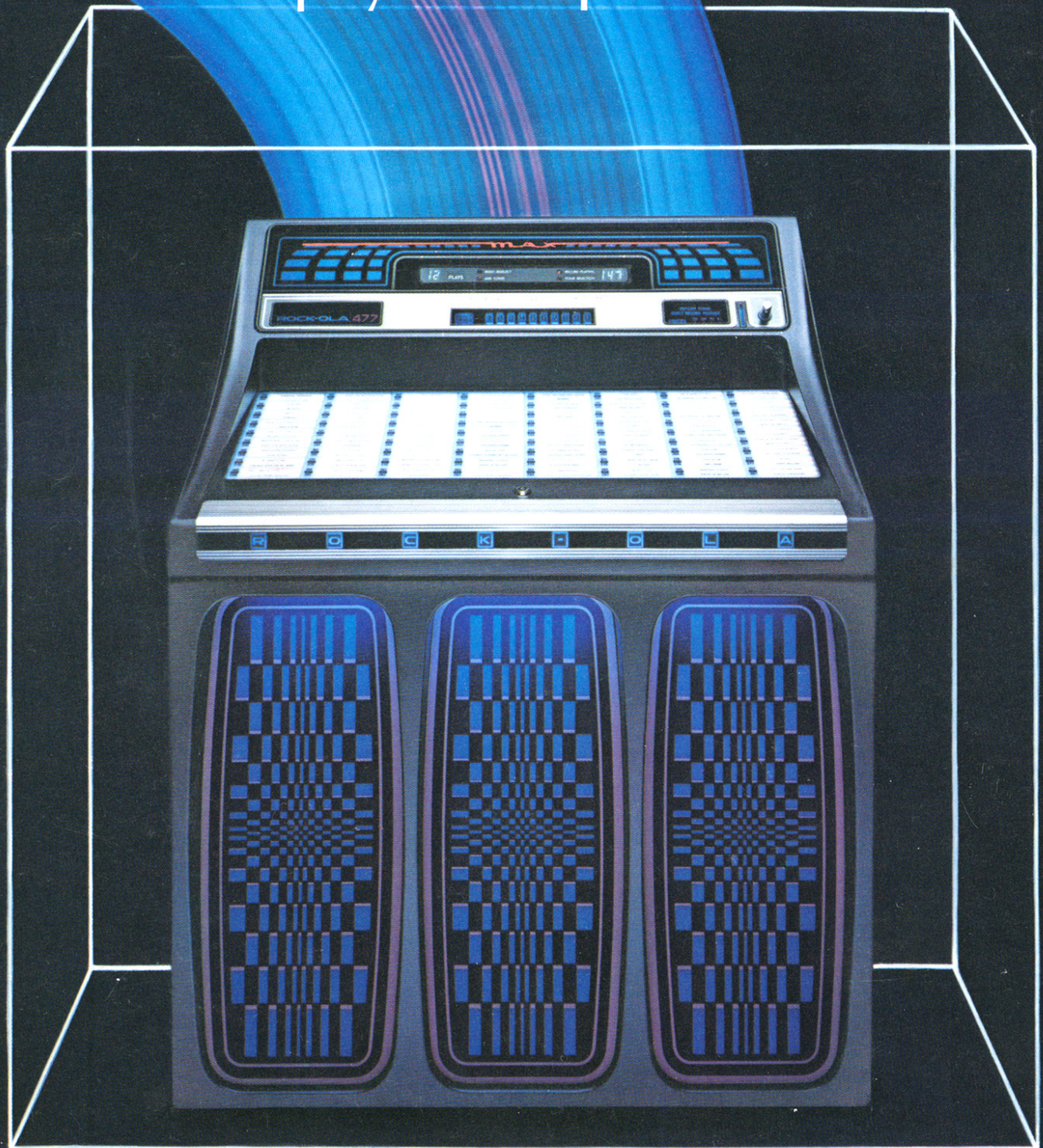


Meet Max

The compact Rock-Ola machine that puts
160 plays in the space of 100.



ROCK-OLA
Model 477

Isn't it time you met Max?



Mighty Max, the first electronic phonograph of the 80's, packs added profit into every inch of space. With 160 plays programmed into its microprocessors, Max outperforms all small size machines.

Max boosts income with the Random Complimentary Play. The money-making feature that automatically plays a random record at one of two time sequences that you choose. The Hit Tracker™ keeps you informed of the money-making hits. Because this computer memory instantly tells you how many times (up to 999) each record has been played. And the Profit Setter™ has a microprocessor that provides you with unlimited price combinations plus control of the Random Complimentary Play time sequences.

Max. The maximum profit performer, with more important features in less space. From Rock-Ola, the people who build quality and reliability into every music machine. Isn't it time you met Max?

Max 477 Specifications

Cabinet Finish

"Durango" walnut wood grain vinyl finish, chromed castings, anodized metal extrusions.

Amplifier

Powerful 200 Watts with automatic overload protection of output stage; circuitry mutes amplifier and indicator light comes on if overload persists.

Pick-up

Magnetic with Diamond Needle.

Turntable

45 rpm, with new design features.

Record Changer Mechanism

Electronic microprocessor controlled
160 selections—80 7" records

Speakers

Two 12" Low Frequency and two 6" Mid-Hi Frequency Speakers matched and balanced to the cabinet for maximum stereo presence.

Dimensions

Height
Width
Depth
Weight

Cabinet

45½"
34½"
23"
245 lbs.

Crated

50"
38"
27"
281 lbs.

Max 477 Accessories

Speakers, Microphone

Model
2130 Microphone Kit
2300 Deluxe Wall Speaker

Money and Pricing Kits

Model
2160 Security Cash Box

Wallbox

Model
507 Wallbox
1775 Wallbox Converter
2121 Auxiliary Wallbox Power Supply
2149 Wallbox Brackets

Volume Control Units

Model
2122 Manual Remote
2156-1 Motorized Remote
(w/On-Off Switch)
2173 Motorized Remote
(w/o On-Off Switch)
2305 "L" Pad Control

Printed Circuit Boards

Model
2301 Microprocessor PC
Board Kit

ROCK-OLA®

ROCK-OLA Manufacturing Corporation
800 North Kedzie Avenue, Chicago, Illinois 60651

Form No. 477-1
© 1979 RMC, Chicago, IL, U.S.A.

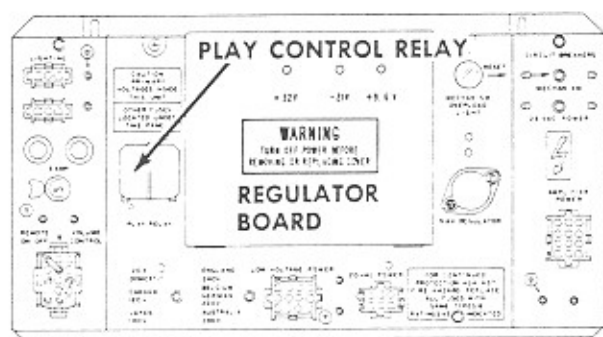
Printed in U.S.A.



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.

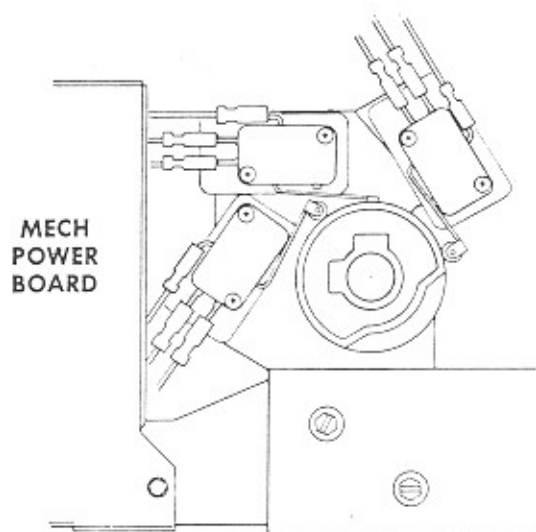
120 Vac power (U.S.A.) is protected by a 5 amp circuit breaker, also on the front panel of the power supply.

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

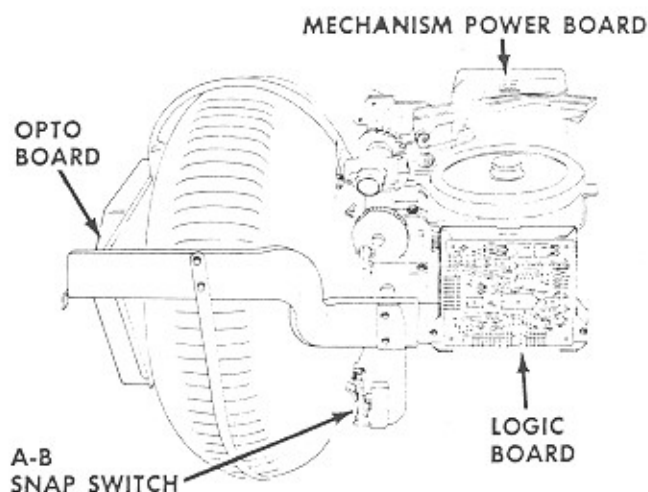
- A) On the back side of the cabinet operate the MAIN POWER SWITCH OFF, then ON.

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 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:

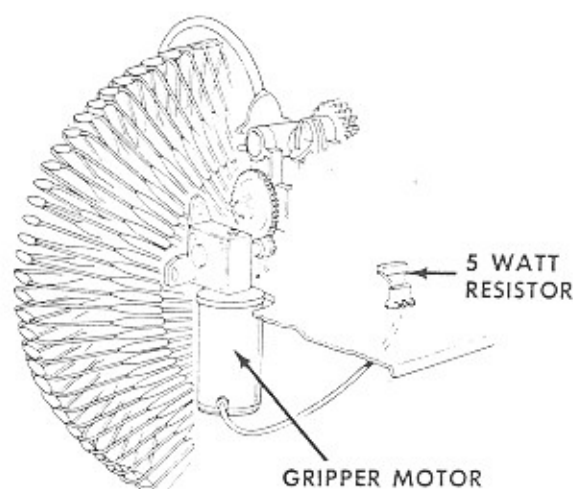
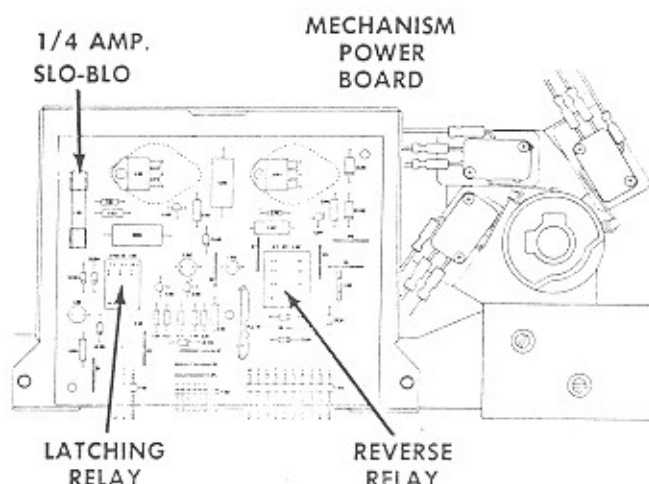
- A) A-B SNAP SWITCH
- B) OPTO BOARD
- C) LOGIC BOARD

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

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



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.

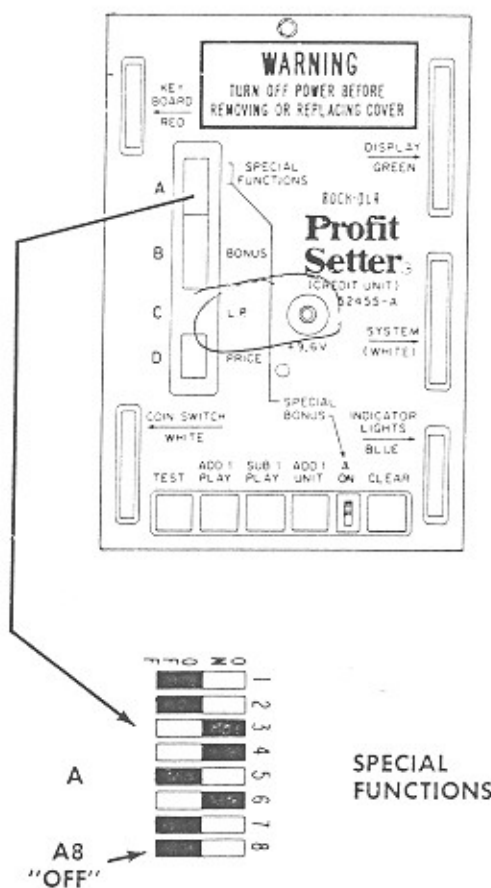


- 6) IF GRIPPER MOTOR STOPS before tone arm stylus rests on the record, then the problem area is:

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

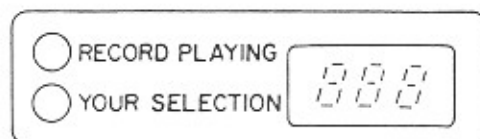
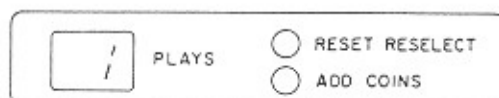
- 7) IF TONE ARM DOES NOT CANCEL RECORD when record cut-off groove is reached, then the problem area is:

- 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.

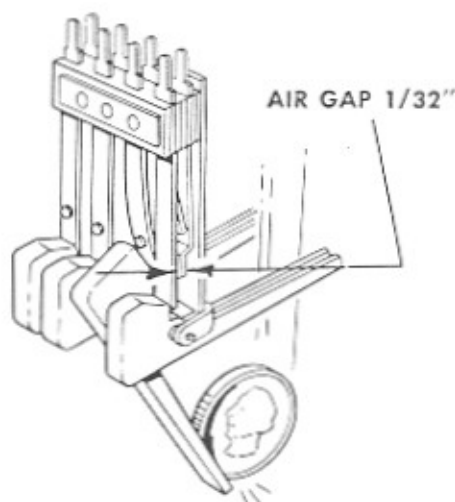
- 7) Make error selection, as 333. IF RESET-RESELECT DOES NOT LIGHT, then the problem is:

- 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:

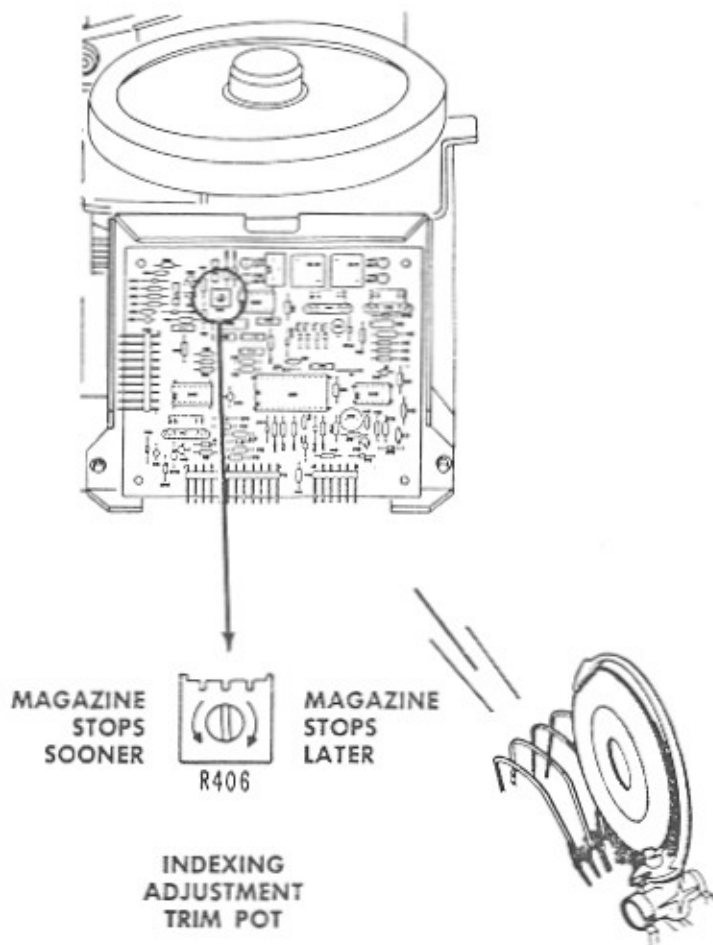
- 1) Move SCAN switch to OFF position.
- 2) Press CLEAR button on the CREDIT UNIT, then press ADD 1 PLAY button.
- 3) Press pushbuttons "1" and "2" . . . IF NUMBERS APPEAR IN THE DISPLAY WINDOW, press the RESET button to clear the selection system.
- 4) Follow the same procedure for numbers "1" and "3", "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.



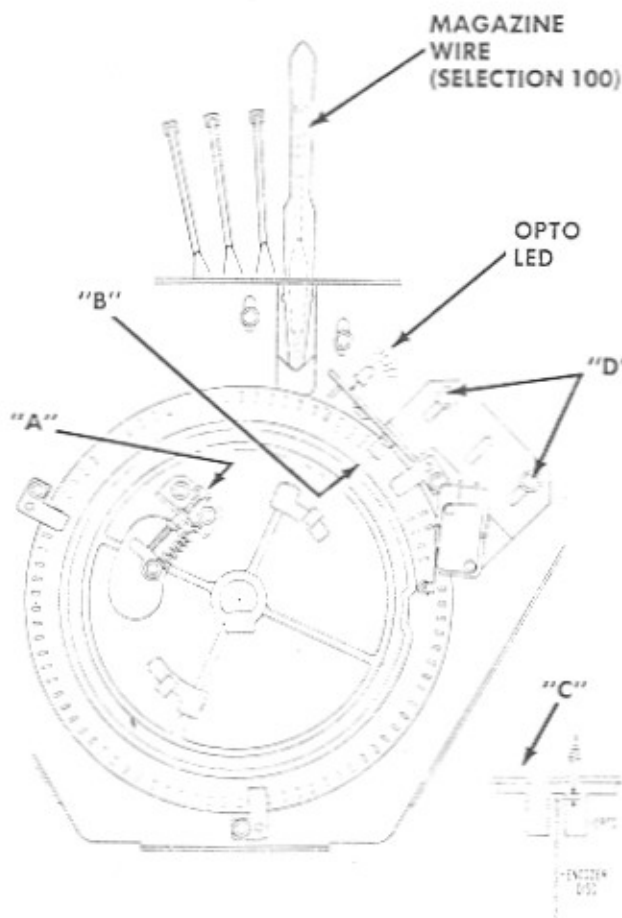
VIII. INDEXING ADJUSTMENT PROCEDURE

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.

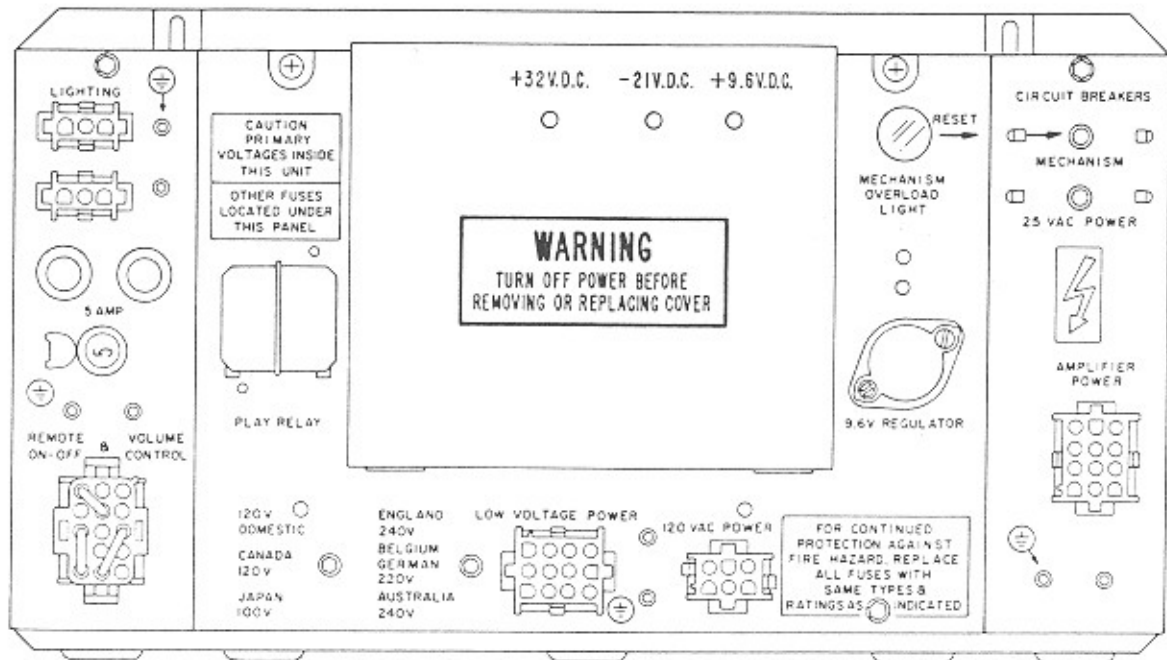
Recheck the adjustment by repeating the procedure with the remaining test selections.

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 $\frac{3}{64}$ " 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:

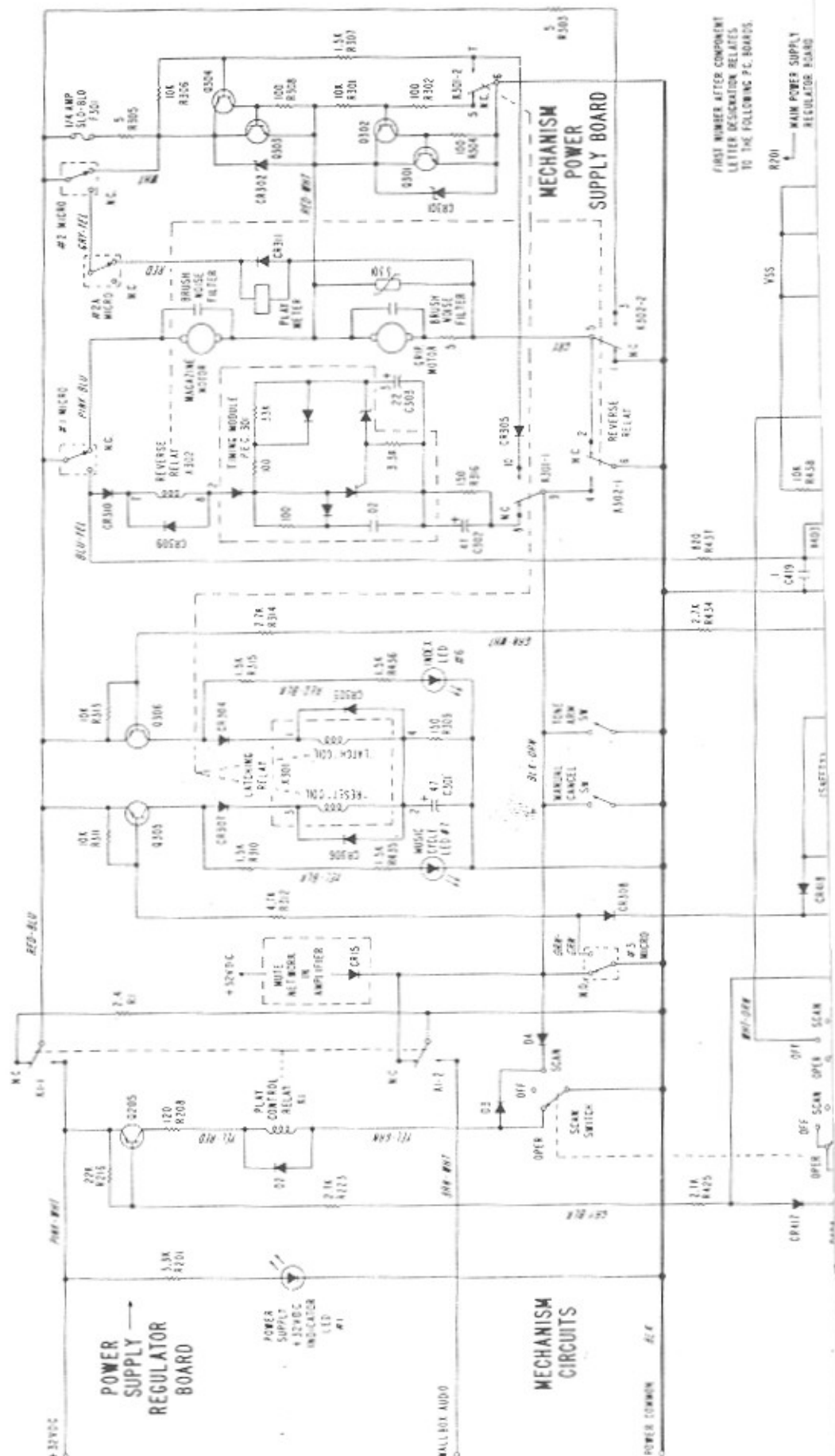
1. AC power to the Flasher Board.
2. AC power to the Motorized Volume Control.
3. AC power to the Dollar Bill Validator (an accessory).
4. AC power to the vacuum displays filament transformer which supplies 2.4 volts.

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.

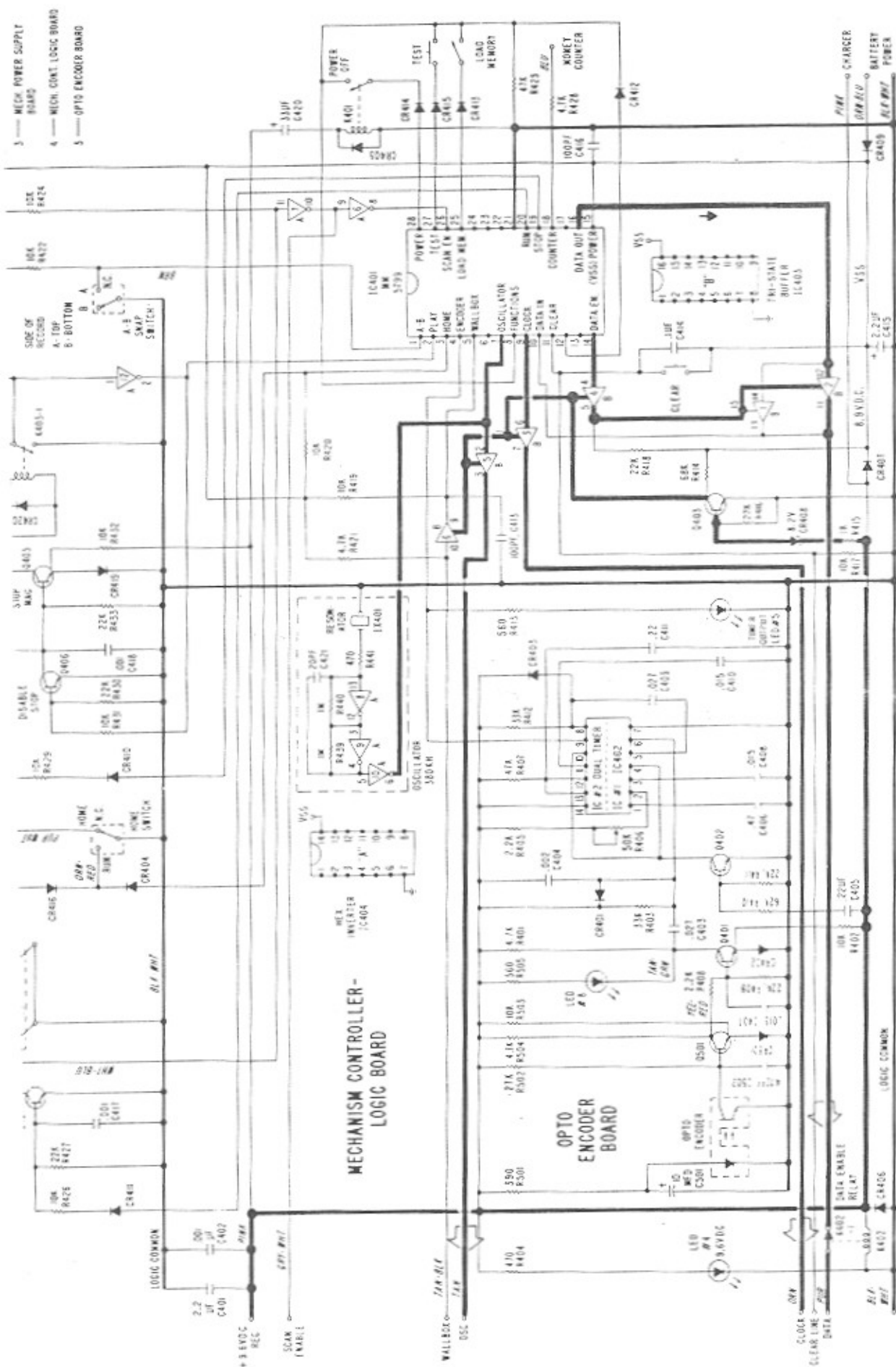
The voltage regulator P.C. board mounts on the front panel protected by a transparent snap-on cover. The three D.C. supplies and associated circuitry, each use a LED to indicate the presence of voltage.

**FOR THIS SECTION, SELECT VIEW(TOP TOOL
BAR),THEN CLICK ON PAGE LAYOUT,THEN
FACING**



FIRST NUMBER AFTER COMPONENT
LETTER DESIGNATION RELATES
TO THE FOLLOWING PC BOARDS

MAIN POWER SUPPLY
REGULATOR BOARD



SEQUENCE 1. MACHINE AT STANDBY

Correct operation of the phonograph is controlled by three common bus lines consisting of the Oscillator, Data and Clock lines. They are supplied from the Mechanism Controller Logic Board and communicate with the Profit Setter (credit unit) and Hit Tracker (popularity meter).

The Oscillator Line operates at a frequency of 380 KHz. This determines the speed at which the information in the MP's (microprocessors) is processed.

The Data Line transmits information back and forth between other units synchronized by the Clock Line.

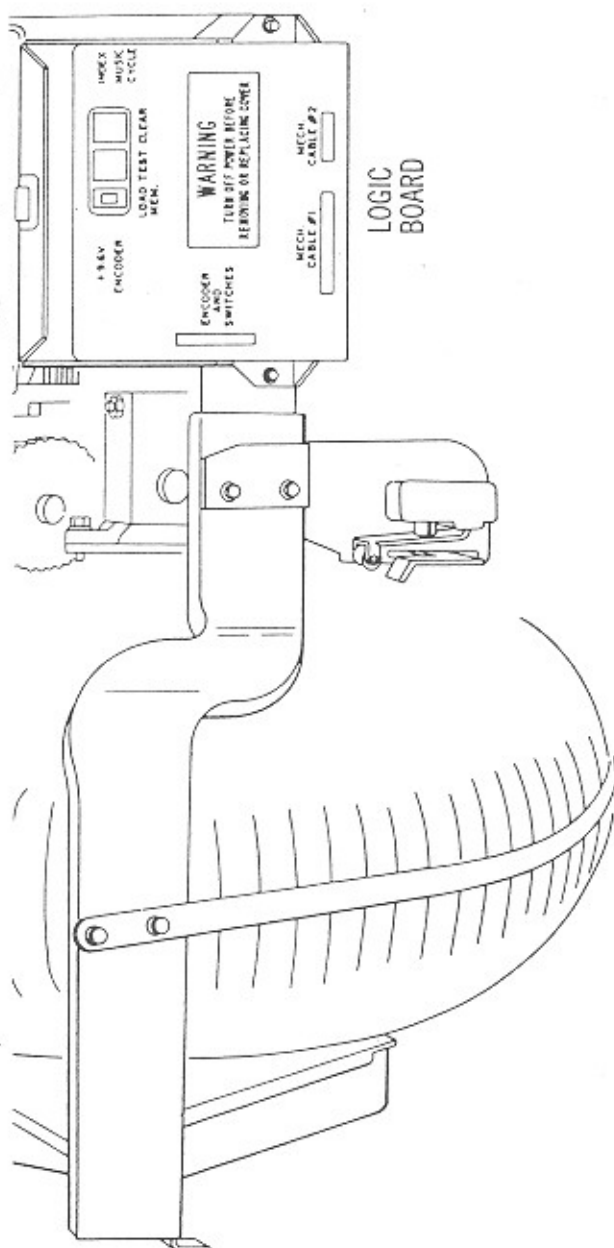
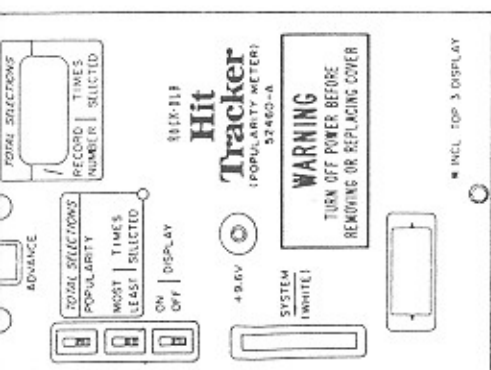
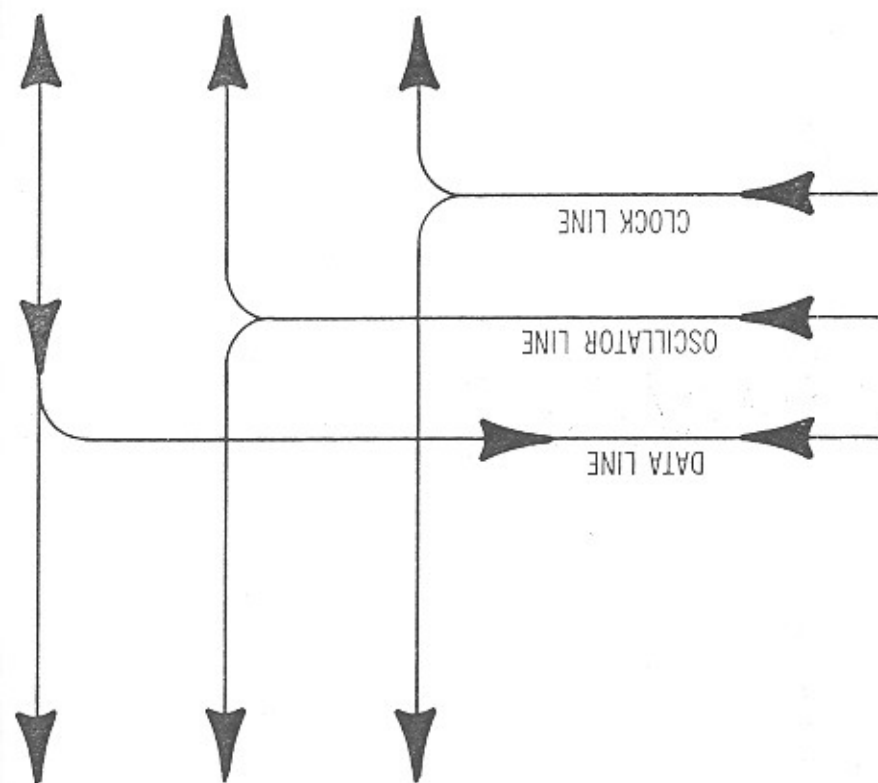
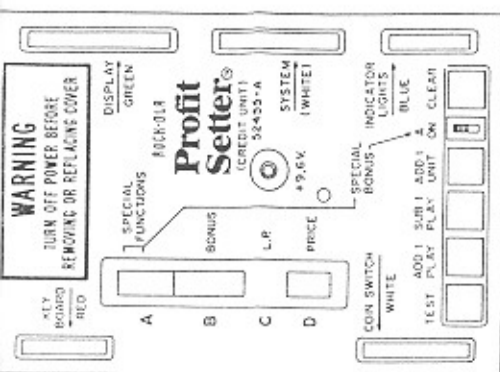
1. At machine standby transistor Q403 is turned ON, enabling the Tri-State Buffer sections 3, 4, 5 and 6 of the IC403, six section package.

2. The oscillator input at Pin 7 of the MP IC401 activates the output lines of Pins 9, 14 and 16.

3. Output of Pin 9 allows transmission of clock signals to other units through the #3 buffer section in the line.

4. At certain time intervals the signal at pin 14 changes from "high" to "low" for a short time. During the low signal period, the buffers in the line enable the "Data Out" line on Pin 16. Information is then transmitted to the Credit Unit that it is ready to receive credit and selection information.

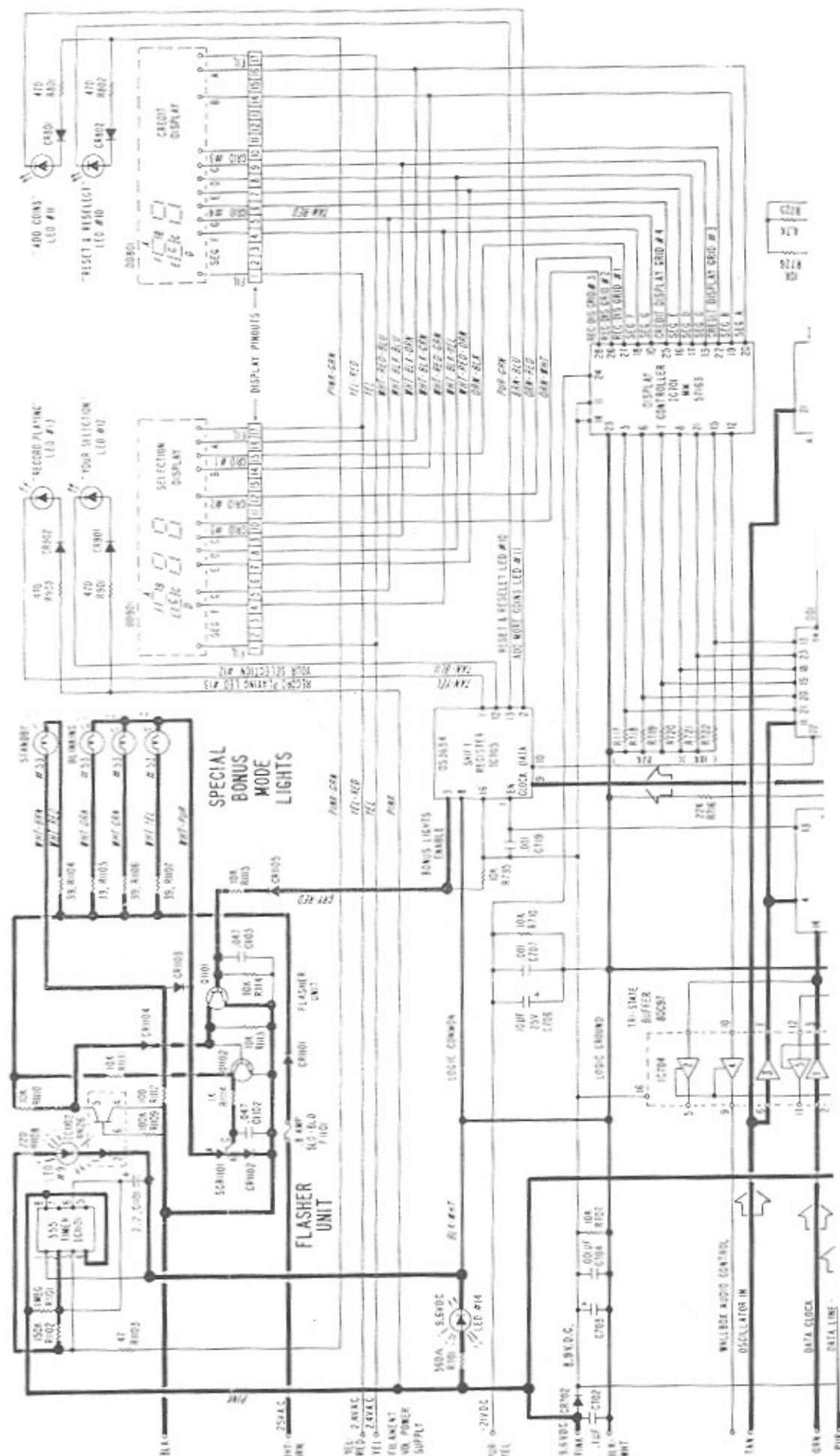
5. When Pin 14 returns to a high state, the "Data Out" line at Pin 16 is disabled. The "Data In" line at Pin 10 is now ready to receive instructions from the Credit Unit.

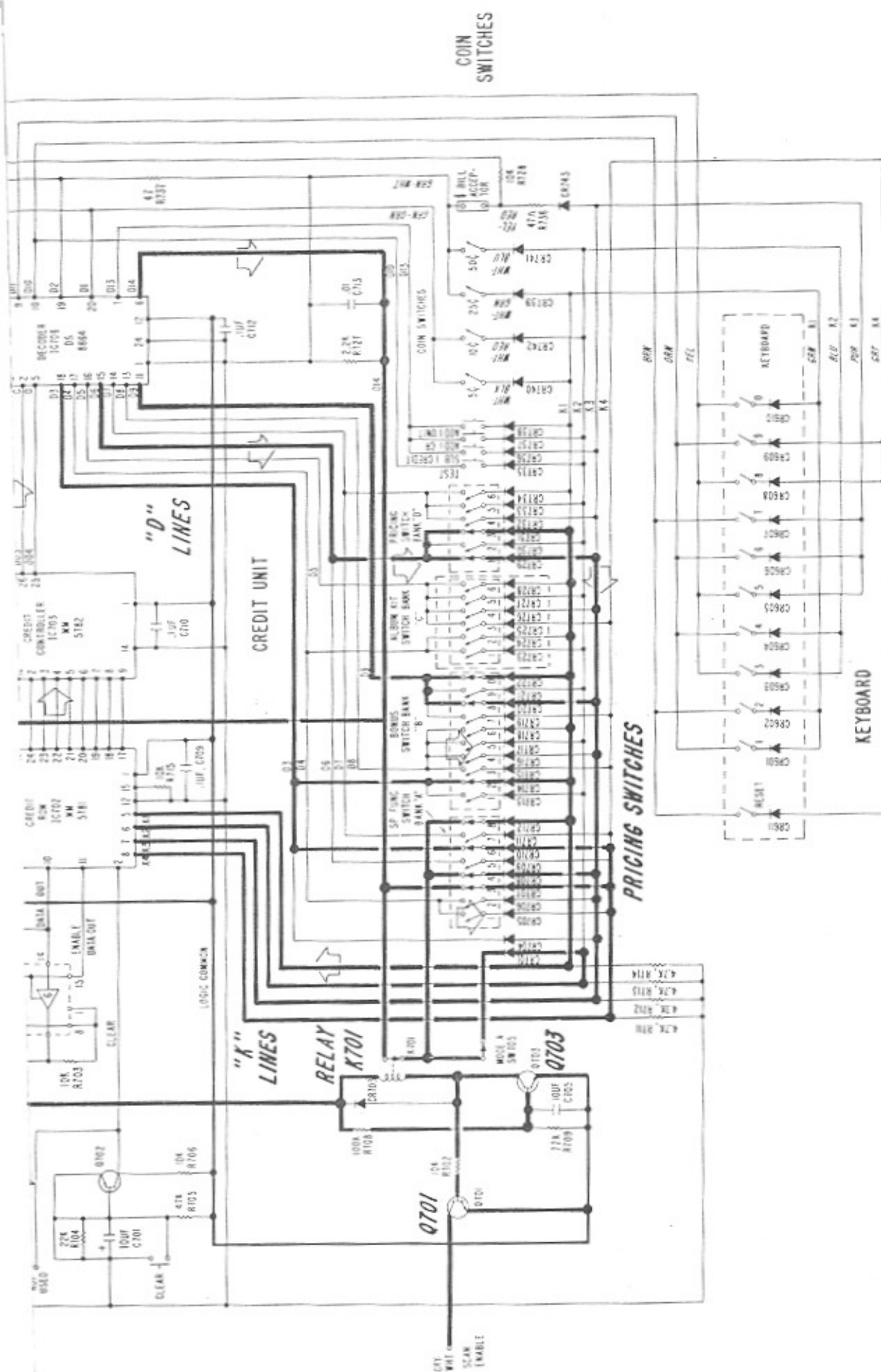


NOTE: FLASHER UNIT AND SPECIAL BONUS LIGHT CIRCUITS ARE OMITTED ON MODEL 477.

"ADD COINS" AND "RESET-RESELECT" LEADS DO NOT FLASH AS FOR MODEL 478 SHOWN IN SEQUENCE #4 AND #6.

PINK-GRN LINE FROM LEADS CHANGES TO PINK AND CONNECTS TO THE +9.6V.D.C. SOURCE.





SEQUENCE 2. CREDIT UNIT AND FLASHER BOARD AT STANDBY

At power on, the 9.6 Vdc LED #14 in the Credit Unit is ON. Transistor Q703 turns on causing relay K701 and transistor Q701 to operate. Transistor Q701 Scan Enable circuit is used for self test service procedure only. Relay K701 establishes SPECIAL BONUS FUNCTIONS controlled by Switch Bank "A". The 9.6 Vdc Flasher Board Timer IC1101 starts operating as indicated by the pulsating #9 LED.

In this example, Pricing and Bonus switch banks "D" and "B" are set to play records to the following prices:

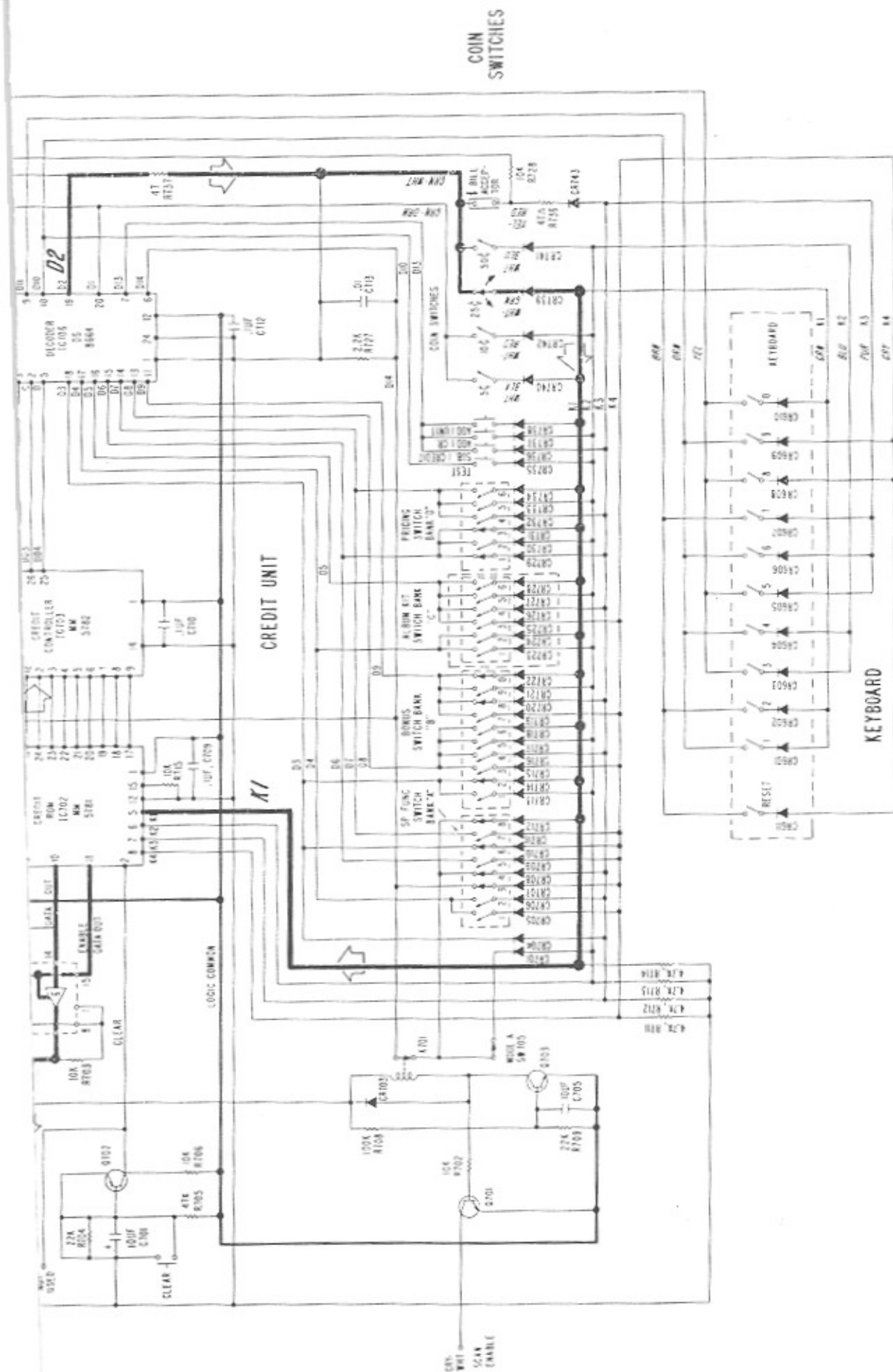
25¢	1 Play
50¢	3 Plays
75¢	5 Plays
\$1.00	7 Plays

The Special Function Switch Bank "A" features special bonus options as explained elsewhere in this service manual.

1. The oscillator bus line is applied to the Credit Rom, IC702, Credit Controller, IC703, and Decoder, IC706, which synchronizes the operation of these units.

2. The Decoder "D" lines are constantly searched for closed switches in their respective lines.

3. The assigned function of a closed switch is conveyed on the "K" lines for processing in the Credit Rom and storing in the Credit Controller. Periodically the "D" lines are scanned to update the pricing information to the Credit Controller.

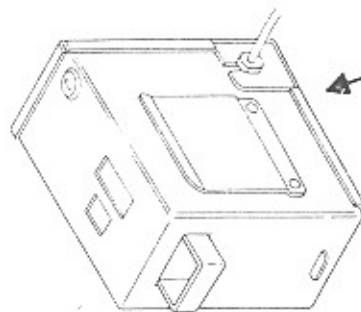


SEQUENCE 3. QUARTER INSERTED — ONE CREDIT STORED

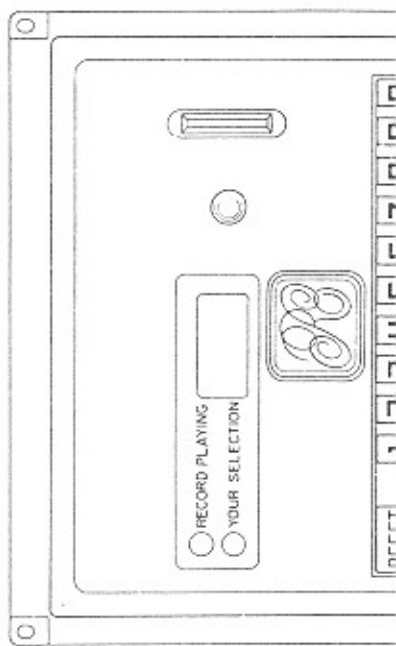
1. Fall of a quarter coin momentarily closes the 25¢ coin switch. This allows the D2 line signal to be applied to the K1 line for processing by the Credit Rom, IC702.
2. The money signal is converted into one credit causing two actions to take place.
 - A) At certain time intervals the "Data Out Enable" signal on Pin 11 of the IC702 changes from "High" to "Low" for a short time. During the low signal period, the #6 Buffer section of the IC704 in the line enables the "Data Out" line from Pin 10. Trans-

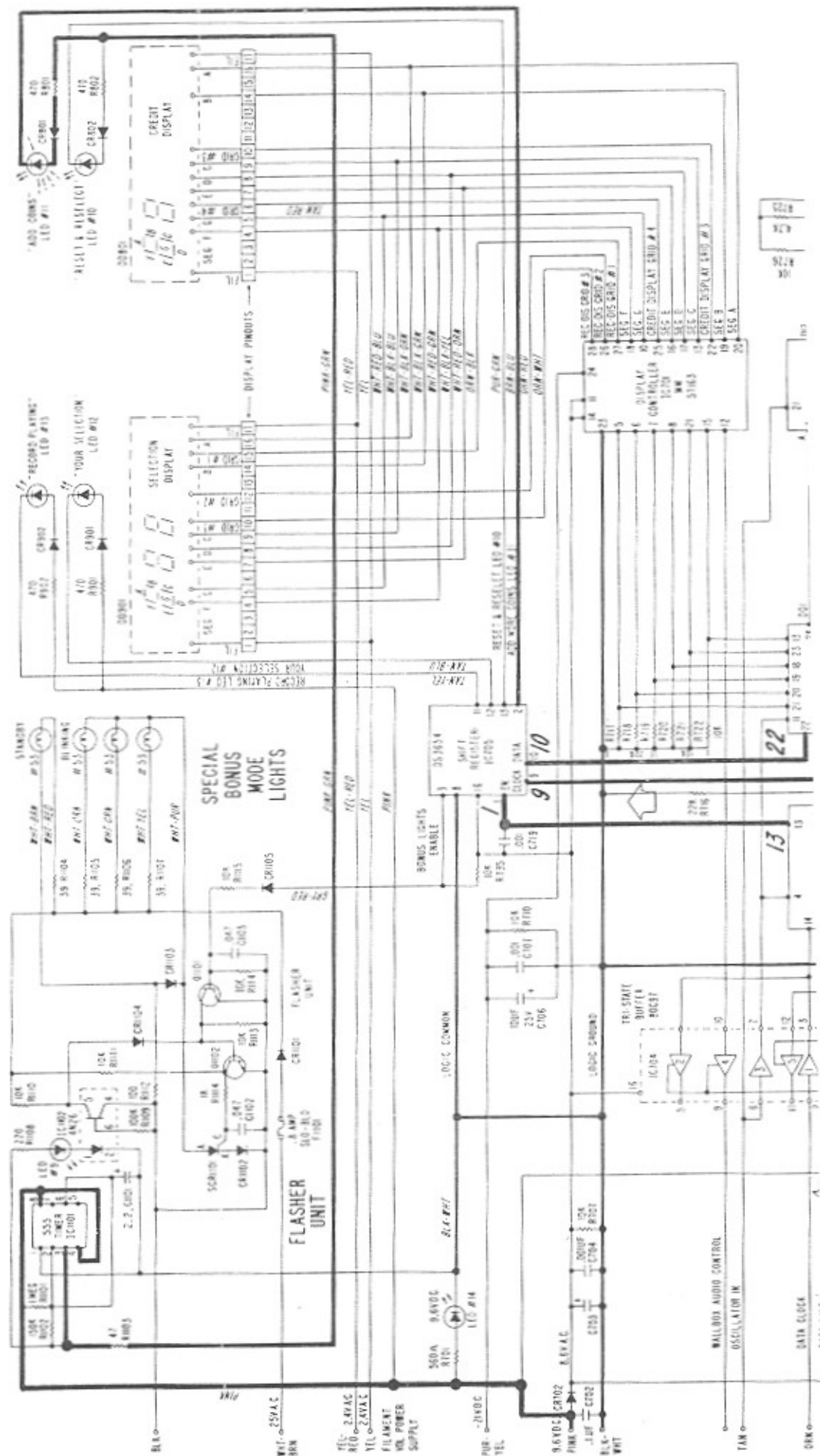
mission starts to the Mechanism Controller Logic Board for processing with information that 25¢ has been entered. If Money Counter is used, the counter will be pulsed five times to add 25¢ to the total money count.

