It thrives on a steady diet of greenbacks, to make your business healthier.

The Rowe Sapphire 91 accepts with equal ease both one-dollar and five-dollar bills.

Since the bill acceptor is every bit as reliable as the phono itself, the R-91 happily swallows 98% of what it's offered – wrinkled, wilted, worn, soiled or whatever.

(That's the *first* time. The second time, it takes in the other 2 per cent!)

This gives you the opportunity to almost double your take at each location, simply by going from two plays for a quarter to five for a dollar.

You can program the 91 for virtually any pricing, credit, or bonus mode. Naturally, it comes with the standard Rowe warranties (five years on the mechanics, two years on the electronics). And the old Rowes you're probably taking out have the strongest resale value in the industry.

The Rowe Sapphire 91 has 200 songs for your location. And one for you: "I'm in the money."

ROWE® R-91.

No horizontal surfaces! Avoids problems of spilled drinks.

Bill acceptor for $1 and $5 bills.


Exciting lighting that can dance to the beat of the music.

FEATURES:

- New design with no horizontal surfaces prevents customers from placing food or drinks on phono
- Redesigned digital display shows Record Playing, Your Selection, Credit Remaining
- Powerful 130-watt amplifier produces honest watts RMS power measured per FTC test procedures
- Redesigned magazine mech is extra gentle with records
- Exciting, brightly colored, rear-lighted graphics and flashing lights pulse in time with the music
- Four-position switch controls lights: Off, Flash, On, Continuous On
- Easy-to-read number strips, title rack and backlit price card. Raised title rack for easier viewing
- *Handsome black vinyl sides, blue doors and silver anodized extrusions*
- Upper and lower doors of structural foam-molded polystyrene plastic
- All heat-producing components except mechanism and lamps enclosed in amplifier chamber
- Sophisticated Central Control Computer provides the ultimate operator control. Lets you program phono to suit location and maximize return
- FIFO mode allows selections to be played in order selected. Standard Mode plays selections in order stored
- Bill acceptor allows phono to take $1 and $5 bills
- Mike input for three adjustable paging modes
- All-front servicing and maintenance. Doors open forward. Lower door easy to remove
- Improved corrosion protection to all parts ensures long, trouble-free service
- Built-in trouble-shooting system and LED readouts provide easy diagnosis
- Complete Service Manual includes schematics of all modules
- 5-year warranty; 2-year electronics warranty; lubrication free

SPECIFICATIONS:

Amplifier
Frequency Response . . . 20-20,000 Hz at minus 3 db
Dimensions: Height . . . . 54.0 inches (137.2 cm)
Width. . . . . 41.5 inches (105.4 cm)
Depth. . . . . 26.5 inches (67.3 cm)
Net Weight . . . . . 348 lbs. (est) (158 kg)
Electrical . . . . . 120 VAC 60 Hz 360 Watts 3.7 Amps
220 VAC 50 Hz 400 Watts 2.6 Amps

OPTIONAL EQUIPMENT:

WRF Solid State Wall Box	Extension Speakers	Choice of Coin Acceptors
Remote Volume Control and Cancel Assembly	Remote On-Off Switch and Volume Control	Automatic Bill Stacker
Remote Volume and Cancel Control Cable	Amplifier Accessory Board Assembly	Power Supply for WRA, WRC, WRD & WRE

ROWE®

Rowe International Inc.
75 Troy Hills Road, Whippany, NJ 07981
(201) 887-0400

Specifications subject to change

Printed in U.S.A. 900-85241

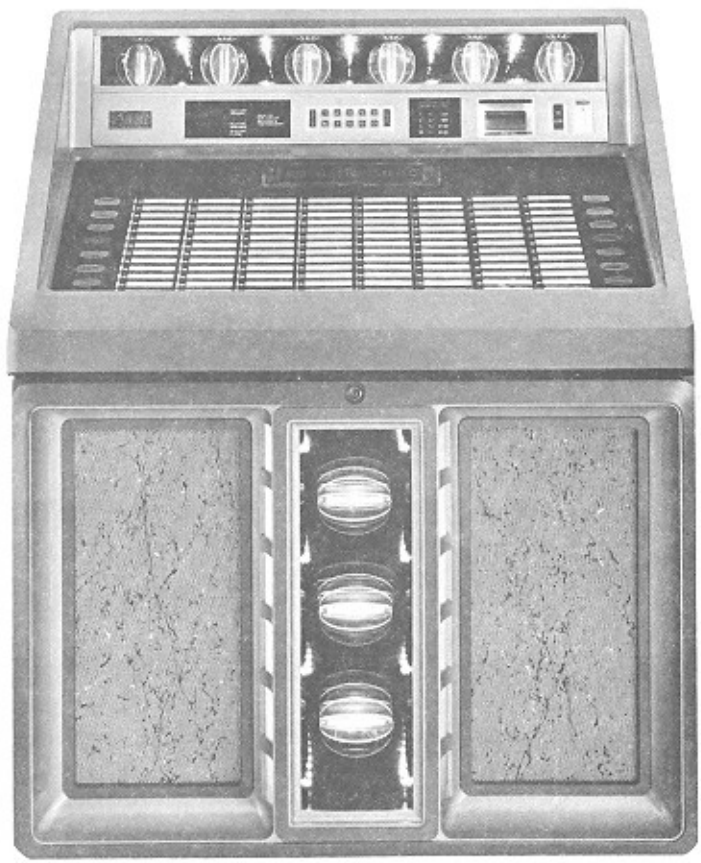
ROWE®

R-91 Phonograph

Field Service Manual and Parts Catalog

PART NO. 21822609
FIRST EDITION
FIRST PRINTING

R-91 Phonograph



Part No. 21822609
First Edition
First Printing September 1986

ROWE
ROWE INTERNATIONAL INC
1500 UNION AVE., S.E., GRAND RAPIDS, MI 49507
(616) 243-3633
PRINTED IN USA

warranty

Rowe extends to the original operator of this equipment the following warranty:

All parts are guaranteed to be free of defects in material and workmanship for the specific periods which follow. Rowe agrees to repair without charge during such period any part which proves defective upon examination by Rowe. All costs of shipping an allegedly defective part to or from Rowe's offices shall be borne by the original operator.

Mechanical Moving Parts	5 years
Electrical and Electronic Parts	2 years
Lamps and Styli	90 days

In the case of parts supplied to Rowe as components, Rowe extends the same warranty period as extended by the original manufacturer.

The above warranty applies provided that all parts of the machine have been serviced properly as directed in the service manual, and provided the alleged defective part, upon examination by Rowe, shall prove to be thus defective.

This warranty will not apply to any machine or any part which has been subjected to any accident, abuse, or misuse.

ROWE INTERNATIONAL, INC. EXTENDS NO WARRANTY, EXPRESSED OR IMPLIED, TO PURCHASERS OR USERS OF ITS PRODUCTS EXCEPT AS HEREIN SET FORTH, WHETHER BY OPERATION OF LAW OR OTHERWISE.

8-76

WARNING

This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instructions manual, may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference in which case the user at his own expense will be required to take whatever measures may be required to correct the interference.

Preface

Please take time to read this page and review the Table of Contents so that you will easily be able to find the R-91 Phonograph information in this manual.

This service manual is divided into seven sections. These sections are:

- **Section 1** Contains a general introduction to the R-91 system and its major components.
- **Section 2** Contains unpacking instructions, a programming guide, and step-by-step programming and pricing instructions.
- **Section 3** Provides routine maintenance, preventive maintenance, lubrication schedules, adjustments, and replacement procedures.
- **Section 4** Contains a general and detailed description of the R-91 Bill Acceptor (OBA-P).
- **Section 5** Contains troubleshooting aids for all R-91 modules other than the OBA-P.
- **Section 6** Contains specifications and reference material.
- **Section 7** Contains a complete list of replacement parts, except for the electronic components, which are listed on wiring diagrams and schematics. Section 7 also contains an accessory equipment list.

This manual is intended for owners and route operators, as a primary source for maintenance information. For more detailed information on repairing electronic circuit boards and components, please order the publication **Operation Sequence And Schematics (Part Number 3-65355-12)**, which is to be used by trained electronics technicians using electronic test equipment.

TABLE OF CONTENTS

TABLE OF CONTENTS
(Continued)

TABLE OF CONTENTS
(Continued)

TABLE OF CONTENTS
(Continued)

SECTION 4 OBA-P MAINTENANCE AND TROUBLESHOOTING

TABLE OF CONTENTS
(Continued)

List of Figures

List of Figures
(Continued)

List of Tables

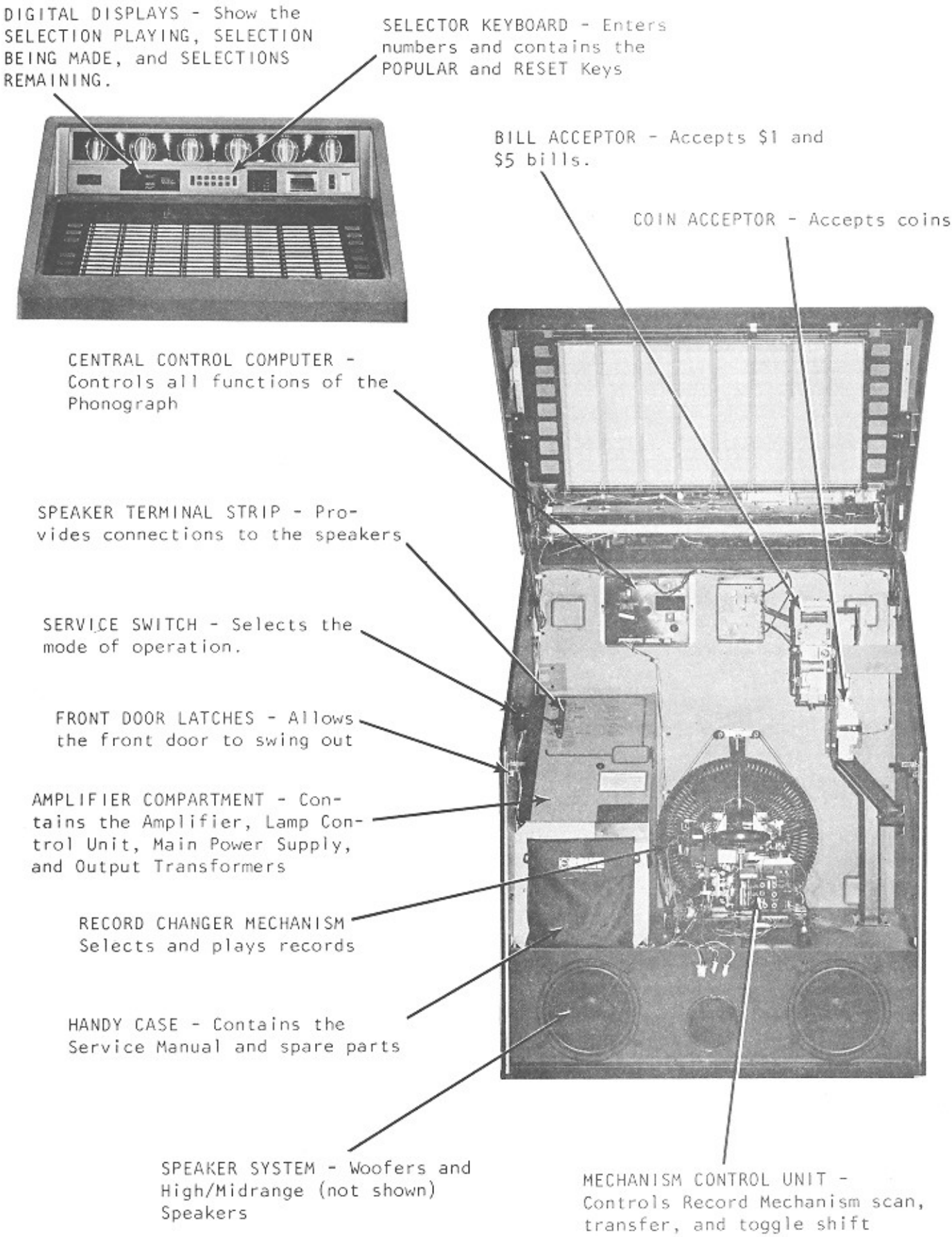


Figure 1-1. R-91 Major Components

SECTION 1 SYSTEM DESCRIPTION

INTRODUCTION

The Rowe R-91 is a 200 selection stereo phonograph. The R-91 is 100% microprocessor controlled.

MAJOR COMPONENTS

Figure 1-1 shows the major R-91 Phonograph components. Take a minute to familiarize yourself with these components.

Table 7-1 lists the accessories that you may have in addition to the standard phonograph.

Record Selection System

Record selections are made by entering the three digit selection number on the selector keyboard (keyboard). See Figure 1-2, which follows.

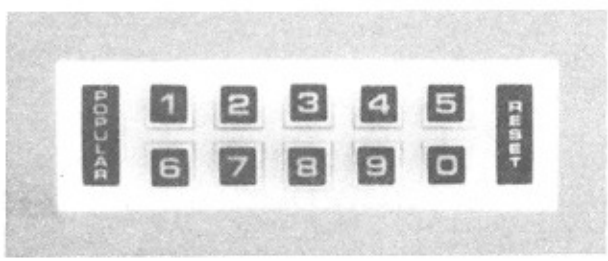


Figure 1-2. Keyboard

The keyboard consists of 12 keys, ten digit keys (0-9), and two special keys. The RESET key allows the customer to re-enter his selection, if he has changed his mind or made a mistake. The POPULAR key selects the most played selection since the phonograph was last serviced. Pressing the POPULAR key a second time will select the second most popular selection. Pressing the POPULAR key a third time will select the third most popular selection and so on.

Central Control Computer

The central control computer (CCC) keeps track of all of the phonograph's activities and determines what the various components are to do next. The CCC regulates the following functions:

- Counting money that has been collected
- Keeping credits for selections not yet played
- Calculating the most popular selection list
- Remembering the operator's programed values

Memorec

Memorec is the part of the CCC that remembers the:

- Total selections made (not including the Autoplay selections)
- Number of times each selection was played
- The total amount of money deposited in the phonograph

Memorec adds selections made by the POPULAR key to the total selections count, but not to the individual selection count.

Autoplay

When no selections have been made for a predetermined time, the Autoplay feature will play selections from a programmed list. The choice of which selections are chosen, the selection sequence, and the selection interval can be programmed by the owner or service person.

Light Display

The lamp control unit is located on the left side of the amplifier compartment. This unit controls both the top and the front door light displays. A four-position switch (located on the lamp control unit) selects the operating mode. The switch positions are:

- Continuous - Lights are always on (do not flash).
- Light - Lights are all on (do not flash) during mute and flash with music.
- Continuous Flash - Lights flash in a set pattern during mute and flash with music.
- Flash Off - Lights are all off during mute and flash with music.

Light Display Brightness

The upper and/or lower light display brightness can be set to either to NORMAL or DIM. See Section 6, **Light Display Brightness** for details.

PRINCIPLES OF OPERATION

Audio System

The audio system consists of the electronic components that transform the recorded sound into music. The major components of the audio system are the:

- Stylus and cartridge
- Stereo amplifier
- Output transformers
- Speaker system

Stylus and Cartridge

These two components translate the grooves in the records into a left and right channel signal.

Stereo Amplifier

The amplifier assembly (Figure 1-3) contains two major sections, the preamplifier (preamp) and the power amplifier (amp).

Preamp

The preamp increases the signal from the cartridge, corrects for varying recording levels (automatic volume control or AVC), adjusts the volume manually, and modifies the record tone (through the BASS and TREBLE controls).

SECTION 1
SYSTEM DESCRIPTION

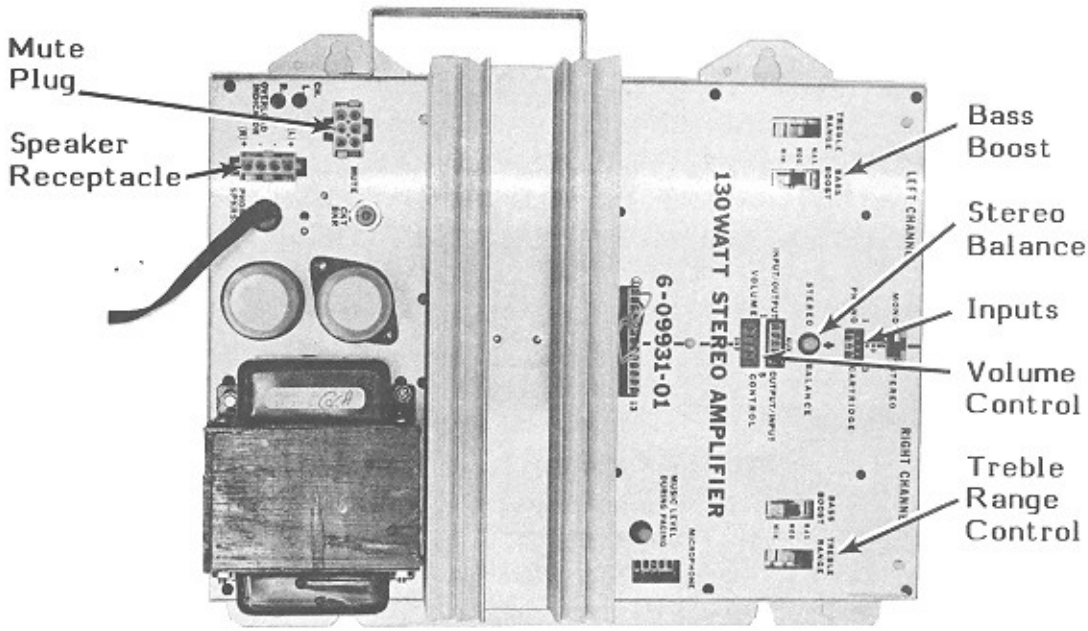


Figure 1-3. 130 Watt Stereo Amplifier Components

Two-Wire Volume Control

A Rowe innovation, the two-wire volume control simplifies complex installations and reduces cost. A special preamplifier design permits volume control wiring using any unshielded two-wire cable.

Power Amplifier

The power amplifier converts the preamp signal to a signal that can be used by the phonograph speakers.

Output Transformers

The output transformers (Figure 1-4) "step up" the power amplifier's output voltage so that remote speakers may be used efficiently. The output transformers, also, provide connections (taps) for selecting different power levels and impedances (loads) for the speakers.

The Speaker System

The speaker system consists of two specially designed speaker systems. Each channel consists of one 10-inch woofer and one 5-inch mid/high range speaker and a series crossover network.

Record Changer Mechanism

The record changer mechanism, also referred to as "the mechanism or mech.", is located in the center of the cabinet's interior. It is the primary mechanical component of the phonograph. The mechanism holds 100 records and plays selections on command from the selection system (Refer to Figure 1-5 for the location of each of the magazine components.).

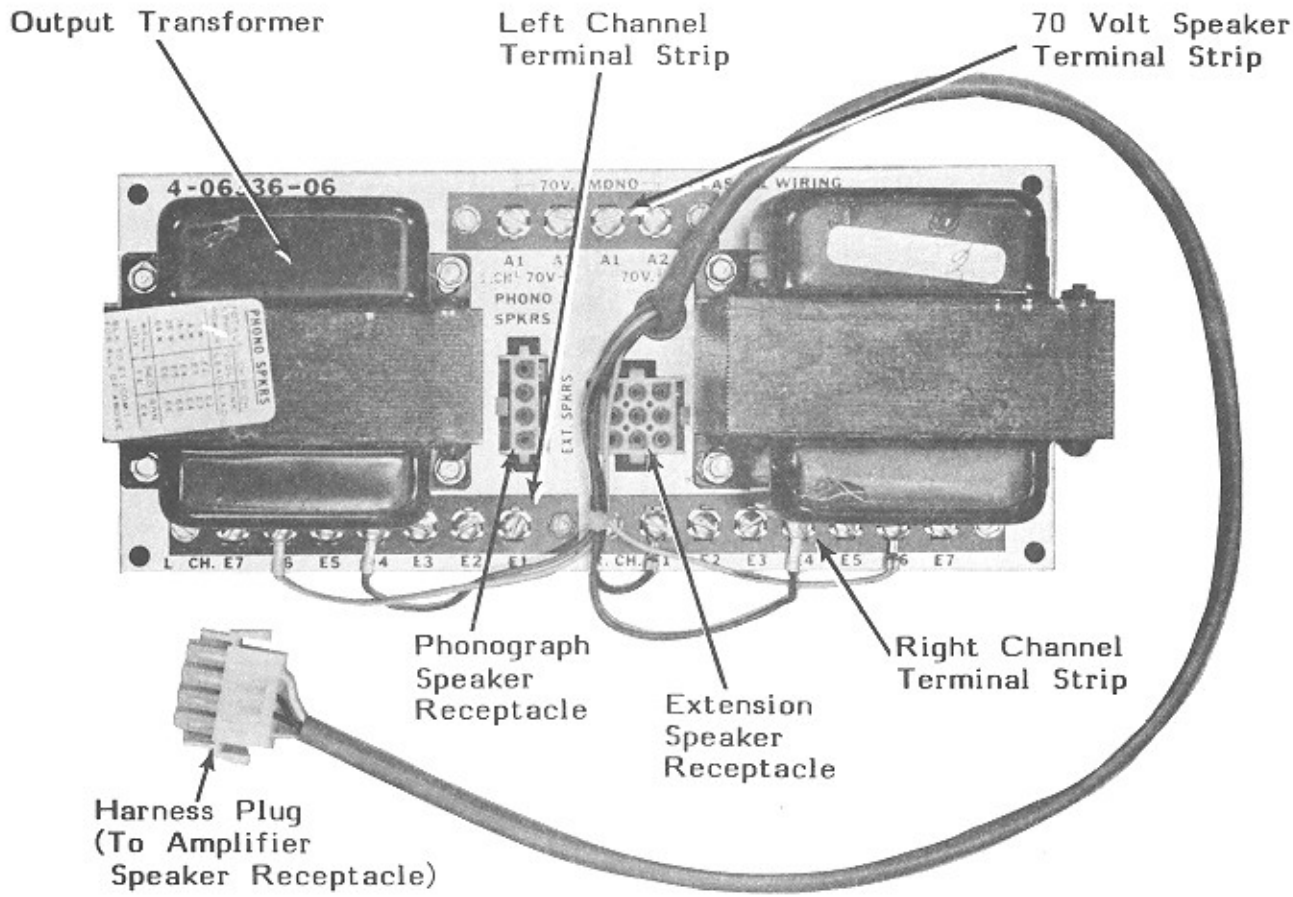


Figure 1-4. Output Transformer Package Components

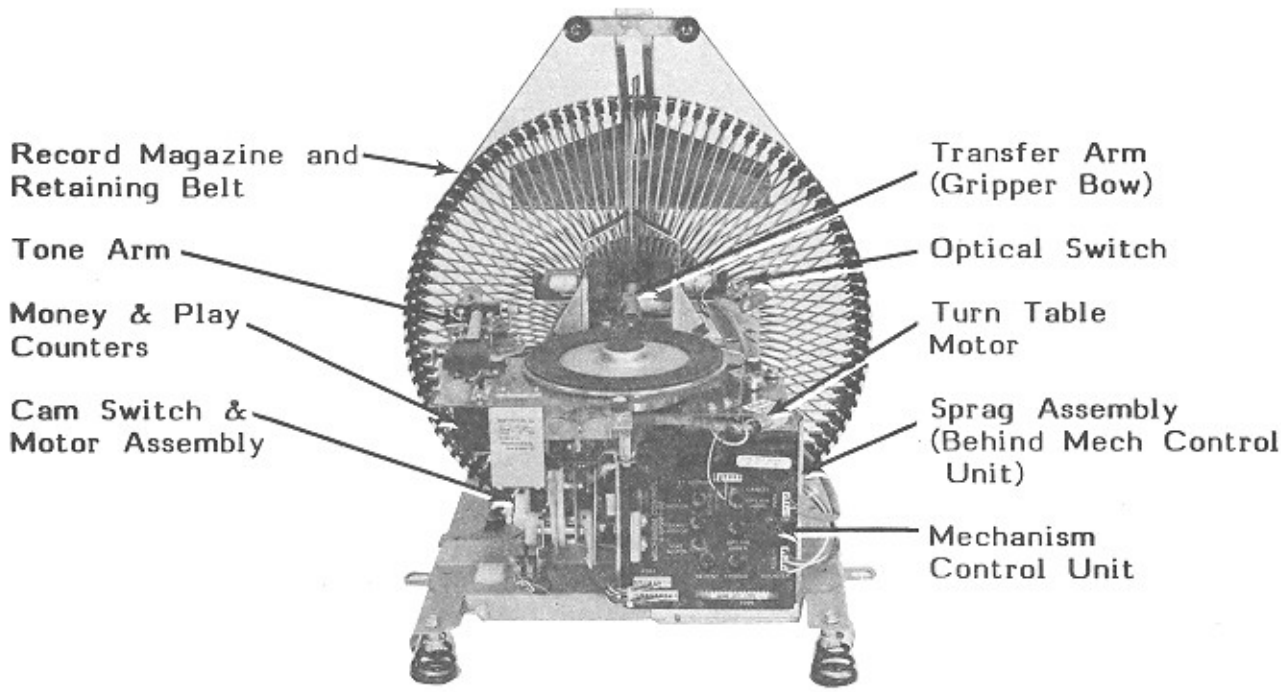


Figure 1-5. Record Changer Mechanism

Magazine

The record magazine stores 100 7-inch 45 RPM records in a circular cage.

Play Counter

The play counter accumulates the total number of plays on the phonograph.

Money Counter

The money counter registers the total money deposited in the phonograph.

Optical Switch

The optical switch senses the record magazine position so that the CCC can determine which record is in gripping position.

Cam Switch And Motor Assembly

The cam switch and motor assembly (See Figure 1-6.) consists of the transfer motor, cam, and two cam switches.

Mechanism Control Unit

This solid state switching unit controls the scan, transfer and toggle shift.

Sprag Assembly

This assembly locks the record magazine in position.

Tone Arm Assembly

The tone arm assembly plays records after they are positioned on the turntable by the record transfer arm.

Turntable Motor

The turntable motor is a constant speed 300 RPM (at 60 Hz.) synchronous motor.

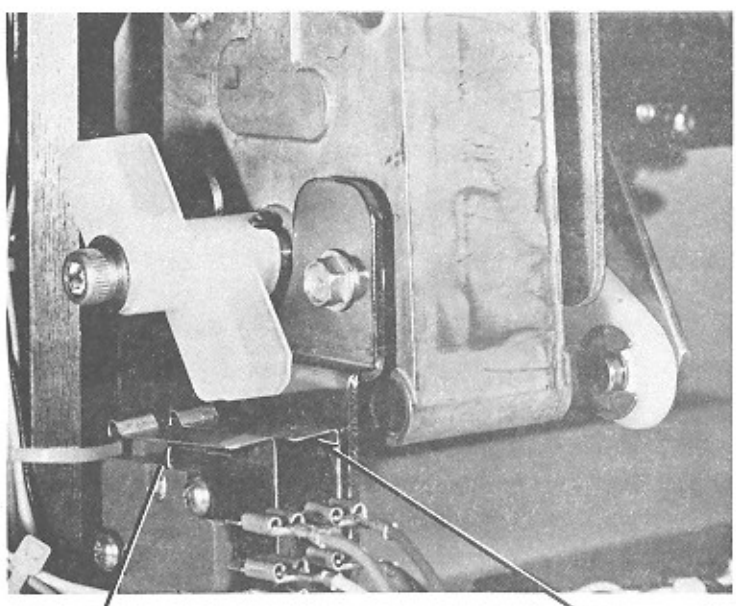


Figure 1-6. Cam Switch and Motor Assembly

Main Power Supply

The main power supply (See Figure 1-7.), located inside the amplifier compartment, distributes unregulated +28 VDC, 28 VAC, and regulated +8 VDC to the phonograph. The 120 VAC line voltage to the main power supply is controlled by the power switch on the rear of the phonograph cabinet.

> CAUTION:
>
> The 120 VAC AMPLIFIER OUTLET on the main power supply does not shut off.

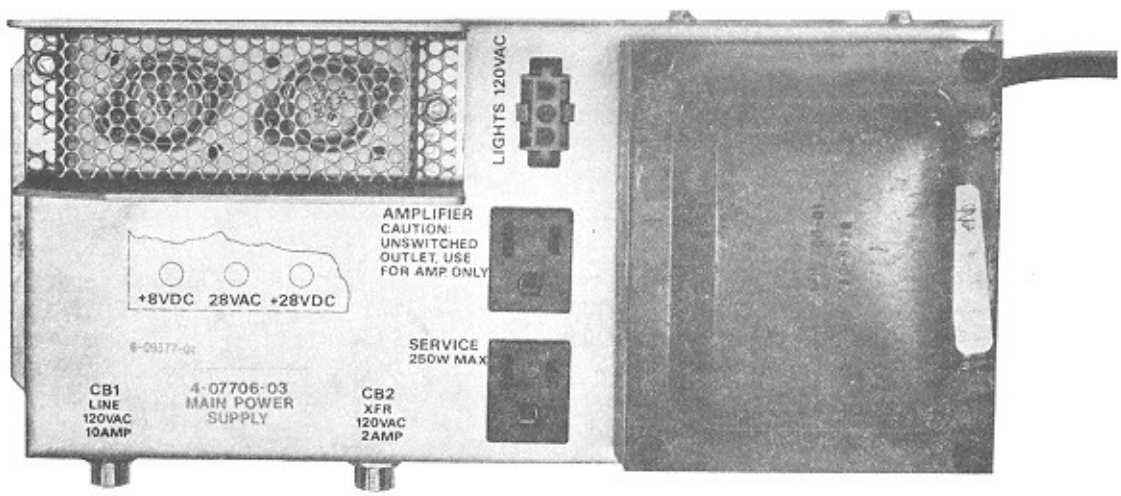


Figure 1-7. Main Power Supply

SECTION 2 INSTALLATION AND PROGRAMMING

INTRODUCTION

This section contains information for unpacking the R-91 and installing it on location. The phonograph is shipped with all major components in place. Save all tie-down hardware in case the R-91 must be moved to another location.

HANDY CASE

The Handy Case is a blue plastic envelope located on the left hand side of the phonograph. The Handy Case contains a variety of items, including the phonograph service manual and parts catalog, spare parts, and fuses. Keep the Handy Case inside the phonograph so that the service manual and parts will be readily available when needed.

WARRANTY REGISTRATION CARD

A postage-paid Warranty Registration Card is included with the phonograph. This card should be returned to Rowe to register the phonograph for warranty.

UNPACKING INSTRUCTIONS

Exterior

1. Carefully inspect the interior and exterior of the phonograph to ensure that no damage occurred during transit. If damage is detected, the carrier who delivered the phonograph should be contacted immediately to examine it. Regardless of the exterior condition of the shipping cartons, the carrier should be called and notified of damage.

   Do not destroy the packing material or boxes until the carrier's agent has examined them. Damage claims are your responsibility. Do not return shipping damaged merchandise until after your claim has been established. Once your claim has been established, merchandise may be returned to your Rowe distributor for repair. The invoice amount for repair charges can then be collected from the carrier.

2. Remove the shipping carton with care: Do not use shipping hooks or sharp tools that could damage the phonograph cabinet.

3. Remove the plastic bag that covers the phonograph.

Doors

1. Locate the red bag on the top door. Remove the door key from the bag and unlock the top door (Turn the key to the right.).

2. Open the front door by pressing down on both front door latches (See Figure 1-1.).

Shipping Bolts And Clips

NOTE:

Save all shipping hardware that you remove in the following six steps.

1. Remove the record changer mechanism shipping bolt from the back of the phonograph cabinet (See Figure 2-1.).

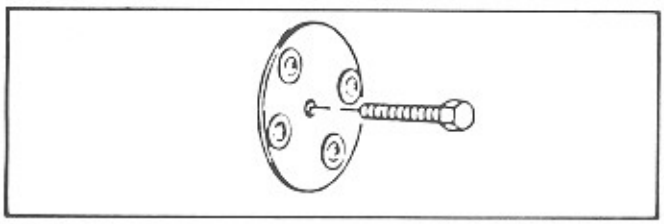


Figure 2-1. Shipping Bolt Removal

2. Rotate the record changer tie-down brackets away from the mechanism support frame as shown in Figure 2-2. Lift up the brackets and remove them.

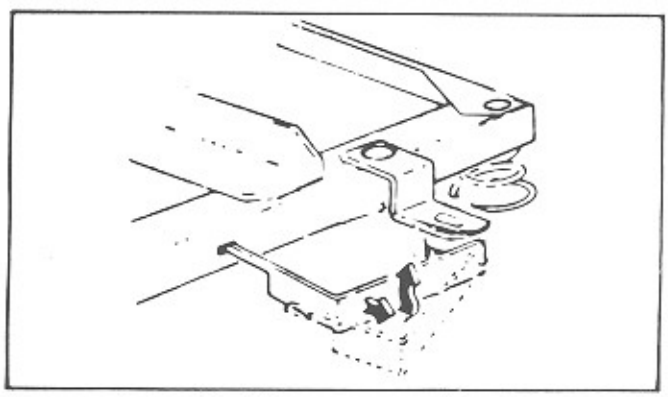


Figure 2-2. Record Changer Tie-Down Brackets

3. Remove the turntable hold-down clip and screw Replace the screw (See Figure 2-3.).

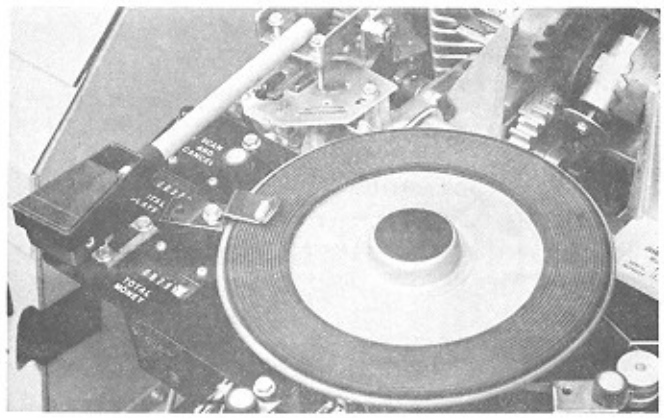


Figure 2-3. Turntable Hold-Down Clip

4. Remove the stylus cover from the cartridge and stylus.

5. Remove the rubber band, wire hook, and warning tag that hold the sprag lever out of the sprag wheel.

6. Remove all tape from the magazine belt and magazine pulley.

Visual Inspection

Check to be sure that all electrical plugs are completely seated into their receptacles.

Phonograph Leveling

To ensure proper coin acceptor operation, level the phonograph cabinet from left-to-right and front-to-back by inserting spacers under the caster wheels.

Records and Title Strips

Follow the instructions for **Changing Records** and **Changing Title Strips** in Section 3.

LIGHT DISPLAY BRIGHTNESS

The upper and lower light displays' brightness can be changed to either NORMAL or DIM. NORMAL or DIM lighting is determined by the position of the Black wire in P1 and P2 of the Lamp Control Assembly (Part Number 40750103).

Top Door Display

To change the Top Door Display lighting:

1. Unplug both P1 and P1 from the lamp control assembly.
2. Trace the wires from one of the plugs. The wires that travel up the wiring harness lead to the top door display.
3. Move the Black wire on the plug (identified in Step 2) to Pin 6 for NORMAL display brightness and to Pin 5 for DIM display brightness.
4. Plug P1 and P2 into the lamp control assembly (either plug can go into either socket).
5. Check that the top door display lights are working properly.

Front Door Display

To change the front door display lighting:

1. Unplug both P1 and P1 from the lamp control assembly.
2. Trace the wires from one of the plugs. The wires that travel down the wiring harness lead to the front door display.
3. Move the Black wire on the plug (identified in Step 2) to Pin 6 for NORMAL display brightness and to Pin 5 for DIM display brightness.
4. Plug P1 and P2 into the lamp control assembly (either plug can go into either socket).
5. Check that the font door display lights are working properly.

You have now completed the phonograph installation.

PROGRAMMING THE CREDIT AND SELECTION SYSTEM

The Programming Mode

The PROGRAMMING mode is used to examine and change the contents of specific locations in the computer's memory. Two methods for moving through the PROGRAMMING mode:

1. Move through the memory locations sequentially (Used to examine all the locations and change them as needed).
2. Move to specific memory locations (Used for quick access to only those locations that need examination or changing). You can exit the PROGRAMMING mode at any point in the procedure.

> **Note:**
>
> **The POPULAR key must be pressed to record change in a location. Pressing the POPULAR key causes the Computer to automatically index to the next location and display its contents. Accessing Location 99 will exit the PROGRAMMING mode.**

To Enter The Programming Mode:

1. Place the phonograph in the SERVICE mode by setting the SERVICE switch to the SERVICE position (See Figure 1-1.).

2. Hold down the POPULAR key while typing the built-in security code 000. Release the POPULAR key (The security code should be changed to a number of your choosing. Instructions follow:

   A. Press and hold the RESET key until the prompt ($\equiv$) appears.

   B. Enter 58.

   C. Enter the new three digit security code (Be sure to write your new security code in your notebook or other safe place.).

   D. Press the POPULAR key.

NOTE:

If you do not press the POPULAR key, the new security code will not go into effect.

To Correct Errors:

1. To correct errors made while entering data into memory locations, press the RESET key and put in the correct data.

2. If an error has been made and the display has moved to the next memory location, simply go back to the location where the error was made and change the contents. Do this by pressing the RESET key and holding it until only the prompt appears, then enter the number of the location that needs to be corrected.

To Exit Programming Mode:

Press the RESET key and hold it until only the prompt appears. Enter 99 (Enter 99999 to return to OPERATING mode.).

Pricing

The prices charged for record and video selections may be changed as needed. When shipped from the factory the prices are set as follows:

Records

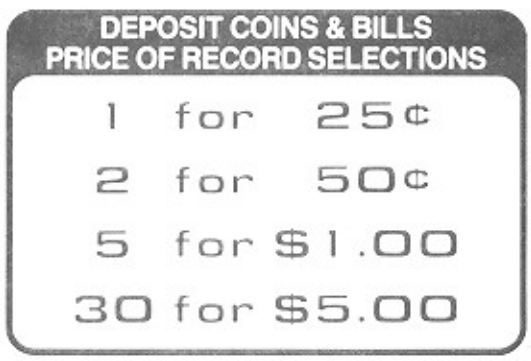
1 Selection for $ .25
2 Selections for $ .50
5 Selections for $1.00
30 Selections for $5.00

To set Alternate Record prices:

Enclosed in the Handy Case is an Alternate Price Decal (See Figure 2-4.) that may be substituted for the Standard Price Decal. The Handy Case also contains a Price Sheet with printed prices (See Figure 2-4.), which can be peeled off and placed at the appropriate spot on the Alternate Price Decal.

1	1	1	1	2	2	2	2	3	3	3
3	4	4	4	4	5	5	5	5	6	6
6	6	7	7	7	7	8	8	8	8	9
9	9	9	10	10	10	10	11	11	11	12
12	12	13	13	13	14	14	14	15	15	15
20	20	20	25	25	25	30	30	30	35	35
35	40	40	40	45	45	45	50	50	50	55
55	55	60	60	60						

UNIVERSAL PRICE SHEET



STANDARD PRICE CARD

Figure 2-4. Price Sheets

Using the phonograph keyboard, the pricing structure of the phonograph may be adjusted to match the prices on the Alternate Price Card. The maximum amount that can be charged for a selection is $9.95. The maximum number of selections that can be entered is 255. Enter 0 in any unused locations. The POPULAR key must be pressed to record the data entered in a location.

Follow the steps given below to complete an Alternate Price Card and enter the sample prices.

1. Determine the prices that are to be charged for record selections and place the price decals from the Price Sheet into the slots on the Alternate Price Card. The following is an example of a completed Alternate Price Card:

Record Prices

1 for $ .25
4 for $1.00
12 for $2.00
35 for $5.00

2. Enter the PROGRAMMING mode by setting the SERVICE switch to the SERVICE position.

3. Press the POPULAR key while typing the three digit security code number.

4. At the prompt, press and release the POPULAR key. Location 00 will display in the SELECTIONS REMAINING LED and the contents of 00 will display in the SELECTIONS BEING MADE LED.

NOTE:

The following example will not give the correct dollar amounts for U.S. money unless Location 25 has been set to 5.

Use the prices on the Price Card for the following steps:

5. Enter the lowest record selection price into Location 00 (In our example, enter 25.).

6. Enter the next highest price into Location 01 (In our example, enter 100.).

7. Enter the next highest amount to be charged into Location 02 (In our example, enter 200.).

8. Enter the next highest amount to be charged into Location 03 (In our example, enter 500.).

9. Enter the highest amount to be charged into Location 04 (In our example, enter 0 because we only have 4 prices.).

10. Enter the number of record selections to be given for the lowest amount on the record portion of the Price Card into Location 05 (In our example, enter 1.).

11. Enter the number of record selections to be given for the next highest amount on the Price card into Location 06 (In our example, enter 4.).

12. Enter the number of record selections to be given for the next highest amount into Location 07 (In our example, enter 12.).

13. Enter the number of record selections to be given for the next highest amount into Location 08 (In our example, enter 35.).

14. Enter the number of the record selections for the last and highest amount on the record portion of the Price Card into Location 09 (In our example, enter 0.).

15. Extra selections can be given to the customer for using dollar bills instead of coins. To use this feature enter the number of extra selections in Location 26. The number of extra credits can extend from 0 to 255.

Autoplay

The Autoplay feature stimulates customer interest in the phonograph by periodically playing selections. The Autoplay feature is factory preset to play the "B" side of each record, in reverse sequence beginning with 200, after the phonograph has been idle for twenty minutes. This feature may be programmed for any length of time between 0 and 255 minutes. Selections may be played in a specific sequence. A continuous sequence of the "A" side (selections 100-199) or a continuous sequence of the "B" side (Selections 200-299) can be programmed.

To select specific record selections, enter 05 in Location 32 and enter the selection numbers in the order you wish them played.

Continuous Credit

If continuous free play of the phonograph is desired, the central control computer may be programmed to play selections entered from the keyboard without putting money into the phonograph.

To use this feature, enter the PROGRAMMING mode and enter 255 in Location 27. When normal play is desired, set Location 27 to 0.

Reading And Setting A Program With Phonograph Doors Closed.

If Location 56 is set to 255, the top door can be completely closed while using the keyboard in the PROGRAMMING mode or while auditing the Memorec function of the phonograph from the SERVICE mode. The factory setting for Location 56 is 0.

To use this feature:

1. Put the control console SERVICE switch in the SERVICE position for at least 2 seconds and close the door. When you close the door, the phonograph returns to SERVICE mode. Memorec totals may now be audited or the PROGRAMMING mode entered (Hold down the POPULAR key and enter the security code.).

2. After auditing the Memorec totals, exit from the SERVICE mode by entering 999.

When finished making changes in PROGRAMMING mode, exit PROGRAMMING mode and return to SERVICE mode by holding down the RESET key until only the prompt appears; enter 99 (You are now in SERVICE mode.). Exit from the SERVICE mode by entering 999.

R-91 PROGRAMMING REFERENCE GUIDE
(With Video)

Operation	Instructions
Enter PROGRAMMING mode	Hold POPULAR while typing security code (factory setting is 000) to display prompt ($\equiv$).
To program with top door closed	1. Enter PROGRAMMING mode as above. 2. At prompt type 56. 3. Type 255. 4. Press POPULAR. 5. Close top door. 6. Enter PROGRAMMING mode to view or change location contents.
View location contents	1. **Sequentially** - Press POPULAR at each location. At Location 99, computer exits PROGRAMMING mode. 2. **Skipping locations** - Press RESET for 2 seconds. At prompt, type location number.
Change location contents	1. **Current location** - Press RESET and type new data. Press POPULAR. 2. **Any other location** - Press RESET for 2 seconds. At prompt, type location number, type new data, press POPULAR.
Set alternate record prices	**Locations 0-4** - Type prices from lowest to highest, pressing POPULAR after each. Type corresponding number of selections in Locations 5-9, pressing POPULAR after each.
Set alternate video prices	**Locations 10-14** - **(Video Only)** type prices from lowest to highest, pressing POPULAR after each. Type corresponding number of selections in Locations 15-19, pressing POPULAR after each.

THIS PHONOGRAPH IS SET FOR:
(Put your notes here)

Operation	Instructions
Give bill bonus	**Location 26** - Type number of extra selections to be given for a dollar bill. Press POPULAR.
Set continuous free play feature	**Location 27** - Type 255 (0 to cancel). Press POPULAR.
Retain Selections remaining during power failure	**Location 28** - Type 255 (0 to cancel). Press POPULAR.
Prevent selection of records ending in 8 or 9	**Location 29 - (Video Only)** type 255. Press POPULAR.
Set computer for video	**Location 30 - (Video Only)** type 0. Press POPULAR.
Set Autoplay style	**Location 32** - Press 0 for no Autoplay 1 for sequential record side "A" 2 for sequential record side "B" 3 for sequential video 5 for programmed selections 6 **(Does not apply to R-89)** for sequential both "A" and "B" sides 7 **(Does not apply to R-89)** for all records sequentially side"A", then all records sequentially side "B" Press POPULAR after making choice.
Set time between autoplay selections	**Location 33** - Type number of minutes. Press POPULAR.

THIS PHONOGRAPH IS SET FOR:
(Put your notes here)

Operation	Instructions
Program fill-in records	**Location 43 - (Video Only)** type number of seconds computer will wait, during a video search, before playing a fill-in record. Press POPULAR.
Set video record ratio	**Location 44 - (Video Only)** type number of videos to play before a record is played (when both videos and records are waiting to be played). Press POPULAR.
Program with top door closed	**Location 56** - Type 255 (0 to cancel). Press POPULAR.
Set to play records sequentially	**Location 57** - Type 0 (255 for FIFO). Press POPULAR.
Program Autoplay selections	**Locations 59-73** - Type first selection number in Location 59. Press POPULAR. Repeat for remaining selections (Location 32 must be set to 05).
Change security code	**Location 58** - Type three digit number. Press POPULAR.
Block out videos	**Locations 80-83 - (Video Only)** type one unwanted selection per location.

THIS PHONOGRAPH IS SET FOR:
(Put your notes here)

Operation	Instructions
Clear 5xx totals	**Location 97** - Viewing Location 97 automatically clears the 5xx totals. Press RESET for 2 seconds. At prompt, type 97.
Select option for clearing 5xx totals	**Location 97** - Press 0, 1, or 2. Press 0 to clear all totals with Memorec RESET Switch. Press 1 to clear popularity totals with Memorec switch. Press 2 to clear 5xx totals from PROGRAMMING mode and popularity totals with Memorec RESET Switch. Press POPULAR after making choice.
Exit Programming mode	Hold RESET for 2 seconds, then type 99999.

Note: See Section 3 of this manual for details on resetting Memorec.

Location Number	Factory Setting	Description
00	25	Lowest record price on Price Card
01	50	Next highest record price on Price Card
02	75	Next highest record price on Price Card
03	100	Next highest record price on Price Card
04	500	Highest record price on Price Card
05	1	Number of record plays for lowest record price on Price Card
06	2	Number of record plays for next highest record price on Price Card
07	0	Number of record plays for next highest record price on Price Card
08	5	Number of record plays for next highest record price on Price Card
09	30	Number of record plays for highest record price on Price Card
10	50	Lowest video price on Price Card
11	100	Next highest video price on Price Card
12	0	Next highest video price on Price Card
13	0	Next highest video price on Price Card
14	500	Highest video price on Price Card
15	1	Number of video plays for lowest video price on Price Card
16	2	Number of plays for next highest video price on Price Card
17	0	Number of plays for next highest video price on Price Card
18	0	Number of plays for next highest video price on Price Card
19	10	Number of plays for highest video price on Price Card

Location Number	Factory Setting	Description
20	1	Coin Switch #1 value } Standard
21	2	Coin Switch #2 value } 3-Coin
22	5	Coin Switch #3 value } Acceptor
23	10	Coin Switch #4 value
24	20	Bill value
25	5	Coin switch multiplier (Always 5 for U.S. money)
26	0	Bill bonus
27	0	Free play (255=Free play)
28	255	Retain selections remaining during power failure (255=Retain, 0=Reset)
29	0	Prevents selection of records that end in 8 or 9 (Must be set to 255 for video phonos)
30	255	255=Standard Phono, 00=Video
32	2	Autoplay style (0 - 7, 3=Video)
33	20	Time between Autoplay selections in minutes (255=max).
35	00	Phono ID = 2nd 2 digits
36	00	Phono ID = 1st 2 digits
43	30	Time limit (in seconds) before a fill-in record is played during a video search
44	0	Video per record ratio
56	0	Audit or Program with top door closed
57	255	255=Play records in order selected 0=Sequential order of record play
58	0	Security code number
59	0	Programmed Autoplay Selection #1
60	0	Programmed Autoplay Selection #2

Location Number	Factory Setting	Description
61	0	Programmed Autoplay Selection #3
62	0	Programmed Autoplay Selection #4
63	0	Programmed Autoplay Selection #5
64	0	Programmed Autoplay Selection #6
65	0	Programmed Autoplay Selection #7
66	0	Programmed Autoplay Selection #8
67	0	Programmed Autoplay Selection #9
68	0	Programmed Autoplay Selection #10
69	0	Programmed Autoplay Selection #11
70	0	Programmed Autoplay Selection #12
71	0	Programmed Autoplay Selection #13
72	0	Programmed Autoplay Selection #14
73	0	Programmed Autoplay Selection #15
80	0	The video selection number in this location cannot be selected
81	0	The video selection number in this location cannot be selected
82	0	The video selection number in this location cannot be selected
83	0	The video selection number in this location cannot be selected
97	0	Clears 5XX Totals - 0 to clear totals if Memorec RESET switch is pushed. 1. To clear totals if code 750 entered from SERVICE mode. 2. To clear totals only when 97 occurs in PROGRAMMING mode.
99	0	Exit code

Note: Always press POPULAR key to record data entered while programming.

Location	Explanation
00-04	The amount of money to be charged for record selections. Five levels of credit are available for coins or bills. Amounts should be entered in pennies.
05-09	The corresponding number of record selections that will be given for each amount of money entered in Locations 00 to 04.
10-14	The amount of money to be charged for video selections.
15-19	The corresponding number of video selections that will be given for each amount of money entered in Locations 10 to 14.
20-23	**Location Number:** 20 21 22 23 **3-Coin acceptor** 1 2 5 **4-Coin acceptor** 5 2 10 1
24	The value of a dollar bill expressed in nickels (A U.S. dollar is 20 nickels.)
25	The computer counts money according to a base value. For U.S. currency the value is a nickel. To the computer, the value of a coin or bill is the coin switch or bill value setting times the base value.
26	Extra credit can be given a customer for using a dollar bill instead of coins. The amount of extra credit to be given for each dollar should be entered. The maximum number of credits is 255.
27	Continuous credit can be given by setting this location to 255.
28	If the power goes off and this location is set to 255, the computer will retain selections remaining in the phonograph. The computer will not retain them if set to 0.
29	When the video portion is installed in the phonograph, 80 records are used instead of 100. The record selection numbers that are deleted have the number 8 or 9 as their third digit. A video phonograph should have 255 in this location to prevent these selections from being chosen.
30	If set to 0, the computer will accept the input from the video portions of the phonograph.

Location	Explanation
32	The Autoplay feature can be programmed to play in different ways by setting this location: 0 - No Autoplay 1 - Sequential record, Side A 2 - Sequential record, Side B 3 - Sequential Video 4 - Sequential Video 5 - Program specific selections 6 - Sequential record, side "A" and "B" 7 - Sequential record, all side "A" followed by all side "B"
33	Enter the number of idle minutes that the phonograph should wait before playing an Autoplay selection.
35	The phonograph identification number can be kept in the computer's memory. Enter the second two digits here.
36	Enter the first two digits of the identification number here.
43	**Video models only** - The central control computer will play a record selection to fill the time the VCR takes to find a video selection. If the search time reported to the central control computer by the video control computer exceeds the time entered at this location, a fill-in record will be played. Enter the amount of search time in seconds.
44	**Video models only** - Video selections are always played before record selections unless this location's value is changed. To have the phonograph mix video and record selections, enter the number of video selections the phonograph is to play before it will play a record selection.
56	Closing the top door causes the phonograph to go back into normal operation. If this location is set to 255, the SERVICE switch will be disabled temporarily, allowing the computer memory locations to be audited and changed from the keyboard with the top door closed.
57	If set to 255, the phonograph will play the record selections in the order in which they are selected. If set to 0, the phonograph will play them as it finds them in the record magazine.
58	A three digit security code can be entered to keep the PROGRAMMING mode from being entered by anyone except those who know the code.
59-73	If specific selections are chosen to be played by the Autoplay, the selection numbers are stored in these locations. The selections are played in the order in which they are stored starting with Location 59.

Location	Explanation
80-83	**Video models only** - The operator can prevent up to four video selections from being played if desired. Enter one selection number per location. Only video selections can be "locked out".
97	Viewing this location will automatically clear the 5xx totals. Enter a 0 to allow all the totals kept by the central control computer to be cleared via the Memorec RESET switch. Enter a 1 to allow only the popularity data to be cleared via the Memorec RESET Switch. The 5XX totals can be cleared from the keyboard using a 750 command at a later time. Enter a 2 to allow only the popularity data to be cleared via the Memorec RESET switch. The 5XX totals can be cleared from the keyboard only after entering the PROGRAMMING mode.
99	The computer will exit the PROGRAMMING mode.

SOUND SYSTEM

Acoustical Compensation (Bass And Treble Controls)

The preamplifier contains treble range and bass boost controls to compensate for room acoustics in various locations. These controls are on the amplifier chassis. The sound level at which the phonograph will be operated and the room furnishings determine the settings of these controls.

A room with carpet and drapery is a soft or highly absorbent location. A crowded room is also highly absorbent. These locations require higher sound levels.

A room with paneled walls and a bare or tiled floor is a hard, non-absorbent location.

Bass and treble range control settings are listed in table 2-1.

> **NOTE:**
>
> **More bass boost is required at low volume levels. The phonograph amplifier incorporates circuitry that provides the correct bass compensation at low volume levels.**

Paging

Paging circuitry is part of the 60792504 Preamplifier. The microphone plugs directly into the preamplifier.

Stereo Balance

A stereo balance control is provided to equalize the left and right channel outputs. This control is factory adjusted for best left-to-right balance.

If adjustment is required, play a monaural selection and adjust the balance control for an equal volume from each top speaker. When balanced, the sound will seem to come from the center of the phonograph.

Extension Speaker Operation

To avoid a poor sounding phonograph, care must be taken when adding extension speakers. Three requirements must be met:

1. Speakers must be wired so that the power consumed by the phonograph speakers and the extension speakers, including wallettes, does not exceed the amplifier power rating.

Table 2-1. Amplifier Control Settings for Acoustical Compensation

	ROOM ACOUSTICS					
SOUND LEVEL IN ROOM	DEAD OR SOFT HIGHLY ABSORBENT		AVERAGE MODERATELY ABSORBENT		LIVE OR HARD NON-ABSORBENT	
	SET BASS BOOST CONTROL	SET TREBLE RANGE CONTROL	SET BASS BOOST CONTROL	SET TREBLE RANGE CONTROL	SET BASS BOOST CONTROL	SET TREBLE RANGE CONTROL
LOUD	LOW	MOD/MAX	LOW	MOD/MAX	MOD	LIM
MODERATE	LOW	MAX	MOD	MOD/MAX	MAX	LIM
SOFT	MOD	MAX	MAX	MAX	MAX	MOD

Note: Reduce Treble Range setting as required by record noise (scratch) conditions.

2. Extension speakers should produce the desired sound level relative to the sound level of the speakers on the phonograph.

3. All speakers must be connected with the correct polarity.

Several charts have been included to assist you with connecting the extension speakers. Figure 2-5 shows the entire sound system.

Note:

The left channel output phase is reversed with respect to the right channel. This reversal is necessary to extend monaural sound in a stereo phonograph system. Because of this reversal, speaker connections to the left channel must be reversed when compared to the right channel, except for 70 volt speaker connections. The 70 volt phasing is reversed inside the output transformers.

er does not exceed the amplifier power rating. Table 2-2 shows connection combinations for various extension speaker power levels. The phonograph speakers can be considered as two 8-ohm speakers (one for each channel).

Tables 2-3 and 2-4 are extension speaker charts for different power levels. Power levels are indicated for low impedance speakers as well as 70 volt speakers.

70-Volt Speakers

To avoid prohibitive cable losses on long speaker lines, 70-volt speakers should be used as much as possible.

The power level in the 70 volt speakers is set at each speaker.

Low Impedance Speakers

Low impedance speakers (8 ohms) can be used when the connecting cable is less than 100 feet.

The loss in 100 feet of zipcord feeding one 8-ohm speaker is 15%. The loss for 2 8-ohm speakers is 30%.

Table 2-2. Phonograph Speaker Power Connections

PHONO SPEAKER POWER LEVEL (TOTAL WATTS)	PHONO SPEAKERS		POWER FOR EXTENSION SPEAKERS	
	LEFT CHANNEL	RIGHT CHANNEL		
	VIOLET LEAD	PINK LEAD	WATTS PER CHANNEL	TOTAL WATTS BOTH CHANNELS
64	E6	E6	31	62
28	E5	E5	49	98
16	E4	E4	55	110
4	E3	E3	61	122
1	E2	E2	62	124
BLACK LEAD TO E1 (COMMON) FOR ALL ABOVE POWER LEVELS	CAUTION: TOTAL POWER RATING OF LOAD MUST NOT EXCEED 67.5 WATTS PER CHANNEL OR 135 WATTS TOTAL FOR THE 130 WATT AMPLIFIER.			

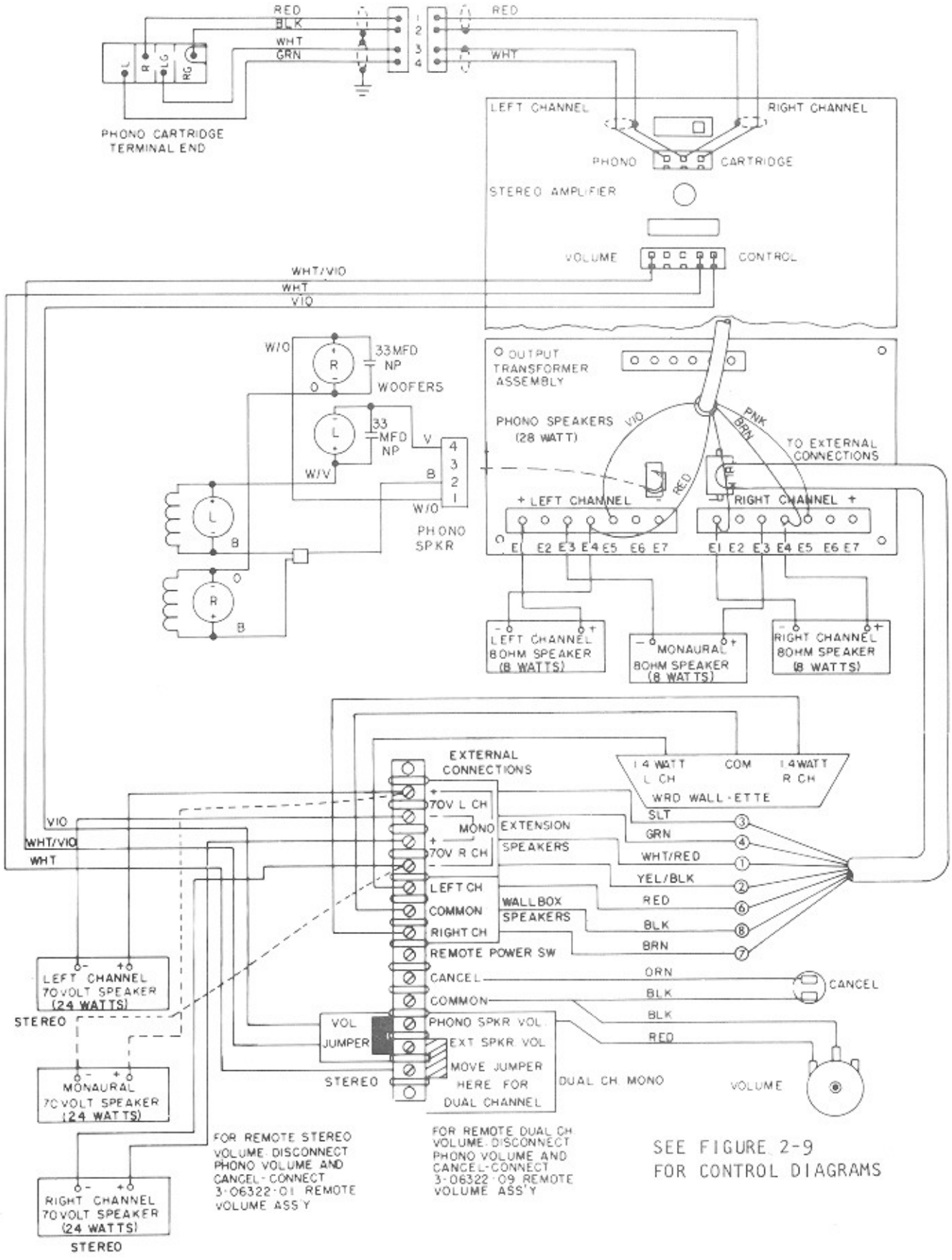


Figure 2-5. Stereo Sound System Chart
(for stereo speakers, extension speakers & Wallette speakers)

Table 2-3. Stereo Extension Speaker Connections

OUTPUT TERMINALS	WATTS PER SPEAKER			
	8 OHM SPEAKERS	4 OHM SPEAKERS	45 OHM WALLBOX	70.7V CONSTANT VOLTAGE SPEAKERS
E1-E2	0.5	1		
E4-E5	0.9	1.75		
E1-E3	2	4	0.35	
E2-E4	4.5	9		
E1-E4	8	16	1.4(NORM)	
E1-E5	14	28	5	
E2-E6	24			
A1-A2				DETERMINED BY POWER SETTING AT EXTENSION SPKR

SPEAKERS CONNECTED TO EITHER CHANNEL USED IN PAIRS FOR STEREO EXTENSION OF SOUND

CAUTION: TOTAL POWER RATING OF LOAD MUST NOT EXCEED 67.5 WATTS PER CHANNEL OR 135 WATTS TOTAL FOR THE 130 WATT AMPLIFIER.

Table 2-4. Monaural Extension Speaker Connections

OUTPUT TERMINALS	WATTS PER SPEAKER			WATTS PER CHANNEL		
	8 OHM SPEAKERS	4 OHM SPEAKERS	70.7 VOLT CONSTANT VOLTAGE SPEAKERS	8 OHM SPEAKERS	4 OHM SPEAKERS	70.7 VOLT CONSTANT VOLTAGE SPEAKERS
E2-E2	2	4		1	2	
E3-E3	8	16		4	8	
E4-E4	32			16		
MONO 70VOLTS			POWER SETTING AT EXTENSION SPEAKER			1/2 OF POWER SETTING AT EXTENSION SPEAKER

4-Ohm Speakers

No more than one 4-ohm speaker should be connected to a speaker line. If several 4-ohm speakers are to be used, each speaker should have its own line.

Do not connect a low impedance speaker to a speaker tap that exceeds the speaker's power rating.

Both examples are slightly under the power rating of the amplifier and are acceptable. The power consumption of the entire speaker system should be kept as close to 130 watts as possible, so that the bass compensation will be correct.

CAUTION:

In any speaker installation, the total speaker load (the sum of all power ratings of all speakers) must not exceed 135 watts. For example: The stereo speaker system in Figure 2-7 consumes 126.8 watts. The monaural speaker system in Figure 2-8 consumes 124 watts.

