

SECTION 1- SYSTEM DESCRIPTION

INTRODUCTION

The Rowe Model RI-4 & RI-5 are 160 Selection Stereo Phonographs, and have a 100% Microprocessor Based Solid State Control.

The Central Control Computer is mounted on the rear wall of the cabinet. This unit controls all functions of the phonograph.

Grouped around the Central Control Computer are the Mechanism mounted on the center of the cabinet base, the coin acceptor and coin switches on the right side panel, and the digital annunciator, selector keyboard all located on the top door.

The pricing board is located on the rear wall.

The Main Power Supply is located on the rear wall.

The display area includes a three digit numerical display and five LED lamps. The numerical display has five distinct functions while the lamps indicate which function is in effect.

MOST POPULAR SELECTION

When the phonograph is "scanned out" the numerical display shows the number of the tune which has been selected the greatest number of times since the last time the machine was serviced.

SELECTION BEING MADE

While a selection is being made the numerical display shows the number of the tune being selected. This number remains on the display for 5 seconds after the third digit is entered at the keyboard.

SELECTIONS REMAINING

After each selection and after each deposit of money the number of selections which remain to be made is displayed for 5 seconds.

SELECTION PLAYING

While the phonograph is playing, if no selection is in the process of being made, the number of the tune being played will appear on the display.

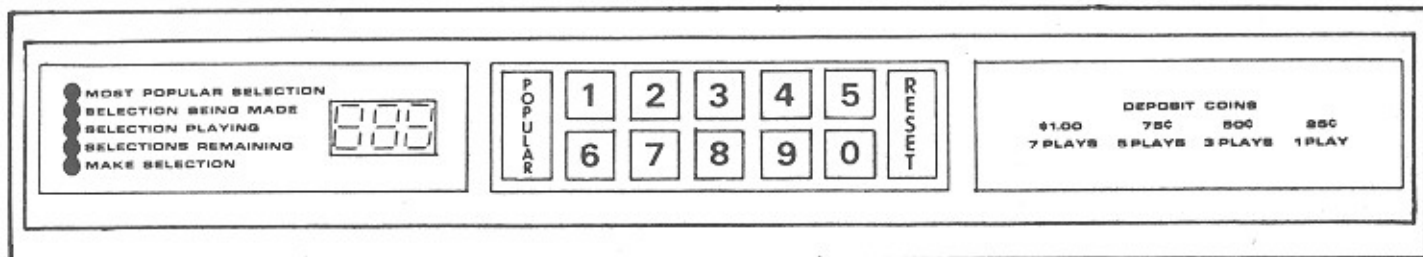
MECHANISM

An aim of the mechanism design was to eliminate mechanical units such as the annunciator, popularity meter, and search unit. These have been replaced by electronic assemblies. By redesigning the mechanism to incorporate the latest electronics we have eliminated some of the drive train. This means less parts for wear, plus quiet and smooth operation.

CENTRAL CONTROL COMPUTER

The Central Control Computer is the brain of the phonograph. It controls the memory for the select system and the credit system. It can store up to \$12.25 in credit and convert this into plays (up to 99). When the On-Off service switch is in "Service" position the microcomputer will search and display popularity. The most or least popular records can be found. Total selections and money are also displayed.

The Playmaker is part of the computer. It will stimulate plays by letting the customer know that the phonograph is there. It plays a flip side selected at random whenever the phonograph has been silent for twenty or forty minutes. The phonograph is shipped from the factory with the four position switch set on 20 minutes. The switch can be set for 40 minutes, 20 minutes, continuous or off.



MEMOREC

The Memorec function has been expanded and incorporated into the Central Control Computer. Memorec has the following features:

- Records the number of times each record side is selected. Selections made by use of the "Most Popular Selection" key do not increase the count of the individual record side but are counted separately and also included in the total.
- Records the total number of selections made. Selections made by "Playmaker" are not included in the total or in the individual side counts.
- Records the total amount of money deposited in the phonograph including any Walletries which are connected to it.

SOUND SYSTEM PRINCIPLES OF OPERATION

The phonograph sound system translates stylus vibration into electrical voltage, amplifies the voltage and the speaker converts it into sound. The sound system consists of a stylus and cartridge, a stereo preamplifier and amplifier unit, a speaker system, a volume control and an output transformer package. Identification and location of each major component is shown in figure 1. The purpose and description of each major component is explained in the following paragraphs.

Stylus and Cartridge The stylus and cartridge convert mechanical movement into equivalent electrical voltage. The unit is mounted on the record changer tone arm. This output voltage is transmitted through shielded cable to the preamplifier.

Amplifier (see figure 2). The amplifier unit amplifies phonograph cartridge output and drives the speaker system. The latest concepts in silicon transistor circuitry are designed into the 50 watt stereo system. It delivers a full 25 watts rms power per channel. Its wide frequency response and low distortion assure good record reproduction. The unit incorporates automatic volume control (AVC).

The output stage is coupled to the speakers. Treble range and bass boost controls are provided on the preamplifier to compensate for differences in room acoustics. A mute relay silences the amplifier while a record is being transferred to or from the turntable. Preamplifier circuitry is completely solid state for durability and long service life.

Protection is included for voltage transients, excessive heat and accidental shorting of speaker leads.

Preamplifier The preamplifier amplifies the phonograph cartridge output to drive the power amplifier. The components for both the right and left audio channels are contained in a single plug-in circuit board mounted under the amplifier chassis.

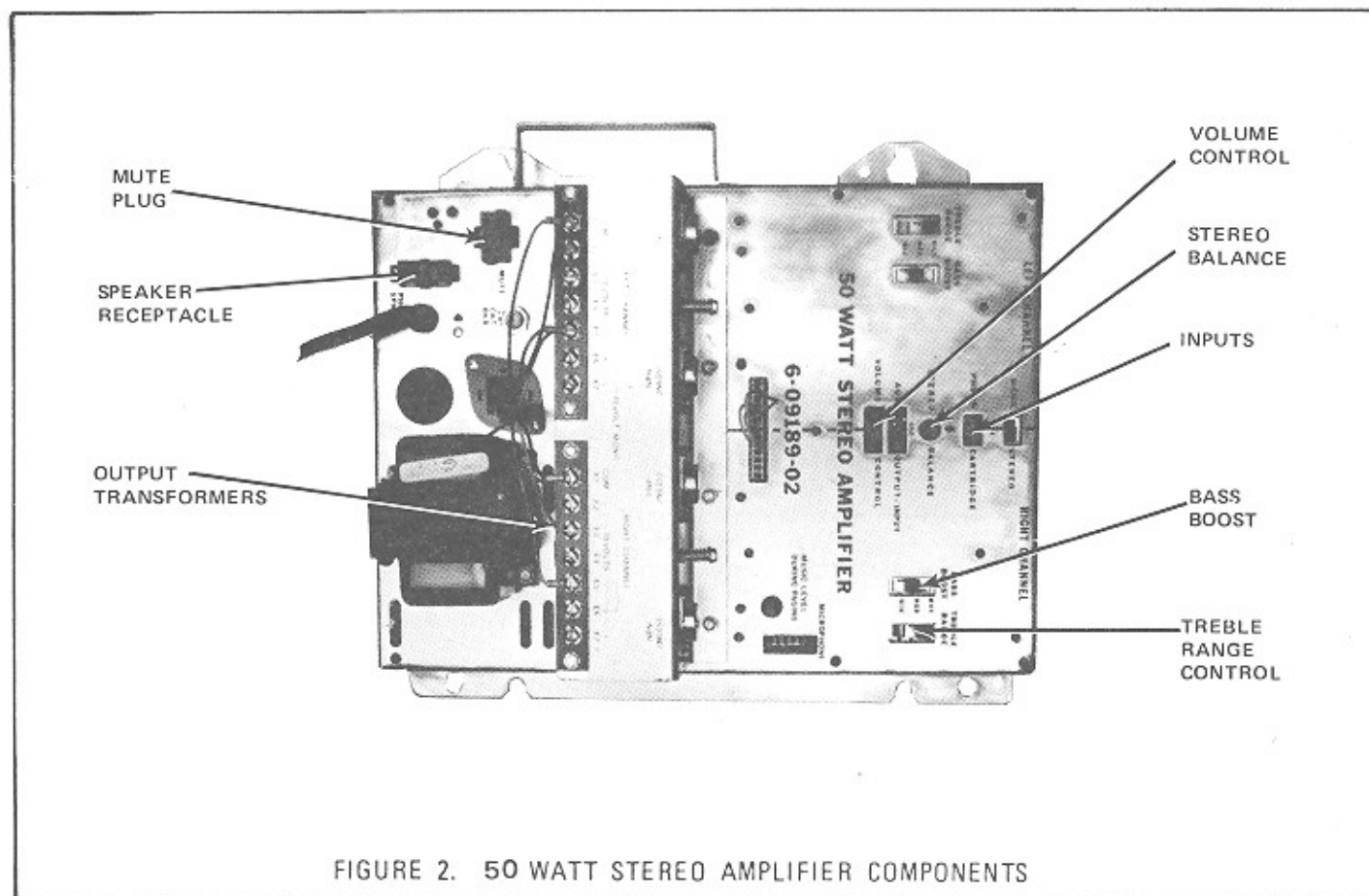


FIGURE 2. 50 WATT STEREO AMPLIFIER COMPONENTS

Output Transformers (see Figure 2). The transformers enable the amplifier to operate 70 volt lines for extension speakers. The transformers also provide terminal strips for obtaining several different power levels for both phonograph and extension speakers.

The output transformer secondary connections are available at two terminal strips. Phonograph speaker power is selected by connecting the leads according to figure 3. Extension speakers can be connected as directed in Table 3, of speaker connection chart.

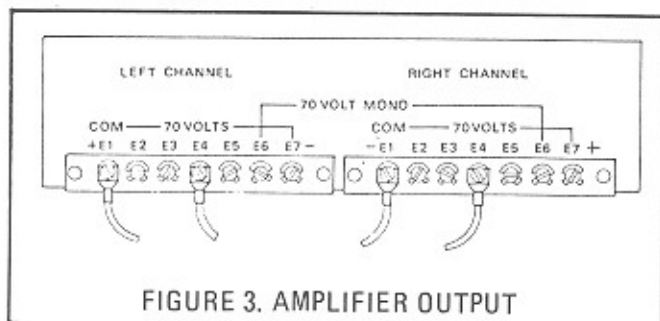


FIGURE 3. AMPLIFIER OUTPUT

SPEAKER SYSTEM. The speaker system consists of two 8 inch low frequency speakers and two 4 1/2 inch high frequency speakers.

SELECTION SYSTEM

The selection keyboard has ten numbered buttons plus two which are marked "Reset" and "Popular."

To make a selection deposit money to establish credit. The numbered display will show the number of selections available. Press the numbered buttons on the keyboard in order corresponding to the desired selection number as shown on the title rack. As the digits of the selection number are pressed, they will appear on the numerical display. Only legal selection numbers will be accepted. For example if any number other than a 1 or 2 is pressed as a first digit, it will be ignored. Nothing will happen. It is not necessary to press "Reset". Merely press the correct first digit.

If you change your mind after beginning to make a selection pressing "Reset" will erase the partial selection number and also allow you to enter a new number. "Reset" is not effective after the third digit has been entered.

Press "Popular" to select the tune which has been selected the greatest number of times since this phonograph was serviced last.

Press "Popular" a second time to select the second most popular tune. This process may continue until credit is used up.

NOTE

If selections are made manually before "Most Popular Selection" is used, no selections are repeated even if the manual selections are most popular. Thus the customer is not "cheated".

The most popular selection sequence is reset when credit is exhausted.

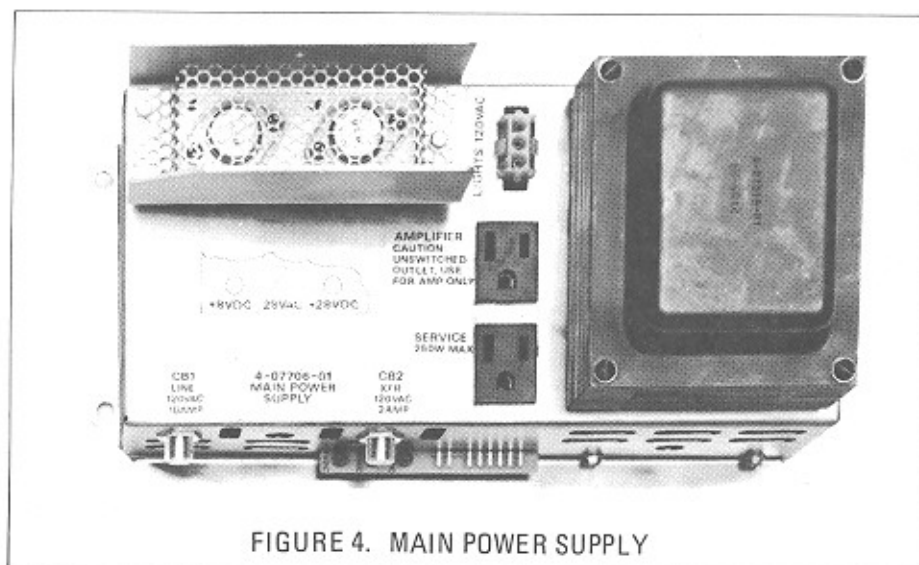


FIGURE 4. MAIN POWER SUPPLY

MAIN POWER SUPPLY

The main power supply distributes unregulated +28 VDC and 28 VAC, and regulated +8 VDC to the phonograph components. Power is controlled by a rocker switch located at the rear of the cabinet. 120 Volt AC receptacles are provided for the amplifier, lights, accessories and service equipment.

