

CONELRAD ALERT MONITOR

*Automatic alarm
circuit warns
of a Conelrad alert*



(Above) Completed alarm unit. This model did not have a pilot-light indicator.

(Left) One method of attaching unit to a broadcast receiver.

By HAROLD REED

IN the interest of civilian defense, the Conelrad plan was put into operation. Conelrad is a contraction of *control of electromagnetic radiation*. Conelrad's purpose is to prevent enemy aircraft pilots from using the radiation of any AM, FM, TV or amateur US broadcasting station as a navigational guide and riding in on its beam to desired targets.

Certain AM stations in each area have been designated key stations. Any Air Defense Control Center can initiate a Conelrad radio alert by notifying these basic-key, relay-key and skywave-key stations by private wire or toll telephone. The key stations immediately start the following procedure:

1. Cut the program being broadcast.
2. Cut the carrier for 5 seconds.
3. Restore the carrier for 5 seconds.
4. Cut the carrier for 5 seconds.
5. Restore the carrier again.
6. Radiate a 1,000-cycle tone for 15 seconds.

7. Broadcast the Conelrad radio alert message: "We interrupt our normal program to cooperate in security and civil defense measures as requested by the United States Government. This is a Conelrad radio alert. Normal broadcasting will now be discontinued for an indefinite period. Civil defense information will be broadcast in most areas at 640 or 1240 on your regular radio receiver."

8. Remove the carrier (at the normally assigned frequency) from the air for the duration of the alert.

Authorized AM stations then operate in a sequential manner on 640 and 1240 kc, broadcasting civil defense information without aiding enemy aircraft. All other AM, FM and TV stations are required to follow steps 1-8 and leave the air for the duration of the alert.

The Conelrad plan is incorporated into FCC rules and regulations. Under these rules it is mandatory for all stations to install and maintain equipment to receive notice of radio alerts and radio all-clears. Automatic devices or a human listening watch may be used. Stations must also monitor a key station before going on the air to insure that a radio alert is not in progress.

It is disconcerting to monitor a program being radiated from any particular transmitter and the signal of another station simultaneously. Distraction from the program which a transmitter technician is radiating also results under these conditions. A number of automatic alarm circuits have been devised, some complex and costly. However, simple and inexpensive circuits can be used satisfactorily.

Simple alarm circuit

Inexpensive receivers are usually satisfactory for monitoring a key station and actuating an alarm device.

Of course, if the nearest key station is a considerable distance from the monitoring point and the signal received is weak and subject to fading, a more sensitive and selective type of receiver is required.

In the circuit of Fig. 1, a negative voltage from the receiver's *avc* is fed to the grids of the 12AT7. The potentiometer is adjusted so that current flow through the tube is not enough to trigger the plate-circuit relay. Under these conditions the relay contacts complete the 6-volt ac circuit to the pilot light, indicating that the device is in operating condition. The receiver's volume is reduced so the program from the monitored station is not audible. If the carrier of the monitored station is interrupted, the *avc* voltage drops to zero and the negative voltage on the control tube's grid is removed. Increased current flows through the 12AT7, actuating the relay. The pilot light

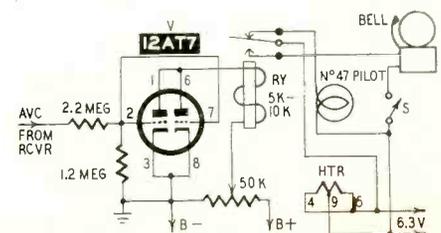


Fig. 1—Basic alarm circuit.