

Issue 751

PS

June  
2015

# THE PREVENTIVE MAINTENANCE MONTHLY

TB 43-PS-751

Approved for  
Public Release;  
Distribution is  
Unlimited





***RROARR!***  
WHY AREN'T YOU  
SUFFERING!?


BECAUSE I  
TOOK SAFETY  
PRECAUTIONS,  
THAT'S WHY!!

WHAT PRECAUTIONS, YOU  
ASK? SEE PAGES 35-52!



	<b>COMBAT VEHICLES</b>	<b>2</b>
Order JCIMS through Supply System		3-5
M777A2 Howitzer Breech Maintenance Tips		6
Stryker Switch Guard Protection		7
M119A2/A3 Towed Howitzer Retaining Pins		8

	<b>MISSILES, SMALL ARMS and CBRN</b>	<b>9</b>
MLRS Maintenance Multipliers		10-11
Patriot PM Tips		12-13
Patriot AMG Emplacement Tips		14-15
Tracking Small Arms Services		15
Lock CROWS on Lowest Elevation for Travel		16
ESAVs Assistance Visits Promote Safety		17
Small Arms Skills Testing		18
M40/42-Series, M50/51 Mask Canister Clarification		19
AN/AVS-6 (V)3 Battery Cord Packing		20

	<b>AVIATION</b>	<b>21</b>
AH-64D M230 Gun Loading Procedures		22-23
ALSE Air Warrior Clothing and Equipment		24
UH-60A/L/HH-60M Sound-proofing Panel		25
OH-58D FOD Policing Prevents Damage		26

**Attack of the Corrosion Zombies,  
Part 2**

27-34	<b>Connie's Post Scripts</b>	<b>60-61</b>
-------	------------------------------	--------------

TB 43-PS-751, 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.

**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.

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

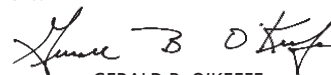
Or email:  
[usarmy.redstone.logsa.mbx.psmag@mail.mil](mailto:usarmy.redstone.logsa.mbx.psmag@mail.mil)

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

1506803

<b>HOT WEATHER</b>	<b>35</b>
Small Arms Desert PM	36-37
M915 FOV Hot Weather Tips	38-40
M870A1 Semitrailer Tire Preservation	41
Reclaimed R-22 Refrigerant Available	42-43
Up-Armored FMTV A/C Charge Weight	44-45
HMMWV Condenser Fan Intake Cleaning	46
Up-Armored HMMWV A/C Flow Control Valve	47
PS Magazine Live and Online	47
Water Container Options	48-51
Wet Bulb-Globe Temperature Kit Replacement	
Parts	52

	<b>SOLDIER SUPPORT</b>	<b>52</b>
Windshield Washer Fluid NSN, Instructions		52
PQAS-E, Pass on Admin Password		53

	<b>CONSTRUCTION</b>	<b>54</b>
F-24 Fuel Use in Diesel-only Equipment		55
Backhoe Loader Turbo Burnout Caution		56
Backhoe Loader Startup, Shutdown Reminder		57
815F Compactor Air Filter Cleaning		58
Cranking Engines Can Kill Batteries		59

**PROTECT  
YOURSELF  
AGAINST  
HEAT!**

WE'RE  
ROASTING  
OUT HERE!

THERE ARE  
THINGS YOU CAN  
DO TO PREPARE  
FOR THE HEAT!

IF IT'S EVER A  
BATTLE BETWEEN  
YOU AND HIGH  
TEMPERATURES,  
HEAT WILL ALWAYS  
WIN **UNLESS YOU**  
TAKE SAFETY  
PRECAUTIONS  
SERIOUSLY. MAKE  
SURE YOU...

- Drink enough water to replace what you lose sweating. Don't drink more than 1.5L per hour or 12L per day.
- When working in the heat, don't wait to drink until you feel thirsty. Your body may be dehydrated before you ever feel thirsty.
- Use the buddy system to remind each other not to drink too little or too much.
- Check your urine. If it's dark, drink more fluids throughout the day.
- Eat to replace salts. Be aware that drinking too much water while not eating enough food (and thus salt) could be fatal.
- Do not follow a low-calorie diet while training in a hot environment.
- Do not take any dietary supplements containing ephedra (ma-huang) at any time. Ephedra can impair your body's ability to rid itself of heat, leading to exhaustion, heat cramps, or a serious heat injury.

**KEEPING THESE HOT-WEATHER TIPS IN MIND COULD  
SAVE YOUR LIFE AND THE LIFE OF YOUR BUDDY.**

TO FIND OUT MORE, GO TO THE  
ARMY STUDY GUIDE FOR HEAT INJURIES:  
[http://armystudyguide.com/content/powerpoint/  
First\\_Aid\\_Presentations/heat-injuries-2.shtml](http://armystudyguide.com/content/powerpoint/First_Aid_Presentations/heat-injuries-2.shtml)

# PS COMBAT VEHICLES

## Combat vehicles:

- JCIMS to Sustainment
- M777A2 Breech Tips
- Stryker Switch Guards
- M119A2 Firing Pins

Combat, Tactical, CCE Vehicles...

## JCIMS Makes the Move to Sustainment

CREWMEN, YOUR VEHICLE'S JOINT COMBAT IDENTIFICATION MARKING SYSTEM (JCIMS) KIT HAS MADE THE MOVE TO **SUSTAINMENT**.

**THAT** MEANS YOU **MUST** NOW ORDER REPLACEMENT KITS THROUGH THE SUPPLY SYSTEM.

Each JCIMS kit includes combat identification panels (CIPs) with all assemblies, components and mounting hardware; a thermal identification panel (TIP) for visual and thermal marking; and a Phoenix IR-14 infrared light for marking visible through night vision goggles and driver's vision enhancers.

JCIMS kits include CIP panels...

...TIP panels...

...and Phoenix IR beacons

Keep in mind that JCIMS is a CTA 50-909, Table 60, Class II accountable item with a Reportable Item Control Code (RICC) of 2 (reportable) and an Accounting Requirement Code (ARC) of "durable." So make sure you remove the kit before turning in your vehicle to Reset. You'll need it for your replacement vehicle.

AVAILABLE JCIMS KITS WITH THEIR NSNs AND LINE ITEM NUMBERS ARE LISTED ON PAGE 4.

NOTE THAT THE NSNs FOR THE KITS HAVE **CHANGED**. BUT THE COMPONENTS REMAIN THE **SAME**.

Vehicle	Kit, NSN 2590-	LIN
M1-series tanks	01-394-2534	K41354
M2A2/M3A2, M2A3/M3A3 Bradleys; M6 Linebacker; M7 BFIST	01-398-5170	K41388
M270A1 MLRS	01-398-5171	K41558
M113A2/A3 FOV	01-398-5168	K41490
M88A1 recovery vehicle	01-394-2531	K27523
FLU 419 SEE	01-398-5163	K41184
M109A2-A6 SP howitzers	01-398-5180	K41422
M992A1/A2 ammo carriers	01-398-5178	K27591
M1126, M1127, M1128, M1130, M1131, M1132, M1134 Strykers	01-501-9527	C85240
M1129, M1133, M1135 Strykers	01-507-2544	C85308
M996/M997 HMMWVs with S250/S260 shelter	01-398-7188	K93075
M998, M1038, M1113 (w/o shelter), M1097, M1025, M1026, M966, M1151, M1152, M1165 HMMWVs	01-472-5884	K41762
AVLB	01-392-1566	K41252
HMMWV Avenger	01-398-7197	K27455
FMTV/LMTV, HEMTT, PLS, LHS-series (unarmored)	01-618-8121	TBD
M9 ACE	01-399-6774	K41456
M93A1 Fox CBRN vehicle	01-398-5173	K41252

USE THESE NSNS TO ORDER A CLASS II REPLACEMENT TIP-9/21 OR PHOENIX IR-14 LIGHT...

Item	NSN
TIP-21 thermal ID panel (2x2-ft)	2590-01-563-8452
TIP-9 thermal ID panel (4x4-ft)	2590-01-531-6337
Phoenix IR-14 light	5855-01-438-4588

INTEGRATED LOGISTIC SUPPORT (ILS) AND SUPPLY MANAGEMENT RESPONSIBILITIES FOR JCIMS IS NOW HANDLED BY CECOM.

QUESTIONS? CONTACT ONE THE FOLLOWING...

**Sherry Venable, Project Leader**  
(443) 861-2561

[sherry.l.venable.civ@mail.mil](mailto:sherry.l.venable.civ@mail.mil)

**Stephanie Jones, Logistics Leader**  
(443) 861-3048  
[stephanie.l.jones105.civ@mail.mil](mailto:stephanie.l.jones105.civ@mail.mil)

**Troy Heitzer, Item Manager**  
(443) 861-2984  
[troy.j.heimer.civ@mail.mil](mailto:troy.j.heimer.civ@mail.mil)

TBs describe the JCIMS' capabilities, include step-by-step installation instructions, list required tools, and provide a component list with NSNs. The TBs are available at the LOGSA electronic technical manual (ETM) website: <https://www.logsa.army.mil/etms/>

You'll need your CAC and first-time users must first request access. Here is a list of the TBs available by vehicle system:

Vehicle	Manual
M1-series tanks	TB 2590-428-23-1
M88A1 recovery vehicle	TB 2590-428-23-3
M2A2/M3A2, M2A3/M3A3 Bradleys; M6 Linebacker; M7 BFIST	TB 2590-428-23-4
M113A2/A3 FOV	TB 2590-428-23-5
M270A1 MLRS	TB 2590-428-23-6
FLU 419 SEE	TB 2590-428-23-7
M992A1/A2 ammo carrier	TB 2590-428-23-8
M9 ACE	TB 2590-428-23-9
M109A2-A6 SP howitzer	TB 2590-428-23-10
M88A2 recovery vehicle*	TB 2590-428-23-11
FMTV/LMTV, HEMTT, PLS, LHS-series (unarmored)*	TB 2590-428-23-12
M93A1 Fox CBRN vehicle	TB 2590-428-23-13
HMMWV Avenger	TB 2590-428-23-14
M996/M997 HMMWVs with S250/S260 shelters	TB 2590-428-23-15
HMMWV expanded capacity vehicle (ECV)	TB 2590-428-23-16
HEMTT, PLS (armored)*	TB 2590-428-23-17
M1126, M1127, M1128, M1130, M1131, M1132, M1134 Strykers	TB 2590-428-23-18
M1129, M1133, M1135 Strykers	TB 2590-428-23-19
MRAP FOV*	TB 2590-428-23-20

\*These TBs are currently available only in draft form.