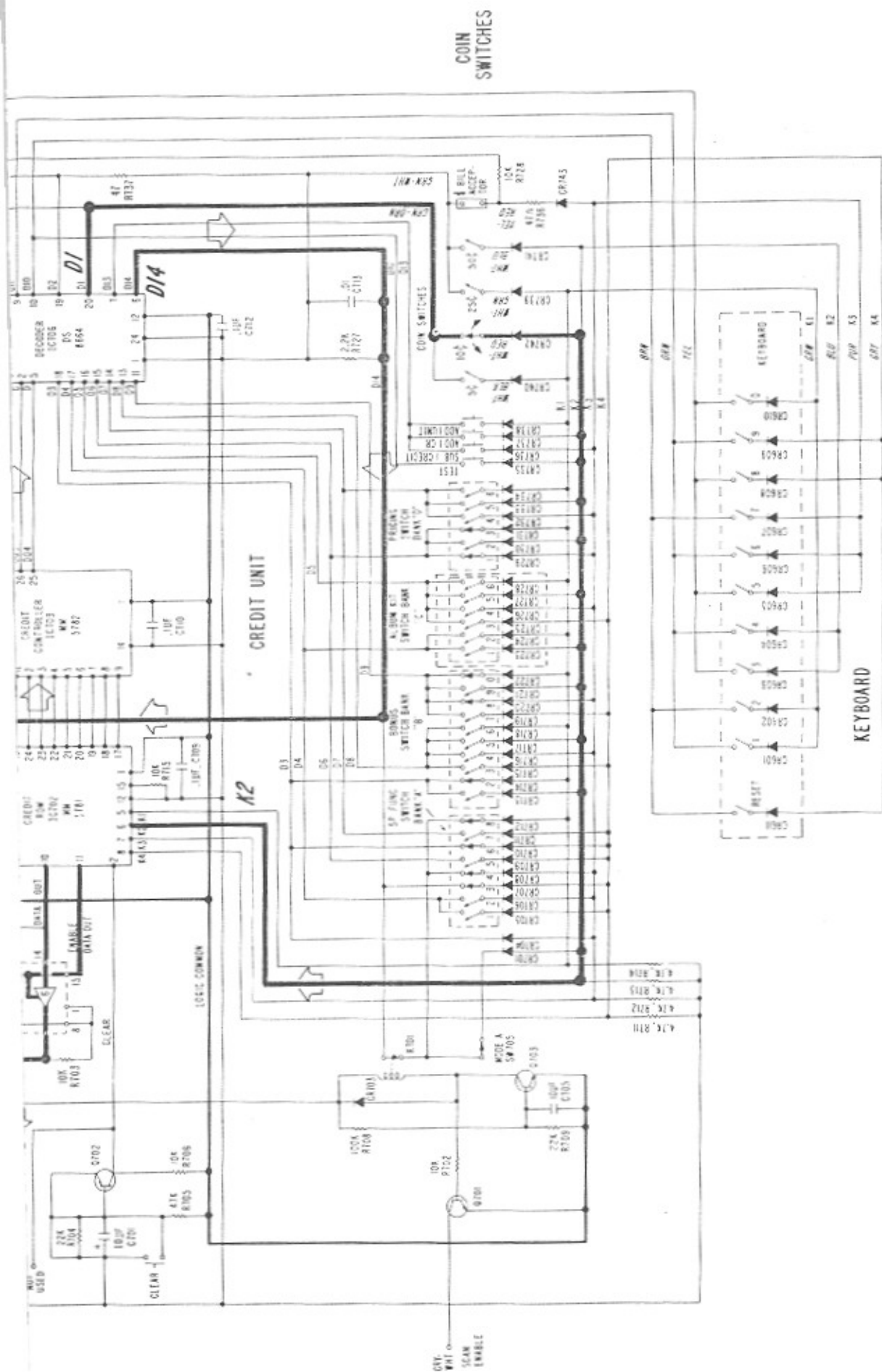
- B) At the same time the credit information at the Credit Rom is sent to the Credit Controller IC703 for storage. Instructions are forwarded to the Display Controller, IC701, to light segments "B" and "C" of the Credit Display to produce number 1, informing the customer one selection can be made.



RECEIPT PRINTER
KIT #2196
MONEY COUNTER
KIT #2197





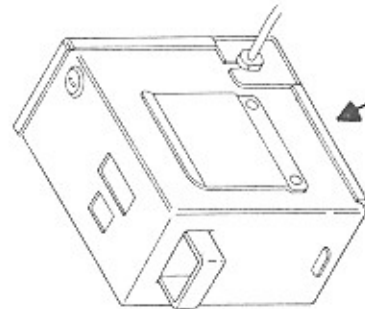


SEQUENCE 4. INSUFFICIENT MONEY DEPOSITED

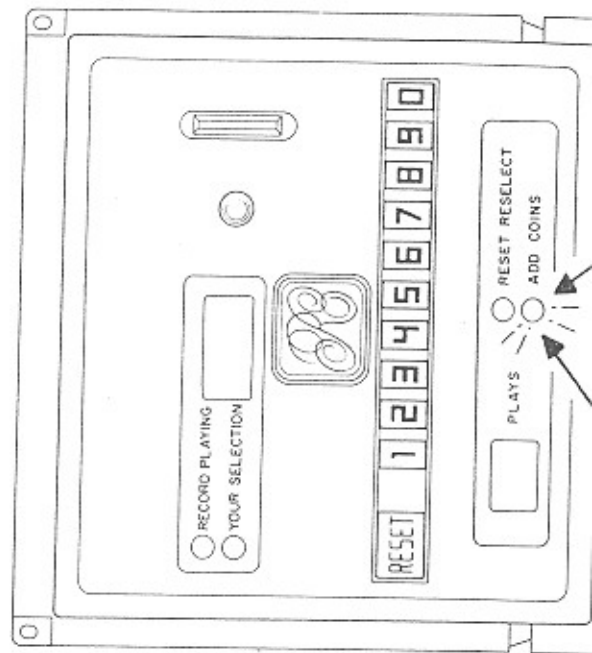
1. Dime deposited . . . Signal from D1 goes to Credit Rom for processing via the K2 line. After processing the signal is converted into money units which is insufficient to register a credit.
2. Signal at Pin 13 of the Credit Rom is driven low alerting the Shift Register, IC705, at Pin 1 that insufficient money has been deposited.
3. Simultaneously, when "Data Out Enable" line at Pin 11 of the Credit Rom becomes low for a short period, the 10¢ deposit information is forwarded to the Logic Board. If

Money Counter is used, the counter is pulsed twice, adding 10¢ to the total count.

4. The insufficient money registered in the Credit Rom is forwarded to the Credit Controller, IC703, for storage. This enables Pin 22 and applies the data to Pin 10 of the Shift Register, IC705, for processing.
5. Signal at Pin 2 is driven low allowing Timer, IC1101, to flash "ADD COINS" LED.



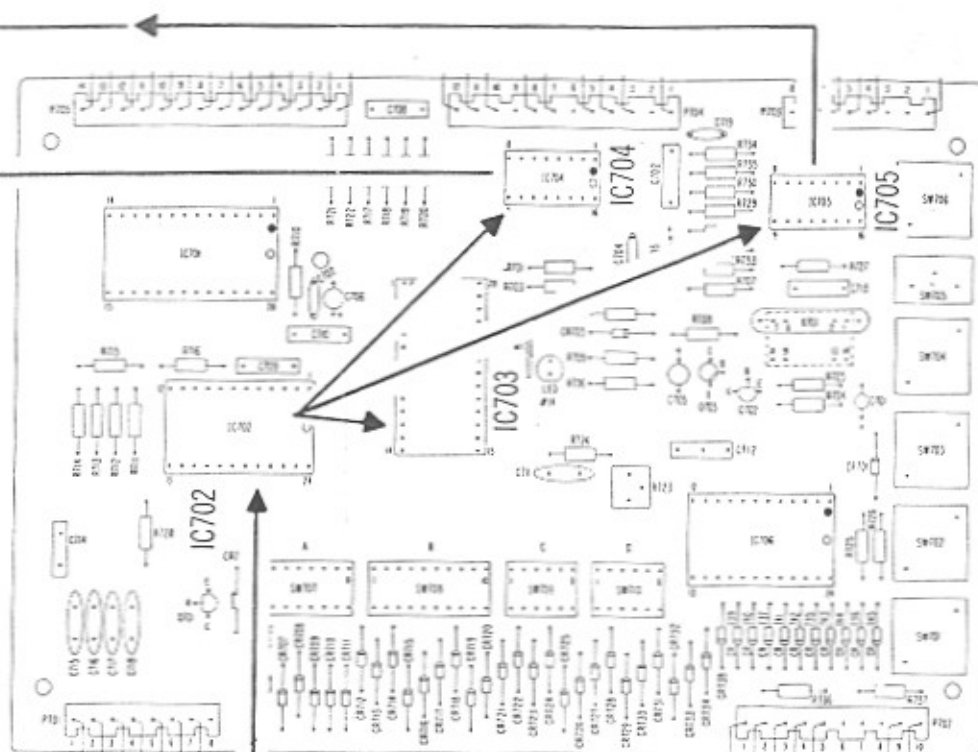
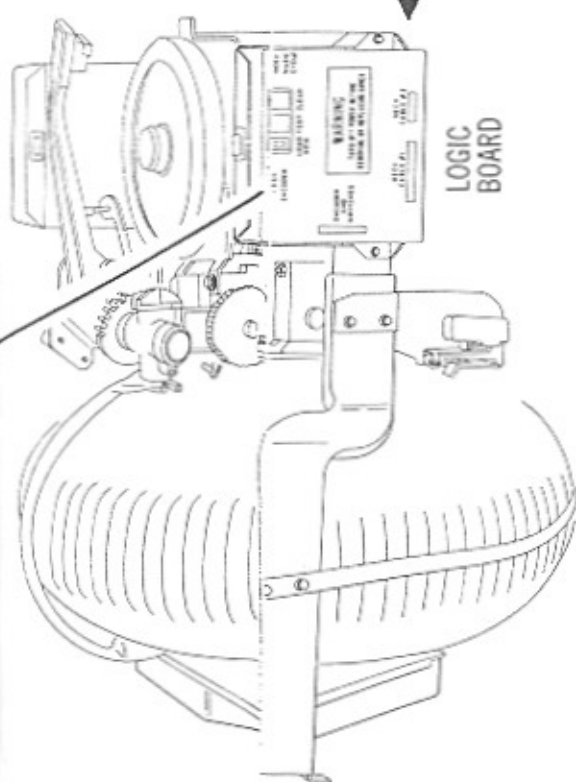
RECEIPT PRINTER
KIT #2196
MONEY COUNTER
KIT #2197



FLASHER
BOARD

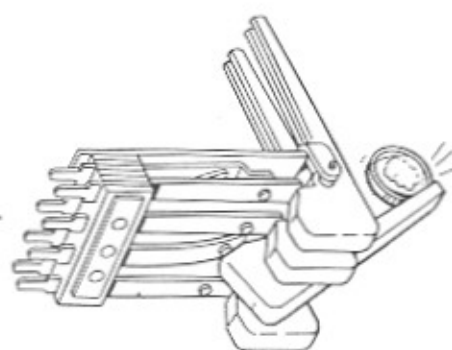


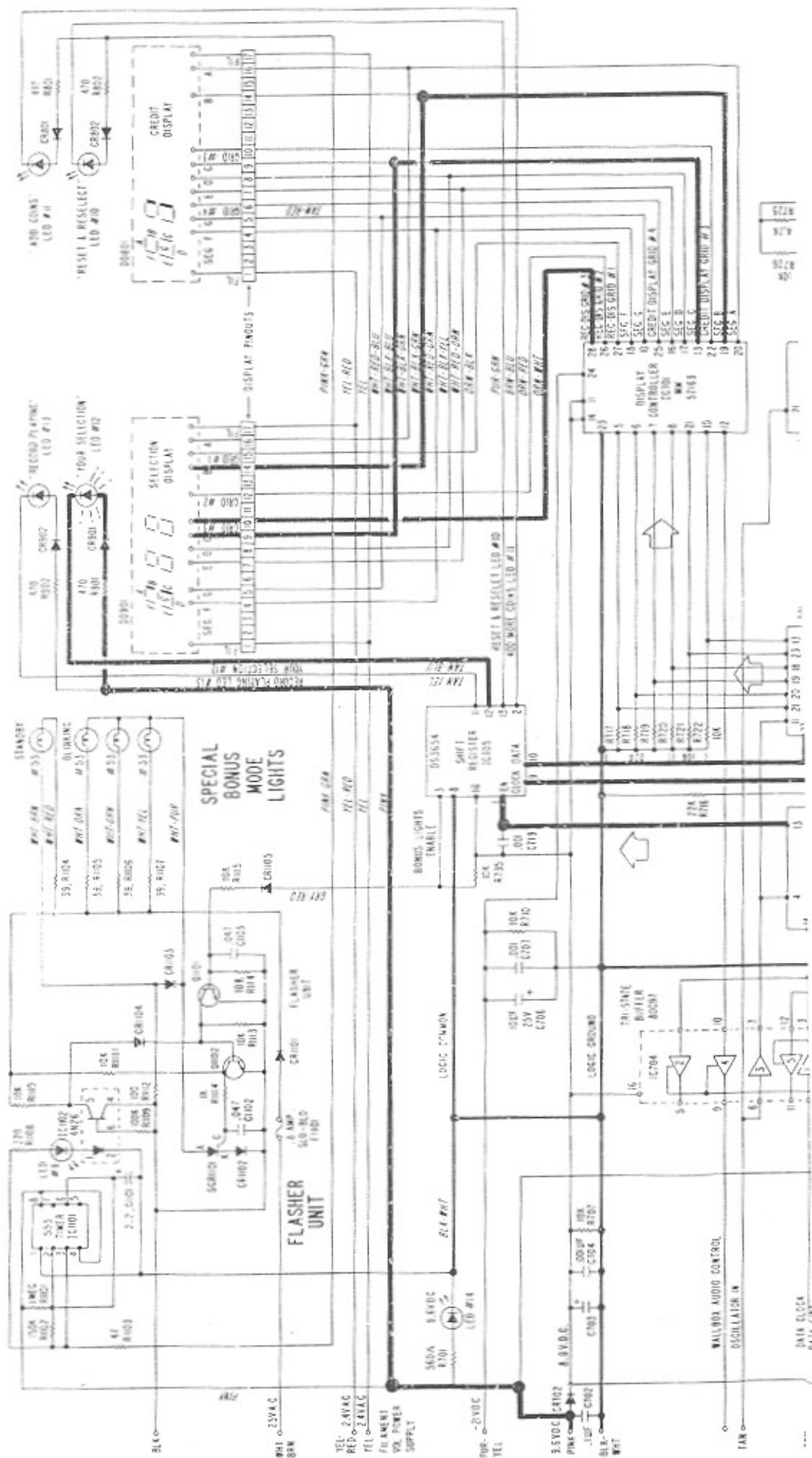
LOGIC
BOARD

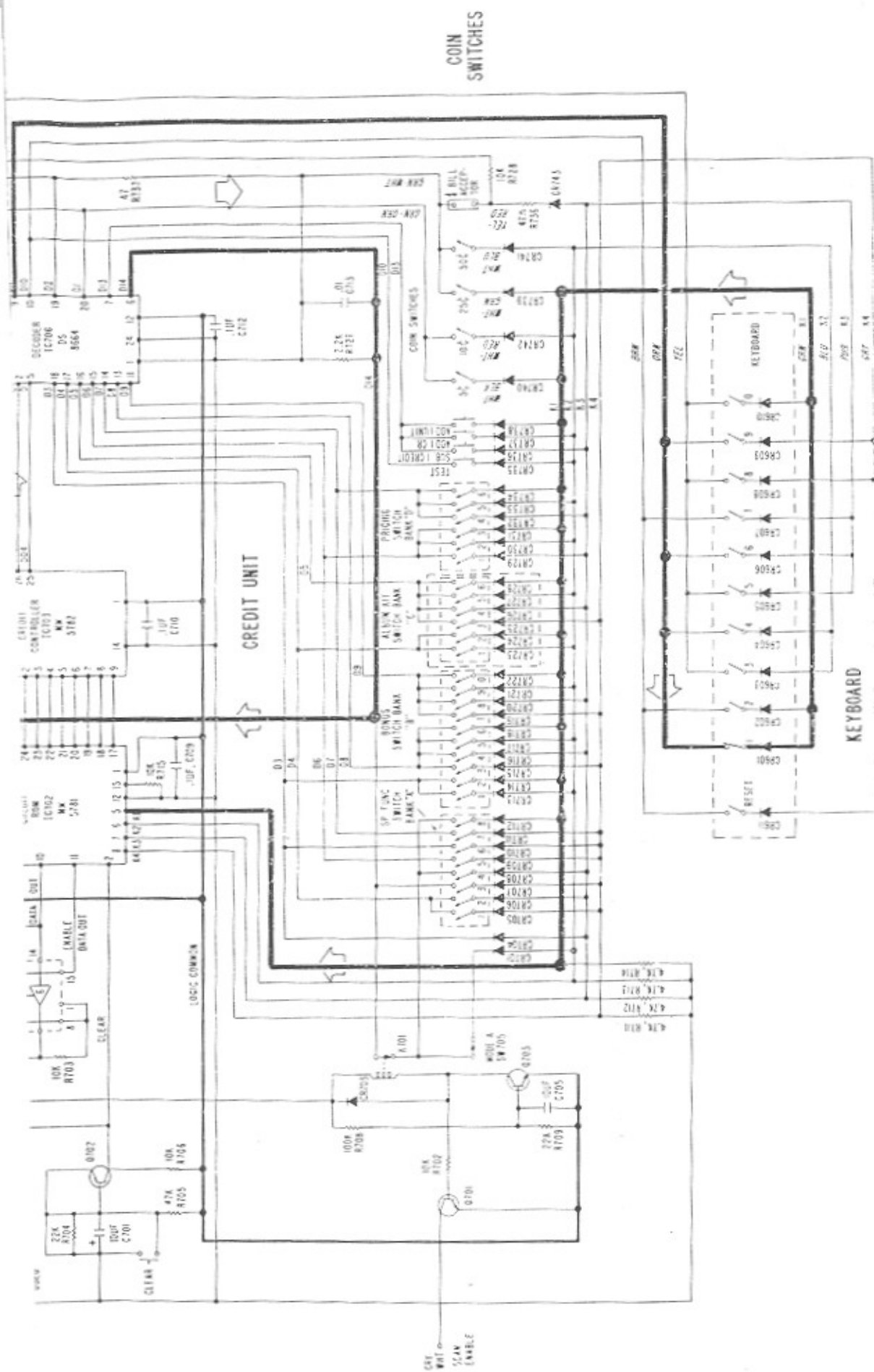


CREDIT
UNIT

10C







**SEQUENCE 5. NUMBER 1 PRESSED — 1st SELECTION DIGIT STORED —
NUMBER "1" IS PRODUCED IN THE RECORD PLAYING DISPLAY**

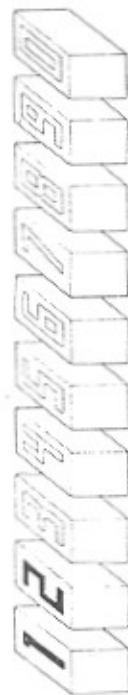
To achieve 160 selections, three digit numbers are required. Two numbers are used for the first digit, all ten numbers for the second digit, and eight numbers for the third digit.

When the first digit of a selection is number "1", the top side of the record is designated. If the first digit is number "2", it refers to the bottom side.

1. Pressing the first number, as number "1", applies a signal on the K1 line for processing in the Credit Rom.
2. Signal at Pin 13 of the Credit Rom goes low and enables the Shift Register, IC705, at Pin 1.

3. The first digit number "1" is then forwarded to the Credit Controller for storage. This data is applied to Pin 22 of the Credit Controller to Pin 10 of the Shift Register for processing. Clock pulses transmitted from Pin 6 of the Decoder synchronize the selection data on Pin 10. After processing, Pin 12 is driven low causing "Your Selection" LED to light.

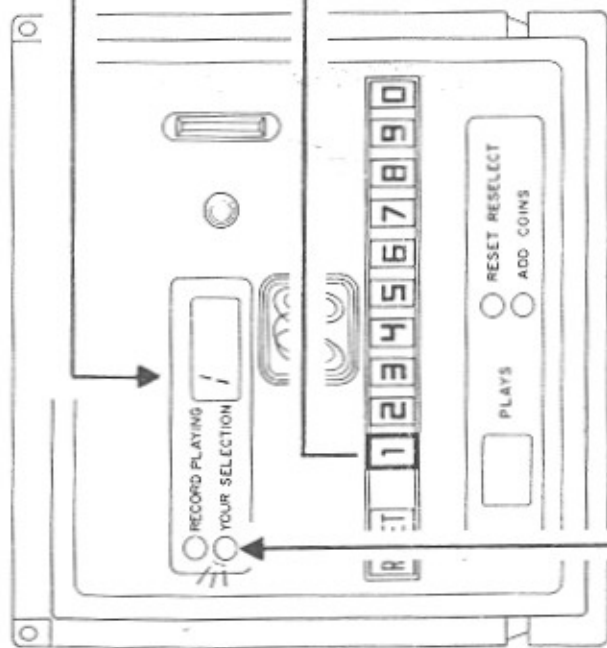
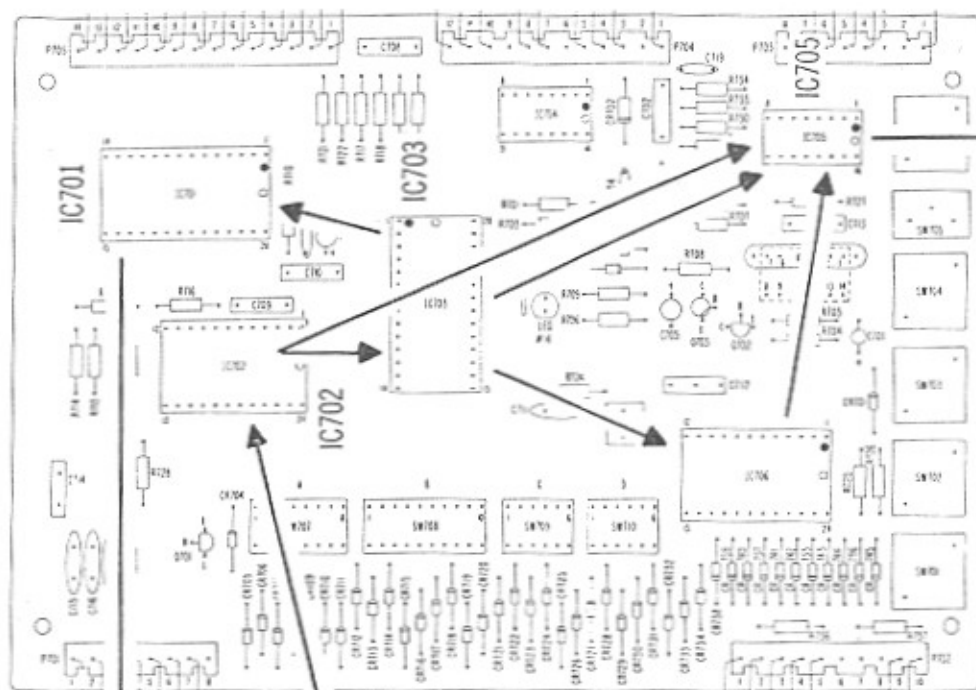
4. At the same time the Credit Controller signals the Display Controller, IC706, to light segments B and C to produce the first digit number "1" in the Selection Display.

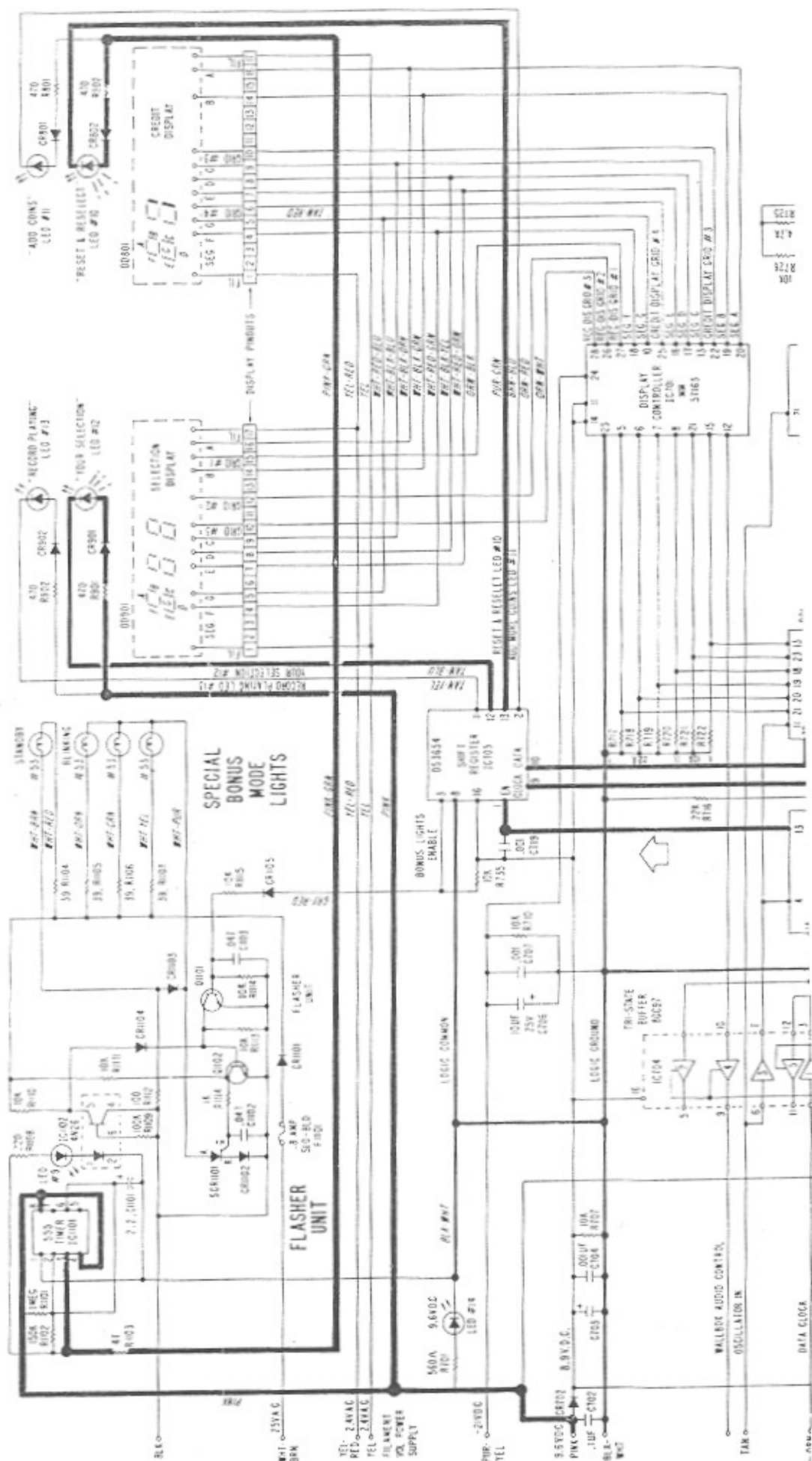


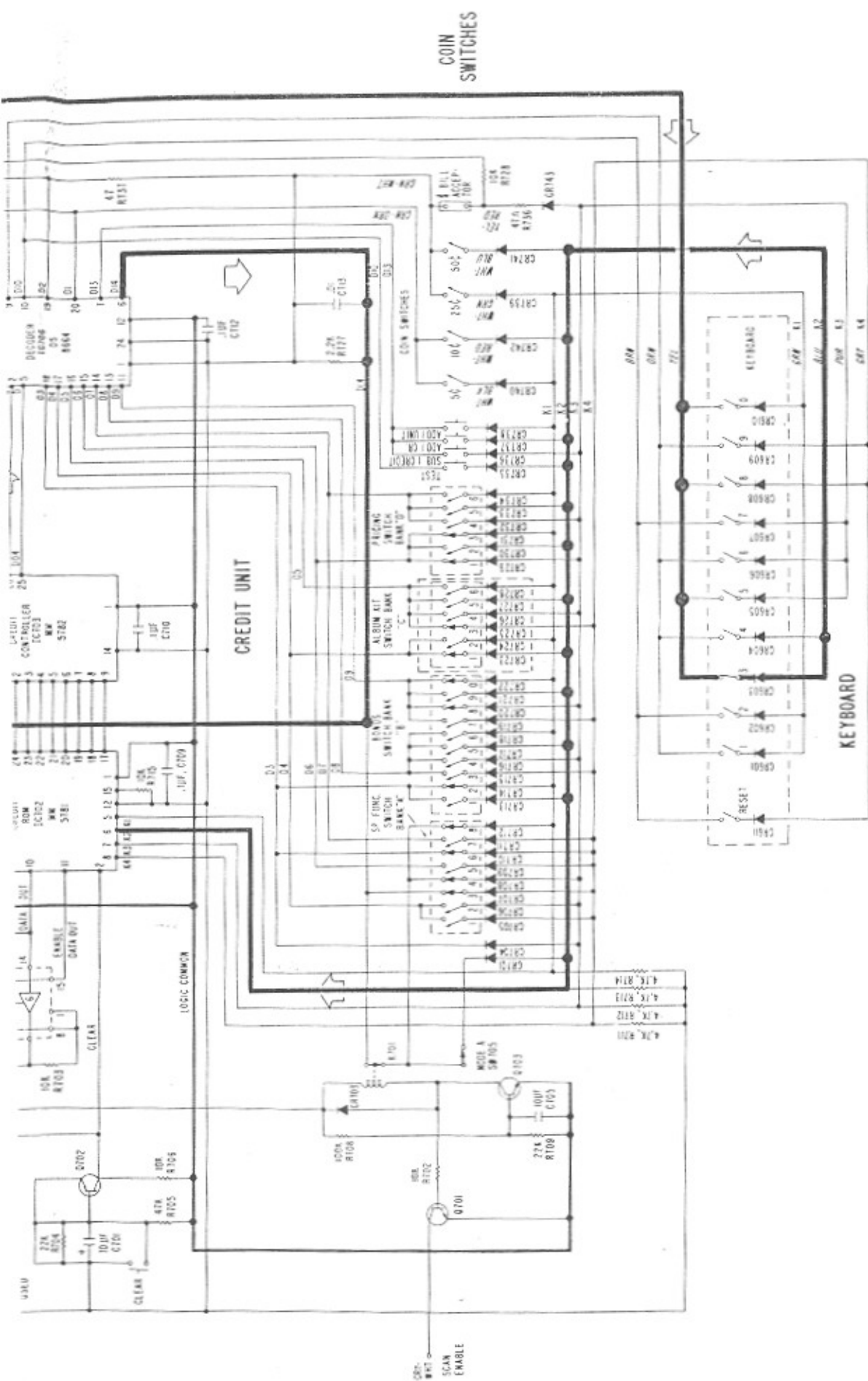
1st. DIGIT

2nd. DIGIT

3rd. DIGIT





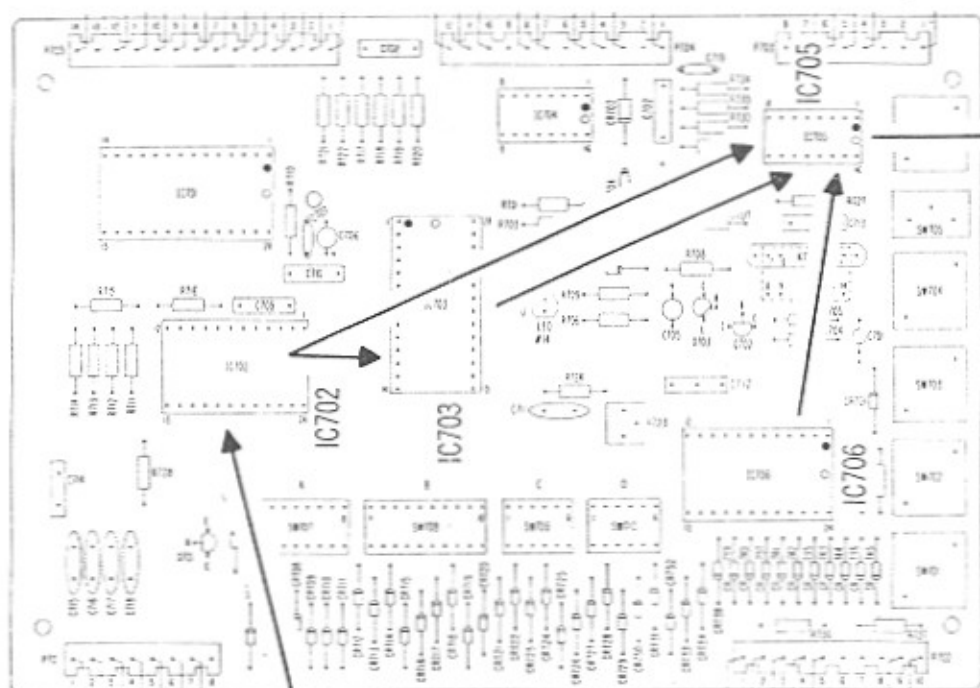
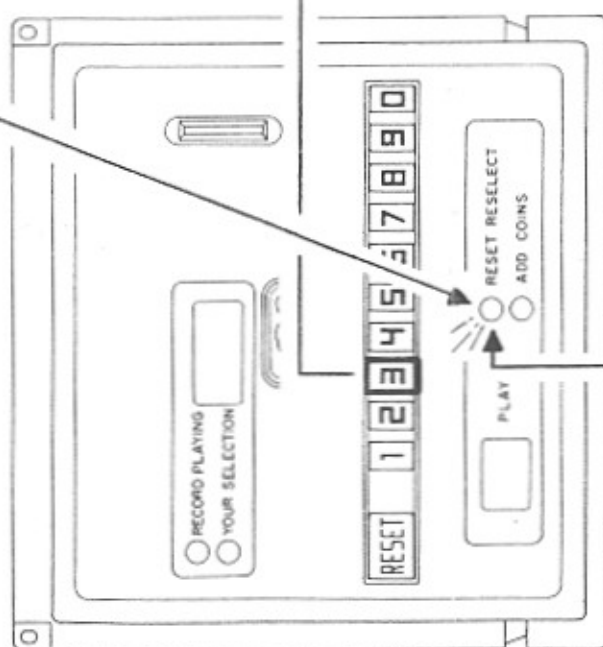


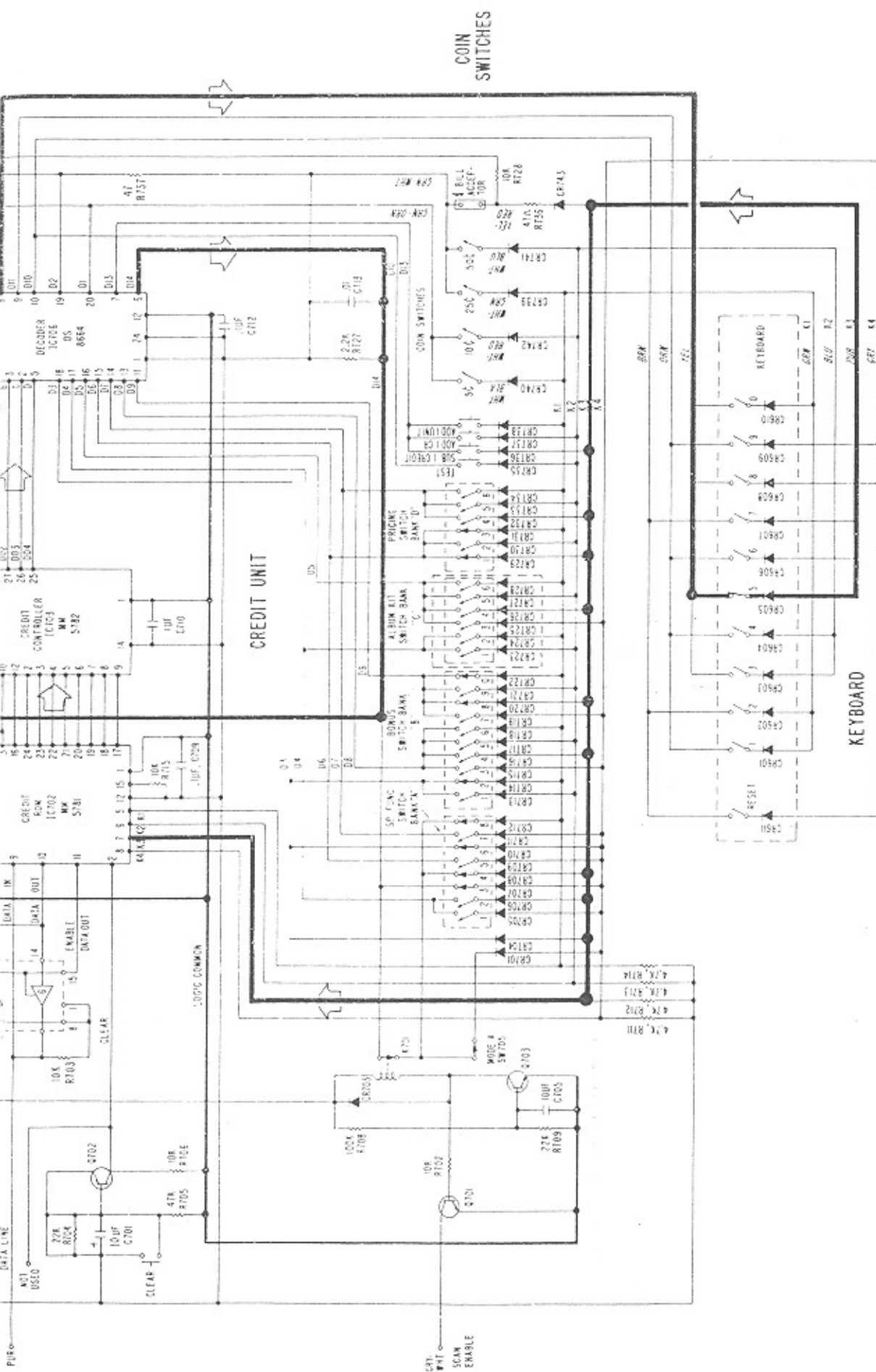
SEQUENCE 6. ERROR NUMBER PROCESSED FOR FIRST DIGIT – "RESET-RESELECT" LED FLASHES

1. Number '3' (error number) pressed for first digit. D12 line is applied to the K2 line for processing by the Credit Rom.
2. Shift Register enable line is activated by the error number before stored in the Credit Controller.
3. Stored error data is then forwarded to Pin 10 of the Shift Register and synchronized by the clock line on Pin 9 received from the Decoder.
4. Signal on Pin 13 of the Shift Register is driven low allowing the Timer, IC1101, to flash the "Reset-Reselect" LED.



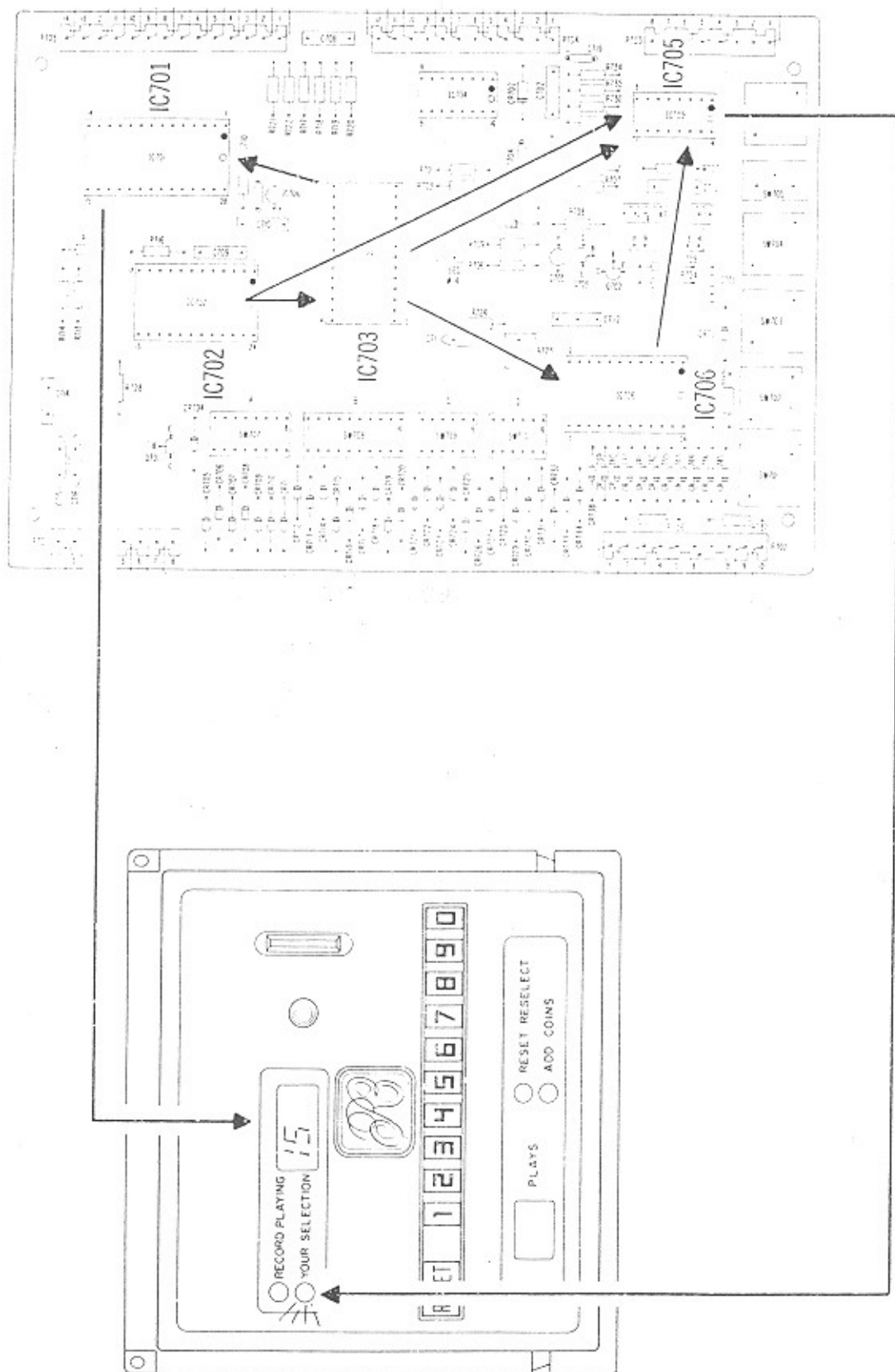
FLASHER BOARD

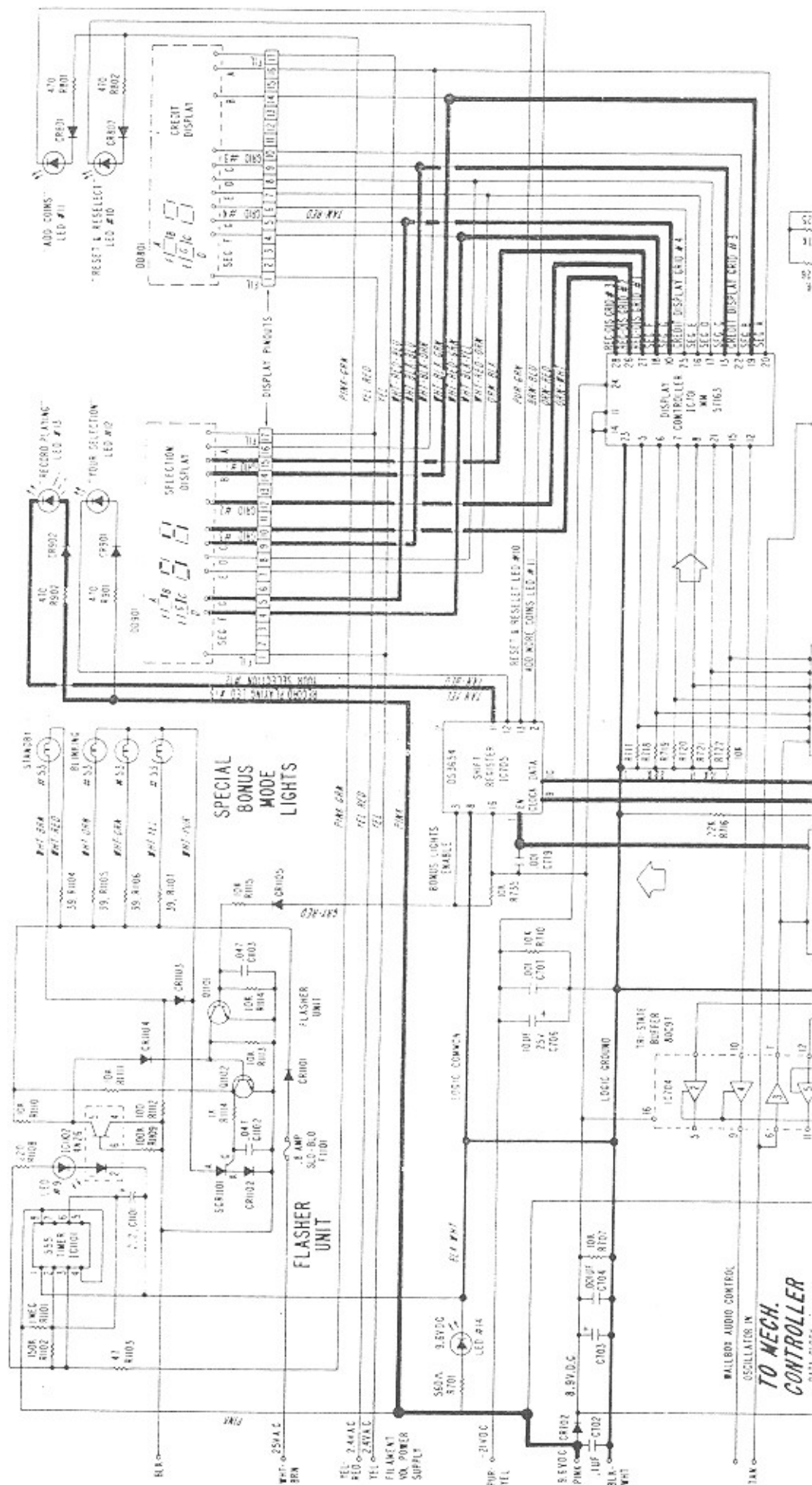
CREDIT
UNIT

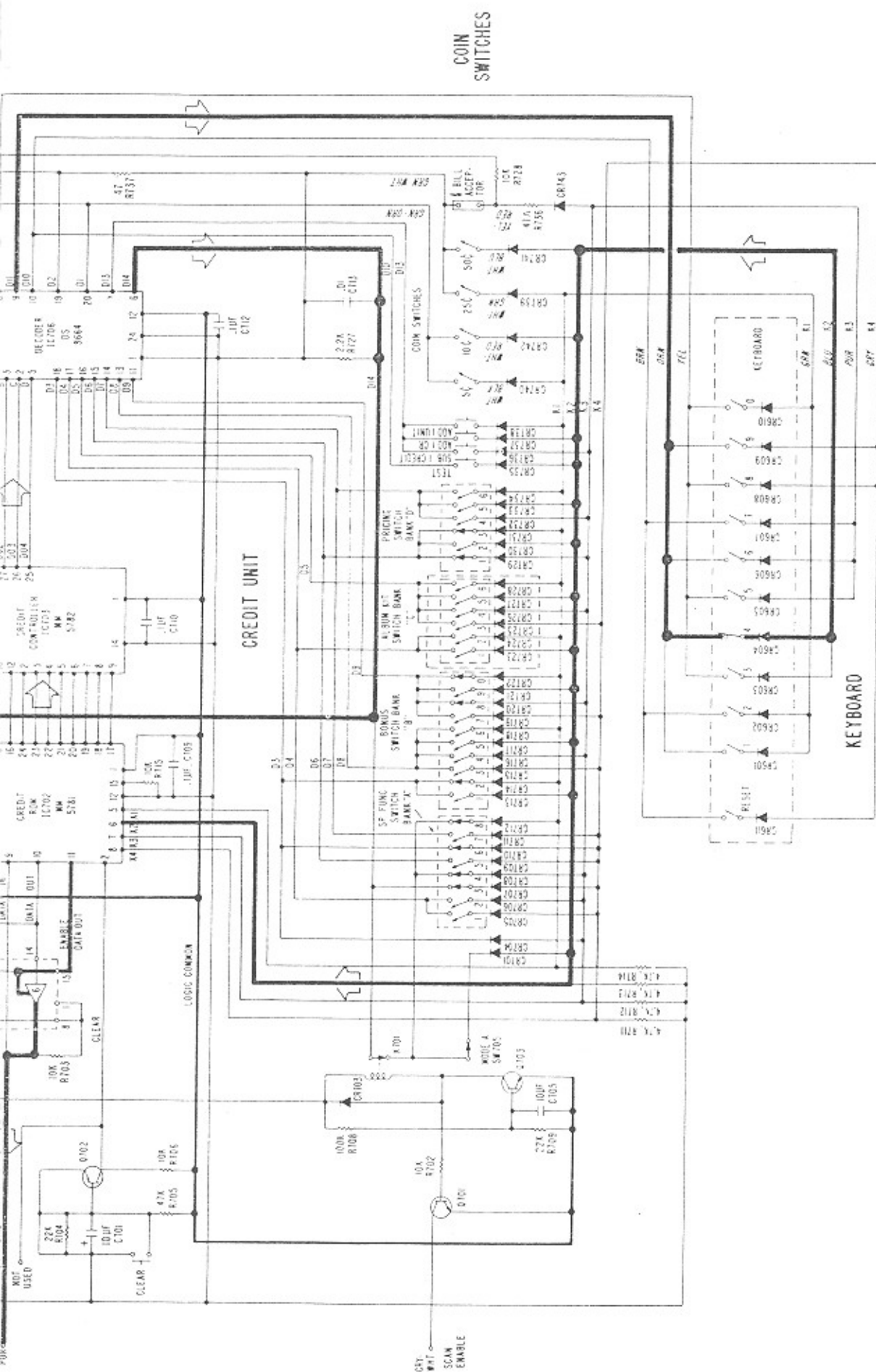


SEQUENCE 7. 2nd DIGIT NUMBER PRESSED — NUMBER ACCEPTED AND DISPLAYED

1. The processing of the second selection digit is identical to the first (See sequence 5) except that any number can be chosen, and two digits on the Selection Display will be lit.