NOTE:

1. **The amplifier may be connected to a load of 135 watts before distortion will begin to increase beyond specification.**

2. **The wallbox speakers in Table 2-3 have been treated as 45-ohm speakers.**

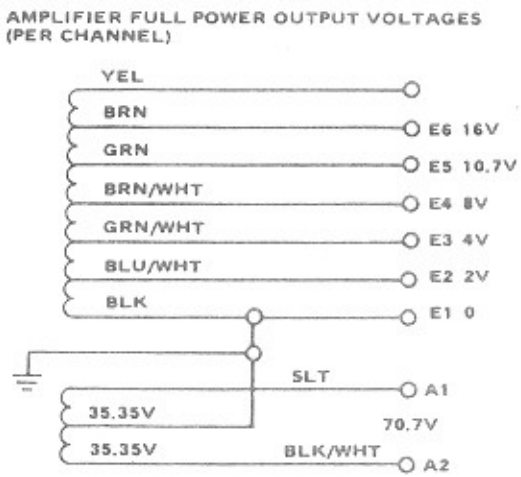
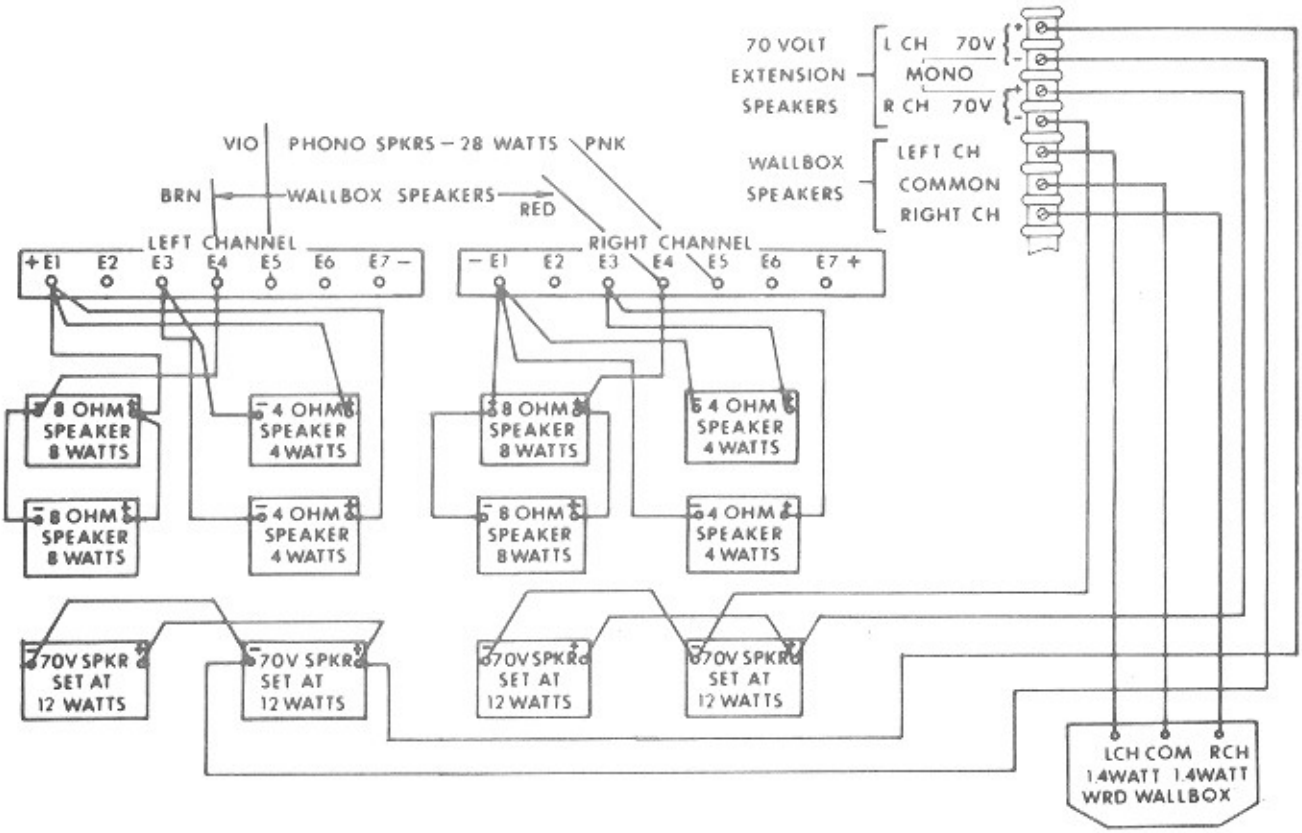


Figure 2-6. Transformer Output Voltages



EXAMPLE:

NOTE:

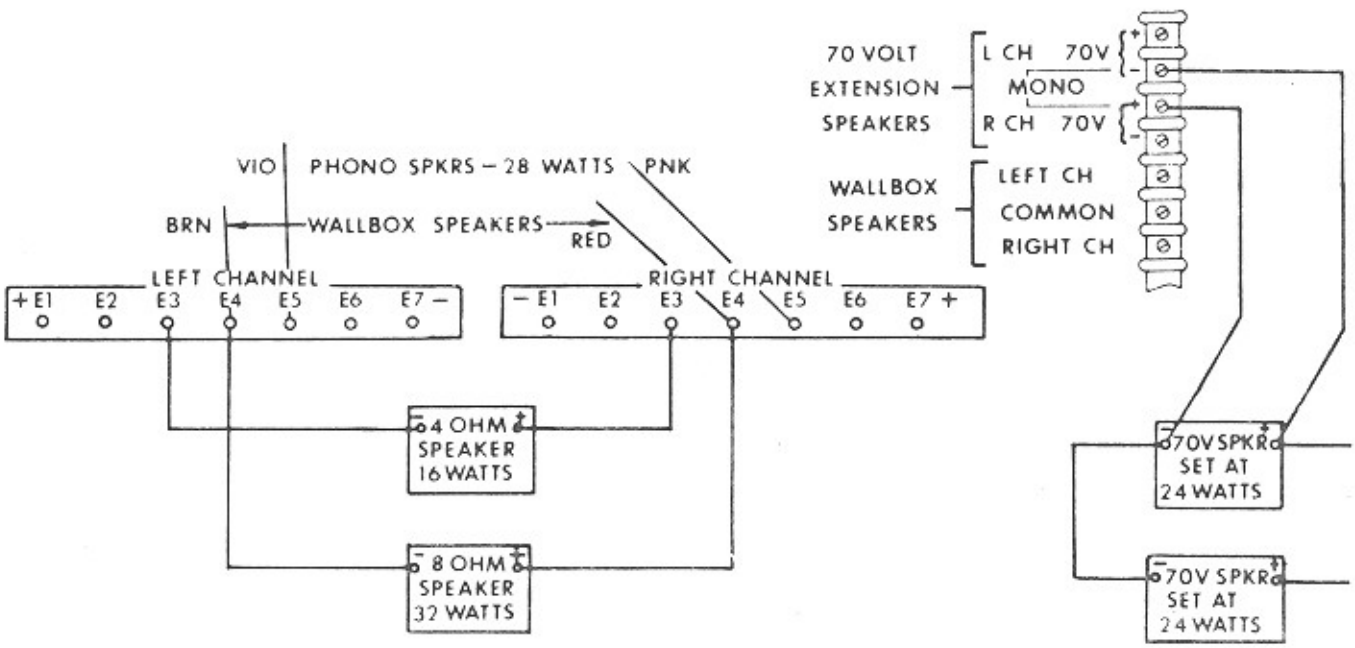
1. Left channel has reversed polarity for low impedance speakers. Extension Speaker Operation this section.
2. Each 4 OHM speaker is connected directly to terminal strip. Low Impedance Speakers this section.
3. Add Wattages

Left Channel:	8 + 8 + 4 + 4 + 12 + 12 + 1.4 =	49.4 Watts
Right Channel:	8 + 8 + 4 + 4 + 12 + 12 + 1.4 =	49.4 Watts
Phonograph (E5-E5)		28
	TOTAL =	126.8 Watts

4. For speaker impedances not listed in Table 2-3, use Fig. 2-6 and use the impedance method (Watts = E^2/R).

Figure 2-7. Speakers Connected for Stereo Extension of Sound

SPEAKERS CONNECTED ACROSS BOTH CHANNELS - FOR MONAURAL EXTENSION OF SOUND.



EXAMPLE:

NOTES:

1. Add Wattages:

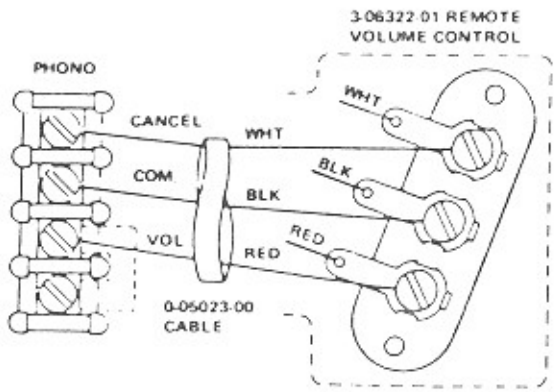
Extension Speakers:	16 + 32 + 24 + 24 =	96 Watts
Phonograph (E5-E5)		28 Watts
	TOTAL =	124 Watts

2. For speaker impedances not listed Table 2-4, use Fig. 2-6 and use the impedance method (Watts = E^2/R).

Figure 2-8. Speakers connected for Monaural Extension of Sound

REMOTE VOLUME AND CANCEL CONTROL

Connect the 3-06322-01 remote volume and cancel control to the Phonograph as shown below



REMOTE VOLUME AND CANCEL CONTROL WITH POWER SWITCH

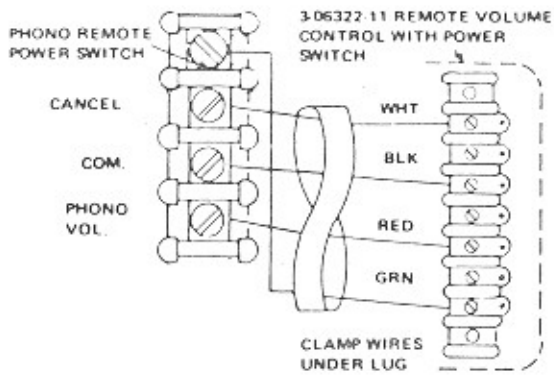


Figure 2-9. Remote Volume and Cancel Control Schematic

SECTION 3 MAINTENANCE

INTRODUCTION

This section contains three major sub sections:

- Routine Service
- Preventive Maintenance
- Unscheduled Maintenance

Routine and preventive maintenance are to be performed on your normal periodic service call. Unscheduled maintenance is only to be performed if the R-91 Phonograph fails to operate properly.

ROUTINE SERVICE

This topic contains instructions to enable the route person to perform routine service tasks, such as changing records, making collections, and cleaning the phonograph cabinet.

Changing Records

Load or change records as follows:

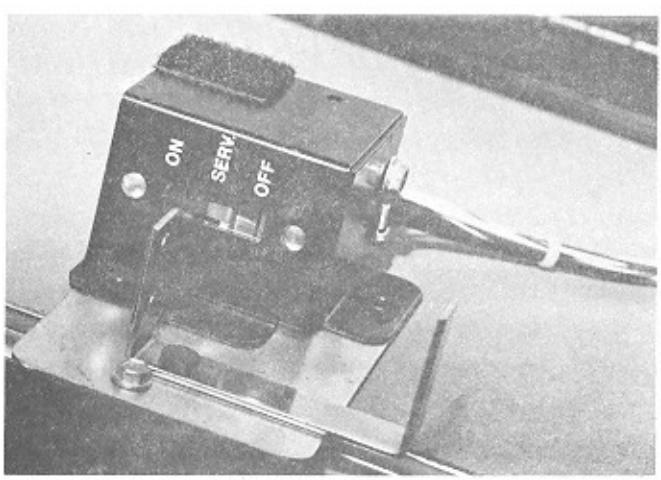


Figure 3-1. Service Switch

1. Unlock and open the top door.
2. Move the SERVICE switch to the SERVICE position (Refer to Figure 1-1 and Figure 3-1.):
3. Press the SCAN button to move the record space to the left or right of the transfer arm.
4. Install records as shown in Figure 3-2.

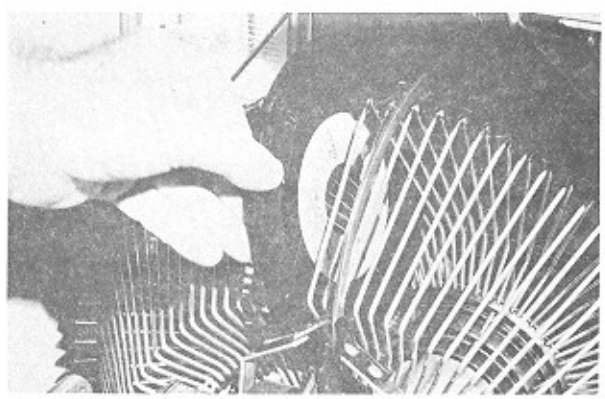


Figure 3-2. Changing a Record

NOTE:

When changing or loading records, be sure to keep the magazine record load approximately balanced. If the magazine is partially loaded with all records on one side, The sprag wheel may lock and the magazine will not turn.

5. Move the SERVICE switch to ON before making selections.

Changing Title Strips

Each time new records are installed, corresponding title strips must also be installed. Install title strips as follows:

1. Unlock and open the top door.

2. Release the title panel as shown in Figure 3-3.

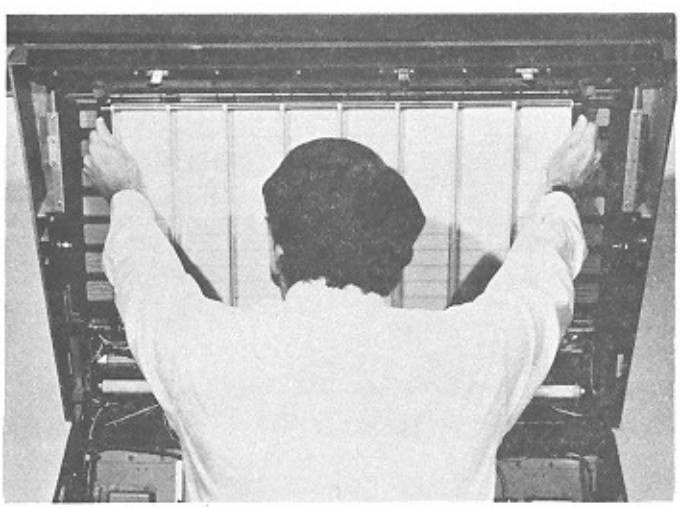


Figure 3-3. Lowering Title Panel

3. Insert new title strips from the right as shown in Figure 3-4.

4. Check title strips and record sequence to ensure that the titles and records correspond.

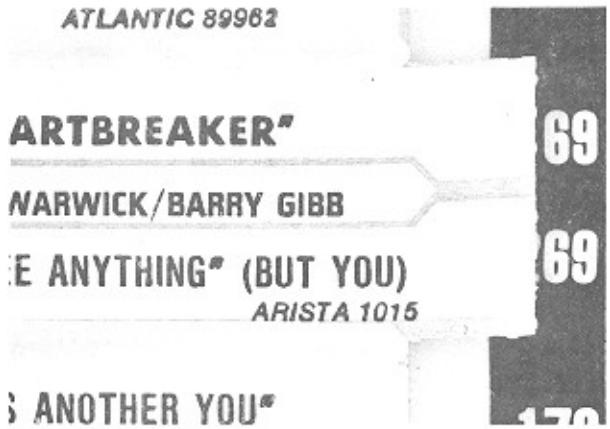


Figure 3-4. Changing Title Strips

Removing The Cash Bag

1. Unlock the cash bag door and pull the door away from the cabinet (See Figure 3-5.).

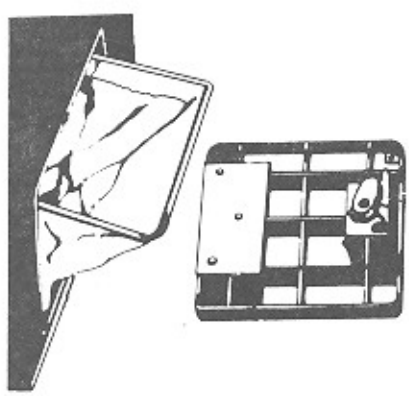


Figure 3-5. Cash Bag Removal

2. Slide the cash bag along its runners until the cash bag is out of the cabinet.

Reading And Resetting Memorec

The Memorec keeps a tally of the number of times each record is selected and the

total number of selections made. Memorec registers the number of selections made by the customer but not the total number of times the record has been played (For example: the number of times the Autoplay chose a selection will not be counted.). Refer to Table 3-1 for a complete description of the Memorec commands.

1. Open the phonograph and set the CONTROL console switch to the SERVICE position.

2. Set the VIDEO/RECORD switch on the CCC to either RECORD or VIDEO.

3. Set the POPULAR switch on the CCC to LEAST or MOST (The LEAST position will display the least popular selection. The MOST position will start the display at the most popular selection number.). The selection number will appear in the RECORD/VIDEO NUMBER display and the number of times that the record has been selected will be appear in the TIMES SELECTED display.

4. Push and release the Memorec ADVANCE switch to read either the next least popular or next most popular selection (depending on the switch setting).

5. Change the display from the least popular sequence to the most popular selection sequence or vice versa, set the POPULAR switch to the desired function and progress from least to most popular or most to least popular by pressing the Memorec ADVANCE switch.

6. The readout can be reset to the beginning by moving the POPULAR switch to one side and then back to its original position.

7. Use the eraser end of a pencil to press the Memorec RESET button. This will reset all Memorec totals to zero.

NOTE:

Once the Memorec totals are reset to zero, they cannot be displayed again. Do not press the RESET button or access Location 97 (with Location 97=2) until you are finished displaying your totals.

Table 3-1. Memorec Commands

Purpose	Command/Location	Notes
DISPLAY POPULARITY		
Step Through MOST-TO-LEAST or LEAST-TO-MOST		Set Memorec switches and press MEMOREC ADV. SW.
Select Individual Audio Selection and Audit its Popularity	1XX or 2XX	The XX is the right two digits of the Selection Number
DISPLAY TOTALS		
Audio Selections Made With POPULAR button	500	
Total Audio Selections	501	
Video Selections Made With POPULAR button	502	
Total Video Selections	503	
Total Autoplay	504	
#1 Coins	505	
#2 Coins	506	
#3 Coins	507	
#4 Coins	508	
#1 Bills	509	
#2 Bills	510	
Total Money In Nickels	511	
Total Wallbox Money	512	
Total Money	513	Cannot be reset
CLEAR TOTALS		
Popularity and Money	Memorec RESET	If Location 97=0
Popularity Only	Memorec RESET	If Location 97=1
Money Only	Use a 750 Command from SERVICE mode	If Location 97=1
Popularity Only	Memorec RESET	If Location 97=2
Money Only	Enter Location 97 while in PROGRAMMING mode	If Location 97=2
FREE PLAYS	700	Credits five units ($ .25 U.S. money)
CLEAR CREDITS	701	Erases all credits
CLEAR SELECTIONS	799	

PREVENTIVE MAINTENANCE

Preventive maintenance should be performed at the regular intervals specified, while adjustments should be made only when necessary.

In addition to cleaning the cabinet each time the location is visited, clean the interior every three to six months, as required. Keeping the cabinet interior clean reduces dust, resulting in increased record and component life (See Table 3-2 for details.). Always clean the inside of phonograph cabinet before you lubricate the phonograph mechanism.

- Use a vacuum cleaner to remove heavy dust deposits.
- Use a clean, lint free cloth saturated in denatured alcohol to clean mechanical parts.
- Clean electrical parts using a clean, dry cloth or camel hair brush.

WARNING:

Use solvents in a well ventilated area only. Do not use solvents on plastic parts.

Cleaning The Glass

1. Open the cabinet.
2. Remove the title rack by pushing outward on the clips on each side that hold it.
3. Remove the title rack blockout panel by pushing outward on the clips on each side that hold it.
4. Clean the glass with a soft cloth that is clean and lint free. Liquid or spray glass cleaner may be used.

Table 3-2. Cabinet Cleaning

ACTION REQUIRED	PROCEDURE
1. Clean Glass	1. a. Clean all glass with a paper towel and a non-abrasive glass cleaner such as Windex. b. Dry with a clean, lint-free cloth.
2. Clean painted wood and metal surfaces	2. a. Clean all painted wood and metal surfaces with mild soap and water. DO NOT USE SOLVENTS. b. Apply a good quality auto or furniture wax to protect the finish.
3. Clean chrome trim	3. a. Use a damp or dry cloth to remove any dust or dirt. b. Use mild soap and water to remove stubborn deposits. Do not use strong detergents or abrasives of any kind.
4. Clean plastic trim	4. a. Wipe all plastic surfaces with a damp or dry cloth only. DO NOT USE SOLVENTS.
5. Clean electrical components	5. a. Clean all electrical components with a clean, dry, lint-free cloth or a soft bristled brush only.

5. Replace the title rack and the title rack blockout panel.

Flashing Lamps

All flashing lamps in the phonograph, except for the lamps on either side of the vertical fluorescent lamp in the front door, can be replaced by turning the lamp 1/8 turn counterclockwise and lifting out the lamp. To replace these lamps:

1. Remove the top two screws from both white panels.
2. Loosen the bottom four screws (two screws on each panel) from both white reflector panels.
3. Lift out both reflector panels and set them aside.
4. Locate the burned out lamps and turn each one 1/8 turn counterclockwise.
5. Install the new lamps by inserting the lamps into the lamp socket and turning the lamps 1/8 turn clockwise.
6. Install the white panels and tighten all eight screws.

Fluorescent Lamps

All fluorescent lamps in the phonograph, except the vertical lamp in the front door, can be replaced by turning the lamp 1/4 turn and lifting out the lamp. To replace the vertical front door lamp:

1. Remove the top two screws from the white reflector panel; loosen the bottom two screws.
2. Lift out the reflector panel and set it aside.
3. Turn the fluorescent lamp 1/4-turn and lift the lamp out.
4. Slide the new lamp in place, seat the lower end first, seat the upper end, and turn the lamp 1/4 turn.
5. Install the white reflector panel and tighten all four screws.

FIVE YEAR LUBRICATION

Your phonograph requires lubrication every five years. To maintain smooth, trouble-free operation, lubricate the record changer mechanism as shown in Figure 3-6.

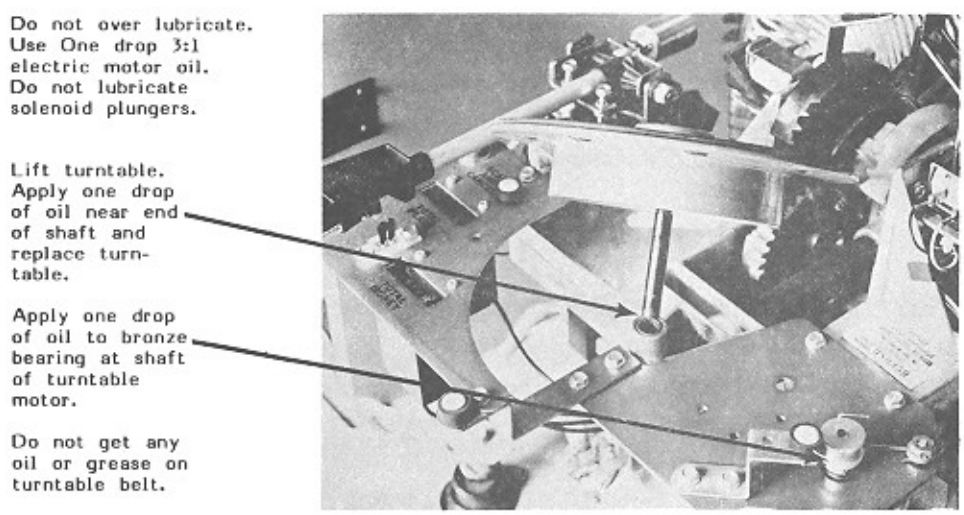


Figure 3-6. Turntable Lubrication

UNSCHEDULED MAINTENANCE

This section contains adjustments, removal, and replacement procedures that are to be followed whenever a malfunction has occurred. Maintenance for the OBA-2 Bill Acceptor is not included. Maintenance procedures for the bill acceptor are described in Section 4 of this manual.

Record Changer Adjustments

Sprag Assembly

The following steps must be used to make sprag assembly adjustments.

> **WARNING**
>
> **Turn the power OFF.**

1. Refer to Figure 3-7 in the following steps. Depress solenoid plunger until the roll pin bottoms on the plunger stop (Actuate by pressing on plunger.).

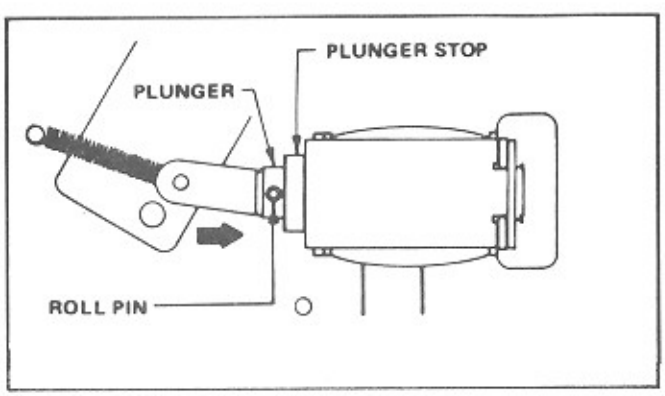


Figure 3-7. Sprag Assembly (Plunger)

2. Rotate the record magazine and note the clearance between the sprag lever and the sprag wheel located on the backside of the sprag plate assembly.

The sprag lever must not touch the sprag wheel and the clearance must not be greater than 1/32-inch See Figure 3-8.). It will be necessary to remove the sprag assembly if corrections are required.

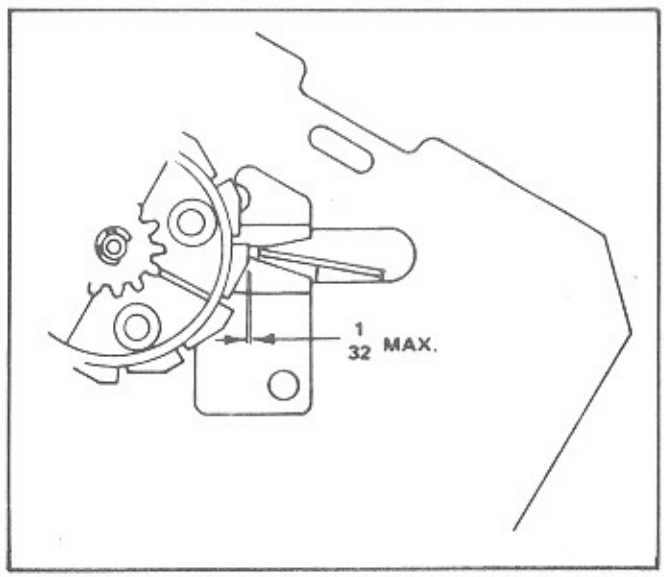


Figure 3-8. Sprag Wheel

Sprag Assembly Removal

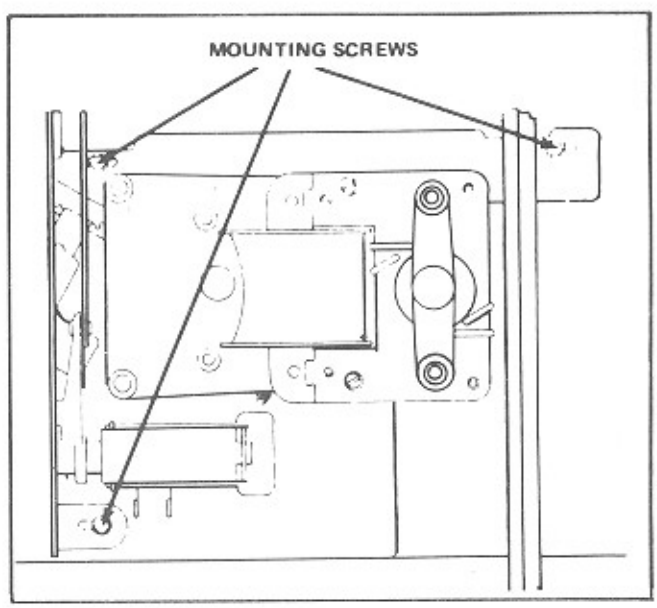


Figure 3-9. Sprag Assembly Removal

1. To remove sprag assembly, disconnect wires to the solenoid and motor, remove the three mounting screws and slide the assembly out of the right side of the mechanism (See Figure 3-9.).

2. Loosen the solenoid mounting screws and with the roll pin against the plunger, position the solenoid so that there is a .015 to .025-inch gap between the sprag lever and the highest point on the sprag wheel (See Figure 3-10.).

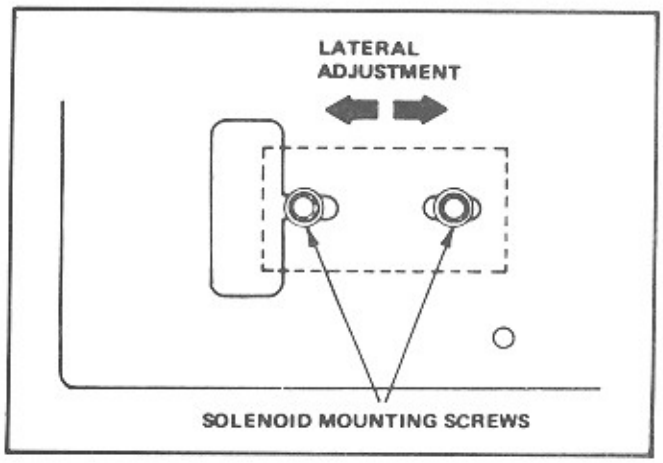


Figure 3-10. Lateral Adjustment

3. Tighten solenoid mounting screws.

4. Replace sprag assembly in mechanism with three mounting screws and replace the Black and White-Blue wires to the solenoid and the Yellow and Yellow-Black wires to the magazine motor.

Instructions for aligning the record magazine are in this section under **Aligning Magazine Stopping Position With Transfer Arm.** To readjust the optical switch refer to **Optical Switch** in this section.

Cam Switch

Adjustments

If you need to remove the switch cam from the transfer motor, the following procedure must be followed to ensure that the cam is properly located and not 180 degrees out of position.

Locate the inner lobe so that it is pointing in the same direction as the crank. Turn cam so that neither cam lobe is on a switch before removing or installing the cam (See Figure 3-11.).

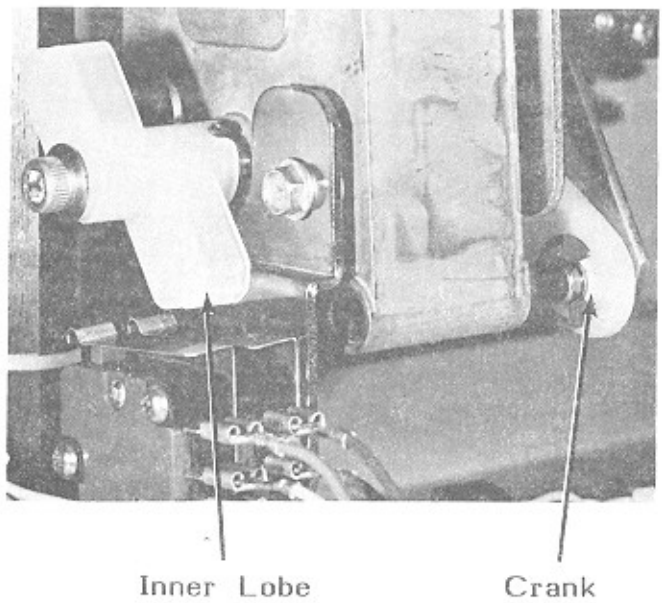


Figure 3-11. Cam Switch

Check And Adjust Cam Switch

1. Check that the plastic cam leaf spring and switch plunger just touch as shown above.

2. To adjust switches, loosen mounting screw under plunger end and move the switch housing as required (See Figure 3-12.).

3. Tighten mounting screw and recheck operation.

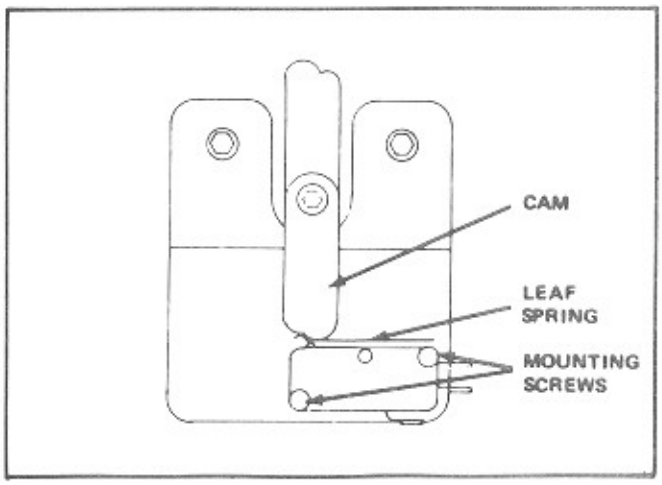


Figure 3-12. Cam Switch Adjustment

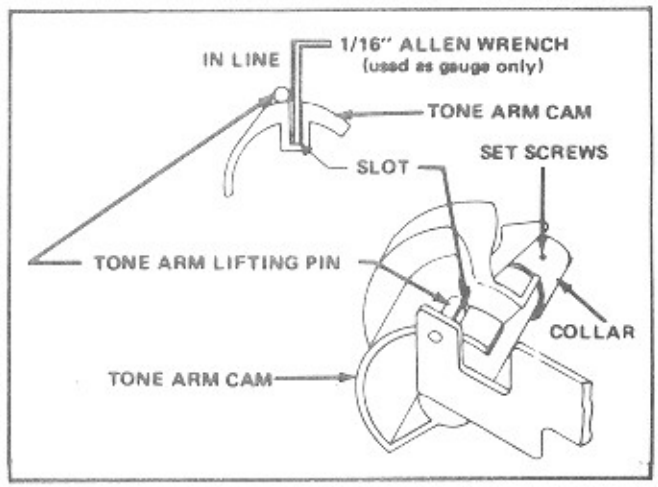


Figure 3-13. Tone Arm Cam Position

Tone Arm Adjustments

Tone Arm Cam

1. Lift tone arm and turn it clockwise so the pins are disengaged from the cam.

2. With gripper bow in scan position over magazine (transfer motor crank in maximum down position) loosen one Allen-head set screw in the collar.

3. Using a 5/32-inch Allen wrench in end of transfer motor shaft, turn motor shaft clockwise until gripper bow is in playing position (transfer motor crank arm in up position).

4. Loosen the other Allen-head set screw in the collar.

5. Position tone arm cam so that the outside diameter of the tone arm lifting pin is in line with the edge of the slot in the cam, as shown in Figure 3-13.

6. Tighten the Allen-head set screws and replace the tone arm.

Record Magazine Transfer Arm And Support

Adjustment

To eliminate magazine end play and center transfer arm support:

1. Loosen the set screws in rear magazine shaft collar. Push the collar on to magazine shaft to eliminate end play and tighten the screws.

2. Loosen the screw that holds the transfer arm support to the mechanism frame.

3. Adjust the transfer arm support so that the transfer arm is centered in the opening.

4. Tighten the mechanism frame to the transfer arm support screw.

Magazine Belt Adjustment

1. Loosen the two adjustment screws shown in Figure 3-14.

2. Raise the bracket to tighten the belt around the magazine.

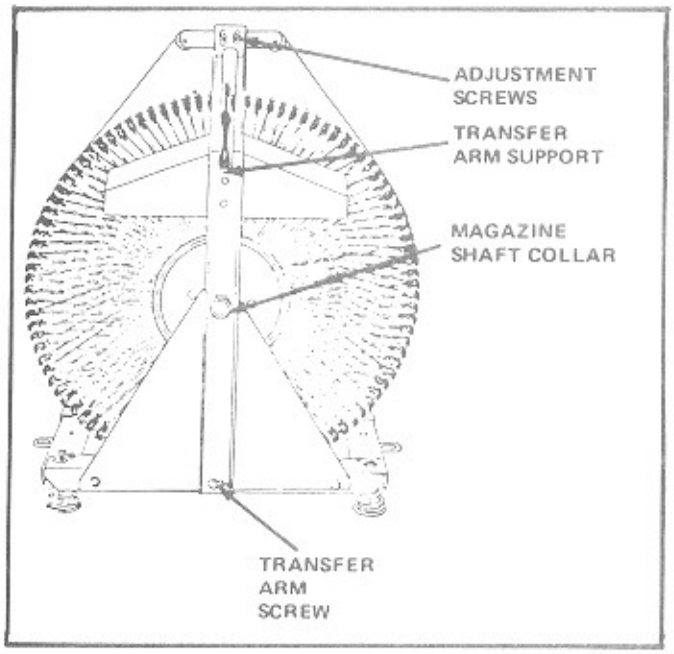


Figure 3-14. Magazine Belt Adjustment

3. Check that belt rides evenly in the center of the belt guides, all the way around the magazine.

4. Tighten the two adjustment screws.

Aligning Magazine Stopping Position With Transfer Arm

1. For this adjustment use a record in good condition without warp or dish. Place this record in any position in the record magazine and rotate the magazine until this record is in the top position. Allow the magazine sprag lever to engage and lock the magazine in this position.

2. Using a 5/32-inch Allen wrench in the end of transfer motor shaft, turn motor shaft clockwise until the gripper bow lifts the record out of the magazine, and the outer shoe is approximately 3 inches from its rest position on the back support (See Figure 3-15.).

In this position, a center line from the inner shoe through the center of the outer shoe will pass through the back of the plastic record guide on the magazine.

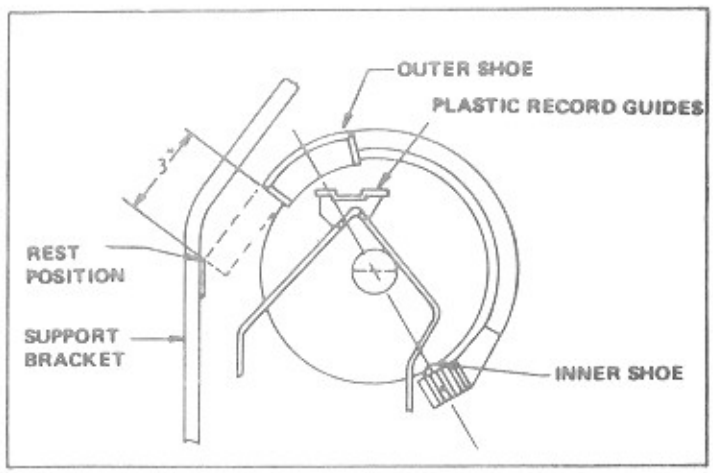


Figure 3-15. Magazine and Transfer Arm Position

3. With the record and gripper bow in this lifted position, rock the magazine to the left and right and make sure the plastic magazine record guides do not come in contact with the record on either side.

If the guide makes contact with the record on one side or magazine space does not center with the record, the following adjustment to the magazine will be necessary:

4. Loosen three screws in the magazine motor mounting plate.

5. With sprag wheel locked, move the magazine until the record is centered between belt guides (The adjustment screws will be approximately centered in the slots. See Figure 3-16.).

6. Tighten the three screws in the magazine motor mounting plate securely.

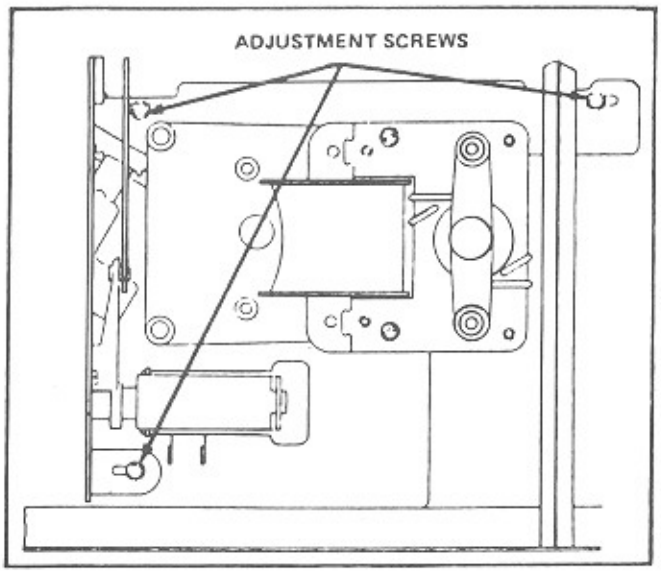


Figure 3-16. Magazine Adjustment

7. Whenever the record magazine is adjusted, the optical switch must be adjusted as shown in the following adjustment procedure:

Optical Switch

Adjustments

The optical switch position and/or sensitivity adjustments must be made if any of the following modifications or repairs are made to the phonograph record changer mechanism:

- Record magazine is adjusted (adjust position)
- Optical index switch is replaced (adjust Sensitivity and position)
- Mechanism control module is replaced (adjust Sensitivity)

NOTE:

The sensitivity adjustment should be made first, then make the switch position adjustment.

Optical Switch Index Sensitivity (Visual Method)

1. Switch the phonograph to the SERVICE position.
2. Locate the index adjust potentiometer in the upper right hand corner of the mechanism control cover and insert a small screwdriver.

NOTE:

The screwdriver tip must not exceed .090 inch Wide and .040 inch thick.

3. Press CANCEL on the mechanism control unit to rotate the magazine and turn the index potentiometer clockwise until the optical switch index LED turns OFF.
4. Continue to rotate the magazine and turn the index potentiometer counterclockwise until the optical switch index LED begins to blink. Continue another 1/8 turn counterclockwise. The optical switch index LED should blink consistently as the magazine turns.

Optical Switch Index Sensitivity (Instrument Method)

1. Switch the phonograph to the SERVICE position.

2. Attach your meter COMMON (Ground) to P203 Pin 2 of the mechanism control unit.

3. Attach the meter + to P203 Pin 4 of the mechanism control unit.

4. Locate the index adjust potentiometer in the upper right hand corner of the mechanism control unit and insert the screwdriver (Use the same screwdriver as described previously.).

5. Press CANCEL on the mechanism control unit, and as the magazine rotates adjust the potentiometer for 3.1 - 3.6 VDC. Analog meters may read slightly higher (3.4 - 3.8 VDC). With the mechanism locked, the meter should read higher than 6 VDC after the position adjustment is made.

Optical Switch Home Sensitivity (Visual Method)

1. Locate the HOME adjust potentiometer in the upper right hand corner of the mechanism control unit cover.

2. Insert screwdriver and turn the potentiometer clockwise to stop.

3. Turn the potentiometer counterclockwise 1/4 turn.

Optical Switch Home Sensitivity (Instrument method)

1. Locate the HOME adjust potentiometer in the upper right hand corner of the mechanism control module and insert the screwdriver.

2. With the HOME LED ON (at Record Slot 99), and the meter + lead connected to P203 Pin 3, the meter should read 0.2 VDC or less.

3. With the HOME LED OFF, the meter should read 6 VDC or more.

Optical Switch Position

1. Release magazine sprag lever from sprag wheel and rotate record magazine until Selection "99" is at the top center. Engage the sprag lever locking the magazine in place.

Refer to Figure 3-17 before performing Steps 2 through 5.

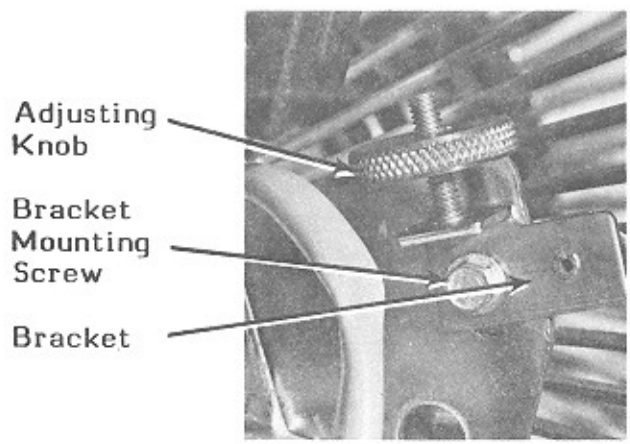


Figure 3-17. Optical Switch Position

2. Loosen optical switch bracket mounting screw, turn adjusting knob counterclockwise to top of its travel, and move bracket to the most downward position. Snug optical switch bracket mounting screw (Do not tighten.).

3. Rotate record magazine counterclockwise to remove gear backlash, hold in this position during steps 4 and 5.

4. Turn adjusting knob clockwise, moving the bracket upward and watch both the index and HOME lamps on the mechanism control unit.

5. When both lamps light, continue to move the bracket past this position until the index lamp just goes out. Turn the knob one full turn clockwise. The HOME lamp will stay on. Tighten the mounting screw.

6. With the sprag lever engaged, rotate the record magazine clockwise and counterclockwise by hand taking up gear backlash in both directions. The index lamp should stay OFF, and the HOME lamp should stay ON.

7. Release magazine sprag lever from the sprag wheel and rotate record magazine to positions 25, 50, 75 repeating step 6. The index lamp should stay OFF. The HOME lamp will not be ON.

Tone Arm Vertical Pivot

1. Adjust tone arm pivot screw so that tone arm pivot is loose enough to move free vertically for a distance of two inches above the turntable.

2. Check that tone arm moves less than 1/32 inch from side to side at the stylus.

Stylus Force

1. The stylus force should be three to four grams. If a gram gage is not available, an approximate force can be set by adjusting the distance between the tone arm weight and the tone arm bracket. This distance should be 3/4 inch for 3-1/2 grams stylus force (See Figure 3-18.).

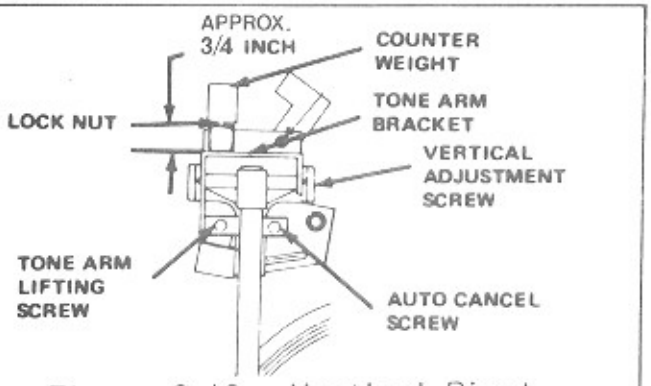


Figure 3-18. Vertical Pivot

2. If the force is not correct, loosen the lock nut, adjust the counter weight, and tighten the lock nut.

Stylus Clearance

Using a 5/32-inch Allen wrench in the end of the transfer motor shaft, turn motor shaft clockwise until gripper bow has placed a record on the turntable. Push down on the tone arm lifting pin (See Figure 3-19.) and continue to turn motor shaft to swing tone arm into the set down position. You will be able to feel the fast rise ramp of the cam contact the tone arm pin. At this point, release the pressure on the lifting pin and adjust the tone arm lifting screw so that the stylus just touches the record.

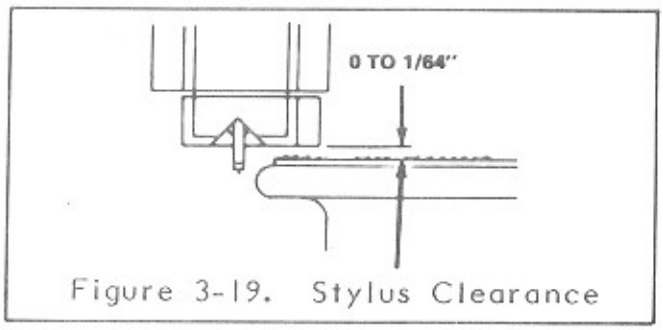


Figure 3-19. Stylus Clearance

Stylus Height

1. Operate transfer assembly to position arm over turntable rim.

2. Turn auto cancel screw until stylus holder is flush to 1/64 inch above turntable pad surface with tone arm in play position (See Figure 3-20.).

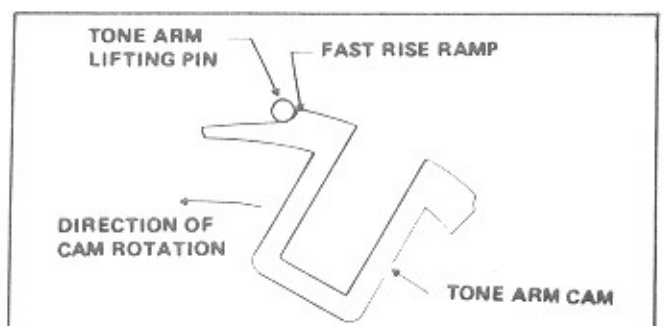


Figure 3-20. Stylus Height

Stylus Setdown Position And Tone Arm Cutoff Switch

1. Place an undersize (6 and 25/32 inch diameter) record on turntable (See Figure 3-21.).

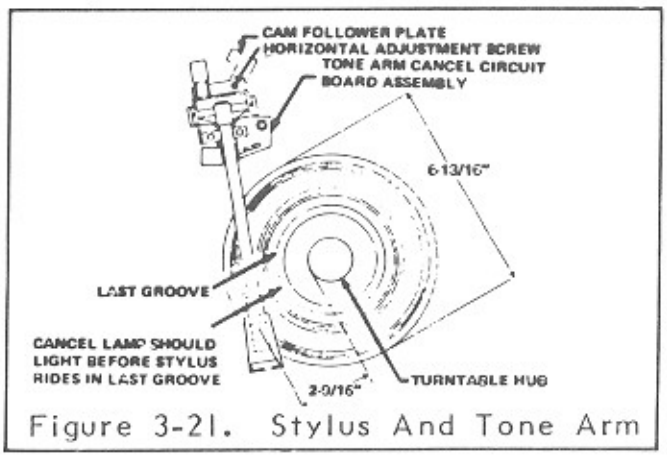


Figure 3-21. Stylus And Tone Arm

2. Operate transfer assembly to bring tone arm to play position.

3. Loosen the horizontal adjustment screw.

4. While holding the cam follower plate against the tone arm cam, move the tone arm, as required, until stylus is 2 and 9/16 inches from the edge of the turntable hub.

5. Tighten the horizontal adjustment screw and check adjustment.

Adjust Tone Arm Cutoff Switch

1. Disconnect microcomputer harness from mechanism control board (19 pin connector to prevent mechanism from cancelling.).

2. Loosen the mounting screw on the tone arm cancel circuit board assembly.

3. Position the tone arm cancel board assembly, as required, until the reed switch is closed, as indicated by the cancel lamp in the mechanism control unit. This should happen before the stylus enters the "closed" record groove.

Belt Guide Adjustment

1. Loosen the nut that fastens the belt guide.

2. Adjust as shown in Figure 3-22.

3. Tighten the nut.

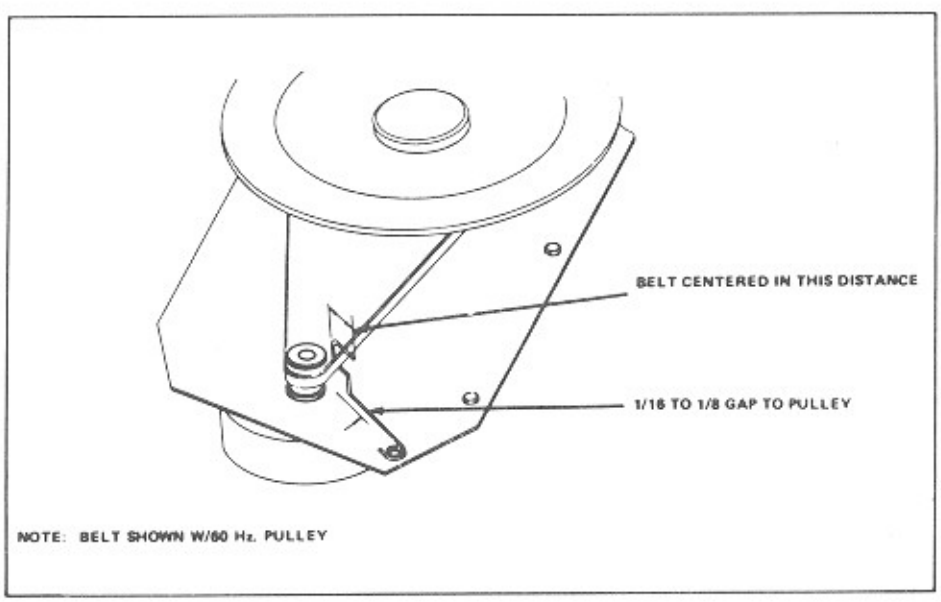


Figure 3-22. Belt Guide Adjustment

Coin Acceptors

Cleaning

All Plastic 3-Coin Acceptors

Submerge the 3-coin acceptor in hot soapy water, shake off the excess water, and let dry.

NOTE:

Do not lubricate.

4-Coin Acceptors

1. Soak in hot soapy water for 10 minutes.
2. Rinse in hot water.
3. Let dry or use a lint free cloth.
4. Clean stubborn areas with a brush.

NOTE:

Transfer cradle pins and bushings may be lubricated with a small drop of oil.

Do not use any oil or grease in the coin paths.

Coin Switch

Coin Switch Wiring Note

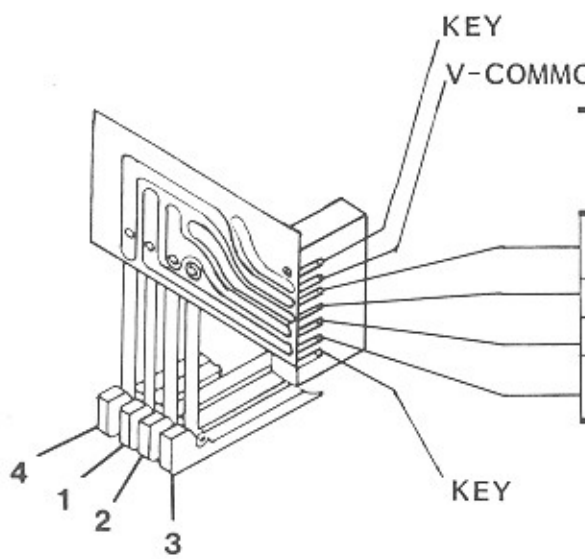
Table 3-3 shows how to set programming Locations 20, 21, 22, and 23 for 3-coin and 4-coin acceptors. Programming Location 25 should always be set to 5 for U.S. currency.

Checks And Adjustments

Coin Lever

Refer to Figures 3-23 and 3-24 in the following steps:

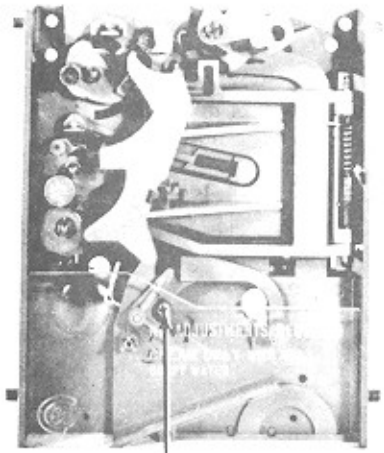
Table 3-3. Coin Switch Wiring



3 & 4 COIN WIRING	COIN SWITCH NUMBER	3 COIN VALUE	3 COIN PROGRAM	4 COIN VALUE	4 COIN PROGRAM
W/V	4		=23=10	5¢	=23=1
B/Y	3	25¢	=22=5	50¢	=22=10
B/O	2	10¢	=21=2	10¢	=21=2
S/Y	1	5¢	=20=1	25¢	=20=5

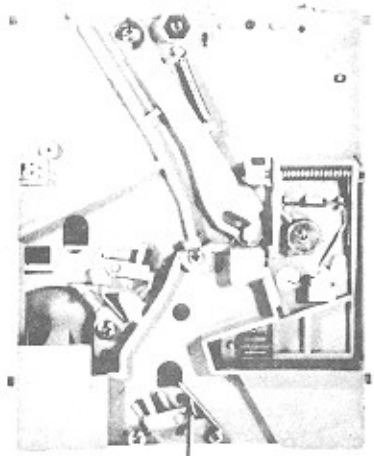
COIN ACCEPTORS
3 COIN

FRONT VIEW



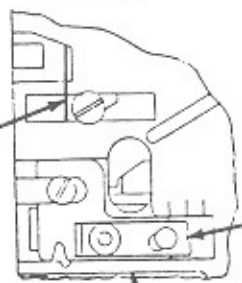
REMOVE COVER AND DRIVE No. 6-32 SCREW INTO BOSS AS SHOWN TO REJECT NICKELS

BACK VIEW



TO REJECT DIMES ADD COINCO No. 903-915 BLOCK OUT WIRE

COIN ACCEPTORS
4 COIN

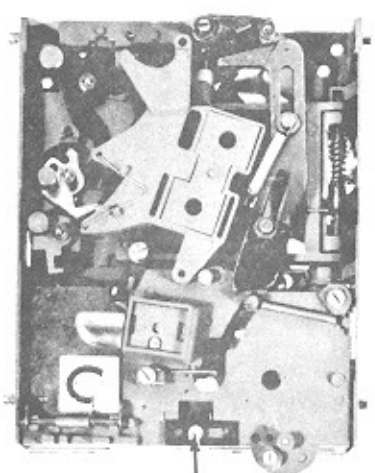


LINE UP EDGE OF DEFLECTOR WITH THIS LINE

TO IMPROVE $ SLUG REJECTION ADJUST AS SHOWN

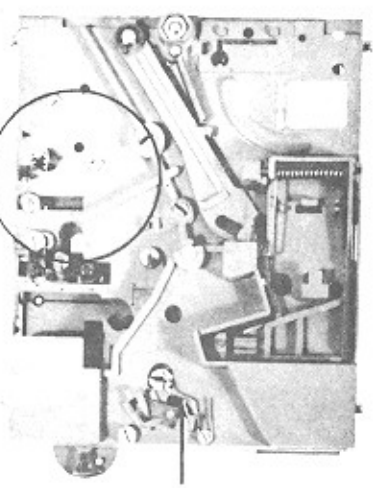
LINE SEPARATOR AS SHOWN

FRONT VIEW



MOVE THIS BRACKET TO RIGHT TO REJECT NICKELS (OR JUST FAR ENOUGH TO LEFT TO ACCEPT NICKELS)

BACK VIEW



TO REJECT DIMES ADD COINCO No. 903915 BLOCK OUT WIRE

Figure 3-23. Coin Acceptors

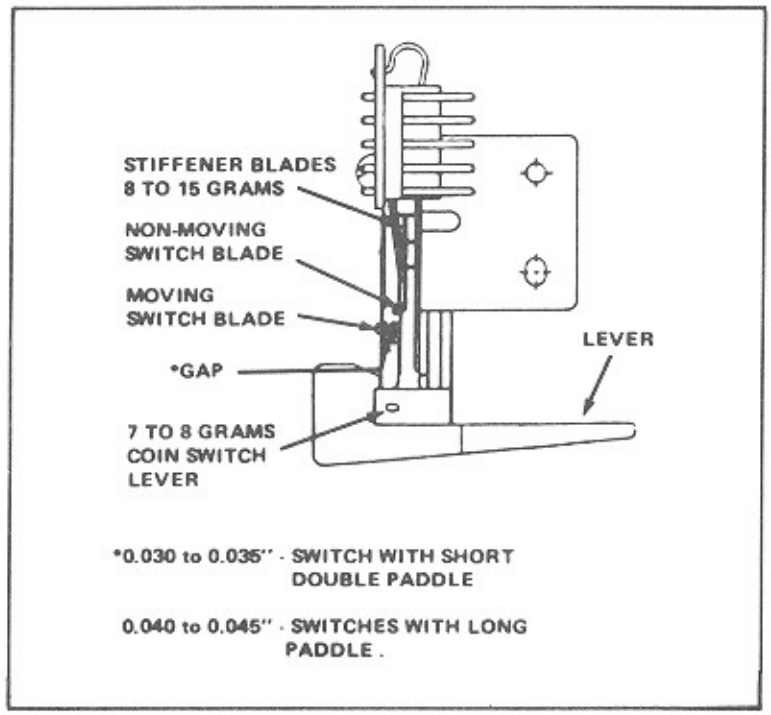


Figure 3-24. Contact Pressure and Gap Adjustment

1. Hold the plastic coin switch lever in the normal position and drop a coin through the slug rejector.

2. When the coin comes to rest on the lever, release the lever slowly.

3. Check that the weight of the coin operates the lever enough to close the coin switch and allow the coin to fall free.

4. Repeat steps 1, 2, and 3 for the other three levers.

Contact Pressure And Gap

1. Check that each moving switch blade pushes against its lever with 7 to 8 grams force to hold the lever against the cushion (See Figure 3-24.). To adjust the pressure, bend the blade near its mounting point.

2. Check that each non-moving blade pushes against its stiffener blade with 8 to 15 grams force. To adjust the pressure, bend the contact blade near its mounting point.

3. Check that contact gap at switch with short double paddle is 0.035 inch. Check that the contact gap for long paddle switches is 0.045 inch.

Door Spring Replacement

1. Open the top door.

2. While another person keeps the door open, find the appropriate style spring end fitting in Figure 3-25.

3. Follow the example in Figure 3-25.

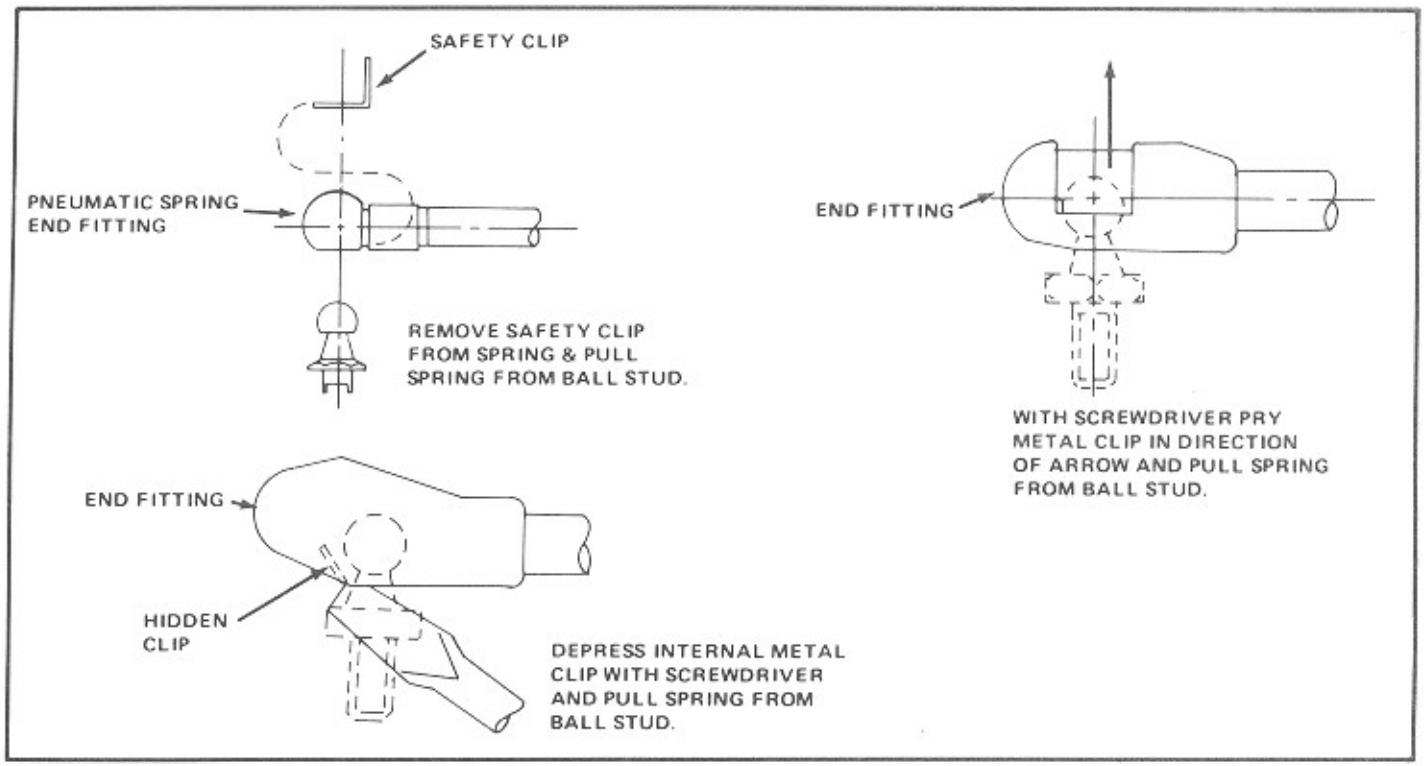


Figure 3-25. Door Spring Fittings

Glass Replacement

1. Turn the power to the phonograph OFF.
2. Open the cabinet door.
3. Remove the title rack and the title rack block-out panel.
4. Remove the two title rack catches.
5. Remove the five screws and retainer, which secure the top of the title rack housing and glass.
6. Remove the five screws and retainer, which secure the bottom of the title rack housing and glass.
7. While another person supports the top door, disconnect the two door springs from the door.
8. While another person holds the glass in place, remove the six screws from the spring retainers on both sides of the housing and glass.
9. Remove the retainer from each side of the glass and housing.
10. Remove the Glass and Housing.
11. Position the new Glass and Housing in the Door frame.
12. Install the two side retainers (removed in Step 9) with six screws.
13. Install the two spring supports (removed in Step 8) with six screws.
14. Secure the springs to the supports.

