



Issue 613

**PS**

December  
2003

# THE PREVENTIVE MAINTENANCE MONTHLY

TB 43-PS-613

Approved for  
Public Release;  
Distribution is  
Unlimited

**DARN THOSE  
LAZY ELVES!**

I WOULDN'T  
BE STUCK  
HERE IF THEY'D  
DONE PM ON  
HIS SLEIGH!



**PS ONLINE,  
PAGE 57**

JOE  
KUBERT



# THE PREVENTIVE MAINTENANCE MONTHLY

TB 43-PS-613, 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.

ISSUE 613 DECEMBER 2003



## COMBAT VEHICLES

M1A2 SEP Tank, M104 Wolverine AEGR Cards  
M1-Series Tanks, M104 Wolverine Plenum Seals  
M2/M3-Series Bradley Engine Access Door  
MLRS Carrier Personnel Heaters  
M113A3 FOV U-joint Grease Fittings  
M198 Towed Howitzer Equilibrator Screws  
M198 Towed Howitzer Equilibrator Scales  
G/VLLD Cleaning Kit Supplies



## COMBAT ENGINEERING

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M917A1 Dump Truck Tailgate Air Tank  
Construction Equipment In-tank Water Absorbers  
HYEX Rough Start Reminder  
815F Compactor Drain Plug  
No Starts with Spray Ether



## WHEELED VEHICLES

Lead-acid Battery Corrosion Prevention  
M1070/M1000 HETS Cables and Gladhands  
HEMTT Tire Selection



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M2 Machine Gun Bore-sight Telescope



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

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**psmag@logsa.redstone.army.mil** or

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By order of the Secretary of the Army:

**PETER J. SCHOOMAKER**

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- Finally, your pinpoint distribution is tied to your unit address. If your unit has an address change, the unit pubs clerk must update the pinpoint distribution account.

We recommend the following distribution: 8 copies to be shared by the CO and XO, first sergeant, supply sergeant, commo chief, NBC NCO, armorer, PLL section, and ULLS clerk. Order another 5 copies for the maintenance section and 1 copy for every 5 soldiers.











Commanders and first sergeants need to ensure that PS gets to equipment, vehicle, and weapons operators and to unit maintenance and supply personnel. Those are the soldiers who are going to save the unit equipment downtime and money and who will deliver higher readiness rates.

THE ONLY PERSON WHO CAN ENSURE YOUR UNIT GETS PS IS YOU! SEE YOUR UNIT PUBS CLERK.



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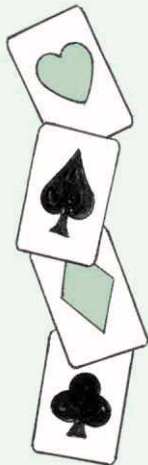
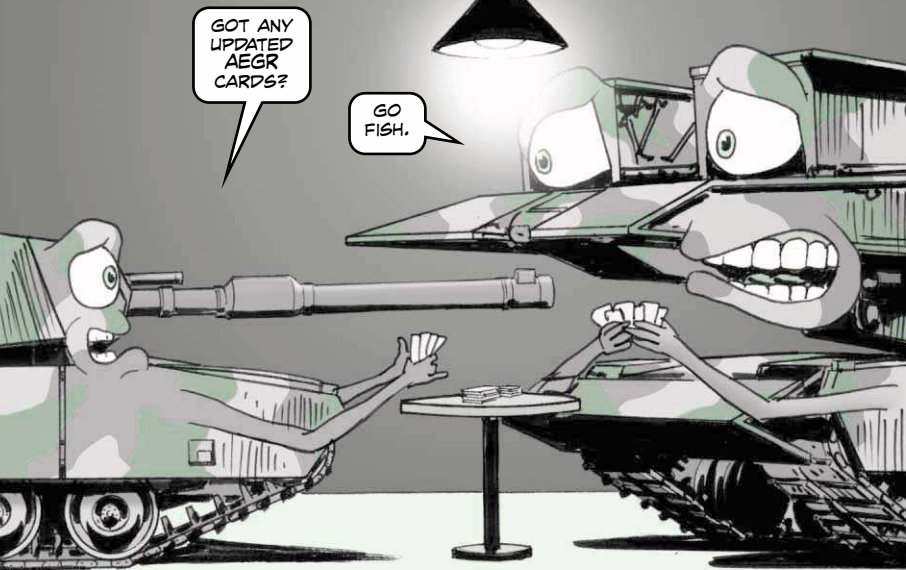
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# IT'S IN THE CARDS



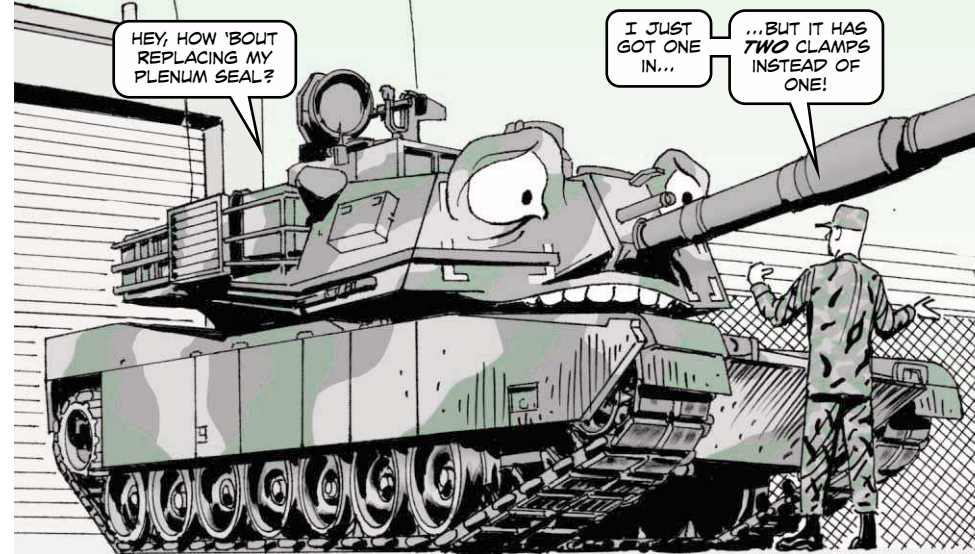
If your M1A2 SEP or M104 Wolverine still has any of the older Army embedded GPS receiver (AEGR) circuit cards, NSN 5998-01-463-1005 (PN 12438580 or 110100), turn them in right now!

That includes any AEGR cards found in the turret mission processing unit (TMPU) and the improved launch electronics control unit (ILECU) during repair. Those cards need to be upgraded to the new version, NSN 5998-01-496-5901 (PN 12438580-2).

Turn in unserviceable cards following your regular turn-in procedures. Your TACOM LAR can help. Serviceable AEGR cards can be exchanged for the new version through the Abrams Material Fielding Team office. Contact Mike Athey, DSN 738-7731 or (254) 288-7731, or Abbey Castro, DSN 566-6564 or (254) 288-6564. Or send an email to:

[michael.athey@hood.army.mil](mailto:michael.athey@hood.army.mil) or  
[abimael.castro@hood.army.mil](mailto:abimael.castro@hood.army.mil)

# Install Plenum Seals *Right!*



Mechanics, there's a shortage of the new style plenum seals, NSN 5330-01-416-0888, for M1-series tank engines. That means when you order a new one, you may get the old style seal, NSN 5330-01-079-9954.

Either seal will work, but the old seal has two clamps—one each for the engine and plenum box—while the new seal has only one. That means a different set of installation instructions for each seal.

HERE'S WHERE TO FIND THE INSTRUCTIONS...



Vehicle	Old Seal, NSN 5330-01-079-9954	New Seal, NSN 5330-01-416-0888
M1A1	TM 9-2350-264-20-1-3 (Apr 03), Pg 4-40	TM 9-2350-264-20-1-3 (Apr 03), Pg 4-60
M1A2	TM 9-2350-288-20-1-3 (Aug 95), Pg 4-39	TM 9-2350-288-20-1-3 (Aug 95), Pg 4-59
M1A2 SEP	Not available. See instructions for M1A1 or M1A2 tank	TM 9-2350-388-20-1-3 (Feb 01), Pg 4-55
M104 Wolverine	Not available. See instructions for M1A1 or M1A2 tank	TM 5-5420-232-20-3 (Mar 01), Pg 4-55



# WHAT'S YOUR MOTTO?

THERE'S NO MUSCLE BEHIND *THAT* ATTITUDE, PAL!

THE RIGHT TOOL FOR THE RIGHT TASK

USE WHAT-EVER IS HANDY

I'VE GOT TO REMOVE YOUR ENGINE ACCESS DOOR.

THIS CABLE STEP SHOULD DO THE TRICK!

THAT WON'T HOLD!

YOU'D BETTER USE THE RIGHT TOOL!

"The right tool for the right task." That's a motto to live by, Bradley mechanics.

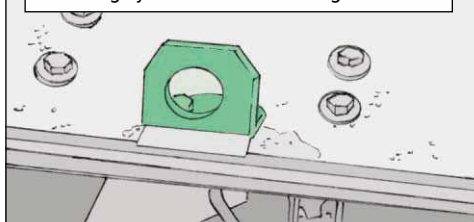
Unfortunately, the motto of some mechanics is "Use whatever's handy".

When removing the engine compartment power unit access door, some mechanics are attaching the fender skirt cable step, NSN 2590-01-237-2944, and using it to lift the access door. Bad idea.

The cable step isn't designed to lift the access door. If it snaps while you're in the way...OUCH!

The lifting eye bracket, NSN 5340-01-131-1937, is the right tool to use. So make sure you have a few on hand the next time you need to lift the access door.

Use lifting eye bracket for removing access door



# BE PATIENT WITH HEATER

OH, MAN! IT'S SO COLD IN HERE...

HEY, GIVE THE HEATER SOME TIME!

DARN HEATER! IT OUGHTTA START RIGHT UP!!

BE PATIENT! YOU'LL HAVE SOME HEAT IN A FEW MORE SECONDS!

Having trouble with a slow-starting personnel heater, NSN 2540-01-114-7688, on your MLRS carrier?

Could be there's no problem at all. Those heaters come equipped with either an old- or new-style regulator, NSN 2540-12-171-3208. The old style regulators get the fuel pump started immediately. The new-style regulators have a built-in 27-30 second delay before the fuel pump kicks in.

Both regulators work fine, but you just may have to wait a few more seconds for some hot air.

I THINK THERE'S PLENTY OF HOT AIR IN HERE ALREADY!

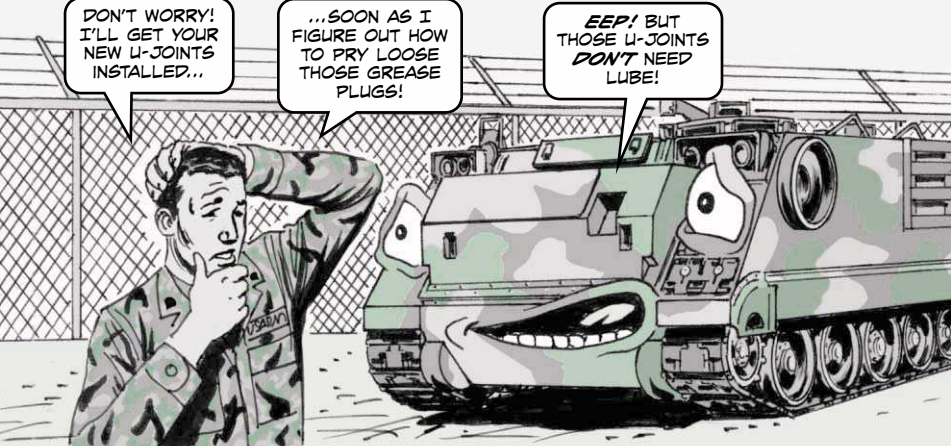
HEY!

# GREASE NOT ALWAYS NEEDED

DON'T WORRY!  
I'LL GET YOUR  
NEW U-JOINTS  
INSTALLED...

...SOON AS I  
FIGURE OUT HOW  
TO PRY LOOSE  
THOSE GREASE  
PLUGS!

EEP! BUT  
THOSE U-JOINTS  
DON'T NEED  
LUBE!



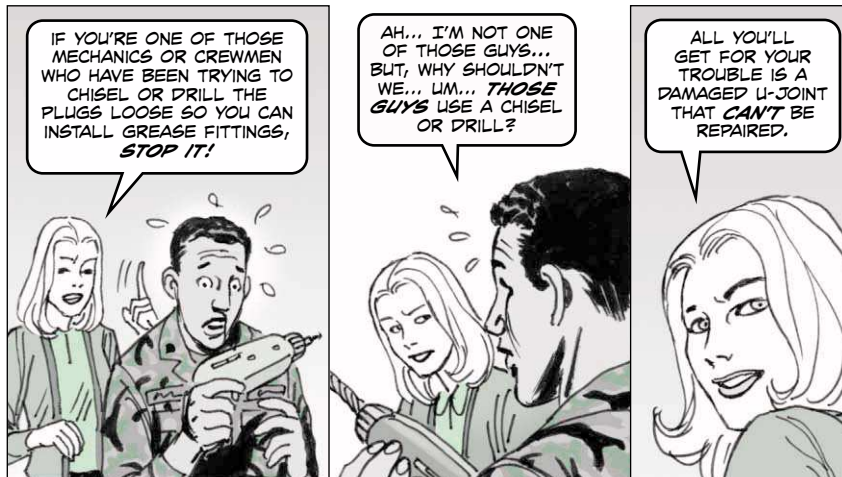
**M**echanics, when you get in a new universal joint for an M113A3, don't assume that it **has** to have grease fittings.

There are two different U-joint types available. NSN 2520-00-001-3530 brings a U-joint that has grease fittings. NSN 2520-01-413-1975 gets a U-joint that is permanently lubricated. It has riveted plugs in place of the grease fittings.

