

Tankers, Ski

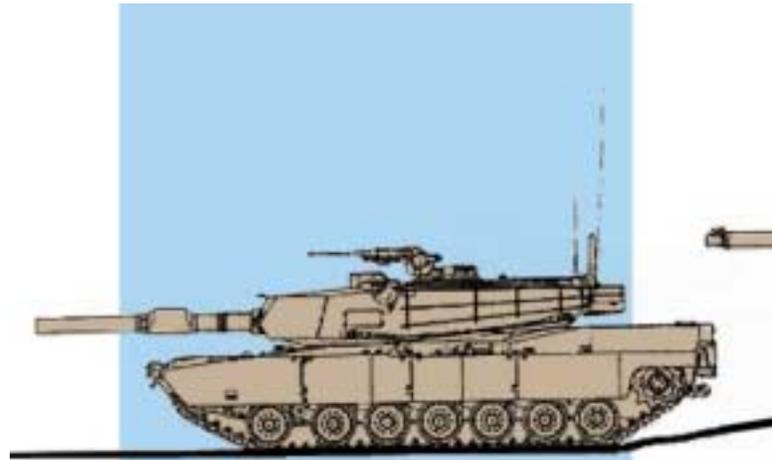
By Capt. Jason Arthaud

The M1A1 main battle tank is one of the most lethal machines operating on today's battlefield. One would think working inside the "deadliest, most survivable of tanks" would be a relatively safe place. Unfortunately, one tank platoon discovered how equally destructive this tank can be to crewmembers, especially when they bypass procedures.

During a live-fire tactical exercise, the tank crew fired a 120mm SABOT round into an enemy tank target. Knowing the blast would give away their position, the platoon SOP was to back up and seek out a different firing position.

Once the gun fired, the loader opened the ammunition compartment and pulled the next round from the ammunition rack. At the same time, the driver cranked the throttle, and the tank lurched backward. The jolt launched the 53-pound round free of its compartment, and the base slammed into the loader's chest.

Though winded and knocked off balance, he caught the round, flipped it, and pivoted forward to place it in the breech. He figured he'd catch himself by falling against the loader guard. Unfortunately, he missed the guard, and his momentum slammed his chest against the breech and whipped his head over the breech-block.



1. When the tank took off in reverse, the loader lost control of the round and it struck his chest and knocked him toward the breech.

pping a Step?

