



**THE
PREVENTIVE
MAINTENANCE
MONTHLY**

TB 43-PS-557, 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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You are invited to send PS your ideas for improving maintenance procedures, questions on maintenance and supply problems, and questions or comments on material published in PS. Just write to:

MSG Half-Mast
The Preventive Maintenance Monthly
LOGSA, Bldg. 5307
Redstone Arsenal, AL 35898-7466

Or E-mail to:

psmag@logsa.army.mil

Internet Address:

<http://www.logsa.army.mil/psmag/pshome.html>

By Order of the Secretary of the Army:

DENNIS J. REIMER
General, United States Army Chief of Staff

Official:

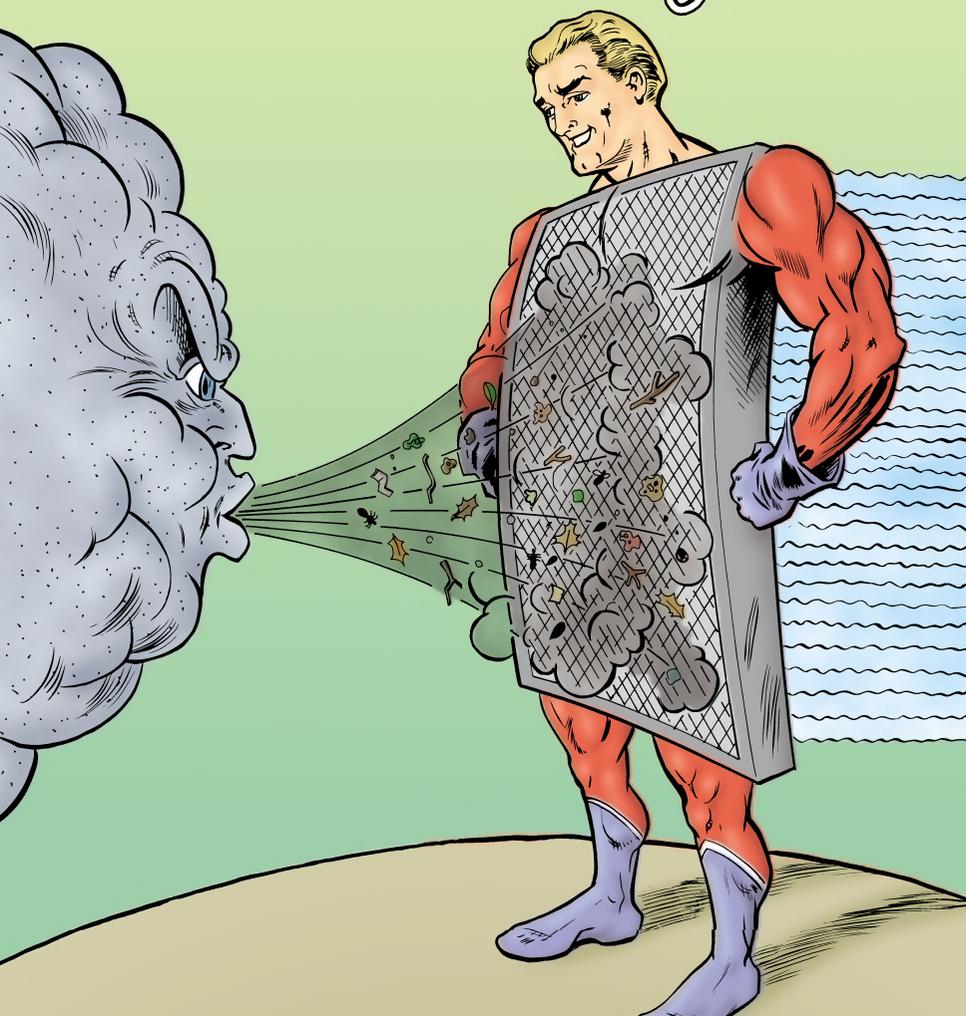
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FILTERS will do their
job—if *you* do *yours*!
Clean 'em or Change 'em



Issue 557

PS
★
April
1999

**THE
PREVENTIVE
MAINTENANCE
MONTHLY**

TB 43-PS-557



Approved for
Public Release;
Distribution Is
Unlimited

Have Grease Gun—Will Travel
... See Page 27

It IS the Small Stuff



WHAT'S THE BIG DEAL? I DON'T SWEAT THE SMALL STUFF.

YOU'D BETTER! THE SMALL STUFF CAN TURN INTO BIG HEADACHES!

“**D**on't sweat the small stuff” is advice you've probably heard, and it's advice worth listening to. It's usually followed by the clincher: “It's all small stuff.”

The popular wisdom goes something like this: Don't get wrapped around the axle about things that aren't worth your time. And that's good advice, if you're talking about how to deal with the people around you.

But it's terrible advice when dealing with Army equipment. **PM is all about sweating the small stuff**, like keeping equipment clean, lubricated and ready to use. Small stuff, like getting rid of dirt and moisture that can shut down equipment; like cleaning corrosion from battery terminals, or like checking vehicle fluid levels daily, may not seem like big deals. They're just small stuff.

But they are the little things that can bring you and your equipment down if you don't stay on top of them.

So don't follow that piece of popular advice when it comes to your equipment. **DO** sweat the little things by handling them when they still are small stuff.

Handle them while they're small stuff, and you won't have to sweat them later.



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HMMWV...

Did You Turn It All Off?

If your HMMWV is fitted out with special equipment—a rear-mounted radio, a commo shelter, an ambulance or an arctic personnel carrier—listen to this: Turning off the master switch on the dashboard does not turn off the battery power to the equipment in the back!

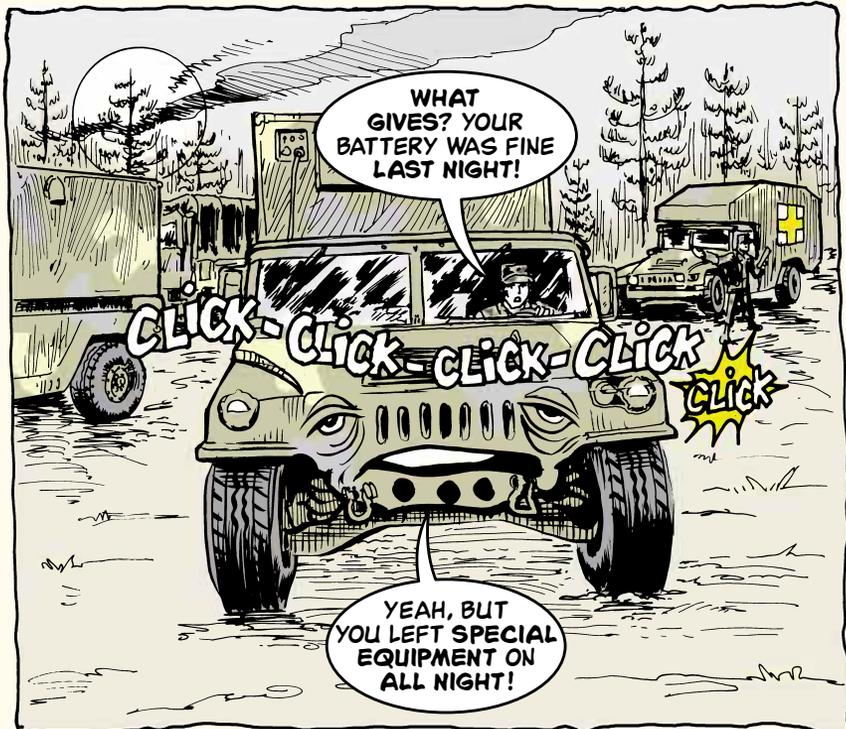
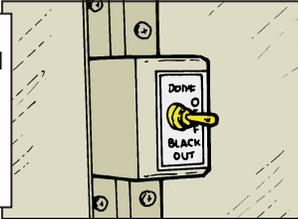
Make sure **all** electrical switches in the vehicle are off before you leave the truck. If you don't know where all of them are, have a medic or specialist show you what to look for.

You're doing this for your own benefit, because otherwise you'll be stuck

slave starting if the batteries are too weak to start.