IF YOU'RE ONE OF THOSE  
MECHANICS OR CREWMEN  
WHO HAVE BEEN TRYING TO  
CHISEL OR DRILL THE  
PLUGS LOOSE SO YOU CAN  
INSTALL GREASE FITTINGS,  
**STOP IT!**

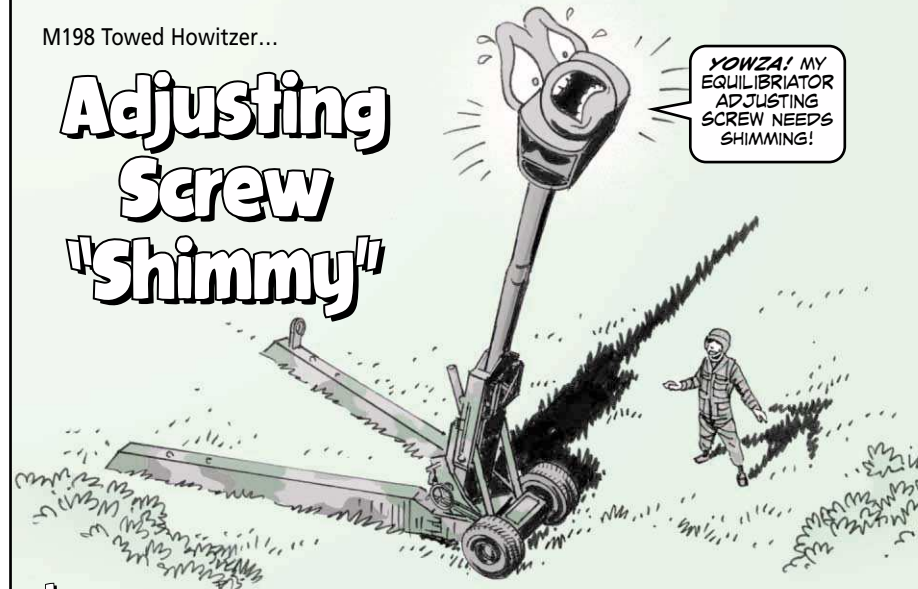
AH... I'M NOT ONE  
OF THOSE GUYS...  
BUT, WHY SHOULDN'T  
WE... UM... **THOSE  
GUYS** USE A CHISEL  
OR DRILL?

ALL YOU'LL  
GET FOR YOUR  
TROUBLE IS A  
DAMAGED U-JOINT  
THAT **CAN'T** BE  
REPAIRED.



# Adjusting Screw "Shimmy"

**YOWZA!** MY  
EQUILIBRIATOR  
ADJUSTING  
SCREW NEEDS  
SHIMMING!



**I**mproperly shimmed equilibrator adjusting screws on your M198 towed howitzer are bad news, crewmen.

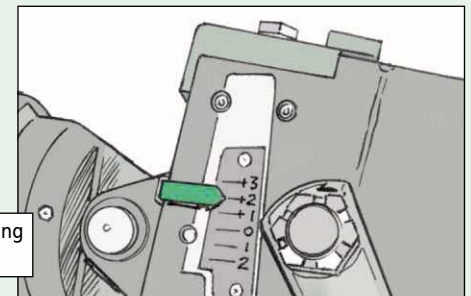
If there is a gap above the adjusting screw, the screw will be pulled up and down as the cannon tube is elevated and depressed. A large enough gap can result in broken welds on the towers or a dished plate on the adjusting screw surface. Enough damage means the top carriage has to be replaced.

Prevent that damage by making sure both adjusting screws on your howitzer are properly shimmed. Here's how:

1. Depress the cannon tube to a near-level elevation.
2. Using the equilibrator adjusting screw, adjust the slide to align the pointer **exactly** with the 0 on the scale.
3. Elevate the cannon tube to a high elevation (1,000 mils minimum).

If the pointer stays aligned with the 0 during elevation, the adjustment screw is properly shimmed and your howitzer is good to go. If the pointer moves away from 0, tell your mechanic. He'll report the problem to DS for fixing.

Pointer moves off 0 during  
elevation? **Report it!**





# CHECK SCALE ALIGNMENT



**P**art of MWO 9-1025-21-50-5 (Jun 93) for the M198 towed howitzer included the installation of new equilibrator adjustment scales, NSN 6695-01-386-2774 and 6695-01-386-8345. Unfortunately, the installation instructions were a little faulty.

The instructions said to use the old scale's bottom screw hole for locating the new scales. That didn't take into account the amount of space left above or below the slide, NSN 5340-01-040-0623.

With the new scales located by the old scale's bottom screw hole, the slide's pointer can't be adjusted up to the +3 setting. Trying to manhandle the adjusting screw to force the slide up puts pressure on the top carriage tower's weldment. The end result is a cracked or bent weldment.

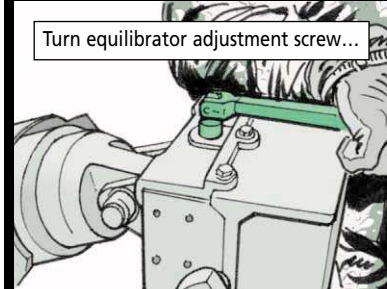


MOST OF THE M198s THAT WERE IMPROPERLY MODIFIED HAVE BEEN FIXED, SOME HAVEN'T.

YOUR MECHANIC WILL NEED TO MAKE SURE YOUR HOWITZER'S EQUILIBRATOR SCALES ARE CORRECTLY POSITIONED BY DOING THIS...

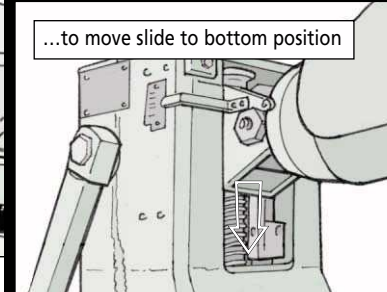
1. Depress the cannon to a near-level elevation.

Turn equilibrator adjustment screw...



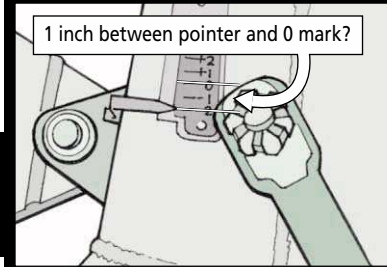
2. Use the equilibrator adjustment screw to move the slide in the minus direction until it's at its lowest position.

...to move slide to bottom position



3. Measure up 1 inch from the slide's pointer. If the measurement is aligned with 0 on the scale, the howitzer is good to go. If it's not on 0, contact DS maintenance. They'll reposition the scale and drill new holes to put it in the right position.

1 inch between pointer and 0 mark?

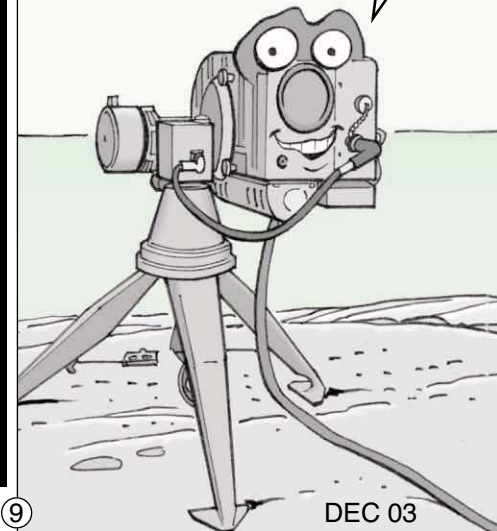


# ORDER PARTS, NOT WHOLE KIT

WHEN YOU NEED NEW SUPPLIES FOR THE G/VLLD CLEANING KIT, **DO NOT ORDER THE ENTIRE KIT**, NSN 1260-01-151-2698.

THE KIT COSTS MORE THAN \$170. YOU CAN ORDER THE INDIVIDUAL PARTS OF THE KIT FOR LESS THAN \$110 WITH THESE NSNs...

Screw cap bottle, NSN 8125-00-824-9058  
Brush, NSN 7920-00-205-0565  
Lens paper, NSN 6640-00-663-0832  
50 plastic bags, NSN 8150-00-137-9133

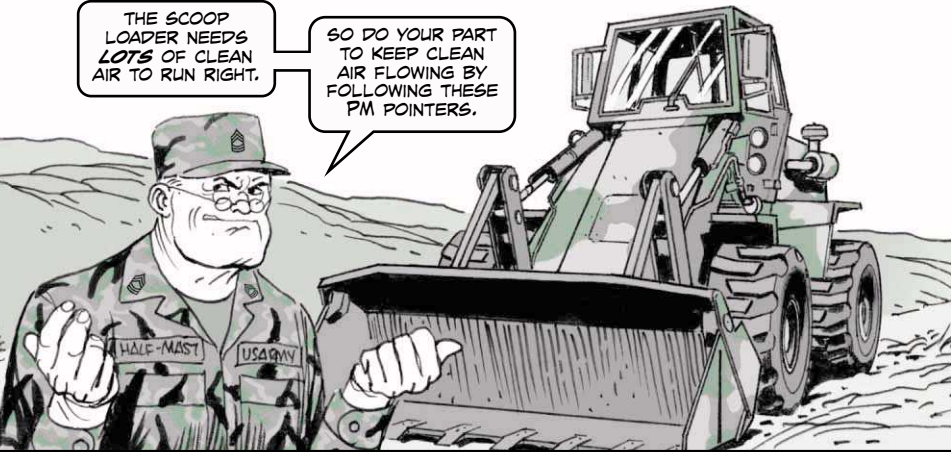




# Lots of Clean Air

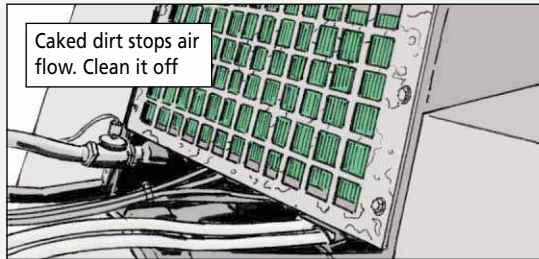
THE SCOOP LOADER NEEDS **LOTS** OF CLEAN AIR TO RUN RIGHT.

SO DO YOUR PART TO KEEP CLEAN AIR FLOWING BY FOLLOWING THESE PM POINTERS.



## Keep Cool

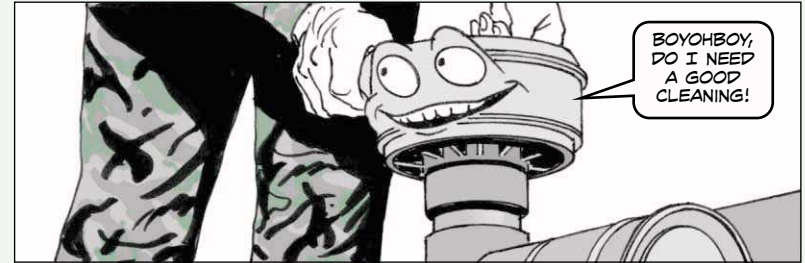
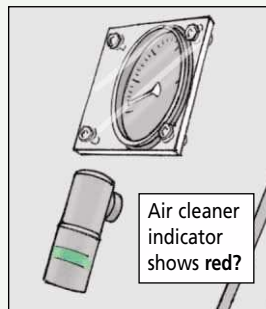
Any dirt or mud caked in the transmission oil cooler fins will stop air flow that carries heat from the oil, causing the engine or transmission to over-heat. So clean any dirt or mud off the fins with low-pressure water or air.



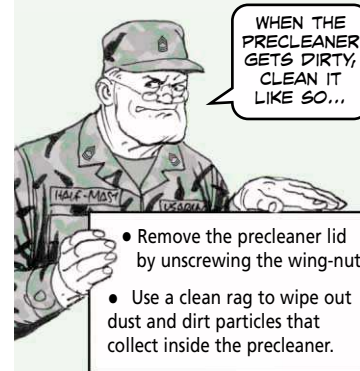
## Keep the Flow

Before the day's run, squeeze the dirt out of the dust cap on the bottom of the air canister. Do it more often if you're operating in a dusty or sandy area.

Keep an eye on the air cleaner indicator, too. If it shows red, stop and clean the filter.



The precleaner collects fine dust before it gets into the air cleaner.



After cleaning out the precleaner, eyeball the plastic bowl for cracks. These cracks happen from vehicle vibration, exposure to the elements, and low-hanging branches.



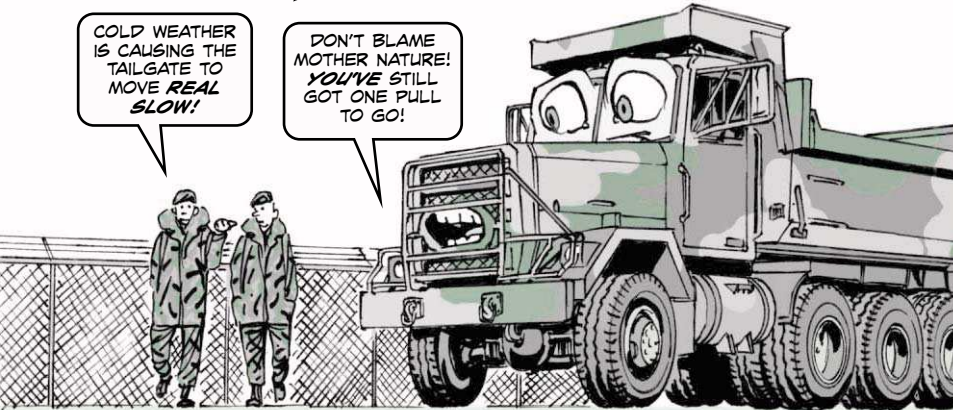
If you see a crack, use a piece of duct tape to cover the crack (outside the bowl) until your mechanic can replace the precleaner's dust bowl with NSN 2940-00-876-2181.



# TAILGATE TIDBIT

COLD WEATHER IS CAUSING THE TAILGATE TO MOVE REAL SLOW!

DON'T BLAME MOTHER NATURE! YOU'VE STILL GOT ONE PULL TO GO!



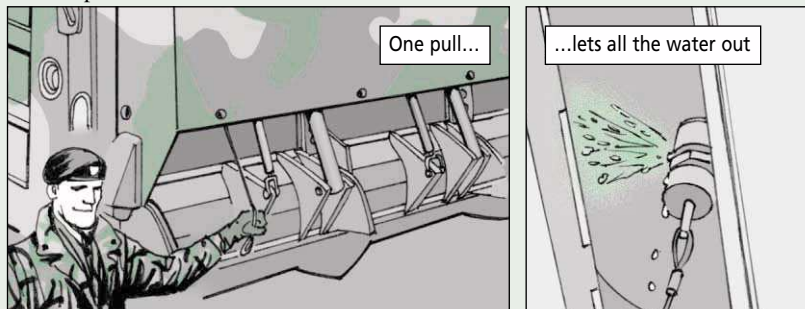
There's no doubt that cold weather can cause the dump truck's tailgate and material control system (MCS) to move slowly.

But before you point a finger at Mother Nature, make sure the air tank for the tailgate and material control system is drained.

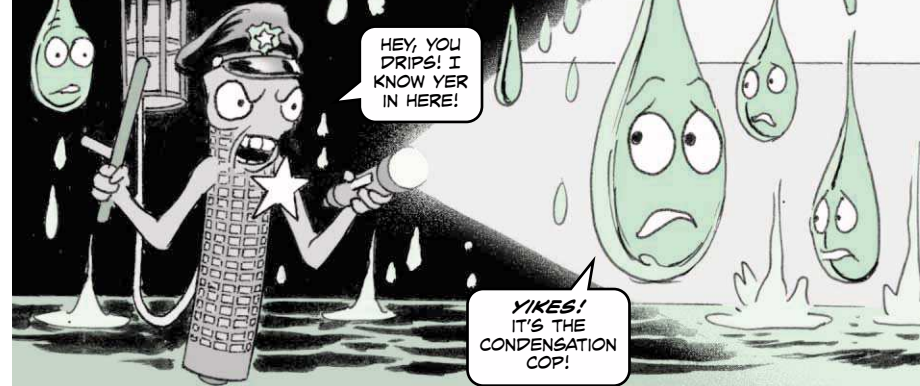
This tank is seldom drained because it's in the back of the dump truck under the tailgate's cover. But when the temperature drops, condensation gets into the air lines and solenoid-controlled air cylinders.

