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November
2012

THE PREVENTIVE MAINTENANCE MONTHLY

TB 43-PS-720

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JOE KUBERT: *IN MEMORIAM*



Joe Kubert signs posters celebrating *PS Magazine's* 60th Anniversary for Army employees who attended the ceremony in which he was a featured speaker.

PS Magazine is saddened to announce the passing of Joe Kubert, a comic-book illustrating legend and the lead creative artist for *PS* for the last 12 years.

Mr. Kubert, 85, passed away August 12th, after working more than 70 years as a cartoonist. Two of Joe's sons, Adam and Andy, who are fine comic artists, will continue overseeing the creative art that makes *PS Magazine* such a useful publication for Soldiers.

Joe was born in Poland, but his family soon immigrated to the United States and settled in Brooklyn, NY. He spent much of his career working for DC Comics where he gained fame for illustrating Sergeant Rock, Tarzan, Hawkman and Enemy Ace. He became an editor at DC Comics in 1968. In 1976, Joe and his wife Muriel opened the Joe Kubert School of Cartoon and Graphic Art in Dover, NJ, which continues to this day to turn out some of the finest comic book artists in the world.

Joe was more than just a great artist. *PS Magazine* will miss him both for his art and for his kind and gentle manner.



THE PREVENTIVE MAINTENANCE MONTHLY

ISSUE 720 NOVEMBER 2012

TB 43-PS-720, 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. The use of non-DoD hyperlinks, along with their content, does not constitute endorsement by DoD or DA. Neither DoD nor DA exercises any editorial control over, and cannot vouch for, content on non-DoD websites.



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You are invited to send PS your ideas for improving maintenance procedures, questions on maintenance and supply problems and questions or comments on material published in PS.

Just write to:

MSG Half-Mast

PS, the Preventive Maintenance Monthly

USAMC LOGSA (AMXLS-GP)

5307 Sparkman Circle

Redstone Arsenal, AL 35898

Or email to:

half.mast@us.army.mil or

usarmy.redstone.logsa.mbx.psmag@mail.mil

Internet address:

https://www.logsa.army.mil/psmag/pshome.cfm

By order of the Secretary of the Army:

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General, United States Army Chief of Staff

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Joyce E. Morrow

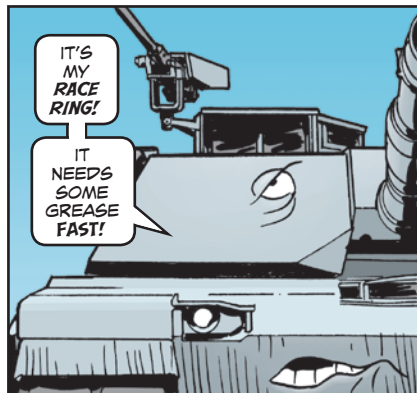
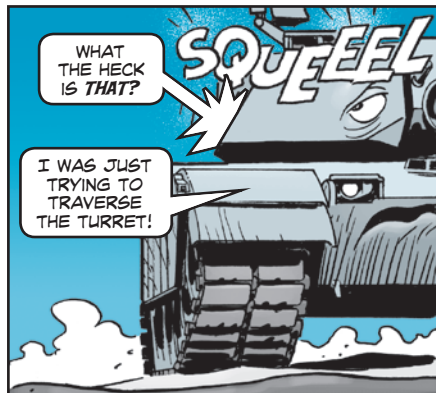
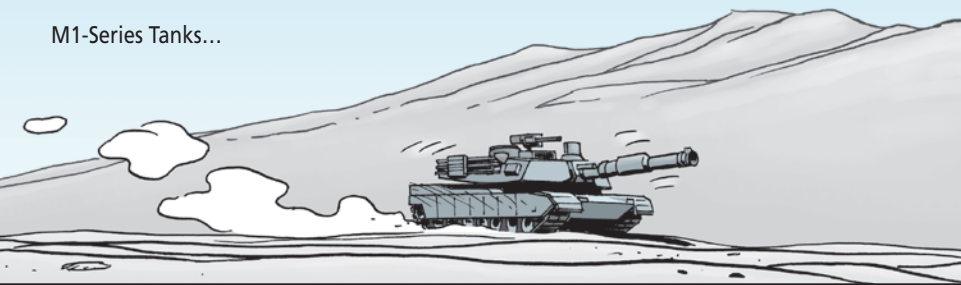
JOYCE E. MORROW

Administrative Assistant to the Secretary of the Army

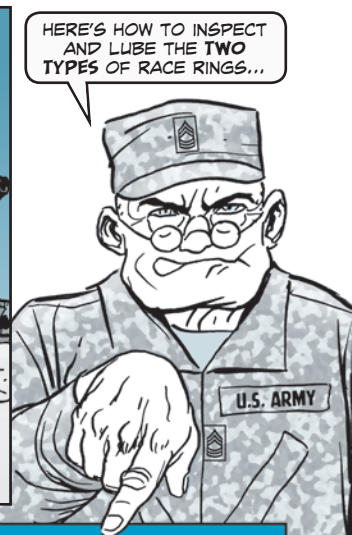
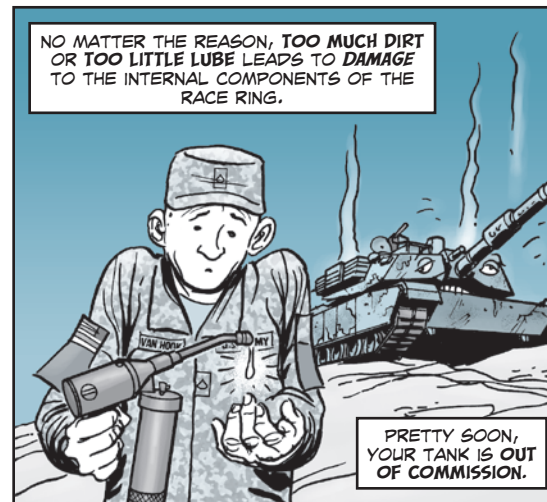
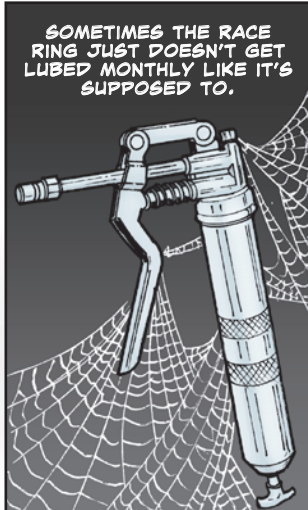
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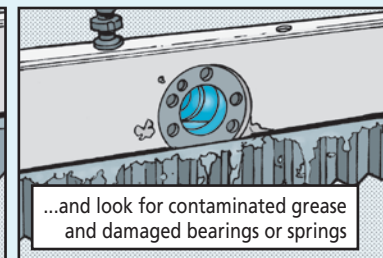
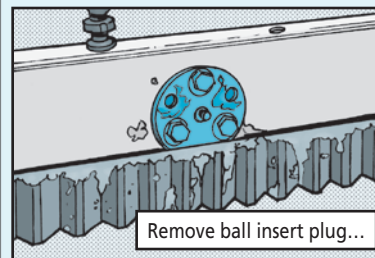


A LITTLE LUBE WINS THE RACE



Ball Bearing Race Ring

1. Remove the ball insert plug, NSN 2530-01-364-4956. Look for contamination, unserviceable grease, damaged ball bearings and damaged or turned springs.



1. Reinstall the ball insert plug and traverse the race ring 90°. Never traverse the turret without the plug in place or the springs will jam up and the bearings will fall out.
2. Remove the plug at the new position and inspect again. Repeat the process until you've inspected the race ring at four separate 90° positions. Don't forget to reinstall the plug after the final inspection.

IF YOU FIND ANY CONTAMINATION OR DAMAGE, TELL YOUR MECHANIC.

HE'LL CONTACT SUPPORT MAINTENANCE SO THEY CAN PERFORM THE RACE ASSEMBLY REPLACEMENT, REMOVAL AND INSTALLATION IN WP 0809 OF TM 9-2350-264-23-2-5 (JUL 11).





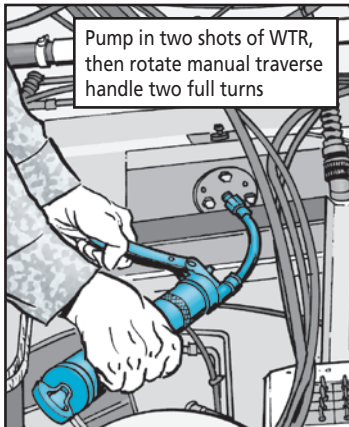
ONE MORE THING!
MAKE SURE THE
BALL INSERT PLUG
THAT COMES WITH
YOUR TANK **STAYS**
WITH YOUR TANK.

THE RACE RING
ASSEMBLY AND
BALL INSERT PLUG
ARE A **MATCHED**
SET AND HAVE TO
STAY TOGETHER.

IF YOU FIND NO
PROBLEMS, GIVE
THE RACE RING
ITS MONTHLY
LUBING LIKE
THIS...



1. Give the grease fitting on the ball insert plug two shots of WTR aircraft grease.
2. Rotate the manual traverse handle two full turns to move the turret. Give the grease fitting two more shots of WTR.
3. Repeat Steps 1 and 2 until the turret has made a complete 360° revolution around the hull.



Pump in two shots of WTR, then rotate manual traverse handle two full turns



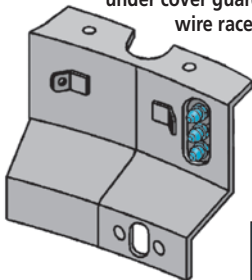
Wire Race Ring

THERE IS NO
INSPECTION CRITERIA
FOR TANKS EQUIPPED
WITH THE WIRE RACE
RING, NSN 1015-01-
433-7999.

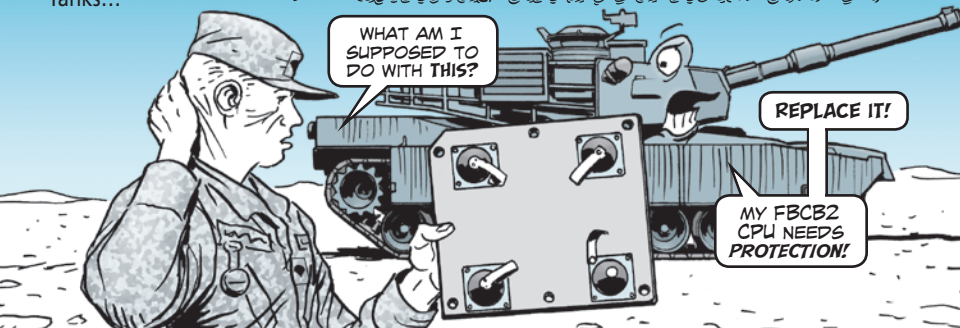
BUT YOU'LL
STILL NEED
TO LUBE IT
MONTHLY.
HERE'S
HOW...

1. Remove the race ring's cover guard, NSN 5340-01-505-2887. Underneath, you'll see three lube fittings.
2. Use a grease gun to slowly pump two shots of WTR into the top grease fitting while manually traversing the turret two full revolutions.
3. Repeat Step 2, but use the middle grease fitting.
4. For the bottom grease fitting, slowly pump in one shot of WTR while manually traversing the turret one revolution.
5. Reinstall the cover guard.

Look for three grease fittings
under cover guard for
wire race ring

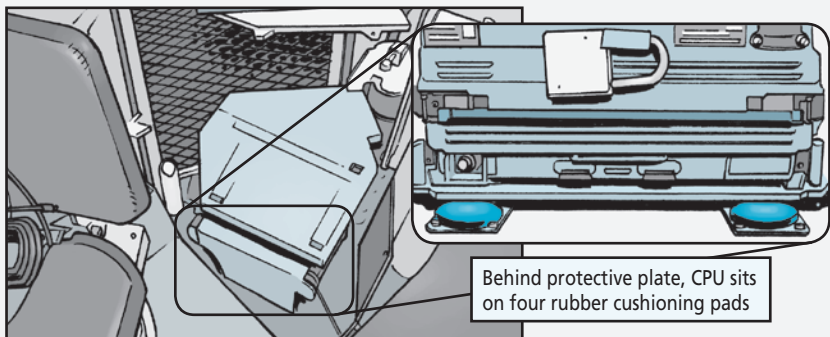


STOP THE SHAKE, RATTLE AND ROLL!



Crewmen, the central processing unit (CPU) for your M1A2 SEP tank's Force XXI Battle Command Brigade-and-Below (FBCB2) is located on the turret floor. It gets bumped, knocked, and bounced almost constantly during operation.

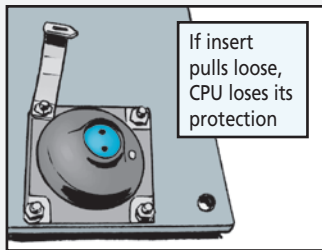
To protect it from that abuse, the CPU sits on a special mount equipped with four rubber cushioning pads. The CPU is attached to the rubber pads with screws that go through a small metal insert in the center of each pad.



Problem is, those inserts will sometimes pull loose from the pads. That lets the CPU bounce up and down all over the place! So it's only a matter of time before the CPU itself is damaged.

You can check for damaged rubber pads by reaching down and trying to move the CPU back and forth. If it stays firmly in place, you're in good shape. But if there's movement, you need to let your mechanic know right away.

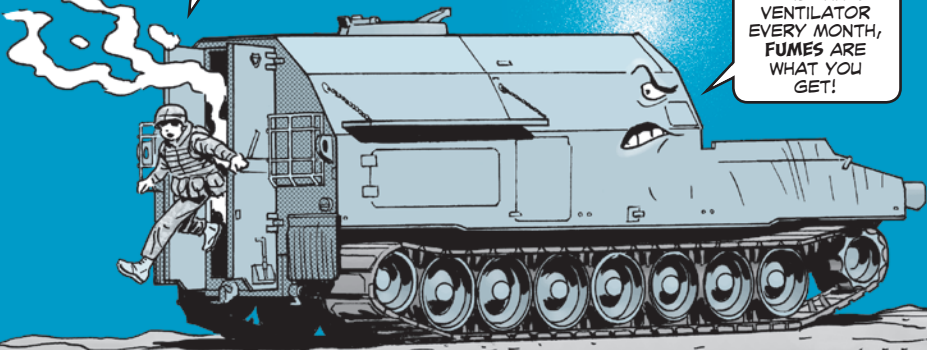
Unfortunately, there is no separate NSN for the rubber pads. He'll have to replace the entire mount, NSN 5340-01-547-4975.



GRILLE CLEANING NEEDED MONTHLY!

BOY! I CAN'T BREATHE IN THERE
WITH ALL THOSE *FUMES!* WHY ISN'T
THERE ANY AIRFLOW!?

WELL, WHEN
YOU *DON'T*
CLEAN OUT MY
PERSONNEL
VENTILATOR
EVERY MONTH,
FUMES ARE
WHAT YOU
GET!

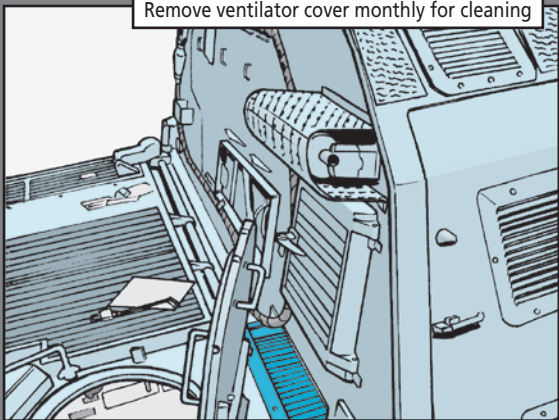


Drivers, the personnel ventilator on your M992A2 ammo carrier has two important jobs. It pulls in cool, outside air to help keep you comfortable and vents dangerous fumes from the crew compartment—like when the automatic fire extinguisher system (AFES) is activated.

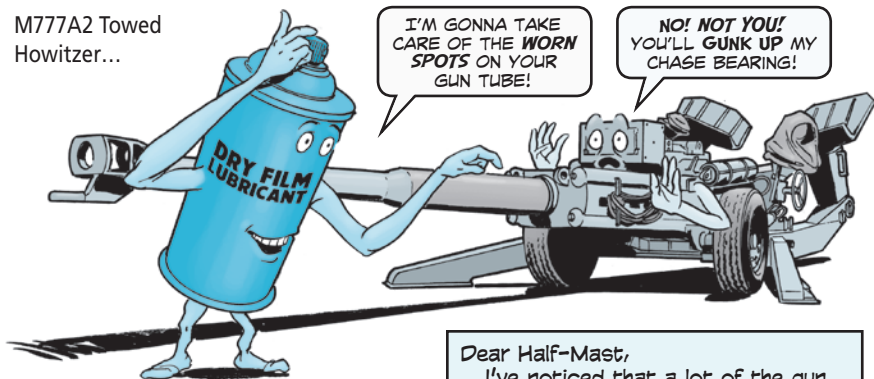
That's why it's important to keep dirt, leaves and other debris out of the ventilator exhaust. If the exhaust is clogged, there's no airflow. And that makes your vehicle NMC.

At least monthly, remove the grille covering the exhaust and clean out any debris that has collected. You'll breathe much easier for your efforts.

Remove ventilator cover monthly for cleaning



M777A2 Towed
Howitzer...



Go Smooth on Tube Lube

Dear Half-Mast,

I've noticed that a lot of the gun tubes on our M777A2 howitzers have started losing their finish. Is it okay to spray some dry film lubricant on the worn spots to help keep corrosion from setting in?

SFC H.J.P.

Dear Sergeant H.J.P.,

Good question! The finish you see on those gun tubes looks a lot like dry film lubricant. However, it's a **baked-on** finish that's designed to adhere to the metal surface of the gun tube.

