



**ROCK-OLA**

*Manufacturing Corporation*

# SERVICE MANUAL

MECHANISM & AMPLIFIER  
ADJUSTMENTS

## Models

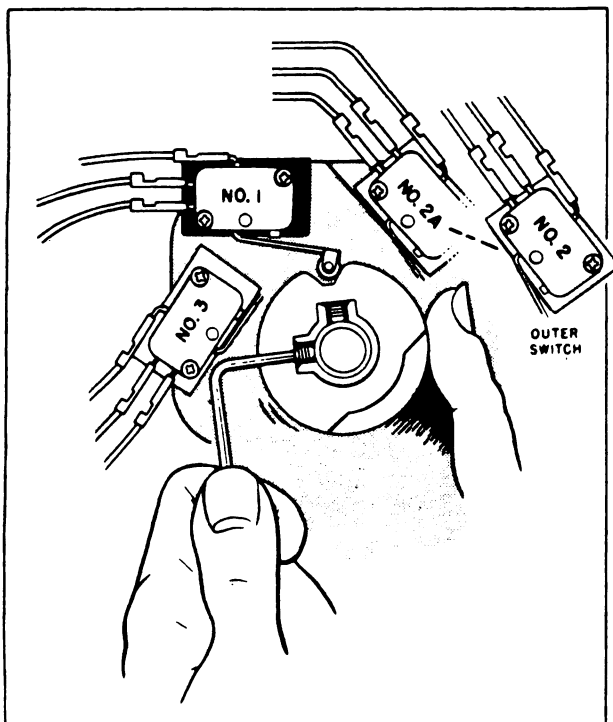
**490**

**490-1**

**490-2**

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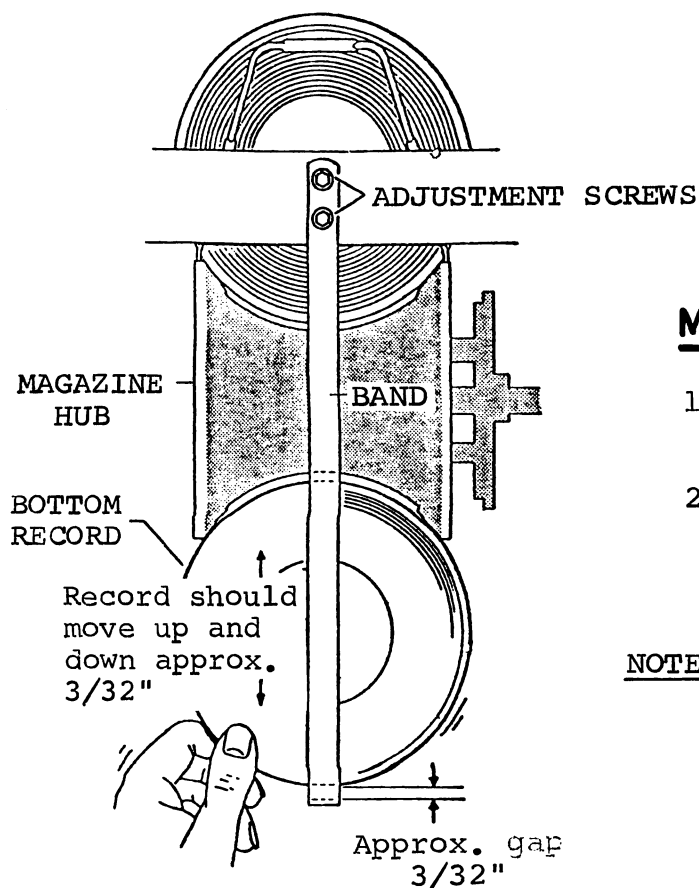


### MICRO SWITCH AND CAM ADJUSTMENT

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

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

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

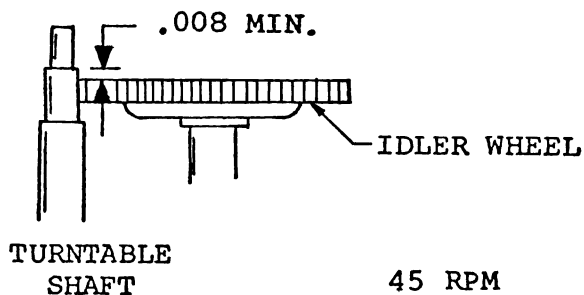


### MAGAZINE BAND ADJUSTMENT

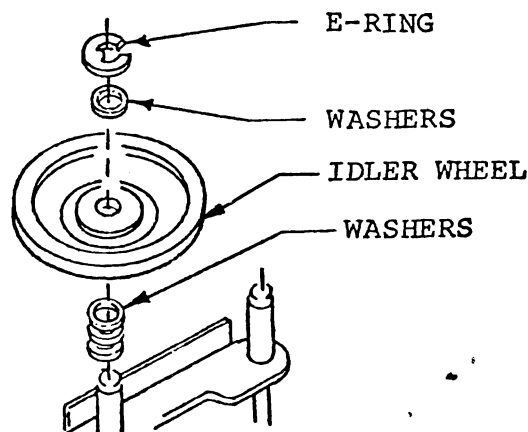
1. Use 6.875 O.D. record disc size to obtain  $3/32$ " gap.
2. Loosen adjustment screws to obtain approx.  $3/32$ " gap between magazine hub and band, re-tighten screws.

