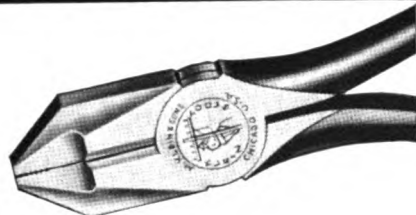


# KLEINS

for LINEMEN  
and ELECTRICIANS



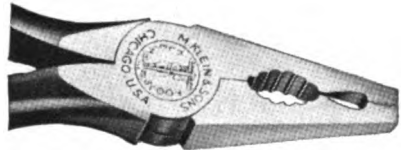
**The Original Klein Side Cutting Plier**—Also available in NE (Streamlined) type. Cat. No. 201



**High Leverage Plier**—Extra high leverage permits cutting extremely tough wire. Also available in the standard type as shown above. Cat. No. 213-9NE



**High Leverage Oblique Cutting Plier**—A recently introduced plier designed to cut toughest wire. Cat. No. 228-8



**Electrician Conduit Plier**—Reams inside and outside of conduit, tightens lock nuts in outlet boxes. Cat. No. 333-8

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## WHAT'S THE ANSWER?

(Continued from page 38)

erage was, again, antenna height. These two installations are used by our railroad police department. One interesting feature of the entire police system is that our chief police dispatcher is located in Cleveland and he is able to control the base stations at Cleveland, Chicago and Toledo. Police cruisers can talk from any of these three cities to the dispatcher via a combination of radio and telephone facilities.

*John E. Schmitt, Communications Engineer, New York Central, Cleveland, Ohio.*

**A.** It is generally agreed that in order for a radio system to effectively direct plant operations, it should provide coverage of the entire district but still permit autonomous operation within each subdistrict.

The shortage of available frequencies to provide this kind of radio service can be partly overcome by employing a suitable selective system within one radio channel. The Milwaukee Road faced the problem of providing radio communications to two entirely different operating departments in the Chicago area on the same RF carrier frequency, without audible interference with each other. The radio networks of the signal and communication supervisor and the police force, both operating in the Chicago area, were separated into two radio network groups coded by a different signal. All transmitters in each network use the same code tone frequency and all receivers reject signals of other trans-

mitter groups. The transmitter is modulated by a continuous audio tone signal in addition to the voice message. Receivers have a tone decoder which opens the receiver squelch circuit when the correct frequency tone signal is received. The coding frequencies are below 300 cycles and are removed by an audio filter before they reach the speaker.

Another problem in congested city areas is the interference from adjacent area transmitters. Some degree of isolation is obtained by using separate transmitters and receiver frequencies. The two-frequency operation has an additional advantage because it eliminates the need for dispatch control points, making it possible to have radio communications between less powerful mobile or hand-carried radio units over an increased distance. Fig. A shows a simplified schematic of the radio communication facility used in our yard installation.

*Edmund A. Kerber, Assistant Engineer-Communications, Milwaukee Road, Chicago, Ill.*

## Identifying Emblems

**Q.** Does your road place its emblem on flashing light signals at grade crossings as a means of identifying the line to passing motorists? If so, approximately what size are the emblems and where are they located on the signals? What are your opinions regarding the use of railroad emblems in this manner?

**A.** At highway grade crossings on the Chesapeake & Ohio that are not

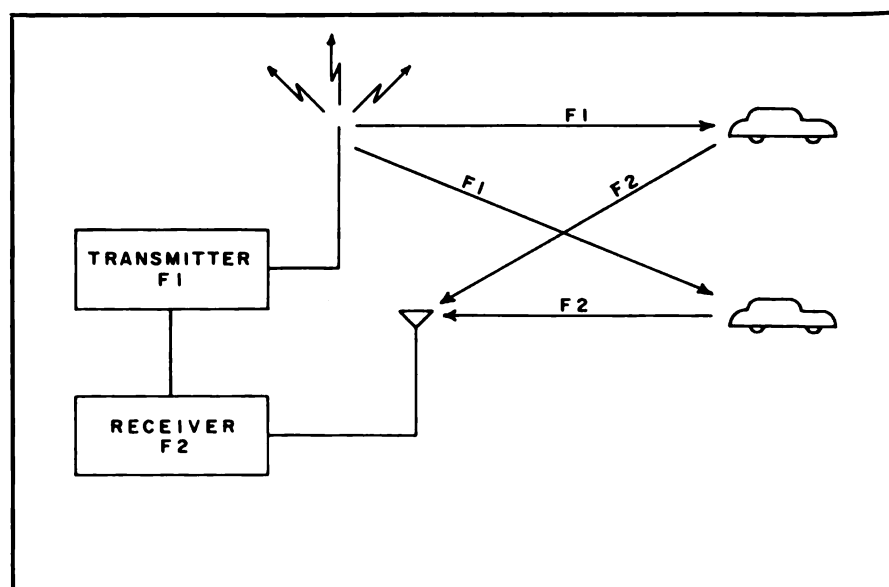


FIG. A SIMPLIFIED SCHEMATIC FOR RADIO RELAY SYSTEM USING SEPARATE TRANSMITTER AND RECEIVER FREQUENCIES

**Kerber:** Two-frequency radio facility for a yard operation.

protected by flashing light signals or crossing gates, but are equipped with the usual crossbuck highway crossing signs, the present practice is to identify your line by a painted or reflectorized "C&O" sign mounted on the 8" x 8" sign post. This sign is 1" x 8" x 4" with six-inch lettering, and is mounted vertically and below the crossbuck sign.

