

# Service Manual

Player



**SP-10MKII**  
(M), (MC)



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[www.SteamPoweredRadio.Com](http://www.SteamPoweredRadio.Com)

## ■ SPECIFICATIONS

|                                       |   |  |   |
|---------------------------------------|---|--|---|
| Type:                                 | Direct-drive turntable  | Wow & Flutter:                                 | 0.025% (JIS C5521) W.R.M.S.   |
| Turntable platter:                    | Aluminum diecast, diameter 32 cm<br>(12-19/32 inches), weight 2.9 kg<br>(6.4 lbs.), moment of inertia<br>380kg. cm <sup>2</sup> (130 lbs. in <sup>2</sup> ) | ±0.035% (DIN 45507), weighted,<br>zero-to-peak | ±0.035% (DIN 45507), weighted,<br>zero-to-peak  |
| Motor:                                | Brushless DC motor, electronic<br>rectification, quartz-controlled<br>phase-locked servo circuit  | Rumble:  | 60 dB (IEC 179B)<br>50 dB (DIN 45539A)<br>70 dB (DIN 45539B)                                    |
| Platter speeds:                       | 33-1/3, 45 and 78.r.p.m.  | Power Supply:                                  | 120V, AC 50 or 60 Hz  |
| Starting torque:                      | 6 kg. cm (5.2 lbs. in)  | Power Consumption:                             | 20 W  |
| Build-up time                         | 0.25 sec. (25° rotation) to 33-1/3r.p.m.  | Dimensions:                                    | Turntable Only<br>36.85 (W) x 10.25 (H) x 36.85 (D) cm<br>(14-31/64 x 4-1/64 x 14-31/64 inches) |
| Braking time:                         | 0.3 sec. (30° rotation) from<br>33-1/3r.p.m. to standstill  | Power Unit                                     | 110 (W) x 8.35 (H) x 37.0 (D) cm  |
| Speed fluctuation<br>by load changes: | 0% within 5 kg. cm (4.3 lbs. in)  | Weight:  | Turntable Only 9.5 kg (20.9 lbs.)   |
| Speed drift:                          | Within ± 0.002%   |  | Power Unit 3.8 kg   |

Specification are subject change without notice for further improvement.

**Technics**  
byPanasonic

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## ■ PARTS IDENTIFICATION

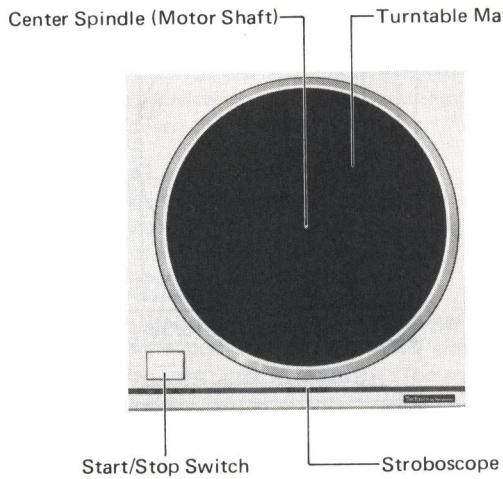


Fig. 1

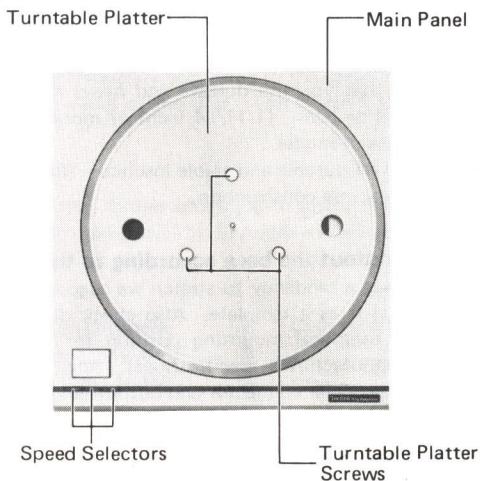


Fig. 2

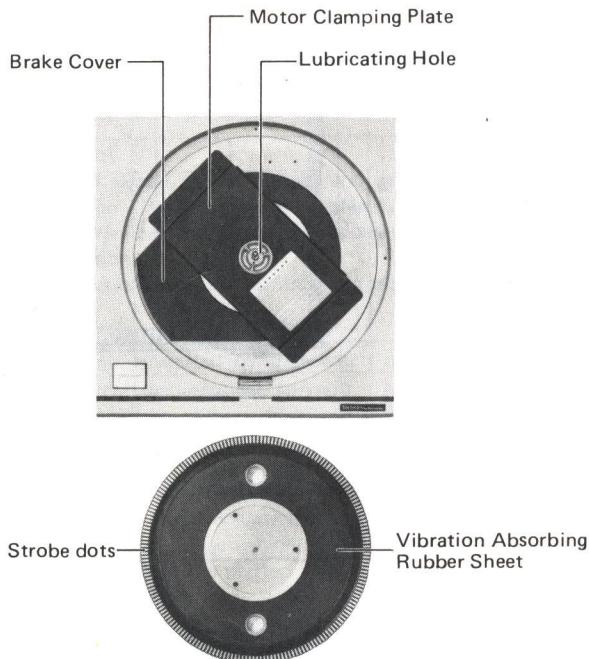


Fig. 3

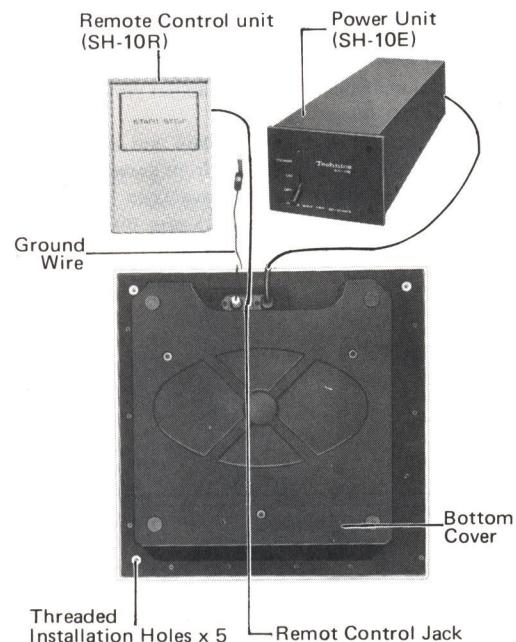


Fig. 4

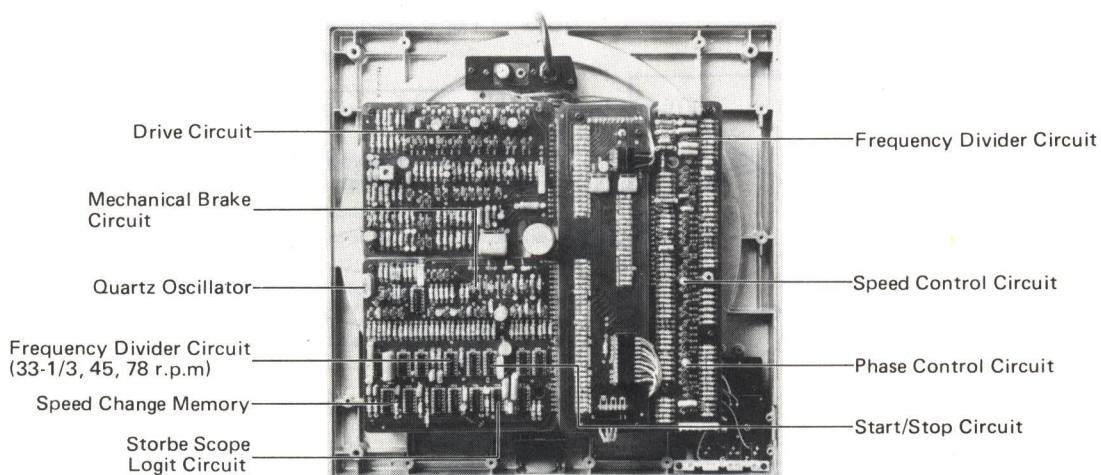


Fig. 5

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## ■ ASSEMBLY AND SET-UP

#### **1. Building a base or cabinet for this model**

The starting torque of this model is 6Kg. cm. (5.2 1bs. 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.

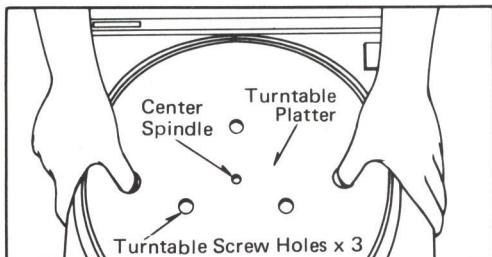
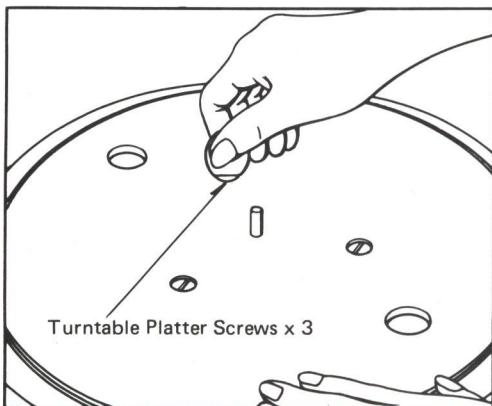
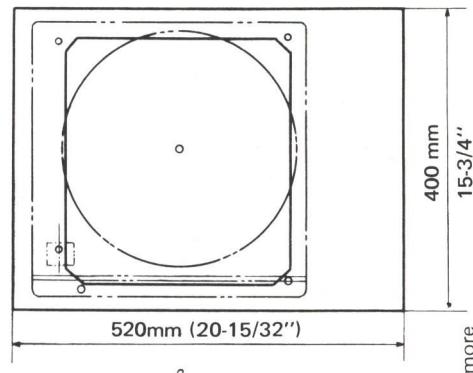


Fig. 9

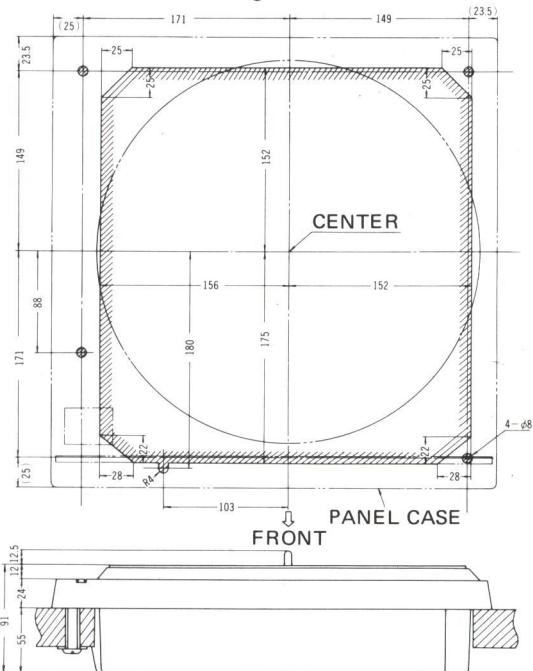


**Fig. 10**

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



**Fig. 6**



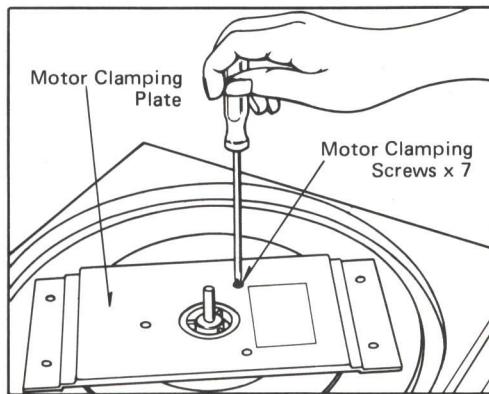
**Fig. 7**

#### **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.

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. 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.

### 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-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.

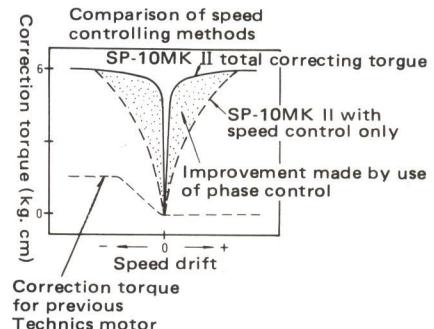


Fig. 11

Comparison of stability against load variations.

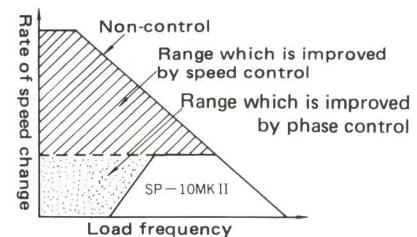


Fig. 12

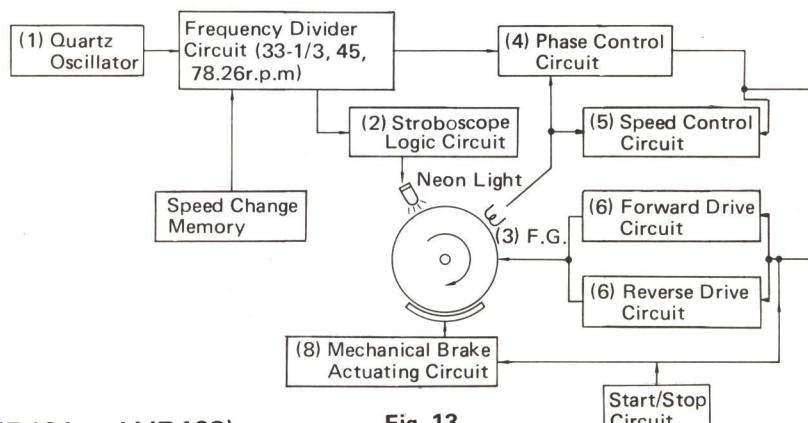


Fig. 13

## ■ 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 ± 0.2ms | VR101            |
| 45 r.p.m.      | 4.7 ± 1.3ms | Confirm          |
| 78 r.p.m.      | 2.7 ± 0.1ms | VR102            |

