ORDER NO. SD7803-1335

Service Manual

QUARTZ

Direct Drive Automatic Turntable System

SL-1401 (MC)

SL-1401

- The model SL-1401 (MC) is available in Canada only.

SPECIFICATIONS

Specifications are subject to change without notice for further improvement.

General	
Power supply:	AC120V, 50 or 60 Hz
Power consumption:	9.5W
Dimensions: (H x W x D)	12.5 x 45.3 x 36.9 cm 4-15/16 x 17-3/4 x 14-9/16
Weight:	9.3 kg (20 lb.)
Turntable section	
Type:	Automatic turntable, Auto return, Auto stop.
Drive method:	Direct drive
Motor:	Brushless DC motor
Drive control method:	Quartz-phase locked control
Turntable platter:	Aluminum die-cast Diameter 33 cm (13 inches) Weight 2.2 kg (4.8 lb.) Moment of inertia 310 kg·cm^2 (106 lb·in^2)
Turntable speeds:	33-1/3 rpm and 45 rpm
Starting torque:	1 kg·cm (0.9 lb·in)
Braking system:	Electronic brake
Speed fluctuation due to load torque:	0% within 0.9 kg·cm (0.8 lb·in)
Speed drift:	Within ±0.002%
Wow and flutter:	0.025% WRMS (JIS C5521) ±0.035% peak (IEC 98A Weighted)
Rumble:	−73 dB (IEC 98A Weighted) −50 dB (IEC 98A Unweighted)
Tonearm section	
Type:	Universal tonearm Gimbal suspension "S" shaped tubular arm Static balanced type
Effective length:	230 mm (9-1/16 inches)
Overhang:	15 mm
Tracking error angle:	+3° at the outer groove of 30 cm (12") record +1° at the inner groove of 30 cm (12") record
Offset angle:	21.5°
Friction:	Less than 7 mg (lateral, vertical)
Effective mass:	22 g (with 6 g cartridge weight, 1.75 g stylus pressure)
Stylus pressure adjustment range:	0 – 3 g
Applicable cartridge weight range:	5 – 11 g
Headshell weight:	9.5 g

Weights and dimensions shown are approximate.

Technics

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Division of Matsushita Electric
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One Panasonic Way, Secaucus,
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■ PARTS IDENTIFICATION

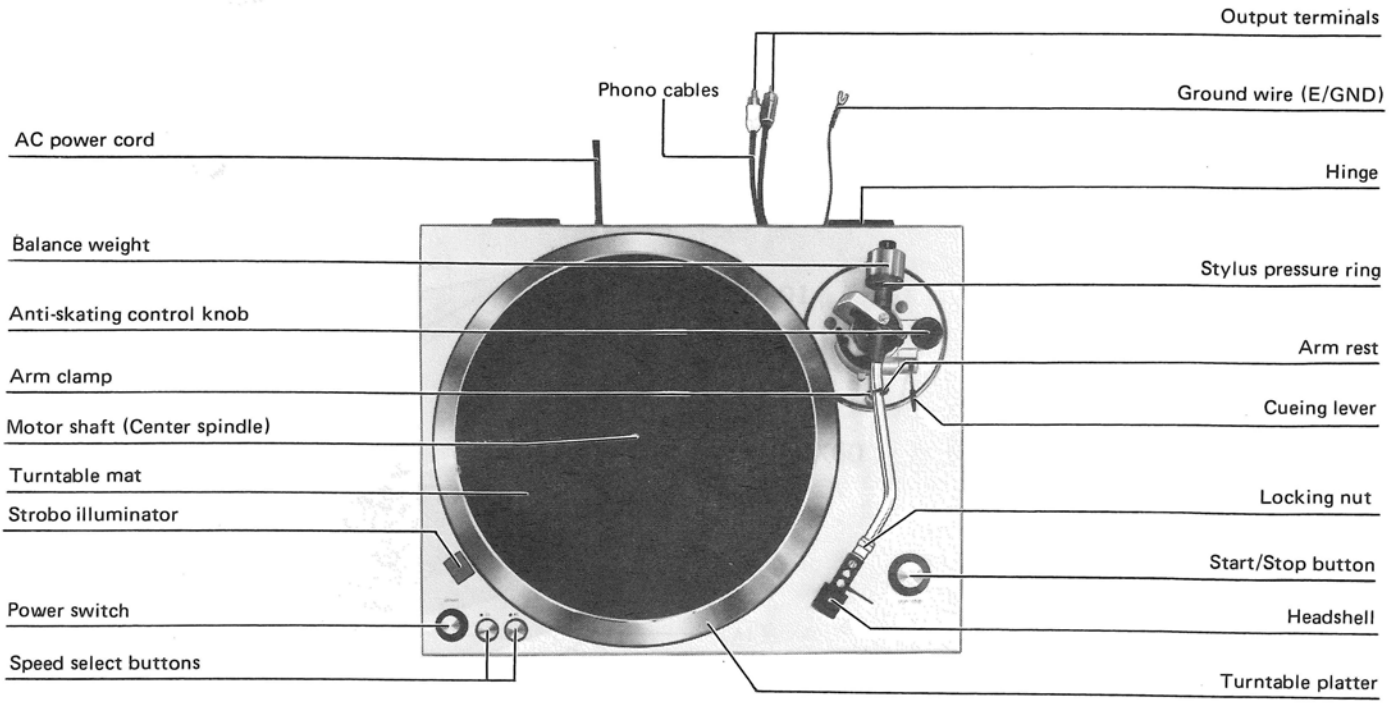


Fig. 1

■ FEATURES

Three kinds of high integration IC's.
In high accuracy quartz control, advanced electronic circuit technique and IC formation technique are required.
Technics employs the three kinds of high density IC, i.e., IC for frequency divider (DN860) adpoting I^2L and ECL. IC for phase and speed control (AN660), and IC for driving (AN640), and thus has produced a high accuracy quartz-locked turntable with a less than ±0.002% speed drift. (In conditions for normal use in which the temperature is stable, the drift is only approximately ±0.00001%)

Double isolator with particular emphasis on prevention of acoustic feedback.
Rotational accuracy may be said to have reached the ultimate with the superior quartz control system. In order to maximize such high performance, the double isolator (double-isolated vibration-damping mechanism), unique in Technics has been employed, while the turntable and tonearm are installed on a base weighted by the integrated construction of the main base and bottom cover, with the entire base floating in stable equilibrium with respect to the main turntable base through special isolators. Additionally, the main turntable base is also provided with an isolator superior in vibration damping characteristics. The combined effect obtained from the two kinds of isolators results in extremely superior vibration cut-off and absorption characteristics against external vibrations and local resonance from the direct sound pressure of the speakers, the floor etc. giving a marked improvement in prevention of howling.

Highly sensitive gimbal suspension system.
With the high precision pivot bearings employed for the horizontal and vertical journals of the tonearm, in concert with the adoption of the gimbal suspension system, a high sensitivity arm of less than 7 mg friction has been attained, thus making it possible to fully display the performance of the high compliance cartridge.

Motor construction unique to Technics in which the motor rotor is integrally connected to the turntable platter.
The large, heavy weight class precision aluminum diecast finished turntable has the remarkable moment of inertia of 310 $kg \cdot cm^2$.

Precision aluminum diecase cabinet unique to Technics is used.

Superior load fluctuation characteristics.
By using the high precision quartz phase-locked control system and high-torque motor, stable load fluctuation characteristics are obtained, with no speed change even at a stylus pressure of 180 g.

Smooth braking is achieved with the fully electronic system which also makes possible almost instantaneous speed change.

■ DISASSEMBLY INSTRUCTIONS

1. Remove headshell and balance weight.
2. Clamp tone arm to the arm rest.
3. Remove turntable platter.
4. Close dust cover
5. Turn unit upside down taking special care not to damage or scratch the dust cover.
6. Remove the 4 screws from the Insulator. (See Fig. 2)
7. Holding the player firmly with both hands, to prevent separation of upper section (turntable base) from lower section (main base), turn it carefully upwards.
8. Remove dust cover.
9. Remove the 4 screws from the panel cover.
10. Unplug the 3 plug-in connectors and 2 cord clamps.
11. To remove the turntable base from the main base bottom section, turn cueing lever upward (cueing position) and move tone arm towards center of spindle. Top section can be lifted up easily.
12. Remove the 3 screws from the start/stop circuit board (See Fig. 3)
13. To reassemble, perform steps 1 through 11 in reverse.

Note: The turntable horizontally to the panel face is already adjusted before shipment.
If deviated, correct it by means of the adjust screws using a 4mm box spanner.

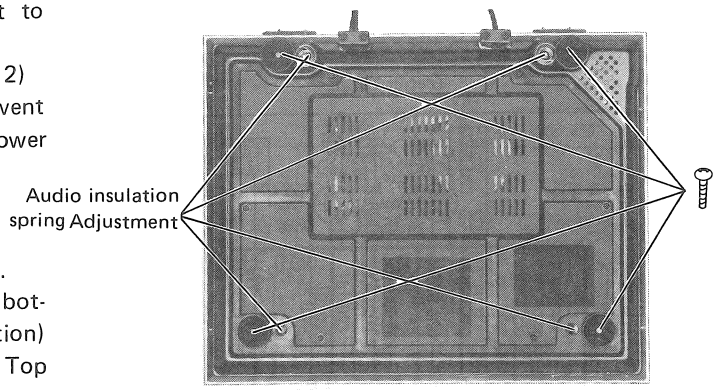


Fig. 2

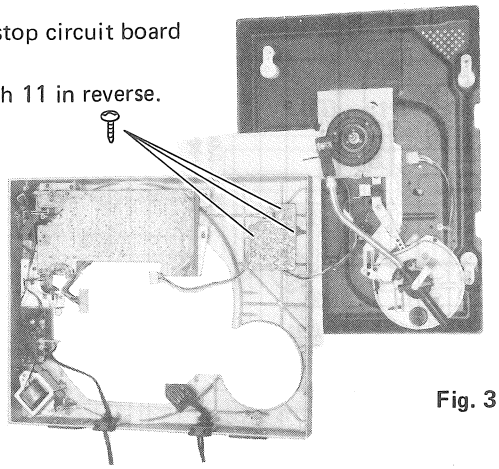


Fig. 3

■ CONNECTOR CONNECTION POINTS FOR INSPECTION

Connect the disassembled main unit and main base as shown in the figure below.

