

THE PREVENTIVE MAINTENANCE MONTHLY

TB 43-PS-696, 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.

ISSUE 696 NOVEMBER 2010



COMBAT VEHICLES

Air Filter Protection
M1-Series Tank Preeleaner Decal Check
Stryker Mirror and Headlight Cleaning
M2/M3-Series Bradleys Radiator Cap Wear
MLRS Carrier Personnel Heater Fix
M109A6 Paladin Air Safety Reminder
M119A2 Towed Howitzer Winter Operations



WHEELED VEHICLES

Lead-Acid Battery Winter Care
Up-Armored HMMWV Load Range E Tires
FMTV Wheel End Hub Adjustment Tool
HMMWV Radiator-Related NMC Change
MRAP Jacks and Jack Stands



MISSILES

Sentinel Radar System Maintenance Safety



SMALL ARMS

M240 Machine Gun Gas Regulator Inspection
COMET Advice for Armorers
M2 Machine Gun Firing Tips
M48 Machine Gun Bushing Rotation
Rifle, Carbine M855A1 Ammo

The Workplace: The Commo Battery in
Cold Weather Maintenance Lecture

2



AVIATION

35

2 Aircraft First Aid Kits
3 Cold Weather Aircraft Maintenance
4-5 Pocket Tool Caution



COMMUNICATIONS

42

8-9 Cold Weather Commo Grounding
General Cold Weather Commo Tips

10



COMBAT ENGINEERING

48

10-11
12-13
14-15
16
17
130G Road Grader Hydraulic Unloading Valve
Construction Equipment Mud Cautions



LOGISTICS MANAGEMENT

50

18-20
21
22-23
24-25
25
26
Vehicle Data Records for Deployment
Safety Tips for Mounting Combat Vehicles
Containers for Small Parts
ISO Shipping Container Placards
Tow Armored FMTV Lifting Prohibition
MRAP Category Meanings
OSMIS Website
Army Sustainment Now on iTunes
OCIE Turn-ins While In Theater

Connie's Post Scripts

60-61

27-34

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-AM)
5307 Sparkman Circle
Redstone Arsenal, AL 35898

Or email to:

logsa.psmag@conus.army.mil or
half.mast@us.army.mil

Internet address:

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

By order of the Secretary of the Army:

GEORGE W. CASEY, JR.
General, United States Army Chief of Staff

Official:

JOYCE E. MORROW

Administrative Assistant to the Secretary of the Army

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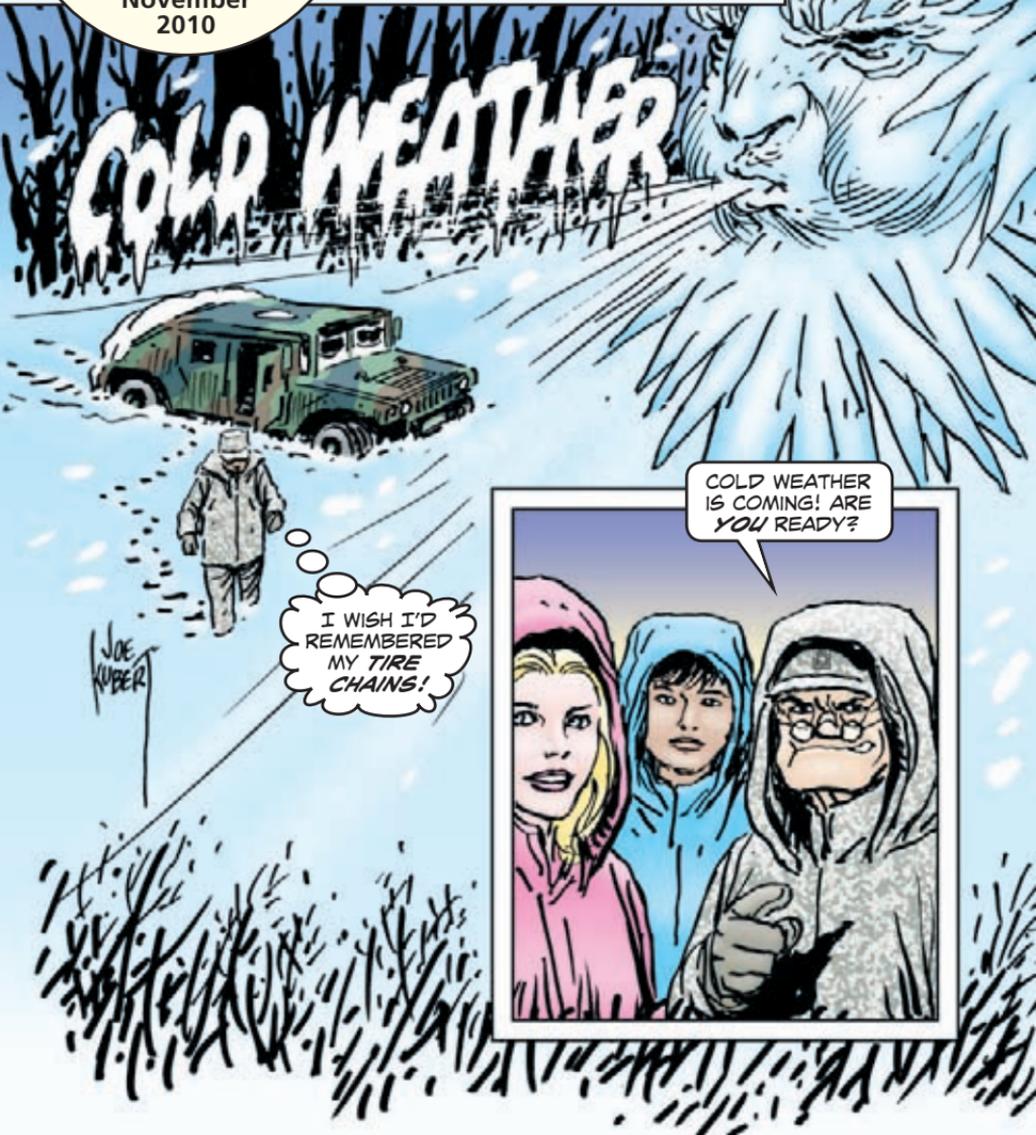
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THE
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MONTHLY

TB 43-PS-696

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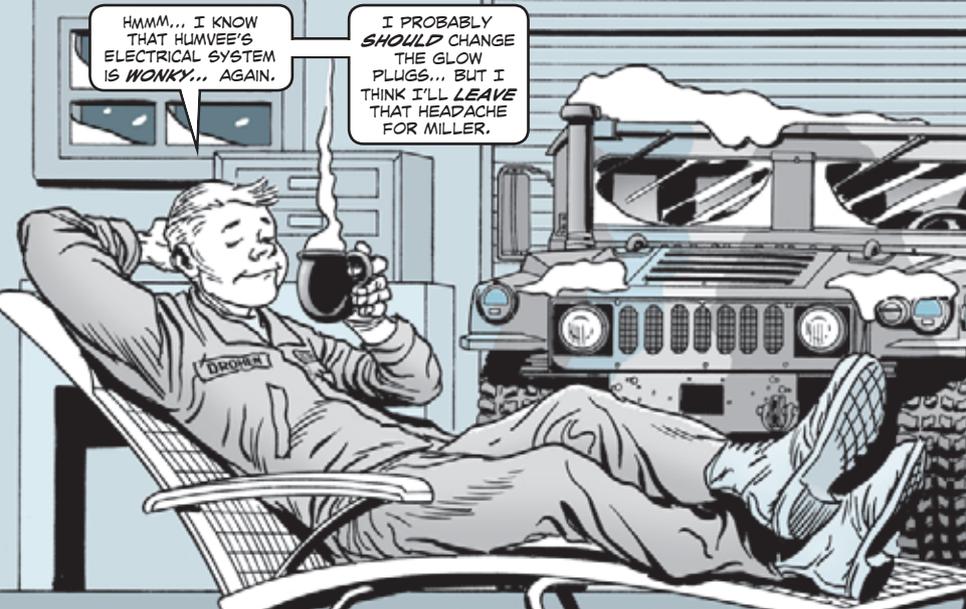


COLD WEATHER
IS COMING! ARE
YOU READY?

I WISH I'D
REMEMBERED
MY TIRE
CHAINS!

JOE
KUBER

Fair Weather Fixers



Maybe you've heard of fair weather friends, who are only around when times are good, when they need something or when somebody else is picking up the tab.

Fair weather fixers are Soldiers who always take the smooth road, doing only the preventive maintenance that's quick and easy, and not touching the seriously jacked-up equipment where they might break a sweat or bust a knuckle.

Avoiding all the rough, dirty or downright miserable work won't win you friends in your unit, but you already know that. If you keep pace as you should by reading *PS*, then you can tackle some of the tougher projects.

Hearing that the PM **you did** helped save a buddy's life sure beats finding out that the PM **you didn't do** caused an accident. Plus, most of us would rather be remembered as the go-to guru instead of the unit slacker.

The legacy you'll leave in your unit has a lot to do with your work ethic. If you know how to do the **tough** PM and do it **right**, you'll earn the respect of others.

And, you gotta admit—that's a great feeling to take home every night.



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ISSUE 696 NOVEMBER 2010

 COMBAT VEHICLES	2	 AVIATION	35
Air Filter Protection	2	Aircraft First Aid Kits	35
M1-Series Tank Precleaner Decal Check	3	Cold Weather Aircraft Maintenance	36-40
Stryker Mirror and Headlight Cleaning	4-5	Pocket Tool Caution	41
M2/M3-Series Bradleys Radiator Cap Wear	5		
MLRS Carrier Personnel Heater Fix	6	 COMMUNICATIONS	42
M109A6 Paladin Air Safety Reminder	7	Cold Weather Commo Grounding	42-45
M119A2 Towed Howitzer Winter Operations	8-9	General Cold Weather Commo Tips	46-47
		 COMBAT ENGINEERING	48
 WHEELED VEHICLES	10	130G Road Grader Hydraulic Unloading Valve	48
Lead-Acid Battery Winter Care	10-11	Construction Equipment Mud Cautions	49
Up-Armored HMMWV Load Range E Tires	12-13		
FMTV Wheel End Hub Adjustment Tool	14-15	 MISSILES	18
HMMWV Radiator-Related NMC Change	16	Sentinel Radar System Maintenance Safety	17-20
MRAP Jacks and Jack Stands	17		
		 SMALL ARMS	21
		M240 Machine Gun Gas Regulator Inspection	21
		COMET Advice for Armorers	22-23
		M2 Machine Gun Firing Tips	24-25
		M48 Machine Gun Bushing Rotation	25
		Rifle, Carbine M855A1 Ammo	26
		 LOGISTICS MANAGEMENT	50
		Vehicle Data Records for Deployment	50-52
		Safety Tips for Mounting Combat Vehicles	52
		Containers for Small Parts	53
		ISO Shipping Container Placards	54-55
		Tow Armored FMTV Lifting Prohibition	55
		MRAP Category Meanings	55
		OSMIS Website	56-57
		Army Sustainment Now on iTunes	57
		OCIE Turn-ins While In Theater	58-59

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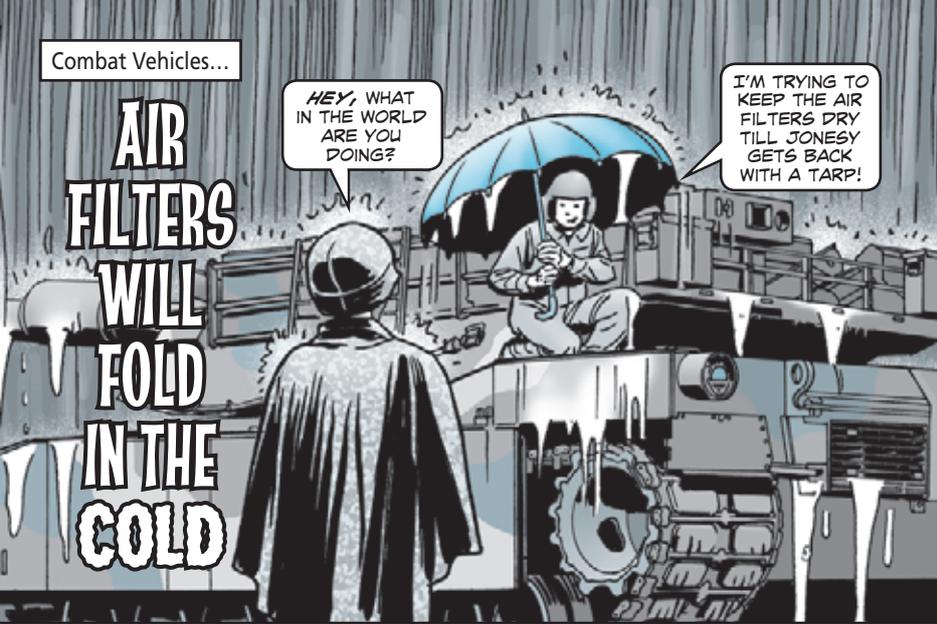
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AIR FILTERS WILL FOLD IN THE COLD

HEY, WHAT IN THE WORLD ARE YOU DOING?

I'M TRYING TO KEEP THE AIR FILTERS DRY TILL JONES GETS BACK WITH A TARP!

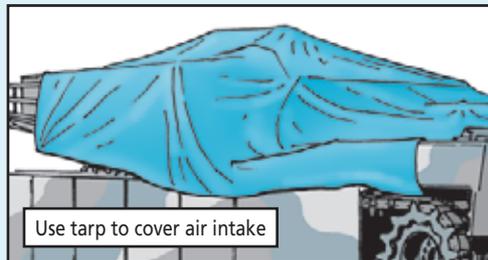


Air filters that get wet and freeze up do a great job of keeping out dust, sand and dirt, crewmen. Problem is, they also keep out air! No air means your engine either won't start or won't have enough power to complete the mission.

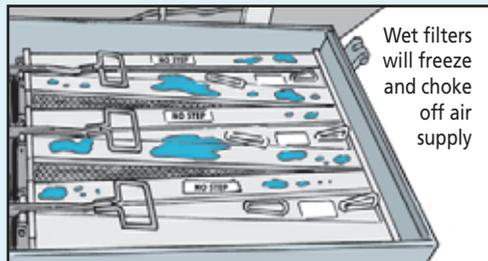
So keep those air filter elements as dry as you can when Mother Nature throws a little slop your way.

Start with the air cleaner intake. When your vehicle is sitting, cover the intake with canvas or plastic to keep out rain, sleet and snow. Make sure you remove the cover before starting, though.

During operation, keep a close eye on the air cleaner indicator or air filter clogged light so you'll know when the element is plugged. Get a plugged filter cleaned, dried out, or replaced—whichever is needed—as soon as possible.



Use tarp to cover air intake



Wet filters will freeze and choke off air supply

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CHECK PRECLEANER DECAL

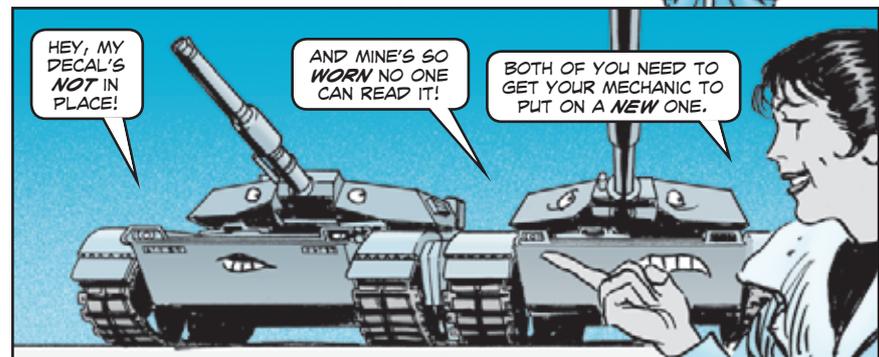
NEXT TIME YOU REMOVE DIRT AND LEAVES FROM YOUR TANK'S PRECLEANER ASSEMBLY, NSN 2940-01-408-7047, LOOK FOR THE NBC WARNING DECAL!



HEY, MY DECAL'S NOT IN PLACE!

AND MINE'S SO WORN NO ONE CAN READ IT!

BOTH OF YOU NEED TO GET YOUR MECHANIC TO PUT ON A NEW ONE.