During operation, that condensation causes the tailgate to become sluggish or to lock up. Dumping operations come to a halt because the tailgate won't open or close.

So before you call it a day, pull the air tank pull cable to let any water out. Release the pull cable when all the water and air have drained out. This procedure is Step 16 of the operator's PMCS in TM 5-3805-264-14&P.



# FUEL AND WATER



Water in your grader, loader, scraper, excavator, or dozer's fuel system is the biggest cause of clogged fuel filters and ruined injectors.

Actually, nearly all fuel contains some water. Condensation adds more moisture to closed fuel systems.

So what can you do to stop the damage? You can help keep water out of the fuel systems on commercial construction equipment with an in-tank water absorber.

The absorber works like a weasel in a hen house—it doesn't come out until it's full! It comes in two parts: a plastic sleeve or guard, and a cartridge.

The absorber is available in different sizes:

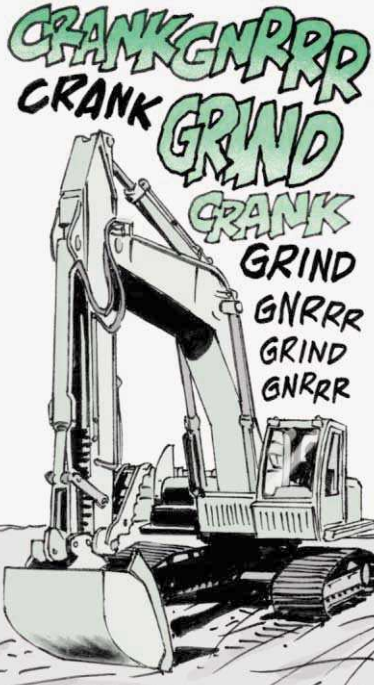


Item	For tanks up to 200 gallons NSN 5430-01-	For 175 to 400 gallon tanks NSN 5430-01-	For 300 to 600 gallon tanks NSN 5430-01-
Sleeve	350-1446	349-8727	349-8730
Cartridge	349-8729	349-8728	350-5465

No cartridges come with the sleeve. Be sure to dispose of the used cartridge in an approved hazardous waste container.



HYEX...



815F Compactor...

## Sneaky Leak Fix

**M**echanics, a little tape takes care of a sneaky leak that can get on your nerves.

After cleaning out the crud in the compactor's fuel tank, you have to reinstall the tank's drain plug. Make it leak proof with antiseize tape, NSN 8030-00-889-3535.

When you do:

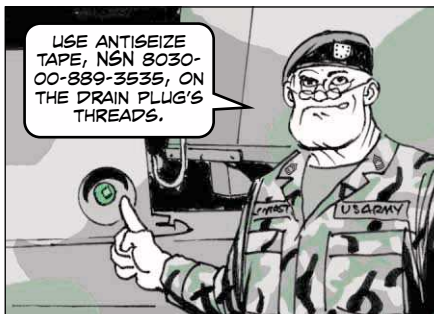
- Make sure the threads are free from dirt, fuel and oil.
- Wrap the tape in the direction of the plug's threads. Use two turns and overlap about half a wrap.

## Rough Start Reminder

**O**perators, your hydraulic excavator may be hard to start when the temperature drops below freezing.

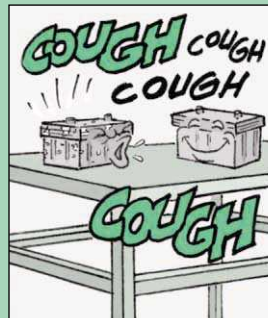
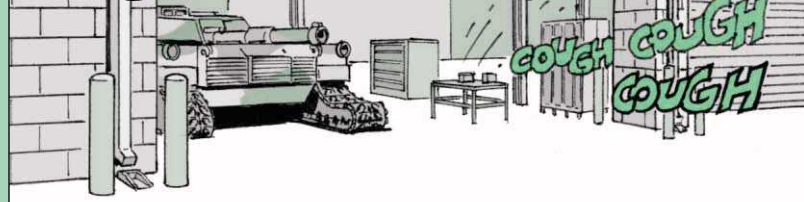
The cold weather starter system has a fuel canister that automatically injects ether into the engine when you push the cold start button.

If your excavator is hard to start even when using the cold start button, chances are the ether canister is empty. Have your mechanic replace it.



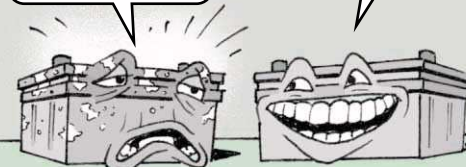
Lead-Acid Batteries...

## PUT THE CLAMPS ON CORROSION



HOW DID YOU  
COUGH COUGH  
MANAGE TO STAY  
COUGH COUGH SO  
CORROSION-FREE?

ALL IT TOOK WAS  
A LITTLE SILICONE  
COMPOUND ON MY  
BATTERY POSTS!



Dear Half-Mast,

At one time I heard it was a good idea to put a light coat of grease on the terminals of our vehicles' lead-acid batteries. Supposedly, this helps prevent corrosion and makes the clamps easier to remove.

Is this true? And if so, what kind of grease is best to use?

SSG J.M.K.



Dear Sergeant J.M.K.,

It's true. TACOM still recommends putting a light coat of GAA on your battery's positive and negative posts. However, there is a new silicone compound available that works even better than grease.

When applied, the silicone runs down around the battery post and terminal to completely seal out moisture. Get a 1-pint can with NSN 8040-01-331-7134 or a 3-oz tube with NSN 8040-01-331-7133.

Half-Mast



# GLADHAND & CABLE CARE A MUST

THERE, THAT'S GOT YOUR TRAILER HOOKED UP.

LET'S GO PICK UP THAT TANK!

HOLD ON! DID YOU CHECK MY CABLES AND GLADHANDS DURING HOOKUP?

WHEN IT COMES TO CONNECTING THE M1000 SEMITRAILER TO THE M1070 TRACTOR TRUCK, THE CABLES AND GLADHANDS ARE OFTEN THE WEAKEST PM LINK.

IF *YOU* DON'T DO YOUR JOB DURING HOOKUP AND MAINTENANCE, THOSE CABLES AND GLADHANDS *WON'T* DO THEIRS.

THAT MEANS **PROBLEMS** WITH THE SEMITRAILER'S LIGHTS AND BRAKES.

## Cables

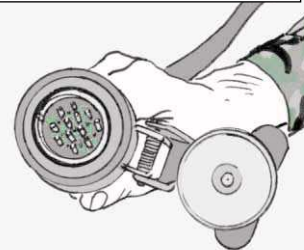
Before installing cables, take a close look at the connectors and receptacles for dirt and corrosion. Loose dirt can usually be blown out with the help of an air hose.

Stubborn dirt can be a little tougher. Try clipping off all but about 1/2 inch of the bristles on an acid swabbing brush, NSN 7920-00-514-2417. The shorter bristles make them stiff enough to brush dirt out of the connector and around the outside of the receptacle.

To remove corrosion, try spraying a light coat of corrosion preventive compound, NSN 8030-00-546-8637, and scrubbing with that short-bristled acid swabbing brush. The compound also displaces water, which should help prevent further corrosion down the road.

When connecting cables, make sure the pins line up with the receptacle. Bent or broken pins are a sure cable killer.

Check cable connectors and receptacles for dirt and corrosion



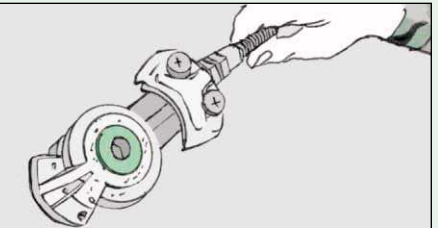
Clean out dirt with modified brush



## Gladhands

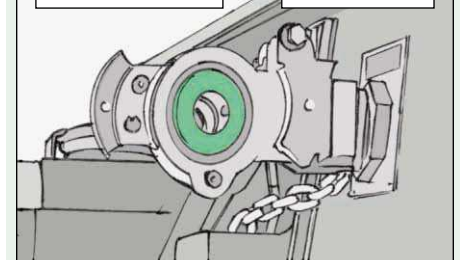
Check the rubber grommets inside the gladhands for wear and tear. The rubber can dry out and crack, letting in moisture.

Use NSN 5330-00-172-1919 to order a replacement grommet.



Check for cracks to rubber grommets...

...on **both** sides of gladhand



# Choose Tires Wisely

DIFFERENT BRANDS, DIFFERENT TREAD PATTERNS.

HMMM... IS THIS A WISE CHOICE?



Dear Half-Mast,

I was about to change some tires on an M984E1 HEMTT wrecker when I noticed that we had different tire brands in stock. The tires are all the same size, but they have different tread patterns.

What's the scoop on mixing and matching different brand tires on the same vehicle?

SFC S.J.S.

Dear Sergeant S.J.S.,

There are three different tires approved for use on HEMTT vehicles. Two of them work well with each other, but the other one is a loner. Here are the details:

- When you order a replacement tire using NSN 2610-01-126-1576, you'll get either a Michelin XL (16.00R20, load range J) or a Goodyear AT2A (16.00R20, load range M).

Michelin XL radial



Goodyear AT2A radial



Both tires can be used on the same truck without damage to the tires or the truck. It's a common practice to use all the same tires on a single axle, but it's not necessary. Both tires were tested together and are compatible on the same axle.

Here's the word from Para 2-7 of TM 9-2610-200-14, Care, Maintenance, Repair, and Inspection of Pneumatic Tires and Inner Tubes: "Minor variations of tread designs, as encountered from one manufacturer to another, may be used providing the sizes and tire constructions (bias or radial) are compatible."

- There is another NSN shown in the HEMTT parts TM. NSN 2610-01-334-2694 brings a Michelin XZL (16.00R20, load range M) that can be used on the truck **only in a full set of eight tires**. It cannot be mixed with the other tires.

Note that the XZL is used on the M1070 heavy equipment transporter and the M1074/M1075 palletized loading system tractor. Just because the XZL can be used on the HEMTT does **not** mean that the XL or AT2A can be used on the HET or PLS. **They cannot!** The XL is not large enough for either vehicle, and the AT2A did not pass the use test for either truck.

- All three tires have non-directional tread, so it does not matter how they are mounted on the wheels. The tread can point forward or backward, although the tread on any XL tires used should point in the same direction.

- Some or all of these tires may rub against the HEMTT's front axle equalizer beam during a hard left or hard right turn. Eyeball the beam for evidence of rubbing. There must be at least 1 inch of clearance between the tread and the beam when the wheel is turned as far as possible to the left and right.

If you find evidence of rubbing, report it. Your DS shop will adjust the steering stop bolts to get the correct 1 inch of clearance.

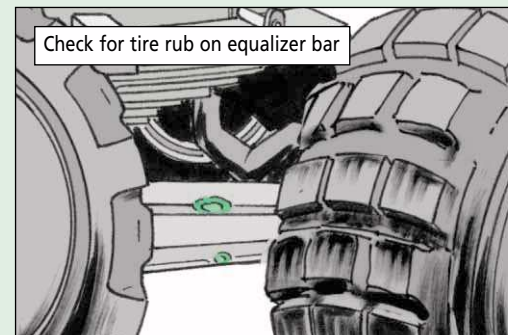
- The Michelin XL tire should never be mounted to a bolt-together wheel. The XL requires an inner tube and inner tubes are not safe when used with bolt-together wheels. You **can** mount the Goodyear AT2A on a bolt-together wheel as long as you don't use an inner tube.

Half-Mast

Michelin XZL radial

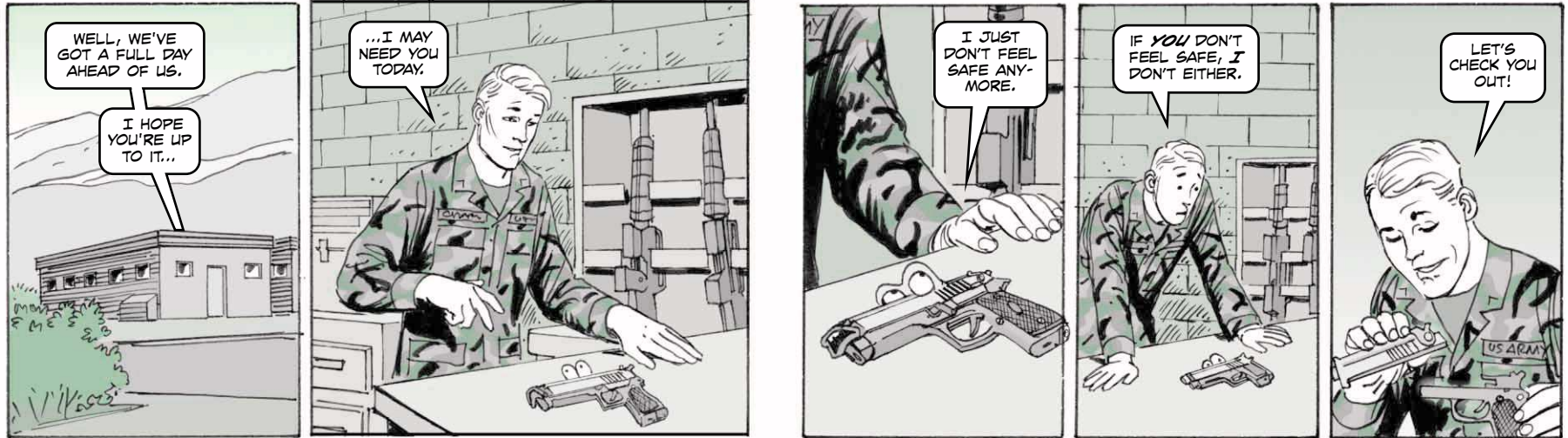


Check for tire rub on equalizer bar





# Be Safe with Safety

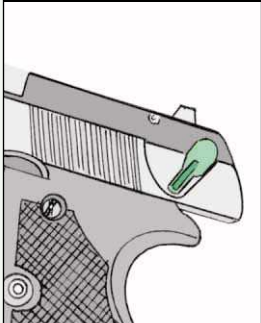


Dear Editor,

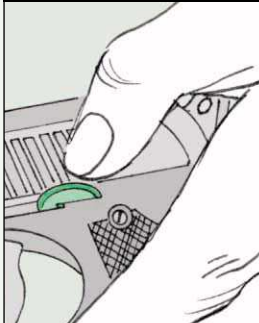
During our recent arms room inspections in Bosnia, we found a number of M9 pistols that had safeties that were dangerously worn. We think it is because pistols in that environment are continually cleared for loading and unloading.