15. Install the retainer (removed in Step 6) with five screws.

16. Install the retainer (removed in Step 5) with five screws.

17. Install the two title rack catches (removed in Step 4).

18. Install the title rack and title rack blockout panel.

SECTION 4 OBA-P MAINTENANCE AND TROUBLESHOOTING

INTRODUCTION

This section provides general and detailed service information for the Rowe OBA-P Bill Acceptor, including a physical description, functional description, routine maintenance, and unscheduled maintenance.

GENERAL INFORMATION

The OBA-P Bill Acceptor accepts valid U.S. currency in denominations of $1 and $5. It rejects and returns unacceptable currency to the customer.

The bill acceptor (BA) receives +5 VDC and +24 VDC from the phonograph main power supply and sends credit pulses to the central control computer.

PHYSICAL DESCRIPTION

The bill acceptor contains three major components. These are the bill transport mechanism, the bill stacker and the computer control unit.

The Bill Transport Mechanism

This device mechanically transports the currency from the BA opening past various sensors. These sensors scan the bill for validation information and relay it to the computer control unit.

Drive Belts

Transporting the bill from the bill acceptor opening to the bill stacker is accomplished by a D.C. motor and a series of rollers, pulleys and belts. Polyurethane drive belts provide long life and reliable operation while requiring very little maintenance.

The main drive belt and lower bill transporting belts are cogged for more reliable operation, while adjustable idle pulleys are used to maintain correct tension. Upper transporting belts are of a semi-stretch type which require no adjustment. As the bill moves along the path from the opening to the stacker it is trapped between the upper and lower transporting belts. This provides a sure non-slip movement through the transport mechanism.

Optical Sensors

Three optical sensors are used for communicating bill information to the computer control unit while the bill is in the transport mechanism. Two of the three, V1 and V4, are used establish the position of the bill within the transport mechanism; the third (V2) provides validation data from the bill as it passes through the transport.

Magnetic Head

The magnetic head checks the magnetic properties of the incoming bill. A spring loaded pressure roller ensures intimate contact between the bill and the magnetic head.

Anti-Pull-Back Lever

This lever prevents the bill from being removed by the customer after the bill

has been accepted as valid. It also works in conjunction with the V4 sensor to determine the bill's position.

Bill Stacker

The stacker accepts bills from the transport mechanism and stacks them in a locked bill box. The bill box swings down and forward for easy bill removal.

The stacker uses a D.C. motor to drive a metal platen which, through a mechanical linkage, pushes the bill into the bill box. A cam-actuated switch signals the computer control unit as to the position of the platen. The platen may be in one of two positions either HOME or OFF-HOME. An OFF-HOME signal received by the control unit while in standby prompts it to reset the platen and return it to its HOME position (See **Functional Description** in this section for further details.).

Computer Control Unit

This module contains the electronic circuit board and microcomputer. The computer control unit directs the operations of the various parts of the bill acceptor.

See **Electrical Adjustments** in this section if the computer control unit must be replaced.

Mag Adjust

Allows adjustment of the magnetic amplifier circuitry for optimum performance. The amplifier is used in conjunction with the magnetic head in the bill transport mechanism for checking specific properties of bills.

Speed Adjust

Allows for transport motor speed adjustment.

Test Button

If this button is depressed when the unit is in the idle (or STANDBY) state, it activates the MOTOR SPEED ADJUSTMENT mode. This allows the rate at which the bill is fed through the transport mechanism to be adjusted for optimum performance. If the BA is in the SHUTDOWN mode, rather than the STANDBY mode, pushing the Test Button will reset it and put it back into STANDBY (See **Functional Description.**).

Visual Indicators

B.A. Status LED

This LED indicates the present status of the OBA-P as follows:

1. The OBA-P is in standby or other normal operation (The LED is OFF.).

2. Immediately after a bill is rejected and while the bill is still in the transport opening, the LED will flash one or more times to indicate the cause of the reject (See **Troubleshooting** for details.).

3. Motor speed adjust mode, With the test button pressed, the LED indicates whether the motor speed is correct or not (See **Adjustments** in this section.).

4. OBA-P in shutdown mode due to a fault, which prevents proper operation (The LED is ON most of the time, but flashes OFF periodically to indicate the cause of the error condition See **Troubleshooting** in this section for details.).

+5 VDC LED

When lit, this LED indicates the presence of +5 VDC, which is the normal condition.

+24 VDC LED

When lit, this LED indicates the presence of +24 VDC, which is the normal condition.

Connectors

Four connectors, labeled P1, P2, P3, and P4, connect the four major modules or components of the BA to each other and to the phonograph.

P1 connects the computer control unit to the phonograph power supply.

P2 connects the bill transport mechanism to the computer control unit.

P3 connects the bill stacker to the computer control unit.

P4 connects the OBA-P to the central control computer (Credit output).

FUNCTIONAL DESCRIPTION

The following is a sequential description of the BA operation. This description will give you a basic understanding of how the BA normally operates. This section can also be used as a troubleshooting aid.

Bill Acceptor in Standby Mode

Ready to Accept Bills

When the power is supplied to the BA in normal operation, it assumes a standby state and is ready to accept bills. While in this state, it is continually checking the various sensors in the bill transport and bill stacker mechanisms. If it senses an incorrect signal, it takes the appropriate action as follows:

V4 Sensor Active

The BA assumes that something is trapped in the bill transport path if this sensor is active while in the STANDBY mode. The BA then begins the Reject sequence to remove the trapped object from the path. For further information see the section that follows on the Reject Sequence.

Stacker Home Switch Not Activated

The BA turns ON the stacker motor and attempts to return the stacker platen to its HOME position. If successful, the BA returns to the STANDBY mode. If it is unsuccessful in its attempts, after 2.5 seconds, it shuts itself down. For further information see the section on Shutdown sequence that follows.

Bill Acceptor Response

Reject Sequence

In order to clear the bill transport mechanism and purge any objects from the path, the BA turns ON its motor in the reverse direction. If the BA is following a normal bill rejection sequence, it will reject the bill and the transport mechanism will return the bill to the BA opening. The transport will place the bill so that it can be easily grasped by the customer. At this time the BA STATUS LED will flash one or more times to indicate the reject cause. If the customer retrieves the bill within 3 seconds and all other sensors indicate that the transport path is clear, the BA returns to the STANDBY mode. If the track is not clear, the BA begins the Self-Clearing Sequence described in the following section.

Self-Clearing Sequence

If the transport path fails to clear as just described, the BA begins a Self-Clearing Sequence. This consists of a series of reverse-forward-reverse cycles to dislodge any object trapped in the transport. If this procedure is successful, the BA returns to the STANDBY mode. If the track is not cleared, the unit will shutdown. The Shutdown Sequence follows:

Shutdown Sequence

Several things may cause a BA shutdown. In the previous situation, an unsuccessful attempt by the BA to clear an object lodged in the transport path will initiate a Shutdown Sequence. In the event of a Shutdown, the BA turns everything OFF except the STATUS LED, which it turns ON and then periodically flashes OFF one or more times. The number of flashes are determined by the failure that is causing the shutdown (See **Troubleshooting** for details.).

Bill Acceptance Sequence

When the customer inserts the bill, V1 is blocked. The transport motor then begins pulling the bill into the transport path.

As the bill moves forward the BA monitors the bill's progress by monitoring V1, V2, and V4 for the proper signals. During this phase V1 should be active (the sensor is covered) and V4 should be inactive (the anti-pull-back lever should be in STANDBY position).

When the leading edge of the bill activates the anti-pull-back lever, which blocks the V4 cell, the OBA-P begins a complex series of precise magnetic and optical checks. In addition to the magnetic and optical checks being performed, the BA checks the position of the bill in the transport path. If it receives an incorrect signal from V1, V2, or V4 the BA immediately begins the Reject Sequence described earlier.

If the bill passes all of the magnetic and optical checks, it continues to move through the transport until the trailing edge leaves the back of the transport and allows the anti-pull-back lever to return to its "at rest" position (unblocking the V4 cell).

The stacker motor is now activated by the computer control unit, which monitors the HOME switch to ensure that the bill stacker platen leaves the HOME position and stacks the bill in the bill box. After stacking the bill, the computer control unit checks the HOME switch to make sure that the platen returns to its original position. If the stacker platen does not leave the HOME position within 750 milliseconds or if it does not return to the HOME position within 2.5 seconds, the computer control unit begins its shutdown sequence.

When the bill stacking process is completed, the computer control unit sends a credit signal to the central control computer and is ready to begin another bill acceptance sequence. The credit signal consists of one 75 ms +5 volt pulse for a dollar bill or five pulses for a five dollar bill. Multiple pulses are separated by 75 ms.

ROUTINE MAINTENANCE

Cleaning

Since environmental conditions vary considerably, no prescribed maintenance schedule is set. Instead, the following items should be inspected periodically and cleaned as necessary:

Bill Inlet and Track

These surfaces should be wiped with a soft, clean, lint-free cloth.

V2 Sensor

The V2 backside sensor, which includes both an emitter and a detector, should be kept clean to ensure that all valid bills will be accepted. A soft cloth or cotton swab moistened with denatured alcohol can be used for this purpose.

Magnetic Head

Due to the abrasive nature of currency, the magnetic head does not normally require cleaning. If the magnetic head does

collect dirt, the dirt may be removed with a cotton swab saturated with denatured alcohol.

Drive Belts

Drive belts can be cleaned by wiping them with a clean lint-free cloth moistened with denatured alcohol. Do not soak belts in a solvent.

Bill Stacker

Use a clean cloth to remove any excess dirt from the stacker, platen, and surrounding areas.

Lubrication

Bill Stacker

The bill stacker does not require lubrication.

Bill Transport Mechanism

The bill transport mechanism does not require lubrication with normal use. If the transport mechanism is difficult to turn or if the transport mechanism is excessively noisy, apply one drop of light machine oil to each nyliner bearing and to any shaft location that supports a plastic roller.

UNSCHEDULED MAINTENANCE

Mechanical Adjustments

Bill Stacker

The bill stacker does not normally require adjustment. If the computer control unit indicates a problem involving the HOME switch while in shutdown mode (See **Troubleshooting.**), then the switch adjustment may be checked by performing the following procedures:

1. Rotate the cam so that the switch actuator rests on the high point of the stacker motor cam.

2. Place a .040 to .050-inch gauge between the cam and the actuator. The bottom of the actuator should rest against the switch case. If the adjustment is incorrect, reposition the switch by loosening its two mounting screws.

3. Align the pusher plate to the guide rails by loosening the three motor bracket screws and moving the motor assembly. The pusher plate and the guide must be positioned within 1/64 inch as shown in Figure 4-1.).

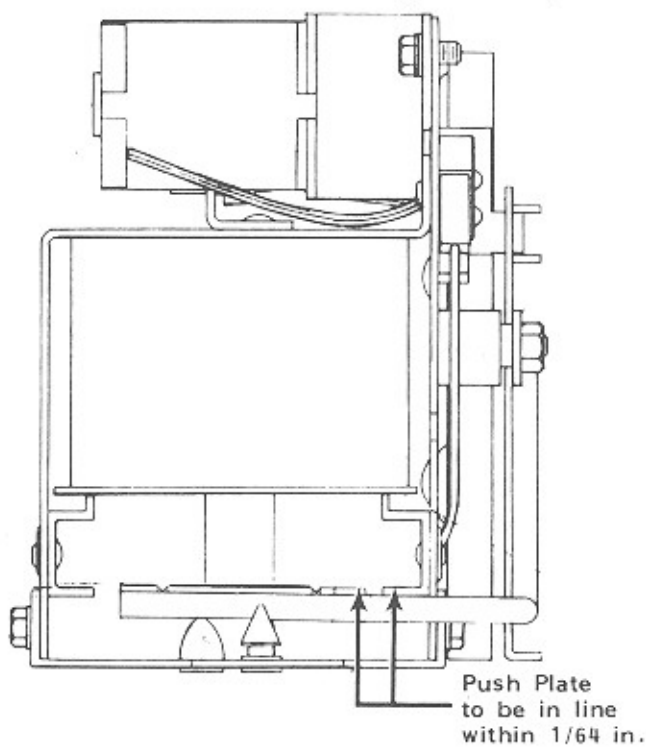


Figure 4-1. Pusher Plate Adjustment

Bill Transport Mechanism

The transport mechanism does not require any initial set-up or routine adjustment. If any slipping or binding occurs in the mechanism, make the following adjustments:

Drive Belt Tension (See Figure 4-2.)

Adjust the drive belt on units with pivoting motor bracket as follows:

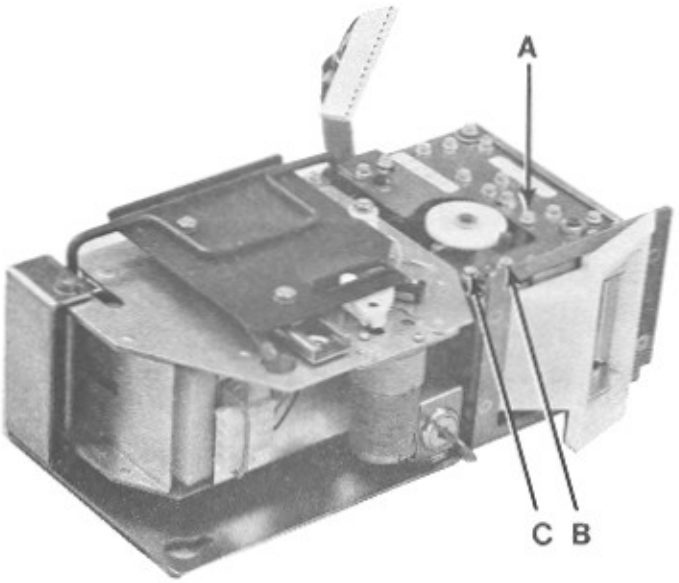


Figure 4-2. Drive Belt Tension

1. Loosen the three hex head-screws labelled A, B and C.
2. Pivot the motor assembly on Screw A until the drive belt has a total flex of approximately 3/32 inch between the gear pulley and the drive shaft pulley.
3. Tighten Screw A and then B and C.
4. Check the belt tension. If the drive belt will not hold tension properly because the motor assembly will not pivot, the belt has become stretched and should be returned to an authorized service center for repair.

Adjust the Lower belt tension as follows: (See Figure 4-3.)

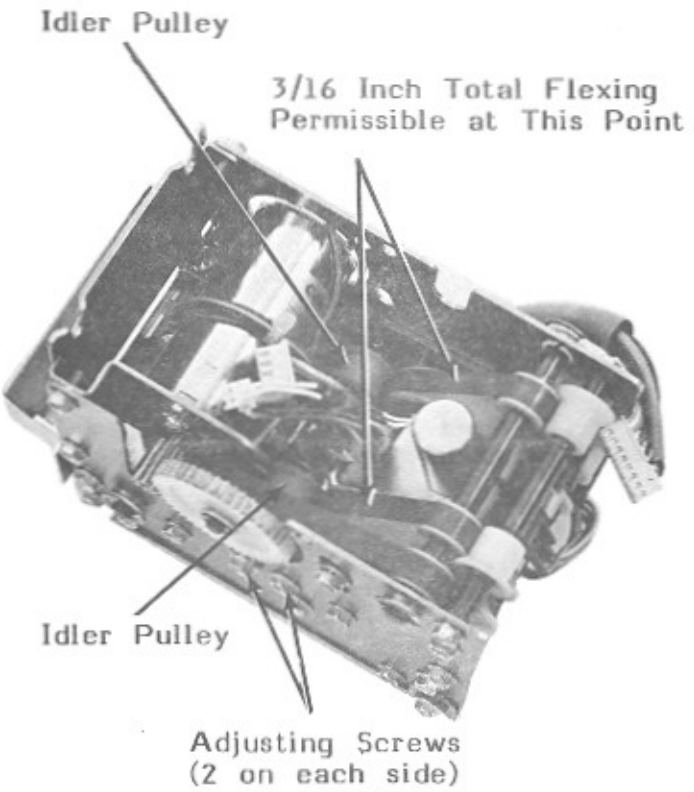


Figure 4-3. Lower Belt Adjustment

1. Loosen the four hex-head screws holding the ends of the Idler Pulley Shaft and the take-up brackets (Shown in Figure 4-3.).
2. Remove the circuit board by removing the three screws that hold the brackets and unplug the three connectors.
3. Push down on the idler pulleys until the belt flexes about 3/16 of an inch.
4. Tighten all four screws and check the belt tension again. The tension must be equal on both belts.
5. Replace the circuit board and plug in the three connectors.
6. If the adjusting screws are against the ends of the slots and the timing belts are still loose, the transport

should be returned to an authorized service center.

Gear Backlash Adjustment

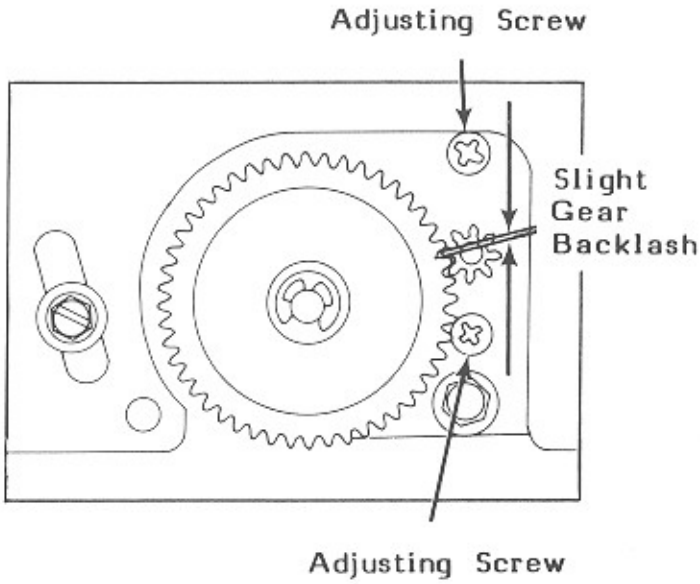


Figure 4-4. Gear Backlash Adjustment

A degree of backlash should exist between the gears, as shown in Figure 4-4. To adjust the gear backlash:

1. Loosen the two Phillips-Head screws holding the motor. Move the motor to give the correct backlash. This adjustment is not critical, but make sure that backlash is present at all points, as you rotate the gears.

2. Tighten the two screws and recheck the gear backlash.

Magnetic Head Alignment

The Magnetic Head is aligned with the Harness and Holder assembly at the factory. If a problem with the head develops, the Harness and Holder assembly must be replaced. Order the Harness and Holder Assembly, Part Number 4-50598-01.

To replace the Harness and Holder Assembly:

1. Install the four screws loosely, and align the assembly with the lower track by pressing the V on the holder firmly against the V on the lower track (as shown in Figure 4-5.).

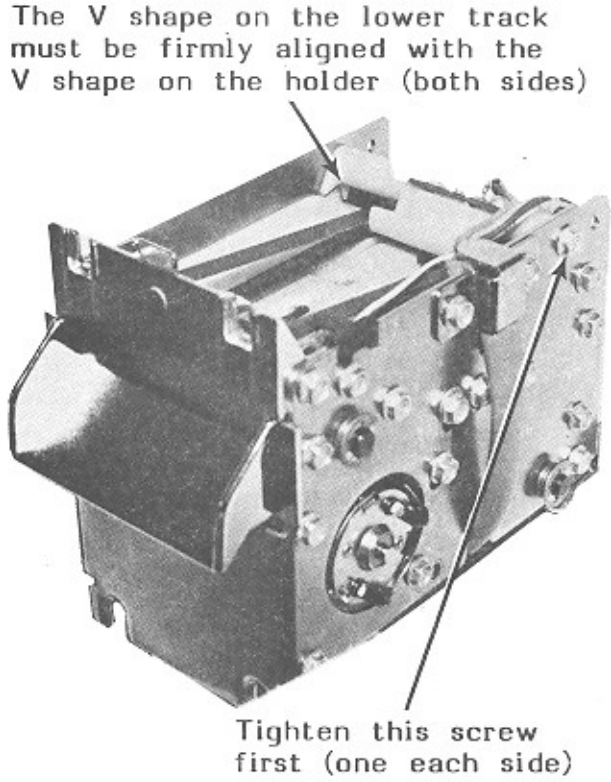


Figure 4-5. Magnetic Head Alignment

2. Tighten the two screws at the V's to hold the alignment.

3. Tighten the two remaining screws.

Electrical Adjustments

The electrical adjustments on the BA are factory set and should not be changed under normal operating circumstances. Replacing a bill transport mechanism or

computer control unit will require recalibration of the system. The following steps must be taken to complete the necessary adjustments:

Motor Speed Adjustment

1. Depress the TEST button and hold it.

2. Turn the Speed Adjust pot either clockwise or counterclockwise until the BA STATUS LED reaches maximum brightness.

MAG ADJUST

Turn the MAG ADJUST potentiometer fully clockwise. If bills are rejected, adjustments will have to be made. See **Troubleshooting** in this section for details.

TROUBLESHOOTING

Table 4-1 will help you isolate problems and return the bill acceptor to service as quickly as possible. This section provides the information needed to make adjustments and replace modular components.

This manual does not provide procedures or information to diagnose or repair defective modules. Rowe suggests that modules, such as the transport, bill stacker, or computer control unit be returned to Rowe or your distributor for repair.

The following troubleshooting chart is designed to lead you through a step-by-step procedure to solve a particular problem. Begin at Step 1 and proceed through as many of the steps as needed to solve the problem. Before using any of the procedures, check the harnesses and electrical connections to ensure that no connections are loose, missing, or frayed. You can reduce your effort by checking the electrical connections first.

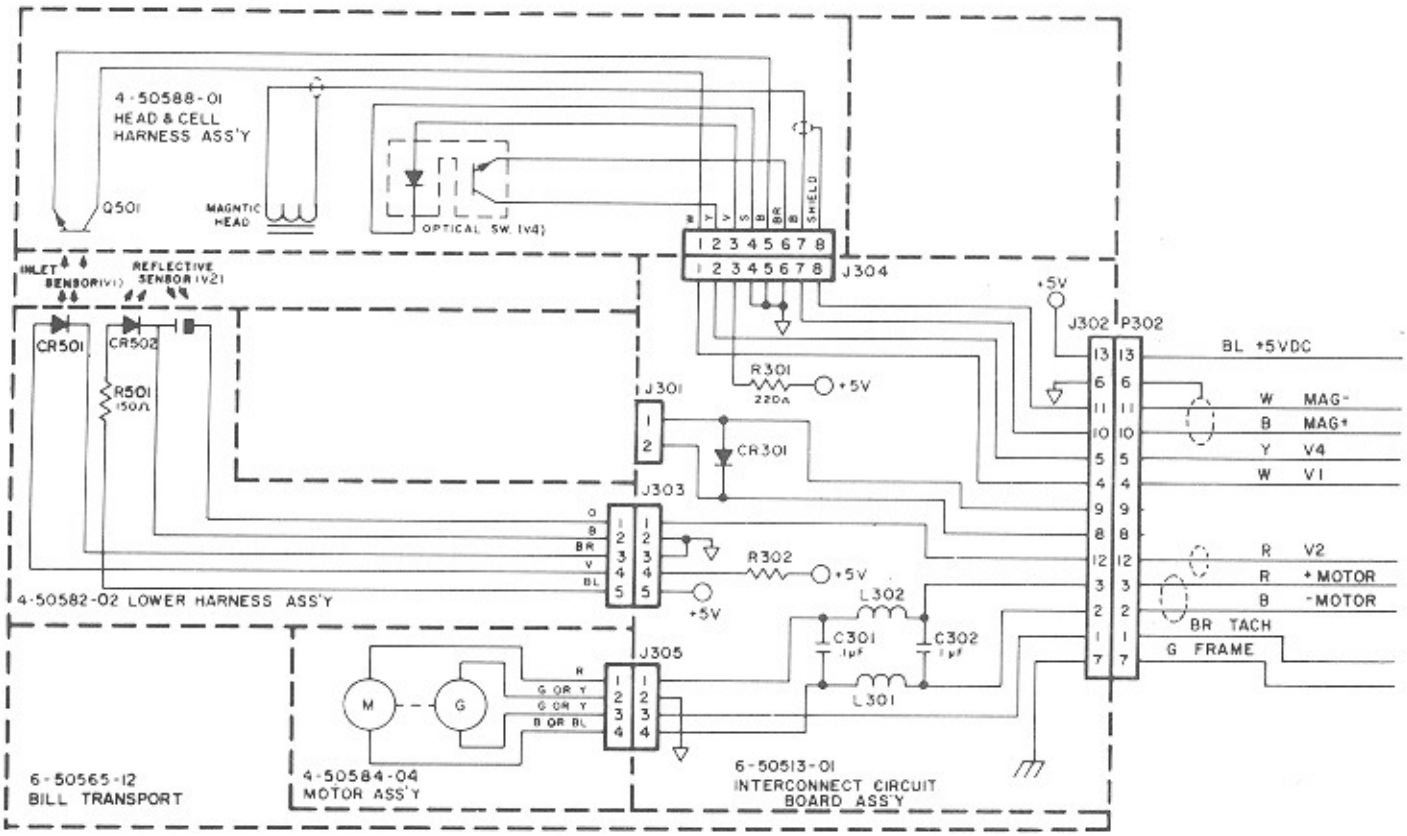
Table 4-1. OBA-P Troubleshooting Chart

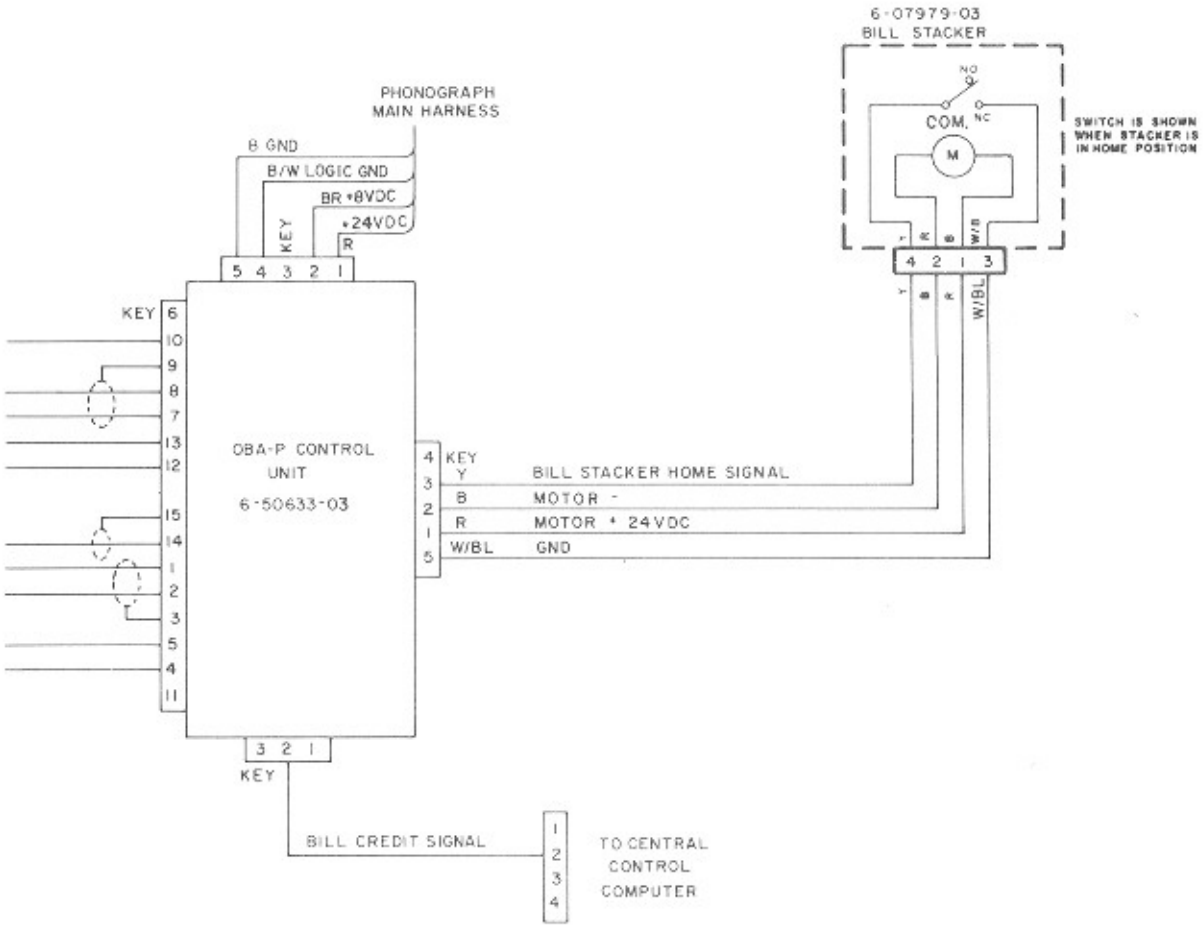
Trouble	Symptom	Probable Cause
Transport motor does not start when a bill is inserted	+5 or +24 LED on control unit not lit	1. Problem in phonograph power supply or harness to OBA-P 2. Defective control unit
	Transport doesn't start	1. Object jammed in transport mechanism 2. Defective transport 3. Defective control unit
	No sound or other indication that transport is trying to run	1. Defective V1 cell in transport 2. Defective control unit
	BA STATUS LED is blinking	1. OBA-P is not operational due to a fault condition (See the following section)
OBA-P in SHUTDOWN	BA STATUS LED blinks OFF once every second and then pauses before blinking again	1. Object in transport covering V1 cell 2. Defective transport 3. Defective control unit
	BA STATUS LED blinks OFF twice every second and then pauses before blinking again	1. Object in transport activating anti-pull-back lever 2. Defective transport 3. Defective control unit
	BA STATUS LED blinks OFF 3 times every second and then pauses before blinking again	1. Bill stacker full 2. Bill stacker jammed in OFF-HOME position 3. Bill stacker HOME switch out of adjustment (See **Electrical Adjustments** in this section) 4. Defective bill stacker 5. Defective control unit
Bills jam frequently		1. Anti-pull-back lever not operating freely 2. Bill pressure roller binding 3. Transport inlet or track surfaces contain projections, rough spots, or dirt 4. Transport belts out of adjustment or dirty (See **Maintenance** this section) 5. Transport belts not centered on rollers 6. Transport upper input roller does not move up and down freely 7. Defective phonograph power supply (+28 VDC)

OBA TROUBLESHOOTING CHART
(Continued)

Trouble	Symptom	Probable Cause
Bill acceptor rejects a large number of valid bills	BA STATUS LED blinks once after rejecting the bill. See note 1.	1. Defective V1 or V4 cell in transport 2. Defective control unit
	BA STATUS LED blinks twice after rejecting the bill. See note 1.	1. Defective V2 cell in transport 2. Defective control unit
	BA STATUS LED blinks three times after rejecting the bill. See note 1.	1. Object lodged in transport 2. Binding anti-pull-back lever 3. Defective V4 cell 4. Defective control unit
	BA STATUS LED blinks four times after re rejecting the bill. See note 1.	1. Mag adjust set too low; turn clockwise 1/8 turn. 2. Incorrect motor speed See **Electrical Adjustments** in this section 3. Defective magnetic head or transport 4. Defective control unit
	BA STATUS LED blinks five times after rejecting the bill.	1. Incorrect motor speed See **Electrical Adjustments** in this section 2. Defective transport 3. Defective control unit
	BA STATUS LED blinks six times after rejecting the bill.	1. Mag adjust set too high Turn counterclockwise 1/8 turn 2. Defective magnetic head or transport 3. Defective control unit

Note 1. The BA STATUS LED indication will only be valid if the rejected bill remains in the transport opening.


4-50588-01
HEAD & CELL
HARNESS ASS'Y
Q501
MAGNTIC
HEAD
OPTICAL SW. (V4)
SHIELD
J304
INLET
SENSOR(V1)
REFLECTIVE
SENSOR (V2)
CR501
CR502
R501
150Ω
J301
R301
220Ω
+5V
CR301
J303
R302
4-50582-02 LOWER HARNESS ASS'Y
L302
C301
1μF
C302
1μF
L301
J305
M
G
6-50565-12
BILL TRANSPORT
4-50584-04
MOTOR ASS'Y
6-50513-01
INTERCONNECT CIRCUIT
BOARD ASS'Y
J302
P302
BL +5VDC
W MAG-
B MAG+
Y V4
W V1
R V2
R +MOTOR
B -MOTOR
BR TACH
G FRAME



For Equivalent Engineering Drawing. See 65057022-Q2 B

Figure 4-6. OBA Block Diagram

SECTION 5 TROUBLESHOOTING

INTRODUCTION

The R-91 Phonograph incorporates several modules which plug in for rapid service. The block diagram in Figure 5-6 shows the modules and the wiring between them. Figure 5-6, also, shows wiring between modules and components.

Troubleshoot logically so that your effort is not wasted by removing and replacing the wrong parts (If necessary, refer to the R-91 Programming Reference Guide in Section 2.).

Most failures are caused by minor defects. The most likely causes of phonograph problems are:

1. Continuous or intermittent opens in a harness. The cause can be wiring, a terminal, or a bad terminal crimp.

   - Check that all plugs are firmly seated.
   - Check that connector pins are not bent, broken or pushed through the back of connectors when mated.

2. A defective module (See Table 5-1.).

Table 5-1 Replaceable Modules

Part No.	Description	Notes
40777305	Central Control Computer (CCC)	Module contains Bd. Ass'y (CCC) P.N. 60973805
40722105	Mechanism Control	Module contains Bd. Ass'y (Mech. Control) P.N. 60870805
40770603	Power Supply	
60992801	Digital Display	

CONTINUOUS CREDIT

As an aid to troubleshooting, the phonograph may be programmed to play continuously. In this mode, the phonograph will play selections as long as selections are made (No money is needed.). To use this feature, enter the PROGRAMMING mode (Refer to Section 2, Programming The Credit And Selection System.) and enter "255" into Location "27".

ERROR CODES

Error codes with error messages and modular troubleshooting charts are provided for troubleshooting. Error messages contain information on fixing the problem or refer you to a location in the modular troubleshooting charts.

The computer can store up to 20 error codes in its battery backed-up memory. When an error occurs, the error code is displayed for three seconds. When power is applied, the computer checks memory and if the computer finds error codes, the last code that occurred is displayed for three seconds on the Memorec display.

Multiple errors can be checked by using the 666 command in service mode. Each time 666 is typed, the next code in memory is displayed. The display will go blank if 666 is typed and all codes have been displayed. Type more 666 commands if you want to look through codes again. Type 699 when the phonograph is repaired or any time you want to erase all error codes from memory.

ERROR CODES

Note 1. Use 666 to check for multiple errors before using the 699 command to erase all error codes.

Err0 Indicates "factory settings" for programming codes were loaded into ram (Memorec RESET and ADVANCE switches were both closed when power was applied.).

Err1 Checksum fault indicates "factory settings" for programming codes were loaded into ram when power was applied (Original data was in error.).

The reason data changed could be: a defective ass'y, severe electrical noise, lightning, low battery, etc. To remove Err1 code:

1. Put SERVICE switch to SERVICE position and wait 3 seconds for computer to enter programming mode.
2. If factory settings are desired, push: POPULAR key, key 2, key 5, and POPULAR key again. If factory settings are not desired, enter desired data at each programming location.
3. Put SERVICE switch to OFF and then back to SERVICE. If Computer returns to programming mode, replace computer ass'y.
4. See Note 1.
5. Type 699 to erase error codes.

Err2 Ram I.C. Z9 is defective. Replace the computer.

Err3 Rom I.C. Z7 is defective. Replace the computer.

Err4 Battery voltage is low. Replace the computer.

Err5 Wallbox serial signal (pin 4 of P4) always low.

1. Put the SERVICE switch OFF.
2. Unplug connector P4.
3. Put the SERVICE switch to SERVICE.
4. See Note 1.
5. Type 699 to clear all error codes.
6. Put the SERVICE switch to ON.
7. If the error still remains, replace the computer. If the error is gone, it was caused by a permanent or intermittent short in the wallbox cable or a defective wallbox.

Err6 Wallbox serial signal (pin 4 of P4) always high. Follow all seven steps given in Err5.

Err7 COIN switch #1 (pin 5 of P2) always low (COIN switch #1 is nickel switch in three coin acceptor.).

1. Put SERVICE switch to OFF.
2. Unplug Connector P2.
3. Put SERVICE switch to SERVICE.
4. See Note 1.
5. Type 699 to clear all error codes.
6. Put SERVICE switch to ON.
7. If error still remains, replace the computer. If the error is gone, it was caused by a permanent or intermittent short in coin switch harness or coin switch.

Err8 Coin switch #2 (pin 6 of P2) always low (Coin switch #2 is dime switch in three coin acceptor.). Follow all steps given in Err7.

Err9 Coin switch #3 (pin 7 of P2) always low (Coin switch #3 is the quarter switch in three coin acceptor.). Follow steps given in Err7.

Er10 Coin switch #4 (pin 3 of P2) always low (Coin switch #4 is not used in the three coin acceptor.). Follow steps given in Err7.

Er11 Dollar bill signal (pin 2 of P3) always high.

1. Put SERVICE switch to OFF.
2. Unplug connector P3.
3. Put SERVICE switch to SERVICE.
4. See Note 1.
5. Type 699 to clear all error codes.
6. Put SERVICE switch to ON.
7. If error still remains, replace the computer. If error is gone, it was caused by a short in the harness between the CCC and the OBA-2 or a defective OBA-P Control Unit.

Er12 More than one coin switch was closed simultaneously. Causes could be that a coin deflected and closed two switches or a customer violently shaking and (or) banging on the phonograph. If the cause was coin deflection, the customer will not receive credit for that coin.

Er13 Keyboard switch 0 always closed.

1. Computer thinks that the keyboard switch is always closed and the reason could be:

   A. A defective computer
   B. A defective digital display
   C. A defective keyboard
   D. A short in the computer-to-display harness
   E. A short in the display-to-keyboard harness

2. Put the SERVICE switch in the OFF position
3. Replace the next module or repair harness (start with reason "A" in Step 1.).
4. Put the SERVICE switch in the SERVICE position.
5. Press Key Number 1. The phonograph is repaired if a 1 (one) appears on the digital display when the key is pressed. If the phonograph is not repaired, repeat Steps 2 through 5.

Er14 Keyboard switch 1 is always closed. Follow steps given for Er13.

Er15 Keyboard switch 2 is always closed. Follow the steps for Er13.

Er16 Keyboard switch 3 is always closed. Follow the steps for Er13.

Er17 Keyboard switch 4 is always closed. Follow the steps for Er13.

Er18 Keyboard switch 5 is always closed. Follow the steps for Er13.

Er19 Keyboard switch 6 is always closed. Follow the steps for Er13.

Er20 Keyboard switch 7 is always closed. Follow the steps for Er13.

Er21 Keyboard switch 8 is always closed. Follow the steps for Er13.

Er22 Keyboard switch 9 is always closed. Follow the steps for Er13.

Er23 RESET switch on keyboard is always closed. Follow the steps for Er13.

Er24 POPULAR on the keyboard is always closed. Follow the steps for Er13.

Er30 Skipped index pulse error indicates magazine was probably out of sync and played selections one or more record locations past record selected. Some possible causes are: Dirt buildup in magazine gear, Defective optical switch, or Mechanism control index ("I") potentiometer misadjusted.

1. Clean magazine gear. Type "699" to clear error codes. If error remains, do Step 2.

2. Adjust mechanism control index ("I") potentiometer. Type "699" to clear error codes. If the error remains, do Step 3.

3. Replace optical switch.

Er32 Indicates mechanism should have been searching for a selection, but 30 seconds elapsed and selection was not found. This error stops the phonograph until power is turned OFF and turned back ON. Turn the power ON and refer to "Magazine does not rotate when a Selection is made" and "Magazine Rotates Continuously" in the TROUBLE column of the MODULAR TROUBLESHOOTING CHARTS.

Er33 Magazine had rotated and optical switch index signal (Pin 10 of P6) has remained low (active) for more than 30 seconds. This error stops the phonograph until power is turned OFF and turned back ON. Turn the power ON and refer to "Magazine Rotates Continuously" in the TROUBLE column of the MODULAR TROUBLESHOOTING CHARTS.

Er34 Magazine had rotated and optical switch HOME signal (Pin 11 of P6) has remained low (active) for more that 30 seconds. This error will cause the phonograph to shut down until power is turned OFF and turned back ON. Turn the power ON and refer to "Magazine Rotates Continuously" in TROUBLE column of MODULAR TROUBLESHOOTING CHARTS.

Er35 Error 35 is not a valid error code.

Er36 Cancel Signal (Pin 1 of P6) is always low (active). Turn power ON, make a selection, and refer to "Record Cancels Without Playing" in TROUBLE column of MODULAR TROUBLESHOOTING CHARTS.

Er37 Inner cam switch N.O. contact signal (Pin 5 of P6) should have been low (active) indicating that inner cam switch had closed; however, the signal stayed high (quiescent) longer than 30 seconds. This error will cause phonograph to shut down until power is turned OFF and turned back ON. Turn power ON and refer to "Transfer Starts when Power is applied and runs continuously" in TROUBLE column of MODULAR TROUBLESHOOTING CHARTS.

ER38 Transfer cycle started and Inner Cam Sw N.O. Contact signal should have gone high (quiescent) indicating that cam had moved off inner cam switch; however, it stayed low longer than 30 seconds. This error will cause phonograph to shut down until power is turned OFF and turned back ON. Turn power ON, make selection, and refer to "Transfer starts and runs continuously after selection is located" in TROUBLE column of MODULAR TROUBLESHOOTING CHARTS.

Er39 Transfer cycle started, cam moved off inner cam switch, and the outer cam switch record placed on turntable; however, the signal stayed high (quiescent) for longer than 30 seconds. This error will cause phonograph to shut down until power is turned OFF and turned back ON. Turn power ON and refer to "Transfer starts and runs continuously" in TROUBLE column of MODULAR TROUBLESHOOTING CHARTS.

TROUBLESHOOTING CHARTS

One of the best ways to isolate a problem is to determine the exact state of the phonograph when the failure occurs. This means recording the condition of digital display, STATUS LED's, gripper bow, detent pawl, magazine, cam switches, etc.

This information can help you identify the cause of intermittent or continuous failures.

Refer to Figure 5-1 for descriptions and locations of the LED's referred to in the MODULAR TROUBLESHOOTING CHART that follows in Table 5-2.

The chart has the following three columns:

- The trouble column lists different types of failures.
- The symptom column shows the state of the phonograph when the failure occurs.
- The last column shows the probable cause.

Table 5-2. Modular Troubleshooting Chart

TROUBLE	SYMPTOM	PROBABLE CAUSE
Phonograph fails to operate when power is turned ON	LED's on power supply and fluorescent lights fail to light	1. Rear power switch OFF 2. Plug not in wall 3. Wall circuit is dead 4. 10 amp circuit breaker tripped 5. Wiring to rear power switch 6. Rear power switch
	LED's on power supply fail to light but fluorescent lamps are ON	1. 2 amp circuit breaker tripped 2. Power supply 3. 28 VAC overload from magazine, transfer or T.T. motor
	The +8 VDC LED on power supply fails to light but lights when phono harness at power supply is unplugged	1. Central control computer 2. Mech control 3. Wallbox interface 4. Service switch 5. Wiring

TROUBLE	SYMPTOM	PROBABLE CAUSE
		NOTE: **To locate problem, reconnect phono harness and unplug connectors in the order shown (If +8VDC LED lights, replace last unit unplugged.):** 1. Wallbox interface (J4) 2. Central control computer (J6) 3. Mech control harness (J205) 4. Mech control (J206)
	The +28 VDC LED on power supply fails to light but lights when phono harness at power supply is unplugged	1. Mech control Bd. 2. Detent coil 3. Wiring
Magazine does not rotate when a selection is made	MAG. MOTOR and DETENT LED's ON, detent is actuated	1. Power supply 2. Wiring to mag. motor 3. Magazine motor 4. Mech control board
	MAG. MOTOR LED OFF or DETENT LED ON	1. Wiring from central control computer to mech control Bd. 2. Central control computer 3. Mech control Bd.
Magazine rotates continuously	MAG. MOTOR LED OFF	1. Wiring to magazine motor 2. Mech control Bd.
	MAG. MOTOR LED is ON, OPT. SW. INDEX LED is not flashing, and/or OPT. SW. HOME LED does not flash at record number 99.	1. Optical switch 2. Wiring to optical switch 3. Mech control Bd.
	MAG. MOTOR LED ON and both optical switch LED's normal	1. Wiring from central control computer to mech control Bd. 2. Central control computer 3. Mech control Bd.
Magazine stops at wrong record	Stops at random record anywhere in magazine	1. Faulty optical switch 2. Wiring to optical switch 3. Heavy dirt buildup in optical switch

TROUBLE	SYMPTOM	PROBABLE CAUSE
	Stops one or two records before record selected	1. Optical switch adjustment 2. Magazine not full of records (out of balance) 3. Broken sprag lever guide
	Stops one or two records after record selected	1. Optical switch adjustment 2. Magazine not full of records (out of balance) 3. Broken sprag lever guide
	Stops one or two records after record selected	1. Faulty optical switch 2. Optical switch adjustment 3. Broken sprag gear 4. Sprag linkage binding
	Stops one-Half to one record position off before or after record selected	1.Broken sprag gear 2. Broken sprag guide 3. Sprag linkage binding or needs adjustment
Record does not transfer	TRAN. MOTOR LED is ON	1. Wiring to transfer motor 2. Mech control Bd. 3. Transfer motor
	TRAN. MOTOR LED is OFF	1. Wiring from central control computer to mech control Bd. 2. Central control computer 3. Mech control Bd.
	TRAN. MOTOR LED comes ON and transfer starts, but LED and motor turn OFF when cam leaves inner cam switch	1. Outer cam switch N.O. shorted to Common 2. Central control computer 3. Mech control Bd.
Transfer starts when power is applied and runs continuously	TRAN. MOTOR LED is OFF	1. Mech control Bd. 2. Wiring to motor
	TRAN. MOTOR LED is ON	1. Central control computer 2. Mech control Bd. 3. Wiring from central control computer to mech control 4. Open circuit at inner cam switch N.O. contact 5. Open circuit at inner cam switch Common

TROUBLE	SYMPTOM	PROBABLE CAUSE
Transfer starts and runs continuously after selection is located	TRAN. MOTOR LED comes ON when motor starts and stays ON	1. Wiring to outer cam switch 2. Outer cam switch 3. Central control computer 4. Wiring from central control computer to mech control Bd. 5. Mech control Bd. 6. Inner cam switch N.O. contact shorted to Common 7. Open circuit in outer cam switch Common
No sound	Always muted	1. Central control computer
No mute during scan	Motor noise in speakers	1. Central control computer
Turntable motor does not run	T.T. MOTOR LED is ON	1. Wiring to T.T. motor 2. T.T. motor 3. Mech control Bd.
	T.T. MOTOR LED is OFF	1. Wiring from central control computer to mech control Bd. 2. Central control computer 3. Mech control Bd.
Record will not cancel when finished playing	CANCEL LED is ON	1. Wiring from mech control Bd. to central control computer 2. Central control computer 3. Also see **Record Does Not Transfer**
	CANCEL LED is OFF	1. Wiring to cancel switch 2. CANCEL switch 3. Mech control Bd.
Record cancels without playing	CANCEL LED stays ON	1. Short in cancel switch wiring 2. Cancel switch 3. Mech control Bd.
	CANCEL LED flashes ON as record sets down	1. Auto Cancel misadjusted
	CANCEL LED does not flash	1. Wiring to outer cam switch 2. Outer cam switch 3. Wiring from mech control Bd. to central control computer 4. Mech control Bd. 5. Central control computer

MODULAR TROUBLESHOOTING CHART (Continued)

TROUBLE	SYMPTOM	PROBABLE CAUSE
Left side of record plays when right side selected	TOGGLE LED is ON	1. Wiring to toggle coil(s) 2. toggle coil(s) 3. Mech control Bd.
	TOGGLE LED is OFF	1. Wiring from central control computer to mech control Bd. 2. Central control computer 3. Mech control Bd.
Money counter or play counter fails to count	Fails to count	1. Wiring to counter 2. Counter 3. Mech control Bd. 4. Wiring from central control computer to mech control Bd. 5. Central control computer
Phonograph is always in SERVICE (Memorec) mode of operation	TIMES SELECTED display is always lit	1. SERVICE switch 2. The +8 ON signal wiring 3. Central control computer 4. Central control computer set for programming with the front door closed (Location 56=255) Use 999 to exit SERVICE mode.
Phonograph will not go into SERVICE mode	TIMES SELECTED display will not light when SERVICE switch is in SERVICE	1. Central control computer 2. The +8 ON signal wiring 3. SERVICE switch
No credit	No credit given by coins and dollar bills	1. Central control computer
	No credit given by coins but dollar bill gives credit	1. Coin switch Common wiring 2. Central control computer
	One value of coin will not give credit	1. Coin rejected 2. Wiring to coin switch 3. Coin switch 4. Central control computer
	Dollar bill will not give credit	1. Bill acceptor 2. Wiring to bill acceptor 3. Central control computer

MODULAR TROUBLESHOOTING CHART (Continued)

TROUBLE	SYMPTOM	PROBABLE CAUSE
Wrong credit	Credit for amount deposited does not agree with price card setting	1. One or more coins did not register (See **No Credit.**). 2. Central control computer programmed incorrectly. 3. Central control computer
System does not respond to keyboard	0 Credits on SELECTION REMAINING display	1. Insufficient credit
	Selection remaining, but certain keys do not work	1. Shorted keyboard switch 2. Central control computer 3. Short in keyboard wiring
	Selections remaining, but entire keyboard does not work	1. Wiring from keyboard to display Bd. 2. Keyboard 3. Digital display Bd. 4. Central control computer
Digital display does not work	Display lights, but shows wrong information	1. Wiring from central control computer to display 2. Digital display 3. Central control computer
	The +8 VDC LED on central control computer is lit but display digits and LED lamps will not Light	1. Wiring from central control computer to digital display 2. Digital display 3. Central control computer
	Certain LED lamps and/or digits will not work	1. Wiring from central control computer to digital display 2. Digital display 3. Central control computer
Miscellaneous problems	any malfunction not described above	1. Main power supply 2. Central control computer

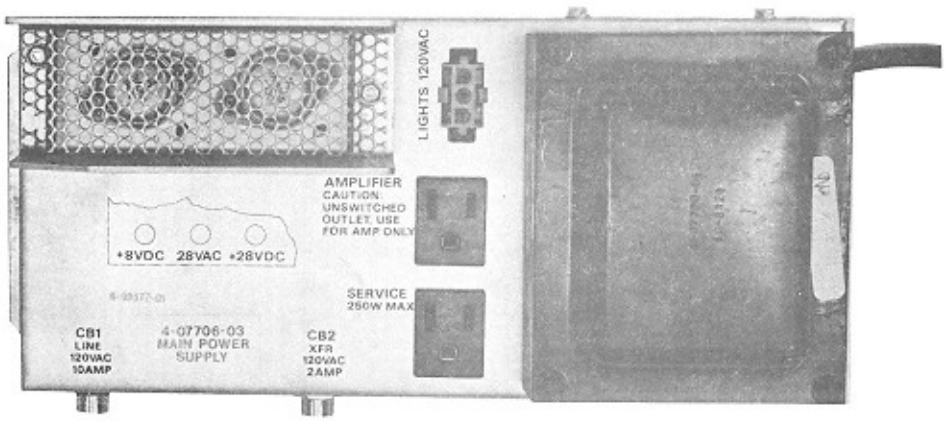
STATUS LAMPS

Red indicator lamps are connected to various strategic points in the phonograph circuit to indicate status of power and signal circuits.

Power Supply

+ 8 Volts DC
+28 Volts DC
28 Volts AC

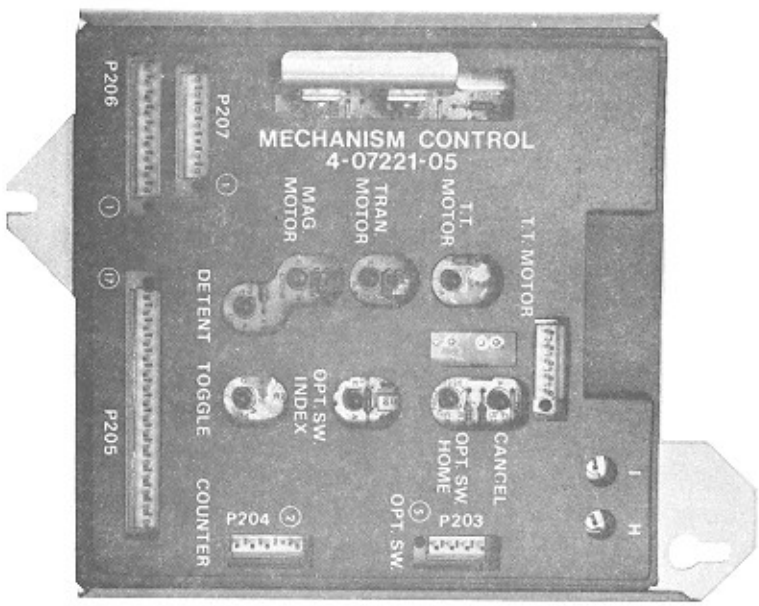
Shows presence of respective voltage and implies that there is no short on the lines.



MAIN POWER SUPPLY

Mechanism Control

T.T. Motor	Lights when Turntable motor command is present. Motor should be running
Tran Motor	Lights when Transfer command is present. Transfer motor should be running.
Mag. Motor	Lights when Magazine Motor command is present. Motor should be running.
Detent	Lights when Detent command is present. Detent coil should be actuated. Detent disengaged.
Toggle	Lights when Toggle command is present. Toggle coils should be actuated. Both toggle pins moved to left.
Opt. Sw. Index	Lights when the Index section of the optical switch sees the tooth space of the magazine drive gear. Flickers when the magazine rotates.
Opt. Sw. Home	Lights when the Home section of the optical switch sees the hole in the magazine drive gear. Flashes when the magazine record position 99 passes the Transfer position.
Cancel	Lights when the cancel signal line is shorted to ground.



MECH. CONTROL UNIT

Figure 5-1. Operational Information

SOUND SYSTEM QUICK CHECK

Rowe solid state sound systems are service designed for fast, easy repair. The following check list will enable you to locate troubles with basic tools.

> **CAUTION:**
>
> **Do not plug in or unplug circuit boards with power ON. Checks should be made with the changer in the record playing position. Perform all service checks in the order listed.**

No Sound - Both Channels

1. Power - Second Level

A. Check that the amplifier is plugged-in and is receiving power from the junction box.

B. Disconnect the mute plug.

C. Press the circuit breaker reset pushbutton on the amplifier chassis to make sure that it is not tripped. The amplifier should cause an audible "thump" in the speakers when the power is turned ON.

2. Volume Control

Disconnect the volume control plug from the amplifier chassis and short out pins 3 (common) to pins 1, 2 and 4, 5. Full volume indicates an open volume control or line. If full volume at all times is the problem and disconnecting the volume control plug does not kill the sound, replace the preamp board.

3. CARTRIDGE CONNECTIONS

Make sure that the stylus is not bent or broken; replace if necessary. With a selection playing, unplug the tone arm cable from the amplifier. Press your finger against the plug pins and check for a hum in both sound channels. If hum is present, check cartridge wiring against Figure 2-5 (Stereo Sound System), replace the cartridge if necessary.

4. EXTENSION SPEAKERS

To check if extension speakers are shorting out the amplifier, disconnect the extension speaker plug from the transformer package receptacle.

5. OUTPUT DEVICES

Visually inspect the driver board for blown fuses. If a fuse is blown, replace the associated output device. The two devices used in each channel are not interchangeable. Check the part number on the case and install an identical or equivalent replacement. Before mounting the device onto the heat sink, be sure that the heat sink surface is flat and no burrs are around the mounting holes to cause a short. Be sure that one, and only one, mica insulator is between the device and the heat sink and heat transfer compound (Rowe Specification 0-00053-00) is on both sides of insulator.

6. FILTER CAPACITORS

Check for plus and minus 30 VDC in the amplifier power supply. Connect the negative meter lead to ground and check the voltage at the terminals of the large electrolytic filter capacitors located on the amplifier chassis next to the power transformer. When taking readings on the capacitor with the outer shell isolated from chassis to one of the shell tabs, check that the voltage on each capacitor terminal is the same. A lowered voltage at one of the capacitor pins indicates that the capacitor may be defective and should be replaced, or that the bridge rectifier is defective.

Another indication of defective filter capacitors is excessive hum in the sound output.

7. PREAMP OUTPUT

Short all five of the volume control pins located on amp. Press your finger against pins 1 or 3 (outside pins) labeled PHONO CARTRIDGE INPUT, and check for approximately 1 VAC at preamp output (pins 3 or 5 of 13 pin connector to chassis common). Replace the Preamp Board if voltage is not present. If voltage is present check the center pin of the Output Driver Board for approximately 16 VAC. If voltage is not present, make sure your finger is pressed against the same outside pin with respect to the channel that is being checked with the voltmeter.

No Sound, Low Sound Or Distorted Sound Right Or Left Channel Only.

Balance Control - Adjust control for equal sound from each channel. Leave in mid position if adjustment is not possible.

With a selection playing, reverse tone arm cable connections to the amplifier. If the sound switches channels, check cartridge connections against Figure 2-5 (Stereo Sound System). Replace the cartridge if connections are good. Make sure that the stylus is not bent or broken; replace if necessary.

Extension Speakers - See Step 4.

Output Devices - See Step 5.

Preamp - See Step 7.

Driver Boards - If one driver board is defective, switch the input to "Mono" and use the good channel temporarily.

Constant High Volume - Cannot Adjust

Volume Control - Disconnect volume control plug from amplifier chassis. No sound indicates a short in the volume control line.

Preamp - If full volume is heard with control plug disconnected, replace the preamplifier board.

Excessive Record Scratch

Worn Records - Replace worn records

Damaged Stylus - Make sure that the stylus is not worn or broken; replace if necessary. Check stylus force.

Treble Range Control Too High

Reduce setting of control for worn or noisy records.

Excessive Hum

Open Shield - Be sure that shield or wires are not broken between cartridge and the amplifier input plug.

Cartridge Defective - Substitute a good cartridge.

Filter Capacitors - Check filter capacitor, parallel an extra 500 Mfd. 50V capacitor in chassis. If hum drops; replace capacitor.

If External Inputs are used, the equipment driving those inputs must not be tied to earth ground.

SEQUENCE OF OPERATION

The sequence of operation diagrams that follow illustrate the phonograph operation cycle.

The first diagram shows voltage and common connections to the electronic circuit modules and the electrical components located on the mechanism.

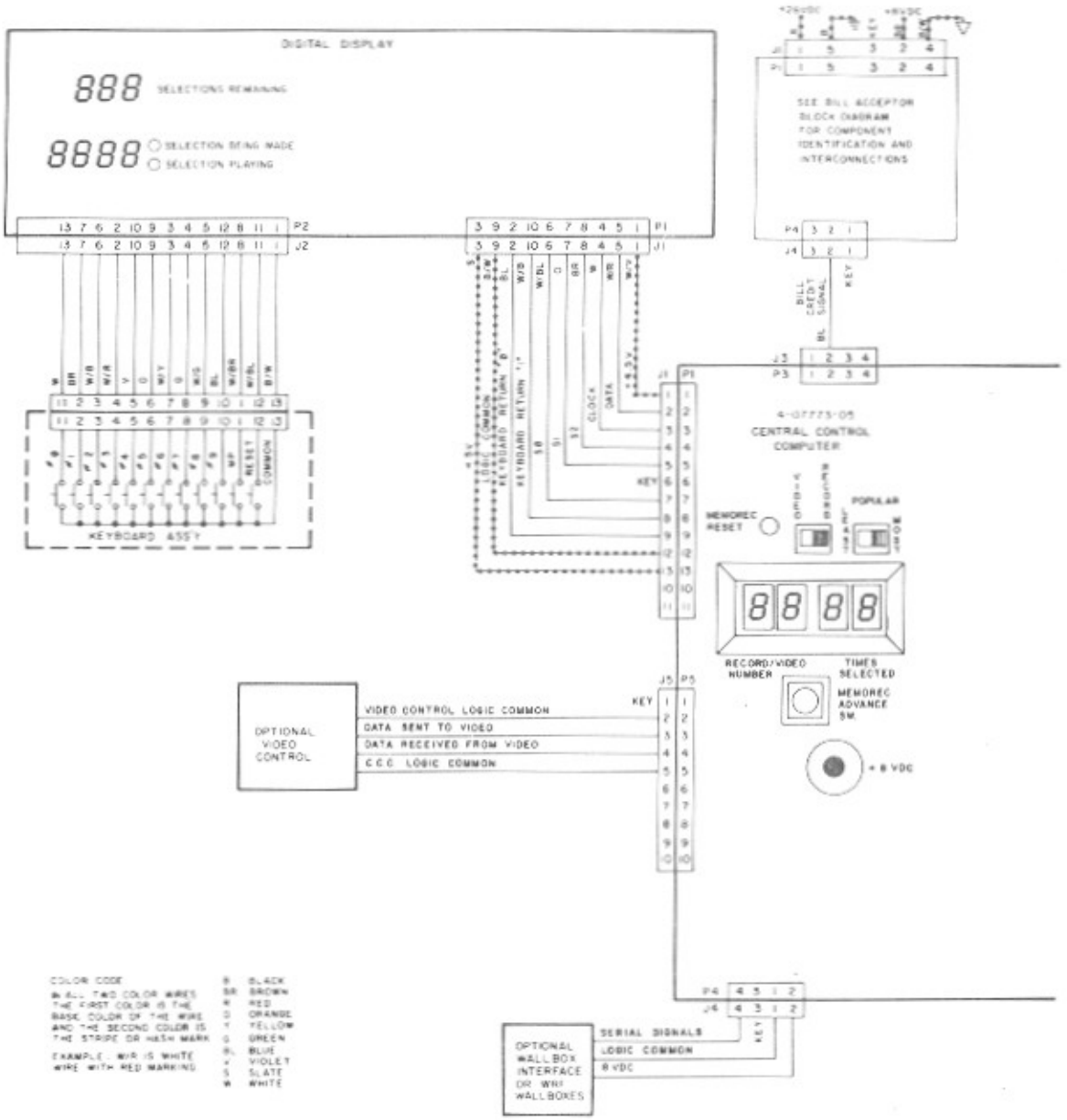
The remaining diagrams illustrate which signals are active during each moment in the phonograph operational cycle. Active signals are shown by a dotted line.

Most of the voltages shown on the Block Diagram can be measured with a VOM.

Pulsed signals are shown as dashed lines.

