2	2 ~ 2.5V	- Without any record disk. - Stop DD motor. - Bring A-arm near lead-out position (B-arm read-in position) by the hand. - Adjust the voltage when A- or B-arm is moved to its extreme outside position by the hand. 
2	B-arm interrupter voltage adjustment	Between S-0209 TP6 and GND DC voltmeter	fVR4	2 ~ 2.5V	
3	A-arm servo voltage adjustment	Between S-0209 TP4 and GND (on the positive side of arm servomotor) DC voltmeter	fVR1	-1V (It is preferable that the arm moves about 0.5mm toward the inside when lifter is down.)	- Set a 30cm disk. - Stop DD motor. - Bring A-arm near lead-out position or B-arm near lead-in position by the hand. - Set lifter down by the hand.
4	B-arm servo voltage adjustment	Between S-0209 TP4 and GND (on the positive side of arm servomotor) DC voltmeter	fVR3	+1V (It is preferable that the arm moves about 0.5mm toward the inside when lifter is down.)	
5	A-arm speed adjustment	Time interval from when A-arm starts to when it stops. (A time device measurable up to seconds).	fVR11	4 secs. (The speed increases when fVR11 is rotated clockwise.)	- Set a 30cm disk. - Stop DD motor. - Move A- or B-arm by use of ,  key. - Check that A-arm moves from lead-out position to reset position with ALL a key kept depressed.
6	B-arm speed adjustment	Time interval from when B-arm starts to when it stops. (A time device measurable up to seconds).	fVR12	4 secs. (The speed increases when fVR12 is rotated clockwise.)	
7	A-arm height adjustment	Measure the height between disk surface and E, F sensor with a rule.	Height adjusting screw (See 7-5 on page 15).	Adjust the distance between record disk and sensor to 6.5 ~ 7mm. 	- Set a 30cm disk. - Stop DD motor. - Move the arm to a position 10 away from the center of the disk by the hand. - Keep lifter in UP state.
8	B-arm height adjustment	Measure the height between disk surface and E, F sensor with a rule.	Height adjusting screw (See 7-6 on page 15).	Adjust the distance between record disk and sensor to 6.5 ~ 7mm. The distance between the disk bisecting plane perpendicular to the disk axis and sensor is to be adjusted to 7 ~ 7.5mm as shown below. 	- Set a 30cm disk. - Stop DD motor. - Move B-arm to reset position by the hand. - Keep lifter in UP state. - The adjusting screw appears, if the main power switch is turned off when the disk base is pulled outward to its extreme position by depressing OPEN key without setting any record disk.
9	A-arm E-sensor sensitivity adjustment	Between S-0209 TP3 and GND (fIC16 Pin3) DC voltmeter	fVR5	2.8V ± 0.1V	- Set a 30cm disk having no cut grooves. - Stop DD motor. - Move the arm to a position about 10cm away from the disk center by the hand. Since the adjusting control knob is not rotatable at this position, move the arm to the lead-in position only while rotating the adjusting control knob. - Adjust E sensor with the arm kept in UP state and F sensor with the arm kept in DOWN state.
10	A-arm F-sensor sensitivity adjustment	Between S-0209 TP2 and GND (fIC16 Pin26) DC voltmeter	fVR6	2.5V ± 0.1V	
11	B-arm E-sensor sensitivity adjustment	Between S-0209 TP3 and GND (fIC16 Pin3) DC voltmeter	fVR7	2.8V ± 0.1V	- Set a 30cm disk having no cut grooves. - Stop DD motor. - Move the arm to a position about 10cm away from the disk center by the hand. Since the adjusting control knob is not rotatable at this position, move the arm to the lead-in position only while rotating the adjusting control knob. - Adjust E sensor with the arm kept in UP state and F sensor with the arm kept in DOWN state.
12	B-arm F-sensor sensitivity adjustment	Between S-0209 TP2 and GND (fIC16 Pin26) DC voltmeter	fVR8	2.5V ± 0.1V	

	Adjustment Procedure	Checked Position	Adjusted Parts	Adjustment Contents	Adjusting Conditions															
13	A-arm E, F sensor lateral-direction adjustment (Perform this adjustment only where A-arm is in a bad condition even after E, F sensor sensitivity adjustment (Item 11 and 12) and E ₂ signal-ready adjustment (Items 15 and 16) have been achieved.)	Between f1C1 Pin11 and GND DC voltmeter	E, F sensor adjustment screw	1. Start music reproduction by selecting a music having a short music intermission interval between two modulated grooves. 2. Adjust the arm so that the stylus comes down onto a position a little ahead of the short music intermission interval and an L-level voltage may be generated the instant the stylus moves across the short music intermission interval. 3. Be sure that the muting is off (music reproduction starts) beginning from the start of the selected music. 4. In the case of the B-arm, it is impossible to see the record disk surface. Therefore, select the same music as in the A-arm and start the music reproduction. The same adjustment as in the A-arm should be made after UP/DOWN indicator light goes off.	1. Set a 30cm disk having a short music intermission interval. 2. Set the sensitivity selector switch to H. 3. Rotate A- or B-arm E, F sensor adjusting screw counterclockwise to its extreme position to move the sensor at a position the nearest to the center of the disk. 4. Rotate delay adjusting control knob (fVR9 or fVR10) counterclockwise (MIN) to its extreme position.															
14	B-arm E, F sensor lateral-direction adjustment (Perform this adjustment only where A-arm is in a bad condition even after E, F sensor sensitivity adjustment (Items 11 and 12) and E ₂ signal-ready adjustment (Item 15 and 16) have been achieved.)	Between f1C1 Pin11 and GND DC voltmeter	E, F sensor adjusting screw	  																
15	A-arm E ₂ signal delay adjustment	Stylus-down position during automatic music selection operation	fVR9	1. Repeatedly reproduce a music having a short music intermission interval between two modulated grooves by leading-in the arm onto a position a little ahead of the short music intermission interval. 2. Check that when the stylus goes down onto a position ahead of the short music intermission interval, the muting operation is off about 4~6 secs after the stylus tip is brought into contact with the disk. 3. In the case of the B-arm, it is impossible to see the record disk surface. Therefore, select the same music as in the A-arm and start the music reproduction. Be sure that the muting is off about 4~6 secs after the UP/DOWN indicator light goes off.	1. Set a 30cm disk having a short music intermission interval. 2. Set the sensitivity selector switch to H.															
16	B-arm E ₂ signal delay adjustment	Stylus-down position during automatic music selection operation	fVR10																	
17	A-arm lead-in adjustment	Lead-in position	Adjusting cam	1. Lead-in the arm onto a 30cm disk during automatic disk selection operation and adjust the arm so that the stylus can come down onto the lead-in groove. 2. Check the lead-out operation, simultaneously. After the B-arm is led out, the A-arm operation begins, the A-arm returns to its reset position. 3. Confirm 1.2 above in 17 cm disk as well.	1. Set the sensitivity selector switch to M. 2. Set a 30cm disk. 3. Set a 17cm disk after the above 30cm disk adjustment.															
18	B-arm lead-in adjustment																			
19	DD motor speed adjustment to 33rpm	Motor revolution speed	eVR1 S-0206	Adjust the motor speed so that a strobo pattern of 33rpm appears to be stopped. (only adjustment in the normal direction.)	1. Remove motor frame and place it as shown in Fig. 4-3 on page 6. 2. Put the strobo pattern center at the disk center and fix the pattern by a double-adhesive tape. 3. Remove the 6-lead parallel cord from board S-0206 as shown and then connect the +15V lead and the GND lead to 15V terminal and GND terminal of the 6-pin connector, respectively. 4. Connect a resistor to 6-pin connector as shown. 5. The motor speed can be selected as shown in the Table by switching the circuit.															
20	DD motor speed adjustment to 45rpm	Motor revolution speed	eVR2 S-0206	Adjust the motor speed so that a strobo pattern of 45rpm appears to be stopped.	5. The motor speed can be selected as shown in the Table by switching the circuit.															
	 <table><tr><th colspan="3">S₁ ~ S₃</th></tr><tr><th></th><th>OPEN</th><th>CLOSE</th></tr><tr><td>S₁</td><td>33rpm</td><td>45rpm</td></tr><tr><td>S₂</td><td>TURN</td><td>STOP</td></tr><tr><td>S₃</td><td>NORMAL A Arm</td><td>REVERSE B Arm</td></tr></table> 					S ₁ ~ S ₃				OPEN	CLOSE	S ₁	33rpm	45rpm	S ₂	TURN	STOP	S ₃	NORMAL A Arm	REVERSE B Arm
S ₁ ~ S ₃																				
	OPEN	CLOSE																		
S ₁	33rpm	45rpm																		
S ₂	TURN	STOP																		
S ₃	NORMAL A Arm	REVERSE B Arm																		
21	Mechanical sensors are used when eVR3 and eVR5 are replaced. In the case where eVR4 is mounted, do not touche it.																			

5. PARTS LOCATION & PARTS LIST

5-1. S-0208 Micro Computer Circuit Board (Stock No. 13271101)

Component Side

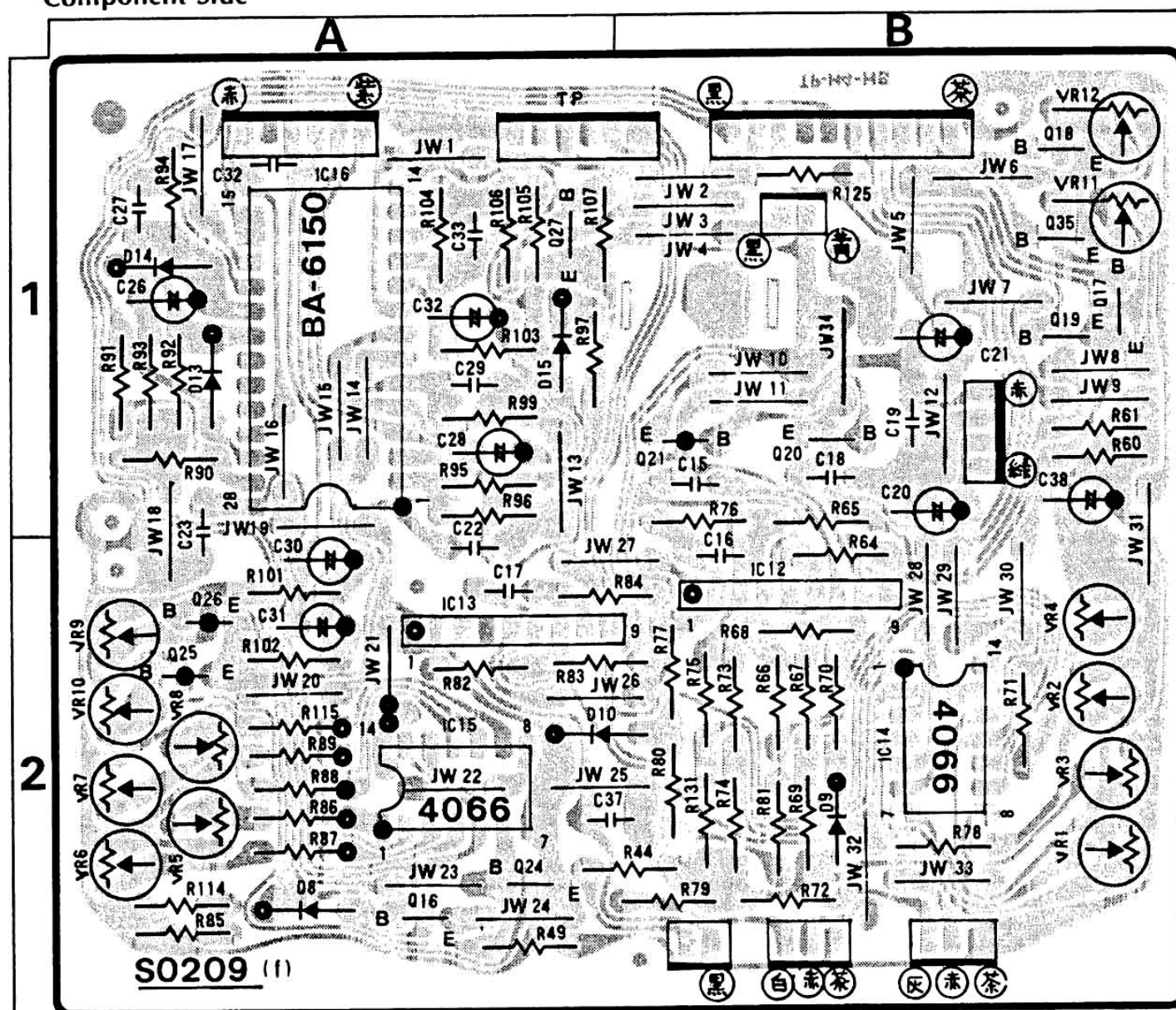


Parts List

Parts No.	Stock No.	Description	Parts No.	Stock No.	Description	Parts No.	Stock No.	Description
•Transistor			fIC3	48003200	MB74LS373	fX01	46925800	Quartz Element KBR-4.19M
fQ1	46719900	DTC124		or 48053800	HD74LS373	•Diode		
fQ2	46719900	DTC124	fIC4	03604100	TC4011P	fD1	03117600	1S2473T77
fQ3	46719800	DTA124		or 07207200	MB84011BM	fD2	03117600	1S2473T77
fQ4	46719900	DTC124		or 46427200	μPD4011BC	fD3	03117600	1S2473T77
fQ5	46719900	DTC124	fIC6	46160200	MB74LS09	fD4	03117600	1S2473T77
fQ6	46719900	DTC124		or 46160300	M74LS09	fD5	03117600	1S2473T77
fQ7	46719900	DTC124		or 48053700	HD74LS09	fD6	03117600	1S2473T77
fQ8	46719800	DTA124	fIC7	46160200	MB74LS09	fD7	03117600	1S2473T77
fQ9	46614001	2SA1283		or 46160300	M74LS09	fD16	03117600	1S2473T77
	or 48000801	2SA934	fIC8	03610500	TC4001BP	fD17	03117600	1S2473T77
fQ10	46614001	2SA1283		or 07186600	MB84001BM	fD18	03117600	1S2473T77
	or 48000801	2SA934		or 46443800	μPD4001BC	fD19	03117600	1S2473T77
fQ11	46614101	2SC3243		or 48050000	MSM4001BRS	fD20	03117600	1S2473T77
	or 48000901	2SC2060	fIC9	07224800	TC4066BP	fD22	03117600	1S2473T77
fQ12	46719900	DTC124		or 07264600	MSM4066RS	fD23	03117600	1S2473T77
fQ13	46719800	DTA124		or 46164300	MB84066B	fD24	03117600	1S2473T77
fQ14	46614001	2SA1283		or 46421000	μPD4066BC			
	or 48000801	2SA934	fIC10	03604100	TC4011P	fQ29	03900100	Photo Transistor, PH101
fQ15	46614101	2SC3243		or 07207200	MB84011BM			
	or 48000901	2SC2060	fIC11	03610500	TC4001BP	fEP1	07244900	Buzzer PKM12
fQ23	46719800	DTA124		or 07186600	MB84001BM	•LED		
fQ32	46719800	DTA124		or 46443800	μPD4001BC	gLD1	46162500	SLR54URC5
fQ33	46540801	2SC2878		or 48050000	MSM4001BRS	gLD2	46162500	SLR54URC5
	or 46604301	2SC3327	fIC17	07107500	TC4013BP	gLD3	46162500	SLR54URC5
fQ34	46540801	2SC2878		or 07207300	MB84013BM			
	or 46604301	2SC3327		or 48050200	MSM4013BRS			
fQ36	46719900	DTC124		or 48053600	μPD4013BC			
fQ37	46719800	DTA124	fIC18	07224800	TC4066BP			
				or 07264600	MSM4066RS			
				or 46164300	MB84066B			
				or 46421000	μPD4066BC			
•IC								
fIC1	46938600	MB88421-130						
fIC2	48003200	MB74LS373						
	or 48053800	HD74LS373						
	or 48053900	M74LS373P						