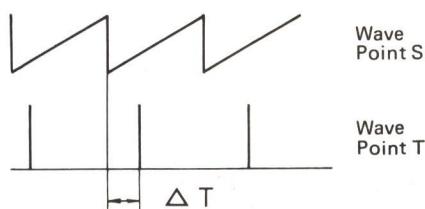


Fig. 14

## ■ BLOCK DIAGRAM

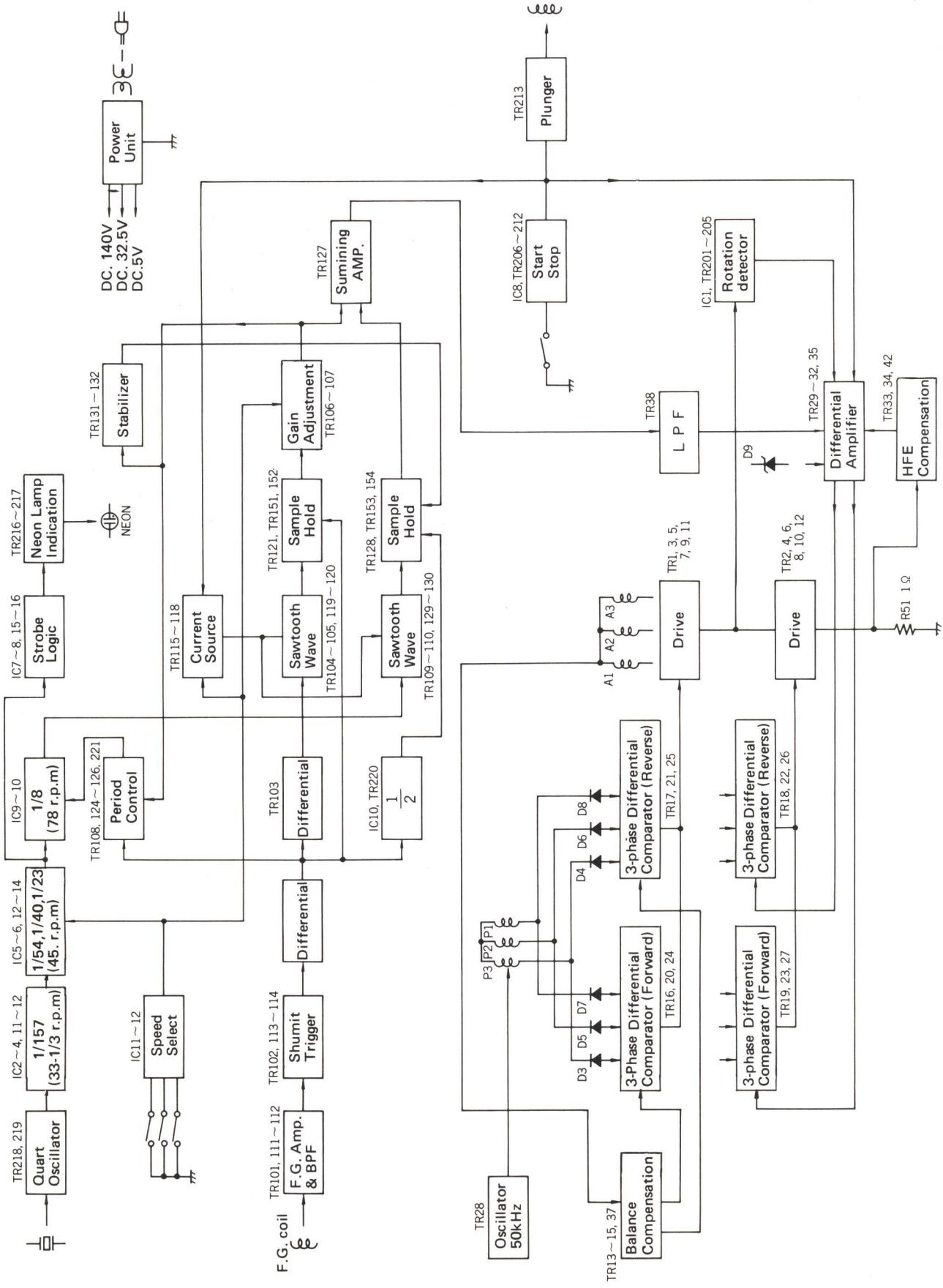
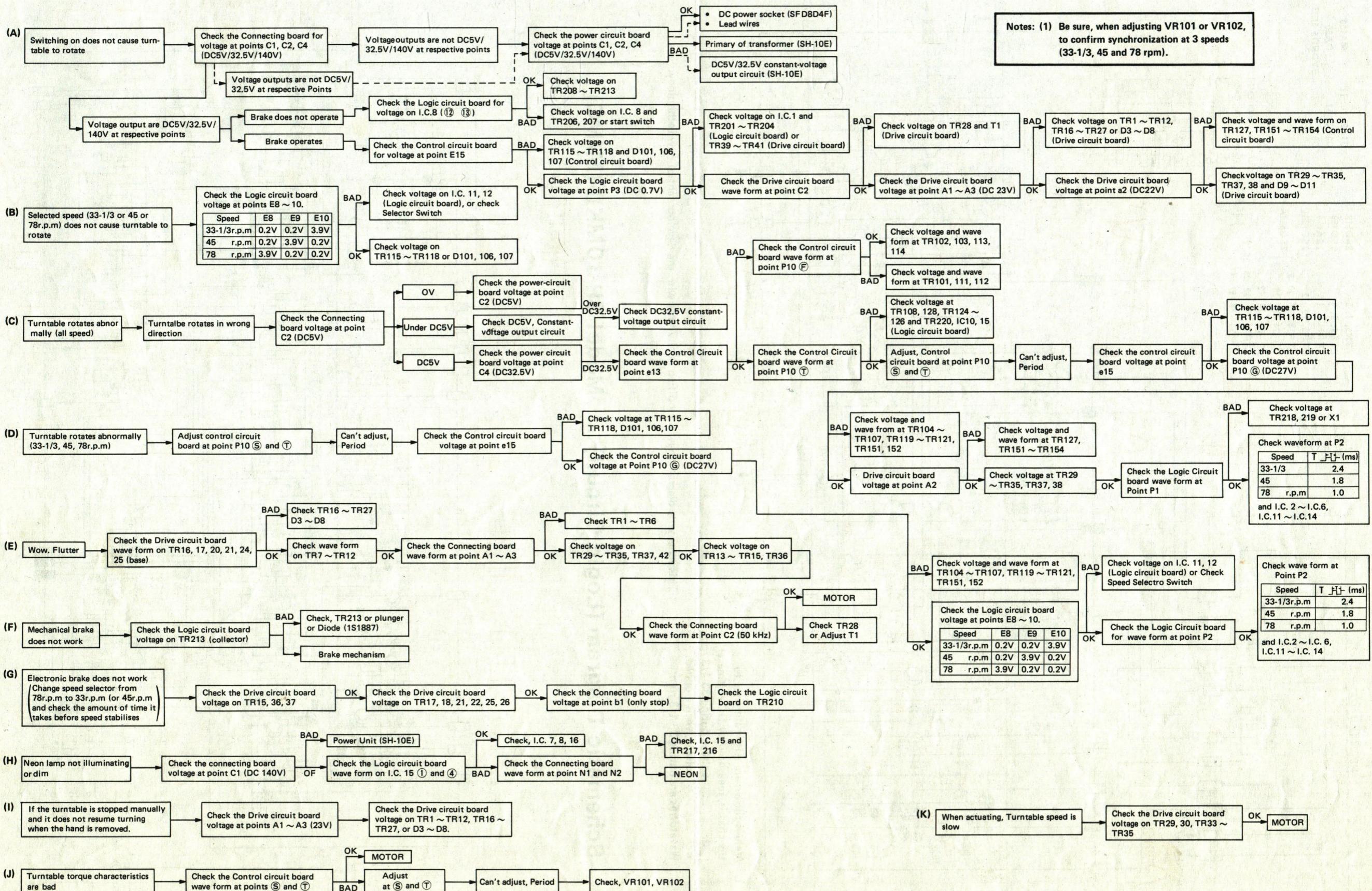
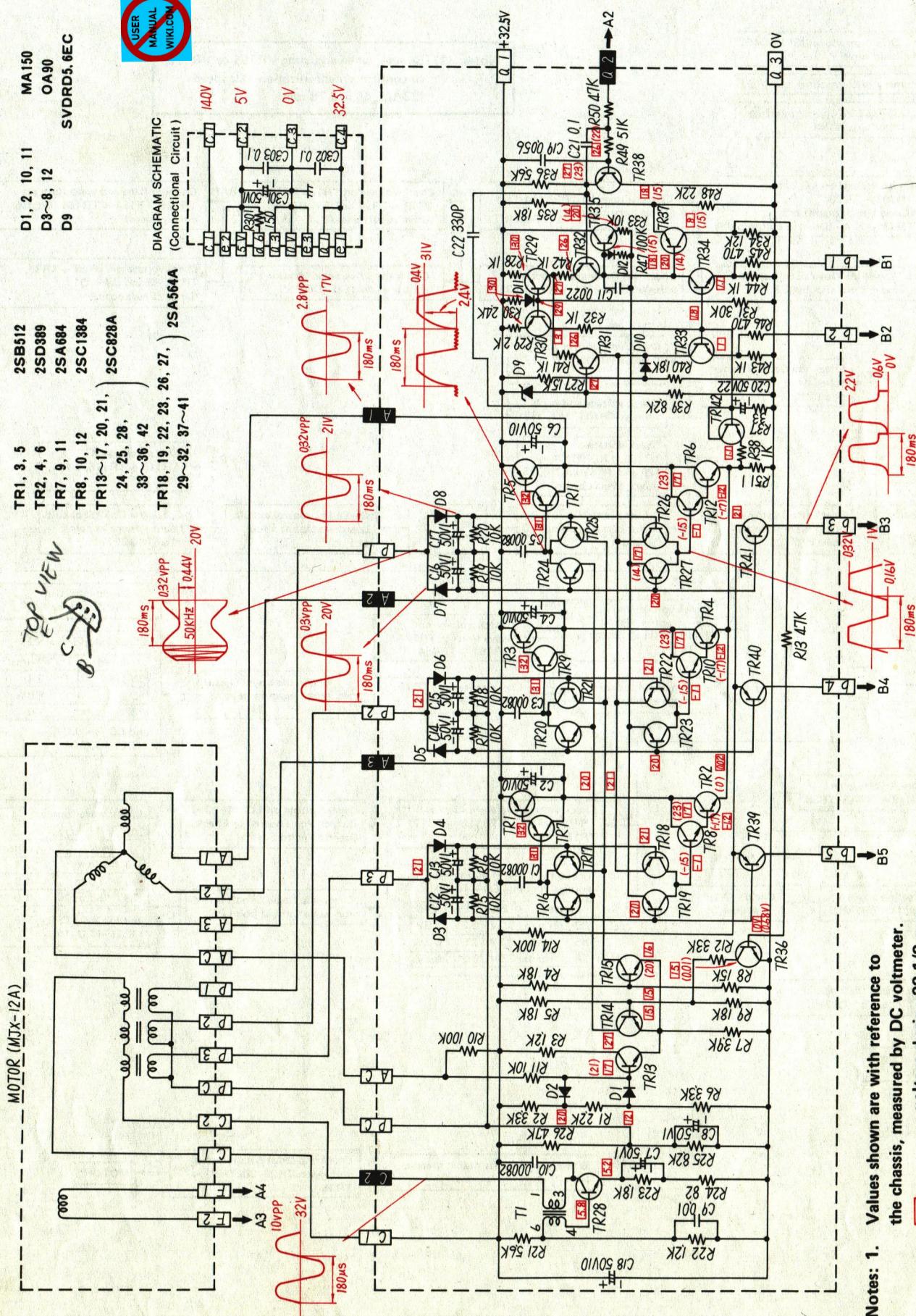


Fig. 15

## ■ SERVICE CHECK POINTS



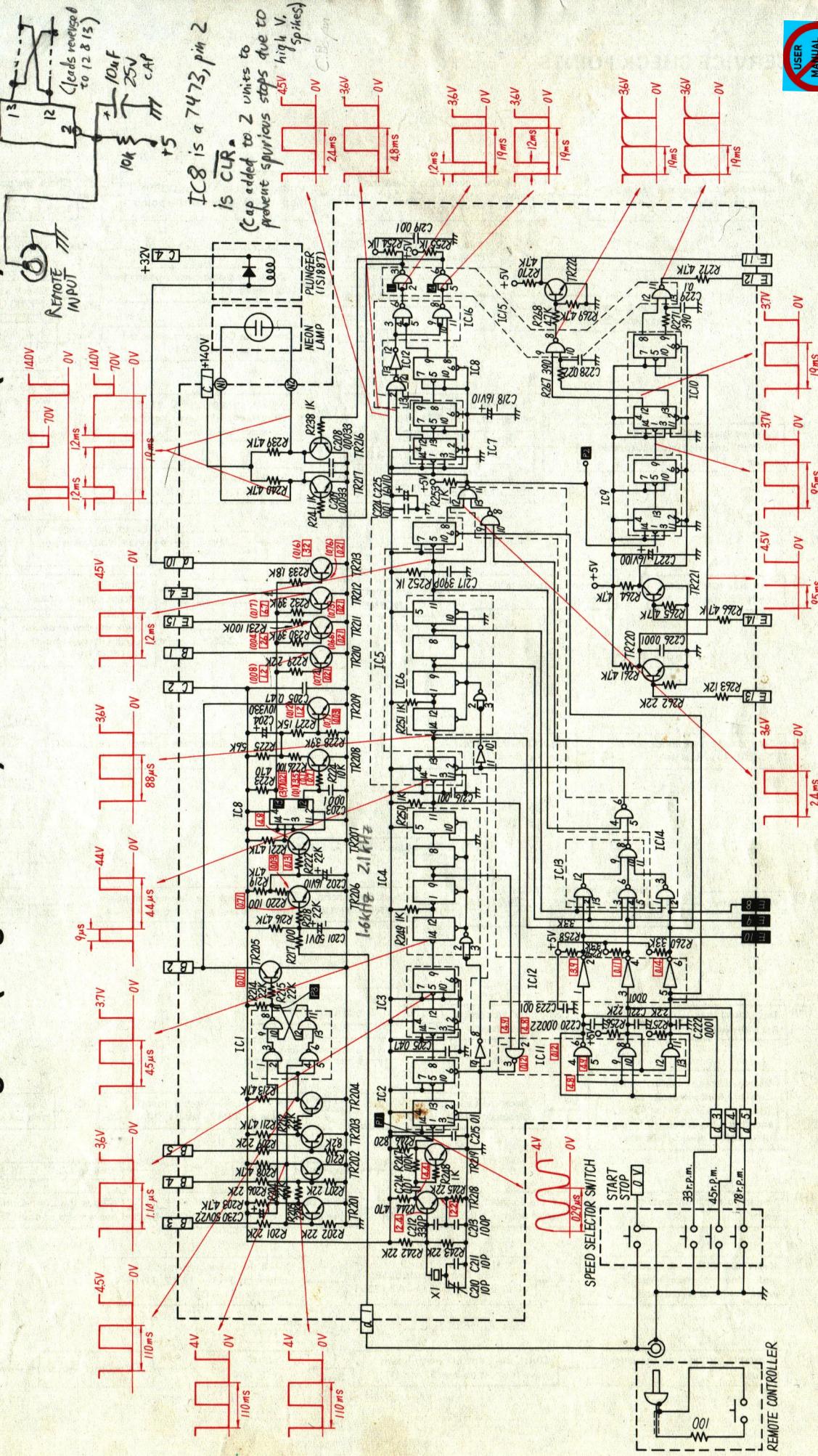
# Schematic Diagram (Drive Circuit) ..... Model SP-10MKII-(M/MC)



Modified 3/78

as follows:

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

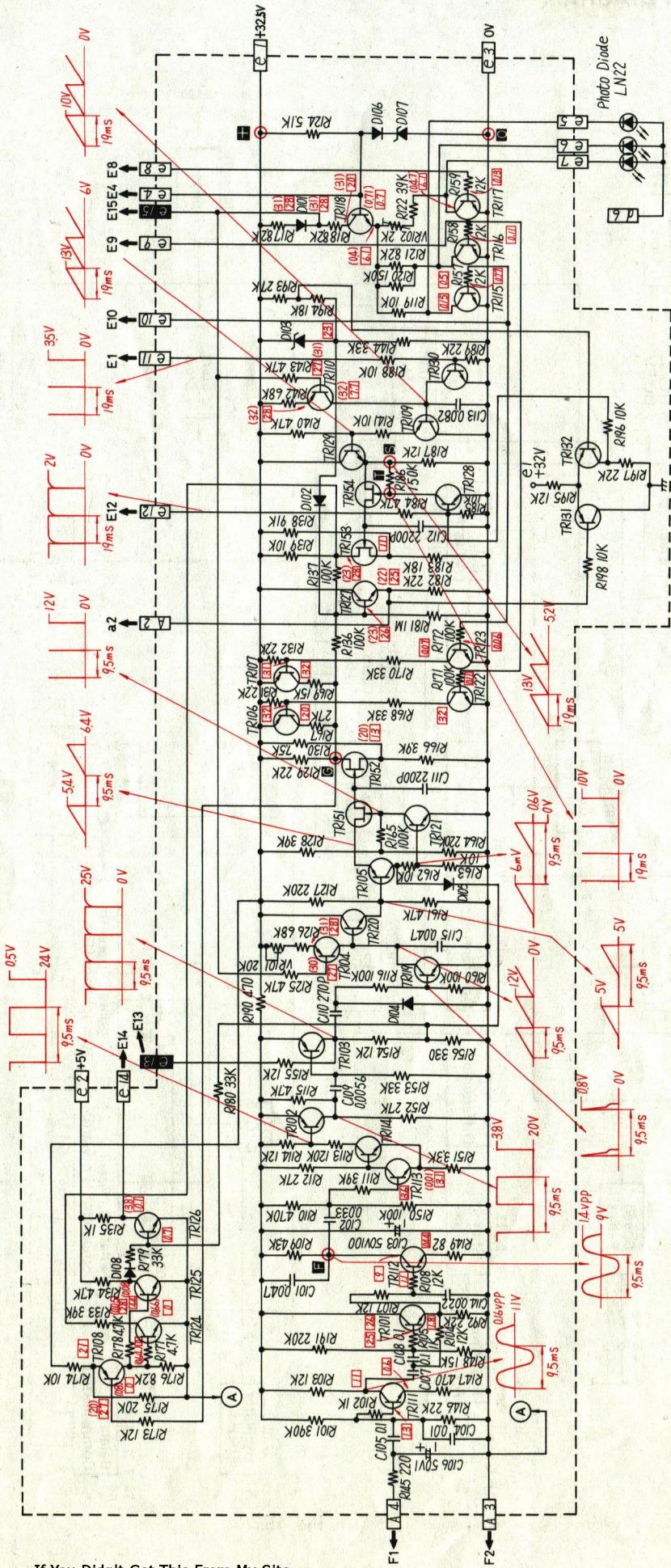


- Notes: 1. Values shown are with reference to the chassis, measured by DC voltmeter.**
- ..... voltage during 33-1/3 rpm.
  - ..... voltage when stopped.
  - Waveforms are during 33-1/3 rpm.

|          | SVIM53200P         | TR201~212  | 2SC828A |
|----------|--------------------|------------|---------|
| IC1      | IC2, 3, 5, 7, 8, 9 | SVIM53273P | 218~222 |
| IC4, 6   | SVIM53293P         | TR213      | 2SC1384 |
| IC11     | SVIM5346P          | 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)



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**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 | TR101, 111~130 | TR151~154 | D101, 102, 104, 105, 106, 108 | D103 | D107 |
| 132            | 130            | 154       | 108                           | 107  |      |

2SA564A  
2SC828A  
2SK30A  
MA150  
SVDRD9.  
SVDRD5.

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



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

Printed circuit board pattern seen from above.