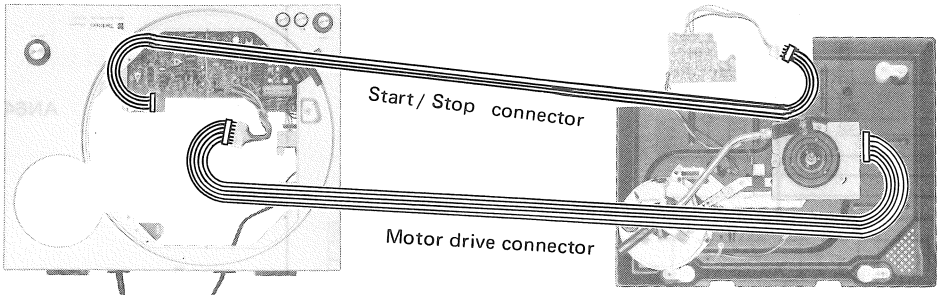


Fig. 4

■ ADJUSTMENTS

Adjustment for automatic return position

(See Fig. 5)
(Remove the turntable mat.)
In cases where the tonearm tends to return before the playing has finished.

– **Move counterclockwise.**

In cases where the tonearm fails to return after the last groove of the record.

– **Move clockwise.**

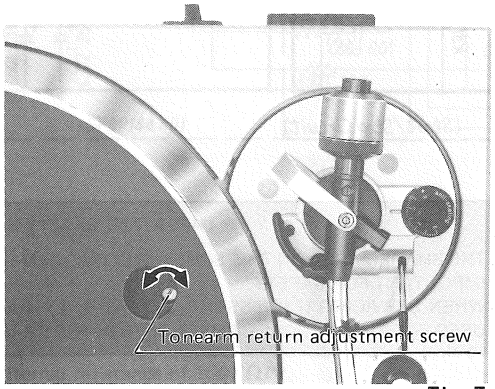
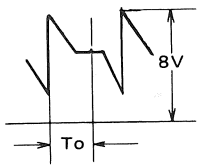
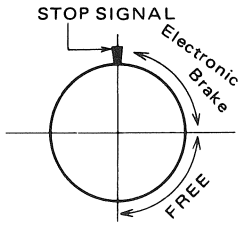


Fig. 5

■ ADJUSTMENTS

Adjustment Points of Electrical System

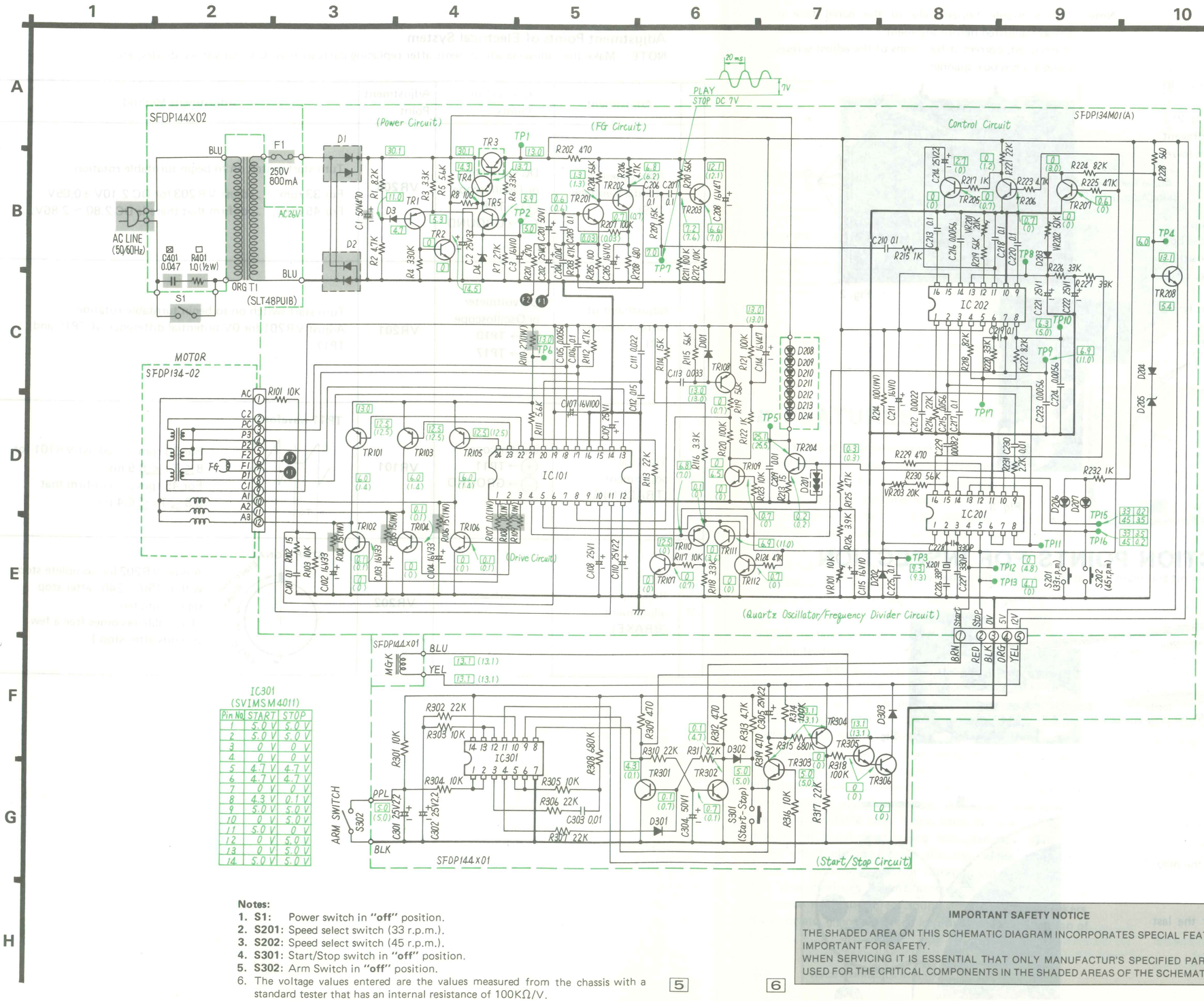
NOTE: Make the following adjustments after replacing parts such as IC's, transistors, diodes, etc.

	Adjustment	Connection Points	Adjustment Point	Adjustment Method
A	Adjustment of standard voltage (VS)	DC voltmeter or Oscilloscope ⊕ → TP8 ⊖ → GROUND	**VR203**	Turn start switch on to begin turntable rotation. For 33 rpm . . . adjust VR203 for DC 2.10V ±0.05V. For 45 rpm . . . confirm that there is DC 2.80 ~ 2.86V.
B	Adjustment of current source (IR)	DC voltmeter or Oscilloscope ⊕ → TP10 ⊖ → TP17	**VR201**	Turn start switch on to begin turntable rotation. Adjust VR201 for 0V potential difference of TP10 and TP17.
C	Tracking adjustment (TRACKING)	Oscilloscope ⊕ → TP11 ⊖ → GROUND	**VR101**	**TP11 waveform**  For 33 rpm . . . adjust VR101 for $8 \leqq To \leqq 8.5$ ms. For 45 rpm . . . confirm that $5.8 \leqq To \leqq 6.4$ ms.
D	Braking adjustment (BRAKE)	——	**VR202**	 Adjust VR202 for complete stop within 150°~ 240° after stop signal initiated. (Turntable becomes free a few seconds after stop.)

Schematic Diagram

(This schematic diagram may be modified at any time with the development of new technology.)

□ . . . . . Voltage at rotate.
( ) . . . . . Voltage at stop.



Pin No	START	STOP
1	5.0 V	5.0 V
2	5.0 V	5.0 V
3	0 V	0 V
4	0 V	0 V
5	4.7 V	4.7 V
6	4.7 V	4.7 V
7	0 V	0 V
8	4.3 V	0.1 V
9	5.0 V	5.0 V
10	0 V	5.0 V
11	5.0 V	0 V
12	0 V	5.0 V
13	0 V	5.0 V
14	5.0 V	5.0 V

Notes:

1. **S1:** Power switch in **"off"** position.
2. **S201:** Speed select switch (33 r.p.m.).
3. **S202:** Speed select switch (45 r.p.m.).
4. **S301:** Start/Stop switch in **"off"** position.
5. **S302:** Arm Switch in **"off"** position.
6. The voltage values entered are the values measured from the chassis with a standard tester that has an internal resistance of 100KΩ/V.