THE DECAL, NSN 7690-01-114-3702, WARNS THAT ALL AIR FILTER SYSTEM PARTS MUST BE HANDLED BY NBC PERSONNEL IF ANY NBC CONTAMINATION IS SUSPECTED, REGARDLESS OF WHETHER THE PRECLEANER IS PJS-EQUIPPED OR NOT.

WARNING

IF NBC EXPOSURE IS SUSPECTED, ALL AIR FILTER MEDIA WILL BE HANDLED BY PERSONNEL WEARING FULL NBC PROTECTIVE EQUIPMENT. SEE OPERATOR/MAINTENANCE MANUALS.

7690-01114-3702



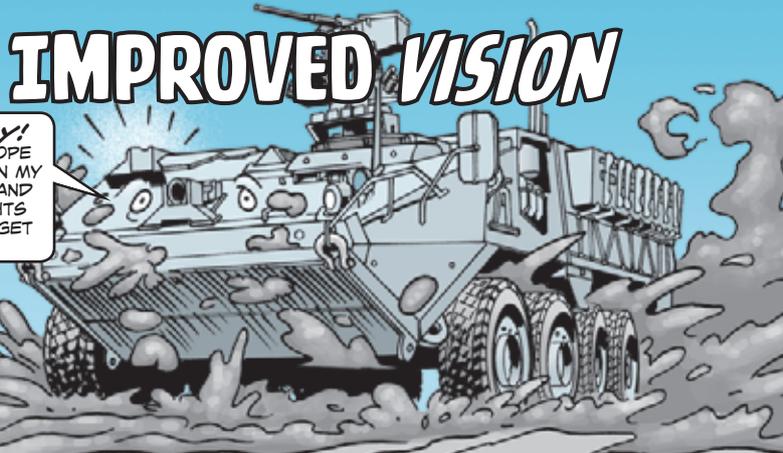
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Stryker...

IMPROVED VISION

PTOOEY!
I SURE HOPE THEY CLEAN MY MIRRORS AND HEADLIGHTS WHEN WE GET BACK!

I CAN'T SEE A THING!



PREVENTS A COLLISION!

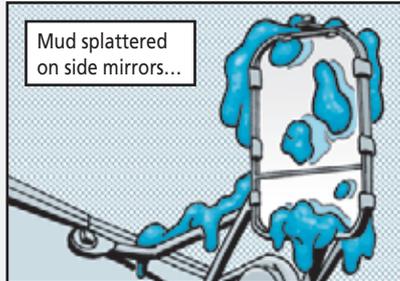
HERE'S A LITTLE ACRONYM PUZZLER FOR YOU, DRIVERS: WYSIWYG (PRONOUNCED WIZZY-WIG).



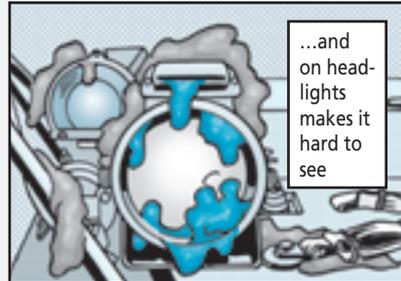
GIVE UP? IT STANDS FOR "WHAT YOU SEE IS WHAT YOU GET."

AND IF YOU HAVEN'T BEEN KEEPING THE SIDE MIRRORS AND HEADLIGHTS CLEAN ON YOUR STRYKER, WHAT YOU'RE SEEING IS CLOUDY AND HAZY.

The mirrors and headlights get splattered with mud during missions, so it's up to you to clean them off after every operation. If you don't, your vision is reduced and that can lead to an accident.



Mud splattered on side mirrors...



...and on headlights makes it hard to see

The side mirrors are easy to clean. Just use some warm water and a clean, wet cloth. Make sure you wipe in one direction, though. Wiping in multiple directions is a good way to smear the mirror and increase the chance of scratching it.

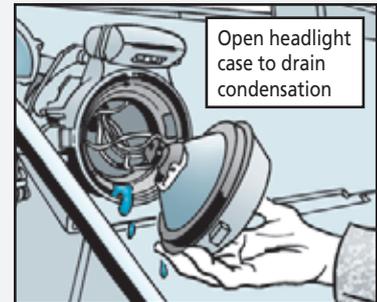
When the mud's gone, polish each mirror with some glass cleaner, like NSN 7930-01-326-8110, and a clean cloth.

Headlights are a bit more difficult. High-pressure water is out because it forces water inside the headlight case where it can short out the bulb.

Use a squirt bottle to gently spray the headlight with warm water. After the mud loosens, spray again and then wipe the headlight with a wet cloth. Rinse and repeat until the headlight is clean.

Even if you didn't use high-pressure water, those headlights are still going to get some water inside. How? Condensation.

So when you're cleaning the headlight, look for water inside the case. If you spot any, open the case and drain it out.



Open headlight case to drain condensation

M2/M3-Series Bradleys...

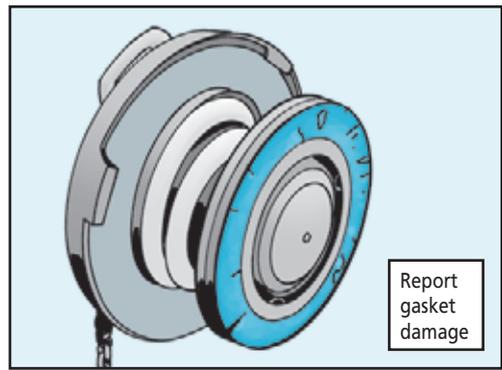
BLOWING OFF A LITTLE STEAM



CREWMEN, YOU CAN KEEP YOUR BRADLEY FROM GETTING STEAMED BY KEEPING A CLOSE EYE ON THE RADIATOR CAP.

Opening and closing the cap wears out the rubber gasket inside. When the gasket wears enough, the cooling system can't pressurize properly, coolant escapes, and the vehicle overheats.

So, eyeball the gasket for cuts, tears or unusual wear. Report a bad radiator cap to your mechanic. He'll order a new one with NSN 5342-01-398-2835.



Report gasket damage

A CLEAN HEATER IS A WORKING HEATER!



BRRR! IT'S COLD THIS MORNING!

AND I BET THAT PERSONNEL HEATER WON'T WORK EITHER!

BELIEVE ME, BROTHER... IT COULD BE A WHOLE LOT WORSE!

Is there anything worse on a cold winter's morning than a personnel heater that won't work? Well, maybe it's not as bad as having your foot run over by an M1 tank...but it's gotta be in the top three.

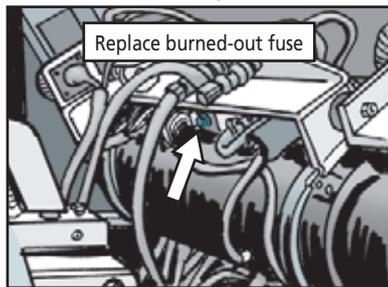
The main culprits behind a non-heating heater are a jammed exhaust fan and burned-out fuse.

Over time, dust and dirt build up inside the heater. When enough debris builds up, it locks up the exhaust fan. If the fan stops turning, the 6.3-amp fuse burns out and the heater shuts down.

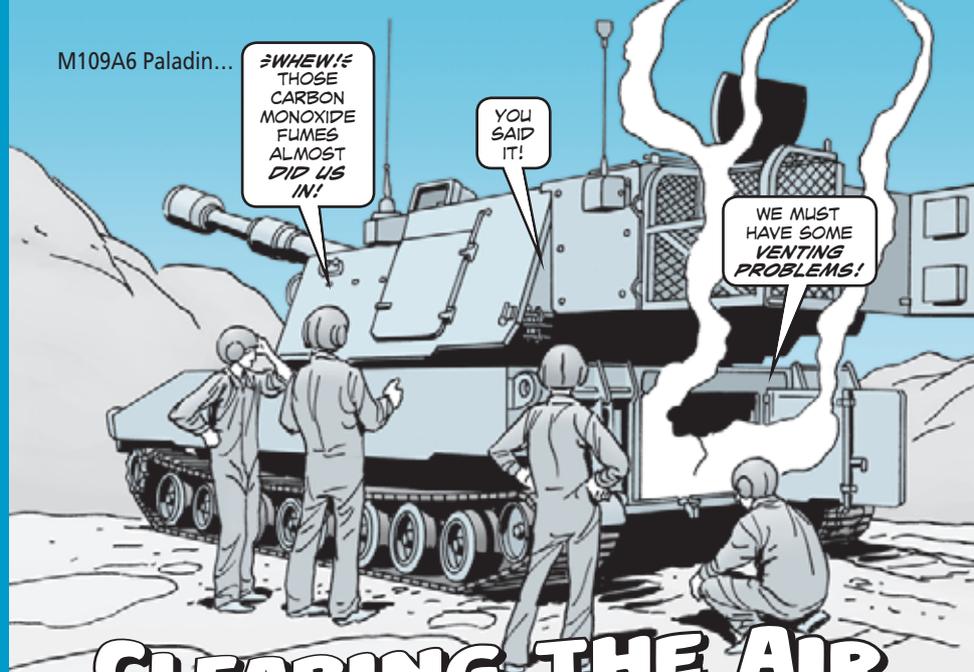
Not knowing what's wrong, some operators actually remove the heater and send it in for repairs.

Turns out the fix is fairly simple:

1. Remove the air duct hose, NSN 4720-00-535-7615, from the heater.
2. Vacuum out the accumulated dirt and dust around the fan.
3. Turn the fan back and forth to loosen dirt at the base of the fan and vacuum again.
4. Replace the 6.3-amp fuse, NSN 5920-12-301-5271, if necessary.



Of course, you can usually prevent the problem altogether by cleaning the fan when temperatures start to fall and again at the end of winter. Making sure the air inlet screen, NSN 2510-01-264-0153, is properly installed in the cab will help keep out debris, too.



SWHEW! THOSE CARBON MONOXIDE FUMES ALMOST DID US IN!

YOU SAID IT!

WE MUST HAVE SOME VENTING PROBLEMS!

CLEARING THE AIR

When the temperature's dropping outside, there's nothing like being inside your nice warm Paladin. 'Course that can also put you at risk of carbon monoxide poisoning!

Carbon monoxide comes from personnel heater exhaust, the engine, and from firing the main gun. If the vapors aren't vented, carbon monoxide levels will increase until they 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.

KEEP FIRING IN THE COLD!



FREEZING RAIN, SNOW AND COLD ARE A BAD MIX WHEN IT COMES TO YOUR M119A2 HOWITZER.



SO WHEN IT'S TIME TO OPERATE IN WINTER WEATHER, KEEP THESE TIPS IN MIND...

- Ice can build up on the breech and stop moving parts in their tracks. Keep those parts free of moisture. If ice forms, use denatured alcohol to melt it. NSN 6810-00-205-6786 brings a 1-qt bottle.



- Recoil oil indicators may show low readings when pieces are cold. Firing a few rounds will warm the oil and raise the indicator level.

- The gun tube needs more frequent cleaning during cold weather because of residue left from incomplete burning of propellant charges. But bore cleaner can freeze in the chamber.

CLP can be used as an alternative to bore cleaner and is effective down to -10°F. NSN 9150-01-054-6453 gets a 1-pt bottle of CLP with a trigger sprayer. A gallon comes with NSN 9150-01-053-6688.

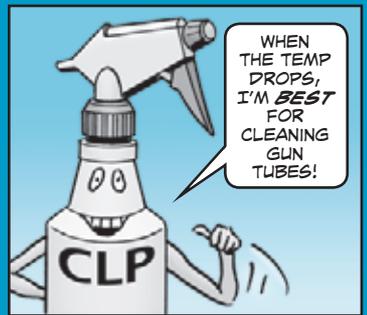
For colder temperatures, LAW is preferred for cleaning. A 1-qt bottle comes with NSN 9150-00-292-9689.

- On frozen surfaces, there is a loss of stability and accuracy. Laying tree boughs or straw under the trail and spade may help stabilize the howitzer. They can also keep the trail and spade from freezing to the ground.

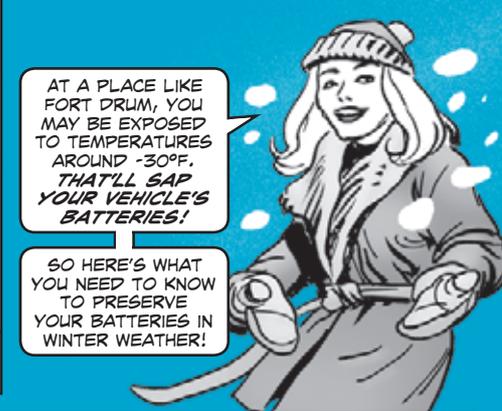
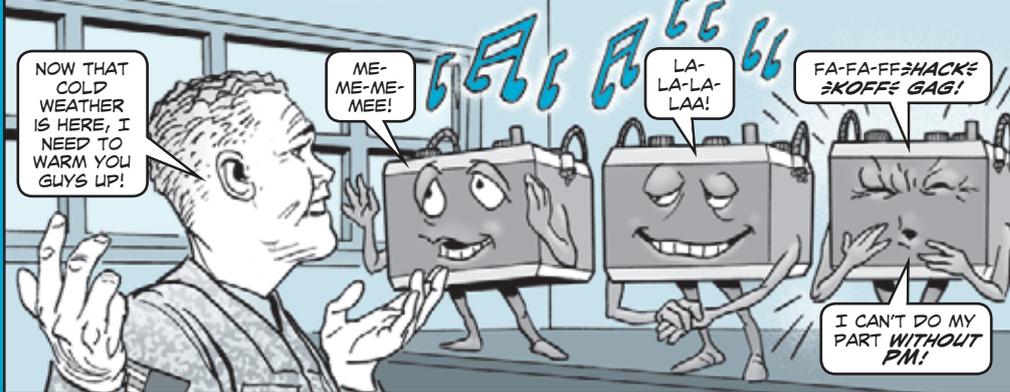
You'll find more cold weather info in FM 9-207, *Operations and Maintenance of Ordnance Material in Cold Weather*:

https://akocomm.us.army.mil/usapa/doctrine/DR_pubs/dr_aa/pdf/fm9_207.pdf

You'll need your AKO login and password to access the FM online.



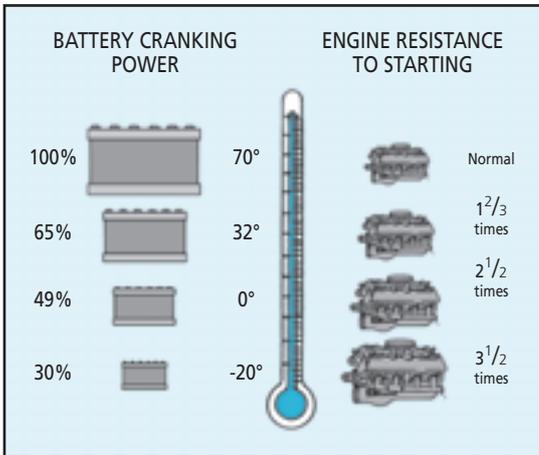
WINTER BATTERY CARE



Daily Start-ups

Daily start-up helps to preserve the life of your batteries. But you need to run the engine long enough to recharge the battery. Thirty minutes should be enough.

A fully charged lead-acid battery loses a third of its cranking power at 32°F. At 0°F, it has less than half its cranking power, and at -20°F it has only 30 percent. If that's what happens to a battery in good shape, imagine what happens to one that's in bad shape!



Check your batteries now so they'll work when cold weather hits. And take these steps to determine if your batteries can survive the cold.

Read the TM

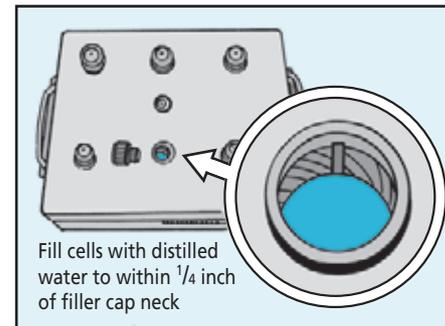
HAVE A COPY OF TM 9-6140-200-14 (SEP 98), OPERATOR'S, UNIT, DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE MANUAL FOR LEAD-ACID STORAGE BATTERIES, HANDY.

THE GUIDANCE YOU NEED TO TEST AND KEEP YOUR BATTERIES FULLY CHARGED IS IN CHAPTER 3.



