

**PS****THE  
PREVENTIVE  
MAINTENANCE  
MONTHLY****ISSUE 684 NOVEMBER 2009**

TB 43-PS-684, 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.

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M1128 MGS Stryker Replenisher  
M1-Series Tank Extracting Tool  
M1-Series Tank 120mm Gun Tube Cleaning  
M1-Series Tank Turret Bolts  
Command Post Carrier Water Caution  
M113A2 FOV Fuel Line Nut  
M113A3 FOV Fan Drive Screw  
M2/M3-Series Bradley, MLRS Fuel Shutoff Lever  
M109A6 Paladin Idler Arm Lubing

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By order of the Secretary of the Army:

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

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**JOYCE E. MORROW**  
Administrative Assistant to the Secretary of the Army

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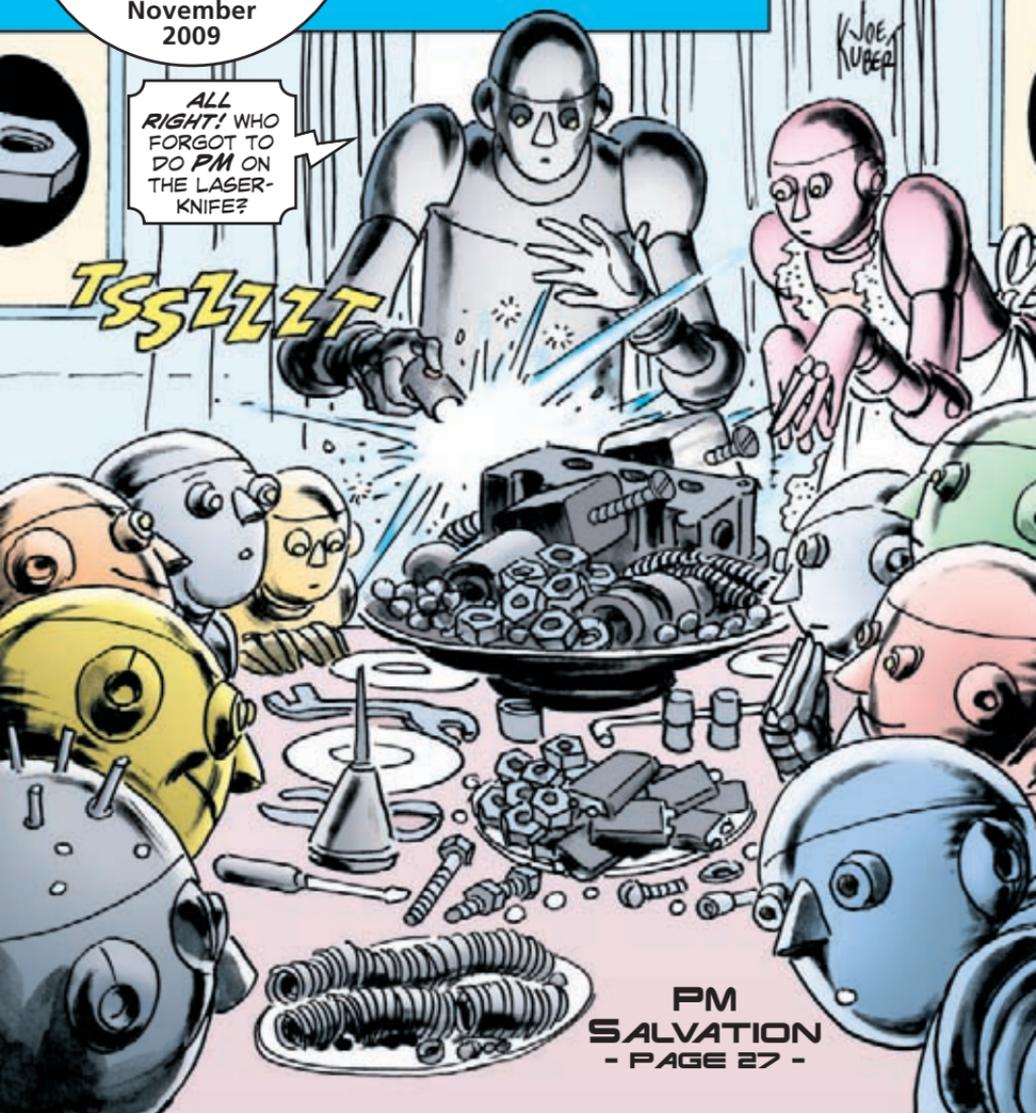
# THE PREVENTIVE MAINTENANCE MONTHLY

TB 43-PS-684

Approved for  
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ALL  
RIGHT! WHO  
FORGOT TO  
DO PM  
ON THE LASER-  
KNIFE?

TSSZZZZT



PM  
SALVATION  
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# Safety Means **THINK!**



IN THE SPAN OF EIGHT DAYS LAST YEAR, TWO SOLDIERS WERE KILLED IN SEPARATE ACCIDENTS INVOLVING SMALL ARMS.

THEIR DEATHS NEED NOT HAVE HAPPENED.

One incident occurred while a Soldier was cleaning his rifle. After reassembling it, he performed a function check on the SEMI position, which failed. He then did the check on BURST and the rifle discharged three rounds, killing another Soldier.

In the other incident, a Soldier cleared his shotgun without using a clearing barrel. The shotgun discharged, striking a Soldier in her abdomen, killing her.

Unfortunately, these aren't isolated incidents. In FY 08, the Army reported 22 accidental weapon discharges that resulted in five deaths and 17 injuries.

None of these 22 discharges would have happened if Soldiers had remembered these five rules, the THINK rules:

- T** - Treat every weapon as if it's loaded.
- H** - Handle every weapon with care.
- I** - Identify the target before you fire.
- N** - Never point a weapon at anything you don't intend to shoot.
- K** - Keep the weapon on safe and your finger off the trigger until you intend to fire.

DURING TRAINING AND SERGEANT'S TIME, COMMANDERS AND SENIOR NCOs SHOULD STRESS THE IMPORTANCE OF WEAPONS SAFETY AND THE PROPER PROCEDURE FOR CLEARING A WEAPON.

THEY SHOULD ALSO STRESS THAT THE BEST SOURCE FOR EXACTLY HOW TO CLEAR A WEAPON IS THE WEAPON'S -10 TM.

EVERY SOLDIER SHOULD WATCH FOR AND CORRECT UNSAFE WEAPONS HANDLING.



WHEN IT COMES TO HANDLING YOUR WEAPON, REMEMBER TO THINK!

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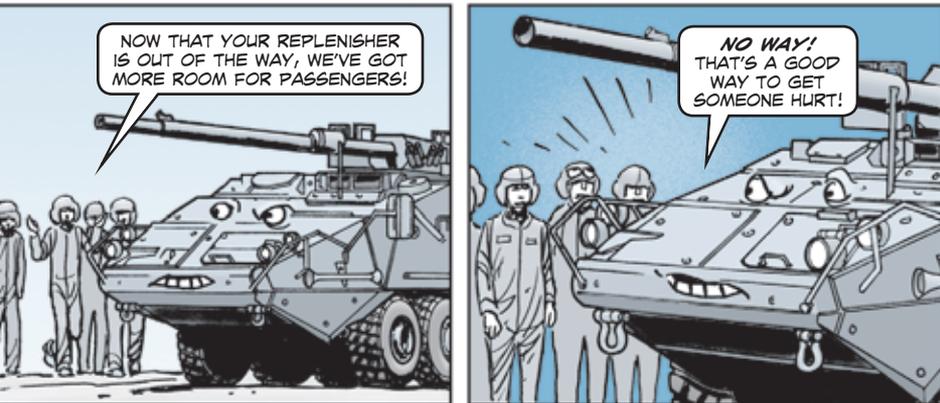
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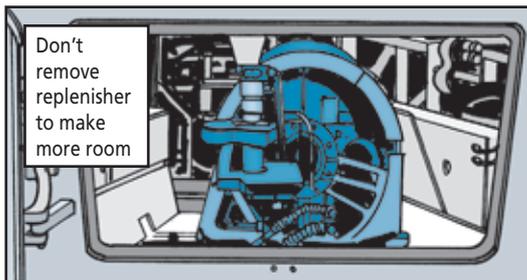
# LEAVE REPLENISHER ALONE!



Some units have been removing the ammunition handling system replenisher from their M1128 MGS Strykers. Why? To make room for more passengers and more coax and .50 cal machine gun ammo.

That's a **very bad idea**.

When the replenisher is removed, sensitive components are left exposed. The NBC system, fuel system crossover valve, fuel transfer valve, and numerous hydraulic tubes normally protected by the replenisher are easily damaged.



Item 52 of the Before PMCS chart in WP 0543-27 of TM 9-2355-321-10-1-4 says it all: The vehicle is **not mission capable** if the replenisher is not functioning properly. Obviously, it can't function properly if it isn't in the vehicle.

The only time the replenisher should be removed is during maintenance. And even then, precautions must be taken. The next update to TM 9-2355-321-10-1-1 will include the following warning in WP 0056 and WP 0069:

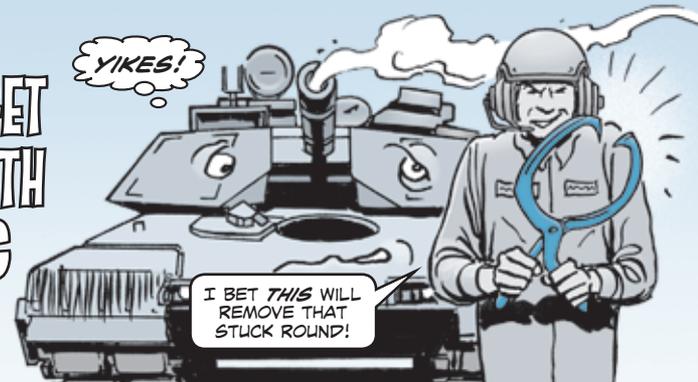
## WARNING

While the replenisher is removed, personnel are not permitted in the rear of the vehicle during normal operations. Turret movement and the lack of passenger restraints create a potentially dangerous situation which may result in injury or death to personnel.

The complete scoop is in TACOM Maintenance Action message 09-035:

[https://aeps2.ria.army.mil/commodity/mam/tacom\\_wn/ma09-035.html](https://aeps2.ria.army.mil/commodity/mam/tacom_wn/ma09-035.html)

# DON'T GET STUCK WITH WRONG TOOL!



The right tool for the right job. That's the only way to make sure the job gets done right. Unfortunately, some of you crewmen are trying to use the wrong tool when extracting a stub base or stuck round from your tank's 120mm cannon tube. That can increase the danger of flareback.

If a stub base doesn't extract from the chamber after firing, don't just grab whatever you can find to get it out. Use the cartridge ejector tool, NSN 1015-01-209-3484. It's listed as Item 20 in App B of TM 9-2350-264-10-2 and Item 22 in WP 0555-7 of TM 9-2350-388-10-3.

A stuck round should be removed with the M5 cleaning and loading rammer (bell housing), NSN 1015-01-170-4911, and rammer staff, NSN 1015-00-699-0633. These tools are listed as Items 61 and 75 in App B of the -264-10-2 TM and Items 62 and 80 in WP 0555 of the -388-10-3 TM.

Now that you've got the right tools, make sure you use them the right way. It is very important that all CAUTIONS and WARNINGS be strictly followed during these procedures.

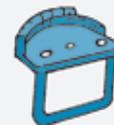
For M1A1 tanks, the procedures for removing a stuck stub base start on Page 2-505 of TM 9-2350-264-10-1. The instructions for removing a stuck round start on Page 2-503.

For M1A2 SEP tanks, the procedures for removing a stuck stub base are in WP 0299 in TM 9-2350-388-10-2. Removing a stuck round is covered in WP 0298.

For more information on preventing flareback, see Pages 2-7 of PS 682 (Sep 09):

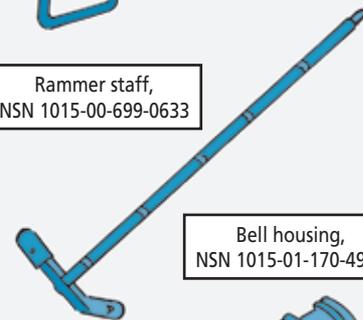
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## Use right tools for job

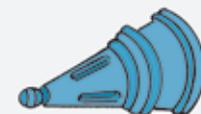


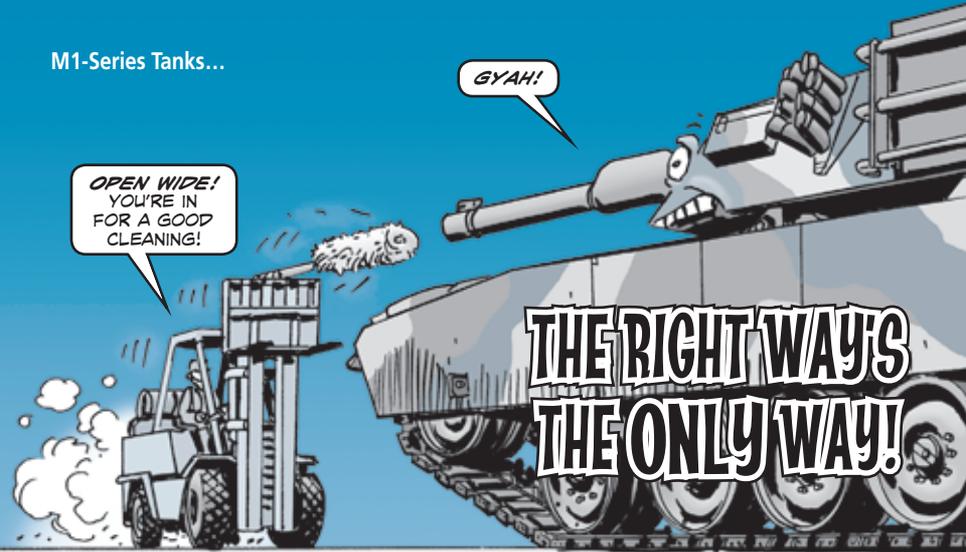
Cartridge ejector tool, NSN 1015-01-209-3484

Rammer staff, NSN 1015-00-699-0633



Bell housing, NSN 1015-01-170-4911





**THE RIGHT WAY'S  
THE ONLY WAY!**



Some Soldiers think it's a good idea to use high-pressure water or a steam cleaner to make the inside of a gun tube sparkle. Others buy special cleaning machines over the Internet. One unit even tied the cleaning staff to a forklift and went full speed ahead!

Every one of these ideas will cause damage that'll shorten the life of a gun tube. Water corrodes gun tubes while also damaging breech mechanisms, bore evacuator components, and firing circuits. Untested machines can chip and scar the inside of a gun tube. And what's up with that forklift?!

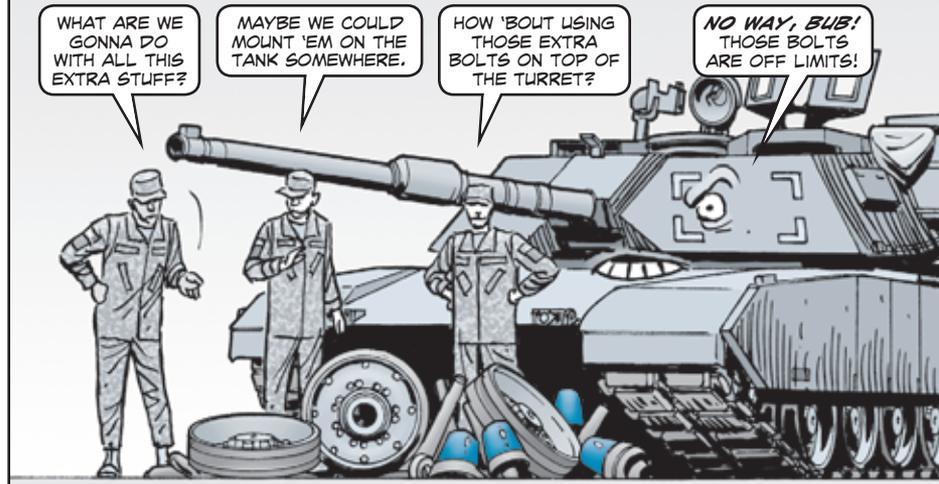


WHEN IT'S TIME TO CLEAN THE GUN TUBE, DO IT THE **ONE AND ONLY RIGHT WAY.**

FOLLOW THE DIRECTIONS IN YOUR -10-2 TMS. THAT MEANS USING...

- CLP
- a bore brush, NSN 1015-01-209-3483
- a chamber brush, NSN 1015-01-511-7872
- the rammer staff, NSN 1015-00-699-0633
- a whole lot of elbow grease

## PUT TURRET BOLTS TO PROPER USE



WHAT ARE WE GONNA DO WITH ALL THIS EXTRA STUFF?

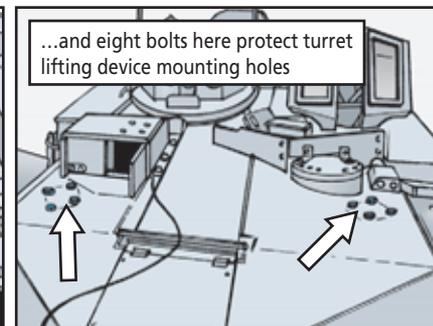
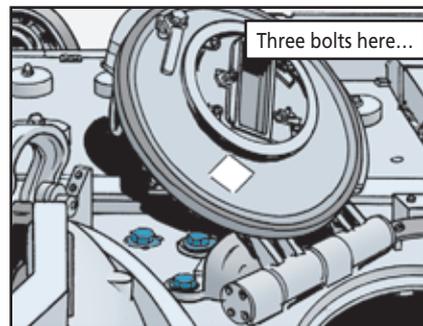
MAYBE WE COULD MOUNT 'EM ON THE TANK SOMEWHERE.

HOW 'BOUT USING THOSE EXTRA BOLTS ON TOP OF THE TURRET?

NO WAY, SUB! THOSE BOLTS ARE OFF LIMITS!