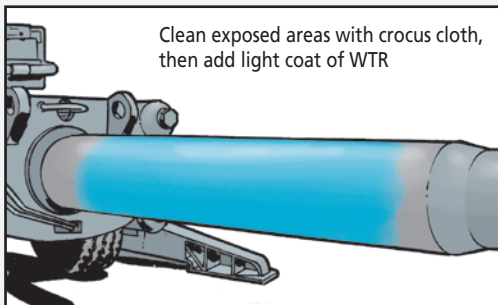
If you use spray-on dry film lubricant, it'll rub off the gun tube surface during firing and gunk up under the chase bearing. That just adds to your problems.

PMCS check 31 in TM 9-1025-215-10 is pretty specific about how to handle those worn spots. Clean the exposed area with crocus cloth and then apply a light coat of WTR to keep rust from setting in.

If you work in a desert environment, however, you'll have to go one step further.

WTR attracts sand like a magnet. So before firing the gun, wipe off all the WTR with a cloth. If you don't, the sand and WTR gunk up inside the chase bearing. That's like rubbing the cannon down with sandpaper every time the gun is fired—not to mention the wear and tear on the seals.

When you're finished firing and the gun tube's cooled down, remember to put on more WTR.



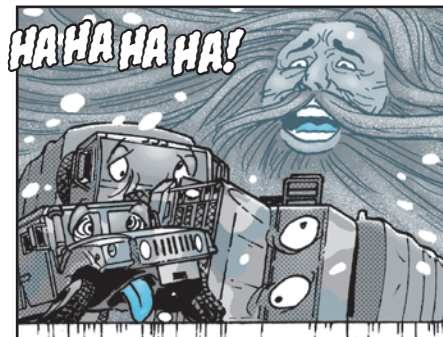
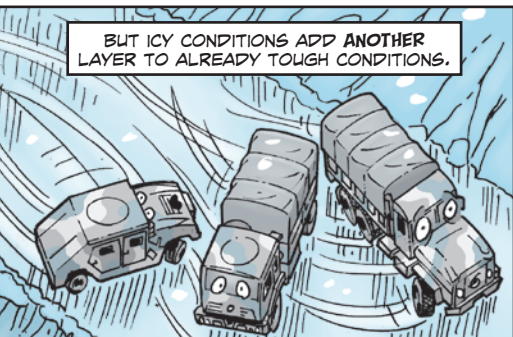
Half-Mast

Tactical Vehicles... Play it Safe: Plan Cold Weather PMCS

A PROPERLY MAINTAINED AND SAFELY OPERATED ARMY VEHICLE IS YOUR FIRST LINE OF DEFENSE IN COLD WEATHER.



BUT ICY CONDITIONS ADD ANOTHER LAYER TO ALREADY TOUGH CONDITIONS.



SO IT'S EVEN MORE VITAL TO FOCUS ON PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS).

FIRST, BE SURE TO FOLLOW MAINTENANCE STANDARDS PUBLISHED IN THE PMCS TABLES OF THE -10 TECHNICAL MANUALS (TMS) FOR YOUR VEHICLE.

TM GUIDELINES HELP IDENTIFY POTENTIAL FAILURES OF VEHICLE SUBCOMPONENTS THAT CAN CAUSE A MAIN SYSTEM TO FAIL AND POTENTIALLY INJURE OR KILL PERSONNEL.

HERE ARE SOME MORE TIPS FOR SUCCESSFUL WINTER OPERATIONS...

- Perform PMCS before, during and after vehicle operations.
- Before heading out, check road conditions along the entire route and know the difference between conditions. Vehicle operations might start out as GREEN or AMBER but be RED farther along.

Key to Road Conditions

GREEN: Road conditions normal.

AMBER: Military vehicles will not be driven on roads except for essential official business. Commander may be directing authority.

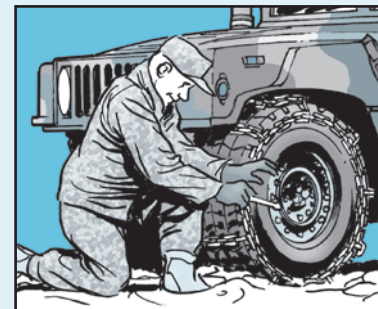
RED: Same as amber, except directing authority is officer with 0-5 rank or above. Government vehicles required to travel will use tire chains or other similar devices designed for heavy snow conditions.

BLACK: Roads generally impassible due to landslides, washouts, ice, etc. All government owned/leased/operated vehicles prohibited from movement. Commanders 0-6 or above may authorize emergency vehicles to operate after risk assessment. If snow or ice caused the road conditions, tire chains or similar are required.

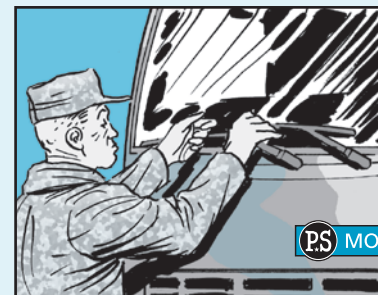
- Keep headlights clear. Brush snow off all headlights and taillights, and use low beams so the vehicle is more visible to others.



- Check tires and tire chains and make sure your crew is trained to properly install them. Inspect tires regularly, and check tread depth and tire pressure before any trip.



- Make sure windshield wipers work and the rubber blades are not torn.



PS MORE

- Check the windshield washer fluid reservoir regularly and refill as necessary. Debris from winter roads can be especially gritty and grimy.



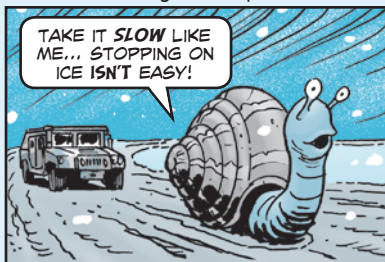
- Check that your vehicle's battery is fully charged and in good condition.



- Stay alert when driving. Don't count on other drivers to use headlights, slow down, or follow the rules of the road. Your extra alertness may help counter some risks that other drivers present.



- Take it slow! You need more time to stop on icy roads. The recommended following distance on ice-covered surfaces is at least three times greater than the usual interval between your vehicle and the one in front of you. In snowy conditions, the average stopping time for a normal car going 60 mph is 10.6 seconds and 533 ft. That's nearly two times the length of a football field! Remember, a heavier vehicle takes even longer to stop.



- Apply brakes early to allow enough stopping time.

If your vehicle has antilock brakes, simply press the pedal down and hold it.

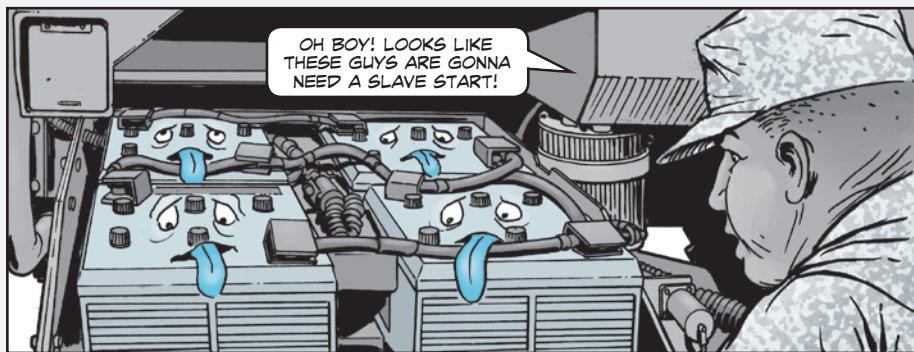
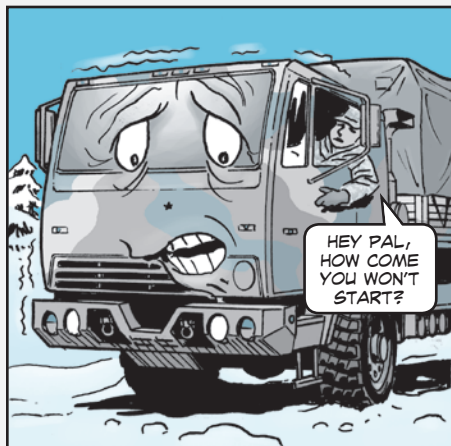


In vehicles without antilock brakes, gently pump the pedal to bring the vehicle to a stop without skidding.



For more information on PMCS and other vehicle-related topics, check out the USACRC Driver's Training Toolbox at:
<https://safety.army.mil/drivertrainingtoolbox/>

SAFE SLAVE STARTING

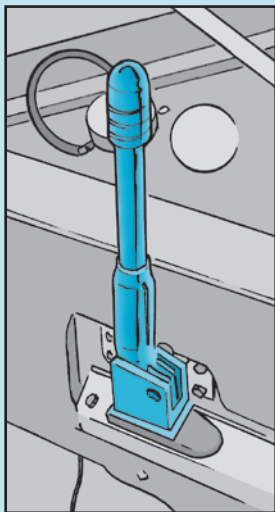


THE RIGHT KIND OF HELP IS USING SLAVE CABLES **CORRECTLY**.

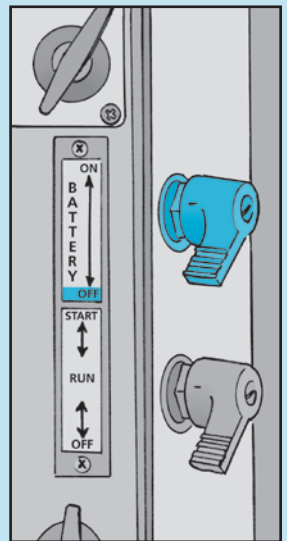
THAT WILL KEEP YOU SAFE AND YOUR VEHICLE ON THE JOB. HERE'S HOW...

- Read the slave-starting steps in your vehicle's operating instructions.
- **Never** stand between vehicles being slaved and **never** position them nose-to-nose. That'll keep you and your vehicle safe in case one vehicle moves when it starts.
- Have your mechanic make sure the electrolyte in all battery cells is above the plates and is not frozen. **Never** slave frozen batteries. They can explode.

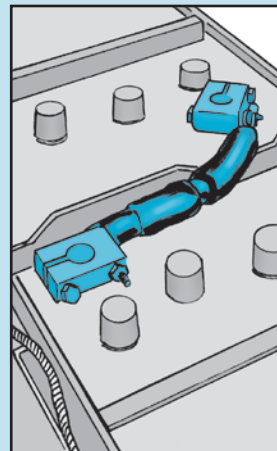
- Set the parking brakes on both vehicles. Shift both transmissions to neutral. Keep the live vehicle's engine running at fast idle.



- Make sure the dead vehicle's battery switch is **OFF** to prevent arcing when you connect the slave cable.



- Make sure all cables and terminals on the dead vehicle's batteries are tight and free of corrosion.



ONCE YOU'VE DONE **ALL** THE ABOVE, FOLLOW THE STEPS ON THE NEXT PAGE...

...AND MAKE SURE YOU DO 'EM **IN ORDER!**

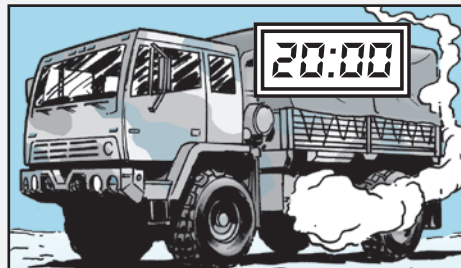


1. Connect the slave cable to the dead vehicle's slave receptacle. The connection should be tight.
2. If either vehicle has the old two-prong slave receptacle, use the NATO adapter, NSN 5935-00-322-8959. Put the adapter on the receptacle and then connect the cable.
3. Push the slave cable connector into the slave receptacle on the live vehicle.
4. Wait at least 1 minute, but no more than 3, before trying to start the dead vehicle. This allows a trickle charge to warm up dead batteries before they get the full jolt.
5. If the vehicle has a clutch, step on it to reduce engine drag. Try to start the dead vehicle.
6. Keep the slave cable connected until the vehicle starts. **Never** unhook a slave cable while the starter is engaged, or you'll get arcing and burned-out cables and receptacles.

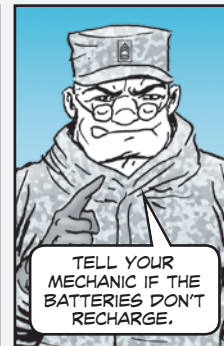


Use NATO slave adapter on old connectors

ONCE THE SLAVED VEHICLE HAS STARTED, PULL OFF THAT VEHICLE'S CABLE AND THEN REMOVE IT FROM THE OTHER ONE.



LET THE ENGINE RUN IN THE SLAVED VEHICLE AT FAST IDLE (1,000-1,200 RPM) FOR AT LEAST 20 MINUTES OR DRIVE THE VEHICLE ABOUT 5 MINUTES TO RECHARGE THE BATTERIES



TELL YOUR MECHANIC IF THE BATTERIES DON'T RECHARGE.

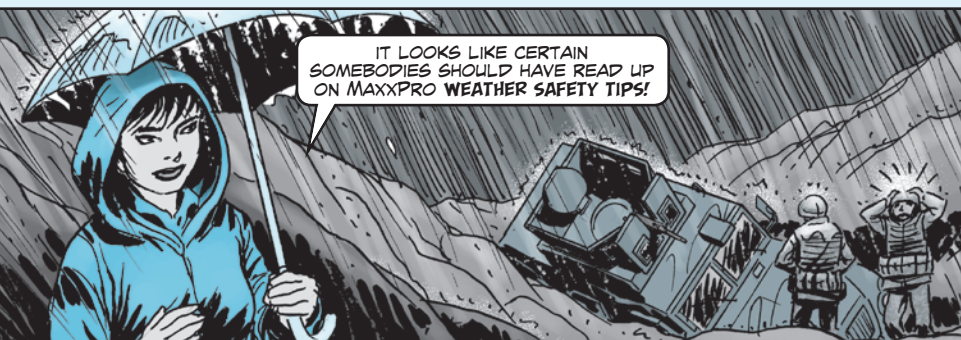
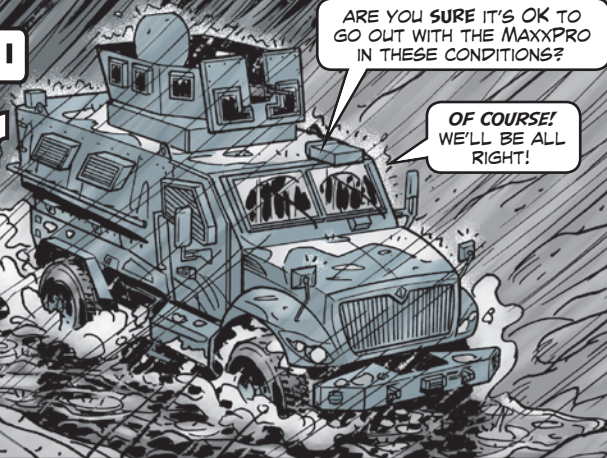


THANKS FOR THE SLAVE START, MASTER SERGEANT HALF-MAST!

MY BATTERIES **REALLY** APPRECIATE IT!

PS
END

MaxxPro Weather Safety Tips



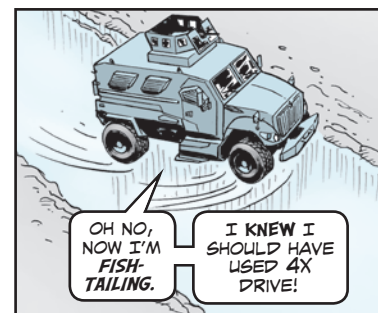
CW4 MARC ASSUMPCAQ OF THE US ARMY COMBAT READINESS/SAFETY CENTER THINKS UNITS WITH MAXXPRO® MRAPS SHOULD CONSIDER THE WEATHER BEFORE OPERATING THEIR VEHICLES.



PS AGREES, SO USE HIS SAFETY TIPS...

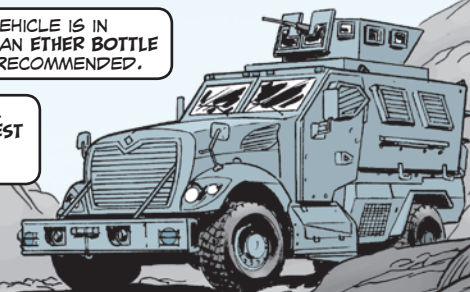
- In severe weather conditions, place the transfer case in low gear and engage the front axle for four-wheel drive.
- During slippery weather (heavy rain, mud, snow or ice), turn off the engine brake and do not use it. Using the engine braking system during icy conditions could cause loss of traction and control.
- Driving in mud can make braking harder. If this happens, clean the brakes by driving about 500 feet with the brakes lightly applied.
- SLOW DOWN AND BRAKE SOONER in bad weather. In slippery road conditions or when there's less traction, you need to allow for increased stopping distances.

- When entering and exiting your vehicle, the steps can become very slippery from mud. Knock mud off your feet before entering the vehicle. In wet weather, take extra care when getting in and out of the vehicle. Metal steps get slick. Pay close attention to the rear ramp area's lower step. You don't want to suffer an injury by having your foot slip in between the two lower steps!
- Allow the engine to warm up to operating temperature during cold weather. The diesel engine has to be warm in order to operate at full potential.
- During wet weather, wipe mud off the vehicle so it doesn't build up and cover possible leaks. Also, dried mud is heavy and can damage parts.
- Before operating your MaxxPro®, make sure the mirror, windshield defroster and heater work. This will help visibility and raise the chances for mission success.
- Ensure that operators are using the correct mixture of antifreeze to water. Navistar, the MAXXPro® MRAP manufacturer, advises a 50/50 mix. This keeps water in the cooling system from freezing.
- During cold, icy or muddy conditions, keep vehicle in 4X drive. Otherwise, it could fishtail or hydroplane.
- In cold weather, set the heater flow valve to the OPEN position. (The valve is located inside the engine well, on the right side, next to engine block.)
- To avoid engine damage, use the fuel-fired heater in cold weather. You must visually check for a fuel leak. You want to ensure your vehicle is fully mission capable before operating it, especially in hostile areas. The fuel-fired heater is on the right side, behind the condenser, on the frame rail.



