



## HUM LEVEL ADJUSTMENT

Turn the set on by sliding the **Rej-On-Off** switch on the record changer to the "On" position. Set the **Comp** control to the "Lon" position. Set **Bass** and **Treble** controls to their "Max" (fully clockwise) position. Set **Volume** control to a position where hum is noticeable.

Line cord polarity is very important for correct amplifier operation. If touching the centerpost on the record changer increases the hum level, reverse the line cord in the wall outlet. Touch the centerpost again. Leave the line cord plug in the position that gives the least amount of hum when the centerpost is touched.

The adjustment of the hum bucking potentiometer (see schematic, R41) determines the magnitude of 60 cycle out-of-phase voltage fed to stage V1A. The potentiometer can be adjusted to minimize hum as follows:

Turn the **Volume** control fully clockwise. Adjust the **Hum Level** control (R41) for minimum 60 cycle hum level. Location of control is shown on "Tube Locations" illustration. A hole is provided in the cabinet back to make this adjustment accessible.

## TROUBLE SHOOTING HINTS

If the phonograph sounds weak or distorted, examine the needles for wear. A worn needle may cause excessive needle scratch and a harshness of treble tones. Test the tubes and, if possible, the cartridge by substitution. Check voltage at tube pins.

**Amplification and Response Check:** The amplifier may be checked for gain and frequency response by using the tests outlined below.

### Test Equipment Specifications:

Audio Oscillator, preferably with flat output from 30 cycles to 30 kilocycles.

Vacuum Tube Voltmeter, preferably with decibel scale. Procedure: Connect record changer motor plug and speaker plug to their sockets on chassis. Disconnect audio input plug from socket on chassis. Unclamp **Tone Arm** from tone arm rest and move **Rej-On-Off** switch to "ON" position. (If record changer goes into change cycle and shuts off, move the switch to the "On" position again.)

Connect audio oscillator ground lead to the amplifier chassis. Connect audio oscillator signal

Voltages shown on schematic diagram.

- All readings made between tube socket terminals and chassis ground.
- Volume control set at minimum.

lead to R1 on (M2), audio input socket on chassis. Allow several minutes for oscillator and amplifier to warm up. Set **Comp** control to the "Lon" position. Set the tone controls to their "0" position.

Adjust audio oscillator output to .2 volt at 1,000 cycles, measured with the vacuum tube voltmeter from socket (M2) to chassis ground. (This voltage calibration must be made every time a response check at a new frequency setting is to be made.) Measure output across voice coil leads from output transformer with speakers connected or with proper (3.2 ohm) load.

## NEEDLE REPLACEMENT

