



**THE  
PREVENTIVE  
MAINTENANCE  
MONTHLY**

**ISSUE 560 JULY 1999**

TB 43-PS-560, 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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By Order of the Secretary of the Army:

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Administrative Assistant to the Secretary of the Army

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It's up to unit commanders to decide how many copies of PS their units need. But here's a suggested minimum number of copies per unit:

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Arms Room	1
NBC NCO	1
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Maintenance Section	5
Operators/Crew	1 per 5 soldiers

Maintenance units may need more than the minimum. And headquarters offices might get by with just one or two copies.

If you're getting too many copies of PS and some copies are tossed in the trash, you should reduce your requirements. If maintenance and supply types aren't getting enough copies—add a few.

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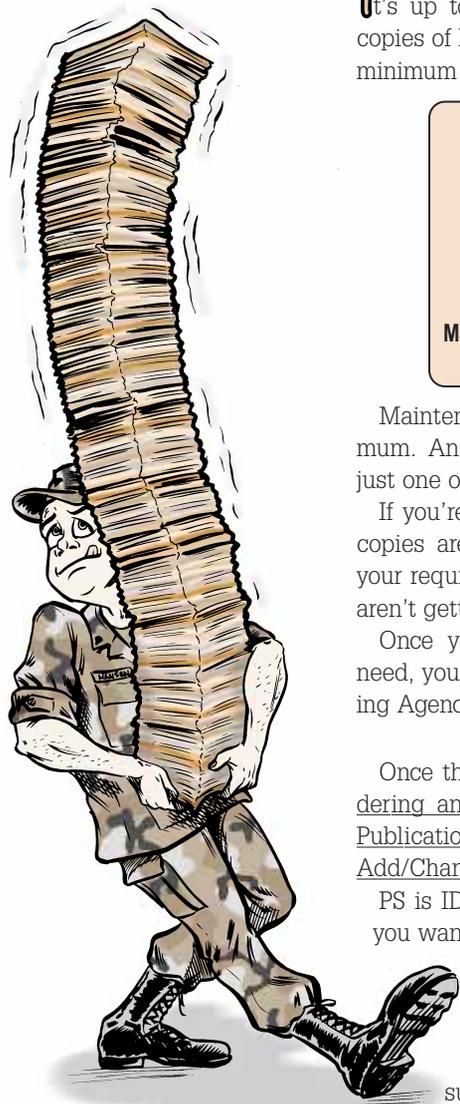
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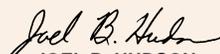
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# Sand, Lubes and

**W**hen blowing sand meets oil, hydraulic fluid, grease or filters, there are problems ahead for equipment.

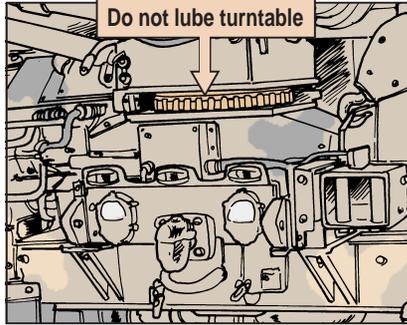
In the desert, keep an eye on hydraulic cylinders, brake master cylinder caps, air cleaner elements and oil filters... anything that is lubed, contains lube, cleans lube or filters air.

## Lubing

Too little lube causes parts to lock up. But too much lube catches sand and turns into sandpaper. Reach a com-

promise and lube more often, but with less lube. There should be little excess left outside a relief valve and seal.

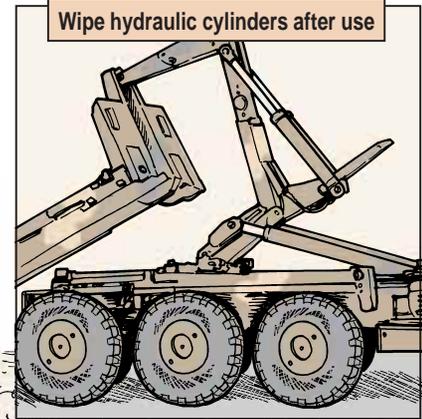
External surfaces that normally need lube need little or none at all in desert



# Filters Don't Mix

conditions. For example, turntables for cranes and mortars should be kept clean of lube.

Hydraulic cylinder rods, which are lubed automatically during use, should be wiped off at every shutdown. Sand on the rod cuts seals, causing leaks.

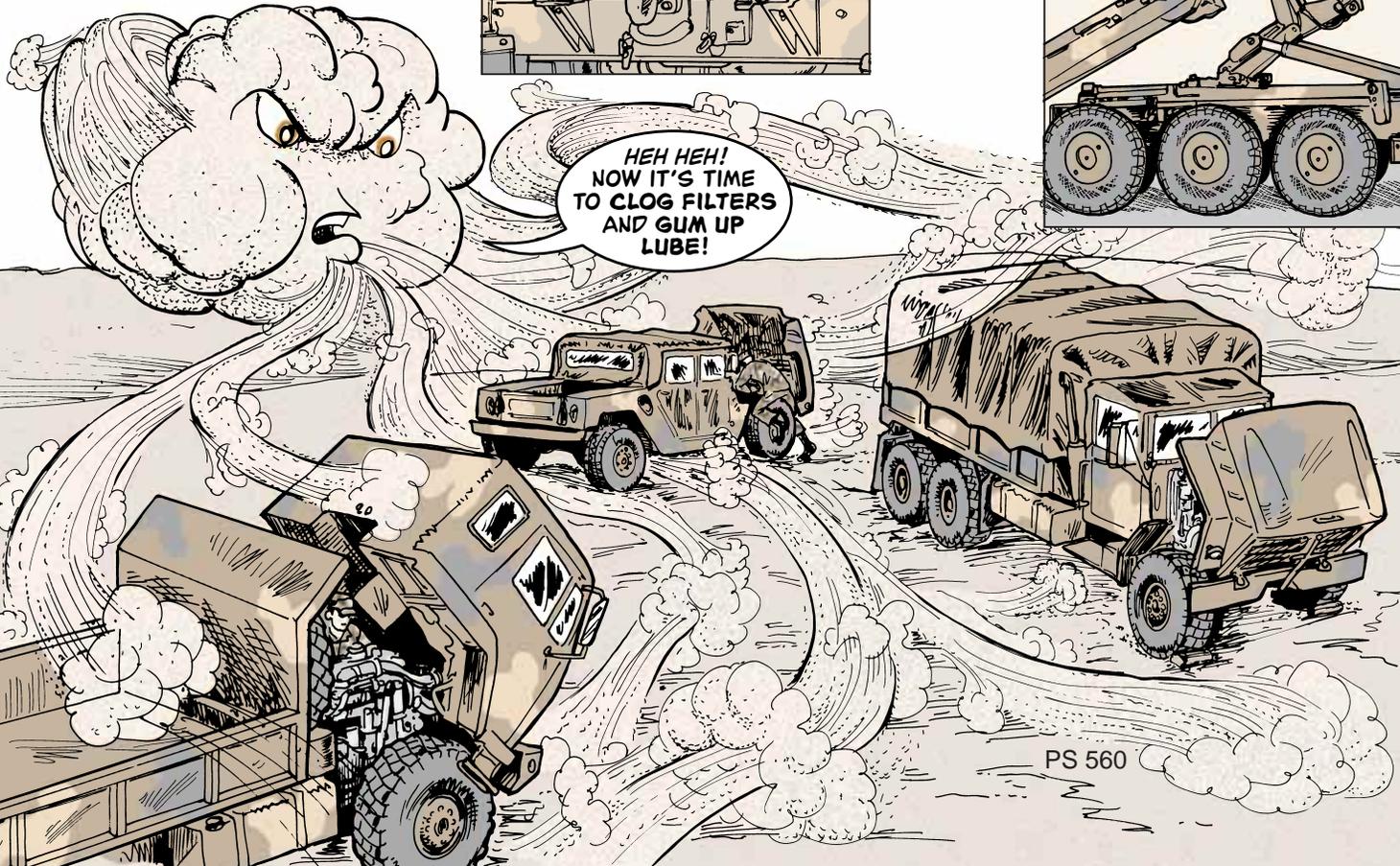


Because sand gets into everything, cut oil change intervals in half. That way, sand-contaminated oil has half as long to cause component damage. For instance, if the LO says to change oil every 12,000 miles, change it at 6,000 (or whenever the AOAP lab says). Change the oil even more often if conditions are really bad.

Before opening any cap, whether it protects oil, brake or transmission fluid, wipe the sand from around the cap and then position yourself to block blowing sand from the opening.



Check the inside of the cap, opening, dipstick and fill port before replacing the cap. Clean away as much sand as possible.



Never leave lids off grease and oil containers. Sand gets in the cans if the lids are off, and then gets inside your equipment. Likewise, before plugging in the grease gun, wipe off the grease fittings. That keeps dirt and grit that sticks to old lube from being forced into a fitting.

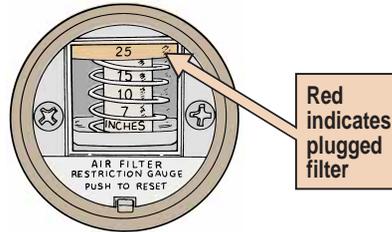
### Filters

Sand in an air or oil filter may mean a contaminated system. Stop the sand before it gets inside. When you pull lube services at shortened intervals, service or change the filters, too.

Protect oil containers from sand once they are opened and shelter the funnel from blowing sand when oil is added to components. Once the sand is in the oil, the only fix is changing oil and replacing the filter.

All air cleaner elements need to be cleaned at least daily in the desert—sometimes more often.

Watch your vehicle's air restriction indicator. If it shows red, stop operating the equipment. If your -10 TM allows, remove the filter and tap it to knock out most of the sand and dirt. Never bang it against anything hard like a rock or tire. That can damage the element and make it worthless against sand and dirt.



If it's your mechanic's job to service the filter, make sure he does. He can use an air hose to blow away stubborn dirt and sand. If the restriction indicator still shows red, the filter must be replaced.



4572-S  
Family of Medium Tactical Vehicles ...

# Electrical De-lights



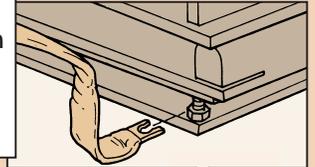
Here's the truth about three electric light problems on FMTVs:

### Trailer Lights Not Working?

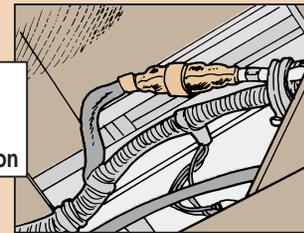
If trailer lights don't work after you've hooked up, check the tie wrap around the P53 wiring harness at the rear of the truck.

The tie wrap can be too tight, pulling the plug out of the connector. Loosen the wrap, push the plug into the connector and the trailer lights should come on. If not, troubleshoot.

Remove and clean terminal lug and mating surfaces



Check for loose electrical connection



### Left Headlight Dim?

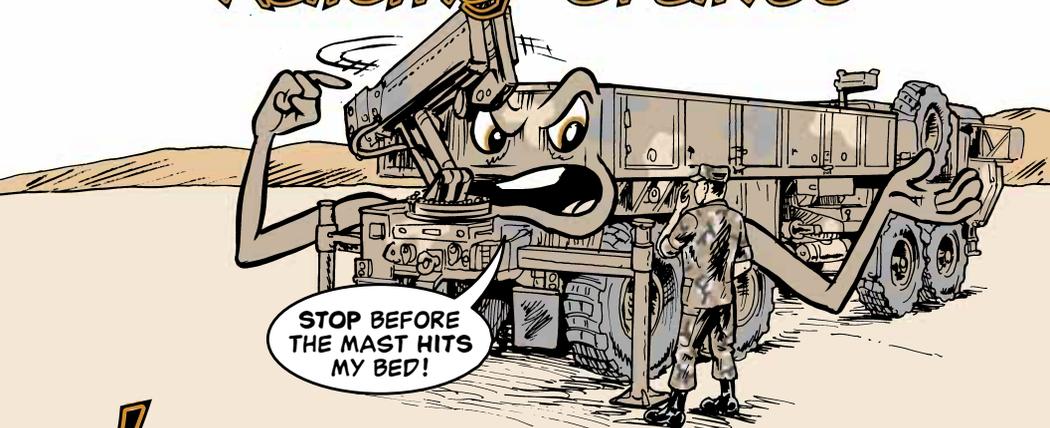
If your truck sports a dim left headlight, check the ground screw. Remove the screw and nut from the bracket above the headlight. Clean the mating

### Wayward Juice?

If you turn on the headlights and the windshield wipers come on, check for a bad ground on the right side composite light.

Remove and clean the left-side screw on the back of the light. After reinstalling the screw, check your headlights. If the wipers still come on, troubleshoot.

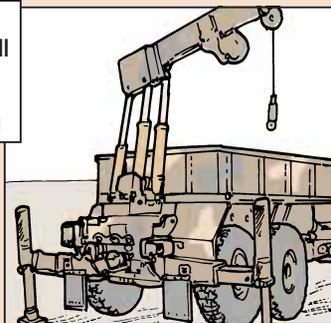
# Raising Cranes



**I**n a hurry to use the material handling crane on your M977 or M985 HEMTT cargo truck? When aren't you in a hurry, right?

Well, slow down enough to completely raise the mast, then make sure the boom is clear of the cargo bed before you rotate the crane. If you don't, at best you'll damage the cargo bed

Extend boom all the way before rotating

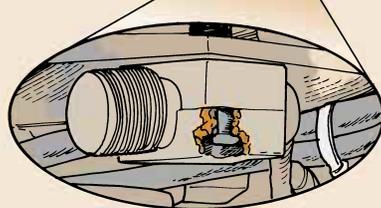
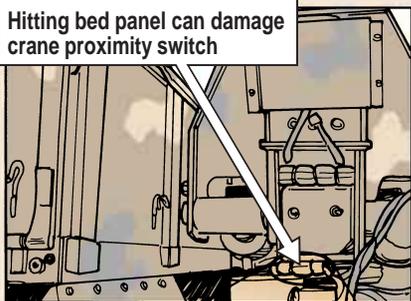


panel, and at worst you can break crane components.

In addition, if the M977 mast is raised just enough for the boom straight shaft to clear the panel, then

the crane proximity switch is a likely target. The sensor is no match for steel.

Hitting bed panel can damage crane proximity switch

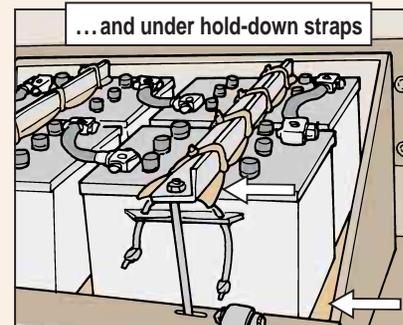


If the mast on either HEMTT isn't raised completely, the shaft can catch and bend the cargo bed panel. Take the time to make sure everything has cleared the panel top before rotating the boom.

# Sop Up Battery Leaks

**B**ecause the HEMTT's battery box sits directly over the vehicle's air reservoirs, it's in your best interest to corral battery corrosion before it spreads.

If corrosion gets on the air reservoir fittings, it may not be long before you lose air pressure. You don't want that to happen on the highway.

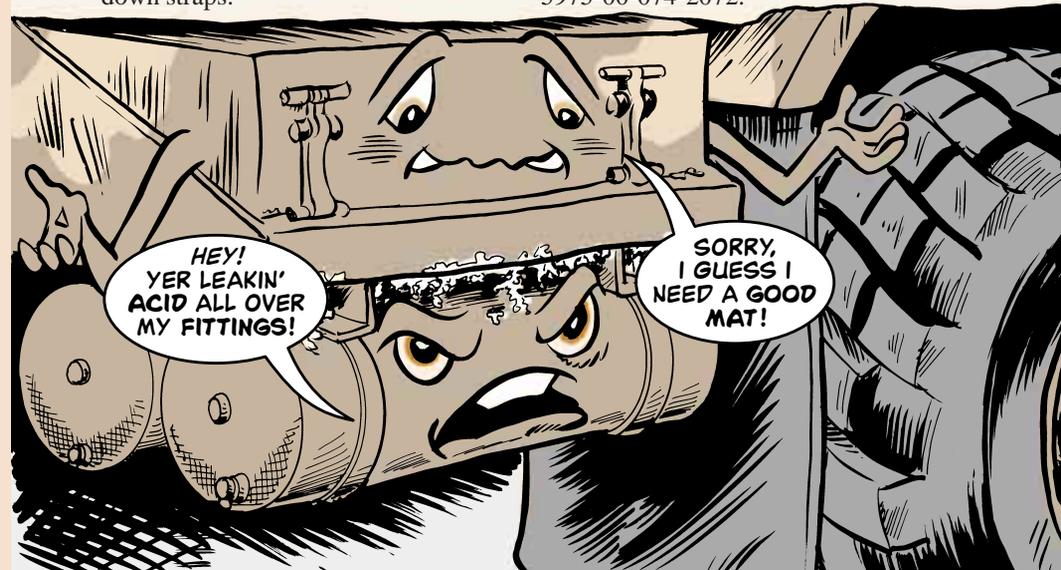


The mat comes in a 1 x 100-ft roll, so you can cut whatever size piece will do the job.

Covering the bottom of the box is always a good idea, but putting some pieces under the hold-down straps will soak up any boil-over from the battery caps before it has a chance to run down to the box bottom.