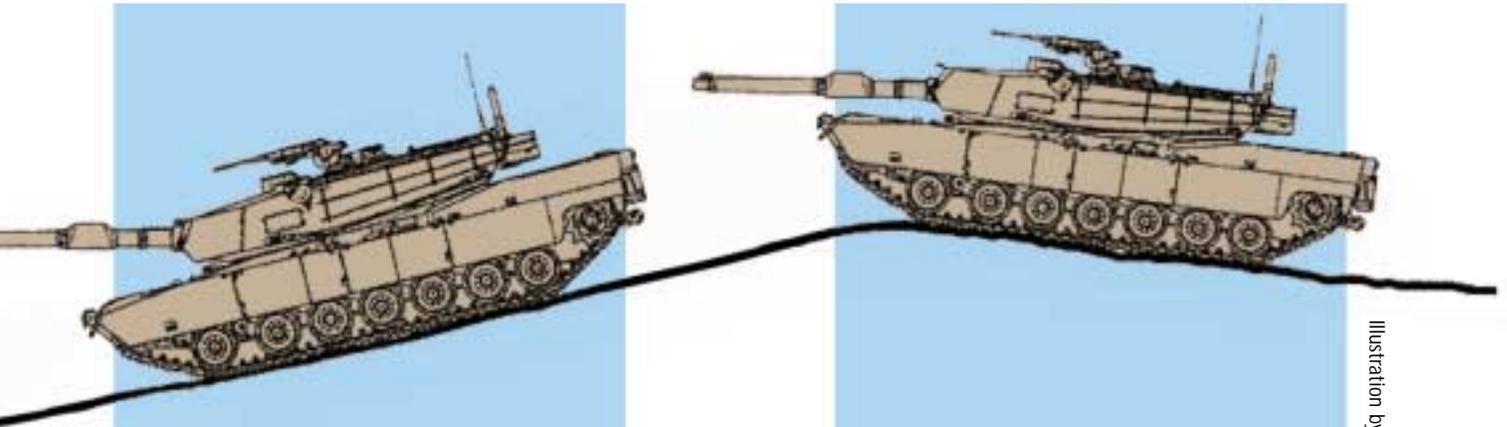
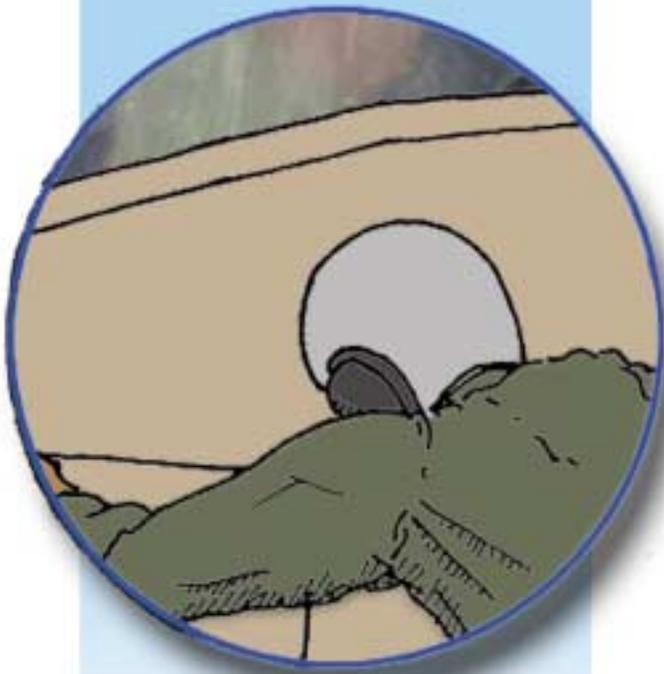


Illustration by Capt. Jason Arthaud



2. The loader missed the loader guard, fell over the breach, and attempted to shove the round home.



3. While over the breach, the tank crested a slight rise. The stabilized gun swung down to stay on target, and the breech-block swung up and crushed the loader's head.



One would think working inside the “deadliest, most survivable of tanks” would be a relatively safe place.

Rather than righting himself, he attempted to shove the round home.

While the loader frantically worked to finish re-loading, the tank commander peered from his cupola to help the driver avoid boulders and dry creek beds. The 68-ton tank lumbered backward until the commander noticed a small rise in their path and a deep ditch behind it—he screamed for the driver to stop. The driver released the throttle, stomped the brake to the floor, and halted the tank just short of the ditch.

Turning forward, the commander searched for a new firing position, and the gunner scanned for targets through his sight. While looking through his sight, the gunner noticed the ready-to-fire-box wasn't lit. This indicated that the main gun wasn't loaded or armed. The gunner turned to investigate the hold-up, and noticed a partly loaded round protruding from the breech. He looked over his

shoulder, just in time to see the loader stagger against the side of the turret and make a muffled cry for help.

“Oh my God,” the gunner said, as he noticed a deep gash running from the loader's ear to his mouth. He was bleeding badly from his cut, and his left eye was hanging out of its socket—lying on his cheek. The gunner yelled for the lieutenant, and together they helped the loader climb out of the tank. Within 15 minutes, the critically injured lance corporal was flying to a regional medical center. The lance corporal survived, but he has undergone extensive reconstructive surgery, and doctors were unable to save his eye.

What went wrong? The post mishap LTI showed the tank and all guards were in place and controls were working properly. The loader normally served as the driver, but he was qualified as a loader and had recently passed the required gunner's exam.