One switch often left on is for the rear overhead lights in the arctic personnel carrier. It has three positions. Only one—the middle position—turns the lights out when the rear door is closed.

Arctic personnel carrier light switch in OFF position?

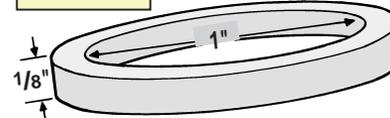


Pipe Slice Tightens Mirror

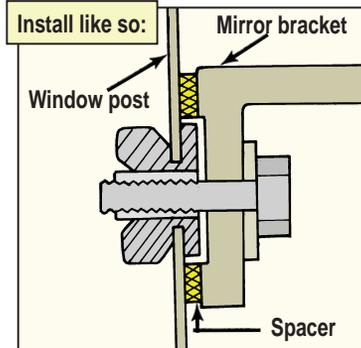
SGT Lyle Beard of the Oregon National Guard got tired of loose side mirrors on his HMMWVs.

So, he got a piece of 1-in PVC electrical conduit and cut a couple of 1/8-in spacers from it. After removing the mirror and mounting legs, he put the spacers under the mirror mounting leg at the top and bottom.

Homemade PVC washer



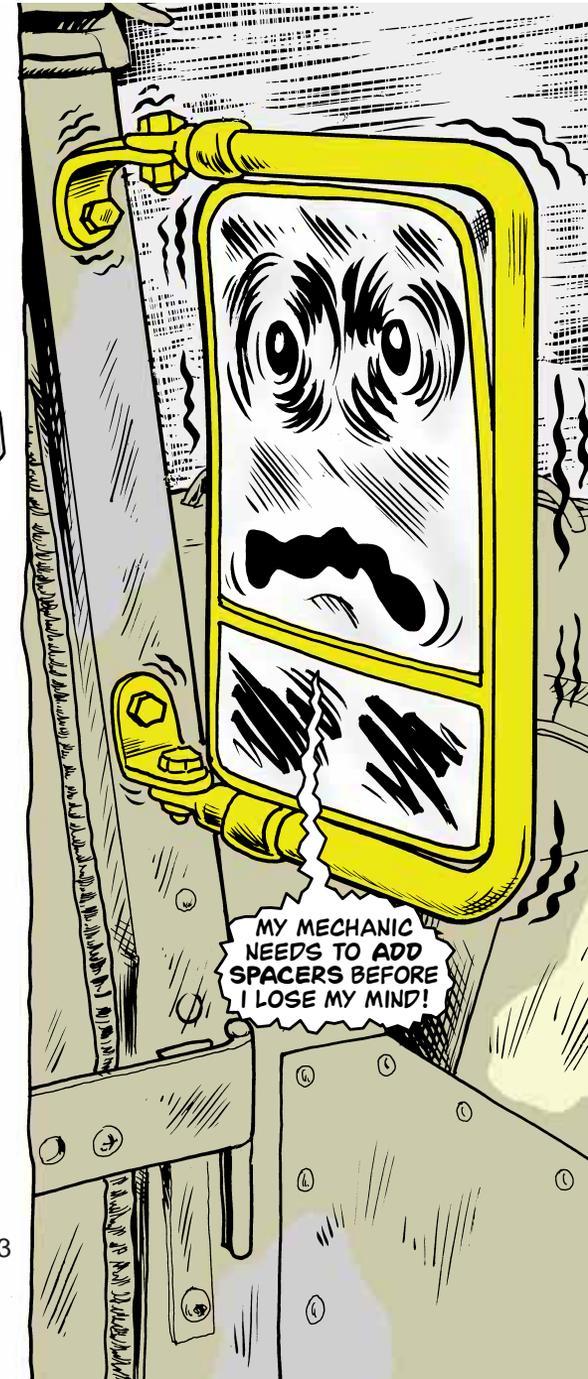
Install like so:

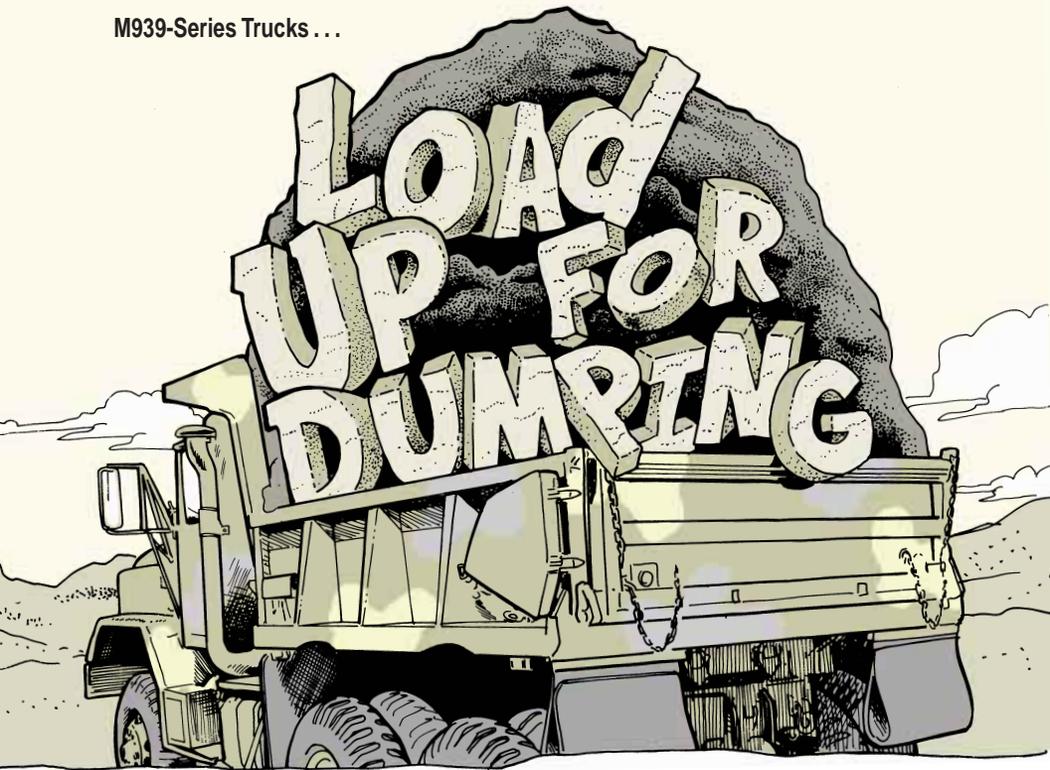


The spacers provide a bigger locking surface for the mounts, so the mirrors are held tighter.

Once Sergeant Beard retightened the screws mounting the mirror to the window post, he no longer had loose mirrors.

The PVC conduit can be painted to match your HMMWV's camouflage pattern.





The way to keep your M929- and M930-series dump trucks on the job is to load up on PM. Here are a few loads to start with:

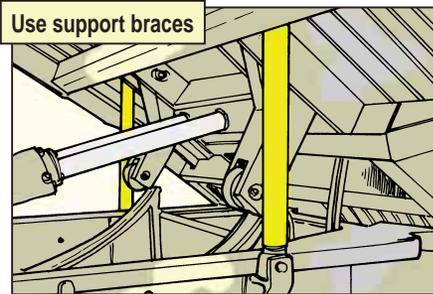
Keep the Bed Dry

◆ Standing water in the dump bed means the drain holes are clogged. Ignore the standing water long enough and you'll have a rusted bed.

Eyeball the bed corner drain holes for debris or paint. Clean the debris away and run the tip of a ballpoint pen or small screwdriver through the holes to open 'em up.

If your dump is going to sit awhile (like weeks or months), keep the bed elevated so moisture can't pool up.

Use the dump body support braces (bedlocks) to hold the bed up and keep pressure off the main hydraulic cylinder.



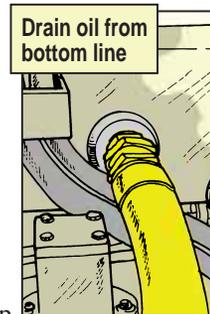
There's No Plug

◆ Make sure you drain the hydraulic oil reservoir annually. Since there's no drain plug, disconnect the oil line at the bottom of the tank.

