



# H. H. SCOTT, INC.

111 POWDER MILL RD., MAYNARD, MASS., 01754

## INSTALLATION AND SERVICE PROCEDURE FOR THE EXETER AND BERKLEY STEREOPHONIC CONSOLES

### PREPARING THE AUTOMATIC RECORD PLAYER FOR USE

See separate instruction sheet and operation manual.

#### PHONO INPUT LEVEL CONTROL

This control has been factory preset and should not require readjusting at this time. However, if the phonograph level seems to be a great deal higher than that of the general tuner level or is out of balance, it is suggested that the phono level be readjusted.

The Phono Level Control is shown on the chassis layout diagram.

Using a good quality FM station as a reference and with a record playing on the record player, move the Selector switch from the Phono to the Mono FM position and back again repeatedly to check the general level between the two. If the phono level seems too high, turn the control clockwise. The control is made up of two controls using an inner and an outer shaft. The two shafts are "clutched" together so that if one needs to be turned more than the other, it will be necessary to hold one shaft stationary while the other is turned. The outer shaft is for the Left channel and the inner shaft is for the Right channel. Check the balance of the two channels using the procedure shown below.

#### LEVELING THE CABINET

The cabinet should be as level as possible and although this may be done by eye, it is suggested that a small bubble level be employed. The cabinet is quite square and therefore, very little "shimming" should be necessary. Generally, only where the rear legs of the cabinet will be sitting on the floor while the front legs are on a deep rug, will be a fair amount of shimming be necessary.

#### EXTERNAL SPEAKERS

On the rear of the cabinet there is a terminal block marked External Speakers. There are connections for the Hot and Common wires to both the left and right loudspeakers. It is suggested that color-coded wires (or otherwise marked) be used so that the correct phasing may be maintained to the speakers. Spade lugs on the ends of the wires are recommended so that no shorts can occur which might damage the output transistors of the power amplifier.

It is recommended that the power be off while making these connections. However, there is little likelihood that any damage will be done even if the power is left on as the output of the amplifier is protected at the terminal block by 4 ohm resistors.

The External Speaker switch is located on the front panel.

If separate volume control is desired on the external speakers, 8 ohm "L" pad controls should be installed in the speaker lines.

Due to the type of output circuit employed, external loudspeakers of either 4, 8 or 16 ohms may be used without fear of mismatch.

Caution: No more than one speaker should be connected to each channel or damage to the output circuit may result.

#### HEADPHONES

Low impedance headphones may be plugged into the Phone jacks on the front panel. Headphones may be used with the speakers operating. With the speaker switch in the Off position, "headphone only" operation may be obtained.

#### EXTRA INPUT

The Extra input jacks and corresponding Selector switch position permit the use of any additional high level external program source such as a TV set.

#### EXTERNAL ANTENNAS

To install an external AM antenna, unscrew both the AM and GND terminals on the back of the Tuner/Preamplifier. Swing the jumper strap away from the AM terminal. A good ground connection should be made to the GND terminal with a heavy piece of wire and the terminal screwed down tightly. The other end of the wire should be connected to a good ground point, such as a cold water pipe.

A wire 10' long or longer should be connected to the AM terminal, in conjunction with a lightning arrester. Generally, the higher and longer the antenna, the better the reception. If the tuner is used in an all-steel building, the antenna wire should be placed outside.

#### FM

To utilize an external or outdoor FM antenna, disconnect the antenna leads from the 300 ohm and GND terminals on the back of the Tuner/Preamplifier. To these same terminals, connect the antenna leads from the external antenna.

#### CARE OF THE WOODEN CABINET FINISH

A wax finish has been applied to the cabinet before packing at the factory and therefore it will be unnecessary to re wax the unit. For general upkeep of the finish it is suggested that a high-quality wax-base household furniture polish (such as Johnson's Pride) be used.

#### REMOVING SPEAKER GRILLES

To remove the speaker grilles, pull outward gently at the top of each grille section. Once the upper edge of the grille is past the lip of the cabinet, lift the grille straight up. Place fingers behind wood; do not pull grille.

To reinstall the grille, place the locating pins at the bottom in their sockets and snap the upper edge of the grille back into place.

To remove the grille "curtains" for cleaning or replacement, unscrew the runners at both the top and the bottom and slide the curtain off. Replacement curtains in several different colors may be ordered from your Scott console dealer.

