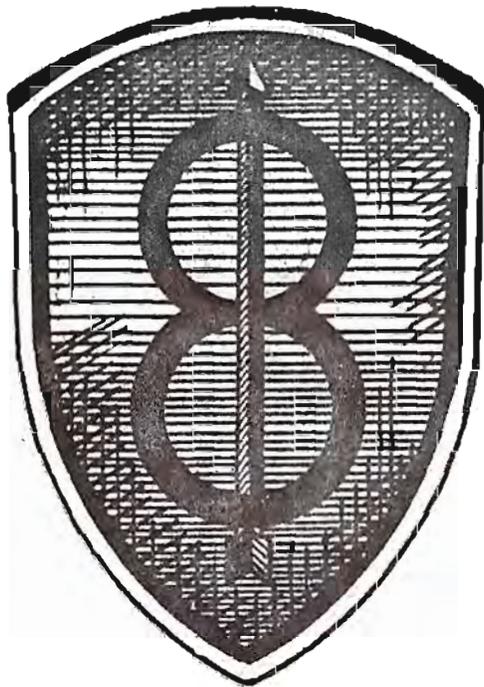


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INFANTRY FOR BATTLE IN EUROPE, 1978



8TH INFANTRY DIVISION

UNITED STATES ARMY

15 February 1978

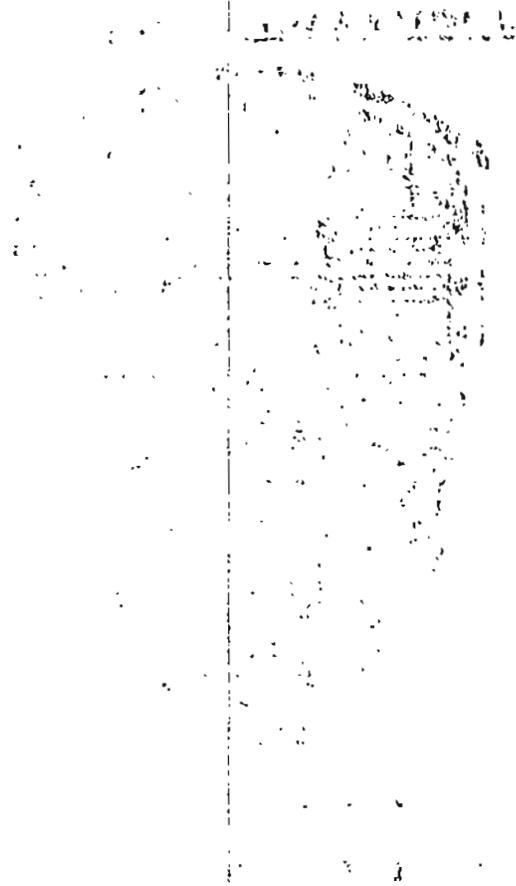


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Any battle of tomorrow is likely to be fought with complex technologies, by highly mechanized forces on both sides. What are the jobs for infantry in such combat? How can infantrymen organize and train for those jobs? These are among the pivotal questions confronting commanders of U.S. Army's 8th Infantry Division today. History offers some answers. The 8th Division faces masses of Soviet armor, and so it is reasonable to look to the Middle East, where massed armor figured in the outcome of battles both in World War II and since.

CRUSADER and YOM KIPPUR

In the opening battles of the Yom Kippur War of 1973, Israeli tanks dashed themselves against Egyptian infantry defenses along the Suez Canal, taking losses which stunned the Israeli high command, and shocked the world. Only an adroit revision of tactics by Israeli field commanders in the midst of battle salvaged the mobility and striking power of Israeli armored forces, and permitted successful counteroffensives. But the Israelis thus had to learn bloodily military lessons for which the British Army had already paid dearly not 600 kilometers to the west, 32 years previous, in the autumn of 1941.

Rommel had appeared in North Africa early in 1941, and sweeping all before his Panzer Divisions, had driven the British out of Cyrenaica, except for a garrison besieged in Tobruk. In the fall, the British commander, General Cunningham, after being reinforced, planned a counter-offensive from his bases on the Egyptian border which would not only relieve Tobruk, but destroy the German and Italian tank forces around it.* His counterstroke, called CRUSADER, was launched in mid-November amid high optimism. The British had amassed an unprecedented number of tanks, totaling around 900, of which 20 percent were American Stuart (or "Honey") models, faster than any tank in North Africa, and mounting a 37mm gun of superior armor-penetrating power. Cunningham had formed Eighth Army to control two corps: XIII Corps, an infantry force; and XXX Corps, an armored force. The latter was to strike independently of the former, swooping around the southern flank to seek out the Axis armor in reserve, and to bring it to decisive battle. Altogether, Cunningham's 900 tanks faced about 500 Axis tanks, of which less than one-third were first-line equipment. The Germans had only 272 tanks, of which 96 were in the pre-war PzKw II, barely combat worthy in late 1941. In contrast, Cunningham's 7th Armored Division alone had 450 gun-armed tanks, including 166 Stuarts. On the eve of battle, the Commander of the 7th Armored Division, General Gott, told his troops that CRUSADER would be: "...a tank commander's battle. No tank commander will go far wrong if he places his gun within hitting range of an enemy."

*Cf., Correlli Barnett, The Desert Generals; Brigadier John Strawson, The Battle for North Africa; and Strategy and Tactics, No 40, Sep/Oct '73, War in the Desert.

Gott's tankers did just what he wished, but they went wrong indeed, for to place themselves within hitting range of the enemy was to court destruction by German antitank guns. In the tradition of the hunt, of their forebearers at Balaclava, they charged into Axis positions, only to learn that zeal and dash counted for less than German optics and German gunnery: Rommel's antitank gunners picked them off like clay pigeons before they could even get off a shot. In one action, just four 88mm antiaircraft/antitank guns stopped the attack of an entire British armored brigade. But it was not the "88" alone that was their undoing. Rommel quickly seized the initiative from Cunningham, and the British found that they were, once more, up against an enemy who was organized and trained in an utterly superior fashion, against whom they could turn to account none of their material or numerical advantages. As a German observer put it:

A German panzer division was a highly flexible formation of all arms, which always relied on artillery in attack and defense. In contrast, the British regarded the antitank gun as a defensive weapon, and they failed to make adequate use of their powerful field artillery, which should have been taught to eliminate our antitank guns.

Cunningham, though equipped with a 3.7-inch antiaircraft gun comparable to the 88mm, though well supplied with truck-borne infantry, and though endowed with a battle-seasoned artillery, sent his tankers, in the best tradition of Lucan, Cardigan and Haig, to win the battle wholly on their own, to their glory and his ruin. A week after CRUSADER was launched, Cunningham had but a tenth of his tanks remaining. Gott's 7th Armored Brigade had not 1 out of the 129 with which it had started; 22d Armored Brigade had 30 of 158. Gott's 4th Armored Brigade, which had 100 Stuarts at the outset, was shattered, its headquarters overrun, its remnants scattered. Rommel calculated that he had knocked out 207 British tanks. Actually, British losses at that juncture were more than 300. Cunningham wrote:

The main thing was to destroy Rommel's armor. One entered the battle with that object, and then found one hadn't the means. One night the tank state showed forty-four runners.

Cunningham was relieved of his command. Though Rommel's riposte penetrated to within 15 miles of the key British supply depots, the tenacity of British and Indian infantry, plus the phlegm of their generals, prevented a debacle. Rommel, overextended, his own tank strength depleted, pulled back, and CRUSADER came to a close. All told, in three weeks of confused combat the British lost around 400 tanks, the Axis 300.

After the battle, General Gott wrote a classified analysis in which he attempted to discern the lessons to be learned from CRUSADER. In words which imply deep frustration, he noted that:

The German will not commit himself to tank versus tank battle as such. In every phase of battle he coordinated the action of his antitank guns, field artillery and infantry with his tanks and he will not be drawn from this policy.

In 1969, a tank-turret veteran of CRUSADER, Brigadier John Strawson, published his analysis of desert warfare in World War II, in which he highlighted cases of British "amateurism [which] would not do against the professional touch of the Afrika Korps."

There was another serious misunderstanding by the British -- about the way the Germans handled their armored formation. Rommel's panzer groups were quite clear that whereas tanks dealt primarily with the enemy's infantry and soft vehicles, the destruction of tanks was mainly the job of weapons designed for just this purpose, antitank guns. This theory was put into practice, and the German 88mm and 50mm antitank guns were both powerful in themselves and skillfully manned, but not at the expense of a further integration of tank, gun, and infantry teams. In this first requisite of desert, or any other, fighting, the British simply did not match their opponents...

Stawson quoted a German antitank officer, Heinz Schmidt, to describe how one German offensive tactic worked:

...with our twelve antitank guns we leap-frogged from one vantage point to another, while our Panzers, stationary and hull-down if possible, provided protective fire. Then we would establish ourselves to give them protective fire while they swept on again. The tactics worked well, and despite the liveliness of the fire, the enemy's tanks were not able to hold up our advance. He steadily sustained losses and had to give ground constantly...

Of CRUSADER overall, Strawson wrote:

...in total number of tanks which each side could muster, the British had a superiority. But it was not numbers which necessarily counted. What did count was their quality, tactical handling, and standard of crew training...[Germans enjoyed some advantage in superior guns on their newer tanks, which also had better armor protection.] But in addition to this, their tactical skill in coordinating the fire power of tanks and antitank guns was not simply greater than the British. Whereas it was fundamental to their method of fighting, the British virtually relied on their tanks alone...It was necessary to reiterate there that close and permanent integration of all arms together with concentration of armor are fundamental requirements for success in desert fighting. In Cunningham's broad plan the first of these had given way to the stronger claims of the other...

Three decades later, Soviet advisers to the Egyptian Army evidently took well into account these "fundamental requirements for success in desert fighting." Initial Egyptian offensive tactics were built around heavy preparatory fires, followed by infantry infiltration to advance a screen of portable antitank and anti-aircraft missiles, followed by armor to consolidate the gains and thicken the defense. On defense, the Egyptians had been taught to hold their armor well back in their positions, almost as a lure for the Israelis, behind covered and concealed infantry ambushes with antitank rockets and guided missiles. It was these arrangements which taught the Israelis their early, bitter lessons:

The difficulty which the Israeli tank-crews had in grasping the potential of Egypt's new infantry missiles was subsequently conveyed vividly by the commander of a formation of Israeli tanks... 'We were advancing and in the distance I saw specks dotted on the sand dunes. I couldn't make out what they were. As we got closer, I thought they looked like tree stumps. They were motionless and scattered across the terrain ahead of us. I got on the intercom and asked the tanks ahead what they made of it. One of my tank commanders radioed back: "My God, they're not tree stumps, they're men!" For a moment I couldn't understand, what were men doing standing out there -- quite still -- when we were advancing in our tanks toward them? Suddenly all hell broke loose. A barrage of missiles was being fired at us. Many of our tanks were hit. We had never come up against anything like this before... '*

Major General Chaim Herzog's analysis of the Israeli experience in October, 1973, stresses the centrality of the Egyptian infantry in countering Israeli armor superiority:

Many of the principles of war were ignored and the conviction of many in the Israeli Armored Command that armored forces could operate freely without close infantry support was proved to be one of the dangerous concepts that had entered Israeli military thinking since the Six Day War. The Israeli armor attacking with the élan of cavalry charges, without infantry support, made no sense whatsoever in face of the masses of antitank weapons which the Egyptians had concentrated.

General Cunningham in CRUSADER reaped the harvest of twenty years of doctrinal vacillation in the British Army, two decades of infighting between cavalry die-hard and tank-enthusiasts, between those who

*Insight on the Middle East War, Sunday Times, London, 1974, pp. 106-107.
#Herzog, MG Chaim, The War of Atonement, Little Brown, Boston, 1975, pp. 188-191.

saw armor as an independent arm, and those who thought tanks were infantry support weapons. No protagonist produced a battle-worthy tactic, and the debates confused the development of relevant materiel. The Israeli Defense Forces suffered in much the same fashion three decades later. Their early defeats in the Yom Kippur War were the product of years of dominance by tank-supremacists, during which tankers had parlayed their lopsided victory in 1967 into a monopoly over doctrine, promotions, and army budgets. Infantry and infantry weapons had been largely neglected.

Major General Herzog put it this way.*

The Egyptians realized that with the outbreak of another war their problem was how to neutralize the tank and the plane and how to slow down the process of growth of the IDF's reserve potential. Their reply was a missile umbrella, a concentrated mass of antitank weapons and strategic surprise which would force the IDF to react piecemeal. But the Israelis did not construct their forces as a reply to this concept; they ignored it, adopting a fixed concept of their own based on experience in the previous conflict. For instance, since the half-tracks in use during the Six Day War had been inadequate from the point of view of their desert and cross-country capabilities and could not keep up with the tanks, the armored personnel now tended to discard infantry in their plans. As a result, while infantry were an integral part of the Egyptian defensive system, Israeli armor stormed enemy positions without infantry and mortars, sometimes in wasteful battles. The Israeli infantry lacked mobility, and its weapons -- with a few exceptions -- were no match for the Soviet equipment (its antitank capabilities had been drastically reduced because the basic assumption made in the IDF was that the best answer to tank is tank)...

The lessons of the war dictate the conversion of the ground forces into one large, interarm battle team controlled by one headquarters. There should be two types of teams: armor being dominant in one, infantry in the other.

Again, there was a failure to take into account available intelligence -- such as that on the Sagger antitank missile -- and apply its lessons organizationally and operationally...

The tank still remains a dominant factor on the field of battle, provided that it is part of a well-planned battle team...The Israeli infantry did not come into its own in the Yom Kippur War. On few occasions was it correctly used or to full advantage. Highly trained infantry, such as the paratroopers, were rushed into battle in an improvised unprepared manner -- as incidentally

*Ibid., p. 270 ff.

occured on a number of occasions in the Six Day (1967) War. The Israeli error is highlighted by the fact that in the battle in Sinai the Israel Defense Forces fought exclusively with tanks against five infantry divisions and performed at one and the same time, the tasks of defense, holding the front line, and of counterattack.

The turning point in the war was probably the battle of 14 October, in the southern Sinai, when the Egyptians, increasingly pressed by the rapidly learning Israelis, were impelled to attack well-held and adequately manned defensive positions in which the IDF used tanks and antitank guided missiles adroitly:

Thus began one of the largest tank battles ever to take place in history -- apart from the battle of Kursk in the Soviet Union in World War II -- with some 2,000 tanks locked in battle along the entire front. The Israeli forces had carefully prepared themselves for this battle...At 5 o'clock in the...heavy sultry morning. The Egyptians opened with a heavy artillery attack. Suddenly, [the brigade commander] observed what appeared from a distance to be a vast river of tanks flowing towards him: it was the 1st Brigade of the 21st Egyptian Armored Division. He engaged the advancing enemy, but some of the enemy tanks using the cover afforded by the folds in the desert infiltrated and reached the high ground held by the Israeli Forces. They were destroyed at ranges of 100 yards... When the battle concluded, the 1st Egyptian Tank Brigade had been destroyed, ninety-three knocked out tanks were counted, while [the IDF] brigade had suffered only three tanks hit, all by missiles; not one tank had been hit by Egyptian tank fire...According to Egyptian prisoners, General Saad Al Shazli, Chief of Staff of the Egyptian armed forces, admitted in addressing his troops that the Egyptian attacking forces had been surprised on all axes of advance by Israeli tanks and antitank battalions equipped with antitank guided missiles of the SS11 type, which had succeeded in blocking their attacks and inflicting very heavy tank losses. Analysing the losses sustained by the Israelis in their initial counterattack to the Canal and against the Egyptian bridgeheads on 6 October and the heavy losses sustained by the Egyptians in their attack on the 14th he reached the conclusion that it was impossible to insure the success of any attack -- whether by tanks or of armored infantry -- without destroying or silencing in advance the antitank missiles.*

Hence, both Israelis and Egyptians came to appreciate that success in modern battle depends on integrated teams of tanks, artillery, and infantry (the U.S. Army uses the well-worn term "combined arms"). It is germane to note that the Israelis have since issued their paratroopers -- who have not lately jumped into combat -- armored personnel carriers so as to create a corps of elite mechanized infantry. But the debate over infantry's role goes on in Israel, with many Israeli infantrymen remaining convinced that the APC induces laziness, and that the best answer to tanks is not TOW but other tanks.

*Ibid., pp.205-207. The total Egyptian loss on 6 October was 264 tanks vs 6 for the IDF.

INFANTRY AGAINST TANKS: U.S. DOCTRINE

The institutional memory of the U.S. Army, its wisdom from World War II, its last war involving masses of armor, holds that the best counter to the tank is another tank. Such was the conclusion of the U.S. Forces, European Theater General Board of 17 June 1945, and such was the vote of senior officers assembled at Fort Benning for the Army Ground Forces Infantry Conference, June 1946 (the O'Daniel Board). As a direct consequence of these analyses by World War II leaders, the Tank Destroyer Corps with which we had fought the war was abolished, and we moved promptly into TO&E, which did, in fact, put reliance on tanks as the primary antitank means. We should have paid more attention to the German experience.