All assemblies and components are expendable items that can be ordered through the Army supply system as Class IX repair parts. If you need help ordering repair parts, contact CECOM LRC JCIMS Item Manager Troy Heitzer, (443) 861-2984, or email:

[troy.j.heimer.civ@mail.mil](mailto:troy.j.heimer.civ@mail.mil)

## Maintenance Notes

Occasionally, the thermal tape on CIP panels is damaged or becomes shiny when the CARC paint layer on the tape wears off. When that happens, make repairs with a roll of 3/4-in x 150-ft thermal tape, NSN 8135-01-518-2504.

Clean the surface of the old tape. Then cut the new tape to the proper length and apply it over the old tape.

Units with M109-series SP howitzers and M992A2 ammo carriers may notice problems with the right-side panel, NSN 2590-01-398-6740, in their JCIMS kit. This panel is mounted to the immediate rear of the engine exhaust, which could melt the panel's thermal tape.

If that happens, order the Stryker MEV hatch panel, NSN 2590-01-609-3878, and install it as far to the rear as possible in the same location as the original panel. This replacement panel is smaller and less likely to melt.





# HELP For Your M777A2 Howitzer

YOU  
DIDN'T  
FIRE!  
WHAT'S  
**WRONG**  
WITH  
YOU?

TWO  
WORDS:  
**DIRTY  
BREECH!**

At least weekly,  
disassemble, clean  
and lube breech

Dear Editor,

While helping keep the howitzers firing here at Ft Sill, I've come up with a good tip for M777A2 howitzer crews:

***At least weekly, disassemble, clean and lube the breech, PFM body and tray.*** Do this even if the howitzer hasn't been fired. If you don't, the breech may not close properly and the witness marks may not line up.

Ron Witt  
TACOM FMX  
Track Shop  
Ft Sill, OK

**Editor's note:** An excellent tip, Ron. In fact, TACOM made sure this was covered in the latest revision to TM 9-1025-215-10 (Nov 14). See Note 18 and 19 in the Lubrication Instructions of WP 0062 for more information.

Stryker...

## TAKE BITE OUT OF SWITCH GUARD

**OUCH!** I CUT  
MYSELF ON THE  
SWITCH GUARD  
**AGAIN!**

SHEESH. YOU'D  
THINK HE'D HAVE  
**LEARNED** HIS  
LESSON BY NOW.

Crewmen, it's easy to bump into your Stryker's switch guard, NSN 5930-20-000-9243, as you're entering or exiting the vehicle. Your personal gear and weapon can also take a toll on the switch guard's rubber seal, damaging it or knocking it off completely.

The entire switch guard has to be replaced if the seal is damaged or missing. That'll cost your unit about \$100. And if the rubber seal on the guard goes missing, the exposed metal edge can take a bite out of you.

You can save some money and maybe some skin by removing the seal, applying a little adhesive to the metal guard and reinstalling the seal. That'll help keep the seal in place. NSN 8040-00-995-7080 brings a 24-oz can of spray adhesive that's made for bonding pads and trim to metal.

Apply adhesive under switch guard's  
rubber seal to keep it in place

# CHECK THOSE RETAINING PINS

ANOTHER  
SUCCESSFUL  
FIRING!

GREAT! NOW  
CHECK MY FIRING  
PIN TO MAKE  
SURE THE **NEXT**  
MISSION GOES  
SMOOTHLY,  
TOO!

Dear Editor,

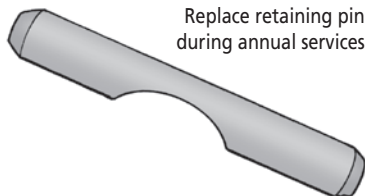
We're seeing a lot of M119A2 howitzers come into our shop with loose firing pins caused by worn-out retaining pins.

A worn retaining pin, NSN 5315-01-342-0442 for the A2 and NSN 5315-01-616-3457 for the A3, can allow the firing pin to slip out of position and fall into the breech block.

When that happens, it's tough to get the firing pin back into the right position. Also, the firing mechanism can't be turned or removed as long as the firing pin is out of position.

It's a good idea to perform the firing pin protrusion test every time after firing. Also, we think it's a good idea to replace the retaining pin during annual service.

Pirner Hans-Juergen  
Maintenance Activity Vilseck  
Vilseck, Germany



Replace retaining pin  
during annual services

**Editor's note:** Thanks for the great information. Crewmen, you'll find instructions for the firing pin protrusion test in WP 0043 10 of TM 9-1015-252-10 (Sep 10) for the A2 and WP 100 12 of TM 9-1015-260-10 (Oct 14) for the A3.

# MISSILES PS

ALSO  
FEATURING  
**SMALL  
ARMS**

AND  
**CBRN**

## MISSILES

- MLRS Tips
- Protect Your Patriot
- Patriot AMG Support

## SMALL ARMS

- Track Small Arms
- CROW Travel Mode
- Prevent Explosions
- Small Arms IMI

## CBRN

- Pro Mask for Training
- Packing NVGs

# Multiple Tips for MLRS

THESE TIPS  
FROM FT SILL  
WILL **MULTIPLY**  
YOUR MLRS'  
PERFORMANCE!

Dear Editor,

While maintaining the MLRS fleet at Ft Sill, we've come up with a few things for units to watch for:

**Careful with the 1W5 cable when you pull the pack.** The cable's wiring harness can snag on the engine and rip loose. It's not easy to get a replacement. Protect the 1W5 by tucking it behind the K1 relay box before you pull the pack.

**When you change the fuel filter, prime the new one first and then bleed air out of the filter.** Otherwise, the engine may vapor lock.

**Before lowering or raising the cab, make sure the hand brake is in the applied (up) position.** If you forget, the hand brake gets bent and then you can't apply high idle. Also make sure everything, especially tools and TMs, is secured before the cab is raised. We had a shift tower bent because this was forgotten.

Make sure hand brake is up before lowering or raising cab

**Before lowering the cab, make sure the heater is rotated to the correct position.**

This is especially important if the MLRS has just come back from services. Otherwise, the heater fuel line gets pinched when the cab is lowered. Then the heater won't work. But when you raise the cab to troubleshoot, the fuel line is freed and the heater works again. We had a difficult time figuring out what was wrong.

Fuel line gets pinched if heater is positioned wrong

Shane Thompson  
Brian Stewart  
TACOM FMX Track Shop  
Ft Sill, OK

LEMME AT 'EM!  
MY PM'S DONE...  
SO NOW I CAN  
PUNCH **HARD!**

## Protect Your Patriot Like This

THE PATRIOT  
MISSILE  
SYSTEM PACKS  
A **POWERFUL**  
**PUNCH.** BUT  
IT'LL GO DOWN  
FOR THE  
COUNT IF YOU  
**FORGET** THESE  
RULES...

**Protect the cables that run between the components, particularly those between the battery command post and engagement control station (ECS).** Often the cables are run over by trucks, which rips them loose. The cables are expensive to replace, and the Patriot is out of action in the meantime. At the very least, mark off the cables with flags. Some units have invested in cable protectors that shield the cables from tires. Type in “cable protectors” in an Internet search engine to find some sources.

Some units buy cable protectors to prevent cables from being ripped loose

**Carefully follow the directions in WP 0087 00 in TM 9-1430-607-12 when erecting the quick erect antenna mast (QEAM) system.** If the guide wires aren't installed properly, the QEAM's internal plastic gears can be broken.

**Follow the grounding procedure spelled out in the Patriot's TMs. And then double-check that the ground is good.** How you ground the Patriot's systems will depend on the environment. But once you've finished setting up the grounds, have your repair tech test them before you operate. That could save you from a very big shock.

OK, YOU'VE  
GROUNDED ME LIKE  
YOU'RE S'POSED TO.  
LET'S JUST HAVE OUR  
REPAIRMAN **DOUBLE**  
**CHECK** THE GROUND  
TO MAKE SURE!

**Don't over-tighten the straps on the new shrouds for the radar.** That will either pull out the clips for the shroud straps or damage the shroud itself. Pull the straps snug, then stop.

Overtightening shroud straps can rip shroud

**Easy does it when pulling out the cables for the electric power plant (EPP).** It doesn't take much of a jerk to break the cable reel's lock, making the EPP NMC. Some units have solved that problem by having stronger reel locks fabricated.

Jerking out EPP cable  
breaks reel lock

**When installing the ECU air conditioner, make sure to install the rubber grommet on the power cable that goes into the ECU.** Also, ensure the access cover on top of the A/C is completely screwed down. If the grommet or access cover screws are missing, the A/C can't drain properly. Then you start having A/C problems.

# GIVE AMG a STURDY FOUNDATION

WHOA!! I  
THINK I NEED  
A **STURDIER**  
FOUNDATION!

Dear Editor,

Because the antenna mast group (AMG) reaches so high when fully erected, a secure base is critical. Otherwise, wind can tip it over.

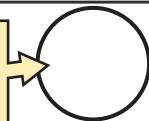
This has become an even greater problem now that the AMG is mounted on the LMTV instead of the 5-ton truck. The LMTV sits several inches higher, which can max out the stabilizer struts, especially in soft soil.

When you're emplacing the struts in soft soil, extend the stabilizer strut until the bottom of the upper strut is aligned with the **SOFT SOIL** mark on the height guide. Do that with all three struts. If you're unsure if the AMG has a firm base, get your repairmen to check it out before you fully erect the AMG.

When you emplace the struts, don't jerk them out of the stowage brackets. That can break the stop pin and the strut can come out completely. Do it slow and easy. Report a missing stop pin.