The best way to prevent battery corrosion from spreading is to use a battery mat, NSN 6160-01-389-1966, under the batteries **and** under the hold-down straps.

Use electrical ties to hold the mat on the straps. Get a bundle of 100 ties that are 6 1/2 inches long with NSN 5975-00-074-2072.



# Plank with Purpleheart



**P**urpleheart is the word—and wood—to keep in mind when you replace the decking on the 40-ton lowbed semitrailer.

Purpleheart is a tropical wood that's stronger and more durable than the boards you use now. It resists both rotting and ultraviolet rays, and repels water. It requires little or no maintenance.

Purpleheart is a harder wood, so a carbide blade is needed to cut it. Same goes for drilling holes. Drill bits will need carbide tips. Order purpleheart with NSN 5510-01-454-8568. The unit of issue is board feet (BF). Each board that you get will measure 16 feet 4 inches long x 9<sup>7</sup>/<sub>8</sub> inches wide x 1<sup>7</sup>/<sub>8</sub> inches thick. So, each board equals 27.21 BF.

The minimum order under this NSN is 250 BF. You need 325 BF to completely re-deck one trailer. Here are the boards you need to do the job:

Number of boards	Width (inches)	Length
4	7 <sup>3</sup> / <sub>8</sub>	7 feet 1 <sup>1</sup> / <sub>2</sub> inch
2	5	7 feet 1 <sup>1</sup> / <sub>2</sub> inch
4	7 <sup>3</sup> / <sub>8</sub>	16 feet 3 <sup>3</sup> / <sub>8</sub> inch
2	5 <sup>1</sup> / <sub>2</sub>	16 feet 3 <sup>3</sup> / <sub>8</sub> inch
2	5 <sup>3</sup> / <sub>4</sub>	13 feet 7 inches
2	4 <sup>15</sup> / <sub>16</sub>	13 feet 7 inches
4	4 <sup>15</sup> / <sub>16</sub>	16 feet 3 <sup>3</sup> / <sub>8</sub> inch
2	4 <sup>15</sup> / <sub>16</sub>	2 feet 9 inches

# NOT A LEG TO STAND ON

**W**alking a lineup of M101- and M116-series 3/4-ton trailers carrying generators often reveals that some of them don't have a rear leg to stand on.

Look closely and you'll see that many of the legs were ripped off because drivers forgot to stow them before moving the trailer.

Replacing the leg and hardware with kit, NSN 2590-01-179-9080, costs about \$100. Then there's the body work to put everything back the way it was. Just the adjustable leg alone, NSN 2590-00-439-6288, costs about \$100.

So, stow the leg before you move out and save the money.



## Large Shackles vs Small Hooks

**A**s more and more tactical vehicles get heavier towing shackles to meet air transport regulations, more and more trailer safety chain hooks have to be replaced. The original hooks are just too small for the heavier shackles.

Do not try to work around the problem because that defeats the purpose of the safety chains.

Replace the old chain hooks with hook, NSN 4030-01-438-1803. It works on the larger shackles and is easy to install.



the larger shackles and is easy to install.

Cut the trailer chain's last link or remove its removable link. Discard the old hook. Install the new one with its pin and cotter pin.

# Truck 'n' Trailer Talk



## M915A1 Brake Shoe Kit

NSN 2350-01-437-3324 gets a front axle brake shoe kit (including linings) for the M915A1 tractor truck. The kit shown as Item 8 of Fig 83 in TM 9-2320-283-24P is no longer available. DS can get just the brake lining kit by asking for PN 807167 CAGE 52304 from RIC S9C on a DD Form 1348-6. The kit has eight linings and enough rivets to do one front axle.

## Tire Repair Change

Rubber buffing fluid, NSN 2640-00-157-0112 (quart), and rubber buffing solution, NSN 2640-00-403-5539 (gallon), are no longer available for use in tire repair. Use buffing solution, NSN 2640-00-138-8324 (16-oz can), instead.

## M149A2 Water Trailer Tanks

All M149A2 water trailers should now have stainless steel tanks. If your trailer still has a fiberglass tank, turn in your old trailer, and request a trailer with the steel tank, NSN 2330-01-108-7367. The new trailer is free to Army units. Non-Army units should add a fund cite for transportation costs in the Remarks block of the requisition.

## M872A3 Semitrailer Brake Shoe Kit

NSN 2530-01-179-7640 gets a brake shoe kit for the 34-ton flatbed trailer. The kit includes two shoes with linings and everything needed to do a brake job on one wheel. This kit takes the place of Items 2 through 10 in Fig 14 of TM 9-2330-359-14&P.

## M1000 HET Breather

The hydraulic breather for the M1000 HET semitrailer's gooseneck is back in the system under NSN 2805-01-136-5611. The breather, which now carries part number ASP3BV, is Item 5 in Fig 89 of TM 9-2330-281-24P.



## M870A1 Trailer Wrench, Handle

Get the truck wrench and handle for M870A1 trailers with these NSNs:  
 Truck wrench—NSN 5120-01-292-9849  
 Wrench handle—NSN 5120-01-134-9422  
 The part number info for Items 1 and 2 on Page C-3 in TM 5-2330-378-14&P is wrong, too. The wrench is TR9 and the handle is TR5.

## M900-Series Tankers Grease Retainer

NSN 5330-00-933-4198 gets the grease retainer for the 5,000-gal fuel tanker's hub and drum assembly. The parts info shown for Item 8 in Fig 32 of TM 9-2330-356-24P is wrong.

## M172A1 Semitrailer Brake Drum

NSN 2530-00-204-3214 gets the brake drum for the 25-ton semitrailer. The NSN is missing from Item 20 of Fig 16 in TM 9-2330-211-14&P.

## M796 Bolster Trailer Support Assembly

NSN 2590-01-186-5896 gets the retractable support assembly for the M796 bolster trailer. It's the same assembly used on the -A1 model shown as Item 1 in Fig 21 of TM 9-2330-287-14&P. The assembly for the basic M796 model, Item 1 in Fig 20, is no longer available.

## M989A1 HEMAT Tie Rod Nuts

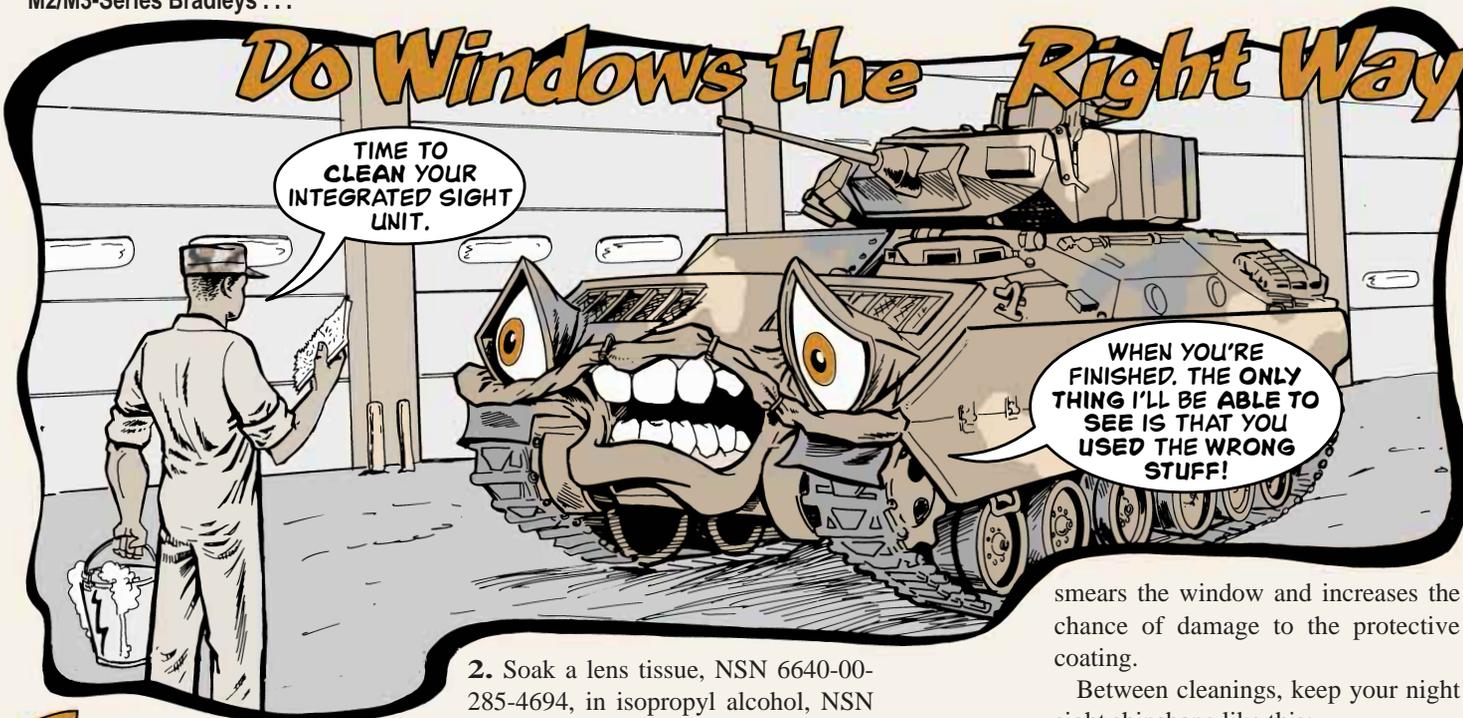
NSN 5310-01-361-1144 gets the tie rod nuts for the HEMAT trailer. The nut is Item 3 in Fig 17 of TM 9-2330-383-14&P but the NSN is not listed.

## M989A1 HEMAT Brake Parts

Mechanics, some of the NSNs for the M989A1 Heavy Expanded Mobility Ammunition Trailer's air brake parts have changed. Note these new numbers in Fig 13 of TM 9-2330-383-14&P:

Item	Part	NSN
2	Chamber, air brake	2530-01-301-3033
3	Clevis, rod end	5340-01-355-8612
10	Chamber, air brake	2530-01-288-4052

# Do Windows the Right Way



**T**he special coating on the integrated sight unit of your Bradley has to be cleaned to get the most from your night sight.

If you don't clean it the right way, though, you won't be able to see squat—at night or otherwise. Here's the right way to clean:

**1.** Rinse the window with clean water from a squirt bottle until all loose particles are gone.



**2.** Soak a lens tissue, NSN 6640-00-285-4694, in isopropyl alcohol, NSN 6810-00-753-4993, and clean the window with light pressure. If you don't have any alcohol, use lens cleaning solution, NSN 7930-00-664-6910.



**3.** Flush off the alcohol with clean water from the squirt bottle.

**4.** Dry the windows by wiping lightly in a single direction with clean lens paper. Wiping in multiple directions

smears the window and increases the chance of damage to the protective coating.

Between cleanings, keep your night sight shipshape like this:

- ◆ Wipe off dried mud or dirt by wetting the surface first. That'll prevent surface scratches.
- ◆ Never scrape ice off the window. The protective surface will come off with the ice.
- ◆ Keep tape and other adhesives off the night sight. Homemade protective covers may keep the night sight safe during the day, but the coating is ruined when you try to pull them off.
- ◆ Keep dirty rags and cloths away from the windows. Grit and oil will scratch and smear the window.
- ◆ Never spray high-pressure water on the window during vehicle cleaning. That separates the reflective coating from the glass.

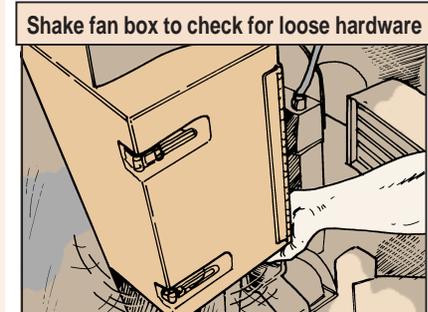
# Whole Lotta Shakin' Going On

**W**ith all the vibration that comes from operating your M2/M3-series Bradley, you wouldn't think any more shaking is needed.

You'd be wrong, too.

Vibration loosens the hardware holding the turret fan box in place. There's only about one inch of clearance between the box and the turret wall, so even a little movement can let the turret catch on the box and rip it loose.

That's why you should reach over and give the box a good shake before every operation. If it's loose, tell your mechanic so he can snug up the hardware.



# Drain 'em and Plug 'em

Crewmen, remember to drain your MLRS after every washing to prevent water buildup in the hull.

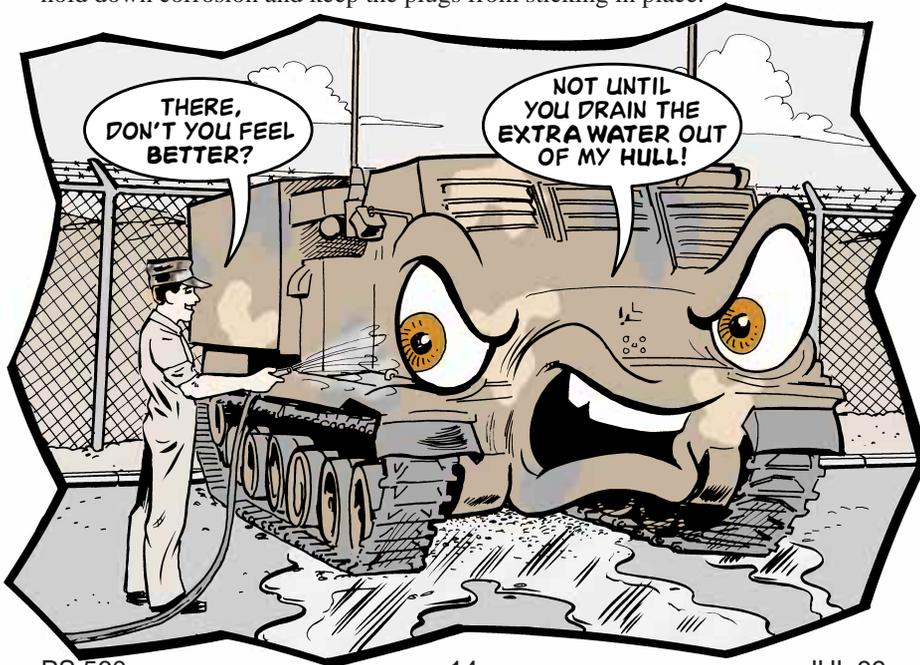
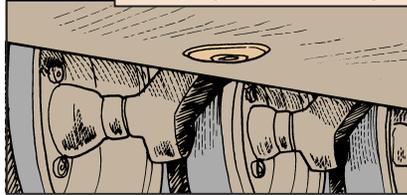
If you forget to drain, the water level will rise until it shorts out the diodes on the 1W30 cable, NSN 2590-01-104-9148, and the 1W31 cable, NSN 2590-01-104-9146. Since those cables control the fuel pumps, your vehicle won't be going very far.

Once the hull's completely drained, be sure to close and tighten the drain plugs, NSN 4730-00-010-3867, before you drive the vehicle. If they're not closed tight, the plugs can work loose and fall out.

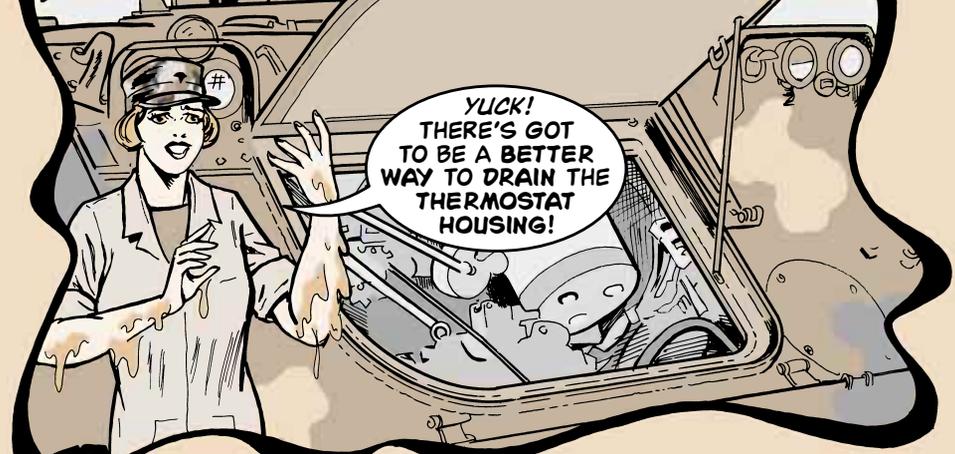
Clean the plugs before you install 'em, too. Wipe off any mud or sand that might keep the threads from meshing properly.

Before you screw in the plugs, lightly coat the threads with caulking compound, NSN 8030-00-297-0600. That'll hold down corrosion and keep the plugs from sticking in place.

Drain plugs in place and tight?



# No Pain Draining



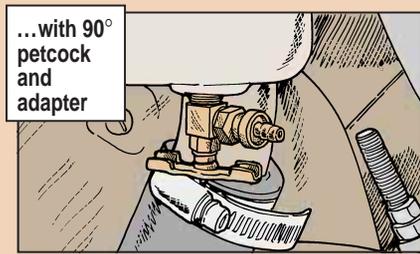
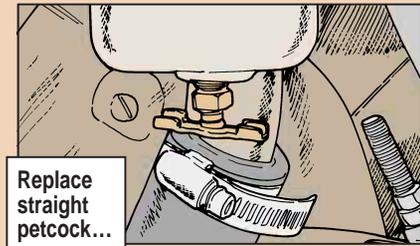
Mechanics, when it's time to drain the antifreeze from the M113A2 carrier's thermostat housing, you've got a real mess on your hands...and on the engine...and on the ground.

