

PS**THE
PREVENTIVE
MAINTENANCE
MONTHLY****ISSUE 734 JANUARY 2014**

TB 43-P5-734, 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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M1-Series Tank Breech Service, Cleaning
M1A1 Tank M19 Filter Replacement
Keep M934 Trucks for Use with DSESTs

**TACTICAL VEHICLES**

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Tire Chain Placement
VRLA Battery Charging and Testing
UTAP Aids for Vehicle Recovery

**CCE/MHE**

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MW24C Dimmer Switch NSN
M400W Skid Loader Tire NSNs
Compact Skid Loader Wheel Assembly

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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)
Bldg. 3303
Redstone Arsenal, AL 35898

Or email to:

half.mast@us.army.mil or
usarmy.redstone.logsa.mbx.psmag@mail.mil

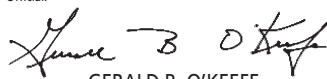
Internet address:

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

By order of the Secretary of the Army:

RAYMOND T. ODIERNO
General, United States Army Chief of Staff

Official:



GERALD B. O'KEEFE

Administrative Assistant to the Secretary of the Army

1333004

PS, The Preventive Maintenance Monthly (ISSN 0475-2953) is published monthly by the Department of the Army, Redstone Arsenal, AL 35898. Periodical postage is paid at the Huntsville, AL post office and at additional mailing offices.

Postmaster: Send address changes to PS, The Preventive Maintenance Monthly, USAMC LOGSA (AMXLS-GP), Bldg. 3303, Redstone Arsenal, AL 35898.

Issue 734

PS

January
2014

THE PREVENTIVE MAINTENANCE MONTHLY

TB 43-PS-734

Approved for
Public Release;
Distribution is
Unlimited

LOOK AT
THIS NEW
THING I GET
TO READ AT
WORK, SON!

THE ARMY'S GOT
A **COMIC BOOK**
THAT HELPS ME
MAINTAIN MY
EQUIPMENT.

AWESOME!

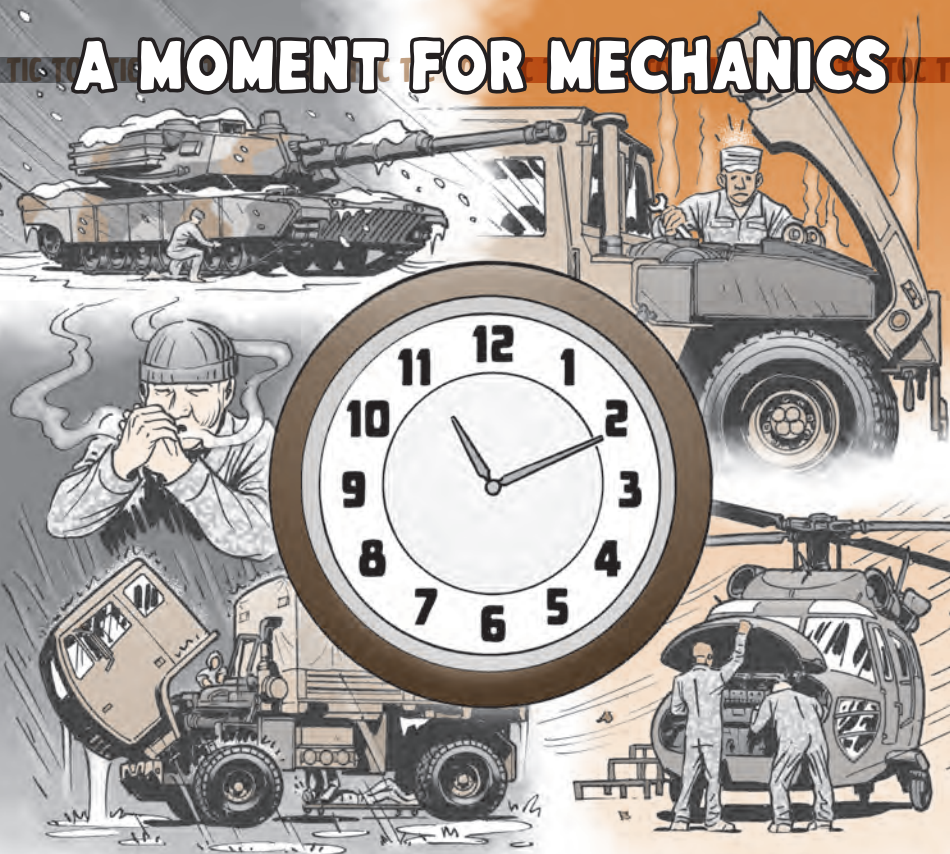
NEW!? HA!
I READ **PS**
IN THE MID-
SIXTIES!

AND I STARTED
READING IT IN 1951.

IT HELPED US
**MOVE, SHOOT AND
COMMUNICATE!**



A MOMENT FOR MECHANICS



Take a Soldier who'd rather work than eat. Then fill that Soldier's head full of information about engines, communications, transmissions, electricity, hydraulics, and fuel systems.

Teach that Soldier how to identify and use lots of tools and hundreds of parts on sight. And train that Soldier to keep a surgeon's touch, even with freezing fingers, or while oil is dripping on his face. Besides all that, make that Soldier into a diagnostician.

Finally, instruct that Soldier on keeping good maintenance records and navigating through tech manuals. Now you've got the makings of an awesome unit mechanic.

Tough job? No doubt!

Possible? You bet! It happens every day in motor pools throughout the Army.

These mechanics have high standards for themselves, day in and day out. They keep equipment operating in spite of obstacles that would stop anyone less dedicated.

So the next time you see these mechanics in your motor pool, remember how fortunate you are to have them working on your equipment. You might even want to thank them for their efforts in keeping your equipment up and running.

And if you lead these wrench-turning heroes, officially recognize them with the Driver and Mechanic Badge. Guidance for that award is found in Para 8-31 of AR 600-8-22 (Dec 06).



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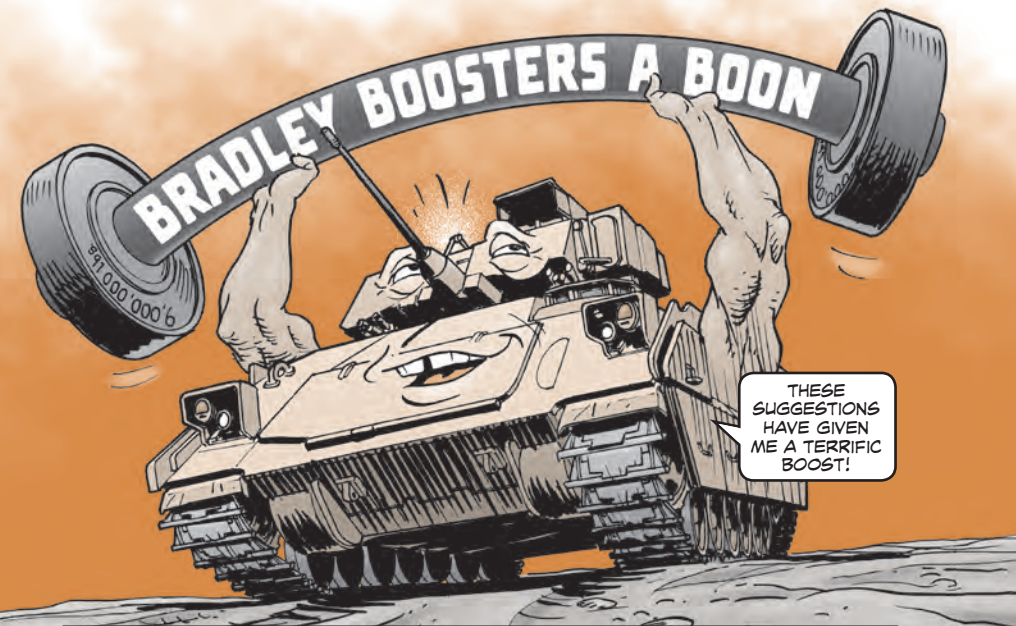
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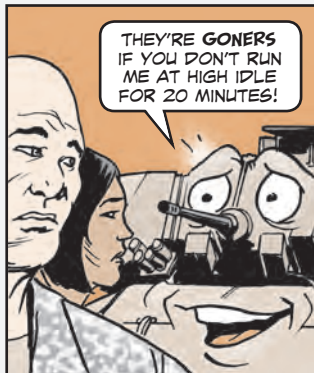
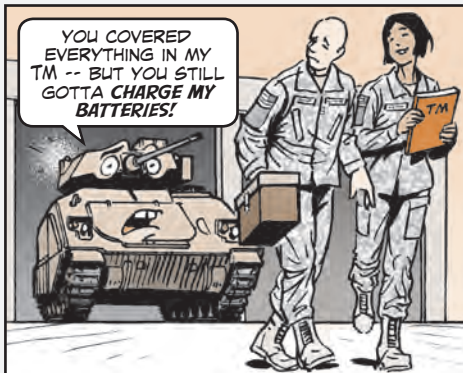
Click here for a copy of this article to save or email.



Dear Editor,

Working with the different Bradley units here at Ft Stewart, I've come up with a few ways to boost the Bradley's performance:

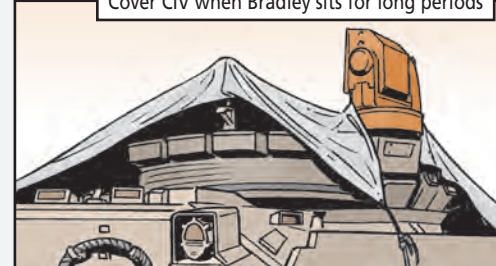
- **Charge the batteries during PMCS.** The Bradley's PMCS procedure can shorten battery life because it requires the vehicle to be turned on and off repeatedly. At \$360 apiece, those 12 batteries can run up a serious bill if they have to be replaced often. That bill can be avoided if units will just run their Bradleys at high idle for 20-30 minutes during weekly PMCS. That's enough to keep the batteries charged and healthy.



- **Cover the commander's independent viewer (CIV).** The CIV has been added to the A3s, but there has been no SOP added about keeping it covered when the Bradley sits for long periods. So usually everything else on the turret has a tarp over it, while the CIV remains exposed to the elements. If water makes it inside the CIV, corrosion and electrical damage will soon cause expensive damage.

The tarp used to cover the M1 tank's CROWS works well for the CIV, too. It comes in olive drab, NSN 8340-00-841-6456, and tan, NSN 2540-01-330-8062. But any tarp will do. The important thing is to keep the CIV covered when the Bradley is parked for weeks.

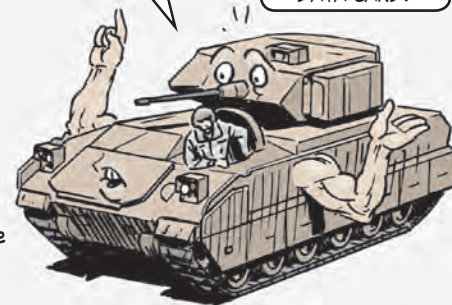
Cover CIV when Bradley sits for long periods



- **Use DA Form 2408-4, Weapon Record Data Card, to track firing of the M242 automatic gun.** That makes it easy to track the M242's round count for its required services. Since the 2408-4 is not maintained online for the Bradley as it is for other weapons, Bradley units themselves need to keep the 2408-4s updated and easily accessible. It is a good idea for units to make someone responsible for collecting the 2408-4s after every mission so they don't disappear.

OK, WE'RE THROUGH WITH OUR MISSION.

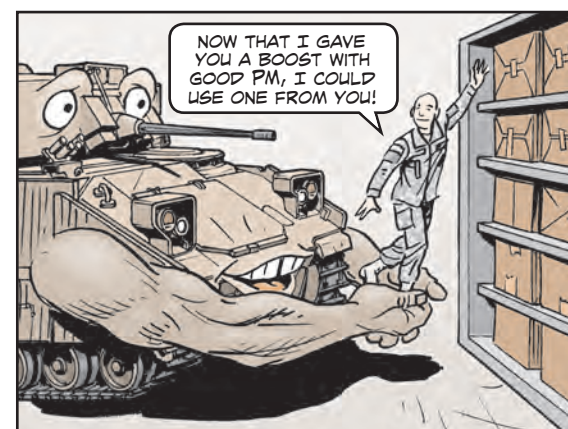
NOW MAKE SURE YOU FILL OUT MY WEAPON RECORD DATA CARD.



Bruce Herr (CW5 ret)
G4, Maint
Ft Stewart, GA

Editor's note:

Your suggestions will definitely be a boost for Bradleys. Thanks for the advice and thanks for being a friend to PS.



Job's Not Done 'Til Everything's Done

JUST WHERE DO YOU THINK YOU'RE GOING?



WE'RE GONNA GET A ROUND IN BEFORE DARK!



UH-UH. YOUR JOB ISN'T DONE JUST BECAUSE THE MISSION'S OVER!

At the end of a long day, after-operation PMCS might be the last thing on your mind. But your job's not done until that job is done!

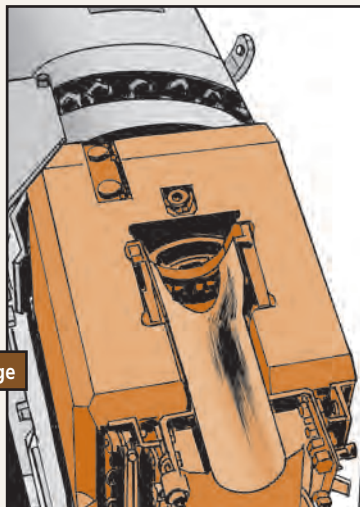
Servicing the main gun tube, bore evacuator and breech is especially important. You need to inspect, clean and service each item just like it's spelled out in the TM.

These checks are for your own safety because overlooking even small details can lead to serious consequences. For example, something as simple as a torn bore evacuator O-ring can result in a deadly flareback!

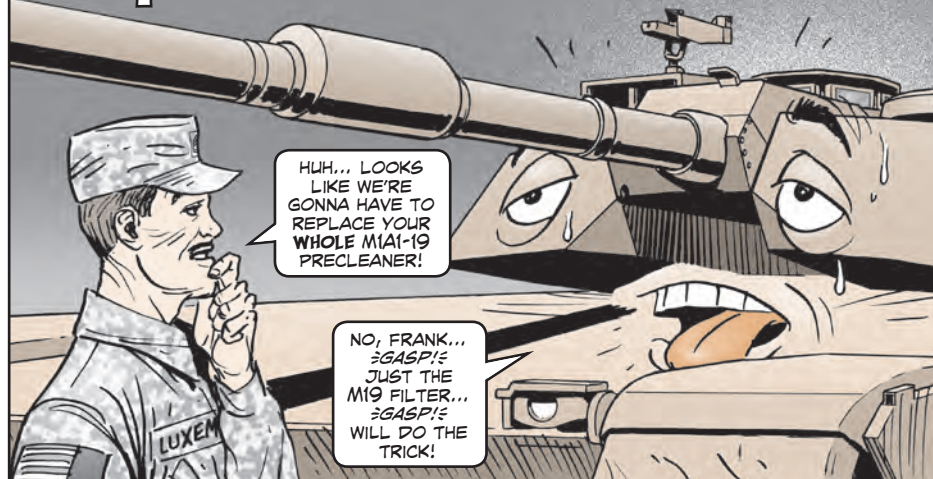
Clean the main gun tube. Remove the bore evacuator and inspect the seals. Disassemble the breech and inspect its parts.

Disassemble breech and inspect for damage

The proper procedures can be found in WPs 0455, 0456, and 0458 of TM 9-2350-264-10-3 (Dec 12) and WPs 0547, 0548, 0550 of TM 9-2350-388-10-3 (Dec 12).



Replace M19 Filter *ONLY*



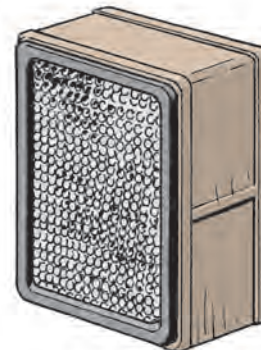
HUH... LOOKS LIKE WE'RE GONNA HAVE TO REPLACE YOUR WHOLE M1A1-19 PRECLEANER!

NO, FRANK... ♫GASP!♫ JUST THE M19 FILTER... ♫GASP!♫ WILL DO THE TRICK!

When the M1A1 tank's M1A1-19 precleaner stops working due to lack of air flow, some units replace the entire precleaner. This isn't necessary unless the precleaner is damaged.

Most of the time the problem is that the M19 particulate filter, NSN 4240-00-866-1825, is dirty. In that case, just replace the M19 filter.

The procedures for maintaining and replacing the M19 filter are in TM 3-4240-276-30&P (Dec 97).