In World War II the allies were the side with the preponderance of tanks: by 1944 the U.S. alone was outproducing the Germans 3:1 in tanks, and that was the usual margin of our tank superiority on any battlefield after the Normandy breakthrough. The German Army, beleaguered on two fronts and badly outnumbered by opposing tanks, relied heavily on antitank guns like the famous "88" and Jagdpanzer -- tank destroyers; large, high-velocity guns mounted on tank chassis. By 1944, most of Germany's armor productive capacity was devoted to tank destroyers, not tanks.*

PRODUCTION OF ARMOR

	<u>1941</u>	<u>1942</u>	<u>1943</u>	<u>1944</u>
PANZER	3,256	4,198	5,996	8,328
JAGDPANZER	548	824	3,411	9,368

Erwin Rommel had been among the first German leaders to understand the usefulness of mobile infantry with dedicated antitank units. Of his 1942 offensive he wrote:**

The tanks are the core of the mechanized army. Everything turns on them, and other formations are mere auxiliaries. The war...must be, therefore, waged as far forward as possible by the antitank units. One's own tanks should only be used to deal the final blow...The prime requirements in the tank are maneuverability, speed, and a long-range gun -- for the side with the bigger gun has the longer arm and can be first to engage the enemy...The artillery must have great range and must, above all, be capable of great mobility and of carrying with it ammunition in large quantities...The infantry serves only to occupy and hold positions designed either to prevent the enemy from particular operations, or to force him into other ones. Once this object is achieved, the infantry must be able to get away quickly for employment elsewhere. It must therefore be mobile and be equipped to enable it to rapidly take up defense positions in the open at tactically important points on the battlefield.

*Figures from the U.S. Strategic Bombing Survey, Appendix 4.

**Rommel, Field Marshal E., The Rommel Papers, B.H. Liddell, Hart, ed. New York, 1953, pp. 200-201.

By 1943 Rommel knew that Germany's main hope lay in making the most of those advantages which accrue to the defender.** He told Bayerlein in the summer of 1943 that "the main defense against the tank is the antitank gun", and he wrote in his diary at about the same time, "the necessity for reorganizing infantry companies so as to provide for a greater authorization of antitank weapons at company level is becoming increasingly apparent... Firepower must be increased at the expense of the rifleman..."# Finally, less because of Rommel's advocacy than simple necessity, tank production gave way to manufacture of Jagdpanzer. The defenses faced by American tankers in 1944 and 1945 usually were built not around tanks, but 76mm and 88mm anti-tank guns, many on Jagdpanzer. Nonetheless, the U.S. Army, in its post-war reorganization, chose to ignore tank destroyers, and all but foreclosed development of self-propelled infantry anti-tank weapons.##

By the late 1950's, it was apparent that, the Soviets possessing nuclear weapons, some sort of strategic balance had been struck, and that U.S. land forces in NATO, therefore, had to look seriously to their capability to cope with the masses of tanks in the Group of Soviet Forces Germany. Thereafter, the U.S. Seventh Army, the heart of NATO defense in the central region, transitioned from a predominately infantry force to a highly armored/mechanized force, with a significant increase in the number and capability of major tank-killing weapons, especially anti-tank guided missiles (ATGM). Indeed, with issue in the mid-1970's of the 3,000-meter, armored-personnel-carrier mounted TOW, the U.S. Army went back to tank destroyers; the attack helicopter is a form of tank destroyer. Here are two Seventh Army divisions, 20 years apart, with the same mission:

1956	U.S. 4th Infantry Division	251 Weapons
	9 M41 Tanks	81 57mm Recoilless Rifles
	105 M48 Tanks	56 106mm Recoilless Rifles
1977	U.S. 8th Infantry Division	1,017 Weapons
	329 M60A1 Tanks	224 TOW ATGM
	54 M60A2 Tanks	368 DRAGON ATGM
	42 Attack Helicopters (TOW ATGM)	

It is possible to assert that the industrialization of warfare worldwide began with the American Civil War, and certainly the U.S. Army has since tried, as a matter of policy, to apply machines to war to decrease dependence on rifle-bearing soldiers. The American division of 1865 was composed 85% of riflemen; by World War I, that percentage was down to 60%, and by World War II, to 30%. In 1977, less than 15% of the division fights on foot, and less than 5% are truly "riflemen". But, as rifles declined in importance, other firepower (especially artillery) increased dramatically, as did means of mobility and battlefield intelligence. Overall, ever fewer soldiers, with ever more firepower, controlled ever larger expanses of battle field:

**Rommel was one of the first German leaders to adopt this view. e.g., Guderian had opposed Jagdpanzer production.

#Bayerlein, LTG Fritz, "Invasion, 1944", Chap. XXI in The Rommel Papers, ibid, pp. 451-453.

##This statement discounts the specialized search for an airdroppable weapon system to substitute for tanks in the airborne divisions, and rests on the fact that the heaviest infantry antitank weapon in the 1959 armored division (ROAD) was the 3.5 inch rocket launcher.

INFANTRY DIVISION

	<u>% Division Combat on Foot</u>	<u>Men/Km FEBA</u>	<u>Throw-weight (lbs)/Man/Hour</u>
WWI	60	6000	160
WWII	30	2200	320
8ID 1977	15	550	3200

From World War I to World War II, the "division slice" of men required to man a kilometer of front (FEBA) declined nearly two-thirds. From World War II to 1977, it declined another three-fourths. The 8th Division in its defensive sector in Germany today requires less than 10% the manpower per kilometer as did its World War I predecessors during the Meuse-Argonne campaign. But firepower, as measured in capability to throw a stated weight of projectiles per hour doubled from World War I to World War II, then increased ten times from 1945 to 1977. To compare the 8th Division of 1945 with the 8th Division of 1977, the division today can control five times more frontage per man or woman assigned, has ten times per capita firepower, and can throw twice as much lethal steel per kilometer of front. To compare the 8th Division of 1977 with the 4th Division of 1956 -- assigned nearly the same defensive position northeast of Frankfurt -- the 8th Division has more than 27 major direct-line antitank weapons per kilometer of FEBA, versus less than 7 for the 4th Division, a four-fold increase.

One concern frequently voiced by 8th Division officers today is whether or not, given our issue of TOW and DRAGON and our focus on the threat in Group of Soviet Forces Germany, we may be overly oriented on defense. Surely one answer is that our increased tank strength greatly adds to our striking power, and that our overall firepower, properly concentrated, and used skillfully in conjunction with our increased capacity for maneuver, adds up to unprecedented ability to counterattack. To have a mission of defense is not the same as to be defensive minded. Our term "active defense" implies the intention to use our offensive means whenever necessary to control assigned terrain, or to destroy enemy forces which threaten it. But what of all the infantry manned ATGM which have been added to the division? Do these not tend to inculcate a defensive set of mind in our infantry? The answer is that they might, but need not, if our infantrymen are conscious of their prowess, and their leaders use them aggressively. Infantry commanders using TOW and DRAGON today can scarcely better this enjoinder from LTG Lesley J. McNair during World War II:*

Since the tank must advance, the tank destroyer need only maneuver for a favorable position, conceal itself thoroughly, and ambush the tank. It is correct to think of the tank destroyer as acting offensively, in that it does not sit passively on the chance that a tank may come its way, but on the contrary seeks out the tank and places itself where it can attack the tank effectively. However, the tank destroyer would be foolish indeed to act offensively in the same manner as the tank, for such tactics would place the destroyer at a disadvantage, and would sacrifice unnecessarily the advantages which the destroyer has by the very nature of things...

*Greenfield, K.R., et al, US Army in World War II: The Army Ground Forces: The Organization of Ground Combat Troops, Washington, D.C., 1947, p.426.

Or this quotation from a 1941 statement by General McNair:*

The counterattack long has been termed the soul of the defense. Decisive action against a tank attack calls for a counterattack in the same general manner as against the older forms of attack. A counter-attack, of course, may be delivered by other tanks, but the process is costly. There is no reason why antitank guns, supported by infantry, cannot attack tanks just as infantry, supported by artillery has attacked infantry in the past. Certainly it is poor economy to use a \$35,000 medium tank to destroy another tank when the job can be done by a gun costing a fraction as much...

Substitute \$500,000 for the cost of a tank today and an ATGM costing 1/100th as much for the gun, and General McNair's rationale remains forceful.

But, of course, the most colorful statement on the issues were those of General George S. Patton, Jr. In 1944 he told his commanders that the prime purpose of tanks should be destruction of enemy infantry and artillery.** Tanks were designed to penetrate to the enemy's rear, to his vitals. In November 1945, just before his death, he issued the last of his "Notes on Combat", which said in part:***

...The purpose of tanks in an infantry division is to get the infantry forward, while the purpose of the infantry in an armored division is to break the tanks loose...In considering the foregoing or any other organizational scheme, we must remember that it is simply the datum plane from which new ideas and new formations must be developed. The primary function of war has not within historic time been materially changed by the advent of new weapons. The unchanging principle of combat is to inflict on the enemy the maximum amount of wounds and death in a minimum of time and as cheaply as possible. If future leaders will remember that nothing is impossible, that casualties received from enemy action in battle are a function of time and effective enemy fire, and that any type of troops can fight any place, they will not go wrong...

*Dunham, Emory A., "Tank Destroyer History", Study No. 29, Historical Section, Army Ground Forces, Washington, D.C., 1946.

**Patton's second letter of instruction to his Third Army states "...the primary mission of armored units is the attacking of infantry and artillery, the enemy's rear is the happy hunting ground for armor. Use every means to get it there." (Patton, G.S., Jr., War as I Knew It, Boston, 1947, App. D).

***The Patton Papers, 1940-1945, Blumenson, M., ed. Boston, 1974, pp. 803,804.

Field Manual 100-5 (1 Jul 76) states current U.S. Army doctrine for the 8th Infantry Division of 1978 with its mission of defense in West Germany:

The tank, with its cross country mobility, its protective armor, and its formidable firepower, has been and is likely to remain the single most important weapon for fighting the land battle...(p.2-6)

In mounted defensive warfare, the cross-reinforced tank or mechanized company team or battalion task forces is the basic building block... During critical phases of the defensive battle, either brigade or battalion commanders may move these task forces or teams from battle position to battle position, or call upon them to counterattack alone or in concert with other elements operating in a deep sector of a highly active defense. When the situation requires heavier concentrations of force on narrow sectors, the battle may be fought by battalions rather than companies. This is particularly true of tank battalions, which may sometimes be massed for decisive attacks or counterattacks...(p.3-9)

COMBINED ARMS TEAMWORK

No single weapon, no single arm, no single service can hope to win on the modern battlefield. In order to concentrate, fight, and win, *Army forces must move*. To move in the face of lethal modern weapons, we must cover and conceal ourselves from them or suppress them. To suppress them, we need all the weapons of the combined arms team, and we need leaders who can use each and every weapon system at peak efficiency. Each element of the combined arms team has special capabilities for the destruction or suppression of enemy weapons. Commanders must elicit the full capability of each. Combined arms teamwork on a fast moving battlefield requires highly developed and often practiced systems of standard operating procedures for command, control, and coordination. These systems, called **troop leading procedures**, facilitate rapid dissemination of orders, conduct of necessary reconnaissance, early movement of troops, and the fastest, most effective execution of the mission. The best troop leading procedures permit the commanders and the troops of several echelons to work concurrently so that the troops themselves have the maximum amount of time on the defensive position or in detailed preparation for the attack.

The commander who employs his weapons at their full effectiveness, reduces his vulnerability by using cover, concealment, and suppression, and moves decisively on the battlefield to accomplish his mission, has mastered the command of the combined arms team.

Infantry can destroy or suppress enemy infantry and ground-mounted antitank weapons by dismounting and attacking or by using cannons and automatic weapons from mechanized fighting vehicles. In the defense, infantry can employ long-, medium-, and short-range antitank weapons and missiles. It can hold ground where fields of fire are short and terrain is compartmented or jumbled. Infantry can organize strong points, and, when equipped with appropriate antitank weapons, infantry is extremely difficult to dislodge or overcome.

Field artillery can destroy or suppress infantry at short ranges, antitank guided missiles at medium ranges, and enemy artillery or air defense weapons at long ranges. Suppression, of course, gives a high probability of destruction of enemy weapons if their gunners or crews fail to take evasive or protective action. Artillery can destroy light-armored vehicles, and can cause enemy tanks to lose a high percentage of their effectiveness by forcing them to button-up. Artillery can smoke enemy tanks and ATGM gunners, thus rendering their long-range fires ineffective. And artillery can deliver scatterable mines to impede movement of enemy forces or deny specific areas for their use.

Tanks can kill or suppress infantry with their machine guns, and kill enemy tanks with their main guns.

Attack helicopters can similarly destroy enemy tanks at long range.

Air Force aircraft can destroy or suppress infantry ATGM, tanks and armored vehicles, artillery and air defenses.

Engineers can assist the movement of friendly forces and also degrade enemy mobility through the use of barriers and obstacles.

Air Defense weapons can destroy or suppress fighter aircraft.

Electronic Warfare units can destroy the enemy's ability to command, control and communicate.

Field Manual 71-2 (30 Jun 77) elaborates:

(1) Mechanized infantry -- organized, equipped, and trained to take and hold ground, and to defeat enemy infantry with its numerous automatic small arms and machine guns. Also armed with light and medium anti-tank weapons, it can be used as a medium range tank-killing system.

Mechanized infantry is used to:

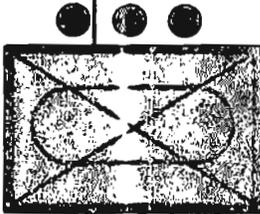
- Defend in terrain restrictive to tanks, such as forested areas, villages, and cities.
- Defend designated positions against determined enemy mounted and dismounted attacks.
- Destroy enemy armored vehicles out to mid-ranges (1,000 m).
- Overwatch friendly tank and APC movements or counterattacks with MAW.
- Suppress enemy antitank weapons.
- Block covered and concealed routes of enemy attack or infiltration.
- Secure tanks and ATGM under low visibility conditions against infiltration. (FM 71-2, p.5-25)

(2) Tanks -- organized, equipped, and trained to take ground, and to defeat enemy armored vehicles and other targets with main guns and secondary weapons. Armor protection permits operation under enemy small arms and artillery fire. Tanks fight best as mobile systems.

Tanks contribute a major role to the defense by destroying enemy tanks and other hard targets with their main guns, by protecting infantry, and by counterattacking...

(3) Heavy antitank weapons (TOW) -- organized, equipped, and trained to provide medium and long-range antiarmor fires up to 3,000 m...

Since TOW's are optimized for long-range engagements, they are not normally collocated with mechanized infantry platoons... (FM 71-2, p. 5-26)



The Mechanized Infantry Platoon consists of 38 infantrymen mounted in four APC and organized into a platoon headquarters and three 11-man squads. Armament consists of three Dragon trackers (currently without night sights), four cal .50 machineguns, five M60 machineguns, 28 rifles, six grenade launchers, four pistols, and LAW and mines issued according to the situation. When required to dismount, a minimum of a driver and gunner (the mounted team leader) usually remain with each APC, leaving a maximum of 30 personnel available for dismounted operations.

CAPABILITIES

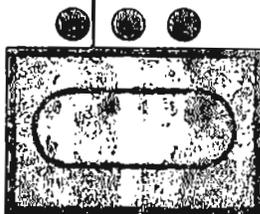
- Protect tanks and ATGM from dismounted infantry and AT gunners.
- Move mounted as rapidly as tanks, swim streams and negotiate some soft surfaces restrictive for tanks.
- Suppress and kill soft targets with machineguns and small arms while moving.
- Kill tanks and thinner skinned vehicles with Dragons out to 1000 meters and LAW out to 200 meters.
- Dismount to:
 - ⊙ Clear woods, buildings, obstacles and dug-in positions.

- ⊙ Conduct infiltration attacks.
- ⊙ Conduct limited air assault operations.
- ⊙ Secure prisoners.
- ⊙ Dig in and hold ground against a dismounted infantry assault.
- ⊙ Provide security—patrols and OPs.
- ⊙ Ambush mounted or dismounted enemy.
- ⊙ Lay mines.

LIMITATIONS

- APC can be destroyed by ATGM, AT guns, tanks, BMP cannon, mines or a direct hit by artillery or airstrike.

- When dismounted and dug in, infantry is vulnerable to:
 - ⊙ Tanks, if improperly employed on forward slopes with inadequate cover and concealment.
 - ⊙ Automatic small arms fire if frontal cover is inadequate.
 - ⊙ NBC attack.
 - ⊙ Direct hit by artillery, if overhead cover is inadequate.
- When dismounted and not dug in, infantry is particularly vulnerable to:
 - ⊙ Tanks
 - ⊙ Small arms
 - ⊙ NBC attack
 - ⊙ Artillery and mortar fire
 - ⊙ TACAIR



The Tank Platoon consists of five tanks manned by 20 personnel. It is organized into a heavy section of three tanks and a light section of two.

CAPABILITIES

- Mobility, armor protection and firepower.
- Ability to kill tanks and soft targets at long ranges.

- Relative invulnerability to artillery and small arms.
- Vulnerability to ATGM, AT guns, tanks, and mines.

LIMITATIONS

- Slow speed in crossing water barriers.
- Difficulty in identifying infantry and AT gunners in close terrain.

HOW MUCH INFANTRY IS ENOUGH?

Many senior officers of the United States Army have recorded their concern that the armored and mechanized divisions of Seventh Army do not have enough infantry for their wartime missions. Unfortunately, discussion of this issue has frequently confused issues of strategy and force structure with basic tactical problems, such as the size of the rifle squad and platoon, or the way in which these small units are to be used. When a U.S. general talks about "increased foxhole strength", he may be talking about more infantry in early deploying NATO reinforcements, but often he is advocating more riflemen per platoon or opposing proposals to reduce authorizations for mechanized infantry squads in the units of Seventh Army.