The 11 bolts, NSN 5305-01-014-5124, on top of your tank's turret are there for a reason, crewmen. And it's not for mounting flag brackets, roadwheels, lights or other items!

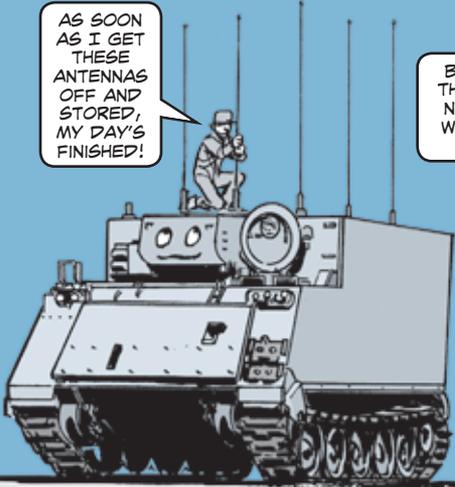
Those bolts protect the threads inside each of the holes where the turret lifting device is attached. Mess up the threads and there's no safe way to separate the turret from the hull for sustainment-level repairs.



If you've removed any of the bolts or some come up missing, check the holes to make sure they're clean and free of debris. Then, add a little antiseize compound, NSN 8030-00-597-5367, to the threads before torquing the bolts to 50-75 lb-ft. The antiseize compound prevents corrosion and reduces wear and tear on the threads.

# KEEP THE TOP UP!

AS SOON AS I GET THESE ANTENNAS OFF AND STORED, MY DAY'S FINISHED!

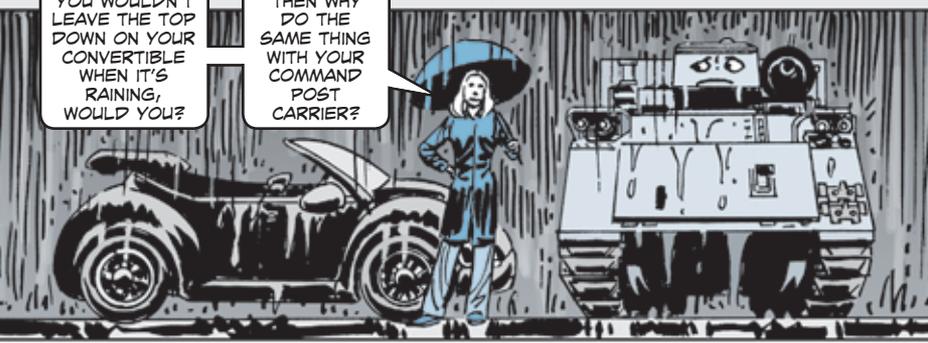


BUT WITHOUT THOSE ANTENNAS, MY TOP WILL BE FULL OF HOLES.



YOU WOULDN'T LEAVE THE TOP DOWN ON YOUR CONVERTIBLE WHEN IT'S RAINING, WOULD YOU?

THEN WHY DO THE SAME THING WITH YOUR COMMAND POST CARRIER?

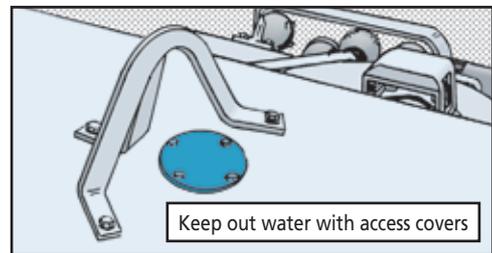
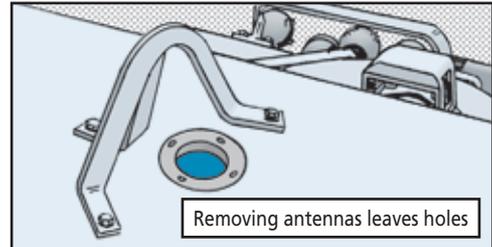


Of course, the carrier's a far cry from a convertible, but hang in there a moment.

When your vehicle is going to be stuck in the motor pool for a long period of time, you usually remove and store the antennas. The problem comes when the holes left on top of the carrier aren't covered up. The next time it rains, in come the flood waters!

There are two easy ways to prevent this. First, you can cover the carrier with a tarp. That keeps out rainwater, but you still have to worry about leaks or condensation.

Second, you can seal the holes with the access covers designed to do the job. The covers come with gaskets that seal out water and keep your carrier nice and dry.



THERE ARE THREE LARGER ANTENNA HOLES ON THE DRIVER'S HATCH SIDE OF THE VEHICLE AND TWO SMALLER HOLES ON THE OPPOSITE SIDE.



SO IF YOU NEED NEW PARTS, ORDER FROM THESE LISTS...

SEE FIG 282 OF TM 9-2350-277-24P FOR MORE PARTS INFORMATION.

### Driver's Hatch Side

Item	NSN	Qty (per hole)
Access cover	5340-00-008-9996	1
Gasket	5330-00-772-6600	2
Mounting plate	5340-00-005-7696	1
Screw	5305-00-782-9489	4

### Opposite Side

Item	NSN	Qty (per hole)
Access cover	5340-00-851-4894	1
Gasket	5330-00-772-6600	2
Mounting plate	5340-00-005-7696	1
Screw	5305-00-964-0562	4

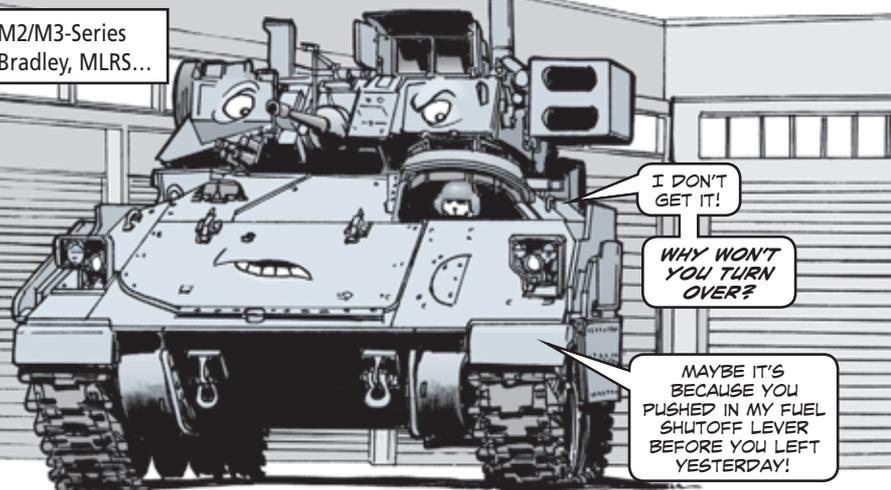
## M113A2 FOV Fuel Line Nut

Get a new tube coupling nut for the fuel lines on your M113A2-series FOV using NSN 4730-01-543-0367 (PN MS21921V8P, CAGE 81343). It replaces NSN 4730-00-554-8018 (PN MS21921-8, CAGE 96906), shown as Item 20 in Fig 22 and Item 8 in Fig 24 of TM 9-2350-261-24P (Aug 05).

## M113A3 FOV Fan Drive Screw

Use NSN 5305-00-038-8994 (PN NAS1352-4-14P, CAGE 80205) to get a new socket head cap screw for the M113A3 FOV's variable speed drive fan (old configuration). NSN 5305-00-978-9380, which is shown as Item 21 in Fig 53 of TM 9-2350-277-24P (Oct 03), is a terminal item.

M2/M3-Series  
Bradley, MLRS...



## KEEP THE FUEL OUT

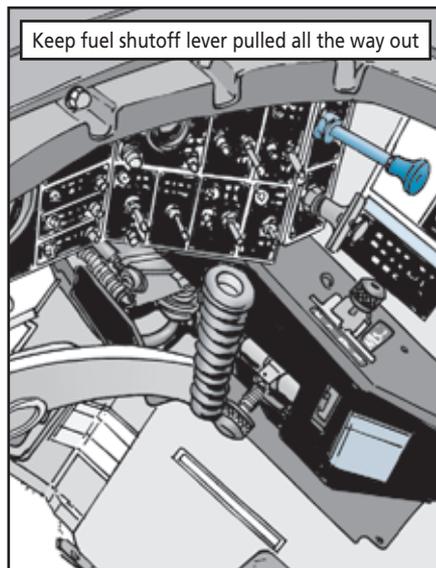
When it's time to shut down the engine on your Bradley or MLRS, a pushy driver can cause all kinds of problems.

At shutdown, drivers are supposed to pull out—**and leave out**—the fuel shutoff lever.

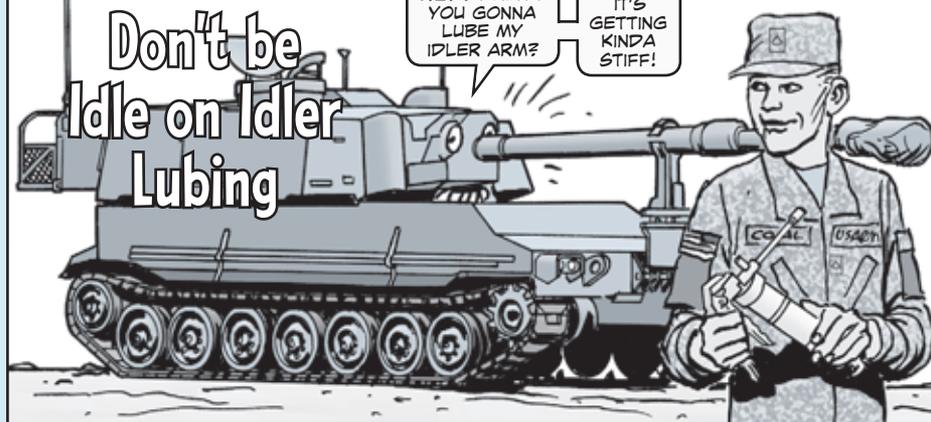
Pushing in the fuel control lever even slightly lets fuel trickle through the fuel lines into the engine cylinders. Enough fuel can cause hydrostatic lock, so the cylinders won't move the next time you try to start the engine.

The fuel continues to work its way past the piston rings and into the crankcase. Fuel-thinned oil doesn't lube well, so parts wear out quicker. When that happens, the engine is a good candidate for a breakdown.

So leave the fuel control lever pulled **all the way out** after shutdown. That keeps fuel out of the crankcase and where it belongs.



M109A6 Paladin...



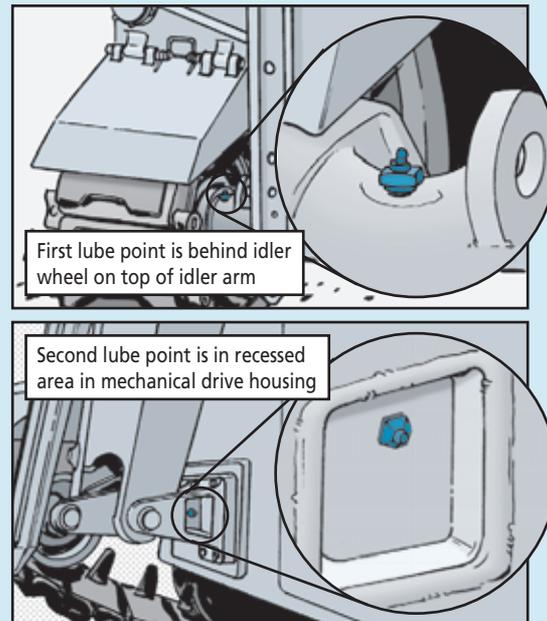
Out of sight, out of mind. That's the way it is with some lube points, crewmen. And the ones on your Paladin's idler arm and housing are a good example.

There are two lube points for the idler arm and housing. Miss them on a regular basis and the arm can lock up and even shear off during operation.

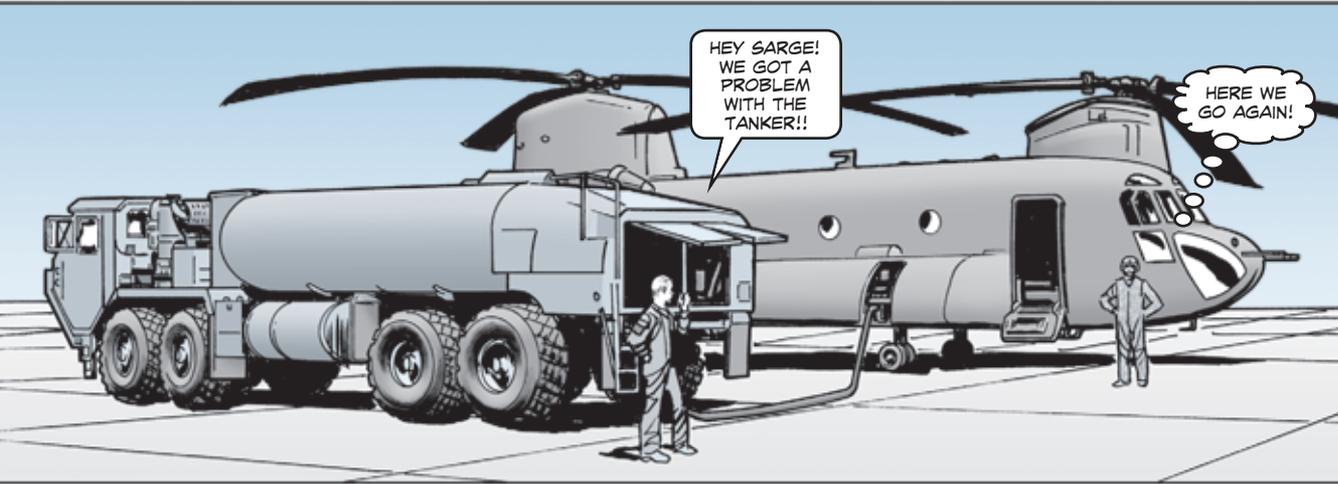
The first lube point is behind the idler wheel on top of the idler arm. It gets covered with dirt and mud, so it's easy to miss. Make sure you clean it off before lubing to keep from forcing in any dirt.

The second is in a recessed area inside the mechanical drive housing, NSN 3040-00-179-5562. Because the lube point sits back out of sight, it's often forgotten. You'll need to remove the pipe plug and replace it with a grease fitting, NSN 4730-00-050-4208, to lube this area.

Hit both lube points semiannually with GAA to prevent problems.



# Tanker Trouble - shooting Tips



Dear Editor,

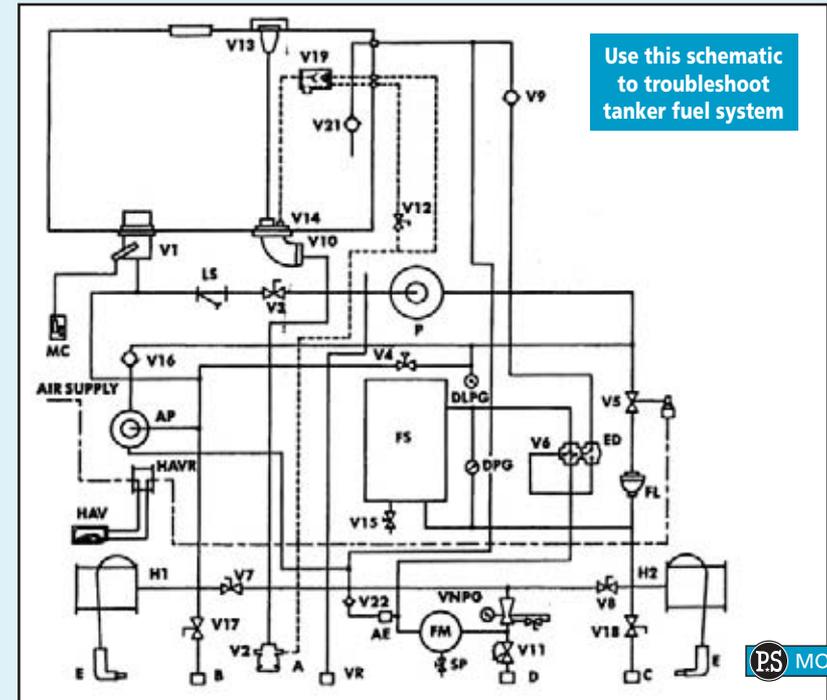
I've got some ideas that will help your readers that work on HEMTT fuel tankers. Your article on page 16 of PS 664 (Mar 08) about M978 tankers not taking fuel did not address the problem that many tankers are experiencing. The problem we've seen in our Aviation Ground Support unit is debris in the pressure line going from under the V12 precheck valve to the V19 valve's top level (jet sensor) shut off venturi.

Debris in the system stops the fuel from spraying across the venturi. Then no pressure—or not enough pressure—goes out the output side of the V19 and down to the V14 pilot valve which opens the V10 valve.

Some tankers have foaming in the V19 box. We've seen foaming through the manhole cover while trying to bottom load or recirculate. Foaming is caused mostly by air getting into the fuel line on the input side of the V19. It's also caused by loose brass elbows on the side of the V19.

### Circulation

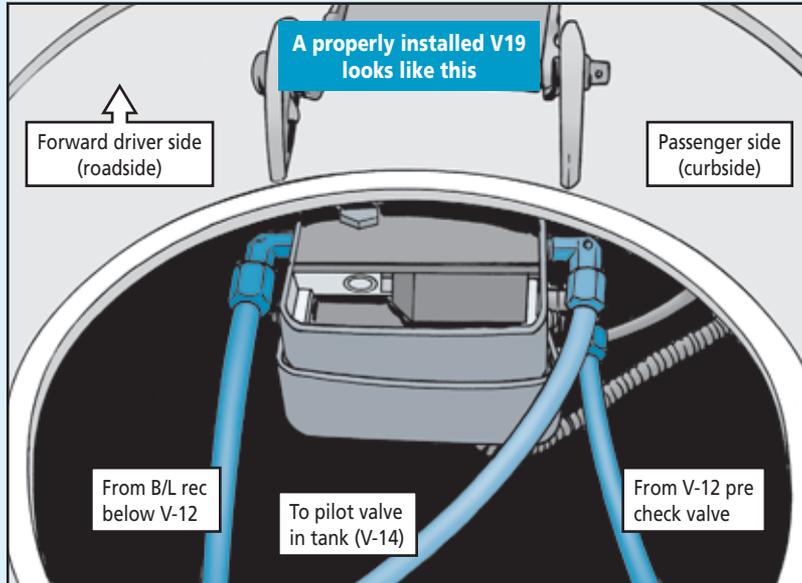
For newly RESET HEMTT -A2 tankers, and generally for all HEMTT tankers that fail to recirculate or bottom load, do this. Trace the plastic lines connected to the V19 to make sure they are installed properly. By the way, you'll find a picture of these lines in the HEMTT maintenance and parts manuals. The picture in the HEMTT parts manual has the right and left sides reversed.



