

**PS****THE  
PREVENTIVE  
MAINTENANCE  
MONTHLY**

TB 43-PS-708, The Preventive Maintenance Monthly, is an official publication of the Department of the Army, providing information for all Soldiers assigned to combat and combat support units and all Soldiers with unit maintenance and supply duties. All information published has been reviewed and approved by the agency responsible for the equipment, publication or policy discussed. Application of the information is optional with the user. Masculine pronouns may refer to both genders. The use of product or company names does not constitute endorsement of those products, services or companies by the U.S. Army.

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**RAYMOND T. ODIERNO**

General, United States Army Chief of Staff

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**JOYCE E. MORROW**

Administrative Assistant to the Secretary of the Army

1123806

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Issue 708

**PS**

November  
2011

# THE PREVENTIVE MAINTENANCE MONTHLY

TB 43-PS-708

Approved for  
Public Release;  
Distribution is  
Unlimited



I'M TRAINING  
FOR THE  
OLYMPICS!



SO AM  
I!

SEE PAGE 27 FOR MORE!

# HASTE MAKES WASTE

PEOPLE WHO SAY THEY DON'T HAVE TIME TO TAKE CARE OF THEMSELVES LEARN A TOUGH LESSON.

THEY'LL HAVE TO MAKE TIME LATER TO RECOVER FROM AN INJURY.

Likewise, Soldiers who take shortcuts while doing maintenance think they're saving time. But they end up costing their unit money and downtime by making choices that lead to NMC vehicles and more repairs.

Some things just shouldn't be governed by time. Maintenance is one of them.

Maintenance is done when it's done and as long as it takes. It's done when the right tools are used in the right way with the right result.

That doesn't mean you can't work fast. It just means you have to work smart by following the procedures in your TMs and unit SOPs.

Students in the hurry-up school of maintenance have to learn phrases like:



The hurry-up school of maintenance is what leads to a split ring putting a big dent in somebody's head. It leads to trucks breaking down during a mission, or runaway .50-cal machine guns, or generators that won't start.

Don't cut corners! Never try to save time by ignoring safety or using the wrong tool.

Remember that haste makes waste. And no amount of "saved" time can undo damage to your equipment, an injury or death.

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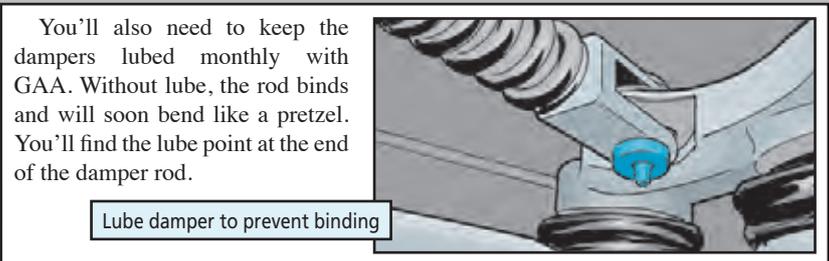
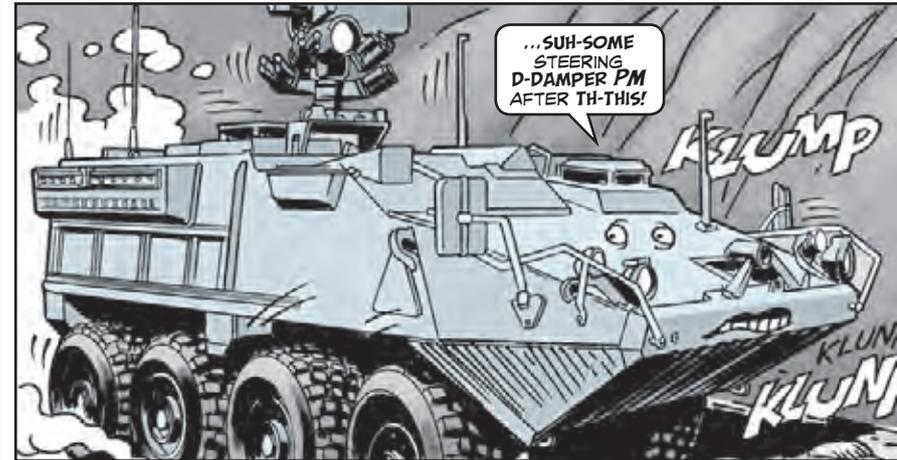
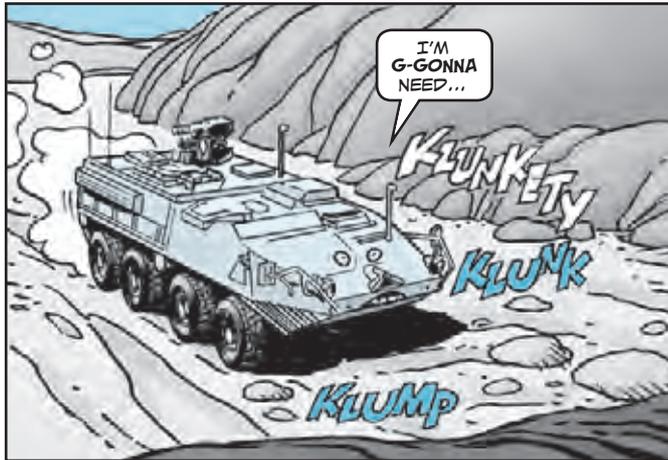
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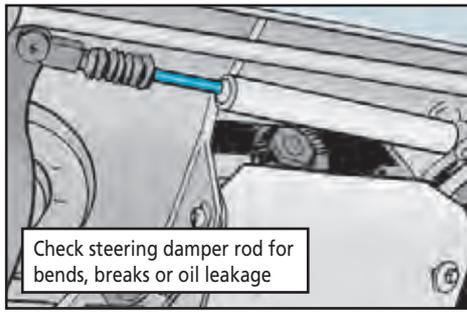
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# Damper PM Won't Steer You Wrong



The dampers are like mini shock absorbers that act as a stabilizer for the steering system. Without 'em, the steering column can give you a good shake down.

Rough terrain, rocks, and heavy brush can take a toll on the damper rods. That's why you need to crawl under your Stryker to visually inspect them, especially after a mission over rough terrain. Look for a bent or broken rod or evidence of oil on the cylinder that could indicate a leaking wiper seal. Report any problems to your mechanic.



You'll also need to keep the dampers lubed monthly with GAA. Without lube, the rod binds and will soon bend like a pretzel. You'll find the lube point at the end of the damper rod.

Lube damper to prevent binding

## Cold Weather Problems

Extreme cold weather also has a negative effect on the steering dampers. Sustained temperatures at or below 0°F result in a significantly high number of steering damper failures.

So, vehicles that are part of the 3rd Stryker Brigade in Alaska are now authorized to remove the steering dampers when the temperature drops below 0°F for a sustained period.

Removing the dampers may result in higher amounts of wheel kick and vibration in the steering system, especially over rough terrain. That can result in increased wear on steering components. So, inspect the steering system often for damage if you've removed the dampers.

All drivers with vehicles that have had the dampers removed should receive a precautionary briefing about the dangers of sudden steering movement and how best to reduce it.

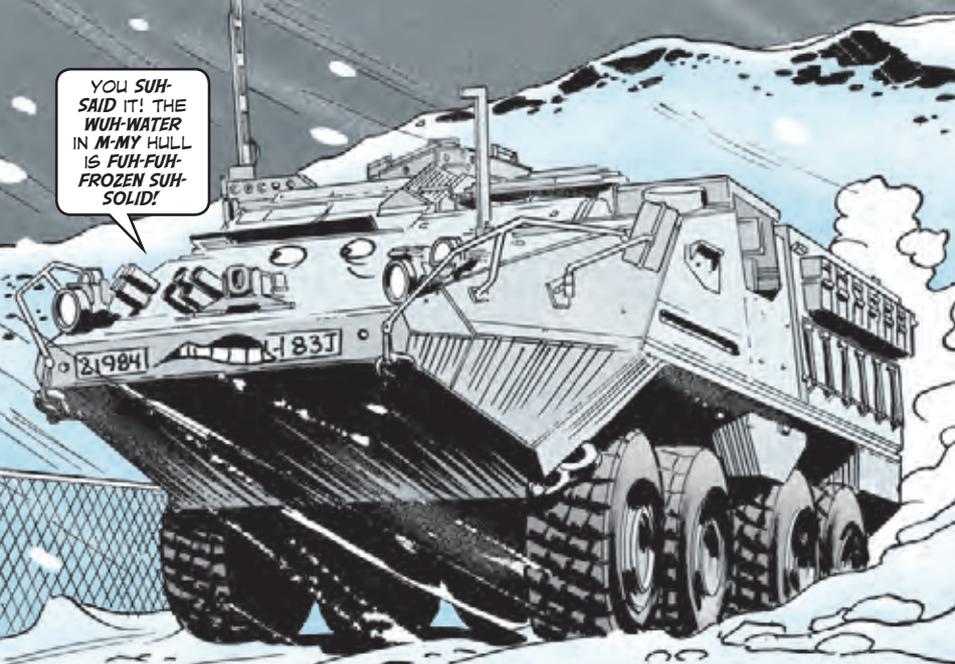
Stryker...

# KEEP WATER ON THE OUTSIDE



MAN, IT'S REALLY CUH-COLD OUT TODAY!

YOU SUH- SAID IT! THE WUH-WATER IN M-MY HULL IS FUH-FUH-FROZEN SUH-SOLID!



Crewmen, you'd be surprised how much water can collect in the hull of your Stryker. It drips off wet boots and uniforms, trickles through open hatches, is left behind after leaving the wash rack, and seeps in through loose hull drain plugs during fording.

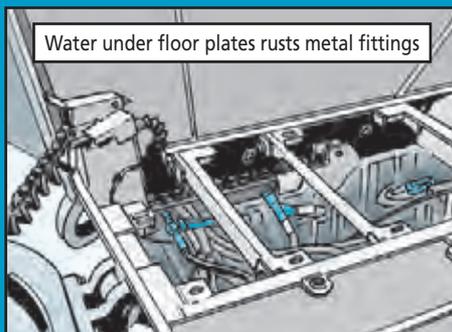
## The Problem

Water can take three forms—solid, liquid and gas. All three create problems for your Stryker.

**Solid:** If you're in a cold-weather environment, the water in the hull and under the floor plates freezes. Since water expands as it freezes, lines and fittings are ruptured, causing all kinds of damage.

**Liquid:** Water under the floor plates will rust the ramp chains; connectors on the air, hydraulic and fuel lines; the ABS system; and pretty much anything else that's made of metal.

**Gas:** As temperatures go up, the water evaporates and condenses on radios and other electronic gear. Enough moisture can short out electronic equipment.



Water under floor plates rusts metal fittings

## The Solution

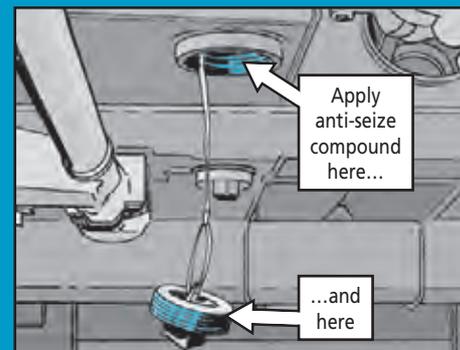
The only way to empty that water is to open the hull drain plugs on the bottom of your Stryker. There are quite a few plugs, so make sure you open all of them or you'll leave water behind.

Make sure any water drained from the hull goes into a drip pan and is disposed of according to your unit's SOP.

Of course, you don't want water to get back in through the plugs, so make sure you reinstall 'em before operation. And do it right. Plugs that are too loose will vibrate free. Plugs that are too tight are hard to open and are more likely to be left closed when draining is needed again.

Apply a little anti-seize compound, NSN 8030-01-087-8254, to the threads before installing the plugs. That lets you tighten the plugs enough to keep them from vibrating loose, but makes them easier to open next time.

Just make sure you put the compound on each plug's threads and the threaded portion of the hull. That way, all the threads are coated and the plugs won't stick.



Apply anti-seize compound here...

...and here

# DON'T WAIT FOR COLD TO CHECK HEATER



TIME TO INSPECT YOUR HEATER!

YEAH, BUT IT'S PART OF YOUR SEMI-ANNUAL SERVICES!

HUH? IT MUST BE 100 DEGREES IN THE SHADE!

After cold weather sets in is **not** the time to start thinking about your Bradley's personnel heater. If you want it to work when the thermometer drops, you need to take care of it year round.

It takes a partnership between mechanics and operators to keep the heater in tip-top condition all year.

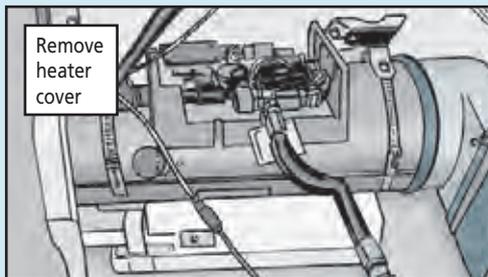
## Mechanics

Since heaters aren't needed when it's hot, the required checks are often overlooked during the summer. That's why TACOM has decided to place more emphasis on heater system maintenance by requiring the following **semi-annual** inspection:

1. Prepare the location to allow total visual and physical access to the heater.

2. Inspect the heater body and occupied space, including hoses and fittings, for signs of old or new fuel leaks. Older leaks can be identified by dried fuel stains.

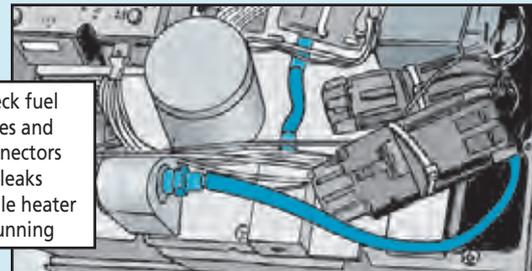
3. Remove the heater's top cover, NSN 2540-01-497-8997. This is commonly known as the "doghouse".



