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INTRODUCTION

The SIMNET M1 combat simulator does not contain all the functions and controls found in the M1 tank. Rather, the SIMNET M1 contains only those functions and controls needed to fight.

This manual provides crews with an understanding of the SIMNET M1 and describes those functions and controls that have been modified from the M1 tank and those which are unique to the SIMNET M1.

1 The SIMNET World

The SIMNET M1 and its crew live in a world created by a computer. In this world you will find hills, trees, buildings, roads, streams, power lines, tanks, APCs, trucks, howitzers, mortars, command posts, etc. You will also find other crews in their combat vehicles, both friendly and enemy. You will interact with these just like the M1 tank and its crew does in the real world. For example, if you ram a big tree with your gun tube you may break the turret traversing gear, or if you drive into an unfordable stream you will get your vehicle stuck. If you get hit by fire, you may be disabled or killed. If you shoot another target, it will suffer damage or be knocked out. You will see and hear the explosions of nearby direct and indirect fire, and bombs dropped by aircraft.

The illustrations on the facing pages show the vision envelopes from a SIMNET M1 maneuvering in the SIMNET world with other friendly and enemy combat simulators.

Pay particular attention to the pictures of disabled tanks. They are immobilized (due to lack of fuel, thrown track, reparable damage, etc.) but can still carry out limited operations (fuel and ammunition loading, turret traversal, enemy engagement, etc.). Destroyed tanks have suffered catastrophic, irreparable damage and are permanently out of action.
2 SIMNET M1 Systems

SIMNET M1 systems and hardware create the SIMNET battleground.

Visual System

The visual system contains an eight-channel computer image generator. Each channel provides a view out to 3500 meters. The rotation of components (turret, cupola, etc.) of the vision system mimics views from the M1 tank and allows the SIMNET M1 crew to rapidly search for targets and terrain features, and to maintain tactical formation while moving.

- **Commander** Three 1 power vision blocks mounted in a rotatable cupola. The Commander's GPS Extension is a repeater (identical view) of the Gunner's GPS channel.
- **Gunner** GPS channel with two selectable magnifications: 3 power and 10 power
- **Loader** One manually rotatable 1 power vision block.
- **Driver** Three 1 power vision blocks.

Sound System

The SIMNET M1 recreates realistic battlefield and M1 sounds, including:

- **Vehicle sounds** - For example: engine whine, track movement, and the ammo doors opening and closing
- **Weapons fire** - Direct, indirect, aerial, and own weapons firing
- **Impacting rounds**

Crew Seating System

Crew seats in the SIMNET M1 are equipped with a "rumbler" which creates vibration and sounds that are appropriate to tank speeds, soft soil or hard surface roads, steering and gear changes. The commander's seat is adjustable in height but does not flip up to provide a commander's stand nor does the loader's seat fold out of the way.
Weapons System

The SIMNET M1 is armed with the 105 MM main gun only and is capable of firing HEAT and SABOT rounds. This gun is boresighted and zeroed. The gun and fire control system (laser range finder and GPS) are stabilized. The stab system is adjusted to the null point and drift control knobs are not provided.

The cant sensor, wind sensor, and ballistics computer are always operational.

Neither the Muzzle Reference System (MRS) nor the Gunner's Auxiliary Sight (GAS) are provided. However, the GAS reticle is provided as a backup sight in the event the GPS suffers combat damage.

Communication Systems

The SIMNET M1 includes normal FM radio and intercom capabilities appropriate to the unit. Command tanks have a simulated AN/GRC 12 radio which permits preset and remote frequency selection. Non-command SIMNET M1's have a simulated AN/VRC-64 and intercom. Headset and boom microphones are provided in lieu of the CVC helmet.

Constraint Systems

The SIMNET M1 has a number of systems that logistically or operationally limit the vehicle in much the same way that real-world conditions limit the M1 tank. These systems take into account such factors as M1 armor protection limitations, fuel capacity and consumption, basic ammunition loads and expended ammunition, vehicle speeds, grade climbing and obstacle crossing ability, and reliability and maintenance of components.
Repairs/Recovery
Specific times to repair have been obtained from the US Army Armor School for each failure possible on the SIMNET M1. Time to repair starts when the automotive or turret mechanic (who must move to your SIMNET M1’s location in the SIMNET World) starts the repair. If the mechanic selected the right repair procedure, your SIMNET M1 will be operable when the time to repair has elapsed. If the correct repair has not been selected, your SIMNET M1 will remain inoperative. If enemy action threatens to overrun your tank because of a mobility failure, the mechanic has the capability to effect a recovery operation by using the M88A1 available to each company maintenance team if the M88A1 is not being used elsewhere.

Simulated Effects
The illustration at the top right and many of the illustrations in this manual show examples of the simulated weapons effects that you will see in SIMNET during the conduct of battle. In addition, you will note that trailing dust clouds kicked up by vehicles (see illustration - inside front cover - driver’s view, center) and engine exhausts are displayed in SIMNET. Be alert for these signs of vehicle activity and remember that your SIMNET M1 is giving similar signs to other vehicles in your area.

Vehicle Identification
The illustrations at the lower right and many of the illustrations in this manual show examples of the numerous types of vehicles that you will see through your SIMNET M1 vision blocks and the GPS and GPSE. Friendly vehicles are tan in color. Opposing vehicles are green.
SIMNET M1 Performance Characteristics

Speed
The SIMNET M1 terrain behavior is very similar to that of the M1 tank. For example, the SIMNET M1 will get stuck if you attempt to cross a stream deeper than 48 inches. (Streams deeper than 48 inches are shown as dark blue in the SIMNET world.)

- Forward Speed, maximum (paved level surface) 45 mph
- Reverse Speed, maximum (paved level surface) 25 mph

Obstacles
- Vertical...........................................49 inches
- Ditch.............................................108 inches
- Grade.............................................60% (31 degrees)
- Side slope without throwing a track.....40 %

Traversing
- Turret Traverse.................................360°
- Commander’s Cupola ....................300°
- Loader’s Periscope.........................300°

Armament and Ammunition Stowage
55 rounds of either 105 MM HEAT or SABOT selectable at vehicle initialization and during resupply operations or ammunition redistribution. Loader is capable of stowing individual rounds as desired. No secondary armaments. Stowage capacities are as follows:

- Ready Rack 22 rounds
- Semi-Ready Rack 22 rounds
- Hull Stowage 8 rounds
- Floor Stowage 3 rounds

Fuel Capacity 505 gallon capacity (498 gallons usable before fuel exhaustion)

Operating Range
Dependent on soil and slope conditions and on throttle and gear positioning. At steady 25 MPH on hard surface roads maximum operating range is 385 miles.

Change Requests
You can help improve this manual. If you find any mistakes, or if you have any suggestions for improving this manual, please let us know. Mail your comments to: SIMNET Program Office, Perceptronics, Training and Simulation Division, 21122 Erwin St., Woodland Hills, CA 91367-3717

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