Usually only M19 filter needs replacing



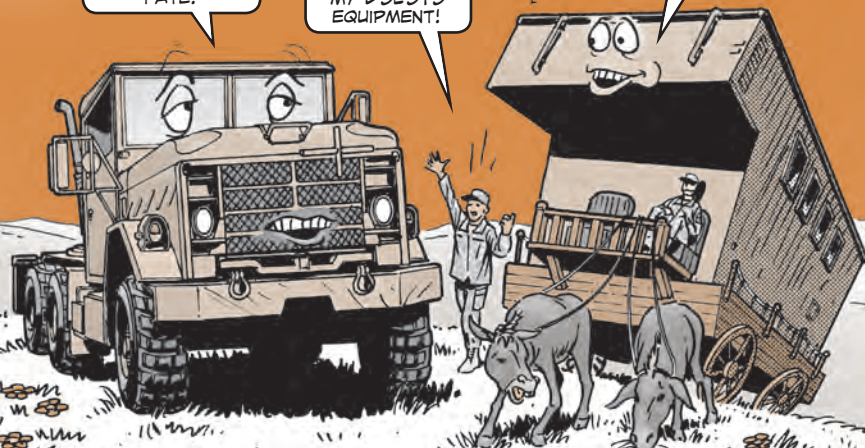
NUTS! GET A LITTLE DIRTY AND THEY THROW YOU OUT!

Keep Your M934s For Now

SSIGH OUT TO PASTURE. WHAT A **WRETCHED** FATE!

NOT YET! I STILL NEED YOU TO CARRY MY DSESTS EQUIPMENT!

YEAH! WE STILL NEED YOU, OL' BUDDY!



If your unit has the Direct Support Electrical System Test Set (DSESTS), hang on to your M934-series trucks for the time being, even though the Army is replacing all M900-series 5-ton vehicles with FMTVs.

That's because the M1087 FMTV isn't approved yet as a DSESTS prime mover. Concerns about possible electrical problems, weight and balance issues and cabinet space limitations are the reasons why.

Units can't make modifications to the M1087 without an MWO and there isn't an MWO available yet. A documented load plan and procedures for installing DSESTS in M1087s are still in the works, too.

Until those issues are worked out, and TACOM comes up with an MWO, don't turn in your M934s. Also, you'll need to reuse the DSESTS storage cabinets when switching to the M1087, so hang on to those, too.

Questions? Contact one of the TACOM POCs below:

Kevin Craft, (586) 282-3597, DSN 786-3597 or email:

kevin.t.craft.civ@mail.mil

Douglas Wlodarski, (586) 282-3064, DSN 786-3064 or email:

douglas.a.wlodarski.civ@mail.mil

Shiraz Ally, (586) 282-2352, DSN 282-2352 or email:

shiraz.ally.civ@mail.mil

TRY THESE TIRE CHAIN TIDBITS

WHEN IT'S SUPER COLD OUTSIDE, IT'S HARDER TO FUNCTION.

THAT'S WHEN A LITTLE EXTRA CAN MAKE ALL THE DIFFERENCE.

FOR PEOPLE, THAT MEANS BUNDLING UP IN LAYERS OF CLOTHING.

THERE! **SEVEN LAYERS** OUGHTA DO IT!

FOR YOUR VEHICLES, THAT COULD MEAN USING TIRE CHAINS WHILE TRAVELING IN SEVERE SNOW AND ICY CONDITIONS.

AFTER I PUT THESE CHAINS ON YOUR TIRES, WE'LL TAKE A RIDE.

ARE YOU **SURE** YOU KNOW WHAT YOU'RE DOING?

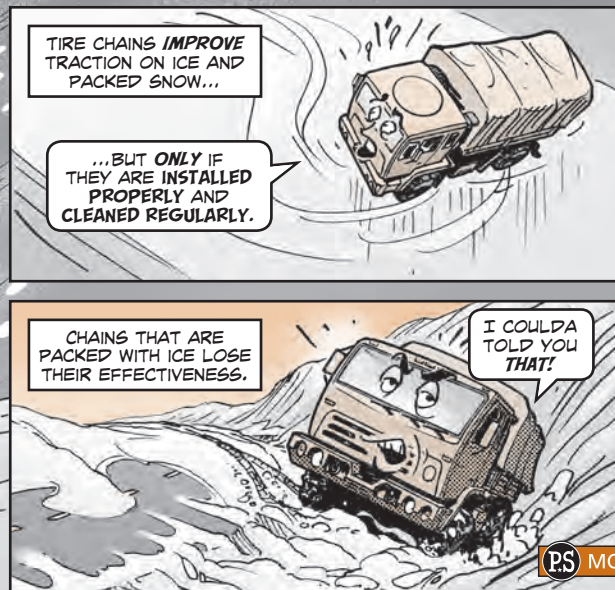


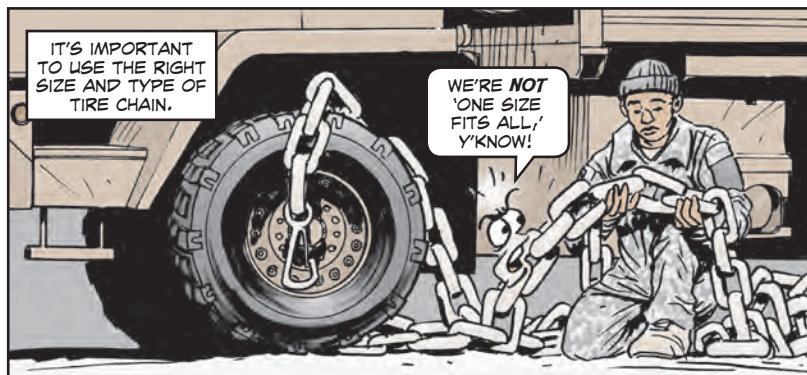
TIRE CHAINS **IMPROVE** TRACTION ON ICE AND PACKED SNOW...

...BUT **ONLY** IF THEY ARE **INSTALLED PROPERLY** AND **CLEANED REGULARLY**.

CHAINS THAT ARE PACKED WITH ICE LOSE THEIR EFFECTIVENESS.

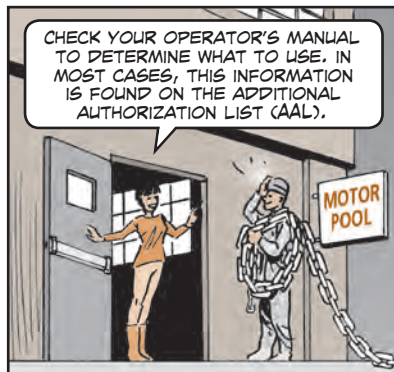
I COULDA TOLD YOU **THAT!**





IT'S IMPORTANT TO USE THE RIGHT SIZE AND TYPE OF TIRE CHAIN.

WE'RE NOT 'ONE SIZE FITS ALL,' Y'KNOW!



CHECK YOUR OPERATOR'S MANUAL TO DETERMINE WHAT TO USE. IN MOST CASES, THIS INFORMATION IS FOUND ON THE ADDITIONAL AUTHORIZATION LIST (AAL).



YOU CAN ALSO EYEBALL TC 21-305-20; MANUAL FOR THE WHEELED VEHICLE OPERATOR, FOR AN EXPLANATION ON HOW TO INSTALL TIRE CHAINS.

USE THIS TABLE TO ORDER THE TIRE CHAIN ASSEMBLY NEEDED FOR YOUR WHEELED VEHICLE...

Wheeled vehicle	Tire size	Chain assembly. NSN 2540-
FMTV	395/85R20	01-483-2930 or 01-492-2989
HEMTT/HET/PLS	16x20	01-152-7813
HMMWV	37x12.5x16.5 (radial)	01-214-1264
M915A2/A3/A4	11R22.5	01-453-0497
M916A1/A2/A3 and M917A1/A2/E1/E2	315/80R22.5	01-396-1914
M939	11x20	00-933-9022
M939A1/A2	14X20	00-933-9033

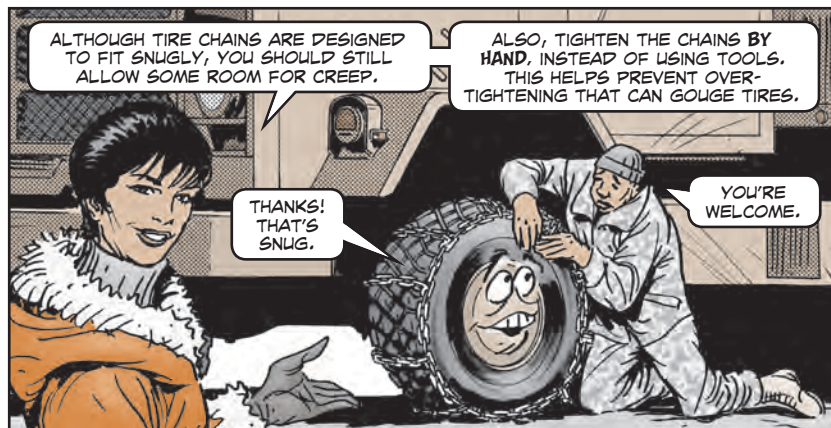
NOTE THAT FOR THE M35A3, TIRE SIZE 14.5R20XL, THERE IS NO NSN ASSIGNED FOR THE TIRE CHAIN.

YOU CAN ORDER THOSE CHAINS ON A DD FORM 1348-6 USING PN 505SV AND CAGE 4N506.

IF YOUR VEHICLE ISN'T LISTED IN THE FIRST TABLE, USE THIS ONE TO ORDER CHAINS FOR COMMON TIRE SIZES...

Tire size	Chain assembly (pair) NSN 2540-	Cross chain NSN 2540-	Swivel hooks NSN
7.50x16	00-528-7360	00-933-6960	4030-00-937-0405
9.00x20	00-933-9024	00-933-6916	2540-00-937-0404
9.50x16.50	00-057-0204	00-933-6916	2540-00-937-0404
10.00x15	01-185-8306	00-933-6916	2540-00-937-0404
10.00x20	00-933-9034	00-933-6916	2540-00-937-0404
10.00x20 (dual tires)	00-933-9034	00-933-6916	2540-00-937-0404
11.00x18	00-933-6933	00-933-6915	2540-00-937-0404
11.00x20	00-933-9022	00-933-6915	2540-00-937-0404
11.00x24	00-933-6935	00-933-6915	2540-00-937-0404
12.00x20	00-933-6922	00-933-6915	2540-00-937-0404
14.00x20	00-933-9033	00-933-6992	2540-00-937-0404
14.00x24	00-933-9023	00-933-6992	2540-00-937-0404
16.00x20	01-152-7813	Not Available	Not Available

FOR MORE INFORMATION ON TIRE CHAINS, CONTACT THE DLA CUSTOMER INTERACTION CENTER AT DSN 661-7766/(877) 353-2255 OR EMAIL: dlacustomercenter@dlapl.com



ALSO, TIGHTEN THE CHAINS BY HAND, INSTEAD OF USING TOOLS. THIS HELPS PREVENT OVERTIGHTENING THAT CAN GOUGE TIRES.



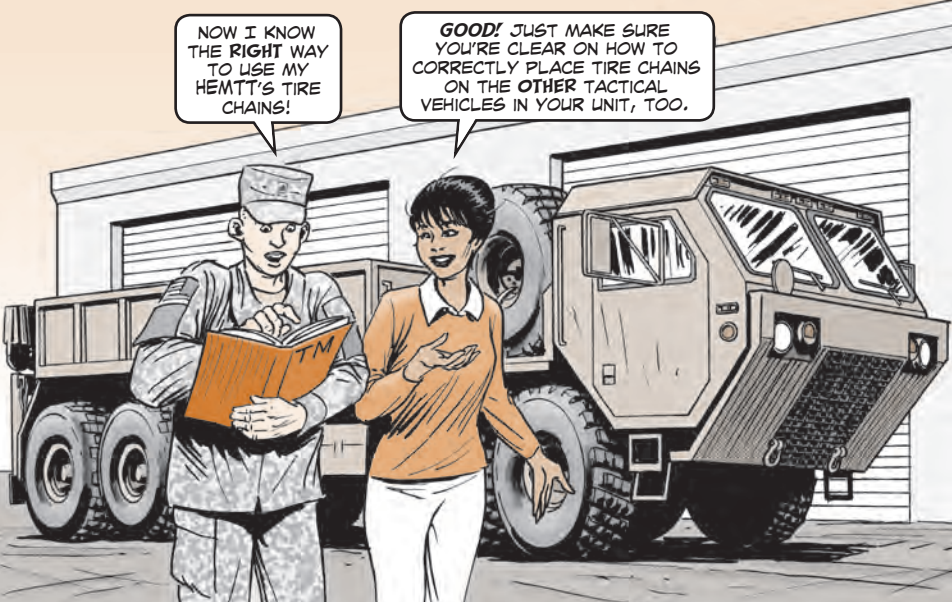
HERE'S SOME GUIDANCE FOR SELECTING STRAPS...

Length (in inches)	Stretch (in inches)	NSN 5340-
15	20-30	01-029-9084
21	26-42	01-231-6015
31	36-42	01-029-9085

Tire Chain Placement Made Plain

NOW I KNOW THE RIGHT WAY TO USE MY HEMTT'S TIRE CHAINS!

GOOD! JUST MAKE SURE YOU'RE CLEAR ON HOW TO CORRECTLY PLACE TIRE CHAINS ON THE OTHER TACTICAL VEHICLES IN YOUR UNIT, TOO.

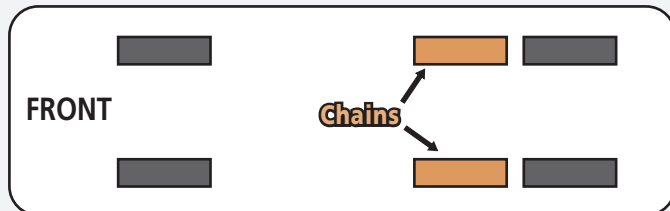


Between your vehicle's -10 TM and TC 21-305-20, *Manual for the Wheeled Vehicle Operator*, you can find just about everything you need to know about using tire chains on your vehicle.

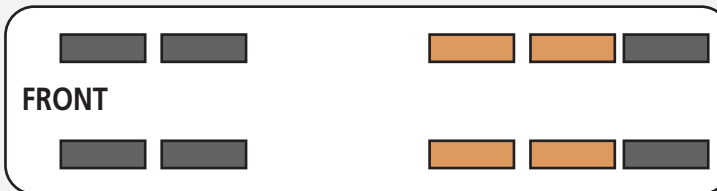
The -10 TM is your number one go-to source for tire chain help—unless there's no information in it on tire chain usage. That's when the TC takes over.

Note this info:

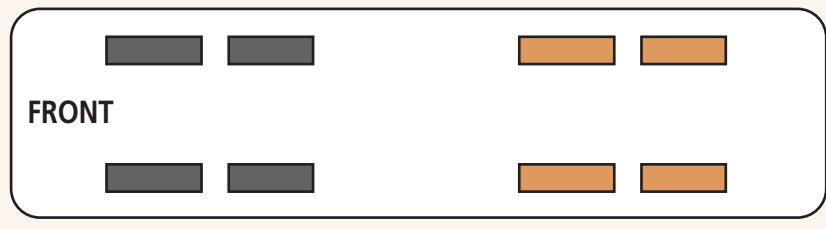
- For M939A1-series and M939A2-series 5-ton trucks, use chains on the intermediate axle only. CTIS doesn't limit the use of chains on the intermediate axle.



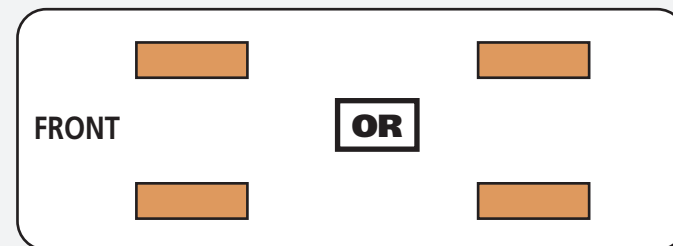
- For palletized loading system (PLS) trucks, use chains only on axles No. 3 and No. 4. Don't use chains when driving on hard surfaces where there is no wheel slippage. Chains can cause severe component damage under "no-slip" conditions. Also, set the CTIS to CROSS COUNTRY and travel no faster than 10 mph (16 km/h) on-highway or 15 mph (24 km/h) off-highway.



- For HEMTTs, use chains only on both rear axles. On M978 fuel tankers, *never* use chains when driving on paved surfaces. They could cause sparks, which can lead to a fire.



- For HMMWVs, Para 3-22 of TM 9-2320-280-10 and WP 0123 of TM 9-2320-387-10 say that tire chains must be used as an axle set. That means you can use chains on just the front wheels or just on the rear wheels. You don't have to use them on all four wheels.