Remove heater cover

4. Check all rubber hoses for leaks, dry rot, cracking, or hardening. Replace damaged ones.
5. Eyeball all fuel system junctions and connections for any signs of old or new leaks. If you find no fuel leaks or system problems, continue on to Step 6. Mechanics can repair fuel supply hoses in the heater compartment, but if you find a leak inside the heater component itself, see step 12.
6. While you're watching the heater, have someone else turn it on.
7. Watch for active leaks using the same procedures that were outlined in steps 2-5.
8. Look for smoke around the heater and at the heater ducts.
9. Check for an abnormally strong smell of fuel in the heater area.
10. Let the heater continue to run for 20 minutes and continue to observe.
11. Turn the heater off.
12. If any fuel leaks or equipment problems are found within the heater component, remove the heater and turn it in to support for service.

Check fuel hoses and connectors for leaks while heater is running



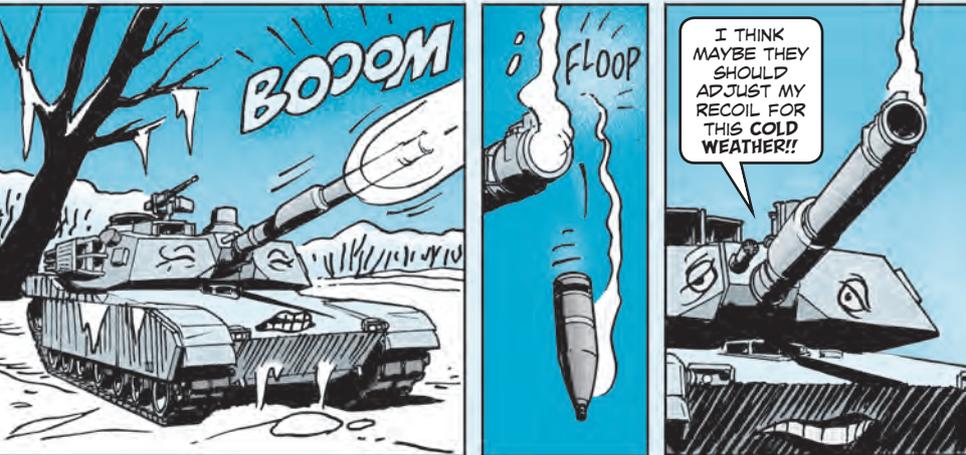
Mechanics, if the service schedule doesn't align with your unit's heater use, or the vehicle has been in long-term storage, an extra service may be needed before cold weather sets in.

## Operators

**AWARENESS IS YOUR BEST DEFENSE AGAINST HEATER FIRES.**

- Be aware of the warning signs of a potential fire—abnormal smells, smoke, flames, or fuel leaks—while operating the vehicle.
- Make sure there's always someone inside the vehicle when the heater system is running. Don't allow your heater compartment to erupt into an uncontrollable fire because no one was around to spot the danger.

# Setting the Cam for COLD



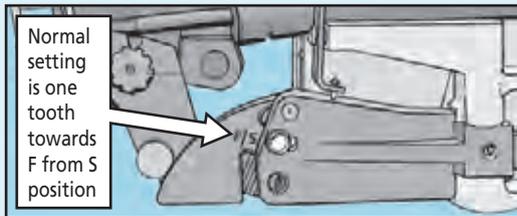
In cold weather, the recoil's stroke speed can slow way down for the main gun on your M1-series tank. The colder it gets, the slower the recoil speed.

That's why the breech has an adjustable operating cam. When the temperature plummets, you can bring back some punch to the breech's ejectors. This allows the breech to continue expelling stub bases even though the recoil speed is slower.

Unfortunately, some crewmen are adjusting the cam to operate the breech as fast as it can no matter what the temperature. They figure the faster the stub bases eject, the faster they can reload and fire again.

But setting the cam to the F (fast) setting doesn't speed up the recoil. It just forces the stub base to be ejected more aggressively. That causes extra stress and wear on breech components and can lead to premature failure.

So, check the cam in your tank now. The normal operating position is one tooth towards F from the S (slow) position. Then, adjust the cam only if it becomes necessary because of cold weather.

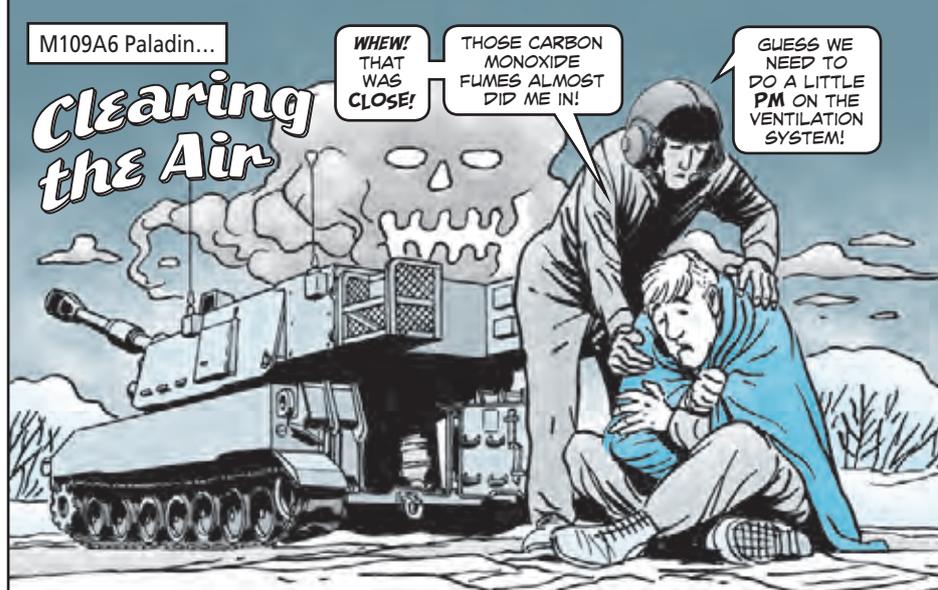


You'll find the instructions for adjusting the cam starting on Page 3-266 of TM 9-2350-264-10-2 (Mar 03, w/Ch 6, Jun 09) and WP 0518 of TM 9-2350-388-10-3 (Feb 09).

And don't forget to return the cam to its normal setting when that cold snap ends.

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# Clearing the Air



When it's cold outside, you have to button up your Paladin tight to stay warm. But that can put you at risk of carbon monoxide poisoning.

Carbon monoxide comes from the exhaust of personnel heaters, the engine, and from firing the main gun. If you don't vent the vapors, the carbon monoxide will increase until the levels become deadly.



YOUR BEST PROTECTION IS AWARENESS AND VENTILATION. FOLLOW THESE BASIC TIPS TO ENSURE PROPER VENTILATION...

- Do your PMCS on time. That's the only way to make sure ventilation systems and blowers are working properly.
- Never operate the personnel heater in an enclosed area unless it is adequately vented.
- Do not idle the engine for long periods unless you're sure the personnel compartment is ventilated.
- Do not drive your Paladin with the inspection plates, cover plates or engine compartment doors removed unless it's necessary for maintenance.
- Be alert at all times for the symptoms of carbon monoxide poisoning: headaches, dizziness, loss of muscular control, and drowsiness. If you experience these symptoms, get out of the vehicle, stay warm and avoid physical exertion while waiting for medical attention.

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# Make Sure Serial Numbers Match

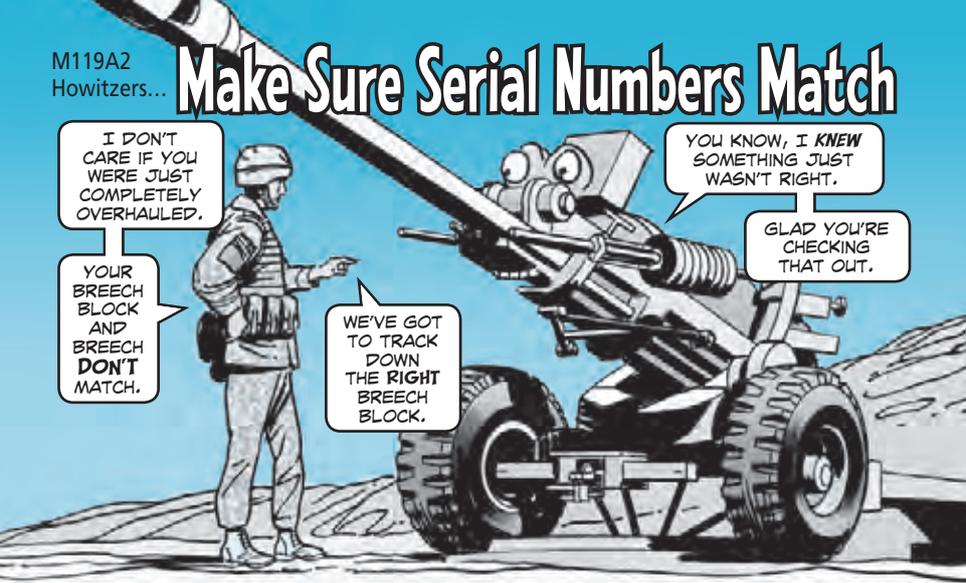
I DON'T CARE IF YOU WERE JUST COMPLETELY OVERHAULED.

YOUR BREECH BLOCK AND BREECH DON'T MATCH.

WE'VE GOT TO TRACK DOWN THE RIGHT BREECH BLOCK.

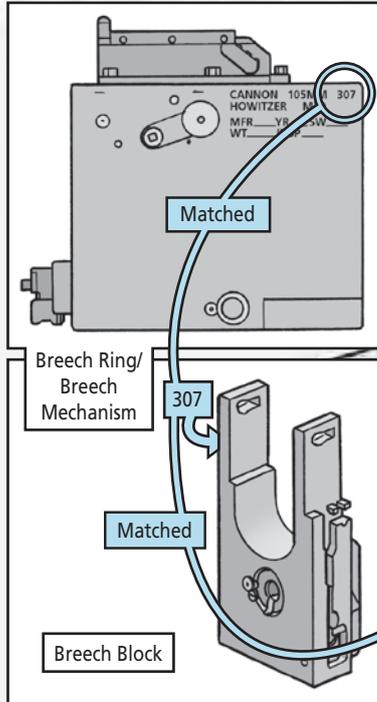
YOU KNOW, I *KNEW* SOMETHING JUST WASN'T RIGHT.

GLAD YOU'RE CHECKING THAT OUT.



WHenever your unit receives an M119A2 howitzer, you must make sure the serial number on the breech block matches the number on the breech.

This includes howitzers coming from the left behind equipment (LBE) program and depot overhaul, as well as lateral transfers from another unit and brand new M119A2s.



1. Tube Serial 330	2. Cannon Type, Model or Series M20/M20A1/M119A2 Cannon, 105mm Howitzer	
5. End Item Identification SN: 521 (Howitzer, Light, Towed: 105mm, M119A2)		
7. Cannon Serial 307	8. Retubings 0	9. Rebrushings 0
6. RDS/EFC COMPUTATION Cumulative EFC RDS fired for Cannon: 6.150		
3. ORGANIZATION (UIC/UNIT) WABLTO (FA RGT 03 HHB)		DA Form 2408-4
6. RDS/EFC COMPUTATION		

The breech block is part of the M119A2's cannon assembly, along with the muzzle brake, cannon tube and breech. If the breech block ends up with the wrong cannon, there is no longer any way to accurately track rounds fired and the life left in the cannon assembly. Info on DA Form 2408-4, which tracks rounds fired, won't be valid. Your howitzer could be unsafe to fire.

The only way to remedy a mismatched breech block is to order a new one. That will set your unit back \$25,764.

If you do find that you have the wrong breech block, check the other howitzers for the correct block. If you find it, check the two howitzers' 2408-4s to see if they have been fired with the wrong breech blocks. If both howitzers **have NOT been fired**, you can just switch the breech blocks.

If the howitzers have been fired or you can't determine from the 2408-4s if they've been fired, you will need to order new breech blocks, NSN 1015-01-344-5835. Don't fire either howitzer until you've got new breech blocks.

## M88A2 Recovery Vehicle...

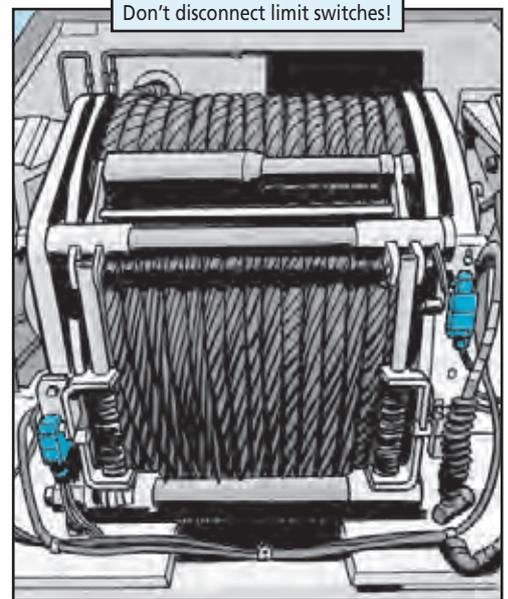
# Don't Limit the Limit Switches

Crewmen, the M88A2's main winch has two sets of limit switches. Both play very important roles.

The first set limits the angle of the winch cable as a load is being pulled in. They automatically shut down the winch if the angle goes beyond 5° in either direction. The second set of switches shut down the winch if the cable starts to bunch on the reel.

Some operators don't like limitations. They disconnect the switches so they aren't limited when using the winch. Bad idea!

Operating without the limit switches will overstress the winch and can cause a breakdown. And if the cable doesn't reel in smoothly, the added stress can break off the corner of the winch housing.



Safety...

# NO TIME TO CHILL IN COLD WEATHER

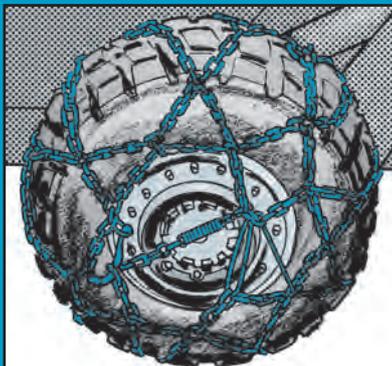


VISIBILITY IS CRITICAL WHEN IT COMES TO DRIVING SAFELY IN COLD WEATHER.