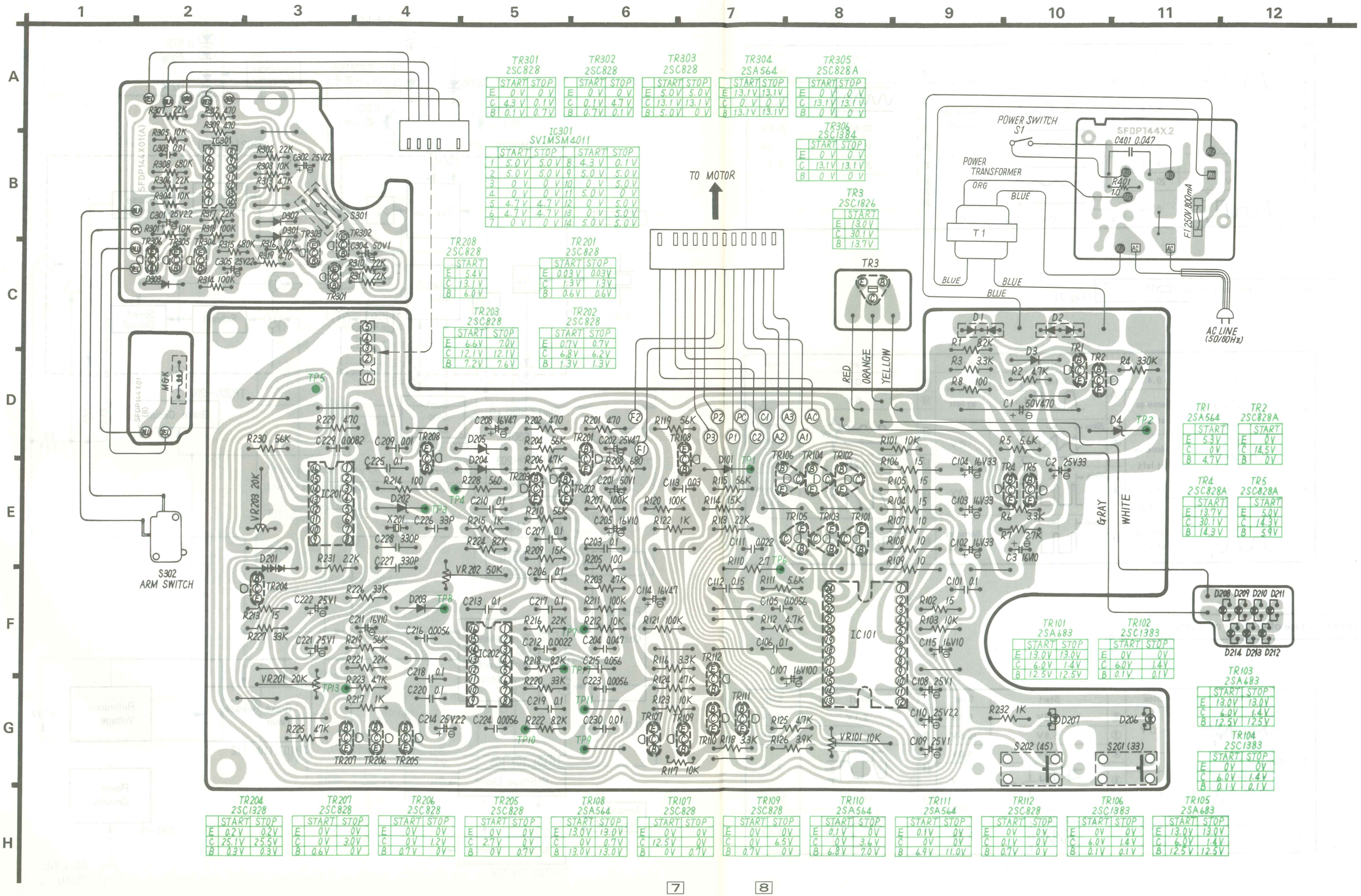
TR1, 108, 110, 111, 304	→ 2SA564
TR2, 4, 5, 305	→ 2SC828A
TR3	→ 2SD389
TR101, 103, 105	→ 2SB621
TR102, 104, 106	→ 2SD592
TR107, 109, 112, 201~203, 205~208, 301, 302, 303	→ 2SC828
TR204	→ 2SC1328
TR306	→ 2SC1384
IC101	→ AN640
IC201	→ DN860
IC202	→ AN660
IC301	→ SVIMSM4013
D1	→ SVDMI 152
D2	→ SVDMI 152R
D3, 101, 203, 204	→ MA150
D4, 205	→ MA1051A
D201	→ MA26TO-A
D202	→ MA1091A
D206~214	→ SVDSR105C

■ TERMINAL GUIDE

IMPORTANT SAFETY NOTICE

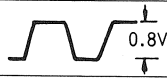
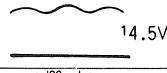
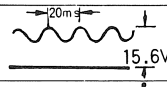
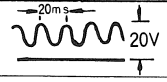
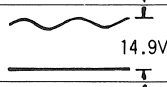
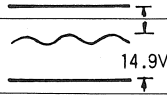
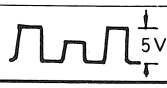
THE SHADED AREA ON THIS SCHEMATIC DIAGRAM INCORPORATES SPECIAL FEATURES IMPORTANT FOR SAFETY.
WHEN SERVICING IT IS ESSENTIAL THAT ONLY MANUFACTUR'S SPECIFIED PARTS BE USED FOR THE CRITICAL COMPONENTS IN THE SHADED AREAS OF THE SCHEMATIC.

Printed Circuit Board

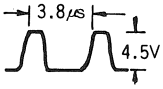
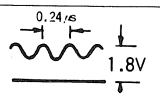
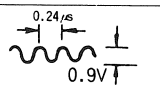
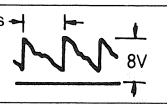
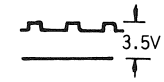
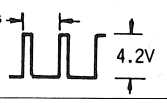
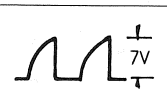
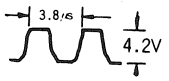
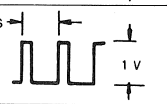
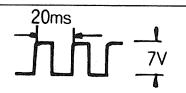


Pri

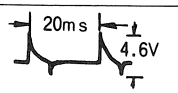
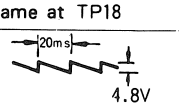
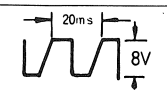
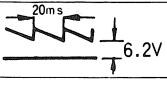
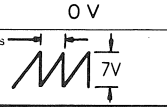
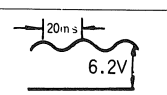
Reference voltage of each pin of IC101 (Fig. 6)

	Start	Stop		Start	Stop		Start	Stop
①②③		0.1V	⑩		15.2V	⑰	15.5V	15.5V
④	5.8V	6.1V	⑪⑬⑮		Same as at left	⑱		Same as at left
⑤	5.9V	10.5V				⑲	20.6V	20.6V
⑥	4.7V	2.2V	⑫		15V	⑳	15.3V	1.4V
⑦	4.9V	4.9V				㉑	20.5V	16.4V
⑧	20.5V	20.5V	⑭		15V	㉒㉓㉔	20V	20V
⑨		0.2V	⑯	0V	0V			

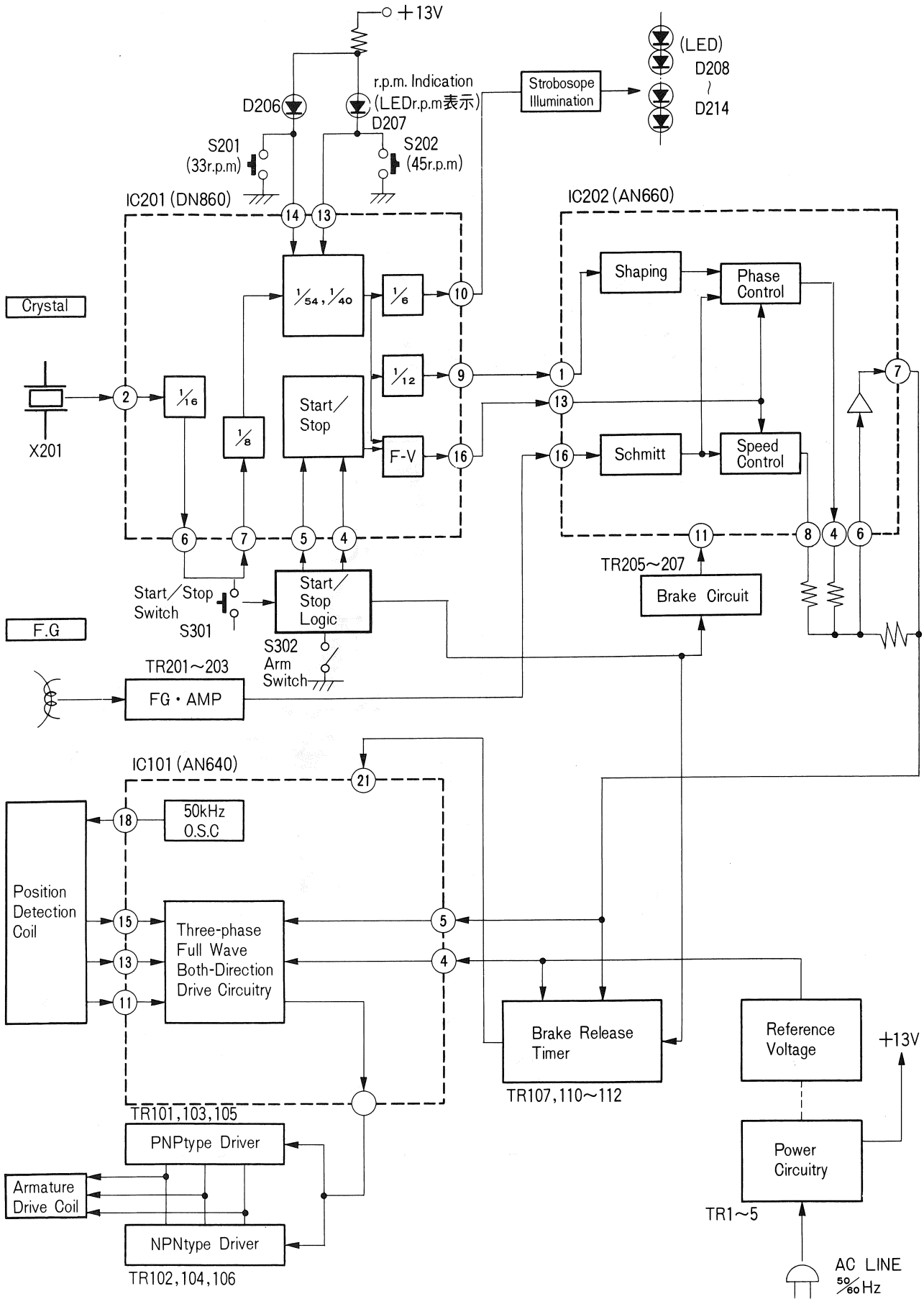
Reference voltage of each pin of IC201 (Fig. 7)

	Start	Stop		Start	Stop		Start	Stop
①	9.4V	9.4V	⑦		Same as at left	⑪	0V	0V
②		Same as at left				⑫	6V	6V
③		Same as at left	⑧		0V	⑬		Same as at left
④	0V	3.2V	⑨		4.3V	⑭	0.2V	0.2V
⑤	2.0V	0V				⑮		Same as at left
⑥		Same as at left	⑩		Same as at left	⑯		0V

