AKAI DIRECT DRIVE TURNTABLE

MODEL AP-006

I. TECHNICAL DATA

TURNTABLE SECTION

TYPE	Direct drive turntable
PLATTER	325 mm diameter alloy die-cast (Weight: 1.15 kg)
SPEED	33-1/3 and 45 rpm
MOTOR	6-pole outer rotor AC servo controlled motor
WOW AND FLUTTER	Less than 0.035% WRMS
SIGNAL TO NOISE RATIO	Better than 58 dB (JIS), 48 dB (DIN), 69 dB (DIN B)
SPEED ADJUSTMENT RANGE	±4% at 33-1/3 rpm, ±5% at 45 rpm

TONEARM SECTION

TYPE	S-shaped static balanced type stainless steel tubular arm with inside force canceller and lateral balance weight
ARM HEIGHT ADJUSTMENT RANGE	17.3 mm +5, –3 mm (Factory adjusted to 17.3 mm cartridge height)
ARM LENGTH	230 mm
STYLUS PRESSURE ADJUSTMENT RANGE	0 to 3 gram
APPLICABLE CARTRIDGE WEIGHT	4 to 8 grams (8 to 12 grams using sub-weight)
OFF-SET ANGLE	22°
TRACKING ERROR ANGLE	Within ±2°
OVERHANG	15 mm
SHELL WEIGHT	13.5 grams
ARM LIFTER	Oil damped type

MISCELLANEOUS

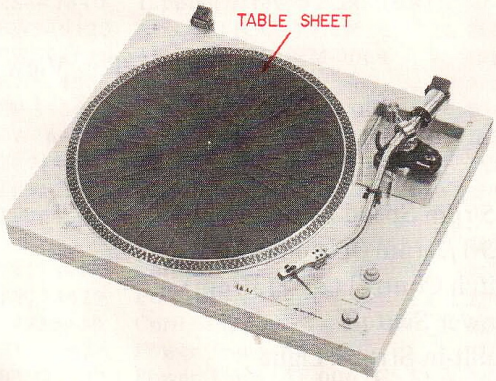
POWER REQUIREMENTS	CSA models: 120V, 60 Hz CEE models: 220V, 50/60 Hz Other models: 110 to 120/220 to 240V, 50/60 Hz
DIMENSIONS	440(W) x 128(H) x 358(D) mm (17.3 x 5.0 x 14.1) inches
WEIGHT	9 kg (19.8 lbs)

* **For improvement purposes, specifications and design are subject to change without notice.**

In case of trouble, etc. necessitating disassembly, please disassemble in the order shown in photographs. Reassemble in reverse order.

1

2



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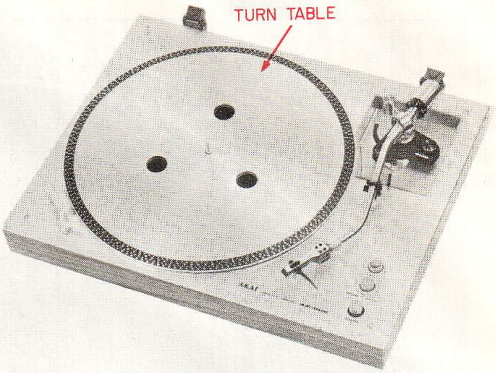

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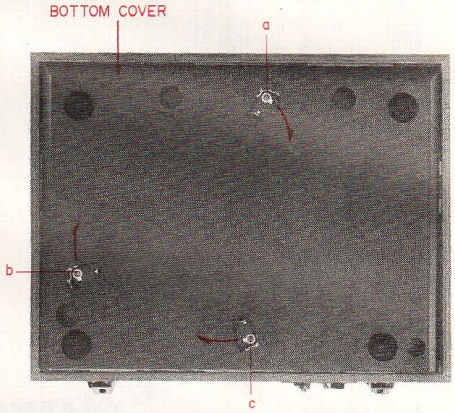

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III. CONTROLS AND PARTS LOCATIONS

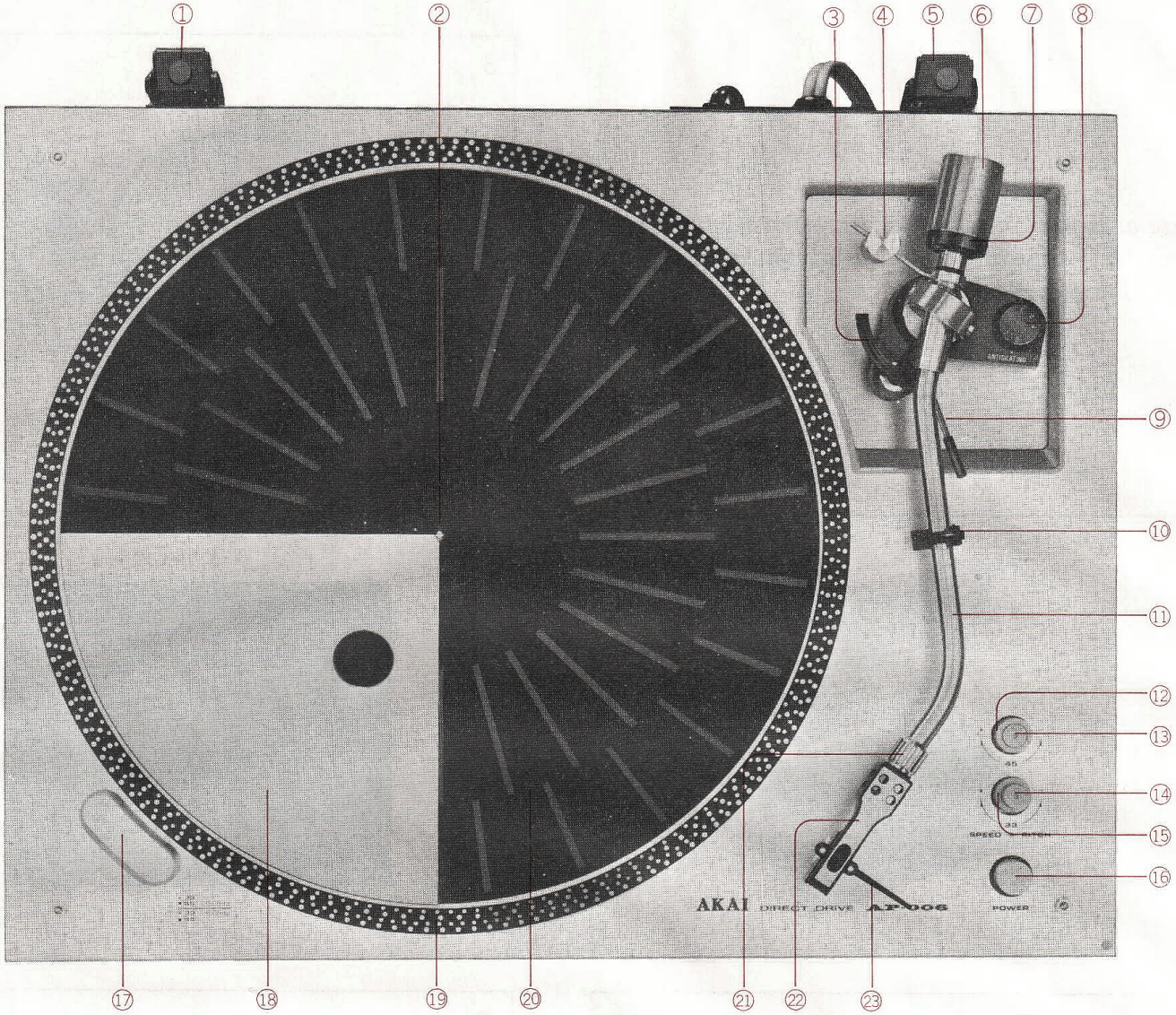


Fig. 1 Top View

1. Hinge
2. Spindle
3. Tone Arm Lifter
4. Lateral Weight
5. Hinge
6. Main Weight
7. Stylus Pressure Scale Ring
8. Anti-Skating Adjuster
9. Tone Arm Lifter Lever
10. Tone Arm Rest
11. Tone Arm
12. Pitch Control (45 rpm)
13. 45 rpm Speed Selector
14. 33-1/3 rpm Speed Selector
15. Pitch Control (33-1/3 rpm)
16. Power Switch
17. Built-in Strobe Light
18. Turntable Platter
19. Strobe Markings
20. Rubber Mat
21. Locking Nut
22. Cartridge Shell
23. Cartridge Shell Finger Lever

