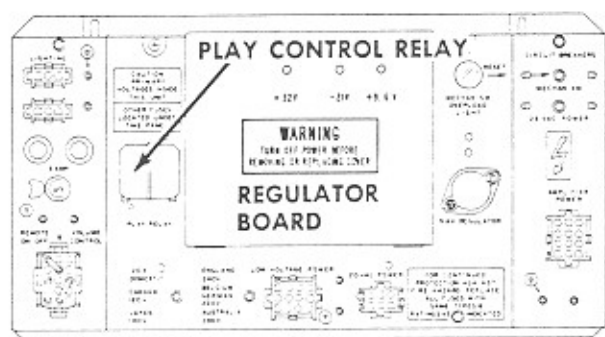




TROUBLE SHOOTING TEST PROCEDURE

I. STANDBY CONDITION

Before attempting on location maintenance, unnecessary probing can be avoided if certain internal phonograph conditions can be observed.



II. TROUBLESHOOTING

When machine is opened, observe if the three LED's on the face of the POWER SUPPLY are ON indicating the presence of operating voltages. These voltages are protected by SLO-BLO fuses on the inside of the power supply, and two CIRCUIT BREAKERS on the front panel.

Unexplainable malfunctions can occur if the 9.6 Vdc microprocessor operating voltage is HIGHER or LOWER. Check for 9.6 Vdc at the LOW VOLTAGE POWER plug at the power supply. (Pink wire to chassis ground) Adjustment is made on the REGULATOR BOARD TRIM POT R220. Disregard the 9.3 Vdc voltage information if imprinted next to the pot.

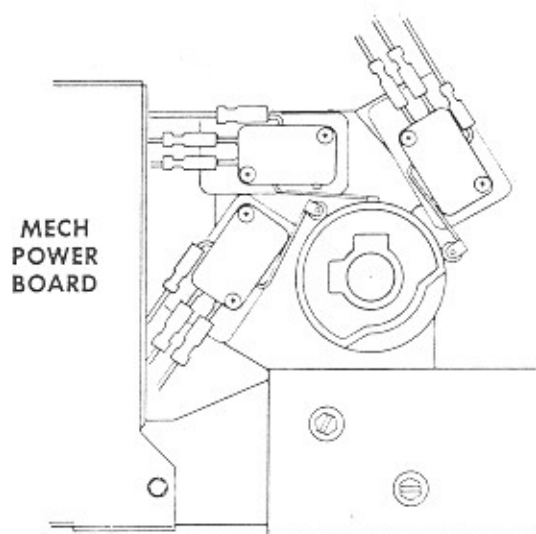
120 Vac power (U.S.A.) is protected by a 5 amp circuit breaker, also on the front panel of the power supply.

Standard operation of the machine (not set for free play) can be quickly tested and problem area pinpointed by the following test procedures.

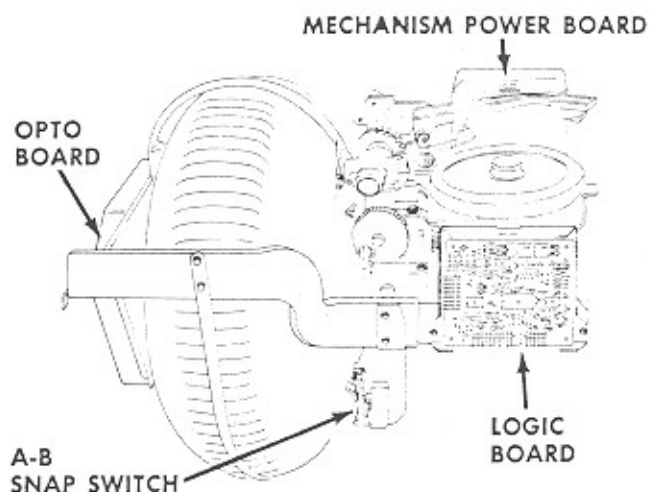
- A) On the back side of the cabinet operate the MAIN POWER SWITCH OFF, then ON.

Mechanism should operate allowing the RECORD MAGAZINE to rotate one revolution and stop in HOME POSITION. (Gripper arm over open space on the magazine)

IF THIS TEST OCCURS, CONTINUE TO SECTION III.