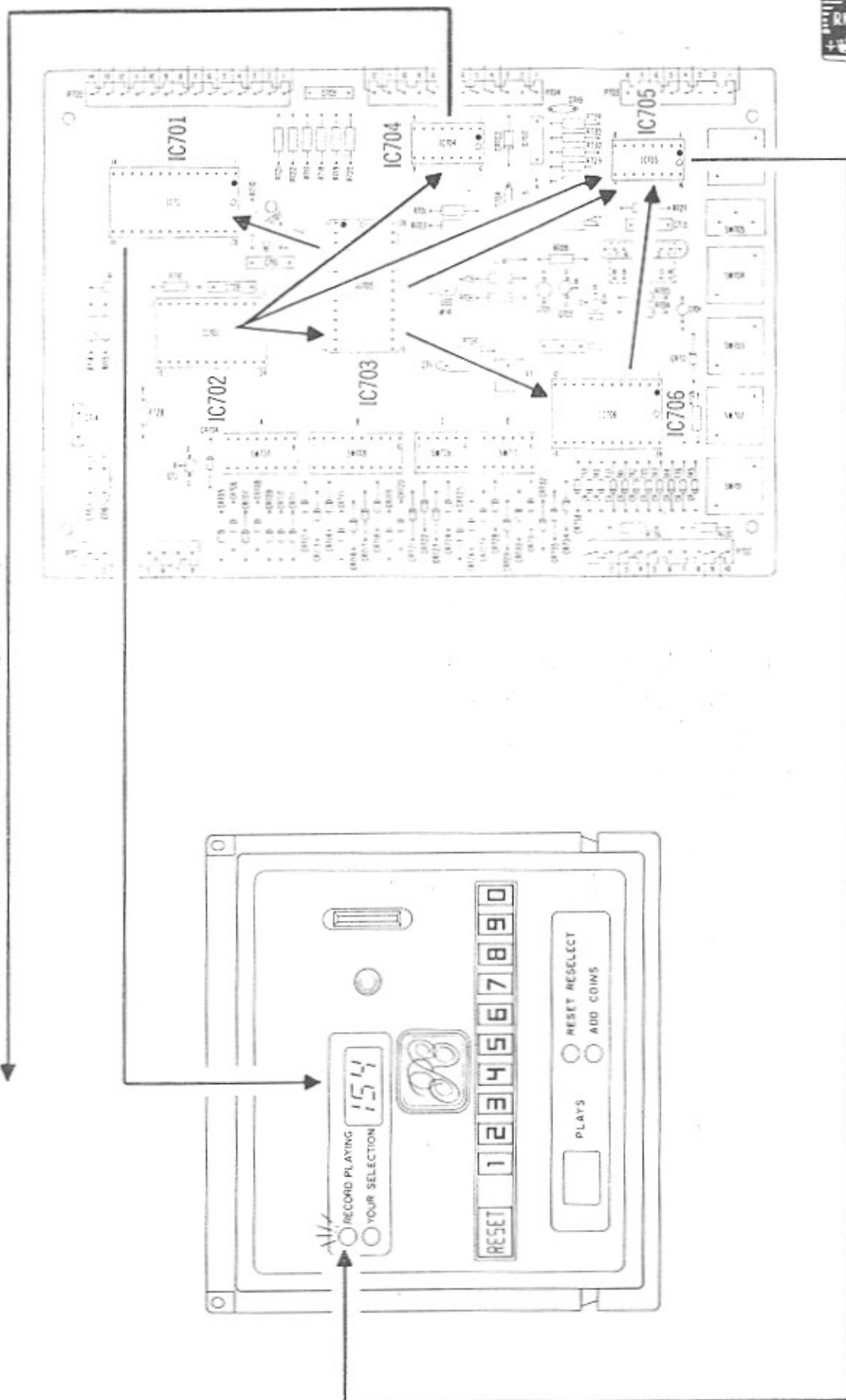


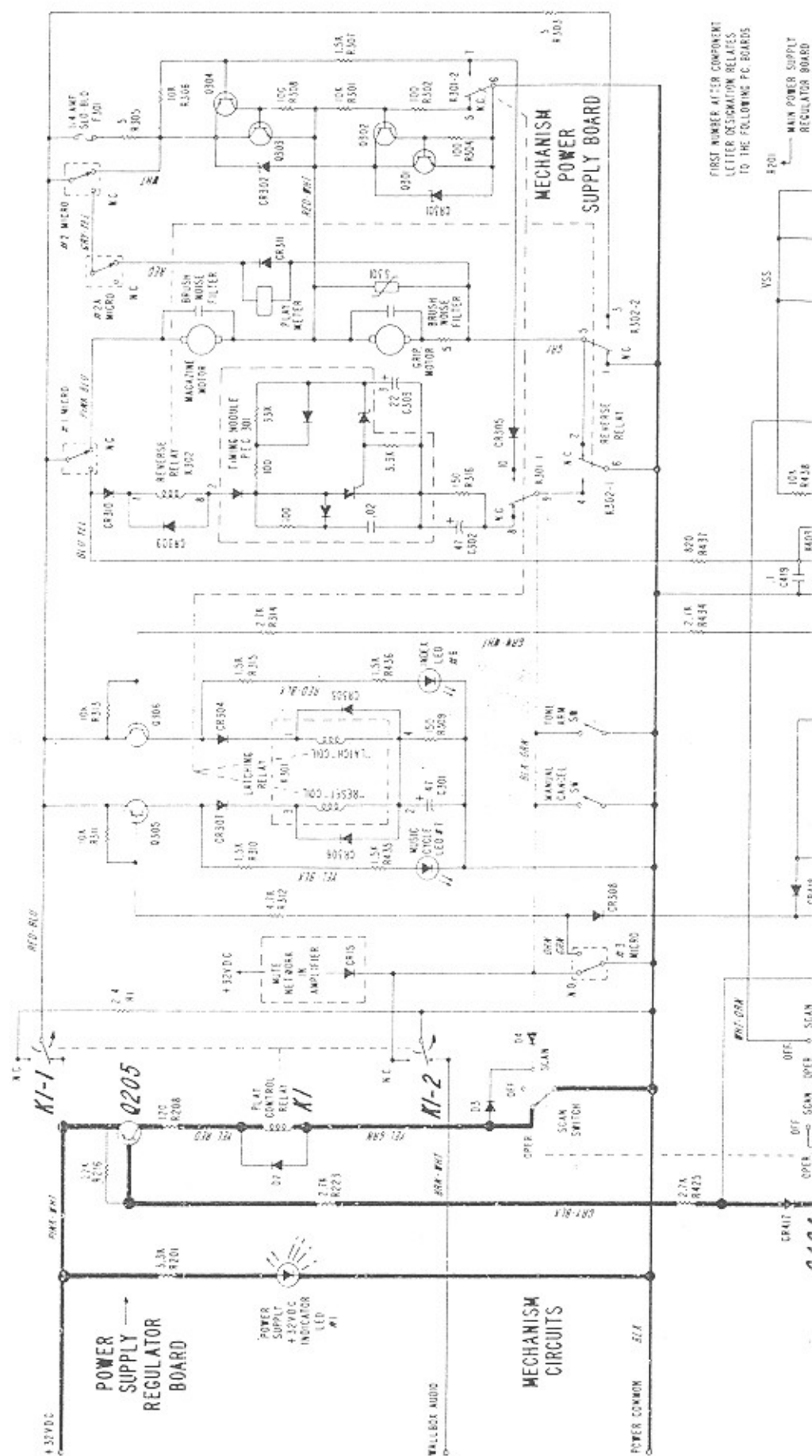


**SEQUENCE 8. 3rd DIGIT NUMBER PRESSED — SELECTION STORED IN
MECHANISM CONTROLLER LOGIC BOARD**

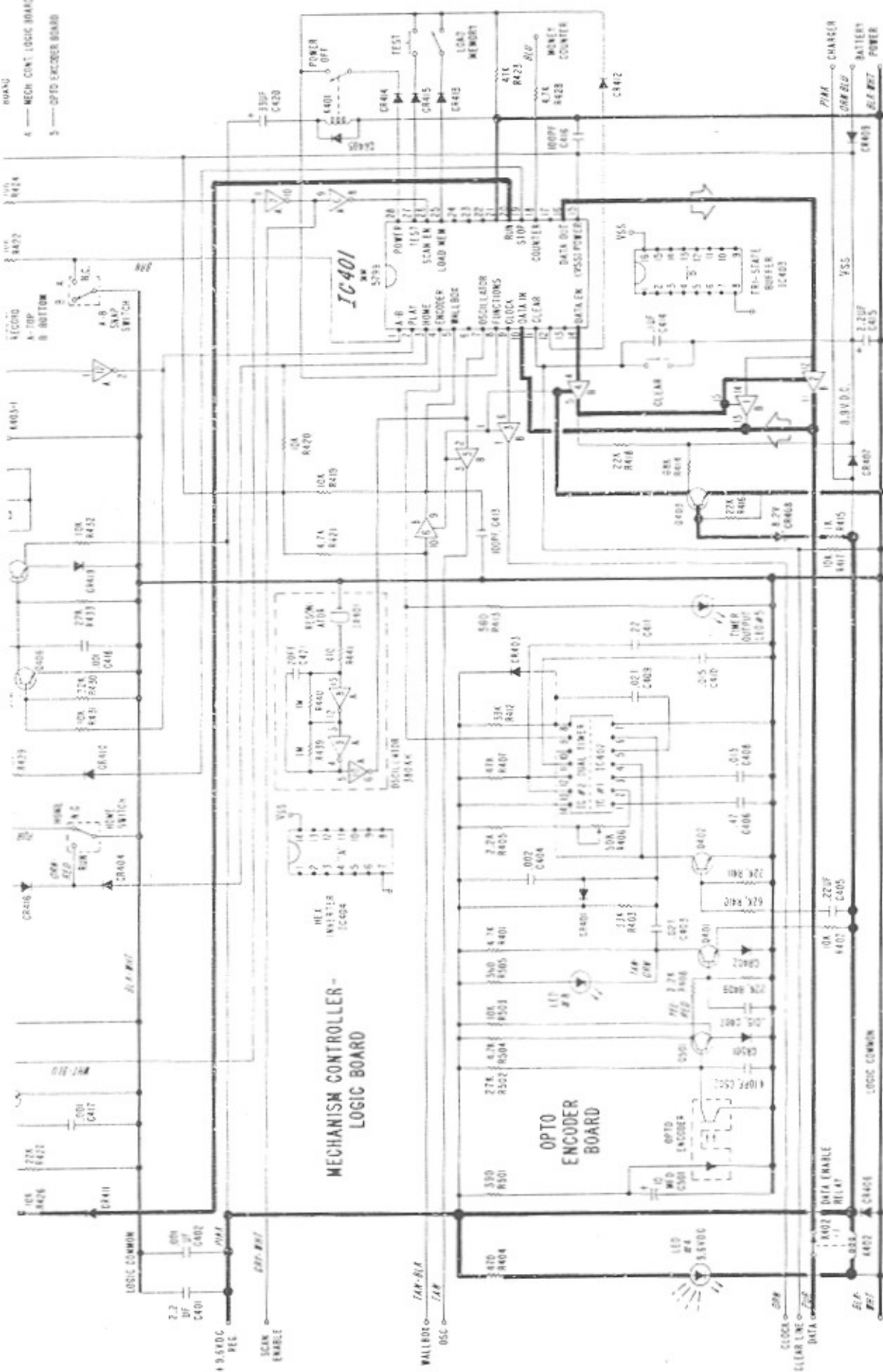
1. The processing of the 3rd digit is identical as that of the first (See Sequence 5) except that numbers 8 and 9 are invalid and will energize the "Reset-Reselect" circuit if chosen. (See Sequence 6)
2. When the 3rd digit has been accepted by the Credit Rom, signal on the "Data Out" enable line on Pin 11 is driven low. The stored selection is conveyed through the Buffer in the line and forwarded on the Data Line to the Mechanism Controller Logic Board for processing.
3. At the same time the Credit Controller subtracts one credit causing the Display Controller to erase the "1" produced in the Credit Window, "Your Selection" LED goes out, and "Record Playing" LED goes on.

TO MECH. CONTROLLER LOGIC BOARD (DATA LINE)





BOARD
 A — MECH CONT LOGIC BOARD
 B — OPTO ENCODER BOARD



SEQUENCE 9. SELECTION STORED — 1 CREDIT REMOVED — PLAY CONTROL RELAY K1 OPERATES

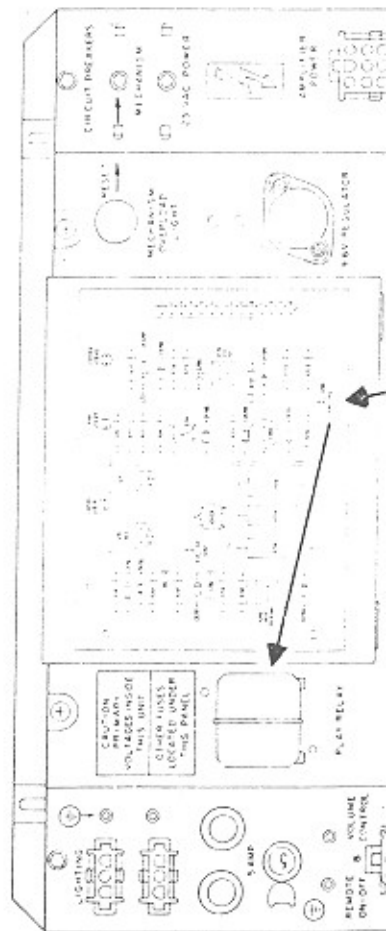
When selection information is received on the "Data In" line at Pin 10 of the MP IC401, the following happens:

1. At a certain time interval Pin 14 output is driven low enabling the buffer sections in the line to re-activate the "Data Out" line at Pin 16. Transmission on the line informs the credit unit that the selection information has been received.

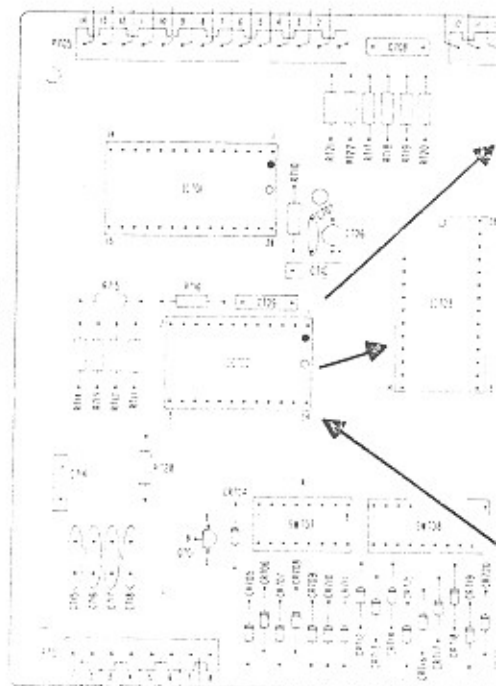
2. At the same time Pin 20 of the MP goes high causing transistors Q404 and Q205 to turn ON.

3. Play Control Relay K1 energizes and relay contacts K1-1 and K1-2 transfer.

POWER SUPPLY



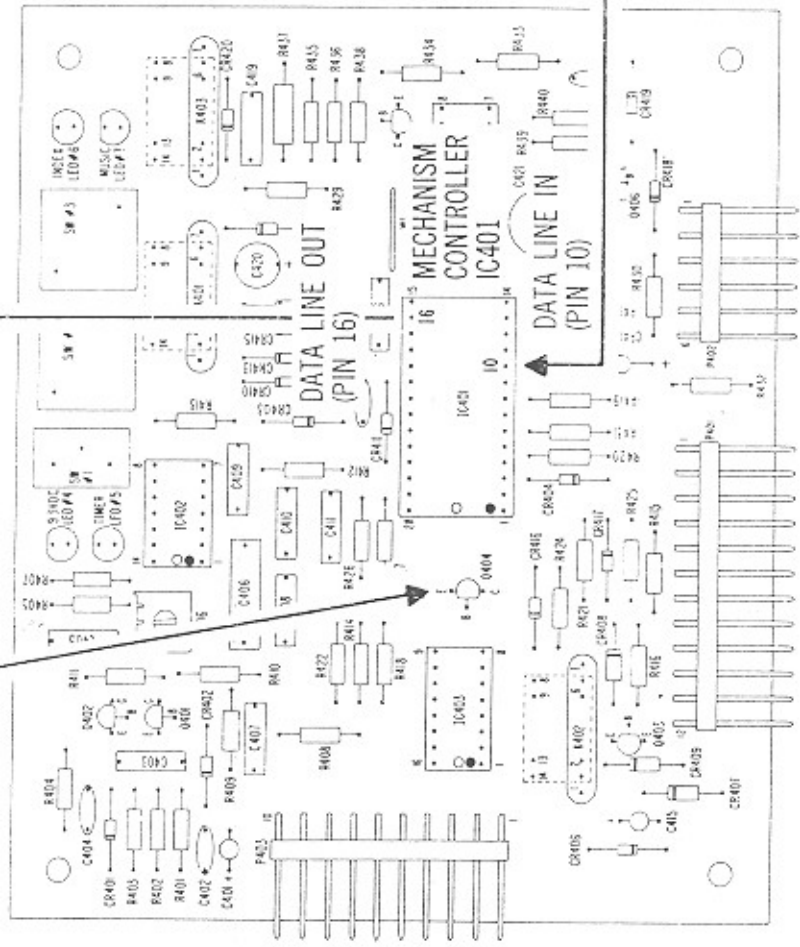
CREDIT UNIT



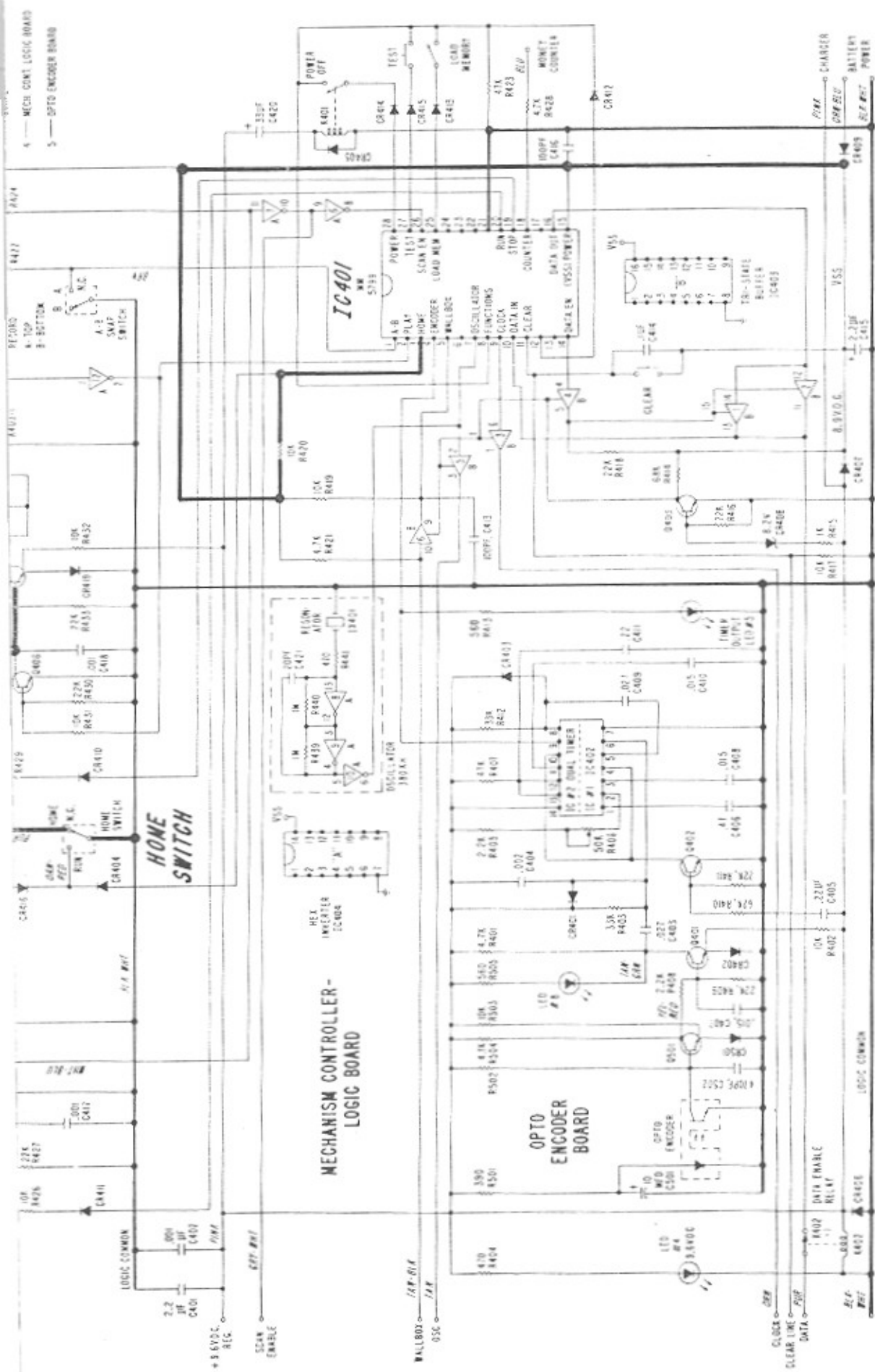


PLAY RELAY
K1
(CONTACTS
K1-1
K1-2)

REGULATOR BOARD

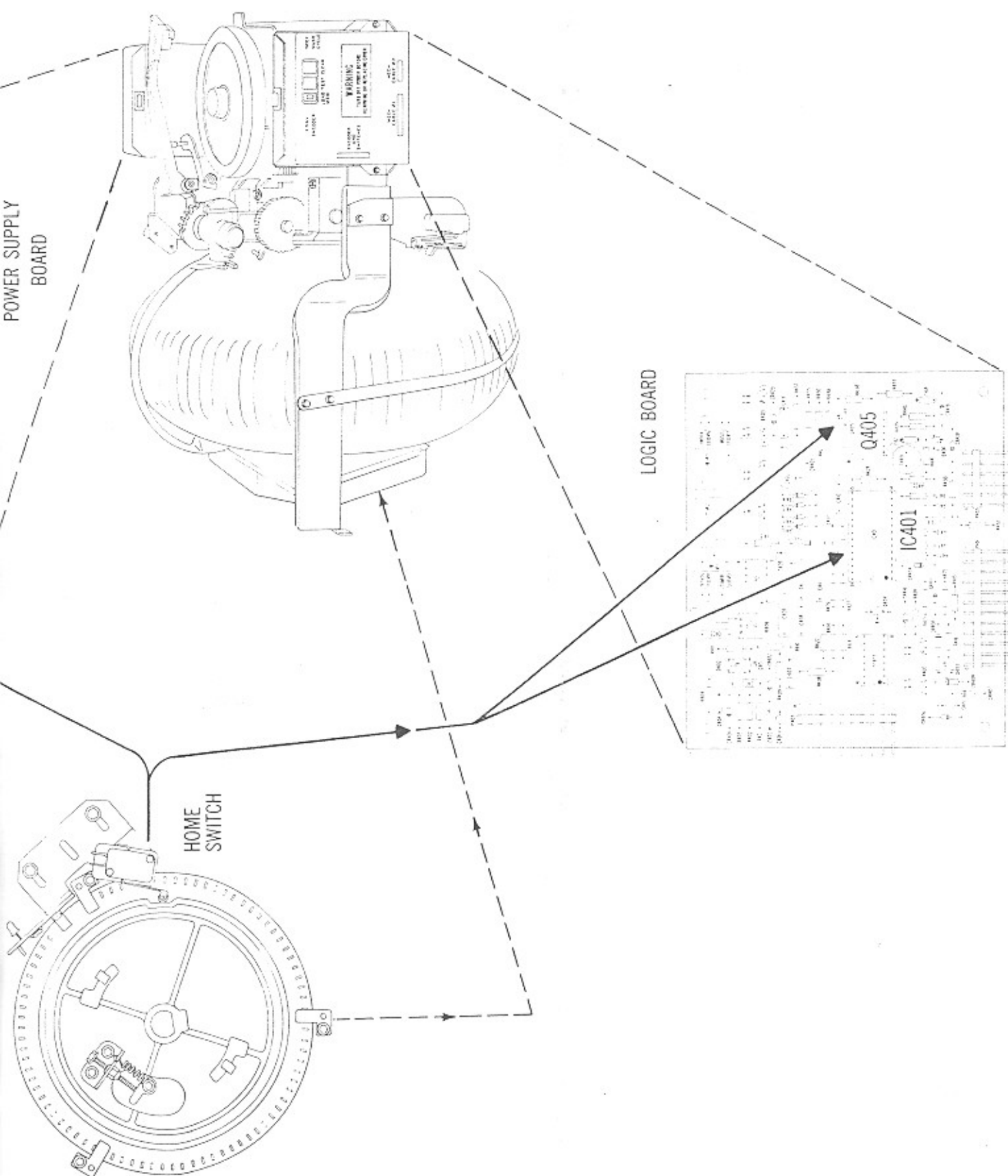


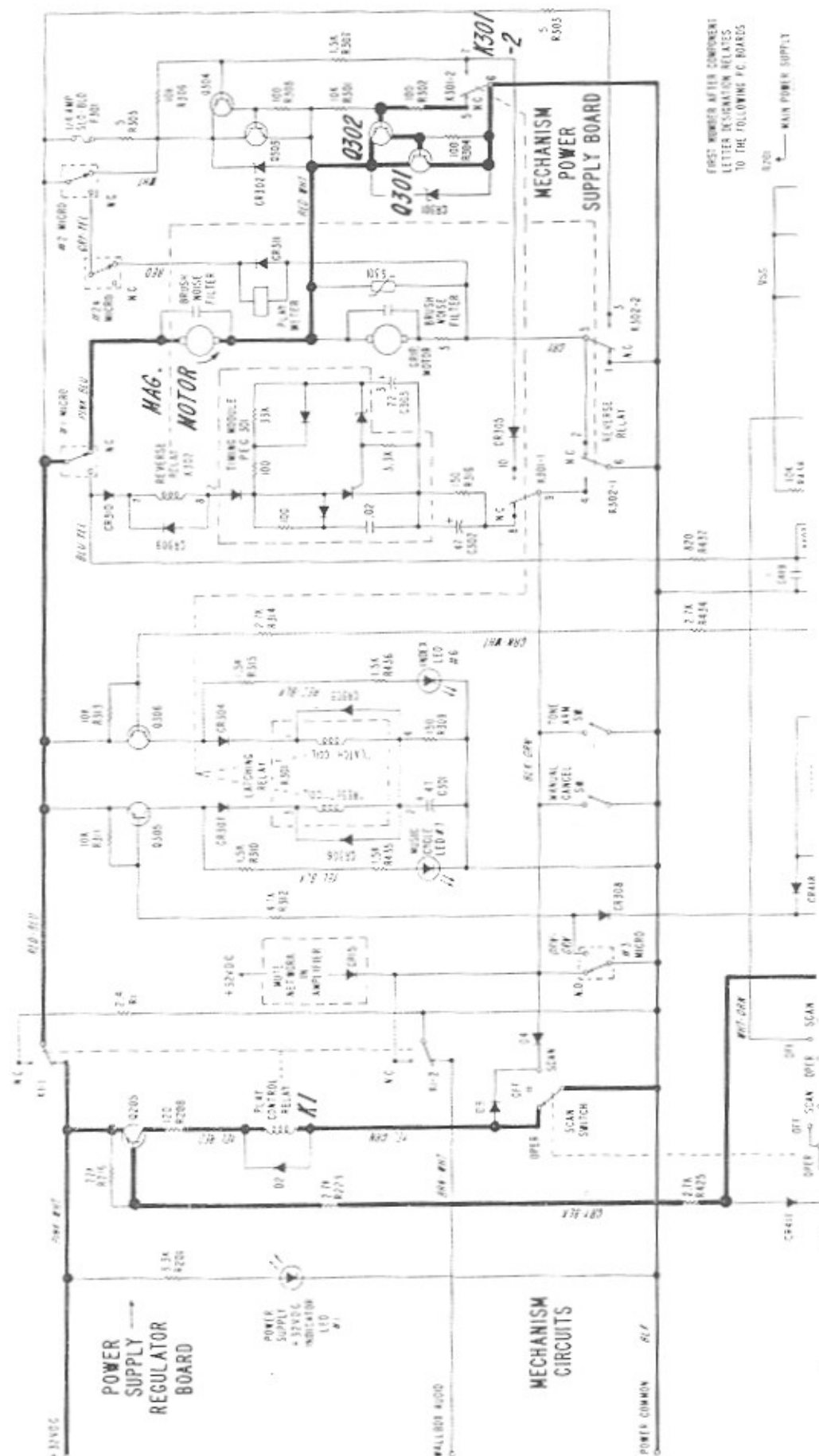
LOGIC BOARD



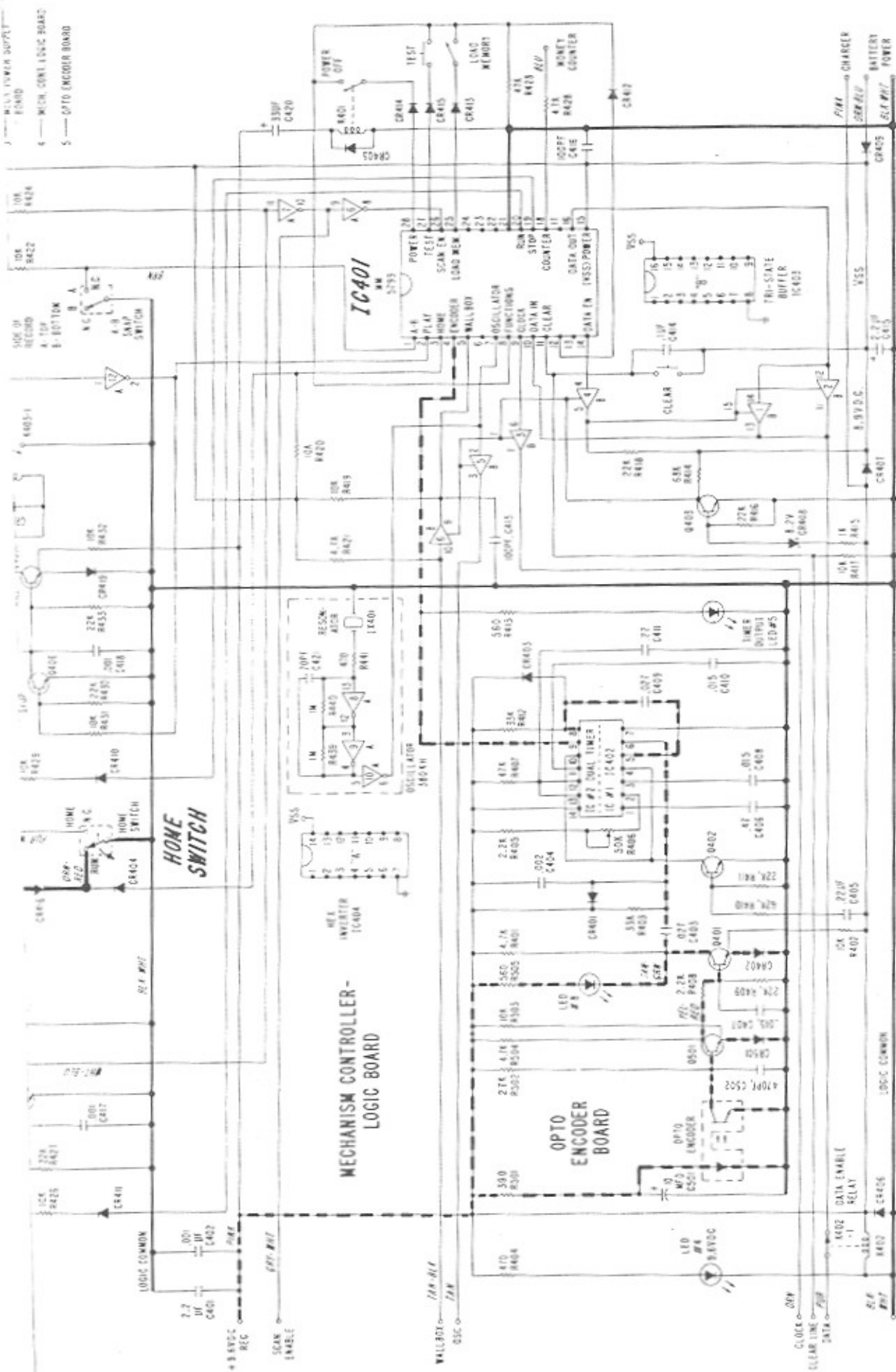
SEQUENCE 10. MECHANISM CIRCUITS RESET TO STANDBY

1. Standby or home position of the record magazine is when the Home Switch Lever rests in the cam dip allowing the Home Switch to be N.C.
2. As a result, transfer of the Play Relay Contact K1-1 turns on Q305 causing the K301 Latching Relay "Reset" coil to energize. This circuit assures that the latching relay contacts K301-1 and K301-2 are N.C. at this point of the mechanism cycle. (A condition required by the mechanism to avoid Gripper Motor operation)
3. Simultaneously, a low signal at CR418 occurs, thereby holding Q405 OFF. This prevents any signals from operating the latching relay "Latch" coil which in turn prevents gripper motor operation at this time.
4. The N.O. side of the Home Switch allows the signal on Pin 3 of the Mech Controller, IC401, to remain high. This holds the encoder counter in the IC401 at zero.



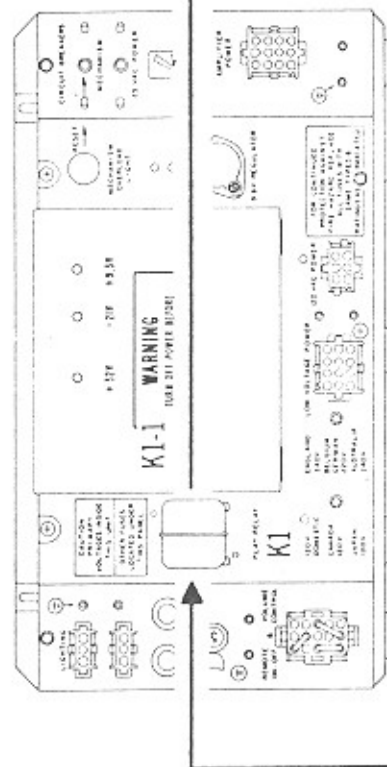


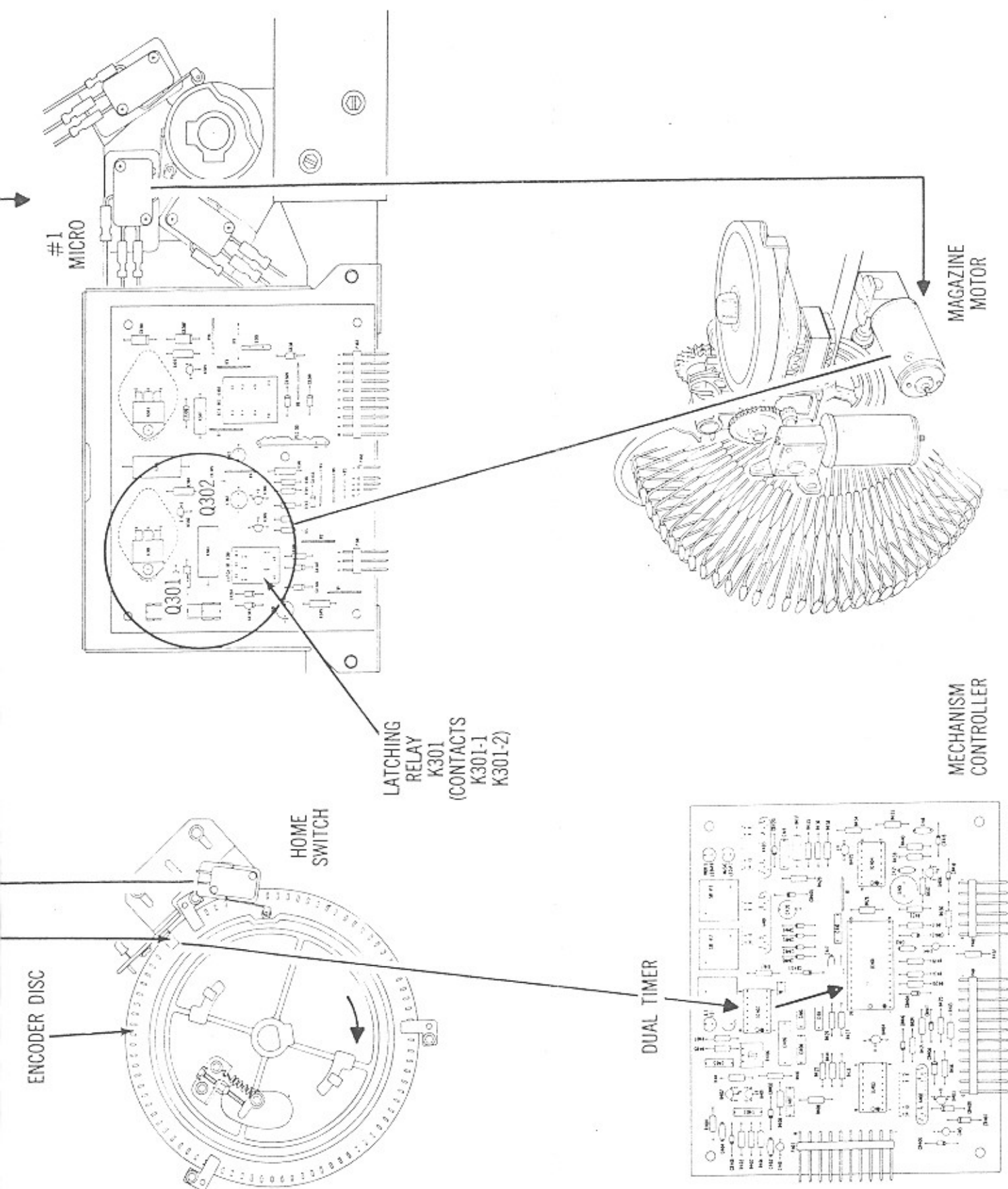
FIRST NUMBER AFTER COMPONENT
LETTER DESIGNATION RELATES
TO THE FOLLOWING PC BOARD

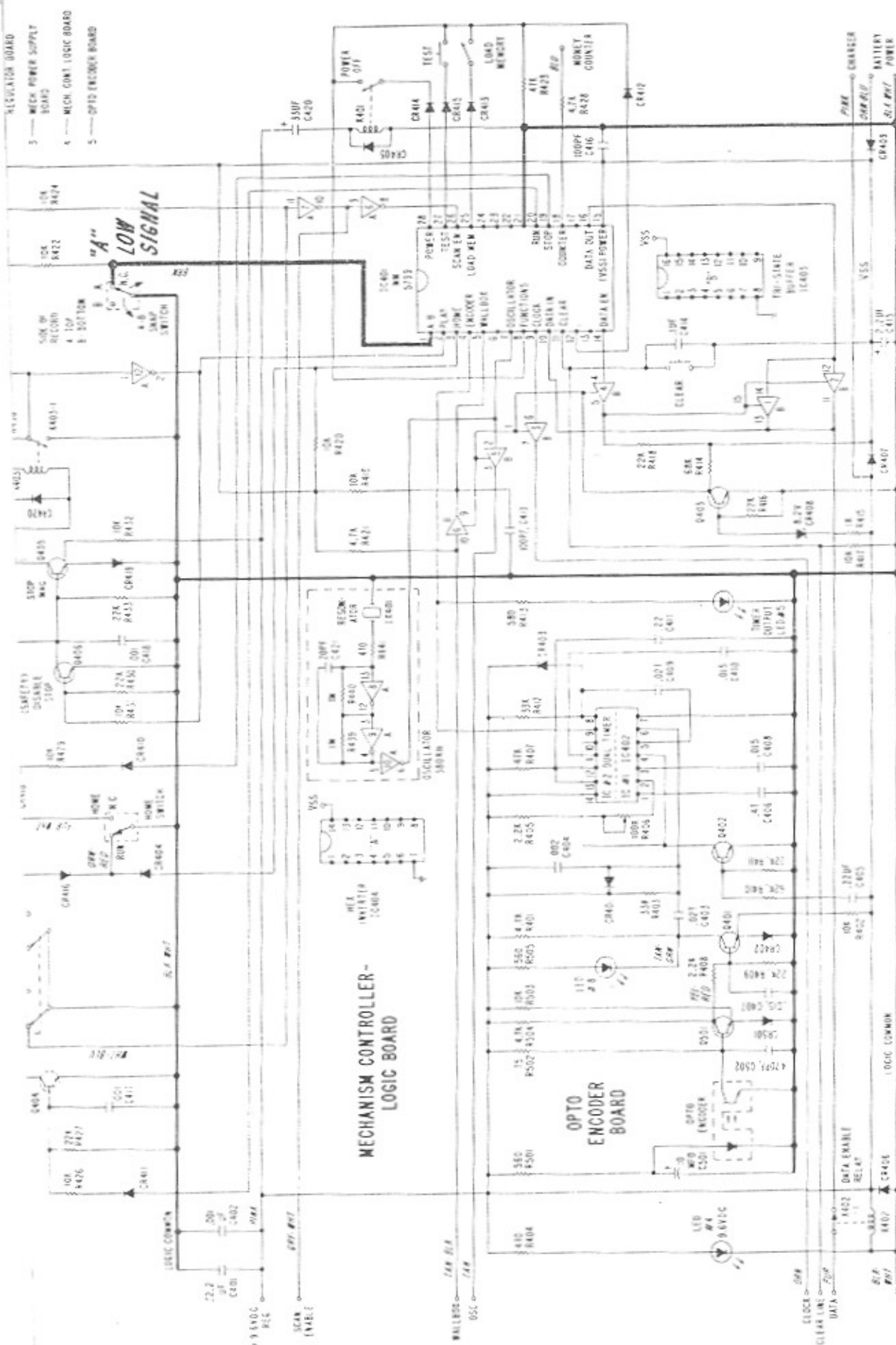


SEQUENCE 11. MAGAZINE MOTOR OPERATES — ENCODER DISC ROTATES — OPTO TRANSMITS PULSES

1. The N.C. position of the latching relay contact K301-2 applies a low signal to the base of Q302 causing Q302 and Q301 to conduct thus causing the Magazine Motor to energize.
2. Magazine Motor runs and rotates the Record Magazine together with the Home Switch Cam and Encoder Disc.
3. Short rotation of the Home Switch Cam transfers the Home Switch to provide a holding circuit to the Play Control Relay K1.
4. Encoder Disc is slotted and corresponds to the 80 record positions. As the slots pass the "opto" the pulse count is transmitted through the Dual Timer to Pin 4 of the MP, IC401. The purpose of the Dual Timer is (A), to allow a fine adjustment of record indexing via the trim pot R406, and (B), to provide properly shaped pulses to the MP encoder input.

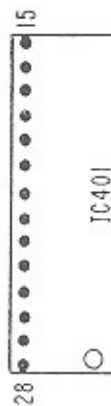
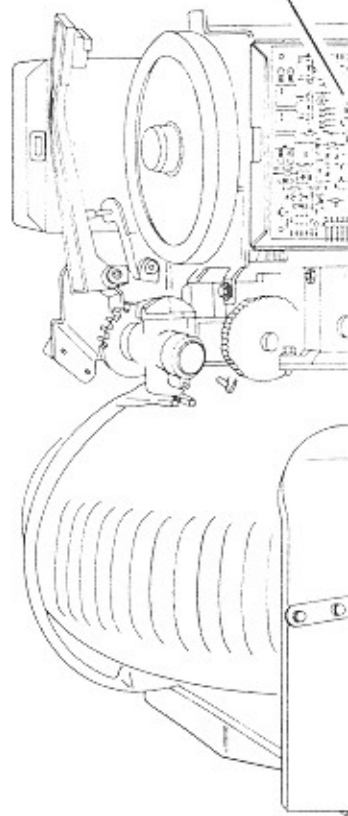


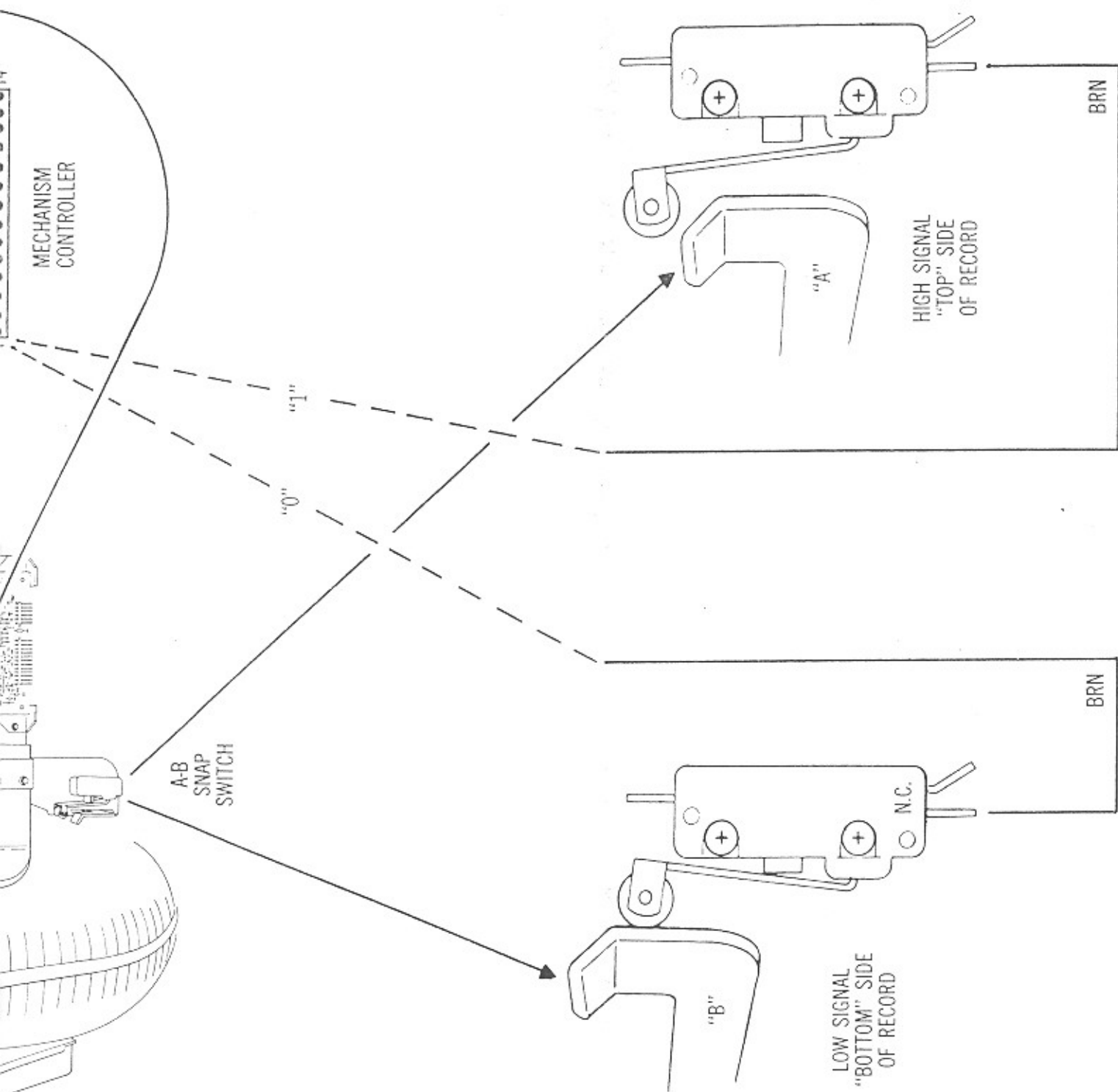


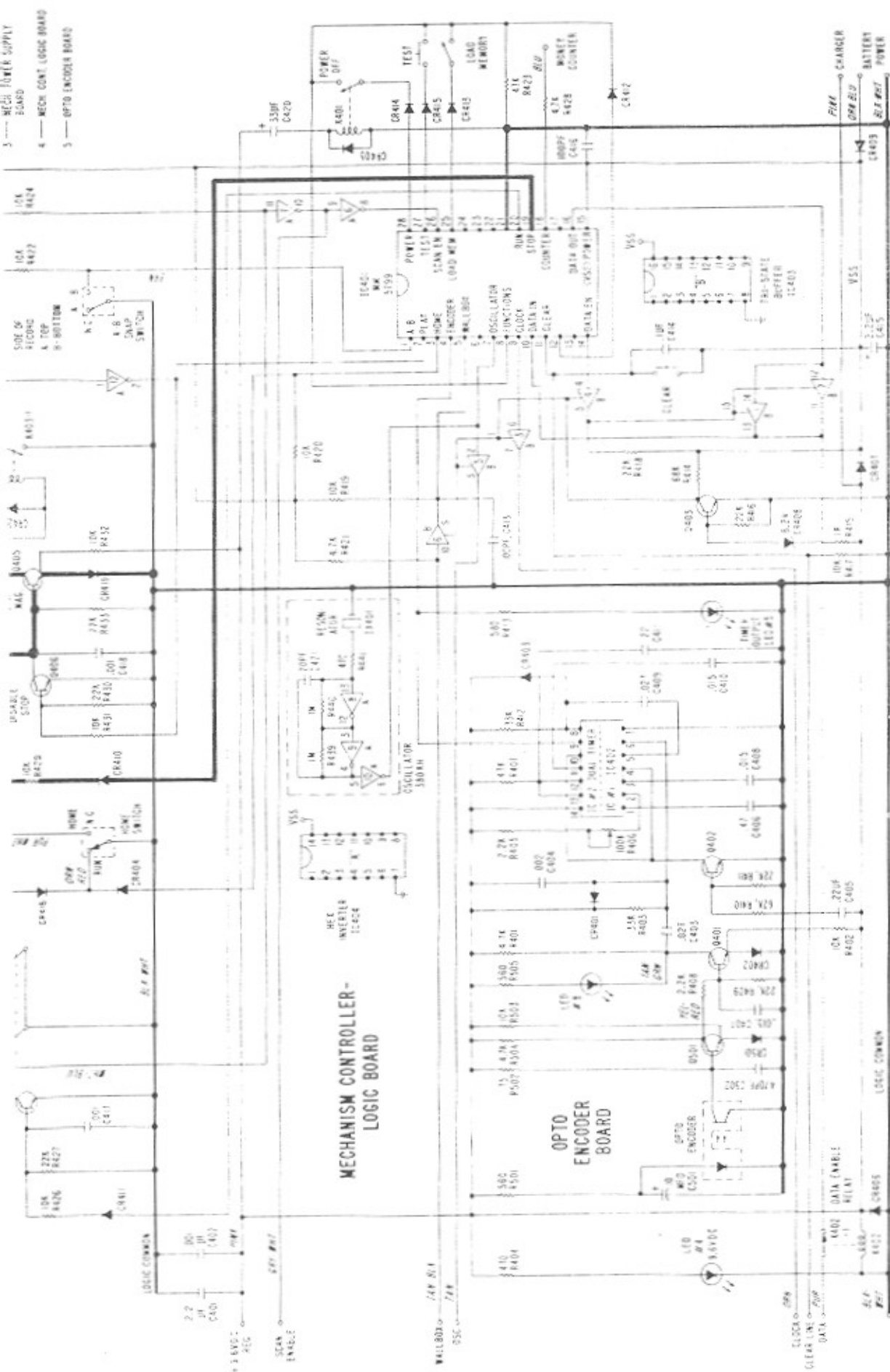


SEQUENCE 12. A-B SNAP SWITCH OPERATES

1. Physically the selected record must be placed on the turntable with the assurance that the correct side will come up.
2. Mechanically, on every complete rotation of the Record Magazine, the A-B Snap Switch position changes to "A-Top", or "B-Bottom" record side circuits. This changes the signal level on Pin 1 to "low" or "high" respectively.