The AC receptacles and transformer primary are protected by 10 amp circuit breaker CB1 while circuit breaker CB2 protects the transformer primary only. Both the circuit breakers can be reset from the front panel.

TABLE 1. ACCESSORY EQUIPMENT

PART NO.	FUNCTION	DESCRIPTION
2-66681-06 2-66681-08	Automix Kit (60 Hz.) Automix Kit (50 Hz.)	Enables phonograph to play 33 and 45 RPM records interchangeably.
2-66946-01	Phono Paging System Amp Accessory Kit (Includes 2-66947-01) For 6-09189-01	New improved Paging System, not affected by A.V.C. All Plug-in unit, complete with microphone and 50 feet of microphone cable. Allows use of phono sound system for paging.
2-66947-01	Amplifier Accessory Kit For 6-09189-01	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 or FM radios. Outputs available to drive slave amplifiers before or after volume control.
2-66946-04	Phono Paging System Amp Accessory Kit For 6-09189-02	New improved Paging System, not affected by A.V.C. All Plug-in unit, complete with microphone and 50 feet of microphone cable. Allows use of phono sound system for paging.
2-67014-01	Paging Adapter Kit	Adapts paging equipment for 6-08552-02 pre-amp to 6-07925-01 pre-amp.
2-66947-02	Amplifier Accessory Kit For 6-09189-02	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 or FM radios. Outputs available to drive slave amplifiers before or after volume control.
6-09001-01	WRE Wallete Wallbox (4 Coin)	Remote control unit for solid state phonograph. Takes nickels, dimes, quarters or half-dollars
2-66995-02	Security Bar Kit	Heavy steel bar locks in place over cash box door.
2-66989-01	Wallbox Adaptor Harness Kit (WRE)	For making internal connections in phonograph to allow installation of WRE Wallbox.
4-06891-01	Auxiliary Power Supply	Permits operation with WRA, WRB, WRC, WRD & WRE Wallboxes.
0-05081-00 Belden No. 8447 Columbia No. 4082	7 Conductor Cable	For connecting WRE to phonograph. (Not supplied by Rowe)
2-66965-02	Wallbox Interface Kit	Permits operation with WRA, WRC and Seeburg wallboxes.
2-66965-01	Wallbox Interface Kit	Permits operation with WRD Wallbox.
0-05076-00 Belden No. 8449 Columbia No. 4084	9 Conductor Cable	For connecting WRD Wallete to phonograph. (Not supplied by Rowe)
6-07447-01	Extension Speaker (Model EX 350)	32 watt, two channel system includes 3-1/2 inch tweeter and 10 inch bass speaker.
3-06322-01	Remote Volume & Cancel Control	Remote stereo volume control and cancel button. Does not include cable.
6-65047-05	Service Kit	Includes Central Computer, Mech Control, Power Supply Board and Fuses.
3-06322-09	Dual Remote Volume Control	Controls volume of each channel separately. Does not include cable.
2-08199-07	Remote Volume and Cancel Control Cable	For connecting remote volume control to phonograph 3-conductor cable. 50 ft. length.
2-08199-08	Remote Volume and Cancel Control Cable	For connecting remote volume control to phonograph 4-conductor cable. 50 ft. length.
2-67009-01	InterROWigator	Portable Print Out Device to interrogate Juke Box Data.

SECTION 2- INSTALLATION AND PROGRAMMING

INTRODUCTION

This section contains instructions for unpacking the phonograph and installing it on location. The phonograph is shipped with all major components in place. Save all tie-down hardware should it become necessary to move the phonograph to another location.

A postage-paid WARRANTY REGISTRATION CARD is included with the phonograph. Use this card to register the phonograph for in-warranty repairs.

UNPACKING INSTRUCTIONS

The phonograph is shipped in one carton, ready for installation. The shipping carton should be opened carefully to prevent the phonograph from being damaged or scratched. Inspect the exterior and interior of the cabinet for evidence of damage.

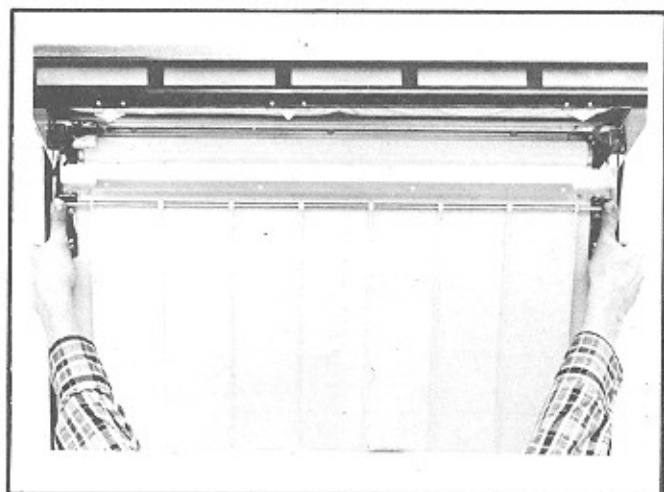
In case of damage, please notify the delivering carrier at once to call and examine the phonograph regardless of the external condition of the boxes. Under U.S. regulations, damage claims must be collected by the consignee. Do not return shipping-damaged merchandise until after your claim has been established. Once your claim is established, damaged merchandise may be returned to the Rowe distributor for repair. The invoice for repair charges may then be collected from the carrier. Do not destroy packing material or boxes until the carrier's agent has examined them. Unpack the phonograph as follows:

REMOVE PACKING CASE

1. Carefully open packing case. Do not use shipping hooks or other sharp instruments.
2. Remove plastic bag from phonograph cabinet.

OPEN PHONOGRAPH CABINET

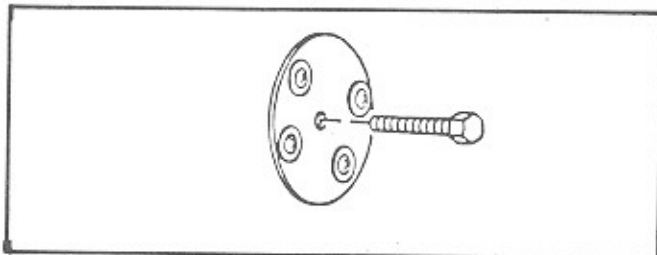
1. Locate red key bag and open lid.
2. Remove shipping brackets, release latches and open doors.



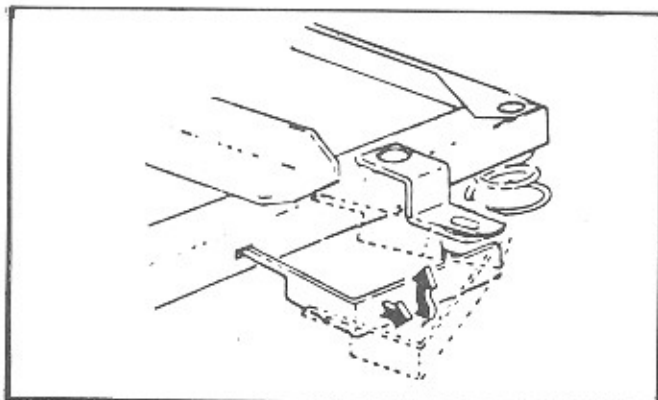
3. Remove tape from title panel. Release title panel by pressing down on spring catch as shown. Swing panel down as shown.

REMOVE RECORD CHANGER MECHANISM TIE-DOWN BOLTS

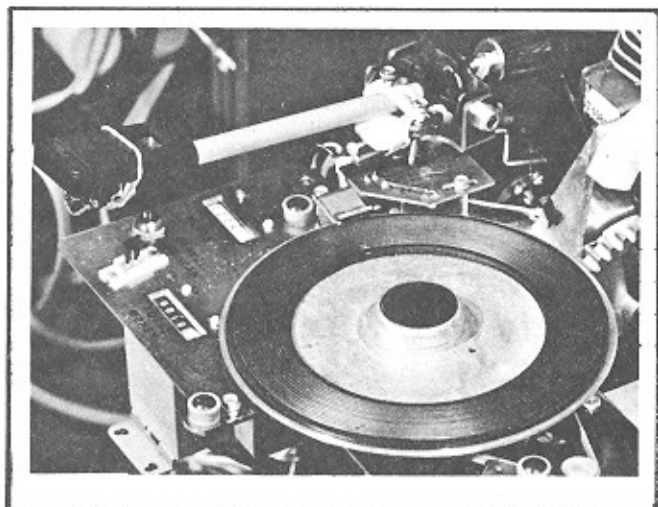
1. Remove shipping bolt from rear of cabinet as shown.



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



3. Remove rubber bands and shipping block from tone arm.



4. Remove turntable hold-down clip. Replace screw.
5. Remove stylus cover from cartridge and stylus.
6. Save shipping hardware for future use.
7. Remove adhesive tape.
8. Check that all plugs are firmly seated in their respective receptacles.

LEVEL PHONOGRAPH

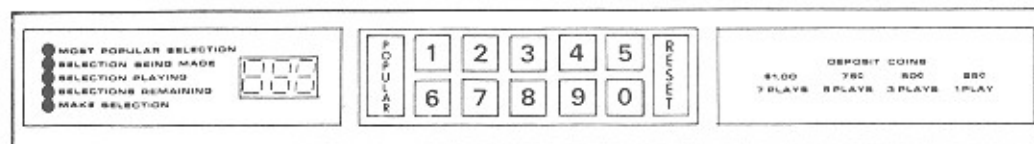
Level the phonograph cabinet left-to-right and front-to-back to ensure proper slug rejector operation. This is done by placing spacers under the caster wheels.

PROGRAMMING

This covers pricing, selection system, credit, playmaker.

PRICING

A ROWE exclusive simplified pricing procedure is incorporated in the RI-4 & RI-5 phonographs. All price programming is done on the Pricing Board. The phonograph is shipped from the factory with prices as shown below.



7 plays for \$1.00
 5 plays for .75
 3 plays for .50
 1 play for .25

To change pricing open the top door, disconnect the 15 pin connectors. Remove plastic cover. Select the inserts you wish to use and plug them in. Select the matching prices from the universal price card sheet and attach it to the price card.

NOTE

We suggest that unused price inserts be kept in the phono in the bag they came in for safe-keeping. If inserts are lost replacements may be ordered from your Rowe distributor (part no. 2-18507-01 thru -16).

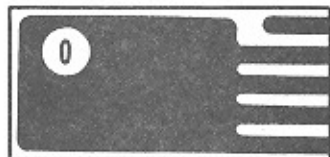
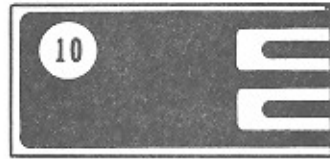
The Pricing Board has spaces for six inserts. One labelled "Premium Ratio" sets the number of standard plays equal to one premium play. The Automix Kit (Part No. 2-66681-06) includes a special price card for such phonographs. If the phonograph is not programmed for premium play this insert may be omitted. If the phonograph is programmed for premium play and this insert is omitted, the premium records will be played free provided there is credit on the machine.

The second insert position labelled "1 play price" sets the price of a single play if less than 25¢.

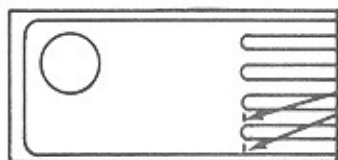
The remaining four positions are labelled "Credit Level 1", "Credit Level 2", "Credit Level 3", and "Credit Level 4". In the USA these levels are factory set at 25¢, 50¢, 75¢, and \$1.00. Select the price inserts with numbers of plays desired at each credit level and plug them in.

Blank inserts represent zeros. If any position is programmed for zero (or if an insert is omitted) that level will be ignored. Reassemble the Pricing Board plastic cover. Test to make certain that the price program works as desired by dropping coins or by using the manual credit button (each push = 25¢). Watch the digital display near the selector keyboard to see how many plays you get at each credit level.

The "Make Selection" lamp will light when there is enough credit to make one or more selections. On Phonos which have the Automix Kit installed, the "Make Selection" lamp will light when there is enough credit to make one or more premium selections. A Premium selection will reduce the "Selections Remaining" by an amount equal to the "Premium Ratio".



