dedication of a cargo GOER and a fuel GOER to the cross-attachment package satisfied these CSS shortages.

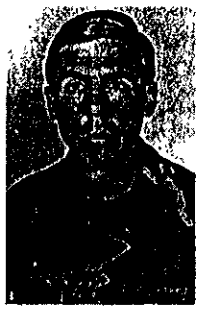
• Because the billets and orderly rooms were close enough within the brigade area, the affected companies stayed in their original facilities. But all vehicles and ancillary equipment belonging to each company were relocated to the appropriate battalion motor pool.

• A company's funds continued to be allocated by its parent battalion, with the battalion to which the company was attached being responsible for tracking the expenditures on a weekly basis.

• So that their employment would be more flexible, the two TOW systems that were organic to the rifle company but consolidated in the antitank platoon of the combat support company participated in the cross-attachment.

The feasibility of such an extended cross-attachment program was demonstrated repeatedly throughout two six-month iterations, each of which included a successful rotation to the National Training Center. The habitual relationships that developed through these prolonged associations fostered a solid understanding of tank-infantry employment. These relationships also gave the infantry units a better appreciation for the problems inherent in a tank unit's sustainment operations.

Only through a long-term relationship of this nature can a battalion train habitually with an attached company and achieve a high degree of mission proficiency that makes the most of the abilities of both of these combat arms.



LIEUTENANT COLONEL WILLIAM A. DePALO, JR., developed the brigade's implementation plan for the extended cross-attachment concept, monitored its execution, and, as commander of the 1st Battalion (Mechanized), 10th Infantry, at Fort Carson, had a tank company attached to his battalion for five months.

Israeli M113s

CAPTAIN EDWIN L. KENNEDY, JR.

The experiences of the Israeli Army in the war in Lebanon have led a number of professional military men to criticize the use of mechanized infantry in its mounted role. Unfortunately, much of the criticism stems from a generalized view of the results without a careful analysis of the causes.

The heavy loss of M113 infantry personnel carriers in Lebanon has caused the Israelis to look again at their use of mechanized infantry. It has also caused critics of infantry fighting vehicles in general to claim that infantry AFVs are of no use on the modern battlefield. But to understand why the Israelis suffered such losses, it is important to consider the various factors that affect their employment of mechanized infantry and how their employment differs from that advocated by the U.S. Army.

The Israelis learned quickly during the 1973 Arab-Israeli War that armor could not operate on the battlefield independently of infantry and combat engineers. Accordingly, they modified their organizations and equipment to meet the requirements of combined arms operations, and their mechanized infantry companies are now organic to their armor battalions.

The Israelis quickly filled their arsenals with American-made M113 armored personnel carriers for these mechanized infantry companies. This meant they had to modify the M113s, however, to fit their particular requirements dealing primarily with the terrain and the need to keep pace with fast-moving armored columns. Obviously, if the Israeli mechanized infantry was to move with and provide close-in mutual support for their tanks, the U.S. M113 personnel carrier had to be turned into a fighting vehicle — an important difference.

This change created a number of problems, some of which the Israelis solved by altering the vehicle's structure:

• The troop seats were emplaced in the center of the carrier facing outward so they would be easier for the troops to stand on and fire from.

• Two swivel mounts with pintles were emplaced forward of and on each side of the cargo hatch for MAG 58s. (7.62mm light machineguns). (The MAG 58s can be dismounted for the infantry squad's use.)

• Cargo racks were put on the outside of the carriers to clear the tops for fighting.

• The communication junction boxes were supplemented and their locations changed to facilitate the control of fires while mounted.

In addition to the driver, the .50 caliber machinegunner (in the cupola), the two MAG 58 machinegunners, and the squad leader (located in the cargo hatch) were equipped with combat vehicle crewman helmets while mounted. With this arrangement, the squad leader could control

the major firepower as well as the driver of the vehicle.

Some of these structural changes have worked well for the Israelis because they were made with the local terrain in mind, but they would not necessarily work well in other types of terrain. For example, the center seating arrangement does not allow for the easy transportation of items on the floor of the carrier, and it causes problems when the squad mounts and dismounts, especially through the combat hatch. And the external cargo racks widen the carrier enough to cause trafficability problems in forests and in the narrow streets of older cities and towns. Although this is not necessarily a major problem, it is an important consideration.