Jerking struts can break stop pin and pull strut out completely

Check safety marker to make sure struts are secure



One other good tip is to check the strut couplings for sheared or stripped bolts. These are common problems that leave the AMG unsafe.

Matt Reimer  
Patriot Missile School  
Ft Sill, OK

**Editor's reply:** No Patriot unit wants an unstable AMG. Thanks for the excellent suggestions, Matt.

Check coupling for sheared or stripped bolt

## Tracking Help for Small Arms

CHIEF HARMON'S SPREADSHEET IS GOING TO MAKE TRACKING YOUR SERVICES **EASIER!**

I'M ALL FOR THAT! JUST **DON'T FORGET** TO ENTER THEM IN **SAMS-E**.

Dear Editor,

As the armament systems maintenance warrant officer here at Camp Casey, I've noticed that there's often a disconnect from the TM to the armorer to the XO.

To help units stay on the maintenance track with small arms, I've developed a very useful spreadsheet that lists the following:

- Small arms type
- LIN
- TM/NSN
- Nomenclature
- Checkoffs for BEFORE, DURING, AFTER, MONTHLY, QUARTERLY AND SEMI-ANNUAL PMCS
- Gaging inspection intervals
- Rounds dependent

CW2 Ryan Harmon  
302d BSB  
Camp Casey,  
S. Korea

**Editor's note:** If you would like a copy of the Chief's spreadsheet, email PS at:

[usarmy.redstone.logsa.mbx.psmag@mail.mil](mailto:usarmy.redstone.logsa.mbx.psmag@mail.mil) Note:

The spreadsheet doesn't take the place of SAMS-E. That's still the official way to record small arms services.



# Weapon Installed on CROWS? Lock on *Lowest* Elevation for Travel!

**YOWCH!**

HEY! WHY  
DID YOU  
LEAVE MY  
BARREL  
STICKING UP  
LIKE THAT?

IT NEEDS  
TO BE  
LOCKED  
AS LOW AS  
POSSIBLE  
FOR  
TRAVEL!

Several units have found out the hard way it's not a good idea to leave the M153 common remotely operated weapons station (CROWS) II locked at maximum elevation for travel.

If a weapon is installed on CROWS and CROWS is locked at maximum elevation (60 degrees), the weapon's barrel can reach as far as 5 <sup>1</sup>/<sub>4</sub> feet above the vehicle, depending on the weapon. At that height, the barrel can collide with overhead objects like cables and overpasses. Something is going to be damaged big time.

UNLESS YOU'RE  
OPERATING  
CROWS, LOCK  
CROWS TO  
THE **LOWEST**  
ELEVATION FOR  
TRAVEL.

THAT PUTS  
CROWS AND  
THE WEAPON  
ONLY 30  
INCHES  
ABOVE THE  
VEHICLE.

Safety...

## ESAVs Aim to *Prevent* Explosives Incidents

BESIDES THIS PUB, YOU SHOULD  
ALSO REVIEW THE AMMUNITION AND  
EXPLOSIVE SAFETY STANDARDS IN  
DA PAM 385-64.

WHEN IT COMES  
TO SAFETY,  
**KNOWLEDGE IS THE  
KEY TO PREVENTING  
ACCIDENTS.**

THAT'S WHY FREE EXPLOSIVES SAFETY ASSISTANCE  
VISITS (ESAVs) ARE OFFERED TO ARMY COMMANDS,  
INSTALLATIONS OR ACTIVITIES BY THE DEFENSE  
AMMUNITION CENTER (DAC)/US ARMY TECHNICAL  
CENTER FOR EXPLOSIVES SAFETY (USATCES).

An experienced ESAV team of subject matter experts from DAC/USATCES travels to sites to evaluate and ensure that local explosives safety procedures comply with AR 385-10, *The Army Safety Program* (Nov 13). Some areas that ESAV teams can assist with include:

- Standard operating procedures
- Explosives safety site planning
- Ammunition and explosives operations
- Explosives safety management programs
- Electrical explosives safety
- Fire prevention, protection and suppression
- Risk management

For more info or to schedule an ESAV, contact Jeffrey Stretton at DSN 956-8089, (918) 420-8089, or email:

[jeffrey.r.stretton.civ@mail.mil](mailto:jeffrey.r.stretton.civ@mail.mil)

# Test Out Skills with Small Arms IMI

WANT TO TEST  
YOUR SMALL  
ARMS SKILLS  
ON THE SUPPLY  
SIDE OF THE  
HOUSE?

Small Arms IMI  
course covers  
arms room  
procedures and  
regulations



**YES!**

THEN CHECK OUT THE SMALL ARMS INTERACTIVE  
MULTIMEDIA INSTRUCTION (IMI) COURSE IN THE  
COMMAND SUPPLY DISCIPLINE AND PROPERTY  
ACCOUNTABILITY KNOWLEDGE CENTER.

The IMI mirrors the 92Y Small Arms Program of Instruction taught at the Logistics Training Center at Ft Lee, VA. Though you won't get a certificate for finishing the online version of the course, it's an excellent refresher for arms room operations.

It's also a good resource for officers assigned as arms room OICs or anyone who wants to become more knowledgeable in arms room operations.

Lessons cover:

- physical security of arms storage facilities.
- sensitive items management.
- The Army Maintenance Management System (TAMMS).
- PMCS.
- disassembly/assembly of selected individual and crew-served weapons.

The course also includes quizzes and links to applicable regulations.

You can access the Small Arms IMI course through Blackboard at:

[https://almc.ellc.learn.army.mil/bbcswebdav/institution/SCOE Institution/  
SCOEvideo/Unit Armorer Training Program/presentation.html](https://almc.ellc.learn.army.mil/bbcswebdav/institution/SCOE%20Institution/SCOEvideo/Unit%20Armorer%20Training%20Program/presentation.html)

If you have questions or need help, email:

[usarmy.lee.tradoc.mbx.pa-csdp-helpdesk@mail.mil](mailto:usarmy.lee.tradoc.mbx.pa-csdp-helpdesk@mail.mil)

M40/M42-Series, M50/M51 Masks...

BAD NEWS AND  
GOOD NEWS! YOU'VE  
REACHED YOUR  
EXPIRATION DATE...

...BUT  
I CAN  
STILL USE  
YOU FOR  
TRAINING!

HOO-  
RAY!

## When Is Canister for TRAINING ONLY?

Dear Half-Mast,

When should a canister for the M40-series mask be marked TRAINING ONLY? We don't want to mix up good canisters with ones that no longer protect.

SPC J.B.

Dear Specialist,

Good question! It all has to do with expiration dates.

### M40/M42 Masks

C2A1 canisters should be no longer be used after their expiration date or one year after the canister has been removed from its sealed container, whichever comes first. The expiration date is marked on the canister can.

Some canisters, however, may have had their expiration dates extended.

To check, go to: <https://jacks.jpeocbd.osd.mil/Default.aspx>

Select the Shelf Life Tools tab. If your canister's shelf life hasn't been extended, go by the date on the container.

Once the canister has passed its expiration date or been removed from its container for more than a year, it should be discarded or marked TRAINING USE ONLY in letters large enough to be easily seen.

### M50/M51 Masks

The M61 canister for the M50/M51 has the same standards as those for the M40/M42. But you should also pay attention to their time patches.

If the canister time patch turns blue, that signals humidity has degraded the canister. The canister should be discarded or marked TRAINING USE ONLY.

If you have questions, contact TACOM's

Individual Protection Team:

[us.army.detroit.tacom.mbx.ilsc-masks@mail.mil](mailto:us.army.detroit.tacom.mbx.ilsc-masks@mail.mil)

If M61  
time patch  
turns blue,  
replace  
canister

Half-Mast

WHAT'S THE MATTER  
WITH YOU? I CAN'T SEE  
A DARNED THING!

## WATCH BATTERY CORD WHEN PACKING

THAT'S 'CUZ  
YOU **SMASHED**  
MY BATTERY  
CORD!

Dear Editor,

We pack the AN/AVS-6 (V)3 night vision goggles in a hard case to make it easier for flight crews to carry and store them. You can store five sets in a case.

The problem comes when they pack the AN/AVS-6 (V)3s in their individual soft cases. If they don't completely get the battery cord inside the soft case, the cord sticks out. Then when they close the hard case, the battery connector and cord can be damaged. The only fix is a new battery pack, which costs \$275.

Please tell flight crews to make sure the cord is completely inside the soft case when they store the AN/AVS-6 (V)3. That's an easy way to save \$275.

Make sure battery cord is completely inside soft case...



...or cord gets crushed!



CW2 William Pollock  
2-25 Avn Regt  
Wheeler Army Airfield, HI

Editor's note: *Consider it done, Chief.*

**Keep 'em flying!**

- Take M230 Seriously
- ALSE NSN Chart
- UH-60 Flight, Pack Right
- Policing FOD at the Source

**PS**

**AVIATION**

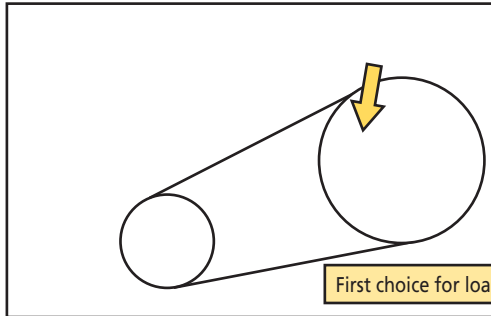
# Take Your M230 Gun Procedures Seriously!

LOOKS LIKE  
THE SMC  
AUTO LOAD  
IS **OUT!**

YOU KNOW WHAT  
THAT MEANS?  
**MANUAL MODE**  
IT IS!

MAKE SURE YOU  
FOLLOW **EVERY**  
STEP AND TAKE **NO**  
**SHORTCUTS!** I DON'T  
NEED ANY **DAMAGE!!**

When loading ammo onto the AH-64D with the sideloader, do it in AUTO MODE, the primary method for uploading and downloading ammo.