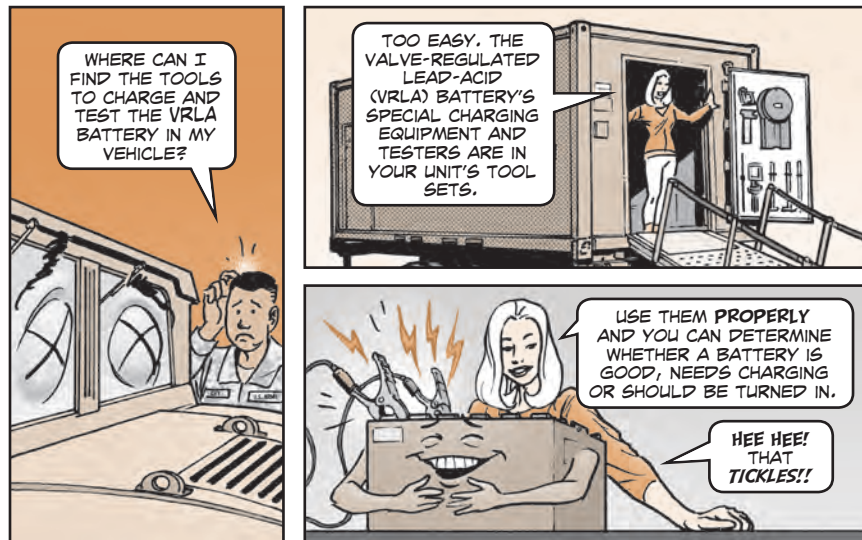
REMEMBER, ALSO, THAT IT'S STILL IMPORTANT TO SELECT THE RIGHT TRANSFER RANGE FOR DRIVING CONDITIONS, AS PRESCRIBED IN YOUR -10 TM.



Need more tire assistance? TACOM LCMC's tire and wheel assembly team can help you. Call them at 586-282-8342. Or email them at:

usarmy.detroit.tacom.mbx.ilsc-tire-assemblies@mail.mil

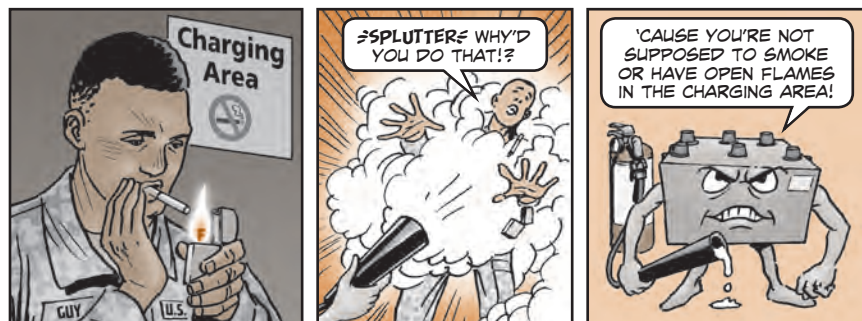
WAYS TO CHARGE AND TEST EQUIPMENT BATTERIES BEST



Charging

VRLA batteries have stricter recharging requirements than flooded batteries. You must first decide if you want to recharge VRLA batteries on or off the vehicle. Charging the batteries on the vehicle is quicker, so go that route if possible.

Recharge VRLA batteries using a constant voltage recharging system. Make sure you do all recharging in a well-ventilated area. **Don't** smoke or have open flames in the charging area.

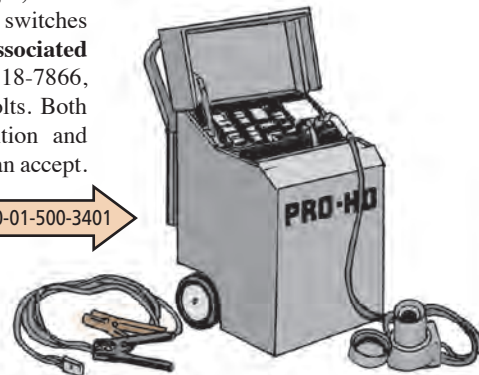


Immediately stop charging any battery that shows signs of melting or swelling. Also stop charging if the surface of the battery gets too hot to comfortably touch with a bare hand.

You can find battery chargers in the standard automotive tool set (SATS), NSN 4910-01-490-6453.

The **Pulse Tech Pro HD charger**, NSN 6130-01-500-3401, automatically switches from 12 to 24 volts, and the **Associated 1660-F/U charger**, NSN 6130-01-518-7866, manually switches from 12 to 24 volts. Both chargers detect the battery's condition and provide only the voltage the battery can accept.

Pro-4HD charger, NSN 6130-01-500-3401



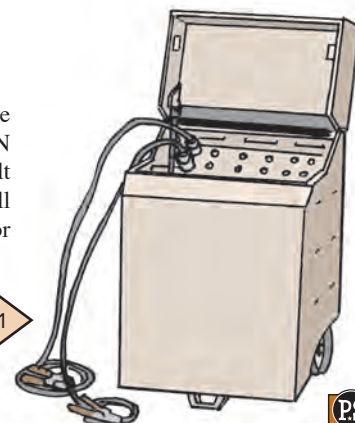
Associated PP-1660-F/U charger, NSN 6130-01-518-7866



Also, both of these chargers come with two out-power cables: one for the NATO connection and one with battery clamps. The charger shuts off when charging is complete.

Finally, a third charger available is the **Pulse Tech HD Pallet charger**, NSN 6130-01-532-7711. It's only a 12-volt charger but has twelve 6-ft cables. It will handle any combination of 12 VRLA or flooded cell batteries, in any condition.

Pallet charger, NSN 6130-01-532-7711



Testing

You need to test your VRLA battery before installing it in a vehicle **and** before turning it in as unserviceable.

To get an accurate reading of the battery's health, fully charge it before testing. There are several tools you can use to test the VRLA battery: A voltage meter, a load tester or a conductance tester (digital battery tester-analyzer).

Voltage meters are found in the SATS, shop equipment contact maintenance (SECM), NSN 4910-01-016-2262; forward repair system (FRS), NSN 4940-01-533-1621 and NSN 4940-01-463-7940; and the field maintenance module 1, NSN 4910-01-501-7342. The multimeter will allow you to conduct an open circuit voltage (OCV) test of the battery. If the OCV is below 12.65V, recharge the battery and test again.

Load tester, NSN 6130-01-447-7294, indicates the battery's ability to hold its voltage while under load. You'll find the load tester in the FRS. Make sure you read the operator's manual before using the load testers. Batteries should be fully charged before, and must be recharged after, using a load tester.

Finally, 490PT or equivalent conductance testers, NSN 6130-01-510-9594, are found in the SATS and the FRS. The testers are very sensitive and can find defects or battery weaknesses long before any problem or capacity loss shows up. This simple-to-use tester has a digital menu screen that allows you to check battery voltage, cold cranking amps and condition of the battery. There's no recharge required after testing with this type of meter.

490PT conductance tester,
NSN 6130-01-510-9594



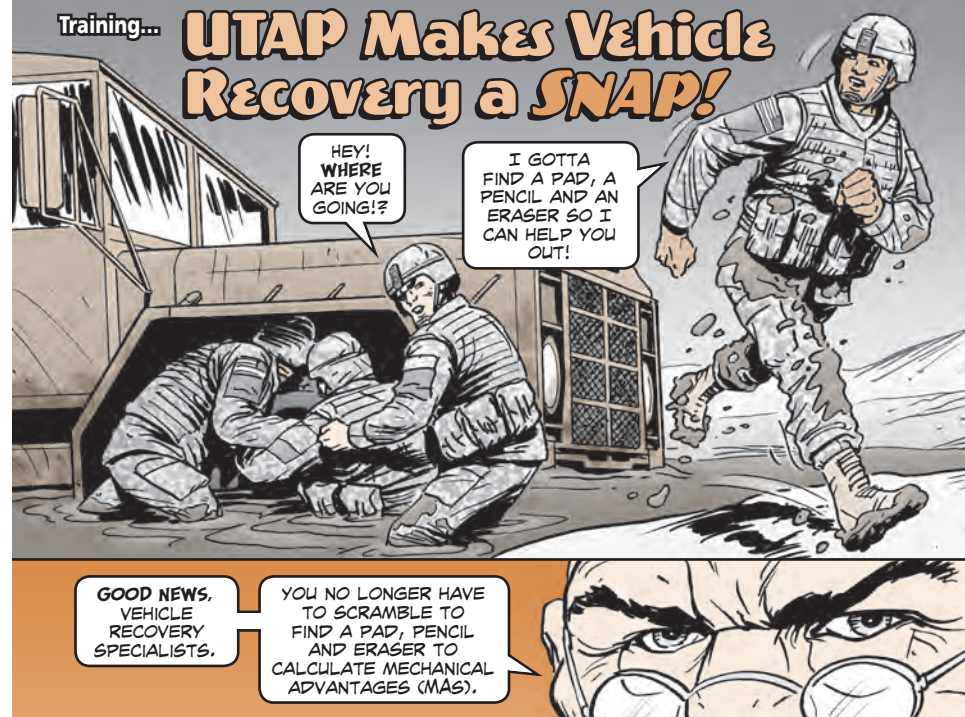
BEFORE YOU CHARGE OR TEST THE VRLA BATTERY, EYEBALL TB 9-6140-252-13, RECHARGING PROCEDURES FOR AUTOMOTIVE VALVE REGULATED LEAD-ACID BATTERIES, (SEP 11), AND FOLLOW THE PRESCRIBED GUIDANCE.



PS
END

Training...

UTAP Makes Vehicle Recovery a SNAP!



The Unit Training Assistance Program (UTAP) at TACOM LCMC has vehicle recovery Excel spreadsheets that can figure out MAs in minutes. This saves time and improves safety by ending guesswork and reducing the odds of miscalculation. Spreadsheets are available on the following pieces of equipment and forces:

- Load transfer formula for the fifth wheel towing and recovery device (FWTRD)
- Wheeled vehicle recovery
- Tracked vehicle recovery
- Deadline force
- Ground compression factors
- Safe towing capacity for the MRV
- Sling leg force
- Difference between simple and compound rigging systems.

You can get these formula spreadsheets in the Library of TACOM Training Information Site (LOTTIS) by grabbing your CAC and going to:

<https://utap.army.mil>

Then:

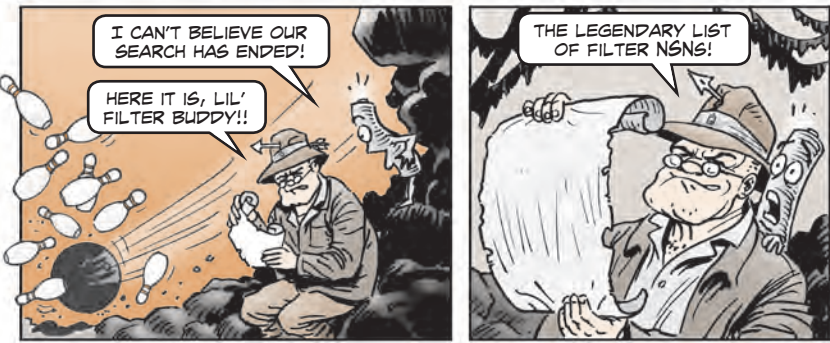
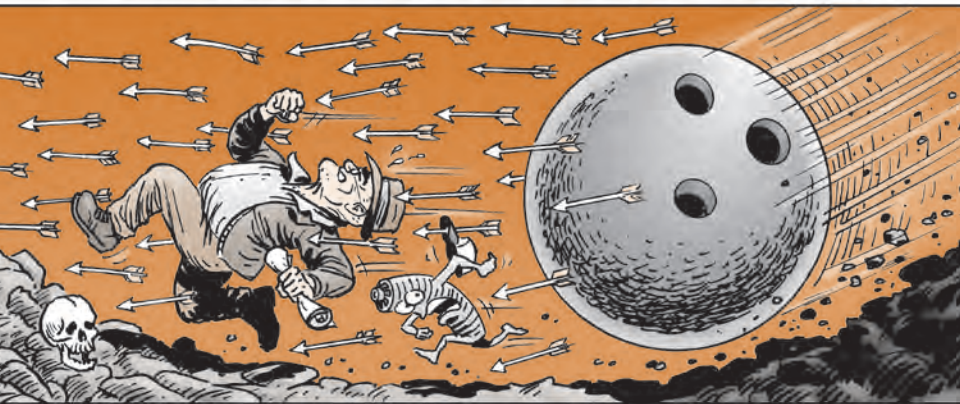
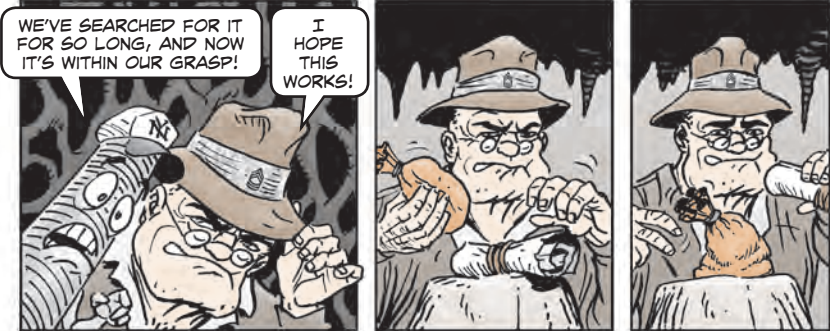
- Click on the Army tab
- Click on Vehicle Recovery Formulated Spreadsheets
- Click on Vehicle Recovery Spreadsheets
- Click on Vehicle Rigging
- Click on Supplemental System Files.

Files can be downloaded to your personal computer or Maintenance Service Device (MSD). If you have any questions, contact UTAP at DSN 786-4276, 586-282-4276, or email:

usarmy.detroit.tacom.mbx.ilsc-utap@mail.mil

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

SEARCH ENDS FOR FILTER NSN



Dear Half-Mast,

Thanks to your Reader's Service program, I was able to get the right NSN for the microfilter used in our unit's 1,500-gal tactical water purification system.

Can you go one step further and provide a list of the filters required for other water purification systems?

SFC J.G.U.

Panel 1: A character in a military uniform and hat is holding a list. A speech bubble says: "SFC J.G.U., YOU BET!"

Panel 2: A speech bubble says: "HERE'S A HANDY LIST OF FILTERS AND REVERSE OSMOSIS ELEMENTS USED ON SEVERAL DIFFERENT WATER PURIFICATION SYSTEMS..."

Panel 3: A speech bubble says: "ALSO, USE HIGH PH CLEANER, NSN 6850-01-577-4198, TO CLEAN THE FILTERS ON YOUR TWPS. IT CLEANS THE FILTER AND ACTS AS A PRESERVATIVE, TOO."

Panel 4: A speech bubble says: "AND REMEMBER... THE TWPS FILTERS ARE **NOT** TO BE TREATED LIKE DISPOSABLE CARTRIDGE FILTERS. CLEANING COMBINED WITH PRESERVATION GIVES THEM A 3-5 YEAR SERVICE LIFE."

Lightweight Water Purifier (LWP), TM 10-4610-310-13	
Filter	NSN
Water purification filter	4610-01-526-5514
Reverse osmosis filter element	4610-01-526-5560

3,000-GPH ROWPU, TM 10-4610-232-12	
Filter	NSN
Reverse osmosis filter element	4610-01-253-4294
Cartridge filter element, 30-inch	4330-01-350-9102
Cartridge filter element, 40-inch	4610-01-517-6621

600-GPH Reverse Osmosis Water Purification Unit (ROWPU), TMs 10-4610-240-10 and TM 10-4610-241-10	
Filter	NSN
Reverse osmosis filter element	4610-01-105-2075
Cartridge filter element	4330-01-128-6277

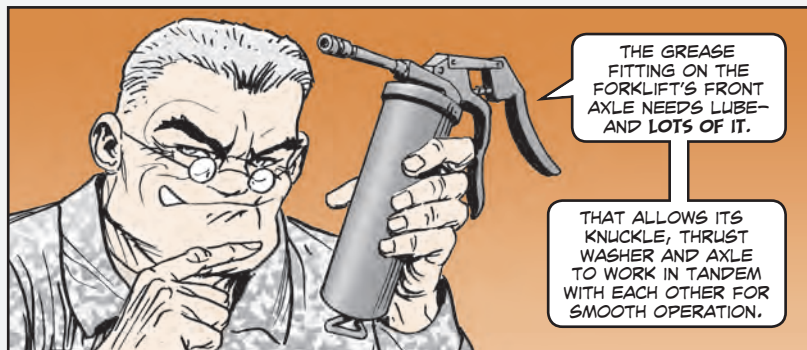
Tactical Water Purification System (TWPS), TM 10-4610-309-10	
Filter	NSN
Water purification filter	4610-01-526-3570
Reverse osmosis filter element	4330-01-454-5502

SQUEAL!



HOLY COW!
WHAT'S WRONG
WITH MY
FORKLIFT!?