The rifle squad which is authorized for all types of U.S. infantry battalions -- airborne, airmobile, mechanized, and light infantry alike -- now consists of 11 men. In a mechanized squad, the driver of the Armored Personnel Carrier occupies a position filled by a rifleman in the other squads. The number 11 is derived from the IRUS-75 study, completed in the early 1970's by the Infantry Agency of the Combat Developments Command -- a study which addressed dismounted action only. Here are authorizations for U.S. Army infantry squads over the past 45 years:

MAJOR SQUAD TOE CHANGES 1933 - 1972

YEAR	SIZE	LEAD-ERS	TEAMS	AUTO WPNS	GRENA-DIER	AMMO BEARER	SCOUT	WPNS POOL
1933	8	1	NONE	1	0	1	0	0
1939	12	2	NONE	1	0	1	0	0
1940	12	2	NONE	0	0	0	0	0
1942	12	2	THREE	1	0	1	2	0
1943	12	2	THREE	1	2	1	2	0
1947	9	2	NONE	2	1	2	0	0
1953	9	2	NONE	2	1	2	0	0
1956	11	3	TWO	2	0	2	0	0
1963	10	3	TWO	2	2	0	0	0
IRUS- 1975	11	3	TWO	2	2	0	0	2*

*DRAGON and light machine gun

The Combat Developments Experimentation Command (CDEC) has conducted field tests of various size squad; but these too contemplated only dismounted operations, with the candidate squads operating as two elements afoot. Squads were examined ranging in size from 7 to 15 men. The results established very little difference among the candidates in capability to accomplish mission. But, the findings show, as squad size decreased, fire efficiency (hits or near misses per round fired, extent of suppression) increased. Maneuver was easier with the smaller groups. The research firm of Booz, Allen Applied Research, Inc., surveyed small unit combat experience in Vietnam, 1966 and 1967, and examined the history of squads and platoons 1935-1967. Their conclusions were that the span of control of

one leader in a squad is between three and seven men, and that automatic weapons are critical to success of any action. Also, individuals tended to pair off within squads, and that whatever the TO&E called for, the squad formed and fought *de facto* as fire teams. They confirmed that small squads are just as effective as large squads.

Within the past 2 years, a proposal for restructuring the U.S. division advanced an idea for a 9 man mechanized infantry squad equipped with an infantry fighting vehicle mounting a cannon and two TOW. While Congressional and DOD interest has focused on the expense of the vehicle, debate within the Army has centered on the smaller squad.

One cannot deny that the "strength" or authorization set by the Department of the Army for the infantry squad is an important issue. But it may be doubted that it is an issue sufficiently momentous to have occupied the attention of Departmental leaders to the degree that it has, or that it should have evoked emotion-laden argumentation at all echelons of the Army, as it has tended to do. After all, no American infantryman ever fought his war with "full strength" squads. They do not exist in Seventh Army today, and are unlikely to exist in any future war in Europe. In the last analysis, numbers are less important than firepower in infantry small unit tactics.

There are other armies who have had a great deal of difficulty in learning this important truth. The French infantry of 1914, committed to battle in red trousers and in utter faith in the bayonet, discovered that one or two machine guns manned by skillful and determined foes could offset with appalling efficiency both superior numbers and ascendant elan. Yet French difficulties with basic infantry organization had precedent. A century before, in 1815, they fielded at Waterloo infantry schooled in a generation of battles all over Europe, nonetheless arrayed for mass rather than firepower. They attacked in column and defended close-packed. Here is one account:*

At Waterloo, the English possessed a considerable advantage...Until a few years before Waterloo the English Army, like the French, had arranged their infantry in three ranks, the theory being that by the time the third rank had fired its volley, the first would have reloaded. It was noticed that the presence of the third rank tended to hinder the firing and reloading of the other two, and that given the well-trained soldiers of the English Army, reducing the number of ranks to two did not diminish the rate of fire; moreover dispensing with the third rank increased the line, and therefore the regiment's firepower, by 50 per cent...The English development of scientific infantry tactics was fostered by the possession of a small standing army, in contrast to the vast conscript force recruited by France to maintain the conquests of the Revolution and the Empire. Nevertheless, it is surprising that after a brief experiment with two ranks, the French should have returned to three, still not realizing that fire-power was the decisive factor in infantry engagements.

*Naylor, John, Waterloo, Pan, London, 1960, p.26. Napoleon himself realized the deficiency of 3 rank formations, but was apparently unwilling to impress a better solution on his generals. c.f., pp.34-35.

In one recent CDEC test, called PARFOX VII, data emerged serendipitously which is pertinent to this discussion. Available instrumentation was insufficient to handle TO&E organizations, so the test designers had to pit a squad of 8 defenders against a platoon of 24 attackers, organized into three squads of 6 to 8 each. Laser hit and kill indicators were used, and over 150 iterations of dismounted attacks against dug-in defense positions were recorded in minute detail by computers. The data show that the defending 8 man squad could defeat attackers with a 3:1 superiority in numbers: for all-day trials, from foxholes with frontal parapets, the defenders killed 6.2 attackers for every loss they sustained. The attackers were allowed to use any tactics they choose. Four choices were made: (1) one rifle squad as base of fire, maneuver with two; (2) one squad plus anti-tank weapons as base of fire, maneuver with two; (3) two squads as base of fire, maneuver with one; (4) attack with all three squads on line. The table below shows the success rate for each tactic:

<u>TACTIC</u>	<u>SUCCESS RATE</u>
(1) 1 SQD Base of Fire, Maneuver with 2 & 3	25%
(2) 1 SQD reinf w/AT wpn Base of Fire, Maneuver w/2 & 3	56%
(3) 1 & 2 SQD's Base of Fire, Maneuver with 3	88%
(4) Attack 1,2, & 3 SQD's on Line	33%

The tactic which was overwhelmingly successful in penetrating the carefully covered and concealed positions of the defending squad was that which provided for the maximum volume of suppressive fire, and the smallest maneuver element.

Hence, PARFOX VII confirms the centrality of firepower, and points toward small maneuver elements advancing while enemy positions are heavily suppressed.

Current U.S. Army doctrine for the mechanized infantry squad, which is described in Field Manual 7-7 (The Mechanized Infantry Platoon and Squad, 30 September 1977) calls for exploiting the firepower of the carrier as an integral part of the squad's scheme of fire and maneuver:*

The mechanized infantry squad at full strength has 11 men. It is organized to make maximum use of the carrier and of the weapons assigned to the squad. Although the squad will move and fight mounted whenever possible, it must always be ready to dismount and fight. When it is necessary to dismount, the squad fights as two teams -- a CARRIER TEAM and MANEUVER TEAM.

The carrier team consists of men employed on or close to the carrier, while the maneuver team operates away from the carrier to perform those tasks that require dismounted infantry...

Importantly, FM 7-7 provides for the case in which less than 11 men are present:**

*FM 7-7, p.22

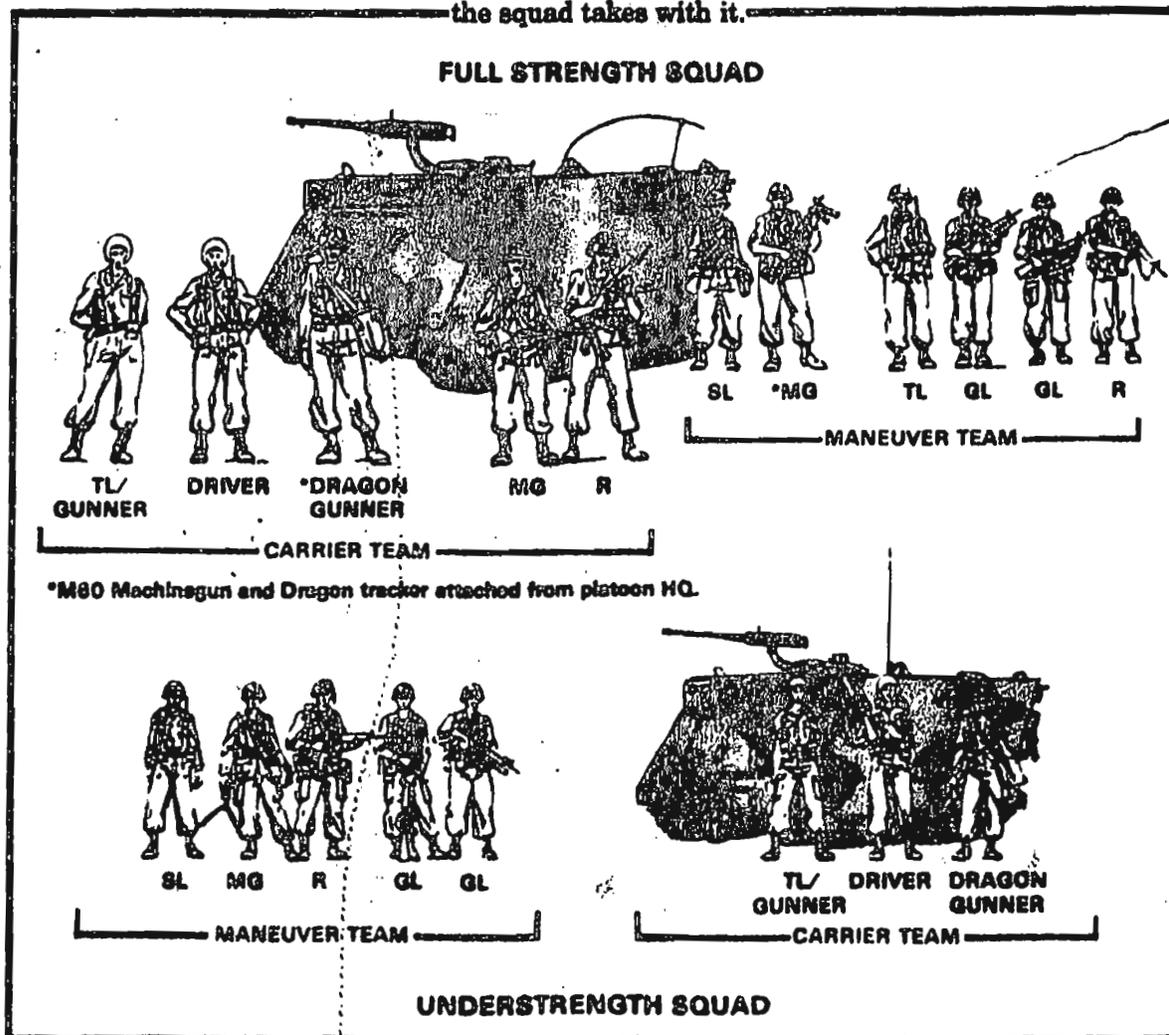
**Ibid., p.2-3

The men and weapons assigned to the carrier team are controlled by the carrier team leader/gunner who is usually the more experienced team leader in the squad. The

weapons are employed either on or close to the carrier (except for the cal .50 machinegun which stays mounted most of the time).

The maneuver team consists of all squad members who are not assigned to the carrier team. The squad leader normally moves with and controls the maneuver team.

Shown below are two examples of how a squad may organize. The organization of the teams in a squad depends on the strength of the squad, the mission, the terrain, the enemy, guidance from the platoon leader, and the weapons the squad takes with it.



PATHFINDER INFANTRY

8th Infantry Division squads will always be "understrength", as the term is used above, for the 8th Division is at ALO 2, and its squads are a maximum of 10 men, its platoons a maximum of 34:

- The pertinent current DA authorization document is TOE 7-47H, 30 Nov 70, Rifle Company Infantry Battalion (Mechanized), Infantry Division (Mechanized), (with change 15, TOE 7-47HO, 1 Oct 77). This is the baseline TO&E.

- The current USAREUR authorization document is MTOE 07045HE101, E10478, effective 21 Sep 78, the Modified Table of Organization and Equipment.

- In the usual case, a unit can requisition up to its ALO: authorized level of organization. Several terms are germane:

(1) LEVEL 1 (2 or 3) - A percentage of the baseline DA TOE in equipment and personnel at which a unit is organized e.g., Level 1 = 100%, Level 2 = 90%, and Level 3 = 80%.

(2) REQUIRED - The amount of personnel and equipment upon which MTOE units are based. This normally reflects 100% (Level 1) of the baseline TOE.

(3) AUTHORIZED - The amount of personnel and equipment a unit is authorized, a function of the ALO at which a unit is organized.

(4) ALO (Authorized Level of Organization) - An Arabic number reflecting the Level, or percentage of required, at which a unit is organized. It reflects a comparison of authorized and required columns of the MTOE, and designates the unit readiness level.

Authorized Level of Organization for the 8th Infantry Division is ALO 2; hence:

RIFLE SQUAD AUTHORIZATION

<u>DESCRIPTION</u>	<u>GRADE</u>	<u>MOS</u>	TOE 7-47H	MTOE 07045HE101
			w/C 15	E10478 (eff 21 SEP 78)
			<u>LEVEL 1</u>	<u>AUTH (ALO 2)</u>
			REQUIRED	AUTHORIZED
Squad Leader	E6	11B30	1	1
Team Leader	E5	11B20	2	2
Auto Rifleman	E4	11B10	2	2
Grenadier	E4	11B10	2	2
Per Carrier Dr	E4	11B1U	1	1
Rifleman	E3	11B10	<u>3</u>	<u>2 (note 1)</u>
			11	10

Note 1: At ALO 1 authorized 3

RIFLE SQUAD MAJOR EQUIPMENT (Weapons, Radios, Vehicles):

LIN	DESCRIPTION	TDE 7-047H	MTDE 07045HE101	LIN	DESCRIPTION	PLT HQ	TDE 7-47 w/c 15		MTDE 07045HE101		
		w/c 15	E10478 (eff 21 Sep 78)				Level 1	Level 1	3 Rifle Squads	TOTAL	PLT HQ
A01872	Accessory kit P: AN/VRC - 43 46 53 64 GRC 125 160 IN M113	1	1	A01872	Accessory kit P: AN/VRC 43 46 53 64 GRC 125 160 IN M113	2	3	5	2	3	5
B68750	F/M16A1 Rifle/Bipod Rifle: 5.56mm w/carrying case	2 Note 2	2 Note 3	B68790	Bipod rifle: 5.56mm w/carrying case F M16A1 Rifle	0	6 Note 7	6	0	6 Note 8	6
D12087	Carrier Personnel Full Tracked: Armored	1	1	D12087	Carrier personnel full track: Armored	1	3	4	1	3	4
L44595	Launcher Grenade 40mm Sgls shot rifle std dchble w/o	2 Note 2	2 Note 3	L44595	Launcher grenade: 40mm sgle shot rifle std dchble w/o	0	6	6	0	6 Note 8	6
L91838	Machine Gun Caliber .50 HB flexible vehicle std	1	1	L45250	Launcher rocket: 66mm 4 tube	1	0	1	0	0	0
L93366	Machine Gun 7.62mm	1	1	L91838	Machine gun caliber .50: hb flexible vehicle std	1	3	4	1	3	4
M5577	Mount tripod machine gun Heavy Caliber 50	1	1	L92386	Machine gun 7.62mm: lt flex	2	3	5	2	3	5
M75714	Mount Tripod machine gun 7.62mm	1	1	M5577	Mount tripod machine gun: Heavy caliber 50	1	3	4	1	3	4
N04456	Night vision goggles: AN/PVS-5	2	2	M75714	Mount tripod machine gun: 7.62mm	2	3	5	2	3	5
N04556	Night vision sight crew served weapons: AN/TVS-5	1	1	N04456	Night vision goggles: AN/PVS-5	2	6	8	1	6	7
N90741	Pistol Caliber .45 automatic	0	1	N04596	Night vision sight crew served weapons: AN/TVS-5	1	3	4	1	3	4
Q54308	Radio set: AN/GRC-160	1	1	N96741	Pistol caliber .45 automatic	0	0	0	0	3	3
R29799	Receiver set radio: AN/PRR-9	1	1								
R94977	Rifle 5.56mm: w/e	11 Note 2	9 Note 4								
V30252	Telephone set: TA 1/PT	1	1								
X17820	Transmitter set radio: AN/PRT-1	1	1								

Note 2 - All individual weapons are authorized in headquarters section.
 Note 3 - All bipod rifles and launcher grenades are authorized in headquarters section.
 Note 4 - Authorized 10 at ALO 1.