5-2. S-0209 Tone Arm Control Circuit Board (Stock No. 13271201)

Component Side

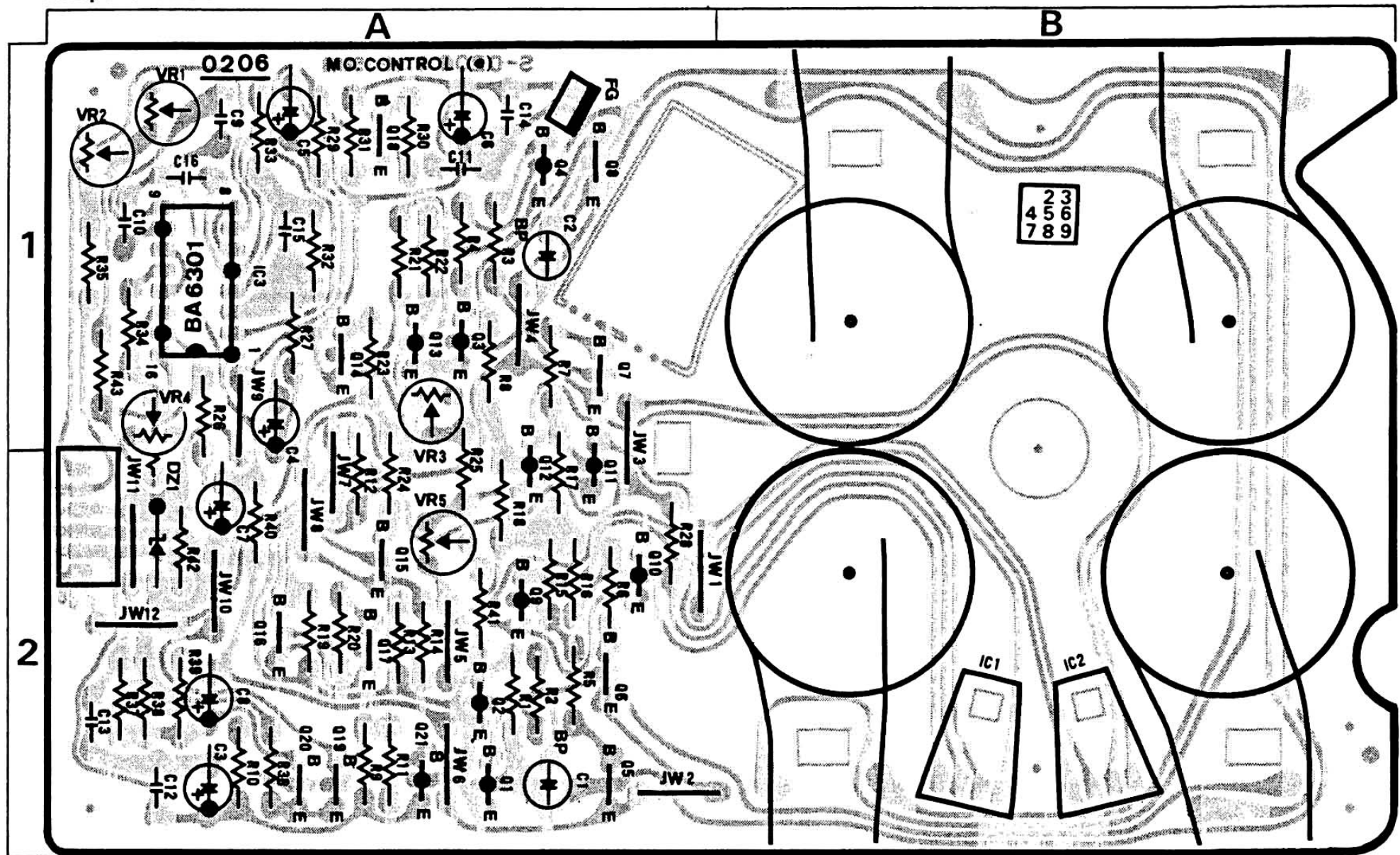


Parts List

Parts No.	Stock No.	Description	Parts No.	Stock No.	Description
•Transistor			fD13	03117600	1S2473T77
fQ16	46719900	DTC124	fD14	03117600	1S2473T77
fQ17	46719900	DTC124	fD15	03117600	1S2473T77
fQ18	46719900	DTC124	fC26	46407600	22μF 25V E.C.
fQ19	46719900	DTC124	fC27	46284100	0.1μF 50V F.C.
fQ20	03083901	2SD313AL	fC29	46282400	3300pF 50V F.C.
fQ21	03032301	2SB507V11AL	fC33	46282600	4700pF 50V F.C.
fQ24	46719900	DTC124	fC39	00305600	22μF 25V E.B.
fQ25	46719800	DTA124	fVR1	46634100	4.7kΩ S.V.R., A Arm Servo Adjust
fQ26	46719800	DTA124		or 46918600	5kΩB S.V.R., A Arm Servo Adjust
fQ27	46719900	DTC124	fVR2	46634500	22kΩ S.V.R., A Arm Interrupter
fQ35	46719900	DTC124		or 46918800	20kΩB S.V.R., A Arm Interrupter
•IC			fVR3	46634100	4.7kΩ S.V.R., B Arm Servo Adjust
fIC12	46087100	NJM4558S		or 46918600	5kΩB S.V.R., B Arm Servo Adjust
	or 46146500	BA715	fVR4	46634500	22kΩ S.V.R., B Arm Interrupter
	or 46147700	M5218L		or 46918800	20kΩB S.V.R., B Arm Interrupter
fIC13	46087100	NJM4558S	fVR5	46635100	220kΩ S.V.R., A Arm E Sensor
	or 46146500	BA715		or 46919200	200kΩB S.V.R., A Arm E Sensor
	or 46147700	M5218L	fVR6	46635100	220kΩ S.V.R., A Arm F Sensor
fIC14	07224800	TC4066BP		or 46919200	200kΩB S.V.R., A Arm F Sensor
	or 07264600	MSM4066RS	fVR7	46635100	220kΩ S.V.R., B Arm E Sensor
	or 46164300	MB84066B		or 46919200	200kΩB S.V.R., B Arm E Sensor
	or 46421000	μPD4066BC	fVR8	46635100	220kΩ S.V.R., B Arm F Sensor
fIC15	07224800	TC4066BP		or 46919200	200kΩB S.V.R., B Arm F Sensor
	or 07264600	MSM4066RS	fVR9	46635300	470kΩ S.V.R., A Arm Delay
	or 46164300	MB84066B		or 46919400	500kΩB S.V.R., A Arm Delay
	or 46421000	μPD4066BC	fVR10	46635300	470kΩ S.V.R., B Arm Delay
fIC16	46321300	BA6150		or 46919400	500kΩB S.V.R., B Arm Delay
•Diode			fVR11	46634700	47kΩ S.V.R., A Arm Lead-in
fD8	03117600	1S2473T77		or 46919000	50kΩB S.V.R., A Arm Lead-in
fD9	03117600	1S2473T77	fVR12	46634700	47kΩ S.V.R., B Arm Lead-in
fD10	03117600	1S2473T77		or 46919000	50kΩB S.V.R.M B Arm Lead-in

5-3. S-0206 Motor Control Circuit Board (with DD Motor for Disk Drive)

Component Side



Parts List

Parts No.	Stock No.	Description
•Transistor		
eQ1	46359701	2SA952
eQ2	46359701	2SA952
eQ3	46359701	2SA952
eQ4	46359701	2SA952
eQ5	46359801	2SC2001
eQ6	46359801	2SC2001
eQ7	46359801	2SC2001
eQ8	46359801	2SC2001
eQ9	46367001	2SA1115
	or 46367201	2SA1048
	or 46392001	2SA1175
eQ10	46367001	2SA1115
	or 46367201	2SA1048
	or 46392001	2SA1175
eQ11	46367001	2SA1115
	or 46367201	2SA1048
	or 46392001	2SA1175
eQ12	46367001	2SA1115
	or 46367201	2SA1048
	or 46392001	2SA1175
eQ13	46367001	2SA1115
	or 46367201	2SA1048
	or 46392001	2SA1175
eQ14	46367101	2SC2603
	or 46367301	2SC2458
	or 46391901	2SC2785
eQ15	46367101	2SC2603
	or 46367301	2SC2458
	or 46391901	2SC2785
eQ16	46367101	2SC2603
	or 46367301	2SC2458
	or 46391901	2SC2785
eQ17	46367101	2SC2603
	or 46367301	2SC2458
	or 46391901	2SC2785

Parts No.	Stock No.	Description
eQ18	46367101	2SC2603
	or 46367301	2SC2458
	or 46391901	2SC2785
eQ19	46367101	2SC2603
	or 46367301	2SC2458
	or 46391901	2SC2785
eQ20	46367101	2SC2603
	or 46367301	2SC2458
	or 46391901	2SC2785
eQ21	46614001	2SA1283
•IC		
eIC1	46354301	HW-301C-Q
	or 46354302	HW-301C-R
eIC2	46354301	HW-301C-Q
	or 46354302	HW-301C-R
eIC3	46354400	BA6301
•Zener Diode		
eDZ1	46113900	05Z12-Y
eR43	48056500	270Ω 1/4W C.R.
eC1	46925400	25V 22μF E.B.
eC2	46925400	25V 22μF E.B.
eC9	46283100	0.015μF 50V F.C.
eC10	46282900	0.01μF 50V F.C.
eC11	46282700	6800pF 50V F.C.
eVR1	46739000	100kΩ S.V.R., 33rpm speed
eVR2	46635300	470kΩ S.V.R., 45rpm speed
	or 46919400	500kΩ S.V.R., 45rpm speed
eVR3	46634700	47kΩ S.V.R., Wow & flutter
	or 46919000	50kΩ S.V.R., Wow & flutter
eVR5	46633700	1kΩ S.V.R., Wow & flutter
	or 46918300	1kΩ S.V.R., Wow & flutter

5-4. S-0207 Power Supply Circuit Board

Component Side (Stock No. 13271001)

(Stock No. 13271001)

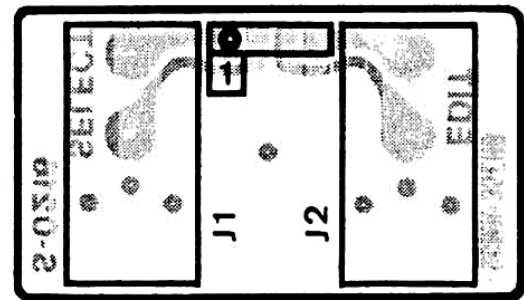


Parts List

Parts No.	Stock No.	Description
•Transistor		
△ hQ1	03083901	2SD313AL
△ hQ2	46149301	2SB744
•IC		
△ hIC1	46720300	μPC7805H
△	or 48053500	NJM7805
•Diode		
△ hD1	03117000	RB-152
△ hD2	03117000	RB-152
•Zener Diode		
hDZ1	46104300	05Z15-Y
hDZ2	46104300	05Z15-Y
△ hC1	46425800	0.01μF 400V C.C.
△	or 46943200	0.01μF 400V C.C.
△ hSW1	46413900	Push SW., POWER
△ hR1	00136000	560Ω 1/2W N.I.R.
△ hR2	00136000	560Ω 1/2W N.I.R.