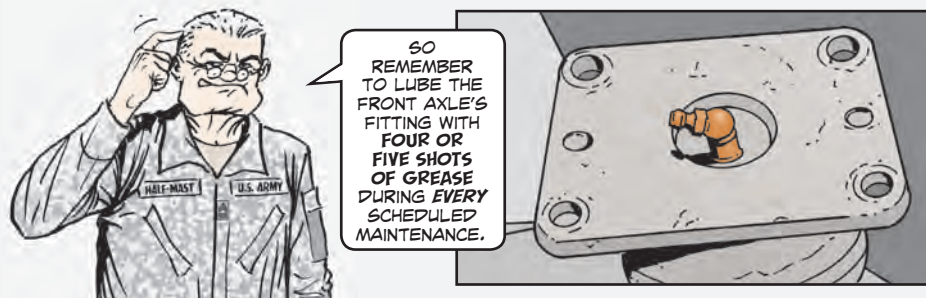
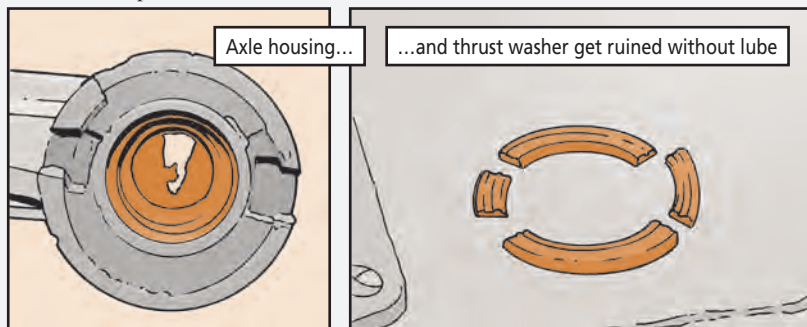
SOUNDS LIKE
YOUR FRONT
AXLE HOUSING
HASN'T BEEN
LUBED!



THE GREASE
FITTING ON THE
FORKLIFT'S FRONT
AXLE NEEDS LUBE-
AND LOTS OF IT.

THAT ALLOWS ITS
KNUCKLE, THRUST
WASHER AND AXLE
TO WORK IN TANDEM
WITH EACH OTHER FOR
SMOOTH OPERATION.

Without lube, the thrust washer between the knuckle and housing begins to deteriorate and break apart. That allows metal-to-metal contact between the knuckle and housing. The end result is a forklift with an axle housing that needs to be replaced. Talk about expensive downtime!



SO
REMEMBER
TO LUBE THE
FRONT AXLE'S
FITTING WITH
FOUR OR
FIVE SHOTS
OF GREASE
DURING EVERY
SCHEDULED
MAINTENANCE.

MW24C Dimmer Switch NSN

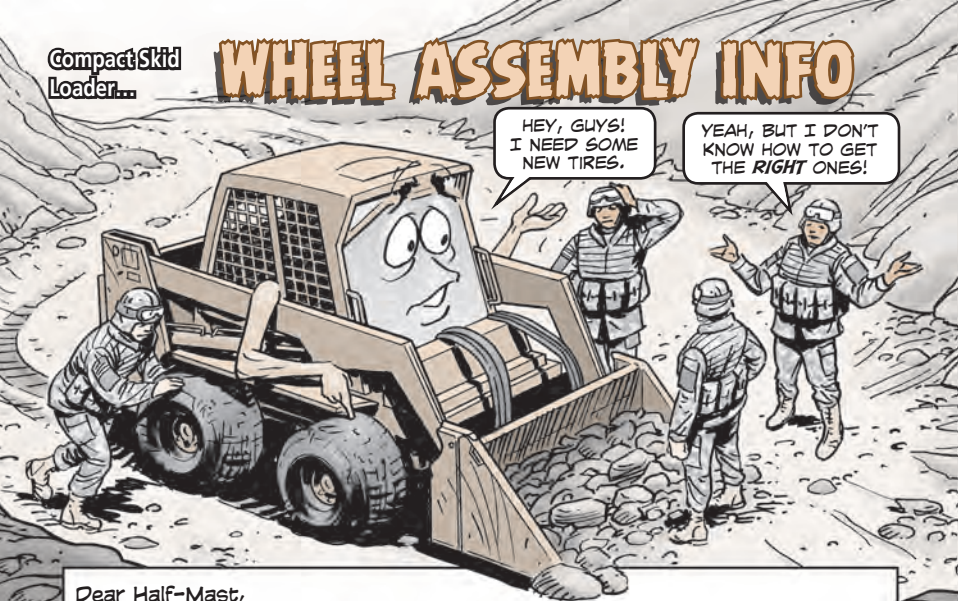
Get a new rotary dimmer switch for your MW24C scoop loader with NSN 5905-01-177-9484 (PN 7468, CAGE 13445). It replaces NSN 5930-00-949-4220, which is listed as Item 28 in Fig 37 of TM 5-3805-262-24P (Dec 08). That NSN brings the wrong rotary switch. Make a note until the TM can be corrected.

THESE
ARE NSNs
ALL YOU
ENGINEERS
CAN USE!

M400W Skid Loader Tire NSNs

Need a solid tire for your M400W compact skid loader? NSN 2530-01-581-5180 gets the left-side tire. The right-side tire comes with NSN 2530-01-581-5183.

WHEEL ASSEMBLY INFO



Dear Half-Mast,

Our unit needs tires for the Model 763 and S150 compact skid-steer loaders, also known as the Bobcat.

We've got the NSNs for the Bobcat's regular tires, but these tires aren't foam-filled like the ones that come from the factory. If we order the regular tire, we install them and take the vehicle to a dealer that foam fills each tire—at \$200 bucks a pop!

Also, units in Afghanistan do not have local dealers in country. Is there a better option to get a tire or wheel assembly that fits the bill?

Mr. J.C.B.

THESE NSNs
GET A WHEEL
ASSEMBLY WITH
A SOLID TIRE!

Dear Mr. J.C.B.,

Your best bet is to drop the foam-filled tire and order a wheel assembly that comes with a solid tire and rim.

NSN 2630-01-581-5180 gets an assembly for the left side (front or back) of the vehicle. Use NSN 2630-01-581-5183 to get a wheel assembly for the right side of the vehicle. Reports from the field tell us this assembly is very durable and holds up well in the rough terrain of Afghanistan.

If you have questions about Bobcat parts, visit the manufacturer's website:

<http://www.johndeere.com>

Or you can contact them directly by asking for Mr. Dennis Schwind in the parts department at (701) 222-5349.

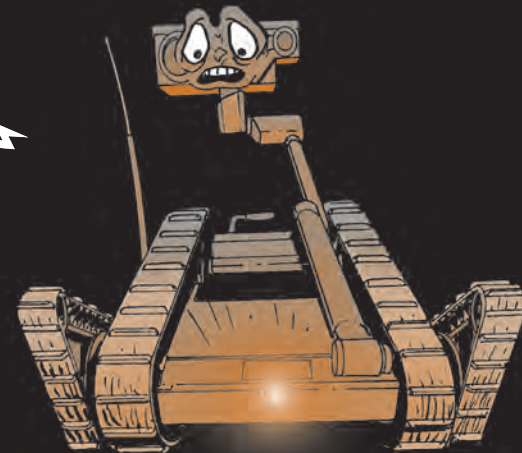
Half-Mast

XM1216 SUGV...

UH-OH!
SOMEONE PUSHED
MY POWER BUTTON
TOO LONG!

NOW I'M A
WIDE-OPEN
TARGET IN
THE DARK!

BEWARE THE RED GLOW!



Operators, keep this tip in mind when powering up your XM1216 small unmanned ground vehicle (SUGV) system.

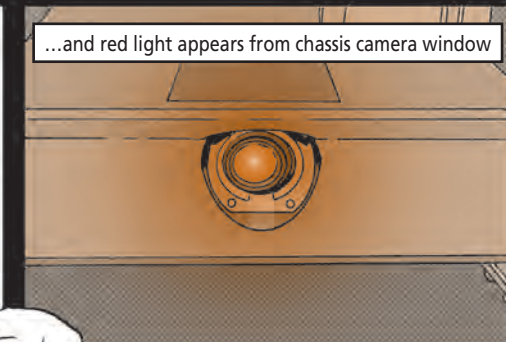
Once the operator control unit (OCU) is powered-up, press the robot's power button for only 1 second, then release it.

If you hold down the button longer, "Fiber Enabled" will display on the chassis's LCD screen and a red glow will be seen coming from the chassis camera window.

Press power button too long...



...and red light appears from chassis camera window

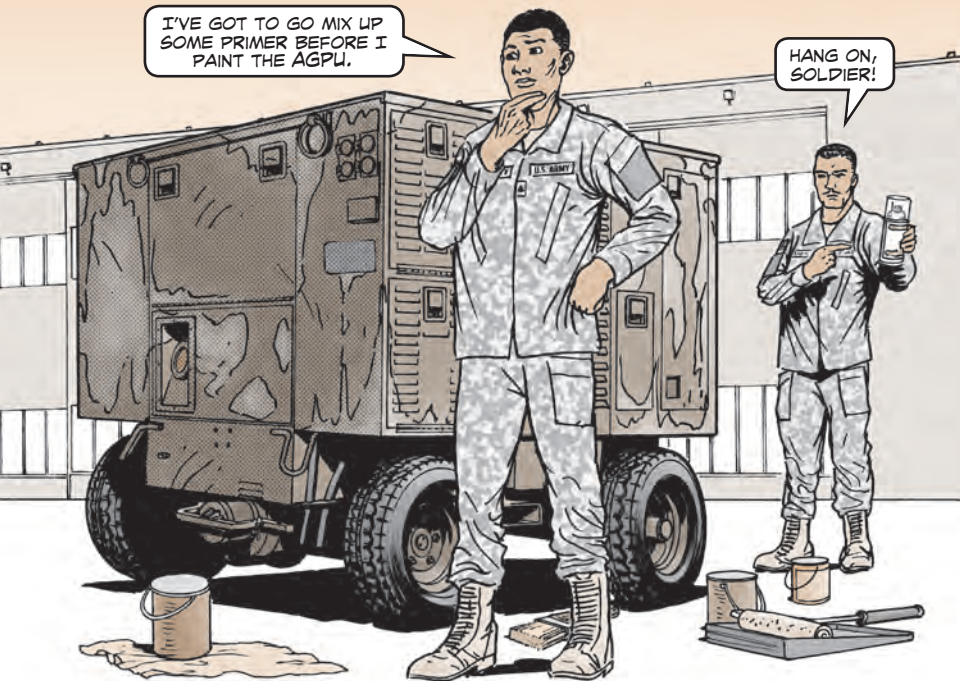


If you accidentally hold down the power button for longer than 1 second, allow the system to complete the power-up sequence, then reboot the SUGV. Follow the system reboot procedures in WP 0016 of TM 9-2350-397-13&P (Aug 11).

DO YOU NEED PAINT PRIMER?

I'VE GOT TO GO MIX UP SOME PRIMER BEFORE I PAINT THE AGPU.

HANG ON, SOLDIER!



YOUR MIXING DAYS ARE OVER!



MIL-PRF-53022 TYPE V PRIMER NOW COMES IN AEROSOL SPRAY CANS.

THE AEROSOL PRIMER COMES IN TWO DIFFERENT SIZES. NSN 8010-01-610-7330 BRINGS A BOX OF SIX 13 1/2-OZ CANS AND NSN 8010-01-610-7329 BRINGS A BOX OF SIX 8 1/2-OZ CANS.

FOLLOW THESE FIVE EASY STEPS FOR SPRAYING THE PRIMER...



1. Remove red button from the cap.



2. Attach it to the pin at the bottom of the can.

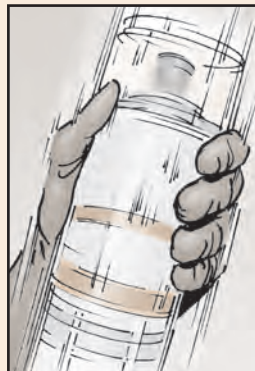


3. Use the ball of your hand or a hard stable surface to push on the red cap, depressing it into the can until the stop is reached.

The plastic pin should move easily when pushed after the red button is removed. To prevent foreign object damage (FOD), discard the red plastic button.



4. Invert the can and shake vigorously for two to three minutes to mix hardener base. Follow the primer's label instructions for how long you should let the primer stand before application.




Before using the primer, check the technical data sheet (TDS) and material safety data sheet (MSDS) for personal protective equipment you need to safely use the product.

Clean and prepare the surface using the application specification or work instruction. The distance from the spray nozzle to the surface should be 8-10 inches.

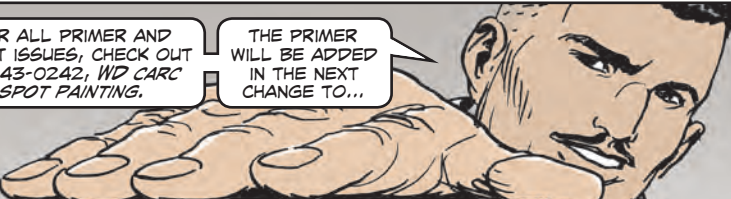
5. The rotating spray tip allows you to select either a vertical or a horizontal spray fan, but vertical works best. Use an overlapping stroke pattern for uniform application.



HERE'S WHY!

- The primer is chromate free.
- It comes pre-measured, so there's no need for measuring.
- There is no exposure during mixing and no need for disposal of liquid primer after mixing.
- The unused primer cures inside the can. In most states, that makes it solid waste instead of hazardous material.
- The primer speeds up the process of the coating system for touch-up painting.



FOR ALL PRIMER AND PAINT ISSUES, CHECK OUT TB 43-0242, WD CARC SPOT PAINTING.

THE PRIMER WILL BE ADDED IN THE NEXT CHANGE TO...

TB 43-0242, WD CARC Spot Painting

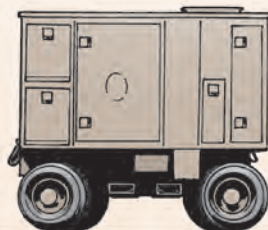
TM 1-1500-345-23, Painting and Marking of Army Aircraft

TM 1-1500-344-23-2, Cleaning and Corrosion Control Aircraft

TM 43-0209 Color, Marking and Camouflage Painting of Military Vehicles, Construction Equipment and Materials Handling Equipment

TM 43-0139, Painting Instructions for Army Aircraft

NO MORE MIXING INGREDIENTS AND MAKING A MESS. NOW YOU CAN JUST GRAB A CAN OF PRIMER AND GO TO WORK.



PS
END

ROLLING WITH GROUND HANDLING WHEELS



WHEN YOU'RE MOVING YOUR AIRCRAFT, USE THE STINGER, NOT THE TAIL CONE!

NOW **THIS** IS THE RIGHT WAY!

Crews, successfully moving your Kiowa Warrior from Point A to Point B depends on proper use of the ground handling wheels (GHW) and the TM procedures.

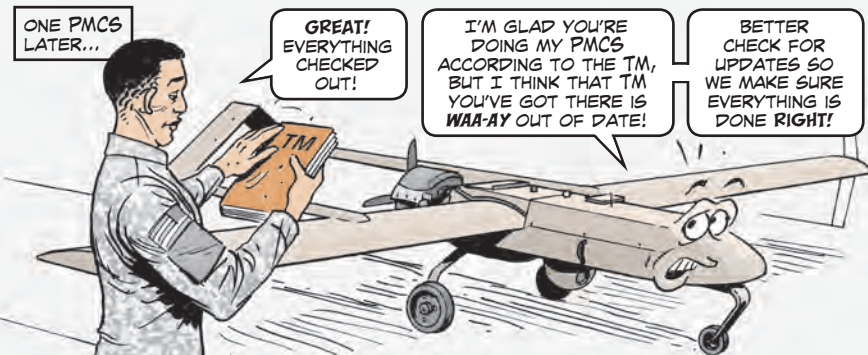
Everything you need to know on GHW and their use is found in TM 1-1730-232-13&P.

When you hook up the wheels to the skid and start rolling, be careful not to hit a bump. When a rolling aircraft hits a bump, the tail cone section will usually bounce upward if you are not using the tail fin dolly. If that happens, there's a tendency to grab the tail cone to balance or brace the aircraft. Don't! If you do, it spells doom for the tail cone. It's not strong enough to be grabbed hard and it will break.

When moving aircraft, use the stinger. Never use the tail cone. The stinger is stronger and works well as a hold point while ground handling your Kiowa. In addition to being used for maneuvering the aircraft, the stinger keeps the vertical fin from impacting the ground during landings.



Stay Up-to-Date



Dear Editor,

One of the first rules you learn with the Shadow is never rely on your memory to do PMCS or other maintenance. Always keep the Shadow TM at hand so you know exactly what you need to do to keep your Shadow flying.

If you rely on your memory, soon you forget important checks or you do maintenance wrong. That can bring your Shadow quickly back to earth. But it's also critical you keep both your Shadow's TMs and unmanned aircraft systems-initiative (UAS-1) logbook current. Any time changes are made to the Shadow, changes are also made to the TMs and possibly the logbook. If you don't have the updated information, you'll miss improved troubleshooting, PMCS and other changes to Shadow components.

For TM updates, go to the ETM website:

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

Enter the Shadow's TM number. On the next screen, click on **VIEW CURRENT NOTIFICATIONS** to set up automatic email notifications when Shadow TMs are updated.

