The ARMORED SCHOOL

TANK DEPARTMENT

FORT KNOX KENTUCKY

LIGHT TANK INSTALLATIONS

M5A1

1944

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PREFACE

The M5 and M5A1 have the same general appearance and construction. The "M" denotes model and the "A" denotes alteration. Although this booklet deals specifically with the M5A1, it may be used in most cases as a guide to the M5 as well, since the differences between the two tanks are not great.

The tank crew is trained to inspect the tank according to a "Crew Drill", (see page 47). In so doing it functions as a team. This drill is intended to provide the unit commander with a guide whereby the inspection of vehicles may be performed "By the Numbers", utilizing the time of all members of the crew to best advantage and at the same time covering thoroughly all installations to be inspected. Crew duties are rotated so that all members become proficient in all duties requisite to a well drilled tank crew. Before crew drill is attempted, the installations of the tank must be studied; during this study, bear in mind the mastering of: proper operation, how and what to look for when inspecting, the fuel and lubrication required to keep the vehicle rolling. Reference: The appropriate vehicle Technical Manual.

Regulations prescribe that First Echelon Maintenance shall consist of:

1. Proper operation and detecting faulty performance.
2. Prevention of abuse and failure of vehicles.
3. Preventive maintenance inspections.
4. Servicing (checking and replenishing fuel, oil, grease, water and antifreeze, and battery water; checking and tightening nuts and bolts; cleaning).
5. Lubrication: Periodic changing and adding oil and grease.
6. Care of tools and equipment.
7. Emergency roadside repairs.

When is the tank inspected? ALWAYS:

1. Before operation.
2. During operation.
3. At the halt.
4. After operation.

When duties are allocated for crew inspection, it must be borne in mind that the mission is: to thoroughly inspect the tank in the most expeditious manner, with economy of time and motion. It is not enough to say that the crew functions as a team. They must know what units they are responsible for inspecting, exactly what they are looking for, and how their part of the inspection is coordinated with the other crew members.

This booklet is primarily intended for the study of installations and the items checked by the crew during first echelon maintenance. It will be used by the student as a guide and reference when actually making a study of the vehicle itself and as a study reference. The order of presentation is not the order in which the crew inspection is made but the order of the study of the exterior of the tank and interior installations.

All material has been compiled from restricted data and this material is therefore considered as restricted material.

CHARACTERISTICS OF THE M5A1 LIGHT TANK

The M5A1 light tank is a full-track laying armored vehicle carrying a four man crew, and equipped with dual driving controls. It is powered by two 110 horsepower, Cadillac V-8, liquid-cooled engines.

The crew consists of a tank commander and gunner in the turret and a driver and assistant driver (or bow gunner) in the fighting compartment.

The armament consists of one 37-mm gun as the main weapon, supplemented by a cal .30, coaxially mounted machine gun. In the bow gunner's compartment is a cal .30, ball mounted machine gun, and outside the turret on a pedestal mount is a cal .30, antiaircraft machine gun.

The student should learn the characteristics of this tank as general information. It is important that along with the study of all American tanks and those of our allies, a study of the vehicles used by the enemy be made. There are times in combat when the quick recognition of vehicles will avert firing on friendly vehicles and loss of time in getting a shot at the enemy.

In regard to the performance characteristics of this vehicle, as an example, the student should know that the fording ability is thirty inches of water; but more than that, he should know where that will come on the vehicle. A glance should suffice to tell if the vehicle is still well within its safe fording depth and not necessitate the measuring of exactly thirty inches to see if the vehicle is safe. This is again illustrated by the driver of an ordinary automobile. He cannot see where his wheels touch the ground yet he knows where they are. He cannot see the front of his right fender but he knows where it is. These items hold true for road space, ground clearance and other operating characteristics of the vehicle.