Examination of the tank found that the gun-turret drive (GTD) switch was in the wrong position when the lance corporal tried to re-load. The GTD switch, operated solely by the loader, should have been set to EL UNCPL. This setting locks the gun and keeps the commander and gunner from moving it up or down. If the main-gun is locked at zero degree elevation, a loader can safely load and move about his station. Investigators found the loader skipped this step.

By not switching the GTD to the elevation-uncoupled position, the gun was still under the commander and gunner's control, a dangerous condition for loading while moving. When the tank backed over the rise in the rough terrain, the gunner was tracking a target. Since the main gun was stabilized, "slaved to the sight," it moved up and down as necessary to stay on target. The loader's head was over the breech when the tank crawled over the slight rise in the ground. When the tank crested the rise, the muzzle end of the gun depressed to stay on target, and the breech end swung up and crushed the loader's head.

Further investigation found that though the TM states the loader must place the GTD switch in the EL UNCPL position before loading, the FM does not. The unit's SOP stated specifically to leave the GTD set to

POWER. Captain Rush, the OIC of the Marine Corps detachment at armor school, said, "Tankers focus more on the Tank Gunnery FM for gunnery operations, not the TM." The FM is the primary source of drills, and checklists used to teach loading and re-loading at the School of Armor in Fort Knox, as well as in the FMF.

The loader test is administered from a parked stationary tank, using dummy rounds. During testing, the tank isn't powered, so sudden movements of the main gun are not a concern. Since previous editions of the FM does not list placing the GTD switch to EL UNCPL as a step in loading, Marines, until recently, haven't been trained to do so. The simplified task breakdowns used to test and gauge proficiency may have unintentionally skewed emphasis to speed, rather than procedure.

Is it really necessary to have the main gun in EL UNCPL all the time? According to the TM, and now the FM, yes, at least when moving. Many tankers consider the feature a convenience for use only if and when the gun is depressed or elevated at extreme angles. Using EL UNCPL in a stationary tank may seem unnecessary. However, when the gun is powered, and the tank is moving over rough terrain, you risk repeating this mishap.

Since the FM is the parent source for most training SOPs, omitting this step from the FM and the gunnery skill tests has resulted in confusion and debate over what is optional and what is required. All tankers are aware that placing any part of their body over or under a stabilized main gun is dangerous. The Marine in this case knew the danger, but he was thrown over the breech. This was not a freak occurrence. There have been similar incidents, which have resulted in one fatality and several near-misses.

Most Marines don't use EL UNCPL as described. Many Marines, including the lance corporal in this mishap, were trained specifically not to use it. Maybe to avoid slamming the gun around, or because it isn't listed in the TCGST. These tests cover selected actions the crew must perform in combat. Some steps aren't listed in the checklists for a graded, timed evaluation, but that