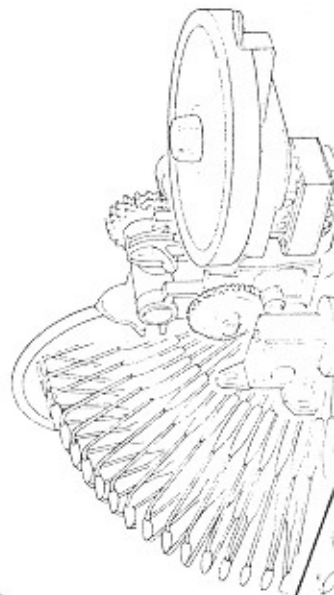
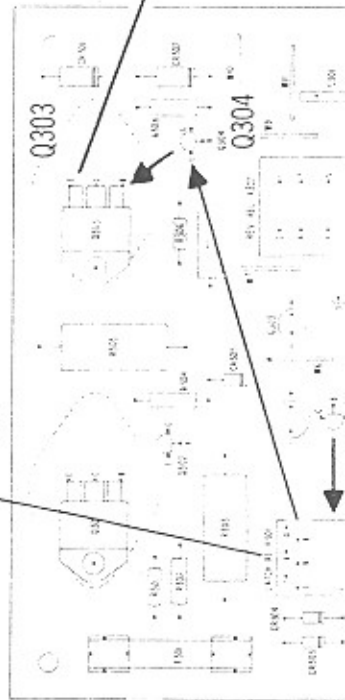


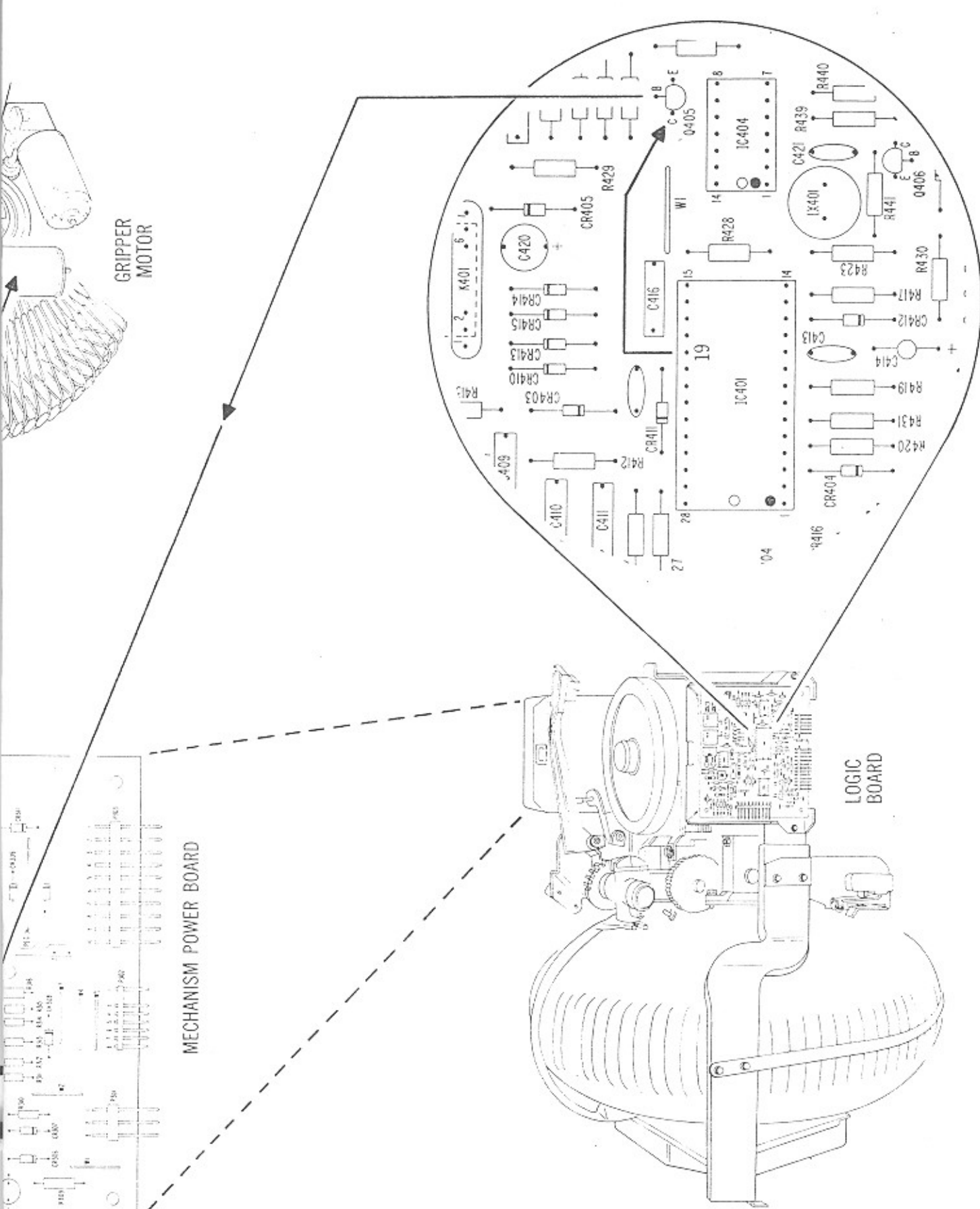


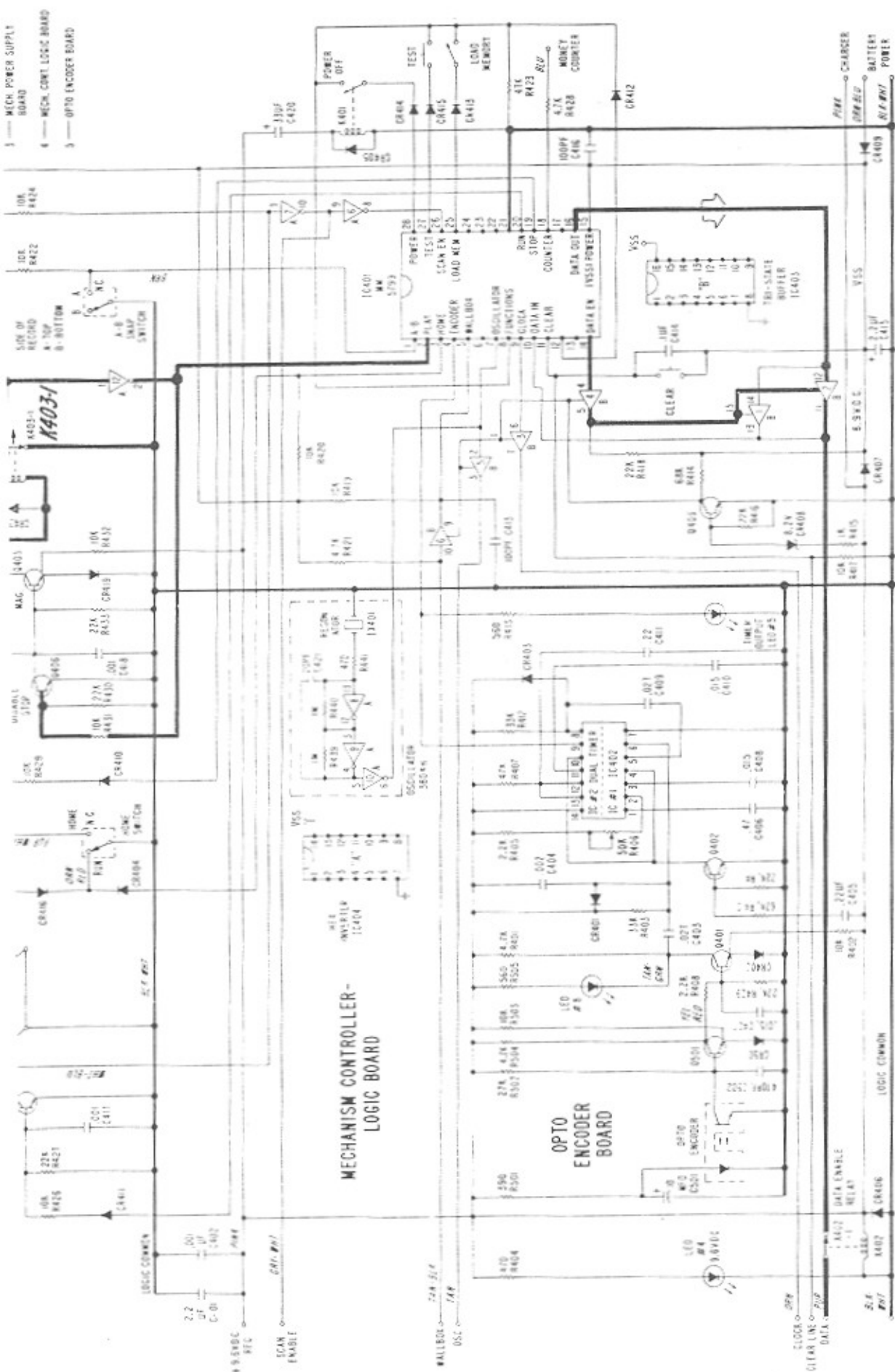
SEQUENCE 13. SELECTION LOCATED — MAGAZINE MOTOR STOPS — GRIPPER MOTOR RUNS

1. When the electrical and physical conditions are met and selection located, the output from Pin 19 goes high and applied to the base of Q405.
2. Q405 turns on and drives Q306 causing the Latching Relay K301 "Latch" coil to energize, thereby causing relay contacts K301-1 and K301-2 to transfer.
3. K301-2 turns on Q304 and Q303 causing a dynamic brake to be applied to the Magazine Motor, this stops the rotation of the record magazine and starts the Gripper Motor.

LATCHING
RELAY
K301
"LATCH"
COIL







**SEQUENCE 14. CAM SHAFT ROTATES — MICRO #1 OPERATES —
"RECORD PLAYING" IS INDICATED IN THE DISPLAY**

1. The "jaws" of the gripper arm now grasp the selected record and carry it to the turntable. During the placing of the record on the turntable, the rotating gripper cam operates four Micro switches.
2. Micro #1 operates first. the N.C. circuit to the Magazine Motor is disconnected to assure that both D.C. motors do not run at the same time.
3. The N.O. side of Micro #1 activates relay K403. The signal after the Hex Inverter becomes high and is applied to Pin 2 of the MP IC401, and also to the base of Q406 which disables the "Latch" coil circuit. Latching relay contacts K301-1 and K301-2 remain magnetically latched in the N.O. position.
4. During the time interval the "Data Enable" signal on Pin 14 becomes low, the "Data Out" line on Pin 16 starts "Record Playing" transmission to the Credit Unit for processing. "Record Playing" is then indicated in the record display.



SEQUENCE 15. MICRO #2 TRANSFERS

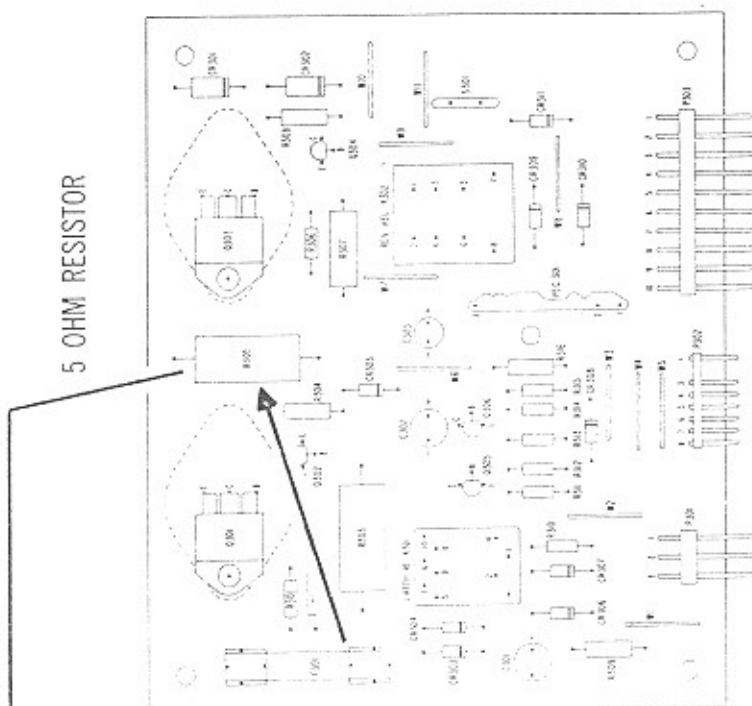
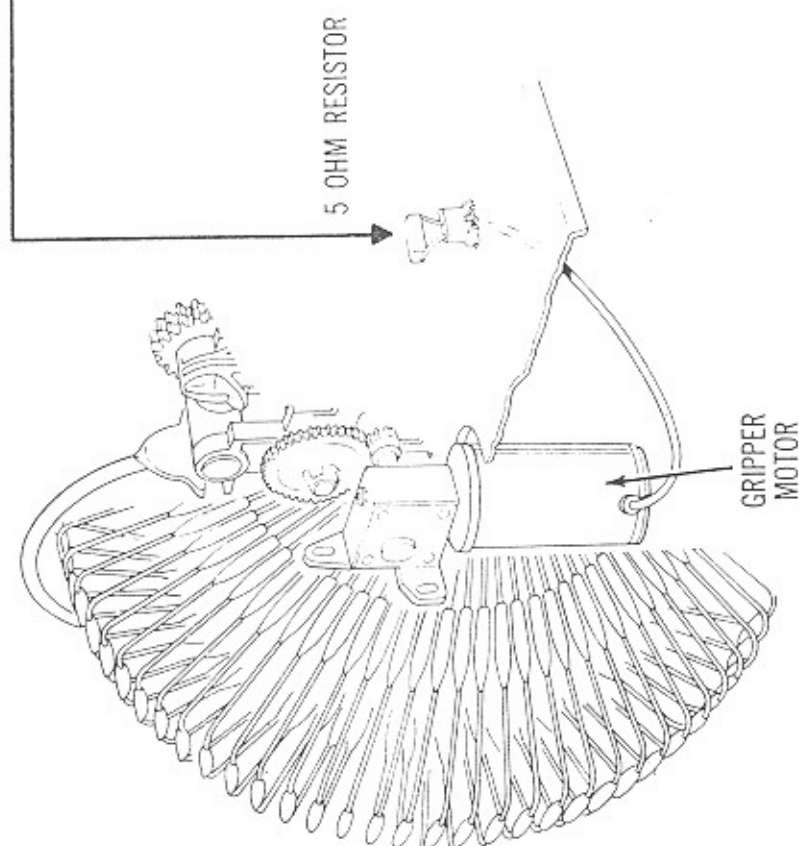
Micro #2 followed by 2A operate next.

1. Transfer of Micro #2 to N.C. operates the Play Meter which registers one count.
2. At the same time the Gripper Motor circuit is switched through two 5 ohm resistors, thereby reducing the speed

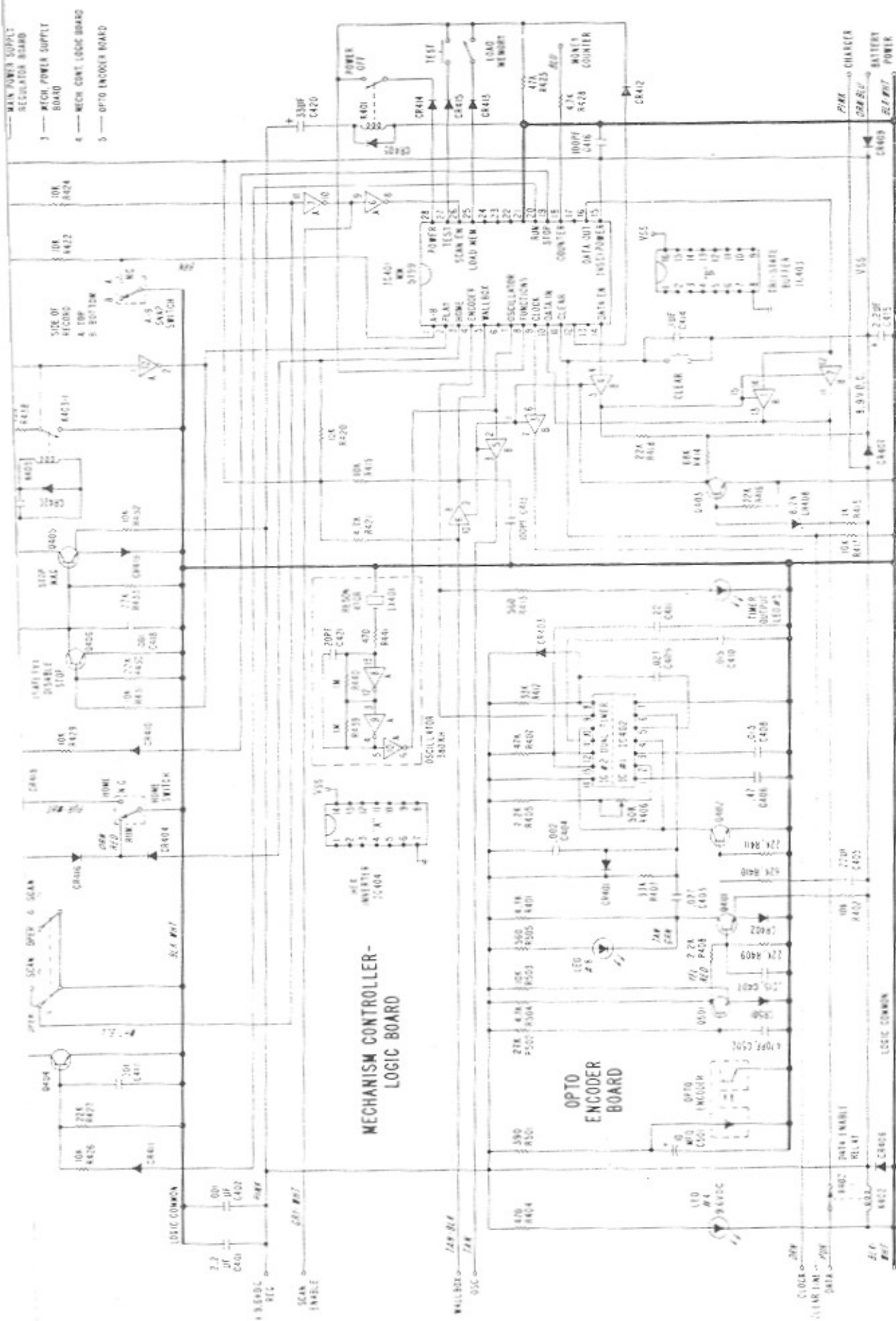
of the motor. This allows the tone arm to advance more slowly when placing the pick-up stylus on the record.

3. Subsequent operation of Micro 2A breaks the play meter circuit.





MECHANISM POWER BOARD



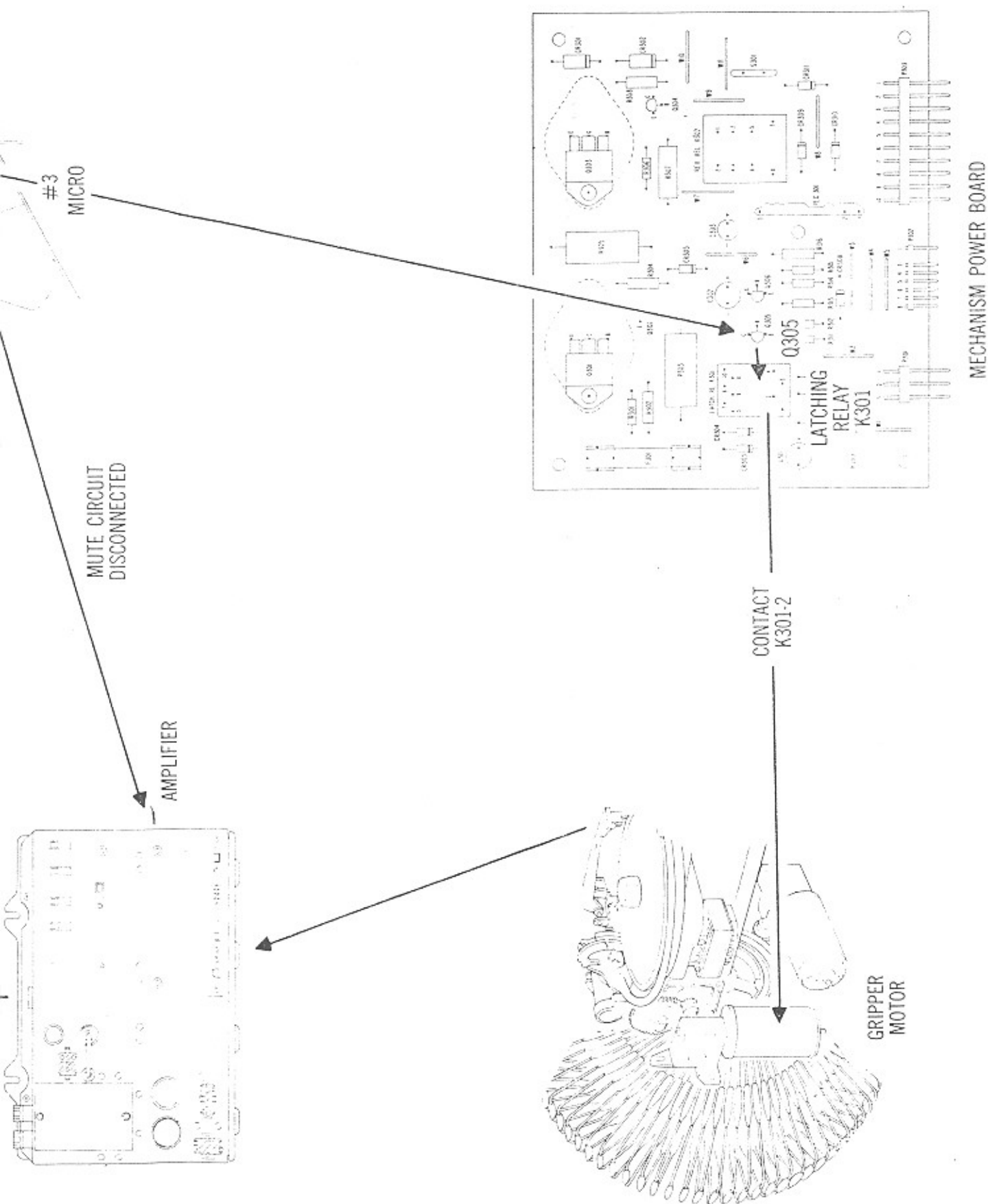
SEQUENCE 16. RECORD TRANSFER COMPLETED — MUSIC CYCLE STARTS

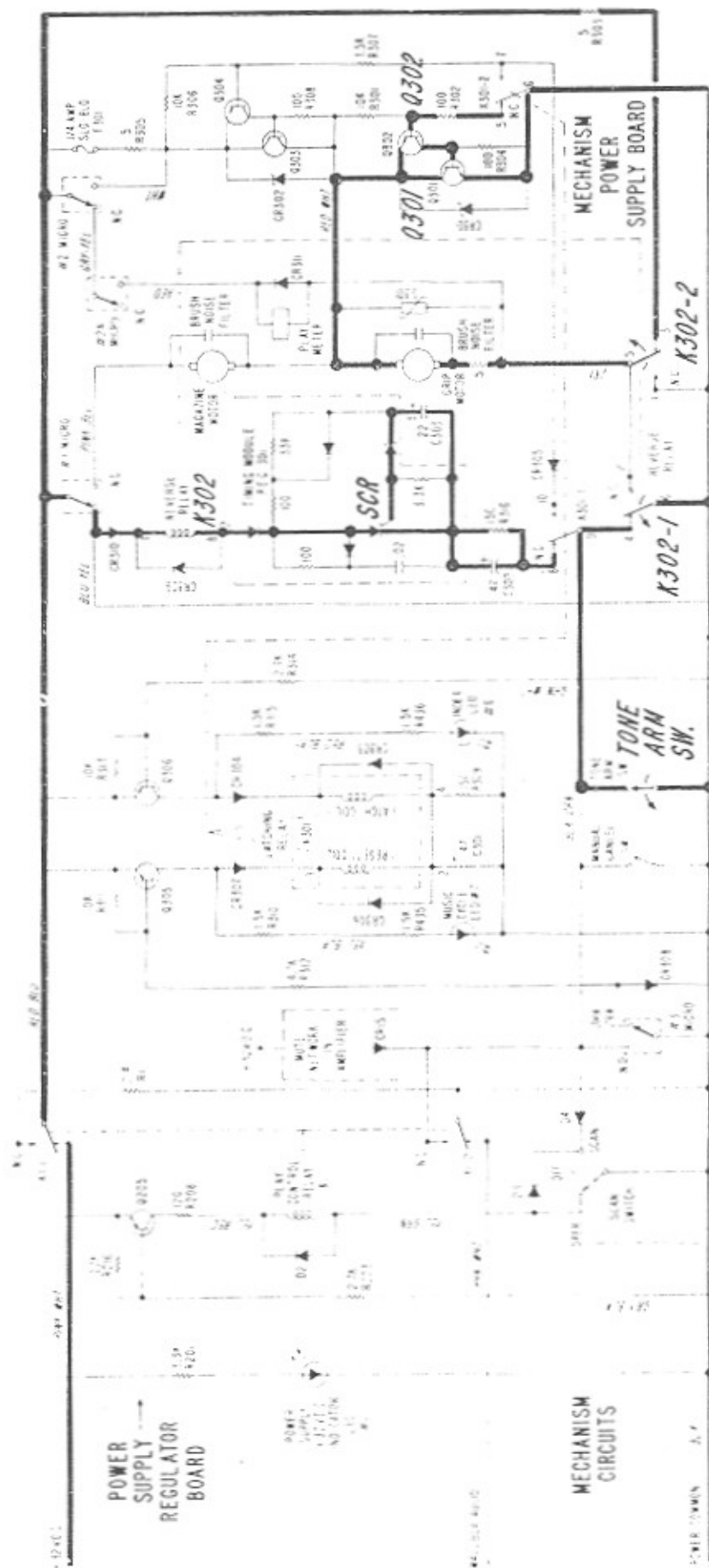
1. When Micro #3 transfers, Q305 turns on allowing the Latching Relay K301 "Reset" coil to energize and return the latching relay contacts K301-1 and K301-2 to their N.C. condition.
2. Transfer of K301-2 disconnects the Gripper Motor circuit. Due to the voltage generated by the rotation of the gripper

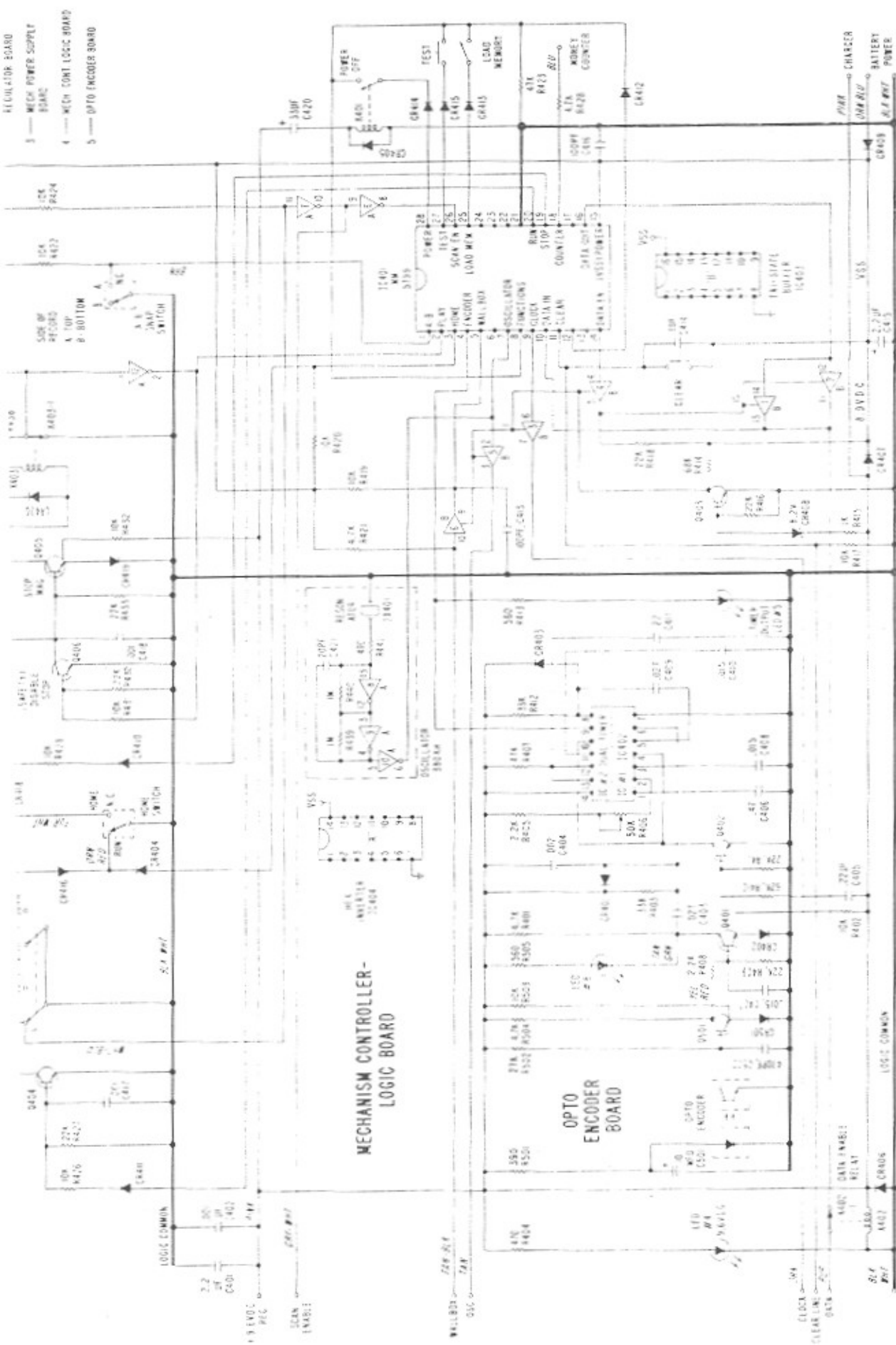
motor, Q302 and Q301 turn on momentarily causing the motor to dynamically brake. Both D.C. motors are now stopped.

3. At this point the tone arm is in the record groove, the amplifier mute system is disconnected by the transfer of the #3 Micro, and the music cycle starts.





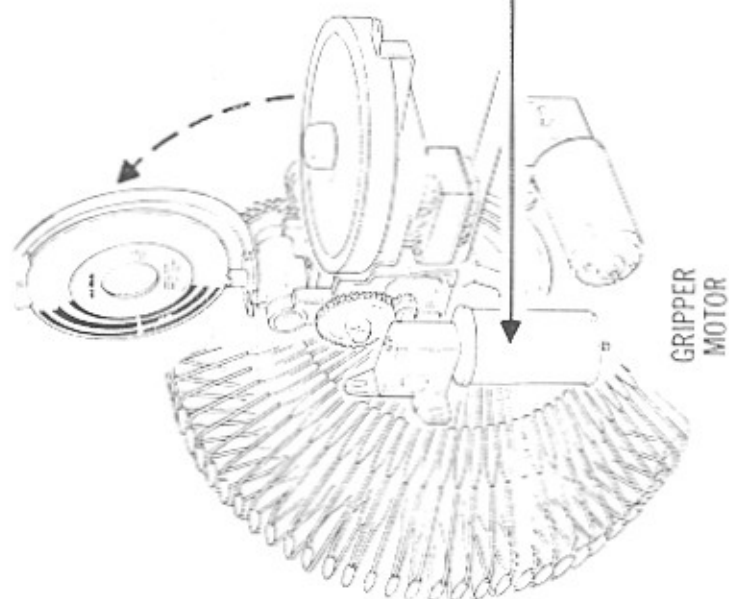




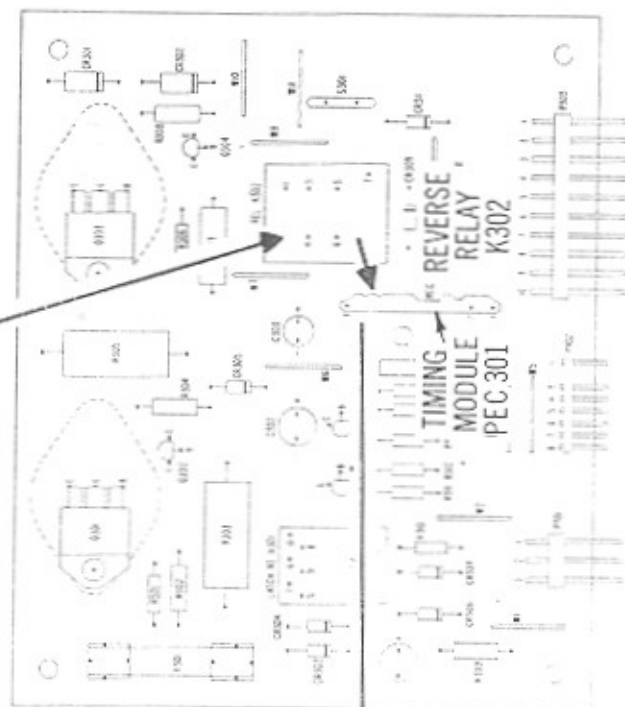
SEQUENCE 17. MUSIC CYCLE ENDS

1. As record play is ended the tone arm moves into the record cut-off groove closing the Tone Arm Switch. After a delay of approximately 150 milliseconds, the Timing Module (PEC 301) SCR conducts thereby energizing the Reverse Relay K302. Relay contacts K302-1 and K301-2 now transfer.
2. K302-1 provides a holding circuit to the Reverse Relay K302.
3. K302-2 causes the Gripper Motor to operate in reverse via Q302 and Q301, and proceeds to return the record to the magazine.

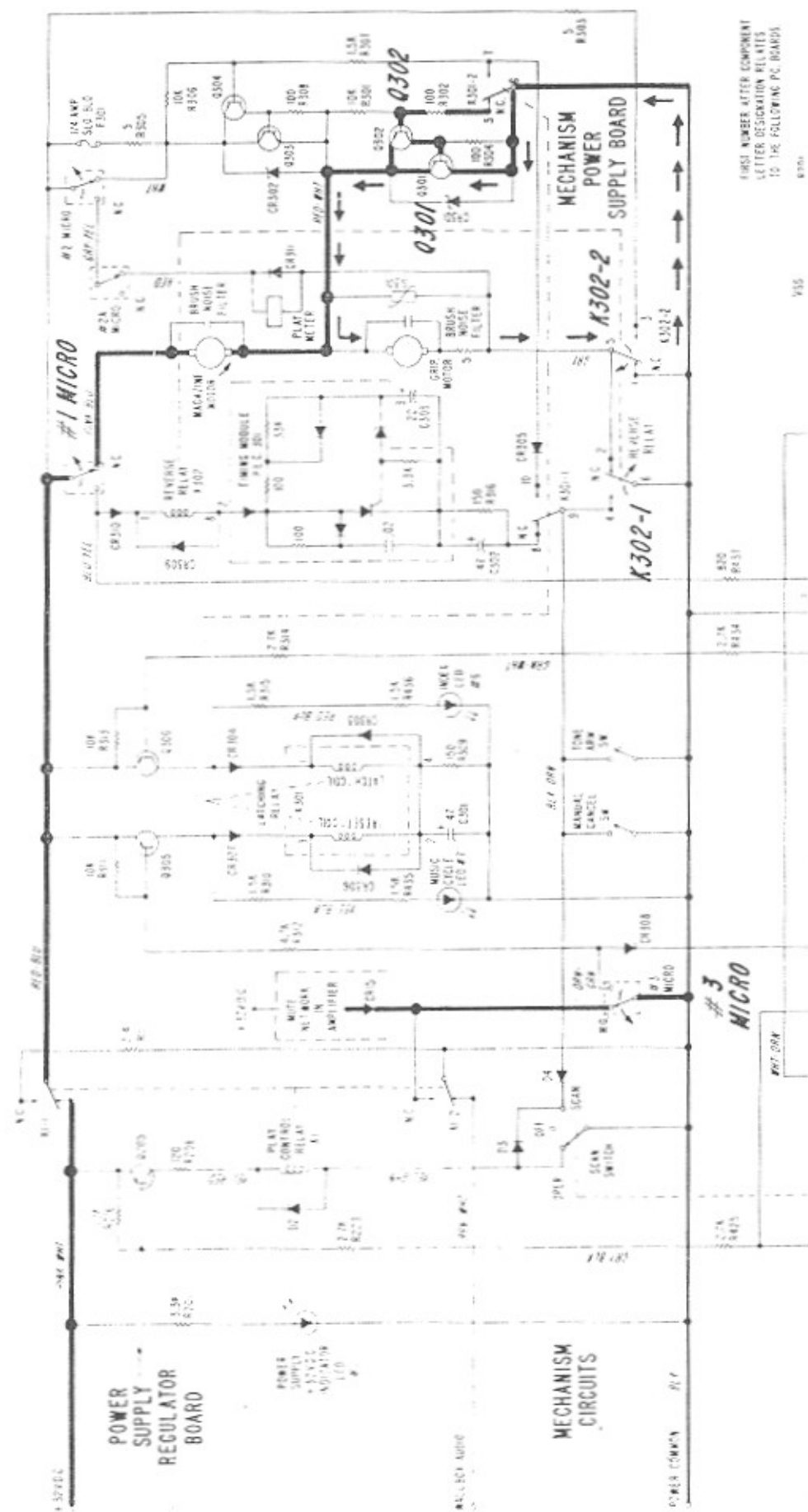
TONE
 ARM
 SWITCH

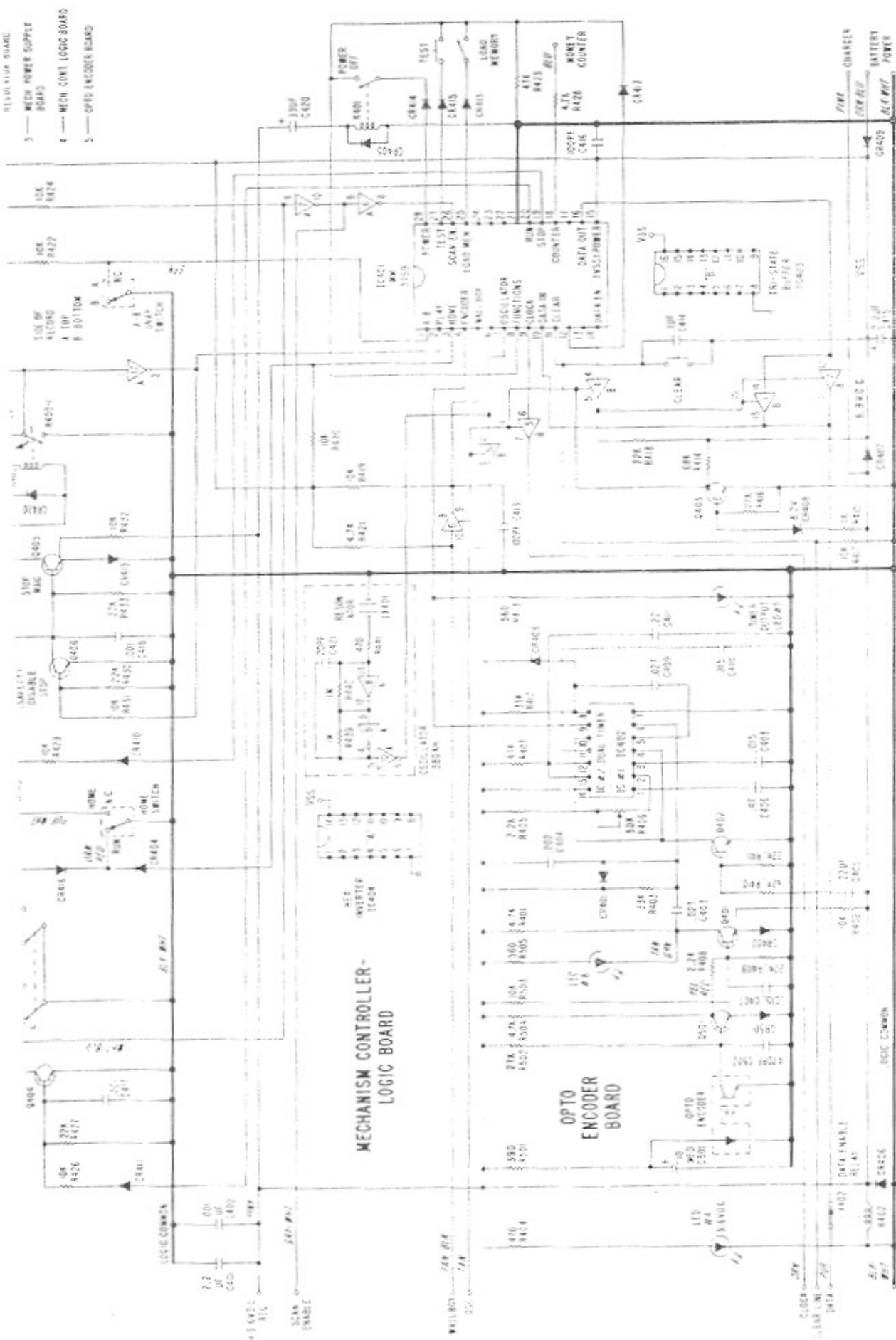


GRIPPER
 MOTOR



MECHANISM POWER BOARD





SEQUENCE 18. MICRO SWITCHES RETURN

1. During the return of the record, the four Micro switches return to their original positions. Micro #3 mutes the sound system through the network provided in the amplifier.
2. When Micro #1 returns, the Reverse Relay K302 coil circuit is disconnected, relay relaxes and relay contacts

K302-1 and K302-2 return to their N.C. position.

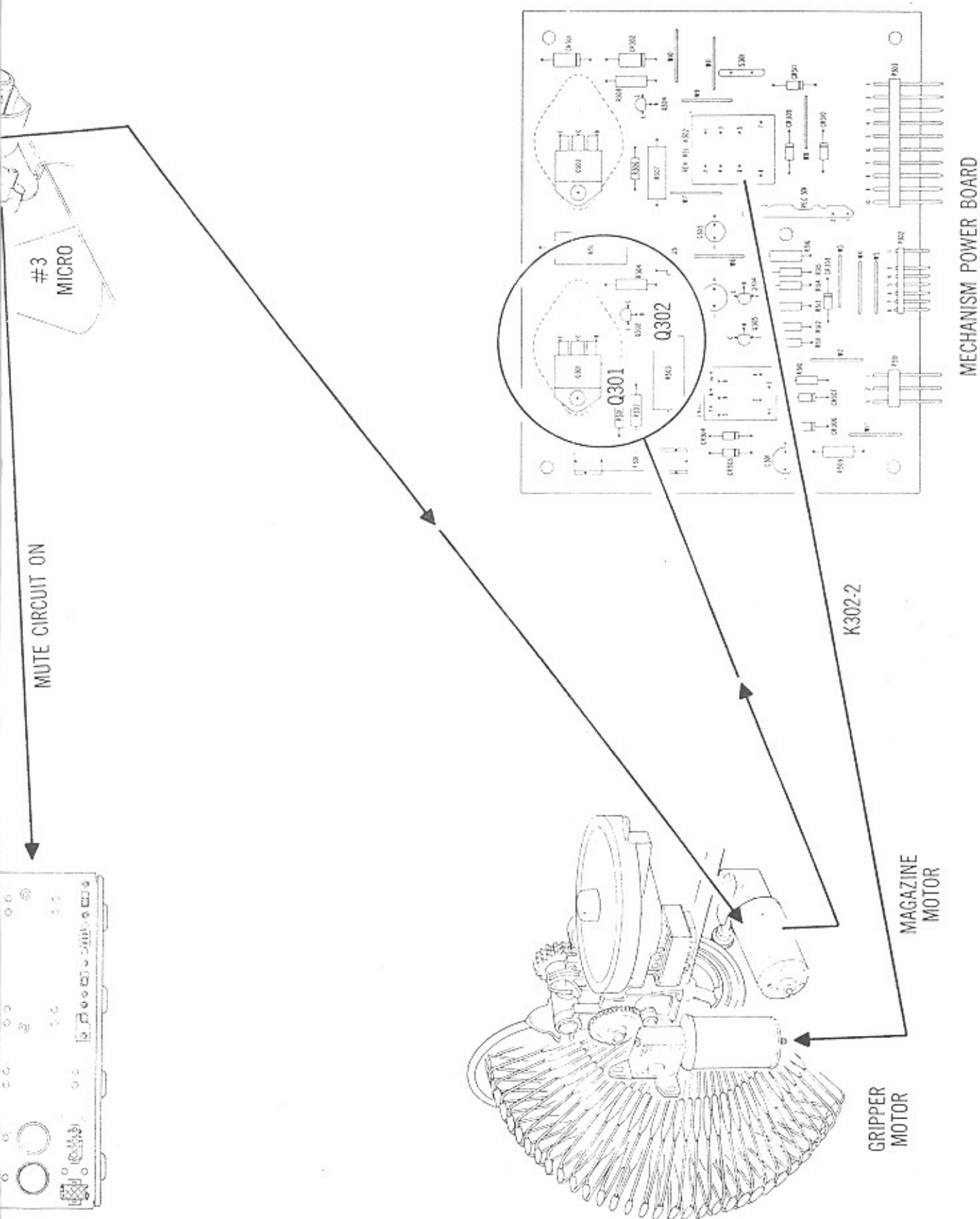
3. K302-2 places a dynamic brake on the Gripper Motor while at the same time, a circuit is again completed to the Magazine Motor via the Micro #1, transistors Q302 and Q301 causing the motor to run.

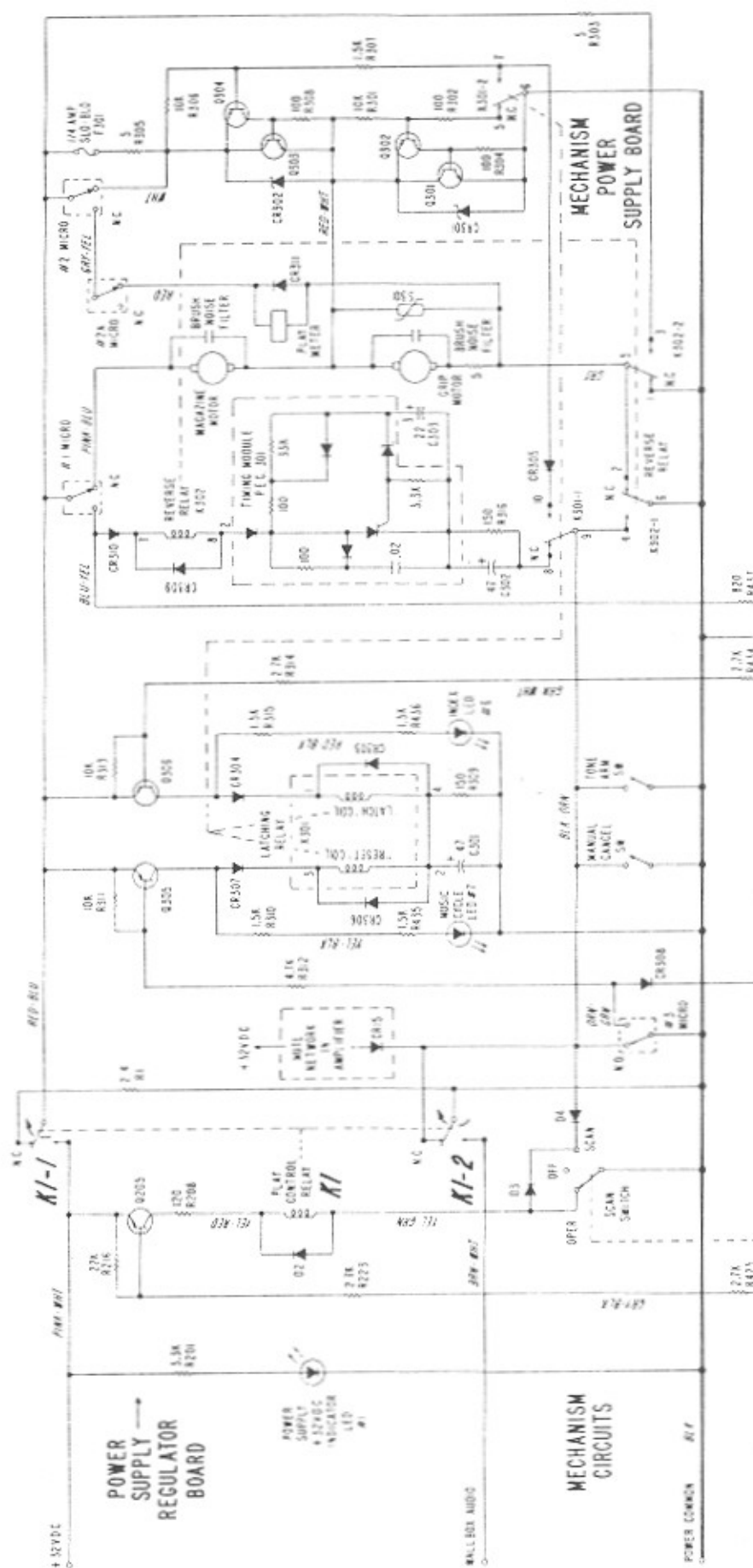
AMPLIFIER



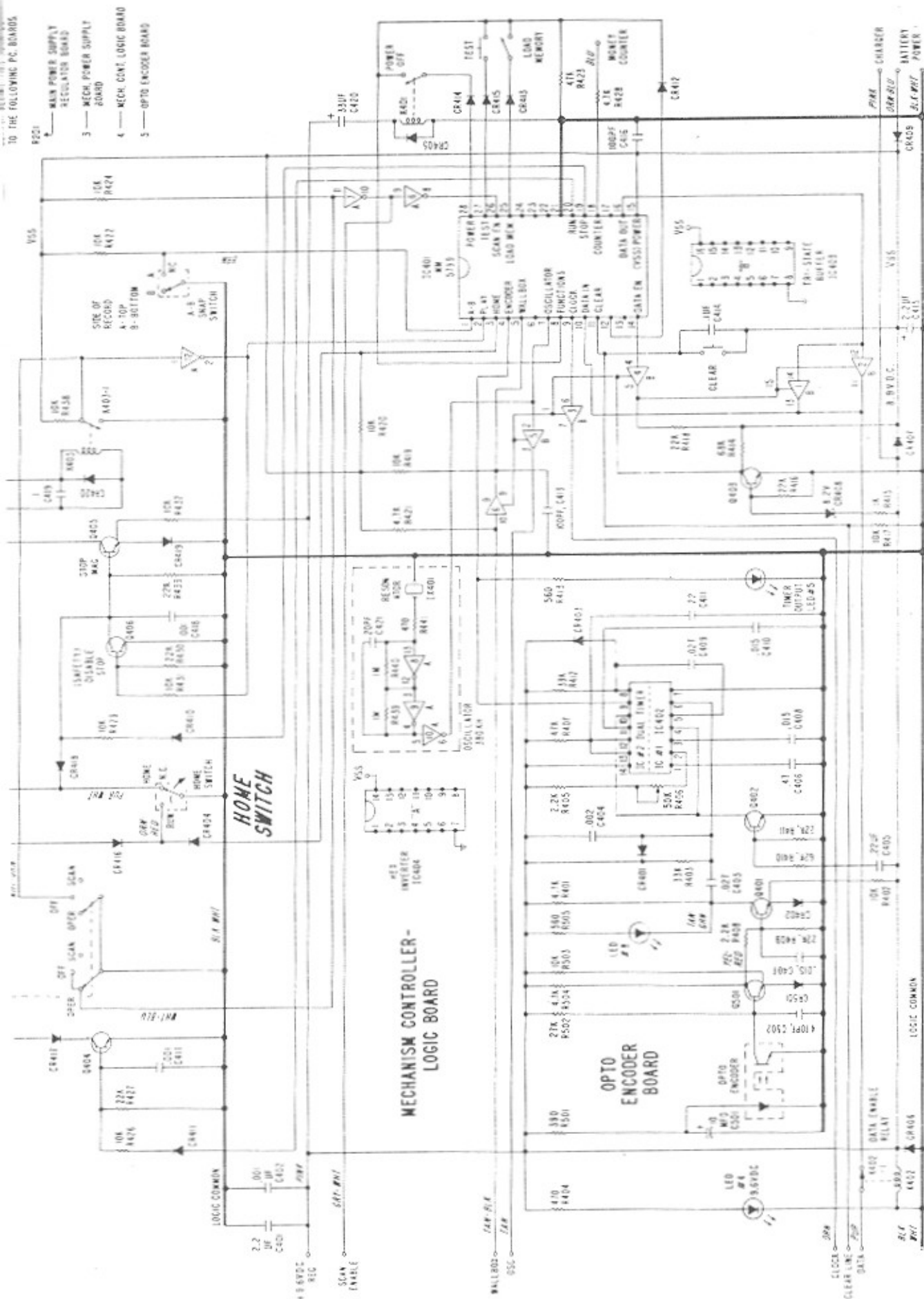
#1 MICRO







1991

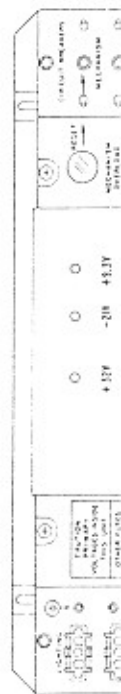


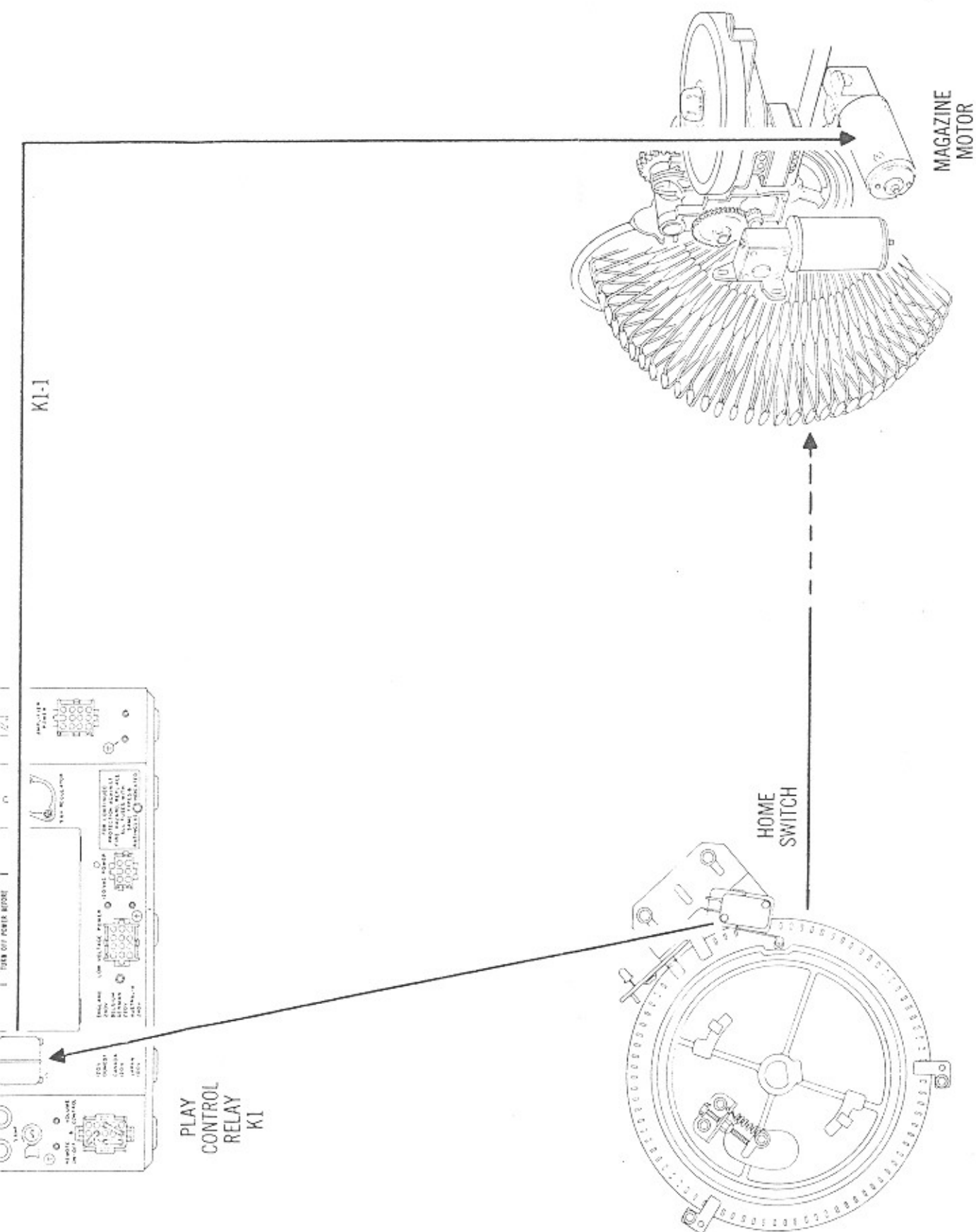
SEQUENCE 19. SCAN CYCLE COMPLETED

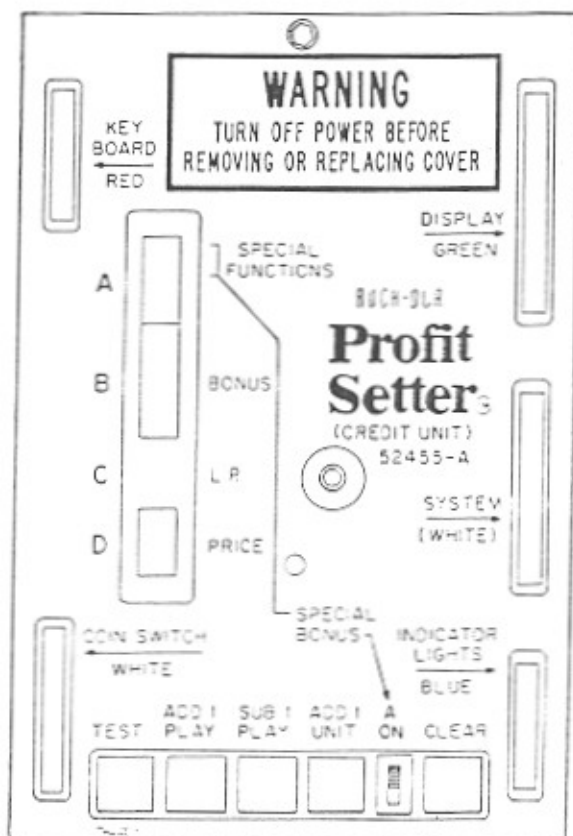
1. When rotation of the Home Switch Cam releases the Home Switch into the cam dip, the opto-encoder counter in Logic Board MP is reset to zero . . . If no other selections are in the memory, then the circuit to the Play Control Relay K1 is disconnected. Relay contacts K1-1 and K1-2

return to standby and turn off the mechanism power.