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

|          |  |       |   |   |  |   |     |  |   |     |
|----------|--|-------|---|---|--|---|-----|--|---|-----|
| TRI. 3.5 | <table border="1"> <tr> <td>START</td><td>E</td><td>—</td></tr> <tr> <td></td><td>C</td><td>17V</td></tr> <tr> <td></td><td>B</td><td>32V</td></tr> </table> | START | E | — |  | C | 17V |  | B | 32V |
| START    | E  | —     |   |   |  |   |     |  |   |     |
|          | C  | 17V   |   |   |  |   |     |  |   |     |
|          | B  | 32V   |   |   |  |   |     |  |   |     |

TR2.4.6

|   | START | STOP  |
|---|-------|-------|
| E | 0.02V | 0V    |
| C | 17V   | 23V   |
| B | -1.2V | -1.7V |

TR8, 10, 12

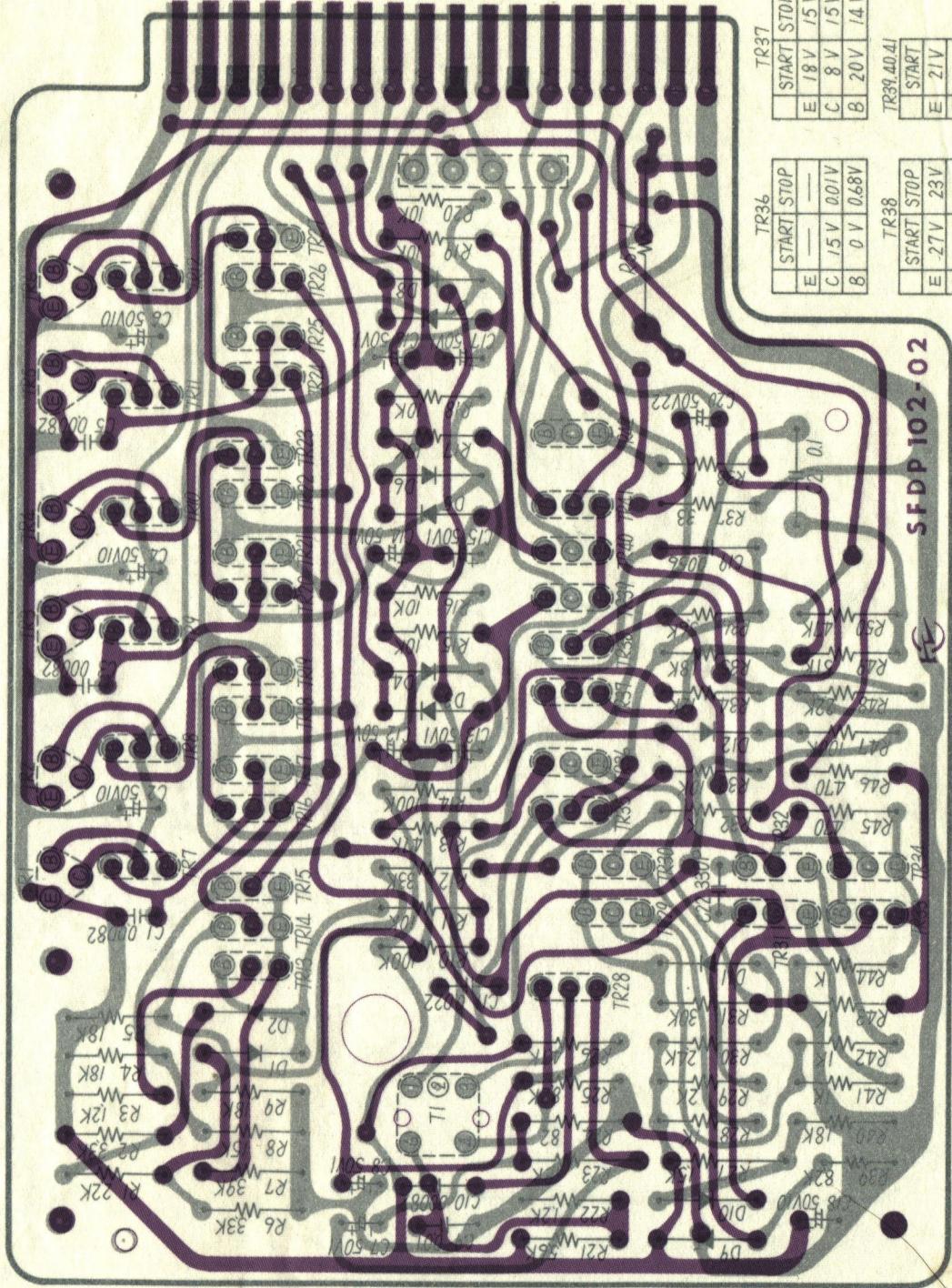
|            |       |      |      |   |
|------------|-------|------|------|---|
| <i>TR4</i> | START | E    | C    | B |
|            | 16 V  | 20 V | 15 V |   |
|            |       |      |      |   |
| <i>TR3</i> | START | E    | C    | B |
|            | 16 V  | 27 V | 17 V |   |
|            |       |      |      |   |

|          |       |       |
|----------|-------|-------|
| TR/5     | START |       |
|          | E     | 16 V  |
|          | C     | 21 V  |
|          | B     | 1.5 V |
| TR/6, 20 | START |       |
|          | E     | 20 V  |
|          | C     | 3 V   |
|          | B     | 20 V  |

|        |       |       |
|--------|-------|-------|
| R11,21 | START | START |
|        | E     | 20V   |
|        | C     | 31V   |
|        | B     | 20V   |

|   |     |      |
|---|-----|------|
| 1 | 100 | 22   |
| E | 17V | STOP |
| C | -1V | -15V |
| B | 21V | -    |

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



|      |       |   |     |
|------|-------|---|-----|
| TR25 | START | E | 21V |
|      | E     | C | 31V |
|      | C     | — | —   |
|      | —     | B | B   |

| <i>TR26</i> | <i>START</i> | <i>STOP</i> |
|-------------|--------------|-------------|
| E           | 17V          | 14V         |
| C           | -1V          | 1.5V        |
| B           | —            | —           |

|      |       |        |
|------|-------|--------|
| TR27 | START | STOP   |
| E    | 17V   | 14V    |
| C    | - / V | - / 5V |
| B    | 20V   | -      |

|      |       |   |     |
|------|-------|---|-----|
| TR30 | START | E | 30V |
|      | E     | C | 3V  |
|      | C     | B | 29V |
|      | B     |   |     |

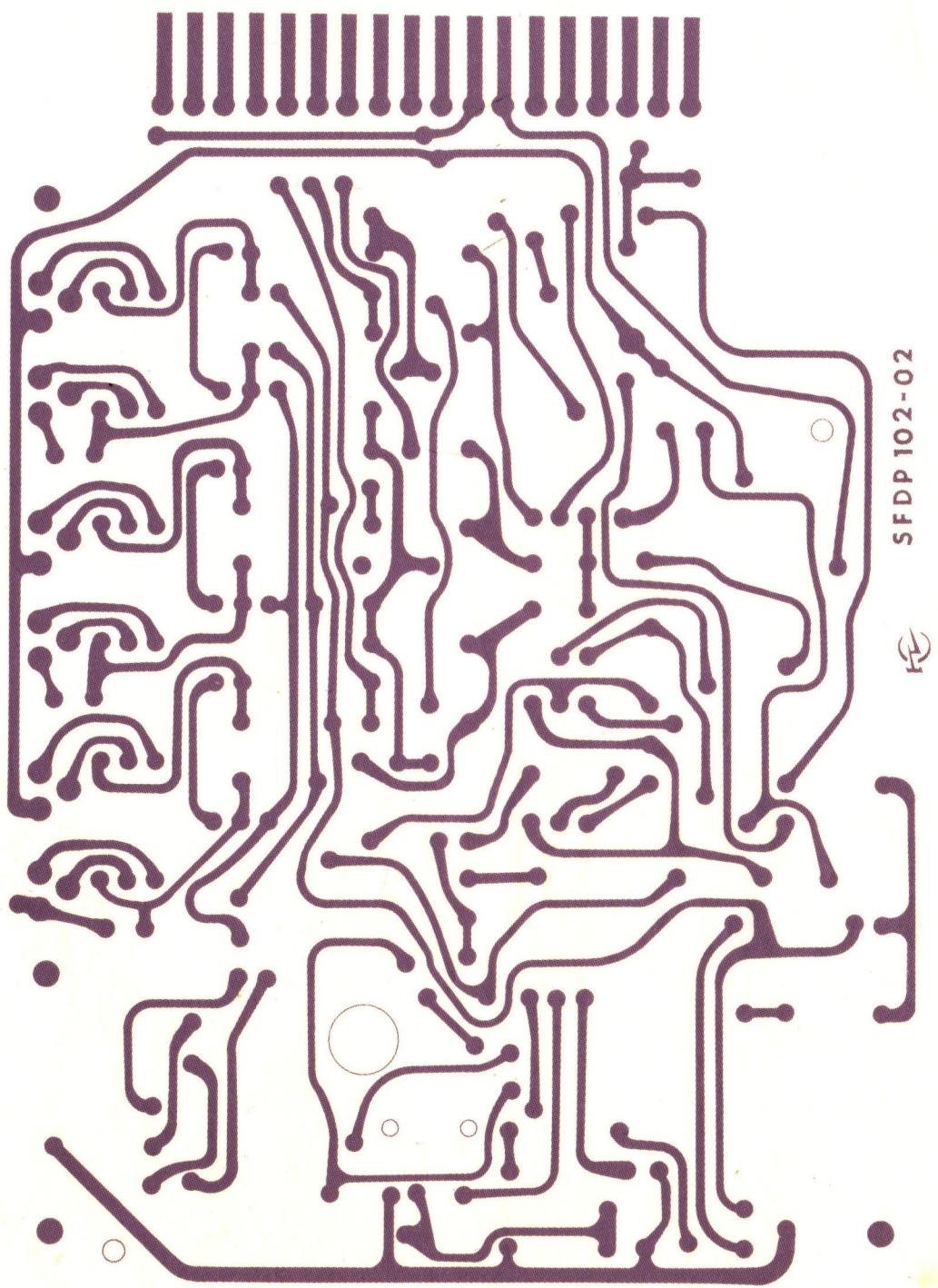
|     |       |   |     |
|-----|-------|---|-----|
| R33 | START | E | I   |
|     | 26V   | C | 7V  |
|     | 17V   | B | 27V |
|     | 8V    |   |     |

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

|           |              |
|-----------|--------------|
| $I_{R34}$ | $I_{R42}$    |
|           | <b>START</b> |
| E         | 1.1 V        |
| C         | 20 V         |
| B         | 1.8 V        |

|   | START | STOP |
|---|-------|------|
| E | 20 V  | 14 V |
| C | —     | —    |
| B | 18 V  | 15 V |

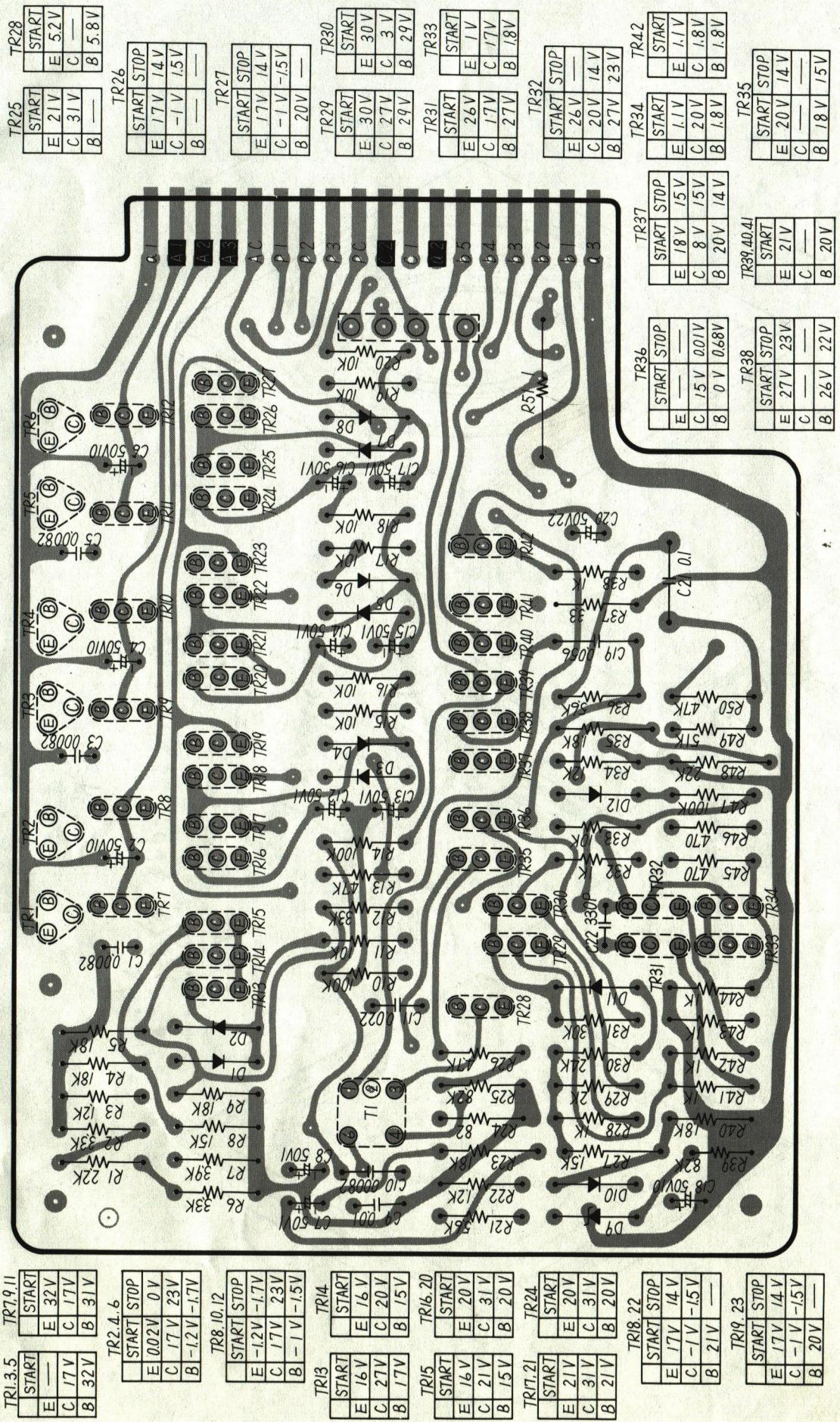
SFDP 102-02



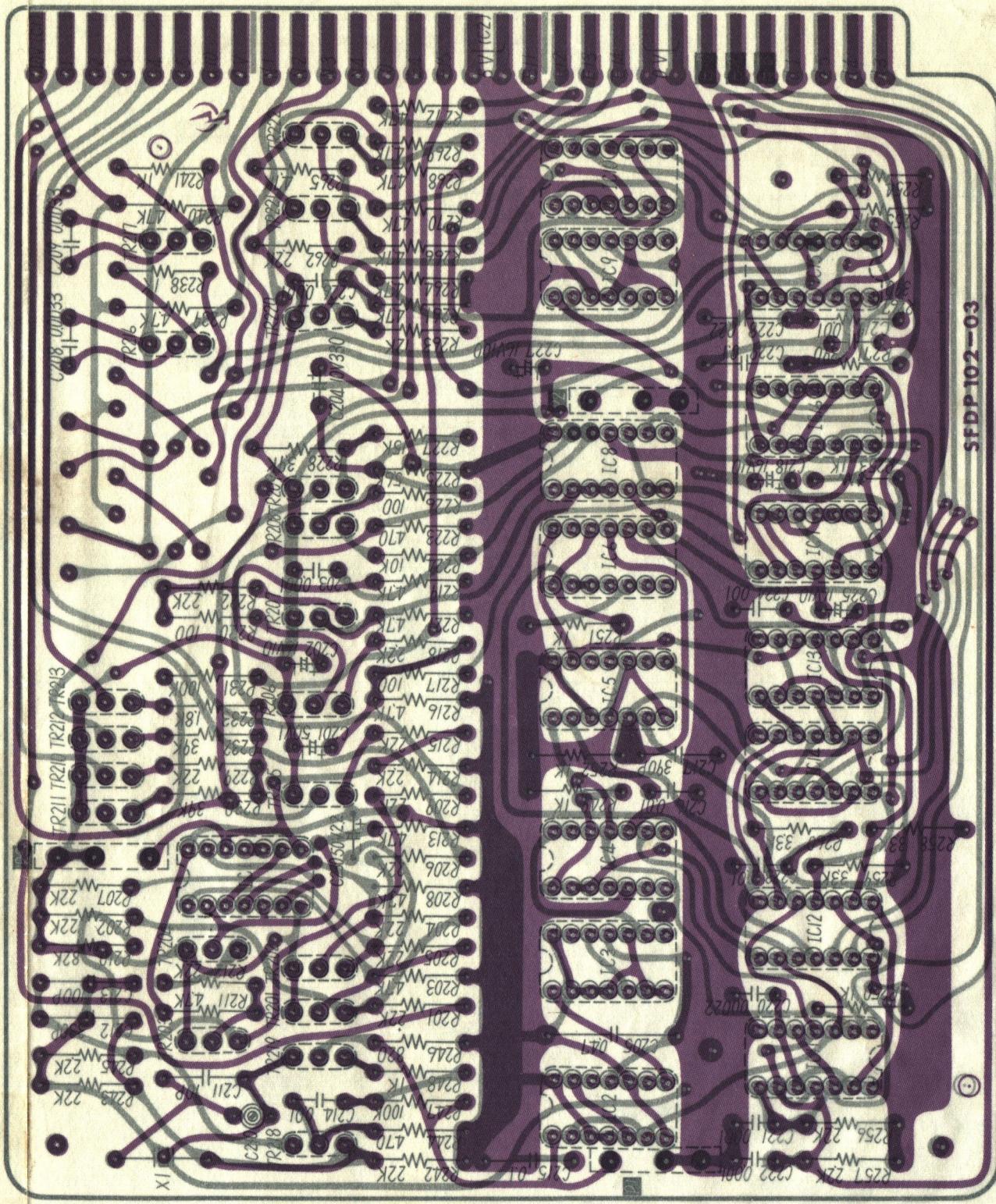
Drive Circuit Printed Circuit Board - Component Side

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

Printed circuit board pattern seen from below.