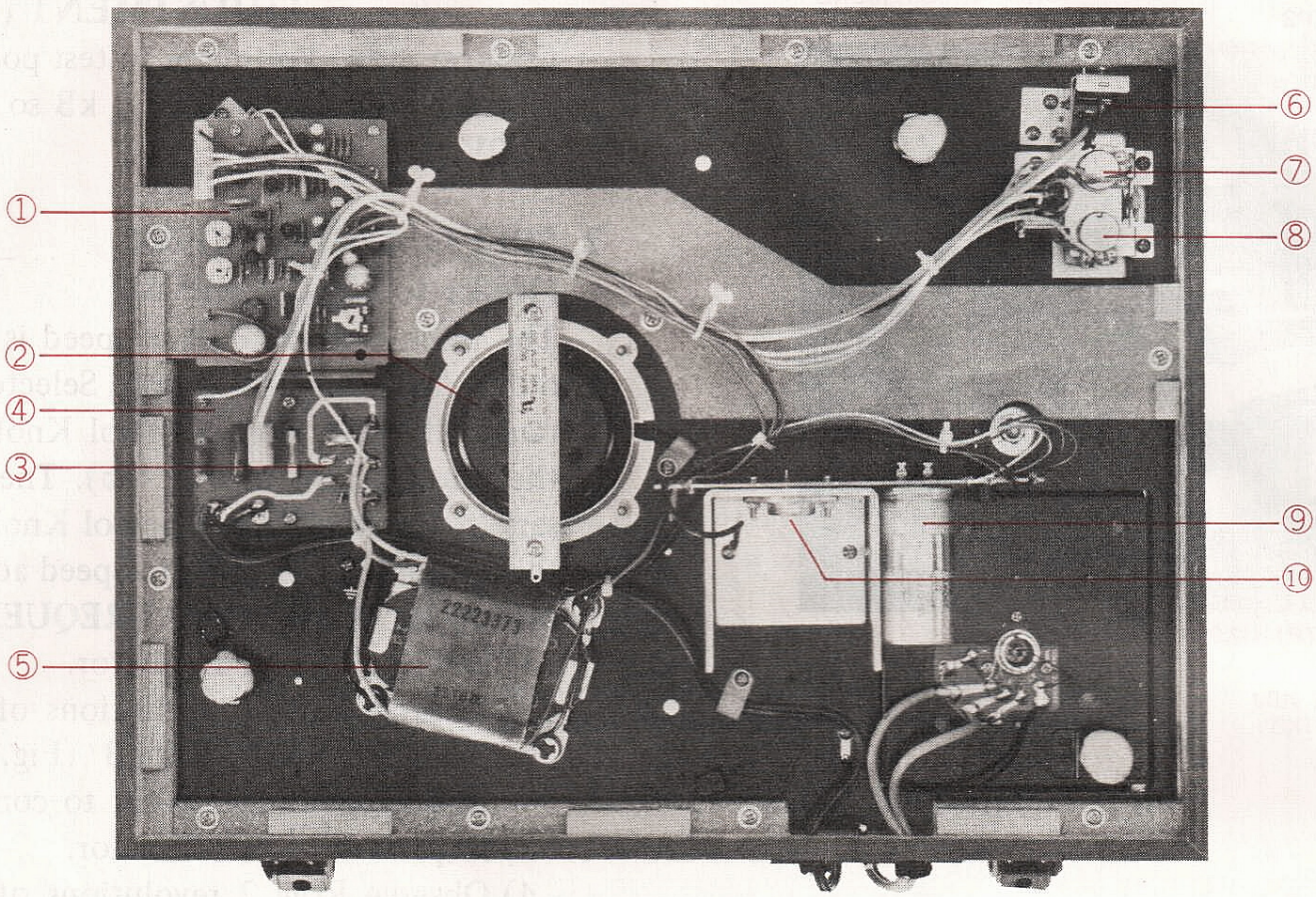


Fig. 2 Bottom View

1. Control P.C Board
2. AC Servo Motor
3. Voltage Selector
4. Voltage Selector P.C Board
5. Power Transformer
6. Power Switch
7. 33-1/3 rpm Speed/Pitch Control
8. 45 rpm Speed/Pitch Control
9. Phase Capacitor C614 4μ/250V
10. Power Transistor TR610 2SD198

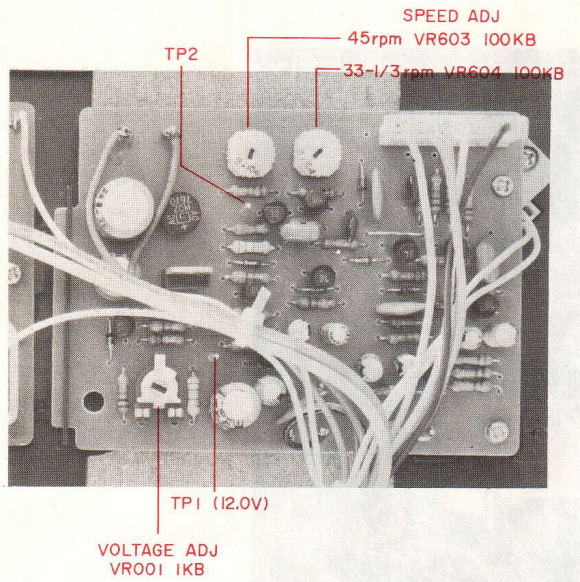
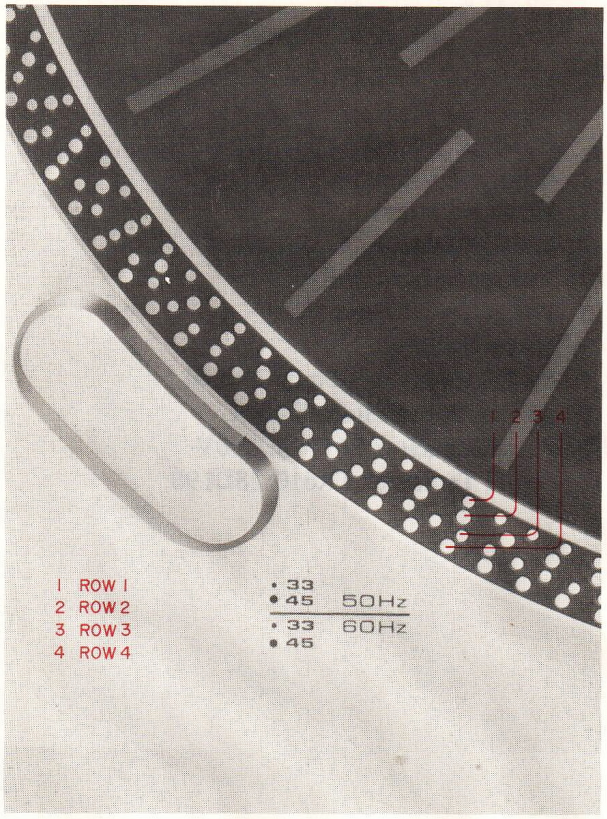


Fig. 3 Control P.C Board



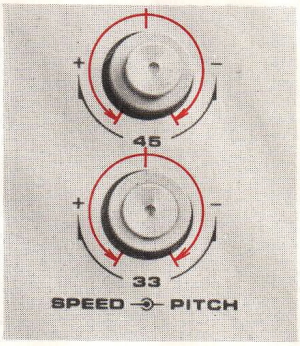


Fig. 4 Speed Adjustment

1. POWER SOURCE VOLTAGE ADJUSTMENT (Refer to Fig. 3)

Connect a DC Voltmeter to test point TP1 and adjust semi-fixed resistor VR001 1 kB so that the voltage is 12.0V.