RIFLE PLATOON PERSONNEL

DESCRIPTION	GRADE	MOS	TDE 07-47H	MTDE 07045HE101	LIN	DESCRIPTION	PLT HQ	TDE 7-47H w/c 15		MTDE 07045HE101		
			w/c 15	E10478 (eff 21 Sep 78)				Level 1	Level 1	5 Rifle Squads	TOTAL	PLT HQ
Platoon Headquarters												
Platoon Leader	L7	11C00	1	1	Q34308	Radio set: AN/GRC 160	2	3	5	2	3	5
Platoon Sergeant	E7	11B40	1	1	R29799	Receiver set radio: AN/PRR-9	1	3	5	2	3	5
Asst Platoon Sergeant	E6	11A50	1	0 Note 5	R94977	Rifle 5.56mm: w/e	5 Note 7	11 Note 7	31	4	27 Note 9	31
For Carrier Driver	E1	11B1U	1	1	V30252	Telephone set: TA 1/PT	2	3	5	2	3	5
Rad Telephone Op	E3	11B10	1	1	W30715	Tractor infrared guided missile SU-36 (XG-11/P): (DRAGON)	1	0	3	4	0	4
			SUB TOTAL	5	X17820	Transmitter set radio: AN/PRT-1	2	2	4	2	3	5
				4								
3 Rifle Squads												
Squad Leader	E6	11B30	3	3								
Team Leader	E5	11B20	6	6								
Auto Rifleman	E4	11B10	6	6								
Grenadier	E4	11B10	6	6								
For Carrier Dr	E4	11B1U	3	3								
Rifleman	E3	11B10	9	6 Note 6								
			SUB TOTAL	30								
			TOTAL	38								

Note 5 - Authorized 1 at ALO 1
 Note 6 - Authorized 9 at ALO 1

RIFLE PLATOON MAJOR EQUIPMENT (Weapons, Radios, Vehicles)

LIN	DESCRIPTION	PLT HQ	TDE 7-47H w/c 15		MTDE 07045HE101		
			Level 1	Level 1	3 Rifle Squads	TOTAL	PLT HQ
A01872	Accessory kit P: AN/VRC 43 46 53 64 GRC 125 160 IN M113	2	3	5	2	3	5
B68790	Bipod rifle: 5.56mm w/carrying case F M16A1 Rifle	0	6 Note 7	6	0	6 Note 8	6
D12087	Carrier personnel full track: Armored	1	3	4	1	3	4
L44595	Launcher grenade: 40mm sgle shot rifle std dchble w/o	0	6	6	0	6 Note 8	6
L45250	Launcher rocket: 66mm 4 tube	1	0	1	0	0	0
L91838	Machine gun caliber .50: hb flexible vehicle std	1	3	4	1	3	4
L92386	Machine gun 7.62mm: lt flex	2	3	5	2	3	5
M5577	Mount tripod machine gun: Heavy caliber 50	1	3	4	1	3	4
M75714	Mount tripod machine gun: 7.62mm	2	3	5	2	3	5
N04456	Night vision goggles: AN/PVS-5	2	6	8	1	6	7
N04596	Night vision sight crew served weapons: AN/TVS-5	1	3	4	1	3	4
N96741	Pistol caliber .45 automatic	0	0	0	0	3	3

Note 7 - All individual weapons are authorized in headquarters section.
 Note 8 - All bipod rifles and launcher grenades are authorized in headquarters section.
 Note 9 - Authorized 30 at ALO 1

The 8th Division has 8 infantry battalions of 3 rifle companies, 3 platoons each: 72 platoons, 216 rifle squads, maximum field strength 2,449. Allowing 2 men remaining with each APC, the maximum dismounted strength is 26 per platoon, or 1,872 division-wide. This equates to some 47 men per km FEBA, or one dismounted infantryman per 21 meters FEBA.

But rifle squads or platoons are rarely afield at authorized strength in peace or in war. Like equipment, humans have an operational availability rate; soldiers get sick, or wounded, die, take leave, draw temporary or special duty, or have administrative chores. A recent survey of infantry battalions of the 8th Division showed an actual present-for-duty squad strength of 7, plus the driver, vice the authorized 9, plus driver. Therefore, the MTOE authorization of 10 in fact functions to insure only that 8 are on hand for training or operations.

It is reasonable to contend that this low strength reflects unsatisfactory personnel management, and commanders could raise the number of present-for-duty infantrymen by foreclosing the use of infantry for long term special duty, and comparable measures. But there would be little point: the APC will carry only eight troops.

The M113 can load only a maximum of 8 soldiers fully equipped for combat in USAREUR (all Table of Authorization clothing and field equipment, plus MTOE, plus rations and ammunition):

ARMORED PERSONNEL CARRIER, M113

<u>INTERIOR</u>	<u>RATED CARRYING CAPACITY</u>
231 Cubic Feet*	3,450 pounds**

*9 x 5 x 4 feet plus storage along walls and under floor boards.

**Carrying capacity, TM 9-2300-257 - 10, p. 1-35.

	<u>LOADING FACTORS (WT/CUBE)</u>	
	<u>8 Men</u>	<u>10 Men</u>
Men w/personal equipment (in APC)	2,000/72	2,500/90
Equipment (in APC)	2,506/89	2,604/91
Ammunition (in APC)	1,948/68	1,992/69
Equipment (outside)	<u>628/NA</u>	<u>697/NA</u>
	7,082/229 Pounds/Cu.Ft.	7,793/250 Pounds/Cu.Ft.

Details for computing these factors follow:

MEN W/PERSONAL EQUIPMENT

	EACH		8 MAN SQUAD	
	WT (lb)	Cube (ft ³)	AMT	WT (lb) Cube
Man with the following items	250	9.0	8	2,000 72.0
Bayonet	.5	.004	8	4 .032
Bipod, Rifle	.5	.01	2	1 .02
Mask, Protective, Tank	3	.311	2	.6 .622
Mask, CBR	3	.227	6	18 1.362
Pistol, Cal .45	2	.016	1	2 .016
Receiver Set	.5	.006	1	.5 .006
Rifle, M16A1	7.5	.39	5	37.5 1.95
Rifle, M16A1 w/M203	9.5	.39	2	19 .78
Transmitter set	.5	.006	1	.5 .006
Goggles	.25	.01	2	.5 .02
Compass, Lenseatic	.25	.002	1	.25 .002
Vest, Grenade	•	2		
M258 Docon Kit	•	8		
Cartridge, 5.56mm	•	840		
Cartridge, .45 Cal	•	21		
Cartridge, M203	•	60		
Grenade, Fragmentation	•	8		
TOTAL		2,000	72	

All items are included in weight and cube of a man.

*Worn or carried inside another item.

EQUIPMENT (in APC)

	EACH		8 MAN SQUAD	
	WT	CUBE	AMT	WT CUBE
Night Vision Sight TVS2	25	2.08	1	25 2.08
Telephone, 1A1	3	.12	1	3 .12
Night Vision, Sight PVS2	15	.733	1	15 .733
Tool Bag, APC	30	.511	1	30 .511
First Aid Kit	2	.05	1	2 .05
Panel Markers	.25	.02	2	.5 .04
Body Armor	8	.423	8	64 3.4
Cook Set, Field	1	.281	1	.281
Docon Apparatus	5	.186	1	5 .186
Map Case	20	1.02	1	20 1.02
Spare Barrel .50 Cal	24	.234	1	24 .234
Tool Box .50 Cal	25	.638	1	25 .638
Accessory Bag, 7.62mm	20	.906	1	20 .906
Stove, Gasoline	3	.07	1	3 .07
Reflector Net	4	.04	1	4 .04
Trunk, Locker	120	3.82	1	120 3.82
Life Vest	2	.03	5	16 .24
C-Rations	25	.8	4	100 3.2
Machine Gun, 7.62mm	23	.651	1	23 .651
Mount, Tripod, 7.62mm	10	.645	1	10 .645
ITEMS PERMANENTLY INSTALLED IN CARRIER				
Accessory kit	3	.553	1	3 .553
Radio Set, AN/GRC10C	25	.62	1	25 .62
DRAGON Tracker	20	1.145	1	20 1.145
TOTAL		2,506.3	89,297	

AMMUNITION STORED (in APC)

	EACH		AMT	8 MAN SQUAD	
	WT	CUBE		WT	CUBE
Cartridge, .50 Cal	75	.90	10 ea	750 9.0	
Cartridge, 7.62mm	50	.90	8 ea	400 7.2	
Cartridge, 5.56mm	.67	.898	3 ea	201 2.691	
DRAGON	67	7.005	6	402 42.05	
LAW	7	.225	10	70 2.25	
*Grenades, Incendiary	34	.80	4	34 .80	
*Grenades, CS			8		
*Grenades, Smoke			9		
Mine, AT M21	20.8	4.14	1 ea	20.8 4.14	
TOTAL		1,947.8		8,114	
<u>EQUIPMENT (outside)</u>					
	EACH		AMT	8 MAN SQUAD	
	WT	CUBE		WT	CUBE
MACHINE GUN, .50 Cal	82	2.365	1	82 2.365	
MOUNT, TRIPOD .50 Cal	37	1.749	1	37 1.749	
CAMOUFLAGE SCREEN	30	7.924	1	30 7.924	
SUPPORT SYSTEM, CAMO	40	3.633	1	40 3.633	
CAN, OIL 5 Cal	45	1.87	1	45 1.87	
CAN, WATER 5 Cal	45	1.87	1	45 1.87	
CONCERTINA	25	4.5	1	25 4.5	
D HANDLE SHOVEL	4	1.7	1	4 1.7	
PIONEER TOOLS	25	7	1	25 7	
TOWING CABLE	15	2.4	1	15 2.4	
FIELD PACK	35	1.6	8	280 12.8	
TOTAL		628		47.811	

*Items stored collectively (34 lbs., .80 cube).

These data show that the 8 man squad barely fits in the APC -- 229 cubic feet required vs 231 available. The 10 man squad overcrowds the carrier by 19 cubic feet -- about the space taken up by two fully equipped men. About 20% of the APC interior (45 cubic feet) is difficult to load, that space under the top deck and between the sitting men. The foregoing is based on an austere load plan, one which assures a relatively clean top deck, so that firing while mounted is possible in all directions. However, the load plan restricts each man to his field pack, necessitating each to have a duffle on company transport in the task force trains, containing his off-season clothing and extra clothing (each duffle - 75 lbs., 3 cubic feet). Hence, the crowding and human discomfort factor is understated by the statistics. As far as weight is concerned, both squads overload the APC: the 8 man squad by 100%, the 10 man squad by 125%. Neither overload impairs the functioning of the carrier.

Recomputing the density of infantry based on 8 man squads; the maximum dismounted force within the 8th Division is 23 per rifle platoon, for 1,656 division-wide (approximately 8% of the Division). Calculating that in the defense these platoon could man each a maximum of 10 two-man foxholes, plus 1 three-man foxhole, the 8th Division could dig a line of foxholes across its FEBA with one foxhole every 50 meters. Obviously, so thin a defense is insufficient to repel dismounted attacks delivered in mass, especially under conditions of poor visibility, in wooded terrain, or in towns. Much of the 8th Division's defensive strength depends upon integrating into its tactics the observation and firepower of its rifle squad carrier teams, its tanks, and its scouts. Even so, at best the Division could station a vehicle or an infantry foxhole only about every 25 meters of FEBA.

Could the 8th Division use more infantry? Of course, for its responsibilities include forested hills and many towns, and more infantry would facilitate concentrating tanks for counterattack. But to be precise, more infantrymen per se, would not be useful. The Division needs more rifle squads, platoons, and companies. Hence:

CONCLUSION:

- * No increase from ALO 2 to ALO 1 for currently assigned infantry battalions is feasible, given the space limitations of the M113.
- * Additional mechanized infantry squads -- men and APC's for additional battalion(s) -- would be useful.
- * Alternatively, early deploying NATO reinforcing CONUS light infantry battalion(s) should be assigned to the 8th Division.

Even were the 8th Division to be reinforced with more infantry units, it would still be imperative to maximize the combat power of each 8 Squad. And 8th Division leaders of today must face up to the fact that reinforcement during their tenure is unlikely. Therefore, each Pathfinder foot-soldier must be trained to see further, to shoot straighter, to deliver a greater volume of fire, and to enhance his survivability, to the degree equipment and training resources permit.

Statements like the last sentence sound like the rhetoric to which all soldiers in Europe are exposed constantly. Indeed, there is a hazard that constant lipservice to "readiness" has obscured the hard-core tasks which must be mastered to make mechanized infantry "readiness" more than a matter of maintenance management. Most 8th Division infantry commanders would readily subscribe to the statement that they do not have enough riflemen, but very few of them have trained the riflemen on hand to be expert with the rifle, to shoot with promethium sights (LLLSS) or other low level equipment. Machine guns are plentiful within the 8th Division: trained machine gunners are a rarity. Crew-served weapon sights for night firing are seldom mounted, boresighted and zeroed. Few infantrymen have had experience in calling for and adjusting indirect fire, even though artillery and mortars are crucial to their being able to do their job and survive. Most 8th Division infantry commanders would agree that divisional logistic support is likely to circumscribe their capability to fight, but few have taken the pains to prescribe in detail what their infantrymen will wear as battle dress, or how they will load their APC to provide for self-sufficiency and combat power for as long as possible.

Therefore, how Pathfinders organize, train, and fight the 8 Squad is central to the 8th Division's ability to do the job for which it was placed in Germany.

THE 8 SQUAD: ORGANIZATION AND TRAINING

The 8 Squad must move, shoot, and communicate well enough to accompany tanks, and to assist their progress by suppressing the antitank weapons of enemy infantry. The 8 Squad must have all the strengths of infantry, sentience and stickability: Here are its missions, expressed as infantry missions should be stated, in words of one syllable:

8 SQUAD CAN

GO -- where tanks and APC cannot go.

HIDE -- amid the clutter of any terrain, woods or field, hills or town.

DIG -- don the best and cheapest armor: earth.

SEE -- with many eyes, from up close, in all weather.

SENSE -- interpret what is 'seen and heard.

SEEK -- move to where seeing, hearing, and sensing is best.

FIND -- the enemy, wherever he may be.

TELL -- tanks, artillery, mortars, attack helicopters, and tactical air
what the enemy is doing, where the targets are.

KILL -- discriminately and surely.

The rifle squad in mechanized infantry battalions of the 8th Infantry Division shall be organized and trained based upon an authorization of 10 (ALO 2, MTOE 07045E101, E10478), and an expected present for duty strength of 8. The following table:

①(1) designates positions within the 8 Squad.

②(2) lists the order these positions are to be filled, in priority.

③(3) describes the training each squad member should receive by citing SOLDIER'S MANUAL tasks, as listed in the "Roadmap" for each skill level.

8 SQUAD

LISTS OF CRITICAL TASKS

POSITION	MOS-SKILL	BASIC TASKS	POSITION TASKS
SQUAD LEADER*	11B30**	FM 7-11B3, pp.1-111-B-1 thru 1-111-B-9	FM 7-11B3, p.1-111-B-11, Squad Leader (MECH)
CARRIER TEAM LEADER*	11B20**	FM 7-11B2, pp.1-II-B-1 thru 1-II-B-10	FM 7-11B2, pp.1-II-B-9 & 10, Fire Team Leader (MECH)
DRAGON GUNNER*	11B20**		FM 7-11B2, p.1-II-B-6, DRAGON
DRIVER*	11B10*		FM 7-11B1, p.1-I-B-7, Tracked Vehicle Driver
M60 GUNNER	11B10*	FM 7-11B1, pp.1-I-B-1 thru 1-I-B-4	FM 7-11B1, p.1-I-B-9, M60 Machine Gunner
Asst GUNNER	11B10*		FM 7-11B1, p.1-I-B-9, M60 Machine Gunner
GRENADIER	11B10*		FM 7-11B1, p.1-I-B-3, M203 Grenade Launcher
GRENADIER	11B10*		FM 7-11B1, p.1-I-B-3, M203 Grenade Launcher

*Licensed APC Driver

**Authorized grade up to Specialist 4 (E4)

***Authorized grade up to Sergeant (E5)

****Authorized grade up to Staff Sergeant (E6)

*Should be 5'8" to 6'0" in height, qualified

as an expert with the M113 (TC 23-20, TC 23-24).

Rank reflects criticality of careful selection and difficulty of training, as well as importance of the weapon to the 8 Squad mission. (CF. USAREUR Training Notes, Bulletin No. 4, Dec '77)

Grades authorized for ALO 2 rifle squad (10 spaces) are two E3, five E4, two E5, and one E6. MTOE 07045E101 E10478, Para 204, Lines 00 06.

Battalion and company commanders are directed:

*to assign soldiers per the table above.

*to train them to the standards set forth in referenced FM's 7-11B1, 7-11B2, and 7-11B3.

*to maintain readiness to turn out rifle squads so organized for war, for practice alerts, and for other evaluations under ARTEP 71-2.

However, battle losses will reduce present for duty strength. Therefore, in training and operations, leaders at company, platoon, and squad echelons shall adhere to the following principles (which are consistent with the foregoing):

<u>ORGANIZING § SQUADS</u>	
LEADERS --	man at least squad and carrier team leaders slots.
FIREPOWER --	man most powerful weapons first.
PAIRS or TEAMS --	always assign two men or more to any job or function.

Squad tactical capabilities are, then, a function of its manning:

CAPABILITIES OF § SQUAD

# PRESENT FOR DUTY	FIREPOWER (weapons manned)	ORGANIZATION	MISSION POTENTIAL
8	.50, DRAGON, M60, 2 M203	MvTm (4-6) CrTm (4-6)	<ul style="list-style-type: none"> *MvTm capable own fire & maneuver *CrTm base of fire for MvTm(s) *Mounted operations *APC as transport
7			
6	.50, DRAGON, M60	MvTm (2-3) CrTm (2-3)	<ul style="list-style-type: none"> *MvTm integrated into platoon dismounted *CrTm base of fire for MvTm(s) *Mounted operations *APC as transport
5			
4	.50, DRAGON, M60 (gunner only)		<ul style="list-style-type: none"> *Mounted operations *APC as transport
3	.50 <u>and</u> DRAGON <u>or</u> M60	CrTm only	<ul style="list-style-type: none"> *Mounted operations only *Base of fire *APC as transport
2	.50 <u>or</u> DRAGON		
1	NONE	NONE	<ul style="list-style-type: none"> *APC as transport

The Squad Leader always leads the Maneuver Team in dismounted action, which moves in wedge, using appropriate movement technique, or fire and maneuver (see FM 7-7, pp. 3-3, 3-4). Soldiers always operate afoot, whether for offense or defense, in pairs or larger teams. The Carrier Team always operates on or near (sight and voice range) the APC. The Maneuver Team can also fight from the APC (FM 7-7, p. 2-7).