Note: Operation of the four MICRO SWITCHES in the mechanism circuits are not mentioned as possible problem areas. Past experience with MICRO SWITCHES in former models indicate malfunctions are very unlikely.



- 1) IF THE MECHANISM DOES NOT START when the main power switch is operated OFF and ON, move the scan switch to SCAN POSITION.

IF THE MECHANISM STARTS, then the problem area is:

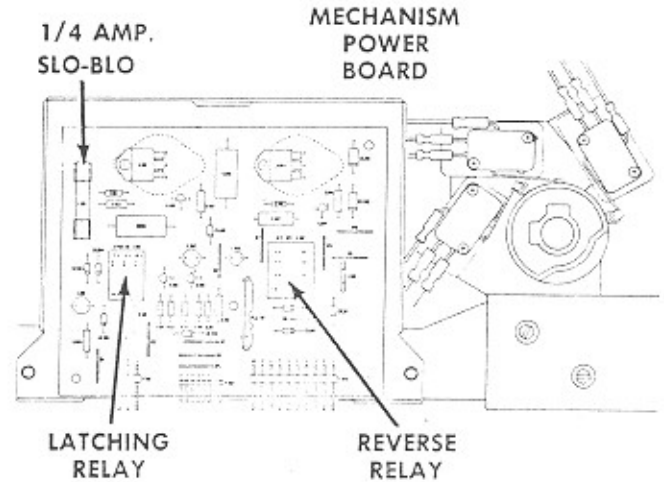
- A) Defective LOGIC BOARD

IF THE MECHANISM DOES NOT START IN SCAN POSITION, then the problem area is:

- A) CREDIT UNIT BOARD
- B) LOGIC BOARD
- C) REGULATOR BOARD (power supply)
- D) PLAY CONTROL RELAY
- E) MAGAZINE MOTOR
- F) MECHANISM POWER BOARD

3) IF MAGAZINE STOPS AT WRONG SELECTIONS by two or more records on the middle and end test selections, then the problem area is:

- A) LOGIC BOARD



3) IF THE MECHANISM DOES NOT START BUT THE TURNTABLE IS ROTATING, then the problem area:

- A) PLAY CONTROL RELAY
- B) MAGAZINE MOTOR
- C) MECHANISM POWER BOARD

III. LOGIC BOARD TEST

To examine the operation of the LOGIC BOARD, press CLEAR button, then press TEST button.

Mechanism should operate and select test selections #100 - #194 - #197 - #200 - #294 - #297. IMPORTANT that each test selection is cancelled by the RECORD CANCEL SWITCH on the back of the cabinet. Observe if the correct test selections appear in the RECORD PLAYING window.

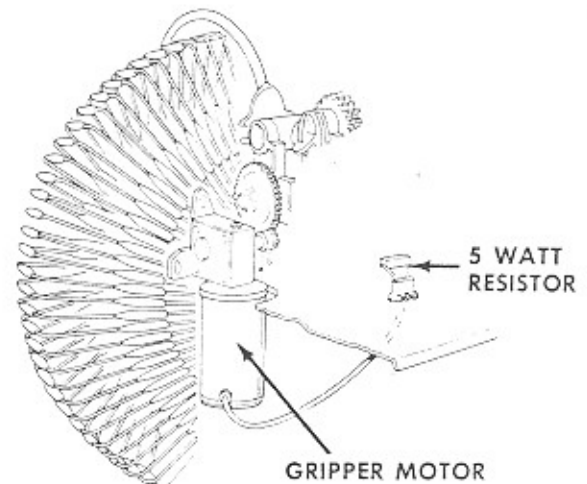
IF THE TEST ROUTINE OCCURS, CONTINUE TO SECTION IV.

1) IF MECHANISM FAILS TO STOP to play any test selections, the magazine will complete three revolution before stopping in HOME POSITION. This indicates the problem area is:

- A) A-B SNAP SWITCH
- B) OPTO BOARD
- C) LOGIC BOARD

2) IF MECHANISM PLAYS ONE SIDE OF THE TEST RECORD BUT NOT THE OTHER SIDE, then the problem area is:

- A) A-B SNAP SWITCH
- B) LOGIC BOARD



4) If magazine rotation stops and GRIPPER MOTOR DOES NOT START, then the problem area is:

- A) LATCHING RELAY
- B) LOGIC BOARD
- C) 5 WATT RESISTOR
- D) GRIPPER MOTOR

5) IF GRIPPER ARM DOES NOT PICK UP RECORD in the center of the separators, then the problem is:

- A) INDEXING ADJUSTMENT.
See adjustment SECTION VIII.