TO GET A LEG UP ON SAFETY, FOLLOW THESE TIPS...

## Before Heading Out

- Make sure inside and outside rearview mirrors are clean, clear and properly adjusted.
- Check that you have tire chains for your vehicle that are the proper size and in good condition.
- Remove ice, snow and condensation from all vehicle windows. Remember, if your vehicle has ballistic glass, it will scratch more easily than regular glass and can be damaged by ice scrapers. Do not use any products that contain ammonia when cleaning ballistic glass. Ammonia breaks down the bond between the inner and outer sections of ballistic glass. Avoid aerosol window cleaners, too. The propellant in some of these cleaners can also cause ballistic glass separation.



Install chains in ice and snow

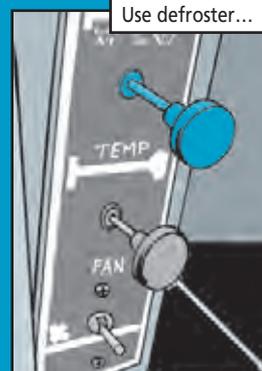
TO CLEAN BALLISTIC GLASS...



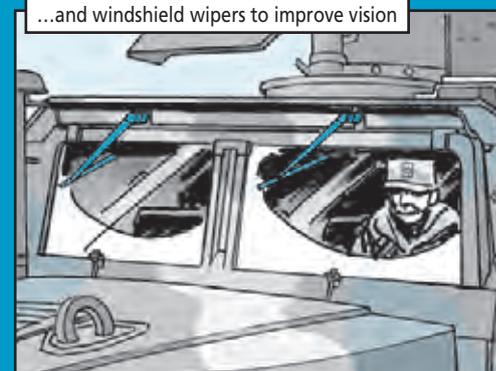
- Rinse the window with clean water from a squirt bottle to soften up and rinse away debris.
- Mix up a batch of soapy water using general purpose liquid detergent. Don't use dry detergent. It may scratch the glass if it doesn't totally dissolve in the water.
- Gently wash the windows with a clean cotton rag and the soapy water. While you're at it, wash the windshield wipers, too.
- Rinse with clean water.

## On the Road

- Use defrosters and windshield wipers to keep windshields free of ice, sleet, snow and fog.



Use defroster...



...and windshield wipers to improve vision

- If the tactical situation permits, use headlights in snowstorms and during periods of reduced visibility.
- Increase driving intervals between convoy vehicles in inclement weather.
- Use a ground guide when backing a vehicle or when you need assistance picking out a path in deep snow.
- Tire chains increase traction for both starts and stops. But remove slack from tire chains. Loose chains damage tires and axle components and can get caught in debris.
- Read and follow all instructions in the operator's manual for your specific vehicle. Look for a chapter or section called, "Operation Under Unusual Conditions."
- For more tips on driving in adverse weather, see Appendix G in FM 55-30, *Army Motor Transport Units and Operations*.

# PREVENT PIPE AND FAUCET FREEZING

WHY CAN'T I  
GET ANY WATER  
OUT OF YOU?

I'M SO  
THIRSTY!

THIS IS WHAT  
HAPPENS WHEN  
YOU NEGLECT COLD  
WEATHER P.M.

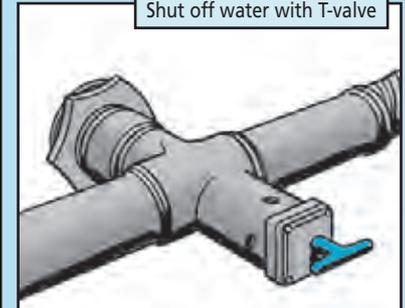
EVEN IN A  
COLD CLIMATE,  
IT'S IMPORTANT  
TO STAY  
HYDRATED. BUT  
THAT'S HARD  
TO DO IF YOUR  
WATER IS  
FROZEN!

SO HERE ARE  
SOME COLD  
WEATHER P.M.  
TIPS TO HELP  
YOU PREVENT  
PIPES AND  
FAUCETS FROM  
FREEZING  
ON YOUR  
M149 WATER  
TRAILERS.

- Place the water trailer in a shelter, especially if the temperature is below 0°F. A warm tent where there's a field range operating is best. If a shelter's not available, cover the trailer with canvas and keep warm air circulating with a heater.
- Always keep the manhole and filler covers tightened. That helps maintain water temperature in the tank and keeps freezing cold air out!

- After each use, drain the pipes by shutting off the water with the main T-valve in front of the tank. Then open all faucets. Prop them open with a piece of wood. No water means no freezing.

Shut off water with T-valve



Keep manhole cover tightened



- Use an immersion heater only in metal tanks. Never use one in a fiberglass tank. It could melt the fiberglass.

A good immersion heater for the job can be ordered using CAGE code 38453 and PN 97-803-100 U. You can email [contact@activegearco.com](mailto:contact@activegearco.com) for more info on it.

If you already have an M67 liquid immersion heater, NSN 4540-00-469-6593, use it. TM 9-4540-202-12&P tells you how.

Follow the instructions on Pages 2-18 through 2-20 of TM 9-2330-267-14&P (Jul 91) to adjust the M67 heater bracket to make it fit the tank. You'll get general guidance there on operating your M149 water trailer in extreme cold, too.

HMMWV...

# IF YOU CAN'T GO, CHECK THE GLOW!



I CAN'T GET  
YOU STARTED,  
WHAT SHOULD  
I DO?

GET  
SOME-  
BODY TO  
CHECK  
MY GLOW  
PLUGS!

Ever tried to start your HMMWV in cold weather and it wouldn't crank? Then you couldn't get warm or perform your mission!

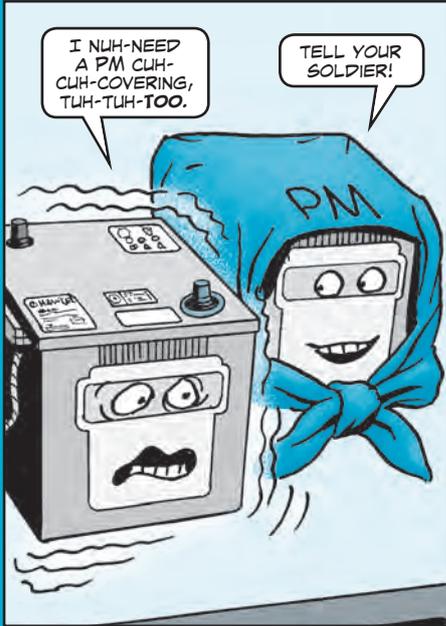
Your HMMWV gets cold whenever the temperature drops to around 35°F. But it should still start within a couple of tries. If it doesn't, check the glow plugs. That's right, the glow plugs.

Unfortunately, whenever one glow plug fails, the others do, too, and quickly! And that will keep your HMMWV from moving. So when you take your HMMWV in for servicing, have the mechanics also check the glow plugs. It shouldn't take more than 10 minutes and it'll prevent wasted time later.



Replace bad glow plugs with  
NSN 2920-01-188-3863

# THINGS TO REMEMBER WHEN IT'S COLD



Charge them to 12.85 volts. Some older batteries may only recharge to 12.65 volts, but still have great amperage rating. That's OK. Remember, a fully charged battery won't freeze as fast. But if you run into problems, try to recover your Hawkers.

If your batteries are at or above 10.5 volts, you can often recover them in 24 hours or less. Hawkers with voltage below 10.5 volts usually need a 24-72 hour recovery period.

Vehicles that get little use in very cold weather can suffer from dead batteries. And improper recovery will lead to premature battery replacement. So follow this guidance to care for Hawkers in the cold.

Got technical questions? For answers, eyeball TB 9-6140-252-13 or visit the Hawker website:

<http://www.hawkeraplus.com>

Or just call the Hawker field support team at (877) 485-1472.

COLD WEATHER IS HERE!

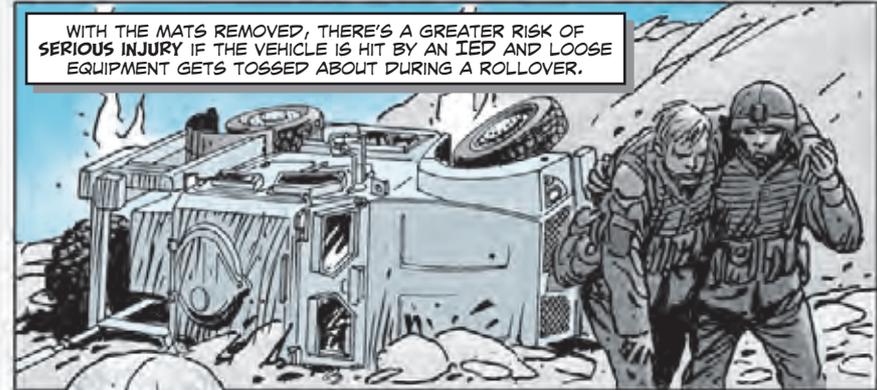


IT'S TIME TO CHECK THE VOLTAGE ON YOUR HAWKER BATTERIES, NSN 6140-01-485-1472, IF YOU HAVEN'T ALREADY.

# FLOOR MAT MISHAP



WITH THE MATS REMOVED, THERE'S A GREATER RISK OF SERIOUS INJURY IF THE VEHICLE IS HIT BY AN IED AND LOOSE EQUIPMENT GETS TOSSED ABOUT DURING A ROLLOVER.



THE M-ATV IS NOT NMC IF IT'S MISSING THE MATS...BUT WHY INCREASE YOUR RISK OF INJURY?

REPLACE A MISSING REAR FLOOR MAT (LEFT-SIDE) WITH NSN 2540-01-577-0620.

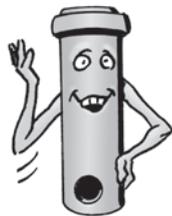
USE NSN 2540-01-577-0627 TO REPLACE THE REAR RIGHT-SIDE MAT.

WONDERING WHAT TO DO WITH THAT UNSECURED EQUIPMENT?

TAKE A LOOK AT WP 0039 IN TM 9-2355-335-10 FOR THE LOWDOWN ON HOW TO PROPERLY SECURE AND STOW EQUIPMENT INSIDE THE M-ATV.

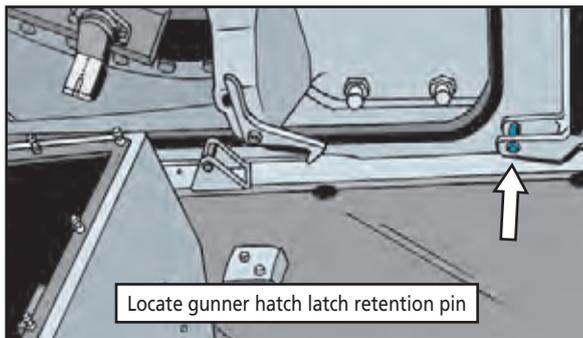


# MRAP GUNNER'S HATCH LATCH PIN



The gunner's sliding hatch inner lock assembly latch pin on the MRAP MaxxProPlus is falling out of place because of a faulty C-clip. That means the hatch can slam down without warning on the gunner! Refer to WP 4-14.4 of TM 9-2355-318-23-3 on how to remove the C-clip, Item 9, and the latch pin, Item 10, and how to replace them with retrofit latch and cotter pins. See TACOM GPA 09-020 for more info:

[https://tulsa.tacom.army.mil/safety/gpm/tacom\\_wn/gpm09-020.html](https://tulsa.tacom.army.mil/safety/gpm/tacom_wn/gpm09-020.html)

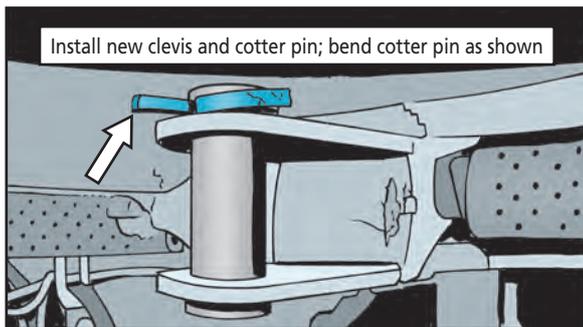


Locate gunner hatch latch retention pin



Use pliers to remove current C-clip that is holding latch pin in

BY THE WAY, YOU WILL NEED YOUR CAC TO ACCESS THIS WEBSITE.



Install new clevis and cotter pin; bend cotter pin as shown

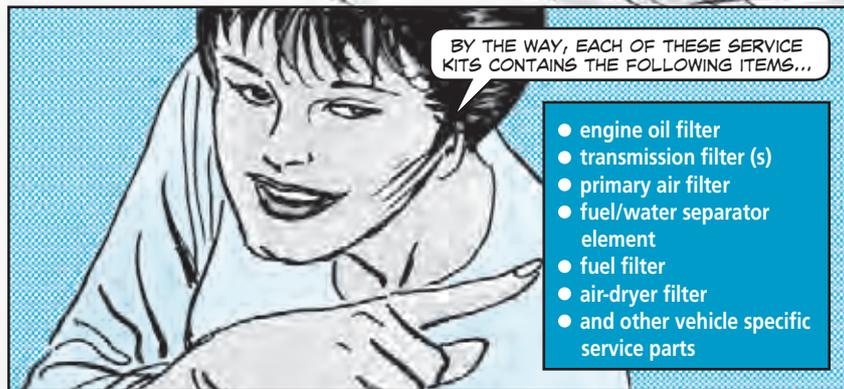
MRAP Vehicles...

# New Service Kits

MECHANICS, NEED TO PULL ANNUAL MAINTENANCE ON YOUR MRAP VEHICLES?

USE THIS HANDY LIST FOR THE SERVICE KITS YOU NEED TO PERFORM THOSE REQUIRED CHECKS AND SERVICES FOR THE FOLLOWING VEHICLES...

MRAP Vehicles	NSN
RG-33/RG-33 Plus	2990-01-570-3733
RG-31A2/A2M1/A2RTR	2990-01-570-3759
RG-31A3	2990-01-578-9652
Cougar	4910-01-576-3422
MaxxPro	2990-01-570-3792
MaxxPro Plus (Ambulance and Dash Service Kit)	2990-01-578-9655
Caiman/Caiman Plus	2990-01-570-3716



BY THE WAY, EACH OF THESE SERVICE KITS CONTAINS THE FOLLOWING ITEMS...

