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Service Manual

Player SP-10MK II (M), (MC)



■ SPECIFICATIONS

Type:	Direct-drive turntable	Wow & Flutter:	0.025% (JIS C5521) W.R.M.S. ±0.035% (DIN 45507), weighted, zero-to-peak
Turntable platter:	Aluminum diecast, diameter 32 cm (12-19/32 inches), weight 2.9 kg (6.4 lbs.), moment of inertia 380kg. cm ² (130 lbs. in ²)	Rumble:	60 dB (IEC 179B) 50 dB (DIN 45539A) 70 dB (DIN 45539B)
Motor:	Brushless DC motor, electronic rectification, quartz-controlled phase-locked servo circuit	Power Supply:	120V, AC 50 or 60 Hz
Platter speeds:	33-1/3, 45 and 78.3r.p.m.	Power Consumption:	20 W
Starting torque:	6 kg. cm (5.2 lbs. in)	Dimensions:	Turntable Only 36.85 (W) x 10.25 (H) x 36.85 (D) cm (14-31/64 x 4-1/64 x 14-31/64 inches)
Build-up time:	0.25 sec. (25° rotation) to 33-1/3r.p.m.	Power Unit	110 (W) x 8.35 (H) x 37.0 (D) cm
Braking time:	0.3 sec. (30° rotation) from 33-1/3r.p.m. to standstill	Weight:	Turntable Only 9.5 kg (20.9 lbs.) Power Unit 3.8 kg
Speed fluctuation by load changes:	0% within 5 kg. cm (4.3 lbs. in)		
Speed drift:	Within ± 0.002%		

Specification are subject change without notice for further improvement.

Technics
by Panasonic

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■ PARTS IDENTIFICATION

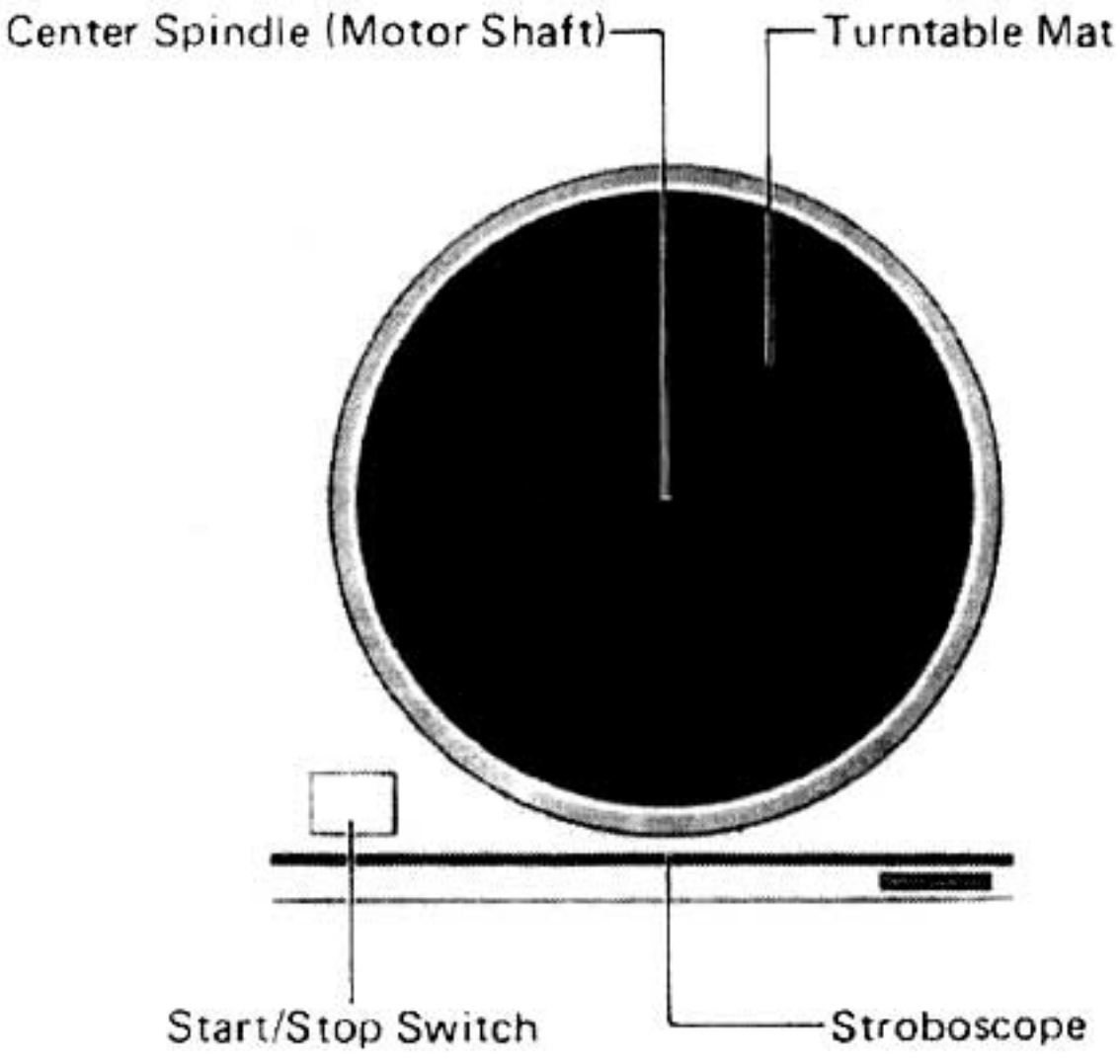


Fig. 1

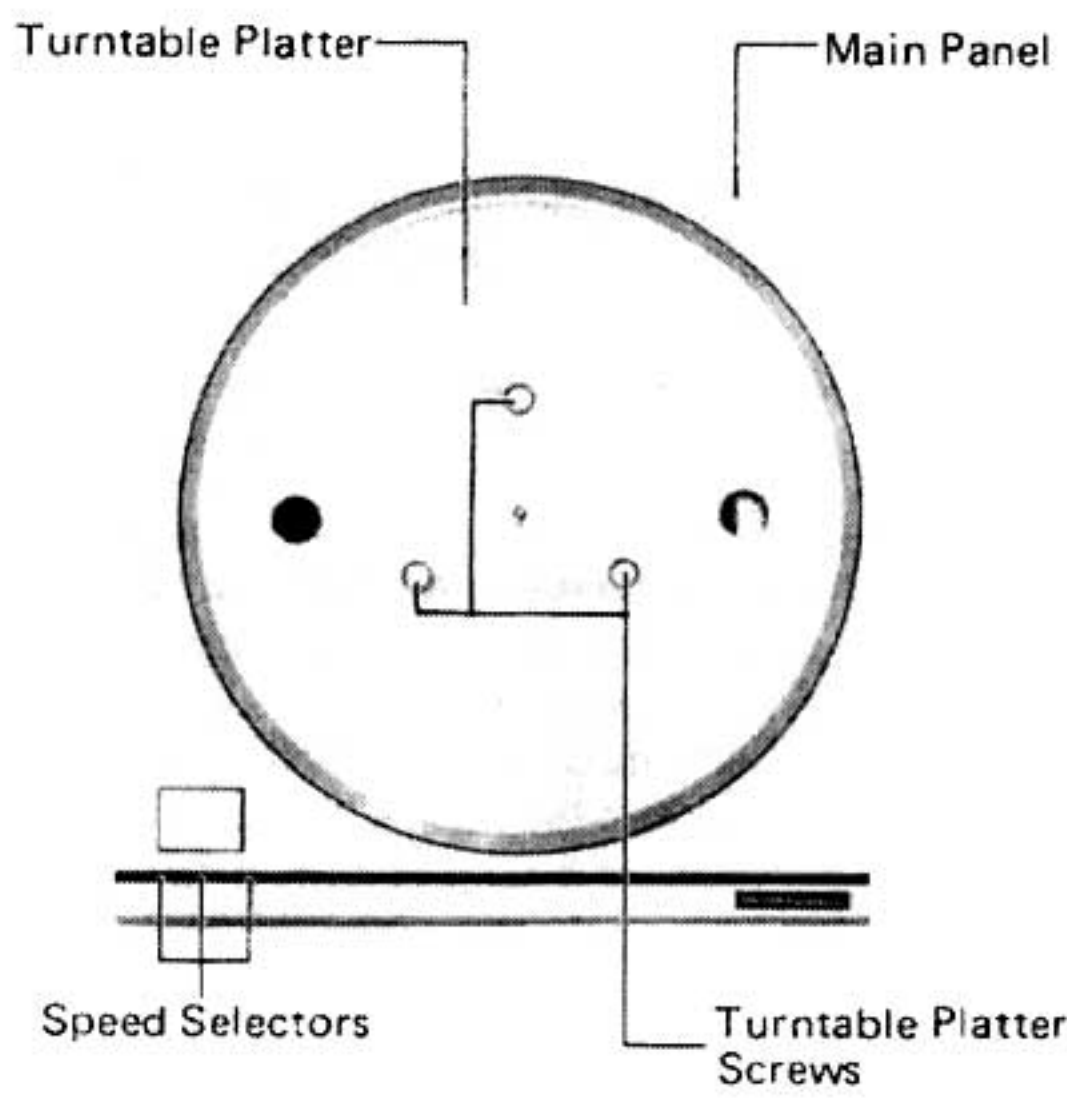


Fig. 2

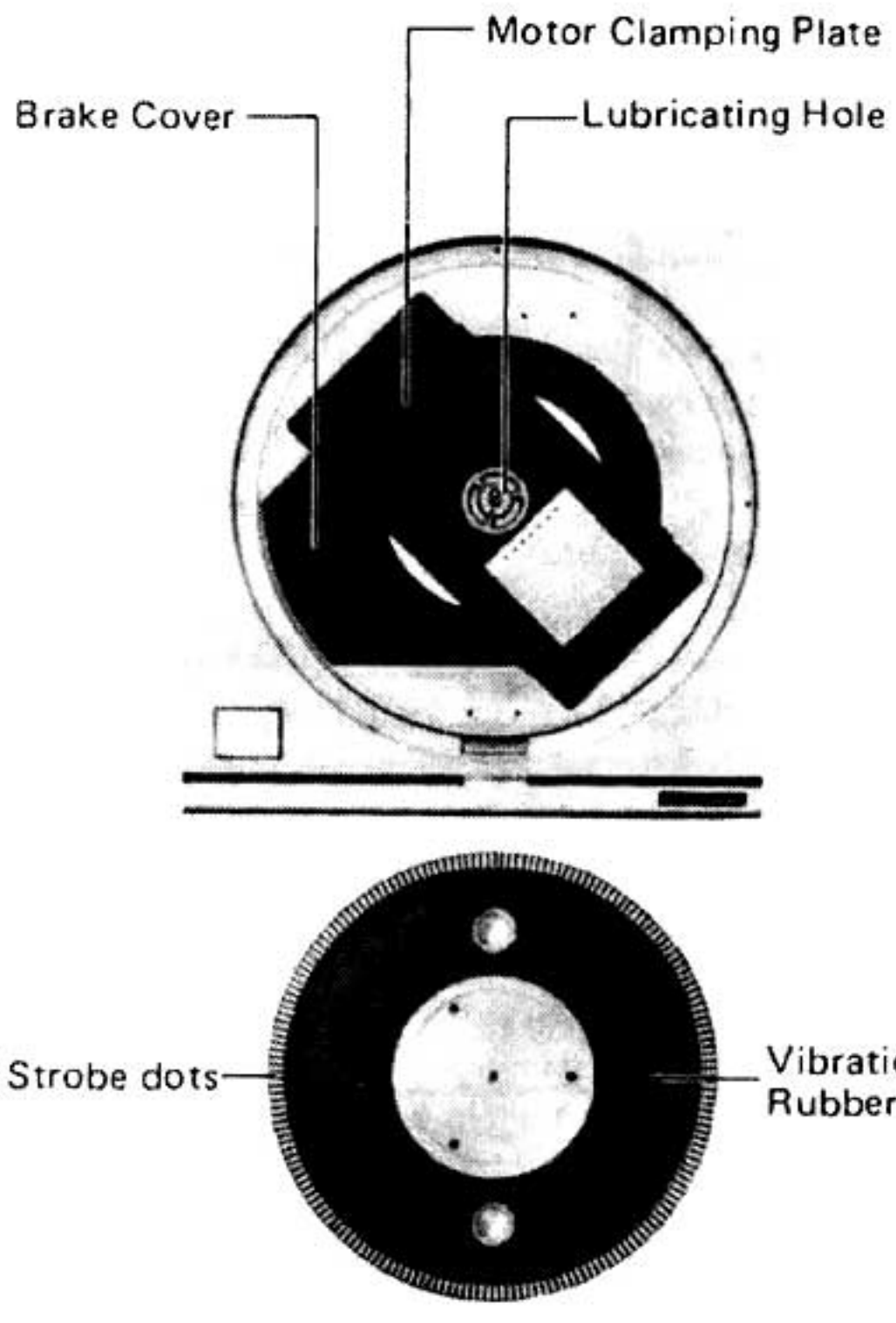


Fig. 3

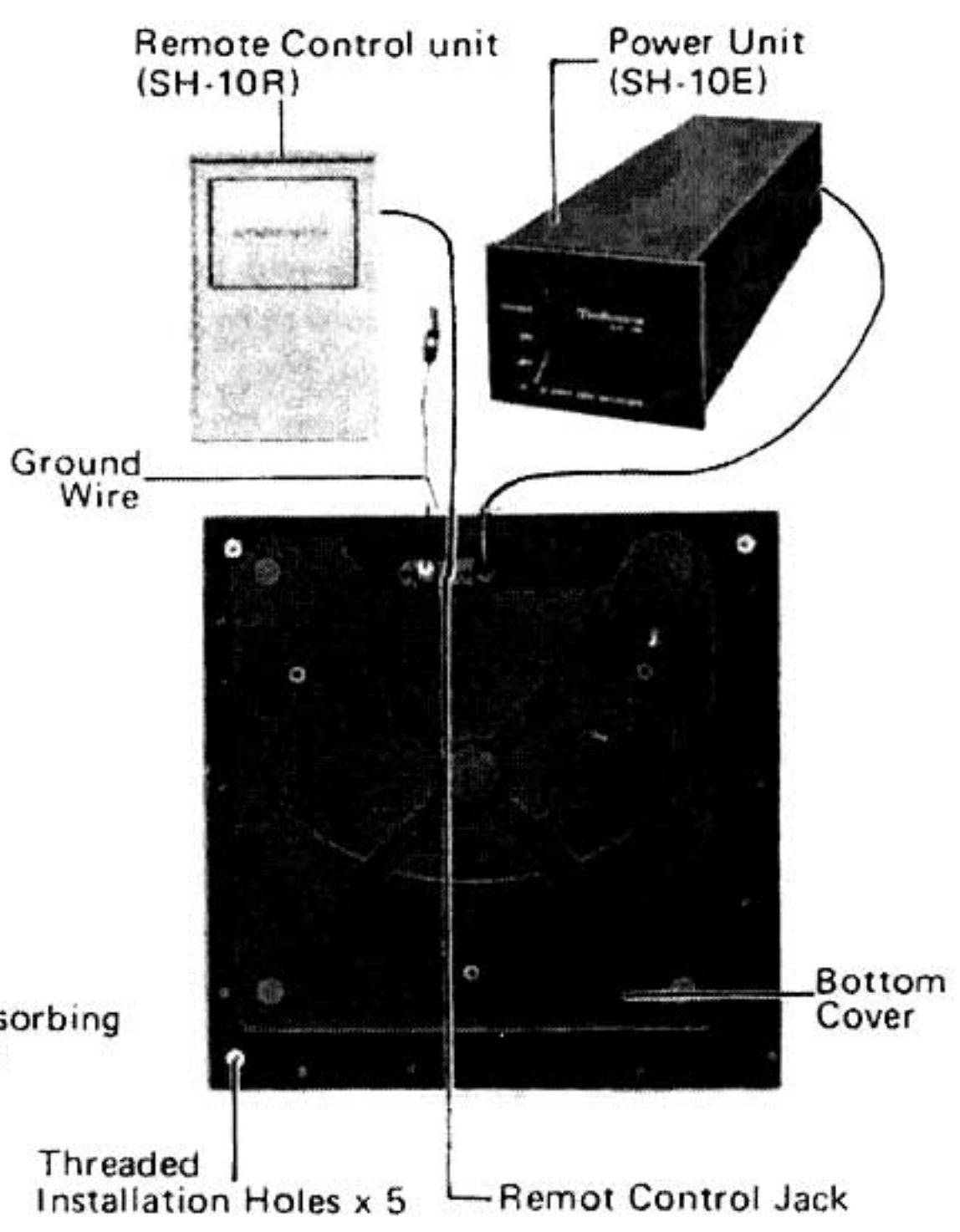


Fig. 4

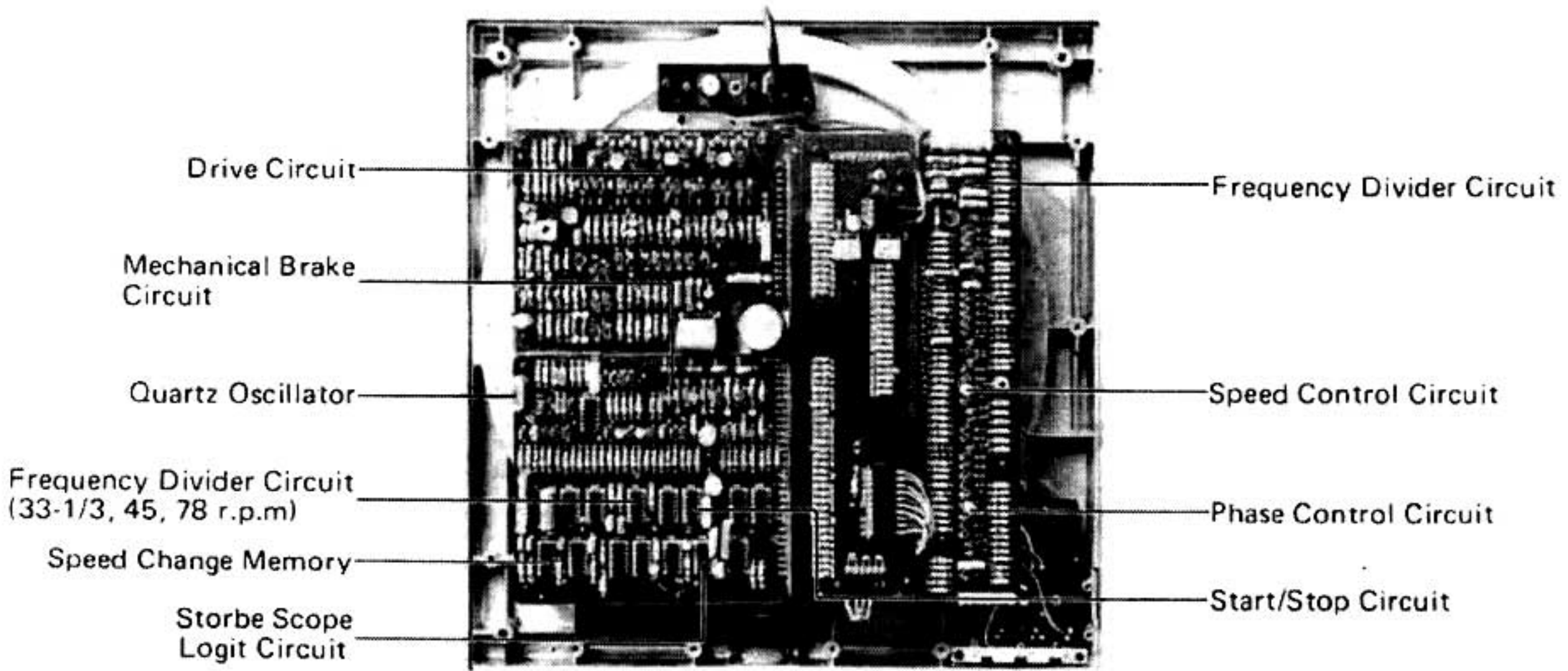


Fig. 5

■ ASSEMBLY AND SET-UP

1. Building a base or cabinet for this model

The starting torque of this model is 6Kg. cm. (5.2 lbs. in). Thus the turntable platter which is heavy (2.9kg, 6.4 lbs.) and large (32cm, 12-19/32 inches) can be started and stopped quickly. For this reason we recommend that you use durable and heavy material. The thickness of the base should be 3cm. (1-11/64 inch) or more in order to bring out the best performance of model.

Note: Use durable and stable insulators (legs) Fig. 6 shows an example of cabinet construction.

2. Drill and cutout the base according to the installation diagram.

As paper has a tendency to stretch we suggest that you check the diagram before using it as a template. Also check dimensions for printing errors. Check the tone arm mounting position for proper alignment (follow the tonearm manufacturers specifications). Also make sure to allow sufficient clearance for power connector and output terminals of the tone arm.

3. Install the unit in the cabinet

Two kinds of screws are included in the carton. Use the proper length of screw according to the thickness of the cabinet which you use. When you install the unit in the cabinet place protective material, on top of the unit to protect the center spindle from external damage. A soft cloth placed on the panel surface will protect it from scratches.

4. Remove the motor clamping plate and screws (Fig. 8)

After installation of the unit in the cabinet remove the seven blue screws and motor clamping plate.

NOTE: To protect the very delicate and important parts of the motor (spindle, motorshaft etc.) from external damage during transportation protective fittings have been installed. Be sure to remove these fittings carefully and save them for future use in case you again need to transport the unit.

NOTE: Dimensions are marked in millimeters. (25.4 mm are equal to inch.)

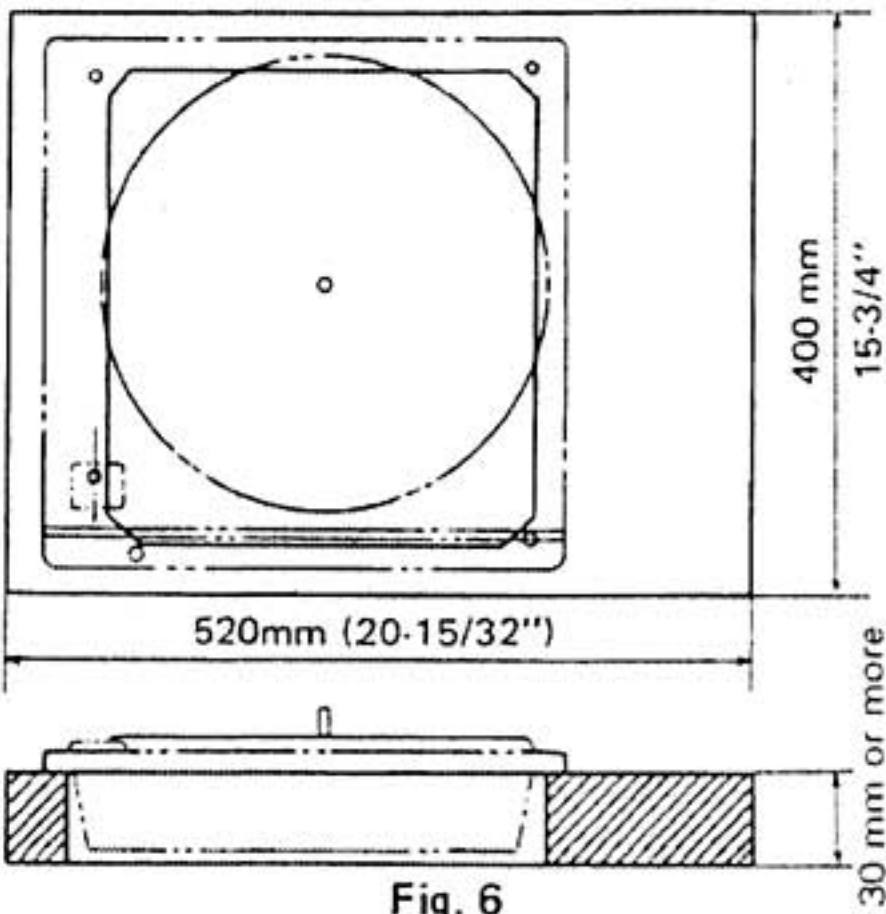


Fig. 6

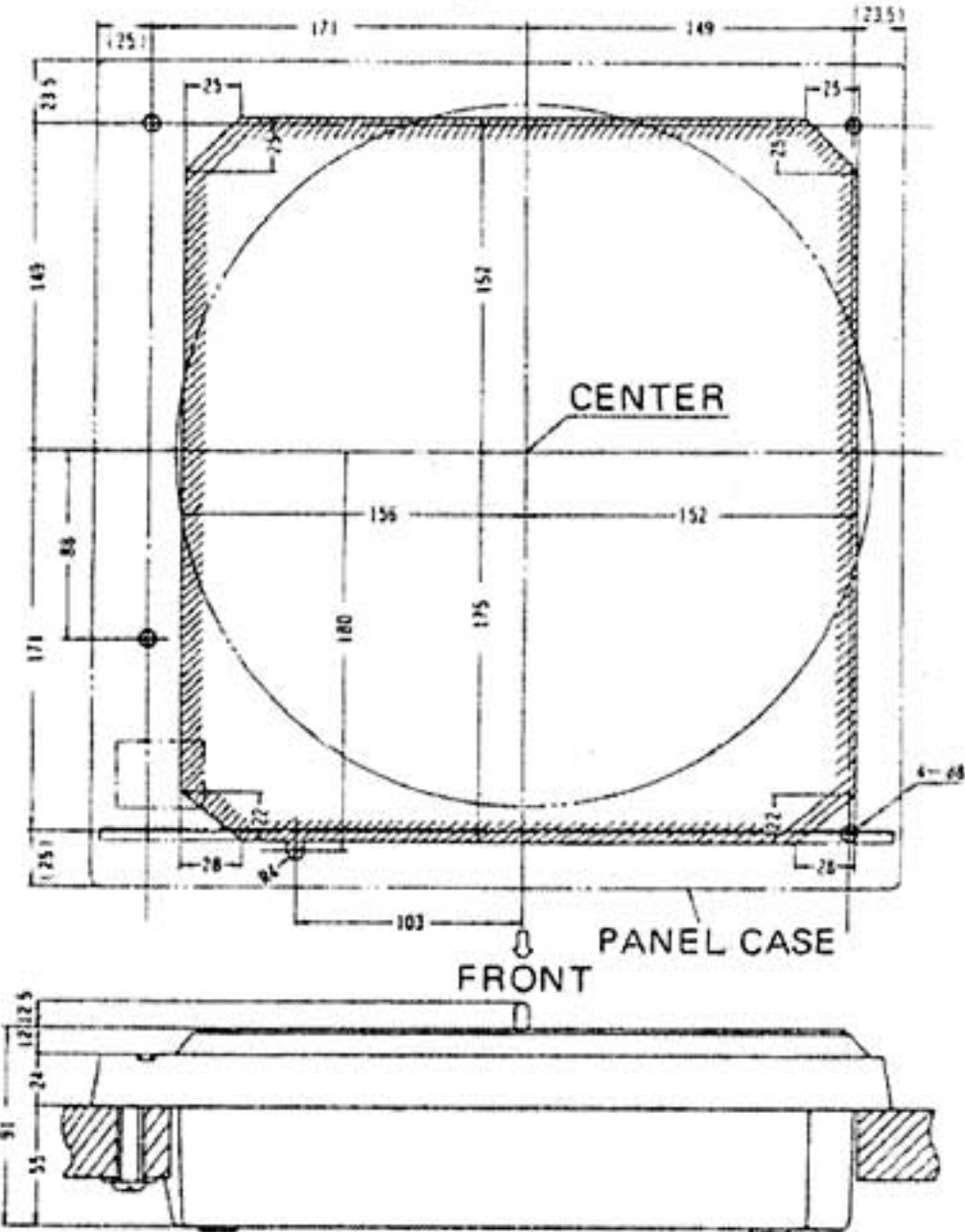


Fig. 7

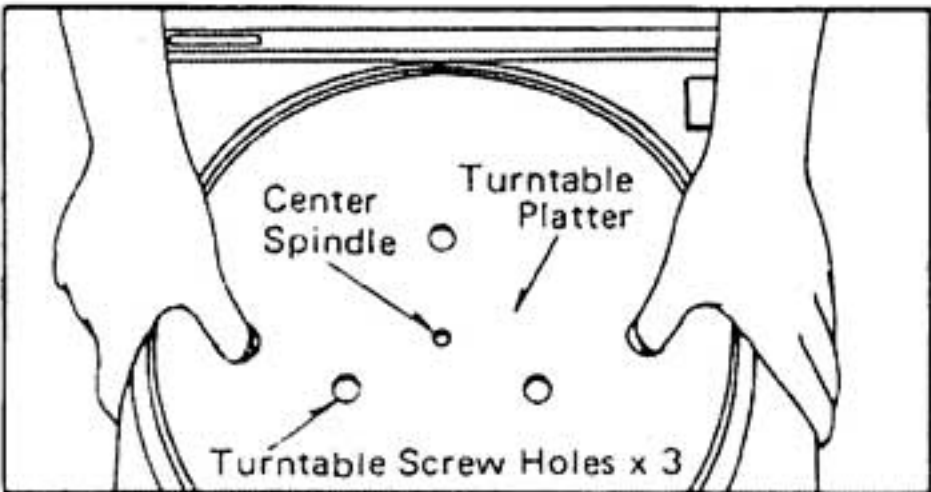


Fig. 9

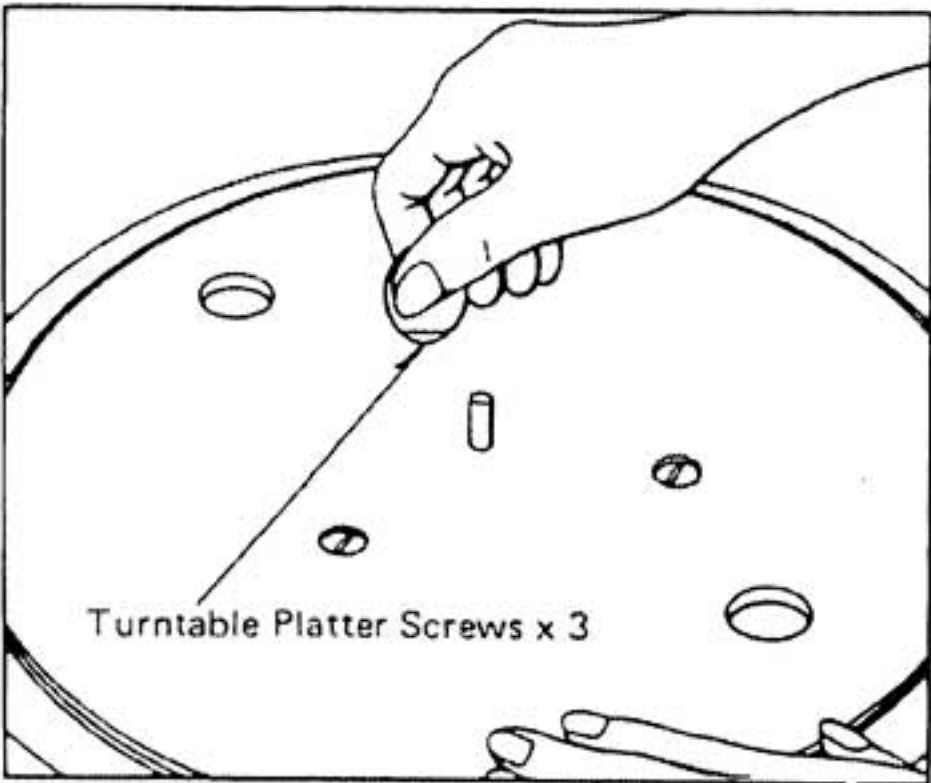


Fig. 10

5. Securing the turntable platter (Fig. 9 & 10)

Place the turntable platter on the spindle aligning holes in the platter with the rotor screw holes by eye. Slightly lifting the turntable platter will make it easier to align the holes. Using the three screws supplied, firmly tighten the turntable platter and put the turntable mat on it.