#### PREPARING FOR RE-SHIPMENT

Lock the arm of the automatic record player in the rest position and tie down with string.

Remove the counter weight and turntable. Pack loose parts in a container and tie or staple container to the wooden shipping skid.

Turn the 2 screws on the automatic record player counter-clockwise to tighten record player to base.

Turn the two thumbscrews on the Isomount clockwise to tighten Isomount to the cabinet.

#### CARTON PACKING

Refer to separate sheet for carton packing instructions.

#### REMOVING THE AUTOMATIC RECORD PLAYER

Remove all cables from the record player. Turn the two shipping screws counter-clockwise until they loosen. Do not turn them to the full out position as for shipping. Lift the automatic record player out of the chassis for servicing.

#### REMOVING THE TUNER/AMPLIFIER

##### Berkley Series

Remove all cables from speakers, automatic record changer and antennas. Remove the two screws on the right side of the record compartment and lift out tuner/amplifier.

##### Exeter Series

Remove all cables from the speakers, automatic record player and antennas. Remove the large bolt at rear of chassis. Remove the left speaker grill and unscrew bolt on right side of speaker compartment. Lift out tuner/amplifier.

#### TUNER SECTION

##### General Service Notes

Service, other than replacement of pilot lights and vacuum tubes, is usually not required. If the tuner is not operating properly, all external connections should be checked to make sure that the difficulty is in the tuner. Generally, it is advisable to substitute signal from a tape recorder, external tuner, or similar device for that from the tuner to check out the amplifier performance. If the difficulty appears to be located in the tuner, the Loudness control should be first checked to insure that it is rotated away from its extreme counter-clockwise position. Then the vacuum tubes should be checked by replacing them with new ones, one by one. The tubes should be tight in their sockets and reinstalled with shields where applicable. Tube defects frequently do not show up in a tube tester. Only operation in the tuner will insure the proper working of a vacuum tube. In replacing tubes, if possible, use exact replacement tubes, available from H. H. Scott or your authorized Scott dealer. Other tubes will work, but only exact replacement tubes will give best performance.

##### Pilot Light Replacement:

Remove the dial indicator lights by squeezing in on the spring clips and pulling backwards. The replacements should be bayonet type #1847 bulbs.

##### Courtesy Lamp Replacement:

Berkley Series #1847 bayonet type.

Exeter Series #1855 bayonet type.

Dial Cord Replacement:

If the dial cord should break, a replacement may be ordered from our Parts Department by specifying number ADC-9. If a new dial cord spring is required, number ASP-3 should be specified.

Turn the front end wheel completely counter-clockwise as viewed from rear of unit.

Using the diagram as a guide, slip the loop in the cord over the tab provided on the right hand side of the front end wheel and run the cord through the opening in the wheel.

Run the cord over the top of the fly wheel shaft and make three full turns.

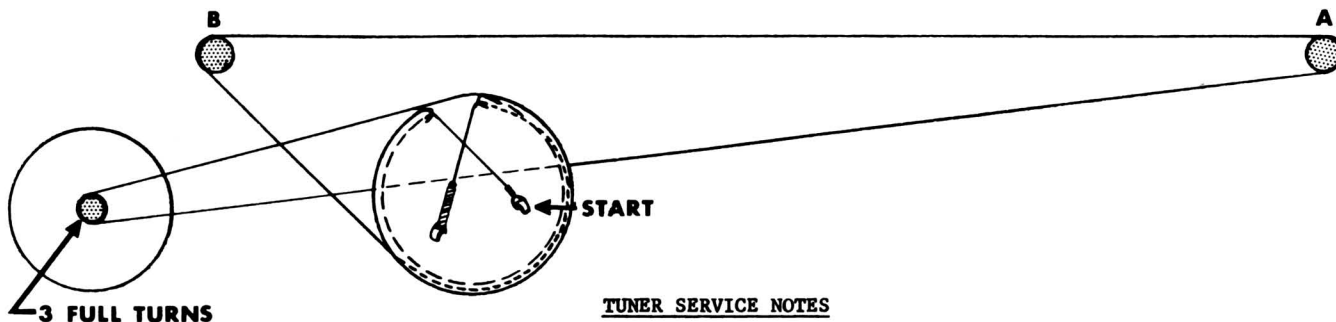
Run the cord behind the front end wheel, loop over pulley "A" and run cord to pulley "B."