There's just not enough room to slip a pan under the housing's straight petcock. So when it's opened, antifreeze runs all over the place.

You can prevent that mess by replacing the straight petcock with a 90° petcock, NSN 4820-00-293-3669, and hose adapter, NSN 4730-00-555-1152.

Then, when you're ready to drain the housing, attach a 5-ft to 6-ft piece of rubber tubing, NSN 4720-00-847-1710, to the adapter and open the drain valve. The antifreeze flows through the hose and stays off the engine.

Just make sure you drain the antifreeze into a suitable container and dispose of it properly.



# A HERCULEAN EFFORT

While it's not the same as slaying a Hydra, recovering a disabled vehicle is still a heroic task for your M88A2 Hercules.

Here are a few problems to "head" off before they come back to bite you:

## Oil Changes

The Hercules uses CAT 10 oil in its transmission, not OE/HDO-10 like the M88A1. Use the wrong oil and the transmission can seize up. Get a quart



of CAT 10 with NSN 9150-01-424-7696, 5 gallons with NSN 9150-01-424-7692, and 55 gallons with NSN 9150-01-424-7698.

There's also a change for the hydraulic system. The Hercules uses FRH instead of OE/HDO-10. Use the right stuff or the hydraulic system could burn up.

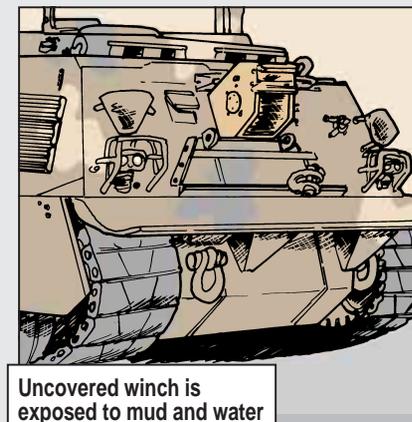
And don't forget that FRH is poisonous. FRH can be absorbed through your skin, so wear protective clothing and oil-resistant gloves when you handle it. It's also a good idea to wash your hands with soap and water after working with FRH.

## Auxiliary Winch

When the Hercules is used as a brake vehicle during towing, the auxiliary winch gets covered with mud and water thrown by the towed vehicle.

That leads to corrosion that can ruin the winch.

Units at Ft Hood use homemade covers to prevent this problem. Their canvas shop makes a bag-shaped cover large enough to fit over each winch. A drawstring pulled tight keeps the cover in place.



## M1A1 Tank Warning Light



Crewmen, eyeball the OVERHEAT SPONSON IN and OVERHEAT SPONSON OUT lights on the tank commander's panel. These lights came from the factory with yellow covers, but they're supposed to be warning lights, not caution lights. Ignoring the lights could result in an NBC filter fire. If the lenses are yellow, get your mechanic to replace them with red covers, NSN 6210-00-176-4954.

## M1A1 Cotter Pin

Use NSN 5315-01-390-7088 to get new cotter pins for connecting the spent ammunition frame to the screen guard in your M1A1 tank. The part number listed for Item 154 in Appendix G of TM 9-2350-264-20-2-4 is now 12387310-71.

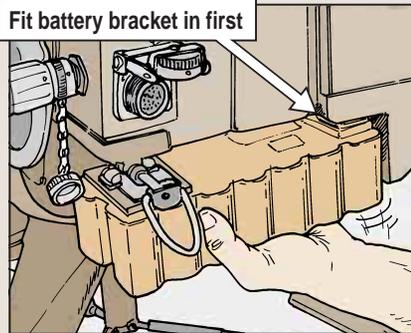
# Easy Does It with G/VLLD

**T**he ground/vehicular laser locator designer (G/VLLD) is sensitive to rough treatment. A few knocks or jolts is its ticket to major repairs. So handle your G/VLLD with extra care.

## Battery

The battery pivot bracket breaks easily. A broken bracket makes the battery unusable. Always lay the battery so the bracket's up.

Install the rear of the battery first so that the bracket locks in place. Then push the other battery end into place until you can push in the locking pin. If the pin won't slide in easily, reposition the battery and try again. Don't force the locking pin. That can break the bracket.



When you remove the battery, be sure to pull the locking pin completely out before you pull down the battery. Otherwise, you break the bracket.

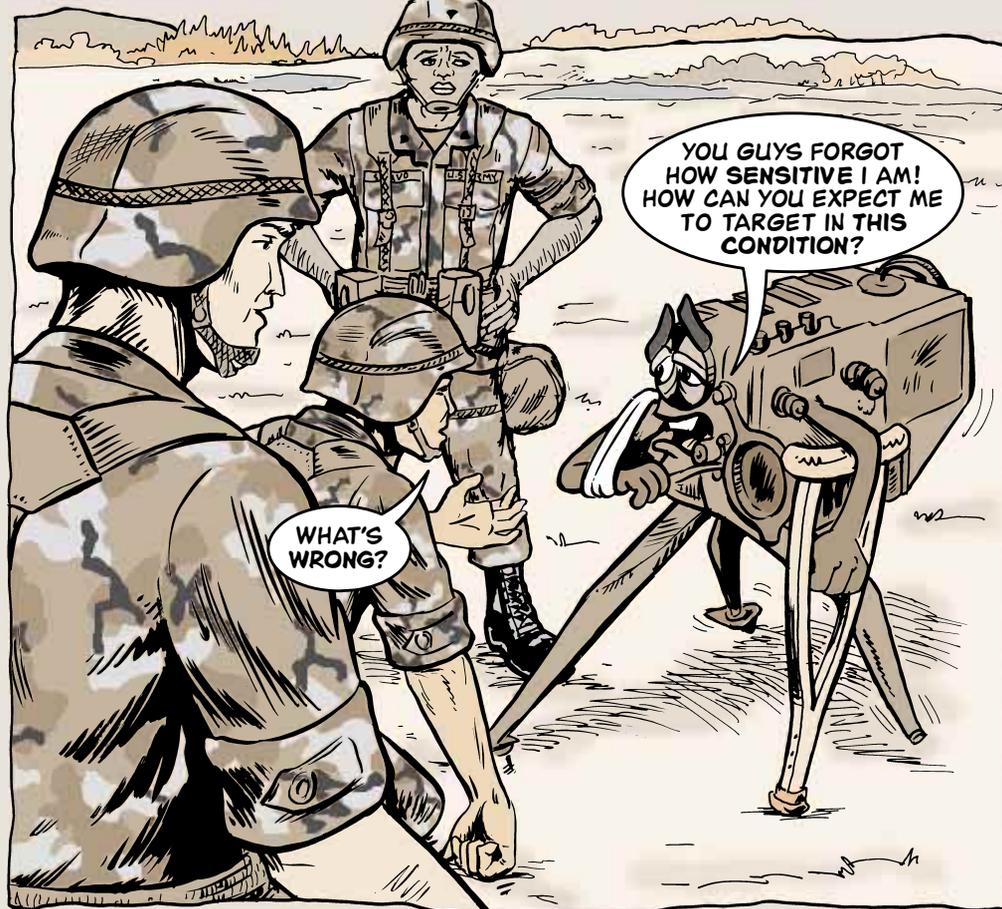
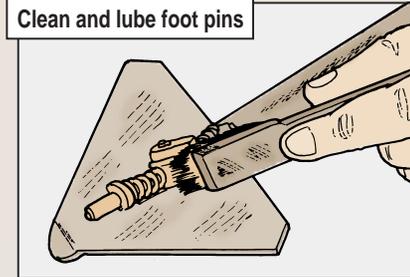
A light coat of GAA or CLP helps the locking pin move smoothly.

If the bracket breaks off in one piece, stick it back on with super glue.

## Feet

Use a toothbrush to clean the tripod foot pads where the pin moves in and out. Then give the pins a light coat of CLP. Do the same with the connecting rod threads. If the pads and rods bind, it makes it difficult to adjust the tripod. The threads can be stripped and the feet knocked off.

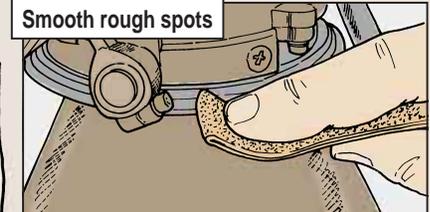
Clean and lube foot pins



## Traversing Unit

Feel its azimuth gimbal for dirt or rough spots that will make fluid tracking difficult. Clean off dirt with a toothbrush and cloth. Smooth rough spots with crocus cloth, NSN 5350-00-025-7935. Then, put a light coat of CLP on the gimbal to make tracking smooth.

Smooth rough spots



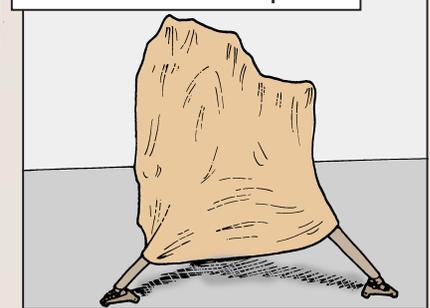
## Trigger Housing

Never use the trigger housing as a handle. If the housing breaks, you have a G/VLLD needing major repairs.

## Cover

Cover the G/VLLD when you're not using it. The fan and trigger are magnets for dust—and you can't clean them. If they get too dirty, forget lasing.

Cover G/VLLD as much as possible



# Safe Mounting



HERE'S HOW TO KEEP YOUR MICLIC IN PLACE AND SAFE!

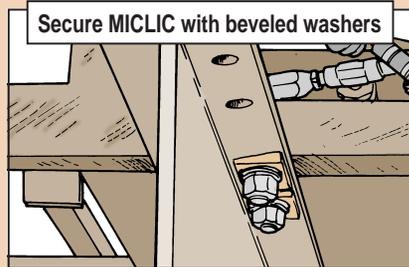
If your unit is mounting the mine clearance line charge (MICLIC) on the armored vehicle launched bridge (AVLB) chassis to make it an AVLM (M for MICLIC), you sure don't want it to work loose.

That's what will happen if you don't use **all** the right mounting hardware. The mounting rails require four U-bolts. The bolts can't be ordered, but must be fabricated locally from 3/4-in medium carbon steel rod (AISI 1040-1045). The instructions are on Page G-17 in TM 9-1375-215-13&P (Oct 97).

Then, make sure you use all the washers required.

The deck bolts require six 1-in beveled washers, NSN 5310-01-284-6395.

You will also need eight 3/4-in beveled washers, NSN 5310-01-317-0480, to mount the I-beam to the C-channels. The U-bolts need eight 5/8-in beveled washers, NSN 5310-01-373-6951.



Secure MICLIC with beveled washers

Complete AVLM mounting instructions can be found in Appendix J in the -13&P.

# Smooth Tube Lube

Operators, the lubrication instructions in TM 9-1025-211-20&P are pretty specific about what you're supposed to do when the dry film lube wears off the cannon tube on your M198 towed howitzer.

You're supposed to clean the exposed area with crocus cloth and then apply WTR to keep rust from setting in.

If you take your howitzer to a desert environment, though, you'll have to go one step further.

WTR attracts sand like a magnet. So before firing the gun, wipe off the WTR with a cloth. If you don't, the sand and WTR gunk up inside the bearing unit. That's like rubbing the cannon down

with sandpaper every time the gun is fired!

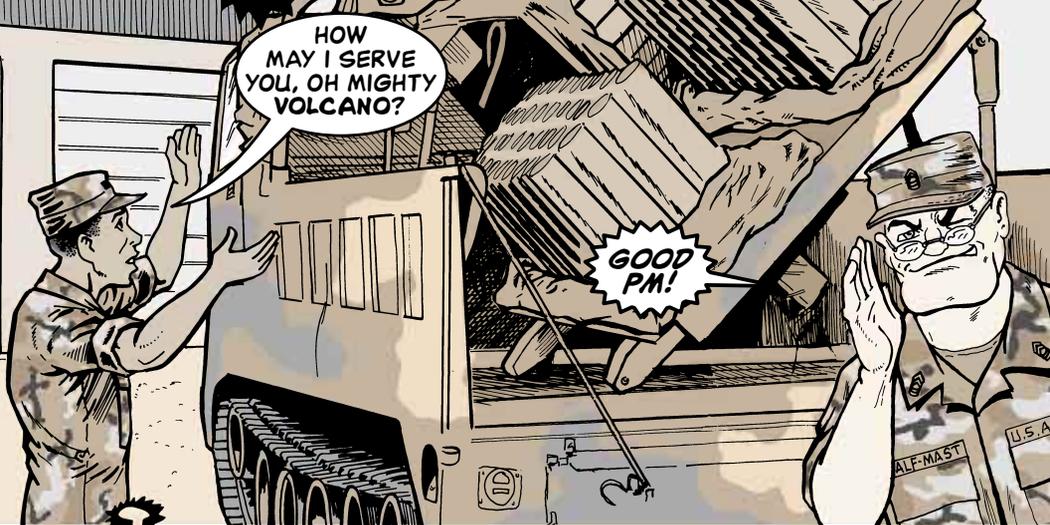


Sand also ruins the wiper seals. When the seal is lost, there's nothing to hold in the oil. Your howitzer is down for the count.

When you're finished firing and the gun tube has cooled down, remember to put more WTR on the cannon tube.



# Volcanic PM

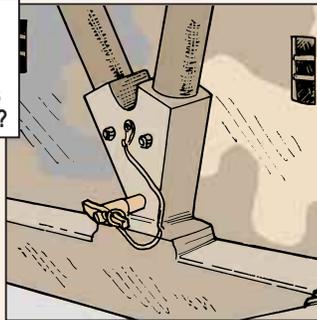


**1** If you expect your Volcano to spew mines freely, you Volcanic crewmen need to pay your respects to the PM gods. Here's what they demand:

## Locking Pins and Lanyards

If the Volcano is missing even one of its locking pins, it's NMC. It's dangerous to operate with missing pins. The launching rack could come apart during firing. Check for every pin—and look for pin lanyards, too. If a lanyard's missing, the pin soon will be. Report missing pins and lanyards.

Locking pins in place? Lanyards attached?

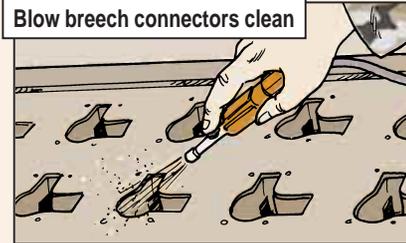


**Rack**

Keep the rack breech connectors clean. If they become dirty or corroded,

you'll have firing problems and built-in test (BIT) faults. The easiest way to clean the connectors is to blow them out with an air hose at the end of operations. Wiping them out with a dry cloth works, too. Keep the rack covers zipped in place to protect the racks when you're not operating.

Blow breech connectors clean



## Cables

Easy does it when you hook up the cable to the dispenser control unit (DCU) and the racks. The connectors have pathways and must be mated just right. If you force the cable on, you bend pins and get BIT faults.

Don't try to hook up cables wearing gloves. Your hand needs to be as maneuverable as possible.

If you're dealing with the Air Volcano, use the adapter connector. Install the adapter to the rack port and then mate the cable to the adapter. That makes mating easier.

## DCU

Before you operate, push the DCU breather valve to make sure it's not

Breather valve sticking?



sticking. A sticking valve will let moisture build up in the DCU and cause electrical problems. Your repairman can fix a problem valve.

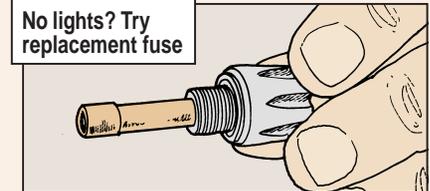
If the DCU indicators don't light, don't panic. Turn the BRIGHT dial clockwise. It may have been turned

No lights? Turn BRIGHT dial



down. If the display doesn't light, screw in the replacement fuse that's part of the DCU. If that doesn't light up the DCU, tell your repairman.

No lights? Try replacement fuse



## Backing Up

Always use ground guides to back up the Volcano. There's no other way to do the job safely. Don't forget that the Volcano sticks out a foot over the back of the truck. Volcano rails and controls are banged up if you don't allow for that.

## Ground It

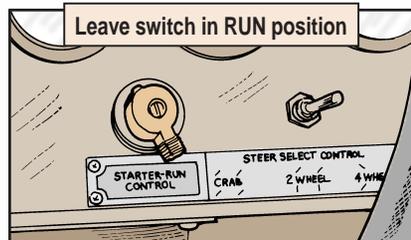
If the Air Volcano is parked in the hanger, be sure to ground the helicopter. That protects the Volcano from static electricity.

# PM Tidbits

**O**perators, your 6K forklift will lift as long as you want it to lift if you treat it right. Here are some ways to do just that:

## Starter Switch Reminder

The STARTER-RUN CONTROL switch is at knee level when you sit in the cab. An accidental bump pushes the switch to STARTER. If it's left in



that position, the battery runs down—leaving you with a forklift that won't start.

Sounds simple, but make sure the switch is in RUN before you hop from the cab.

## No Lube on Fork Shaft

A light coat of grease on the fork slide shaft may seem like a good idea for easing the forks back and forth. Not so.

Grease attracts dirt and grit like a magnet. That combo acts like sandpaper and scores the bearings inside the fork tines.