SEQUENCE DIAGRAM 1

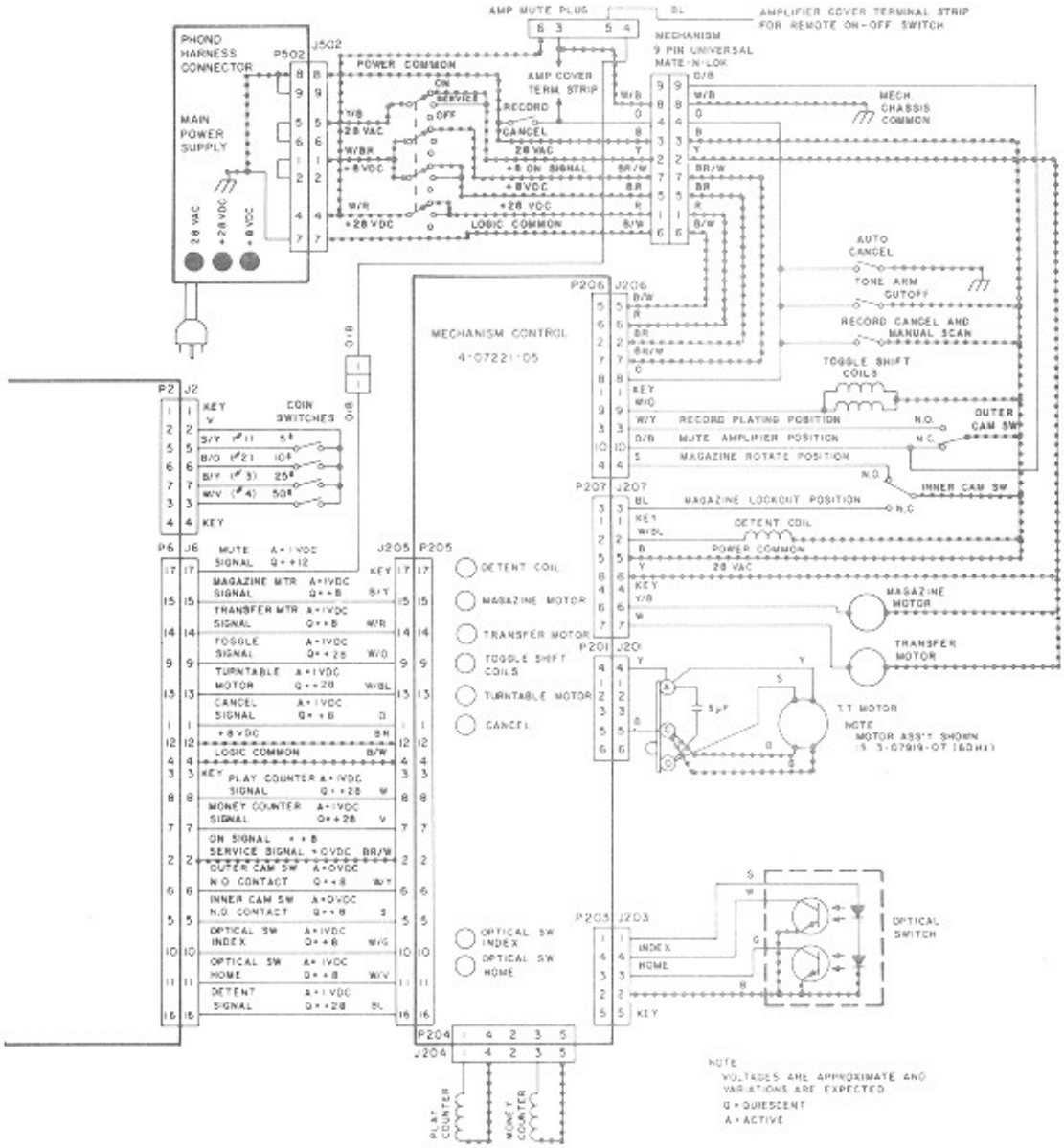
Power is turned ON, voltages and commons are applied to circuits and components.



1. Current flows through the power cord and power switch to energize the power supply. Current flows through the SERVICE switch and energizes the 28 VAC, +28 VDC, and +8 VDC busses. The +8 VDC LED on the CCC lights.

2. The 28 Volt AC flows to the magazine motor, transfer motor, and mechanism control. The 28 VAC is routed through the mechanism control to the turntable motor.

3. The +28 VDC appears on the amplifier mute plug, mechanism control, and bill acceptor.



4. Power Common connects the outside record cancel switch, manual scan switch, tone arm cutoff, toggle shift coils, inner and outer cam switches, detent coil, and mechanism control.

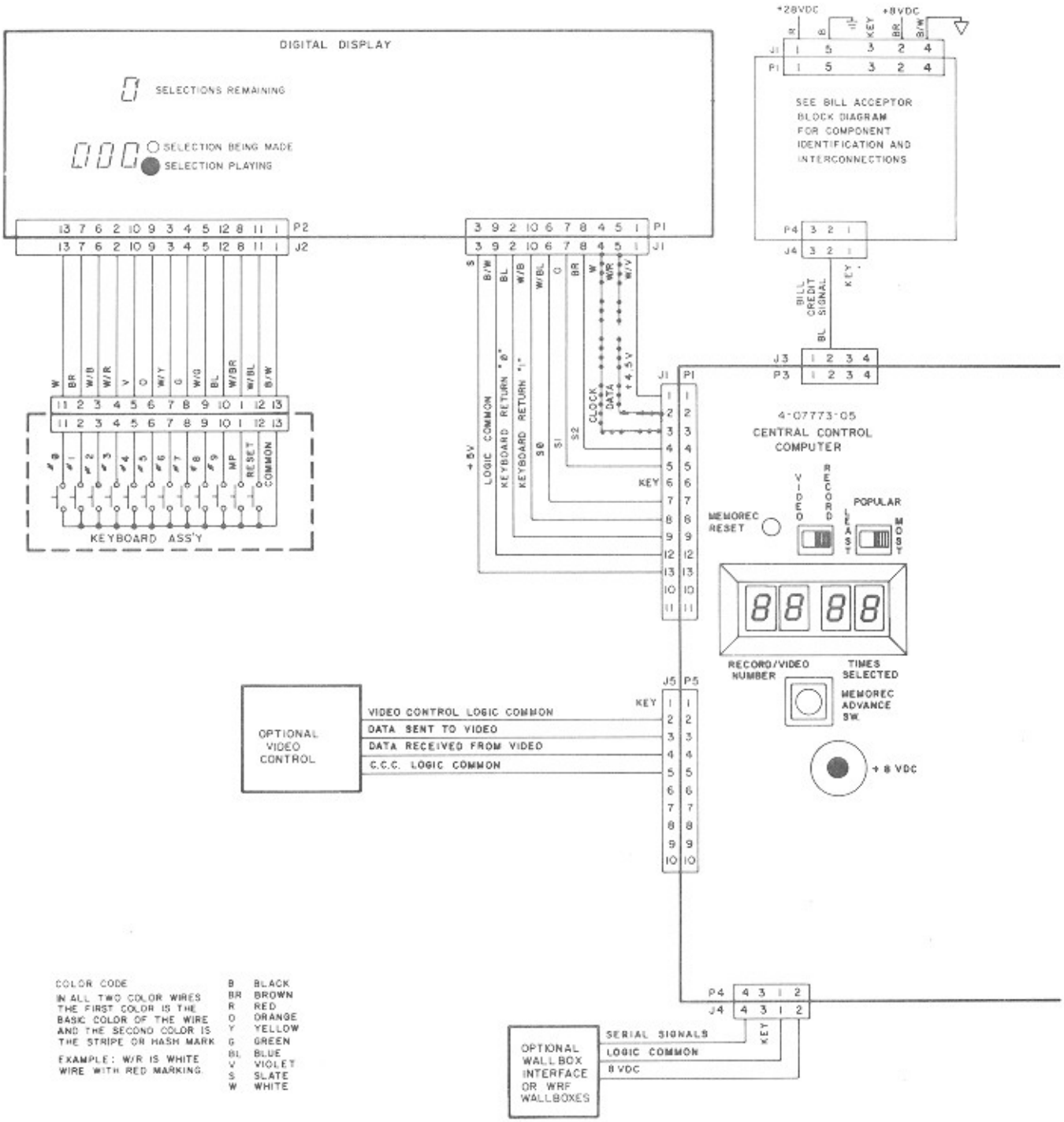
5. The +8 VDC and the Logic Common connect to the mechanism control and bill acceptor. These wires are routed through the mechanism control to the CCC and Logic Common is routed to the optical switch. The CCC routes +8 VDC and Logic Common to the wallbox interface.

6. The +8 ON signal is routed through the mechanism control to the CCC.

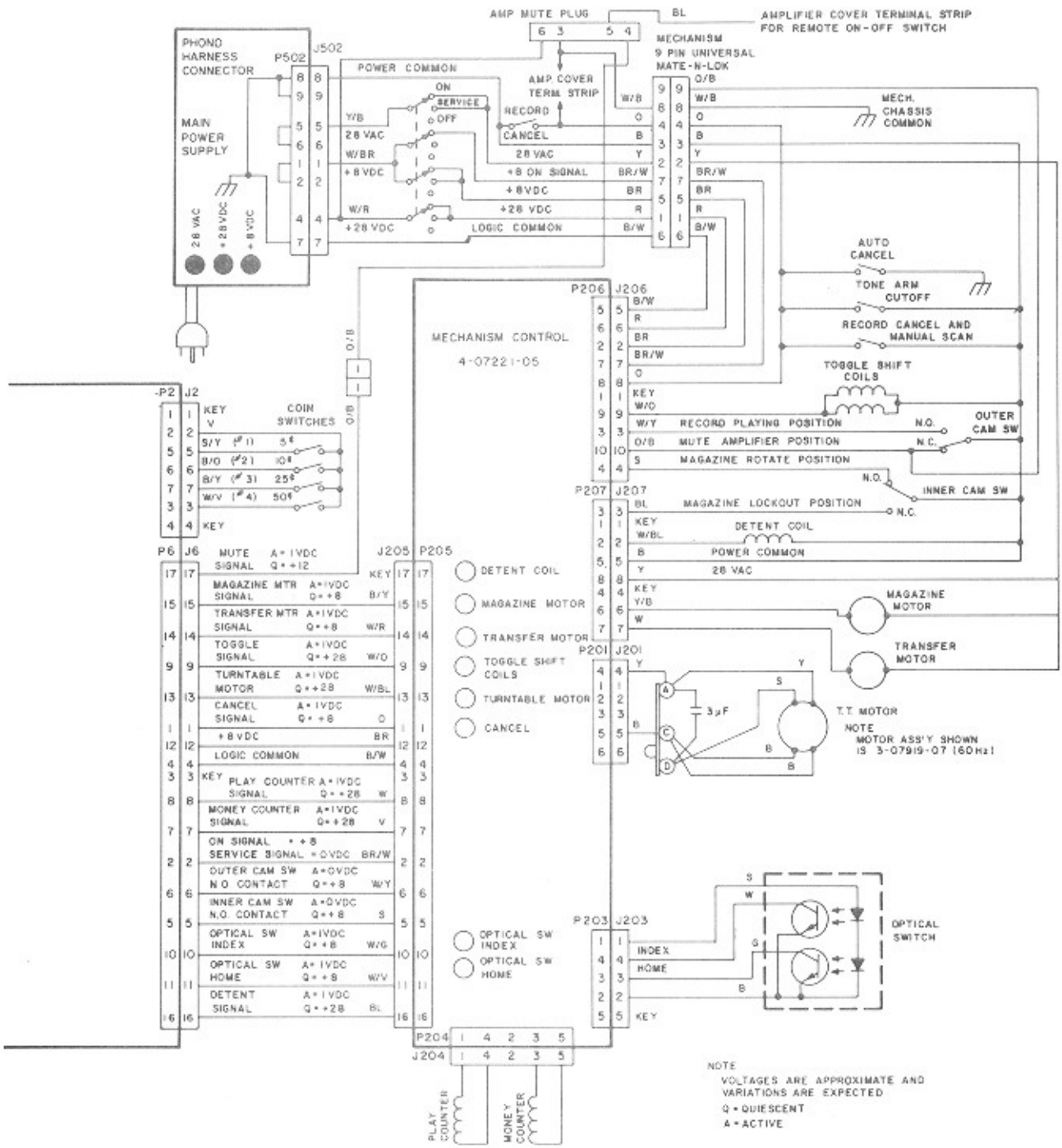
7. The mechanism Chassis Common connects the amplifier mute plug, amplifier cover terminal strip, and the auto cancel switch.

SEQUENCE DIAGRAM 2

The CCC senses that power is turned ON. No selections or credit are in memory.



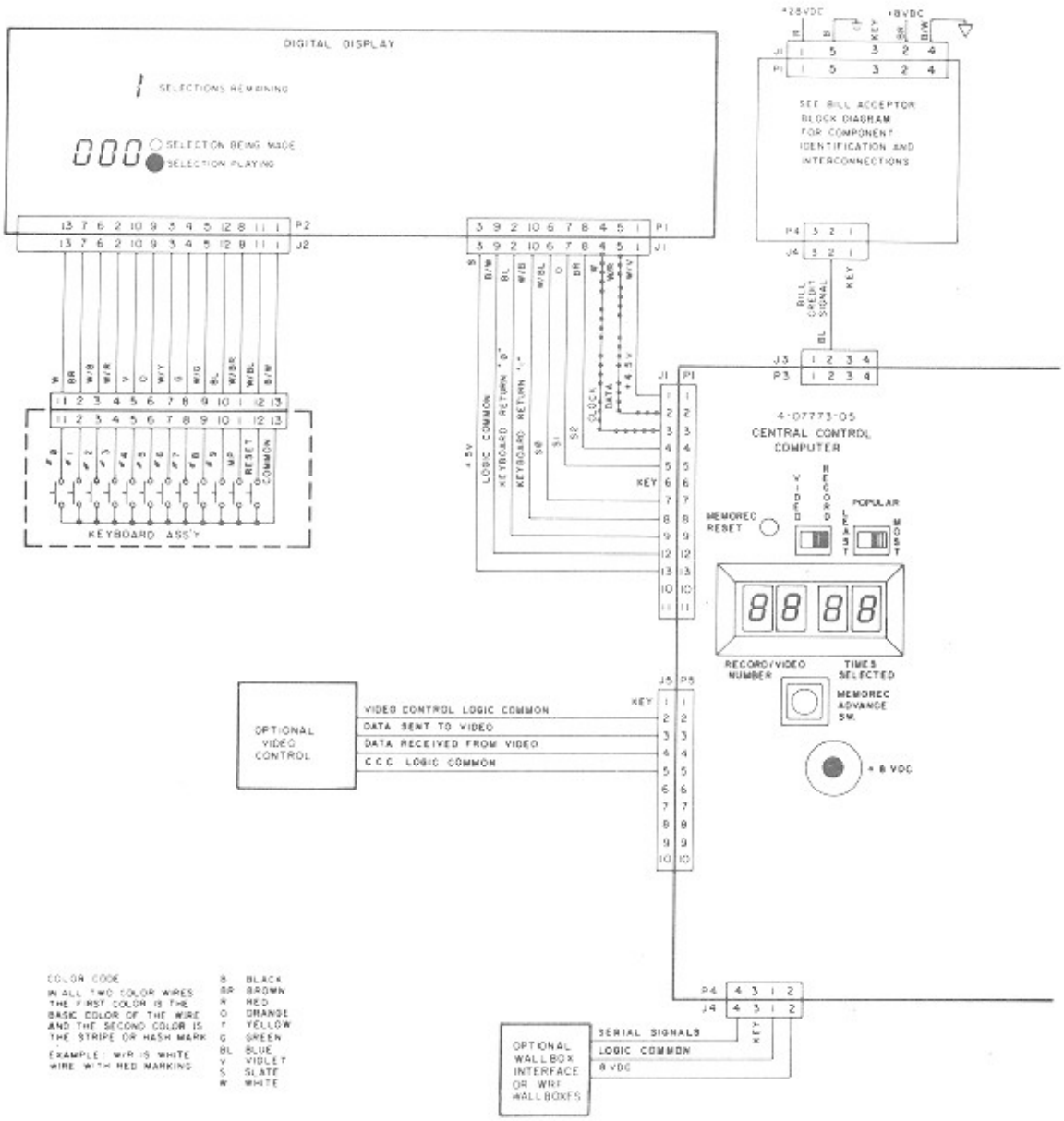
1. The CCC begins to continually monitor the state of all switches and determines if the transfer arm (gripper bow) is in the HOME position.



2. The CCC sends clock and data signals to the digital display, causing the LED's to light.

SEQUENCE DIAGRAM 3

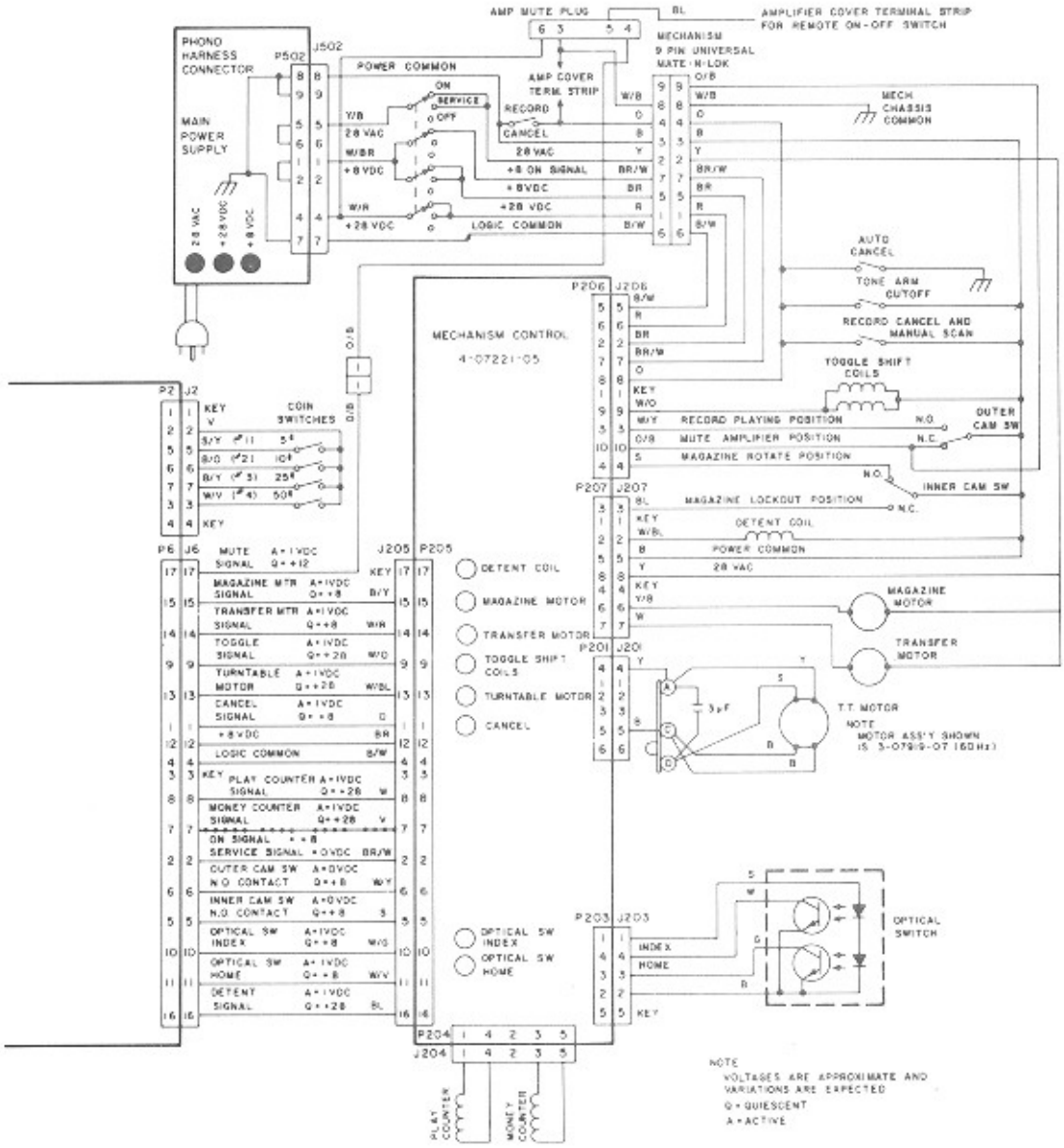
A customer inserts a quarter, standard credit established, and credit is set at 1 play for 25¢, 2 plays for 50¢, and 5 plays for $1.00.



1. After the customer inserts a quarter into slot, the coin passes through the validator and actuates the 25¢ switch.

2. The CCC senses the switch closure and stores 5 money units (nickels) in its memory.

3. Five pulses are sent to the money counter.



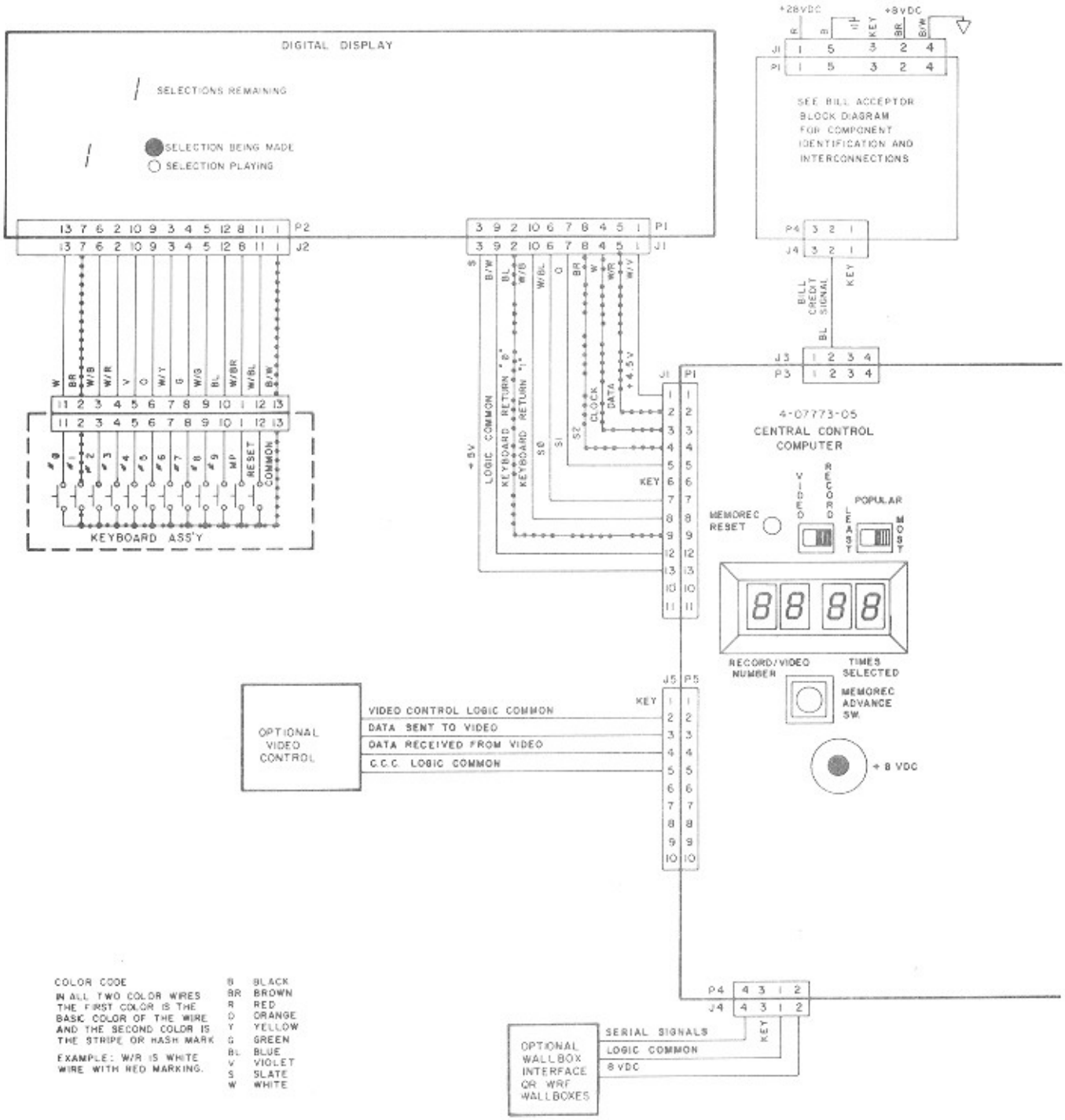
4. The CCC uses the money value stored in its memory and the stored pricing information to calculate the credit level, which is equal to 1.

5. The SELECTION REMAINING DISPLAY shows 1 credit.

NOTE: If a bill is inserted instead of a coin, the bill acceptor sends out pulses for the bill denomination inserted. One pulse is sent for a $1 bill and five pulses are sent for a $5 bill. These pulses can be monitored at P3, Pin 2 of the CCC.

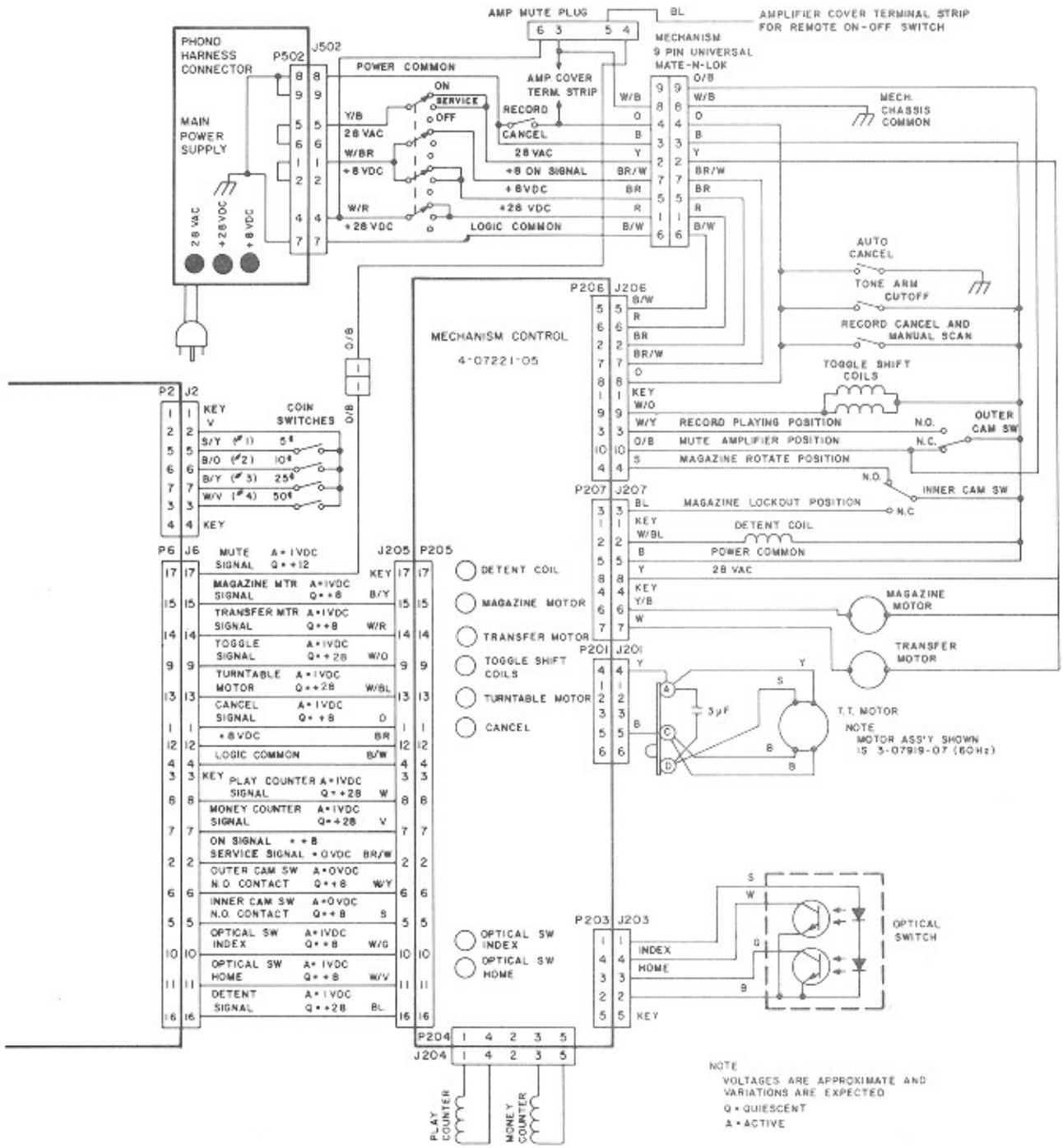
SEQUENCE DIAGRAM 4

The first digit is selected and displayed.



1. A customer presses the first digit in his selection number (In this illustration the number pressed is 1.).

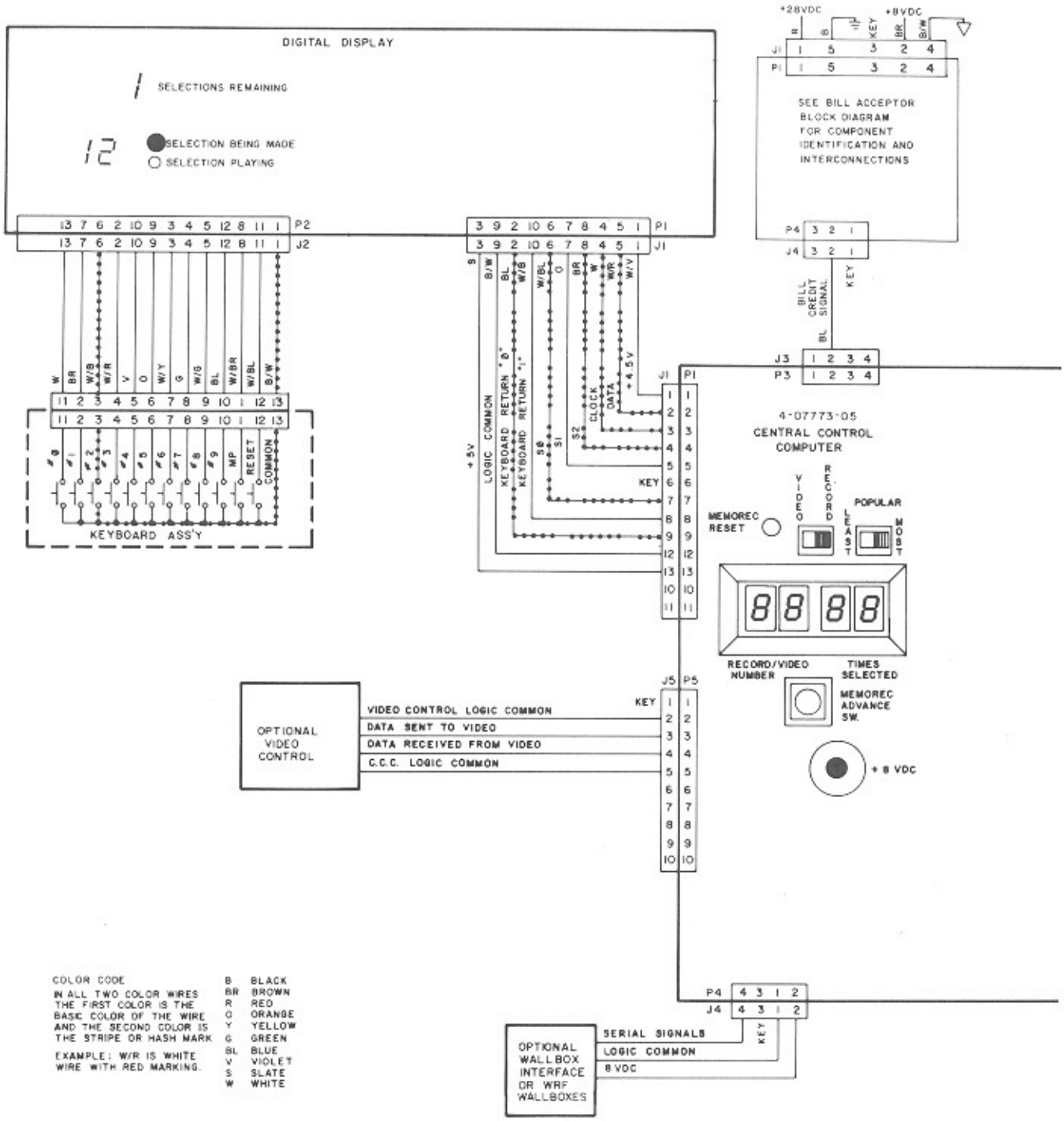
2. The CCC senses the key closure, checks that the credit is available, and displays the credit on the digital display.



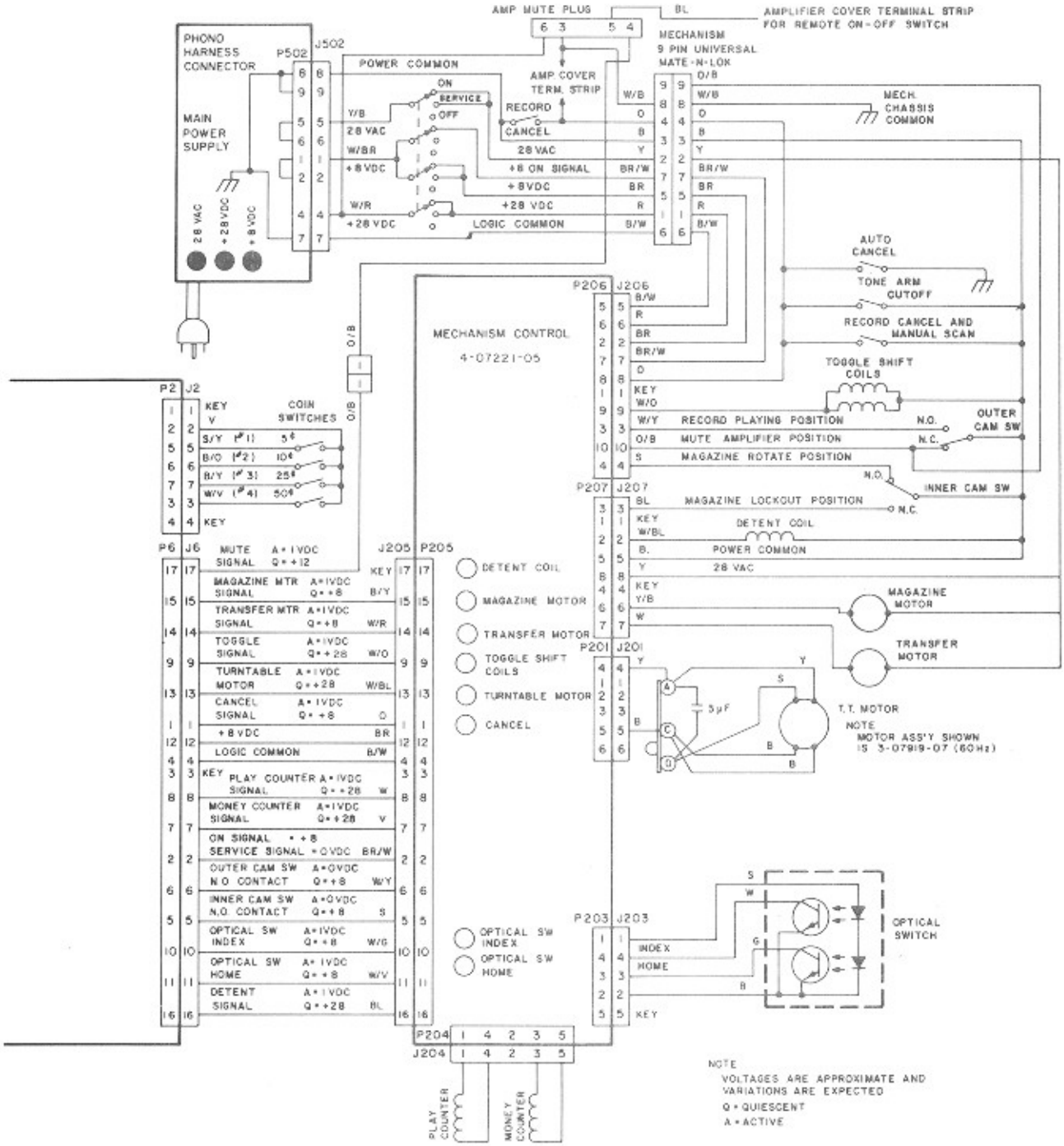
NOTE: The first digit of a selection must be a 1 or a 2. If any other key is pressed, the computer ignores it.

SEQUENCE DIAGRAM 5

The second digit is selected and displayed.

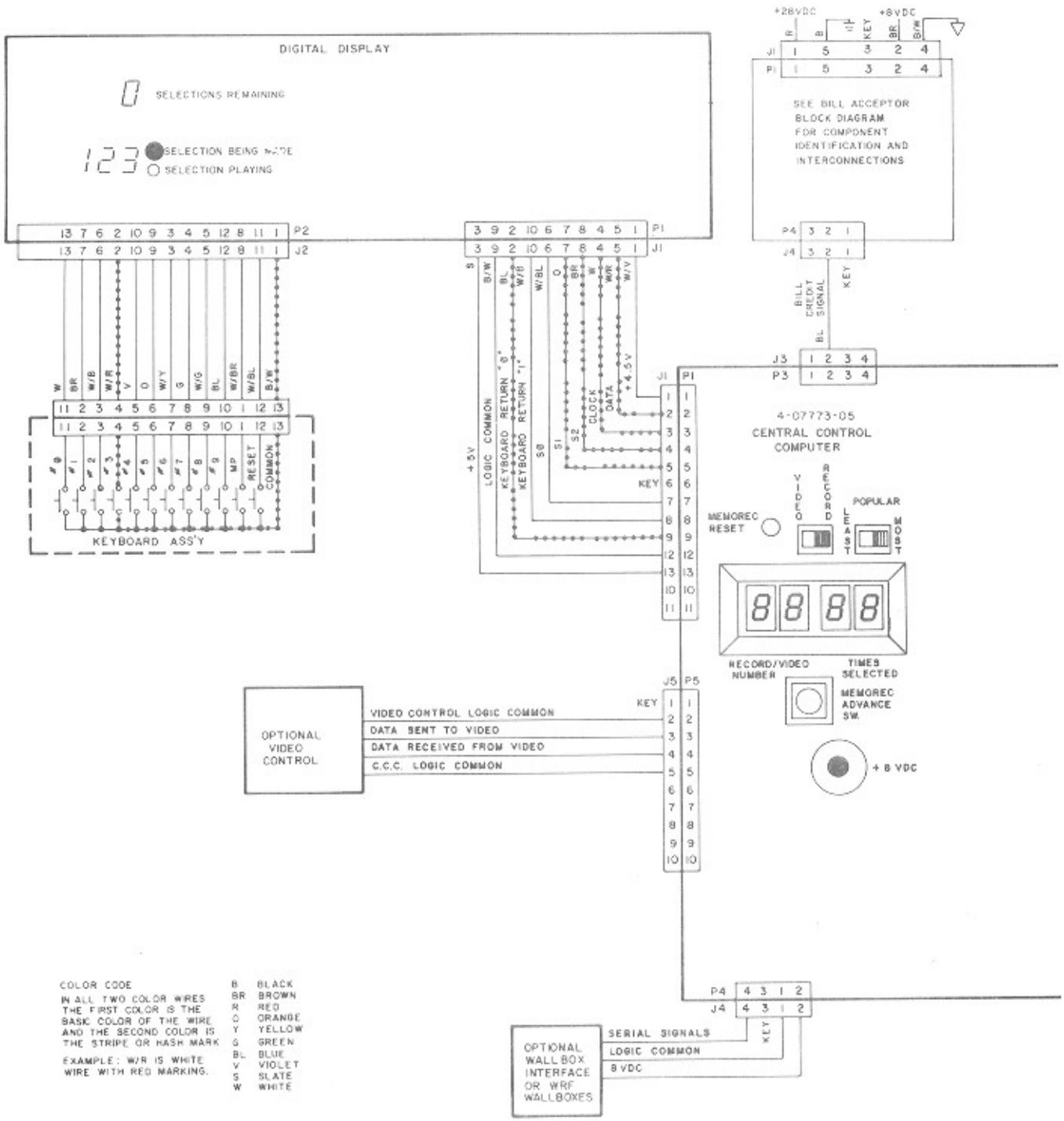


1. The customer presses the second digit of his selection, the number 2.
2. The CCC senses the key closure, stores the selected digit value, and displays it.

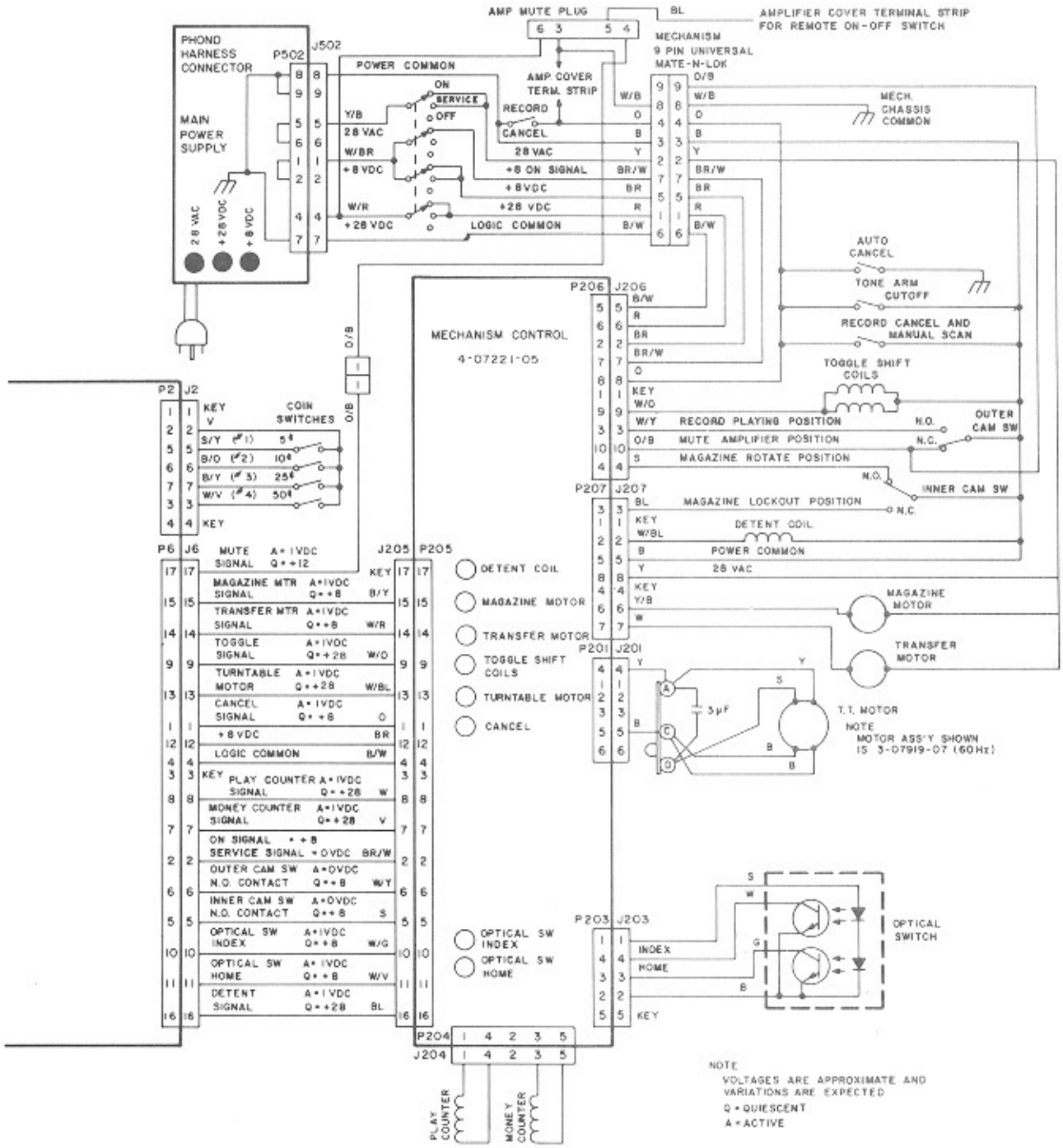

AMP MUTE PLUG
6 3 5 4
BL
AMPLIFIER COVER TERMINAL STRIP FOR REMOTE ON-OFF SWITCH
MECHANISM 9 PIN UNIVERSAL MATE-N-LOK
PHONO HARNESS CONNECTOR
P502
J502
MAIN POWER SUPPLY
28 VAC
+28VDC
+8VDC
POWER COMMON
ON
SERVICE
OFF
RECORD
CANCEL
AMP COVER TERM. STRIP
Y/B
28 VAC
W/BR
+8VDC
W/R
+28 VDC
+8 ON SIGNAL
+8VDC
+28 VDC
LOGIC COMMON
W/B
O
B
Y
BR/W
BR
R
B/W
O/B
MECH. CHASSIS COMMON
MECHANISM CONTROL
4-07221-05
P206
J206
AUTO CANCEL
TONE ARM CUTOFF
RECORD CANCEL AND MANUAL SCAN
TOGGLE SHIFT COILS
KEY W/O
W/Y
RECORD PLAYING POSITION
O/B
MUTE AMPLIFIER POSITION
S
MAGAZINE ROTATE POSITION
N.O.
N.C.
OUTER CAM SW
INNER CAM SW
P207
J207
SL
MAGAZINE LOCKOUT POSITION
KEY W/BL
DETENT COIL
B.
POWER COMMON
Y
28 VAC
KEY Y/B
W
MAGAZINE MOTOR
TRANSFER MOTOR
P201
J201
5μF
T.T. MOTOR
NOTE
MOTOR ASS'Y SHOWN IS 3-07919-07 (60Hz)
P2
J2
KEY V
COIN SWITCHES
S/Y (P1) 5¢
B/O (P2) 10¢
B/Y (P3) 25¢
W/V (P4) 50¢
KEY
P6
J6
J205
P205
MUTE SIGNAL A=1VDC Q=+12
MAGAZINE MTR SIGNAL A=1VDC Q=+8 B/Y
TRANSFER MTR SIGNAL A=1VDC Q=+8 W/R
TOGGLE SIGNAL A=1VDC Q=+28 W/O
TURNTABLE MOTOR A=1VDC Q=+28 W/BL
CANCEL SIGNAL A=1VDC Q=+8 O
+8VDC BR
LOGIC COMMON B/W
KEY PLAY COUNTER SIGNAL A=1VDC Q=+28 W
MONEY COUNTER SIGNAL A=1VDC Q=+28 V
ON SIGNAL = +8
SERVICE SIGNAL = 0VDC BR/W
OUTER CAM SW N.O CONTACT A=0VDC Q=+8 W/Y
INNER CAM SW N.O. CONTACT A=0VDC Q=+8 S
OPTICAL SW INDEX A=1VDC Q=+8 W/G
OPTICAL SW HOME A=1VDC Q=+8 W/V
DETENT SIGNAL A=1VDC Q=+28 BL
DETENT COIL
MAGAZINE MOTOR
TRANSFER MOTOR
TOGGLE SHIFT COILS
TURNTABLE MOTOR
CANCEL
OPTICAL SW INDEX
OPTICAL SW HOME
P204
J204
PLAY COUNTER
MONEY COUNTER
P203
J203
INDEX
HOME
KEY
OPTICAL SWITCH
NOTE
VOLTAGES ARE APPROXIMATE AND VARIATIONS ARE EXPECTED
Q = QUIESCENT
A = ACTIVE

SEQUENCE DIAGRAM 6

The third digit is selected and displayed, the selection is stored, Memorec is incremented, and the credit is cancelled.



1. The customer presses the third digit of his selection, the number 3.
2. The CCC senses the key closure, stores the selected digit, and displays it.
3. The selection is stored in CCC.

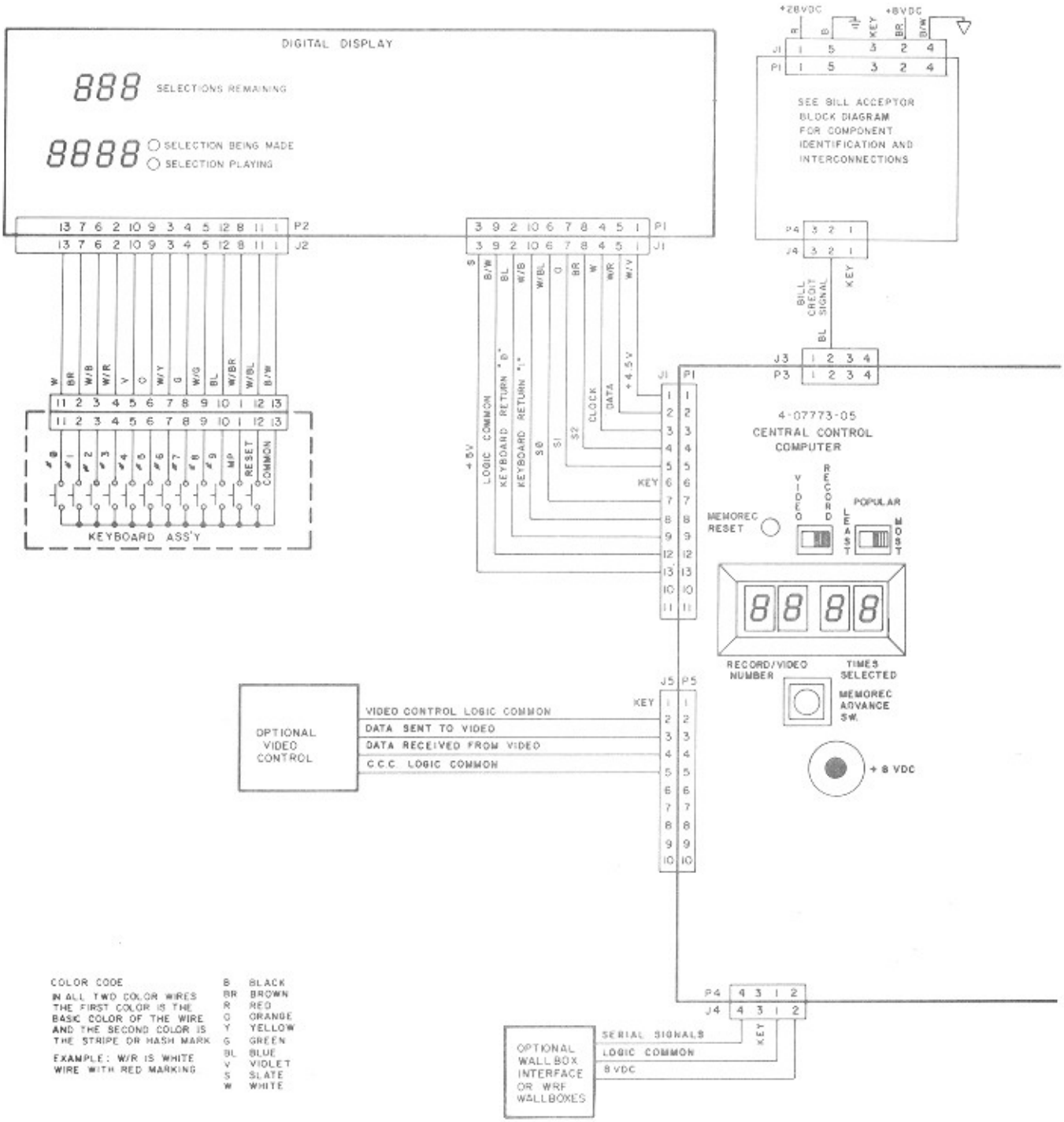


4. Memorec data is incremented.

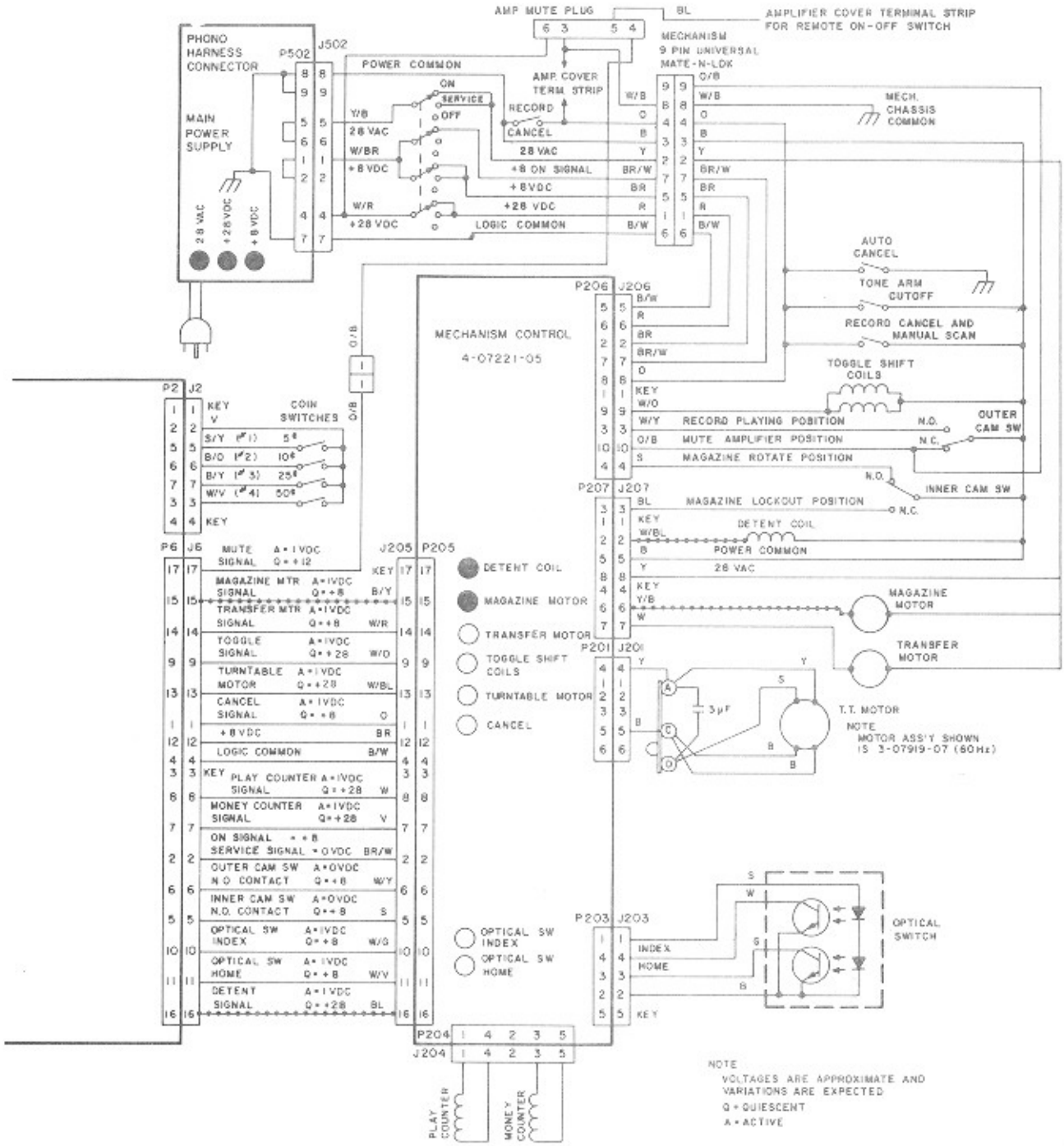
5. The credit is set to 0 (zero).

SEQUENCE DIAGRAM 7

The detent coil and magazine are energized and the magazine rotates.



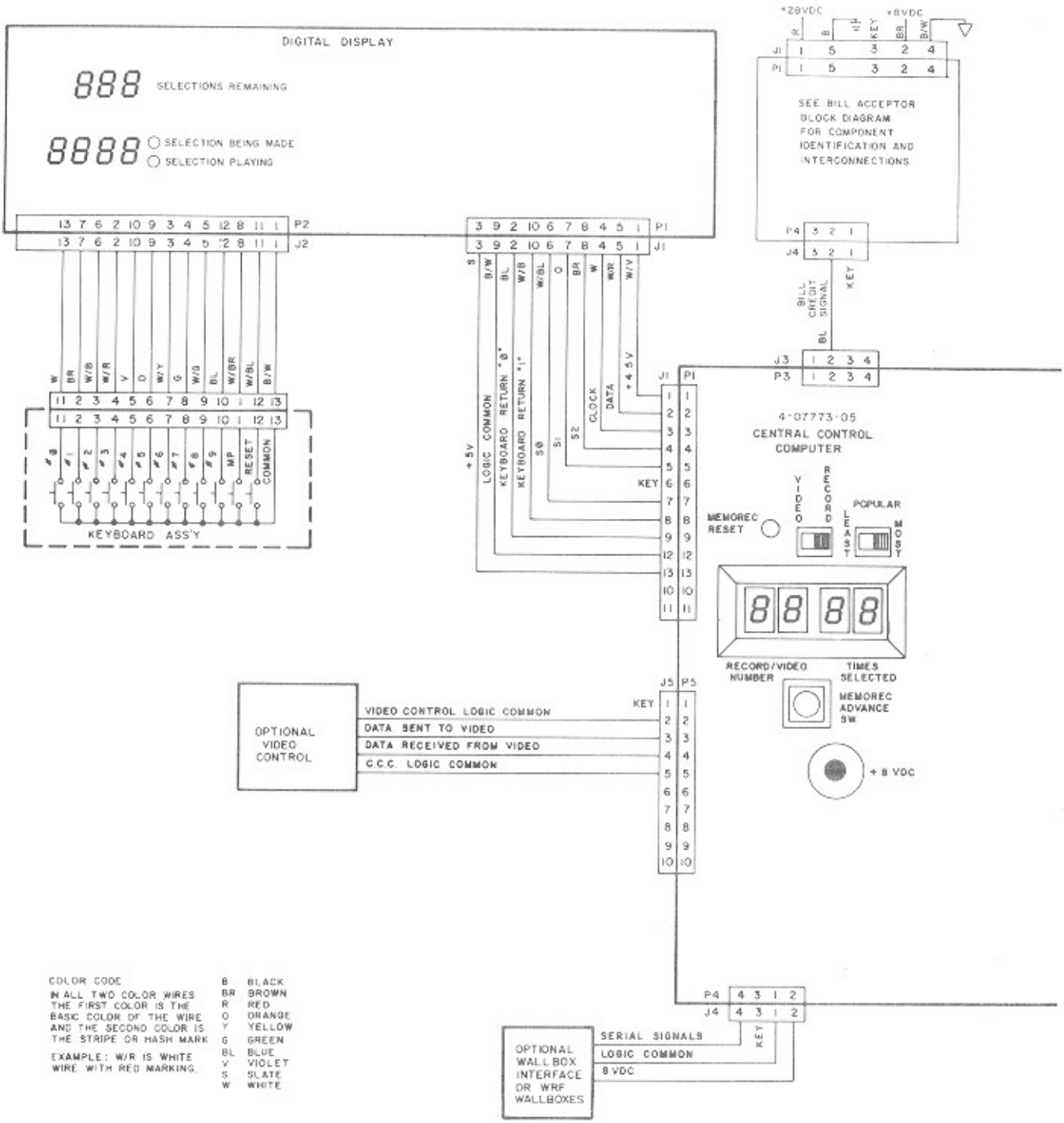
1. The CCC tells the mechanism control to energize the detent coil. The DETENT COIL LED lights and the energized detent coil moves a mechanical linkage that unlocks the magazine.



2. After 56 to 70 milliseconds, the CCC tells the mechanism control to energize the magazine motor. The MAGAZINE MOTOR LED lights and the motor turns, which rotates the unlocked magazine.

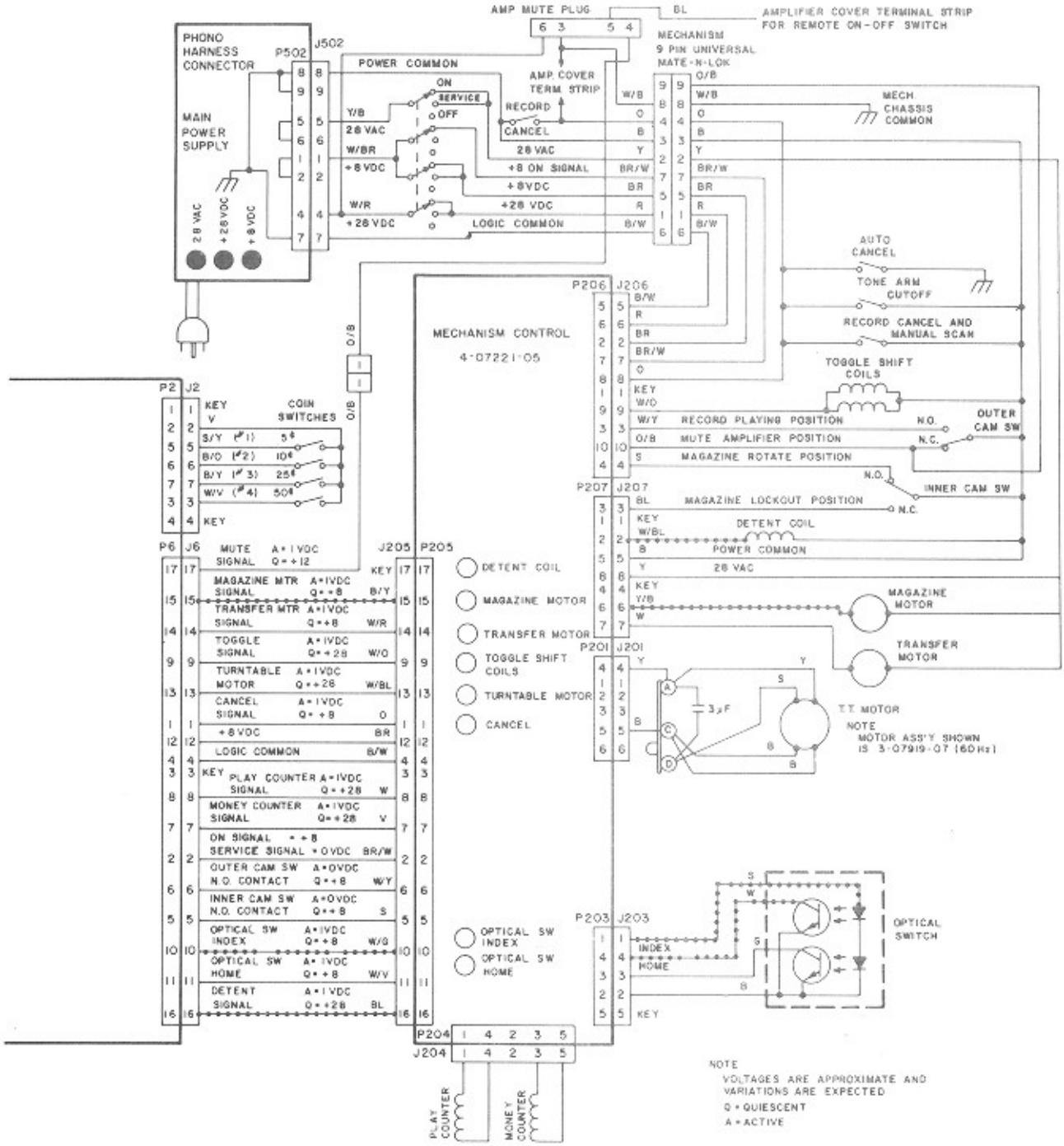
SEQUENCE DIAGRAM 8

The magazine rotates until the selection is located.



1. As the magazine rotates, the gear teeth interrupt the optical switch light beam.

When the OPTICAL SWITCH INDEX LED goes from dark to light (OFF to ON), the CCC knows that the magazine is moving to the next record position. Two things happen:

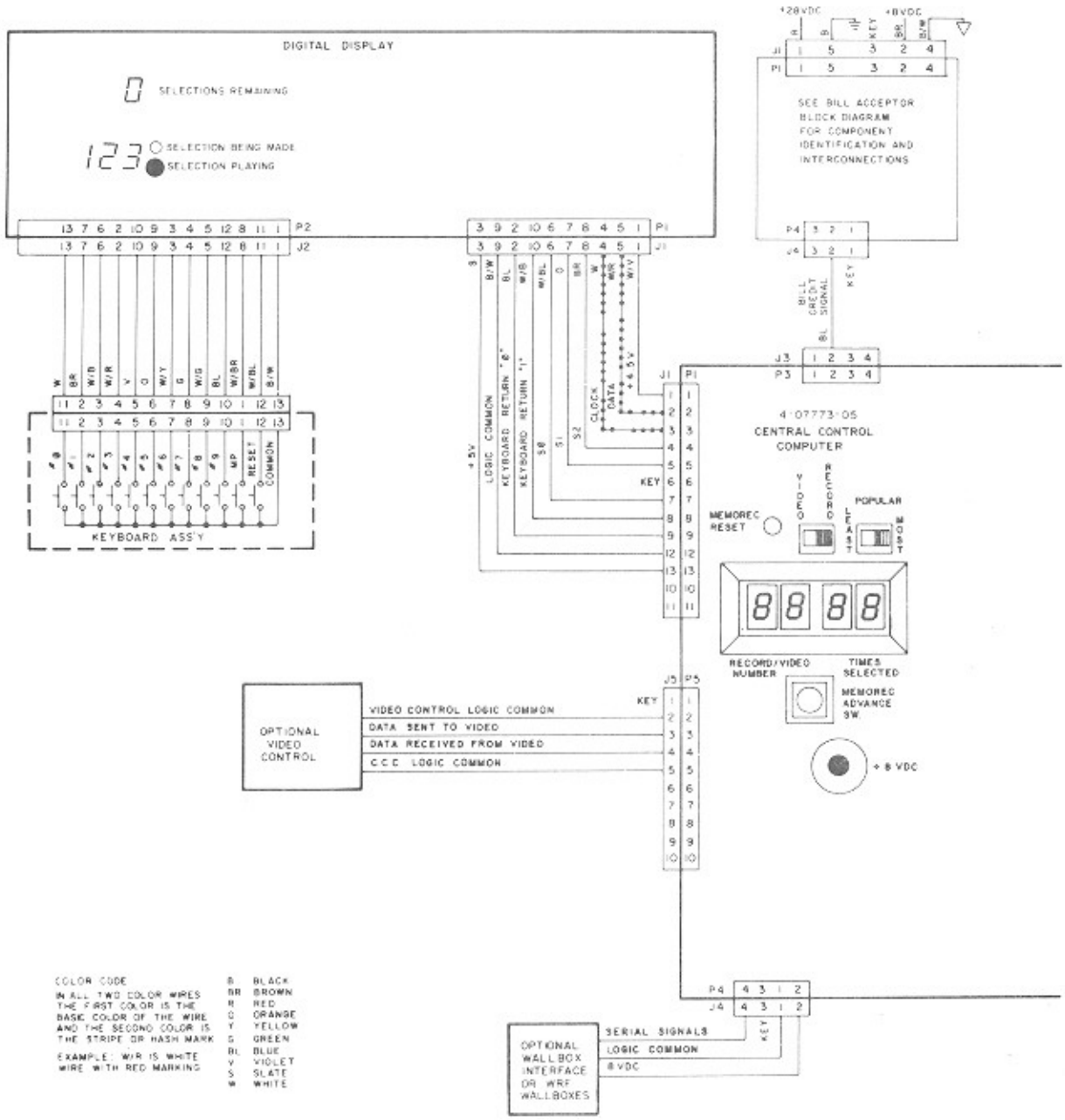


- The CCC keeps track of the magazine position by adding 1 to the position value stored in the CCC.
- The CCC checks the selection memory to determine which side of the next record to select.