Composition of the Maneuver Team and the Carrier Team should vary with the mission and the manning. The Platoon SOP or the Squad Leader's order should specify who is assigned to which team, but the squad should be drilled in rapidly responding to reassignments as the Maneuver Team dismounts for action (see FM 7-7, Appendix L).

Should more than 8 men per squad be available, the company commander may elect to carry the extras in his vehicles with battalion trains, or to assign them to squads. In the latter event, they are assigned as automatic riflemen, and are employed per doctrine (c.f., FM 7-7).

In the § Squad, the DRAGON and the M60 are assigned each to a senior infantryman, contrary to the MTOE in which these weapons are "designated". In the 8th Division, company commanders and platoon leaders are expected to slot one of their better soldiers against each weapon, and to insure that he is trained to perform the tasks, under the conditions, to the standards prescribed in the Soldier's Manual.

The § Squad may disturb infantry traditionalists: it has no riflemen as such. But the Squad Leader is armed with the M16, and can act as an automatic rifleman. Both grenadiers, with their dual purpose weapon, the M203, function as riflemen. And the M60 machine gun team can contribute to any firefight more sustained rounds per minute than six M16 riflemen. But the crux of the matter is that the § Squad is optimized for action in which defense against enemy armor is of paramount concern, and the APC and its .50 caliber can contribute tactically. Nonetheless, it has the men and the weapons it needs to "repel dismounted enemy attacks", and "provide HAW's and tanks close-in security against infiltration during poor visibility" (FM 71-1, p. 5-19).

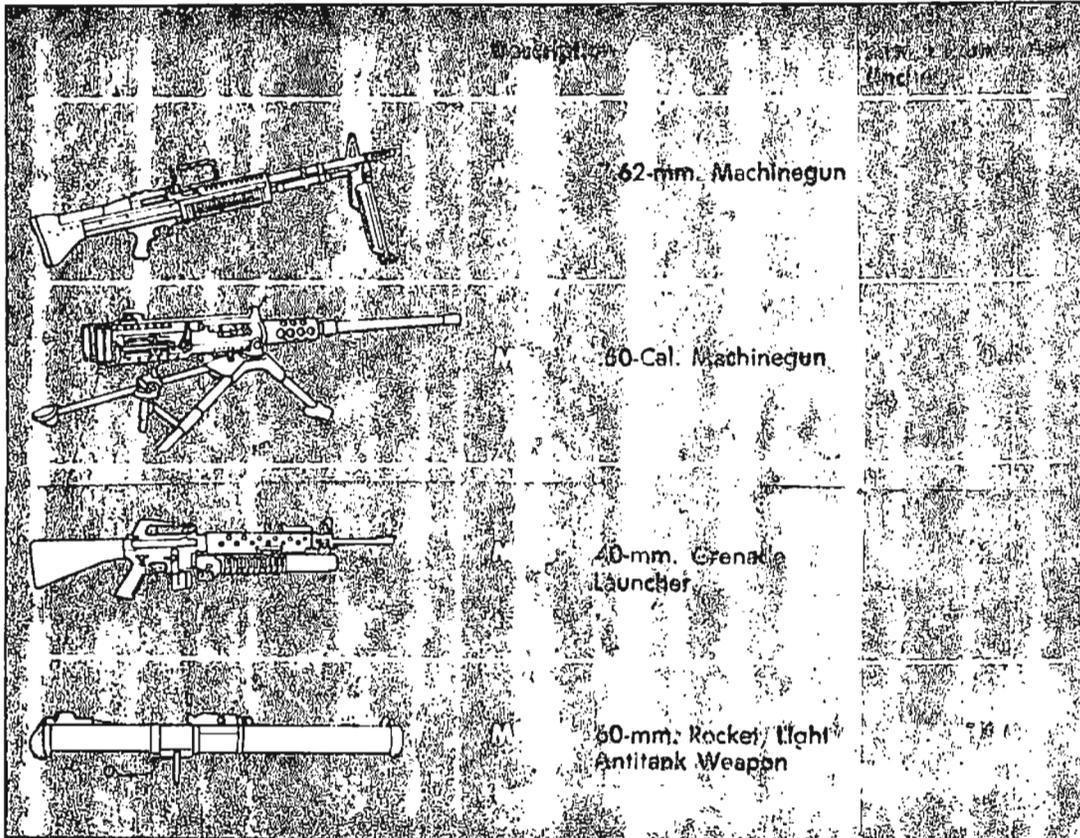
The objective of infantry training should be to make each § Squad:

- * a lethal partner in tank-killing.
- * an effective deliverer of point and area fires.
- * an efficient employer of indirect fire.

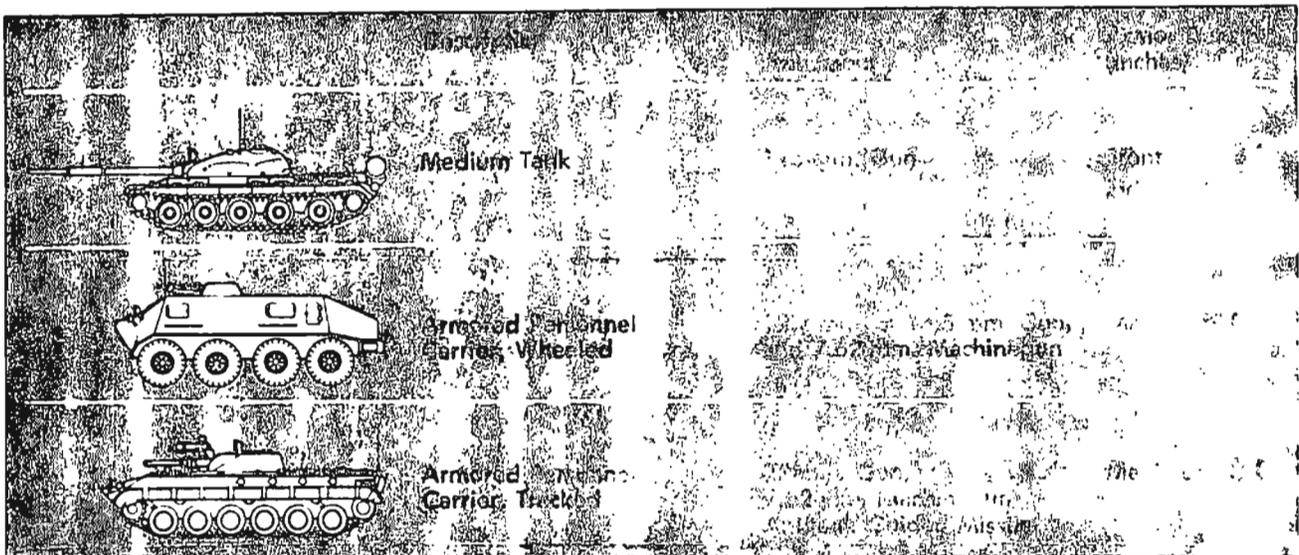
So trained, the 8 Squad can contribute to the Pathfinder combined arms team:

DRAGON: 70% probability of hit, 65 meters to 1000 meters, target moving 35 kph or less. Penetrates all known enemy armor.

PLUS:

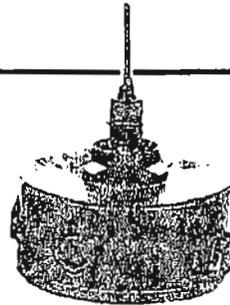


AGAINST:



MINES

Your company team can draw a wide variety of antitank mines to slow, canalize and stop opposing force vehicles. Mechanized infantry will often be responsible for laying them, particularly protective minefields. (See App M.)



COMBINED ARMS BATTLEFIELD ANTITANK COVERAGE IN DEPTH				
WEAPON	200M	1000M	1500M	3000M
		LAW		
		DRAGON		
		M60A1		
		TOW		
		MINES		

INFANTRY DEPARTMENT WEAPONS

- MORTAR
- M60 TANKS
- ARTILLERY
- M203
- Dragon
- Cal .50
- Grenade
- Mines
- M16
- ATTACK HELICOPTERS
- TAC AIR

Appendix P, Field Manual 7-7, The Mechanized Infantry Platoon and Squad (30 September 1977) has an up-to-date list of doctrinal references. The publications listed should be on hand and in use wherever leaders are discharging their responsibilities for training the 8 Squad. Field Manual 7-7 itself is the latest and best expression of doctrine for the squad, but in some places, it needs to be interpreted for Pathfinder use:

CRITICISM OF FM 7-7

PAGE	TOPIC	8 SQUAD
2-2	Strength of squad: 11	ALO 2.str: 10; PDY str: 8
2-7	DRAGON gunner by ramp	Right front for mounted engagement (see p.B-37 & TC 23-24-1), access to stowage; suppressors dismounted ahead of DRAGON
3-23	Auto rifleman covers entire team target	M-60 and/or .50 cal. must provide automatic fire
4-31 B26-28	Reference to M202 FLASH	Not available
5-35	Use of LAW	Predetermine range to terrain features, and mark ranges if time permits
5-39	Direction of fire for DRAGON	Seek oblique shots for increased P _H
5-42	Defense from buildings	DPW M202 should shoot down on tanks and APC
5-63	PEWS	Not available
A-2	Loading Plan for APC	Keep top deck clear of packs for DRAGON, MG; carry 4 D-shovels; C-rations under floor; DRAGON's stowed R-front; mount camouflage net for quick concealment; MG ammo boxes on floor; etc.
B-17	Grenades	M651 is limited stock, special purpose; others not available. Target Practice round not shown
B-29, C-25	30 M67, 90mm RR	Not available
J-3	Road March Reporting	Div SOP applies
E-6	AN/PVS-5 has "near range of 150 meters	Not available; range is function ambient light; and goggles work for reading as well as observation under flares
B,29,30 C-25	M67, 90mm RR	Available only as substitute for DRAGON

AN EXERCISE IN TRAINING MANAGEMENT

Army Training Evaluation Program 71-2, for the mechanized infantry/tank task force, is the basic document underwriting training management within the 8th Division. ARTEP 71-2 has been supplemented by guidance from the Division Commander stipulating the timing and nature of the external evaluations to be conducted by the Division. Deviations from ARTEP 71-2, or adaptations required for the mission and resources of the 8th Division, are to be described by publication of an 8th Division Supplement to ARTEP 71-2, which will furnish subordinate commanders substitute pages for the ARTEP document itself. The Training and Evaluation Outlines published as 8th Division supplements meet or exceed the requirements established by the tasks, conditions, and standards of the original document. Moreover, they are intended to focus the attention of commanders upon the performances central to the 8th Division's ability to meet its wartime responsibilities. The Division intends thereby to make prominent in training those items of equipment which act as force multipliers, especially those which increase the ability of 8th Division infantrymen to move, to shoot, and to communicate.

Reproduced below, as examples, are two such 8th Division T&EO. Issued at least 90 days in advance of divisional evaluation, they permit division training managers to ascertain what training is required for the 8 Squad, and to make available to their trainers the wherewithal to build rifle squads and platoons capable of such performances.

The first is a series of tasks for the mechanized rifle platoon which emphasize capability to divide the squad into Maneuver Team and Carrier Team, to execute a physically strenuous mission, and to shoot well collectively.*

*Per ARTEP 71-2, certain tasks from Chapter 9 have been integrated into this T&EO (e.g. road marching), as have certain tasks found elsewhere in Chapter 8 (e.g. DRAGON).

APPENDIX 32 TO CHAPTER 8
TRAINING AND EVALUATION OUTLINE
UNIT: MECHANIZED INFANTRY RIFLE PLATOON
MISSION: FORCED MARCH/HASTY DEFENSE (LIVE FIRE)

1. GENERAL CONDITIONS:

This evaluation of the platoon is conducted for Rifle Squad Carrier teams and Maneuver teams separately, each operating under platoon control:

a. Carrier teams, in daylight, move along a designated route:

(1) To a firing range representing a sector of a battle position, there to target/confirm targeting representing an enemy reconnaissance platoon with both cal .50 (live fire) and DRAGON (trainer only).

(2) To a water crossing, where the teams prepare for water operations and swim the APC's.

(3) To a rendezvous with the Maneuver teams.

b. Maneuver teams, in daylight, operating dismounted, and carrying all weapons and ammunition necessary for the mission:

(1) Conduct a 12 kilometer forced march in not more than two hours to emplace a sensor and reinforce a friendly reconnaissance patrol.

(2) Upon reaching the patrol, occupy a hasty defensive position and engage targets representing enemy infantry attacking to clear a helicopter landing zone.

(3) Meet Carrier Teams, and prepare for further operations.

2. PRIMARY TRAINING/EVALUATION STANDARDS:

To receive a satisfactory rating, the platoon must:

a. Complete all movements within the time standards established.

b. Shoot to the standards specified for each range.

c. Communicate as directed, to 8th Division CEOI standards.

3. TRAINING/EVALUATION RESULTS:

a. Trainer/evaluators record, by checking SAT or UNSAT on the pages of the T&EO, performance of unit against stated standards. Marked T&EO, together with supplemental remarks, typed or written, describing noted exceptional performance or training deficiencies, will be returned to unit's parent battalion as basis for management of future training.

b. Overall proficiency rating reflects observed performance and senior evaluator/trainer's judgement, as circled below:

OVERALL PROFICIENCY:	SAT	UNSAT
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TRAINING AND EVALUATION OUTLINE

UNIT: MECHANIZED INFANTRY PLATOON
CARRIER TEAMS

MISSION: FORCED MARCH/HASTY DEFENSE
(LIVE FIRE)

ID#/TASK	CONDITIONS	TRAINING/EVALUATION STANDARDS	S	U
8-32-A-1 Conduct Road March	<p>Given strip map(s) or overlay(s) specifying a route along trails or roads more than 6 km in total length with at least four CP's (control points), conduct a daylight road-march, as part of a platoon, maintaining radio listening silence, from</p> <p>(a) start point (SP); to (b) a live fire range for cal .50 machine gun and Dragon simulator firing; to (c) a water crossing; to (d) a place for meeting the Maneuver Team.</p> <p>Some portion of route requires traversing a chemically contaminated area.</p>	<p>Based on rate between control points of 10 mph (15.5 kph) APCs must traverse the leg from one CP to the next to arrive within $\pm 3\%$ of time distance factor.</p>		
8-32-A-2 Estab- lish crew security	<p>APC is participating in a tactical road march.</p> <p>Column stops, APC halts.</p>	<p>Crewmen observe assigned areas, including aerial observation.</p> <p>Crewmen report on potential targets in the assigned areas of responsibility.</p> <p>Crewmen prepare to engage targets within their area of responsibility on order.</p> <p>Driver points APC in the direction of the assigned sector and moves to the edge of the road to allow traffic to continue to move.</p> <p>On order platoon or higher, crew member dismounts and occupies a nearby vantage point to observe and listen for threat activity.</p>		

TRAINING AND EVALUATION OUTLINE

UNIT: MECHANIZED INFANTRY PLATOON
CARRIER TEAMS

MISSION: FORCED MARCH/HASTY DEFENSE
(LIVE FIRE)

ID#/TASK	CONDITIONS	TRAINING/EVALUATION STANDARDS	S	U
<p>8-32-A-2 (cont)</p>	<p>APC traverses area of known chemical danger.</p> <p>APC becomes disabled.</p>	<p>Crew member maintains surveillance and mans cal .50 machine gun.</p> <p>Crew member maintains visual contact with the vehicle in front.</p> <p>Crew member reports targets in the area of responsibility.</p> <p>Crew prepares to engage any targets on order in the area of responsibility.</p> <p>Crew masks and puts on protective clothing as directed.</p> <p>Upon leaving area, decontaminate as directed.</p> <p>Driver moves vehicle off the route of march (if possible).</p> <p>Crewmen direct remainder of column to move by.</p> <p>Crew member mans .50 cal machine gun and maintains surveillance.</p> <p>Crew members attempt to repair vehicle, or to isolate and report trouble to CO Team.</p> <p>Vehicle rejoins the tail of the column.</p>		
<p>8-32-A-3 Maintain march discipline.</p>	<p>APC is moving during a day road march.</p>	<p>Crew maintains vehicle speeds specified in the march order.</p>		

TRAINING AND EVALUATION OUTLINE

UNIT: MECHANIZED INFANTRY PLATOON
CARRIER TEAMS

MISSION: FORCED MARCH/HASTY DEFENSE
(LIVE FIRE)