DATA AND PERFORMANCE

Weights, equipped with crew and complete stowage	17 tons
Maximum allowed speed	40 mph
Maximum grade ascending ability	30 deg
Number of miles without refueling	
Cross country	86 miles
Highway	172 miles
Fording depth	30 in
Maximum width of ditch vehicle will cross	5 ft 5 in
Maximum vertical obstacle vehicle will climb	24 in
Fuel, 80 octane gasoline	86 gal
Oil, engine crankcase	8 qt
Oil, transmission, differential, transfer unit, final drives	68 qt
Cooling system	35 qt

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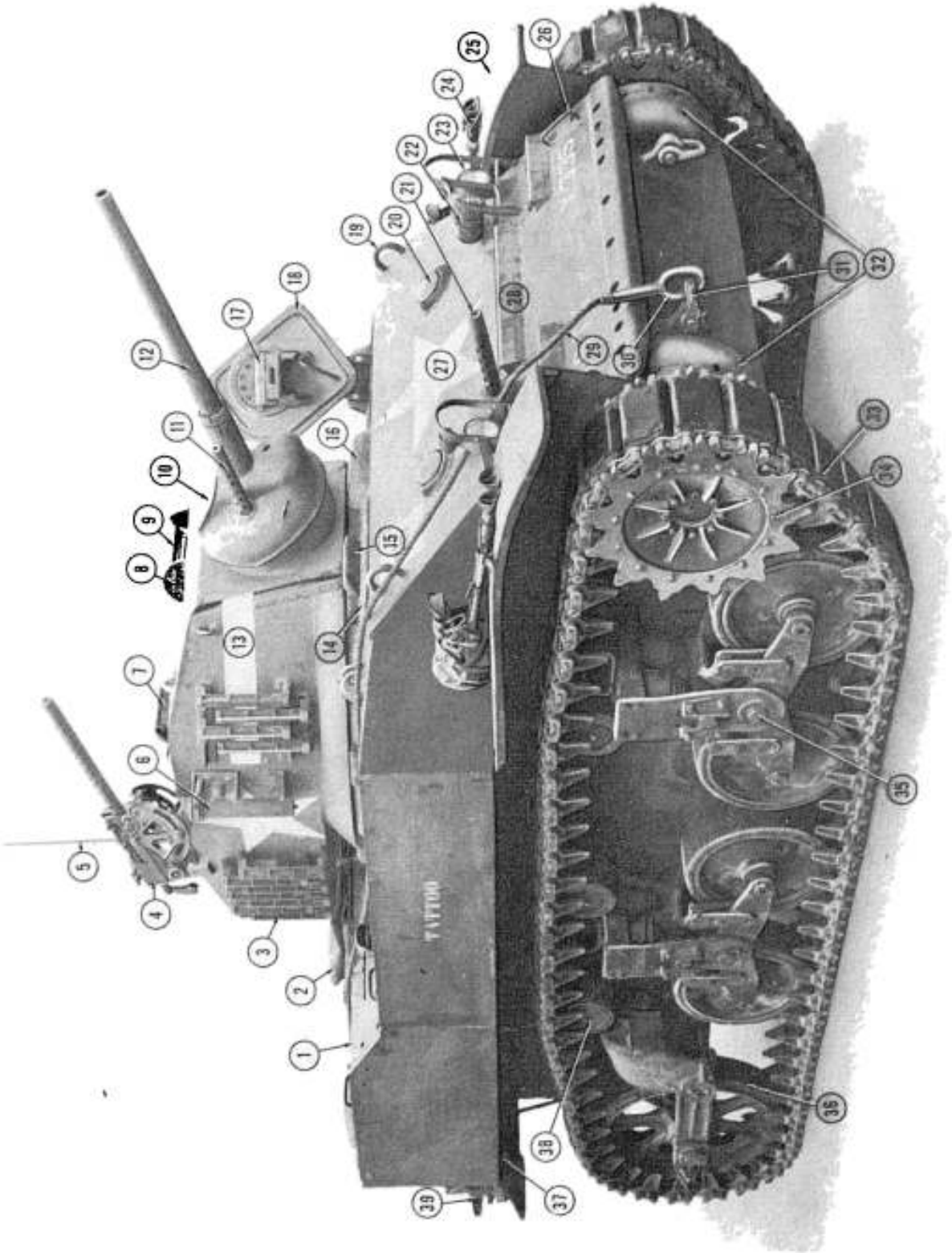

Figure 1