2. SPEED ADJUSTMENT (Refer to Figs. 3 and 4)

The pitch control of each speed is adjusted with the outer knob of the Speed Selectors. The movable range of these Pitch Control Knobs is indicated by the arrow marks in Fig. 4(b). Therefore, it is necessary to set the Pitch Control Knob to the center of this movable range prior to speed adjustment.

2-1 50 Hz OPERATING FREQUENCY

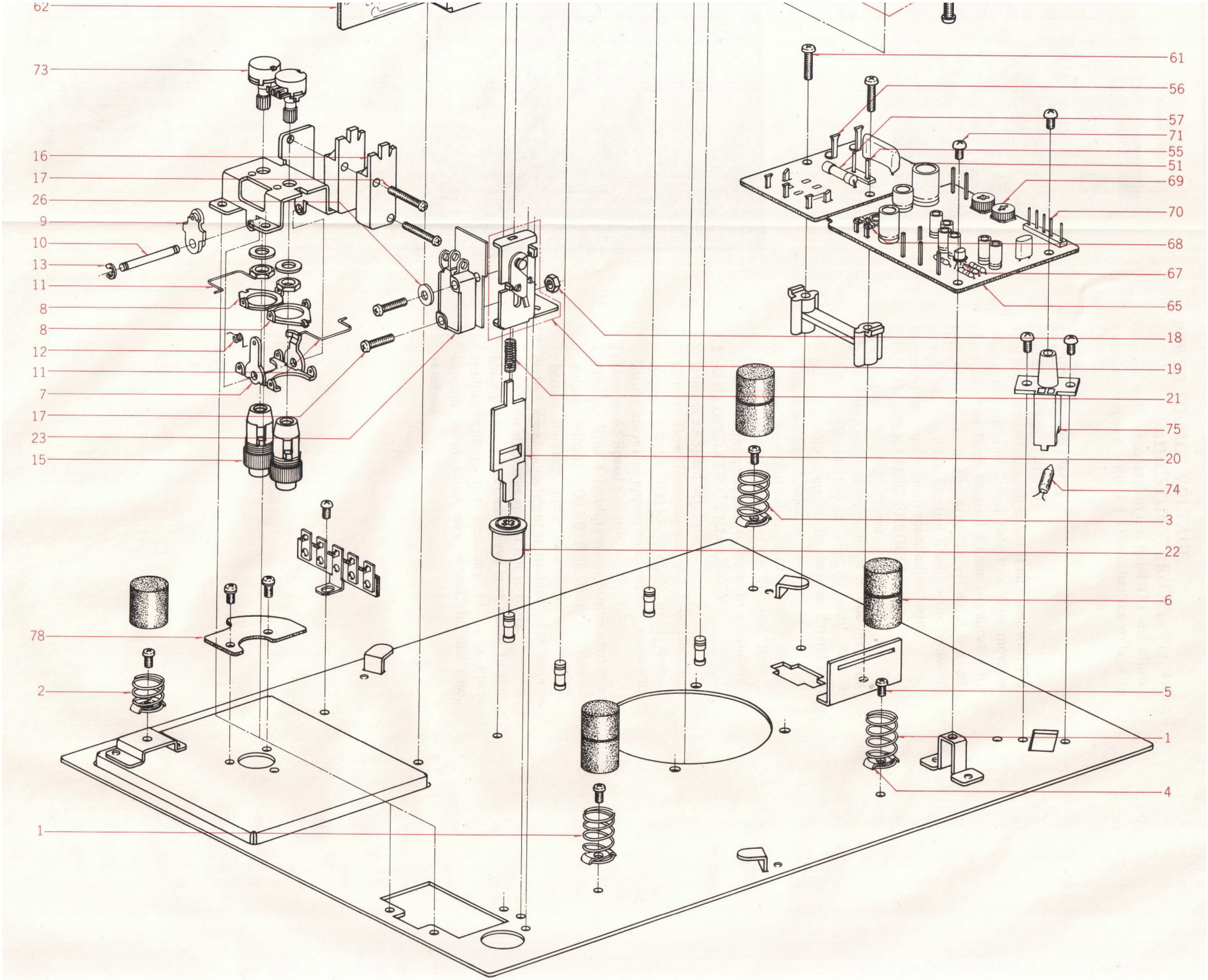
1) Depress 33 Speed Selector.
2) Observe Row 1 revolutions of Strobe markings. Adjust VR604 100 kB (Fig. 3) until Row 1 Strobe markings appear to come to a stand-still.
3) Depress 45 Speed Selector.
4) Observe Row 2 revolutions of Strobe markings. Adjust VR603 100 kB (Fig. 3) until Row 2 Strobe markings appear to come to a stand-still.

2-2 60 Hz OPERATING FREQUENCY

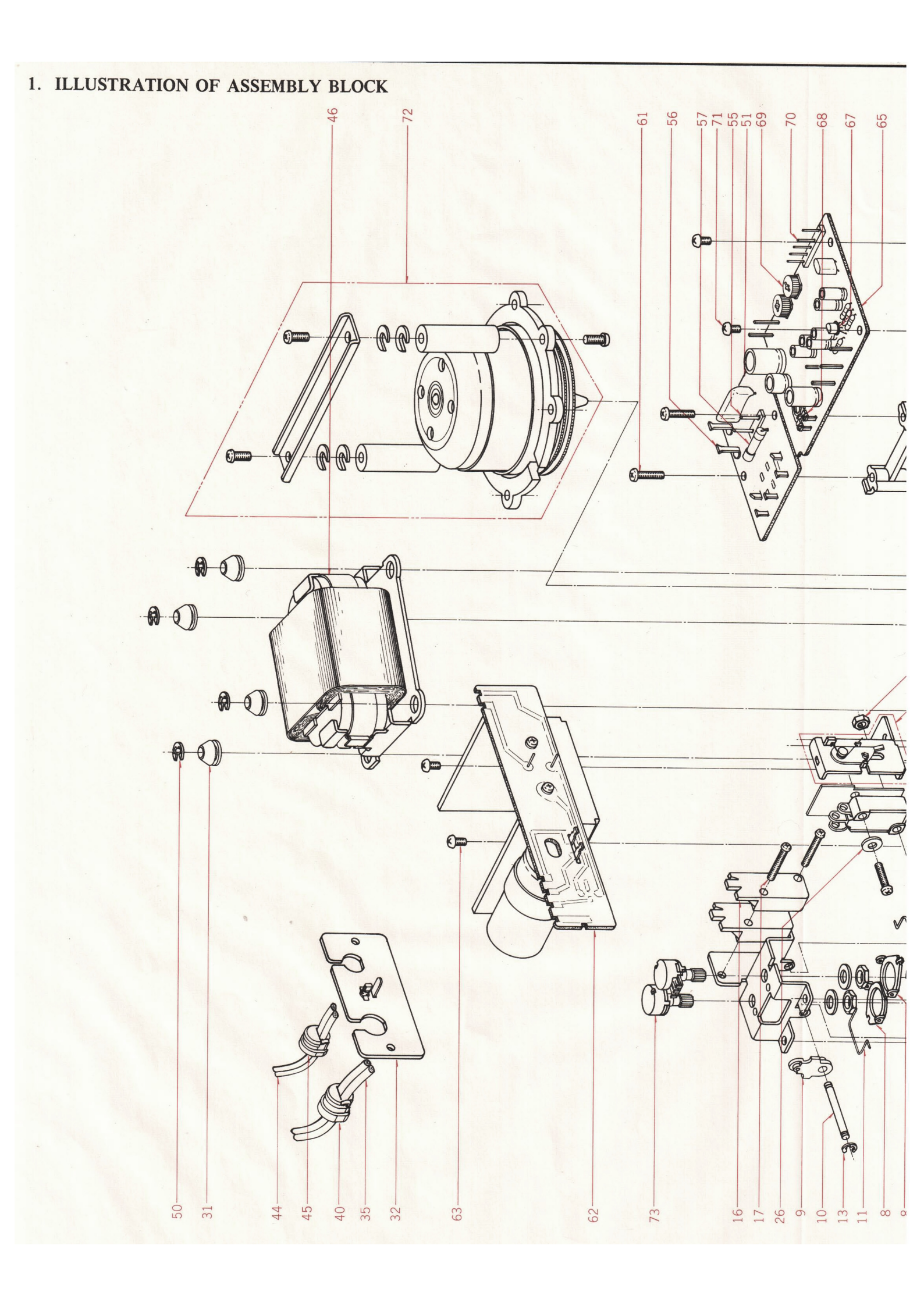
1) Depress 33 Speed Selector.
2) Observe Row 3 revolutions of Strobe markings. Adjust VR604 100 kB (Fig. 3) until Row 3 Strobe markings appear to come to a stand-still.
3) Depress 45 Speed Selector.
4) Observe Row 4 revolutions of Strobe markings. Adjust VR603 100 kB (Fig. 3) until Row 4 Strobe markings appear to come to a stand-still.