5-5. S-0216 COMPU EDIT/SELECTOR Circuit Board

Component Side

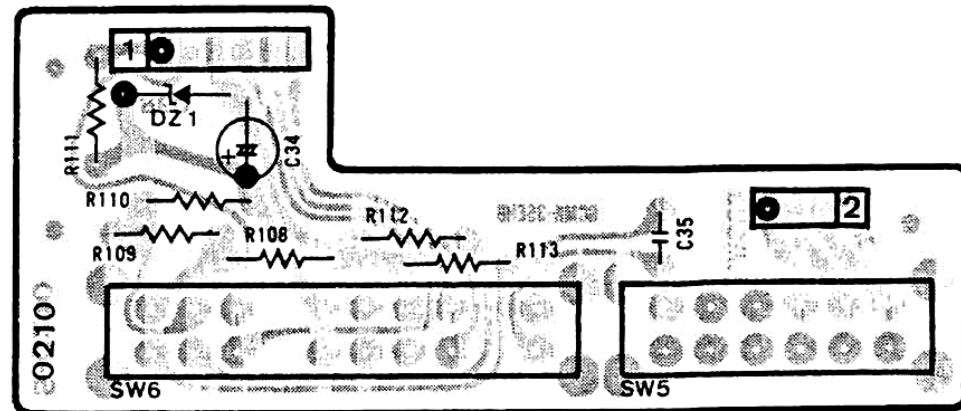


Parts List

Parts No.	Stock No.	Description
J1	46547200	COMPU EDIT Jack
J2	46547200	COMPU SELECTOR Jack

5-6. S-0210 Sensitivity Switch Circuit Board

Component Side

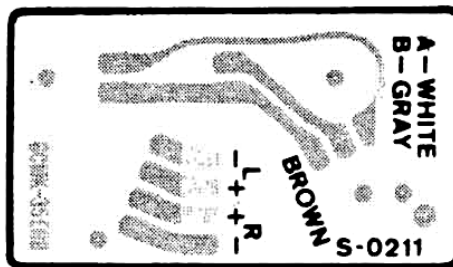


Parts List

Parts No.	Stock No.	Description
• Zener Diode		
fDZ1	46103100	05Z10-Y
fC35	46701700	0.22 μ F 50V F.C.
gSW6	46935810	Slide SW., Speed Adjust
gSW7	46935900	Slide SW., Sensitivity Adjust

5-7. S-0211 A Arm Servo Sensor Circuit Board

Component Side

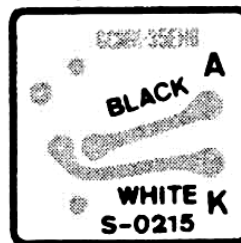


Parts List

Parts No.	Stock No.	Description
fQ30	46938400	Photo Interrupter ON1128
fQ31	46938400	Photo Interrupter ON1128

5-8. S-0215 30cm Disk Sensor Circuit Board

Component Side

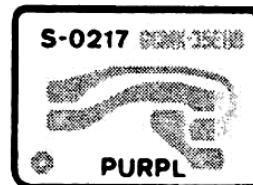


Parts List

Parts No.	Stock No.	Description
•LED fLD1	07205900	LD261

5-9. S-0217 Pulse Sensor Circuit Board

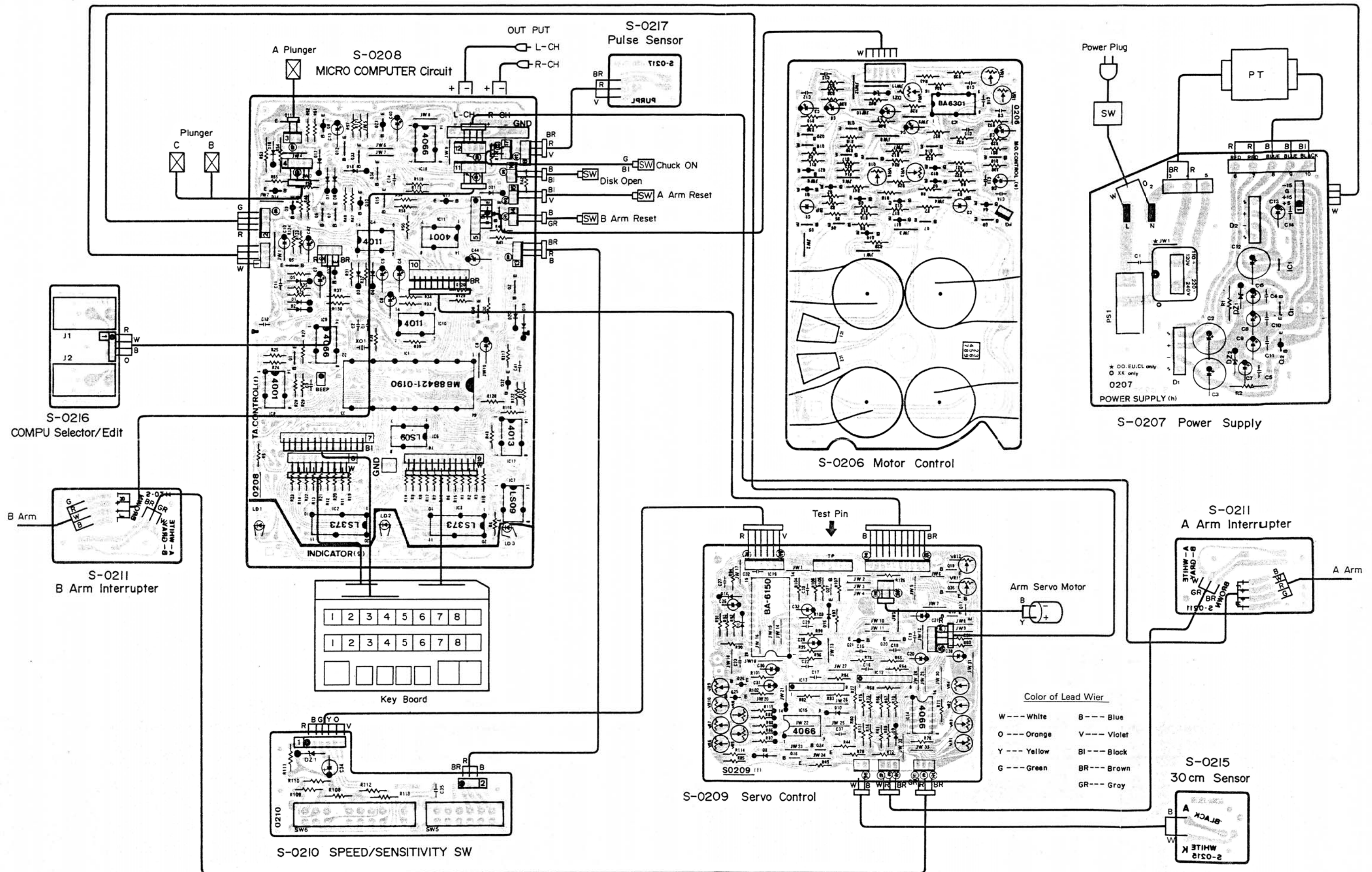
Component Side



Parts List

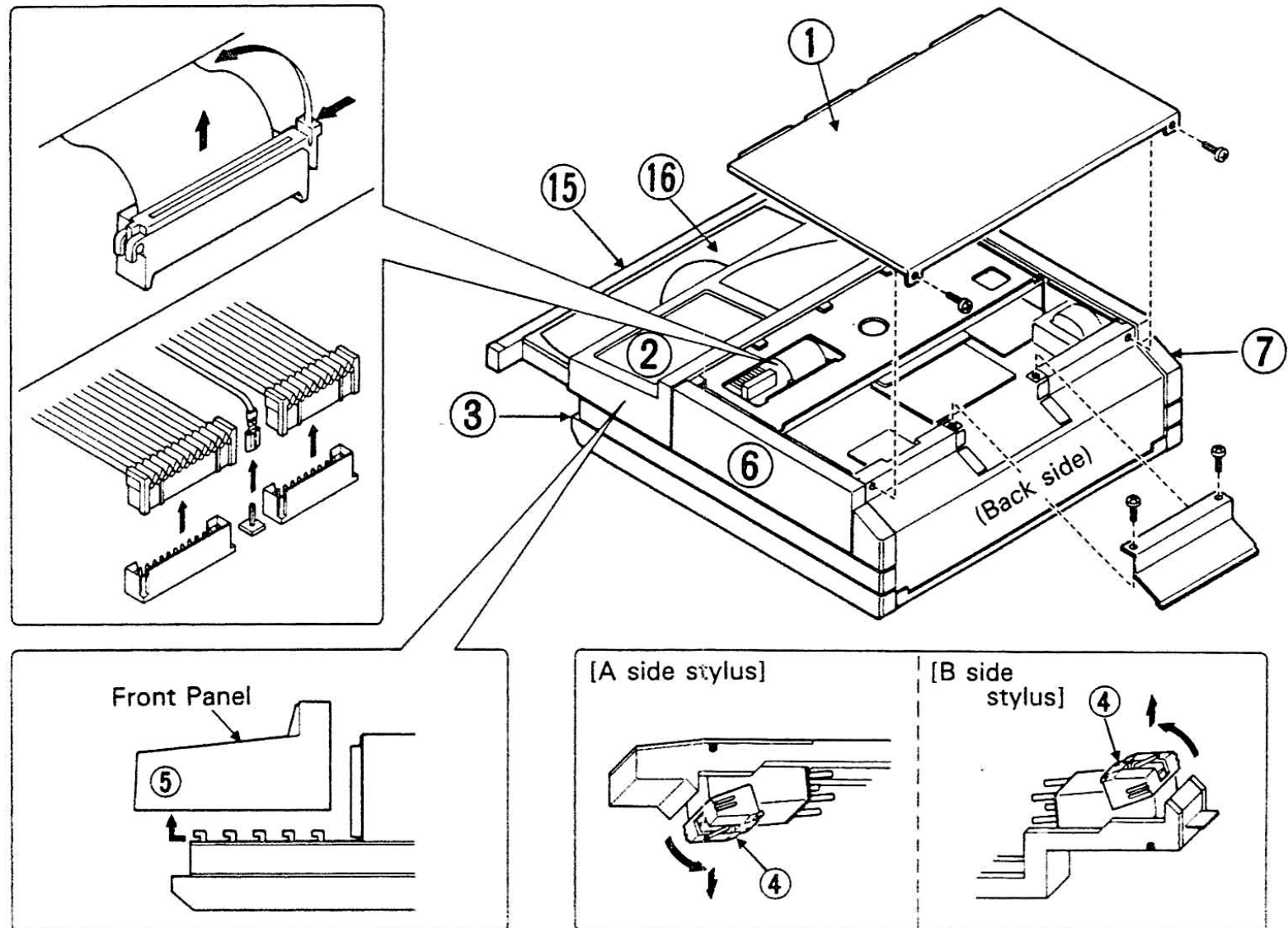
Parts No.	Stock No.	Description
fQ28	46603900	Photo Interrupter GP-1S03

