ROWE®

CD-100B

LaserStar®

Compact Disc Phonograph

Field Service Manual & Parts Catalog

Volume 2 of 2

OBA-2 Maintenance, Troubleshooting, Adjustments, Parts Catalog

PART NO. 21822618
FIRST EDITION

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.

Phono Mechanism Moving Parts	**5 Years**
Electronic Circuit Boards	**2 Years**
Electrical and Mechanical Parts	**1 Year**
Lamps and Styli	**90 Days**
CD Players, VCR's, Monitors, and CD Decks	**1 Year**

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.

WARNING:

When servicing, do not approach the laser exit with the eye too closely. In case it is necessary to confirm laser beam emission, be sure to observe from a distance of more than 10 inches from the surface of the objective lens on the optical pick-up block.

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.

CD-100B

LaserStar®
Compact Disc
Phonograph

Field Service Manual
And Parts Catalog

Volume 2

ROWE
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SECTION 5 — TROUBLESHOOTING *(Continued)*

SECTION 5 — TROUBLESHOOTING *(Continued)*

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Section 4: OBA-2 Maintenance

INTRODUCTION

This section of the service manual provides a general description of the Rowe OBA-2 Bill Acceptor (OBA) including a physical description and a functional description.

The OBA-2 Bill Acceptor accepts valid U.S. currency in $1, $5 denominations. The OBA-2 rejects and returns unacceptable currency to the customer.

The bill acceptor interfaces with the central control computer, which sends and receives messages concerning the acceptance, rejection, and validation of currency.

PHYSICAL DESCRIPTION

The bill acceptor consists of three major components. These are: The bill transport mechanism, the bill stacker, and the OBA control unit *(see figure 4-1)*.

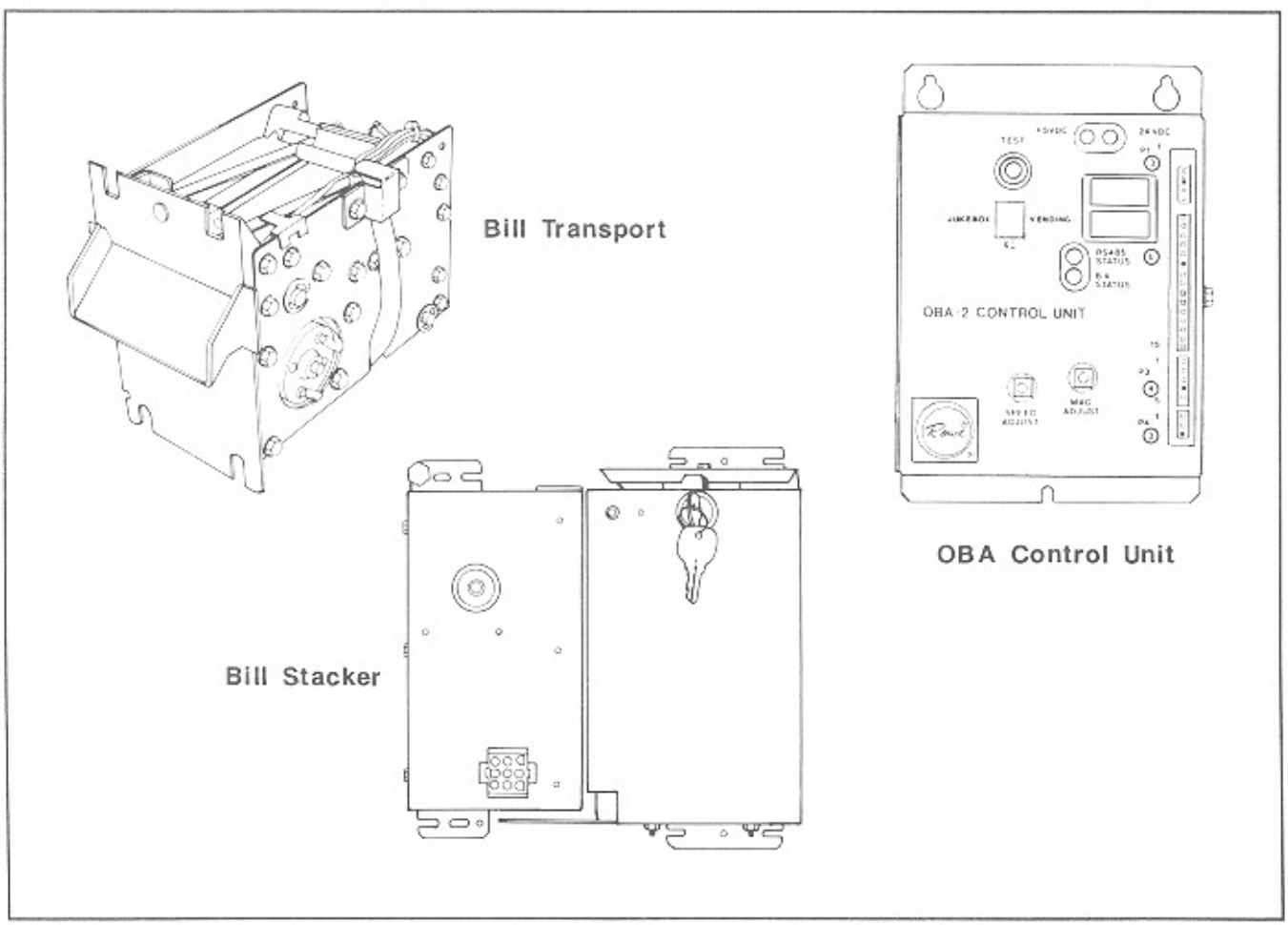


Figure 4-1. Bill Acceptor Components

Bill Transport Mechanism

This device mechanically transports the currency from the bill acceptor opening past various sensors. These sensors scan the bill for validation information and relay it to the OBA control board *(see figure 4-2 and 4-3)*.

DRIVE BELTS

A D.C. motor, a series of rollers, and pulleys and belts carry the bills from the bill inlet through the bill acceptor. The 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 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 and non-slip movement through the transport mechanism.

OPTICAL SENSORS

Three optical sensors are used to communicate bill information to the OBA control unit while the

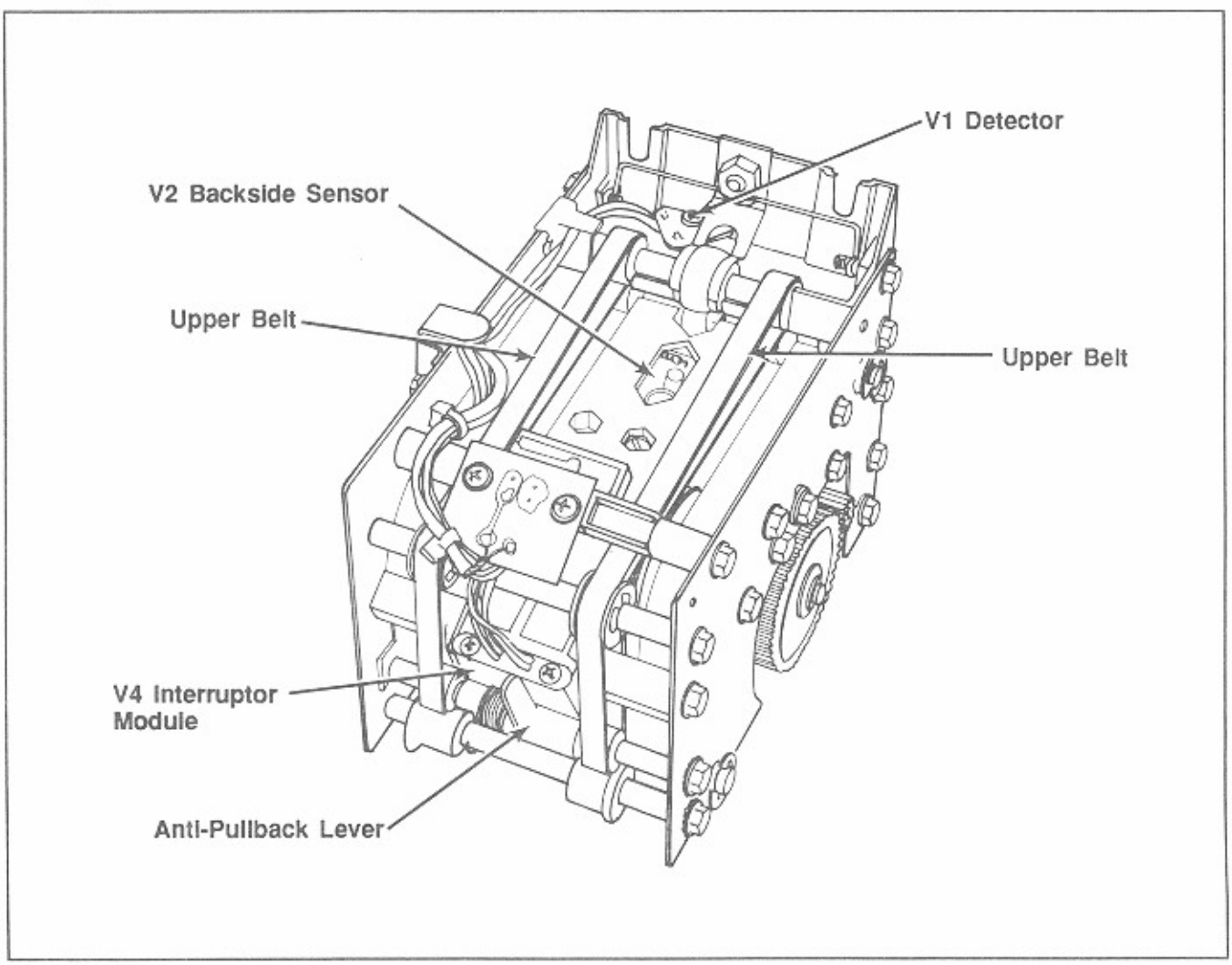


Figure 4-2. Bill Transport Unit
Top View

bill is in the transport mechanism. Two of the three sensors used in the bill acceptor are used for establishing bill position within the transport mechanism path. The third provides validation data from the bill as it passes through the transport. These sensors, referred to hereafter as V1, V2 and V4, are arranged so that, beginning from the bill acceptor opening, the numbers ascend as the bill moves farther away from the opening.

V1 is used to sense the presence of a bill in the transport opening. V2 is used for obtaining precise information from the underside of the bill. V4 is used to make a precise determination of the bill position. All three of the optical sensors are of the infrared type.

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.

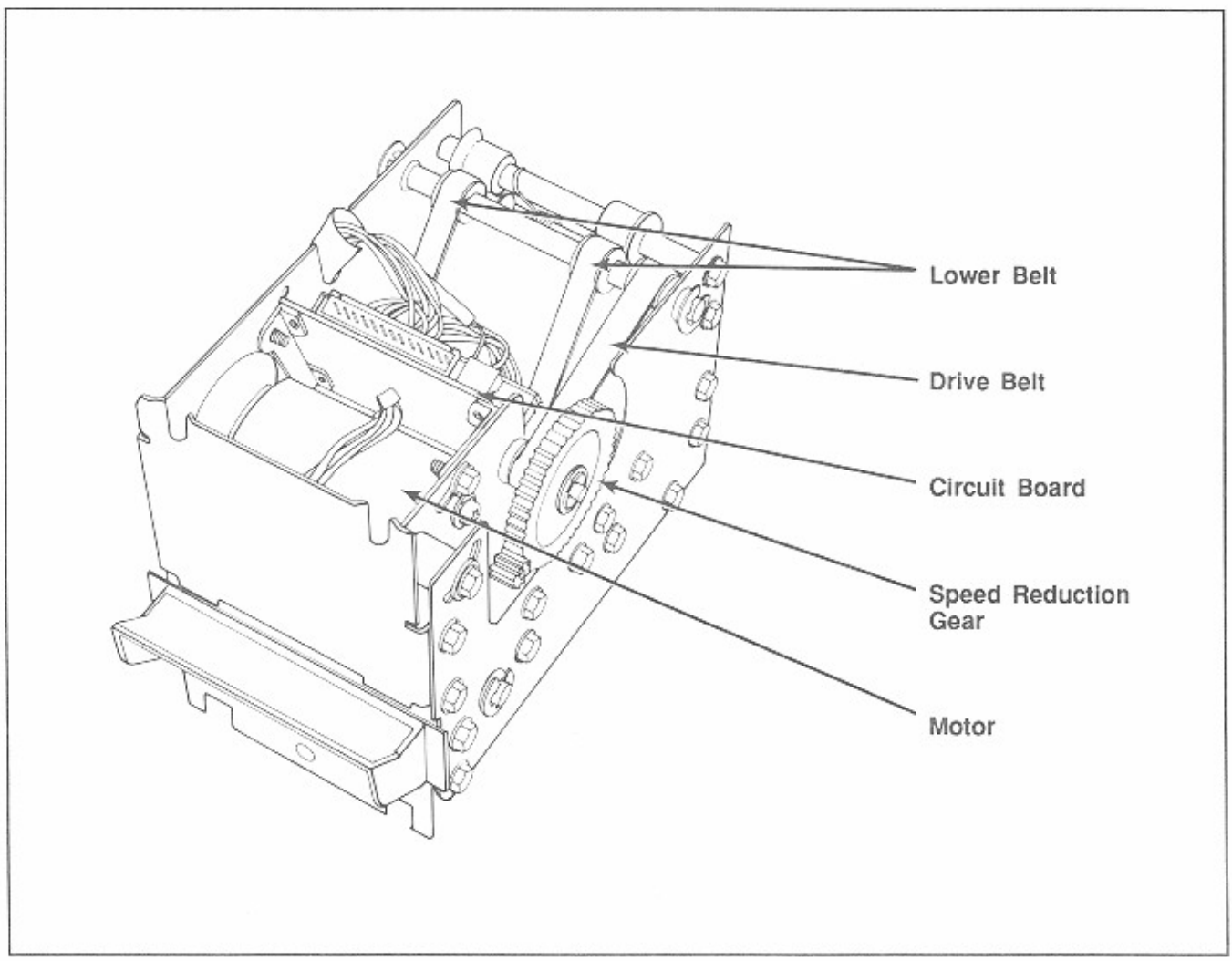


Figure 4-3. Bill Transport Unit
Bottom View

Bill Stacker

The stacker accepts bills from the transport mechanism and stacks them in a locked bill box. The stacker uses a D.C. motor to drive a metal platen, which via a mechanical linkage, pushes the bill into the bill box. A cam-actuated switch signals the OBA control unit as to the position of the platen. The platen may be in either the HOME or the OFF HOME position. An OFF HOME signal received by the control unit while it is in STANDBY, prompts it to reset the platen and return it to its HOME position (*See functional description in this section*).

OBA Control Unit

This module contains the electronic circuit board and micro-computer. It directs the operations of the various parts of the bill acceptor, but it in turn is directed by the central control computer. It also contains all the necessary circuitry for connecting the bill transport to the bill stacker *(see figure 4-4)*.

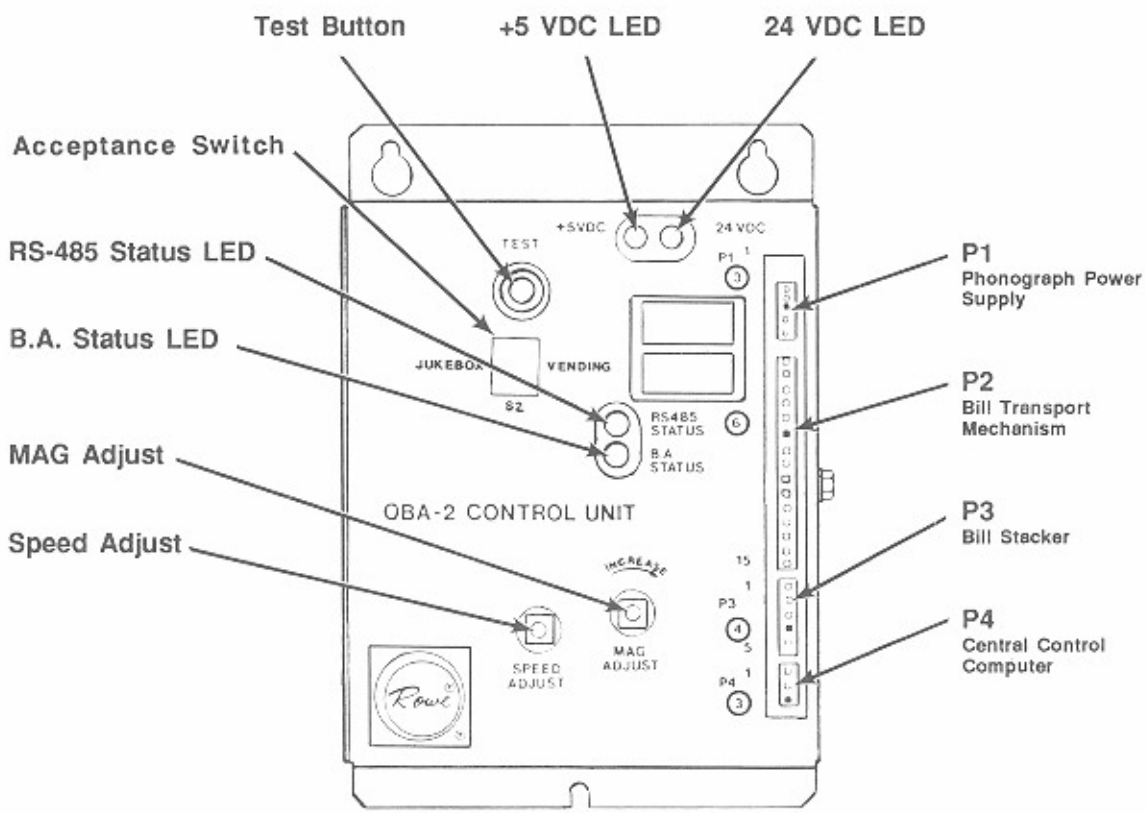


Figure 4-4. OBA Controller

CONNECTORS

Four connectors, labelled P1, P2, P3, and P4 connect the three major modules or components of the bill acceptor to each other and to the central control computer.

P1 connects the OBA control unit to the phonograph power supply via the CCC.

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

P3 connects the bill stacker to the OBA control unit.

P4 connects the OBA control unit to the central control computer.

Adjustments on the OBA control unit *(see Electrical Adjustments for a detailed explanation of adjustment procedures).*

ACCEPTANCE SWITCH

This switch should be in the JUKEBOX position for maximum acceptance of bills.

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 the bills *(see figure 4-4).*

TEST BUTTON

If this button *(see figure 4-4)* is depressed when the unit is in the idle (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 bill acceptor 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 in this section*).

VISUAL INDICATORS

Refer to figure 4-4 for the location of these indicators.

RS-485 STATUS LED

This LED indicates the status of the communications link. If the LED is not on, the bill acceptor is in the RECEIVE mode, waiting for a command from the central control computer. When the LED is on, the bill acceptor is in the TRANSMIT mode and is sending information to the central control computer.

BA STATUS LED

This LED indicated whether the bill acceptor is in the SHUTDOWN state or is in operating condition. When not lit, the bill acceptor is in normal operating condition. When lit, the LED indicates that the unit is shutdown due to a fault. The STATUS LED is also used to indicate the correct motor speed when used in conjunction with the MOTOR SPEED ADJUST mode (TEST button depressed).

+5VDC AND +24 VDC LED'S

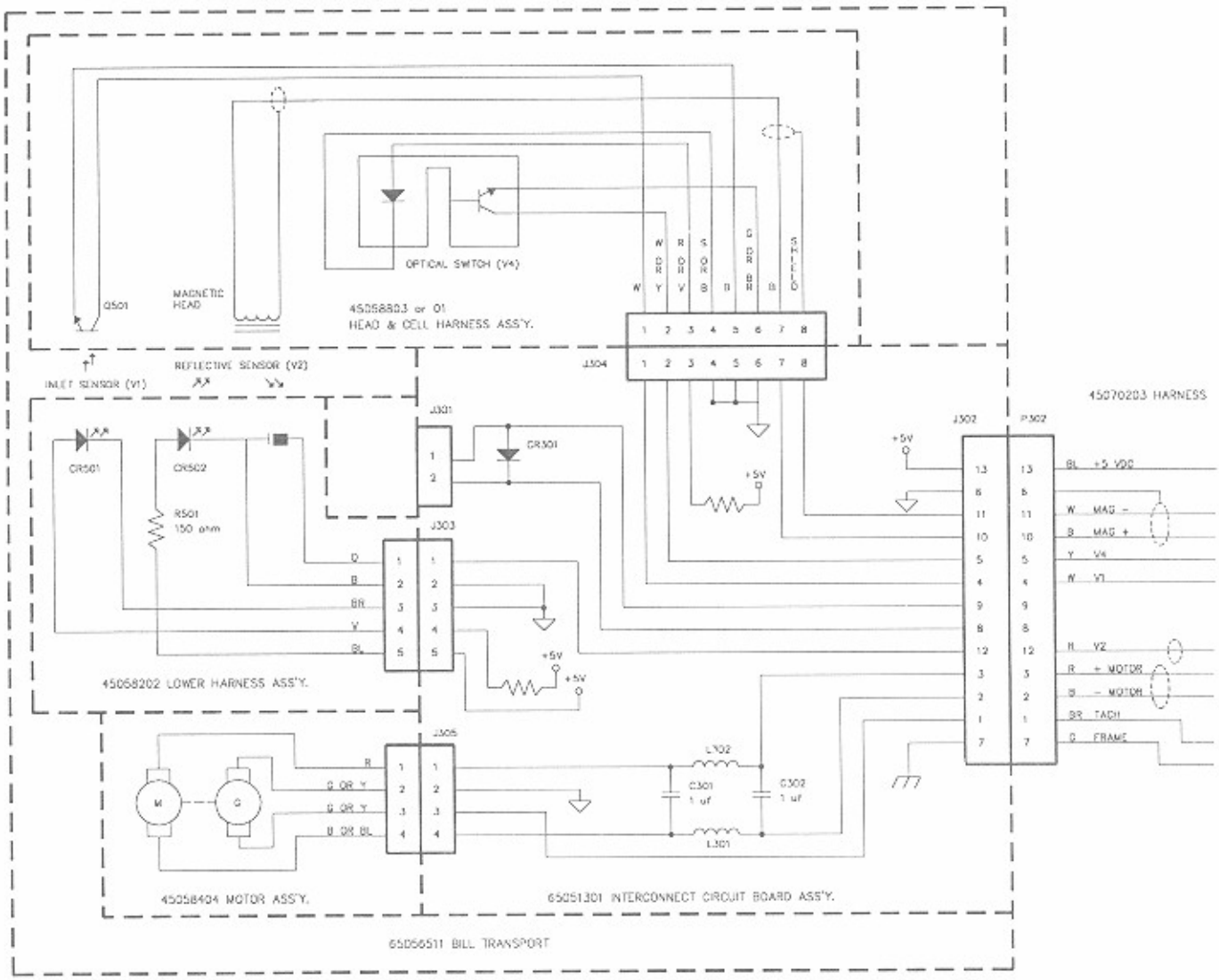
When lit, these indicate the normal presence of the system voltages.

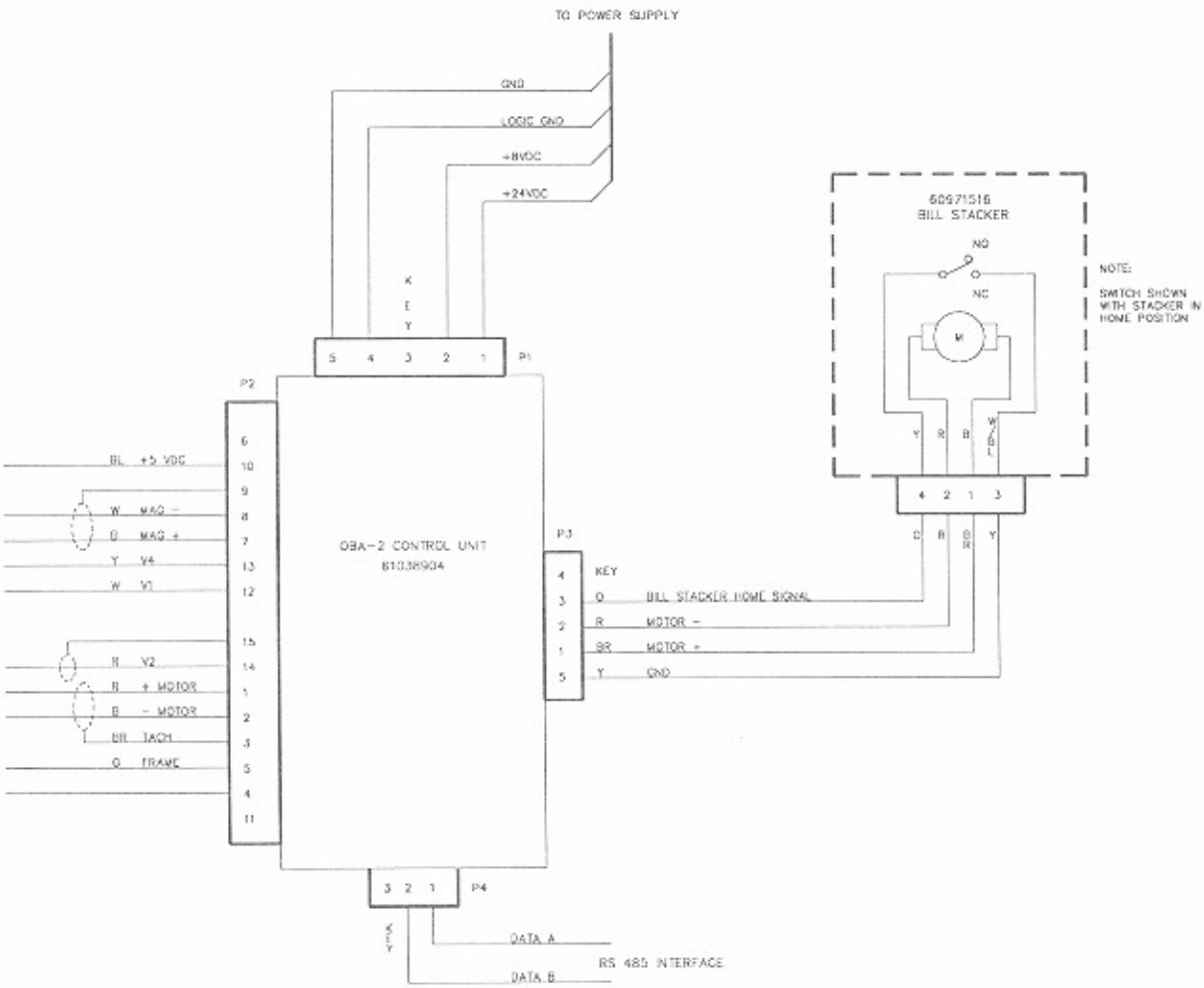
FUNCTIONAL DESCRIPTION

The following is a sequential description of the operation of the bill acceptor. This description gives a basic understanding of how the bill acceptor normally operates and can be used as an aid in troubleshooting *(see figure 4-5, the OBA Block Diagram).*

Bill Acceptor In Standby Mode

When the power is first supplied to the bill acceptor, in normal operation, the bill acceptor immediately assumes a passive or idle state. It will not attempt to accept bills until it receives an ENABLE command from the central control computer. Though it is not able to accept bills it is not completely idle; it is continually checking the various sensors in the bill transport and bill stacker mechanisms. If it sees an incorrect signal it takes the appropriate actions, as described in the following paragraphs:


OPTICAL SWITCH (V4)
MAGNETIC HEAD
Q501
45058803 or 01
HEAD & CELL HARNESS ASS'Y.
INLET SENSOR (V1)
REFLECTIVE SENSOR (V2)
J304
J301
J303
J305
J302
P302
45070203 HARNESS
CR501
CR502
CR301
R501
150 ohm
+5V
45058202 LOWER HARNESS ASS'Y.
L302
L301
C301
1 uf
C302
1 uf
45058404 MOTOR ASS'Y.
65051301 INTERCONNECT CIRCUIT BOARD ASS'Y.
65056511 BILL TRANSPORT
BL +5 VDC
W MAG -
B MAG +
Y V4
W V1
R V2
R + MOTOR
B - MOTOR
BR TACH
G FRAME



For Equivalent Engineering Drawing See 21941101-Q7 A

Figure 4-5. OBA-2 Block Diagram

PROBLEMS THAT MAY ARISE IN THE STANDBY MODE:

V4 Sensor Is Active

The bill acceptor assumes that something is trapped in the bill transport path if this sensor is active while in the STANDBY mode. It then begins the reject sequence to remove the trapped object from the path (*see Reject Sequence in this section*).

Stacker Home Switch Not Activated

The bill acceptor turns on the stacker motor and attempts to return the stacker platen to its HOME position. If successful, the bill acceptor returns to the STANDBY mode. If unsuccessful, it shuts itself down *(see Shutdown Sequence in this section for additional information on this subject).*

ACTIONS TAKEN BY THE BILL ACCEPTOR TO CORRECT THESE PROBLEMS:

Reject Sequence

In order to clear the bill transport mechanism and purge any objects from the path, the bill acceptor turns on its transport motor in the reverse direction. If the bill acceptor is following a normal bill rejection sequence, it will reject the bill and return it the bill acceptor opening. It will place it so that it can be easily grasped by the customer. If the customer retrieves the bill within five seconds and all other sensors indicate that the transport path is clear, the bill acceptor returns to the STANDBY mode. A BILL REJECT message and a REJECT code is sent to the central control computer indicating the cause of the rejection (*see Troubleshooting in this section for an explanation of the REJECT codes*). If the track is not clear, the bill acceptor begins the self-clearing sequence.

Self-Clearing Sequence

Upon failing to clear the transport path as described, the bill acceptor begins a self-clearing sequence. This consists of a series of reverse-forward-reverse cycles to dislodge and object trapped in the transport. If this procedure ;is successful the bill acceptor returns to the STANDBY mode. If the track is not cleared after 10 cycles the unit will shutdown.

Shutdown Sequence

Several things may cause a shutdown of the bill acceptor. In the instance above an unsuccessful attempt by the bill acceptor to clear an object lodged in the transport path will initiate a SHUTDOWN sequence. In the event of a shutdown the bill acceptor turns everything off except the STATUS LED, which turns ON to indicate a fault condition. A SHUTDOWN message is sent to the central control computer along with an error code indication the cause of the fault (*see Troubleshooting in this section for a complete explanation of the FAULT codes*).

Bill Acceptance Mode

The following is a description of the operations that occur when the bill acceptor is in the BILL ACCEPTANCE mode. These are not the only operations that can occur in this mode however. The reject, self-clearing and shutdown sequences as previously described can occur as well.

An acceptance cycle starts when a bill is inserted into the transport. The transport motor starts in a forward direction and continues until the trailing edge of the bill passes the magnetic head. If the bill fails any of the required magnetic or optical checks it is immediately rejected and

returned to the customer. If the bill passes all of the checks the transport stops and the OBA then waits for a STATUS REQUEST from the central control computer and, upon receiving it, transmits a BILL IN ESCROW message containing the correct code for the bill validated. If a STATUS REQUEST is not received within two seconds, the bill is rejected. After sending the BILL IN ESCROW information, the bill acceptor waits for either the ACCEPT or REJECT command from the central control computer.

After receiving the ACCEPT command, the bill acceptor activates the transport motor and moves the bill from the transport mechanism to the bill stacker. The bill is monitored to ensure that the bill movement through the mechanism is correct. If the bill does not clear the transport mechanism within a specified time the bill is rejected and returned to the customer.

The stacker motor is now activated and the home switch monitored to ensure that the bill stacker platen leaves the home position, stacks the bill in the bill box and returns to the home position. If the stacker platen does not leave the home position within 750 milliseconds or if it does not return within 2.5 seconds, the bill acceptor begins its shutdown sequence.

Upon completion of the stacking process the bill acceptor sends a BILL ACCEPTED message to the central control computer and is then ready to begin another bill acceptance sequence.

PRICING

For overall pricing, see *Pricing in Section 2.*

Maintenance And Adjustments

ELECTRICAL ADJUSTMENTS

The electrical adjustments on the bill acceptor are factory set and should not be changed under normal operating conditions. However, replacing a bill transport or control unit requires a recalibration of the system as follows:

Motor Speed Adjustment

Refer to figure 4-4 for the locations of the electrical adjustments.

1. Depress the TEST button on the OBA control unit.
2. Turn the SPEED ADJUST control either clockwise or counterclockwise until the B.A. STATUS LED reaches its brightest and steadiest condition.

Mag Adjust

Refer to figure 4-4 for the locations of the electrical adjustments.

1. Set the MAG ADJUST control 1/8-turn back from the full clockwise position.
2. Depress the TEST button momentarily and release.
3. If the B.A. STATUS LED blinks rapidly several times after you release the TEST button, turn the MAG ADJUST control slightly counterclockwise and repeat step 2.
4. If the B.A. STATUS LED remains OFF after releasing the TEST button, the MAG ADJUST is correct.

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.

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 in this section*), then the switch adjustment may be checked by performing the following procedures *(see figure 4-6)*:

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

2. Place a .040-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.

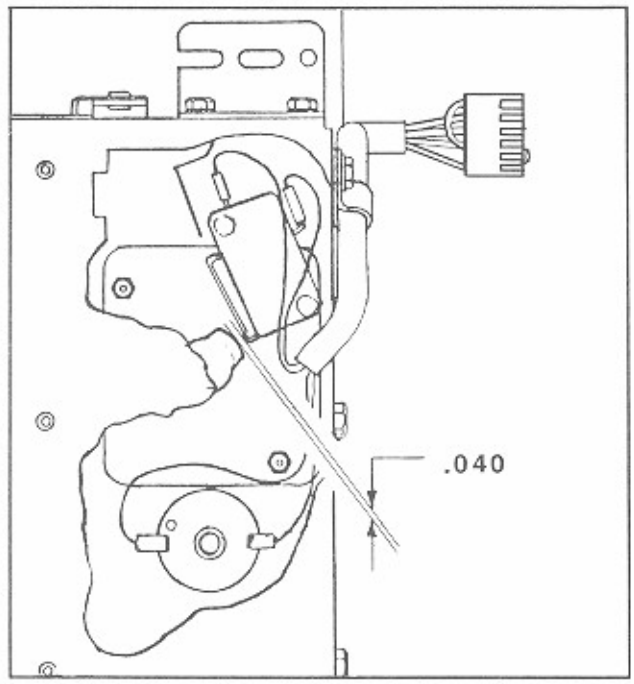


Figure 4-6. Stacker Home Switch Adjustment

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 ADJUSTMENT

Refer to figure 4-7 before doing this adjustment.

Adjust the drive belt tension as follows:
(For OBA transport units without an idler pulley)

1. Loosen machine screws A, B, and C to the point that the motor mounting assembly can rotate around machine screw B.

2. Rotate motor mounting assembly until the drive belt flexes a total of approximately 3/32-inch in mid span between the gear pulley and the drive shaft pulley.

3. Tighten the machine screws in the following order: A, B, then C. Recheck the belt tension.

4. If machine screw A is at the end of its slot and the drive belt is still too loose, the belt has stretched and must be replaced.

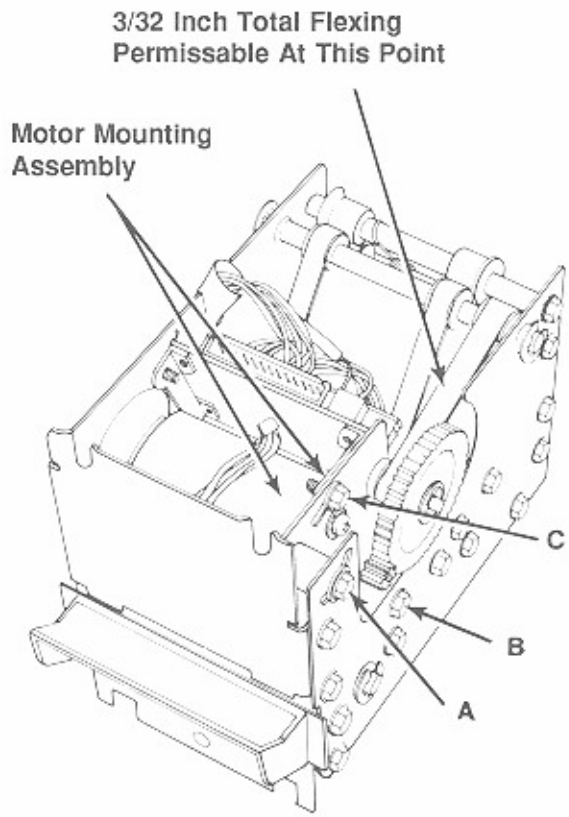


Figure 4-7. Drive Belt Tension

LOWER BELT TENSION ADJUSTMENT

Refer to figure 4-8 before doing this adjustment.

Adjust the lower belt tension as follows:

1. Loosen the four hex-head screws holding the ends of the idler pulley shaft and the take-up brackets.

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.

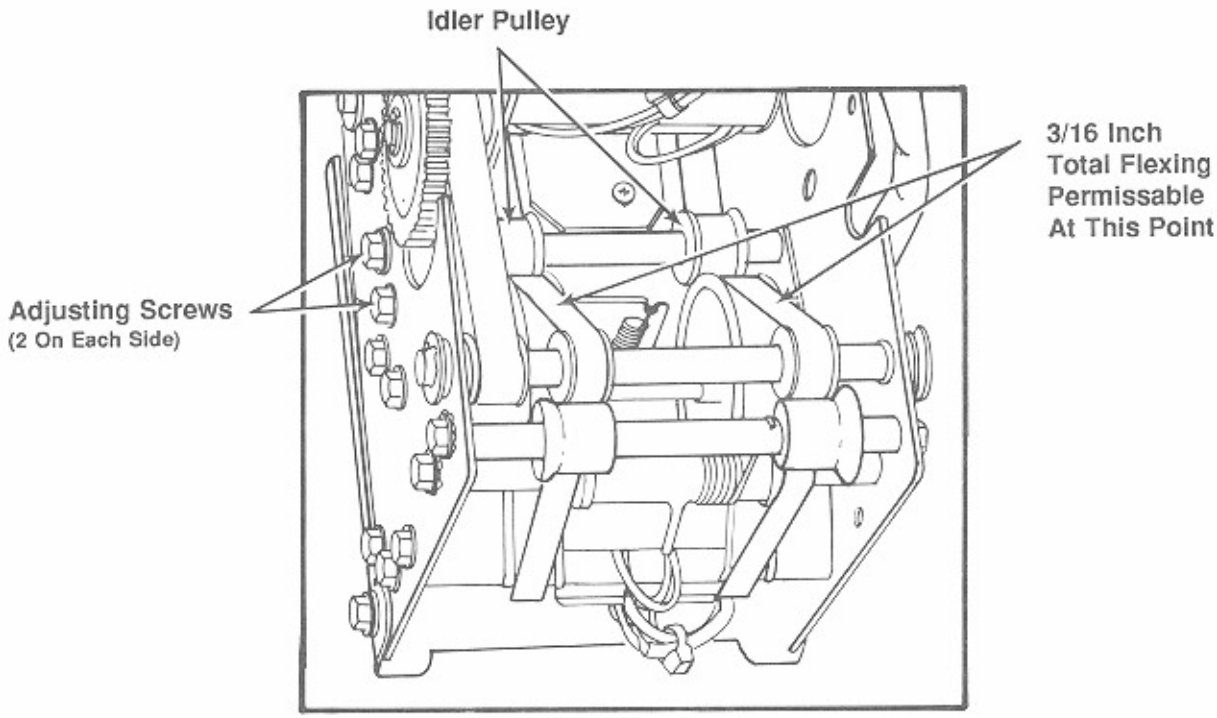


Figure 4-8. Lower Belt Tension Adjustment

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

A degree of backlash should exist between the gears, as *shown in figure 4-9.*

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.