NOTE:  $3/32$ " gap adjustment must be made with magazine fully loaded with records.

## IDLER WHEEL ADJUSTMENT

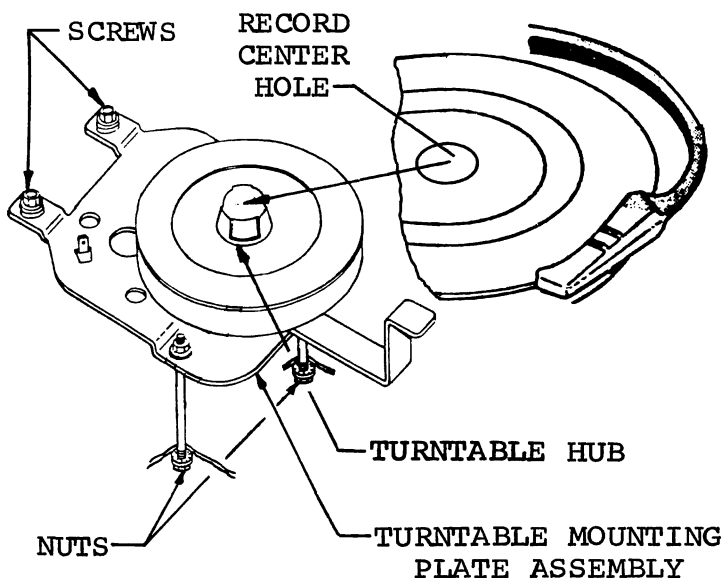


45 RPM



1. CHECK: POSITION OF IDLER WHEEL TO TURNTABLE SHAFT AS SHOWN.
2. ADJUSTMENT: REMOVE E-RING, REPOSITION WASHERS (6 REQUIRED). TOP TO BOTTOM OR VICE OR VERSA AS REQUIRED TO OBTAIN PROPER POSITION, REPLACE E-RING.

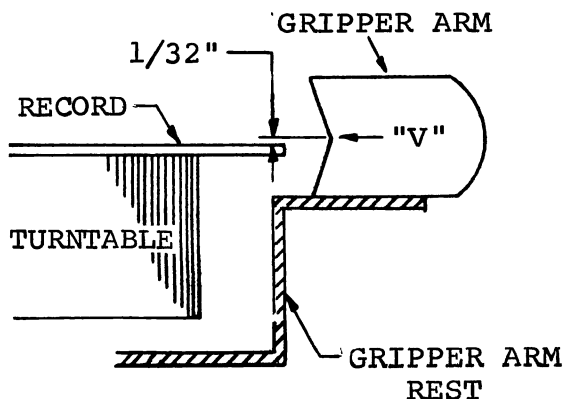
EXAMPLE: 3 WASHERS ON TOP AND 3 ON BOTTOM, OR 4 ON TOP AND 2 ON BOTTOM, ETC.



## TURNTABLE CENTERING ADJUSTMENT

1. LOOSEN 2 SCREWS AND 2 NUTS.
2. ADJUST TURNTABLE MOUNTING PLATE ASSEMBLY SO THAT TURNTABLE HUB ALIGNS WITH RECORD CENTER HOLE. CHECK CENTERING FOR BOTH 100 AND 200 SIDES OF RECORD, RE-TIGHTEN SCREWS AND NUTS.

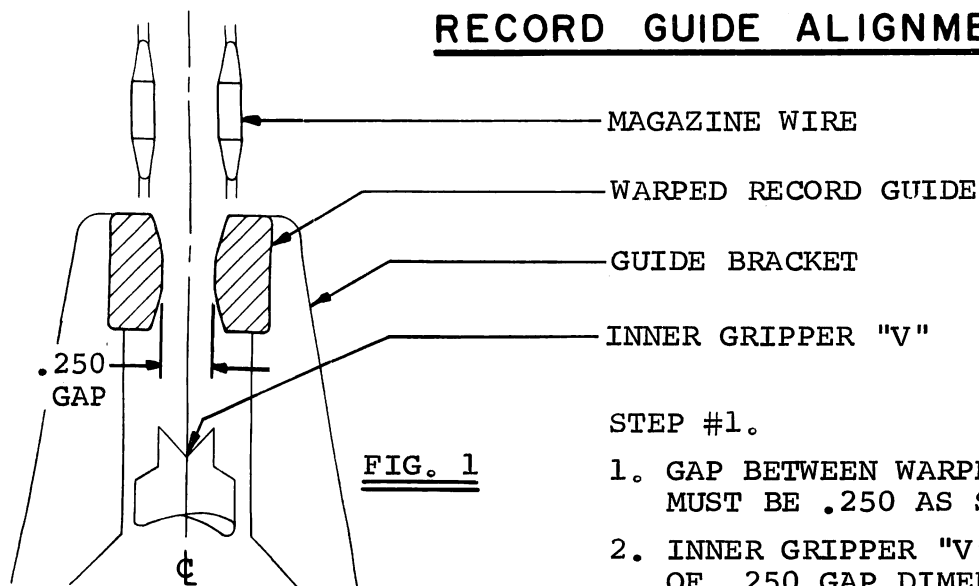
NOTE: USE RECORD SIZE 6.800.



