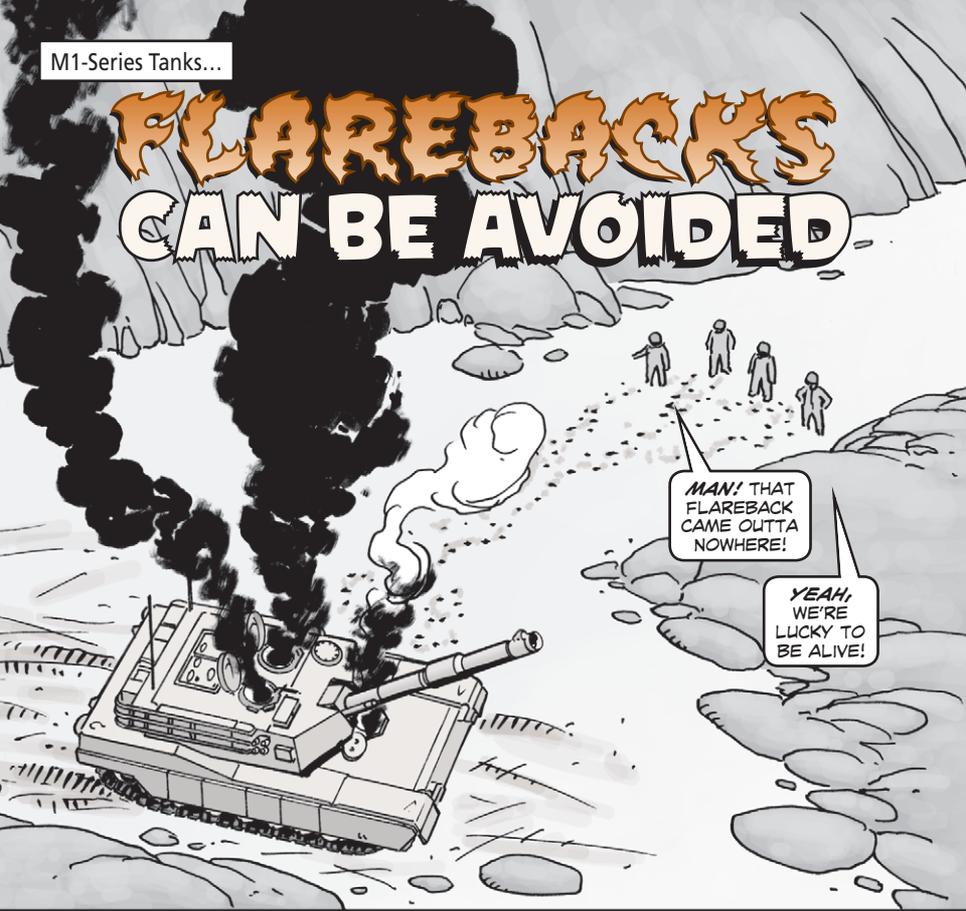


FLAREBACKS CAN BE AVOIDED



MAN! THAT FLAREBACK CAME OUTTA NOWHERE!

YEAH, WE'RE LUCKY TO BE ALIVE!



THERE'S NOTHING THAT'LL RUIN YOUR DAY FASTER THAN A **FLAREBACK** IN YOUR M1-SERIES TANK.

IN FACT, A FLAREBACK CAN CAUSE INJURIES!

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 bled into the bore evacuator chamber through the gun tube gas ports.