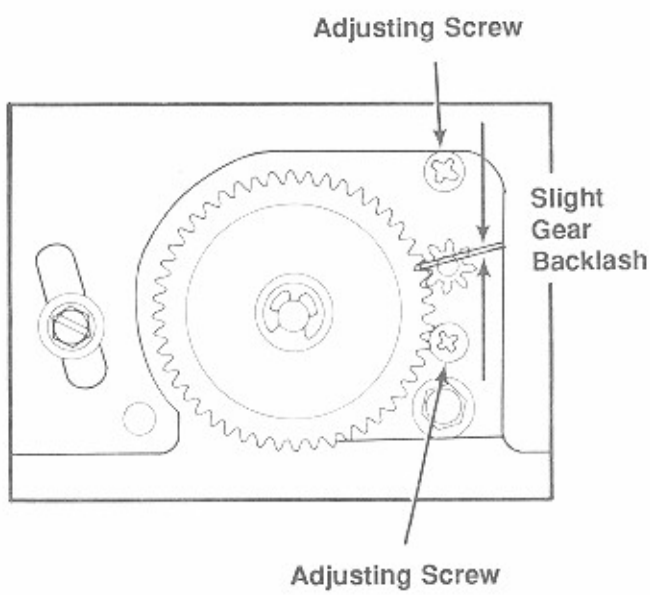


Figure 4-9. Gear Backlash Adjustment

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 45059801.

Installing A New Harness And Holder Assembly

WARNING:

To avoid serious eye injury, wear safety glasses or goggles while removing and installing the tension springs that hold the harness and holder assembly.

Refer to *figure 4-10A* during removal and installation of the harness and holder assembly unless you are told to refer to *figure 4-10B*.

REMOVING A DEFECTIVE HARNESS AND HOLDER ASSEMBLY

1. Unplug the harness from the transport circuit board.
2. Loosen both cable clamp screws, and remove one so that the harness can slip out from under the cable clamp.
3. Remove the screw from the V1 detector circuit board and pull the V1 circuit board away from the OBA casting (keep the screw, you will need it to install the new assembly).
4. While wearing eye protection: Carefully slide the tension springs off of the two cover hinge screws.
5. Remove the two screws and shoulder washers that are used as a hinge for the OBA cover.
6. Remove the screw from each end of the crowned roller shaft and slide the shaft out from under the upper belts.
7. Slide the harness and holder assembly toward the front of the OBA slightly so that you can slide one side of the holder and harness assembly out from under the upper belts. Throw this assembly away.

INSTALLING A REPLACEMENT HOLDER AND HARNESS ASSEMBLY

1. Slide the new harness and holder assembly under the upper belts and align the assembly with the lower track by placing the "V" on the holder over the "V" on the lower track as shown in *figure 4-10B*.
2. Slide the crowned roller shaft into position over the holder and harness assembly.
3. Insert the screws into the ends of the crowned roller shaft and tighten the screws.
4. Make sure that the "V" on the harness and holder assembly is resting over the lower track on both sides of the harness and holder assembly.
5. Attach the V1 detector to the OBA casting.

6. Route the harness under the cable clamp, attach the cable clamp screw that you removed in *Step 2*, of the removal procedure and tighten both cable clamp screws.

7. Plug the free end of the harness into the transport circuit board.

8. Re-install the OBA cover by attaching the two screws and shoulder washers that were removed in *Step 5* of the removal procedure.

9. While wearing eye protection, carefully slide the tension springs back on the two cover hinge screws (The short end of the spring wire should rest on the mag. head holder shaft).

10. Check the upper belt paths of both upper belts to make sure that the upper belts are riding on the center of all of the pulleys.

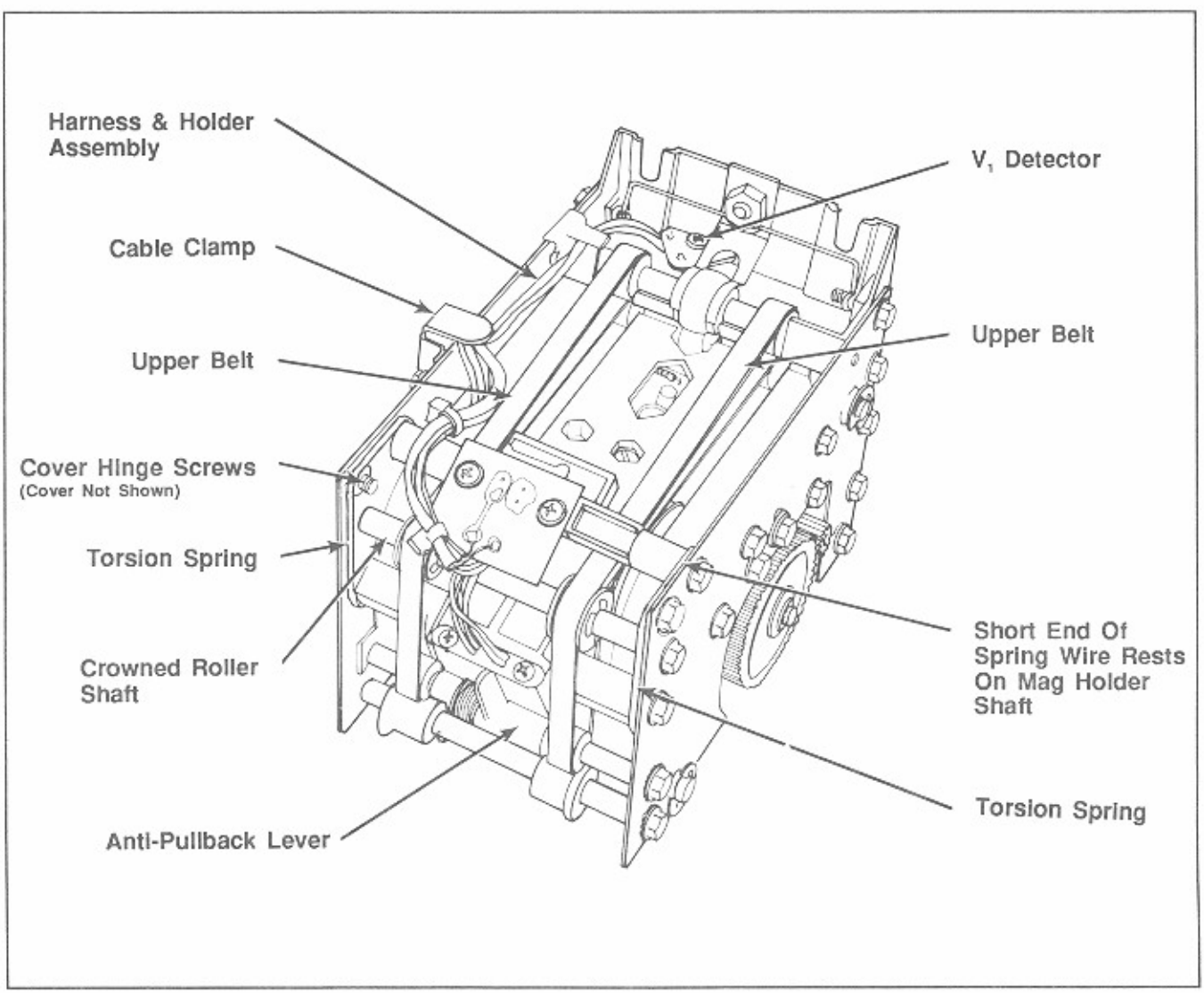


Figure 4-10A. Head And Holder Assembly Removal

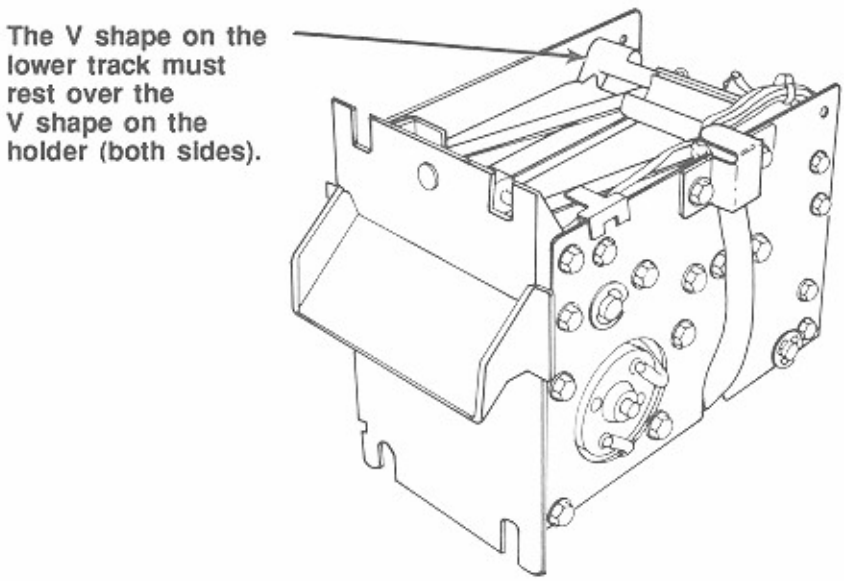


Figure 4-10B. Head And Holder Alignment

CREASING ROLLER POSITION

The creasing roller shaft should always be positioned so that the creasing rollers spin freely (*see figure 4-11*). They should not contact either lower timing belt. When making this adjustment, or when you are assembling the creasing roller shaft, hold the shaft away from the lower belts while tightening the two mounting screws. After tightening, always re-check to be sure that the creasing rollers spin freely.

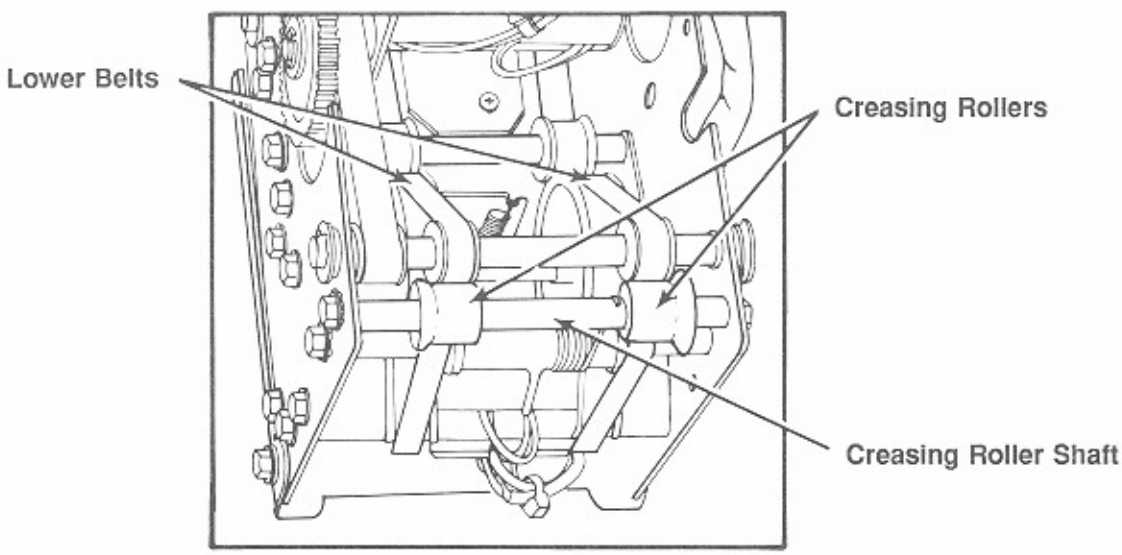


Figure 4-11. Creasing Roller Position

BILL ACCEPTOR HEIGHT AND FRONT TO BACK ADJUSTMENT

These two adjustments can affect each other. If you need to make one of these adjustments, be sure to read the entire procedure to determine whether you need to do any additional steps.

OBA–2 Height

Perform this procedure only if the OBA–2 height is incorrect.

1. Locate the hex-head screw in the vertical slot on the left side of the OBA–2 mounting plate and compartment divider. Tape a small piece of paper next to the slot and mark the position of the center of the screw on the paper (this will serve as a reference point).

2. Close the top door and estimate the vertical distance that the OBA–2 is high or low.

3. Loosen the hex-head screw and the three similar screws on the right side of the divider and, using the reference mark, slide the OBA–2 up or down by the amount that you estimated the OBA–2 height to be in error. Tighten one of the screws and recheck the OBA–2 height. If the height is acceptable, tighten the other three screws. If the height is not acceptable, repeat steps 2 and 3 until the height is acceptable.

4. Check the OBA–2 front-to-back clearance and make the following adjustment if necessary.

OBA–2/STACKER FRONT TO BACK CLEARANCE

1. Loosen the wing nut on the left side of the OBA–2 mounting bracket and slide the OBA–2 transport out approximately 1-1/2 inches.

2. Loosen the four stacker mounting screws on the right side of the divider plate and slide the stacker toward the rear of the phonograph as far as it will go.

3. Slowly close the top door so that it pushes the OBA–2 transport back into the phonograph. Open the top door and tighten the wing nut on the transport mounting bracket.

4. Slide the stacker toward the OBA–2 transport until the stacker engages the transport and tighten the four mounting screws.

5. Check the OBA–2 height and make the adjustment if necessary.

Refer to figure 4-12, the OBA Schematic Diagram, as you troubleshoot electrical problems on the OBA control unit.

Table 4-1. OBA Troubleshooting Chart

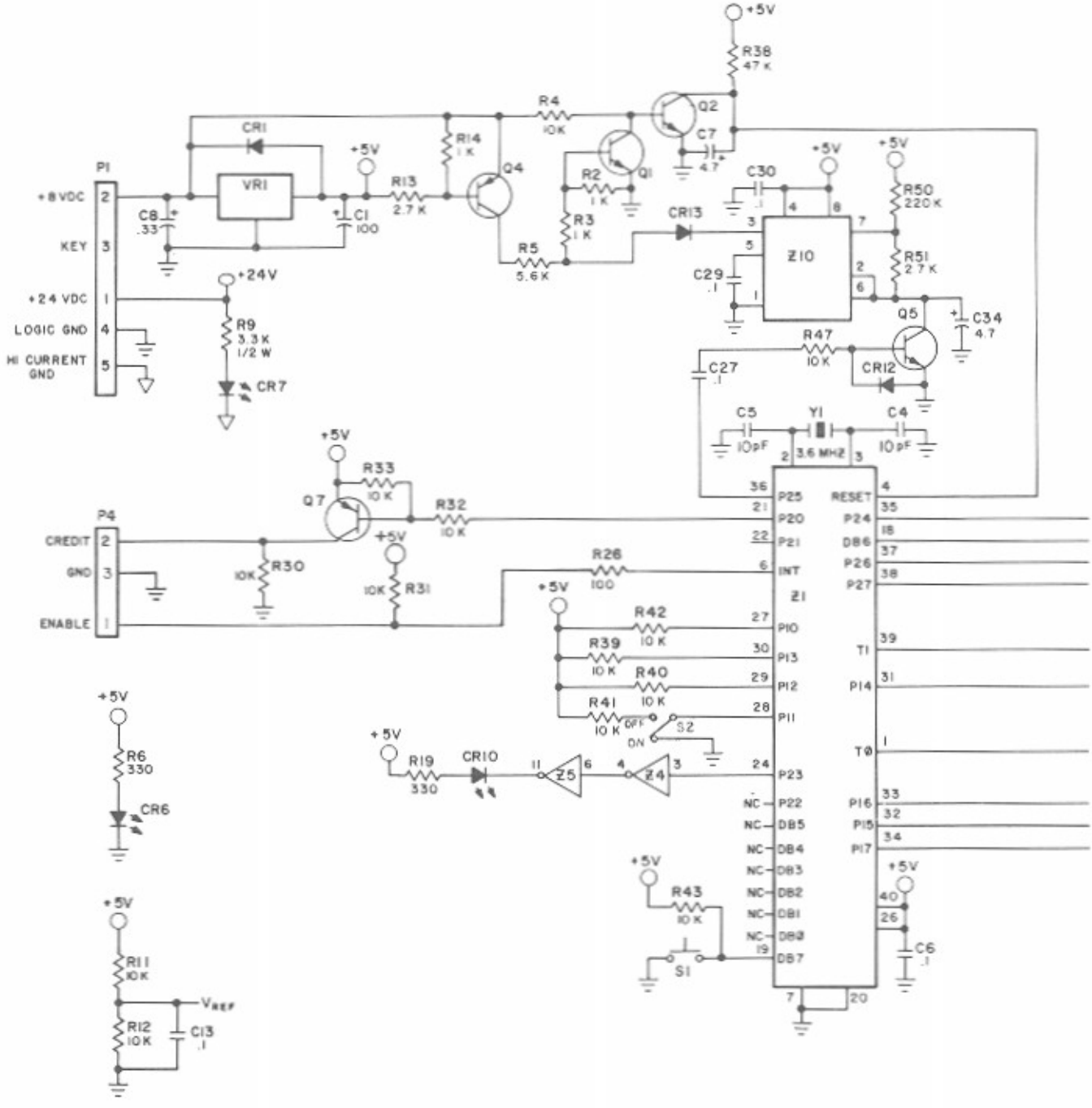
Trouble	Symptom	Probable Cause
Transport motor does not start when a bill is inserted.	The +5 V or +24 V LED on the OBA control unit is not lit.	1. A defective power supply 2. A defective harness to the OBA 3. A defective OBA control unit
	Transport does not start, but a clicking sound is heard in the OBA control unit	1. An object is jammed in the transport mechanism 2. A defective transport
	No sound or other indication that the transport is trying to run	1. A defective V1 cell in the transport 2. A defective OBA control unit 3. A defective CCC
	The BA STATUS LED is blinking	The OBA is not operational due to a FAULT condition: See the next problem
The OBA is in SHUTDOWN mode (er 80). In this state, the BA STATUS LED will alternate between STEADY ON and FLASHING (on for 1 second and then flash one or more time). The number of flashes indicates the cause of the shutdown. Also, a SHUTDOWN message with the indicated FAULT code will be sent to the CCC.	The BA STATUS LED flashes once. The FAULT code is 41.	1. An object is in the transport covering the V1 cell 2. A defective transport 3. A defective OBA control unit
	The BA STATUS LED flashes 4 times. The FAULT code is 44.	1. An object is in the transport activating the anti-pull-back lever 2. A defective transport 3. A defective OBA control unit
	The BA STATUS LED flashes 5 times. The FAULT code is 48 or 49.	1. The bill stacker is full 2. The bill stacker is jammed in the OFF HOME position 3. The bill stacker HOME switch is out of adjustment 4. A defective bill stacker 5. A defective OBA control unit

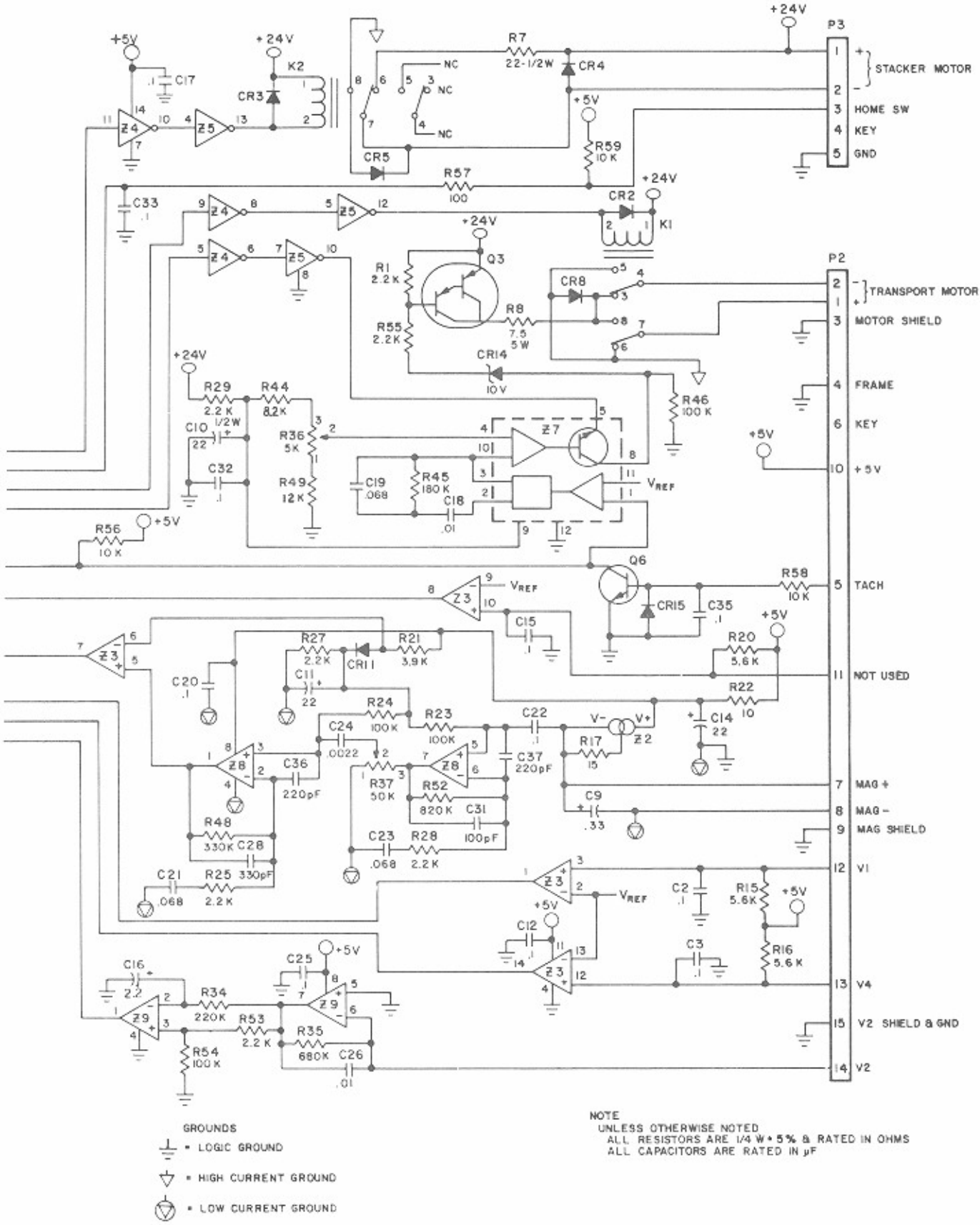
Table 4-1. OBA Troubleshooting Chart

Trouble	Symptom	Probable Cause
	BA STATUS LED flashes 1 time after rejecting the bill	1. A defective V1 or V4 cell in the transport 2. A defective OBA control unit
	BA STATUS LED flashes twice after rejecting the bill	1. A defective V2 cell in the transport 2. A defective control unit
	BA STATUS LED flashes 4 times after rejecting the bill	1. An object is lodged in the transport 2. A binding anti-pull-back lever 3. A defective V4 cell in the transport 4. A defective OBA control unit
	BA STATUS LED flashes 5 times after rejecting the bill	1. The MAG. ADJUST control is set too low 2. The motor speed is incorrectly adjusted 3. A defective magnetic head or transport 4. A defective OBA control unit
	BA STATUS LED flashes 6 times after rejecting the bill	1. MAG. ADJUST may be either too low or too high (*see the Mag. Adjust procedure*) 2. A defective harness connection at P1, Pins 3 or 4 3. A defective motor or magnetic head in the transport 4. A defective OBA control unit 5. A defective power supply (+24 VDC) from the CCC
The bill acceptor rejects a large number of valid bills. If the rejected bill is allowed to remain in the transport opening, the BA STATUS LED will flash one or more times to indicate the cause of the rejection.	BA STATUS LED flashes 7 times after rejecting the bill	1. The motor speed is not correct 2. A defective transport 3. A defective OBA control unit 4. S2 not in the JUKEBOX position

Table 4-1. OBA Troubleshooting Chart

Trouble	Symptom	Probable Cause
Bills jam frequently	Any bill transporting failure	1. The anti-pull-back lever is not operating freely 2. The bill pressure roller is binding 3. The transport inlet or track surfaces contain projections, rough spots, or dirt 4. The transport belts are out of adjustment or dirty 5. The transport belts are not centered on the rollers 6. The transport upper input roller does not move up and down freely 7. A defective power supply (+24 VDC) from the CCC 8. Creasing rollers "tight" to timing belts.


+5V
R38
47 K
Q2
R4
10K
CR1
VR1
R14
1 K
Q4
R13
2.7 K
C8
.33
C1
100
P1
+8 VDC
KEY
+24 VDC
LOGIC GND
HI CURRENT GND
+24V
R9
3.3 K
1/2 W
CR7
R5
5.6 K
R2
1 K
Q1
R3
1 K
C7
4.7
C30
.1
CR13
Z10
R50
220 K
R51
2.7 K
C29
.1
Q5
C34
4.7
R47
10 K
CR12
C27
.1
C5
10pF
Y1
3.6 MHZ
C4
10pF
P4
CREDIT
GND
ENABLE
Q7
R33
10 K
R32
10 K
R30
10K
R31
10K
R26
100
Z1
RESET
P25
P20
P21
INT
P10
P13
P12
P11
P23
P22
DB5
DB4
DB3
DB2
DB1
DB0
DB7
P24
DB6
P26
P27
T1
P14
T0
P16
P15
P17
R42
10 K
R39
10 K
R40
10 K
R41
10 K
OFF
ON
S2
R19
330
CR10
Z5
Z4
R6
330
CR6
R11
10K
R12
10K
C13
.1
VREF
R43
10 K
S1
C6
.1



For Equivalent Engineering Drawing See 65063209-Q2 A

Figure 4-12A. OBA-2 Circuit Board Schematic

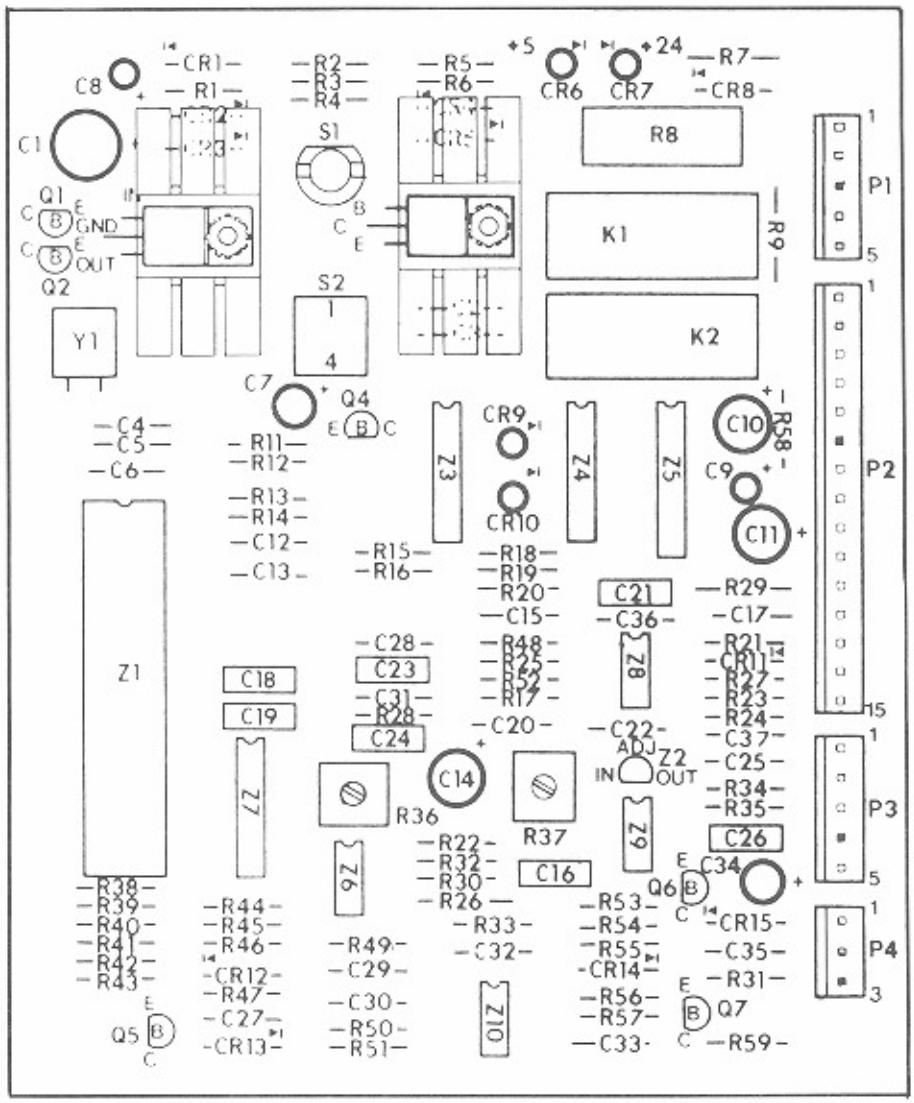


Figure 4-12B. OBA-2 Circuit Board Layout

COMPONENTS LIST FOR
OBA-2 CONTROLLER CIRCUIT BOARD 65063209

C1	Capacitor - Electrolytic	100 MF	70023814
C2	Capacitor - Monolithic	.1 MF	70028514
C3	Capacitor - Monolithic	.1 MF	70028514
C4	Capacitor - Monolithic	10 PF	70028701
C5	Capacitor - Monolithic	10 PF	70028701
C6	Capacitor - Monolithic	.1 MF	70028514
C7	Capacitor - Electrolytic	4.7 MF	70023806
C8	Capacitor - Tantalum	.33 MF	70025119
C9	Capacitor - Tantalum	.33 MF	70025119
C10	Capacitor - Electrolytic	100 MF	70023814
C11	Capacitor - Electrolytic	22 MF	70023810
C12	Capacitor - Monolithic	.1 MF	70028514
C13	Capacitor - Monolithic	.1 MF	70028514
C14	Capacitor - Electrolytic	22 MF	70023810
C15	Capacitor - Monolithic	.1 MF	70028514
C16	Capacitor - Mylar	.1 MF	70021549
C17	Capacitor - Monolithic	.1 MF	70028514
C18	Capacitor - Mylar	.01 MF	70021525
C19	Capacitor - Mylar	.068 MF	70021545
C20	Capacitor - Monolithic	.1 MF	70028514
C21	Capacitor - Mylar	.068 MF	70021545
C22	Capacitor - Monolithic	.1 MF	70028649
C23	Capacitor - Mylar	.068 MF	70021545
C24	Capacitor - Mylar	.0022 MF	70021509
C25	Capacitor - Monolithic	.1 MF	70028514
C26	Capacitor - Mylar	.01 MF	70021525
C27	Capacitor - Monolithic	.1 MF	70028514
C28	Capacitor - Monolithic	330 MF	70028719
C29	Capacitor - Monolithic	.1 MF	70028514
C30	Capacitor - Monolithic	.1 MF	70028514
C31	Capacitor - Monolithic	100 PF	70028713
C32	Capacitor - Monolithic	.1 MF	70028514
C33	Capacitor - Monolithic	.1 MF	70028514
C34	Capacitor - Electrolytic	4.7 MF	70023806
C35	Capacitor - Monolithic	.1 MF	70028514
C36	Capacitor - Monolithic	220 MF	70028606
C37	Capacitor - Monolithic	220 MF	70028606

CR1	Diode - Silicon	70035005
CR2	Diode - Silicon	70035005
CR3	Diode - Silicon	70035005
CR4	Diode - Silicon	70035005
CR5	Diode - Silicon	70035005
CR6	Diode - LED	70035303
CR7	Diode - LED	70035303
CR8	Diode - Silicon	70035005
CR9	Diode - LED	70035305
CR10	Diode - LED	70035303
CR11	Diode - Silicon	70035012
CR12	Diode - Silicon	70035012
CR13	Diode - Silicon	70035012
CR14	Diode - Zener	70035514
CR15	Diode - Silicon	70035012

COMPONENTS LIST FOR
OBA-2 CONTROLLER CIRCUIT BOARD 65063209
(Continued)

K1	Relay - DPDT		25191201
K2	Relay - DPDT		25191201
P1	Polarizing Wafer	5 Circuit	70075005
P2	Polarizing Wafer	15 Circuit	70075015
P3	Polarizing Wafer	5 Circuit	70075005
P4	Polarizing Wafer	3 Circuit	70075003
Q1	Transistor - NPN Silicon		70030007
Q2	Transistor - NPN Silicon		70030007
Q3	Transistor - PNP Silicon		70030805
Q4	Transistor - PNP Silicon		70030104
Q5	Transistor - NPN Silicon		70030007
Q6	Transistor - PNP Silicon		70030007
Q7	NOT USED		

Note: All resistors are ¼ watt 5%, unless otherwise noted.

R1	Resistor - Carbon	2.2 K Ω		79901222
R2	Resistor - Carbon	1 K Ω		79901102
R3	Resistor - Carbon	1 K Ω		79901102
R4	Resistor - Carbon	10 K Ω		79901103
R5	Resistor - Carbon	5.6 K Ω		79901562
R6	Resistor - Carbon	330 Ω		79901331
R7	Resistor - Carbon	22 Ω	(½w, 10%)	70010724
R8	Resistor - Carbon	7.5 Ω	(5w, 10%)	70011008
R9	Resistor - Carbon	3.3 Ω	(½w, 5%)	79904332
R10	NOT USED			
R11	Resistor - Carbon	10 K Ω		79901103
R12	Resistor - Carbon	10 K Ω		79901103
R13	Resistor - Carbon	2.7 K Ω		79901272
R14	Resistor - Carbon	1 K Ω		79901102
R15	Resistor - Carbon	5.6 K Ω		79901562
R16	Resistor - Carbon	5.6 K Ω		79901562
R17	Resistor - Carbon	15 Ω		79901150
R18	Resistor - Carbon	330 Ω		79901331
R19	Resistor - Carbon	330 Ω		79901331
R20	Resistor - Carbon	5.6 K Ω		79901562
R21	Resistor - Carbon	3.9 K Ω		79901392
R22	Resistor - Carbon	10 Ω		79901100
R23	Resistor - Carbon	10 K Ω		79901103
R24	Resistor - Carbon	100 K Ω		79901104
R25	Resistor - Carbon	2.2 K Ω		79901222
R26	NOT USED			
R27	Resistor - Carbon	2.2 K Ω		79901222
R28	Resistor - Carbon	2.2 K Ω		79901222
R29	Resistor - Carbon	1.5 K Ω	(½w, 10%)	70010405
R30	Resistor - Carbon	10 K Ω		79901103

R31	Resistor - Carbon	10 K Ω	79901103
R32	NOT USED		
R33	NOT USED		
R34	Resistor - Carbon	220 K Ω	79901224
R35	Resistor - Carbon	330 K Ω	79901334
R36	Potentiometer	5 K Ω	21520706
R37	Potentiometer	50 K Ω	21520702
R38	Resistor - Carbon	47 K Ω	79901473
R39	Resistor - Carbon	10 K Ω	79901103
R40	Resistor - Carbon	10 K Ω	79901103
R41	Resistor - Carbon	10 K Ω	79901103
R42	Resistor - Carbon	10 K Ω	79901103
R43	Resistor - Carbon	10 K Ω	79901103
R44	Resistor - Carbon	8.2 K Ω	79901822
R45	Resistor - Carbon	180 K Ω	79901184
R46	Resistor - Carbon	100 K Ω	79901104
R47	Resistor - Carbon	10 K Ω	79901103
R48	Resistor - Carbon	330 K Ω	79901334
R49	Resistor - Carbon	12 K Ω	79901123
R50	Resistor - Carbon	220 K Ω	79901224
R51	Resistor - Carbon	2.7 K Ω	79901272
R52	Resistor - Carbon	820 K Ω	79901824
R53	Resistor - Carbon	2.2 K Ω	79901222
R54	Resistor - Carbon	100 K Ω	79901104
R55	Resistor - Carbon	2.2 K Ω	79901222
R56	Resistor - Carbon	10 K Ω	79901103
R57	Resistor - Carbon	100 Ω	79901101
R58	Resistor - Carbon	10 K Ω	79901103
R59	Resistor - Carbon	10 K Ω	79901103
S1	Switch - Push Button		70043502
S2	Switch - DIP		70043009
VR1	IC - +5 VDC Regulator		70036506
Y1	Crystal - 3.58 MHz		25167308
Z1	IC - Microcomputer - 8 Bit	8049	70039310
Z2	IC - Current Regulator	LM334Z	70037601
Z3	IC - Quad OP Amp	LM324	30800216
Z4	IC - TTL Hex Invertor	7404	70036304
Z5	IC - Darlington Array	ULN2003	70036901
Z6	IC - RS-485 Transceiver	SN75176	70037801
Z7	IC - F/V Converter	LM2917	30800218
Z8	IC - Dual OP Amp	LM358	30800214
Z9	IC - Dual OP Amp	LM358	30800214
Z10	IC - Timer	LM555	70033801

Section 5: Troubleshooting

INTRODUCTION

The CD-100B Phonograph incorporates several modules which plug in for rapid service. 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.
   - Check for bad solder joints, especially at connector pins.
2. A defective module *(see table 5-1)*. Troubleshooting procedures are directed at module replacement, not repair.

Table 5-1. Replaceable Modules

Part No.	Description
40832201	Central Control Computer (CCC)
61030703	Mechanism Control and CD decoder
30933702	CD Player
40770607	Power Supply
40832303	Digital Display
61038904	OBA-2 Control Unit

TROUBLESHOOTING AIDS

The troubleshooting topics presented in this section are:

- A summary of the functions for each of the phonograph's replaceable modules
- A sequence of operation explanation and a Block Diagram *(figure 5-1)* to help you isolate the problem to a harness or a module.
- The RED LED STATUS lamps *(figure 5-2)*.
- Instructions on how to use the ERROR and WARNING messages
- Modular Troubleshooting Charts that list the *Trouble*, *Symptom*, and *Probable Cause*
- A Sound System Quick Check

NOTE:

OBA RED STATUS lamps and error messages are presented in this section. The other OBA service procedures are described in *Section 4* of this manual.

REPLACING THE CCC EPROM

If you have changed the CCC EPROM, use the following procedure to reset the CCC:

1. Turn phonograph power off at the SERVICE switch.
2. Press and hold the keyboard 0 and 1 switches down and place the SERVICE switch power to ON; hold the 0 and 1 buttons down until the display shows LOADING DEFAULTS. Do not be concerned when the 14-04 WARNING appears, because it is just a status message indicating that the defaults were loaded. For a fresh start, clear out this warning (CODE 81).

FREE PLAY

1. Enter the SERVICE mode by setting the SERVICE switch to the SERVICE position.
2. Enter 55. This will place you in the PRICING menu, OPTION 5. Press and hold RESET and press 9. The display will change from FPLAY STATUS OFF to FPLAY STATUS ON. Press POPULAR to complete the change.

CD MODULE FUNCTIONS

Digital Display Module

- A "dumb" controller (i.e. cannot make any decisions)
- Displays information sent by CCC
- Contains the TITLE DISPLAY motor driver IC. The IC is controlled by the CCC.

CCC

- The master controller
- Has battery backed up RAM
- Controls all credit functions
- Stores all selections
- Controls all programming functions
- Makes all system decisions
- Mutes and unmutes the audio amplifier

Mechanism Control

- A slave controller
- Plays selections sent by the CCC
- Controls all mechanism functions
- Controls the CD player

OBA-2 Control Unit

- A slave controller
- Tells CCC when a valid bill is accepted.

Rowelink and the Power Bus (voltages, Commons & System Reset) are the only connections between CCC, mechanism control and OBA-2 control unit. Rowelink is a 2-wire communication channel that ties the system components together. The ROWELINK COMMAND (CCC), SYSTEM TRANSMIT/ROWELINK RESPONSE (mechanism control), and RS-485 STATUS (OBA control unit) LED's should always be flickering.

SEQUENCE OF OPERATION

This sequence of operation describes the phonograph cycle and jobs performed by each module shown in the Block Diagram *(figure 5-1)*.

In the Block Diagram, the TITLE DISPLAY switches are shown in the PAGE 1 position. The mechanism OUTER CAM and INNER CAM switches are shown in the MAGAZINE ROTATE position.

Step 1. Power is turned on, voltages and commons are applied to modules and components.

At Line Voltage	Voltages Labeled	Should Measure
115 VAC	28 VAC	26 to 30 VAC
115 VAC	+28 VDC	+23 to +30 VDC
95 to 135 VAC	+8 VDC	+8.2 to +9.4 VDC
115 VAC	9.5 VAC	8.75 to 10 VAC

Step 2. The modules sense power turn on, no selections or credit in memory, and the SERVICE switch is in the NORMAL position.

CCC

- +5 VDC LED lights
- BOARD ERROR LED flashes 3 times to indicate that ROM, RAM and real time calendar clock have tested OK.
- ROWELINK COMMAND LED flickers, indicating that serial communication commands are being sent from the master (CCC) to the slaves (mechanism control and OBA-2).