INDIVIDUAL PRICING INSERT 2-18507-01/16



INSERTS MAY BE CHANGED
BY CUTTING RUNNERS

OPERATIONAL INFORMATION

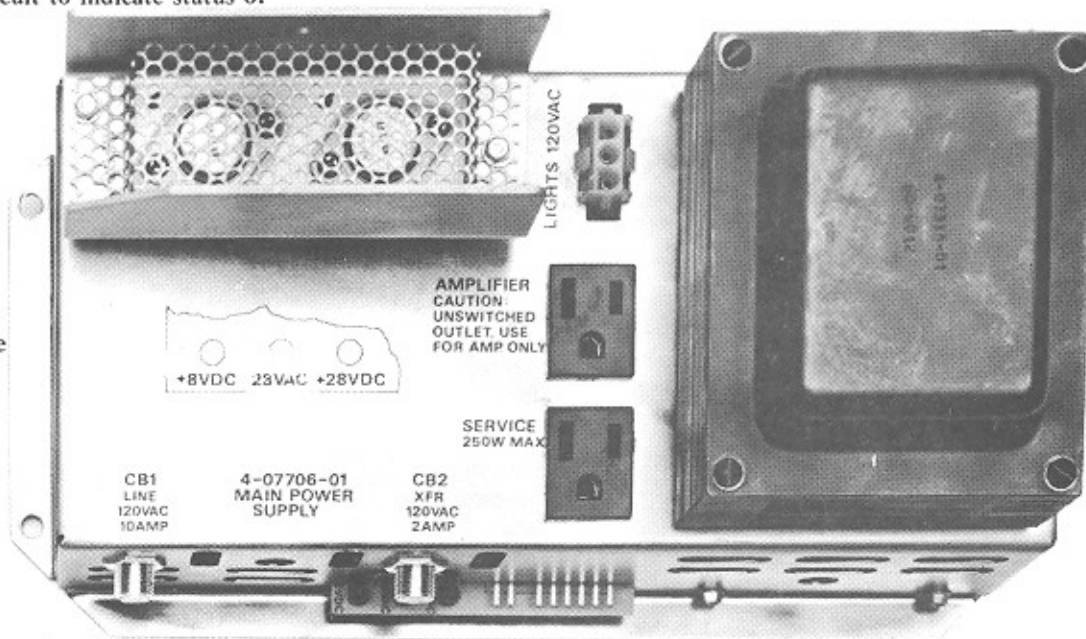
STATUS LAMPS

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

Power Supply

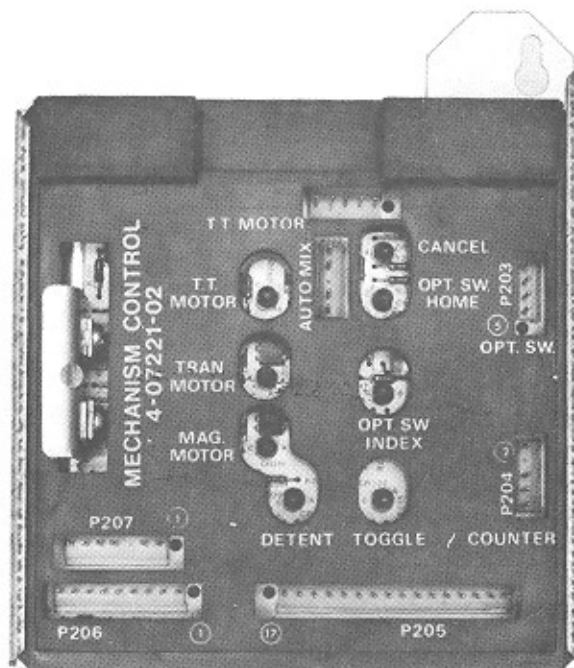
- + 8 Volts DC
- + 28 Volts DC
- 28 Volts AC

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



Mechanism Control

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



SOUND SYSTEM

ACOUSTICAL COMPENSATION (BASS AND TREBLE CONTROLS)

The pre-amplifier contains treble range and bass boost controls to compensate for room acoustics in various locations. These controls are on the amplifier chassis. The sound level at which the phonograph will be operated and the room furnishings determine the settings of these controls. A room with carpeting and drapery is a soft or highly-absorbent location. A crowded room is also highly-absorbent. These locations require higher sound levels. A room with paneled walls and a bare or tiled floor is a hard non-absorbent location. Bass boost and treble range control settings are listed in Table below. Note that more bass boost is required at low volume levels. The amplifier incorporates circuitry that provides extra bass compensation at low volume levels.

STEREO BALANCE

The stereo balance control is provided to equalize left and right channel amplifier output. This control is factory-adjusted for best performance. If adjustment is required, play a monaural selection and adjust the control for equal sound from each speaker. When balanced, the sound will seem to come from the center of the phonograph.

AMPLIFIER OPERATION WITH HIGH LINE VOLTAGE

In locations where input line voltage to the phonograph exceeds 125 volts, use the black/red primary lead of the amplifier power transformer instead of the black/yellow lead. This results in a 10% reduction in secondary voltage.

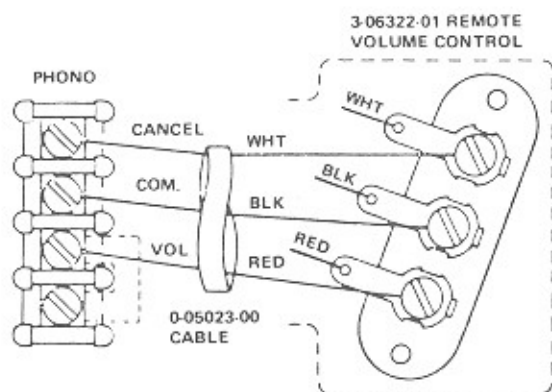
TABLE 2 USE OF AMPLIFIER CONTROLS FOR ACOUSTICAL COMPENSATION

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

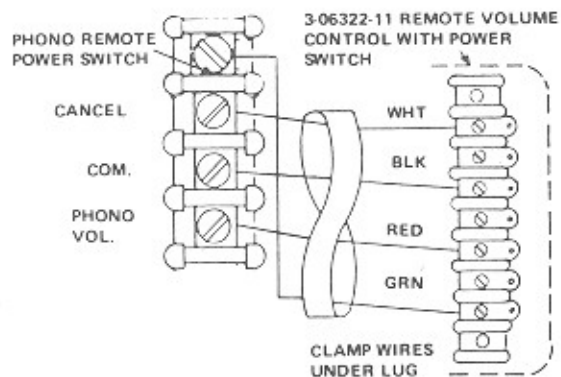
Note: Reduce Treble Range setting as required by record noise (scratch) conditions.

REMOTE VOLUME AND CANCEL CONTROL

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



REMOTE VOLUME AND CANCEL CONTROL WITH POWER SWITCH



EXTENSION SPEAKER OPERATION

Care must be exercised when adding extension speakers to the phonograph to avoid poor sound. Three requirements must be met:

1. The speakers must be wired so that the power consumed by the phonograph speakers and the extension speakers, including WalleTTes, does not exceed the power rating of the amplifier.
2. The extension speakers should produce the desired sound level relative to the sound level of the phonograph speaker system. This is done by adjusting the amount of power consumed by each speaker until the desired balance is reached.
3. All speakers must be connected with the correct polarity. This means that all speaker cones in the system will move in the same direction at the same time.

Several charts have been included to assist in the connection of extension speakers. Table 7 is a chart of the entire sound system. NOTE that the left channel output of the amplifier is reversed in phase (or instantaneous polarity) with respect to the right channel. This phase reversal makes monaural extension of sound possible in a stereo system. As seen in Table 7, this phase reversal is accomplished at the phono cartridge. Because of this phase reversal, speaker connections to the left channel must be reversed when compared with connections to the right channel.

Power to the phono speakers must be reduced as extension speakers are added so that the total speaker power does not exceed the power rating of the amplifier. Table 3 gives connections for different phono speaker power levels and corresponding power available for extension speakers. The phono speakers can be considered as two 8 ohm speakers-one for each channel.

Table 5 and 6 are extension speaker connection chart for different power levels. Power levels are indicated for low impedance speakers as well as for 70 volt speakers. For 70 volt speakers, the power level is set at each speaker. Low impedance speakers, i.e. 8 ohm speakers, can be used where the connecting cable is under 100 feet. The loss in 100 feet of zipcord feeding one 8 ohm speaker is 15%. For two 8 ohm speakers it would be 30%. To avoid prohibitive cable losses on long speaker lines, 70 volt speakers must be used. These contain built in transformers that permit setting of the desired power level. Do not connect a low impedance speaker for more power than it can handle. For example, a 5 watt, 8 ohm speaker should not be connected to the 12.5 watt tap.

In any speaker installation, the total power of the speaker load **MUST NOT EXCEED** the power rating of the amplifier. In the system in Table 7, the power of the speakers as connected is: phono, 12.5 watts; 8 ohm speakers, 25 watts; 70 volt speakers, 12 watts; walleTte, 2.2 watts for a total of 51.7 watts. This is slightly over the 50 watt rating of the amplifier which is permissible as long as the speaker rating does not exceed the amplifier rating by more than 5%. In any installation, it is advantageous to adjust the speaker load to approximate the rating of the amplifier so that optimum bass boost will be attained at low volume.

NOTE

WalleTte speakers are treated as 45 ohm extension speakers in Chart 1 of Table 5. For convenience, the left channel speaker in the wallbox has been reversed in polarity.

PHONOGRAPH SPEAKER POWER CONNECTION CHART

PHONO SPEAKER POWER LEVEL (TOTAL WATTS)	PHONO SPEAKERS (8 OHM EACH)				POWER FOR EXTENSION SPEAKERS	
	LEFT CHANNEL		RIGHT CHANNEL		WATTS PER CHANNEL	TOTAL WATTS BOTH CHANNELS
	BLACK- YELLOW LEAD	VIOLET LEAD	BLACK LEAD	PINK LEAD		
50	E1	E5	E1	E5	0	0
25	E1	E4	E1	E4	12.5	25
12.5	E1	E3	E1	E3	19	38
6.3	E1	E2	E1	E2	22	44
4.2	E4	E5	E4	E5	23	46
2	E3	E4	E3	E4	24	48
1	E2	E3	E2	E3	25	49

CAUTION: TOTAL POWER RATING OF LOAD MUST NOT EXCEED 25 WATTS PER CHANNEL OR 50 WATTS TOTAL FOR THE 50 WATT AMPLIFIER.