Let the oil cool before you loosen the line, so you won't get a hot oil bath.

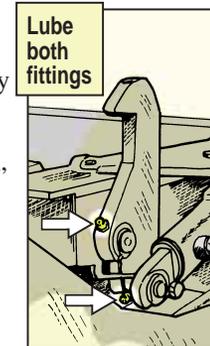
When reconnecting the line, be sure not to cross thread the fitting. If you strip the threads, the truck goes to support to get the hose replaced.

Refill the tank and check the line for leaks. If it's leaking, tighten the fitting 1/6 turn or one flat at a time until the leak stops.



Get the Hook

Remember to grease both fittings on the safety latch hook. Without the lube, the hook can "freeze" in place. Then it—or the latch mount—will break when you raise the bed.



Test with Bed Flat

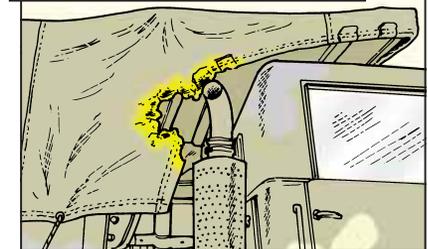
Make sure the dump bed is completely lowered before you check the fluid level in the hydraulic reservoir.

When the bed's up, the fluid is in the lift cylinder. You won't get a true reading of the amount in the reservoir. Adding fluid with the bed up can blow seals when the bed comes down.

Keep It Tied

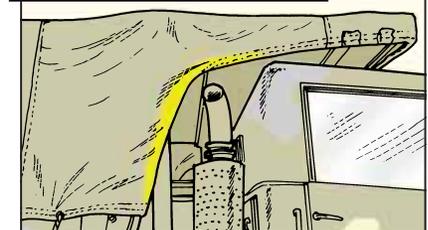
The tarp on the dump bed sits very close to the exhaust pipe, even when it's tied down right and tight.

Untied tarp contacts pipe and burns



If a rope comes undone, though, you get canvas on the pipe—and that means a repair bill for burned canvas.

Tie tarp away from exhaust pipe



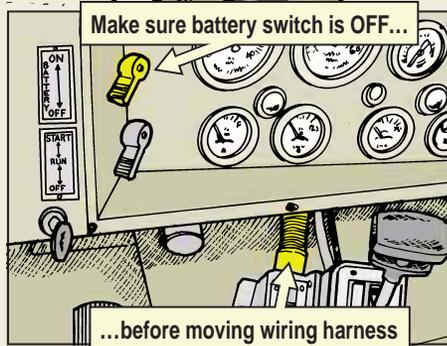
Check tie-down ropes before you move out. Re-tie them if necessary. Need a rope? Get one with NSN 4020-00-968-1356.

Battery OFF Before Disconnect



Mechanics, before connecting or disconnecting the central tire inflation system's (CTIS) wiring harness connector from the electronic control unit (ECU) in your 5-tonner, set the vehicle battery switch to OFF.

Making a harness move while the battery switch is ON can damage the ECU and leave you with no CTIS.



HAZMAT Help

If you have HAZMAT questions, get answers from the Logistics Support Activity's Packaging, Storage and Containerization Center (PSCC).

They handle questions on HAZMAT regulations, storage, packaging and transport.

Call them at DSN 795-7070/7025 or (570) 895-7070/7025. Fax questions to Ext 7894 or e-mail them at:

pscckpg@logsa.army.mil

Send mail to:

Chief, LOGSA PSCC
ATTN: AMXLS-TP
11 Hap Arnold Blvd
Tobyhanna, PA 18466-5097

Keep Your Lube Dry



Operators, greasing the ramp pivot shafts and spring rod guides on the M1000 HET's ramp is not a good idea.

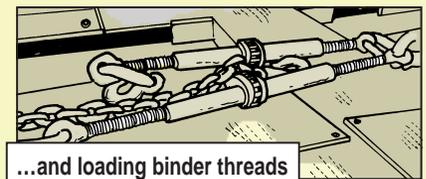
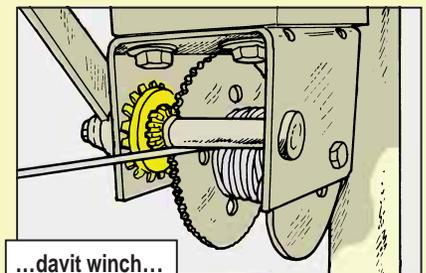
Grease may help the rod guide move back and forth on the pivot pin, but it also attracts dirt, grit and sand like a magnet. Lube also thickens in cold weather. That combination works like sandpaper to score the surface of the ramp's pivot pins.

If your semitrailer's pins or guides are now lubed, use P-D-680 (Type 3) dry cleaning solvent to remove any gunk.

Then, use solid film lubricant (SFL),

rod guides and ramp pivot shafts. SFL NSN 9150-01-260-2534, on the lubes the pin and guide's surface, but doesn't attract dirt.

While you're at it, use SFL on the semitrailer's davit winch and the threads of the loading ramp binders, too.



Keep Cartridge Clean

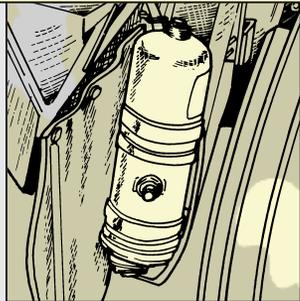
Mechanics, the transmission on M915-M920 trucks needs plenty of dry compressed air to shift right.

That's not a problem if the air dryer has a clean desiccant cartridge. But if the cartridge is dirty, the vehicle becomes hard to shift—or won't shift at all.

To keep the air dry, change the desiccant in the air dryer cartridge semiannually instead of annually like it says in the PMCS of TM 9-2320-273-20. Use desiccant cartridge refill kit, NSN 4440-01-081-1391.

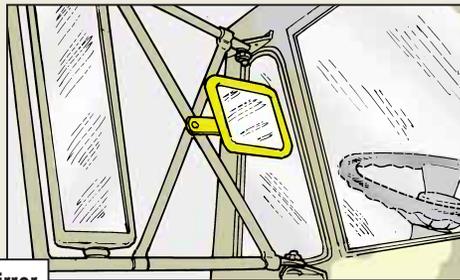
Service it more often in salty, wet or humid operating areas.

Replace desiccant semiannually



Move Wide Angle Mirrors

If you'd be interested in getting information on how to move the HET's wide angle mirrors to give drivers a better rear view, contact MSG Half-Mast. He'll need a unit mailing address, so provide it when you call or write. See Page 1 for the addresses.



Wide-angle 'spotter' mirror

Control Knob Readings

Operators, the crane control knobs on M977, M984, M984A1, and M985 HEMTTs wear and fade from use. Over time, the recessed directions are difficult to read.

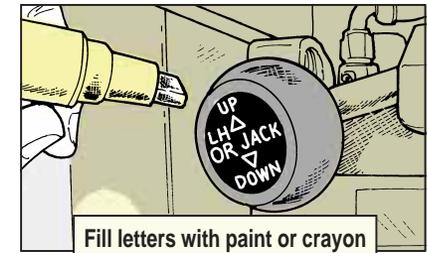
You don't have to replace the knob. Here's a quick fix that puts control back into that old control knob:

1. Clean the knob with a small wire brush or an old toothbrush.



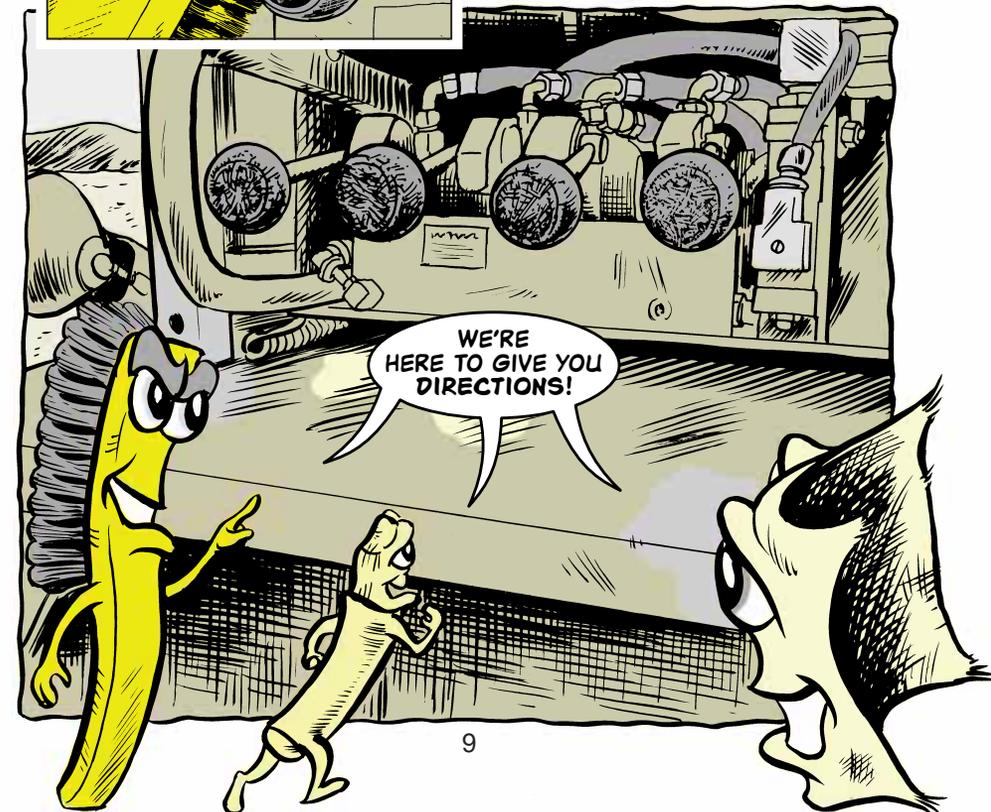
Clean knob with brush

2. Use a light-colored paint stick or white crayon to fill the impressions on the knob. This highlights the letters and lines.



Fill letters with paint or crayon

3. Wipe off any excess with a clean rag. Now you can read the crane's control knob again.

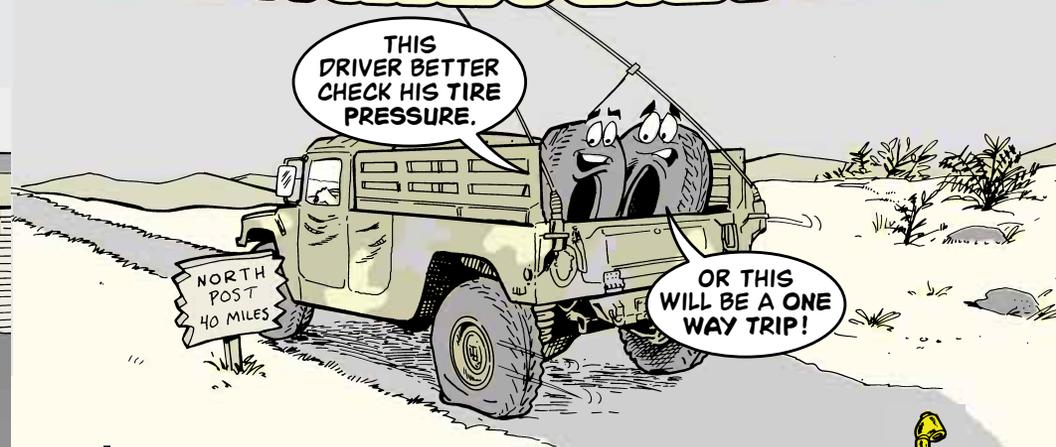


Amend the Appendix

PARTS INFO FOR MANY OF THE ITEMS IN APPENDIX B OF THE M984 WRECKER'S TM 9-2320-354-10 HAVE CHANGED. MAKE A NOTE OF THESE CHANGES UNTIL THE TM IS UPDATED.

Part	Item, Page	NSN
Cable, remote control	1, B-3	6110-01-199-5442
Support boom (left side)	23, B-9	3810-01-208-7119
Support boom (right side)	24, B-9	3810-01-208-7119
Bar, lifting, wiffletree	3, B-10	4910-00-347-9703
Bar, towing, vehicle	4, B-10	2540-01-267-2912
Bar, pinch	6, B-11	5120-00-224-1372
Beacon, warning light	8, B-11	6220-01-250-5190
Block, snatch	12, B-12	3940-00-792-9881
Chain, utility	17, B-13	4010-00-443-4845
Cylinder	24, B-15	8120-00-357-7992
Extinguisher, fire (20 BC)	26, B-15	4210-01-133-9053
Hammer, 12-lb sledge	29, B-16	5120-00-293-0887
Handle, wrench, wheel lug nut	32, B-17	5120-01-233-9508
Jack, 12-ton with handle	36, B-18	5120-01-146-8096
Pliers, 10-in adjustable slip-joint,	42, B-19	5120-00-278-0352
Screwdriver, 6-in cross tip	48, B-20	5120-00-234-8912

Low Pressure Wears Tires



It sure is depressing to see wheeled vehicles rolling down the road on underinflated tires.

First, the vehicles are burning more fuel than necessary, 'cause the tires resist rolling when they're low.

Second, rolling resistance heats up the tires real fast, causing them to wear out much too soon.

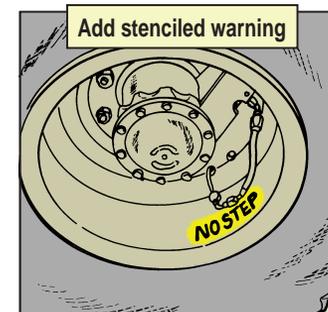
In each case, it costs you money to operate with underinflated tires. Money is not something the Army has plenty of.

So, it makes sense to put an air gauge to the tires before every operation. NSN 4910-00-204-3170 gets an inexpensive gauge that each driver should keep on hand.



Central Tire Inflation System ...

A No-step Zone Needed



The air inflation extension valve on the rear wheels of all CTIS-equipped trucks has no guard to protect it from its biggest enemy—your feet.

If you use the wheel as a step to climb onto or down from the back of your truck, you can break the valve. Bye-bye inflation.

As a reminder, get a mechanic to stencil "NO STEP" on the area in front of the extension valve. The stencils are part of the No. 1 and No. 2 Common shop sets.



YOUR MLRS ISN'T AN OLD-TIMER, CREWMEN. BUT IT'S NOT EXACTLY A SPRING CHICKEN EITHER!

Keep your vehicle from showing its years with this invigorating PM:

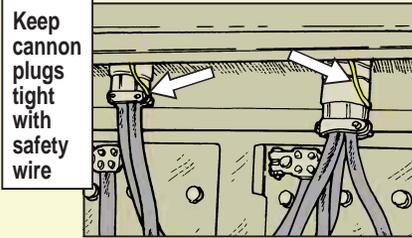
• Rainwater collects in the MLRS's hull, shorting out cables and connectors. Prevent water damage by covering the cab and engine portion of your vehicle with a waterproof tarp. A 12x17-ft tarp comes with NSN 2540-00-587-2532.



Tarp keeps hull dry

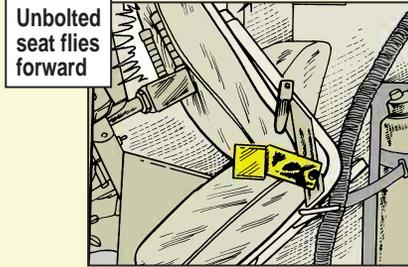
Keep MLRS Spry with PM

• Vibration loosens the MLRS's cannon plugs. That causes arcing that shorts out the plugs. Have your mechanic keep the cannon plugs in place with safety wire.