2. The SELECTION PLAYING display shows the magazine record position.

SEQUENCE DIAGRAM 9

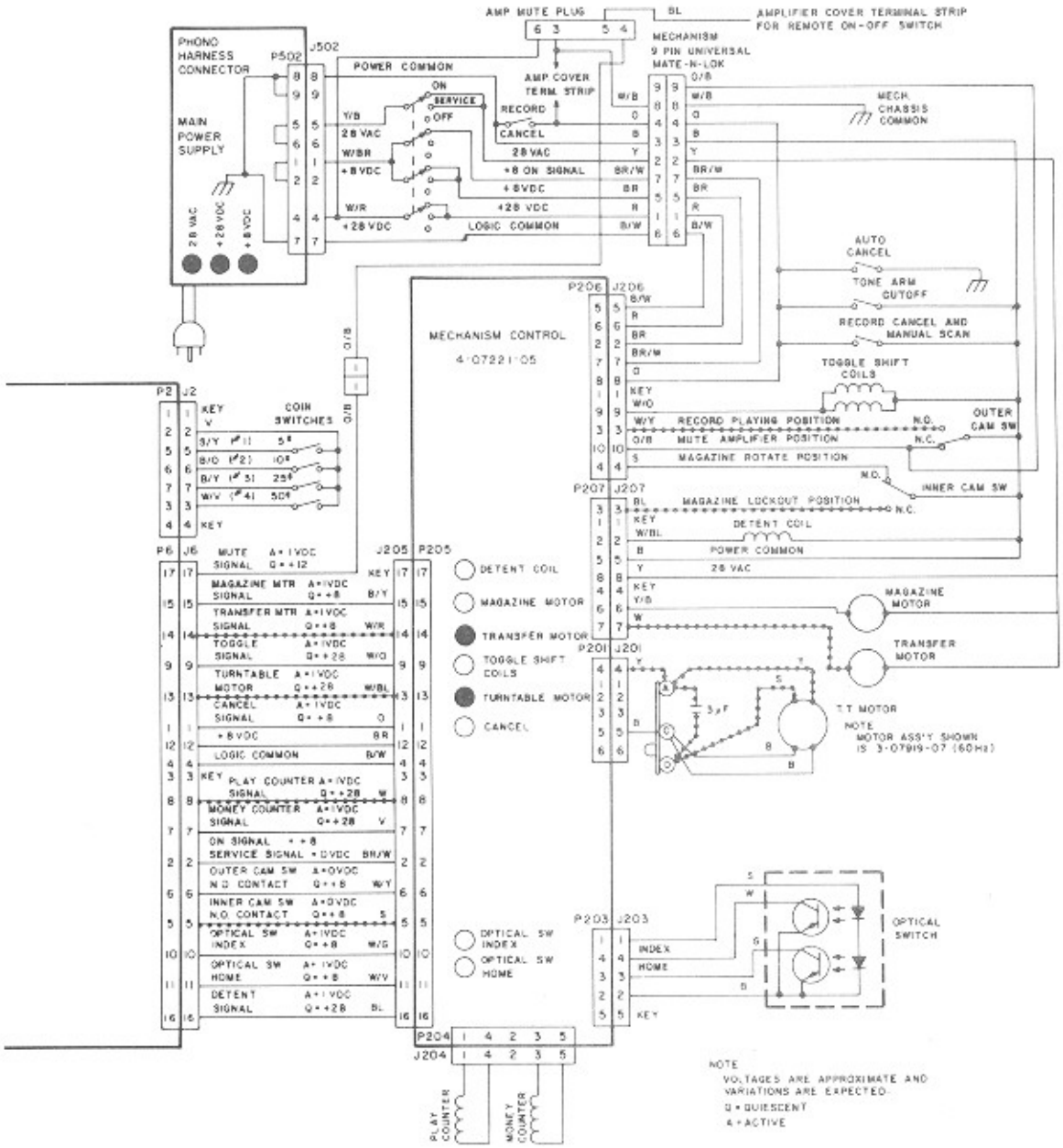
The selection is located, the record transferred to the turntable, and the tone arm is set down.



1. The CCC turns OFF the DETENT and MAG MOTOR LED's, which tells the mechanism control to de-energize the detent coil and magazine motor.

2. The magazine locks because the detent pawl falls into a slot in the detent wheel.

3. The CCC turns ON the TRANSFER MOTOR and the TURNTABLE MOTOR LED's, causing the mechanism control to start the transfer and turntable motors. The CCC tells the mechanism control to advance the play counter.



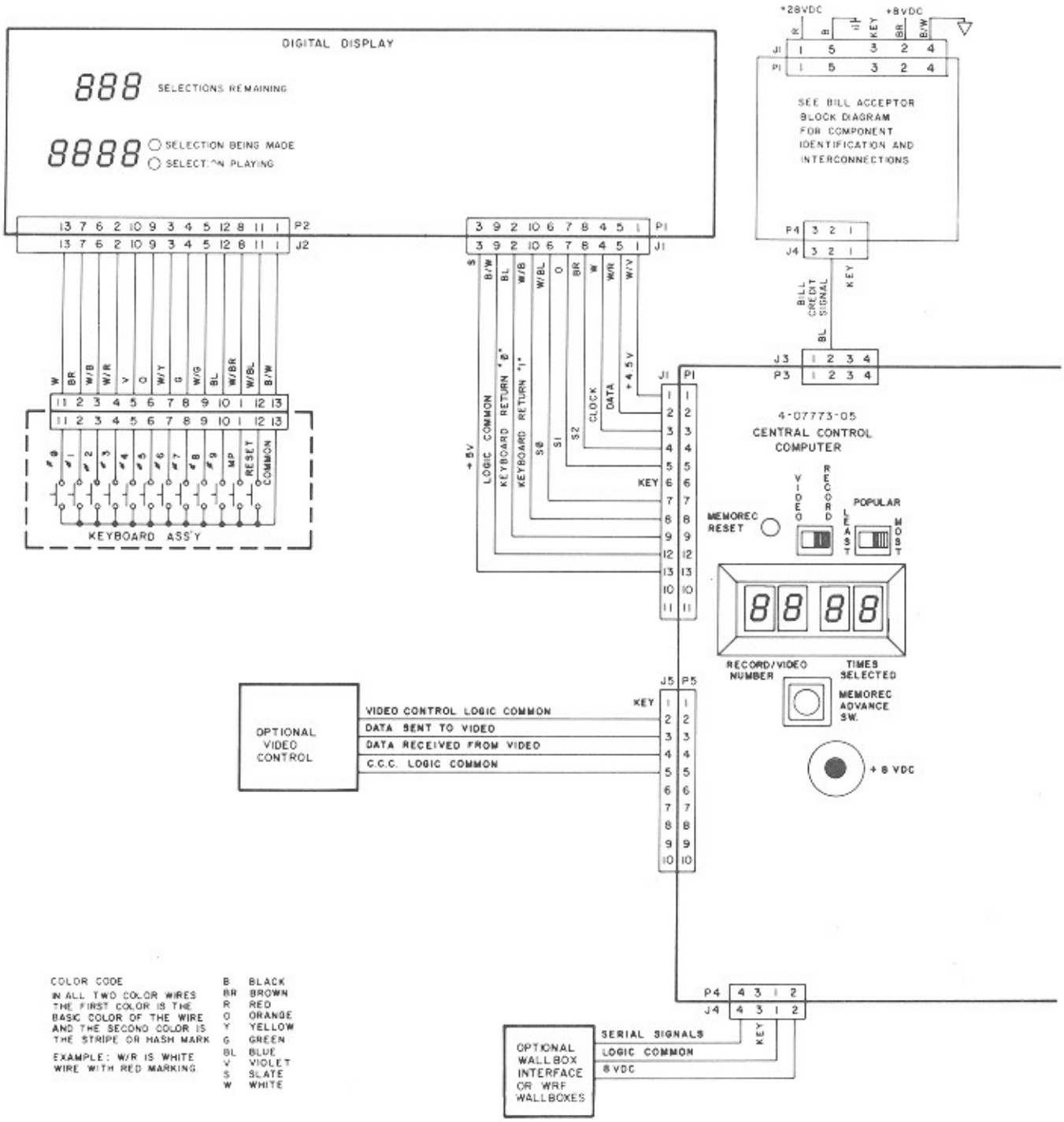
4. The transfer motor rotates the cam off the inner cam switch (If the first digit of the selection was a two, the CCC signal lights the TOGGLE LED, causing the mechanism control to energize the toggle shift controls.).

5. The gripper bow picks up a record, places it on the turntable, and the tone arm sets down. If a record is not placed on the turntable, the Auto-Cancel operates when the tone arm sets down.

6. The SELECTION PLAYING display lights, showing the record number chosen.

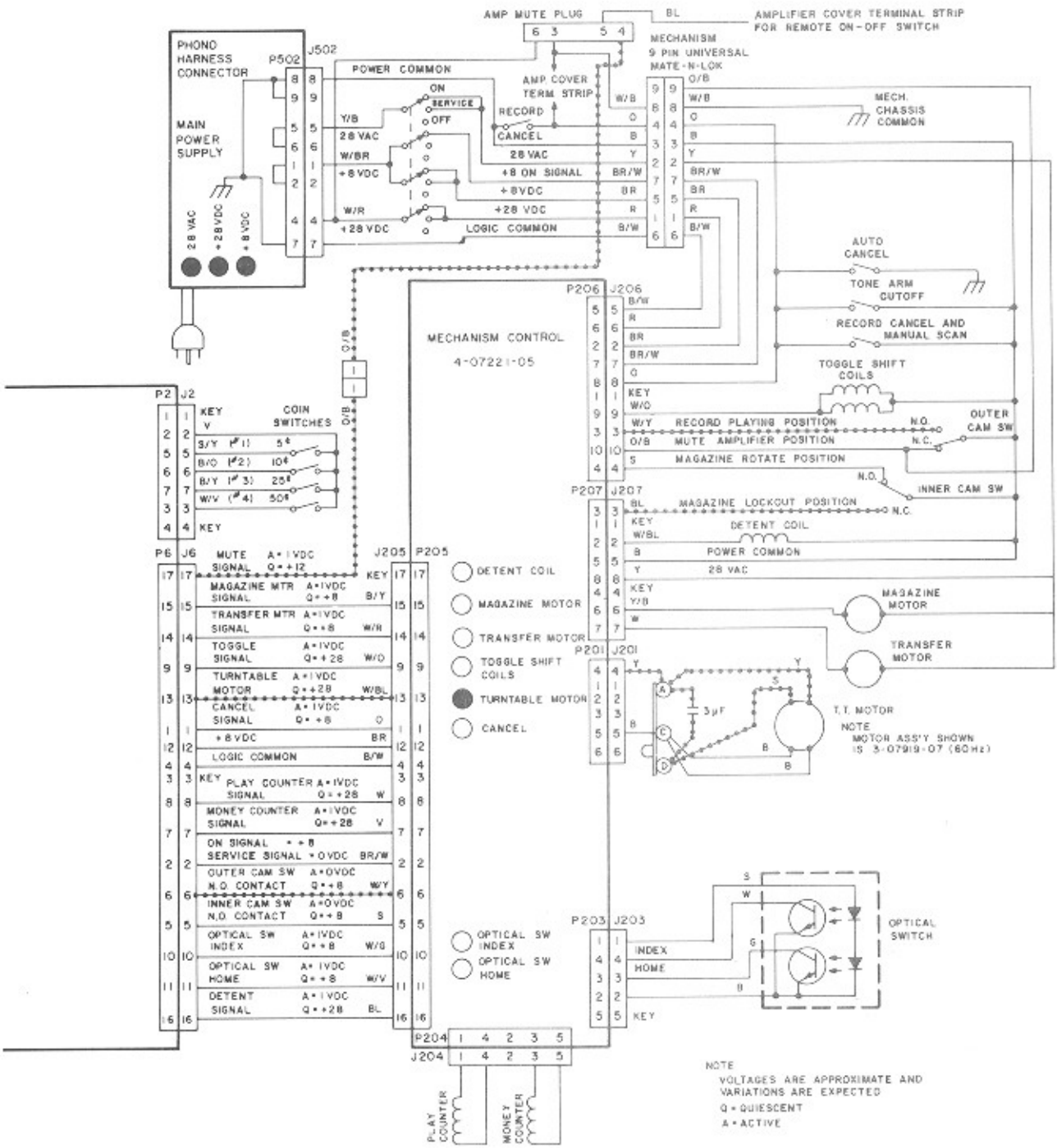
SEQUENCE DIAGRAM 10

The amplifier is unmuted and the record plays.



1. The transfer motor runs and the cam moves onto the outer cam switch.

2. The outer cam switch N.O. contact signals the CCC to turn OFF the transfer motor. The TRANSFER MOTOR LED turns OFF and the transfer motor stops.

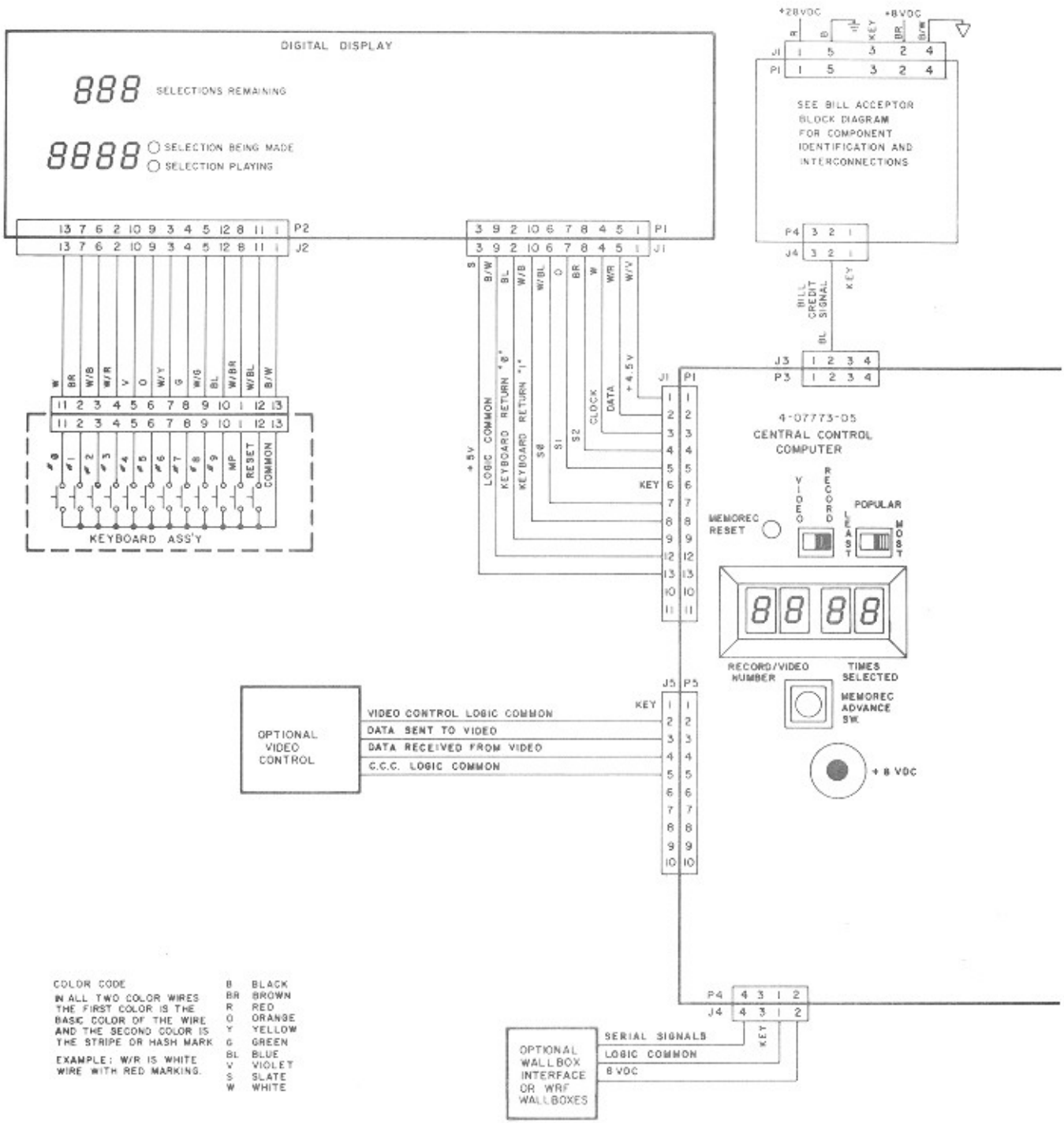


3. The mute signal becomes active causing the amplifier to unmute.

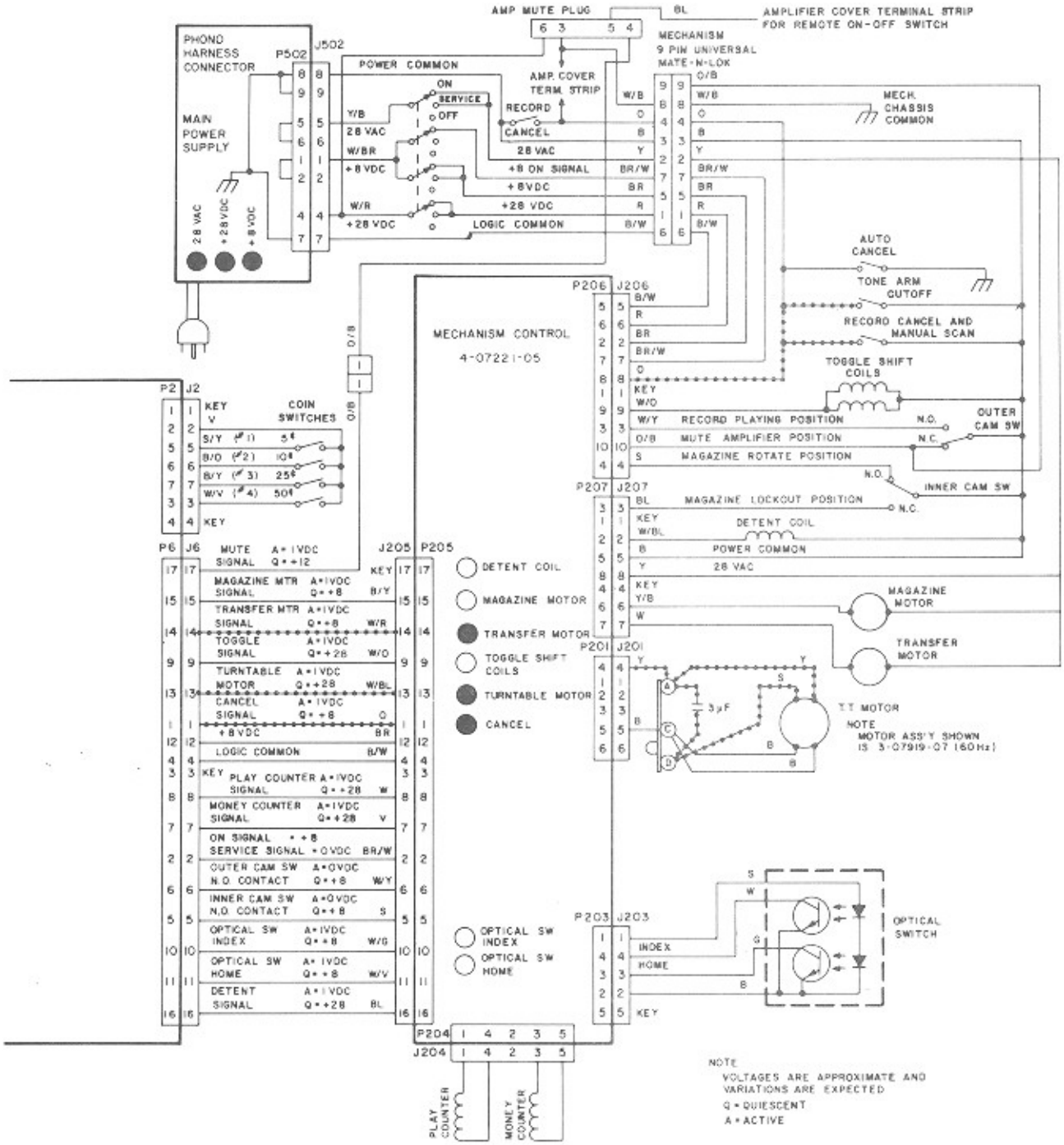
4. The record plays.

SEQUENCE DIAGRAM 11

The record ends and is returned to the magazine.



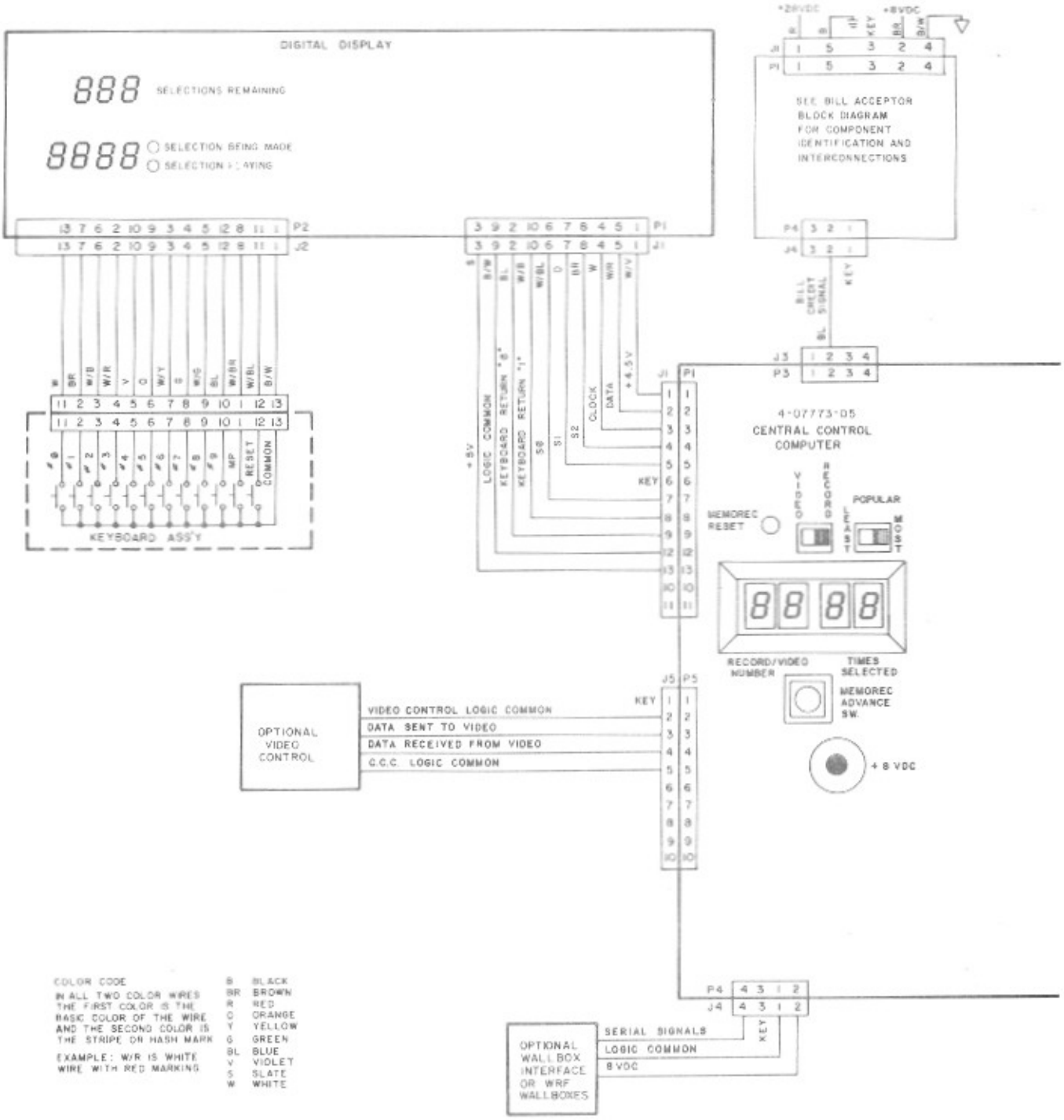
1. The tone arm cutoff sends a cancel signal to the CCC.
2. The CCC turns ON the TRANSFER MOTOR LED, causing the mechanism control to start the transfer motor.



3. The gripper bow picks up the record and returns it to the magazine.

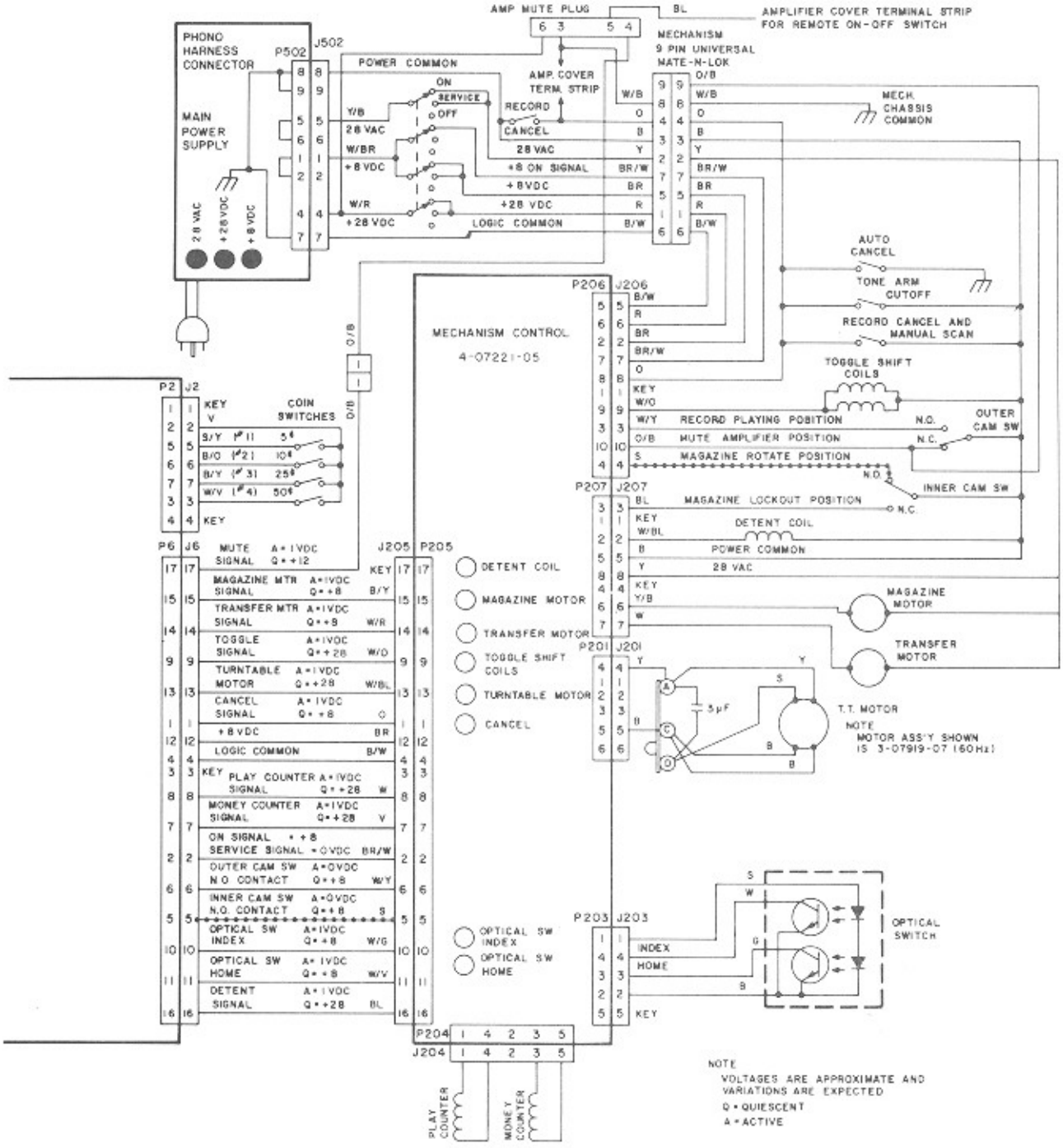
SEQUENCE DIAGRAM 12

The transfer cycle ends and the CCC searches the selection memory.



1. The cam rotates onto the inner cam switch.

2. The inner cam switch N.O. contact signals the CCC that the transfer cycle is complete.

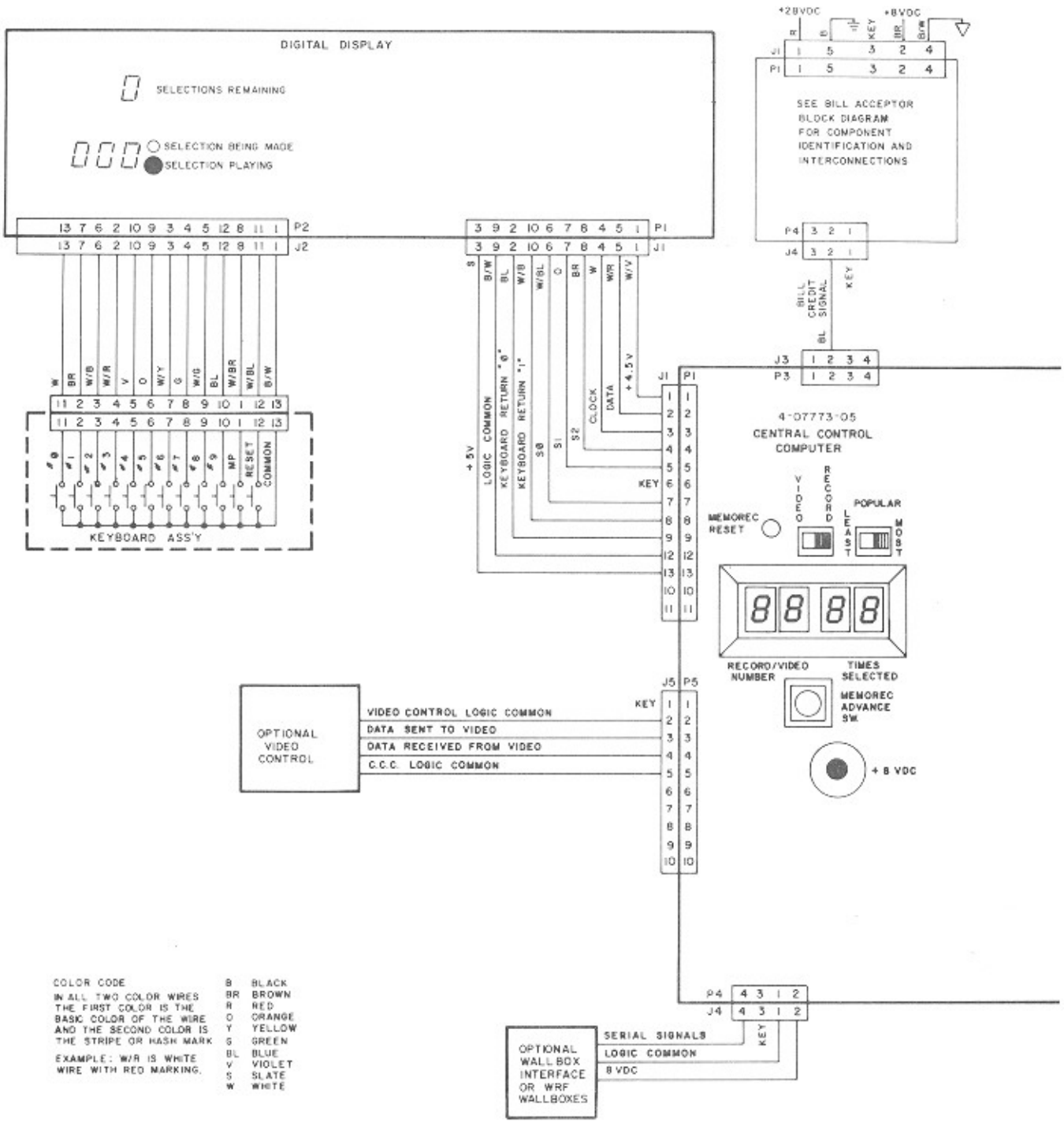


3. The CCC turns OFF the TRANSFER MOTOR and TURNTABLE MOTOR LED's, causing the mechanism to turn OFF these motors.

4. The CCC electronically searches its selection memory. If the memory contains one or more selections, Sequences 7 through 12 are repeated.

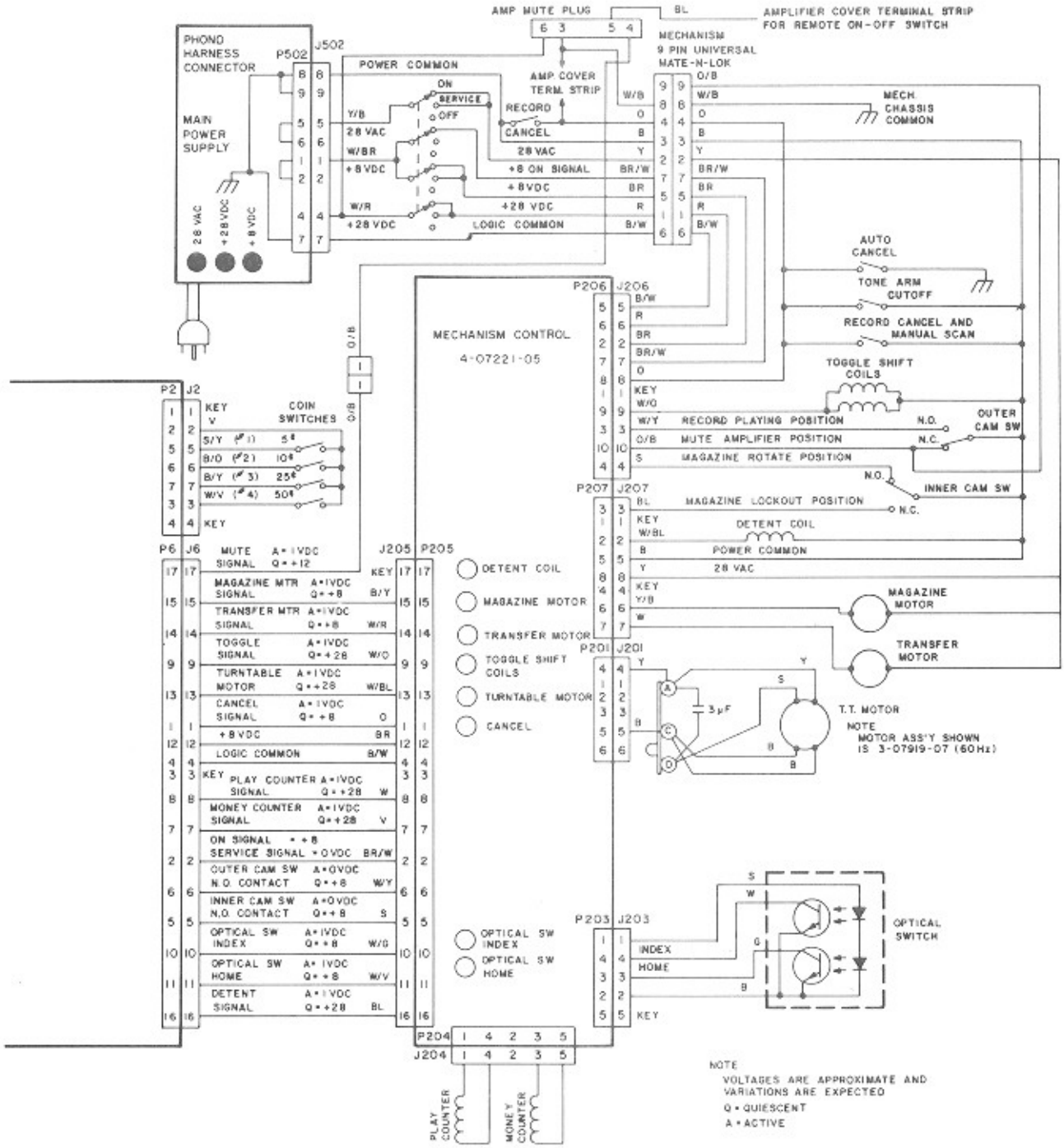
SEQUENCE DIAGRAM 13

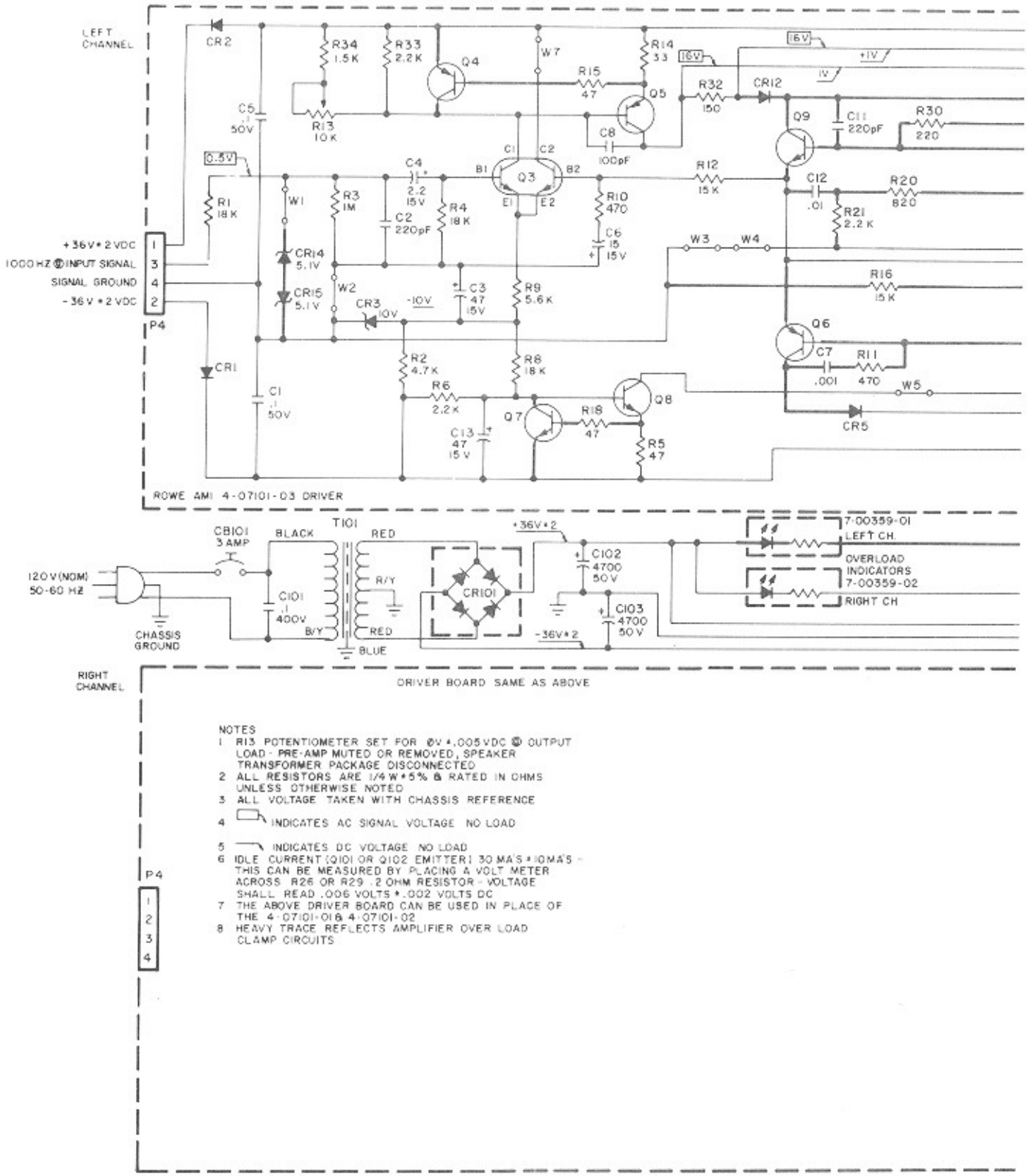
The phonograph returns to standby condition and Autoplay timing begins.



1. All selections have been played.

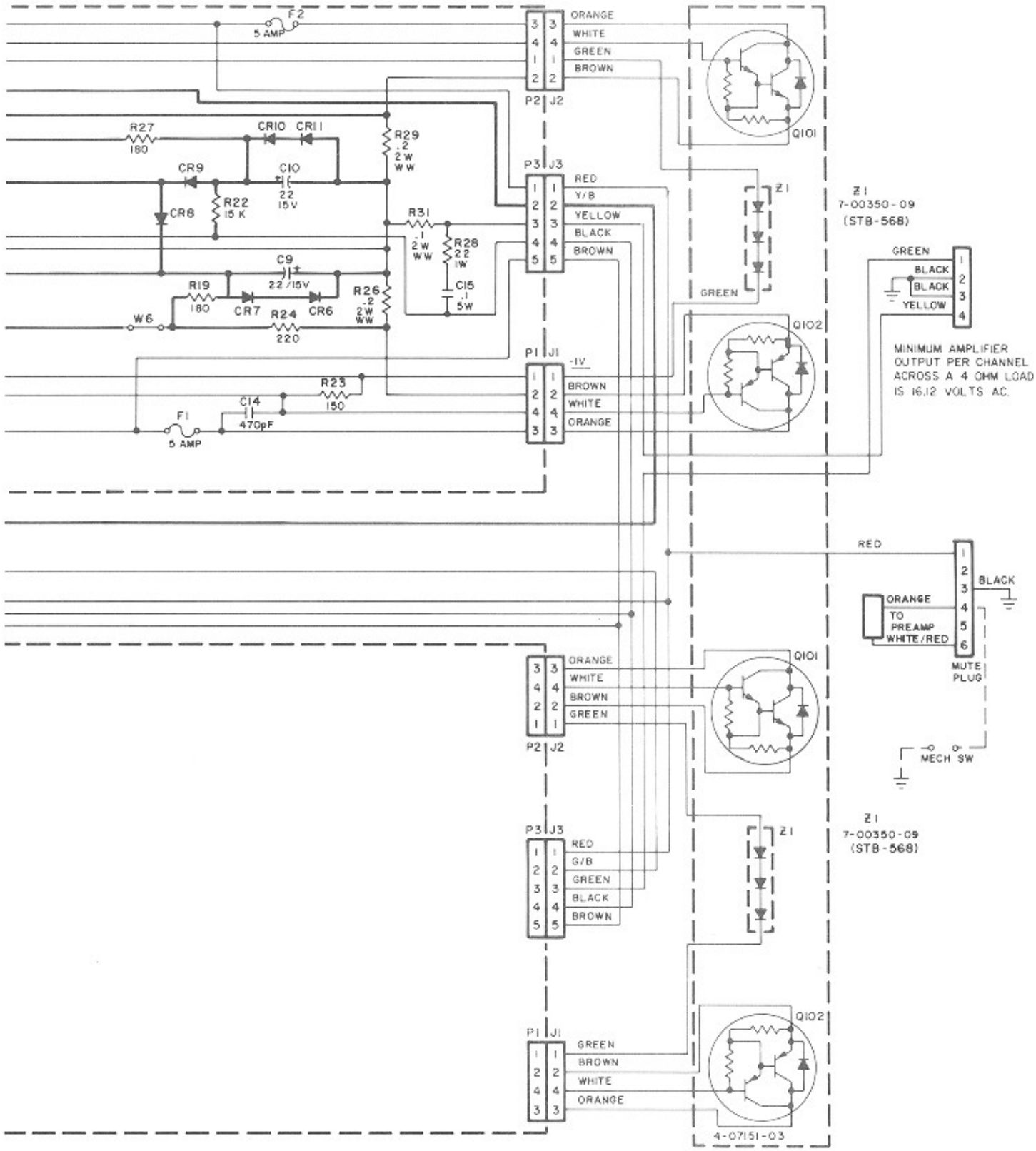
2. The display shows the most popular record on the phonograph. The diagram shows Record 123 as the most popular.


AMP MUTE PLUG
BL
AMPLIFIER COVER TERMINAL STRIP FOR REMOTE ON-OFF SWITCH
MECHANISM 9 PIN UNIVERSAL MATE-N-LOK
PHONO HARNESS CONNECTOR
P502
J502
MAIN POWER SUPPLY
POWER COMMON
AMP COVER TERM. STRIP
ON
SERVICE
OFF
RECORD
CANCEL
28 VAC
+8 VDC
+28 VDC
LOGIC COMMON
+8 ON SIGNAL
MECH CHASSIS COMMON
AUTO CANCEL
TONE ARM CUTOFF
RECORD CANCEL AND MANUAL SCAN
TOGGLE SHIFT COILS
MECHANISM CONTROL
4-07221-05
P206
J206
P207
J207
KEY W/O
RECORD PLAYING POSITION
MUTE AMPLIFIER POSITION
MAGAZINE ROTATE POSITION
MAGAZINE LOCKOUT POSITION
DETENT COIL
OUTER CAM SW
INNER CAM SW
N.O.
N.C.
P2
J2
KEY
COIN SWITCHES
P6
J6
J205
P205
MUTE SIGNAL
MAGAZINE MTR SIGNAL
TRANSFER MTR SIGNAL
TOGGLE SIGNAL
TURNTABLE MOTOR
CANCEL SIGNAL
PLAY COUNTER SIGNAL
MONEY COUNTER SIGNAL
ON SIGNAL + 8 SERVICE SIGNAL + 0VDC
OUTER CAM SW N.O. CONTACT
INNER CAM SW N.O. CONTACT
OPTICAL SW INDEX
OPTICAL SW HOME
DETENT SIGNAL
MAGAZINE MOTOR
TRANSFER MOTOR
TOGGLE SHIFT COILS
TURNTABLE MOTOR
CANCEL
P201
J201
3 μF
T.T. MOTOR
NOTE
MOTOR ASS'Y SHOWN IS 3-07919-07 (60Hz)
P203
J203
INDEX
HOME
OPTICAL SWITCH
P204
J204
PLAY COUNTER
MONEY COUNTER
NOTE
VOLTAGES ARE APPROXIMATE AND VARIATIONS ARE EXPECTED
Q = QUIESCENT
A = ACTIVE



NOTES

1. R13 POTENTIOMETER SET FOR @V ±.005VDC @ OUTPUT LOAD - PRE-AMP MUTED OR REMOVED, SPEAKER TRANSFORMER PACKAGE DISCONNECTED
2. ALL RESISTORS ARE 1/4 W ±5% & RATED IN OHMS UNLESS OTHERWISE NOTED
3. ALL VOLTAGE TAKEN WITH CHASSIS REFERENCE
4. ⌐ INDICATES AC SIGNAL VOLTAGE NO LOAD
5. ⌐ INDICATES DC VOLTAGE NO LOAD
6. IDLE CURRENT (Q101 OR Q102 EMITTER) 30 MA'S ± 10MA'S - THIS CAN BE MEASURED BY PLACING A VOLT METER ACROSS R26 OR R29 .2 OHM RESISTOR - VOLTAGE SHALL READ .006 VOLTS ± .002 VOLTS DC
7. THE ABOVE DRIVER BOARD CAN BE USED IN PLACE OF THE 4-07101-01 & 4-07101-02
8. HEAVY TRACE REFLECTS AMPLIFIER OVER LOAD CLAMP CIRCUITS



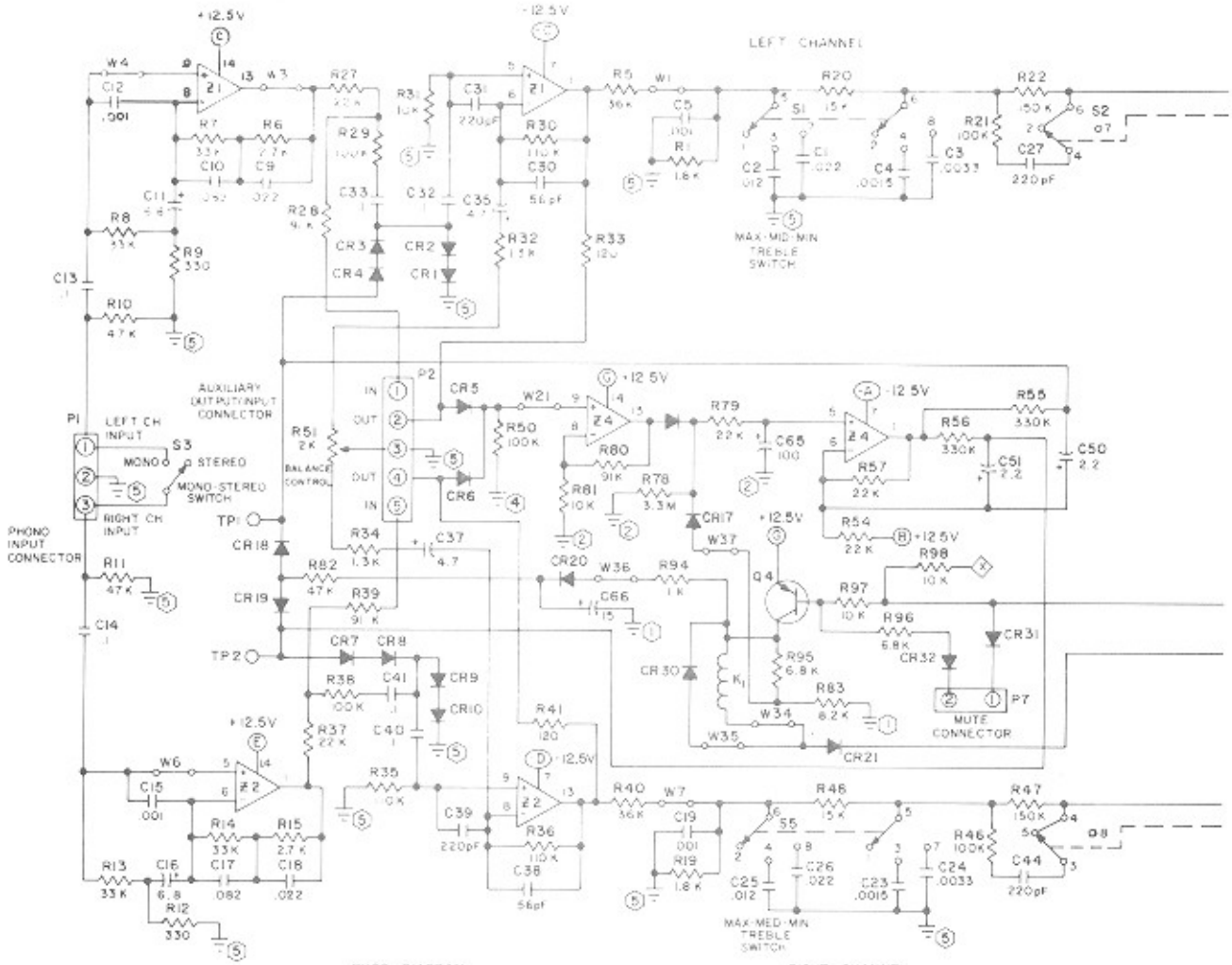
For Equivalent Engineering Drawing. See 60993101-Q2 B

Figure 5-2. Schematic Diagram - 130 Watt Amp (Power Amp)

COMPONENT LIST FOR AMPLIFIER BOARD

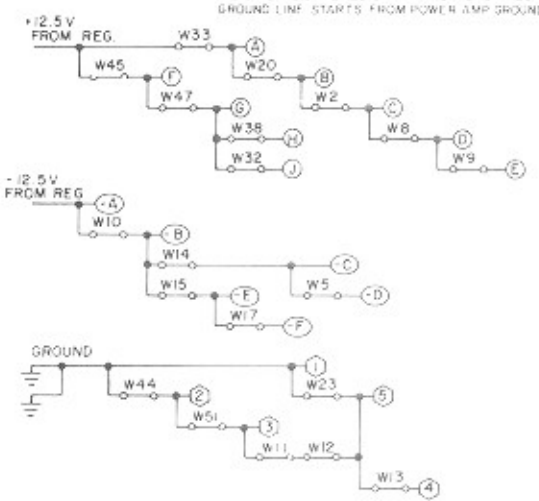
C1	CAPACITOR - MONOLITHIC CERAMIC	.1 Mfd	70028649
C2	CAPACITOR - MONOLITHIC CERAMIC	220 Pf	70028606
C3	CAPACITOR - ELECTROLYTIC	47 Mfd	70023812
C4	CAPACITOR - ELECTROLYTIC	2.2 Mfd	70023805
C5	CAPACITOR - MONOLITHIC CERAMIC	.1 Mfd	70028649
C6	CAPACITOR - ELECTROLYTIC	15 Mfd	70023809
C7	CAPACITOR - MONOLITHIC CERAMIC	.01 Pf	70028636
C8	CAPACITOR - MONOLITHIC CERAMIC	100 Pf	70028601
C9-C10	CAPACITOR - ELECTROLYTIC	22 Mfd	70023810
C11	CAPACITOR - MONOLITHIC CERAMIC	220 Pf	70028606
C12	CAPACITOR - MONOLITHIC CERAMIC	.01 Pf	70028636
C13	CAPACITOR - ELECTROLYTIC	47 Mfd	70023812
C14	CAPACITOR - MONOLITHIC CERAMIC	470 Pf	70028612
C15	CAPACITOR - MYLAR	.10 Mfd	70024002
CR1-CR2	DIODE - SILICON		70035002
CR3	DIODE - ZENER 10V		70035514
CR4	NOT USED		
CR5-CR12	DIODE - SILICON		70035005
CR13	NOT USED		
CR14-CR15	DIODE - ZENER 5.1V		70035527
F1-F2	FUSE - 5 AMP		70072010
P1-P2	WAFER - POLARIZED	(4 CKT)	70075004
P3	WAFER - POLARIZED	(5 CKT)	70075005
P4	WAFER - NON-POLARIZED	(4 CKT)	70074904
Q1	NOT USED		
Q2	NOT USED		
Q3	TRANSISTOR - DUAL (NPN)		70030301
Q4-Q6	TRANSISTOR (PNP)		70030104
Q7-Q9	TRANSISTOR (NPN)		70030008

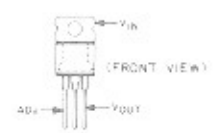
R1	RESISTOR - CARBON	(1/4W,5%)	18K	79901183
R2	RESISTOR - CARBON	(1/4W,5%)	4.7K	79901472
R3	RESISTOR - CARBON	(1/4W,5%)	1 MEG	79901105
R4	RESISTOR - CARBON	(1/4W,5%)	18K	79901183
R5	RESISTOR - CARBON	(1/4W,5%)	47 Ohm	79901470
R6	RESISTOR - CARBON	(1/4W,5%)	2.2K	79901222
R7	NOT USED			
R8	RESISTOR - CARBON	(1/4W,5%)	18K	79901183
R9	RESISTOR - CARBON	(1/4W,5%)	5.6K	79901562
R10-R11	RESISTOR - CARBON	(1/4W,5%)	470 Ohm	79901471
R12	RESISTOR - CARBON	(1/4W,5%)	16K	79901163
R13	RESISTOR - POTENTIOMETER	(1/4W)	10K	70040014
R14	RESISTOR - CARBON	(1/4W,5%)	33 Ohm	79901330
R15	RESISTOR - CARBON	(1/4W,5%)	47 Ohm	79901470
R16	RESISTOR - CARBON	(1/4W,5%)	15K	79901153
R17	NOT USED			
R18	RESISTOR - CARBON	(1/4W,5%)	47 Ohm	79901470
R19	RESISTOR - CARBON	(1/4W,5%)	180 Ohm	79901181
R20	RESISTOR - CARBON	(1/4W,5%)	820 Ohm	79901821
R21	RESISTOR - CARBON	(1/4W,5%)	2.2K	79901222
R22	RESISTOR - CARBON	(1/4W,5%)	15K	79901153
R23	RESISTOR - CARBON	(1/4W,5%)	150 Ohm	79901151
R24	RESISTOR - CARBON	(1/4W,5%)	220 Ohm	79901221
R25	NOT USED			
R26	RESISTOR - WIRE WOUND	(2W,10%)	.2 Ohm	79920208
R27	RESISTOR - CARBON	(1/4W,5%)	180 Ohm	79901181
R28	RESISTOR - CARBON	(1W,10%)	22 Ohm	70010816
R29	RESISTOR - WIRE WOUND	(2W,10%)	.2 Ohm	79920208
R30	RESISTOR - CARBON	(1/4W,5%)	220 Ohm	79901221
R31	RESISTOR - WIRE WOUND	(2W,10%)	.1 Ohm	79920108
R32	RESISTOR - CARBON	(1/4W,5%)	150 Ohm	79901151
R33	RESISTOR - CARBON	(1/4W,5%)	2.2K	79901222
R34	RESISTOR - CARBON	(1/4W,5%)	1.5K	79901152



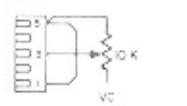
BUSS DIAGRAM

+12.5V & -12.5V LINES START FROM EACH RESPECTIVE REGULATOR
GROUND LINE STARTS FROM POWER AMP GROUND AT P5 OR P6

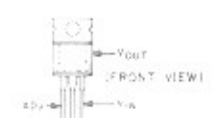




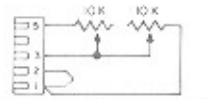
VR1(-) VOLTAGE REGULATOR(LM337) NEGATIVE 7-00365-06



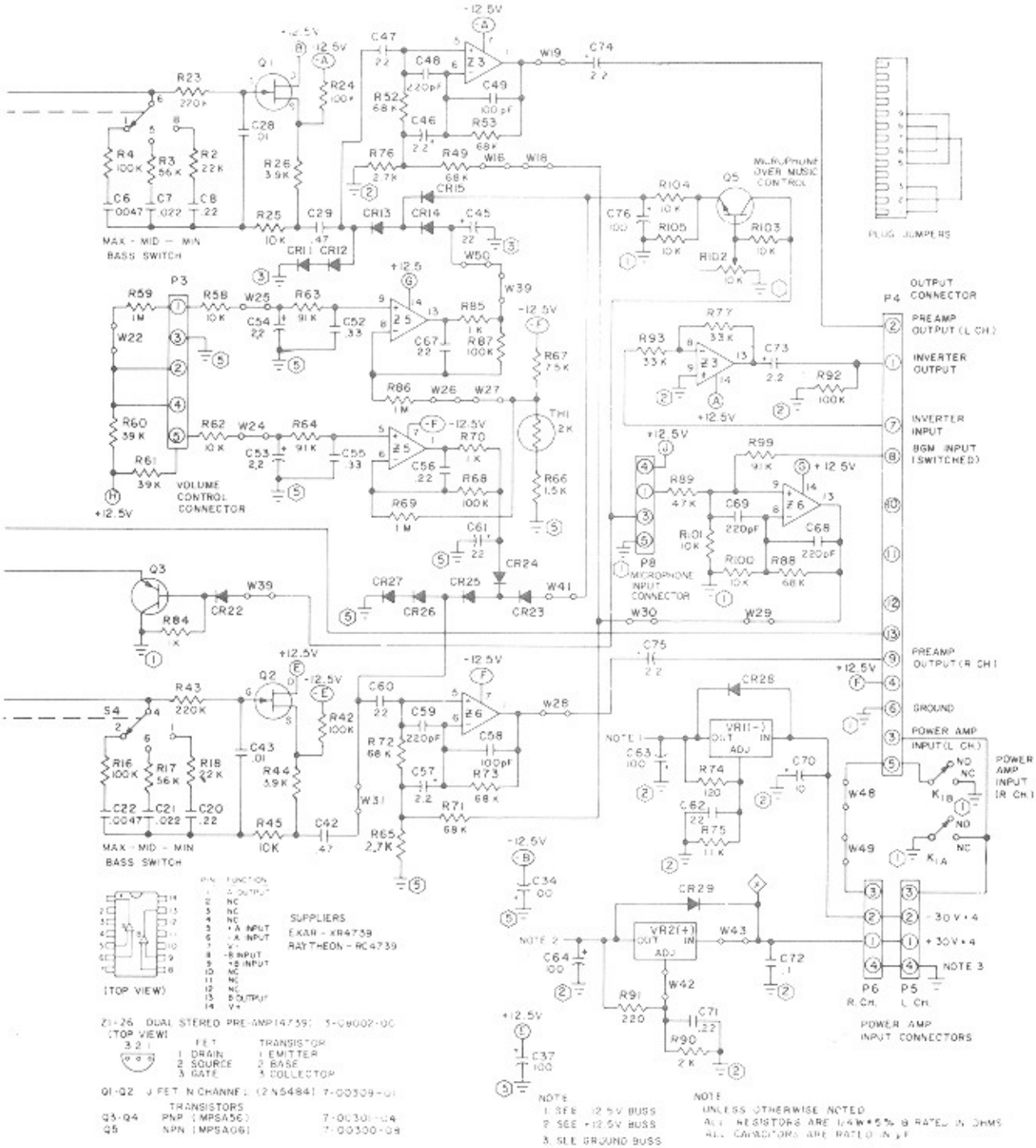
2 WIRE VOLUME CONTROL



VR2(+) VOLTAGE REGULATOR(LM317) POSITIVE 7-00365-07



DUAL 2 WIRE VOLUME CONTROL



For Equivalent Engineering Drawing See 60792504 D

Figure 5-3. Schematic Diagram - Stereo Preamp Assembly

COMPONENT LIST FOR PREAMPLIFIER BOARD

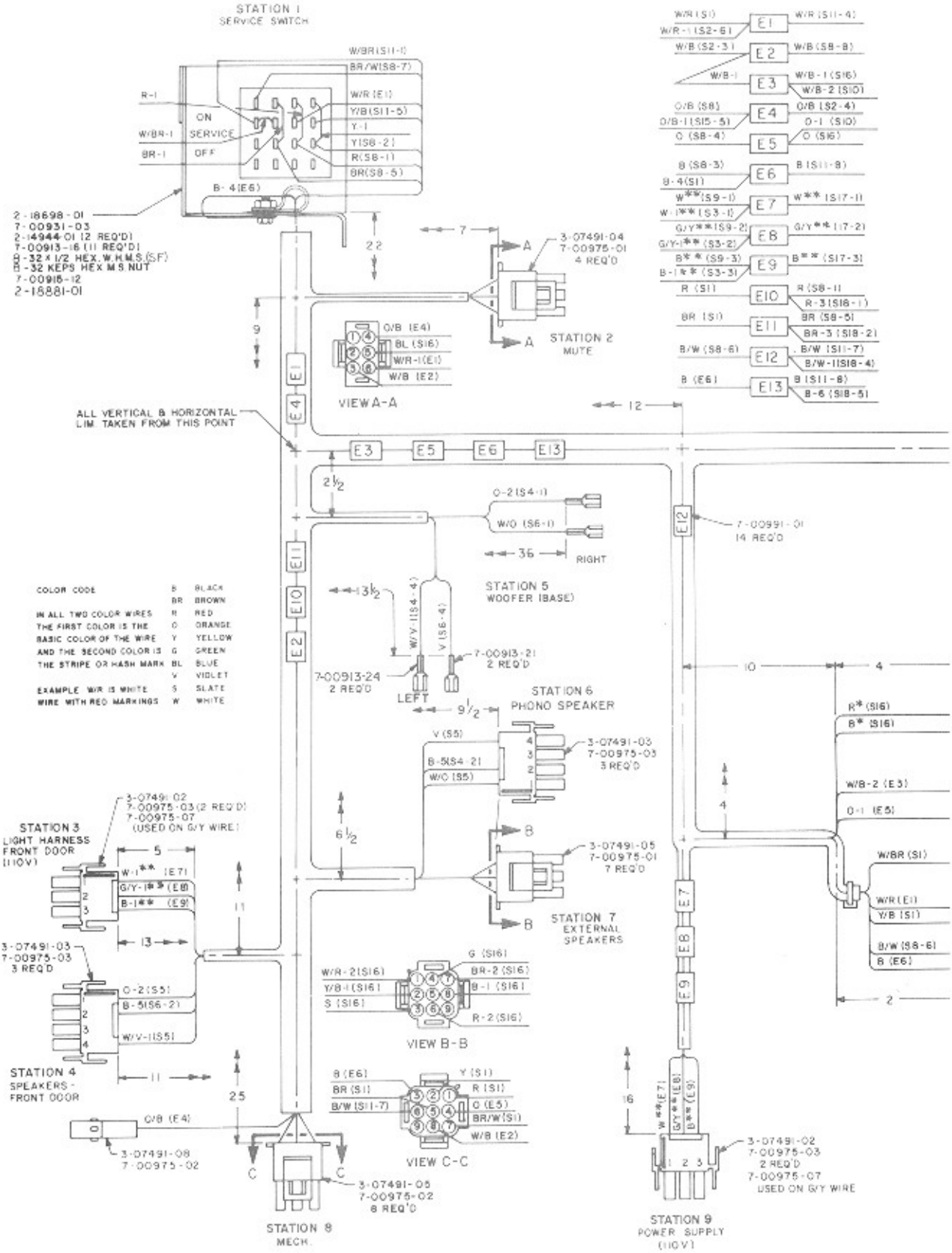
C1	CAPACITOR - MONOLITHIC CERAMIC	.022 Mfd	70028641
C2	CAPACITOR - MONOLITHIC CERAMIC	.012 Mfd	70028638
C3	CAPACITOR - MONOLITHIC CERAMIC	.0033 Mfd	70028627
C4	CAPACITOR - MONOLITHIC CERAMIC	.0015 Mfd	70028621
C5	CAPACITOR - MONOLITHIC CERAMIC	.001 Mfd	70028618
C6	CAPACITOR - MONOLITHIC CERAMIC	.0047 Mfd	70028630
C7	CAPACITOR - MONOLITHIC CERAMIC	.022 Mfd	70028641
C8	CAPACITOR - MONOLITHIC CERAMIC	.22 Mfd	70028510
C9	CAPACITOR - MONOLITHIC CERAMIC	.022 Mfd	70028641
C10	CAPACITOR - MONOLITHIC CERAMIC	.082 Mfd	70028648
C11	CAPACITOR - ELECTROLYTIC	6.8 Mfd	70023807
C12	CAPACITOR - MONOLITHIC CERAMIC	.001 Mfd	70028618
C13-C14	CAPACITOR - MONOLITHIC CERAMIC	.1 Mfd	70028514
C15	CAPACITOR - MONOLITHIC CERAMIC	.001 Mfd	70028618
C16	CAPACITOR - ELECTROLYTIC	6.8 Mfd	70023807
C17	CAPACITOR - MONOLITHIC CERAMIC	.082 Mfd	70028648
C18	CAPACITOR - MONOLITHIC CERAMIC	.022 Mfd	70028641
C19	CAPACITOR - MONOLITHIC CERAMIC	.001 Mfd	70028618
C20	CAPACITOR - MONOLITHIC CERAMIC	.22 Mfd	70028510
C21	CAPACITOR - MONOLITHIC CERAMIC	.022 Mfd	70028641
C22	CAPACITOR - MONOLITHIC CERAMIC	.0047 Mfd	70028630
C23	CAPACITOR - MONOLITHIC CERAMIC	.0015 Mfd	70028621
C24	CAPACITOR - MONOLITHIC CERAMIC	.0033 Mfd	70028627
C25	CAPACITOR - MONOLITHIC CERAMIC	.012 Mfd	70028638
C26	CAPACITOR - MONOLITHIC CERAMIC	.022 Mfd	70028641
C27	CAPACITOR - MONOLITHIC CERAMIC	220 Pf	70028606
C28	CAPACITOR - MONOLITHIC CERAMIC	.01 Mfd	70028637
C29	CAPACITOR - MONOLITHIC CERAMIC	.47 Mfd	70028516
C30	CAPACITOR - MONOLITHIC CERAMIC	56 Pf	70028710
C31	CAPACITOR - MONOLITHIC CERAMIC	220 Pf	70028606
C32-C33	CAPACITOR - MONOLITHIC CERAMIC	.1 Mfd	70028514
C34	CAPACITOR - ELECTROLYTIC	100 Mfd	70023814
C35	CAPACITOR - ELECTROLYTIC	4.7 Mfd	70023806
C36	CAPACITOR - ELECTROLYTIC	100 Mfd	70023814
C37	CAPACITOR - ELECTROLYTIC	4.7 Mfd	70023806
C38	CAPACITOR - MONOLITHIC CERAMIC	56 Pf	70028710
C39	CAPACITOR - MONOLITHIC CERAMIC	220 Pf	70028606
C40-C41	CAPACITOR - MONOLITHIC CERAMIC	.1 Mfd	70028514
C42	CAPACITOR - MONOLITHIC CERAMIC	.47 Mfd	70028516
C43	CAPACITOR - MONOLITHIC CERAMIC	.01 Mfd	70028637
C44	CAPACITOR - MONOLITHIC CERAMIC	220 Pf	70028606
C45	CAPACITOR - ELECTROLYTIC	22 Mfd	70023810
C46	CAPACITOR - ELECTROLYTIC	2.2 Mfd	70023805
C47	CAPACITOR - ELECTROLYTIC	.22 Mfd	70028510
C48	CAPACITOR - ELECTROLYTIC	220 Pf	70028606
C49	CAPACITOR - ELECTROLYTIC	100 Pf	70028601
C50-C51	CAPACITOR - ELECTROLYTIC	2.2 Mfd	70023805
C52	CAPACITOR - MONOLITHIC CERAMIC	.33 Mfd	70028515
C53-C54	CAPACITOR - ELECTROLYTIC	2.2 Mfd	70023805
C55	CAPACITOR - MONOLITHIC CERAMIC	.33 Mfd	70028515
C56	CAPACITOR - MONOLITHIC CERAMIC	.22 Mfd	70028510
C57	CAPACITOR - ELECTROLYTIC	2.2 Mfd	70023805