6. WIRING DIAGRAM

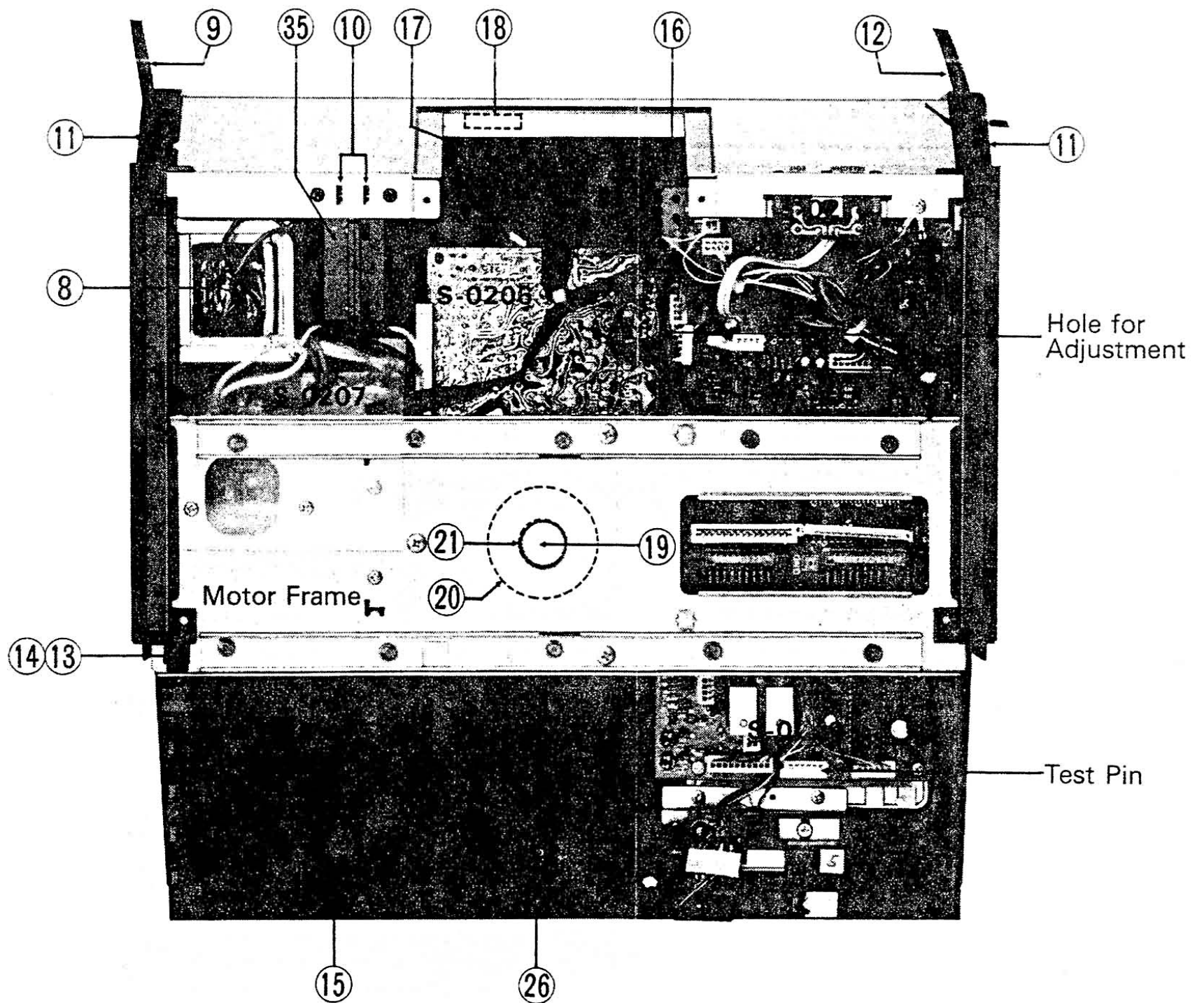


7. OTHER PARTS

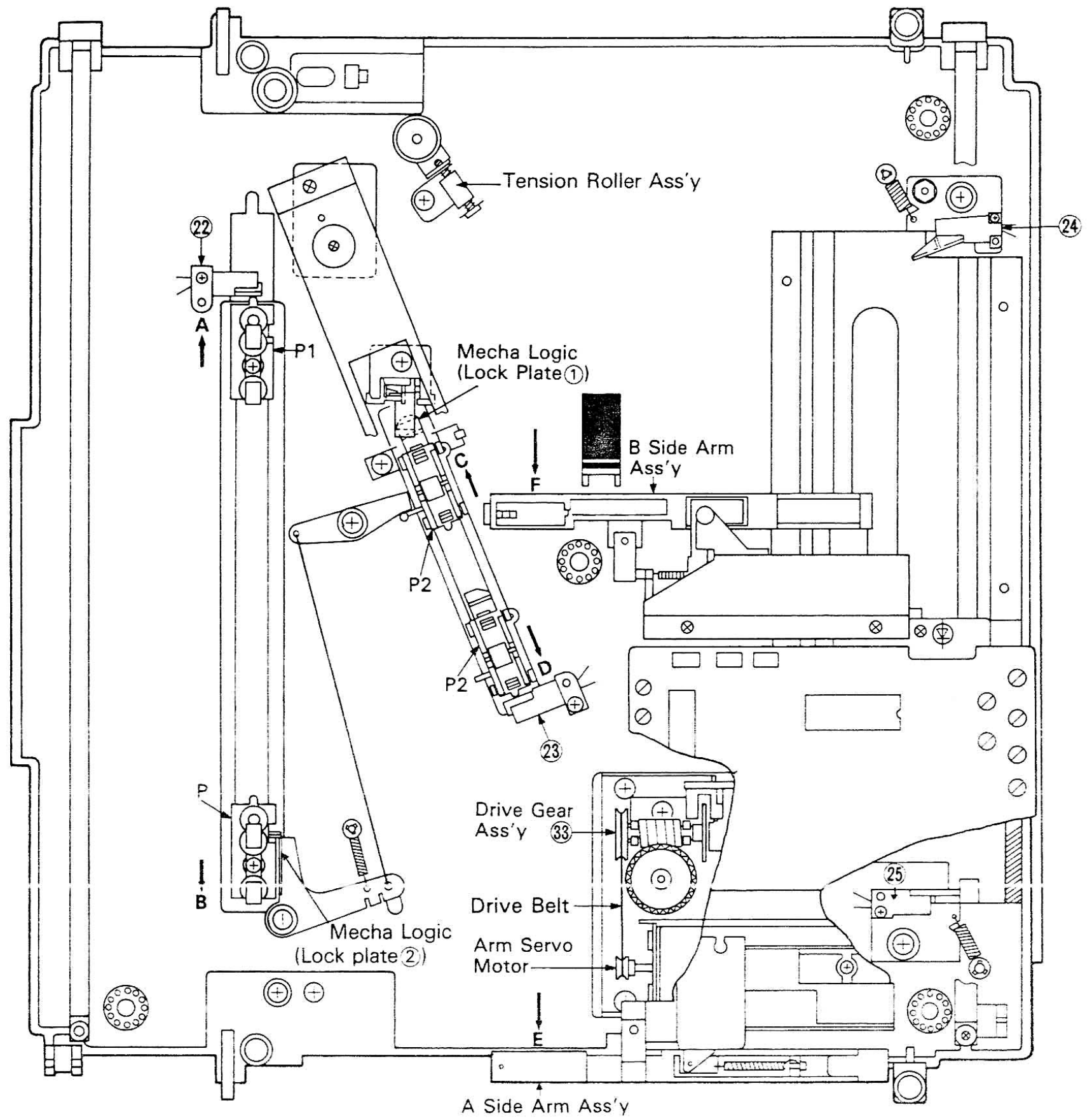
7-1. Front View



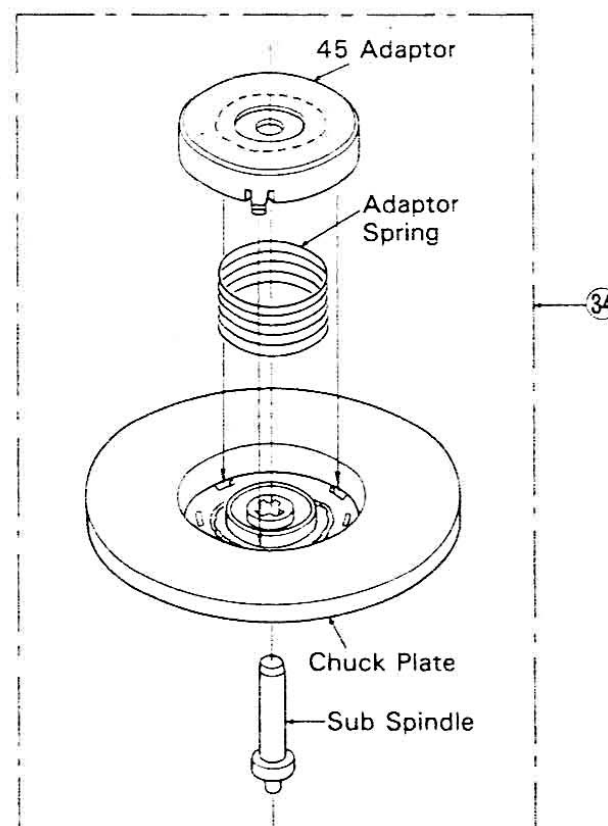
7-2. Top View



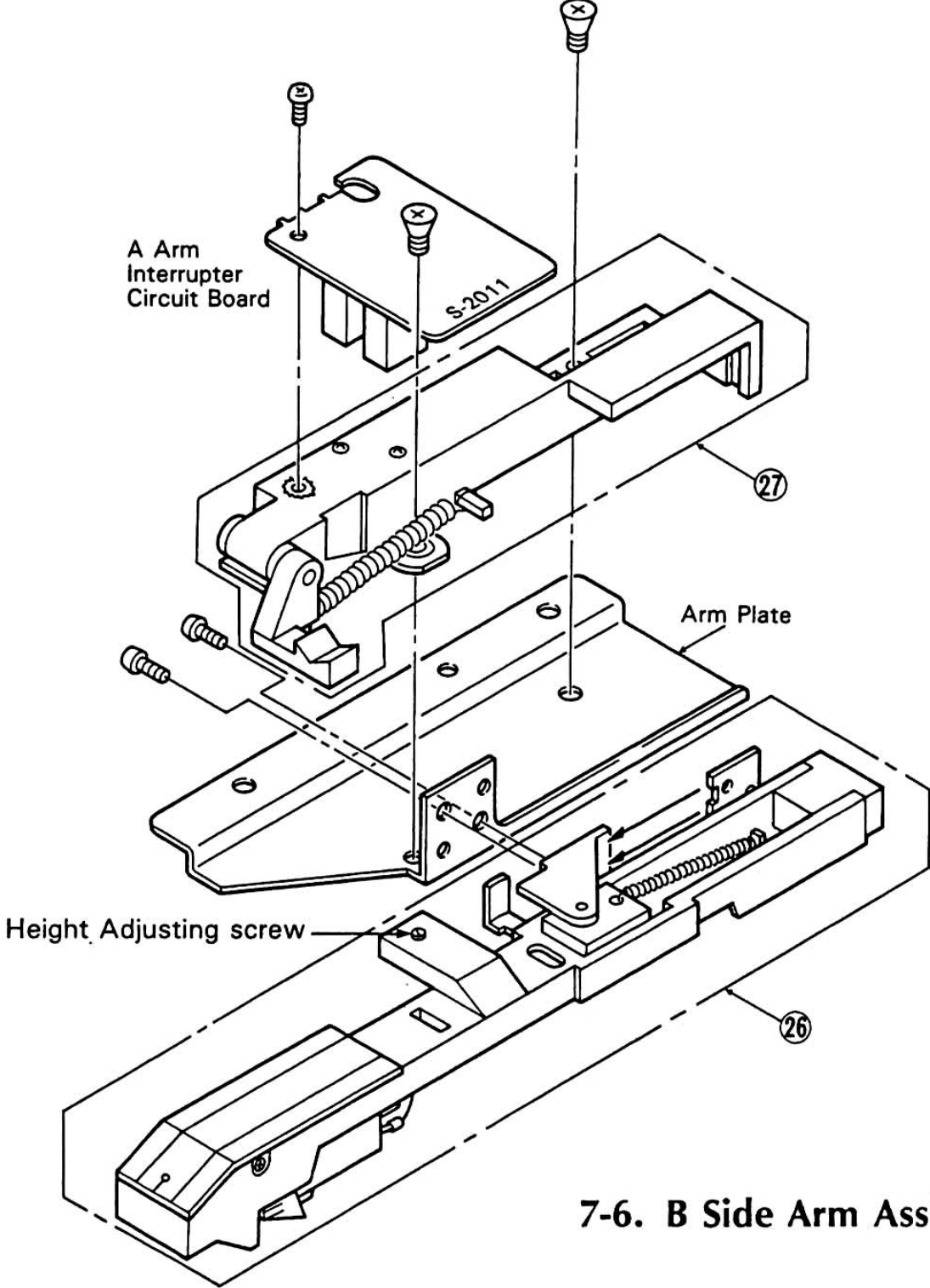
7-3. Top View of Main Chassis



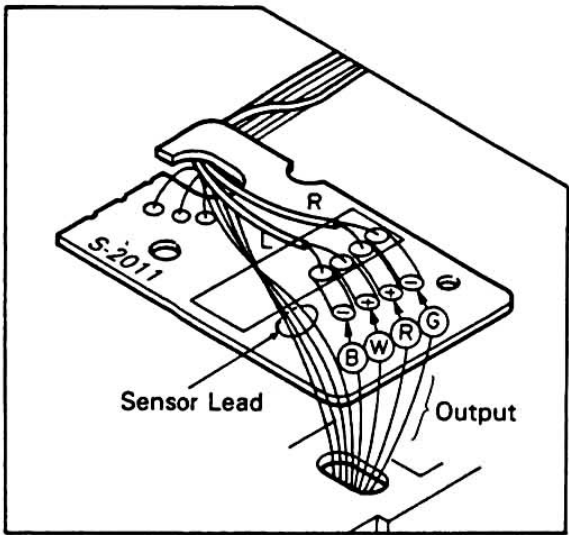
7-4. Chuck Plate



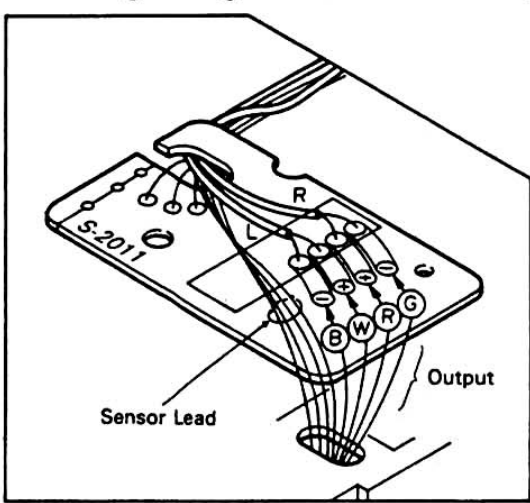
7-5. A Side Arm Ass'y & Lifter Ass'y



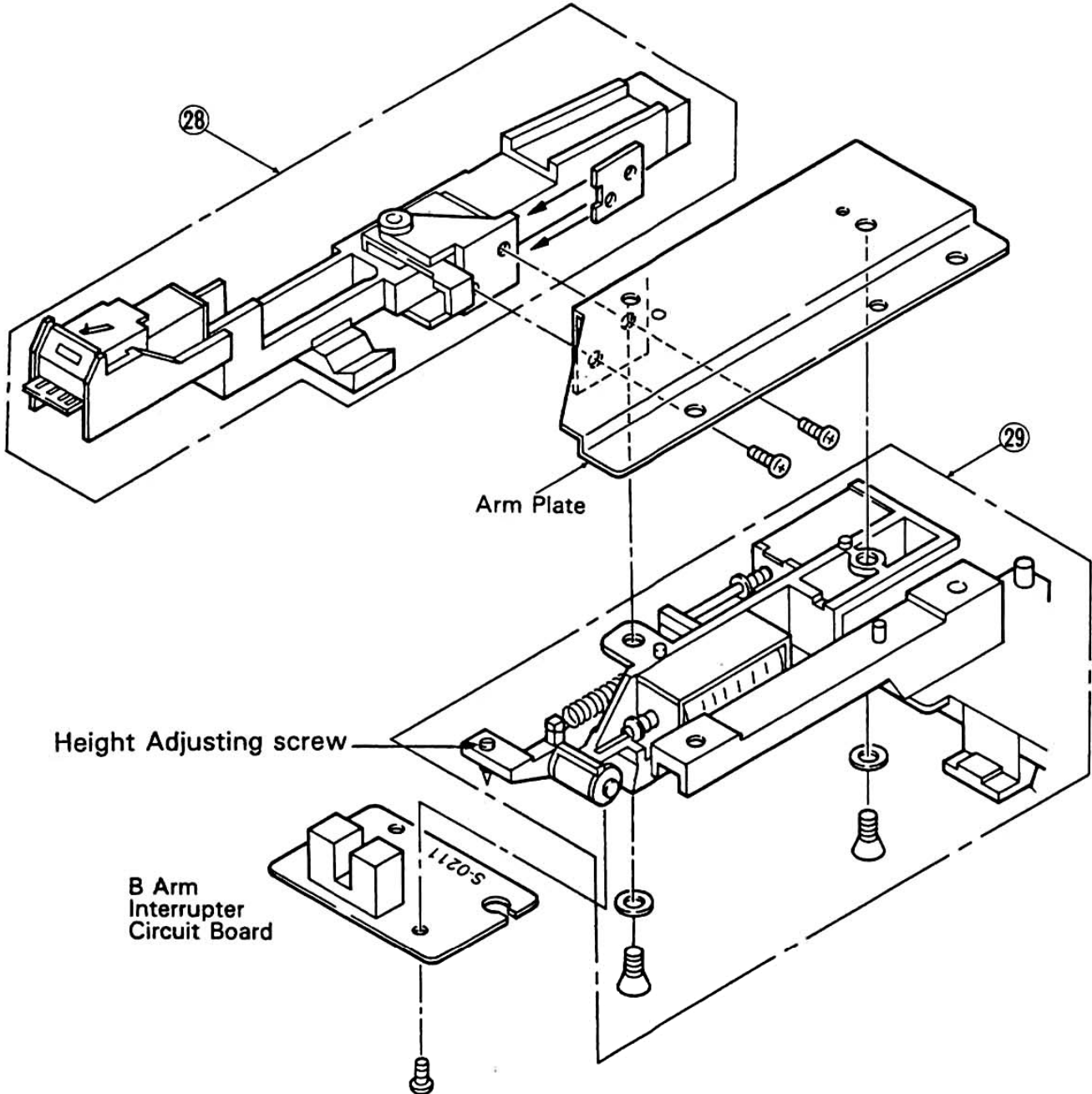
•Wiring Diagram of S-0211 (A Arm Side)