So use dry cleaning solvent to remove the gunk, then grease no more.

# to Lift By



If it's not already marked, get your mechanic to stencil DO NOT LUBE SHAFT on the frame above or below the slide shaft.

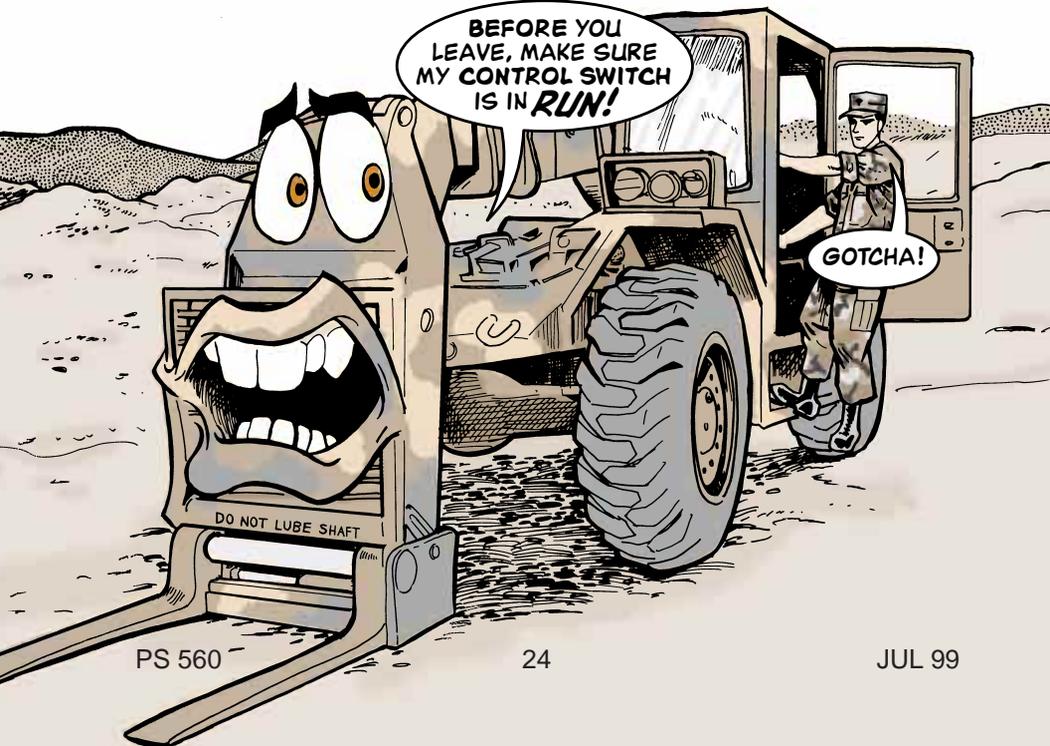
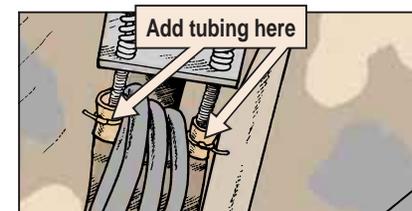
## Hose Rub

Hydraulic hoses under the forklift's boom get a raw deal. The hoses rub

against the tensioners when the boom is extended or retracted. All that rubbing wears holes in the hoses.

Once enough fluid leaks out, there's not enough hydraulic pressure to operate the boom.

Have your mechanic stop the rub by wrapping a piece of rubber tubing around the threads of the boom hose tensioners. Tie strap, NSN 5975-00-570-9598, holds the tubing in place.



130G Grader . . .

## A Step in the Right Direction

**V**isit any engineering battalion and you'll see road graders with banged-up cab steps.

Those steps take a hit when the grader's blade cuts a V-ditch, when the blade is raised, or when it's turned for travel. That's because the end of the blade is under the cab. Operators can't tell when it's about to snag the step and tear it off.

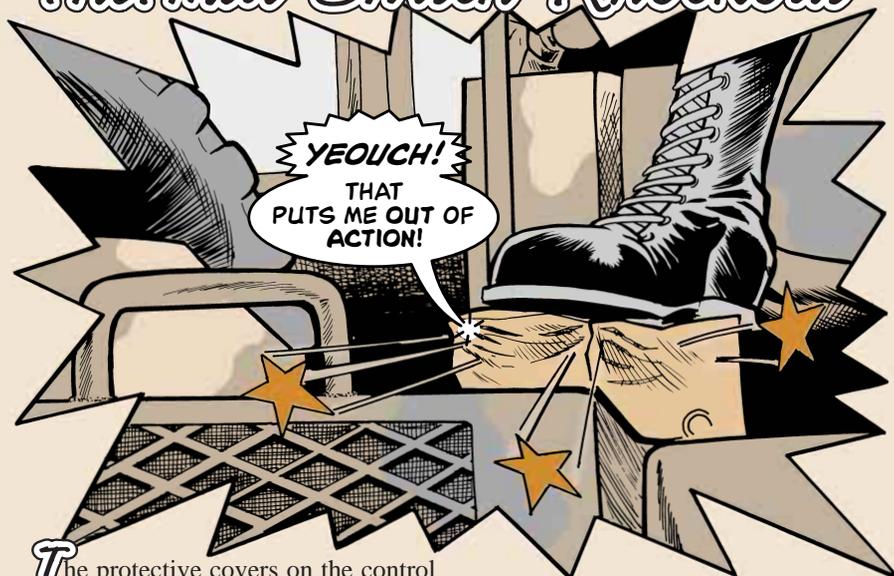
Unit mechanics can replace the old step with a rubber step assembly that bends forward and backward to keep from getting banged up or ripped off.

Eyeball Para 3-19 of TACOM's EIR Digest TB 43-0001-39-8 (Mar 96) for info on how to install the new step assembly.

If you don't have a copy of the TB, see your TACOM LAR or write to MSG Half-Mast.



# Thermal Switch Knockout



The protective covers on the control tower of the SEE's hydraulic oil cooler are not seats or steps. When they are used that way, you end up with an NMC SEE.

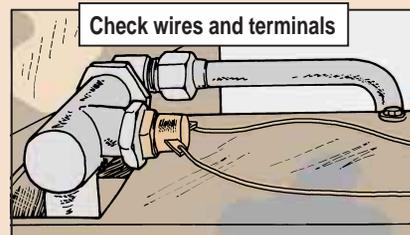


Each cover sits over a thermal switch that turns on a fan that cools the hydraulic fluid used to operate the SEE's backhoe and attachments.

Stepping or sitting on a cover presses down on the switch and can break it. Then you have no fan and no cooled

fluid. Hot oil can blow a hydraulic line or seal.

If the fans are not starting or stopping during operations, shut down the SEE. Your mechanic will remove the cover and eyeball the switches for broken wires or bent wire terminals. Pages 4-147 to 4-149 of TM 5-2420-224-20-2 tell how to reconnect the wires or replace a thermal switch.



To help prevent future problems, stencil **No Step** on the covers.

# HERCULES

## AND THE UNKNOWN LABOR

BEHOLD HALF-MASTICUS— MY COURAGEOUS SON HERCULES! HE IS DOING SPLENDIDLY WITH THE TWELVE LABORS THAT KING EURYSTHEUS HAS SET BEFORE HIM. HE HAS DESTROYED THE HYDRA, DRIVEN AWAY THE BIRDS OF STYMPHALIA, AND IS TRIUMPHING OVER THE NEMEAN LION.

BUT, AS IMPORTANT AS THESE TASKS ARE, THEY'RE NOT TEACHING HIM ANYTHING ABOUT PREVENTIVE MAINTENANCE!

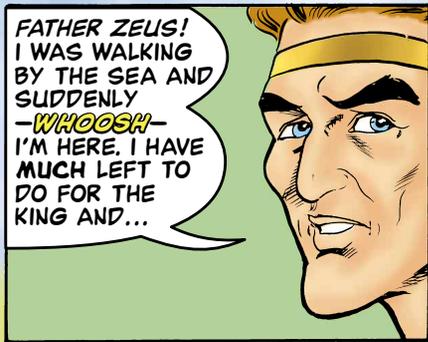
YOU HAVE GOOD REASON FOR CONCERN, MIGHTY ZEUS. HOW WILL HE EVER COMMAND AN ARMY WITHOUT UNDERSTANDING THE IMPORTANCE OF PM?

I MUST INTERRUPT HIS LABORS! YOU WILL TEACH HIM THE WAYS OF PM AS ONLY YOU CAN.

IT WILL BE MY PLEASURE.



WHAT IS THE MEANING OF THIS?!



FATHER ZEUS! I WAS WALKING BY THE SEA AND SUDDENLY ~~WHOOSH~~ I'M HERE. I HAVE MUCH LEFT TO DO FOR THE KING AND...



ALL OF THAT CAN WAIT, MY SON. THE KING WILL NEVER KNOW THAT YOU'RE GONE. I, MYSELF, WILL PUT A LABOR BEFORE YOU FOR YOUR OWN GOOD.

AS YOU WISH, FATHER.

YOU WILL ACCOMPANY HALF-MASTICUS TO A TIME AND PLACE OF HIS CHOOSING, WHERE HE WILL INSTRUCT YOU IN THE WAYS OF PREVENTIVE MAINTENANCE.



PREPARE TO BE **WHOOSHED!**



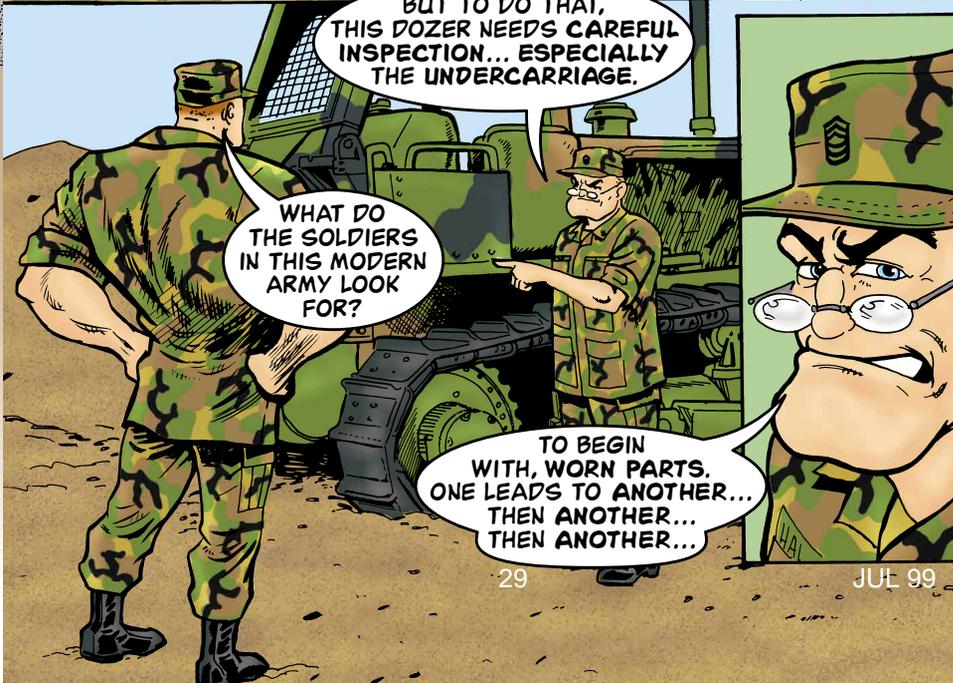
HMM... I MIGHT GET TO LIKE IT HERE.



WHAT MANNER OF BEAST IS THIS?

UHH... OUR LABOR LIES IN THIS DIRECTION, PRIVATE HERCULES.

THIS, MY OLYMPIAN FRIEND, IS A D7G TRACTOR, THE PERFECT EQUIPMENT FOR OUR PM LESSON. MODERN ARMIES USE IT TO MOVE MOUNTAINS OF DIRT.



BUT TO DO THAT, THIS DOZER NEEDS CAREFUL INSPECTION... ESPECIALLY THE UNDERCARRIAGE.

WHAT DO THE SOLDIERS IN THIS MODERN ARMY LOOK FOR?

TO BEGIN WITH, WORN PARTS. ONE LEADS TO ANOTHER... THEN ANOTHER... THEN ANOTHER...



SO YOU WANT TO CATCH THE FIRST ONE BEFORE IT CAUSES OTHER PROBLEMS. VERY WISE!

EXACTLY. NOW HERE'S WHAT THEY LOOK FOR.



"THEY CHECK THE IDLERS AND ROLLERS FOR LOOSE MOUNTS, LEAKY SEALS OR LOTS OF WEAR."

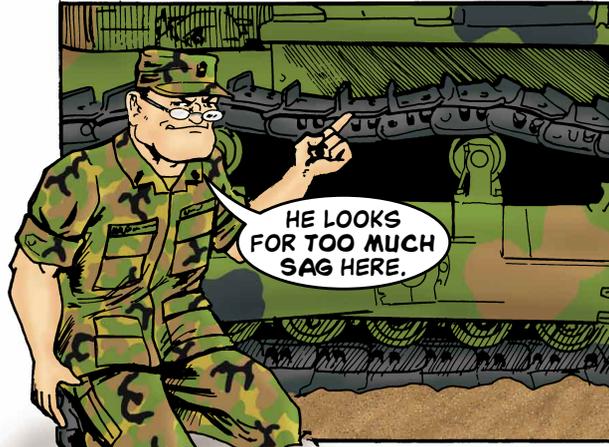


THEY LOOK FOR FRACTURES IN THE TRACK ITSELF, THE LINKS, THE PINS AND THE BUSHINGS.



ALL THE UNDERCARRIAGE COMPONENTS HINGE ON THE EXACT TRACK ADJUSTMENT. AN OUT-OF-WHACK TRACK CAN DAMAGE ADJUSTMENT COMPONENTS OR TRACK CHAINS.

HOW WILL A SOLDIER KNOW TRULY WHEN A TRACK IS... HOW DID YOU SAY... OUT-OF-WHACK?



HE LOOKS FOR TOO MUCH SAG HERE.



"AND TOOTH WEAR ON THE DRIVE SPROCKET. SEVERE WEAR WILL CAUSE THE TRACK TO JUMP OFF THE SPROCKET."



SO, HALF-MASTICUS, WHAT WILL MAKE AN END TO THE MATTER?

THE BOTTOM LINE? TO GET THE TENSION RIGHT, THEY SHOULD ALWAYS, ALWAYS FOLLOW THE INFO IN THE DOZER'S TECHNICAL MANUAL.



IS THERE NOT MORE THEIR HANDS AND EYES CAN DO?

CERTAINLY! JUST LIKE A THROWN HORSESHOE, A MISSING OR BROKEN GROUSER CAN BE COSTLY. IT WILL LET DIRT, MUD AND ROCKS GET INTO THE TRACK ASSEMBLY, AND THAT WILL CUT DOWN EFFICIENCY AS THE WEAR AND TEAR PILES UP.

ALSO, THEY SHOULD BE ON THE LOOKOUT FOR GROUSER OR PLATE WEAR CAUSED BY SLIPPAGE, IMPACT OR FRICTION. ANOTHER THING— THEY SHOULD MAKE SURE THE TRACK SHOE BOLTS ARE TIGHT. LOOSE ONES WILL DAMAGE SHOES AND LINKS.



HOW WILL THEIR EYES BEHOLD A LOOSE BOLT?

"IT WILL HAVE A SHINY AREA AROUND ITS HEAD, OR DIRT BROKEN AWAY BY VIBRATION. BUT JUST LOOKING AT IT WON'T HACK IT—THEY HAVE GOT TO USE THEIR FINGERS."



WHAT IS THIS ROUND OBJECT?

IT'S A TRACK ROLLER. IT HAS TO TURN FREELY AND CARRY ITS SHARE OF THE LOAD.

ALSO, THEY LOOK FOR GREASE OR OIL ON THE TRACKS. IF THEY SEE ANY, THE SEAL IS BLOWN. THEY THEN GET THEIR MECHANIC TO REPLACE IT FAST.

SOLDIERS SHOULD ALWAYS MAKE SURE IT'S CLEAN. MUD PACKED AROUND THE ROLLER CAN FREEZE IT HARDER THAN A GLACIER.



I THANK YOU, MY TEACHER. I SEE NOW HOW IMPORTANT THIS PREVENTIVE MAINTENANCE IS.



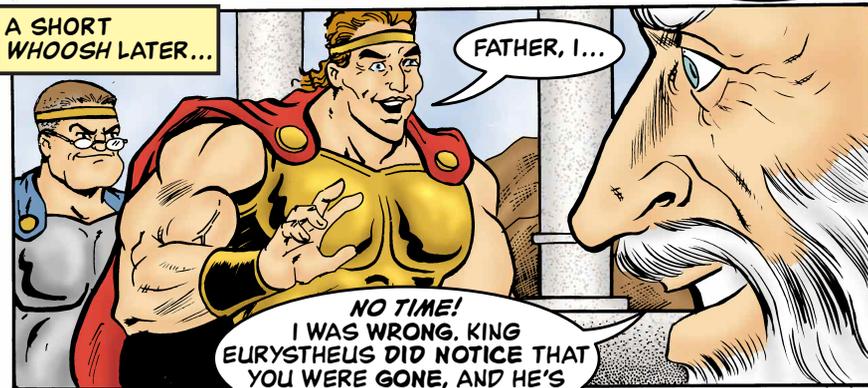
I CAN APPLY THIS KNOWLEDGE TO MY SWORD, MY BOW, MY CHARIOT...



