McIntosh

MODEL NUMBER MA 230 **DATE** June, 1964

MODIFICATION MA 230 serial # 10C00 to # 13C03 to increase overall gain.

DESCRIPTION This modification may be incorporated in MA 230 units having the above serial numbers to increase the overall gain. The gain is increased two ways:

1. The feedback loop in the phono-tape head input stages is modified by changing the input transistor emitter resistors (R 17 and R 18) from 1.8K 5% ½ watt to 1.2K 5% ½ watt.

2. The volume control taper characteristic is changed to allow more amplification at a lower setting of the control knob by changing the resistors connected to the rear of the loudness control (R 39 and R 40) for 47K 10% ½ watt to 100 K 10% ½ watt.

These modifications have been made in all MA 230 with serial numbers above 13C03 .

McIntosh

MODEL NUMBER MA 230 **DATE** June, 1964

MODIFICATION MA 230 serial # 10C00 to # 17C50 to decrease hum introduced when H.F. filter switch is depressed.

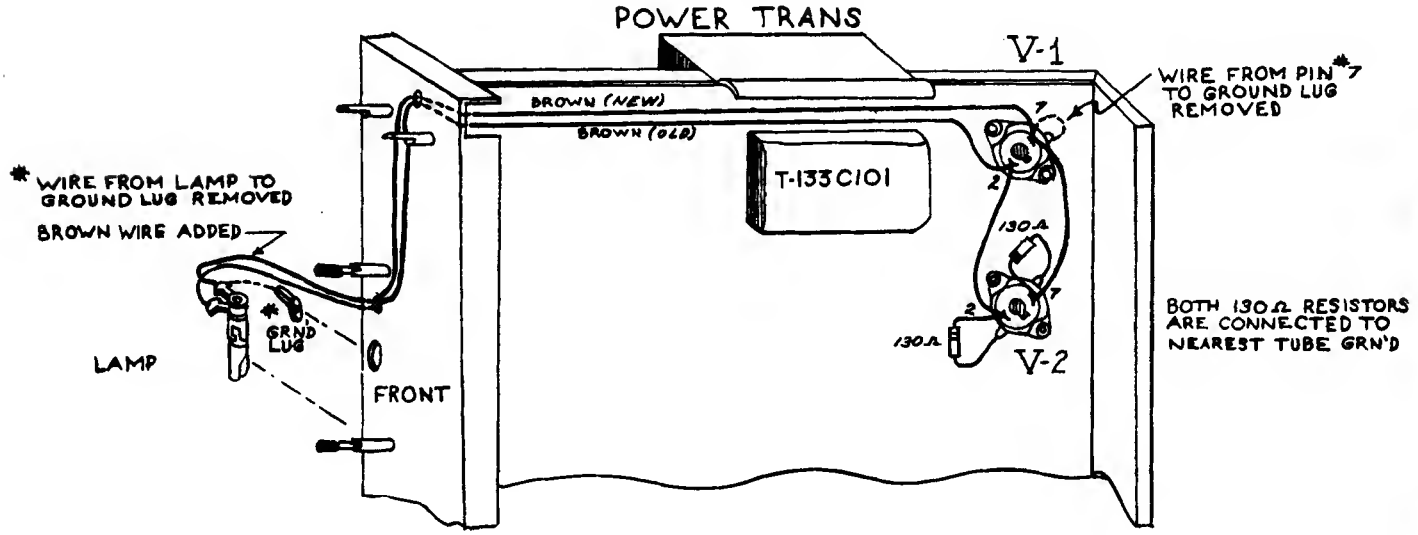
DESCRIPTION This modification may be incorporated in MA 230 units with the above serial number to decrease hum introduced when the H.F. filter switch is depressed The hum introduced comes from a 120 cycle ripple component on the filament supply coupling to the input grids of the 12AX7 tube. This coupling is eliminated by adding two resistors to balance the filament supply with respect to ground. The pilot lamp is rewired as a part of the modification.

These modiciation have been made in all MA 230's with serial numbers above 17C50 .

PROCEDURE 1. Remove bare wire from pilot light socket to ground.

2. Remove bare wire from pin 7 of V_1 to ground.

3. Install new wire to pilot light and two 100 ohm 10% ½ watt resistors as shown below:



#103

McIntosh

MODEL NUMBER MA 230 **DATE** September, 1964

MODIFICATION INSTALLATION OF A 4 SECTION VOLUME CONTROL

PROCEDURE

1. Remove the black ground wire running from the volume control to the balance control.

2. Install terminal strip on the printed circuit board. Use the existing bolt and nut.

3. Cut the audio cables attached to the card. Cut them long enough to be connected to the terminal strip as shown in the diagram.

4. Remove the existing volume control. Pay strict attention to how the wires are connected. (The two front sections of the new volume control are identical to the existing control; the two rear sections are those added.)