Follow these additional troubleshooting instructions.

Wear the proper personal protective equipment (PPE), such as gloves and eye protection, and inspect the V19 for the following:

- A.** The INPUT plastic fuel line should be installed on the left (driver) side of the V19. This line comes from the fitting located below the V12 (the precheck valve) and gets pressure directly from the recirculation/bottom loading port where you connect the D-1 nozzle.
- B.** The plastic line to the pilot valve (in the bottom of the fuel tank just above the V10) should be installed on the top right (passenger) side of the V19 jet sensor box.
- C.** The plastic line from the V12 (the precheck valve) should also be installed on the bottom right (passenger side) of the V19.



**D.** Inspect the brass elbows that connect all three lines to the V19. If you can move them at all, they are too loose. So remove, clean and reinstall them securely using thread seal tape on the threads going into the V19. Do not put tape on the threads that go into the brass nut end where the plastic fuel lines attach. Tape in the wrong place could add debris to the line, and is not needed for the fitting-to-tube connection.

Inspect the direct line from the fuel inlet to the left side of the V19 for damage or blockage.

**E.** Connect the tanker, set up to bottom load, to a clean fuel source (possibly another M978 tanker). Follow TM 9-2320-279-10-1.

**F.** Stop bottom loading/recirculating. Close the connected D-1 nozzle and let the pressure bleed off for three minutes. Then open the manhole cover. Remember to wear your PPE!

Following these steps ought to get the truck bottom loading or recirculating properly.

If the truck still will not take fuel by bottom loading or recirculation, check the line going to the pilot valve to see if it is loose or cracked, as shown in the HEMTT troubleshooting. The only possible remaining fault is a bad pilot valve or a bad V10.

Checking or repairing either involves entering the tank itself, so confined space and fuel vapor issues are involved. Before troubleshooting or repairing inside the tank, get guidance from your unit safety officer. You'll need to know the safety requirements for working inside of a fuel tank. And you may need to be certified to work inside the tank.

### **Continual Screeching?**

Note that sometimes your HEMTT tanker's V19 system will receive enough fuel pressure to open, but not to open completely. This problem can be identified by a continual screeching noise coming from the V10 as it opens and closes continually while recirculating or bottom loading.

I have found this problem to be more likely when bottom loading at a fuel dispensing pump station that loads fuel at 300 gpm. If you hear continual screeching coming from the V10 valve when bottom loading, there could be a pressure problem with the V-19 jet level sensor.

Also, note that all V10 valves give a few screeches when they first open while loading fuel at high volumes. They could screech again when they close because the tank is full, or because the operator is testing the V12 precheck valve.

All of our tankers work fine now that we've cleaned out debris from the V12/V19 system and jet level sensor, and repaired some trucks with loose brass elbows received from the RESET program.

SSG P.M.

B Co 2-135th GSAB  
Lincoln, NE

THANKS FOR THE DETAILED TROUBLESHOOTING TIPS, SERGEANT MCFARLAND.

HEMTT USERS SHOULD FIND THIS INFORMATION USEFUL.

BY THE WAY, IF YOUR UNIT HAS NEWLY RESET HEMTT -A2 TANKERS THAT DON'T RECIRCULATE OR BOTTOM LOAD, USE ANY EXISTING WARRANTY AND SUBMIT A QUALITY DEFICIENCY REPORT (QDR).



PS END

# Annual Service Kit NSNs

MECHANICS, NEED TO PULL ANNUAL (OR SEMIANNUAL) MAINTENANCE ON YOUR UNIT'S TACTICAL VEHICLES?

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



Vehicle System	NSN (Annual except as noted)
M1074/M1075 PLS	2590-01-521-9978 2590-01-521-9985 semiannual
M1000 HET	4910-01-523-1410
M1070 HET	4910-01-523-1645 4910-01-523-1408 semiannual
HMMWV	4910-01-496-0055 4330-01-495-6900 semiannual
M977, M985 HEMTT (cargo)	2530-01-496-2588 2530-01-496-3052 semiannual
M978 HEMTT (tanker)	2530-01-496-1974 2530-01-496-4057 semiannual
M984A1 HEMTT (wrecker)	2530-01-496-2839 2530-01-496-2097 semiannual
M915 tractor truck	4330-01-538-9910
M915A1	4330-01-538-9934
M915A2	4330-01-538-9919
M915A3	4330-01-538-9926
M915A4	4330-01-539-1488
M916, M920	4330-01-538-9955
M917, M918, M919	4330-01-538-9946
M916A1, M916A2, M917A1, M917E1	4330-01-538-9923
M916A3, M917A2, M917E2	4330-01-538-9930
M939/A1-series trucks	2590-01-541-4620
M939A2-series trucks	2590-01-541-4611
LMTV Serial numbers 0001 – 11,437	2590-01-528-7243
LMTV A1 Serial numbers 11,438 – 99,999	2590-01-528-7239
LMTV A1R Serial numbers 100,001 and up	2590-01-533-6745
MTV Serial numbers 0001 – 11,437	2590-01-528-7508
MTV A1 Serial numbers 11,438 – 99,999	2590-01-528-7507
MTV A1R Serial numbers 100,001 and up	2590-01-533-6748

## M939A1 Transmission PTO

To get a transmission power takeoff (PTO) for M939A1-series 5-ton trucks use NSN 2520-01-543-6940. This PTO is the same one that's used on M939A2-series trucks. It's shown as Item 1 in Figs 529 and 530 of TM 9-2320-260-24P.

## V-Belts for M35A3

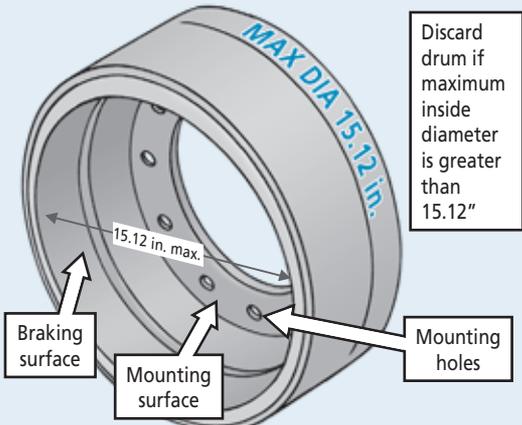
NSN 3030-01-398-3367 gets the 2 1/2-ton truck's V-belt shown as Item 8 in Fig 49 of TM 9-2320-386-24P. Use NSN 3030-01-460-1030 to get the V-belt shown as Item 1 of Fig 52. These NSNs replace the V-belt info we gave you on Page 61 of PS 672 (Nov 08).

# TURNING BRAKE DRUM CAN EXTEND BRAKE SHOE'S RUN



When you replace the brake shoes on your FMTV, mechanics, pay attention to the brake drums, too. Brake drums are consumable items and SMR-coded PAOZZ.

The IETM and TMs tell you how to measure the brake drums as part of the inspection in the brake shoe replacement task. Before turning the drums, make sure the inside diameter measures less than the maximum allowed diameter of 15.12 inches. This diameter is stamped on the outside of each drum. Discard the drum if the inside diameter is greater than 15.12 inches.

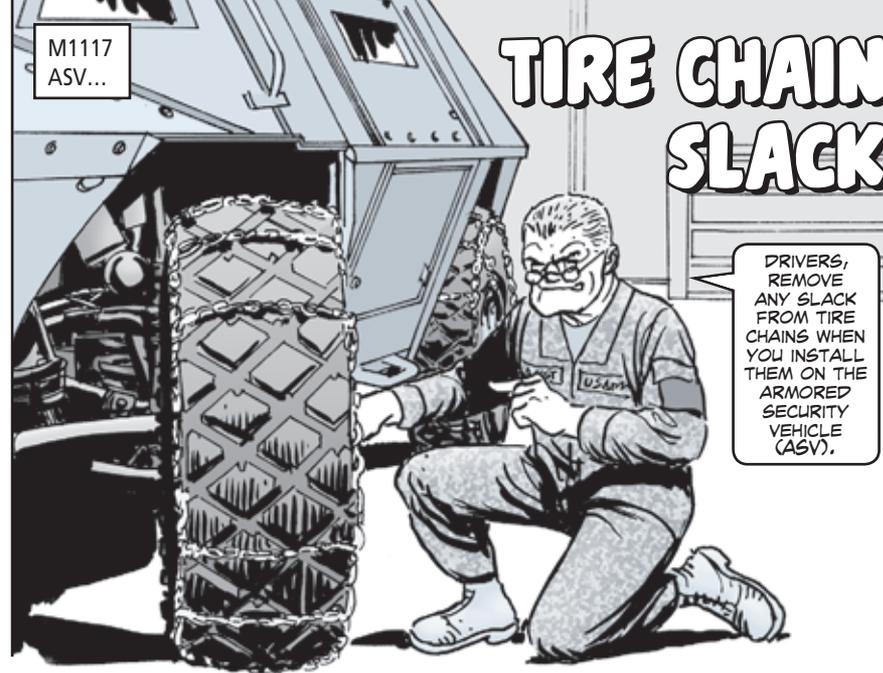


You also need to make sure the brake drums are free of scoring and cracks, and that the drum mounting holes are not egg-shaped or cracked around the edges. And be careful while turning the brake drums on your FMTV. Make sure the drums are properly installed on the lathe, are not overheated during turning, and stay within the maximum allowed inside diameter of 15.12 inches.

Machining brake drums can extend the life of the brake shoes, too, but the right equipment has to be used. A support-level machine shop with a brake turning lathe, NSN 4910-01-252-2959 or NSN 4910-00-516-6192, or a commercial company can help you with this.

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

# TIRE CHAIN SLACK

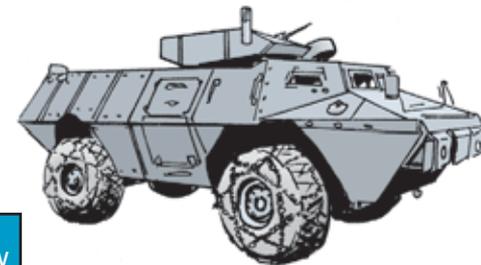


That's right—keep 'em as snug as possible. Loose chains damage tires and axle components, and they get caught in debris. They will eventually fall off if left unattended. No chains—no traction. It's that simple!

Now, here are some things to keep in mind about the ASV's tire chains. **Do not** use the info in TM 9-2320-307-10 to install the diamond-shaped tire chains, NSN 2540-01-432-2989, on the ASV. These instructions don't keep the chains tight enough around the tires. Instead, use the instructions that come with the chains.

The same goes for standard tire chains that come with NSN 2540-00-933-9033. That is, follow the instructions that come with the chains.

By the way, it's easier to put these tire chain sets on if you set the vehicle's CTIS to "emergency" before installation. Remember to take your time, work on hard, level ground, and periodically check the chains to make sure there's no slack.



NSN 2540-01-432-2989 gets diamond-shaped tire chains for ASV

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

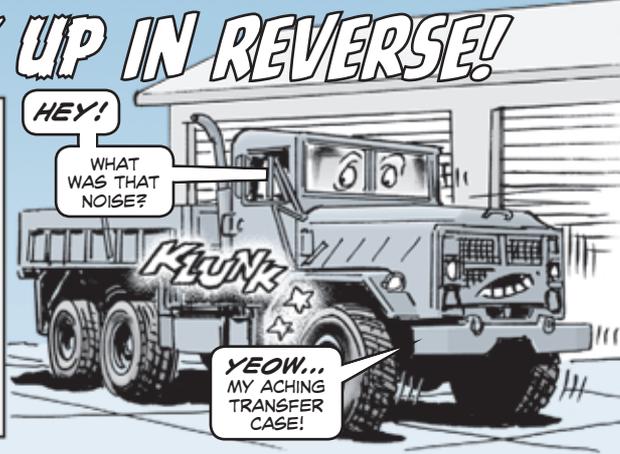
M939-Series Trucks...

# CRACK UP IN REVERSE!



HEY!

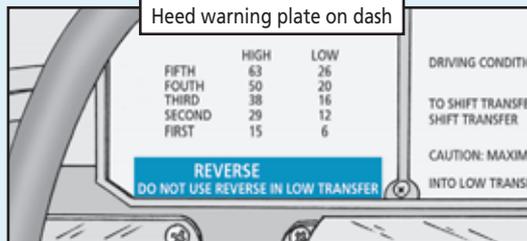
WHAT WAS THAT NOISE?



YEOW... MY ACHING TRANSFER CASE!

Vehicle downtime, not to mention a big repair bill, is what happens when the 5-tonner is backed up with the transfer gear case in low range. Backing up in low range causes the gear case to crack—and that's unreparable damage!

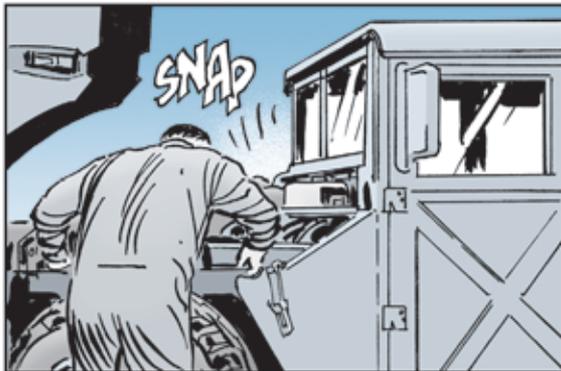
Drivers—listen up! This is an on-going problem that doesn't seem to be going away. First, read the -10 TM about backing up in reverse. Second, there's a warning plate on the dash when you get behind the wheel.



Heed warning plate on dash

M1113, M1114 HMMWVs...

# Don't Vent when Removing Fill Plug



DARN IT! I BROKE THE POWER STEERING RESERVOIR VENT LINE!

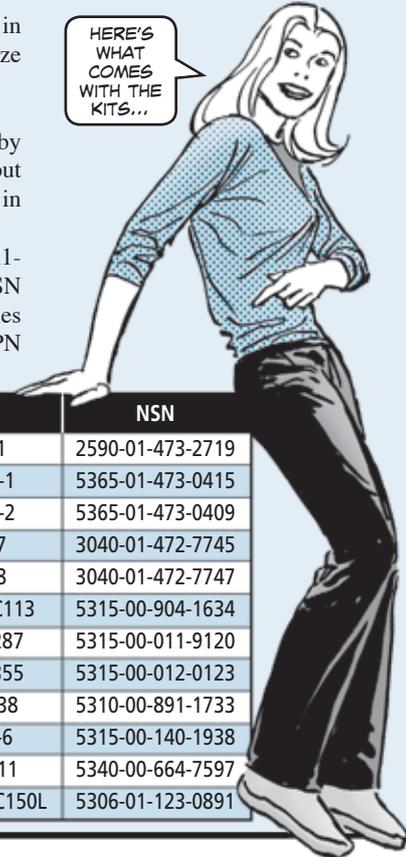
Unfortunately, some eager-beaver drivers are in a hurry when they hop in the cab and don't realize what's happened until the damage is done.

Now here's the good news.

Units can prevent this costly crack up by installing a lockout kit that won't let the driver put the transmission into reverse if the transfer is in low range.

If you drive a basic M939-series or M939A1-series truck, have your mechanic install kit, NSN 2520-01-473-2742, PN 57K3622. M939A2-series trucks need kit, NSN 2520-01-473-2744, PN 57K3623.

HERE'S WHAT COMES WITH THE KITS...



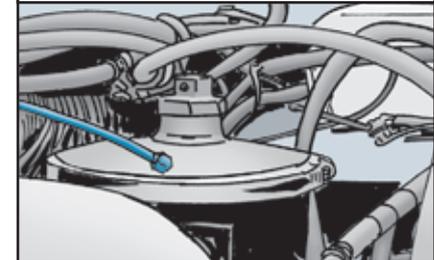
Part	PN	NSN
Bracket assembly	12379841	2590-01-473-2719
Ring spacer	12379846-1	5365-01-473-0415
Ring spacer	12379846-2	5365-01-473-0409
Connecting link (M939A1 kit only)	12379847	3040-01-472-7745
Connecting link (M939A2 kit only)	12379848	3040-01-472-7747
Straight pin	MS20392-7C113	5315-00-904-1634
Cotter pin	MS24665-287	5315-00-011-9120
Cotter pin	MS24665-355	5315-00-012-0123
Plain hex nut (2)	MS35691-38	5310-00-891-1733
Straight pin	MS35810-6	5315-00-140-1938
Rod end clevis	MS35812-11	5340-00-664-7597
Machine bolt (2)	B1821BH050C150L	5306-01-123-0891

Operators, when you need to add some fluid to your HMMWV's power steering reservoir, keep your cool and watch where you put that wrench.

You may be tempted to fit it to the upper nut on the reservoir's fill plug. Unfortunately, that's where the vent tube attaches to the plug. A wrench applied there can snap the connection between the tube and plug.

