

M1-Series Tanks...

THIS CREW WAS **LUCKY** THEY WEREN'T INJURED—OR WORSE.



BEAT BACK FLAREBACKS

FLAREBACKS ARE NOT JUST DANGEROUS—THEY'RE **VERY DANGEROUS**.

IF YOU EXPERIENCE ONE, YOU AND YOUR CREWMATES WILL BE **LUCKY** TO ESCAPE INJURY.



BUT FLAREBACKS CAN BE AVOIDED WITH CAREFUL MAINTENANCE AND BY STICKING TO THE PROCEDURES OUTLINED IN THE TMS.



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Flareback happens when the fuel-rich gases formed by firing the main gun enter the crew compartment, mix with oxygen, and then are ignited by some source.

During normal operations, the 120mm gun system uses the bore evacuator to remove the combustible and toxic fumes generated during firing. Some of this gas pressure is forced into the bore evacuator chamber through the gun tube gas ports.

After the projectile is fired, pressure in the gun tube falls off almost immediately and the pressure stored in the bore evacuator chamber is discharged through the gas ports. This gas discharge creates small “jet streams” which are directed through the gun tube toward the muzzle.

Fresh air is drawn in through the open breech, combines with the gases from the bore evacuator, and is propelled out the muzzle of the gun tube. That’s what keeps those gases out of the turret.

Maintenance

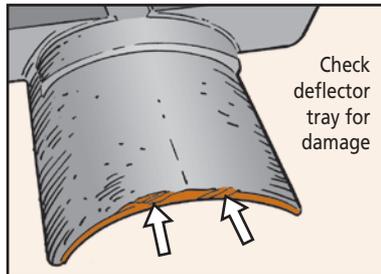
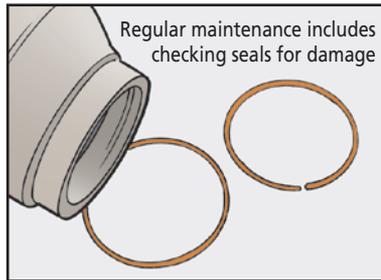


The PMCS charts in your operator’s manuals detail the inspection and service procedures for the bore evacuator.

They include removing the bore evacuator for cleaning and servicing, cleaning the gas ports in the gun tube, and inspecting the bore evacuator and seals for tears, cuts, gouges and other deformities. New seals must be installed during semiannual services, even if they show no damage.

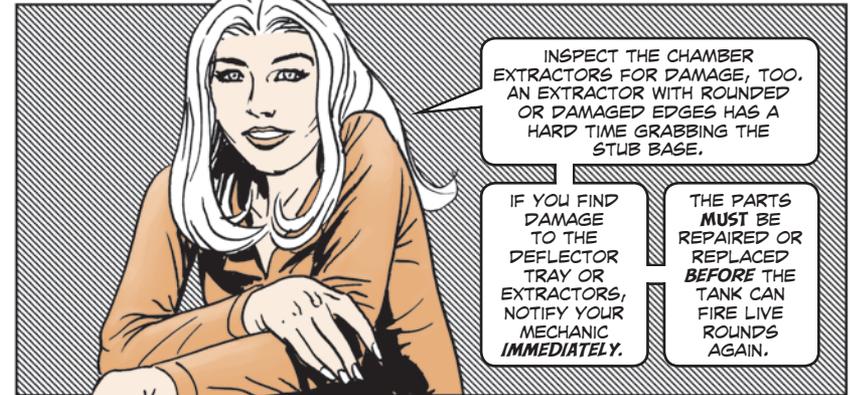
Another reason for flarebacks could be that fresh air is not drawn into the gun tube because of a failed stub base ejection.

You need an open breech to allow fresh air to be drawn into the gun tube. If the stub base won’t fully eject from the chamber after firing, there’s a problem. The usual cause is a faulty stub base deflector tray or damaged chamber extractors.



If the deflector tray is misaligned, the ejected stub base hits the front edge of the tray. Check the deflector tray closely for dents, nicks or gouges, especially at the front leading edge.

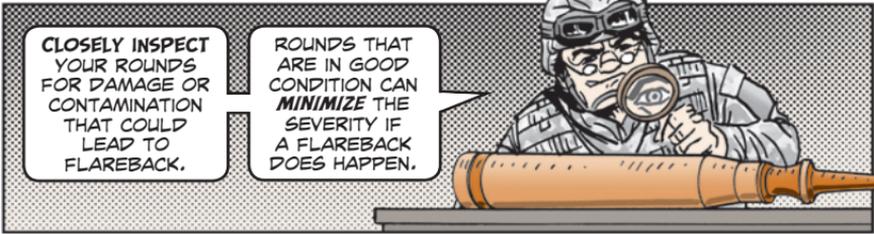
A misaligned or damaged stub base deflector tray can also damage the round during loading. The damage isn’t usually noticed since it happens when the round is chambered.



Inspecting the rounds themselves is also a critical step in flareback prevention. Rounds that are contaminated with water, oil or other substances might not burn completely. The residue left behind could ignite any gases not expelled by the bore evacuator.

Inspect rounds for contamination before firing

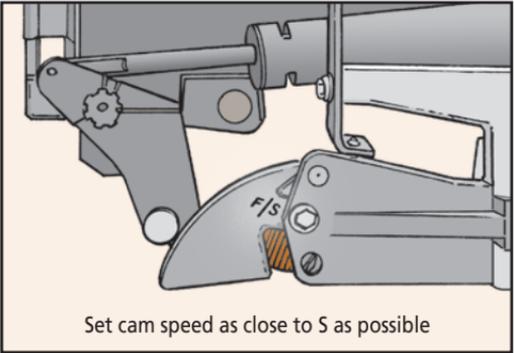




In addition to crew PMCS, sustainment maintenance is also critical. Proper borescoping, recoil exercises and the right cable adjustment for the gun system are critical if the weapons system is to function properly.

Cam Speed

The best way to reduce flareback during operation is to set the operating cam speed to the **S** position. The initial starting position should be one click past the **S** position to make sure the cam is fully engaged.



However, if the cam setting is too slow, the stub base won't eject properly and the bore evacuator will start to discharge before the breech opens.

You'll find instructions for setting the cam based on temperature and operating conditions in WP 0460 of TM 9-2350-264-10-3 (Sep 11, w/Ch 3, Jan 15) and in WP 0552 of TM 9-2350-388-10-3 (Dec 12).

If the breechblock doesn't fully open or the stub base doesn't fully extract after firing, a flareback is possible. Stop and follow the procedures outlined in the TMs. Your safety depends on it!



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