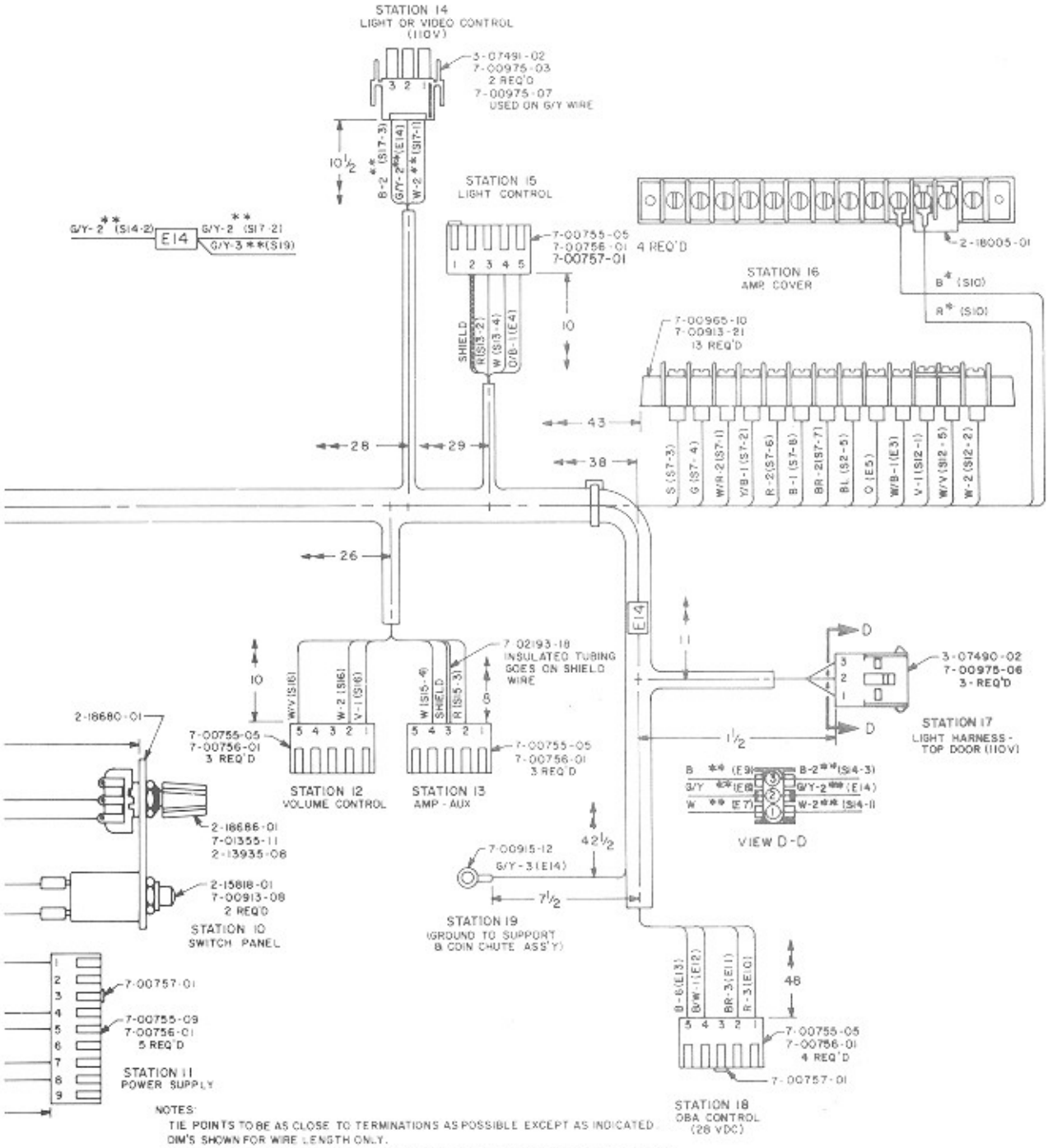
C58	CAPACITOR - MONOLITHIC CERAMIC		100 Pf	70028601
C59	CAPACITOR - MONOLITHIC CERAMIC		220 Pf	70028606
C60	CAPACITOR - MONOLITHIC CERAMIC		.22 Mfd	70028510
C61	CAPACITOR - ELECTROLYTIC		22 Mfd	70023810
C62	CAPACITOR - MONOLITHIC CERAMIC		.22 Mfd	70028510
C63-C65	CAPACITOR - ELECTROLYTIC		100 Mfd	70023814
C66	CAPACITOR - ELECTROLYTIC		15 Mfd	70023809
C67	CAPACITOR - MONOLITHIC CERAMIC		.22 Mfd	70028510
C68-C69	CAPACITOR - MONOLITHIC CERAMIC		220 Pf	70023806
C70	CAPACITOR - ELECTROLYTIC		10 Mfd	70023808
C71	CAPACITOR - MONOLITHIC CERAMIC		.22 Mfd	70028510
C72	CAPACITOR - MONOLITHIC CERAMIC		.1 Mfd	70028514
C73-C75	CAPACITOR - ELECTROLYTIC		2.2 Mfd	70023805
C76	CAPACITOR - ELECTROLYTIC		100 Mfd	70023814
CR1-CR32	DIODE - SILICON			70035007
K1	RELAY - REED			70042208
P1	NON-POLARIZING WAFER ASSEMBLY		(3 CKT)	70074921
P2-P3	NON-POLARIZING WAFER ASSEMBLY		(5 CKT)	70074923
P4	NON-POLARIZING WAFER ASSEMBLY		(13 CKT)	70074931
P5-P6	P.C. BOARD CONNECTOR - TOP ENTRY		(4 CKT)	70074802
P7	POLARIZING WAFER ASSEMBLY		(2 CKT)	70075002
P8	NON-POLARIZING WAFER ASSEMBLY		(5 CKT)	70074923
Q1-Q2	TRANSISTOR - JUNCTION FIELD EFFECT			70030901
Q3-Q4	TRANSISTOR - SILICON (PNP)			70030104
Q5	TRANSISTOR - SILICON (NPN)			70030108
R1	RESISTOR - CARBON	(1/4W,5%)	1.8K	79901182
R2	RESISTOR - CARBON	(1/4W,5%)	2.2K	79901222
R3	RESISTOR - CARBON	(1/4W,5%)	56K	79901563
R4	RESISTOR - CARBON	(1/4W,5%)	100K	79901104
R5	RESISTOR - CARBON	(1/4W,5%)	36K	79901363
R6	RESISTOR - CARBON	(1/4W,5%)	2.7K	79901272
R7-R8	RESISTOR - CARBON	(1/4W,5%)	33K	79901333
R9	RESISTOR - CARBON	(1/4W,5%)	330 Ohm	79901331
R10-R11	RESISTOR - CARBON	(1/4W,5%)	47K	79901473
R12	RESISTOR - CARBON	(1/4W,5%)	330 Ohm	79901331
R13-R14	RESISTOR - CARBON	(1/4W,5%)	33K	79901333
R15	RESISTOR - CARBON	(1/4W,5%)	2.7K	79901272
R16	RESISTOR - CARBON	(1/4W,5%)	100K	79901104
R17	RESISTOR - CARBON	(1/4W,5%)	56K	79901563
R18	RESISTOR - CARBON	(1/4W,5%)	22K	79901223
R19	RESISTOR - CARBON	(1/4W,5%)	1.8K	79901182
R20	RESISTOR - CARBON	(1/4W,5%)	15K	79901153
R21	RESISTOR - CARBON	(1/4W,5%)	100K	79901104
R22	RESISTOR - CARBON	(1/4W,5%)	150K	79901154
R23	RESISTOR - CARBON	(1/4W,5%)	220K	79901224
R24	RESISTOR - CARBON	(1/4W,5%)	100K	79901104
R25	RESISTOR - CARBON	(1/4W,5%)	6.8K	79901103

COMPONENT LIST FOR PREAMPLIFIER BOARD (Cont.)

R26	RESISTOR - CARBON	(1/4W,5%)	3.9K	79901392
R27	RESISTOR - CARBON	(1/4W,5%)	22K	79901223
R28	RESISTOR - CARBON	(1/4W,5%)	91K	79901913
R29	RESISTOR - CARBON	(1/4W,5%)	100K	79901104
R30-R31	RESISTOR - CARBON	(1/4W,5%)	110K	79901114
R32	RESISTOR - CARBON	(1/4W,5%)	1.3K	79901132
R33-R34	RESISTOR - CARBON	(1/4W,5%)	120 Ohm	79901121
R35-R36	RESISTOR - CARBON	(1/4W,5%)	110K	79901114
R37	RESISTOR - CARBON	(1/4W,5%)	22K	79901223
R38	RESISTOR - CARBON	(1/4W,5%)	100K	79901104
R39	RESISTOR - CARBON	(1/4W,5%)	91K	79901913
R40	RESISTOR - CARBON	(1/4W,5%)	36K	79901363
R41	RESISTOR - CARBON	(1/4W,5%)	120 Ohm	79901121
R42	RESISTOR - CARBON	(1/4W,5%)	100K	79901104
R43	RESISTOR - CARBON	(1/4W,5%)	220K	79901224
R44	RESISTOR - CARBON	(1/4W,5%)	3.9K	79901392
R45	RESISTOR - CARBON	(1/4W,5%)	6.8K	79901103
R46	RESISTOR - CARBON	(1/4W,5%)	100K	79901104
R47	RESISTOR - CARBON	(1/4W,5%)	150K	79901154
R48	RESISTOR - CARBON	(1/4W,5%)	15K	79901153
R49	RESISTOR - CARBON	(1/4W,5%)	68K	79901683
R50	RESISTOR - CARBON	(1/4W,5%)	100K	79901104
R51	POTENTIOMETER (BAL)		2K	70040012
R52-R53	RESISTOR - CARBON	(1/4W,5%)	68K	79901683
R54	RESISTOR - CARBON	(1/4W,5%)	22K	79901223
R55-R56	RESISTOR - CARBON	(1/4W,5%)	330K	79901334
R57	RESISTOR - CARBON	(1/4W,5%)	22K	79901223
R58	RESISTOR - CARBON	(1/4W,5%)	10K	79901103
R59	RESISTOR - CARBON	(1/4W,5%)	1 MEG	79901105
R60-R61	RESISTOR - CARBON	(1/4W,5%)	39K	79901393
R62	RESISTOR - CARBON	(1/4W,5%)	10K	79901103
R63-R64	RESISTOR - CARBON	(1/4W,5%)	91K	79901913
R65	RESISTOR - CARBON	(1/4W,5%)	2.7K	79901272
R66	RESISTOR - CARBON	(1/4W,5%)	1.5K	79901152
R67	RESISTOR - CARBON	(1/4W,5%)	7.5K	79901752
R68	RESISTOR - CARBON	(1/4W,5%)	100K	79901104
R69	RESISTOR - CARBON	(1/4W,5%)	1 MEG	79901105
R70	RESISTOR - CARBON	(1/4W,5%)	1K	79901102
R71-R73	RESISTOR - CARBON	(1/4W,5%)	68K	79901683
R74	RESISTOR - CARBON	(1/4W,5%)	120 Ohm	79901121
R75	RESISTOR - CARBON	(1/4W,5%)	1.1K	79901112
R76	RESISTOR - CARBON	(1/4W,5%)	2.7K	79901272
R77	RESISTOR - CARBON	(1/4W,5%)	33K	79901333
R78	RESISTOR - CARBON	(1/4W,5%)	3.3 MEG	79901335
R79	RESISTOR - CARBON	(1/4W,5%)	22K	79901223
R80	RESISTOR - CARBON	(1/4W,5%)	91K	79901913
R81	RESISTOR - CARBON	(1/4W,5%)	10K	79901103
R82	RESISTOR - CARBON	(1/4W,5%)	47K	79901473
R83	RESISTOR - CARBON	(1/4W,5%)	8.2K	79901822
R84-R85	RESISTOR - CARBON	(1/4W,5%)	1K	79901102
R86	RESISTOR - CARBON	(1/4W,5%)	1 MEG	79901105
R87	RESISTOR - CARBON	(1/4W,5%)	100K	79901104

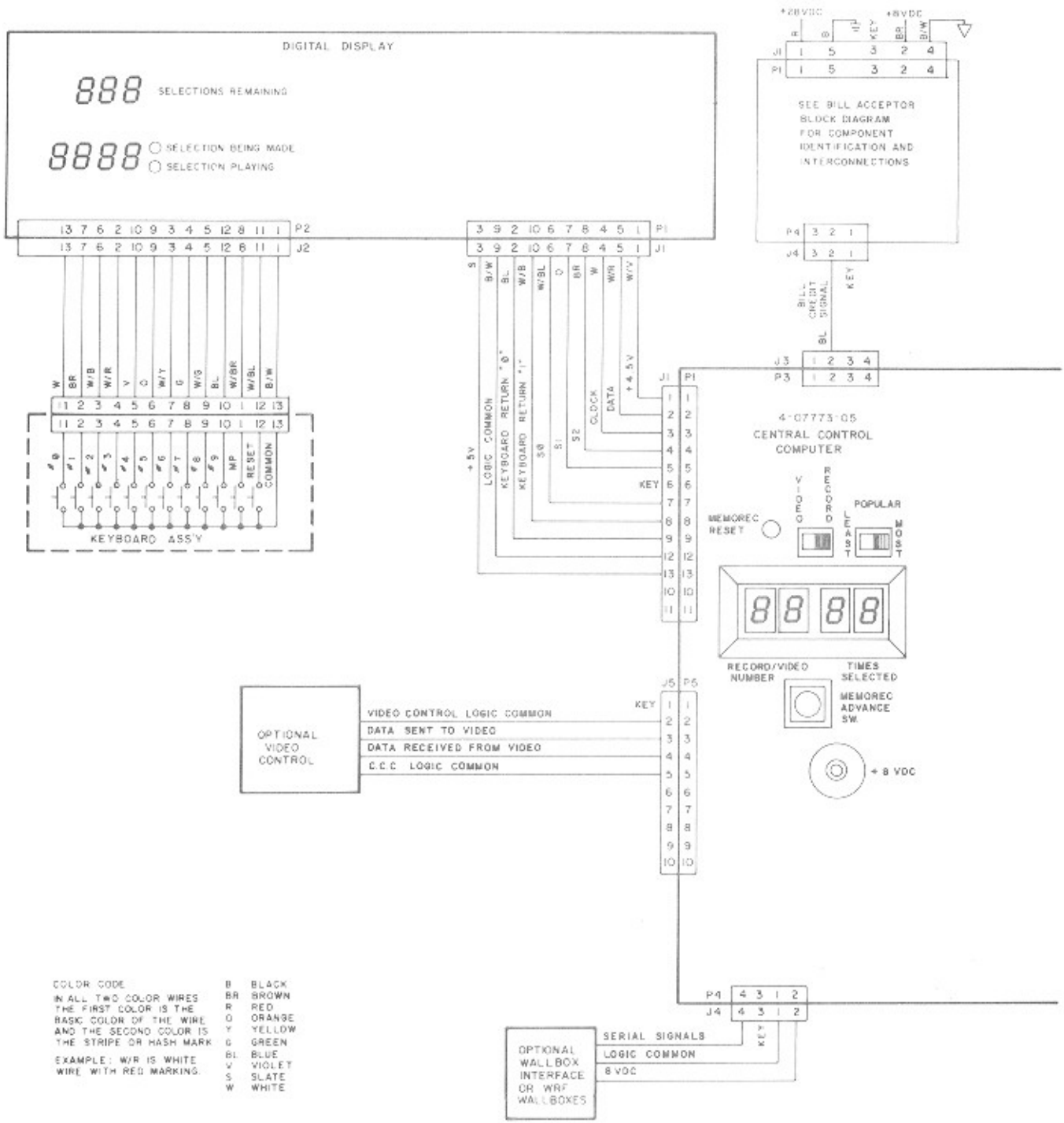
R88	RESISTOR - CARBON	(1/4W,5%)	68K	79901683
R89	RESISTOR - CARBON	(1/4W,5%)	47K	79901473
R90	RESISTOR - CARBON	(1/4W,5%)	2K	79901202
R91	RESISTOR - CARBON	(1/4W,5%)	220 Ohm	79901221
R92	RESISTOR - CARBON	(1/4W,5%)	100K	79901104
R93	RESISTOR - CARBON	(1/4W,5%)	33K	79901333
R94	RESISTOR - CARBON	(1/4W,5%)	1K	79901102
R95	RESISTOR - CARBON	(1/4W,5%)	6.8K	79901682
R96-R97	RESISTOR - CARBON	(1/4W,5%)	10K	79901103
R98	RESISTOR - CARBON	(1/4W,5%)	3.3K	79901332
R99	RESISTOR - CARBON	(1/4W,5%)	91K	79901913
R100-R101	RESISTOR - CARBON	(1/4W,5%)	10K	79901103
R102	POTENTIOMETER - MIC. GAIN		10K	70040014
R103-R105	RESISTOR - CARBON	(1/4W,5%)	10K	79901103
S1-S2	SWITCH - SLIDE			30786203
S3	SWITCH - SLIDE			30786202
S4-S5	SWITCH - SLIDE			30786203
TH1	THERMISTOR			70037002
VR1 (-)	VOLTAGE REGULATOR (NEG)			70036508
VR2 (+)	VOLTAGE REGULATOR (POS)			70036507
Z1-Z6	IC - STEREO PRE-AMPLIFIER			30800206


STATION 1
SERVICE SWITCH
ON
SERVICE
OFF
2-18698-01
7-00931-03
2-14944-01 (2 REQ'D)
7-00913-16 (1 REQ'D)
B-32 x 1/2 HEX.W.H.M.S.(SF)
B-32 KEPS HEX M.S.NUT
7-00915-12
2-15881-01
3-07491-04
7-00975-01
4 REQ'D
STATION 2
MUTE
VIEW A-A
ALL VERTICAL & HORIZONTAL
DIM. TAKEN FROM THIS POINT
7-00991-01
14 REQ'D
RIGHT
STATION 5
WOOFER (BASE)
LEFT
7-00913-21
2 REQ'D
7-00913-24
2 REQ'D
STATION 6
PHONO SPEAKER
3-07491-03
7-00975-03
3 REQ'D
3-07491-05
7-00975-01
7 REQ'D
STATION 7
EXTERNAL
SPEAKERS
STATION 3
LIGHT HARNESS
FRONT DOOR
(110V)
3-07491-02
7-00975-03 (2 REQ'D)
7-00975-07
(USED ON G/Y WIRE)
3-07491-03
7-00975-03
3 REQ'D
STATION 4
SPEAKERS -
FRONT DOOR
3-07491-08
7-00975-02
VIEW B-B
VIEW C-C
3-07491-05
7-00975-02
8 REQ'D
STATION 8
MECH.
STATION 9
POWER SUPPLY
(110V)
3-07491-02
7-00975-03
2 REQ'D
7-00975-07
USED ON G/Y WIRE
COLOR CODE
IN ALL TWO COLOR WIRES THE FIRST COLOR IS THE BASIC COLOR OF THE WIRE AND THE SECOND COLOR IS THE STRIPE OR HASH MARK
EXAMPLE W/R IS WHITE WIRE WITH RED MARKINGS
B BLACK
BR BROWN
R RED
O ORANGE
Y YELLOW
G GREEN
BL BLUE
V VIOLET
S SLATE
W WHITE



For Equivalent Engineering Drawing See 60991201 E

Figure 5-4. Wiring Diagram

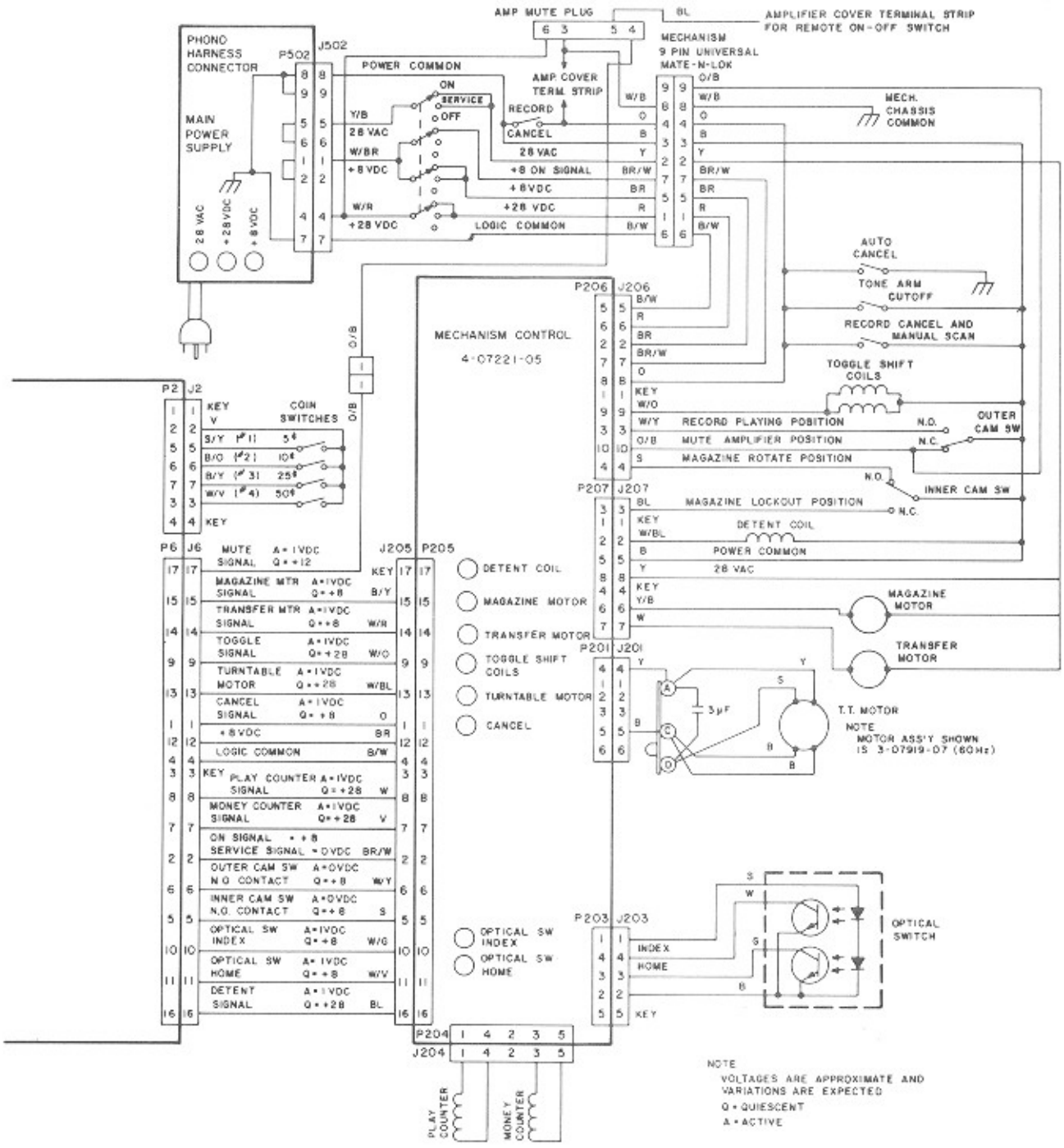


COLOR CODE

IN ALL TWO COLOR WIRES THE FIRST COLOR IS THE BASIC COLOR OF THE WIRE AND THE SECOND COLOR IS THE STRIPE OR HASH MARK

EXAMPLE: W/R IS WHITE WIRE WITH RED MARKING.

B	BLACK
BR	BROWN
R	RED
O	ORANGE
Y	YELLOW
G	GREEN
BL	BLUE
V	VIOLET
S	SLATE
W	WHITE



For Equivalent Engineering Drawing See 60990001-Q7

Figure 5-5. R-91 Phonograph Block Diagram

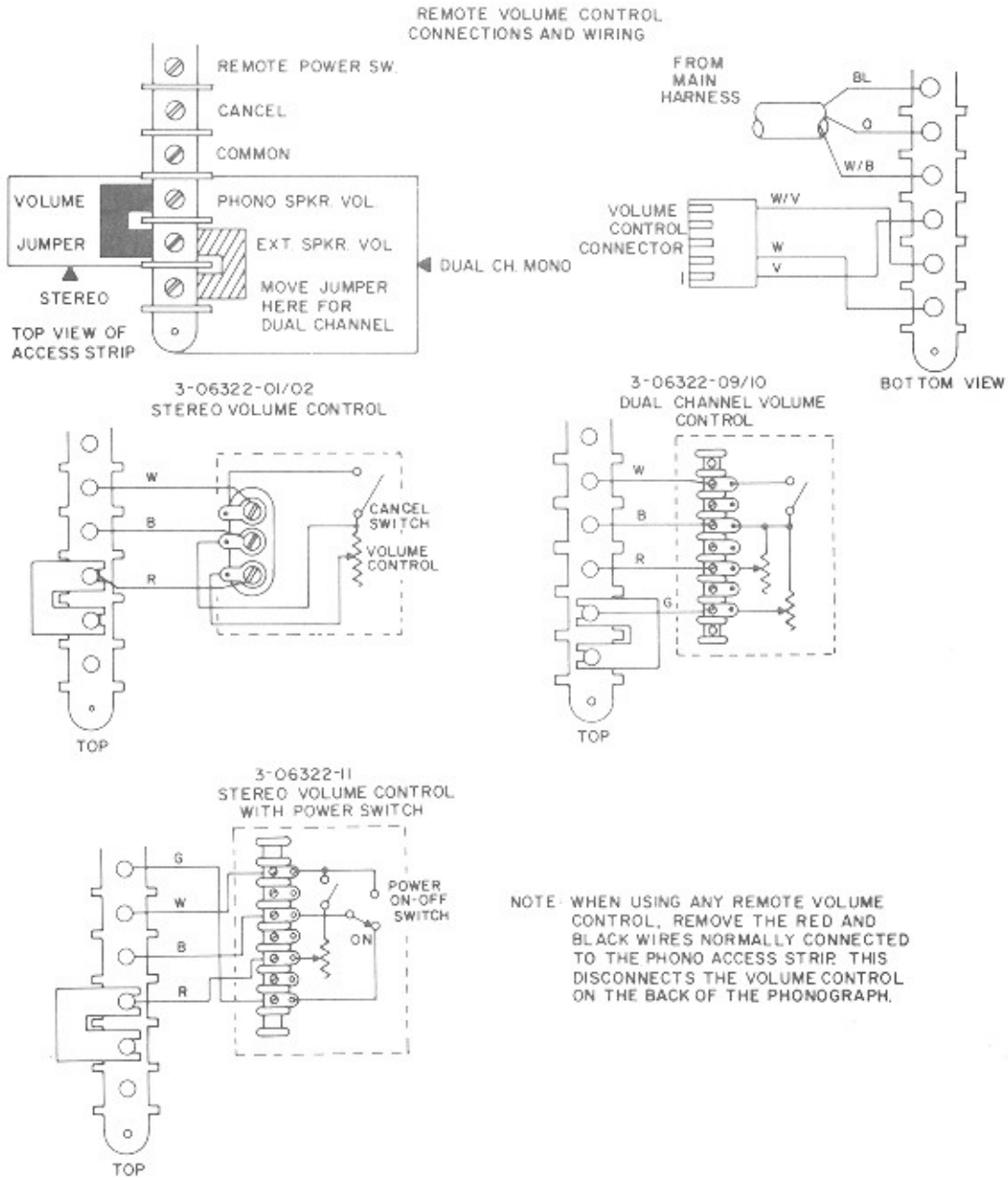


Figure 5-6. Volume Control Connections

SECTION 6 ADDITIONAL INFORMATION

R-91 SPECIFICATIONS

GENERAL

DEPTH	26-1/2 in. (67.3 cm.)
WIDTH	41-1/2 in. (105.4 cm.)
HEIGHT	54 in. (137.2 cm.)
SHIPPING WEIGHT (DOMESTIC)	367 lbs. (169 Kg.)
NET WEIGHT	348 lbs. (158 Kg.)
POWER REQUIREMENTS	120 VAC 60 Hz., 360 watts 3.7 amps. 220/240 VAC 50 Hz., 400 watts 2.6 amps.

RECORD CHANGER

CAPACITY	100 records
RECORD SIZE	7 in.
TURNTABLE SPEED	45 RPM

CREDIT AND PRICING SYSTEM

ACCUMULATOR TYPE CREDIT SYSTEM	$1 & $5 bills $1 & half-dollar coins are optional
COINS ACCEPTED	Nickels Dimes Quarters
TOTAL CREDIT ACCUMULATIONS	255
PRICING	See Pricing, Section 2

SOUND SYSTEM

Cartridge

Type	Variable reluctance
Frequency Response	20 to 20,000 Hz.
Channel Separation	25 db @ 1,000 Hz.
Nominal Compliance	20 x 10^{-6} cm/dyne
Tracking Force	3 to 4 grams
Output	7 mv.
Stylus	1 mil, diamond

Power amplifier

130 Watt Stereo

FTC Rating, 4 Ohm Loads @ 1% THD	144 watts RMS
FTC Rating, 70V Lines @ 1% THD	126 watts RMS

Preamplifier

AVC Control Range	20 db
Treble Control	12 db/octave 10,000 Hz. full 6,000 Hz. moderate 3,000 Hz. low
Bass Control	Compensates for bass loss at low volume

SELECTION SYSTEM CAPACITY . . . . . 200 selections

TRANSFORMER PACKAGE

Power Levels For Phonograph Speakers . . . . . 1, 4, 16, 64 watts
(Provides 70-volt line for extension speakers)

SPEAKER SYSTEM

	Woofer	Midrange
Speaker Diameter	10 in.	5-3/4 in.
Voice Coil Diameter	1-1/2 in.	1 in.
Impedance	8 Ohms	8 Ohms

SYSTEM FREQUENCY RESPONSE . . . . . 50 to 20,000 ±4 db

DOOR LIGHTING . . . . . Fluorescent
30 watt, 36 in.
and
15 watt, 18 in.

FUSES AND CIRCUIT BREAKERS

Main Power Supply

120 VAC (Transformer Primary Only)	2 amp. circuit breaker
120 VAC	10 amp. circuit breaker
+28 VDC	5 amp. Slo-Blo Fuse (2)
+8 VDC	5 amp. Slo-Blo Fuse

Amplifier

120 VAC	3 amp. circuit breaker
32 VDC	5 amp. Fuse (4)

ROWE OBA-P BILL ACCEPTOR

GENERAL SPECIFICATIONS

OVERALL DIMENSIONS

	Width	Height	Depth
Control Unit	5 1/4"	6 1/8"	1"
Transport and Stacker Assembly	4 1/2"	11 5/8"	5 1/2"

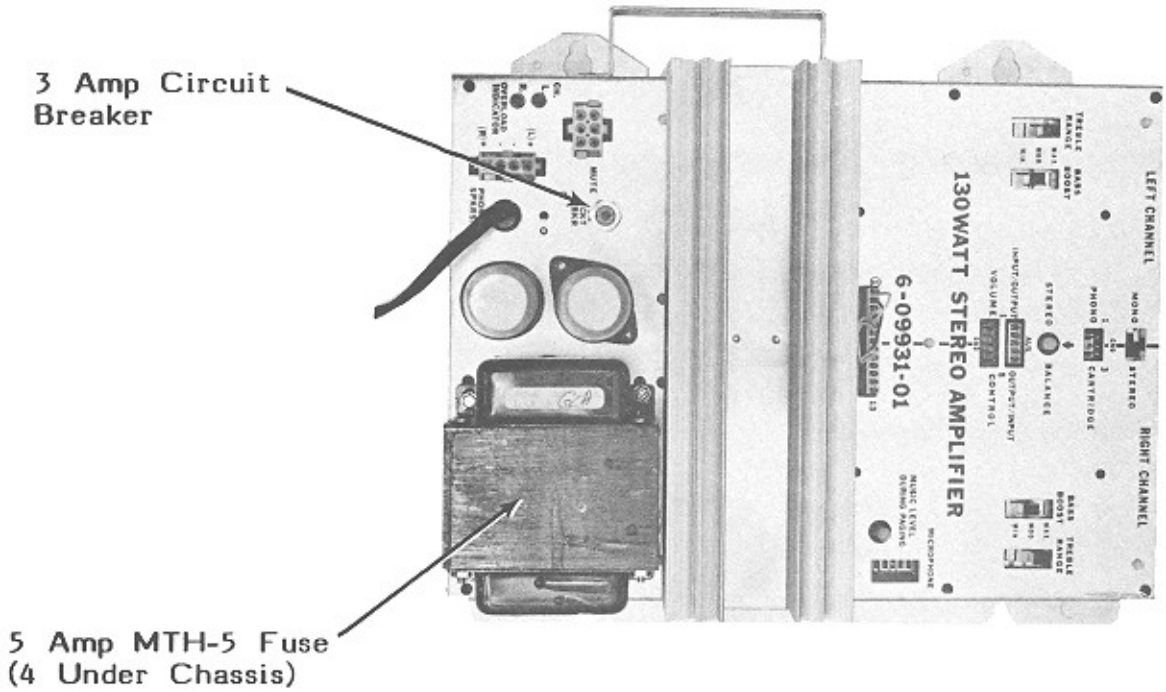
POWER REQUIREMENTS	21 - 28 VDC	1.5 A
	8 - 12 VDC	250 ma

INTERFACE REQUIREMENTS

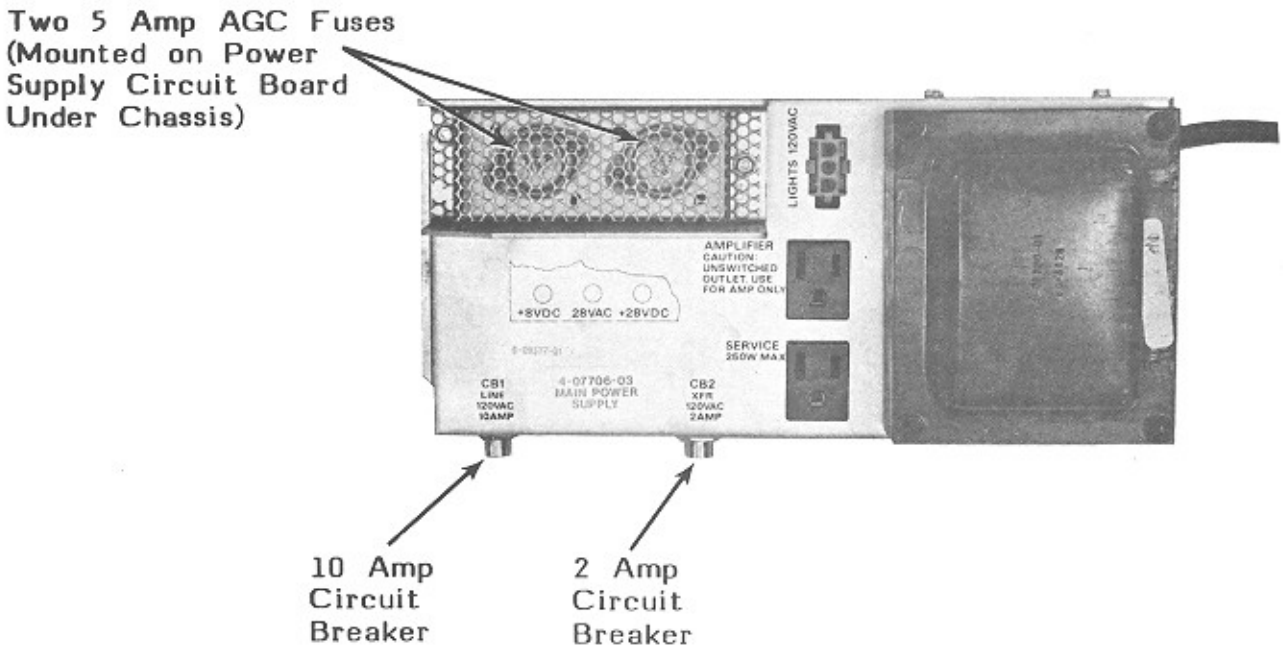
The OBA-P outputs a 75 ms +5 VDC pulse for each $1 bill accepted and five pulses (75 ms on, 75 ms off) are output for each $5 bill.

OPERATING ENVIRONMENT

Temperature 0° C to 70° C



130 Watt Amplifier



Main Power Supply

Figure 6-1. Fuse and Circuit Breaker Locations

Table 6-1. Compatibility Chart

	Part No.	Description	R-88 Video	All R-89	All R-90	ALL R-91
CENTRAL CONTROL COMPUTER	40777303		STD	----	----	----
	40777304		----	STD	----	----
	40777305		Note K	NOTE L	STD	STD
WALLBOX INTERFACE	60984301	WRD	NOTE C	STD	STD	STD
		WRA-WRC	NOTE C	STD	STD	STD
		WRE	-----	----	----	----
AMPLIFIER	60993101	130W	OK	OK	STD	STD
	60743805	125W	STD	STD	OK	OK
	60743804	125W	OK	OK	OK	OK
	60743802	125W	NOTE A	NOTE A	NOTE A	NOTE A
	60918901	50W RI-4,RI-5	OK	OK	OK	OK
	60918902	50W RI-4,RI-5	OK	OK	OK	OK
MECHANISM ASSEMBLY	60870001	60HZ	STD	STD	STD	STD
	60870002	50HZ	OK	OK	OK	OK
MECH CONTROL	40722102		STD	OK	NOTE E	NOTE E
	40722103	NO AUTOMIX	OK	OK	NOTE E	NOTE E
	40722105	NO AUTOMIX	OK	OK	STD	STD
OPTICAL SWITCH ASS'Y	30792701	WHT CONNECTOR	STD	STD	OK	OK
	30906801	RED CONNECTOR	---	---	STD	STD
POWER SUPPLY	40770601	DOMESTIC	STD	STD	---	---
	46509201	EXPORT	NOTE B	NOTE B	---	---
	40770603	DOMESTIC	OK	OK	STD	STD
	46509204	EXPORT	NOTE F	NOTE F	NOTE F	NOTE F
FLASHING LIGHT CONTROL	40780001	BAR GRAPH	---	NOTE G	---	---
	40750103	LAMP CONTROL	---	---	NOTE G	NOTE G
OBA	65057003		STD	---	---	---
	65057012		OK	STD	---	---
	65057022		---	---	STD	STD
VIDEO CONTROLLER	40777502		STD	NOTE D,H	NOTE D,H	NOTE D,H
	40788501		---	NOTE D,I	NOTE D,I	NOTE D,I
	40788503		---	---	NOTE D,M	NOTE D,M
GRAPHICS CONTROLLER	40777401		STD	NOTE D	NOTE D	----
	40802601		NOTE J	NOTE D,J	NOTE D,J	NOTE D
VIDEO CASSETTE RECORDER	60974501		STD	STD	NOTE D,H	NOTE D,H
	40788402		---	----	NOTE D,I	NOTE D,I
	60993001		---	----	------	NOTE D,M
POWER SUPPLY (VIDEO)	40777601		STD	NOTE D	NOTE D	NOTE D

A. Needs a special adapter harness.
B. Different boards are required: 120 V = 46509201, 220 V = 46509202, 240 V = 46509203.
C. Change the CCC to 40777305.
D. Add this part when you convert the phonograph to video.
E. Change the optical switch to Part Number 30792701.
F. Different boards are required: 120 V = 46509204, 220 V = 46509205, 240 V = 46508706.
G. Standard (STD), but not used in video phonographs.
H. The Part Number 60974501 VCR requires the 40777502 Video Controller.
I. The Part Number 40788402 VCR requires the 40788402 Video Controller.
J. Requires one of the following kits: 27036503 for an R-88, or 27036504 for an R-89.
K. OK if you:
   1. Move the SERVICE switch to the OFF position.
   2. Unplug P1, swap the P1 W/BL wire (Position 6) and the keying plug (Position 7).
   3. Press and hold KEY 8 and the RESET KEY.
   4. While holding KEY 8 and the RESET KEY, move the SERVICE switch to SERVICE.
L. OK if you:
   1. Move the SERVICE switch to the OFF position.
   2. Press and hold KEY 9 and the RESET KEY.
   3. While holding KEY 9 and the RESET KEY, move the SERVICE switch to SERVICE.
M. Standard (STD) in the R-91, VCR Part Number 60993001 requires the 40788503 Video Controller.

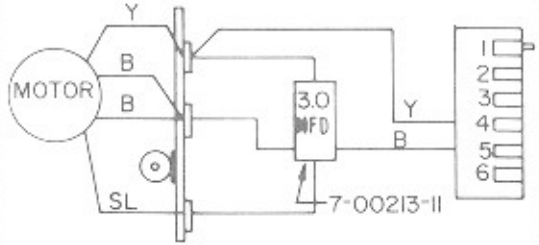
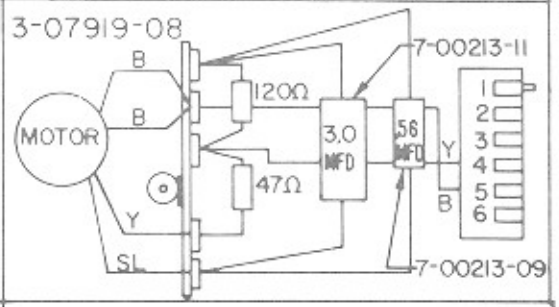
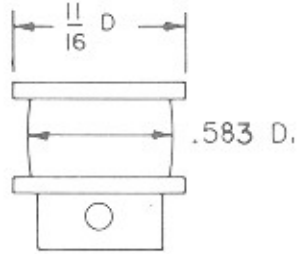
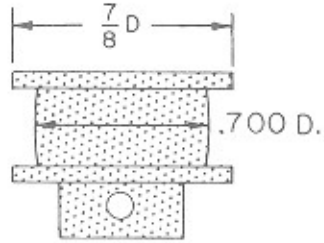
TURNTABLE MOTOR PART NUMBER AND IDENTIFYING FEATURES	60Hz MOTOR ASSEMBLY ACTUAL CAPACITORS SHOWN ARE TYPICAL. TOTAL CAP. VALUES MAY HAVE BEEN OBTAINED BY OTHER COMBINATIONS. CAPS. ARE 100V.	50Hz MOTOR ASSEMBLY ACTUAL CAPACITORS SHOWN ARE TYPICAL. TOTAL CAP. VALUES MAY HAVE BEEN OBTAINED BY OTHER COMBINATIONS. CAPS. ARE 100V, RESISTORS 2W.
 3-07920-04, MFG. BY NORTH AMER. PHILIPS, LABELED A81743-M5. HAS FLAT BOTTOM COVER NO FLAT ON SHAFT.	3-07919-07 	3-07919-08 
	 CLEAR ANODIZED ALUMINUM T.T. MOTOR PULLEY 2-18178-01	 RED ANODIZED ALUMINUM T.T. MOTOR PULLEY 2-18178-02

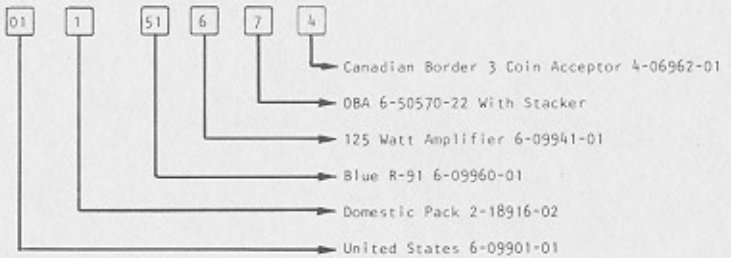
Figure 6-2. Turntable Motor and Pulley Chart

SECTION 7 PARTS CATALOG

COUNTRY 1st & 2nd DIGIT			PACK 3rd DIGIT	R-91 SUB-ASSEMBLY 4th & 5th DIGIT		AMPLIFIER 6th DIGIT	BILL ACCEPTOR 7th DIGIT	COIN ACCEPTOR 8th DIGIT	
01 = US	= 6-09961-01		1 = DomPack = 2-18952-01	51 = BLUE (60HZ)	6-09960-01	0 = None	0 = None	0 = None	
02 = Arg	= " -02			52 = BROWN (60HZ)	6-09960-02	1 =	1 =	1 = 3 Coin Acceptor	= 4-06961-01
03 = Australia	= " -03			53 = BLUE - VIDEO (60HZ) (SLHFR-70)	6-09960-03	2 =	2 =	2 = 4 Coin Acceptor	= 4-07156-01
04 = Aus	= " -04			54 = BLUE - VIDEO (60HZ) (SLHFR-70) WITH 2-18826-01 MONITOR KIT	6-09960-04	3 =	3 =	3 = Export Rejector (Special)	= 7-09519-XX
05 = Bah	= " -05			55 = BLUE (50HZ)	6-09960-05	4 =	4 =	4 = 3 Coin Canadian Border	= 4-06962-01
06 = Belg	= " -06			56 = BROWN (50HZ)	6-09960-06	5 = 50W = 6-09189-02	5 =	5 = 4 Coin Canadian Border (5,10,25,50)	= 4-07159-01
07 = Canada	= " -07			57 = BLUE - VIDEO (50HZ) (SLHFR-70)	6-09960-07	6 = 130W = 6-09941-01 (Inc'l Canada)	6 =	6 = Kit - Mars Slug Rejector	= 2-18851-03
08 = Chile	= " -08			58 = BLUE - VIDEO (50HZ) (SLHFR-70) WITH 2-18826-01 MONITOR KIT	6-09960-08		7 = OBA = 6-50570-22 W/Stacker	7 = 4 Coin $ Acceptor (5,10,15,$)	= 4-07156-02
09 = Col	= " -09			59 = BLUE - VIDEO (60HZ) (SLHFR-70) SEAGRAMS	6-09960-09			8 = 2 Coin Acceptor (25,$)	= 4-07156-03
10 = Costa R	= " -10			60 = BLUE - VIDEO (60HZ) (SLHFR-70) SEAGRAMS WITH 2-18826-01 MONITOR KIT	6-09960-10			9 = Canadian Border $ (5,10,25,$)	= 4-07159-02
11 = Nuetral Stock	= " -11			61 = BLUE - VIDEO (60HZ) (1) (SLHFR-70)	6-09960-11				
12 = Denmark	= " -12			62 = BLUE - VIDEO (60HZ) (1) (SLHFR-70) WITH 2-18826-01 MONITOR KIT	6-09960-12				
13 = Ecuador	= " -13								
14 = El Salv	= " -14								
15 = England	= " -15								
16 = Finland	= " -16								
17 = France	= " -17								
18 = Germany	= " -18								
19 =									
20 = Quat	= " -20								
21 = Holland	= " -21								
22 = Hon	= " -22								
23 = Italy	= " -23								
24 = Belize	= " -24								
25 = Japan	= " -25								
26 =									
27 = Nic	= " -27								
28 = Norway	= " -28								
29 = Aruba	= " -29								
30 = Panama	= " -30								
31 = Curaco	= " -31								
32 =									
33 = Sweden	= " -33								
34 = Swiss Fr	= " -34								
35 = Swiss Ge	= " -35								
36 = Swiss It	= " -36								
37 = Trinidad	= " -37								
38 =									
39 = Venez	= " -39								
40 = Zambia	= " -40								
41 = Puerto R	= " -41								
42 = Guyana	= " -42								
43 = Brazil	= " -43								
44 = Barbados	= " -44								
45 = Surinam	= " -45								
46 = Yugo	= " -46								
47 = S. Africa	= " -47								
48 =									
49 =									

4th & 5th DIGIT		4th & 5th DIGIT		4th & 5th DIGIT	
01-10		11-20	R-88 Video	07-10	R-89
11-20		25-30	R-86		
21-24		35-40	R1-4 & 5		
31-34	R1-2				
41-50	R1-3	55-60		41-50	R-89
51-54				51-70	R-91
61-70		73-80	CTI-3	01-10	R-90
71-72				81-99	R-90

SAMPLE:



R-91 Code
Rev. A

SECTION 7
PARTS CATALOG

INTRODUCTION

This parts catalog lists procurable replacement parts for the phonograph. The purpose of this parts catalog is to locate and identify replaceable components and supply information on how to order them.

Catalog Description

This catalog is divided into major sections labeled figures, which correspond to the illustrations used. Some assemblies require more than one illustration to identify the parts. Each page has a sheet number to identify the sheet as part of that assembly's parts list.

Since replacing parts that are welded or riveted onto an assembly is normally impractical, replacement parts are not listed for these items. The assembly that contains the welded part should be replaced.

Parts List Description

The parts list contains four columns:

- Figure, Sheet, and Index Number - The first entry in this column is the figure number of the corresponding illustration. An index number, when listed, corresponds to the index number appearing on the illustration. Index numbers are not used when:
- Items are listed for reference purposes only.
- The item listed is an alternate part.
- Rowe Part Number - This column lists the part number to use when ordering replacement parts or making inquiries.
- Description - This column gives a word description of each part or assembly. Each item is indented to show its relationship to the next higher assembly.
- Qty. Per Ass'y. - This column contains the part quantity used in the assembly. When a figure describes more than one model of an assembly, the "Qty. Per Ass'y." column is divided to show each model.

ORDERING REPLACEMENT PARTS

All replacement parts must be ordered directly from an authorized Rowe Distributor.

Once the replacement item has been determined, complete a Standard Parts Order Form (available from your Rowe Distributor at no charge). Very often parts orders are delayed because of inadequate or incompletely filled out parts order forms. To enable prompt delivery, always specify the following information:

- Part Number and Description (State color, if applicable.).
- Quantity required
- Machine Model and Serial Number
- Complete shipping address, including the ZIP code.
- Shipping Instructions must be supplied. If the shipping method is Parcel Post, Air Parcel Post, United Parcel Service, or Air UPS, and the packages may exceed the size and weight limits of these services, indicate an alternate shipping method.

  If the shipment must be delivered as fast as possible, specify "Fastest Way". Rowe will select the carrier for orders that justify shipment by truck.