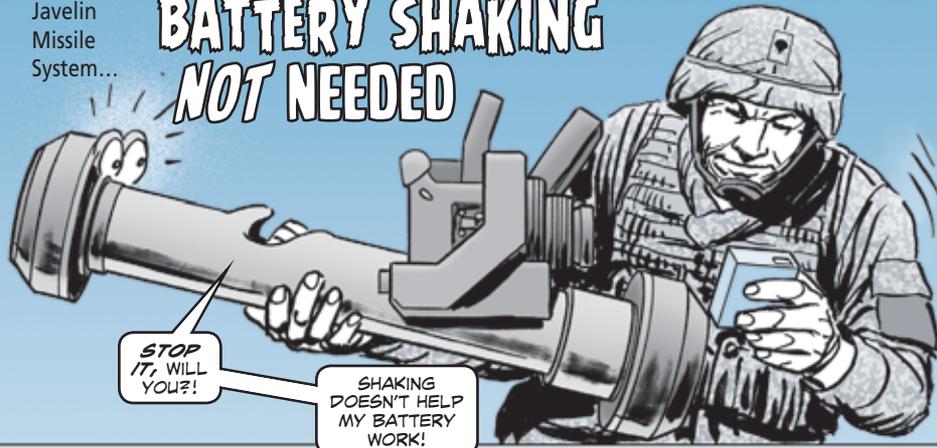
Instead, get a bigger wrench and use it on the lower portion of the filler plug. With the tube out of the way, you can get the job done with a minimum of muss and fuss—and no damage.

Wrench in wrong place will snap off vent line



Javelin  
Missile  
System...

# BATTERY SHAKING NOT NEEDED



STOP  
IT, WILL  
YOU?!

SHAKING  
DOESN'T HELP  
MY BATTERY  
WORK!



IN PS 675 (FEB 09), WE WROTE THAT JAVELIN BATTERIES LEFT SITTING ON THE SHELF A LONG TIME SOMETIMES DEVELOP A "PASSIVATION" CRUST ON THEIR METAL PLATES, WHICH PREVENTS ELECTRONS FROM PASSING THROUGH THE PLATES.

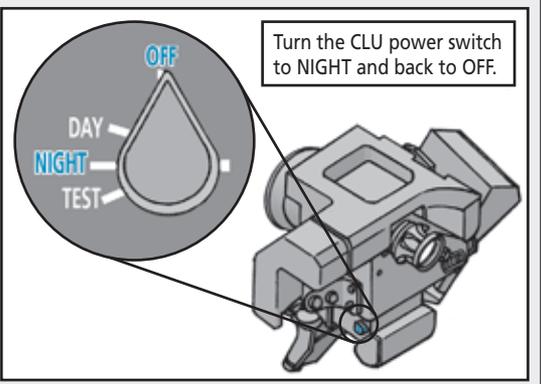
THE SOLUTION WE RECOMMENDED WAS TO SHAKE THE BATTERY.

WP 0008 00-5 IN TM 9-1425-1687-10 RECOMMENDS THE SAME THING.

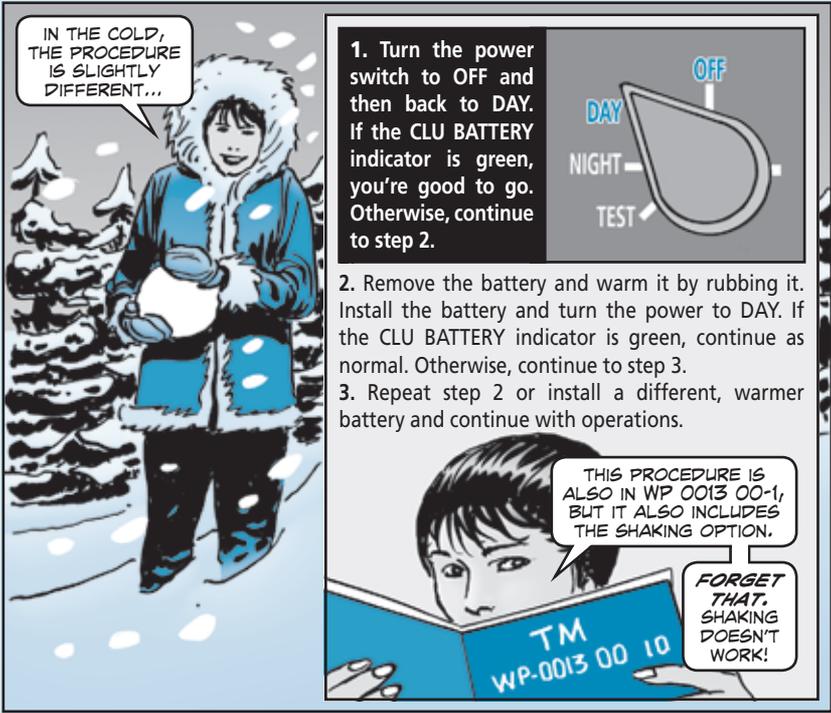
TURNS OUT SHAKING THE BATTERY IS A WASTE OF TIME.

WHAT DOES WORK IS THE SECOND SOLUTION OFFERED IN THE TM...

"A second method to remove the passivation layer is to place the BA-5590/U battery in a CLU (command launch unit), turn the CLU switch to NIGHT position and turn the switch back to the OFF position. Repeating the NIGHT/OFF switch sequence a few times will cause the passivation layer to burn off and the battery will come up to full voltage potential."



Turn the CLU power switch to NIGHT and back to OFF.



IN THE COLD, THE PROCEDURE IS SLIGHTLY DIFFERENT...

1. Turn the power switch to OFF and then back to DAY. If the CLU BATTERY indicator is green, you're good to go. Otherwise, continue to step 2.



2. Remove the battery and warm it by rubbing it. Install the battery and turn the power to DAY. If the CLU BATTERY indicator is green, continue as normal. Otherwise, continue to step 3.
3. Repeat step 2 or install a different, warmer battery and continue with operations.

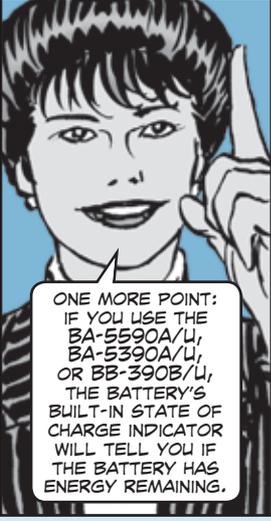
THIS PROCEDURE IS ALSO IN WP 0013 00-1, BUT IT ALSO INCLUDES THE SHAKING OPTION.

FORGET THAT. SHAKING DOESN'T WORK!



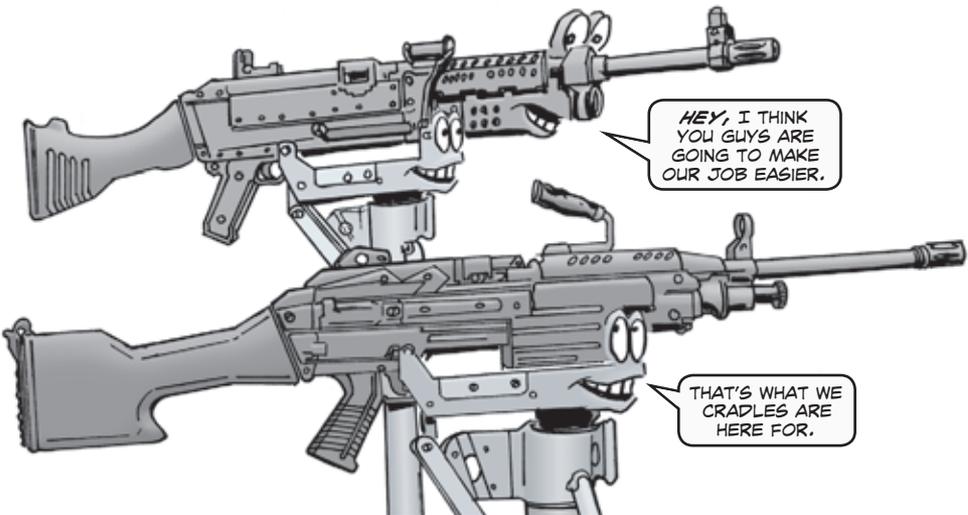
THE PASSIVATION PROBLEM CAN HAPPEN ONLY WITH THE LITHIUM SULFUR DIOXIDE BA-5590B/U, NSN 6135-01-438-9450, OR THE BA-5590A/U, NSN 6135-01-523-2037.

THE NON-RECHARGEABLE LITHIUM MANGANESE DIOXIDE BA-5390/U, NSN 6135-01-501-0833, AND BA-5390A/U, NSN 6135-01-517-6060, AS WELL AS THE RECHARGEABLE NICKEL METAL HYDRIDE BB-390B/U, NSN 6140-01-490-4317, DON'T HAVE THIS PROBLEM.



ONE MORE POINT: IF YOU USE THE BA-5590A/U, BA-5390A/U, OR BB-390B/U, THE BATTERY'S BUILT-IN STATE OF CHARGE INDICATOR WILL TELL YOU IF THE BATTERY HAS ENERGY REMAINING.

# New Cradle for Pintle Mount



**A** new cradle is now available for the M197 pintle mount that handles both the M249 and M240B machine guns.

The cradle, NSN 1005-01-553-0683, provides the gunner increased stability and support for mounting the machine guns. The cradle includes a spent brass deflector, a 200-round 7.62mm ammo container bracket, a 200-round 5.56mm ammo container bracket, a travel lock arm, and a standard small tapered pintle to integrate with the standard vehicle pintle adaptors.

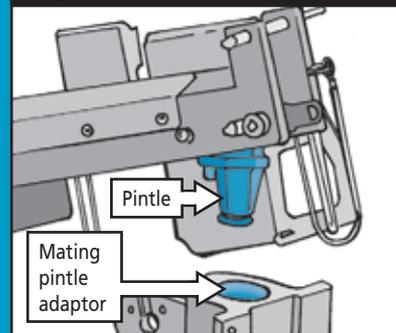
The bracket containers let the ammo remain in-line with the weapons feed tray so you don't have to resort to field fixes like duct-taping ammo containers to the vehicle.

The pintle includes a locking mechanism to sync the cradle with the pintle adaptor so that the weapon/cradle rotates with the front gunner's shield.

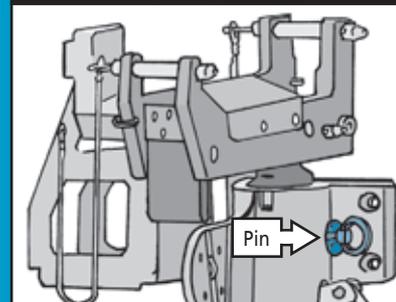
The cradle can also move forward or rearward 1 1/2 inches with the pintle/toggle quick-release pin.



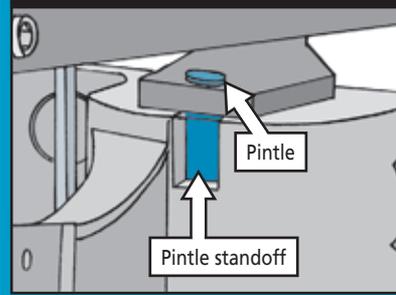
1. Insert the pintle into the mating pintle adaptor.



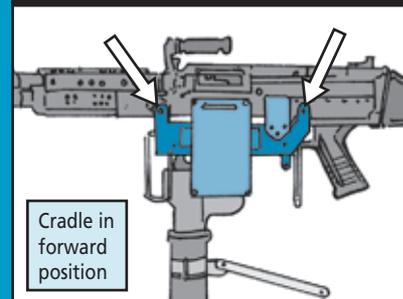
2. Secure the pintle within the adaptor with the 3/16-in pin that's part of the pintle adaptor. Be sure the pin is fully inserted through the pintle adaptor.



3. To sync the weapon cradle to the pintle adaptor, tighten the pintle standoff to the pintle on the weapon cradle.

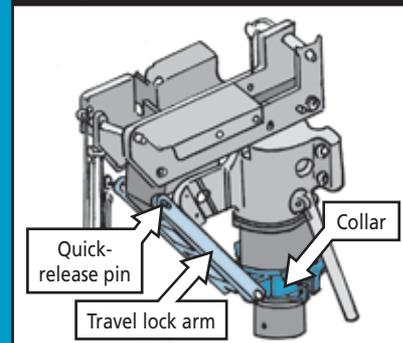


4. Place the weapon on the cradle and insert the forward and rear quick-release pins **completely** through the weapon and cradle. Be sure the pins are fully inserted.



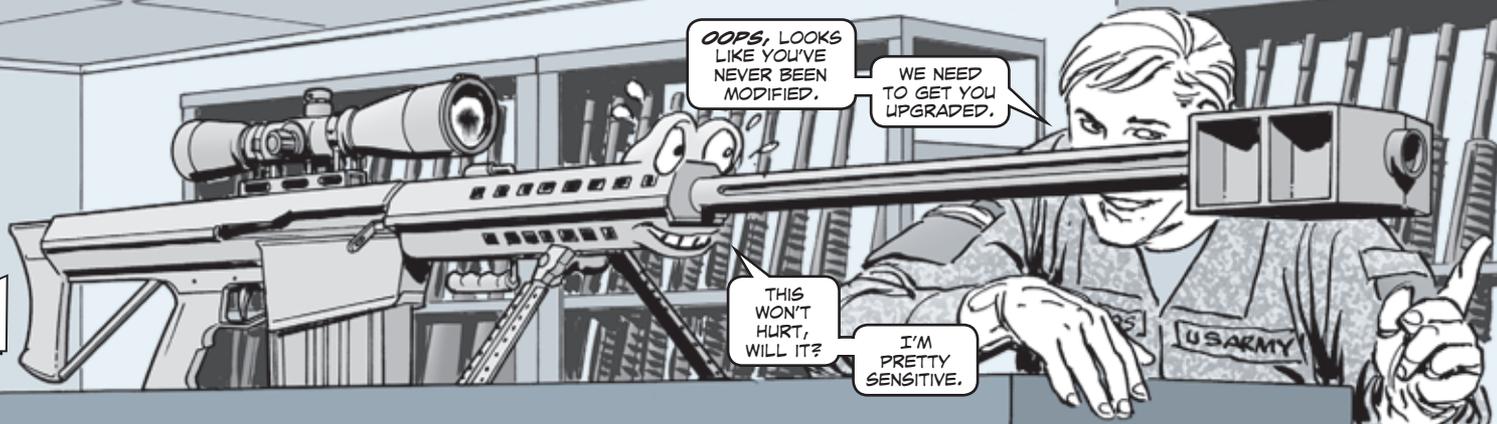
5. Adjust the cradle position by removing the pintle/toggle quick-release pin and rotating the cradle about the pintle forward or rearward for best gunner positioning.

6. To travel lock the weapon and cradle, secure the travel lock arm to the collar using the hex head cap screw, self-locking nut, and washer.



7. Remove and insert the travel lock quick-release pin to connect the opposite end of the travel lock arm to the weapon cradle. Make sure the quick-release pin is fully inserted. The cradle is now ready for travel.

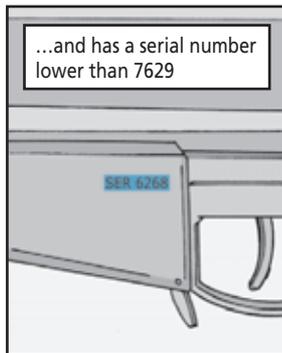
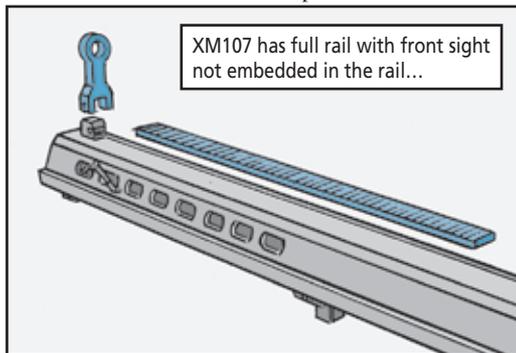
# Get Your XM107 Converted



There are still a few snipers that haven't had their XM107 sniper rifle converted to an M107 by having MWO 9-1005-239-55-1 applied.

The MWO adds a new bolt carrier pin and a cheek pad, modifies the charging handle and moves the set bump.

How do you tell if you have an XM107 and not an M82 or M107 sniper rifle? The XM107 has a full rail with a front sight that is not embedded in the rail. Most XM107s have "XM107" stamped on the receiver, although this isn't always true. If the rifle's serial number is lower than 7629, it's an XM107. If the XM107 has been modified, the "X" will be stamped out.



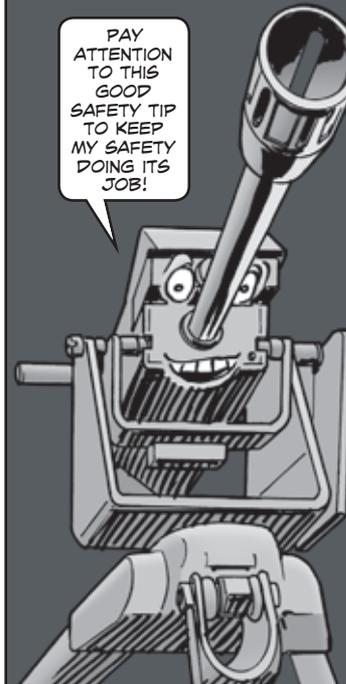
If you have an XM107, **don't try to send it to the manufacturer to have the MWO done.** You will just waste your time and the manufacturer's. **You must go through TACOM-RI for the MWO.** That's the only way.

If you have a local TACOM-RI logistics assistance representative (LAR), contact him for help on what forms you need to fill out and for shipping instructions for your XM107. No LAR? Contact TACOM-Rock Island at DSN 793-0926, (309) 782-0926, or email: [@us.army.mil](mailto:@us.army.mil)

## Repair

If your XM107 or M107 ever needs repair, contact your TACOM LAR or the TACOM-RI phone numbers and email listed previously. They will give you instructions on how to send your rifle to the manufacturer for repair.