Test the Battery Condition

Before testing the condition of a flooded type battery, check the level of electrolyte. (Don't do this on sealed AGM or gel type batteries.) Add distilled water, NSN 6810-00-682-6867, as needed. Replace the caps, then start the vehicle's engine and let it run on fast idle (1,000-1,200 rpm) for at least 20 minutes, or attach a charger for 20-30 minutes. Charging mixes the water and electrolyte.



Fill cells with distilled water to within 1/4 inch of filler cap neck

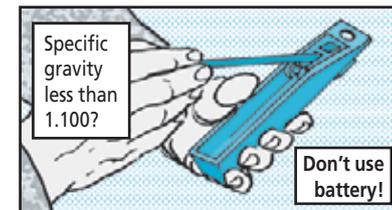
Make sure you do this because if they don't mix, you'll end up only testing water! This mixing also helps keep plain water from freezing, preventing cracked battery cases.

It's best to test the electrolyte right after shutting off the engine; if you see bubbling in the cells, wait until that stops before testing. Then use an antifreeze and battery tester, also known as a refractometer, NSN 6650-00-105-1418, or a hydrometer tester, NSN 6630-00-171-5126.

Check Specific Gravity

Before putting a battery—old or new—on the job, mechanics, use the tester to check the battery's specific gravity. That tells you the battery's state of charge.

If the specific gravity is less than 1.100, or if the difference in specific gravity between cells is more than 0.025, don't use the battery! Turn it in.



Up-Armored
HMMWVs...



Load Range E Tire Talk

Here's a trivia question for all of you *Jeopardy!* fans: The newest tire available for use on up-armored HMMWVs. Time's up!

Did you answer, "What is the load range E tire?" Then you're exactly right! This tire helps bear heavier vehicle weights and payloads.

Don't Mix Tire Load Ranges

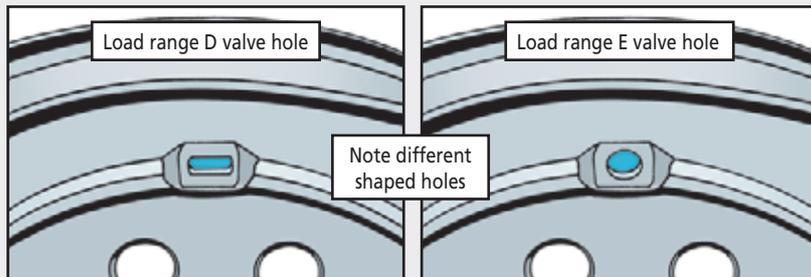
The load range E (L/R E) tire and wheel assembly, NSN 2530-01-563-8620, are 24-bolt tandem pattern or 20-bolt wheel assemblies with a rated load capacity of 4,540 pounds. The L/R E can handle cold tire pressures of up to 65 psi and uses tire, NSN 2610-01-563-8328.

The basic HMMWV tire and wheel assembly, NSN 2530-01-558-2138, is load range D (L/R D). It mounts on 12-bolt or 24-bolt evenly spaced wheel assemblies and has a rated load capacity of 3,850 pounds. It can handle cold tire pressures of up to 50 psi, and uses tire, NSN 2530-01-493-5859.

The L/R E assembly can handle more tire pressure and greater load capacity than the L/R D, so **don't** mix them on the same vehicle, including the spare. Mixing them is not safe and can lead to wheel failure or problems handling the HMMWV.

Keep Tires on Their Rated Wheels

Also, *never* install an L/R E tire on an L/R D wheel assembly. Don't install an L/R D tire on an L/R E wheel assembly either. Again, **no mixing!**



Before adjusting tire pressure, make sure you verify the tire and wheel rating. To help you out, wheel ratings are stamped on the outer rim. Never inflate to more pressure than what's identified in tables 1-15 and 1-15.1 in the operator's manual for standard configuration. Or refer to the GTA SMART card for Frag kits 5, 6, and 7 found on AKO: <https://www.us.army.mil/suite/folder/1120230>

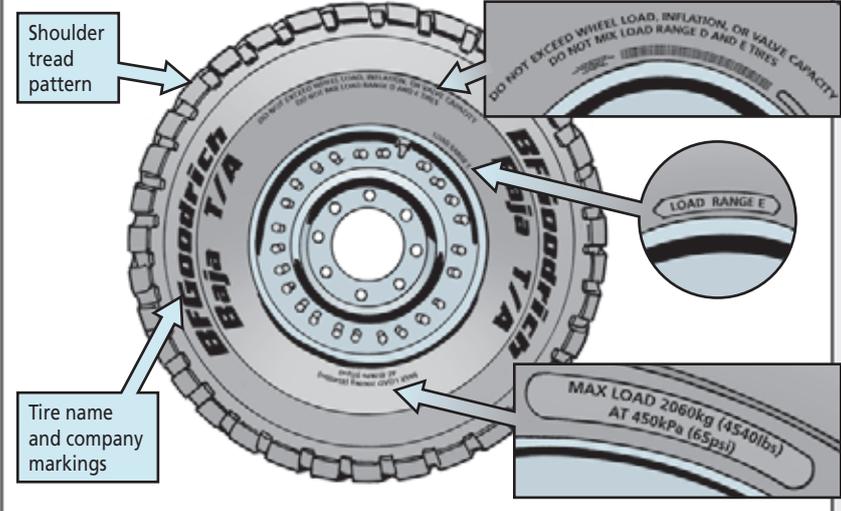
NSN 2610-01-563-8328
BRINGS *EITHER* THE
GOODYEAR® OR MICHELIN®
LOAD RANGE E TIRE!



Goodyear Wrangler MT/R Tire (MT/R)



Michelin BF Goodrich Baja T/A Tire (Baja)



A HMMWV tire and wheel assembly reference guide is available online to help with this. Go to:

https://aeps2.ria.army.mil/commodity/Gpm/Tacom_WN/tire-fitment-chart.pdf

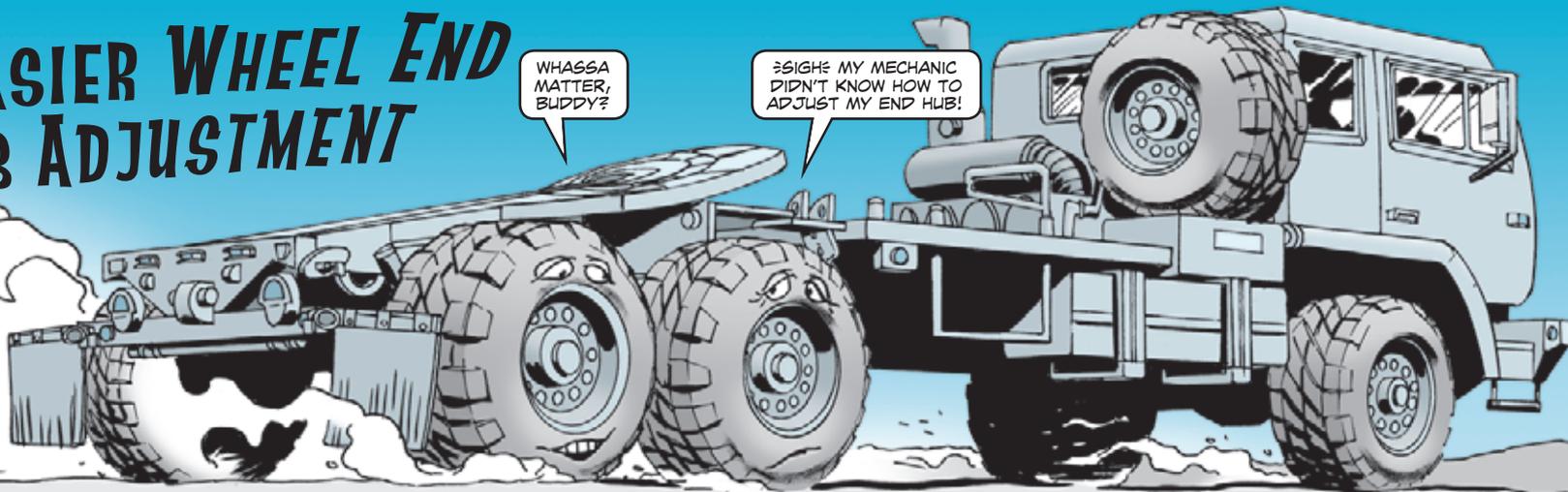
TACOM LCMC's GPA 09-013 introduced L/R E tires. That message is online at this link:

https://aeps2.ria.army.mil/commodity/gpm/tacom_wn/gpa09-013.html

EASIER WHEEL END HUB ADJUSTMENT

WHASSA MATTER, BUDDY?

§SIGH§ MY MECHANIC DIDN'T KNOW HOW TO ADJUST MY END HUB!



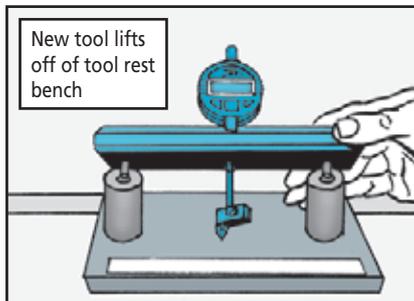
Dear Editor,

The current FMTV wheel end hub adjustment procedure in our manuals is hard to do correctly. This procedure sets the play for your wheel end spider gear. The TM calls for a measurement from the hub face to the wheel nut with only a 0.005-in variance.

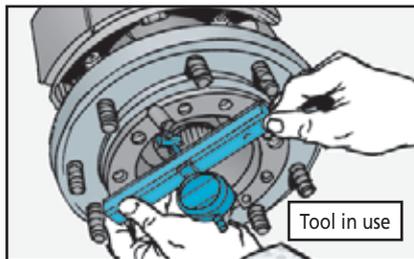
Soldiers in the field must use a depth micrometer to correctly take and calculate the wheel end's shim thickness. Failing to shim the wheel hub correctly could result in premature hub and bearing failure, so you want to get this right. Troops have come up with different measurements, some even as far out as 0.030 of an inch!

Then one smart Soldier, with the help of a local machine shop, designed a tool that takes the micrometer reading and the math out of this procedure. The new tool consists of a digital dial indicator and a tool rest bench.

The tool rest bench is machine ground to the mean of the hub variance measurement. While on the rest, zero the dial, then align the tool on the hub face. The measurement on the indicator is the amount of shims required.



New tool lifts off of tool rest bench



Tool in use

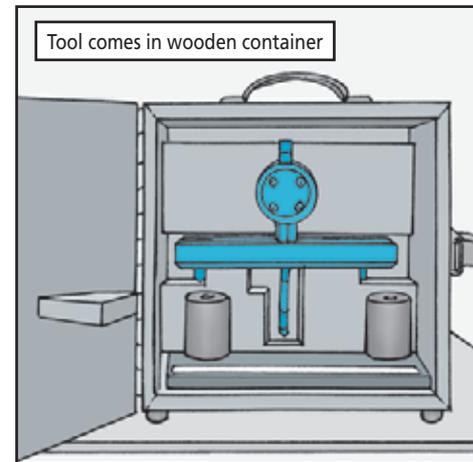
This tool—while on the rest—can also be used to measure the shims for proper thickness. Using this tool results in a quicker, more accurate procedure that requires less double checking by supervisors and is less confusing to users.

This tool is difficult to make, so we recommend units purchase it directly from the manufacturer:

Debolt Machine, Inc.
Attn: Paul Debolt
4208 West Pike
Zanesville, OH 43701

Email:
debolt@columbus.rr.com
Phone: 740-454-8082

The boxed and ready-to-use digital dial indicator and tool rest bench together cost about \$1,012. The tool is stored in a wooden container and it comes with operating instructions.



Tool comes in wooden container

Tom Tarrell
FMTV Equipment Specialist
TACOM LCMC, Warren, MI

Editor's note: Thanks for sharing that super shim solution, Tom.

Radiator-Related NMC Change



THERE'S BEEN A CHANGE IN THE CRITERIA FOR RADIATOR DAMAGE. BE SURE TO ADD IT TO YOUR TM'S PMCS.



Dear Editor,

We've received reports from the field that HMMWV radiator mount bracket welds are breaking. This is most likely due to excessive vibration and jarring when Soldiers drive over uneven and rough terrain.

The current operator PMCS criteria for radiator damage in TM 9-2320-280-10 doesn't allow for *any* broken radiator mount bracket welds. So if just a single bracket weld breaks, the HMMWV is not fully mission capable (NMC). Now TACOM LCMC is changing that.

Until the -10 TM is updated, please have your readers go to Item 53c in PMCS Table 2-2 of TM 9-2320-280-10 (Jan 96, w/Ch 3, Jul 04). Have them pencil in the following change in the *Not Fully Mission Capable IF* column: "Support mounts broken, damaged, or missing hardware. Side brackets damaged or two or more weldments broken allowing movement of radiator".

Table 2-2. Preventive Maintenance Checks and Services (Cont'd)

Item No.	Interval	Location		Crewmember Procedure	Not Fully Mission Capable If:
		Item to Check/Service			
53	Weekly	Cooling System (Cont'd)		e. Check support mounts, side brackets, and side bracket weldments on radiator for missing hardware, damage, or broken welds.	Support mounts broken, damaged, or missing hardware. Side brackets damaged or two or more weldments broken allowing movement of radiator

SIDE BRACKET WELDMENTS



By the way, TM 9-2320-387-10, the operator's manual for up-armored HMMWVs, has already been updated with this info.

Buck McCuiston
HMMWV Equipment Specialist
TACOM LCMC-Warren, MI

Editor's note: Thank you, Buck. You've given us good info that'll put some deadlined HMMWVs back in business.

GETTING A HANDLE ON JACK STANDS

WE'RE GONNA NEED A JACK AND SOME JACK STANDS FOR THIS NEXT MAINTENANCE PROCEDURE!

SURE, BUT...

...WHERE WE GONNA GET 'EM?!

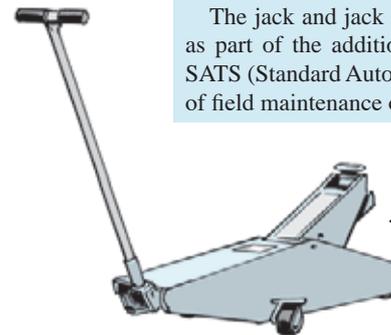


Mechanics, do enough maintenance on MRAPs and eventually you're going to need a jack and some jack stands, especially if you're stationed in Afghanistan.

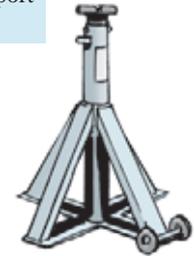
But there's a slight problem. There hasn't been an authorized jack or stand available that's rugged enough and with enough lifting capacity to do the job.

Problem solved! TACOM has put together just what you need: a 20-ton hydraulic jack, NSN 4910-01-583-5138, and a pair of 10-ton high boy jack stands, NSN 4910-01-583-5140.

The jack and jack stands can be requisitioned as part of the additional authorized list for the SATS (Standard Automotive Tool Set) in support of field maintenance of MRAP vehicles.