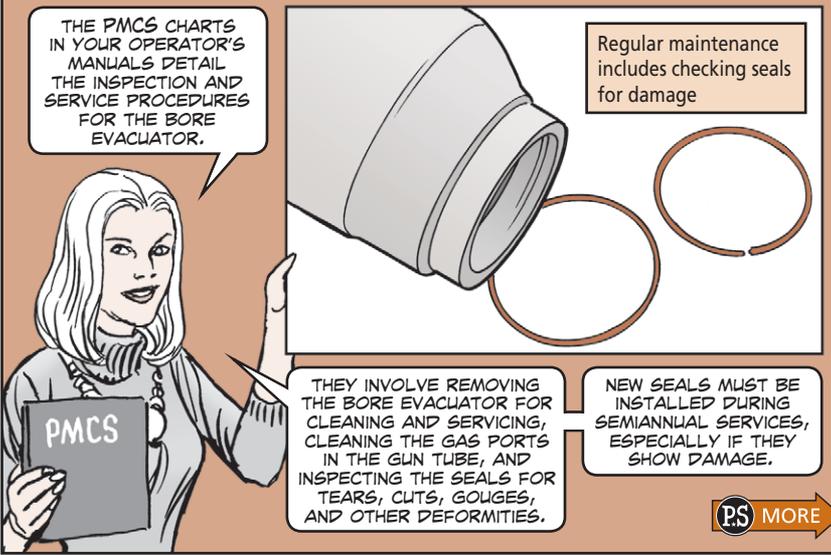
After the projectile is fired, pressure in the gun tube falls off almost immediately and the pressure stored in the bore evacuator chamber is discharged through the gas ports. This gas discharge creates small "jet streams" which are directed down the gun tube toward the muzzle.

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 from entering the turret.

Maintenance



YOUR FIRST LINE OF DEFENSE AGAINST FLAREBACK IS TO PROPERLY MAINTAIN THE BORE EVACUATOR.



THE PMCS CHARTS IN YOUR OPERATOR'S MANUALS DETAIL THE INSPECTION AND SERVICE PROCEDURES FOR THE BORE EVACUATOR.

Regular maintenance includes checking seals for damage

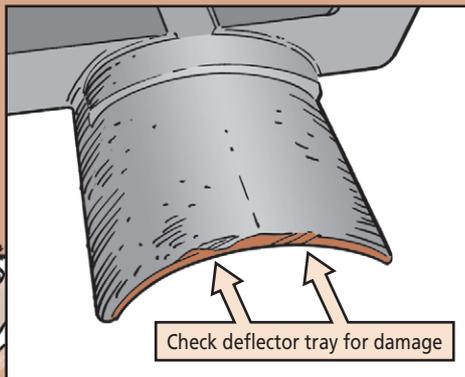
THEY INVOLVE REMOVING THE BORE EVACUATOR FOR CLEANING AND SERVICING, CLEANING THE GAS PORTS IN THE GUN TUBE, AND INSPECTING THE SEALS FOR TEARS, CUTS, GOUGES, AND OTHER DEFORMITIES.

NEW SEALS MUST BE INSTALLED DURING SEMIANNUAL SERVICES, ESPECIALLY IF THEY SHOW DAMAGE.



You need an open breach to allow fresh air to be drawn into the gun tube. So if the stub base won't fully eject from the chamber after firing, you've got problems. 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.



EYEBALL THE DEFLECTOR TRAY FOR DENTS, NICKS, OR GOUGES, ESPECIALLY AT THE FRONT LEADING EDGE.

A MISALIGNED 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.

MAKE SURE YOU INSPECT THE CHAMBER EXTRACTORS FOR DAMAGE, TOO.



AN EXTRACTOR WITH ROUNDED OR DAMAGED EDGES HAS A HARD TIME EXTRACTING THE STUB BASE.

IF YOU FIND DAMAGE TO THE DEFLECTOR TRAY OR EXTRACTORS, NOTIFY YOUR MECHANIC IMMEDIATELY.

THEY MUST BE REPAIRED OR REPLACED BEFORE THE TANK CAN FIRE LIVE ROUNDS AGAIN.

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.