IF YOUR VEHICLE IS IN AFGHANISTAN, AN ETHER BOTTLE UPGRADE IS RECOMMENDED.

THEN YOU'LL HAVE THE LATEST AVAILABLE BOTTLE.

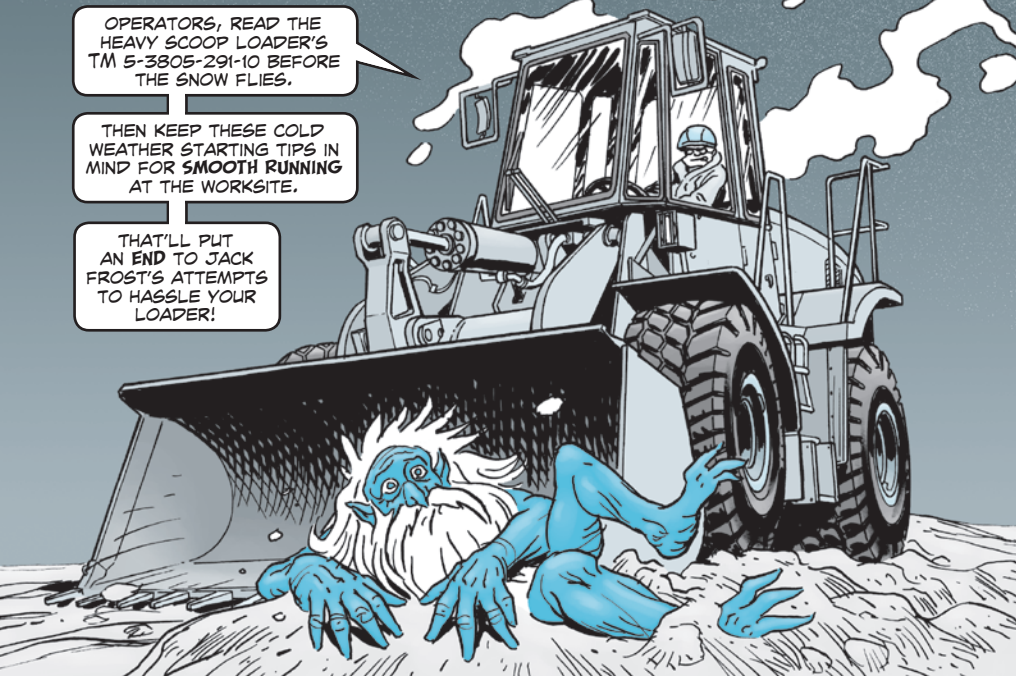


SCOOPIN' IN THE COLD

OPERATORS, READ THE HEAVY SCOOP LOADER'S TM 5-3805-291-10 BEFORE THE SNOW FLIES.

THEN KEEP THESE COLD WEATHER STARTING TIPS IN MIND FOR SMOOTH RUNNING AT THE WORKSITE.

THAT'LL PUT AN END TO JACK FROST'S ATTEMPTS TO HASSLE YOUR LOADER!

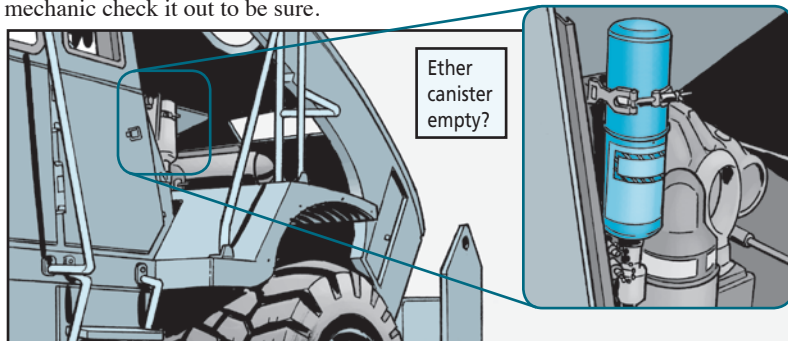


Rough Start?

Your loader may be hard to start when the temperature drops below freezing.

The ether cylinder on the left side of the engine compartment next to the air cleaner can help. It automatically injects ether into the engine for cold weather starting.

If your loader is hard to start, chances are the ether canister is empty. Have your mechanic check it out to be sure.



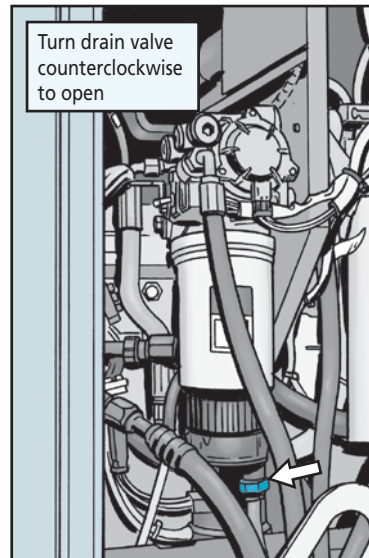
Drain Out Water

Changes in temperature form condensation in the loader's fuel tank. That means you have to drain the fuel/water separator before the day's run.

Not draining the separator leaves water and crud in the vehicle's fuel system. Then the engine runs rough or not at all.

Open the separator by turning its drain valve counterclockwise. Use a clear container to catch the fuel. Let the fuel drain for a few seconds until it runs clear. Then close the valve and go to work. If the fuel remains cloudy, close the valve and tell your mechanic.

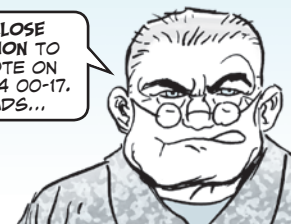
Turn drain valve counterclockwise to open



Clean up any mess and dispose of rags properly. Store drained fuel in an approved hazardous waste container. Never dump it down a drain or on the ground.

Starter Switch Reminder

PAY CLOSE ATTENTION TO THE NOTE ON WP 0004 00-17. IT READS...

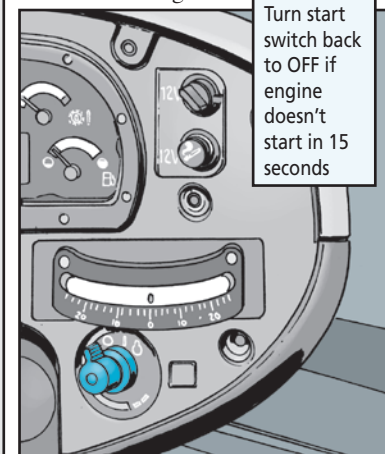


If engine fails to start, return engine start switch to OFF position. This must be done before you attempt to start engine again.

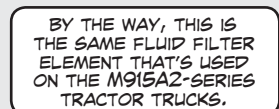
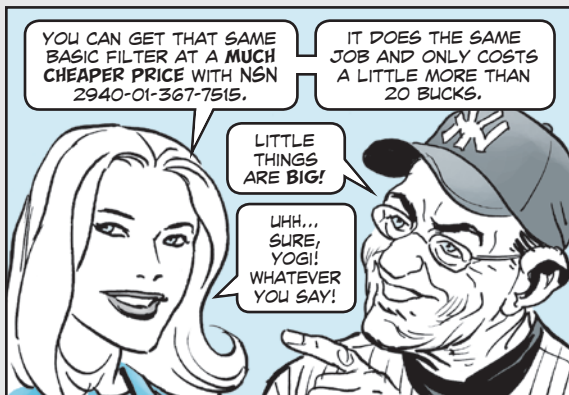
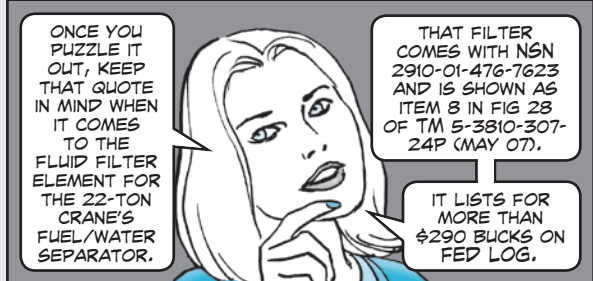
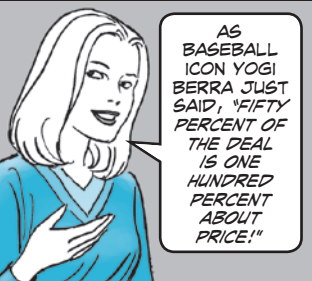
Plain and simple, all it takes is one heavy finger on the starter switch to burn out a good starter motor. So, when you try to start your loader's engine, engage the starter, but after 15 seconds...STOP!

Turn the start switch back to OFF and give the starter at least two minutes to cool off before trying again. If the loader won't start after three tries, call it quits. Your mechanic will need to find out what's wrong.

Turn start switch back to OFF if engine doesn't start in 15 seconds

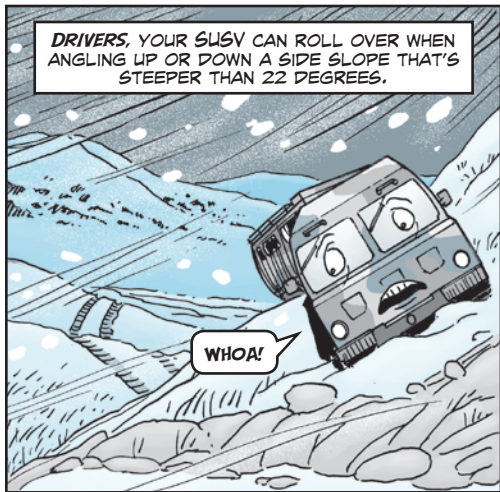


FLUID FILTER ELEMENT COST SAVER



ROUGH GROUND AHEAD?

DRIVERS, YOUR SUSV CAN ROLL OVER WHEN ANGLING UP OR DOWN A SIDE SLOPE THAT'S STEEPER THAN 22 DEGREES.



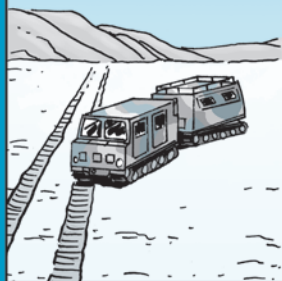
AND THAT'S CUT IN HALF—JUST 11 DEGREES—WHEN DEALING WITH DEEP SNOW!



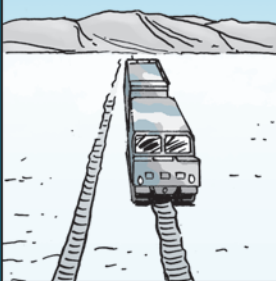
SINCE YOUR VEHICLE DOESN'T HAVE AN INCLINOMETER, YOU'VE GOT TO BE **VERY CAREFUL** WHEN TRAVELING OVER ROUGH OR HILLY GROUND, *ESPECIALLY* IN DEEP SNOW.

HERE ARE FEW POINTERS TO KEEP YOU ON TRACK...

Always cross ruts at an angle



Straddle ruts when traveling along them



Make smooth, slow turns when operating on icy, slippery slopes



When in doubt about the slope angle, find a different place to climb!

MOST OBSTACLES CAN BE OVERCOME IF YOU GIVE THEM A LITTLE THOUGHT BEFORE CROSSING.

USING THE RIGHT METHODS WILL AVOID TRACK DAMAGE AND KEEP YOU UPRIGHT.



DRIVERS,
ANOTHER SEASON
OF COLD WEATHER
IS UPON US.

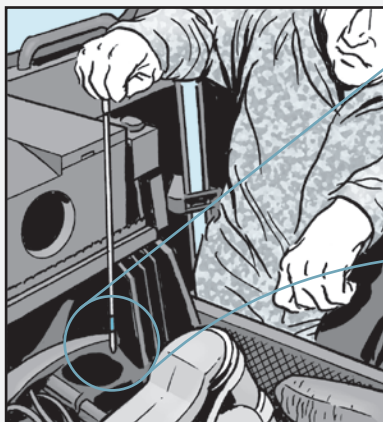
IF YOU WANT TO
KEEP YOUR SMALL
UNIT SUPPORT
VEHICLE (SUSV)
PLUGGING AWAY
LIKE A DOG TEAM
OVER THE ICE AND
SNOW, PRACTICE
THESE PM TIPS.



Before Heading Out

Use **only approved diesel fuel**. Never use an additive to enhance engine performance. All you'll do is burn up pistons and pre-chambers.

Check the oil. It should be between the ADD and FULL mark on the dipstick once the engine has warmed up. An oil level above the FULL mark can blow seals. Oil levels below ADD can lead to friction damage.



ADD FULL

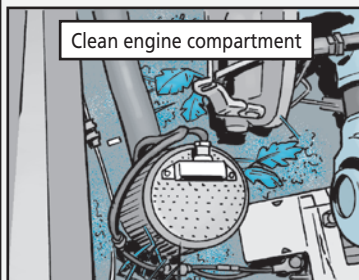
Oil level
between
ADD and
FULL?

Pay close attention to the payload limitations in Table 1-2 of TM 9-2350-285-10 (Apr 90, w/Ch 2, Jan 01). An overloaded vehicle puts too much wear-and-tear on the engine.

Good Housekeeping

Eyeball the engine and transmission compartment for fluid leaks or debris before operation.

Clean engine compartment



IF YOU FIND
TRASH, CLEAN IT UP.
IF YOU FIND LEAKS,
LET YOUR MECHANIC
KNOW.

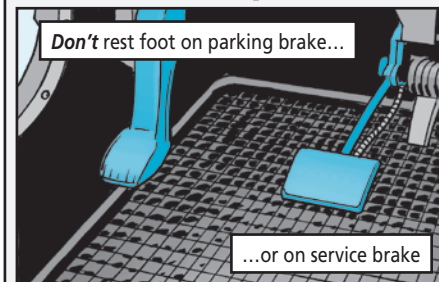
A THOROUGH
STEAM CLEANING AT
EVERY SEMIANNUAL
SERVICE WILL KEEP
THE COMPARTMENT
CLEAN.

Watch That Boot

Make sure the parking brake is released before you drive off. An overheated brake system can cause a fire.

As you drive, keep your boot straight up-and-down on the accelerator. If your boot is held at an angle, it can press on the service brake. The brake heats up and burns out.

Don't rest foot on parking brake...



Same goes for the parking brake. It's only eight inches from the service brake. Accidentally hitting the parking brake will partially set it. That overheats the brake system, too.

Arctic Cover Reminder



Some drivers are known to scratch their heads about when and how to use the arctic cover to help the vehicle warm up.

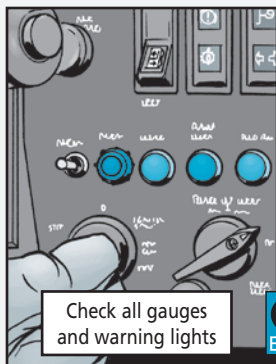
Here's the rule of thumb: take the cover off before startup when the temperature is above -15°F . If it's colder than that, leave the cover on. Just make sure you remove it before operation or the engine will overheat.

Before You Shut Down

Let the SUSV's engine cool down slowly. Once the engine is shut off, there's no way for the heat to dissipate. The sudden rise in heat can crack the block, warp a head or valves, or bake the oil until it's not slick enough to lube the bearings.

Let the engine idle at least 3 minutes before shutdown. This cool-down period also gives you time to eyeball the gauges, switches and warning lights for anything out of the ordinary.

If your SUSV has a full payload, it'll run even hotter. Before shutdown, idle the engine at 1,400 rpm for 30 seconds, then 900 rpm for at least 3 minutes for extra cooling.



Inspect HEWATT Hydraulic Drive Pump

Firefighters, there may be a problem with your unit's HEWATTs. An orifice plug in the hydraulic drive pump can come loose and fall into the pump. That puts a stop to water pumping, so inspect and repair your HEWATT's charge pump using these instructions: https://tulsa.tacom.army.mil/SAFETY/mam/tacom_wn/HEWATTChargePump2.docx If the orifice is missing, the manufacturer will supply a replacement pump. Eyeball TACOM MAM 12-016 for more details:

<https://tulsa.tacom.army.mil/SAFETY/message.cfm?id=MA12-016.html>

M1235A1/A2 MaxxPro Dash DXM Tire Chain

Get a single tire chain for the Michelin 16.00R20 XZL tire on your M1235A1 MaxxPro Dash DXM and M1235A2 MaxxPro Dash DXM ambulance with NSN 2540-01-597-3332. To get a complete set of chains for this vehicle, make sure you order a quantity of four.

Arctic Cover Reminder



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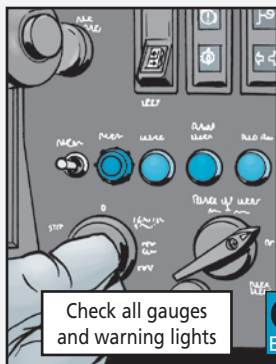
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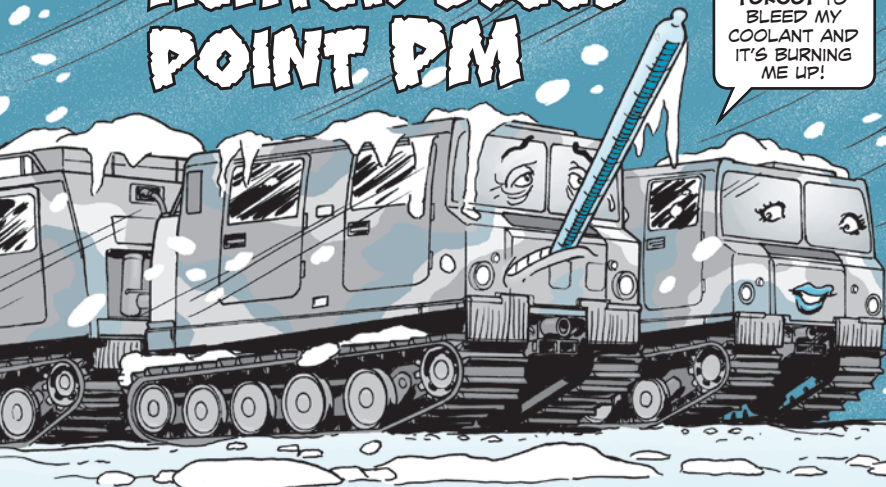
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SUSV...