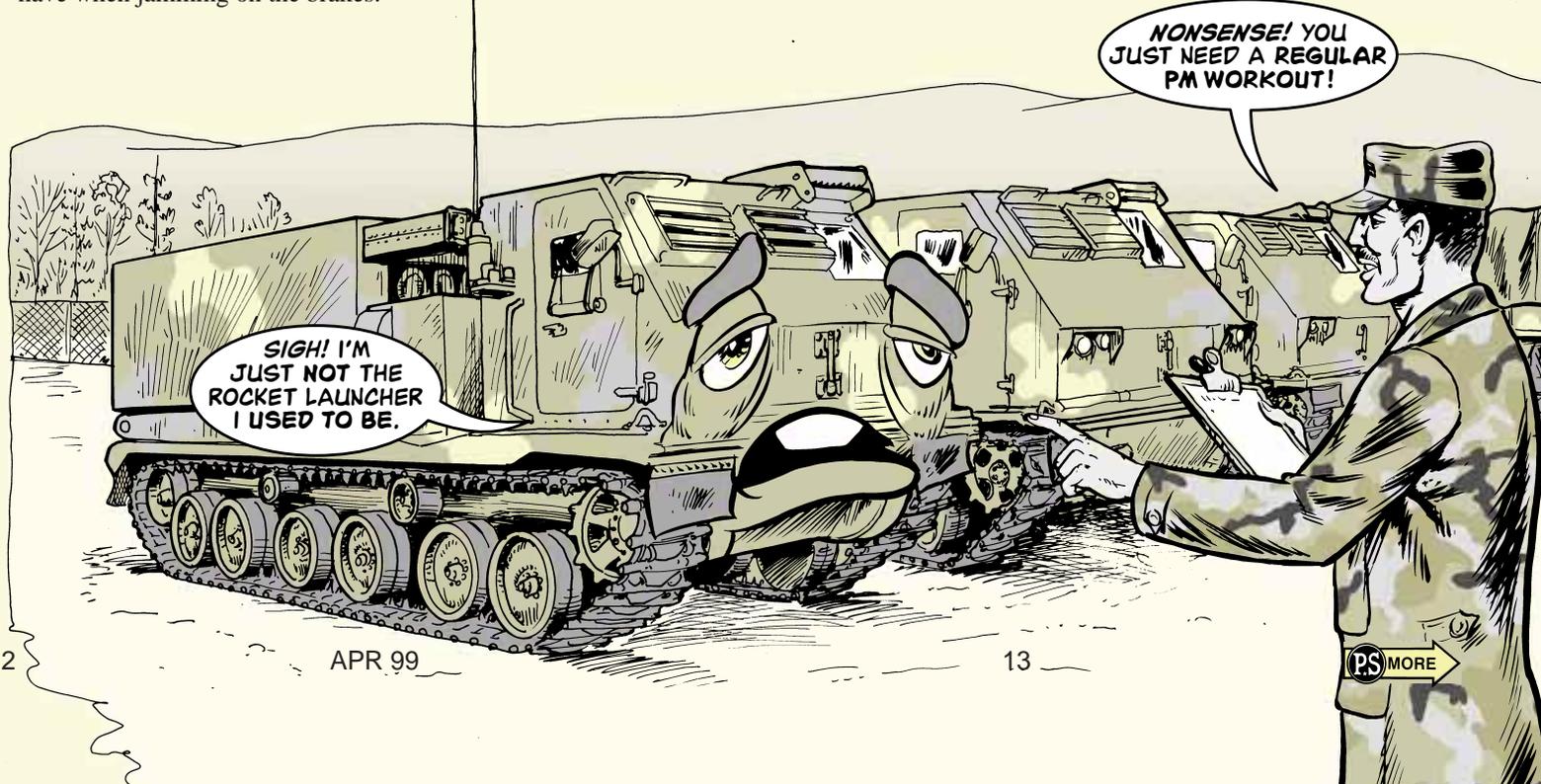
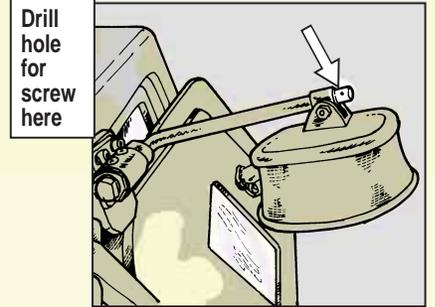
• Never remove the rear mounting bolts on the driver's seat. Easier access to the storage space behind the seat is not worth the problems you'll have when jamming on the brakes.

That's because the seatbelt is attached to the seat, not the floor. So using the brakes makes the seat—and you—smash against the steering yoke.



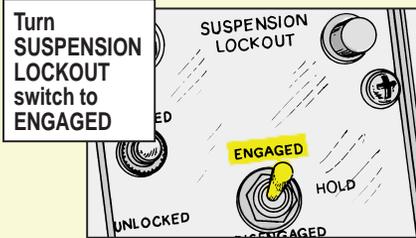
• Vibration loosens the clamps that hold the rear view mirrors in place. The mirrors slide right off the mount rods and crash to the ground.

You can keep the mirrors in place with one, well-placed screw. Simply drill a 5/16-in hole through the mounting rod about one inch from the mirror end. Insert the screw, NSN 5305-00-988-1728, and secure it with locking nut, NSN 5310-00-088-1251.

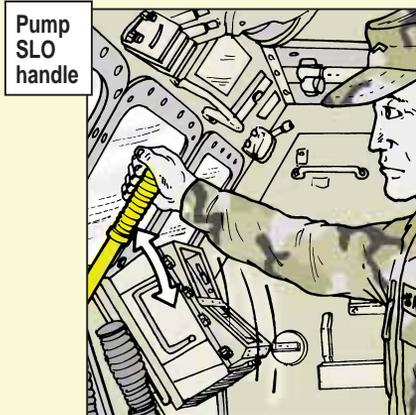


• Exercise the suspension lockout (SLO) system weekly to prevent dried out seals and hydraulic leaks. Here's how:

1. Turn on vehicle power.
2. Flip the SUSPENSION LOCKOUT switch to ENGAGED. The UNLOCKED light will come on.



3. Pump the SLO handle back and forth until the UNLOCKED light goes out and the LOCKED light comes on. The numbers 1, 5 and 6 roadarms are now locked.



4. Flip the SUSPENSION LOCKOUT switch to DISENGAGED to unlock the roadarms.

• Closing the ballistic window is a two-man job. When unlocking the torsion bar that holds the window open, the bar unwinds with enough force to

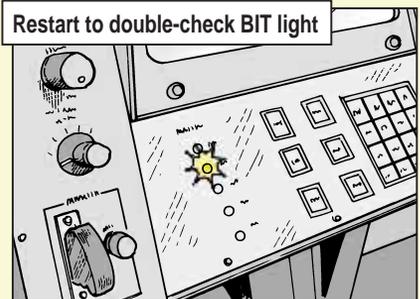
slam shut the heavy window—bad news for anyone standing nearby.

One crewman should hold the window down while the driver works the release handle. Then the window can be eased up.

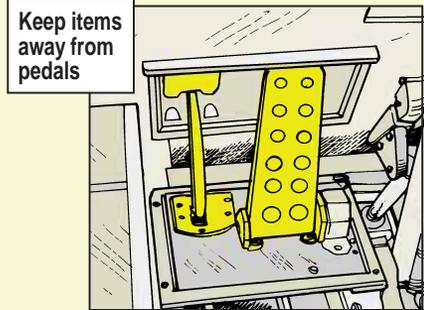


• The cab is pressurized during firing, so good door seals are a must. If the seals are dry, brittle or damaged, rocket exhaust can get inside the cab. Report bad seals to your mechanic for replacement.

• If you get a built-in-test (BIT) light failure warning on the weapons panel, don't give up. It could be a minor glitch, so shut down the system, then power back up. If the BIT light comes on again, let your mechanic know.

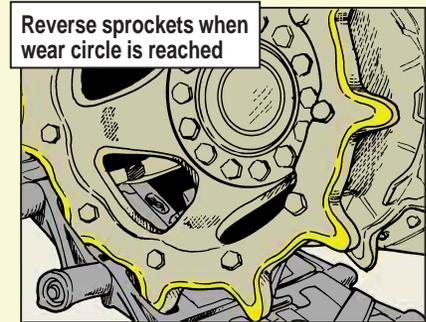


• Keep tools, TMs and other items away from the accelerator and brake pedals when lowering the cab. Anything that gets in the way will be crushed and can damage the control linkage.