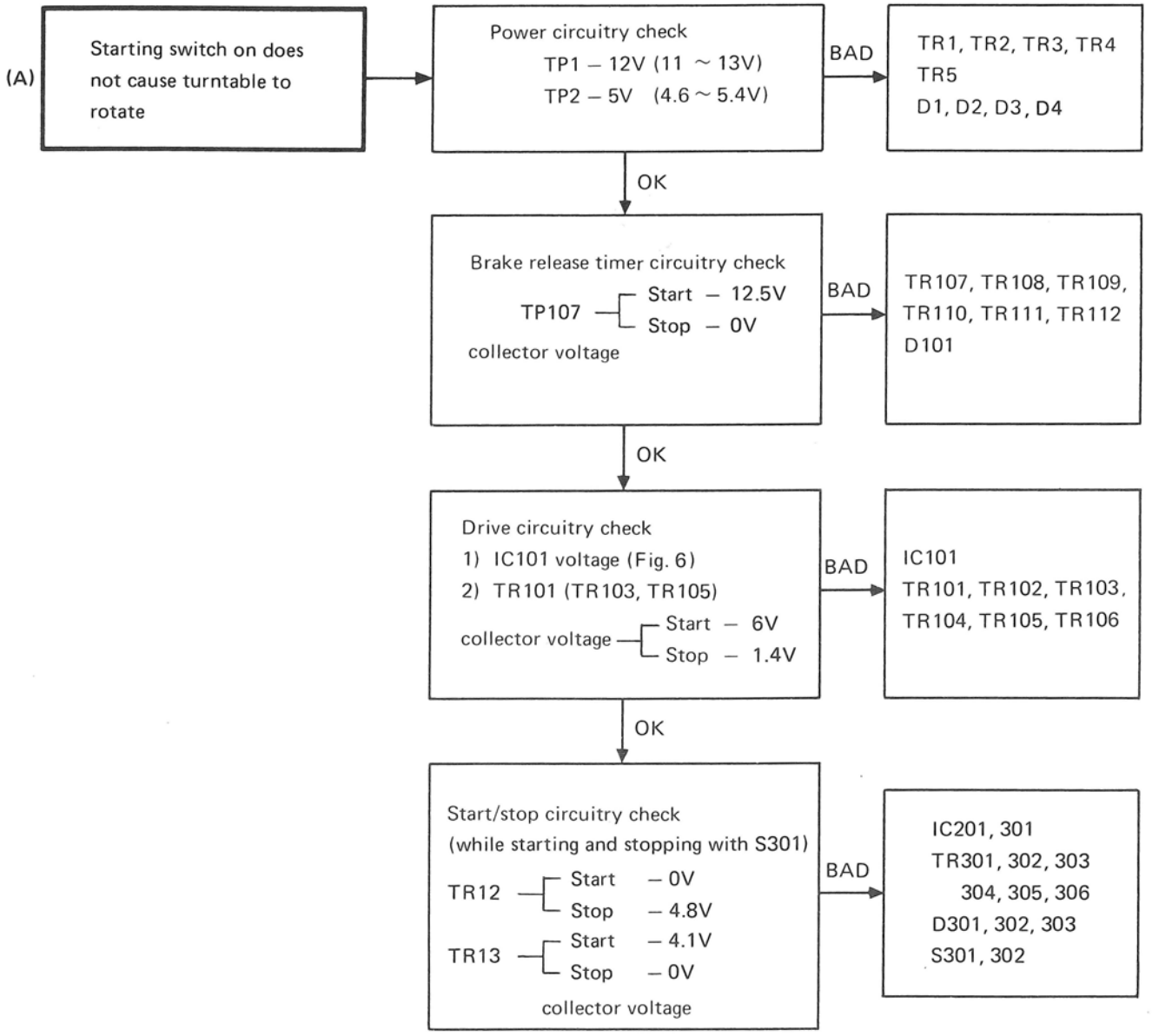
Reference voltage of each pin of IC202 (Fig. 8)

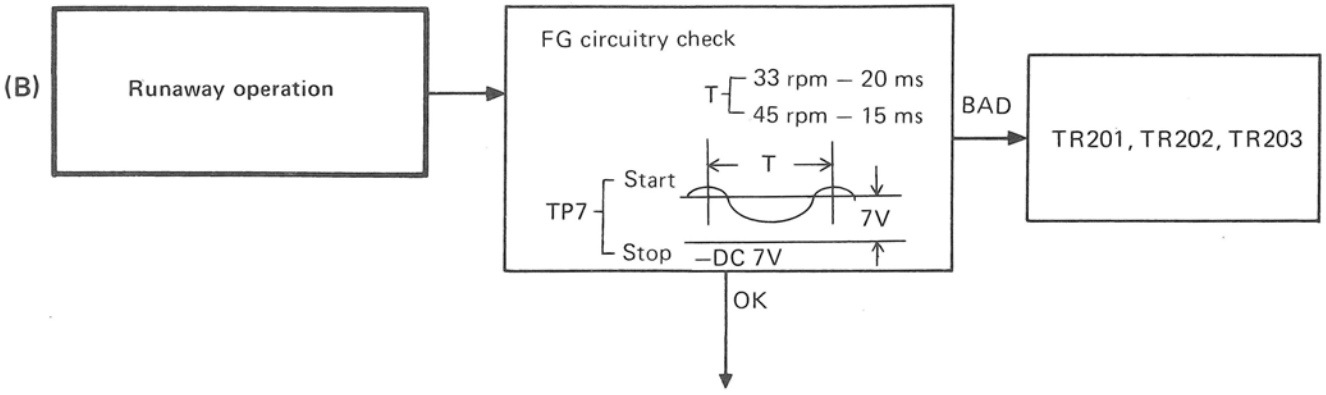
	Start	Stop		Start	Stop		Start	Stop
①		0V	⑥	6.3V	6.3V	⑫	2.1V	2.7V
②	Same at TP18	0V	⑦	5.8V	10.5V	⑬	2.1V	2.7V
③		6.1V	⑧	6.3V	5.0V	⑭		7.5V
			⑨		7.1V			
			⑩	0V	0V	⑮	11.7V	11.7V
④	6.6V	6.2V	⑪		7.5V	⑯		5.5V
⑤	11.7V	11.7V						

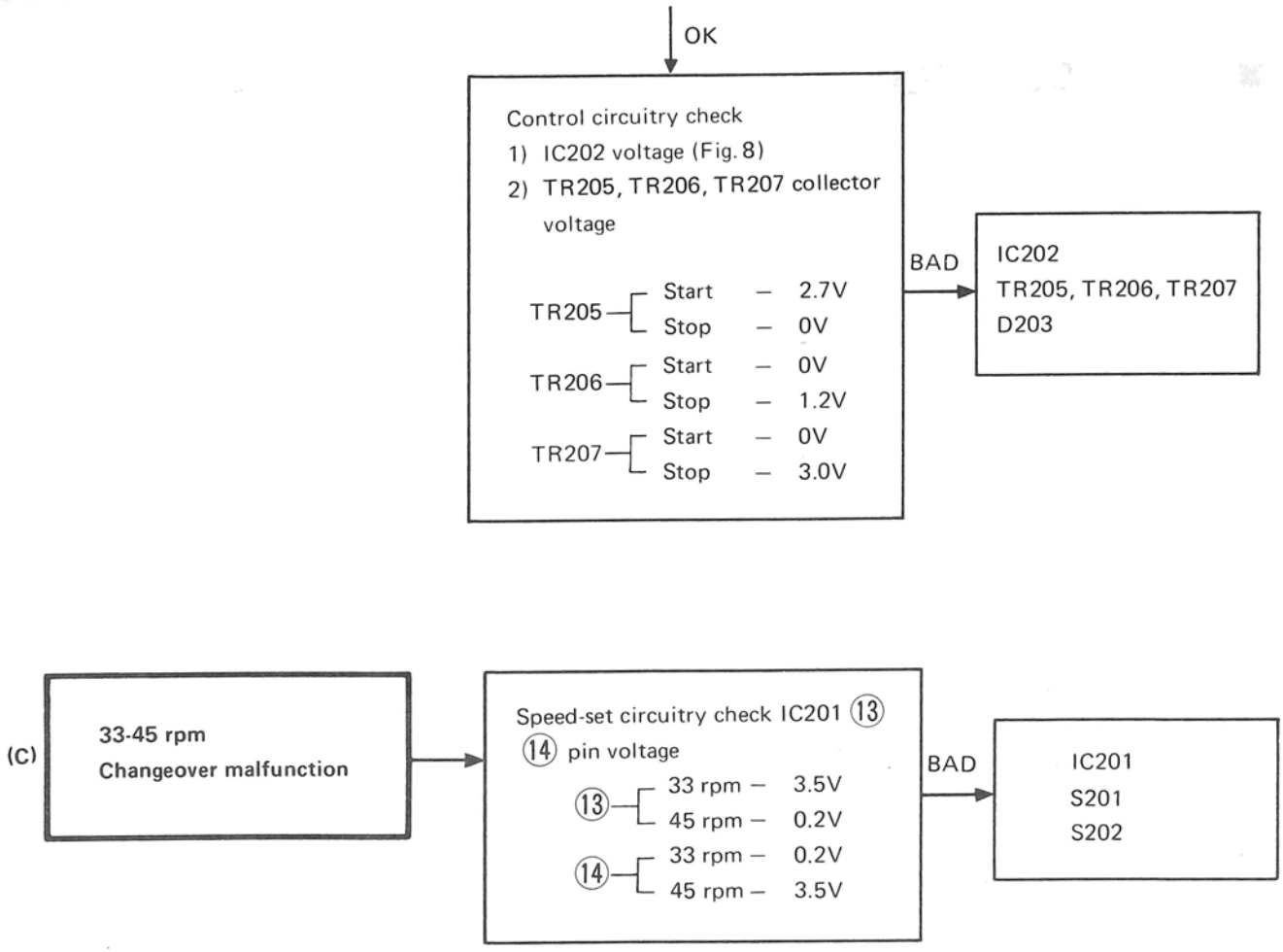
■ BLOCK DIAGRAM



■ TROUBLE SHOOTING







■EXPLANATION OF START/STOP CIRCUITRY

Notes: (1) The start/stop circuitry is composed of a combination of logic circuitry and the mechanism.
(2) The "H" and "L" logic values are positive logic.
1 = H 0 = L

The number 4 and 5 terminals of IC201 (DN860) are the start/stop circuitry terminals. When number 4 terminal is "L" and the number 5 terminal is "H" the motor will operate, and will stop when they are the reverse.

(1) When power switch S1 is turned on (motor stopped):
TR301 and TR302 compose the RS flip-flop circuitry, and TP12 is set to "H" and TP13 to "L" by C304.

(2) When start/stop switch S301 is pushed one time (motor operates):
When S301 is pushed, the flip-flop circuitry, through D302, reverses TP12 to "L" and TP13 to "H."