Each unit's UAS-1 administrator receives emailed updates for logbooks. Keep your administrator's contact info current.

Make sure the new information gets to everyone in the unit. The updates won't do much good if you're the only one who knows about them.

James Johnson
Rick Wade
Ft Stewart, GA

Editor's note: Thanks for updating us with your suggestion. Stay up-to-date, Shadow crews and repairers.

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HIGH MOBILITY ENGINEER EXCAVATOR (HMEE)		BHL--Parking in cold weather	732 18
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MASK, PROTECTIVE		AN/PVS-7, -14--New mount for ACH/CVC	731 46
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M40-, M42-Series--Training, canister, PATS...	733 42	PACKAGING	
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Hand wipe cleaner specification now available	730 22	Reader's Service for Army equipment only	731 53
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M66--Canvas cover NSN	728 37	FREE ensemble TM for download	724 61
M153 CROWS II--Hand receipt online	733 37	HIP Times available for download	724 61
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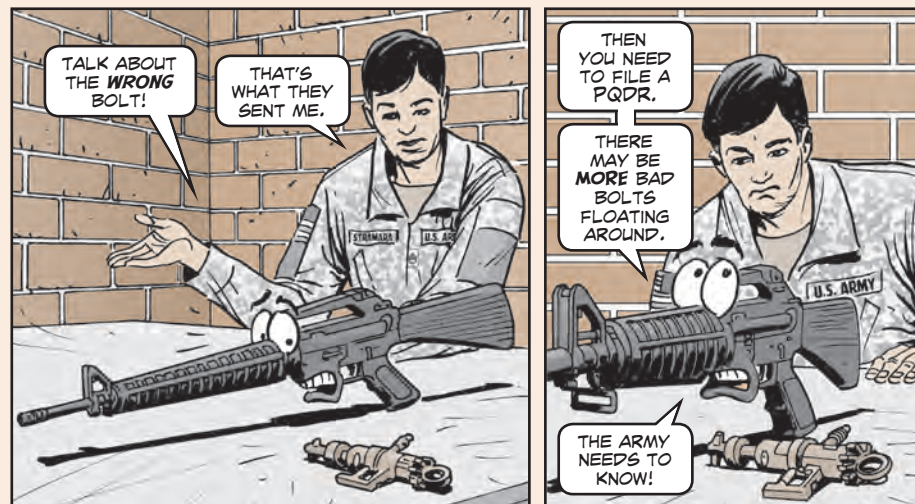
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STAMIS/LIS guide available online	733 59	Biblical reference in serial numbers	727 43
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Cleaning kit components	733 36	M151--Scope with LFU included	728 41
Cleaning kit NSN change	723 35	Securing sights	726 38
Cleaning rod needed with kit	728 38	SLAVE CABLE, NATO	
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M160--Oil level, cooling fan, hydraulic oil	724 18	CCMCK use requires extra cleaning	728 40
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XM1216 SUGV--Battery for chassis/OCU	731 61	Date of manufacture, how to find	728 45
XM1216 SUGV--Neck assembly alignment	728 16	Dehumidifier to dry up arms room moisture	733 40
XM1216 SUGV--OCU power button caution	728 17	Gages, don't unseal until needed	729 40
ROCKET LAUNCHER		One weapon per job order, arms room SOPs	731 24
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Circuit breaker, cylinder rod, battery switch	731 17	SMALL UNIT SUPPORT VEHICLE (SUSV)	
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SAFETY		Steering damper pressure	724 13
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FOD safety	723 62	CSDP Knowledge Center updated	733 59
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Seasonal hazards safety campaign	722 57	TANK, M1-SERIES	
Smart mechanics use more than eye protection	724 62	Ammo compartment moisture issues	729 04
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SCRAPER, EARTHMOVER, 621B		Bump stop bracket, shocks, torsion bars	723 06
Cab liner NSNs	722 61	Cannon tube cleaning tools	731 02
SENSORS		Engine oil clogged filter light	725 02
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SHELTERS		FBCB2 correction (720-05)	724 60
Corrosion prevention tips	728 46	Laser rangefinder filter, safety guard	732 04
SHOP EQUIPMENT		LRU seals, do not reuse	729 05
M1022 Dolly Set--Metal ring wheel seal NSN	722 60	M1A2 SEP--HPDU gasket	723 05
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TIRES		Convoy kit components	730 10
Classifying unserviceable wheel assemblies	731 10	TRUCK, M915-SERIES	
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Tire chain strap NSNs	733 60	M1070A1--5th wheel plates, no lube	728 14
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SKOT tool ordering website	731 20	Steering wheel shaft lubing	729 13
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Blade float indicator not on Army model	730 60	Up-armored--Door insulation kits	733 13
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Track sprocket and shoe wear gages	726 11	TRUCK, 5-TON, GENERAL	
TRACTOR, D8K		Dump Trucks--Hoist cylinder leakage	729 14
Gear shifting tips	732 20	TRUCK, 5-TON, M939-SERIES	
TRAILERS		M939A1/A2-Series--Water heater motor	724 10
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M149A2--Single faucet replacement NSN	723 61	TRUCK, FMTV	
M149-Series--Water tank cleaning	726 06	A1P2 LTAS--Torque rod locknuts tightening	726 04
M149-Series--Wheel bearing assembly NSN	731 61	A/C V-belt pulley interference	722 10
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Meaning of Cleaning (canvas care)	729 27	Front grille NSN	722 60
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TRAILERS, SEMI		Tire lug nut direction	729 16
M870A1--Wheel seal NSN	722 60	Torque rod seal kit correction (726-61)	730 61
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M872A4--Light bulb wiring harness lube	730 12	Weapon mount adjustable arm extension NSN	733 37
M967, M969, M970--Turn in now	727 61	Wheel assembly matching	725 11
M1000--Permalube not allowed	726 60	TRUCK, HEMTT	
Tire and wheel assembly NSNs	725 12	A4 Model--Forward lighting kit NSN	724 61

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A4 Model--Rear hub and drum assembly bolt	723 60	M242--Cleaning, lubing, recoil, feeder assy	723 02
A4 Model--Steering column wiring harness	725 10	M242--Collimating, hand station for zeroing	729 02
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LHS--E-CHU slide locks	733 12	Prop shaft and sideskirt bolts, keep tight	731 08
LHS--Hook arm damage to MTRCS	722 14	Towing with cables/tow bar	732 02
M978A2--Annual service kit NSN	722 61	TOW launcher dust curtain	727 07
M978A4--Fuel pump free replacement	723 11	TOW launcher, stow before travel	729 35
M978A4--Hardware NSN changes	724 61	Track tension reminder	731 07
M978-Series--Purging compound for tank	731 60	Training, batteries, idler arm, AFES	728 06
M978-Series--Steering wheels unlocked?	724 55	Transmission oil dipstick gasket	722 06
M985A2/A4--Data plates incorrect	726 60	VEHICLE, MRAP	
M1120A2/A4--E-CHU lower storage locks	731 16	Annual service kit NSNs	730 60
M1977 CBT--Bridge adapter pallet locking tabs	729 18	CAT engine valve push rod NSN	726 09
TRUCK, PALLETIZED LOADING (PLS)		M1235A2 MaxxPro Dash--Seatbelt NSN	728 61
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M1 Flat Rack--Decking kit NSN	732 16	MaxxPro--Power steering fluid cap change	722 19
M1074A1, M1075A1--Door latch safety fix	727 14	MaxxPro--Tailpipe shield	727 20
M1074A1, M1075A1--Rear steering gear	731 60	MaxxPro Dash--Go light cover	733 14
M1075/A1--E-CHU lower storage locks	731 16	VEHICLE, RECOVERY, M88-SERIES	
Spindle check balls cause air leak	727 16	Roadwheel nut torque	733 08
Trailer wheels should have 12 or 14 bolts	722 15	VEHICLE, STRYKER	
TRUCKS, GENERAL		Cargo straps and chock blocks, store properly	731 04
Antifreeze test strips	730 14	Coolant reservoir, no step	727 03
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Classifying unserviceable wheel assemblies	731 10	Engine service kit NSNs	730 09
Climbing on vehicles safety tips	729 10	Environmental cover, use before washing	729 07
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Cold weather maintenance	723 12	JCIMS common #1 and #2 panel kits	724 11
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Ground guide tips	733 16	Personnel heater plastic caps melting	733 07
HIP Times available for download	724 61	Towing shackle hardware positioning	729 06
Meaning of Cleaning (canvas care)	729 27	W4 cable loosening	722 02
R1 meaning at end of model number	726 02	Wheel hub oil level	727 05
Rubber lines & hoses, no paint	727 10	VEHICLES, COMBAT	
Snow chains strap NSNs	733 60	Climbing on vehicles safety tips	729 10
Tailgate chain covers	726 03	Convoy kit components	730 10
Tiedown provisions	724 02	Cotter pins, bend right to prevent injury	730 09
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Tow bars and adapters	725 06	Ground guide tips	733 16
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Wheeled vehicle towbar turn-in	724 10	Tow bars and adapters	725 06
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Battery for vehicles with BUSK 3 mod	726 61	Parts help POC	724 57
Bose Triport headset not authorized	730 07	WIRE ROPE	
Cargo hatch shims prevent leaks	730 08	Cleaning, inspecting, lubing	727 18
Driver's compass display circuit breaker	731 09	Wire rope grease NSN	722 60

Small Arms...

REPORT **BAD** PARTS



Small arms repairmen, if you discover the parts you ordered to fix your unit's weapons are defective, it's important that you file a product quality deficiency report (PQDR).

If you don't, your unit won't get free replacement parts or refunds. But, even more important, the Army won't know there are defective parts kicking around the supply system.

Fortunately, the Product Data Reporting and Evaluation Program (PDREP) makes it fairly simple to file a PQDR.

The first step is to put the defective part someplace where it won't disappear. Also, keep a copy of the document number used to order the part. And keep the packaging the part came in. It has the CAGE code and contract number, which you'll need for the PQDR. That's one reason it's an excellent idea to keep the part in the packaging until you use it. That way the packaging won't disappear and you won't have trouble figuring out where the part came from. But even if you've lost the packaging, do a PQDR with the information you have.

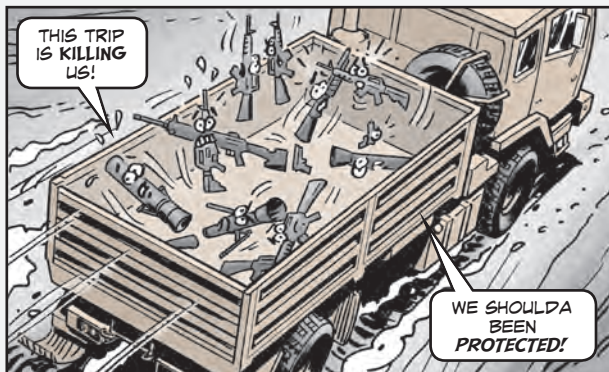
To submit the PQDR, go to: <https://www.pdrep.csd.disa.mil/>

Click on EZ PDR Logon and follow the steps. Be sure to include all required information, such as the document and contract numbers and CAGE code.

After you file the PQDR, a quality assurance rep will give you instructions for sending in the defective part. They'll need it for their investigation. It's important you send the part ASAP. If they don't receive the part within about two weeks, they will close the investigation.

If you have any questions about small arms PQDRs, contact TACOM's John Kelty at DSN 786-1271, (586) 282-1271, or email: john.m.kelty.civ@mail.mil

PACK FOR SAFE TRAVEL



Machine guns, rifles and mortars suffer major damage each year because Soldiers carelessly load weapons in trucks for transport.

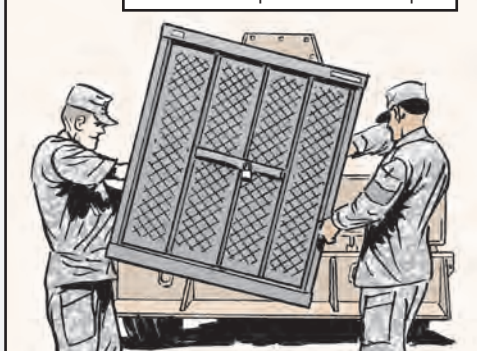
Weapons are left lying loose in truck beds where they can bounce up and down and side to side. By the time weapons get to their destination, their sights have been snapped off, handles bent and, especially in the case of M2s, barrel threads ruined.

What must really frost a company commander is when he sends a weapon to support for a minor repair, but after the weapon has endured the trip's beating, that minor repair has turned into major damage.

It takes so little to give your weapons a safe trip. The best solution, if your unit can afford it, is transport racks. Companies like Spacesaver, Marvel and Stanley Vidmar offer racks specifically designed for travel. Check them out online.

Lock your weapons in the racks, put the racks securely in the back of a truck and your weapons will survive the trip with no problem.

Portable racks provide safe transport



NSN 8135-00-300-4905 brings 225 feet of foam cushioning material and NSN 8135-00-926-8990 gets 250 feet of bubble wrap. Either one can protect weapons during travel. Old blankets and sleeping mats work well, too. Wrap the weapons in the cushioning material and make sure they are braced in place so they can't roll around.

Then you can say bon voyage to your weapons with a clear conscience.



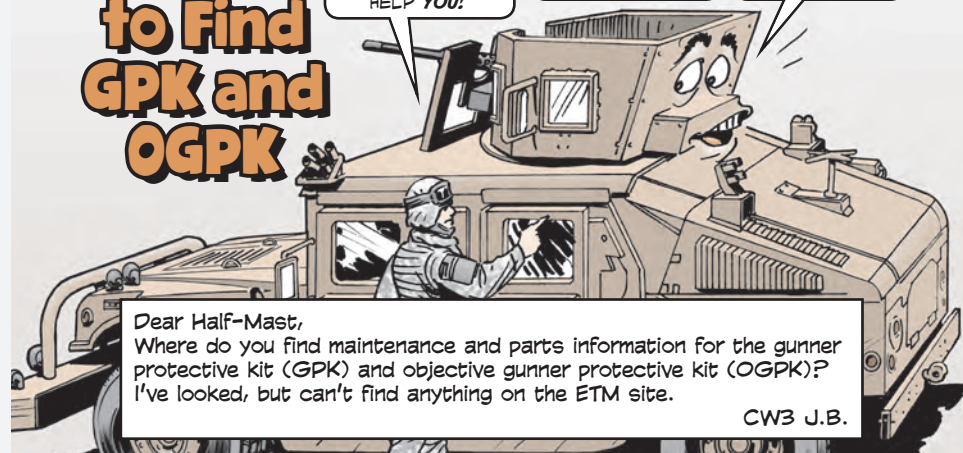
Tactical Vehicles...

Where to Find GPK and OGPK

I KNOW YOU'RE GOING TO BE A BIG HELP TO US... BUT WE DON'T KNOW HOW TO HELP YOU!

NO WORRIES! MY MAINTENANCE AND PARTS INFO IS IN A BRAND-NEW TM.

AND WHAT YOU CAN'T FIND THERE, YOU CAN GET FROM TACOM.



Dear Half-Mast,
Where do you find maintenance and parts information for the gunner protective kit (GPK) and objective gunner protective kit (OGPK)? I've looked, but can't find anything on the ETM site.

CW3 J.B.

Dear Chief J.B.,

For the GPK, you can find maintenance information in TM 9-2320-387-24-1 and -24-2. Parts info is in TM 9-2320-387-24P. Maintenance and parts info for the OGPK is in TM 9-2320-441-13&P. All of the TMs are on the ETM site: <https://www.logsa.army.mil/etms>

If you have trouble locating a part for GPK or OGPK for vehicles other than MRAP, contact TACOM's Jerry Dziura at DSN 786-4302, (586) 282-4302, or email: jerry.dziura@us.army.mil

For MRAP users, contact TACOM's Kurt Hunsanger at DSN 786-7910, (586) 282-7910, or email:

kurt.hunsanger@us.army.mil

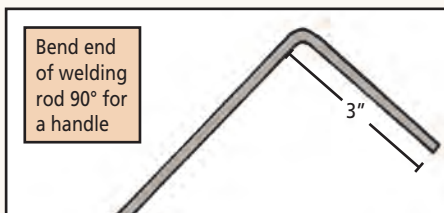
Half-Mast



CLEARING VS CLEANING ROD

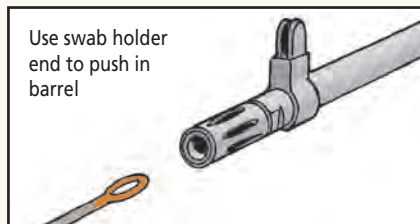
On the firing range, units may prefer to use a clearing rod instead of a cleaning rod to deal with stuck rounds. A clearing rod doesn't have sections that can unscrew and come apart in the weapon's barrel. If a cleaning rod section is left in the barrel, the barrel can explode next time the weapon is fired!

If your commander approves the use of a clearing rod on the range, you can make one from a 36-in long, $\frac{3}{16}$ -in diameter brass welding rod, NSN 3439-00-244-4541. Put a 90° bend three inches from one end to make a handle. File off any burrs or sharp edges.