NOTE: The turntable platter must be tightened at all three points. To assure proper operation.

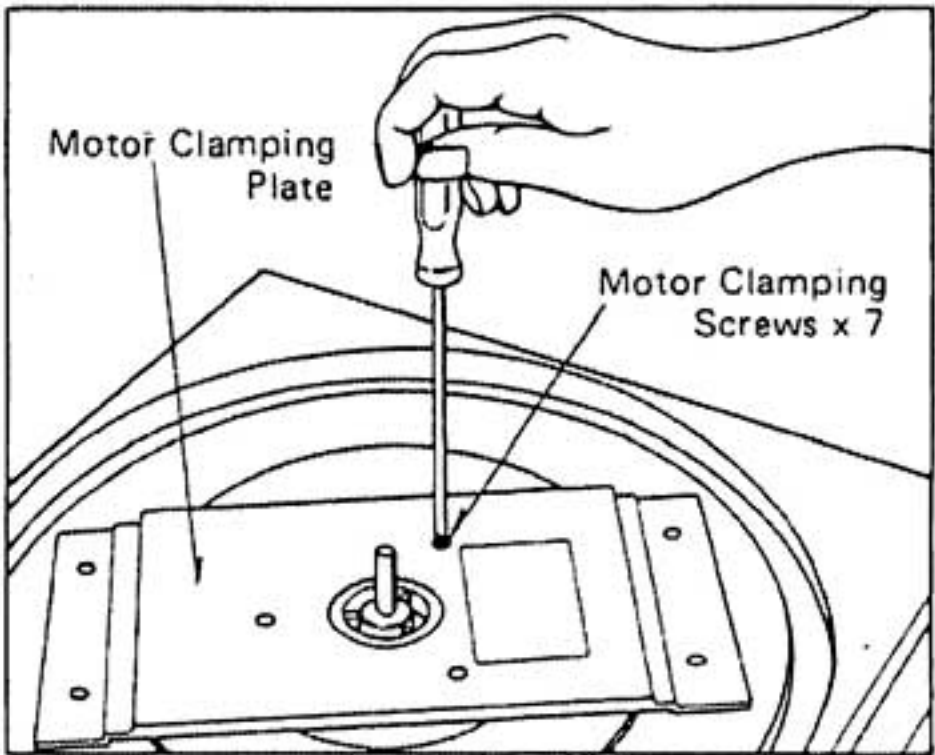


Fig. 8

■ OPERATION PRINCIPLES OF THE SP-10MKII

1. Quartz Generated Reference Signal

The quartz reference signal generator provides a reference signal which controls the action of the SP-10MKII. The oscillation of a quartz crystal is used. This oscillation is stable, highly accurate and not effected by temperature and other changes. The signal generated by the reference signal generator is split by the frequency divider into the appropriate frequency according to the speed selected. The frequency divider is controlled by pushing the speed selector on the front panel of the unit. The selected speed information is stored in the speed change digital memory.

2. Stroboscopy Logic Circuit

The stroboscope lights up the 190 stripes engraved on the platter rim. A neon lamp flashes according to instructive pulses from the stroboscope logic circuit. The circuit shapes digitally the signals from the frequency divider. This provides a sharp strobe image which is independent of external power source frequency.

3. Frequency Generator

A frequency generator is integrated with the platter drive motor. It is electromagnetic structure using a push-pull design cancels external induction. It converts accurately the platter rotation speed into a frequency. The output of the frequency generator is fed to the speed and the phase control circuits.

4. Phase Control Circuit

The phase control circuit detects a phase difference between a reference signal and a frequency generator signal and generates a control voltage. This circuit makes it possible to lock the rotation of the turntable platter to a reference signal. It improves considerably speed stability and speed control characteristics for load conditions when compared with the conventional direct-drive motor having only speed control as shown in Fig. 11 & 12.

5. Speed Control Circuit

The speed control circuit includes a sample-and-hold circuit, which converts the output of the frequency generator into an electrical voltage. This is the control voltage which maintains the platter rotation speed.

6. Drive Circuit

Two control signals are composed and applied to the drive circuit to maintain a forward motor-rotation. The drive circuit supplies fullwave drive current doubling current efficiency. It supplies drive current in both directions for a symmetrical rotation in either a forward or reverse direction.

The drive circuit rotates the turntable platter with quick response and large starting torque.

7. Start/stop Circuit

When the unit is started by the switch on the front panel or by the remote control, the start/stop circuit activates the forward drive. When the unit is switched off, the start/stop circuit activates the reverse drive and the mechanical brake actuating-circuits to perform a quick stop action.

8. Mechanical Brake Actuating-Circuit

The mechanical brake actuating-circuit operates a solenoid plunger which pushes a brake shoe against the platter. Working in conjunction with the reverse drive current, the mechanical brake can bring the platter to a complete stop quickly and smoothly. A half-braking force is maintained after the platter has stopped making it easy to accomplish accurate cueing of a record.

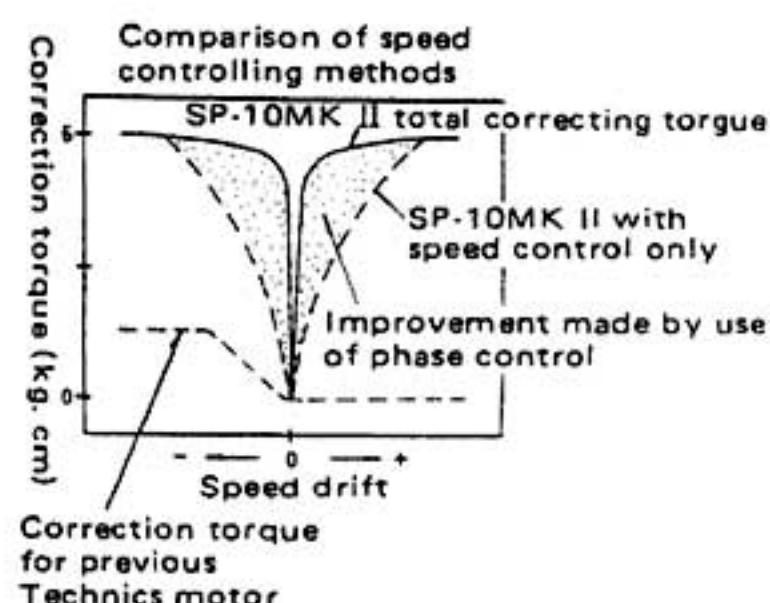


Fig. 11

Comparison of stability against load variations.

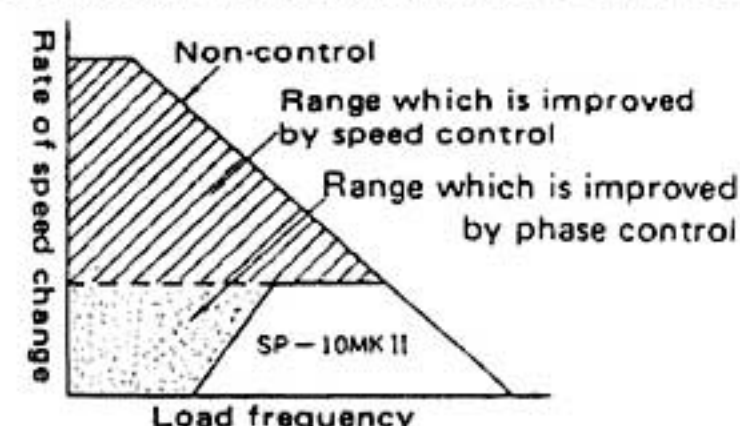


Fig. 12

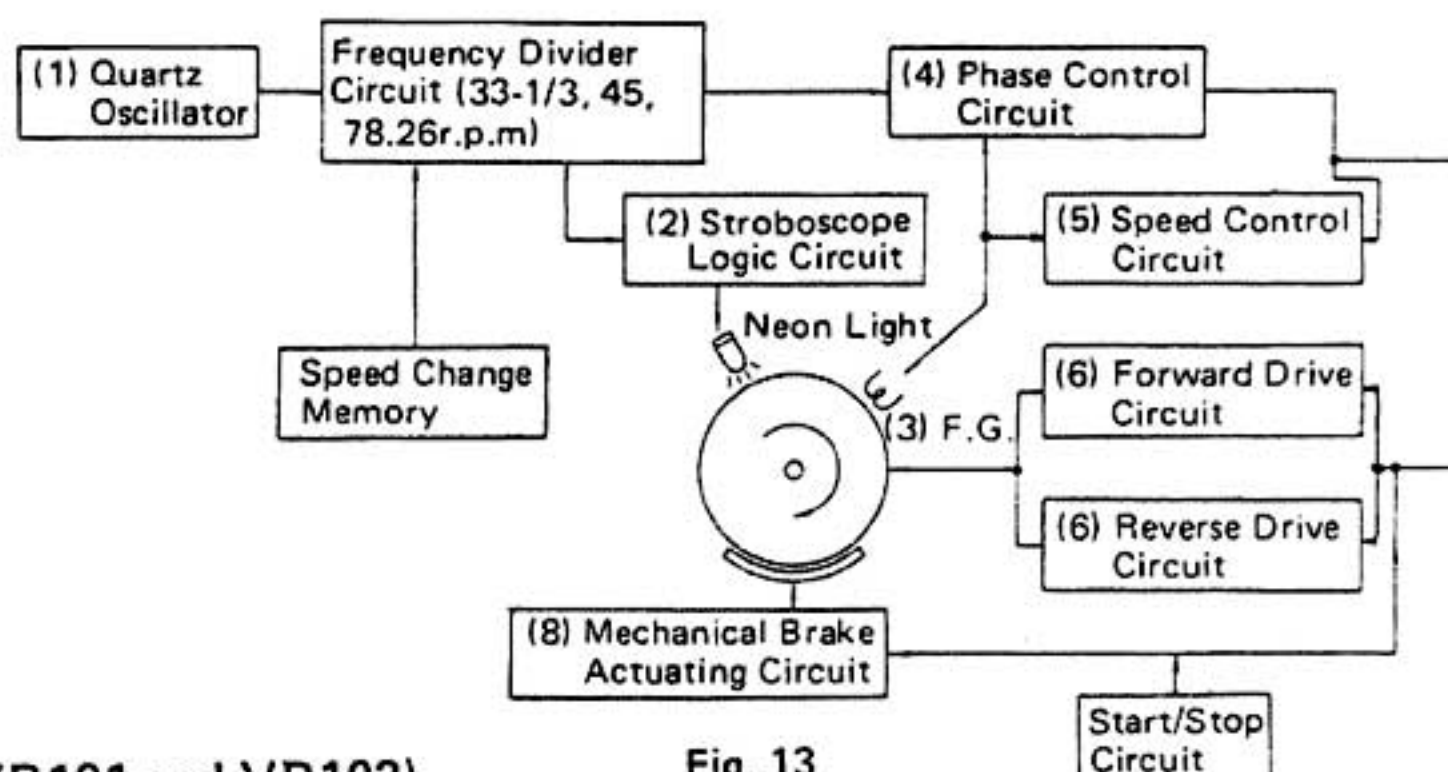


Fig. 13

■ THE PERIOD ADJUSTMENT METHOD (VR101 and VR102)

Note: If you repair the Control circuit board or the Drive Circuit board, you have to adjust VR101 and VR102.

1. Connect a dual-channel oscilloscope to points T and S on the circuit board.

Point O is for the ground wire of the Control Circuit board.

2. Please refer to fig. 14 for the phase relation of the 2 waves for the adjustment of VR101 and VR102.

3. Please adjust in the order: 33-1/3r.p.m, 45r.p.m, 78r.p.m.

Speed Selector	Time	Adjustment Point
33-1/3 r.p.m.	$6.3 \pm 0.2\text{ms}$	VR101
45 r.p.m.	$4.7 \pm 1.3\text{ms}$	Confirm
78 r.p.m.	$2.7 \pm 0.1\text{ms}$	VR102

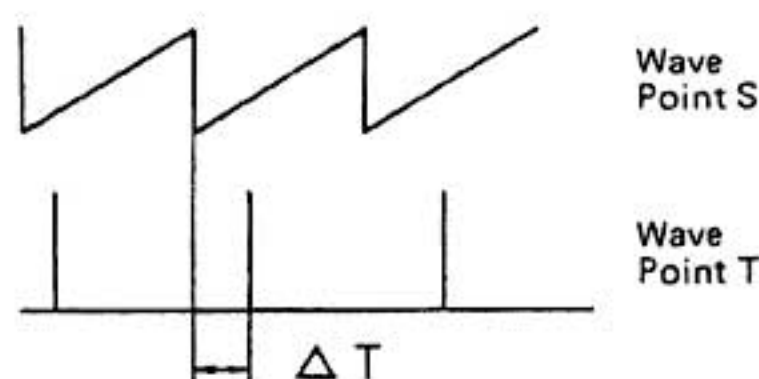


Fig. 14

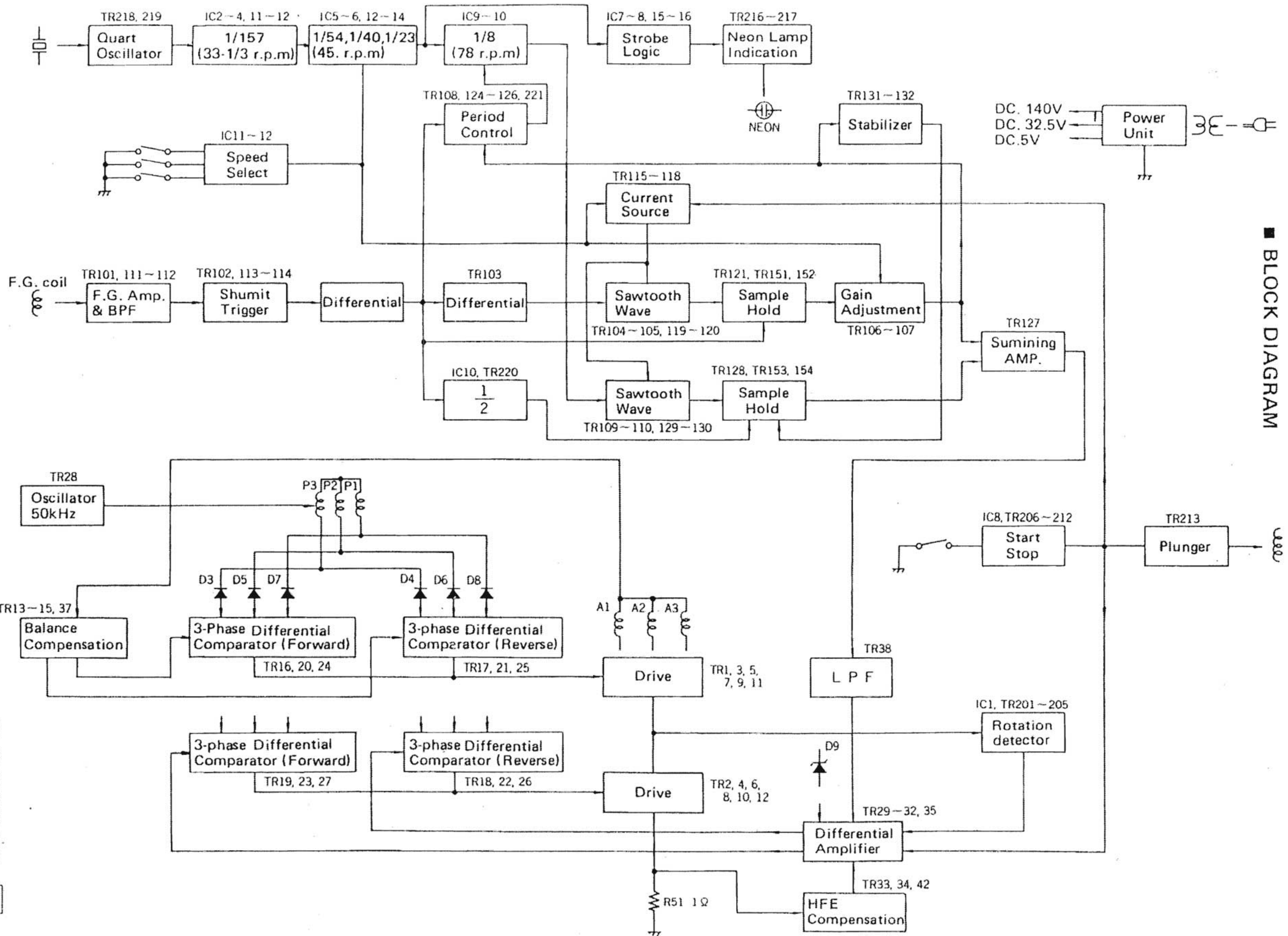
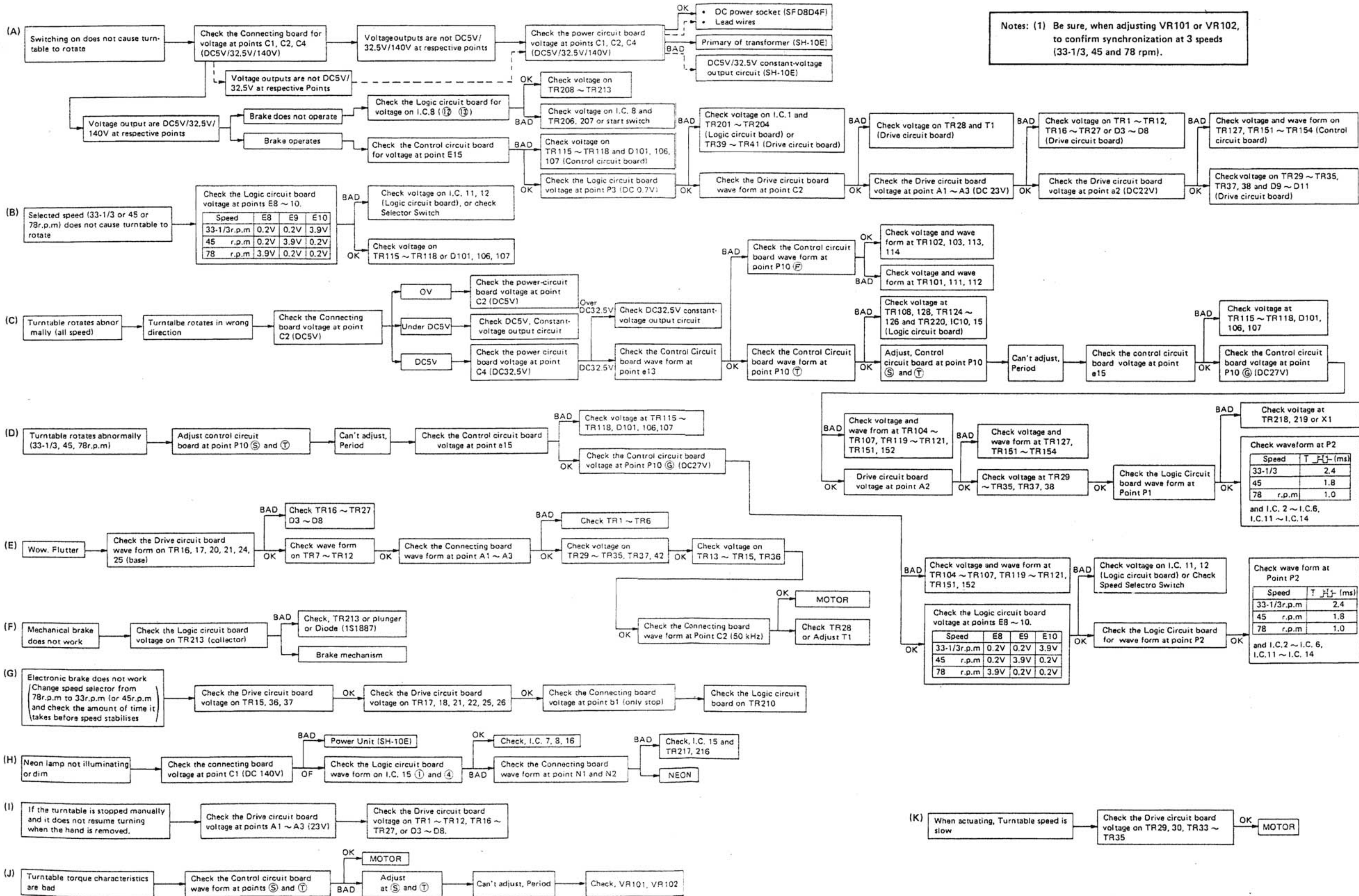
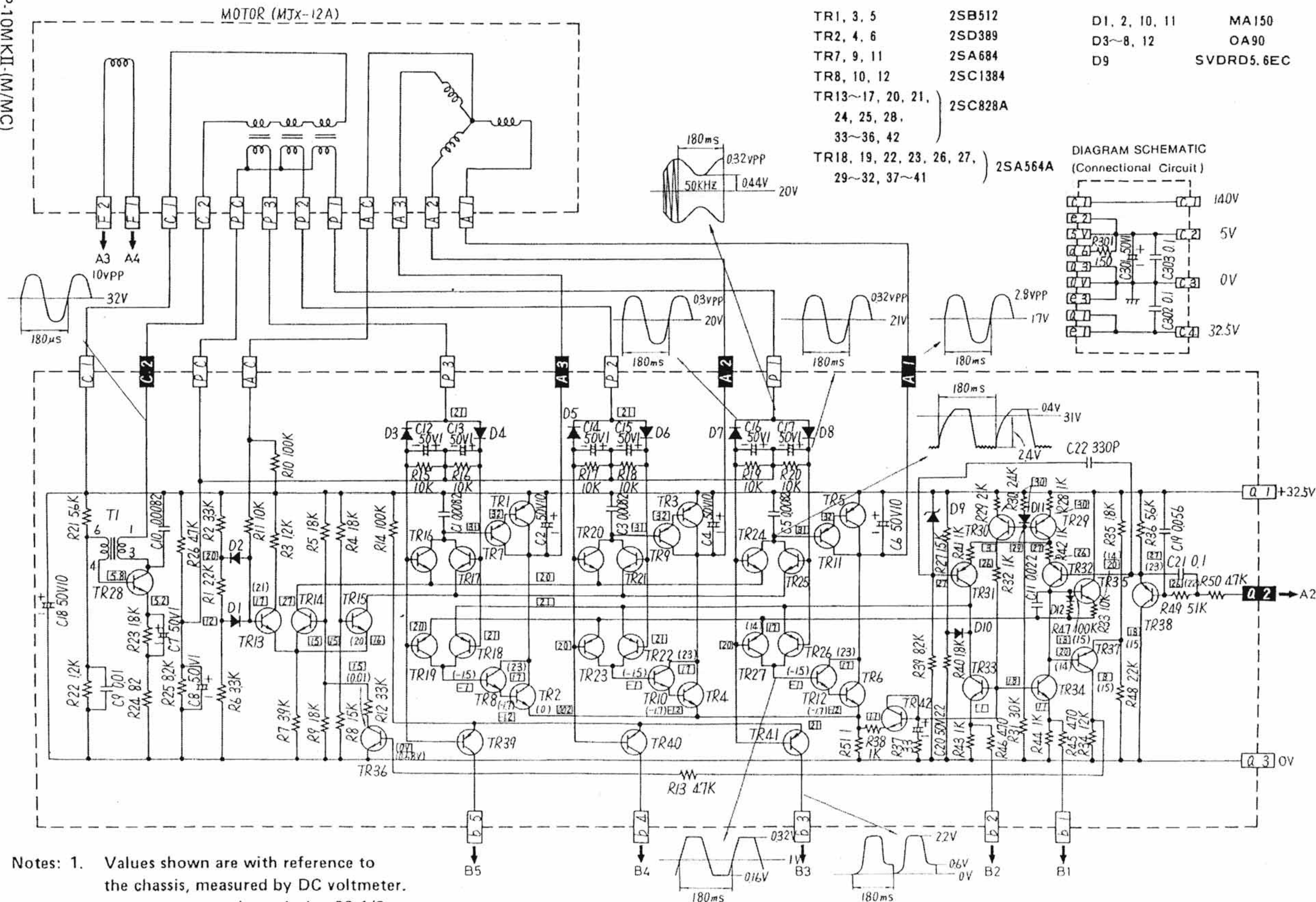


Fig. 15



Schematic Diagram (Drive Circuit) Model SP-10MKII-(M/MC)

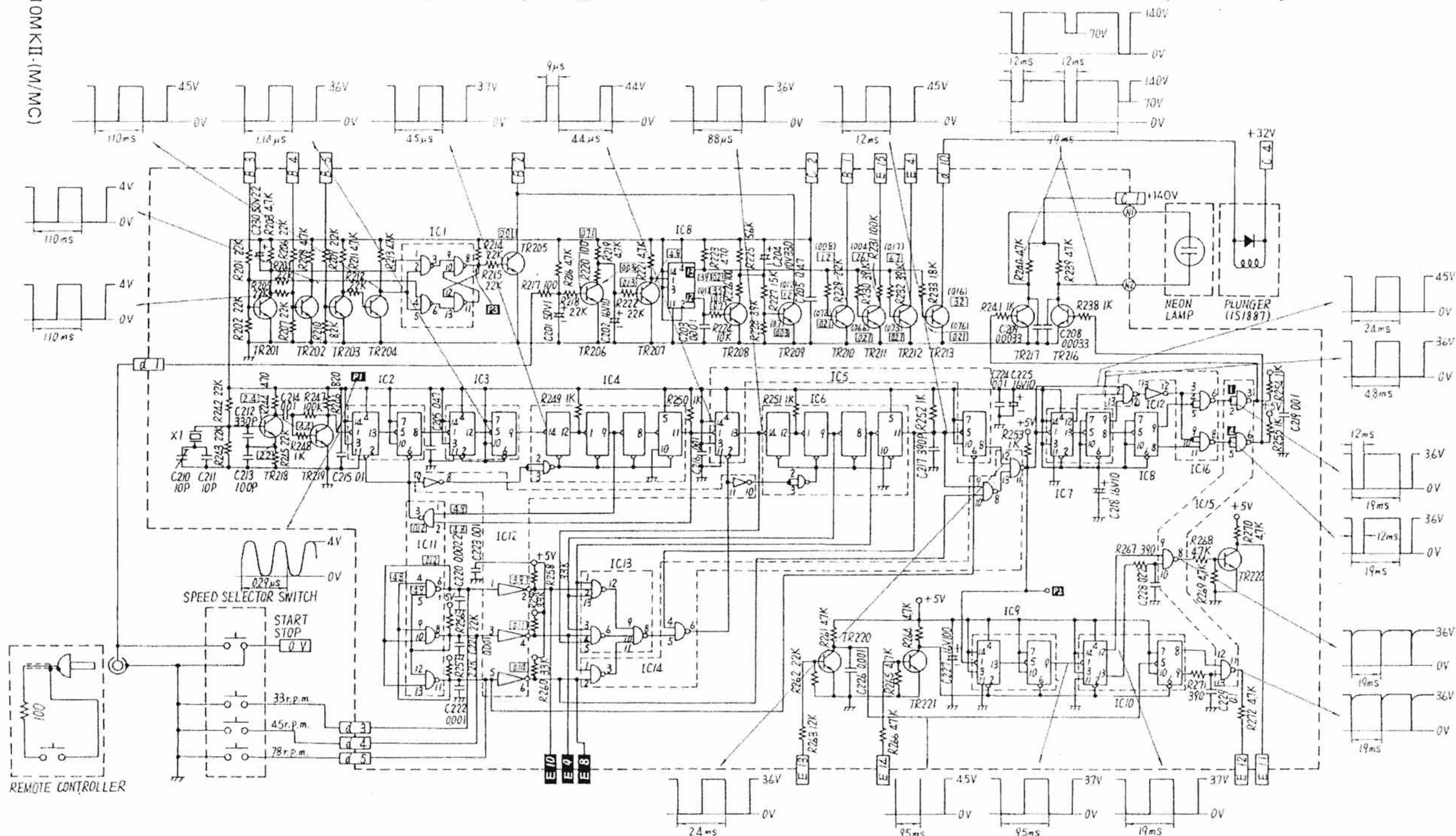
MOTOR (MJX-12A)



Notes: 1. Values shown are with reference to the chassis, measured by DC voltmeter.
 □ voltage during 33-1/3 rpm.
 () voltage when stopped.
 Waveforms are during 33-1/3 rpm.