Holding the dial cord tightly, rotate the front end wheel completely clockwise.

Run the dial cord under the front end wheel and through the slot in the top.

Attach dial cord spring to the tab provided on the left of the wheel.

Re-install dial track pointer and adjust for proper tracking.



When checking either the AM or FM tuner sections, take the output from the "Tape Out" jack on the rear of the chassis. Leave the "Level" control full counter-clockwise.

ALIGNMENT INSTRUCTIONS FOR AM SECTION

Note: No attempt should be made to align the tuner or repair it unless the person so doing has had extensive experience in tuner alignment, repair procedures and has the necessary laboratory equipment. Without proper experience or equipment, the repairman may seriously damage the tuner.

Equipment Required:

Ferris AM Generator (or equivalent), VTVM (AC), Oscilloscope.

Equipment Setup:

Connect scope and meter to tape recorder out jack. Switch tuner selector to AM. Connect output from signal generator (455KC internal modulation) to Pin 7, 6BE6 through a .047 coupling capacitor. Connect one each 33K resistor across primary and secondary of IF transformers.

AM IF Alignment:

Adjust primary and secondary of both IF transformers for maximum output as indicated on AC VTVM. Input signal should be just great enough for good signal on scope. Remove 33K resistors.

RF Alignment:

a. With 47 ohm load across output leads of signal generator, loop generator output leads around loop antenna. Set tuner and generator to 540 KC with output from generator sufficient for output indication from tuner. Adjust AM oscillator coil for maximum output. Switch to 1600 KC and adjust oscillator trimmer for maximum output. Repeat above until no noticeable improvement can be made.

b. At 600KC (using low input) adjust antenna core for maximum output. Seal core with wax.

c. Switch to 1400KC, adjust antenna trimmers for maximum output.

AM Hum Check:

At 20 mv input, output should be .1v. With modulation off, @ 600KC output should drop -20 db, @ 1600KC, -20 db. With 5K mv input, turn modulation off, output should drop -35 db @ both ends of band.

ALIGNMENT INSTRUCTIONS FOR FM SECTION

General Instructions

The recommended test equipment for aligning H. H. Scott FM tuners is as follows:

Oscilloscope  
Distortion Analyzer or 400cps null filter

VTVM  
Measurements 210AB FM Signal Generator or equivalent

Under no circumstances should a sweep generator be used to align H. H. Scott equipment as this will give false indications of alignment due to loading of the individual circuits. When peaking the front end and IF sections, the input should be as low as practical to avoid mis-alignment and to make sure that the unit is completely peaked.

#### FRONT END ALIGNMENT

##### Oscillator Adjustments:

The oscillator trimmer on the bottom of the front end and the oscillator coil on the side of the front end are used to adjust dial tracking. Tune to a station on the low end of the dial (88-95 mc) whose broadcast frequency is known. If the station is higher than it should be, turn the oscillator trimmer screw slightly counter-clockwise until the station is shifted to the proper point on the dial. Now check a station of known broadcast frequency on the high end of the dial to determine that proper tracking has been maintained across the entire band.

If stations on the low end of the dial are tracked correctly but the stations on the high end of the dial are received at a higher frequency, tune to a station on the low end of the dial whose frequency is known. Turn the oscillator coil clockwise as seen from the bottom. Keeping the dial in the same place, turn the oscillator trimmer counter-clockwise until the station is back at its original point. Tune to the high end of the scale and note that the stations have come down slightly in frequency. These adjustments should be continued until the high end and low end of the dial track perfectly.

If the low end of the dial tracks correctly, but the high end of the dial is low, the reverse procedure is used. That is, the oscillator coil is turned slightly counter-clockwise and the oscillator trimmer is turned clockwise.

##### RF Mixer, Trimmer and Coil Adjustments:

Connect the RF generator to the antenna terminals and at 92 mc, adjust the mixer coil for maximum output. With the FM generator and the tuner at 106 mc, adjust the mixer trimmer for maximum output. Repeat these adjustments until no further improvement can be noted.

