

## LINEAR AMPLIFIER NOTES

The single largest problem with home-built amps is poor layout and construction. The builder uses more wire than necessary in construction and does not lay out components close enough to each other. All control leads running through the RF deck should be shielded and by-passed. All filament leads must be by-passed with a capacitor across the filaments.

For grounding, the best method is to ground one side of the filament to the chassis. An additional capacitor will have to be installed on the filaments of each tube, keeping the length of the leads from the by-pass capacitor as short as possible. Screen by-passing is also equally important. For good practices and self-neutralization, do not allow screen filament leads to be in the RF components, as this will cause parasitics in the UHF region, T.V.I., and interference to other services. Remember, all filaments or screen straps must be low in inductance. This means you must use a wire with a large surface such as braiding or ribbon. All input and output leads must be shielded and separated from each other, to reduce parasitics or TVI and help neutralization.

Another important construction is the installation of the plate and screen supply fuse. Use fast-acting fuses in the plate and screen. Also your screen should be switched off and on with your antenna relay. Remember, never apply screen voltage before plate.

1. I use a relay with spare contacts for the plate supply and switch the screen with the plate supply.
2. A parasitic filter or choke installed in the plate lead at each tube will kill parasitics.
3. The resistor must be a noninductive approximately 25 ohms to 250 ohms.

A similar choke may be used in the grid leads to determine the correct amount of turn to use on the parasitic choke. Load the amp with the choke installed and shut the unit down. Ground the plate supply and check the temperature of the resistor. If it is getting hot this means you are absorbing some of the fundamental frequency and you must reduce the amount of turns on the choke until it doesn't heat up.

## MODIFICATION FOR SWAN SILTRONIX B,C,D RX AMP

The most common complaint of the owners of this popular rig is the poor ears. The solution for this problem is as follows: You must purchase a 326-2 RF amp kit. The amp is installed in a convenient place in the radio. Instal it on the top of the chassis on the shield panel between V5 & V1. I drilled a hole in the chassis to let the coax through, and to obtain power soldered the amp directly to the chassis, with the foil strip provided on the amp kit P/C board. Connect a 12" piece of wire #22 ga. from the power terminal on the amp board to pin 4 of V1. Connect 2 pieces of miniature coax to the input and output of the amp kit and run them through the hole drilled in the chassis. Locate the wire that runs from the relay to pin 1 V5 RX Rf amp 6CB6A and remove. Install the coax from the inside of the amp board to the relay. Keep leads short and ground the shield. Install the out lead of the amp to pin 1 of V5. The amp is now ready to use. Turn on power and align RX L701 & L801. If you want to switch the amp in and out use a relay to short the input to the output. Use short leads.

INSTALLING A GLEN LIVE RECEIVE & TRANSMIT F $\emptyset$  COUNTER ON A SILTRONIX 1011 BCD OR SWAN -

On the later models there is a VFO output jack on the radio, but on the earlier models you must install a VFO out jack. Use a miniature phone jack, non-shorting, and run a piece of miniature coax from the jack to pin one of V1 VFO amp. A 100 pf capacitor must be installed in series between the center conductor and pin 1. Shield must be grounded. Keep leads short. Install the phone jack in a convenient place on the back of the chassis. Connect a miniature phone plug to the coax supplied with the F $\emptyset$  counter and plug in. Now you must program the counter. Remove the top of the counter and look at the programming switches on the top of the counter board. Set the switch fo05500 for MHz or 55000 fo KHz display. To set, turn the stand-by switch to stand-by and set switch left to right with unit facing you and the pre-set will be displayed -0- all switches on and 5, 3 & 4 off. Turn on radio and you will have the Live F $\emptyset$  display on your counter in receive or xmit.

GLEN 326-G AS MODIFIED FOR USE AS A SIGNAL GENERATOR OR F $\emptyset$  COUNTER

First you must make up some special adaptors for this use. First you make up a preamp for low signals. Install a 326-2 amp in a small metal box with a RCA jack on each end. Use a miniature SPST switch and a 9v battery for power. Make up a cable with RCA male jacks on each end as a patch cord for use between the counter and the preamp. You must make up a cable to use as a sniffer, to plug into the amp. Cut a convenient length of coax and put a male RCA plug on one end and strip 2" of shield from the other end. Cover and insulate the place where you cut the shield off with heat shrink. Put a drop of silicon glue at the tip of the cable. This will insulate it. To use this cable

## GLEN 326-G MODIFICATION CONTINUED:

place it near the xtal or coil. No direct connection is necessary to read the  $F\emptyset$  of the oscillator. Do not use a preamp on or near the PA amp as levels are too high and you will damage your counter. Another handy cable you will want is a loop pick-up. This can be used with scanners and other low RF outputs to read the oscillator's mixers or doublers in the receivers without direct connections or loading. Make up a cable with the male plug of a convenient length and wind 3 turns of #16 enameled copper wire on a  $\frac{1}{2}$ " coil form. I used the barrel of a ball point pen. You must not spread the loops.

Cut the leads short at the loops and connect the coax. Insulate with heat shrink. To use this probe slip the coil over the mixer coil interstage transformer or transistor and read the  $F\emptyset$  without direct connection and without disturbing the circuit.

### HOW TO IMPROVE YOUR EL CHEAPO TRANSISTOR LINEAR AMP

One of the largest problems of the 12V transistor linear is that the unit is running full tilt or balls to the wall. To compensate for this you may pad the input and/or add one turn to the input transformer. They usually have 3 turns. Add one and install a 2w 10% resistor, 10 ohm to 60 ohm in series with the RF input to the transformer. This will pad the input and reduce the drive and allow the amp to have some breathing space by lowering the average drive. The average output will be lowered, thus on peaks the output will swing up instead of down. This will improve or eliminate the distorted sound you get up close.

### STANDBY POWER FOR EMERGENCY USE

1. If using a portable power plant, be sure to ground the power plant frame to a ground rod or other ground source in the power plant. One end is to be connected to a house or other building. The outside power source or the main breakers must be disconnected or you will apply power out over the line and possibly electrocute a power company serviceman.
2. If you use battery power you must use a box or container. A marine battery holder is the best. Remember, a battery holds approximately 2 gallons of electrolyte which is sulfuric acid, and batteries generate fumes which will explode if a spark or fire is near, so use extreme caution. Use the right wire size for the amount of current to be used.