HEATER BLEED POINT PM

SOMEONE
FORGOT TO
BLEED MY
COOLANT AND
IT'S BURNING
ME UP!

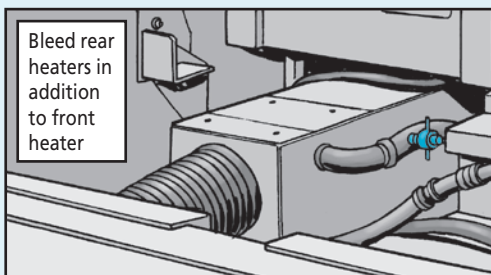


IF YOUR SUSV
IS RUNNING
HOT WHEN IT'S
COLD OUTSIDE,
THE COOLING
SYSTEM
MAY NEED A
COMPLETE
BLEEDING TO
GET ALL THE
AIR OUT.



That's **complete** as in both the front and rear car heaters. Many times the rear car heater bleed point is overlooked. That keeps you from getting all the air out of the cooling system.

Air pockets can prevent coolant circulation, increasing engine temperature.



Take a quick look at Pages 3-73 through 3-74 of TM 9-2350-285-20 (Jun 90, w/ Ch 4, Jan 04). Note that the rear car heater coolant valve must be open during the bleeding operation.

Follow **all** the instructions carefully. Get all the trapped air out of the cooling system so it can do its job.

GIVE COLD WEATHER THE COLD SHOULDER!



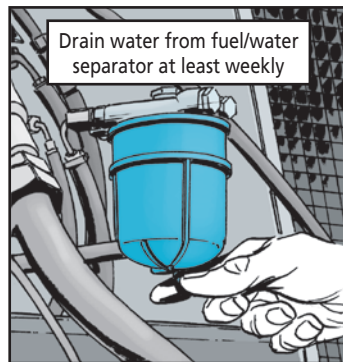
HERE ARE SOME COLD WEATHER TIPS TO KEEP YOUR SUSV MISSION-READY WHEN THE TEMPERATURE STARTS TO DIP.

Drain Out Water

Water in your SUSV'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 TM 9-2350-285-10 (Apr 90).

Open the separator—located behind the cab on the driver's side —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 out on the ground.



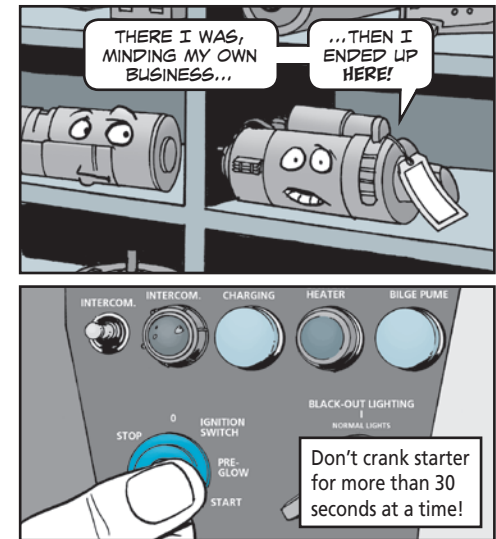
Drain water from fuel/water separator at least weekly

Starter Reminder

It's no secret that some engine starters end up at sustainment maintenance for repair because drivers burn out the starter during cold weather.

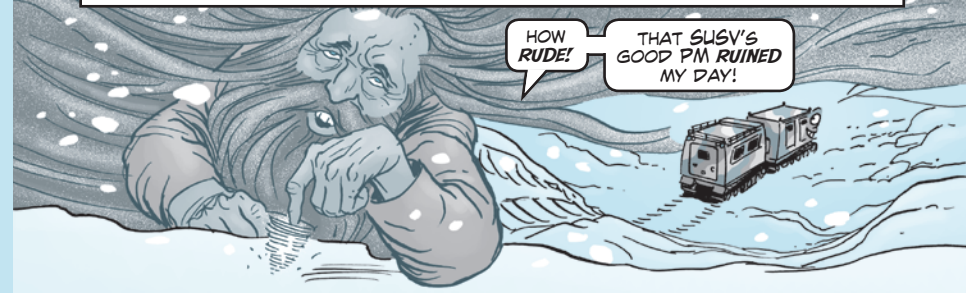
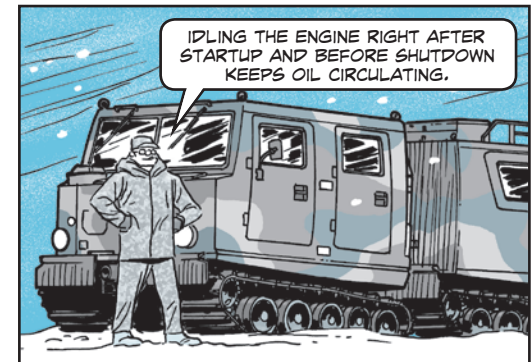
When you're trying to start your SUSV's engine, never keep the starter engaged for more than 30 seconds. If the engine doesn't start by then, stop! Give the starter at least 15 seconds to cool off before trying again. You'll find this information on Page 2-34 of the -10 TM.

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



Time to Warm Up

Do not run the vehicle's engine above 1,200 rpm right after startup or before shutdown. Instead, let the engine idle for five minutes at 750-850 rpm. Idling the engine after startup and before shutdown helps circulate oil to the turbocharger, transmission and transfer. You'll also find this info on Page 2-34 in the -10 TM.



SUSV...

FUEL LINE CHECKUP



DO YOU
SMELL SOME-
THING?

YEAH!
SMELLS
LIKE FUEL
TO ME!



DRIVERS, IF YOU SMELL
FUEL WHEN YOU HOP
INTO THE CAB OF YOUR
SUSV, HOP **RIGHT BACK**
OUT AGAIN...

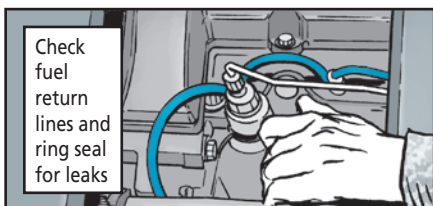
...THAT VEHICLE IS **NMC!**

A fuel smell means there's probably a leak somewhere in the engine compartment. Any fuel leak—Class I, II or III—needs your mechanic's attention right now.

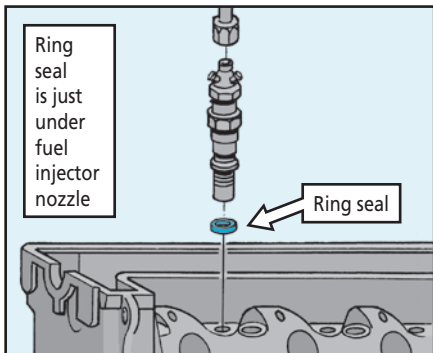
Mechanics, one area to eyeball for leaks is where the fuel return lines are mounted on top of the engine.

Those lines deteriorate from long-term storage and engine heat. Eventually, they leak. If a line feels wet, or if its protective cover is worn off, the line is shot. Replace it with NSN 4720-01-302-2942.

Next, take a look at the ring seal just below the fuel injector nozzle. If it's worn out, replace it with NSN 5330-01-301-5134. You'll see it shown as Item 2 in Fig 15 of TM 9-2350-285-24P (Jan 01).



Check
fuel
return
lines and
ring seal
for leaks



Ring
seal
is just
under
fuel
injector
nozzle

Ring seal

STRANDED IN THE FROZEN TUNDRA

DAY HAS BROKEN COLD AND GRAY-EXCEEDINGLY COLD AND GRAY. WHAT LITTLE LIGHT REMAINS IS FADING QUICKLY.

HELLO...
HELLO... IS
ANYONE OUT
THERE?Z

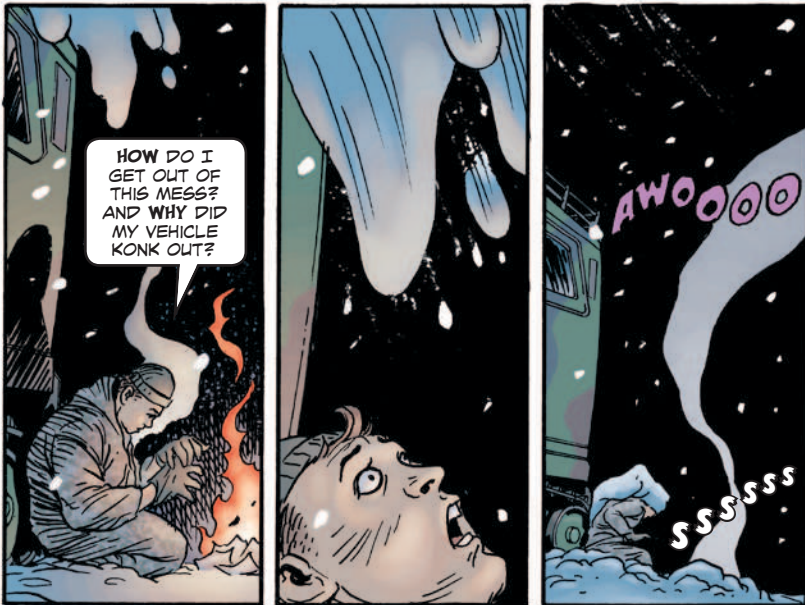
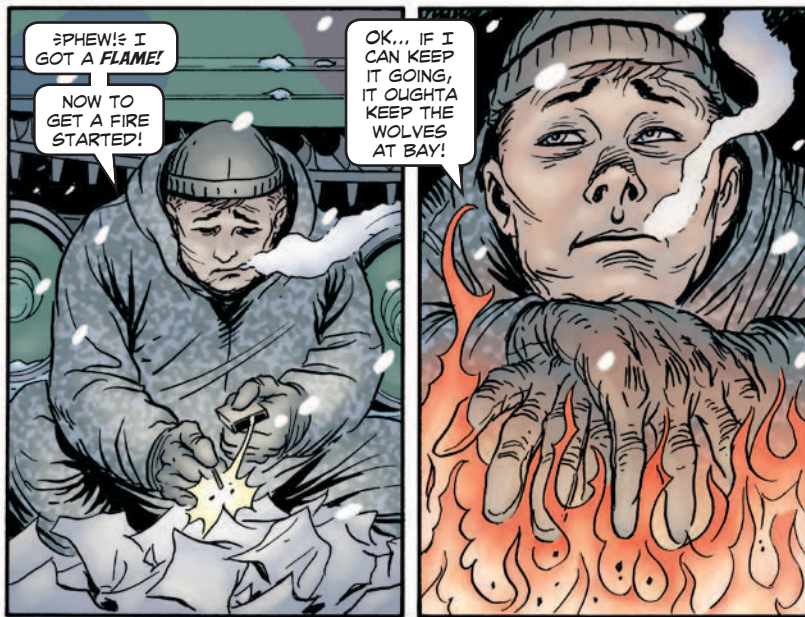
UH-OH...THE RADIO
IS DEAD AND MY
CELL PHONE **CAN'T**
PICK UP A SIGNAL!

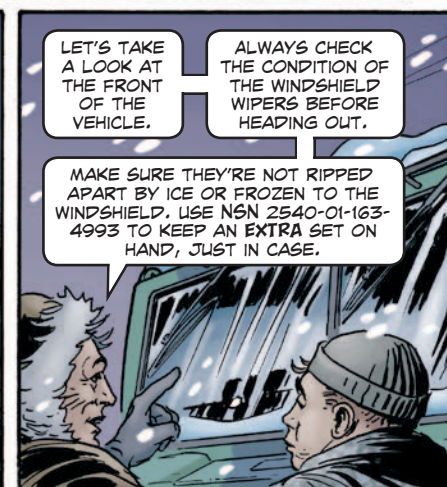
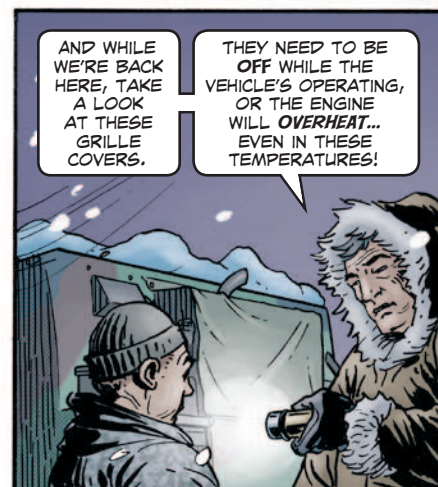
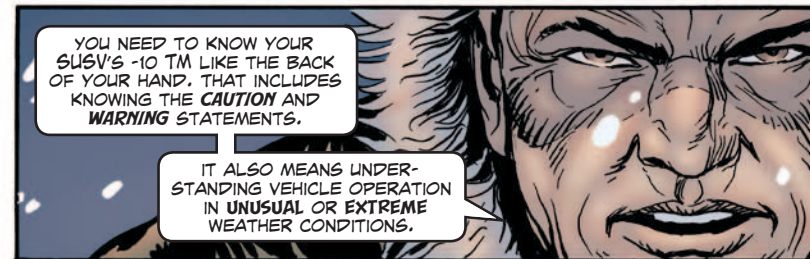
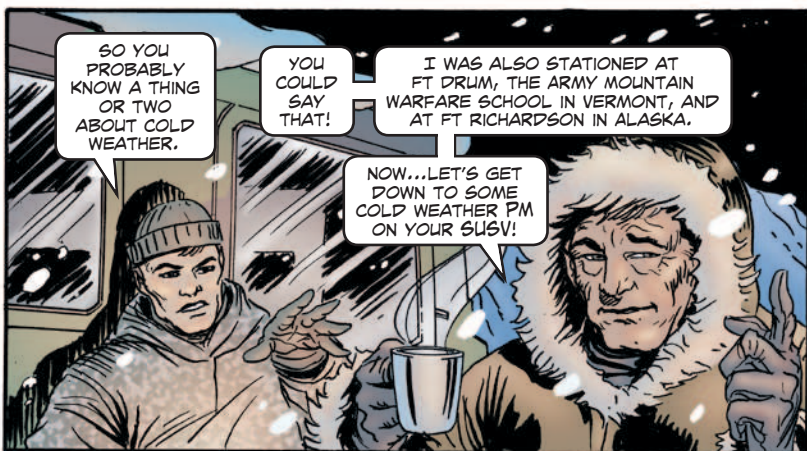
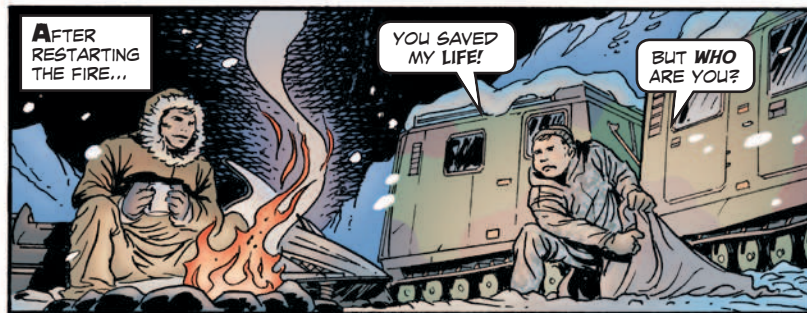
ZKZKRZ

THE DAY BEFORE
THANKSGIVING, AND
I'M STRANDED!

THE **ONLY**
THING I HAVE
THAT I CAN USE
TO MAKE A FIRE
IS THE -10 TM!

AWOOOOO

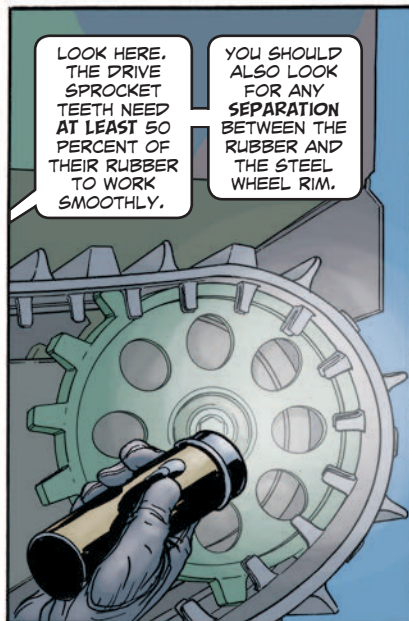






LET'S TAKE A CLOSE LOOK AT THE **UNDER-CARRIAGE**.

IN **DEEP SNOW** IT'S TOUGH TO EXAMINE THE WHEEL ASSEMBLY AND TRACK, BUT IT'S DEFINITELY WORTH THE **EFFORT**.