## FRONT GRIPPER REST HEIGHT ADJUSTMENT

ADJUST GRIPPER ARM REST BRACKET IN AN UP OR DOWN DIRECTION UNTIL "V" OF GRIPPER ARM LIES ABOUT 1/32" ABOVE RECORD PLAYING SURFACE ON TURNTABLE AS SHOWN.

# RECORD GUIDE ALIGNMENT



TOP VIEW

FIG. 1

STEP #1.

1. GAP BETWEEN WARPED RECORD GUIDES MUST BE .250 AS SHOWN FIG. 1.
2. INNER GRIPPER "V" MUST BE IN CENTER OF .250 GAP DIMENSION.
3. BEND GUIDE BRACKET TO ADJUST.

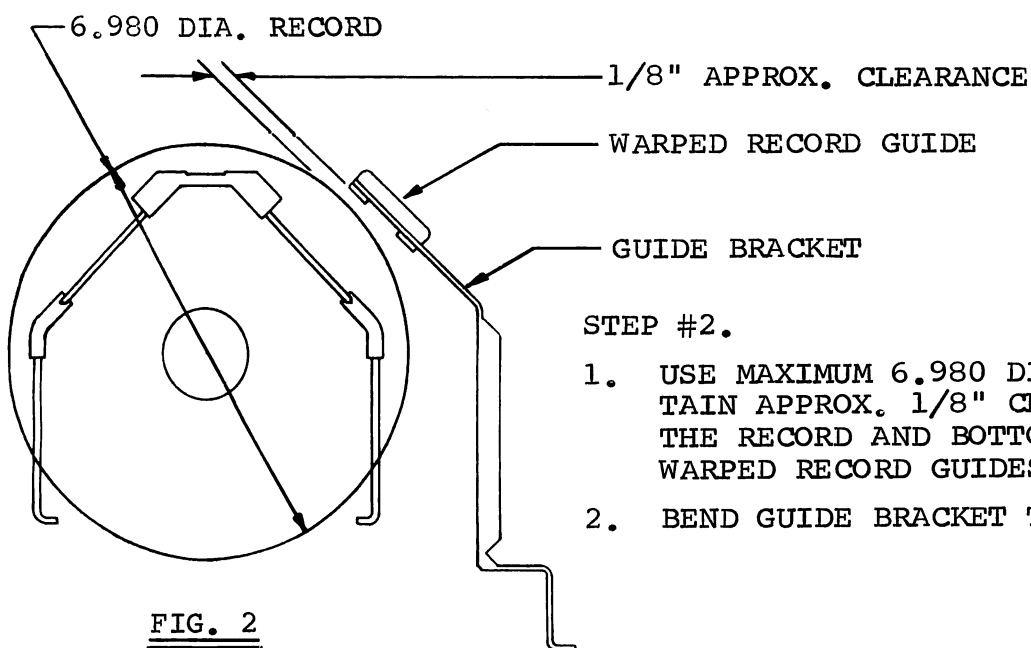
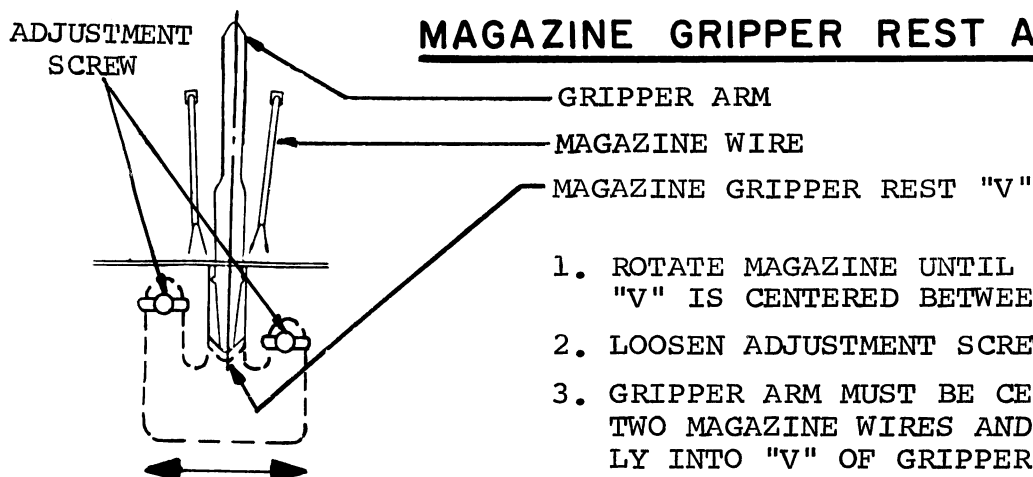


FIG. 2

STEP #2.

1. USE MAXIMUM 6.980 DIA. RECORD TO OBTAIN APPROX. 1/8" CLEARANCE BETWEEN THE RECORD AND BOTTOM SURFACE OF WARPED RECORD GUIDES AS SHOWN FIG. 2.
2. BEND GUIDE BRACKET TO ADJUST.