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



|       |       |       |
|-------|-------|-------|
| TR205 | START | —     |
|       | E     | —     |
|       | C     | 0.01V |
|       | B     | —     |

|       |       |       |
|-------|-------|-------|
| TR206 | START | —     |
|       | E     | —     |
|       | C     | 0.03V |
|       | B     | 0.71V |

|   |             |              |
|---|-------------|--------------|
|   | <i>IC12</i> | <i>TR207</i> |
|   | START       | —            |
| 2 | 3.9V        | E            |
| 4 | 0.1V        | C            |
| 6 | 0.4V        | B            |
|   |             | 0.3V         |

T C 8

|     | START  | STOP  |
|-----|--------|-------|
| 1/2 | 35 V   | 0.1 V |
| 1/3 | 0.21 V | 3.9 V |

π0300

|   | START  | STOP   |
|---|--------|--------|
| E | —      | —      |
| C | 1.2 V  | 0.12 V |
| B | 0.03 V | 0.7 V  |

T0210

| $E$ | START | STOP   |
|-----|-------|--------|
| C   | 1.2 V | 0.08 V |
| B   | 0.2 V | 0.72 V |
| E   | —     | —      |

T021

|   | START | STOP  |
|---|-------|-------|
| E | —     | —     |
| C | 26 V  | 004 V |
| B | 021 V | 066 V |

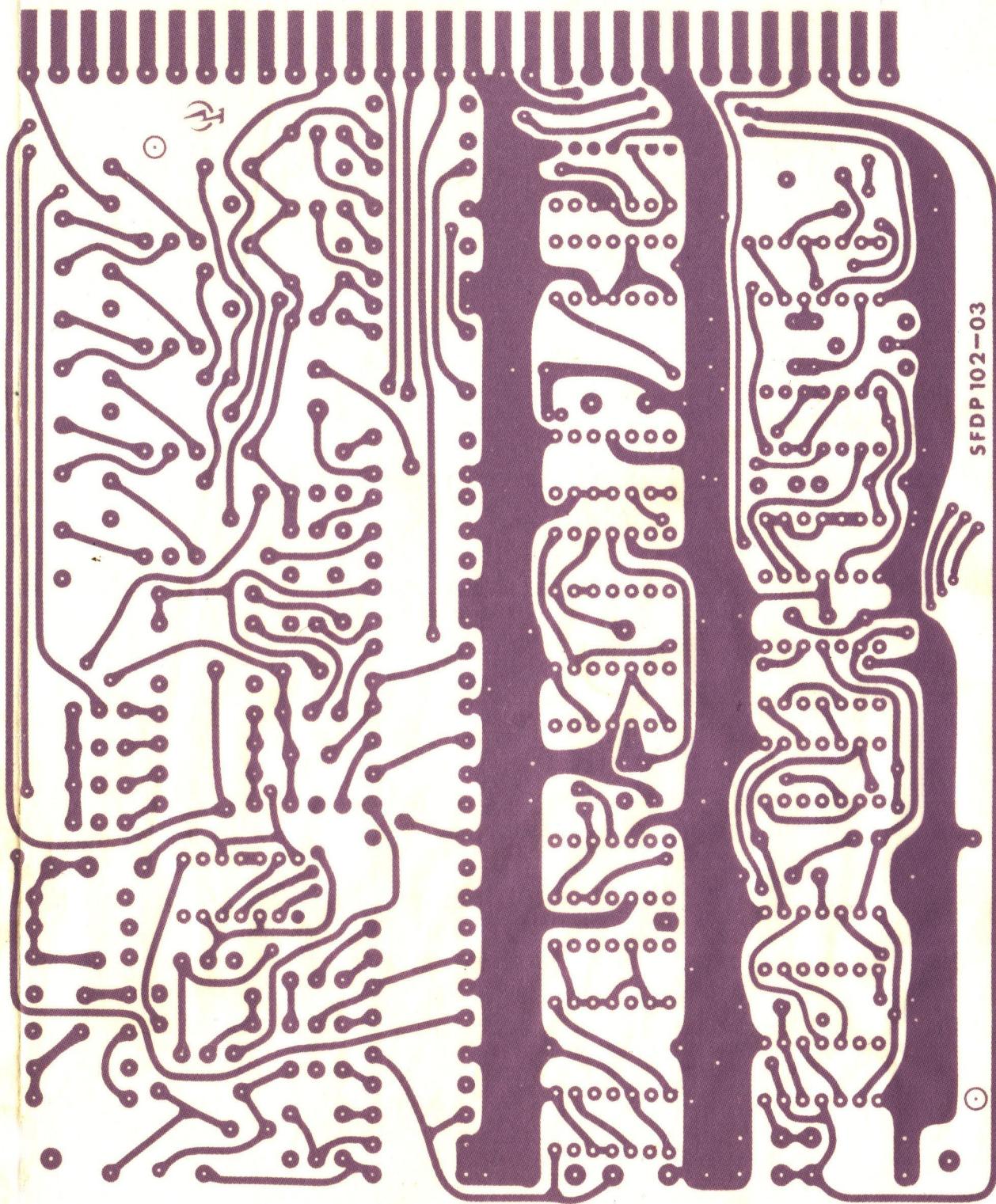
202

|   | START | STOP |
|---|-------|------|
| E | —     | —    |
| C | 6.7V  | 0.7V |
| B | 021V  | 073V |

T0212

| $\lambda_{Z13}$ | START  | STOP   |  |
|-----------------|--------|--------|--|
| E               | —      | —      |  |
| C               | 32 V   | 0.16 V |  |
| B               | 0.21 V | 0.76 V |  |

Logic Circuit Printed Circuit Board - Component Side



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

|              |              |              |
|--------------|--------------|--------------|
| <i>TR205</i> | <i>TR206</i> | <i>TR207</i> |
| <i>START</i> | <i>START</i> | <i>START</i> |
| E            | —            | E            |
| C            | 0.01V        | C            |
| B            | —            | 0.3V         |
| <i>IC12</i>  |              |              |
| <i>START</i> |              | <i>START</i> |
| 2            | 3.9V         | E            |
| 4            | 0.1V         | C            |
| 6            | 0.4V         | 4.8V         |

| IC 8 | START | STOP |
|------|-------|------|
| 1/2  | 3.5V  | 0.1V |
| 1/3  | 0.21V | 3.9V |

|              |              |             |
|--------------|--------------|-------------|
| <i>TR209</i> | <i>START</i> | <i>STOP</i> |
| E            | —            | —           |
| C            | 1.2 V        | 0.12 V      |
| B            | 0.03 V       | 0.7 V       |

| $T_{R210}$ | START   | STOP |
|------------|---------|------|
| E          | —       | —    |
| C          | 1.2 V   | 0.08 |
| B          | 0.021 V | 0.72 |

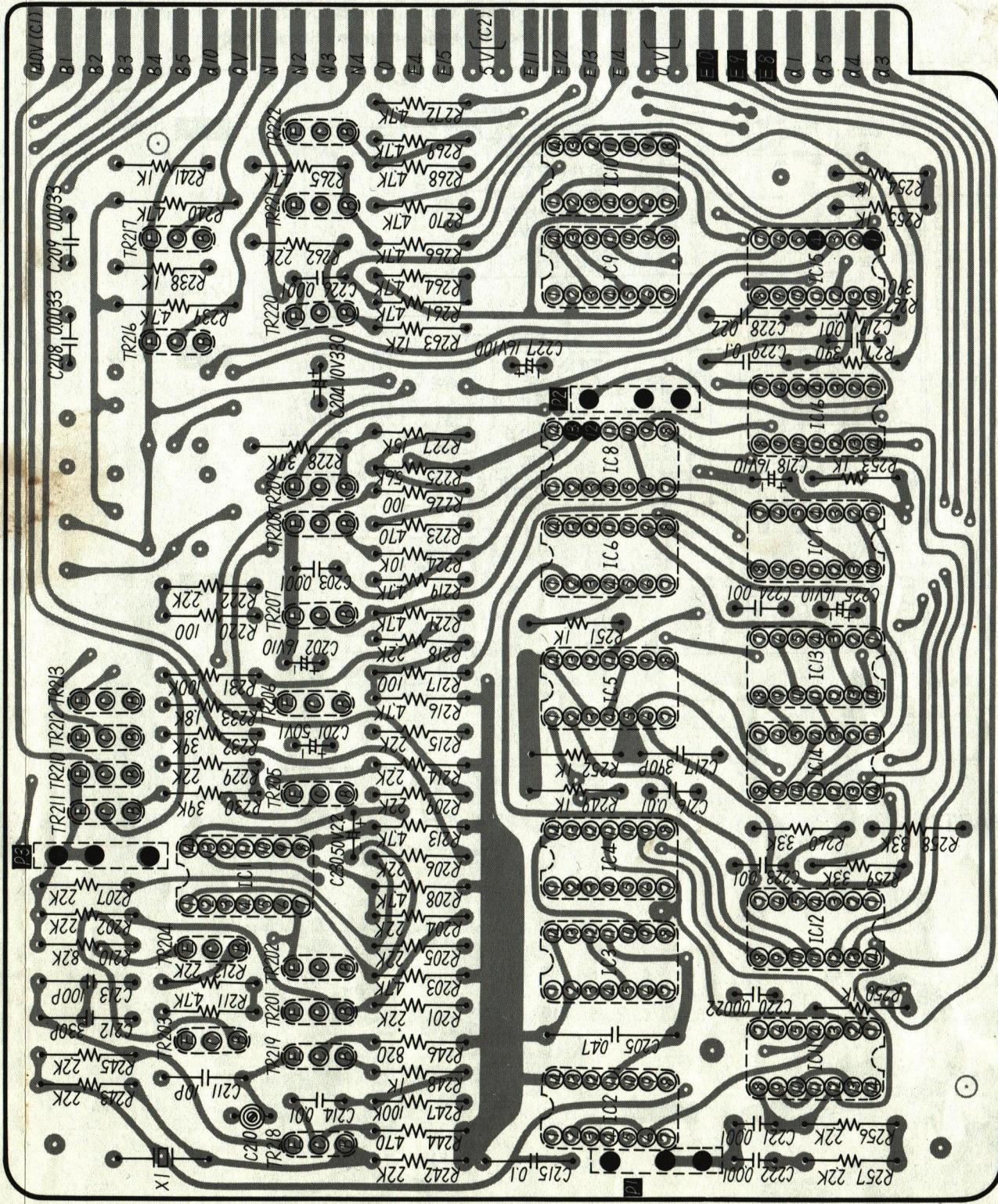
|              |              |             |
|--------------|--------------|-------------|
| <i>TR211</i> | <i>START</i> | <i>STOP</i> |
| E            | —            | —           |
| C            | 26V          | 004V        |
| B            | 021V         | 064V        |

| TR2/2 |       |
|-------|-------|
|       | STOP  |
| START | —     |
| E     | —     |
| C     | 6.7V  |
| B     | 0.21V |

| <i>TR213</i> | <i>START</i> | <i>STOP</i> |
|--------------|--------------|-------------|
| E            | —            | —           |
| C            | 32V          | 0.6V        |
| B            | 0.21V        | 0.76V       |

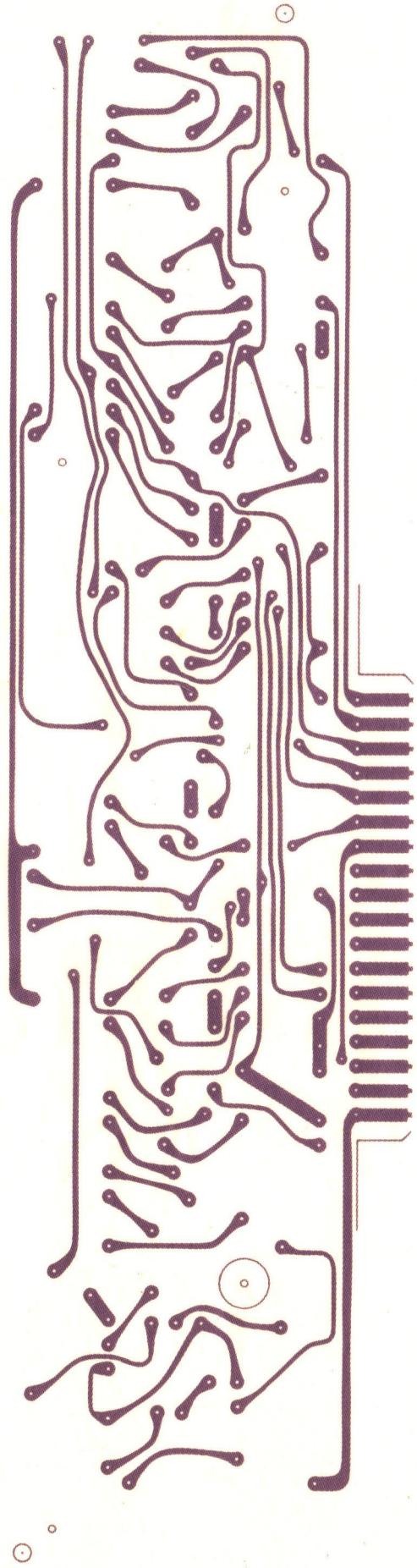
| <i>TR218</i> | <i>START</i> |  |
|--------------|--------------|--|
| E            | 2.2V         |  |
| C            | 4.4V         |  |
| B            | 24V          |  |



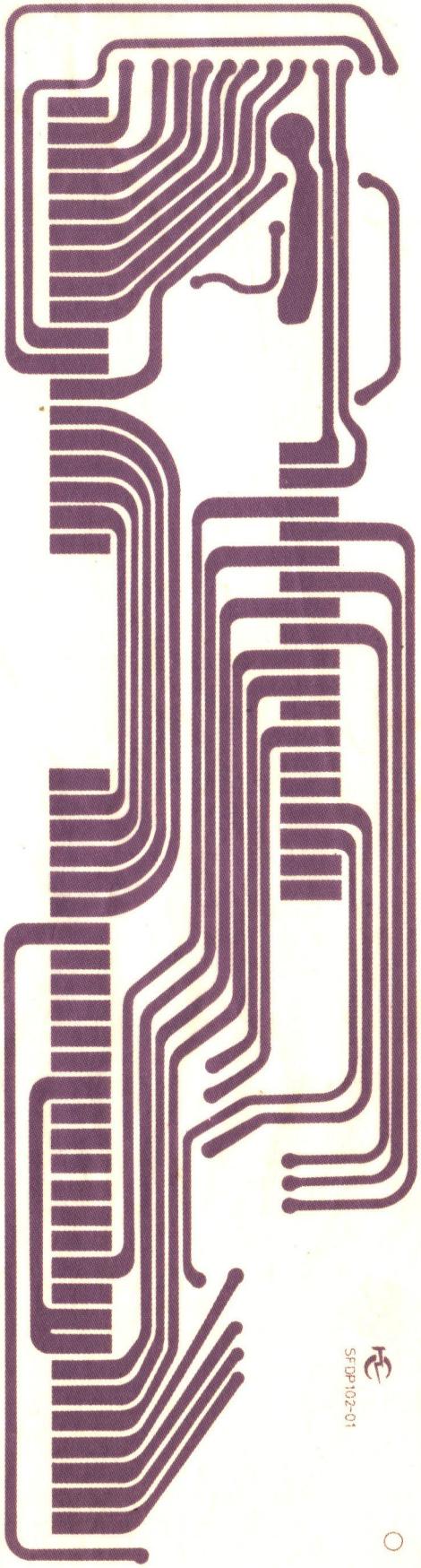
Logic Circuit Printed Circuit Board - Trace Side