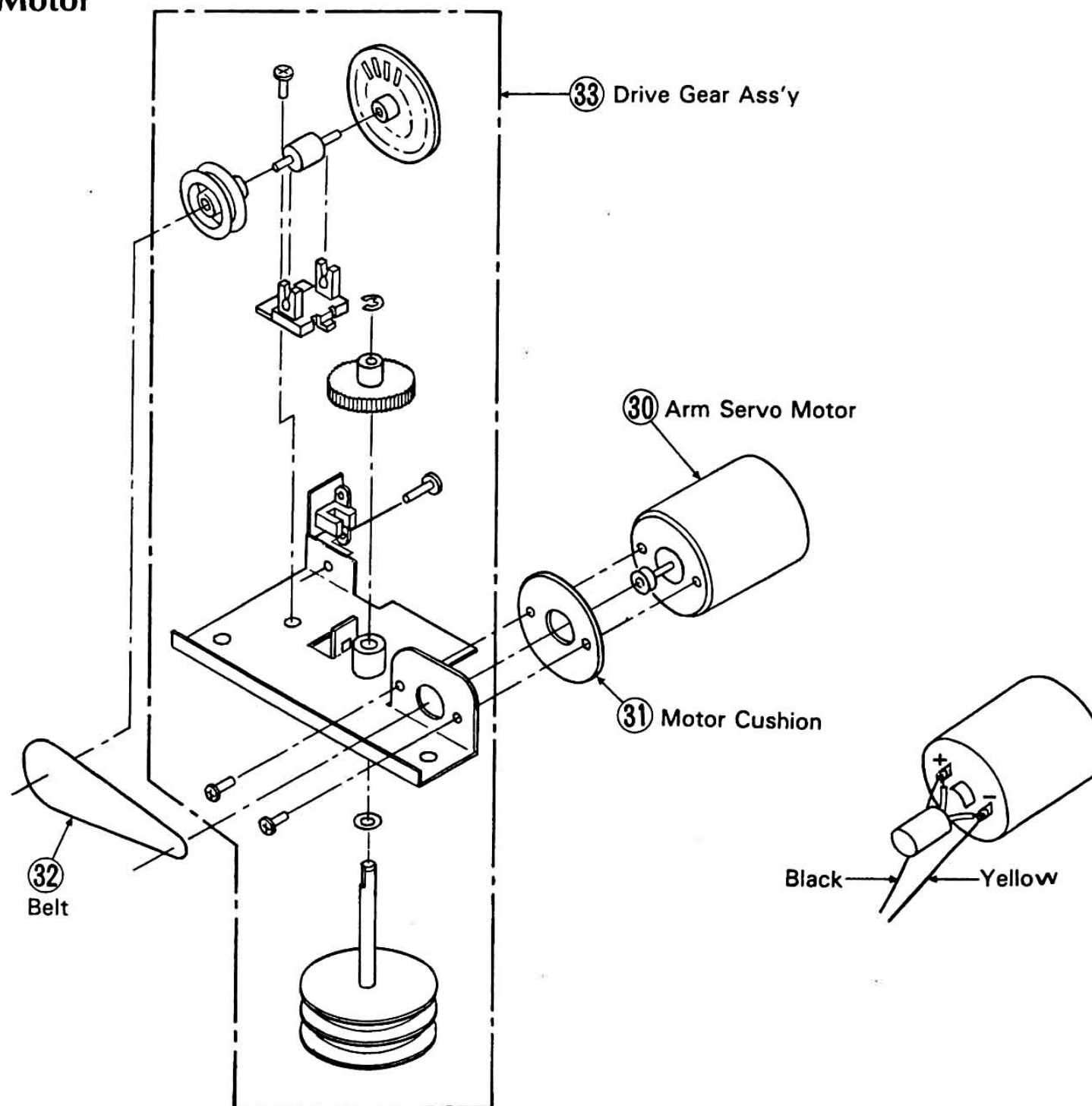
•Wiring Diagram of S-0211 (B Arm Side)



7-6. B Side Arm Ass'y & Lifter Ass'y



7-7. Arm Servo Motor



Parts List

Parts No.	Stock No.	Description
1	13286410	Top Plate (Silver Model)
	13290010	Top Plate (Black Model)
2	13284610	Key Board Ass'y (Silver Model) <XX,CSA,EU,BS,AS>
	13294810	Key Board Ass'y (Black Model) <XX,CSA,EU,BS,AS>
	13310400	Key Board Ass'y (Silver Model)
	13310500	Key Board Ass'y (Black Model)
3	13273800	Front Cover
4	13303300	Stylus SN-909, for A arm and B arm
5	13273910	Front Panel Ass'y (Silver Model) <XX,CSA,EU,BS,AS>
	13294510	Front Panel Ass'y (Black Model) <XX,CSA,EU,BS,AS>
	13310600	Front Panel Ass'y (Silver Model)
	13310700	Front Panel Ass'y (Black Model)
6	13273700	Side Panel, right side (Silver Model)
	13291200	Side Panel, right side (Black Model)
7	13273600	Side Panel, left side (Silver Model)
	13291100	Side Panel, left side (Black Model)
△ 8	15014901	Power Transformer <XX>
△	15014902	Power Transformer <UL,CSA>
△	15014905	Power Transformer <EU,BS,AS>
△ 9	46413200	Power Supply Cord <XX,CSA>
△	38004700	Power Supply Cord
△	38004500	Power Supply Cord <EU>
△	38004300	Power Supply Cord <BS>
△	07204200	Power Supply Cord <AS>

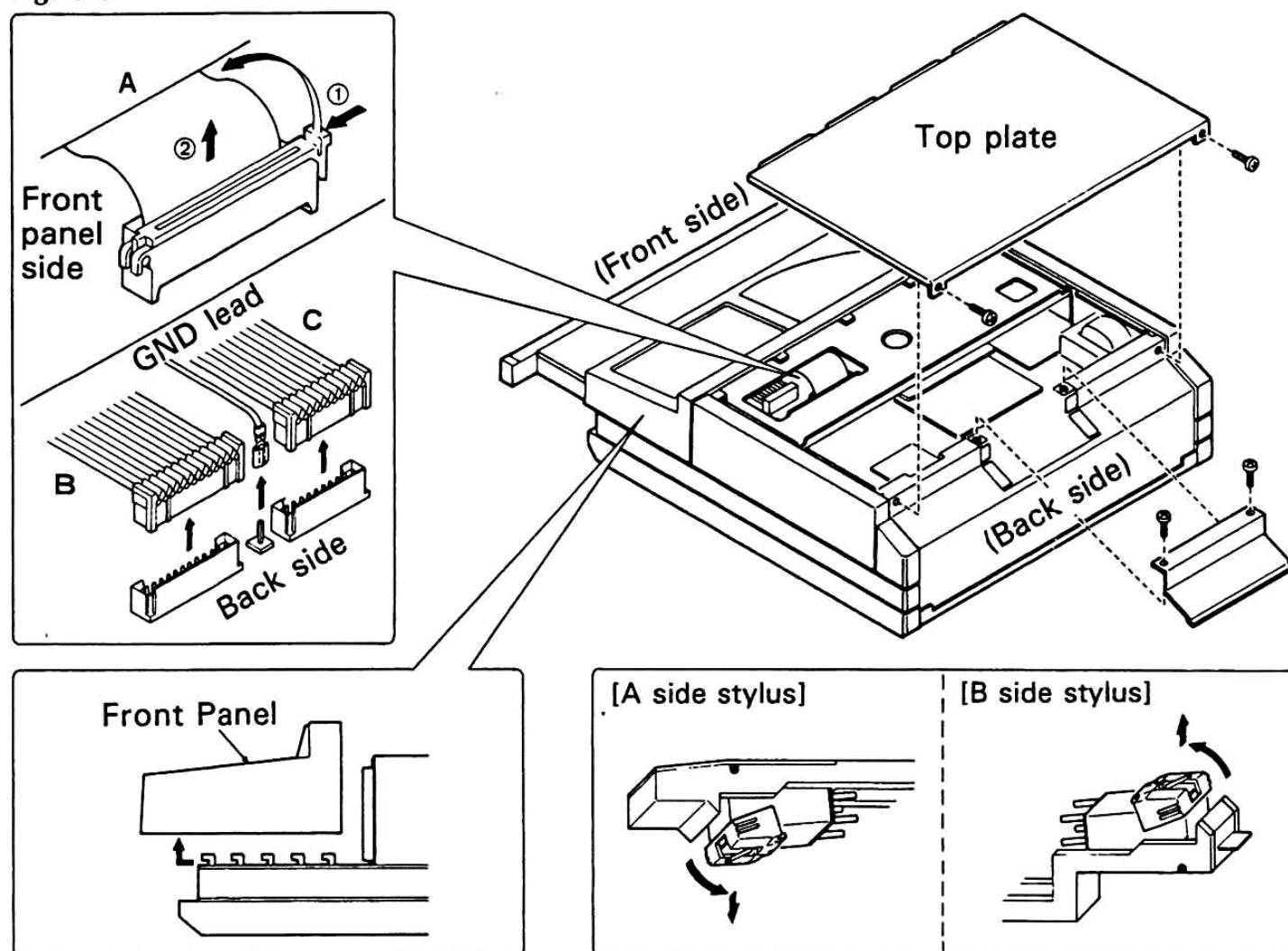
Parts No.	Stock No.	Description
△ 10	46941300	Switch for Power Supply
11	13278800	Cord Cover
12	13234400	Output Cord with Pin Plug <XX,CSA,EU,BS,AS>
	13234500	Output Cord with Pin Plug
△ 13	46413900	POWER Switch
14	13280900	Knob, POWER Switch
15	18096500	Disk Base Ass'y (Silver Model)
	18096400	Disk Base Ass'y (Black Model)
16	18096700	Disk Plate Ass'y (Silver Model)
	18096600	Disk Plate Ass'y (Black Model)
17	13274000	Pick-up Brush A
18	13274100	Pick-up Brush B
19	18083900	DD Motor for Disk Drive (with S-0260)
20	13260300	T.T. Sheet
21	13260400	Lock Bush
22	46926900	Micro Switch, disk open
23	46926900	Micro Switch, chuck ON
24	46925200	Micro Switch, B arm reset
25	46925200	Micro Switch, A arm reset
26	18095700	A Side Arm Ass'y
27	13284410	A Side Lifter Ass'y with Plunger A
28	18095400	B Side Arm Ass'y
29	13284510	B Side Lifter Ass'y with Plunger B,C
30	46935700	Arm Servo Motor
31	13288900	Motor Cushion
32	13281100	Drive Belt
33	18085600	Drive Gear Ass'y
34	18086300	Chuck Plate Ass'y
35	13289100	Switch Case
36	13266700	Wire Stopper (L plate) (Refer Fig.8-6 on page 16)

8. HOW TO REPLACE MAIN PARTS

A. Front panel and Stylus

- 1) Depress OPEN key to take out the disk base. Turn off the power supply by depressing the POWER switch when the disk base comes out about 10cm. Remove two 3 × 8 black screws from the back side, and the top plate.
- 2) Carefully extract the A-surface stylus holder in the arrow direction as shown while holding the cartridge by the hand. Mount a new stylus by carefully pushing it in the opposite direction. Take care not to touch the finger to the stylus tip.
- 3) Mount the top plate and turn on the power supply. Then, turn off the power supply the moment the A-arm comes near the front panel window.
- 4) Disconnect three connectors A, B, C and GND lead.
- 5) Carefully pull the front panel toward you and remove the right- and left-side stoppers, separately. Take care that the connector is not caught by other parts.
- 6) In the same way as in the A-surface stylus holder, carefully extract the B-surface stylus holder in the arrow direction as shown while holding the cartridge by the hand. Take care not to touch the finger to the stylus tip.
- 7) Fit the front panel to the right- and left-side stoppers and then connect the connectors A, B, C and the GND lead. In doing this, take care that the power switch is not brought into contact with the under surface of the panel. Further, in fitting the connector, do not apply an excessive force to the board.
- 8) Fix the rear side cover and the top plate by two screws, respectively.
- 9) Check that the disk base is automatically pulled in when the power switch is turned on.

Fig. 8-1



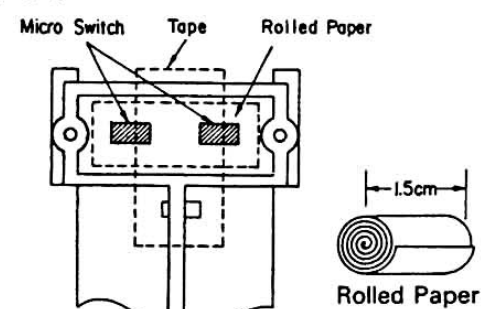
Note

1. Interlock switch

When the top plate is removed, the interlock switch is automatically opened. Therefore, no power supply is applied to the set even if the main switch is turned on. In the case where the power supply is required to be turned on in replacing some parts such as the string, take the following procedure:

- 1) Remove two 3 × 8 screws for fixing the interlock switch.
- 2) Push the interlock switches by a rolled paper as shown and fix the paper by an adhesive tape to turn on them.