##### Antenna, Coil and Trimmer Adjustments:

With the FM generator and the tuner at 92 mc, inject a very weak signal into the antenna terminals. Adjust the antenna coil for maximum output. With the FM generator and tuner at 106 mc, adjust the antenna trimmer for maximum output. Repeat these adjustments until no further improvement is noted.

#### IF ALIGNMENT

a. Connect the FM generator to the antenna terminals. The generator should be internally modulated with 400cps signal 75 KC deviation. Adjust the output of the generator for a barely adequate sinewave on the scope (on the order of 3 to 6 uv input to the tuner).

b. Peak both the top and bottom slugs of the IF transformers at the same time using one nonmetallic alignment tool in each hand.

c. If a replacement IF transformer has recently been installed, it may be necessary to inject a 10.7 mc signal on the shield of the 6U8 in the front end and peak each IF transformer for maximum deflection of the tuning eye. This is strictly a coarse adjustment to get the IF strip close to 10.7 mc and should not be considered a final alignment.

d. A final adjustment of the IF strip should be made by injecting a signal into the antenna terminals and peaking up each IF transformer for maximum audio output as seen on the VTVM.

#### DETECTOR ALIGNMENT

a. With the input to the tuner still at 3 to 6 uv, peak the primary (bottom slug) of the detector transformer for maximum audio output as seen on the VTVM. Now increase the output of the FM generator to 1000 uv. Using a distortion analyzer, adjust the detector secondary (top slug) for minimum distortion as seen on the distortion analyzer.

b. If a 400 cps "null filter" is used instead of the distortion analyzer, the procedure for aligning the detector is exactly the same as the procedure when using a distortion analyzer. The distortion is read on a VTVM rather than the distortion analyzer.

#### MULTIPLEX ALIGNMENT

Adjust the scope to read peak-to-peak voltages and place the scope probe at the 19KC test point indicated on the schematic. With a stereo signal from the multiplex generator connected to the antenna terminals, peak T501 and L501 for maximum pilot level as seen on the scope. Minimum recommended pilot level at this point is 15-20v peak-to-peak.

Remove V501/6KE8 to allow 38KC oscillator to free run. Adjust T502 for "0" beat as seen on the scope. Replace V501/6KE8.

With a left channel stereo signal connected to the antenna terminals, take a reference reading of the left channel on the VTVM.

Take output from the right channel. Adjust L501 for maximum separation and then adjust the separation pot for a further increase in separation. Now modulate the right channel of the stereo signal and readjust L501 for maximum separation.

Reduce the input signal to 10 mv at the antenna terminals, turn the "Threshold Adj." until the "Stereo" light comes on.

AMPLIFIER SERVICE NOTES

Balance adjustment:

Note: Balance pots are numbered 1 through 4 starting with pot nearest edge of chassis.

1. Determine one-half supply voltage by measuring the voltage between the chassis and Q-2 collector and divide by two (22-23v).
2. Adjust balance of Q-1 (nearest edge of chassis) by adjusting balance pot #1 for 1/2 supply voltage (approximately 22-23v) on case of Q-1.
3. Adjust bias on Q-1 and Q-2 by reading with a VOM on the 12 ma scale between test point #1 and chassis. Bias should be 1.2 ma.
4. Repeat steps #2 and #3 for Q101 and Q102 using pots #3 and #4 and test point #2.

Note: The adjustments on pots 1 and 2, 3 and 4 interact on each other and should be adjusted several times for proper results.

AMPLIFIER SPECIFICATIONS

Sensitivity

High level inputs	.4v
Low level inputs	6mv

Hum

High level inputs	5mv
Low level inputs	25mv

Tone Controls

Bass (@ 100cps)	+8, -10db
Treble (@ 10KC)	+8, -12db

Noise Filter (@ 5KC)