...EVERYTHING!

YES... I DO BELIEVE YOU'VE LEARNED THE PM LESSON HERE. LET'S TELL YOUR FATHER.

A SHORT WHOOSH LATER...



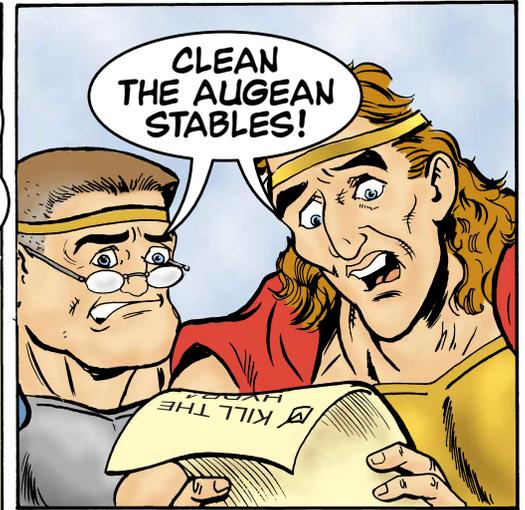
FATHER, I...

NO TIME! I WAS WRONG. KING EURYSTHEUS DID NOTICE THAT YOU WERE GONE, AND HE'S VERY ANGRY!



NOW HE'S COME UP WITH THE REMAINING LABORS. I DON'T THINK YOU'RE GOING TO LIKE THE NEXT ONE.

- KILL THE HYDRA
- DRIVE OFF THE STYMPHALIAN BIRDS
- KILL THE NEMEAN LION
- CLEAN THE AUGEAN STABLES
- CAPTURE THE CERYNEAN HIND
- CAPTURE THE MAN...



CLEAN THE AUGEAN STABLES!



HMM...



WHAT IF PSS-PSS-PSS AND HOW ABOUT PSS-PSS.

YES... I THINK THAT CAN BE ARRANGED.



LOOK, HALF-MASTICUS, MY STRONG AND VALIANT SON IS ALSO RESOURCEFUL! THANKS TO YOU AND PM!

THAT'S NO BULL.

CH-47...

## DON'T LOSE YOUR DOG BONE

**C**hinook mechanics, keep your aircraft's aft engine mount link (dog bone) with the airframe whenever an engine is removed. If you don't, you'll have to order a new one before installing the engine.

When an engine is removed, the dog bone is often removed, too, and often misplaced. Each engine has its own dog bone, and each one is specifically adjusted to align that engine's drive shaft with its combining transmission.

The dog bone has its own storage place on the outside of the airframe, just below and to the right of the engine.

After engine removal, put the dog bone there, so that its adjustment stays intact. You mount the dog bone to the airframe with the same hardware used to attach it from the engine mount to the engine.



# Don't Recoil from Recoil PM

If the recoil adapters for the AH-64's 30mm guns stop recoiling, all sorts of damage can result. One aviation unit's searchlights stopped working because gun vibration broke the lights' mounting screws and electrical relays.

Investigation of that unit's recoil adapters showed the following problems:

- Wrong damping fluid, which caused poor recoil damping
- Loose internal adapter parts caused by improper reassembly

- Internal check valves not working because they had been reassembled using too much sealing compound or the wrong kind of sealing compound

- Corrosion resulting from water forced into the adapters by high-pressure washing

- Bent indicator rods caused by improper removal of the adapters

To stop recoil adapter problems, you repairmen will need to work with your AVIM.

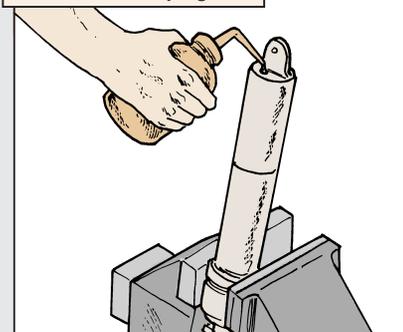
Your job is making sure high-pressure water is kept away from the recoil adapters.

Then, use only damping fluid, NSN 9150-01-056-7346, to fill the adapters. The procedure's in Para 4-7-7 of TM 9-1090-208-23-1-1.

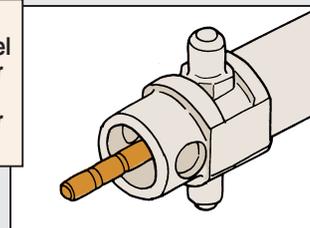
Remove and install the adapters the way it shows in Para 4-7-6.

Inspect the adapters for leakage and proper fluid level when you do the BEFORE and AFTER FIRING checks in Para 4-5-1 and Para 4-5-2.

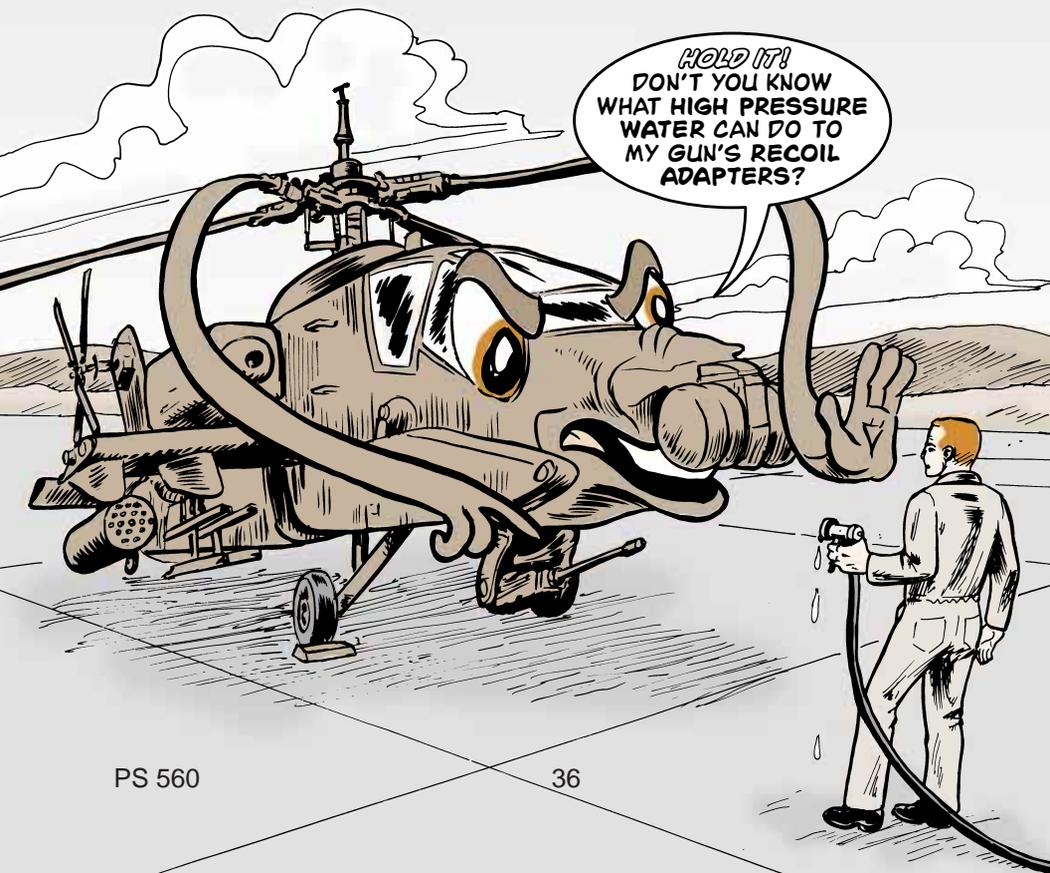
Use correct damping fluid



Check fluid level indicator before and after firing



AVIM's job is to tear down the recoil adapters during each phase maintenance to check for corrosion improper assembly, and binding parts. The procedure's in Para 4-8-2 in TM 9-1090-208-23-1-2.



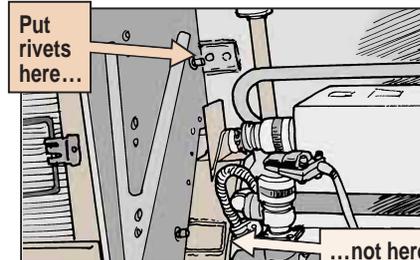
## Brace Up the Bracket

The Apache auxiliary power unit cover's upper bracket assembly, NSN 1560-01-186-4078, can come unglued from the firewall. Once it's loose, it can cause FOD.

So, make sure the bracket stays put. After you glue it back in place, put a monel rivet, NSN 5320-01-042-2896, in each side of the bracket with a 0.032-in 2024 T3 aluminum backing plate on the other side of the firewall. The rivets should be centered on the bracket <sup>3</sup>/<sub>8</sub> inch from each edge. That will keep it secure.

A PS 529 (Dec 96) article on this fix showed a picture of the lower bracket on the engine mount. That was wrong. Never put any rivets in this bracket. That will weaken and crack the engine mount support and you'll have to replace it.

Put rivets here...



...not here

# Better B<sub>0</sub>resighting



Dear Editor,

To boresight the Avenger's machine gun, you're supposed to sight on a tree or telephone pole 1,000 meters away. Unfortunately, in the desert or some of the other training areas, there often are no trees or poles.

To handle those situations, we created our own boresighting target.

We took a 4- x 4-ft piece of plywood and painted it white. Then we painted a red cross on it.

We take the target to the field and when we can't find a target for boresighting we set up our own.

SFC Jeff Miller  
C Co, 1/62 ADA  
Ft Lewis, WA

FROM THE DESK OF THE *Editor* 

Thanks for the suggestion!

# RECHARGEABLE POWER

The Javelin has signed on to the Army's policy of using rechargeable batteries as much as possible.

So, Javelineers, that means you now use the rechargeable BB-390A, NSN 6140-01-419-8187, to power the command launch unit, with two exceptions:

- during war
- when the temperature is above 130°F or below 4°F

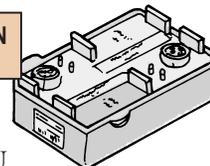
Then you must use the BA-5590 because the Army says the primary battery must be used in those situations.

The BB-390A should let you operate from eight to 18 hours. To charge it, you will need PP-8444A/U universal portable charger, NSN 6130-01-443-0970. Charging normally takes two hours. With a battery adapter, NSN 5940-01-427-9110, the charger can charge two batteries at the same time.

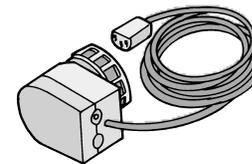
Universal portable battery charger, PP-8444A/U



AP-390A adapter, NSN 5940-01-427-9110



The PP-8444A/U can also be powered with the J-6363 24-volt vehicular cable, NSN 5940-01-427-9395, which hooks up to a vehicle's NATO slave receptacle.



24-volt DC vehicular cable

It's easy to tell when to charge the BB-390A. Just check its state-of-charge indicator to see how much charge is left.



RECHARGEABLE POWER!? WHERE DO I SIGN UP?

# New Armorers Need Help



**B**eing given a new job that you're not trained to do can be frightening. But new company armorers often find themselves in that position. You may have had little or no training in weapons, but you're still made responsible for all weapons in the company.

Don't fear. Help is available.

Most Army posts have an armorer training program that gives an overview of:

- M16 rifle/M4 carbine, M203 grenade launcher, and most of the machine guns
- Arms room procedures
- Security requirements
- Maintenance forms

Also, most direct support folks will be happy to answer your questions about the weapons you work with, their gauging requirements, and the forms needed to turn weapons in for repair. Your understanding of your job makes their job easier

In addition, two free videotapes are available to help you inspect, repair, and maintain rifles and machine guns. "Organizational Maintenance on Small Arms, Part 1," production identification (PIN) 710417, covers the MK19 and M249 machine guns and the M9 pistol. "Organizational Maintenance on

Small Arms, Part 2," PIN 710593, deals with the M16A2 rifle and M60 machine gun.

You can get the tapes through your Training and Audiovisual Support Center (TASC), or from the Joint Visual Information Services Distribution Activity by fax at DSN 795-6106 or (717) 895-6106, or by e-mail at:

[vibuddy@ptd.net](mailto:vibuddy@ptd.net)

Or write to:

JVISDA  
Warehouse 3/Bay 3  
11 Hap Arnold Blvd  
Tobyhanna, PA 18466-5120

Include your name, full mailing address, the title and PIN number of the film, format (VHS, for example), and

the quantity of tapes you need. APO addresses must include their unit/box number, CMR/box number, or PSC/box number.

Or order on the Internet from:

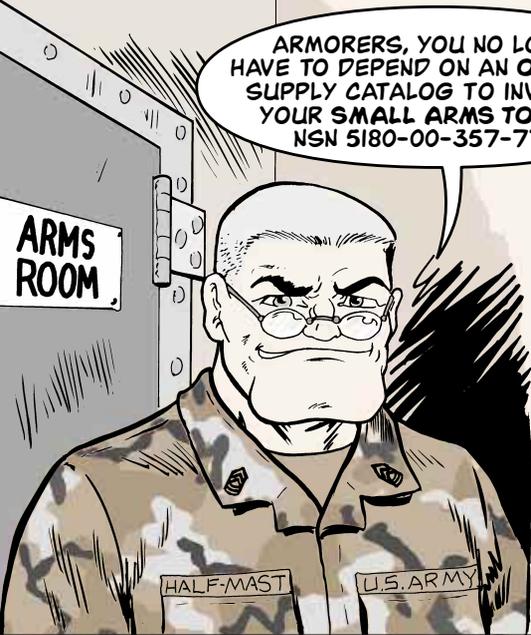
<http://dodimagery.afis.osd.mil/>

Click on Search DAVIS/DITIS. Then click on PIN/ICN search. Type in the PIN and click on Search. Once the title comes up, click on it. Go to the bottom of the screen and click on Order It!

The best person to check with on what training is available at your post is your unit training officer. The local ACALA logistics assistance representative is also a good source.

Help is there. Just ask.

# Armorer's Tool Kit SC



A revised SC 5180-95-A07 for the tool kit was included in the latest edition (Sep 98) of EM 0074, the CD ROM containing most of the Army's SCs.

Your supply shop should have a copy of EM 0074. If it does, have them print you a copy of the 30-page tool kit SC.

If they don't have EM 0074, they should immediately put it on their pubs account with IDN 212093 and order a current copy with PIN 075815000.

## M240-Series Machine Guns . . .

### NSNs Are Here

Many of the parts for the M240 machine gun that you previously had to order by part number now have NSNs. The NSNs are in the latest revision to TM 9-1005-313-10. If you haven't received the revision, jot down these NSNs in your -10:

Page #	Item description	NSN 1005-01-
B-2	Ammunition adapter	431-8324
B-2	Sling with hook assembly	439-6899
B-4	Barrel assembly (Item 1B)	433-7220
B-8	Spare barrel case	442-8626
B-10	Flex assembly mount	411-6340*
C-1	M24 blank firing attachment	431-7919
C-4	M122A1 mount	433-1617

\* Replacement NSN

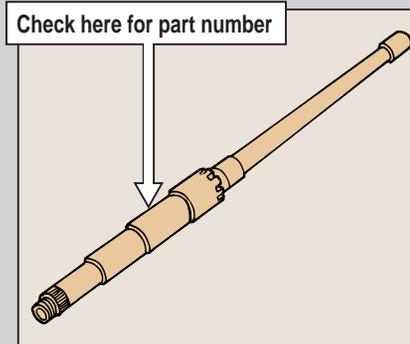
# Unlined Barrels Unwanted

Even though unlined M2 machine gun barrels haven't been available for years, there are still some in the field. And they're still causing problems.

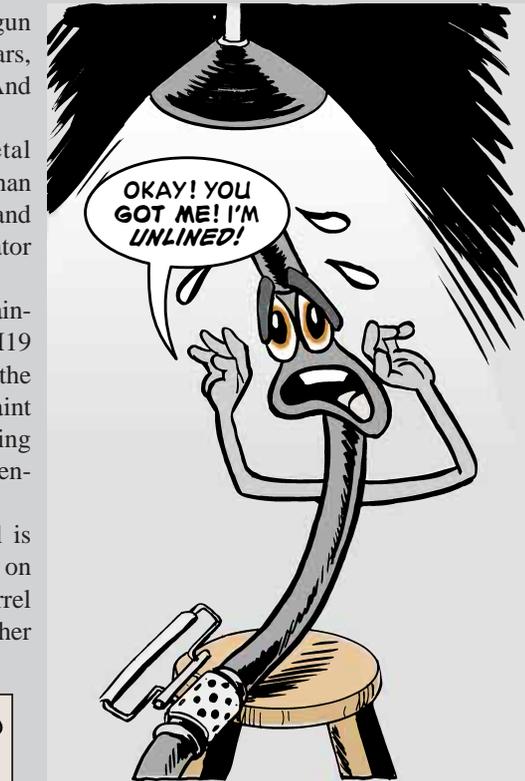
Barrels without the special metal lining wear out 80 percent faster than lined barrels. They also fire XM903 and XM962 sabot light armor penetrator (SLAP) ammo very inaccurately.

It's OK to use unlined barrels for training with .50-cal ammo and the M19 blank firing attachment. But mark the unlined barrels with a 1-in white paint strip around the barrel near the carrying handle notches so they'll be easily identifiable and used only for training.

The easiest way to tell if a barrel is unlined is to check the part number on the outside of the barrel. A lined barrel has a part number of 7266131. Any other number means the barrel is unlined.