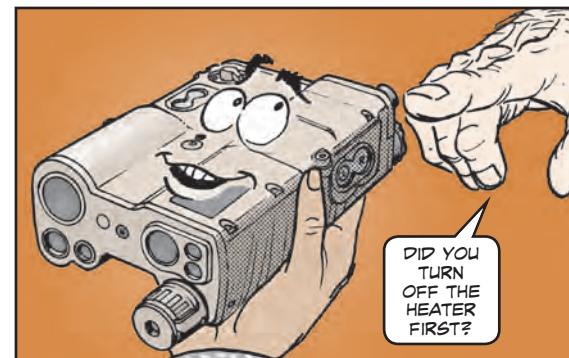
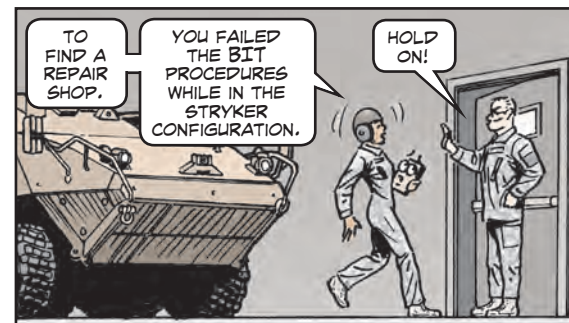


Take it easy inserting the clearing rod so you don't damage the muzzle crown. And don't slam the rod into the bolt face. If you do find a stuck round, don't try to poke it out with the rod. Use the clearing procedure in the weapon's TM.

Of course, in the field you will have to use a cleaning rod for a stuck round. In that case, use a rod's swab holder section at the end you push into the muzzle. Then, when you pull out the rod, check for the swab holder. That way you know part of the cleaning rod isn't still in the barrel.



Turn Off Heater *Before* BIT



If the heater for the AN/PSQ-23 and -23A small tactical optical rifle mounted (STORM) laser range finder is on when you do the built-in-test (BIT) procedures, the STORM will fail. So it's important to remember to turn off the heater before doing the BIT.

But if your STORM is placed in the Stryker configuration and connected to a Stryker vehicle, you may not realize the heater turns on automatically once it's connected to an external power source.

To turn the heater off before doing the BIT function, follow the procedures in WP 00 10-5 in TM 9-5855-1913-13&P (Aug 12) or TM 9-5855-1920-13&P (Jul 12). Or you can exit the Stryker configuration and select the GRMN or PLGR menu options.

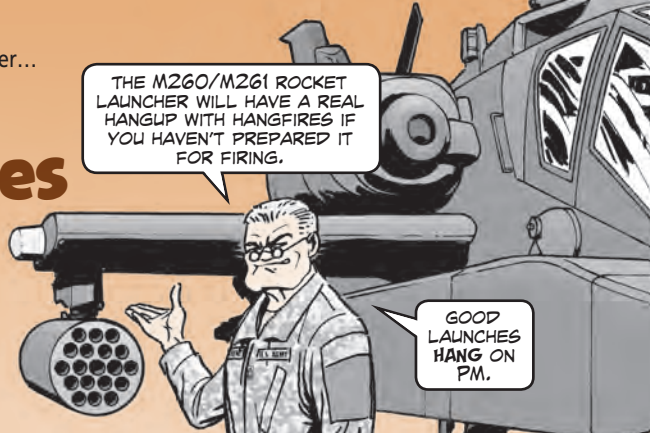
Questions? Contact TACOM's Dennis Timmons at DSN 786-1371, (586) 282-1371, or email:

dennis.c.timmons.civ@mail.mil

or Anthony Smith at DSN 786-1233, (586) 282-1233, or email:

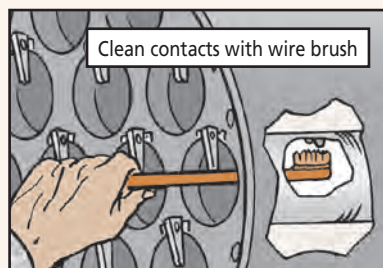
anthony.g.smith30.civ@mail.mil

Good Launches Begin with PM!



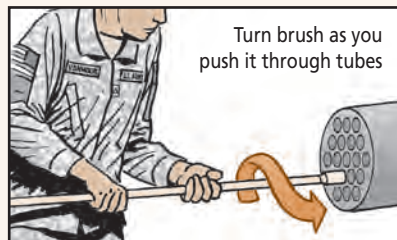
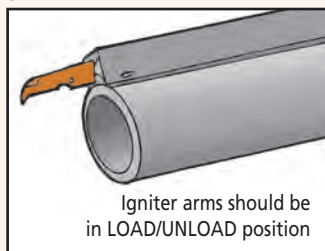
Cleaning

If the launcher's firing contacts are dirty, the rockets won't have a good electrical connection. Before a mission, every one of the contacts should be cleaned with a wire brush, NSN 7920-00-900-3577. Brush the contacts in and out, not side to side, to avoid damaging them. But remember the firing contacts are actually three inches inside the tubes. Some Soldiers mistake the igniter arms for the contacts.



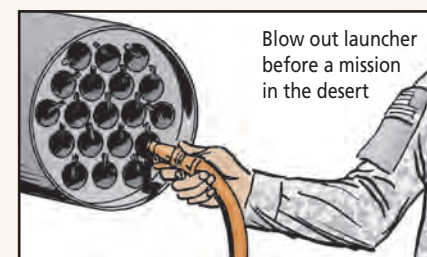
The tubes need a thorough cleaning and the best time to do the cleaning is as soon as possible after a firing. That way carbon doesn't get a chance to turn rock solid.

Before doing any cleaning, make sure the aft igniter arms are in the LOAD/UNLOAD positions and the side firing contacts are recessed so they won't be damaged. Then spray a bore brush with CLP. Push the bore brush into each tube from the front of the launcher all the way through the back. Push the brush slowly to the rear while turning the handle. Repeat this until the inside of the tubes are free of carbon.



But in the desert you want the tubes wiped free of all CLP because CLP attracts sand. Attach a rag to the brush and run it back and forth in each tube until all the CLP is gone. Change to a clean rag after every third tube.

Before a mission in the desert, use low-pressure air to blow out any sand that may have gotten in the tubes.



PMCS

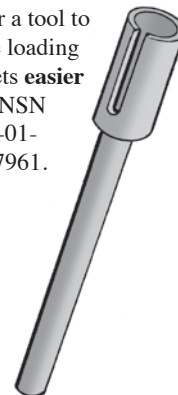
Feel each tube for looseness. Some units have had tubes shoot out during firing. If an M260 launcher has more than two loose, dented or deformed tubes, it should be replaced. For the M261, it's more than three bad tubes. A tube is also bad if it fails voltage or fuse circuitry continuity checks or it has a damaged detent, detent spring or igniter arm.



Replacement launchers are free issue, accountable items, which are tracked on the unit's property book. Order M260 launchers with NSN 1055-01-070-9113 and M261s with NSN 1055-01-071-0064. Make sure you are ordering within your unit's MTOE or else your requisition will be rejected by the supply system.

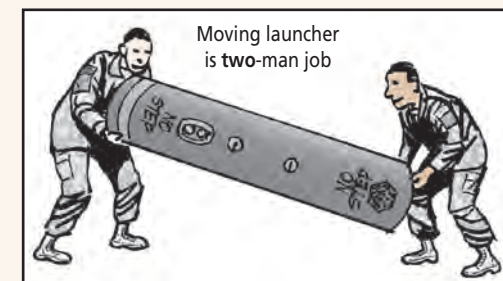
Loading Tool

Order a tool to make loading rockets **easier** with NSN 1005-01-536-7961.



Storage

If you remove the launcher for storage, get help carrying it. It's too big for one person to safely carry. Be careful setting it on its end. If you let it slam down, the edge of the launcher can be bent and the launcher rivets loosened.



For more info on how to clean and care for your launcher, see TM 9-1055-460-13&P.

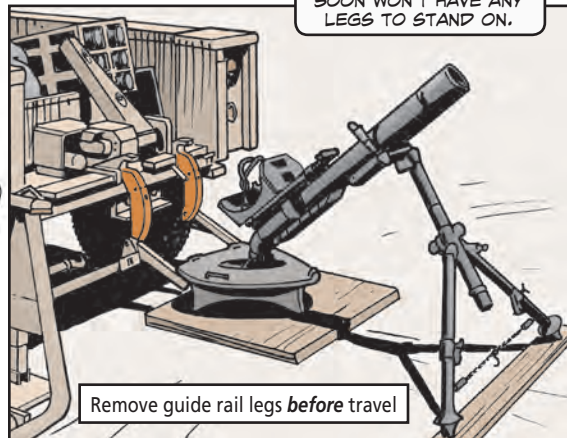
Store MSK Legs *Before* Travel

THE MORTAR STOWAGE KIT (MSK) FOR THE M120/M121 MORTAR HAS GUIDE RAIL LEGS THAT EXTEND TOWARD THE GROUND TO GUIDE THE MORTAR DURING EMPLACEMENT.

UNFORTUNATELY, THE LEGS ARE OFTEN **DAMAGED** WHEN THE MSK IS SHIPPED OR TOWED... AND REPLACEMENTS ARE **EXPENSIVE** AND **HARD TO GET**.

ANY TIME YOU'RE GOING TO SHIP OR TRANSPORT THE MSK, FIRST **REMOVE** THE GUIDE RAIL LEGS **AND PUT THEM IN THE BII BOX**.

OTHERWISE, YOUR MSK SOON WON'T HAVE ANY LEGS TO STAND ON.



Remove guide rail legs **before** travel



Collective Protection Equipment...

COMPARTMENT CONTROL MODULE CHANGING BUTTONS

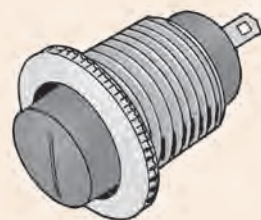
The HORN OFF button for the compartment control module that's part of the CHEMBIO collective protection equipment is going away. The collective protective equipment is used with systems like the Patriot and TACFIRE artillery protective entrances.

So when you order a new compartment control module, NSN 4240-01-057-3378, it will come without a HORN OFF button. Instead the module will have an e-switch push button that's connected to a small PC board on the rear of the front panel. The Army hasn't decided if this fix is permanent. But for at least the time being, look for the e-switch.

HORN OFF button...



...is being replaced by e-switch



AMG Advice to Remember

THESE TIPS HAVE KEPT ME STANDING TALL. I'M READY FOR ACTION!

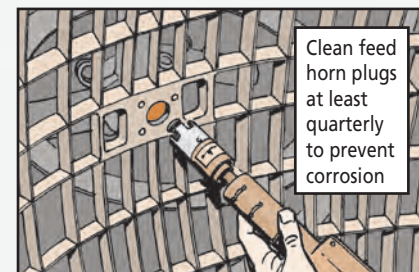


Dear Editor,

We have a couple of tips for Patriot units that can help keep their antenna mast groups (AMG) standing tall.

Clean feed horn plugs at least quarterly.

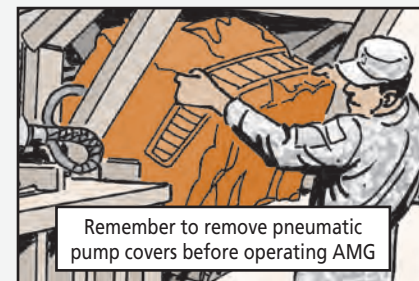
Corrosion can form on the metal parts of the plugs, especially when the antennas are left erected for long periods. If the corrosion becomes too bad, the feed horns can end up stuck to the antennas. Then you must take off the whole antenna to remove the feed horn. That big job can be avoided if you just clean the plugs quarterly with alcohol and a rag—or a wire brush if the corrosion is stubborn.



Clean feed horn plugs at least quarterly to prevent corrosion

Take off both pneumatic pump covers before you power up the AMG.

It's easy to forget them. But if you do, the covers trap the heat. The heat can become so intense that the plastic guards over the fans melt. Then the whole motor can overheat, which means it has to be replaced. Just remember to put the covers back on after you shut down the AMG and it has had a chance to cool. They keep out sand and rain.



Remember to remove pneumatic pump covers before operating AMG

CW2 Michael Smith
SGT Joshua Rogers
SPC Nicholas Griffin
2/43rd ADA
Ft Bliss, TX

Editor's note: That's good advice indeed! Thanks.

DO YOUR PATRIOTIC DUTY!



THE PATRIOT MISSILE SYSTEM WILL GIVE YOU GREAT PERFORMANCE IF YOU REMEMBER THIS PATRIOTIC PM...

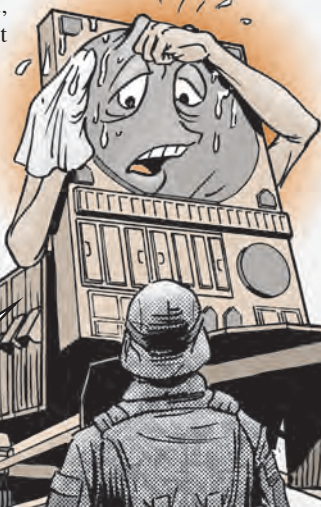


Clean filters. If the filters for the AN/MPQ-53 radar and the engagement control station (ECS) clog, components don't get enough fresh, cooling air. They overheat and you start getting faults. That leads to needless troubleshooting.

In a dusty environment, you may need to blow out all the filters every day. Some units have two sets of filters that they rotate, allowing them to thoroughly wash and dry filters before reinstalling them. The time and trouble saved makes the cost worthwhile.

HEY, YOU HAVEN'T CLEANED MY FILTERS IN A WEEK!

I'M NOT GETTING ANY AIR TO COOL OFF!

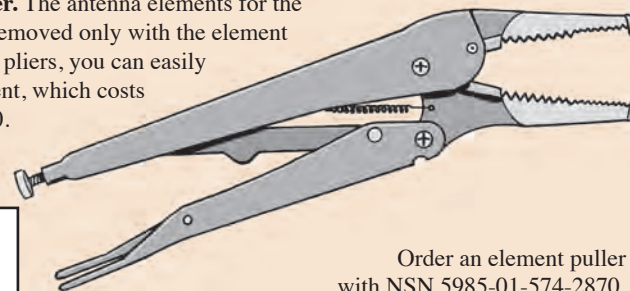


Remember GPS difference. The old GPS cable for the launcher, ECS and radar had a quick-release connection. But the new GPS cable has to be screwed on and off. If you pull it off, you break it. Unfortunately, it can take a long time to get a replacement. Make sure everyone in your unit knows of the change. Tagging the cables UNSCREW ONLY is a good reminder.



Be careful with the launcher's DLTM doors. If you fling open the doors or leave them hanging open in high winds, the doors' welds break. Then the doors won't latch securely and they can't seal out dirt and moisture. If you notice a hinge starting to bend outward, report it so it can be fixed ASAP.

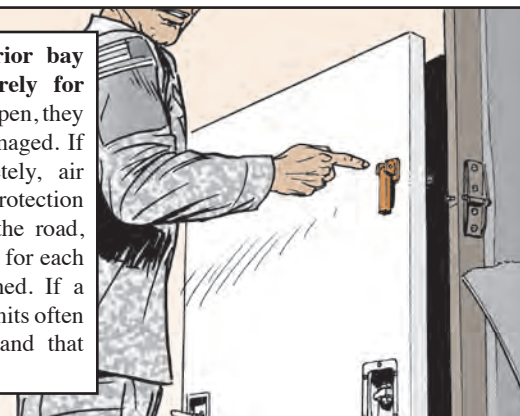
Use only puller. The antenna elements for the radar should be removed only with the element puller. If you use pliers, you can easily damage an element, which costs more than \$1,000.



Use only puller to remove antenna elements

Order an element puller with NSN 5985-01-574-2870.

Make sure ECS interior bay doors are latched securely for travel. If the doors swing open, they hit each other and are damaged. If they can't close completely, air conditioning and NBC protection are hurt. Before you hit the road, make sure all three latches for each door are completely latched. If a latch is broken, report it. Units often overlook broken latches and that leads to damaged doors.



MANDATORY REPLACEMENT PARTS FOR SHOCK ABSORBERS

THE HIMARS' TM 9-2300-310-14&P DOESN'T LIST ANY MANDATORY REPLACEMENT PARTS CRITERIA FOR THE FRONT SHOCK ABSORBERS.

AS A RESULT, THERE'S A CHANCE THE FRONT FRAME RAILS COULD BE BENT OVER THE RUBBER BUMPER ON THE FRONT LEAF SPRING.