Fig. 8-2



2. Keyboard-only operation

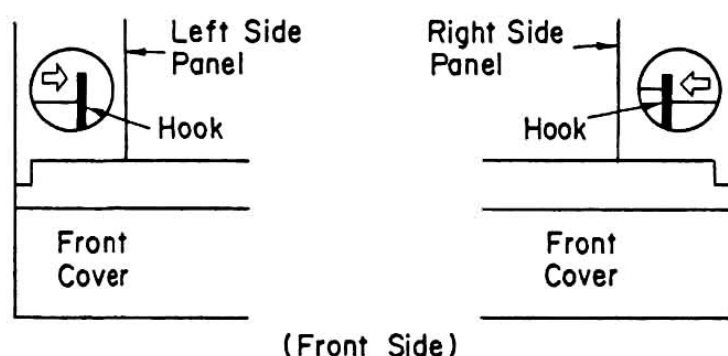
When the front panel is removed, the set will not be operated. In the case the set is required to operate, remove the key board from the front panel and then plug the connector into S-0208.

B. Front cover (See Fig. 8-3)

- 1) Unhook the front cover through the apertures formed on this side of the right- and left-side panel and then extract the front cover toward you.

Fig. 8-3

Bottom View



C. How to remove keyboard

- 1) Remove the top plate and front panel.
- 2) Remove two 3 × 8 screws for fixing the keyboard to the front panel.

D. How to remove side panels (See Fig. 8-4)

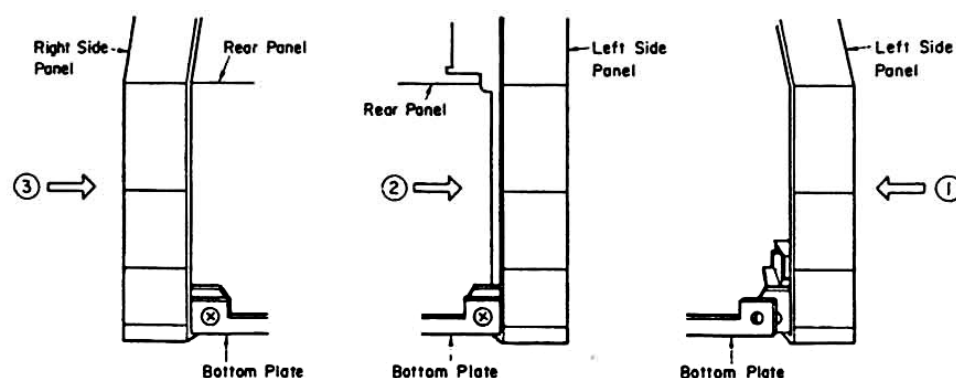
- 1) Remove the top plate, front panel and front cover.
- 2) Remove two 3 × 8 screws for fixing the side panels and top plate.

- 3) Extract the right- and left-side panels.
- 4) Remove the rear panel.

E. How to install side panels (See Fig. 8-4)

- 1) Fit the left-side panel to the bottom plate. ①
- 2) Fit the back-side panel to the left-side panel and then fix it with the 3 × 8 screws. ②
- 3) Fit the right-side panel to the bottom plate and the back-side panel and then fix it with the 3 × 8 screws. ③
- 4) Fit the front cover to the right- and left-side panels.

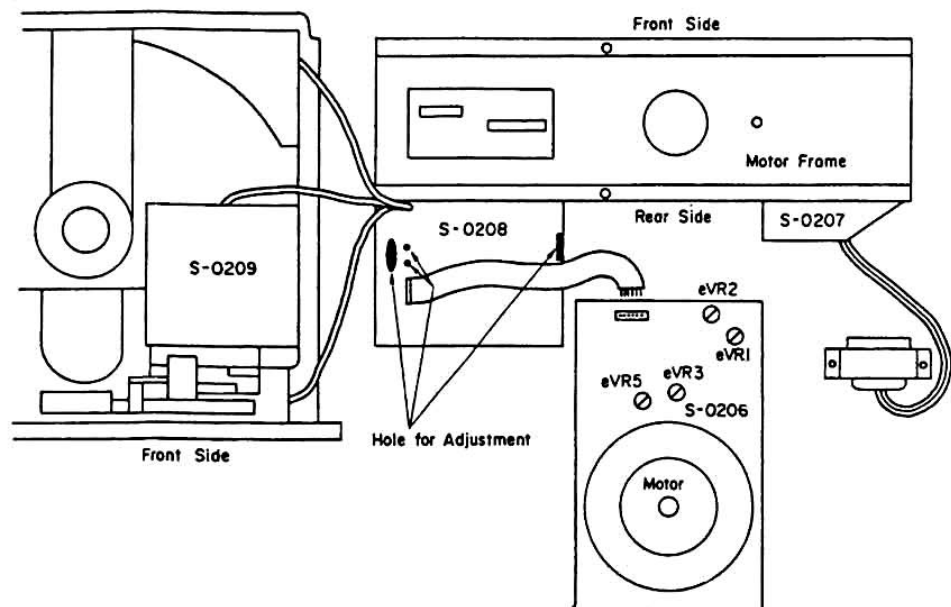
Fig. 8-4



F. How to remove disk driving DD motor with control board

- 1) Remove the top plate, front panel, front cover, right- and left-side panels, and back-side panel.
- 2) Remove four 4×8 binding screws for fixing the motor frame.
- 3) Place the removed motor frame on the right hand of the set with it set front-side back.
- 4) Remove three 4×12 screws for mounting the motor.

Fig. 8-5



G. How to remove A-arm assembly and lifter assembly (See page 15)

- 1) Remove the top plate and front panel.
- 2) Disconnect the lead extending from the arm of board S-0211.
- 3) Remove a 2×4 binding screw for mounting board S-0211.
- 4) Remove two 2×4 flat-head screws for fixing the lifter assembly.

H. How to remove B-arm assembly and lifter assembly (See page 15)

- 1) Remove the top plate, front panel, front cover, right- and left-side panels, back-side panel, and motor frame.
- 2) Set the B-arm at its reset position by pulling the table disk to its extreme end. (Turn on OPEN key and then off when the disk base is pulled out extremely.)
- 3) Remove the B-arm stylus.
- 4) Remove two 3×8 screws fixing the arm plate.
- 5) Perform the same procedure from (2) to (4) stated in item G above.

I. How to remove disk base and disk plate (See Fig. 8-7)

Fig. 8-6

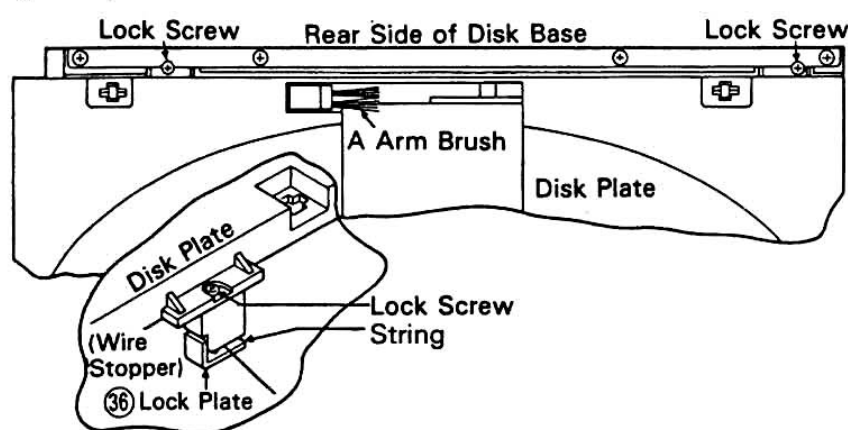
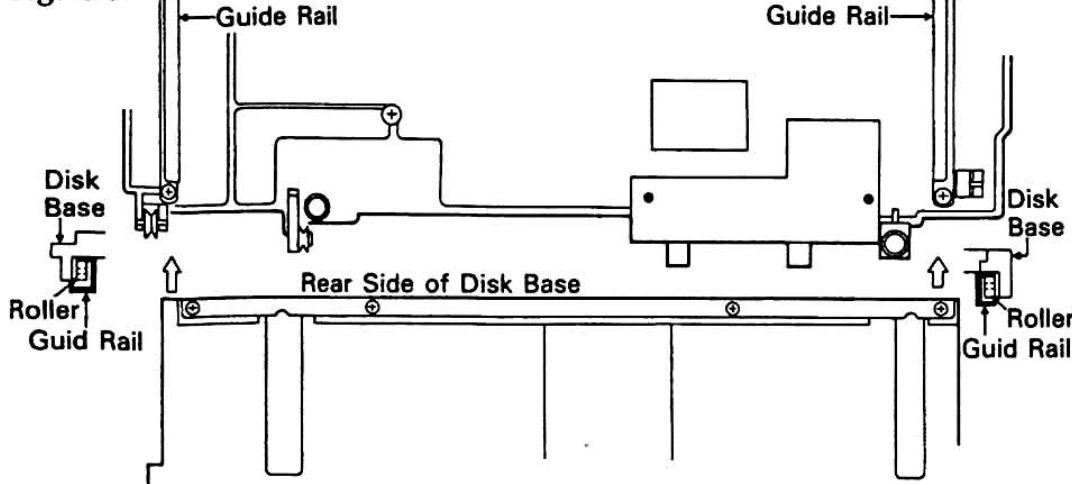


Fig. 8-7

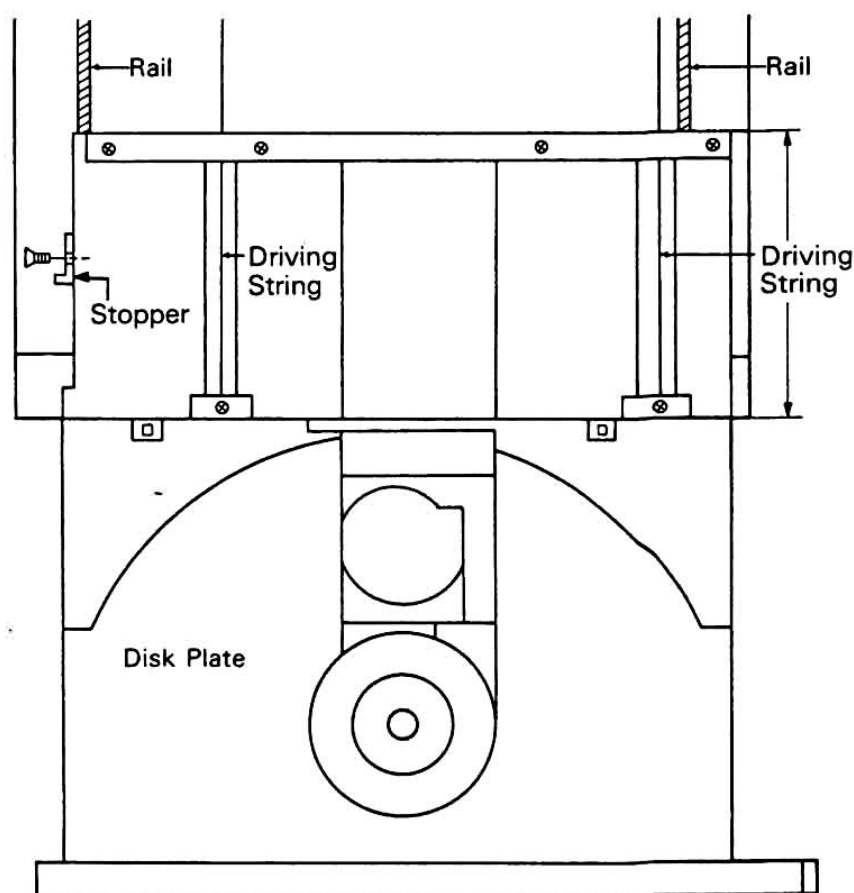


- 1) Remove the top plate, front panel, front cover, right- and left-side panels, and back-side panel.
- 2) Pull the disk base table toward you to its extreme front end by depressing OPEN key.
- 3) Loosen screws for fixing mechanism-driving strings to the disk table. Remove the metal fixture from the string. (Take care not to remove the fixture from the string by excessively loosening the screw.)
- 4) Remove a 3×8 fixture screw positioned on the left side of the disk base.
- 5) Extract the disk base together with the disk plate.

J. How to install disk base and disk plate (See Figs. 8-6, 8-7, and 8-8)

- 1) Depress OPEN key to move the movable pulley P₁ to position A, the movable pulley P₂ to position C and the A and B-arms to positions E and F, respectively.
- 2) Fit the disk plate onto the disk base.
- 3) Mount the disk plate onto the rail and then push it about 10cm. Fix the disk plate with a metal fixture located at the left end of the disk base.
- 4) Pull the disk plate to its extreme front end and then hang two right and left strings on the string fixing fixture located on the plate end portion.
- 5) By depressing OPEN/CLOSE key, push the disk table to its extreme rear position by the hand, when the movable pulley P₁ moves from position A to position B, as shown in Fig. 7-3 on page 14.
- 6) Push the disk plate to a position where the disk plate is tightly in contact with the rear portion of the disk base.
- 7) Tighten two string fixing screws. The string drives the mechanism of the disk plate.
- 8) Be sure that the disk base and disk plate move normally by depressing OPEN/CLOSE key.