All armorers with M9s should do the safety/function check on Page 2-22 in TM 9-1005-317-23&P before their M9s go to the field, but this is critical for units using their pistols on a daily basis. Pay special attention to Step 5:

- Rotate the decocking/safety lever to the SAFE (down) position.



- Depress the slide stop allowing the slide to return fully forward.



- At the same time, the hammer should fall to the full forward position.

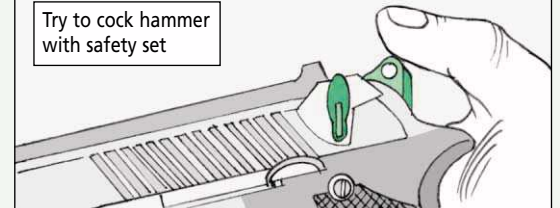


After you've finished the safety/function check, put the safety lever in the SAFE position and try to cock the hammer to the fully cocked position with your thumb. You shouldn't be able to.

If the pistol flunks the function check, it needs to go to direct support for repair or replacement.

SSG Joseph Dutton  
Co A, 229th MSB  
MDARNG

Try to cock hammer with safety set



## M2 Machine Gun Boresight Telescope

A boresight telescope is now available for use with the M2 machine gun when it's mounted on the M1A1, M1A2 and M1A2 SEP tanks. The telescope, NSN 1240-01-499-7958, is being added to the additional authorization list for each of the tanks' operator TMs.



# LISTEN TO THE VOICES OF EXPERIENCE

HEY, MLRS FOLKS! LISTEN TO THESE GUYS FROM FORT HOOD.

THEY HAVE SOME WAYS TO MAKE YOUR JOBS EASIER!



I WISH MY PEOPLE HAD KNOWN ABOUT THE CAB HOLD-DOWN BOLTS.

THAT WOULD HAVE SAVED US BOTH FROM GETTING BANGED UP.



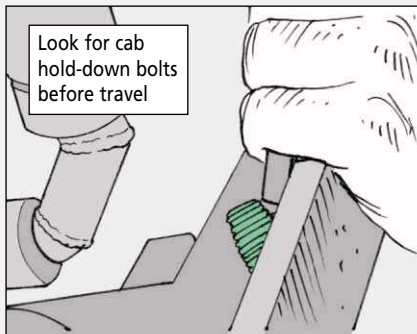
Dear Editor,

Here at this Ft Hood MLRS unit we've come up with a few suggestions that we think will help other MLRS units:

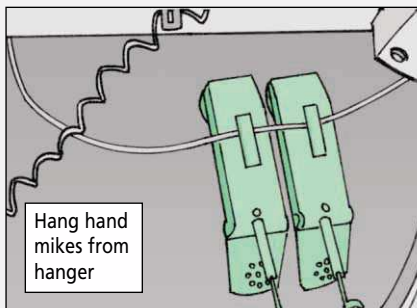
- Two bolts to check before leaving the motor pool are the cab hold-down bolts. Crews remove the bolts to tilt the cab for PMCS. If they forget to reinstall the bolts, the cab can tilt forward when you hit the brakes. That can break the cab hinge bolts, damage the cab lifting mechanism, and even flip the cab. Just make sure you check that the two bolts are installed before you hit the road. There's one bolt on each side of the cab just inside the door.

- If you leave the commo hand mikes lying on the seats, you can count on them tangling each other up and getting snagged on ALICE gear. We untangled that problem by running a coat hanger between the first and third bolts of the track commander's hatch pad. Just loosen those two bolts, wrap the hanger one turn around each bolt, and retighten the bolts. Then hang the mikes from the hanger.

Look for cab hold-down bolts before travel



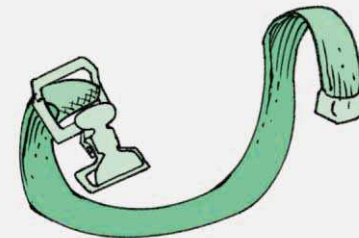
Hang hand mikes from hanger



- Keep several tiedown straps in the cab of the MLRS and use them to secure stuff like TMs and water jugs. That prevents them from flying around the cab during travel and breaking things like panel switches. To replace one switch often means replacing the whole panel. We use web straps with quick-release buckles, but something like a bungee cord would work, too. Your self-service store on post or local hardware store will have lots of cheap straps. Whatever you use must be strong enough to hold objects in place, but easily unfastened, too. Just make sure loose objects are tied down before you leave the motor pool.

- When you do PMCS and find problems, note the PMCS step in the item number column on your DA 5988E maintenance form. That makes it easy for your repairman to figure out what you're talking about.

Use tiedown straps to tie down TMs and other stuff



SSG Shaun Tobin  
SSG Jeremy Larson  
1/21st FA  
Ft Hood, TX

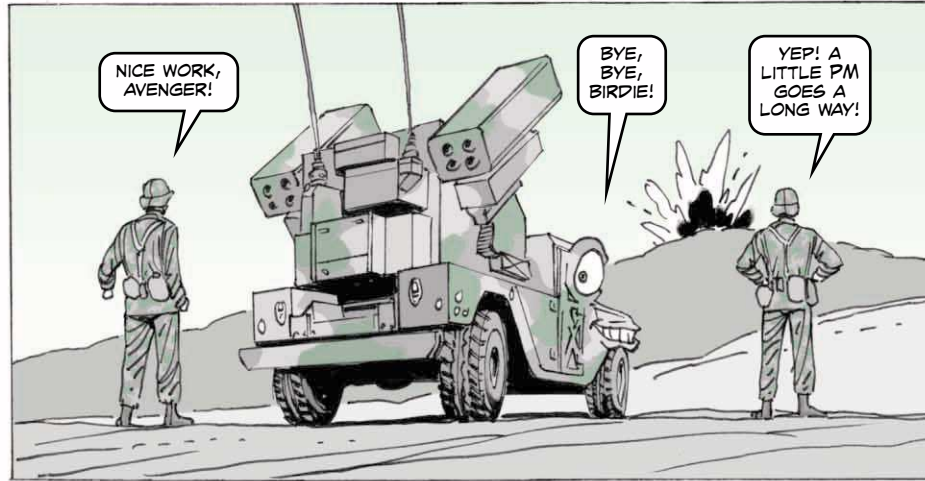
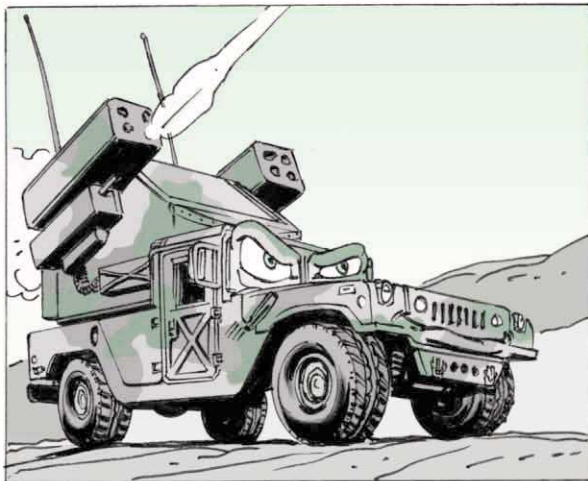
From the  
desk of  
the *Editor*



Whew, you guys spend a lot of time with your thinking caps on! Good job.

# MAKE NECESSARY

# ADJUSTMENTS

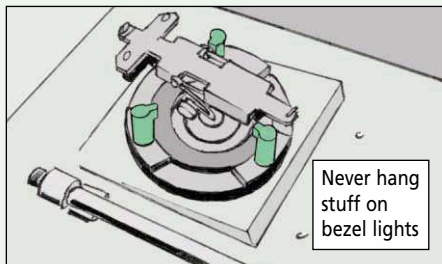
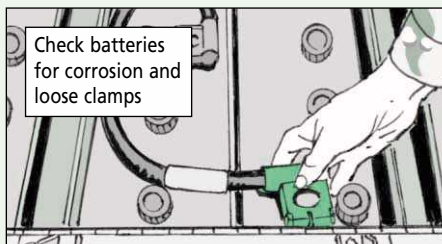


Dear Editor,

Through my experience with the Avenger, I've come up with a few simple suggestions that will shoot down some big Avenger problems.

**Batteries:** The Avenger is extremely sensitive to low voltage. Many Avenger problems can be prevented just by checking the system and truck batteries for corrosion around the battery posts and for loose connections. Just feel the battery clamps for looseness. Clean off corrosion with a wire brush.

**Bezel lights:** The bezel lights on top of the remote control unit may look like a handy place to hang stuff like helmets, but that has quite unhandy results. The lights break and then you're in the dark for night-time operations. It usually is a trip of several days to support to get the light fixed. Find someplace else to hang your helmet.



**Antenna rods:** Lots of crews store antenna rods in the turret. The problem with that is when they drop the rods in the turret the rods punch a hole in the floor. If water gets in the floor holes, the floor begins to rot from the inside. That can be a major repair.

Your best bet is not to store anything in the turret—there's not much room and there's too much in there that can get broken.

If you see a hole in the turret floor, put duct tape over the hole until support can fix it. For more info on repairing cracks and holes, see Chap 14 in TM 9-1440-433-24-2.

SSG Jeremy Davis  
B Co, 782d Support  
Ft Bragg, NC

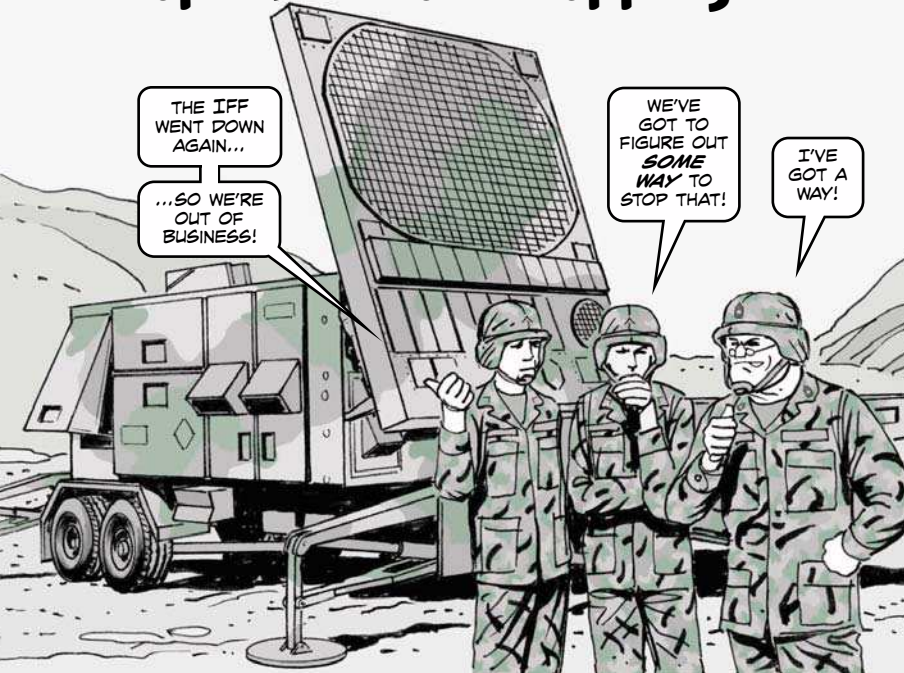


From the desk  
of the Editor

Good job, Sergeant. Your suggestions will certainly help lots of Avenger crews.



# Stop Sand from Stopping IFF

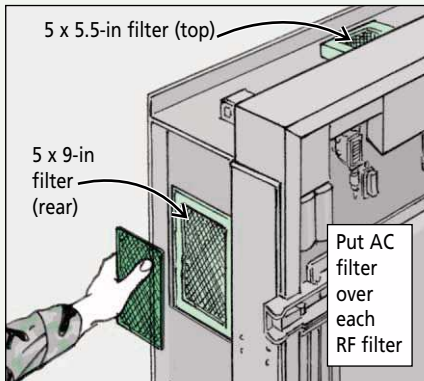


**S**and in the desert gets inside the Patriot's radar shelter and then in the CP-1187( ) / TPX-46A(V)7 signal processor inside the shelter.

That causes the IFF interrogator to fail and makes the whole Patriot NMC. But a little extra filtering stops sand from shutting down the IFF.

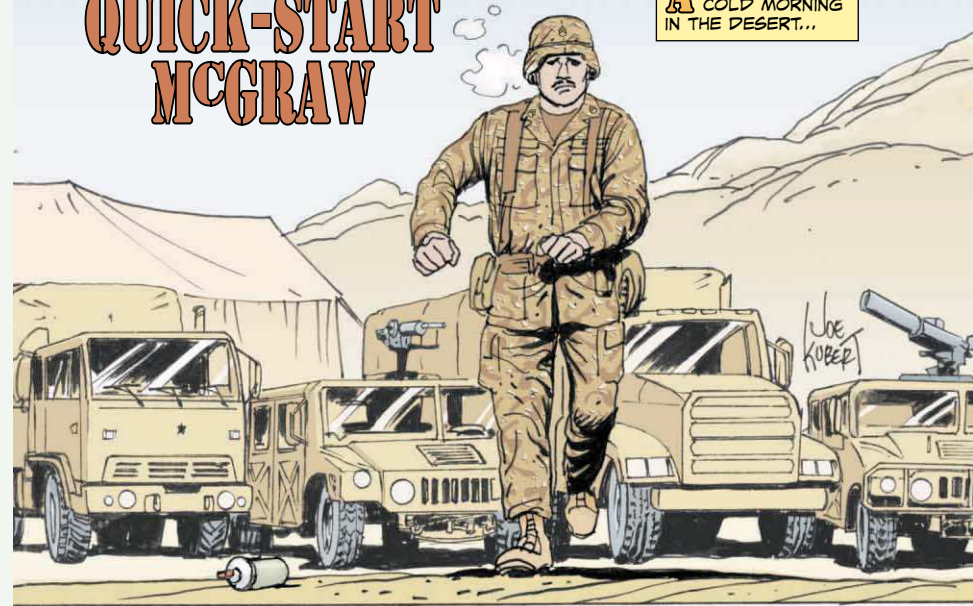
Take one of the filters normally used with the Patriot's air conditioners and cut out one piece 5 x 9 inches and another 5 x 5.5 inches. Use tape or velcro to put the two pieces over the two RF air filters. The extra filtering will keep sand out of the signal processor.

Check the filters weekly and clean or replace them if necessary.