* Perfect speed adjustment is attained when respective Strobe markings appear not to move.

* Once pre-set adjustments have been made, further readjustment is not necessary unless a Pitch Control is in some way moved. In this case, re-adjust.


62
73
16
17
26
9
10
13
11
8
8
12
11
7
17
23
15
78
2
1
61
56
57
71
55
51
69
70
68
67
65
18
19
21
75
20
74
3
22
6
5
1
4

1. ILLUSTRATION OF ASSEMBLY BLOCK



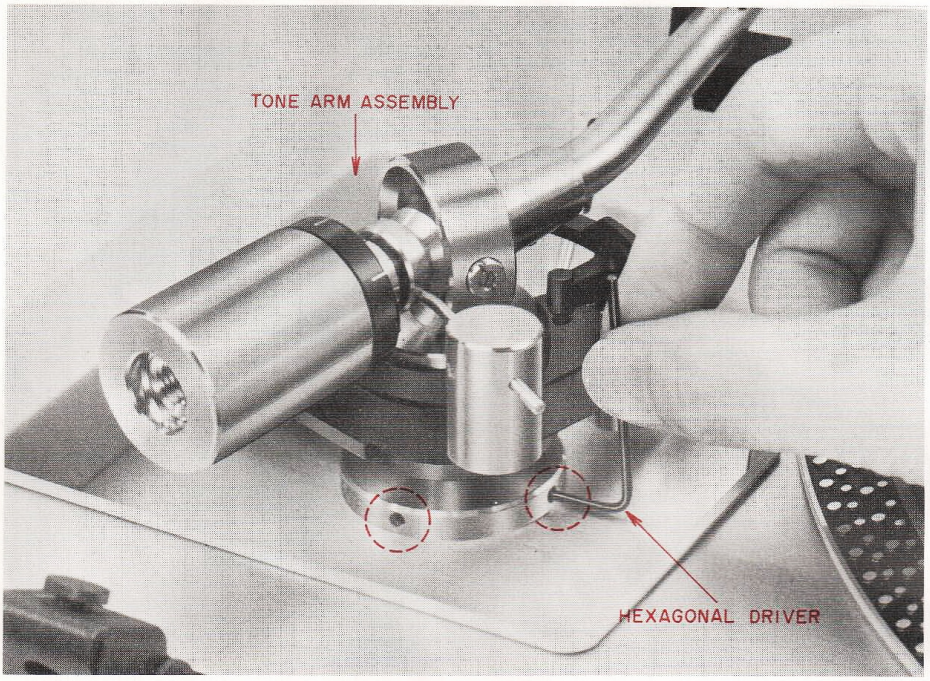


Fig. 5

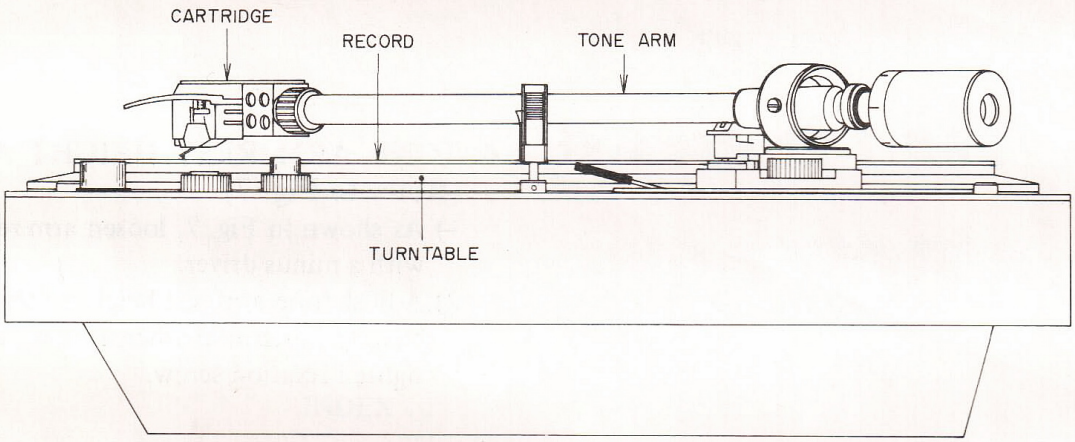


Fig. 6

3. TONE ARM HEIGHT ADJUSTMENT (Refer to Figs. 5 and 6)

Tone Arm Height is factory adjusted to 17.3 mm to accomodate Model APC-5 cartridge. This can be adjusted by +5, −3 mm according to the height of the cartridge being used. If Tone Arm Height Adjustment is necessary, this can be accomplished as follows:

1) Use a hexagonal driver as shown in Fig. 5 and loosen the two screws at the base of the tone arm assembly.
2) While playing a record, adjust tone arm height so that the tone arm is exactly horizontal as shown in Fig. 6 and tighten screw.

Fig. 7

4. TONE ARM REST HEIGHT ADJUSTMENT (Refer to Fig. 7)

1) As shown in Fig. 7, loosen arm rest fixation screw with a minus driver.
2) Adjust tone arm rest height so that the tone arm is exactly horizontal when it is on the arm rest, and tighten fixation screw.