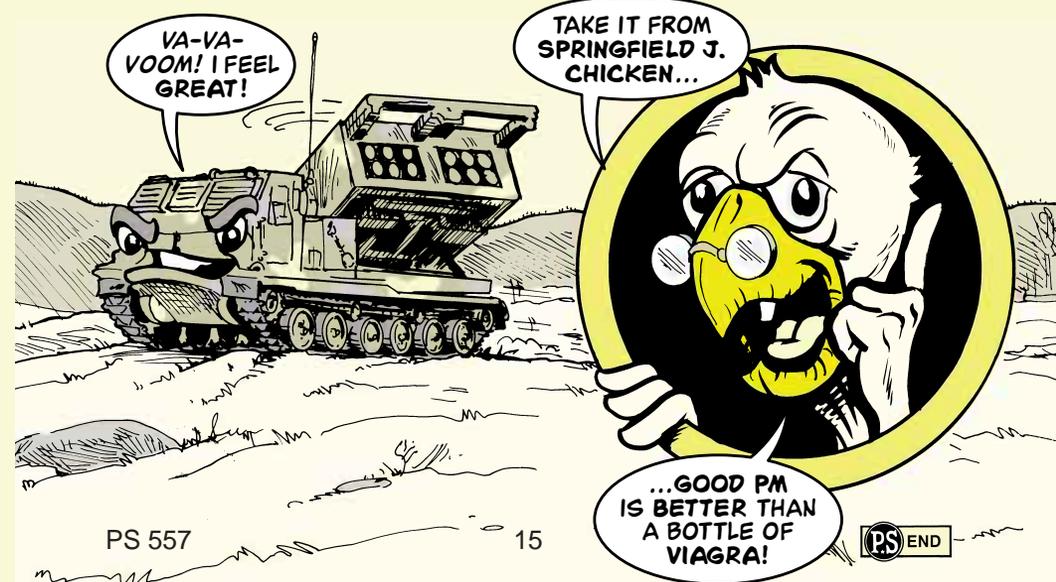
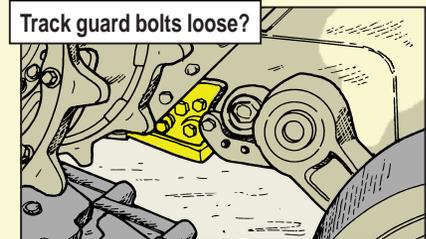
• Cab lock-down bolts can bind, so keep the threads clean and oiled. Make sure you don't cross thread them.

• Reverse the final drive sprockets when they wear down to the wear circle. If the sprocket wears too far past the circle, it'll start hooking the track shoes, causing damage and failure. When both sides of the sprocket

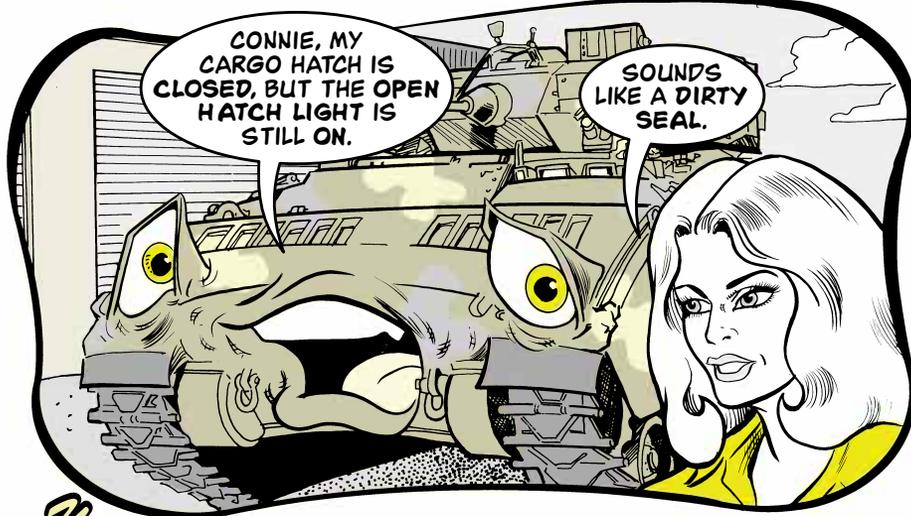


are worn to the circle, replace the sprocket.

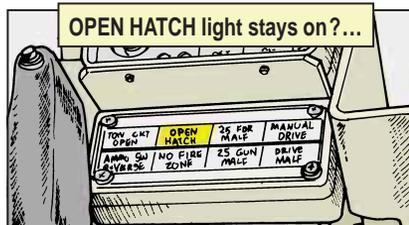
• Watch for loose mounting bolts on the track guard deflector. Loose bolts let the deflector get caught in the track and break off. So get your mechanic to tighten loose deflector bolts.



Batten Down the Hatch



You've closed the cargo hatch on your Bradley. Why, then, is the OPEN HATCH warning light on the driver's panel still on?



Before you call your mechanic, take a close look at the cargo hatch. Look for dirt and sand that may have built up on the cargo hatch seal.

Enough dirt and sand can keep the hatch from closing properly. It'll shut if you slam it hard enough, but the hatch sensor still thinks it's open.

Clean out the debris and close the hatch again. If the light still won't go off, call your mechanic.



Bradley Tarp

Crewmen, using the green tarp listed in Appendix B of the Bradley's -10-1 TMs is like painting a bull's-eye on your tan-colored vehicle. Keep your camouflage intact by ordering a tan-colored tarp with NSN 2540-01-330-8062.

Don't Forget the Flag

Now that you've finished boresighting the cannon on your M1-series tank with the M26A1/M27A1 muzzle boresight device (MBD), it's time to hit some targets.

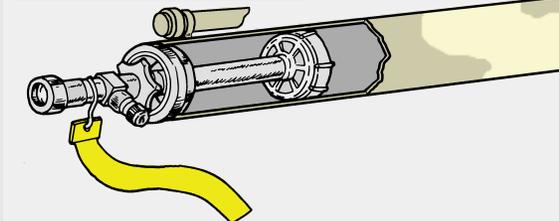
Oops! Don't forget to remove the MBD!

Some really bad things can happen if you fire the gun with the MBD still in the tube. You can damage the MBD, the gun and other equipment. If the blast is strong enough to damage the breech, it can even injure or kill you or your fellow tankers!

So, don't rely on your memory. Use the red warning flag that comes with the MBD. Tie it to the optical unit. A red flag swinging in the breeze will catch your attention. It'll also alert

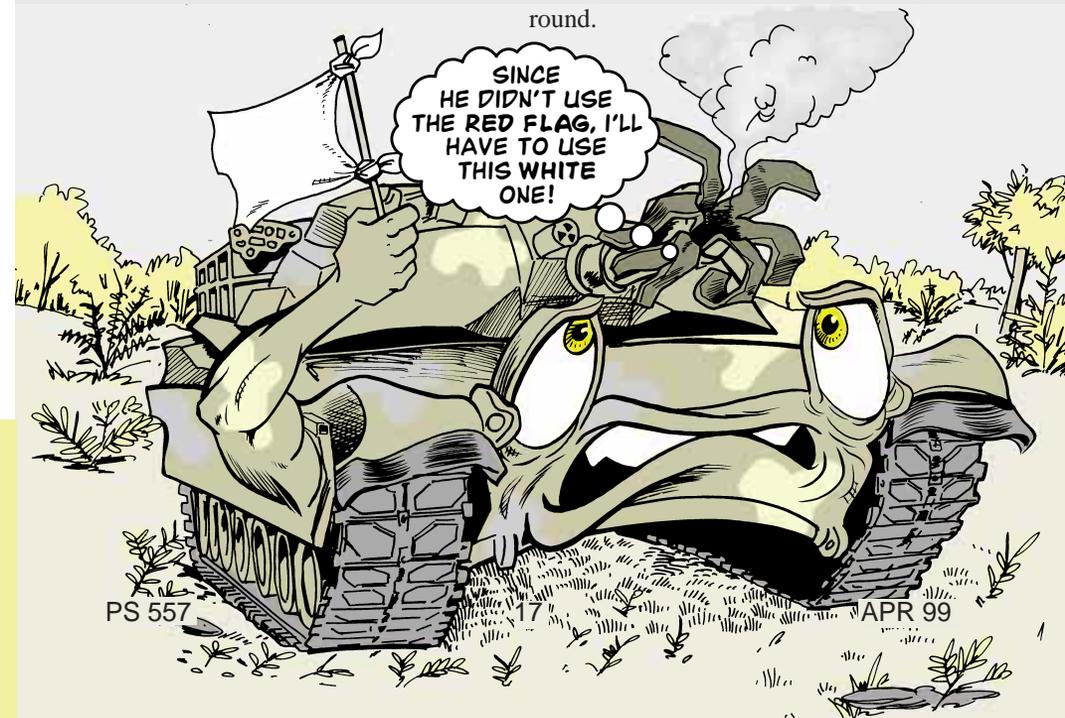
range personnel that the gun isn't ready to load, much less fire.