Mechanism Control

- +5 VDC LED lights
- BOARD ERROR LED flashes 3 times to indicate that ROM, RAM and other checks have tested OK.
- SYSTEM TRANSMIT (Rowelink response) LED flickers indicating that communication is occurring between the mechanism control (a slave) and CCC (the master). Each time it flickers, communication has successfully occurred.

OBA-2 Control Unit

- +5 VDC LED lights
- +24 VDC LED lights
- BA STATUS LED flashes 1 time
- RS-485 STATUS LED flashes 1 time
- RS-485 STATUS LED flickers indicating communication occurring between OBA-2 control unit (a slave) and CCC (the master). Each time it flickers, communication successfully occurred.

Digital Display

- +5 VDC LED lights
- CCC serially sends information (via TX data, clock) and display shows:
- Checksum = XXXX
- RAM test passed
- 0 (selections remaining)
- After 10 seconds, the moving messages ROWE, CD PHONOGRAPH and PLAY THE MUSIC appear.

Step 3. Customer deposits money. Play credit is established.

- Money is deposited
- OBA-2 control unit tells CCC if a bill was validated and stacked.
- • CCC senses coins from the closed coin switches.

- • CCC uses pricing information (COIN SWITCH VALUES, PRICE LEVELS, PLAYS @ LEVEL and MULTIPLIER) stored in it, to convert money deposited into play credits.
- CCC sends (via TX data, clock) credits to digital display and they appear above the SELECTIONS REMAINING legend.
- • CCC tells the mechanism control the money's value and the mechanism control increments the money counter.

Step 4. Customer makes a selection.

- CCC determines that a switch is closed or open by sending out strobes and sensing returns.
- Customer finds the selection that he wants to make by using the keyboard IN (> <) and OUT (< >) switches.
- CCC sends out Strobes 1, 9 and 10 to the DIGITAL DISPLAY.
- • The motor driver in the DIGITAL DISPLAY uses Strobe 9 to control speed and Strobe 10 to control direction.
- • CCC determines when to stop the motor (i.e. a page has flipped) by sensing the state of the INDEX switch on return RET 1.
- • CCC determines when to change directions by sensing the state of the LIMIT switch on return RET 0, or using PAGE IN, OUT data in the ATTRACT menu.
- • Customer enters 4 digits (a 2-digit disc number and a 2-digit track number).
- • CCC senses the pushed keys by sending out Strobes 2, 3, 4, 5 and sensing returns RET 0, 1, 2 and 3.
- • Digital display shows digits as they are entered above the SELECTION BEING MADE.
- • Selection stored in the CCC's memory.
- • Credit is cancelled.
- • Selection is displayed for approximately 4 seconds after it is made.

Step 5. Selection is located and played.

- CCC sends the selection to the mechanism control.
- Mechanism Control searches for the disc.
- • Detent coil is energized and the magazine unlocks.
- • Magazine motor rotates the magazine.
- • Mechanism control SCAN/TRANSFER LED lights.
- • Digital display shows the selection playing as — — — — .
- • Mechanism control locates the disc by counting gear teeth interruptions of the INDEX optical switch light beam.

- Disc located and transferred to the play position.
- • Magazine motor stops and the magazine locks (detented).
- • Transfer motor runs and the disc is placed in the play position.
- • Outer cam Common connected to the N.O. contact.

- Mechanism control SCAN/TRANSFER LED goes OFF.
- Mechanism control tells the CDM-3 what track (i.e. selection) to play.
- CDM-3 tells the mechanism control that the track has been located.
- Selection plays
- • Mechanism control tells the CCC that the selection is playing.
- • CCC unmutes the audio amplifier.
- • Selection is erased from CCC's memory.
- • Digital display shows that the selection is playing.
- • Mechanism control monitors the disc condition and tells the CCC if disc problems occur.

Step 6. Selection ends, the disc returns to magazine, the CCC searches selection memory.

- Mechanism control tells the CCC that the selection is over.
- CCC mutes the audio amplifier
- Transfer motor runs and the disc is returned to the magazine
- Inner cam Common connects to the N.O. contact when the disc is in the magazine.
- CCC searches its selection memory. If it contains one or more selections, steps 5 and 6 are repeated.

Step 7. Phono returns to STANDBY and AUTOPLAY timing begins.

- All selections have played.
- Digital display shows moving messages: ROWE, CD PHONOGRAPH, and PLAY THE MUSIC.

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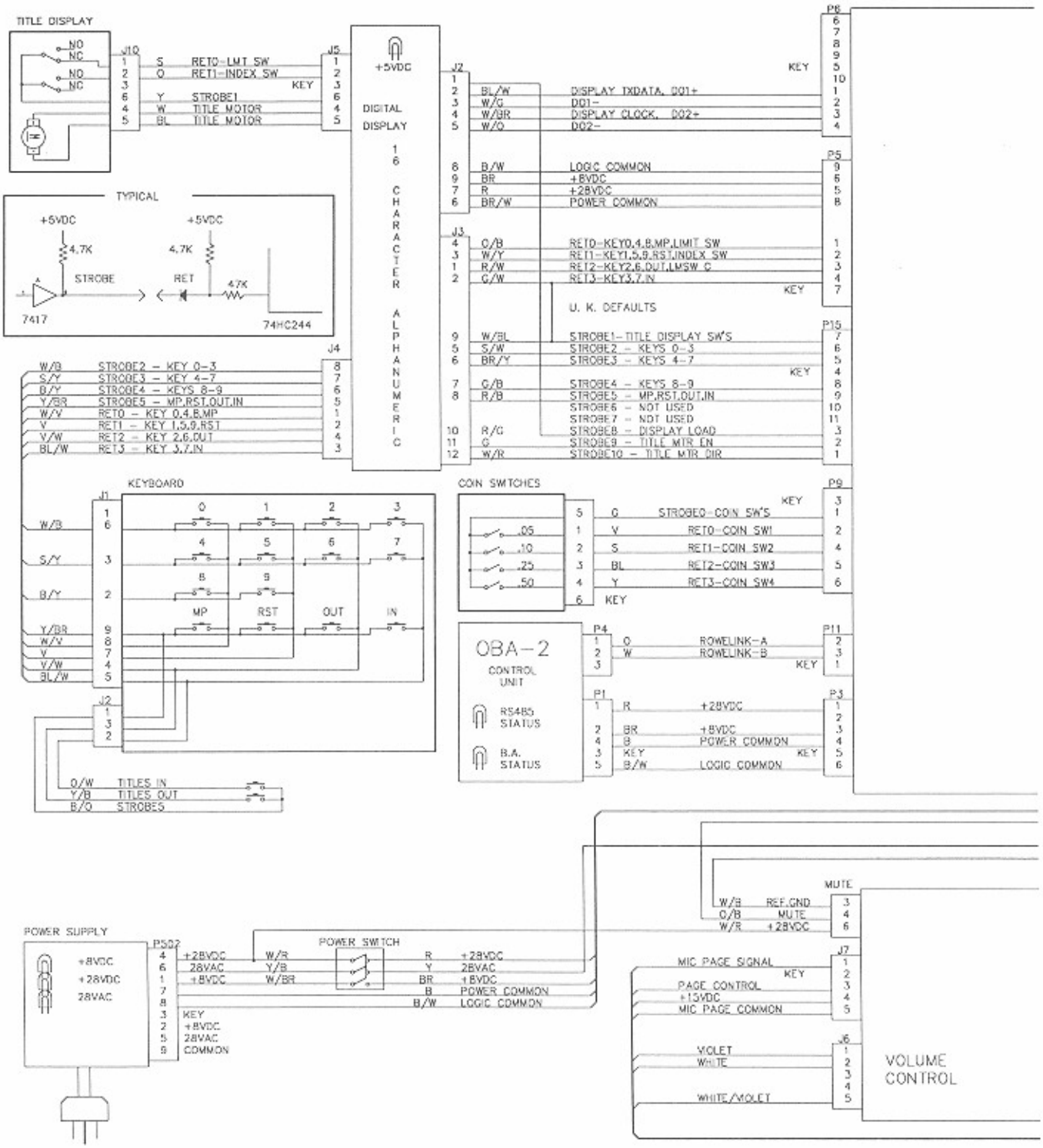

TITLE DISPLAY
NO
NC
NO
NC
J10
S RET0-LMT SW
O RET1-INDEX SW
KEY
Y STROBE1
W TITLE MOTOR
BL TITLE MOTOR
J5
TYPICAL
+5VDC
4.7K
STROBE
RET
7417
74HC244
+5VDC
DIGITAL DISPLAY
16 CHARACTER ALPHANUMERIC
J2
BL/W DISPLAY TXDATA, DO1+
W/G DO1-
W/BR DISPLAY CLOCK, DO2+
W/O DO2-
B/W LOGIC COMMON
BR +8VDC
R +28VDC
BR/W POWER COMMON
J3
O/B RET0-KEY0,4,8,MP,LIMIT SW
W/Y RET1-KEY1,5,9,RST,INDEX SW
R/W RET2-KEY2,6,OUT,LMSW C
G/W RET3-KEY3,7,IN
U. K. DEFAULTS
W/BL STROBE1-TITLE DISPLAY SW'S
S/W STROBE2 - KEYS 0-3
BR/Y STROBE3 - KEYS 4-7
O/B STROBE4 - KEYS 8-9
R/B STROBE5 - MP,RST,OUT,IN
STROBE6 - NOT USED
STROBE7 - NOT USED
R/G STROBE8 - DISPLAY LOAD
G STROBE9 - TITLE MTR EN
W/R STROBE10 - TITLE MTR DIR
P8
P5
P15
J4
W/B STROBE2 - KEY 0-3
S/Y STROBE3 - KEY 4-7
B/Y STROBE4 - KEYS 8-9
Y/BR STROBE5 - MP,RST,OUT,IN
W/V RET0 - KEY 0,4,8,MP
V RET1 - KEY 1,5,9,RST
Y/W RET2 - KEY 2,6,OUT
BL/W RET3 - KEY 3,7,IN
KEYBOARD
J1
W/B
S/Y
B/Y
Y/BR
W/V
V
Y/W
BL/W
0 1 2 3
4 5 6 7
8 9
MP RST OUT IN
J2
O/W TITLES IN
Y/B TITLES OUT
B/O STROBES
COIN SWITCHES
.05
.10
.25
.50
O STROBE0-COIN SW'S
V RET0-COIN SW1
S RET1-COIN SW2
BL RET2-COIN SW3
Y RET3-COIN SW4
KEY
P9
OBA-2
CONTROL UNIT
RS485 STATUS
B.A. STATUS
P4
O ROWELINK-A
W ROWELINK-B
KEY
P11
P1
R +28VDC
BR +8VDC
B POWER COMMON
KEY
B/W LOGIC COMMON
P3
MUTE
W/B REF.GND
O/B MUTE
W/R +28VDC
POWER SUPPLY
+8VDC
+28VDC
28VAC
P502
+28VDC W/R
28VAC Y/B
+8VDC W/BR
KEY
+8VDC
28VAC
COMMON
POWER SWITCH
R +28VDC
Y 28VAC
BR +8VDC
B POWER COMMON
B/W LOGIC COMMON
MIC PAGE SIGNAL
KEY
PAGE CONTROL
+15VDC
MIC PAGE COMMON
J7
VIOLET
WHITE
WHITE/VIOLET
J6
VOLUME CONTROL

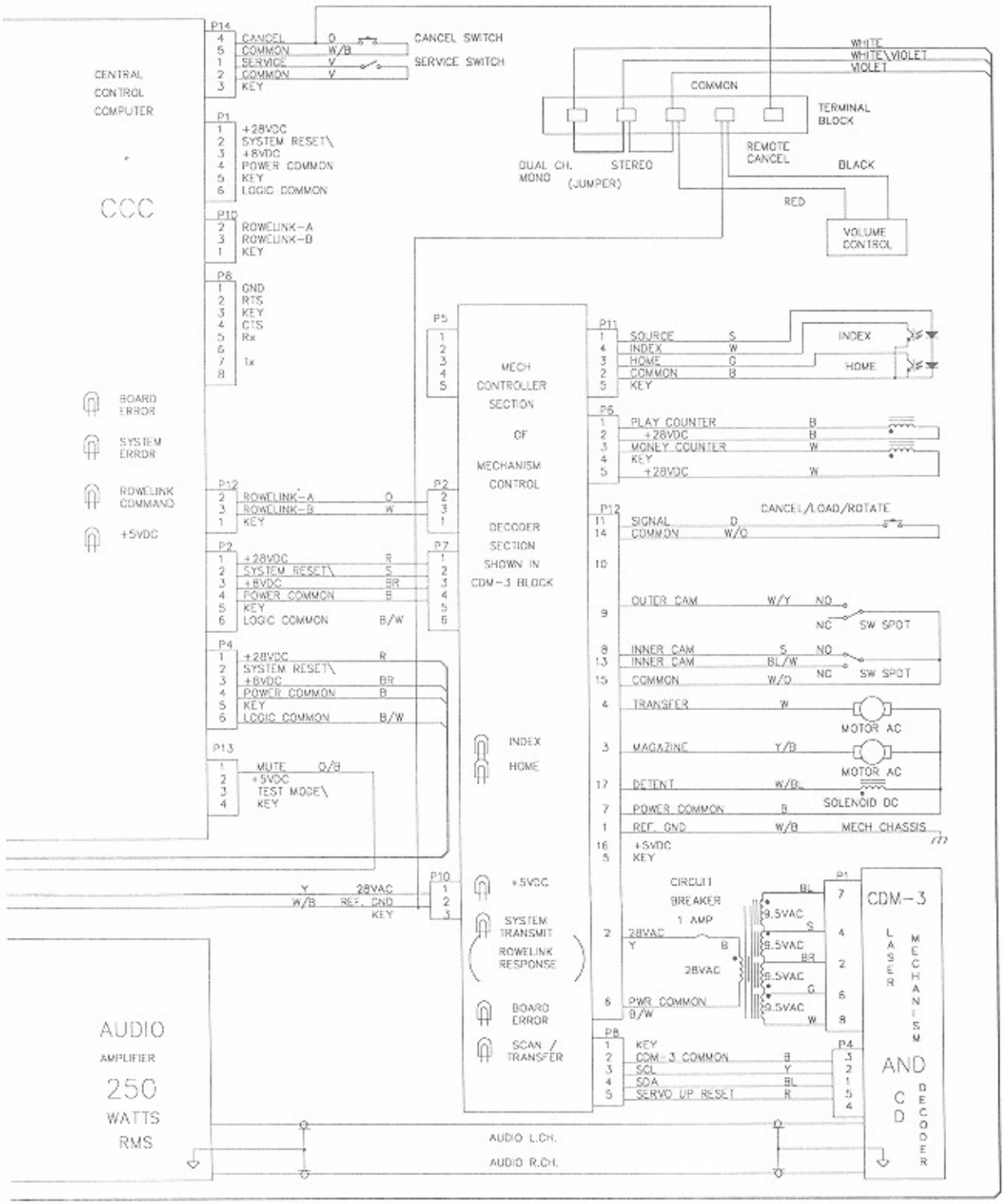


Figure 5-1. CD-100B Block Diagram

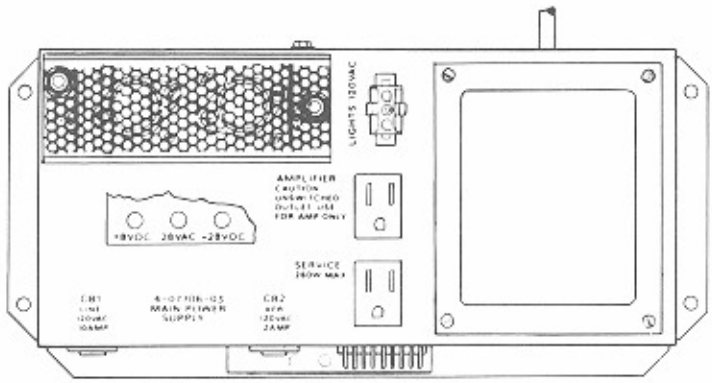
STATUS LAMPS

The red LED indicators are connected to various strategic points in the phonograph's circuits to indicate the status of power and signal circuits.

Main Power Supply LED's

+8 Volts DC
+28 Volts DC
28 Volts AC

These indicators light when their corresponding voltages are present and no wiring shorts are present.



Main Power Supply

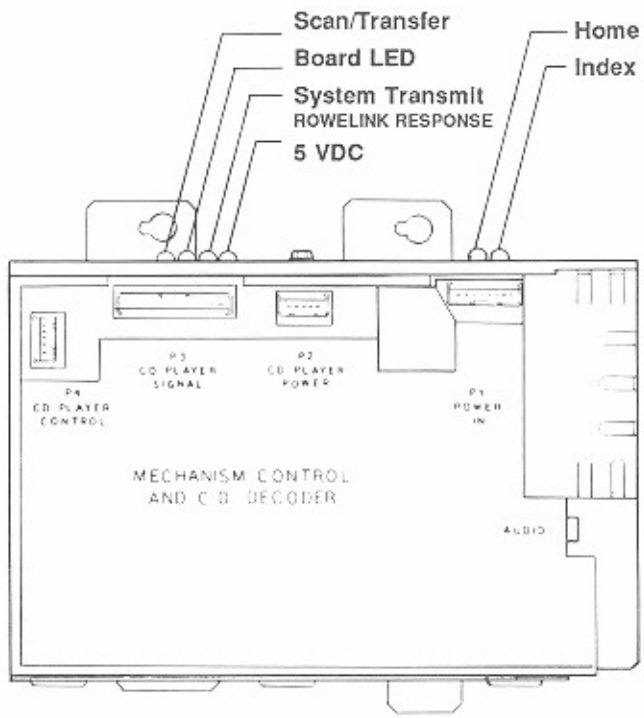
Mechanism Control And CD Decoder

OPT. SW. INDEX — Lights when the index section of the optical switch sees a 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. Flickers when the magazine CD Position 99 passes the transfer position.

5 VDC — Lights as long as 5 VDC is present from the main power supply.

SYSTEM TRANSMIT (ROWELINK RESPONSE) — Flashes when the CD mechanism is transmitting to the CCC.



Mechanism Control And CD Decoder

BOARD ERROR — Blinks on and off three times on power up. Any other time, this LED indicates that a fatal mechanism error (phonograph out of service) has occurred.

SCAN/TRANSFER — Lights when either the scan or the transfer motor is activated.

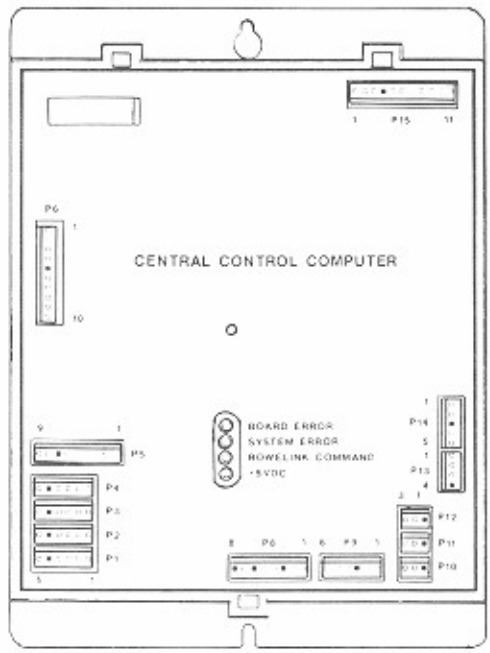
Central Control Computer

BOARD ERROR — Blinks 3 times on power up. If it stays on, an error has been detected.

SYSTEM ERROR — Lit only when the phonograph is out of order. The type of error that caused the shutdown can be examined from the SERVICE mode.

ROWELINK COMMAND — Flashes when the CCC is transmitting messages to slave devices (i.e. mechanism, OBA control).

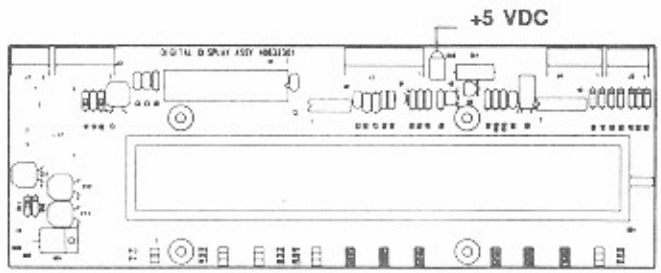
+5 VDC — +5 VDC is present.



Central Control Computer

Digital Display

+5 VDC — +5 VDC is present.



Digital Display

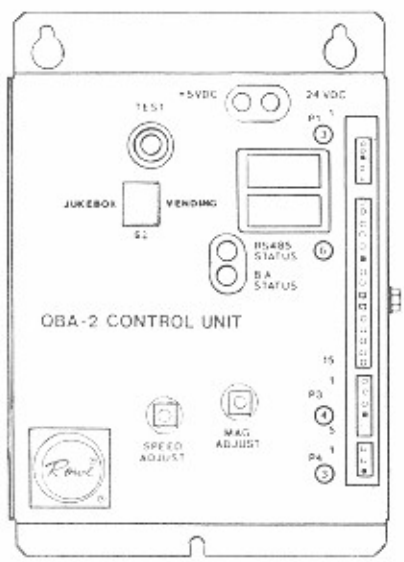
OBA-2 Control Unit

RS-485 STATUS — Flashes when the OBA– 2 is transmitting to the CCC.

BA STATUS — Indicates faults and aids in adjusting the magnetic gain and motor speed.

+5 VDC — +5 VDC is present.

+24 VDC — +24 VDC is present.



OBA-2 Control Unit

Figure 5-2. Status Indicators

ERRORS AND WARNINGS

Basic Concepts

When you switch to SERVICE mode, you will see one of two displays:

- If the phonograph has not encountered any errors or warnings, * SERVICE MODE * will be displayed.
- If the phonograph has encountered errors or warnings, --ERRORS EXIST-- will be displayed. This message will only appear as you enter SERVICE mode, and it will not change menu or command operation.

ERRORS (ERR)

- Cause phonograph shutdown and show the OUT OF ORDER message.
- Usually require a service call, component replacement, adjustment, or harness repair.
- Are always shown as active (A), even if they cleared up.

If you turn power OFF and ON, the phonograph will operate if error cleared up. If the error is still present, the phonograph will shutdown. Errors that clear up usually do not require service unless the location says that the phonograph is malfunctioning.

WARNINGS (WARN)

- Do not cause phonograph shutdown.
- Phonograph may or may not operate.
- Service personnel are made aware by the --ERRORS EXIST-- message appearing upon entering the service mode.
- Shown as active (A) until the problem clears up.
- Not active (N) warnings usually do not require service unless the location says that the phonograph is malfunctioning.

VIEWING THE ERRORS (ERR OR WARN)

NOTE:

1. **If the CCC thinks that a key other than** RESET **is closed, it will not accept other keys. This problem will not allow you to view the errors. The probable cause is a short in the keyboard, a short in** RET 0, 1, 2 or 3 **wiring, defective CCC, or a short in** < > page > < **switch or wiring.**
2. **This procedure can be started over by holding** RESET **and repeatedly pushing** POPULAR **until the display shows** * SERVICE MODE *. **Then start at step 2.**

Steps	Display Shows
1. Enter SERVICE mode	--Errors Exist--
2. Type 8	* STATUS *
3. Type 0 *(see note 1)*	Error History
4. Push POPULAR	X WARN XX-XX XX A = Active N = Not Active Source of error Type of error Number of occurrences **OR** X ERR XX-XX XX A = Active Source of error Type of error Number of occurrences
5. Hold RESET, push 9	START XX:XX XX/XX Time of first occurrence Month/day of first occurrence
6. Hold RESET, push 9 (not active)	END XX:XX XX/XX Time it last cleared up (not active) Month/day it last cleared up 00:00 00/00 if first occurrence and still active, or ERR message
7. Hold RESET, push 3	Next ERR or WARN if a different error exists. Otherwise stays the same.

8. Repeat steps 5, 6, and 7 as often as necessary (*See the Notes that follow*).

NOTE:

3. You can review the WARN or ERR, START or END by holding RESET and pushing 9 as often as desired.
4. Steps 4 and 5 can be skipped.
5. Hold RESET, push 2 to search backwards through errors.

EXAMPLE 1:

N WARN 06-02 15
START 14:30 06/01
END 15:00 06/01

Message means

- OBA-2 control unit thinks bill transport V1 cell was blocked 15 times.
- First occurrence was 2:30 p.m. on June 1.
- Last occurrence cleared up 3:00 p.m. on June 1.

Probable cause

- Someone tried to obtain free credit by inserting a foreign object.

EXAMPLE 2:

A ERR 05-63 03
START 09:10 07/13
END 00:00 00/00

Message means

- Mechanism control failed to communicate with the CCC through the Rowelink.
- First occurrence was 9:10 a.m. on July 13.

NOTE:

6. A (Active symbol) always proceeds ERR, even if the problem is not active now.
7. An ERR message always shows 00:00 and 00/00 for the END time and date.

ERROR SUMMARY

The following list summarizes all possible errors that can be displayed. For details of error causes and corrective action, *see Description Of Errors And Probable Causes* that follows this summary.

Coin Switches (01)

01-17	#1 coin switch
01-18	#2 coin switch
01-19	#3 coin switch
01-20	#4 coin switch
01-31	Multiple coin switches

Keyboard Switches (02)

02-16	Key 0
02-17	Key 1
02-18	Key 2
02-19	Key 3
02-20	Key 4
02-21	Key 5
02-22	Key 6
02-23	Key 7
02-24	Key 8
02-25	Key 9
02-26	Most Popular key
02-27	Reset key
02-28	<> key
02-29	>< key
02-31	Multiple keys
02-32	Cancel button

Mechanism Controller (05)

05-02	Cancel button
05-05	Mech. cannot determine magazine position
05-08	EPROM checksum error
05-09	RAM test failed.

Fatal Errors

These error codes (05-50 through 05-64) will cause a system reset and after five errors, the phonograph will go out of order.

05-50	Inner cam switch
05-51	Inner cam switch
05-52	Outer cam switch
05-53	Outer cam switch
05-56	Index LED
05-57	Index LED
05-58	Home LED
05-59	Home LED
05-62	CDM-to-CCC communication lost
05-63	Mech-to-CCC communication lost
05-64	Gripper bow position undetermined

OBA Controller (06)

06-01	Communication to the OBA has been lost
06-02	V1 cell or inlet cell
06-03	Jammed bill
06-04	Bill stacker is full

Wallbox Controller (07-10)

07-01	Communication to wallbox #1 has been lost
08-01	Communication to wallbox #2 has been lost
09-01	Communication to wallbox #3 has been lost
10-01	Communication to wallbox #4 has been lost

Central Control Computer (14)

14-01	EPROM checksum error
14-02	RAM failed
14-03	Real time clock error
14-04	Factory defaults have been loaded
14-05	RAM checksum error
14-06	Low battery

Description Of Errors And Probable Causes

ERROR SOURCE 01 (COIN SWITCH ERRORS)

WARN01-17	#1 coin switch
01-18	#2 coin switch
01-19	#3 coin switch
01-20	#4 coin switch
01-31	Multiple coin switches

Message Means:

CCC thinks one or more coin switches are closed for more than 5 seconds.

Probable cause:

1. A manual operation of coin switches
2. A jammed coin or switch
3. A short in wiring
4. A defective CCC

ERROR SOURCE 02 (KEYBOARD ERRORS)

WARN02-16	Key 0
02-17	Key 1
02-18	Key 2
02-19	Key 3
02-20	Key 4
02-21	Key 5
02-22	Key 6
02-23	Key 7
02-24	Key 8
02-25	Key 9
02-26	MOST POPULAR key
02-27	RESET key
02-28	< > key
02-29	> < key
02-30	-------
02-31	Multiple keys
02-32	External CANCEL button

Message Means:

CCC thinks one or more switches were closed for more than 10 minutes.

Probable cause:

1. Someone held it closed. Nothing needs repairing or replacing.
2. A short in associated wiring *(see the Block Diagram in this section).*
3. A defective CCC.

ERROR SOURCE 03--NOT DESIGNATED

ERROR SOURCE 05 (MECHANISM ERRORS)

WARN05-02

Message Means:

Mechanism control thinks that the CANCEL/LOAD/ROTATE switch is always closed.

Probable cause:

1. A short in wiring
2. A defective switch
3. A defective mechanism control

WARN05-05

Message Means:

Both the Index and Home signals are changing, but the mechanism is unable to determine the magazine position.

Probable cause:

1. A defective optical switch
2. A loose connection wire/terminal at P11 on the mechanism controller.
3. A defective mechanism control

ERR 05-08 EPROM checksum error

Message Means:

Checksum error

Probable cause:

1. A failed EPROM
2. The mech has failed

ERR 05-09 RAM test failed

Message Means:

RAM test failure

Probable cause:

Mech failure

ERR	05-50	Inner Cam switch always closed
	05-51	Inner Cam switch always open
	05-52	Outer Cam switch always closed
	05-53	Outer Cam switch always open

Message Means:

Mechanism control thinks a switch is not working.

Probable cause:

1. A switch
2. A wiring short or open
3. The mechanism control

ERR	05-56	Index LED always OFF
	05-57	Index LED always ON
	05-58	Home LED always OFF
	05-59	Home LED always ON

Message Means:

Mechanism control thinks that the optical switch is defective.

Probable cause:

1. The optical switch
2. A wiring short or open
3. The mechanism control

ERR 05-62 CDM communication failure

Message Means:

The servo processor, on the decoder board, has stopped all communications (via the I^2C Bus) with the mech. for 20 seconds.

Probable cause:

1. The decoder board is not getting power
2. A failure in the mech controller
3. A failure in the decoder board

ERR 05-63 Mech communication failure

Message Means:

The CCC has sent messages (via the Rowelink) to the mech., but the CCC has not received any response for one minute.

Probable cause:

1. Rowelink harness failure in the CCC harness
2. The mech control has failed

ERR 05-64

Message Means:

Both the inner and outer cam switches are operating, but the gripper bow position is uncertain.

Probable cause:

1. A defective cam switch
2. A loose connection in wire/terminal at cam switch
3. A defective mechanism control

ERROR SOURCE 06 (OBA ERRORS)

WARN06-01

Message Means:

OBA communication failure

Probable Cause:

1. A loose connection in wire/terminal a the Rowelink communication line.
2. A defective OBA—2 control unit.

WARN06-02

Message Means:

OBA-2 control unit thinks that the transport V1 cell is blocked.

Probable cause:

1. An object in transport covering V1 cell
2. A defective transport
3. A defective OBA-2 control unit

WARN06-03

Message Means:

OBA-2 control unit thinks that a bill is jammed in the transport.

Probable cause:

1. An object is or was in transport activating anti-pullback lever.
2. A defective transport
3. A defective OBA-2 control unit

WARN06-04

Message Means:

OBA-2 control unit thinks that the bill stacker is full.

Probable cause:

1. The bill stacker is full
2. The bill stacker is jammed in the OFF HOME position
3. The bill stacker HOME switch is out of adjustment
4. A defective bill stacker
5. A defective OBA-2 control unit

Wallbox Errors

ERROR SOURCE 07 (WALLBOX ADDRESS 70)

07-01 Wallbox lost communication for more than 1 minute

ERROR SOURCE 08 (WALLBOX ADDRESS 71)

08-01 Wallbox lost communication for more than 1 minute

ERROR SOURCE 09 (WALLBOX ADDRESS 72)

09-01 Wallbox lost communication for more than 1 minute

ERROR SOURCE 10 (WALLBOX ADDRESS 73)

10-01 Wallbox lost communication for more than 1 minute

Message Means:

Rowelink communications was established with this wallbox then it was lost for more than 1 minute.

Probable Cause:

1. The Rowelink wiring to the wallbox or wallbox interface
2. A wallbox power supply
3. A wallbox or wallbox interface

IR Remote Errors

IR REMOTE (11)

11-01 IR Remote communication failure

Probable Cause:

1. Defective Rowelink harness between the P1O of the CCC and P6 of the IR Remote.
2. Defective power harness between P1 of the CCC and P4 of the IR Remote.
3. Defective IR Remote assembly.

SOURCE 14 (INTERNAL CCC ERRORS)

14-01	CCC EPROM checksum error
14-02	CCC RAM error
14-03	CCC real-time clock error
14-04	CCC factory defaults requested and loaded
14-05	CCC programmed RAM checksum error
14-06	CCC battery voltage is low

Message Means:

All except 04 indicate a CCC internal fault. The 04 indicates factory defaults were loaded into programmed RAM because:

1. An 14-05 error occurred
2. Someone used the factory load procedure

Probable cause:

1. A defective CCC for all except 04
2. A defective CCC if 04 occurs frequently
3. Someone loaded factory defaults, causing 04 error.

CLEARING ERRORS FROM MEMORY

Errors stored in the phonograph's memory can be cleared by:

STEPS	DISPLAY SHOWS
1. Enter SERVICE mode	-- ERRORS EXIST --
2. Press 8.	* STATUS *
3. Press 1.	* CLEAR ERRORS *
4. Press POPULAR.	CLEAR ERRORS
	(Will blink and then reappear)

NOTE:

If already in SERVICE mode, or you want to start over, hold RESET and repeatedly press POPULAR until display shows * SERVICE MODE *. Then start at step 2.

DISC CONDITIONS

Basic Concepts

Compact Discs are very rugged, but sometimes they develop problems similar to vinyl records. Skips and dropouts are not uncommon CD faults and may be caused by: a dirty disc, dirty CD player lens, or CD manufacturing defects. On rare occasions, the CD player may be unable to play any tracks on a disc. This failure to play any tracks may have the same cause as skips and dropouts.

Programmable Disc Condition Logging

The CD-100B has a built-in disc condition logging feature that records disc play problems found on a disc or track. Three programmable options determine when these conditions are placed into the Disc Condition Log:

SKIP LOG (SERVICE CODE 35)

The number of skips, over one second, to occur before recording the error in the condition log. The recommended setting is 3.

SKIP CANCEL (SERVICE CODE 36)

The number of skips, over one second, to occur before recording the error in the condition log and canceling the selection. The recommended setting is 5.

TIME CANCEL (SERVICE CODE 37)

The absolute time difference, in seconds, between the current playing position, coming off the CD, and the calculated position. The recommended setting is 10.

Factory Settings

The factory settings for the SKIP LOG, SKIP CANCEL, and TIME CANCEL are 99. The reason for the difference between defaults and recommended settings is that we want the CD-100B, when shipped, to play discs of practically any condition without early canceling.

Non-Programmable Disc Condition Logging

Two non-programmable disc condition events are also recorded in the condition log. These events are:

LOGGED TRACK NUMBER EQUALS 00

This entry in the log means that the CD player was unable to read the CD Table Of Contents (TOC).

NOTE:

The TOC is read every time the disc is placed on the turntable. The TOC contains the location of each track on the disc, so without it the player is unable to play any track.

LOGGED CANCL AND SKIP EQUALS 99

This entry means that the CD player was able to read the TOC, but was unable to locate the track.

The CD-100B has an automatic method to lock out selections that have logged too many errors. You can set this number of condition occurrences to any number from 1 to 99. Once the LOCKOUT COUNT, Code 693, has exceeded the number of occurrences on a selection, that selection is automatically placed into LOCKOUTS list, Code 60. To remove a condition generated lockout, *refer to the Section 2* on editing the Lockout List.

Viewing Disc Conditions

Steps	Display Shows
1. Enter SERVICE mode.	* SERVICE MODE *
2. Type 8.	* STATUS *
3. Type 6.	DISC CONDITIONS
4. Press POPULAR	- NO CONDITIONS -

-OR-

SEL ditr OCC oo

The small letters mean:

di - Disc number
tr - Track number
oo - Number of occurrences

5. Hold RESET, press 9 — CANCL tt SKIP ss

tt - Absolute time difference, in seconds, when the condition was logged.

ss - Number of skips, greater than one second in duration, when the condition was logged.

6. Hold RESET, press 9 — TIME hh:mi mo/dd

hh - Hour when last condition occurred.
mi - Minute when last condition occurred.
mo - Month when last condition occurred.
dd - Day when last condition occurred.

7. Hold RESET, Press 3 to view next disc condition.

8. Hold RESET, Press 2 to view previous disc condition.

9. Repeat steps 5, 6, 7, and 8 as often as necessary.

Example 1:

SEL 1500 OCC 05
CANCL 00 SKIP 00
TIME 12:15 7/19

Condition Means

The CD player could not read the TOC (track number equals 00) of disc 15 on 5 selected occasions. The most resent condition was logged on July 19th at 12:15 (24 hour time).

Probable Cause

1. Disc installed backward.
2. Absent disc. This disc location may not have been initialized, allowing it to be accidentally selected.
3. Dirty disc. For this type of a condition the dirt would be located around the inner most diameter of the disc. This is where the TOC information is located. See disc cleaning section.
4. Dirty CD player LASER lens. Expect to see various conditions logged on many of the discs selected *(see CD Player Lens in Section 3 for details)*.

Remedy

1. Check to see if the disc was inserted backward. If inserted backward, re-install it correctly and initialize that disc.
2. Check to see if the disc is present. If not present, initialize that disc location.
3. Remove the disc from the magazine, then inspect the inner diameter, TOC area, for dirt or damage. If you find dirt or damage clean it up. See disc cleaning section. Clear out the conditions and select a track on this disc to see if the CD player is able to read the TOC. If the CD player is still unable to read the TOC, try further cleaning or replace the disc.
4. Clean the CD player LASER lens *(see CD Player Lens in Section 3 for details)*.

Example 2:

SEL 1505 OCC 01
CANCL 99 SKIP 99
TIME 12:30 7/12

Condition Means

The CD player read the TOC successfully, but was unable to start playing the track (no music would have been heard) on 1 occasions. The most resent condition was logged on July 12th at 12:30 (24 hour time).

Probable Cause

1. The disc is dirty. For this type of a condition the dirt would be located some where between the inner most diameter of the disc and the track selected. See disc cleaning section.

2. Dirty CD player LASER lens. Expect to see various conditions logged on many of the discs selected *(see CD Player Lens in Section 3 for details).*

Remedy

1. Remove the disc from the magazine, then inspect it for dirt or damage. If you find dirt or damage clean it up. See disc cleaning section. Clear out the conditions and select 1505 again to see if the CD player is able to play it. If the CD player is still unable to play it, try further cleaning, lock out tracks 5 and greater on disc 15, or replace the disc.

2. Clean the CD player LASER lens *(see CD Player Lens in Section 3 for details).*

Example 3:

SEL 2302 OCC 01
CANCL 10 SKIP 3
TIME 23:30 5/20

Condition Means

1. The CD player was playing selection 2302, but while it was playing 3 skips occurred, skips over 1 second, with an overall time loss of 10 seconds on 1 occasions. The most resent condition was logged on May 20th at 23:30 (24 hour time).

Probable Cause

1. Dirty disc. For this type of a condition the dirt would be located some where within track 2.

2. Dirty CD player LASER lens. Expect to see various conditions logged on many of the discs selected *(see CD Player Lens in Section 3 for details).*

3. An outside jarring of the jukebox.

Remedy

1. Remove the disc from the magazine, then inspect it for dirt or damage. If you find dirt or damage clean it up. See disc cleaning section. Clear out the conditions and select 2302 again to see if the CD player is able to play it. If the CD player is still unable to play it, try further cleaning, lock out track 2 on disc 23, or replace the disc.

2. Clean the CD player LASER lens *(see CD Player Lens in Section 3 for details).*

Clearing Disc Conditions From Memory

Disc condition messages stay in memory until you perform the following steps:

NOTE:

If already in SERVICE mode, or you want to start over, hold RESET and repeatedly press POPULAR until display shows * SERVICE MODE *. Then start at step 2.

STEPS	DISPLAY SHOWS
1. Enter SERVICE mode	* SERVICE MODE * or -- ERRORS EXIST --
2. Press 8.	* STATUS *
3. Push 7.	* CLEAR CONDITIONS *
4. Press POPULAR.	CLEAR CONDITIONS (will blink and then reappear)

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.

Refer to figure 5-1, the Block Diagram for harnessing information.

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 or +28 VDC LED on power supply fails to light but lights when phono harness at power supply is unplugged	1. Central control computer 2. Mechanism control 3. Digital display 4. OBA-2 control unit 5. Power Supply 6. Service switch 7. Short circuit in wiring 8. Detent coil 9. Money or play counter

NOTE:

To locate the problem, reconnect the phono harness and unplug the connectors in the order shown in the following 10 steps. If the LED lights, replace the last module unplugged or repair the short in the harness.