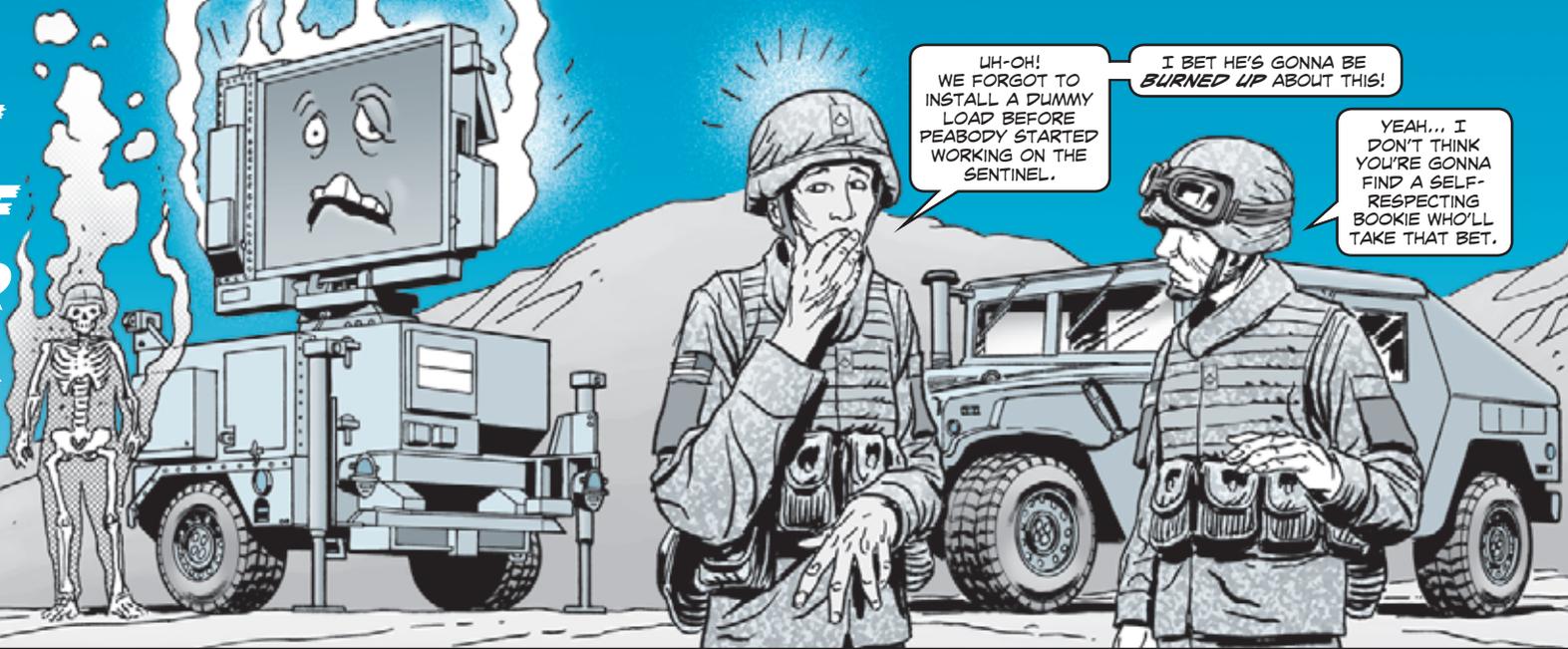
Jack Jack stand



Check out maintenance information message (MIM) 10-049 for more information. You'll find the MIM at the AEPS website:

https://aeps2.ria.army.mil/commodity/mam/tacom_wn/mi10-049a.html

PROTECT YOURSELF AND YOUR SENTINEL



Protect Yourself

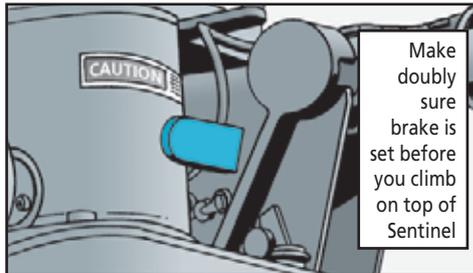
Before you do any Sentinel maintenance, install a dummy load. That way, the Sentinel sends RF into the dummy load and not out into space where it could microwave anyone on top of the Sentinel.

Check and check again that the brake is locked before you climb on top of the Sentinel. If the brake is not set, you could go flying if the Sentinel is activated and its dish whirls around.

For the same reason, make very sure that everyone is out of its way before you operate or test the Sentinel, especially if you're controlling it remotely.



Dummy load keeps you safe while working on Sentinel

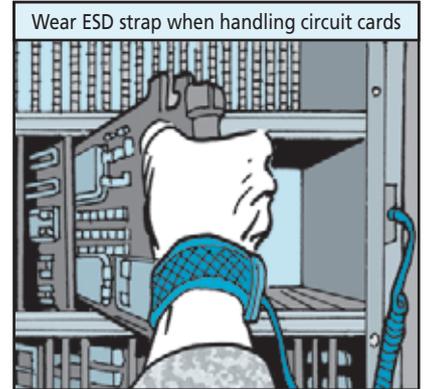


Make doubly sure brake is set before you climb on top of Sentinel

Protect Sentinel

When handling the Sentinel's circuit cards, wear ESD (electrostatic discharge) protection. Some of the Sentinel circuit cards cost thousands of dollars. One tiny spark of ESD can ruin one of those cards and your good name with your commander.

Before handling any circuit card, put on an ESD wrist strap and plug it in. Make sure the Sentinel itself is grounded or the ESD strap won't do any good. Never put circuit cards down on metal. Lay them down on an ESD mat or place them in an antistatic pouch.



Wear ESD strap when handling circuit cards



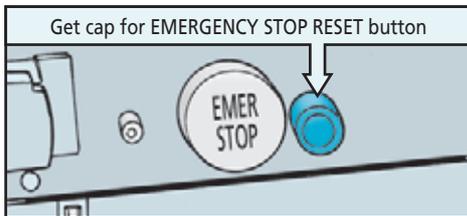
NSN 4940-01-253-5368 BRINGS AN ESD KIT WITH TWO WRIST STRAPS, A GROUNDING CORD, MAT, THREE ANTISTATIC POUCHES AND THREE BARRIER BAGS.

Get a cap for the EMERGENCY STOP RESET button.

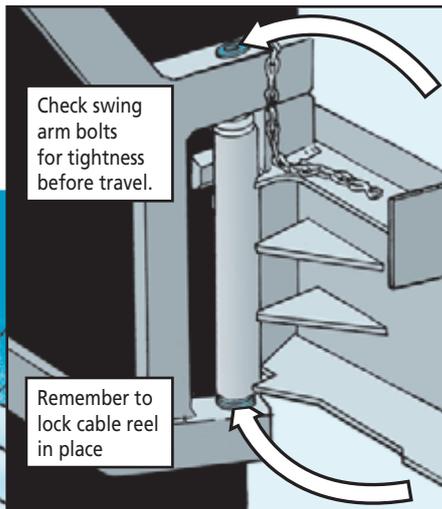
The button has a housing that traps dirt and sand. If the buildup is bad enough, the button stops working. Order the cap with PN 40215A746 through your contractor support.

Check the bolts for the cable reel swing arm before travel. Only two bolts hold the arm and if they become loose, the 200-lb cable reel can go rolling off.

MAKE SURE BOTH BOLTS ARE TIGHT AND THAT THE REEL ITSELF IS LOCKED IN PLACE SO IT DOESN'T SWING BACK AND FORTH.



Get cap for EMERGENCY STOP RESET button

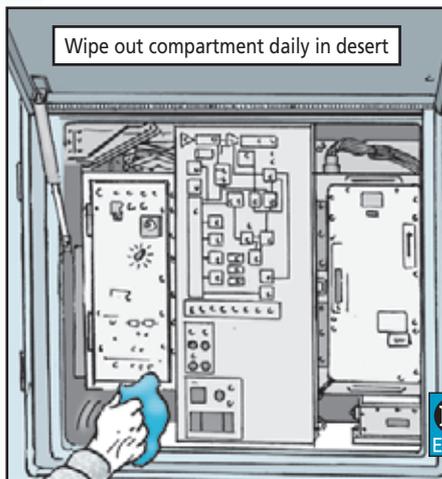


Check swing arm bolts for tightness before travel.

Remember to lock cable reel in place

Fight sand. Sand causes abrasions and other problems for the Sentinel's electronic components. The Sentinel compartment doors have an electromagnetic interference seal around each door. That means you can't add weather stripping to the doors to help keep out sand without hurting the EMI shield, which protects the crew from RF energy.

What you can do to fight the sand is keep the compartment doors closed as much as possible and wipe the compartments clean. In the desert, do that daily. And check the air filters daily in the desert, too. They can clog up fast.



Wipe out compartment daily in desert

PS
END

M240 Machine Gun...

OLD GAS REGULATOR NEEDS INSPECTING



IF YOU *STILL* HAVE THE OLD THREE-SETTING M240 GAS REGULATORS, YOU *NEED* TO CHECK OUT THIS TIP FROM THE FORT CARSON DOL.

Dear Editor,

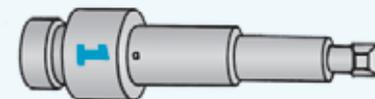
In PS 689 (Apr 10), you pointed out that the three-port gas regulator for the M240B and M240H machine guns is being replaced by a one-port regulator.

But armorers should continue to use the three-port regulator until it fails inspection or quits working.

Armorers should be reminded that as long as they have the three-port regulator they should make very sure to have it inspected annually. Gunners often switch the regulator to the 2 or 3 positions (*which is not authorized by the Army*) to increase the rate of fire. The higher rate of fire can enlarge the gas port and overwhelm the buffer assembly. Soon firing problems develop.

Support should check the gas port annually with the gas port erosion tool using the procedure in WP 0008-00 of TM 9-1005-313-23&P. If the gas port fails this check, it's a good idea to inspect the buffer assembly, too. The buffer checks are Item 3 in the PMCS of the -23&P.

Old three-setting gas regulator should be gaged annually



Albert Sweet
DOL
Ft Carson, CO

Editor's note: Excellent suggestion for armorers to keep in mind, Albert. It will probably take several years for the old gas regulators to completely disappear.

Advice for Armorer from COMET



Dear Editor,

In our work here at the Ft Hood Command Maintenance Evaluation and Training Team (COMET), we spend much of our time training and assisting armorers. From our experience, we offer this advice for armorers and their commanders:

Get to know the small arms repair people at your support unit. We see armorers who aren't getting their weapons' annual gaging done because they don't know who's supposed to do it. One of the first things a new armorer should do is meet the small arms support repairmen. If possible, have the previous armorer introduce you to them. Support will be able to help you with many of the problems that you will face.

HELLO, I'M JOE THE ARMORER.

AND I'M JONES, YOUR SUPPORT. I'M HERE TO HELP.



Be aware that you are responsible not only for weapons, but also for their BII. BII that you and your unit need to keep track of include the M2 machine gun headspace and timing gages, the MK 19 machine gun round removal tool, and the -10 TM for each weapon. If you're missing BII, you will be gigged on that during inspections.

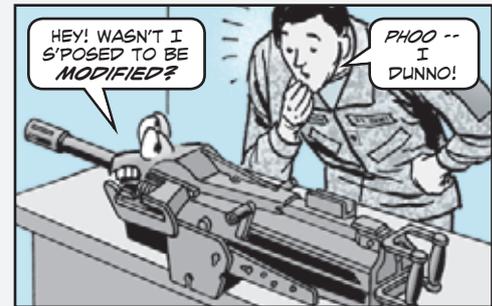
Find out what MWOs need to be done on your weapons. We regularly find weapons that haven't received required modifications, like the MK 19's MOD 3 upgrade or the change to the M2's trigger block or the new M249 rail system. Your local TACOM LAR or COMET can get you a list of the MWOs.

Get modified racks certified. Any time a rack is modified, like adding a locking bar for the M4 carbine to the M16 rifle rack, the rack must be certified by a TACOM LAR if your unit is active Army. National Guard and Reserve units should contact TACOM-RI for instructions at DSN 793-1797 or (309) 782-1797. This is required by AR 190-11, which covers arms room security.

Keep your property book current. If part of your unit has deployed and taken their weapons with them, get those weapons taken off your property book. If you're storing weapons belonging to another unit, you need to have on file a memorandum of agreement from both unit commanders authorizing this.

Fill out SF 702, Security Container Check Sheet, correctly. This is the form on the arms room door. Armorers initial the OPENED BY and CLOSED BY boxes. Someone else initials the CHECKED BY box. The armorer can't initial that box.

Vernon Gales
Shirley Evans
Ft Hood COMET



Editor's note: Armorers, save yourselves lots of grief and follow these COMET tips. And a tip of the hat to you, Vernon and Shirley, for your helpful advice.

HOTSHOT SHOOTING HELP!

WOW! YOUR M2 IS REALLY FIRING WELL!!

YEAH, HE'S A REAL HOTSHOT THANKS TO MY PM!

THESE TIPS CAN KEEP YOUR M2 MACHINE GUN FIRING SMOOTHLY AND EFFECTIVELY ON THE BATTLEFIELD...



Remove the barrel first when disassembling the M2. If you don't, you won't be able to remove the barrel extension, which means you have to try to reassemble the M2 to remove the barrel. That ain't easy.



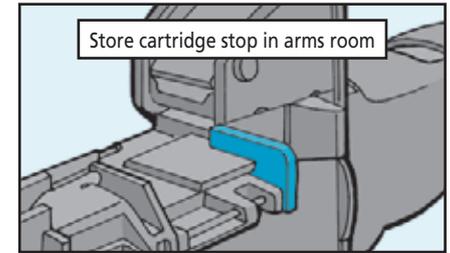
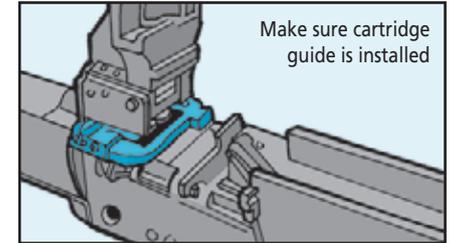
Understand how the butterfly trigger works. The bolt release latch is not what you press to fire. The latch acts as a selector switch. If the latch inside the receiver is in the up position, the M2 fires in automatic mode. If it's down, the M2 fires single shot. If your M2 is firing single shot, make sure the bolt release latch is completely depressed before you yell for help. Holding the latch release completely down with your thumb prevents the latch from catching the bolt and keeps your M2 firing automatic.



Thoroughly lube the M2 before storage, especially its moving parts. Some units are storing their M2s bone dry, which lets corrosion do a number on the weapons. The M2 needs as much lube protection as the other weapons in the arms rooms.

Don't go blank on blank firing. When you install the blank firing attachment (BFA) on the M2, don't forget the BFA's cartridge guide assembly, NSN 1005-01-092-9537. The guide, which goes in the feed tracer, compensates for the shorter blank round. Without it, the M2 jams.

But to install the cartridge guide, you must remove the cartridge stop. Armorers, remove the stops **before** your M2s go to the firing range to fire blanks or you'll likely never see the stops again. And remember to reinstall the cartridge stops when you remove the BFAs. Otherwise, the M2s won't fire.



Rotation Extends Bushing Life

Dear Half-Mast,

The bushing that was added to the M48 machine gun's backplate seems to last a very short time. The charging cable cuts through it like a hot knife through butter. Is there anything we can do to make it last?

SPC J.L.

Dear Specialist J.L.,

Yes, there is. The bushing was added to help the charging cable last longer by preventing the cable from rubbing on metal. When the bushing develops a groove, rotate it so that the cable is rubbing a different part of the bushing. You should be able to do this three or four times before the bushing needs replacing.

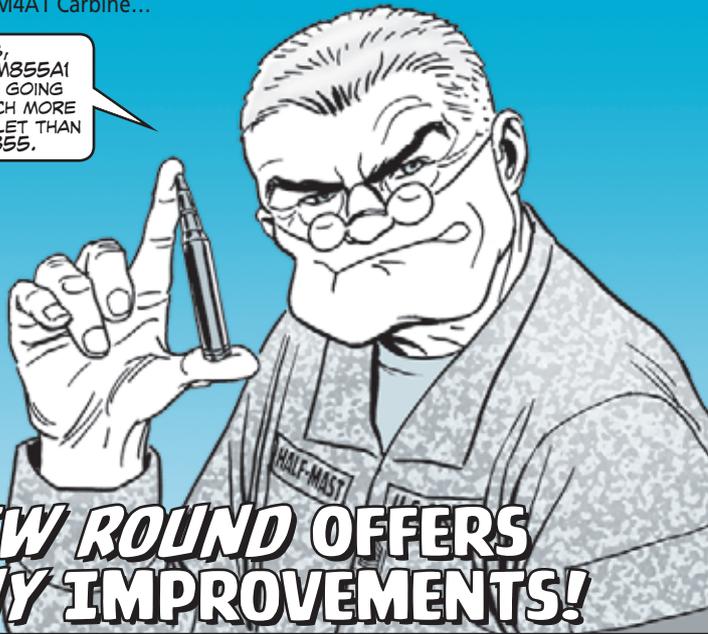
Rotate bushing after charging cable cuts groove in it



Half-Mast

SOLDIERS,
MEET THE NEW M855A1
ROUND. YOU'RE GOING
TO FIND IT A MUCH MORE
EFFECTIVE BULLET THAN
THE OLD M855.

IT LOOKS
DIFFERENT.
IT MAY HAVE
A ROTATING
TIP AND A GAP
UNDER ITS
PENETRATOR.



NEW ROUND OFFERS MANY IMPROVEMENTS!

The M855A1 enhanced performance round is replacing the M855 round that has been used with the M16-series rifle and M4/M4A1 carbine since the early '80s.