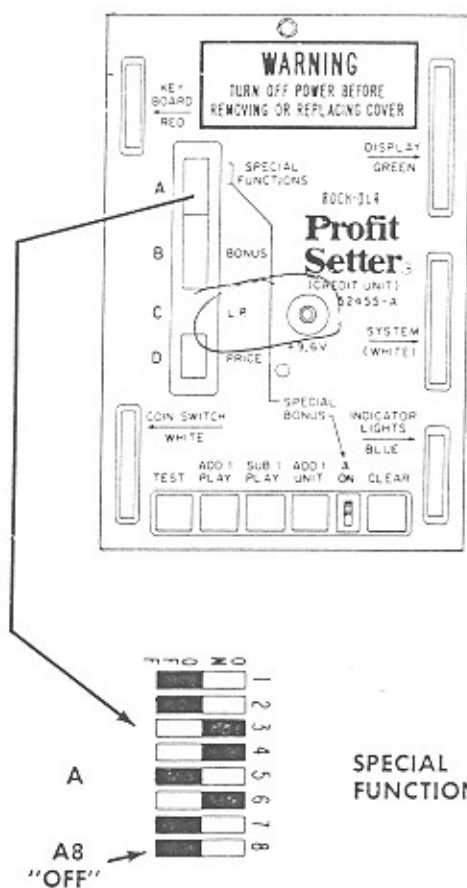


6) IF GRIPPER MOTOR STOPS before tone arm stylus rests on the record, then the problem area is:

- A) BLOWN 1/4 AMP SLO-BLO FUSE (on the mechanism power board)
- B) MECHANISM POWER BOARD

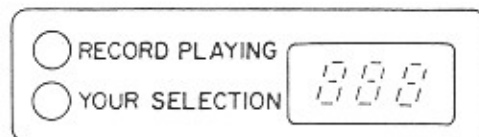
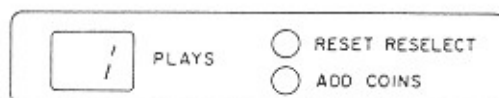
7) IF TONE ARM DOES NOT CANCEL RECORD when record cut-off groove is reached, then the problem area is:

- A) TONE ARM SWITCH
- B) REVERSE RELAY
- C) LATCHING RELAY
- D) MECHANISM POWER BOARD
- E) BLOWN 1/4 AMP SLO-BLO FUSE (on the mechanism power board)



IV. To examine the operation of the CREDIT UNIT, set RANDOM PLAY SWITCH A8 to OFF. Press CLEAR button, then press TEST button.

Credits will ADD then SUBTRACT until 1 PLAY remains displayed in the credit window.



- 1) If 888 also appears in the RECORD PLAYING window, then:
 - A) See if any COIN SWITCHES ARE CLOSED. If not closed, then;
 - B) CREDIT UNIT BOARD is defective.
- 2) IF 888 DOES NOT APPEAR, press CLEAR button to erase 1 PLAY.
- 3) Press ADD 1 CREDIT button 5 times, 5 plays should display in the credit window.
- 4) Press SUBTRACT 1 PLAY button 5 times, 5 plays are subtracted one at a time.

IF ADD AND SUBTRACT routine does not operate correctly:

- A) Replace CREDIT BOARD.

IF ADD and SUBTRACT routine operates OK, then:

- 5) Press CLEAR button. Press ADD 1 UNIT button one time. ADD COINS Led should LIGHT.

IF ADD COINS LED DOES NOT LIGHT, then the problem is:

- A) Defective CREDIT BOARD.