Table 5-2. Modular Troubleshooting Chart

Trouble	Symptom	Probable Cause
		1. Digital display module (J2) 2. Harness at the CCC (P5) 3. OBA-2 control unit module (P1) 4. Harness at CCC (P3) 5. Harness at mechanism control (P12 and P6). Check harnesses, detent coil, and counters. 6. Mechanism control module (P7) 7. Harness at CCC (P2) 8. CCC module (P4) 9. Check power switch and wiring between it, the power supply, and CCC (P4). 10. Replace the power supply or the circuit board inside it.
	CCC ROWELINK COMMAND LED is always OFF or always ON (not flickering)	Central control computer
	CCC ROWELINK COMMAND LED flickering 4 times a second and the display shows OUT OF ORDER, and Error A ERR 05-63 is logged in	1. If the OBA-2 control unit RS-485 STATUS LED is flickering, the cause is: a. mech control b. open wiring in mechanism 2. If the mechanism SYSTEM TRANSMIT LED is not flickering, the cause is: a. mechanism control b. OBA-2 control c. a short in the Rowelink wiring

Table 5-2. Modular Troubleshooting Chart

Trouble	Symptom	Probable Cause
NOTE: The CCC sends OUT OF ORDER to the display and logs the A ERR 05-63 Error one minute after power up if it cannot establish Rowelink communication with the mechanism control and the phonograph is in the NORMAL mode (i.e. not SERVICE). To isolate the problem to a module or its associated Rowelink wiring, put the SERVICE switch in the SERVICE position and unplug the connectors in the following order. If the mechanism SYSTEM TRANSMIT LED starts flickering, replace the last module unplugged or repair the short in the harness. If the LED never starts flickering, the cause is a defective mechanism control, CCC, or a short in the Rowelink harness between them. 1. Unplug P4 at the OBA control unit. 2. Unplug the other end of the harness at the CCC (the Block diagram indicates that this connector is P12, but it could be P10, P11, or P12.		
Magazine does not rotate when a selection is made	SCAN/TRANSFER LED ON, detent is actuated	1. Power supply 2. Wiring to mag. motor 3. Magazine motor 4. Mech control board
	SCAN/TRANSFER LED OFF	1. Mech control board 2. Central control computer 3. Wiring from central control computer to mech control board
Magazine rotates continuously	SCAN/TRANSFER LED OFF	1. Wiring to magazine motor 2. Mech control board

Table 5-2. Modular Troubleshooting Chart

Trouble	Symptom	Probable Cause
	SCAN/TRANSFER LED is ON, OPT. SW. INDEX LED is not flashing, and/or OPT. SW. HOME LED does not flash at Disc Number 99.	1. Optical switch 2. Wiring to optical switch 3. Mech control board
	SCAN/TRANS LED ON and both optical switch LED's normal	Mech control board
Magazine stops at wrong disc	Stops at random CD anywhere in magazine	1. Faulty optical switch 2. Wiring to optical switch 3. Heavy dirt buildup in optical switch
	Stops one or two discs before disc selected	1. Optical switch adjustment 2. Magazine not full of CD's (out of balance) 3. Broken sprag lever guide
	Stops one or two discs after disc selected	1. Optical switch adjustment 2. Magazine not full of CD's (out of balance) 3. Broken sprag lever guide
	Stops one or two discs after disc selected	1. Faulty optical switch 2. Optical switch adjustment 3. Broken sprag gear 4. Sprag linkage binding
	Stops one-Half to one disc position off before or after disc selected	1. Broken sprag gear 2. Broken sprag guide 3. Sprag linkage binding or needs adjustment

Table 5-2. Modular Troubleshooting Chart

Trouble	Symptom	Probable Cause
Disc does not transfer	SCAN/TRANSFER LED is ON	1. Wiring to transfer motor 2. Mech control board 3. Transfer motor
	SCAN/TRANSFER LED is OFF	1. Mech control board 2. Central control computer 3. Wiring from central control computer to mech control board
Transfer starts when power is applied and runs continuously	SCAN/TRANSFER LED is OFF	1. Mech control board 2. Wiring to motor
	SCAN/TRANSFER LED is ON	1. Mech control board 2. Open circuit at inner cam switch N.O. contact 3. Open circuit at inner cam switch Common 4. Outer cam switch N.O. shorted to Common
Transfer starts and runs continuously after selection is located	SCAN/TRANSFER LED comes ON when motor starts and stays ON	1. Wiring to outer cam switch 2. Outer cam switch 3. Mech control board 4. Inner cam switch N.O. contact shorted to Common. 5. Open circuit in outer cam switch Common
No sound	Always muted	1. Central control computer 2. Amplifier
Motor noise in speakers	Never muted	1. Central control computer 2. Wiring between CCC and amplifier 3. Amplifier

Table 5-2. Modular Troubleshooting Chart

Trouble	Symptom	Probable Cause
All discs cancel without playing	Disc spins but will not play	1. Short in cancel switch wiring 2. Cancel switch 3. Mech control board 4. CD player 5. Bad/upside down disc
	Disc will not spin	1. Mech control board 2. CD player 3. Wiring between the CD player and the mech control
Some discs cancel without playing		1. Defective discs (check disc conditions) 2. Mechanism control 3. CD player
Money counter or play counter fails to count	Fails to count	1. Wiring to counter 2. Counter 3. Mech control board
Phonograph is always in SERVICE mode of operation	* SERVICE MODE * is always displayed after power up	1. SERVICE switch 2. SERVICE switch wiring 3. Central control computer 4. Central control computer set for programming with the front door closed (the VOID SERVICE SWITCH option is ON)
Phonograph will not go into SERVICE mode	Display will not show * SERVICE MODE * or ERRORS EXIST when SERVICE switch is in SERVICE	1. Central control computer 2. SERVICE switch wiring 3. SERVICE switch

Table 5-2. Modular Troubleshooting Chart

Trouble	Symptom	Probable Cause
Some CD's Skip		1. Dirty discs or dirty lens on CD player (see *table 3-3* for lens cleaning procedure) 2. Defective discs (check disc conditions) 3. Mechanism control 4. CD player
All CD's skip		1. Dirty lens on CD player (see *table 3-3* for lens cleaning procedure) 2. CD player 3. Mechanism control
No credit	No credit given by coins and dollar bills	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
Wrong credit	Credit for amount deposited does not agree with price card setting	1. One or more coins or bills 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	Insufficient credit

Table 5-2. Modular Troubleshooting Chart

Trouble	Symptom	Probable Cause
	Credits remain, but entire keyboard does not work	1. Shorted keyboard switch 2. Central control computer 3. Short in keyboard wiring
	Credits remain, but certain keys do not work	1. Wiring from keyboard to display board 2. Keyboard 3. Digital display board 4. Central control computer
Digital display does not work	Display lights, but shows wrong information	1. Digital display 2. Central control computer
Title pages do not operate normally	Title pages do not move at all or movement is very slight	1. Mechanical jam in the mechanism—Try to rotate the motor by hand—Disassemble to locate the jam. 2. The motor will not run—faulty motor—test for voltage at the motor—Try rotating the motor by hand. Remove the motor and test it. 3. The switches are not adjusted properly—Adjust according to the procedure in *Section 6*. 4. The title page harness is not plugged in.
	Two pages on a side try to turn at the same time	The metal fingers on the back of the top of the page are bent because the pages were forced. Remove the racks from the back side of the assembly—Inspect the metal fingers and straighten any bent fingers.

Table 5-2. Modular Troubleshooting Chart

Trouble	Symptom	Probable Cause
	Pages continue to flip past the next page	1. Index switch on the title display is defective or out of adjustment. 2. Harness between title display and J5 of the digital display. 3. Harness between J3 of the digital display and P5 or P15 of the central control computer. 4. Defective digital display module. 5. Defective central control computer.
	Cannot get the desired page	1. PAGE IN/OUT limits are not set correctly—*See Section 2.* 2. Limit switch on the title display is defective or out of adjustment. 3. Harness between the title display and J5 of the digital display. 4. Harness between J3 of the digital display and P5 or P15 of the central control computer. 5. Defective digital display module. 6. Defective central control computer.
Title pages do not operate normally	Pages do not operate from keyboard OUT/IN switches or from the titles OUT/IN switch	1. Defective title motor. 2. Defective digital display module. 3. Defective central control computer. 4. Harness between title display and J5 of the digital display. 5. Harness between J3 of the digital display and P5 or P15 of the central control computer. 6. Defective keyboard. 7. Harness between J1 of the keyboard and J4 of the digital display.

Table 5-2. Modular Troubleshooting Chart

Trouble	Symptom	Probable Cause
	Pages do not operate from the keyboard OUT/IN switches, but do operate from the titles OUT/IN switch	Defective keyboard
	Pages do not operate from the titles OUT/IN switch, but do operate from the keyboard OUT/IN switches	1. Defective titles OUT/IN switch 2. Harness between titles OUT/IN switch and J2 of the keyboard. 3. Defective keyboard.
Miscellaneous problems	Any malfunction not described above	1. Main power supply 2. Central control computer

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. *Refer to figures 5-1 and 5-4 as needed.*

WARNING:

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

POWER - SECOND LEVEL

1. Check that the amplifier is plugged-in and is receiving power from the power supply.

2. Disconnect the mute plug.

3. 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.

VOLUME CONTROL

Disconnect the volume control plug from the amplifier chassis and short out Pin 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.

EXTENSION SPEAKERS

Check the OVERLOAD indicators (*see figure 1-6*), then disconnect the extension speakers from the transformer package receptacle (*figure 1-7 also*) and look at the OVERLOAD indicators again. If either or both OVERLOAD indicators were ON, but are now OFF, the overload is in the extension speakers.

Check that the phonograph is not overloaded by performing the following five steps:

1. Make sure that the phonograph and extension speakers are connected to the proper speaker taps.

2. On the amplifier, set all seven RIGHT CHANNEL and all seven LEFT CHANNEL graphic equalizer controls fully counter-clockwise.

3. Set the volume control fully clockwise (maximum volume) and make a selection.

4. While the music is playing, an acceptable load will allow the OVERLOAD INDICATORS(S) to be off or occasionally flicker in a random manner. If the OVERLOAD INDICATOR(S) are always lit or flicker continuously, the amplifier is overloaded and you must perform *Step 5.*

5. Do this step only if the OVERLOAD INDICATOR(S) came on as described in the previous step. Find the source of the overload (shorted speaker wires, too many speakers connected, or speaker power taps too high). After you fix the short, disconnect a few speakers, or lower the speaker power tap selection; repeat *Step 4.*

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.

FILTER CAPACITORS

Check for plus and minus 40 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.

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

EXTENSION SPEAKERS

Check the OVERLOAD indicators (*see figure 1-6*), then disconnect the extension speakers from the transformer package receptacle (*figure 1-7*) and look at the OVERLOAD indicators again. If either or both OVERLOAD indicators were ON, but are now OFF, the overload is in the extension speakers.

Check that the phonograph is not overloaded by performing the following four steps:

1. Make sure that the phonograph and extension speakers are connected to the proper speaker taps.

2. Set the volume control fully clockwise (maximum volume) and make a selection.

3. While the music is playing, an acceptable load will allow the OVERLOAD INDICATORS(S) to be off or occasionally flicker in a random manner. If the OVERLOAD INDICATOR(S) are always lit or flicker continuously, the amplifier is overloaded and you must perform *step D.*

4. Do this step only if the OVERLOAD INDICATOR(S) came on as described in the previous step. Find the source of the overload (shorted speaker wires or too many speakers on line) and repeat *Step 3.*

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.

FILTER CAPACITORS

Check for plus and minus 40 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.

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 Hum

OPEN SHIELD

Be sure that shield or wires are not broken between CD player and the amplifier input plug.

FILTER CAPACITORS

Check filter capacitor, parallel an extra 500 Mfd. 50V capacitor in chassis. If hum drops; replace the capacitor. If external inputs are used, the equipment driving those inputs must not be tied to Earth Ground.

Section 6: Mechanical Adjustments

LUBRICATION

Your phonograph requires no lubrication.

UNSCHEDULED MAINTENANCE

This section contains adjustments, removal, and replacement procedures that are to be followed whenever a malfunction has occurred.

MECHANISM MAINTENANCE AND ADJUSTMENTS

CAUTION:

The CD mechanism is extremely sensitive to static discharges. The photo diodes and the laser are more sensitive to discharges than MOS IC's. Careless handling may immediately destroy components within the player or cause undetectable damage that will lead to failure after several weeks or even months of use. Before you touch the player, discharge your hands and tools by touching a grounded metal part of the phonograph, such as the amplifier or power supply chassis. If you need to remove the CD player for servicing, place the CD player into the anti-static bag (shipped with the phonograph for this purpose) immediately after you remove it from the phonograph.

CD Player Mechanism

The only maintenance required on the CD player is an occasional cleaning of the lens. If you need to clean the CD player lens, be sure to follow the procedure described in *Table 3-3, Laser Lens Cleaning.*

CD Player Maintenance

The CD player does not contain any field adjustments or field replaceable parts. Individual parts and components are not available for distributor or field repairs. All CD players that require repair must be sent to Rowe for service.

Removing The CD Player And Mechanism Control Unit

If you have followed the troubleshooting procedure in *Section* 5, and you have found that the CD player and the mechanism control unit needs to be removed for factory service, follow this procedure:

1. Turn the POWER switch (on the back of the phonograph) OFF, or place the POWER switch (on the left side of the phonograph) in the OFF position.

2. Remove all connectors from the mechanism control unit, loosen the two top screws (*figure 6-1, ref. A*), and remove the mechanism control unit.

3. Read the following Caution before you remove the CD player:

CAUTION:

The CD mechanism is extremely sensitive to static discharges. The photo diodes and the laser are more sensitive to discharges than MOS IC's. Careless handling may immediately destroy components within the player or cause undetectable damage that will lead to failure after several weeks or even months of use. Before you touch the player, discharge your hands and tools by touching a grounded metal part of the phonograph, such as the amplifier or power supply chassis. If you need to remove the CD player for servicing, place the CD player into the anti-static bag (shipped with the phonograph for this purpose) immediately after you remove it from the phonograph.

Loosen the two front mounting screws (These screws remain part of the phonograph. *See figure 6-1, ref. B* on the underside of the CD player mounting plate.

4. Slide the player approximately 1 inch toward the front of the phonograph and lift the front of the CD player up slightly and so that you can unplug the two connectors on the back side of the CD player. Remove the connectors by depressing the latches on each connector and separating the connectors from their sockets.

5. Lift the CD player up and out of its mounting bracket.

6. Remove the two rear mounting screws and grommets from the player assembly and install them on the replacement CD player.

7. Immediately place the CD player into the anti-static bag (supplied with the phonograph) and return the CD player to your distributor.

To replace the CD player, reverse the previous steps. *Refer to figure 6-2* for the mechanism control connecting diagram.

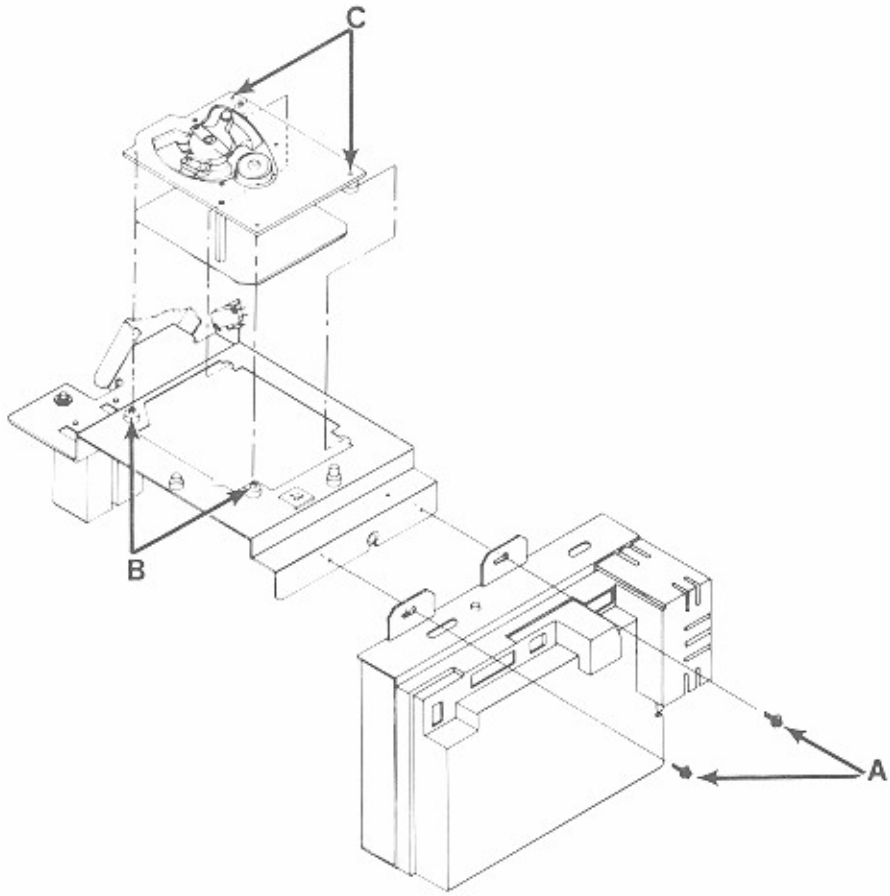


Figure 6-1. Removing the CD Player

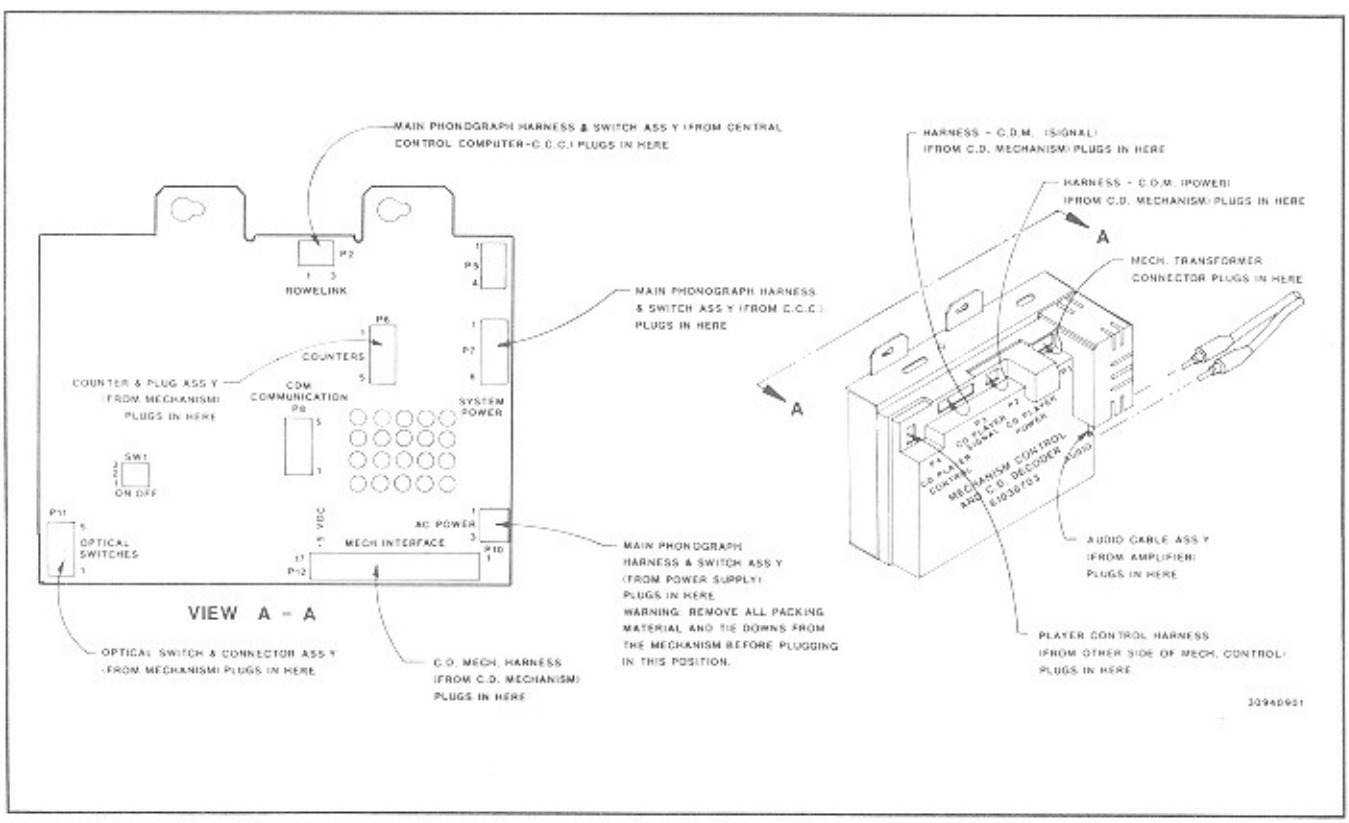


Figure 6-2. Mechanism Connecting Diagram

Hold Down Assembly And Hold Down Plate Height

SERVICE CHECK

With the gripper bow in the play position and the disc on the turntable (the outer cam switch is actuated), the aluminum hold down plate *(figure 6-3)* should be 3/32 to 5/32 inch (1/8 ± 1/32) under the flange of the magnetic hold down hub.

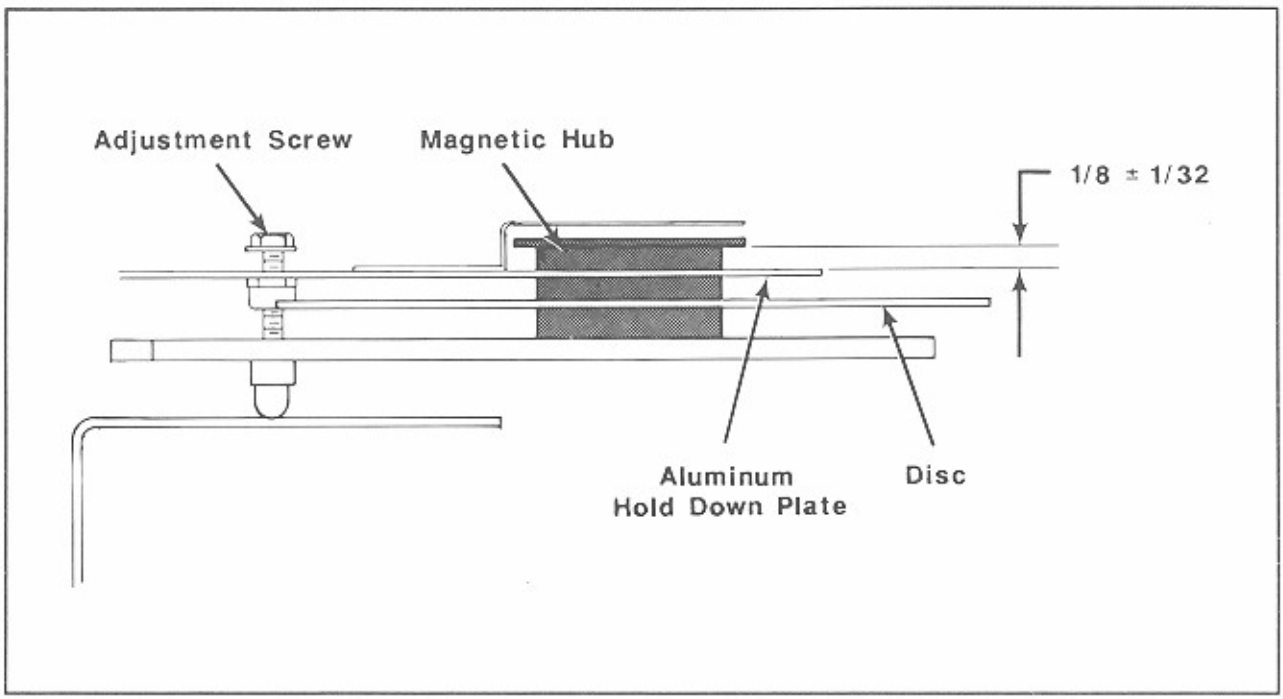


Figure 6-3. Hold Down Plate

ADJUSTMENT

If the hold down plate height is not correct, turn the adjustment screw *(figure 6-3)* until the 3/32 to 5/32 (1/8 ± 1/32) height is attained.

HOLD DOWN PLATE CENTERING

Refer to figure 6-4 for this adjustment.

1. With the gripper bow in the PLAY position and the disc on the turntable, loosen the two centering adjustment screws slightly.

2. Look straight down on the turntable hub and shift the hold down plate until the scribed "witness" line appears to be centered around the magnetic hold down hub. Rotate the disc and turntable hub (notice that the hold down hub will not run perfectly true).

3. Shift the hold down plate until it appears to be in the best compromise position with the slightly off-center position of the hold down hub. Look for equal clearance as it rotates.

4. Tighten the two centering adjustment screws and recheck the previous adjustments.

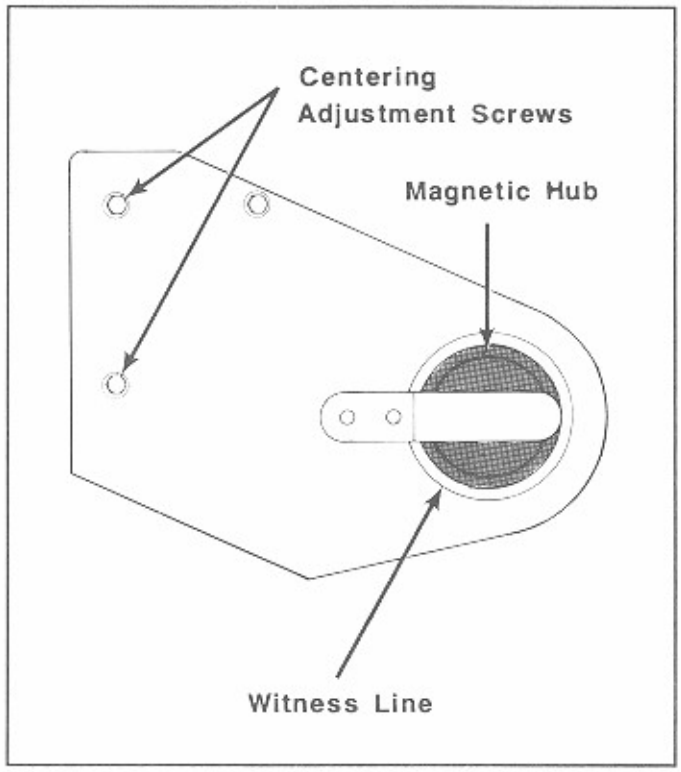


Figure 4. Hold Down Centering

Optical Switch Adjustment

1. Push in the detent plunger, so that the magazine can be rotated to Position 99. Engage the detent plunger.

2. Loosen the optical switch bracket mounting screw, turn the adjustment knob counter clockwise to top of its travel, and move the bracket down to the bottom of its travel *(refer to figure 6-5)*. Snug the optical switch mounting screw, so that the bracket can move with resistance.

3. With the detent plunger engaged, rotate the magazine counter-clockwise to remove gear backlash and maintain pressure for steps 4 and 5.

4. Turn the adjustment knob clockwise until both the INDEX and HOME LED's are ON.

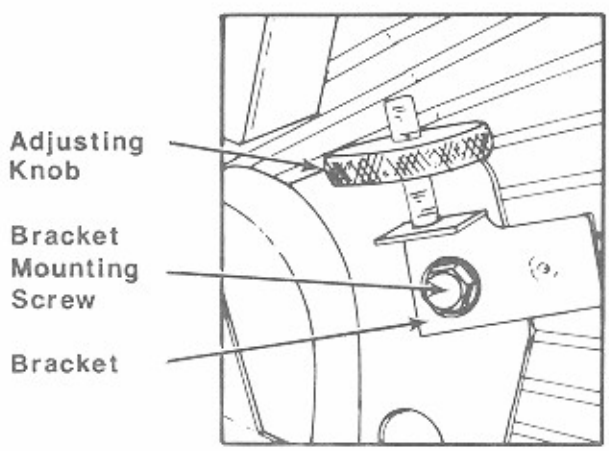


Figure 6-5. Optical Switch Adjustment

5. Continue turning the adjustment knob clockwise until the INDEX LED goes OFF. The HOME LED must remain ON. Then turn the knob one full turn clockwise and tighten the mounting screw. The INDEX LED must be OFF and the HOME LED can be ON or OFF.

6. Push in the detent plunger and rotate the magazine to Position 06.

7. With the detent plunger engaged, rotate the magazine in both directions as far as you can by hand (taking up the gear backlash in both directions). The INDEX and HOME LED's will remain OFF when properly adjusted.

8. Push in the detent plunger and rotate the magazine to Positions 56, 07, and 57. Repeat *Step 7* at each position.

Sprag Assembly

ADJUSTMENTS

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

WARNING:

Turn the power OFF before servicing the sprag assembly.

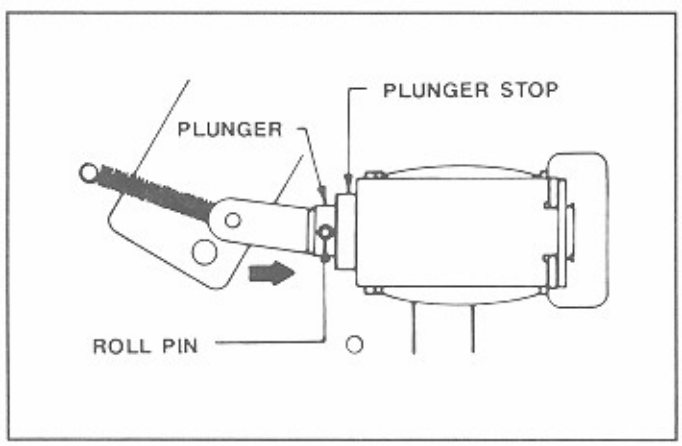


Figure 6-6. Sprag Assembly (Plunger)

1. *Refer to figure 6-6.* Depress solenoid plunger until the roll pin bottoms on the plunger stop (actuate by pressing on plunger).

2. Rotate the disc 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 be .015 to .025 inches *(see figure 6-7).* It will be necessary to remove the sprag assembly if corrections are required.

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 6-8)*.

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 6-9)*.

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.

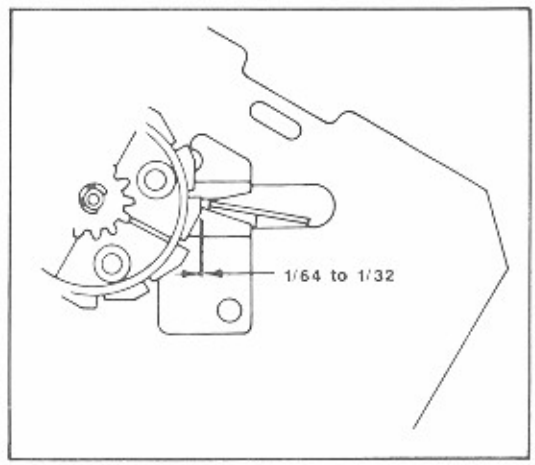


Figure 6-7. Sprag Wheel

Instructions for aligning the disc 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.

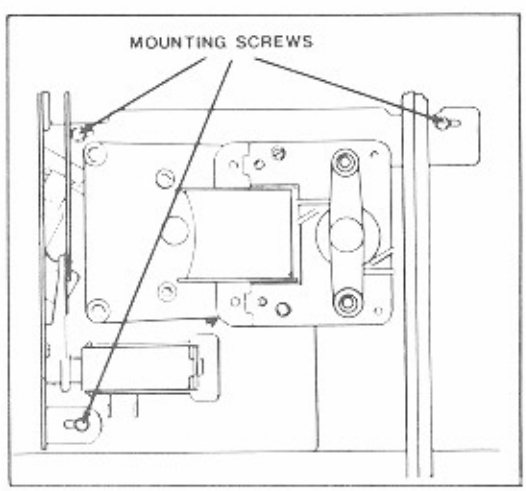


Figure 6-8. Sprag Assembly Removal

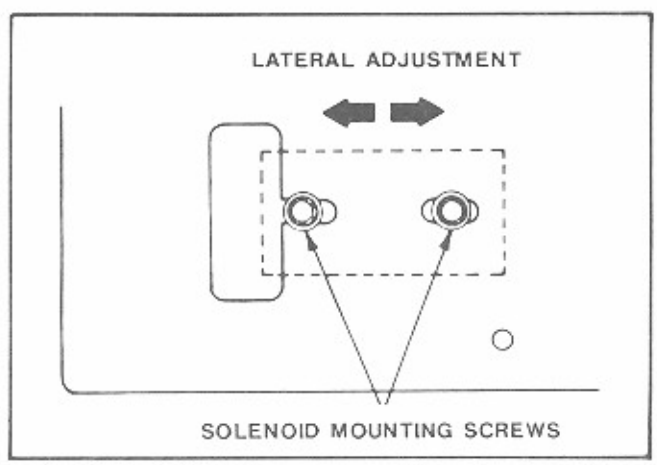


Figure 6-10. Lateral Adjustment

Disc 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.

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 6-10)*.

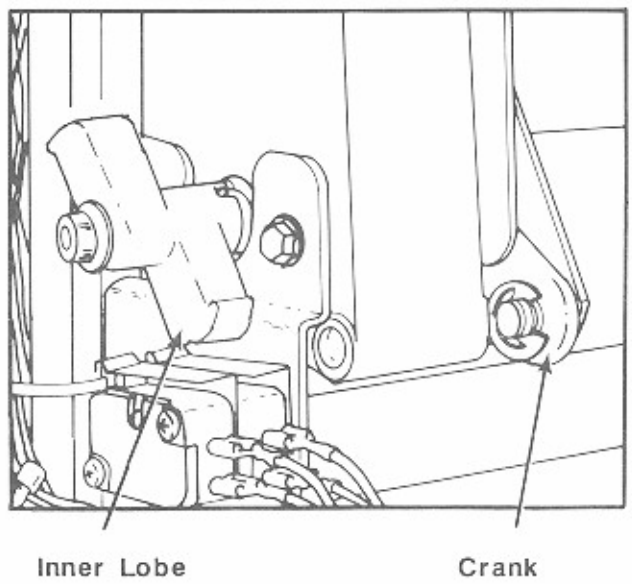


Figure 6-11. Cam Switch

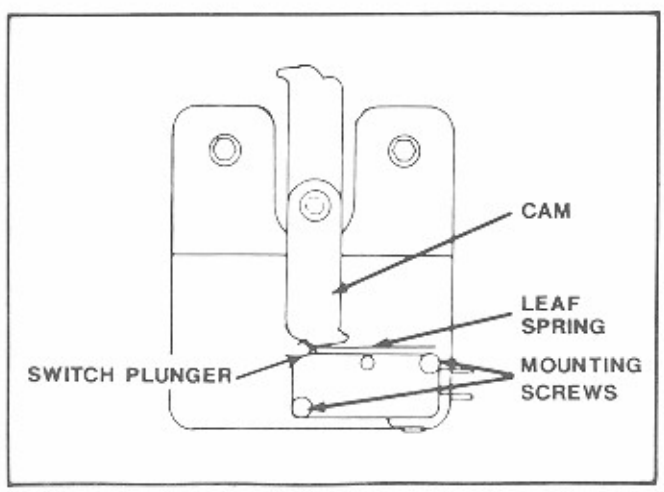


Figure 6-11. Cam Switch Adjustment

CAM SWITCH CHECK AND ADJUSTMENT

1. Check that the plastic cam leaf spring is resting in the cam lobes and that the switch plunger just touches the bottom of the leaf spring as shown in *figure 6-11*.

2. To adjust the switches, loosen mounting screw under plunger end and move the switch housing as described in the previous step *(see figure 6-11)*.

3. Tighten mounting screw and recheck operation.

Magazine Belt Adjustment

1. Loosen the two adjustment screws *shown in figure 6-12.*

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

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 The Transfer Arm

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

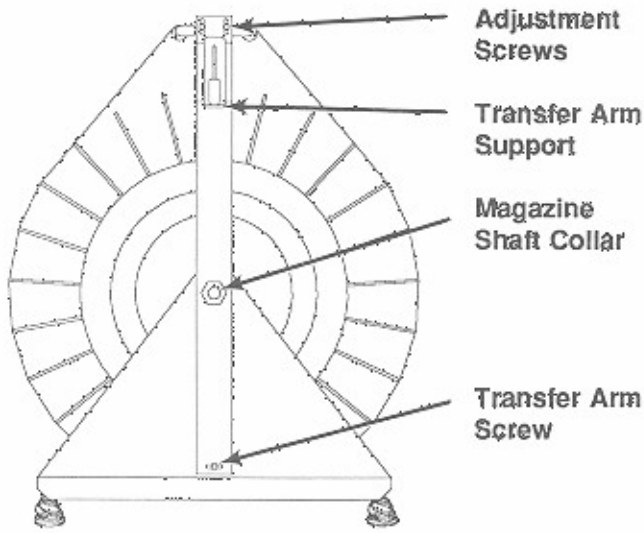


Figure 6-12. Magazine Belt Adjustment

2. Using a 5/32-inch Allen wrench in the end of transfer motor shaft, turn motor shaft clockwise until the gripper bow starts to lift the disc out of the magazine *(see figure 6-13).*

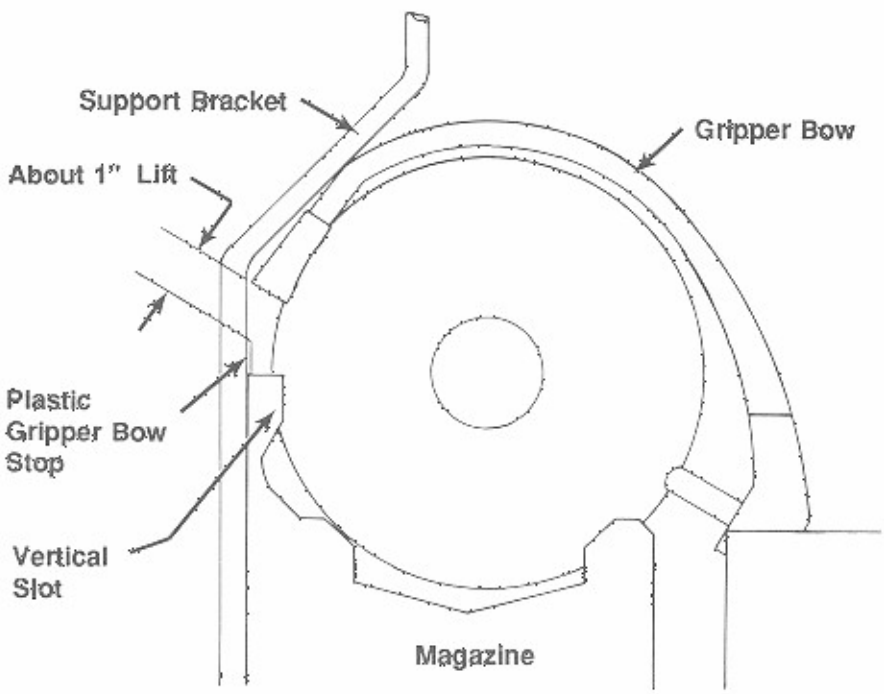


Figure 6-13. Magazine and Transfer Arm Position

3. With the disc and gripper bow in this position, rock the magazine to the left and right to make sure the magazine vertical slot is centered relative to the edge of the disc.

IF ADJUSTMENT IS NECESSARY:

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

5. With sprag wheel locked, move the magazine until the disc is centered in the magazine vertical slot (The adjustment screws will be approximately centered in the slots, *see figure 6-14).*

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

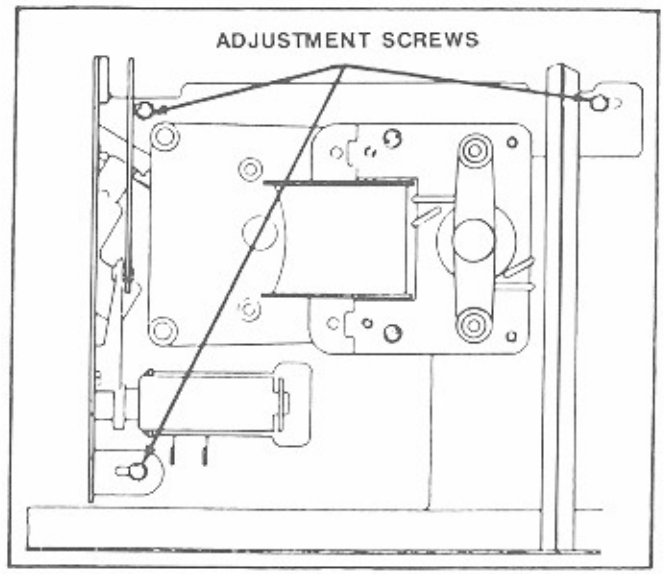


Figure 6-14. Magazine Adjustment

Title Rack Switch Adjustment

WARNING:

Do not attempt to turn the CD title pages by hand unless you use the handwheel on the back of the title rack (see figure 1-2).