This schematic diagram maybe modified at any time with the development of new technology.

Schematic Diagram (Logic Circuit) Model SP-10MKII-(M/MC)

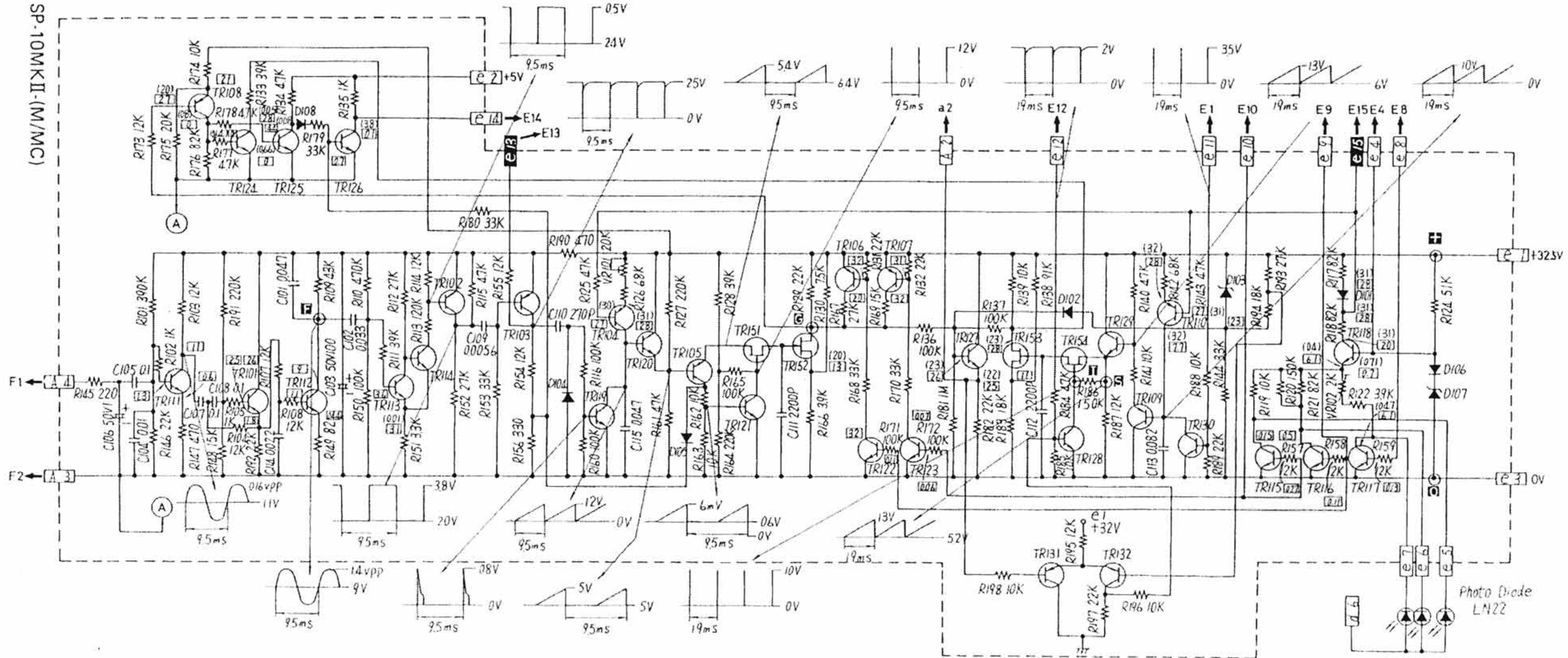


Notes: 1. Values shown are with reference to the chassis, measured by DC voltmeter.
 □ voltage during 33-1/3 rpm.
 () voltage when stopped.
 Waveforms are during 33-1/3 rpm.

IC1	SVIM53200P	TR201~212	2SC828A
IC2, 3, 5, 7, 8, 9	SVIM53273P	218~222	
IC4, 6	SVIM53293P	TR213	2SC1384
IC11	SVIM5946P	TR216, 217	2SC1573
IC12	SVIM53204P		
IC13, 16	SVIM53210P		
IC14, 15	SVIM53200P		

This schematic diagram maybe modified at any time with the development of new technology.

Schematic Diagram (Control Circuit) Model SP-10MKII-(M/MC)



Notes: 1. Values shown are with reference to the chassis, measured by DC voltmeter.
 □ voltage during 33-1/3 rpm.
 () voltage when stopped.
 Waveforms are during 33-1/3 rpm.

TR102~110, 131, 132	2SA564A
TR101, 111~130	2SC828A
TR151~154	2SK30A
D101, 102, 104, 105, 106, 108	MA150
D103	SVDRD9.1EBS
D107	SVDRD5.6ECS

This schematic diagram maybe modified at any time with the development of new technology.

Printed circuit board pattern seen from below.

Circuit Board Wiring View (Drive Circuit) Model SP-10MKII-(M/MC)



TR1.3.5		TR7.9.11	
START		START	
E	—	E	32V
C	17V	C	17V
B	32V	B	31V

TR2.4.6		
START	STOP	
E	002V	0V
C	17V	23V
B	-1.2V	-1.7V

TR8.10.12		
START	STOP	
E	-1.2V	-1.7V
C	17V	23V
B	-1V	-1.5V

TR13		TR14	
START		START	
E	16V	E	16V
C	27V	C	20V
B	17V	B	15V

TR15		TR16.20	
START		START	
E	16V	E	20V
C	21V	C	31V
B	15V	B	20V

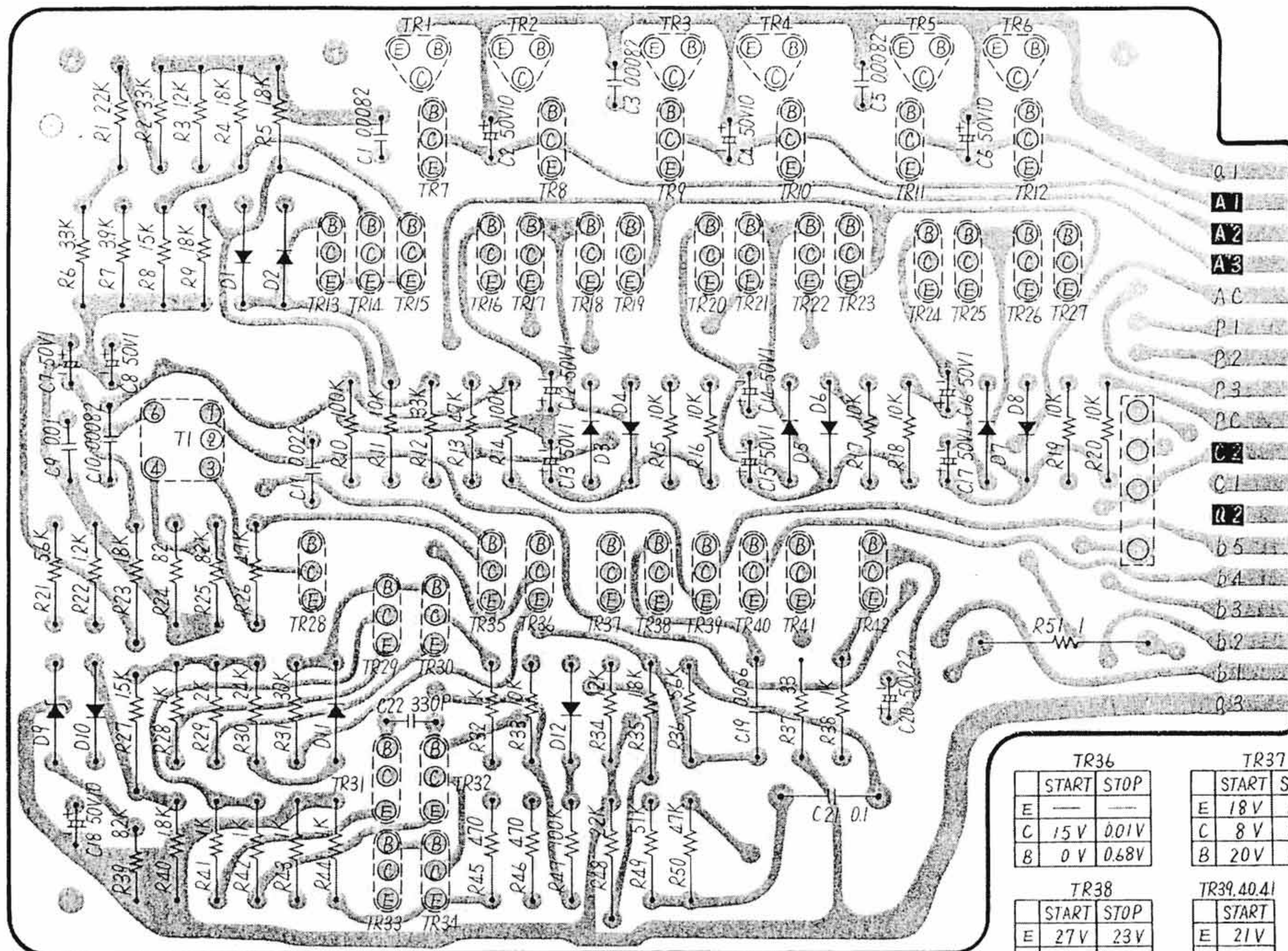
TR17.21		TR24	
START		START	
E	21V	E	20V
C	31V	C	31V
B	21V	B	20V

TR18.22		
START	STOP	
E	17V	14V
C	-1V	-1.5V
B	21V	—

TR19.23		
START	STOP	
E	17V	14V
C	-1V	-1.5V
B	20V	—

SP-10MKII-(M/MC)

11



TR25		TR28	
START		START	
E	21V	E	5.2V
C	31V	C	—
B	—	B	5.8V

TR26		
START	STOP	
E	17V	14V
C	-1V	1.5V
B	—	—

TR27		
START	STOP	
E	17V	14V
C	-1V	-1.5V
B	20V	—

TR29		TR30	
START		START	
E	30V	E	30V
C	27V	C	3V
B	29V	B	29V

TR31		TR33	
START		START	
E	26V	E	1V
C	17V	C	17V
B	27V	B	1.8V

TR32		
START	STOP	
E	26V	—
C	20V	14V
B	27V	23V

TR36		
START	STOP	
E	—	—
C	15V	0.01V
B	0V	0.68V

TR37		
START	STOP	
E	18V	15V
C	8V	15V
B	20V	14V

TR34		TR42	
START		START	
E	1.1V	E	1.1V
C	20V	C	1.8V
B	1.8V	B	1.8V

TR38		
START	STOP	
E	27V	23V
C	—	—
B	26V	22V

TR39.40.41		START	
E	21V		
C	—		
B	20V		

TR35		
START	STOP	
E	20V	14V
C	—	—
B	18V	15V

Circuit Board Wiring View (Logic Circuit) Model SP-10MKII-(M/MC)

TR205	TR206
START	START
E —	E —
C 0.01V	C 0.03V
B —	B 0.71V

IC12	TR207
START	START
2 3.9V	E —
4 0.1V	C 4.8V
6 0.14V	B 0.13V

IC8	START	STOP
12	3.5V	0.1V
13	0.21V	3.9V

TR209	START	STOP
E —	—	—
C 1.2V	0.12V	—
B 0.03V	0.7V	—

TR210	START	STOP
E —	—	—
C 1.2V	0.08V	—
B 0.21V	0.72V	—

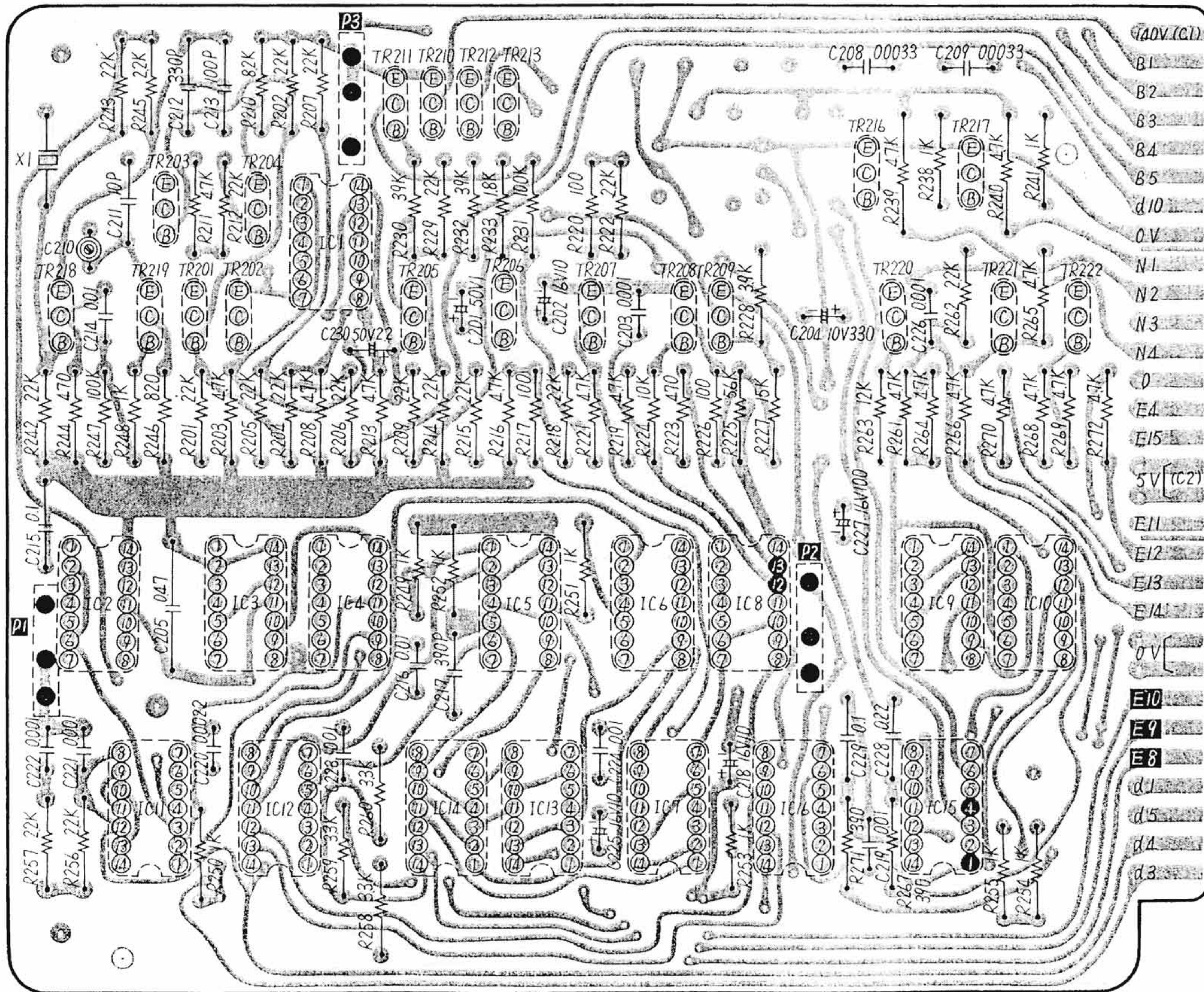
TR211	START	STOP
E —	—	—
C 2.6V	0.04V	—
B 0.21V	0.66V	—

TR212	START	STOP
E —	—	—
C 6.7V	0.17V	—
B 0.21V	0.73V	—

IC11	START
1 4.9V	—
2 4.8V	—
3 0.12V	—
4 4.8V	—
5 4.9V	—
6 0.12V	—

TR218	START
E 2.2V	—
C 4.4V	—
B 2.4V	—

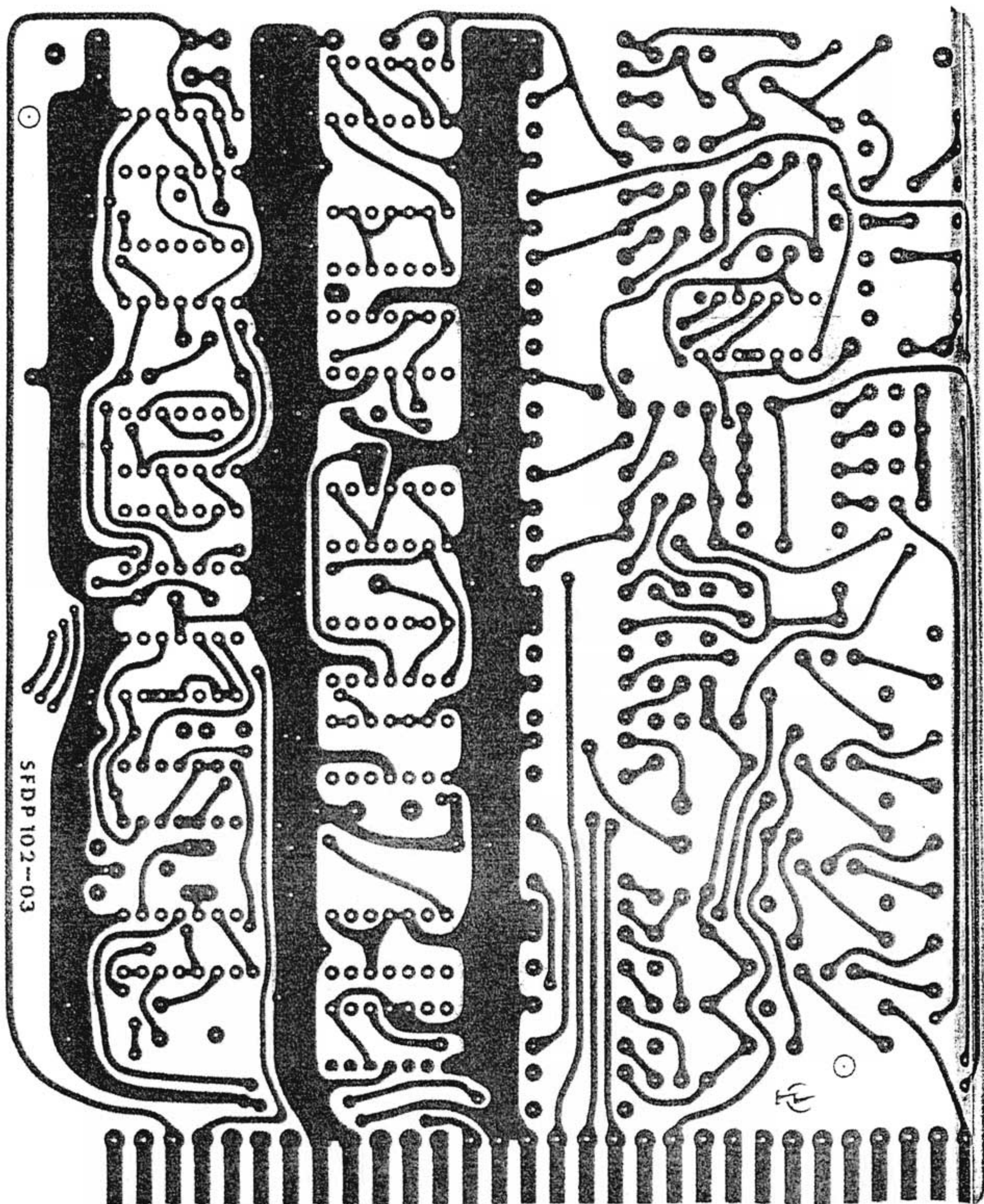
TR213	START	STOP
E —	—	—
C 3.2V	0.16V	—
B 0.21V	0.76V	—



- 40V (C1)
- B1
- B2
- B3
- B4
- B5
- d10
- 0V
- N1
- N2
- N3
- N4
- 0
- E4
- E15
- 5V (C2)
- E11
- E12
- E13
- E14
- 0V
- E10
- E9
- E8
- d1
- d5
- d4
- d3

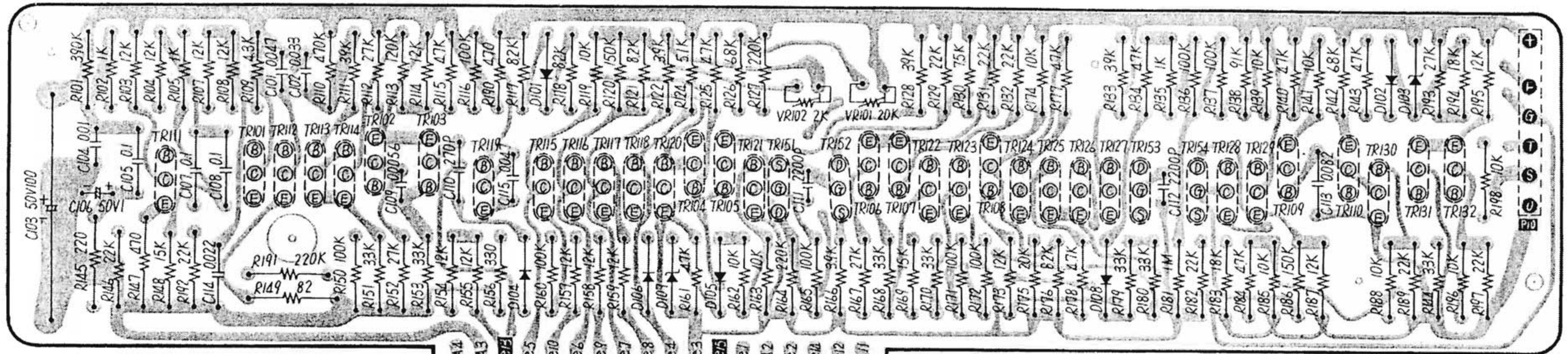
Circuit Board Wiring View (Logic Circuit)

..... Model SP-10MKII-(M/MC)



Circuit Board Wiring View (Control Circuit) Model SP-10MKII-(M/MC)

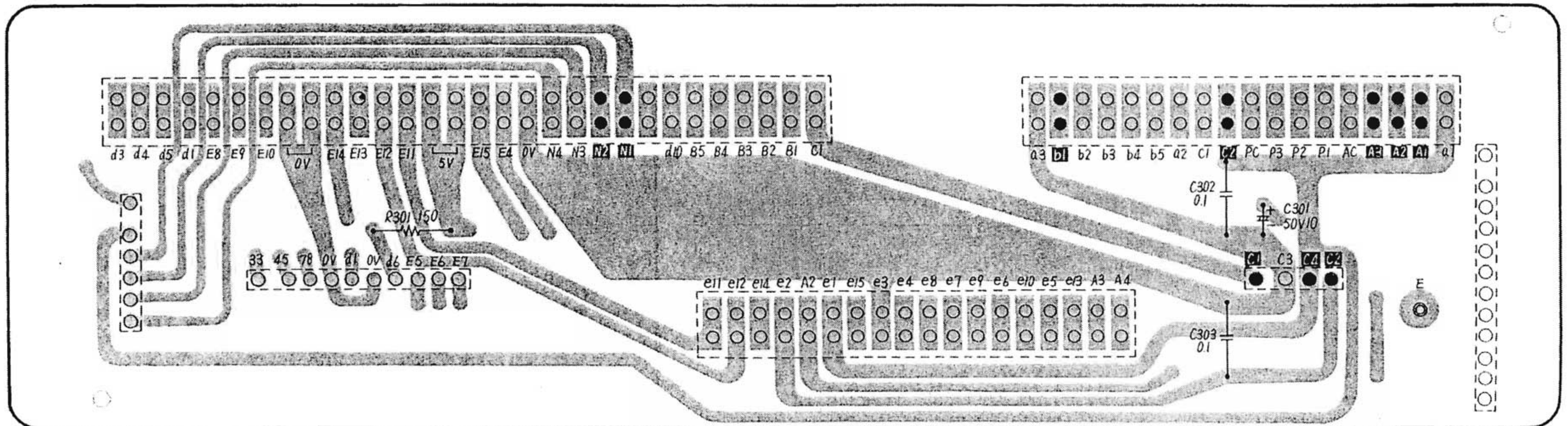
TR111	TR101	TR115	TR116	TR117	TR118	TR151	TR122	TR123	TR108	TR124	TR125
START	START	START	START	START STOP	START STOP	START STOP	START	START	START STOP	START STOP	START STOP
E 0.6V	E 1.8V	E —	E —	E —	E 6.1V 0.41V	D —	E —	E —	E 21V —	E —	E —
C 1V	C 26V	C 0.15V	C 0.5V	C 6.1V 0.47V	C 20V 3.1V	S 13V 20V	C 32V	C 0.07V	C 0V 0.8V	C 28V 0.05V	C 4.4V 0.08V
B 1.3V	B 25V	B 0.77V	B 0.11V	B 0.13V —	B 0.7V 0.71V	G —	B 0.11V	B 0.06V	B 27V 20V	B 0V 0.64V	B 0V 0.66V