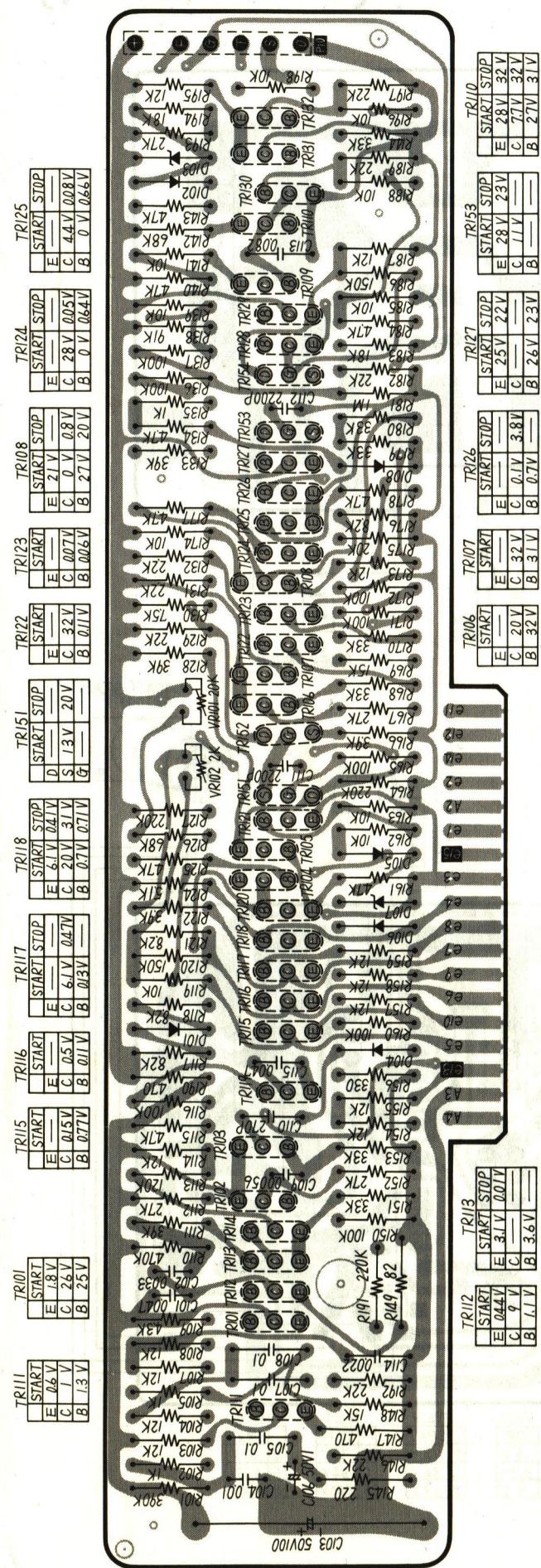
Control Circuit Board - Component Side



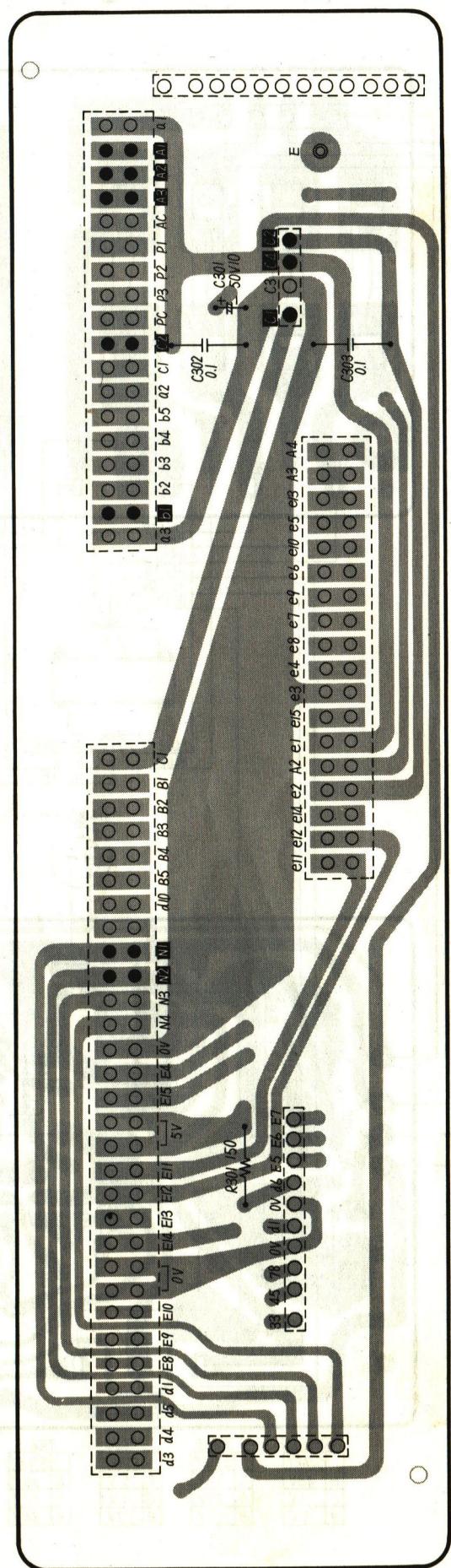
Connectional Circuit Board - Component Side



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

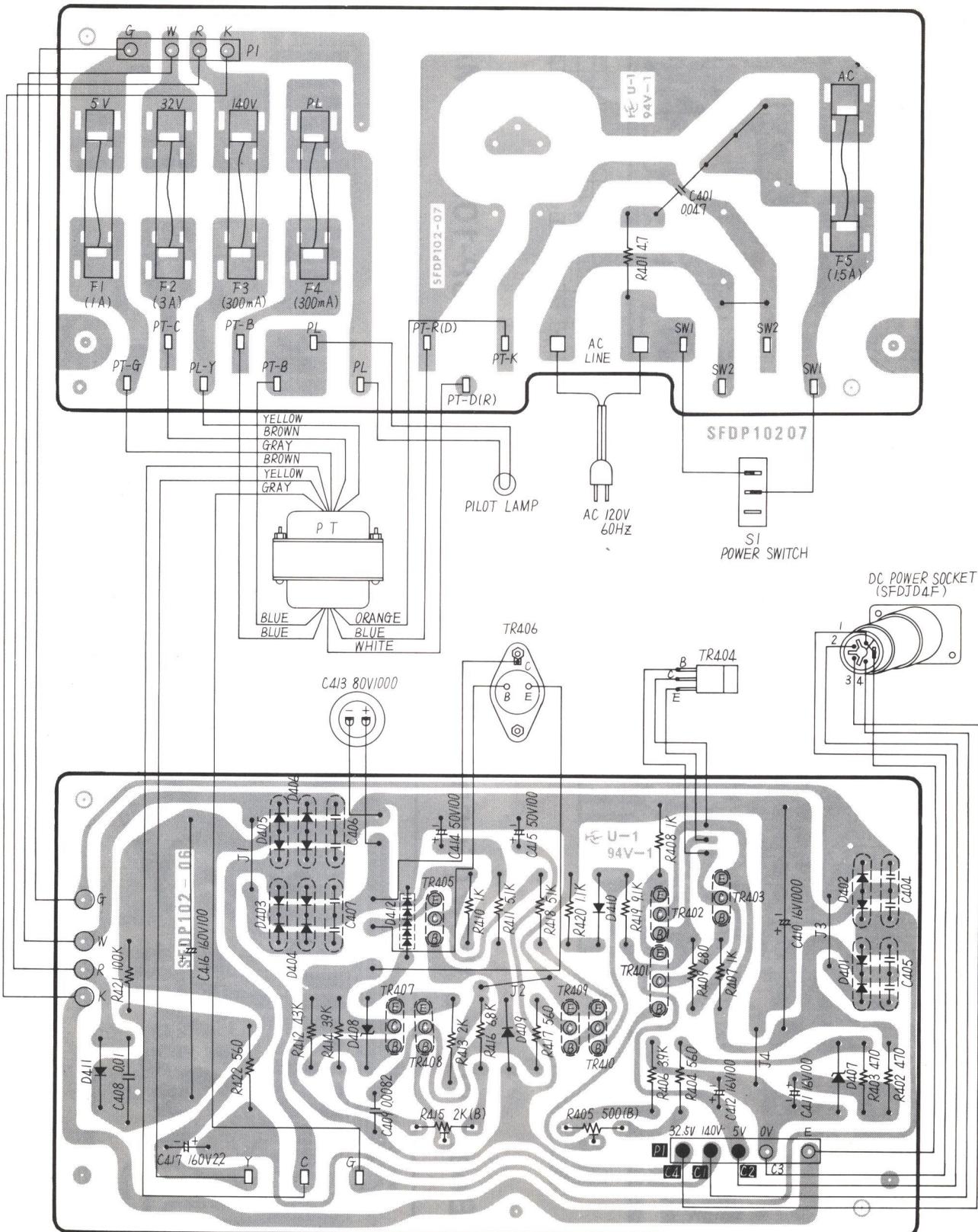


## Circuit Board Wiring View (Connectional Circuit) ..... Model SP-10MKII-(M/MC)



# Control Circuit and Connection Circuit Printed Circuit Boards - Trace Side

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



|       |   |     |
|-------|---|-----|
| START | E | 43V |
| START | E | 11V |
| START | C | 11V |
| START | B | 5V  |

|       |   |      |
|-------|---|------|
| START | E | 11V  |
| START | C | 5.7V |
| START | B | 11V  |

|       |   |       |
|-------|---|-------|
| START | E | 5 V   |
| START | C | 11 V  |
| START | B | 5.7 V |

|       |   |      |
|-------|---|------|
| START | E | 33 V |
| START | C | 51 V |
| START | B | 34 V |

|       |   |       |
|-------|---|-------|
| START | E | 325 V |
| START | C | 48 V  |
| START | B | 33 V  |

|       |   |      |
|-------|---|------|
| START | E | 18 V |
| START | C | 34 V |
| START | B | 19 V |

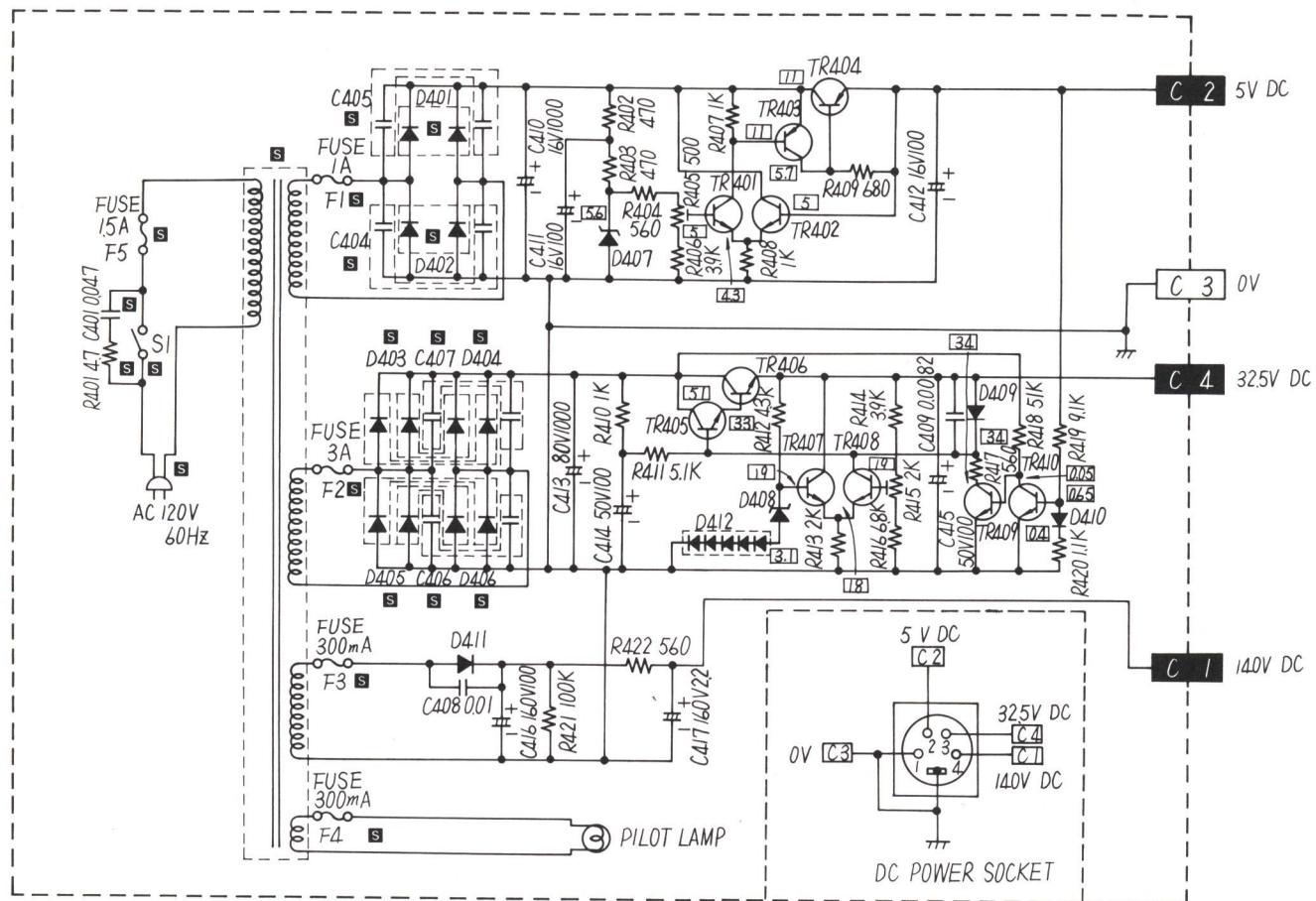
|       |   |      |
|-------|---|------|
| START | E | 18 V |
| START | C | 34 V |
| START | B | 19 V |