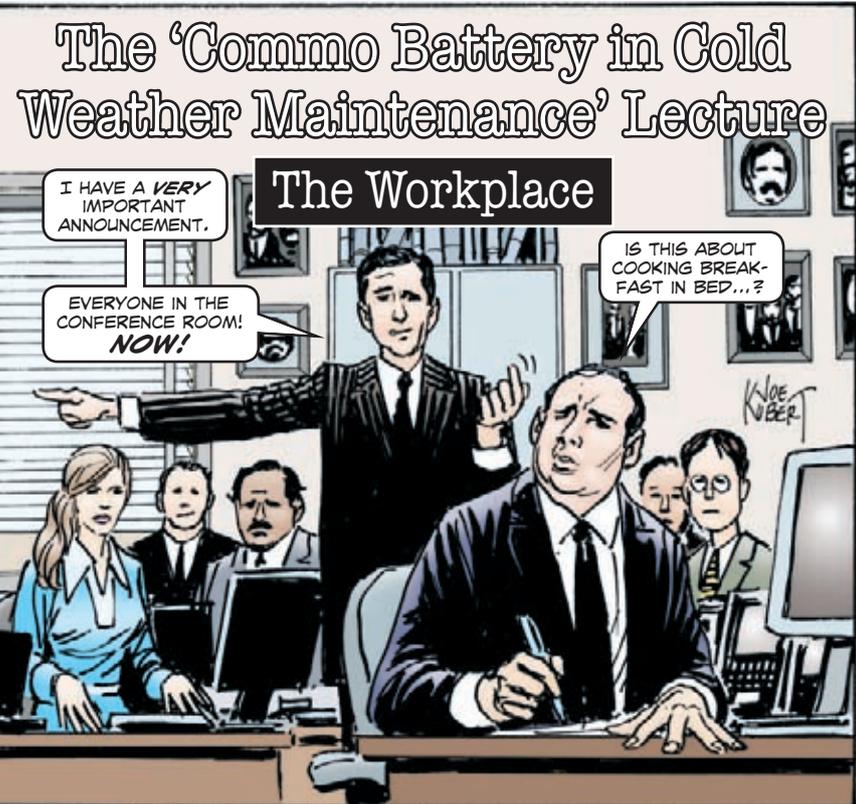
The M855A1, which is being fielded first to combat units, offers many improvements over the M855:

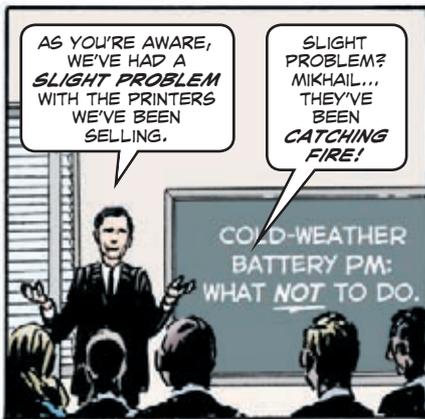
- Greatly improves hard target performance
- Provides consistent and improved effects against soft targets and in close quarters battle
- Army Research Laboratory live fire testing confirms the M855A1 is superior to the 7.62mm ball round against soft targets
- More accurate and effective at long distances
- Reduced flash, while increasing velocity without increasing Soldier's load
- No additional training required for the M855A1
- A trajectory match to the M855, but Soldiers should confirm their weapon's zero if directed by their local SOP

Soldiers, be aware that unlike the M855, the M855A1 may have a rotating tip and a noticeable gap under its penetrator.

Production of the M855A1 in a linked configuration for the M249 machine gun is scheduled for late 2011.

Remember, marksmanship and shot placement are still the most crucial factors in effectively engaging a target.





AS YOU'RE AWARE, WE'VE HAD A **SLIGHT PROBLEM** WITH THE PRINTERS WE'VE BEEN SELLING.

SLIGHT PROBLEM? MIKHAIL... THEY'VE BEEN **CATCHING FIRE!**



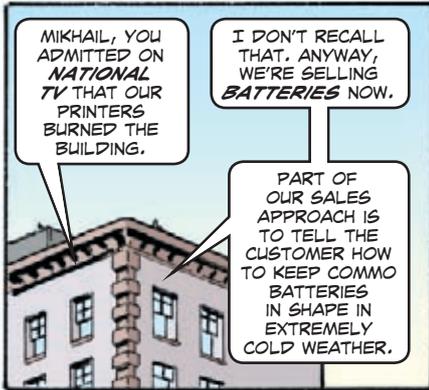
THAT HASN'T BEEN PROVEN, JAMES.

MIKHAIL, AN **ENTIRE OFFICE BUILDING** IN NEW JERSEY BURNED DOWN.



LOTS OF THINGS BURN IN NEW JERSEY, SCRANLEY.

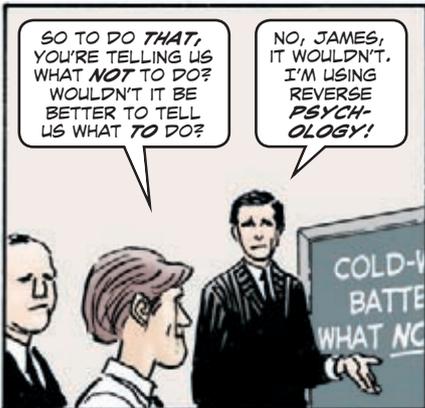
TIRES BURN IN NEW JERSEY... AND WE DON'T SELL **TIRES.**



MIKHAIL, YOU ADMITTED ON **NATIONAL TV** THAT OUR PRINTERS BURNED THE BUILDING.

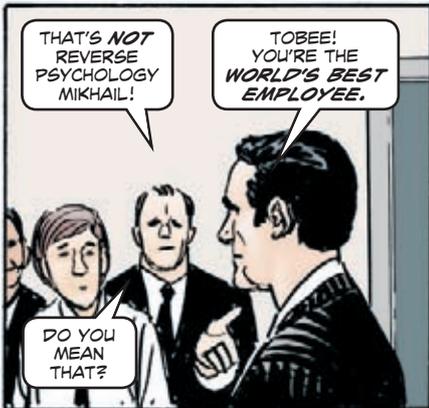
I DON'T RECALL THAT. ANYWAY, WE'RE SELLING **BATTERIES** NOW.

PART OF OUR SALES APPROACH IS TO TELL THE CUSTOMER HOW TO KEEP **COMMO BATTERIES** IN SHAPE IN EXTREMELY COLD WEATHER.



SO TO DO **THAT**, YOU'RE TELLING US WHAT **NOT** TO DO? WOULDN'T IT BE BETTER TO TELL US WHAT **TO** DO?

NO, JAMES, IT WOULDN'T. I'M USING **REVERSE PSYCHOLOGY!**



THAT'S **NOT** REVERSE PSYCHOLOGY MIKHAIL!

TOBEE! YOU'RE THE **WORLD'S BEST EMPLOYEE.**

DO YOU MEAN THAT?



YOU KNOW WHAT? **LEAVE, TOBEE!**

YOU'RE EVERYTHING THAT IS **WRONG** WITH COLD WEATHER BATTERY PM.



ARE YOU USING **REVERSE PSYCHOLOGY** NOW?



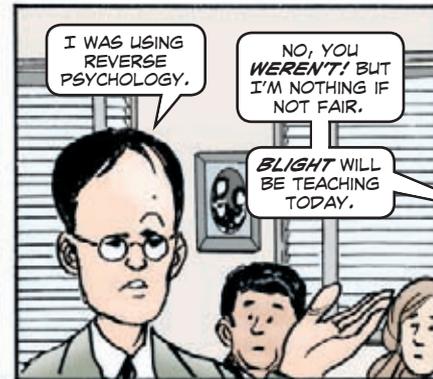
JUST GO!

IF ANYONE THINKS THEY CAN TEACH THIS BETTER THAN ME, COME UP AND **DO IT.**



MIKHAIL... THERE IS NOTHING I WOULD **LOATHE** MORE THAN LEADING THESE IDIOTS IN **COMMO BATTERY PM.**

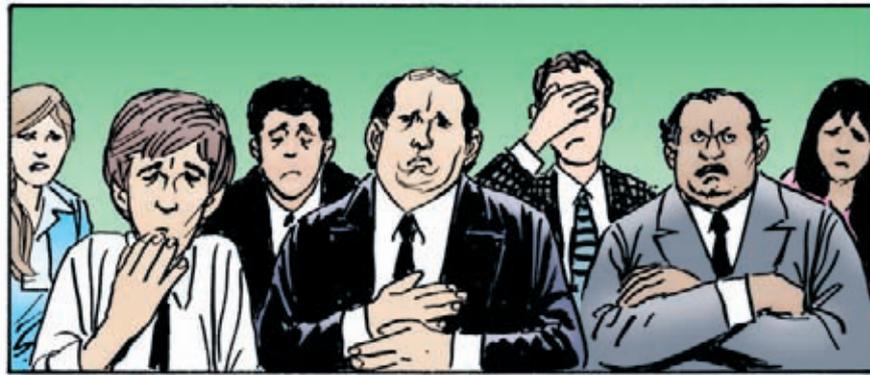
GOOD! YOU'RE **NOT** TEACHING IT, BLIGHT.

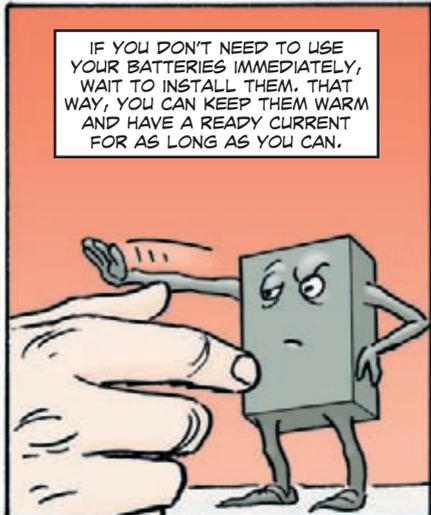
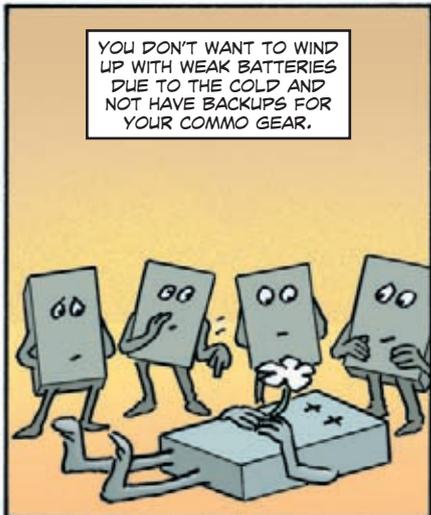
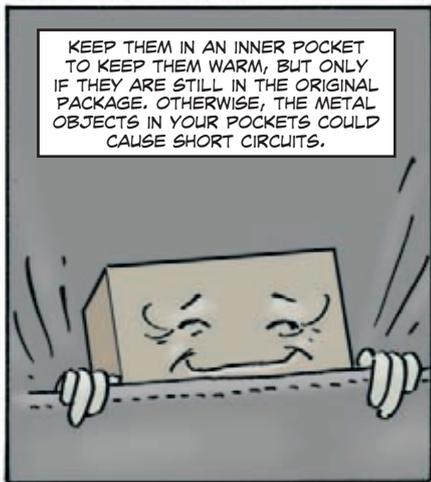
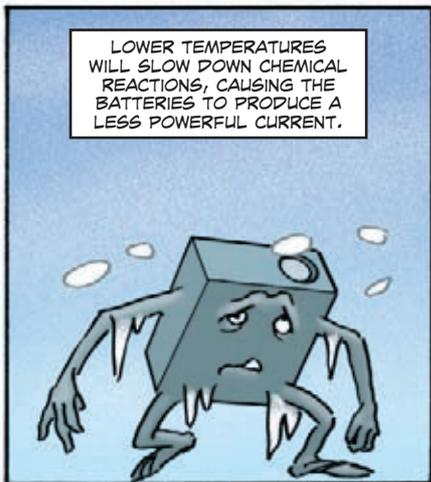


I WAS USING **REVERSE PSYCHOLOGY.**

NO, YOU **WEREN'T!** BUT I'M NOTHING IF NOT FAIR.

BLIGHT WILL BE TEACHING TODAY.





PLAN AHEAD!
USE CECOM'S
POWER BATTERY
CALCULATOR TO
DETERMINE YOUR
BATTERY NEEDS.



GET ONE BY EMAILING:
ari.herman@us.army.mil



LOOK AT YOUR
EQUIPMENT TM AND...



...AND AN SB 11-6
FOR SPECIFIC
INFORMATION ON
BATTERIES FOR
COLD-WEATHER
OPERATION.

BOTH LIST
PRIMARY
BATTERY-USING
EQUIPMENT,
BATTERY TYPE
NUMBERS,
DESCRIPTIONS,
STORAGE
TEMPERATURES
AND NSNS.

SB 11-6 CAN
NOW BE FOUND
ON THE INTERNET.
ACCESS IT AT:
<https://www.logsa.army.mil/etms/online.htm>



ONE MORE
PIECE OF
ADVICE...



...DO NOT THROW
BATTERIES AT
HIBERNATING
BEARS.



RRRRRR



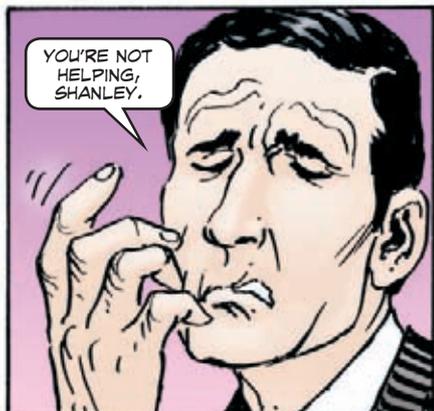
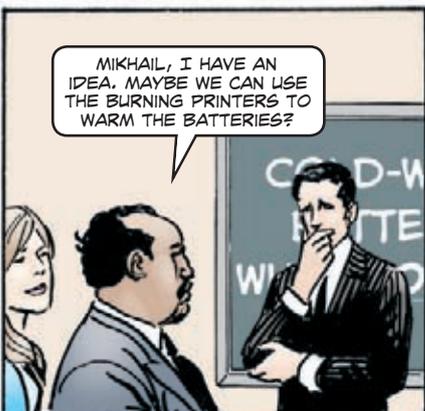
THANKS, BLIGHT. I
WOULD HAVE DONE
A LOT BETTER.

MIKHAIL?



MIKHAIL, I HAVE AN
IDEA. MAYBE WE CAN USE
THE BURNING PRINTERS TO
WARM THE BATTERIES?

YOU'RE NOT
HELPING,
SHANLEY.





I HAD NOTHING TO DO WITH THOSE PRINTERS, SAM.



CAN'T WE ALL FORGET ABOUT THE PRINTERS AND CONCENTRATE ON BATTERIES?



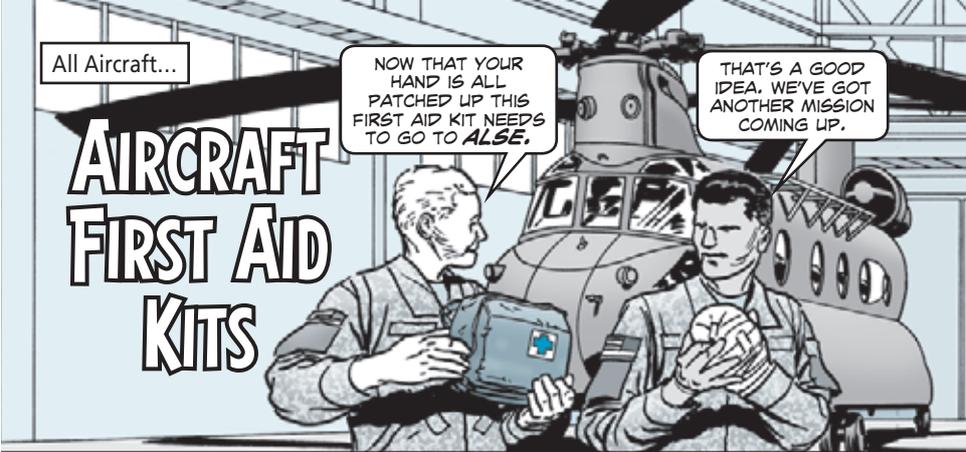
ALL THIS BATTERY TALK MAKES ME THINK ABOUT PIZZA!



WHY, KELVIN?



I ALWAYS THINK ABOUT PIZZA.



All Aircraft...