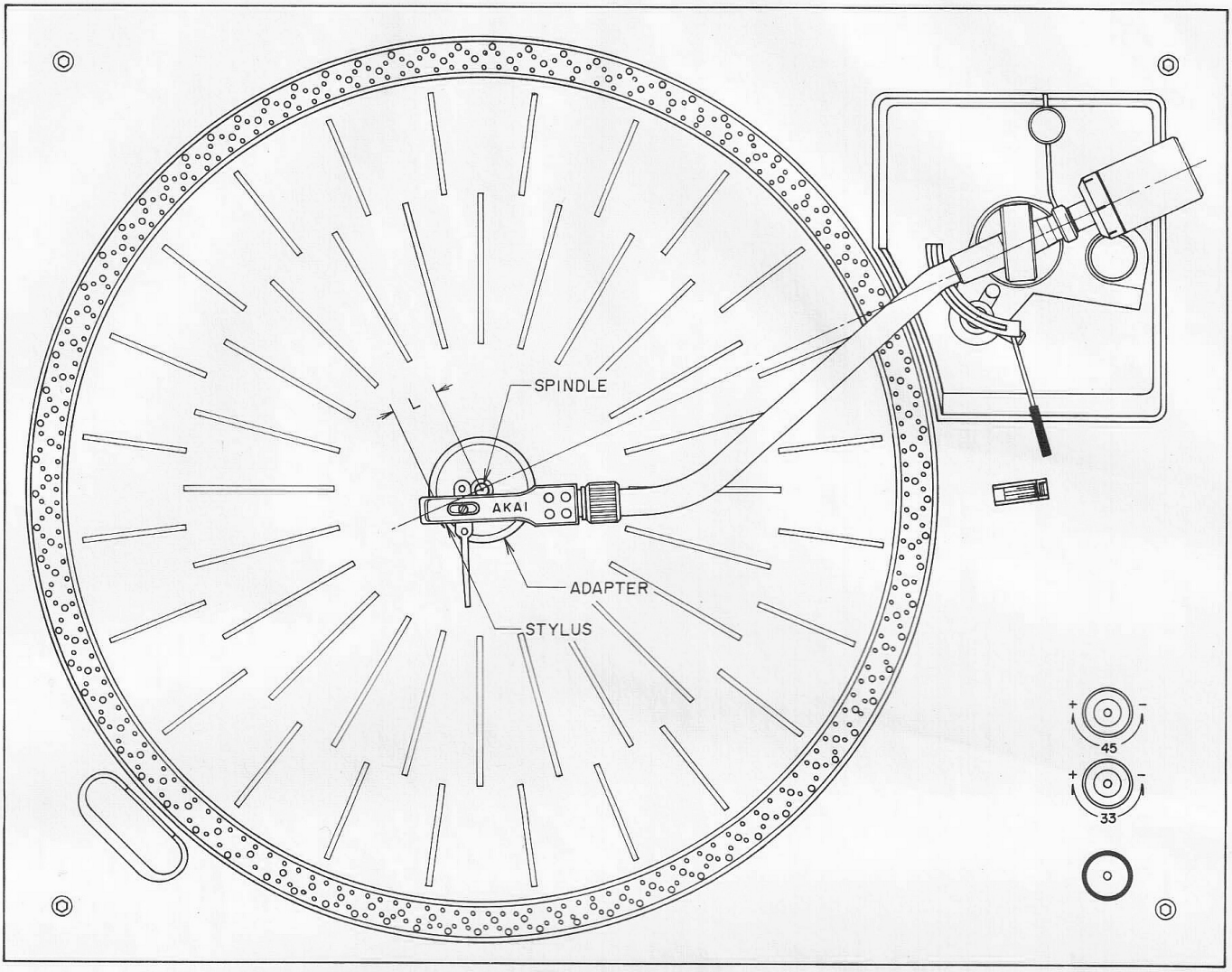


Fig. 8 Overhang Adjustment

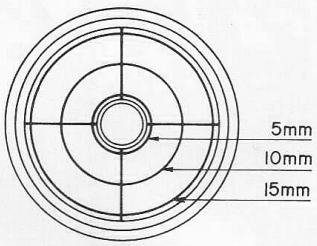
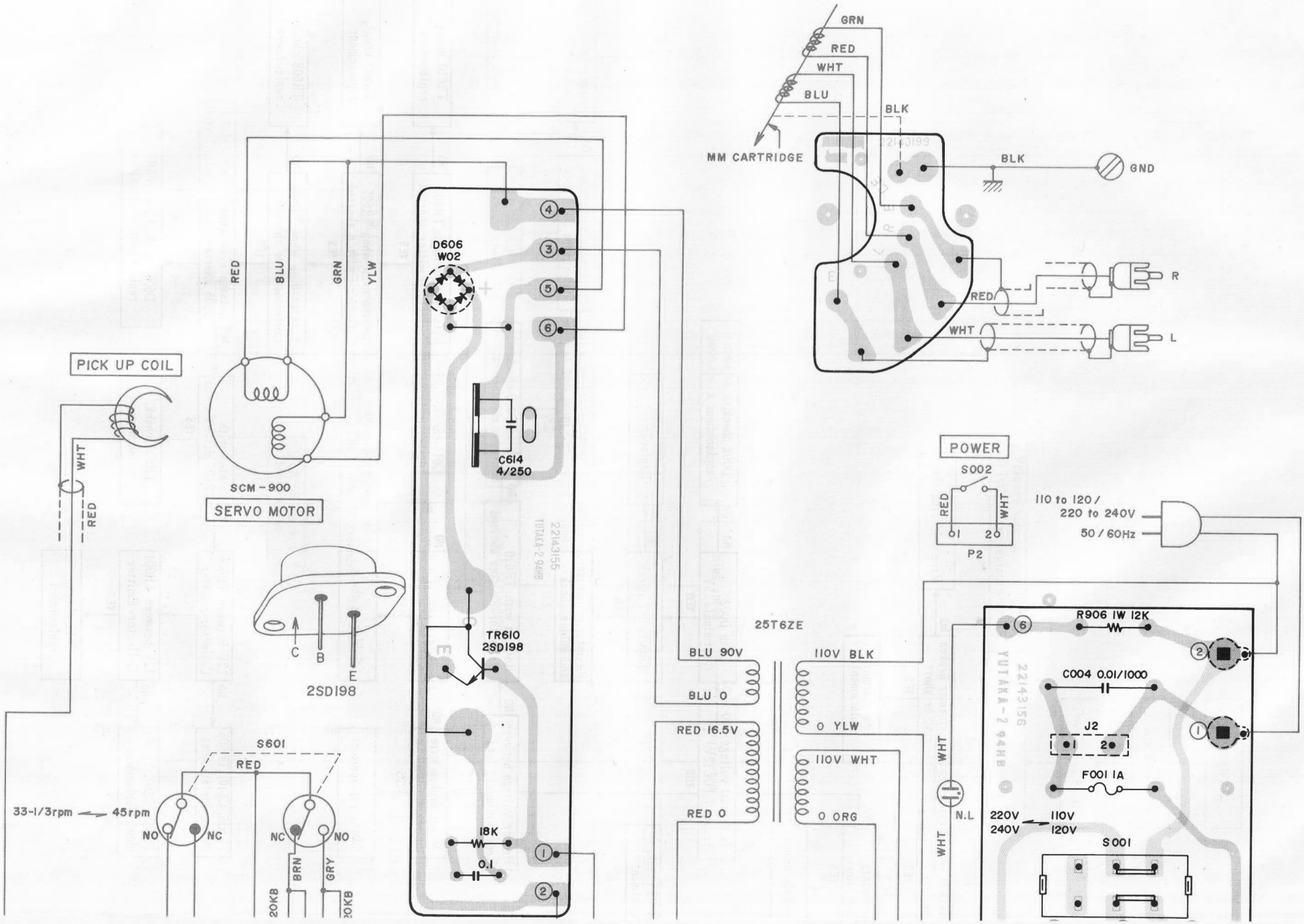
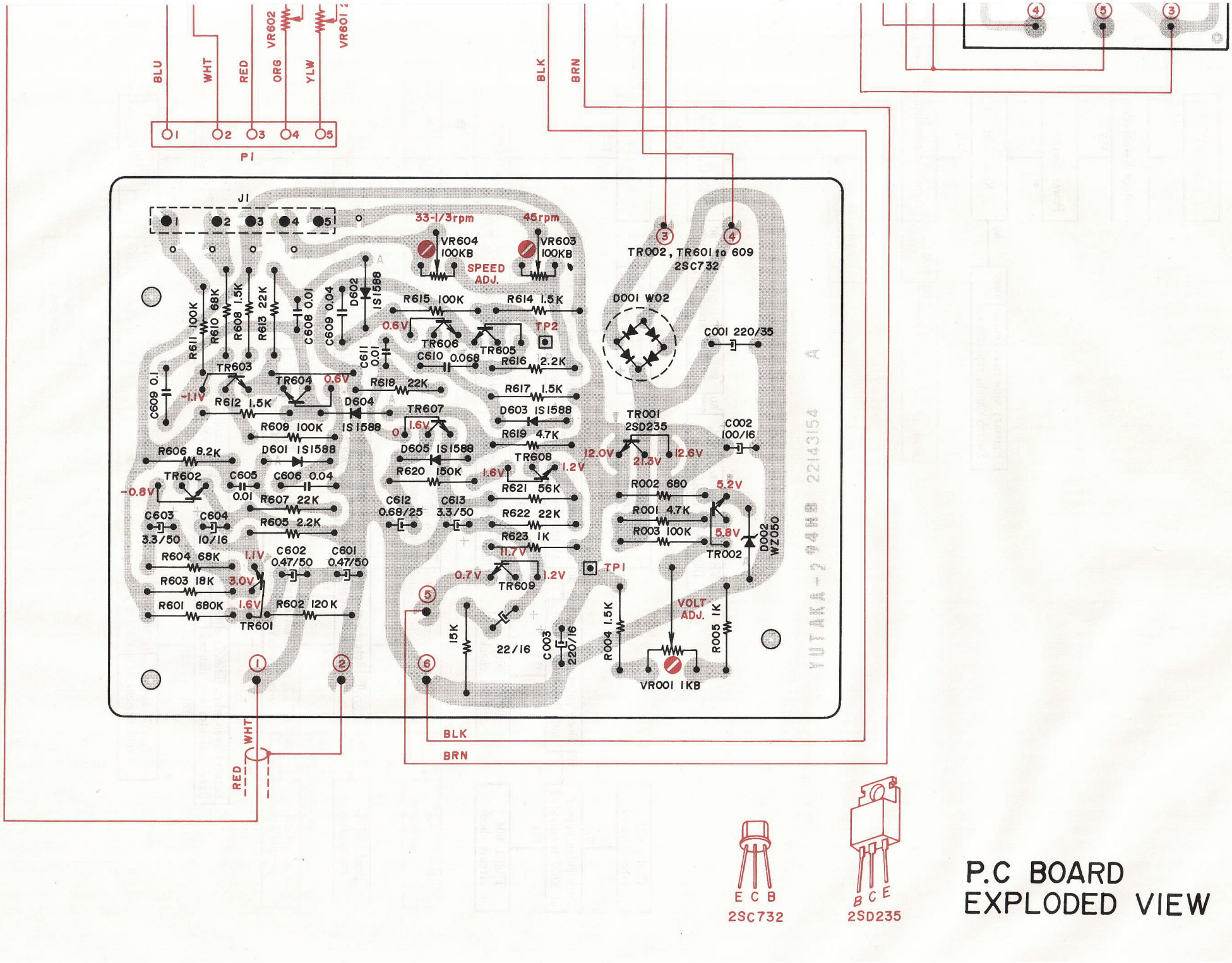


