

HEADQUARTERS 805th TANK DESTROYER BATTALION
APO 464, United States Army

8 June 1945

SUBJECT: Tank Destroyer Equipment

TO: Col. W.F. Millice
AGF Board, FAAC
APO 777, U.S. Army

In compliance with your request of 6 June 1945 for an Evaluation And Comparison of the M10 and M18 Tank Destroyers, the attached report is submitted.

It is based on my personal experience with the M10 and M18 as follows:

M10 - Company commander - 6 months - Training
M10 - Company commander - 4 months - Combat
M18 - Company commander - 1 month - Training
M18 - Company commander - 5 months - Combat
M18 - Bn S-3 - 4 months - Combat

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An Evaluation of the Relative Merits of the M18 and M10
Tank Destroyers with Suggested Improvements for Each

INTRODUCTION

The efficiency of fighting equipment is so much dependent on the employment of the equipment, the terrain, weather conditions, and opposition, that, in the final analysis, an evaluation is usually a matter of opinion or an estimate of the potentialities of the equipment, based on experiences under one or more combinations of the above mentioned factors. No one unit can be tried under every combination of weather, terrain, etc., so we must estimate what would likely be the performance in some situations. Also the increase in efficiency in one phase of operations will usually decrease the efficiency in another phase. Therefore, in evaluating the relative merits of the M10 and M18 Tank Destroyers, we must weigh the favorable and unfavorable aspects of one against the other, and suggest modifications to bring each to its desired performance.

ARMOR

The armor of the M10 is superior to that of the M18. 20 mm. A.P. will (and did) penetrate the front armor (between driver and assistant driver) of an M18 from an estimated range of 400 yards. This was close range, but it is the opinion of the undersigned that armor sufficient to stop 20 mm. A.P. should be provided on the front and sides of TD's. It is also believed that a further increase in armor is not advisable, as the increased weight will make the vehicle harder to handle and decrease climbing and pulling power, flotation, and maneuverability.

ARMAMENT

The main armament of the two vehicles is satisfactory, but in each case the machine guns are not satisfactory. The anti-aircraft machine gun mount in the M18 is better than that of the M10, but neither can be expected to serve as a dual purpose gun. They are not suitable for placing fire on ground targets because the gunner is too exposed. Both vehicles should have a bow gun and, if practicable, a co-axially mounted gun - both Cal. 30.

TURRET

The turret compartment and mechanism, both of the M10 and M18, have many faults. In the M10 there is plenty of floor space, plenty of room for the crews to serve the gun, and an excellent storage compartment for ammunition (complete with "ready rack"), but the turret gears are, in places, exposed and are dangerous, there are no ports or periscopes for vision in close proximity to the enemy, and, most important of all the deficiencies of the M10 Tank Destroyer, there is no

power traverse. Only a crew member faced with the possibility of suddenly confronting, with his M10, an enemy tank with a power traverse can appreciate the extreme necessity for a rapid means of traverse. There must be a power traverse on tank destroyer vehicles.

The M18 has the power traverse, an azimuth indicator (which is an aid in precision and long range fire), a good direct sight, and, in general, good accessories and a suitable turret arrangement. The faults are slightly cramped quarters for crew members, no ports or periscopes for turret members (except gunner's periscope with sight reticle), and, most important, insufficient and unhandy ammunition storage racks and an unsatisfactory ready rack.

MOBILITY AND MANEUVERABILITY

The speed of the M18 is far greater than the M10, but this is considered of little value. More important are mobility and maneuverability. The M18 is easier to handle, moves more quickly, runs more smoothly, makes less noise, and when new has more relative power and climbing ability. In both mobility and maneuverability the M18 surpasses the M10; however, one factor limits the mobility of the M18 which is found to a lesser extent in the M10. The vehicle is slightly wider and has less ground clearance than the M10. This limits movement in rocky areas, and offsets the otherwise superior flotation of the M18, which will "belly up" in soft ground. In addition the M18 ages more rapidly than the M10 and eventually loses so much of its power and climbing ability that it becomes inferior to the M10 in this respect. The M18 should be geared one or two speeds lower, even if a corresponding loss of higher ranges is a result.

SUSPENSION AND TRACKS

The suspension system of the M18 is believed to be better than that of the M10. The large bogies afford better absorption of small bumps and smoother riding, less chance for immobilization by bogie damage, and more wear. The shock absorber system of the M18 (with torsion bar) gives freer movement of bogies and allows the M18 to be treated much more roughly and aggressively than the M10. This includes a greater resistance to mines and faster driving over rough terrain, with less chance of injury to crew members in either case.

The tracks of the M10 are better than those of the M18. They are wider and therefore better fitted to make use of "surface tension" on crusty ground. The steel track of the M18 is good in every respect except its width, the lack of provisions for grousers and track extensions, and the poor traction on hard-surfaced and icy roads. Provisions for widening the track and manufacturing suitable grousers are necessary.

PREFERENCE

As the two vehicles now stand, the undersigned prefers the M18 Tank Destroyer to the M10. However, each of the two vehicles can be improved and, if properly revised, either will be an excellent piece of equipment.

SUMMARY

Major changes suggested are:

For the M10:

1. Install a power traverse.
2. Install a bow M.G.
3. Install periscopes.

For the M18:

1. Add a little armor.
2. Lower speed and increase power.
3. Install a bow M.G.
4. Install periscopes.
5. Widen tracks.
6. Increase ground clearance.

CONCLUSIONS

The conclusions, therefore, are that the idea of high speed employment of tank destroyers being impractical, the efficiency of tank destroyers can be improved by discarding speed and substituting a small amount of armor, (in the case of the M18), widen tracks to increase flotation, and increase pulling and climbing power.

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