TABLE 3. PHONOGRAPH SPEAKER POWER

AMPLIFIER FULL POWER OUTPUT VOLTAGES

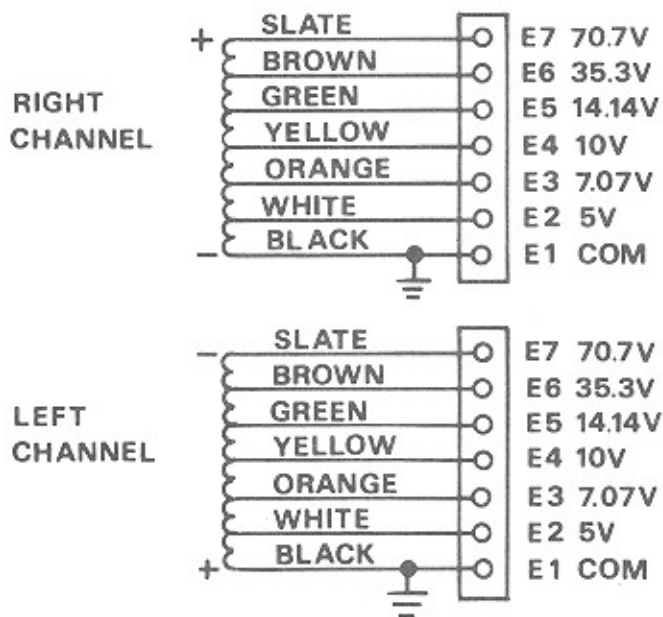


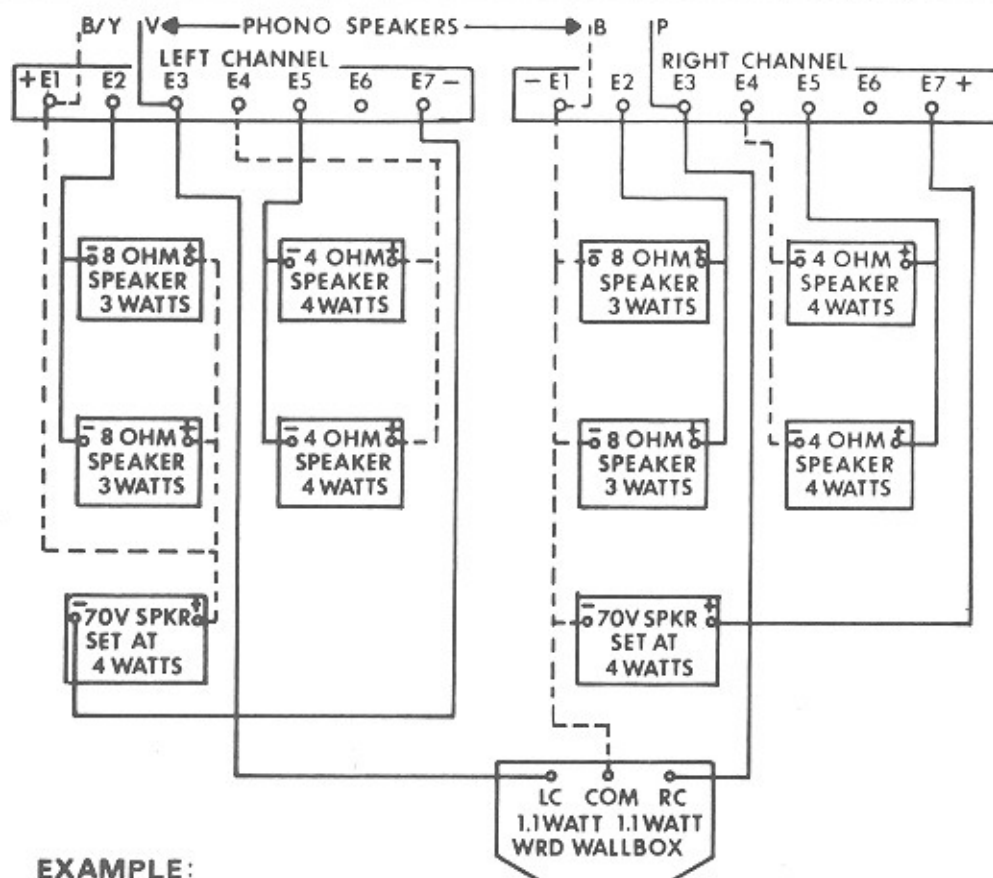
TABLE 4. AMPLIFIER OUTPUT

EXTENSION SPEAKER CONNECTIONS-STEREO

OUTPUT TERMINALS	WATTS PER SPEAKER			
	8 OHM SPEAKERS	4 OHM SPEAKERS	45 OHM WALLBOX	70.7V CONSTANT VOLTAGE SPEAKERS
E2-E3	0.5	1		
E3-E4	1	2		
E4-E5	2	4		
E1-E2	3	6.3	0.6	
E1-E3	6.3	12.5	1.1 (NORM)	
E1-E4	12.5	25	2.2	
E1-E5	25			
E1-E7				DETERMINED BY POWER SETTING AT EXTENSION SPKR

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

CAUTION: TOTAL POWER RATING OF LOAD MUST NOT EXCEED 25 WATTS PER CHANNEL OR 50 WATTS TOTAL FOR 50W AMPLIFIER.



EXAMPLE:

NOTE:

1. LEFT CHANNEL IS REVERSED POLARITY. SEE PAGE 10
2. WALLBOX LEFT CHANNEL IS ALREADY REVERSED. SEE PAGE 10
3. ADD WATTS AS FOLLOWS:

LEFT CHANNEL	3+3+4+4+4+1.1 = 19.1 WATTS
RIGHT CHANNEL	3+3+4+4+4+1.1 = 19.1 WATTS
PHONOGRAPH E1-E3	= 12.5 WATTS
TOTAL	= 50.7 WATTS

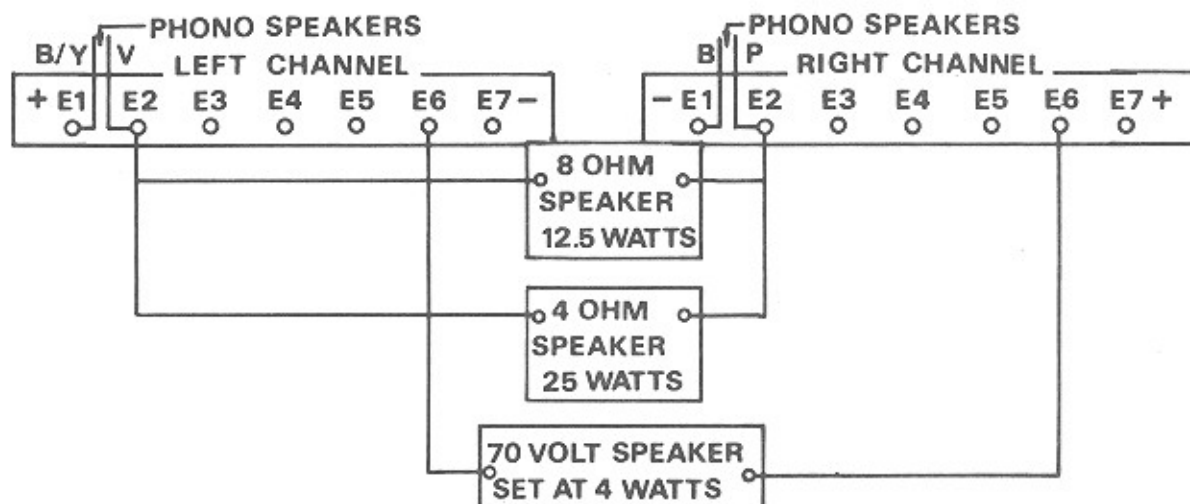
4. REFER TO AMPLIFIER OUTPUT TABLE 4 IF YOU PREFER TO USE THE IMPEDANCE METHOD (E^2/R)

TABLE 5. EXTENSION SPEAKER CONNECTIONS-STEREO

EXTENSION SPEAKER CONNECTIONS - MONAURAL

OUTPUT TERMINALS	WATTS PER SPEAKER			WATTS PER CHANNEL		
	8 OHM SPEAKERS	4 OHM SPEAKER	70.7 VOLT CONSTANT VOLTAGE SPEAKERS	8 OHM SPEAKERS	4 OHM SPEAKERS	70.7 VOLT CONSTANT VOLTAGE SPEAKERS
E2-E2	12.5	25		6.3	12.5	
E3-E3	25			12.5		
E6-E6			POWER SETTING AT EXTENSION SPEAKER			1/2 OF POWER SETTING AT EXTENSION SPEAKER

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



EXAMPLE:

NOTES:

1. ADD WATTS AS FOLLOWS: EXT. SPEAKERS 12.5 + 25 + 4 = 41.5 WATTS
 PHONO POWER E1-E2 = 6.3 WATTS
 TOTAL = 47.8 WATTS

2. REFER TO AMPLIFIER OUTPUT TABLE 4 IF YOU PREFER TO USE THE IMPEDANCE METHOD (E^2/R):

E2 TO E2 = 10 = E

$E^2 = 100$

$E^2/R = 100/8 = 12.5 \text{ WATTS}$

$E^2/R = 100/4 = 25 \text{ WATTS}$

E6 TO E6 = 70.7V SPEAKER SET AT 4 WATTS = 4. WATTS

PHONO E1- E2 = 6.3 WATTS

TOTAL = 47.8 WATTS

TABLE 6. EXTENSION SPEAKER CONNECTIONS - MONAURAL

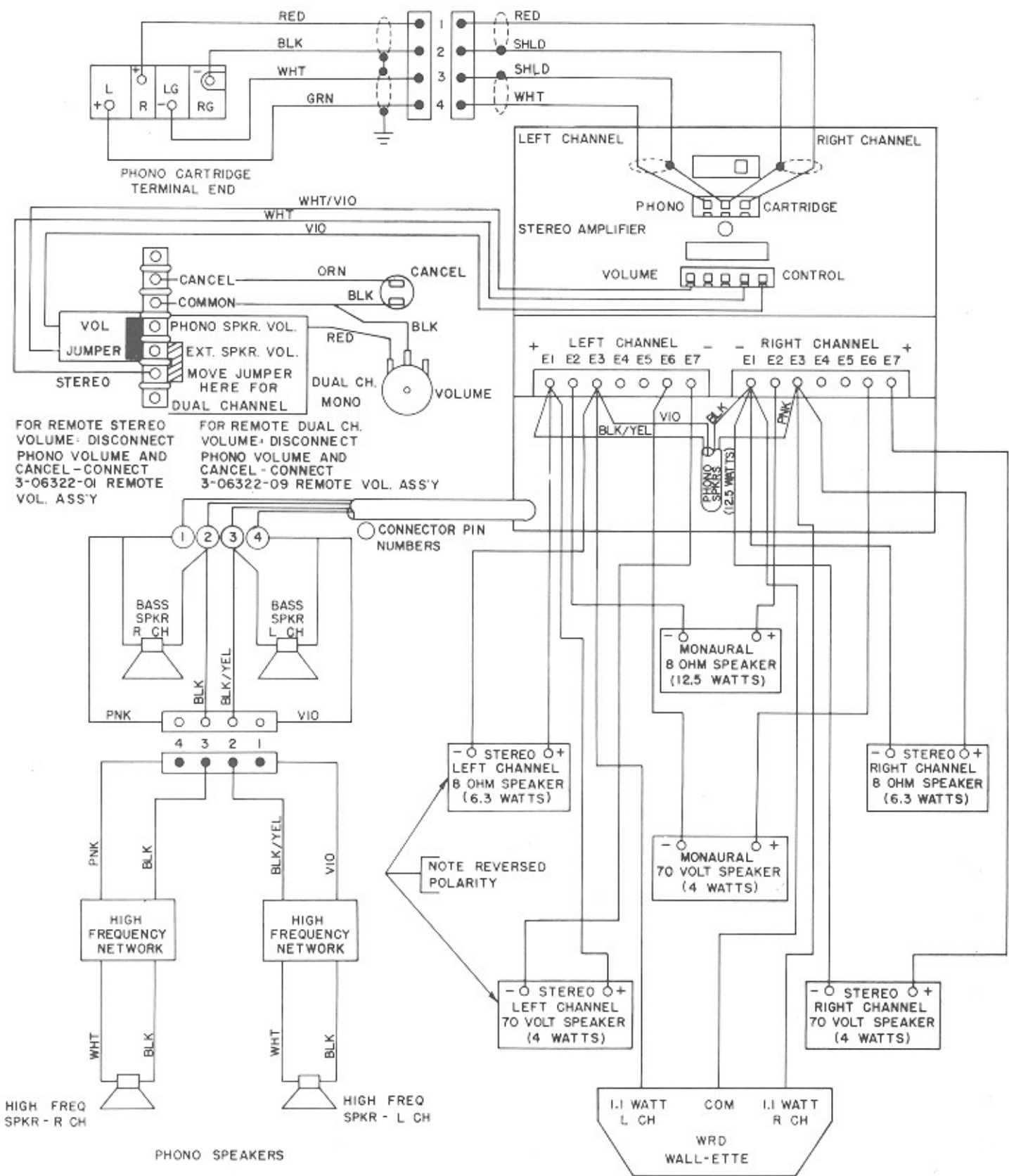
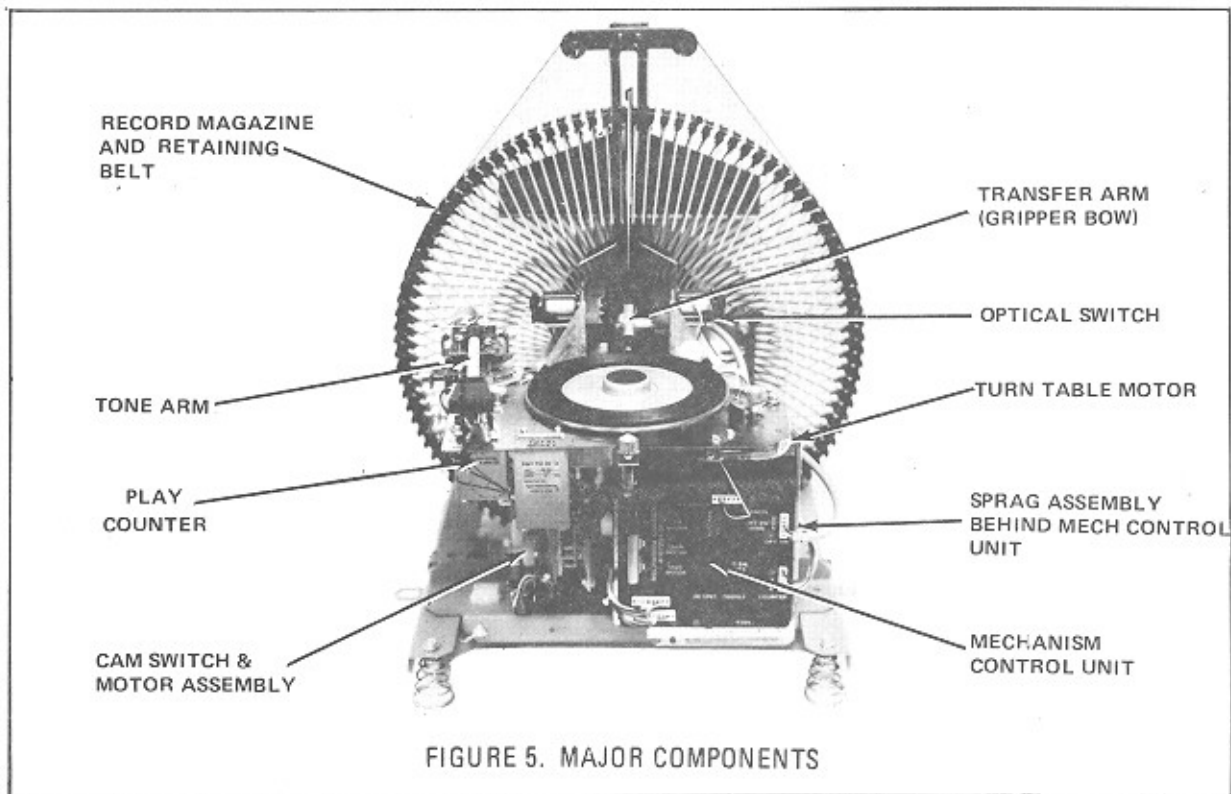


TABLE 7. RI-4 & RI-5 PHONOGRAPH STEREO SOUND SYSTEM CHART



RECORD CHANGER MECHANISM

INTRODUCTION

This section contains preventive maintenance procedures, including cleaning and lubrication instructions. A description of record changer operation is included along with complete adjustment instructions.

