

TVI AND OTHER INTERFERENCE

When operated in an area in which television signals are of sufficient strength to provide a completely snow-free picture, ordinarily no difficulty with TVI will be encountered if the COMMUNICATOR and antenna are both located a reasonable distance from the TV set and TV antenna respectively. Use of coaxial line with the COMMUNICATOR will tend to minimize TVI. Often moving frequency to another part of the band will cure the trouble.

With the 6 meter COMMUNICATOR some TVI is bound to occur to channel 2 on very nearby television receivers, through no fault of the COMMUNICATOR. The frequency is so close that traps are of little help when the interference is bad. If it is only moderate, a Drake model TV-300-HP filter ahead of the TV receiver often will cure the trouble completely. The TVI situation can be greatly helped simply by locating the antenna as far from the TV antenna as possible. A vertically polarized antenna on the COMMUNICATOR will tend to minimize the interference if the antennas are close and at about the same height above ground. Coax should be used to feed the COMMUNICATOR antenna. Confining operation to the lower end of the band (near 50 Mc.) will also help.

Spurious radiations from the COMMUNICATOR are minimized through the use of a double tuned output circuit. The loaded Q of the antenna coupling circuit is sufficient to provide considerable rejection of frequencies removed from the carrier by as little as 8 Mc. Spurious radiations are further minimized through the use of high Q tunable tank circuits in the multiplier chain, rather than the "broad band" slug tuned tank circuits sometimes employed. In the 6 meter models a low pass filter is incorporated in the common antenna lead, to minimize spurious responses in the receiver and to minimize radiation of transmitter harmonics.

In spite of these precautions a few micro watts of power will be radiated on some frequencies which there are a spurious multiple of the crystal frequency. In some instances this infinitesimal amount of power may be sufficient to interfere with nearby taxicab, police, etc. receiving installations designed for reception of mobile units, particularly if one or both antennas are well elevated. In other cases the interference to other services may be due to receiver image response.

Such interference can be avoided simply by choosing crystal frequencies which do not interfere. Usually such services will be glad to cooperate to the extent of giving a telephone check as to which crystal frequencies interfere and which do not.

IMAGE RESPONSE

In a unit as compact as the COMMUNICATOR and in the interest of avoiding excessive circuit complexity, some compromises of necessity must be made. Occasional to frequent reception of image signals (depending upon proximity and power of station) may be expected in areas where frequencies within the image range are actively employed.

RECEIVER SELECTIVITY

The selectivity of the receiver is about as great as can be utilized with a receiver having a tunable high frequency oscillator and designed for mobile use (with accompanying wide variations in heater supply voltage during operation). Also, it is about as great as can be utilized successfully for "net" operation without resorting to very close tolerance transmitter crystals. Reception of transmitters using plated overtone crystals prone to drift would also be complicated by greater selectivity. The band width of the i-f system of the various COMMUNICATOR models is a compromise between these factors and QRM considerations. Use of four i-f transformers results in a good "shape factor" (low ratio of skirt selectivity to noise selectivity).

TRIMMER ADJUSTMENTS

The r-f and oscillator trimmers on the tunable receivers seldom will require adjustment. To check them, tune the receiver near the middle of the band, turn off the noise clipper, and adjust the compression trimmer accessible through the rear of the two trimmer holes on the under side of the chassis (mixer grid) for maximum background noise. Then peak the slug on the rear of the receiver farthest from the antenna connector for maximum background noise (cascode output). This requires removing the back screen from the cabinet. The other slug is the antenna input trimmer but tunes so broadly that retuning should never be required.

Repeaking or checking the i-f trimmers requires removal of the receiver from the cabinet. It may be done on background noise if the transformers are not too far out of adjustment. If one of the transformers is replaced it probably will require a signal generator for realignment. This should be connected to the mixer grid, and the output level of the generator reduced as alignment proceeds, in order to prevent overload. It is important that final alignment (touching up all i-f trimmers) be done either on background noise or with the signal generator reduced to the point where the tuning eye just flickers slightly.

The front trimmer on the bottom of the cabinet is the oscillator trimmer and should not be touched unless the calibration is off more than about 100 kc., as day to day variations in temperature, humidity, etc. may cause this much error in calibration. The oscillator trimmer should be set *after* the adjacent mixer trimmer has been peaked at the center of the band, as the latter pulls the oscillator trimmer slightly. It is for this reason that the mixer trimmer always should be peaked on background noise rather than a signal.

An r-f gain control on the rear of the receiver is used to set the overall gain (to allow for tube variations, etc.).

This r-f gain control on the back plate of the receiver is adjustable by means of a small screwdriver, and is adjusted to give optimum IF gain after all alignment adjustments have been made. Ordinarily this adjustment need not be made except when changing tubes, realigning the receiver, etc.