Fig. 9 45 rpm Adapter

5. OVERHANG ADJUSTMENT (Refer to Figs. 8 and 9)

A 45 rpm Adapter is supplied with your turntable for use when playing 45 rpm speed discs with a large center hole. Place the adapter on the turntable spindle. This adapter is also used for obtaining proper overhang when a cartridge is installed. The overhang is determined by the distance between the stylus and turntable spindle when the Tone Arm is moved to the center of the turntable. Correct overhang for the AP-006 is 15 mm. The stylus should be even with the 15 mm groove.

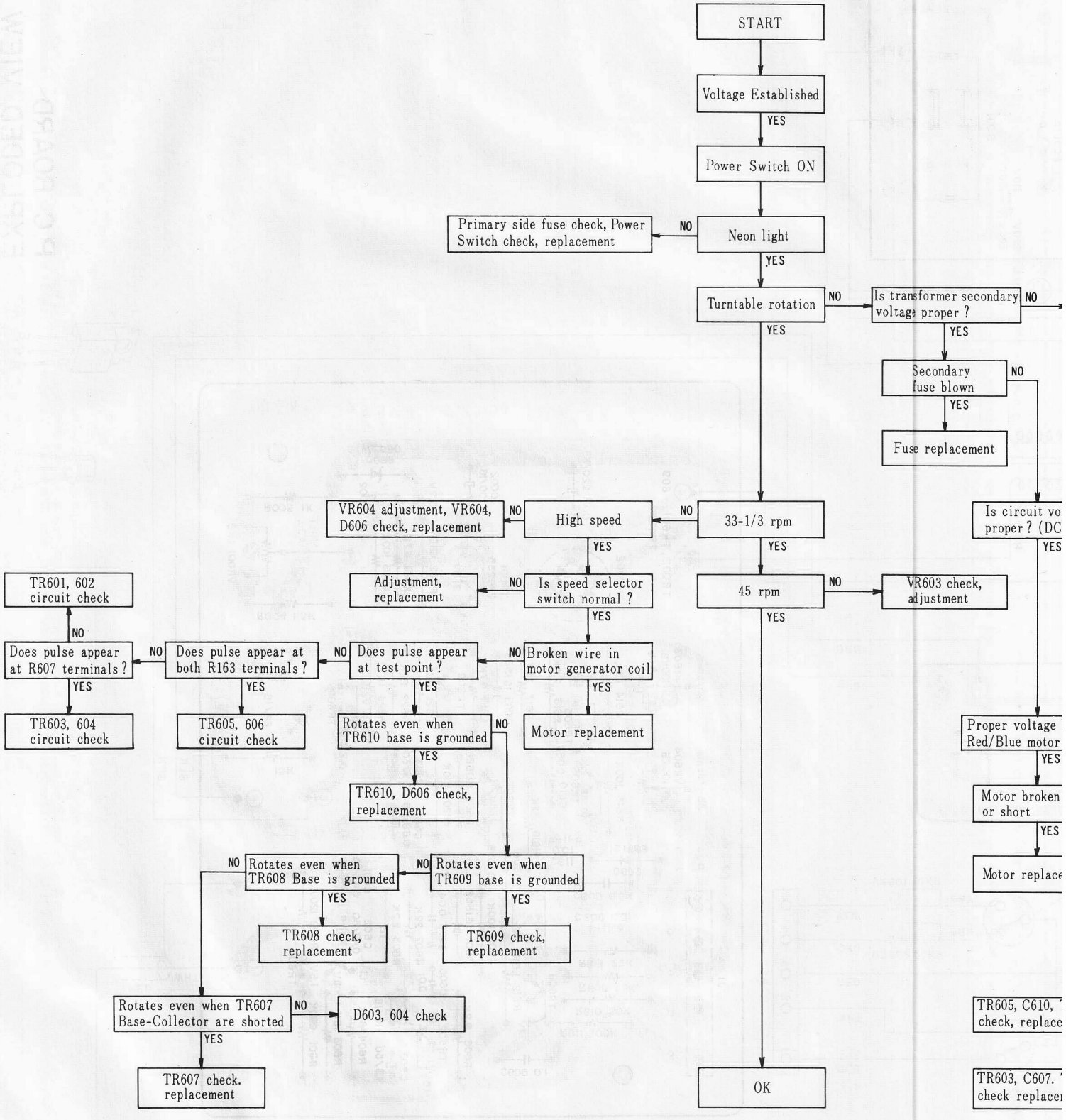

GRN
RED
WHT
BLU
BLK
MM CARTRIDGE
BLK
GND
R
RED
WHT
L
PICK UP COIL
WHT
RED
RED
BLU
GRN
YLW
SCM-900
SERVO MOTOR
D606
W02
C614
4/250
C
B
E
2SD198
TR610
2SD198
18K
0.1
S601
RED
33-1/3rpm
45rpm
NO
NC
NC
NO
BRN
GRY
20KB
20KB
25T6ZE
BLU 90V
BLU 0
RED 16.5V
RED 0
110V BLK
0 YLW
110V WHT
0 ORG
POWER
S002
RED
WHT
01
02
P2
110 to 120 /
220 to 240V
50 / 60Hz
R906 1W 12K
C004 0.01/1000
J2
01
02
F001 1A
WHT
N.L
WHT
220V
240V
110V
120V
S001