- engine oil filter
- transmission filter (s)
- primary air filter
- fuel/water separator element
- fuel filter
- air-dryer filter
- and other vehicle specific service parts

MW24C Scoop Loader...

HERE ARE SOME "FRESH AIR" BASICS THAT WILL KEEP YOUR SCOOP LOADER MISSION-READY.

# FRESH AIR BASICS

## Transmission Oil Cooler

Any dirt or mud caked in the transmission oil cooler fins will stop air flow that carries heat from the oil, causing the engine or transmission to overheat.

So clean any dirt or mud off the fins with low-pressure water or air.



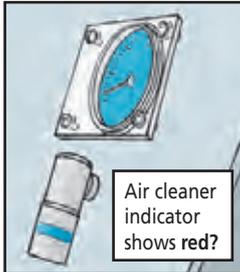
Caked dirt stops air flow. Clean it off

## Air Cleaner PM

Before the day's run, squeeze dirt out of the loader's dust cap on the bottom of the air canister. Do it more often if you are operating in a dusty or sandy area. Keep an eye on the air cleaner indicator, too. If it shows red, stop and clean the filter.



Squeeze dust cap



Air cleaner indicator shows red?

BOYOHBOY, DO I NEED A GOOD CLEANING!

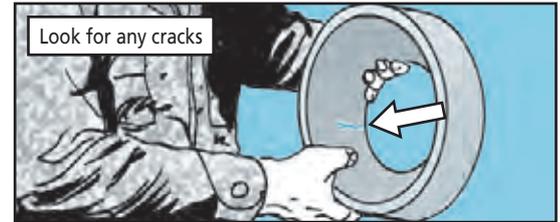
The pre-cleaner collects fine dust before it gets into the air cleaner. Keep an eye on the clear plastic bowl and clean it like so:

- Remove the pre-cleaner lid by unscrewing its wing-nut.
- Use a clean rag to wipe out dust and dirt particles that collect inside the pre-cleaner.



Use a rag to clean out pre-cleaner

After cleaning out the pre-cleaner, eyeball the plastic bowl for cracks. These cracks are caused by vehicle vibration, exposure to the elements and low-hanging branches.



Look for any cracks

If you see a crack, use a piece of duct tape to cover the crack on the outside of the bowl until your mechanic can replace it with NSN 2940-00-876-2181.



## Cold Weather Reminder

In cold weather, clean off the air cleaner's inlet before starting the engine. The engine won't get much air if the air cleaner is choked with snow or ice.

In a snow or sleet storm, shield the inlet with a piece of scrap tarp to keep snow or sleet out.

IF YOU **CAN'T** ADD A COVER, BRUSH AWAY SNOW AND ICE FROM AROUND THE INLET BEFORE YOU TRY TO START THE ENGINE.

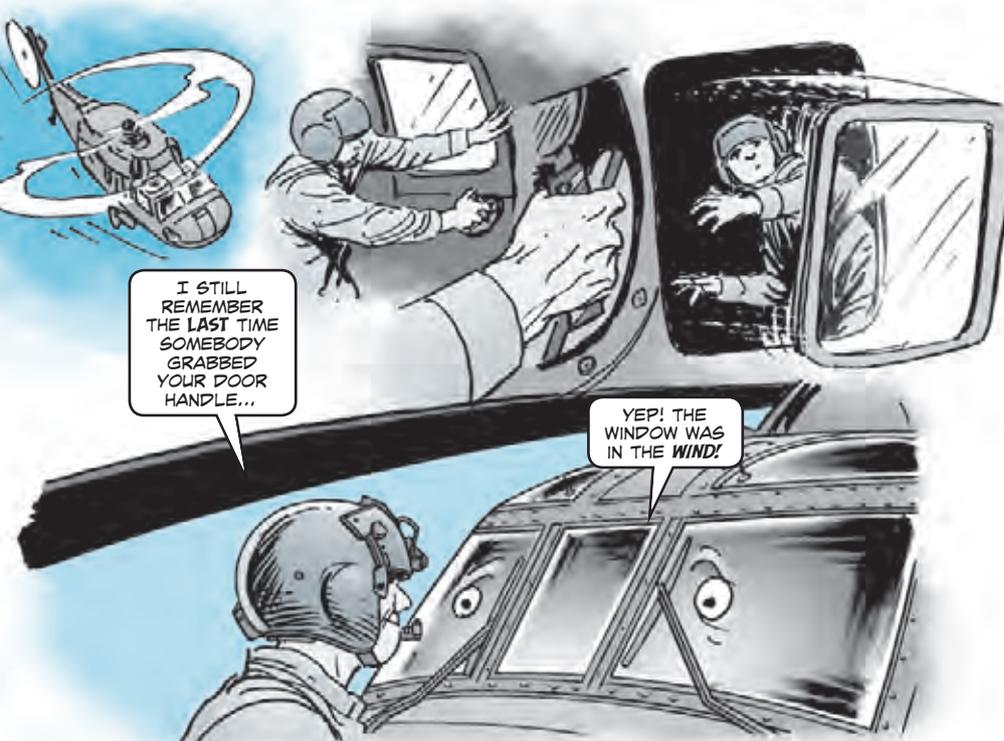
Cover with a temporary shield to keep out ice and slush



# Now You See it, Now You Don't!

BEFORE WE FLY, I'VE GOT TO MAKE SURE YOU HAVE SECURE DOOR WINDOWS.

YEAH, THAT'S A GOOD IDEA.



I STILL REMEMBER THE LAST TIME SOMEBODY GRABBED YOUR DOOR HANDLE...

YEP! THE WINDOW WAS IN THE WIND!

MECHANICS, WHAT'S UP WITH THOSE MISSING BLACK HAWK CARGO DOOR WINDOWS?

I'LL TELL YOU.

THE CARGO DOOR WINDOWS ARE BEING INADVERTENTLY JETTISONED DURING FLIGHT.

It's easy to grab a handle to balance yourself. Unfortunately, what happens is the troop/cargo door window jettison handles are usually what are grabbed when the aircraft is in flight. Then Bam! The window is in the wind.

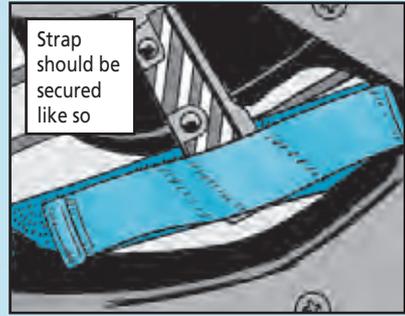
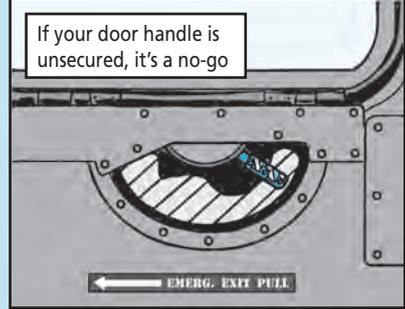
If you want to avoid losing windows in flight, inspect your aircraft now. Make sure you check the door for security and the webbing strap like it says in the PMD before you fly. The webbing strap is mandatory.

To inspect and maintain the troop/cargo door jettison handle strap for the UH-60A/L, follow WP 0264 00 like it says in TM 1-1520-237-23-1. For the M-model aircraft, follow WP 0282 00 like it says in TM 1-1520-280-23-5. You can't afford to be unaware of what the TMs require you to do.

If you need a replacement strap, order one with NSN 5340-01-501-7504. In the interim, install breakaway safety wire like it says in aviation safety action message, H-60-09-ASAM-11, until all TMs are updated.

INSTALL STRAP LIKE SO...

If your door handle is unsecured, it's a no-go



Strap should be secured like so

Check ASAM and TM for details on installing strap

The accidental loss of windows and subsequent aircraft damage over the years have run up a tab of \$348,000. That's a lot of greenbacks for not doing maintenance and inspections by the book.

Take your TMs seriously. Read them because your life and aircraft are at stake.

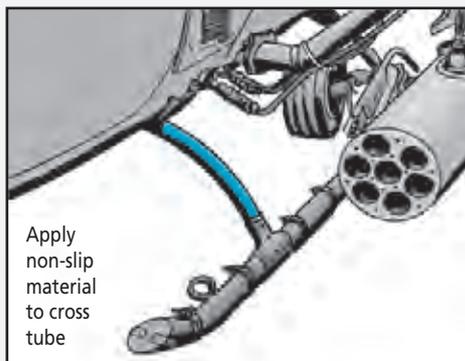
# OH-58D... *THE SLIPPERY SKID*



So mechanics, before you use the exposed part of the forward and aft skid cross tube as a step to install pillows and covers, apply some non-slip material, NSN 8010-00-641-0427, to the cross tubes.

Otherwise, when the tube gets wet or oily it becomes very slippery. Some mechanics have slipped off the tube and smacked their head against the upper door frame. That hurts!

To avoid bumping your head against the airframe, make sure the tube has non-slip material applied before you step on it.



AH-64A/D...

# IT'S HEAVIER THAN YOU THINK!

TIME TO TACKLE THE GENERATOR.

YEAH... WE GOT THIS!

EXCUSE ME, NO, YOU DON'T.

YOU BETTER GET THE REMOVAL TOOL FIRST.

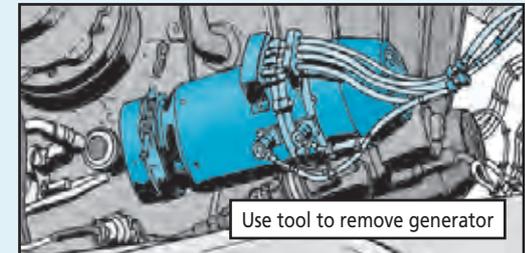
Even though you're Army strong, don't underestimate the weight of the AH-64 generator. When it's time to remove or install the generator from the transmission for testing, repairs or replacement, always use the generator installation/removal tool, NSN 5180-01-508-5887, to avoid damaging the generator shaft, bearings or the spline adapter.

The generator is very heavy. Trying to muscle it out without the tool is not as easy you think. It takes two to do the job. The generator should not be removed or installed without the tool. Even if you somehow remove it yourself, it has to be supported and your strength alone is not enough.

Removing and then carefully pulling the 53-lb generator away from the transmission without the kit puts undue pressure on the generator shaft and bearings no matter how careful you are.

Without the kit attached to the generator, you could bend or warp the shaft, damaging the generator seal and housing and the inner components of the transmission. If this happens, it throws the generator and transmission out of tolerance, causing premature failure of the generator. Then you have to replace the generator spline adapter.

The best way to remove a generator is the safe way, like it says in WP 1096 00 and 1097 00 of TM 1-1520-238-13&P for the A model. For the D model check out TM 1-1520-Longbow/Apache.



Removing generator without tool damages shaft, bearings or spline adapter



All Aircraft...

CCAD SENT US SOME PAPER-WORK! LET'S TAKE A LOOK!

EASY THERE!

# Turn in the CCAD Report Card

THAT PAPERWORK IS IMPORTANT, ESPECIALLY THE CCAD REPORT CARD, WHICH WE SHOULD BE FILLING OUT!

THE CORPUS CHRISTI ARMY DEPOT (CCAD) NEEDS THE AVIATION COMMUNITY TO HELP THEM WITH QUALITY ASSURANCE.

HERE'S HOW...

Every component CCAD produces is shipped to the unit with paperwork and a yellow CCAD report card, Form 5299-E.

Every customer in aviation maintenance can help by filling out the yellow card and mailing it back to CCAD. They will read your responses, which helps them catalog, evaluate, and validate their work process within component production.

There's another way to communicate with CCAD about quality. Call the quality hotline: 1-800-490-3289, DSN 861-2587, or fax the report card to DSN 861-4578. You can also reach the quality hotline by email:

[ccad.qahotline@conus.army.mil](mailto:ccad.qahotline@conus.army.mil)

Tell CCAD what you think—the good, the bad and the ugly—by mailing in the CCAD report cards.

Return this form completed when you get equipment

# PM Olympians

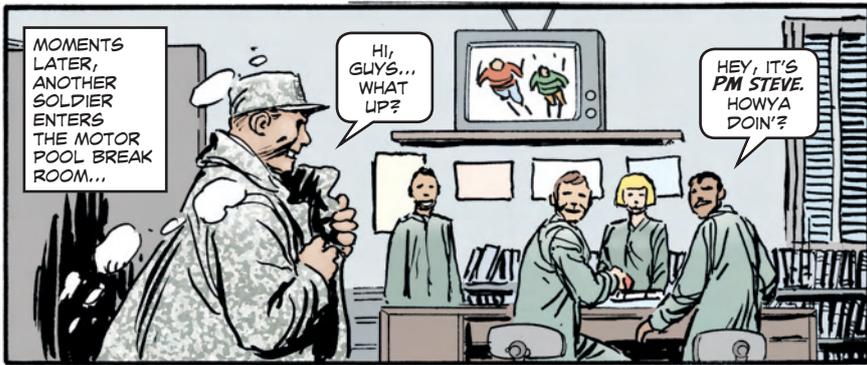
MAN, IT'S COLD OUTSIDE!

IS WINTER ALWAYS THIS COLD HERE?

NOT SINCE I'VE BEEN STATIONED HERE.

TELL ME ABOUT IT! THIS YEAR MY FINGERS FROZE WHILE DOING PMCS ONE MORNING.

WELCOME TO FORT BLUE. LET'S GO GET SOME COFFEE!



MOMENTS LATER, ANOTHER SOLDIER ENTERS THE MOTOR POOL BREAK ROOM...

Hi, GUYS... WHAT UP?

HEY, IT'S PM STEVE. HOWYA DOIN'?



I'M GOOD. AH...THE OLYMPICS ARE ON.

NOTHING LIKE WATCHING ATHLETES IN A GOOD COMPETITION.



ON SECOND THOUGHT, THERE IS SOMETHING BETTER.

PM OLYMPICS!



THEN YOU OPERATORS AND MECHANICS CAN SHOW ME WHAT YOU GOT!