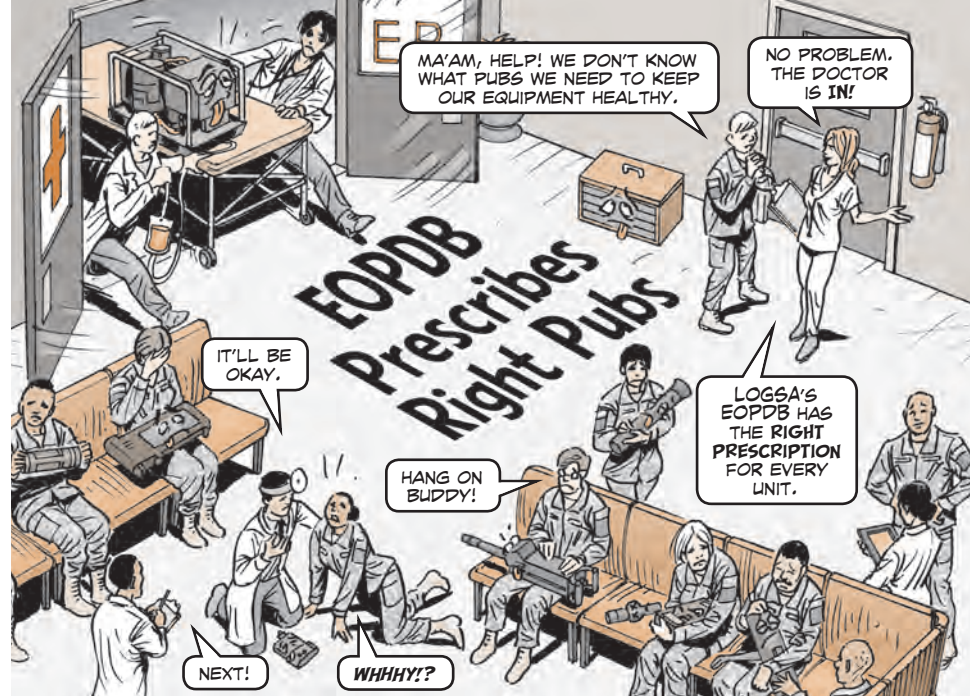


SO THE FOLLOWING PARTS MUST NOW BE REPLACED EVERY TIME THE FRONT SHOCK ABSORBERS ARE REMOVED OR REPLACED...

Fig 1231		
Item	Name	NSN
1	Self-locking screw	5310-01-369-6706
3	M16 cap screw	5305-01-369-8253
4	Machine bolt	5306-01-369-8192
6	Flat washer	5310-01-369-8923
7	Self-locking nut	5310-01-369-3339
Fig 1232		
Item	Name	NSN
1	Cap screw	5305-01-433-8469
2	Flat washer	5310-01-158-9053
3	Self-locking nut	5310-01-369-6706
5	Cap screw	5305-01-369-2264

IN ADDITION, THE SHOCK ABSORBERS, NSN 2510-01-372-4839, MUST NOW BE REPLACED AS PART OF THE BIENNIAL SERVICES.

THIS INFORMATION WILL BE ADDED TO TM 9-2300-310-14&P.



Is a list of maintenance publications just what your unit needs to treat its equipment woes? The Logistics Support Activity's (LOGSA) Equipment Oriented Publications Database (EOPDB) team can fill that prescription. To get a unit-specific Publications Tailored Index Listing (PTIL), email your request to: usarmy.redstone.logsa.mbx.eopdb@mail.mil

Include the following info:

- Your unit's six-character Unit Identification Code (UIC)
- Your unit's maintenance levels (10/20, 10/30, etc.)
- Your name, rank/grade, military address, email address and phone number.

Questions? Contact the EOPDB team at DSN 645-9845, (256) 955-9845, or at the email address above.

Publications	Publication Title	Pub Date	Changes	Lst Chge Date	PIN	IDN	EM No.	EM PIN	EM IDN
*TM 9-1260-262-10	OPERATOR'S MANUAL FOR AIMING CIRCLE, M2 W/E (NSN 1290-00-614-0008) AND	1981-04-15	1	2002-01-15	048383	410003	EM 0125	076187	401120
*TM 9-1260-262-10-HR	HAND RECEIPT MANUAL COVERING CONTENT OF COMPONENTS OF END ITEM (COEI),	2001-12-01			048382	410362	EM 0041	075690	372453



How to Find Your TACOM LAR

Logistics assistance representatives (LARs) are the folks to call when tough problems with equipment, weapon systems and logistics crop up. LARs can advise units in many areas, including supply, maintenance, transportation, personnel and training. They travel to motor pools, hangars and maintenance shops all over the world.

For help with wheeled and tracked vehicles, small arms and most types of equipment we cover here in *PS*, TACOM LARs are terrific resources.

There are three primary types of TACOM LARs, which are subdivided into seven specific LAR skill sets:

- **Automotive**
 - Tactical
 - Combat
 - Engineer
- **Armament**
 - Small arms/artillery
 - Armor/fire control
 - Aircraft
- **Soldier**
 - Biological and chemical



TACOM LAR Helplines

Region	Covers	Tel no.
CONUS-East	AL, CT, DE, FL, FORSCOM, GA, IL, IN, KY, LA, MA, MD, ME, MI, MS, NC, NH, NJ, NY, OH, PA, RI, SC, TN, VA, VT, WI, WV	DSN (312) 236-6921 Comm (910) 396-6921
CONUS-West	AR, CO, IA, KS, MN, MO, MT, ND, NE, OK, SD, TX, WY	DSN (312) 737-0263 Comm (254) 287-0263
Pacific	AK, AZ, CA, Guam, HI, ID, NM, NV, OR, UT, WA	DSN (312) 357-2991 Comm (253) 967-2991
Europe	Belgium, Bosnia, Germany, Great Britain, Italy, Kosovo, Luxembourg, Macedonia	DSN (314) 483-4090 Comm (011) 49-631-411-4090 Germany (0631) 411-4090
Far East	Japan, Korea, Kwajalein, Okinawa	DSN (315) 768-7970 Comm (011) 82-53-470-7970
SWA-Kuwait	Kuwait	DSN (318) 430-4189
SWA-OEF	Afghanistan	DSN (318) 481-4814
SOF	Special Operations	DSN 745-3114 Comm (859) 566-4198, or toll free (888) 763-7259

Publications...

Revised AR 750-1 Released

A MAJOR REVISION TO AR 750-1, ARMY MATERIEL MAINTENANCE POLICY, WENT INTO EFFECT IN OCTOBER 2013.



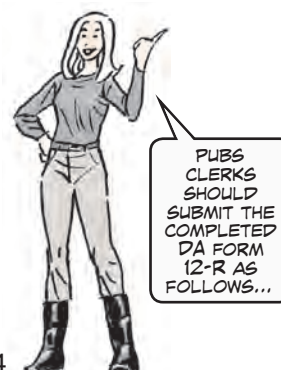
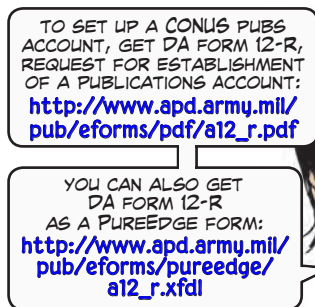
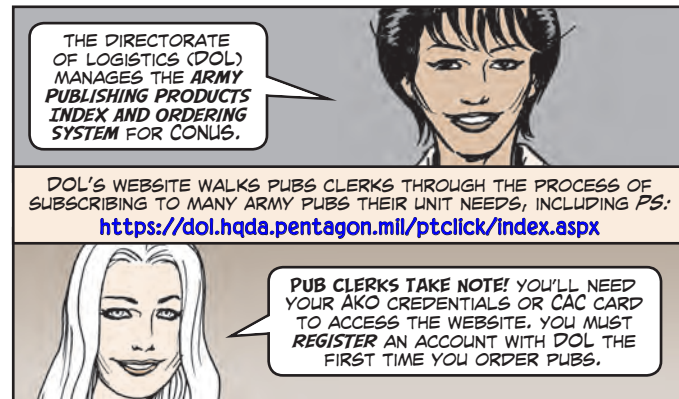
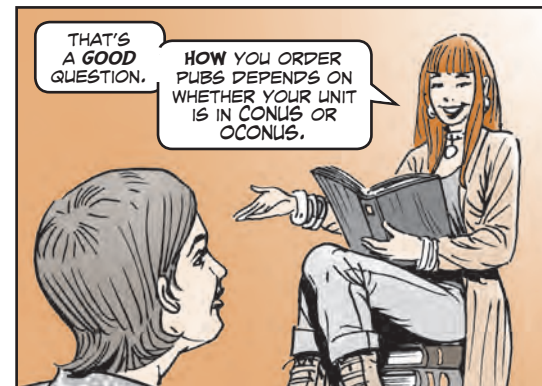
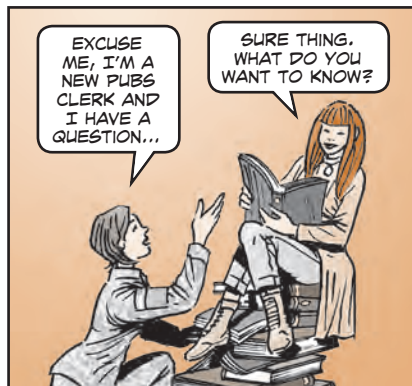
There are major changes since the pub's last update in 2007. Topics covered include:

- Updated roles and responsibilities
- Army Force Generation
- Materiel status data flow reporting policy
- Two-level maintenance policy
- New special repair authority
- Army National Guard maintenance facilities
- Maintenance operations policy
- Depot maintenance policy
- Medical equipment maintenance policy
- Reliability-centered maintenance policy
- Multimedia use in interactive electronic technical manuals
- Army maintenance programs
- Equipment Reset policy guidance
- Left behind equipment policy.

Download the full pub at: http://www.apd.army.mil/pdf/files/r750_1.pdf

For questions on AR 750-1, contact Nelson Williams at DSN 224-0753, (703) 614-0753, or email: nelson.k.williams.civ@mail.mil


Ordering Army Publications



- **Active duty units:** To the installation records manager located in the Division of Human Resources (DHR), Administration Services Section in Records Management.
- **Army Reserve units:** To the supporting operational and functional command, training command, or support command DHR Administration Services Section in Records Management.
- **National Guard units:** To the state National Guard headquarters.

UNITS CAN ALSO SCAN AND E-MAIL OR FAX DA FORM 12-R. FAX THE COMPLETED FORM TO (314) 592-0923, OR SEND THE FORM AS AN ATTACHMENT TO THE FOLLOWING EMAIL ADDRESS:

usarmy.stlouis.106-sig-bde.mbx.dolwmddcustsrv@mail.mil

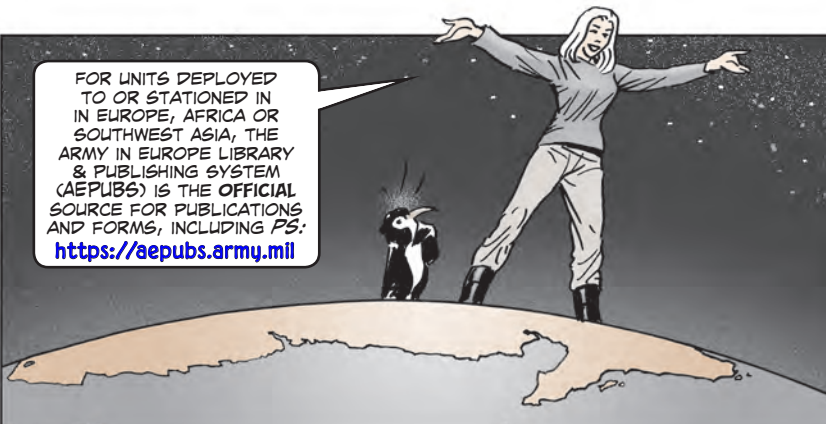


OCONUS



FOR UNITS DEPLOYED TO OR STATIONED IN IN EUROPE, AFRICA OR SOUTHWEST ASIA, THE ARMY IN EUROPE LIBRARY & PUBLISHING SYSTEM (AEPUBS) IS THE OFFICIAL SOURCE FOR PUBLICATIONS AND FORMS, INCLUDING *PS*:

<https://aepubs.army.mil>



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Army in Europe Library & Publishing System

THE AEPUBS WEBSITE EXPLAINS HOW TO ESTABLISH DEPLOYED OR PRE-DEPLOYED PUBLICATION ACCOUNTS AND HOW TO ORDER PUBS.

YOU'LL ALSO NEED TO COMPLETE A DA FORM 12-R FOR AEPUBS. GO TO THE URL LISTED IN THE PRIOR CONUS INSTRUCTIONS TO ACCESS THE FORM. THEN EMAIL THE COMPLETED DA FORM 12-R TO:

usarmy.sembach.imcom-europe.mbx.aepubs@mail.mil

New Releases
Thursday, January 26, 2012

AF CHD MEMO 2011-078
USAMATO REG 25-50
USAMATO REG 25-31
AF CHD MEMO 2011-087


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HOW TO ORDER *PS* MAGAZINE




WHAT ABOUT ORDERING *PS*?

UNIT PUB CLERKS WHO HAVE SET UP A PUBS ACCOUNT WITH DOL OR AEPUBS CAN SUBMIT A SPECIFIC REQUEST FOR *PS*.



ENTER THE DESIRED QUANTITY OF *PS* MAGAZINE WHEN YOU ORDER. WE RECOMMEND A COPY FOR EACH OF THE FOLLOWING IN A COMPANY-SIZE UNIT: THE COMMANDER, FIRST SERGEANT, XO, MOTOR SERGEANT, EACH VEHICLE MECHANIC, SUPPLY SERGEANT, ARMORER, CBRN NCO, COMMUNICATIONS NCO, AND EXTRA COPIES AS APPROVED BY THE COMMANDING OFFICER, FOR DISTRIBUTING IN COMMON AREAS FOR EQUIPMENT OPERATORS.



TO FIND OUT HOW TO ORDER *PS* FOR OTHER MILITARY SERVICES OR HOW TO GET A PRIVATE SUBSCRIPTION, VISIT:

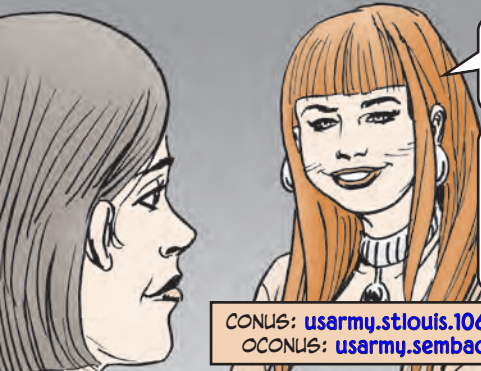
<https://www.logsa.army.mil/psmag/dist.cfm>

WHEN ORDERING ANY PUBS, CHECK TO BE SURE THAT YOUR UNIT'S MAILING ADDRESS IS **CORRECT**. IF THE ADDRESS IS WRONG, YOU NEED TO COMPLETE SECTION III ON DA FORM 12-R.

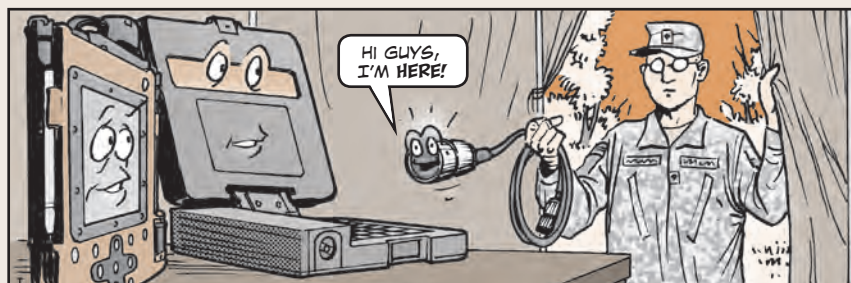
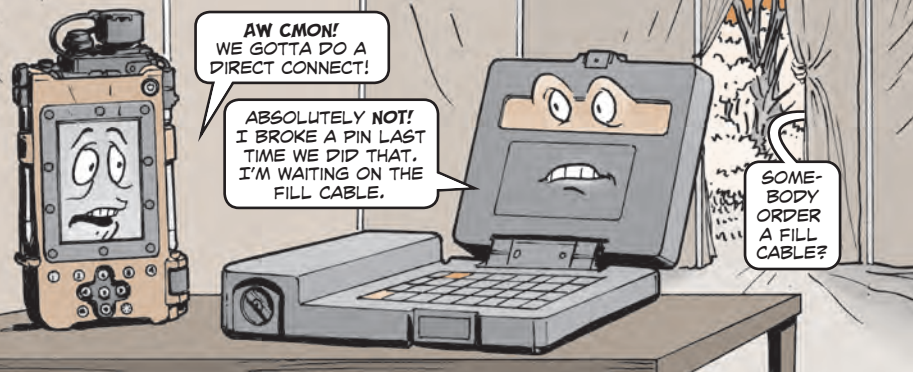
SEND THE DA FORM 12-R AS AN ATTACHMENT TO ONE OF THE FOLLOWING EMAIL ADDRESSES...