DIRECTION OF ADJUSTMENT

## MAGAZINE GRIPPER REST ADJUSTMENT

- GRIPPER ARM
- MAGAZINE WIRE
- MAGAZINE GRIPPER REST "V"

1. ROTATE MAGAZINE UNTIL THE INNER GRIPPER "V" IS CENTERED BETWEEN THE TWO WIRES.
2. LOOSEN ADJUSTMENT SCREWS.
3. GRIPPER ARM MUST BE CENTERED BETWEEN TWO MAGAZINE WIRES AND MUST FALL FREELY INTO "V" OF GRIPPER REST.
4. RE-TIGHTEN SCREWS.

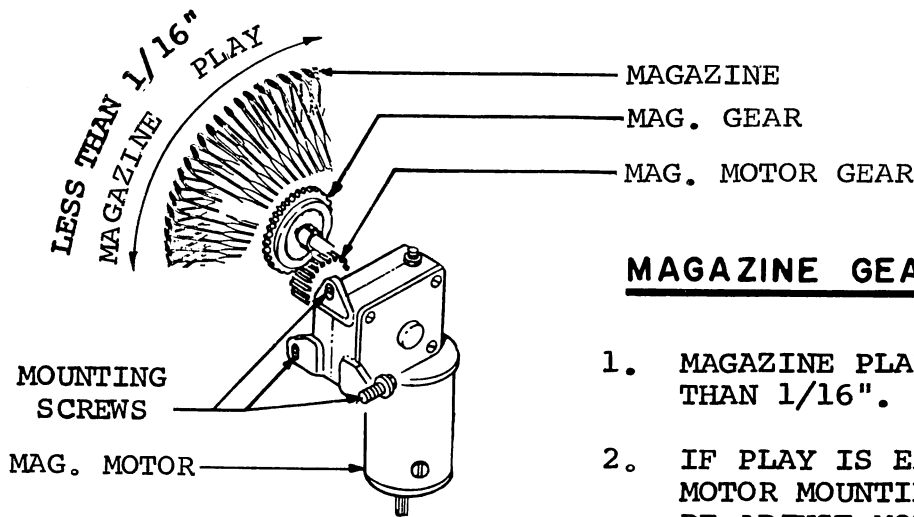


FIG. 1

### MAGAZINE GEAR MESH ADJUSTMENT

1. MAGAZINE PLAY MUST BE LESS THAN 1/16". SEE FIG. 1.
2. IF PLAY IS EXCESSIVE, LOOSEN MOTOR MOUNTING SCREWS AND RE-ADJUST MOTOR.
3. RE-TIGHTEN SCREWS.

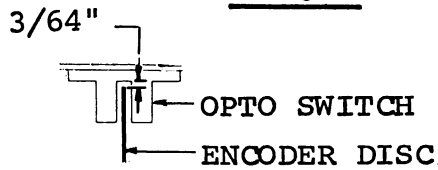


FIG. 2

### INDEXING ADJUSTMENT

1. SET MAGAZINE TO HOME POSITION. TURN SCAN SWITCH TO "OFF".
2. THE OPTO SWITCH ASSEMBLY MUST BE SET APPROXIMATELY 3/64" ABOVE ENCODER DISC AS SHOWN IN FIG. 2. LOOSEN SCREWS "D" (FIG. 3) TO RAISE OR LOWER ASSEMBLY, AND RE-TIGHTEN.
3. USING SCAN SWITCH, REMOVE RECORDS 100, 193 & 199.
4. TURN SCAN SWITCH TO "OPERATE".
5. ADVANCE S-2 TO "SYSTEM TEST" AND SELECT TEST #1 (PRESS S3).
6. WHEN MAGAZINE STOPS AT EACH POSITION, THE INNER GRIPPER "V" MUST CENTER ON MAGAZINE WIRES AS SHOWN IN FIG. 4.
7. IF INNER GRIPPER "V" IS NOT CENTERED: TURN SCREW "A" (FIG. 3) CLOCKWISE IF MAGAZINE STOPS TOO SOON, AND COUNTER-CLOCKWISE IF IT STOPS TOO LATE.

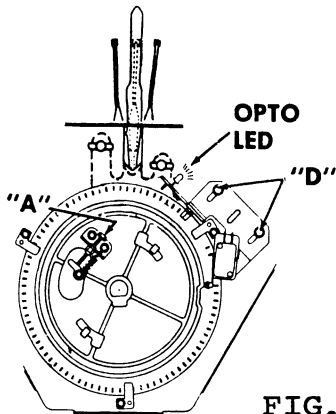


FIG. 3

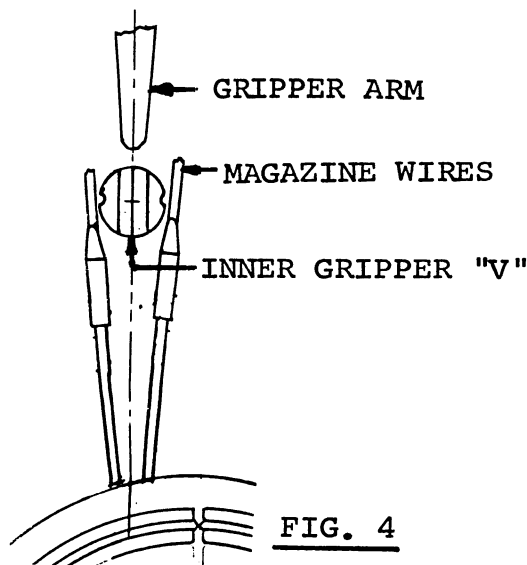
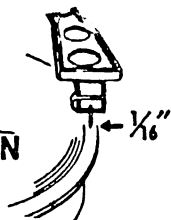