|       |   |        |
|-------|---|--------|
| START | E | 3.1 V  |
| START | C | 34 V   |
| START | B | 0.05 V |

|       |   |        |
|-------|---|--------|
| START | E | 3.1 V  |
| START | C | 0.05 V |
| START | B | 0.65 V |

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

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



## ■ PACKING PARTS

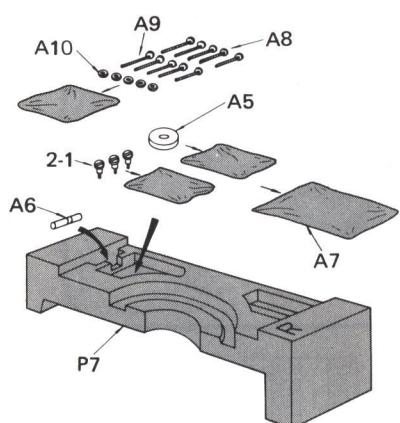


Fig. 16

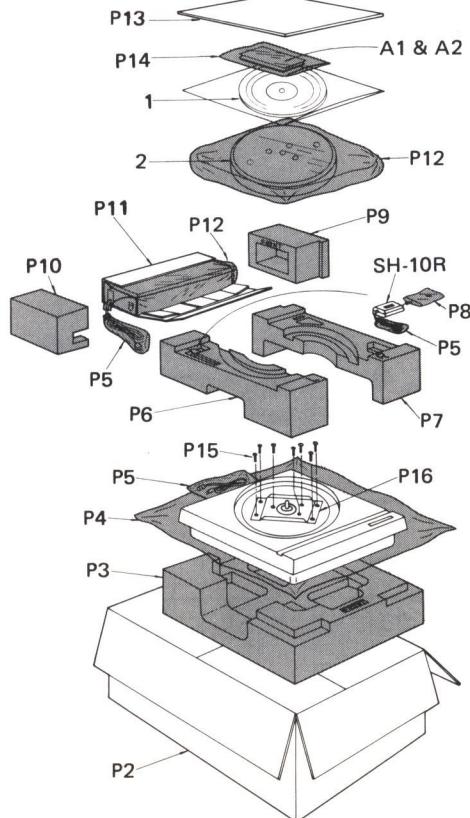


Fig. 17

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

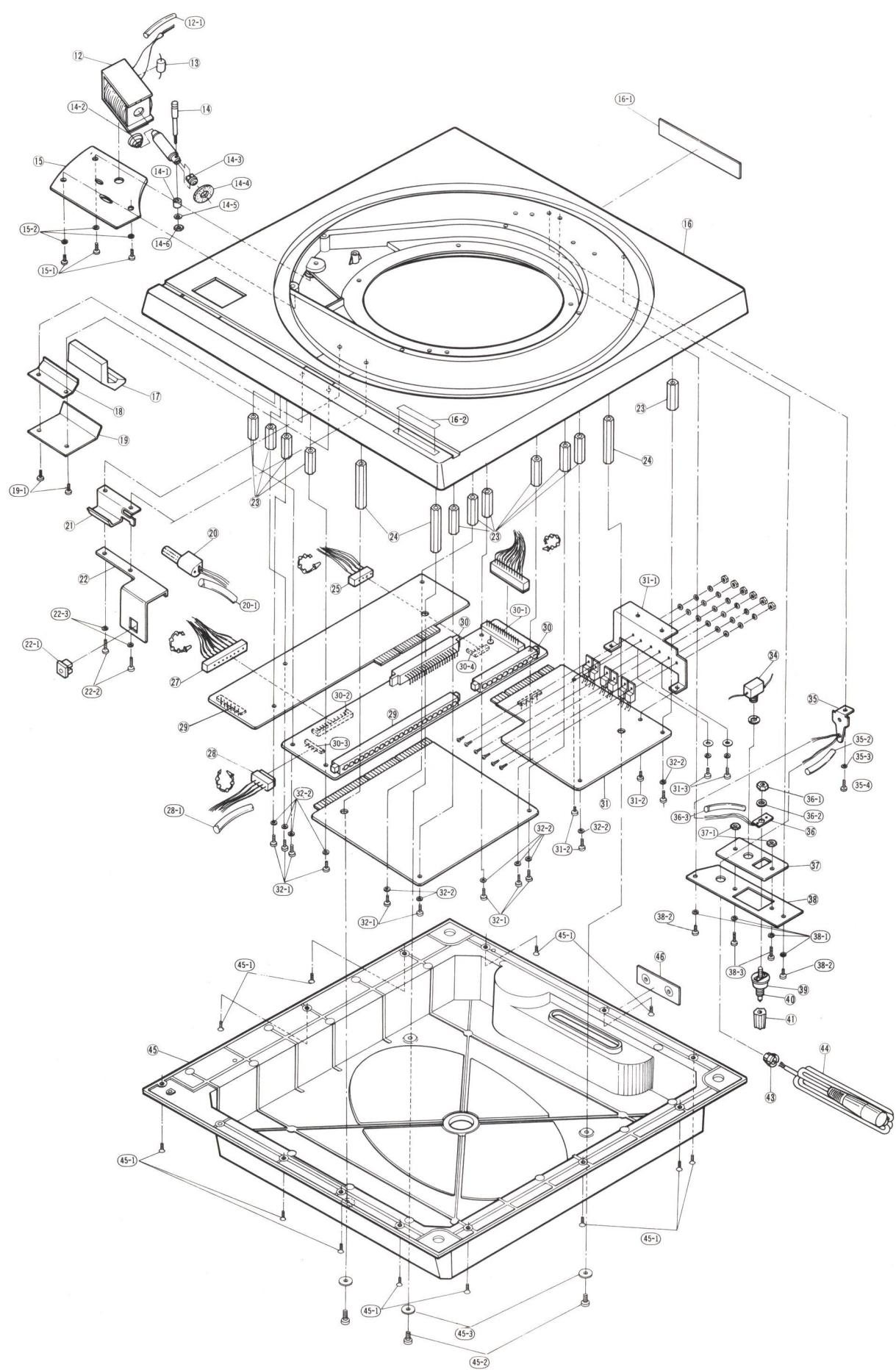


Fig. 18

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

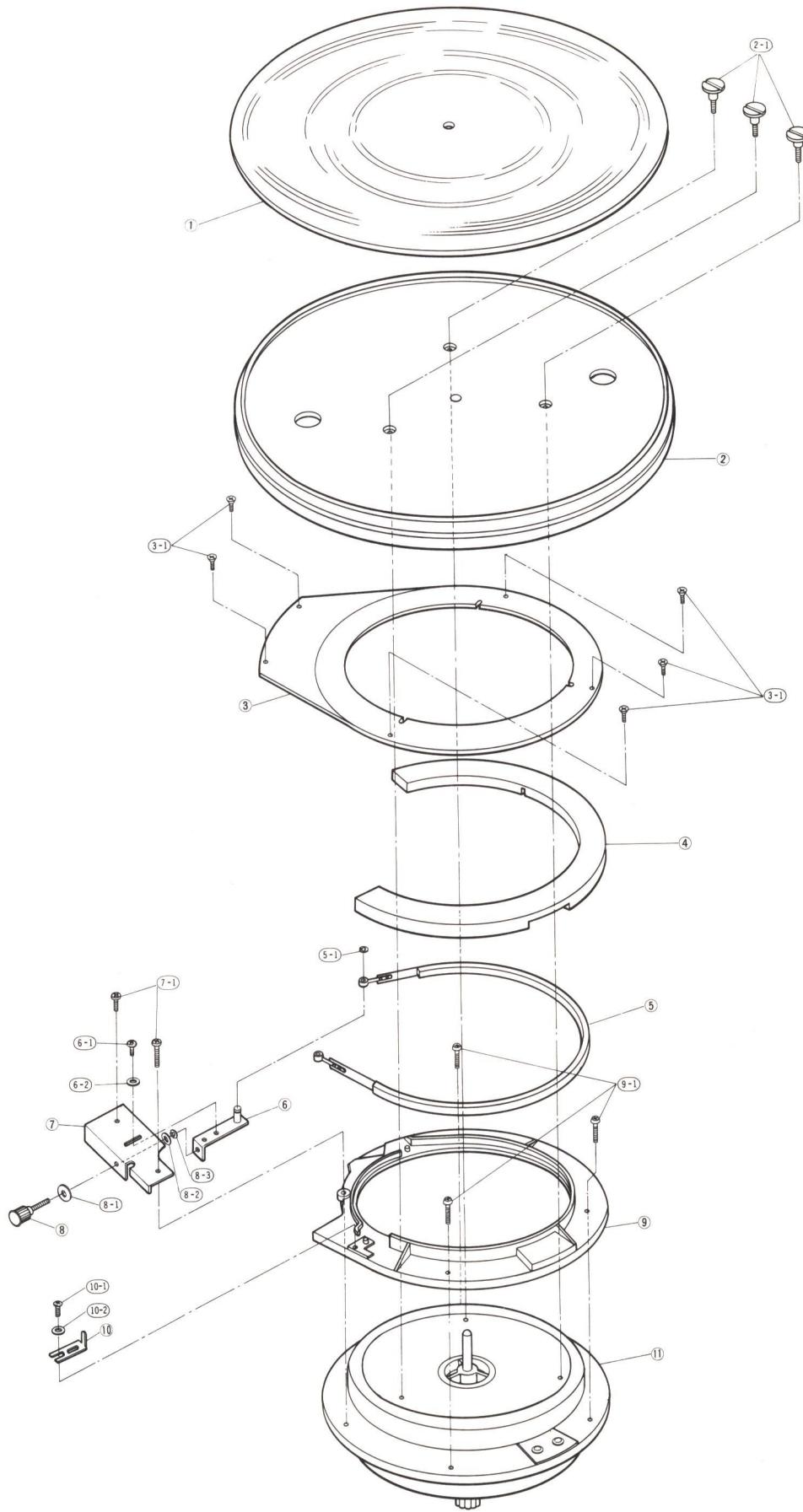


Fig. 19

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

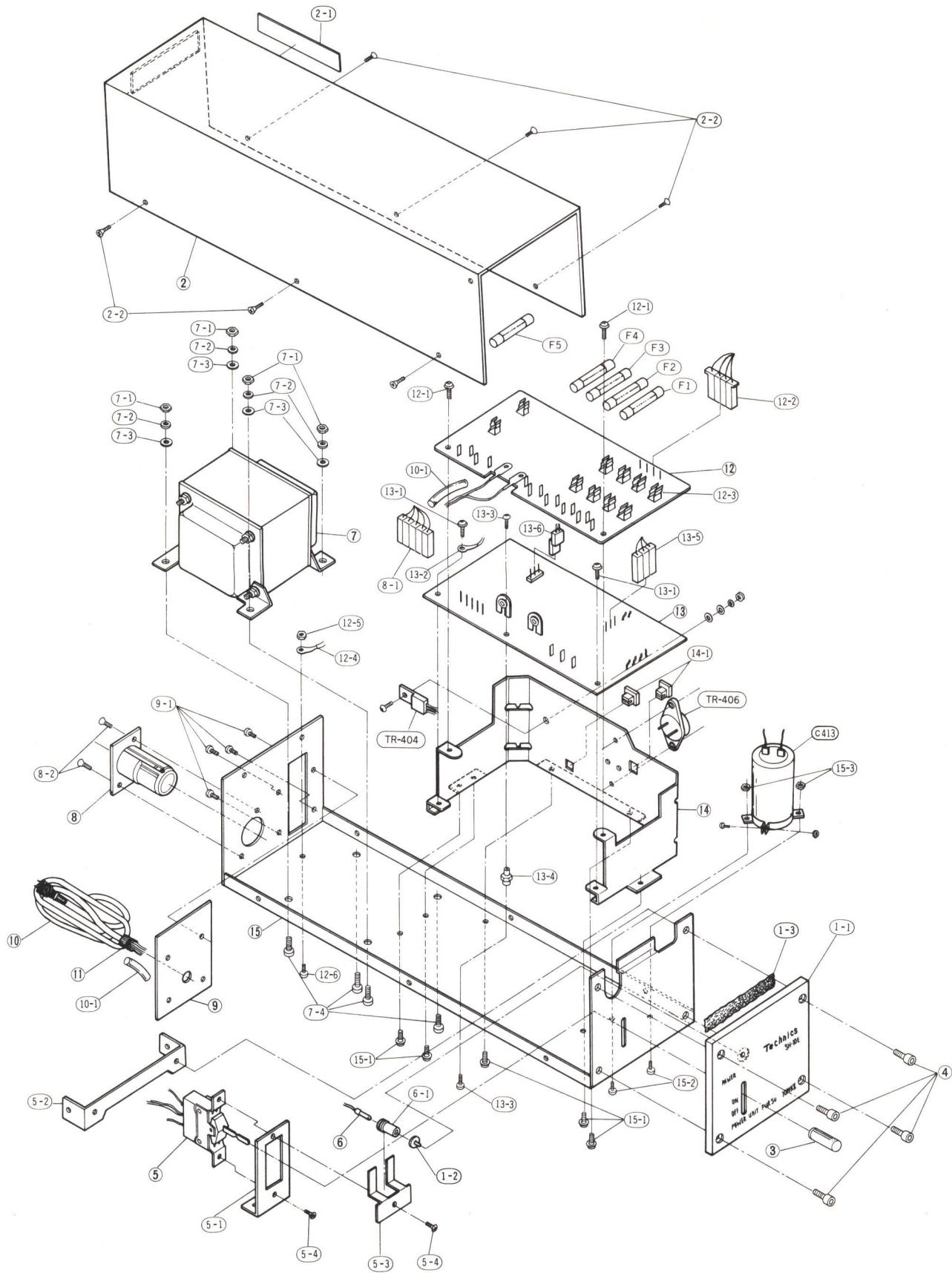


Fig. 20

# Exploded View of Remote Control .....

## Model SH-10R-(M/MC)

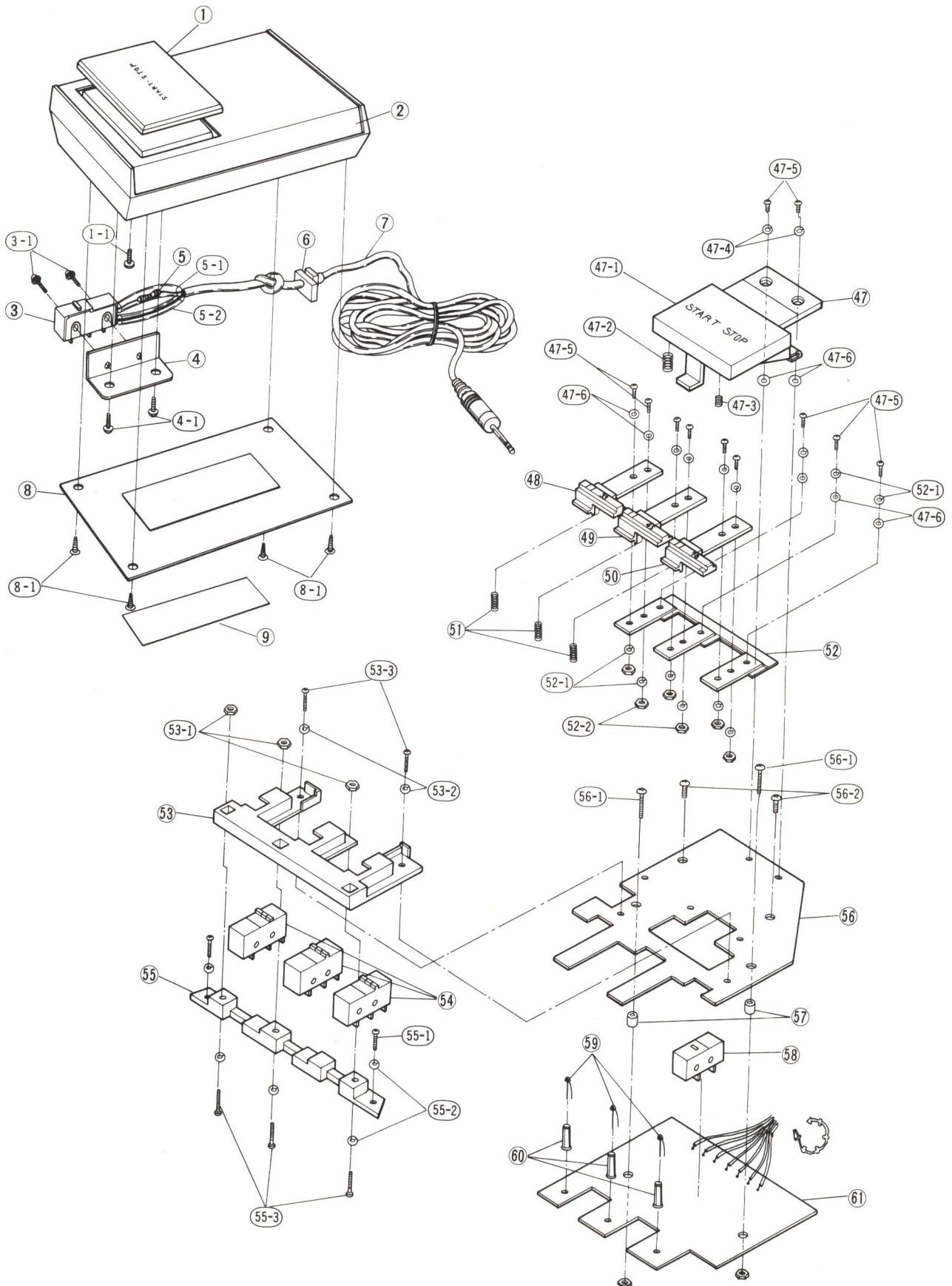


Fig. 21

If You Didn't Get This From My Site,  
Then It Was Stolen From...

[www.SteamPoweredRadio.Com](http://www.SteamPoweredRadio.Com)

# REPLACEMENT PARTS LIST

NOTES:

1. Part numbers are indicated on most mechanical parts.
2. 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   |
|----------------------------|---------------|-------------------------|------------|-----------|
| <b>DRIVE CIRCUIT BOARD</b> |               |                         |            |           |
| T1                         | ELM10S123     | Transistors             | 3          |           |
| 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          |           |
| TR1~17, 20,                | 2SC1328-T     | Transistors             | 15         |           |
| 21, 24, 25, 28             |               |                         |            |           |
| 33~36, 42                  |               |                         |            |           |
| TR18, 19, 22, 23,          | 2SA666A1R     | Transistors             | 15         |           |
| 27, 29~32,                 |               |                         |            |           |
| 37~41                      |               |                         |            |           |
| Diodes                     |               |                         |            |           |
| D1, 2, 10, 11              | MA150         | Diodes                  | 4          |           |
| D3~8, 12                   | OA90          | Diodes                  | 7          |           |
| D9                         | SVDRD5.6ECS   | Diode                   | 1          |           |
| Transformer                |               |                         |            |           |
| R28, 38, 43, 44            | ER050CKF1001  | Resistors               | 1          |           |
| R29                        | ER050CKF2001  |                         |            |           |
| R51                        | ERX2ANJ1R0    |                         |            |           |
| R37                        | ERD12F13R3    |                         |            |           |
| R24                        | ERD12F13820   |                         |            |           |
| R3, 22                     | ERD12F1J122   |                         |            |           |
| R27                        | ERD50T1J152   |                         |            |           |
| R23, 35, 40                | ERD50T1J182   |                         |            |           |
| R48                        | ERD50T1J222   |                         |            |           |
| R1                         | ERD25T1J222   |                         |            |           |
| R30                        | ERD25T1J242   |                         |            |           |
| R2, 6                      | ERD25T1J332   |                         |            |           |
| R7                         | ERD25T1J392   |                         |            |           |
| R26                        | ERD25T1J472   |                         |            |           |
| R21, 36                    | ERD25T1J562   |                         |            |           |
| R45, 46                    | ERD25T1J471   |                         |            |           |
| R32, 41, 42                | ERD25T1J102   |                         |            |           |
| R25, 39                    | ERD25T1J822   |                         |            |           |
| R11, 15, 16, 17            | ERD25T1J103   |                         |            |           |
| R18, 19, 20, 33            | ERD25T1J104   |                         |            |           |
| R34                        | ERD25T1J23    |                         |            |           |
| R8                         | ERD25T1J53    |                         |            |           |
| R4, 5, 9                   | ERD25T1J83    |                         |            |           |
| R31                        | ERD25T1J303   |                         |            |           |
| R12                        | ERD25T1J333   |                         |            |           |
| R13, 50                    | ERD25T1J473   |                         |            |           |
| R49                        | ERD25T1J513   |                         |            |           |
| R10, 14, 47                | ERD25T1J04    |                         |            |           |
| Capacitors                 |               |                         |            |           |
| C22                        | ECQ51331K     | 330pF                   | 125WV ±10% | Styrol    |
| C1, 3, 5, 10               | ECQ50M05827KZ | 0.0082pF                | 50WV ±10%  | Polyester |

| Ref. No.                   | Part No.         | Part Name & Description | Per Set        | Remarks      |
|----------------------------|------------------|-------------------------|----------------|--------------|
| C9                         | ECOM05103KZ      | 0.01μF                  | 50WV ±10%      | Polyester    |
| C11                        | ECOM05223KZ      | 0.022μF                 | 50WV ±10%      | Polyester    |
| C19                        | ECOM05663KZ      | 0.056μF                 | 50WV ±10%      | Polyester    |
| C21                        | ECOM05104KZ      | 0.1μF                   | 50WV ±10%      | Polyester    |
| C7, 8, 12, 13, 14          | ECEA50V1         | 2.2μF                   | 50WV           | Electrolytic |
| C15, 16, 17                | ECEA50V2R2       | 2.2μF                   | 50WV           | Electrolytic |
| C20, 4, 6, 18              | ECEA50V10        | 10μF                    | 50WV           | Electrolytic |
| <b>LOGIC CIRCUIT BOARD</b> |                  |                         |                |              |
| Integrated Circuits        |                  |                         |                |              |
| IC1, 14, 15                | SVIM53200P       | Integrated Circuit      | 1              |              |
| IC2, 3, 5, 7, 8,           | SVIM53273P       | Integrated Circuit      | 7              |              |
| 9, 10                      | SVIM53293P       | Integrated Circuit      | 2              |              |
| IC4, 6                     | SVIM5346P        | Integrated Circuit      | 1              |              |
| IC11                       | SVIM53204P       | Integrated Circuit      | 1              |              |
| IC12                       | SVIM53210P       | Integrated Circuit      | 2              |              |
| Transistors                |                  |                         |                |              |
| TR201~212                  | 2SC1328-T        | Transistors             | 17             |              |
| TR213                      | 2SC1384A-Q       | Transistor              | 1              |              |
| TR216, 217                 | 2SC1573-Q        | Transistors             | 2              |              |
| Resistors                  |                  |                         |                |              |
| R210, 220, 226             | ERD25T1J101      | 100Ω                    | 1/4W           | ± 5% Carbon  |
| R267, 271                  | ERD25T1J391      | 390Ω                    | 1/4W           | ± 5% Carbon  |
| R223, 244                  | ERD25T1J471      | 470Ω                    | 1/4W           | ± 5% Carbon  |
| R246                       | ERD25T1J821      | 820Ω                    | 1/4W           | ± 5% Carbon  |
| R238, 241, 248             | ERD25T1J102      | 1kΩ                     | 1/4W           | ± 5% Carbon  |
| 249, 250, 251              | 252, 253, 254,   |                         |                |              |
| 255                        | TR233            | TR233                   | 1.8kΩ          | Carbon       |
|                            | ERD25T1J182      | 2.2kΩ                   | 1/4W           | Carbon       |
|                            | ERD25T1J222      | TR214, 218, 222         | 1/4W           | Carbon       |
|                            | TR246, 256, 257, | TR262                   | 3.3kΩ          | 1/4W         |
|                            | TR258, 259, 260  | TR258                   | 3.9kΩ          | Carbon       |
|                            | ERD25T1J332      | 4.7kΩ                   | 1/4W           | Carbon       |
|                            | ERD25T1J392      | 213, 216, 219,          | 4.7kΩ          | Carbon       |
|                            | ERD25T1J472      | 221, 261, 264,          | 265, 266, 268, | Carbon       |
|                            | TR228            | 269, 270, 272           | 269, 270, 272  | Carbon       |
|                            | ERD25T1J562      | TR225                   | 5.6kΩ          | 1/4W         |
|                            | ERD25T1J822      | TR224                   | 8.2kΩ          | 1/4W         |
|                            | ERD25T1J103      | TR263                   | 10kΩ           | 1/4W         |
|                            | ERD25T1J123      | TR263                   | 12kΩ           | 1/4W         |
|                            | ERD25T1J153      | TR227                   | 15kΩ           | 1/4W         |
|                            | ERD25T1J223      | TR201, 202, 204         | 22kΩ           | 1/4W         |
|                            | ~207, 209,       | TR225                   | 5.6kΩ          | ± 5% Carbon  |
|                            | 212, 215, 229,   | TR224                   | 8.2kΩ          | ± 5% Carbon  |
|                            | 242, 243         | TR230, 232              | 10kΩ           | ± 5% Carbon  |
|                            | TR231, 247       | TR231, 247              | 12kΩ           | ± 5% Carbon  |
|                            | TR239, 240       | TR239, 240              | 15kΩ           | ± 5% Carbon  |
| Capacitors                 |                  |                         |                |              |
| C203, 221, 222,            | ECOM05102KZ      | 0.001μF                 | 50WV ±10%      | Polyester    |
| 226                        |                  |                         |                |              |