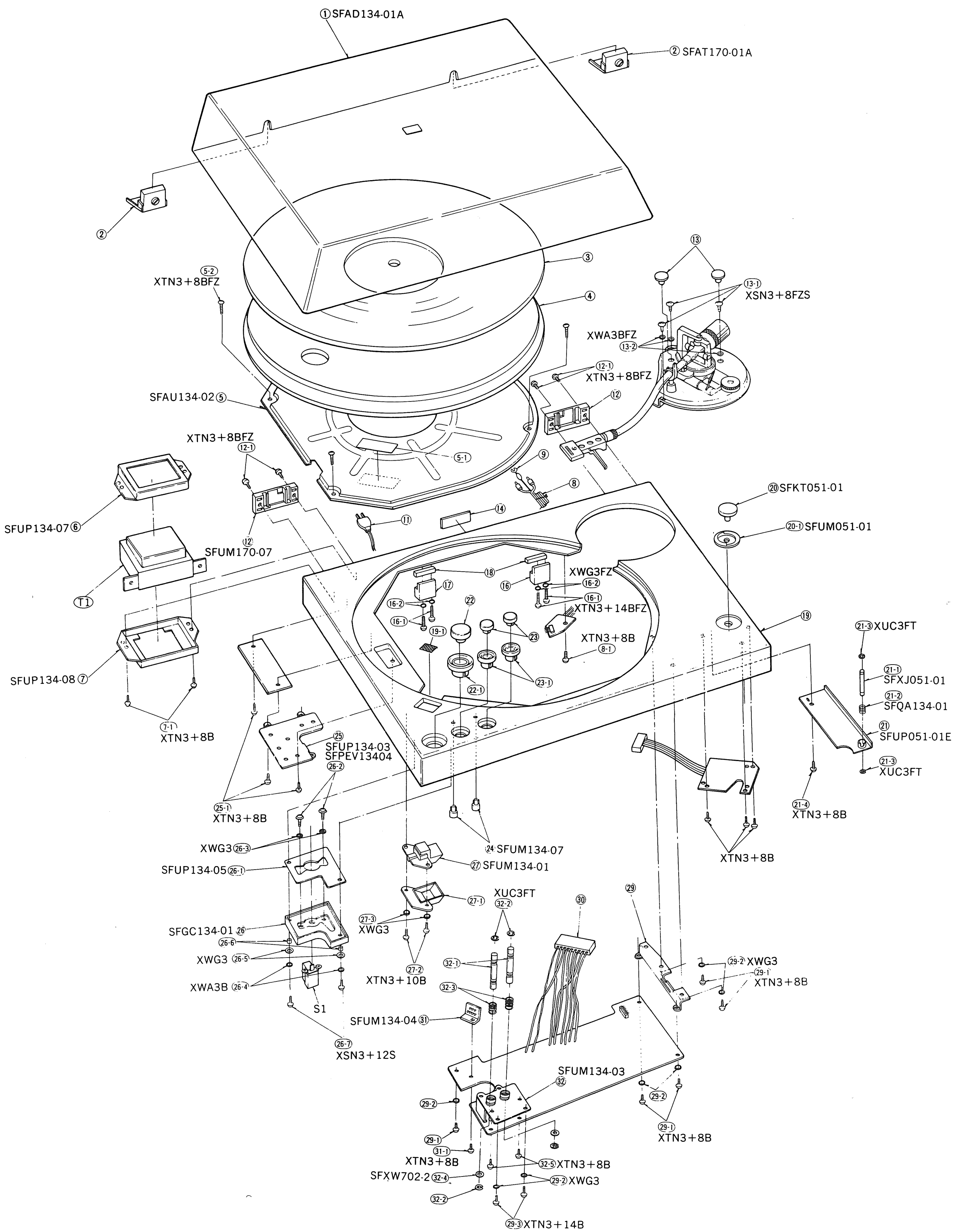
(3) Circuitry condition during operation:
When S301 is released, number 8 and 9 terminals of IC301 become "H" the time of the integrating circuit (consisting of R302, C302 and R303) is delayed, and "H" voltage is applied to the base of TR303.

(4) When start/stop switch S301 is pushed again:
It becomes on because bias is applied between the base and emitter of TR303, and, because TR304, TR305 and TR306 also become on, the MGK is driven, and the arm is returned by the main gear.

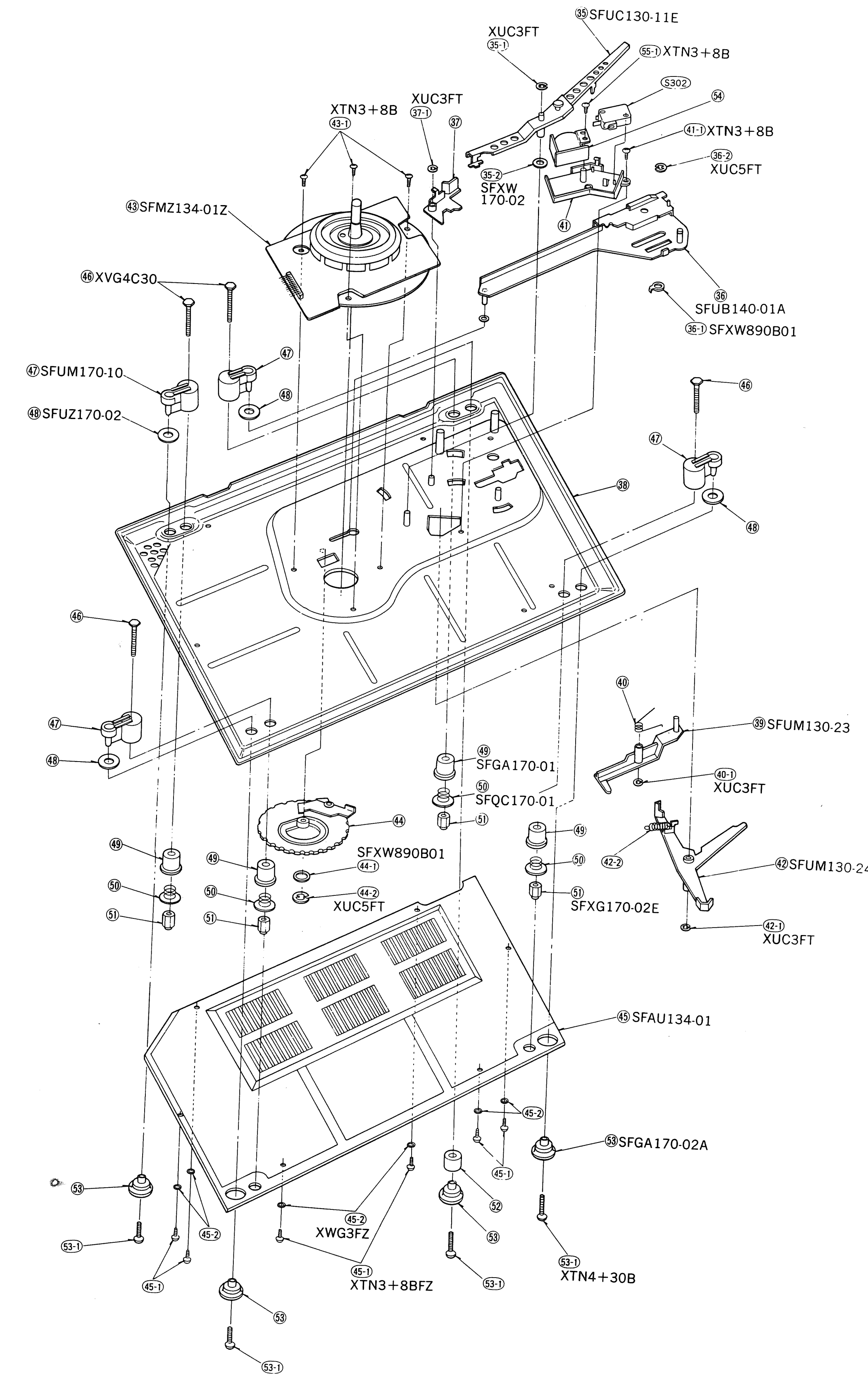
(5) When the arm returns (motor stopped):
When the arm returns, number 1 and 2 terminals of IC301 (on" during operation) become "H" so that number 3 terminal momentarily becomes "L" and, therefore, a positive pulse is generated at number 4 terminal of IC301, which, through D301, inverts the flip-flop circuitry, changing TP12 to "H" and TP13 to "L."

 SL-1401

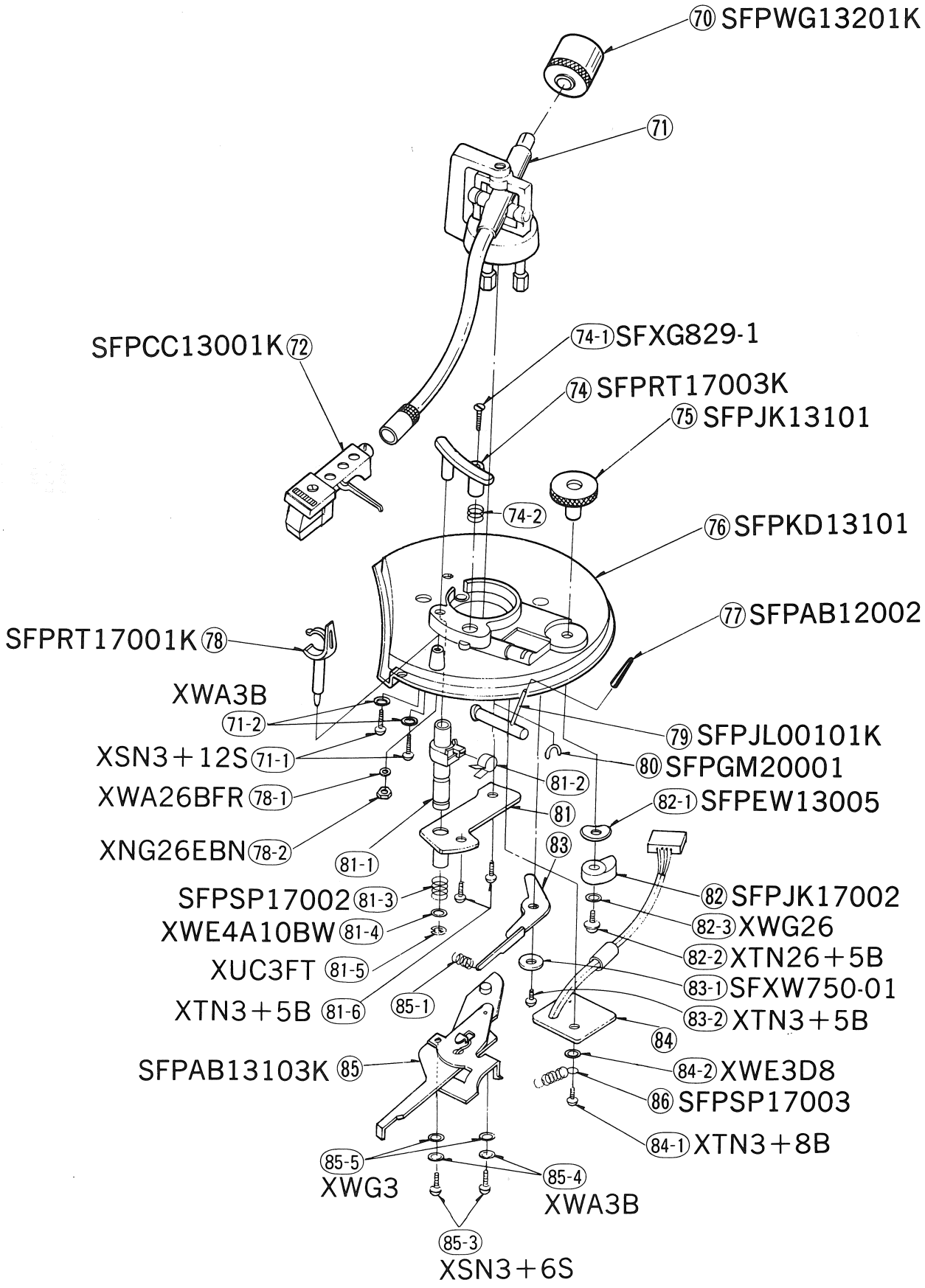
■ EXPLODED VIEW



■ EXPLODED VIEW



■ EXPLODED VIEW



■ REPLACEMENT PARTS LIST

Important Safety Notice

Components identified by shaded area have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.