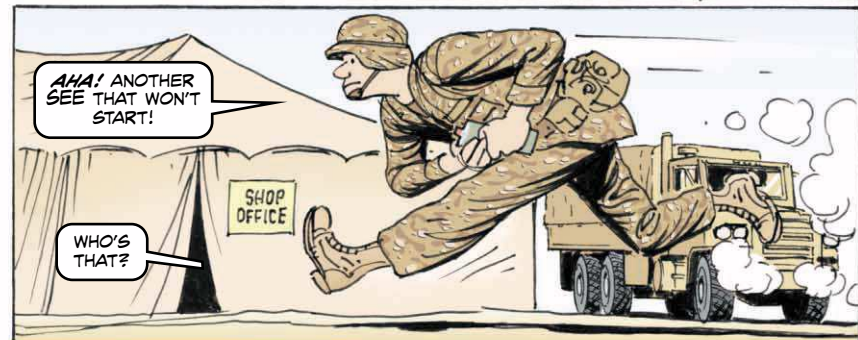


# THE DOWNFALL OF QUICK-START MCGRAW

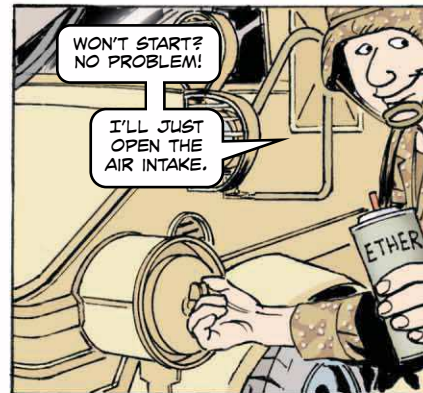
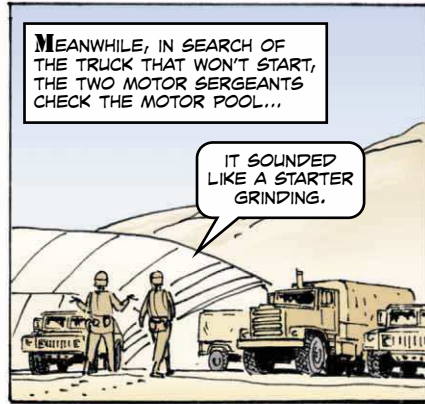
**A** COLD MORNING IN THE DESERT...



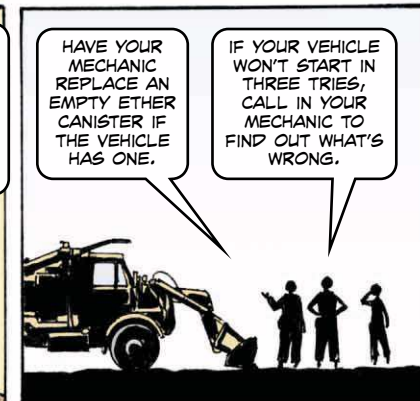
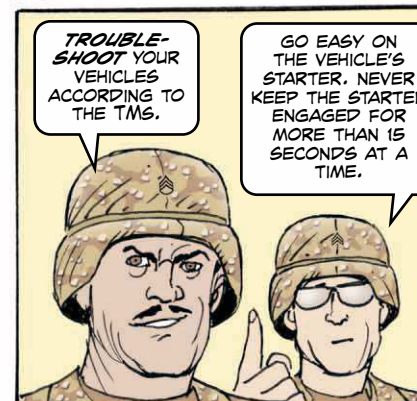
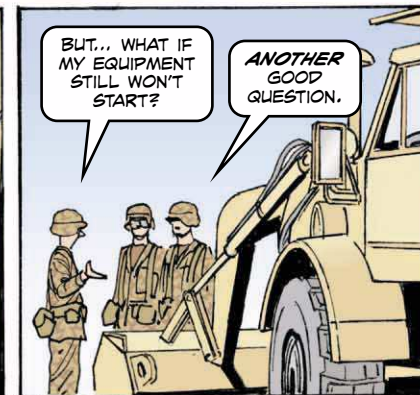
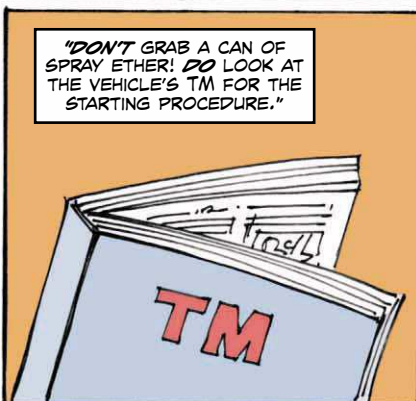
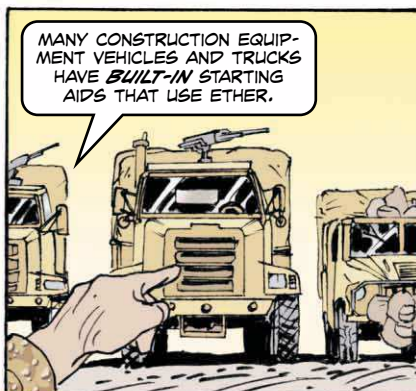




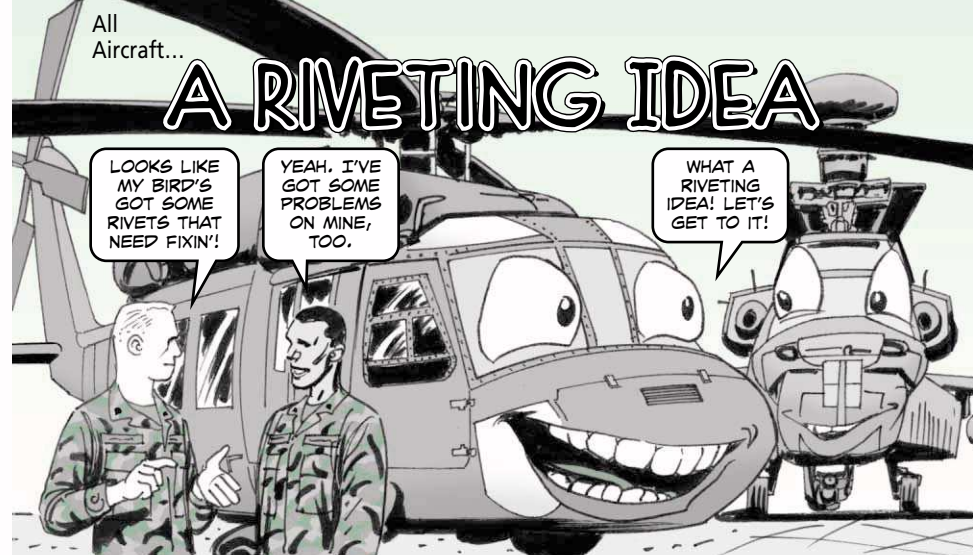












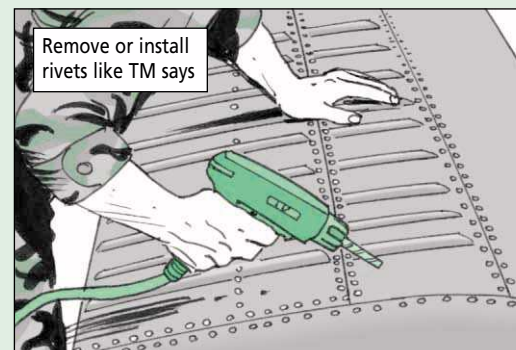
Airframe repairers, the smart and safe way to remove or install rivets on your bird's delicate airframe is to follow the procedures laid out for you in general aircraft TM 1-1500-204-23-10, Chapter 7.

Since all rivet heads are not the same size or shape, make sure you eyeball the TM to find out what the manual requires to remove or install different kinds of rivets.

For example, the Black Hawk or Apache stabilator has a thin metal skin and may require backing up the rivet before drilling it out.

But before you start filing down and drilling out rivets, follow every safety precaution to protect yourself. That means putting on your goggles, NSN 4240-00-052-3776, a respirator, NSN 4240-01-463-5449, and earplugs, NSN 6515-00-137-6345. They protect you from harmful dust, fumes and noise created by filing and drilling cadmium-coated rivets. The fumes can put your lungs and kidneys in harm's way.

So always wear a mask, goggles, and earplugs and check out your general aircraft TMs for the scoop on rivet removal.





# BLADE SPINDLE DROOP STOP NUT TOOL



Dear Sergeant Blade,

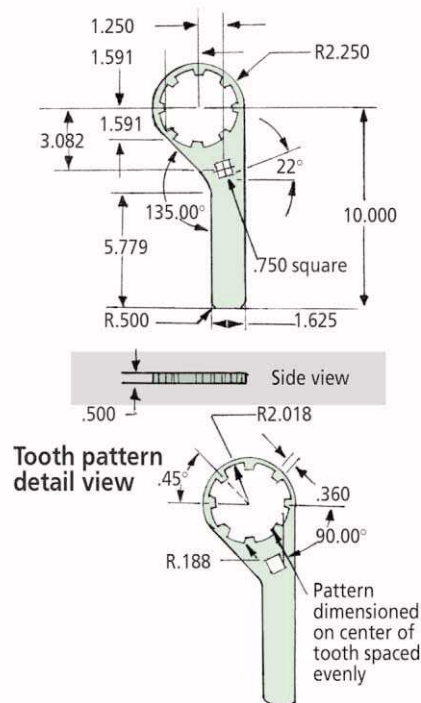
We have problems performing maintenance on the Black Hawk main rotor blade spindle droop stop nut, NSN 5310-01-102-8858. With 570 to 630 lb-in of torque, it's one tough cookie to remove and install.

The initial setup tool list for the spindle in TM 1-1520-237-23-3 does not list an adequate tool with enough grip to get the droop nut off the spindle.

A spanner wrench, which we often use to remove or install the nut, slips off. The wrench is also used to torque the nut, but it can give a wrong torque setting. Most mechanics usually end up with busted knuckles and a damaged aluminum droop stop nut.

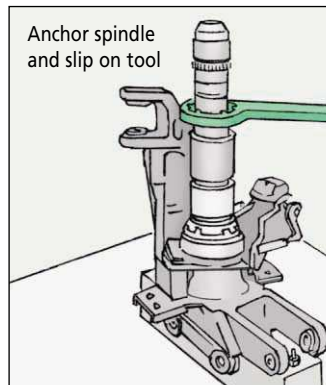
We've solved the problem with a tool made of flat rolled steel, NSN 9510-00-231-2091, that has teeth and a centered square hole for a torque wrench or a breaker bar for easy droop stop nut removal and installation.

We make the tool like so:

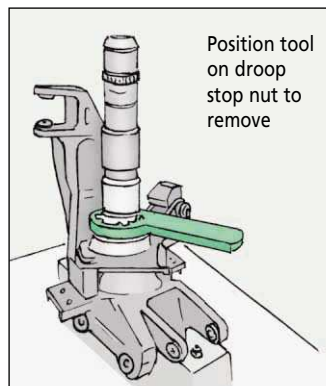


After we've removed the spindle like the TM says in Para 5-4-5 and clamped it down for disassembly, we use the tool to remove or install the droop stop nut following the TM procedures.

Anchor spindle and slip on tool



Position tool on droop stop nut to remove



SGT Andres Chamorro Jr.  
MAARNG (AASF)

**GOOD WORK!**  
ANOTHER SMART  
IDEA FROM A  
SMART MECHANIC  
THAT'LL SAVE  
TIME, AND  
MONEY, AS WELL  
AS PREVENT  
INJURIES.

PS 613



AH-64D...

# BLOWIN' IN THE WIND

WE DOORS  
NEED TO GET  
TIED DOWN!



Mechanics, you can't see the wind but you sure feel it when it's blowing. And wind or rotor wash can do a number on loose Apache APU access doors and drive shaft panel doors.

Panels doors left open and not tied down will flail around in high wind and can crack the door's ribbing.

Inspect panel doors  
for cracks



When performing inspections in high winds, make sure the panel doors are tied off with 550 cord, NSN 4020-00-240-2146 or lock wire so they won't bounce around.

37

DEC 03

# DON'T FORGET PROTECTIVE WINDOW COVERS

THANKS FOR REMOVING MY TADS/PNVS COVERS!

DON'T WORRY. I GOTCHA COVERED!!

Aircraft armorer, your Longbow or A-model Apache's Target Acquisition Designation Sight/Pilot Night Vision Sensor (TADS/PNVS) boresight, night side and day side shroud covers can damage the TADS/PNVS if they're forgotten and left on during operation.

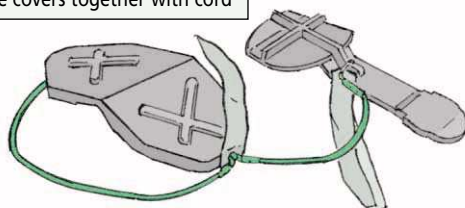
Leaving the covers on while operating the TADS will damage the day side sub-assembly shroud, the covers and the shroud's internal anti-ice card.

Instead of tying a string around your finger as a reminder, do a walk-around to ensure all the covers are removed before rotating the TADS.

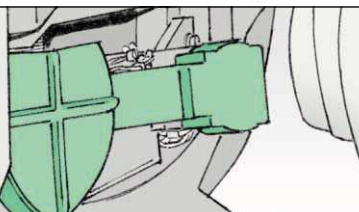
A useful idea is to tie all the covers together with some elastic cord, 8305-00-276-7575, so they can be removed at the same time before TADS/PNVS operation. That'll also keep covers together.

The TADS/PNVS contain some expensive LRUs. The bore sight protective cover, if left on, is usually the culprit that damages or scrapes the sensitive optics when the TADS turret is rotated.

Tie covers together with cord



Remove bore sight covers before operating TADS/PNVS



So whenever you operate the TADS/PNVS, take off the protective covers to prevent jamming the turret. But when you remove any of the LRUs on the TADS/PNVS for storage or shipment, keep your fingers off the optic lenses and use the covers to give the lenses the best protection.

Course, when shipping or storing TADS/PNVS LRUs, use the shipping containers outlined in TM 1-5855-265-20 to protect the unit from damage.

Remove all covers and engine plugs before operations



## PAINT HANGAR LIFTING DEVICES?

TO PAINT OR NOT TO PAINT YON HANGAR LIFTING HOOK?

THAT IS THE QUESTION!



PS 613

THE ANSWER IS NO!



TO EXPOUND: "PAINTING HOOKS CAN PREVENT PROPER VISUAL INSPECTIONS OF CRACKS. CHECK OUT TB 43-0142 FOR THE DETAILS ON LIFTING DEVICE CARE."

VERYILY, THOU SAYEST A MOUTHFUL!



39

DEC 03



All Aircraft...

## PROTECT FIRE EXTINGUISHER DATA PLATE

DO YOUR WORST, MOTHER NATURE! I'M PROTECTED AGAINST YOU!!!

Crew chiefs, aircraft portable hand-held fire extinguishers that are handled frequently and exposed to the forces of nature can have worn-out data plates.