IF ADD COINS LED LIGHTS, then:

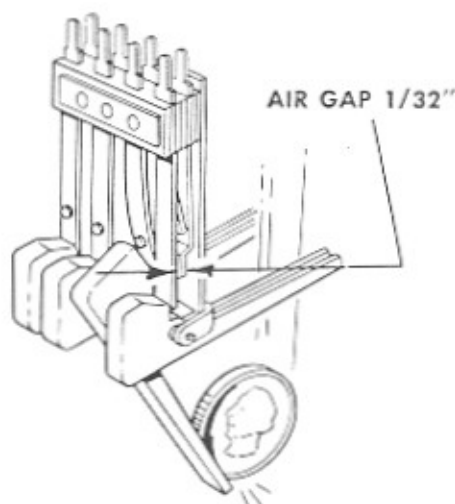
- 6) Continue to press ADD 1 UNIT button until price for 1 play is reached. ADD COINS LED turns off, 1 play is displayed.
- 7) Make error selection, as 333. IF RESET-RESELECT DOES NOT LIGHT, then the problem is:

- A) Defective CREDIT BOARD.

Procedure for testing PRICE, BONUS and SPECIAL FUNCTIONS switch banks A, B, and D are explained on page 10.

V. COIN SWITCH TEST

Use a combination of coins to test the operation of the COIN SWITCHES. Observe if correct amount of plays are displayed as set by the PRICE and BONUS switch banks D and B.



IF THE SAME COIN does not add the same number of credits each time, then check for:

- A) BOUNCING COIN SWITCH
- B) DIRTY COIN SWITCHES
- C) COIN SWITCH AIR GAP MUST BE 1/32"



VI. KEYBOARD TEST PROCEDURE

To test keyboard circuits for signal continuity, do the following:

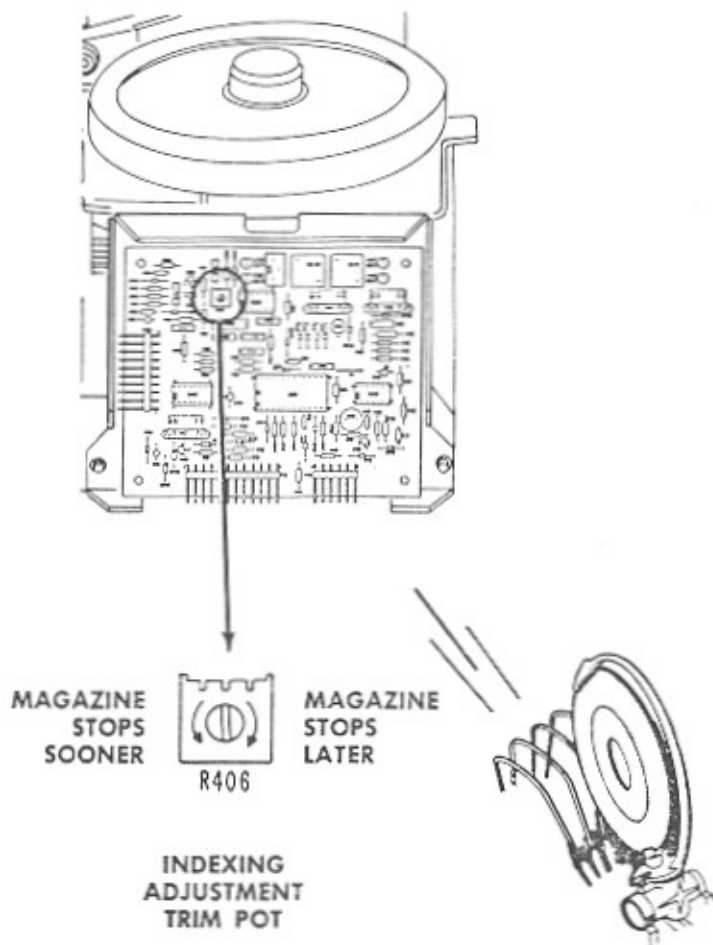
- 1) Move SCAN switch to OFF position.
- 2) Press CLEAR button on the CREDIT UNIT, then press ADD 1 PLAY button.
- 3) Press pushbuttons "1" and "2" . . . IF NUMBERS APPEAR IN THE DISPLAY WINDOW, press the RESET button to clear the selection system.
- 4) Follow the same procedure for numbers "1" and "3", "1" and "4", "1" and "5" etc., until numbers "1" and "0" are pressed and displayed.
- 5) IF ALL NUMBERS DISPLAY, the keyboard is operating correctly.