2. K1-1 applies a dynamic brake across the magazine armature bringing the motor to a quick stop thus completing the mechanism cycle.







PROFIT SETTER (CREDIT UNIT)

The Credit Unit is a solid state system which converts deposited money into 255 plays. Provides means for entering the desired selections from the keyboard and its subsequent transmission to the Mechanism Control Unit.

The money conversion is very flexible, can be programmed for all world currencies and allows for variable pricing dependent on the amount of money deposited.

Any combination of nickels, dimes and quarters can be used to accumulate credits and bonuses.

Pricing of plays and bonus amounts may be programmed at 5 bonus levels by Switch Banks A, B and D as explained under "Programming Your Own Price Combinations" on page 7. Components for Switch Bank C are omitted and are part of an Album Kit.

"Free Play" operation can be programmed by setting switches D1, D2 and D3 in Bank D to "OFF".

"Add Coins" light is provided to show that the amount entered is not great enough to reach one play. The total number of plays is displayed on a two digit display with a maximum capacity of 99 plays.

Five service switches are provided on the face of the credit unit. Add 1 Play, Subtract 1 Play, Add 1 Unit are used to check-out programmed pricing.

Test switch is provided to self test the credit system. When pressed a short add and subtract credit count scans through the CREDIT DISPLAY UNIT in the credit window. If 1 credit remains displayed then the credit unit is OK.

If three 8's appear in the RECORD PLAYING window, either a coin switch contact is closed, or the CREDIT BOARD is defective.

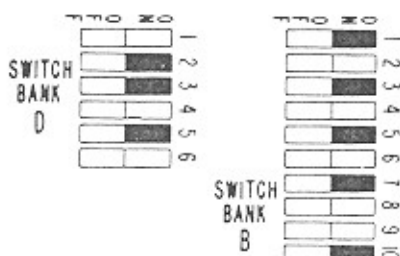
The CLEAR switch resets the credit system to zero. This mode is used for testing purposes only.

In normal operation the LED lamp is ON indicating the presence of +9.6V operating voltage.

SAMPLE PRICING CHARTS

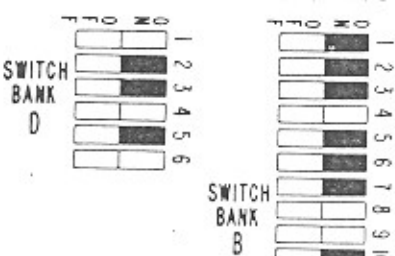
STANDARD SELECTIONS

15¢	1 PLAY
25¢	2 PLAYS
50¢	4 PLAYS
75¢	7 PLAYS
\$1.00	10 PLAYS
\$1.25	13 PLAYS



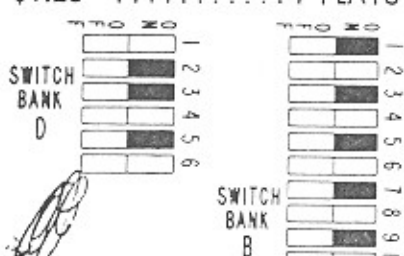
STANDARD SELECTIONS

15¢	1 PLAY
25¢	2 PLAYS
50¢	4 PLAYS
75¢	7 PLAYS
\$1.00	11 PLAYS
\$1.25	15 PLAYS



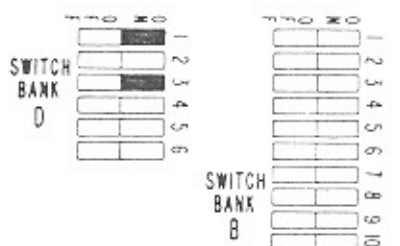
STANDARD SELECTIONS

15¢	1 PLAY
25¢	2 PLAYS
50¢	5 PLAYS
75¢	8 PLAYS
\$1.00	11 PLAYS
\$1.25	14 PLAYS



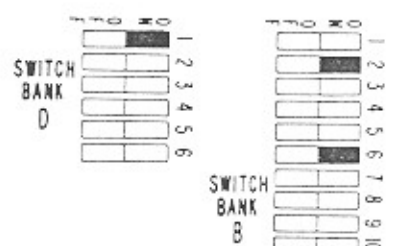
STANDARD SELECTIONS

25¢	1 PLAY
50¢	2 PLAYS
75¢	3 PLAYS
\$1.00	4 PLAYS
\$1.25	5 PLAYS



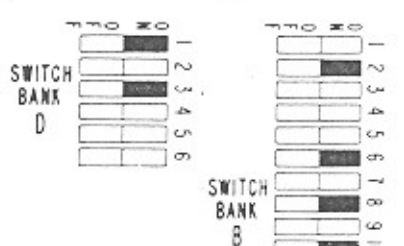
STANDARD SELECTIONS

25¢	1 PLAY
50¢	2 PLAYS
75¢	3 PLAYS
\$1.00	5 PLAYS
\$1.25	7 PLAYS



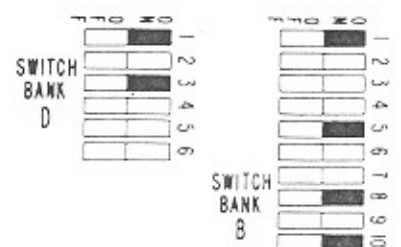
STANDARD SELECTIONS

25¢	1 PLAY
50¢	3 PLAYS
75¢	5 PLAYS
\$1.00	7 PLAYS
\$1.25	9 PLAYS



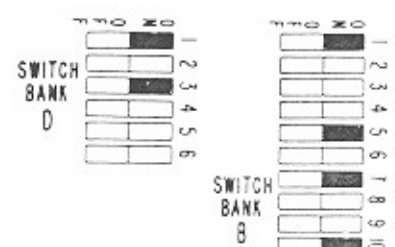
STANDARD SELECTIONS

25¢	1 PLAY
50¢	3 PLAYS
75¢	5 PLAYS
\$1.00	8 PLAYS
\$1.25	11 PLAYS



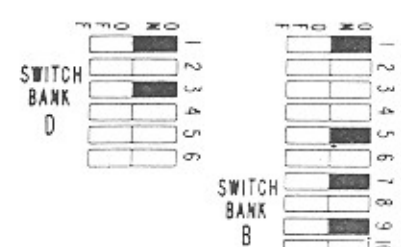
STANDARD SELECTIONS

25¢	1 PLAY
50¢	3 PLAYS
75¢	6 PLAYS
\$1.00	9 PLAYS
\$1.25	12 PLAYS



STANDARD SELECTIONS

25¢	1 PLAY
50¢	4 PLAYS
75¢	7 PLAYS
\$1.00	10 PLAYS
\$1.25	13 PLAYS





PRICING AND BONUS OPTION CHART

SWITCH BANK "A"

1	OFF	OFF	ON	ADDS 1+1+1+1 AT EACH BONUS LEVEL
2	OFF	ON	OFF	ADDS 1+1+2+2 AT EACH BONUS LEVEL
3	ON			ADDS 1+2+2+3+3 AT EACH BONUS LEVEL
4	ON			SPECIAL BONUS MODE C
5	ON			SPECIAL BONUS MODE B
6	ON			TEST SPECIAL BONUS MODES
7	ON			RANDOM RECORDS PLAY AT 10-30 MINUTE INTERVALS
8	OFF			RANDOM RECORDS PLAY AT 20-60 MINUTE INTERVALS
9	ON			ADD 1 EXTRA PLAY AT EACH BONUS LEVEL
10	ON			RANDOM PLAY

STEPS

12 } NOT APPLICABLE TO THIS MODEL
14 }
13 }

SWITCH BANK "B"

1	0	1	2	3						PLAYS ADDED AT 4TH BONUS LEVEL	
	OFF	OFF	ON	ON							
2	OFF	ON	OFF	ON							
3	0	1									PLAYS ADDED AT 1ST. BONUS LEVEL
4	OFF	ON									
5	0	1	2	3	4	5	6	7	PLAYS ADDED AT 5TH. BONUS LEVEL		
6	OFF	OFF	OFF	OFF	ON	ON	ON	ON			
7	OFF	OFF	ON	ON	OFF	OFF	ON	ON			
8	OFF	ON	OFF	ON	OFF	ON	OFF	ON			
9	0	1	2	3						PLAYS ADDED AT 3RD. BONUS LEVEL	
10	OFF	OFF	ON	ON							
11	OFF	ON	OFF	ON							
12	0	1	2	3						PLAYS ADDED AT 2ND. BONUS LEVEL	
13	OFF	OFF	ON	ON							
14	OFF	ON	OFF	ON							

SWITCH BANK "D"

1	5¢	10¢	15¢	20¢	25¢	30¢	35¢	PRICE PER PLAY	
2	0	1	2	3	4	5	6	7	UNITS PER PLAY
3	OFF	OFF	OFF	OFF	ON	ON	ON	ON	
4	OFF	OFF	ON	ON	OFF	OFF	ON	ON	
5	OFF	ON	OFF	ON	OFF	ON	OFF	ON	
6	OFF	OFF	OFF	OFF	ON	ON	ON	ON	
7	OFF	OFF	ON	ON	OFF	OFF	ON	ON	
8	OFF	ON	OFF	ON	OFF	ON	OFF	ON	
9	0	1	2	3	4	5	6	7	UNITS NEEDED TO BE ADDED TO STEP 1 TO DETERMINE BONUS LEVEL
10	5¢	10¢	15¢	20¢	25¢	30¢	35¢		PRICE FOR UNITS

NOTE

WHENEVER THE BASE PRICE FOR 1 PLAY IS 25¢, THE 1ST BONUS LEVEL IS AUTOMATICALLY REACHED. THEREFORE SWITCHES D4, D5 AND D6, IN STEP 2, MUST BE SET TO OFF.

THEN PROCEED WITH STEPS 3 THROUGH 7 AND ADD BONUS CREDITS AT EACH BONUS LEVEL AS REQUIRED.

PROGRAMMING YOUR OWN PRICE COMBINATIONS

The price of one standard selection is determined by the number of units required to establish one play. A single unit is the smallest denomination coin used while the higher numbers represent multiples of it. For example, the U.S.A. weighted coin values are as follows:

5¢	equals 1 unit
10¢	equals 2 units
25¢	equals 5 units
50¢	equals 10 units
\$1.00	equals 20 units

Follow these steps as shown on the PRICING AND BONUS OPTION CHART.

1. Number of units required to establish one play is controlled by switch positions of D1, D2 and D3 in SWITCH BANK D. The desired base price is set as shown on the chart in STEP 1.

If for example, 15¢ is one play, then D2 and D3 are ON, D1 remains OFF. In operation one credit is stored everytime three units are reached. A total of 255 credits can be stored in the accumulator chip.

BONUS OPTIONS

2. After the base price is established bonus plays can be granted when additional money is deposited. For example, one play 15¢, two plays for 25¢. This option is controlled by switch positions D4, D5 and D6 which add the necessary units to the price to reach a bonus level shown in STEP 2.

Setting D5 ON, D4 and D6 OFF in STEP 2, adds two additional units to STEP 1, establishing a 5 unit bonus level. Since 1 unit corresponds to 5¢ deposit, 25¢ will be required to reach the 1st BONUS LEVEL.

3. SWITCH BANK B controls the number of bonus credits to be added at the 1st BONUS LEVEL and each succeeding multiple of the 1st, up to 5 BONUS LEVELS maximum. Bonus levels above the 5th automatically register the same number of bonus plays as set for the 5th level.

When the 1st BONUS LEVEL is reached, the switch position of B3 adds zero or 1 bonus

credit only. Adding 1 bonus credit at the 1st BONUS LEVEL determines that:

15¢ equals 1 play, and
25¢ equals 2 plays at the 1st BONUS LEVEL

4. Switches B9 and B10 add plays at the 2nd BONUS LEVEL which is two times the money amount of the 1st level. If for example B9 remains OFF and B10 is ON, 1 bonus credit is added at the 2nd level, then:

50¢ equals 4 plays at the 2nd BONUS LEVEL

5. Switches B7 and B8 add credits at the 3rd BONUS LEVEL. If B7 is ON and B8 remains OFF, 2 bonus credits are added at the 3rd level, then:

75¢ equals 7 plays at the 3rd BONUS LEVEL

6. Switches B1 and B2 add credits at the 4th BONUS LEVEL. If B1 is ON and B2 remains OFF, 2 bonus credits are added at the 4th bonus level, then:

\$1.00 equals 10 plays at the 4th BONUS LEVEL

7. If B5 and B6 are ON and B4 remains OFF, 3 bonus credits are added at the 5th level, then:

\$1.25 equals 14 plays at the 5th BONUS LEVEL

Therefore the pricing arrangement for the above example is as follows:

15¢	equals 1 play
25¢	equals 2 plays
50¢	equals 4 plays
75¢	equals 7 plays
\$1.00	equals 10 plays
\$1.25	equals 14 plays

Note: Selections at any point terminates the bonus acquisition and returns it to starting point. Unused portion of money is stored in memory but DEPOSIT MORE COINS will not be ON when credit total debits to zero. DEPOSIT MORE COINS will turn ON only when the amount deposited is not enough to reach at least one credit.



SPECIAL BONUS OPTIONS

8. Switch A7 adds 1 extra play at every bonus level independent of the other switches.

to play at 10 to 30 or 20 to 60 minus intervals after the last selection played. First 20 selections (hit tunes) are excluded. A8 when ON sets up RANDOM PLAY.

RANDOM PLAY

9. To stimulate phonograph play, switches A8 and A6 can be set to allow random selections

10. A6 determines the time interval. ON, interval is 10 to 30 minutes. OFF, time is extended to 20 to 60 minutes.

TEST PROCEDURE FOR PROFIT SETTER (CREDIT UNIT)

1. With PROFIT SETTER connected and power on, the +9.6V LED is on.
 - (A) Set switch banks A, B, D and SPECIAL BONUS slide switch A to OFF (OPEN) position. Credit display (PLAYS) must count from 1 to 99 and remain at 99.
 - (B) Switch phono main power off and then back on again. Credit display reverts back to 0 and immediately counts from 1 to 99 and remains at 99.
 - (C) Set switch D3 on, press (red) CLEAR button, then press (blue) TEST button. Credit display will add and then subtract plays until one play remains. If RECORD PLAYING/YOUR SELECTION display shows 888 there is a malfunction in coin switch or PROFIT SETTER. Press CLEAR button if only 1 PLAY is displayed.
 - (D) Test ADD 1 PLAY button by pressing it five times. Credit display shows 5 PLAYS.
 - (E) Test SUBTRACT 1 PLAY button by pressing five times, 5 plays are removed one at a time and credit display goes out.
 - (F) Set switches D1, D2 and D3 to ON position. Press (gray) ADD 1 UNIT button seven times. Credit display now shows 1 PLAY. Press CLEAR button.

2. U.S. COINAGE -- SWITCH SETTINGS

(A) Set D1, D2 and D3 as follows, and check that you get one play for the amount of money specified. Use all possible combinations of coins. Press CLEAR button after each switch combination setting and before depositing coins.

D1	D2	D3	COST/PLAY
Off	Off	Off	(Free play)
Off	Off	On	5¢
Off	On	Off	10¢
Off	On	On	15¢
On	Off	Off	20¢
On	Off	On	25¢
On	On	Off	30¢
On	On	On	35¢

(B) Set D2, D3, B2, B3, B6, B8, B10 on. Then set D4, D5 and D6 as follows:

D4	D5	D6	Amount of Money	No. of Plays
Off	Off	Off	15¢	2
Off	Off	On	20¢	2
Off	On	Off	25¢	2
Off	On	On	30¢	3
On	Off	Off	35¢	3
On	Off	On	40¢	3
On	On	Off	45¢	4
On	On	On	50¢	4

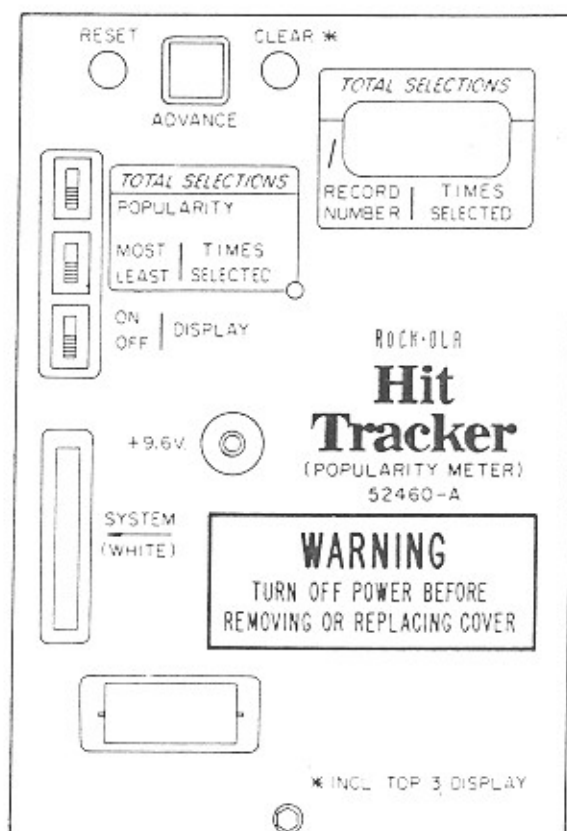
(C) Set all B switches on. Then set D2, D3 and D5 on. Press CLEAR button.

Amount of Money	No. of Plays
15¢	1
25¢	2
40¢	3
50¢	6
75¢	10
\$1.00	14
\$1.50	30

Press CLEAR button.

(D) With the switches set as in step (C), insert \$1.00—credit display must show 14 PLAYS.

Make selection 297 and observe that the proper selection is played and that the number of credits has decreased to 13. Insert an additional 50¢ and observe that the total number of plays shown on the credit display is 19.



To read the LEAST played records, set the TIMES SELECTED switch to LEAST position, and the times selected to POPULARITY position. Pushing and releasing the ADVANCE button, the records are read out one at a time from zero selection to the highest count.

The MOST played records are read out when the TIMES SELECTED switch is set to MOST position and the selection count remains in POPULARITY position. Operating the ADVANCE button the record count will read the highest to the lowest.

To show the total count of all the selections, set the POPULARITY switch position to TOTAL SELECTIONS and press the ADVANCE button. When button is released the total count will appear on the five digit display.

Two additional pushbutton switches are provided. The RESET button resets the total count to zero. The CLEAR switch is used for testing purposes only.

ELECTRONIC POPULARITY METER

One of the functions of the microprocessor is to keep a tally on the number of times each record is played. A battery in the system maintains the correct count even if the power cord is disconnected.

Selection count of "most" or "least" records played are displayed internally on a five digit Display located on the pop counter board. When the DISPLAY switch is turned on, the two digits on the left side shows the last two digits of a record number. The number of times the record has been selected (up to 999) is shown on the right three digits.

TEST PROCEDURE FOR HIT TRACKER (POPULARITY METER)

1. Main power off; HIT TRACKER connected.
Move all 3 HIT TRACKER slide switches to their up positions and switch main power on. Press (round red) CLEAR button.

(A) The HIT TRACKER display must show a 0 in the first digit to the right only with the other four digits off.
2. Move the top slide switch marked:

TOTAL SELECTIONS
POPULARITY

 , to down position.

(A) The HIT TRACKER display shall show (1) 00000.
3. Return the top slide switch to the up position, add at least 12 credits via the (white) ADD 1 PLAY button on the PROFIT SETTER and select #297 (3 times), #284 (2 times), and #185 (once).

(A) The HIT TRACKER display must only show 6 on the first digit to the right.
4. Move the top slide switch down to the POPULARITY position.

(A) The HIT TRACKER display must show (1) 97003.
5. Press the (gray) ADVANCE button once.

(A) The HIT TRACKER display must change to (1) 84002.
6. Press the ADVANCE button again.

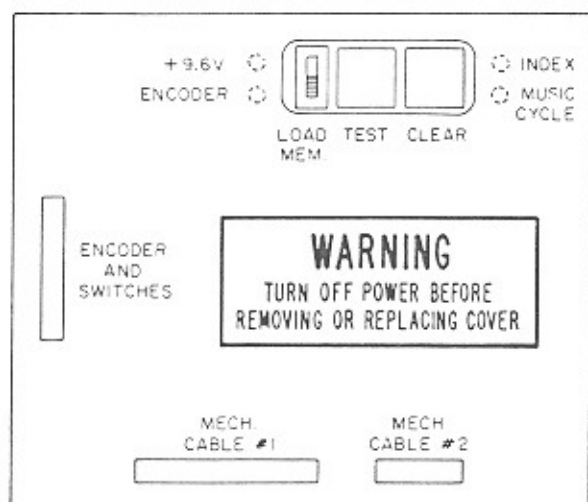
(A) The HIT TRACKER display must change to (1) 85001.
7. Move the middle slide switch marked:

MOST | TIMES
LEAST | SELECTED

 , down to LEAST popular position.

(A) (1) 85001 must stay on the display and pressing the ADVANCE button causes first (1) 84002 and then (1) 97003 to be displayed.
8. Switch main power off and on again.
Display must retain it's previous reading.
9. Move the top slide switch up to the TOTAL SELECTIONS position and press (round blue) RESET button.

(A) HIT TRACKER display returns to 0 in first digit to the right.
10. Press CLEAR button.



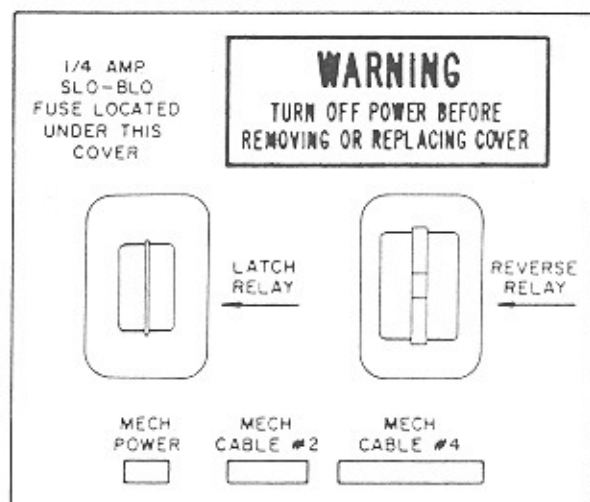
LOGIC BOARD

The Logic Board contains the microprocessor which stores the selection information and the input/output circuitry necessary to communicate with the other mechanism devices over a common bus system to control the mechanism.

The logic board has four diagnostic LED LAMPS. One of which indicates the presence of +9.6 voltage. The other three point out the circuits active during the mechanism cycle of placing the record on the turntable.

Three additional switches are included. The LOAD MEMORY switch when turned on will select all 160 selections before the mech turns off. This check mode is primarily a factory quality control function. The system can be cleared by pressing the CLEAR button to permit testing when necessary.

The TEST button is used to determine quickly if the LOGIC BOARD is defective. When pressed, a good unit will select programmed selections 100 - 194 - 197 - 200 - 294 - 297.



MECH POWER SUPPLY BOARD

The MECH POWER SUPPLY BOARD consists of a LATCHING RELAY and REVERSE RELAY assisted by transistors and other devices to control the operation of two D.C. motors, namely MAGAZINE MOTOR and GRIPPER MOTOR.

The latching relay is a magnetic type controlled internally by a LATCH COIL and RESET COIL. Its function is to operate each motor at the proper points of the mechanism cycle and provide dynamic braking circuits to both motors.

The REVERSE RELAY operates at the end of the music cycle which reverses the polarity of the gripper motor circuit, returning the record to the magazine.

TEST PROCEDURE FOR MECHANISM — LOGIC P.C. BOARD

Main power off; logic board connected.

- (1) Move LOAD MEM.(ORY) slide switch down to OFF position and press (red) CLEAR button. Switch main power switch at back of phono to ON. Magazine should revolve 360° and stop in home position. 9.6VDC #4 LED (+9.6V) light must be on, all others off.

- (A) Press (blue) TEST button; mechanism operates making the following record selections in sequence: #100, #194, #197, #200, #294, #297.

Note that the following LED's go on while above selections are being played.

- (B) TIMER LED #5 (ENCODER) goes on and off as magazine rotates.
- (C) INDEX LED #6 (INDEX) goes on momentarily when magazine indexes (i.e. stops) at record selection.
- (D) MUSIC LED #7 (MUSIC CYCLE) goes on and remains lit while record is playing. When all selections have been made, magazine must stop in home position.

NOTE: When above check is being made, SCAN service switch left of HIT TRACKER should not be used to cancel record.

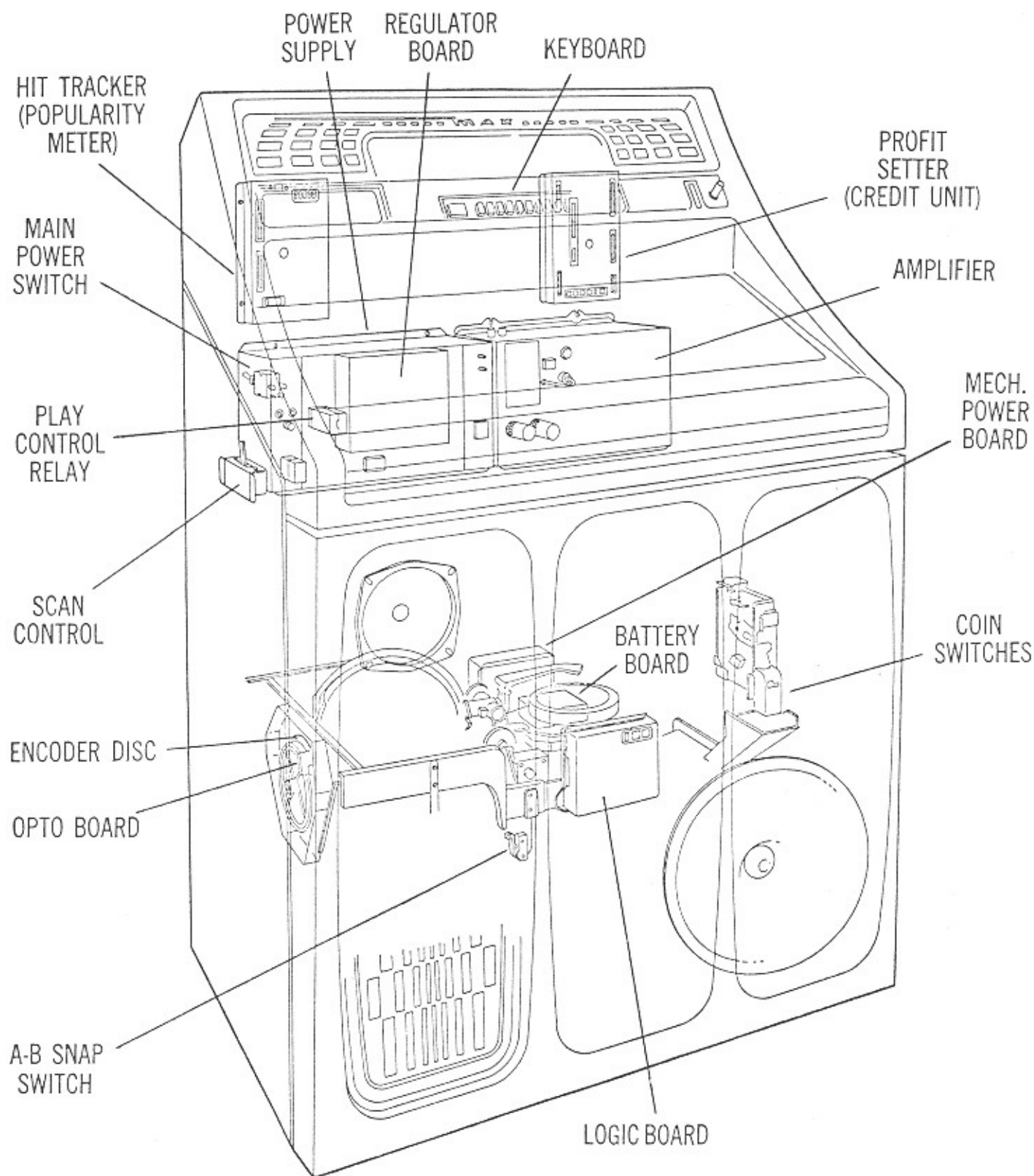
- (E) With credits on PROFIT SETTER (credit unit), make the following selections, #100, #184, #187, #197, #200, #282, #297, #145, #255, #222, #111. Observe that the proper record selections have been made.

- (F) Move LOAD MEM. slide switch up to ON position and immediately return down to OFF. Mechanism will start and play records in sequence #100, #110, #120, #130, #140, etc. until all 160 selections are played, or CLEAR button is pressed. Magazine will again return to home position and stop.

(2) MECHANISM STANDBY BATTERY TEST

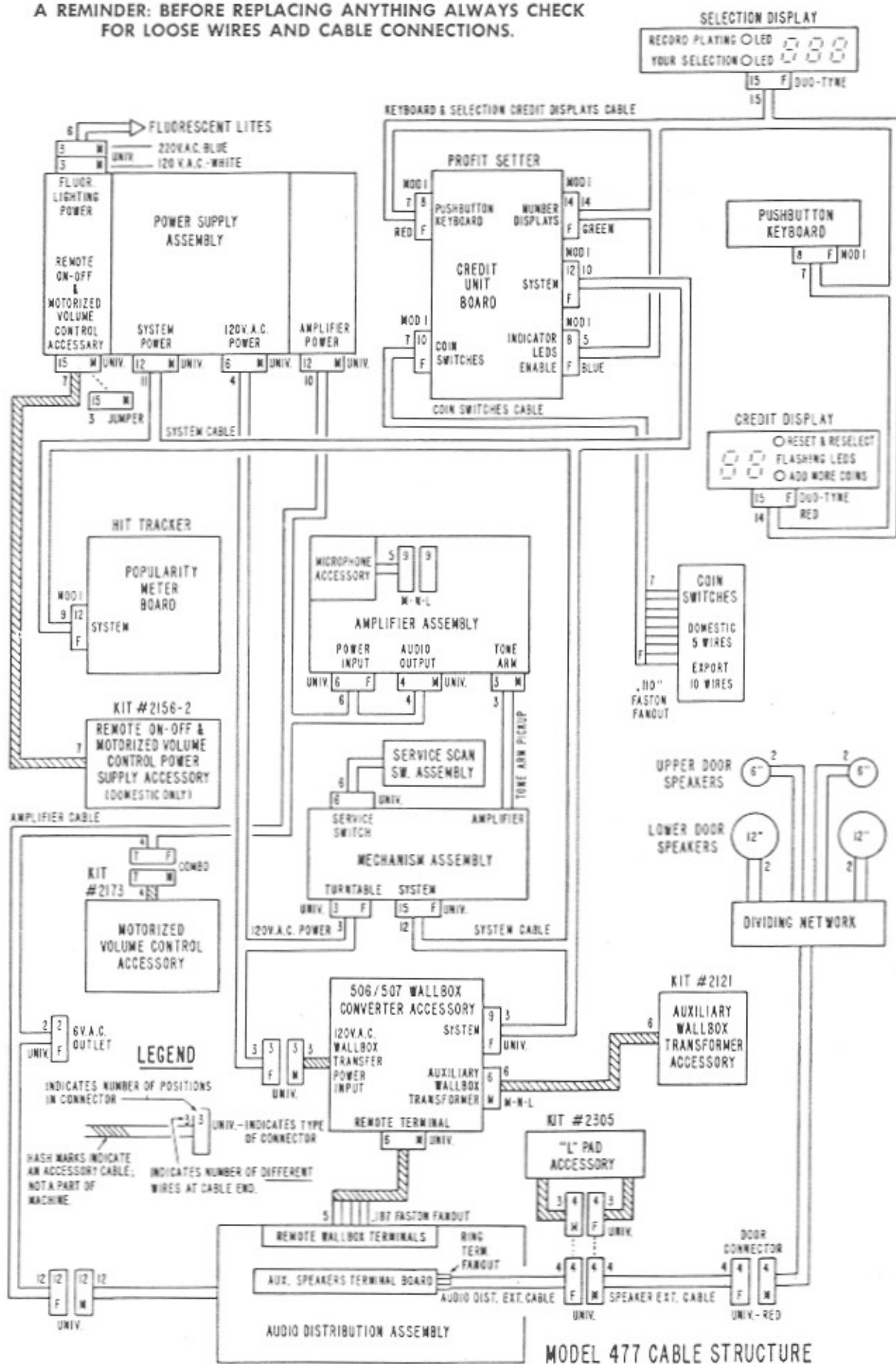
Select #100, #200, #111. Turn main power off and then on again, selections must be retained in the memory and mechanism must play all three selections.

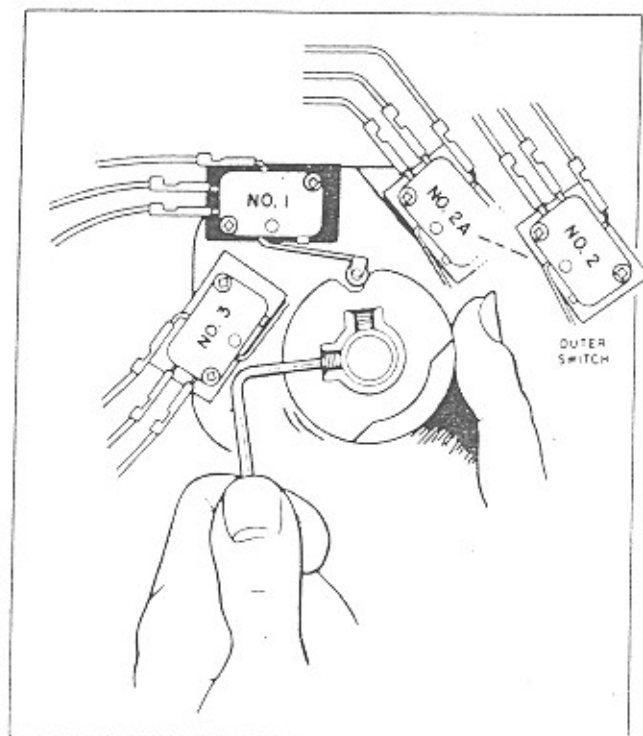
If memory is lost the battery is most probably bad or discharged. Check for proper operation of SCAN service switch.



COMPONENT PLACEMENT

A REMINDER: BEFORE REPLACING ANYTHING ALWAYS CHECK FOR LOOSE WIRES AND CABLE CONNECTIONS.





MICRO SWITCH AND CAM ADJUSTMENT

Cycle of the record mechanism is controlled by the operation of four micro switches actuated in the proper sequence by a rotating cam shaft.

To adjust, phonograph must be in stand-by position (gripper arm over record magazine), and the service scan switch moved to "off".

1. Rotate the knurled end of the gripper motor shaft clockwise until a jam occurs.
2. At this point, the No. 1 switch roller must be in the cam groove and in contact with the back drop-off. If the roller is cammed out, loosen the two cam set screws and rotate the cam until the proper position is obtained.

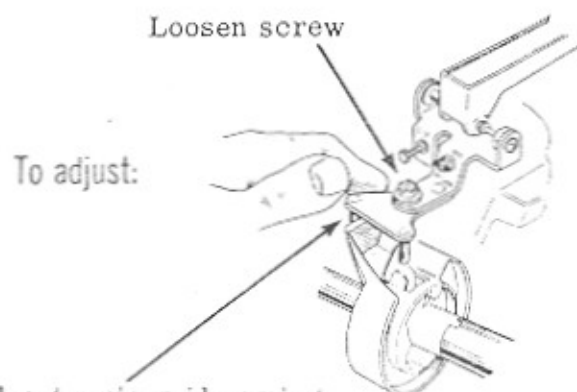


TONE ARM ADJUSTMENTS

NEEDLE SET-DOWN

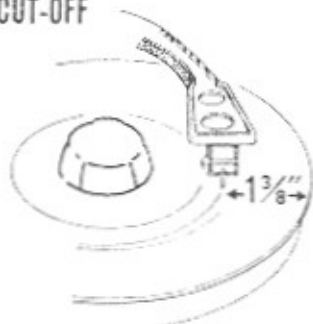


Stop mechanism just before needle lands on record. Needle must be at least $\frac{1}{16}$ " in from record edge.

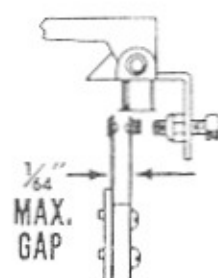


Hold outer pin guide against cam and move Tone Arm "in" or "out"—Tighten screw.

RECORD CUT-OFF



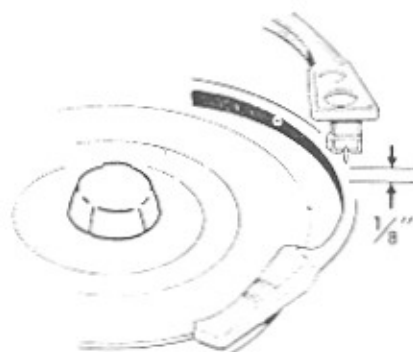
Cut-off position is $1\frac{3}{8}$ " from record edge.



To adjust:

Move adjustment screw to obtain proper gap.

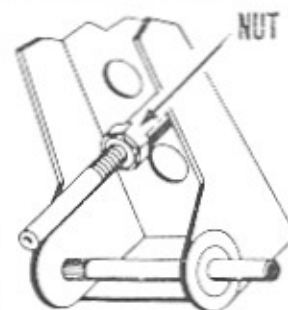
NEEDLE CLEARANCE ABOVE GRIPPER ARM



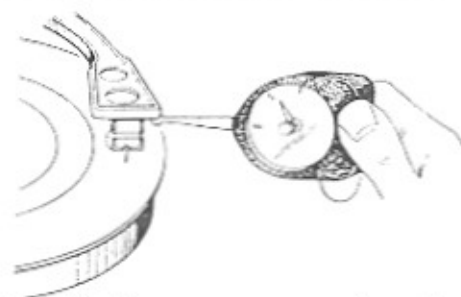
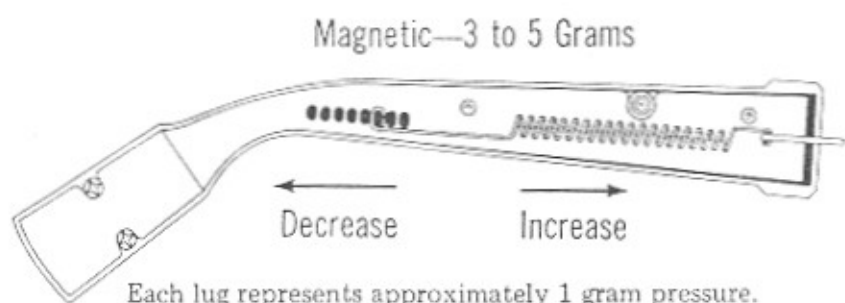
On even numbered selections the tone arm needle passes over the bow of the gripper arm. Needle clearance must be $\frac{1}{8}$ ".

To adjust:

Loosen nut. Raise or lower adjustment screw for needle clearance. Tighten nut.

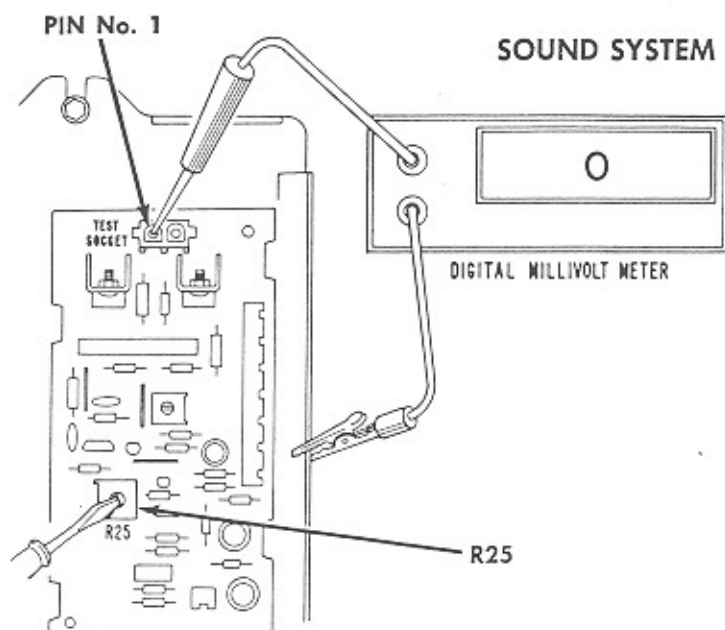


TONE ARM GRAM PRESSURE ADJUSTMENT



Needle pressure reading is taken at the point of contact of the needle on the record.

SOUND SYSTEM ADJUSTMENTS



DRIVER P.C. BOARD

CENTER VOLTAGE (OUTPUT LINE) AND IDLE CURRENT ADJUSTMENT.

These controls are located on the DRIVER P.C. BOARDS (52265-A) for each channel. They should only be re-adjusted when a DRIVER P.C. board or HEAT SINK assembly (52360-A) has been replaced or repaired.

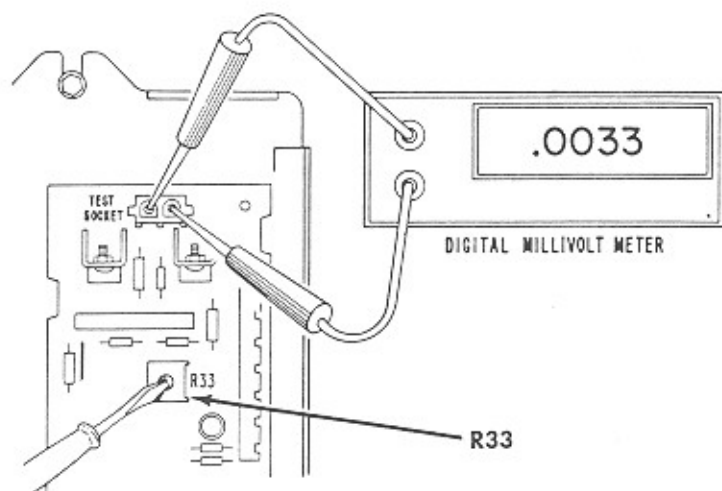
CONDITIONS:

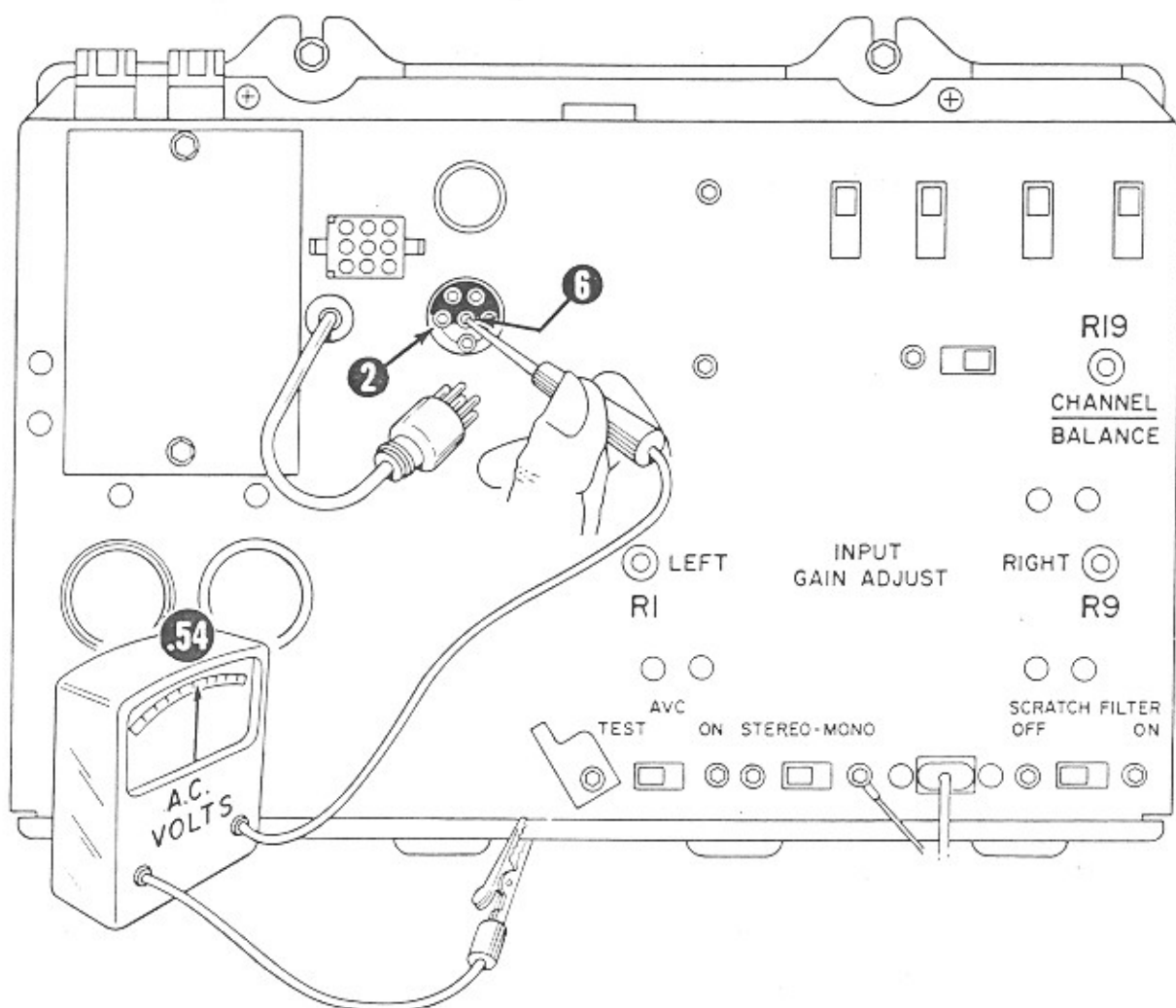
1. Line voltage: 120 volts.
2. Load: None. Disconnect plug from SPEAKER TERMINAL STRIP socket on front of amplifier.
3. Signal: None. Turn VOLUME CONTROL to minimum.

EQUIPMENT: Digital Millivoltmeter

PROCEDURE:

1. With POWER OFF, pre-set R33 (current) to minimum (CCW) and R25 (voltage) to center of rotation.
2. Connect meter between ground and pin #1 of TEST SOCKET on driver P.C. board to be adjusted.
3. Switch POWER ON. Adjust R25 for 0 volts plus or minus .001 volts.
4. Connect meter to pins 1 and 2 of TEST SOCKET.
5. Adjust R33 for .0033 volts plus or minus .001 volts. (Indicates 7 to 13 MA through R43)





INPUT GAIN ADJUSTMENT (R1 and R9)

These controls are located on the PRE-AMPLIFIER and A.V.C. P.C. BOARD (52295-A) and are accessible through the front of the amplifier. They should only be adjusted when the PICK UP CARTRIDGE has been replaced or the PRE-AMPLIFIER P.C. BOARD has required service or replacement.

CONDITIONS:

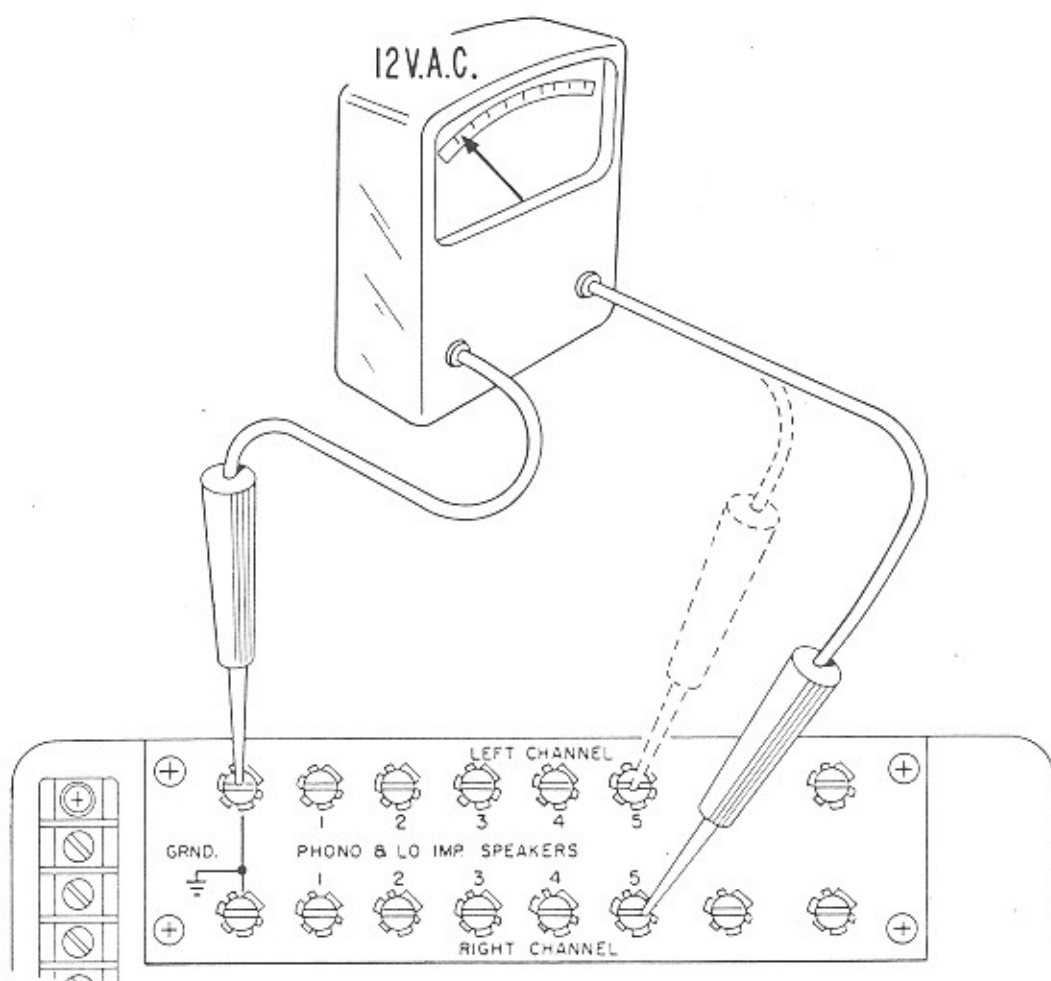
1. Set A.V.C. switch to TEST.
2. Set STEREO-MONO switch to STEREO.
3. Set SCRATCH FILTER switch to OFF.

EQUIPMENT:

1. RMC STEREO TEST RECORD #1001.
2. A.C. Voltmeter (1000 ohms per volt minimum)

PROCEDURE:

1. Remove VOLUME CONTROL plug from socket on amplifier front.
2. Connect the A.C. voltmeter to pin #6 of the VOLUME CONTROL SOCKET and GROUND. Play Band #2 (right channel) of test record. Set the RIGHT INPUT GAIN ADJUST (R9) for .54 volts.
3. Connect the A.C. voltmeter to pin #2 of the VOLUME CONTROL SOCKET and GROUND. Play Band #1 (left channel) of test record. Set the LEFT INPUT GAIN ADJUST (R1) for .54 volts.



BALANCE CONTROL

This control is located on the TONE CONTROL P.C. BOARD (52260-A) and is accessible through the amplifier front. Re-adjustment should only be required if the amplifier has been serviced.

CONDITIONS:

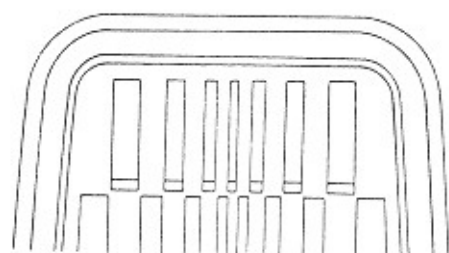
1. Set A.V.C. switch to ON.
2. Set STEREO-MONO switch to STEREO.
3. Set SCRATCH FILTER switch to OFF.
4. Set TONE CONTROLS to MAXIMUM.
5. Set VOLUME CONTROL to MAXIMUM.
6. INPUT GAIN CONTROLS must be adjusted correctly.