First choice for loading rounds is always AUTO MODE

The sideloader/magazine controller (SMC) manual mode is an alternative method to be used **only** when the AUTO MODE of operations fails to function properly. Just be sure you follow the IETM instructions word for word to stay safe.

If you fail to follow the operation procedures and cut corners when using the SMC manual mode, you could damage the ammunition handling system, since it allows you to override non-fatal sideloader failures/errors. Plus, the SMC will ignore certain input signal even with no failures or errors.

WHEN OPERATING SMC, MAKE SURE TO **ALWAYS** DISENGAGE AND TURN OFF THE GUN PRIOR TO RE-CLUTCHING IT.

IF YOU DON'T, THE SIDeloader CLUTCH IS STILL ENGAGED AND WILL CAUSE THE R/H ELBOW SPROCKET TO TWIST. THAT MEANS YOU'LL HAVE TO **REPLACE** IT.

It also throws off the timing and may damage the carriers and the sideloader, causing function problems with the ammo handling system (AHS).

When the mission is complete, make appropriate form entries so the AHS can be diagnosed and repaired and the AUTO MODE of operation restored.

When you're preparing to dry fire/cycle the 30mm gun, always make sure the SMC switch is not left in the AUTO or MANUAL MODE and is disengaged.

When performing the gun-system maintenance operational check (MOC), dummy rounds are fed through the system and down to the gun. When cycling dummy rounds, leave the gun door open and let the rounds fall out into a container with foam cushioning in it. This keeps your dummy rounds in tip-top shape for longer use. Dummy rounds that hit the ground can be damaged and could no longer be usable.

As a safety precaution, always stand clear of the turret and gun area during the MOC. The turret and gun can swing around very fast. Be aware that the barrel components will take you out if you're standing too close.

In manual mode, disengage gun to protect sprocket

Keep gun door open when cycling dummy rounds

ELSE... **AIR WARRIOR CLOTHING AND EQUIPMENT**

JONES, I NEED TO SIGN OUT THE REST OF MY GEAR.

GLAD YOU'RE SMILING! JUST MAKE SURE I HAVE A SMILE JUST LIKE IT WHEN YOU RETURN THIS GEAR. GET MY DRIFT?

WHEN YOU SIGN OUT YOUR PRIMARY SURVIVAL GEAR CARRIER (PSGC) FOR A MISSION, MAKE SURE **EVERYTHING'S** THERE AND THEN TAKE CARE OF ITS CONTENTS.

THE PSGC IS YOUR LIFELINE IN AN AIRCRAFT EMERGENCY.

HERE'S A LIST OF ITEMS THAT GO WITH THE VEST...

Item	NSN
PSGC assembly	8415-01-513-8143
Signaling platform	8415-01-514-1061
Blower pouch	8415-01-514-1075
Tourniquet pocket	8514-01-514-1086
Utility pouch	8415-01-547-9846
M4 magazine pouch	8465-01-547-9843
Extraction strap	8415-01-572-6710
Multi-purpose pouch	8415-01-553-0218
Radio pouch	8415-01-546-8380
First aid platform	8415-01-514-1067
Tether extension	1680-01-518-7270
Personal restraint tether	1680-01-564-6813
Retaining loop abrasion cover	1670-01-555-7027
Adapter platform	P/N 1005948-1

WHILE SIGNED OUT, ALL ELSE EQUIPMENT SHOULD BE RETURNED FOR REPAIRS AND FIXES AS PROBLEMS OCCUR.

LETTING PROBLEMS PILE UP PUTS YOU IN HARM'S WAY, SO **NEVER** ALLOW THE SERVICE INSPECTION DATE TO SLIP BY.

THERE'S SURE TO BE A LONG WAIT AND AN UNHAPPY ELSE TECH TO DEAL WITH IF YOU DO.

UH-60A/L/HH-60M...

WE'RE PACKED AND READY TO GO!

YEAH! THAT WAS A SNATCH, GRAB AND TOSS JOB!

YEAH, AND MY WIRING FELT **EVERY** BIT OF IT!

**TAKE IT EASY** ON THE LOADING AND UNLOADING NEXT TIME, YOU GUYS!

# PACK RIGHT TO FLY RIGHT

**M**echanics, you may not think how you load and unload your aircraft is worth much thought, but think again. Loading and unloading incorrectly can damage your aircraft and disrupt the mission.

Prior to packing for a mission, make sure the sound-proofing panel is in place in the aft rear cabin. Sometimes loading begins while the sound-proofing panel is removed. Unfortunately, some things then get tossed into the cabin area with reckless abandon. That puts the exposed wires in harm's way.

The sound-proofing panel doesn't just reduce aircraft noise in the cabin, it also protects delicate wiring from damage. This wiring feeds the AN/ASN-43 gyromagnetic compass, the communication coaxials, and the AN/APR-39 radar signal detecting set connectors.

Exposed wires can be damaged by duffle bags, flight bags, parts boxes, tool boxes and other equipment that gets pushed or thrown up against them.

Damage to the wire connectors in the cabin area means you won't be computing headings or picking up signals from search radar stations or incoming missiles.

Don't put the aircraft or the mission at risk. Just put the sound-proofing panel in place. If the mission requires keeping the sound-proofing panel out, take special care in loading and unloading and don't put objects against the wires that will damage them. Loading and unloading your aircraft should be done with an eye on preventing damage.

Keep objects off wiring when flying without sound-proofing panel



# Policing FOD Prevents FOD

I'M ALL DONE  
FINDING FOD!

NOT ME!  
THIS CAN IS  
**FULL!** I NEED  
A **NEW** ONE!

THEY DON'T CALL  
US THE FOD POLICE  
FOR NOTHING! WE'RE  
THE **CLEAN-AS-YOU-  
GO** CREW!

**M**echanics, foreign object debris (FOD) is a Kiowa Warrior's nemesis and a nightmare for you. Preventing foreign object damage (FOD) should rank high on your preventive maintenance list.

One way you can fight foreign object damage is to follow the "clean-as-you go" motto. That way, rags, tools, or parts won't get left behind and spell doom for your aircraft.

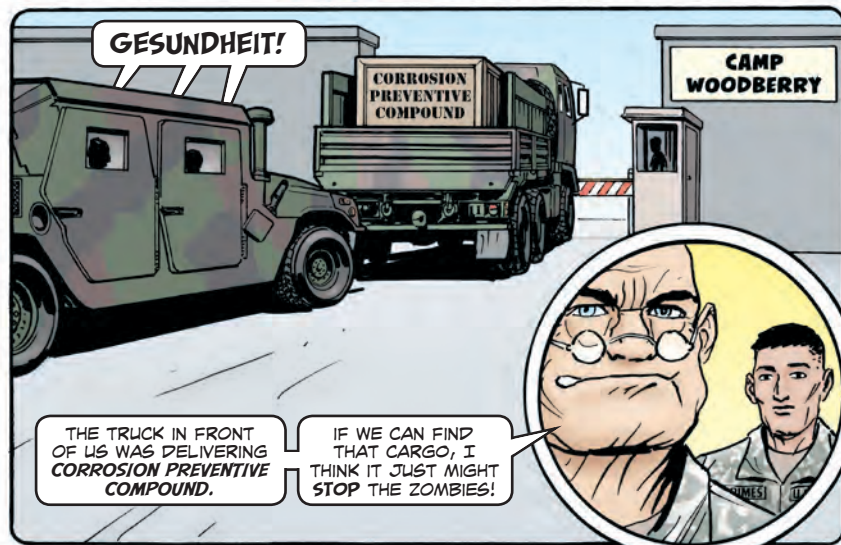
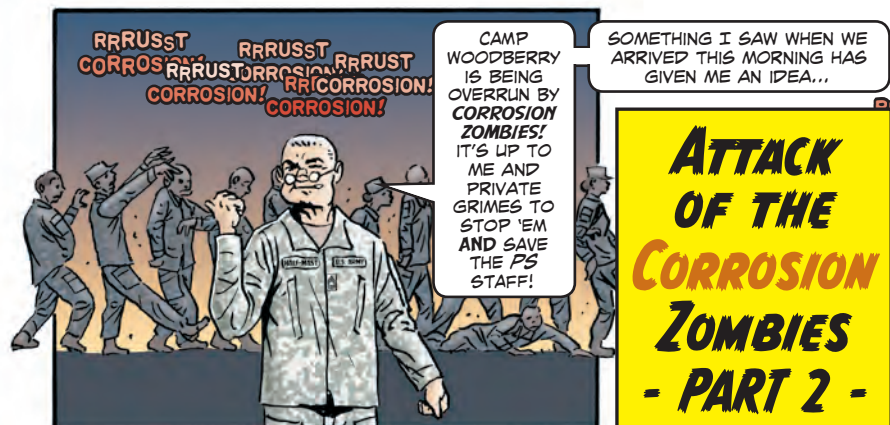
One way to handle foreign object debris is to hang a can—a homemade can painted red and labeled FOD—on the Kiowa's tail stinger when doing maintenance inside the hangar. So as you move around your aircraft you can drop things in the can such as old washers, stripped screws, spacers, discarded safety wire and any other debris you pick up while doing your job. Dropping common FOD items into a FOD can means the stuff can't fall out of your pockets into aircraft moving parts and hard to reach places.

Remember, when it comes to FOD, leave nothing to chance. Always check for loose objects such as pens and pencils that could put your life in harm's way and pose a danger to your aircraft.