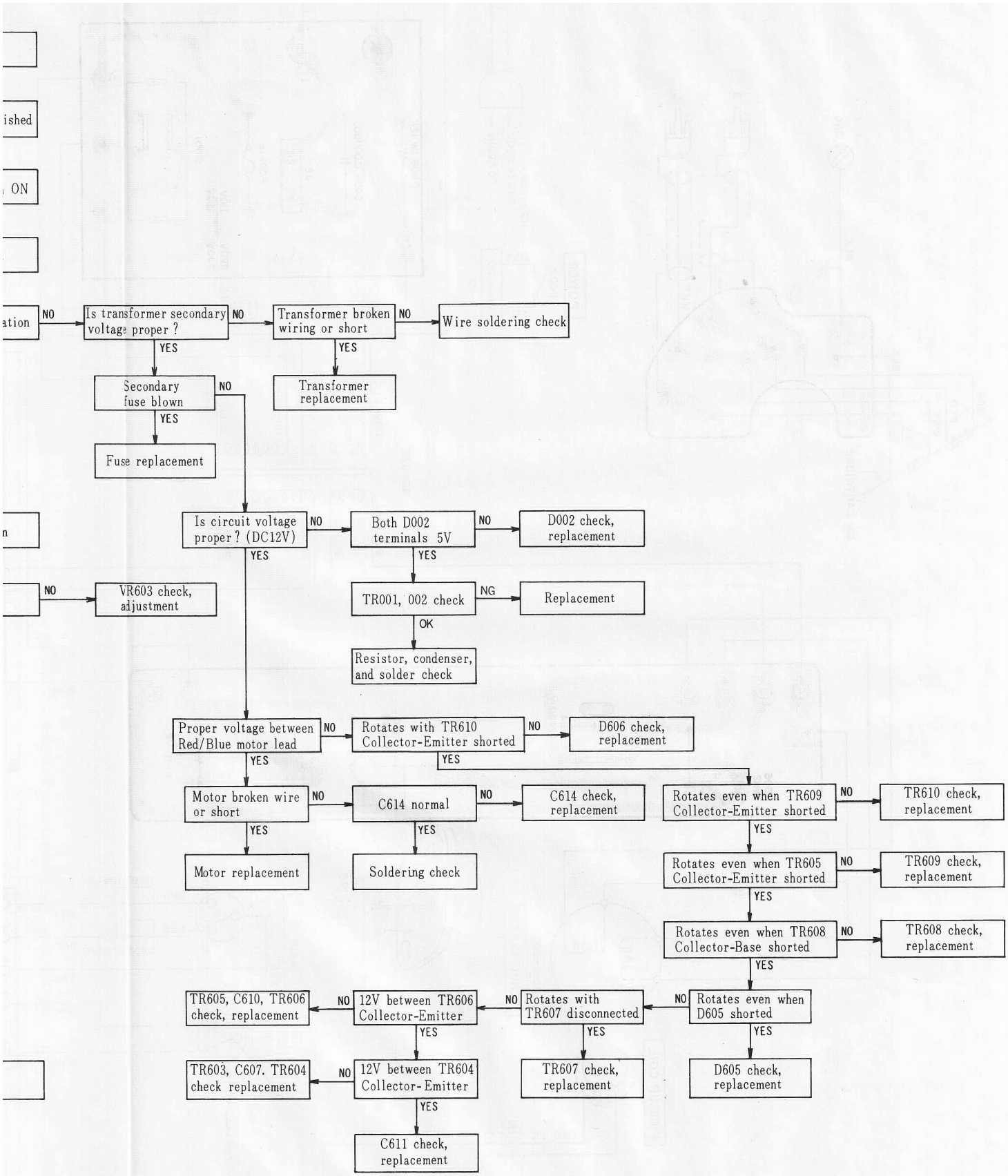


P.C BOARD EXPLODED VIEW

V. TROUBLE SHOOTING CHART

NOTE: For confirmation that wiring, parts, and polarities are in order.




NO
Is transformer secondary voltage proper ?
NO
Transformer broken wiring or short
NO
Wire soldering check
YES
YES
Secondary fuse blown
NO
Transformer replacement
YES
Fuse replacement
Is circuit voltage proper ? (DC12V)
NO
Both D002 terminals 5V
NO
D002 check, replacement
YES
YES
NO
VR603 check, adjustment
TR001, 002 check
NG
Replacement
OK
Resistor, condenser, and solder check
Proper voltage between Red/Blue motor lead
NO
Rotates with TR610 Collector-Emitter shorted
NO
D606 check, replacement
YES
YES
Motor broken wire or short
NO
C614 normal
NO
C614 check, replacement
Rotates even when TR609 Collector-Emitter shorted
NO
TR610 check, replacement
YES
YES
YES
Motor replacement
Soldering check
Rotates even when TR605 Collector-Emitter shorted
NO
TR609 check, replacement
YES
Rotates even when TR608 Collector-Base shorted
NO
TR608 check, replacement
YES
TR605, C610, TR606 check, replacement
NO
12V between TR606 Collector-Emitter
NO
Rotates with TR607 disconnected
NO
Rotates even when D605 shorted
YES
YES
YES
TR603, C607. TR604 check replacement
NO
12V between TR604 Collector-Emitter
TR607 check, replacement
D605 check, replacement
YES
C611 check, replacement

