Private-Line RADIO

squelches skip interference

With the peak of the sunspot cycle approaching in 1957, police radio systems in the 30-50 megacycle band are experiencing increasing skip interference. A letup isn't expected for another three to five years which will seem like an eternity to those experiencing the interference. These unwanted, irrelevant messages are annoying, fatiguing and distracting. They create missed and misunderstood messages, confusion and errors. Frequency changes are often only a temporary solution because the "skip" characteristics are constantly changing. Yet, *permanent* protection from audible skip interference is available *today*. It is an integral part of an entirely new kind of two-way radio developed by Motorola engineers.

PRIVATE-LINE radio is designed specifically to provide freedom from unwanted co-channel transmissions and nuisance noise. It is completely quiet except when receiving a message from another PRIVATE-LINE radio *in the same system*. Even the normal carrier-off noise burst is eliminated from mobile receivers. An exclusive new squelch circuit mutes the receiver except while receiving a properly coded transmission. Undesired transmissions cannot unmute the receiver regardless of signal strength.

Like any FM receiver, a PRIVATE-LINE receiver can be captured by a co-channel transmission which is stronger than the desired signal. However, the receiver remains completely quiet. The desired signal is heard the instant it recovers the receiver from the capturing signal.

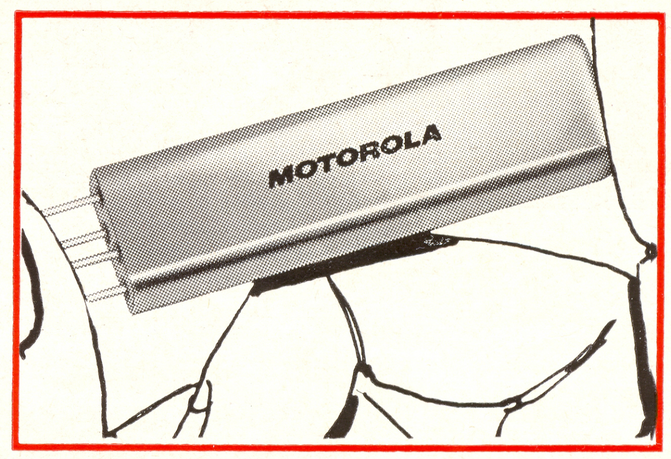
Unlike conventional tone-pulse selective calling systems, PRIVATE-LINE radio employs a *continuous, inaudible* tone on the transmitted carrier. At the receiver, this tone operates the squelch circuit which responds only to a specific tone frequency. Other tones *regardless of amplitude* will not operate this circuit.

Operating sensitivity of this new squelch circuit is automatically maintained at threshold, assuring maximum communications range at all times. The traditional manual squelch control is eliminated, preventing a loss of sensitivity by misadjustment. Interfering signals cannot "trip-open" or "lock-in" the squelch circuit since *continuous* presence of the properly coded carrier is required to keep the receiver unmuted.

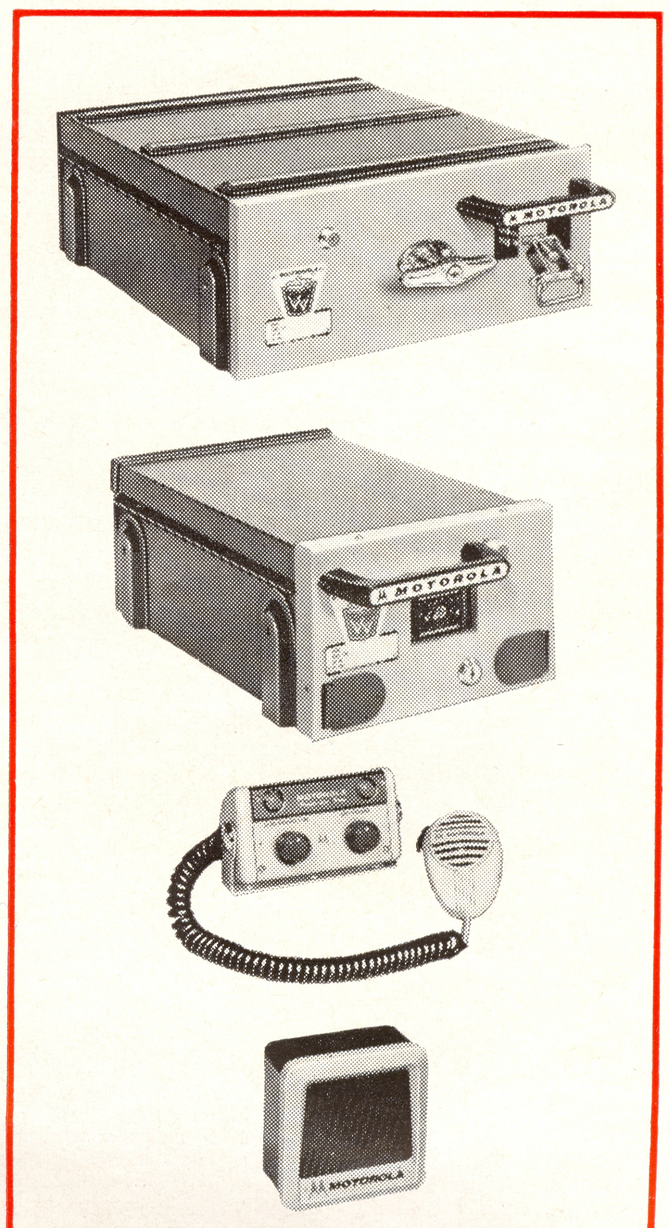
There are no additional buttons, lights, adjustments or operational techniques involved. Elimination of squelch adjustments makes PRIVATE-LINE radio even simpler to operate than conventional equipment. Installation is easy since the compact tone circuitry is built into the transmitter and receiver chassis. There are no extra boxes of equipment or extra connecting cables.

Motorola's exclusive VIBRASENDER and VIBRASPONDER electromechanical resonant tone devices assure precise, reliable operation. These devices have given outstanding performance in such applications as supervisory control of pipeline and power utility equipment, and selective calling of aircraft and vehicles. A VIBRASENDER device controls the frequency of the tone generator in the transmitter and a VIBRASPONDER device functions as a frequency-sensitive relay in the receiver squelch circuit.

PRIVATE-LINE radio incorporates all the advanced engineering and performance features of Motorola's TWIN-V radio equipment. A wide choice of PRIVATE-LINE models is available including dynamotor-vibrator and all-vibrator powered mobile units; desktop, indoor upright and weatherproof base station models. Get the full details on this new dimension in 2-way radio communications from your nearby Motorola radio communications engineer. Phone, wire or write *today*.



Heart of PRIVATE-LINE radio—the precision VIBRASPONDER electromechanical tone relay —developed and perfected by Motorola.



A PRIVATE-LINE base station or mobile radio model is available for any Public Safety two-way radio application in the 25-54 mc. or 144-174 mc bands.

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