# BE DOUBLE SAFE WITH SAFETY SLIDE

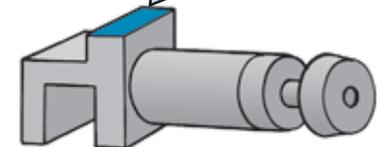


Dear Editor,

The safety slide on the MK 19 machine gun can be installed backwards if you're not careful. Then the weapon can fire even when it's set to safety, which could be a disaster.

Armorers, before you let an MK 19 out of the arms room, make sure the tab on the safety slide is facing to the rear. That's the way it's supposed to be.

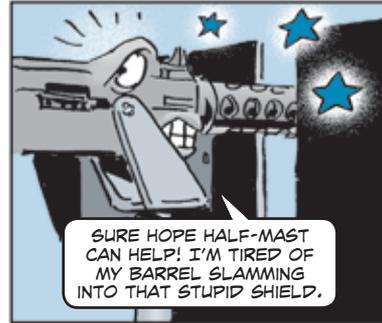
Tab should point to rear



Mr. M.E.  
TACOM logistics assistance representative  
Ft Benning, GA

*Editor's note: This is a good check to add to your PMCS. Thanks for the tip.*

# MWO Stops Barrel Hitting Gunner's Shield



SURE HOPE HALF-MAST CAN HELP! I'M TIRED OF MY BARREL SLAMMING INTO THAT STUPID SHIELD.

Dear Half-Mast,

When we mount our M2 machine guns on the MK93 mounts, the barrel hits the gunner's shield when you swing the M2 into position. Is there an adaptor we can order that will stop this?

L.A.

Dear Mr. L.A.,

You don't need an adaptor. You need MWO 9-1005-245-30-2, which synchronizes the MK93 MOD 1 and MK93 MOD 2 machine gun mounts to the gunner's shield.

If your mounts have already been modified, they will have a hole drilled next to the pintle. You may just be missing the hardware that goes with the MWO. Contact TACOM at DSN 793-1054, (309) 782-1054 or send an email:

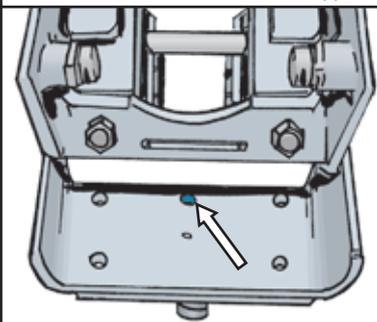
[@us.army.mil](mailto:us.army.mil)

She will send you the needed hardware.

No hole means the MWO hasn't been done to your mounts.

Contact the person above for info on the MWO, which is done by your support maintenance.

Drilled hole means MWO has been applied



Half-Mast



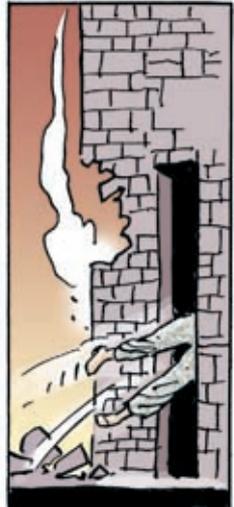
IT WAS A DARK AND STORMY NIGHT...

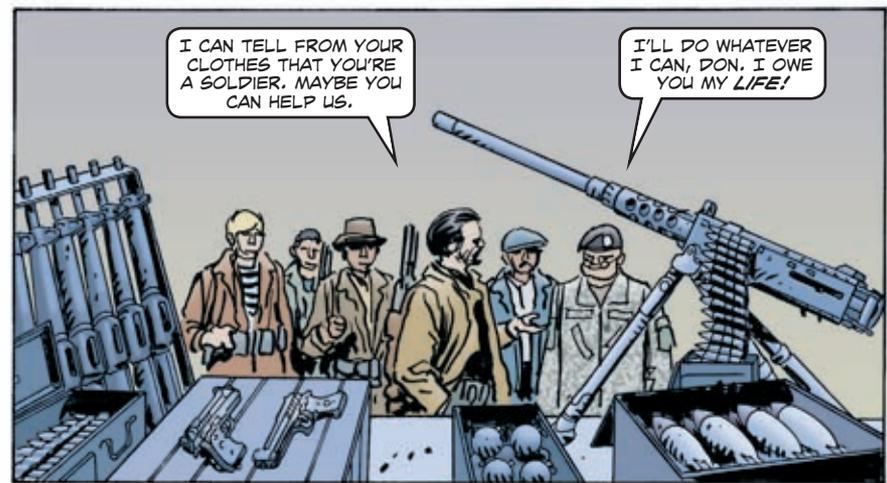
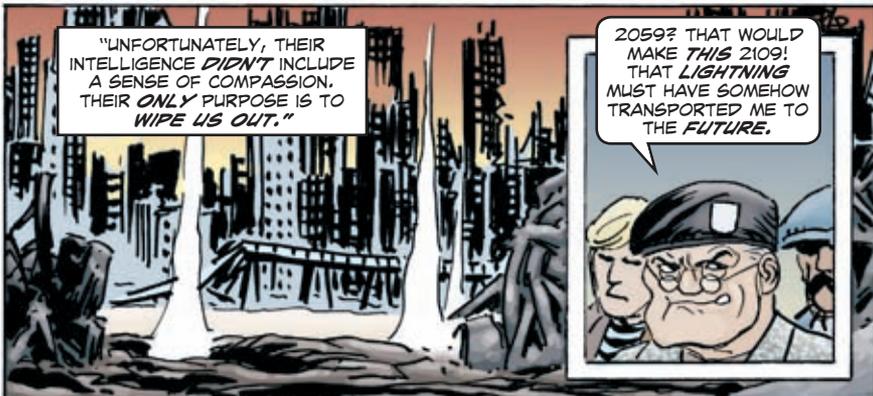


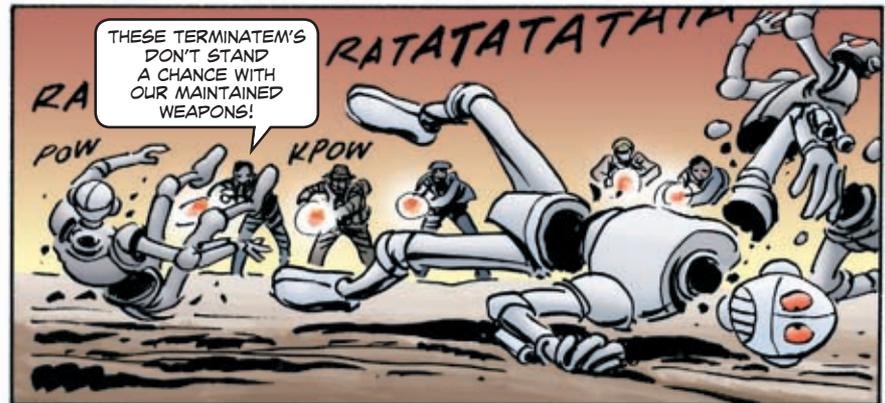
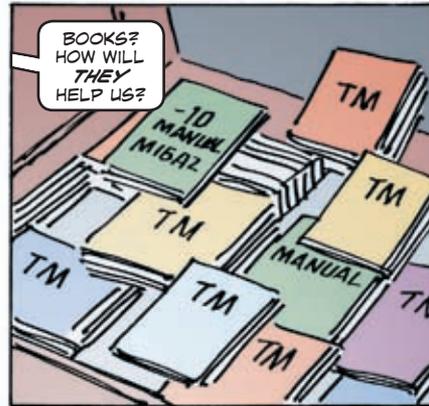
THAT WAS A CLOSE ONE. MAYBE I SHOULD'VE WAITED 'TIL TOMORROW TO LEAVE FOR THAT PM CONFERENCE.



WHAT'S THAT LIGHT AHEAD?









All Aircraft...



Is sand removal important? You bet your bottom dollar it is! And cleaning out sand should be done more often than you think. Ignoring Sandy can cost you a bird—or worse, your life. You'd be surprised what Sandy gets into and the problems Sandy creates for aircraft.

Eyeball every nook and cranny of your aircraft closely. For example, Sandy and avionics don't mix. Most aircraft avionics have cooling fans incorporated which Sandy can clog, resulting in overheating and failure of the component. Aircraft with center consoles always need a vacuum to suck up sand.

Attach a 1/4-inch piece of flex tube to the vacuum crevice tool so you can get into tight spots. Keep a soft brush handy to brush sand off avionic components and control heads.

Look for sand on the cabin floor and under seats. The nose compartment of a Black Hawk is a favorite hiding place. Check hydraulic areas, engine compartments and wherever else sand can get into. Use low pressure compressed air to blow sand **out** of your bird and not around the inside of your bird.

Like the old saying goes, leave no stone unturned. So leave no aircraft door, panel, compartment or storage area unopened. Check for sand everywhere and don't give your bird the brush off.



M230 Gun...

# Straight Shooting Field Tips

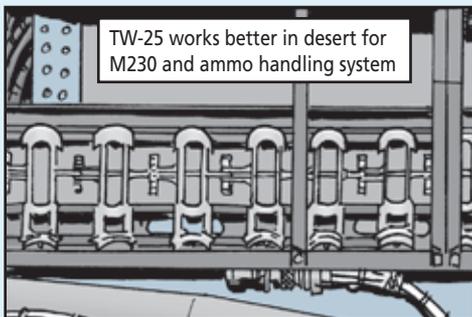
PAY ATTENTION TO THE ADVICE THESE GUYS HAVE ON THE M230 AUTOMATIC GUN!



Dear Editor,

Through our experiences working with the M230 gun at Ft Bragg and in Iraq, we've come up with a few tips for better shooting:

**Use TW-25B lubricant.** The Army has approved TW-25B for some components of the ammo handling system and the M230 and we've found it's a big improvement over other lubricants like "moly-b". Moly-b was like glue to sand, plus it became so hard in the desert heat that it was difficult to remove. TW-25B didn't attract sand nearly as much, was more durable, and was easier to clean off. TW-25B can be used on most areas of the inner receiver, bolt and track, chain, drive gear, breech, barrel support, gun support bearings and all chutes and rails. Make sure not to coat areas that directly contact the ammo. Don't use TW-25B on the internal components of the constant speed drive. Use moly-b there.

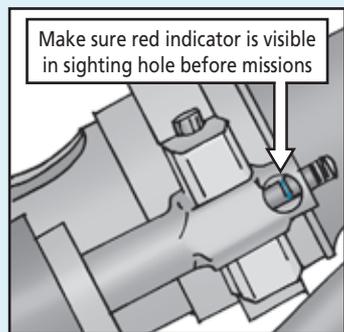


TW-25 works better in desert for M230 and ammo handling system

### Clean the contacts on the contact box.

Dirty contacts can cause a **ROUNDS DECREMENT FAIL** when you try to fire. Even a brand new electrical box for the M230 has a thin layer of anti-corrosion coating that may interfere with firing voltage. Just wipe these contacts with a clean cloth to ensure a good connection.

**Pay careful attention to recoil adapters in the desert.** The hydraulic fluid in the recoil adapters is affected by the temperature. Because the desert temperatures can fluctuate tremendously from day to night, it's even more important to check the recoil adapter indicators before a mission to see if they have too little or too much fluid. If you fire with too little fluid, the hard recoil could damage the gun cradle. Too much fluid could cause the recoil adapters to leak. Just make sure the red indicator is visible in the sighting hole. Drain or add fluid as necessary.

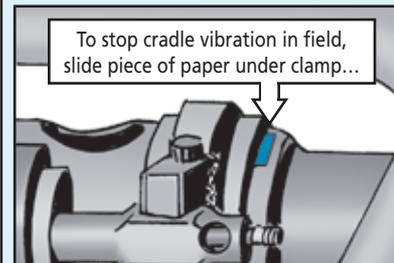


Make sure red indicator is visible in sighting hole before missions

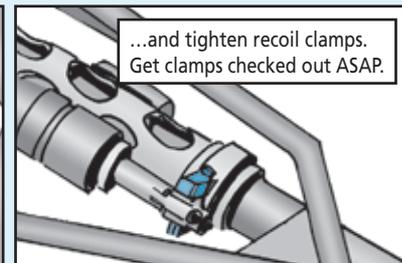
**Fix cradle vibration in the field.** If the cradle (or its attaching parts) for the M230 gets even a little loose, the gun vibrates too much during firing and quickly wears out expensive parts on the gun turret and cradle. PS 644 explained that the culprit may be the recoil clamps. For the procedure on checking the clamps, see

<https://www.logsa.army.mil/psmag/archives/PS2006/644/644-35-36.pdf>

If you detect cradle vibration while in the field and suspect it's from the recoil clamps, a good temporary fix is put a piece of paper under the clamp to act as a shim. Then tighten the recoil clamps to the required torque. This often quiets most of the vibration. But this is a temporary fix. Get your mechanic to check out the cradle as soon as possible. The clamps or even the cradle may need to be replaced.



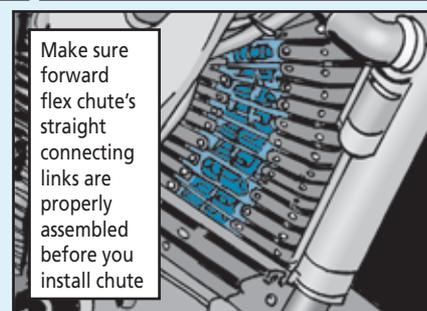
To stop cradle vibration in field, slide piece of paper under clamp...



...and tighten recoil clamps. Get clamps checked out ASAP.

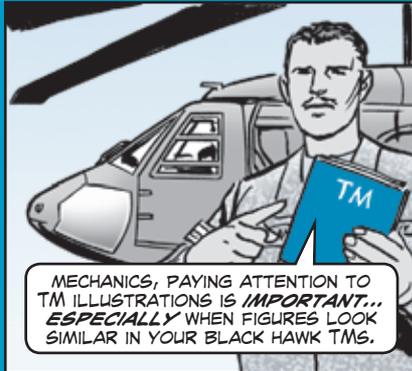
**Check forward flex chutes before use.** Corrosion, bent or broken links and improper installation can all cause the ammo system to jam. Even new chutes need to be inspected for proper assembly and lubrication prior to installation.

CW2 W.R.  
SGT C.R.  
D Co, 1-82 ARB  
Ft Bragg, NC



Make sure forward flex chute's straight connecting links are properly assembled before you install chute

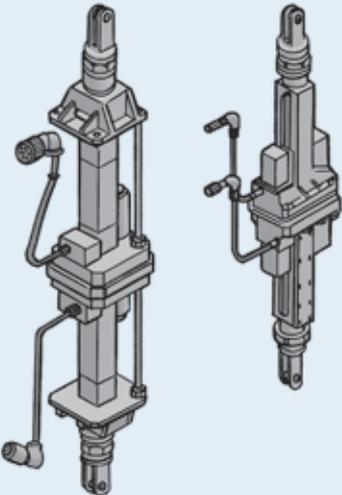
# A GLANCE IS NOT ENOUGH



TM 1-1520-237-23P-1 SHOWS THE STABILATOR ACTUATOR IN BOTH FIG 37 AND FIG 38.

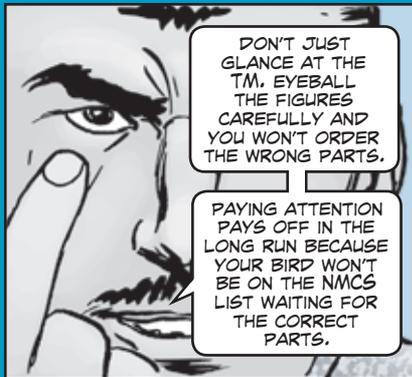
AT A GLANCE, THE FIGURES LOOK ALIKE, BUT THEY'RE NOT.

THERE ARE TWO DIFFERENT STABILATOR ACTUATORS USED ON THE BLACK HAWK AND BOTH ARE SHOWN IN THE TM.



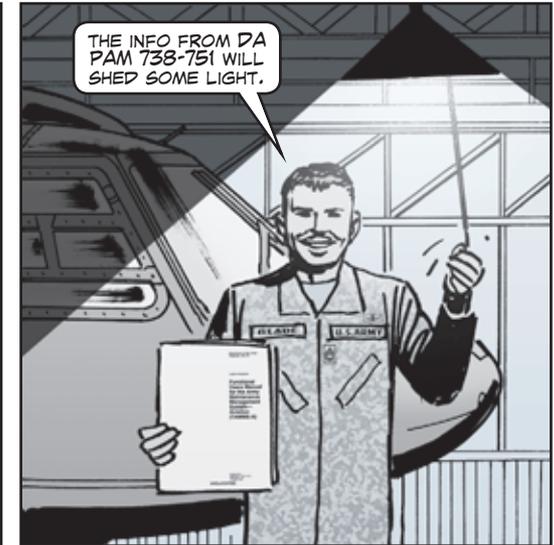
BEFORE DOING MAINTENANCE, MAKE SURE YOU ORDER THE RIGHT ACTUATOR PARTS.

CHECK THE STABILATOR AND THE TM CAREFULLY TO SEE WHICH ONE IS INSTALLED ON YOUR BIRD BEFORE ORDERING PARTS.



PAYING ATTENTION PAYS OFF IN THE LONG RUN BECAUSE YOUR BIRD WON'T BE ON THE NMCS LIST WAITING FOR THE CORRECT PARTS.

# Paperwork



The word "paperwork" can bring up all sorts of dreadful feelings because it calls to mind mounds of complicated forms.

When you buy, sell or repair a big ticket item like a car or a home, it's your responsibility to fill out the paperwork.

So why should aircraft maintenance and repairs be any different? Paperwork is inevitable there, too. If maintenance records are left undone or not filled out correctly, fleets of helicopters could be grounded. That's not good.

When it comes to learning how to maintain a paper trail on your bird, DA Pam 738-751 is your best friend. It tells you how to fill out any kind of maintenance record before you turn any piece of equipment in to AVIM or the depot shop.

DA Pam 738-751 is the bible on DA forms and records. If you need to place a blue, yellow or green tag on your equipment for testing, serviceability or unserviceability, always consult 738-751 first for instructions and save yourself some headaches.