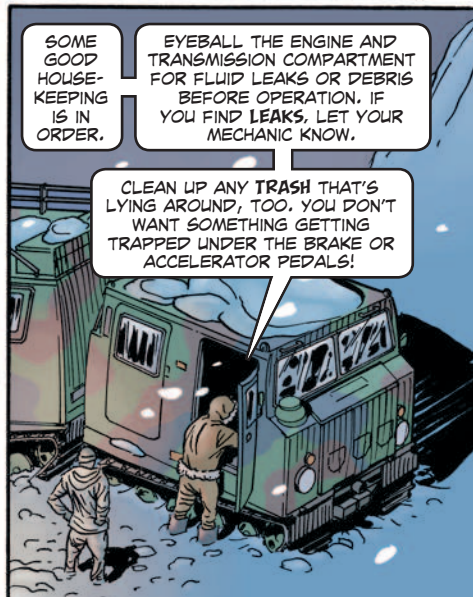
LOOK HERE. THE DRIVE SPROCKET TEETH NEED AT LEAST 50 PERCENT OF THEIR RUBBER TO WORK SMOOTHLY.

YOU SHOULD ALSO LOOK FOR ANY **SEPARATION** BETWEEN THE RUBBER AND THE STEEL WHEEL RIM.



NEXT, INSPECT THE RUBBER TRACK FOR DAMAGED RIBS AND TEARS. IT ONLY TAKES A 4-IN TEAR TO DEADLINE THE TRACK.

FOUR MISSING RIBS IN A ROW WILL DEADLINE IT, TOO.



SOME GOOD HOUSE-KEEPING IS IN ORDER.

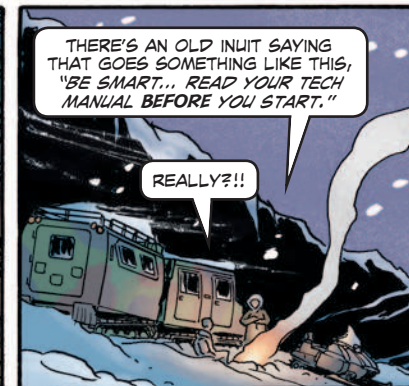
EYEBALL THE ENGINE AND TRANSMISSION COMPARTMENT FOR FLUID LEAKS OR DEBRIS BEFORE OPERATION. IF YOU FIND **LEAKS**, LET YOUR MECHANIC KNOW.

CLEAN UP ANY **TRASH** THAT'S LYING AROUND, TOO. YOU DON'T WANT SOMETHING GETTING TRAPPED UNDER THE BRAKE OR ACCELERATOR PEDALS!



ALL THESE PM POINTERS, AND LOTS MORE, ARE FOUND IN THE -10 TM.

YEAHH...ABOUT THAT -10 TM...



THERE'S AN OLD INUIT SAYING THAT GOES SOMETHING LIKE THIS, "**BE SMART... READ YOUR TECH MANUAL BEFORE YOU START.**"

REALLY?!!

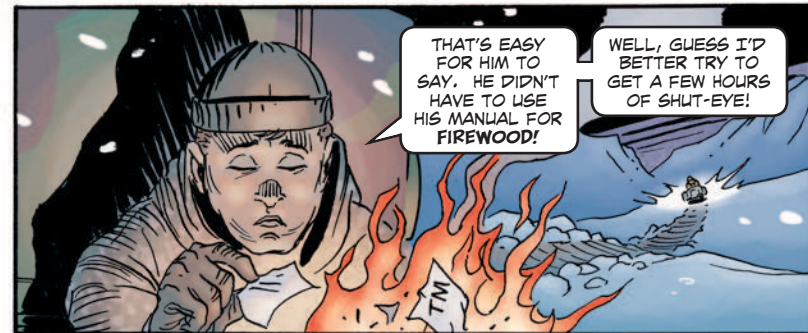


ACTUALLY I JUST MADE THAT UP. BUT THEY'RE STILL GOOD WORDS TO GO BY!

WELL... GOTTA GO! I'M EXPECTED FOR THANKSGIVING DINNER.



I'LL LET YOUR UNIT KNOW WHERE YOU ARE. JUST REMEMBER WHAT I SAID... **READ THAT MANUAL!**



THAT'S EASY FOR HIM TO SAY. HE DIDN'T HAVE TO USE HIS MANUAL FOR **FIREWOOD!**

WELL, GUESS I'D BETTER TRY TO GET A FEW HOURS OF SHUT-EYE!



OH-58D...

OK, JUST A
LITTLE MORE
GREASE AND
OIL SHOULD
DO IT!

STOP
RIGHT
THERE!

I DON'T
NEED A TOP
OFF...

...UNLESS
YOU JUST
WANT A MESS
TO CLEAN UP!

THE RIGHT AMOUNT OF OIL AND GREASE

Too much or too little oil and grease are not good for your Kiowa Warrior's tail rotor gearbox and its inner bearings.

Don't go overboard and overfill the tail rotor gearbox or overgrease the bearing inside the pitch control mechanism. Do only what TM 1-1520-248-23 says. Don't add "just a bit more" for good measure because that leads to a messy cleanup.

As you add oil to the gearbox, allow a few seconds for the oil to stabilize before you read the site gage. That way you won't add too much.

If you add too much, the excess oil runs down the output shaft during operation and gets into the trunion and its Teflon® bearings.

When you add too much grease to the pitch control mechanism inner bearings, the extra grease fills up the boot, and pumps it into the gearbox, contaminating it.

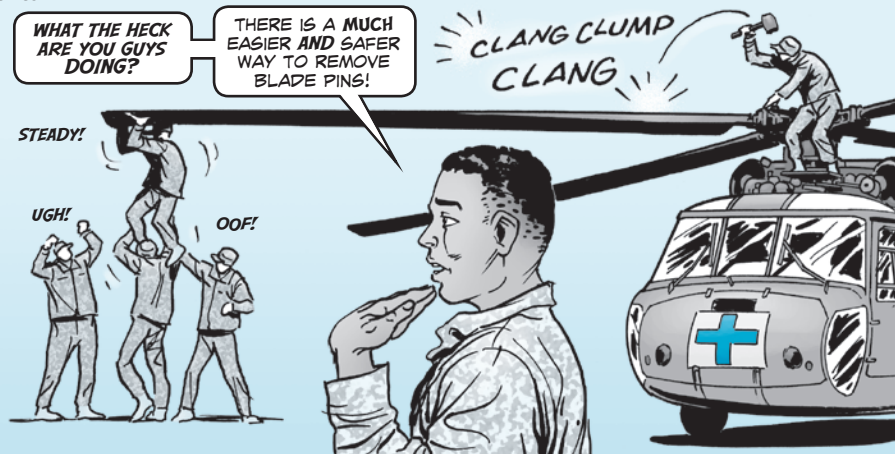
Too much oil and grease is a problem, but not lubing is just as bad. Don't forget to grease the pitch change inner bearings on the tail rotor gearbox. If you constantly forget, the trunion bearings will heat up and eventually allow oil from the gearbox to leak into the boot area that covers the rod.

Inside the boot there is a weep hole that needs proper cleaning. The weep hole allows for expansion and contraction of the boot. If the hole gets clogged with grease, air cannot move in and out of the boot. The boot can't collapse or expand, so it tears and deteriorates. That will affect the directional control pedals when flying your aircraft.

So, when dealing with oil and grease, just keep it simple. Follow the TM and don't doctor up maintenance.



Remove Blade Pins With Care



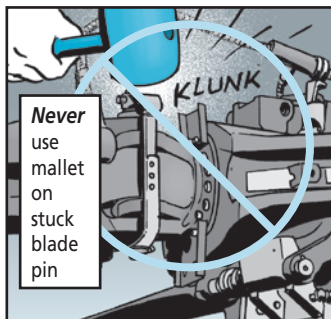
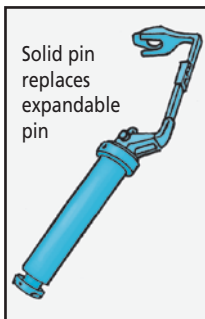
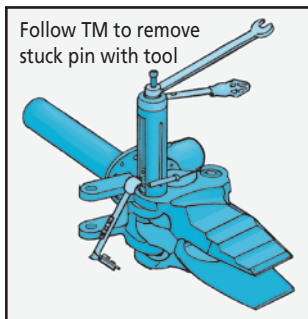
Mechanics, Black Hawk blade pin removal is not a contest of strength.

When it's time to remove blades or blade pins, easy does it is the way to go.

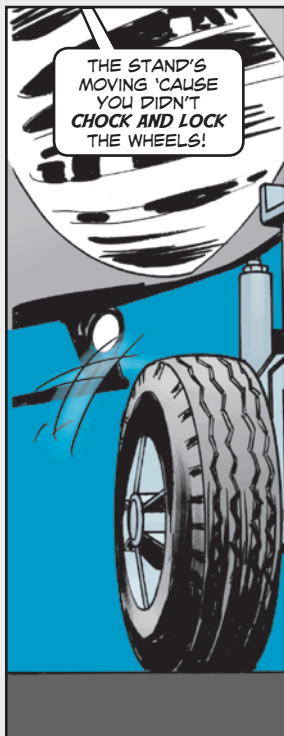
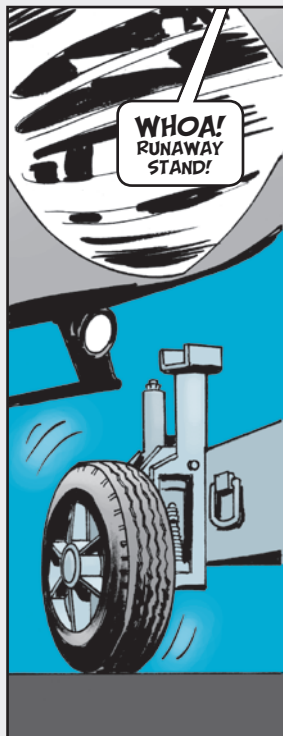
Use a hoist or a blade lifting pole to lift each blade. This will relieve pressure and apply upward force on the blade pin while leading and lagging the main rotor blade. Stop leading and lagging the rotor blade once up and down movement in the blade pin is achieved. Now you can slide out the blade pins without force if each blade is positioned in this way. That makes the pins easy to remove.

For stuck pins, follow the procedures in WP 0585 of TM 1-1520-237-23-7 to locally make a tool to remove stuck pins. Never use a mallet to remove stuck pins. Make a note that the new style solid blade pin, NSN 5315-01-537-4652, replaces the old expandable blade pin, NSN 5315-01-329-0707. The old pins can be used in pairs on the same blade if the solid pin is not available. Never mix solid and expandable pins on the same blade.

Always remember when removing blade pins, slide them out. If you try to yank or force them out, you'll only cause damage and make it more difficult to remove them.



Using the B-1 Stand



When using the B-1 maintenance stand, there's a little preparation that must take place.

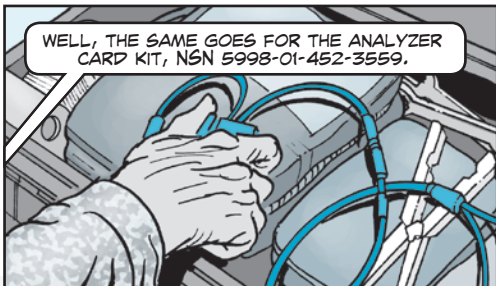
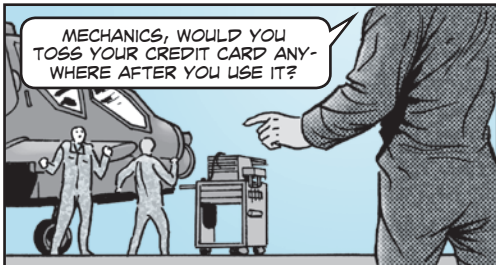
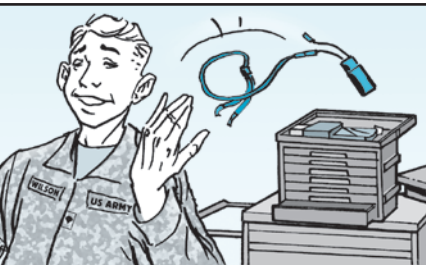
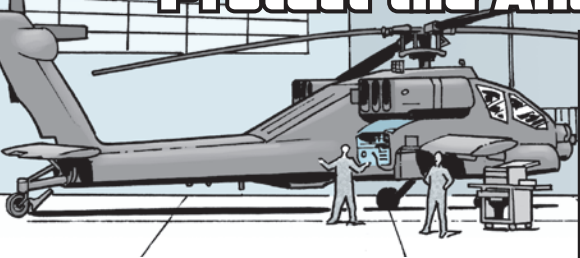
Not properly preparing the stand could allow it to move while you're carrying heavy tools. If the stand moves, your foot can slip and hit the air temperature gage, breaking the eyebrow windows. If you lose your grip on a wrench, it will plunge through the windows onto the center console in the cockpit. More damage!

Properly position your B-1 stand and make sure the wheels are locked in place. Add some chock blocks for good measure just in case the brakes slip. You don't want the stand to move when going up and down the steps.

So, secure the maintenance stand, maintain your footing and hang on to your tools!

AH-64/D...

Protect the Analyzer-Card



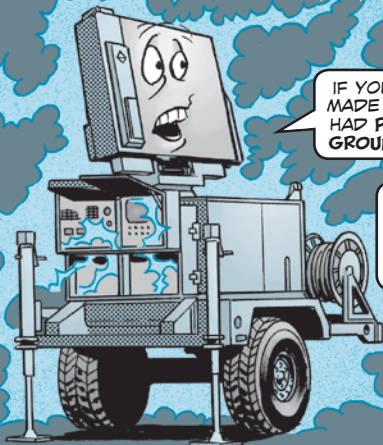
AFTER THE 25-HOUR/14 DAY PMS, DON'T TOSS THE CARD ANYWHERE, ESPECIALLY **NOT** INTO A TOOL OR MAINTENANCE DRAWER THAT'S FULL OF HEAVY TOOLS.

IF YOU DO, THAT COULD **DAMAGE** THE CARD AND THEN YOU WON'T BE ABLE TO DOWNLOAD MAINTENANCE INFORMATION FOR THE DATA RECORDER USED IN THE LONGBOW INTEGRATED MAINTENANCE SUPPORT SYSTEM, GROUND ANALYSIS SOFTWARE (LIMSS-GAS).

ALWAYS STORE THE CARD IN A SAFE PLACE WHERE IT WILL BE **PROTECTED** FROM DAMAGE. AND REMEMBER, WITHOUT IT, YOU'LL NEVER KNOW THE MAINTENANCE HISTORY OF YOUR AIRCRAFT.



STAY ON SOLID GROUND



IF YOU ONLY
MADE SURE I
HAD PROPER
GROUNDING...

...ALL THIS
ELECTRICITY
WOULDN'T
BE RUNNING
LOOSE!

ZAP!

YOWSA!

ZAP!

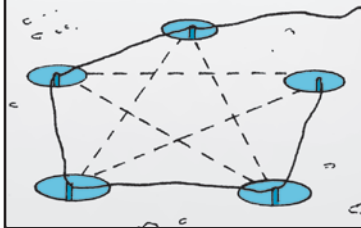
Dear Editor,

The Sentinel radar system can generate more than 20,000 volts, which makes it critical that crews pay attention to proper grounding. You don't want that much electricity running loose!

The Sentinel's grounding rod should be buried at least 9 feet deep. But if you're operating in the desert's dry air or on cold ground, it will be harder to get a good ground with one grounding rod. In those cases, it's better to use a star pattern with 5 shorter ground rods spaced 2-4 rod lengths apart and connected together. Since the Sentinel ground rod kit, NSN 5975-00-878-3791, has only three 3-ft rods, you may want to order an extra kit if you operate much in dry or cold conditions.

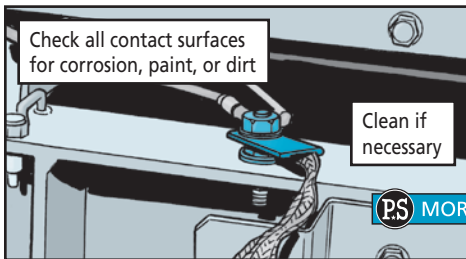
All that work placing the grounding rods will be for nothing if the contact surfaces for the grounding wires are corroded, painted or dirty. If the contact surfaces aren't clean, current has trouble traveling through the grounding wire. Check these areas at least monthly and clean them if necessary.

In cold or dry ground, it's better to use a star pattern for grounding



Check all contact surfaces
for corrosion, paint, or dirt

Clean if
necessary



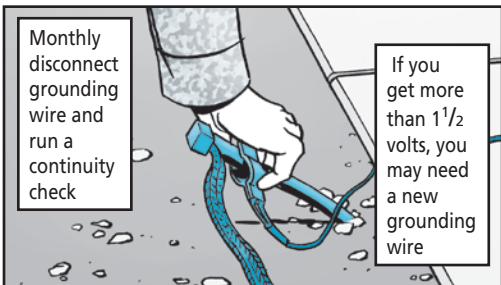
PS MORE

One other good grounding tip is to do a monthly test of the grounding wire to make sure it's in good shape. Disconnect the grounding wire and run a continuity check on it. If you get more than 1½ volts, you may need a new grounding wire.