NOTE: 1. Part numbers are indicated on most mechanical parts.
Please use this part number for parts order.

Ref. No.	Part No.	Part Name & Description	Per Set		Remarks
INTEGRATED CIRCUITS					
IC101	AN640	Drive Circuit	1		
IC201	DN860	Frequency Divider Circuit	1		
IC202	AN660	Control Circuit	1		
IC301	SVIMSM4011	Start, Stop Circuit	1		
TRANSISTORS					
TR1	**2SA666AI-R**	Transistor (Use in ranks Q or R or S)	1		
TR2	**2SC1328-T**	Transistor	1		
TR3	**2SD389A-Q**	Transistor	1		
TR4, 5	**2SC1328-T**	Transistor	2		
TR101	**2SA752-Q**	Transistor	1		
TR102	**2SC1384A-Q**	Transistor (Use in pair ranks Q or R or S)	1		
TR103	**2SA752-Q**	Transistor	1		
TR104	**2SC1384A-Q**	Transistor (Use in pair ranks Q or R or S)	1		
TR105	**2SA752-Q**	Transistor	1		
TR106	**2SC1384A-Q**	Transistor (Use in pair ranks Q or R or S)	1		
TR107	**2SC1328-T**	Transistor	1		
TR108	**2SA666AI-R**	Transistor (Use in ranks Q or R or S)	1		
TR109	**2SC1328-T**	Transistor	1		
TR110, 111	**2SA666AI-R**	Transistor (Use in ranks Q or R or S)	2		
TR112, 201, 202, 203, 204, 205 206, 207, 208	**2SC1328-T**	Transistor	9		
TR301, 302, 303	**2SC1328-T**	Transistor	3		
TR304	**2SA666A1-R**	Transistor (Use in ranks Q or R or S)	1		
TR305	**2SC1328-T**	Transistor	1		
TR306	**2SC1384A-Q**	Transistor (Use in ranks Q or R or S)	1		
DIODES					
D1	**RVD10DC2**	Rectifier	1		
D2	**RVD10DC2R**	Rectifier	1		
D3, 101, 203, 204, 301, 302, 303	MA150	Diode	7		
D4, 205	MA1051A	5.1V Zener, Voltage Stabilizer	2		O
D201	MA26TO-A	Diode	1		
D202	MA1091A	9.1V Zener, Voltage Stabilizer	1		O
D206, 207	SVDSR105C	Light Emitting Diode (r.p.m)	2		
D208, 209, 210, 211, 212, 213, 214	SVDSR105C	Light Emitting Diode (pitch)	7		
CRYSTAL					
X201	SVQU306115	4.19328MHz Oscillater	1		
FUSE					
F2	XBA2F08NU100	800mA (Fuse)	1		

Ref. No.	Part No.	Part Name & Description	Per Set		Remarks
TRANSFORMER					
T1	SLT48PU1B	Power Transformer	1		
SWITCHES					
S1	ESB70124T	Power Switch	1		O
S201, 202	EVQP4R04K	Speed Selector Switch	2		
S301	EVQP4R04K	Start-Stop Switch	1		
S302	SFDSAH735026	Arm Switch	1		
RESISTORS					
R1	**ERD25TJ822**	Carbon, 8.2kΩ, 1/4W, ± 5%	1		
R2	**ERD25TJ472**	Carbon, 4.7kΩ, 1/4W, ± 5%	1		
R3	**ERD25TJ332**	Carbon, 3.3kΩ, 1/4W, ± 5%	1		
R4	**ERD25TJ334**	Carbon, 330kΩ, 1/4W, ± 5%	1		
R5	**ERD25TJ562**	Carbon, 5.6kΩ, 1/4W, ± 5%	1		
R6	**ERD25TJ332**	Carbon, 3.3kΩ, 1/4W, ± 5%	1		
R7	**ERD25TJ272**	Carbon, 2.7kΩ, 1/4W, ± 5%	1		
R8	**ERD25TJ101**	Carbon, 100Ω, 1/4W, ± 5%	1		
R101	**ERD25TJ103**	Carbon, 10kΩ, 1/4W, ± 5%	1		
R102	**ERD25TJ150**	Carbon, 15Ω, 1/4W, ± 5%	1		
R103	**ERD25TJ103**	Carbon, 10kΩ, 1/4W, ± 5%	1		
R104, 105, 106	**ERG1ANJ150**	Metal Film, 15Ω, 1W, ± 5%	3		
R107, 108, 109	**ERG1ANJ100**	Metal Film, 10Ω, 1W, ± 5%	3		
R110	**ERX1ANJ2R7**	Metal Film, 2.7Ω, 1W, ± 5%	1		
R111	**ERD25TJ562**	Carbon, 5.6kΩ, 1/4W, ± 5%	1		
R112	**ERD25TJ472**	Carbon, 4.7kΩ, 1/4W, ± 5%	1		
R113	**ERD25TJ223**	Carbon, 22kΩ, 1/4W, ± 5%	1		
R114	**ERD25TJ153**	Carbon, 15kΩ, 1/4W, ± 5%	1		
R115	**ERD25TJ563**	Carbon, 56kΩ, 1/4W, ± 5%	1		
R116	**ERD25TJ332**	Carbon, 3.3kΩ, 1/4W, ± 5%	1		
R117	**ERD25TJ103**	Carbon, 10kΩ, 1/4W, ± 5%	1		
R118	**ERD25TJ332**	Carbon, 3.3kΩ, 1/4W, ± 5%	1		
R119	**ERD25TJ563**	Carbon, 56kΩ, 1/4W, ± 5%	1		
R120, 121	**ERD25TJ104**	Carbon, 100kΩ, 1/4W, ± 5%	2		
R122	**ERD25TJ102**	Carbon, 1kΩ, 1/4W, ± 5%	1		
R123	**ERD25TJ103**	Carbon, 10kΩ, 1/4W, ± 5%	1		
R124	**ERD25TJ473**	Carbon, 47kΩ, 1/4W, ± 5%	1		
R125	**ERD25TJ472**	Carbon, 4.7kΩ, 1/4W, ± 5%	1		
R126	**ERD25TJ392**	Carbon, 3.9kΩ, 1/4W, ± 5%	1		
R201, 202	**ERD25TJ471**	Carbon, 470Ω, 1/4W, ± 5%	2		
R203	**ERD25TJ473**	Carbon, 47kΩ, 1/4W, ± 5%	1		
R204	**ERD25TJ563**	Carbon, 56kΩ, 1/4W, ± 5%	1		
R205	**ERD25TJ101**	Carbon, 100Ω, 1/4W, ± 5%	1		
R206	**ERD25TJ472**	Carbon, 4.7kΩ, 1/4W, ± 5%	1		
R207	**ERD25TJ104**	Carbon, 100kΩ, 1/4W, ± 5%	1		
R208	**ERD25TJ681**	Carbon, 680Ω, 1/4W, ± 5%	1		
R209	**ERD25TJ153**	Carbon, 15kΩ, 1/4W, ± 5%	1		
R210	**ERD25TJ563**	Carbon, 56kΩ, 1/4W, ± 5%	1		
R211	**ERD25TJ104**	Carbon, 100kΩ, 1/4W, ± 5%	1		
R212	**ERD25TJ103**	Carbon, 10kΩ, 1/4W, ± 5%	1		
R213	**ERD25TJ150**	Carbon, 15Ω, 1/4W, ± 5%	1		
R214	**ERG1ANJ101**	Metal Film, 100Ω, 1W, ± 5%	1		