To tell if an unlined barrel is bad, check its bullet strike pattern on a target. If the pattern is erratic, the barrel should be turned in. Also turn in



the barrel if you see tracer bullets going downrange erratically.

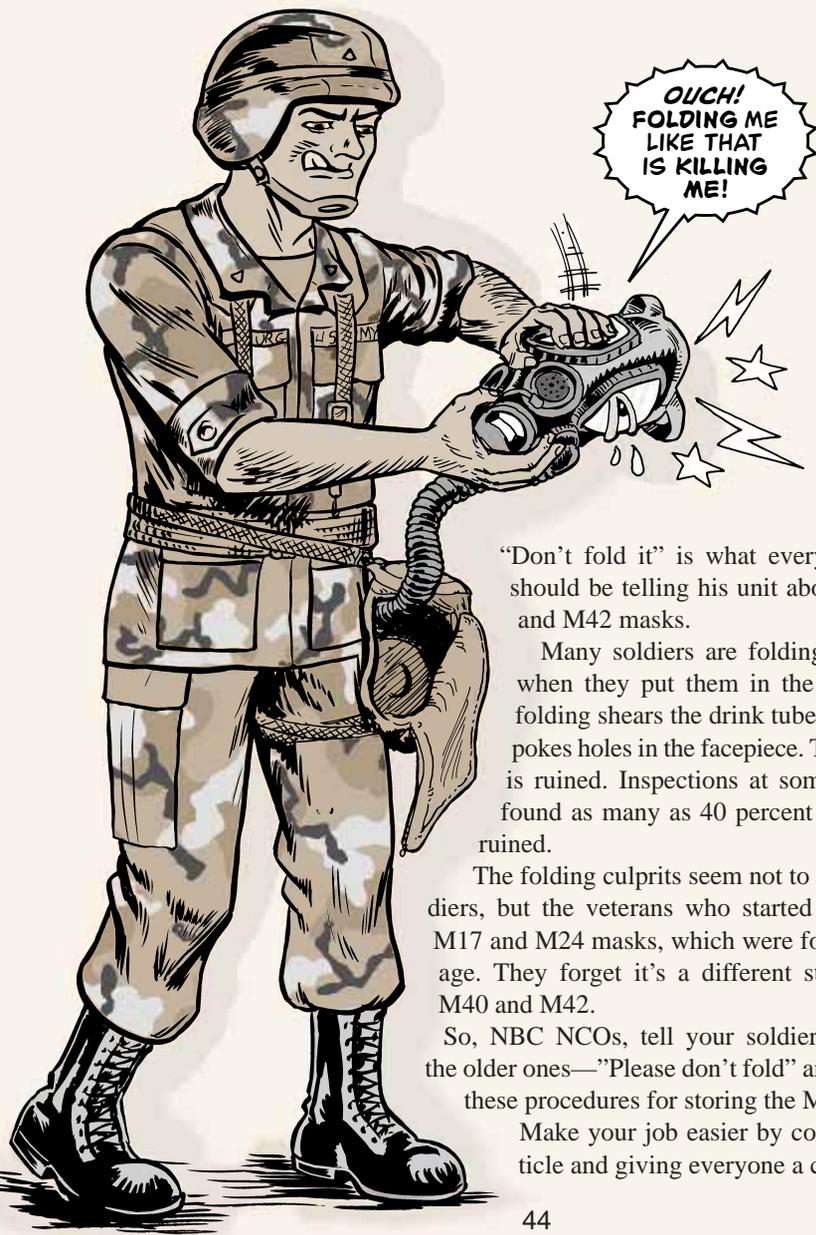
To order a lined barrel, NSN 1005-00-726-6131, send a funded requisition to:

**TACOM-ACALA**  
**ATTN: AMSTA-AC-NCDC**  
**Rock Island, IL 61299**

If you have questions about ordering lined barrels, call Pam Lund at DSN 793-7365, (309) 782-7365, or Tim Hildebrant at DSN 793-6463.

# Please Don't

# Fold It!



“Don’t fold it” is what every NBC NCO should be telling his unit about their M40 and M42 masks.

Many soldiers are folding their masks when they put them in the carriers. But folding shears the drink tube coupling and pokes holes in the facepiece. Then the mask is ruined. Inspections at some posts have found as many as 40 percent of masks are ruined.

The folding culprits seem not to be young soldiers, but the veterans who started out with the M17 and M24 masks, which were folded for storage. They forget it’s a different story with the M40 and M42.

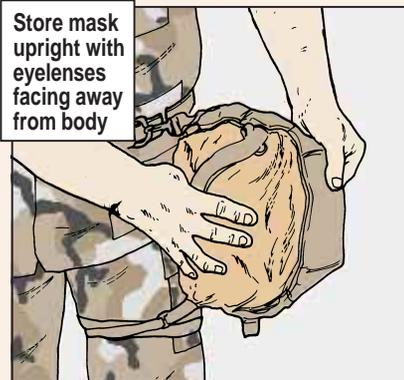
So, NBC NCOs, tell your soldiers—especially the older ones—“Please don’t fold” and show them these procedures for storing the M40 and M42.

Make your job easier by copying this article and giving everyone a copy.

## M40

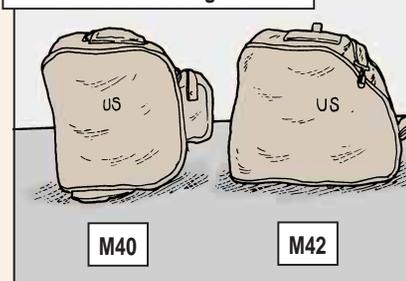
Stow the M40 upright in the carrier with the eyelenses facing away from your body. Do not store a canister in the face cavity. Do not fold the mask.

Store mask upright with eyelenses facing away from body



Never substitute the new M42 carrier for the M40 carrier. The larger M42 carrier lets the M40 mask twist itself out of position and get damaged.

M42 carrier is too large for M40



## M42

1. Stick the canister in the carrier first with the quick disconnect coupling completely through the carrier’s side opening.

2. Tuck as much as possible of the hose and hood into the carrier.

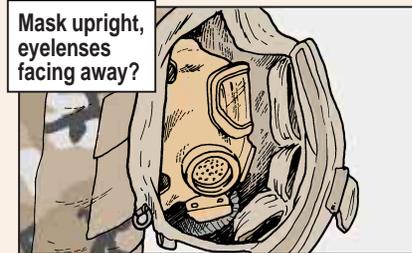
Tuck hose and hood in carrier first



3. Fold the rest of the hose inside the facepiece.

4. Put the mask in the carrier upright with the eyelenses facing away from your body. Do not fold the mask.

Mask upright, eyelenses facing away?



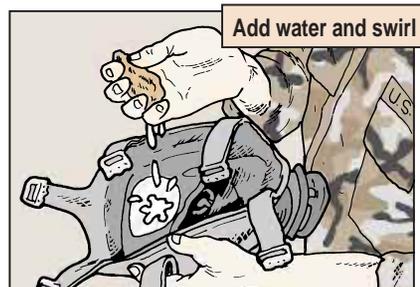
# THE EYES HAVE IT

Too many eyelenses on M40 and M42 masks are ruined because soldiers clean out sand and dirt from the eyelens rims with a dry cloth. The cloth drags the particles across the eyelenses and scratches the plastic. Eventually you can't see through the eyelenses. Blindness is a drawback in the field.

Here's a better way to clean the eyelenses.

Turn the mask face down. Put a tablespoon of water in the center of the eyelens. Swirl the water around the eyelens like you are panning for gold.

Do this until all the sand has washed to the center of the eyelens. Trap the sand with a clean cloth. Turn the mask over and pull the cloth away. The sand is gone and the eyelens hasn't been scratched.



Do the same with the other eyelens.

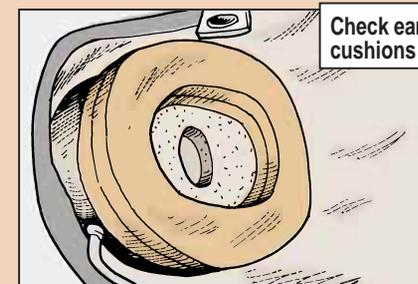


# AN EARACHE BREAK

Too many eardrums take a beating because of damaged ear cushions in the AN/VIC-3 intercom system's CVC helmets. A broken, deformed, leaking or damaged ear cushion, NSN

5965-01-418-5535, causes not only poor comms, but also possible hearing loss.

So be responsible for your own ear cushions. After all, it's **your** hearing. Every time you put that CVC helmet on, give the ear cushions a good look. If they're damaged, get them replaced.



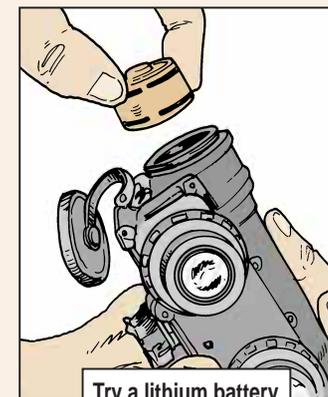
## Do a Switcharoo

So you put brand new alkaline batteries in your AN/PVS-5C/7A/7B night vision goggles—and nothing happened.

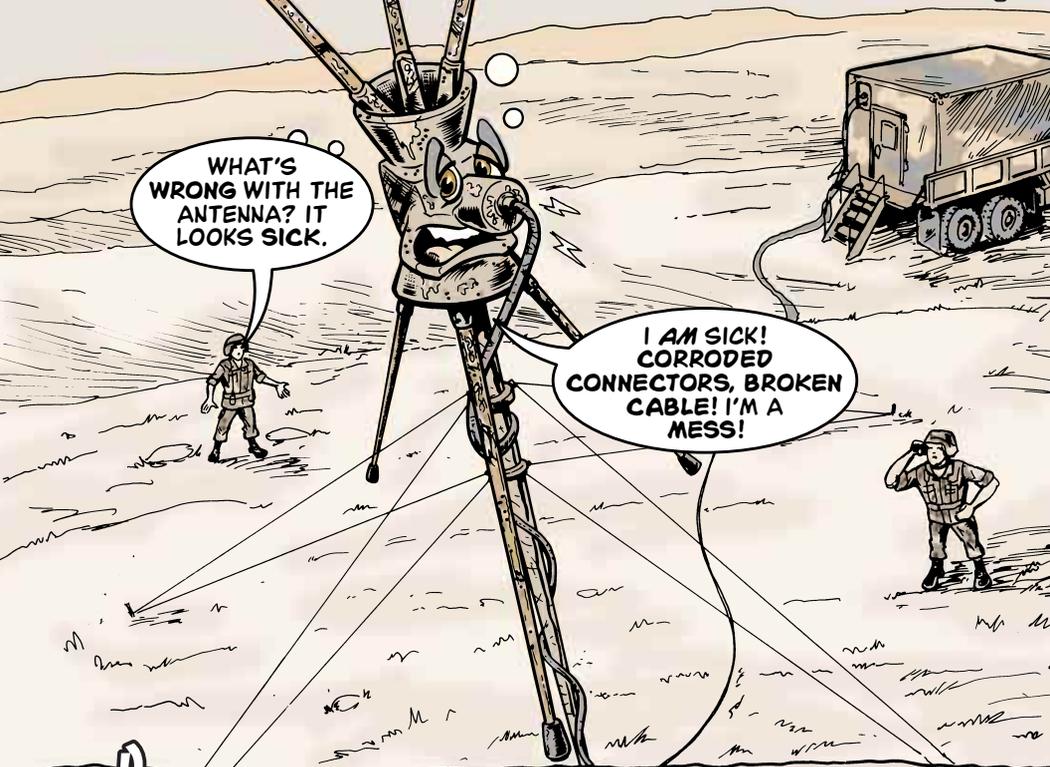
You pull the batteries out, clean each end to get off corrosion, clean the goggle terminals, and reinsert the batteries, while making absolutely sure they are in right. Again, nothing happens.

Before you turn the goggles in for repair, pull out the alkaline batteries and try a lithium battery. If it works, the problem is in the alkaline battery box.

You'll still need to get the battery box fixed, but the lithium battery will keep you in business to meet your mission needs.



# BEFORE YOU RAISE 'EM,



Did you hear the one about how important preventive maintenance is to the OE-254 antenna?

No?

Then read this article, copy it and stick a copy in each OE-254 kit.

## AS-3166 Feedcone Assembly

The feedcone is the heart of your antenna. Start your "heart" PM by giving it a little shake. If you hear a rattle, the magnetic core inside likely has broken loose. Turn it in and get another feedcone.

One way to help keep the feedcone on the job is to be careful raising and lowering the mast. See Para 2-9 of TM 11-5985-357-13 for details.



# YOU BETTER MAINTAIN 'EM

If the feedcone passes the shake test, look inside the RF connector cap. It should have a rubber insert. If it's missing, replace the cap.

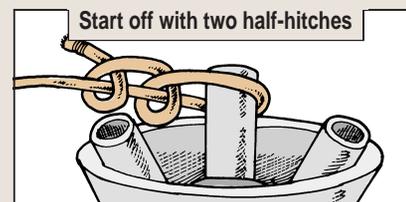


Use the cap any time the RF cable is not connected to the feedcone. Too many caps dangle down and flop around, not being used. All it takes is a few seconds to screw the cap on the connector, but it could save a feedcone connector from being ruined by corrosion.

Now turn the feedcone over and check it for stress cracks.

If your feedcones are cracking, put the word out to your unit on how to reinforce the feedcone with nylon cord, NSN 4020-00-262-2019:

1. Cut about three feet of cord. Tie one end to an upper cone antenna feed using two half-hitches. Cinch the knot tight.

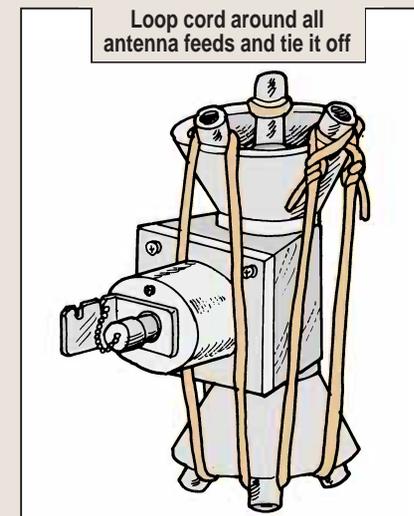


2. Loop the cord around an antenna feed on the lower cone. Then loop it around a feed on the upper cone.

3. Weave the cord up, down and around until you get back to where you started.

4. Pull it tight and tie it with two more half-hitches.

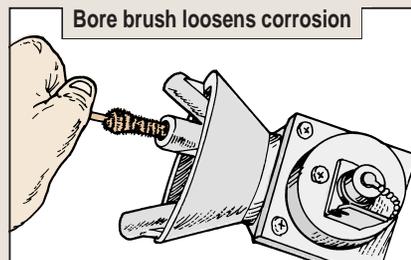
5. Trim any extra cord and melt the edges to prevent fraying.



If you still find stress cracks, the problem could be the cord is working loose.

Your six antenna feed sockets catch dirt and moisture that lead to corrosion. Keep them clean with isopropyl alcohol, NSN 6810-00-753-4993, and a foam swab, NSN 7045-01-154-1317.

For stubborn corrosion, try using a small arms bore brush, NSN 1005-00-903-1296. Use cleaning rod handle, NSN 1005-01-113-0321, for a better grip and more twisting force.



Bore brush loosens corrosion

Just twist the bore brush down into the socket and turn it several times. The stiff fibers loosen corrosion and clean out the grooves.

Don't overdo it, though. Too much of this good thing can wear out a socket.

Finally, treat the feedcone like the fragile piece of equipment it is. Make the feedcones one of the last things you store. Stencil the OE-254 storage bag to warn folks not to toss things on top of the feedcone.

### MS-116, MS-117, AB-24 Elements

Keep the antenna elements free from corrosion with water-displacing compound, NSN 6850-00-142-9409, and silicone, NSN 6850-00-880-7616.

First, though, clean the connecting area of each element with your antenna's guide rope.

Loop the rope around the element. Pull back and forth from both ends of the rope.

The friction created by the rope cleans the connecting area.



Pull rope back and forth

**Don't** use a scouring pad to do this cleaning! Scouring pads wear down the metal and strip the element.

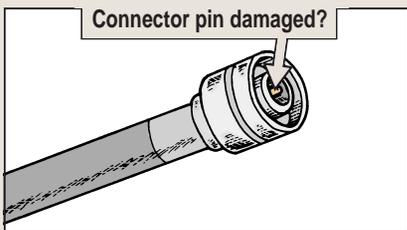
Once the contact areas are clean, spray them with water-displacing compound. Then give them a light coat of silicone compound.

Your element PM will be easier if the elements are attached hand tight. Elements that have been muscled together get damaged when they have to be muscled apart.

Wrap electrical tape, NSN 5970-00-419-4291, around each connection to keep moisture out and corrosion away.

### CG-1889 RF Cable

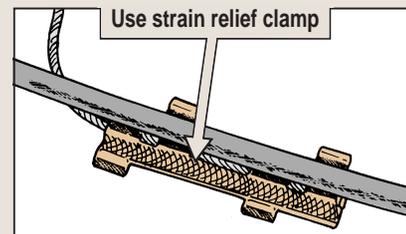
The connector that mates your CG-1889 RF cable to the feedcone might be your OE-254's number one problem area.



Connector pin damaged?