Check out the U.S. Army Combat Readiness Center's web site for FOD information and more:

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

REMEMBER,  
**POLICING  
FOREIGN OBJECT  
DEBRIS PREVENTS  
FOREIGN OBJECT  
DAMAGE!**



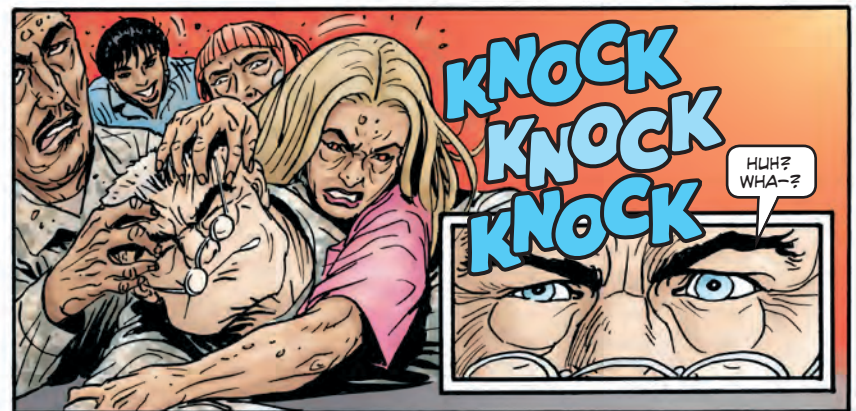




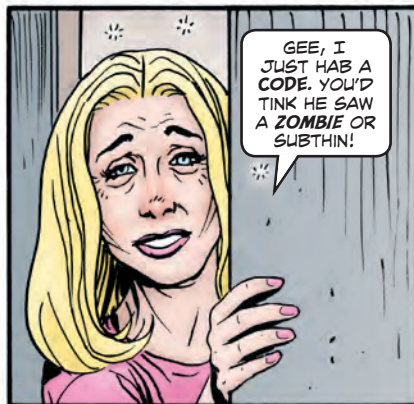
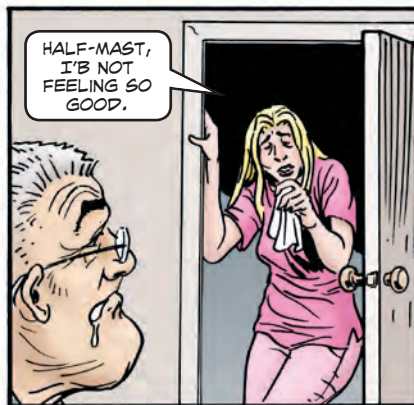












# PS HOT WEATHER

- K**ee cool with these stories about:
- Small Arms Desert PM
  - M915 Hot Tips
  - Tires Need Covers
  - R-22 Refrigerant Evaporating
  - FMTV A/C Charge Weight
  - HMMWV Condenser Fans
  - H<sub>2</sub>O for You
  - Wet Bulb Kit Replacement Parts



# BEATING THE DESERT WITH PM

THE DESERT IS A VERY TOUGH PLACE FOR YOUR RIFLE, MACHINE GUN OR PISTOL.

**BLOWING SAND** INVADES OPENINGS LIKE THE MUZZLE AND EJECTION PORT AND STOPS MOVING PARTS FROM MOVING.

COUGH!  
COUGH!

EVEN WORSE, THE **SAND** MIXES WITH LUBE AND BECOMES A SCOURING POWDER THAT GRINDS UP PARTS.

OUCH!

AND THE DESERT'S **EXTREME HEAT** DRIES UP LUBRICANT.

WHAT HAPPENED TO YOUR LUBE?

TOO HOT!  
NO PMCS!

HERE ARE A FEW WAYS TO HELP YOUR WEAPON WIN ITS BATTLE WITH THE DESERT...

**Clean and do PMCS often.** That means at least daily in the desert. Even wiping off the outside of your weapon with a clean cloth every chance you get will help. Cleaning that involves disassembly should be done only in enclosed areas, like your tent or quarters. Otherwise, blowing sand will make your cleaning useless.

Pay special attention to moving parts like the bolt carrier. Wipe and brush them clean. Blow out sand from areas like the trigger assembly that you're not allowed to take apart.

**Easy on lubricating exposed surfaces.** Lubricants like CLP attract sand. Clean and lube only internal parts frequently and generously. But wipe the outside of the weapon completely dry.

**Clean magazines, too.** Magazines jam with sand. Unload and wipe off ammo daily. Run a rag through the magazine. Don't put any lube in magazines or on ammo.

I LIKE A CLEAN MAGAZINE IN THE DESERT!

**Use rifle covers, muzzle caps, and spare magazine bags.** Cover mounted machine guns. Keep the M16/M4's ejection port cover closed and a magazine installed.

I'VE GOT YOU COVERED, MAN!

YOUR WEAPON'S -10 TM PROVIDES ALL THE INFO YOU NEED FOR HELPING YOUR WEAPON BEAT THE DESERT.

HERE ARE THE TMS AND WHERE YOU NEED TO LOOK IN THEM...

Weapon	TM #	Operation under unusual conditions	PMCS	Expendable/durable items
M2	9-1005-213-10	WP 0015	WP 0021	WP 0038
M240	9-1105-313-10	WP 0018	WP 0020	WP 0040
M249	9-1005-201-10	Page 2-45	Page 2-1	Page D-3
M9	9-1005-317-10	WP 0006	WP 0010	WP 0019
M16/M4	9-1005-319-10	WP 0006	WP 0012	WP 0022
M203	9-1010-221-10	WP 0016	WP 0021	WP 0038
M320	9-1010-232-10	WP 0016	WP 0019	WP 0027

# OPERATOR TIPS FOR WHEN HOT WEATHER HITS

SURE  
IT'S HOT,  
BUT I'M  
NOT!

MY  
MECHANICS  
TAKE **GREAT**  
**CARE** OF  
ME.

UGH...

...WISH I  
COULD SAY  
THE **SAME!**

KNOWING **HOW** TO CARE  
FOR YOUR M915 FOV  
TRUCKS IN **EXTREME HEAT**  
IS PART OF **MAINTAINING**  
THEM.

KEEP READING TO  
FIND OUT HOW **YOU**  
CAN KEEP YOUR  
TRUCK MOVING IN  
**HOT WEATHER.**

## PMCS

Allow your truck's engine to idle prior to shutdown. This allows cool-down time in extreme heat. Drain the fuel water separator daily. Check the air conditioning system. If it's not blowing cold air, have field maintenance check it for leaks before your mission.

- Check add-on armor (AoA) daily for missing or loose bolts.

## Add-on Armor Considerations

- AoA requires more frequent checks, so conduct vehicle checks at each stop during missions.
- AoA affects vehicle handling and requires greater stopping distances.
- AoA vehicles weigh more, so slow down before turning.
- Extra weight affects engine exhaust brake operation.
- AoA causes excessive wear on engine, driveline, brakes, suspension, and steering components.
- AoA reduces visibility. Make sure you and your assistant driver stay alert.

**YAAAWWWN!**  
I SURE DIDN'T  
GET MUCH REST  
LAST NIGHT!

I THINK I  
NEED ANOTHER  
ASSISTANT.  
YOU'RE  
**SUPPOSED** TO  
BE ALERT!

## More Operating Tips

- Check fluids daily. Remember to include checking fluids in your truck's lead-acid batteries that aren't maintenance free.
- Check batteries for cracks.
- Replace engine belts that show any sign of wear.
- Clean air filters and radiator fins daily.
- Wipe dirt from the fuel tank lid before opening it.
- Avoid long, continuous high speeds; long, hard pulls; and continuous operation on soft terrain.
- Cover windows when possible—but not while operating your vehicle. That keeps the inside temperature of your truck cooler.
- For vehicles with CTIS, make sure the proper setting is selected for the surface on which you're traveling.
- Keep air conditioner fins free of dirt and sand.

- Check tire pressure daily.

- Observe all gauges and indicator lights for proper readings.

## Recommended Fluids and Lubricants

- When temperatures reach 100°F, use OE/HDO-30 in the engine. In Freightliner trucks, use OE/HDO-40.
- Use 15W40 in the transmission. (But use OE/HDO-10 in your M915A1.)
- On vehicles equipped with a winch or a dump body, check fluid levels daily and use OE/HDO-10.
- Lubricate your vehicle and trailer daily.
- Use a 50/50 mixture of water and antifreeze in the radiator.

WIPE  
OFF THE  
FITTINGS  
FIRST.

MIX US AT 50/50...

...AND WE'LL HELP  
KEEP YOUR TRUCK  
RUNNING SMOOTH!

Need more assistance? Eric Barnhart, TACOM LCMC's M915 FOV maintenance team leader, can help: [eric.s.barnhart.civ@mail.mil](mailto:eric.s.barnhart.civ@mail.mil)

PS END

M870A1 Semitrailers...

WE REALLY NEED  
COVER IN THIS  
TYPE OF HEAT!

NOW...  
YOU TELL  
ME...  
SIGHHE

## Covers Preserve Tires in the **HEAT**

Dear Editor,

In our unit, we don't use our M870A1 semitrailers very much. The old split-ring tires on these vehicles sit out in the sun and can dry out, especially in the hot climate of Ft Bliss.

But the tires can be protected from the sun if they're covered. I suggest cutting up a Class IX tarp, NSN 2540-01-330-8062, into four sections. Then cover each tire and tie the tarp in place with bungee cord.

That should save some money on tire replacement.

SFC Bayardo Reyes  
4-6 IN, 4 HBCT, 1 AD  
Ft Bliss, TX

THANKS,  
SERGEANT.  
IN A TIME OF  
SHRINKING  
BUDGETS, THIS  
TIP MAKES  
SENSE.

IT'S **ALSO** A GOOD  
IDEA TO MOVE THOSE  
SEMITRAILERS SO THE  
TIRES **DON'T** SIT IN  
ONE PLACE FOR LONG  
PERIODS. THAT'LL HELP  
'EM LAST LONGER, TOO.

# NEED R-22 REFRIGERANT? BETTER GET IT NOW!

WHEW! IT'S  
BURNING UP  
IN THERE!

WATER... ...WATER!

WHY **AREN'T**  
YOU DOING  
YOUR **JOB**?

I'M ALL OUTTA R-22 REFRIGERANT.  
YOU'RE GONNA HAVE TO GET SOME MORE  
IF YOU WANT TO KEEP COOL!

GUESS WHAT  
DA-A-A-AY IT IS!

Most environmental control units (ECUs) in the Army are cooled with R-22 refrigerant. But because R-22 is considered an ozone-depleting substance (ODS), the amount produced each year has steadily declined.

In 2010, only 25 percent of the total amount produced in 1989 was made. In 2015, that's being reduced to 10 percent. In 2020, just five years from now, all production and imports will go to zero!