Fig. 8-8

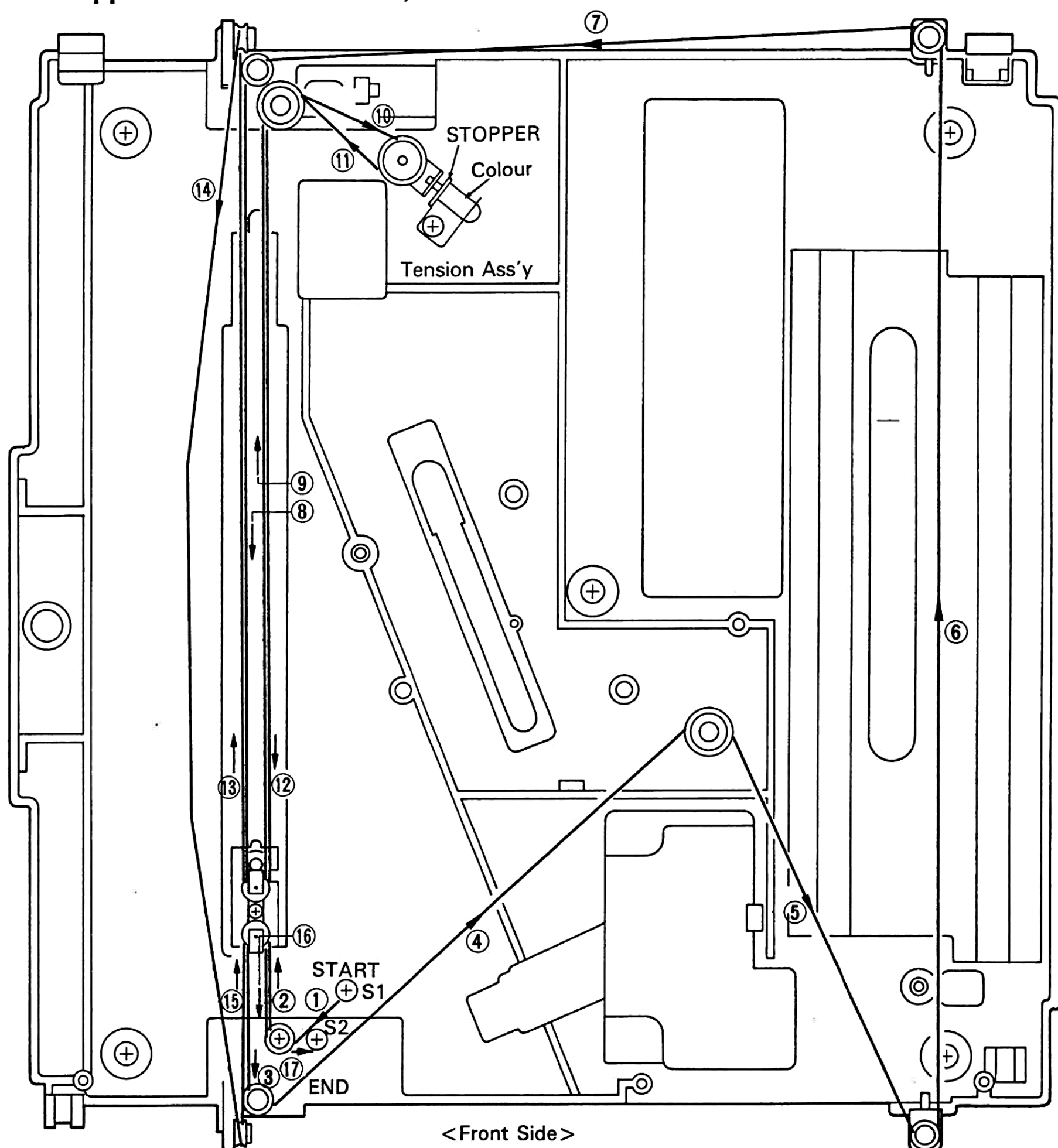


K. How to remove drive gear assembly and arm servomotor (See Fig. 7-7 on page 15)

- 1) Set the A-arm at its extreme rear position. (Turn on OPEN Key and turn off the main switch when the A-arm reaches the extreme rear end position.)
- 2) Remove the top plate, front panel, front cover, right- and left-side panels and the rear panel.
- 3) Remove the disk plate and disk base.
- 4) Remove screws for mounting the arm servomotor.
- 5) Remove screws for mounting the drive gear assembly.

9. HOW TO REPLACE MECHANISM DRIVING STRING

(On the upper side of main chassis)



•Replacement procedure

1. Remove the top plate, front panel, side plates and rear panel.
2. Remove the motor frame.
3. Remove the disk table and disk plate.
4. Make a knot around the screw S_1 , stretch the string in accordance with procedure from 1 to 17, and tie up the string end around the screw S_2 .
5. After having assembled the set completely, turn on the main switch to make sure that the disk table and disk plate opens or closes normally and that the normal music reproduction can be made.

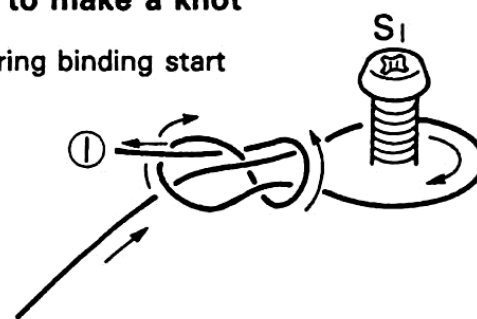
Note) Adjust the tension of the stretched string by the use of the adjusting screw of the tension assemble so that the collar is brought into contact with the stopper as shown above.

Parts List

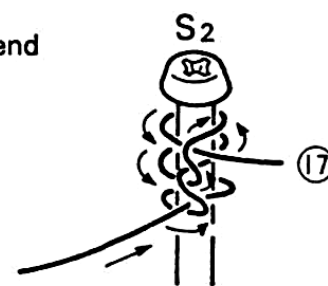
Parts No.	Stock No.	Description
1	60360530	Driving String (3m)
2	13303500	Tension Roller Ass'y

* How to make a knot

1. String binding start

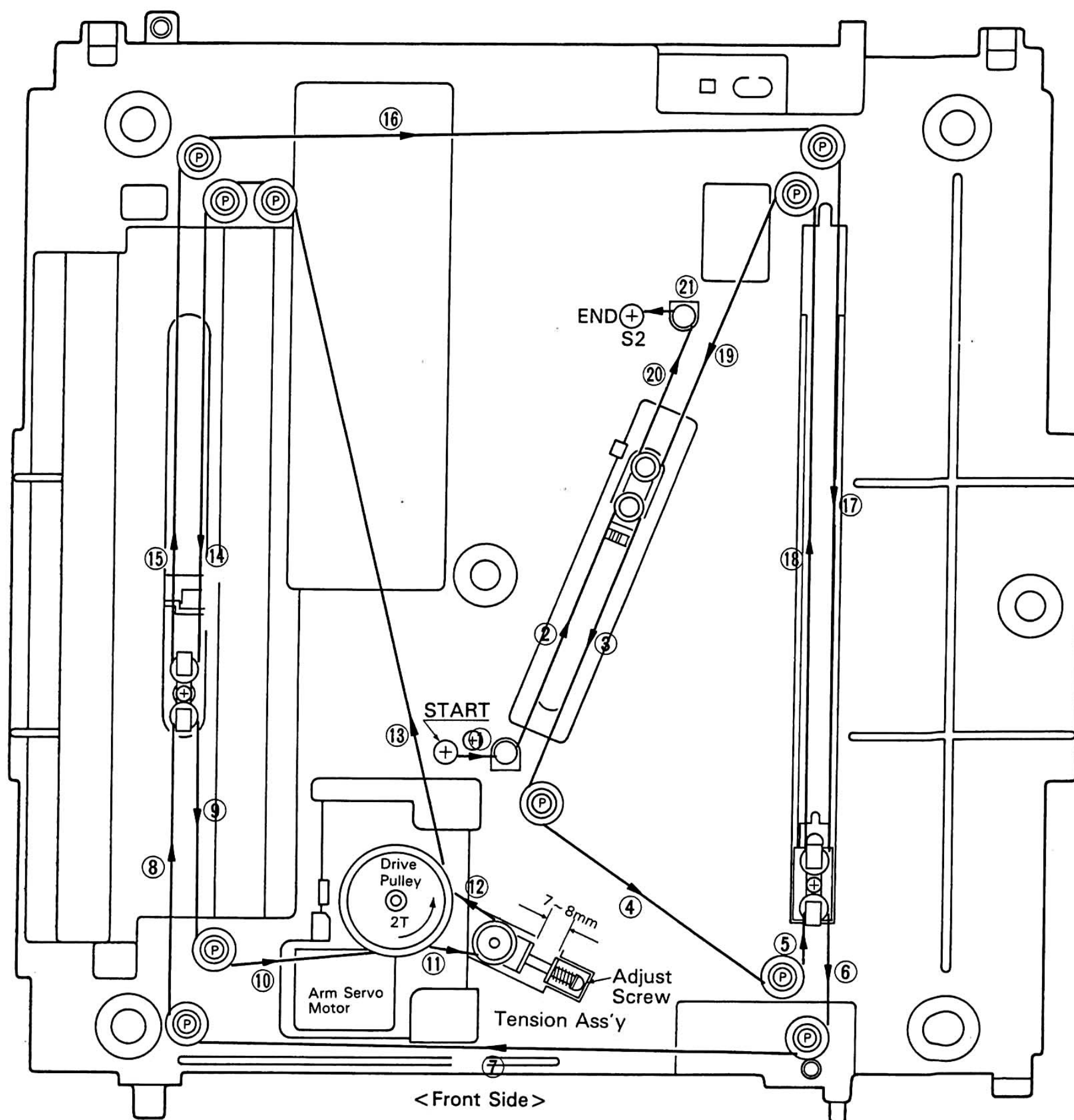


2. String binding end



10. HOW TO REPLACE MECHANISM DRIVING STRING

(On the back side of main chassis)



•Replacement procedure

1. Remove the top plate, front panel, side plates and rear panel.
2. Remove the motor frame.
3. Remove the disk table and disk plate.
4. Remove four screws for fixing the main chassis, and then turn the main chassis upside down.
5. Make a knot around the screw S_1 , stretch the string in accordance with procedure from 1 to 21, and tie up the string end around the screw S_2 .
6. After having assembled the set completely, turn on the main switch to make sure that the disk table and disk plate opens or closes normally and that the normal music reproduction can be made.

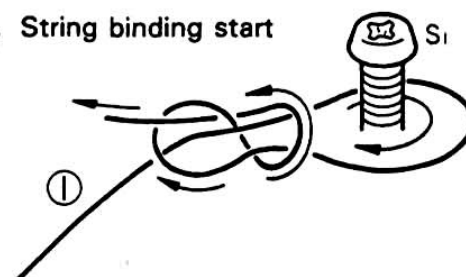
Note) Adjust the tension of the stretched string by the use of the adjusting screw of the tension assembly as shown above.

Parts List

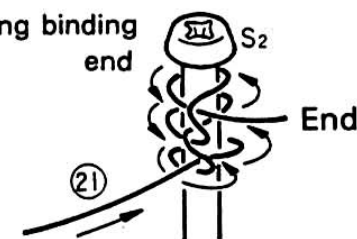
Parts No.	Stock No.	Description
1	60360530	Driving String (3m)
2	07600910	Tension Ass'y