| Ref. No.                              | Part No.                   | Part Name & Description                  |                | Per Set            | Remarks | Ref. No.   | Part No.   | Part Name & Description        |            | Per Set      | Remarks |
|---------------------------------------|----------------------------|--|----------------|--------------------|---------|--|--|--------------------------------|------------|--------------|---------|
| C220                                  | ECQM05222KZ                | 0.0022μF                                 | 50WV ±10%      | Polyester          | 1       | R139, 141, 162,<br>163, 185, 188,<br>196, 198                                | ERD25TJ103   | 10KΩ                           | 1/4W ± 5%  | Carbon       | 8       |
| C214, 216, 219,<br>223, 224           | ECQM05103KZ                | 0.01μF                                   | 50WV ±10%      | Polyester          | 5       | R103, 104, 107,<br>108, 114, 154,<br>155, 157, 158,<br>159, 173, 187,<br>195 | ERD25TJ123   | 12KΩ                           | 1/4W ± 5%  | Carbon       | 13      |
| C215, 229                             | ECQM05104KZ                | 0.1μF                                    | 50WV ±10%      | Polyester          | 2       | R183, 194  | ERD25TJ153   | 15KΩ                           | 1/4W ± 5%  | Carbon       | 2       |
| C228                                  | ECQM05224KZ                | 0.22μF                                   | 50WV ±10%      | Polyester          | 1       | R129, 146, 182,<br>189, 197  | ERD25TJ183   | 18KΩ                           | 1/4W ± 5%  | Carbon       | 5       |
| C205                                  | ECQM05474KZ                | 0.47μF                                   | 50WV ±10%      | Polyester          | 1       | R112, 152, 167,<br>193   | ERD25TJ223   | 22KΩ                           | 1/4W ± 5%  | Carbon       | 4       |
| C208, 209                             | ECQM05232KZ                | 0.0033μF                                 | 50WV ±10%      | Polyester          | 2       | R153, 168, 170,<br>179, 180  | ERD25TJ273   | 27KΩ                           | 1/4W ± 5%  | Carbon       | 4       |
| C211                                  | ECOS5100K                  | 10pF                                     | 50WV ±10%      | Styrol             | 1       | R111, 128, 133   | ERD25TJ333   | 33KΩ                           | 1/4W ± 5%  | Carbon       | 5       |
| C213                                  | ECOS1101K                  | 100pF                                    | 125WV ±10%     | Styrol             | 1       | R125, 140, 143,<br>161   | ERD25TJ383   | 39KΩ                           | 1/4W ± 5%  | Carbon       | 3       |
| C212                                  | ECOS1331K                  | 330pF                                    | 325WV ±10%     | Styrol             | 1       | R126, 142  | ERD25TJ432   | 4.3KΩ                          | 1/4W ± 5%  | Carbon       | 2       |
| C217                                  | ECOS1391K                  | 390pF                                    | 125WV ±10%     | Styrol             | 1       | R109   | ERD25TJ473   | 9.1KΩ                          | 1/4W ± 5%  | Carbon       | 1       |
| C201                                  | ECA50V01                   | 1pF                                      | 50WV           | Electrolytic       | 1       | R138   | ERD25TJ473   | 100KΩ                          | 1/4W ± 5%  | Carbon       | 8       |
| C230                                  | ECA50V2R2                  | 2.2μF                                    | 50WV           | Electrolytic       | 1       |  |  |                                |            |              |         |
| C202, 218, 225,                       | ECA16V10                   | 10pF                                     | 16WV           | Electrolytic       | 3       |  |  |                                |            |              |         |
| C227                                  | ECA16V100                  | 100μF                                    | 16WV           | Electrolytic       | 1       |  |  |                                |            |              |         |
| C204                                  | ECA10V330V                 | 330μF                                    | 10WV           | Electrolytic       | 1       |  |  |                                |            |              |         |
| Variable Capacitor                    |                            |  |                |                    |         |  |  |                                |            |              |         |
| C210                                  | ECV1ZW10X53                | 10pF                                     | Ceramic trimer | 1                  |         |  |  |                                |            |              |         |
| Crystal                               |                            |  |                |                    |         |  |  |                                |            |              |         |
| XI                                    | TSS616-1K                  | 3.5796MHz                                | Oscillater     | 1                  |         |  |  |                                |            |              |         |
| <b>CONTROL CIRCUIT BOARD</b>          |                            |  |                |                    |         |  |  |                                |            |              |         |
| TR101,<br>113~130                     | 2SC1328-T                  | Transistors                              | 18             |                    |         | R113   | ERD25TJ124   | 120KΩ                          | 1/4W ± 5%  | Carbon       | 1       |
| TR102~108,<br>110, 131, 132,<br>TR109 | 2SA666A1-R                 | Transistors                              | 10             |                    |         | R120, 186  | ERD25TJ154   | 150KΩ                          | 1/4W ± 5%  | Carbon       | 2       |
| TR111, 112, 120,<br>TR151~154         | 2SC1328-T<br>2SK30A-Y      | Transistor<br>Transistors<br>Transistors | 1<br>3<br>4    |                    |         | R127, 164, 191<br>R101<br>R110<br>R181                                       | ERD25TJ224<br>ERD25TJ324<br>ERD25TJ394<br>ERD25TJ474<br>ERD25TJ105 | 220KΩ<br>390KΩ<br>470KΩ<br>1MΩ | 1/4W ± 5%  | Carbon       | 3       |
| D101, 102, 104,<br>105, 106, 108      | MA150                      | Diodes                                   | 6              |                    |         | VRI01  | EVSP1AA00E24   | 125W ± 10%                     | Styrol     | 1            |         |
| D103<br>D107                          | SVDRD9.1EBS<br>SVDRD5.6ECS | Diode<br>Diode                           | 1              |                    |         | VR102  | EVSP1AA00E23   | 20KΩ<br>2KΩ                    | 1          | 1            |         |
| <b>Diodes</b>                         |                            |  |                |                    |         |  |  |                                |            |              |         |
| R121                                  | ERQ25CKD8201               | 8.2KΩ                                    | 1/4W ± 5%      | Metallic           | 1       | C110<br>C109<br>C104   | ECOS1271K<br>ECOS1222K<br>ECQM05622KZ                              | 270pF<br>0.0056μF<br>0.01μF    | 125W ± 10% | Styrol       | 1       |
| R174                                  | ERQ25CKD1002               | 10KΩ                                     | 1/4W ± 5%      | Metallic           | 1       | C102   | ECQM0523KZ   | 0.022μF                        | 50W ± 10%  | Polyester    | 1       |
| R175                                  | ERQ25CKF1002               | 10KΩ                                     | 1/4W ± 1%      | Metallic           | 1       | C101, 115  | ECQM0533KZ   | 0.033μF                        | 50W ± 10%  | Polyester    | 2       |
| R149                                  | ERQ25CKF2002               | 20KΩ                                     | 1/4W ± 1%      | Metallic           | 1       | C113   | ECQM05473KZ  | 0.047μF                        | 50W ± 10%  | Polyester    | 1       |
| R145                                  | ERD12F-J221                | 82 Ω                                     | 1/2W ± 5%      | Carbon             | 1       | C105, 107, 108   | ECQM05823KZ  | 0.082μF                        | 50W ± 10%  | Polyester    | 3       |
| R156                                  | ERD12F-J221                | 220Ω                                     | 1/2W ± 5%      | Carbon             | 1       | C106   | ECA50V01   | 0.1μF                          | 50W ± 10%  | Polyester    | 1       |
| R147                                  | ERD12F-J331                | 470Ω                                     | 1/2W ± 5%      | Carbon             | 1       | C103   | ECEB63V100   | 1μF                            | 50W ± 10%  | Electrolytic | 1       |
| R192                                  | ERD25TJ222                 | 2.2KΩ                                    | 1/2W ± 5%      | Carbon             | 1       |  |  |                                |            |              |         |
| R144                                  | ERD25TJ332                 | 3.3KΩ                                    | 1/4W ± 5%      | Carbon             | 2       |  |  |                                |            |              |         |
| R122, 166                             | ERD25TJ392                 | 3.9KΩ                                    | 1/4W ± 5%      | Carbon             | 1       |  |  |                                |            |              |         |
| R115                                  | ERD25TJ472                 | 4.7KΩ                                    | 1/4W ± 5%      | Carbon             | 1       |  |  |                                |            |              |         |
| R124                                  | ERD25TJ512                 | 5.1KΩ                                    | 1/4W ± 5%      | Carbon             | 1       |  |  |                                |            |              |         |
| R130                                  | ERD25TJ752                 | 7.5KΩ                                    | 1/4W ± 5%      | Carbon             | 1       |  |  |                                |            |              |         |
| R190                                  | ERD25TJ102                 | 1KΩ                                      | 1/4W ± 5%      | Carbon             | 1       |  |  |                                |            |              |         |
| R131, 132                             | ERD25TJ222                 | 2.2KΩ                                    | 1/4W ± 5%      | Carbon             | 2       |  |  |                                |            |              |         |
| R151                                  | ERD25TJ332                 | 3.3KΩ                                    | 1/4W ± 5%      | Carbon             | 1       |  |  |                                |            |              |         |
| R134, 177, 178,                       | ERD25TJ472                 | 4.7KΩ                                    | 1/4W ± 5%      | Carbon             | 4       |  |  |                                |            |              |         |
| R184                                  | ERD25TJ822                 | 8.2KΩ                                    | 1/4W ± 5%      | Carbon             | 3       |  |  |                                |            |              |         |
| <b>CONNECTONAL BOARD</b>              |                            |  |                |                    |         |  |  |                                |            |              |         |
| R301                                  | ERD25TJ151                 | 150Ω                                     | 1/4W ± 5%      | Carbon             | 1       |  |  |                                |            |              |         |
| C301                                  | ECEA50V10                  | 10μF                                     |                | Electrolytic       | 1       |  |  |                                |            |              |         |
| C302, 303                             | ECQM05104KZ                | 0.1μF                                    |                | Polyester          | 2       |  |  |                                |            |              |         |
| <b>CABINET AND CHASSIS PARTS</b>      |                            |  |                |                    |         |  |  |                                |            |              |         |
| 1                                     | SFTG102M01                 |  |                | Turntable mat      |         |  |  |                                |            |              |         |
| 2                                     | SFTG102-01E                |  |                | Turntable          |         |  |  |                                |            |              |         |
| 2-1                                   | SFX102-08E                 |  |                | Screw, Turntable   |         |  |  |                                |            |              |         |
| 3                                     | SFU102-06                  |  |                | Cover, Brake       |         |  |  |                                |            |              |         |
| 3-1                                   | XSS3+8FZS                  |  |                | Screw, Cover       |         |  |  |                                |            |              |         |
| 4                                     | SFTG102-03                 |  |                | Rubber, Brakecover |         |  |  |                                |            |              |         |

| Ref. No.                           | Part No.    | Part Name & Description           | Per Set | Remarks | Ref. No.        | Part No.                               | Part Name & Description  | Per Set | Remarks |
|------------------------------------|-------------|-----------------------------------|---------|---------|-----------------|--|--|---------|---------|
| 5                                  | SFUP102-09A | Brake, Band<br>Circip, Brake band | 1       |         | 35              | SFER1F<br>SFEB3UT<br>XWC3BFY<br>SJT719 | Mounting, Ground wire<br>Tube<br>Washer<br>Screw<br>Mounting Plate | 1       |         |
| 5.1                                | XUC3FT      | Plate, Brake                      | 1       |         | 35-2            |  |  |         | 1       |
| 6                                  | SFUP102-05E | Screw, Plate                      | 1       |         | 35-3            |  |  |         | 1       |
| 6.1                                | XYN3+C8FZS  | Washer, Plate                     | 1       |         | 35-4            |  |  |         | 1       |
| 6.2                                | SFXW120-01  | Plate, Adjustment                 | 1       |         | 36              |  |  |         | 1       |
| 7                                  | SFUP102-07  | Screw, Plate                      | 2       |         | 36-1            |  |  |         | 1       |
| 7.1                                | XYN3+C6FZS  | Screw, Adjustment                 | 1       |         | 36-2            |  |  |         | 1       |
| 8                                  | SFXJ102-02  | Washer                            | 1       |         | 36-3            |  |  |         | 1       |
| 8.1                                | SFXW303-1   | Washer                            | 1       |         | 37              |  |  |         | 1       |
| 8.2                                | SFFEW12002  | Washer                            | 1       |         | 37-1            |  |  |         | 2       |
| 8.3                                | XUC4FT      | Washer                            | 1       |         | 38              |  |  |         | 1       |
| 9                                  | SFLM102-01  | Brake Housing                     | 1       |         | 38-1            |  |  |         | 4       |
| 9.1                                | XYN4+15FZS  | Screw                             | 3       |         | 38-2            |  |  |         | 2       |
| 10                                 | SFUP102-15  | Plate, Brake Adjustment           | 1       |         | 38-3            |  |  |         | 2       |
| 10.1                               | XTV3+8BFZ   | Screw, Adjustment Plate           | 1       |         | 39              |  |  |         | 1       |
| 10.2                               | SFXW120-01  | Washer, Adjustment Plate          | 1       |         | 40              |  |  |         | 1       |
| 11                                 | SFMZ102-01E | Motor Ass'y                       | 1       |         | 40              |  |  |         | 1       |
| 12                                 | SFDZSDIAC10 | Plunger                           | 1       |         | 43              |  |  |         | 1       |
| 12.1                               | SFEB3UT     | Tube                              | 1       |         | 44              |  |  |         | 1       |
| 13                                 | SVDIS1887   | Diode                             | 1       |         | 45              |  |  |         | 1       |
| 14                                 | SFXJ102-03  | Lever, Plunger                    | 1       |         | 45-1            |  |  |         | 12      |
| 14.1                               | SFXO102-01  | Spacer, Plunger                   | 1       |         | 45-2            |  |  |         | 2       |
| 14.2                               | SFQA102-01  | Spring, Brake                     | 1       |         | 45-3            |  |  |         | 2       |
| 14.3                               | SFGH102-01  | Rubber, Plunger                   | 1       |         | 45-4            |  |  |         | 1       |
| 14.4                               | SFGH102-02  | Rubber, Washer                    | 1       |         | 45-5            |  |  |         | 1       |
| 14.5                               | XWA3BER     | Washer                            | 1       |         | 46              |  |  |         | 1       |
| 14.6                               | XNG3HS      | Nut                               | 1       |         | 47              |  |  |         | 1       |
| 15                                 | SFUP102-12  | Mounting Plate, Plunger           | 3       |         | 47-1            |  |  |         | 1       |
| 15.1                               | XYN3+C5FZS  | Screw, Mounting Plate             | 3       |         | 47-2            |  |  |         | 1       |
| 15.2                               | SFXW120-01  | Washer, Mounting Plate            | 3       |         | 47-3            |  |  |         | 1       |
| 16                                 | SFAC102-01  | Panel case                        | 1       |         | 47-4            |  |  |         | 2       |
| 16.1                               | SFNN102M01  | Name Plate                        | 1       |         | 47-5            |  |  |         | 1       |
| 16.2                               | SFKB102M01  | Badge                             | 1       |         | 47-6            |  |  |         | 1       |
| 17                                 | SFUM102-02  | Neon lamp base, A                 | 1       |         | 48              |  |  |         | 1       |
| 18                                 | SFUP102-01  | Neon lamp base, B                 | 1       |         | 49              |  |  |         | 1       |
| 19                                 | SFUP102-02  | Neon lamp base, C                 | 1       |         | 50              |  |  |         | 1       |
| 19.1                               | XYN3+C6FZS  | Screw, Neon lamp base             | 2       |         | 51              |  |  |         | 3       |
| 20                                 | SFDNNL78WM  | Neon lamp                         | 1       |         | 52              |  |  |         | 1       |
| 20.1                               | SFEB3UT     | Tube                              | 1       |         | 52-1            |  |  |         | 3       |
| 21                                 | SFUP102-08  | Holder, Neon lamp                 | 1       |         | 52-2            |  |  |         | 6       |
| 22                                 | SFUP102-17  | Holder, P. C. B                   | 1       |         | 53              |  |  |         | 1       |
| 22.1                               | SFEZ196     | Spacer, P. C. B                   | 1       |         | 53-1            |  |  |         | 3       |
| 22.2                               | XYN3+C8FZS  | Screw                             | 2       |         | 53-2            |  |  |         | 2       |
| 22.3                               | XWA3BFR     | Washer                            | 2       |         | 53-3            |  |  |         | 2       |
| 23                                 | SFXT102-05  | Spacer, P. C. B                   | 11      |         | 54              |  |  |         | 3       |
| 24                                 | SFXT102-04  | Spacer, Bottom Case               | 3       |         | 55              |  |  |         | 1       |
| 25                                 | SFDJ12804S  | Connector, 4P                     | 1       |         | 55-1            |  |  |         | 2       |
| 27                                 | SFDJ12810S  | Connector, 10P                    | 1       |         | 55-2            |  |  |         | 1       |
| 28                                 | SFDJ12804S  | Connector, 4P                     | 1       |         | 55-3            |  |  |         | 3       |
| 28.1                               | SFEB2AF     | Tube                              | 1       |         | 56              |  |  |         | 1       |
| 29                                 | SFDJS14225  | Connector                         | 1       |         | 56-1            |  |  |         | 1       |
| 30                                 | SFDJ12812P  | Connector, 12P                    | 1       |         | 56-2            |  |  |         | 2       |
| 30.1                               | SFDJ12910P  | Connector, 10P                    | 1       |         | 57              |  |  |         | 1       |
| 30.2                               | SFDJ12906P  | Connector, 6P                     | 1       |         | 58              |  |  |         | 3       |
| 30.3                               | SFDJ12904P  | Connector, 4P                     | 1       |         | 59              |  |  |         | 3       |
| 30.4                               | SFUP102-11  | Plate, Heat sink                  | 4       |         | 60              |  |  |         | 3       |
| 31.1                               | XYN3+C6FZS  | Screw                             | 2       |         | 61              |  |  |         | 3       |
| 31.2                               | XYN3+6FUS   | Screw                             | 9       |         | 62              |  |  |         | 3       |
| 31.3                               | XYN3+C6FZS  | Washer                            | 13      |         |                 |  |  |         | 34      |
| 32.1                               | XWA3BFR     | Jack                              |         |         |                 |  |  |         |         |
| 32.2                               | RJ10C       |                                   |         |         |                 |  |  |         |         |
| POWER UNIT (Model SH-10E - (M/MC)) |             |                                   |         |         |                 |  |  |         |         |
| Transistors                        |             |                                   |         |         | Transistors     |  |  |         |         |
| TR401, 402, 407,                   |             |                                   |         |         | TR408, 409, 410 |  |  |         |         |