YEAH! BRING IT!

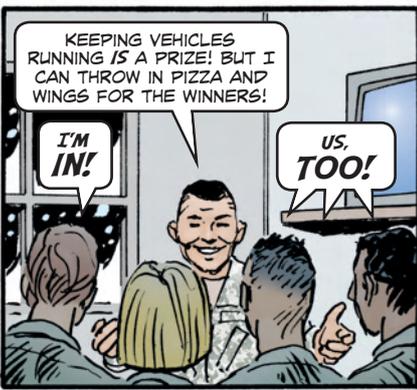
WHAT'S THE PRIZE?



YOU'LL FREEZE OUT POOR PM AND YOU'LL KEEP YOUR VEHICLES RUNNING RIGHT!

NO... REALLY.

WHAT'S THE PRIZE?



KEEPING VEHICLES RUNNING IS A PRIZE! BUT I CAN THROW IN PIZZA AND WINGS FOR THE WINNERS!

I'M IN!

US, TOO!



OKAY! THE CONTEST STARTS NOW! I'LL BE JUDGING YOUR PM FROM TODAY TO NEXT WEEK.

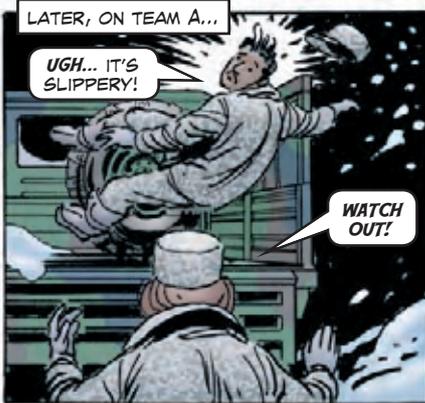


PULL THE BEST PM POSSIBLE ON YOUR ASSIGNED VEHICLES.

AND REMEMBER SAFETY. YOU'LL LOSE POINTS IF YOU DON'T.



THE TEAM WITH THE HIGHEST SCORE WINS.



LATER, ON TEAM A...

UGH... IT'S SLIPPERY!

WATCH OUT!



YOU OK?

LUCKY YOU LANDED IN A SNOWBANK.

OK, SNOWMAN. LET'S GET BACK TO WORK.



WHILE AT TEAM B...

DID YOU PUT DUNNAGE UNDER THAT TIRE?

YOU MEAN LIKE WOOD OR CARD-BOARD?



I WISH I HAD! THIS TIRE'S FROZEN INTO THE GROUND!



AT THE END OF THE PM OLYMPICS THE PARTICIPANTS GATHER IN THE COMPANY'S DAY ROOM...

HOW DID WE DO, PM STEVE?



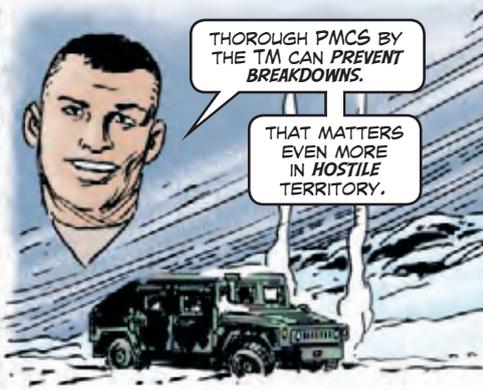
YOU CAN SAY THAT AGAIN.

SO... HOW'D WE DO?



BETTER SLOW PM THAN NO PM!

HEY! IT'S MY BUDDY'S FIRST YEAR AT THIS POST. HE STILL HAS TO GET USED TO THE FRIGID TEMPERATURES.



THOROUGH PMCS BY THE TM CAN PREVENT BREAKDOWNS.

THAT MATTERS EVEN MORE IN HOSTILE TERRITORY.



I'M GOING TO START WITH THE OTHER TEAM FIRST... SINCE THEY WERE LAST TO FINISH THEIR PMCS.



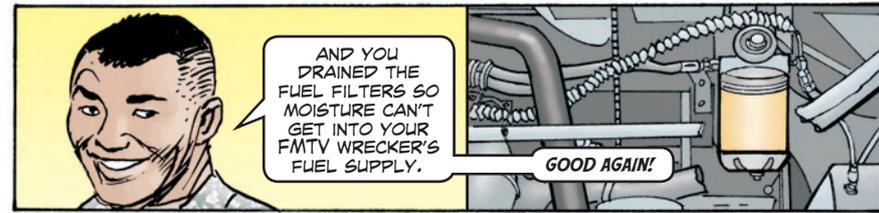
I-I-I KN-KN-KNOW WE D-DID A G-GOOD JOB.



WE'LL SEE ABOUT THAT.

YOU MADE SURE YOUR LMTV DIDN'T HAVE WATER LEFT IN THE TANKS AND AIR LINES... SO THE BRAKES WILL KEEP WORKING.

GOOD!



AND YOU DRAINED THE FUEL FILTERS SO MOISTURE CAN'T GET INTO YOUR FMTV WRECKER'S FUEL SUPPLY.

GOOD AGAIN!



IT'S HARD TO RECOVER A VEHICLE WITHOUT A RELIABLE WRECKER.



FINALLY, YOU DID EVERYTHING NEEDED TO CARE FOR YOUR VEHICLE'S BATTERIES. THAT'S WHAT I'M TALKING 'BOUT.



SLAP

WE DID GOOD!



BUT I'VE GOTTA TAKE OFF POINTS FOR SAFETY.

ONE OF YOU FELL OFF A 5-TON TRUCK, ONLY TO BE SAVED BY A SNOWBANK.

SO HOW'D OUR TEAM DO?



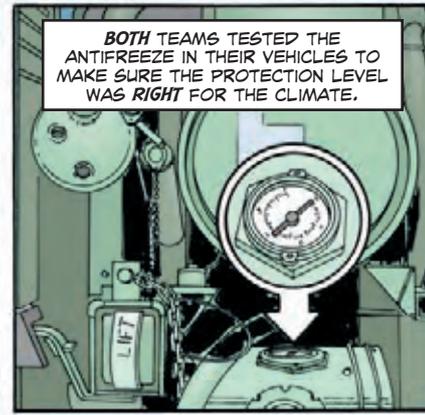
YOU PROTECTED YOUR 5-TON TRUCK WHEN IT SNOWED.



CALM DOWN, PM OLYMPIANS.

I CAN JUST TASTE THE PIZZA AND WINGS...

SHUT UP!



BOTH TEAMS TESTED THE ANTIFREEZE IN THEIR VEHICLES TO MAKE SURE THE PROTECTION LEVEL WAS RIGHT FOR THE CLIMATE.



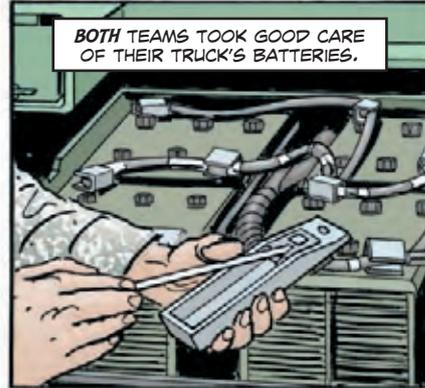
YOU PROPERLY WARMED UP THE ENGINE BEFORE OPERATING.



PLUS, YOU LET THE TRUCK SIT AND COOL DOWN A MINUTE AFTER OPERATING.

LET'S GO GET SOME CHOW!

HOLD ON! I'M LETTING MY TRUCK COOL DOWN.



BOTH TEAMS TOOK GOOD CARE OF THEIR TRUCK'S BATTERIES.



EVERY VEHICLE STARTED WITHOUT TROUBLE, EVEN IN THIS FREEZING WEATHER.



YOU GUYS KNOW THAT COOLDOWN IS VITAL EVEN IN COLD WEATHER.

GREAT WORK!



WE DID PM BY THE TM. WE WON THE PM OLYMPICS.

HEY! NOT SO FAST, GERARD. HE'S NOT DONE WITH THE RESULTS YET!



SO...WHO WINS?



# USING CLEANING CABLE



Dear Editor,

Many of the Soldiers we support at Ft Polk, LA, are using the cleaning kit for the M16 rifle and M4/M4A1 carbine that has a flexible cleaning cable, as well as the metal cleaning rod that screws together.

Since TM 9-1005-319-10 gives instructions only on using the metal cleaning rod, some Soldiers are using the cleaning cable incorrectly. They try to run the cable from the muzzle through the chamber. That makes the bore brush work against the grooves inside the barrel and the brush can get stuck. You should run the cleaning cable from the chamber through the muzzle. That allows the brush to follow the barrel's grooves.

SGT Alexander Vargas  
88th BSB  
Ft Polk, LA

*Editor's note: You're absolutely right, Sergeant! Whether you're using the cleaning rod or cleaning cable, you should always start it in the chamber and pull it out from the muzzle. Just remember to clean in the same direction the bullet takes. That pushes dirt and carbon out the muzzle instead of into the chamber.*



Some other things to remember while cleaning the barrel:

- Always run a cleaning patch moistened (not soaked) with CLP through the barrel before you pull the bore brush through. You don't want to pull a bore brush through a dry barrel. That can damage the barrel and the brush.
- Don't reverse direction while using the bore brush. That bends the bristles in the brush and soon you'll need a new brush. Always pull the brush straight from the chamber through the muzzle.
- Use a clean patch. If you reuse a patch, you're putting dirt back in the barrel that you just cleaned out.

Cleaning cable or cleaning rod should always go from chamber to muzzle in one straight motion



Always use a clean patch moistened with CLP



PS  
END

M16-Series Rifle, M4/M4A1 Carbine...

NOW YOU CAN CAMOUFLAGE YOUR RIFLE JUST LIKE THIS GUY!

WAIT A MINUTE, YOU CAN SEE ME!?

I THOUGHT CAMOUFLAGE WAS SUPPOSED TO MAKE ME INVISIBLE!



## SITE OFFERS AMMO ENCYCLOPEDIA

AT LAST, AN ENCYCLOPEDIA ABOUT ME!

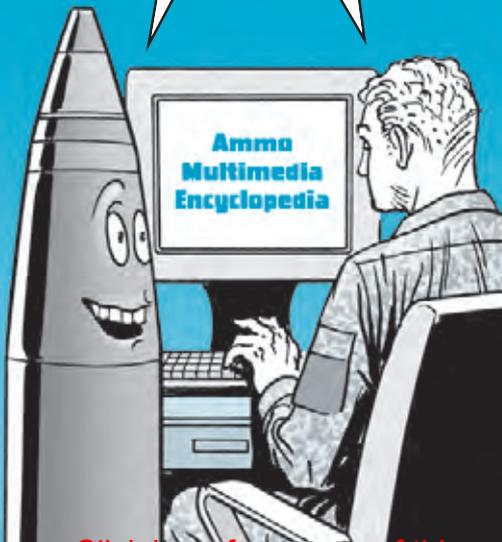
YES, THIS WILL COME IN HANDY FOR TRAINING.

The Defense Ammunition Center, Serco Inc., and Oklahoma State University have created an online encyclopedia to answer your ammo questions.

Called the Ammunition Multimedia Encyclopedia (AME), the site provides information and training on new munitions. AME uses virtual reality technology to create a realistic, hands-on training environment for Soldiers and civilians who work with ammo.

Currently there are 180 munitions listed in AME, with another 100 to be added soon.

Access the site at either  
<https://acc.dau.mil/ammo>  
or  
<https://mhp.redstone.army.mil>



## CAMOUFLAGE *NOW* OK!

THE ARMY HAS AUTHORIZED SOLDIERS TO CAMOUFLAGE THEIR M16 RIFLES AND M4/M4A1 CARBINES, AS LONG AS THEY GET APPROVAL FROM THEIR COMMANDERS.

THE STEP-BY-STEP PROCEDURE FOR CAMOUFLAGING YOUR WEAPONS CAN BE FOUND IN TACOM MAINTENANCE INFORMATION MESSAGE 10-040, WHICH IS AT TULSA:  
[https://tulsa.tacom.army.mil/safety/mam/tacom\\_wn/mim10-040.html](https://tulsa.tacom.army.mil/safety/mam/tacom_wn/mim10-040.html)



PS MORE

PS 708

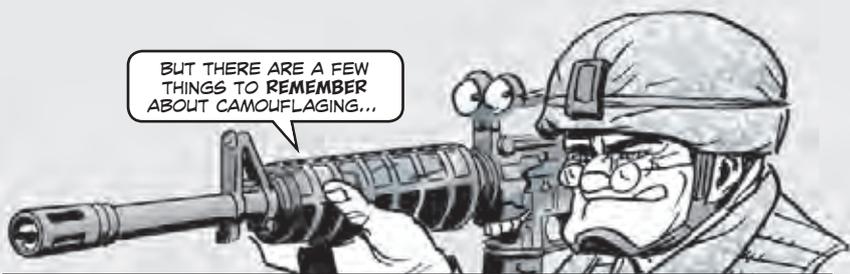
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NOV 11

Click here for a copy of this article to save or email.

Click here for a copy of this article to save or email.

BUT THERE ARE A FEW THINGS TO REMEMBER ABOUT CAMOUFLAGING...



- Your weapon must be completely free of dirt, grime and oil before you apply paint. The best way to completely clean your weapon is with dry cleaning fluid. TACOM recommends you clean your weapon twice with dry cleaning fluid to get it completely clean. You will need your armorer's help to do this. He is authorized to use MIL-PRF-680 Type II dry cleaning solvent, NSN 6850-00-281-1985, and he should know the safety and HAZMAT rules for using solvent.
- Don't paint the barrel and front sight. The barrel's heat during firing will burn off the paint.
- Paint according to your environment. If you operate in the desert mostly, paint your weapon tan with limited black breakup. In a woodland area, use brown and olive drab with limited black breakup.
- Once the painting is complete and has dried, lube your weapon like TM 9-1005-319-10 says. Remember, lube will cause the paint to deteriorate, so keep lube off the painted areas. Wear spots and scratches can be touched up with paint.
- Before you turn in your weapon for transfer or redeployment, you will need to remove all that paint. You will do that by first spraying the weapons with CLP and letting the CLP sit for at least 60 minutes. The CLP will cause the paint to dissolve so that it can be wiped off with a soft brush. You may need to use more than one coat of CLP. Then use dry cleaning solvent to clean the weapon. Finally, re-lube it.