SPC Gilbert McClamroch
E Btry,
5/52 ADA
Ft Bliss, TX

Monthly disconnect grounding wire and run a continuity check

If you get more than 1½ volts, you may need a new grounding wire

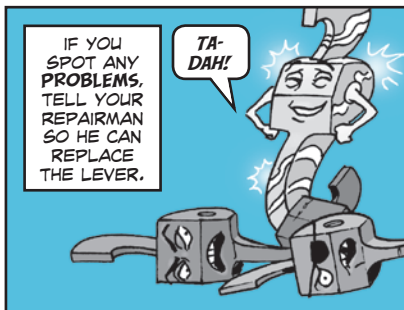
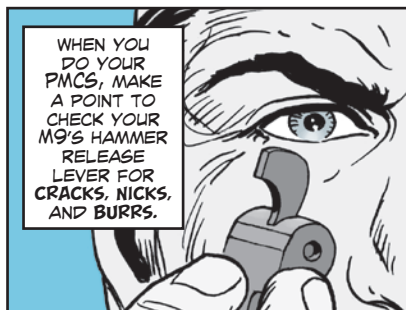
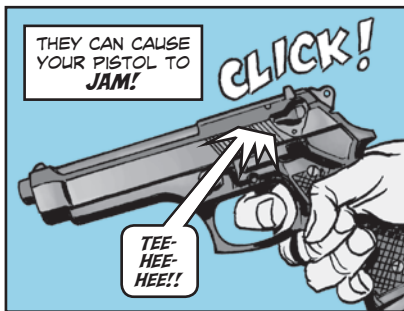
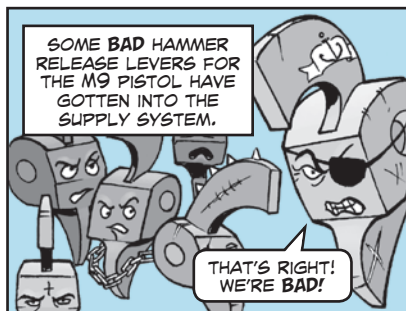


Editor's note: I think you are on solid ground with your suggestions. A good resource for grounding info is CECOM's Earth Grounding and Bonding pamphlet. You can get it by calling DSN 648-3812 or (443) 395-3812.

PS
END

M9 Pistol...

LOOK FOR DEFECTIVE HAMMER RELEASE LEVER

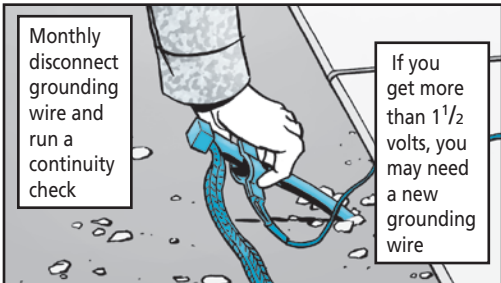


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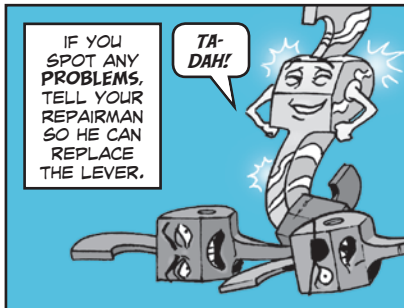
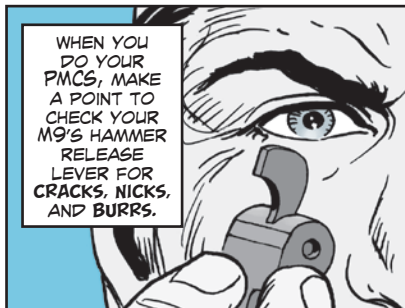
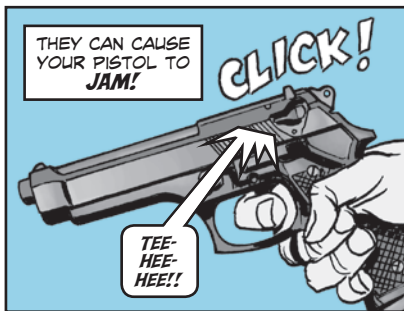
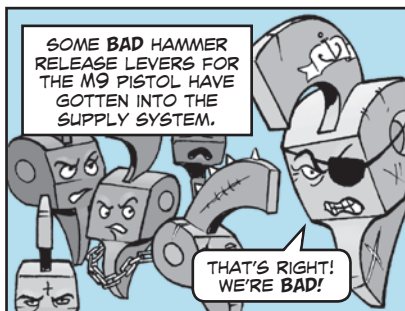


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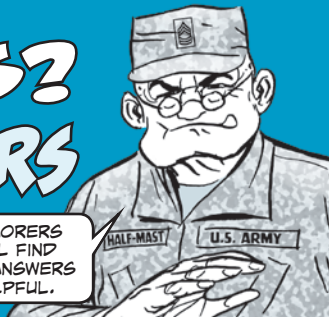


QUESTIONS? WE'VE GOT ANSWERS

PS RECENTLY VISITED THE SMALL ARMS SHOP AT THE FT BLISS DOL.

THE REPAIRMEN THERE HAD THE FOLLOWING QUESTIONS.

ARMORERS WILL FIND THE ANSWERS HELPFUL.

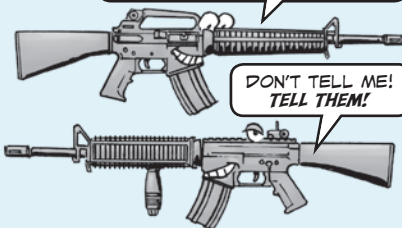


What is the difference between the M16A2 and M16A4 rifles and bolts?

The M16A2 barrel, NSN 1005-01-146-7684, has a 1/8-in taller front sight assembly than the M16A4 barrel, NSN 1005-01-454-1629. This is because of the M16A2's carrying handle and rear sight.

The same breech bolt assembly, NSN 1005-01-505-1035, is actually used on all the M16A2 and M16A4 rifles and M4/M4A1 carbines.

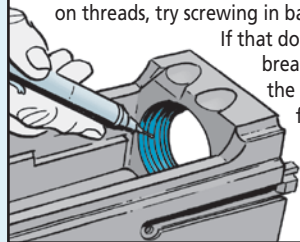
MY BARREL'S FRONT SIGHT ASSEMBLY IS SLIGHTLY BIGGER THAN YOURS... BUT WE USE THE SAME BREECH BOLT.



We are seeing new M48 machine gun barrel extensions that have a small stake in them that prevents the barrel from being completely screwed in. Is this normal?

Yes. Sometimes a burr is left on the barrel extension's threads when it's machined. Usually, when you first screw in the barrel, the burr breaks off. If it doesn't, the burr can be removed by carefully filing or stoning it.

If M48 barrel extension has a burr on threads, try screwing in barrel.

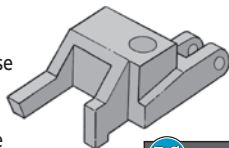


If that doesn't break off the burr, file it off

There are two different bolt latches (or manual control levers) for the M2 machine gun, but they have the same NSN. One latch has an adjustable clearance between the receiver and bolt latch and the other has a fixed clearance. Is there any way to specify which one you get?

The bolt latch with the fixed clearance hasn't been used in 20 years. If you receive it, you should file a PQDR. The adjustable bolt latch, NSN 1005-00-550-4060, is the only one that should be used. The clearance for the bolt latch assembly and the receiver sideplate should be .003 to .005 inch. See WP 0015 00-10 in TM 9-1005-347-23&P (Jul 11).

The only M2 bolt latch to use is the one with an adjustable clearance

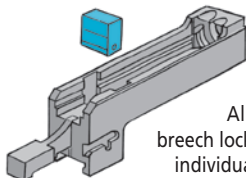


PS MORE

Will there be separate NSNs for the new M2A1 machine gun's breech locks?

Yes, each of the M2A1's 16 breech locks have been assigned individual NSNs. You can find them in WP 0038 00-6 in TM 9-1005-347-23&P.

The breech lock kit, NSN 1005-01-541-3657, can no longer be ordered. It's Item 16 in WP 0038 00-5



All M2A1 breech locks have individual NSNs



M203 Grenade Launcher...

WHERE TO BUY *YELLOW* LOCTITE



Dear Editor,

When you replace the breech insert for the M203 grenade launcher, you are supposed to use yellow sealing compound (Loctite®), NSN 8030-00-081-2335. Unfortunately, it is very difficult to get through the Army supply system because it has been misclassified as Class IV instead of IX.

We found one good commercial source for the sealing compound. ACCRABond sells a box of 10cc bottles for less than \$50. Their version is called INSTABond 406. Their website is:

<http://www.accrabond.com/nsr.html>

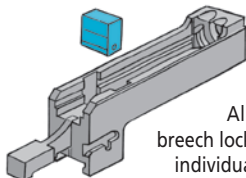
Patrick Rogalin
Ft Devens, MA

Editor's note: The yellow Loctite is the *only* loctite you should use for replacing the breech insert. Testing has determined it is the best for the job. It is a DLA-managed item. When we checked, they had only 40 bottles on-hand, so it may continue to be a problem getting it through the supply system. If you do an Internet search for yellow Loctite®, you will find other commercial sources.

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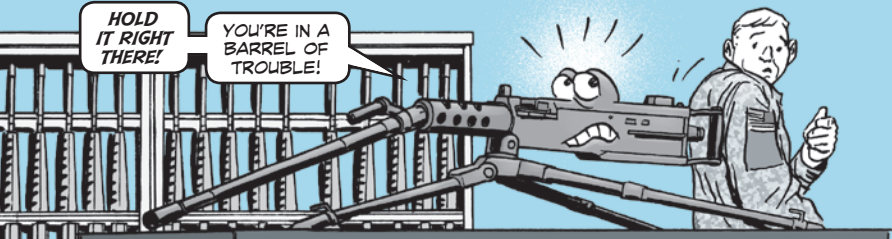
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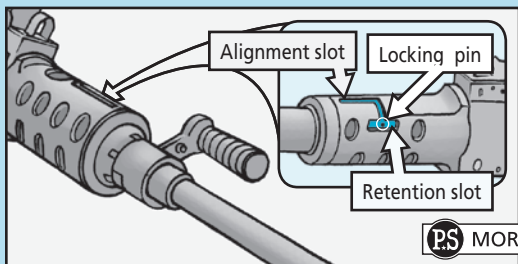
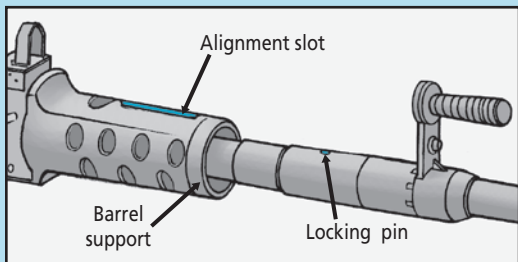
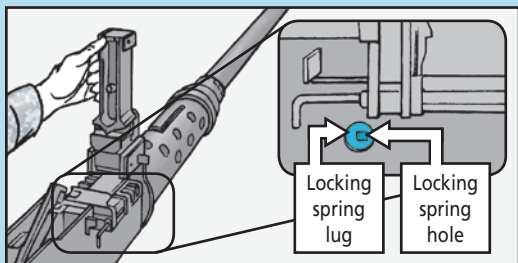
DON'T SCREW UP SCREWING IN BARREL



M2A1 machine gunners are sometimes getting it wrong when they install the barrel. The result is that the barrel's locking pin is sheared off during firing and the barrel has to be replaced. You could end up in a barrel of trouble if you're not careful.

Here's how to install the barrel correctly:

1. With the cover assembly all the way up, retract the bolt assembly far enough so that the barrel locking spring lug centers in the barrel locking spring hole on the right side of the receiver.
2. Insert the barrel assembly into the barrel support until the barrel locking pin engages the alignment slot.
3. Push the barrel assembly to the rear until the locking pin engages the alignment slot. Grasp the barrel carrying handle. Rotate the barrel assembly clockwise and secure the locking pin in the retention slot.
4. Make sure the barrel's end protrudes beyond the lower barrel extension threads.
5. Release the retracting slide handle and allow the bolt to go forward. Close the cover assembly.

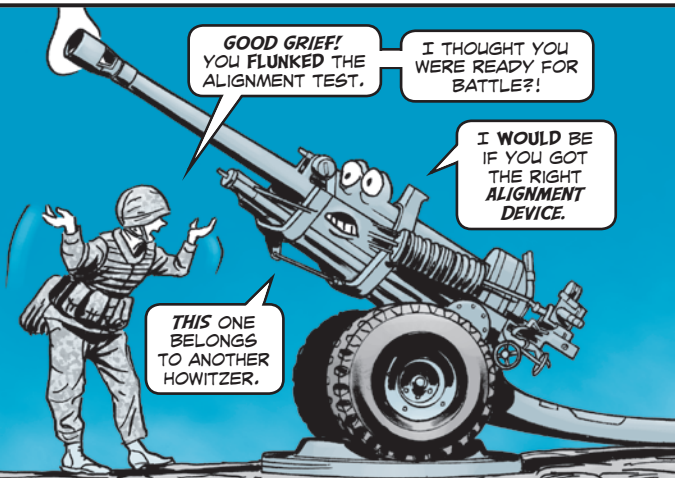


REMEMBER,
YOU CAN USE
ANY M2A1
BARREL WITH ANY
M2A1 MACHINE
GUN WITHOUT
AFFECTING
TIMING AND
HEADSPACING.

PS
END

M119A2 Howitzer...

Check Alignment Device's Mounting Bracket Serial Number



Dear Editor,

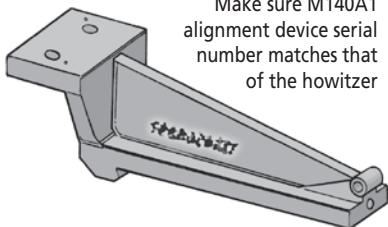
When M119A2 howitzer crews are doing the BEFORE PMCS in TM 9-1015-252-10, they need to add a step when they get to Item 15 in WP 0040-15. Crewmen must make sure the serial number for the M140A1 alignment device's mounting bracket (or "dovetail") matches that of the howitzer's serial number.

If the wrong dovetail is used, the howitzer can fail the fire control alignment test in WP 0049.

A dovetail can be adapted to another howitzer by being pinned, but this can be done only once. Then the dovetail must be replaced. The pinning procedure is in WP 0081 in TM 9-1015-252-34.

If you find the wrong dovetail, tell your repairman.

James Palmer
TACOM Left Behind Equipment Specialist
JBLM, WA



Make sure M140A1
alignment device serial
number matches that
of the howitzer

Editor's note:

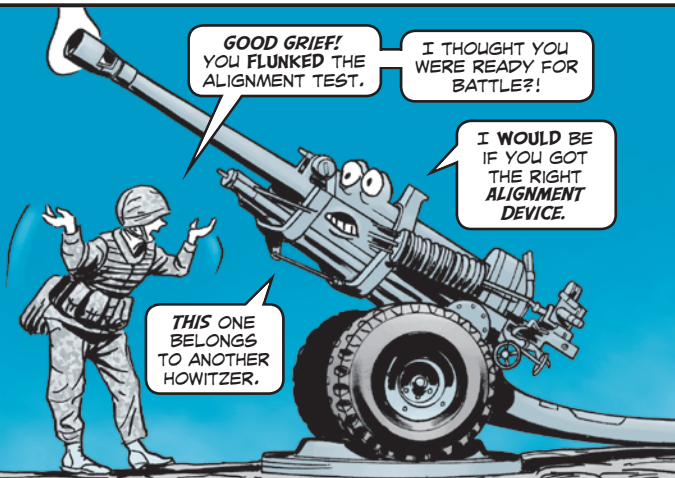
A good PMCS addition,
Mr. Palmer. Thanks.

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BARREL WITH ANY
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PS
END

M119A2 Howitzer...

Check Alignment Device's Mounting Bracket Serial Number



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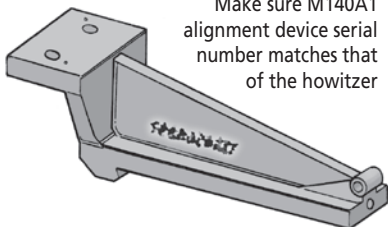
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Editor's note:

A good PMCS addition,
Mr. Palmer. Thanks.

M1129A1
MCV Stryker...

BAD FIRING PINS DANGEROUS

SOME **BAD** REMOVABLE FIRING PINS, NSN 1005-01-583-2295, FOR THE STRYKER MORTAR CARRIER HAVE GOTTEN OUT TO THE FIELD.

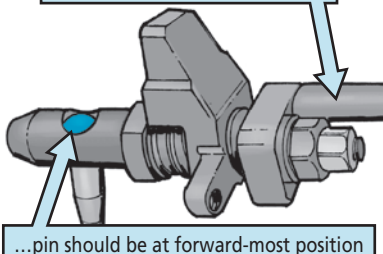
THESE FIRING PINS DO THE **OPPOSITE** OF WHAT THEY'RE SUPPOSED TO.

When the bad removable firing pin is put in **SAFE** (3 o'clock position with the pin retracted), it's actually extended from the breech cap in the **FIRE** position. And when the bad firing pin is put in **FIRE** (9 o'clock with the pin extended), it's retracted.

The result is a round that won't fire in **FIRE** mode. If the crew can't remove the pin and puts the safety mechanism in the **SAFE** position to do the misfire procedure, the round could fire if it slips while using the round extractor. That could be a catastrophe.

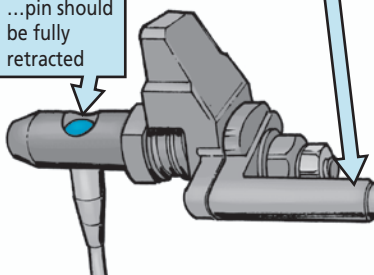
So, before another round is fired, repairmen should check all Stryker mortar carriers for bad removable firing pins. Check spare firing pins, too. See WP 0370 in TM 9-2355-311-10-3-3 for the removal/installation and inspection procedures. When the firing pin is in the **SAFE** position (3 o'clock), it should be fully retracted. If it's not, you've got a bad pin.

When lever is unlocked and 180 degrees from **SAFE** position...



When lever is locked in **SAFE** position...

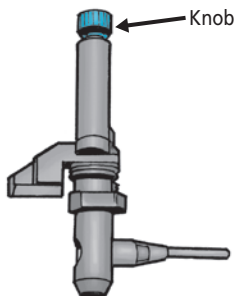
...pin should be fully retracted



WHILE YOU'RE
AT IT, ALSO
CHECK THE FIRING
PIN ASSEMBLY
FOR THESE
PROBLEMS...