| Ref. No. | Part No.    | Part Name & Description           | Per Set | Remarks |
|----------|-------------|-----------------------------------|---------|---------|
| 5        | SFUP102-09A | Brake, Band<br>Circip, Brake band | 1       |         |
| 5.1      | XUC3FT      | Plate, Brake                      | 1       |         |
| 6        | SFUP102-05E | Screw, Plate                      | 1       |         |
| 6.1      | XYN3+C8FZS  | Washer, Plate                     | 1       |         |
| 6.2      | SFXW120-01  | Plate, Adjustment                 | 1       |         |
| 7        | SFUP102-07  | Screw, Plate                      | 2       |         |
| 7.1      | XYN3+C6FZS  | Screw, Adjustment                 | 1       |         |
| 8        | SFXJ102-02  | Washer                            | 1       |         |
| 8.1      | SFXW303-1   | Washer                            | 1       |         |
| 8.2      | SFFEW12002  | Washer                            | 1       |         |
| 8.3      | XUC4FT      | Washer                            | 1       |         |
| 9        | SFLM102-01  | Brake Housing                     | 1       |         |
| 9.1      | XYN4+15FZS  | Screw                             | 3       |         |
| 10       | SFUP102-15  | Plate, Brake Adjustment           | 1       |         |
| 10.1     | XTV3+8BFZ   | Screw, Adjustment Plate           | 1       |         |
| 10.2     | SFXW120-01  | Washer, Adjustment Plate          | 1       |         |
| 11       | SFMZ102-01E | Motor Ass'y                       | 1       |         |
| 12       | SFDZSDIAC10 | Plunger                           | 1       |         |
| 12.1     | SFEB3UT     | Tube                              | 1       |         |
| 13       | SVDIS1887   | Diode                             | 1       |         |
| 14       | SFXJ102-03  | Lever, Plunger                    | 1       |         |
| 14.1     | SFXO102-01  | Spacer, Plunger                   | 1       |         |
| 14.2     | SFQA102-01  | 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           | 3       |         |
| 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       | SFDJS14225  | Connector                         | 1       |         |
| 30       | SFDJ12812P  | Connector, 12P                    | 1       |         |
| 30.1     | SFDJ12910P  | Connector, 10P                    | 1       |         |
| 30.2     | SFDJ12906P  | Connector, 6P                     | 1       |         |
| 30.3     | SFDJ12904P  | Connector, 4P                     | 1       |         |
| 30.4     | SFUP102-11  | Plate, Heat sink                  | 4       |         |
| 31.1     | XYN3+C6FZS  | Screw                             | 2       |         |
| 31.2     | XYN3+6FUS   | Screw                             | 9       |         |
| 31.3     | XYN3+C6FZS  | Washer                            | 13      |         |
| 32.1     | XWA3BFR     | Jack                              |         |         |
| 32.2     | RJ10C       |                                   |         |         |

| Ref. No.               | Part No.      | Part Name & Description |              | Per Set      | Remarks      | Ref. No. | Part No.    | Part Name & Description      |             | Per Set | Remarks |
|------------------------|---------------|-------------------------|--------------|--------------|--------------|----------|-------------|------------------------------|-------------|---------|---------|
|                        |               | Part Name               | Description  |              |              |          |             | Part Name                    | Description |         |         |
| TR403                  | 2SC666A1-R    | Transistor              |              | 1            |              | 1-1      | SFKK10EM01A | CABINET AND CHASSIS PARTS    |             | 1       |         |
| TR405                  | 2SD389A-Q     | Transistor              |              | 1            |              | 1-2      | SGLA9       | Panel ass'y, Front           |             | 1       |         |
| TR406                  | 2SD334        | Transistor              |              | 1            |              | 1-3      | SEU1210E01  | Lamp Indicate                |             | 1       |         |
| TR404                  | 2SD389A-Q     | Transistor              |              | 1            |              | 2        | SFUP10E02E  | Felt                         |             | 1       |         |
| D401, 403, 404,        | RWD100C2      | Diodes                  |              | 3            |              | 2-1      | SFN110EM01  | Name Plate                   |             | 1       |         |
| D402, 405, 406         | RWD100C2R     | Diodes                  |              | 3            |              | 2-2      | XST3+6FZS   | Screw                        |             | 10      |         |
| D408                   | SVARD5,6ECS   | Diode                   |              | 1            |              | 3        | SBLA4-3     | Knob, Power switch           |             | 1       |         |
| D409                   | SVARD16EB     | Diode                   |              | 1            |              | 4        | XVE5A8FZS   | Screw                        |             | 4       |         |
| D410                   | MA150         | Diode                   |              | 1            |              | 5        | SSL37/S     | Power switch                 |             | 1       |         |
| D411                   | O490          | Diode                   |              | 1            |              | 5-1      | SFU1P10E03  | Mounting Plate, Power switch |             | 1       |         |
| D412                   | SVD15887      | Diode                   |              | 1            |              | 5-2      | SFU1P10E09  | Mounting Plate, Panel        |             | 1       |         |
| R405                   | EWLSOAA00B52  | Variable Resistor       | 500Ω<br>2kΩ  | 1            |              | 5-3      | SFU1P10E04  | Holder, Lamp                 |             | 1       |         |
| R445                   | EWLSOAA00B23  | Fuse                    |              | 1            |              | 5-4      | XYN3+6FZS   | Screw                        |             | 2       |         |
| F1                     | XBA1F10NU100  | 1A                      |              | 1            |              | 6-1      | XAM37/T150  | Lamp                         |             | 1       |         |
| F2                     | XBA1F30NU100  | 3A                      |              | 2            |              | 6-2      | SMZA6091    | Rubber, Lamp                 |             | 1       |         |
| F3, 4                  | XBA1F03NU100  | 300mA                   |              | 1            |              | 6-3      | ETP76BL1A   | Power Transformer            |             | 1       |         |
| F5                     | XBA1F15NU100  | 1.5A                    |              | 1            |              | 7        | XNG4HS      | Nut                          |             | 4       |         |
| R401                   | ERD50TJ4R7    | Resistors               | 4.7Ω<br>470Ω | 1/2W ± 5%    | Carbon       | 7-1      | XWA4G10FU   | Washer                       |             | 4       |         |
| R402, 403              | ERD25TJ471    |                         | 560Ω         | 1/4W ± 5%    | Carbon       | 7-2      | XST4+6FZS   | Screw                        |             | 4       |         |
| R404                   | ERD25TJ561    |                         | 3.9kΩ        | 1/4W ± 5%    | Carbon       | 7-3      | SFDJ-D4F    | Socket, DC                   |             | 1       |         |
| R406                   | ERD25TJ392    |                         | 1.9Ω         | 1/4W ± 5%    | Carbon       | 7-4      | SJS6505     | Connector, 5P                |             | 1       |         |
| R407, 408              | ERD25TJ102    |                         | 680Ω         | 1/4W ± 5%    | Carbon       | 8        | SXSS3+10FNS | Screw                        |             | 2       |         |
| R409                   | ERD25TJ681    |                         | 1kΩ          | 1/2W ± 5%    | Carbon       | 8-1      | SFUP10E-05  | Mounting Plate, AC Cord      |             | 1       |         |
| R410                   | ERD12FJ102    |                         | 5.1kΩ        | 1/4W ± 5%    | Carbon       | 8-2      | XST3+6FZS   | Screw                        |             | 4       |         |
| R411                   | ERD25TJ512    |                         | 4.3kΩ        | 1/4W ± 5%    | Carbon       | 9-1      | RJA10A      | AC cord                      |             | 1       |         |
| R412                   | ERD25TJ432    |                         | 2kΩ          | 1/2W ± 5%    | Carbon       | 10       | SFE66UT     | Tube                         |             | 1       |         |
| R413                   | ERD50TJ202    |                         | 3.9kΩ        | 1/4W ± 5%    | Carbon       | 10-1     | SFHKO40L    | Bushing, cord                |             | 1       |         |
| R414                   | ERD25TJ392    |                         | 6.8kΩ        | 1/4W ± 5%    | Carbon       | 11       | SFDP102-07  | P. C. B. Fuse                |             | 2       |         |
| R416                   | ERD25TJ682    |                         | 560Ω         | 1/4W ± 5%    | Carbon       | 12       | XTW3+10HFZ  | Screw                        |             | 2       |         |
| R417, R422             | ERD25TJ561    |                         | 51kΩ         | 1/4W ± 5%    | Carbon       | 12-1     | SJS5405     | Connector, 4P                |             | 1       |         |
| R418                   | ERD25TJ513    |                         | 9.1kΩ        | 1/4W ± 5%    | Carbon       | 12-2     | RJF107-2    | Holder, Fuse                 |             | 10      |         |
| R419                   | ERD25TJ912    |                         | 1.1kΩ        | 1/4W ± 5%    | Carbon       | 12-3     | SFER1C      | Terminal                     |             | 1       |         |
| R420                   | ERD25TJ112    |                         | 100kΩ        | 1/4W ± 5%    | Carbon       | 12-4     | XNG3HS      | Nut                          |             | 1       |         |
| R421                   | ERD25TJ104    |                         |              |              |              | 12-5     | XST3+6FZS   | Screw                        |             | 1       |         |
| C401                   | ECOU1A473MD   | Capacitors              | 0.047μF      | 125AC ± 20%  | Polyester    | 12-6     | SFD102-06   | Power P. C. B.               |             | 1       |         |
| C401                   | ECOU1A473MC   |                         | 0.047μF      | 125AC ± 20%  | Polyester    | 13       | XTW3+10HFZ  | Screw                        |             | 2       |         |
| C404, 405, 406,<br>407 | RXAF102P22HD  |                         | 0.01μF x 2   | 500nW ± 100% | Ceramic      | 13-1     | SHE36       | Clamper, wire                |             | 1       |         |
| C408                   | ECOM6103M2    |                         | 0.0082μF     | 600nW ± 20%  | Polyester    | 13-2     | SXST3+6FZS  | Screw                        |             | 2       |         |
| C409                   | ECOB05622K2   |                         | 100nF        | 50nW ± 10%   | Polyester    | 13-3     | SFX1010E01  | Ornament Plate, Start Stop   |             | 1       |         |
| C410                   | ECEB16V1000V  |                         | 100μF        | 16nW         | Electrolytic | 13-4     | SFDS551C    | Micro switch                 |             | 2       |         |
| C411, 412              | ECEA16V1000V  |                         | 100μF        | 16nW         | Electrolytic | 14       | XTN2+10     | Mounting Plate, Micro switch |             | 1       |         |
| C413                   | ECEM80R1000X  |                         | 1000μF       | 80nW         | Electrolytic | 14-1     | SFU1P10R02  | Screw                        |             | 2       |         |
| C414, 415              | ECEA63V1000V  |                         | 100μF        | 50nW         | Electrolytic | 14-2     | XTN2+6B     | Tube                         |             | 2       |         |
| C416                   | ECEB160V1000V |                         | 100μF        | 160nW        | Electrolytic | 14-3     | ERD25TJ101  | ERD25TJ101                   |             | 1       |         |
| C417                   | ECEA160V22V   |                         | 22μF         | 160nW        | Electrolytic | 15-1     | SFEB33UT    | Tube                         |             | 1       |         |
|                        |               |                         |              |              |              | 15-2     | SFEB32UT    | Tube                         |             | 2       |         |
|                        |               |                         |              |              |              | 15-3     | XNG3HS      | Nut, Capacitor               |             | 2       |         |

| Ref. No.                 | Part No.              | Part Name & Description | Per Set | Remarks       |
|--------------------------|-----------------------|-------------------------|---------|---------------|
| 6                        | SFGP10R01<br>SFZ10R01 | Rubber, Bushing         | 1       |               |
| 7                        | SFPD10R01             | Cord, Jack              | 1       |               |
| 8                        | XTS3+8BF2             | Bottom cover            | 1       |               |
| 8-1                      | SFNN10RM01            | Screw                   | 4       |               |
| 9                        |                       | Name Plate              | 1       |               |
| <b>ACCESSORY PARTS</b>   |                       |                         |         |               |
| A1                       | SFNU102M01            | Operating Instructions  | 1       | SP-10MKII(M)  |
| A1                       | SFNU102C01            |                         | 1       | SP-10MKII(MC) |
| A5                       | SFWE010               | 45 Adaptor              | 1       |               |
| A6                       | SFWO010               | Oil                     | 1       |               |
| A7                       | SFYF09B15             | Polyethylene Bag        | 1       |               |
| A8                       | XSNB5-35S             | Screw A                 | 5       |               |
| A9                       | XSNB5-43S             | Screw B                 | 5       |               |
| A10                      | SFXW650-2             | Washer                  | 5       |               |
| <b>PACKING MATERIALS</b> |                       |                         |         |               |
| P2                       | SFHPI02M01            | Inside packing case     | 1       | SP-10MKII(M)  |
| P2                       | SFHPI02C01            | Inside packing case     | 1       | SP-10MKII(MC) |
| P3                       | SFHH102-06            | Bottom Pad              | 1       |               |
| P4                       | SFYC70A100            | Polyethylene sheet      | 3       |               |
| P5                       | SFYF08A23             | Polyethylene Bag        | 1       |               |
| P6                       | SFHH102-04            | Side Pad (L)            | 1       |               |
| P7                       | SFHH102-05            | Side Pad (R)            | 1       |               |
| P8                       | SFYF15A20             | Polyethylene Bag        | 1       |               |
| P8                       | SFHH102-07            | Side Pad, Power unit    | 1       |               |
| P9                       | SFHH102-08            | Side Pad, Power unit    | 1       |               |
| P10                      | SFHD102-06            | Case, Power unit        | 1       |               |
| P11                      | SFYF45A50             | Polyethylene Bag        | 2       |               |
| P12                      | SFHD102-05            | Top Pad, Turntable      | 1       |               |
| P13                      | SFYF27A39             | Polyethylene Bag        | 1       |               |
| P14                      | XYN3-6GBS             | Screw, Clumper          | 7       |               |
| P15                      | SFUP102M14E           | Mounting Plate, Motor   | 1       |               |
| P16                      |                       |                         |         |               |