The data plate information is important because the extinguisher is inspected and weighed every 6 months to ensure the gross weight has not dropped 4 or more ounces.

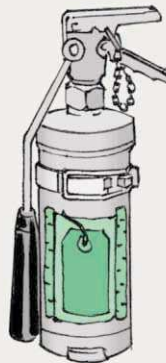
That can't be done if the stamped weight measurement is not legible on the data plate. An unreadable data plate makes the fire extinguisher unserviceable. It must be replaced with a new fire extinguisher, NSN 6830-00-555-8837, like it says Para 2-5C, step (5) in TM 1-1500-204-23-1.

To protect the data plate information, use the attached DD Form 1574 serviceability tag to cover the data plate. Overlay the tag with a piece of clear plastic. Then tape it down over the data plate with duct tape, NSN 5640-00-103-2254.

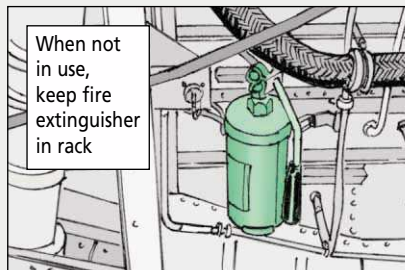
Course, always treat your fire extinguishers with care and place them back in the bracket after you've done your aircraft walk around to check for fire during engine or APU run-ups and engine shutdown.

Don't toss them on the seats or leave them on the floor.

Cover data plate with plastic to protect from damage and exposure to weather



When not in use, keep fire extinguisher in rack



## Battery Tester a Bright Idea

HEY, WHAT'S THE DEAL WITH ALL THESE BATTERIES?



WE'RE NOT SURE IF THEY'RE GOOD OR BAD.



Dear MSG Half-Mast,

Pitching BA-5372/U and BA-1372/U batteries because we *THINK* they are no longer good is costly. My unit invested in a \$30 battery tester and we feel like we saved more than \$300 in the first 6 months by not throwing away good batteries. Using the tester is now a part of our battery maintenance SOP.

SFC John T. Kakac  
181st Sig Co  
Landstuhl, Germany



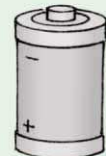
Dear Sergeant Kakac,

The SMART program and CECOM agree with you. They recommend a multi-battery tester that is in the supply system, NSN 6625-00-295-1902. It can be used on other batteries, as well as the two you mentioned.

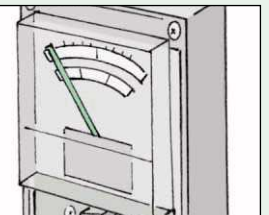
Commanders, getting one (or more) of these battery testers is your call. But if you use a lot of batteries, this small investment might save some big bucks in procurement and disposal.

Half-Mast

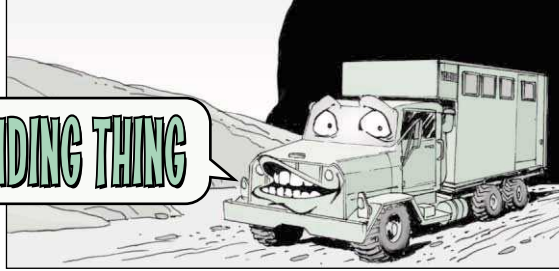
Batteries like BA-5372/U can be tested



Dual scales show voltage of each cell and overall battery condition



# DOING THE GROUNDING THING



The M934 expansible van, the equipment inside it, the 60-KW generator it is pulling and the trailer that generator is riding on are all one system.

A system requires a system ground. It's not enough to ground just one or two pieces of the system. They all need to be grounded.

Without a good system ground, there is potential damage to your equipment, your health and the health of those around you.

Here's some advice on how to ground:

## The Generator and Trailer: Ground Rod

Effective grounding of the 60-KW generator starts with the ground rod.

There are two ground rods available. NSN 5975-00-224-5260 brings a single-section 6-ft rod. NSN 5975-00-878-3791 brings a 9-ft rod in three 3-foot sections.

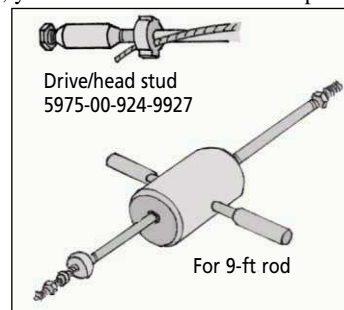
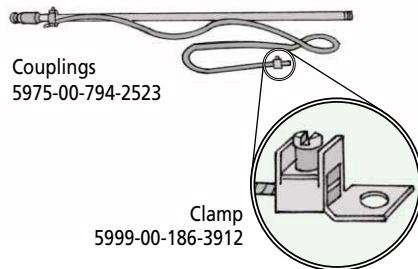
For the 9-ft, 1-in thick ground rod, you'll need clamp, NSN 5975-01-034-8882, to hold the grounding strap to the rod.

The 6-ft rod comes with a thumb screw for holding the strap. If you need to replace it, you can use a nut, bolt and washer, or order clamp, NSN 5999-00-496-5834. Since this rod is thicker than the 9-ft rod, you cannot use the same clamp.

To install the 6-ft rod, use sledgehammer, NSN 5120-00-243-2957. To install the 9-ft, sectional rod, use slide hammer, NSN 5120-01-013-1676.

The ground rod needs to be driven down to the water table so it pierces the moisture line. The top of the ground rod should be at least an inch below the ground surface. Too many are left sticking up from ground level and become a walking hazard as well as decreasing the effectiveness of the ground.

The immediate area around the top of the ground rod should be dug out and the soil prepared with chemicals and water, as necessary.



## Conductor

The conductor should be at least 6 AWG copper or copper-clad aluminum. Flat straps meeting these requirements work best because they have low impedance.

The conductor should not be spliced and should go continuously from the rod to the generator trailer as straight and short as possible. It also must run downhill from the trailer to the rod. Don't loop it up and over any other equipment.

## Connections

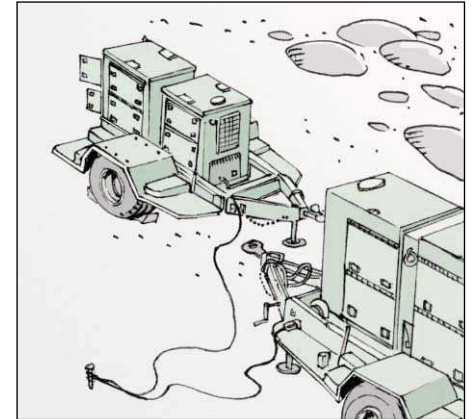
The ground connection for the trailer is a ground stud above the curbside front step. The surface immediately around the stud must be free from corrosion, paint, grease and dirt. The stud should be clean and corrosion free.

The connection at the ground rod should be tight and the conductor pressed against the ground rod by the arms of the clamp and not the tightening bolt.

Don't twist or tie the conductor to the rod. The connection is poor and it could work free entirely.

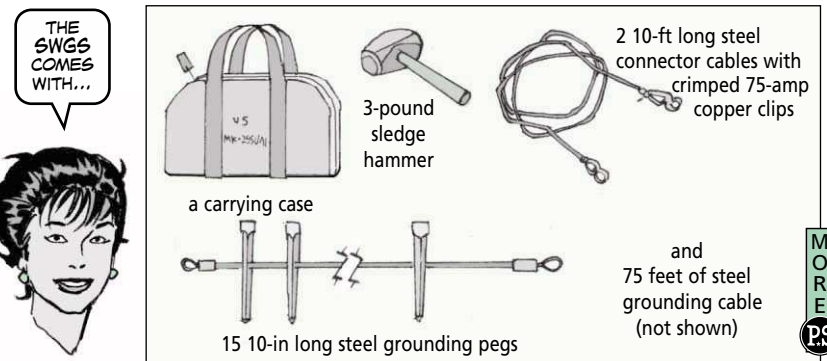
From the same connection point, run a conductor strap to the ground stud located on the circuit breaker side of the switch box.

Your generator and its trailer are now grounded.



## The Van: Outside

The surface wire ground system (SWG) kit, MK-2551A/U, NSN 5820-01-263-1760, is a good system to use for the M934 expansible van.



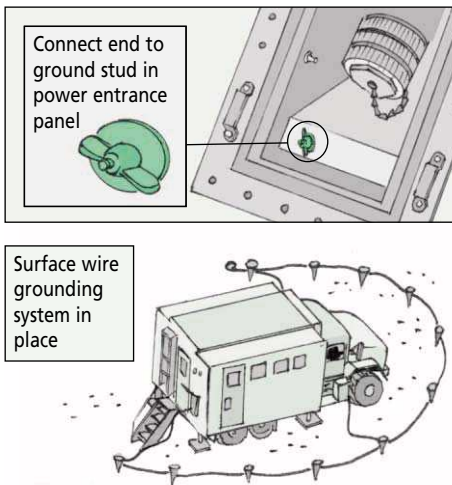


To set up the SWGS, lay the grounding cable on the ground around the van with one end near the power entrance panel. Connect that end to the ground stud in the power entrance panel.

Drive the grounding pegs following the route of the cable at 5-ft intervals and attach the grounding cable.

Attach the two other connector cables by running one from a ground peg to the front bumper of the vehicle and the other from a ground peg to the signal entrance panel ground stud on the van.

If the soil is dry, keep the areas around the SWGS pegs wet.



### Inside

Inside the van, part of your grounding system is having each piece of communications equipment bonded to the shelf it sits on.

Check these bonds often to make sure movement hasn't loosened them and that the surface-to-surface contact is maintained.

### Bonding the Van to the Generator/Trailer

If the van has a different voltage potential than the generator/trailer and you touch both at the same time, you could get seriously injured. This is especially true if you touch them with bare hands and provide a path for electricity to travel right across your chest!

To prevent this, keep their voltage potential the same by bonding them together. Run a bonding conductor (at least 6 AWG and copper) between the van and the generator/trailer.

You can make this bond at a couple of places. Connecting a grounding stud on your generator/vehicle and a grounding stud on your van is one. Connecting between the generator/vehicle ground rod and the SWGS is another.

### Other Methods of Grounding

Getting a good ground depends on soil conditions. Sometimes you must prepare the soil with water and chemicals to get a good ground and keep it.

Sometimes a grounding plate instead of a ground rod or a SWGS can be used.

Sometimes plumbing, buried tanks, copper grids and the metal framework of buildings can be used.

The important things are getting a good ground; grounding all your equipment to the earth; bonding your equipment to other equipment; doing it safely; and keeping it from becoming a hazard to foot traffic.



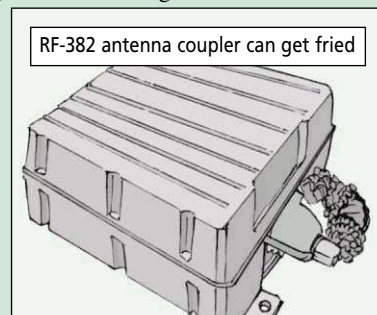
Even your AT-1011, the 32-ft whip antenna used with the AN/PRC-150 family of radios, is subject to laws.

One of those is Coulomb's Law, "The force between two charges is equal to the product of the two charges divided by the square of the distance between them."

What that means in English (and soldier) is a static charge can accumulate on your antenna when sand blows across it or before a rain or electrical storm.

That charge makes a high voltage electrostatic field that when discharged can fry the circuits in the RF-382 antenna coupler.

Since the radio is procured commercially, the manufacturer is sending a bleeder resistor kit to slowly discharge any surface charge build-up on the antenna.

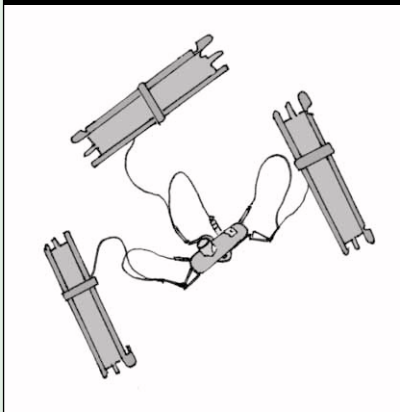




If you can, shut down the radio and take down the antenna.



If you *must* operate, your best option is to switch to the RF-1941 antenna.

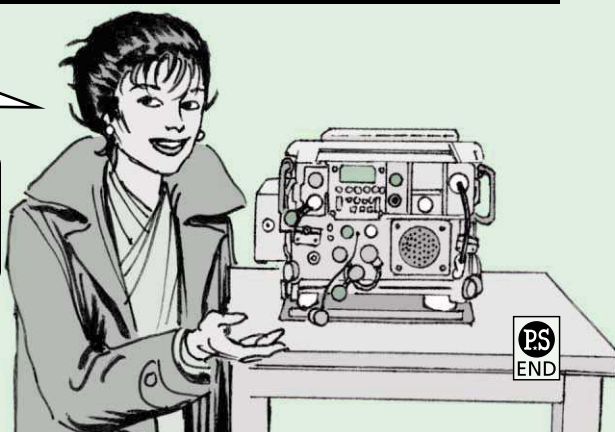


This is a center-fed wire dipole antenna that gives less surface area for the charge to build on.

If you can't switch antennas, shorten the AT-1011 to 8–12 feet to reduce the surface area. The antenna will be less efficient, but will still tune and work.

REMEMBER, TOO, THAT EVEN IF THE RADIO IS OFF, THE RADIO IS AT RISK IF THE ANTENNA IS STILL WAVING.

IT'S BETTER TO LEAVE THE RADIO ON WITH THE COUPLER TUNED TO GIVE SOME BLEED PATHS FOR THE ELECTROSTATIC CHARGE.



PS  
END

Troop Support...

# WINTER REFRESHER COURSE



Ice, snow and bone-chilling cold are headed your way. Learn how to protect yourself and your troop support equipment from the rigors of winter. Begin your education by reading a few back issues of PS, the Preventive Maintenance Monthly. Issues 599 through 602 present a wide range of stories about the use and maintenance of troop support equipment in cold weather.

Here's what you'll find:

## PS 599, October 2002

- Space heater PM
- NSNs for approved tent heaters
- Tent PM
- Washing and patching the extended cold weather clothing system (ECWCS)
- Patching, drying and cleaning cold weather boots
- Cleaning the modular sleeping bag system, lubing the zipper
- Gloves for winter maintenance, mitten liners

## PS 600, November 2002

- Using and cleaning the sleeping mat
- Cold weather parka care, NSNs and sizes
- Insulated covers for water cans

## PS 601, December 2002

- Camouflage screening and snow

## PS 602, January 2003

- Heater for 4-man soldier crew tent

View the issues online by clicking above, or at <http://www.logs.aarmy.mil/psmag/psonline.htm>

As long as you're getting educated, browse through these issues for cold weather stories about other kinds of equipment. PS 599 in particular is packed with winter PM tips on everything from combat vehicles and aircraft to small arms and communications.