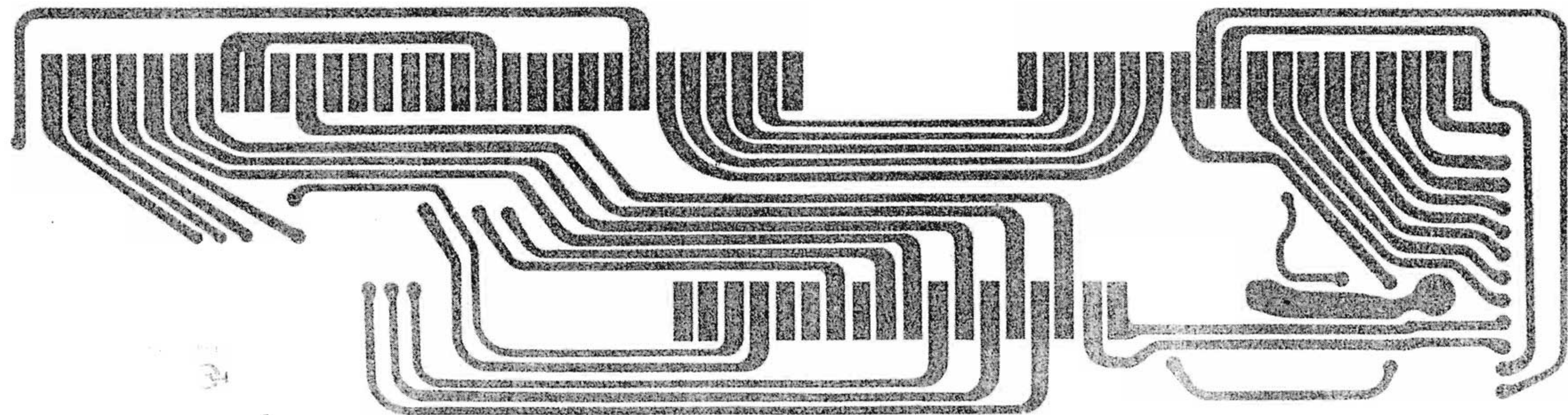
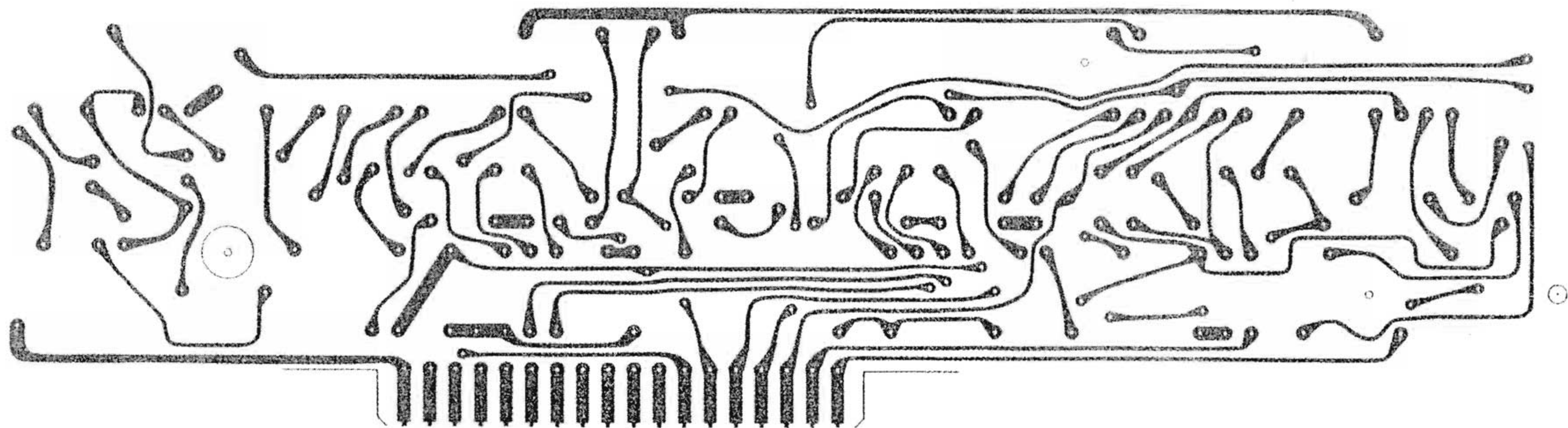


TR112	TR113
START	START STOP
E 0.44V	E 3.1V 0.01V
C 9V	C —
B 1.1V	B 3.6V —

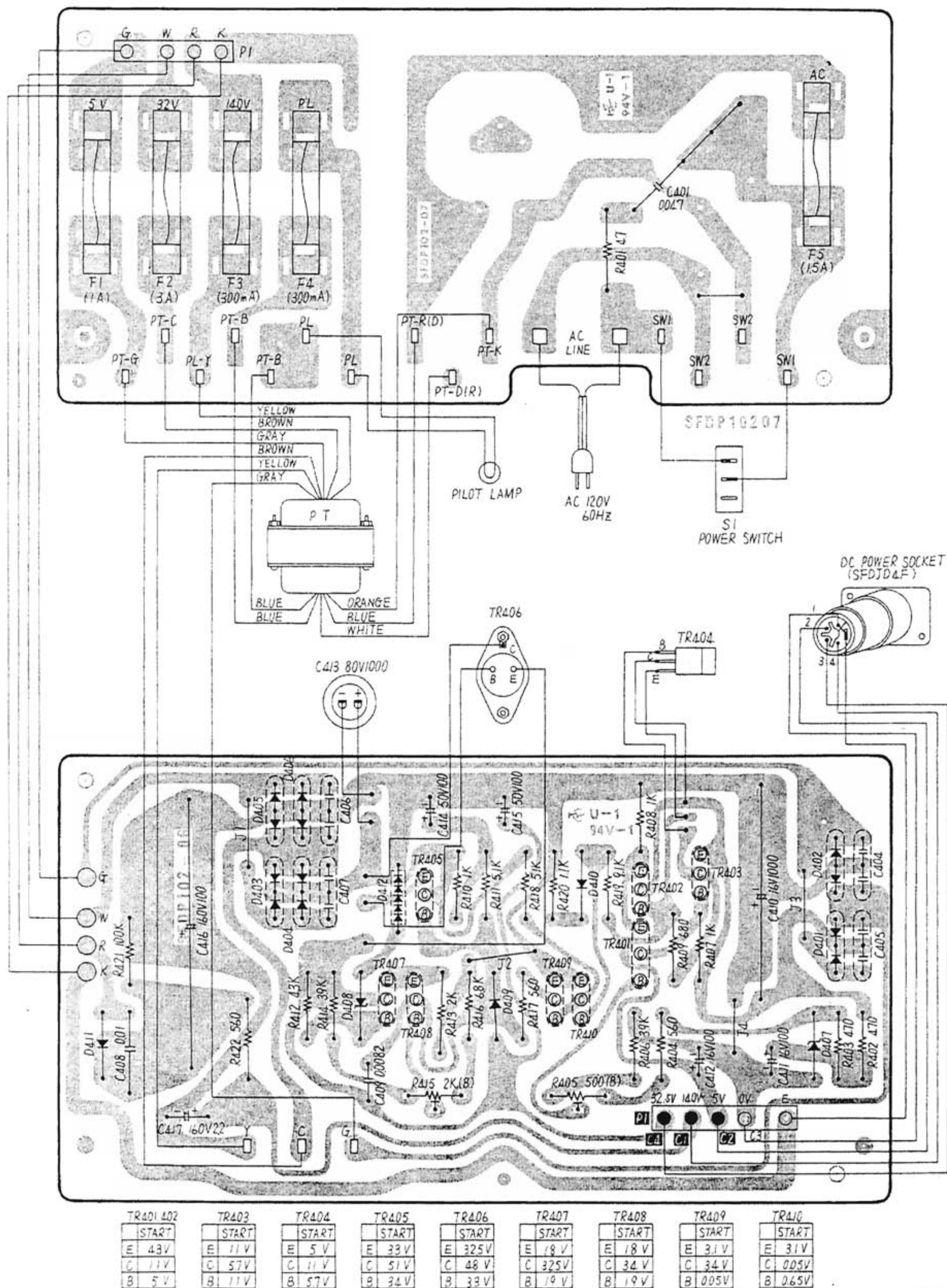
TR106	TR107	TR126	TR127	TR153	TR110
START	START	START STOP	START STOP	START STOP	START STOP
E —	E —	E —	E 25V 22V	E 28V 23V	E 28V 32V
C 20V	C 32V	C 0.1V 3.8V	C —	C 1.1V —	C 7.7V 32V
B 32V	B 3.1V	B 0.7V —	B 26V 23V	B —	B 27V 31V

Circuit Board Wiring View (Connectional Circuit) Model SP-10MKII-(M/MC)



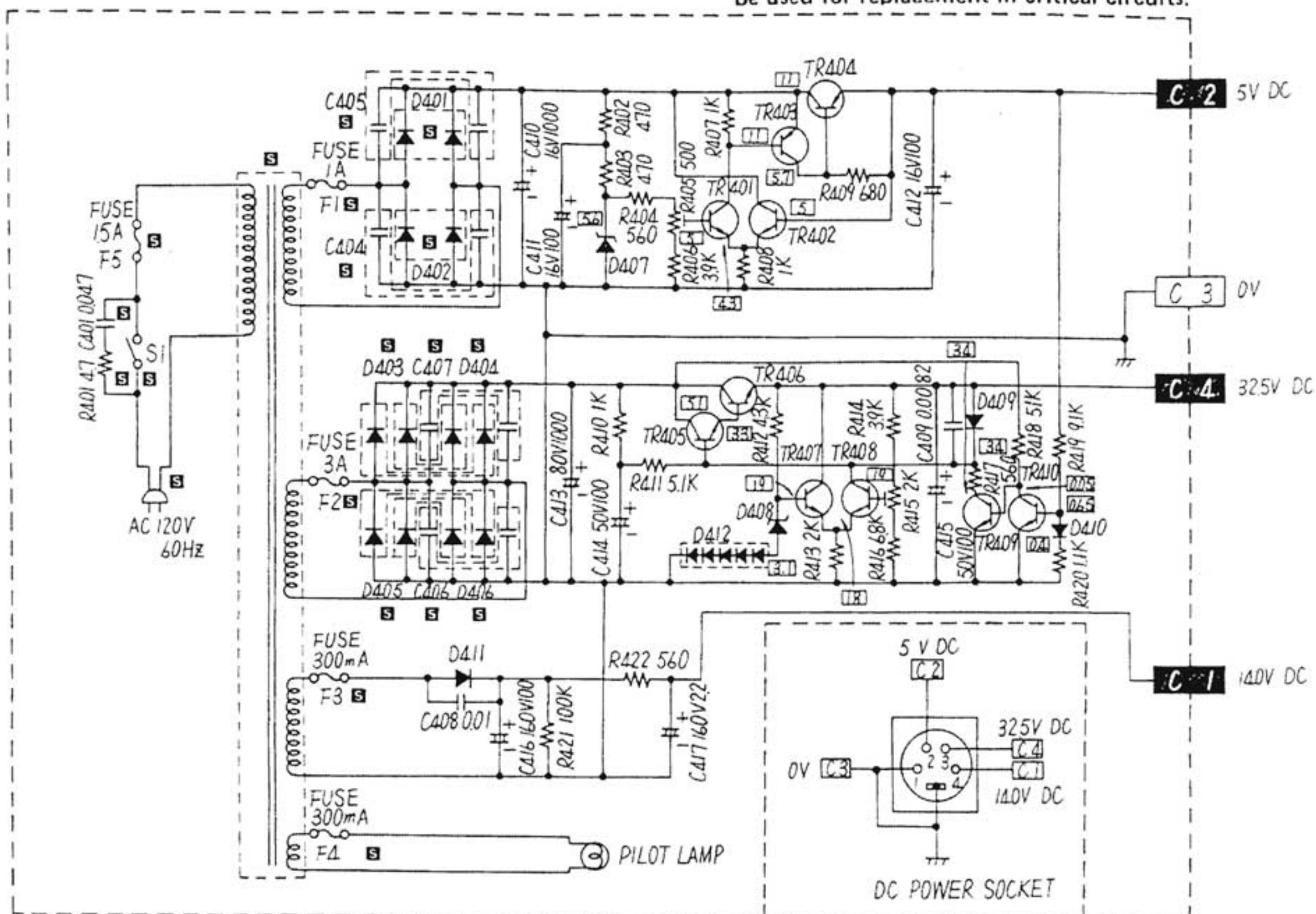


Circuit Board Wiring View Power Unit[SH-10E-(M/MC)]



Schematic Diagram Power Unit [SH-10E-(M/MC)]

Notes: **S** indicates that only parts specified by the manufacture be used for replacement in critical circuits.



PACKING PARTS

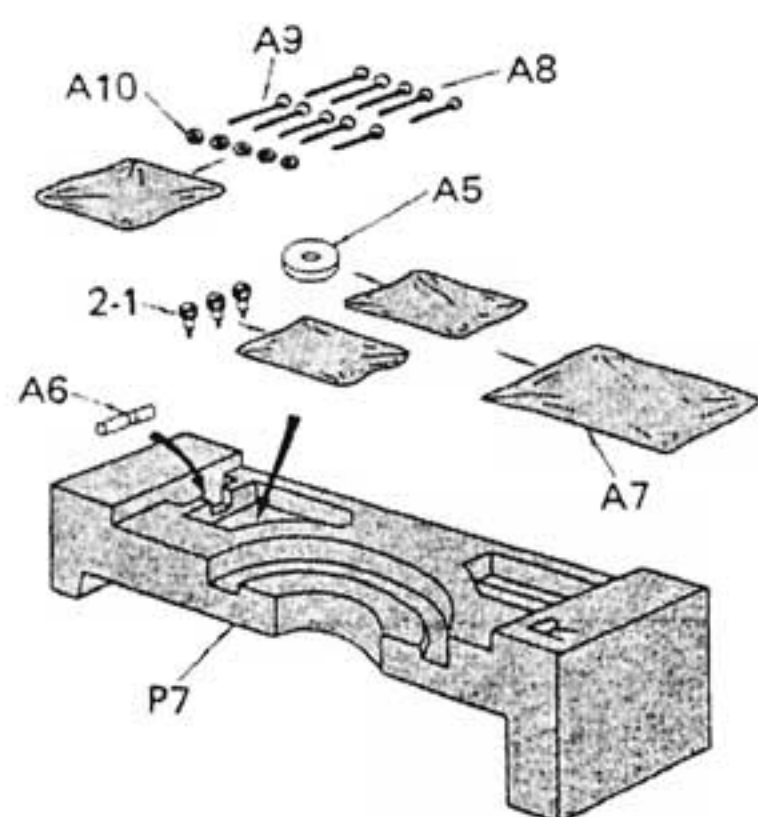


Fig. 16

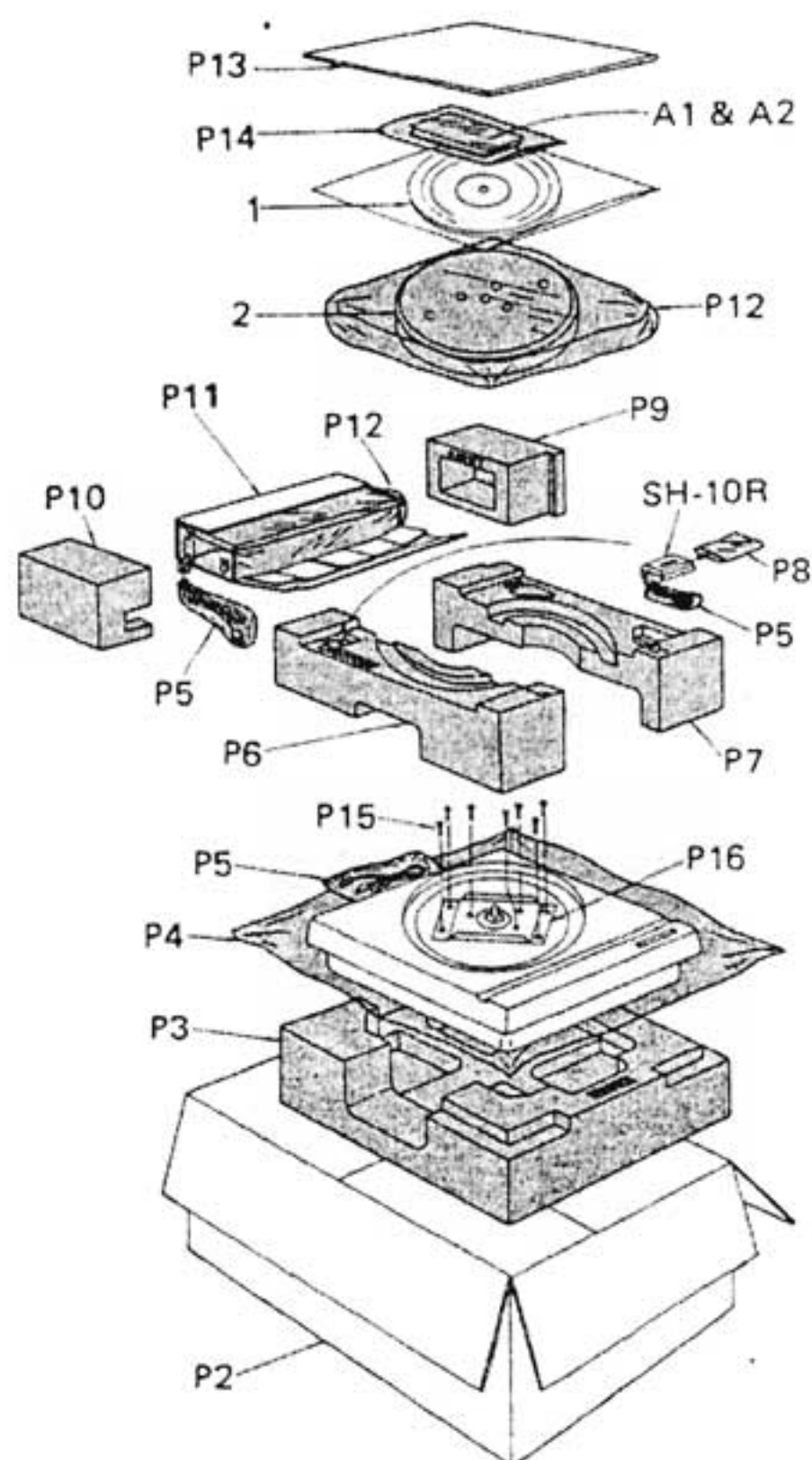
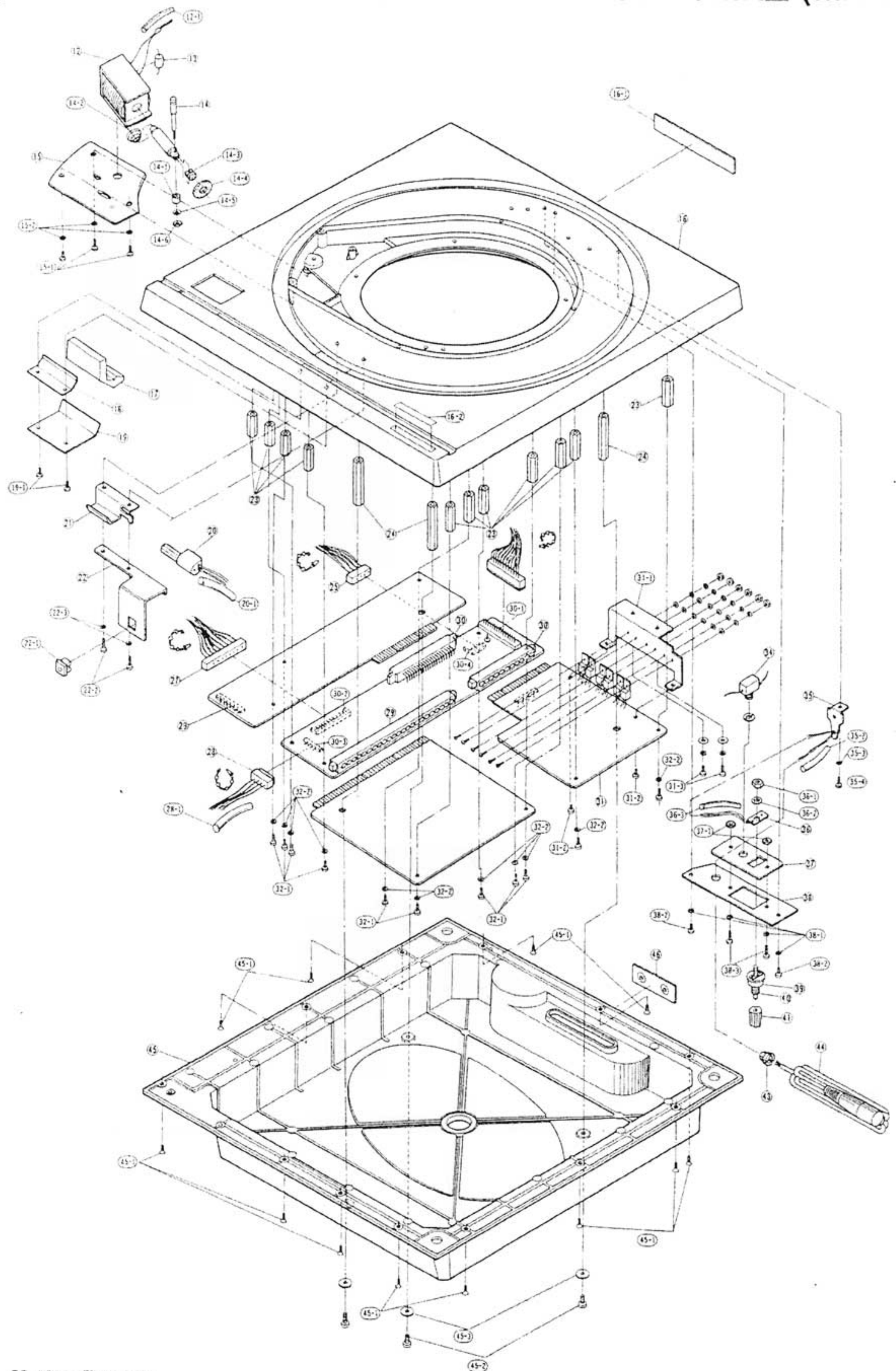


Fig. 17

Exploded View of Turntable Model SP-10MKII-(M/MC)



Exploded View of Turntable Model SP-10MKII-(M/MC))

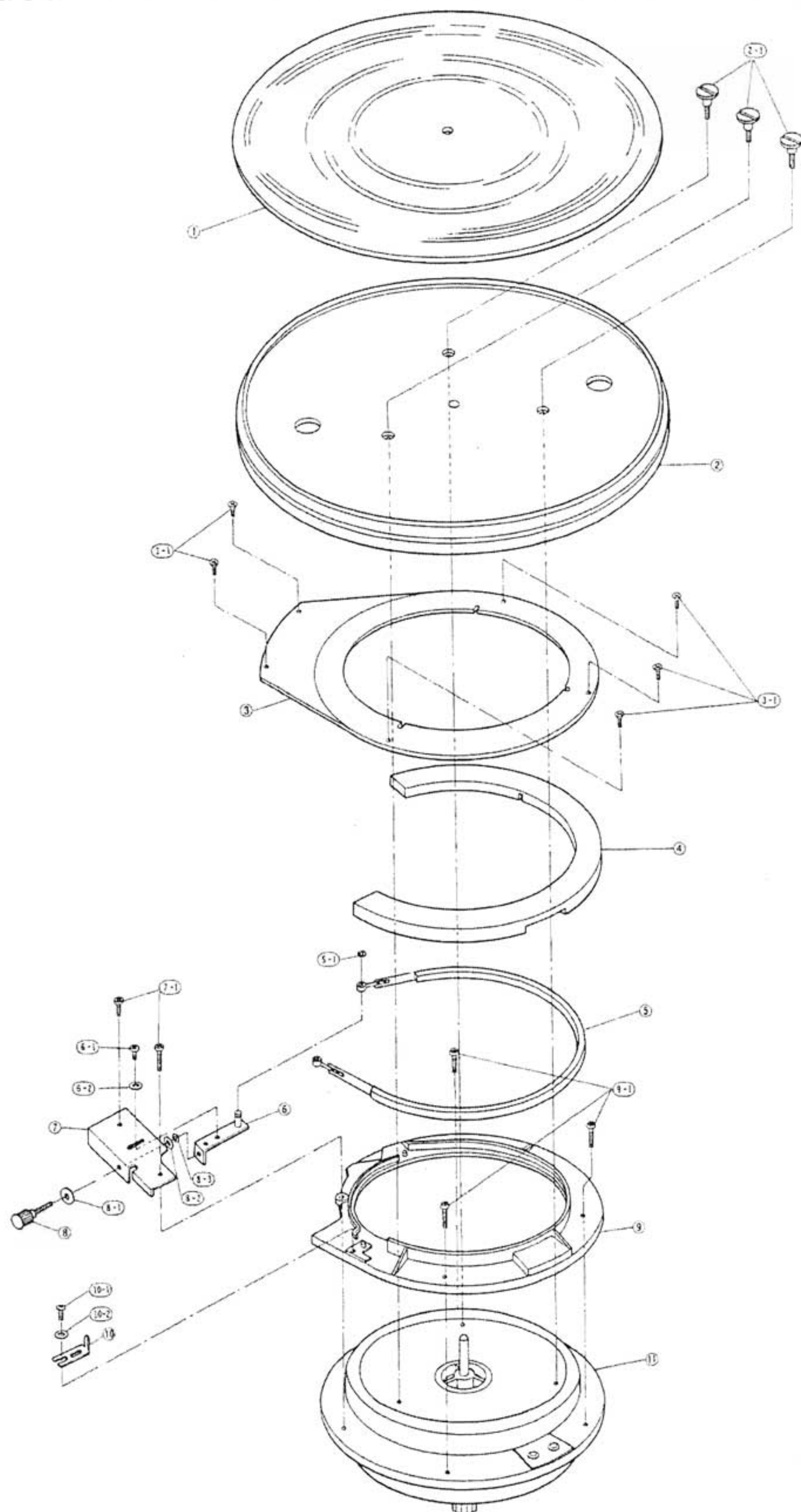


Fig. 19

Exploded View of Power Unit Model SH-10E-(M/MC)

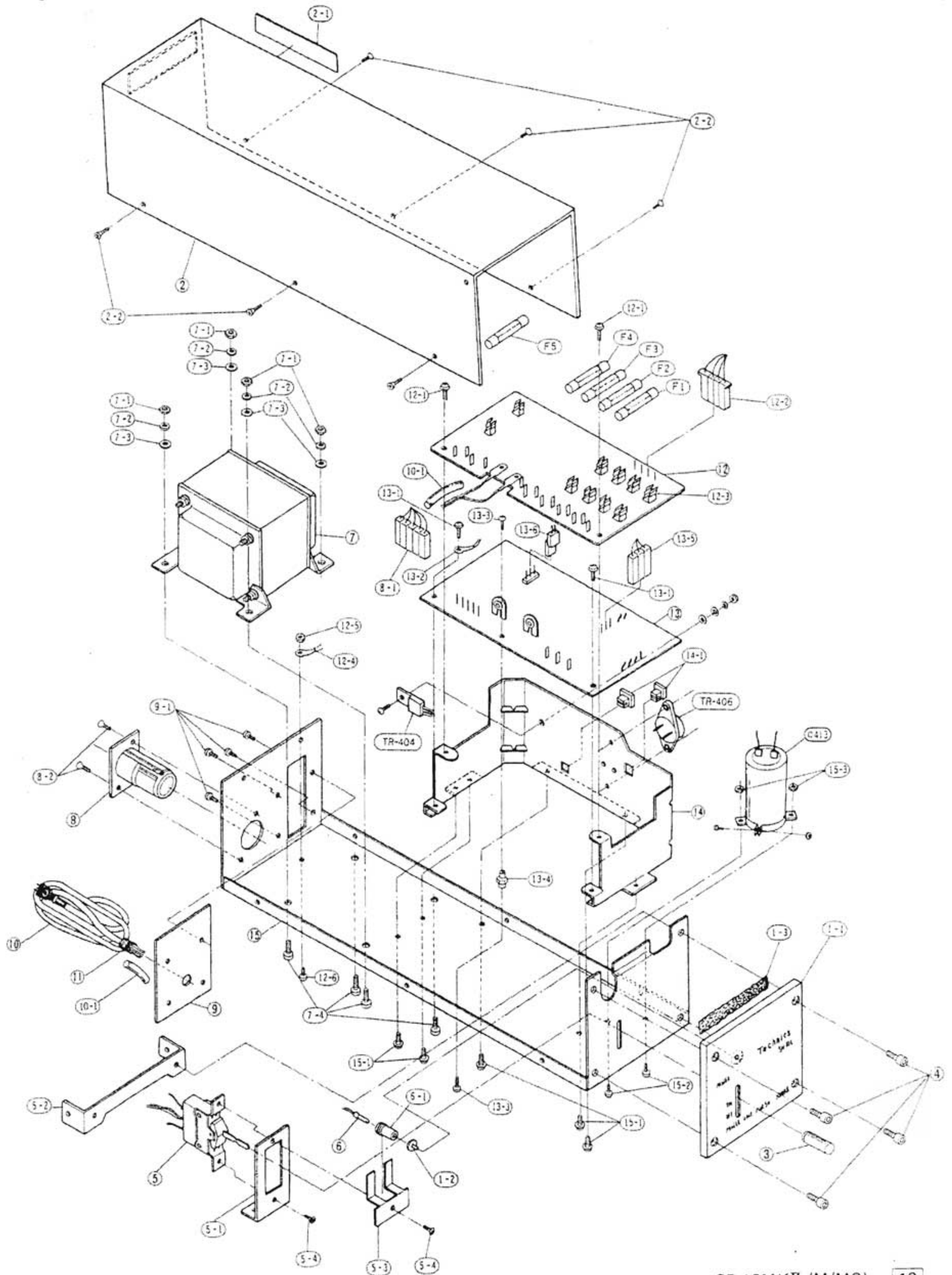


Fig. 20

Exploded View of Remote Control

Model SH-10R-(M/MC)

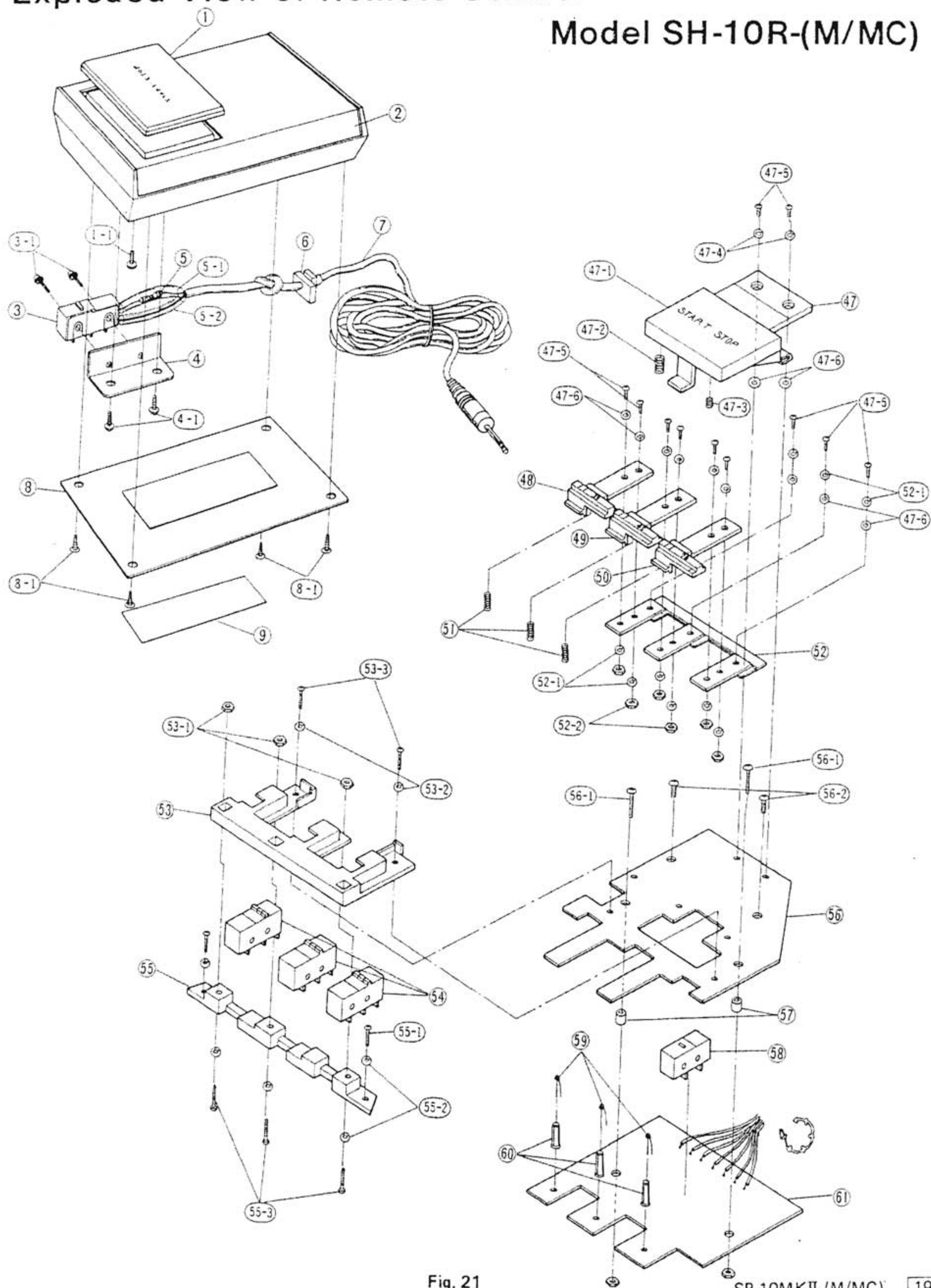


Fig. 21

REPLACEMENT PARTS LIST

- NOTES: 1. Part numbers are indicated on most mechanical parts.
Please use this part number for parts orders.
2. SAFETY Indicates, for safety reasons, that only parts specified in service manual be used for replacement.