Ref. No.	Part No.	Part Name & Description	Per Set	Remarks
R215	**ERD25TJ102**	Carbon, 1kΩ, 1/4W, ± 5%	1	
R216	**ERD25TJ223**	Carbon, 22kΩ, 1/4W, ± 5%	1	
R217	**ERD25TJ102**	Carbon, 1kΩ, 1/4W, ± 5%	1	
R218	**ERD25TJ823**	Carbon, 82kΩ, 1/4W, ± 5%	1	
R219	**ERD25TJ563**	Carbon, 56kΩ, 1/4W, ± 5%	1	
R220	**ERD25TJ333**	Carbon, 33kΩ, 1/4W, ± 5%	1	
R221	**ERD25TJ223**	Carbon, 22kΩ, 1/4W, ± 5%	1	
R222	**ERD25TJ822**	Carbon, 8.2kΩ, 1/4W, ± 5%	1	
R223	**ERD25TJ472**	Carbon, 4.7kΩ, 1/4W, ± 5%	1	
R224	**ERD25TJ823**	Carbon, 82kΩ, 1/4W, ± 5%	1	
R225	**ERD25TJ473**	Carbon, 47kΩ, 1/4W, ± 5%	1	
R226, 227	**ERD25TJ333**	Carbon, 33kΩ, 1/4W, ± 5%	2	
R228	**ERD25TJ561**	Carbon, 560Ω, 1/4W, ± 5%	1	
R229	**ERD25TJ471**	Carbon, 470Ω, 1/4W, ± 5%	1	
R230	**ERD25TJ563**	Carbon, 56kΩ, 1/4W, ± 5%	1	
R231	**ERD25TJ222**	Carbon, 2.2kΩ, 1/4W, ± 5%	1	
R232	**ERD25TJ102**	Carbon, 1kΩ, 1/4W, ± 5%	1	
R301	**ERD25TJ103**	Carbon, 10kΩ, 1/4W, ± 5%	1	
R302	**ERD25TJ223**	Carbon, 22kΩ, 1/4W, ± 5%	1	
R303, 304, 305	**ERD25TJ103**	Carbon, 10kΩ, 1/4W, ± 5%	3	
R306, 307	**ERD25TJ223**	Carbon, 22kΩ, 1/4W, ± 5%	2	
R308	**ERD25TJ684**	Carbon, 680kΩ, 1/4W, ± 5%	1	
R309	**ERD25TJ471**	Carbon, 470Ω, 1/4W, ± 5%	1	
R310, 311	**ERD25TJ223**	Carbon, 22kΩ, 1/4W, ± 5%	2	
R312	**ERD25TJ471**	Carbon, 470Ω, 1/4W, ± 5%	1	
R313	**ERD25TJ472**	Carbon, 4.7kΩ, 1/4W, ± 5%	1	
R314	**ERD25TJ104**	Carbon, 100kΩ, 1/4W, ± 5%	1	
R315	**ERD25TJ684**	Carbon, 680kΩ, 1/4W, ± 5%	1	
R316	**ERD25TJ103**	Carbon, 10kΩ, 1/4W, ± 5%	1	
R317	**ERD25TJ223**	Carbon, 22kΩ, 1/4W, ± 5%	1	
R318	**ERD25TJ104**	Carbon, 100kΩ, 1/4W, ± 5%	1	
R319	**ERD25TJ471**	Carbon, 470Ω, 1/4W, ± 5%	1	
R401	**ERX12ANJ1R0**	Metal Film, 1Ω, 1/2W, ± 5%	1	
VARIABLE RESISTORS				
VR101	**EVLS3AA00B14**	Period Adjustment	1	
VR201	**EVLS3AA00B24**	IR Adjustment	1	
VR202	**EVLS3AA00B54**	Brake Adjustment	1	
VR203	**EVLS3AA00B24**	VS Adjustment	1	
CAPACITORS				
C1	**ECEB50V470**	Electrolytic, 470μF, 50V	1	
C2	**ECEA25V33**	Electrolytic, 33μF, 25V	1	
C3	**ECEA16V10**	Electrolytic, 10μF, 16V	1	
C101	ECQM1H104KZ	Polyester, 0.1μF, 50V, ±10%	1	
C102, 103, 104	**ECEA16V33**	Electrolytic, 33μF, 16V	3	
C105	ECQM1H562KZ	Polyester, 0.0056μF, 50V, ±10%	1	
C106	ECQM1H104KZ	Polyester, 0.1μF, 50V, ±10%	1	
C107	**ECEA16Z100**	Electrolytic, 100μF, 16V	1	
C108, 109	ECSF25E1Z	Electrolytic, 1μF, 25V	2	
C110	ECSF25E2R2Z	Electrolytic, 10μF, 16V	1	
C111	ECQM1H223KZ	Polyester, 0.022μF, 50V, ±10%	1	
C112	ECQM1H154KZ	Polyester, 0.15μF, 50V, ±10%	1	
C113	ECQM1H333KZ	Polyester, 0.033μF, 50V, ±10%	1	
C114	**ECEA16V47**	Electrolytic, 47μF, 16V	1	

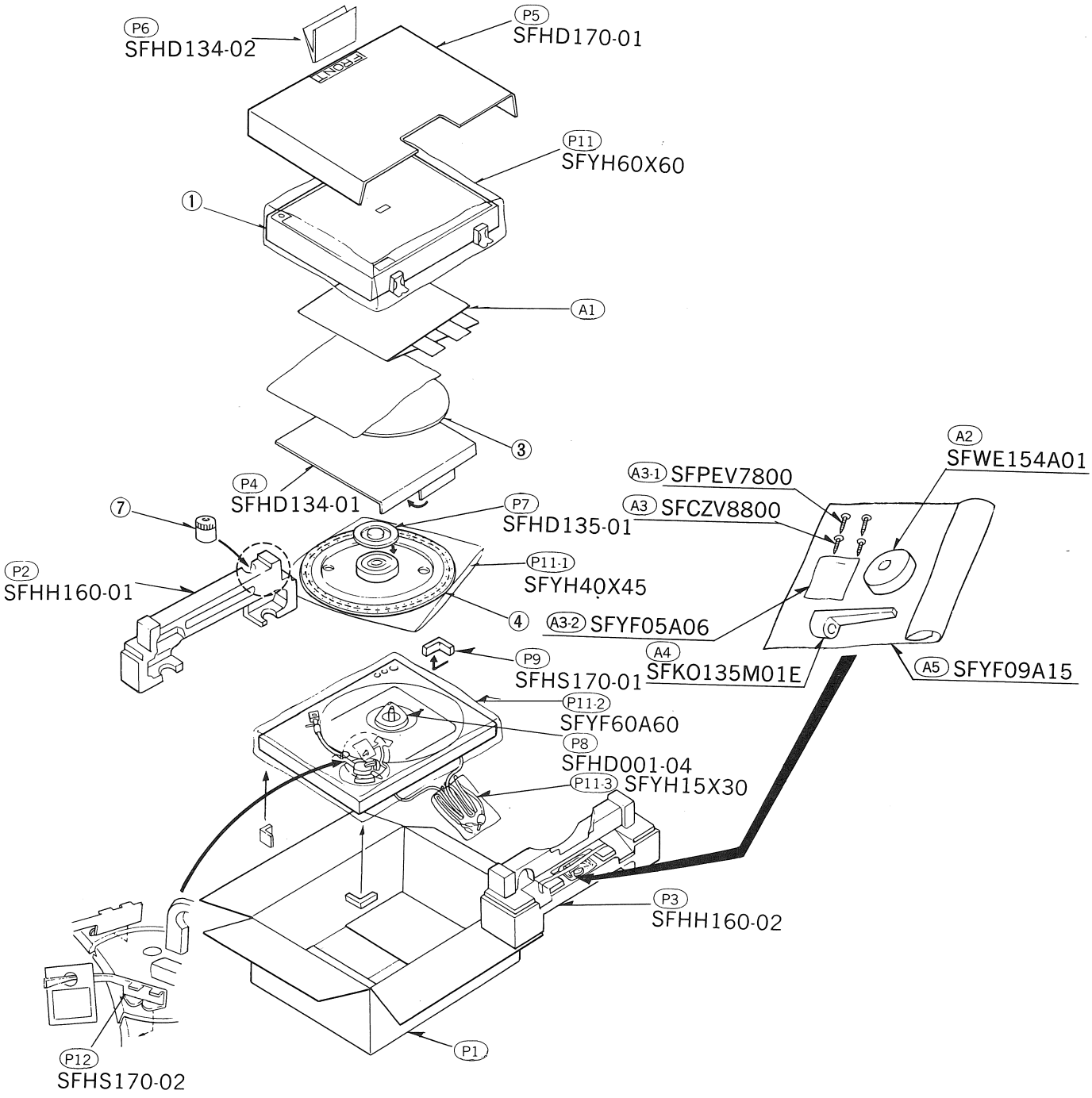
Ref. No.	Part No.	Part Name & Description	Per Set	Remarks
C115	**ECEA16V10**	Electrolytic, 10μF, 16V	1	
C201	**ECEA50V1**	Electrolytic, 1μF, 50V	1	
C202	**ECEA35V4R7**	Electrolytic, 4.7μF, 35V	1	
C203	ECKD1E104ZFZ	Electrolytic, 0.1μF, 1000V	1	
C204	ECQM1H473KZ	Polyester, 0.047μF, 50V, ±10%	1	
C205	**ECEA16V10**	Electrolytic, 10μF, 16V	1	
C206, 207	ECQM1H104KZ	Polyester, 0.1μF, 50V, ±10%	2	
C208	**ECEA16V47**	Electrolytic, 47μF, 16V	1	
C209	ECQM1H103KZ	Polyester, 0.01μF, 50V, ±10%	1	
C210	ECQM1H104KZ	Polyester, 0.1μF, 50V, ±10%	1	
C211	**ECEA16V10**	Electrolytic, 10μF, 16V	1	
C212	ECQM1H222KZ	Polyester, 0.0022μF, 50V, ±10%	1	
C213	ECKD1E104ZFZ	Ceramic, 0.1μF, 50V, ±10%	1	
C214	ECSF25E2R2Z	Electrolytic, 2.2μF, 25V	1	
C215	ECQM1H563JZ	Polyester, 0.056μF, 50V ± 5%	1	
C216	ECQM1H562KZ	Polyester, 0.0056μF, 50V, ±10%	1	
C217, 218, 219, 220	ECQM1H104KZ	Polyester, 0.1μF, 50V, ±10%	4	
C221, 222	ECSF25E1Z	Electrolytic, 1μF, 25V	2	
C223, 224	ECQM1H562KZ	Polyester, 0.0056μF, 50V, ±10%	2	
C225	ECKD1E104ZFZ	Electrolytic, 0.1μF, 1000V	1	
C226	ECCD1H330K	Ceramic, 33pF, 50V ±10%	1	
C227, 228	ECCD1H331K	Ceramic, 330pF, 50V, ±10%	1	
C229	ECQM1H822KZ	Polyester, 0.0082μF, 50V, ±10%	1	
C230	ECQM1H103KZ	Polyester, 0.01μF, 50V, ±10%	1	
C301	ECSF25E2R2Z	Electrolytic, 10μF, 16V	1	
C302	ECEA25V2R2	Electrolytic, 2.2μF, 25V	1	
C303	ECQM1H103KZ	Polyester, 0.01μF, 50V, ±10%	1	
C304	ECEA50V1	Electrolytic, 1μF, 50V	1	
C305	ECEA50Z2R2	Electrolytic, 2.2μF, 50V	1	
C401	ECQU1A473MC	Polyester, 0.047μF, 125V, ±20%	1	
CABINET and CHASSIS PARTS				
1	SFAD134-01A	Dust Cover	1	○
2	SFAT170-01A	Hinge Ass'y	2	
3	SFTG170M01	Turntable Mat	1	
4	SFTE144-01A	Turntable	1	○
5	SFAU134-02	Cover, Panel	1	○
5-1	SFUZ134-02	Seal, Panel Cover	1	○
5-2	XTN3+8BFZ	Screw, Panel Cover	4	
6	SFUP134-07	Bracket (A), Power Transformer	1	○
7	SFUP134-08	Bracket (B), Power Transformer	1	○
7-1	XTN3+8B	Screw, Bracket	2	
8	SFDH028-01	Phono Cord	1	
8-1	XTN3+8B	Screw, Phono P.C.B	1	
9	SFEL028-01E	Ground Wire	1	
11	QFC1201MA	AC Cord	1	
12	SFUM170-07	Case, Hinge Ass'y	2	
12-1	XTN3+8BFZ	Screw, Hinge Ass'y Case	4	
13	SFGK132-01	Cap, Rubber	2	
13-1	XSN3+8FZS	Screw, Arm Base	3	
13-2	XWA3BFZ	Washer, Arm Base	3	
14	SFNN144C01	Name Plate	1	*○
16	SFUM170-11	Clamper B, Phono Cord	1	
16-1	XTN3+14BFZ	Screw, Clamper	4	