ID /TASK	CONDITIONS	TRAINING/EVALUATION STANDARDS	S	U																								
8-32-A-3 (cont)		<p>Crew maintains specified inter-vehicular distance</p> <p>Crew complies with hand-and-arm signals.</p> <p>Vehicle remains in the designated position in the column.</p>																										
8-32-A-4	APC moves during a road march.	APC follows the prescribed route. Team commander knows his location along the route at all times, uses strip maps to maintain correct direction of movement, and recognizes and complies with bridge and route classification signs.																										
8-32-A-5 Target/ confirm targeting of a cal .50 machine gun	During daylight, on a live fire range, given an M3 tripodmounted cal .50 machine gun, a stationary metal or impact-sensitive target 750m down range, and a 15 round belt of 5x1 ammunition, conduct targeting/firing.	Firing single rounds, using no more than 15 rounds adjust windage and elevation until a round impacts on target.																										
8-32-A-6 Engage enemy re- connais- sance ele- ments mounted and dis- mounted	During daylight, from the APC, engage on a live fire range three moving targets, and three stationary targets in zones IV, and VI (see Table, right, and range diagram, page 8-32-9-A). Moving targets (BRDM panels or one panel & 3 passes) travel at 10 mph at a 45 degree angle to the firing line at a range of 1000m (approx) (each target exposure 30 sec). Ammunition available is 600 rounds of cal .50 4x1 ammunition per platoon. (approximately	<p>Each BRDM must be hit with a minimum of 10 rounds (each panel or each pass). Stationary targets:</p> <table border="1"> <thead> <tr> <th>ZONE</th> <th>RANGE</th> <th>TAR-GET</th> <th>AR-RAY</th> <th>EXPOSURE SECONDS</th> <th>MUST HIT</th> </tr> </thead> <tbody> <tr> <td>VI</td> <td>700-800</td> <td>6E</td> <td>Deep</td> <td>30</td> <td>4</td> </tr> <tr> <td>V</td> <td>500-700</td> <td>6E</td> <td>Line & Deep</td> <td>25</td> <td>5</td> </tr> <tr> <td>IV</td> <td>300-400</td> <td>6E</td> <td>Line</td> <td>20</td> <td>6</td> </tr> </tbody> </table>	ZONE	RANGE	TAR-GET	AR-RAY	EXPOSURE SECONDS	MUST HIT	VI	700-800	6E	Deep	30	4	V	500-700	6E	Line & Deep	25	5	IV	300-400	6E	Line	20	6		
ZONE	RANGE	TAR-GET	AR-RAY	EXPOSURE SECONDS	MUST HIT																							
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TRAINING AND EVALUATION OUTLINE

UNIT: MECHANIZED INFANTRY PLATOON
CARRIER TEAMS

MISSION: FORCED MARCH/HASTY DEFENSE
(LIVE FIRE)

ID#/TASK	CONDITIONS	TRAINING/EVALUATION STANDARDS	S	U
8-32-A-6 (cont)	20 rounds per stationary and 240 rounds for moving targets).			
8-32-A-7 Place Dragon into opera- tion.	During daylight after arrival at position given a sector of fire and a primary position location. Note 1. Dragon gunners may be detached to complete these tasks.	Within 5 minutes after arrival, the Dragon will have had all preoperation checks performed and is prepared for operation.		
8-32-A-8 Engage multiple armor targets.	During daylight tracking exer- cise, firing from deck of APC, given: a. One tracker and two field handling trainers. b. Launch effects trainer and monitoring set. c. Multiple armored vehicles with target sets mounted (tanks/APCs with target sets) moving at varying ranges from 200 meters to 1,000 meters. d. 10 M64 7.62mm NATO crimped grenade cartridges per gunner.	Within 45 seconds: a. Leader directs Dragon gunner to fire at two targets in se- quence. b. Subsequent rounds prepared for firing. c. Gunner engages the two tar- gets. d. 80% of the gunners evaluated successfully engage 7 out of 10 targets, TABLE XI, TC 23-20.		
8-32-A-9 Operate carrier in water.	Given a combat loaded APC, in daylight, cross an unfordable water obstacle. Carrier to be operated less Maneuver Team. Furnished water safety equip- ment (life vest, buoy and line), prepare APC for water operations, enter, drive in water, maneuver around an obstacle or marker, and exit.	Carrier Team must accomplish: (verified by evaluator): a. Before entering the water: Turn on bilge pumps, leave on. Lock ramp and ramp door, check seals. Use 10 series TM. Seal hull drain plugs and access plate. Distribute load evenly. Lock power plant door, Spring trim vane forward, and lock in place. Close top hatches, (drivers hatch may stay open). Install track shrouds properly, turn on dome lights.		
	Note on safety: a. Remove all web gear and packs b. Specify order of exit for men in carrier.	b. Entering the water: Select a firm spot, enter head on, not on an angle, use a 1 Range, speed no faster than 10 mph.		

TRAINING AND EVALUATION OUTLINE

UNIT: MECHANIZED INFANTRY PLATOON
CARRIER TEAMS

MISSION: FORCED MARCH/HASTY DEFENSE
(LIVE FIRE)

ID#/TASK	CONDITIONS	TRAINING/EVALUATION STANDARDS	S	U
8-32-A-9 (cont)		<p>c. Driving in the water: Shift to 1-2 Range, use pivot steer levers, not differential. Navigate around stationery buoy.</p> <p>d. Leaving the water: Hit bank with both tracks, shift into Range 1.</p> <p>e. Out of the water: Turn off bilge pump after bilge is all pumped out; check for water contamination in all oil and hydraulic fluids, suspension, fuel filters, air cleaner and periscopes.</p>		
8-32-B-1 Prepare for dismounted action	<p>Given a complete oral patrol order from Task Force, with situation that enemy helicopter has infiltrated TF area and inserted a patrol, that friendly scout helicopter has received AW fire from VIC coordinates _____ and phone wire laid along tree tops from east to west visible in four clearings at coordinates _____.</p> <p>Platoon directed to be prepared, within 3 hours, to send 3 patrols (teams) to the clearings, each to emplace an "M24 monitoring device". Platoon leader directed to move Command group via fourth route and to rendezvous with a friendly recon patrol vicinity coordinates (near source of AW fire), reassemble platoon, and kill or capture enemy force.</p> <p>All carry protective mask, all weapons and ammunition required for mission; teams wear helmets, body armor, LBE and camouflage. Actual ammunition will be issued in accordance with TF Battle Book (Bn SOP) for dismounted soldier, (e.g. grenades) may be</p>	<p>Platoon leader organizes in 4 patrols (Command group and 3 Maneuver teams), issues oral order. (FM 7-11B3, pp 2-VII-A-2ff) Patrol leaders issue order and conduct performance oriented training on "M24 monitoring device" (FM 7-11B2, pp 2-VI-B-1ff), draw ammunition, supervise issue, and inspect mission readiness of team.</p> <p>Maximum 3 hours required for full readiness.</p>		

TRAINING AND EVALUATION OUTLINE

UNIT: MECHANIZED INFANTRY PLATOON
CARRIER TEAMS

MISSION: FORCED MARCH/HASTY DEFENSE
(LIVE FIRE)

ID#/TASK	CONDITIONS	TRAINING/EVALUATION STANDARDS	S																																				
8-32-B-1 (cont)	substituted, where bulk and weight are comparable, in the interest of safety. 3 "M24 monitoring devices" are on hand with "expert" who trains each squad leader in emplacement procedures.																																						
8-32-B-2 Conduct forced march/patrol action	Given updated situation that friendly recon patrol has enemy force under observation apparently preparing large helicopter LZ, and order to execute above mission ASAP. Distances all four elements must move approximately 12 km. Routes are unmarked. Enemy wire is at reported coordinates. Recon patrol is represented by NCOIC at rendezvous point.	Platoon Command group meets recon patrol at place specified. NL 2 hours from execute time. Maneuver teams find wires, emplace "M24", and meet platoon Command group at specified meeting place in two (2) hours or less. Each element completes patrol with all personnel, weapons, equipment, and ammunition.																																					
8-32-B-3 Engage enemy dismounted platoon (Live Fire)	<p>a. Given report from recon patrol that enemy force has detected patrol's presence, fired on OP, and is moving towards cleared area where platoon is located (field firing range). ETA of enemy (first targets exposed) is 140 minutes from start time of Task 8-32-B-2.</p> <p>b. Platoon ordered to occupy hasty defensive positions and required to engage 54 pop-up hit/kill personnel targets displayed sequentially per table, right.</p> <p>c. Each silhouette will be exposed only once. No more than 6 silhouettes will be exposed at one time. Silhouettes will be exposed in any zone only after silhouettes have been exposed in a more distant zone. Platoon can expend no more ammunition than it carried (training</p>	<p>a. Platoon leader issues order.</p> <p>b. Platoon selects best available natural cover and concealment. Prepares to defend within 10 minutes from receipt of order.</p> <p>c. Platoon engages and hits targets (any caliber or weapon) as follows:</p> <table border="1"> <thead> <tr> <th>ZONE</th> <th>RANGE</th> <th>TARGET</th> <th>ARRAY</th> <th>EXPOSED</th> <th>MUST HIT</th> </tr> </thead> <tbody> <tr> <td>V</td> <td>500-700</td> <td>6E</td> <td>Line & Deep</td> <td>25</td> <td></td> </tr> <tr> <td>IV</td> <td>300-400</td> <td>6E</td> <td>Line</td> <td>20</td> <td>0</td> </tr> <tr> <td>III</td> <td>175-300</td> <td>12E</td> <td>Line & Deep</td> <td>1</td> <td>8</td> </tr> <tr> <td>II</td> <td>75-175</td> <td>15E</td> <td>Line & Deep</td> <td>1</td> <td>10</td> </tr> <tr> <td>I</td> <td>25-75</td> <td>15F</td> <td>Line &</td> <td>5</td> <td></td> </tr> </tbody> </table>	ZONE	RANGE	TARGET	ARRAY	EXPOSED	MUST HIT	V	500-700	6E	Line & Deep	25		IV	300-400	6E	Line	20	0	III	175-300	12E	Line & Deep	1	8	II	75-175	15E	Line & Deep	1	10	I	25-75	15F	Line &	5		
ZONE	RANGE	TARGET	ARRAY	EXPOSED	MUST HIT																																		
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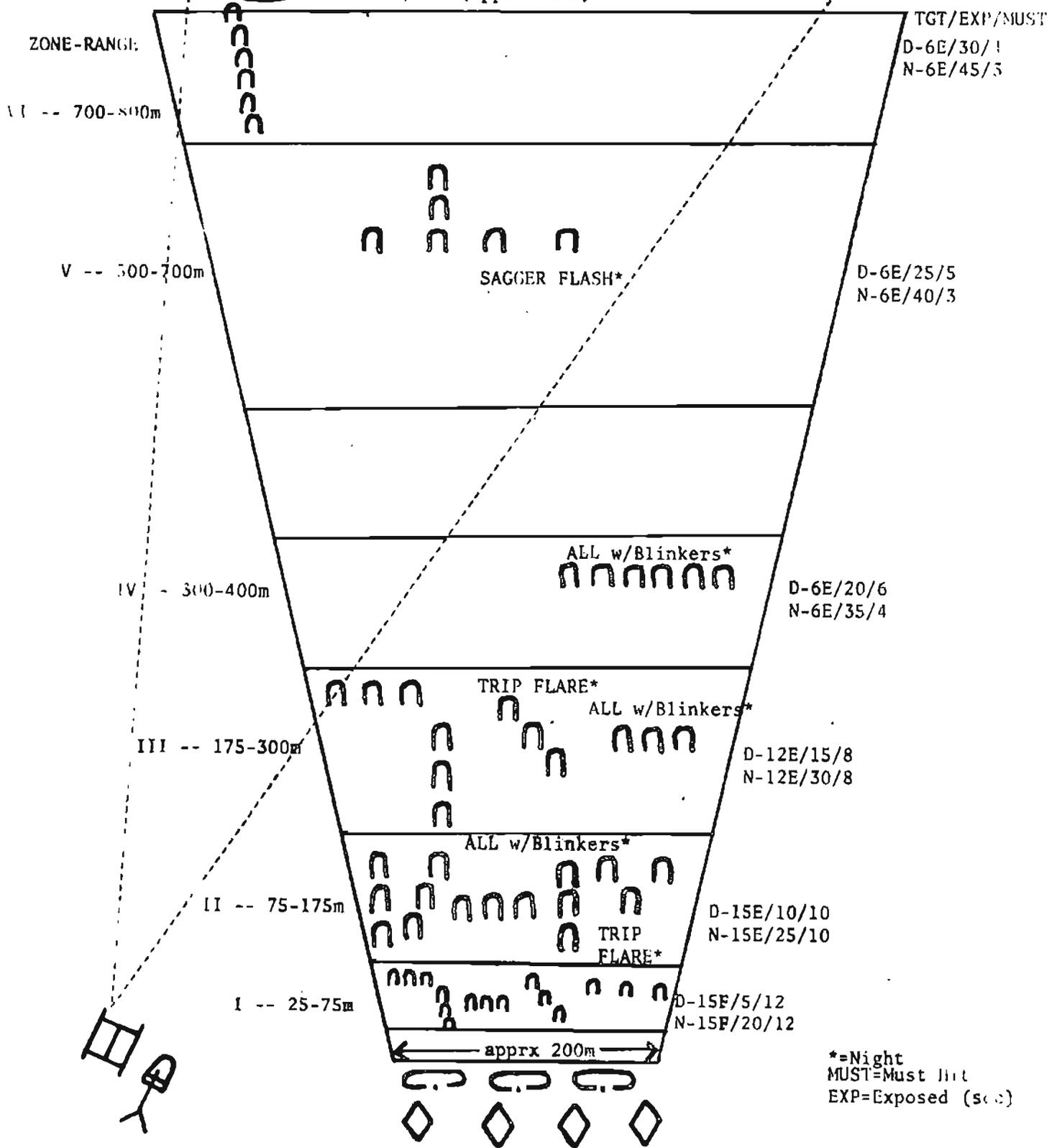
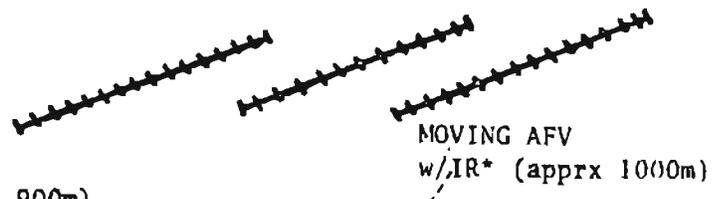
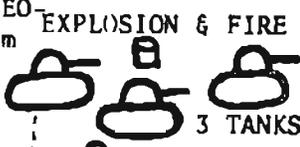
TRAINING AND EVALUATION OUTLINE

UNIT: MECHANIZED INFANTRY PLATOON
CARRIER TEAMS

MISSION: FORCED MARCH/HASTY DEFENSE
(LIVE FIRE)

ID#/TASK	CONDITIONS	TRAINING/EVALUATION STANDARDS	S	U
8-32-B-3 (cont)	ammunition is exchanged for service ammunition before engagement). d. See diagram page 8-32-9A.			

TAB A to APPX 32
to Chap 8 TGE
Range Diagram



TANK & TOW
SUPPORTING

B-32-A
(41)

*=Night
MUST=Must lit
EXP=Exposed (see)

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TAB B TO APPENDIX 32 TO CHAPTER 8

SUGGESTED SUPPORT REQUIREMENTS

UNIT: MECHANIZED RIFLE PLATOON

1. ADMINISTRATION:

a. One firing range to fire in order (1) Carrier Teams cal .50, (2) Maneuver Teams. Range must be usable for DARGON tracking, on same range or adjacent, capable of concurrent use.

b. One swimming site.

c. Suggested scheme of movement: see diagram, p. 8-32-A-3.

d. Orders prepared in advance, including strip maps, wires placed in clearings, ammo on truck at A moves to B.

2. MINIMUM EVALUATORS:

8 NCO's (1 per Carrier Team, 1 per Maneuver Team), OIC (1st or CPT) at Range B, NCOIC at swim site.

3. OPPOSING FORCE:

None

4. SUPPORT TROOPS:

Detail of 4 men, ammo and operations Range B.

5. VEHICLES/COMMUNICATIONS:

Ammo truck (2 1/2 ton or 5 ton).

6. MANEUVER AREA:

See diagram, p. 8-32-A-3. Only Range B needs to be on a military reservation.

7. FIRING AREA:

Meet local safety requirements. Firing positions selected for tactical realism, consistent with safety.

8. TRAINING AIDS, DEVICES, AND SPECIAL EQUIPMENT:

DRAGON Training equipment. Targets: 60 pop-up infantry-type, 3 versions "M24 Monitor" (M24A, M24B, M24C, all locally fabricated electronic gadgets each with at least 3 sequential steps required for operation), 3 moving AFV-type. NATO equivalent to E and F silhouettes may be used. When pop-up mechanisms (or similar substitutes) are not available, staked targets may be used; in this case, firing time must be limited to specified time, from command of commence - fire to cease - fire.

9. AMMUNITION:

See Chapter 12.

10. KEY REFERENCES:

FM 7-11B1, 7-11B2, 7-11B3, 7-7, 23-9, 23-65; TC 7-1, 23-20.

11. TIPS FOR EVALUATORS/TRAINERS:

- a. Score and paste targets after each firing.
- b. Inclement weather may require adjustment of time standards.
- c. Training for this event can be accomplished at garrison using 25 meter ranges, panoramic targets, miniature field firing ranges, Combat Theater, and other expedients.