Ref. No.	Part No.	Part Name & Description	Per Set	Remarks
DRIVE CIRCUIT BOARD				
Transistors				
TR1, 3, 5	2SB512-P	Transistors	3	
TR2, 4, 6	2SD390A-Q	Transistors	3	
TR7, 9, 11	2SA752-Q	Transistors	3	
TR8, 10, 12	2SC1384A-Q	Transistors	3	
TR13~17, 20, 21, 24, 25, 28 33~36, 42	2SC1328-T	Transistors	15	
TR18, 19, 22, 23, 27, 29~32, 37~41	2SA666A1-R	Transistors	15	
Diodes				
D1, 2, 10, 11	MA150	Diodes	4	
D3~8, 12	OA90	Diodes	7	
D9	SVDRD5.6ECS	Diode	1	
Transformer				
T1	ELM10S123	Oscillator	1	
Resistors				
R28, 38, 43, 44	ER050CKF1001	1K Ω 1/2W $\pm$ 1% Metallic	4	
R29	ER050CKF2001	2K Ω 1/2W $\pm$ 1% Metallic	1	
R51	ERX2ANJ1R0	1 Ω 2W $\pm$ 5% Metallic	1	
R37	ERD12FJ3R3	3.3 Ω 1/2W $\pm$ 5% Carbon	1	
R24	ERD12FJ820	82 Ω 1/2W $\pm$ 5% Carbon	1	
R3, 22	ERD12FJ122	1.2K Ω 1/2W $\pm$ 5% Carbon	2	
R27	ERD50TJ152	1.5K Ω 1/2W $\pm$ 5% Carbon	1	
R23, 35, 40	ERD50TJ182	1.8K Ω 1/2W $\pm$ 5% Carbon	3	
R48	ERD50TJ222	2.2K Ω 1/2W $\pm$ 5% Carbon	1	
R1	ERD25TJ222	2.2K Ω 1/4W $\pm$ 5% Carbon	1	
R30	ERD25TJ242	2.4K Ω 1/4W $\pm$ 5% Carbon	1	
R2, 6	ERD25TJ332	3.3K Ω 1/4W $\pm$ 5% Carbon	2	
R7	ERD25TJ392	3.9K Ω 1/4W $\pm$ 5% Carbon	1	
R26	ERD25TJ472	4.7K Ω 1/4W $\pm$ 5% Carbon	1	
R21, 36	ERD25TJ562	5.6K Ω 1/4W $\pm$ 5% Carbon	2	
R45, 46	ERD25TJ471	470 Ω 1/4W $\pm$ 5% Carbon	2	
R32, 41, 42	ERD25TJ102	1K Ω 1/4W $\pm$ 5% Carbon	3	
R25, 39	ERD25TJ822	8.2K Ω 1/4W $\pm$ 5% Carbon	2	
R11, 15, 16, 17 18, 19, 20, 33	ERD25TJ103	10K Ω 1/4W $\pm$ 5% Carbon	8	
R34	ERD25TJ123	12K Ω 1/4W $\pm$ 5% Carbon	1	
R8	ERD25TJ153	15K Ω 1/4W $\pm$ 5% Carbon	1	
R4, 5, 9	ERD25TJ183	18K Ω 1/4W $\pm$ 5% Carbon	3	
R31	ERD25TJ303	30K Ω 1/4W $\pm$ 5% Carbon	1	
R12	ERD25TJ333	33K Ω 1/4W $\pm$ 5% Carbon	1	
R13, 50	ERD25TJ473	47K Ω 1/4W $\pm$ 5% Carbon	2	
R49	ERD25TJ513	51K Ω 1/4W $\pm$ 5% Carbon	1	
R10, 14, 47	ERD25TJ104	100K Ω 1/4W $\pm$ 5% Carbon	3	
Capacitors				
C22	ECQS1331K	330pF 125WV $\pm$ 10% Styrol	1	
C1, 3, 5, 10	ECQM05822KZ	0.0082pF 50WV $\pm$ 10% Polyester	4	

Ref. No.	Part No.	Part Name & Description	Per Set	Remarks
C9	ECQM05103KZ	0.01 μ F 50WV $\pm$ 10% Polyester	1	
C11	ECQM05223KZ	0.022 μ F 50WV $\pm$ 10% Polyester	1	
C19	ECQM05563KZ	0.056 μ F 50WV $\pm$ 10% Polyester	1	
C21	ECQM05104KZ	0.1 μ F 50WV $\pm$ 10% Polyester	1	
C7, 8, 12, 13, 14 15, 16, 17	ECEA50V1	1 μ F 50WV Electrolytic	8	
C20	ECEA50V2R2	2.2 μ F 50WV Electrolytic	1	
C2, 4, 6, 18	ECEA50V10	10 μ F 50WV Electrolytic	4	
LOGIC CIRCUIT BOARD				
Integrated Circuits				
IC1, 14, 15	SVIM53200P	Integrated Circuit	1	
IC2, 3, 5, 7, 8, 9, 10	SVIM53273P	Integrated Circuit	7	
IC4, 6	SVIM53293P	Integrated Circuit	2	
IC11	SVIM5946P	Integrated Circuit	1	
IC12	SVIM53204P	Integrated Circuit	1	
IC13, 16	SVIM53210P	Integrated Circuit	2	
Transistors				
TR201~212 218~222	2SC1328-T	Transistors	17	
TR213	2SC1384A-Q	Transistor	1	
TR216, 217	2SC1573-Q	Transistors	2	
Resistors				
R210, 220, 226	ERD25TJ101	100 Ω 1/4W $\pm$ 5% Carbon	3	
R267, 271	ERD25TJ391	390 Ω 1/4W $\pm$ 5% Carbon	2	
R223, 244	ERD25TJ471	470 Ω 1/4W $\pm$ 5% Carbon	2	
R246	ERD25TJ821	820 Ω 1/4W $\pm$ 5% Carbon	1	
R238, 241, 248 249, 250, 251 252, 253, 254, 255	ERD25TJ102	1K Ω 1/4W $\pm$ 5% Carbon	10	
TR233	ERD25TJ182	1.8K Ω 1/4W $\pm$ 5% Carbon	1	
TR214, 218, 222	ERD25TJ222	2.2K Ω 1/4W $\pm$ 5% Carbon	7	
TR246, 256, 257, 262				
TR258, 259, 260	ERD25TJ332	3.3K Ω 1/4W $\pm$ 5% Carbon	3	
TR228	ERD25TJ392	3.9K Ω 1/4W $\pm$ 5% Carbon	1	
TR203, 208, 211, 213, 216, 219, 221, 261, 264, 265, 266, 268, 269, 270, 272	ERD25TJ472	4.7K Ω 1/4W $\pm$ 5% Carbon	15	
TR225	ERD25TJ562	5.6K Ω 1/4W $\pm$ 5% Carbon	1	
TR210	ERD25TJ822	8.2K Ω 1/4W $\pm$ 5% Carbon	1	
TR224	ERD25TJ103	10K Ω 1/4W $\pm$ 5% Carbon	1	
TR263	ERD25TJ123	12K Ω 1/4W $\pm$ 5% Carbon	1	
TR227	ERD25TJ153	15K Ω 1/4W $\pm$ 5% Carbon	1	
TR201, 202, 204 ~207, 209, 212, 215, 229, 242, 243	ERD25TJ223	22K Ω 1/4W $\pm$ 5% Carbon	12	
TR230, 232	ERD25TJ393	39K Ω 1/4W $\pm$ 5% Carbon	2	
TR231, 247	ERD25TJ104	100K Ω 1/4W $\pm$ 5% Carbon	2	
TR239, 240	ERG1ANJ472	4.7K Ω 1W $\pm$ 5% Metallic	2	
Capacitors				
C203, 221, 222, 226	ECQM05102KZ	0.001 μ F 50WV $\pm$ 10% Polyester	4	

Ref. No.	Part No.	Part Name & Description				Per Set	Remarks
C220	ECQM05222KZ	0.0022 μ F	50WV	$\pm 10\%$	Polyester	1	
C214, 216, 219, 223, 224	ECQM05103KZ	0.01 μ F	50WV	$\pm 10\%$	Polyester	5	
C215, 229	ECQM05104KZ	0.1 μ F	50WV	$\pm 10\%$	Polyester	2	
C228	ECQM05224KZ	0.22 μ F	50WV	$\pm 10\%$	Polyester	1	
C205	ECQM05474KZ	0.47 μ F	50WV	$\pm 10\%$	Polyester	1	
C208, 209	ECQM2332KZ	0.0033 μ F	50WV	$\pm 10\%$	Polyester	2	
C211	ECQS5100K	10pF	50WV	$\pm 10\%$	Styrol	1	
C213	ECQS1101K	100pF	125WV	$\pm 10\%$	Styrol	1	
C212	ECQS1331K	330pF	125WV	$\pm 10\%$	Styrol	1	
C217	ECQS1391K	390pF	125WV	$\pm 10\%$	Styrol	1	
C201	ECEA50V1	1pF	50WV		Electrolytic	1	
C230	ECEA50V2R2	2.2 μ F	50WV		Electrolytic	1	
C202, 218, 225, C227	ECEA16V10	10 μ F	16WV		Electrolytic	3	
	ECEA16V100	100 μ F	16WV		Electrolytic	1	
C204	ECEA10V330V	330 μ F	10WV		Electrolytic	1	
Variable Capacitor							
C210	ECV1ZW10X53	10pF	Ceramic trimer			1	
Crystal							
XI	TSS616-1K	3.5796MH	Oscillater			1	
CONTROL CIRCUIT BOARD							
Transistors							
TR101, 113 ~130	2SC1328-T	Transistors				18	
TR102~108, 110, 131, 132,	2SA666AI-R	Transistors				10	
TR109	2SA666AI-R	Transistor				1	
TR111, 112, 120,	2SC1328-T	Transistors				3	
TR151~154	2SK30A-Y	Transistors				4	
Diodes							
D101, 102, 104, 105, 106, 108	MA150	Diodes				6	
D103	SVDRD9.1EBS	Diode				1	
D107	SVDRD5.6ECS	Diode				1	
Resistors							
R121	ERO25CKD8201	8.2K Ω	1/4W	$\pm 5\%$	Metallic	1	
R119	ERO25CKD1002	10K Ω	1/4W	$\pm 5\%$	Metallic	1	
R174	ERO25CKF1002	10K Ω	1/4W	$\pm 1\%$	Metallic	1	
R175	ERO25CKF2002	20K Ω	1/4W	$\pm 1\%$	Metallic	1	
R149	ERD12FJ820	82 Ω	1/2W	$\pm 5\%$	Carbon	1	
R145	ERD12FJ221	220 Ω	1/2W	$\pm 5\%$	Carbon	1	
R156	ERD12FJ331	330 Ω	1/2W	$\pm 5\%$	Carbon	1	
R147	ERD12FJ471	470 Ω	1/2W	$\pm 5\%$	Carbon	1	
R192	ERD25TJ222	2.2K Ω	1/2W	$\pm 5\%$	Carbon	1	
R144	ERD25TJ332	3.3K Ω	1/4W	$\pm 5\%$	Carbon	1	
R122, 166	ERD25TJ392	3.9K Ω	1/4W	$\pm 5\%$	Carbon	2	
R115	ERD25TJ472	4.7K Ω	1/4W	$\pm 5\%$	Carbon	1	
R124	ERD25TJ512	5.1K Ω	1/4W	$\pm 5\%$	Carbon	1	
R130	ERD25TJ752	7.5K Ω	1/4W	$\pm 5\%$	Carbon	1	
R190	ERD25TJ471	470 Ω	1/4W	$\pm 5\%$	Carbon	1	
R102, 105, 135	ERD25TJ102	1K Ω	1/4W	$\pm 5\%$	Carbon	3	
R131, 132	ERD25TJ222	2.2K Ω	1/4W	$\pm 5\%$	Carbon	2	
R151	ERD25TJ332	3.3K Ω	1/4W	$\pm 5\%$	Carbon	1	
R134, 177, 178, 184	ERD25TJ472	4.7K Ω	1/4W	$\pm 5\%$	Carbon	4	
R117, 118, 176	ERD25TJ822	8.2K Ω	1/4W	$\pm 5\%$	Carbon	3	

Ref. No.	Part No.	Part Name & Description				Per Set	Remarks
R139, 141, 162, 163, 185, 188, 196, 198	ERD25TJ103	10K Ω	1/4W	$\pm 5\%$	Carbon	8	
R103, 104, 107, 108, 114, 154, 155, 157, 158, 159, 173, 187, 195	ERD25TJ123	12K Ω	1/4W	$\pm 5\%$	Carbon	13	
R148, 169	ERD25TJ153	15K Ω	1/4W	$\pm 5\%$	Carbon	2	
R183, 194	ERD25TJ183	18K Ω	1/4W	$\pm 5\%$	Carbon	2	
R129, 146, 182, 189, 197	ERD25TJ223	22K Ω	1/4W	$\pm 5\%$	Carbon	5	
R112, 152, 167, 193	ERD25TJ273	27K Ω	1/4W	$\pm 5\%$	Carbon	4	
R153, 168, 170, 179, 180	ERD25TJ333	33K Ω	1/4W	$\pm 5\%$	Carbon	5	
R111, 128, 133	ERD25TJ393	39K Ω	1/4W	$\pm 5\%$	Carbon	3	
R125, 140, 143, 161	ERD25TJ473	47K Ω	1/4W	$\pm 5\%$	Carbon	4	
R126, 142	ERD25TJ683	68K Ω	1/4W	$\pm 5\%$	Carbon	2	
R109	ERD25TJ432	4.3K Ω	1/4W	$\pm 5\%$	Carbon	1	
R138	ERD25TJ913	91K Ω	1/4W	$\pm 5\%$	Carbon	1	
R116, 136, 137, 150, 160, 165, 171, 172	ERD25TJ104	100K Ω	1/4W	$\pm 5\%$	Carbon	8	
R113	ERD25TJ124	120K Ω	1/4W	$\pm 5\%$	Carbon	1	
R120, 186	ERD25TJ154	150K Ω	1/4W	$\pm 5\%$	Carbon	2	
R127, 164, 191	ERD25TJ224	220K Ω	1/4W	$\pm 5\%$	Carbon	3	
R101	ERD25TJ394	390K Ω	1/4W	$\pm 5\%$	Carbon	1	
R110	ERD25TJ474	470K Ω	1/4W	$\pm 5\%$	Carbon	1	
R181	ERD25TJ105	1M Ω	1/4W	$\pm 5\%$	Carbon	1	
Variable Resistor							
VR101	EVSP1AA00E24	20K Ω				1	
VR102	EVSP1AA00E23	2K Ω				1	
Capacitor							
C110	ECQS1271K	270pF	125W	$\pm 10\%$	Styrol	1	
C111, 112	ECQS1222KZ	2200pF	125W	$\pm 10\%$	Styrol	2	
C109	ECQM05562KZ	0.0056 μ F	50W	$\pm 10\%$	Polyester	1	
C104	ECQM05103KZ	0.01 μ F	50W	$\pm 10\%$	Polyester	1	
C114	ECQM05223KZ	0.022 μ F	50W	$\pm 10\%$	Polyester	1	
C102	ECQM05333KZ	0.033 μ F	50W	$\pm 10\%$	Polyester	1	
C101, 115	ECQM05473KZ	0.047 μ F	50W	$\pm 10\%$	Polyester	2	
C113	ECQM05823KZ	0.082 μ F	50W	$\pm 10\%$	Polyester	1	
C105, 107, 108	ECQM05104KZ	0.1 μ F	50W	$\pm 10\%$	Polyester	3	
C106	ECEA50V1	1 μ F	50W		Electrolytic	1	
C103	ECEB63V100	100 μ F	50W		Electrolytic	1	
CONNECTIONAL BOARD							
R301	ERD25TJ151	150 Ω	1/4W	$\pm 5\%$	Carbon	1	
C301	ECEA50V10	10 μ F	50W		Electrolytic	1	
C302, 303	ECQM05104KZ	0.1 μ F	50W	$\pm 10\%$	Polyester	2	
CABINET AND CHASSIS PARTS							
1	SFTG102M01	Turntable mat				1	
2	SFTE102-01E	Turntable				1	
2-1	SFXJ102-08E	Screw, Turntable				3	
3	SFUP102-06	Cover, Brake				1	
3-1	XSS3+8FZS	Screw, Cover				5	
4	SFTG102-03	Rubber, Brakecover				1	

Ref. No.	Part No.	Part Name & Description	Per Set	Remarks
5	SFUP102-09A	Brake, Band	1	
5-1	XUC3FT	Circlip, Brake band	1	
6	SFUP102-05E	Plate, Brake	1	
6-1	XYN3+C8FZS	Screw, Plate	1	
6-2	SFXW120-01	Washer, Plate	1	
7	SFUP102-07	Plate, Adjustment	1	
7-1	XYN3+C6FZS	Screw, Plate	2	
8	SFXJ102-02	Screw, Adjustment	1	
8-1	SFXW303-1	Washer	1	
8-2	SFPEW12002	Washer	1	
8-3	XUC4FT	Washer	1	
9	SFUM102-01	Brake Housing	1	
9-1	XYN4+15FZS	Screw	3	
10	SFUP102-15	Plate, Brake Adjustment	1	
10-1	XTV3+88FZ	Screw, Adjustment Plate	1	
10-2	SFXW120-01	Washer, Adjustment Plate	1	
11	SFMZ102-01E	Motor Ass'y	1	
12	SFDZSD1AC10	Plunger	1	
12-1	SFEB3UT	Tube	1	
13	SVD1S1887	Diode	1	
14	SFXJ102-03	Lever, Plunger	1	
14-1	SFXO102-01	Spacer, Plunger	1	
14-2	SFOA102-01	Spring, Brake	1	
14-3	SFGH102-01	Rubber, Plunger	1	
14-4	SFGH102-02	Rubber, Washer	1	
14-5	XWA3BER	Washer	1	
14-6	XNG3HS	Nut	1	
15	SFUP102-12	Mounting Plate, Plunger	1	
15-1	XYN3+C5FZS	Screw, Mounting Plate	3	
15-2	SFXW120-01	Washer, Mounting Plate	3	
16	SFAC102-01	Panel case	1	
16-1	SFNN102M01	Name Plate	1	
16-2	SFKB102M01	Badge	1	
17	SFUM102-02	Neon lamp base, A	1	
18	SFUP102-01	Neon lamp base, B	1	
19	SFUP102-02	Neon lamp base, C	1	
19-1	XYN3+C6FZS	Screw, Neon lamp base	2	
20	SFDNNL78WM	Neon lamp	1	
20-1	SFEB3UT	Tube	1	
21	SFUP102-08	Holder, Neon lamp	1	
22	SFUP102-17	Holder, P. C. B	1	
22-1	SFEZ196	Spacer, P. C. B	1	
22-2	XYN3+C8FZS	Screw	2	
22-3	XWA3BFR	Washer	2	
23	SFXT102-05	Spacer, P. C. B	11	
24	SFXT102-04	Spacer, Bottom Case	3	
25	SFDJ12804S	Connector, 4P	1	
27	SFDJ12810S	Connector, 10P	1	
28	SFDJ12804S	Connector, 4P	1	
28-1	SFEB2AF	Tube	1	
29	SFDJSI4225	Connector	1	
30	SFDJSI4223	Connector	2	
30-1	SFDJ12812P	Connector, 12P	1	
30-2	SFDJ12910P	Connector, 10P	1	
30-3	SFDJ12906P	Connector, 6P	1	
30-4	SFDJ12904P	Connector, 4P	1	
31-1	SFUP102-11	Plate, Heat sink	1	
31-2	XYN3+C6FZS	Screw	4	
31-3	XSN3+6FUS	Screw	2	
32-1	XYN3+C6FZS	Screw	9	
32-2	XWA3BFR	Washer	13	
34	RJJ10C	Jack	1	

Ref. No.	Part No.	Part Name & Description	Per Set	Remarks
35	SFER1E	Mounting, Ground wire	1	
35-2	SFEB3UT	Tube	1	
35-3	XWC3BFY	Washer	1	
35-4	XYN3+C6FZS	Screw	1	
36	SJT719	Mounting Plate	1	
36-1	XNG4HS	Nut	1	
36-2	XWA4BFR	Washer	1	
36-3	SFEB3UT	Tube	1	
37	SFUZ102-05	Mounting Plate, Socket	1	
37-1	XNG3HS	Nut	2	
38	SFUP102-03	Mounting Plate, Cord	1	
38-1	XWC3BFY	Washer	4	
38-2	XYN3+C8FZS	Screw	2	
38-3	XYN3+C6FZS	Screw	2	
39	SGE103	Terminal	1	
40	SNE281-1S	Terminal screw	1	
41	SNE273-1	Knob	1	
43	SFSR5N4	Bushing, cord	1	
44	SFDJ102-01E	Plug	1	
45	SFAU102-01	Bottom case	1	
45-1	XSS3+8FZS	Screw	12	
45-2	XYN3+C8FZS	Screw	2	
45-3	SFXW120-01	Washer	2	
45-4	SFGK102-01	Rubber cap	1	
45-5	SFUZ102-03	Felt	4	
46	SFNG102-02	Label Remort	1	
47	SFKT102-01	Plate, start stop switch	1	
47-1	SFKK102-01	Ornament, start stop switch	1	
47-2	SFQA102-03	Spring, start stop switch	1	
47-3	SFXJ102-06	Adjustment screw, start stop switch	1	
47-4	XWA2BFR	Washer	2	
47-5	XSN2+6	Screw	11	
47-6	XWE2C4BN	Washer	11	
48	SFKT102-02E	Plate, select 33	1	
49	SFKT102-03E	Plate, select 45	1	
50	SFKT102-04E	Plate, select 78	1	
51	SFQA102-02	Spring, select	3	
52	SFUM102-05	Mounting Plate, Switch	1	
52-1	XWA2BFR	Washer	3	
52-2	XNG2HBW	Nut	6	
53	SFUM102-06	Switch cover	1	
53-1	XNG2HBW	Nut	3	
53-2	XWA2BFR	Washer	2	
53-3	XSN2+6	Screw	2	
54	SFDSSSL1C	Micro switch	3	
55	SFUM102-07	Switch cover	1	
55-1	XSN2+6	Screw	2	
55-2	XWA2BFR	Washer	5	
55-3	XSN2+10FU	Screw	3	
56	SFUP102-04	Mounting Plate, select switch	1	
56-1	XYN3+C10F	Screw	2	
56-2	XYN3+C6FZS	Screw	2	
57	SYXO102-02	Spacer	2	
58	SFDSSSL1C	Micro switch	1	
59	LN22	Light Emitting Diode	3	
60	SFUM102-04	Holder, Diode	3	
61	SFDP102-05	Plate ass'y	1	
62	SFUP102-18	Plate	3	
POWER UNIT (Model SH-10E-(M/MC))				
Transistors				
TR401, 402, 407, 408, 409, 410	2SC1328-T	Transistors	6	