Attach red flag to optical unit



Flag missing? The one that comes with the MBD isn't available in the supply system, but you can order a suitable replacement flag with NSN 8345-00-181-3951. It measures 24x3 inches, but isn't marked "REMOVE AFTER BORESIGHTING" like the original.

As a second check, always take a peek through the breech before loading a round.



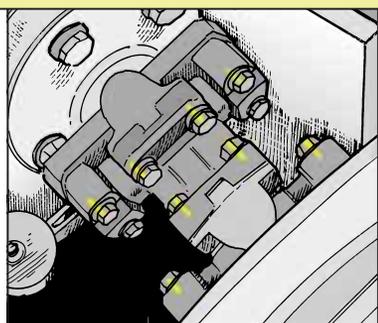
A Work of Art

Most of the damage caused by loose or missing propeller shaft and U-joint bolts on M113-series carriers can be prevented by crew checks before each mission.

Spotting a missing bolt is easy enough, but how does the crew check for tightness?

That's where you mechanics come in. When you pull semi-annual PMCS, torque all the bolts. Then make alignment marks on the bolt heads and prop shaft or U-joint yoke. Mark them with paint or with a scribe or awl.

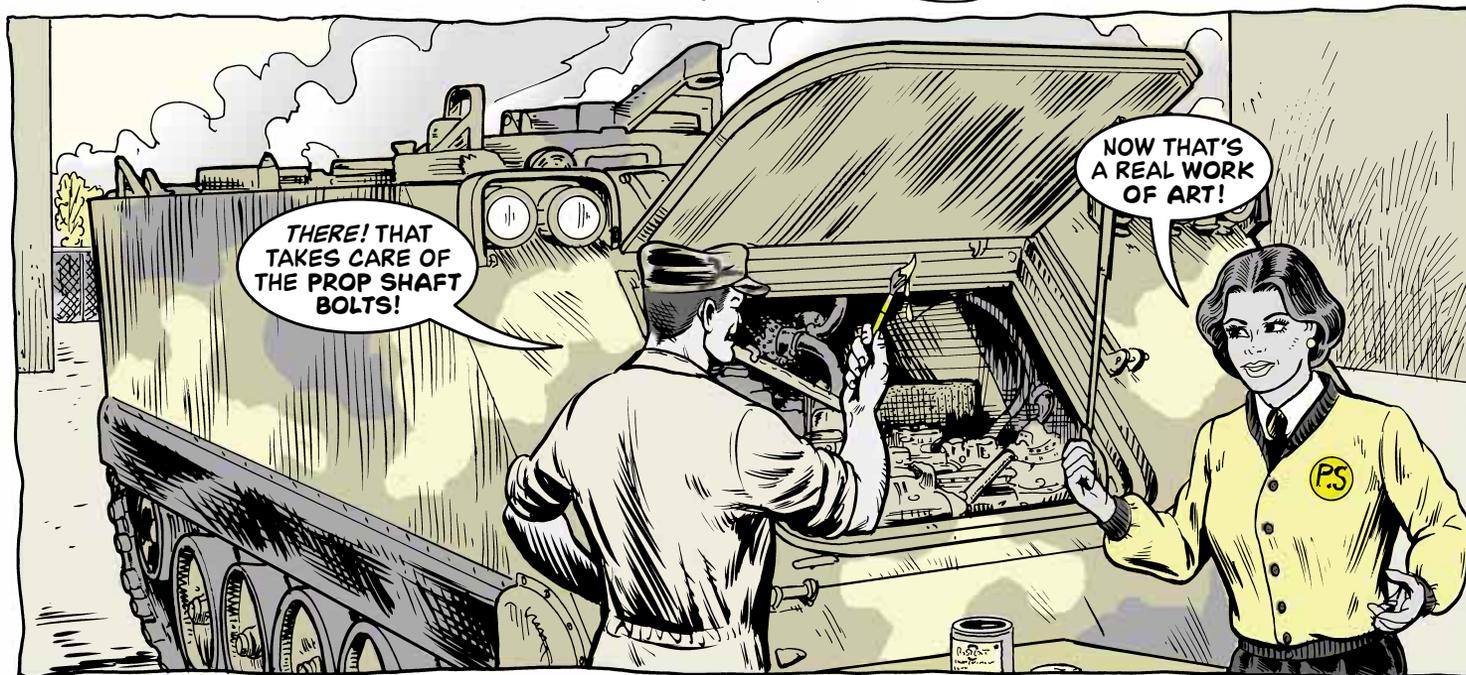
Mark line across bolt and shaft hardware



Once the marks are made, crewmen can make sure the marks line up during PMCS. Spotting a loose bolt is easy this way.

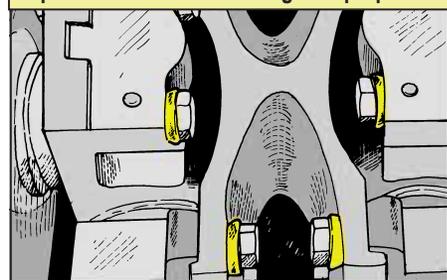
Of course, the best solution is to keep the bolts from coming loose in the first place. Try these two tips:

- Before you torque the bolts, take a close look at how the tapered washers under the bolt heads are installed.



of the washer goes against the prop shaft or U-joint. Otherwise, the bolt works loose.

Tapered end of washer fits against prop shaft



- After torquing the bolts, drive the vehicle forward about 100 feet and then back. Recheck the torque and tighten if necessary. The initial stress of operation sometimes loosens the bolts slightly.

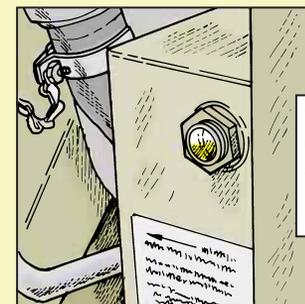
Raised Ramp = Low Level

Crewmen, don't try to get a reading from the ramp hydraulic reservoir on M113-series vehicles until the ramp is all the way down, as your LO says.

A partially lowered ramp will **always** cause a low reading. If you add more hydraulic fluid—bringing the level to halfway in the sight glass—you end up with too much.

That overpressurizes the system. Then, hydraulic lines blow and you're stuck with a big, messy problem—not to mention a ramp that won't move.

Lower the ramp **all the way**—then check the sight glass. That'll give you an accurate reading.



With ramp down, fluid should be halfway in sight glass

A LITTLE LUBE'LL DO IT

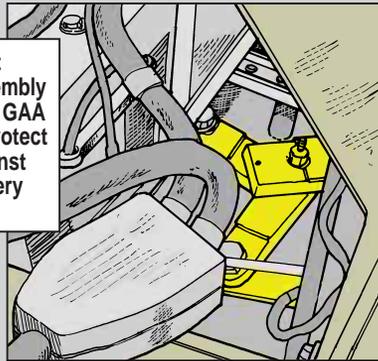
Crewmen, a little battery acid in the wrong place will damage more than batteries. The steering linkage bellcrank assembly on your M88A1 recovery vehicle is a good example.