At the same time, the Israelis also modified their tanks to make up for a shortage of infantry and often used their tanks to assault infantry objectives. They mounted two .30 caliber Browning machineguns next to the loader's and commander's hatches (there are no cupolas on Israeli tanks) to provide the needed firepower to suppress any enemy infantry when they swept over infantry objectives. (This particular trend is also found in Israeli mechanized infantry units where the infantrymen are supposed to provide the needed suppressive fire on the enemy's infantry so that the tankers can concentrate on using their main armament.)

Because of these modifications, Israeli training has changed too. The Israeli mechanized infantry undergoes thorough training in mounted assaults. The machinegunners, for example, get extensive training on live fire ranges while the M113 is moving. (The mounts for the MAG 58s provide excellent stability when the M113 is moving at low speeds or on smooth terrain.) The riflemen in the rear of the carrier are taught to provide suppressive fire to the flanks and rear and, when close enough to the enemy, to throw hand grenades from the carrier. (To prevent the troops inside the carrier from being wounded by grenade fragmentation, a warning is issued to everyone when a grenade has been prepared.)

When the carrier reaches the enemy position, all the weapons continue suppressive fire as long as they can as the vehicle passes over or through the position. Grenades are thrown from the carrier, and the driver either accelerates or performs evasive maneuvers. The soldiers inside the cargo hatch duck inside as their grenades detonate. The machinegunners maintain the general lay of their guns by holding a cord or wire attached to the stock to prevent the guns from traversing. During training exercises, fuel drums frequently serve as targets, and competition is keen to see who can throw a grenade inside a drum as the vehicles cross an "enemy" position.

Mounted battle drills, carried out as part of squad training, include ambush immediate action drills, air attack reaction drills, assault drills, and dismounting and remounting drills, among others.

TECHNIQUES

One technique the infantry squad uses when dismounting or remounting is for the driver to lower the ramp of the vehicle and then drive along the reverse slope of the position to be occupied by the dismounted infantrymen. The infantrymen are "tapped out" by the squad leader at intervals and take up their positions on the ground. In recovering the dismounted squad, the sequence is reversed. The driver moves along the rear of the squad's position with the ramp lowered. As the vehicle passes each position, the infantrymen move quickly to get on it.

These tactics and techniques are practiced at lower unit levels during dry runs and then as part of live fire battle drills to ensure the speed and precision of execution. The importance of mounted operations is stressed.

There are some problems, however, that are now becoming apparent from the Lebanon experience. While the Israeli M113s retain the characteristics of good cross-country mobility, they still cannot keep up with tanks, especially the newer tanks with their improved mobility and power. In trying to keep pace with a fast-moving attack, the Israeli M113s sacrifice either speed or security, and this is where the crux of the Israelis' problems lies: Sacrificing security of cover to maintain momentum with the tanks, Israeli M113s must expose themselves more to enemy fires. As a result, they have suffered more casualties.

Before drawing conclusions from these results and applying them too liberally to our own use of AFVs, we need to look at certain basic differences in the way we use the M113.

Although the Israeli M113, as modified, is a quasi-fighting vehicle with its machinegun mounts and additional communications control equipment, its armor protection has not changed. It is still an APC, and the Israelis' employment tactics bring out some of the M113's weaknesses.

Israeli mechanized infantry in M113s moves *between* tanks when in the attack, something U.S. mechanized infantry never does — either in M113s or BIFVs. Generally, when they are available, our tanks lead in a mounted assault; our mechanized infantry attacks using one of three different methods — either on-line, in modified column, or by bounds, following the tanks closely but not in between them.

The Israelis' doctrine may be based upon the well-founded principles of speed and shock action, but a combination of their equipment and their tactics seems to limit their success in executing that doctrine. Therefore, analogies between U.S. and Israeli equipment and the failure or success of it can be made only with complete knowledge of the different ways in which that equipment is used.

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