The second Training and Evaluation Outline is aimed at developing the night-fighting potential of Pathfinder Infantry, especially the capability of 8 Squads and Platoons against enemy dismounted infantry attacking cloaked in darkness. It is deplorable, but true, that many 8th Division infantry leaders do not know what night-fighting equipment they own, let alone insure that it is properly mounted, sighted, zeroed, or regularly exercised. They have gear that can lever up the lethality of the 8 Squad, making one Pathfinder Infantryman worth four opponenents. and the T&EO is designed to bring it into play in their training management, so as to improve their operational readiness for night battle. Here is the T&EO:

APPENDIX 28 TO CHAPTER 8

TRAINING AND EVALUATION OUTLINE

UNIT: MECHANIZED INFANTRY PLATOON

MISSION: DEFENSE (LIVE FIRE)

1. GENERAL CONDITIONS:

Platoon ordered late in afternoon to occupy defensive positions already prepared by another unit. An NCO from unit which dug positions, and fire plans, range cards, and obstacle plots are available, but all tripods and weapons have been removed. Enemy night attack is expected, but time is available to check data on range cards, and prepare night vision equipment. Platoon occupies and improves positions. Enemy attack after dark signaled by detection of enemy IR on vehicles, trip flare(s) and incoming artillery. Platoon engages (live fire).

2. PRIMARY TRAINING/EVALUATION STANDARDS:

To receive a satisfactory rating the platoon must:

- a. Occupy the battle position, plan and coordinate fires, and complete zero and registration within the time specified.
- b. Conduct an effective defense against mounted and dismounted elements, as measured by hits on targets displayed.
- c. Communicate as required, to 8th Division CEOI standards.

3. TRAINING/EVALUATION RESULTS:

Check SAT or UNSAT on the following pages of this T&EO to indicate the unit's proficiency on each task from this mission. Trainers/evaluators will record on an attached sheet or paper, or in the space provided, detailed observations of training deficiencies which need training emphasis. This T&EO and attached sheets should be provided to the unit as a basis for future training. The overall proficiency rating for this mission is determined from the performance of the unit on each task, the primary training and evaluation standards, and the evaluator/trainer's subjective judgment as to whether the unit would have been successful on the modern battlefield had it performed as it did in this exercise. Circle one of the following to indicate the overall combat proficiency of the unit on this mission:

Overall Proficiency: SAT UNSAT

Replaces pages
8-28-1 thru 8-28-A

8-28-1
(46)

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TRAINING AND EVALUATION OUTLINE

UNIT: MECHANIZED INFANTRY PLATOON

MISSION: DEFENSE (LIVE FIRE)

ID#/TASK	CONDITIONS	TRAINING/EVALUATION STANDARDS	S	U
8-28-1 Prepare for night operations.	Given a warning order that platoon is to occupy prepared positions to defend attached to a tank company team, and a firing range suitable for either 25m or field targeting, with daylight and service ammunition.	Within 30 minutes, platoon mounts, boresights and zeros organic low-light-level sights using no more than 24 rounds per M16 or M203, 30 rounds per M60, and 15 rounds per cal .50. Check batteries and functioning of other night observation and signalling devices. Puts on night camouflage.		
8-28-2 Issue defensive order	Within 10 minutes of receiving warning order, platoon leader is called to OP by tank company team commander to which he is attached, issued an oral defense order, and provided services of (1) NCO who was with unit which dug position, and prepare fire plan, range cards, and plot of obstacles; and (2) Company FIST Chief. Order stipulates that close-in warning devices, mines and other obstacles have not been emplaced, and that enemy attack is expected immediately after dark.	Platoon leader reconnoiters area, assembles subordinate leaders and issues them his defense order in time to assure their having a minimum of one hour to occupy the position during day-light. Order provides for distribution of night vision equipment to insure overlapping observation and fires; establishes sleep/alert plan; limits use of active night vision devices; integrates fires of tanks, TOW mortars, and artillery as appropriate; and directs the use of communications to limit enemy EW options.		
8-28-3 Occupy defensive position.	Given prepared position, with range cards, fire plan and plot of obstacles, plus concertina, trip flares and M-18 mines.	Platoon verifies range cards by walking FPL and sighting targets. Prepares stakes and other firing aids as required, and modifies range cards as appropriate. Installs trip flares, mines, & one wire obstacle. Distributes ammunition. Lays telephone wire. Prescribes low-power for FM.		

8-28-2
(47)

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TRAINING AND EVALUATION OUTLINE

UNIT: MECHANIZED INFANTRY PLATOON

MISSION: DEFENSE (LIVE FIRE)

ID#/TASK	CONDITIONS	TRAINING/EVALUATION STANDARDS	S	U
8-28-4 Detect approach of enemy	Given 6 targets portraying a motorized rifle platoon advancing on the defensive position using active IR driving devices, in the range 1200 meters to 800 meters, to be exposed 2 minutes each, in sequence, no more than 2 up at a time.	Using AN/TVS 4 and AN/PAS-6, or other equipment as available, platoon detects and reports enemy targets.		
8-28-5 Call for direct fire anti-tank support.	Previous conditions apply. Company net conveys information of motorized rifle battalion attack on company team battle position.	Within three minutes of detection, platoon directs fires of tanks and TOW to detected targets, using TRP, tracer, or any other practical pointing method.		
8-28-6 Call for indirect fire support.	Previous conditions apply. Platoon leader allocated 81mm mortars, told by team commander to light target for TOW, and directed coordinate with tank platoon on his left flank, to which TOW attached. After 10 minutes, and during dismounted attack (below), sagger flash at 680 meters, identified by tank platoon.	Platoon illuminates AFV targets with 81mm flares sufficient to permit TOW tracking (verified by use of TOW sight) and tank engagement (verified thru tank sight). Platoon shifts mortars to suppression of Sagger (HE).		

8-28-5
(48)

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TRAINING AND EVALUATION OUTLINE

UNIT: MECHANIZED INFANTRY PLATOON

MISSION: DEFENSE (LIVE FIRE)

ID#/TASK	CONDITIONS	TRAINING/EVALUATION STANDARDS				S	U			
8-23-7 Engage dis-mounted infantry.	Given targets in 6 zones, each consisting of a group or groups of silhouettes (pop-up infantry type), at ranges from 800 meters to 25 meters, sequenced to represent an assaulting dismounted force (see diagram 8-32-9-A, and table, right). Each silhouette exposed only once. Targets in any zone exposed only after more distant zone exposed. No more than 6 can be up at any time; mortar flare illumination can be used throughout; also: ZONE/ILLUMINATION at Target VI Tank Searchlight; back lighting from burning tank V Tank searchlight IV Blinkers (SA Fire) III Trip flares, blinkers II Blinkers, trip flare I Blinkers	<table border="1"> <thead> <tr> <th>ZONE</th> <th>RANGE</th> <th>TARGET</th> <th>ARRAY</th> <th>EXP (SEC)</th> <th>MUST HIT</th> </tr> </thead> </table>	ZONE	RANGE	TARGET	ARRAY	EXP (SEC)	MUST HIT		
		ZONE	RANGE	TARGET	ARRAY	EXP (SEC)	MUST HIT			
		VI	700-800	6E	Deep	45	3			
		V	500-700	6E	Line & Deep	40	3			
		IV	300-400	6E	Line	35	4			
		III	175-300	12E	Line & Deep	30	8			
		II	75-175	15E	Line & Deep	25	10			
		I	25-75	15F	Line & Deep	20	12			

TAB A TO APPENDIX 28 TO CHAPTER 8

SUGGESTED SUPPORT REQUIREMENTS

UNIT: MECHANIZED INFANTRY PLATOON

MISSION: DEFENSE (LIVE FIRE)

1. ADMINISTRATION:

a. Company team order will be prepared in advance and issued in time to allow for adequate preparation by the platoon leader.

b. A FIST party should be available to support the platoon.

c. The following weapons should be employed and fired during this exercise: M16 rifle, M60 machine gun, M203DPW, cal .50 machine gun, and 81mm mortar.

2. MINIMUM EVALUATORS:

1 Officer, 3 NCO's.

3. OPPOSING FORCE:

None (targets only)

4. SUPPORT TROOPS:

1 EOD team, 3 drivers

5. VEHICLES/COMMUNICATIONS:

1 ammo truck, 2 jeeps with radio, one tank with searchlight and one TOW.

6. MANEUVER AREA:

A field firing range, on which a platoon defensive position can be constructed.

FIRING AREA:

The firing area must conform to the requirements of the weapons fired in accordance with AR 385-63 and local range regulations.

8. TRAINING AIDS, DEVICES, AND SPECIAL EQUIPMENT:

60 Infantry pop-up targets, 8 stationery AFV targets; 3 moving AFV targets. When pop-up targets (or similar substitutes) are not available, staked, E and F silhouette personnel targets may be used. In this case, firing time must be limited to specified time from commence - fire command, to cease - fire command.

9. AMMUNITION:

See Chapter 12.

10. KEY REFERENCES:

AR 385-63, FM 7-7, FM 71-2, FM 7-11B1

11. TIPS FOR EVALUATORS/TRAINERS:

a. Communication between platoon elements, controllers, and safety personnel is essential.

b. The senior trainer/evaluator should adapt this T&EO to the organization of the unit, the terrain/ranges available, and the weapons being fired.

c. Close coordination of this exercise must be effected to insure it is conducted safely without detracting from the realism during tactical training/evaluation of the platoon.

d. The platoon leader should be given the flexibility and latitude to emplace the platoon and employ live fire. Safety personnel should be superimposed in the exercise to the extent necessary to monitor and control safety requirement.

Equipment is available to support training for the foregoing tasks, and the stated standards can be achieved. Sufficient Low Light Level Sight Systems (LLLSS) are on hand in the 8th Division to equip 75% of its M16A1 rifles. All Pathfinder combat units have been issued LLLSS, and over 400 LLLSS are in the Division ASL. Over 400 of the AN/PVS-2 Starlight Scope for the M16 and the M60 are on hand, and the T&EO should act to drive Pathfinder commanders to study Appendix B and Appendix E to FM 7-7, as well as their own MTO&E and property hand receipts, and the Technical Manual cited below:

WEAPON	NIGHT SIGHT	DIV ON HAND	TM
M60MG	AN/PVS-2	500	11-5855-203-13
Cal .50 MG	AN/TVS-2	700	11-5855-202-13

It is important to note that both machine gun sights will be replaced by lighter, more capable night sights during 1978, and that this 8th Division Supplement to ARTEP 71-2 will assist their introduction:

CURRENT EQUIP	WT(lbs)	RANGE(m)	REPLACEMENT	WT(lbs)	RANGE(m)
AN/PVS-2	6	200-400	AN/PVS-4	3.7	400-600
AN/TVS-2	15	800-1000	AN/TVS-5	7.7	1000-1200

In addition to weapon sights, the 8th Division has other STANO equipment inherently useful in achieving proficiency with the T&EO tasks.

ITEM	DIVISION TOTAL ON HAND IN INF BNS	DIVISION TOTAL ON HAND
Metascope AN/PAS-6	165	341
Night Observation Device AN/TVS-4	72	136

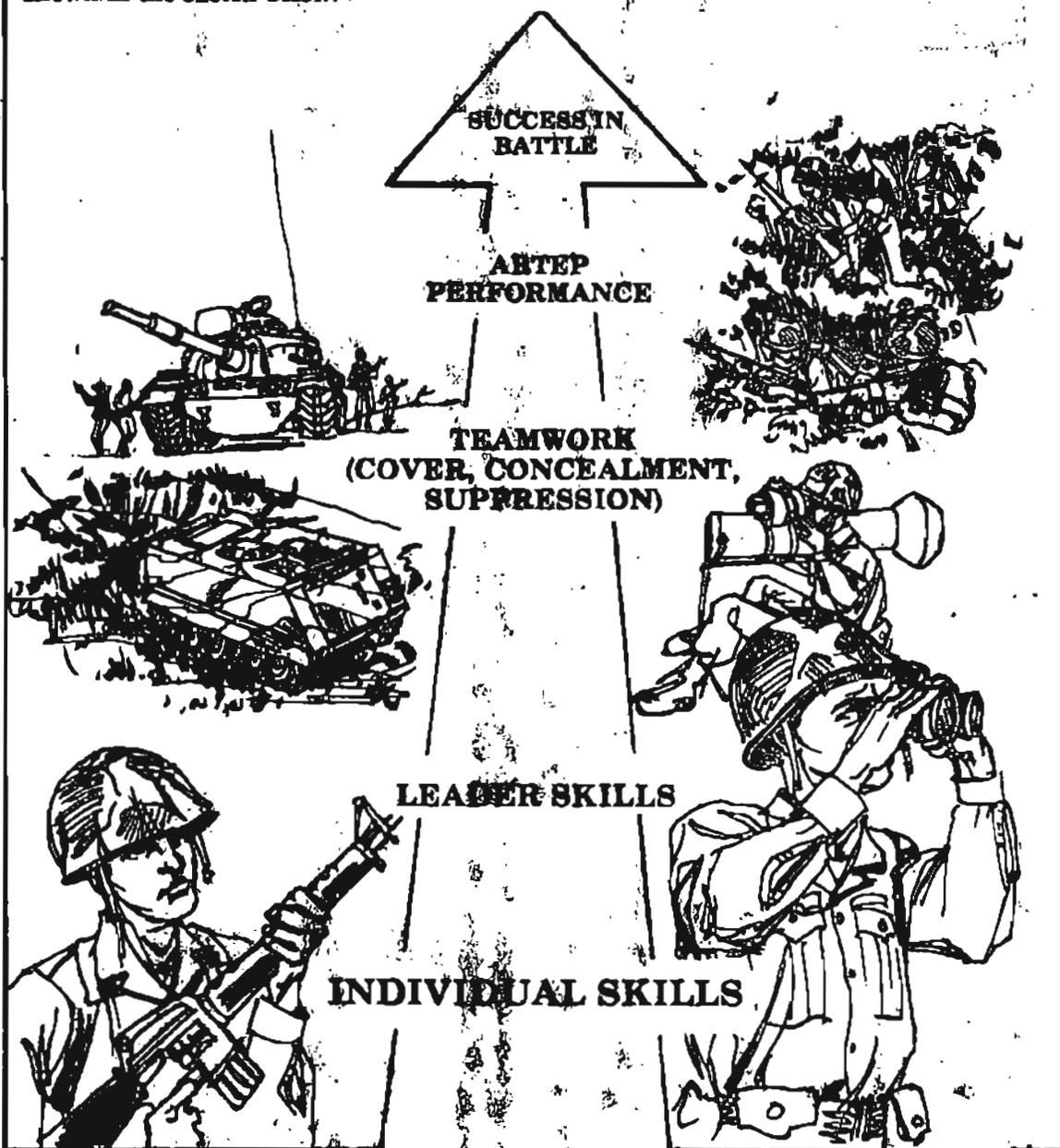
Equipped with the AN/PAS-6 and the AN/TVS-4, the FIST Team, or another platoon Observation Post, can more readily detect enemy use of active Infra-Red driving aids, acquire and identify targets, and control fires.

But more important than equipment is skill. Pathfinder training, the year through, must train soldiers for the tasks in the T&EO, under the conditions stipulated, to the indicated standards. That training must be conducted wherever and whenever possible by that NCO closest to the soldier in the chain of command. The Skill Qualification Test is one mechanism which guides trainers, and acts as a powerful incentive to use the Soldier's Manuals to develop individual skills. But the ARTEP should be an equally important guide, and as powerful an incentive, because the collective tasks described in the T&EO can be performed best by individuals well versed in related Soldier's Manual tasks. As the Soldier's Manual reminds the Squad Leader:

REMEMBER

5

Your role as a rifle squad leader or HAW section sergeant is to train your men to survive and WIN on the MODERN BATTLEFIELD. The steps that will lead you to this goal are shown in the sketch below.



Leaders and trainers must understand the relationship between the Soldier's Manual and the ARTEP, and it should become central to their training management as they prepare for ARTEP evaluation, or act to remedy deficiencies detected in previous evaluation. In fact, for an ARTEP collective task, Soldier's Manual tasks are "Intermediate Training Objectives" as defined in current doctrine on training. The Soldier's Manual itself (FM 7-11B3) describes the method of managing training as follows:

PREPARE TO CONDUCT TRAINING

Establish Intermediate Training Objectives by:

- Developing tasks required to accomplish the commander's training objective.
- Establishing the conditions under which each task must be accomplished.
- Establishing a training standard of performance for each task.

Determine and Organize Training Required by:

- Determining which intermediate training objectives the soldiers cannot successfully perform without further training.
- Organizing the intermediate training objectives into a progressive sequence (simple to complex) consistent with the available resources.
- Estimating the training resources, trainer techniques, aids and devices needed to accomplish each objective.
- Completing administrative requirements (e.g., obtaining equipment, rehearsing training, etc).

Early in 1978, all 8th Division mechanized infantry and armor battalions will receive sets of ARTEP/Soldier's Manual Interface, a graphic training management aid. Each interface set consists of a master template and one overlay (mask) for each mission in ARTEP 71-2. The master template is composed of ARTEP missions displayed in rectangles along the top of the board and Soldier's Manual tasks in MOS 11C, 11B, 11D, and 11E in circles below. Placing a mask on the template, highlights those individual tasks from the Soldier's Manual that directly relate to the successful accomplishment of the collective mission chosen as these show through the holes in the mask. In addition, leader-specified tasks relating to each collective mission are found in a circle at the top of each mask. Also, training dependencies are shown by lines connecting various tasks (in the circles). This indicates which Soldier's Manual tasks are intermediate training objectives for others. An instruction packet is furnished with each ARTEP/Soldier's Manual Interface.