-6db±1.5db

Rumble Filter (Exeter Series) @ 100cps

-3db±1.5db

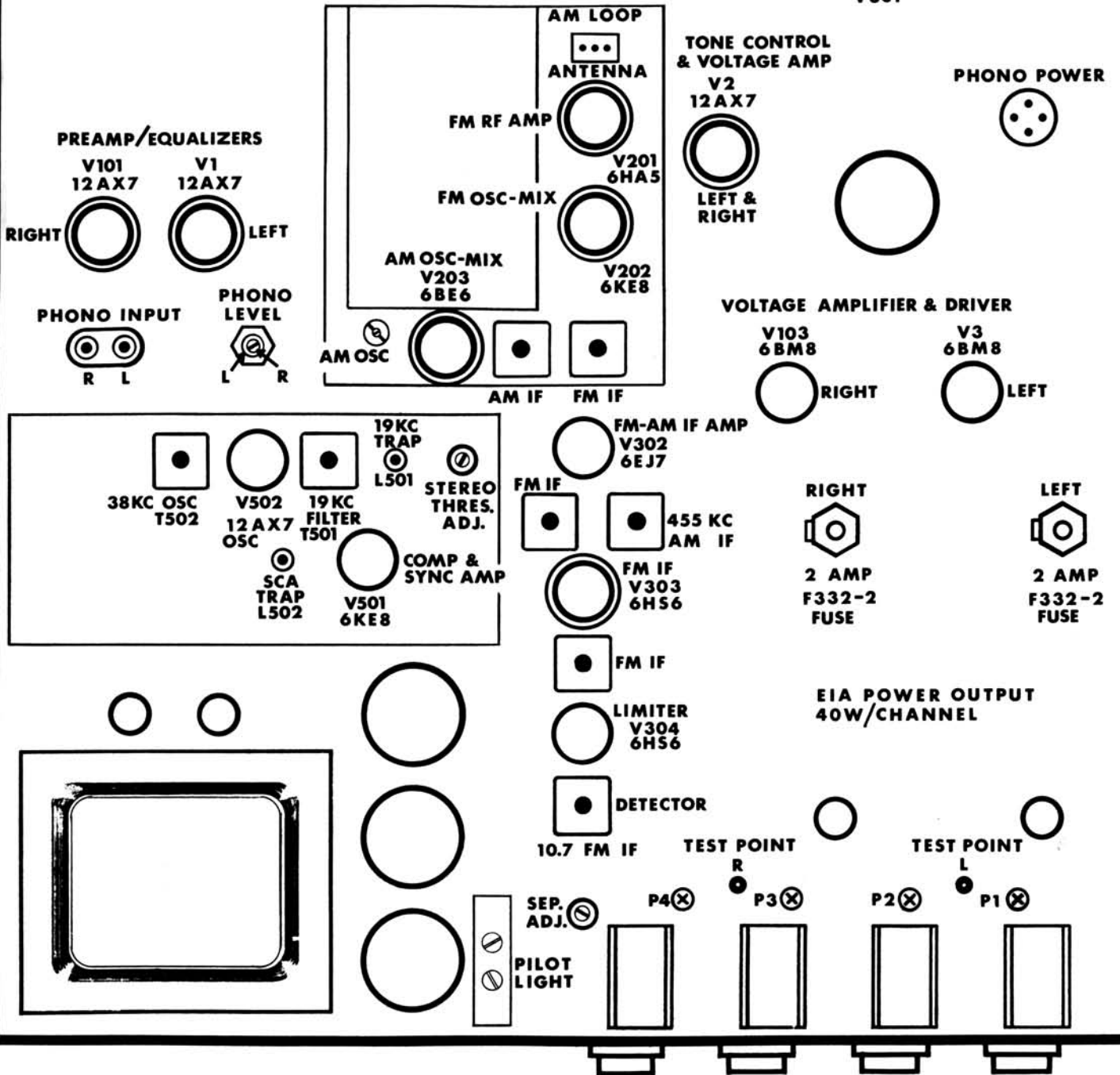
Compensation (Exeter Series Switchable)