On top of that, Army policy now prohibits buying R-22 commercially or through a contractor logistics support contract. That's to avoid the rash of "fake" refrigerant that's been appearing on the market the last few years. You can still get R-22 through DLA, but it won't last forever and the prices will keep going up.

Qty (pounds)	NSN 6830-
30	00-935-9896
44	00-782-3930
50	00-106-1659
128	00-060-9972

HERE'S SOME **GOOD NEWS**:  
A FEW YEARS AGO, THE ARMY'S  
ENVIRONMENTAL SUPPORT  
OFFICE (ESO) WORKED WITH  
DLA TO SET UP A STOCKPILE OF  
**RECLAIMED R-22 SPECIFICALLY**  
FOR UNITS THAT SERVICE AND  
REPAIR ECUS AND OTHER  
TACTICAL COOLING EQUIPMENT.

THAT STOCKPILE IS  
NOW AVAILABLE UNDER  
NSN 6830-01-567-  
8641 (44 LBS) AND  
6830-01-567-8542  
(128 LBS). AND IT WILL  
ONLY COST YOUR UNIT  
1 CENT PER CYLINDER!

Reclaimed R-22 refrigerant comes in...

...44-lb and...

...128-lb cylinders

Reclaimed R-22 is also available in 1,050-lb cylinders under NSN 6830-01-567-9038 for the same 1 cent price. But these cylinders are designed for sustainment-level maintenance activities, like depots or RESET programs.

NOW FOR THE FINE PRINT: **EVERY** REQUISITION **WILL** BE SCREENED AND THE R-22 **WON'T** BE ISSUED FOR NON-TACTICAL USE, LIKE IN BUILDING AIR CONDITIONERS.

AN AUTHORIZED USER LIST (AUL) WILL BE KEPT BY THE ESO FOR ACTIVITIES THAT HAVE A MISSION TO RECOVER AND REFILL TACTICAL COOLING EQUIPMENT.

LAST OF ALL, YOU  
**STILL** NEED TO DO  
YOUR PART. ALL  
R-22 RECOVERED  
DURING SERVICING OR  
MAINTENANCE NEEDS  
TO BE TURNED IN  
TO THE ARMY ODS  
RESERVE.

THAT'S A **VITAL** STEP  
IN ENSURING SUPPLIES  
OF R-22 LAST AS  
LONG AS POSSIBLE.

Recovery cylinders are available for a penny apiece and the ODS Reserve will also supply a Transportation Account Code for returning filled cylinders. Go to:

<http://www.aviation.dla.mil/userweb/aviationengineering/OZONE/>

Click on LOGISTICAL PROTOCOLS in the left-hand column for requisitioning and turn-in procedures.

Questions? Contact ESO POC Erik Hangeland at DSN 458-3184, (410) 306-3184 or email: [erik.b.hangeland.civ@mail.mil](mailto:erik.b.hangeland.civ@mail.mil)

# What's the A/C Charge Weight?

WE'VE GOTTA CHARGE  
THE A/C SYSTEM ON  
THIS TRUCK, BUT I  
DON'T KNOW **HOW MUCH**  
REFRIGERANT TO USE.

I THINK  
IT'S 2.36  
POUNDS.

BUT THE TM SAYS  
NO MORE THAN  
3.75 POUNDS!

GUYS, GUYS!  
THE AMOUNT  
DEPENDS ON THE  
FMTV MODEL AND  
TEMPERATURE!

Dear Half-Mast,

Our shop does air conditioner work on up-armored FMTVs. A lot of these trucks don't have stickers on them that list the correct charge weights.

The TMs aren't clear about the amount of refrigerant to add after recovering the vehicle's A/C system, either. They say the system holds 4 pounds, but not to add more than 3.75 pounds.

Several of our mechanics believe the correct amount should be around 2.36 pounds. Since there's not a sticker and the TM is iffy, how much refrigerant should we use?

Mr. R.M.S.

THE AMOUNT  
OF R134  
REFRIGERANT  
USED **ISN'T**  
THE SAME  
FOR ALL FMTV  
VARIANTS,  
SIR.

HERE'S WHAT YOU NEED FOR A SYSTEM THAT'S BEEN **COMPLETELY** DRAINED:

- **FMTV trucks upgraded with LSACs.**  
WP 0160 of TB 9-2320-320-13&P-2 says to use 3.5 pounds of refrigerant for vehicles below serial number 104,721 and 3.75 pounds for SN 104,721 and above.
- **FMTV A1 low velocity air drop (LVAD).**  
Use 3.75 pounds for vehicles with SN 120,386-120,978. This info will be published in the next EM 0195 IETM update.
- **FMTV A1P2 LTAS.** Use 3.75 pounds of refrigerant. The LTAS air conditioning info is in the TM 9-2320-333-14&P IETM (EM 0294).

Amount of  
R134 refrigerant  
depends on  
FMTV model and  
temperature

NEW TRUCKS COMING OFF  
THE OSHKOSH ASSEMBLY LINE  
ARE BEING CHARGED WITH 3.75  
POUNDS OF REFRIGERANT.

THIS SHOULD BE CONSIDERED  
THE **BASE AMOUNT ONLY**.  
THOUGH, THE ACTUAL PSI WILL  
VARY DEPENDING ON AMBIENT  
TEMPERATURE...

Temperature (°F)	HFC-134a PSI	Temperature (°F)	HFC-134a PSI
-60	21.8	55	51.1
-55	20.4	60	57.3
-50	18.7	65	63.9
-45	16.9	70	70.9
-40	14.8	75	78.4
-35	12.5	80	88.4
-30	9.8	85	94.9
-25	6.9	90	103.9
-20	3.7	95	113.5
-15	0.0	100	123.6
-10	1.9	105	134.3
-5	4.1	110	145.3
0	6.5	115	157.6
5	9.0	120	170.3
10	12.0	125	183.6
15	15.0	130	197.6
20	18.4	135	212.4
25	22.1	140	227.9
30	36.1	145	244.3
35	30.4	150	261.4
40	35.0	155	279.5
45	40.0	160	298.4
50	45.3	165	318.3



# HMMWVs... **KEEP CONDENSER FANS CLEAR!**

HOLY COW,  
IT IS HOT IN  
HERE!

WHY IS IT  
SO DARN  
HOT?

SORRY, GUYS! I CAN'T KEEP  
YOU COOL BECAUSE MY AIR  
INTAKE GRILLE IS **CLOGGED!**

Operators, fans on your M997A3, M1151A1, M1152A1, M1165A1, and M1167 HMMWVs need to pull in a lot of air to keep you cool. But if the protective air intake grille gets clogged, that air flow is cut back dramatically. The fans can overwork and burn out.

Protective air  
intake grille  
clogged?

Protecting the fans is simple. Periodically, rinse off the dust and debris really well using a low-pressure hose. Spray the water at a downward angle to wash away dirt and debris. And make sure power to the vehicle and HVAC system is off before doing this.

Rinse out dust  
and debris with  
low-pressure  
hose

Remember to use your truck's TM to perform maintenance tasks. Eyeball the general cleaning instructions provided in Table 1 of WP 0099 in TM 9-2320-387-10.

Up-armored  
HMMWVs...

**WHEN  
A/C  
BLOWS  
HOT,  
DON'T  
LOSE  
YOUR  
COOL!**

**I**s the air conditioning in your up-armored HMMWV blowing hot air instead of cool? Where most people come from, that's called a heater, not A/C!

The culprit could be a bad A/C flow control valve. So before you turn your truck over to a mechanic for extensive troubleshooting, try this test:

Manually  
activate the  
valve by  
pressing in on  
the cylinder. If  
cold air starts  
blowing, that's  
your problem.



Tell your mechanic and he'll replace the flow control valve, NSN 4810-01-536-3832.

## PS Mag Live!



Half-Mast on [Facebook](#)  
Do a Facebook search for Half-Mast PS  
Magazine on [Facebook](#)  
Do a Facebook search for PS Magazine



PS Magazine/Half-Mast on [Twitter](#)  
Do a Twitter search for @Half-MastPSMag

PS Magazine/Half-Mast blogging  
<http://halfmastpsmag.wordpress.com>



PS Magazine Home Page  
<https://www.logsa.army.mil/psmag/pshome.cfm>



PS, the Preventive Maintenance Monthly  
USAMC LOGSA (AMXLS-GP)  
Bldg 3303  
Redstone Arsenal, AL 35898  
[usarmy.redstone.logsa.mbx.psmag@mail.mil](mailto:usarmy.redstone.logsa.mbx.psmag@mail.mil)

# H<sub>2</sub>O ON THE GO!

YOU'VE HEARD THE SAME SAFETY ADVICE EVER SINCE YOU JOINED THE ARMY—DRINK LOTS OF WATER, ESPECIALLY IF YOU'RE IN FULL GEAR AND SOLDIERING IN THE HEAT.

JUST A COUPLE OF HOURS OUT IN THE SUN WITHOUT ENOUGH WATER WILL **SAP** YOUR ENERGY AND ENDURANCE. SOON YOU'LL FEEL THE ADVANCED STAGES OF HEAT STRESS: **HEADACHES, NAUSEA AND SERIOUS FATIGUE.**

SO YOU KNOW PACKING H<sub>2</sub>O IS THE RIGHT THING TO DO, BUT DO YOU KNOW **ALL** YOUR OPTIONS?

HERE ARE YOUR CHOICES FOR SUMMERTIME SIPPING ON THE GO...

The **1-qt canteen**, NSN 8465-01-115-0026, is a rigid plastic container. The cover, NSN 8465-00-860-0256, has an outer pocket for water purification tablets. It attaches to your equipment belt or load-carrying equipment.

Cup, NSN 8465-00-165-6838

Cap,  
NSN 8465-00-930-2077

Canteen cup stand,  
NSN 8465-01-250-3632

Cap strap,  
NSN 8465-01-082-6449

Cover,  
NSN 8465-00-  
860-0256

The **2-qt collapsible canteen**, NSN 8465-01-118-8173, is larger and flexible. The canteen's cover, NSN 8465-00-927-7485, also has an outer pocket for water purification tablets. You can carry this canteen over your shoulder with a strap. It can also attach to your equipment belt or load-carrying equipment. It collapses when drained for less bulk.