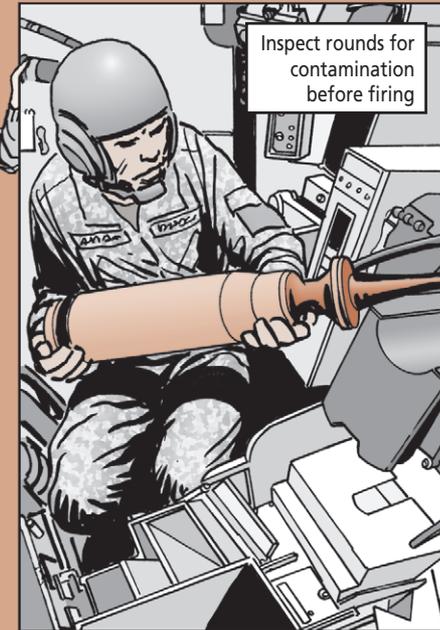
CLOSELY INSPECT YOUR ROUNDS FOR DAMAGE OR CONTAMINATION THAT COULD LEAD TO FLAREBACK.

ROUNDS THAT ARE IN GOOD CONDITION CAN MINIMIZE THE SEVERITY IF A FLAREBACK DOES HAPPEN.

IN ADDITION TO CREW PMCS, SUSTAINMENT MAINTENANCE IS ALSO CRITICAL. PROPER BORE-SCOPING, RECOIL EXERCISES AND THE RIGHT CABLE ADJUSTMENT FOR THE GUN SYSTEM ARE CRITICAL IF THE WEAPONS SYSTEM IS TO FUNCTION PROPERLY.



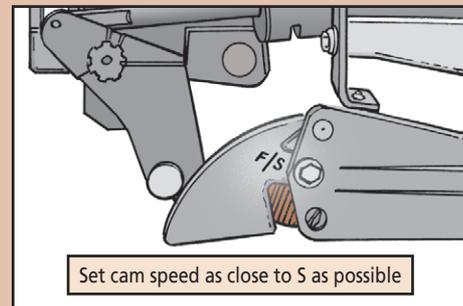
Inspect rounds for contamination before firing



Cam Speed

THE BEST WAY TO REDUCE FLAREBACK DURING OPERATION IS TO SET THE OPERATING CAM SPEED TO THE 5 POSITION.

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 BREACH OPENS.



Instructions for setting the cam based on temperature and operating conditions start on Page 3-266 of TM 9-2350-264-10-2 (Mar 03), Page 3-160 of TM 9-2350-288-10-2 (Jul 95) and WP 0518 of TM 9-2350-388-10-3 (Feb 09).

The 2/30 Minute Rule

IF THE BREECHBLOCK DOESN'T FULLY OPEN OR THE STUB BASE DOESN'T FULLY EXTRACT AFTER FIRING, YOU COULD BE FACED WITH A FLAREBACK.

STOP AND FOLLOW THE PROCEDURES OUTLINED IN YOUR OPERATOR'S MANUALS.

DO NOT REMOVE A STUB BASE UNTIL AFTER THE REQUIRED WAIT TIME.

MANUAL

THE SAFETY OF THE ENTIRE CREW COULD DEPEND ON IT!

2/30 MINUTE RULE

THE OPERATOR'S MANUAL PROVIDES TWO WAIT PERIODS, DEPENDING ON THE SITUATION. THIS IS KNOWN AS THE **2/30 MINUTE RULE**.

If the gun system malfunctions, place the tank into full NBC mode and allow the turret to pressurize for **2** minutes. After full pressurization, the loader can safely lower the breechblock. Over-pressurization of the turret will keep any burning gases from entering the crew compartment.

If the NBC system is not operating, you must wait **30** minutes before opening the breechblock. This will allow any burning gases to completely dissipate. After the 30 minutes, the loader can safely lower the breech.

You must then troubleshoot the system and correct any faults you find before the tank can resume firing.

PS END

M88-Series APU Hydraulic Pump

Turning in a bad auxiliary power unit (APU) for your M88-series recovery vehicle? Better make sure it has the hydraulic pump, NSN 4320-00-613-6607, attached. Units have been removing the pump before turn-in, driving up repair costs. If you turn in an APU without the pump, your unit will now be charged \$190 for a replacement pump. So, make sure everything's there before turn-in.