5. Install the new volume control and wire according to the diagram. Connect the 5 jumper wires. Make sure they are insulated from the control frame. Use insulated wire or spaghetti. Do not alter the lead arrangement or the grounding method. Hum may be introduced if you do so.

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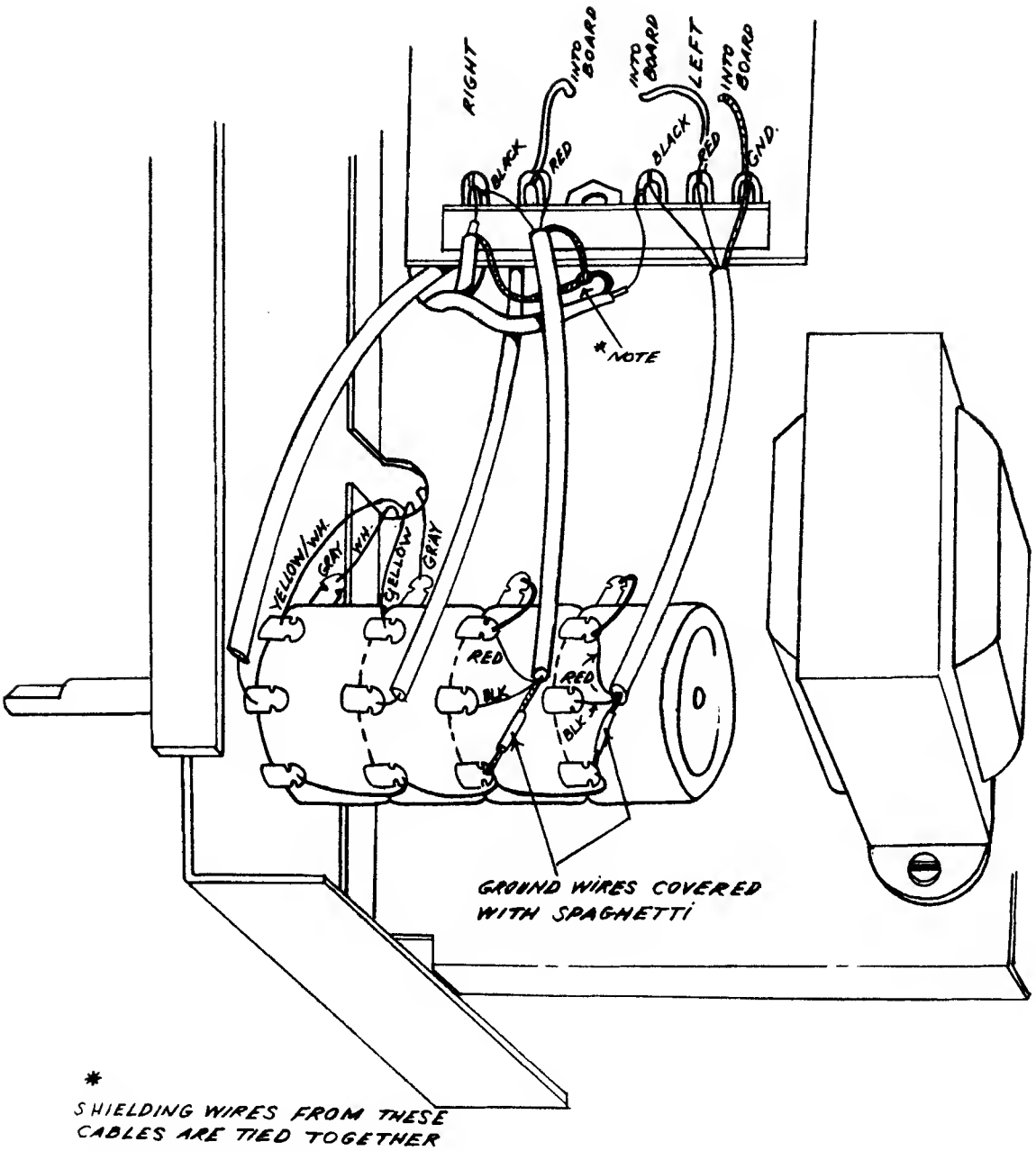

MA-230 INSTALLATION OF 4-SECTION VOLUME CONTROL

McIntosh

MODEL NUMBER: MA 230 **DATE:** MARCH 1965

MODIFICATION: Tightening the transformer mounting screws to eliminate buzzing.

DESCRIPTION: The top and bottom transformer laminations will vibrate when they are not secured by the impregnating varnish or clamped by the transformer end-bells. Some MA 230's transformers have the problem.

PROCEDURE: Tightening the transformer mounting screws may secure the laminations enough to eliminate the buzz. If this fails thin shims should be inserted between the laminations and the end bells.

TO INSERT THE SHIMS:

1. Loosen the transformer mounting screws.
2. Insert two shims under each end-bell. Make the shims from metal or fiber. The shims should be 3" x ½" x 1/16".
3. Re-tighten the mounting.