WAIT!

I'VE GOTTA BE CLEAN BEFORE YOU PAINT ME!



I THINK YOU SHOULD HAVE PAINTED ME TAN.



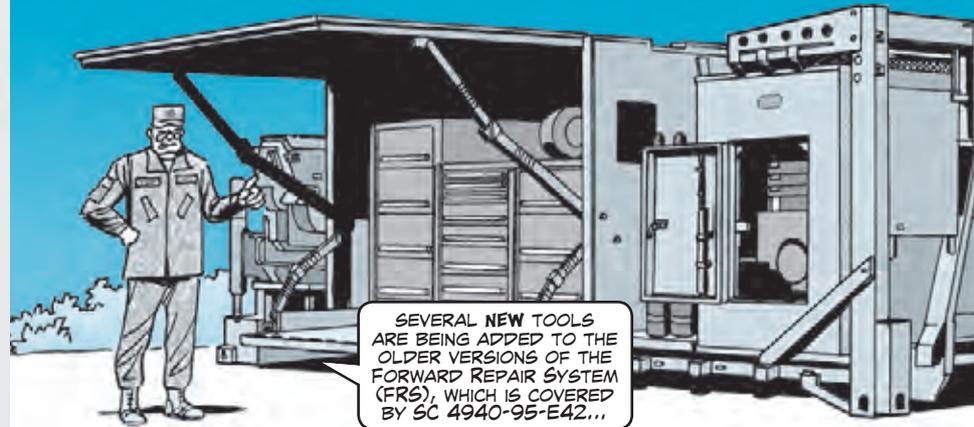
IF YOU NEED HELP, CONTACT YOUR LOCAL TACOM LOGISTICS ASSISTANCE REPRESENTATIVE.

REMEMBER, AN INVISIBLE WEAPON WON'T DO ANY GOOD IF IT DOESN'T WORK. PAINT WITH CARE.



PS  
END

# Tools Added to Forward Repair System



SEVERAL NEW TOOLS ARE BEING ADDED TO THE OLDER VERSIONS OF THE FORWARD REPAIR SYSTEM (FRS), WHICH IS COVERED BY SC 4940-95-E42...

- Crowsfeet set, 1 each, PN 339SCOFM (for FRS's with serial numbers 1587-3 and below)
- KP174 airbags, 2 each, PN 22-888200 (serial numbers 1504-3 and below)
- Multimeter temperature leads, 1 each, PN GK13M (serial numbers 1504-3 and below)
- Air hose, 1 each, 70 feet long, PN 3870RWA (serial numbers 1368-3 and below)
- Blowgun, 1 each, PN 159 (serial numbers 1368-3 and below)
- Heat gun, 1 each, PN PH1100 (serial numbers 1999-3 and below)

If your FRS has the above serial numbers, order the new tools free online:

<https://pmskot.army.mil>

Here's how:

- 1) Read and acknowledge the statement and click [Continue](#)
- 2) Click on [Tool Replacement/Warranty](#)
- 3) Click on [Click Here](#)
- 4) Click on [Retrofit](#)
- 5) Fill in all information, including DODAAC
- 6) Select FRS from SKO list
- 7) Enter the serial number of your FRS (don't add -3 or -R to the serial number)
- 8) Select the appropriate retrofit tools
- 9) Click [Continue](#)
- 10) Check order for errors
- 11) Click [Process Order](#)

You should receive the tools within 7-10 business days.



IF YOU HAVE QUESTIONS, CONTACT TACOM'S BRIAN EGLI AT DSN 786-7270, (586) 282-7270, OR EMAIL: [brian.j.egli.civ@mail.mil](mailto:brian.j.egli.civ@mail.mil)

Tools...

# CAN BOLT CUTTER JAWS BE REPLACED?

Dear Half-Mast,

Can the jaws for bolt cutters be replaced? I hate the thought of having to replace a whole set of bolt cutters just because a jaw is chipped or broken.

SSG M.N.



Dear Sergeant M.N.,

It depends. The tool set for the Forward Repair System (FRS), for example, has a bolt cutter with replaceable jaws. (The jaws can be ordered through the replacement portion of the PM-SKOT website under PN 0313HCX.) The Standard Automotive Tool Set (SATS) bolt cutters also have replaceable jaws that can be ordered with PN S0183. They both have a one-year warranty, so if the jaws break during the first year you get replacement jaws free by accessing the warranty portion of the PM-SKOT website.

So really the answer depends on which bolt cutter you have and if the bolt cutter is still under warranty.

If you need help with a bolt cutter problem or with any Army tool problem, your best bet is to contact PM SKOT. Go to <https://pmskot.army.mil> or email:

**DAMI\_PM-SKOT@conus.army.mil**

or call 1-877-4PM-SKOT (1-877-476-7568)

*Half-Mast*

Pressure Washers...

# WHERE TO GO FOR HELP

Dear Half-Mast,

We have four LANDA SDHW7-35824E/M pressure washers, NSN 4940-01-025-9856, that we use constantly. Where can we get info on maintaining and repairing them?

T.G.

Dear Mr. T.G.,

The LANDA has its own TMs, TM 9-4940-531-14 and -24P, which are available on the LOGSA ETM Online website: <https://www.logsa.army.mil/etms/welcom1.cfm>

LANDA also has a commercial manual that you can order. Contact Philip Kircher at 800-984-2612 or email: [pskircher@hotmail.com](mailto:pskircher@hotmail.com)

*Half-Mast*

M40/M42-Series Masks...

HOW AM I GOING TO EVER PMCS ALL OF YOU GUYS IN ONE WEEKEND?

# PMCS for Guard and Reserves

YOU NEED A PLAN!

SEE WHAT THIS SERGEANT FROM THE GUARD SUGGESTS!



Dear Editor,

CBRN specialists who are part of the Army National Guard and Army Reserves have time limitations that active Army CBRN specialists don't have to deal with. We are generally in our CBRN rooms only one weekend a month.

M40 and M42 masks are supposed to have a thorough PMCS done every six months by the CBRN specialist. But if you are the sole CBRN specialist at a big Guard or Reserve facility, you may be responsible for a large number of masks. There is no way you can PMCS a lot of masks in one weekend, especially with your other duties.

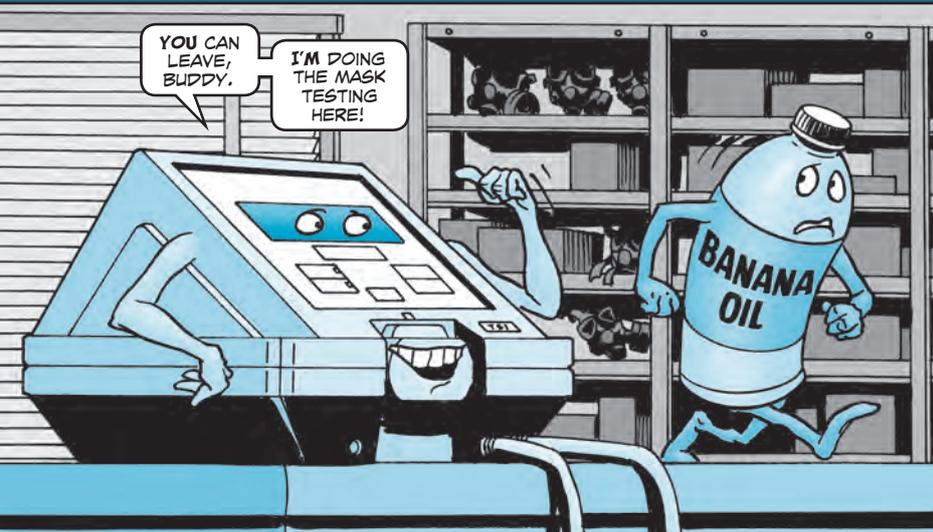
What I suggest is that Guard and Reserve CBRN folks PMCS 1/6 of the masks each month. Record that those masks have been checked. Then PMCS another bunch the next month and so on. That way by the time six months have passed, you will have done the required PMCS on all your masks.

If you don't have a system like this, masks will probably miss their checks and services and problems will go undetected.

**Editor's note:** Now that's a good plan, Sergeant. If this plan works for you, CBRN specialists, use it. But ultimately you need to develop your own SOP for doing required mask PMCS. And don't forget to record semiannual PMCS on DD Form 314 so you can prove you did it.

SGT Elijah Kramer  
Camp Beauregard, LA

# PATS Preferred for Testing



Dear Half-Mast,  
 TM 3-4230-346-23&P (Aug 10) gives detailed instructions on using banana oil (N-Amyl acetate) to do fit testing of the M40-series mask. But TACOM maintenance advisory message O3-02 (Jan 03) said to stop using banana oil. What's the scoop?  
 J.S.

Dear Mr. J.S.,  
 Use banana oil only when you don't have a working M41 PATS (protection assessment test system) to test either the M40 or M42 masks. Every company or battery should have a PATS. So if yours is being calibrated or needs repair, see if you can borrow one from your next-door CBRN specialist. PATS ensures a mask fits properly.  
 Don't forget your PATS needs to be calibrated every 18 months by TMDE if it's to stay accurate. If it's not accurate, it can flunk good masks. TMDE completely disassembles a PATS, cleans it, checks out all its components and accessories, repairs it if necessary, and then calibrates it.  
 If you're not sure when your PATS was last calibrated, check its calibration sticker. If it's missing the sticker, your TMDE should know when it was calibrated.  
*Half-Mast*

[Click here for a copy of this article to save or email.](#)

# CBRN Equipment *Not* for Sale



Some Soldiers think it's a good idea to try to sell their personal CBRN equipment, like the M40 mask.

That is not only a bad idea, but an **illegal** one. The Joint Equipment Assessment Program (JEAP) monitors auction sites, trade boards and commercial websites. If they find anyone trying to sell CBRN equipment, they will begin an investigation that can result in punishment.

CBRN equipment issued to you is still military property. You are responsible for it. Don't risk your career by trying to make a few bucks selling it.

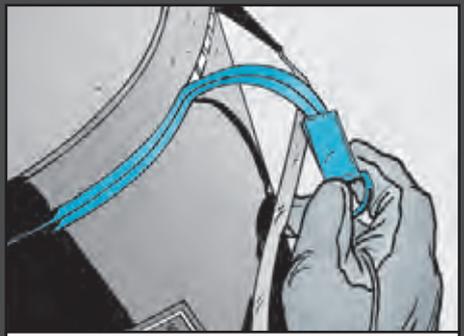
## M48A1 FILTER CONTAINER CAN CUT!

The container for the M48A1 gas particulate filter can cut you if you're not careful.

The filter, which is used in combat vehicles and shelters, comes in a container like an old peanut can. When you use the container's opening key, it exposes you to two very large and sharp metal edges that can slice up your hands.

Protect your hands by wearing cut-resistant, heavy-duty gloves when you open the container.

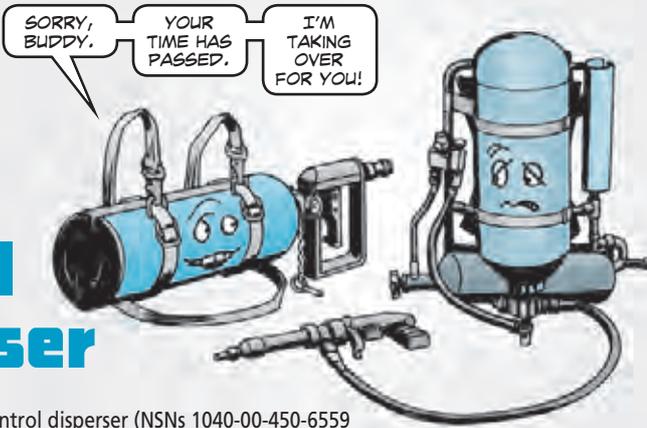
Eventually the container will be replaced by one that resembles a small drum with a cover and locking ring. But be careful in the meantime.



Wear gloves when opening M48A1 filter container

[Click here for a copy of these articles to save or email.](#)

# Turn in Riot Control Dispenser



The M33/M33A1 riot control dispenser (NSNs 1040-00-450-6559 and 1040-00-148-9824; LIN G22348) is obsolete and should be turned in. It has been replaced by the M37 riot control dispenser, NSN 1040-01-463-0157, LIN D20400. The M37 doesn't need the M254 service kit like the M33 did. It comes with a refill/repair kit and its replacement part NSNs are listed in TM 3-1040-287-13&P. For instructions on turning in the M33/M33A1, contact TACOM's Derek Meredith at DSN 786-1699, (586) 282-1699, or email: [derek.b.meredith.civ@mail.mil](mailto:derek.b.meredith.civ@mail.mil)

# Decalcify with CLR®



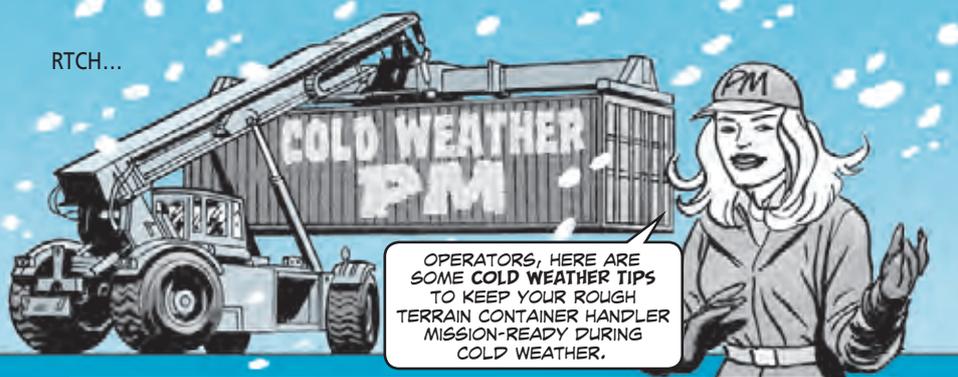
The M26 decon's TM 3-4230-238-23&P says to use CLR to decalcify if the M26's water pressure is low or the M26 has operated more than 300 hours. Unfortunately, the CLR NSN was left out of the TM. Get a 5-gal jug of CLR with NSN 6850-01-560-6131. CLR should be mixed with a CLR/water ratio of 1:8. Follow the instructions in WP 0044 to decalcify. If you have questions, contact TACOM's Derek Meredith at DSN 786-1699, (586) 282-1699, or email: [derek.b.meredith.civ@mail.mil](mailto:derek.b.meredith.civ@mail.mil)



Those months when winter turns to Spring at the worksite can fool you. Mud is wet and soft during the day, but at night it can freeze as hard as concrete. A vehicle left sitting in the mud at day's end will be frozen in the mud by morning. It doesn't matter if you're in the DEUCE, D5B or D7G tractors, or the M9 ACE—don't rock or bounce a frozen vehicle loose! You'll end up with broken track and snapped drive sprocket teeth, not to mention a vehicle that's still stuck and going nowhere.