Refer to figure 6-15 for illustration of the title rack adjustment.

1. Open the top door, unplug the title rack from the phonograph, and remove the title rack from the phonograph.

2. Loosen the switch mounting screw and the adjusting screw so that the switch can be rotated.

3. Use the handwheel to move the rack and pinion (and the title rack pages) so that the switch roller is directly over the top of one of the rack lobes. This will cause two of the title rack pages to point approximately straight out.

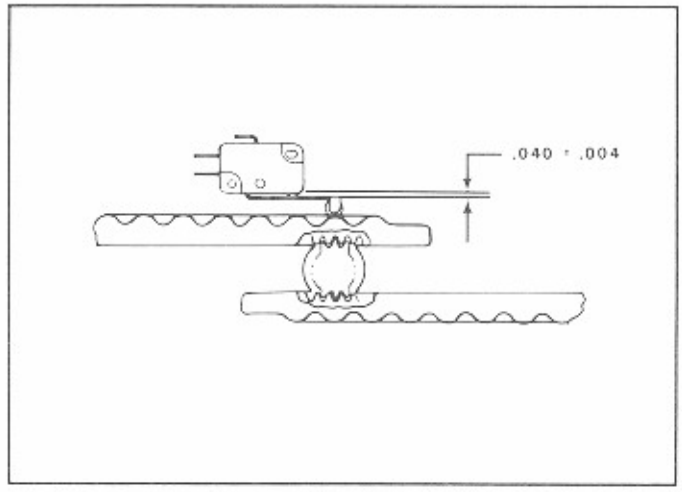


Figure 6-15. Title Rack Switch Adjustment

4. Insert a 0.040-inch feeler gauge between the switch body and the switch actuator arm.

5. Slowly rotate the switch downward until all clearance between the switch and the switch body is removed.

6. Tighten the switch mounting screw and the switch adjustment screw.

7. Turn the handwheel in both directions and verify that the switch clicks before the roller reaches the bottom of the rack (as it rolls "down hill") and before it reaches the top of the rack (as it rolls "up hill"). This distance should be approximately halfway between the peaks and the valleys of the lobes.

9. Re-install the title rack.

10. Perform *Title Page Re-Synchronizing* that follows this step.

Title Page Re-Synchronizing

Title page re-synchronizing is necessary whenever power to the phonograph is interrupted or after the title pages have been changed with the handwheel.

1. Press either PAGE CHANGE button repeatedly until the pages no longer change (The pages may not advance as far as you expect them to. This is normal when the pages are being re-synchronized).

2. Press the other PAGE CHANGE button repeatedly until the pages no longer change.

Section 7: Miscellaneous

CD-100B SPECIFICATIONS

General

Depth	26-1/2 in. (67.3 cm.)
Width	41-1/2 in. (105.4 cm.)
Height	59-7/8 in. (151.9 cm.)
Weight	365 lbs (165.6 Kg.)

Power Requirements

120 VAC 60 Hz.,
530 watts 5.3 amps.
220 VAC 50 Hz.,
560 watts 3.3 amps.

240 VAC 50 Hz.,
560 watts 3.0 amps.

CD Player And Changer

Capacity	100 Digital discs
Disc Size	5-inch or 3-inch

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 65535

PRICING . . . . . See Pricing, Section 2

Sound System

CD PLAYER

Type . . . . . Philips CDM-3
Frequency Response . . . . . 20 to 20,000 Hz.
Channel Separation . . . . . 90 db @ 1,000 Hz.
Output . . . . . 1 V (approx. depending on the disc)

POWER AMPLIFIER

250 Watt Stereo
FTC Rating, 3 Ohm Loads @ .5% THD . . . . . 250 watts RMS
FTC Rating, 70 V Lines @ .5% THD . . . . . 126 watts RMS

PREAMPLIFIER

AVC Control Range . . . . . 40 db

Tone control is accomplished through a 7 band equalizer (10 db/filter band)

SELECTION SYSTEM CAPACITY . . . . . 100 discs with a 99 max. selections per disc

TRANSFORMER PACKAGE

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

SPEAKER SYSTEM

Characteristics	Woofer	Midrange	High Frequency
Speaker Diameter	10 in.	6 in.	3 in.
Voice Coil Diameter	1-½ in.	1 in.	Not Applicable
Impedance	8 ohms	8 ohms	8 ohms

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

Door Lighting . . . . . Fluorescent – 30 watt, 36 in.
11 watt incandescent
14 volt incandescent

FUSES AND CIRCUIT BREAKERS

Main Power Supply

120 VAC (Transformer Primary Only) . . . . . 2 amp. circuit breaker

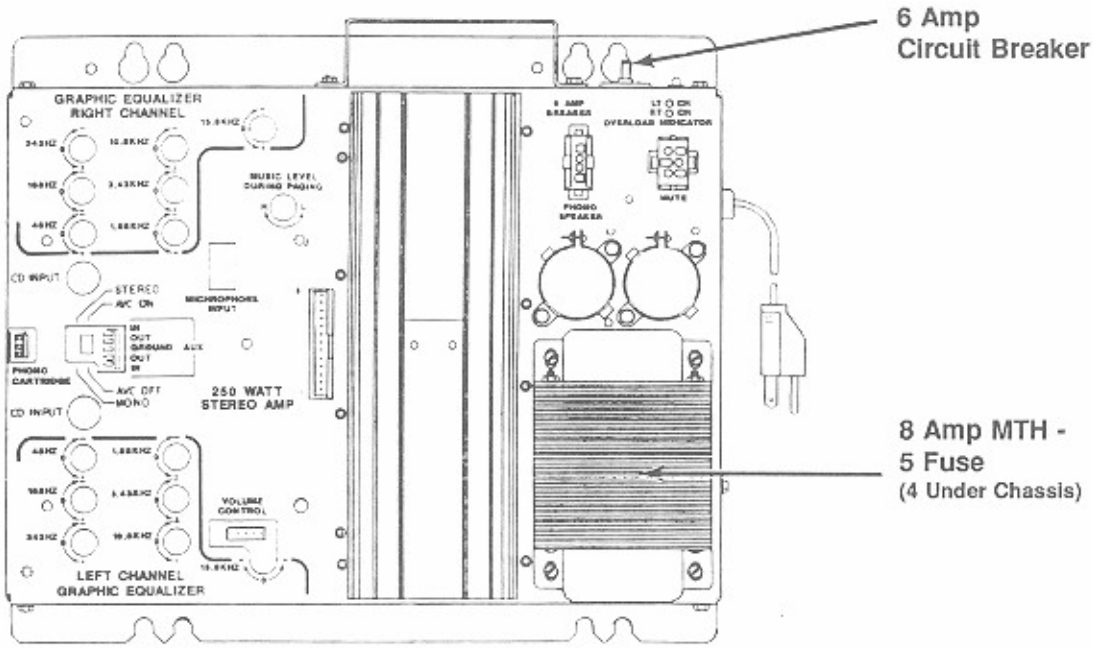
120 VAC . . . . . 10 amp. circuit breaker

+28 VDC . . . . . 5 amp. Slo-Blo fuse

+8 VDC . . . . . 5 amp. Slo-Blo fuse

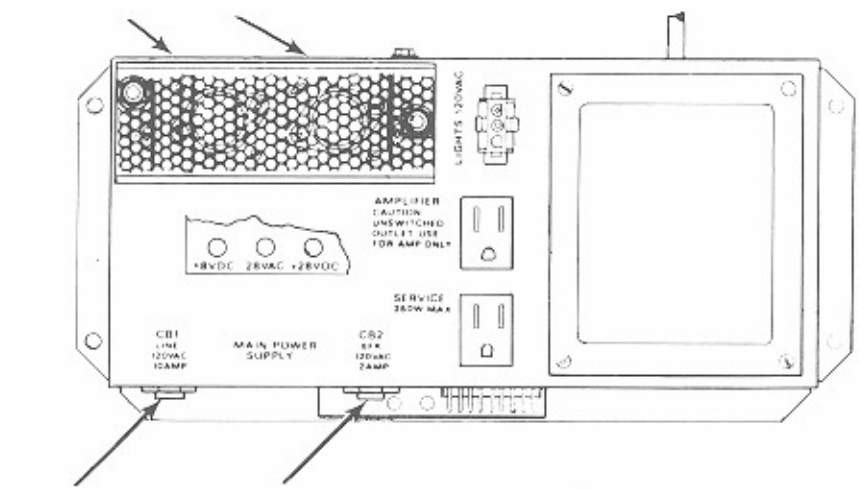
Amplifier

120 VAC . . . . . 6 amp. circuit breaker
32 VDC . . . . . 8 amp. fuse (4)



250 WATT AMPLIFIER

Two 5 Amp AGC Fuses
(Mounted on Power Supply Circuit Board)

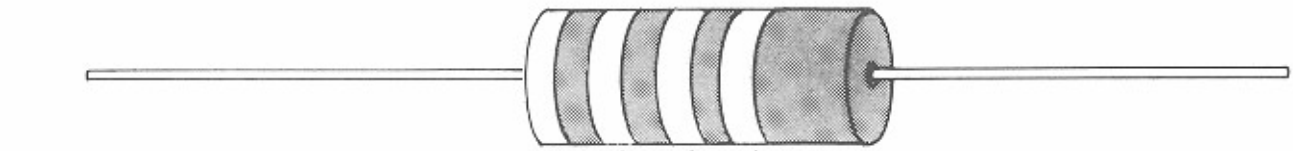


10 Amp
Circuit
Breaker

2 Amp
Circuit
Breaker

MAIN POWER SUPPLY

Figure 7-1. Fuse and Circuit Breaker Locations



First Band 1st Digit	
Color	Digit
Black	0
Brown	1
Red	2
Orange	3
Yellow	4
Green	5
Blue	6
Violet	7
Gray	8
White	9

Second Band 2nd Digit	
Color	Digit
Black	0
Brown	1
Red	2
Orange	3
Yellow	4
Green	5
Blue	6
Violet	7
Gray	8
White	9

Third Band Multiplier	
Color	Multiplier
Black	1
Brown	10
Red	100
Orange	1,000
Yellow	10,000
Green	100,000
Blue	1,000,000
Silver	0.01
Gold	0.1

Fourth Band Resistance Tolerance	
Color	Tolerance
Silver	±10%
Gold	± 5%
No Band	±20%

Figure 7-2. Resistor Color Code

Example: You have a resistor with the colors Yellow, Violet, Red, and Gold on it. Place the resistor in front of you so that the end of the resistor with no colored bands is on your right. Now, use the color code chart to decode the colors: the Yellow band=4, the Violet band=7, the Red band means multiply by 100. So the resistor value is 47X100, or 4700 ohms. The Gold band indicates that the resistor can be 5% over or 5% under the 4700 value and still be considered to be the proper value.

NOTE:

Testing a resistor while both ends of the resistor are connected to the circuit can give a false LOW reading. If the resistor value is critical, disconnect one end of the resistor from the circuit and use an accurate digital VOM.

Section 8: Parts Catalog

COUNTRY 1st & 2nd DIGIT		
01 = US	=	6-10461-01
02 = Arg	=	6-10461-02
03 = Australia	=	6-10461-03
04 = Aus	=	6-10461-04
05 = Bah	=	6-10461-05
06 = Belg	=	6-10461-06
07 = Canada	=	6-10461-07
08 = Chile	=	6-10461-08
09 = Col	=	6-10461-09
10 = Costa R	=	6-10461-10
11 = Neut. Stk	=	6-10461-11
12 = Denmark	=	6-10461-12
13 = Equador	=	6-10461-13
14 = El Salv	=	6-10461-14
15 = England	=	6-10461-15
16 = Finland	=	6-10461-16
17 = France	=	6-10461-17
18 = Germany	=	6-10461-18
19 =		
20 = Guat	=	6-10461-20
21 = Holland	=	6-10461-21
22 = Hon	=	6-10461-22
23 = Italy	=	6-10461-23
24 = Belize	=	6-10461-24
25 = Japan	=	6-10461-25
26 = Mexico	=	6-10461-26
27 = Nic	=	6-10461-27
28 = Norway	=	6-10461-28
29 = Aruba	=	6-10461-29
30 = Panama	=	6-10461-30
31 = Curaco	=	6-10461-31
32 = Spain	=	6-10461-32
33 = Sweden	=	6-10461-33
34 = Swiss Fr	=	6-10461-34
35 = Swiss Ge	=	6-10461-35
36 = Swiss It	=	6-10461-36
37 = Trinidad	=	6-10461-37
38 = Eng Video	=	6-10461-38
39 = Venez	=	6-10461-39
40 = Zambia	=	6-10461-40
41 = Puerto R	=	6-10461-41
42 = Guyana	=	6-10461-42
43 = Brazil	=	6-10461-43
44 = Barbados	=	6-10461-44
45 = Surinam	=	6-10461-45
46 = Yugo	=	6-10461-46
47 = S. Africa	=	6-10461-47
48 = US (220V)	=	6-10461-48
49 = US (240V)	=	6-10461-49

PACK 3rd DIGIT
1 = DomPack = 2-19410-03

CD-100B SUB-ASSEMBLY 4th & 5th & 6th DIGIT
250 = BL (60 HZ) = 6-10460-01
251 = BR (60 HZ) = 6-10460-02
252 = BL (50 HZ) = 6-10460-03
253 = BR (50 HZ) = 6-10460-04

AMPLIFIER 7th DIGIT
0 = None
1 =
2 =
3 = 3-06322-09 Remote Volume Cont. Assy
4 =
5 =
6 = 250W Amp. 6-10249-02
7 = 250W Amp. 6-10249-02 with 3-06322-09 Remote Volume Control

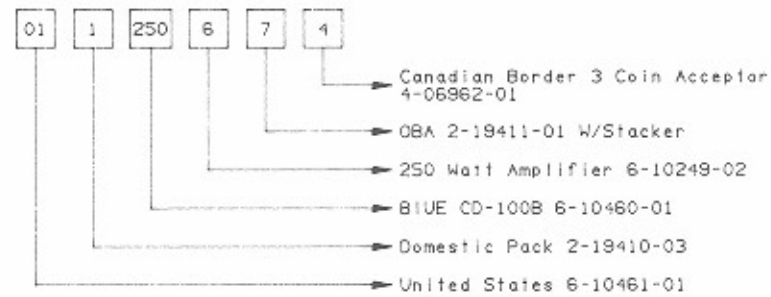
BILL ACCEPTOR 8th DIGIT
0 = None
1 =
2 =
3 =
4 =
5 =
6 =
7 = OBA 2-19411-01 W/Stacker

COIN ACCEPTOR 9th DIGIT	
0 = None	*
1	
2	
3 = Export Rej. (Special)	= 7-09519-XX*
4 = 3 Coin Canadian Bdr.	= 4-06962-01*
5	
6 = Kit-Mars Slug Rej.	= 2-18851-05
7	
8	
9	

*Requires 4-07038-11

SUB-ASSEMBLY CATEGORY
001-049 R-93
050-099 CD-100
200-249 CD-100A
250-299 CD-100B

SAMPLE:



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 or when 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** — This column contains the part quantity used in the assembly. When a figure describes more than one model of an assembly, the "Qty" column is divided to show each model.

Ordering Replacement Parts

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

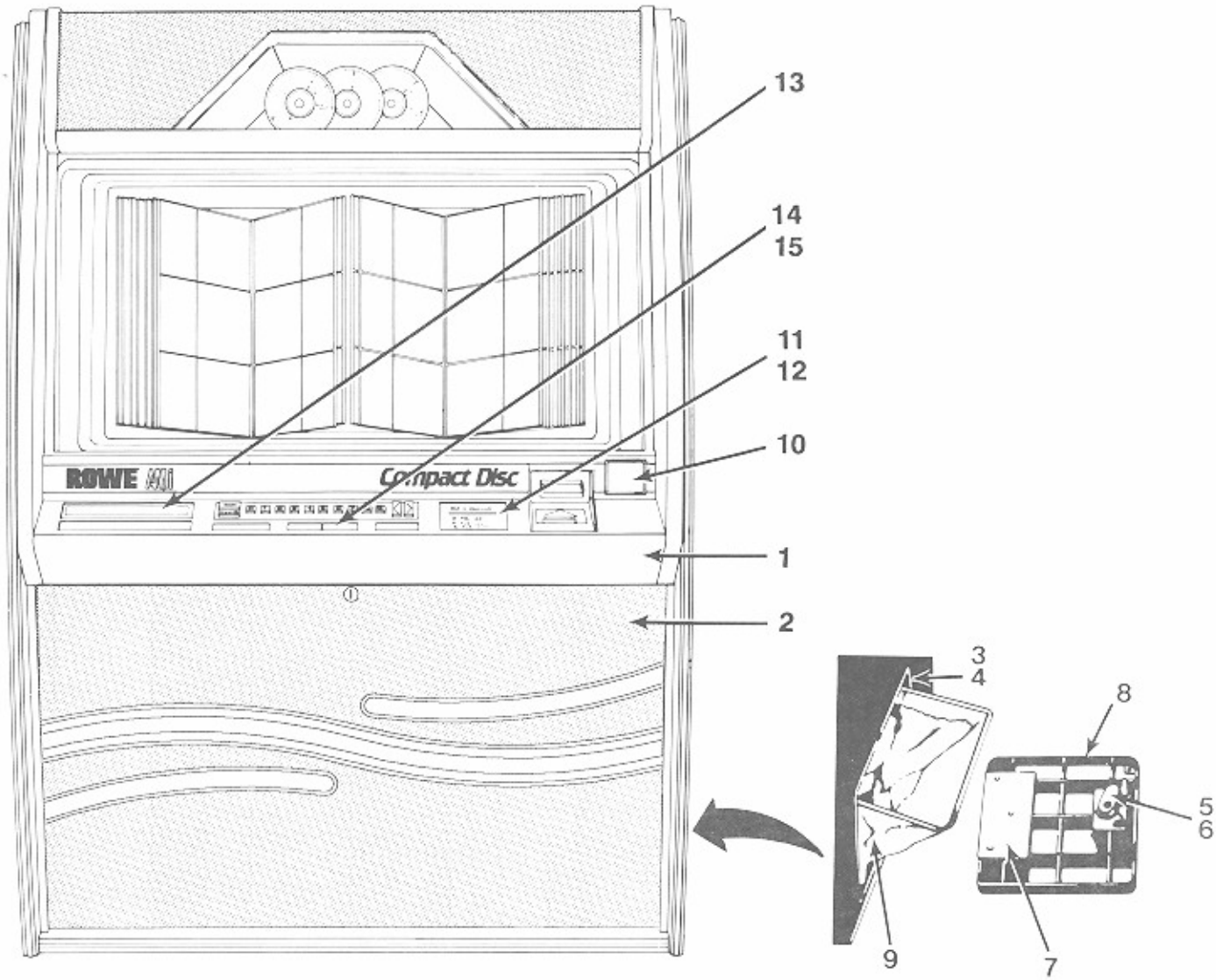
Once the replacement item has been determined, complete a Standard Parts Order Form. (available from your Rowe Distributor at no charge) Very often parts orders are delayed because of inadequate or incompletely filled out parts order forms. To enable prompt delivery, always specify the following information:

- Part Number and Description (indicate 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 8-1. CD-100B Phonograph External View

Sheet 1



Ref.	Part No.	Description	Qty
	61046001	CD-100B Phonograph Assembly—Blue (60 Hz)	Ref.
	61046002	CD-100B Phonograph Assembly—Brown (60 Hz)	Ref.
	61046003	CD-100B Phonograph Assembly—Blue (50 Hz)	Ref.
	61046004	CD-100B Phonograph Assembly—Brown (50 Hz)	Ref.
1	61046501	Top Door Assembly—Blue *(see figure 8-2)*	1
1	61046502	Top Door Assembly—Brown *(see figure 8-2)*	1
2	61047001	Front Door Assembly—Blue *(see figure 8-3)*	1
2	61047002	Front Door Assembly—Brown *(see figure 8-3)*	1
3	40527605	• Cash Box Door Frame	1
4	21776005	• "U" Type Speed Clip	1
	21186605	• Cash Box Door Assembly	1
5	70162004	• • Cylinder Lock	1
6	20669501	• • Lock Support	1
7	20770301	• • Catch Bracket	1
8	60326705	• • Cash Box Door	1
9	30702601	• Cash Bag	1
	70212507	• • Felt Adhesive Tape	1
	70166008	• • Lock Bolt-Straight	1
10	30939001	• Blockout-Coin Inlet	1
11	21845612	• Window - Price Card	1
12	Ref.	• Price Card *(see the table on the following page)*	1
13	Ref.	• Card Readout *(see the table on the following page)*	1
14	21845611	• Window - Selector	1
15	Ref.	• Card-Selector Graphics *(see the table on the following page)*	1

Price Card Part Numbers			
Price Card Language	Price Card	Readout Card	Selector Graphics Card
Standard	30931304	30934804	30934902
Spanish	30952901	30953001	30953101
German	30952902	30953002	30953102
French	30952903	30953003	30953103
England	30952906		
England	30952916		

Figure 8-1. CD-100B Phonograph External View

Sheet 2

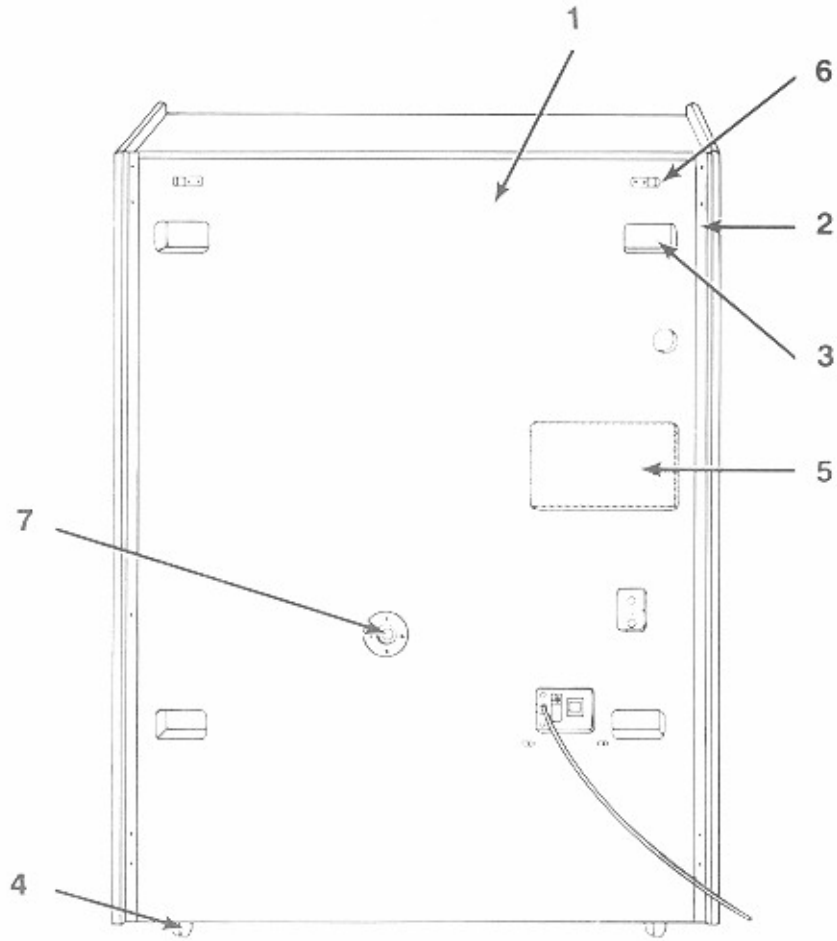
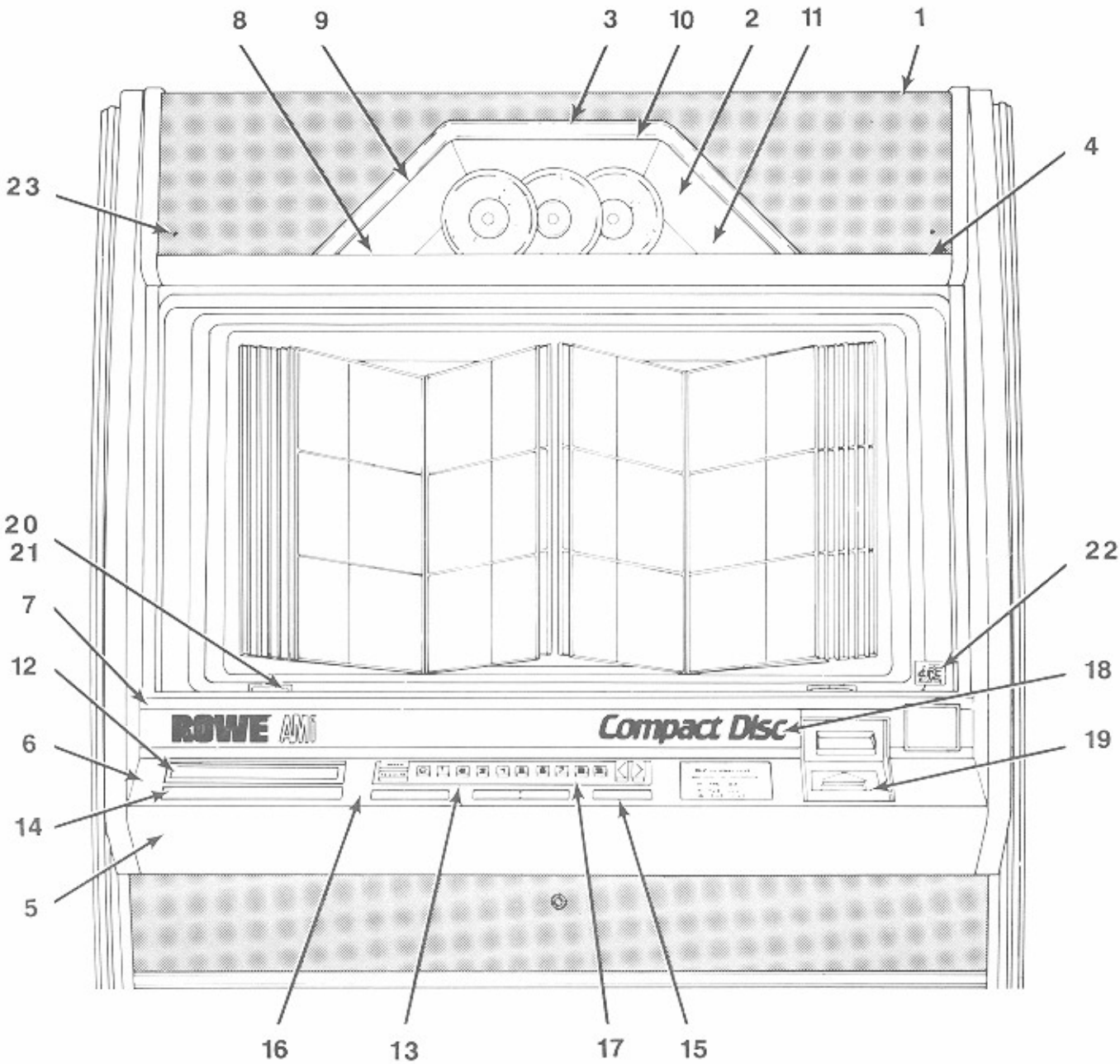


Figure 8-1 CD-100B Phonograph External View (Sheet 2)

Ref.	Part No.	Description	Qty
	61046001	CD-100B Phonograph Assembly—Blue (60 Hz)	Ref.
	61046002	CD-100B Phonograph Assembly—Brown (60 Hz)	Ref.
	61046003	CD-100B Phonograph Assembly—Blue (50 Hz)	Ref.
	61046004	CD-100B Phonograph Assembly—Brown (50 Hz)	Ref.
1	61035003	• Shell Assembly (Blue)	1
1	61035004	• Shell Assembly (Brown)	1
	60927901	• • Bracket-Cash Bag	1
	21451801	• • Lock Spring	1
	30866905	• • Protective Strap	2
	70240126	• • Screen-Wire Mesh	1
	21537203	• • Tee Nut	2
	20932601	• • Tee Nut	6
	21750618	• • Vent Tube	1
	21750616	• • Vent Tube	1
2	40702808	• • Skid Rail	2
3	30625701	• • Hand Hold Cover	4
4	30634001	• • Caster and Cup Assembly	4
5	30868402	• Enclosure Screen	1
6	20879501	• Power Cord Holder (Bracket - Retainer)	2
7	21265203	• Tie Down Plate Assembly	1

Figure 8-2. CD-100B Phonograph Top Door Assembly

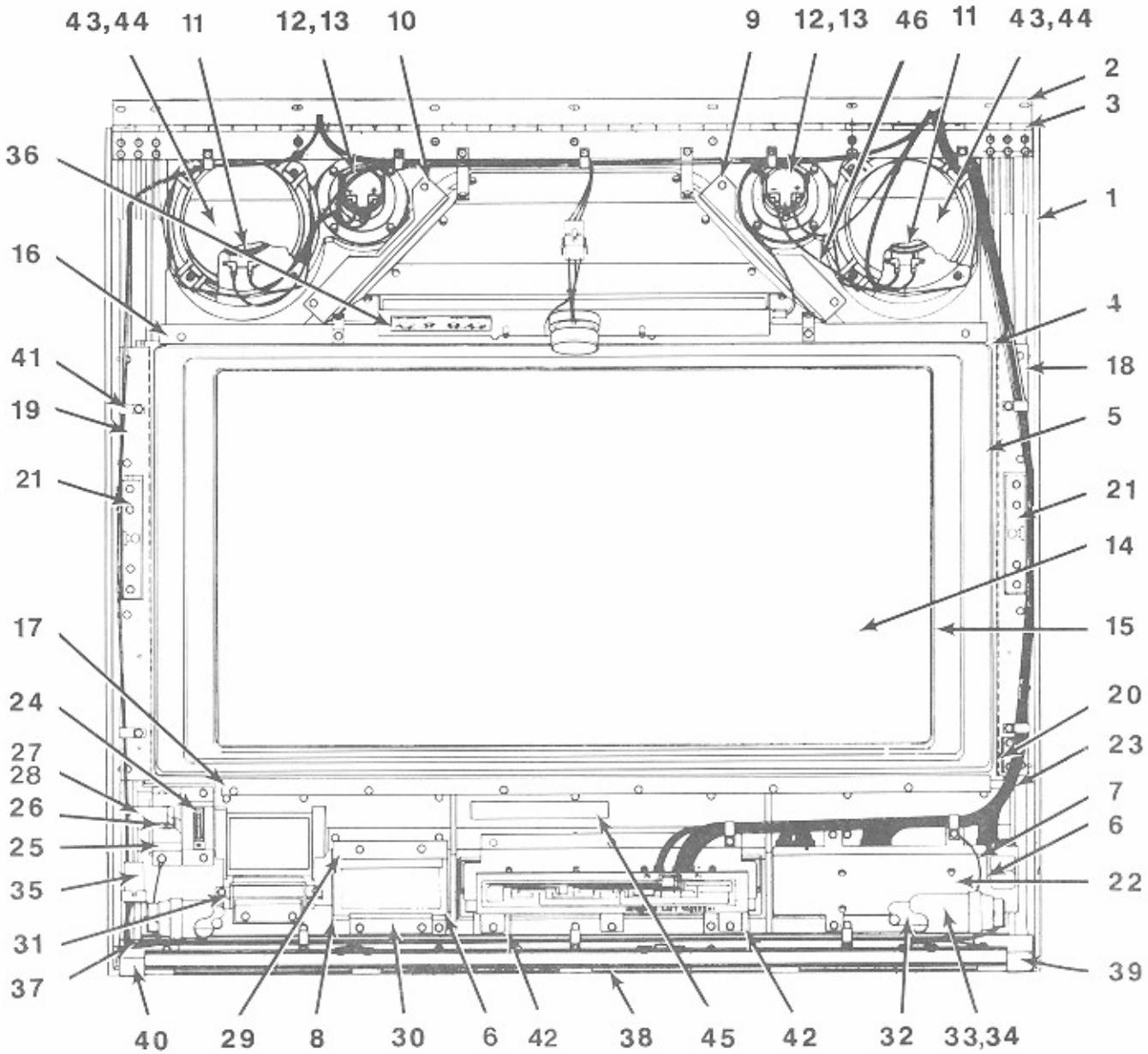
Sheet 1



Ref.	Part No.	Description	Qty
	61046501	Top Door Assembly—Blue	Ref.
	61046502	Top Door Assembly—Brown	Ref.
1	61034103	• Grille - Upper (Blue)	1
1	61034104	• Grille - Upper (Brown)	1
2	61036003	• Animation Assembly	1
	61046901	• • Housing - Animation (Upper)	1
	61047101	• • Housing - Lower	1
	61047201	• • Housing - Rear	1
	61037201	• • Housing - Side (RH)	1
	61037101	• • Housing - Side (LH)	1
	30936901	• • Plate Assembly - Animation Drive	1
	30937201	• • Bracket - Animation Mounting (Upper)	2
	30937301	• • Bracket - Animation Mounting (Lower)	2
	40824302	• • Motor & Harness Assembly	1
	30936701	• • Shaft	2
	70143001	• • Ring - External Retaining	4
	21110001	• • Washer - Thrust	2
	40834901	• • Gear	3
	21532801	• • Speednut - Push On	3
	61037402	• • Printed Wiring Board - CD Animation	1
	21862201	• • Lamp & Socket Assembly	8
	30866501	• • Lens - Brown	4
	30866504	• • Lens - Magenta	2
	30866503	• • Lens - Clear	2
	40834801	• • Support - Disc	3
	21922201	• • Ring - Compression	3
	30926904	• • Disc - Animation	3
	21922602	• • Label - Copyright	1
	21955701	• • Label-Animation Removal	1
3	61033405	• Trim - Animation Box	1
4	61033504	• Trim - Speaker Panel	1
5	40837101	• Trim & Strike Assembly	1
6	61033201	• Trim - Control Panel	1
7	61033103	• Trim - Control Panel (Upper)	1
8	70212213	• Sponge Rubber - Closed Cell	1
9	70212214	• Sponge Rubber - Closed Cell	2
10	70212215	• Sponge Rubber - Closed Cell	1
11	40834101	• Window - Animation	1
12	21845610	• Window - Digital Display	1
13	61033801	• Trim - Keyboard	1
14	30934804	• Card - Readout	1
15	70212230	• Sponge Rubber - Closed Cell	2
16	70212231	• Sponge Rubber - Closed Cell	4
17	40833501	• Keyboard Assembly	1
	21949601	• Keyboard Key Kit - Complete Set Of Numbers	1 Set
	21949701	• Keyboard Key Kit - Four Button Set (POPULAR, <<, >>, RESET)	1 Set
18	61036203	• Decal - Compact Disc (Blue)	1
18	61036204	• Decal - Compact Disc (Brown)	1
19	30935102	• Decal - B.A. Inlet	1
20	30921502	• Frame - License (White)	2
21	21921001	• Retainer - License	2
22	21922001	• Sticker - CD	1
23	70136508	• Brad - Cohered	2
	25223101	• Label - Flag	1

Figure 8-2. CD-100B Phonograph Top Door Assembly

Sheet 2



Ref.	Part No.	Description	Qty
	61046501	Top Door Assembly—Blue	Ref.
	61046502	Top Door Assembly—Brown	Ref.
1	61033603	• Frame - Top Door (Blue)	1
1	61033604	• Frame - Top Door (Brown)	1
2	61035802	• Hinge - Top Door	1
3	70220485	• Foamed Tape	1
4	70212211	• Sponge Rubber - Closed Cell	2
5	70212212	• Sponge Rubber - Closed Cell	2
6	70212227	• Sponge Rubber - Closed Cell	4
7	70212228	• Sponge Rubber - Closed Cell	3
8	70212229	• Sponge Rubber - Closed Cell	2
9	30934301	• Bracket - Mounting (Animation Window) LH	1
10	30934401	• Bracket - Mounting (Animation Window) RH	1
11	40830803	• Speaker - Mid Range (6")	2
12	40830901	• Speaker - Tweeter (3")	2
13	21944401	• Spacer - Speaker	8
14	21961101	• Window - Front	1
15	61036101	• Housing - Title Rack	1
16	30934501	• Bracket - Mounting (Window - Upper)	1
17	30934601	• Bracket - Mounting (Window - Lower)	1
18	40834301	• Bracket - Mounting (Window LH)	1
19	40834401	• Bracket - Mounting (Window RH)	1
20	21941901	• Actuator - Reset	1
21	30934701	• Pivot Assembly - Gas Spring	2
22	40832303	• Digital Display Assembly	1
23	40833402	• Harness Assembly - Digital Display	1
24	40831802	• Inlet - Coin	1
25	30931601	• Bracket - Guide (Reject)	1
26	21834801	• Channel	2
27	21822901	• Spring - Compression	1
28	21942302	• Button & Shaft Assembly - Reject	1
29	40831701	• Holder - Price Card	1
30	21942401	• Bracket - Holder (Price Card)	1
31	30931401	• Insert - B.A. Inlet	1
	40836303	• Blockout - Bill Acceptor (Models WO bill acceptor. Blockout not shown)	1
	30939401	• Decal - Coin Blockout—Blue (Models WO coin acceptor. Decal not shown)	1
	30939402	• Decal - Coin Blockout—Brown (Models WO coin acceptor. Decal not shown)	1
32	70060112	• Lamp - Fluorescent (30 W T-8)	1
33	61036501	• Tube - Color	1
34	61037603	• Filter - Color (Blue)	1
34	61037602	• Filter - Color (Brown)	1
35	70080004	• Starter - Fluorescent (FS-4)	1
36	30935302	• Label - Speaker Harness	1
37	40834501	• Harness Assembly - Top Door Light	1
38	30935601	• Diffuser - Light	1
39	30939701	• Bracket - Light Block (LH)	1
40	30939801	• Bracket - Light Block (RH)	1
41	70093401	• Clamp - Cable (17/32)	14
42	30941401	• Bracket - Hold Down (Graphics)	2
43	30951201	• Pad - Acoustical (Speaker Cover)	4
44	61042801	• Housing - Speaker	2
45	21948801	• Label - Warning	1
46	25240601	• Jumper Assembly	2