Collective tasks, which are those described in the ARTEP, calling for team work, can best be accomplished by team members each of whom has individually mastered the critical tasks of the job he holds within the team. Those tasks are, with rare exceptions, described by his Soldier's Manual; his mastery of the tasks under the conditions, to the standards therein, ready him for his collective training. In the tables which follow, each of the tasks set forth in the two foregoing T&O Outlines related to a particular page in a Soldier's Manual which defines the appropriate tasks, conditions, and standards for individual training. Noncommissioned Officers of infantry squads and platoons, targeting these tasks as intermediate training objectives, materially assist in preparing their unit for accomplishment of the collective tasks of the ARTEP. Unit commanders can provide for opportunities to conduct internal evaluations of these tasks, so that the squads and platoons will report for the 8th Division's evaluation individually and collectively well trained.

To illustrate such a relationship, the following tables cite the Soldier's Manual tasks essential to the ARTEP requirements of the T&O above:

<u>COLLECTIVE TASKS</u>		<u>SM TASK No.*</u>	<u>INDIVIDUAL TASKS (SM Page-Task Title)</u>
UNIT: MECHANIZED INFANTRY PLATOON			MISSION: FORCED MARCH/HASTY DEFENSE (LIVE FIRE) APPENDIX 32 TO CHAPTER 8, ARTEP 71-2
Soldier Requirements - Carrier Team			
8-32-A-1	Conduct a Road March	A-1001	2-II-E-1 Identify terrain features (natural and manmade) on the map
		A-1005	2-II-E-5 Determine a location on the ground
		A-1006	2-II-E-6 Navigate from one position on the ground to another point
		A-1007	2-II-E-7 Determine distance while moving between 2 points on the ground
		A-1009	2-II-E-8 Measure a ground distance on a map
		A-1010	2-II-E-11 Orient a map using a compass
		A-1012	2-II-E-12 Orient a map to the ground by map-terrain association
		A-5525	2-VII-A-6 Use a map overlay
		B-8201	2-VII-E-1 Supervise combat loading of personnel and equipment in APC

*All Infantry SM Tasks carry the prefix of 071-11X-XXXX.

UNIT: MECHANIZED INFANTRY PLATOON

MISSION: FORCED MARCH/HASTY DEFENSE
(LIVE FIRE) APPENDIX 32
TO CHAPTER 8, ARTEP 71-2

<u>COLLECTIVE TASKS</u>	<u>SM TASK No. *</u>	<u>INDIVIDUAL TASKS (SM Page-Task Title)</u>
8-32-A-1 Conduct a Road March (cont)	B-8202	2-VII-E-2 Select exact terrain route for an APC and direct driver over the route
	A-0807	2-II-C-7 Enforce noise, light and litter discipline
	B-8110	2-VII-A-2 Prepare and issue an oral squad operation order
	A-6007	2-V-B-1 Drive an APC cross country
	A-6504	2-V-B-4 Operate an APC in water
	A-5305	2-V-A-4 Supervise subordinates
8-32-A-2 Establish Crew Security	B-5501	2-VII-A-1 Control rate and distribution of fire
	A-8606	2-II-C-6 Identify threat vehicles and weapons
	A-5303	2-II-A-6 Estimate range
	A-7404	2-II-B-4 Select temporary battlefield positions
	B-5725	2-VII-D-6 Direct squad fires in the defense
	B-5780	2-VII-D-11 Direct platoon fires in the defense
	B-5705	2-VII-D-2 Establish a listening post/ observation post (LP/OP)
	A-8404	2-II-C-4 Conduct day and night surveillance
	A-0103	2-I-B-2 Put on a protective mask
	A-0104	2-I-B-3 Take cover as protection against NBC hazards
	A-0125	2-1-B-4 Decontaminate self and individual equipment

UNIT: MECHANIZED INFANTRY PLATOON

MISSION: FORCED MARCH/HASTY DEFENSE
(LIVE FIRE) APPENDIX 32
TO CHAPTER 8, ARTEP 71-2

<u>COLLECTIVE TASKS</u>	<u>SM TASK No.*</u>	<u>INDIVIDUAL TASKS (SM Page-Task Title)</u>
8-32-A-2 Establish Crew Security (cont)	A-0152	2-I-B-7 Determine personnel needs and personnel hygiene in a chemical environment
	A-0105	2-I-B-9 Initiate unmasking procedures
	A-0106	2-I-B-10 Implement mission oriented protective posture (MOPP)
	A-0107	2-I-B-11 Cross a contaminated area
	A-0110	2-I-B-12 Protect supplies and equipment from BNC hazards
	A-0126	2-I-B-13 Decontaminate unit equipment
	A-0170	2-I-B-14 Operate an AM 174A/PD radiacmeter
	A-0180	2-I-B-15 Prepare and submit NBC 1 reports
	A-6508	2-V-B-8 Perform operator maintenance on an APC
	A-0807	From Task 8-32-A-1: 2-II-C-7
8-32-A-4 Maintain March Orientation	A-1001	From Task 8-32-A 1: 2-II-E-1
	A-1005	2-II-E-5
	A-1006	2-II-E-6
	A-1007	2-II-E-7
	A-5525	2-VII-A-6
	B-8202	2-VII-E-2
	A-3452	2-III-F-2 Target/confirm targeting on a cal.50 machine gun
8-32-A-5 Target/Confirm Targeting on a cal.50 Machine Gun	A-3452	2-III-F-2 Target/confirm targeting on a cal.50 machine gun
	A-3453	2-III-F-3 Load, reduce stoppage, unload and clear a cal.50 machine gun

UNIT: MECHANIZED INFANTRY PLATOON

MISSION: FORCED MARCH/HASTY DEFENSE
(LIVE FIRE) APPENDIX 32
TO CHAPTER 8, 71-2

<u>COLLECTIVE TASKS</u>	<u>SM TASK No.*</u>	<u>INDIVIDUAL TASKS (SM Page-Task Title)</u>
8-32-A-5 Target/Confirm Targeting on a cal.50 Machine Gun	A-3454	2-III-F-4 Engage targets with cal.50 machine gun
	A-3455	2-III-F-5 Set headspace and timing on a cal.50 machine gun
8-32-A-6 Engage Enemy Reconnaissance Elements Mounted and Dismounted	A-3453	2-III-F-3 As above
	A-3454	2-III-F-4 As above
	A-3455	2-III-F-5 As above
	A-5303	2-II-A-6 Estimate ranges
	A-8606	2-II-C-6 Identify threat vehicles and equipment
	A-5305	2-V-A-4 Supervise subordinates
8-32-A-7 Place the DRAGON into Operation	B-3302	2-III-H-1 Perform preoperational checks on DRAGON tactical system
8-32-A-8 Engage Multiple Armor Targets	B-3304	2-III-H-4 Engage targets and perform misfire procedures with the DRAGON
	A-8606	2-II-C-6 Identify threat vehicles and equipment
	A-5303	2-II-A-6 Estimate range
8-32-A-9 Operate Carrier in Water	A-6504	2-V-B-4 Operate an APC in water
Soldier Requirements - Maneuver Team		
8-32-B-1 Prepare for Dismounted Action	B-5505	2-VII-A-2 Prepare and issue an oral squad operation order
	A-5101	2-VI-B-1 Conduct a performance- oriented training session

UNIT: MECHANIZED INFANTRY PLATOON

MISSION: FORCED MARCH/HASTY DEFENSE
(LIVE FIRE) APPENDIX 32
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<u>COLLECTIVE TASKS</u>	<u>SM TASK No.*</u>	<u>INDIVIDUAL TASKS (SM Page-Task Title)</u>
8-32-B-1 Prepare for Dismounted Action (cont)	A-5102	2-VI-B-2 Prepare and conduct a performance-oriented training session (individual and collective)
	A-0811	2-II-C-10 Emplace/recover electronic anti-intrusion devices
	A-5301	2-VI-A-1 Inspect personnel/equipment
	A-5305	2-VI-A-4 Supervise subordinates
8-32-B-2 Conduct Forced March/ Patrol Action	A-1001	2-II-E-1 Identify terrain features (natural and manmade) on the map
	A-1002	2-II-E-2 Determine the grid coordinates of a point on a military map
	A-1005	2-II-E-5 Determine a location on the ground
	A-1006	2-II-E-6 Navigate from one position on the ground to another point
	A-1008	2-II-E-7 Determine distance while moving between 2 points on the ground
	A-1011	2-II-E-11 Orient a map using a compass
	A-1012	2-II-E-12 Orient a map to the ground by map-terrain association
	B-0501	2-II-A-1 Move as a member of a fire team
	B-5610	2-VII-C-3 Determine/implement light infantry squad movement techniques when not in contact with enemy
	B-5605	2-VII-C-1 Control fire team movement
	A-0807	2-II-C-7 Enforce noise, light and litter discipline

UNIT: MECHANIZED INFANTRY PLATOON

MISSION: FORCED MARCH/HASTY DEFENSE
(LIVE FIRE) APPENDIX 32
TO CHAPTER 8, ARTEP 71-2

<u>COLLECTIVE TASKS</u>	<u>SN TASK No.*</u>	<u>INDIVIDUAL TASKS (SM Page-Task Title)</u>
8-32-B-3 Engage Enemy Dismounted Platoon (Live Fire Exercise)	A-0701	2-II-B-1 Camouflage/conceal self and individual equipment
	B-0820	2-II-C-11 Analyze terrain using OCOKA
	A-7404	2-II-B-4 Select temporary battlefield positions
	A-0706	2-II-B-6 Clear fields of fire
	B-5701	2-VII-D-1 Supervise the preparation of squad defensive positions
	B-5705	2-VII-D-2 Establish a listening post/ observation post (LP/OP)
	B-5725	2-VII-D-6 Direct squad fires in the defense
	A-2005	2-III-A-5 Engage targets with an M16A1 rifle
	A-2104	2-III-B-4 Engage targets with an M203 grenade launcher
	B-3002	2-III-E-2 Engage targets with an M60 machine gun
A-5303	2-II-A-6 Estimate range	

UNIT: MECHANIZED INFANTRY PLATOON

MISSION: DEFENSE (LIVE FIRE)
APPENDIX 28 TO
CHAPTER 8, ARTEP 71-2

<u>COLLECTIVE TASKS</u>	<u>SM TASK No.*</u>	<u>INDIVIDUAL TASKS (SM Page-Task Title)</u>
Soldier Requirements		
8-28-1 Prepare for Night Operations	A-2001	2-III-A-1 Maintain an M16A1 rifle, magazines, and ammunition
	A-2002	2-III-A-2 Load and unload an M16A1 rifle magazine
	A-2003	2-III-A-3 Load, reduce a stoppage, unload, and clear an M16A1 rifle
	B-2303	2-III-A-7 Mount/dismount AN/PVS-2 on M16A1 rifle
	B-2304	2-III-A-i Zero AN/PVS-2 when mounted on M16A1 rifle
	B-2305	2-III-A-9 Engage a target with a rifle using AN/PVS-2
	A-2101	2-III-B-1 Maintain an M203 grenade launcher and ammunition
	A-2102	2-III-B-2 Load, unload, and clear an M203 grenade launcher
	A-2103	2-III-B-3 Zero an M203 grenade launcher
	A-2104	2-III-B-4 Engage targets with an M203 grenade launcher and apply immediate action to reduce a stoppage
	B-3001	2-III-E-1 Load, reduce a stoppage, unload, and clear an M60 machine gun
	B-3002	2-III-E-2 Engage targets with an M60 machine gun
	A-3451	2-III-F-1 Maintain a cal.50 machine gun and ammunition
	A-3452	2-III-F-2 Target/confirm targeting on a cal.50 machine gun

*All Infantry SM Tasks carry the prefix of 071-11X-XXX

UNIT: MECHANIZED INFANTRY PLATOON

MISSION: DEFENSE (LIVE FIRE)
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<u>COLLECTIVE TASKS</u>	<u>SM TASK No.*</u>	<u>INDIVIDUAL TASKS (SM Page-Task Title)</u>
8-28-1 Prepare for Night Operations	A-3453	2-III-F-3 Load, reduce stoppage, unload, and clear a cal.50 machine gun
	A-3454	2-III-F-4 Engage targets with cal.50 machine gun
	A-3455	2-III-F-5 Set headspace and timing on a cal.50 machine gun
	A-2314	2-III-F-6 Mount/dismount AN/TVS-2 sight on cal.50 machine gun
	A-2315	2-III-F-7 Boresight AN/TVS-2 to cal.50 machine gun
	A-0701	2-II-B-1 Camouflage/conceal self and individual equipment
	B-2301	2-II-F-1 Maintain AN/PVS (Night Vision Sight)
8-28-2 Issue Defensive Order		See Leader Requirements
8-28-3 Occupy Defensive Position	B-2006	2-III-A-6 Prepare and use aiming and firing stakes for the M16A1 rifle
	B-2105	2-III-B-5 Prepare and use aiming and firing stakes for the M203 grenade launcher
	B-3003	2-III-E-3 Use aiming and firing stakes for M60 machine gun
	B-3007	2-III-E-7 Prepare a range card for an M60 machine gun
	A-0706	2-II-B-6 Clear fields of fire
	A-1001	2-II-E-1 Identify terrain features (natural and manmade) on the map
	A-4501	2-IV-B-1 Install/recover an electrically armed claymore mine
	A-4502	2-IV-B-2 Fire a claymore mine

UNIT: MECHANIZED INFANTRY PLATOON

MISSION: DEFENSE (LIVE FIRE)
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<u>COLLECTIVE TASKS</u>	<u>SM TASK No,*</u>	<u>INDIVIDUAL TASKS (SM Page-Task Title)</u>
8-28-3 Occupy Defensive Position (cont)	B-4506	2-IV-B-6 Install/recover a mechanical ambush
	A-0810	2-II-C-9 Emplace/recover pyrotechnic early warning device
	A-0902	2-II-D-2 Install and operate field phones (TA-1 and TA-312)
	A-0930	2-II-D-5 Prepare/operate tactical FM radios (AN/PRC-77, AN/VRC-64 and AN/GRC-160)
	A-0931	2-II-D-6 Prepare/operate tactical FM radios (AN/VRC-46 and AN/VRC-47)
8-28-4 Detect Approach of Enemy	A-0512	2-II-A-6 Estimate range
	A-0806	2-II-C-6 Identify threat vehicles and weapons
	A-0960	2-II-D-II Transmit or receive a radio message
	A-0803	2-II-C-3 Collect/report information SALUTE
8-28-6 Call for Indirect Fire Support	A-1502	2-II-A-7 Call for/adjust indirect fire (using grid coordinate method of location and bracketing method of adjustment)
8-28-7 Engage Dismounted Infantry	A-0806	2-II-C-6 Identify threat vehicles and weapons
	A-0512	2-II-A-6 Estimate range
	B-5501	2-VII-A-1 Control rate and distribution of fire

Analyses such as the foregoing, which can be accomplished either by using the graphic Soldier's Manual/ARTEP Interface, or Commander's Manual, FM 11-B/C/CM, should prompt any infantry commander to assign the listed SM Tasks as training objectives for his NCO's. Each team and squad leader, each platoon sergeant, whenever and wherever the opportunity is provided or presents itself, can then pursue that individual training most relevant to ARTEP proficiency for his unit.

Moreover, as the commander thinks through the problem of preparing his platoons for the ARTEP tasks, the following actions might commend themselves to him:

④Recognizing the importance of being able to operate the carrier and maneuver teams independently, he might issue two binoculars, two compasses, and two sets of maps per squad -- one for the squad leader, and the other for the carrier team leader.

④Recognizing that the fully loaded APC may handle differently than the empty vehicle, he might build and carry dummy ammunition loads, and other boxes or duffle of appropriate weight and cube so that the squad can train with the APC in the configuration in which it will have to fight. If he does so, divisional logistic demand data can more readily come to grips with the wear problems which will probably be occasioned by operating APC's overloaded 120% or more.

④Appreciating that he must accomplish training toward the ARTEP tasks at home station, he will train toward the ARTEP firing using 25 meter and known distance ranges in his local training area. This should lead to a resurrection of maneuver team firing at panoramic targets, or at miniature pop-up targets, so as to teach the squad and platoon musketry.

④Similarly, he will teach mounting, bore-sight, and zero of night vision equipment on crew served weapons in the ranges available in his local training area.

④In addition to the 2 mile conditioning runs, he will devote time for forced marching with weapons and ammunition, so as to ready his soldiers for the tasks described in the T&EO.

④He will issue 30-round magazines and carrying pouches for his M60A1 and M203 weapons, carrying straps for 7.62 ammo boxes for the M60 machine gun, and LLLSS as appropriate.

④He will purchase brackets to mount the AN/TVS-2 on M60 machine guns, to accommodate the modified, spring loaded barrel locking lever (bracket assembly, NSN 1090-00-405-0407; unit price \$53.50).

④He will emphasize that within the 8 Squad, the smallest element is a pair, the buddy team. He will teach that this team, while not a permanent pairing, since mission dictates organization, is the way to man a foxhole, an APC, an M60 machine gun, an overwatch, an DRAGON dismounted, the least sized detachment for any infantry mission. Thus, he will provide for the minimum teaming required to assure soldier rest with alertness and security, for water safety, and for guarding against cold injuries or carbon-monoxide poisoning.

•He will exploit fully the potential of the Training Extension Course (TEC) to support individual training in his unit, and encourage enrollments in the Army Correspondence Course Program (ACCP).

•Above all, he will look to the training of his platoon leaders, and his senior noncommissioned officers, so that they will have the confidence and the competence to execute ARTEP tasks in a manner worthy of the Pathfinder soldiers they lead.