- retaining pin spring jamming in the housing on the lock assembly
- retaining pin knob not turning or turning with difficulty



Retaining pin knob hard to turn?

If the firing pin is defective, turn it in to Contractor Logistics Support for free replacement.

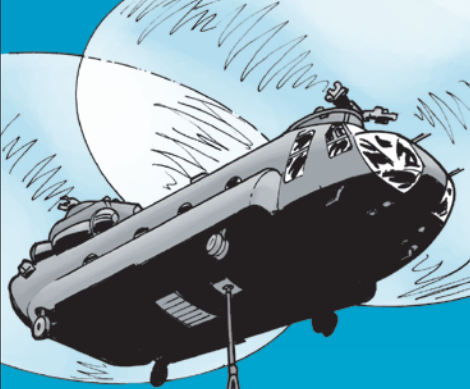
Questions? Contact TACOM's Jason Nickert at DSN 786-6720, (586) 532-6720, or email:

jason.j.nickert.civ@mail.mil

For more information, see TACOM ground precautionary action (GPA) message 12-018:

<https://tulsa.tacom.army.mil/SAFETY/message.cfm?id=GPA12-018.html>

PS END



WAIT!
I CAN'T
GO YET!

THEY *DIDN'T*
INCLUDE MY
COEI!



COEI Stays with M119A2

If your M119A2 howitzer is being shipped out or transferred to another unit, its components of end item (COEI) must go with it. COEI cannot be separated from the end item.

M119A2 COEI include the breech block, M187 mount and jack strut.

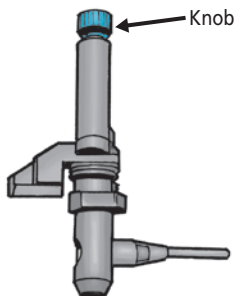
Basic issue items (BII) are another story. They can be packaged and shipped separately from the M119A2.

For a complete list of the M119A2's COEI and BII, see WP 0051 in TM 9-1015-252-10 (Sep 10).

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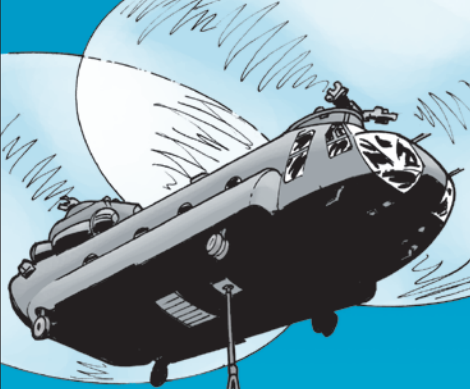
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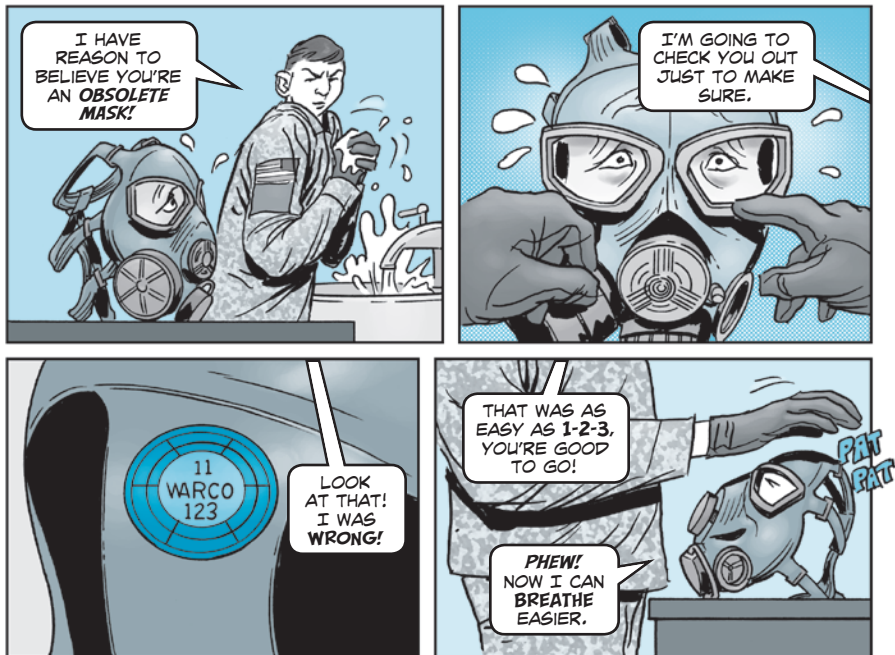
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Unmasking Suspect M45 Masks



Back in 2007, the Army had trouble with M45 masks failing the lateral movement test, which checks the bonding of the head harness clip to the faceblank. The Army replaced most of those masks, but there still may be some in the field.

A quick check, CBRN specialists, will tell if you have any of the masks that weren't replaced. Look on the masks' left chin strap for the raised manufacturer medallion. If the medallion says "123", you have an M45 replacement mask, which means it's good to go.

No "123"? You need to get a new M45.

Request instructions for getting new masks and disposing of old ones by sending an email to: tacom-lcmc.ilsc_masks@mail.mil

Be prepared to provide your UIC, DODAAC, PLAD (plain language address designator), a POC and justification for any urgent replacement.

Questions? Contact TACOM's Patrick Loudy at DSN 786-1565, (586) 282-1565, or email: patrick.c.loudy.civ@mail.mil

**FREE
JSLISTS
FOR
TRAINING!**



Need JSLIST to train for real CBRN emergencies? Good news, CBRN specialists! You can get a free JSLIST for training through the Individual Chemical Equipment Management Program (ICEMP) by emailing: icemp.support@us.army.mil

You will be given instructions for ordering the training JSLIST. Shipping is free.

If you have questions, contact the ICEMP Support email above or call DSN 786-3569, (586) 282-3569.

M9 Detector Paper...

**IS IT
SAFE?**



Dear Half-Mast,

We recently turned in all our M9 detector paper. I was wondering if M9 paper is still being used and if it's safe. I've heard it's unsafe because it contains a high level of carcinogens.

SGT T.S.

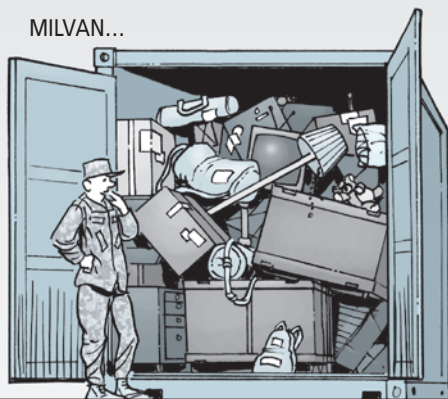
Dear Sergeant T.S.,

Yes, M9 paper is still being used and it's safe... now. The original M9 paper contained a dye that was suspected of being a carcinogen. But the Army stopped stocking that M9 paper more than 20 years ago. The M9 paper that comes with NSN 6665-01-226-5589 uses a different dye and is perfectly safe.

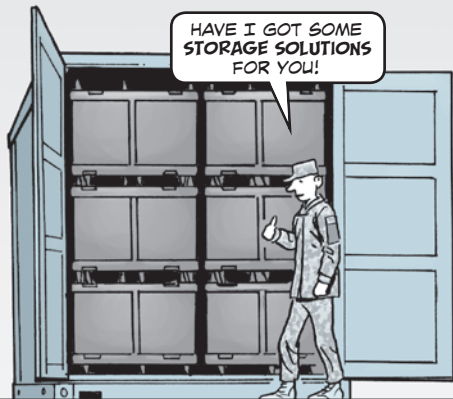
By the way, you shouldn't have turned in your M9 paper. You should have one roll of M9 paper per five Soldiers and one roll per each major piece of equipment.

Half-Mast

MILVAN...



HAVE I GOT SOME
STORAGE SOLUTIONS
FOR YOU!



Solutions for Storage

An organized container in the right place makes a big difference when it comes to completing or sustaining a mission.

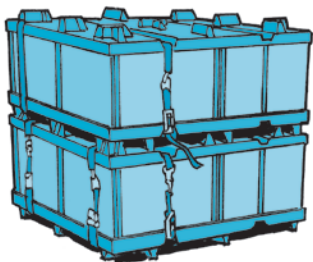
Here are a few new products that can improve vehicle recovery, logistical support and transportation of supplies.

Collapsible Container System

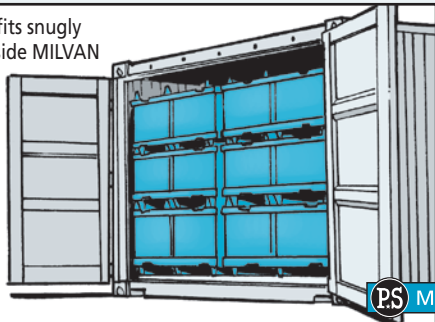
A plastic, weather-resistant collapsible container kit for short- or long-term storage comes with NSN 8145-01-562-9283. The kit has two containers, weighs 115 pounds and measures 48x40x30 inches. It stores conveniently inside a MILVAN.

All it takes is a forklift operator and two ground guides to load an entire MILVAN with 15 kits (30 containers). No blocking or bracing is needed. The kit's containers come with four custom-sized pallets, two collapsible sleeves, and eight ratchet-straps, NSN 8145-01-522-8341. It's designed to carry up to 800 pounds of cargo. The containers will last many years even with daily use.

Collapsible
container
system...



...fits snugly
inside MILVAN



PS

MORE

Cargo Tie-Down Kit

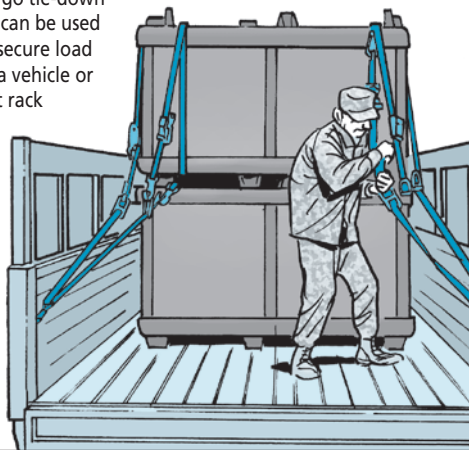
Scattered cargo is the last thing a driver wants to see in his rearview mirror.



To secure a load in place, use a 1-in cargo strap tie-down kit that comes with NSN 8145-01-522-8344. This kit includes a storage bag, four green nylon 1 3/4-in straps with fixed double-bar D rings and a 2-in snap hook.

Also included with this kit is a 1 3/4-in x 20-ft nylon ratchet strap with a fixed 2-in snap hook. All of these items fit quickly back into the storage bag after each mission.

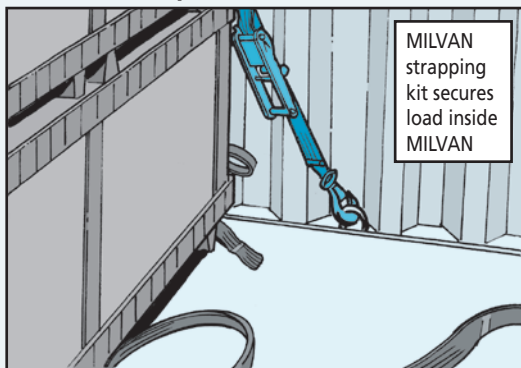
Cargo tie-down kit can be used to secure load to a vehicle or flat rack



MILVAN Strap Kit

The MILVAN strap kit, NSN 8145-01-524-7267, is designed specifically for the 20-ft MILVAN. One storage bag comes with eight 1-in cargo tie-down straps, and sixteen 1-in x 14-ft ratchet straps.

The kit's second storage bag has eight 1 3/4-in cargo tie-down straps and eight 1 3/4-in x 20-ft ratchet straps.



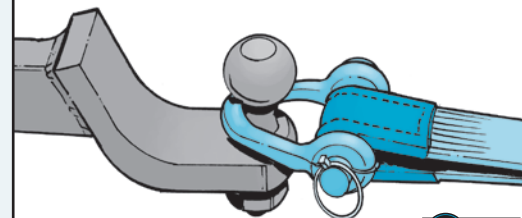
MILVAN strapping kit secures load inside MILVAN

Vehicle Recovery Strap

A 3-in x 27-ft vehicle recovery strap with shackles is now available with NSN 8145-01-533-5613.

The break strength of the recovery strap is 43,000 pounds. It's designed to be used as a cargo/vehicle recovery strap for short distance recovery operations only—not long distance towing. Also, this strap is not intended as a replacement for the Army's official tow bars.

Vehicle recovery strap is for short distance recovery only



PS END

WINTER READING

THIS WINTER, DO YOU PLAN TO **BOLDLY GO** WHERE NO SOLDIER HAS GONE BEFORE?



DO YOU PLAN TO VENTURE INTO A WORLD OF WIND, SNOW AND FALLING TEMPERATURES?



THEN CATCH UP ON YOUR WINTER READING!

HERE ARE TWO ESSENTIAL PUBLICATIONS...



1 U.S. Army Training and Doctrine Command (TRADOC) Regulation 350-29, *Prevention of Heat and Cold Casualties*. You'll find it at the TRADOC website:

<http://www.tradoc.army.mil/index.asp>

2 TM 10-8415-236-10, *Extended Cold Weather Clothing System Generation III*. You'll find it at the USAMC Logistics Support Activity Electronic Technical Manuals Online website:

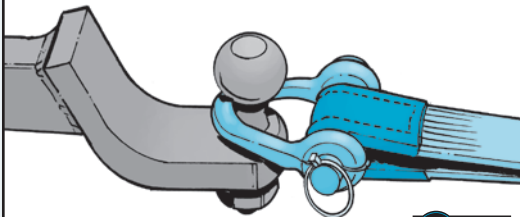
<https://www.logsa.army.mil/etms/online.cfm>

Vehicle Recovery Strap

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Vehicle recovery strap is for short distance recovery only



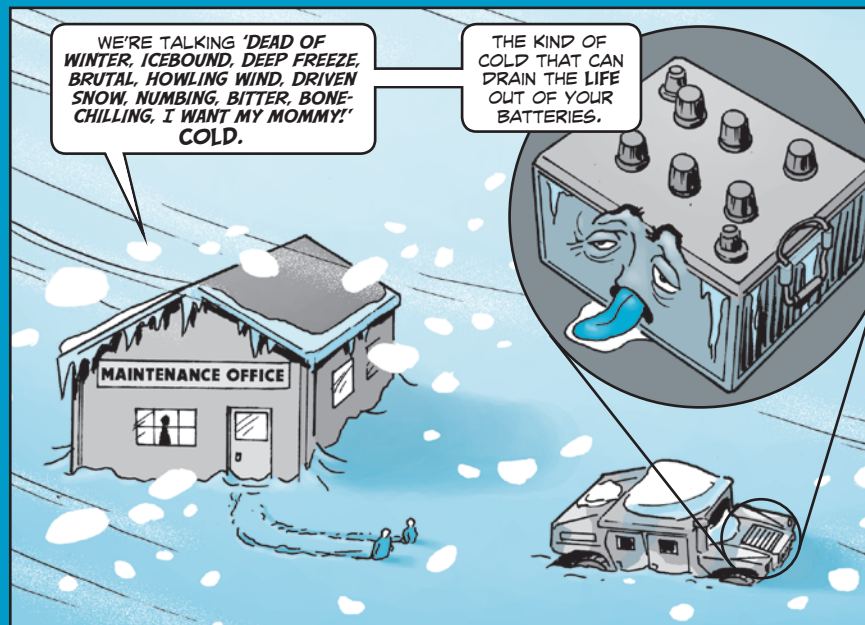
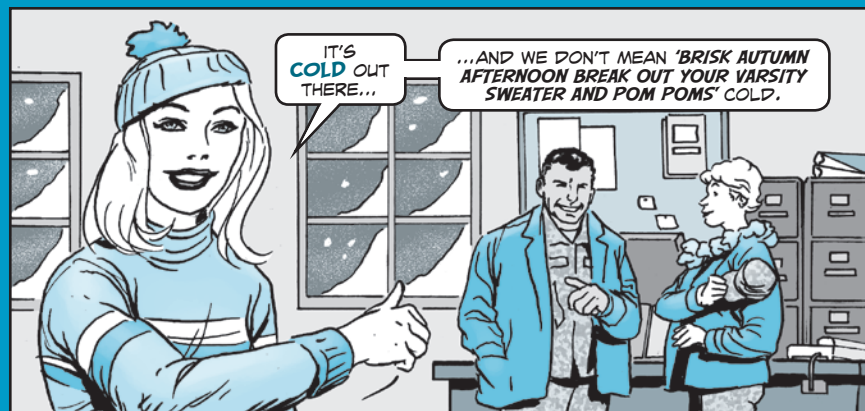
PS END

WINTER READING



- 1 U.S. Army Training and Doctrine Command (TRADOC) Regulation 350-29, *Prevention of Heat and Cold Casualties*. You'll find it at the TRADOC website:
<http://www.tradoc.army.mil/index.asp>
- 2 TM 10-8415-236-10, *Extended Cold Weather Clothing System Generation III*. You'll find it at the USAMC Logistics Support Activity Electronic Technical Manuals Online website:
<https://www.logsa.army.mil/etms/online.cfm>

BABY, IT'S COLD OUTSIDE!