EQUIPMENT:

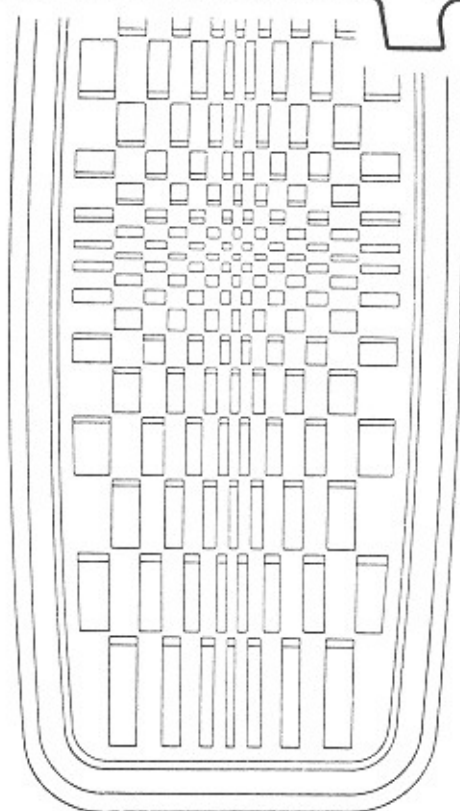
1. RMC STEREO TEST RECORD #1001.
2. A. C. VOLTMETER (1000 ohms per volt minimum)

PROCEDURE:

1. Play Band #3 (right and left channels) of the test record. Connect the A.C. voltmeter to ground and terminals #5 on the AUDIO DISTRIBUTION terminal strip. Alternately connect the meter to #5 left and #5 right. Adjust the BALANCE CONTROL (R19) for equal voltages on both channels. (Approximately 12 volts)



ROCK-OLA



Model

477

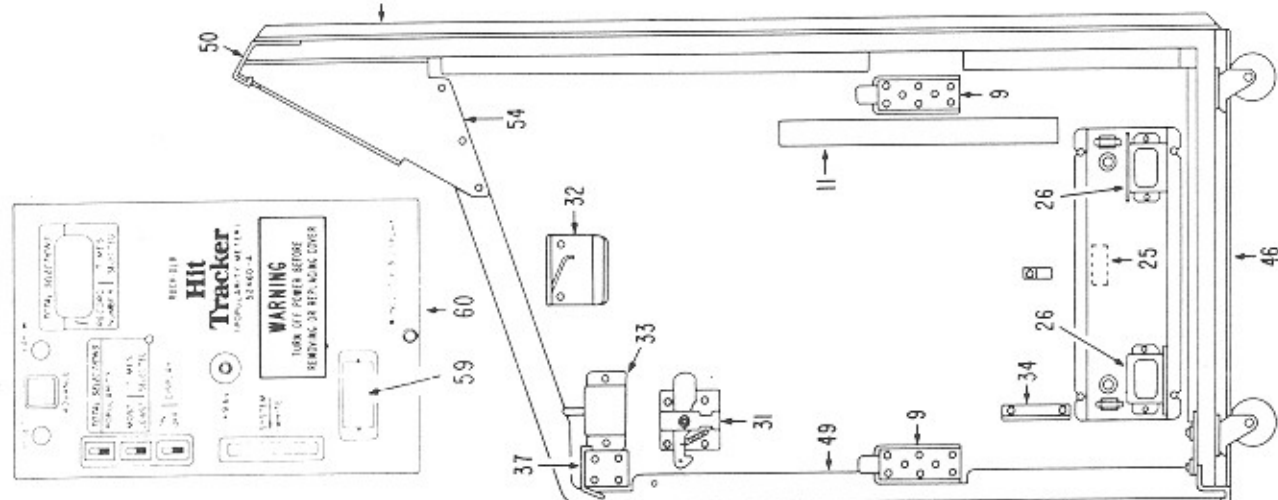
Phonograph

160 Selections

PARTS CATALOG

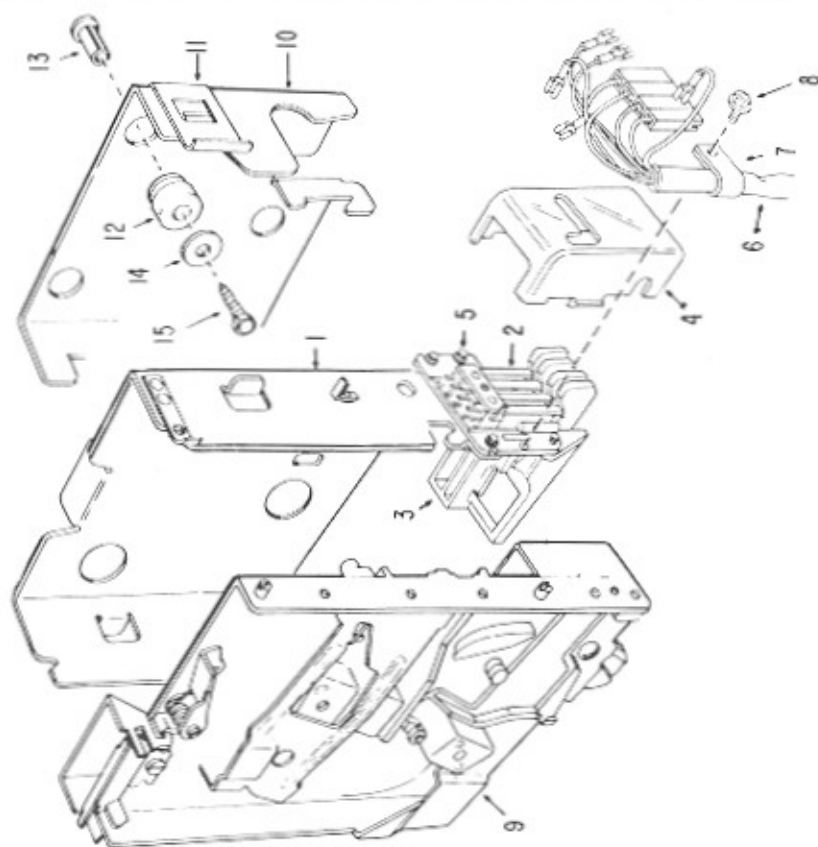
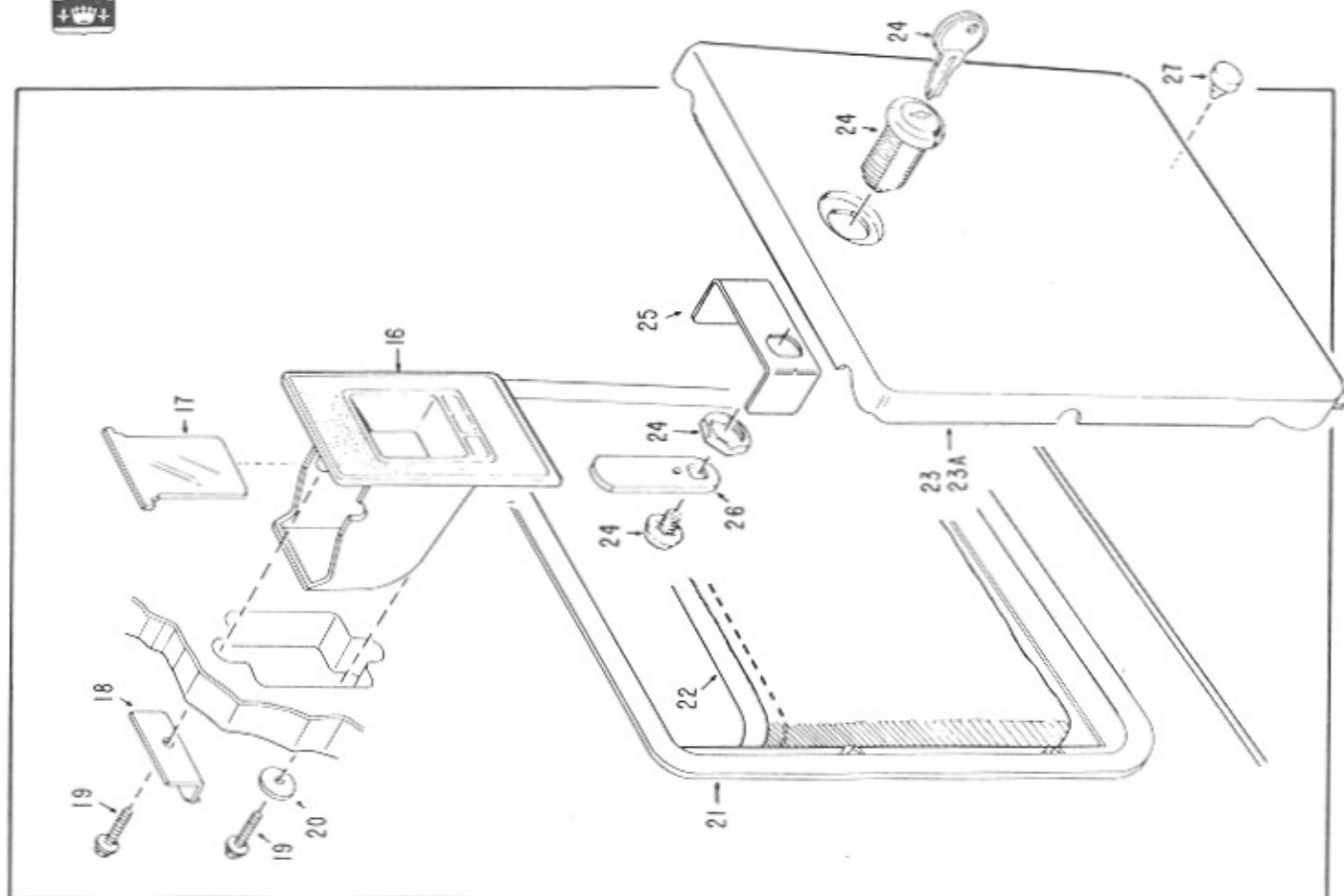
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CABINET AND RELATED PARTS

Item	Part No.	Description	Item	Part No.	Description
1	52873	Door Mtg. Channel	35	52465-A	Audio Distribution Assembly
2	51712	Caster Backing Plate	36	52981	Raceway Duct 23-7/8
3	46956	Cable Cover	37	52979	Raceway Cap 23-7/8
4	52636	Back Door Lock Plate	38	52844	Tie Bar
5	52869	Rest Angle	39	52686-1A	Back Door & Bumper Assembly
6	48980	Cash Box Housing	40	V-438	25 Watt Starter
7	49043	Lock Strap Cash Box	41	50752	Starter Socket
8	49863	Lower Coin Chute	42	V-10671	Fluorescent Lamp 25W Daylite 28"
9	52845	Mech Support Brkt	43	46634	Fluorescent Light Holder
10	52846	Mech Support-Rear (R-H)	44	46861	Flur-O-Lock
11	52994	Raceway Duct 11-7/8	45	49552	Light Socket Insulator
12	52979	Raceway Cap 11-7/8	46	52892	Light Mtg Brkt
13	52979	Raceway Duct 23-7/8	47	52842	Rub Strip
14	52919-A	Coin Chute Assembly	48	49997-A	Handle & Brkt Assembly
15	52076	Coin Chute Strap	49	52840	Cabinet Trim Extrusion R-H
16	52868	Plunger Lever Mtg. Brkt	50	52841	Cabinet Trim Extrusion L-H
17	52012-A	Actuator Bracket Assembly	51	52872	Dome Hinge Mtg Brkt
18	51998	Actuator Lever Guide	52	52843	Bumper Strip
19	52848	Plunger Lever	53	ST-6030-2	Caster
20	52883	Plunger Lever Pin	54	52870	Top Rail Support R-H
21	ST-9245	"E" Ring - Truarc		52871	Top Rail Support L-H
22	52847	Actuator Lever	HIT TRACKER (POPULARITY METER) No. 52460-A		
23	ST-9258	"E" Ring - Truarc	55	52427	Unit Mounting Plate
24	52921-A	Connecting Link Assembly	56	ST-10657	Circuit Board Support
25	50811	Latch Spring	57	52608	Board Insulator
26	47563	Noise Suppression Capacitors	58	45816-6%	Rubber Cushion
	42817	25W Ballast - 120VAC-60HZ	59	52230-A	Pop Meter P.C. Board Assembly
	49626	25W Ballast - 220/240VAC-50HZ	60	52428	Pop Meter Cover
27	52019	25W Ballast - 100VAC-50/60HZ (Japan)	PROFIT SETTER (CREDIT UNIT) No. 52455-A		
28	52886	Module Support Brkt	61	52225-A	Credit Unit P.C. Board Assembly
29	52888	Module Pivot Plate	62	52426	Credit Unit Cover
30	52811	Module Reinforce Brkt	63	52427	Unit Mounting Plate
31	51476-A	Door Latch Assembly R.H.	64	ST-10657	Circuit Board Support
32	51477-A	Door Latch Assembly L.H.	65	52608	Board Insulator
33	52913-A	Dome Stay Rest Angle Assembly	66	45816-6%	Rubber Cushion
	52664-A	Scan Switch Assembly			
	52554	Scan Switch Only			
34	52702	Bracket - Universal M-N-L Housing			

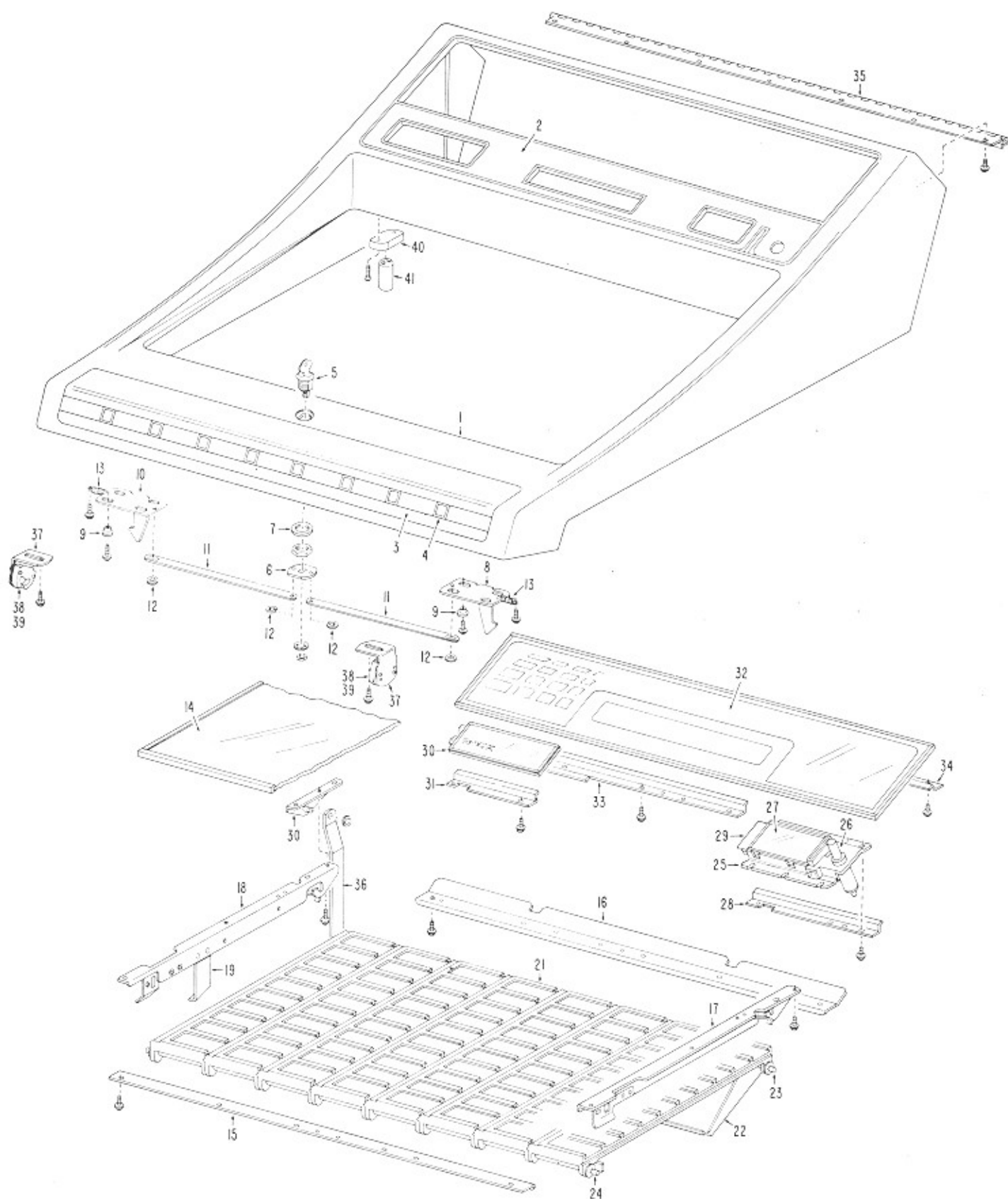


SLUG REJECTOR HOUSING ASSEMBLY

Item	Part No.	Description
1	45411-A	Slug Rejector Housing Riveting Assem.
2	52530-A	Coin Switch, Guide & Cover Assembly - 50¢
	52535-A	Coin Switch, Guide & Cover Assembly - 25¢
3	52540-A	Coin Switch, Guide & Cover Assembly - Export
4	45460-1	Coin Guide (Only)
5	45463-1	Coin Switch Cover (Only)
6	ST-9733	4-40 X 1/4 Hex Flg. P.K. Swageform
	52917-A	Coin Switch Cable Assembly - U.S.A.
	52922-A	Coin Switch Cable Assembly - Export
7	ST-3604	Black Nylon Clamp 7/16"
8	ST-8258	6-32 X 3/8 Hex Flg. Swageform
9	47165	Slug Rejector - 50¢ U.S.A.
10	45042-A	Slug Rejector Housing Cab. Rivet Assem.
11	44867	Latch Spring (Only)
12	44517	Mounting Grommet
13	44518	Grommet Spacer
14	ST-3139	Flat Washer
15	ST-9717	#10 X 1 Hex. Flg. (Type A)

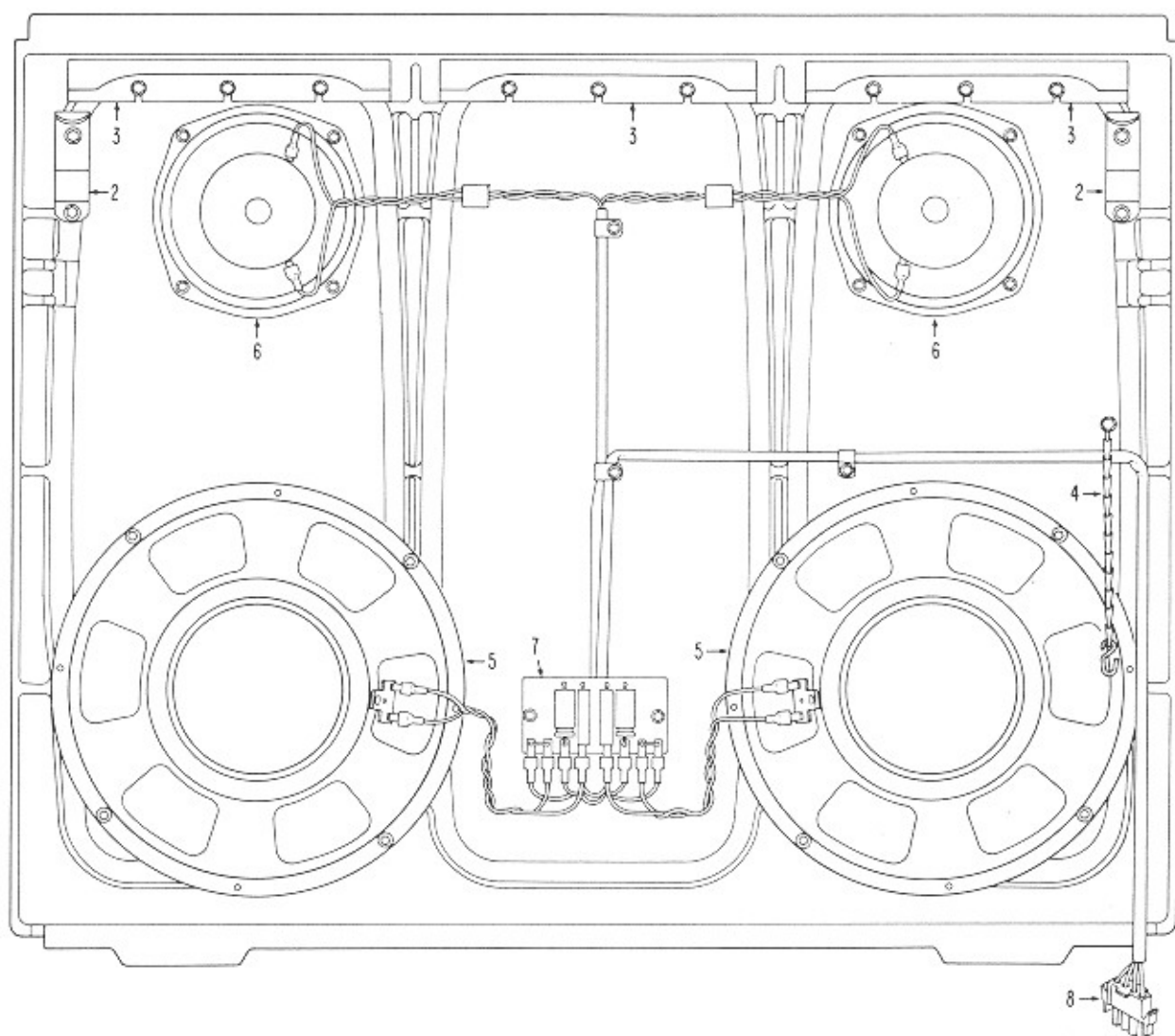
CASH BOX HOUSING ASSEMBLY

16	48982	Coin Return Cup
17	49041	Coin Return Flap
18	49040	Coin Cup Mtg. Bracket
19	ST-9722	8 X 3/4 Hex Flg. (type B)
20	ST-4843	Flat Washer
21	49060	Cash Door Frame
22	49062	Cash Bag
23-A	51019-A	Cash Box Door Assembly (Compl)
23	49061	Cash Box Door (Only)
24	ST-10441	Lock with Keys
25	49058	Cash Box Lock Guard
26	50796	Cam Bolt - Cash Box
27	43293	Button Bumper

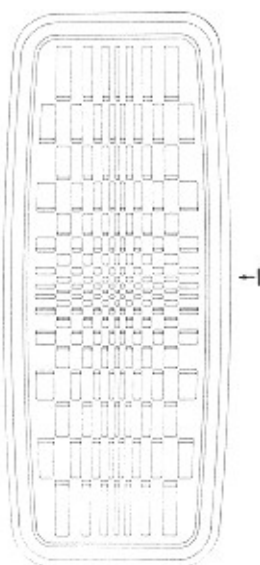


DOME ASSEMBLY No. 52785-A

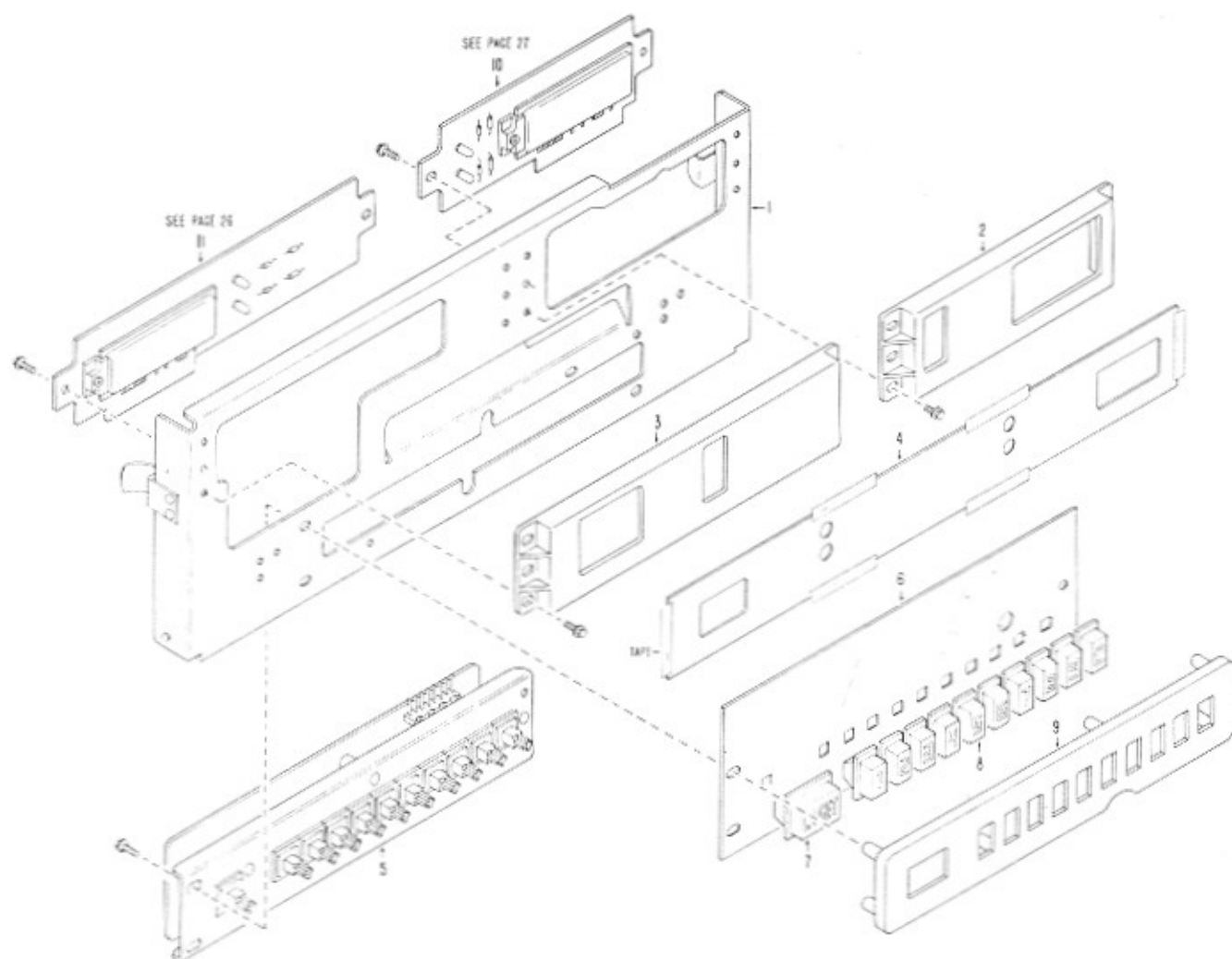
Item	Part No.	Description	Item	Part No.	Description
1	52802	Dome Casting	22	52993	Light Reflector
2	52810	Dome Insert	23	52146	Program Tie Rod-Long
3	52838	Dome Front Extrusion	24	51812	Program Tie Rod
4	52809	Rock-Ola Logo Button		ST-9873	Push Nut
		Rock-Ola Logo Inserts	25	52803	Coin Entry Casting
5	ST-10423	Lock w/Key	26	49039-1	Reject Button
	ST-10423K	Key Only (P600)		43800-1	Reject Button Spring
6	51262-A	Cam Bolt Rivet Assembly		46273	Rubber Washer
7	ST-10473	Washer		ST-9827	Keeper
8	52951-A	Dome Latch R.H. Rivet Assem.	27	52814	Instruction Glass
9	52837	Dome Latch Bushing	28	52826	Instruction Glass Retainer
10	52952-A	Dome Latch L.H. Rivet Assem.	29	52817	Instruction Card U.S.A.
11	52834	Dome Lock Arm		52818	Instruction Card German
12	ST-9263	"E" Ring		52907	Instruction Card Japan
13	45474	Program Holder Spring	30	52815	Rock-Ola Glass
14	52812	Program Glass	31	52827	Rock-Ola Glass Retainer
	50836	Vinyl Channel (1/8 x 30-5/8)	32	52813	Display Glass
	50836	Vinyl Channel (1/8 x 11-5/8)	33	52823	Display Glass Retainer-Bottom
15	52828	Program Glass Retainer	34	52822	Display Glass Retainer-Top
16	52824	Program Glass Top Retainer	35	52839	Dome Hinge
17	52956-A	Program Mtg. Brkt. R.H.	36	52831	Dome Stay
18	52957-A	Program Mtg. Brkt. L.H.	37	52892	Light Mtg. Bracket
19	52901	Scan Switch Cam	38	46634	Fluorescent Light Holder
20	52958-A	Dome Stay Brkt. Assembly	39	49552	Light Socket Insulator
21	52998-A	Program Holder Assembly	40	50752	Starter Socket
	47031	Program Holder Number Strip	41	V-438	25 Watt Starter
	46998-3	Program Holder Only			



FRONT DOOR ASSEMBLY No. 52790-A



Item	Part No.	Description
1	52805 ST-10363	Grille Cloth (Formed) Adhesive (St. Clair 4587)
2	51412	Door Latch Bracket
3	52808	Door Light Shield
4	ST-10457	Door Chain
	19127	Hook Chain
5	52903	12" Speaker
6	51809	6" Speaker
7	52890-A	Speaker Crossover Term Brd
	48844	8 Mfd 35V RMS NP Capacitor 20%
	43207	5 Ohm Resistor 5W 10%
8	ST-10590	Universal 4 Circ MNL Pin Hsg



MODULE ASSEMBLY No. 52780-A

Item	Part No.	Description	Item	Part No.	Description
1	52923-A	Front Plate Rivet Assem.	5	51498	Diode 2N4148
2	52306-A	Record Selection Casting		ST-10578	8 Cir. Right Angle Post Connector
3	52304	Signal Light Casting		ST-4555	6-32 1/4 Phil Pan Hd M.S.
4	52819	Display Card (Domestic)	6	52997	P.B. Blue Filter
	52820	Display Card (German)	7	52243	Reset Button (Domestic)
	52908	Display Card (Japan)		52244	Reset Button (German)
5	52425-A	Keyboard Assembly	8	52242	Switch Button Set
	52179-A	Mtg. Channel Rivet Assem.	9	52804	Push Switch Housing
	52252	Switch-Pushbutton	10	52030-A	Record Play P.C. Brd Assem.
	52253	Keyboard P.C. Board	11	52035-A	Credit Display Brd Assem.

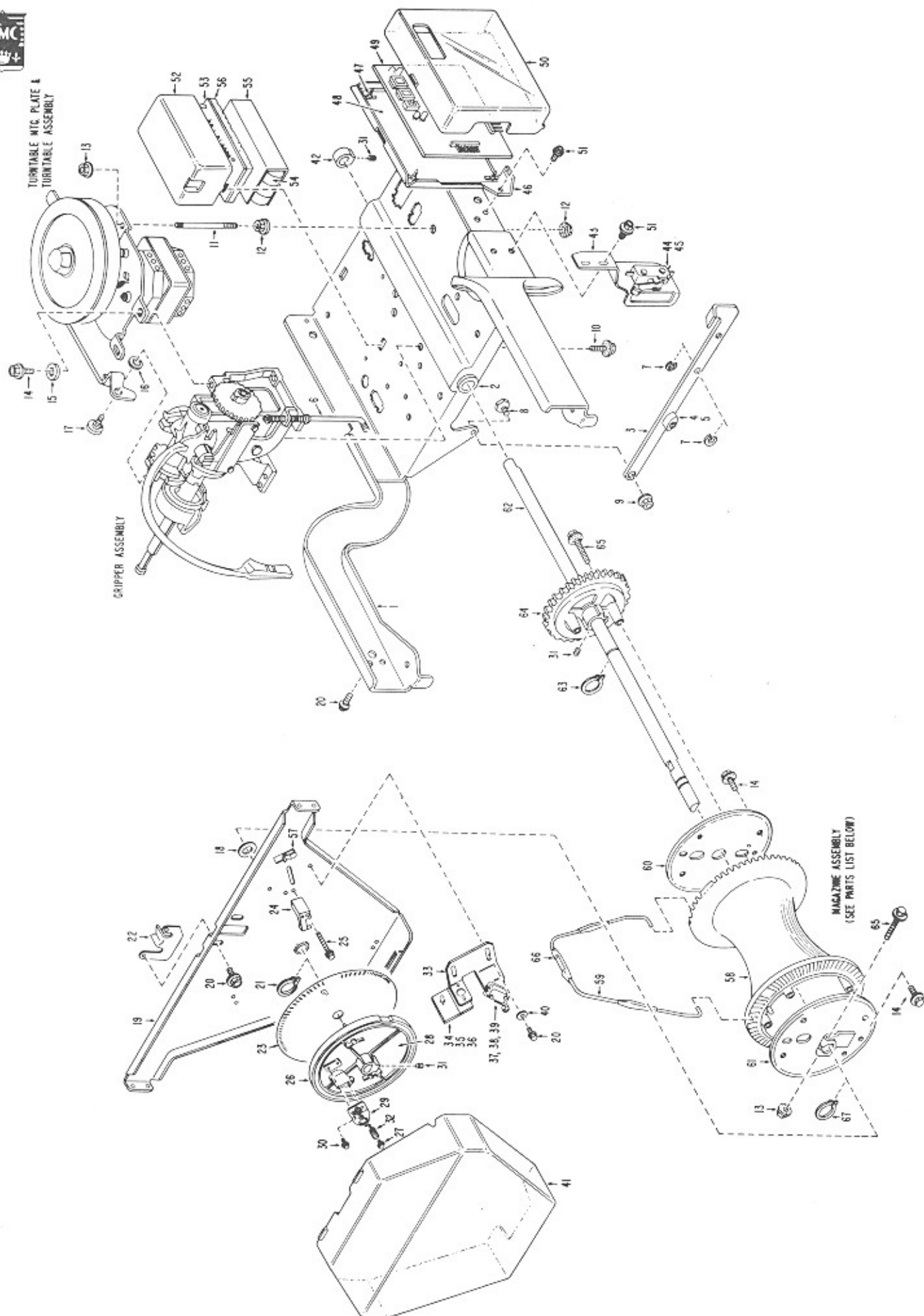
MOTORIZED REMOTE VOLUME CONTROL
TERMINAL #49296

SPEAKER TERMINAL
STRIP #49095

WALL BOX TERMINAL
BLOCK #43780-1

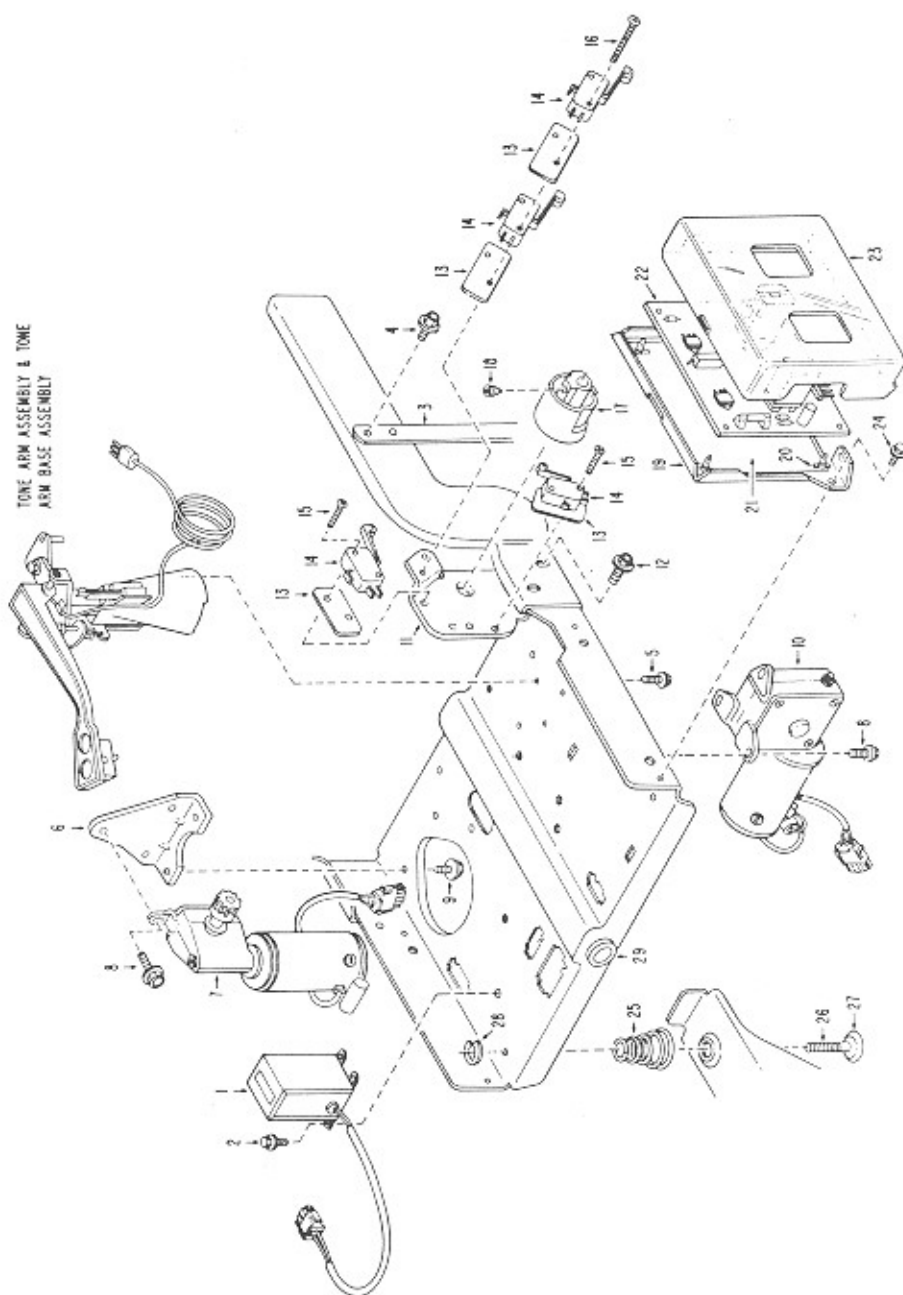
SPEAKER OUTPUT
TRANSFORMER R & L
#52473

AUDIO DISTRIBUTION ASSEMBLY #52465-A



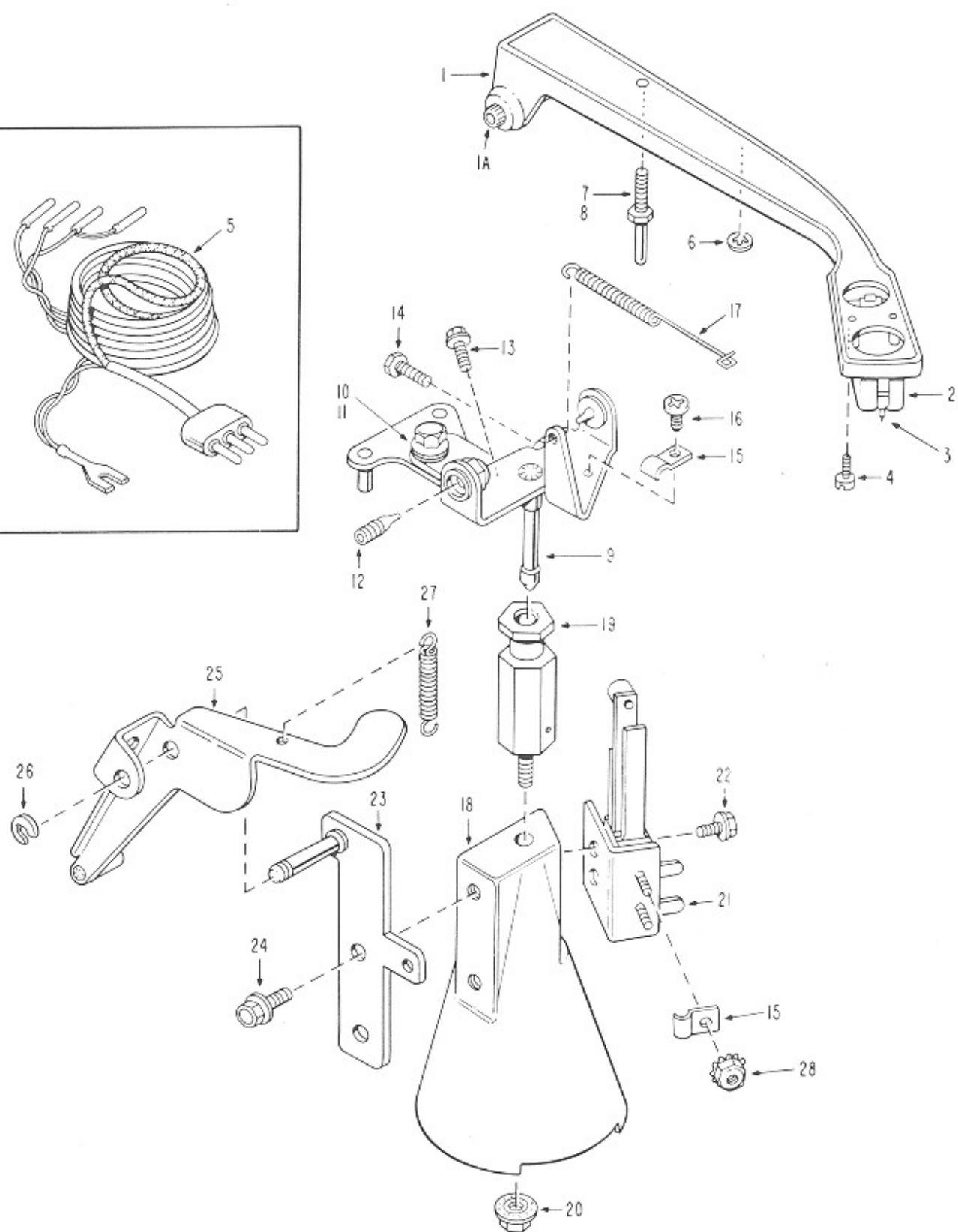
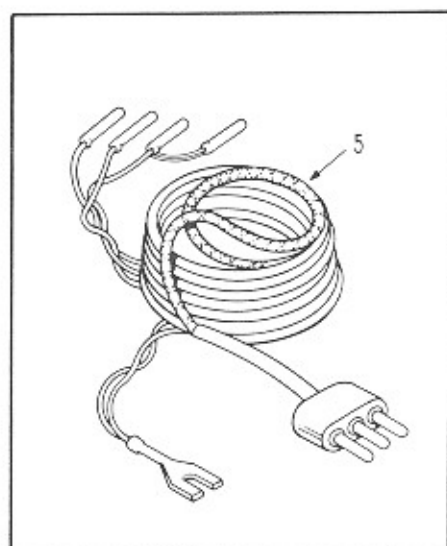
MECHANISM ASSEMBLY 160 SELECTION NO. 52185-A

Item	Part No.	Description	Item	Part No.	Description	Item	Part No.	Description
1	52475-A	Chassis Plate Weld Assembly	24	52173	Guide Block	47	ST-10657	Circuit Board Support
2	52308	Main Bearing	25	ST-2575	8-32 x 1 1/2 Hex Flg. Whiz Lock	48	52198	Power Board Insulator
3	52478-A	Linkage-Gripper & Stud	26	52171	Adjustment Disc	49	52240-A	Logic P.C. Board Assembly
4	34317	Rivet Assembly	27	ST-10437	8 x 5/8 Hex Flg. (Type B)	50	52176	Logic Board Cover
5	ST-9249	Odd-Even Alternating Dog	28	52172	Adjustment Disc Holder	51	ST-8269	8-32 x 3/8 Hex Flg. Swageform
6	52202	Truarc "E" Ring	29	52518-A	Nut Mounting Plate Assembly	52	52178	Battery Housing
7	ST-9825	Connecting Rod-Gripper Linkage	30	ST-8295	8 x 5/16 Hex Flg. (Type B)	53	52255-A	Battery Board Assembly
8	34422-1	Keeper	31	ST-3509	1/4-20 x 5/16 Hex Socket	54	52512-A	Battery Pack Assembly
9	ST-8722	Hex Stud	32	37672	Set Screw	55	52731	Battery Pack Insulator
10	ST-2588	10-32 Flg. Hex Whiz Lock Nut	33	52188	Tension Spring	56	41352	Foam Cushion 1/4 x 1/2 x 4
11	36312-1	1/4-20 x 3/8 Hex Flg.	34	52250-A	Module Mtg. Plate	57	ST-9819	Cable Clamp
12	ST-8723	Turntable Mounting Stud	35	52197	Opto Board Assembly	MAGAZINE ASSEMBLY NO. 52120-A		
13	ST-8722	1/4-20 Whiz Lock Nut	36	52766	Opto Board Insulator	58	43030	Hub Magazine
14	ST-8722	10-32 Whiz Lock Nut	37	ST-6551	Opto Light Shield	59	43222-A	Separator Wire Assembly
15	ST-2578	10-32 x 3/8 Hex Flg. Whiz Lock	38	43494	4-36 x 9/16 Phil Pan Hd, M.S.	60	43218-2	Cover - Magazine Wire
16	ST-4864	.203 I.D. x 1/2 O.D.	39	43414	Micro Switch Insulator	61	43226-1A	Cover & Bracket Welding Assembly
17	ST-4862	x 1/16 Flat Washer	40	ST-4835	SPDT Enclosed Snap Switch	62	52192	Main Shaft
18	35813-1	#10 Shakeproof Lock Washer	41	52174	11/64 I.D. x 1/2 O.D. x .032 Flat Washer	63	ST-9194	Truarc Retaining Ring
19	52194	Drive Bracket Screw	42	52193	End Plate Cover	64	52177	Drive Gear
20	52187	Washer .640 x 1 x .030	43	52204	Main Shaft Collar	65	ST-2586	10-32 x 1-1/2 Hex Flg. Whiz Lock
21	ST-2566	End Mounting Plate	44	52389	Odd-Even Switch Bracket	66	47061	Magazine Label
22	ST-9377	8-32 x 1/4 Hex Flg. Whiz Lock	45	ST-4570	A-B Snap Switch	67	ST-9377	Retaining Ring
23	46378	Retaining Ring	46	52199	6-32 x 7/8 Phil Pan Hd, M.S.			
	52189	Rest Bracket - Gripper Arm			Board Mtg. Plate			
		Encoder Disc						



MECHANISM ASSEMBLY — CONTINUED

Item	Part No.	Description
1	52476-1A	Electronic Counter Assembly
2	ST-8258	6-32 X 3/8 Hex Flg.
3	39120-3	Record Guard Steel Band
4	ST-2566	8-32 X 1/4 Hex Flg. Whiz Lock
5	ST-2569	8-32 X 1/2 Hex Flg. Whiz Lock
6	52206	Mounting Bracket — Gripper Motor
7	52498-A	Gripper Motor Assembly — Compl — MAMCO Interchangeable with
8	52499-A	Gripper Motor Assembly — Compl — RAE
9	ST-2589	1/4-20 X 1/2 Hex Flg. Whiz Lock
10	ST-2588	1/4-20 X 3/8 Hex Flg. Whiz Lock
11	52502-A	Magazine Motor Assembly — RAE
12	43492	Micro Switch Mounting Plate
13	ST-2578	10-32 X 3/8 Hex Flg. Whiz — Lock
14	43494	Micro Switch Insulator
15	43414	Spdt Enclosed Snap Switch
16	ST-6551	4-36 X 9/16 Phil Pan Hd. M.S.
17	ST-6552	4-36 X 1 Phil Pan Hd. M.S.
18	43493-1	Micro Safety Cam
19	ST-2253	10-32 X 1/4 Allen Hd Set Screw
20	52199	Board Mtg Plate
21	ST-10657	Circuit Board Support
22	52198	Power Board Insulator
23	52245-A	Power P.C. Board Assembly
24	52175	Power Board Cover
25	ST-8269	8-32 X 3/8 Hex Flg. Swageform
26	39680	Chassis Spring (Red)
27	34403-1	Spring Mtg. Bolt
28	34404	Mounting Bolt Washer
29	ST-9827	Keeper
	52308	Main Bearing

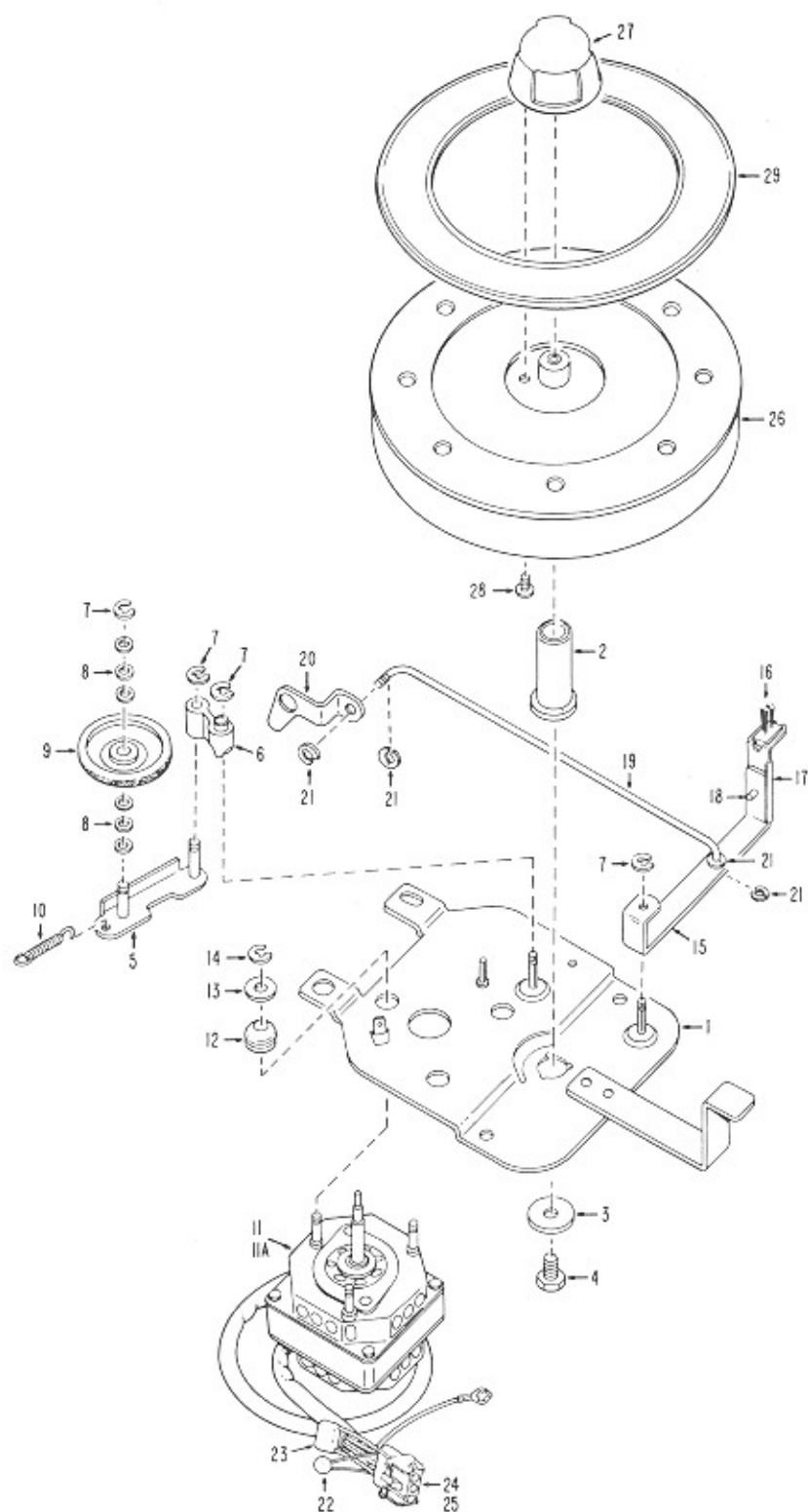


TONE ARM ASSEMBLY — MAGNETIC NO. 52130-A

Item	Part No.	Description
1	41611-A	Tone Arm & Pivot Shaft Assembly
1A	41435	Tone Arm Pivot Shaft
2	43467	M44MR Shure Pickup Cartridge (Special)
3	43469	Stylus
4	ST-6564	4-40 x 3/8 Phil. F.H.M.S.
5	47178-1A	Dual Input Cable
6	ST-314	Shakeproof Lockwasher #3
7	41446	Tone Arm Rest Pin
8	ST-423	5-40 Hex Nut
9	41608-A	Pivot Bracket Riveting Assembly
10	ST-399	Flat Washer
11	ST-2576	10-32 x 1/4 Hex Flg. Whiz Lock
12	41433	Tone Arm Pivot Screw
13	ST-2547	5-40 x 3/8 Hex Flg. Whiz Lock
14	ST-2520	6-32 x 1/2 Hex Hd. M.S.
15	17011	Wire Clip
16	ST-4574	5-40 x 3/16 Phil. P.H. M.S.
17	41758	Tone Arm Spring

TONE ARM BASE ASSEMBLY NO. 51890-A

18	41366	Tone Arm Base
19	41612-A	Pivot Bushing & Ball Assembly
20	ST-8717	10-32 Hex Whiz Lock Nut
21	41649-2A	Tone Arm Switch & Bracket Assembly
22	ST-2555	6-32 x 1/4 Hex Flg. Whiz Lock
23	52159-A	Support Bracket & Stud Assembly
24	ST-2566	8-32 x 1/4 Hex Flg. Whiz lock
25	41609-A	Lifter Lever & Cam Pin Assembly
26	ST-9825	Keeper
27	34444	Lifter Lever Spring
28	ST-3457	5-40 Keps Nut