Cleaning and lubrication procedures should be performed at regular intervals specified, while adjustments should be made only when necessary.

PREVENTIVE MAINTENANCE

Cleaning

In addition to cleaning the cabinet exterior each time the location is visited, clean the interior every three to six months, as required. Keeping the cabinet interior clean reduces dust, resulting in increased record and component life. Always clean the phonograph cabinet prior to lubrication.

1. Use a vacuum cleaner, if available to remove heavy dust deposits.

WARNING

USE SOLVENTS IN A WELL-VENTILATED AREA ONLY: DO NOT USE SOLVENTS ON ANY TYPE OF PLASTIC PARTS.

2. Use a clean, lint free cloth saturated in denatured alcohol to clean mechanical parts.
3. Clean electrical parts using a clean, dry cloth or camel's hair brush.

Five Year Lubrication

Your phonograph requires lubrication only after five years. To maintain smooth, trouble-free operation, lubricate the record changer mechanism as shown.

Do Not Over-Lubricate
Do Not Use Oil or Grease on Solenoid Plungers.

One drop 3:1
electric motor oil

LIFT TURNTABLE
APPLY ONE DROP
OF OIL NEAR END
OF SHAFT AND
REPLACE TURN-
TABLE

APPLY ONE DROP
OF OIL TO BRONZE
BEARING AT SHAFT
OF TURNTABLE
MOTOR.

DO NOT GET ANY OIL
OR GREASE ON TURN-
TABLE BELT.

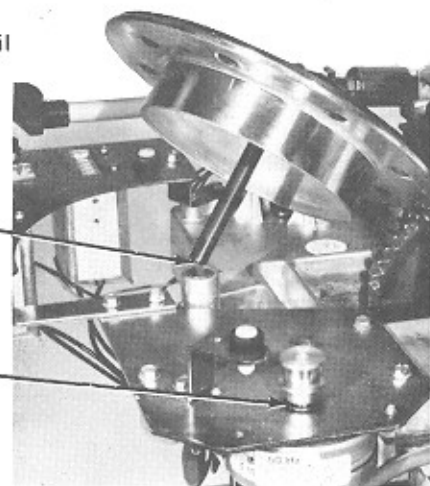


FIGURE 6.

RECORD CHANGER MECHANISM OPERATION

The following paragraphs contain a brief explanation of the operation of the record mechanism. The mechanism holds 100 records (80 spaces are used in the RI-5) and plays selections on command from the selection system. Identification and location of each major component is shown in figure 5. The purpose and description of each component is explained in the following text.

Magazine, Belt and Transfer Arm. The record magazine uses 80 7-inch 33 or 45 rpm records in a circular cage. Plastic blockouts may be installed in position 8 & 9 of each group. A seamless belt around the cage keeps records in position. The rollers permit the transfer arm to clear the belt when removing and returning records to the magazine and also maintain belt tension.

Play Counter. The play counter is mounted to the left of the turntable and accumulates the total number of plays on the phonograph.

Money Counter. The Money Counter is mounted on the left side of the turntable and it registers the total money deposited in the phonograph.

Optical Switch. The Optical Switch is in front of the record magazine and straddles the magazine gear. There are two sensors in the switch. One sensor indicates when record "99" is in gripping position. This sensor is called the home sensor. The other sensor counts the number of gear teeth that pass by during scan to tell which record is in gripping position. This sensor is called the index sensor.

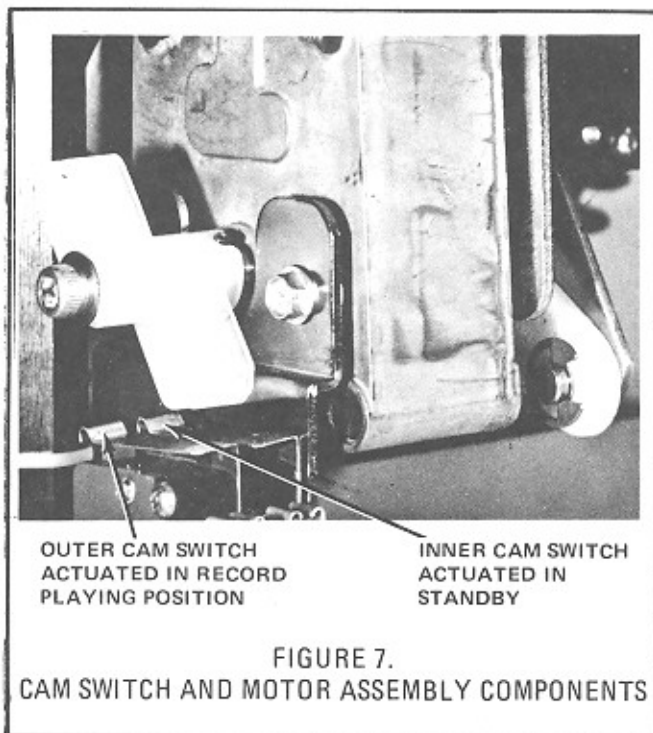
Mechanism Control Unit. This solid state switching unit controls the scan, transfer and toggle shift function

Sprag Assembly. This assembly operates the record magazine in position. It is located at the center of the record changer mechanism, immediately in front of the record magazine and below the record transfer arm. The magazine motor rotates the record magazine. The solenoid operated sprag assembly locks the magazine in place.

Tone Arm Assembly. The tone arm assembly plays records after they are positioned on the turntable by the record transfer arm. The tone arm contains a stereo cartridge with a diamond stylus that is designed to track at three to four grams pressure. The stylus plugs into the cartridge for easy replacement. Four receptacles in the tone arm assembly mate with a plug to connect the cartridge to the pre-amplifier via 4-conductor shielded cable.

Turntable Motor. The turntable motor is a constant speed 300 RPM synchronous motor. The turntable is driven with a belt to obtain the proper turntable speed with minimum wow and flutter. For 50Hz. locations, the pulley must be changed and a wiring change must be made on the motor terminal strip. (See pg.66)

Automix. (Optional) Automix operation enables the phonograph to play both 33 and 45 RPM records in any order. Automix components consist of a speed shift coil, a hub shift coil and a trip wire and switch on the turntable hub.



Cam Switch and Motor Assembly. (See Figure 7). The cam switch and motor assembly consists of the transfer motor, cam, and two cam switches. A nylon cam operates the cam switches.

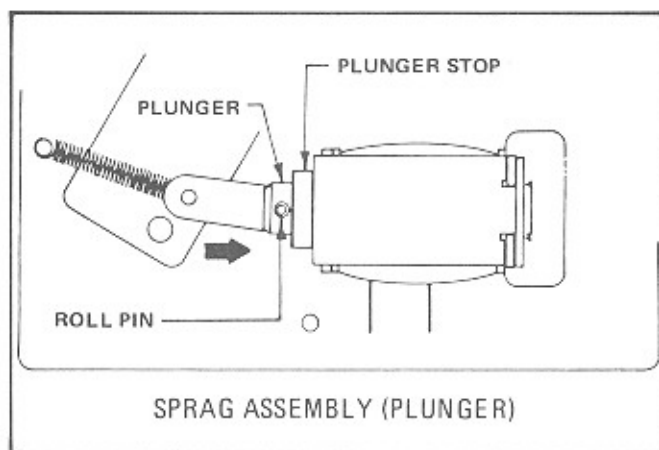
RECORD CHANGER ADJUSTMENTS

I. SPRAG ASSEMBLY ADJUSTMENTS

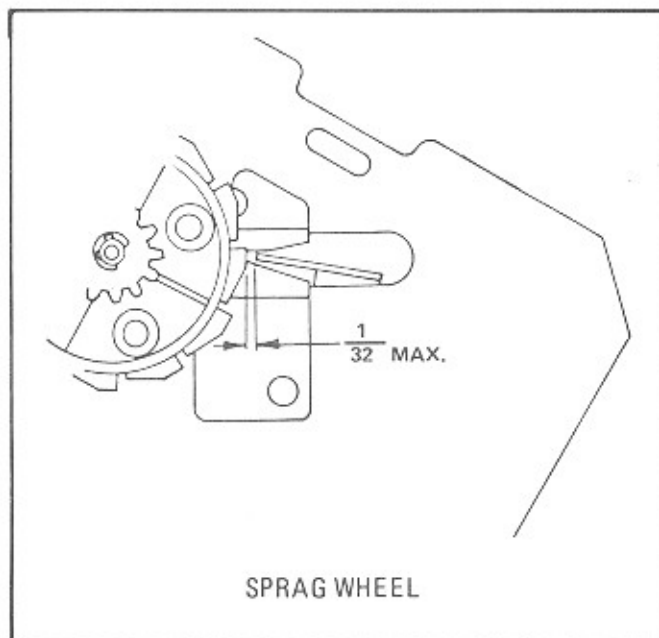
The following steps must be used to make sprag assembly adjustments.

WARNING
TURN POWER OFF

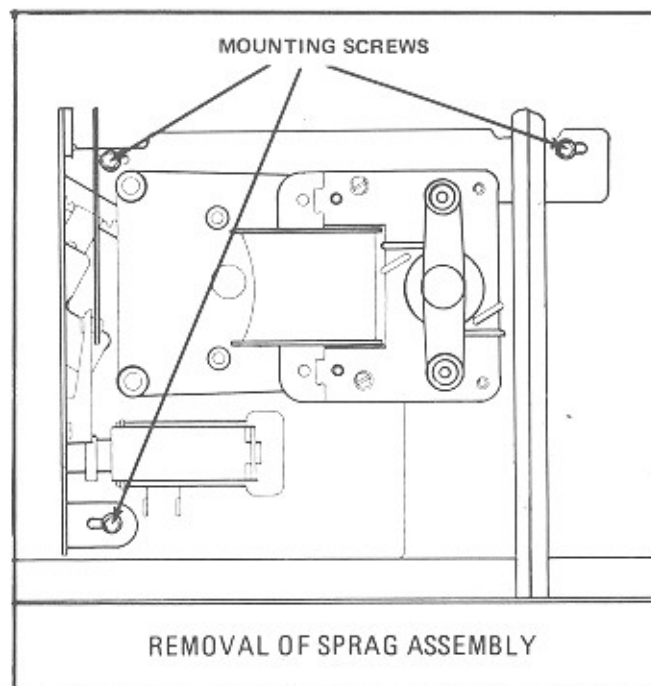
1. Depress solenoid plunger until the roll pin bottoms on plunger stop. (Actuate by pressing on plunger.)



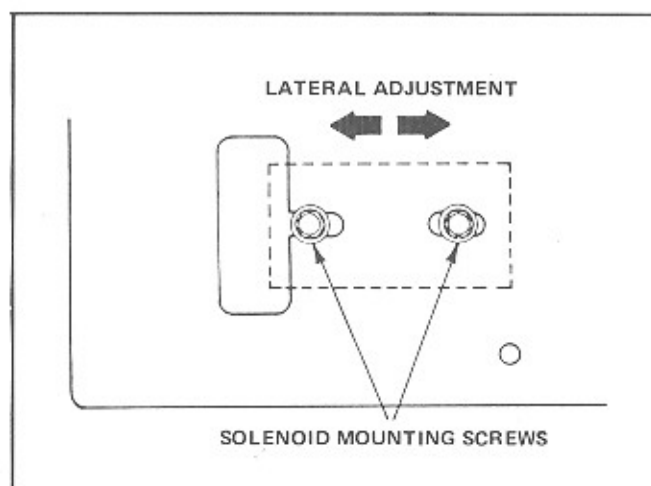
2. Rotate the record magazine and note the clearance between the sprag lever and the sprag wheel located on the backside of the sprag plate assembly. The sprag lever must not touch the sprag wheel and the clearance must not be greater than 1/32 inch. It will be necessary to remove the sprag assembly to make corrections, if required.



3. 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.



4. Loosen the solenoid mounting screws and with the roll pin against the plunger stop, 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.