FIG. 4



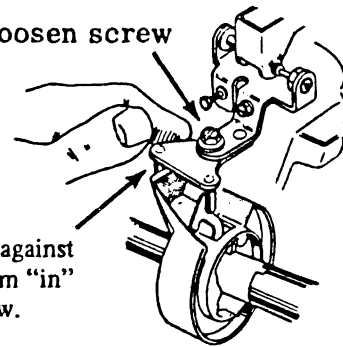
# TONE ARM ADJUSTMENTS

## NEEDLE SET-DOWN



Stop mechanism just before needle lands on record. Needle must be at least 1/16" in from record edge.

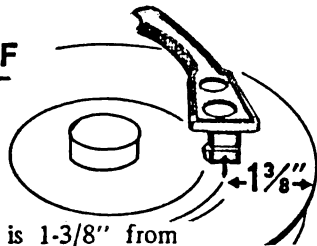
Loosen screw



To adjust:

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

## RECORD CUT-OFF

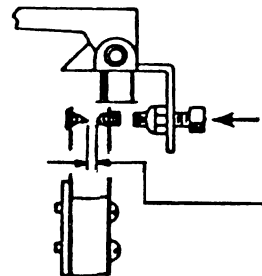


Cut-off position is 1-3/8" from record edge.

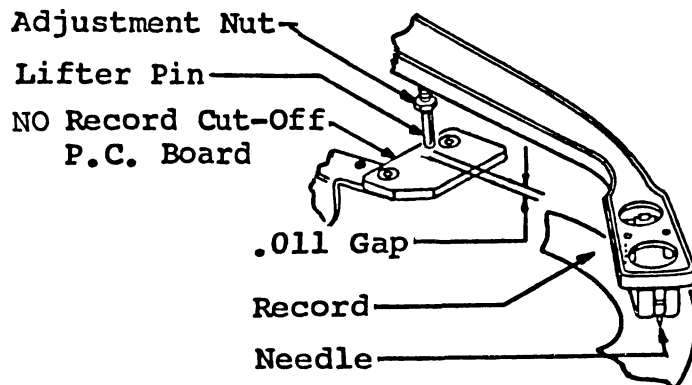
To adjust:

Move adjustment screw to obtain proper Cut-off.

1/64 Max. Contact Gap



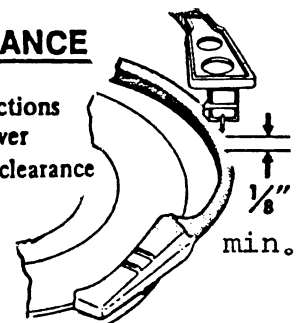
## "NO RECORD CUT-OFF"



PLACE TONE ARM ON RECORD AS SHOWN. GAP BETWEEN LIFTER PIN AND NO RECORD CUT-OFF P.C. BOARD MUST BE .011. ADJUST LIFTER PIN.

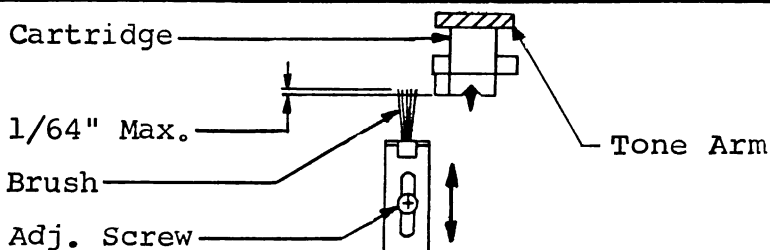
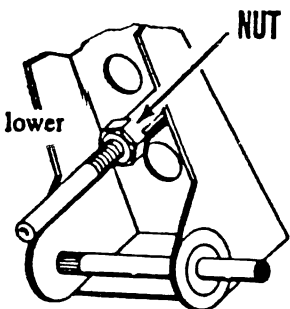
## NEEDLE CLEARANCE

On even numbered selections the tone arm passes over the gripper arm. Needle clearance must be 1/8" min.



To adjust:

Loosen nut. Raise or lower adjustment screw. Tighten nut.

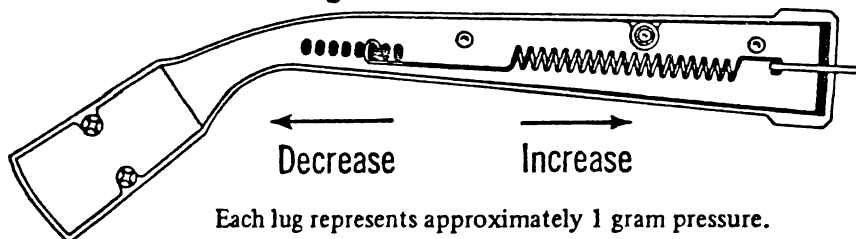


## BRUSH ADJUSTMENT

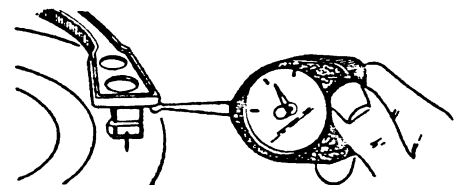
1. Loosen adjustment screw.
2. Adjust brush assembly.
3. Retighten screw.