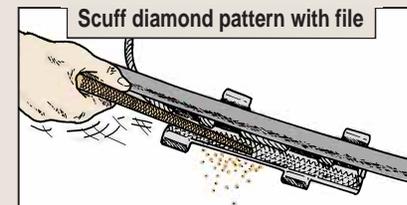
Make sure the pin is not bent or broken. You can straighten a bent pin with needle-nose pliers, but do it **gently** or you'll be turning the cable in with a broken pin.

A bent or broken pin is often the result of too much strain on the cable. To prevent this, use the strain relief clamp, NSN 5975-00-563-0229, every time the antenna is raised. Attach it to the upper guy plate of the mast like it says in Para 2-4 of TM 11-5895-357-13. Be careful not to bend the clamp when you use it. A bent clamp will not hold the cable.



Use strain relief clamp

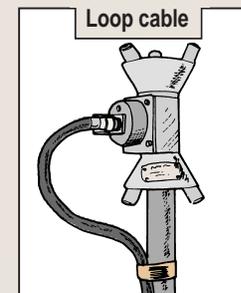
The diamond pattern inside the clamp does not quite do the holding job it was intended to do. Help it out by roughing it up a bit with a file. Just scuff it. If you overdo it, the clamp will cut into the cable.



Scuff diamond pattern with file

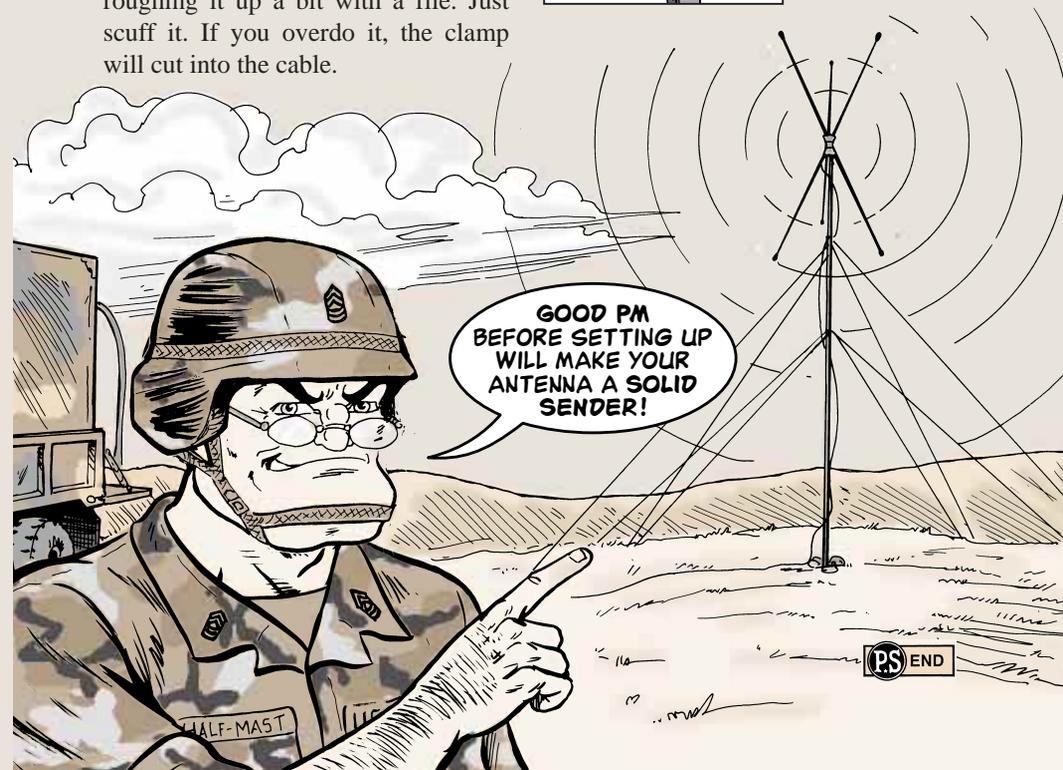
Take more stress off the cable connector by using electrical tape.

Put a small bow or loop in the cable just below the feedcone. Tape the cable to the uppermost section of the mast.



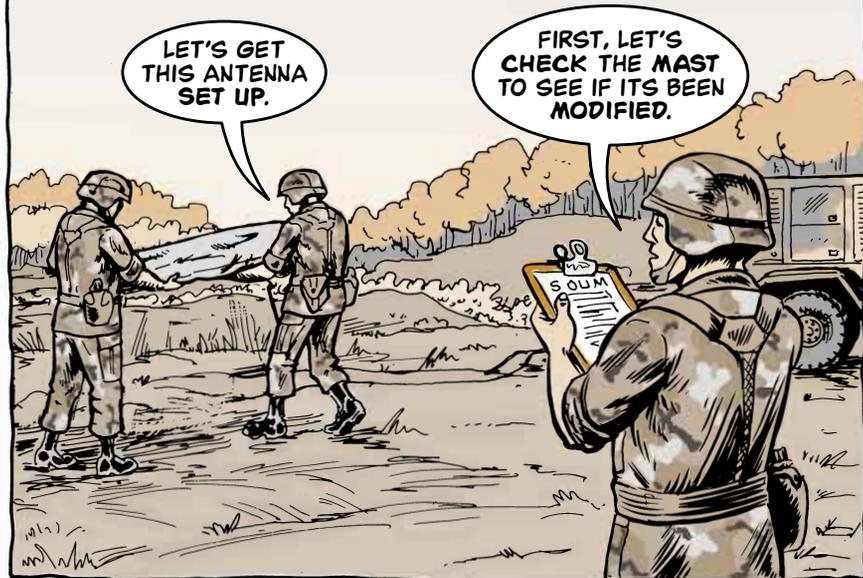
Loop cable

Now tape the cable down the mast about every five feet.



GOOD PM BEFORE SETTING UP WILL MAKE YOUR ANTENNA A SOLID SENDER!

# Is It Modified?



CECOM Safety-of-Use Message (SOUM) 92-02-01 said to apply MWO 11-5985-357-30-1 to the OE-254 antenna, NSN 5985-01-063-1574.

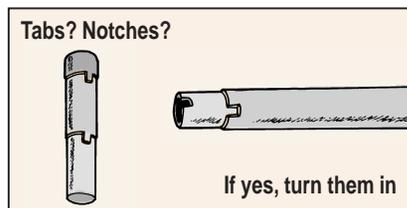
The MWO extends the life of the antenna support sleeves, mast sections, and mast and base assembly by eliminating a cause of stress cracks.

But some antennas never got modified since many units were deployed to Operation Desert Storm when the MWO came out. So, CECOM reissued the SOUM in Mar 96.

Now another problem has surfaced. All the antennas in the supply system were bought before the MWO was first issued. Depot maintenance tried to modify all existing antenna stock, but

some unmodified antennas slipped through.

So check out your OE-254 to make sure the MWO has been done. If the MWO has been done, the tabs and notches will be removed from the mast sections. If your mast still has its tabs and notches, send it off to support for the MWO. Also send the mast and base assembly and the two antenna support sleeves.



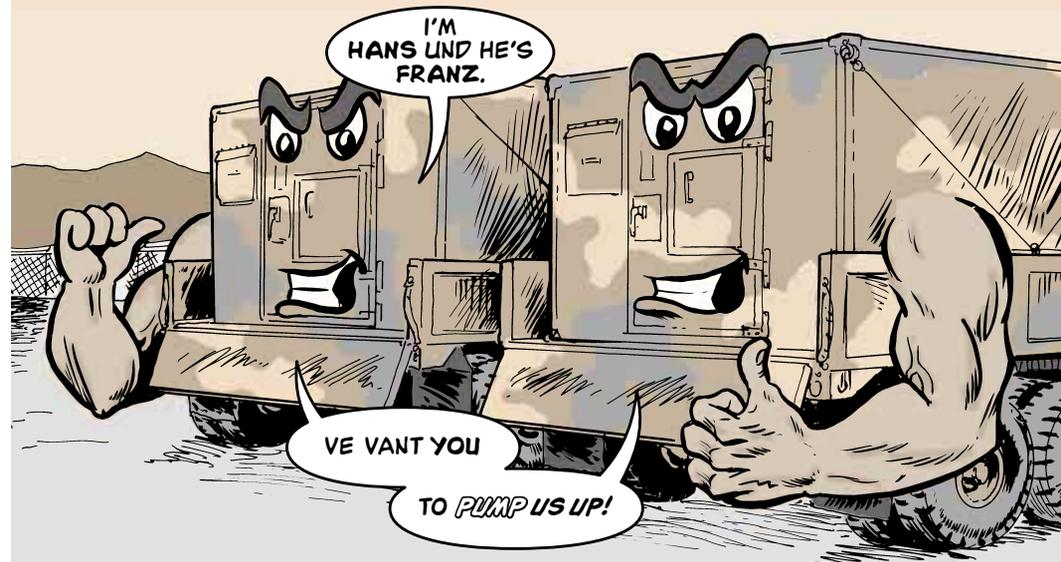
Before you send it off, though, check it over.

Inspect the antenna mast section poles for stress cracks at the squared corners of the notch. If you find any cracks that extend more than 2 1/2 inches from the bottom of the pole, it can't be modified, so just turn it in and get a new one.

The modified mast will be one section shorter, but will transmit as well as ever and last longer, too.

If support doesn't have a copy of the MWO, they can get it from the local CECOM Logistics Assistance Representative or from Half-Mast.

# It's Time to PUMP Them Up



Ever wish your AN/ASM-146 maintenance shelter had the workhorse capabilities of the AN/ASM-189 van?

Well, the CECOM genies have granted that wish.

You can now add a more powerful DC power supply (100 amps) and a variable frequency converter to your shelter. Both are off-the-shelf and state-of-the-art. You can also upgrade the

main electrical service, the power entrance box and the power distribution box.

This modification upgrade is no freebie, though. It will have to come out of your unit's funds.

For more info on this mod, call CECOM at DSN 992-5549. Or e-mail them at:

[Shedlock@mail1.monmouth.army.mil](mailto:Shedlock@mail1.monmouth.army.mil)

# Fix 'em Up

Dear Half-Mast,

Some of the items in our first aid kits, NSN 6545-00-922-1200, have passed their expiration dates. Is it OK to use them? If not, how do we replace them? We don't have the NSNs for individual items.

SFC H.F.

THIS OUGHT TO PATCH UP THEIR FIRST AID KITS.



Dear Sergeant H.F.,

If they've expired, or are missing, see your medical support folks to get them replaced. If they can't fill your needs, here are the items you need for each kit:

Item	Qty per kit	NSN	Unit of issue
Iodine	10 packets	6505-00-148-7096	144
Field dressing	3 ea	6510-00-159-4883	1
Field compress	1 ea	6510-00-200-3075	1
Gauze bandage, 3-in x 18-ft	2 ea	6510-00-200-3185	12
Triangle bandage, 37-in x 37-in x 52-in	1 ea	6510-00-201-1755	1
Adhesive bandage, 3/4-in x 3-in	18 ea	6510-00-913-7909	300
Rolled elastic bandage, 2-in x 12-ft	1 ea	6510-00-935-5820	10
Surgical tape, 1-in x 54-in	3 ea	6510-01-060-1639	100
Petrolatum gauze, 3-in x 36-in	3 ea	6510-01-112-6414	12
Surgical blade	1 ea	6515-00-754-0426	5
Scissors	1 pr	6515-00-935-7138	12
Exam glove	4 ea	6515-01-364-8554	100
Dental bag	1 ea	6520-00-926-9041	100
Eye dressing	1 ea	6545-00-853-6309	12
Case	1 ea	6545-00-113-3722	1

Half-Mast

# Lost Your Grip?

If you've lost your grip on a screw or bolt because of...

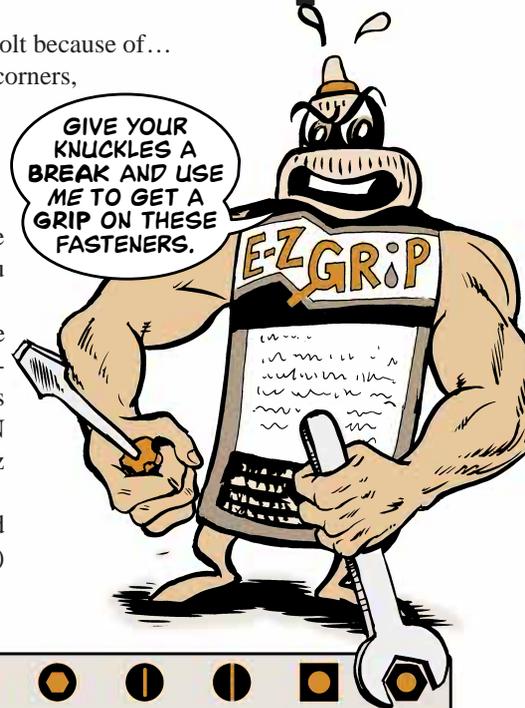
- ✓ stripped-out screw heads or rounded corners,
  - ✓ a worn tool, or
  - ✓ a bad angle on the fastener,
- ...reach for some gripping compound before you lose your temper, too.

A couple of drops on a tool or on the fastener could give you just the grip you need to turn it out or off.

You can buy the compound by the case through the supply system. NSN 6850-01-420-9041 brings a dozen 3-oz bottles for air and ground applications. NSN 6850-01-418-8759 brings twelve 3-oz bottles for underwater use.

You can also order 1/2-oz, 1 1/2-oz and 3-oz sizes directly from E-Z-Grip at (800) 650-6456 or from their web site at:

<http://www.ezgrip.net>



## Lock It Up

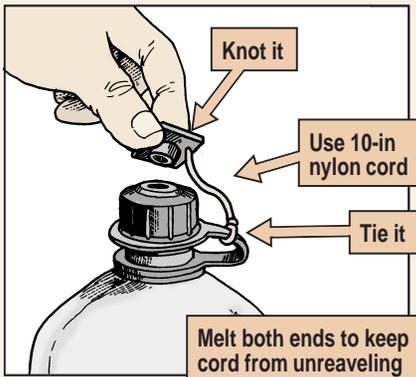
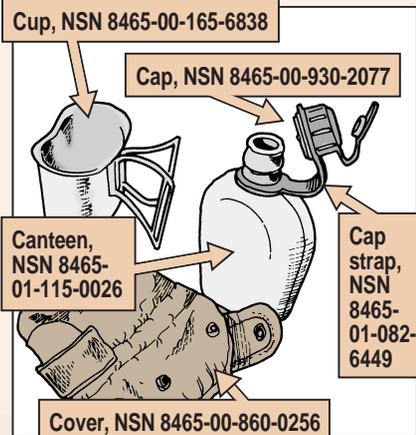
If you're looking for 200-series, low security steel padlocks, you're looking in the right place.



Description	NSN 5340-
Padlock, 15/16-in shackle	00-158-3805
Set of 6, keyed alike	01-437-0625
Set of 10, keyed alike	01-408-8452
Set of 24, keyed alike	01-437-0627
Padlock, 3-in shackle	01-408-8434
Set of 6, keyed alike	01-437-0630

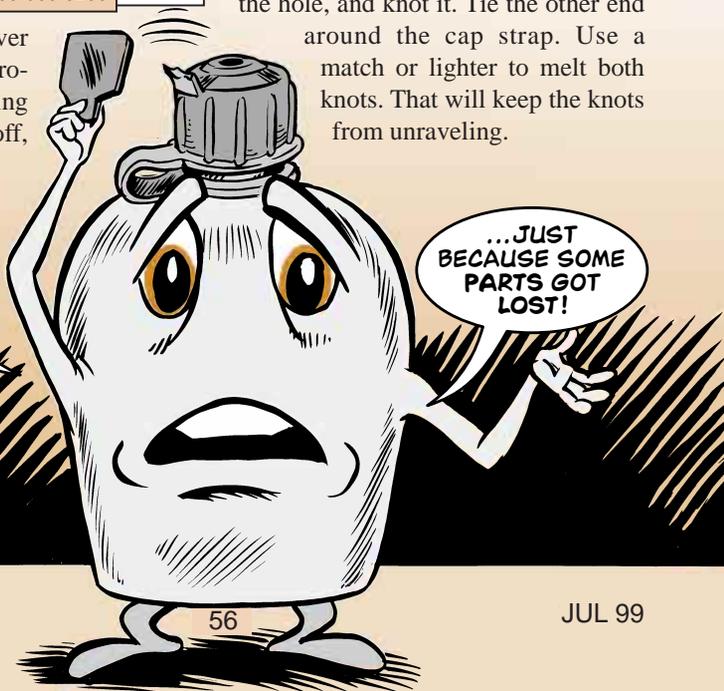
# Canteen Parts

**A** 1-qt plastic canteen suffering from lost parts is not necessarily a candidate for the trash can. There is no TM for it, but you can get replacement parts. Here's what's available:

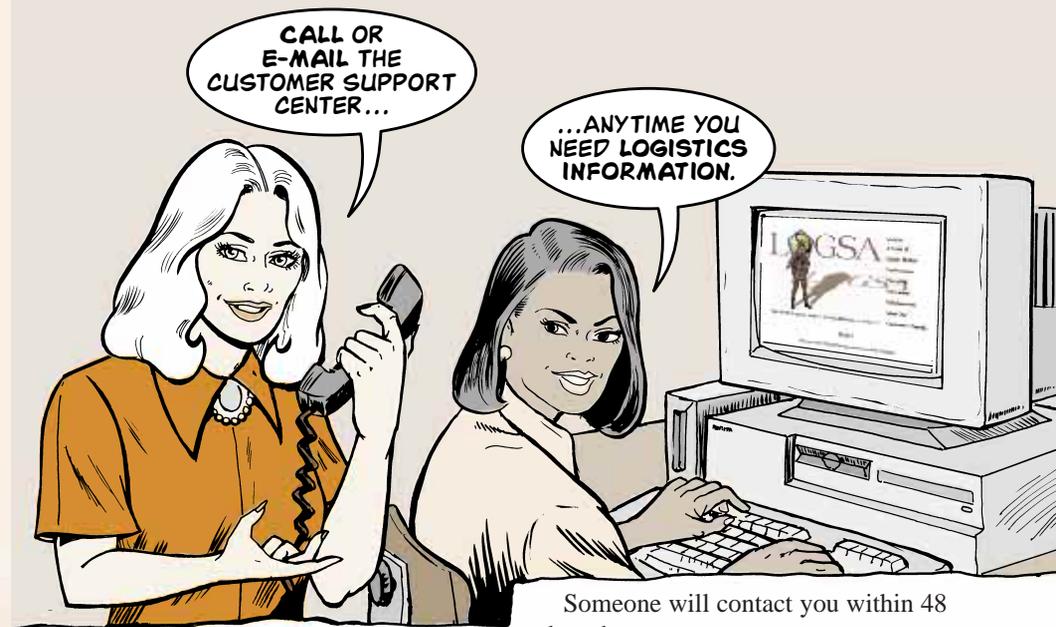


Use a 10-in piece of nylon cord, such as NSN 4020-00-262-2019. Cut the broken strap off the canteen cap. Drill a 1/8-in hole about a 1/4 inch from the broken edge of the strap that's left on the flip-up cover. Run the cord through the hole, and knot it. Tie the other end around the cap strap. Use a match or lighter to melt both knots. That will keep the knots from unraveling.