Ref. No.	Part No.	Part Name & Description	Per Set		Remarks
16-2	XWG3FZ	Washer, Clamper	4		
17	SFUM170-05	Clamper (B), AC Cord	1		
18	SFUM170-06	Spacer, Phono-AC Cord	2		
19	SFAC144M01	Cabinet	1		○
19-1	SFUZ134-01	Seal, Neon Ass'y	1		○
20	SFKT051-01	Knob, Start & Stop	1		○
20-1	SFUM051-01	Rim, Start & Stop Knob	1		○
21	SFUP051-01E	Bracket, Start & Stop Switch	1		○
21-1	SFXJ051-01	Spacer, Start & Stop	1		○
21-2	SFQA134-01	Spring, Start & Stop Switch	1		○
21-3	XUC3FT	Circlip, Spacer	2		
21-4	XTN3+8B	Screw, Bracket	1		
22	SFKT134-02	Knob, Power Switch	1		○
22-1	SFUM134-02	Rim, Power Switch Knob	1		○
23	SFKT134-01	Knob, Speed Selector	2		○
23-1	SFUM134-05	Rim, Speed Selector	2		○
24	SFUM134-07	Cover, L.E.D.	2		○
25	SFUP134-03	Heat Sink	1		○
25-1	XTN3+8B	Screw, Heat Sink	3		
26	SFGC134-01	Insulator, Power Switch	1		○
26-1	SFUP134-05	Bracket, Power Switch	1		○
26-2	XSN3+5S	Screw, Power Switch Bracket	2		
26-3	XWG3	Washer, Power Switch Bracket	2		
26-4	XWA3B	Washer, Power Switch Bracket	2		
26-5	XWG3	Washer, Power Switch Bracket	2		
26-6	SFGC134-01	Spacer, Power Switch Bracket	2		
26-7	XSN3+12S	Screw, Power Switch Bracket	2		
27	SFUM134-01	Neon Ass'y	1		○
27-1	SFUM134-06	Cover, Neon Ass'y	1		○
27-2	XTN3+10B	Screw, Neon Ass'y Cover	2		
27-3	XWG3	Washer, Neon Ass'y Cover	2		
29	SFUP134-02	Bracket, Drive P.C.B.	1		○
29-1	XTN3+8B	Screw	5		
29-2	XWG3	Washer	7		
29-3	XTN3+14B	Screw	2		
30	SFDJ134-01E	Connector, Motor	1		○
31	SFUM134-04	Spacer, L.E.D.	1		○
31-1	XTN3+8B	Screw, L.E.D. Spacer	1		
32	SFUM134-03	Holder, Speed Selector Switch	1		○
32-1	SFXJ134-01	Spacer, Speed Selector Switch	2		○
32-2	XUC3FT	Circlip, Spacer	4		
32-3	SFQA134-01	Spring, Spacer	2		○
32-4	SFXW702-2	Washer, Spacer	2		
32-5	XTN3+8B	Screw, Holder	2		
35	SFUC130-11E	Actuating Plate Ass'y	1		
35-1	XUC3FT	Circlip, Actuating Plate Ass'y	1		
35-2	SFXW170-02	Washer, Actuating Plate Ass'y	1		
36	SFUB140-01A	Operating Plate Ass'y	1		
36-1	SFXW890B01	Washer, Operating Plate Ass'y	1		
36-2	XUC5FT	Circlip, Operating Plate Ass'y	1		
37	SFUM130-16	Support, Switch	1		
37-1	XUC3FT	Circlip, Switch Support	1		
38	SFUK165-01E	Main Base	1		
39	SFUM130-23	Plate, Gear Set	1		

Ref. No.	Part No.	Part Name & Description	Per Set		Remarks
40	SFQS130-11	Spring, Gear Set Plate	1		
40-1	XUC3FT	Circlip, Gear Set Plate	1		
41	SFUM144X01	Holder, Switch	1		○
41-1	XTN3+8B	Screw, Switch Holder	1		
42	SFUM130-24	Lever, Switch	1		
42-1	XUC3FT	Circlip, Switch Lever	1		
42-2	SFQH910-05	Spring, Switch Lever	1		
43	SFMZ134-01Z	D.D. Motor	1		○
43-1	XTN3+8B	Screw, D.D. Motor	3		
44	SFUG130-12A	Main Gear Ass'y	1		
44-1	SFXW890B01	Washer, Main Gear Ass'y	1		
44-2	XUC5FT	Circlip, Main Gear Ass'y	1		
45	SFAU134-01	Cover, Bottom	1		○
45-1	XTN3+8BFZ	Screw, Bottom Cover	6		
45-2	XWG3FZ	Washer, Bottom Cover	6		
46	XVG4C30	Screw, Insulator (A)	4		
47	SFUM170-10	Insulator (A)	4		
48	SFUZ170-02	Felt, Insulator (A)	4		
49	SFGA170-01	Rubber, Insulator	4		
50	SFQC170-01	Spring, Insulator	4		
51	SFXG170-02E	Nut, Insulator	4		
52	SFGZ170-03	Rubber	1		
53	SFGA170-02A	Insulator (B)	4		
53-1	XTN4+30B	Screw, Insulator	4		
54	SFDZ144X01	Solenoid Ass'y	1		○
		TONE ARM and ARM BASE			
70	SFPWG13201K	Balance Weight Ass'y	1		
71	SFPAM13101K	Tone Arm Ass'y	1		○
71-1	XSN3+12S	Screw, Tone Arm Ass'y	2		
71-2	XWA3B	Washer, Tone Arm Ass'y	2		
72	SFPCC13001K	Head Shell	1		
74	SFPRT17003K	Lift Ass'y	1		
74-1	SFXG829-1	Screw, Tone Arm Lift Adjustment	1		
74-2	SFQA829-03	Spring, Lift Ass'y	1		
75	SFPJK13101	Knob, Anti-skate Force Control	1		○
76	SFPKD13101	Arm Base	1		○
77	SFPAB12002	Knob, Arm Lift	1		
78	SFPRT17001K	Arm Rest	1		
78-1	XWA26BFR	Washer, Arm Rest	1		
78-2	XNG26EBN	Nut, Arm Rest	1		
79	SFPJL00101K	Cueing Lever Ass'y	1		
80	SFPGM20001	Rubber, Cueing Lever	1		
81	SFPAB13101K	Lift Bar Ass'y	1		○
81-1	SFPJL13101K	Lift Bar	1		○
81-2	SFPSP13101	Support, Lift Bar	1		○
81-3	SFPSP17002	Spring, Arm Lift Bar	1		
81-4	XWE4A10BW	Washer, Arm Lift Bar	1		
81-5	XUC3FT	Circlip, Arm Lift Bar	1		
81-6	XTN3+5B	Screw, Lift Bar Ass'y	2		
82	SFPJK17002	Cam, Anti-skate Force Control	1		
82-1	SFPEW13005	Washer, Anti-skate Force Control Knob	1		
82-2	XTN26+5B	Screw, Anti-skate Force Control Cam	1		
82-3	XWG26	Washer, Anti-skate Force Control Cam	1		
83	SFPSH17001	Support, Anti-skate Force Control	1		
83-1	SFXW750-01	Washer, Anti-skate Force Control	1		

Ref. No.	Part No.	Part Name & Description	Per Set		Remarks
83-2	XTN3+5B	Screw, Anti-skate Force Control Support	1		
84	SFDP134-04E	Phono P.C.B. Ass'y	1		○
84-1	XTN3+8B	Screw, P.C.B. Ass'y	1		
84-2	XWE3D8	Washer, P.C.B. Ass'y	1		
85	SFPAB13103K	Base, Arm Lift	1		○
85-1	SFPSP14001	Spring, Anti-skate Force Control	1		
85-3	XSN3+6S	Screw, Arm Lift Base	2		
85-4	XWA3B	Washer, Arm Lift Base	2		
85-5	XWG3	Washer, Arm Lift Base	2		
86	SFPSP17003	Spring	1		
		ACCESSORIES			
A1	SFNU144C01	Instruction Book	1		○
A2	**SFWE154A1**	Adaptor, 45 r.p.m	1		
A3	SFCZV8800	Screw, Cartridge	2		
A3-1	SFPEV7800	Screw, Cartridge	2		
A3-2	SFYF05A06	Polyethylene Bag	1		
A4	SFKO135M01E	Overhang Gauge	1		
A5	SFYF09A15	Polyethylene Bag	1		
		PACKING PARTS			
P1	SFHP144C01	Carton	1		○
P2	SFHH160-01	Pad, Front	1		
P3	SFHH160-02	Pad, Rear	1		
P4	SFHD134-01	Pad, Turntable	1		
P5	SFHD170-01	Pad, Top	1		
P6	SFHD134-02	Pad, Spacer	1		
P7	SFHD135-01	Cover, Turntable	1		
P8	SFHD001-04	Cover, Motor	1		
P9	SFHS170-01	Spacer, Panel	3		
P11	SFYH60X60	Polyethylene Cover, Dust Cover	1		
P11-1	SFYH40X45	Polyehtylene Cover, Turntable	1		
P11-2	SFYF60A60	Polyethylene Cover, Player Unit	1		
P11-3	SFYH15X30	Polyethylene Cover, Cord	1		
P12	SFHS170-02	Spacer, Arm Base	1		

■ PACKINGS



Printed in Japan
7803-750 A