Ref. No.	Part No.	Part Name & Description	Per Set	Remarks
TR403	2SC666A1-R	Transistor	1	
TR405	2SD389A-Q	Transistor	1	
TR406	2SD334	Transistor	1	
TR404	2SD389A-Q	Transistor	1	
Diodes				
D401, 403, 404,	RVD10DC2	Diodes	3	SAFETY
D402, 405, 406	RVD10DC2R	Diodes	3	SAFETY
D407	SVDRD5.6ECS	Diode	1	SAFETY
D408	SVDRD16E8	Diode	1	
D409	MA150	Diode	1	
D410	OA90	Diode	1	
D411	SVD1S1887	Diode	1	
D412	SVDSV05	Diode	1	
Variable Resistor				
R405	EVL50AA00B52	500Ω	1	
R415	EVL50AA00B23	2KΩ	1	
Fuse				
F1	XBA1F10NU100	1A	1	SAFETY
F2	XBA1F30NU100	3A	1	SAFETY
F3, 4	XBA1F03NU100	300mA	2	SAFETY
F5	XBA1F15NU100	1.5A	1	SAFETY
Resistors				
R401	ERD50TJ4R7	4.7Ω 1/2W ± 5% Carbon	1	SAFETY
R402, 403	ERD25TJ471	470Ω 1/4W ± 5% Carbon	1	
R404	ERD25TJ561	560Ω 1/4W ± 5% Carbon	1	
R406	ERD25TJ392	3.9KΩ 1/4W ± 5% Carbon	1	
R407, 408	ERD25TJ102	1KΩ 1/4W ± 5% Carbon	2	
R409	ERD25TJ681	680Ω 1/4W ± 5% Carbon	1	
R410	ERD12FJ102	1KΩ 1/2W ± 5% Carbon	1	
R411	ERD25TJ512	5.1KΩ 1/4W ± 5% Carbon	1	
R412	ERD25TJ432	4.3KΩ 1/4W ± 5% Carbon	1	
R413	ERD50TJ202	2KΩ 1/2W ± 5% Carbon	1	
R414	ERD25TJ392	3.9KΩ 1/4W ± 5% Carbon	1	
R416	ERD25TJ682	6.8KΩ 1/4W ± 5% Carbon	1	
R417, R422	ERD25TJ561	560Ω 1/4W ± 5% Carbon	1	
R418	ERD25TJ513	51KΩ 1/4W ± 5% Carbon	1	
R419	ERD25TJ912	9.1KΩ 1/4W ± 5% Carbon	1	
R420	ERD25TJ112	1.1KΩ 1/4W ± 5% Carbon	1	
R421	ERD25TJ104	100KΩ 1/4W ± 5% Carbon	1	
Capacitors				
C401	ECQU1A473MD	0.047μF 125AC ±20% Polyester	1	SP-10MKII-(M)
C401	ECQU1A473MC	0.047μF 125AC ±20% Polyester	1	SP-10MKII-(MC)
C404, 405, 406, 407	RXAF102P22HD	0.01μF x2 500WV ±100% Ceramic	4	SAFETY
C408	ECQM6103MZ	0.01μF 600WV ±20% Polyester	1	
C409	ECQM05822KZ	0.0082μF 50WV ±10% Polyester	1	
C410	ECEB16V1000V	1000μF 16WV Electrolytic	1	
C411, 412	ECEA16V100V	100μF 16WV Electrolytic	2	
C413	ECEM80R1000X	1000μF 80WV Electrolytic	1	SAFETY
C414, 415	ECEA63V100V	100μF 50WV Electrolytic	2	
C416	ECEB160V100V	100μF 160WV Electrolytic	1	
C417	ECEA160V22V	22μF 160WV Electrolytic	1	

Ref. No.	Part No.	Part Name & Description	Per Set	Remarks
CABINET AND CHASSIS PARTS				
1-1	SFKK10EM01A	Panel ass'y, Front	1	
1-2	SGLA9	Lamp Indicate	1	
1-3	SFUZ10E01	Felt	1	
2	SFUP10E02E	Case	1	
2-1	SFNN10EM01	Name Plate	1	
2-2	XST3+6FZS	Screw	10	
3	SBLA4-3	Knob, Power switch	1	
4	XVE3A8FZS	Screw	4	
5	SSLA37S	Power switch	1	SAFETY
5-1	SFUP10E03	Mounting Plate, Power switch	1	
5-2	SFUP10E09	Mounting Plate, Panel	1	
5-3	SFUP10E04	Holder, Lamp	1	
5-4	XYN3+C6FZS	Screw	2	
6	XAM37T150	Lamp	1	
6-1	SMZA6091	Rubber, Lamp	1	
7	ETP76BL1A	Power Transformer	1	SAFETY
7-1	XNG4HS	Nut	4	
7-2	XWA4BFR	Washer	4	
7-3	XWA4G10FU	Washer	4	
7-4	XST4+8FZS	Screw	4	
8	SFDJ-D4F	Socket, DC	1	
8-1	SJS5505	Connector, 5P	1	
8-2	XSS3+10FNS	Screw	2	
9	SFUP10E-05	Mounting Plate, AC Cord	1	
9-1	XST3+6FZS	Screw	4	
10	RJA10A	AC cord	1	SAFETY
10-1	SFEB6UT	Tube	1	
11	SFHK040L	Bushing, cord	1	
12	SFDP102-07	P. C. B. Fuse	1	
12-1	XTW3+10HFZ	Screw	2	
12-2	SJS5405	Connector, 4P	1	
12-3	RJF107-2	Holder, Fuse	10	
12-4	SFER1C	Terminal	1	
12-5	XNG3HS	Nut	1	
12-6	XST3+6FZS	Screw	1	
13	SFDP102-06	Power P. C. B	1	
13-1	XTW3+10HFZ	Screw	2	
13-2	SHE36	Clamper, wire	1	
13-3	XST3+6FZS	Screw	2	
13-4	SFXO10E01	Spacer	1	
13-5	SJS5307	Connector, 3P	1	
13-6	SFDJS3PSHF	Connector, 3P	1	
14	SFUP10E08	Mounting Plate	1	
14-1	SFEZ196	Sporting, P. C. B	2	
15	SFUZ102-03	Case, Bottom	1	
15-1	XTW3+10HFZ	Screw	4	
15-2	XST3+6FZS	Screw	2	
15-3	XNG3HS	Nut, Capacitor	2	
REMOTE CONTROL (Model SH-10R-(M/MC))				
1	SFKK102-01	Ornament Plate, Start Stop	1	
1-1	SFXJ102-06	Screw	1	
2	SFUM10R01E	Case	1	
3	SFDSSSLIC	Micro switch	1	
3-1	XTN2+10	Screw	2	
4	SFUP10R02	Mounting Plate, Micro switch	1	
4-1	XTN2+6B	Screw	2	
5	ERD25TJ101	100Ω 1/8W ± 5% Carbon	1	
5-1	SFEB3UT	Tube	1	
5-2	SFEB2UT	Tube	1	

Ref. No.	Part No.	Part Name & Description	Per Set		Remarks
6	SFGP10R01	Rubber, Bushing	1		
7	SFEZ10R01	Cord, Jack	1		
8	SFUP10R01	Bottom cover	1		
8-1	XTS3+8BFZ	Screw	4		
9	SFNN10RM01	Name Plate	1		
ACCESSORY PARTS					
A1	SFNU102M01	Operating instructions	1		SP-10MKII-(M)
A1	SFNU102C01	Operating instructions	1		SP-10MKII-(MC)
A5	SFWE010	45 Adaptor	1		
A6	SFWO010	Oil	1		
A7	SFYF09B15	Polyethylene Bag	1		
A8	XSN5+35S	Screw A	5		
A9	XSN5+43S	Screw B	5		
A10	SFXW650-2	Washer	5		
PACKING MATERIALS					
P2	SFHP102M01	Inside packing case	1		SP-10MKII-(M)
P2	SFHP102C01	Inside packing case	1		SP-10MKII-(MC)
P3	SFHH102-06	Bottom Pad	1		
P4	SFYC70A100	Polyethylene sheet	1		
P5	SFYF08A23	Polyethylene Bag	3		
P6	SFHH102-04	Side Pad (L)	1		
P7	SFHH102-05	Side Pad (R)	1		
P8	SFYF15A20	Polyethylene Bag	1		
P9	SFHH102-07	Side Pad, Power unit	1		
P10	SFHH102-08	Side Pad, Power unit	1		
P11	SFHD102-06	Case, Power unit	1		
P12	SFYF45A50	Polyethylene Bag	2		
P13	SFHD102-05	Top Pad, Turntable	1		
P14	SFYF27A39	Polyethylene Bag	1		
P15	XYN3+C6BS	Screw, Clumper	7		
P16	SFUP102M14E	Mounting Plate, Motor	1		

Technics SP-10mkIIp Service Manual



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Service Manual

Player

SP-10MKIIP (XGE)

(RP-2/9)



■ SPECIFICATIONS

Type: Direct-drive turntable
Turntable platter: Aluminum diecast, diameter 32 cm (12-19/32 inches), weight 2.9 kg (6.4 lbs.), moment of inertia 380kg. cm² (130 lbs. in²)
Motor: Brushless DC motor, electronic rectification, quartz-controlled phase-locked servo circuit
Platter speeds: 33-1/3, 45 and 78.3r.p.m.
Starting torque: 6 kg. cm (5.2 lbs. in)
Build-up time: 0.25 sec. (25° rotation) to 33-1/3r.p.m.
Braking time: 0.3 sec. (30° rotation) from 33-1/3r.p.m. to standstill
Speed fluctuation by load fluctuation: 0% within 5 kg. cm (4.3 lbs. in)
Speed drift: Within ± 0.002%
Speed variation: 0~±5% (0.5% step)

Wow & Flutter: 0.025% (JIS C5521) W.R.M.S. ±0.035% (DIN 45507), weighted, zero-to-peak
Rumble: -60 dB (IEC 1798)
-50 dB (DIN 45539A)
-70 dB (DIN 45539B)
Power Supply: AC 110/120/220/240V, 50/60Hz
Power Consumption: 40W
Dimensions: Turntable Only 36.85 (W) x 10.25 (H) x 36.85 (D) cm (14-31/64 x 4-1/64 x 14-31/64 inches)
Control center 45.0 (W) x 9.6 (H) x 36.7 (D) cm
Weight: Turntable Only, 9.5 kg (20.9 lbs.)
Control Center: 7.8 kg

Technics

Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka Japan

■ PARTS IDENTIFICATION

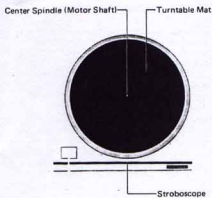


Fig. 1

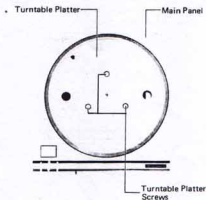
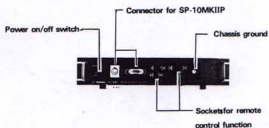
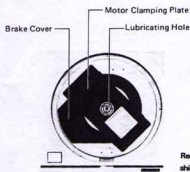


Fig. 2



Removable transparent shielded case

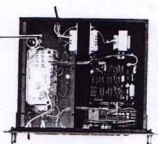


Fig. 4

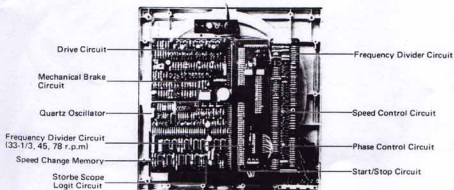


Fig. 5

■ ASSEMBLY AND SET-UP

1. Building a base or cabinet for this model

The starting torque of this model is 6Kg. cm. (5.2 lbs. in). Thus the turntable platter which is heavy (2.9kg. 6.4 lbs.) and large (32cm. 12.19/32 inches) can be started and stopped quickly. For this reason we recommend that you use durable and heavy material. The thickness of the base should be 3cm. (1.11/64 inch) or more in order to bring out the best performance of model.

Note: Use durable and stable insulators (legs) Fig. 6 shows an example of cabinet construction.

2. Drill and cutout the base according to the installation diagram.

As paper has a tendency to stretch we suggest that you check the diagram before using it as a template. Also check dimensions for printing errors. Check the tone arm mounting position for proper alignment (follow the tonearm manufacturers specifications). Also make sure to allow sufficient clearance for power connector and output terminals of the tone arm.

3. Install the unit in the cabinet

Two kinds of screws are included in the carton. Use the proper length of screw according to the thickness of the cabinet which you use. When you install the unit in the cabinet place protective material, on top of the unit to protect the center spindle from external damage. A soft cloth placed on the panel surface will protect it from scratches.

4. Remove the motor clamping plate and screws (Fig. 8)

After installation of the unit in the cabinet remove the seven blue screws and motor clamping plate.

NOTE: To protect the very delicate and important parts of the motor (spindle, motorshaft etc.) from external damage during transportation protective fittings have been installed. Be sure to remove these fittings carefully and save them for future use in case you again need to transport the unit.

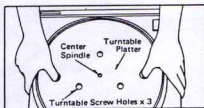


Fig. 9

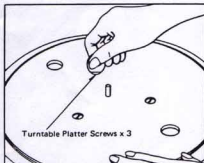


Fig. 10

NOTE: Dimensions are marked in millimeters. (25.4 mm are equal to inch.)

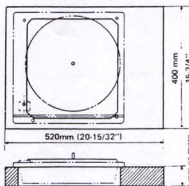


Fig. 6

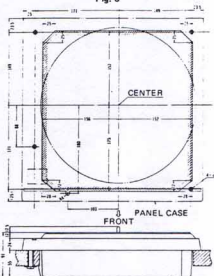


Fig. 7

5. Securing the turntable platter (Fig. 9 & 10)

Place the turntable platter on the spindle aligning holes in the platter with the rotor screw holes by eye.

Slightly lifting the turntable platter will make it easier to align the holes. Using the three screws supplied, firmly tighten the turntable platter and put the turntable mat on it.

NOTE: The turntable platter must be tightened at all three points. To assure proper operation.

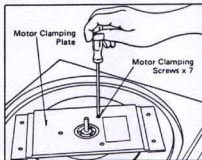


Fig. 8

■ OPERATION PRINCIPLES OF THE SP-10MKII

1. Quartz Generated Reference Signal

The quartz reference signal generator provides a reference signal which controls the action of the SP-10MKII. The oscillation of a quartz crystal is used. This oscillation is stable, highly accurate and not effected by temperature and other changes. The signal generated by the reference signal generator is split by the frequency divider into the appropriate frequency according to the speed selected.

2. Pitch Control Circuit

The reference frequency is varied within $\pm 5\%$ with 0.5% step by pitch control circuit.

This circuit controls of programmable divider and phase locked loop (P.L.L.), which synthesizes the accurate speed variation of turntable rotation.

3. Frequency Divider

This divider is controlled by setting by the speed selection switch.

The selected speed information is stored in the speed change digital memory.

4. Stroboscope Logic Circuit

The stroboscope lights up the 190 stripes engraved on the platter rim. A neon lamp flashes according to instructive pulses from the stroboscope logic circuit. The circuit shapes digitally the signals from the frequency divider. This provides a sharp strobe image which is independent of external power source frequency.

5. Frequency Generator

A frequency generator is integrated with the platter drive motor. It is electromagnetic structure using a push-pull design cancels external induction. It converts accurately the platter rotation speed into a frequency. The output of the frequency generator is fed to the speed and the phase control circuits.

6. Phase Control Circuit

The phase control circuit detects a phase difference between a reference signal and a frequency generator signal and generates a control voltage. This circuit makes it possible to lock the rotation of the turntable platter to a reference signal. It improves considerably speed stability and speed control characteristics for load conditions when compared with the conventional direct-drive motor having only speed control as shown in Fig. 11.

7. Speed Control Circuit

The speed control circuit includes a sample-and-hold circuit, which converts the output of the frequency generator into an electrical voltage. This is the control voltage which maintains the platter rotation speed.

8. Drive Circuit

Two control signals are composed and applied to the drive circuit to maintain a forward motor-rotation. The drive circuit supplies fullwave drive current doubling current efficiency. It supplies drive current in both directions for a symmetrical rotation in either a forward or reverse direction.

The drive circuit rotates the turntable platter with quick response and large starting torque.

9. Start/stop Circuit

When the unit is started by the switch, the start/stop circuit activates the forward drive. When the unit is switched off the start/stop circuit actuates the reverse drive and the mechanical brake actuating-circuits to perform a quick stop action.

10. Mechanical Brake Actuating-Circuit

The mechanical brake actuating-circuit operates a solenoid plunger which pushes a brake shoe against the platter. Working in conjunction with the reverse drive current, the mechanical brake can bring the platter to a complete stop quickly and smoothly. A half-braking force is maintained after the platter has stopped making it easy to accomplish accurate cueing of a record.

Comparison of stability against load variation

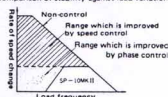


Fig. 11

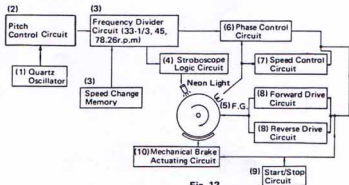
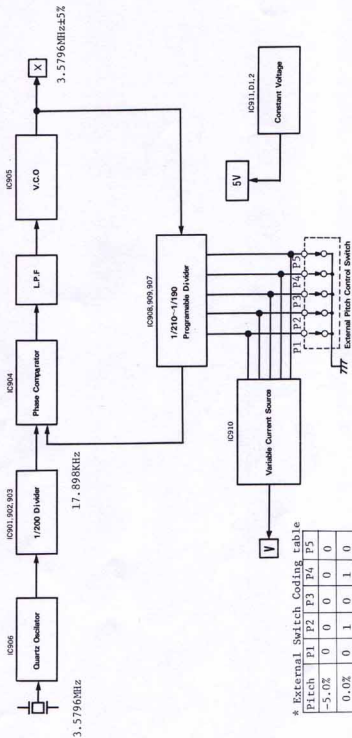


Fig. 12

Pitch Control Circuit



* External Switch Coding Table

Pitch	P1	P2	P3	P4	P5
-5.0%	0	0	0	0	0
0.0%	0	1	0	1	0
+5.0%	1	0	1	0	0

BLOCK DIAGRAM

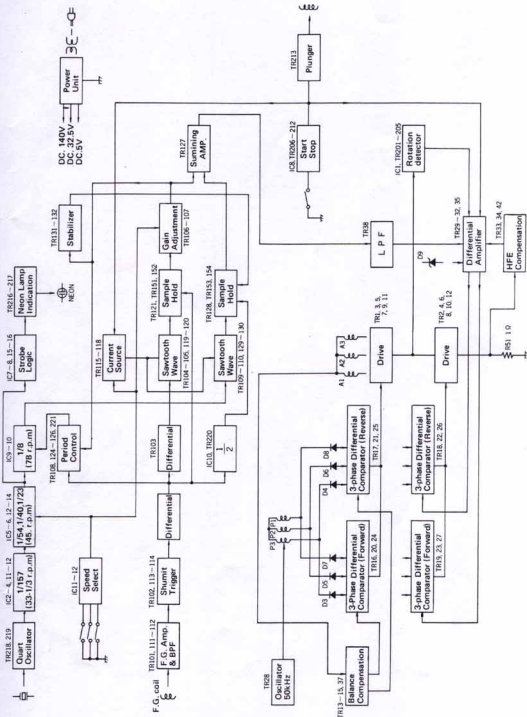
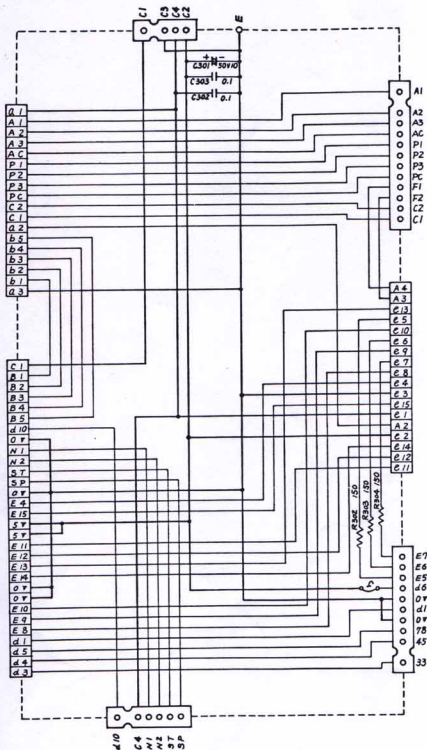
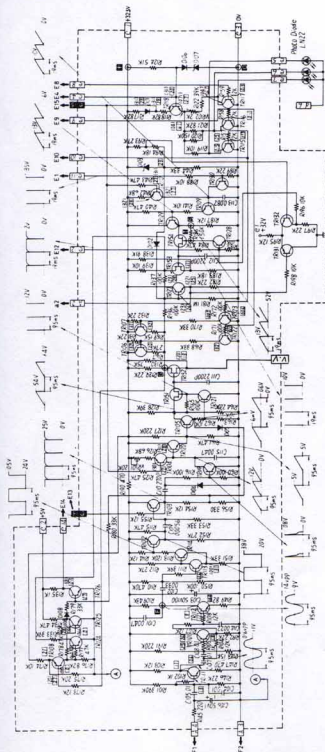


Fig. 15

SP-10MK2P Connector Circuit (SFDP102-01A)



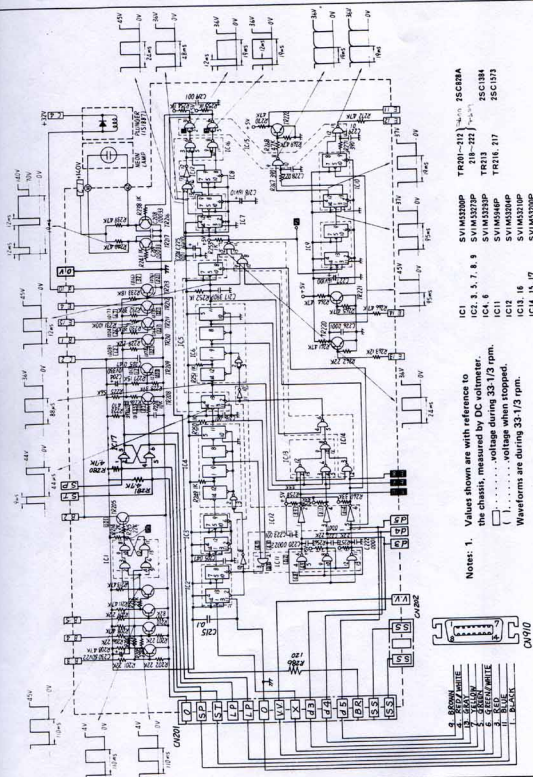
SP-10MK2P Control Circuit (SFDP102-04A)



Notes: 1. Values shown are with reference to the chassis, measured by DC voltmeter.
 voltage during 33-1/3 rpm.
 voltage when stopped.
 Waveforms are during 33-1/3 rpm.

TR102-110, 131, 132
 TR101, 111-130
 TR151-154
 DI01, 102, 104, 105, 106, 108
 DI03
 DI07
 25A554A
 25C122A
 25K30A
 MA150
 5VD003 IERS
 5VD003 IEC5

SP-10MK2P Logic Circuit (SFDP102-08A1)



IC1	SVM153200P	TR201-217	25C128A
IC2, 3, 5, 7, 8, 9	SVM153273P	218-221	25C138A
IC4, 6	SVM153253P	TR213	25C1573
IC11	SVM153946P	TR216, 217	
IC12	SVM153204P		
IC13, 18	SVM153210P		
IC14, 15, 17	SVM153230P		

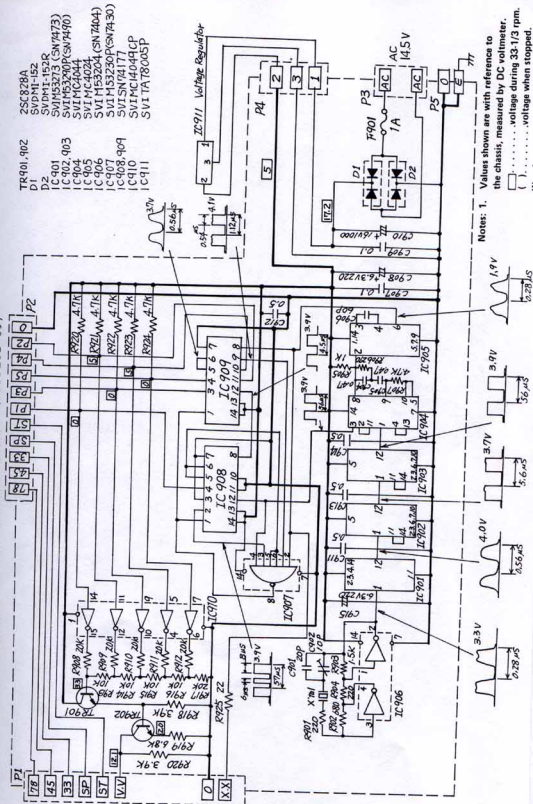
Notes: 1. Values shown are with reference to the chassis, measured by DC voltmeter.
 () voltage during 33-1/3 rpm.
 () voltage when stopped.
 Waveforms are during 33-1/3 rpm.



- 0 BROWN
- 1 RED
- 2 WHITE
- 3 GRAY
- 4 YELLOW
- 5 GREEN
- 6 GREEN/WHITE
- 7 RED
- 8 BLUE
- 9 BLACK

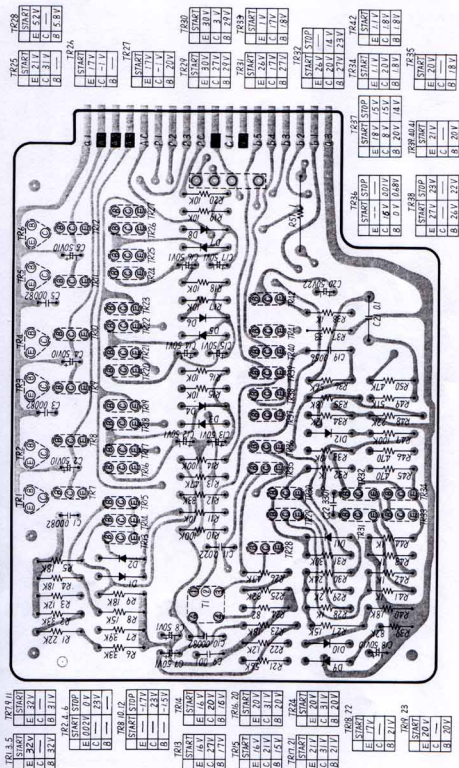
Schematic Diagram

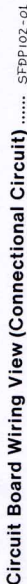
Pitch control circuit (SFDP102-09)



Printed circuit board pattern seen from below.

Circuit Board Wiring View (Drive Circuit) SFDP102 -02



[illegible]

TR205	START
E	C 0.01V
B	—

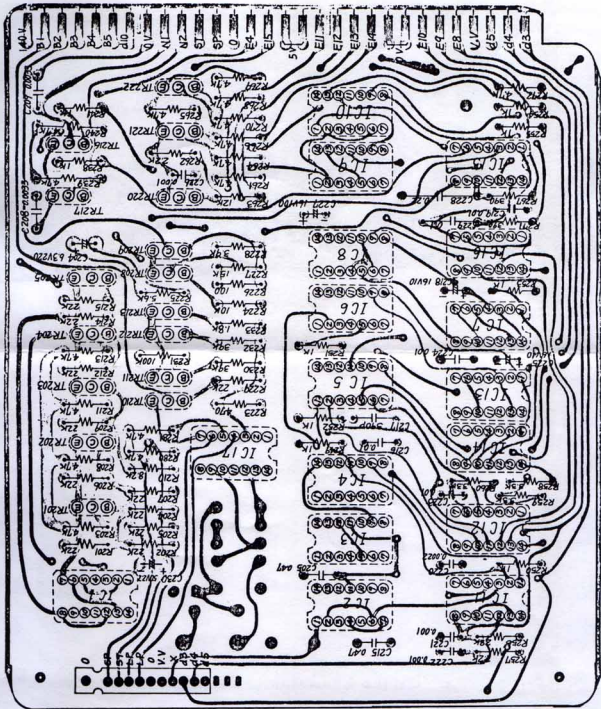
TR209	STOP
E	—
C	1.2V 0.12V
B	0.03V 0.1V

TR210	STOP
E	—
C	1.2V 0.08V
B	0.21V 0.72V

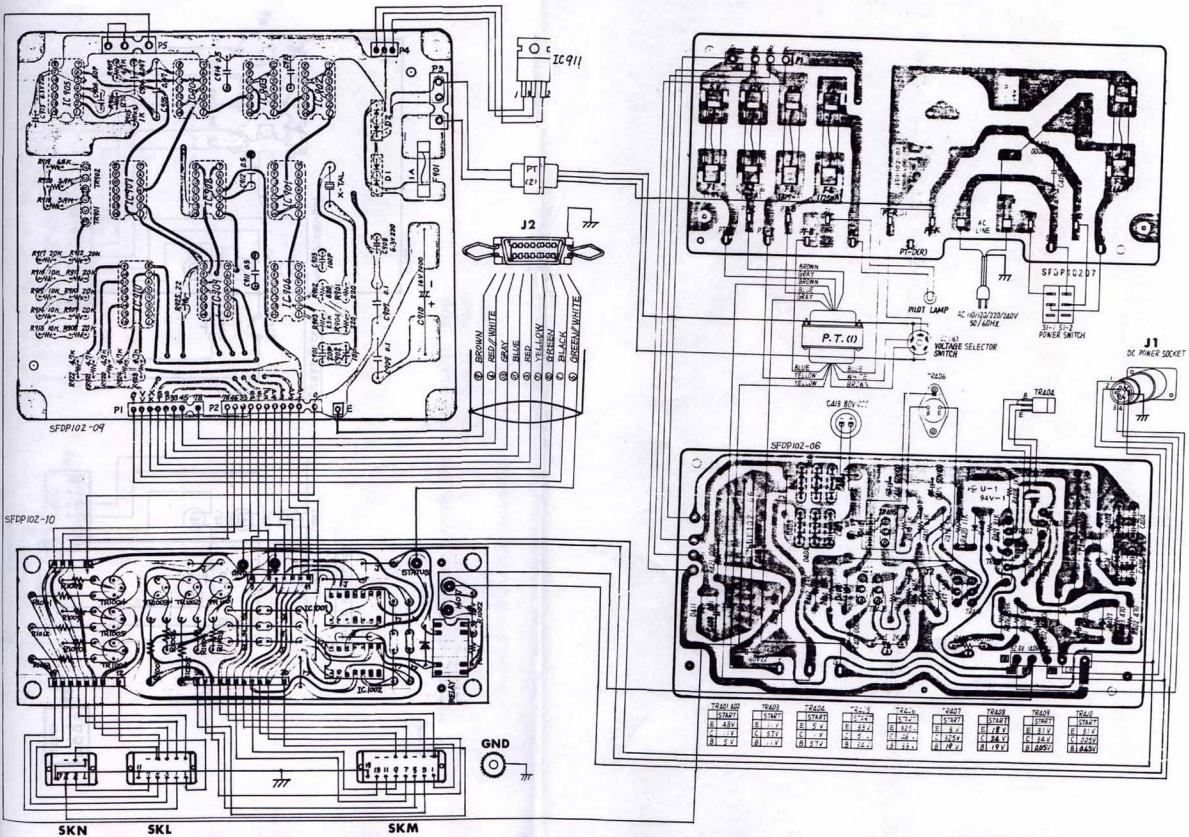
TR211	STOP
E	—
C	7.6V 0.04V
B	0.21V 0.64V

TR212	STOP
E	—
C	6.7V 0.17V
B	0.21V 0.73V

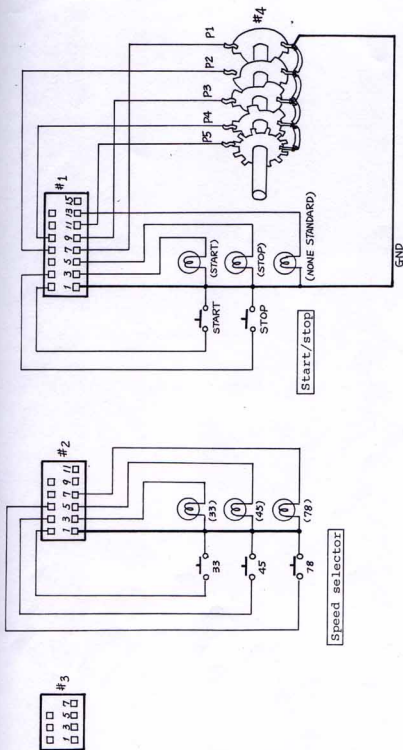
TR213	STOP
E	—
C	7.0V 0.12V
B	0.21V 0.73V



Circuit Board Wiring View (Control Center SH-10EP)



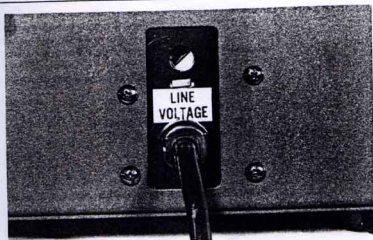
■ Remote function connecting diagram



NOTE

- #1) SOCKET, FIXED, 15-POLE, PLESSEY TYPE 74/10/1558/10 (SKM)
- #2) " " " " " " 74/10/1158/10 (SKL)
- #3) " " " " " " 74/10/0758/10 (SKN)
- #4) ROTARY SWITCH FOR PITCH ADJUSTING

BACKSIDE LINE VOLTAGE SELECTOR



Line voltage can be selected variablely at 110V, 120V, 220V, and 240V.