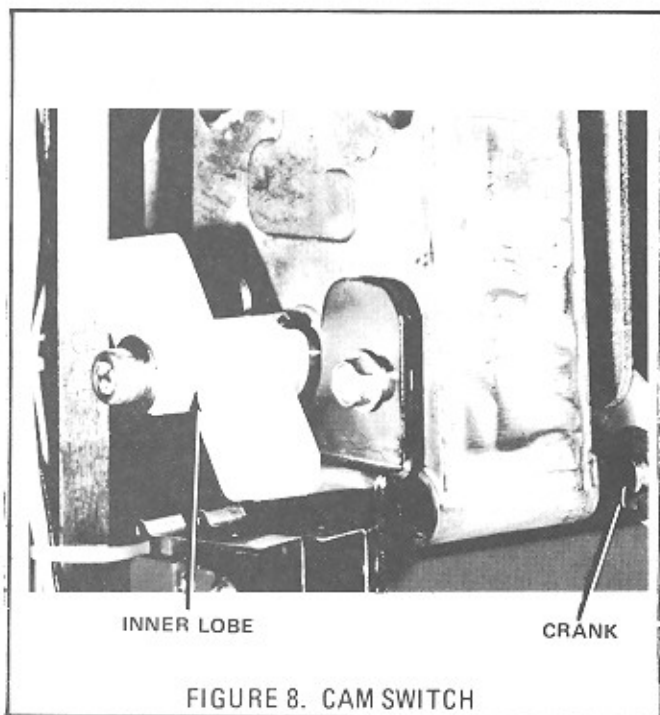
5. Tighten solenoid mounting screws.
6. Replace sprag assembly in mechanism with (3) mounting screws and replace black and white-blue wires to the solenoid and the yellow and yellow-black wires to the magazine motor.

See paragraph VII Page 19 for instructions for aligning the record magazine and readjusting the optical switch.

II. CAM SWITCH ADJUSTMENTS

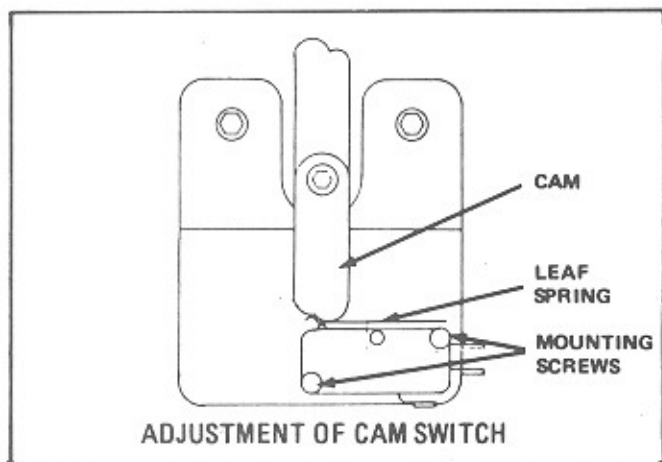
If it is necessary to remove the switch cam from the transfer motor, the following procedure must be followed to ensure that the cam is properly located and not 180° out of position.

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 cam. (See Figure 8)



Check and Adjust Cam Switch Operation

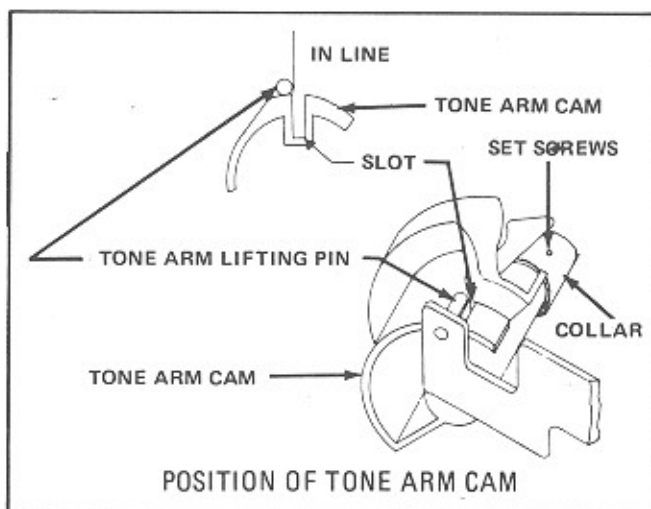
1. Check that the plastic cam, leaf spring, and switch plunger, just touch as shown below.
2. To adjust switches, loosen mounting screw under plunger end and move switch housing as required.



3. Tighten mounting screw and recheck operation.

III. TONE ARM CAM ADJUSTMENTS

1. Lift tone arm and turn it clockwise so the pins are disengaged from the cam.
2. With gripper bow in scan position over magazine (transfer motor crank in maximum down position) loosen one Allen head set screw in collar.
3. Using a 5/32 inch Allen wrench in end of transfer motor shaft, turn motor shaft clockwise until gripper bow is in playing position (transfer motor crank arm in maximum up position).
4. Loosen the other Allen head set screw in collar.
5. Position tone arm cam so that the outside diameter of the tone arm lifting pin is in line with the edge of the slot in the cam, as shown.



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

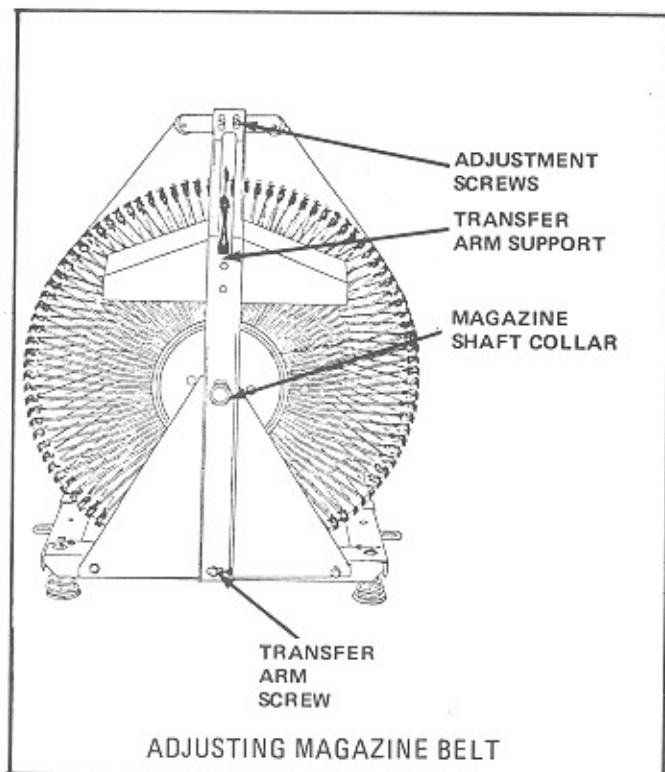
IV. RECORD MAGAZINE TRANSFER ARM SUPPORT ADJUSTMENT

Eliminate Magazine End Play and Center Transfer Arm Support.

1. Loosen set screws in rear Magazine Shaft collar. Push collar on to Magazine Shaft to eliminate end play and tighten screws.
2. Loosen screw that holds transfer arm support to mechanism frame.
3. Adjust transfer arm support so transfer arm is centered in opening.
4. Tighten mechanism frame to transfer arm support screw.

V. MAGAZINE BELT ADJUSTMENT

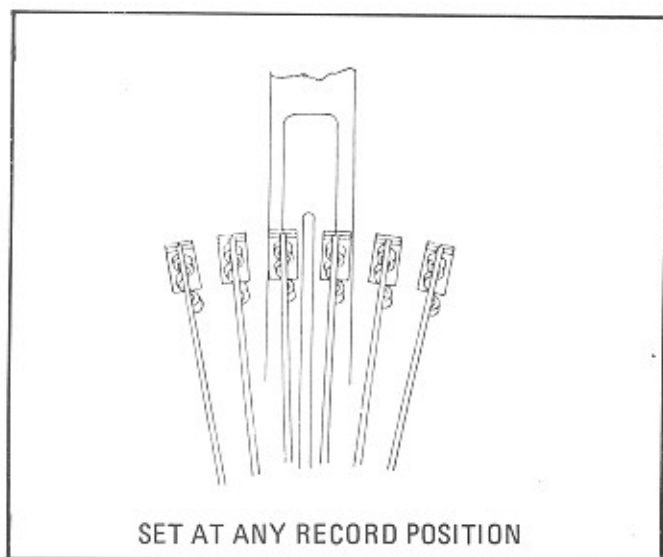
1. Loosen two adjustment screws shown.



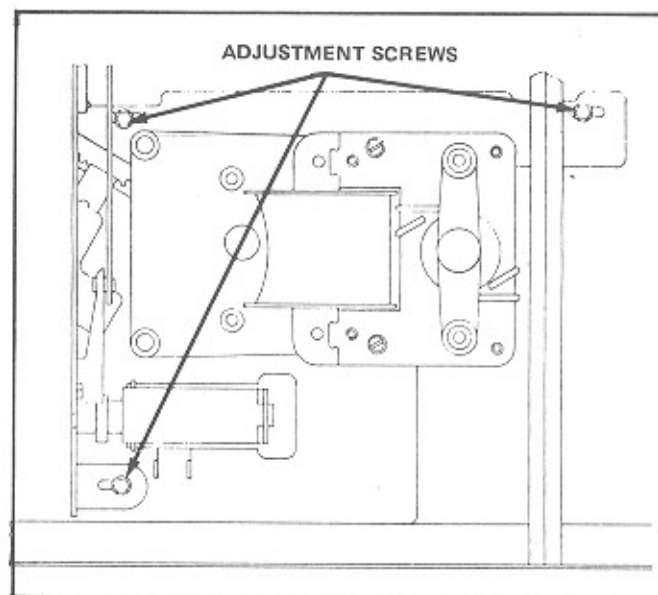
2. Raise bracket to tighten belt around magazine.
3. Check that belt rides evenly in center of belt guides, all the way around the magazine.
4. Tighten 2 adjustment screws.

VI. ALIGNING MAGAZINE STOPPING POSITION WITH TRANSFER ARM

1. Rotate record magazine to any record position. Allow magazine sprag lever to engage and lock magazine in place.



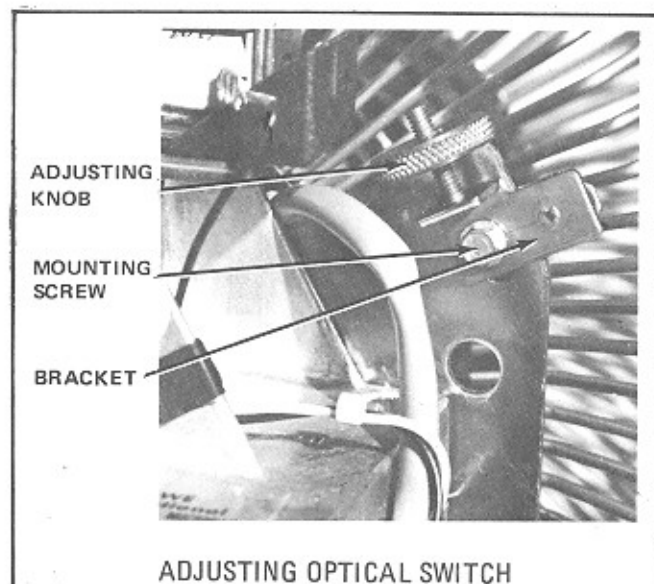
2. Loosen three screws in magazine motor mounting plate.
3. With sprag wheel locked, move magazine until transfer arm is centered between belt guides. (Adjusted screws will be approximately centered in slots).



4. Tighten three screws in magazine motor mounting plate securely.
5. Whenever the record magazine is adjusted, the optical switch must be adjusted as shown in the following adjustment procedure.

VII. OPTICAL SWITCH ADJUSTMENTS

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



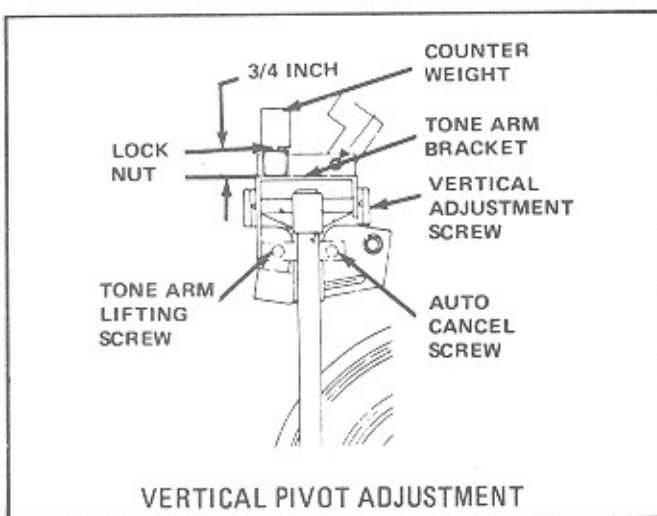
2. Loosen optical switch bracket mounting screw, turn adjusting knob counter clockwise to top of its' travel, and move bracket to the most downward position. Snug optical switch bracket mounting screw (do not tighten).
3. Rotate record magazine counterclockwise to remove gear backlash, hold in this position.
4. Turn adjusting knob clockwise, moving the bracket upward and watch both the index and home lamps on the mechanism control unit.
5. When both lamps light, continue to move the bracket past this position until the index lamp JUST goes out. The home lamp will stay on. Tighten the mounting screw.
6. With the sprag lever engaged rotate the record magazine clockwise and counter-clockwise by hand taking up gear backlash in both directions. The index lamp should stay off, and the home lamp should stay on.
7. Release magazine sprag lever from the sprag wheel and rotate record magazine to several other positions repeating step six. The index lamp should stay off. The home lamp will not be on.