FIGURE 7-1. R-91 PHONOGRAPH ASSEMBLY

Sheet 1

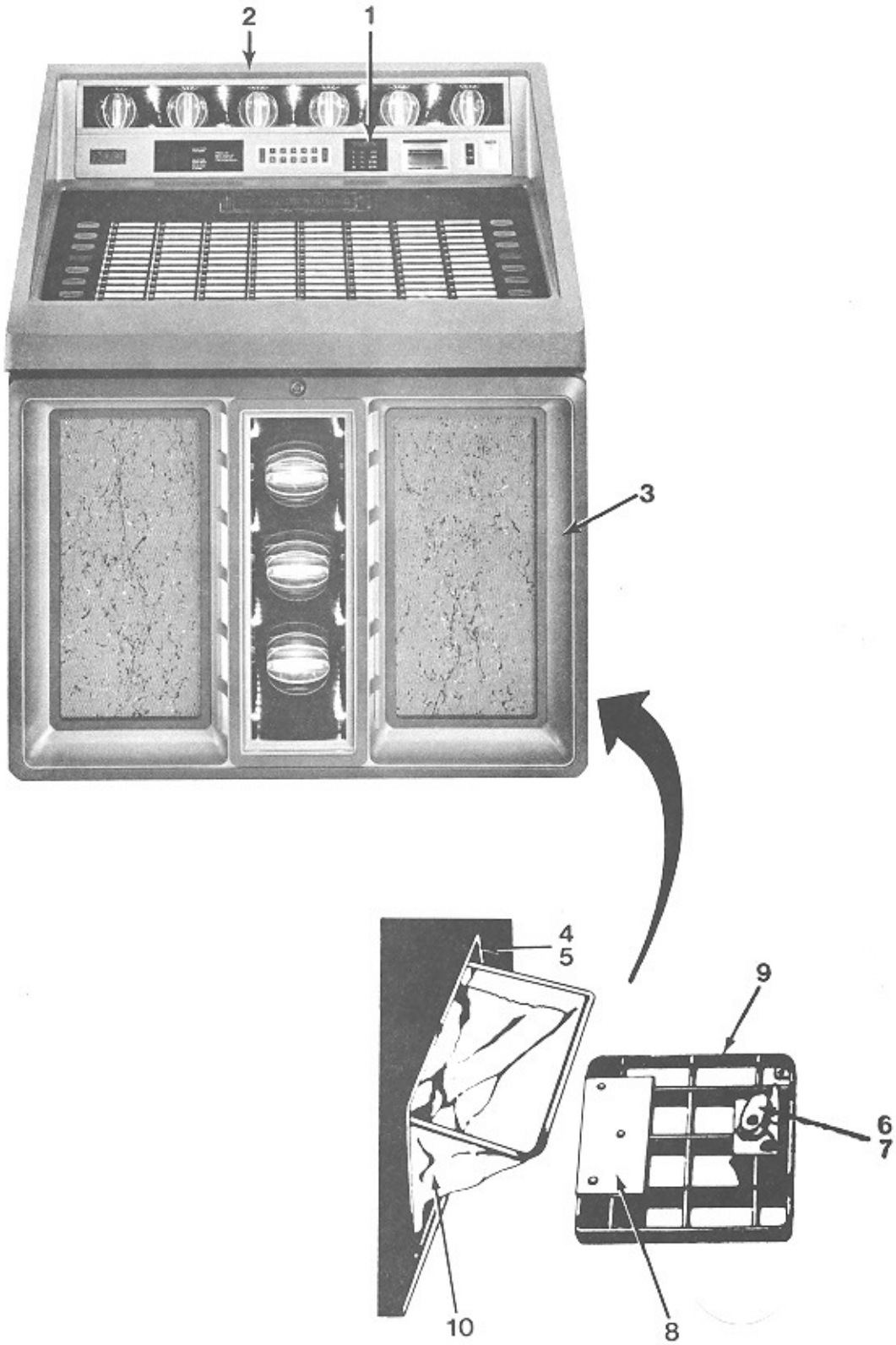


Fig. And Index No.	Rowe Part No.	Description	Qty. Per Assy
1-	See pg. 7-2	R-91 Phonograph Assembly (Blue)	
	See pg. 7-2	R-91 Phonograph Assembly (Brown)	
1	30901601	. Standard Price Card	1
2	60996501	. Top Door (Blue)	1
	60996502	. Top Door (Brown)	1
3	60997001	. Front Door (Blue)	1
	60997002	. Front Door (Brown)	1
4	40527605	. Cash Box Door Frame	5
5	21776005	. "U" Type Speed Clip	1
	21186605	. Cash Box Door Assembly	1
6	70160016	. Cylinder Lock	1
7	20669501	. Lock Support	1
8	20770301	. Catch Bracket	1
9	60326705	. Cash Box Door	1
10	30702601	. Cash Bag	1
	70212507	. Felt Adhesive Tape	1
	40800801	. Holder Price Card — When Bill Acceptor	1
	21845607	. Window — Is Not Used	1
	40802501	. Overlay - Blockout — (Not Shown)	1

FIGURE 7-1. R-91 PHONOGRAPH ASSEMBLY

Sheet 2

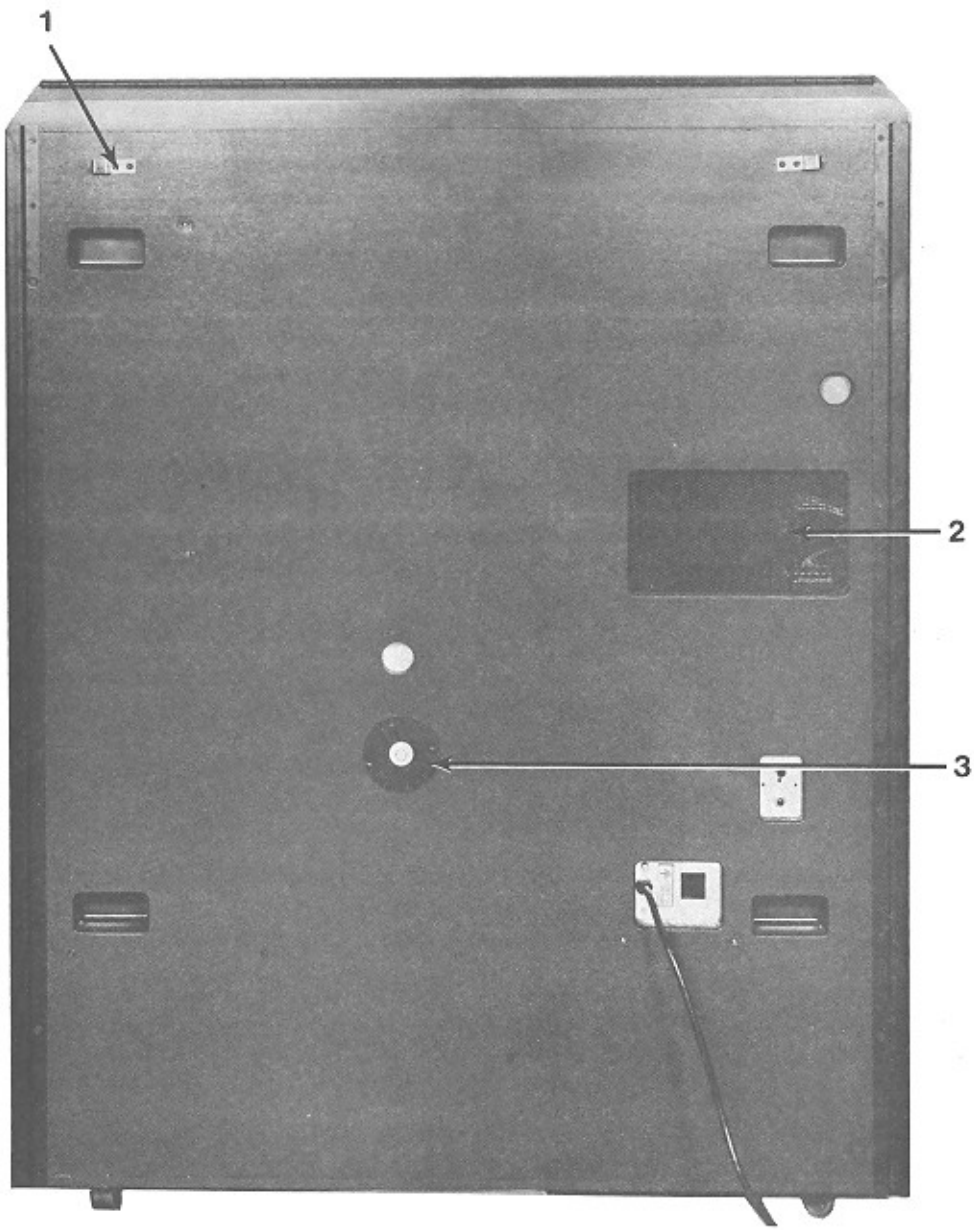


Fig. And Index No.	Rowe Part No.	Description	Qty. Per Assy
1-	See pg. 7-2	R-91 Phonograph Assembly (Cont.)	
	See pg. 7-2	R-91 Phonograph Assembly (Cont.)	
1	20899502	. Retainer Bracket	2
2	30868402	. Enclosure Screen	1
3	21265203	. Tie Down Plate Assembly	1

FIGURE 7-1. R-91 PHONOGRAPH ASSEMBLY

Sheet 3

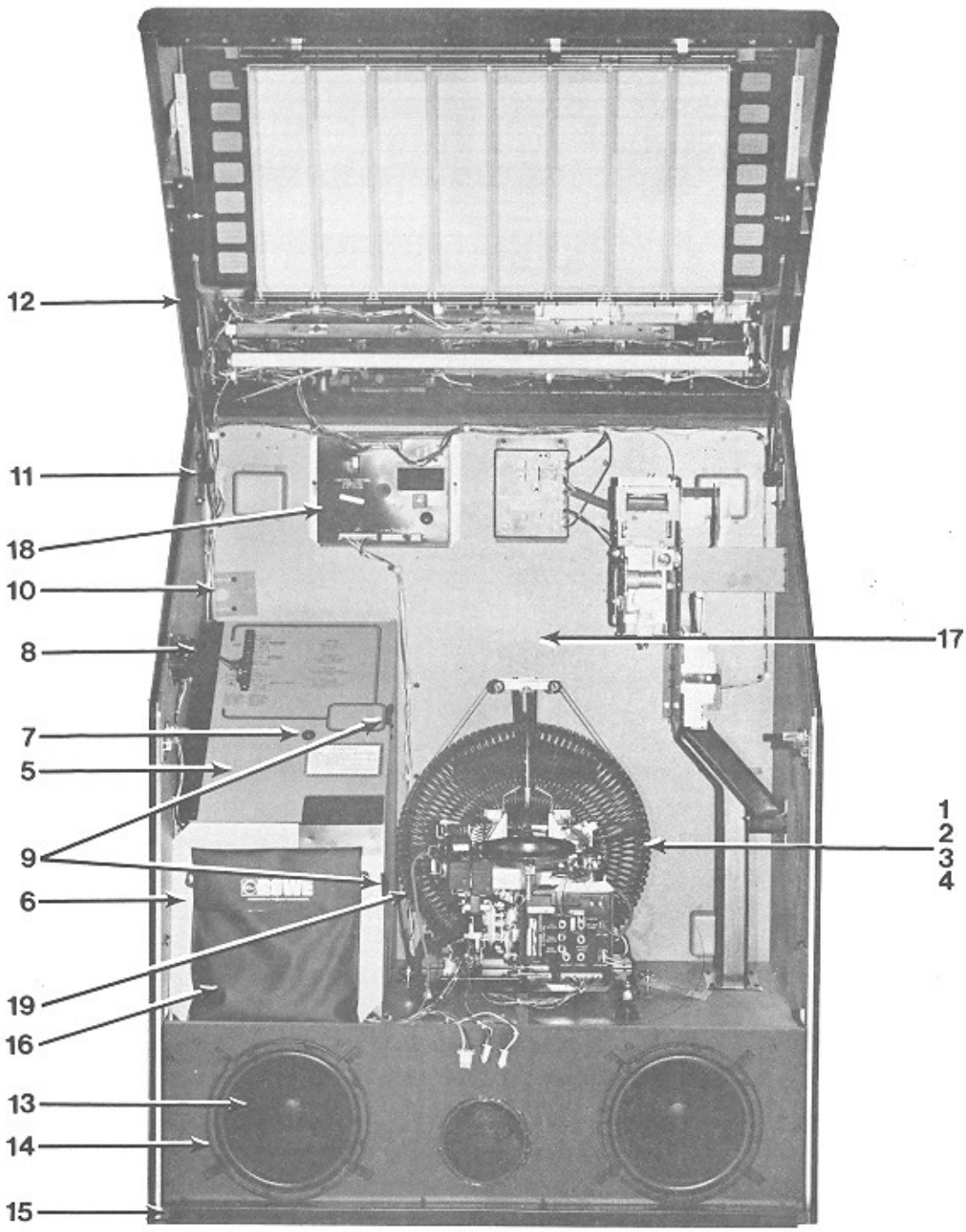


Fig. And Index No.	Rowe Part No.	Description	Qty. Per Assy
1-	See pg. 7-2	R-91 Phonograph Assembly (Blue) Cont.	
1-	See pg. 7-2	R-91 Phono Assembly (Brown) Cont.	
1	60870001	. Mechanism Assembly (See Fig. 11)(60Hz)	1
2	60870002	. Mechanism Assembly (See Fig. 11)(50Hz)	1
3	21153701	. Lower Spring Support	4
4	21203601	. Mech Tie Down Bolt	2
5	40772605	. Hinge & Cover Assembly	1
6	30869702	. Amplifier Panel Assembly	1
7	21888001	. Catch - Hook	1
8	21888101	. Catch - Loop	1
9	21751804	. Spring Catch	2
10	21759301	. Cord Hold Cover	2
11	21891101	. Plate Assembly Pivot	2
12	40714905	. Pneumatic Spring	2
13	40782103	. Woofer	2
14	21780701	. Speaker Retaining Bracket	8
15	60991101	. Door Mounting Bracket	1
16	30869801	. Handy Case	1
	21730514	. . Accessory Bag Assembly	1
	21198801	. . . Accessories Bag	1
	70097501	. . . Contact (Pin)	6
	70097502	. . . Contact (Socket)	6
	70075601	. . . Contact (Post)	10
	70091012	. . . Terminal Lug	10
	70072010	. . . Fuse (5 Amp)	2
	70072106	. . . Fuse (5 Amp)	2
	30792201	. . . Turntable Drive Belt	1
	21870001	. . . Snap-in Fastener	2
	30901602	. . Alternate Price Card	1
	21863301	. . Lamp & Envelope Assembly	1
	21862201	. . . Lamp & Socket Assembly	5
	26690810	. . Troubleshooting Aid	1
	26693109	. . Accessories Booklet	1
	21404302	. . Heat Label	1
17	60995001	. Shell Assembly	1
	60995002	. Shell Assembly	1
18	40777305	. Central Control Computer (See Fig. 9)	1
19	30832402	. Tone Arm Cable & Plug Assembly	1

FIGURE 7-1. R-91 PHONOGRAPH ASSEMBLY

Sheet 4

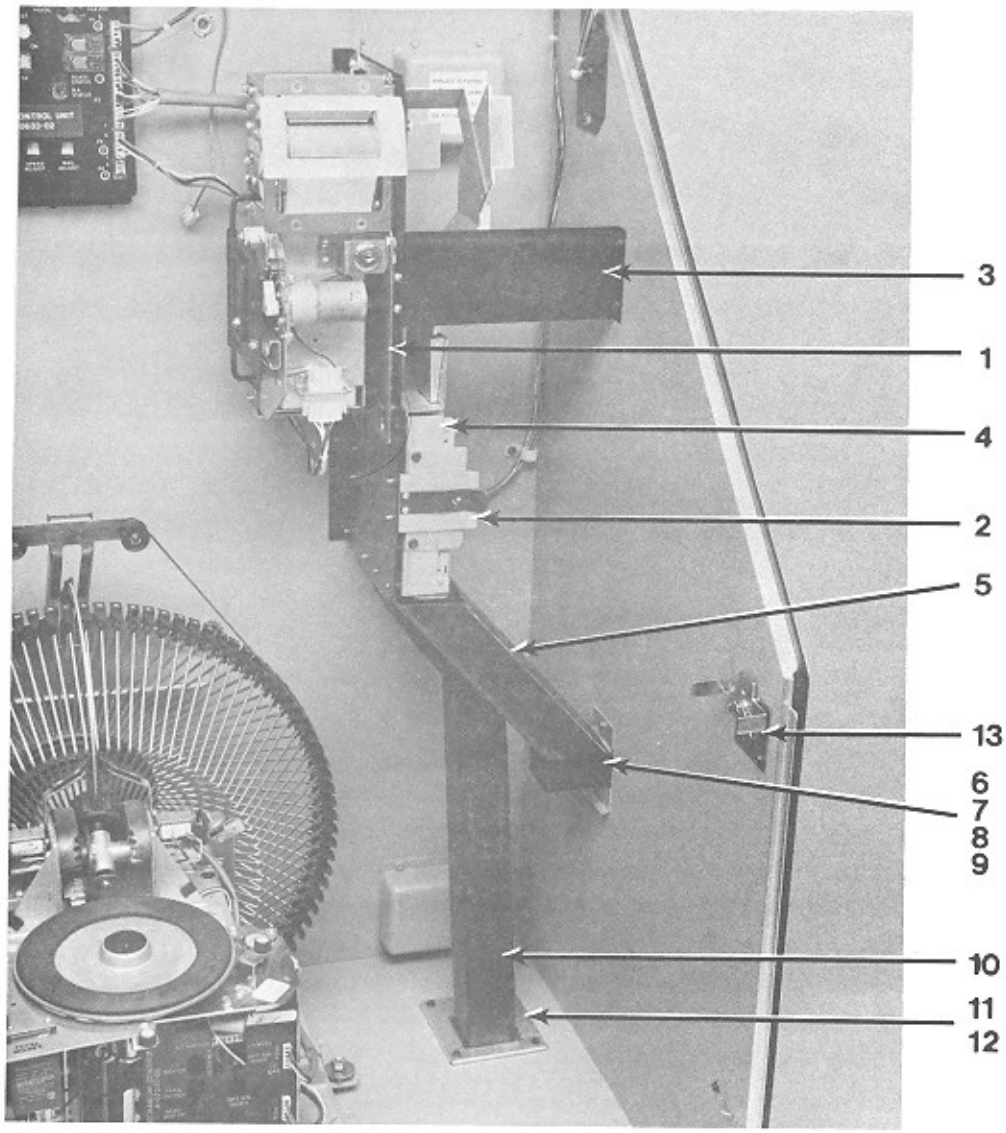


Fig. And Index No.	Rowe Part No.	Description	Qty. Per Assy
1-	See Pg. 7-2	R-91 Phono Assembly (Blue) Cont.	
1-	See Pg. 7-2	R-91 Phono Assembly (Brown) Cont.	
1	40801201	. Support & Coin Chute Assembly	1
	30904401	. . Support Assembly - Slug Rejector	1
	30904501	. . Pivot Scavenge	1
	25156904	. . Shoulder Washer	1
	21256201	. . Tension Spring	1
	21891801	. . Scavenge Link	1
	21891901	. . Slug Rejector Actuator	1
	21765601	. . Compression Spring	1
	20922502	. . Spacer	4
	30904601	. . Upper Coin Chute Assembly	1
	21790102	. . Hinge Support	1
2	21429501	. . Rejector Catch Assembly	1
3	30905801	. Support Brace	1
4	40703810	. Mounting Bracket & Coin Switch Assembly	1
	40579302	. . Slug Rejector Mounting Bracket Assembly	1
	21411401	. . Spacer	1
	30578703	. . Coin Switch Assembly	1
	21790202	. . Rejector Hinge	1
	20636801	. . Stud	1
	21822301	. . Slug Rejector Catch Plate	1
5	40801501	. Slug Chute	1
6	21793001	. Slug Cup Bracket	2
7	21357802	. Elastic Stop Nut	1
8	21792901	. Slug Cup Door	1
9	30781702	. Slug Cup	1
10	60993201	. Lower Coin Chute	1
11	30743701	. Coin Chute Collar	1
12	21754401	. Coin Chute Gasket	1
13	21712701	. Latch Assembly (LH)	1
	21712801	. Latch Assembly (RH)	1

FIGURE 7-1. R-91 PHONOGRAPH ASSEMBLY

Sheet 5

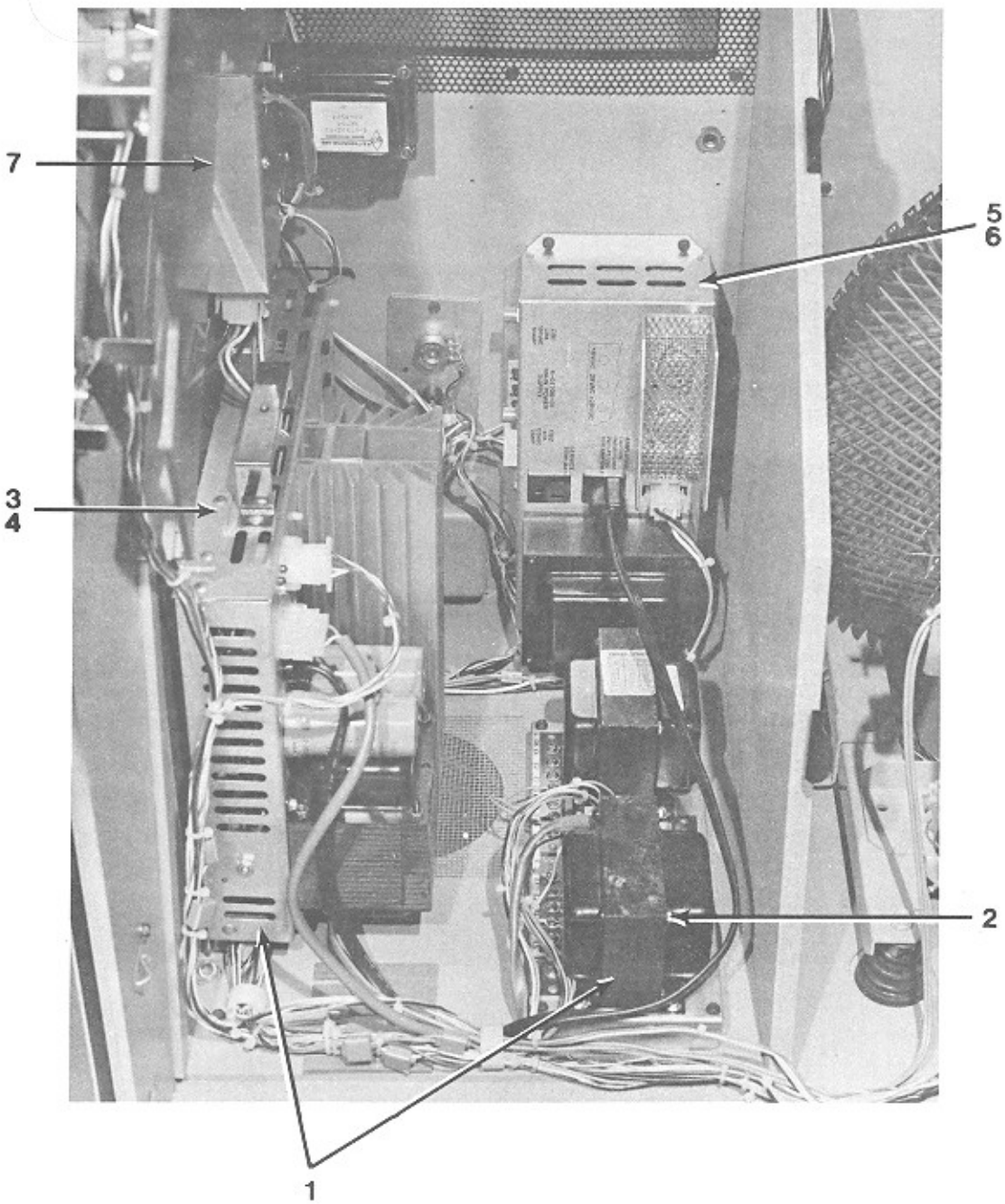


Fig. And Index No.	Rowe Part No.	Description	Qty. Per Assy
1-	See pg. 7-2	R-91 Phonograph Assembly (Blue) Cont.	
1-	See pg. 7-2	R-91 Phonograph Assembly (Brown) Cont.	
1	60994101	. 130 Watt Stereo Amplifier and Transformer Assembly	1
2	40633606	. 125 Watt Output Transformer Assembly (See Fig. 8)	1
3	60993101	. 130 Watt Stereo Amplifier (See Fig. 6)	1
4	40242601	. Amplifier Mounting Bracket Assembly	1
5	40770603	. Main Power Supply (120V)(See Fig. 10)	1
	46509205/06	. Main Power Supply (220V, 240V)	1
6	20925601	. Junction Box Mounting Bracket	1
7	40750103	. Lamp Control Assembly (See Fig. 5)	1

FIGURE 7-1. R-91 PHONOGRAPH ASSEMBLY

Sheet 6

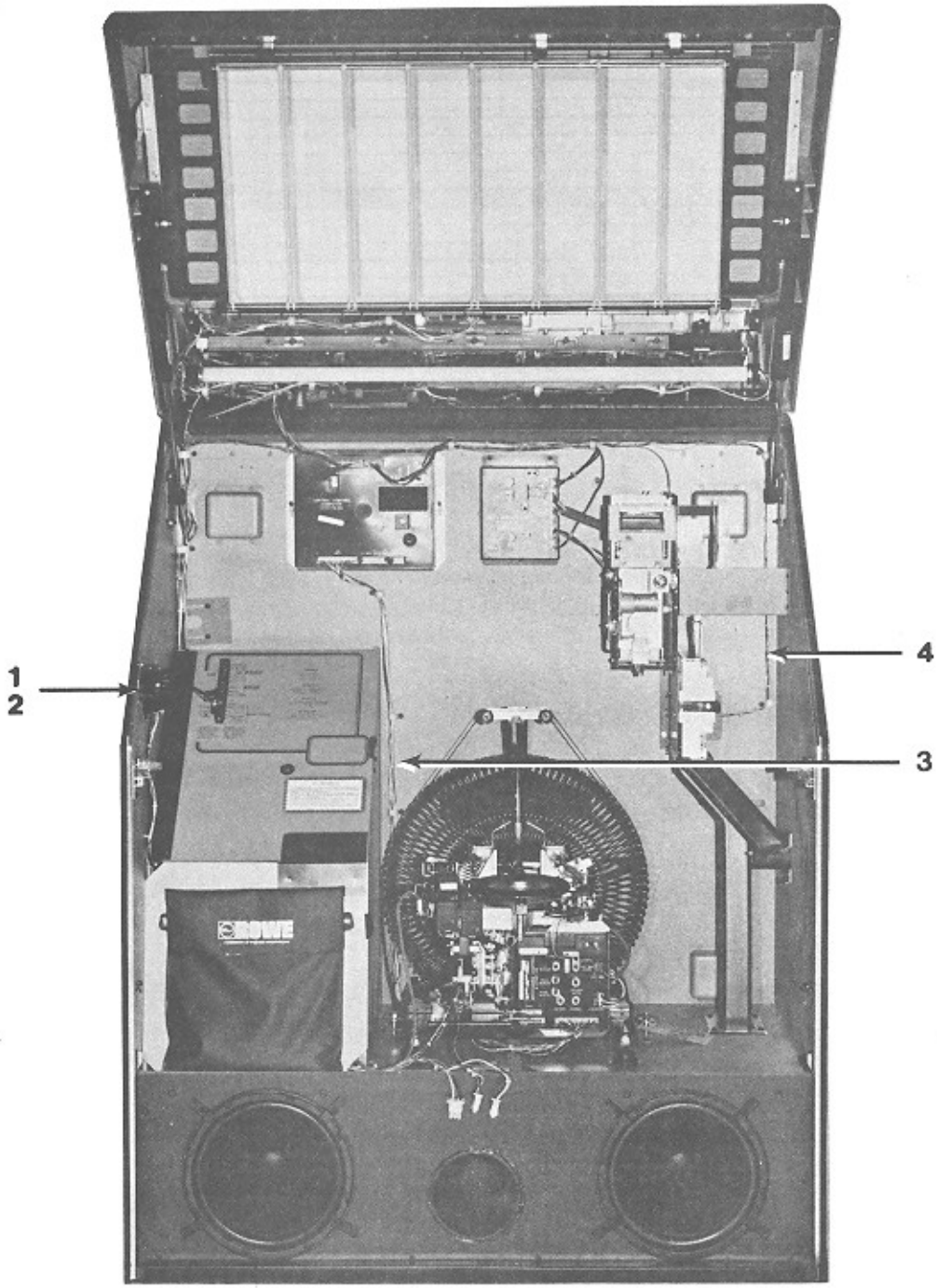


Fig. And Index No.	Rowe Part No.	Description	Qty. Per Assy
1-	See Pg. 7-2	R-91 Phono Assembly (Blue) Cont.	
1-	See Pg. 7-2	R-91 Phono Assembly (Brown) Cont.	
1	60991201	. Harness & Switch Assembly	1
	30749105	. . Housing Plug (9 Ckt.)	2
	30749108	. . Housing Plug (1 Ckt.)	1
	30749104	. . Housing Plug (6 Ckt.)	1
	70075509	. . Housing Connector (9 Ckt.)	1
	70075505	. . Housing Connector (5 Pin)	4
	30749103	. . Housing Plug (4 Ckt.)	1
	30749102	. . Housing Plug (3 Ckt.)	3
	30649002	. . Housing Plug (3 Ckt.)	2
	70097506	. . Contact - Univ. Conn. (Socket)	6
	70097501	. . Contact - Univ. Conn. (Pin)	11
	70097502	. . Contact - Univ. Conn. (Socket)	10
	70097503	. . Contact - Univ. Conn. (Pin)	7
	70075701	. . Keying Plug	1
	21800501	. . Jumper	1
	21868601	. . Knob - Vol. Control	1
	70135511	. . Palnut (3/8 - 32)	1
	21393508	. . Vol. Control & Terminal Assembly	1
	21581801	. . Switch Pushbutton (Momentary)	1
	21868001	. . Plate - Control	1
	70099101	. . Splice Self Stripping	14
	70097506	. . Contact - Univ. Conn. (Socket)	3
	70096703	. . Insulator Faston	2
2	21883701	. Reset Actuator Assembly	1
3	30885401	. Mech. Computer Harness	1
4	30902301	. Coin Switch Harness Assembly	1

FIGURE 7-2. FRONT DOOR ASSEMBLY

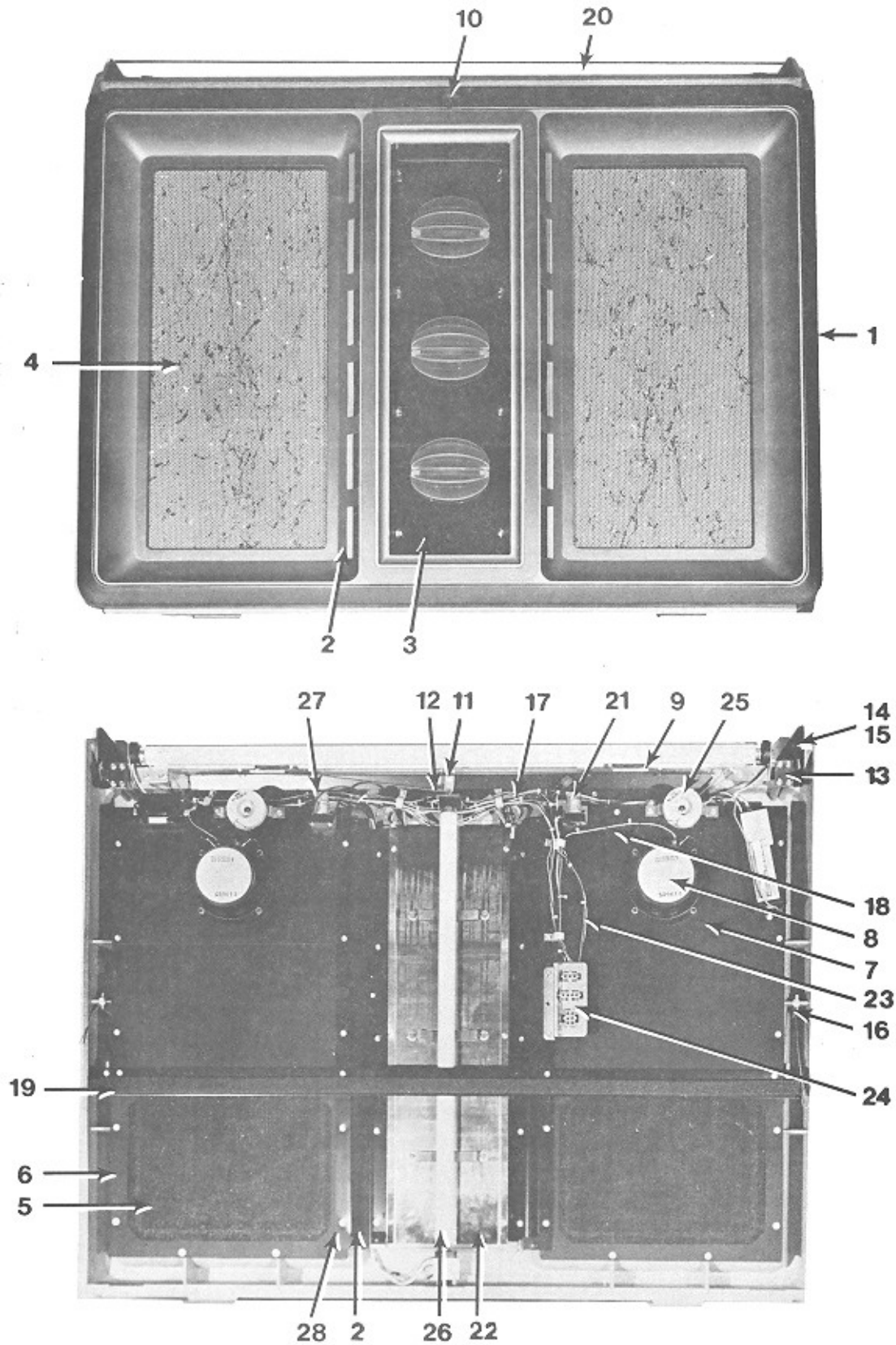


Fig. And Index No.	Rowe Part No.	Description	Qty. Per Assy
2-	60997001	Front Door Assembly (Blue)	
	60997002	Front Door Assembly (Brown)	
1	60991601	. . Front Door Frame (Blue)	1
1	60991603	. . Front Door Frame (Brown)	1
2	30901803	. . Light Diffuser (Blue)	2
2	30901803	. . Light Diffuser (Light Orange)	2
3	21821704	. . Light Bar Window	1
4	40801903	. . Lower Grille (Blue)	2
	40801904	. . Lower Grille (Brown)	2
5	40803501	. . Front Door Scrim	2
6	30901901	. . Grille Back Up	2
7	30902001	. . Speaker Panel Assembly	2
8	40782202	. . Midrange Speaker (High Freq)	2
9	60991801	. . Lock Bar Assembly	1
10	70163206	. . Lock Cylinder (Common Keying)	1
11	21425601	. . Lock Bolt	1
12	21893501	. . Lockbolt Link	1
13	21883503	. . Strike	2
14	21893701	. . Anti-Cheat Bracket LH	1
15	21893801	. . Anti-Cheat Bracket RH	1
16	21572601	. . Fall Stop Cable	2
	30902101	. . . Front Door Speaker Harness Label (Not Shown)	1
17	40802001	. . Front Door Light Harness Assembly (60 Hz)	1
18	40802101	. . Front Door Speaker Harness Assembly	1
19	30903901	. . Seal Bracket	1
	70220460	. . . Foamed Tape	1
	70220479	. . . Foamed Tape	3
20	70060112	. . Fluorescent Lamp (30W T-8)	1
21	70080004	. . Fluorescent Starter (FS-4)	1
22	60994701	. . Lightbox Assembly (Blue)	1
	60994702	. . Lightbox Assembly (Brown)	1
	60995101	. . . Frame Assembly	1
	30904901	. . . Mirror	1
	60994901	. . . PWB-4 Circuit Board	2
	21862201	. . . Lamp and Socket Assembly	8
	30866503	. . . Lens-Clear	8
	30909501	. . . Glow Fan (Blue)	1
	30909502	. . . Glow Fan (Brown)	1
	21568901	. . . Push Nut Clip	6
	70212209	. . . Sponge Rubber-Closed Cell	2
	70220439	. . . Foamed Tape	1
23	40801101	. . Front Door Flashing Lights Harness Assembly	1
24	30904301	. . Mounting Bracket (Universal Connector)	1
25	30904901	. . Speaker Coil and Bracket Assembly	2
26	70060107	. . Fluorescent Lamp (19W T-8)	1
27	70080001	. . Fluorescent Starter (FS-2)	1
28	30906901	. . Light Diffuser Retainer	2
	70093401	. . . Cable Clamp (17/32)	6
	30907301	. . Sound Baffle Panel (Not Shown)	1
	30907401	. . Light Reflector (Not Shown)	1

FIGURE 7-3. TOP DOOR ASSEMBLY

Sheet 1

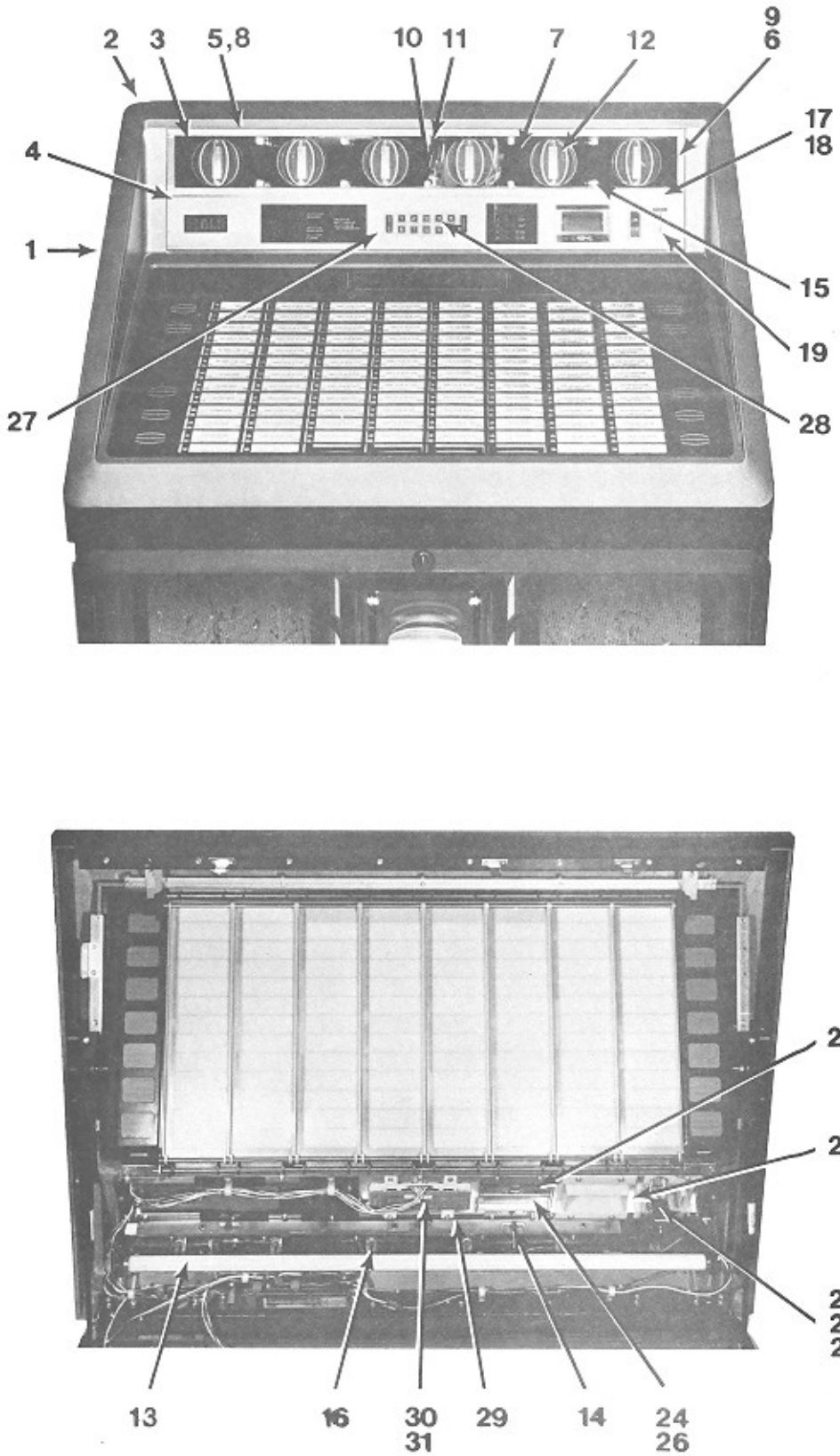


Fig. And Index No.	Rowe Part No.	Description	Qty. Per Assy
3-	60996501	Top Door Assembly	
	60996502	Top Door Assembly	
1	60990201	. Top Door Frame (Blue)	1
	60990203	. Top Door Frame (Brown)	1
2	40782302	. Hinge	1
3	60995201	. Light Assembly Top Door Flash (Blue)	1
	60995202	. Light Assembly Top Door Flash (Brown)	1
4	40800301	. . Trim Light Bar Lower (Silver)	1
	40800302	. . Trim Light Bar Lower (Gold)	1
5	40800401	. . Trim Light Bar Upper (Silver)	1
	40800402	. . Trim Light Bar Upper (Gold)	1
6	40800501	. . Trim Light Bar Side (Silver)	2
	40800502	. . Trim Light Bar Side (Gold)	2
7	21845606	. . Window	1
8	21820617	. . Channel	2
9	21820618	. . Channel	2
10	60995501	. . Frame Assembly Flashing Lights	1
11	60995601	. . Mirror - Top Door	1
12	30910001	. . Upper Glow Fan Assembly (Blue)	6
	30910002	. . Upper Glow Fan Assembly (Brown)	6
13	60995701	. . PWB - 5 Lamp	2
14	21862201	. . Lamp and Socket Assembly	10
15	30866503	. . Lens - Clear	10
16	21568901	. . Push Nut Clip	12
17	60990401	. Selector & Trim Assembly Blue (Silver)	1
	60990402	. Selector & Trim Assembly Brown (Gold)	1
18	60990701	. . Trim Selector (Silver)	1
	60990702	. . Trim Selector (Gold)	1
19	40800601	. . Inlet - Coin	1
20	21742908	. . Reject Button & Shaft Assembly	1
	21892201	. . . Coin Return Shaft	1
	30699609	. . . Coin Return Button	1
21	30905001	. . Guide Bracket	1
22	21822901	. . Compression Spring	1
23	21893301	. . Bill Inlet Assembly	1
24	40800801	. . Price Card Holder	1
25	21892801	. . Retainer	1
26	21845607	. . Window	1
27	40745303	. . Pushbutton Trim	1
28	40800901	. . Keyboard Assembly	1
29	40803601	. . . Keyboard Support Plate	1
30	60992101	. . . PWB Keyboard	1
31	30837101	. . . Keyboard Switch	12

FIGURE 7-3. TOP DOOR ASSEMBLY

Sheet 2

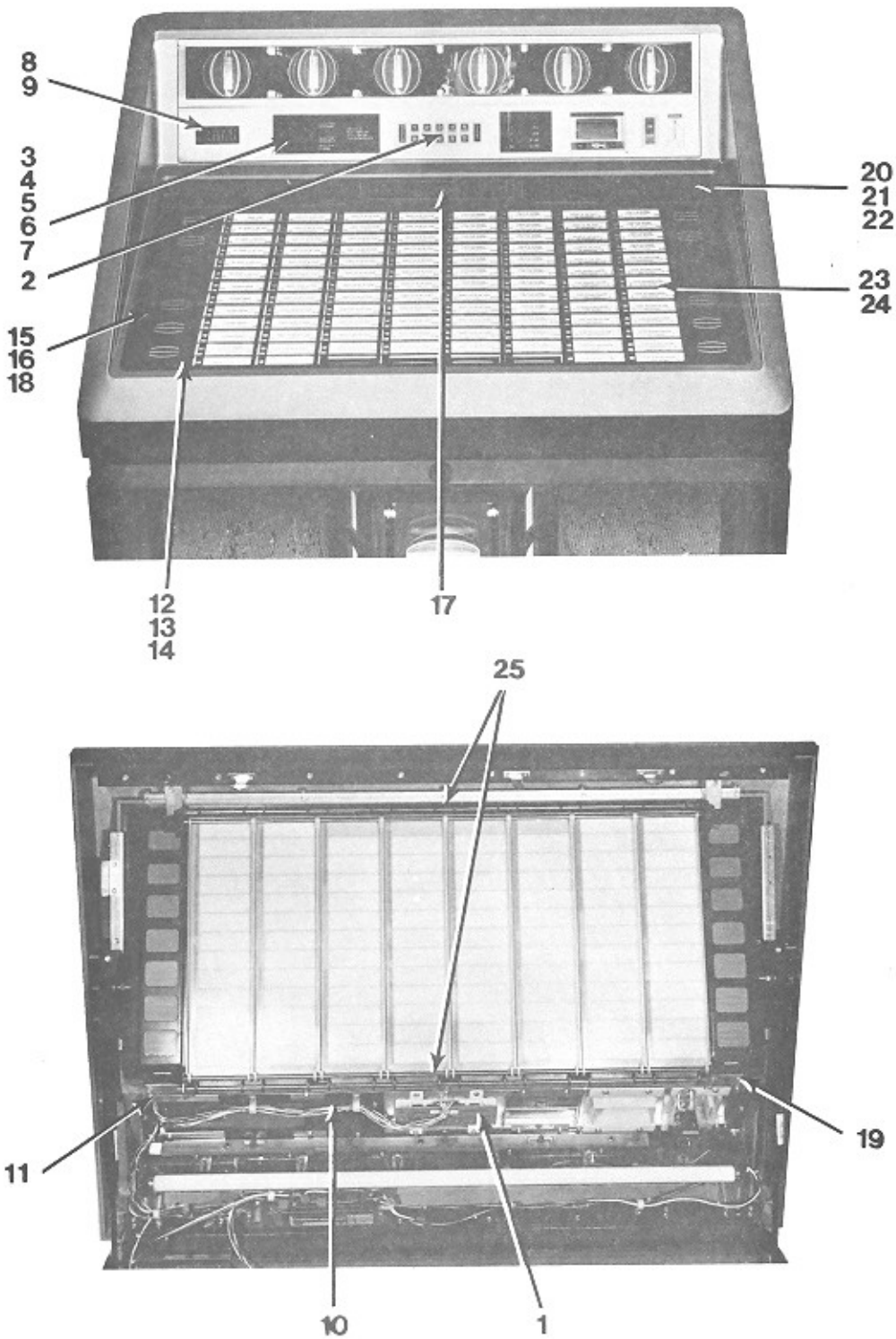


Fig. And Index No.	Rowe Part No.	Description	Qty. Per Assy
3-	60996501	Top Door Assembly	
	60996502	Top Door Assembly	
1	70079713	. . . Connector PCB	1
2	30903401	. . . Pushbutton Number 1	1
	30903402	. . . Pushbutton Number 2	1
	30903403	. . . Pushbutton Number 3	1
	30903404	. . . Pushbutton Number 4	1
	30903405	. . . Pushbutton Number 5	1
	30903406	. . . Pushbutton Number 6	1
	30903407	. . . Pushbutton Number 7	1
	30903408	. . . Pushbutton Number 8	1
	30903409	. . . Pushbutton Number 9	1
	30903410	. . . Pushbutton Number 10	1
	30903501	. . . Pushbutton Popular	1
	30903601	. . . Pushbutton Reset	1
3	40801001	. . Readout Holder	1
4	30902401	. . Readout Card	1
5	21845608	. . Window	1
6	60992801	. . Circuit Board Assembly Digital Display	1
7	21893601	. . Light Block	1
8	21845002	. . Rowe Nameplate	1
9	21532801	. . Push-on Speednut	2
10	30906501	. . Harness Assembly Digital Display	1
11	30900801	. . Harness Assembly - Keyboard	1
12	70212206	. Sponge Rubber Closed Cell	2
13	70212207	. Sponge Rubber Closed Cell	2
14	21845605	. Window	1
15	60990504	. Title Rack Housing Assembly	1
16	60990802	. . Title Rack Housing	1
17	30910401	. . Decal Selections	1
18	60995401	. . Decorative Decal (Blue)	2
	60995402	. . Decorative Decal (Brown)	2
19	30901201	. . Title Rack Hanger Assembly LH	1
	30901301	. . Title Rack Hanger Assembly RH	1
20	30886601	. . License Holder	2
21	21880701	. . License Retainer	2
22	70135508	. . Palnut	4
23	40800001	. Title Rack Assembly	1
24	60757102	. . Title Rack	8
	30901401	. . Number Strip 100-212	1
	30901402	. . Number Strip 113-225	1
	30901403	. . Number Strip 126-237	1
	30901404	. . Number Strip 138-249	1
	30901405	. . Number Strip 150-261	1
	30901406	. . Number Strip 162-273	1
	30901407	. . Number Strip 174-286	1
	30901408	. . Number Strip 182-299	1
25	21794417	. . Rod	2
	70143003	. . External Retaining Ring	2
	21568901	. . Push Nut	2
	21884602	. . Decorative Strip	4

FIGURE 7-3. TOP DOOR ASSEMBLY

Sheet 3

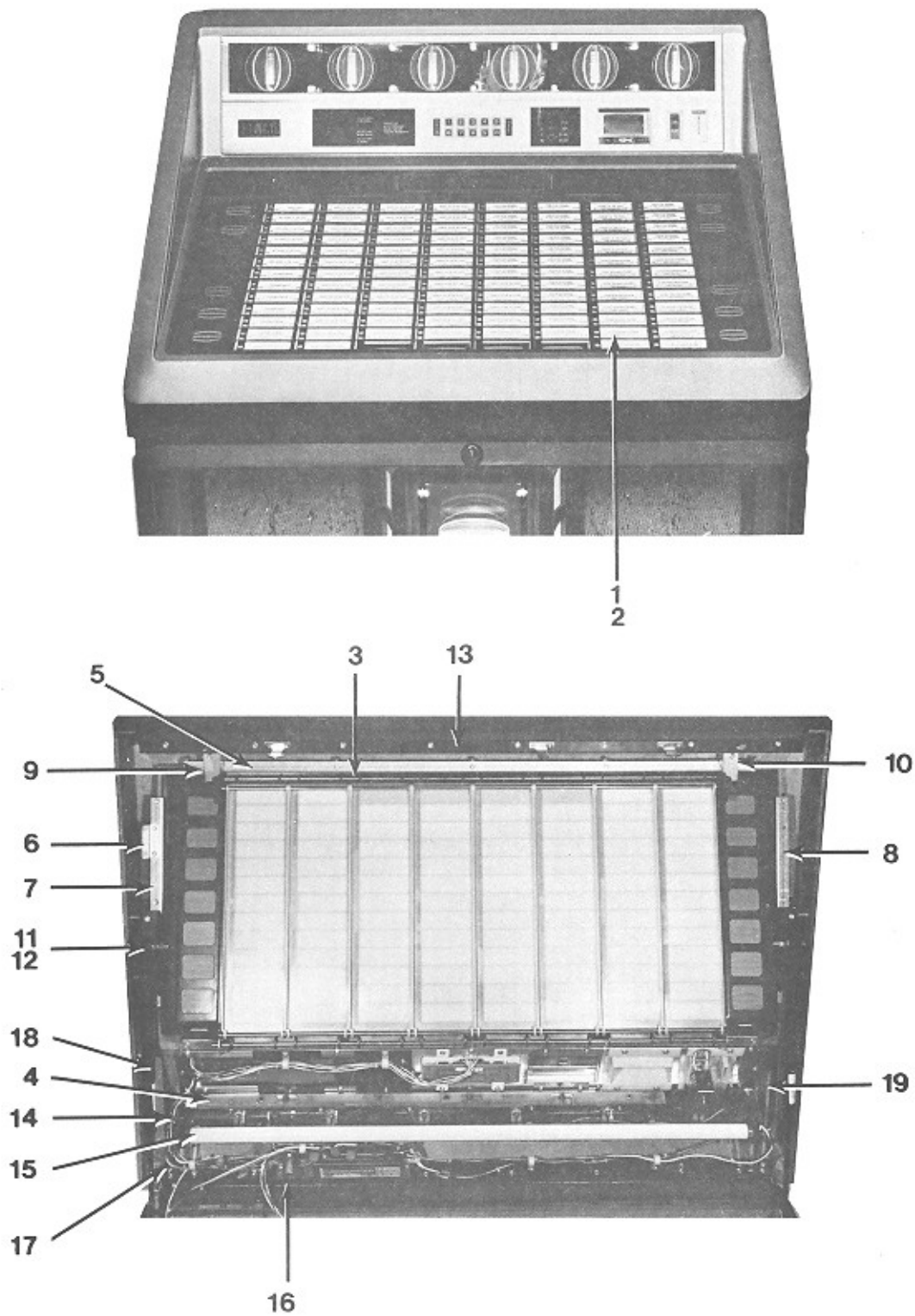


Fig. And Index No.	Rowe Part No.	Description	Qty. Per Assy
1	40800101	. Title Blockout Assembly	1
2	60981701	. . Title Blockout	4
3	21794417	. Rod	2
	70143003	. . External Retaining Ring	1
	21568901	. . Push Nut	1
4	30900101	. Upper Shroud Retainer	1
5	30900201	. Lower Shroud Retainer	1
6	21892401	. Actuator Bracket	1
7	30905601	. Shroud Retainer LH	1
8	30905701	. Shroud Retainer RH	1
9	21890001	. Catch Assembly LH	1
10	21890101	. Catch Assembly RH	1
11	30902901	. Door Support	2
12	21797601	. Ball Stud	2
13	30900401	. Trim & Catch Assembly	1
14	30900702	. Flashing Light Harness Assembly	1
	70076603	. . Edge Connector	2
	70075506	. . Connector Housing	1
	70800101	. . Cable Tie	22
15	70060112	. Fluorescent Lamp	1
16	70080004	. Fluorescent Starter	1
17	40800201	. Light Harness Assembly (60 Hz)	1
	30859401	. . Ballast (30W 60 Hz)	1
	30905301	. . Lamp Bracket LH	1
	30905401	. . Lamp Bracket RH	1
	30905501	. . Ballast Bracket	1
	21826719	. . Fluorescent Lamp Holder	2
	20029501	. . Starter Socket	1
	30749102	. . Plug Housing (3 Pin)	1
	70800101	. . Cable Tie	20
	70099101	. . Self Stripping Splice	2
	70099301	. . Self Stripping Splice 2-Way	5
18	30907501	. Light Block LH	1
19	30907601	. Light Block RH	1

FIGURE 7-4. OEM BILL ACCEPTOR

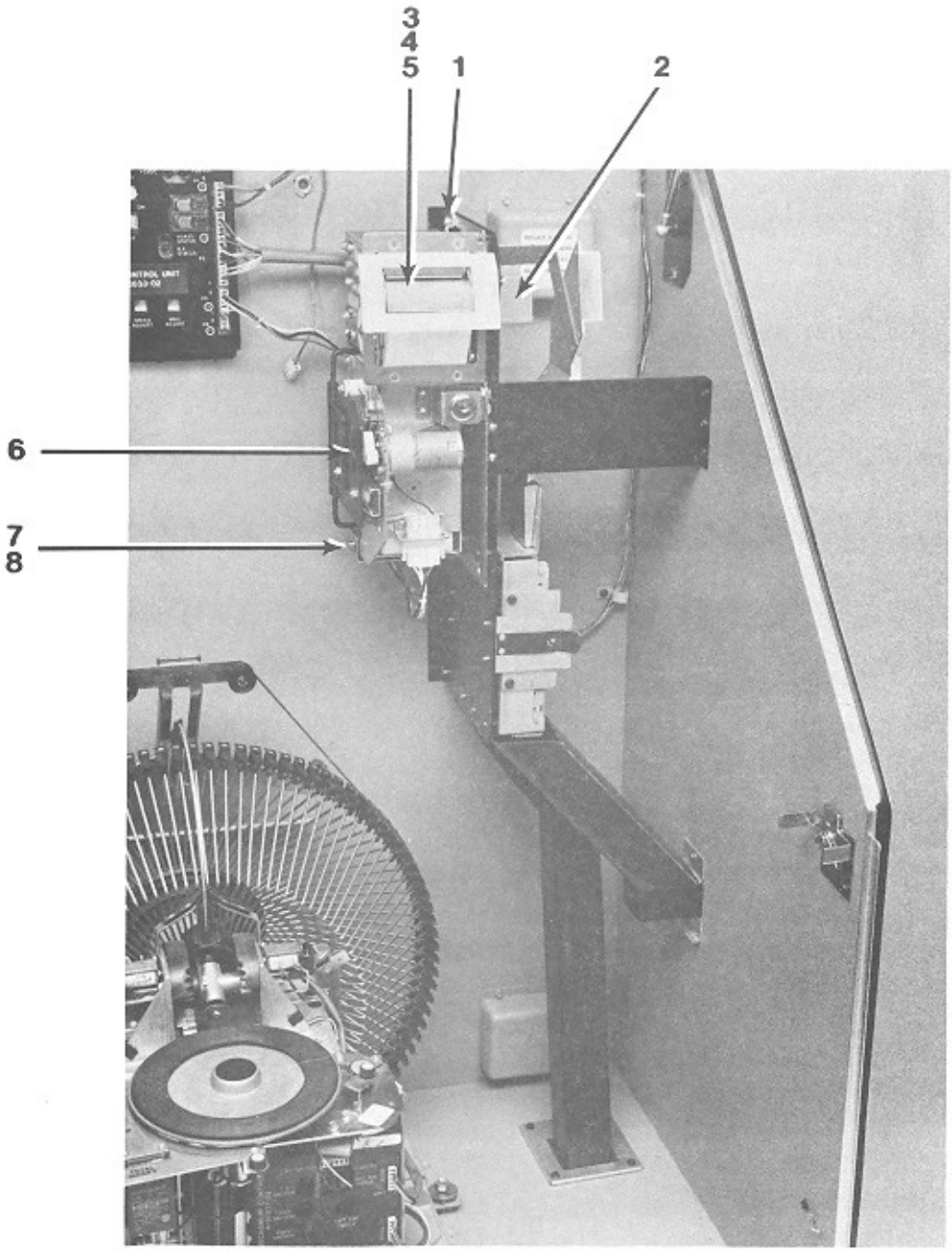
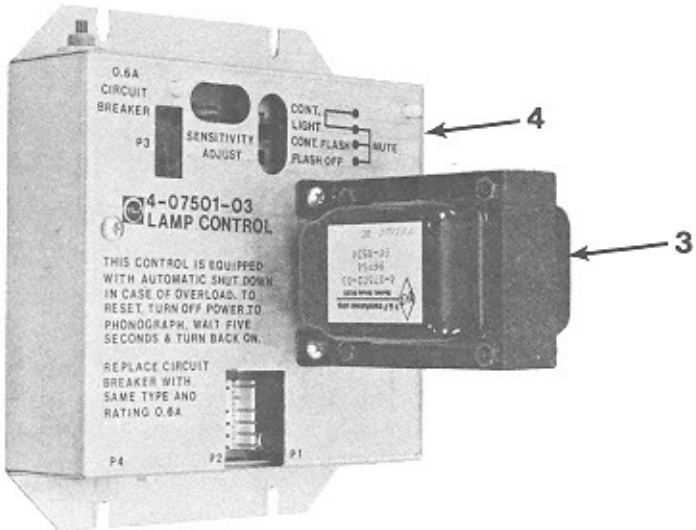
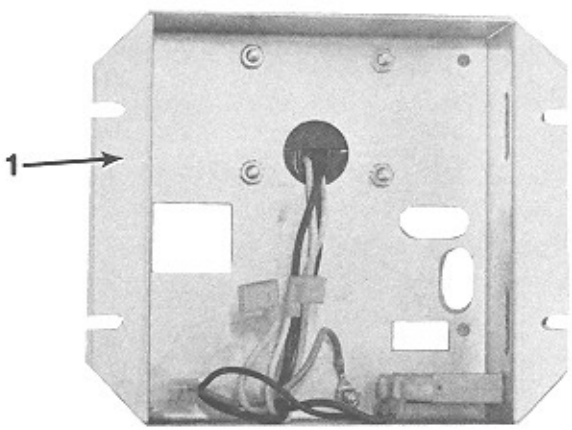


Fig. And Index No.	Rowe Part No.	Description	Qty. Per Assy
4-	65057022	OEM Bill Acceptor Kit Factory Installed (See Fig. 15)	
4-	65057023	OEM Bill Acceptor Kit Field Installed (See Fig. 15)	
4-	60991502	Transport & Stacker Assembly (OBA-P)	
1	65056512	. Transport Assembly - OBA (R-91)	1
2	40802301	. Phono Shroud (OBA)	1
3	40803901	. Bracket & Support Assembly	1
4	21535805	. Plastic Nut (Self-Retaining)	1
5	21893001	. Lock Plate Assembly	1
6	60797903	. OBA Stacker Assembly (300 Bill)	1
7	21534708	. Pivot Pin	1
8	70143004	. External Retaining Ring	1

FIGURE 7-5. LIGHT DISPLAY CONTROL





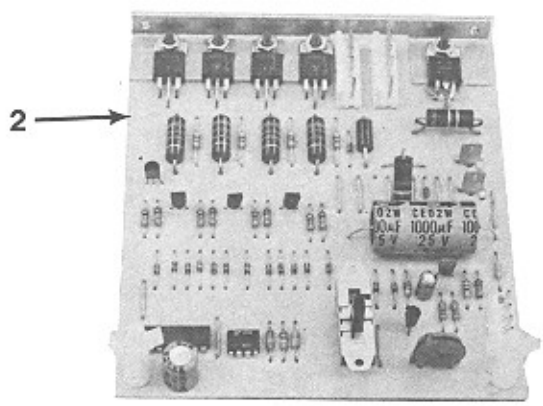
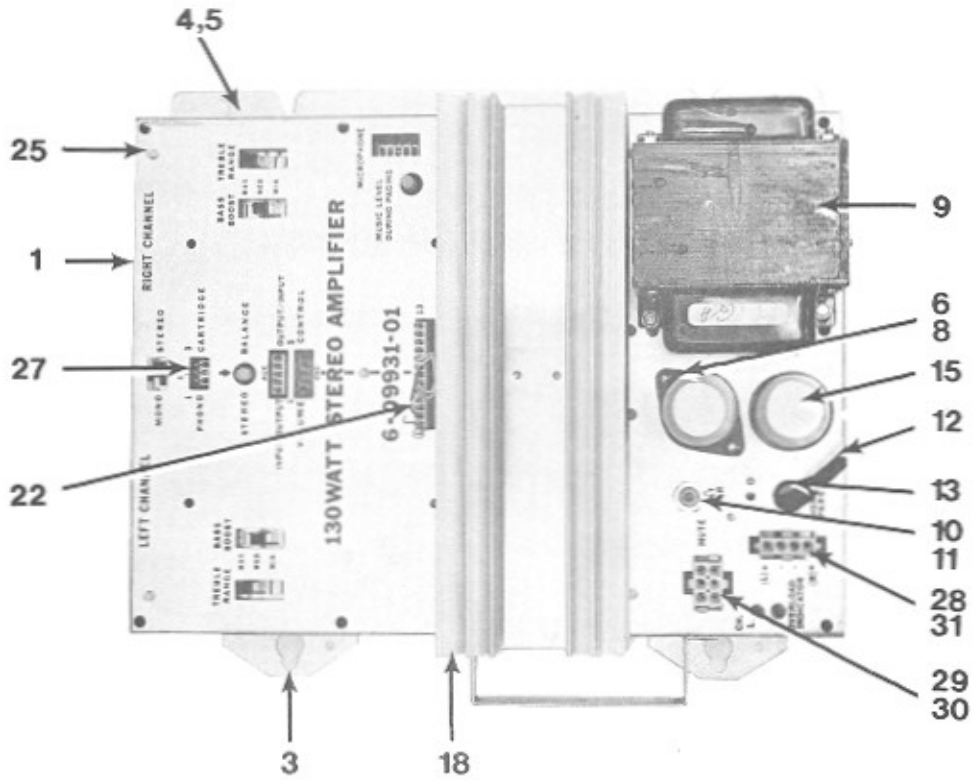


Fig. And Index No.	Rowe Part No.	Description	Qty. Per Assy
5-	40750103	Light Display Controller Assembly	
1	40750003	. Cover	1
2	60925503	. Circuit Board Assembly	1
3	40750203	. Transformer	1
4	70500013	. Circuit Board Support	1

FIGURE 7-6. STEREO AMPLIFIER ASSEMBLY



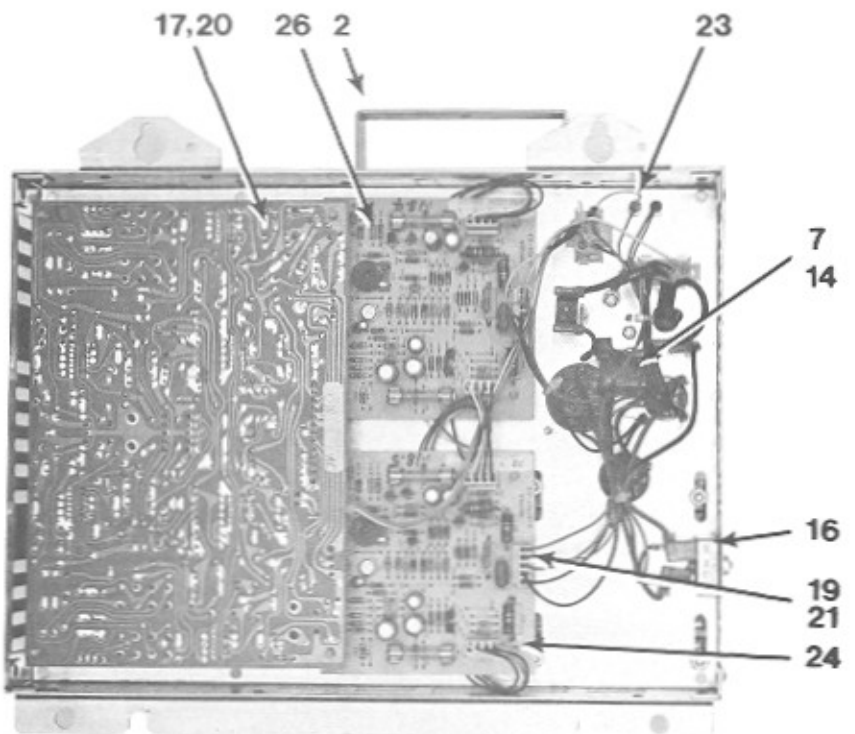


Fig. And Index No.	Rowe Part No.	Description	Qty. Per Assy
6-	60994101	Stereo Amplifier Assembly (Figure 1, Sheet 5, Item 1)	
1	60744107	. Chassis Assembly	1
2	21488101	. Handle	1
3	20927201	. Mounting Bracket	2
4	30627301	. Mounting Bracket	1
5	70111320	. Semi Tubular Rivet	10
6	21391001	. Mounting Wafer	1
7	21724102	. Terminal Strip	1
8	70111007	. Semi Tubular Rivet	2
9	40737804	. Power Transformer	1
10	70078917	. Circuit Breaker	1
11	70122011	. Washer	1
12	25218603	. 3 Conductor Cord & Plug	1
13	70232205	. Strain Relief	1
14	70021305	. Mylar Capacitor	1
15	21823101	. Electrolytic Capacitor	2
16	21822501	. Bridge Rectifier	1
17	60792504	. Stereo Preamp. Assembly (See Schem. for Parts List)	1
18	40715103	. Heat Sink Assembly (See Figure 7)	1
19	70075505	. Connector Housing (5 Ckt.)	2
20	70075502	. Connector Housing (2 Ckt.)	1
21	70075601	. Post Contact	11
22	70075513	. Connector Housing (13 Ckt.)	1
23	21893401	. Speaker Overload Ind. (Right Channel)	1
	21893402	. Speaker Overload Ind. (Left Channel)	1
24	70500004	. Circuit Board Support	8
25	70500018	. Circuit Board Support	4
26	40710103	. Driver Circuit Board Assembly (See Power Amp. Schem. for P.L.)	2
27	70075503	. Connector Housing (3 Ckt.)	1
28	30749003	. Cap Housing	1
29	30749004	. Cap Housing	1
30	70097502	. Contacts	8
31	21620702	. Amplifier Jumper Plug Assembly	1

FIGURE 7-7. HEAT SINK ASSEMBLY

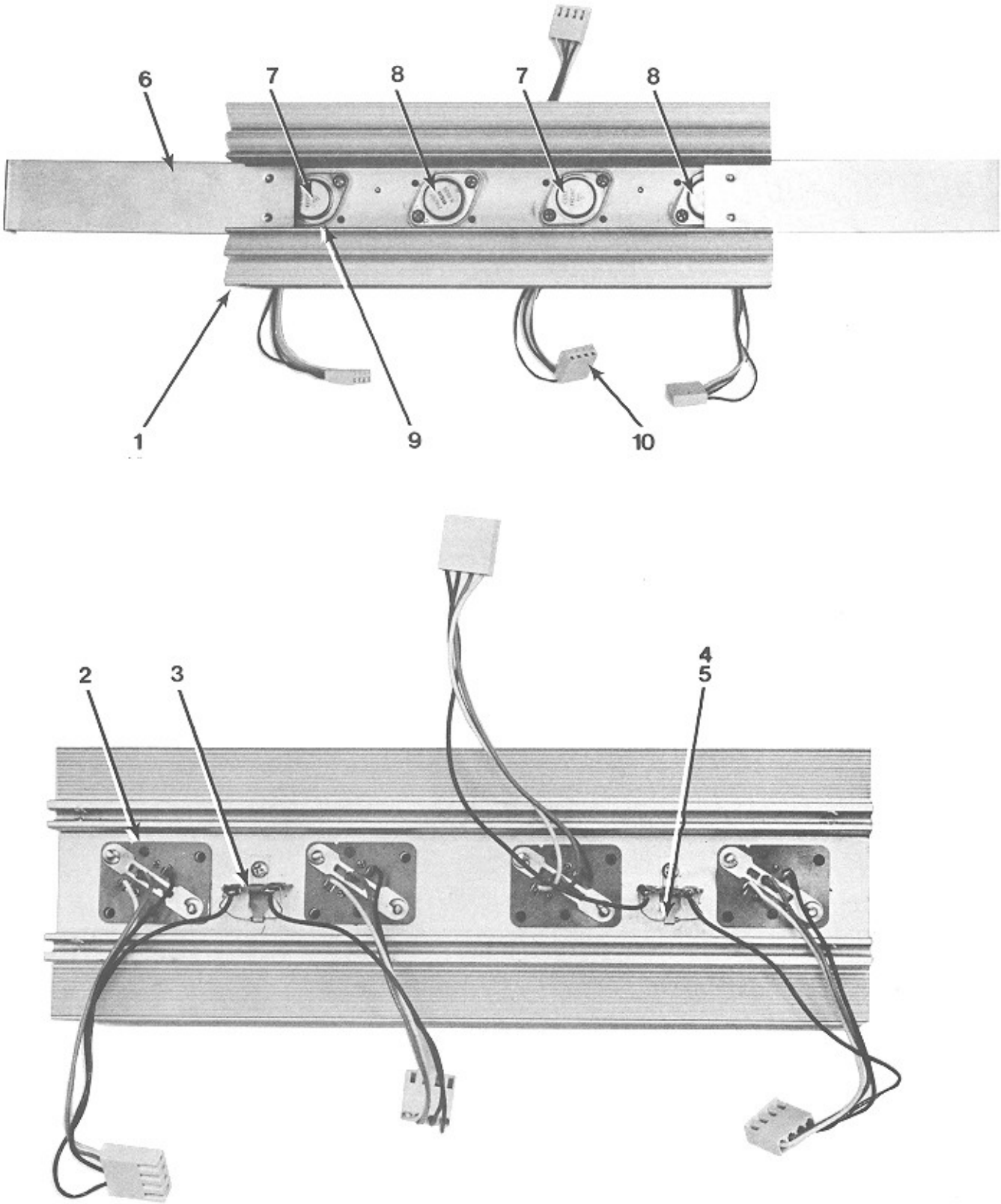


Fig. And Index No.	Rowe Part No.	Description	Qty. Per Assy
7-	40715103	Heat Sink Assembly (Figure 6, Item 18)	
1	40710301	. Heat Sink	1
2	21547301	. Power Transistor Socket	4
3	21377301	. Terminal Strip	2
4	70035009	. Silicon Diode	2
5	21631901	. Diode Retainer	2
6	21798001	. Cover	2
7	70030206	. Transistor (Darlington Amp, RCA-2N6283)	2
8	70030207	. Transistor (Darlington Amp, RCA-2N6286)	2
9	21318902	. Insulator-Precoated	4
10	70075504	. Connector Housing	4