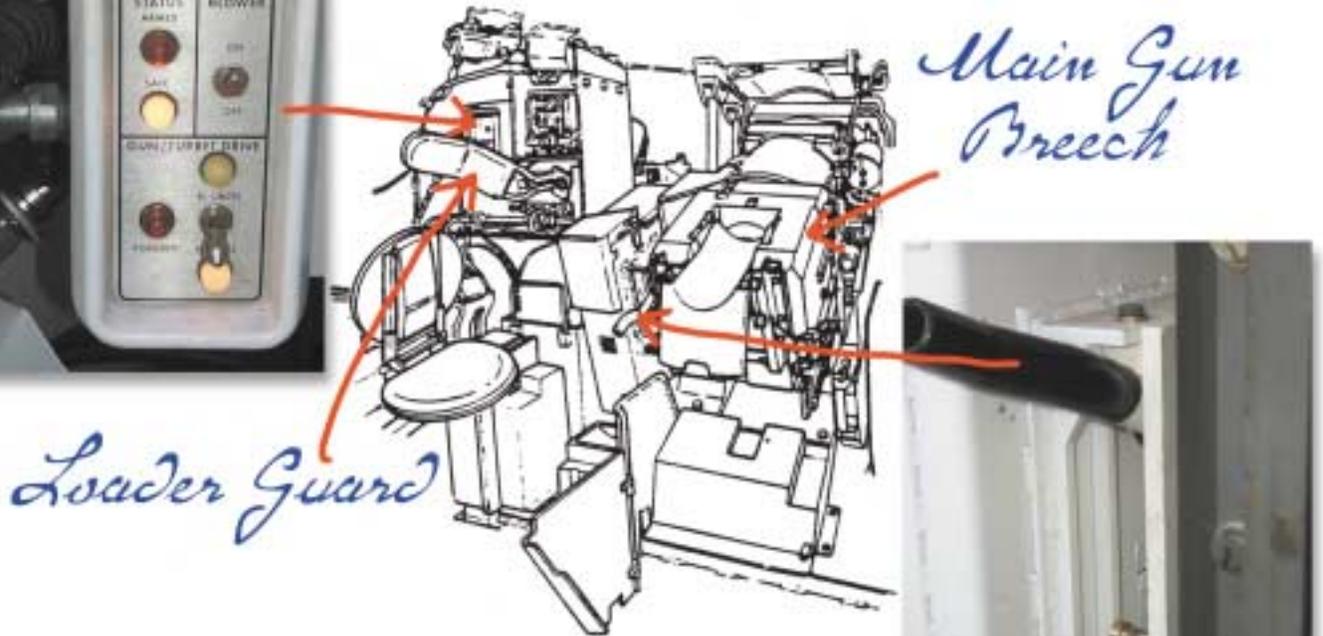


A Marine removes a round from the ready munition compartment.



GTD panel

The GUN/TURRET DRIVE panel switch has three settings; EL UNCPL, POWERED and MANUAL. Once set to EL UNCPL, the gun automatically returns to POWERED and back to EL UNCPL as the arming lever is raised to the ARM position or lowered to SAFE.



Arming Lever

The ARM/SAFE in the up, ARM, position. If the GUN/TURRET DRIVE switch is set to EL UNCPL, the gun automatically moves back to POWERED when the arming lever is raised to the ARM position.



doesn't mean you can disregard the TM's more detailed procedures and warnings.

In this case, the GTD switch was in POWER when the lance corporal attempted to re-load. When he moved the arming lever to SAFE, the gun stayed stabilized. If he had placed the GTD switch in EL UNCPL and left it there, the gun would have leveled itself and locked at zero degrees when he pushed the lever to SAFE. It would have automatically switched back to power when the loader flipped the arming lever to ARM. Once armed, the gun instantly realigns itself with the sight, and the commander and gunner are able to fire.

The instructors at Fort Knox estimate that most tank crewmen, unless recent graduates of the armor school, are probably skipping this loading step. The Marine detachment and the master gunners branch at Fort Knox have included "ensure GTD is set to elevation-coupled," as a new step in the TCGST. The FM,

17-12, also has included, "To make sure the main gun can be loaded safely across all types of terrain, the GTD switch in the loader's position must remain in the EL UNCPL position."

The draft has been approved, but since it is new, you may have difficulty obtaining copies. For additional information or copies of these changes, contact the Marine Corps detachment at Fort Knox or the army doctrine branch.

Capt Arthaud can be reached at jarthaud@safetycenter.navy.mil.

**Capt. Lee Rush, Marine detachment, DSN 464-2846, rushl@ftknox16cav-emh12.army.mil*

**Capt. Michael Skaggs, Marine detachment, DSN 464-2335, skaggsmd@semper.usmc.mil*

**SSgt. Keith Eisenmenger, Gunnery Doctrine Branch, DSN 464-5505, eisenmengerk@ftknox6-emh3.army.mil*