VIII. TONE ARM ADJUSTMENTS

1. Adjust Vertical Pivot.

- a. Adjust tone arm pivot screw so that tone arm pivot is loose enough to move free vertically for a distance of two inches above turntable.
- b. Check that tone arm moves less than 1/32 inch from side to side at stylus.

2. Set Stylus Force.

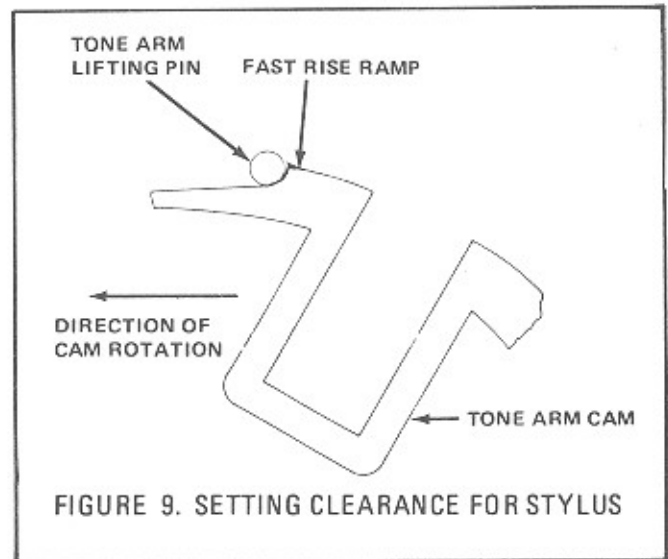


- a. The distance between the counter weight and the tone arm bracket should be 5/8 inch for 3-1/2 grams stylus force.

- b. If distance is not correct loosen lock nut, adjust counter weight and tighten lock nut.

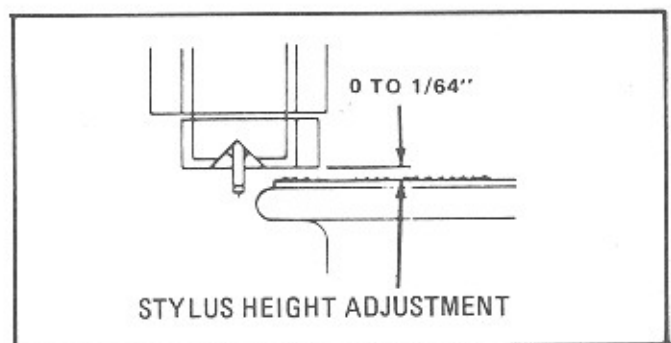
3. Set Stylus Clearance.

Using a 5/32 inch allen wrench in the end of the transfer motor shaft, clockwise until gripper bow has placed a record on the turntable. Push down on the tone arm lifting pin (See Figure 9) and continue to turn motor shaft to swing tone arm into the set down position. You will be able to feel the fast rise ramp of the cam contact the tone arm pin. At this point, release the pressure on the lifting pin and adjust the tone arm lifting screw so that the stylus just touches the record.



4. Set Stylus Height.

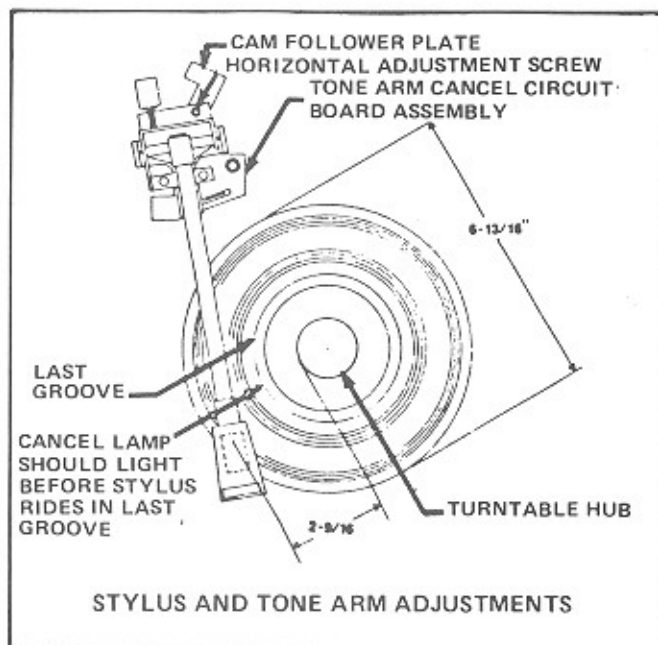
- a. Operate transfer assembly to position tone arm over turntable rim.



- b. Turn auto cancel screw until stylus holder is flush to 1/64 above turntable pad surface with tone arm in play position.

5. Set Stylus Setdown Position and Tone Arm Cutoff Switch.

- a. Place undersize (6-13/16 inch diameter) record on turntable.



- b. Operate transfer assembly to bring tone arm to play position.

- c. Loosen horizontal adjustment screw.

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

- e. Tighten horizontal adjustment screw and check adjustment.

- f. Disconnect microcomputer harness from mechanism control board (19 pin connector). (To prevent mechanism from cancelling.)

- g. Loosen mounting screw on tone arm cancel circuit board assembly.

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

6. Adjust Tone Arm Cutoff Switch.

- a. Disconnect microcomputer harness from mechanism control board (19 pin connector). (To prevent mechanism from cancelling.)

- b. Loosen mounting screw on tone arm cancel circuit board assembly.

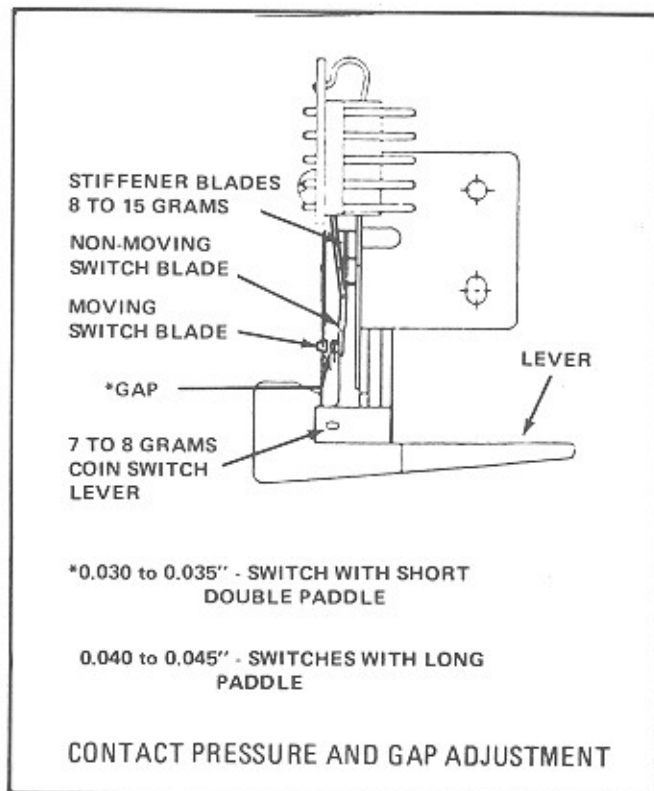
- c. Position tone arm cancel board assembly, as required until reed switch is closed, as indicated by cancel lamp in mechanism control unit. This should happen before stylus enters "closed" record groove.

COIN SWITCH ADJUSTMENTS

OPERATION CHECK

1. Hold plastic coin switch lever in normal position and drop a coin through slug rejector.
2. When the coin comes to rest on the lever, release the lever slowly.
3. Check that the weight of the coin operates the lever enough to close the coin switch and allow the coin to fall free.
4. Repeat steps 1, 2 and 3 for other three levers.

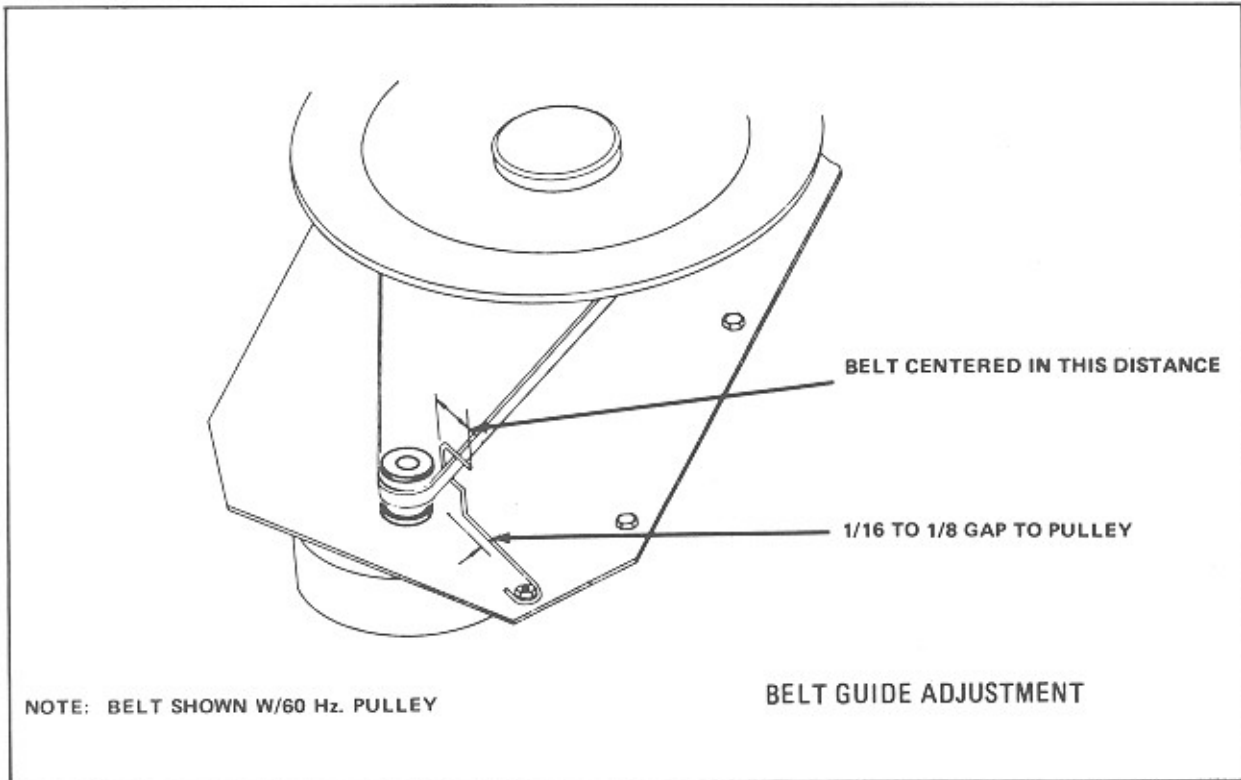
CONTACT PRESSURE AND GAP



1. Check that each moving switch blade pushes against its lever with 7 to 8 grams force to hold lever against cushion. To adjust pressure, bend the blade near its mounting point.
2. Check that each non-moving blade pushes against its stiffener blade with 8 to 15 grams force. To adjust pressure, bend the contact blade near its mounting point.
3. Check that contact gap at switch with short double paddle is 0.030 to 0.035". Check that contact gap for long paddle switches is 0.040 to 0.045 inch.