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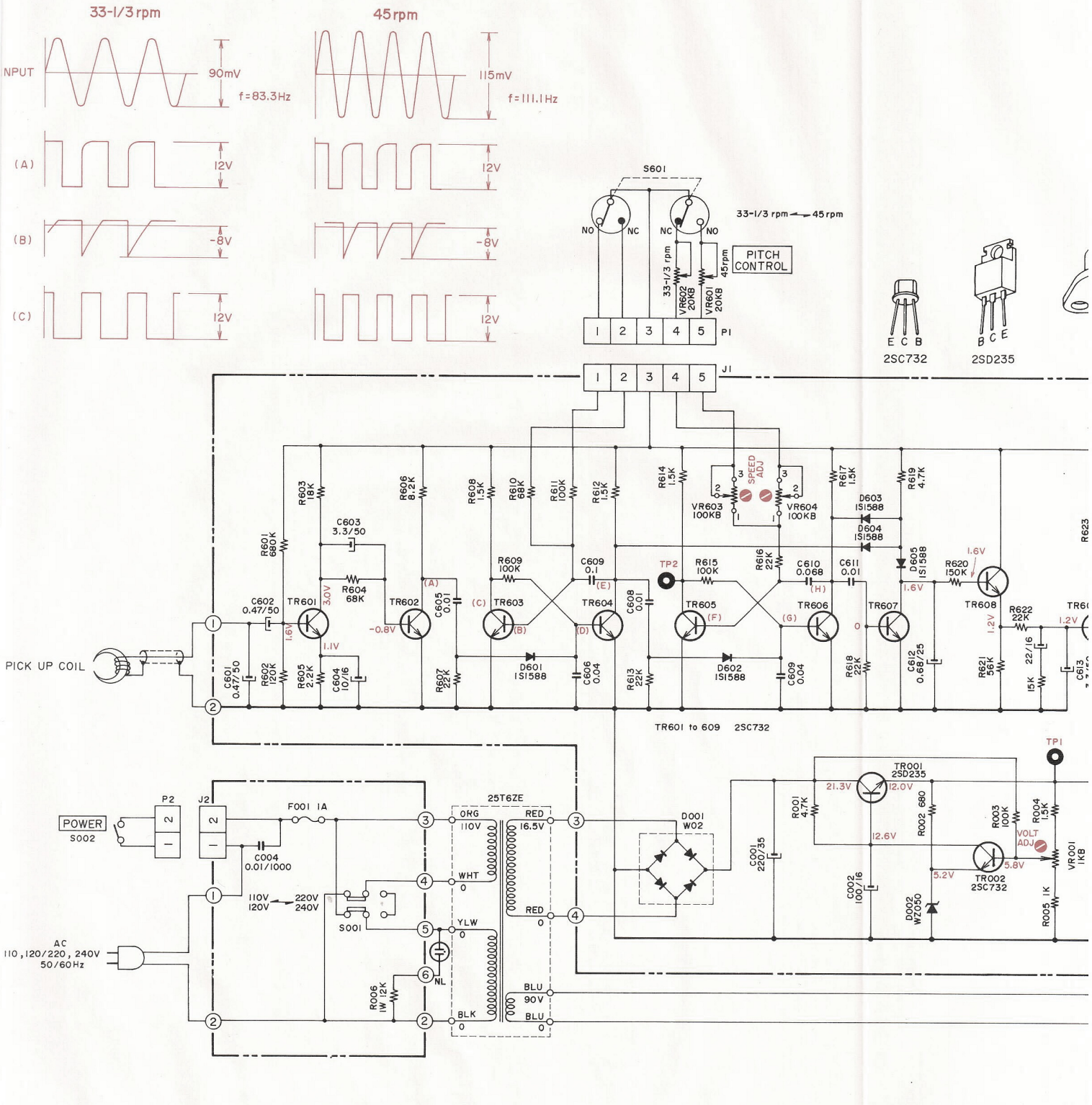
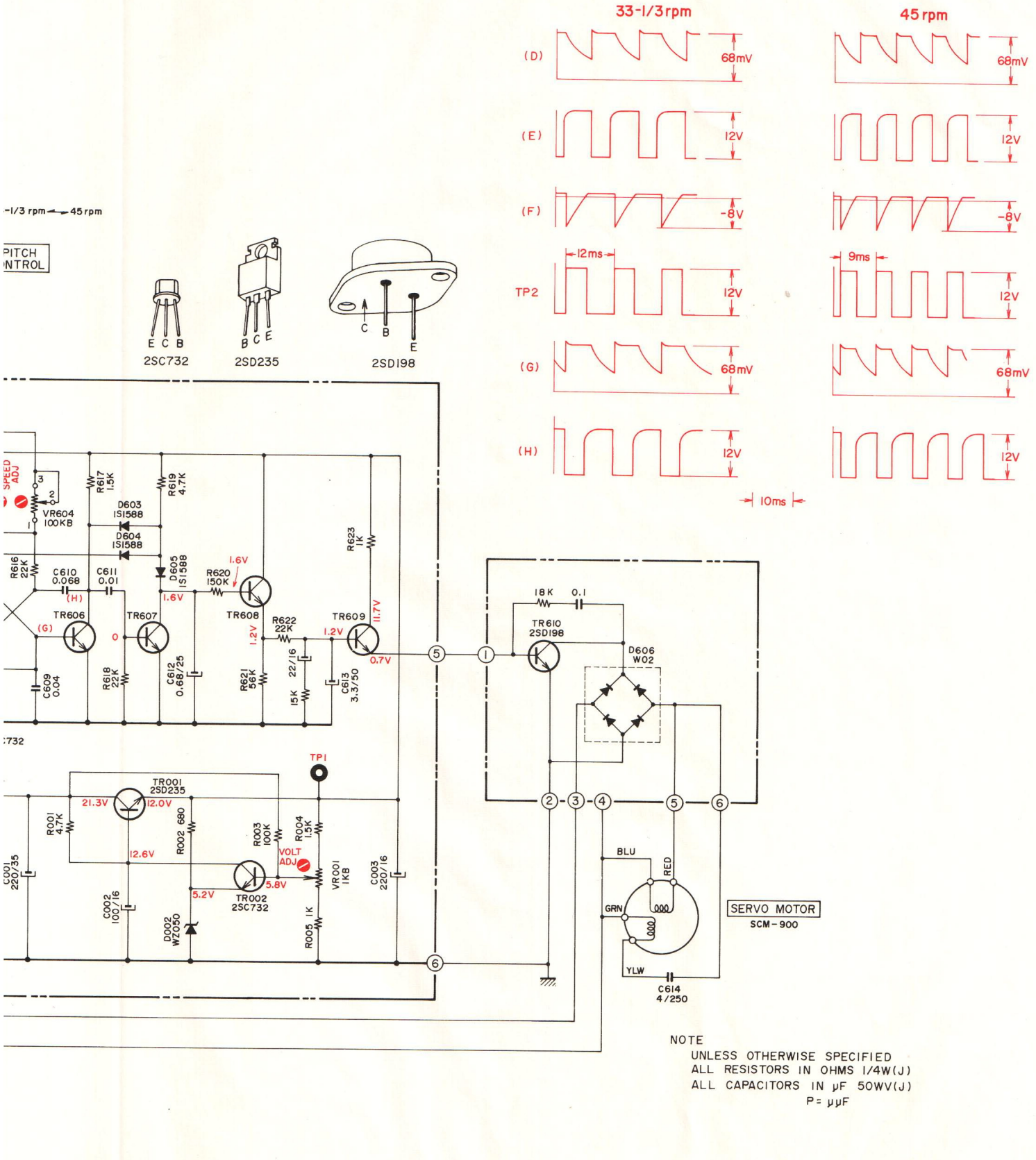

33-1/3 rpm
45 rpm
INPUT
90mV
f=83.3Hz
115mV
f=111.1Hz
(A)
12V
(B)
-8V
(C)
S601
NO
NC
33-1/3 rpm → 45 rpm
PITCH CONTROL
33-1/3 rpm
45rpm
VR602 20KB
VR601 20KB
1 2 3 4 5 P1
E C B
2SC732
B C E
2SD235
J1
SPEED ADJ
VR603 100KB
VR604 100KB
R601 680K
R603 18K
C603 3.3/50
R604 68K
R606 8.2K
R608 1.5K
R609 100K
R610 68K
R611 100K
R612 1.5K
R614 1.5K
C609 0.1
R615 100K
R616 22K
C610 0.068
C611 0.01
R617 1.5K
R619 4.7K
D603 1S1588
D604 1S1588
D605 1S1588
R620 150K
TR608
R622 22K
C602 0.47/50
TR601
TR602
C605 0.01
TR603
TR604
C608 0.01
TR605
TR606
TR607
C612 0.68/25
R621 56K
22/16
15K
C613
PICK UP COIL
C601 0.47/50
R602 120K
R605 2.2K
C604 10/16
R607 22K
D601 1S1588
C606 0.04
R613 22K
D602 1S1588
C609 0.04
R618 22K
TR601 to 609 2SC732
TP1
TP2
TR001 2SD235
21.3V
12.0V
12.6V
R001 4.7K
R002 680
R003 100K
R004 1.5K
VOLT ADJ
VR001 1KB
5.8V
5.2V
TR002 2SC732
C001 220/35
C002 100/16
D002 WZ050
R005 1K
D001 W02
POWER
S002
P2
J2
F001 1A
C004 0.01/1000
110V 120V → 220V 240V
S001
AC
110,120/220, 240V
50/60Hz
R006 1W 12K
NL
25T6ZE
ORG
110V
WHT
0
YLW
0
BLK
0
RED
16.5V
RED
0
BLU
90V
BLU
0



NOTE
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS 1/4W(J)
ALL CAPACITORS IN μF 50WV(J)
P = μμF

AP-006
SCHEMATIC DIAGRAM
NO. 1540442A

2C