How to hide a TAC

by CPT Jay R. Savage

To command a division, the controlling headquarters must communicate; but the raison d'etre of communications is survival. In a flexible defense situation, the controlling headquarters or the tactical command post must be as far forward, as close to the battle area, as possible, yet its location must remain unknown to the enemy. The ability to hide and to communicate in a tactical situation places a command post in a difficult and vulnerable position.

Out of Sight

The camouflage techniques of the modern army have improved significantly from times gone by. Signal personnel have learned to hide antennas by setting them up against tree trunks or by using guying cords to hang them from or between trees. In Germany, an AN/TRC-145 antenna strapped to a chimney looks just like a German UHF television antenna and is almost undetectable. Against a threatening force's vast array of electronic warfare, however, disguising our visibility is not enough to hide a headquarters effectively.

A controlling headquarters will invariably transmit more often than a headquarters in a non-tactical or non-controlling situation. For this reason alone, it stands a greater chance of being detected and neutralized by fire or by electronic warfare. The twin problems of a command post's location near the forward edge of the battle area (FEBA) and the need for greater communications make disguising the location a difficult problem for the Signal officer. New and modified techniques and/or operational procedures are required to accomplish the mission.

Tricks of the Trade

The 141st Signal Battalion has developed some methods of concealing the 1st Armored Division tactical command post. With some excellent advice from senior NCOs and innovative ideas from junior team chiefs and operators, the 141st has effectively hidden a tactical command post from all the organic 1st Armored Division electronic warfare assets for as much as seven consecutive days. During this time, the command post used all three radio media: RATT (AN/GRC-142/122) artillery magnet; tactical FM/VHF; and pulse code modulation (PCM) multichannel.

RATT

The most difficult electronic signature to conceal is generally the big 400-watt RATT or radio teletype. Near the FEBA, it acts as a beacon that is hard to hide. The only way to use it is to move it a distance from the command post. Another option is not to use it to transmit. The 141st has done both.

A "safe" way to communicate is

with an extra RATT. The 141st has provided a tactical command post with an extra RATT and a TH-5 ringer or telegraph terminal as a backup for divisional nets. The extra RATT can be hooked up as a teletype on a pony circuit over the PCM by using the extra TH-5. In this fashion, the RATT is operated as a monitor/receiver only. When the command post has to send a message, it transmits over the pony teletype circuit using the backup RATT to another distant sight; there the message is retransmitted to the user with another teletype, RATT or courier. As a result of this method, the location of the command remains hidden because no RATT transmissions have emanated from the headquarters.

FM/VHF

Tactical FM/VHF radios using directional antennas or remote units are easier to hide. However, because the command post must be mobile, use of either method can be difficult. For example, remoting would require extra cabling; hence, it would limit the command post mobility. In addition, when the command post changes position, it must transmit to other units in many directions, thereby restricting the effectiveness of the directional antenna.

Thus the question revolves around how to work within these parameters to minimize the problem. One way to get around the extra cabling required for remote radios is to use one of the 26 pairs between the command post and the PCM terminals. While it can't always be done, both radios can be remoted with the GRA-39/B with the multichannel through 15 links of 26 pair cable.

The 141st has also hit upon a way to use a directional at a headquarters that must transmit in all directions. A half-wave rhombic antenna can be directed towards an already established divisional retransmission station (operating omnidirectionally) to project only a narrow beam (28 degrees) that is, in most cases, directed away from the FEBA. The command post must be within the normal FM range to use this technique effectively, but the post generally would be anyway. Moreover, the retransmission station will not really be operating more than it would were some other technique employed.

Multichannel

Multichannel is less susceptible to electronic warfare than any other means of radio communications Opposing forces also recognize this and will mount a major effort to deny us this vital link. Our PCM equipment is directional by design—that is, once it has been detected, it gives a good line to the command post location. To jam multichannel would most likely require a directional jammer directed at the point target of a PCM terminal. To minimize directional finder and jamming effectiveness, the multichannel terminals need to be moved as often as possible.

Two PCM terminals are located in the 1st Armored Division command post. One serves as a primary and the other as a secondary terminal. The 141st currently remotes the terminals, one to either flank of the headquarters as far as possible. At a given signal, the primary terminal is shut off and the secondary, which is already aligned, is turned on. At the same time, a wireman at the junction box (J-1077) at the command post disconnects the primary cable and connects the secondary cable in its place. Communications has been out for as little as 15 seconds.

To an enemy direction finder, it appears as if the command post has relocated or that the post's equipment is malfunctioning, explaining the two different readings from widely separated points. An enemy jammer, if he is lucky, will discover that he is jamming a station that is no longer on the air (remember that he must use a directional jammer against a point PCM target).

All of these techniques are effective. They are all methods used by the 141st Signal Battalion many times. What they represent is a productive application that can hide effectively a vital headquarters, which, by its very nature, is difficult to conceal. New applications of known methods can help the controlling headquarters survive without reducing its ability to communicate.

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