CONUS: usarmy.stlouis.106-sig-bde.mbx.dolwmddcustsrv@mail.mil
OCONUS: usarmy.sembach.imcom-europe.mbx.aepubs@mail.mil

PS
END



Fill Cable is Key to Connections

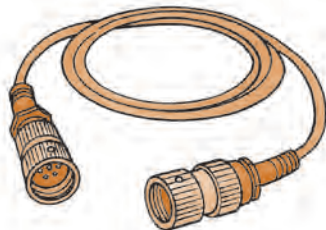


Use a fill cable, NSN 5810-01-066-7587, every time you connect fill devices, such as the AN/PYQ-10(C) simple key loader (SKL) or AN/CYZ-10 data transfer device (DTD), to each other or to any COMSEC/controlled cryptographic item (CCI) equipment.

Other fill devices you might find in the field are the KOI-18, KYK-13 and KYX-15/15A.

Never try to make a direct hookup between two fill devices, or between COMSEC/CCI equipment and a fill device, without a fill cable. If you do, you'll bend or break pins in the connectors. Then your fill device or COMSEC/CCI equipment will be non-mission capable.

Use fill cable to connect fill device



HERE ARE SOME
DOS AND DON'TS
WHEN YOU USE
THE FILL CABLE...



DO

• **DO** inspect both connectors on the fill cable. Look for damaged or missing contacts. Also look for bent or missing connector pins on the fill device and the COMSEC/CCI equipment.

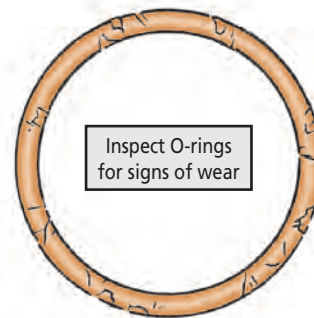
• **DO** line up the flat surface of the cable connector with the red dot on the equipment's fill connector when you connect the cable. Then press in and turn the cable connector clockwise. This should lock the fill cable in place. Never use force to make the connection.

• **DO** check the O-rings, NSN 5331-00-905-6032, in both connectors of the fill cable. Make sure they're in place. If they're dried, cracked or show signs of wear, replace them. Missing O-rings could cause the fill cable to twist off the fill device or COMSEC/CCI equipment. Missing O-rings could also cause intermittent communications.

• **DO** make the cable connectors easy to install by lightly coating the O-rings with lubricant, NSN 6850-00-177-5094. Put a dab on your fingertip and wipe down the O-rings.



Coat O-rings with lubricant



• **DO** cover the fill connectors with protective rubber caps when you're not using fill devices or COMSEC/CCI equipment. They keep out dust, dirt and moisture. Always keep a few spare caps on hand.



Protect connectors with rubber caps

DON'T

• **DON'T** use saliva to lubricate the O-rings. Saliva can damage them over time.

• **DON'T** forget to read these technical manuals to get more information on using fill cables with fill devices:

Fill device	Technical manual
AN/PYQ-10(C)	TM 11-5810-410-13&P
AN/CYZ-10	TM 11-5810-394-13&P
KOI-18, KYK-13, KYX-15/15A	TM 11-5810-292-13&P

Winter Safety...

QUICK INVENTORY, EVERY-BODY...

GLOVES? BOOTS? WATER?



WATER: It's NOT Just for Summer Anymore

You know about the most common dangers posed by cold winter weather:

- **Frostbite**, the freezing of body tissue caused by exposure to freezing temperatures.
- **Hypothermia**, the lowering of core body temperature.

But there's also a third danger that occurs in cold weather, one that's often overlooked. It's dehydration, the loss of bodily fluids. It occurs when you lose more fluid than you take in. Lose enough and your body can't carry out its normal functions.

We usually think of dehydration as something that takes place during the hot summer months. But you can get dehydrated any time of the year. Labor long and hard enough in cold winter weather and you'll lose fluids. We just don't give much thought to drinking lots of water when we're out in the cold.

You can get dehydrated any time of the year!



Causes

HERE ARE THE TYPICAL CAUSES OF DEHYDRATION...

- Not drinking enough water
- Severe diarrhea
- Vomiting
- High fever
- Too much sweating
- Increased urination

Carry plenty of water



Symptoms

Symptoms of dehydration range from mild to moderate to severe, depending on fluid loss.

Here are the symptoms of **mild to moderate dehydration**:

- Dry mouth and lips
- Fatigue
- Thirst
- Decreased urination
- Dry skin
- Headache
- Dizziness
- Lightheadedness
- Constipation

Drink water **BEFORE** you become thirsty

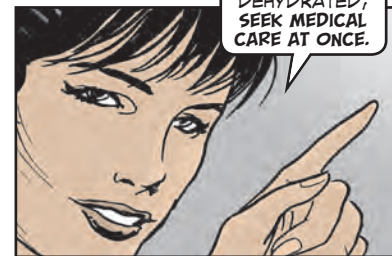


Left untreated, mild to moderate dehydration can worsen to **severe dehydration**.

Here are the symptoms:

- Dry mouth
- Intense thirst
- Lack of sweating
- Lack of urination
- Extremely dark urine
- Confusion
- Dry skin that lacks elasticity and doesn't "bounce back" when pinched
- Low blood pressure
- Rapid heartbeat
- Rapid breathing

IF YOU'RE SEVERELY DEHYDRATED, SEEK MEDICAL CARE AT ONCE.



Prevention

PREVENTING DEHYDRATION IS EASIER THAN TREATING IT.



DRINK PLENTY OF WATER. SIP THE WATER. DON'T GULP IT. YOUR BODY CAN MORE EASILY ABSORB WATER IF YOU SIP SOME EVERY FEW MINUTES.

EAT FOODS WITH HIGH WATER CONTENT, SUCH AS FRUITS AND VEGETABLES.

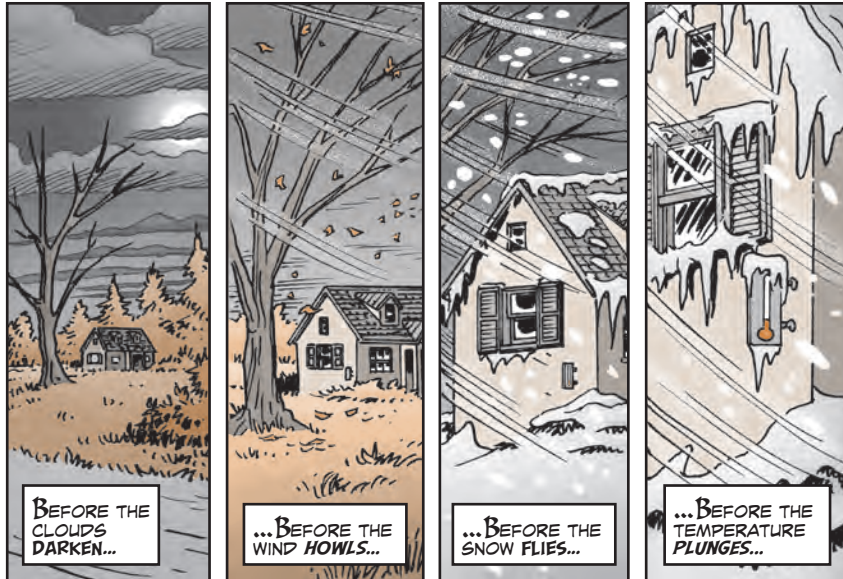


PAY ATTENTION TO YOUR BODY AND RECOGNIZE SIGNS OF THIRST.

IF YOU'RE EXERCISING, HIKING OR DOING PHYSICAL WORK, DRINK PLENTY OF WATER EVEN IF YOU DON'T FEEL THIRSTY.



Read Anything Good Lately?



...YOU NEED TO COMPLETE YOUR WINTER EDUCATION. IF YOU'RE HEADING TO MOUNTAINS OR SNOWFIELDS THIS WINTER, YOU MUST UNDERSTAND THE DANGERS POSED BY SNOW, ICE, WIND AND COLD.

YOU MUST **LEARN** TO SURVIVE IN FRIGID CLIMATES AND PROTECT YOURSELF AGAINST COLD-WEATHER INJURIES.

BEGIN YOUR EDUCATION BY READING THE FOLLOWING PUBS FOUND ON THE ARMY PUBLISHING DIRECTORATE (APD) WEBSITE:

<http://www.apd.army.mil/>

FM 3-05.70, *Survival*
FM 3-97.6, *Mountain Operations*
FM 31-70, *Basic Cold Weather Manual*
FM 31-71, *Northern Operations*
TB MED 508, *Prevention and Management of Cold-Weather Injuries*
TC 21-3, *Soldier's Handbook for Individual Operations and Survival in Cold-Weather Areas*



Advanced Education

FOR AN ADVANCED EDUCATION, YOU'LL WANT TO VISIT THE U.S. ARMY PUBLIC HEALTH COMMAND (PHC) WEBSITE:
<http://phc.amedd.army.mil/Pages/default.aspx>

FROM THE HOME PAGE, CLICK ON DISEASES AND CONDITIONS. ON THE NEXT SCREEN, SCROLL DOWN AND CLICK ON COLD INJURY PREVENTION.

IT'LL TAKE YOU TO THE FOLLOWING LINKS...

- Cold Weather Casualties and Injuries
- Related Sites
- Resource Materials
- Field Preventive Medicine

THESE LINKS LEAD TO A VARIETY OF DOCUMENTS AND TRAINING AIDS ABOUT THE CAUSES, SYMPTOMS, TREATMENT AND PREVENTION OF INJURIES.

Story Time with Half-Mast

OF COURSE, DON'T FORGET TO READ THE WINTER ARTICLES IN BACK ISSUES OF PS, THE PREVENTIVE MAINTENANCE MONTHLY.

THE FOLLOWING ARTICLES ARE LOADED WITH INFORMATION ABOUT COLD-WEATHER CLOTHING, SURVIVAL AND PERSONAL PROTECTION...



Subject	PS Issue Number	Pages
Cold-weather quiz	708	52-55
Boots, socks, frostbite	672	50-55
Drying the extended cold-weather clothing system (ECWCS) parka	669	55
Anti-contact gloves	660	52
Meals	660	50-51
ECWCS mittens, POL gloves, frostbite	649	48-51
Socks	647	50-51
Desert camo parka	647	49
Anti-contact gloves	638	51
Cleaning clothes	638	46-47
CVC underwear	636	54-56
Special OPS clothing	636	52-53
Patching ECWCS	636	50-51
Washing underwear	624	55
Trigger finger mittens	623	54-56
Hood	623	52-53
Clothing facts	623	49-51
ECWCS water repellency	622	51-53
ECWCS underwear	613	48-49

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

≡WHEW! FINALLY! ANOTHER YEAR'S PS ARTICLES INDEXED AND PRESENTED IN OUR JANUARY ISSUE.

NO TIME TO REST, HALF-MAST! IT'S TIME TO START WORKING ON NEXT YEAR'S INDEX.

DON'T FORGET ABOUT THESE BRIEFS...



ATTENTION SNIPERS!

If you use the XM107 long range sniper rifle or the M110 semiautomatic sniper system, listen up. All XM107s should have been converted to the M107 by now. If you still have an XM107, turn it in ASAP. An XM107 is stamped XM107. If it has been upgraded, the X will be lined out. All M110s with serial numbers below 1000 should have had their trigger assemblies replaced. If yours hasn't, turn it in. If you're not sure if the trigger has been replaced, contact TACOM's David Tipp at DSN 786-1256, (586) 282-1256, or email:

david.i.tipp2.civ@mail.mil

You can also get turn-in instructions for both systems by contacting Mr. Tipp.

HEMTT -A4 Universal Service Kit

Get the new universal service kit, NSN 4910-01-619-4329, for the HEMTT -A4 trucks in your unit. But for the M985A4 guided missile transporter (GMT), you'll need to order the universal service kit plus the annual filters kit, NSN 4910-01-619-4330.

GCSS-Army Reminder

Remember to check the GCSS-Army website for alerts, updated fielding and training schedules and other important info. Visit: <https://gcss.army.mil/> Or sign up to get automatic notifications at: <https://gcss.army.mil/Support/register.aspx>

Get GCSS-Army EXORD

HQDA has released EXORD 001-14, *Field Global Combat Support System Army (GCSS-Army)*. You can download a copy from the GCSS-Army website library at: <https://gcss.army.mil/Library/>

GCSS-Army SASMO Training

All Army Sustainment Automation Support Management Offices (SASMOs) are invited to attend a remote training session via Defense Connect Online (DCO) on January 9th, 2014, from 1300 to 1700 EST. The training is co-hosted by HQDA G-46, CASCOM, SEC Lee and PM GCSS-Army. The goal is to provide SASMOs with the required networking, software, and hardware support skills they can use to help units that are fielding GCSS-Army. For more info, see the HQDA G-4 Corner at:

<https://www.gcss.army.mil/>

Pack Extra MBU Filters

Fine desert sand can clog the fuel and air filters of your modern burner unit (MBU). Clogged filters cause the MBU to run poorly or not at all. That means you must do two things when you deploy to the sandbox:

1. Pack extra filters. NSN 7310-01-462-6765 brings an in-tank fuel filter. NSN 7310-01-462-4913 brings an air inlet filter.
2. Check or service both filters every 300 hours—more often in dusty or humid places. That's the word in the PMCS tables of TM 10-7310-281-13&P (May 10), *Operator and Field Maintenance Manual Including Repair Parts and Special Tools List for Modern Burner Unit (MBU) NSN 7310-01-452-8137 and Modern Burner Unit (MBU-V3) NSN 7310-01-507-9310.*

M1074/M1075 PLS Air Intake Hose

Get the air intake hose for your M1074/M1075 palletized loading system with NSN 4720-01-617-4016. It replaces NSN 4720-01-349-7351, which is shown as Item 3 in Fig 32 of TM 9-2320-364-14&P (IETM EM 0206, Apr 09).

M1074A1/M1075A1 Warning Light and Machine Gun Mount NSNs

The NSNs for the M1074A1/M1075A1 palletized loading system's warning light beacon and machine gun mount are incorrect in the Additional Authorization List of TM 9-2320-319-13&P (IETM EM 0298, Mar 10). The warning light comes with NSN 6220-01-529-1169 and the machine gun mount with NSN 1005-00-704-6650.

M1075/A1 PLS, M1120A2/A4 HEMTT E-CHU/CHU Removal

The enhanced container handling unit (E-CHU) is a permanent modification to the M1075/A1 PLS and M1120A2/A4 HEMTT trucks on which it is installed. That means the E-CHU should **not** be removed and must stay with the truck whenever the vehicle is transferred. On the other hand, units **can** remove the container handling unit (CHU) installed on these vehicles if the CHU is unserviceable. Disposition instructions will need to be requested. Keep in mind that your unit is responsible for replacing the CHU and installing the new one.

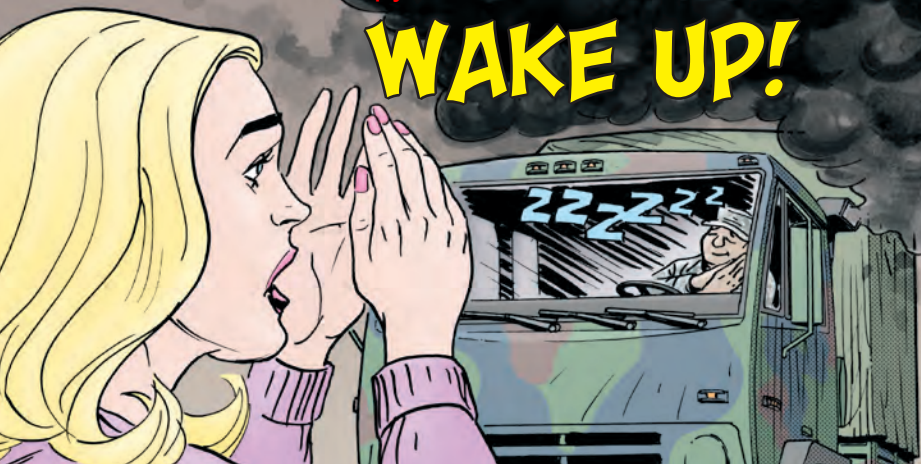
SAMS-E Help Desk Support

All SAMS-E users are reminded to initiate help desk tickets through the Software Engineering Center (SEC)-Lee Customer Support Office (CSO) at: <https://s4if.lee.army.mil> You can also call DSN 687-1051, (866) 547-1349, or email: usarmy.lee.sec.mbx.lee-seclee-cso@mail.mil

DISTRIBUTION: To be distributed in accordance with the initial distribution number (IDN) 345239, requirements for the TB 43-PS-Series.

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

WAKE UP!



YOU **DON'T** WANT
CARBON MONOXIDE
TO GIVE YOU A
PERMANENT NAP!



- **NEVER** SLEEP IN IDLING VEHICLES
- USE **ONLY** ARMY-APPROVED SPACE HEATERS
- OPERATE HEATERS ACCORDING TO THE TMS
- POST A FIRE GUARD WHEN SPACE HEATERS ARE USED IN SLEEPING AREAS.