- Park your vehicle on high ground if possible. Water drains downhill, so the mud won't be quite as deep.
- Avoid parking in deep ruts worn by other vehicles. Some are deep enough to bottom out your vehicle's hull. Leave it there and you won't be moving until the weather warms up.
- Use a shovel to scoop out mud that has collected on and around drive sprockets. If there's no mud, it can't freeze.

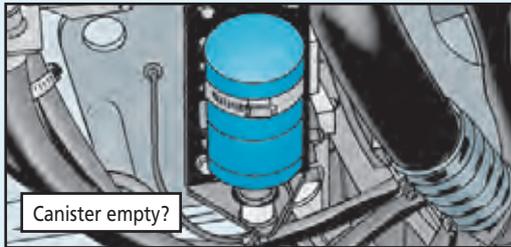
RTCH...



OPERATORS, HERE ARE SOME COLD WEATHER TIPS TO KEEP YOUR ROUGH TERRAIN CONTAINER HANDLER MISSION-READY DURING COLD WEATHER.

### Hard to Start

These vehicles have a fuel canister that automatically injects ether into the engine for cold weather starting. If the RTCH is hard to start, chances are the canister is empty. Have your mechanic replace it.



Canister empty?

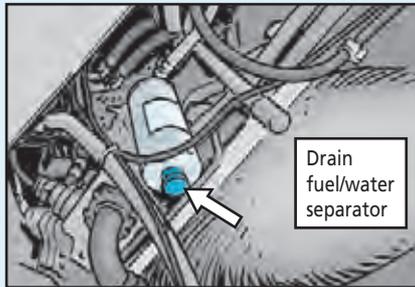
### Drain Out Water

Water in your RTCH's fuel will leave its engine running rough or not at all.

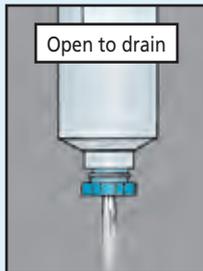
Water gets in the fuel when warm days and cool nights cause condensation to form in the vehicle's fuel tank. Get rid of the water by draining the fuel/water separator each week like it says in the TM.

Open the separator—located behind the roadside engine access door—by turning its drain cock counterclockwise. Store drained fuel in an approved hazardous waste container. **Never** dump it down a drain or let it run on the ground.

If the fuel is clear, you're OK. If the fuel doesn't run clear after you've drained half a pint or so, close the valve and report it to your mechanic.



Drain fuel/water separator



Open to drain



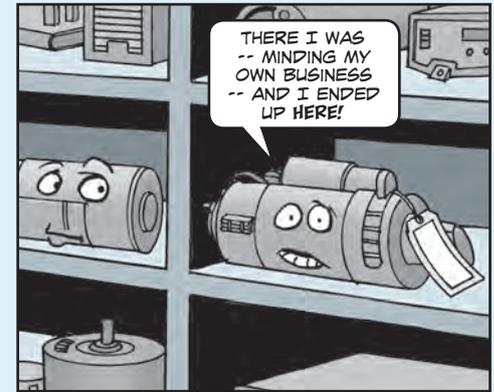
Close when fuel runs clear

### Starter Reminder

It's a fact that many engine starters end up at sustainment maintenance for repair, especially during cold weather, because operators burn out the starter.

When you're trying to start your container handler's engine, never keep the starter engaged for more than 30 seconds. If the engine doesn't start by then, stop! Give the starter at least two minutes to cool off before trying again. You'll find this info in WP 0005 00-2 of TM 10-3930-675-10-1.

If the RTCH won't start after three tries, call it quits. Get your mechanic to find out what's wrong.



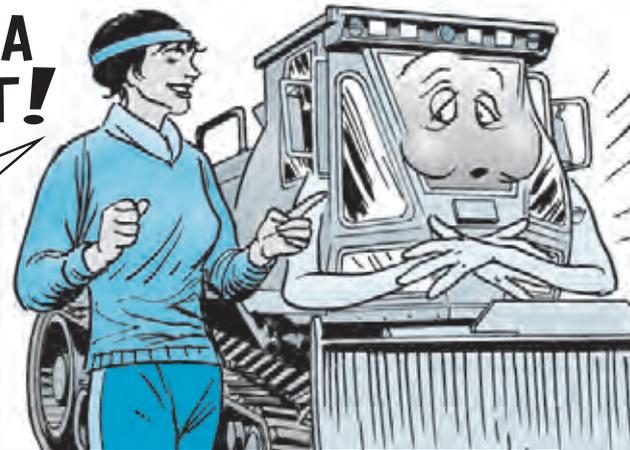
DEUCE...

## GIVE IT A SHOT!

WHEN YOUR EXCAVATOR SITS TOO LONG WITHOUT EXERCISE, THE BLADE LOWER PIVOT PIN RUSTS IN PLACE.

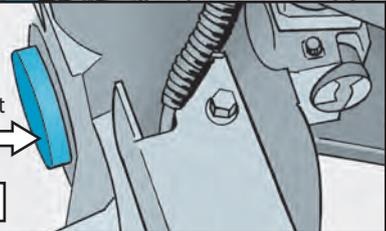
THEN YOU CAN'T ELEVATE OR LOWER THE BLADE UNTIL THE RUST BREAKS FREE.

THAT CAN CAUSE LOTS OF WEAR AND TEAR ON THE VEHICLE'S FRONT-END HYDRAULICS.



It can't be said enough—exercise your excavator! Operate all the hydraulics at least once a week. That way rust won't "freeze" the pin into place. A shot of dry-film lubricant spray, NSN 9150-01-260-2534, will also help keep the rust at bay.

Give pivot pin a shot of dry-film lubricant



# Get a Safe Handle on Fueling, Part II

AS WE SAID LAST MONTH IN PART I OF THIS SERIES, IT'S RISKY BUSINESS, HANDLING FUEL.

SO PUT SAFETY FIRST. THERE'S MUCH TO LEARN...

- Odds and Ends**
- Fuel handlers, stay alert when fueling. The HEMTT driver will signal when it's time to shut off the fuel.
  - If you handle fuel at night, remember two things:
    - ✓ Wear goggles with a clear lens, not a sunglass or tinted lens.
    - ✓ The driver needs an explosion-proof flashlight or a chemlight to signal the fueler when to shut off the fuel.

- The fuel tank has an EMERGENCY FUEL SHUT OFF control. It's on the driver's side of the HEMTT. Pulling the control cuts off the flow of fuel. Every Soldier working near the truck needs to know where the control is—and how to use it.



- Federal regulations call for the use of hazardous materials placards when hauling hazardous cargo. That includes JP-8 fuel. Label your tanker with the right 4-digit class 3 Department of Transportation placards for flammable liquids.



- Painted on the side of the fuel tank are the words:

**FLAMMABLE**  
**NO SMOKING WITHIN 50 FEET**

A lit cigarette or an open flame from a lighter poses a grave risk. To play it safe, post several no smoking signs in and around the fueling point. You may also want to post RESTRICTED AREA signs to keep out vehicles, electrical tools or activities that could produce sparks.

- If a thunderstorm approaches or you see lightning, shut down fueling.

## Fire Extinguishers

ALWAYS KEEP A HAND-HELD FIRE EXTINGUISHER NEARBY—ABOUT AN ARM'S LENGTH AWAY.

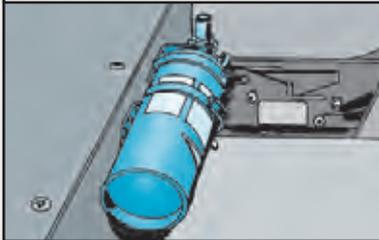
IF A FIRE BREAKS OUT, YOU CAN'T AFFORD EXTRA STEPS RUNNING FOR HELP.

THE -10 TMS NAME THREE DRY CHEMICAL EXTINGUISHERS...



- NSN 4210-01-460-9083. This is a Basic Issue Item (BI) and you need two. One extinguisher is mounted on the driver's side stowage box. The other is mounted on the passenger's side battery box.

- NSN 4210-01-133-9053. This is also a BI and it is mounted in the cabin to the right of the driver's seat.



- NSN 4210-00-965-1108. It's found on the Additional Authorization List and has a recommended quantity of four.

## Sources of Ignition

IN ALMOST ALL CASES, FIRES AND EXPLOSIONS NEED AN OUTSIDE IGNITION SOURCE TO GET STARTED.

HERE ARE SOME COMMON SOURCES.

DON'T LET THEM NEAR YOU WHEN YOU'RE HANDLING FUEL.

- Smoking, matches, cigarette lighters and open flames.



- Friction between metals or other hard substances. They can cause sparks.
- Electrical equipment and wires. They can produce arcs or sparks. They can also produce heat. Make sure all electrical equipment in the area—generators, lights, power tools and extension cords—is explosion proof.

- Static electricity. Assume it's always there and take precautions. Bond and ground your vehicle before handling fuel.

- Welding, soldering, drilling or grinding. They produce sparks and heat.



- Cutting torches.
- Jewelry that might spark against metal.

- There *is* one case when fires can start without an outside ignition source. It happens when rags or waste are soaked in varnish, linseed oil, paint or paint dryers. They can ignite on their own.

HEY...WHAT DO I DO WITH THIS OILY RAG?

JUST TOSS IT OVER THERE IN THE CORNER. THAT'S WHAT WE'VE BEEN DOING.



## Higher Education



IF YOU WANT TO BECOME AN EXPERT FUEL HANDLER, READ YOUR -10 TMS, ESPECIALLY THESE PARTS...

- Warnings, and Warning Icons and Descriptions near the front of the TM.
- Chap 1, Table 4, Significant Hazard and Safety Recommendations.
- Work packages related to fueling operations in Chap 2, Operator Instructions.
- Chap 4, Before and During PMCS.

IF YOU WANT TO PURSUE A PH.D. IN FUEL HANDLING, YOU MUST READ FM 10-67-1, CONCEPTS AND EQUIPMENT OF PETROLEUM OPERATIONS.



YOU'LL FIND IT ON THE ARMY PUBLISHING DIRECTORATE (APD) WEBSITE:  
<http://www.apd.army.mil/>

THE FM HAS CHAPTERS ON TERMINAL OPERATION, TANKERS, AIRCRAFT REFUELING, STORAGE CONTAINERS, HANDLING EQUIPMENT, CLOTHING AND MORE.

PAY PARTICULAR ATTENTION TO CHAP 2, SAFETY, HEALTH AND FIRE FIGHTING.

# A HARSH WINTER TESTS YOUR METTLE

SO, YOU THINK YOU KNOW ALL ABOUT COLD-WEATHER SURVIVAL.

YOU CONSIDER YOURSELF A VETERAN OF WINTER CAMPAIGNS.

YOU SAY YOU'VE BRAVED BITTER COLD, HOWLING WINDS AND DRIVEN SNOW.

YOU'RE DEAD SURE YOU CAN WITHSTAND THE BIG FREEZE.

HECK, YEAH!

DARN TOOTIN'!

OF COURSE!

DON'T BET YOUR LIFE ON IT!

WHA-?

REALLY?

NAW!

YOU NEED TO FULLY UNDERSTAND THE DANGERS POSED BY SNOW, ICE AND COLD.

BEFORE HEADING TO THE MOUNTAINS, THE SNOWFIELDS OR THE ARCTIC CIRCLE, BRUSH UP ON SURVIVAL IN FRIGID CLIMATES.

START BY TAKING THE PS COLD-WEATHER QUIZ!

THE ANSWERS ARE AT THE BOTTOM OF PAGE 54.