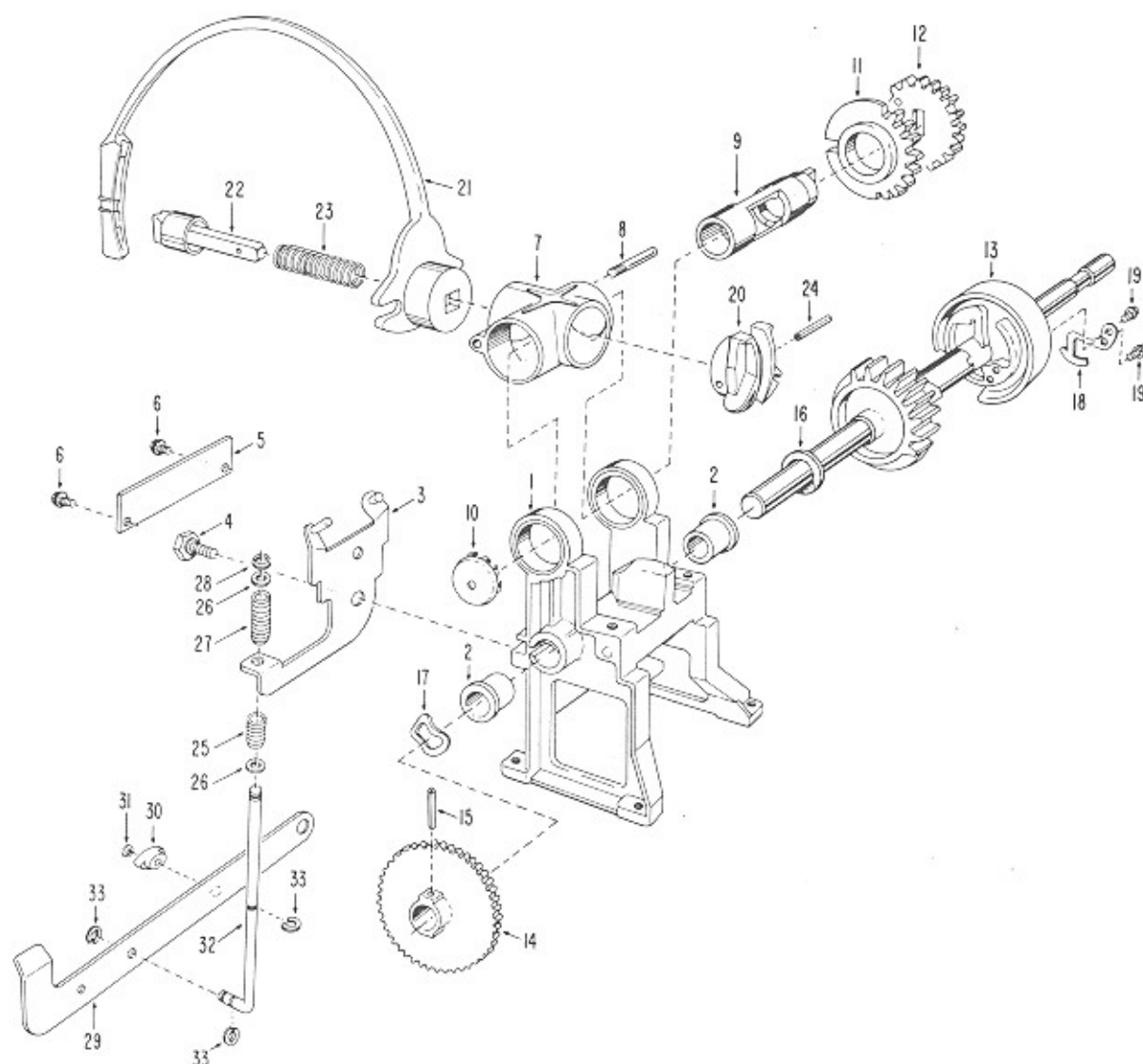


45 R.P.M.—60HZ TURNTABLE MOUNTING PLATE ASSEMBLY NO. 52090-A
45 R.P.M.—50HZ TURNTABLE MOUNTING PLATE ASSEMBLY NO. 52095-A

Item	Part No.	Description
1	52232-A	Turntable Mounting Plate Riveting Assembly 45
2	46294	Turntable Bearing
3	ST-4808	.203 I.D. x 3/4 O.D. x .062 Flat Washer
4	46296	Turntable Shaft Bearing
5	52144-A	Idler Link Riveting Assembly
6	35830	Link Toggle
7	ST-9266	Truarc "E" Ring
8	36291	Fiber Washer
9	35831	Idler
10	35832	Idler Spring
11	52485-A	Turntable Motor Assembly 60HZ
11A	52555-A	Turntable Motor Assembly 50HZ
12	18849	Turntable Grommet
13	ST-4813	.203 I.D. x 1/2 O.D. x .032 Flat Washer
14	ST-9263	Truarc "E" Ring
15	52217	Brush Arm
16	17008	Brush
17	48489	Brush Holder
18	ST-8256	6-32 x 1/4 Hex. Flg.
19	52233	Drive Rod
20	36294-1	Drive Bracket
21	ST-9825	Keeper
22	53014	Metal Oxide Varistor 150V
23	52763	.1 MFD 125 V.A.C. Capacitor
24	ST-10496	Universal Pin
25	ST-10589	3 Circ. Universal Socket Housing

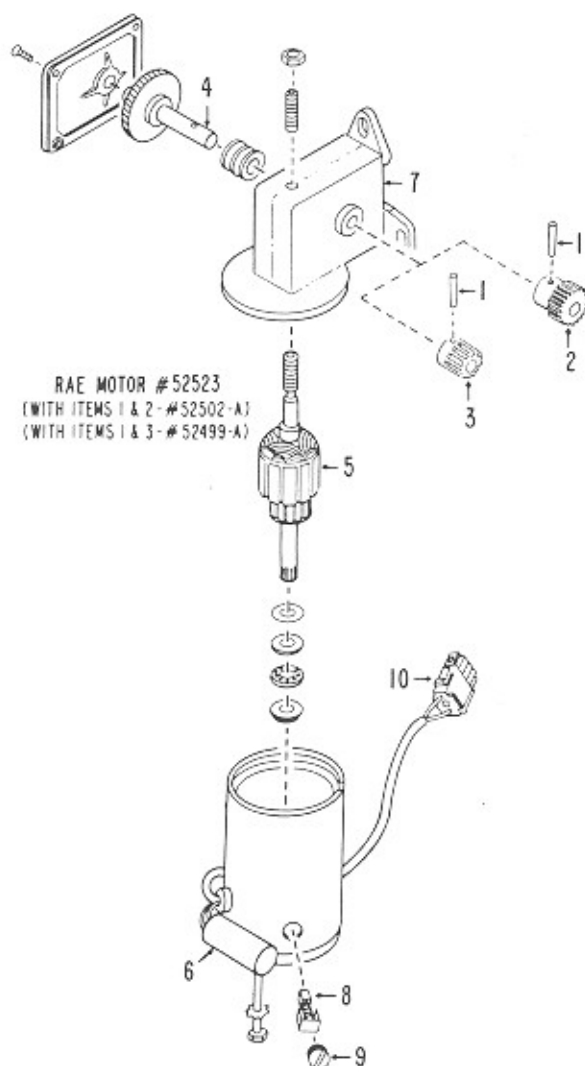
45 R.P.M. TURNTABLE ASSEMBLY COMPLETE NO. 52100-A

26	52235-A	Turntable Assembly
27	52236	Record Hub — 45 R.P.M.
28	ST-8211	6 x 1/2 Phil. Pan Hd. (Type B)
29	52237	Turntable Mat

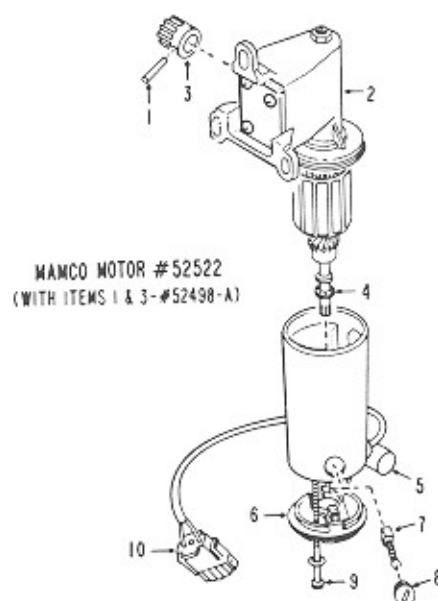


GRIPPER ASSEMBLY NO. 52125-A

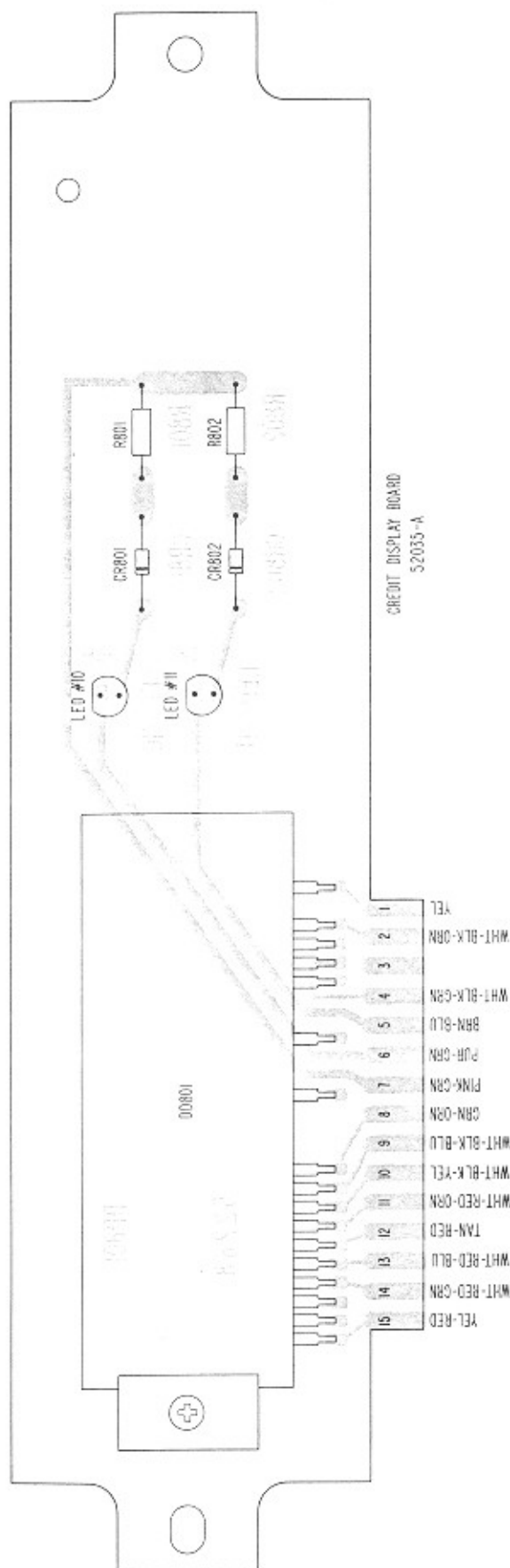
Item	Part No.	Description	Item	Part No.	Description
1	45421-1	Gripper Housing	18	17524	Tone Arm Cam Keeper Spring
2	45422	Gripper Housing Bearing	19	ST-2555	6-32 x 1/4 Hex Flg. Whiz Lock
3	52268-A	Brkt. Gripper Rev. Rivet Assem.	20	34323-7A	Cam-Gripper Reversing Assem.
4	34422-1	Hex Stud	21	34322-6A	Gripper Arm Assembly
5	34371	Reversing Brkt. Ret. Strip	22	34314-A	Inner Gripper Assembly
6	ST-2568	8-32 x 3/8 Hex Flg. Whiz Lock	23	39775	Spring - Gripper
7	34315-6	Gripper Spider	24	ST-534	Spirol Pin - Medium Duty
8	34421	Gripper Stop Pin	25	34864	Spring - Connecting Rod - Lower
9	34399	Trunnion Shaft	26	ST-4853	Flat Washer
10	34877	Trunnion Shaft Button	27	34447	Spring - Connecting Rod - Upper
11	34312-1	Gripper Turnover Gear	28	ST-9825	Keeper
12	36308-1A	Gripper Release Gear Assem.	29	52478-A	Linkage - Gripper & Stud Rivet Assem.
13	43359-1A	Gripper Shaft Assem.	30	34317	Odd-Even Alternating Dog
14	34310	Gripper Shaft Gear	31	ST-9249	"E" Ring
15	ST-534	Spirol Pin - Medium Duty	32	52202	Connecting Rod - Gripper Linkage
16	34929	Gripper Shaft Thrust Washer	33	ST-9825	Keeper
17	ST-4828	Spring Washer			



Item	Part No.	Description
1	ST-530	Spirol Pin — 1/8 Dia. x 3/4
2	34308	Magazine Drive Gear
3	34309	Gripper Motor Gear
4	52931	Gear & Shaft Assembly
5	52939	Armature Assembly
6	47563	Noise Suppression Capacitor
7	52934	Gearhead Housing Assembly
8	52944	Motor Brush
9	52945	Brush Cap & Spring
10	ST-10586 ST-10498	3 Circ. Universal Pin Hsg. Universal Pin

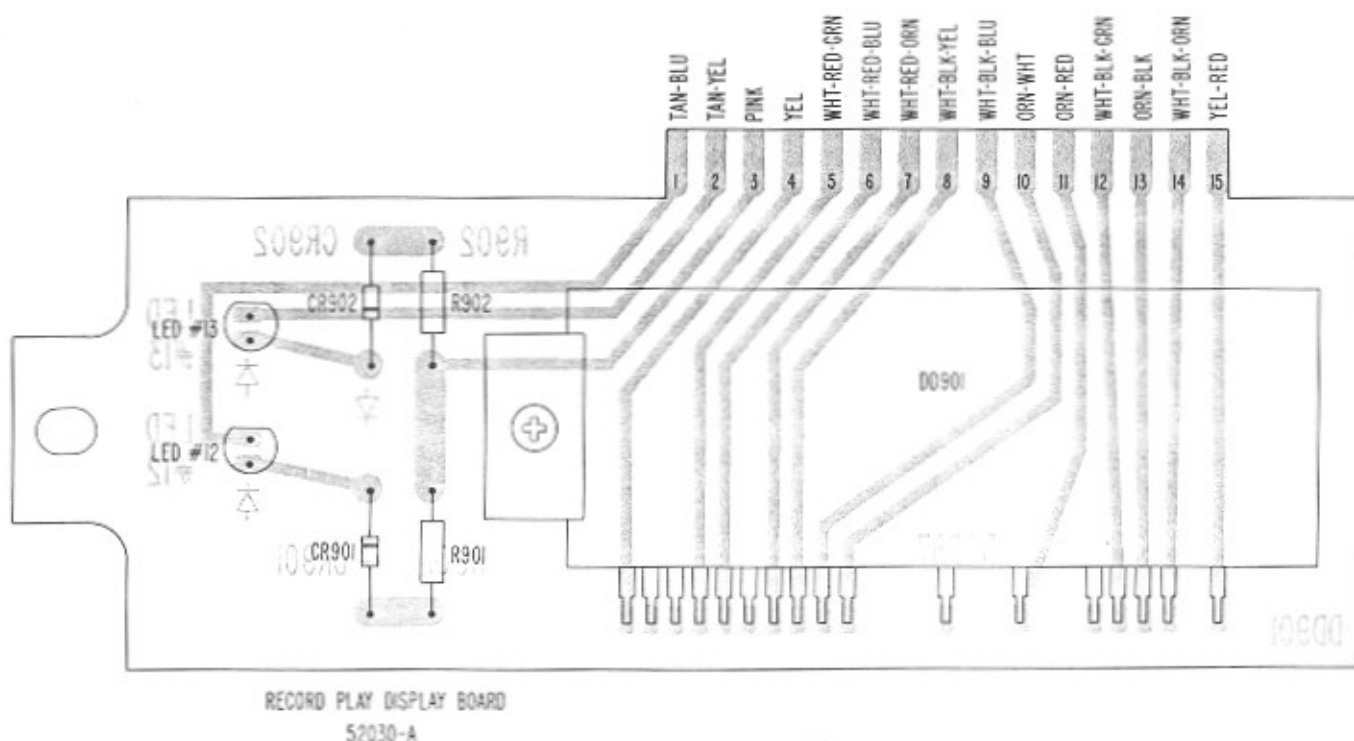


Item	Part No.	Description
1	ST-530	Pin Spirol 1/8 Dia. x 3/4
2	51587-A	Armature & Related Parts with Gripper Drive Gear
3	34309	Gripper Motor Gear
4	51072	Thrust Bearing
5	47563	Noise Suppression Capacitor
6	51073	End Cap & Brush Holder Assy.
7	50361	Motor Brush
8	50362	Brush Cap
9	ST-10456	Thru Bolt
10	ST-10586	3 Circ. Universal Pin Hsg.
	ST-10498	Universal Pin



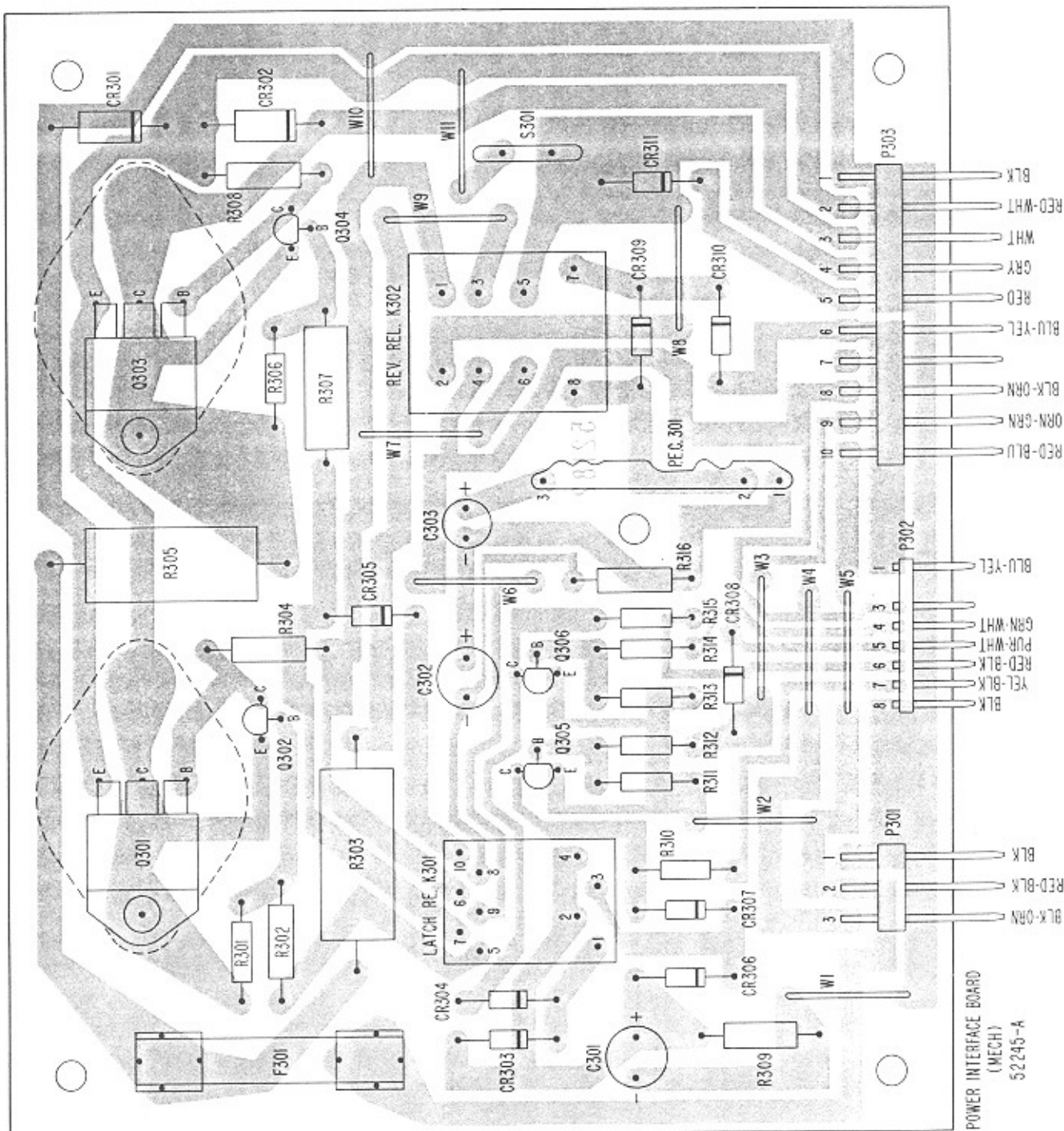
CREDIT DISPLAY P.C. BOARD NO. 52035-A

Item	Part No.	Description
RESISTORS		
R801 & R802	49264	470 OHM 1/4W 5%
DIODES		
CR801 & CR802	51498	Diode 1N4148
LED #10 & LED #11	52759	Hi-Intensity Led (Red)
MISCELLANEOUS		
DD801	52388	4 Digit Display
	52677	Caplug - Tapered
	52307	Numeric Display Holder
	ST-7248	Mach. Screw #4-40 x 1/2
	ST-10469	Hex Nut #4-40



RECORD PLAY P.C. BOARD ASSEMBLY NO. 52030-A

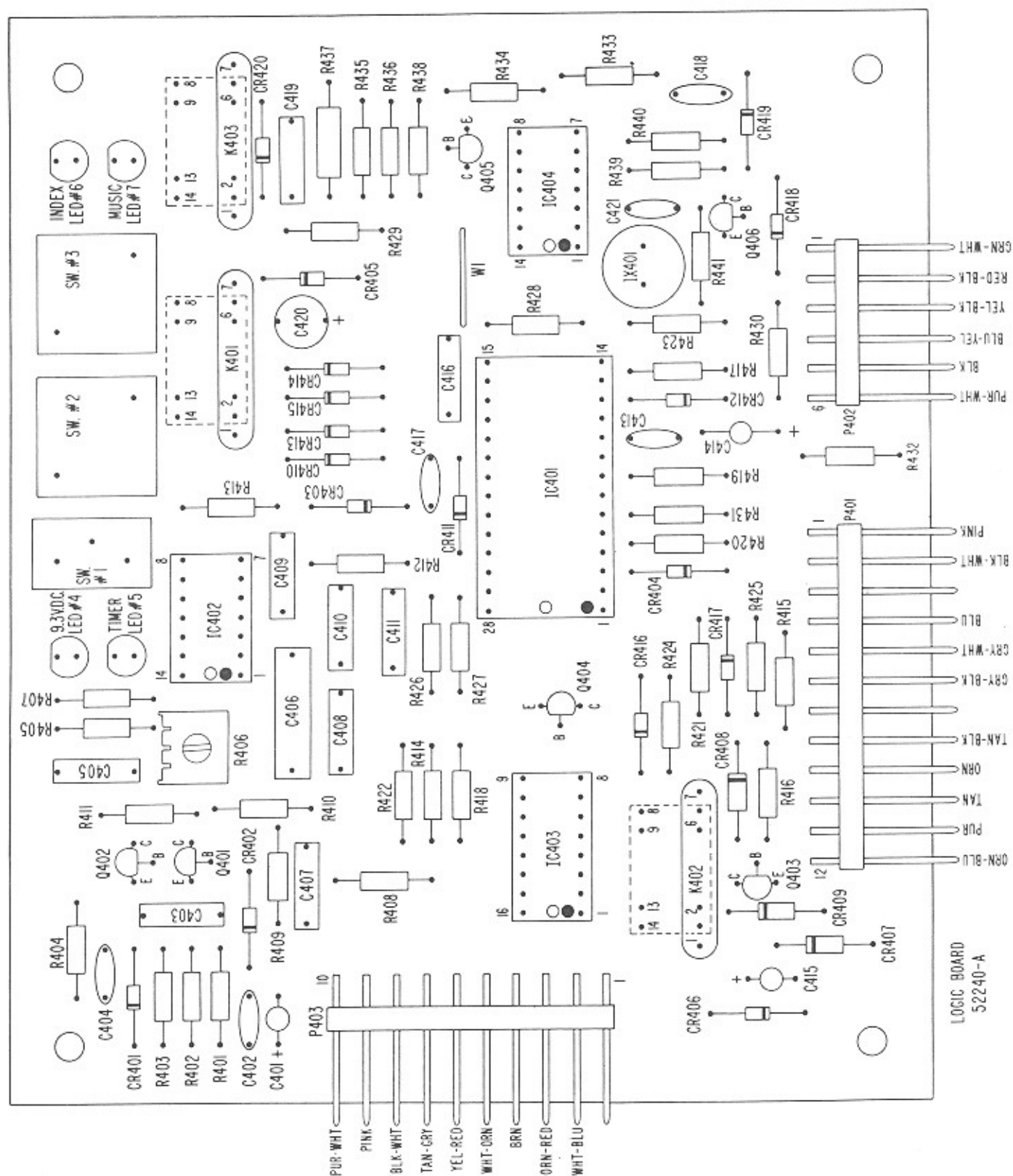
Item	Part No.	Description
RESISTORS		
R901 & R902	49264	470 OHM 1/4W 5%
DIODES		
CR901 & CR902	51498	Diode 1N4148
LED #12 & LED #13	52759	Hi-Intensity LED (Red)
MISCELLANEOUS		
DD901	52388 52677 52307 ST-7248 ST-10469	4 Digit Display Caplug - Tapered Numeric Display Holder Mach. Screw #4-40 x 1/2 Hex Nut #4-40



POWER P.C. BOARD ASSEMBLY NO. 52245-A



Item	Part No.	Description	Item	Part No.	Description
RESISTORS			DIODES AND RECTIFIERS		
R301	51293	10K OHM 1/4W 5%	CR301 &		Transient Voltage Suppressor 51V
R302	53008	100 OHM 1W 5% FP	CR302	52552	Rectifier 100PRV 1A 1N4002
R303	43207	5 OHM 5W 10%	CR303	46497	Fast Recovery Diode 1N4934
R304	53008	100 OHM 1W 5% FP	CR304	50714	
R305	43207	5 OHM 5W 10%	CR305 &		
R306	51293	10K OHM 1/4W 5%	CR306	46497	Rectifier 100PRV 1A 1N4002
R307	35328	1.5K OHM 1W 5%	CR307	50714	Fast Recovery Diode 1N4934
R308	53008	100 OHM 1W 5% FP	CR308 &		
R309	53009	150 OHM 1W 5% FP	CR309	46497	Rectifier 100PRV 1A 1N4002
R310	51566	1.5 OHM 1/4W 5%	CR310	50714	Fast Recovery Diode 1N4934
R311	51293	10K OHM 1/4W 5%	CR311	46497	Rectifier 100PRV 1A 1N4002
R312	48043	4.7K OHM 1/4W 10%			
R313	51293	10K OHM 1/4W 5%	RELAYS		
R314	51384	2.7K OHM 1/4W 5%	K301	52547	Latch Relay 24V
R315	51566	1.5K OHM 1/4W 5%		52548	Relay Socket - 10 Pin
R316	53009	150 OHM 1W 5% FP		47472	Relay Hold Down Spring
			K302	52321	24V - 2 PDT Relay
				52320	Relay Socket - 8 Pin
				52322	Relay Retainer Spring
CAPACITORS			MISCELLANEOUS		
C301 &			F301	ST-4330	Fuse Slo-Blo 0.25A 250V
C302	52361	47 MFD +50-10% 50V		51984	P.C. Fuse Clip
C303	52558	22 MFD 10% 10V	PEC301	52356	P.E.C. Delay Circuit
TRANSISTORS			P301	ST-10612	3 Ckt. Right Angle Post Connector
Q301	52549	Power (NPN) TIP 3055	P302	ST-10594	7 Ckt. C.I.S. Right Angle Pin Header
	ST-6577	Mach. Screw #4-40 x 1/4	P303	ST-10593	10 Ckt. Right Angle Post Connector
	ST-10469	Hex Nut #4-40	S301	52551	Metal Oxide Varistor
Q302	47831	(PNP) MPS-A56			
Q303	52549	Power (NPN) TIP 3055			
	ST-6577	Mach. Screw #4-40 x 1/4			
	ST-10469	Hex Nut #4-40			
Q304 thru					
Q306	47831	(PNP) MPS-A56			





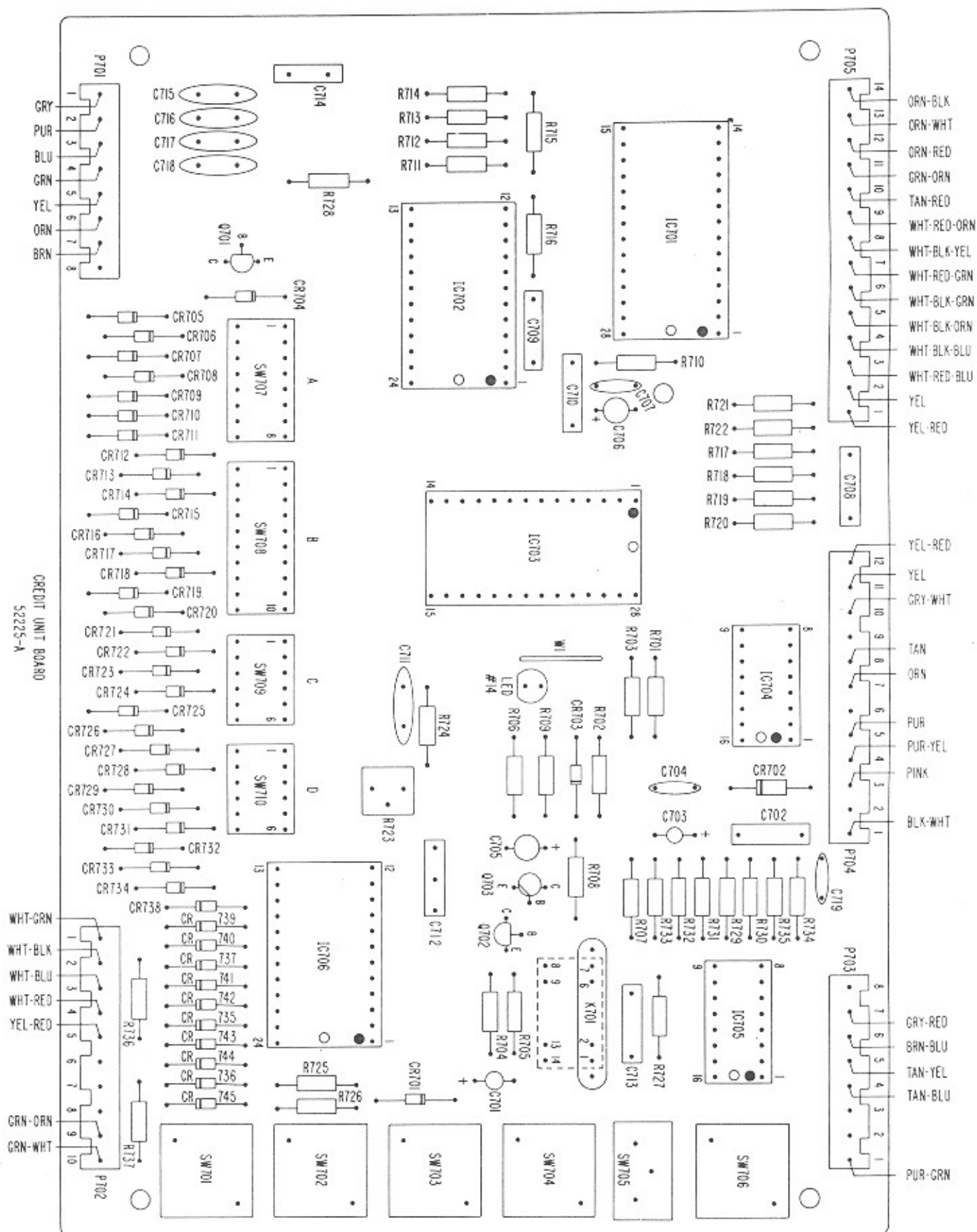
Item	Part No.	Description	Item	Part No.	Description
RESISTORS					
R401	51292	4.7K OHM 1/4W 5%	C411	48941	.22 MFD 20% 100V
R402	51293	10K OHM 1/4W 5%	C412		Not Used
R403	49268	33K OHM 1/4W 5%	C413	45789	150 MMFD 10% 500V
R404	49264	470 OHM 1/4W 5%	C414	52359	1.0 MFD 10% 35V
R405	52358	2.2K OHM 1/4W 5%	C415	49146	2.2 MFD 20% 25V
R406	52757	TRIM CONTROL 50K OHM	C416	47421	.1 MFD 20% 250V
R407	51294	47K OHM 1/4W 5%	C417 &		
R408	52358	2.2K OHM 1/4W 5%	C418	45790	.001 MFD 10% 500V
R409	51291	22K OHM 1/4W 5%	C419	47421	.1 MFD 20% 250V
R410	52733	62K OHM 1/4W 5%	C420	52736	33 MFD 10% 25V
R411	51291	22K OHM 1/4W 5%	C421	52735	20 MMFD 10% 100V
R412	49268	33K OHM 1/4W 5%	TRANSISTORS		
R413	52563	560 OHM 1/4W 5%	Q401 thru		
R414	52621	68K OHM 1/4W 5%	Q406	45747	(NPN) 2N4424
R415	51564	1K OHM 1/4W 5%	DIODES AND RECTIFIERS		
R416	51291	22K OHM 1/4W 5%	CR401 thru		
R417	51293	10K OHM 1/4W 5%	CR406	51498	DIODE 1N4148
R418	51291	22K OHM 1/4W 5%	CR407	46497	RECTIFIER 100PRV 1A 1N4002
R419 &			CR408	52719	ZENER 1W 8.2V 5% 1N4738A
R420	51293	10K OHM 1/4W 5%	CR409	46497	RECTIFIER 100PRV 1A 1N4002
R421	51292	4.7K OHM 1/4W 5%	CR410 thru		
R422	51293	10K OHM 1/4W 5%	CR420	51498	DIODE 1N4148
R423	51294	47K OHM 1/4W 5%	LED #4 thru		
R424	51293	10K OHM 1/4W 5%	LED #7	51994	(1/4 DIA) LED (RED)
R425	51292	4.7K OHM 1/4W 5%	INTEGRATED CIRCUITS		
R426	51293	10K OHM 1/4W 5%	IC401	51726	Mechanism Controller M.M5799NAX /N
R427	51291	22K OHM 1/4W 5%		52721	28 Contact Solder Dip Socket
R428	51292	4.7K OHM 1/4W 5%	IC402	52560	556 Dual Timer
R429	51293	10K OHM 1/4W 5%		52720	14 Contact Solder Dip Socket
R430	51291	22K OHM 1/4W 5%	IC403	52546	Tri-State Buffer-Hex MM80C97N
R431 &				52724	16 Contact Solder Dip Socket
R432	51293	10K OHM 1/4W 5%	IC404	51993	4069 Hex Inverter
R433	51291	22K OHM 1/4W 5%		52720	14 Contact Solder Dip Socket
R434	52358	2.2K OHM 1/4W 5%	RELAYS AND SWITCHES		
R435 &			K401 &		
R436	51566	1.5K OHM 1/4W 5%	K402	52739	Reed Relay 12V
R437	46943	820 OHM 1/2W 5%	K403	52738	Reed Relay 24V
R438	51293	10K OHM 1/4W 5%	SW #1	52727	Miniature Slide Switch S.P.D.T.
R439 &			SW #2	52725-06	Key Switch One Contact (Blue)
R440	52734	1 MEG OHM 1/4W 5%	SW #3	52725-02	Key Switch One Contact (Red)
R441	49264	470 OHM 1/4W 5%	MISCELLANEOUS		
CAPACITORS			IX	52737	Resonator LX1
C401	49146	2.2 MFD 20% 25V	P401	ST-10607	12 Ckt. Right Angle Post Connector
C402	45790	.001 MFD 10% 500V	P402	ST-10573	6 Ckt. Right Angle Post Connector
C403	48949	.027 MFD 10% 250V	P403	ST-10593	10 Ckt. Right Angle Post Connector
C404	50104	.0022 MFD 10% 250V			
C405	48941	.22 MFD 20% 100V			
C406	48951	.47 MFD 20% 100V			
C407 &					
C408	48947	.015 MFD 10% 250V			
C409	48949	.027 MFD 10% 250V			
C410	48947	.015 MFD 10% 250V			



HIT TRACKER (POP METER) P.C. BOARD ASSEMBLY NO. 52230-A

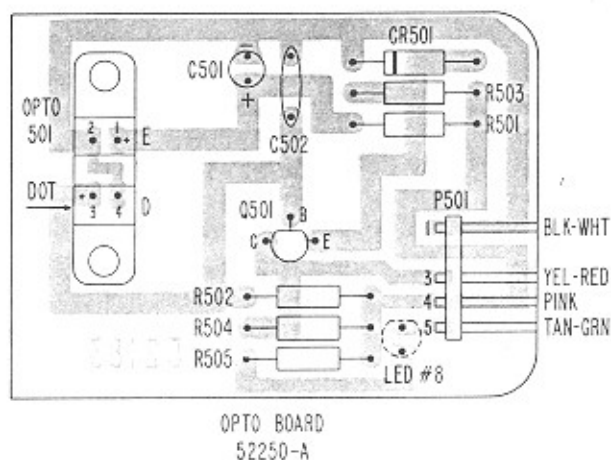
Item	Part No.	Description	Item	Part No.	Description
RESISTORS					
R1201 & R1202 R1203 R1204 R1205 R1206 R1207 R1208 R1209 R1210 R1211 R1212 thru R1220 R1221 R1222 R1223 R1224	48043 48046 51571 52358 48044 47427 48044 50966 48044 48046 48046 48044 53003 52563 52373	4.7K OHM 1/4W 10% 22K OHM 1/4W 10% 6.8K OHM 1/4W 5% 2.2K OHM 1/4W 5% 10K OHM 1/4W 10% 1K OHM 1/4W 10% 10K OHM 1/4W 10% 100K OHM 1/4W 5% 10K OHM 1/4W 10% 22K OHM 1/4W 10% 10K OHM 1/4W 10% 22K OHM 1/4W 10% 10 OHM 1W 5% F P 560 OHM 1/4W 5% 10 OHM 1/4W 5%	Q1204	47831	(PNP) MPS-A56
CAPACITORS					
C1201 C1202 C1203 C1204 C1205 & C1206 C1207 C1208 C1209 thru C1211 C1212 thru C1227 C1228 & C1229	52561 49146 45790 49146 45790 45790 45790 47421 52675	10 MFD 10% 15V 2.2 MFD 20% 25V .001 MFD 10% 500V 2.2 MFD 20% 25V .001 MFD 10% 500V 2.2 MFD 20% 25V .001 MFD 10% 500V .1 MFD 20% 250V Not Used .1 MFD 20% 50V	SW1201 thru SW1203 SW1204 SW1205 SW1206	52727 52725-06 52725-08 52725-02	Miniature Slide Switch S.P.D.T. Key Switch One Contact (Blue) Key Switch One Contact (Gray) Key Switch One Contact (Red)
TRANSISTORS					
Q1201 & Q1202 Q1203	49415 45747	(NPN) MPS-A06 (NPN) 2N4424	B1201 DD1201 P1201	52726 52556 52307 ST-7248 ST-10469 ST-10654	Lithium Battery (PCB) 5 Digit Display Numeric Display Holder Mach. Screw #4-40 x 1/2 Hex Nut #4-40 12 Circuit Post Connector
DIODES					
CR1201 CR1202 CR1203 thru CR1211 LED #15	51498 52718 51498 51994	Diode 1N4148 Zener 1W 6.2V 5% 1N4735A Diode 1N4148 (1/4 Dia.) LED (Red)	IC1201 IC1202 IC1203 & IC1204 IC1205 & IC1206 IC1207	52133 52721 51993 52720 52524 52721 52134 52723 52537 52721	Popularity Meter Controller MM5799NCZ / N 28 Contact Solder Dip Socket 4069 Hex Inverter 14 Contact Solder Dip Socket Display Controller MM57163N 28 Contact Solder Dip Socket 1024 x 1 C-MOS Ram M3-6518-9 18 Contact Solder Dip Socket C-MOS Ram Interface MM5785N 28 Contact Solder Dip Socket
INTEGRATED CIRCUITS					
SWITCHES					
MISCELLANEOUS					





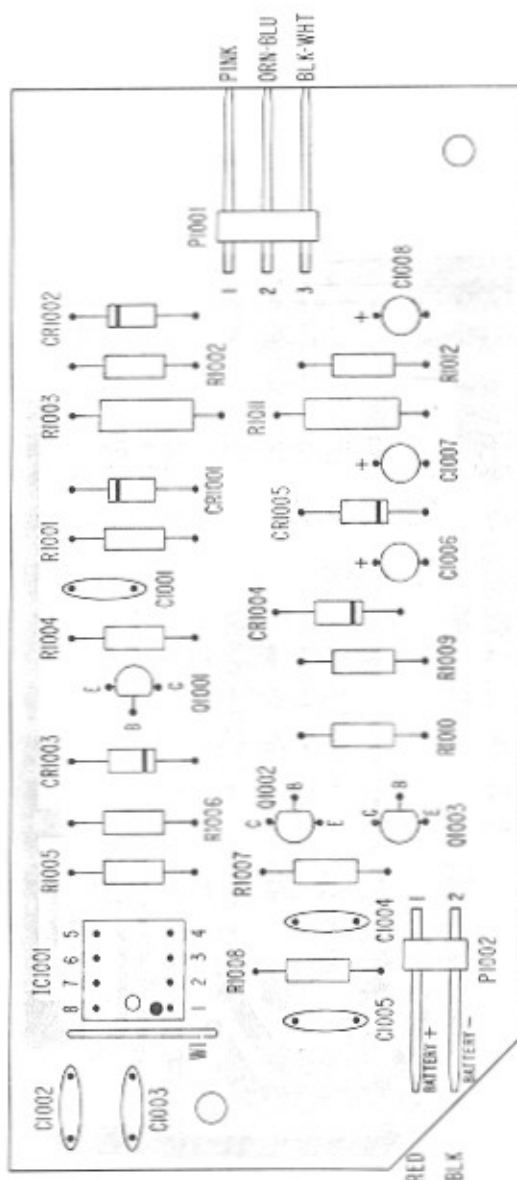


Item	Part No.	Description	Item	Part No.	Description
RESISTORS			Q702	47831	(PNP) MPS-A56
R701	52563	560 OHM 1/4W 5%	Q703	48063	Darlington (NPN) 2N5307
R702&			DIODES AND RECTIFIERS		
R703	48044	10K OHM 1/4W 10%	CR701	51498	Diode 1N4148
R704	48046	22K OHM 1/4W 10%	CR702	46497	Rectifier 100 PRV 1A 1N4002
R705	50966	100K OHM 1/4W 5%	CR703 thru		
R706&			CR722	51498	Diode 1N4148
R707	48044	10K OHM 1/4W 10%	CR723 thru		
R708	50966	100K OHM 1/4W 5%	CR728	Omitted	
R709	48046	22K OHM 1/4W 10%	CR729 thru		
R710	48044	10K OHM 1/4W 10%	CR745	51498	Diode 1N4148
R711 thru			LED #14	51994	(1/4 DIA) LED (RED)
R714	51292	4.7K OHM 1/4W 5%	INTEGRATED CIRCUITS		
R715	48044	10K OHM 1/4W 10%	IC701	52524	Display Controller MM57163 N
R716	48046	22K OHM 1/4W 10%		52721	28 Contact Solder Dip Socket
R717 thru			IC702	52150	Credit ROM MM5781NCY/ N
R720	48046	22K OHM 1/4W 10%		52722	24 Contact Solder Dip Socket
R721&			IC703	52151	Credit Controller MM5782 N
R722	48044	10K OHM 1/4W 10%		52721	28 Contact Solder Dip Socket
R723&			IC704	52546	Tri-State Buffer-Hex MM80C97N
R724	Omitted			52724	16 Contact Solder Dip Socket
R725	51292	4.7K OHM 1/4W 5%	IC705	52539	Shift Register DS3654N
R726	48044	10K OHM 1/4W 10%		52724	16 Contact Solder Dip Socket
R727	52358	2.2K OHM 1/4W 5%	IC706	52544	Decoder DS8664N
R728	48044	10K OHM 1/4W 10%		52722	24 Contact Solder Dip Socket
R729 thru			SWITCHES		
R734	Omitted		SW701	52725-06	Key Switch — One Contact — Blue
R735	48044	10K OHM 1/4W 10%	SW702	52725-09	Key Switch — One Contact — White
R736&			SW703	52725-00	Key Switch — One Contact — Black
R737	52374	47 OHM 1/4W 10%	SW704	52725-08	Key Switch — One Contact — Gray
CAPACITORS			SW705	52727	Miniature Slideswitch S.P.D.T.
C701	52708	10 MFD 20% 35V	SW706	52725-02	Key Switch — One Position — Red
C702	47421	.1 MFD 20% 250V	SW707	51304	Dip Switch SPST 8 Position
C703	52561	10 MFD 10% 15V	SW708	52606	Dip Switch SPST 10 Position
C704	45790	.001 MFD 10% 500V	SW709	Omitted	
C705	52561	10 MFD 10% 15V	SW710	51303	Dip Switch SPST 6 Position
C706	52708	10 MFD 20% 35V	MISCELLANEOUS		
C707	45790	.001 MFD 10% 500V	K701	52739	Reed Relay 12V
C708 thru			P701	49275	8 Circuit Post Connector
C710	47421	.1 MFD 20% 250V	P702	49276	10 Circuit Post Connector
C711	Omitted		P703	49275	8 Circuit Post Connector
C712	47421	.1 MFD 20% 250V	P704	ST-10654	12 Circuit Post Connector
C713	51989	.01 MFD 5% 250V	P705	ST-10577	14 Circuit Post Connector
C714 thru					
C718	Omitted				
C719	45790	.001 MFD 10% 500V			
TRANSISTORS					
Q701	49415	(NPN) MPS-A06			



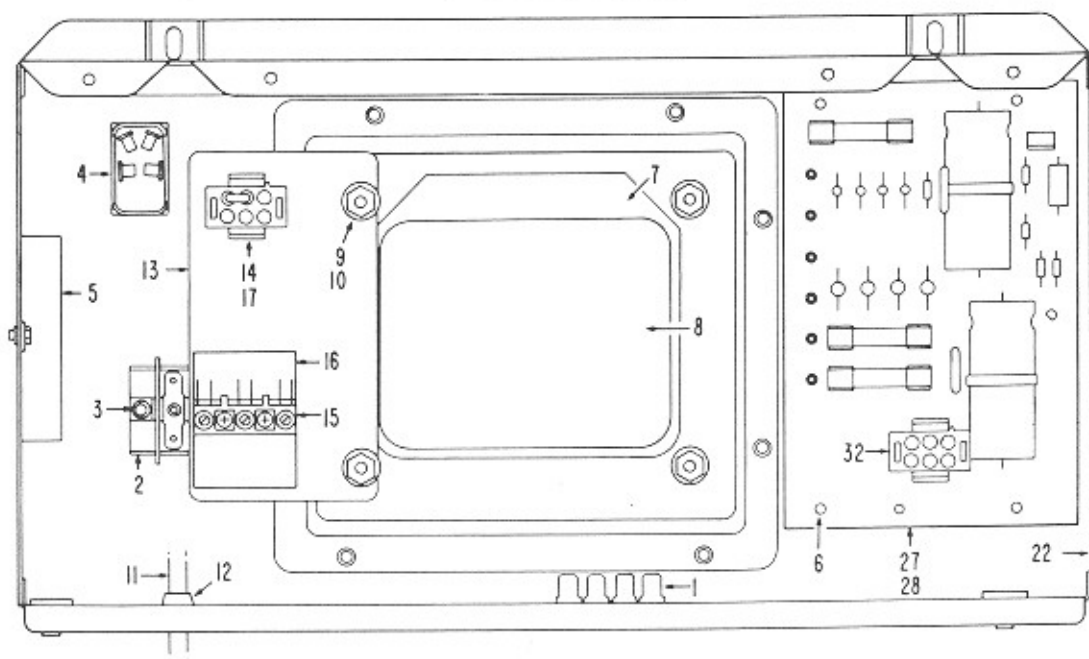
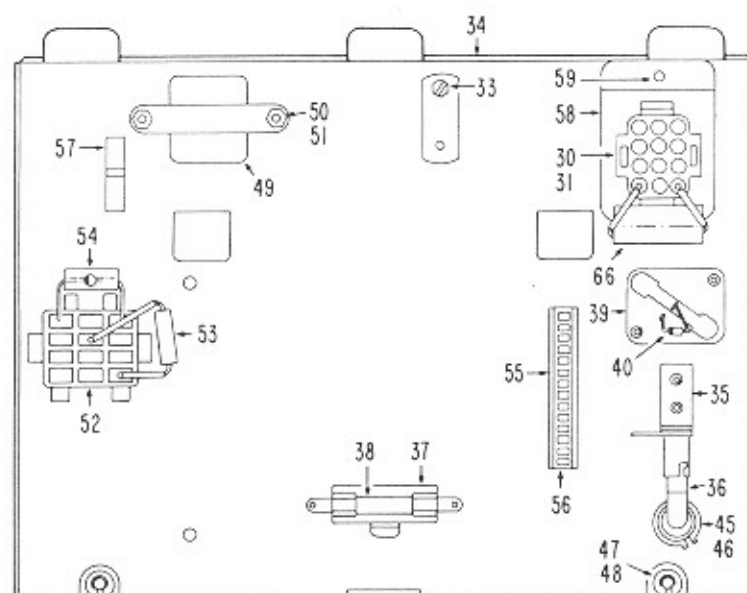
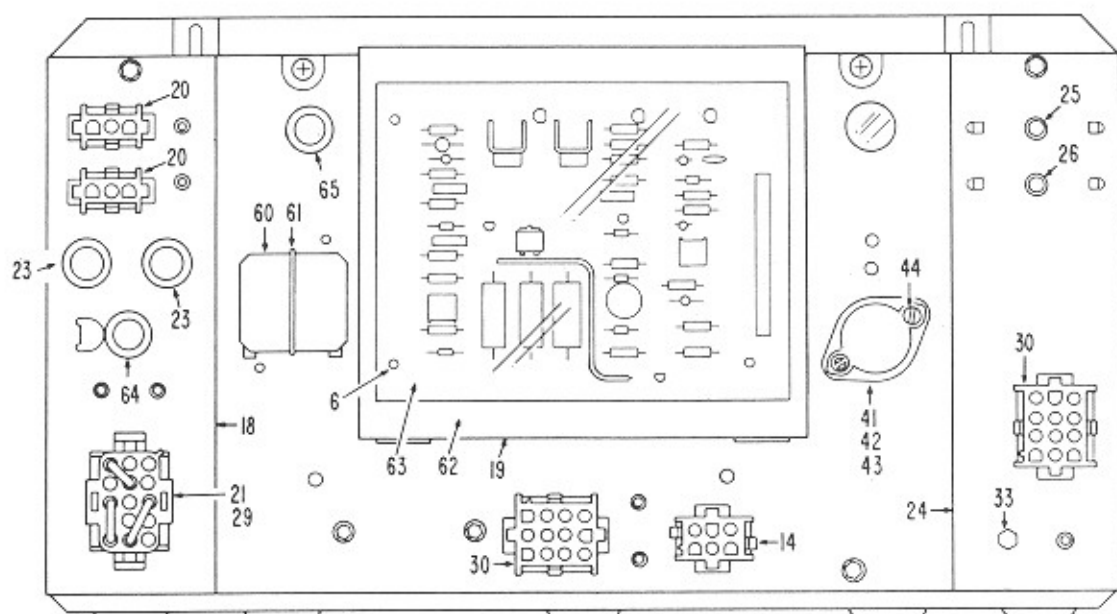
OPTO P.C. BOARD ASSEMBLY NO. 52250-A

Item	Part No.	Description
RESISTORS		
R501	52377	390 OHM 1/4W 5%
R502	49269	27K OHM 1/4W 5%
R503	51293	10K OHM 1/4W 5%
R504	51292	4.7K OHM 1/4W 5%
R505	52563	560 OHM 1/4W 5%
CAPACITORS		
C501	52561	10 MFD 10% 15V
C502	33762	470 MMFD 10% 1000V
DIODES AND TRANSISTORS		
CR501	51498	Diode 1N4148
LED #8	51994	(1/4 Dia.) LED (Red)
Q501	45747	Transistor (NPN) 2N4424
MISCELLANEOUS		
OPTO 501	52562	Opto-Interruptor
P501	ST-10572	4 Ckt. CIS Right Angle Pin Header



BATTERY P.C. BOARD ASSEMBLY NO. 52255-A

Item	Part No.	Description	Item	Part No.	Description
RESISTORS					
R1001	52358	2.2K OHM 1/4W 5%	Q1001	45747	(NPN) 2N4424
R1002	49264	470 OHM 1/4W 5%	Q1002	47831	(PNP) MPS-A56
R1003	53002	27 OHM 1W 5% F P	Q1003	45747	(NPN) 2N4424
R1004	51293	10K OHM 1/4W 5%	DIODES AND RECTIFIERS		
R1005	52621	68K OHM 1/4W 5%	CR1001	52719	Zener 1W, 8.2V 5% 1N4738A
R1006	52358	2.2K OHM 1/4W 5%	CR1002	46497	Rectifier 100 PRV 1A 1N4002
R1007	47832	5.6K OHM 1/4W 10%	CR1003 thru		
R1008	51293	10K OHM 1/4W 5%	CR1005	50714	Fast Recovery Diode 1N4934
R1009 &			INTEGRATED CIRCUITS		
R1010	53001	4.7 OHM 1W 5% F P	IC1001	51991	555 Timer
R1011	53003	10 OHM 1W 5% F P	MISCELLANEOUS		
R1012	51291	22K OHM 1/4W 5%	F1001	ST-10694	.5 Amp. 125 V Sub - Min Fuse
CAPACITORS					
C1001 thru			P1001	ST-10612	3 Ckt. Right Angle Post Connector
C1005	45790	.001 MFD 10% 500V	P1002	ST-10630	2 Ckt. Right Angle Post Connector
C1006 thru					
C1008	52561	10 MFD 10% 15V			