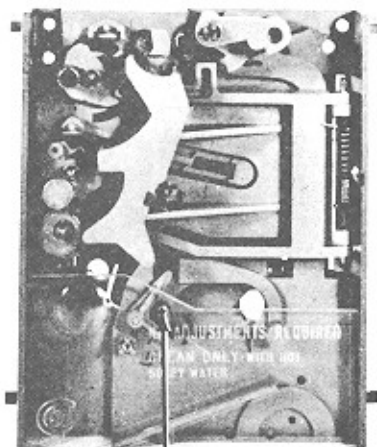
BELT GUIDE ADJUSTMENT

1. Loosen nut that fastens belt guide.
2. Adjust as shown below.
3. Tighten nut.



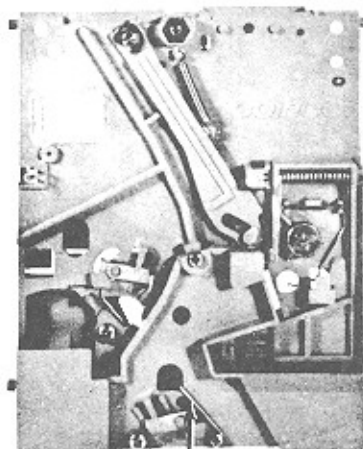
**COIN ACCEPTORS
3 COIN**

FRONT VIEW



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

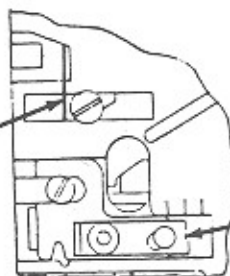
BACK VIEW



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

**COIN ACCEPTORS
4 COIN**

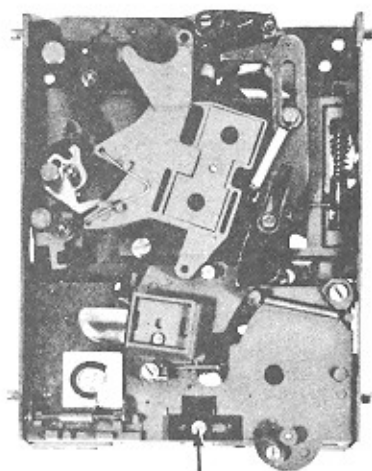
**LINE UP EDGE OF
DEFLECTOR WITH
THIS LINE**



**TO IMPROVE \$ SLUG REJECTION
ADJUST AS SHOWN**

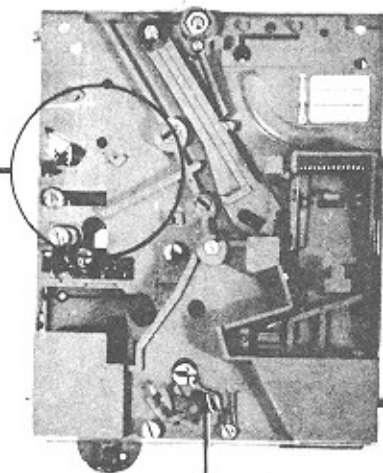
LINE SEPARATOR AS SHOWN

FRONT VIEW



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

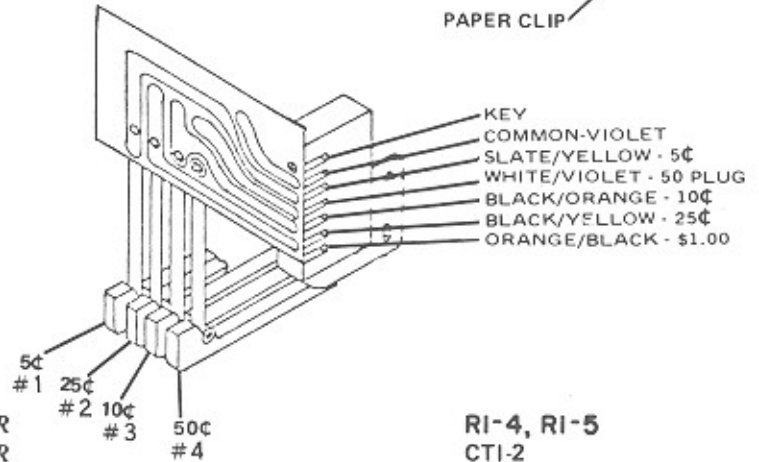
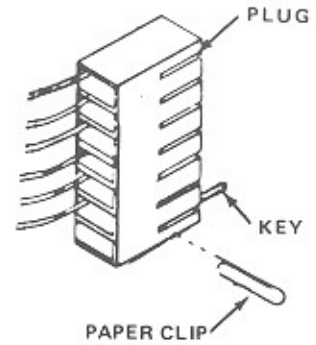
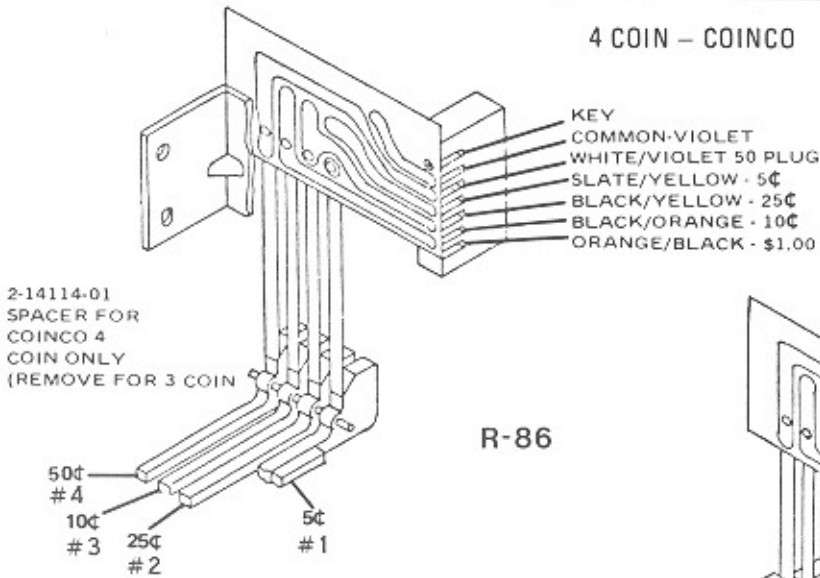
BACK VIEW



**TO REJECT DIMES ADD COINCO
No. 903915 BLOCK OUT WIRE**

COIN SWITCH WIRING

4 COIN - COINCO



NOTE

SWITCH W/V AND O/B WIRES DEPENDING ON 50¢ OR \$ COIN. SWITCH WIRE COLORS AS REQUIRED FOR OTHER REJECTORS. MAINTAIN COLOR - VS - COIN VALUE.

*MM = MONEY METER COUNTER RATIO

WIRING FOR 4 COIN (.05, .10, .25, .50)

COUNTRY	COIN DENOMINATION TO ACTUATE SWITCH								
	SWITCH #1	WIRE COLOR	SWITCH #2	WIRE COLOR	SWITCH #3	WIRE COLOR	SWITCH #4	WIRE COLOR	MM*
AUSTRALIA					10¢	B/O	20¢	B/Y	1
AUSTRIA			5S	W/V	1S	B/O	10S	O/B	10
BELGIUM			25¢	B/O	10¢	S/Y	5Fr	S/Y	100
COLUMBIA			1 PESO	S/Y	2 PESO	B/O	5 PESO	B/Y	1
DENMARK			1Kr	B/O			5Kr	W/V	10
ECUADOR			1Sc	B/O					10
EL SALVADOR			5¢	S/Y	25¢	B/Y	10¢	B/O	1
ENGLAND			10P	B/O			50P	W/V	100
FINLAND			1Mk	B/O			50P	W/V	10
FRANCE			1Fr	B/O			5Fr	W/V	10
GERMANY			1MK	B/O	50 Pfg	S/Y	2MK	B/Y	10
HOLLAND			25¢	B/Y			1G	O/B	1
HONDURAS			50¢	B/Y	20¢	B/O	10¢	S/Y	2
ITALY			200 L	B/Y			100 L	B/O	1,000
NICARAGUA			50¢	W/Y	25¢	B/Y	1 COR	O/B	1
NOR. SWED.			1Kr	B/O			5 Kr	W/V	10
SPAIN			5 PTAS	S/Y			25 PTAS	B/Y	100
SWISS			1Fr	B/O	50 Rp	S/Y	2 Fr	B/Y	10
U.S.	5¢	S/Y	25¢	B/Y	10¢	B/O	\$1	O/B	1
VENEZUELA	1 REAL	B/O	1 BOLIVAR	B/Y	1 MEDIO	S/Y	2 BOLIVAR	W/V	4

SECTION 3- ROUTINE SERVICE

INTRODUCTION

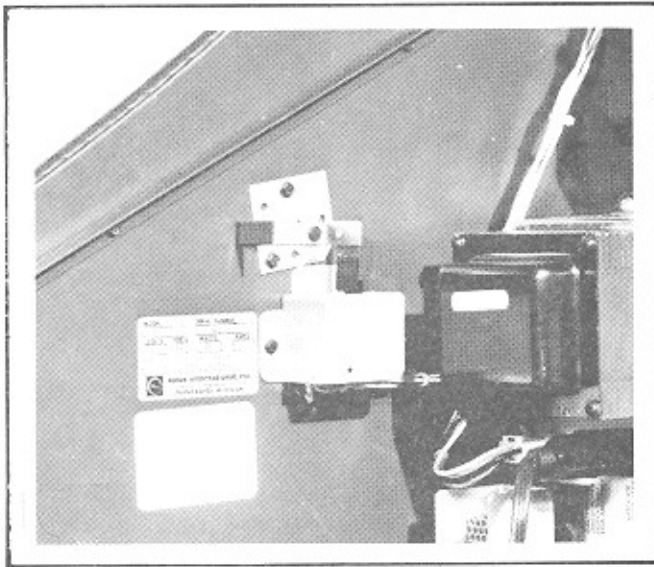
This section contains instructions to enable the route man to perform routine service tasks such as changing records, making collections, and cabinet cleaning.

CHANGING RECORDS

The phonograph will play 45 RPM records. With the addition of Automix Kit, both 45 RPM and 33 RPM records can be played interchangeable. (Order Kit No 2-66681-06).

Load records as follows:

1. Unlock and open door.
2. Move Switch to Service (Located on Control Console).



3. Use scan button to position magazine slot to the left or right of the transfer arm.
4. Install record in magazine as shown.

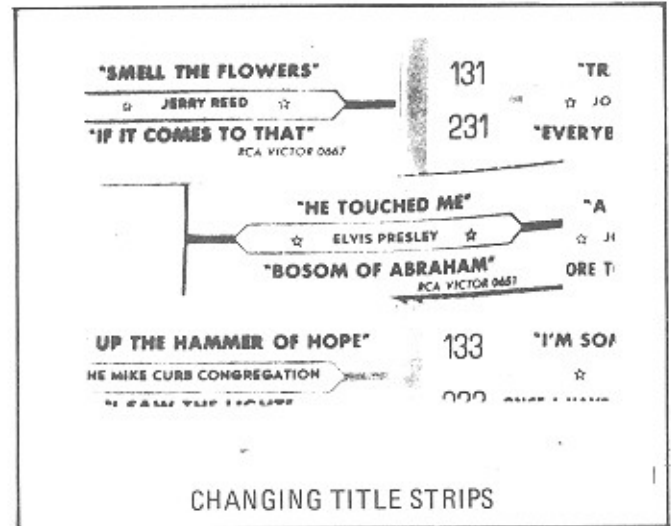


5. Move Service Switch to ON before attempting to make selection.

CHANGING TITLE STRIPS

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

1. Open door and swing title panel down as shown below.
2. Install new title strips by sliding the strips into the open right ends of the racks as shown.



3. Check to make sure that each title strip corresponds to the correct record.

REMOVING CASH BAG

1. Unlock cash bag door and pull door away from cabinet.



2. Slide cash bag straight out on its runners.

READING AND RESETTING MEMOREC

The Memorec keeps a tally of the number of times each record is selected and the total number of selections made. This unit registers selections only; not plays. To read the total number of plays, check the total play counter on the left side of the record changer mechanism. Read and reset the Memorec as follows:

1. Set selector switch to LEAST POPULAR position. Set console ON - SERVICE - OFF switch to SERVICE. The least popular record selection will appear on the left two digits of the display window under RECORD NUMBER. The number of times it was selected will appear on the right two digits under TIMES SELECTED.
2. Push and release the pushbutton to read the next least popular record. If there are two records with the same number of selections, the lower record number will be displayed first; then the higher number. After all selections have been read, the display will show hyphens.
3. To read the most popular selections, set selector switch to MOST POPULAR position. Push and release the pushbutton to read the most popular records.
4. The readout of least popular or most popular selections can be reset to the beginning at any time by moving the Most/Least switch to the opposite position, and then back to its original position.
5. Press and hold the pushbutton to read the total selections since the unit was last reset.
6. Press the "Most Popular Record" switch on the selector keyboard. The number of times the "Most Popular Record" switch was used to make a selection will appear on the four digit display.
7. Press the "Manual Credit" button on the lower left corner of the "Central Control Computer". The total amount of money deposited since the last reset will appear on the four digit display. The count will be the number of nickels deposited. The actual amount of money will be .05 times the count.
8. Punch in the number of any tune using the selector keyboard. The number you punch in will appear on the three digit display. The number of times this tune has been selected will appear on the two rightmost digits of the four digit display.
9. Using the eraser end of a pencil or a similar tool push the recessed RESET button to set the computer count back to zero.

CAUTION

*THIS WILL ZERO THE COMPUTER
SO MAKE SURE THAT YOU HAVE
COMPLETED YOUR READINGS.*

REPLACING LAMPS

To maintain the attractive appearance of the phonograph, replace burned-out lamps immediately.

To remove title panel fluorescent lamp:

1. Unlock and open door. Fluorescent lamp and starter is conveniently located.
2. Remove fluorescent tube by rotating lamp.

CLEANING

To Clean Coinco Acceptors:

1. All plastic 3 coin acceptor

Submerge in hot soapy water, shake off excess water and let dry. Needs no lubrication.

2. Plastic and metal 4 coin acceptor.

Place in hot soapy water for about 10 minutes. Rinse in hot water and dry with air or lint free cloth. Clean stubborn areas with brush. Transfer cradle pins and bushings may be lubricated with silicone.

NEVER USE GREASE OR OIL!

CABINET CLEANING

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