Figure 8-3 CD-100B Front Door Assembly

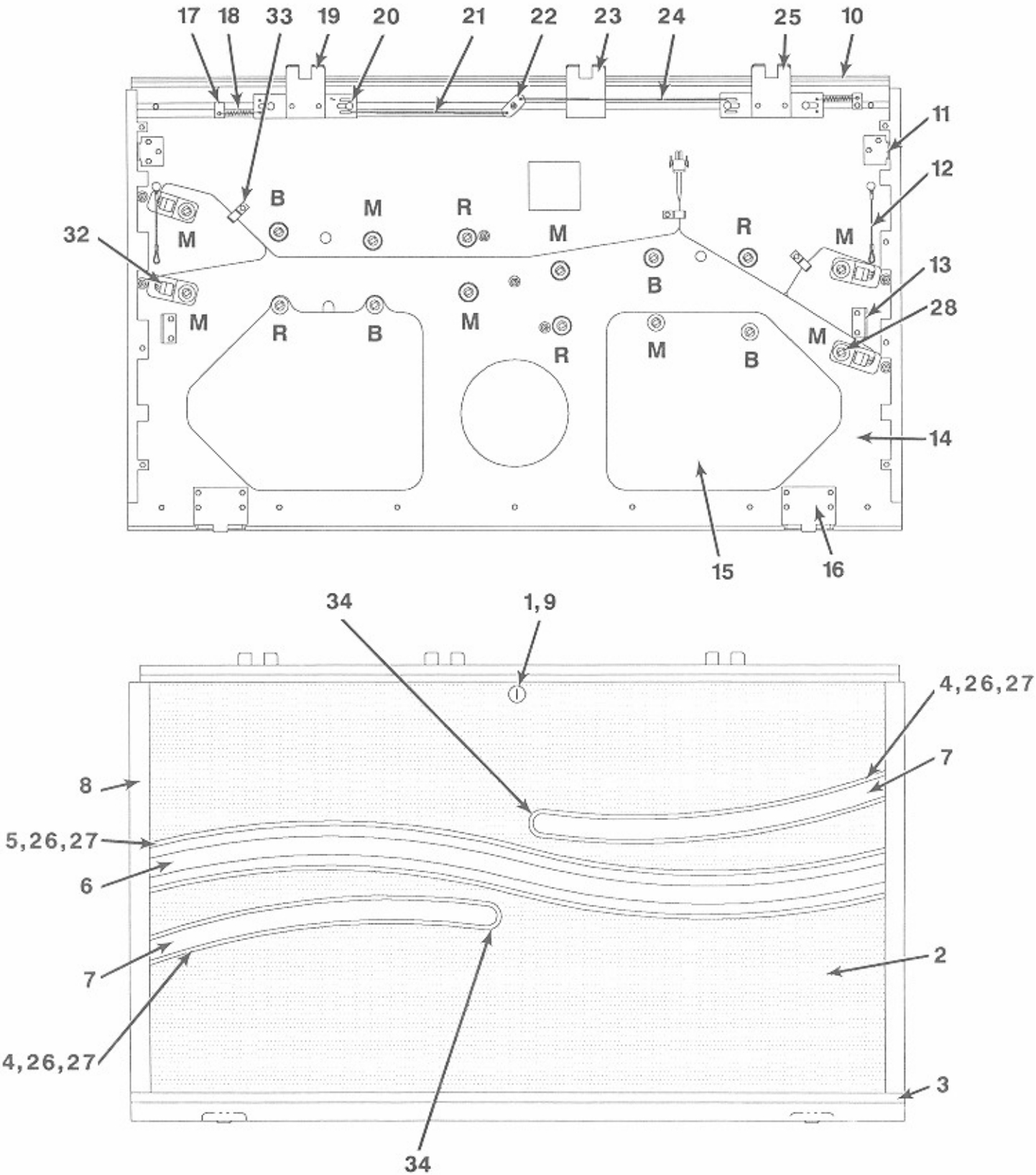
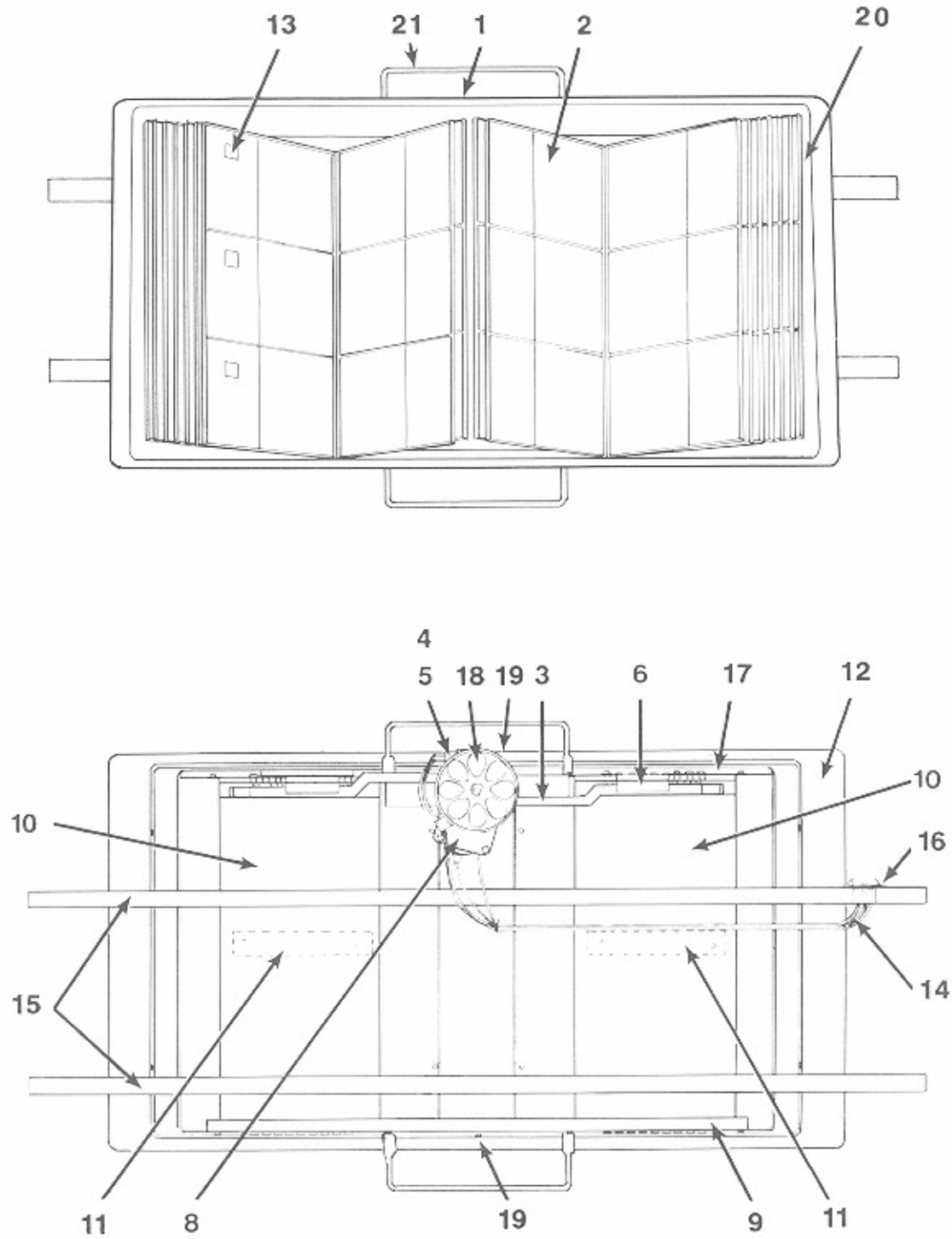


Figure 8-3 CD-100B Front Door Assembly

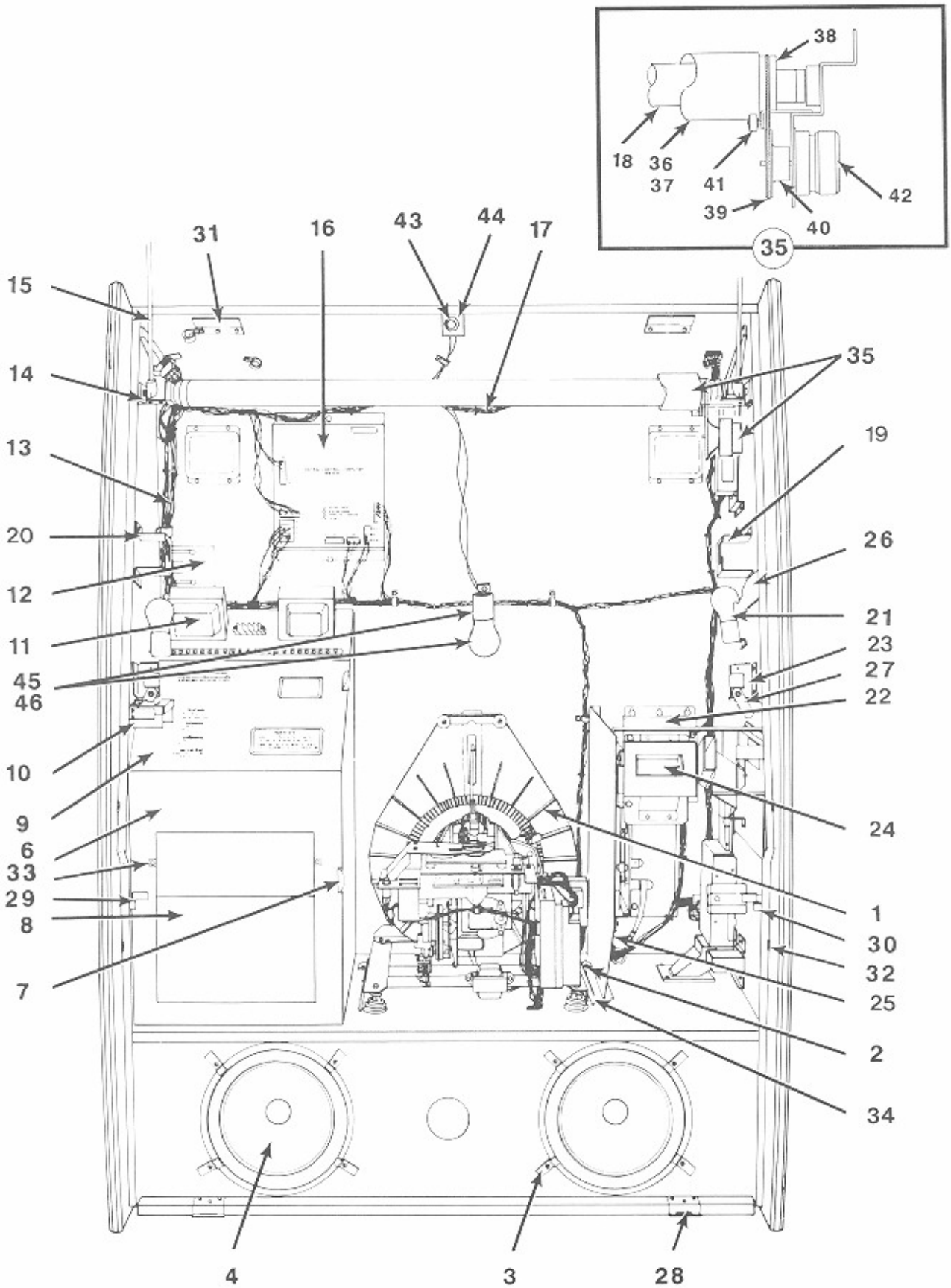
Ref.	Part No.	Description	Qty
	61047001	Front Door Assembly—Blue	Ref.
	61047002	Front Door Assembly—Brown	Ref.
1	70163211	• Cylinder - Lock (Common Key)	1
2	61034303	• Grille - Lower (Blue)	1
2	61034304	• Grille - Lower (Brown)	1
3	61033703	• Trim - Bottom	1
4	30953801	• Trim Assembly - Grille (4 Lamp)	2
5	30953701	• Trim Assembly - Grille (8 Lamp)	1
6	61046201	• Diffuser Trim Assembly - Large	1
7	61046301	• Diffuser Trim Assembly - Small	2
8	40831303	• Trim - Side	2
9	21795305	• Bezel - Lock	1
10	61034401	• Lockbar	1
11	21883504	• Strike	2
12	21572601	• Cable - Fall Stop	2
13	21920101	• Bracket - Upstop	2
14	61034204	• Panel - Door (Lower)	1
15	40833603	• Scrim - Front Door	1
16	21940801	• Strap - Hinge	2
17	21567401	• Retainer - Spring	2
18	21256201	• Spring - Tension	2
19	21941801	• Lockbar Assembly (RH)	1
20	20922502	• Spacer	4
21	21724905	• Link - Lockbar	1
22	21425601	• Bolt - Lock	1
23	21941301	• Catch	1
24	21724902	• Link - Lockbar	1
25	21941701	• Lockbar Assembly (LH)	1
26	61046701	• Insulator	4
27	61046401	• Printed Wiring Board	4
28	21862201	• Lamp and Socket Assembly	16
29	30866504	• Lens - Magenta (Shown as M)	8
30	30866501	• Lens - Amber (Shown as A)	4
31	30866505	• Lens - Red (Shown as R)	4
32	40846701	• Harness - Front Door	1
33	70093101	• Cable Clamp	3
	70212219	• Sponge Rubber - Closed Cell	1
34	40836601	• • Cap - Trim	2

Figure 8-4 Title Rack Assembly



Ref.	Part No.	Description	Qty
	61046001	CD-100B Phonograph Assembly—Blue	Ref.
	61046002	CD-100B Phonograph Assembly—Brown	Ref.
1	61035702	• Title Rack Assembly—Blue	1
1	61035701	• Title Rack Assembly—Brown	1
2	30933901	• • Page & Clip Assembly	18
2	30933903	• • Page & Clip Assembly—Red	18
3	40833802	• • Rack CD Title Page	2
4	21942201	• • Switch - Micro	2
5	21083001	• • Nut - Twin	1
6	30935501	• • Guide - Side (CD Page Assembly)	2
7	30935001	• • Guide - Center, CD Page Assembly (Not Shown)	1
8	30936301	• • Motor & Gear Assembly	1
9	61036801	• • Plate - Bottom (CD Page Assembly)	1
10	61036902	• • Support - Vertical (CD Page Assembly)	1
11	40834701	• • Guide - Center (CD Page)	2
12	61036601	• • Shroud	1
13	40835401	• • Strip - Numbers (Page)	1
14	30938501	• • Harness Assembly - Interconnect	1
15	40835301	• • Brace - Mounting	2
16	30938301	• • Plate - Connector	1
17	61036701	• • Plate - Top (CD Page Assembly)	1
18	40848301	• • Knob	1
19	30940701	• • Label - Warning	2
20	30940801	• • Bumper - Page	4
21	30941801	• • Handle	2
	30941101	• • Bracket - Light Block	2
	21944401	• • Spacer - Speaker	4
	70134129	• • Screw - Special (#8-18 Griplock)	33
	70800106	• • Cable Tie	2

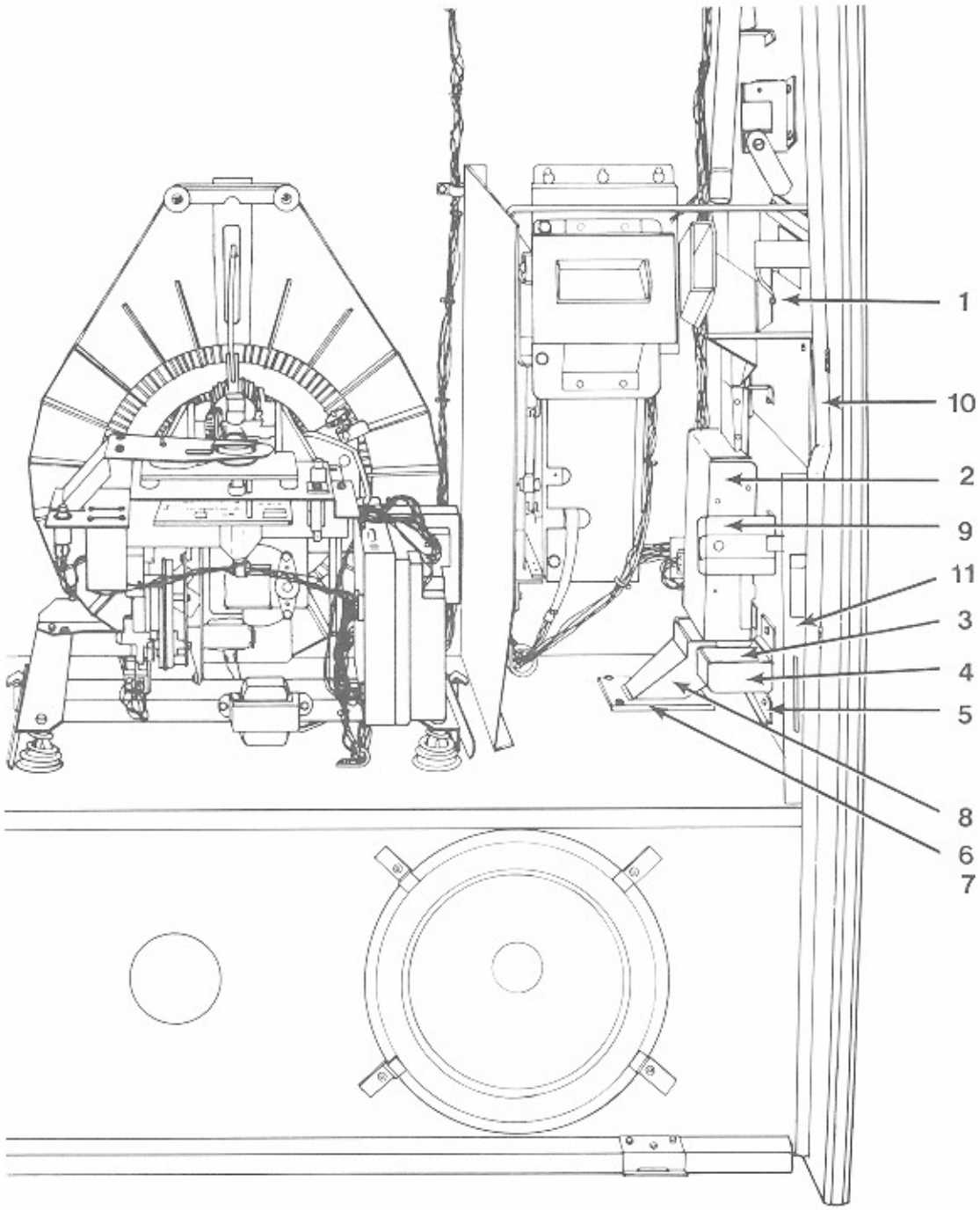
Figure 8-5. CD-100B Phonograph Internal View



21822618

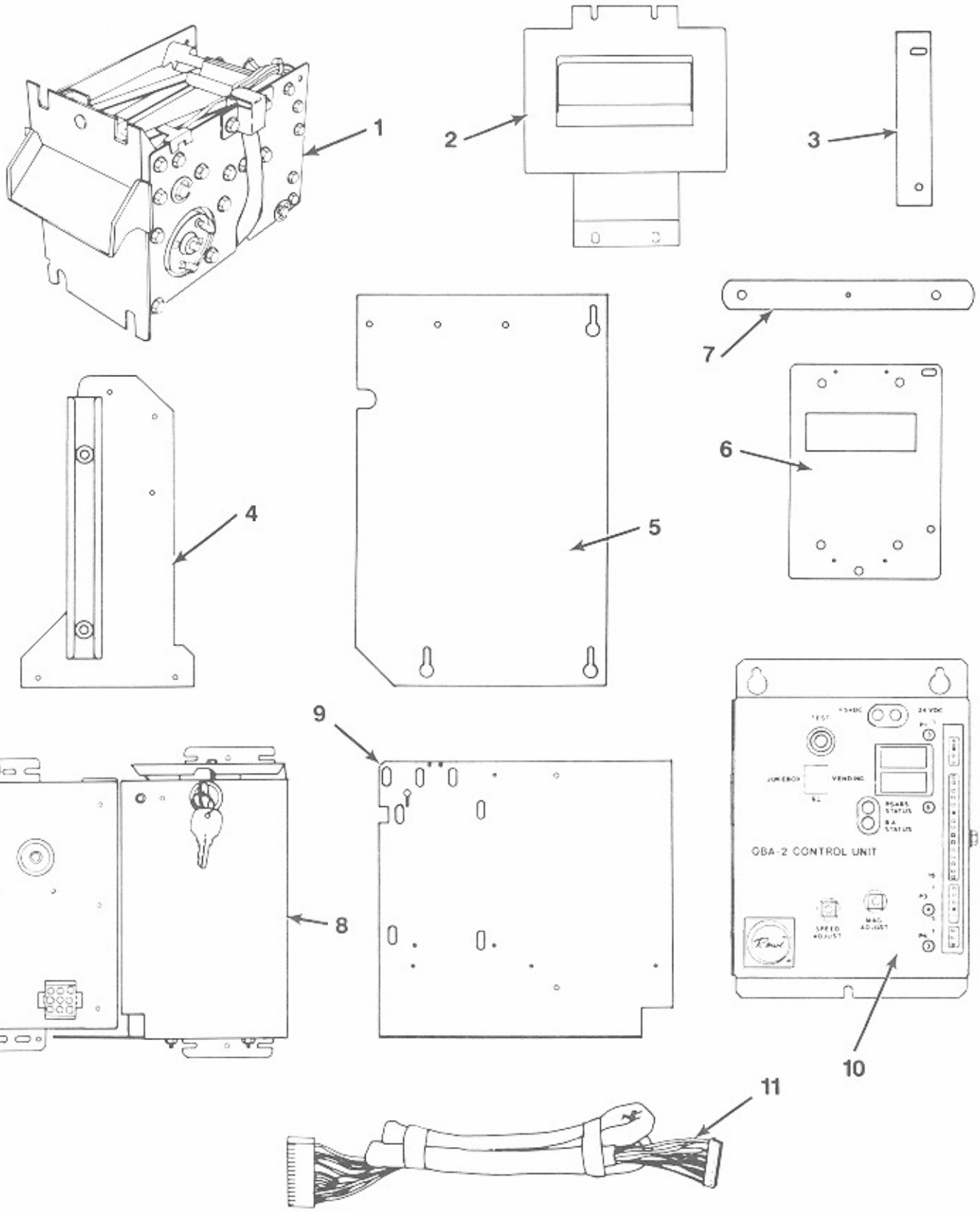
Ref.	Part No.	Description	Qty
	61046001	CD-100B Phonograph Assembly (60 Hz)	Ref.
	61046003	CD-100B Phonograph Assembly (50 Hz)	Ref.
1	61033001	• Mechanism Assembly - CD *(see figure 8-19)*	1
2	30932101	• Bracket - Mech Tie Down	2
3	21780701	• Bracket - Retainer, Speaker	8
4	40830703	• Speaker - Woofer 10 Inch	2
5	21780609	• Pad - Acoustical (Not Shown)	1
6	30934101	• Panel Assembly - Amplifier	1
7	21751804	• Spring Catch	2
8	30869801	• Handy Case *(For a list of items included in the Handy Case, with part numbers, refer to Table 8-1, Accessory Equipment, at the end of this section)*	1
9	40836101	• Panel Assembly - Amp (Top)	1
10	40835601	• Switch Assembly - Service	1
11	40832101	• Output Transformer Assembly *(see figure 8-16)*	1
12	21759301	• Cover - Cord Hole	1
13	61035503	• Harness & Switch Assembly	1
14	30936501	• Bracket - Ball Stud	2
	21797601	• Stud - Ball	2
15	40714908	• Spring - Pneumatic	2
16	40832201	• Central Control Computer	1
17	40832903	• Harness—110 Volt (60 Hz)	1
17	40832904	• Harness—110 Volt (50 Hz)	1
18	70060112	• Fluorescent Lamp (30 watt, T-8)	1
	70080004	• Starter - Fluorescent Lamp	1
19	30938201	• Mounting Bracket - Title Rack Upper (RH)	1
20	30938101	• Mounting Bracket - Title Rack Upper (LH)	1
21	70060410	• Lamp - Incandescent	2
22	61038903	• Control Unit - OBA *(see figure 8-7)*	1
23	30938401	• Bracket - Latch (Lower)	2
24	65056511	• Bill Acceptor transport *(see figure 8-7)*	1
25	61034801	• Bill Acceptor Mounting Plate *(see figure 8-7)*	Ref.
26	30938601	• Support Bracket Assembly	1
27	30938001	• Latch Pivot	1
28	30952301	• Door Mounting Bracket	2
29	21712701	• Latch Assembly (L.H.)	1
30	21712801	• Latch Assembly (R.H.)	1
31	30936601	• Bracket - Guide (Hinge)	2
32	21491301	• Door Guide	4
33	21870001	• Snap-In Fastener	2
34	30932201	• Lever - Mech Release	2
35	Ref.	• Color Tube Assembly	Ref.
36	30954201	• • Tube - Color	1
37	61047601	• • Filter - Color (Blue)	1
37	61047602	• • Filter - Color (Brown)	1
38	30953901	• • Cap - End (Color Tube)	2
39	21897301	• • Belt - O-Ring	1
40	21897401	• • Pulley	1
41	30954001	• • Bracket - Wheel Mounting	2
42	40824302	• • Motor & Harness	1
43	25060401	• Switch - Momentary	1
44	30956201	• Bracket - Switch	1
45	21943601	• Socket - Lamp	1
46	70060423	• Lamp - 120 V, 40 Watt	1

Figure 8-6. Coin Chute Assembly



Ref.	Part No.	Description	Qty
	61046001	CD-100B Phonograph Assembly (60 Hz)	Ref.
	61046002	CD-100B Phonograph Assembly (50 Hz)	Ref.
1	40832701	• Support & Coin Chute Assembly	1
	40831201	• • Support - Coin Chute and Reject Mechanism	1
	40833701	• • Chute Assembly - Coin (Upper)	1
	30930901	• • Pivot - Scavenge	1
	30931101	• • Link - Scavenge	1
	30931901	• • Actuator - Slug Rejector	1
	21940601	• • Link - Scavenge (Pivot)	1
	21256201	• • Spring - Tension	1
	21765601	• • Spring - Compression	1
	25156904	• • Washer - Shoulder	1
	20922502	• • Spacer	6
	70120010	• • Washer	1
	25155901	• • Bumper - Split Stem	1
	70091702	• • Solder Lug	1
2	40703811	• Mounting Bracket & Coin Switch Assembly	1
	40579302	• • Mounting Bracket Assembly	1
	30578702	• • Switch Assembly - Coin	1
	21790201	• • Hinge - Rejector	1
	21411401	• • Spacer	1
	20636801	• • Stud (#8-32)	1
3	21792901	• Door - Slug Cup	1
4	30781702	• Cup - Slug - (Black)	1
5	21793001	• Bracket - Slug Cup	2
6	30743701	• Collar - Coin Chute	1
7	21754401	• Gasket - Coin Chute	1
8	61034701	• Chute - Lower (Coin)	1
9	21429501	• Rejector Catch Assembly	1
	21730001	• Hook - Fall Stop	2
	21790102	• Support - Hinge	1
	70093401	• Cable Clamp (17/32)	15
	70093402	• Cable Clamp (13/16)	20
	21797503	• Screw - Tie Down	1
	21943501	• Blockout Retainer Bracket (C.I.)	1
	30939502	• Decal - Coin Inlet	1
	30939601	• Decal - Crest (BA Blockout, 50 Hz Only)	1
10	40833101	• Door Support - R.H. (Upper)	1
	40833001	• Door Support - L.H. (Upper)	1
11	30951601	• Door Support - R.H. (Lower)	1
	30951501	• Door Support - L.H. (Lower)	1
	70220487	• Foamed Tape	2
	21865301	• Link - Pivot	3
	25142281	• Jumper Assembly	1
	25142243	• Jumper Assembly	1

Figure 8-7. OBA–2 Bill Acceptor Assembly



Ref.	Part No.	Description	Qty
	61046001	CD-100B Phonograph Assembly (60 Hz)	Ref.
1	65056511	• Transport Assembly OBA 1&5 *(see figure 8-8)*	Ref.
2	61033901	• Trim - Bill Acceptor	1
3	30857901	• Bracket - Adjustment	1
4	30858402	• Slide Assembly - Support	1
5	61034801	• Plate - Mounting (BA)	Ref.
6	30858005	• Support Assembly - Front Plate	1
7	30858801	• Bar Assembly - Slide	1
8	60971516	• Bill Stacker Assembly (500 Bill Right-Hand Opening)	1
9	61035601	• Panel - Mounting (BA)	1
10	61038904	• Control Unit	1
	65063401	• • Base and Stud Assembly	1
	65063209	• • Circuit Board Assembly	1
	65063509	• • Control Unit Cover	1
11	45070203	• Interconnect Harness Assembly	1
	21875001	• Spacer - Rear (Not Shown)	1
	70093402	• Cable Clamp (Not Shown)	6
	70121211	• Spacer (Not Shown)	2
	21828201	• Spacer - Roller (Not Shown)	1
	20554502	• Clip - Cable (Not Shown)	1

Figure 8-8. OBA–2 Transport Assembly

Sheet 1

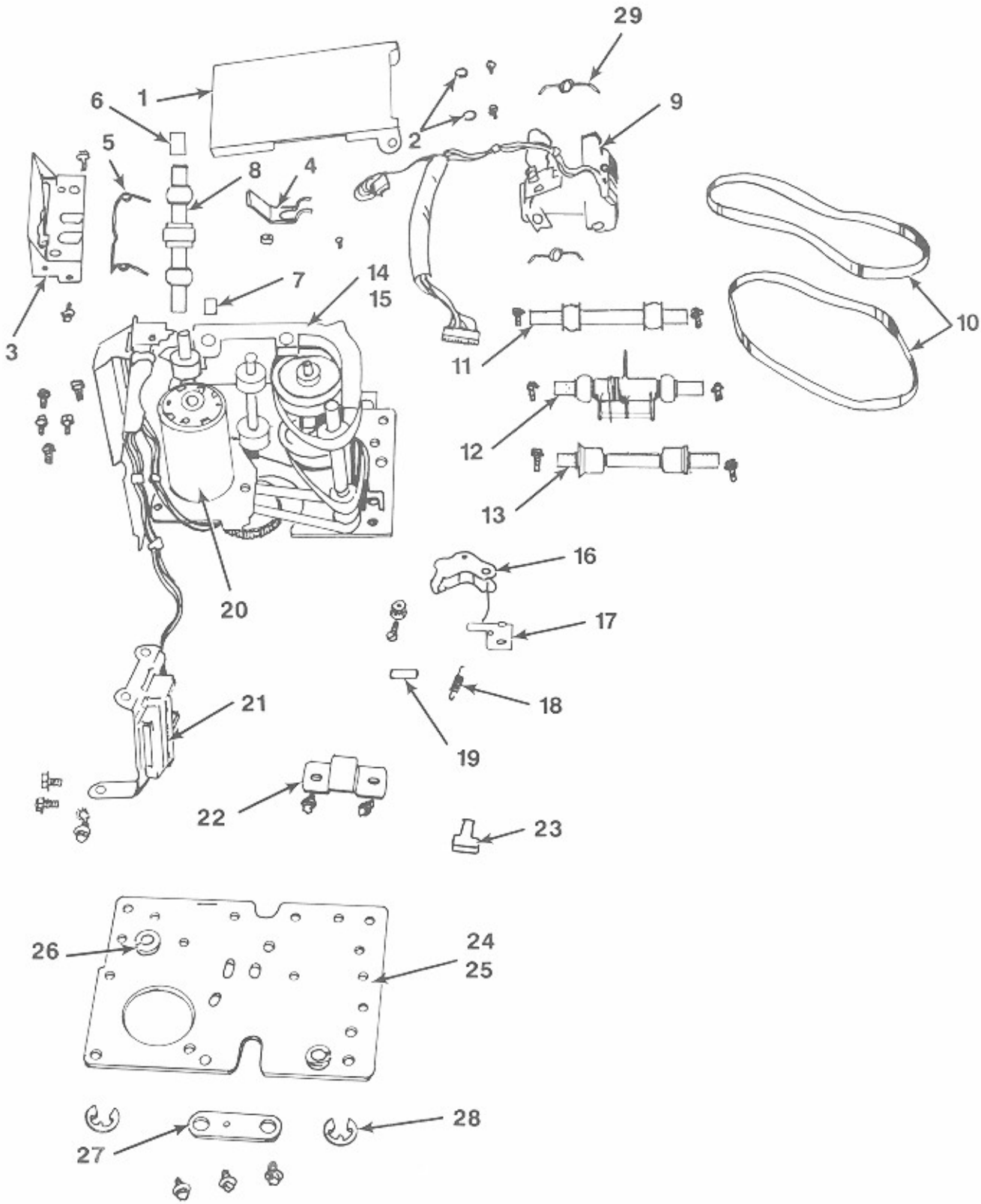


Figure 8-8. OBA-2 Transport Assembly (Sheet 1)

Ref.	Part No.	Description	Qty
	65056511	Standard OBA Transport Assembly	Ref.
1	35083801	• Light Block	1
2	20922503	• Spacer	2
3	35082904	• Inlet and Stud Assembly	1
4	35082601	• Pressure Roller Spring	1
5	25213601	• Spring	1
6	25213501	• Long Sleeve Spacer	1
7	25213502	• Short Sleeve Spacer	1
8	35097801	• Pressure and Crowned Roller Shaft Assembly *(see figure 8-9, E)*	1
9	45059801	• Harness and Holder Assembly *(see figure 8-11)*	1
10	35118601	• Drive Belt	2
11	35097501	• Crowned Roller Shaft Assembly *(see figure 8-9, C)*	1
12	35097402	• Anti Cheat Lever Shaft Assembly *(see figure 8-9, B)*	1
13	35097601	• Creasing Roller Shaft Assembly *(see figure 8-9, D)*	1
14	35099403	• Track and Pressure Roller Assembly	1
15	35083004	• • Lower Track	1
16	35080603	• • Pressure Roller Assembly	1
17	25224601	• • Pressure Roller Spring Bracket	1
18	25225003	• • Tension Spring	1
19	25191701	• • Pivot Pin	1
20	45058404	• Motor Assembly (With Shield)	1
21	35080701	• Circuit Board and Bracket Assembly	1
22	35083701	• Wire Holding Bracket	1
23	21776009	• U-Type Speed Clip Fastener	1
24	35098001	• Side Plate Assembly (RH	1
25	45057801	• • Side Plate (RH	1
26	70146004	• • Nyliner Bearing	2
27	25194101	• • Take-up Shaft Bracket	1
28	70143004	• External Retaining Ring	2
29	35112301	• Retainer - Mag. Head Holder	2
	70122009	• Washer - Internal Lock	1
	25223101	• Label - Flag	1
	25023902	• Tie - Wire	2

Figure 8-8. Transport Assembly

Sheet 2

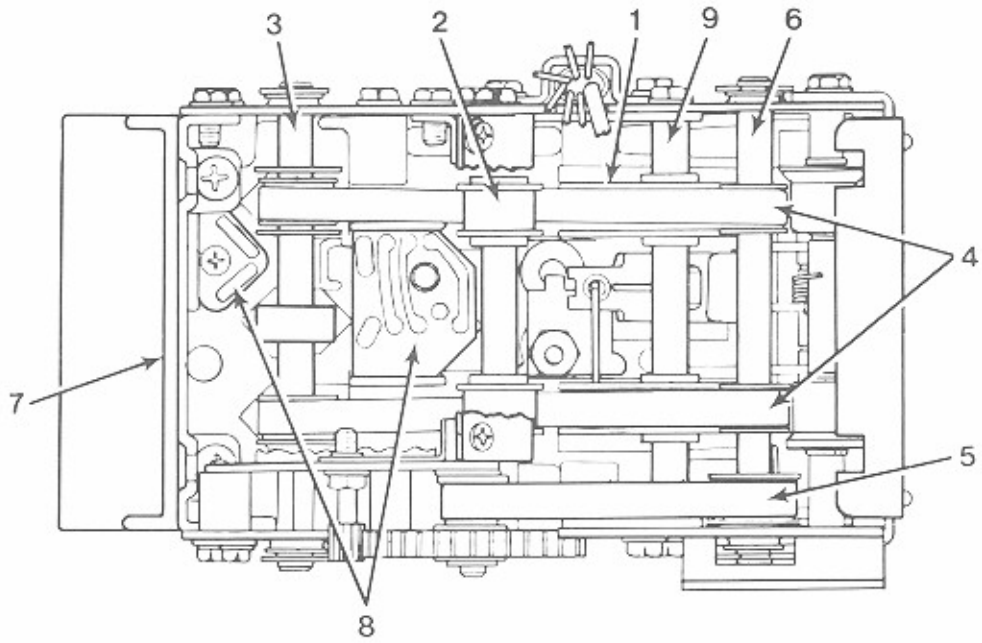


Figure 8-8. OBA–2 Transport Assembly (Sheet 2)

Ref.	Part No.	Description	Qty
	65056511	OBA-2 Transport Assembly	Ref.
1	35080101	• Drum Pulley	2
2	35098101	• Take-up Roller Shaft Assembly *(see figure 8-9, F)*	1
3	35080501	• Lower Input Roller Assembly *(see figure 8-9, A)*	1
4	45077201	• Timing Belt (140 Tooth)	2
5	35082001	• Timing Belt (70 Tooth)	1
6	35080801	• Drive Shaft Assembly *(see figure 8-9, G)*	1
7	35090604	• Casting, Plate and Harness Assembly	1
	45064201	• • Front Plate	1
8	45058202	• • Harness Assembly - Lower *(see figure 8-10)*	1
9	35097701	• Ring Shaft Assembly	1
	35080001	• • Drum Pulley Shaft	1
	70143004	• • External Retaining Ring	2

Figure 8-8. Transport Assembly

Sheet 3

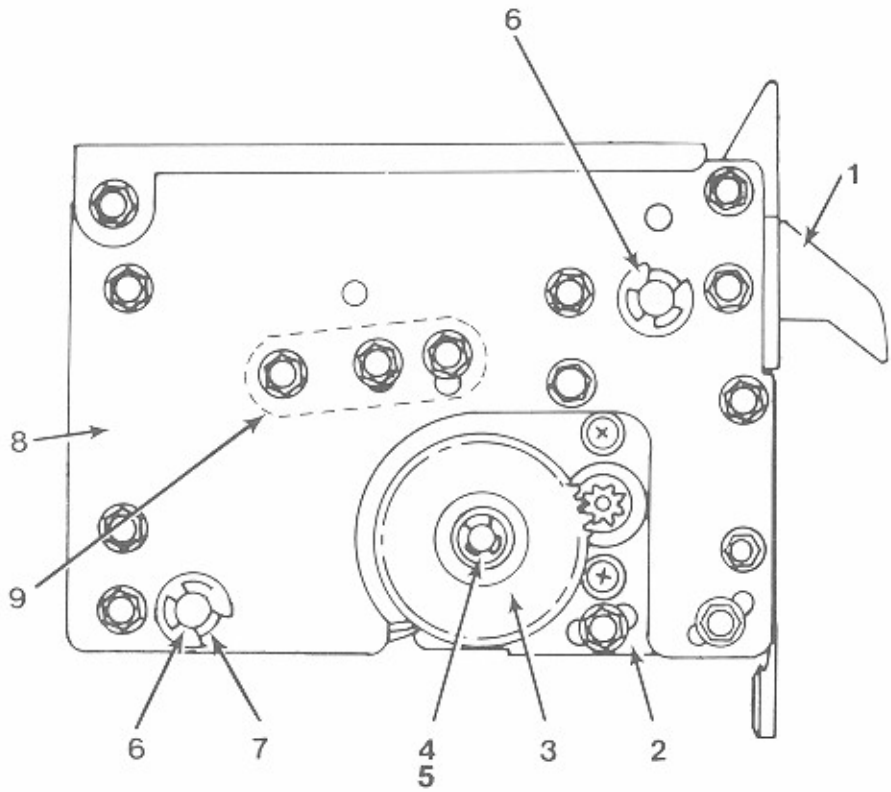
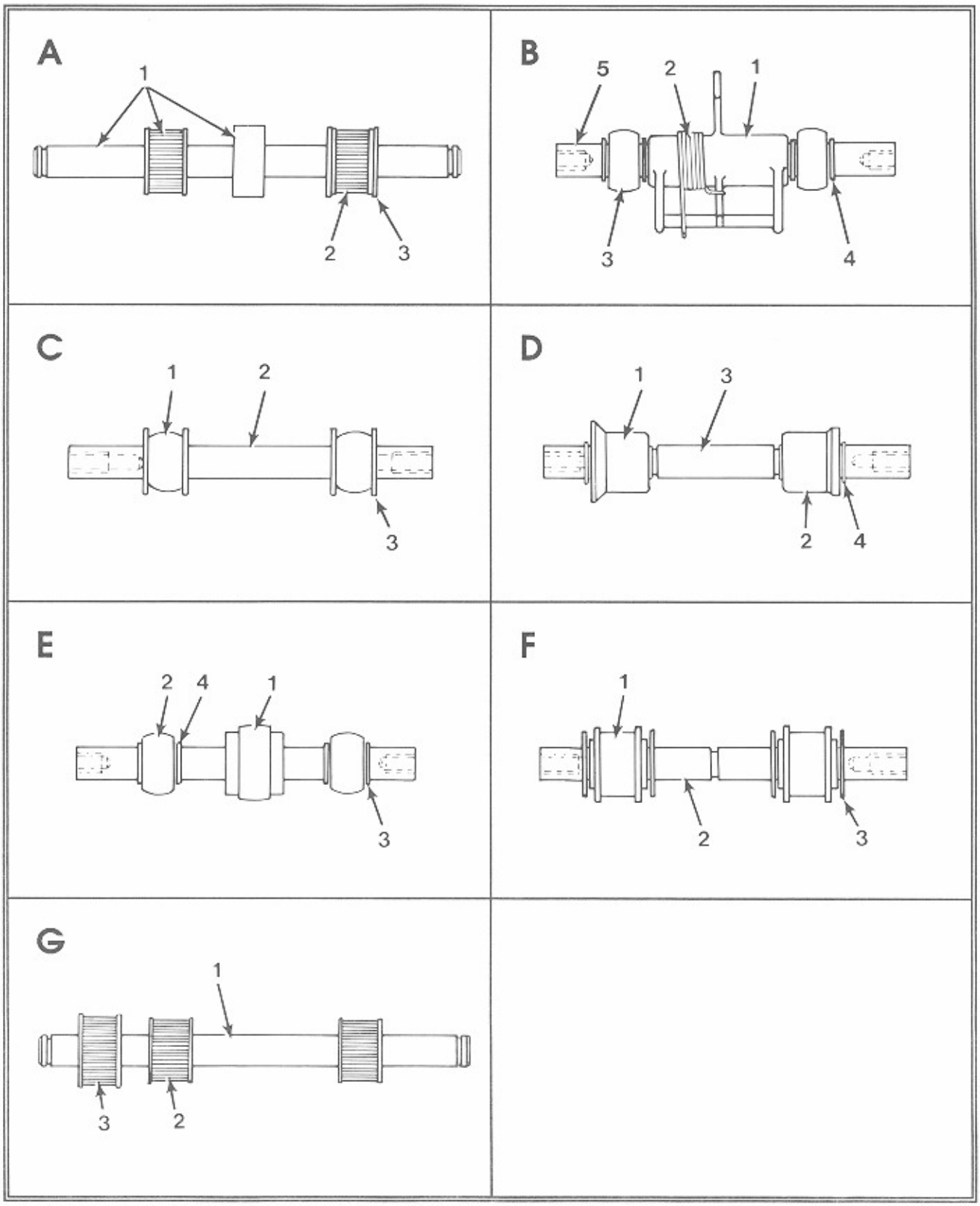