Incomplete forms and tags cause maintenance delays. Sometimes your equipment gets returned to the unit because of incomplete paperwork.



Bose and Racal Headsets...

BUMPITY  
BUMP  
BUMP

SURE IS  
LOUD IN  
HERE!

CLUNKA CLUNK

WHAT!?

KLINK DRUMMMM  
CLANK

SKRITCH

SCRUNCH

# For Hearing and Hearing Protection

IF YOU'RE TRAVELING WITHOUT HEARING PROTECTION IN AN UP-ARMORED HMWV OR OTHER WHEELED TACTICAL VEHICLE, YOU ARE **DAMAGING** YOUR HEARING!

YOU **MUST** WEAR HEARING PROTECTION!

OF COURSE, WEARING SOME HEARING PROTECTION CAN KEEP YOU FROM HEARING THINGS YOU NEED TO HEAR, LIKE LIFE-AND-DEATH WARNINGS AND THE SOUNDS OF AN APPROACHING ENEMY.

THAT'S WHERE THE BOSE IMPROVED TACTICAL HEADSET, NSN 5965-01-521-0941, AND THE RACAL HEADSET, NSN 5965-01-551-7393, COME IN.



THESE HEADSETS PROTECT YOUR HEARING, BUT STILL LET YOU HEAR WHAT NEEDS TO BE HEARD.

THEY ARE A VITAL COMPONENT TO THE INTERCOM SYSTEM OF YOUR HMWV AND OTHER LIGHT TACTICAL VEHICLES.

Over helmet head strap

Reduceable ear cushions

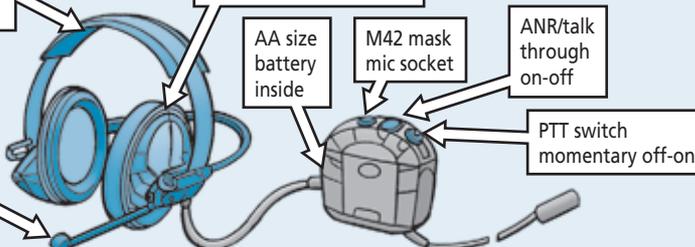
AA size battery inside

M42 mask mic socket

ANR/talk through on-off

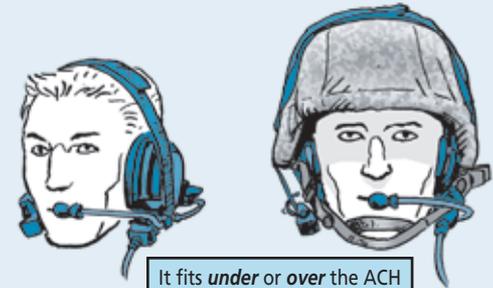
PTT switch momentary off-on

Talk through microphones



THESE HEADSETS FIT OVER THE ADVANCED COMBAT HELMET OR UNDER IT. WHEN FITTED OVER THE HELMET, THEY CAN BE REMOVED WITHOUT REMOVING THE HELMET.

ADJUSTMENTS TO FIT EVERY HEAD ARE MADE WITH THE HOOK-AND-PILE STRAPS AROUND THE NECK AND OVER THE HEAD.



It fits *under* or *over* the ACH

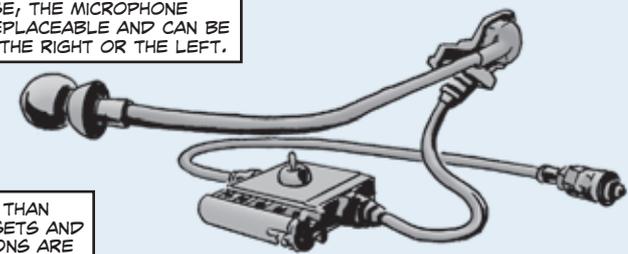
THE HEADSETS PROVIDE HEARING PROTECTION THROUGH BOTH ACTIVE AND PASSIVE NOISE REDUCTION.

WHAT DOES THAT MEAN?

IT MEANS A SNUG FIT ON THE HEAD AND EARS GIVES YOU PASSIVE NOISE REDUCTION, AND THE ELECTRONICS GIVE YOU ACTIVE NOISE REDUCTION.



ON THE BOSE, THE MICROPHONE ASSEMBLY IS REPLACEABLE AND CAN BE POSITIONED ON THE RIGHT OR THE LEFT.



IT'S LIGHTER THAN PREVIOUS HEADSETS AND THE EAR CUSHIONS ARE MORE COMFORTABLE.

ALSO, THE BOSE HAS A "TALK-THRU" CIRCUIT THAT LETS YOU DISMOUNT FROM THE VEHICLE AND HEAR AMBIENT SOUND IN STEREO AND HAVE A NORMAL CONVERSATION WITHOUT HAVING TO REMOVE THE HEADSET.

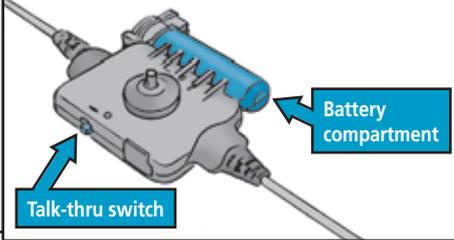


THE CONTROL MODULE ON THE CABLE/MICROPHONE ASSEMBLY HAS A THREE-POSITION PUSH-TO-TALK SWITCH AS WELL AS THE TWO-POSITION TALK-THROUGH SWITCH.

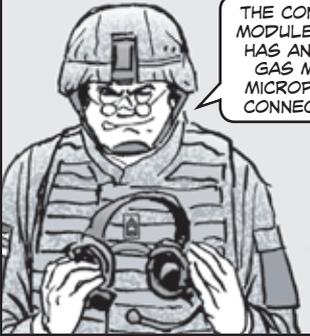
THE PUSH-TO-TALK SWITCH IS SPRING LOADED AND POSITIONED ON THE FACE OF THE CONTROL MODULE IN THE CENTER.

THE SWITCH CAN BE HELD MOMENTARILY IN THE PUSH-TO-TALK POSITION OR IT CAN BE "LATCHED" IN THE LIVE INTERCOM POSITION.

THE TALK-THROUGH SWITCH IS LOCATED ON ONE SIDE OF THE CONTROL MODULE. THE BATTERY COMPARTMENT WITH ONE AA ALKALINE BATTERY IS ON THE OTHER SIDE.



THE CONTROL MODULE ALSO HAS AN M42 GAS MASK MICROPHONE CONNECTION.



HERE ARE THE REPAIR PARTS THAT ARE AVAILABLE FOR THE BOSE HEADSET...

KEEP IN MIND, THERE ARE **NO SPARE PARTS** FOR THE RACAL HEADSET!



Part	NSN
Headband top	5965-01-525-1695
Headband back	5965-01-525-2635
Outer ear cushion	5965-01-525-1694
Inner ear cushion	5965-01-525-2016
Microphone harness	5965-01-525-2019
Microphone shield	5965-01-525-1684
Electrical headset	5965-01-525-1685
Cable assembly	5995-01-525-1680
Electrical cover	5930-01-525-1675

PREVENTIVE MAINTENANCE ON THE HEADSETS MEANS KEEPING THEM CLEAN, STORING THEM OUT OF HARM'S WAY, AND CHECKING FOR CRACKS AND OTHER DAMAGE.

FOR MORE INFORMATION ON THE HEADSETS, CONTACT CECOM AT DSN 992-2075, (732) 532-2075, EMAIL [@us.army.mil](mailto:@us.army.mil) OR DSN 992-9356, (732) 532-9356, EMAIL [@us.army.mil](mailto:@us.army.mil).



GO TO THESE WEBSITES FOR MORE INFO:

<http://www.bose.com/tth>  
<http://www.racalacoustics.com>

PS END

3-kW Generator...

NOW, CLASS, IT'S TIME FOR...

# Learning your ABCs and Ds



Dear Half-Mast,  
 We have an MEP-016D 3-kW generator. I cannot find a TM for it, nor any reference to it. I was told that the D model was a converted B model, but I can't find a reference to the B either!  
 So, what's the deal with all these models and where do I find reference material for the MEP-016D?  
 SGT C. M. H.

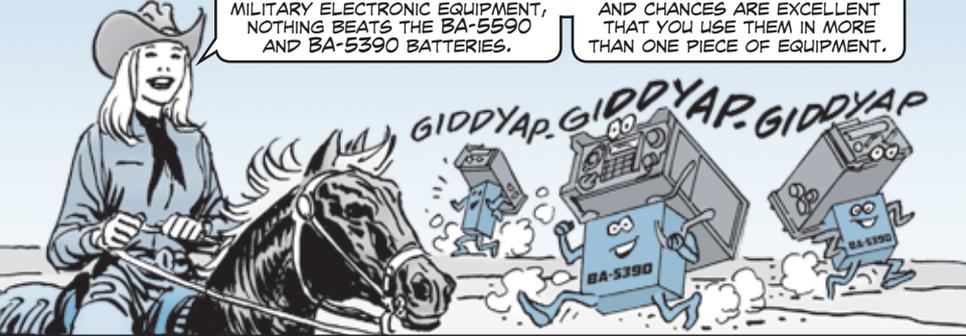
Dear Sergeant C. M. H.,  
 Mobile electric power (MEP) designation confusion is a common disease. Fortunately, I'm the doctor with the cure.  
 The MEP-016D is a modified MEP-016A/C. The modification is the replacement of the gasoline engine with a Yanmar diesel engine. So, for everything but the engine and engine mount, use the MEP-016A/C technical manuals, TM 5-6115-271-14 and -24P.  
 For information on how to modify the MEP-016A/C to an MEP-016D and for how to service it once it is modified, call DSN 992-7169, (732) 532-7169 or you can send an email: [@us.army.mil](mailto:@us.army.mil)  
 And, as for the MEP-016B, that's a Onan diesel engine driven 3-kW that uses technical manuals TM 5-6115-615-12 and -24P.  
 Half-Mast

Non-Rechargeable  
Commo Batteries...

# RIDE THESE WORKHORSES!

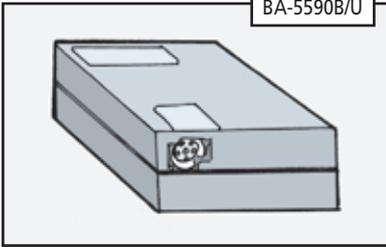
WHEN IT COMES TO SUPPLYING POWER TO A WIDE VARIETY OF MILITARY ELECTRONIC EQUIPMENT, NOTHING BEATS THE BA-5590 AND BA-5390 BATTERIES.

THESE NON-RECHARGEABLE BATTERIES ARE **WORKHORSES**, AND CHANCES ARE EXCELLENT THAT YOU USE THEM IN MORE THAN ONE PIECE OF EQUIPMENT.



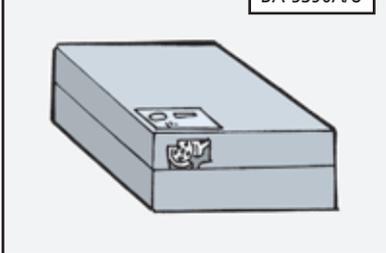
The BA-5590B/U, NSN 6135-01-438-9450, is a 12/24V, lithium sulfur dioxide battery. The BA-5590A/U, NSN 6130-01-523-3037, includes a state-of-charge (SOC) indicator.

BA-5590B/U



The BA-5390/U, NSN 6135-01-501-0833, is a 12/24V, lithium manganese dioxide battery. The BA-5390A/U, NSN 6135-01-517-6060, comes with a SOC indicator.

BA-5390A/U



WHICH OF THESE BATTERIES SHOULD YOU USE?

HERE ARE SOME OF THE THINGS YOU SHOULD CONSIDER WHEN MAKING YOUR CHOICE.

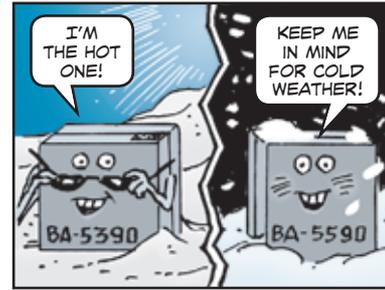
**Cost** is always an issue. All the batteries come in packages of four.

A 4-pack of the BA-5590B/U will cost you around \$320. If you want the SOC indicator, look to pay around \$45 more (\$11.25 per battery).

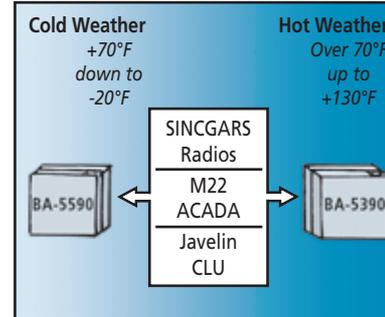
A 4-pack of the BA-5390/U will cost you around \$490. Again, around \$45 more will get you the model with the SOC indicator.

Even though the SOC indicator batteries cost more, they can save you money. Once used, you can tell how much energy remains in the battery. Without the SOC indicator, you'd have to replace the battery for each use, since you don't know what's left inside after the previous use.

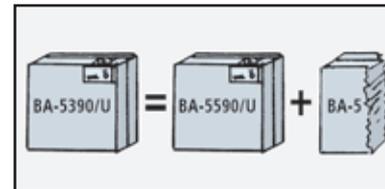
Another factor for consideration is how well the battery withstands **extreme temperatures.**



If operating conditions are really hot, the BA-5390 manganese battery is a better choice. If they're really cold, the BA-5590 sulfur battery is the way to go.



The BA-5390 has a higher **capacity**, which means it lasts longer than the BA-5590. In watt hours, a BA-5590 has around 185, whereas a BA-5390 has around 250.



A consideration you have little control over, but certainly one you must face, is the **supply** of these batteries. With their many uses, the demand is high and the stocks often run low. If your request for one type of battery comes back with a 6-week wait to be filled and another type can be filled in six days, your choice may have been made for you.



All that being said, it might not be a bad idea to keep all four types on hand—or at least both types with an SOC indicator.

Keep this article with the batteries in storage so that users can know there is a difference and pick the right one for the mission. A long mission through a valley that is hotter than blue blazes would make the BA-5390 a better choice, while a shorter mission on a cold mountain would make the BA-5590 a good candidate for the job.

To save **lots** of money, consider the use of rechargeable batteries. The BB-2590/U, NSN 6140-01-490-4316, has nearly the same energy as a BA-5590B/U, built-in SOC indicators, and can last up to 220 cycles. That's one BB-2590/U battery (\$313) instead of 220 BA-5590B/U batteries (\$17,600).

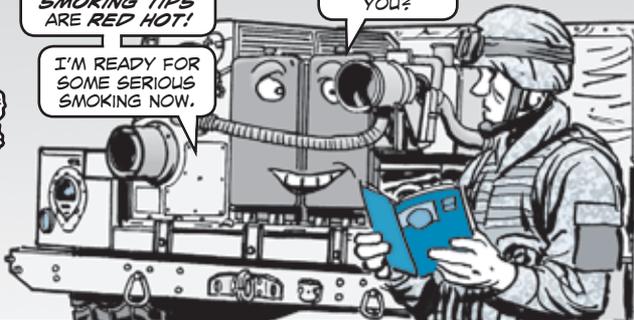
M56 Smoke Generator...

# RED HOT TIPS FOR GOOD SMOKING

SAY, THESE SMOKING TIPS ARE RED HOT!

HOW ABOUT YOU?

I'M READY FOR SOME SERIOUS SMOKING NOW.



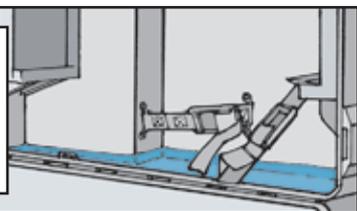
**T**hese red hot tips for taking care of your M56 smoke generator will lead to some mighty good smoking. So sit back and fire up on this PM:

**Weapons storage case:** The cases often don't do a good job of sealing out water. So if it has rained quite a bit since you last smoked, you could open up the case and find it filled with water and everything that's stored in it ruined.

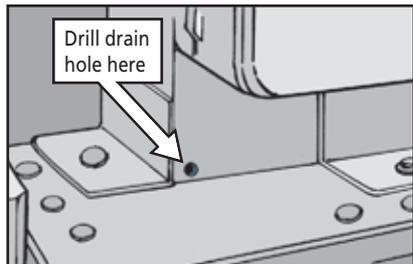
Anytime it has rained, open up the case and check for water. Mop up any you find. A time-saver is to leave a big sponge in the case and use it for mopping.

If it rains a lot in your area, you might want to have support drill two drain holes in the case no larger than 3/16 inch and about 1/4 inch from the bottom and front side edges at each end. Touch up the areas with paint to prevent corrosion.

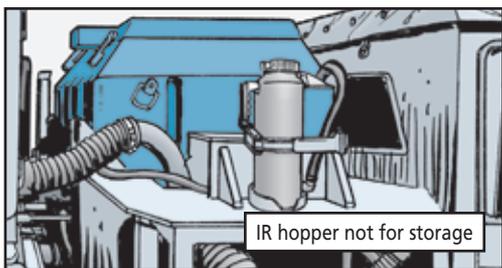
Check weapons storage case weekly for standing water



Drill drain hole here



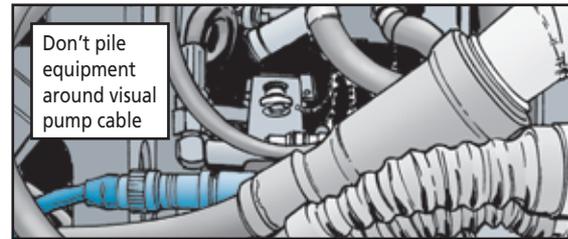
**IR hopper not for storage:** It's tough getting everything stored in the M56. But one place you don't want to use for storage is the IR hopper. If the hopper is turned on with anything in it but graphite, not only will what's in the hopper be mangled, but so will the hopper assembly.



