

INSTALLATION INSTRUCTIONS

For TV-100-LP and TV-1000-LP Low Pass Filters

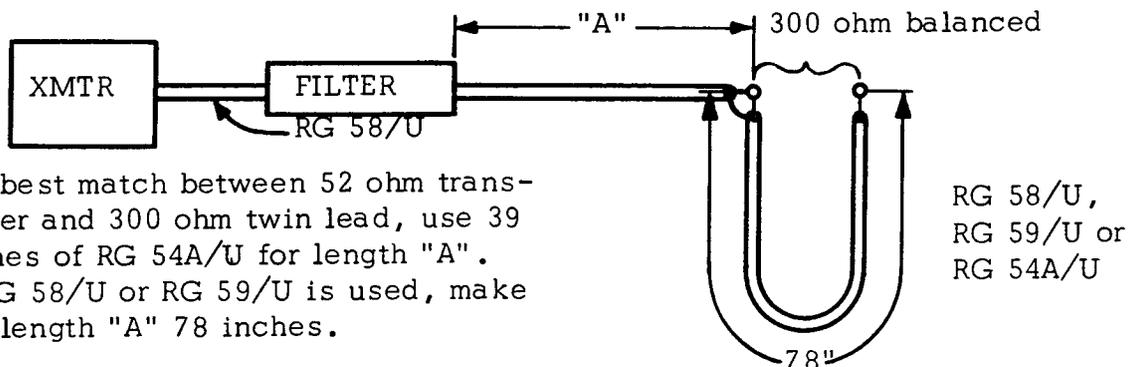
Before installing the filter, make certain your transmission line has a low SWR. This also applies to the link between antenna coupler and transmitter when the filter is installed here. **CAUTION:** Do not disconnect the antenna transmission line from the filter or otherwise disturb the load with your transmitter operating. Removing the load from the filter may cause it to break down. Install either filter on the transmitter cabinet and bond to it using the mounting holes provided. Keep the unfiltered lead outside the cabinet as short as possible.

The TV-100-LP is supplied without coax connectors and provision is made to connect it into RF-58/U coax by soldering. This results in a considerable saving in the cost of the filter and the cost of mating connectors required. However, SO-239 connectors may be purchased from your dealer and installed on the outside of the filter case in the mounting holes provided, if so desired.

To install the TV-100-LP without connectors: Cut the coax where the filter is to be inserted. Strip outer covering of coax back 3/4" from end; strip shielding back 1/2" (being careful not to unbraid the remaining part); strip the inner insulation 1/4" from end. Insert the stripped end of coax through the extruded hole in the tin plate furnished so that the smooth side of the plate is back to the coax outer covering and all the exposed shield braid is through the hole. Solder the braid to the extrusion; be careful not to melt the inner coax insulation. Repeat for the other coax lead. Remove bottom cover from filter. Remove two screws holding ground lugs at each end of filter. Be careful not to deform coils on filter board. Insert the prepared ends of coax leads through the large hole in each end of filter case and the inner conductor through the hole in the solder lug in the corner of the filter board. Mount the tin plate on the outside of the filter can using the screws and nuts provided. Fasten the ground lug at each end with a screw as it was before. Solder the inner coax conductor. Replace the filter bottom cover. The screws holding the bottom cover may be used to mount the filter on the transmitter.

RATINGS: TV-1000-LP 1000 watts below 30 MC - 200 watts on 6 meters
TV-100 -LP 100 watts below 30 MC - 20 watts on 6 meters

To match filter to 300 ohm balanced line for 6 meter band:



NOTE: Few TV receivers have sufficient selectivity to discriminate between low channels and a strong 6 meter signal. This is the fault of the receiver design and will not be helped by the installation of a low pass filter at the transmitter. This interference condition may be remedied by installing a new style Drake TV-300-HP high pass filter at the TV receiver.

Six Meter Operation of the Drake TV-100-LP & TV-1000-LP Low Pass Filters

It is very difficult to design and manufacture a filter with a cutoff as sharp as the TV-100-LP and the TV-1000-LP. Manufacturing tolerances must be held to very close limits.

TV-100-LP and TV-1000-LP filters are carefully checked with a 52 ohm resistance load and a wide band sweep generator. The condensers are checked to the design tolerance and each coil is adjusted to get the proper cutoff shape and frequency, and to achieve the proper maximum attenuation frequencies.

The closer to cutoff that a filter is used, the more the VSWR will be changed by insertion of the filter. If the line is absolutely flat (1:1 VSWR), before inserting the filter, then the filter can be operated closer to cutoff without much change in VSWR.

If you can insert a quarter wave piece of transmission line into your line without affecting your transmitter loading or the indicated VSWR, then only can you get best filter cutoff, attenuation and minimum VSWR disturbance.

Many hams believe that a filter operates as through its input and output terminals were connected together in the "pass" frequency range, and that the input and output terminals are shorted to ground in the "attenuate" frequency range. This is not true. The ideal filter could be replaced by some definite length of transmission line in the "pass" range. In the "attenuate" range the filter could be replaced by the series and shunt reactances which would produce some definite value of attenuation.

Fortunately, a moderate increase in VSWR when the filter is inserted, will not increase losses or spoil the attenuation characteristics of a filter materially. Your transmitter loading may decrease or increase with the filter in the circuit, and your receiver S-meter reading may decrease or increase. A change in transmitter loading should be all that is necessary to bring its input back to normal and the antenna power back to normal.

The receiver situation is not as easy, because few receivers provide any matching facilities at the antenna input. If the LP filter is not needed in the receiver circuit to cut out TV and FM interference, the best solution is to put the filter in the transmitter lead only. If it is desired to use the filter in the receiver also, it will be necessary to juggle the length of line from the filter to the receiver or provide some other means of restoring the impedance match. Just remember, the energy is still there and is not dissipated. It can go into the receiver if the match is restored.

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