FIGURE 7-8. OUTPUT TRANSFORMER ASSEMBLY

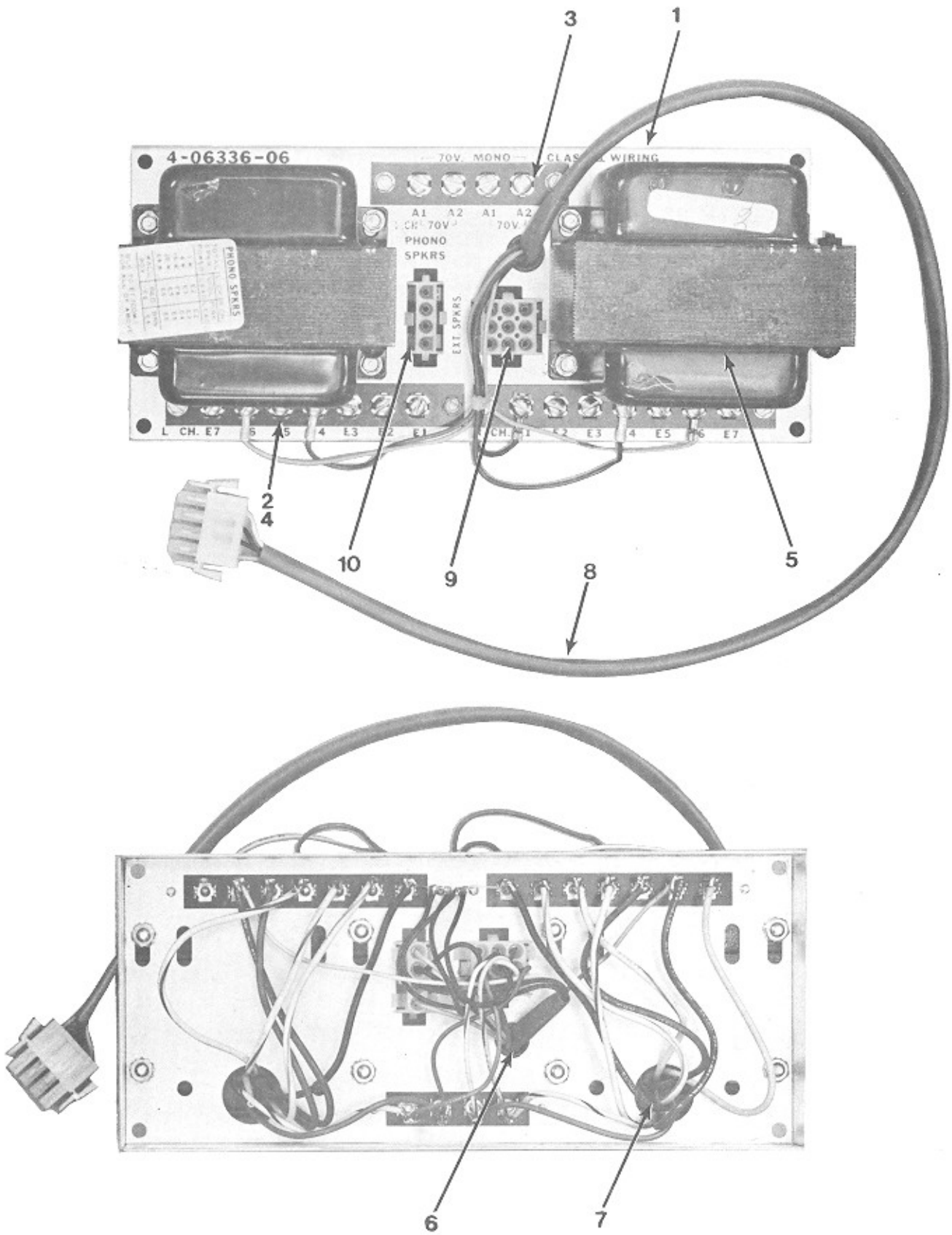


Fig. And Index No.	Rowe Part No.	Description	Qty. Per Assy
8-	40633606	Output Transformer Assembly (Figure 1, Sheet 5, Item 2)	
1	30626007	. Output Chassis	1
2	30426705	. Binding Post Strip	2
3	30426703	. Binding Post Strip	1
4	70111007	. Semi Tubular Rivet	6
5	40633501	. Output Transformer	2
6	70233101	. Insulating Bushing	1
7	70233102	. Insulating Bushing	2
8	21532305	. Plug & Cable Assembly	1
	30749103	. . Plug Housing	1
	70097501	. . Contact (Pin)	4
9	30748801	. Plug & Cable Assembly	1
	30749005	. . Cap Housing (9 Ckt.)	1
	70097502	. . Contact	8
	70091012	. . Spade Terminal Lug	2
10	21537304	. Plug & Cable Assembly	1
	70091012	. . Spade Terminal Lug	3
	30749003	. . Cap Housing	1
	70097502	. . Contact	4

FIGURE 7-9. CENTRAL CONTROL COMPUTER

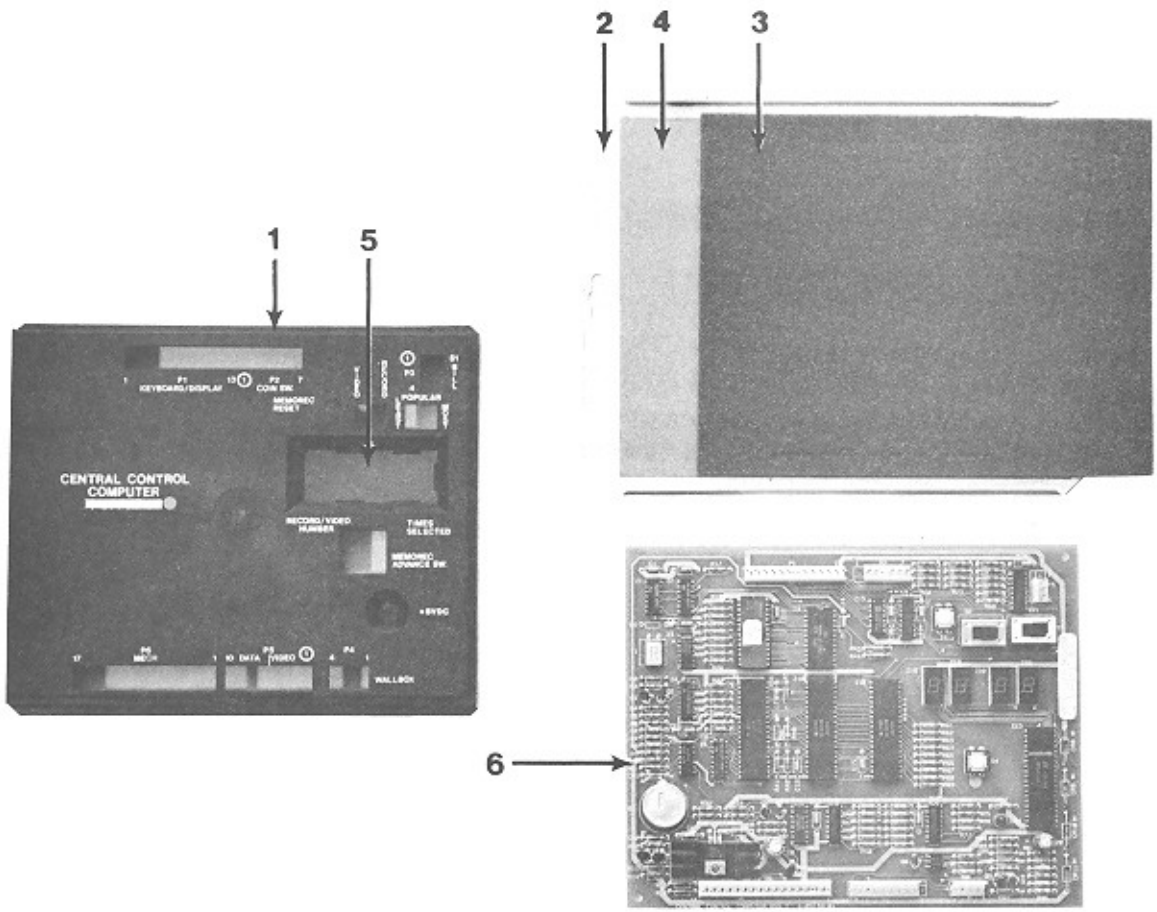


Fig. And Index No.	Rowe Part No.	Description	Qty. Per Assy
9-	40777305	Central Control Computer Assembly (Figure 1 Sheet 3, Item 18)	1
1	40779203	. Central Control Computer Cover	1
2	40779101	. Central Control Computer Base	1
3	21771014	. Insulator Pad	1
4	21771111	. Insulation Base	1
5	21781905	. Light Filter Display Card	1
6	60973805	. Central Computer Circuit Board Assembly	1

FIGURE 7-10. MAIN POWER SUPPLY

(120V Model)

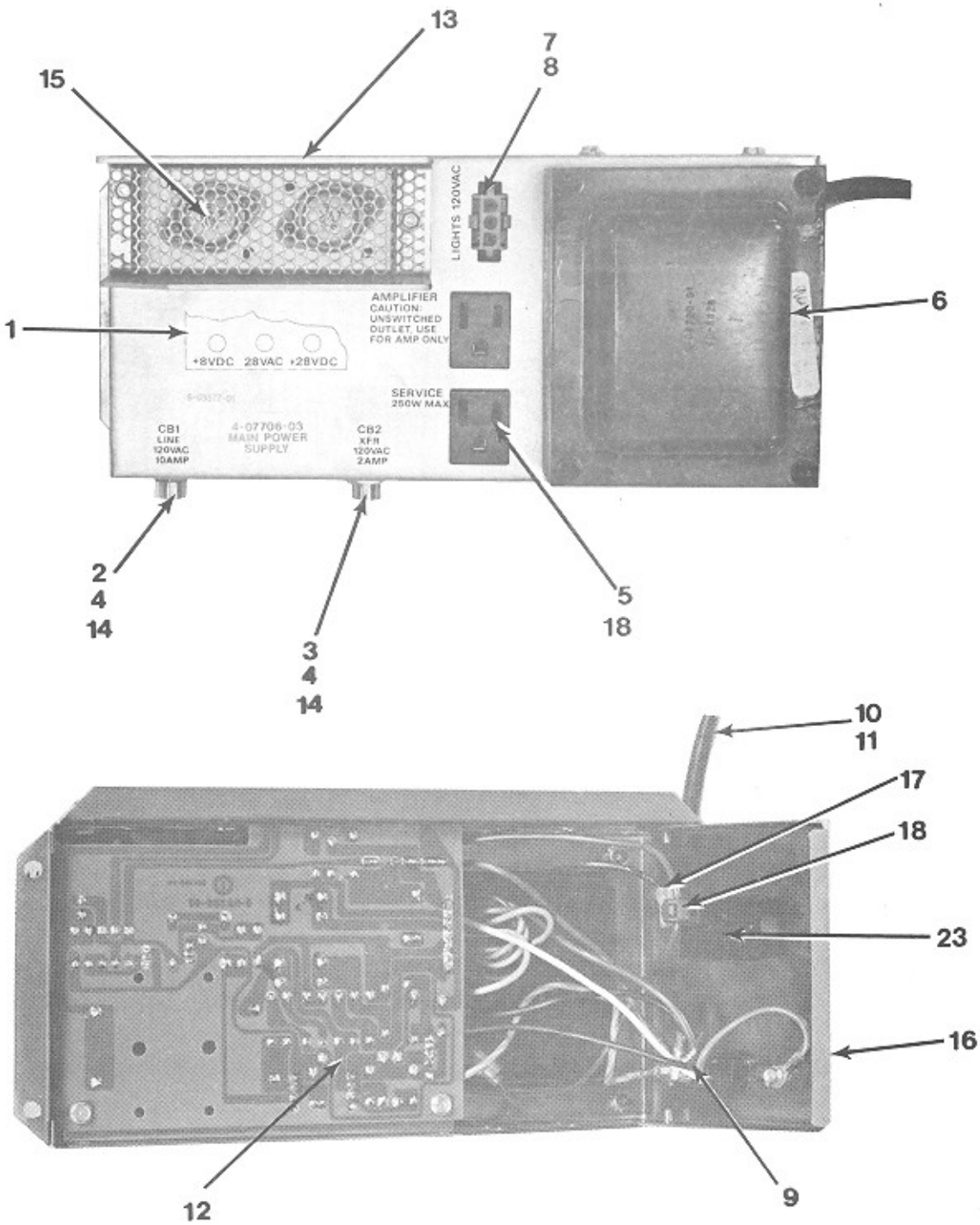


Fig. And Index No.	Rowe Part No.	Description	Qty. Per Assy
10-	40770603	Main Power Supply (120V) (Figure 1, Sheet 5, Item 5)	
	46509205	Main Power Supply (220V)	
	46509206	Main Power Supply (240V)	
1	40771902	. Chassis Assembly	1
2	70073425	. 10 Amp Circuit Breaker	1
3	70073315	. 2 Amp Circuit Breaker	1
4	70122001	. Washer (Internal Lock) Part of Breaker	2
5	21375901	. 3 Wire Convenience Outlet	2
6	40772001	. Transformer & Harness Assembly	1
	40772026	. . Power Transformer (120V)	1
	46509326	. . Power Transformer (220V-240V)	REF
	70075601	. . Post Contact	6
	70075601	. . Post Contact (220V-240V)	5
	70097504	. . Contact	1
	70091308	. . Terminal Lug	1
	70091308	. . Terminal Lug (220V-240V)	4
7	30749002	. Cap Housing	1
	70097504	. . Contact (220V-240V)	3
8	70097504	. Contact (120V)	2
	70091308	. . Terminal Lug (120V)	2
	70091308	. . Terminal Lug (220V-240V)	4
9	70091511	. Ring Terminal	2
10	30834506	. Power Cord Assembly (120V)	1
	3653650i	. . Power Cord Assembly (220V-240V)	1
11	70232104	. Strain Relief	1
12	60935702	. Circuit Board Assembly	1
13	40733102	. Heat Sink and Power Transistor Assembly	1
	30834301	. . Power Supply Heat Sink	1
	70030807	. . Transistor (Darlington)(2N6055)(Motorola, RCA)	2
	21318901	. . Insulator	2
	21834201	. . Power Transistor Socket	2
	70075504	. . Connector Housing	2
	70075601	. . Post Contact	6
	70075702	. . Keying Post	2
14	21408602	. Straight Receptacle (120V)	4
	21408602	. Straight Receptacle (220V-240V)	8
	70073421	. Breaker 220/240 (5A)(Not Shown)	2
	70073422	. Breaker 220/240 (6A)(Not Shown)	1
15	21828101	. Heat Sink Cover	1
16	30867301	. Switch Panel	1
17	70096701	. Insulated Faston (120V)	4
	70096701	. Insulated (220V-240V)	3
18	70099201	. Self Stripping Terminal	5
19	70099101	. Self Stripping Terminal	1
20	70075508	. Connector Housing (Not Shown)	1
21	70075702	. Keying Plug (Not Shown)	1
22	70075601	. Post Contact (120V)(Not Shown)	1
	70075601	. Post Contact (220V-240V)	2
23	30785701	. Rocker Switch (120V)	1
	30785702	. Rocker Switch (220V-240V)	1
	21724101	. Terminal Retainer Strip (220V-240V)	1

FIGURE 7-11. MECHANISM ASSEMBLY

Sheet 1

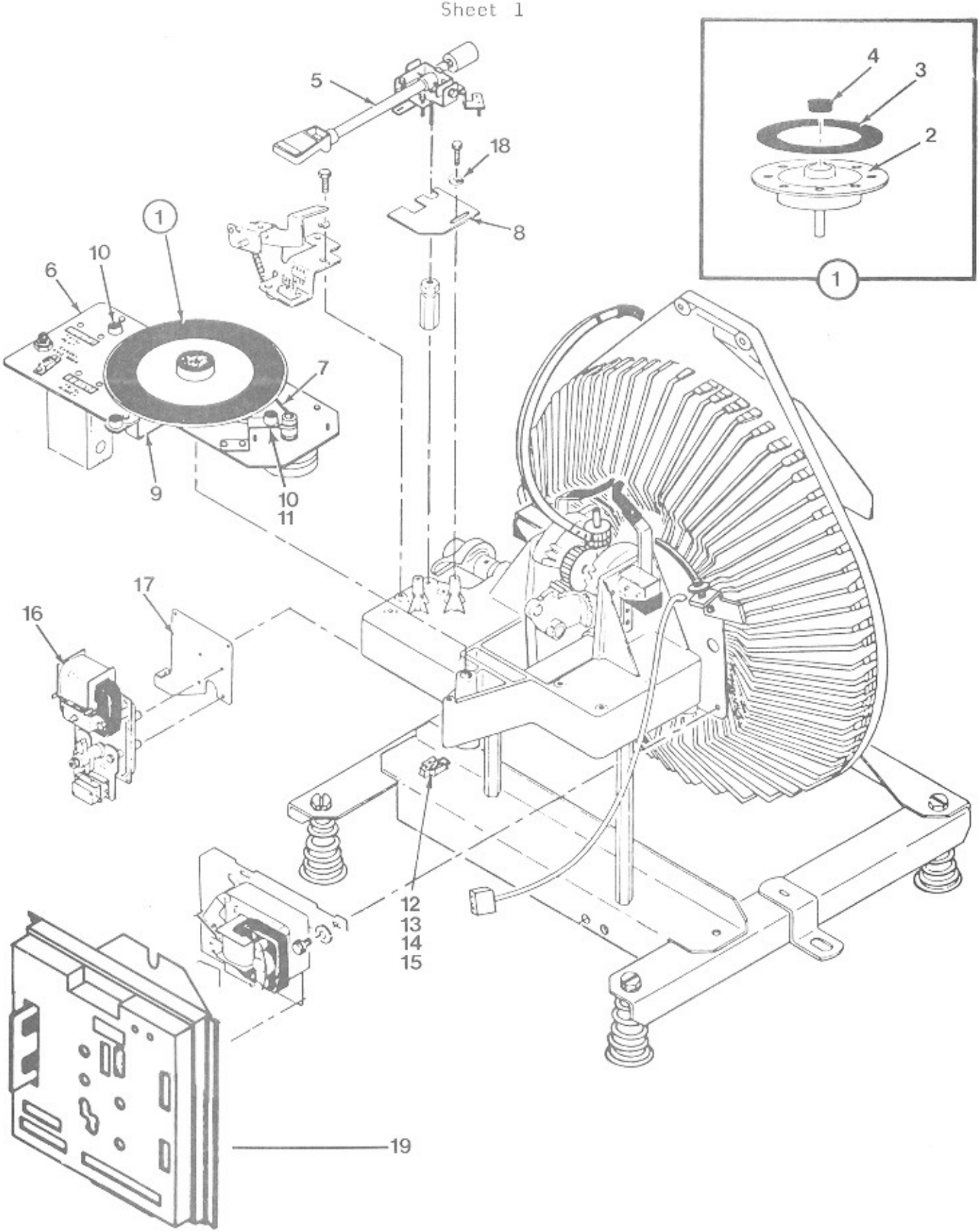


Fig. And Index No.	Rowe Part No.	Description	Qty. Per Assy
11-	60870001	Mechanism Assembly (Figure 1, Sheet 3, Item 1) (60HZ)	
	60870002	Mechanism Assembly (Figure 1, Sheet 3, Item 2) (50HZ)	
1	30792101	. Turntable Assembly	1
2	40721501	. Turntable & Shaft Assembly	1
3	30523501	. Turntable Face	1
4	21816301	. Hole Plug	1
5	40721702	. Tone Arm & Pivot Assembly (See Figure 12)	1
6	30793501	. Plate & Counter Assembly	1
	21581801	. . Momentary Contact Switch	1
	30794201	. . Brush Holder	1
	20218201	. . Brush	1
	40722002	. . Counter Mounting Plate	1
	21813701	. . Counter Assembly	1
	21538302	. . . Counter	1
	21441802	. . . Electric Counter	1
	70092104	. . . Solderless Connector	4
	70075505	. . . Connector Housing	1
	70075601	. . . Post Contact	4
	70075702	. . . Keying Plug	1
7	30792201	. Turntable Drive Belt	1
8	30793802	. Tone Arm Cutoff Circuit Board Assembly	1
	40722502	. . Printed Wiring Board	1
	21072602	. . Reed Switch	1
	70076002	. . Polarizing Wafer 90 Degrees	1
	21818101	. . Contact	1
	70077001	. . Socket - Mini Spring	2
9	21818801	. Bracket - Grommet & Rivet Assembly	1
10	21818901	. Bracket - Grommet & Rivet Assembly	2
11	21813901	. . Grommet	3
12	40722401	. Mechanism Harness Assembly	1
	30749005	. . Cap Housing (9 Ckt.)	1
	30079501	. . Contact	7
	30079503	. . Contact	2
	70075502	. . Connector Housing	1
	70075508	. . Connector Housing	1
	70075510	. . Connector Housing	1
	70075601	. . Post Contact	17
	70075701	. . Keying Plug	1
	70075702	. . Keying Plug	2
	70091302	. . Terminal Lug	5
	70091306	. . Terminal Lug	2
	70091308	. . Terminal Lug	2
	70091314	. . Terminal Lug	9
	70091602	. . Spade Terminal Lug	1
	70092107	. . Solderless Connector	1
	70800107	. . Cable Tie	20
13	20754501	. Clip	3
14	20554501	. Cable Clip	1
15	70093401	. Cable Clamp	1
16	40720801	. Cam Switch & Motor Assembly (See Figure 14)	1
17	30790701	. Motor Mounting Plate	1
18	70120002	. Washer	1
19	40722105	. Mechanism Control Unit	1
	30794301	. . Mechanism Control Base	1
	21771008	. . Insulating Pad	1
	21771105	. . Insulating Base	1
	60870805	. . Mechanism Control Circuit Bd. Ass'y. (See Schem. for P.L.)	1
	40723105	. . Cover	1

FIGURE 7-11. MECHANISM ASSEMBLY

Sheet 2

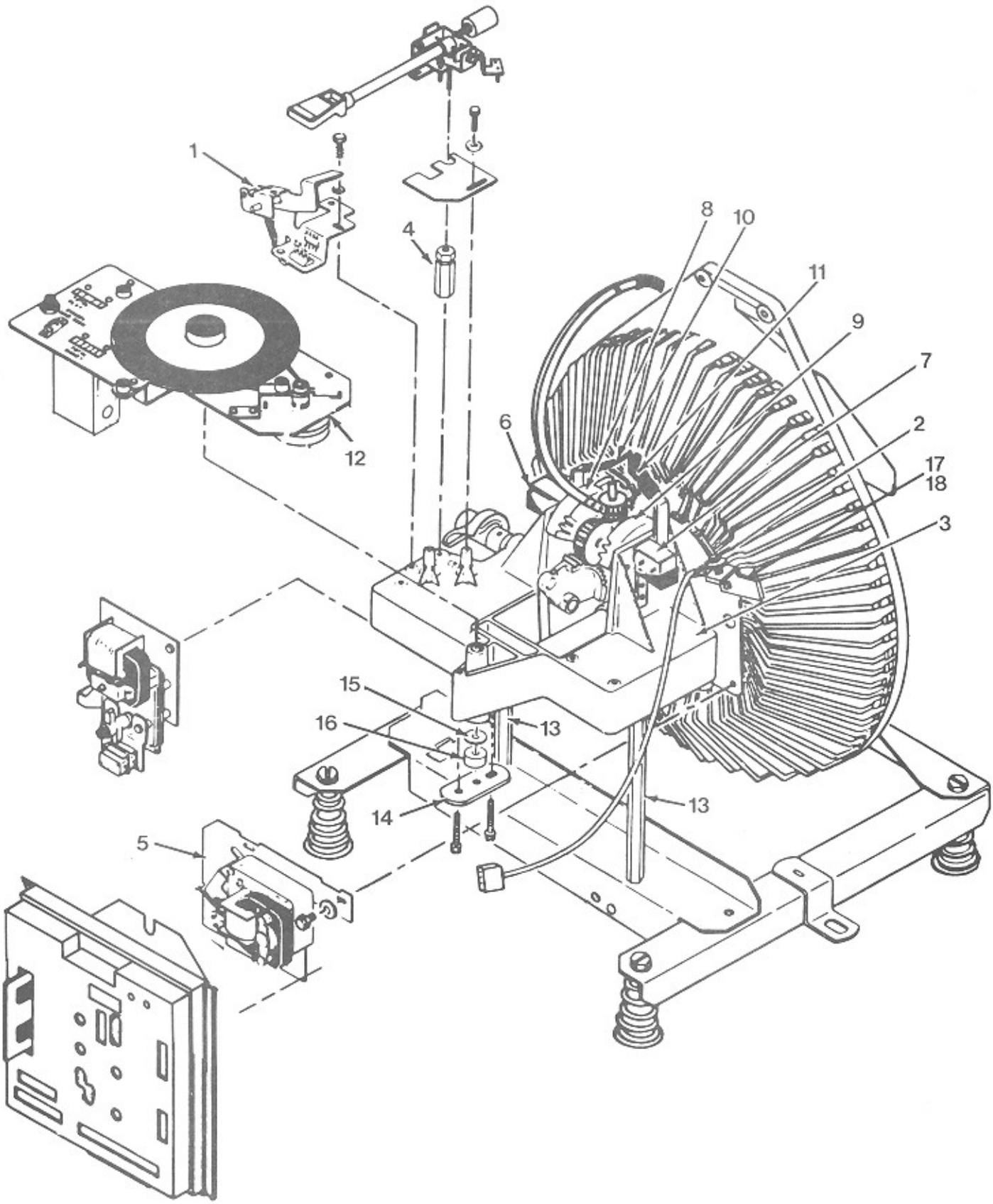


Fig. And Index No.	Rowe Part No.	Description	Qty. Per Assy
11-	60870001	Mechanism Assembly (Continued)	
1	30792601	. Lifting Lever & Bracket Assembly	1
	21815801	. . Lifting Lever Bracket Assembly	1
	21815901	. . Lifting Lever Assembly	1
	70143005	. . Retaining Ring	1
	21576001	. . Tension Spring	1
	21816202	. . Grounding Clip	1
	70074504	. . Chassis Mount Wafer (4 Ckt)	1
	70111106	. . Semi Tubular Rivet	1
2	30906801	. Optical Switch Assembly	1
	30794501	. . Mounting Bracket	1
	30905901	. . Optical Switch & Connector Assembly	1
	40803701	. . . Optical Switch	1
	70075565	. . . Connector Housing (Red)	1
	70075702	. . . Keying Plug	1
	70075601	. . . Contact Post	4
	70800101	. . Cable Tie	2
3	70312201	. Mechanism Name Plate	1
4	21070802	. Bearing Assembly	1
5	40721901	. Sprag Assembly (See Fig 13)	1
6	21818201	. Toggle Solenoid Assembly (L.H.)	1
7	21818301	. Toggle Solenoid Assembly (R.H.)	1
8	30790501	. Rotator Assembly (L.H.)	1
9	30790601	. Rotator Assembly (R.H.)	1
10	21811801	. Record Guide Assembly (L.H.)	1
11	21811901	. Record Guide Assembly (R.H.)	1
12	30791701	. Turntable Motor & Plate Assembly (60HZ)	1
	30791702	. Turntable Motor & Plate Assembly (50HZ)	1
	30791801	. . Turntable Motor Mounting Plate	1
	21817102	. . Turntable Belt Guide	1
	30791907	. . Turntable Motor Assembly (60HZ)	1
	30791908	. . Turntable Motor Assembly (50HZ)	1
	21817801	. . Motor Pulley (45 RPM)(60HZ)	1
	21817802	. . Motor Pulley (45 RPM)(50HZ)	1
13	21812501	. Mech Support	2
14	21812401	. Cap Plate	1
15	21036401	. Thrust Bearing	1
16	21086601	. Spacer Bearing	1
17	21818601	. Adjusting Bracket Assembly	1
18	21818401	. Adjusting Knob	1

FIGURE 7-11. MECHANISM ASSEMBLY

Sheet 3

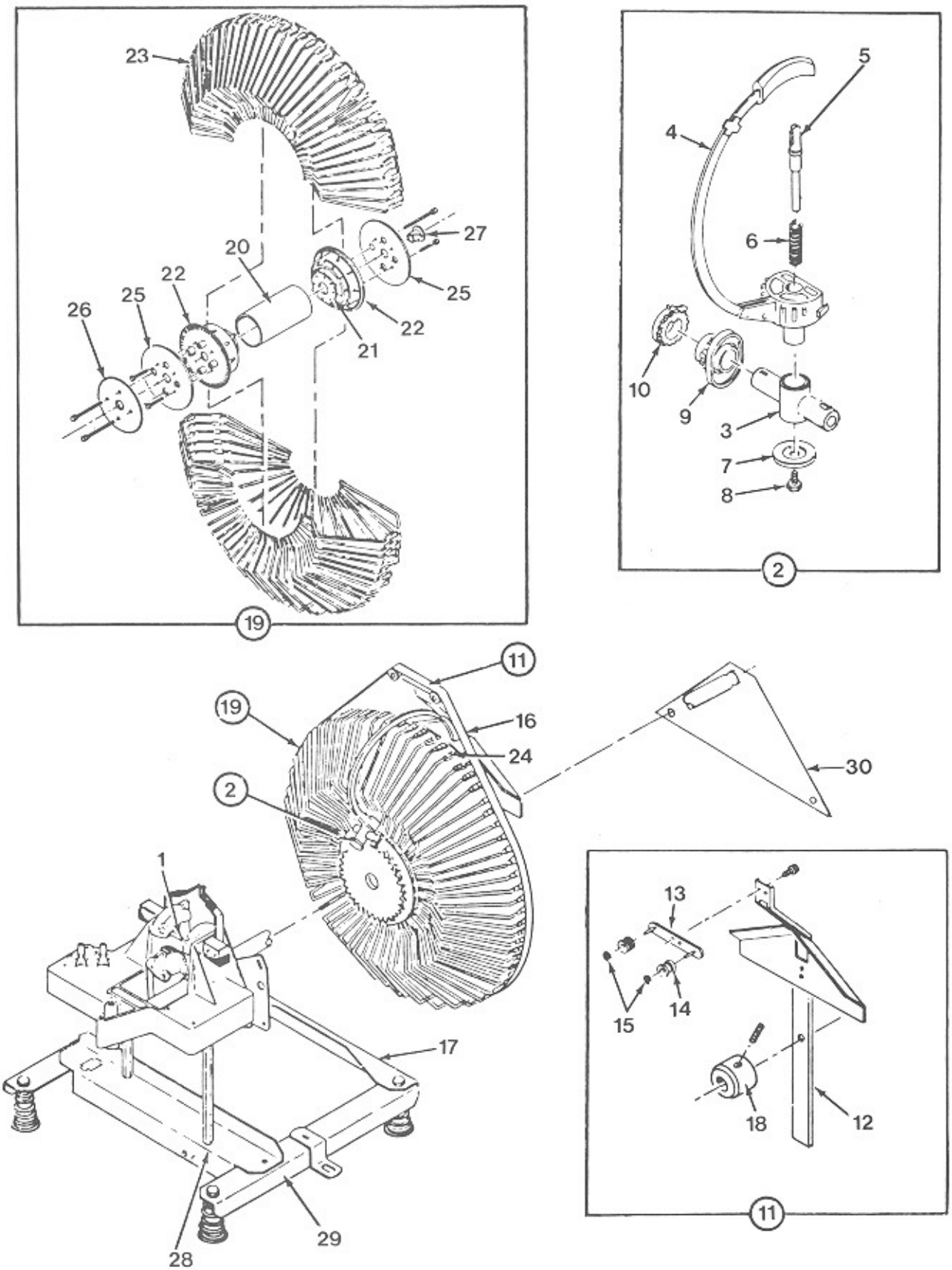


Fig. And Index No.	Rowe Part No.	Description	Qty. Per Assy
11-	60870001	Mechanism Assembly (Continued)	
1	21079202	. Trunnion Pin	2
2	40720701	. Gripper & Trunnion Assembly	1
3	30791001	. Trunnion	1
4	30519702	. Gripper Bow & Hub Assembly	1
5	21080803	. Inner Shoe Assembly	1
6	21081101	. Record Release Spring	1
7	21811501	. Cam Follower	1
8	21811701	. Lock Screw	1
9	40720401	. Cam Gear	1
10	40720601	. Trunnion Gear	1
11	40721201	. Guide & Belt Support Assembly	1
12	40721301	. Gripper Bow Guide Assembly	1
13	21089401	. Roller Bracket Assembly	1
14	20384301	. Belt Roller	2
15	70143003	. Retaining Ring	2
16	21813801	. Belt	1
17	30792501	. Support Frame Rear Angle	1
18	21812601	. Collar	1
19	60870301	. Magazine Assembly	1
20	40720001	. Hub Spacer	1
21	30790201	. Hub Anchor Plate	2
22	60870201	. Magazine Hub	2
23	40720101	. Record Magazine Separator	100
24	40720201	. Belt Guide	100
25	30790301	. Cover Plate	2
26	30790401	. Magazine Gear	1
27	70146001	. Bearing	2
28	21101301	. Lock Nut	2
29	30791401	. Mechanism Support & Spring Assembly	1
	30791501	. . Mech Support Assembly	1
	20627201	. . Spring Support (Upper)	4
	20613803	. . Mech Mounting Spring	4
30	40723201	. Support Magazine	1

FIGURE 7-11. MECHANISM ASSEMBLY

Sheet 4

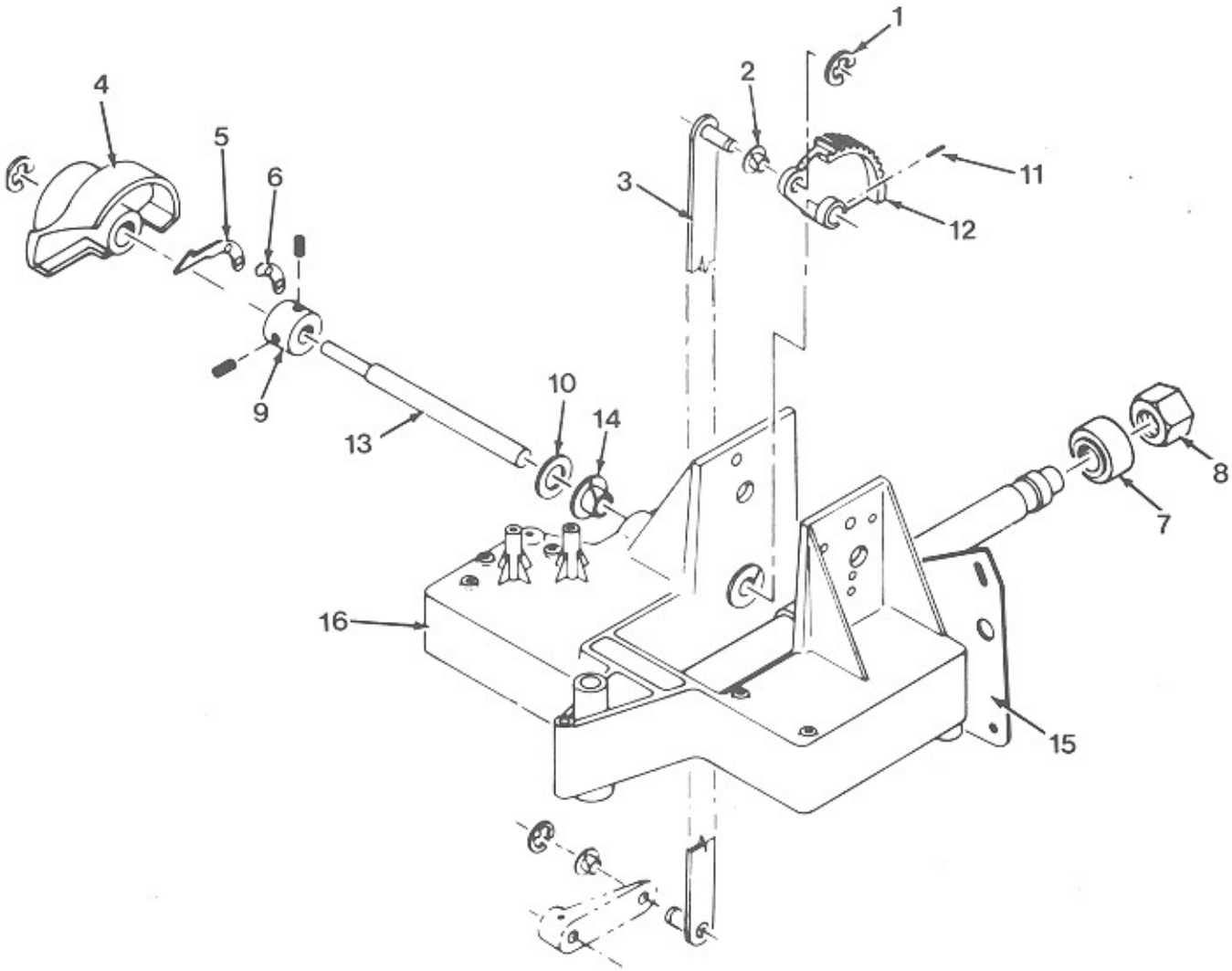


Fig. And Index No.	Rowe Part No.	Description	Qty. Per Assy
11-	60870001	Mechanism Assembly (Continued)	
1	70143004	. Retaining Ring	3
2	70142004	. Bearing	2
3	21810201	. Transfer Link Assembly	1
4	21813401	. Tone Arm Cam Assembly	1
	21818701	. . Cam & Insert Assembly	1
5	21814801	. Cam Spring	1
6	21814901	. Cam Spring Plate	1
7	25156906	. Shoulder Washer	1
8	70130109	. 9/16 x 18 Jam Nut	1
9	21813302	. Cam Collar	1
10	70122533	. Bowed Washer	1
11	70113019	. Roll Pin	1
12	40720501	. Sector Gear	1
13	21813201	. Cam Drive Shaft	1
14	70146005	. Bearing	2
15	40721801	. Intermediate Mounting Plate	1
16	40721101	. Base Assembly	1
	60870701	. . Mechanism Base	1
	30791301	. . Magazine Support Shaft	1
	21037701	. . Bearing	2

FIGURE 7-12. TONE ARM & PIVOT ASSEMBLY

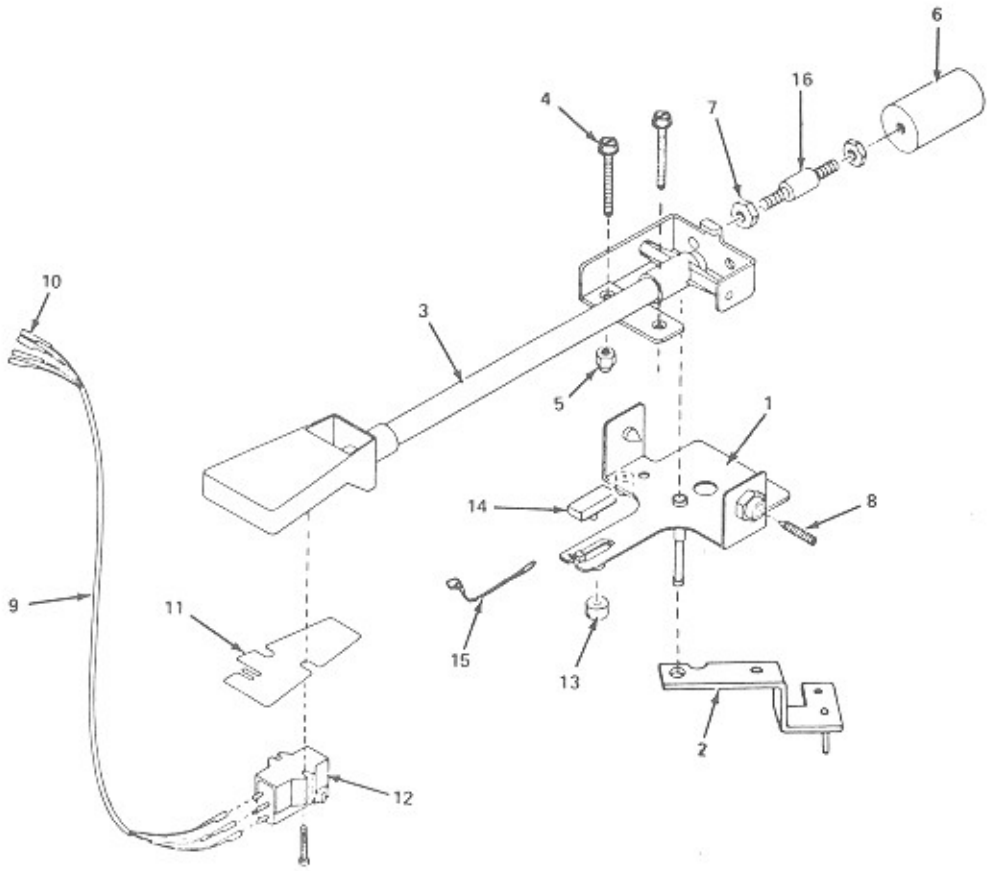


Fig. And Index No.	Rowe Part No.	Description	Qty. Per Assy
12-	40721702	Tone Arm & Pivot Assembly (Figure 11, Sheet 1, Item 5)	
1	21814101	. Bracket & Shaft Assembly	1
2	21814201	. Guide Plate Assembly	1
3	30792801	. Tone Arm & Lever Assembly	1
4	26502501	. Contact Screw	2
5	21814001	. Self Locking Cap Nut	1
6	21814302	. Counter Weight	1
7	70135502	. Locknut	1
8	21071201	. Pivot Screw	1
9	21814401	. Tone Arm Cable Assembly	1
10	70092710	. . Pin Receptacle	8
11	30891501	. Tone Arm Shielding Clip	1
12	21301101	. Stereo Phono Cartridge	1
	21834001	. . Stylus Assembly	1
13	21814701	. Magnet - Reed	1
14	21814601	. Magnet Clip	1
15	70800109	. Cable Tie	1
16	21817701	. Vibration Isolator	1

FIGURE 7-13. SPRAG ASSEMBLY

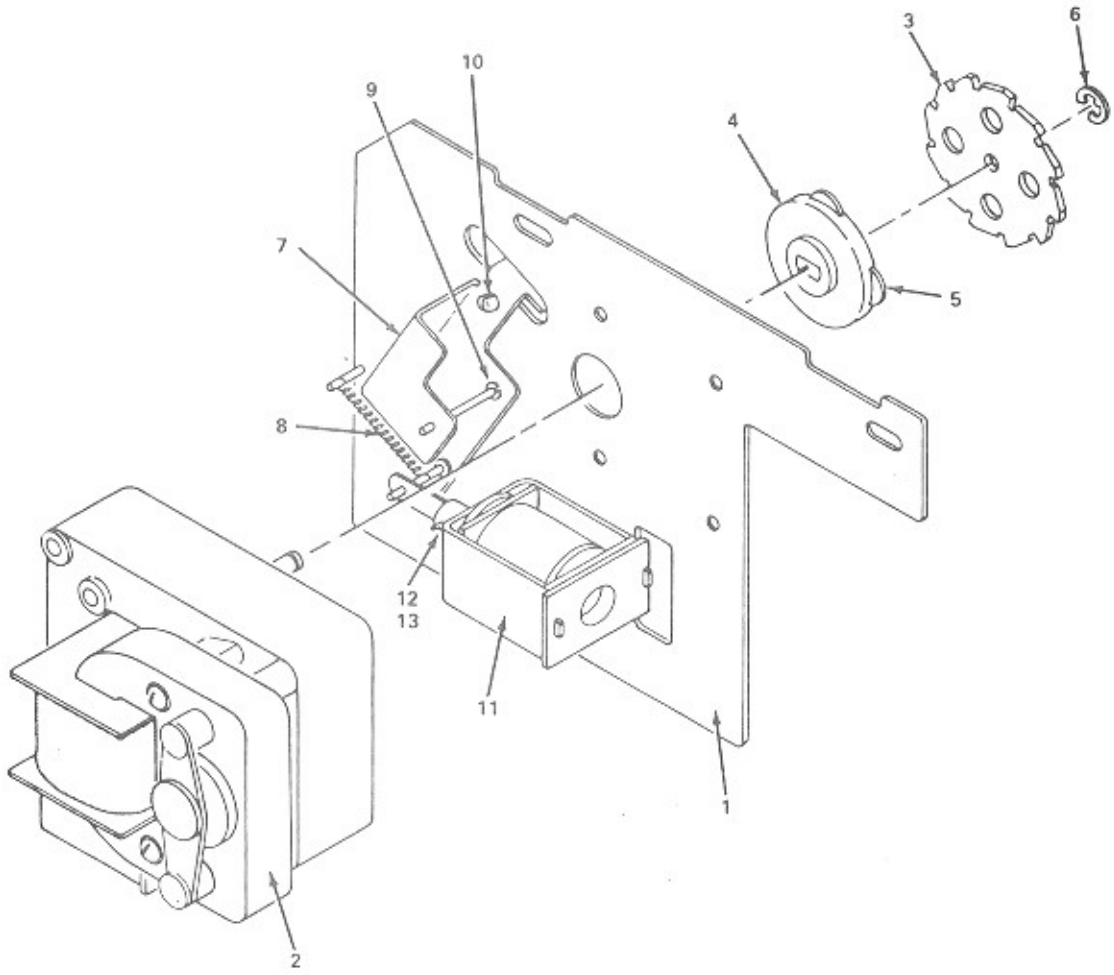


Fig. And Index No.	Rowe Part No.	Description	Qty. Per Assy
13-	40721901	Sprag Assembly (Figure 11, Sheet 2, Item 5)	
1	30793901	. Sprag Plate Assembly	1
2	40722701	. Magazine Motor	1
3	40722301	. Sprag Wheel	1
4	30793301	. Sprag Wheel Hub	1
5	21816102	. Stem Bushing	4
6	70143003	. Retaining Ring	1
7	21816001	. Sprag Lever Assembly	1
8	21256201	. Tension Spring	1
9	70143005	. Retaining Ring	1
10	25155901	. Split Stem Bumper	2
11	21150510	. Solenoid Assembly	1
12	21085701	. Plunger Assembly	1
13	21084902	. Plunger Stop	1

FIGURE 7-14. CAM SWITCH & MOTOR ASSEMBLY

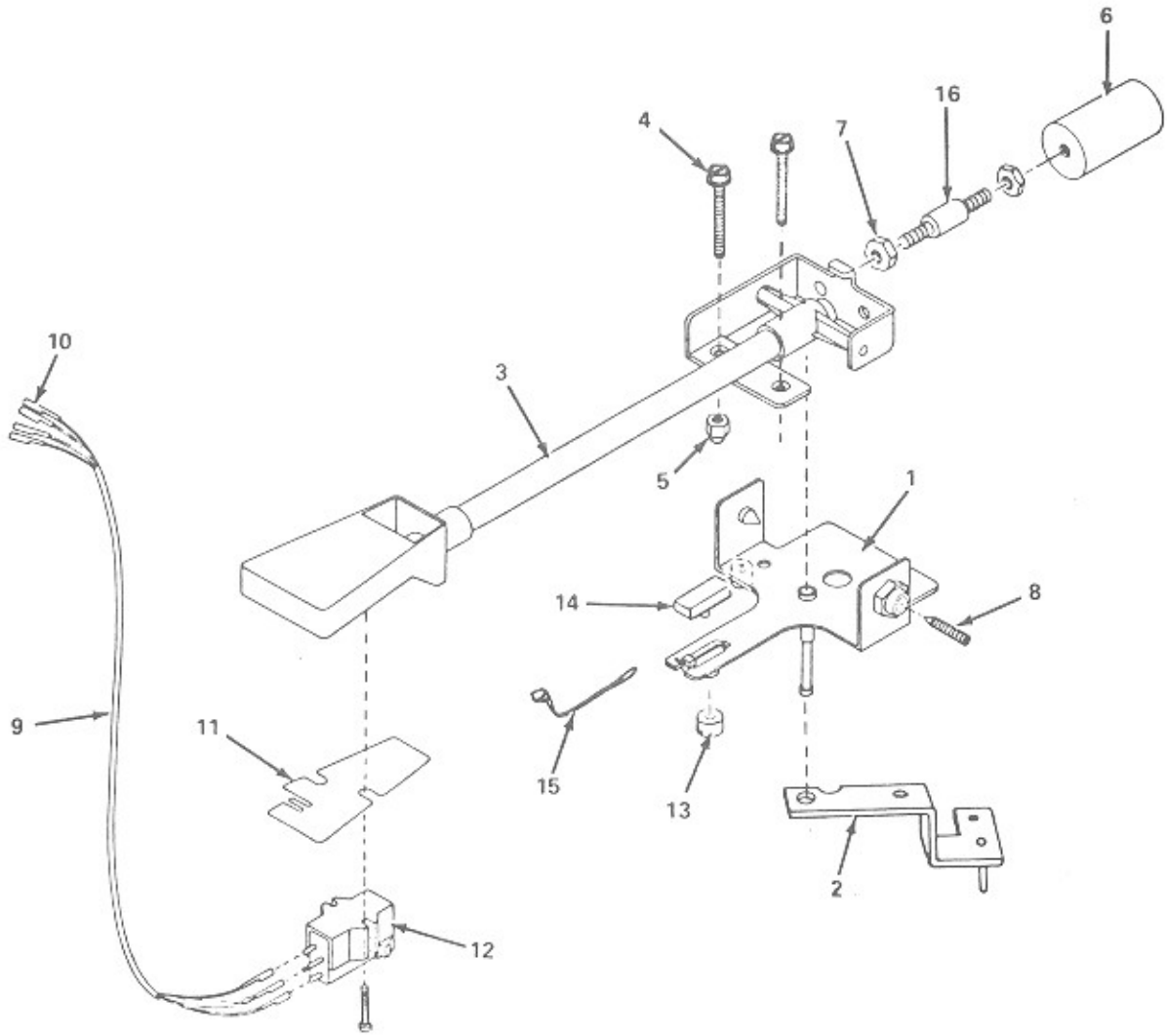


Fig. And Index No.	Rowe Part No.	Description	Qty. Per Assy
14-	40720801	Cam Switch & Motor Assembly (Figure 11, Sheet 1, Item 14)	
1	30790801	. Motor & Crank Assembly	1
2	40720901	. Cam Motor	1
3	21810401	. Trunnion Crank	1
4	70113116	. Roll Pin	2
5	30790901	. Switch Plate	1
6	21816901	. Cam Switch Label	1
7	21073101	. Switch	2
8	21082901	. Switch Actuator	2
9	21083001	. Twin Nut	1
10	30793401	. Switch Cam	1

FIGURE 7-15. R-91 OBA-P KIT

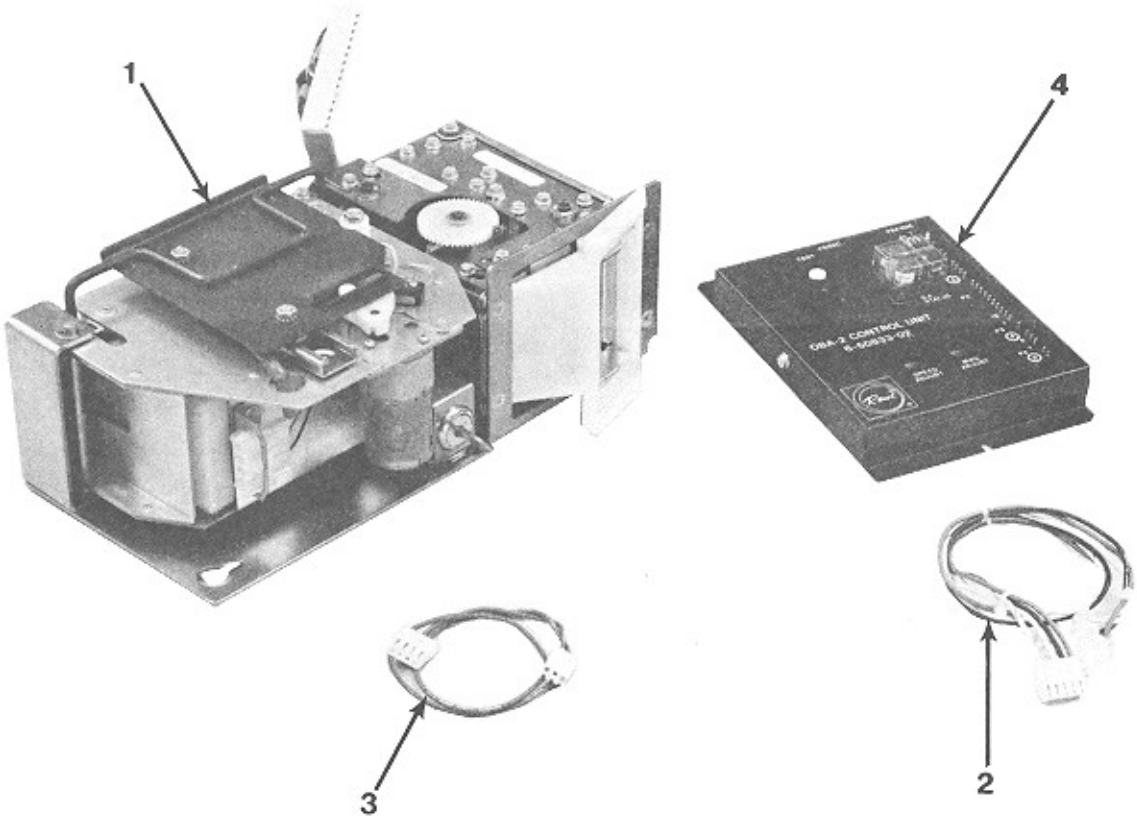


Fig. And Index No.	Rowe Part No.	Description	Qty. Per Assy
15-	65057022	OBA-P Kit R-91	
1	60991502	. Transport & Stacker Assembly (OBA-P)	1
2	30906601	. Bill Stacker Harness Assembly	1
3	30906701	. Credit Harness Assembly	1
4	65063303	. Control Unit OBA-P	1

FIGURE 7-16. OBA TRANSPORT ASSEMBLY

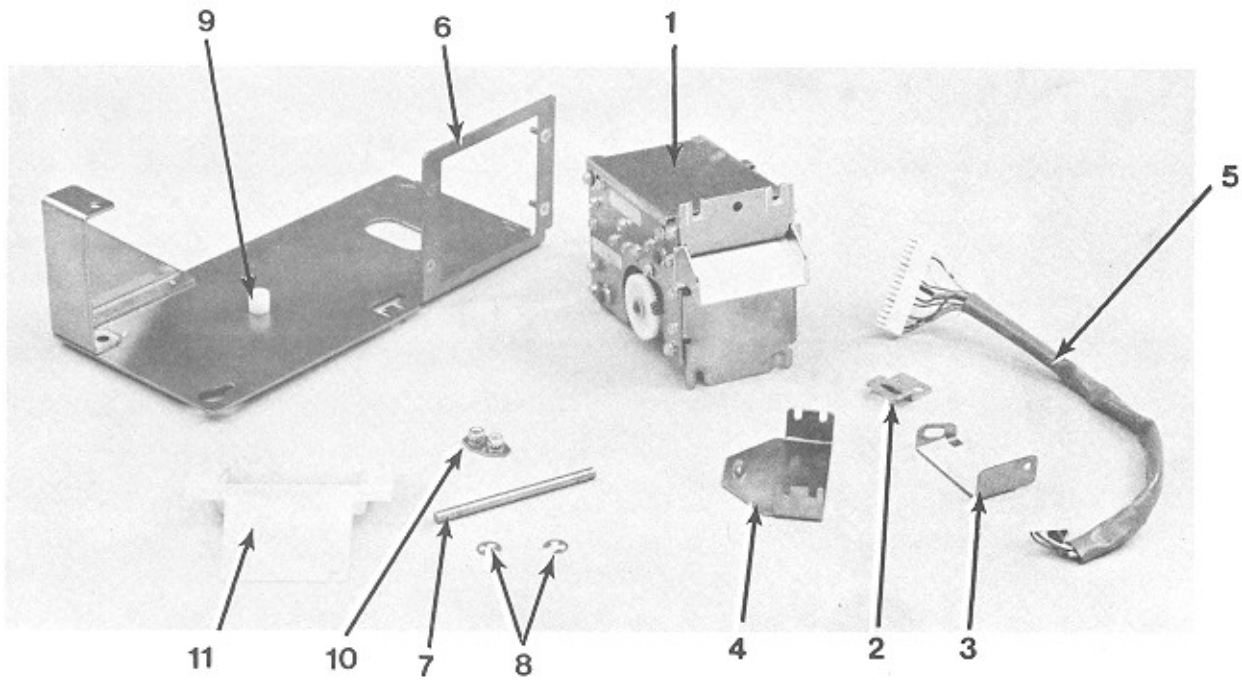


Fig. And Index No.	Rowe Part No.	Description	Qty. Per Assy
16-	65056512	Transport Assembly OBA (R-91)	
1	65056511	. Transport Assembly OBA-P (1 & 5) BC-1)	1
2	21893101	. Bill Transport Brace Bracket	1
3	30906101	. Harness Support Bracket	1
4	30906201	. Plate & Stud Assembly	1
5	45070201	. Interconnect Harness Assembly	1
6	40803901	. Bracket & Support Assembly	1
7	21534708	. Pivot Pin	1
8	70143004	. External Retaining Ring	2
9	21535805	. Plastic Nut (Self-Retaining)	1
10	21893001	. Lock Plate Assembly	1
11	40802301	. OBA Phono Shroud	1

FIGURE 7-17. OBA STACKER ASSEMBLY

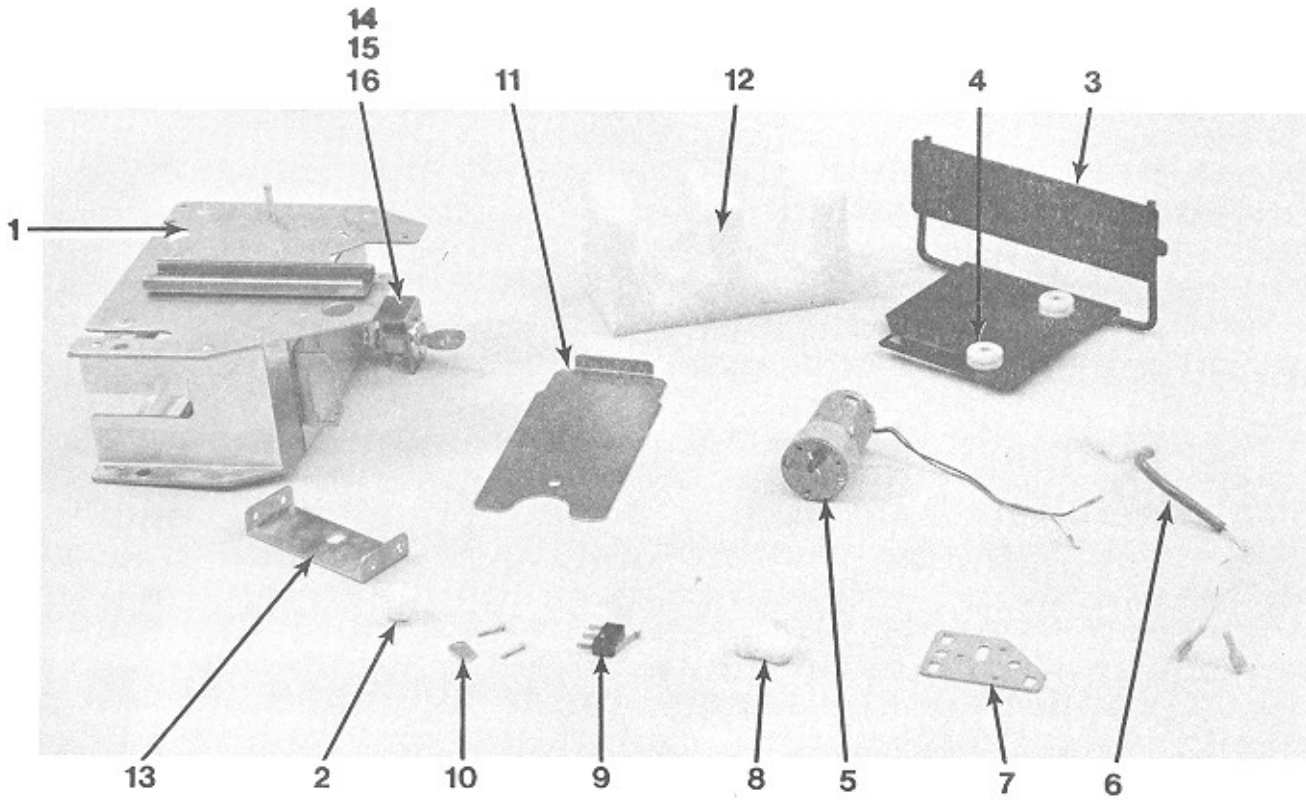


Fig. And Index No.	Rowe Part No.	Description	Qty. Per Assy
17-	60797903	Stacker Assembly OBA (300 Bill)	
1	40791502	. Bill Box Assembly (Rivet)	1
2	21629201	. Guide Spacer	1
3	40791802	. Push Plate Assembly (Weld)	1
4	21630001	. Slide Spacer	2
5	30878101	. Motor & Pin Assembly	1
6	21629001	. Motor Harness Assembly	1
7	30877701	. Motor Mounting Plate	1
8	30877402	. Bill Stacker Cam	1
9	21630901	. Miniature Switch	1
10	21630701	. Twin Nut	1
11	35039204	. Pressure Plate	1
12	25096106	. Foam Block	1
13	30906301	. Bill Stacker Stop Plate	1
14	70162008	. Lock Cylinder (Individual Keying)	1
15	70166012	. Straight Lockbolt	1
16	21893201	. Lock Bracket	1

Table 7-1. Accessory Equipment

Part No.	Description	Function
65057023	One And Five Dollar Bill Acceptor Kit (Includes bill stacker)	Accepts valid one and five dollar bills
26704401	Phono paging system	Paging system not affected by A.V.C. All plug-in unit, complete with microphone and 50 foot microphone cable.
26694703	Amplifier Accessory Kit **(Note: This kit will work with all 607925XX preamplifiers.)**	Provides access to auxiliary inputs and outputs of the preamplifier. Inputs will accept signals from most background music sources, such as tape players and AM/FM radios. Outputs are available to drive slave amplifiers before or after volume control.
30632201	Remote volume and cancel control	The remote stereo volume control includes a cancel button. This kit does not include cable. A 3-conductor cable is required.
60898004	Remote volume power switch and cancel control	In addition to volume and cancel functions, the phonograph can be turned OFF and ON from a remote position. The record currently playing is automatically canceled when the phonograph is turned OFF. The amplifier remains ON so that paging is possible. For domestic 120 volt phonographs only. Cable is not included. A four conductor cable is required.
30632209	Dual remote volume control	Controls volume of each channel separately. Does not include cable. A 4-conductor cable is required.
20819907	Remote volume and cancel control cable	This 3-conductor 50 foot cable connects a remote volume control to a phonograph.
20819908	Remote volume and cancel control cable	This 4-conductor 50 foot cable connects a remote volume control to a phonograph.
66504708	Service Kit	Includes central computer, mech control, power supply board, and fuses.

Part No.	Description	Function
60744701	Extension Speaker	50 Watt RMS, three way speaker system incorporates 10" woofer, 5" mid-range and 3" tweeter, 4 or 8 ohms. Speaker dimensions: 24"H x 15"W x 10"D (Mounting bracket not included).
60902501	WRF Wallette Wallbox (3 Coin)	Remote control unit for R-89 and R-91 Video. Wallbox takes nickels, dimes, and quarters.
26698906	Wallbox Adapter Harness Kit (WRF)	Makes internal connections in a phonograph to install the first WRF wallbox. Does not include cable to connect the wallbox to the phonograph.
40689101	Auxiliary Power Supply	The auxiliary power supply permits solid state phono operation with WRA, WRC, WRD, WRE, and WRF wallboxes. One power supply is required for each group of 6 wallboxes.
00508100 Belden No. 8447 Columbia No. 4082	7-Conductor Cable	Connects an R-91 phonograph to a WRF Wallbox (This cable is not supplied by Rowe).
26699503	Security Bar Kit	Heavy steel bar locks in place over cash box door. A padlock is required (not supplied by Rowe).
26702501	Conversion Kit	Converts a WRE to a WRF Wallbox.
26702802	Wallbox Interface Kit	Permits operation of WRA, WRC, WRD, WRE, and Seeburg wallboxes with R-89 through R-91 Phonographs.
26704001	Paint - Touch up (Spice Metallic Dark)	
26704701	Paint - Touch up (Light Fawn Metallic)	
26704201	Paint - Touch up (Day Star Blue Light)	
26704301	Paint - Touch up (Ensign Blue Dark)	
26700903	InterRowegator Kit	Updates InterRowegator to function on R-91 Phonographs