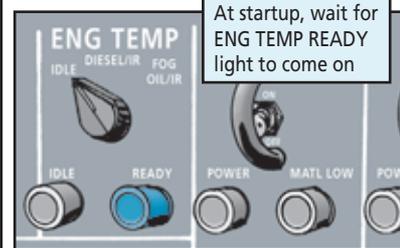
IR hopper not for storage

**Visual pump cable:** Don't pile stuff around this cable. The cable will be damaged and you won't be smoking. Check that the cable is tight during BEFORE PMCS. A loose cable prevents smoking, too.

Don't pile equipment around visual pump cable



**Wait for the light:** You can't rush things during startup and shutdown. If you don't wait for the ENG TEMP READY to come on (it may take 3-5 minutes) before turning the fog oil control knob, the engine won't have time to become hot enough for smoking. At shutdown, wait until the ENG TEMP IDLE light comes on before turning off the power. If you don't, unburned fog oil is left in the system, which makes for difficult starting next time.

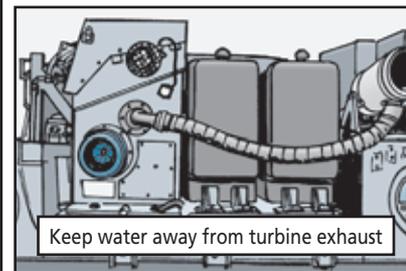


At startup, wait for ENG TEMP READY light to come on



At shutdown, wait for ENG TEMP IDLE light to come on

**Washing:** It's best not to use a power washer on any part of your M56. But be especially careful to keep water away from the turbine exhaust. Water can go through the cone straight into the turbine enclosure and cause all sorts of corrosion and electrical problems. You can get a cover for the turbine exhaust with NSN 5340-01-424-3403 and for the ejector with NSN 5340-01-500-2463.



Keep water away from turbine exhaust

**Safety:** Always stay at least 50 feet away from the rear of the M56 while it's operating and until it cools off for at least 20 minutes after shutdown. Fire can shoot out and barbecue you in an instant.



SEE WHY YOU SHOULDN'T STAND BEHIND ME.

# Removing Canister from Packing Can



STOP, YOU'RE GOING TO DAMAGE ME!



C2A1 CANISTERS WON'T DO YOUR PROTECTIVE MASKS MUCH GOOD IF YOU CAN'T PULL THEM OUT OF THEIR PACKING CANS.

HERE'S HOW TO SAFELY REMOVE A CANISTER...

- Firmly hold the packing can body while lifting the lid tab to break the seal.
- Unscrew the lid counterclockwise and take it off.
- Pull the foil tab and completely remove the foil seal/cover.
- Remove the C2A1 filter canister from the packing can.



IF YOU CAN'T REMOVE THE CANISTER FROM THE CAN, THE INNER LIP MAY HAVE FLASHING MATERIAL THAT'S HOLDING IT IN PLACE.

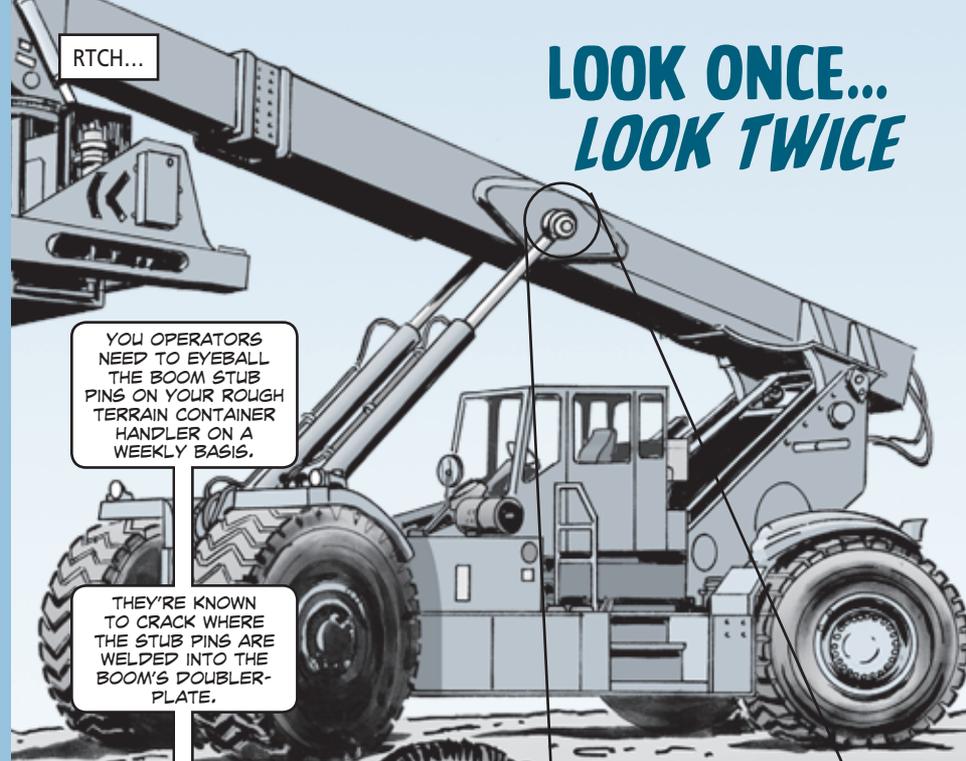
DON'T USE A SHARP OBJECT TO CUT AWAY THE FLASHING. THAT COULD PUNCTURE THE CANISTER.



USE A COIN OR ANY OTHER ITEM WITH A DULL SURFACE TO SCRAPE THE FLASHING UPWARD.



NOW YOU SHOULD BE ABLE TO REMOVE THE CANISTER FROM THE PACKING CAN.



RTCH...

# LOOK ONCE... LOOK TWICE

YOU OPERATORS NEED TO EYEBALL THE BOOM STUB PINS ON YOUR ROUGH TERRAIN CONTAINER HANDLER ON A WEEKLY BASIS.

THEY'RE KNOWN TO CRACK WHERE THE STUB PINS ARE WELDED INTO THE BOOM'S DOUBLER-PLATE.

THE STUB PINS ARE WHERE THE MAIN HYDRAULIC CYLINDERS CONNECT TO THE BOOM.

ENOUGH OF A CRACK CAUSES THE PINS AND CYLINDERS TO BREAK FREE—CAUSING THE CONTAINER HANDLER TO DROP ITS LOAD, AN ISO CONTAINER.

**NOT GOOD!**

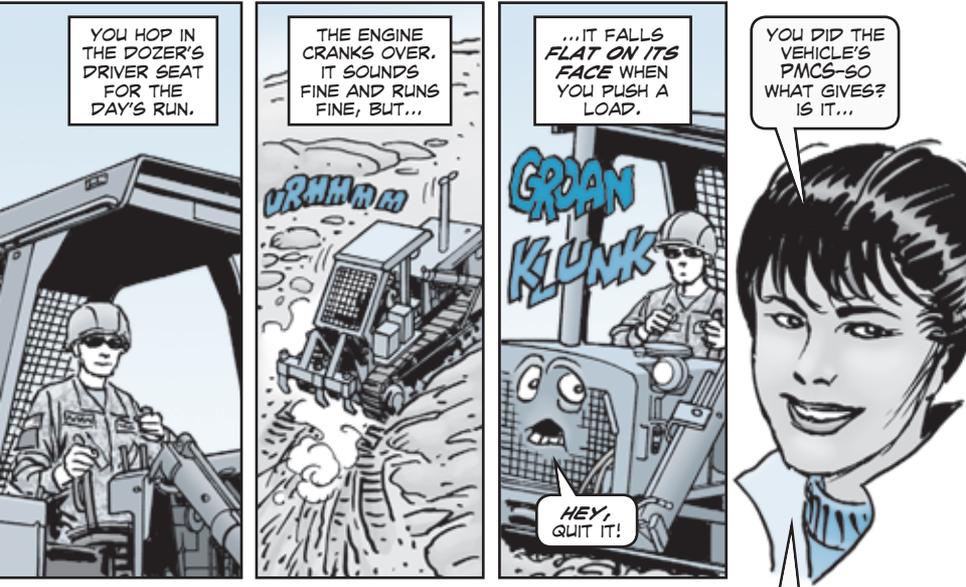


Look for cracks or rewelding around the boom's stub pins

Report any cracks or re-welding around the boom's stub pins. Any crack more than two inches long means the RTCH is deadlined—plain and simple.

For more information, contact TACOM at DSN 786-7414, (586) 574-7414, email

[@us.army.mil](mailto:@us.army.mil)



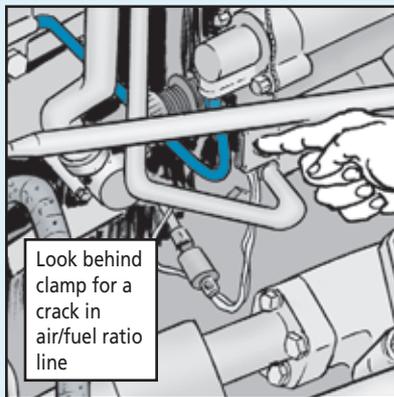
## ...A CRACK IN THE FUEL LINE?

Well, it could be a crack in the air/fuel ratio line that mounts into the fuel injector pump on the vehicle's curb side. Because of vehicle age and vibration, this line often cracks where it's mounted to the engine block by a small bracket.

The crack is usually in the part of the line behind the bracket, so you won't see it. Your mechanic will have to remove the bracket so he can eyeball the line.

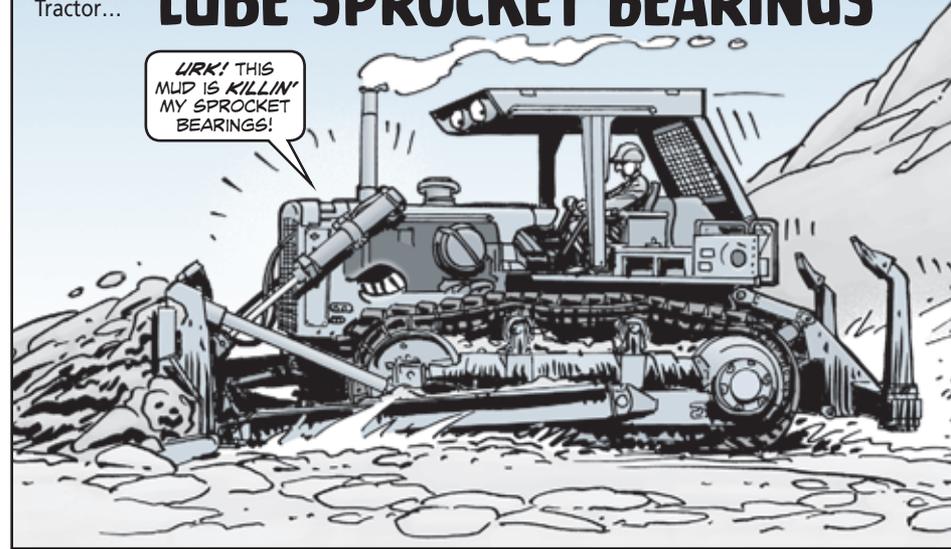
A crack in the line means the engine loses turbo boost pressure that's sent to the air/fuel ratio valve. When this happens, the fuel injector pump can't meter the increased fuel that's needed to push the load.

If your dozer runs fine but shows this symptom under a load, have your mechanic come in for a quick look-see. He can replace the line with NSN 4710-01-253-7056. Then your dozer should run like a greyhound!



Look behind clamp for a crack in air/fuel ratio line

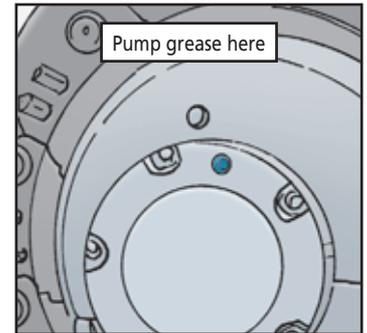
# LUBE SPROCKET BEARINGS



**O**perating in dirt and mud is murder on the dozer's sprocket bearings.

That's because water and dirt get past the seals and into the bearings, causing abrasion and corrosion that eat at the bearing's polished surfaces. Worn bearings knock the dozer's track out of alignment—causing excessive wear and tear on the vehicle's undercarriage components.

To head off problems, lube the bearings every time you finish a day's run in mud or water. Pump in grease until new lube comes out around the diagonal bearing assembly, which is behind the drive sprocket.



## ATLAS Forklift Windshield

To get the windshield for the SKYTRAC 10,000M forklift use NSN 2510-01-301-2248. This replaces the parts info shown as Item 16 on Page 139-1 of TM 10-3930-673-24P.

## SEE Thermostat

Use NSN 6685-01-341-6899 to get a cooling system thermostat for the small emplacement excavator. This NSN replaces the parts info shown as Item 4 in Fig 47 of TM 5-2420-224-24P-1.

# GET RID OF DEBRIS

YOU'VE GOT  
**ASPHALT** BUILT UP  
ON YOUR DRUM!

WHY DIDN'T THE  
SPRAY NOZZLES  
**PREVENT** THAT!



'CAUSE THE SPRAY  
NOZZLES AREN'T  
WORKING! YOU  
DIDN'T **CLEAN ME**  
AND THE **REST** OF  
THE **SEDIMENT**  
**FILTERS!**

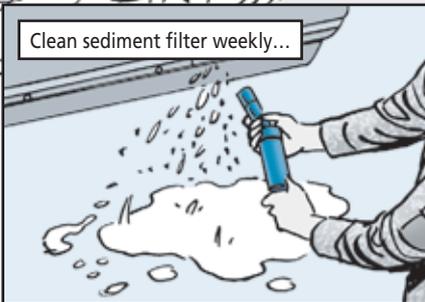
THINK YOUR  
VIBRATORY  
ROLLER CAN DO A  
GOOD COMPACTING  
JOB WITH **ASPHALT**  
CLINGING TO ITS  
DRUM?

I'VE GOT  
**TWO WORDS** TO  
SAY TO YOU...  
**THINK**  
**AGAIN!**

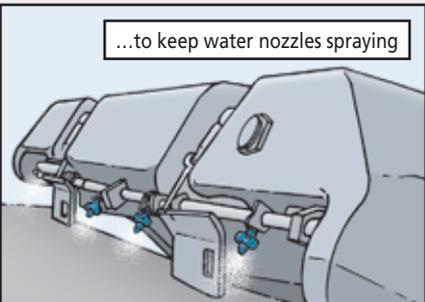
Asphalt buildup is just what happens if you don't clean the sediment filters on both water tanks. The filters catch debris that can clog the spray nozzles. Clogged spray nozzles stop the water spray that stops asphalt from building up on the drum.

So, remove the sediment filters and clean the strainer element weekly. Make sure the shut-off valve is closed before removing the filter's housing. If you forget, you'll be the one getting sprayed!

Clean sediment filter weekly...



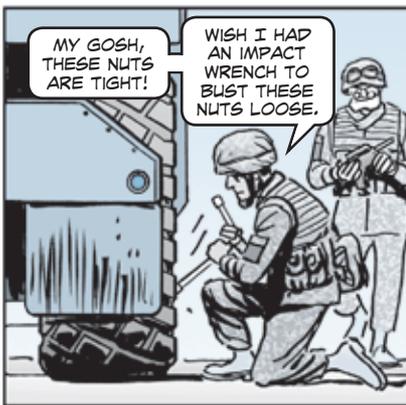
...to keep water nozzles spraying



Pull out the strainer element and flush it with clean water. Clean out the filter housing, too. Once the strainer is back in the filter housing and the filter is in place, open the shut-off valve.

Do the same thing for the roller's other water tank.

# 24-VOLT IMPACT WRENCH



MY GOSH,  
THESE NUTS  
ARE TIGHT!

WISH I HAD  
AN IMPACT  
WRENCH TO  
BUST THESE  
NUTS LOOSE.



**GOOD NEWS!** THIS  
IMPACT WRENCH HAS SOME  
REAL POWER AND PLUGS  
INTO YOUR VEHICLE'S  
NATO RECEPTACLE.

**I**t's tough to do field repairs without an impact wrench. But most impact wrenches don't have enough juice to do the job, especially in the boondocks.

Now, there's a 24V impact wrench, NSN 5130-01-571-0180, that plugs into your vehicle's NATO receptacle. And this bad boy has some real muscle!

Features of the 1/2-in square drive impact wrench include:

- Attached cord, controller unit with receptacles for the cord, NATO receptacle cord, NATO receptacle power cord with a carrying bag and user manual
- 600 lb-ft maximum output torque for removing and installing nuts
- A 24VDC motor with sealed ball bearings
- Thermally protected motor that will not overheat
- Impact wrench weight of 9 pounds
- 2-year warranty

Transport case

Power cable

Controller Unit

Extensions

This impact wrench requires little operator training and will easily bust loose stubborn bolts, nuts or lug nuts on HEMTTs, HETs and M915s. It will also remove the road wheel stud nuts on M1 tanks, M2/M3 Bradleys and M88s.

For more information, visit: <http://www.lugmaster.com>

Tactical Wheeled Vehicles...

TELL THE READERS WHY YOU'RE NOT READY FOR AN OIL CHANGE!

# Hard-Time Oil Change Mileage

IT'S 'CAUSE THE INTERVAL HAS CHANGED!

On 1 Oct 04, tactical wheeled vehicles in the 2300 series Federal Supply Classification (FSC) were removed from the Army Oil Analysis Program (AOAP)

<https://aeps2.ria.army.mil/commodity/pubs/tacom/bulletin/aop.pdf>

As a result, and after an analysis of AOAP oil sampling and change interval data, MAM 09-052 set the **engine oil change interval** to 6,000 miles or annually, whichever comes first. If vehicles already had greater intervals, the greater intervals continue to apply.

For example, the **M915-series** vehicles produced by Freightliner, which already had a 10,000 miles or 12 months interval, remained unchanged.

For **transmissions**, the new interval is a minimum of 12,000 miles or 24 months.