NUMBERS THAT DO NOT DISPLAY, the problem area can be:

- A) OPEN DIODE on the keyboard
- B) PUSHBUTTON SWITCH
- C) CABLING

VII. HIT TRACKER (POPULARITY METER)

Procedure for testing the HIT TRACKER is explained on page 13. If this unit is removed, the operation of the machine will not be effected.



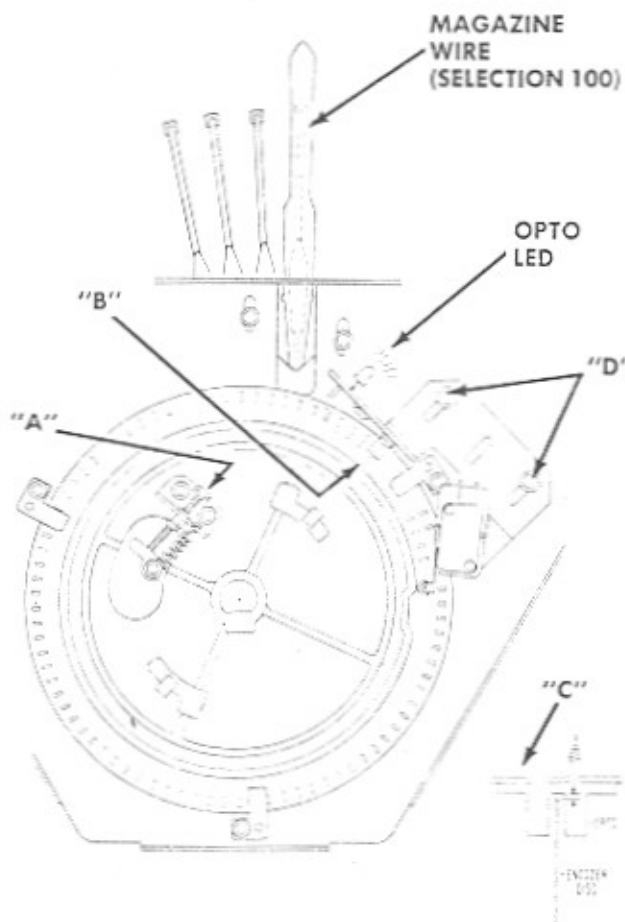
VIII. INDEXING ADJUSTMENT PROCEDURE

Record must be in correct pick-up position for removal by the gripper arm.

- 1) Press Logic Board TEST BUTTON. Record magazine starts rotating and indexes at record selection 100 - 194 - 197 - 200 - 294 - 297.
- 2) Allow record to be placed on the turntable.
- 3) Cancel record . . . As record starts to enter record slot, note the record alignment between the left and right separator with respect to center.
- 4) To adjust, turning trim pot clockwise will advance the record alignment toward the right separator . . . counter clockwise to the left separator.

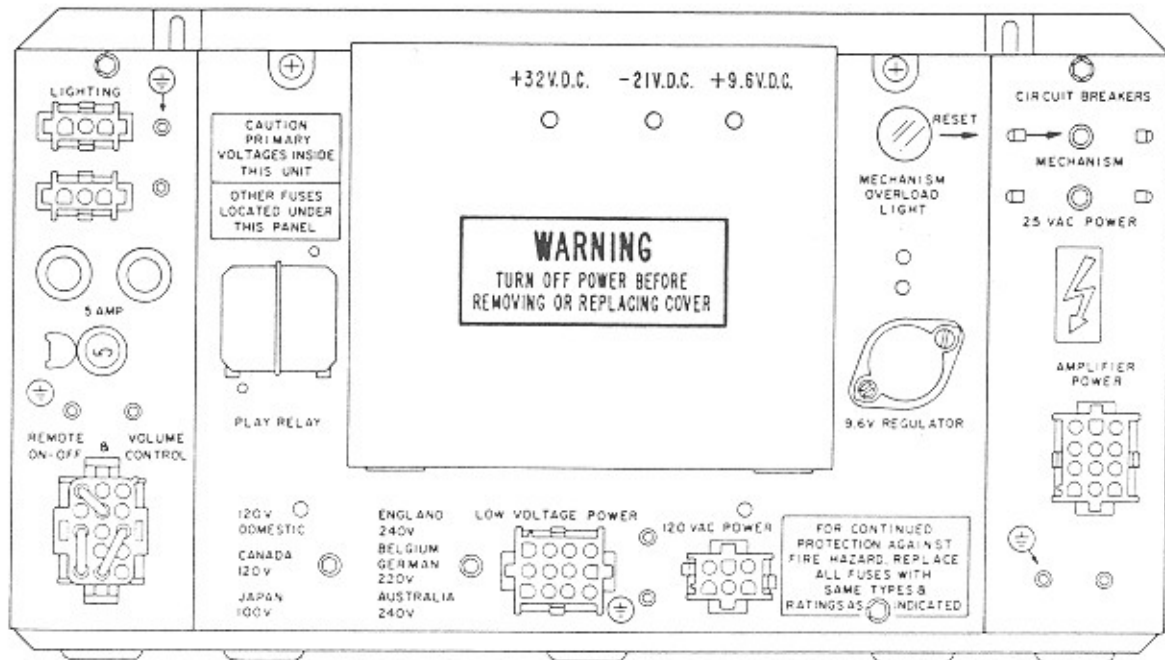
Recheck the adjustment by repeating the procedure with the remaining test selections.