This set is pre-adjusted to 240V.

When using a different line voltage, re-adjust the selector at correct line voltage rotating the adjusting screw.

Adjustment for Parts Replacement

[1] Quartz reference frequency adjustment (P.B. No. SFDP 102-11)

After changing the crystal (quartz), Capacitor (C115, C117) and Q1108, readjust the oscillating frequency.

- 1 Connect the frequency counter at or end of R1140.
- 2 Set the pitch control switch to 0%.
- 3 Turn the trimer C1117 in order to get 5,8368 MHz of indication.

[2] 50KHz Oscillation level adjustment (P.B. No. SFDP 102-02)

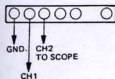


After changing transformer (T1), readjust oscillation level.

- 1 Connect the oscilloscope to check pin.
- 2 Turn the screw of T1 in order to get 10Vp-p sine wave.

[3] Phase tracking period check and adjustment (P.B. No. SFDP 102-08)

In case of repairing the Drive Circuit board (SFDP 102-02) or Control Circuit board (SFDP 102-08) or Pitch Control board (SFDP 102-11) or Power Source board (SFDP 102-06), readjust and check the tracking period.



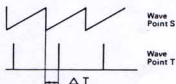
1. Connect a dual-channel oscilloscope to check point T and S on the Control Circuit board.

2. Adjust VR101 and VR102 referring the phase relation of two waves.

3. During the adjustment, turntable should be rotating.

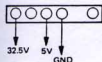
4. Begin to make each adjustment from 33 to 45 and then 78 r.p.m..

Speed Selector	Time	Adjustment Point
33-1/3 r.p.m.	$6.3 \pm 0.2\text{ms}$	VR101
45 r.p.m.	$4.7 \pm 1.3\text{ms}$	Confirm
78 r.p.m.	$2.7 \pm 0.1\text{ms}$	VR102



[4] Constant D.C. voltage adjustment (P.B. No. SFDP 102-06)

After changing the components on the board (SFDP 102-06), readjust the D.C. output level.

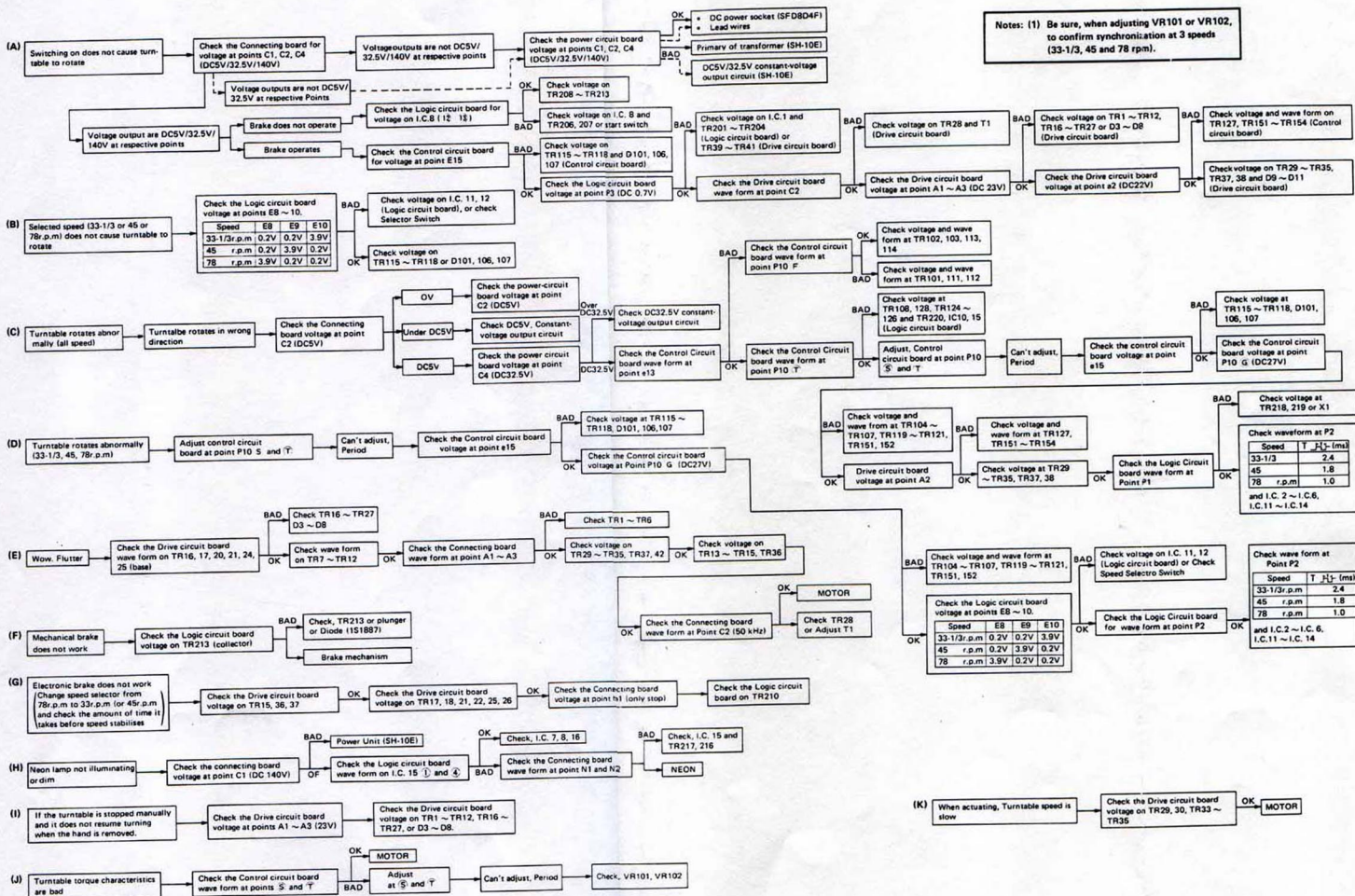


1. Connect a digital voltmeter at the point 5V.
2. Turn R405 in order to get 5.0V.
3. Connect the meter at the point 32.5V.
4. Turn R415 in order to get 32.5V.

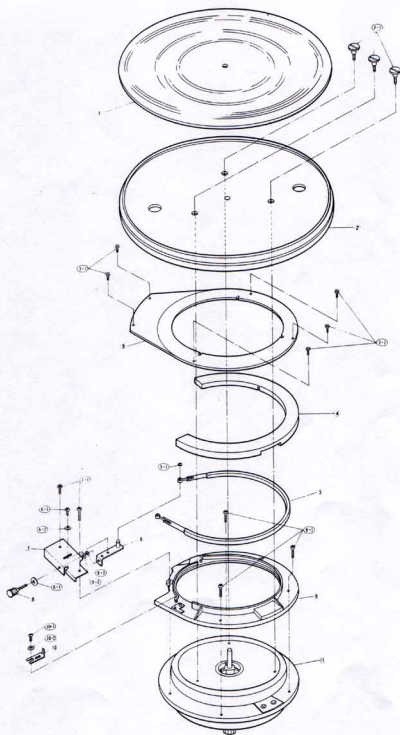
Note:

In case of checking or adjusting the circuit board, please use the extension cable.

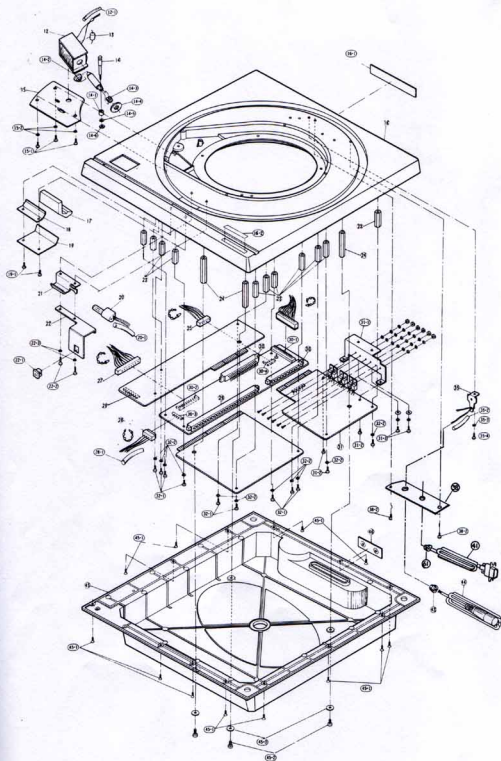
■ SERVICE CHECK POINTS



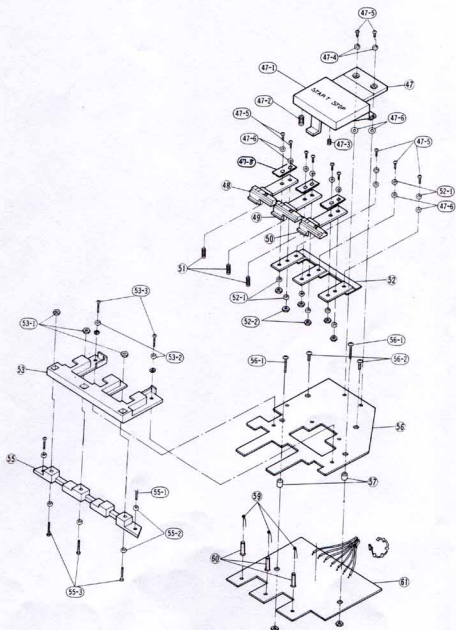
Exploded View of Turntable



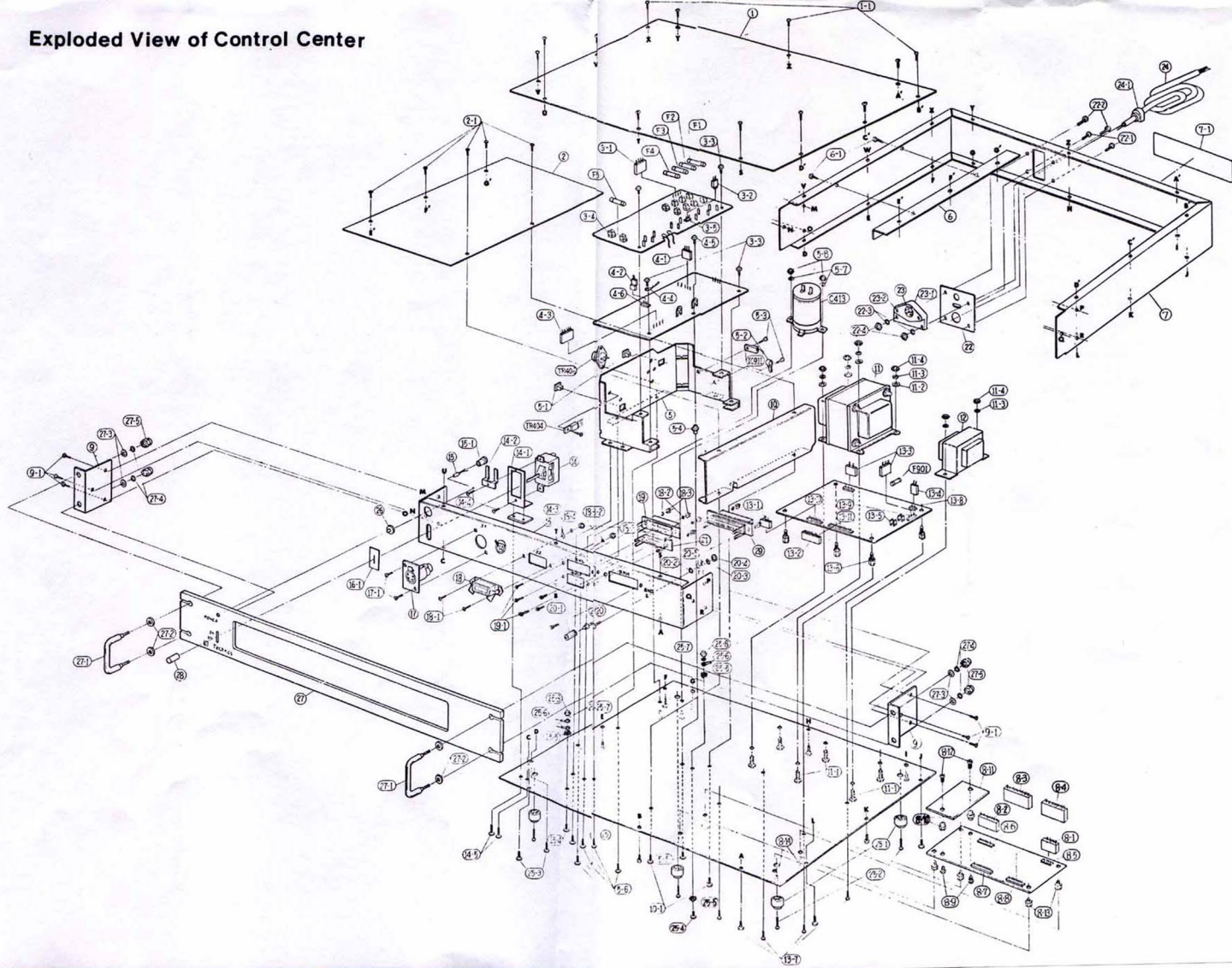
Exploded View of Turntable



Exploded View of Turntable



Exploded View of Control Center



REPLACEMENT PARTS LIST

NOTES: 1. Part numbers are indicated on most mechanical parts.

2. **SAFETY** Indicates, for safety reasons, that only parts specified in service manual be used for replacement.

Ref. No.	Part No.	Part Name & Description	Per Set	Remarks
DRIVE CIRCUIT BOARD				
Transistors				
TR1, 3, 5	25812 P	Transistors	3	
TR2, 4, 6	25D390A-Q	Transistors	3	
TR7, 9, 11	25A7N2-Q	Transistors	3	
TR8, 10, 12	25C1384A-Q	Transistors	3	
TR9, 10, 11, 12	25C1328 P	Transistors	15	
31, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000	15			
Diodes				
D1, 2, 10, 11	MA150	Diodes	4	
D3*- 8, 12	OA90	Diodes	7	
D9	SV0R05 (6CS)	Diode	1	
Transformer				
T1	ELM10512J	Oscillator	1	
Resistors				
R29, 30, 43, 44	ERD25C1401	1KΩ 1/2W ± 1% Metallic Carbon	4	
R51	ERD50C62001	2KΩ 1/2W ± 5% Metallic	1	
R51	ERK2AM1R0	1Ω 2W ± 5% Metallic	1	
R27	ERD12F32R3	3.3Ω 1/2W ± 5% Carbon	1	
R34	ERD12F48R0	8.2Ω 1/2W ± 5% Carbon	1	
R24	ERD12F12R0	1.5Ω 1/2W ± 5% Carbon	1	
R22, 25	ERD12F12R2	1.5KΩ 1/2W ± 5% Carbon	2	
R21, 22	ERD50F11R2	1.8KΩ 1/2W ± 5% Carbon	3	
R48	ERD50F12Z2	2.7KΩ 1/2W ± 5% Carbon	1	
R1	ERD251222	2.2KΩ 1/4W ± 5% Carbon	1	
R30	ERD2512G2	2.4KΩ 1/4W ± 5% Carbon	1	
R6	ERD2512G2	2.4KΩ 1/4W ± 5% Carbon	2	
R17	ERD2512J92	3.9KΩ 1/4W ± 5% Carbon	1	
R26	ERD251472	4.7KΩ 1/4W ± 5% Carbon	1	
R21, 26	ERD251562	5.6KΩ 1/4W ± 5% Carbon	2	
R46, 46	ERD251471	4.7KΩ 1/4W ± 5% Carbon	2	
R23, 42	ERD251561	5.6KΩ 1/4W ± 5% Carbon	2	
R23	ERD251562	5.6KΩ 1/4W ± 5% Carbon	2	
R11, 15, 16, 17, 18, 19, 20, 33	ERD2517J03	10KΩ 1/4W ± 5% Carbon	8	
R34	ERD2517J23	12KΩ 1/4W ± 5% Carbon	1	
R8	ERD251J153	15KΩ 1/4W ± 5% Carbon	1	
R5, 9	ERD251J153	15KΩ 1/4W ± 5% Carbon	2	
R31	ERD2517J03	10KΩ 1/4W ± 5% Carbon	1	
R12	ERD2517J33	33KΩ 1/4W ± 5% Carbon	1	
R12	ERD2517J33	33KΩ 1/4W ± 5% Carbon	1	
R13, 40	ERD251471	4.7KΩ 1/4W ± 5% Carbon	2	
R60	ERD251473	5.1KΩ 1/4W ± 5% Carbon	1	
R10, 14, 47	ERD2517J04	10KΩ 1/4W ± 5% Carbon	3	
Capacitors				
C22	ECOM51311K	330μF 150VW ± 10% Styrol	1	
C3, 3, 5, 10	ECOM5682K-Z	0.0002μF 50VW ± 10% Polyester	4	

Ref. No.	Part No.	Part Name & Description	Part	Remarks
C8	ECON501K-Z	500V $\pm 10\%$ Polyester	1	
C9	ECON522K-Z	0.02 μ F 500V $\pm 10\%$ Polyester	1	
C10	ECON550K-Z	0.05 μ F 500V $\pm 10\%$ Polyester	1	
C11	ECON560K-Z	0.1 μ F 500V $\pm 10\%$ Polyester	1	
C12, 13, 14	ECEAS0V1	500V Electrolytic	8	
C15, 16, 17	ECEAS0V2	2 μ F 500V Electrolytic	8	
C20	ECEAS0V10	10 μ F 500V Electrolytic	4	
LOGIC CIRCUIT BOARD				
Integrated Circuits				
IC 1, 14, 15	SVIM5320G	Integrated Circuit	3	
IC 2, 3, 5, 7, 8, 9, 10	SVIM5323P	Integrated Circuit	7	
IC 4, 6	SVIM5329P	Integrated Circuit	2	
IC 11	SVIM5446P	Integrated Circuit	1	
IC 12	SVIM5503K	Integrated Circuit	1	
IC 13, 16	SVIM53210P	Integrated Circuit	2	
Transistors				
T1001, 205	2SC1328-T	Transistors	15	
T101, 206	2SC1523-Q	Transistors	2	
T201, 222	2SC1384A-Q	Transistors	1	
Resistors				
R 202	ERD25TJ101	100 Ω 1/4W $\pm 5\%$ Carbon	1	
R203, 271	ERD25TJ102	100 Ω 1/4W $\pm 5\%$ Carbon	1	
R223	ERD25TJ103	470 Ω 1/4W $\pm 5\%$ Carbon	1	
R238	ERD25TJ104	1K Ω 1/4W $\pm 5\%$ Carbon	1	
R246	ERD25TJ105	1K Ω 1/4W $\pm 5\%$ Carbon	1	
R238, 241, 251	ERD25TJ102	1K Ω 1/4W $\pm 5\%$ Carbon	9	
R252, 253, 254, 255	ERD25TJ102	1K Ω 1/4W $\pm 5\%$ Carbon	1	
R233	ERD25TJ182	18K Ω 1/4W $\pm 5\%$ Carbon	1	
R214	ERD25TJ222	2.2K Ω 1/4W $\pm 5\%$ Carbon	4	
R242	ERD25TJ332	3.3K Ω 1/4W $\pm 5\%$ Carbon	3	
R258, 259, 260	ERD25TJ392	3.9K Ω 1/4W $\pm 5\%$ Carbon	3	
R228	ERD25TJ472	4.7K Ω 1/4W $\pm 5\%$ Carbon	14	
R203, 208, 211, 212, 213, 251, 252, 253, 254, 255, 266, 267, 268, 269, 270, 272	ERD25TJ682	6.8K Ω 1/4W $\pm 5\%$ Carbon	1	
R226	ERD25TJ103	10K Ω 1/4W $\pm 5\%$ Carbon	1	
R224	ERD25TJ123	12K Ω 1/4W $\pm 5\%$ Carbon	1	
R263	ERD25TJ123	12K Ω 1/4W $\pm 5\%$ Carbon	1	
R227, 269, 284	ERD25TJ193	19K Ω 1/4W $\pm 5\%$ Carbon	1	
R207, 202, 205, 212, 215, 229	ERD25TJ223	22K Ω 1/4W $\pm 5\%$ Carbon	10	
R238, 232	ERD25TJ393	39K Ω 1/4W $\pm 5\%$ Carbon	2	
R239, 240	ERD25TJ473	47K Ω 1/4W $\pm 5\%$ Carbon	1	
R238, 240	ERD25TJ473	47K Ω 1/4W $\pm 5\%$ Carbon	1	
Capacitors				
C226, 221, 222	ECON501K-Z	500V $\pm 10\%$ Polyester	3	

Ref. No.	Part No.	Part Name & Description	Per Set	Remarks
1	SF710101	Turntable nut	1	
2	SF710102	Turntable	1	
3	SF710103	Turntable Cover	3	
4	SF710104	Turntable Cover, Brake	3	
5	SF710105	Screw, Cover	5	
6	SF710106	Rubber, Brakecover	1	
7	SF710107	Brake Band	1	
8	SF710108	Clutch Band	1	
9	SF710109	Plate, Brake	1	
10	SF710110	Screw, Plate	1	
11	SF710111	Washer, Plate	1	
12	SF710112	Plate, Adjustment	1	
13	SF710113	Screw, Plate	1	
14	SF710114	Screw, Adjustment	1	
15	SF710115	Washer	1	
16	SF710116	Circulo, Screw Adjustment	1	
17	SF710117	Brake Hosing	1	
18	SF710118	Brake	1	
19	SF710119	Screw	1	
20	SF710120	Plate, Brake Adjustment	1	
21	SF710121	Screw, Adjustment Plate	1	
22	SF710122	Washer, Adjustment Plate	1	
23	SF710123	Motor Assy	1	
24	SF710124	Plunger	1	
25	SF710125	Holder	1	
26	SF710126	Washer, Plunger	2	
27	SF710127	Screw, Plunger	2	
28	SF710128	Diode	1	
29	SF710129	Lower, Plunger	1	
30	SF710130	Upper, Plunger	1	
31	SF710131	Screw, Plunger	1	
32	SF710132	Rubber, Plunger	1	
33	SF710133	Rubber Washer	1	
34	SF710134	Washer	1	
35	SF710135	Nut	1	
36	SF710136	Washer	1	
37	SF710137	Mounting Plate, Plunger	1	
38	SF710138	Screw, Mounting Plate	3	
39	SF710139	Paint Case	1	
40	SF710140	Plunger Plate	1	
41	SF710141	Bracket	1	
42	SF710142	Neon lamp base, A	1	
43	SF710143	Neon lamp base, C	1	
44	SF710144	Screw, Neon lamp base	2	
45	SF710145	Neon lamp	1	
46	SF710146	Holder, Neon lamp	1	
47	SF710147	Holder, P.C.B.	1	
48	SF710148	Spacer, P.C.B.	2	
49	SF710149	Screw	1	
50	SF710150	Washer	1	
51	SF710151	Spacer, P.C.B.	1	
52	SF710152	Spacer, Bottom Case	3	
53	SF710153	Connector, 4P	1	
54	SF710154	Connector, 10P	1	
55	SF710155	Connector, 4P	1	
56	SF710156	Connector, 10P	1	
57	SF710157	Connector	1	
58	SF710158	Connector	1	
59	SF710159	Connector, 12P	1	
60	SF710160	Connector, 12P	1	

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Ref. No.	Part No.	Part Name & Description	Per Set	Remarks
IC006	SVIM63204P	Transition	1	
IC007	SVIM63202P		1	
IC008, 909	SVISN74177N		2	
IC010	SVISN74177N		1	
IC101	SVIM7418005P		1	
IC101	SVIM7418005P		1	
IC102	SVIM7418005P		1	
TR401, 402, 403	25C1208 T	Diodes	6	
TR408, 409, 410	25A466A1R		1	
TR403	25C1208 T		1	
TR404	25C1208 T		1	
TR405	25C1208 T		1	
TR406	25C1208 T		2	
TR901, 902	25C1208 T		2	
TR1001 ~ 1006	25A464-E		6	
D401, 403, 404	RVD100C2R	Xtal	3	Safety
D402, 405, 406	RVD100C2R		3	Safety
D407	SVISN74177N		1	
D408	SVISN74177N		1	
D409, D1001	MA150		2	
D410	OA80		1	
D411	SVISN74177N		1	
D412	SVISN74177N		1	
D1001	SVISN74177N		1	
D2	RVD100C2R		1	Safety
X1	TSS-618-K		1	
R405	EVL50AA0082	Variable Resistors	1	
R415	EVL50AA0082		1	
R402, 403	ERD257J01	Resistors	2	
R406	ERD257J02		1	
R407, 408, 409	ERD257J02		3	
R410	ERD257J02		1	
R411	ERD257J02		1	
R412	ERD257J02		1	
R413	ERD257J02		1	
R414	ERD257J02		1	
R415	ERD257J02		1	
R416	ERD257J02		1	
R417	ERD257J02		1	
R418	ERD257J02		1	
R419	ERD257J02		1	
R420	ERD257J02		1	
R421	ERD257J02		1	
R422	ERD257J02		1	
R423	ERD257J02		1	
R424	ERD257J02		1	
R425	ERD257J02		1	