## TONE ARM GRAM PRESSURE ADJUSTMENT

Magnetic—3 to 5 Grams



Each lug represents approximately 1 gram pressure.



Needle pressure reading is taken when the point of the needle is in contact with record.



### BALANCE CONTROL

This control is located on the TONE CONTROL P.C. BOARD(54515-A) and is accessible through the amplifier front. Re-adjustment should only be required if the amplifier has been serviced.

#### CONDITIONS:

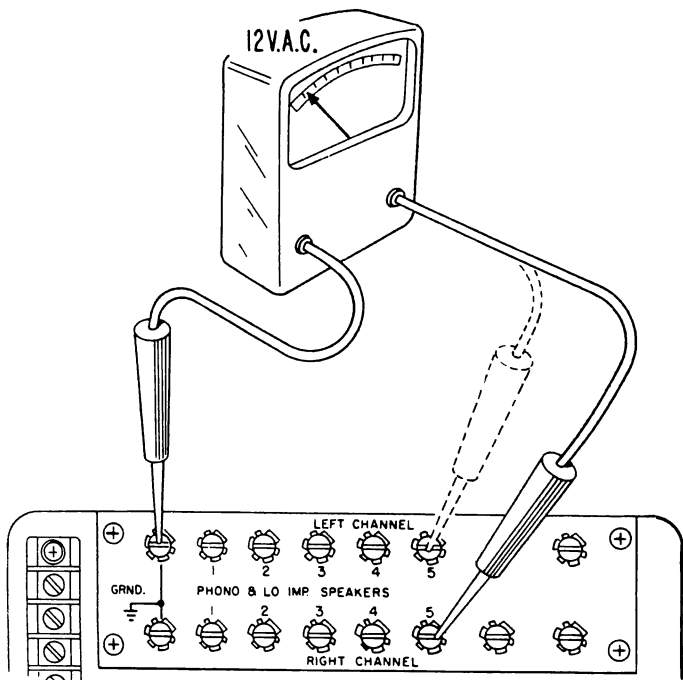
1. Set A.V.C. switch to ON.
2. Set STEREO-MONO switch to STEREO.
3. Set SCRATCH FILTER switch to OFF.
4. Set TONE CONTROLS to MAXIMUM.
5. Set VOLUME CONTROL to MAXIMUM.
6. INPUT GAIN CONTROLS must be adjusted correctly.

#### PROCEDURE:

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

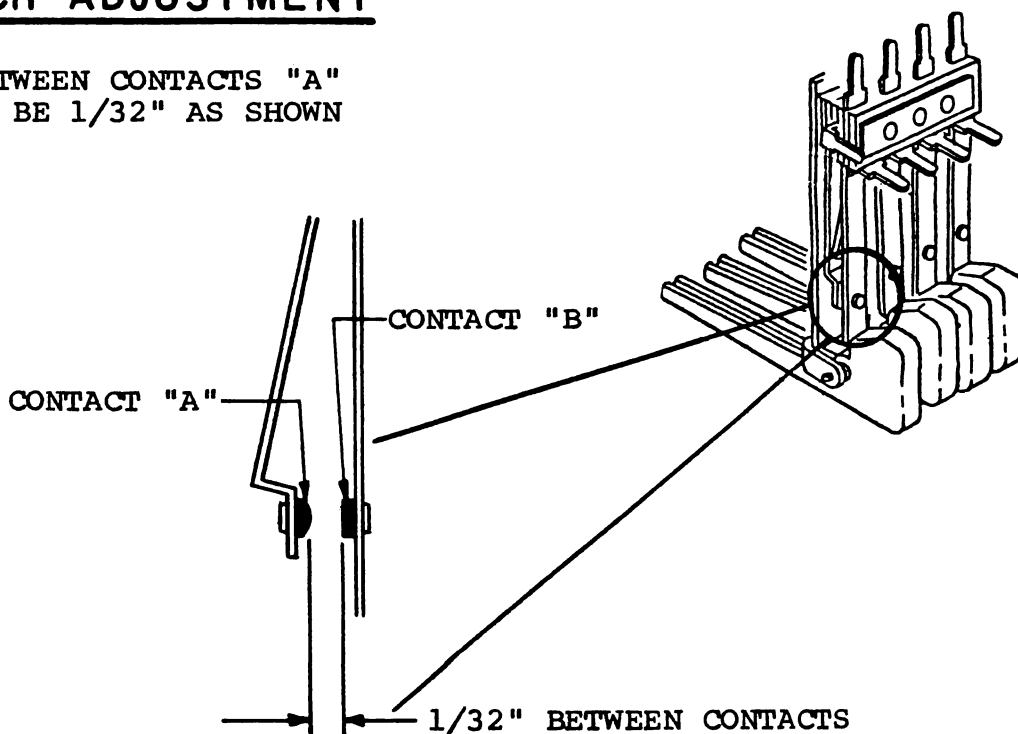
#### EQUIPMENT:

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

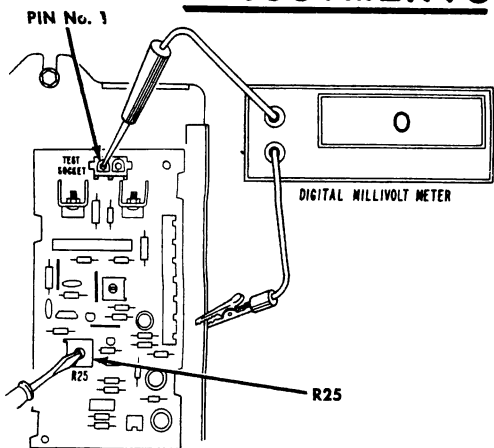


### COIN SWITCH ADJUSTMENT

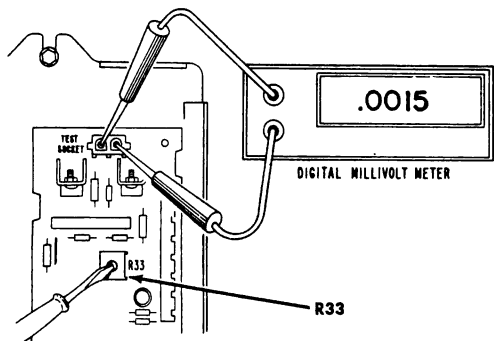
CLEARANCE BETWEEN CONTACTS "A" AND "B" MUST BE 1/32" AS SHOWN



# SOUND SYSTEM ADJUSTMENTS



DRIVER P.C. BOARD



## CENTER VOLTAGE (OUTPUT LINE) AND IDLE CURRENT ADJUSTMENT.

These controls are located on the DRIVER P.C. BOARDS (54655-A) for each channel. They should only be re-adjusted when a DRIVER P.C. board or HEAT SINK assembly (54660-A) has been replaced or repaired.

### CONDITIONS:

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

EQUIPMENT: Digital Millivoltmeter

### PROCEDURE:

1. With POWER OFF, pre-set R33 (current) to minimum (CCW) and R25 (voltage) to center of rotation.
2. Connect meter between ground and pin #1 of TEST SOCKET on driver P.C. board to be adjusted.
3. Switch POWER ON. Adjust R25 for 0 volts plus or minus .001 volts.
4. Connect meter to pins 1 and 2 of TEST SOCKET.
5. Adjust R33 for .0015 volts plus or minus .0005 volts.

(Indicates 6.6 to 13.3 MA through R43)

## INPUT GAIN ADJUSTMENT (R1 and R9)

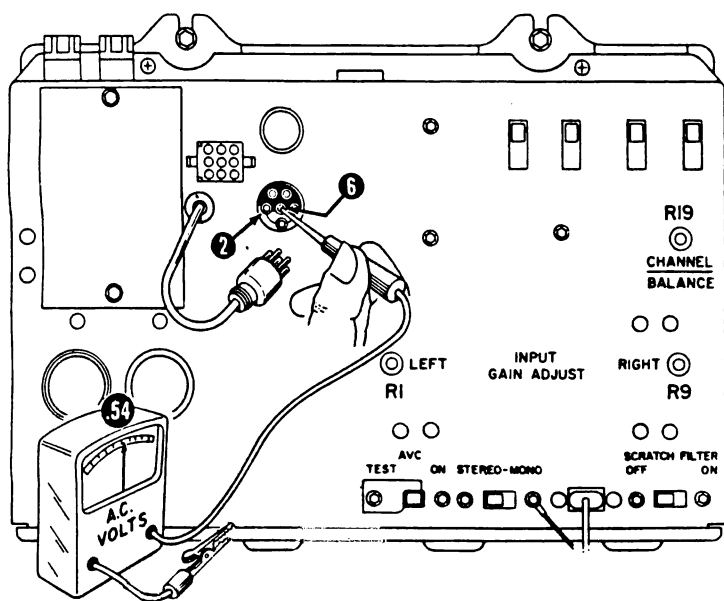
These controls are located on the PRE-AMPLIFIER and A.V.C. P.C. BOARD (52295-A) and are accessible through the front of the amplifier. They should only be adjusted when the PICK UP CARTRIDGE has been replaced or the PRE-AMPLIFIER P.C. BOARD has required service or replacement.