**Vehicle lube orders** that already had change intervals greater than 12,000 miles kept their existing mileage intervals, but the calendar time intervals changed to 24 months.

Tactical wheeled vehicles under **manufacturer's warranty** follow the change intervals prescribed by warranty provisions or guidelines. When warranties expire, vehicles will conform to the interval requirement of 6,000 miles or annually, unless the prescribed mileage/interval is greater. Greater prescribed mileage/intervals will continue.

THAT'S RIGHT! FAR TOO MANY UNITS APPARENTLY DON'T RECOGNIZE THAT HARD-TIME OIL CHANGE MILEAGE AND CALENDAR INTERVALS CHANGED IN 2005.

HERE'S THE BASIC INFORMATION YOU NEED FROM MAINTENANCE ADVISORY MESSAGE (MAM) 05-019, 8 MAR 05.

## Desert Conditions

However, when units are deployed or stationed in extreme desert conditions extra servicing is required.

UNITS SHOULD REFER TO SECTION III IN CHAPTER 1 AND APPENDIX C OF FM 90-3, *DESERT OPERATIONS*, FOR DESERT MAINTENANCE GUIDANCE.

THE FIELD MANUAL IS AVAILABLE FROM THE USAPA WEBSITE...

[https://akocomm.us.army.mil/usapa/doctrine/DR\\_pubs/dr\\_aa/pdf/fm90\\_3.pdf](https://akocomm.us.army.mil/usapa/doctrine/DR_pubs/dr_aa/pdf/fm90_3.pdf)

OIL MUST BE CHANGED ABOUT **TWICE AS OFTEN** UNDER DESERT CONDITIONS AS UNDER US OR EUROPEAN CONDITIONS.

In desert conditions, grit that accumulates in the oil pan can be abrasive. It can also thicken oil, reducing its ability to lubricate properly. Unburned low-octane fuel can also seep down the cylinder walls and dilute the reservoir. Diluted lubricants cool less effectively, and evaporate at the higher temperatures generated during engine operation.

Oil changes and lubrication of undercarriage points at more frequent intervals during desert operations will prolong engine and vehicle life.

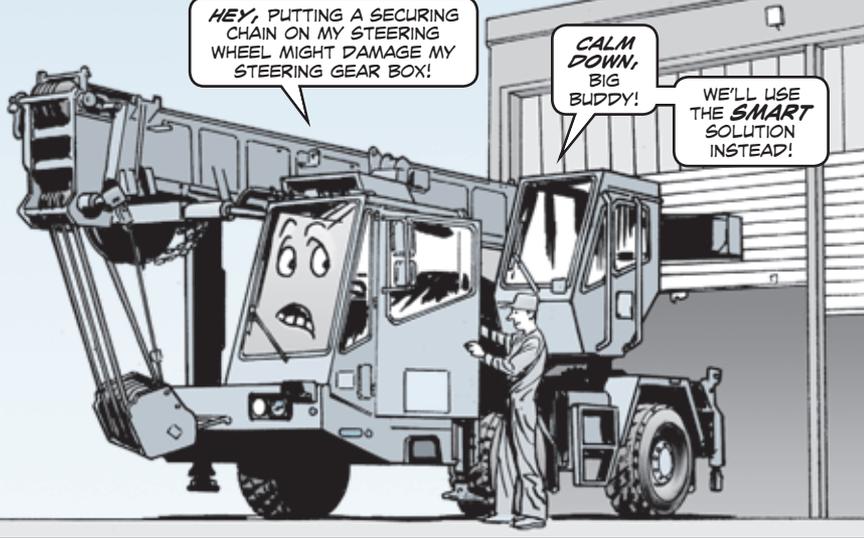
## National Guard Pilot Program Exemption

THE NATIONAL GUARD IS CONDUCTING A TWO-YEAR OIL ANALYSIS PILOT PROGRAM ON FOUR VEHICLES: THE HET, PLS, HEMTT AND HMMWV.

VEHICLES ENROLLED IN THIS PILOT PROGRAM ARE **EXEMPT** FROM THIS ARTICLE.

THEY WILL, HOWEVER, HAVE OIL SAMPLES TAKEN AS REQUIRED IN THE PILOT PROGRAM.

# GOT A SOLUTION? GET SMART!



ONE SOLDIER DEVELOPED A SMART SOLUTION FOR A 422T ATEC CRANE STEERING GEAR LOCK THAT SAVED THE ARMY A SUBSTANTIAL AMOUNT OF MONEY.

**Problem:** Steering gear box on the ATEC has been damaged by the steering wheel security chain.

**Solution:** Here at UTES, Camp Atterbury in Edinburgh, IN, we have fabricated a device to secure the gear shift in the neutral position, making the ATEC totally secure, and with either lock removed being operational. Cost of this fabrication is under \$50.00, compared to \$13,000 for a replacement steering box.

Winning SMART solution for securing 422T gear shift in neutral position

HE WAS AWARDED \$11,660 FOR HIS EFFORTS.

THIS WAS HIS SUGGESTION...

SAFETY HAZARDS ARE COSTLY

SOLDIERS AND DEPARTMENT OF ARMY CIVILIANS, HAVE YOU FOUND A SOLUTION FOR A TASK THAT IS A PROBLEM FOR YOU AND YOUR PEERS?

DOES YOUR SOLUTION REDUCE LABOR AND MATERIAL COSTS OR ENHANCE SAFETY?

WHY NOT SHARE YOUR SOLUTION WITH THE REST OF THE ARMY, AND BE REWARDED FOR YOUR IDEA AT THE SAME TIME?

THE ONLY COST FOR YOU IS THE TIME IT TAKES TO JOT DOWN AND SUBMIT AN IDEA, SO CONSIDER MAKING THE EFFORT TO SUBMIT YOUR IDEA TO THE ARMY SUPPLY AND MAINTENANCE ASSESSMENT REVIEW TEAM (SMART).

NOW'S THE TIME TO SHARE YOUR SOLUTION.

YOUR IDEAS ON SUPPLY, MAINTENANCE, TRANSPORTATION, FOOD SERVICE OR ANY OTHER ASPECT OF ARMY LOGISTICS ARE WELCOME AND ENCOURAGED.

REMEMBER: CHANCES ARE THAT IF ONE SOLDIER IS HAVING A PROBLEM WITH SUPPLIES, EQUIPMENT OR MAINTENANCE PROCEDURES, SO ARE OTHERS!

TWENTY PERCENT OF SUGGESTIONS SUBMITTED TO SMART IN 2008 WERE APPROVED, NETTING THE WINNERS AN AVERAGE AWARD OF \$625.00.

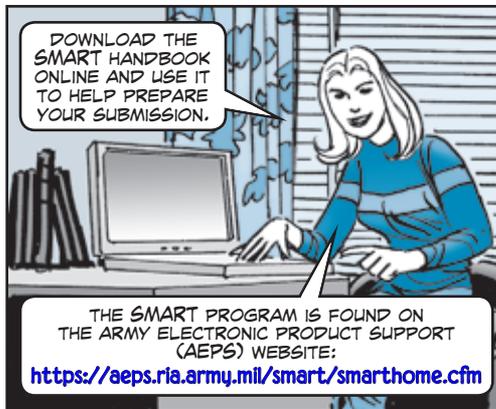
IN 2007, 15.5 PERCENT OF SUBMISSIONS WERE APPROVED WITH AN AVERAGE AWARD OF \$757.00.

AND SEVEN AWARDS EXCEEDED \$10,000!



OKAY, I'M SOLD ON SMART! SO, HOW DO I SUBMIT A SUGGESTION?

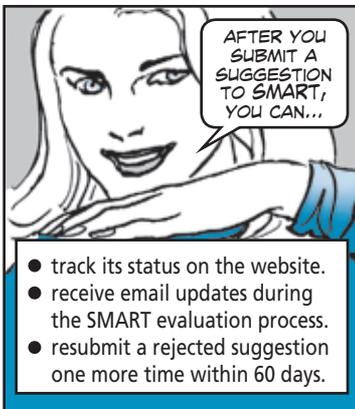
IT'S EASY AS PIE AND WITH NONE OF THE CALORIES!



DOWNLOAD THE SMART HANDBOOK ONLINE AND USE IT TO HELP PREPARE YOUR SUBMISSION.

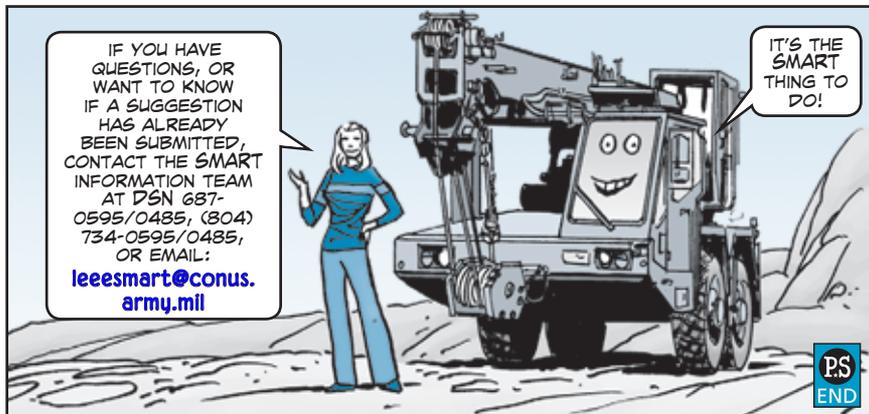
THE SMART PROGRAM IS FOUND ON THE ARMY ELECTRONIC PRODUCT SUPPORT (AEP&S) WEBSITE:

<https://eeps.ria.army.mil/smart/smarthome.cfm>



AFTER YOU SUBMIT A SUGGESTION TO SMART, YOU CAN...

- track its status on the website.
- receive email updates during the SMART evaluation process.
- resubmit a rejected suggestion one more time within 60 days.

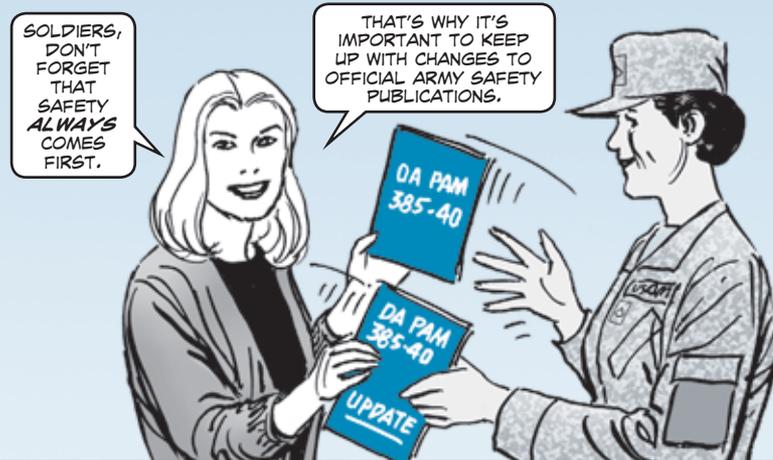


IF YOU HAVE QUESTIONS, OR WANT TO KNOW IF A SUGGESTION HAS ALREADY BEEN SUBMITTED, CONTACT THE SMART INFORMATION TEAM AT DSN 687-0595/0485, (304) 734-0595/0485, OR EMAIL: [leesmart@conus.army.mil](mailto:leesmart@conus.army.mil)

IT'S THE SMART THING TO DO!

PS  
END

# THIS UPDATE IS NO ACCIDENT!



SOLDIERS, DON'T FORGET THAT SAFETY ALWAYS COMES FIRST.

THAT'S WHY IT'S IMPORTANT TO KEEP UP WITH CHANGES TO OFFICIAL ARMY SAFETY PUBLICATIONS.

**DA PAM 385-40 Updates**

Recent major updates to DA Pamphlet 385-40, *Army Accident Investigations and Reporting*, include:

- unmanned aircraft systems reporting requirements.
- terms and definitions used when assessing Army accident costs.
- Occupational Safety and Health Administration record-keeping requirements for military members and civilians.
- requirements for civilian accident reports, and how to incorporate this information into air and ground forms.



SO, SOLDIER, PRINT OFF THOSE UPDATED SAFETY REGULATIONS AND PAMPHLETS, SIT DOWN FOR A SPELL, AND DO YOUR PART TO KEEP OUR ARMY ROLLING SAFELY ALONG!

More information is available from the Army Safety Office: [aso@hqda.army.mil](mailto:aso@hqda.army.mil)  
You can also find, review or download all the latest Army publications at the Army Publishing Directorate website:

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

Your pubs clerk can subscribe to new issues of printed Army publications on the Directorate of Logistics, Office of the Administrative Assistant's website:

<https://dol.hqda.pentagon.mil/ptclick/index.aspx>

A CAC is needed to access the site, but remember, only your unit's pubs clerk has the authority to add, modify or delete unit subscriptions to Army publications.

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b.(1) Subscriptions	58,978	57,263
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f. Total distribution	59,931	58,286
g. Copies not distributed	1,298	1,340
h. Total	61,229	59,626
i. Percent paid	98.5%	98.4%

Submitted by: STUART A. HENDERSON, Production Manager

## Connie's POST SCRIPTS

### STORM TB On-Line

A TB that explains the adjustment and built-in test (BIT) procedures for the AN/PSQ-23 illuminator, integrated, small arms (STORM) is now on-line. Download TB 9-5855-1913-13-1 at <https://www.logsa.army.mil/etms/online.cfm>

### M939/A1/A2-Series Starters

Use NSN 2920-01-069-6997 to get the engine starter for the M939- and A1-series trucks. NSN 2920-01-515-8434 gets the starter for the M939A2-series trucks.

### STORAGE AND CONTAINER ANSWERS

Have a question about an ISO shipping container or need a solution to a storage problem? Write to this email address to get an answer:

[containers@tacom.army.mil](mailto:containers@tacom.army.mil)

### M113A2/M1068 Heater Kit Elbow

Use NSN 4730-01-569-5843 (PN SAE J514 10-8 070203CZ, CAGE 81343) to order a new pipe-to-tube elbow for the heater kit on your M1068 and M113A2 carriers. NSN 4730-01-494-0280, which is shown as Item 42 in Fig 325 of TM 9-2350-261-24P (Aug 05), is no longer available.

## Water Tank Cleaning

For everything you need to know about cleaning and sanitizing the M149A2 and M1112 water tankers, check out this website:

<http://chppm-www.apgea.army.mil/dehe/pgm31/FidWaterRef.aspx>

### M1117 ASV Alternator Info

Keep this info handy for armored security vehicles with 200-amp alternators. Make a note until these NSNs are added to Figure 6 of TM 9-2320-307-24P.

By the way, the 200-amp alternator conversion kit is used only with alternator, NSN 2920-01-543-1235, that comes with the N3232 regulator and N4014 pulley.

Part	NSN
Alternator	2920-01-543-1231
Regulator, N3232	2920-01-555-8620
Pulley, N4014	3020-01-546-0170
Alternator (w/N3232 regulator)	2920-01-543-1233
Alternator (w/N3232 regulator and N4014 pulley)	2920-01-543-1235

### SMALL ARMS TOOL KIT UPGRADED

The small arms repairman tool kit (SARTK) has been upgraded to include not only the tools needed for small arms repair, but also those needed for mortars and artillery. The new tool kit comes in a tool chest with wheels, a handle for easy transport, adjustable shelving, and a lifetime "no questions asked" warranty on the tool chest and a majority of the tools.

The new SARTK can be ordered with NSN 5180-01-559-5981 beginning in late 2009. If you have questions about the kit, contact PM SKOT at DSN 793-1641, (309) 782-1641, or by email:

[@us.army.mil](mailto:@us.army.mil)

### Discontinued Use of TM 9-247

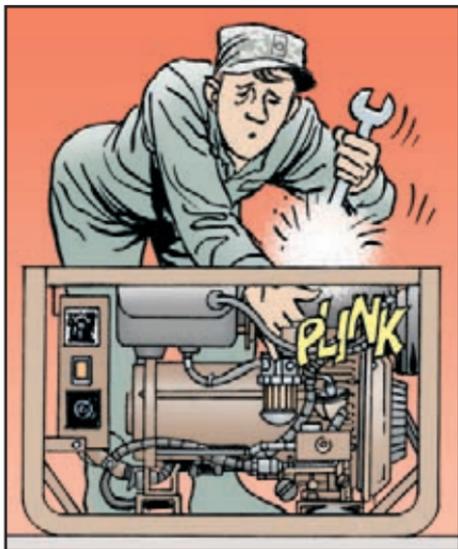
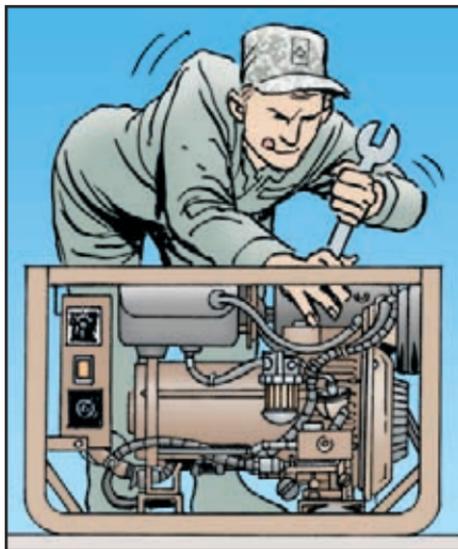
TM 9-247, *Materials Used for Cleaning, Preserving, Abrading and Cementing Ordnance Materiel and Related Materials*, dated 1960, is listed in numerous vehicle TMs, NWMRs and DMWRs. This technical manual lists ozone-depleting substances and toxic cleaning materials that are prohibited for Army use. Effective immediately, TM 9-247 is suspended until the TM is updated, superseded by another publication or eliminated completely.

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

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

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**BROKEN TOOL?  
NO PROBLEM!**



**MOST ARMY  
TOOLS HAVE  
LIFETIME  
WARRANTIES.**

GO TO <https://pmskot.army.mil>  
AND CLICK ON replacement/warranty  
FOR MORE INFO!