Figure 8--8. OBA–2 Transport Assembly (Sheet 3)

Ref.	Part No.	Description	Qty
	65056511	OBA-2 Transport Assembly	Ref.
1	65056801	• Inlet Track *(see figure 8-8, sheet 2)*	Ref.
2	35090701	• Bracket & Reduction Gear Assembly	1
	35090501	• • Bracket, Spacer And Pin Assembly	1
3	45058501	• • Reduction Gear	1
4	70120501	• • Washer	1
5	70143003	• • External Retaining Ring (3/16)	1
6	70143004	• External Retaining Ring	2
7	35097901	• Side Plate Assembly - LH	1
	45057702	• • Side Plate - LH	1
	70146004	• • Nyliner Bearing	2
8	25194101	• • Take-up Shaft Bracket	1

Figure 8-9. OBA–2 Transport Roller and Shaft Assemblies



Ref.	Part No.	Description	Qty
A	**35080501**	**Lower Input Roller Assembly**	
1	25227601	• Lower Input Shaft Assembly	1
2	25192902	• 22 Tooth Pulley	1
3	70143004	• External Retaining Ring	2
B	**35097402**	**Anti-Cheat Lever Shaft Assembly**	
1	35096402	• Anti-Cheat Lever	1
2	35081602	• Spring	1
3	25193301	• Crowned Roller	2
4	70143301	• External Retaining Ring	4
5	25193401	• Crowned Roller - Shaft	1
C	**35097501**	**Crowned Roller Shaft Assembly**	
1	25193301	• Crowned Roller	2
2	25193401	• Crowned Roller Shaft	1
3	70143004	• External Retaining Ring	4
D	**35097601**	**Creasing Roller Shaft Assembly**	
1	25193601	• Creasing Roller	1
2	25193602	• Small Creasing Roller	1
3	35080001	• Drum Pulley Shaft	1
4	70143301	• External Retaining Ring	2
E	**35097801**	**Pressure and Crowned Roller Shaft Assembly**	
1	25193901	• Pressure Roller (Upper)	1
2	25193301	• Crowned Roller	2
3	35082301	• Top Shaft	1
4	70143301	• External Retaining Ring	4
F	**35098101**	**Take-up Roller Shaft Assembly**	
1	35080301	• Take-up Roller	2
2	35080002	• Take-up Shaft	1
3	70143004	• External Retaining Ring	4
G	**35080801**	**Drive Shaft Assembly**	
1	25192801	• Drive Shaft	1
2	25192401	• 20 Tooth Pulley (Drive Belt)	2
3	25192902	• 22 Tooth Pulley	1

Figure 8-10. Lower Harness Assembly

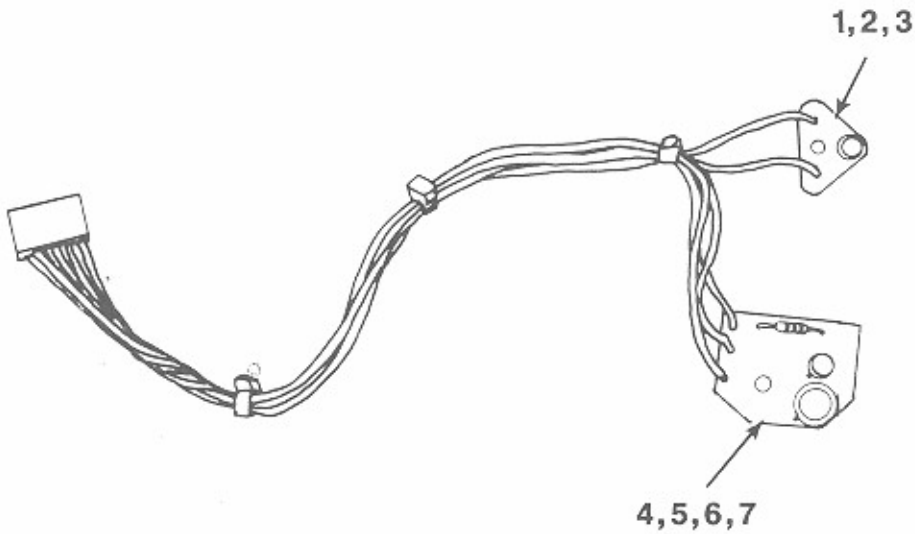


Figure 8-10. Lower Harness Assembly

Ref.	Part No.	Description	Qty
	65056511	OBA-2 Transport Assembly	Ref.
	45058202	• Lower Harness Assembly *(see figure 8-8, sheet 2, item 8)*	Ref.
1	21313002	• • Terminal Board - V1 Emitter	1
2	70035308	• • Light Emitting Diode	1
3	45063301	• • Diode Spacer	1
4	35079902	• • Reflective Sensor Board - V2	1
5	21339701	• • Photovoltaic Cell	1
6	79901151	• • Resistor - Carbon (1/4 W 5%) 150 Ohm	1
7	70035308	• • Light Emitting Diode	1

Figure 8-11. Harness & Holder Assembly

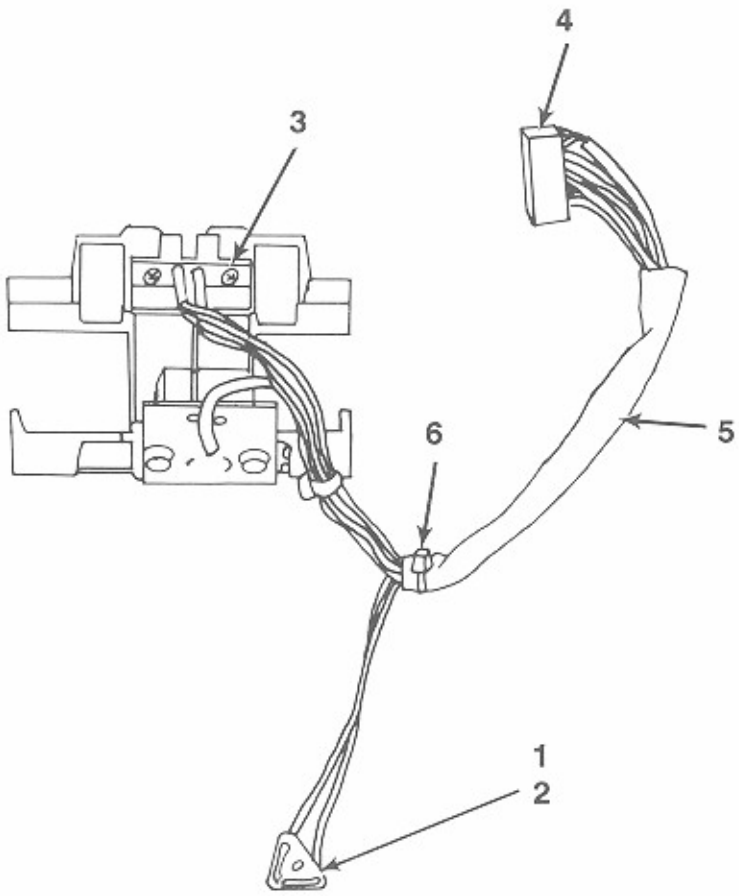


Figure 8-11. Harness & Holder Assembly

Ref.	Part No.	Description	Qty
	65056511	OBA-2 Transport Assembly	Ref.
	45059801	• Harness And Holder Assembly *(see figure 8-8, sheet 1, item 9)*[1]	Ref.
1	21313002	• • Terminal Board	1
2	70033204	• • Phototransistor	1
3	35082402	• • Switch - Optical	1
4	70075808	• • Terminal Housing (8 Circuit)	1
5	70219286	• • Insulated Tubing	1
6	70800107	• • Cable Tie	1

[1]The magnetic head must be factory aligned to holder and insert assembly. If a new head is needed, order the harness and holder assembly (Part Number 45059801).

Figure 8-12. 500 Bill Stacker Assembly

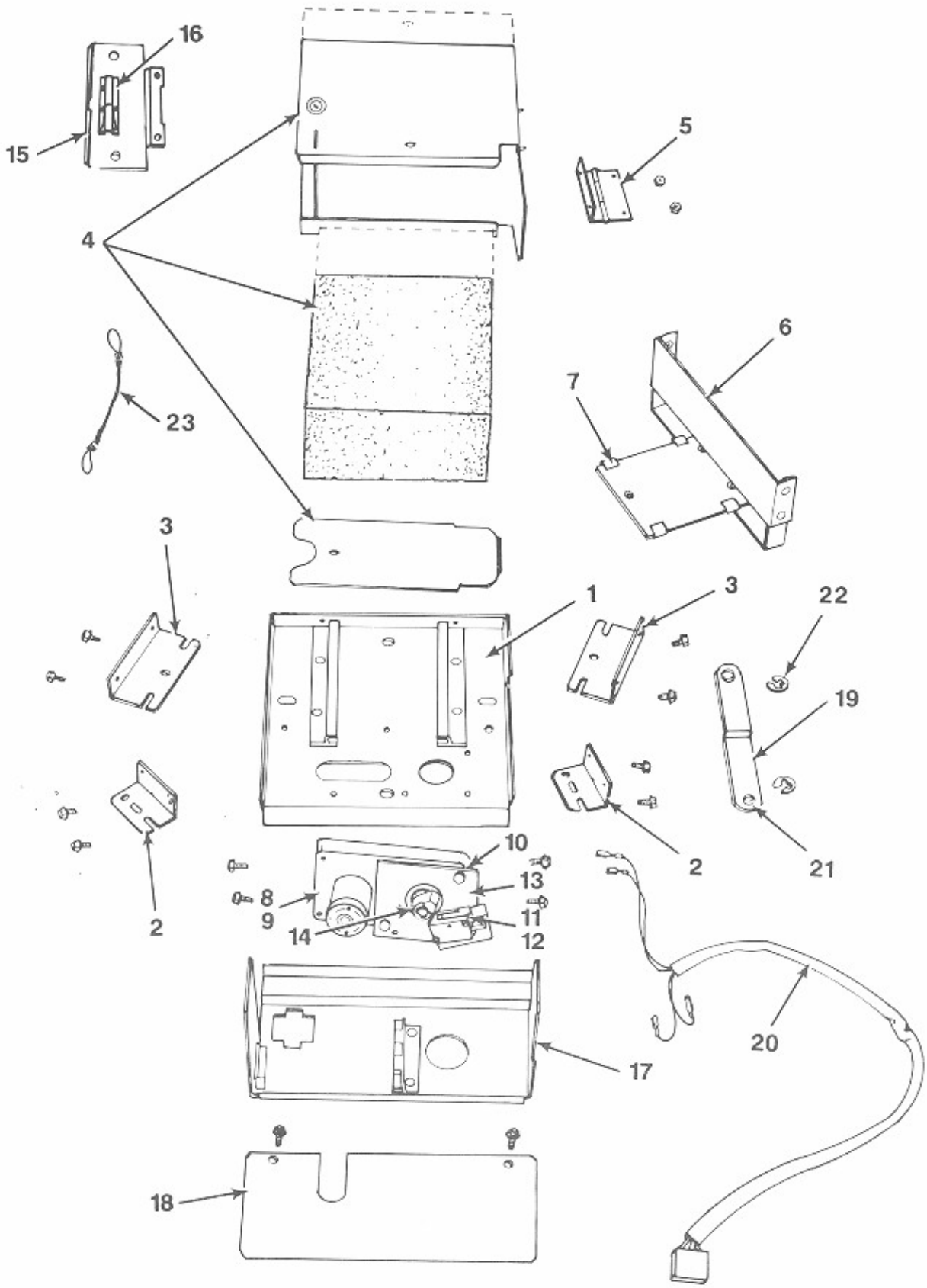


Figure 8-12. 500 Bill Stacker Assembly

Ref.	Part No.	Description	Qty
	60971516	Bill Stacker Assembly (500 Bill)	Ref.
1	40712402	• Mounting Plate Assembly	1
2	21874603	• Bill Stacker Support	2
3	35084201	• Stacker Rear Support	2
4	40777008	• Cash Box Assembly (500 Bill)	1
	35039204	• • Pressure Plate	1
	21757901	• • Foam Block	1
	70162008	• • Cylinder Lock	1
	70166011	• • Lock Bolt	1
5	30783202	• Hinge - Cashbox	1
6	40712604	• Carriage Assembly	1
7	21757701	• Guide	4
8	35087801	• Motor & Switch Assembly	1
9	35087701	• • Motor Assembly With Crank	1
10	70121706	• • Spacer	2
	70143010	• • External Retaining Ring	1
	21894203	• • Switch and Plate Assembly	1
	25054801	• • • Insulator - Switch	1
	21083001	• • • Nut - Twin	1
11	21073102	• • • Switch	1
12	21082901	• • • Switch Actuator	1
13	21795801	• • • Switch Bracket	1
14	30781802	• • Switch Cam	1
15	30785602	• Bill Box Cover	1
16	35084301	• Lock Bracket	1
17	40712703	• • Rear Cover Assembly	1
18	30859002	• Cover Plate	1
19	21792403	• Carriage Link	1
20	45062308	• DC Bill Stacker Harness Assembly	1
	70075505	• • Connector Housing (5 Circuit)	1
	70075701	• • Keying Plug	1
	70219228	• • Insulated Tubing	1
	70075601	• • Contact	1
	70091304	• • Terminal Lug - Slip On	4
	70800107	• • Cable Tie	10
21	70146006	• Nyliner Bearing	2
22	70143004	• External Retaining Ring	2
23	21572605	• Fall Stop Cable	1
	20922502	• Spacer	2
	70093103	• Cable Clamp	1

Figure 8-13. CD-100B Amplifier Compartment

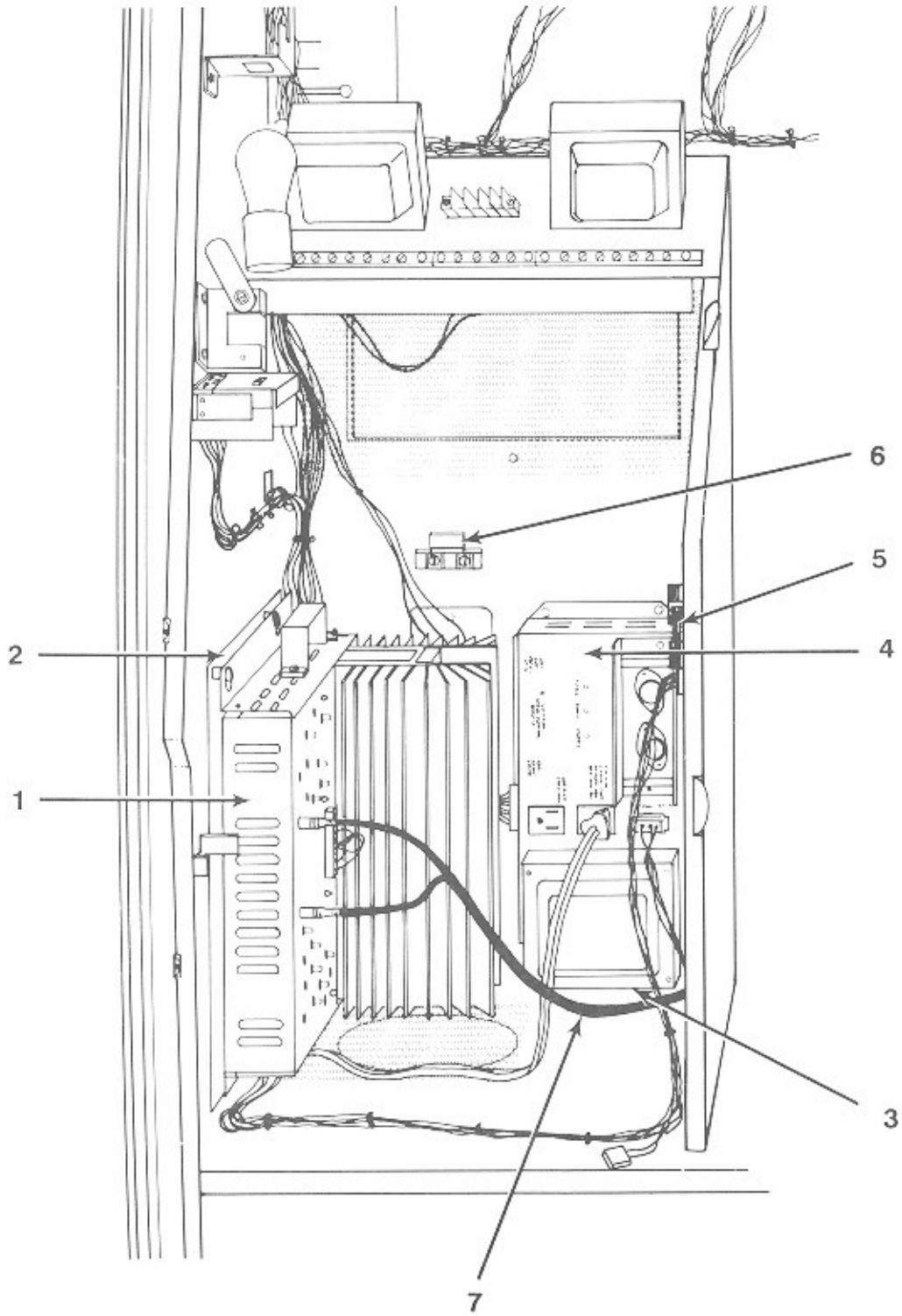
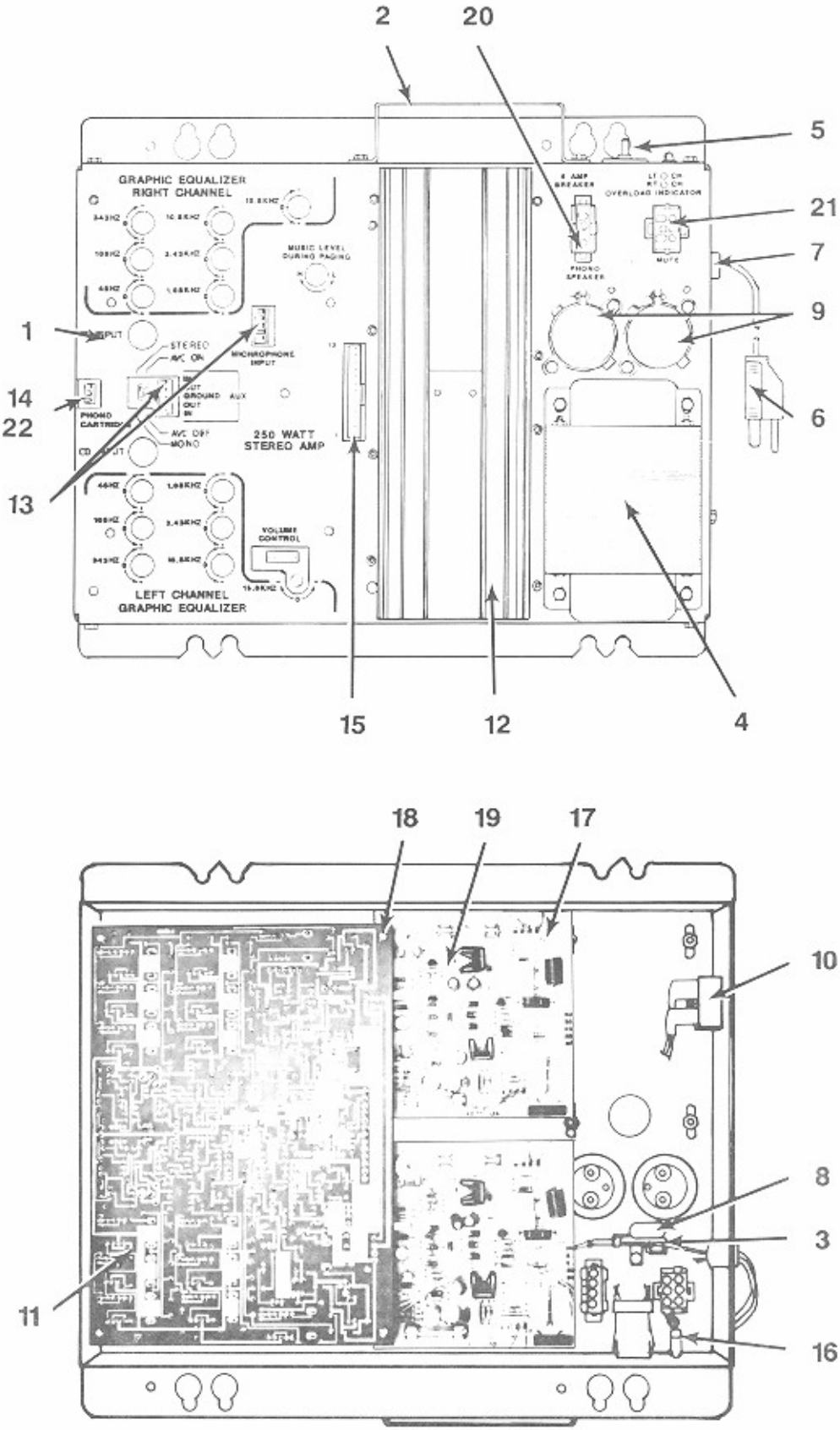


Figure 8-13 CD-100B Amplifier Compartment

Ref.	Part No.	Description	Qty
	61046001	CD-100B Phonograph Assembly (60 Hz)	Ref.
	61046002	CD-100B Phonograph Assembly (50 Hz)	Ref.
1	61024902	• 250 Watt Stereo Amplifier *(see figure 8-14)*	1
2	40242601	• • Amplifier Mounting Bracket Assembly	1
3	20925601	• Main Power Supply Mounting Bracket	1
4	40770609	• Main Power Supply *(see figure 8-17)*	1
5	61052701	• Crossover Circuit Board Assembly	1
6	21955902	• Resistor Assembly	1
7	30934201	• • Cable Assembly - Audio	1

Figure 8-14. Stereo Amplifier Assembly



Ref.	Part No.	Description	Qty
	61024902	Stereo Amplifier Assembly *(see figure 8-13, item 1)*	Ref.
1	61024602	• Chassis Assembly	1
2	21488101	• Handle	1
3	21724102	• Terminal Strip	1
4	40737805	• Power Transformer	1
5	70078956	• Circuit Breaker	1
6	25218603	• 3 Conductor Cord and Plug	1
7	70232205	• Strain Relief	1
8	70021305	• Mylar Capacitor (.1 Mfd)	1
9	21823102	• Electrolytic Capacitor (10,000 Mfd)	2
10	21822501	• Bridge Rectifier	1
11	61023702	• Stereo Preamp. Assembly *(see schematic for parts list)*	1
12	40710303	• Heat Sink Detail *(see figure 8-15)*	1
13	70075505	• Connector Housing (5 Circuit)	2
14	70075503	• Connector Housing (3 Circuit)	1
15	21620703	• Amplifier Jumper Plug Assembly	1
16	21893401	• Speaker Overload Indicator (Left Channel)	1
	21893402	• Speaker Overload Indicator (Right Channel)	1
17	70500006	• Circuit Board Support	8
18	70500018	• Circuit Board Support	5
19	40710104	• Driver Circuit Board Assembly *(see power amplifier schematic for components list)*	2
20	30749003	• Cap Housing (4 Circuit)	1
21	30749004	• Cap Housing (6 Circuit)	1
	70097502	• • Contacts	6
22	21620704	• Shorting Plug	1
	70099201	• • Self - Stripping Terminal	1
	21943301	• • Capacitor Clamp	2
	70091706	• • Solder Lug	1
	70075505	• • Connector Housing (5 Circuit)	2
	70075502	• • Connector Housing (2 Circuit)	2
	70800101	• • Cable Tie	4
	70075601	• • Contact	9
	70091308	• • Terminal Lug - Slip On	2

Figure 8-15. Heat Sink Detail

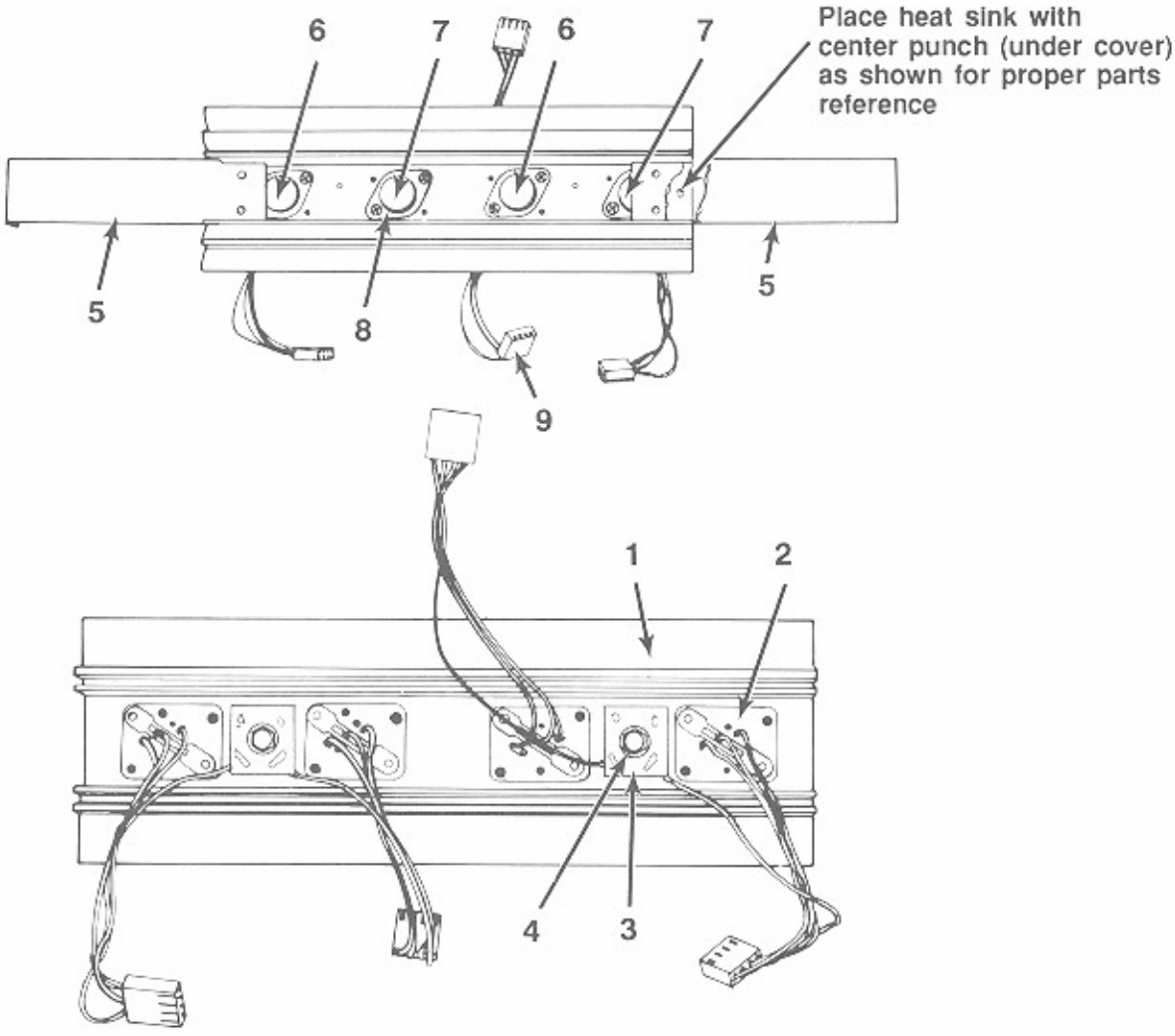


Figure 8-15. Heat Sink Detail

Ref.	Part No.	Description	Qty
1	40710303	• Heat Sink *(see figure 8-14, item 12)*	Ref.
2	21547301	• Power Transistor Socket	4
3	40837401	• Circuit Board Assembly - Bias Diode	2
4	21840201	• Compression Spring	2
5	21798001	• Cover	2
6	70030206	• Transistor (Darlington Amp, RCA- 2N6284) (NPN, Q101, 2 places)	2
7	70030207	• Transistor (Darlington Amp, RCA-2N6287) (PNP, Q102, 2 places)	2
8	21318902	• Precoated-Insulator	4
9	70075504	• Connector Housing	4

Figure 8-16. Output Transformer Assembly

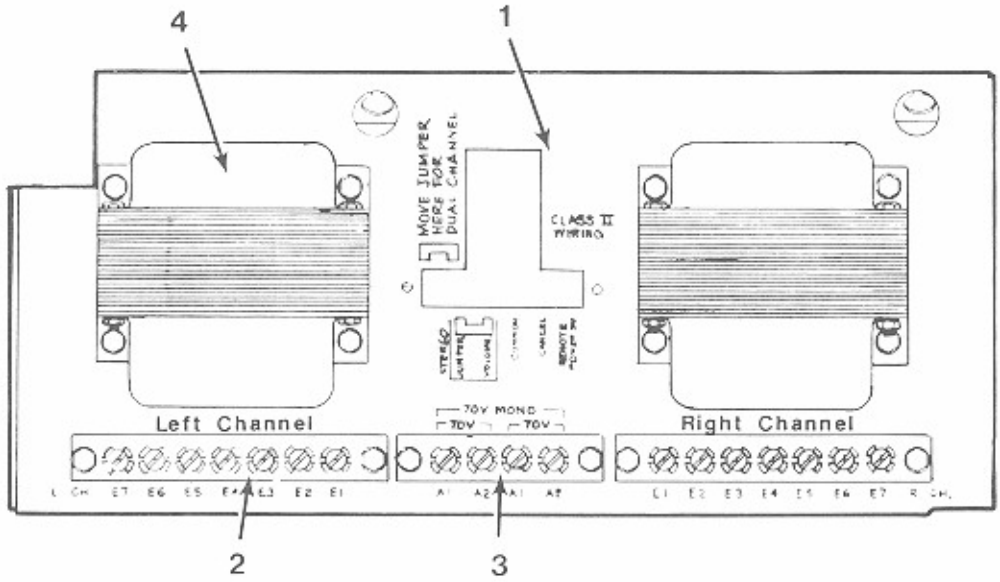
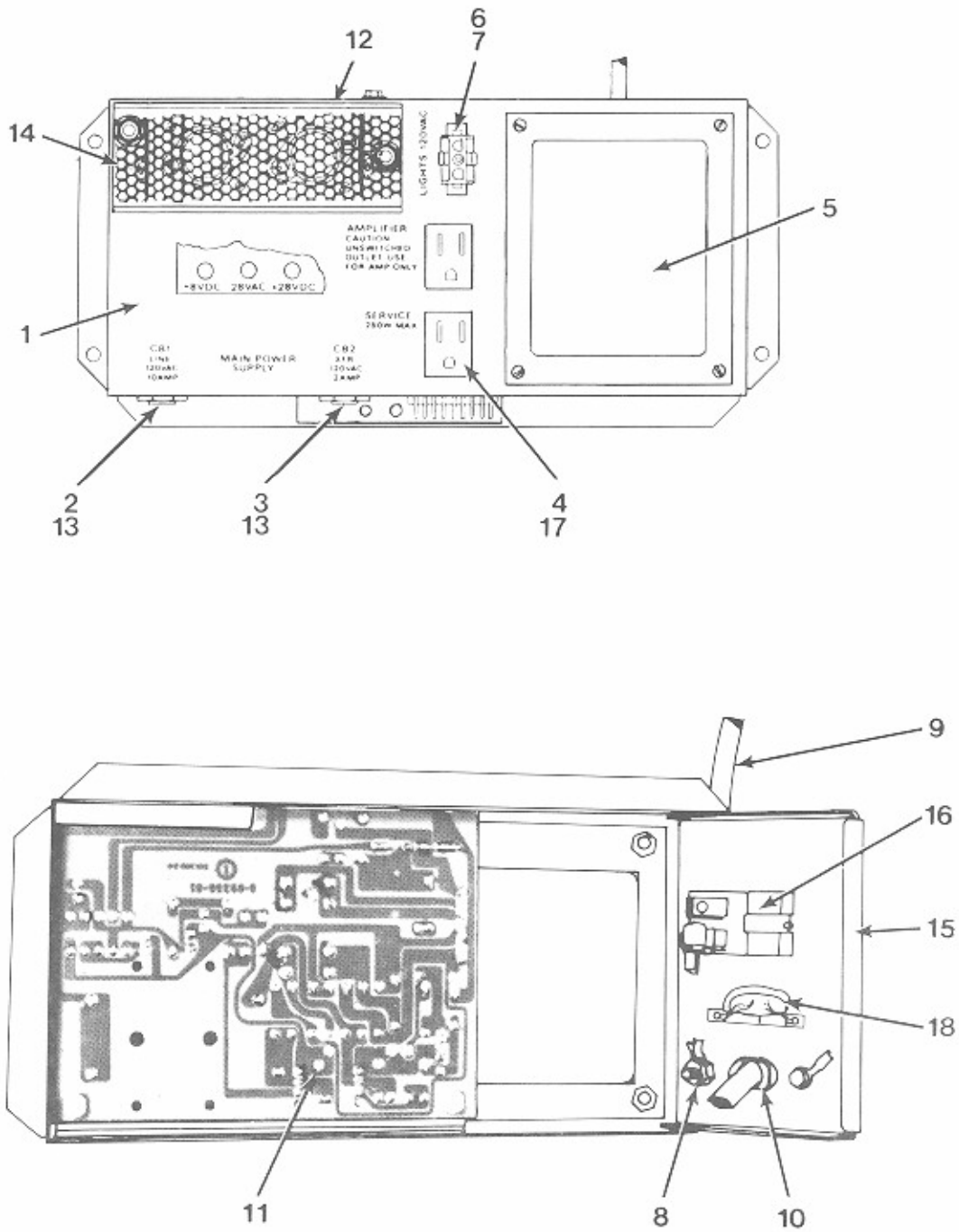


Figure 8-16. Output Transformer Assembly

Ref.	Part No.	Description	Qty
	40832101	Output Transformer Assembly *(see figure 8-5, item 11)*	
		(See also figure 5-10, the Wiring Diagram)	
1	40832001	• Chassis With Lettering	1
2	30426707	• Terminal Strip	2
3	30426706	• Terminal Strip	1
4	40633502	• Output Transformer	2
5	21537401	• Label - Speaker Power	1

Figure 8-17. Main Power Supply

(120 Volt, 60 Hz Model)



Ref.	Part No.	Description	Qty
	40770610	Main Power Supply (120 V) Canada	Ref.
	46509214	Main Power Supply (100 V)	Ref.
	40770609	Main Power Supply (120 V) *(see figure 8-13, item 4)*	Ref.
	46509215	Main Power Supply (220 V)	Ref.
	46509216	Main Power Supply (240 V)	Ref.
1	40771905	• Chassis Assembly	1
2	70073613	• 10 Amp Circuit Breaker (120 V)	1
3	70073605	• 2 Amp Circuit Breaker (120 V)	1
4	21375901	• 3 Wire Convenience Outlet	2
5	40772001	• Transformer - Power (120 V)	1
	46509302	• • Transformer - Power (100/220/240 V)	1
	70075601	• • Post Contact (120 V)	6
	70075601	• • Post Contact (100/220/240 V)	5
	70097504	• • Contact	1
	70091308	• • Terminal Lug (120 V)	1
	70091308	• • Terminal Lug (100/220/240 V)	4
6	30749002	• Cap Housing	1
	70097504	• • Contact (100/220/240 V)	3
7	70097504	• Contact (120 V)	2
	70091308	• • Terminal Lug (120 V)	2
	70091308	• • Terminal Lug (100/220/240 V)	4
8	70091511	• Ring Terminal (12U)	2
9	30834506	• Power Cord Assembly (120 V)	1
	36536501	• Power Cord Assembly (100/220 V/240 V)	1
10	70232104	• Strain Relief	1
11	60935704	• Circuit Board Assembly - Main Power Supply	1
12	40733102	• Heat Sink and Power Transistor Assembly	1
	30834301	• • Power Supply Heat Sink	1
	70030807	• • Transistor (Darlington) (2N6055) (Motorola, RCA)	2
	21318902	• • Insulator	2
	25158602	• • Power Transistor Socket	2
	70075504	• • Connector Housing	2
	70075601	• • Post Contact	6
	70075702	• • Keying Post	2
13	21408602	• Straight Receptacle (120 V)	4
	21408602	• Straight Receptacle (100/220/240 V)	8
	70073608	• Breaker 100/220/240 V (5A) (Not Shown)	2
	70073610	• Breaker 100/220/240 V (7A) (Not Shown)	1
14	21828101	• Heat Sink Cover	1
15	30867301	• Switch Panel	1
	30867302	• Switch Panel (Canada)	1
	21870501	• Base - Switch Cover (Canada)	1
	21870601	• Switch Cover (Canada)	1
	25077201	• Toggle Switch - SPST (Canada)	1
	21724101	• Terminal Strip (100/220/240 V)	1
16	30785701	• Rocker Switch - SPST (120 V)	1
	30785702	• Rocker Switch - SPST (100/220/240 V)	1
17	70096701	• Insulated Faston (120 V)	1
	70096701	• Insulated (220/240 V)	1
	70099201	• Self Stripping Terminal	7
	70099101	• Self Stripping Terminal	1
	70075508	• Connector Housing	1
	70075702	• Keying Plug	1
	70075601	• Post Contact (120 V)	4
	70075601	• Post Contact (220/240 V)	5
18	21943801	• MOV Assembly (100/120 V)	1
	21943701	• MOV Assembly (220/240 V)	1