Extended Cold Weather Clothing...

# UNDERWEAR FOR ACTION HEROES



GREETINGS, ACTION MOVIE FANS. IT IS I, **REINHOLD BEEFENCAKER**, WORLD-CLASS BODY BUILDER, MOTION PICTURE ACTION HERO AND STAR OF ZA SILVER SCREEN.

TODAY I'D LIKE TO TAKE TIME OUT FROM MY BUSY SCHEDULE OF CAR CHASES, EXPLODING FIREBALLS, AUTOMATIC WEAPONS FIRE AND MINDLESS MOVIE MAYHEM TO DISCUSS A SUBJECT ZAT IS VERY CLOSE TO ME: **TIGHT UNDERWEAR.**

YOU KNOW, MY LEETLE FRIENDS, ZERE WAS ONCE A TIME WHEN I FELT HEMMED IN, CONFINED, LIKE ZA WORLD WAS CLOSING IN ON MY MOST EXCELLENT PHYSIQUE. SOMETHING HAD ME IN A STRANGLEHOLD, I KNEW NOT WHAT. I FELT TRAPPED, FORLORN, JA.



ZEN, ONE DAY, ZA ANSWER CAME TO ME IN A FLASH OF INSIGHT, FASTER ZAN YOU CAN SAY "AGONIZING MUSCLE SPASM." FOR ZA FIRST TIME I GRASPED ZA TRUE NATURE OF MY PROBLEM: MY POLYPROPYLENE COLD WEATHER UNDERSHIRT AND DRAWERS WERE TOO **TIGHT!**

VHAT TO DO? VHAT TO DO?



IMAGINE MY RELIEF WHEN I LEARNED ZAT COLD WEATHER UNDERWEAR IS AVAILABLE IN A VARIETY OF SIZES...

...INCLUDING ZA EXTRA EXTRA EXTRA LARGE BIG BRUISER SIZE FOR WORLD-CLASS BODY BUILDERS, MOTION PICTURE ACTION HEROES AND STARS OF ZA SILVER SCREEN.

SO, MY LEETLE FRIENDS, IF ZA WORLD IS CLOSING IN ON YOUR PHYSIQUE, ORDER ZA CORRECT SIZE COLD WEATHER UNDERWEAR WITH ZESE NSNs. NEVER AGAIN FEEL TRAPPED AND FORLORN.

## Cold Weather Undershirt

NSN 8415-	Size
01-227-9547	X Small
01-227-9548	Small
01-227-9549	Medium
01-227-9550	Large
01-227-9551	X Large
01-475-4273	XX Large
01-475-4271	XXX Large

## Cold Weather Drawers

NSN 8415-	Size
01-227-9542	X Small
01-227-9543	Small
01-227-9544	Medium
01-227-9545	Large
01-227-9546	X Large
01-475-4554	XX Large
01-475-4561	XXX Large

NOW, WITH ZA HELP OF ZESE NSNs, MY UNDER-SHIRT AND DRAWERS PERFECTLY FIT MY PERFECT BODY.

WHAT A PLEASURE TO WEAR COLD WEATHER CLOZING ZAT LOVINGLY CARESSES MY BOUNTIFUL BICEPS, MY DAZZLING DELTOIDS, MY PEERLESS PECTORALS, MY GORGEOUS GLUTEUS, MY TREMENDOUS TRAPEZIDS, MY...



Sleeping Bags...

# THE LONG AND SHORT OF IT

MAYBE I'M TOO TALL OR MY BAG IS TOO SHORT... EITHER WAY, I'M DEFINITELY TOO C-C-COLD!



Do your friends call you Stretch or Too Tall? Are your legs so long that your feet dangle over the end of the bed? Is your sleeping bag so short that you're exposed to the elements?

Now there's help for your sleepless nights. The Defense Supply Center Philadelphia (DSCP) has extra long sleeping bags for you.

NSN 8465-01-452-1690 gets you an intermediate cold weather sleeping bag 99 to 101 inches long.

NSN 8465-01-452-1688 brings a patrol sleeping bag 104 to 106 inches long.

For more about sleeping bags and other troop support items ranging from uniforms and footwear to individual equipment, flags and tents, go to DSCP's website at:

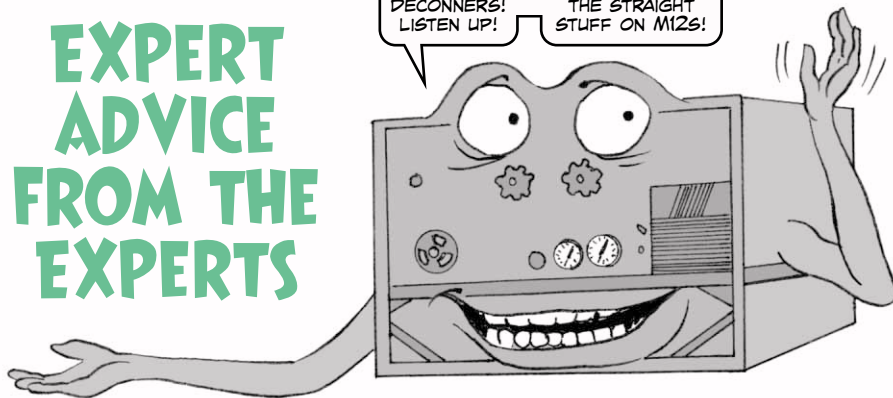
<http://www.dscp.dla.mil>

Once there, click on Clothing & Textiles, S9T. From the next screen you can search their catalog for products.

# EXPERT ADVICE FROM THE EXPERTS

YO,  
DECONNERS!  
LISTEN UP!

THIS GUY HAS  
THE STRAIGHT  
STUFF ON M12s!

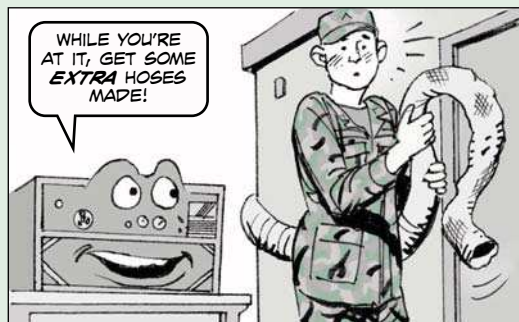


Dear Editor,

Through experience using and maintaining our M12A1 decons, we've come up with these suggestions for decontaminating potential problems:

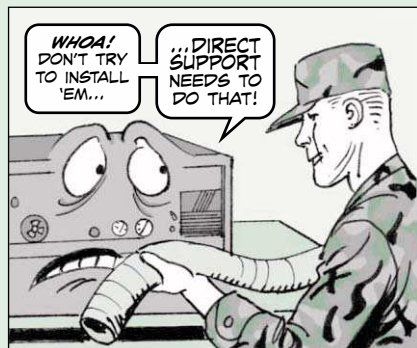
## *Have extra hoses made.*

The discharge and eductor hoses are fabricated locally. When you need a hose replaced, go ahead and have several made. It doesn't cost that much more to have extras fabricated, it will give you on-hand replacements, and it will save you the trouble of getting a new hose fabricated every time one fails.



## *Don't put hoses together yourself.*

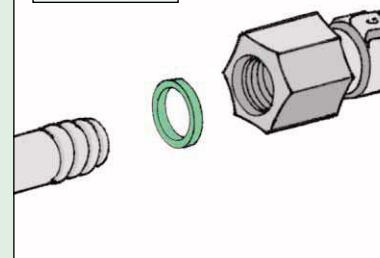
The hoses are under great pressure during operation. It takes a special tool that units don't have to secure the clamps for the hoses. If the clamps aren't installed right, the hose can blow off and possibly injure somebody. At the very least, a blown hose will cause a huge mess. For the same reason, clamps other than those called out in TM 3-4230-209-20&P should never be used for the hoses. Substitute clamps—like those used on truck hoses—may not hold.



## *Put plumber's tape on the hose connections for the upper and lower hose reels.*

If those connections leak, you'll have trouble building up water pressure and spraying. And it's hard to detect leaks at the connections because the hoses must be completely unreeled in order to check the connections. Put tape, NSN 8030-00-889-3535, on the connector threads and then screw in the hoses. That will help the connections hold their seals. Replace the tape quarterly. Also replace the rubber gaskets, NSN 5330-00-811-9471, but don't muscle the hose connection more than hand tight. That can crush the gasket.

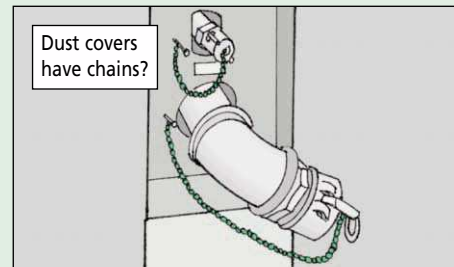
Replace gasket  
to stop leaks



## *Check that the dust covers for the hose connections have chains and the chains are connected.*

Water pressure can make projectiles out of the dust covers. The chains keep the covers from taking flight far enough to hurt you. Also check the dust covers' seals. A bad or missing seal makes it more likely that the dust cover blows off. The chains will also keep the covers handy for sealing openings when you disconnect the hoses.

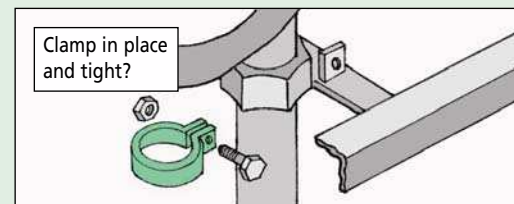
Dust covers  
have chains?



## *Make sure the loop clamp that holds the pipe from the pump is in place and tight.*

This clamp is often left off after repairs. Without the clamp holding the pipe tightly in place, vibration causes the pipe to leak and you can't build up water pressure. Make sure the clamp is still tight each month.

Clamp in place  
and tight?



SSG Alfred Nieto  
2d Chemical Bn  
Ft Hood, TX

From the desk  
of the *Editor*

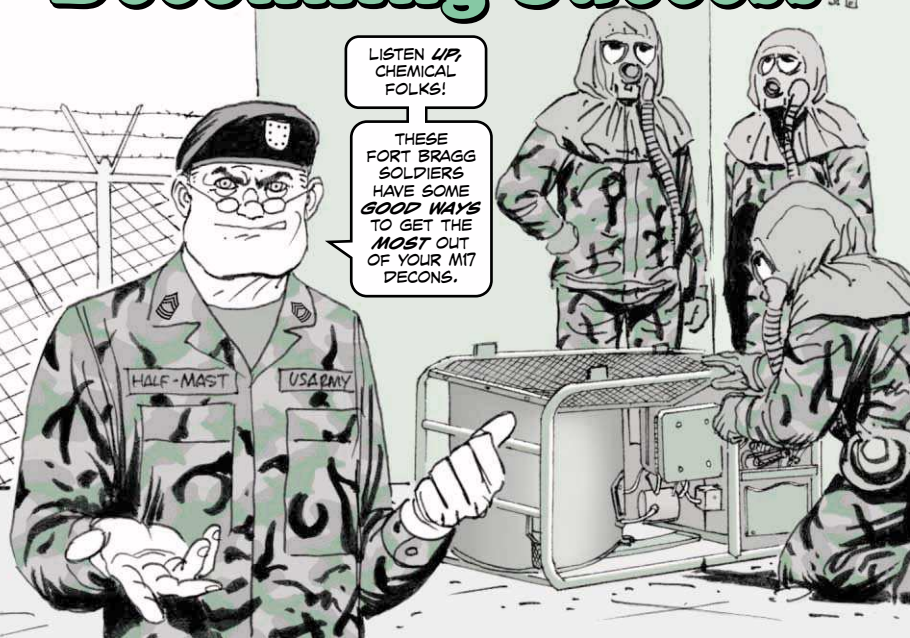
Great job, Sergeant.  
These suggestions will help make  
deconning safer and easier.



# The Secrets for Deconning Success

LISTEN UP,  
CHEMICAL  
FOLKS!

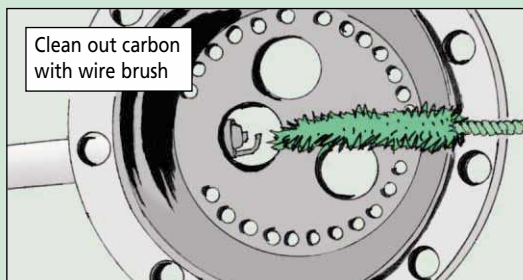
THESE  
FORT BRAGG  
SOLDIERS  
HAVE SOME  
**GOOD WAYS**  
TO GET THE  
**MOST** OUT  
OF YOUR M17  
DECONS.



Dear Editor,

Through trial and error, every chemical company learns the tricks of getting the most out of their M17 decons. These are our secrets for successful deconning:

- Heavy carbon buildup in the igniter tube can ground out the spark plug and burn out the igniter. Then you can't decon until the igniter is replaced. To avoid that, take apart the igniter tube every six months and clean out all the carbon with a wire brush.



Clean out carbon  
with wire brush

- Before going on a mission, make sure the engine spark plug gap is between .035 and .040 inch (.020 to .035 inch for the M17/M17A1) with your gap gauge. If the gap is wider, you'll have trouble starting. If the gap is too wide, gently bend the electrodes down until the gauge fits snugly between the electrodes. If the gap is too small, use your flat-tip screwdriver to gently pry open the gap. Then check the gap for the correct clearance. If you have the new wire gap setting tool, NSN 5120-00-278-1248, it has a notched blade for adjusting the gap.

- If you have trouble starting the M17, take off the air filter. That lets the decon suck in more air, which sometimes is enough to get it started. Put the air filter back on as soon as it does start. Starting is easier when you keep the air filter clean, too. Every six months we clean the filter with dry cleaning solvent.

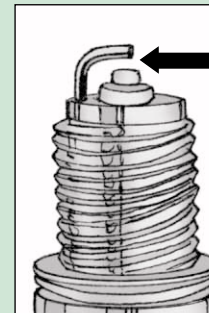
- Tie off the burner fuel hose to the frame so it doesn't stick out far enough to hit the flywheel belt. The belt will cut a hole in the hose and the hose will leak. Then you've got a fire hazard.

- If fuel comes out the exhaust, don't panic. Sometimes the M17 gets too much fuel in the engine during startup and it's blown out the exhaust. After running 30 minutes, your M17 should stop blowing out fuel. If it doesn't stop, then it's time to tell your repairman.