Canteens are old-school sturdy and dependable, but more Soldiers are wearing hydration systems. That's because they make it easier to replace bodily fluids lost through sweating.

The modular lightweight load-carrying equipment (MOLLE) hydration system, NSN 8465-01-525-5531, is an ergonomically designed water bladder with carrier that can be worn individually or integrated with load-bearing equipment or web harness systems. The bladder includes a drink tube with bite valve, a positive shut-off, and an exterior fill port.

The carrier consists of abrasion-resistant nylon, has a sternum strap for added stability and has a handle for filling on the go.

**One important warning:**  
**The MOLLE is not meant for use in a chemical environment.**

THE MOLLE HYDRATION SYSTEM HAS A BLADDER FOR HOLDING WATER, A CARRIER WITH STRAPS FOR CARRYING IT, AND A DRINKING TUBE. IT HAS **SEVERAL ADVANTAGES** OVER TRADITIONAL CANTEENS...

**UC hydration system**,  
NSN 8465-01-525-5531  
(includes carrier, shoulder and chest straps, 100-oz bladder, drink tube and bite valve)

UC bladder (100-oz),  
NSN 8465-01-519-2304

UC drink tube,  
NSN 8465-01-519-2385

UC bite valve,  
NSN 8465-01-519-2383

UC carrier  
NSN 8465-01-524-8362

**NSNs for the OEFCP:**  
**Hydration system**,  
NSN 8465-01-580-1316  
**Carrier**,  
NSN 8465-01-580-1319  
**Bladder**,  
NSN 8465-01-519-2304  
**Drink tube**,  
NSN 8465-01-519-2385  
**Bite valve**,  
NSN 8465-01-519-2383

- It carries more clean, cool water
- You can drink on the move while keeping your hands and eyes focused on the mission
- Drinking from a tube is more convenient than reaching for a canteen, so you'll drink more water more often.

HERE ARE  
A FEW TIPS  
FOR USING  
THE MOLLE  
HYDRATION  
SYSTEM...

**Filling** — If your hydration system has an external cap, you can fill it without removing the bladder. Just open the cap and fill the system with water. Add ice cubes if you like. If your system doesn't have an external cap, you'll have to remove the bladder from the carrier.

Fill  
bladder

**Assembling** — Insert a bladder into the carrier. Route the drinking tube out the carrier opening. To install a new bite valve, pinch the tube and pull off the old valve. Wet the tube and slide on a new valve. Make sure you don't force the tube past the valve stops.

Wet tube  
and slide  
on a new  
bite valve

Do NOT  
insert  
tube past  
valve  
stops

To install the bite valve cover, pinch the tube and pull off the valve. Attach the cover's lanyard to the tube. Wet the tube and slide the bite valve back on.

**Fitting** — The MOLLE hydration system was made to be worn close to your body. When you carry weight close to your center of gravity, the load feels much lighter. So tighten the shoulder straps until the carrier is snug. If your carrier comes with a sternum strap and a waist belt, attach 'em. Drape the drinking tube over your shoulder with the bite valve close to your mouth. Adjust the tube length by sliding extra tubing into the carrier.

Tighten sternum  
strap...

...and waist belt

MAKE  
SURE YOU  
TIGHTEN  
STRAPS...

...JUST  
SOOFE  
NOT  
SHEHHE  
TOO  
WHEEZE  
TIGHT!

**Drinking** — Pinch and roll the bite valve between your fingers to open the drinking slit. Don't use a knife to open it. You could damage the valve. Bite down on the valve to start the water flowing. Draw in slightly, just like you were using a straw. Ease up on the valve to stop the water flow.

Bite down  
to start flow

Release to  
stop flow

**Inspecting and Repairing** — Inspect the bladder often for leaks. If the bladder leaks, replace it. Before each mission, inspect the carrier, buckles and straps. Look for wear spots—any place where metal or plastic rubs against the fabric. Repair small rips, tears and loose seams.

For tears less than an inch long, fix them with cloth tape, NSN 8315-00-958-0744.

If the fabric is ripped no more than three inches, sew it with the needle and thread from the tentage repair kit, NSN 8340-00-262-5767.

For longer tears, you may need to replace the carrier.

1  
LAST  
NOTE  
FOR  
THE  
ROAD.

TAKE CARE WHEN  
PACKING PENS,  
PENCILS, NAIL  
FILES, KNIVES  
OR OTHER SHARP  
OBJECTS IN  
THE HYDRATION  
SYSTEM.

THEY CAN PUNCTURE  
THE BLADDER.

PS  
END

# REPLACEMENT PARTS FOR *WET* BULB KIT

LOOKS LIKE THIS THERMOMETER'S GONE **BAD**, BARRERA. BETTER ORDER A **WHOLE NEW WBTK**.

I READ IN *PS* THAT WE CAN ORDER **JUST** A REPLACEMENT THERMOMETER, SARGE. THAT'LL **SAVE** US SOME **SERIOUS BUCKS**!

Tap Tap  
Tap

YOU **DON'T** HAVE TO ORDER A WHOLE NEW WET BULB-GLOBE TEMPERATURE KIT WITH TRIPOD, NSN 6665-01-381-3023, IF ALL YOU NEED IS A REPLACEMENT PART.

A FULL KIT COSTS ABOUT \$170. PARTS ARE A LOT CHEAPER AND YOU CAN ORDER JUST WHAT YOU WANT. HERE'S THE INFO YOU'LL NEED...

Item	PN	NSN
Thermometer, small	5-09624-01	6685-01-110-4430
Thermometer, medium	5-09624-02	6685-01-110-6563
Thermometer, large	5-09625	6685-01-110-4429
Calculator, wet bulb	WBGT-CALCULATOR	6665-01-109-3246

## Windshield Washer Fluid

To get windshield washer fluid for your vehicle, order NSN 6850-00-926-2275. That brings a case of twelve 16-oz bottles of **concentrated** windshield cleaning compound. You'll need to mix it with water, depending on the temperature:

Temperature (Fahrenheit)	Cleaning Compound	Water
+40° to -10°	1 bottle	2 bottles
0° to -40°	1 bottle	1 bottle
-30° to -65°	2 bottles	1 bottle

Use the empty cleaning compound bottles to measure the water.

CLOE, I ASKED AROUND BUT **NOBODY** IN OUR UNIT KNOWS THE ADMIN PASSWORD TO THE PQAS-E LAPTOP. WHAT DO WE DO **NOW**?

I'M AFRAID THE ONLY OPTION IS **REIMAGING** THE COMPUTER. SORRY, SERGEANT, THAT'S A **TOUGH LESSON LEARNED**.

## Remember to Pass On PQAS-E Password

The Petroleum Quality Analysis System-Enhanced (PQAS-E), NSN 6640-01-547-1760, is a mobile, self-contained fuel testing laboratory. It's set up in an ISO-style shelter mounted on a XCK 2000E1 trailer with support equipment, supplies and tent.

Though it has a modest footprint, the PQAS-E has a mighty big mission. Soldiers can use it to test aviation and diesel fuel and keep bad fuel out of birds or rigs. If you're a PQAS-E technician, you already know the key role you play in keeping the Army fleet flying or rolling.

But it's important to remember if there's ever a change in the PQAS-E administrator, the admin password must be passed on before the staff switch happens. It's required for certain repairs and maintenance, user account management in particular.

Trouble brews when a tech enters an incorrect password three times in a row. Then he'll be locked out of the system and unable to log in for an hour. As long as his password works, the tech can continue working and backing up data.

With the admin password, the administrator can get the tech back into the laptop immediately and can fix other problems. Without that password, the only work-around is reimaging the laptop. That means reinstalling the operating system and software. It also means all historical data will be lost.

SO REMEMBER, PQAS-E ADMINISTRATORS...

...YOU **MUST PASS ON THE PASSWORD!**

Units, consider adding this critical admin password handoff step to the clearance requirements list for out-processing personnel.

Lighten your heavy load with these articles:

- F-24 fuel for diesel-only equipment
- BHL turbocharger priming
- BHL start-up and shut-down
- 815 compactor air filter cleaning
- Vehicle starter cautions

# Diesel vs F-24 Fuel

HEY, HAVE YOU HEARD THE *LATEST*?

YOU BET! WE'RE CLEARED TO USE F-24 FUEL!

Dear Half-Mast,

How will the Army's conversion to F-24 fuel affect ground equipment that is supposed to run on diesel fuel only?

We have commercial off-the-shelf (COTS) equipment such as DRASH power distribution units (PDUs) and heaters, Bobcat skid-steer loaders, John Deere M-Gators and tractors that say diesel only. Any information or guidance you can provide will be great to pass on to other units we support.

SSG R.J.

Dear Sergeant,

Any piece of tactical equipment, including the DRASH's PDUs and heaters, is supposed to be designed for operation with JP-8. Since both JP-8 and F-24 fuels are completely interchangeable for CONUS operations, DRASH and construction equipment unit operations have the go-ahead to use F-24 fuel anywhere that JP-8 has been approved.

By the way, AR 70-12, Fuels and Lubricants Standardization Policy for Equipment Design, Operation and Logistics Support, is being revised to include all Army components in the use of JP-8 and F-24. You can download a copy of the AR at:

[http://www.apd.army.mil/pdf/r70\\_12.pdf](http://www.apd.army.mil/pdf/r70_12.pdf)

Half-Mast

PS

CONSTRUCTION

# Avoid Turbo Burnout!

LET'S GET GOING! WE'VE GOT A LOTTA DIRT TO DIG!

WAIT A MINUTE! YOU'D BETTER PRIME MY TURBOCHARGER FIRST. I'VE BEEN SITTING HERE FOR QUITE A WHILE!

Operators, keep this start-up tip in mind when your backhoe loader (BHL) has been sitting for several weeks: Prime the BHL's turbocharger before start up.

You'll find this CAUTION statement scattered throughout TM 5-2420-231-10 (Feb 09). That's because the impeller inside the engine's turbocharger needs lubrication when it first starts up.