### 1. What is wind chill?



- a. a new tangy-goat-cheese-flavored milkshake at your local ice cream shop
- b. what you get when you eat five bean burritos in sub-zero temperatures
- c. the cooling power of wind speed combined with air temperature on exposed flesh

### 2. What does the acronym COLD stand for?



- a. Clearly, Orville loves Daphne
- b. Cohesive Outcome-Leveraged Dynamics
- c. C—Keep clothing CLEAN  
O—Avoid OVERHEATING  
L—Wear clothing LOOSE and in LAYERS  
D—Keep clothing DRY

### 3. What is hypothermia?



- a. a small syringe and needle containing a dose of pure thermia
- b. a hypochondriac who fears he suffers from acute thermia
- c. the lowering of core body temperature to below 95°F; hypothermia occurs when the body gets cold and loses heat faster than the body can make it

### 4. What is frostbite?



- a. a new moose-tracks-and-droppings-flavored milkshake at your local carhop drive-in
- b. a savage bite from a vicious Rottweiler named Frost (usually inflicted when you mention neutering)
- c. the freezing of body tissues caused by exposure to freezing temperatures

**5. What are the two levels of frostbite?**



- a. bad and worse
- b. plumb awful and I'll never play the violin again
- c. superficial frostbite, the surface freezing of skin; and deep frostbite, the freezing of skin, underlying muscle and possibly bone

**6. How deep should the snow be for the site of a snow cave?**



- a. deep enough so a pack of hungry timber wolves can't get to you.
- b. deep enough so a pack of merciless bill collectors can't get to you.
- c. about 3 meters

**7. What are the four requirements for cold-weather survival?**

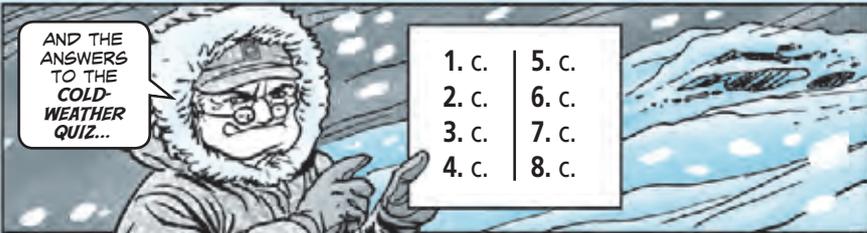


- a. pizza, beer, nachos and gummi bears
- b. 58-in plasma HDTV, the NBA channel, karaoke machine and a 3-month subscription to *Caribbean Travel & Life* magazine
- c. food, water, shelter and heat

**8. Name at least three common health hazards in the arctic.**



- a. amebic dysentery, dengue fever and malaria
- b. halitosis, hemorrhoids and hiccups
- c. trench and immersion foot, constipation, dehydration, snow blindness, sunburn and cold diuresis (an increased flow of urine)



- |       |       |
|-------|-------|
| 1. c. | 5. c. |
| 2. c. | 6. c. |
| 3. c. | 7. c. |
| 4. c. | 8. c. |

**Well-read and Warmed-up**

Now that you've passed the quiz with flying colors, continue your winter education. Read the following pubs found on the Army Publishing Directorate (APD) website:  
<http://www.apd.army.mil/>

FM 3-05.70, <i>Survival</i>	TB MED 508, <i>Prevention and Management of Cold-Weather Injuries</i>
FM 3-97.61, <i>Military Mountaineering</i>	TC 21-3, <i>Soldier's Handbook for Individual Operations and Survival in Cold-Weather Areas</i>
ATTP 3-97.11, <i>Cold Region Operations</i>	

They're essential reading for those deployed in the mountains or in frigid climates. You may also want to visit the U.S. Army Public Health Command website:  
<http://phc.amedd.army.mil/Pages/default.aspx>

From the home page, click on A-Z Index in the top banner. On the next page, click on Cold Weather Casualties and Injuries. It will take you to a variety of documents and training aids about the causes, symptoms, treatment and prevention of injuries. Among the documents you'll want to read is the OTSG Cold Weather Injury Prevention Program, 2010-2011. It briefly outlines leaders' responsibilities in setting up a program to prevent cold-weather injuries.

While you're at it, read the winter stories in back issues of PS, the Preventive Maintenance Monthly. The following stories are loaded with information about cold-weather clothing, survival and personal protection:

Subject	PS Issue Number	Page (s)
Boots, socks, frostbite	672	50-55
Drying the extended cold-weather clothing system (ECWCS) parka	669	55
Anti-contact gloves	660	52
Meals	660	50-51
ECWCS mittens, POL gloves, frostbite	649	48-51
Socks	647	50-51
Desert camo parka	647	49
Anti-contact gloves	638	51
Cleaning clothes	638	46-47
CVC underwear	636	54-56
Special OPS clothing	636	52-53
Patching ECWCS	636	50-51
Washing underwear	624	55
Trigger finger mittens	623	54-56
Hood	623	52-53
Clothing facts	623	49-51
ECWCS water repellency	622	51-53
ECWCS underwear	613	48-49

OR READ THE STORIES ONLINE AT THE PS WEBSITE:  
<https://www.logsa.army.mil/psmag/psonline.cfm>



# PSCC's P&T Division Shows Ways to Save the Day



WHETHER YOU'RE RATTLED BY STORAGE REGS OR PUZZLED BY PACKAGING RULES, COUNT ON PSCC'S P&T TO SHOW THE WAY!

Do packing codes or special packaging instructions have you stumped? Are you trying to thread your way through what seems to be a constantly shifting maze of storage and distribution regulations?

If so, the Logistics Support Activity (LOGSA) Packaging, Storage and Containerization Center (PSCC) Packaging & Transportation Division (P&T) has the answers.

LOGSA'S PSCC P&T CAN GIVE YOU GUIDANCE ON...

- Hazardous materials (HAZMAT)
- Shelf-life management
- Packaging assets
- Heat-treated wood
- Standardization guidance, i.e., MIL-STD-129
- Setting up wood packaging material, stock readiness or shelf-life programs.

You can get assistance in identifying equipment or training needs, developing improved facility layouts, and writing operating procedures that are tailored to missions and abilities.

PSCC offers hands-on training. Field representatives can show units how to properly protect and store items and what to do with equipment during the hand-off process.

PSCC can also help with troop deployments by planning distribution for CONUS and OCONUS facilities ranging from 500 to more than 1 million square feet. PSCC can provide cost-effective and efficient storage operations to support Soldiers and equipment readiness.

For more information, visit the PSCC website:

<https://www.logsa.army.mil/pssc/>

Call DSN 795-9176/6408, (570) 615-9176/6408, or email: [toby.pt@us.army.mil](mailto:toby.pt@us.army.mil)

# TI Portal Paves the Way



MIDDLEWARE, MODULES, AND EXCHANGE PRICING...

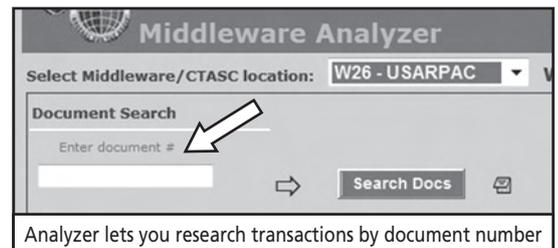
...OH MY!

If you're stumped by the Army's Single Stock Fund Middleware, Funds Control Module or Exchange Pricing Program, take heart—you're not alone.

Fortunately, the Army Materiel Command (AMC)'s Transformation and Integration Portal (TI Portal) is a gateway to a wealth of information on these subjects. The TI Portal serves as a communication forum that also:

- supplements existing training materials for funds control and exchange pricing
- addresses short-term issues, like financial end-of-year close-out activities for commands
- offers a forum for users to ask questions and share good ideas.

Each subject area includes a document section, discussion board and blog. On the Single Stock Fund Middleware tab, you can use the analyzer to research system transactions by document number.



You can also post comments or queries that may wind up in the website's frequently asked questions. A wiki encourages user collaboration.

To access the TI Portal, you must have a valid AKO account and CAC. Visit:

<https://tip.ssf.army.mil>

# Keep PQDR Information Current!



WHEN YOU SUBMIT PRODUCT QUALITY DEFICIENCY REPORTS (PQDRs) FOR CECOM-LCMC-MANAGED (B16) ITEMS TO THE PRODUCT DATA REPORTING AND EVALUATION PROGRAM (PDREP) WEBSITE, MAKE SURE ALL INFORMATION IS ACCURATE AND CURRENT.

THIS INCLUDES KEEPING YOUR CONTACT INFORMATION UP-TO-DATE SO THE INVESTIGATORS CAN REACH YOU IF THEY NEED MORE INFORMATION (SUCH AS PHOTOS, REQUISITION NUMBERS, ETC.).



IF THEY CAN'T FIND YOU, THE INVESTIGATION CANNOT PROCEED.



ALSO, UPDATE YOUR PDREP CONTACT INFORMATION IF YOU ARE A PQDR ORIGINATOR WHO IS BEING REPLACED, RELOCATING, AND/OR GETTING A NEW EMAIL ADDRESS OR PHONE NUMBER.

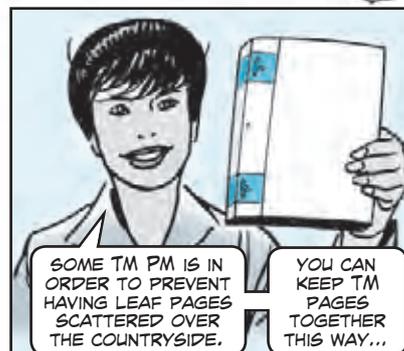


VISIT THE PDREP WEBSITE:  
<http://www.nscptsmh.csd.disa.mil/pdrep/pdrep.htm>

FOR MORE INFORMATION, CONTACT CECOM PQDR REPRESENTATIVES IRIS CRAWFORD, DSN 848-6313, 443-861-6313, OR EMAIL: [iris.i.crawford2.civ@mail.mil](mailto:iris.i.crawford2.civ@mail.mil)



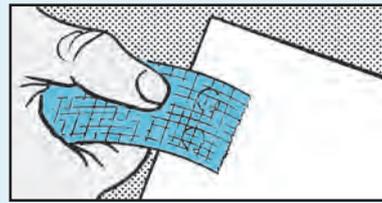
OR ELIZABETH ENGLEHART, DSN 848-6310, 443-861-6310, OR EMAIL: [elizabeth.a.englehart2.civ@mail.mil](mailto:elizabeth.a.englehart2.civ@mail.mil)



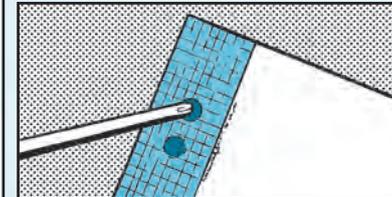
SOME TM PM IS IN ORDER TO PREVENT HAVING LEAF PAGES SCATTERED OVER THE COUNTRYSIDE.

YOU CAN KEEP TM PAGES TOGETHER THIS WAY...

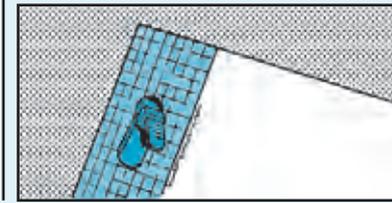
**1** Run a piece of fiber reinforced tape over the binding holes and up and down on both covers of the pub.



**2** Poke a hole through the tape to reopen the binding holes.



**3** Thread electrical ties through the binding holes. NSN 5975-00-074-2072 gets 100 ties 6 1/2 inches long. If the TM has five ring holes, use one tie through holes one and two and another tie through holes four and five.



Of course, you can also use 8 1/2 x 11-in three-ring binders to store your TMs. The 2-in binder comes with NSN 7510-00-149-0604. Get the binder with posts for 2 to 3 1/2-in pubs with NSN 7510-00-889-3519 and binders for pubs 3 to 5 1/2-inches thick with NSN 7510-00-889-3520.

You can pack your TMs in a footlocker, NSN 8460-00-243-3234, or a one-drawer file cabinet, NSN 7110-00-823-7218.



## APOLOGY TO MORT WALKER

We realized after PS 706 (Sep 11) was published that we had failed to credit cartoonist Mort Walker. As many know, "Beetle Bailey" and "SGT Snorkel" were created by Mr. Walker, and still appear under his name in many newspapers today. While we did give proper legal credit to King Features Syndicate on page 34, we regret not mentioning Mr. Walker.

## MMIS to Host SOUMs and GPAs

The Modification Management Information System (MMIS) is now the Army's compliance reporting tool for all safety of use messages (SOUMs) and ground precautionary actions (GPAs). All units with organizational equipment must apply for an MMIS account to view safety messages and record compliance for their affected equipment. Units can access MMIS at the website: <https://www.mmis.army.mil>

## Bye Bye HMMWV Bias Tire

HMMWV bias tire, NSN 2610-01-171-4746, is now obsolete. So all HMMWVs must convert by attrition to radial tires. Do this by ordering the entire radial wheel assembly. The load range E wheel assembly, NSN 2530-01-563-8620, uses load range E tire, NSN 2610-01-563-8328. The load range D wheel assembly, NSN 2530-01-493-5859, uses load range D tire, NSN 2610-01-333-7632. Be sure to keep tires on their rated wheels and never install a load range E tire on a load range D wheel assembly. Always check your HMMWV's TM for the right tire pressure.

## APD Gets a Makeover

If it's been awhile since you visited the Army Publishing Directorate's (APD) website, check out its new and improved look. Now you can sign up for maonthly emails that let you know about new or updated forms. You can also sign up for DOD issuances at APD. Visit: <http://www.apd.army.mil>

## TERMINAL ITEM ISSUE UPDATE

On Page 55 of PS 689 (Apr 10), we told you how to find replacement parts for terminal items in FED LOG. Here's an extra tip. If there are no replacement options, check the cannibalization point or with local vendors. Some readers have found hoses and cylinders for older trucks this way.

## M1A1 Tank Fire Control and Turret Drive NSN Changes

Mechanics, the NSNs for the azimuth servo valve and the electro-hydraulic drive unit on the M1A1 tank's fire control and turret drive have changed. Use NSN 4810-01-391-8454 (PN 9377768) to get a new azimuth servo valve. It replaces NSN 4810-01-076-6739 (PN 12283412), which is shown as Item 27 in Fig 26 of TM 9-2350-264-24P-2 (Apr 03 w/Ch 6, Jul 09). A new electro-hydraulic drive unit comes with NSN 1015-01-391-8457 (PN 9377770). It replaces NSN 1015-01-122-9401 (PN 12283102), which is shown as Item 13 in Fig 27 of TM 9-2350-264-24P-2. Make a note until the TM is updated.

## AMC Updates Applications URLs

Three Army Materiel Command (AMC) applications have migrated and are now hosted at the Logistics Support Activity (LOGSA) website. Here are the new URLs:

### AMTAS

(Army Modernization Training Automation System)

<https://amtas.logsa.army.mil>

### MENS-E

(Materiel Enterprise Non-Standard Equipment Database)

<https://mens-e.logsa.army.mil>

### LINS

(AMC LIN database)

<https://lins.logsa.army.mil>

HQDA G-4 will continue to manage these applications.

## M917A1 Dump Truck Tailgate

The 20-ton dump truck's tailgate assembly shown as Item 10 in Fig 11 of TM 5-3805-264-14&P is no longer available in the Army supply system. You'll have to order the tailgate from the manufacturer, Crysteel, by calling their parts department at (800) 533-0494. You'll need the vehicle's dump body serial number when ordering the tailgate.

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d.(4) Other free	406	220
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Submitted by: STUART A. HENDERSON, Production Manager

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AND CHECK ALL  
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USED WITH  
THE CHANGING  
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COVER THE  
INTAKE GRILLS  
WITH CANVAS  
TO WARM THE  
ENGINE FASTER!**