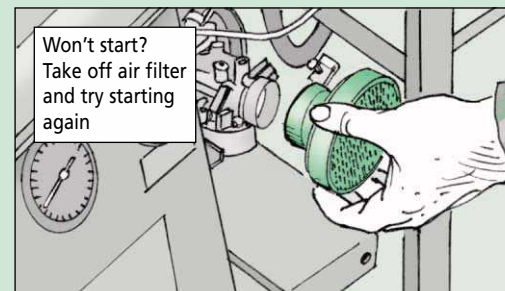
MSGT Kenneth Graham  
SGT Ramon Perez  
SPC Yonelvi Alvarez  
21st Chemical Co  
Ft Bragg, NC

Gap 0.035 to 0.040 inch  
for M17A2 and M17A3

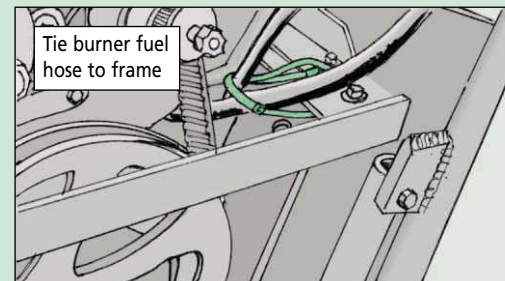
Gap 0.020 to 0.035 inch  
for M17 and M17A1



Won't start?  
Take off air filter  
and try starting  
again



Tie burner fuel  
hose to frame



From the desk  
of the *Editor*

Whew, that's a lot!  
Good job guys.

# Twas the Week Before Christmas

Twas the week before Christmas,  
and all through Fort Blue,  
Not a mechanic was happy,  
awaiting some clue.  
While the orders sat on the  
ULLS clerk's chair,  
In hopes that some parts  
soon would be there.



The parts had been ordered but supplies  
there were none,  
Though the Army folks said there were  
parts by the ton;  
But depots were empty  
and workers were idle,  
Because some parts rooms kept parts  
as if they were idols.

And none were so mean,  
or so nasty, or vile,  
As the grinch who held on to  
each part in his pile;  
His supply room a warehouse  
so he'd feel no pinch,  
His Highness,  
the dishonorable,  
Hoarder Grinch!

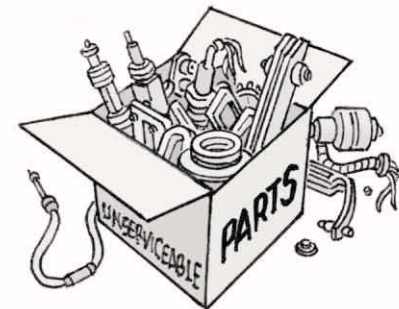


PARTS  
ROOM



GET THE PARTS WHILE I CAN,  
THAT'S WHAT I SAY,  
TAKE A CHANCE I'LL  
HAVE TO WAIT SOME DAY,  
NO WAY!

So he ordered more extras  
enlarging his stash,  
And couldn't be bothered  
with what he called trash.



But that trash, the unserviceables,  
were a key to supply,  
Depots could fix,  
and to requisitions reply;  
But Hoarder couldn't be bothered  
with mere readiness,  
Of hoarding and trash piles  
he couldn't care less.



The commander called for the help that he needed  
And forthwith a jolly old elf his call heeded;  
Half-Mast the elf was so lively and quick,  
He visited supply rooms with a speed that was slick.  
More rapid than reindeer his friends made a raid,  
"Hi, Connie! Hi, Bonnie! Hello, Sergeant Blade!  
Let's find those old griches  
who hoard and who stow,  
And find those unserviceables adrift  
like the snow."





“What ho? Stand fast!”

cried the master elf, Half-Mast,  
As he spied Hoarder Grinch and  
his stockpile so vast;

“What meaneth this hoarding  
and what of this trash?

Many soldiers await those  
supplies in your stash.”



So Connie and Bonnie, Blade and Half-Mast  
Turned in extras and repairables,  
they had quite a blast.

The depots received those unserviceables with glee,  
and the workers were happy as happy could be.



So Christmas arrived and mechanics were glad,  
New parts were available, and repaired parts had;  
No one was hoarding and turn-ins were made,  
Commanders were pleased when repairables paid.  
So don't be a hoarder, turn in all that stuff,  
The supply chain depends on it, sure enough!



# PS IS ONLINE FOR YOU

PS WAS DESIGNED TO BE  
SMALL AND EASILY CARRIED  
BY SOLDIERS IN MOTOR  
POOLS, ARMS ROOMS,  
OR TO THE FIELD.

THE COMING OF THE  
*INTERNET AGE* HAS  
ALLOWED US TO GIVE  
SOLDIERS AN EASILY  
ACCESSIBLE REFERENCE  
TO THE PS LIBRARY.



YOU CAN GO ONLINE TO  
READ PS ARTICLES BACK  
TO JAN 90. ENTIRE ISSUES  
FROM JAN 99 TO THE  
PRESENT CAN ALSO BE  
REVIEWED.

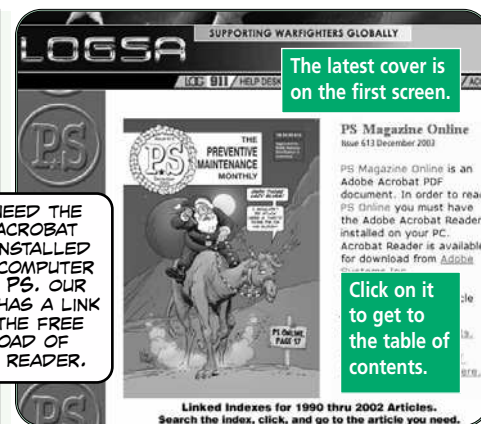


THE PS WEBPAGE IS  
AVAILABLE AT:

[http://www.logsa.army.mil/  
psmag/psonline.htm](http://www.logsa.army.mil/psmag/psonline.htm)



YOU'LL NEED THE  
ADOBE ADOBE  
READER INSTALLED  
ON YOUR COMPUTER  
TO READ PS. OUR  
WEBPAGE HAS A LINK  
TO GET THE FREE  
DOWNLOAD OF  
ACROBAT READER.



THE LATEST EDITION OF PS IS USUALLY POSTED TO THE WEB BY THE COVER DATE.

IF YOU CLICK ON ITS COVER, OR ON THE TABLE OF CONTENTS (TOC) LINK, THE TOC FOR THE CURRENT ISSUE POPS UP.

YOU CAN SCROLL THROUGH THE ENTIRE ISSUE TO SEE WHAT TICKLES YOUR FANCY OR YOU CAN SELECT AN ARTICLE BY CLICKING ON ITS TITLE IN THE TOC.



## Clean, Then Touch Up



When you click on an article title or page, the system takes you directly to the article

IF YOU WANT TO VIEW THE ENTIRE ISSUE, YOU CAN CLICK ON THE ARROWS AT THE TOP OF THE SCREEN...

...OR YOU CAN USE YOUR MOUSE TO SCROLL THROUGH THE ISSUE.

**TWO:** LINKS TO INDEXES FOR 1990-1998, 1999, 2000, 2001, AND 2002 ARE BELOW THE CURRENT ISSUE'S COVER.

Linked Indexes for 1990 thru 2002 Articles.  
Search the index, click, and go to the article you want.  
[Index of 2002 Articles](#)  
[Index of 2001 Articles](#)  
[Index of 2000 Articles](#)  
[Index of 1999 Articles](#)  
[Index of Articles 1990 thru 1998](#)

YOU CAN PAGE THROUGH THE INDEX USING THE ARROWS AT THE TOP OF THE SCREEN OR YOU CAN USE THE BOOKMARK LETTERS ON THE LEFT SIDE OF THE SCREEN.

CLICK ON THE FIRST LETTER OF THE TITLE YOU NEED AND YOU WILL GET THE FIRST ARTICLE THAT STARTS WITH THAT LETTER...

...THEN SCROLL THROUGH THE LISTING UNTIL YOU FIND THE ARTICLE YOU NEED.

IF YOU *STILL* DON'T FIND WHAT YOU NEED, THERE ARE *OTHER* WAYS TO SEARCH.

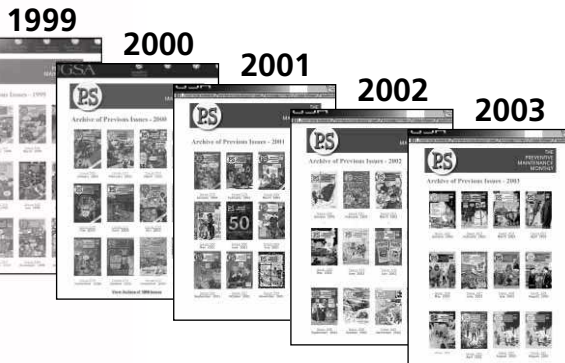
FOR EXAMPLE, YOU MAY LOOK FOR A BLACK HAWK ARTICLE UNDER "B" AND FIND NOTHING.

AN ALTERNATIVE WOULD BE TO LOOK UNDER "A" FOR "...AIRCRAFT, LIN-GO, BLACK HAWK..."

## Search Back Issues of PS

THERE ARE **TWO** WAYS TO READ BACK ISSUES.

**ONE:** CLICK ON ARCHIVE OF PREVIOUS ISSUES CLICK HERE TO READ ENTIRE ISSUES FROM 1999 THROUGH THE CURRENT ISSUE.



PS 613

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DEC 03

## Let Your Server Help

YOUR SERVER SHOULD HAVE A SEARCH ENGINE THAT ALLOWS A SEARCH OF ONLINE DOCUMENTS.

ACROBAT READER USES AN ICON OF BINOCULARS TO ACTIVATE ITS SEARCH ENGINE. CLICK ON THE BINOCULARS AND TYPE IN WHAT YOU'RE SEARCHING FOR.



THE SYSTEM WILL BRING UP THE FIRST ARTICLE ON THAT SUBJECT.

IF THAT ARTICLE *ISN'T* WHAT YOU WANT, CLICK ON THE BINOCULARS AGAIN TO GET THE NEXT ARTICLE FOR YOUR SEARCH.

PS 613

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'TIS THE  
SEASON  
TO GIVE  
THE GIFT  
OF PM!



## B-1 MAINTENANCE STAND

Trying to order the hand jack boot, PN 22203, listed in TM 55-1730-223-23P? Don't waste your time. It's source coded XA, so you'll have to order the next higher assembly, hydraulic hand jack, NSN 5120-01-325-3163.

## LOOKING FOR MEK SUBSTITUTES?

Mechanics, don't ask Joe when looking for MEK substitutes or replacements. If you need assistance, contact AMCOM's Environmental Technology Cell Hotline at DSN 897-1711, (256) 313-1711 or FAX (256)955-0749. Be prepared to give what maintenance task you're doing that requires MEK. Have a TM and paragraph information ready. And it would help to know what material you're trying to clean or remove.

## Radio Installation

To find info on installing radios, read SB 11-131-1, Vehicular Sets and Authorized Installations, and SB 11-131-2, Installation of SINGARS, FHMUX and EPLARS. You can download copies from the internet at:  
<http://www.logsa.army.mil/etms/online.htm>

## M35A2/A3 Starter Switch

You won't find the 4-prong, spring-back starter switch for M35A2 and M35A3 trucks in paper versions of TM 9-2320-361-20P or TM 9-2320-386-24P. Get the switch with NSN 5930-01-334-2862. The switch is shown as Item 31 of Fig 56 in the May 01 version of TM 9-2320-386-24P on EM 0037.

## Tool Kits for MCMs

Multi-capable maintainers (MCM), MOS 63A and 63M, now have their own tool kit, NSN 5180-01-493-1664. It consists of the modernized General Mechanics Tool Kit (GMTK), plus the MCM supplement, which can be ordered separately with NSN 5180-01-502-6332, and it replaces the artillery tool kit. The supplement is a 5th drawer that fits in the top of the GMTK and contains 22 tools that include wire-twisting pliers, small files, brass drift punches, and sockets not in the GMTK. All the tools in the kit have a lifetime warranty. For more info, contact TACOM's Sally Mendoza at DSN 793-5288/(309) 782-5288 or email:

[mendozas@ria.army.mil](mailto:mendozas@ria.army.mil)

## REVISIT OF "SAVE OIL & MONEY"

Aviation mechanics, on Pages 48-49 of PS 610 (Sept 03), there's an article about saving leftover lubricants in plastic containers. But before you grab one for saving aviation hydraulic fluid or engine oil, AMCOM says the bottles are not authorized for aviation use. Follow the instructions for handling hydraulic fluid and engine oil like it says in your -23 maintenance and engine TMs and TM 1-1500-204-23-3.

## M1-SERIES TANK GENERATORS

If you've ordered a new generator, NSN 2920-01-261-8124 or 2920-01-200-6134, for your M1-series tank, it may take a while to come in. Those generators are in very short supply. Your best bet is to cancel the requisition and order generator, NSN 2920-01-305-8419, which is in stock. You'll also need an installation kit, NSN 2920-01-472-6308, to mount the generator.

## MINI-IR THERMAL IMAGER

There is a helmet-mounted mini-infrared imager, NSN 5855-01-501-9529, available in the supply system. Small enough for a BDU pocket, it comes with a tripod, lens cover, 2 AA lithium batteries, operator's manual, lens cleaning paper and soft case.

## Bradley 2W78 PLGR Cable

Use NSN 6150-01-501-3101 to get a new 2W78 PLGR cable for your M2A3/M3A3 Bradley. The NSN shown as Item 27 in Fig 144 of TM 9-2350-294-24P-2 is no longer available.

## One Wrong Digit

The difference between the AN/ALQ-144A countermeasure set cover and its shipping container is just one digit. If you mix it up, you'll get the wrong item. So order NSN 5895-01-109-1800 for the cover and NSN 5895-01-109-1801 for the shipping container.

## Improved HMMWV Seatbelt

Use NSN 2540-01-495-0817 to order an improved 3-point seatbelt assembly for your HMMWV. The new assembly has a longer strap with slicker material that makes retracting the belt easier.

## M88A1 QUICK DISCONNECT

Some quick disconnect (QD) coupling halves, NSN 4730-00-905-6355, for the M88A1 recovery vehicle were issued without an internal check valve installed. No check valve means the QDs leak when they're disconnected. Check your stock for any QDs under contract #SPO750-03-M-B098. If you find any, email an SF 364, Supply Discrepancy Report, for credit and disposition instructions to:  
[pqdrs@dscc.dla.mil](mailto:pqdrs@dscc.dla.mil)

## TAN M1102 TRAILER COVER

Use NSN 2540-01-493-7897 to get a desert (tan color) camouflage cover for the M1102 high mobility trailer. Jot this NSN down until it's added to Fig 16 of TM 9-2330-392-14&P.

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?

# SAND IS THE ENEMY IN THE DESERT

YOU'RE IN TROUBLE, NOW!

YOUR RIFLE WON'T SHOOT WITH ALL THAT SAND ON IT!

*YOU SHOULDA WIPED IT DRY!*



## FOUR WEAPONS RULES FOR THE DESERT:

1. Lube moving parts lightly
2. Wipe dry outside of weapons
3. Cover weapons when possible
4. Clean often

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