## CAUTION

If the BHL has not been operated for several weeks or engine oil filter has been replaced, prime turbocharger with oil per Priming Turbocharger procedure below. Failure to comply may result in damage to turbocharger.

If oil doesn't get pumped into the impeller's bearings, they can burn out. Then you're stuck while your loader goes to sustainment maintenance to get a ruined turbocharger replaced. What a drag!

Make sure you prime the turbocharger every time the engine oil filter is replaced, too. The priming procedure is in WP 0010-3 of the -10 TM.

AND DON'T FORGET MY TURBO NEEDS PRIMING AFTER MY OIL FILTER'S REPLACED, TOO!

GOT IT!

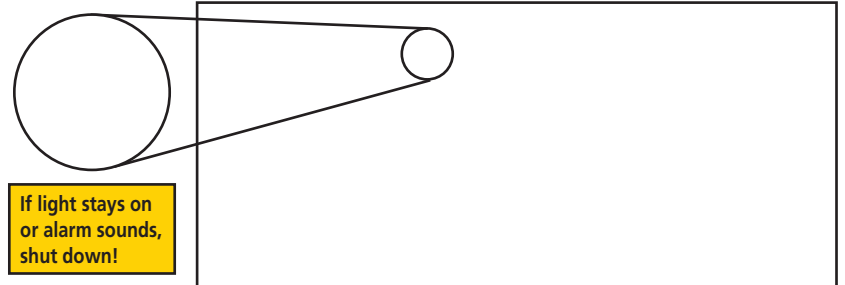
# 2 + 2 = Good PM!

NOW THAT'S THE KIND OF MATH I LIKE!

Operators, to keep your backhoe loader (BHL) on the job, read and heed all the good info in TM 5-2420-231-10 (Feb 09). But you'll need to pay special attention to how you start up and shut down the vehicle. That's where the 2 + 2 minute rule comes in handy.

Right after startup, give the BHL about **two minutes** to warm up. That gives the oil time to lubricate parts. It also boils off condensation caused by normal engine breathing. Then you don't have to worry about condensation mixing with the oil and forming a sludge that's sure to clog the engine.

During that warm-up, eyeball the low engine oil pressure warning light. If the light comes on and stays on, the engine oil pressure is too low. An alarm should also sound. If either or both happen, shut down the engine pronto and call in your mechanic.



If light stays on or alarm sounds, shut down!

After running the BHL at the worksite, let the engine cool down before shutting it off. Idle the engine for at least **two minutes**. Without that cool-down period, the heat can crack the block, warp a head or valves, or bake the oil until it's no longer slick enough to lube the bearings.

# GIVE AIR FILTER THE BRUSH-OFF

MAN, ~~SKOFFE~~  
ALL THIS DUST IS  
~~SKOFFE SKOFFE~~  
CHOKING ME TO  
DEATH!

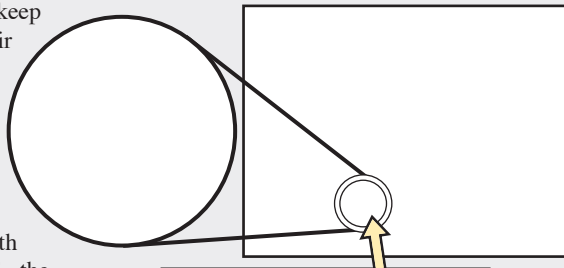
YOU OUGHTA  
SEE MY AIR  
FILTERS!

Operators, a clean air filter element is crucial during construction operations, especially when there's a lot of dust in the air.

So you need to keep a close eye on the air cleaner indicator next to the filter canister. If the indicator moves from yellow to red, you've got some work to do.

Pop the canister's lid and pull out both air filters. You'll find the secondary filter inside the primary.

Tap each filter against the heel of your palm to loosen dirt or sand. **Don't** smack it against something hard or you'll damage the filter. Now, shake the filter really good and tap some more. That'll usually knock enough junk out of the filter to keep you in operation. When the workday's over, let your mechanic know so he can clean or replace the filter.



Keep an eye on air cleaner indicator

# CRANKING AND CRANKING CROAKS BATTERIES

VRA VRA VRA VRA VRA CHCK VRA VRA CHCKK VRA

HEY! I'M **NOT** GONNA  
START. ALL THAT  
CRANKING IS JUST  
GONNA **BURN OUT** MY  
STARTER OR KILL MY  
BATTERIES!

GO GET A  
MECHANIC,  
BUDDY.  
SOMETHING'S  
**WRONG!**

RA VRA  
VRA VRA  
VRA

VRA  
VRA

Dear Editor,

Please emphasize to all operators of vehicles—and anything else that has to be started on battery power—that cranking and cranking is not a good starting solution.

One of two things will happen if you endlessly crank the engine: Either the starter will burn out or the batteries will completely drain.

You can only recharge batteries so many times before they're permanently dead and must be replaced. We've replaced a lot of batteries in the last six months, mostly because of excessive cranking. It doesn't take long for the bucks to add up.

Remember these rules to save money: Never crank the starter for more than 10 seconds at a time and give it a minute to cool off between starts. If the engine doesn't kick into life after three tries, call in your mechanic.

SFC Darrell Foster

2-4 FA

Ft Sill, OK

**Editor's note:** Great advice, Sergeant Foster. Mechanics, remember charging time and current when recharging batteries. Overcharging and overheating are big battery killers, too. When charging's done, use a quality load tester or capacitance battery tester to check. If the battery passes, keep it. If it fails, replace it.





## Where To Go for SEW Parts

Good news if your unit has the shop equipment welding (SEW), NSN 4940-01-591-0265. Many parts of the aluminum-enclosed SEW now have NSNs. The NSNs haven't been published in a TM yet, but you can get them from the SEW sustainment team. Call toll free (877) 476-7568 or email:

[usarmy.detroit.tacom.mbx.ilsc-skot-group-actions@mail.mil](mailto:usarmy.detroit.tacom.mbx.ilsc-skot-group-actions@mail.mil)

## CONTAINER INSPECTION GUIDANCE

If you work with cargo containers, use MIL-HDBK-138B, *Guide to Container Inspection for Commercial and Military Intermodal Containers* (Jan 02). It has inspection standards and procedures for determining safe and serviceable intermodal freight containers. It also has general container descriptions, definitions of container terms and a section on markings, along with sample inspection checklists with container diagrams in Appendix A. The handbook's at:

<http://quicksearch.dla.mil>

Just enter MIL-HDBK-138B in the Document ID block and click the Search button.

## DLA Container Calculator

The container calculator in DLA's Support Planning Integrated Data Enterprise Readiness System (SPIDERS) is a useful automated web tool. It can help you figure out your unit's supply transportation needs. The calculator tells you how many 20- and 40-ft containers, aircraft and trucking assets you need to move materiel. No need for pen or paper. Just copy and paste the info to your computer's clipboard, and email it to yourself or others. Visit:

<https://spiders.dla.mil>

## C7 Engine FMTV Waste Gate Solenoid Valve

Get the waste gate solenoid valve for 2 1/2- and 5-ton FMTV trucks with NSN 4820-01-569-8708. NSN 5950-01-527-0171, which is shown as Item 14 in Figs 116 and 1116 of TM 9-2320-333-14&P, is the coil/solenoid without the valve. By the way, NSN 5950-01-527-0171 is also a terminal item that has been replaced by NSN 5950-01-589-8105.

## R-134A REFRIGERANT NSNs

Need a cylinder of R-134A refrigerant for an environmental control unit or your truck's A/C? Order from these NSNs:

Cylinder (in lbs)	Application	NSN 6830-	Note
30	Non-automotive	01-390-9622 01-561-7307*	Disposable cylinder
30	Automotive	01-412-6362 01-559-0817*	Disposable cylinder
43	General	01-370-6207 01-559-0837*	Refillable cylinder with dual port/dual control valve

\*CENTCOM use only.

## M1117/M1200 Email Help

Let your fingers do the typing for maintenance or TM questions about the M1117 Armored Security Vehicle (ASV) or M1200 Armored Knight. Send an email to:

[us.army.detroit.peo-gcs.mbx.m1117-asv-and-m1200-ak@mail.mil](mailto:us.army.detroit.peo-gcs.mbx.m1117-asv-and-m1200-ak@mail.mil)

## AR 1-201 Revised

A major revision to AR 1-201, *Army Inspection Policy*, went into effect in March 2015. It covers responsibilities and policies for planning and conducting inspections in Army organizations.

Download the pub at: [http://www.apd.army.mil/pdf/files/r1\\_201.pdf](http://www.apd.army.mil/pdf/files/r1_201.pdf)

## HMMWV A/C

### Red Service Port Cap

Get the red, high-pressure air conditioning service port cap for your HMMWV with NSN 5340-01-597-2841. It replaces NSN 5340-01-547-6786, which is now a terminal item.

## 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>

## M1117 ASV MWOs

TACOM needs your help determining what MWOs have been applied to each M1117 armored security vehicle (ASV). That'll allow the Modification Management Information System (MMIS) database to be brought up to date. You'll need to physically check for each MWO application, not just the MWO tag. Then go online to update MMIS with the information at:

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

To get a complete list of MWOs with artwork to make identification easier, check out Half-Mast's blog at:

<https://halfmastpsmag.wordpress.com/>

Or write to PS for a copy at:

[usarmy.redstone.logsa.mbx.psmag@mail.mil](mailto:usarmy.redstone.logsa.mbx.psmag@mail.mil)

## Lightweight Maintenance Enclosure Fluorescent Lamp NSN

Get a 50-watt fluorescent lamp for the lightweight maintenance enclosure with NSN 6240-01-523-2050. It replaces NSN 6240-01-477-9718, shown as Item 2 in Fig 5 of TM 10-5410-284-13&P (Mar 04), which is a terminal item. Make a note until the TM is updated.

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

**Would You Stake Your Life <sup>right now</sup> on the Condition of Your Equipment?**

# **TIMES CHANGE**



# **YOUR BATTERIES SHOULD TOO**

For *more* information, go to <https://peosoldier.army.mil/>

# **USE**



# **BATTERIES**