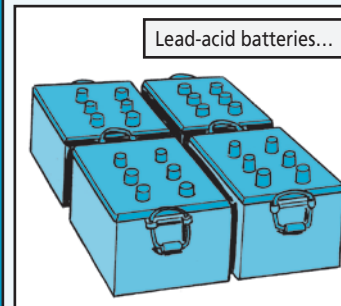


Energy density: amount of energy stored in a given space per unit volume
Capacity: amount of energy a battery can deliver in a single discharge (normally expressed in ampere hours)

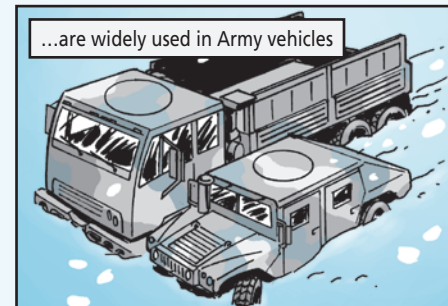
ARM YOURSELF WITH COLD-WEATHER KNOWLEDGE.

PONDER A FEW BATTERY PRINCIPLES AS YOU RIDE OUT THE WINTER...

- As the temperature falls, chemical reactions in batteries slow. A cold-soaked battery takes a sharp drop in energy. Depending on how much power your equipment draws, a battery may be too weak to power or even start equipment. Also, a cold battery recharges slowly because of the slowed chemical reactions.



Lead-acid batteries...



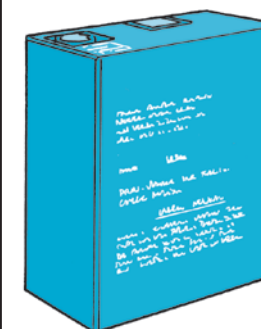
...are widely used in Army vehicles

- Compared to a charged battery, a **discharged** battery is more likely to suffer damage because of freezing. Never try to recharge a frozen battery. Thaw it completely before recharging.
- When discharged, a **lead-acid battery** becomes vulnerable to freezing. It doesn't charge well when cold, and it loses power at low temperatures. But a lead-acid battery is cheap. And it's widely used in the Army's vehicles and construction equipment in cold weather.

Make it a practice to warm up a lead-acid battery before cold starting an engine or charging the battery. Check your equipment TM and operator's manual for cold weather starting instructions. Also check the manuals to see if your equipment comes with a heating blanket. If you don't have a heating blanket, remove the battery and bring it indoors to warm up.

Keep your batteries fully charged to lower the freezing temperature of the battery acid. That helps prevent damage from freezing.

- At low temperatures, a **nickel-cadmium (NiCd)** battery works better than a lead-acid one. It's not likely to freeze, and it has better cranking power. But it costs more. NiCd batteries are commonly found on aircraft.

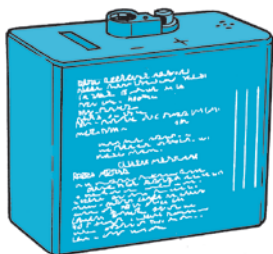


NiCds resist freezing

PS MORE

- A **nickel-metal hydride (NiMH)** battery has a higher energy density than a NiCd battery. But it loses more capacity at low temperatures than a NiCd or lead-acid battery. You're advised not to charge NiMH when it's below 32°F. Below 59°F, you must charge NiCd and NiMH batteries at reduced rates. NiMH batteries are used in the Javelin and the AN/PRC-126 radio.

Use NiMHs...



...in
AN/PRC-126
radios



- A **lithium-ion (Li-ion)** battery doesn't lose much capacity at low temperatures. You can charge it at normal rates above 32°F. You can charge it at reduced rates in temps as low as -4°F. A Li-ion battery costs more than a NiCd or NiMH. But its higher energy density offsets the higher cost. That can make the Li-ion the battery of choice for hybrid-electric drive systems. Its high energy density and high power mean good service in cold weather. Li-ion batteries are used in the PLGR and the SINCGARS (except for the RT-1523A and D).

Use Li-ions...



...in some SINCGARS radios



FOR MORE
ON LEAD-ACID
BATTERIES,
SEE PAGES 10-
11 IN PS 696.



PAGES
27-34 IN PS
696 COVER
COMMON
BATTERIES.

PD TIS Streamlines Customer Service



In April 2012, Product Director Transportation Information Systems (PD TIS) moved its customer support to the Army's Single Interface to the Field (SIF) portal.

The SIF is a one-stop shop for customers to contact Tier 1 support to address questions and issues related to the Transportation Coordinators'-Automated Information for Movements System II (TC-AIMS II) and Automated Air Load Planning System (AALPS).

The SIF's Support and Operations Center (SOC) is staffed with experts familiar with the entire PD TIS suite of products.

Government users with SIF/Remedy accounts can create trouble tickets online. Contractor personnel must identify their government sponsor to register.

To learn more about SIF and register for an account, visit:

<https://home.kc.us.army.mil/sifsplash.nsf/psplash>

To ask questions, report a problem, or submit a trouble ticket, visit:

<https://hd.kc.us.army.mil>

Or call SOC 24/7 Toll-Free at (877) 839-0813, DSN (312) 737-1608, (254) 287-1608, Fax (254) 618-7089, Fax DSN (254) 259-7089, or email:

c4isr.support@us.army.mil



WHERE TO GET ITEM PACKAGING INFO



IT'S EASIER THAN YOU THINK TO BRAVE THE MAZE OF RULES AND REGS, AS LONG AS YOU HAVE A MAP TO FIND THE WAY.

You can find packaging requirements for any Army-owned and -managed item in the Logistics Support Activity's (LOGSA) Logistics Information Warehouse (LIW) or in the Federal Logistics System (FED LOG) Army Master Data File (AMDF).

To use LIW, first-time users need to send in a system access request, and a Common Access Card (CAC) is required for future access.

FED LOG requires a subscription and should be installed on a work computer. For information on FED LOG subscriptions or updates, go to:

<http://www.dlis.dla.mil/fedlog/>

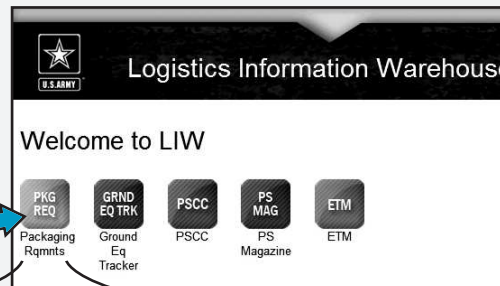
FED LOG access is also available through LIW under "Applications."

NOTE: If LIW is available at your work site, check LIW first for packaging requirements prior to checking FED LOG.

Finding Item Packaging Data in LIW

1. Log into LIW at: <https://liw.logsa.army.mil>
2. From the home screen, click on Catalog, and then Packaging Requirements

Where to find packaging requirements screen in LIW: Choose this button to enter packaging section. LIW's portal look is now personally customized, so your screen may look different. You may need to pick and add this button first from the LIW application warehouse.



Packaging Requirements

Please enter a NIIN or CAGE CODE and PART NO and click the 'Submit' button.

NIIN: For links to Packaging Requirements for all Commodities, please click the link below.

OR

CAGE CODE: PART NO: [PACKAGING HELP FOR ALL COMMODITIES](#)

OR: Please enter a SPI (to display a known document by it's SPI number) and click the 'Review' button.

SPI: SPECIAL PACKAGING INSTRUCTION NUMBER

3. Enter your item's NIIN (NSN minus first four digits) and click on Submit. If you know the SPI (special packaging instruction) number, you can enter it and click on Review (if you receive a message saying "no link yet available for this," try searching by NIIN. See the following examples.)

Packaging Requirements

NIIN	LOP	Haz Code	OPI	Lvl A Pk Cd	Lvl B Pk Cd	Lvl C Pk Cd
01429725	A	N		2	A	U
TSC	Pres Meth	Cl / Dr	Pres Mat	Wrap Mat	Cush / Dunn	Cush Thick
0	32	0	00	NIP	00	00
Pkg Cat Code	Pkg Drawing (Part) Nbr	Cage Code	PIC	Pkg Reference	QUP	Suppl Instr
2222	99189	001	3	MLSTD073	001	UNIT CONTAINER SHALL BE BOX D1 INSIDE BAG BL
Max Unit Pk Length (in)	Max Unit Pk Width (in)	Max Dep	Pk (in)	Max Unit Pk Wgt (lb)	Max Unit Pk Cube (cf)	Unit Pkg Item Length (in)
000000.0	000000.0	000	000000.0	0000000.008	000000.3	000000.3
Unit Pkg Item Width (in)	Unit Pkg Item Depth (in)	Unit Pkg Item Weight (lb)				
000000.2	000000.1					

NIIN search in LIW showing coded packaging requirements

Packaging Requirements

NIIN	LOP	Haz Code	OPI	Lvl A Pk Cd	Lvl B Pk Cd	Lvl C Pk Cd
014190222	A	N				
TSC	Pres Meth	Cl / Dr	Pres Mat	Wrap Mat	Cush / Dunn	Cush Thick
0						
Pkg Cat Code	Pkg Drawing (Part) Nbr	Cage Code	PIC	Pkg Reference	QUP	Suppl Instr
2222	12414298-003	01W29	4	MLSTD073	001	
Max Unit Pk Length (in)	Max Unit Pk Width (in)	Max Dep	Pk (in)	Max Unit Pk Wgt (lb)	Max Unit Pk Cube (cf)	Unit Pkg Item Length (in)
Unit Pkg Item Width (in)	Unit Pkg Item Depth (in)	Unit Pkg Item Weight (lb)				

NIIN search in LIW showing SPI

4. If there is no packaging information in LIW, check FED LOG next by following the instructions on Pages 58 and 59.



Find Item Packaging Data in FED LOG

1. Open FED LOG
2. Select Search Interactive
3. Click on the ARMY tab
4. Enter NIIN or NSN in NIIN field
5. Select Search
6. Click on the Army Packaging tab

Note: In FED LOG, you can click on the data elements in blue (e.g., WRAP MAT) to get more information.

ARMY PACKAGING DATA RESPONSE
FSC: 3120
NIIN: 014240735
ITEM NAME: BUSHING,SLEEVE

ARMY PACKAGING/FREIGHT

LOP	PKG REF	UPQ	ICQ	TOS	HAZ	UNIT PACK SIZE	UNIT PACK WEIGHT	UNIT PACK CUBE	PKG IND	PK LVL REF IND
100	B					002600260020	00002	0000008		

ARMY MASTER DATA FILE (AMDF)

FSC	NOMENCLATURE	ACT	ADDL	SOS	AAC	PSC	ARMY UNIT PRIC	UI	FC	MEAS QTY	EC	EC
2530	WHEEL,PNEUMATIC TIR			AKZ	D		\$2.00	AY		0		C

If an item's packaging data is in coded format, use the latest available MIL-STD-2073, *DOD Standard Practice For Military Packaging*, to interpret the codes.

ARMY PACKAGING DATA RESPONSE
FSC: 2810
NIIN: 014190222
ITEM NAME: ENGINE,DIESEL

ARMY PACKAGING/FREIGHT

LOP	PKG REF	UPQ	ICQ	TOS	HAZ	UNIT PACK SIZE	UNIT PACK WEIGHT	UNIT PACK CUBE	PKG IND	PK LVL REF IND
1	MLSTD2073	001	000	B	N	052005200173	04200	0027634	4	A

If SPIs are listed (see bottom of previous page), go to LIW to retrieve the SPIs or contact the packaging commodity POC to request the SPIs.

If no packaging information or SPI shows under the Army Packaging tab, or you receive no response from the packaging commodity POC, click on FLIS Packaging tab.

Other important information found in FED LOG:

SOS: *Source of Supply* (AMDF tab)

SLC: *Shelf-life Code* (AMDF tab)

TOS: *Type of Storage* (Army Packaging tab)

AMDF DATA RESPONSE
FSC: 2530
NIIN: 014771660
ITEM NAME: WHEEL,PNEUMATIC TIRE

ARMY MASTER DATA FILE (AMDF)

FSC	NOMENCLATURE	ACT	ADDL	SOS	AAC	PSC	ARMY UNIT PRIC	UI	FC	MEAS QTY	EC	EC
2530	WHEEL,PNEUMATIC TIR			AKZ	D		\$2.00	AY		0		C

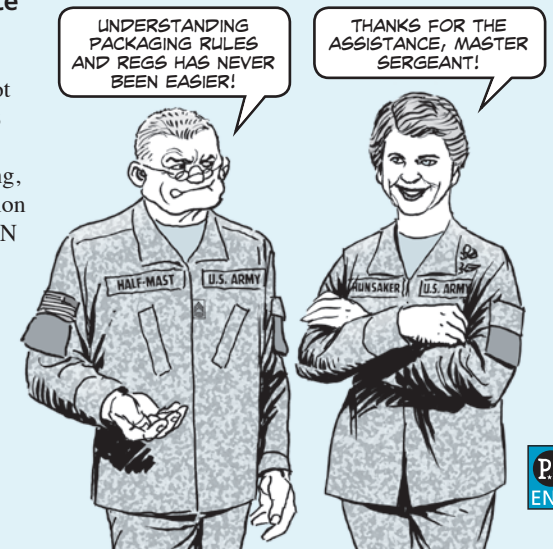
ARMY PACKAGING/FREIGHT

LOP	PKG REF	UPQ	ICQ	TOS	HAZ	UNIT PACK SIZE	UNIT PACK WEIGHT	UNIT PACK CUBE	PKG IND	PK LVL REF IND
A	MLSTD2073	001	000	B	N	052005200173	04200	0027634	4	A

Additional Assistance

If there is no packaging information in either LIW or FED LOG, or you cannot determine the original SOS or it is "SMS" (DLA), contact LOGSA's Packaging, Storage, and Containerization Center for assistance at DSN 795-7105, (570) 615-7105, or email:

tohy.pt@us.army.mil





HOOD TAKES HOME DOD GOLD

PS sends out a hearty "HOOAH!" to 1st Sqdn, 3rd Armored Cav Regt, Ft Hood, TX (FORSCOM). They are the 2012 Department of the Army winner of the Secretary of Defense's Maintenance Award in the large category for field-level maintenance. The annual awards recognize outstanding maintenance efforts across the Department of Defense.

Return CBPS Overpack Box

When the Chemical Biological Protective Shelter (CBPS) system comes back from RESET at Pine Bluff Arsenal, it's being sent with a special overpack box. The box protects CBPS basic issue items and other equipment during shipment. The box is expensive and difficult to get, which is why you need to send the overpack box back to Pine Bluff. That way it can be reused with other CBPS systems. Directions for returning the box come with the CBPS. Questions? Contact TACOM's Mark Oldham at DSN 786-1687, (586) 282-1687, or email:

mark.a.oldham6.civ@mail.mil

TURN IN LAUNCHER, SMOKE GENERATOR

If your unit still has the M202 rocket launcher (NSN 1055-00-021-3909, LIN L45250) or the M3A3/A4 smoke generator (NSN 1040-01-143-9506, LIN J30492), turn them in as is. They are obsolete. If you have the M157 smoke generator (NSN 1040-01-406-7401, LIN G51840), it's being pulled from the field, too, and made obsolete. If you still have a smoke mission, your MTOE should be changed to the M56 smoke generator, NSN 1040-01-380-1400, or M58 smoke generator, NSN 1040-01-413-8332.

Questions? Contact TACOM's Ramon Perez at DSN 786-1553, (586) 282-1553, or email:

ramon.j.perez.civ@mail.mil

5-, 10-, 15-kW TQG Contactors for Free

If you have a 5-, 10- or 15-kW tactical quiet generator (TQG), it may have a faulty K1 contactor, NSN 6110-01-367-8921. If the contactor fails, there's no power output to the load terminals. Faulty contactors have a brown label with AMETEK printed on it. Look for the MFG DATE (date of manufacture) on the label. The first number is the week, and the second number is the year. Contactors with MFG DATES from 40/10 through 13/11 have been identified as potentially faulty. If you have a faulty K1 contactor, get a **replacement free of charge** by contacting CECOM LCMC's Nicole Archibald at DSN 648-4757, (443) 395-4757, or email:

nicole.archibald.civ@mail.mil

HMMWV 400-AMP Alternator

Need NSNs for your unit's M1151, M1152, M1165 and M1167 HMMWV's 400-AMP alternator and the kit that comes with it? We can help. NSN 2920-01-466-1855 brings the 400-AMP alternator. You'll also have to order the engine generator parts kit, NSN 2920-01-509-4688, to install the new alternator.

Updated Email Address for UTAP

TACOM's Unit Training Assistance Program (UTAP) has a new email address for customer support. This replaces a prior email change we ran on Page 60 of PS 710. Email UTAP at: usarmy.detroit.tacom.mbx.ilsc-utap@mail.mil

ELASTIC CORD FOR TRUCK COVERS

If your truck uses black elastic (bungee) cord to secure its cargo and cab covers, you can replace the cord as it wears out. NSN 4020-01-463-8181 brings 280 feet of bulk cord with a diameter of 1/4 to 3/8 inches.

M870A3 Retrofit Kit for M983A2/A4 HEMTTs

Some early production M870A3 semitrailers were built with an electrical system compatible with M916-series tractor trucks. But when hooked up to an M983A2 or M983A4 light equipment transporter HEMTT, no power is supplied to the semitrailer's service lighting system and ABS electronic control unit. Fix that by installing the electrical system retrofit kit, NSN 5995-01-598-1931. That keeps your semitrailer fully compatible with M916-series tractor trucks.

STATEMENT OF OWNERSHIP, MANAGEMENT AND CIRCULATION

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d.(4) Other free	180	57
e. Total free	451	197
f. Total distribution	48,808	47,677
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Submitted by: STUART A. HENDERSON, Production Manager

DISTRIBUTION: To be distributed in accordance with the initial distribution number (IDN) 340312, requirements for TB 43-PS-Series.

Would You Stake Your Life ^{right now} on the Condition of Your Equipment?

**DON'T
CHILL
WHEN YOU
DRILL!**

WHEN YOU WEAR
COLD WEATHER
CLOTHING, THINK
C-O-L-D...



C - KEEP IT **C**LEAN

O - AVOID **O**VERHEATING

L - WEAR **L**AYERS

D - KEEP IT **D**RY