

**THE NEAR SYSTEM**

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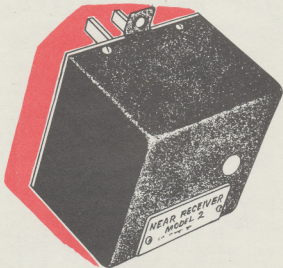
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**NEAR**

**INDOOR ATTACK WARNING**



## The NEAR System INDOOR ATTACK WARNING



### *A little black box —*

potentially the most valuable electrical appliance ever plugged into a wall outlet—holds the solution to a serious problem in national defense.

**PROBLEM:** How to sound an attack warning signal *inside* millions of American homes, schools, factories, and offices.

**SOLUTION:** The National Emergency Alarm Repeater system—NEAR.

Behind the solution are more than 5 years of research and tests involving the development of a rugged, inexpensive, reliable receiver—the little black box—and a unique method to activate the receiver and sound an alarm by a signal sent over regular commercial powerlines.

## THE BACKGROUND

A system of attack warning has always been of major concern in civil defense. Shortly after enactment of the Federal Civil Defense Act in 1951, the Federal Government started to help meet the cost of outdoor warning systems, such as sirens, installed by States and localities. Today, many communities have these systems, all tied to a National Attack Warning System maintained around-the-clock by the Office of Civil and Defense Mobilization in close cooperation with the United States Air Force.

But from the beginning there was recognition that outdoor sirens sometimes couldn't be heard indoors, and that many municipal siren systems didn't reach suburban and rural areas. There was need for an indoor system to supplement outdoor sirens.

The search for such a system started in 1952 and was intensified 3 years later when The Congress appropriated funds for a series of research projects aimed at development of an indoor warning system that would be:

1. *Absolutely reliable.*
2. *Available to everyone.*
3. *Economical.*

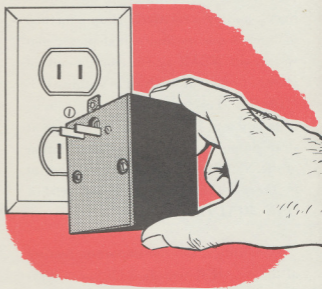
A number of different methods were tried, including use of electric powerlines, telephone lines, radio. The search narrowed to use of electric powerlines as the one method that met all three major requirements of an indoor warning system.

Then the studies focused on finding the best way of sending a special signal over commercial powerlines. After many tests, the answer was found: Convert a small portion of the regular 60-cycle current carried by commercial powerlines to a 240-cycle signal. This type of signal could be transmitted over long distances by equipment requiring only routine maintenance. And the signal system would not endanger continuity of regular power service.

Meanwhile, work progressed on designing a receiver for the system—a small instrument that could be plugged into any standard 110-volt outlet and left there all the time. The receiver had to be designed so that it could be manufactured at low cost, but the first requirement was *reliability*. It had to receive a signal and sound an audible alarm, but never a *false* alarm.

The instrument was designed with built-in safeguards. One of these is a small tim-

ing mechanism. When the 240-cycle signal is sent to the receiver, it activates the timing mechanism which delays sounding the alarm for 10 to 15 seconds. This delay eliminates the possibility that a sudden, brief surge of electrical power, such as a



stroke of lightning, would result in a false alarm. Another safeguard is a small light on the front of the receiver that provides a check on the operating condition of the instrument.

When all phases of the work were completed on a method to transmit a signal, receive it, and activate an alarm, the result was the National Emergency Alarm Repeater system—NEAR.

Basic research for the NEAR system has been completed. The system has been successfully tested many times. It is a reliable indoor warning system.

By making use of existing electric power systems, which serve more than 95 percent of the buildings in the United States, and by a relatively simple method of interconnecting individual power networks, the NEAR system could send an alarm throughout the Nation within ONE MINUTE. This presupposes, of course, installation of NEAR signal generators at strategic points, and general distribution of the NEAR receiver. *But the potential is there—the Nation alerted within ONE MINUTE.*

Versatility is another important feature of the NEAR system. In addition to serving as a national indoor attack warning system, NEAR could be used to alert local areas to the approach of a natural disaster, such as a...

HURRICANE

TORNADO

FLOOD

The alert in a natural disaster or an enemy attack would come from the NEAR receiver in the form of a loud buzzing sound lasting for 50 seconds. The alarm could mean: **TURN ON YOUR RADIO FOR INFORMATION.** If your local radio station is not on the air, tune to a CONELRAD frequency (640 or 1240 on the dial) for emergency information.

## THE FUTURE

The NEAR system has been proven technically sound. But there are a number of matters relating to production, installation, maintenance, and operation of the system that are being worked out by



OCDM, power industries, and manufacturers of electrical equipment. Cost, of course, is an important factor.

The expectation is that each NEAR receiver would cost between \$5 and \$10. Annually, each receiver would use about 2 watts of power. This is less than the amount used by an electric clock, and would cost about 50 cents a year.

Between 400 and 600 signal generators would have to be installed at strategic points throughout the Nation for the NEAR system. The total cost of this is estimated at approximately 50 million dollars.

There are still problems to be worked out. But the most difficult phase of the project—development of the system—is in the past. And the future for a national indoor attack warning system is NEAR.



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