* How to make a knot

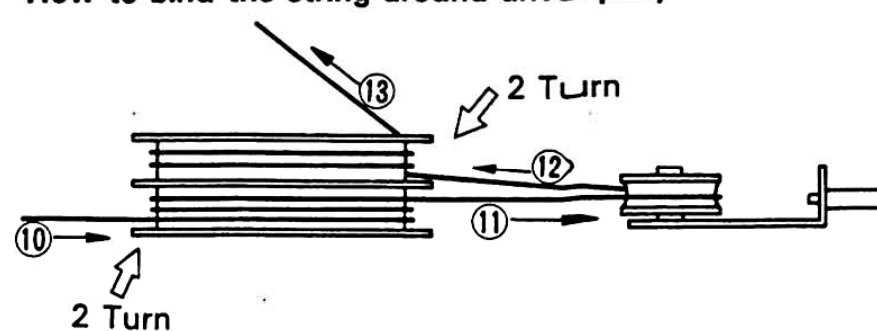
1. String binding start



2. String binding end

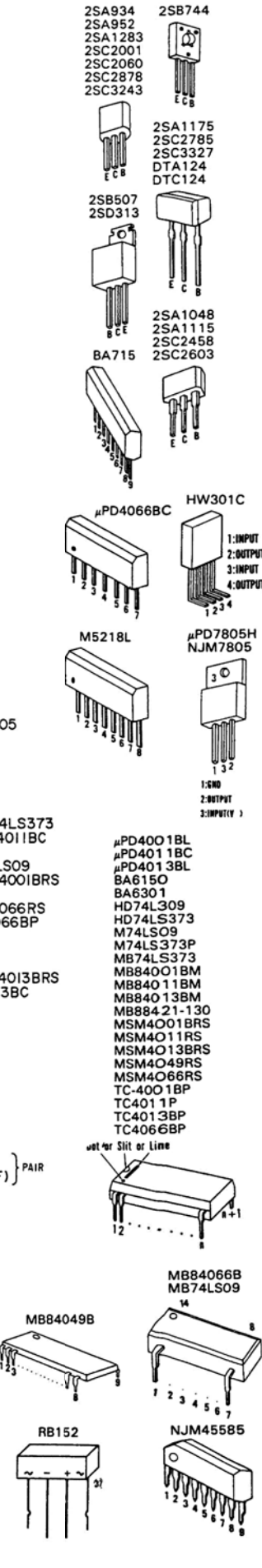
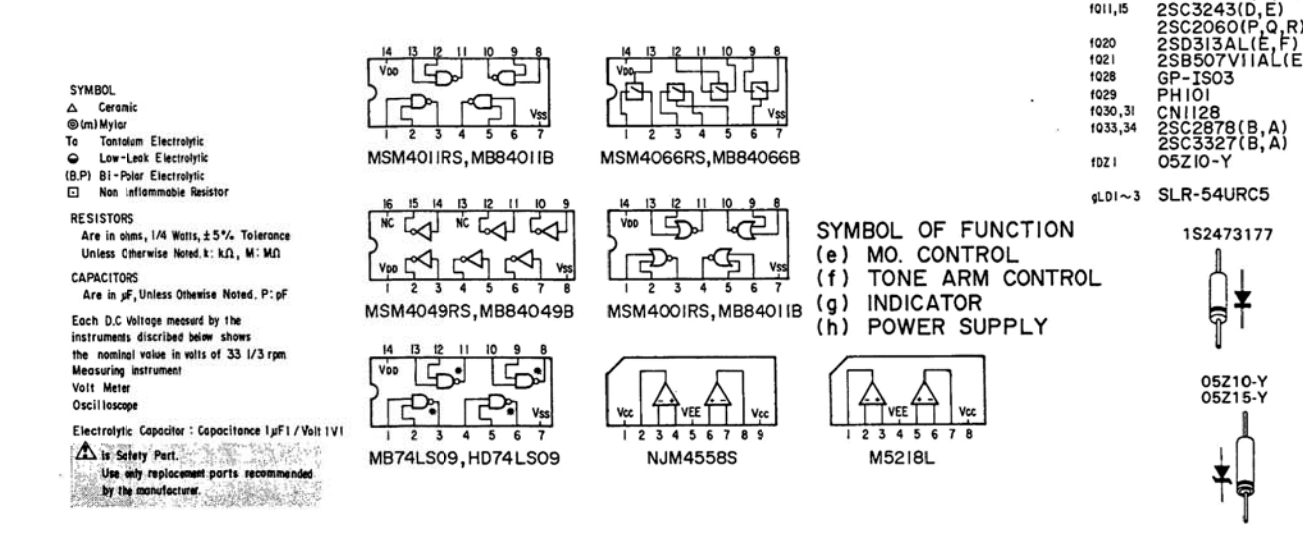
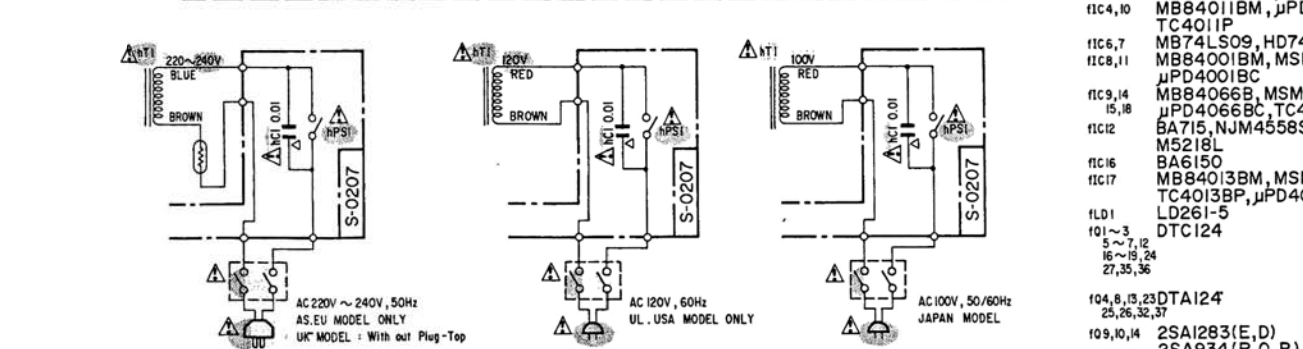
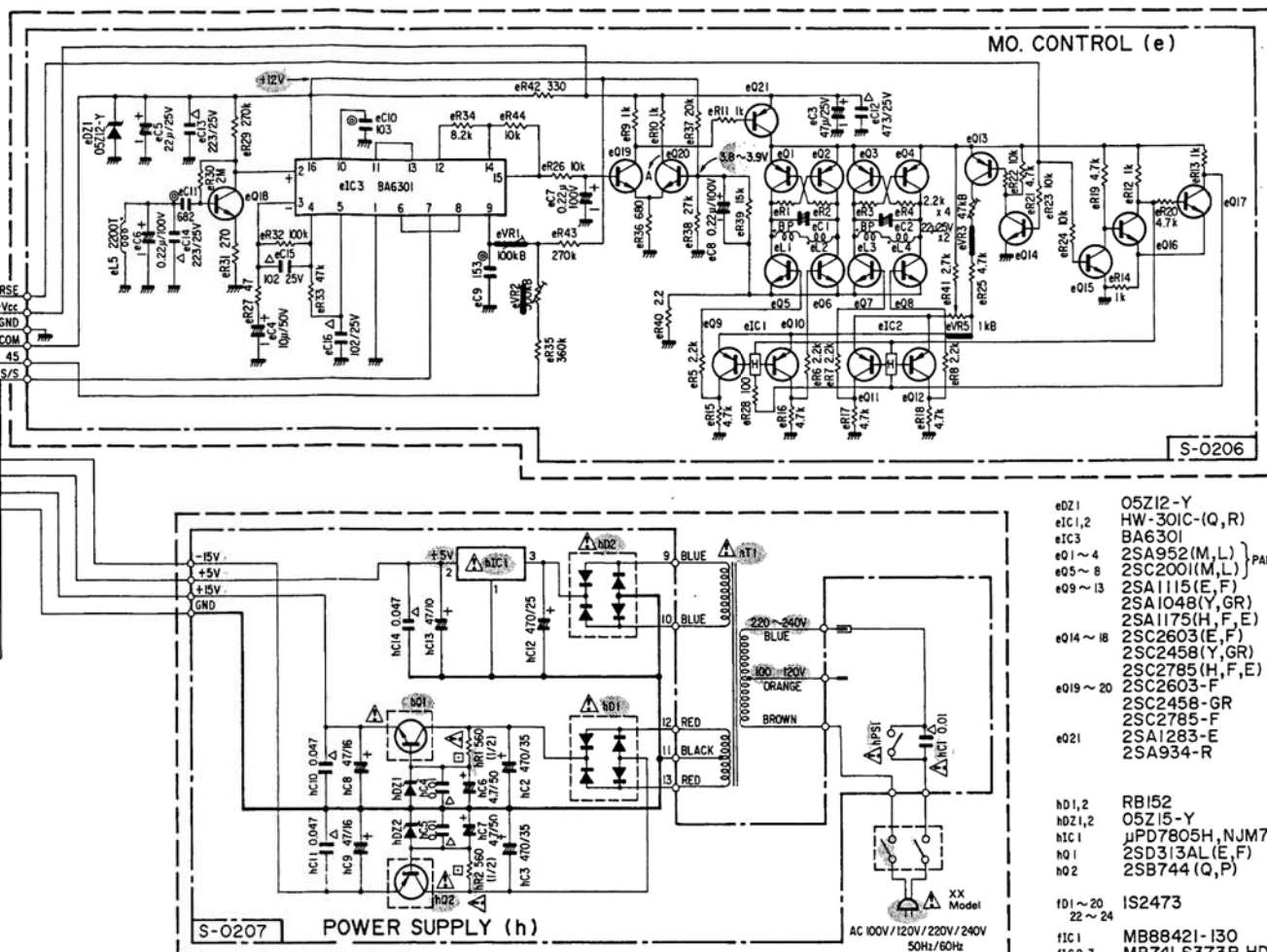
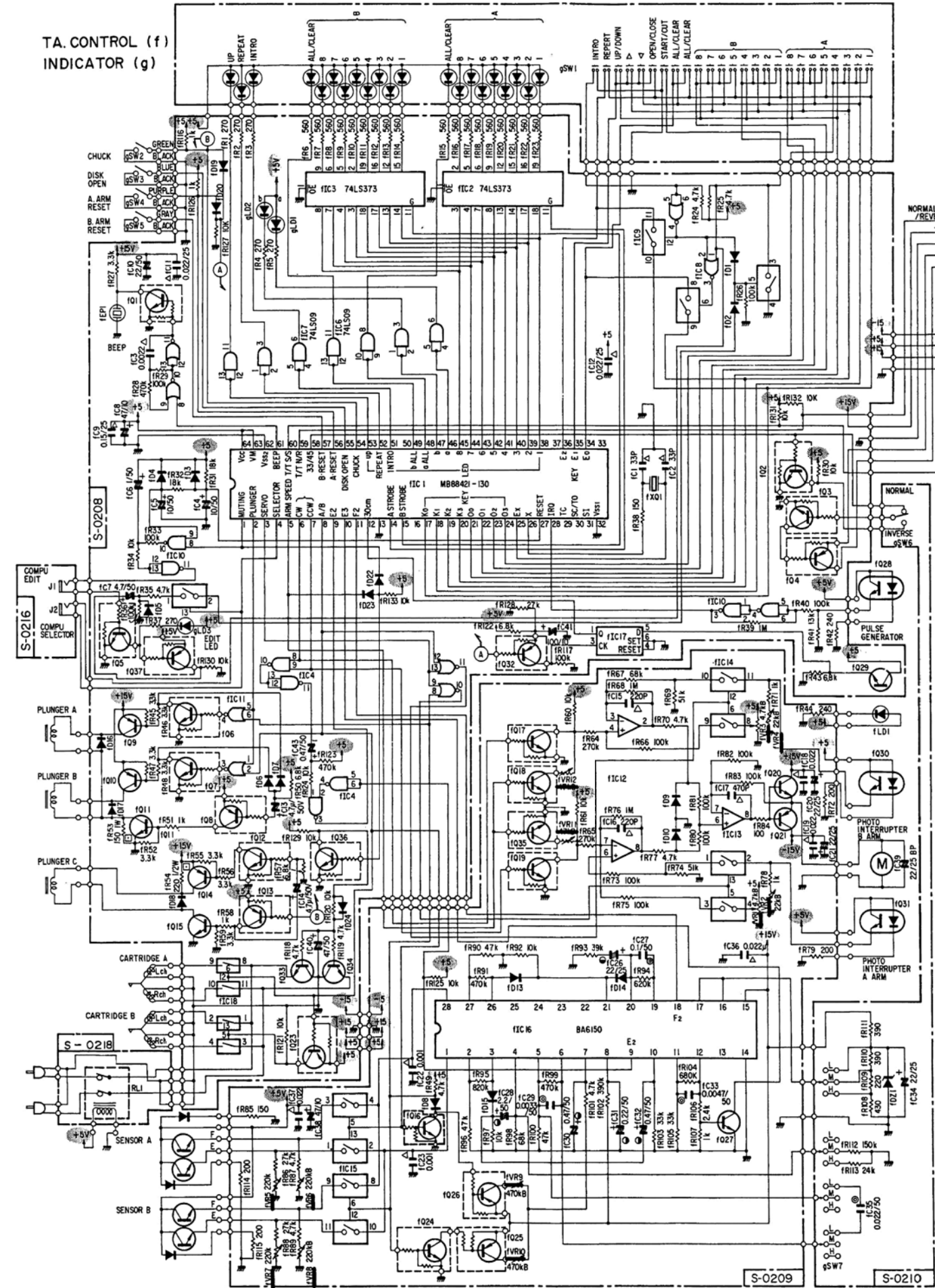


* How to bind the string around drive pulley



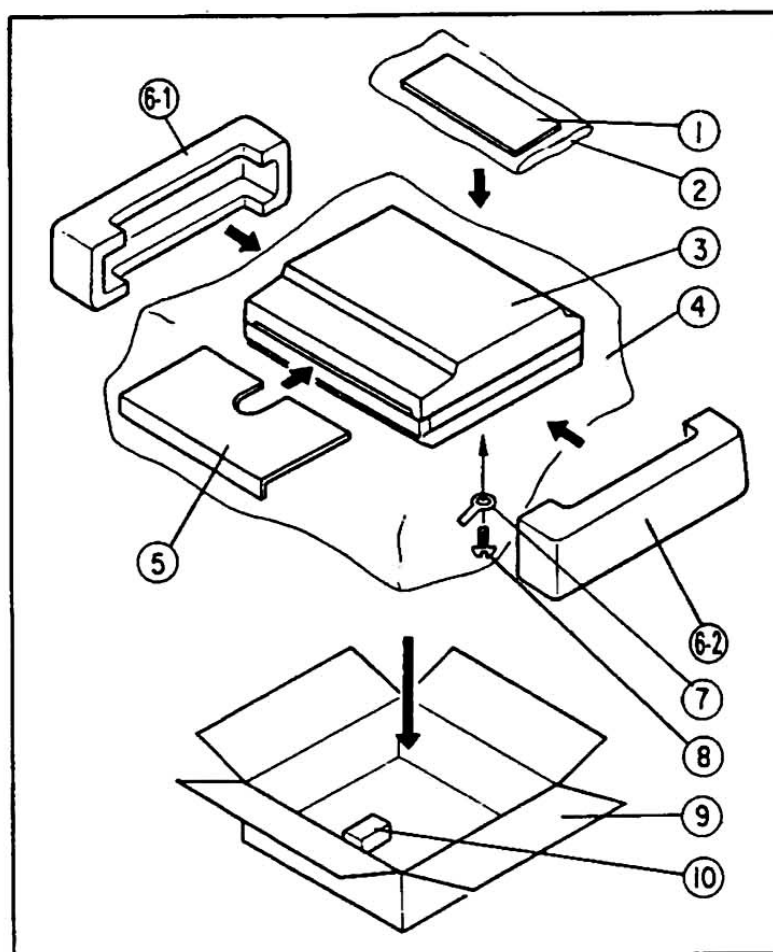
11. SCHEMATIC DIAGRAM

• Design and specifications subject to change without notice for improvement.
• La présentation et les spécifications sont susceptibles d'être modifiées sans préavis par suites d'améliorations éventuelles.
• Änderungen, die dem technischen Fortschritt dienen, bleiben vorbehalten.



12. PACKING LIST

Parts No.	Stock No.	Description
1	—	Accessories (Sound Absorber)
2	—	Polyethlen Bag
3	—	Turntable
4	91122710	Vinyl Bag
5	13285400	Corrugated Board
6-1	13287710	Styrofoam Packing (Left side)
6-2	13287810	Styrofoam Packing (Right side)
7	—	Tag
8	00423400	Transit Screw, 4 x 16 Binding
9	13262800	Carton Case (Silver Model)
	13294700	Carton Case (Black Model)
10	—	Bottom Packing



13. ACCESSORY LIST

Stock No.	Description
46267300	2P Plug Cord
46798100	Operating Instruction
Accessories (Sound Absorber)	
13308100	Wooden Board (Front Side)
13308000	Wooden Board (Rear Side)
13307900	Pipe
13145100	Insulator