AIRCRAFT FIRST AID KITS

NOW THAT YOUR HAND IS ALL PATCHED UP THIS FIRST AID KIT NEEDS TO GO TO ALSE.

THAT'S A GOOD IDEA. WE'VE GOT ANOTHER MISSION COMING UP.

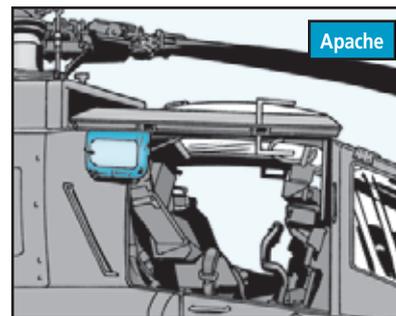
It's convenient and easy to grab the first aid kit to take care of minor cuts and injuries during missions. However, when the mission is over, some pilots and copilots forget they must turn in the first aid kit if it has been used. When you break the kit's seal and use the contents, it must be returned to the Aviation Life Support Equipment (ALSE) shop for re-packing, re-sealing and re-tagging. First aid kits with broken seals should never be left on an aircraft.

In AR 95-1, *Flight Regulations*, each aircraft must carry a required number of kits to accommodate the number of occupants in the aircraft. Each kit must have a yellow tag with its next inspection due date and a seal that must be inspected daily. If the seal is broken or the tag has expired, take it to your ALSE tech and have it inspected, then re-packed and re-sealed.

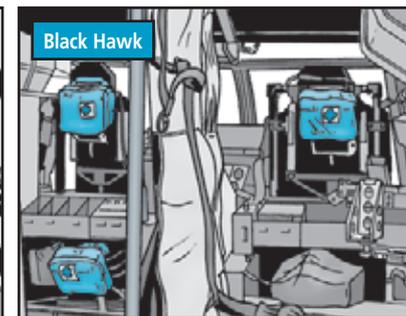
When you pre-flight your aircraft, make sure the first aid kit is ready to go with you. If it's not, you may not be able to fly or carry the required number of passengers your mission requires.



IS YOUR KIT GOOD TO GO? CHECK THE INSPECTION DATE AND LOOK FOR A BROKEN SEAL!



Apache



Black Hawk

DEEP FREEZE PM

DON'T LET OLD MAN WINTER PUT THE **FREEZE** ON PM.

DRESS FOR THE JOB!

I K-K-CAN'T BE-BUH-BELIEVE HOW K-K-COLD IT IS TODAY!

MAN, YOU GOTTA **DRESS** FOR PM **SUCCESS!**



When the mercury plummets and Old Man Winter drops snow, ice and wind, you still need to fly high with aircraft PM.

Mechanics know that PM in cold, sub-zero temperatures is critical to readiness and to keeping aircraft flying high.

When winter starts to unleash its biting cold, the best action is to move your aircraft inside to perform maintenance. If you can't and you're faced with some extended time outside, use a maintenance shelter or you could rig a temporary shelter out of tentage or salvaged cargo parachute canopy. Extra care must be taken when using parachute or canvas because they can become a safety hazard in a slight breeze. Warm the shelter area with a portable duct type ground heater and observe all heater safety regulations to prevent a fire.

A WARM, VENTILATED WORK AREA WILL LET YOU GET THAT PM DONE WITHOUT THE NUISANCE OF BULKY CLOTHING AND HEAVY GLOVES.



HERE ARE SOME OTHER COLD WEATHER TIPS TO CONCENTRATE ON...

COLD FUEL - Water in fuel can form ice that blocks fuel lines. So keep fuel tanks topped off. The gap between the top of the tank and the fuel is full of cold, moist air. When that air condenses, water drips into your fuel. When you take fuel samples, drain enough fuel to get rid of all the water. Drain the sumps daily.

If you refuel an aircraft outside in freezing temperatures, always check the fuel level before moving it inside. An aircraft with a full fuel tank should not be moved into a hanger. Aircraft fuel expands with higher temperatures and opening the filler cap could give you a fuel spill to clean up.

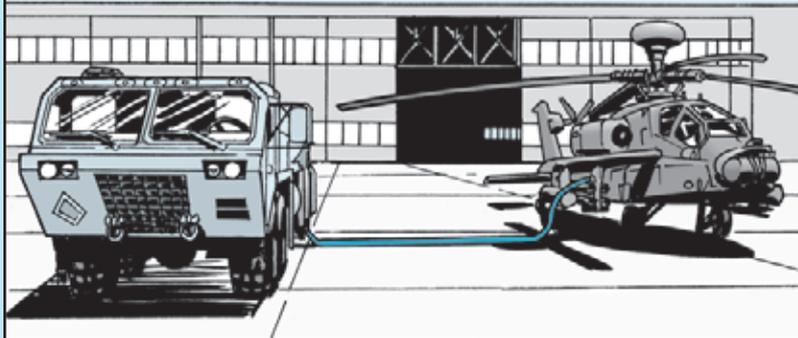
Static electricity can fire up your winter real fast, so be extremely careful during refueling. The hazards of static electricity increase as temperature and humidity drop.

Static can build up on ungrounded aircraft as frost or snow are swept from the aircraft. Fuel flowing through the filler neck can also generate a spark that ignites fuel.

PS MORE

So make sure your aircraft has three good separate grounds: (1) aircraft to ground, (2) aircraft to fuel tanker and (3) the aircraft to fuel nozzle before removing the cap. If you're freezing while refueling a bird, you might be tempted to neglect a ground. **Don't!** You must follow grounding procedures without taking any shortcuts.

Be sure nozzle, aircraft and tanker are bonded



Always ground aircraft before opening the fuel cap. Then always install the fuel cap before un-grounding. That's because sparks can shoot between the grounding cable and the aircraft.

If you're not using a closed-circuit fueling nozzle, put the regular nozzle in all the way. That keeps the danger of static down and reduces the chance for a fuel spill.

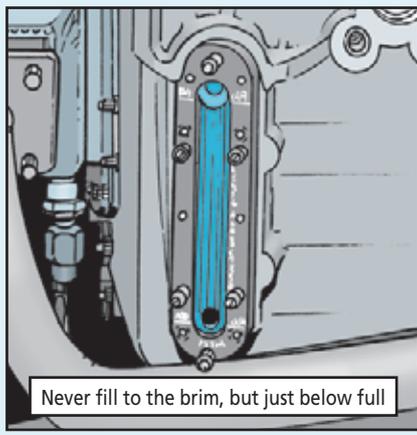
Use extra care if you have to take fuel out of an aircraft. Fuel spilled on bare skin can cause instant frostbite.

COLD OIL AND GREASE

- Fuel is not the only fluid affected by cold temperatures. As temperatures dip, oil thickens, fuel gets harder to ignite and grease gels. So you must use the right fuel and lube for cold conditions. The lube order in your TMs list the right fuel, oil and grease to use.

When you service oil systems on a stone-cold aircraft, never fill it to the brim. Otherwise, when the oil heats up, the tank will overflow.

Oil leaks are a chronic problem in winter weather. So check connections, joints and seals regularly.



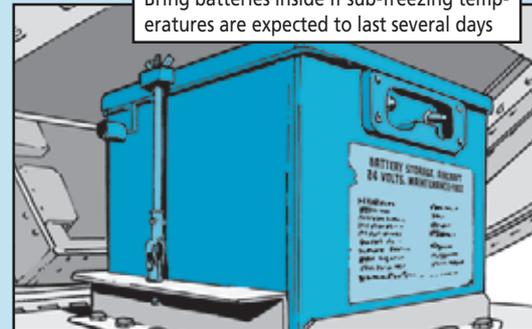
Never fill to the brim, but just below full

COLD SEALS - Cold weather is hard on seals and gaskets. When they contract due to the cold, that opens the door for leaks. Moisture can seep in around seals and freeze, and that ice can cut the seals. Make a list of your aircraft's potential seal and gasket trouble spots. Post that list next to these tips on your bulletin board.

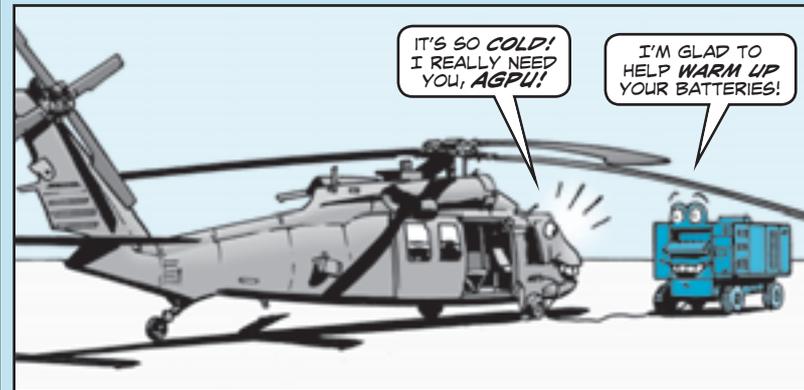
COLD BATTERIES - Unless you're in the deep freeze for a long time, your nickel cadmium batteries will do their job without much extra effort on your part. But cold starts will shorten battery life.

So when possible, bring your batteries in from the cold if the weather prognosticator predicts several days of sub-freezing temperatures. If that's not possible, turn on the landing lights, searchlight or other components for 30 seconds before an engine start.

Bring batteries inside if sub-freezing temperatures are expected to last several days



That load will warm up the battery a bit. Always use an auxiliary ground power unit (AGPU) on the first start of the day. It prevents a lot of drain on cold batteries.



Sealed lead-acid batteries (SLAB) should be kept warm. Cold weather saps their charge much faster than it does a nickel-cadmium battery. If you bring your batteries inside, never store nickel-cadmium and lead-acid batteries in the same area. Fumes from a lead-acid battery can cause a nickel-cadmium battery to discharge.

Store the batteries on a shelf or on dunnage, because bare floors can drain batteries.



COLD TIRES - Cold reduces tire air pressure, so check your helicopter's tire pressure often like your TM says.

Tires can freeze to the ground but you can free them with liquid deicer. Move the aircraft immediately because deicer will form slush and eventually re-freeze.

Avoid parking aircraft in wet or slushy areas. Use boards, dunnage or a similar platform surface beneath tires to keep them off snow or ice. Remember, when parking on frozen earth and frozen mud, these unimproved surfaces may thaw during the day and your bird may sink. Then when the earth or mud re-freezes at night, your bird will be frozen in place.



Use dunnage to prevent tires from freezing to ground

Check your landing gear often. Use a clean rag dampened with hydraulic fluid to remove ice, dirt and grit from struts and pistons.

Service pressurized systems according to your specific aircraft maintenance manual. Remember that any moisture can freeze into ice crystals and damage seals.

Do not bend rubber hoses or rubber-coated wires while they're ice cold. Rubber gets brittle and stiff and could crack.

COLD WEATHER GUIDES

- For more information on winter maintenance operations, check out the good words in each aircraft TM. Also refer to FM 31-70, *Basic Cold Weather Manual* (Apr 68) and FM 31-71, *Northern Operations* (Jun 71).



REMEMBER: WINTER
PM KEEPS YOUR
AIRCRAFT FLYING IN
THE **COLD!**

All Aircraft...

The Pocket Tool

MAN,
THIS TOOL
COMES IN
HANDY!

YEAH?
WELL,
TELL THAT TO
MY POOR
SCREW
HEADS!



THE MULTI-TOOL, NSN 5110-01-394-6252,
IS A HANDY-DANDY INSTRUMENT SOLDIERS
ALMOST NEVER LEAVE HOME WITHOUT.

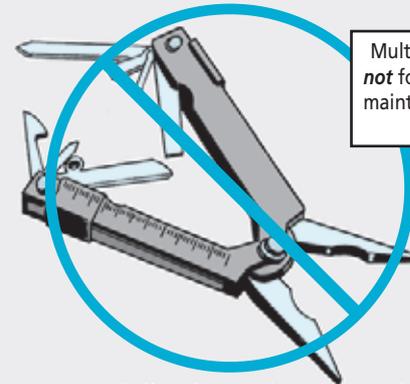
HOW-
EVER...

During maintenance tasks, the tool gets whipped out and put to work on all types of screw heads. That's a problem because the tool is not made for all types of screws or every maintenance task.

Using the multi-tool on screw heads and in general maintenance not only can strip out screw heads but can damage other components and hardware.

Stripped screws mean you'll have to use a drill and a punch to remove them. It's better to use the right tool, the right way, so you don't create more work by using the wrong tool, the wrong way, during maintenance.

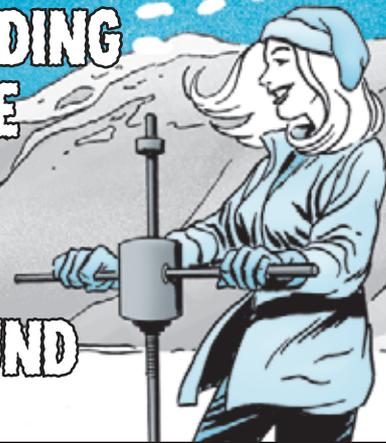
Don't grab the multi-tool because it's convenient. If the TM calls for a specific tool, use it. That way, you'll avoid damage.



Multi-tool is
not for every
maintenance
task



GROUNDING IN THE COLD, COLD GROUND



IN COLD GROUND, IT'S TOUGH TO GET A GOOD GROUND. FROZEN EARTH HAS LOW CONDUCTIVITY. STATIC BUILDUP INCREASES. BURROWING INTO FROZEN SOIL TO DRIVE HOME A GROUND ROD CAN BE NEXT TO IMPOSSIBLE.

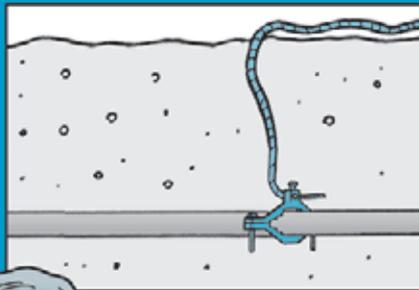
BUT A GOOD GROUND IS STILL A **MUST**.

SO, NOW IS THE TIME TO ESTABLISH ANY GROUNDS YOU THINK YOU MIGHT NEED DURING THE WINTER MONTHS.

HERE ARE A FEW TIPS FOR GETTING THOSE GROUNDS IN PLACE...

Try to ground to a buried metal object like an underground pipe.

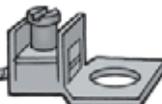
That will save you a lot of digging or driving in frozen ground. However, the metal object has to be buried at least 2½ feet below the surface; cannot contain or transfer natural gas, gasoline, or other flammable liquids; must be all non-coated metal; and you must test its conductivity before you use it.



IF YOU **DO** HOOK UP TO A BURIED METAL OBJECT, MAKE SURE YOU CONNECT THE GROUNDING ELECTRODE CONDUCTOR TO THE OBJECT WITH A SOLID CONNECTION. A WRAP-AROUND OR TIE-IT-ON CONNECTION **WON'T** DO!



Use terminal lug, NSN 5940-00-271-9504, to connect conductor to gear



If no buried metal object can be found, use your ground rods. Drive them in as far as you can. If you use the 8-ft, 3-section rod, NSN 5975-00-878-3791, you can use slide hammer, NSN 5120-01-013-1676, to drive it in. If you're using the 6-ft, non-sectional rod, you'll have to use a sledge hammer to do the job.

Drive head stud, NSN 5975-00-924-9927

Couplings, NSN 5975-00-794-2523

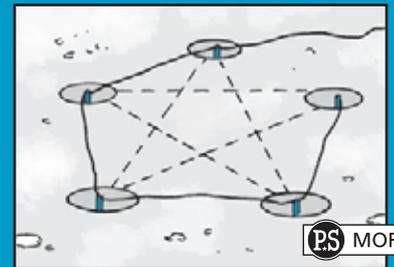
8-ft, 3 section rod, NSN 5975-00-878-3791

Slide hammer, NSN 5120-01-013-1676

Clamp, NSN 5999-00-186-3912

6 ft, 1 section rod, NSN 5975-00-224-5260

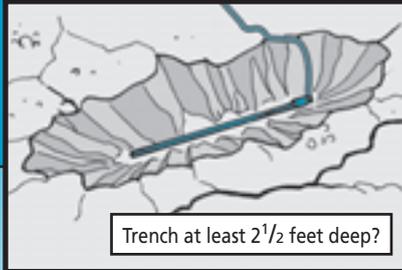
If you cannot get the rods deep enough—below the frost line and to the water table—install a cluster of shorter rods. Depending on the number of rods you have, you should install them around the perimeter of your shelter or generator in a triangle pattern. If you cannot install around the perimeter, use a star-pattern. The distance between rods should be 2-4 rod lengths.



