

TRAINING NOTES



Dragon Training Update

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Dragon training has come a long way since the weapon came into the Army's inventory in 1974.

Early training programs for the Dragon, unfortunately, did not include enough instruction to enable field units to train their soldiers to be qualified gunners. The manual that was fielded with the Dragon specified only a 15-hour program of instruction (POI) with quarterly sustainment training. In 1979 that POI was superseded by a 40-hour interim training program (ITP) that emphasized tactically-oriented performance tasks as well as gunnery skills. But even with the ITP, gunner proficiency with the Dragon remained unsatisfactory until September 1981 when the present 80-hour revised ITP was implemented.

This program devotes more time to Dragon gunner training, eliminates the self-paced course, establishes the sitting position as the primary firing position, limits the number of launch effects trainer firings (20 rounds a day per gunner), and provides new tracking tables.

The program also establishes gunner selection criteria. The most important of these criteria are the soldier's desire to become a Dragon gunner and his commander's evalua-

tion of his overall abilities. But there are other criteria as well — a prospective gunner must have:

- The ability to flex the upper trunk right and left.
- The ability to crouch comfortably in the kneeling position.
- The ability to control his breathing by holding his breath throughout the sequence of target acquisition, firing, and tracking.
- Vision that is correctable to 20/20 and the ability to close the left eye independently of the right without strain or flutter. (Soldiers with the left eye dominant should *not* be selected.)

DEVICES

Several devices have been fielded in the past few years to assist the Dragon training program. The first was the field handling trainer (FHT), an expended tactical round refurbished to simulate the tactical round in weight and configuration. It gives the gunner some experience in the tactical employment of the weapon and, to a limited extent, in handling, arming, and tracking the round. It is an inexpensive device.

Another device, the launch effects

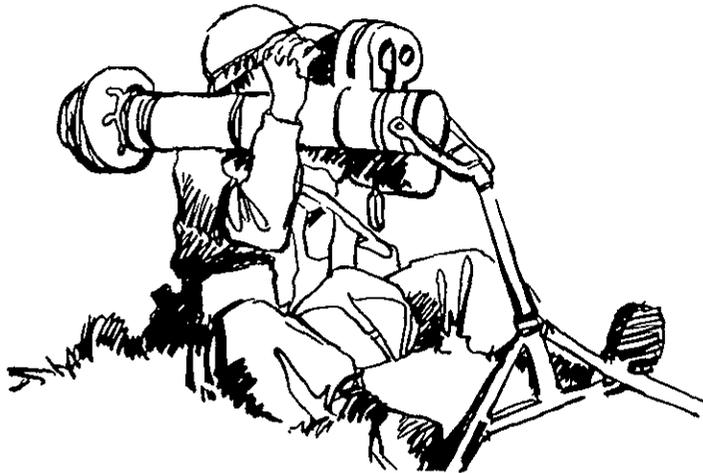
trainer (LET), simulates the tactical round in appearance, weight, and recoil; in weight shift from the gunner's shoulder; and in time delay between trigger squeeze and launch. It is used primarily to improve the gunner's proficiency in tracking. (Without monthly training on a device such as the LET, Dragon gunners will lose about 25 percent of their accuracy.)

Although it is still the primary trainer for the Dragon, the LET has one shortcoming: it does not duplicate the noise, flame, and smoke produced by a live missile. In the past, the only way for a unit to overcome this training deficiency was to have its gunners fire a tactical round and hope for the best. But tests have shown that a gunner needs to fire at least two missiles to overcome the launch effects of live rounds, and this is an extremely costly operation.

The possibility of using the M175 viscous damped mount and a new, lightweight tripod has also been examined, but tests have shown that Dragon gunners do no better with these than they do using the conventional bipod firing position.

The realistic launch environment that is lacking in the LET will be available soon in a new device known

as the launch environment simulator (LES), which will be fielded by the end of this year. The LES duplicates the launch effects of a live Dragon missile by using a glow plug to ignite a mixture of explosive gas and oxygen. The LES's realistic simulation includes recoil, high noise level, blast overpressure, flame, smoke, debris, and short-term target obscuration. In short, the Dragon LES produces the aspects of the launch environment that most influence the gunner's performance when he is firing the actual round.



According to preliminary tests, gunners who are trained with the LES will have a higher probability of getting hits with their first live rounds. Too, the LES can be coupled with the LET's monitoring set to evaluate a gunner's performance in real time by comparing his ability to track a previously defined aiming point.

The LES program will use the same gunner scorecard that is now used in LET training. Although a gunner is limited to firing no more than 20 LET rounds per day, a unit will be able to use the LET for 15 rounds and the LES for 5 rounds. (Because of the realistic launch effects of the LES, a gunner will be limited to firing 5 rounds in a 24-hour period.) And when using the LES, a gunner, every quarter, must achieve three hits in five engagements.

(At first, because of the limited number of LES devices in the Army — 245 — units may experience long lines at their local Training Audiovisual Support Centers.)

The Multiple Integrated Laser Engagement System (MILES) is also important in Dragon training, but there are some areas of concern that must be dealt with.

First, although the principle behind MILES-Dragon training is sound, the antitank weapons effect signature simulator (ATWESS) used with MILES was designed to help vehicle crews identify antiarmor fires. But the ATWESS produces a blast only from the aft end of the Dragon, and this is unrealistic. Besides, its tracking time is only seven seconds, which

simulates a range of about 700 meters. To be truly effective, a gunner should be able to use the maximum range of the Dragon (1,000 meters).

The weapon effects simulation characteristics also cause problems if MILES is used for gunnery training. The probability of a kill, given a one-round hit, is automatically fed into the MILES transmitter, and this is not acceptable for gunnery training. Only the gunner's ability to put a missile on target should be evaluated, not the mathematical probability of having one round register a hit. For example, the Dragon is assigned a 76 percent probability of a one-round kill on a tank at 1,000 meters. Thus, about one out of every four times a gunner hits the target, he will automatically register a "no-hit" no matter how accurate his tracking might have been.

Another area of concern is that the AN/TAS-5 Dragon night tracker cannot be used with MILES. To get the

most from training, gunners should be able to use the Dragon night tracker with an inert tactical round to get realistic thermal training using the night sight.

Future generations of MILES devices for use with the Dragon are expected to improve Dragon gunner training. For example, new MILES sights, using computer technology, will be able to simulate smoke and other target obscurants. They will also show a representation of the aft end of a missile in flight, thus giving a gunner a realistic picture of what he will see when he fires a live round.

To further improve Dragon gunnery, in the near future gunners will be able to qualify on the Dragon by using a device known as STAGS, or simulated tank antiarmor gunnery system. In fact, STAGS, which is composed of a terrain board, an instructor station, and a gunner station, will be the key to training for our entire family of antiarmor missiles. Testing and evaluation on the first version will begin in January 1984.

This device, using computer simulation, will realistically duplicate the actual launch of a Dragon missile. The instructor will be able to monitor the gunner's sight picture and also his errors in azimuth and elevation. The instructor then will either recall the flight of the missile on a visual display or print out a copy of it. The STAGS will be used for day and night qualification as well as for quarterly sustainment training.

All in all, the STAGS and LES devices will offer distinct improvements in Dragon training and will give the Army a long-sought alternative to the rising cost of live fire training.



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