Ref. No.	Part No.	Part Name & Description	Per Set	Remarks
R006	ERD257J01	270Ω 1/4W ± 5% Carbon	1	
R907, 921, 922	ERD257J02	4.7KΩ 1/4W ± 5% Carbon	4	
R908, 909, 910	ERD257J03	20KΩ 1/4W ± 5% Carbon	6	
R911, 912, 917	ERD257J03	10KΩ 1/4W ± 5% Carbon	5	
R913, 914, 915, 916, 907	ERD257J03	3.9KΩ 1/4W ± 5% Carbon	2	
R918, 920	ERD257J03	22Ω 1/4W ± 5% Carbon	1	
R924	ERD257J03	22Ω 1/4W ± 5% Carbon	1	
R1001, 1011	ERD257J03	3.9KΩ 1/4W ± 5% Carbon	1	
R1012, 1013	ERD257J03	2.2KΩ 1/4W ± 5% Carbon	1	
C002	ECV12W10X53	10μF Ceramic Trimmer	1	
C401, 408	ECM005472ME	Capacitors	2	Safety
C402, 405, 406	RXAF103P22HD		4	Safety
C408	ECM0103M2		1	Safety
C409	ECM005822K2		1	
C410	ECB18V100V		1	
C411, 412	ECB18V100V		1	
C413	ECB18V100V		1	
C414	ECB18V100V		1	
C415	ECB18V100V		1	
C416	ECB18V100V		1	
C417	ECB18V100V		1	
C901	ECOS1100K		1	
C903	ECOS1100K		1	
C904	ECOS1100K		1	
C905	ECOS1100K		1	
C906	ECOS1100K		1	
C907, 908	ECOS1100K		1	
C909, 915	ECOS1100K		1	
C910	ECOS1100K		1	
C911, 912, 913, 914	ECOS1100K		4	
RELAY	LADIN	RELAY	1	
FUSES	1A		1	Safety
F1	XBAZC10TR0	1A	1	Safety
F2	XBAZC10TR0	2.5A	1	Safety
F3	XBAZC10TR0	315mA	1	Safety
F4	XBAZC10TR0	315mA	1	Safety
F5	XBAZC10TR0	315mA	1	Safety
F901	XBAZC10TR0	1A	1	Safety
CABINET AND CHASSIS PARTS				
1	SFU100P25	Cass. Top	1	
11	XTB3-88F-Z	Screw	12	
21	SFU100P25	Screw	1	
31	SFU100P25	Screw	5	
32	SFU100P25	Connector	1	
33	SFU100P25	Holder, Fuse	4	
34	SFU100P25	Holder, Fuse	10	
35	SFU100P25	Connector	1	

Ref. No.	Part No.	Part Name & Description	Per Set	Remarks
4.1	SJ55307	Connector	1	
4.2	SFDJLSP SHF	Connector	1	
4.3	SJ55505	Clampers, Wire	1	
4.4	SHE 36	Screw	1	
4.5	XST314PZ5	Mounting plate	1	
5	SFDJ010P07	Mounting plate	1	
5.1	SFEZ196	Supporting P.C.B	2	
5.2	SFEZNR JN	Clampers, Wire	2	
5.3	XTV210B	Screw	3	
5.4	XTV210C	Spacer	3	
5.5	XTV210D	Screw	3	
5.6	XTV210E	Screw	3	
5.7	XTV210F	Screw	3	
5.8	XWAB30F	Washer	3	
6	XNGB35	Nut	2	
6.1	SFDJ010P10	Screw	2	
6.2	SFDJ010P11	Screw	2	
7	SFDJ010P12	Screw	2	
7.1	SFDJ010P13	Screw	2	
8.1	SFDJ010P14	Connector, 4P	1	
8.2	SFDJ010P15	Connector, 7P	1	
8.3	SFDJ010P16	Connector, 11P	1	
8.4	SFDJ010P17	Connector, 15P	1	
8.5	SFDJ010P18	Connector, 4P	1	
8.6	SFDJ010P19	Connector, 7P	1	
8.7	SFDJ010P20	Connector, 11P	1	
8.8	SFDJ010P21	Connector, 15P	1	
8.9	XSN316F23	Screw	2	
9	SFDJ010P22	Spacer	2	
9.1	SFDJ010P23	Screw	2	
9.2	SFDJ010P24	Screw	2	
9.3	SFDJ010P25	Screw	2	
9.4	SFDJ010P26	Screw	2	
9.5	SFDJ010P27	Screw	2	
9.6	SFDJ010P28	Screw	2	
9.7	SFDJ010P29	Screw	2	
9.8	SFDJ010P30	Screw	2	
9.9	SFDJ010P31	Screw	2	
10	SFDJ010P32	Screw	2	
10.1	SFDJ010P33	Screw	2	
11	SFDJ010P34	Screw	2	
11.1	SFDJ010P35	Screw	2	
11.2	SFDJ010P36	Screw	2	
11.3	SFDJ010P37	Screw	2	
11.4	SFDJ010P38	Screw	2	
11.5	SFDJ010P39	Screw	2	
11.6	SFDJ010P40	Screw	2	
11.7	SFDJ010P41	Screw	2	
11.8	SFDJ010P42	Screw	2	
11.9	SFDJ010P43	Screw	2	
12	SFDJ010P44	Screw	2	
12.1	SFDJ010P45	Screw	2	
12.2	SFDJ010P46	Screw	2	
12.3	SFDJ010P47	Screw	2	
12.4	SFDJ010P48	Screw	2	
12.5	SFDJ010P49	Screw	2	
12.6	SFDJ010P50	Screw	2	
12.7	SFDJ010P51	Screw	2	
12.8	SFDJ010P52	Screw	2	
12.9	SFDJ010P53	Screw	2	
13	SFDJ010P54	Screw	2	
13.1	SFDJ010P55	Screw	2	
13.2	SFDJ010P56	Screw	2	
13.3	SFDJ010P57	Screw	2	
13.4	SFDJ010P58	Screw	2	
13.5	SFDJ010P59	Screw	2	
13.6	SFDJ010P60	Screw	2	
13.7	SFDJ010P61	Screw	2	
13.8	SFDJ010P62	Screw	2	
13.9	SFDJ010P63	Screw	2	
14	SFDJ010P64	Screw	2	
14.1	SFDJ010P65	Screw	2	
14.2	SFDJ010P66	Screw	2	
14.3	SFDJ010P67	Screw	2	
14.4	SFDJ010P68	Screw	2	
14.5	SFDJ010P69	Screw	2	
15	SFDJ010P70	Screw	2	
15.1	SFDJ010P71	Screw	2	

Ref. No.	Part No.	Part Name & Description	Per Set	Remarks
16	SFDJ010P72	Screw	1	
17	SFDJ010P73	Screw	1	
17.1	SFDJ010P74	Screw	1	
17.2	SFDJ010P75	Screw	1	
18	SFDJ010P76	Screw	2	
18.1	SFDJ010P77	Screw	2	
18.2	SFDJ010P78	Screw	2	
18.3	SFDJ010P79	Screw	2	
18.4	SFDJ010P80	Screw	2	
19	SFDJ010P81	Screw	2	
19.1	SFDJ010P82	Screw	2	
20	SFDJ010P83	Screw	2	
20.1	SFDJ010P84	Screw	2	
20.2	SFDJ010P85	Screw	2	
20.3	SFDJ010P86	Screw	2	
20.4	SFDJ010P87	Screw	2	
20.5	SFDJ010P88	Screw	2	
21	SFDJ010P89	Screw	2	
22	SFDJ010P90	Screw	2	
22.1	SFDJ010P91	Screw	2	
22.2	SFDJ010P92	Screw	2	
22.3	SFDJ010P93	Screw	2	
22.4	SFDJ010P94	Screw	2	
23	SFDJ010P95	Screw	2	
23.1	SFDJ010P96	Screw	2	
23.2	SFDJ010P97	Screw	2	
23.3	SFDJ010P98	Screw	2	
24	SFDJ010P99	Screw	2	
24.1	SFDJ010P100	Screw	2	
25	SFDJ010P101	Screw	2	
25.1	SFDJ010P102	Screw	2	
25.2	SFDJ010P103	Screw	2	
25.3	SFDJ010P104	Screw	2	
25.4	SFDJ010P105	Screw	2	
25.5	SFDJ010P106	Screw	2	
25.6	SFDJ010P107	Screw	2	
25.7	SFDJ010P108	Screw	2	
25.8	SFDJ010P109	Screw	2	
25.9	SFDJ010P110	Screw	2	
26	SFDJ010P111	Screw	2	
26.1	SFDJ010P112	Screw	2	
26.2	SFDJ010P113	Screw	2	
26.3	SFDJ010P114	Screw	2	
26.4	SFDJ010P115	Screw	2	
26.5	SFDJ010P116	Screw	2	
26.6	SFDJ010P117	Screw	2	
26.7	SFDJ010P118	Screw	2	
26.8	SFDJ010P119	Screw	2	
26.9	SFDJ010P120	Screw	2	
27	SFDJ010P121	Screw	2	
27.1	SFDJ010P122	Screw	2	
27.2	SFDJ010P123	Screw	2	
27.3	SFDJ010P124	Screw	2	
27.4	SFDJ010P125	Screw	2	
27.5	SFDJ010P126	Screw	2	
27.6	SFDJ010P127	Screw	2	
27.7	SFDJ010P128	Screw	2	
27.8	SFDJ010P129	Screw	2	
27.9	SFDJ010P130	Screw	2	
28	SFDJ010P131	Screw	2	
29	SFDJ010P132	Screw	2	

ACCESSORY PARTS

Ref. No.	Part No.	Part Name & Description	Per Set	Remarks
A1	SFDJ010P133	Service Manual	1	
A2	SFDJ010P134	Mounting Template	1	
A3	SFDJ010P135	45 Adaptor	1	
A4	SFDJ010P136	Screw A	1	
A5	SFDJ010P137	Screw B	1	
A6	SFDJ010P138	Screw C	1	
A7	SFDJ010P139	Washer	1	
A8	SFDJ010P140	Mounting Plate Motor	1	

Service Manual

DIRECT DRIVE TURNTABLE WITH
QUARTZ PHASE LOCKED CONTROL

SP-10MK2-(XGE, E)

For additional information, please refer to the service manual for Model No. SP-10MKII-(X)

Notes: * This service manual includes only the changes of the **SP-10MKII-(X)** service manual (ORDERNO. SD7604-1071) except for replacement parts list.
* This manual should be filed with the service manual for Model No. **SP-10MKII-(X)** (ORDER NO. SD7604-1071).

CHANGES

■ REPLACEMENT PARTS LIST

○ Deletion

Ref. No.	Change of Part No.		Description	Per Set (Pcs.)	Remarks
	SP10MKII-(X)	➡ SP10MK2-(XGE, E)			
CABINET AND CHASSIS PARTS					
9-1	XYN4+15FZS	XYN4+C15FZS	Screw	3	
14-5	XWA3BER	XWA3BFR	Washer	1	
18	SFUP102-01	○	Neon lamp Base B	1	
23	SFXT102-05	SFXJ102-05	Spacer, P.C.B	11	
24	SFXT102-04	SFXJ102-04	Spacer, Bottom Case	3	
28-1	SFEB2AF	SFEB2UT	Tube	1	
29	SFDJS14225	SFDJXI53250	Connector	1	
30	SFDJS14223	SFDJXI53241	Connector	2	
46	SFNG102-02	SFNZ102-02	Label Remote	1	
55-3	XSN2+10FU	XSN2+10	Screw	3	
56-1	XYN3+C10FZS	XYN3+C10F	Screw	2	
57	SYXO102-02	SFZO102-02	Spacer	2	
POWER UNIT (Model SH-10E)					
TR403	2SC666AI-R	2SA666AI-R	Transistor	1	
CABINET AND CHASSIS PARTS					
2-1	SFNN10EX01	SFNN10EX01	Name Plate (XGE)	1	
		SFNN10ES01	Name Plate (E)	1	
7	ETP8593E	ETP85Q3E	Power Transformer	1	
		SFEA2C2500W	AC Cord (XGE)	1	
10	SFKP419C	SFKP419C	AC Cord (E)	1	
		SFSR5N4	Bushing, Cord (XGE)	1	
11	SFSR4N4	SFSR4N4	Bushing, Cord (E)	1	
12	SFDP102-07	○	P.C.B. Fuse	1	
13	SFDP102-06	○	Power P.C.B.	1	

■ PARTS IDENTIFICATION

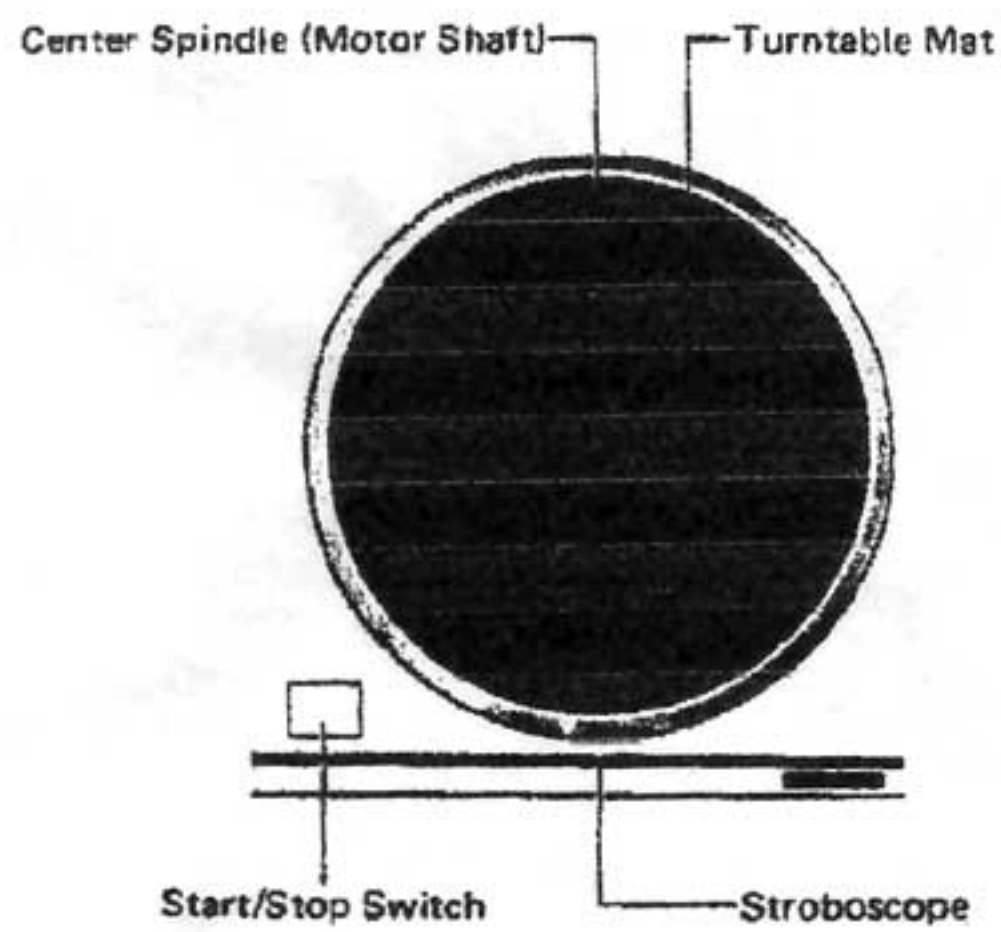


Fig. 1

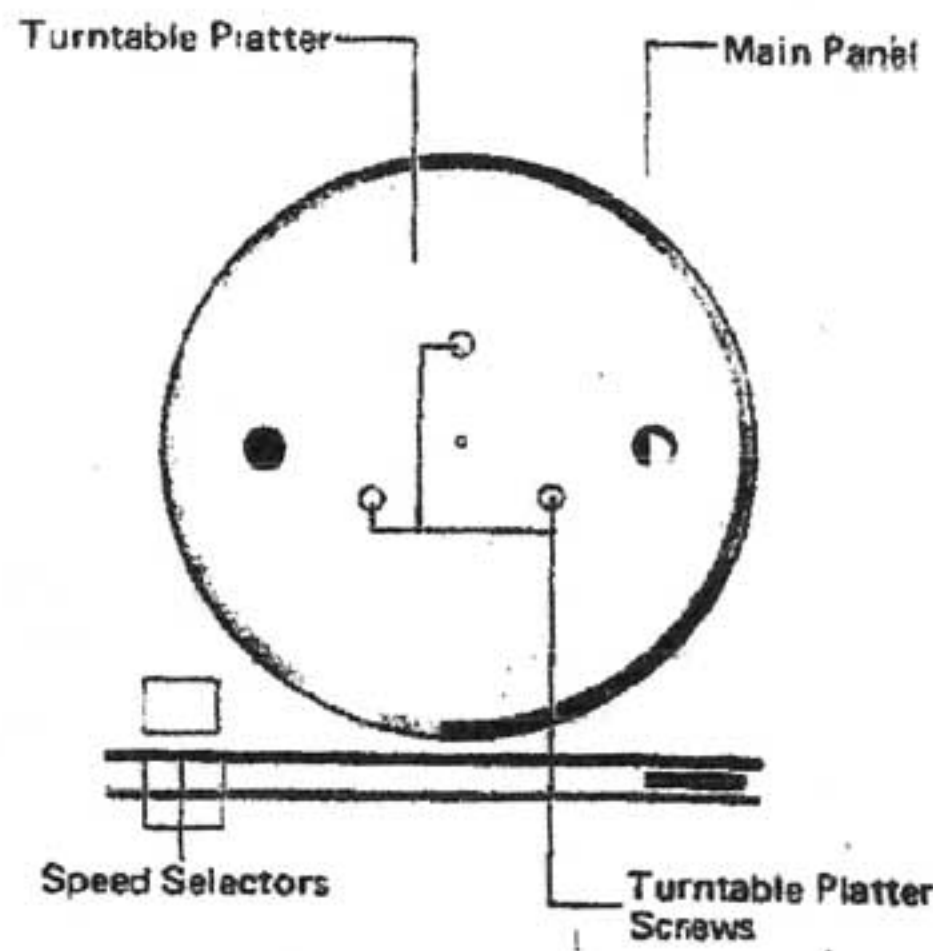


Fig. 2

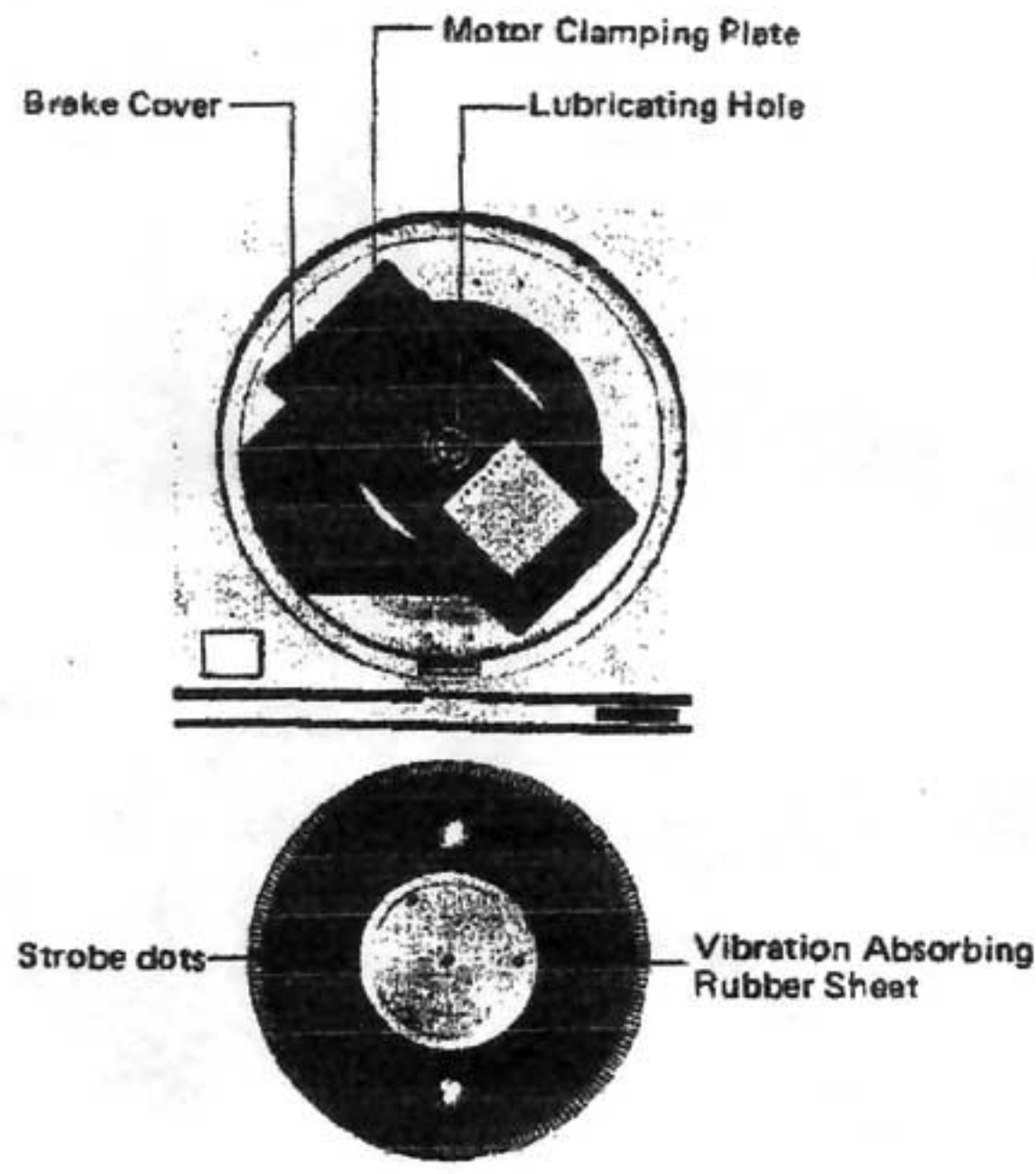


Fig. 3

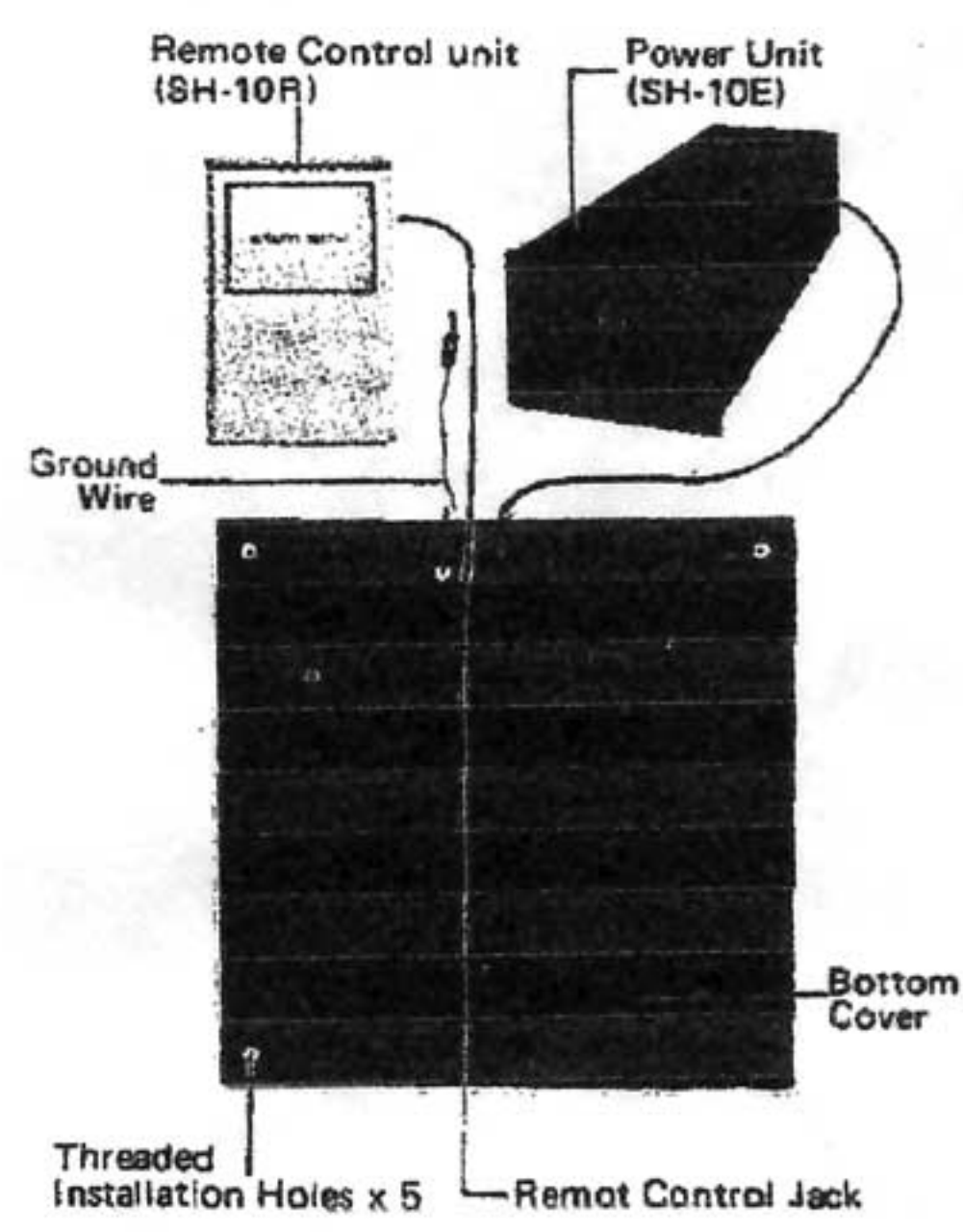


Fig. 4

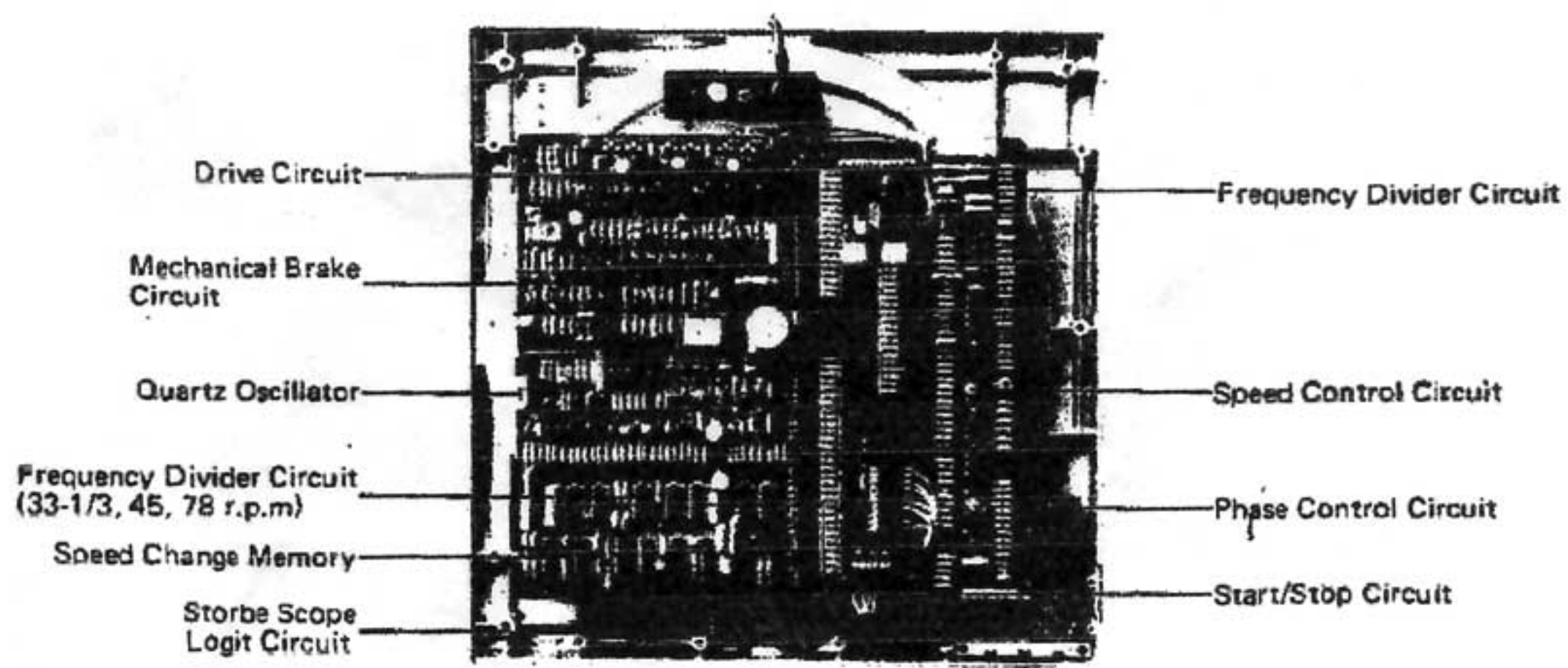


Fig. 5