Currently, it is not our practice to provide identifying emblems or initials at protected grade crossings. These crossings, in addition to flashing lights, are also equipped with numerous and various adjunct signs, i.e., "Railroad Crossing," "Stop on Red Signal," "2 Tracks," "No Left Turn," etc. The complexity in some instances, and the multiplicity of lights, gates, auxiliary signs, and the numerous adjunct signs pertinent to the crossing protection itself, dictate the inadvisability of adding any superfluous signs, such as emblems or initials.

To minimize the possibility of confusion, and in an attempt to obtain the optimum in observance of flashing lights and related signs, the employment of signs other than those vital to the crossing protection should be held to a minimum.

In my opinion, the use of emblems and/or initials at unprotected crossings is advantageous for reasons of publicity and does not detract from the crossbuck warning signs. However, caution should be exercised in adding these signs at protected and complex locations.

*Paul L. Wheeler, Assistant Signal Engineer, Chesapeake & Ohio, Richmond, Va.*

### Can You Answer These Questions?

● What use are you making of automatic telephone dialing devices? Whose manufacture do you use and how many have you in service? What are the capacities of the units you have and how fast do they operate? How do they operate?

● Are you using any of the new plastic lenses in signals, switch lamps or in flashing-light signals at highway crossings? Please describe your installations. What are the advantages and disadvantages of plastic lenses compared with glass lenses?

Please send us your answers to these questions. We pay for all answers when they are published. Answers will be published anonymously if requested. Write Editor, Railway Signaling and Communications, 30 Church St., New York 7, N. Y. Also please send us questions for this department.

# A LITTLE SOMETHING FOR ALMOST EVERYBODY



How to succeed in communications while keeping ahead of the Joneses

**S**OMETHING unusual about Lynch is that it can deliver communications equipment to solve problems for just about everybody . . . from the big operator to the little fellow who's trying to run a modest-sized business in a toe-to-toe market.

**W**ELL, here's the hottest new item that Lynch has turned out for quite a spell . . . a *microwave multiplexing system* that's just about right for everyone—Telephone Company, Utility, Railroad, Pipeline, Military, etc.

**W**E'LL call it the B910 (because that's what a Lynch secretary assigned as a model number), and we suggest you might give some consideration to this feature:

**T**HE B910 is inexpensive to buy, inexpensive to expand and inexpensive to maintain. It uses a minimum of common equipment . . . and this in itself is quite uncommon. You can start with as few as one channel (that's as few as they come) and build up to 600, with no penalty whatsoever.

**W**E don't mind telling you: 120 channels of B910 (that's ten 12-channel groups) can be applied directly to the microwave radio equipment without any complicated gadgets . . . and with no supergroup equipment either. The Lynch filters turn the trick . . . and each channel has built-in oscillators for modulation and signaling. Think what that means when there is an indication of oscillator failure (a remote possibility, but our individual oscillators are subject to the same conditions as expensive master oscillators). You're still on the air with all the other channels!

**W**E don't mind telling you: Transistorized construction gives you all these familiar benefits (not so familiar if you're still using vacuum tube equipment): small size, light weight and less heat, longer component life. Think of all the beer you can buy with the money you save on the low power consumption and lower maintenance cost. You know *that* story . . . and the Lynch B910 makes it non-fiction.

**A**ND, we don't mind telling you: Lynch's well known knack with filter systems, designed into the B910, relieves you of the cost of intermediate supergroup modems and other common equipment, avoids expensive hybrids, provides options for easy drop and reinsert configurations and, of course, sounds best (you can actually recognize the fellow on the other end). The Lynch B910 can't overload the microwave system, because it utilizes single-sideband, suppressed carrier transmission. Among the L-E-T-T-E-R-S the B910 works with are CCITT, the indomitable W. E. "L" (we have two orders from them, incidentally) and some others, if you'd care to guess (we have lots of options).

**A**ND if that's not enough, the B910 has been producing toll revenue for over a year . . . longer than any other similar transistorized system in the country. You may have heard that it is operating over a 1400 mile pipeline system; and that it is providing communications between some islands in the South Pacific via a scatter radio system.

**I**F you're in the communications business and not currently using two tin cans and a string, we suggest that the Lynch B910 can do the best possible job of solving your particular problem at the lowest cost. It won't hurt you a bit to start on a budget and grow as the Joneses move into the neighborhood and order new service. If Mr. Jones happens to work for W. E. or one of those other big outfits, you might give him our number. What Lynch can do for you, it can do for the Joneses, too.

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