### CONDITIONS:

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

### EQUIPMENT:

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

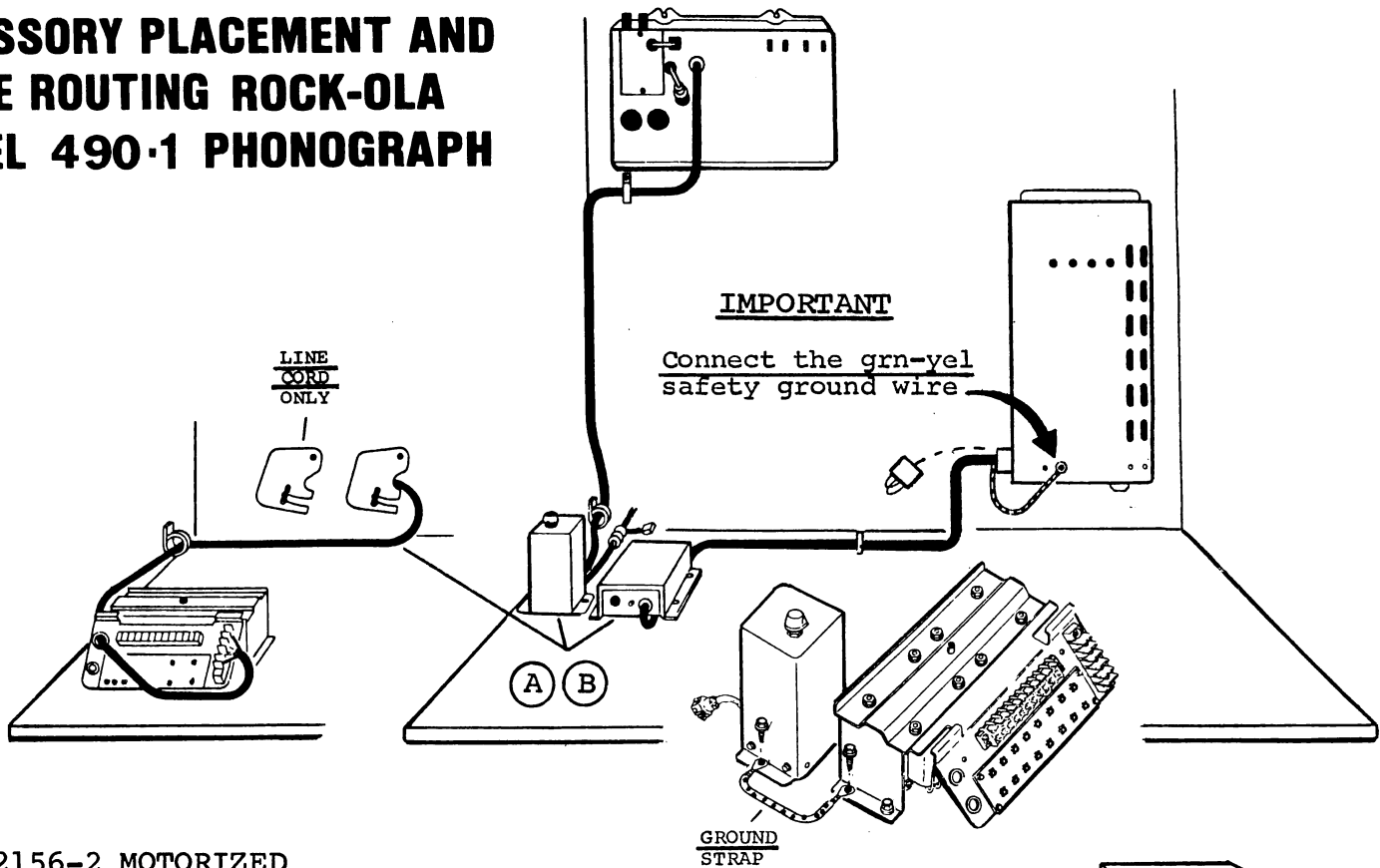


### PROCEDURE:

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



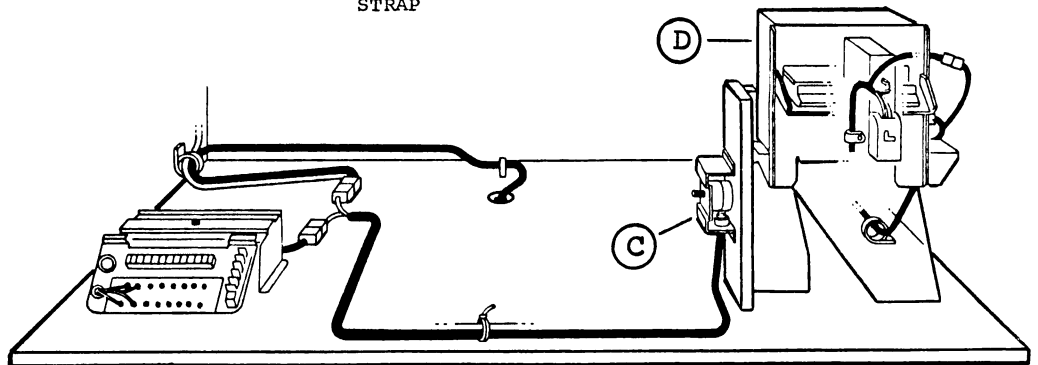
# ACCESSORY PLACEMENT AND CABLE ROUTING ROCK-OLA MODEL 490-1 PHONOGRAPH



(A) 2156-2 MOTORIZED VOLUME CONTROL WITH ON-OFF SWITCH

(B) 2173 MOTORIZED VOLUME CONTROL WITHOUT ON-OFF SWITCH

(C) 2342 "L" PAD



(D) 2326 DOLLAR BILL ACCEPTOR

(E) 2130 MICROPHONE

(F) 1775 WALL BOX CONVERTER (507)

(G) 2121 AUXILIARY WALL BOX POWER SUPPLY

(H) 2122 MANUAL REMOTE VOLUME CONTROL