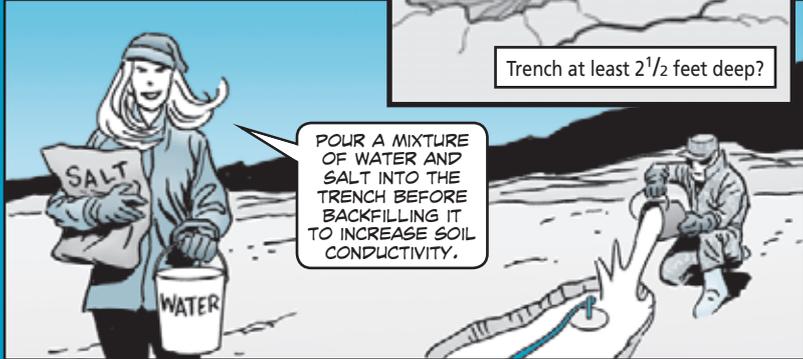


DON'T DAMAGE THE THREADS, FELLA!

Another option is to bury the rods horizontally. Dig a trench at least 2½ feet deep and six feet long. Install the ground rod horizontally or put at least 10 feet of copper 2 AWG bare wire in the trench.



Trench at least 2½ feet deep?



POUR A MIXTURE OF WATER AND SALT INTO THE TRENCH BEFORE BACKFILLING IT TO INCREASE SOIL CONDUCTIVITY.

It is very important in cold weather to bond equipment and shelters located within arms length of each other to eliminate any hazardous voltage that may develop between them. If the equipment is not bonded, that voltage can use you as the conductor if you touch both pieces of equipment at the same time.



Shelter bonding should be done by either running a bonding strap of at least 6 AWG between the two shelters' grounding terminals or between the two ground rods provided for each shelter.

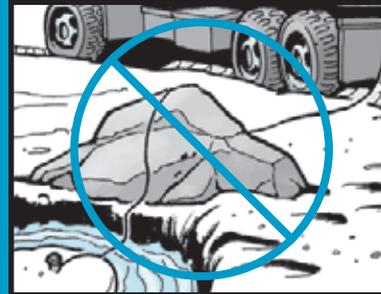
When you can, locate your ground near a source of heat like a generator or vehicle exhaust. This will make it easier to drive a rod into the soil and keep the grounding strap free from snow cover.



REGARDLESS OF THE WEATHER, THERE ARE SOME GROUNDING FUNDAMENTALS THAT YOU SHOULD ALWAYS OBSERVE...

- The grounding electrode conductor should be as large as possible, and at least 6 AWG.
- The conductor should be copper.

—Run the conductor as straight and as short as possible in a downward direction. Do not run the conductor up and over obstacles.



—Minimize any twists, loops or sharp bends and remove all knots from the conductor.



MAKE SURE THE CONNECTION POINT IS NOT CORRODED AND THE CONNECTOR IS NOT LOOSE!

- Make sure the bonding surfaces are free of paint, corrosion, grease or dirt.
- Never twist or tie a ground wire around a ground rod. Use the bolt or clamp for a solid connection. If there is no bolt, then 24 tightly wound turns of stripped telephone wire or other bare wire should hold the strap in place. **This is a temporary measure only.** Get a clamp when you can.

—Think safety when installing ground rods: **Wear goggles and gloves!**



ORDER A COPY OF THE EARTH GROUND AND BONDING PAMPHLET PUBLISHED BY CECOM. CALL DSN 992-7475 OR (732) 427-7475.



PS END

A BAKER'S DOZEN

WHEN WE THINK OF THE NUMBER 13, MOST OF US THINK OF BAD LUCK.

BUT HERE ARE 13 COLD-WEATHER COMMO TIPS THAT WILL BRING YOU ONLY GOOD LUCK.



1) Carry small batteries inside your clothes to keep them warm. Reactivate cold-soaked batteries by warming them under your clothes. Keep the batteries from contact with other metal objects.



2) If a radio set must be set up outside, put it in a sheltered place. A wind block, like a lean-to, helps keep sets away from direct exposure to cold winds.



3) Raise RF cables above the ground to keep them from freezing to the ground. Use poles or tree limbs to raise the cables.



4) Check antenna systems often and remove snow, ice or slush that might diminish your signal or create a "falling ice" hazard.

5) Put frost shields over microphones. If you don't have a shield or your headset doesn't have a place to fit one, a piece of plastic—like a battery bag—will do the job.



6) Remove all snow, ice, water and dirt from cable connections before connecting them. You'll get a poor connection or broken connectors if you don't.



7) Rubber and rubber compounds become stiff and brittle as temperatures plunge. In cold weather, cables and wire should be flexed slowly and carefully to keep them from cracking and breaking.



8) Lube, but don't over-lube. Lubricants can get stiff in cold weather and fail to do their job. The keys to lubing in the cold are frequent checks, to make sure lube hasn't gotten stiff, and frequent applications.



9) Plugs, jacks, keys, shafts, bearings, dials, and switches can malfunction due to contraction of metal parts in extreme cold. Check them often and keep them warm and clean.

10) Make sure all motors and fans run freely. Snow and ice build-up can shut down a critical fan and kill a much-needed motor.



11) Make sure all knobs and controls move easily. Stiff controls might indicate a freezing problem.



12) Keep cables out from under the snow. Pull them free after every snowfall. A cable hidden under snow is hard to find—except when it's pulled loose by a big foot or run over by a track.



13) Any equipment that generates heat during operation will "breathe" or draw in cold air as the equipment cools. If heated equipment is brought into contact with extremely cold air, the glass, plastic and ceramic parts may break. So give hot equipment time to cool down before taking it out of a shelter into the cold.

"Sweating" is the opposite of "breathing." If cold equipment is brought into contact with warm air, the moisture in the air will condense on the equipment and freeze when the equipment is taken into the cold again.

So wrap cold equipment in a blanket or parka for a bit before you take it into a heated shelter.



KEEP THIS TIP IN MIND BEFORE THE DAY'S RUN!

USE HYDRAULIC UNLOADING VALVE IN THE COLD!

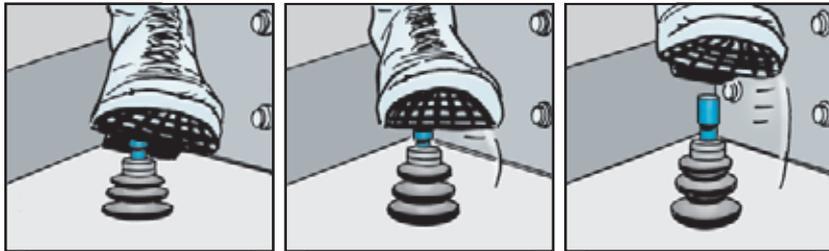
Operators, when temps drop below 60°F, use the hydraulic unloading valve to make starting the 130G road grader's engine easier. It's located by the driver's left-foot.

When you depress the valve, you're letting the vehicle's hydraulic pump spin free with no pressure, which reduces the load on the engine starter. This procedure saves a lot of wear and tear on the starter and pump when the hydraulic fluid gets thick and sluggish during cold weather.

As the engine warms up, do not let your foot off the valve too fast. That forces too much pressure from the pump into the system's main hydraulic lines. The end result is blown seals with lots of leaks.

So, ease off the hydraulic loading valve when using it!

After warm up, slowly release valve!

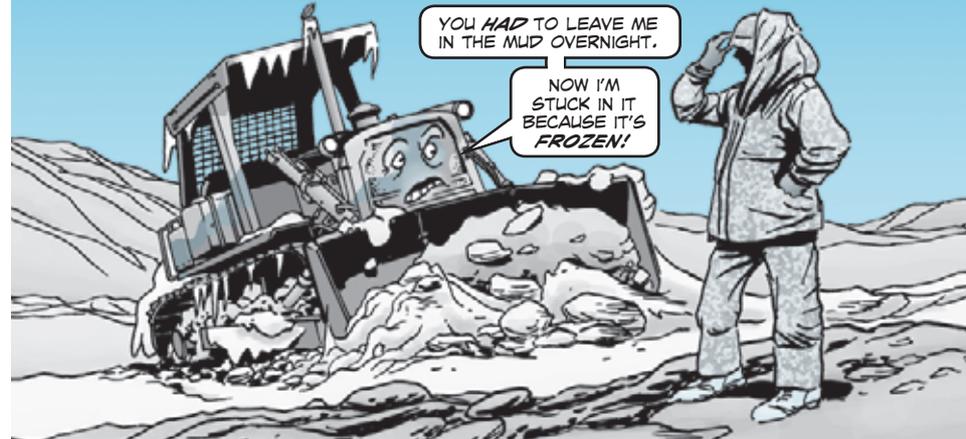


ONE MORE THING!

DO NOT PUSH DOWN ON THE VALVE DURING OPERATIONS. THAT ALSO CAUSES UNNECESSARY WEAR AND TEAR ON THE GRADER'S HYDRAULIC SYSTEM.



STUCK IN THE MUD???



YOU HAD TO LEAVE ME IN THE MUD OVERNIGHT.

NOW I'M STUCK IN IT BECAUSE IT'S FROZEN!

Spring and winter months at the worksite can fool you from day to day.

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.

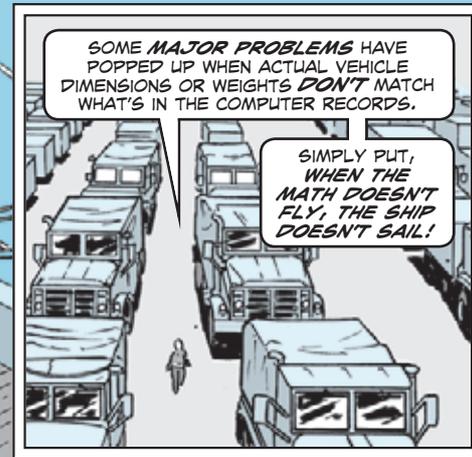
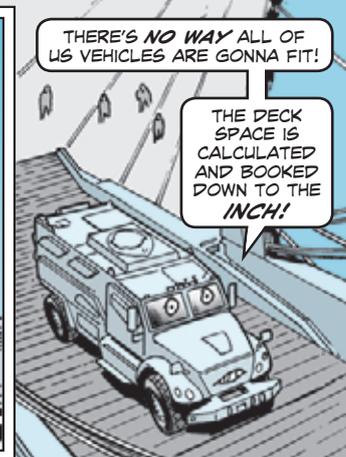
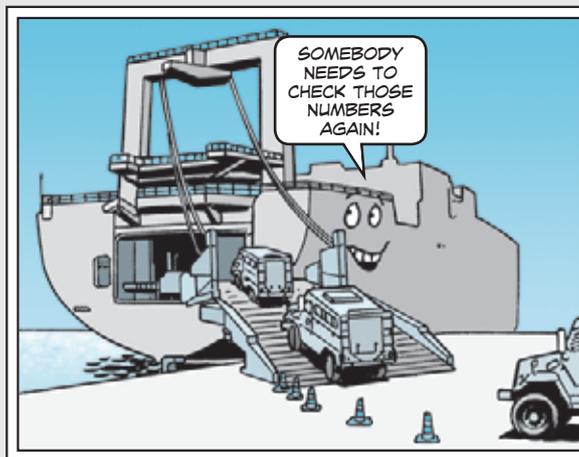
It doesn't matter if you're in the DEUCE, D5B or D7G tractors, or the M9 ACE—don't rock or bounce a frozen vehicle loose! You'll end up with broken track and snapped drive sprocket teeth, not to mention a vehicle that's still stuck and going nowhere.

Here's how to prevent that problem before the sun goes down:

- 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.

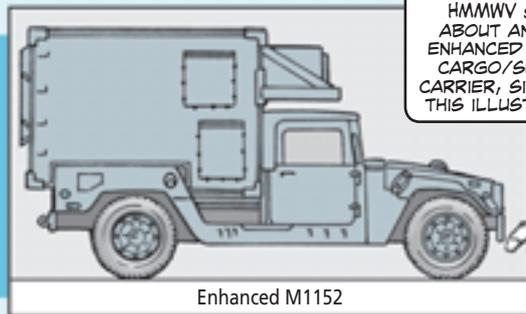


Record Your Vehicle Data Correctly for Deployment

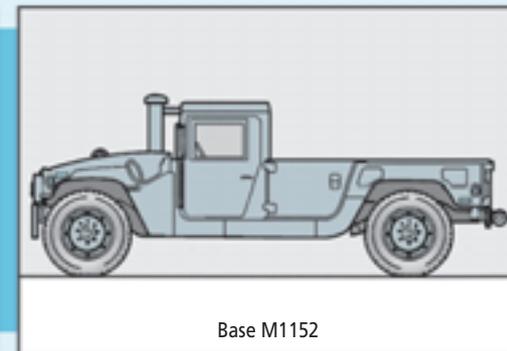
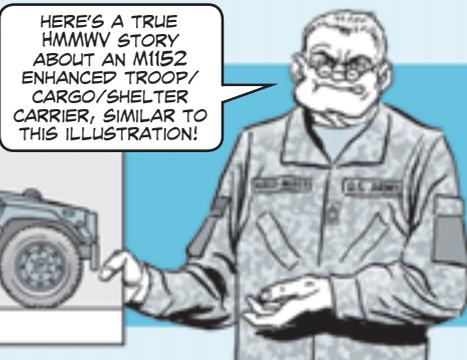


The word's in: Your unit's shipping out. In the following burst of activity, everyone may rush a bit more in their duties and lose track of some details that shouldn't be forgotten.

Missing details while preparing for deployment can result in big headaches when trying to load and ship unit vehicles.



Enhanced M1152



Base M1152



LATER, IT WAS DETERMINED THAT THE PERSON WHO MADE THE SHIPPING LABEL USED TB 55-46-1, STANDARD CHARACTERISTICS FOR TRANSPORTABILITY OF MILITARY VEHICLES AND OTHER OUTSIZE/OVERWEIGHT EQUIPMENT, AND TOOK THE STATS FOR THE FIRST VEHICLE LISTED FOR THE M1152.

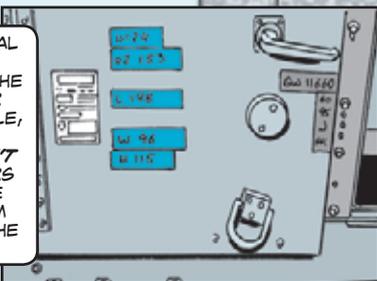
BUT THERE ARE SEVERAL VARIATIONS OF THE M1152. THE STATISTICS FOR THE BASE VEHICLE (SHOWN ABOVE) WERE MISTAKENLY ENTERED INTO THE COMPUTER, AND THOSE NUMBERS DIDN'T INCLUDE THE SHELTER'S ADDED WEIGHT AND DIMENSION.

For example, one M1152 shelter carrier's white shipping label listed vehicle specifications in inches as: Length—194, Width—86, Height—76, and Weight—7,146 pounds. The actual vehicle dimensions were Length—198, Width—96, Height—115, and Weight—11,660 pounds!

There are many HMMWV models, so it's easy to see how this mistake happened. Someone entered the stats from a base model HMMWV into the deployment planning software, instead of taking the time to check the unit's MTOE for the specific model, then looking up and entering the correct data.



THE ACTUAL PHYSICAL DIMENSIONS AND WEIGHT LISTED BY THE INSTALLATION FOR SHIPPING THIS VEHICLE, AND WRITTEN ON GREEN TAPE, DIDN'T MATCH THE NUMBERS ENTERED INTO THE COMPUTER SYSTEM THAT GENERATED THE SHIPPING LABEL.



In some cases, entire vehicle lots have been delayed from deployment by ship, rail, air or highway due to errors in reported dimensions or weights. These mistakes don't make the headshed happy.

So, during deployment planning and operations, **before** shipping labels get slapped on vehicles slated for shipment, check the following:

- Are you using your unit's MTOE for accurate vehicle model information?
- Were the correct vehicle models entered into the database?
- Do computer-generated numbers match, or at least come close, to actual vehicle measurements?

For vehicle specifics, see TB 55-46-1, *Standard Characteristics (Dimensions, Weight, and Cube) for Transportability of Military Vehicles and Other Outsize/Overweight Equipment*.