Figure 8-18. Central Control Computer

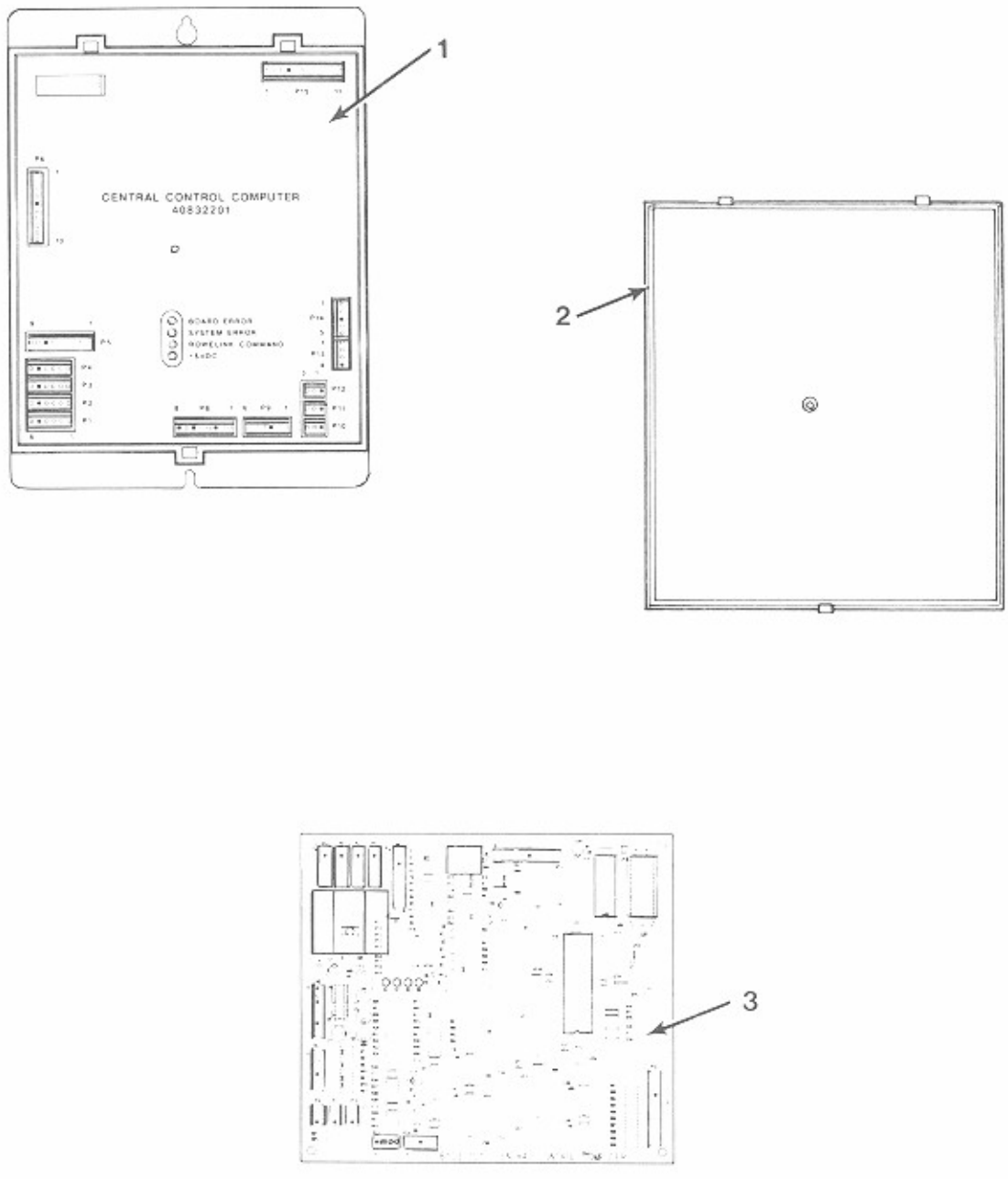
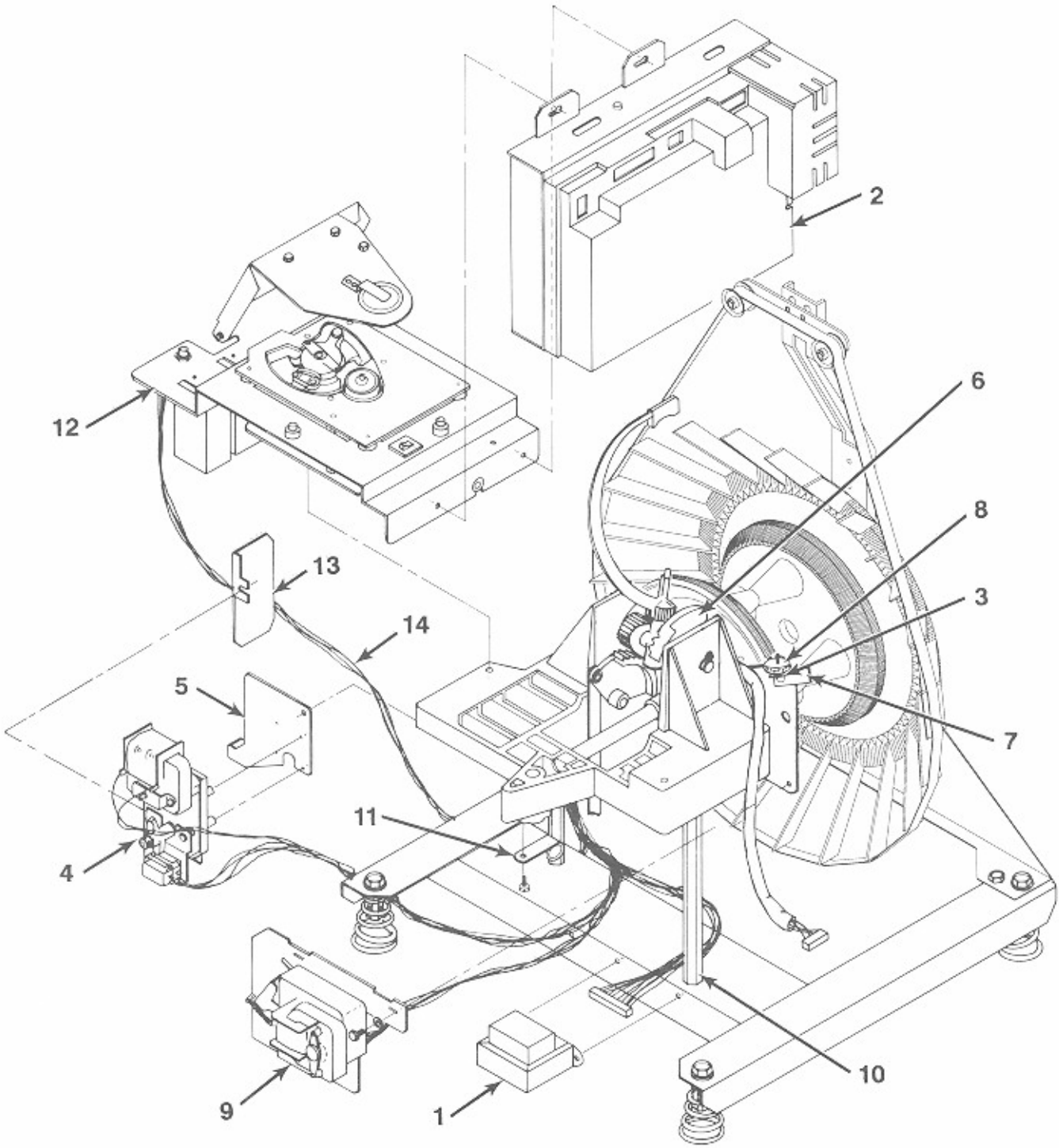


Figure 8-18. Central Control Computer Assembly

Ref.	Part No.	Description	Qty
	40832201	Central Control Computer Assembly (see figure 8-5, item 16)	Ref.
1	61031201	• Central Control Computer Cover	1
2	61031301	• Central Control Computer Base	1
3	61031101	• Central Computer Circuit Board Assembly *(see figure 5-12 for the schematic and components list)*	1

Figure 8-19. Mechanism Assembly

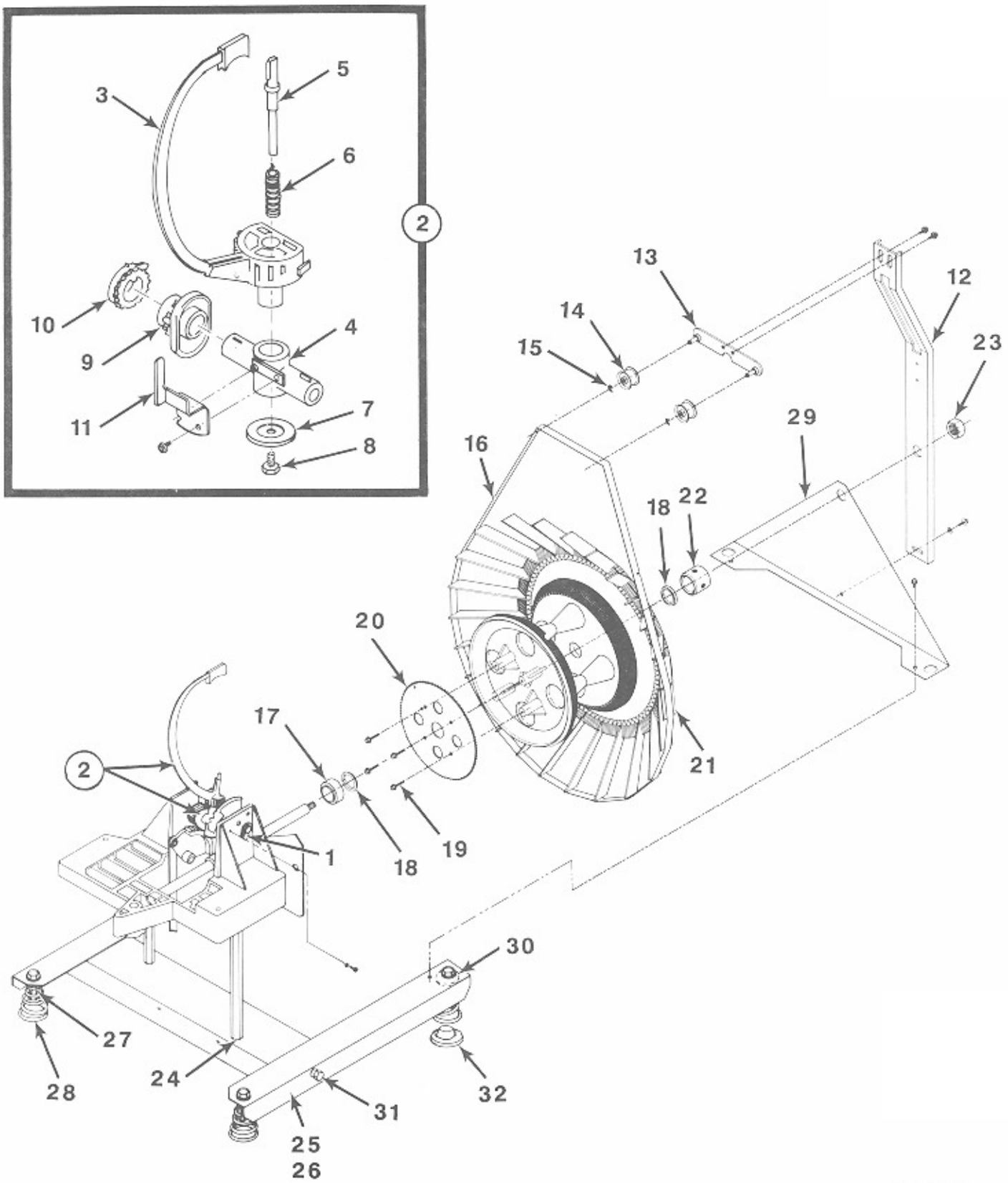
Sheet 1



Ref.	Part No.	Description	Qty
	61033001	Mechanism Assembly *(see figure 8-5, item 1)* (60 Hz)	Ref.
1	40830401	• CD Player Transformer	1
2	61030703	• Mechanism Control & Decoder Assembly *(see figure 8-19, sheet 3)*	1
3	30906801	• Optical Switch Assembly	1
	30794501	• • Mounting Bracket	1
	30905901	• • • Optical Switch and Connector Assembly	1
	40803701	• • • Optical Switch	1
	70075565	• • • Connector Housing (Red)	1
	70075702	• • • Keying Plug	1
	70075601	• • • Contact Post	4
	70219201	• • • Insulated Tubing	1
	70134111	• • • Screw - Special	2
	70800101	• • Cable Tie	2
4	40720802	• Cam Switch & Motor Assembly *(see figure 8-21)*	1
5	30790701	• Motor Mounting Plate	1
6	30790603	• Rotator Assembly (RH)	1
7	21818601	• Adjusting Bracket Assembly	1
8	21818401	• Adjusting Knob	1
9	40721901	• Sprag Assembly *(see figure 8-21)*	1
10	21812502	• Mechanism Support	2
11	70093401	• Cable Clamp (17/32)	1
12	Ref.	• Base and CD Player *(see figure 8-19, sheet 5)*	1
13	30946901	• Oil Spray Shield	1
14	40830002	• Mechanism Harness	1
	70075517	• • Connector Housing (17 Circuit)	1
	70075601	• • Contact	11
	70075701	• • Keying Plug	1
	21408602	• • Straight Receptacle	1
	70091308	• • Terminal Lug - Slip On	3
	70091512	• • Terminal Lug - Slip On	1
	70091314	• • Terminal Lug - Slip On	5
	70091306	• • Terminal Lug - Slip On	2
	70091302	• • Terminal Lug - Slip	4
	30930501	• Harness - CDM (Player)	1
	70075505	• • Connector Housing (5 Circuit)	1
	70075601	• • Contact	4
	70075701	• • Keying Plug	1
	70077803	• • Connector - Insulation Displacement	1
	70800101	• • Cable Tie	2
	30930601	• • Harness - Cam (Power)	1
	70077803	• • Connector - Insulation Displacement	2
	70800101	• • Cable Tie	2
	30930701	• • Harness - CDM (Signal)	1
	70077810	• • Connector - Insulation Displacement	2
	70800101	• • Cable Tie	2

Figure 8-19. Mechanism Assembly

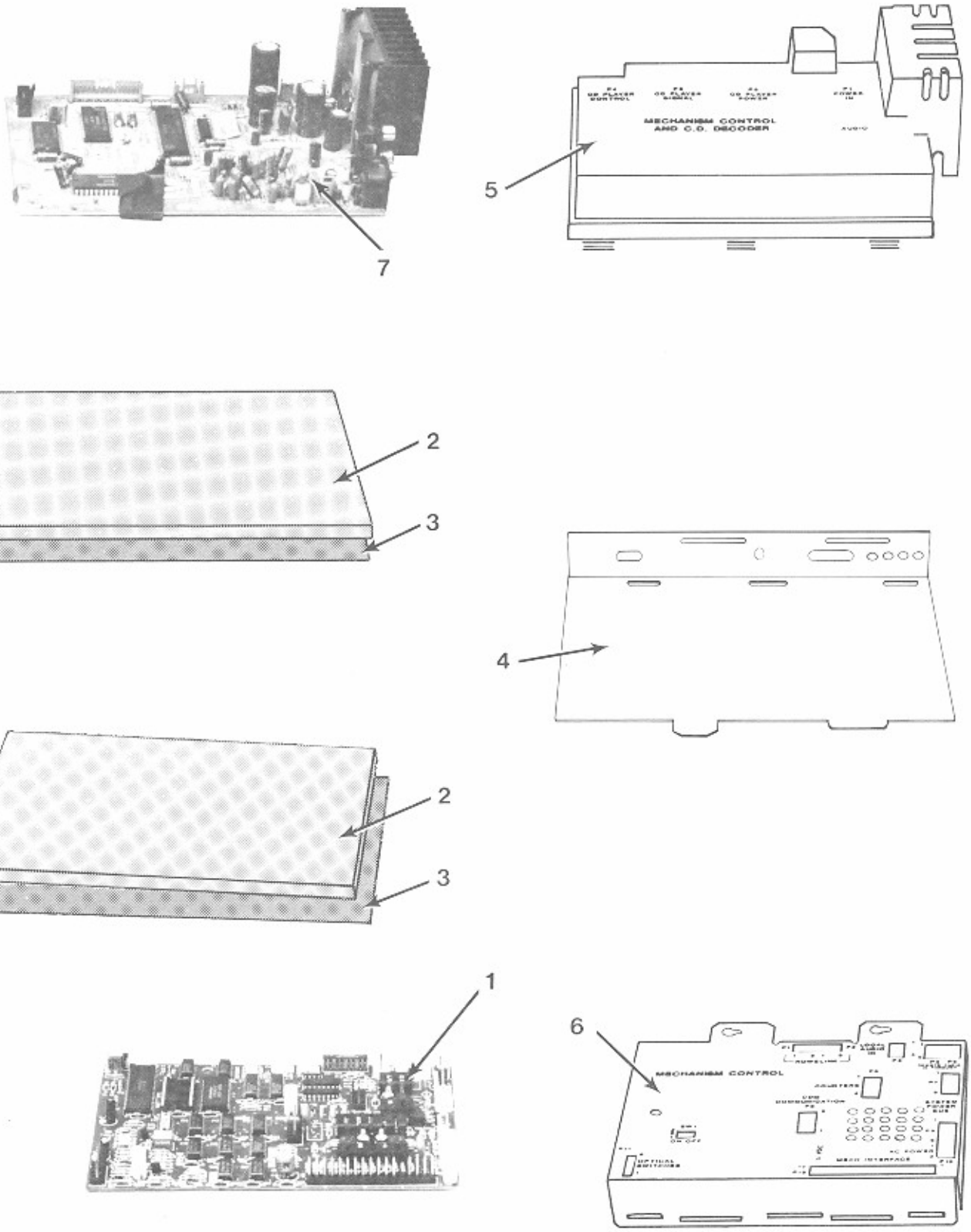
Sheet 2



Ref.	Part No.	Description	Qty
	61033001	Mechanism Assembly	Ref.
1	21079202	• Trunnion Pin	2
	70120010	• Washer	2
2	40720703	• Gripper Bow and Trunnion Assembly	1
3	30519704	• • Gripper Bow and Hub Assembly	1
4	30791002	• • Trunnion	1
5	21080804	• • Inner Shoe Assembly	1
6	21081101	• • Compression Spring	1
7	21811501	• • Cam Follower	1
8	21811701	• • Lock Screw	1
9	40720401	• • Cam Gear	1
10	40720601	• • Trunnion Gear	1
11	30952601	• • Stop - Gripper Bow	1
12	40721303	• • Gripper Bow Guide Assembly	1
13	21089401	• • Roller Bracket Assembly	1
14	20384301	• • Belt - Roller	2
15	70143003	• • Retaining Ring	2
16	21813802	• Belt	1
17	25156906	• Shoulder Washer	1
18	70146001	• Nyliner Bearing	2
19	70134128	• • Special Screw (#8 X 5/8 Hi-Low)	4
20	30790401	• Magazine Gear	1
21	61045801	• Magazine Assembly	1
22	21812601	• Collar	1
23	70130109	• Jam Nut (9/16 X 18)	1
24	21101301	• Lock Nut (Under Supports)	2
25	30791402	• Mechanism Support and Spring Assembly	1
26	30791502	• • Mechanism Support Assembly	1
27	20627202	• • Spring Support (Upper)	4
28	20612804	• • Mechanism Mounting Spring	4
29	61052901	• Magazine Support	1
30	70121517	• Spacer	2
31	70121738	• Spacer	2
32	21153701	• Spring Support	4
	20554502	• Cable Clip	1

Figure 8-19. Mechanism Assembly

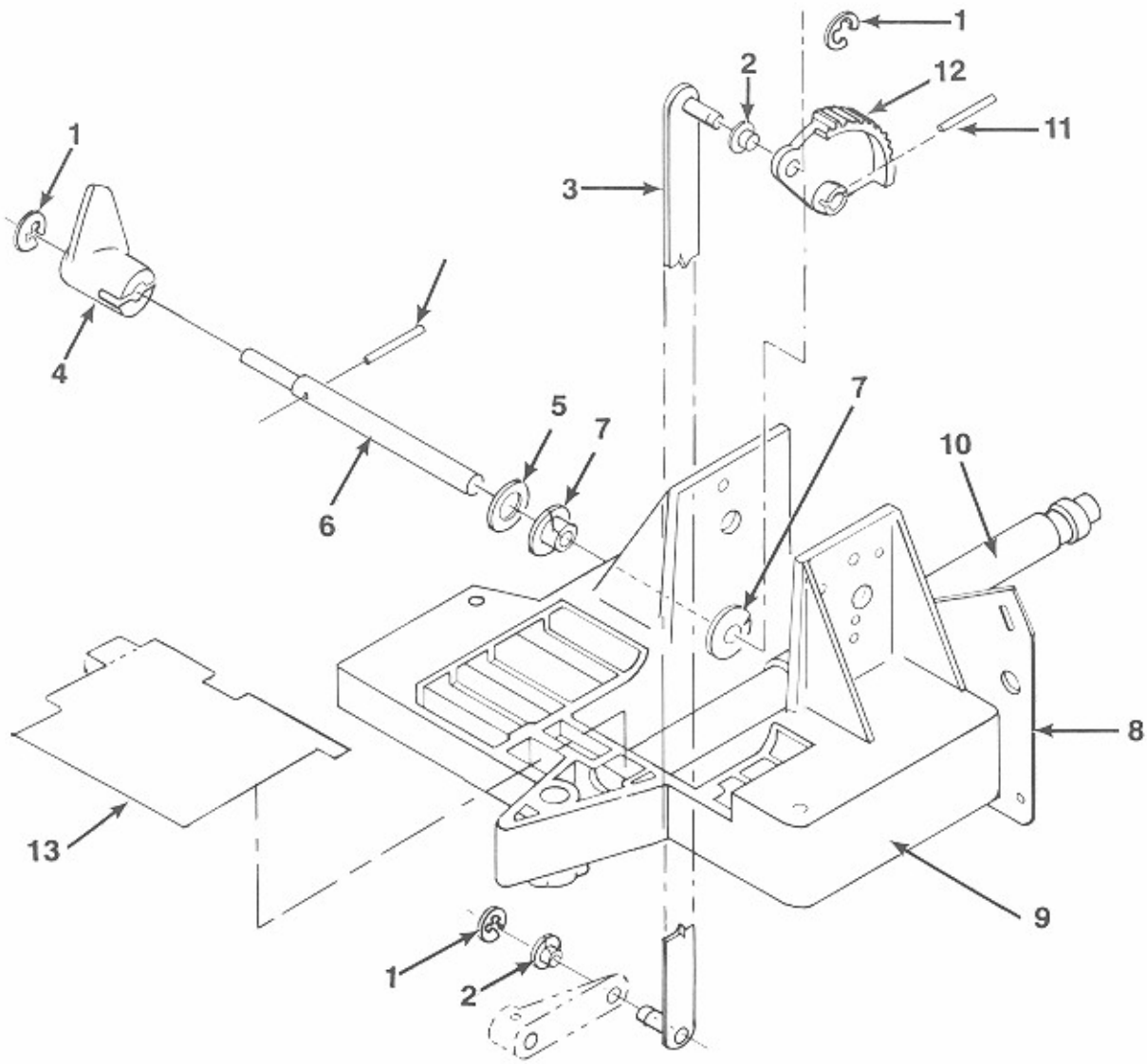
Sheet 3



Ref.	Part No.	Description	Qty
	61030703	Mechanism Control and Decoder Assembly *(see figure 8-19, sheet 1)*	1
1	61030603	• Mechanism Control Circuit Board Assembly *(see schematic for parts list)*	1
2	21771016	• Insulating Pad	2
3	21771113	• Insulating Base	2
4	40830201	• Decoder Base	1
5	61032703	• Decoder Cover	1
6	40830302	• Mechanism Control Cover	1
7	61032601	• Decoder Circuit Board Assembly *(no parts list or schematic available)*	1
	25142297	• • Jumper Assembly	2
	21944701	• Label - CD Player	1

Figure 8-19. Mechanism Assembly

Sheet 4



Ref.	Part No.	Description	Qty
	40723403	Base and Motor Assembly	Ref.
1	70143004	• Retaining Ring	3
2	70146004	• Bearing	2
3	21810201	• Transfer Link Assembly	1
4	30930002	• Hold Down Cam	1
5	70122533	• Bowed Washer	1
6	21813202	• Cam Drive Shaft	1
7	70146005	• Bearing	2
8	40721801	• Intermediate Mounting Plate	1
9	60870702	• Mechanism Base	1
10	30791302	• Magazine Support Shaft	1
11	70113003	• Roll Pin	2
12	40720502	• Sector Gear (Plastic)	1
13	21952801	• CD Board Guard	1

Figure 8-19. Mechanism Assembly

Sheet 5

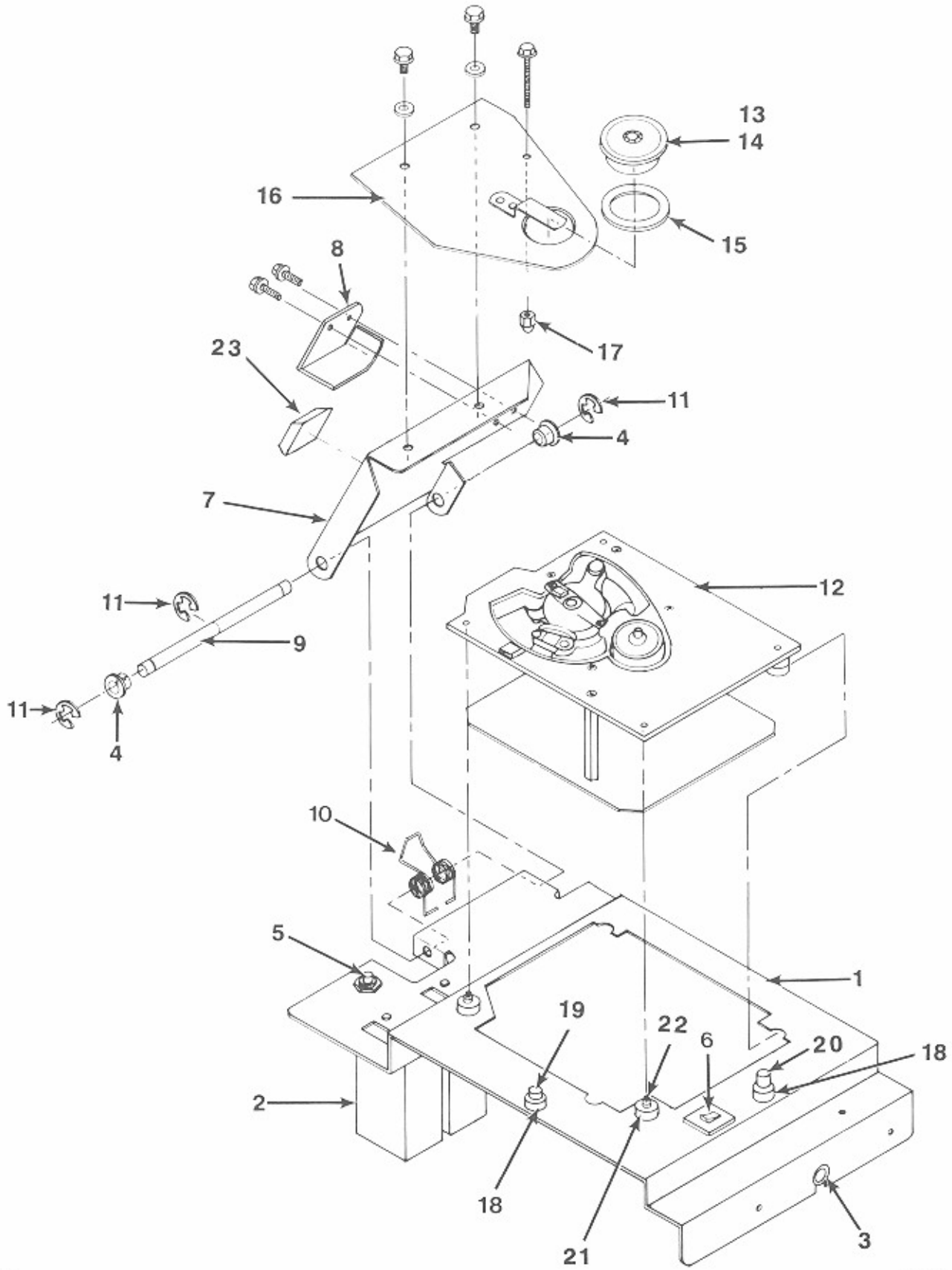


Figure 8-19. Mechanism Assembly (Sheet 5)

Ref.	Part No.	Description	Qty
	61033001	Mechanism Assembly	Ref.
1	61032901	• Mounting Plate	1
2	30933301	• Counter & Plug Assembly	1
	21538302	• • Counter - Money	1
	21441802	• • Electric Counter	1
	70075505	• • Connector Housing (5 Pin)	1
	70075601	• • Post Contact	4
	70075701	• • Keying Plug	1
3	70233202	• Snap Bushing (Split)	1
4	70146008	• Nyliner Bearing	2
5	21581801	• Pushbutton Switch (Momentary)	1
6	70073604	• Circuit Breaker (1 Amp)	1
7	40830101	• Hold Down Bracket	1
8	21942102	• Cam Bracket	1
9	21534709	• Pivot Pin	1
10	30941001	• Hold Down Spring	1
11	70143004	• External Retaining Ring	3
12	30933702	• Player - CDM-3 With Guide Pin	1
	21954601	• • Guide Pin	1
	30933702	• • Player - CDM-3	1
13	26711502	• Hub Assembly	1
14	30930401	• • Magnetic Hub Without Washer	1
15	21954901	• • Traction Washer	1
16	30930201	• Hold Down Assembly	1
17	21814002	• Acorn Nut (#6-32)	1
18	21813901	• Grommet	2
19	21941401	• Rest Rivet - Short (Front)	1
20	21941402	• Rest Rivet - Long (Side)	1
21	21940101	• Grommet	4
22	21940201	• Spacer	4
23	21377801	• Bumper	1

Figure 8-20. Sprag Assembly

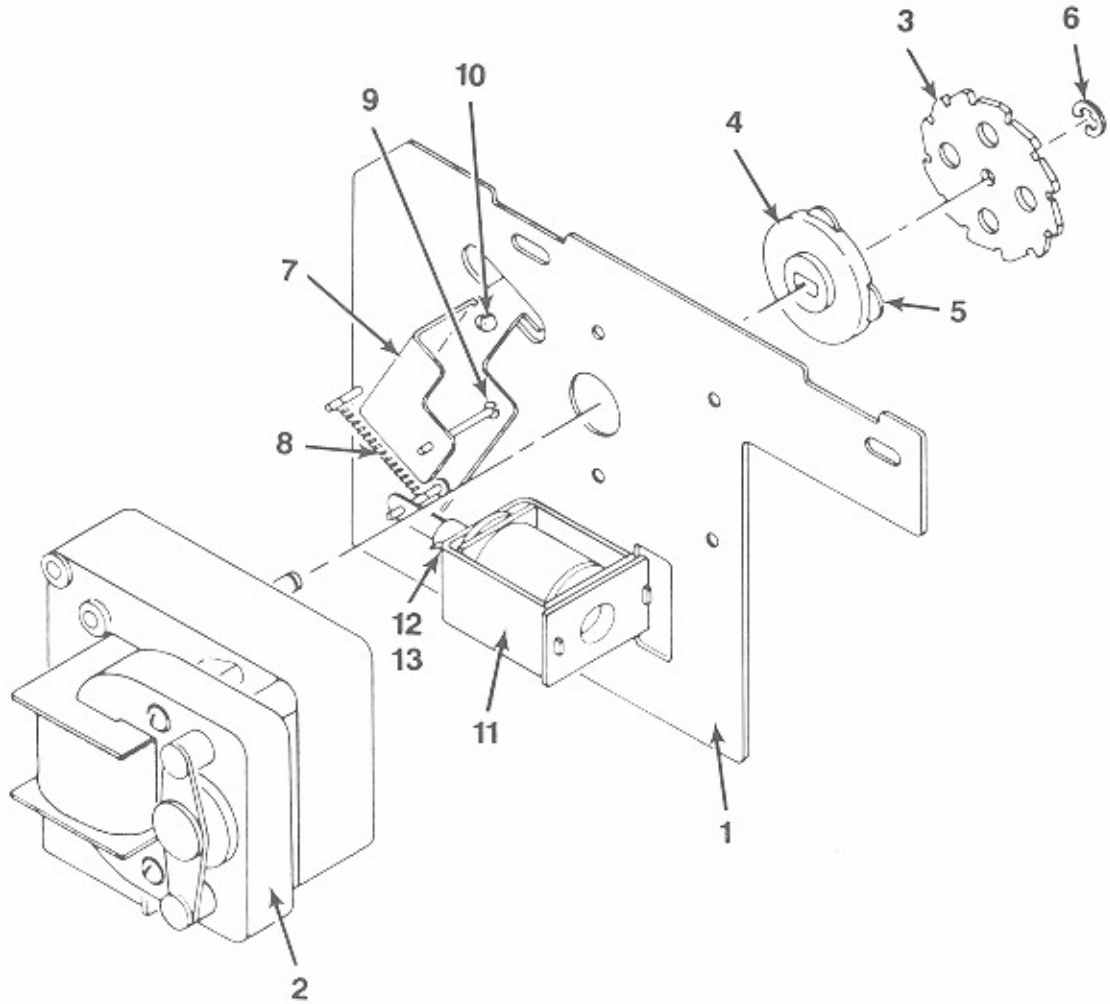


Figure 8-20. Sprag Assembly

Ref.	Part No.	Description	Qty
	40721901	Sprag Assembly *(see figure 8-19, sheet 2, item 12)*	Ref.
1	30793901	• Sprag Plate Assembly	1
2	40722701	• • Magazine Motor	1
3	40722301	• • Sprag Wheel	1
4	30793301	• • Sprag Wheel Hub	1
5	21816103	• Stem Bushing (Rubber)	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 8-21. Cam Switch and Motor Assembly

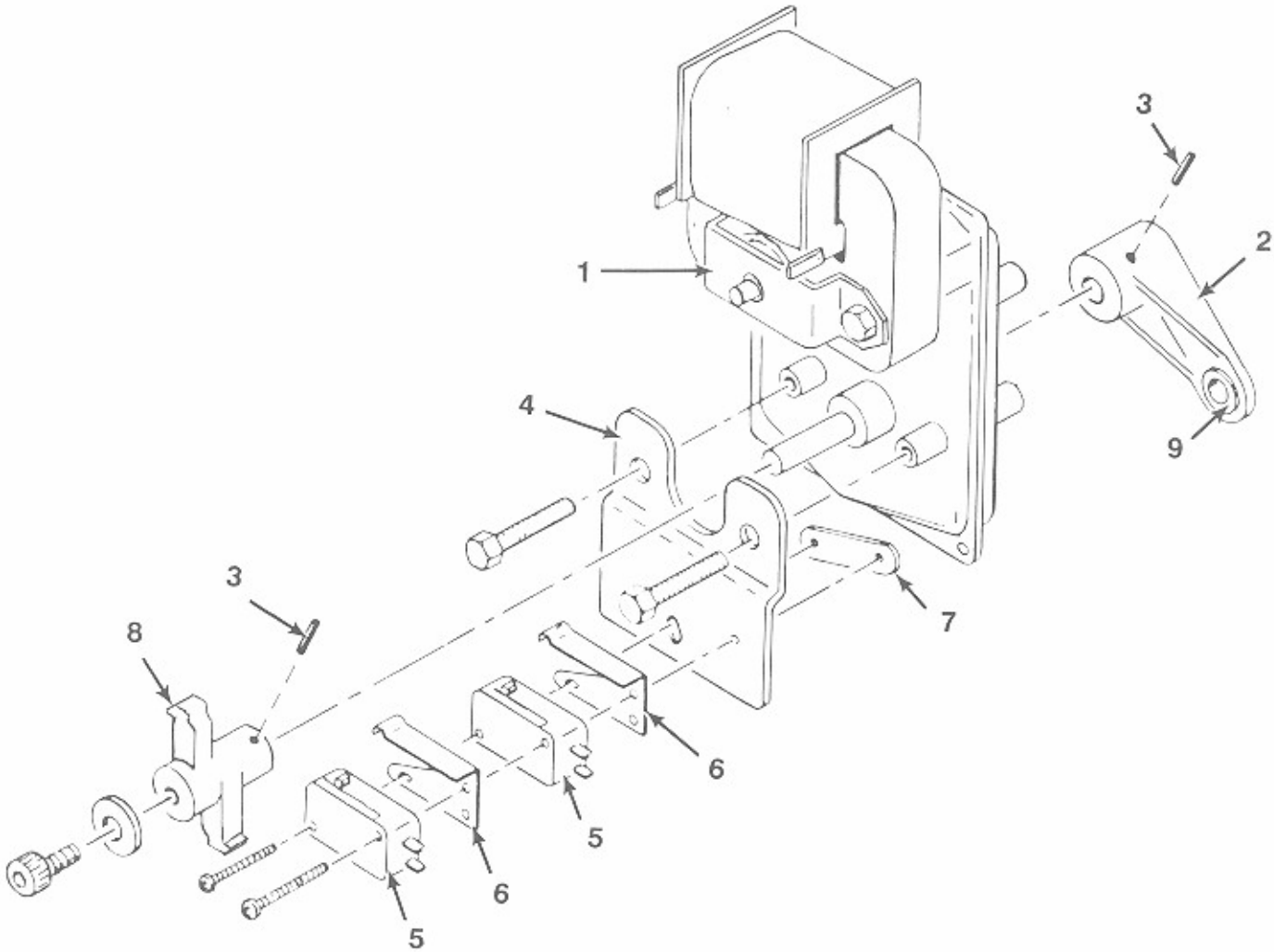


Figure 8-21. Cam Switch and Motor Assembly

Ref.	Part No.	Description	Qty
	40720802	Cam Switch and Motor Assembly *(see figure 8-19, sheet 1, item 4)*	Ref.
1	40720901	• Cam Motor	1
2	21810401	• Trunnion Crank	1
3	70113116	• Roll Pin	2
4	30790901	• Switch Plate	1
5	21073101	• Switch	2
6	21082901	• Switch Actuator	2
7	21083001	• Twin Nut	1
8	30793402	• Switch Cam	1
9	70146004	• Bearing	1

Table 8-1. Accessory Equipment

Part No.	Description	Function
26704401	Phono paging system With tabletop microphone	Paging system not affected by A.V.C. All plug-in unit, complete with microphone and 50 foot microphone cable.
26704402	Phonograph Paging System With hand-held microphone	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 and 610237XX 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.
21639701	Background Music Kit	Allows the phonograph to play Autoplay and customer selected music at different levels. Music can be played at different volumes in two different rooms or music can be switched to different rooms during either Autoplay or customer selections.
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 CD 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.
66505901	Service Kit	Includes central computer, digital display, power supply board, optical switch, power supply heat sink, blank titles, micro switches, peanut lamps, and fuses.
66505902	Service Kit	This kit includes: Mechanism controller and decoder assembly, CD player with mounting accessories.

Part No.	Description	Function
26711401	Amplifier Adapter Harness	Allows a 130 watt amplifier to be connected to a CD-100B as a replacement amplifier (the total amplifier output will be limited to 130 watts in this configuration).
26699503	Security Bar Kit	Heavy steel bar locks in place over cash box door. A padlock is required (not supplied by Rowe).
26711201 26712901	Pewter Touch-Up Paint Brown Metallic Touch-Up Paint	
21945601	Printer Interface Kit	Allows you to connect a serial RS-232 printer to a CD-100B. The printer must be at least a 40-column printer (Citizen Model iDP-560 RSL is recommended).
	Keyboard Cover	Provides a flexible shield that protects the selection keyboard (POPULAR, RESET, 0-9, <, >) from water and other fluid spills.
21957501	LaserStar IR (Infra-Red) Remote Control Kit	Wireless remote control of: volume, cancel, selections, and pause. Volume of each channel can be controlled separately, or both channels can be controlled at once.

Parts Included In The Handy Case

(Refer to Figure 8-5)

21730516	• Accessories Bag Assembly	1
21827201	• • Bag - Zip Lock	1
70097501	• • • Contact - Univ Conn (Pin)	6
70097502	• • • Contact - Univ Conn (Socket)	6
70075601	• • • Contact - Post	10
70091012	• • • Terminal Lug - Spade	10
70072002	• • • Fuse Cartridge (8 amp.)	2
70072106	• • • Fuse Cartridge (5 amp.)	2
26676802	• • • Quality Card - Phonograph	1
21822617	• • Manual - Service (CD-100B, Volume 1)	1
21822618	• • Manual - Service (CD-100B, Volume 2)	1
21888604	• • Programming Reference Guide	1
21957001	• • Routine Service Guide	1
30931304	• • Alternate Price Card	1
61031402	• • Universal Price Sheet	1
30935903	• • Blank Title Strip With Numbers	15
30940601	• • Title Page Filler	8
30935904	• • Blank Title Strip (Without Numbers)	15