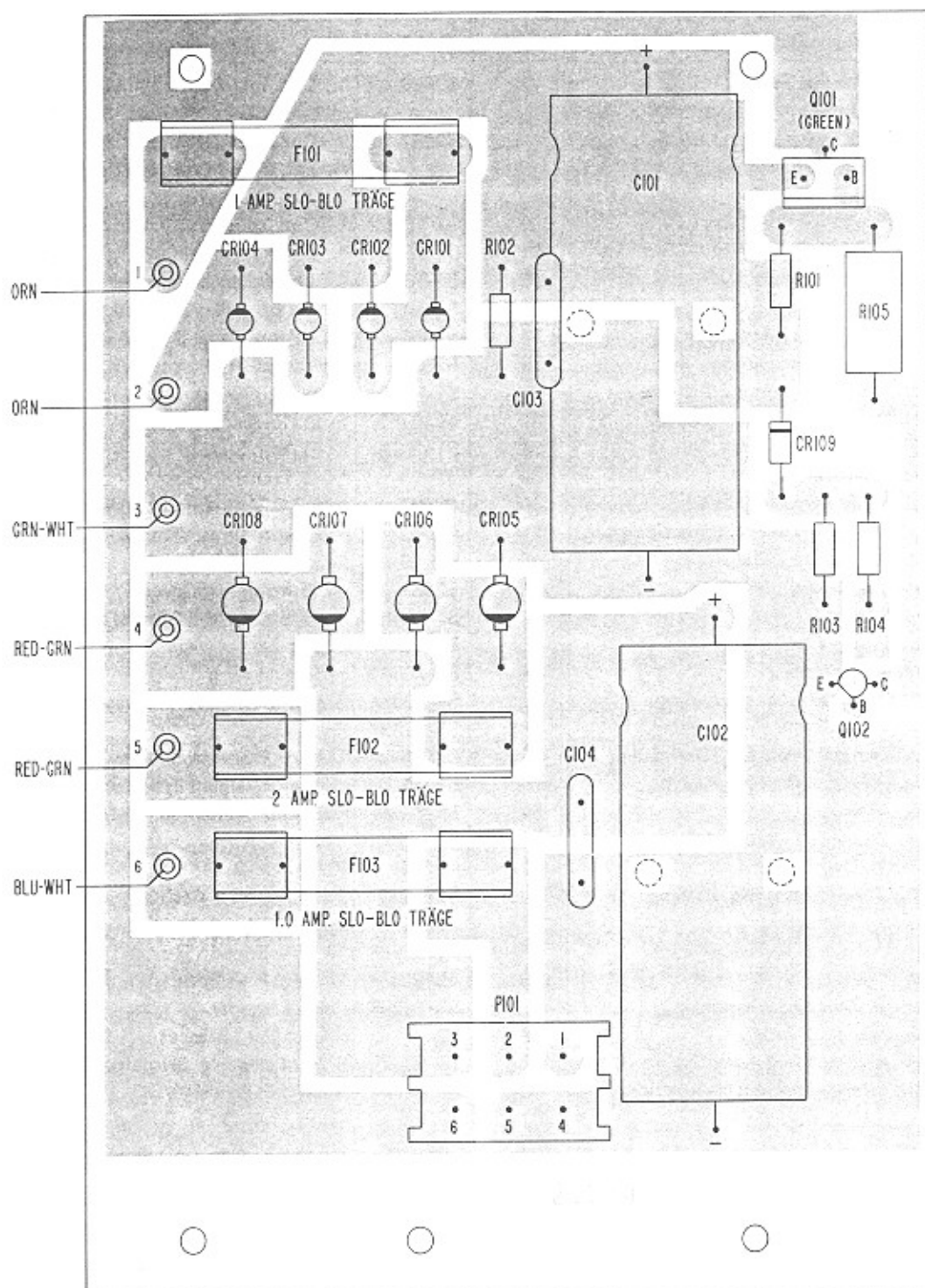


POWER DISTRIBUTION ASSEMBLY



120 Volt 60HZ USA—52390-A, 120 Volt 60HZ Canada—52395-A
 100 Volt 60HZ Japan—52400-A, 220 Volt 50HZ Germany—52405-A
 220 Volt 50HZ Belgium—52405-A, 240 Volt 50HZ—England—52415-A
 240 Volt 50HZ Australia—52410-A

Item	Part No.	Description	Item	Part No.	Description
1	ST-10627	Ground Terminal Strip	29	52666-A	15 Circuit Universal Pin Hsg. Assy. (Wht)
2	49242	Terminal Block			U.S.A. - Canada - Japan
3	ST-2560	6-32 x 5/8 Hex Flg. Whiz Lock		52667-A	15 Circuit Universal Pin Hsg.
	ST-8715	6-32 Hex Whiz Lock Nut			Assem. (Blue) Germany-Belgium-
4	49313	DPST Toggle Switch			England-Australia
	49240	Rocker Switch — (Germany)	30	ST-10502	12 Circ. Universal Socket Hsg.
5	52714-A	4 Amp RFI Filter Assembly - Germany	31	ST-10503	12 Circ. Universal Pin Hsg.
6	ST-10538	Plastic Board Support	32	ST-10567	6 Circ. Universal Pin Hsg.
7	52434	Transformer Gasket	33	ST-10062	8-36 x 5/16 Hex Hd. M.S. (Green Hd)
8	52693-A	Power Transformer Assembly	34	52656-A	P.D. Front Panel Rivet Assem.
	52435	Power Transformer Only	35	52631	Light Socket
	52693-CA	Power Transformer Assy. - Canada	36	ST-10600	Type #1829 Lamp
	52435-C	Power Transformer Only - Canada	37	49307	Fuse Holder
9	ST-8722	10-32 Hex Flg. Whiz Lock Nut	38	ST-4323	8/10 Amp Slo-Blo Fuse
10	ST-9823	Tapered Caplug	39	52649	TO-3 Transistor Socket
11	52694-A	Line Cord Assembly - U.S.A.	40	46497	100 P.R.V. 1 Amp Rectifier
	51251	3 Conductor Cord Set - (German/Belgium)	41	48098	Insulator - Power Transistor
	47833	3 Conductor Cord - England	42	52529	Adjustable Regulator
	47862	3 Conductor Cord - Australia	43	52651	TO-3 Insulating Cover
12	ST-6904	Strain Relief	44	ST-10462	6 x 5/8 Pan Hd. (Type B) Sc.
	49241	Strain Relief - Germany	45	52652	Plastic Lens
13	52447	Socket Mtg. Plate	46	ST-10641	Retaining Ring
14	ST-10568	6 Circ. Universal Socket Housing	47	ST-8266	8-32 x 5/16 Pan Hd. Swageform
15	47827	3 Pole Input Terminal - Germany	48	ST-9263	Retaining Ring
16	19007	Input Terminal Insulator - Germany	49	52658-A	Display Transformer Assy.
17	52668-A	6 Circ. Universal Pin Hsg. Assem.		52474	Display Filament Transformer Only
		U.S.A. - Canada	50	ST-2556	6-32 x 5/16 Hex Flg. Whiz Lock
	52669-A	6 Circ. Universal Pin Hsg. Assem.	51	ST-3453	6-32 Hex Nut
		Germany - Belgium	52	49258	Relay Socket
	52670-A	6 Circ. Universal Pin Hsg. Assem.	53	46769	2 OHM 2 Watt Resistor
		Australia - England	54	47972	200 PRV 1.5 Amp Rectifier
	52671-A	6 Circ. Universal Pin Hsg. Assem.	55	ST-10628	14 Circ. Snap-In Header
		Japan	56	49292	14 Circ. Post Housing
18	52596-A	P.D. Fuse Plate Weld Assembly	57	ST-10296	Cable Fastener
		U.S.A. - Canada - Japan	58	52448	Socket Mtg. Bracket
	52596-GA	P.D. Fuse Plate Weld Assembly	59	ST-8267	8 x 1/4 Hex Flg. Swageform
		Germany-Belgium-England-Australia	60	49257	Relay 3 P.D.T. 24 VDC
19	52449	Front Panel Cover	61	49259	Relay Hold Down Spring
20	ST-10589	3 Circ. Universal Socket Hsg. Wht.	62	52567	Insulator - Regulator Board
21	ST-10500	15 Circ. Universal Socket Hsg. (Wht)	63	52350-A	Regulator P.C. Board Assem.
		U.S.A. - Canada - Japan	64	49447	Fuse Holder - U.S.A.
	ST-10500-6	15 Circ. Universal Socket Hsg. (Blue)		ST-9631	5 Amp 250V Slo-Blo Fuse
		Germany-Belgium-England-Australia		49250	Shock-Safe Fuseholder - Germany
22	52691-A	P.D. Chassis Rivet Assy.		ST-3090	3 Amp 250V Slo-Blo Fuse - Germany
23	ST-9843	Tapered Caplug #5		52023-A	Fuse Holder Assem. - Canada
24	52597-A	P.D. Circuit Breaker Plate Weld Assy.		49687	5 Amp Fusetron GMQ - Canada
25	52792	.93 Amp Circuit Breaker	65	49250	Shock-Safe Fuseholder
26	49260	3 Amp Circuit Breaker		ST-4330	1/4 Amp Slo-Blo Fuse
27	52408	Rectifier Board Insulator		53029 A	Fuseholder Assem. - Canada
28	52355-A	Rectifier P.C. Board Assembly		ST-10695	.25 Amp Slo-Blo GMQ Fuse - Canada
			66	52763	.1 MFD 125 VAC Capacitor

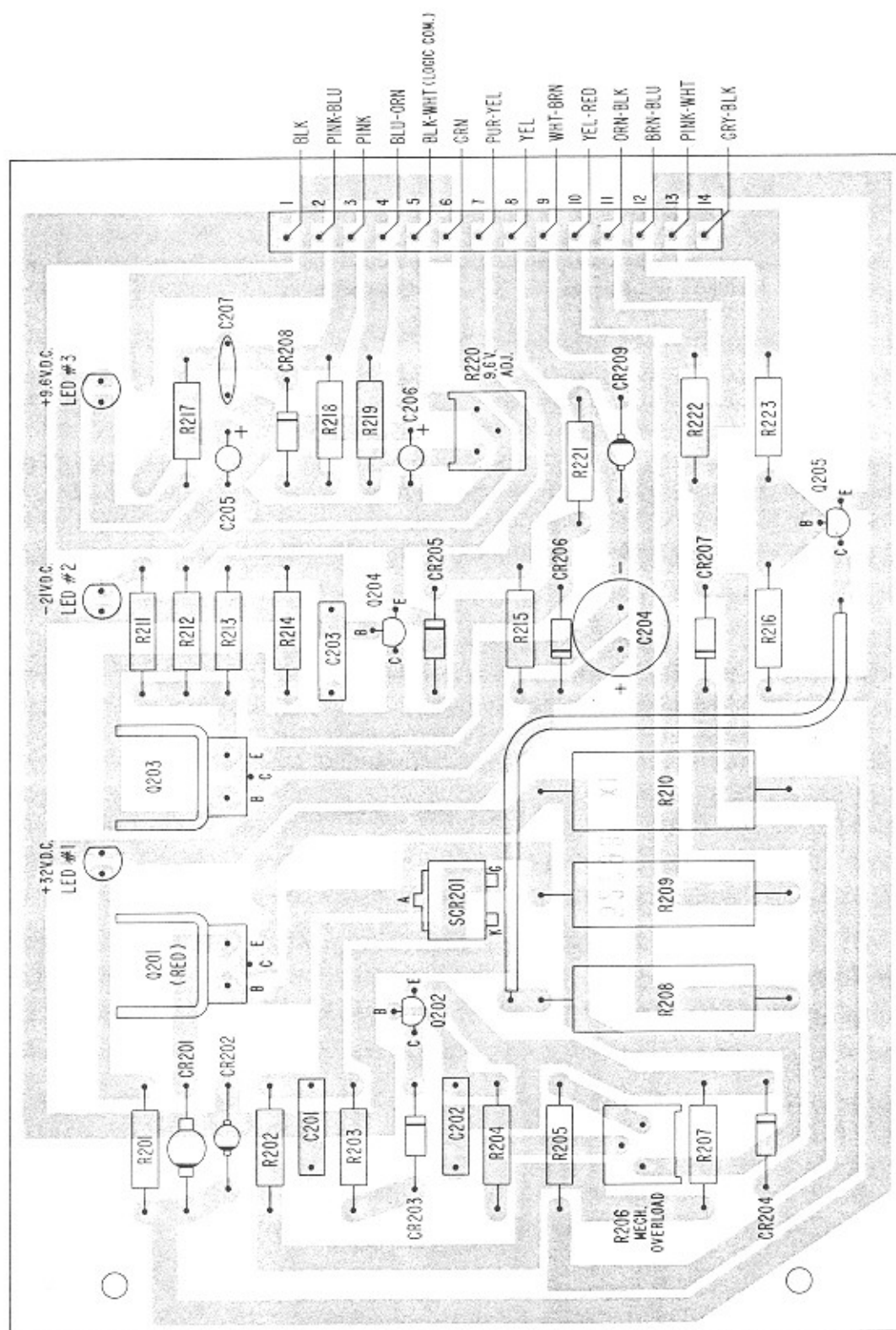


- PI01
- 1.
 2. BLU-WHT
 3. BRN-BLU
 4. PINK-BLU
 5. BLK-WHT
 6. BLK

RECTIFIER BOARD
52355-A

RECTIFIER P.C. BOARD ASSEMBLY NO. 52355-A

Item	Part No.	Description
RESISTORS		
R101 thru R103	51292	4.7K OHM 1/4W 5%
R104	51293	10K OHM 1/4W 5%
R105	35446	1K OHM 1W 5%
CAPACITORS		
C101	52653	2500 MFD +50-10% 35V
C102	45734	1200 MFD +50-10% 50V
C103& C104	52382	.1 MFD 20% 100V
TRANSISTORS		
Q101	48932-2	PWR Tab (PNP) GRN
Q102	48063	Darlington (NPN) 2N5307
DIODES AND RECTIFIERS		
CR101 thru CR104	47972	Rectifier Glass 200 PRV 1.5A
CR105 thru CR108	48214	Rectifier Glass 200 PRV 3A
ZCR101 or CR109	52559	Zener 1W 11V 5% 1N4741A
FUSES		
F101	ST-4332	1 AMP Slo-Blo 250V
F102	ST-9600	2 AMP Slo-Blo 250V
F103	ST-4332 51984	1 AMP Slo-Blo 250V P.C. Fuse Clip
MISCELLANEOUS		
P101	ST-10585 44784-1	6 Ckt. Univ. Pin Header P.C. Pin .093 Dia.



REGULATOR P.C. BOARD ASSEMBLY NO. 52350-A



Item	Part No.	Description	Item	Part No.	Description
RESISTORS					
R201	31373	3.3K OHM 1/2W 10%	Q201	52592	Darlington (NPN) D44E2
R202 &				51631-1	Heat Sink
R203	16224	1K OHM 1/2W 10%		ST-10318	Mach. Screw #4-40 x 5/16
R204	31373	3.3K OHM 1/2W 10%		ST-9430	Washer, Fiber
R205	33472	100 OHM 1/2W 5%		ST-10469	Hex Nut #4-40
R206	52602	Trim Control 100 OHM	Q202	47831	(PNP) MPS-A56
R207	16226	4.7K OHM 1/2W 10%	Q203	52593	Darlington (PNP) TIP 115
R208 &				51631-1	Heat Sink
R209	47059	120 OHM 5W 10%		ST-10318	Mach. Screw #4-40 x 5/16
R210	43517	.56 OHM 5W 5%		ST-9430	Washer, Fiber
R211	18659	1.8K OHM 1/2W 5%		ST-10469	Hex Nut #4-40
R212	53011	15 OHM 1W 10% F P	Q204 &		
R213	16224	1K OHM 1/2W 10%	Q205	47831	(PNP) MPS-A56
R214	30579	15K OHM 1/2W 10%	DIODES AND RECTIFIERS		
R215	13182	2.7K OHM 1/2W 10%	CR201	48214	Rectifier Glass 200 PRV 3A
R216	35331	10K OHM 1/2W 5%	CR202	47972	Rectifier Glass 200 PRV 1.5A
R217	42908	750 OHM 1/2W 5%	CR203	48101	Zener 1W 5.6V 5% 1N4734A
R218	35696	270 OHM 1/2W 5%	CR204	46497	Rectifier 100 PRV 1A 1N4002
R219	46249	1.2K OHM 1/2W 5%	CR205	52601	Zener 1W 4.3V 5% 1N4731A
R220	52603	Trim Control 1K OHM	CR206	52594	Zener 1W 22V 5% 1N4748A
R221	16225	3.9K OHM 1/2W 10%	CR207 &		
R222	31373	3.3K OHM 1/2W 10%	CR208	46497	Rectifier 100 PRV 1A 1N4002
R223	13182	2.7K OHM 1/2W 10%	CR209	47972	Rectifier Glass 200 PRV 1.5A
CAPACITORS					
C201	47422	.047 MFD 20% 250V	SCR201	47433	Silicon Control Rectifier
C202 &			LED #1 thru		
C203	51989	.01 MFD 5% 250V	LED #3	5 2759	High-Intensity LED (Red)
C204	52706	100 MFD +50-10% 50V	MISCELLANEOUS		
C205 &			ST-10629		14 Circuit MODU Receptacle
C206	49146	2.2 MFD 20% 25V			
C207	50104	.0022 MFD 10% 250V			



**STEREO
AMPLIFIER
No. 52280-A**

CHASSIS
RIVET
ASSEMBLY
#52461-A

COVER #45536

J14

LAMP HOLDER #49318
1829 LAMP #ST-10600

J7

P7

C72

C71

P15

J16

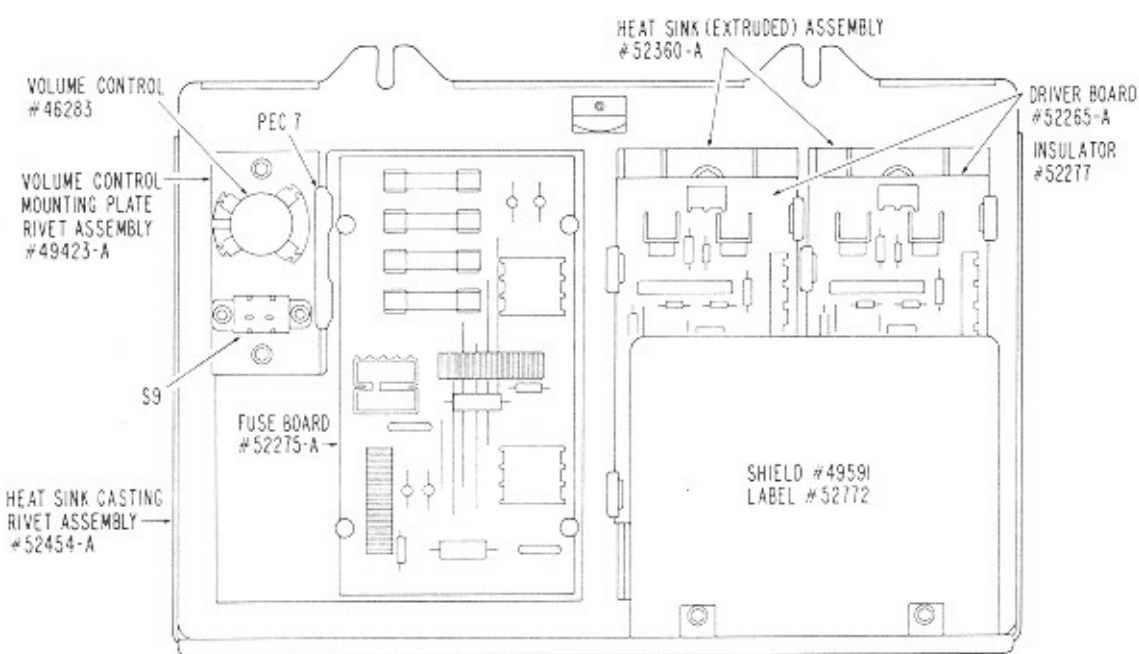
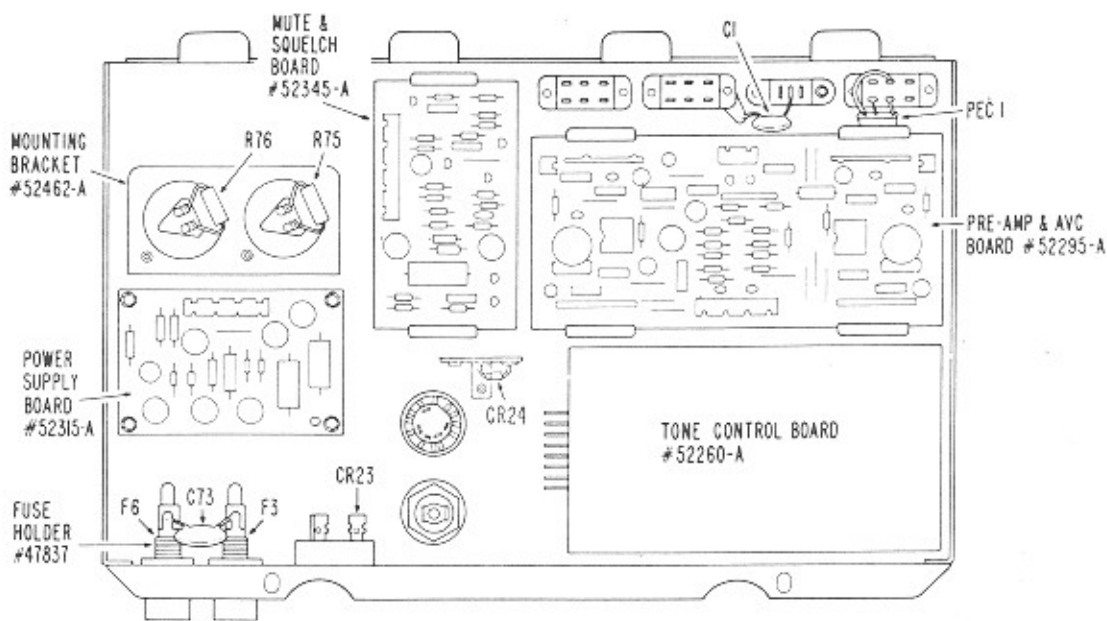
LOCK PLATE #49113

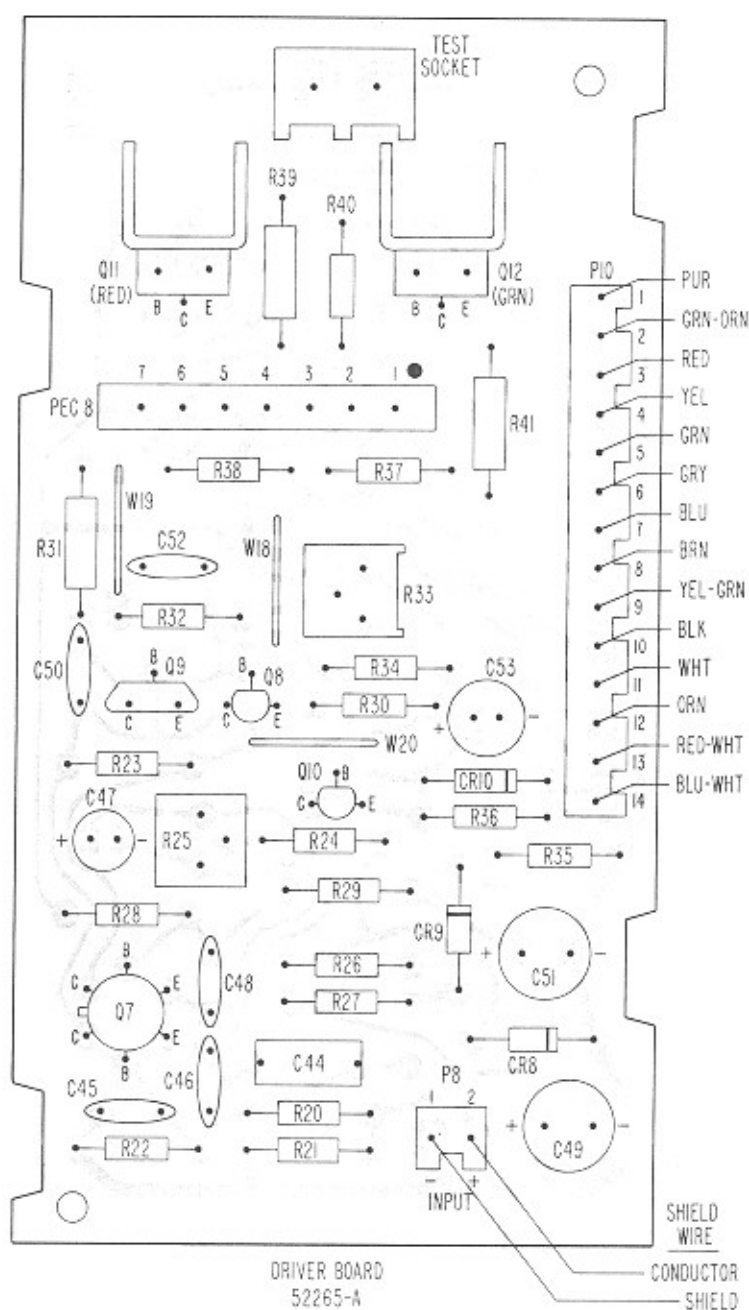
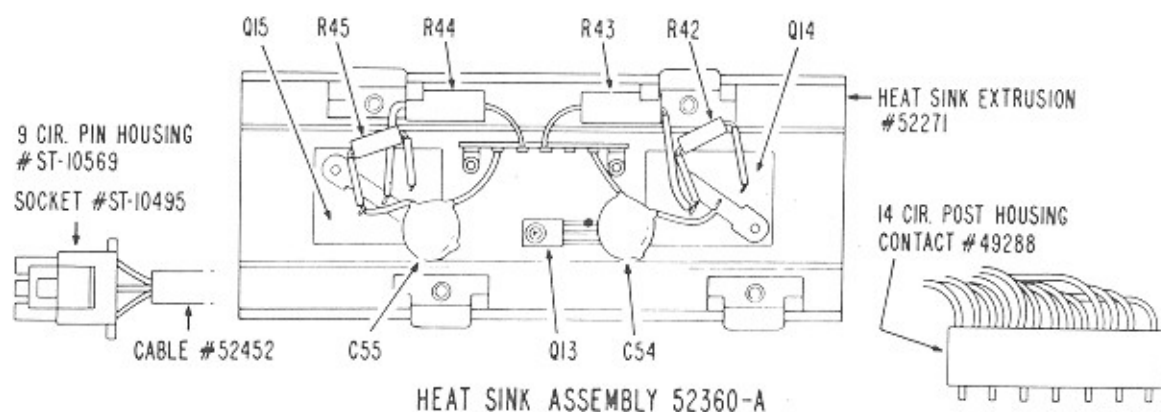
S3

S1

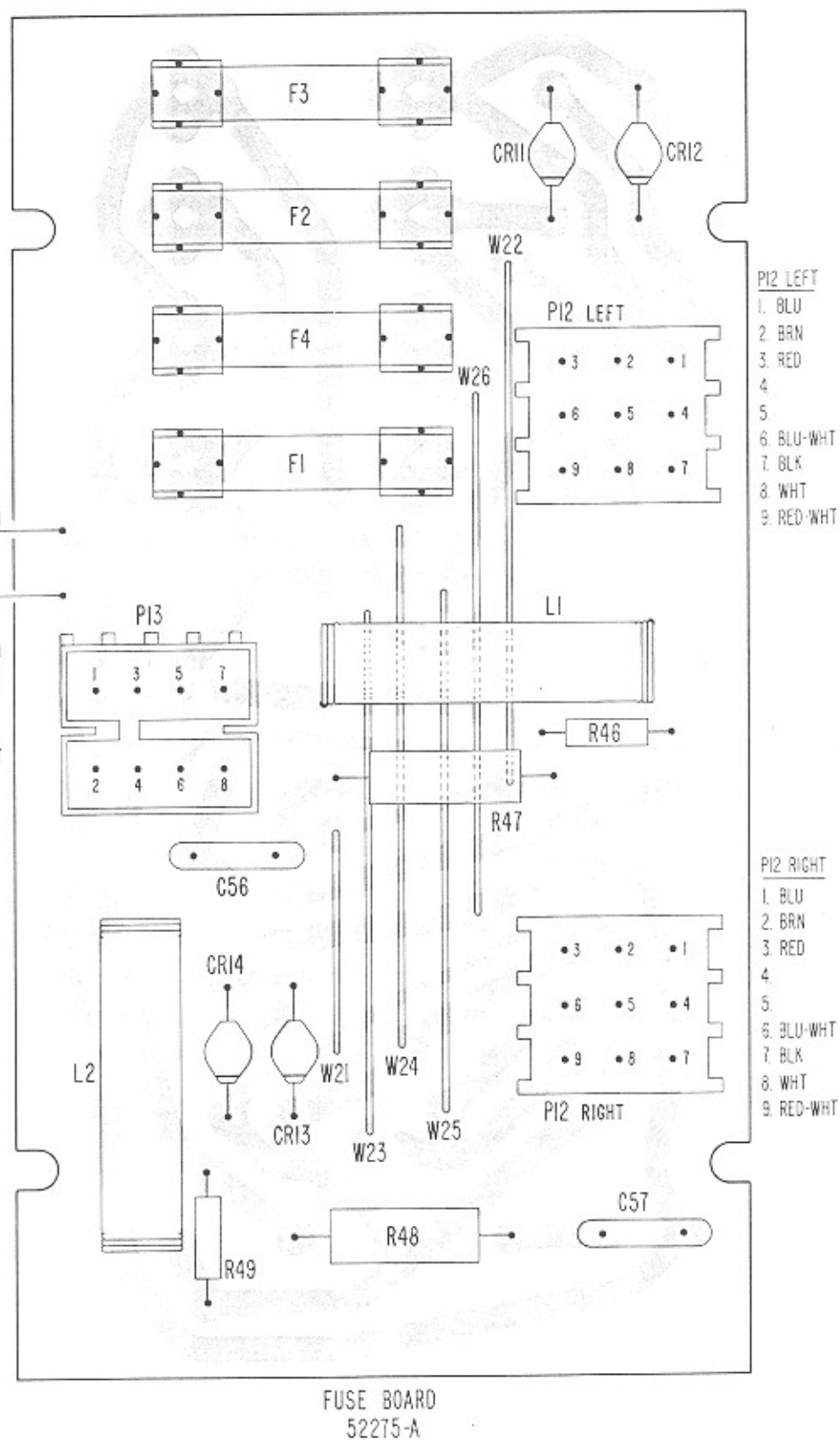
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S2

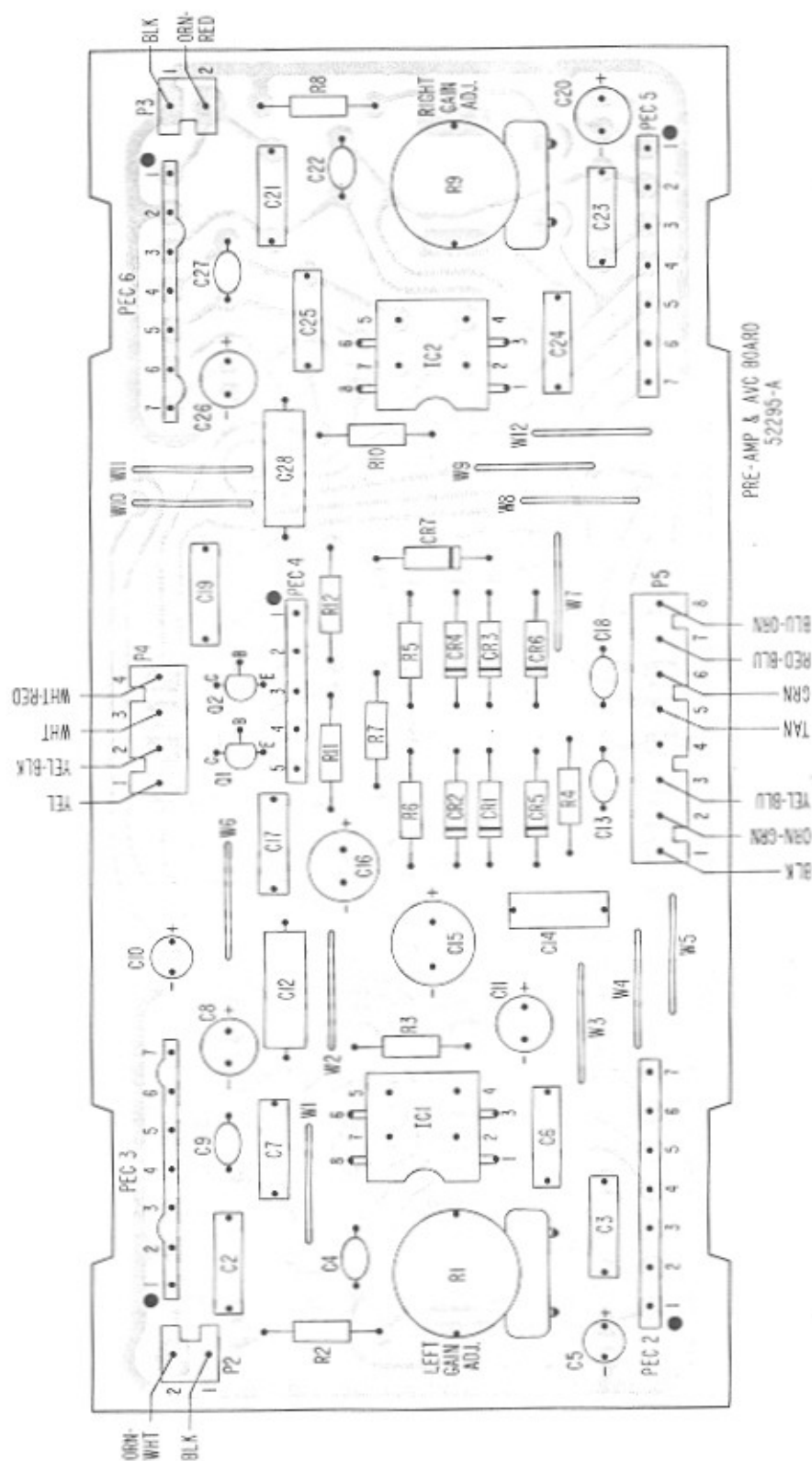




PARTS LIST
PAGES 49 & 50



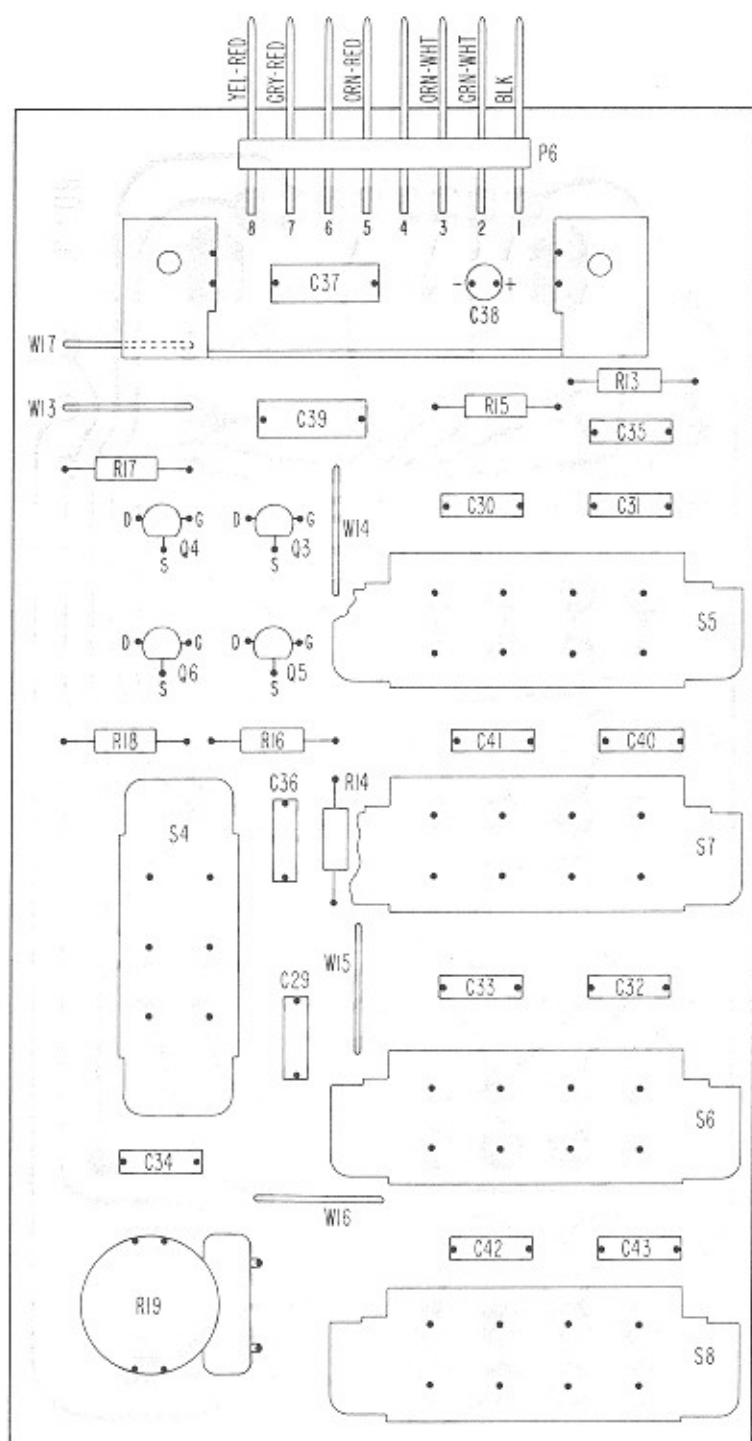
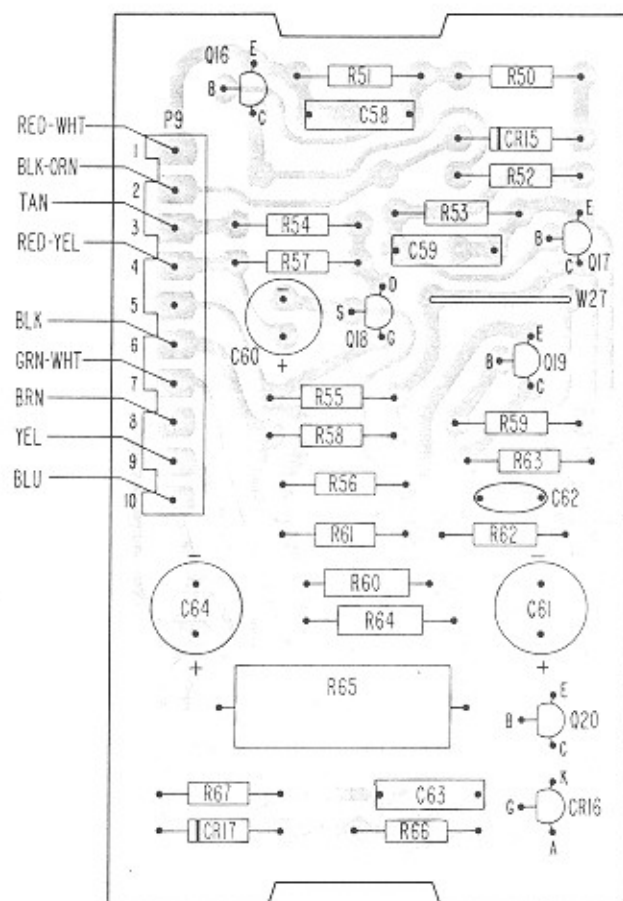
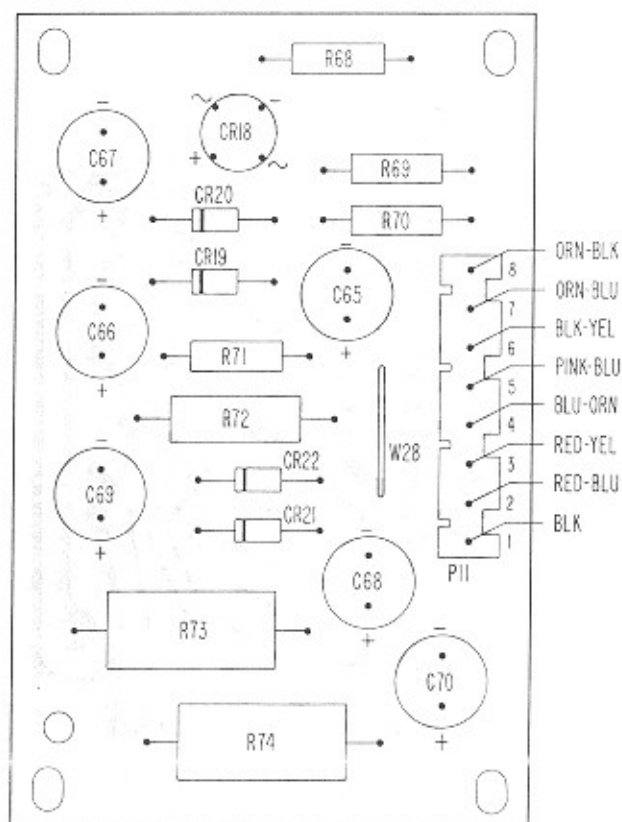
PARTS LIST
PAGES 49 & 50



PARTS LIST-PAGES 49 & 50



PARTS LIST-PAGES 49 & 50

TONE CONTROL BOARD
52260-AMUTE & SQUELCH BOARD
52345-APOWER SUPPLY BOARD
52315-A

AMPLIFIER

Item	Part No.	Description	Item	Part No.	Description
CAPACITORS			C71 & C72	52352	3000 MFD -10 + 100% 50V
C1	52393	.05 MFD 20% 100V	C73	45319	.02 MFD 20% 1000V
C2	48949	.027 MFD 10% 250V	RESISTORS		
C3	48947	.015 MFD 10% 250V	R1	49272	1K OHM Min. P.C. Control - Green
C4	45789	150 MMFD 10% 500V	R2	49264	470 OHM 1/4W 5%
C5	50647	4.7 MFD 20% 35V	R3	50643	300K OHM 1/4W 5%
C6 & C7	47421	.1 MFD 20% 250V	R4	49269	27K OHM 1/4W 5%
C8	50646	10 MFD 20% 25V	R5	49266	560K OHM 1/4W 5%
C9	45789	150 MMFD 10% 500V	R6	48042	2.2K OHM 1/4W 10%
C10 & C11	50647	4.7 MFD 20% 35V	R7	49268	33K OHM 1/4W 5%
C12	48951	.47 MFD 20% 100V	R8	49264	470 OHM 1/4W 5%
C13	33762	470 MMFD 10% 1000V	R9	49272	1K OHM Min. P.C. Control - Green
C14	48941	.22 MFD 20% 100V	R10	50643	300K OHM 1/4W 5%
C15	49271	220 MFD -0 + 100% 10V	R11 & R12	49267	56K OHM 1/4W 5%
C16	50684	22 MFD 20% 35V	R13 & R14	51291	22K OHM 1/4W 5%
C17	47421	.1 MFD 20% 250V	R15 & R16	52358	2.2K OHM 1/4W 5%
C18	33762	470 MMFD 10% 1000V	R17 & R18	51567	3.3K OHM 1/4W 5%
C19	47421	.1 MFD 20% 250V	R19	52366	100K OHM Min. P.C. Control - Blue
C20	50647	4.7 MFD 20% 35V	R20	48042	2.2K OHM 1/4W 10%
C21	48949	.027 MFD 10% 250V	R21	52514	82K OHM 1/4W 10%
C22	45789	150 MMFD 10% 500V	R22	52380	18K OHM 1/4W 5%
C23	48947	.015 MFD 10% 250V	R23	52378	680 OHM 1/4W 5%
C24 & C25	47421	.1 MFD 20% 250V	R24	51568	5.1K OHM 1/4W 5%
C26	50646	10 MFD 20% 25V	R25	52367	50 OHM Trim Control
C27	45789	150 MMFD 10% 500V	R26	48043	4.7K OHM 1/4W 10%
C28	48951	.47 MFD 20% 100V	R27	53007	47 OHM 1W 10% FP
C29 thru			R28	52380	18K OHM 1/4W 5%
C34	48949	.027 MFD 10% 250V	R29	52513	240 OHM 1/4W 5%
C35 & C36	52353	.0047 MFD 10% 250V	R30	52373	10 OHM 1/4W 5%
C37	48951	.47 MFD 20% 100V	R31	53008	100 OHM 1W 5% FP
C38	52359	1 MFD 10% 35V	R32	52379	750 OHM 1/4W 5%
C39	48951	.47 MFD 20% 100V	R33	52368	200 OHM Trim Control
C40	52353	.0047 MFD 10% 250V	R34	52709	360 OHM 1/4W 5%
C41 & C42	52354	.012 MFD 5% 250V	R35	51291	22K OHM 1/4W 5%
C43	52353	.0047 MFD 10% 250V	R36	53039	120 OHM 1W 5% FP
C44	48951	.47 MFD 20% 100V	R37	51571	6.8K OHM 1/4W 5%
C45	33762	470 MMFD 10% 1000V	R38	53008	100 OHM 1W 5% FP
C46	44774	50 MMFD 10% 500V	R39	13182	2.7K OHM 1/2W 10%
C47	50646	10 MFD 20% 25V	R40	53008	100 OHM 1W 5% FP
C48	44774	50 MMFD 10% 500V	R41	13182	2.7K OHM 1/2W 10%
C49	52363	150 MFD 20% 40V	R42	31719	100 OHM 1W 10%
C50	45789	150 MMFD 10% 500V	R43 & R44	52383	0.33 OHM 5W 5%
C51	49278	22 MFD -0 + 100% 75V	R45	31719	100 OHM 1W 10%
C52	52369	.0056 MFD 10% 100V	R46	14234	22 OHM 1/2W 10%
C53	52364	150 MFD 20% 6.3V	R47 & R48	49298	22 OHM 2W 10%
C54 thru			R49	14234	22 OHM 1/2W 10%
C57	52382	.1 MFD 20% 100V	R50	51293	10K OHM 1/4W 5%
C58 & C59	47422	.047 MFD 20% 250V	R51	51564	1K OHM 1/4W 5%
C60	50684	22 MFD 20% 35V	R52	51291	22K OHM 1/4W 5%
C61	52363	150 MFD 20% 40V	R53	51564	1K OHM 1/4W 5%
C62	33762	470 MMFD 10% 1000V	R54	52348	15K OHM 1/4W 5%
C63	47422	.047 MFD 20% 250V	R55	52351	120K OHM 1/4W 5%
C64	52361	47 MFD -10 + 50% 50V	R56	52349	39K OHM 1/4W 5%
C65 & C66	49278	22 MFD -0 + 100% 75V			
C67 thru					
C70	52362	100 MFD -10 + 50% 40V			

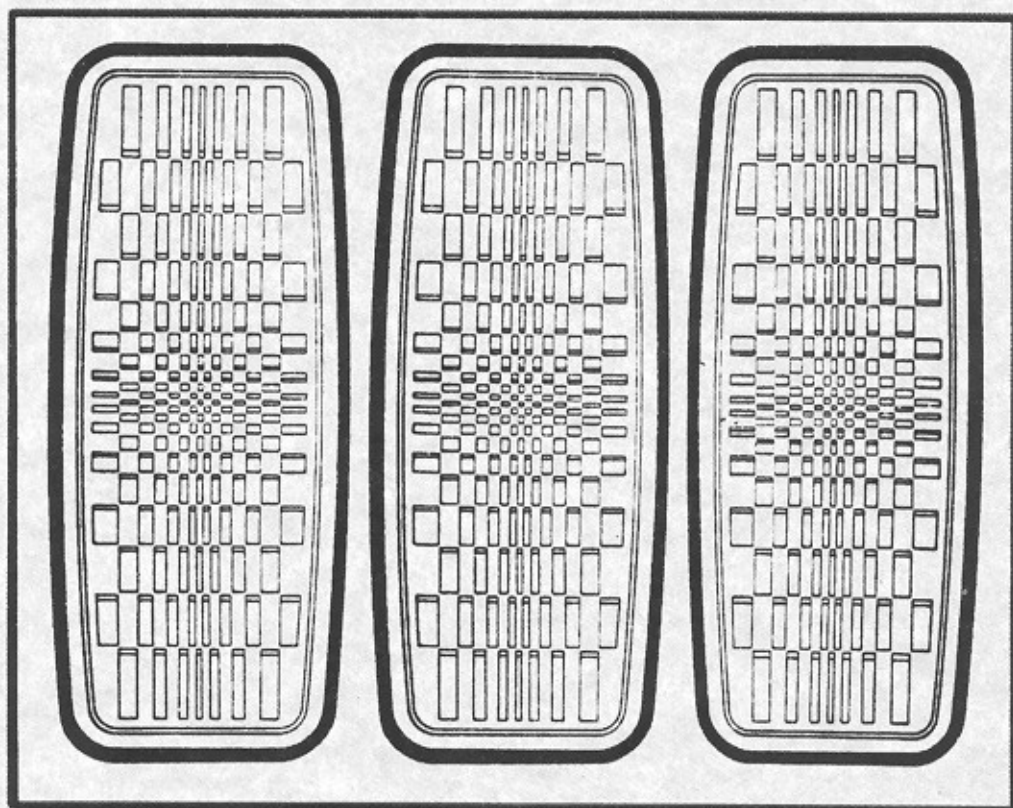


AMPLIFIER

Item	Part No.	Description	Item	Part No.	Description
R57	52347	9.1K OHM 1/4W 5%	CR15	51498	Diode 1N4148
R58 & R59	51293	10K OHM 1/4W 5%	CR16	51297	Rectifier 2N5062
R60	52344	330 OHM 1/4W 5%	CR17	48101	Zener 1W 5.6V 5% 1N4734A
R61	52349	39K OHM 1/4W 5%	CR18	52444	1 Amp Bridge Rectifier
R62	50966	100K OHM 1/4W 5%	CR19 &		
R63	51291	22K OHM 1/4W 5%	CR20	46497	Rectifier 100 PRV 1 Amp 1N4002
R64	18660	3.3K OHM 1/2W 5%	CR21 &		
R65	52343	120 OHM 2W 10%	CR22	46617	Zener 1W 15V 5% 1N4744A
R66	51567	3.3K OHM 1/4W 5%	CR23	52394	Bridge Rectifier 25 Amp
R67	50966	100K OHM 1/4W 5%	CR24	49497	Rectifier 100 PRV 1 Amp 1N4002
R68 thru					
R70	53011	15 OHM 1W 10% F.P	INTEGRATED AND PACKAGED ELECTRICAL CIRCUITS		
R71	13888	10K OHM 1/2W 10%	IC1 & IC2	48934	Dual Integrated Circuit
R72	52988	270 OHM 2W 10%		49273	IC Socket - 8 Pin
R73 & R74	52989	470 OHM 2W 10%	PEC 1	50651	P.E.C. Scratch Filter
R75 & R76	47423	1.5K OHM 1W 10%	PEC 2	50648	P.E.C. Pre-Amp Circuit A
	46283	Volume Control 48K OHM 20%	PEC 3	50649	P.E.C. Pre-Amp Circuit B
TRANSISTORS			PEC 4	48936	P.E.C. AVC Circuit
Q1 & Q2	47831	(PNP) MPS-A56	PEC 5	50648	P.E.C. Pre-Amp Circuit A
Q3 thru			PEC 6	50649	P.E.C. Pre-Amp Circuit B
Q6	52342	N - Channel Junction Fet	PEC 7	44715	P.E.C. Volume Control
Q7	52371	Differential Amplifier	PEC 8	52357	P.E.C. Protection Circuit
Q8	47831	(PNP) MPS-A56	SWITCHES		
Q9	52372	1 Watt (PNP)	S1 thru		
Q10	49415	(NPN) MPS-A06	S3	49302	Slide Switch D.P.D.T.
Q11	48929-2	Power Tab (NPN) Red	S4	49281	PC Slide Switch D.P.D.T.
	51631-1	Heat Sink	S5 thru		
	ST-10318	Screw Mach. #4-40 x 5/16	S8	49280	PC Slide Switch DP3T
	ST-9430	Washer, Fiber	S9	44772	Momentary Push Switch
	ST-10469	Hex Nut #4-40	MISCELLANEOUS		
Q12	48932-2	Power Tab (PNP) Green	F1 thru		
	51631-1	Heat Sink	F4	ST-4333	Fuse 3 Amp 250V Fast Acting
	ST-10318	Screw Mach. #4-40 x 5/16		51984	P.C. Fuse Clip
	ST-9430	Washer, Fiber	F5 & F6	ST-10674	Fuse 5 Amp 125 V Slo-Blo
	ST-10469	Hex Nut #4-40	J1	44927	3 Pin Socket
Q13	52453	25W (NPN) Special	J7	18634	6 Prong Min. Socket
		(Modified Leads - Make from #52397)	J14	V-7013	9 Circuit M-N-L Socket Housing
Q14 & Q15	48931-2	Power (NPN) 2N3055C	J16	ST-10588	4 Circuit Universal M-N-L Socket Hsg.
Q16	47831	(PNP) MPS-A56	L1 & L2	52386	Choke Coil 10 MHY
Q17	49415	(NPN) MPS-A06	P2 & P3	49274	2 Circuit Post Connector
Q18	52342	N - Channel Junction Fet	P4	ST-10574	4 Circuit Post Connector
Q19	47831	(PNP) MPS-A56	P5	49275	8 Circuit Post Connector
Q20	49415	(NPN) MPS-A06	P7	52384	6 Pin Plug & Cable (19")
DIODES AND RECTIFIERS			P8	49274	2 Circuit Post Connector
CR1 thru			P9	49276	10 Circuit Post Connector
CR4	49141	A.V.C. Diode	P10	ST-10577	14 Circuit Post Connector
CR5 & CR6	49140	Reference Diode	P11	49275	8 Circuit Post Connector
CR7	46497	Rectifier 100 PRV 1 Amp 1N4002	P12 LEFT &		
CR8	51982	Zener 1W 10V 5% 1N4740A	RIGHT	ST-10584	9 Circuit Universal Pin Header
CR9	46497	Rectifier 100 PRV 1 Amp 1N4002	P13	ST-10576	8 Circuit M-N-L P.C. Board Header
CR10	49140	Reference Diode	P15	ST-10568	6 Circuit Universal M-N-L Socket Hsg.
CR11 thru					
CR14	47972	Rectifier Glass 200 PRV 1.5A			

ROCK-OLA

max



Model 477 Phonograph
160 Selections

SERVICE MANUAL

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