You can also check out the Transportation Engineering Agency's (TEA) handbooks and pamphlets. Visit the TEA website: <http://www.tea.army.mil/>

If you have questions about deployment-related shipping, contact John Newman at DSN 770-5263, (618) 220-5263, or email: john.d.newman@us.army.mil



Containers...

THE THINGS THEY CARRIED



ARE YOU DEPLOYING?
OR JUST HEADING TO THE
FIELD FOR A WEEKEND?

HOW DO YOU PLAN TO
CARRY AND STORE ALL THE
LITTLE THINGS YOU NEED?

THINGS LIKE NUTS, BOLTS,
FUSES AND DIODES.

HERE'S A SIMPLE
SOLUTION.

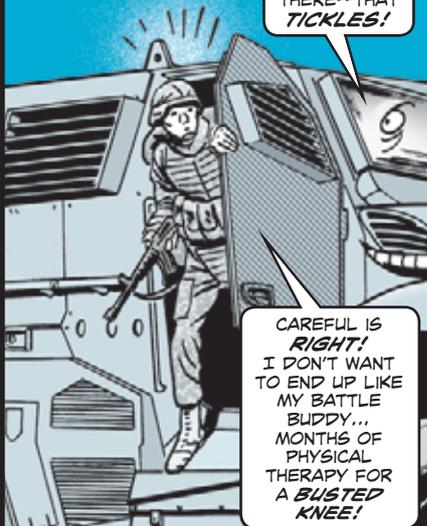
NSN 8115-00-663-0213 brings two transport and storage cases. These are sturdy wooden cases with reinforced metal edges and metal handles for storing:

- bench stock
- electronic parts
- weapons parts

Safety...

Look- But Don't Leap!

HEY!
CAREFUL
THERE--THAT
TICKLES!



CAREFUL IS
RIGHT!
I DON'T WANT
TO END UP LIKE
MY BATTLE
BUDDY...
MONTHS OF
PHYSICAL
THERAPY FOR
A BUSTED
KNEE!

You probably don't think of combat vehicles or your unit's big construction equipment as potential enemies. But rushing to dismount from high equipment can really bring you down—literally!

Falls and jumps are the leading cause of non-battle injuries such as fractures and dislocations. Too many Soldiers have already been air-evacuated from Iraq and Afghanistan because of this.

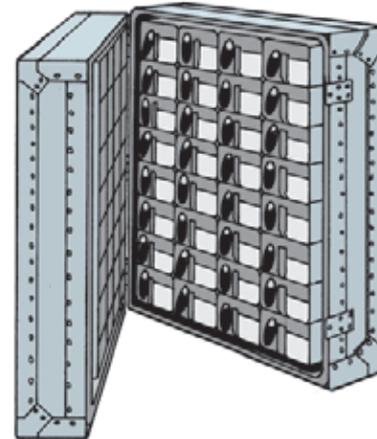
SO, WHEN
YOU EXIT HIGH
VEHICLES OR
EQUIPMENT...

...FOLLOW
THESE STEPS
TO SAFETY!

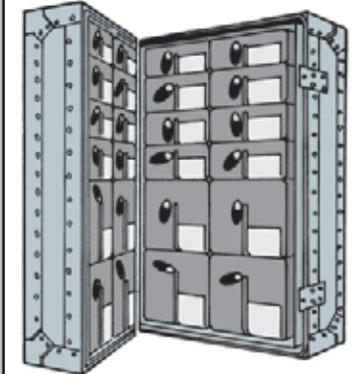


- Keep three out of four limbs in vehicle contact—two hands and a foot or two feet and a hand
- Use available steps and handholds
- Go slow—rain, ice or sand can make steps slippery
- Remember a heavy backpack can throw you off balance
- Check for uneven ground before stepping down
- Don't jump out! Step out.

One case comes with 64 plastic drawers
3" wide x 3" high x 5" deep.



The other case has 24 plastic drawers. Sixteen of them are
6" wide x 2" high x 5" deep.
Eight of them are 6" wide x
4" high x 5" deep.



ALL
DRAWERS
COME WITH
DIVIDERS.

THEY ALSO HAVE
SLOTS FOR
INSERTING LABELS
SO YOU CAN EASILY
IDENTIFY WHAT'S
BEEN STORED.



Keep Containers Shipshape!



PFPT,
WATCH IT
BUDDY!
LEONARDO
YOU'RE NOT!

WHEN IT COMES TO
HAZMAT MATERIALS
AND ISO CONTAINERS,
SHORTCUTS ALMOST
ALWAYS CAUSE
TROUBLE.

AND THAT'S
THE CASE
WITH ISO
SHIPPING
CONTAINER
PLACARDS.

Some Soldiers paint over the placards before their units reshipe empty ISO containers. But, slapping paint over container placards slated for reshipment is sloppy. It's also **prohibited** by the transportation regulations.

Why is this quick fix a problem? Covering up placards with paint can lead to risky confusion over container contents. Eventually, marred placards must be completely removed by someone down the line. Passing the buck is inconsiderate and may be costly to the unit or installation that shipped or returned the container. It's also **illegal!**

Title 49, Code of Federal Regulations, Chap 1, Section 172.502, Subpart F, *Placarding*, prohibits any markings on containers that might be confused with placards required for hazardous materials.

To comply with Title 49, all placards and placard decals must be completely removed from empty and nonhazardous ISO shipping (freight) containers prior to reshipment.

Removing Placard Decals

MATERIALS
NEEDED...



- WD-40®
- Dry, clean cloth
- Dish soap
- Mineral oil
- Hair dryer
- Goo Gone®

TRY ANY OR ALL OF THE FOLLOWING FIVE SUGGESTIONS FOR REMOVING STUBBORN PLACARD DECALS...

- Spray the placard decal with WD-40 and let it soak for 5 to 10 minutes.
- Peel away as much of the placard decal as possible with your fingernail. Apply dish soap to placard decal with a clean cloth and allow it to sit for at least 5 minutes before scrubbing away the residual with a clean cloth.
- Apply mineral oil to the placard decal and allow it to soak for several minutes. Once the placard decal is soft, it should scrub away easily.
- Lift a corner of the placard decal and use a hair dryer to heat it underneath to soften the adhesive. Keep peeling the placard decal back while holding the heat on the area until the placard decal is removed.
- Peel away as much of the placard decal as possible and spray the residual with a product such as Goo Gone. Allow the placard decal to soak for 2 to 3 minutes and scrub the area with a dry, clean cloth.

FOR MORE INFORMATION, CONTACT THE ARMY INTERMODAL AND DISTRIBUTION PLATFORM MANAGEMENT OFFICE (AIDPMO) AT DSN 795-7149, (570) 615-7149, OR EMAIL: toby.aidpmo@conus.army.mil

Don't Lift Tow Armored FMTVs!

Don't use any wrecker to lift tow armored FMTVs! It's not authorized because it can lead to serious injury or major truck damage! So make sure wrecker operators **only** flat tow armored FMTVs. Eyeball TACOM LCMC GPA 10-019 if you need more info:

https://aeps2.ria.army.mil/commodity/gpm/tacom_wn/gpa10-019a.html

MRAP Category Meanings

Operators, here's what those MRAP categories mean: **CAT I** is used for combat operations in rural and urban terrain. **CAT II** is used for multi-mission operations like leading convoys, transporting troops, and serving as an ambulance and utility vehicle. **CAT III** is used for mine- and IED-clearing operations and explosive-ordnance disposal. The **M-ATV** is a newer, lighter MRAP that's easier to drive. It's usable on most terrain.

OSMIS Offers Units Visibility

UNITS, GET THE SUPPORT YOU NEED FROM HIGHER HEADQUARTERS AND NAB EVERY TRAINING DOLLAR YOU DESERVE!

Check that your unit correctly reports information in Property Book Unit Supply-Enhanced (PBUSE) and/or the Standard Army Maintenance System-Enhanced (SAMS-E).

For example, verify serial numbers (SNs) for each wheeled and tracked vehicle in your unit. Then report vehicle mileage each month by SN. Accurate odometer readings are a must!

Part of your unit's peacetime training dollars is based on the monthly odometer readings reported through SAMS-E.

Fortunately, there's a great web-based tool units can use to verify that their odometer readings were accurately reported up the chain of command. Motor officers, sergeants, and S3 and S4 staff can verify that the correct information ended up in the Logistics Information Warehouse.

The Operating and Support Management Information System website (OSMISWEB) tracks vehicle use and odometer information, and the program generates mileage reports from the entire Army.

Units are tracked quarterly, which gives the Army the annual information used to prepare the Army's future training budget. The mileage reports are also used to brief the Vice Chief of Staff of the Army monthly on training execution.



To request an OSMIS user account, use your CAC or AKO credentials and visit:

<https://www.osmisweb.army.mil/osmisrdb>

Click on **I accept** and then **Need an OSMIS user account?** Complete and submit the form.

Once your account is active, you can locate your unit's equipment by SN and verify the odometer reading reported. Use the Monthly Management Reporting module in OSMISWEB to track your unit's usage.



FOR MORE INFORMATION OR ASSISTANCE, EMAIL: osmisweb@calibresys.com

Publications...

Read *Army Sustainment* on iTunes

LOGISTICIANS ON THE GO HAVE A NEW ALLY ON THE LEARNING FRONT.

THE BIMONTHLY PROFESSIONAL BULLETIN *ARMY SUSTAINMENT*, PUBLISHED BY THE ARMY LOGISTICS UNIVERSITY AT FT LEE, VA, IS NOW AVAILABLE THROUGH A FREE APPLICATION ON iTUNES.



Readers can access *Army Logistician* articles dating from Sept/Oct 1969 up through the current issue of *Army Sustainment*. Live reader feedback may be enabled in a future release.

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Search the iTunes site for the application "ASM" or download here:

<http://itunes.apple.com/app/army-sustainment-magazine/id369807203?mt=8>

If you have questions or want more information, call DSN 539-1947, (804) 765-1947, or email: leescoemobile@conus.army.mil

TURNING IN OCIE IN THEATER



SOLDIERS, ARE YOU WHISTLING A HAPPY TUNE BECAUSE YOU'VE GOTTEN WORD YOU'RE LEAVING THEATER SOON?

NOW, YOU CAN TITLE YOUR NEWEST TUNE WITH A COUNTRY FLAIR: *WHY LUG IT WHEN I CAN LEAVE IT?*

EVERYBODY WHISTLE ALONG! A ONE-ANNA-TWO-ANNA YOU KNOW WHAT TO DO!

IF YOU HAVE ORDERS FOR A PERMANENT CHANGE OF STATION OR SERVICE SEPARATION WITHIN 60 DAYS OF RETURNING TO YOUR HOME STATION, NOW YOU CAN TURN IN YOUR ORGANIZATIONAL CLOTHING AND INDIVIDUAL EQUIPMENT (OCIE) **BEFORE** YOU LEAVE THEATER.

THIS POLICY INCLUDES QUALIFYING CONTRACTORS AND CIVILIANS.

THE ARMY CHANGED ITS POLICY TO IMPROVE OCIE ACCOUNTABILITY; REDUCE FINANCIAL LIABILITY INVESTIGATIONS OF PROPERTY LOSS, AND SPEED UP OUTPROCESSING AT HOME STATION CENTRAL ISSUE FACILITIES (CIFs).

IF YOU WANT TO LIGHTEN YOUR LOAD BEFORE YOU LEAVE THEATER, BE SURE THAT...

- Your unit commander validates your orders or letter of authorization stating your departure date. If official documents are unavailable, a memorandum of record from your commander can authorize you to turn in your OCIE at a theater CIF.
- The theater CIF validates your orders, letter of authorization or commander's memorandum. At turn-in, they will update your individual clothing record to list the OCIE you turned in. You should get a hard copy of your revised clothing record or turn-in documentation. **Ask for a receipt if it isn't offered.**
- You keep a copy of your turn-in documents handy until arriving at your next duty assignment. Then file them away for future reference.

NOTE: IT'S A GOOD IDEA TO GET IN THE HABIT OF REGULARLY CHECKING YOUR "MY CLOTHING" RECORD ON AKO, ESPECIALLY BEFORE OR AFTER A PCS MOVE. REMIND YOUR BUDDIES TO DO THE SAME. YOU CAN DOWNLOAD YOUR CLOTHING RECORD FROM THE AKO **MY CLOTHING** LINK: <https://www.us.army.mil/suite/page/230892>

TO LOCATE THE NEAREST THEATER CIF TO YOU THAT SUPPORTS THIS PROCESS, CONTACT ARMY CENTRAL COMMAND G-4. YOU CAN ALSO FIND A LIST OF CIF POCs AT: <https://www.us.army.mil/suite/doc/24085067>

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Submitted by: STUART A. HENDERSON, Production Manager

M871/A1 Trailer Rear Suspension Cracks

Overloading, distributing loads poorly, or abusing your M871 or M871A1 trailers could lead to cracking. If your trailer has cracks or separations in its rear suspension system, it's NMC! But don't repair these cracks. Just turn in unserviceable trailers to DRMO and order a replacement, if authorized by your unit's TOE. See TACOM SOUM 10-017 online for more info:

https://aeps2.ria.army.mil/commodity/soum/tacom_wm/sou10-017.html

HMMWV Oil Cooler Relief Valve Kit Update

TACOM SOUM 10-007 tells you to order and install oil cooler relief valve retrofit kits for all HMMWVs with serial numbers 300000 and above. We told you the same thing in our article on Pages 12-13 of PS 692 (Jul 10). Now, here's an update from the truck headshed: HMMWVs starting with serial number 333942 have the oil cooler relief valve kit installed at the factory. So there's no need to order and install the kit on these HMMWVs.

M1-Series Tank Drain Valve Handle

To get a red knob for the drain valve handle inside the M1-series tanks, use NSN 5355-01-554-9341. The knob is located on the right side of the driver's seat.

This NSN replaces the one shown as Item 23 of Fig 282 in TM 9-2350-264-24P-1 (w/Ch 5 Mar 03). The NSN shown in the TM gets the wrong part.

SNOW SHOVEL NSN

When those deep snow drifts start piling up, you'll need some way to dig yourself out. Be prepared with a snow shovel, NSN 5120-00-288-6529. The shovel has a 48-in long handle and a 24-in wide blade. You provide the muscle!

M113A2, M1068 Heater Kit Fittings

Need some new parts for the heater kit on your M113A2 personnel carrier or M1068 command post carrier? Then you need to know about these NSN changes to Fig 325 of TM 9-2350-261-24P (Aug 05). **Item 32:** Use NSN 4730-00-187-0843 (PN AS5194-0602, CAGE 81343) to order a new straight adapter. It replaces pipe nipple, NSN 4730-01-134-6559. **Item 42:** Use NSN 4730-01-571-8542 (PN SAE J514 6-6 070221CZ, CAGE 81343) for a new tube elbow. It replaces NSN 4730-01-494-0280, which is a terminal item.

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?

Click here for a copy of these articles to save or email.

COLD WEATHER OPERATIONS

Aviators, even though your -10 TMs give you cold weather information, it may not be enough. You can find additional cold weather info in FM 3-04.203, *Fundamentals of Flight* (May 07). This FM supercedes FM 1-203, *Fundamentals of Flight* (03 Oct 88), TC 1-201, *Tactical Flight Procedures* (Jan 84), and TC 1-204, *Night Flight Techniques and Procedures* (Dec 87).

ICE SCRAPER AND CHIPPER

Be ready for winter by ordering a windshield ice scraper with NSN 7920-01-383-8023. The scraper comes with a plastic bristle brush on one end. To help keep walkways clear, order a sidewalk ice chipper with NSN 5110-00-329-3299. The chipper has a 6 5/8-in wide steel blade and a 55- to 65-in long ash handle.

SIDEWALK SALT

With winter just around the corner, it's time to stock up on sidewalk salt to melt slippery snow and ice. NSN 6810-00-227-0437 brings an 80-lb bag.



Windshield Mirror Adhesive NSN

Heat, cold and vibration can cause a windshield's rearview mirror to fall off. Stick it back on with some tough adhesive. NSN 8040-00-634-7121 gets a 1-qt can. Use a DD Form 1348-6 to order. In the REMARKS block show "NSN not on the AMDF".

ARE YOU SMARTER THAN A ROAD GRADER?



WHEN TEMPS DROP BELOW 60°F, YOU SHOULD...

Switch out spring/fall uniforms

Pull PMCS on leaf blower

Start planning holiday parties

Use hydraulic unloading valve when starting 130G engine

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