Note: If the Trim Pot cannot be adjusted to produce the proper record alignment, the Encoder Disc must be re-adjusted as shown below.



OPTO ASSEMBLY ADJUSTMENT PROCEDURE

1. Rotate the knurled end of the magazine motor until the first magazine wire (selection 100) is directly under the gripper arm. At this point the opto LED lamp should light. If this does not occur, then;
2. Turn adjustment screw "A" until the White Line "B", on the Encoder Disc, aligns with the center line on the Opto Encoder, and the opto LED lamp lights.
3. The Opto Encoder Assembly must be set approximately $3/64$ " above the Encoder Disc as shown at "C". Loosen screws "D" to raise or lower assembly.



POWER SUPPLY

The Power Supply provides the various AC and DC voltage requirements to operate all the systems in the entire phonograph. For 100 and 120 VAC operation the lighting circuits and the power transformer primary windings are protected by a 5 amp fuse or circuit breaker; for 200 and 240 volt operation, three fuses serve the same purpose. The line ON-OFF switch is located within the power supply and is accessible from the rear of the cabinet.

The transformer has four secondary windings which provide AC voltages as follows:

WINDING #1 — A center tapped 46 VAC winding which supplies the amplifier power. Fusing, rectification and filtration components are located in the amplifier.

WINDING #2 — A 15 VAC winding which is fused, rectified, filtered and applied to a three terminal voltage regulator (LM 317) via pass transistor Q101. The Q101 and Q102 transistors provide for a fast voltage rise time at the input of the voltage regulator; this is required by the various MP chips. The output of the voltage regulator is adjusted by potentiometer R220 and is factory set to 9.6 VDC.

WINDING #3 — A 25 VAC winding which is fused, rectified, filtered and applied to the mechanism relay and motor circuits via two protective means. The first consists of a very fast acting, latching type "electronic fuse" circuit which

protects the mechanism motor drive transistors in the event of a short circuit in the motors or associated circuits; the second is a slow acting manual circuit breaker which opens if a mechanism jam occurs. This mechanism voltage is approximately 32 VDC under no load conditions.

WINDING #4 — A 25 VAC winding, protected by a manual circuit breaker, which provides:

1. AC power to the Flasher Board.
2. AC power to the Motorized Volume Control.
3. AC power to the Dollar Bill Validator (an accessory).
4. AC power to the vacuum displays filament transformer which supplies 2.4 volts.

Additionally, the negative 21 volts is derived from this winding via CR209, C204 and its associated circuitry which constitutes a current foldback arrangement which limits the current to a safe value should a short occur.

All the fuses described are either on the Rectifier Board inside the chassis, or on the front panels. The detachable front panel mounts the T2 transformer (w/fuse) for the displays and the Play Control Relay K1.

The voltage regulator P.C. board mounts on the front panel protected by a transparent snap-on cover. The three D.C. supplies and associated circuitry, each use a LED to indicate the presence of voltage.