If the flip-up cover on the chemical protective cap's drinking tube valve breaks off, make a quick fix.



# Hotline to LOGSA



**T**he Logistics Support Activity (LOGSA) at Redstone Arsenal, has a hotline ready to help you. LOGSA puts a wealth of logistics knowledge at your fingertips.

Normal business hours are 0600 to 1730 hours central time, but you can send e-mail or leave a phone message at any time. Just call:

(800) 878-2869, (256) 955-0499, or DSN 645-0499

Or e-mail:

[hotline@logsa.army.mil](mailto:hotline@logsa.army.mil)

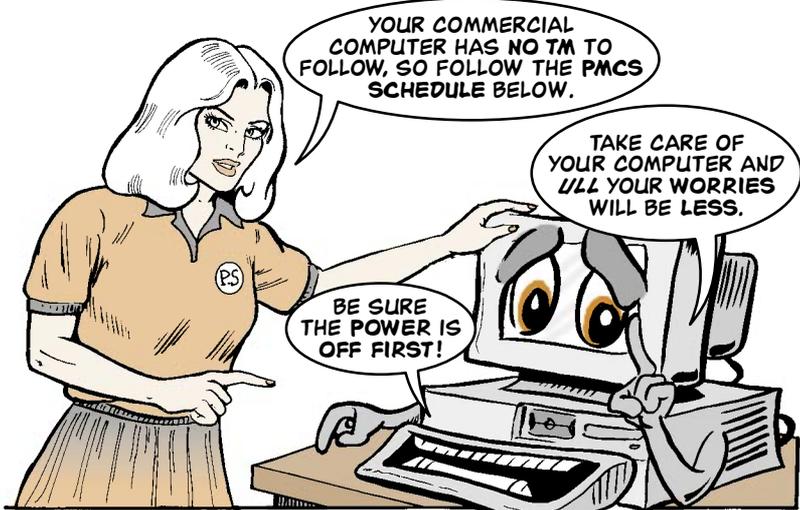
Along with your question, always leave your name, phone (DSN or commercial), location and e-mail.

Someone will contact you within 48 duty hours.

Among other items, LOGSA can provide assistance on:

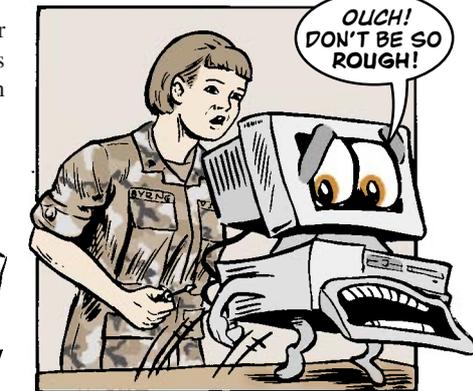
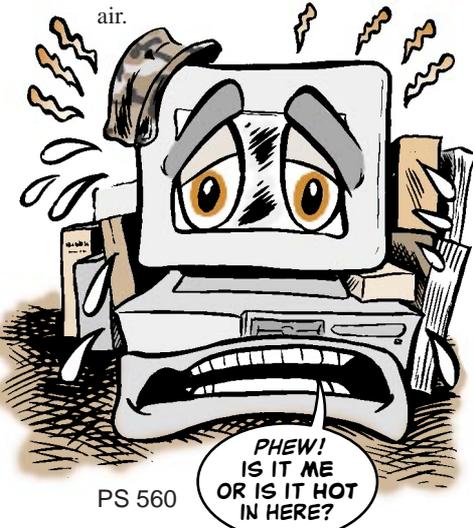
- Air shipment clearance
- Army oil analysis program (AOAP)
- Equipment deficiency reporting
- FED LOG discrepancies and price challenges
- Logistics data bases
- Publications (electronic technical manuals and supply catalogs)
- Remote terminal access
- Sample data collection
- Serial number tracking
- Vehicle registration
- Warranty claims

# DOES THIS COMPUTE?



## Daily

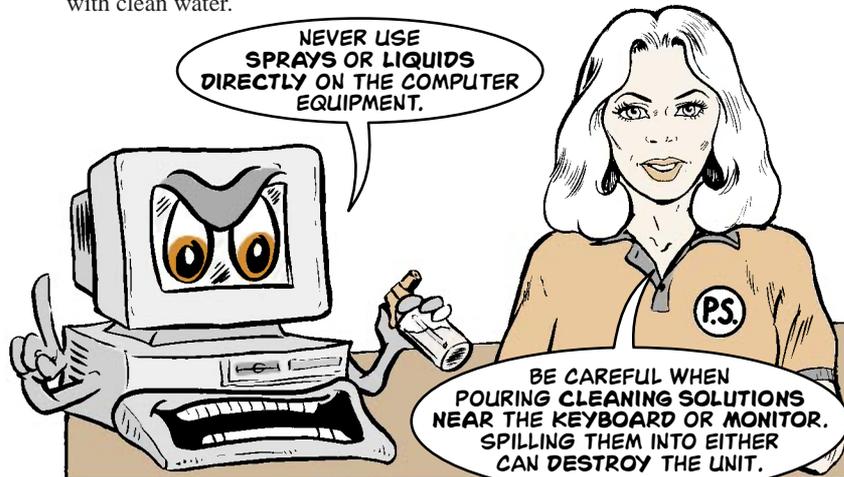
Make sure computer and printer vents are not blocked. The components will overheat if they don't get enough air.



Check the monitor, CPU and printer cable connections to be sure they are firmly connected. If they need tightening, use a small screwdriver with a light touch or you could damage the cable connectors.

## Weekly

Clean the computer's outer casing and monitor with a clean cloth dampened with clean water.



Use a disk cleaning kit to clean disk drives. Order the 3.5-in disk drive cleaning kit on DD Form 1348-6 using NSN 7045-01-309-3489. The 5.25-in disk drive kit is NSN 7035-01-154-1315. Put in the remarks block, "NSN not on AMDF." These kits usually come with a cleaning disk or pad and cleaning solution.

and foam swabs, NSN 4920-01-243-0571. Using cotton swabs can leave lint on the tape heads.

Firmly holding the keyboard, turn it upside down and use a soft bristle brush to get lint and dust from between the keys. If you don't have a brush, very gently tap the keyboard while it is upside down.

Clean tape drives with a tape cartridge kit. Order the 60-meg tape drive cleaning kit with NSN 7035-01-373-5972 on DD Form 1348-6. Put "NSN not on AMDF" statement in the remarks block.

If the cleaning kits are not available for the disk or tape drives, use isopropyl alcohol, NSN 6505-00-655-8366,



## Turn On

Now that you've completed one PMCS, do another to safely turn on the system. Turn the equipment on one piece at a time with P-M-C-S. "P" stands for printer, "M" for monitor, "C" for computer (CPU), and "S" for success.

Why PMCS? Remember the system must read and access files when it first comes on. If a surge occurs as these files are being accessed—like a printer or a monitor starting up—the data in those files can become unusable.

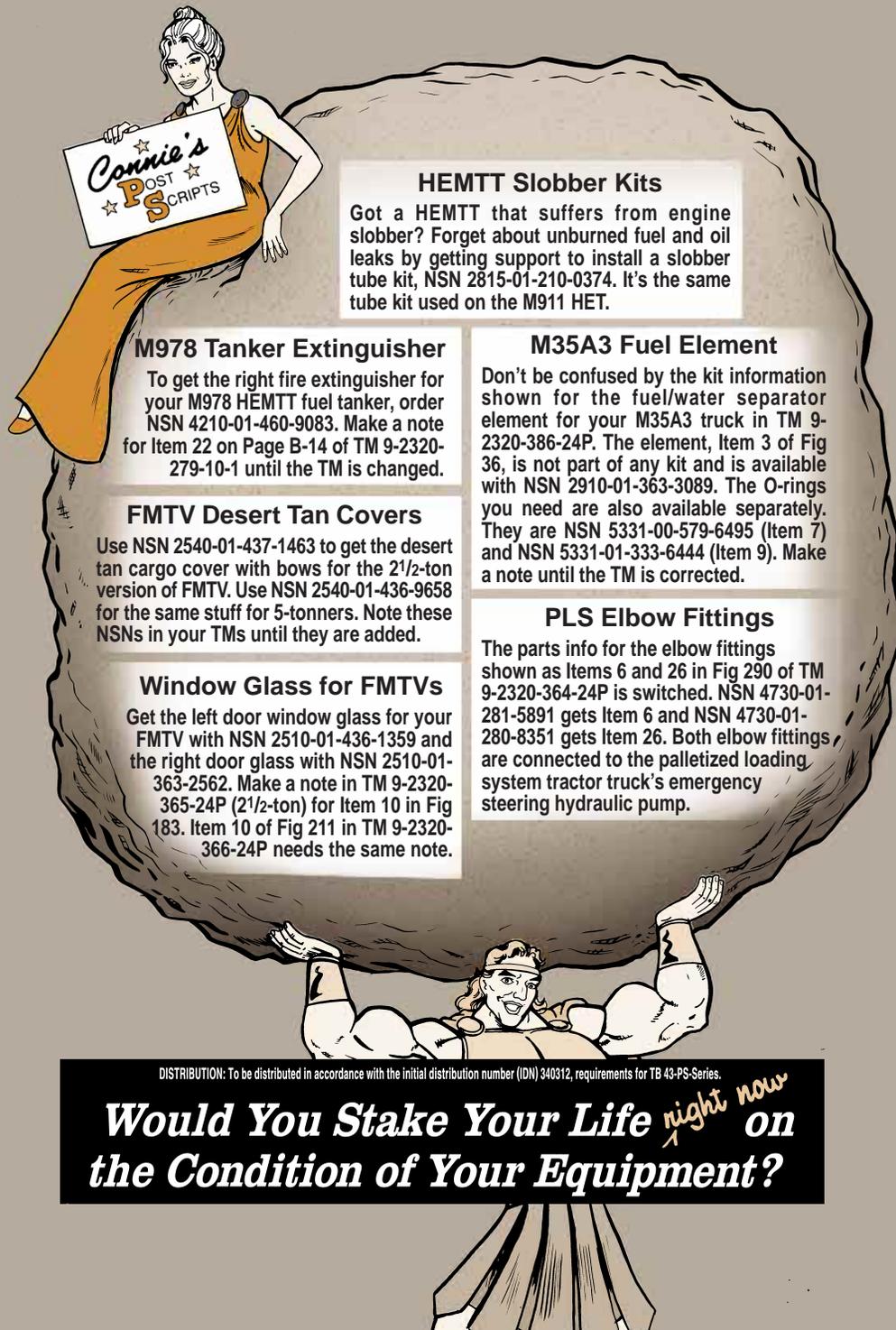
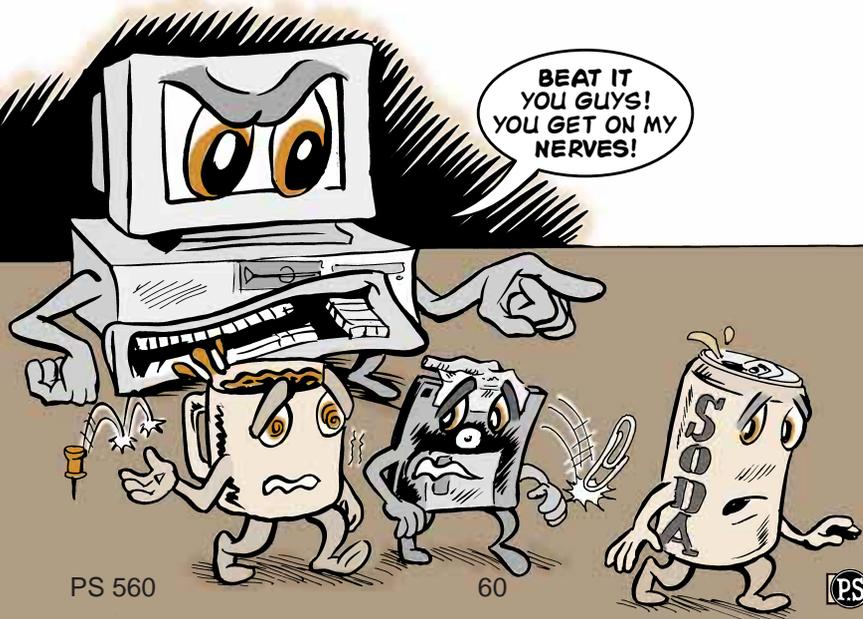
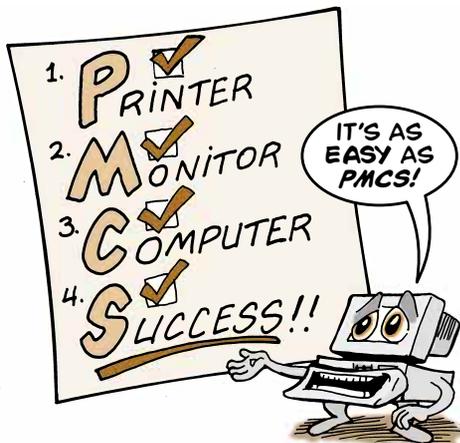
## Other Bits and Bytes

Keep small items such as paper clips and map tacks away from your computer. Small objects can find their way into small openings and cause large problems.

Always remember to keep coffee, soda and all other liquids away from your computer. It's not waterproof!

Make sure the labels on your disks are firmly in place. Loose labels can get stuck in the disk drives and cause some major damage!

Finally, back up files daily or in accordance with your local SOP. You don't want to lose the hard work you've done.



## HEMTT Slobber Kits

Got a HEMTT that suffers from engine slobber? Forget about unburned fuel and oil leaks by getting support to install a slobber tube kit, NSN 2815-01-210-0374. It's the same tube kit used on the M911 HET.

## M978 Tanker Extinguisher

To get the right fire extinguisher for your M978 HEMTT fuel tanker, order NSN 4210-01-460-9083. Make a note for Item 22 on Page B-14 of TM 9-2320-279-10-1 until the TM is changed.

## FMTV Desert Tan Covers

Use NSN 2540-01-437-1463 to get the desert tan cargo cover with bows for the 2 1/2-ton version of FMTV. Use NSN 2540-01-436-9658 for the same stuff for 5-tonners. Note these NSNs in your TMs until they are added.

## Window Glass for FMTVs

Get the left door window glass for your FMTV with NSN 2510-01-436-1359 and the right door glass with NSN 2510-01-363-2562. Make a note in TM 9-2320-365-24P (2 1/2-ton) for Item 10 in Fig 183. Item 10 of Fig 211 in TM 9-2320-366-24P needs the same note.

## M35A3 Fuel Element

Don't be confused by the kit information shown for the fuel/water separator element for your M35A3 truck in TM 9-2320-386-24P. The element, Item 3 of Fig 36, is not part of any kit and is available with NSN 2910-01-363-3089. The O-rings you need are also available separately. They are NSN 5331-00-579-6495 (Item 7) and NSN 5331-01-333-6444 (Item 9). Make a note until the TM is corrected.

## PLS Elbow Fittings

The parts info for the elbow fittings shown as Items 6 and 26 in Fig 290 of TM 9-2320-364-24P is switched. NSN 4730-01-281-5891 gets Item 6 and NSN 4730-01-280-8351 gets Item 26. Both elbow fittings are connected to the palletized loading system tractor truck's emergency steering hydraulic pump.

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



HEY! WHY DON'T YOU JUST DRINK IT STRAIGHT FROM THE PAN?

Dispose of oil and other waste in proper containers!



Issue 560

**PS**

July 1999

**THE PREVENTIVE MAINTENANCE MONTHLY**

TB 43-PS-560

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