10KC	+3db
100cps	+10db

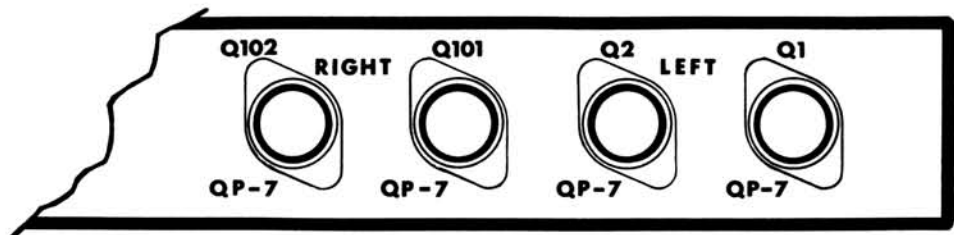
2 - #1847 INDICATOR LAMPS



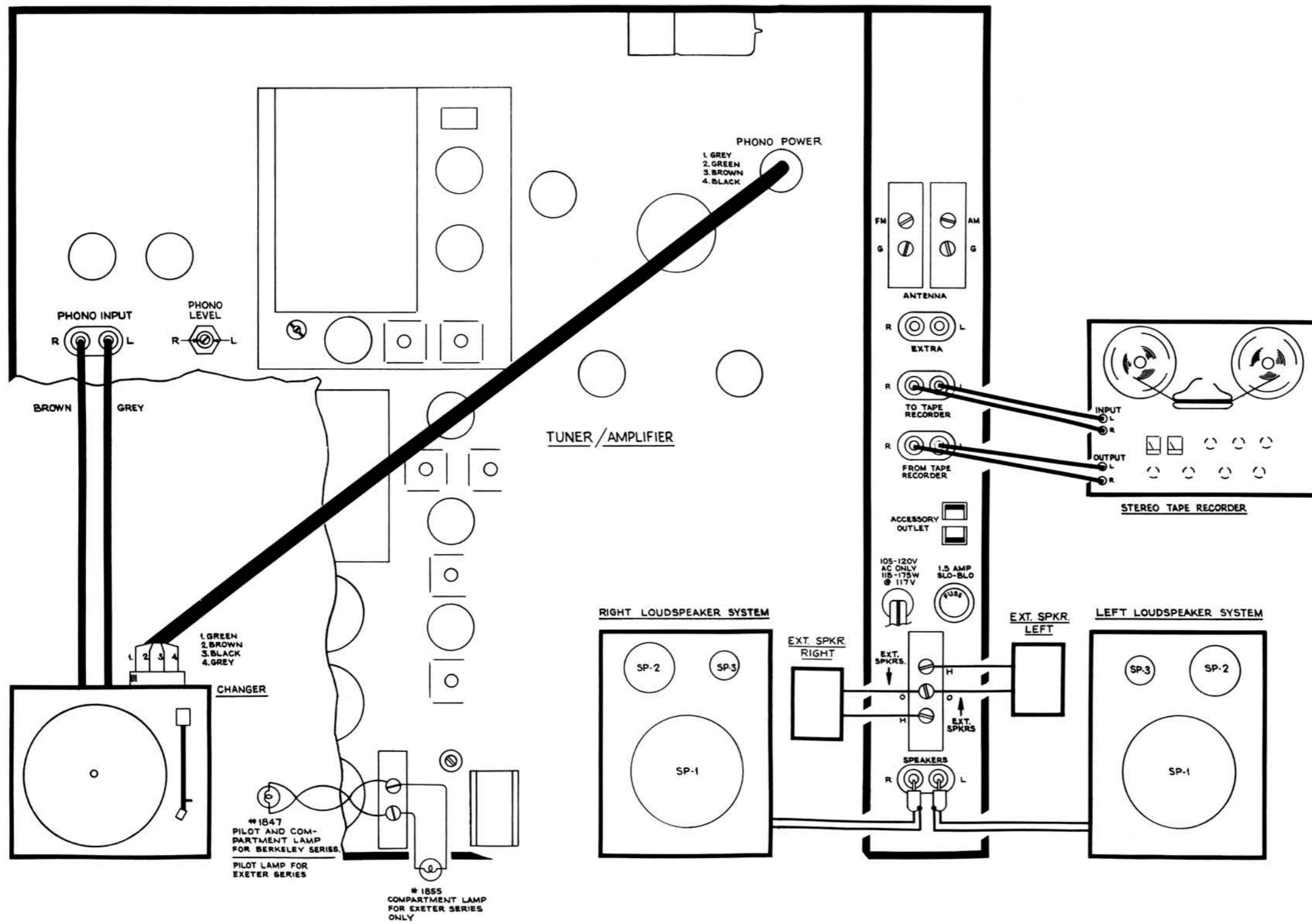
V 6GX8 TUNING INDICATOR V301



WIDEBAND AM/FM MPX STEREO TUNER-AMPLIFIER







BERKLEY/EXETER  
WIRING DIAGRAM