The assembly is to the side and below the battery box, so any leakage from the batteries usually ends up on it, too. The resulting corrosion makes the rods brittle and, eventually, they break.

So, before you lube the steering linkage bellcrank assembly each month with GAA, wipe off any corrosion carefully with a rag. If the corrosion is heavy, use a solution of water and baking soda. Wear gloves to protect your hands.

Next, put a light coat of GAA on the outside of the assembly, then use your grease gun to lube normally. The GAA protects the assembly from battery corrosion until it's time to lube again.

Coat assembly with GAA to protect against battery acid



I'M GONE! CORROSION CAN'T CATCH A BREAK AROUND HERE!

IT'S AMAZING WHAT A LITTLE LUBE CAN ACCOMPLISH!



Raise the Stakes

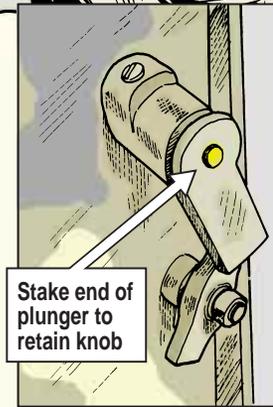


Crewmen, a loose door knob on your M992-series ammo carrier will often turn into a missing one. Vibration is the culprit.

During operation, the lower rear door knob, NSN 5355-01-183-8387, slowly vibrates loose from the quick release plunger holding it in place. Every time a knob gets lost, you're out another \$14.

So, keep that knob on the job. After you screw the knob tightly in place, stake the end of the plunger by separating or bending the threads slightly with a cold chisel and hammer. Then, even though the knob might loosen, it can't fall off.

Stake end of plunger to retain knob

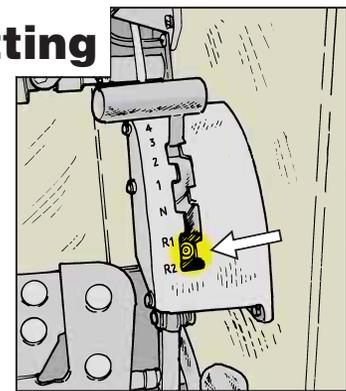


Snub of a Grease Fitting

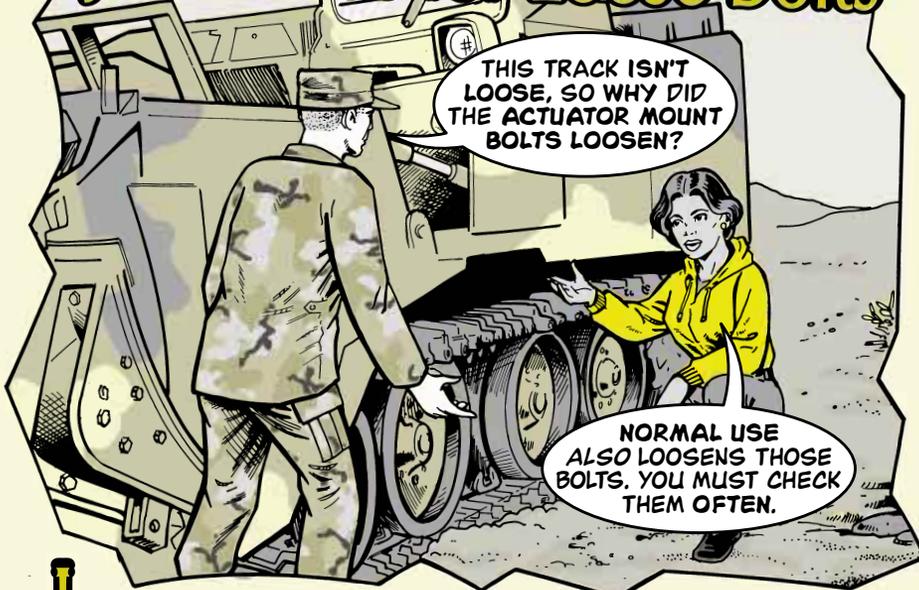
Operators, the gear shift selector grease fitting on M109A2-A6 SP howitzers and M992-series ammo carriers was left out of the lube order in your manuals.

Without lube, the shifter gets tight and hard to shift.

So, keep the selector lubed. During scheduled services, give the fitting four to five pumps of grease. Make a note until the service is added to TM 9-2350-293-10, -311-10 and -314-10.



Just Cause for Loose Bolts



THIS TRACK ISN'T LOOSE, SO WHY DID THE ACTUATOR MOUNT BOLTS LOOSEN?

NORMAL USE ALSO LOOSENS THOSE BOLTS. YOU MUST CHECK THEM OFTEN.

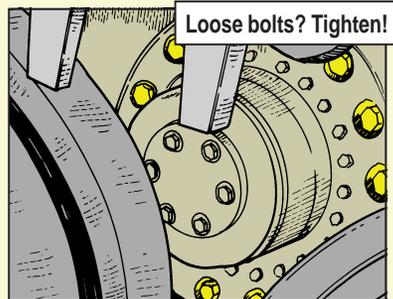
It's not just track slap that loosens your M9 ACEs roadarm actuators; normal use will loosen them, too.

Loose track rubs against the actuator mounting bolts, backing them out and shearing them off. If enough bolts shear off, the loosened actuator can damage the hull.

Normal use also loosens the bolts over time, leading to the same damage. So, eyeball the bolts often for looseness. If they're loose, tighten them and continue to operate until your mechanic can replace them.

Roadwheel #1 (at the front of the ACE) has the new actuator mounting rings installed, so you'll need to use NSN 5305-00-724-7224 as the replacement bolt. Roadwheels #2, #3 and #4 use self-locking bolt, NSN 5306-01016-8296.

Look for any marked or scraped areas where bolts may be damaged. If the bolts are damaged or missing, get them replaced with new bolts before you continue to operate. Never re-use old actuator bolts; they will not hold.



Handy Hand Pump

TM 9-1375-215-13&P (Oct 97), the new TM for the mine clearance line charge (MICLIC), now calls for semi-annual replacement of the hand pump's hydraulic fluid.

That's no easy task, since the pump must be removed to drain the fluid.

Help is on the way, though. A new hand pump that has a drain plug is now available with NSN 4320-01-226-1226. Just pull the plug and the old oil is gone in minutes.

The new hand pump also has a dip stick for checking the oil level, a rubber boot to protect the rocker arm, and a cap with a lip that keeps the boot in place.

Note the NSN change for the pump. It's Item 6 in Fig 7 of the TM.

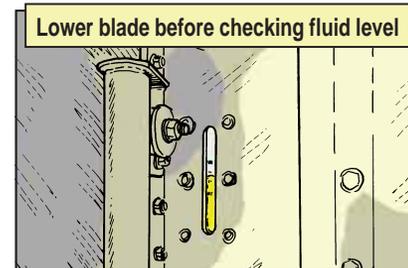


Lower Blade for Level Reading

OPERATORS, BEFORE YOU EYEBALL THE FLUID LEVEL IN MY HYDRAULIC OIL RESERVOIR, SET MY BLADE DOWN.

Setting the blade down on a 130G grader gives you an accurate reading and saves seals and hydraulic lines.

Leaving the blade up can act like a slight vacuum in the cylinders that raise and lower the blade and circle drive.



That "vacuum" holds oil in the cylinders, causing low readings in the reservoir. Oil added to fill the reservoir puts too much pressure on the hydraulic system—blowing seals and lines.

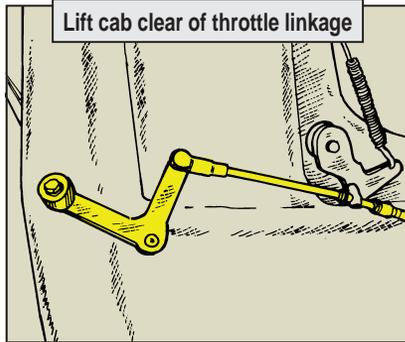
Play it safe. Make sure the blade is down before you eyeball the oil level in the grader's hydraulic reservoir.

Cab Tilt Reminder

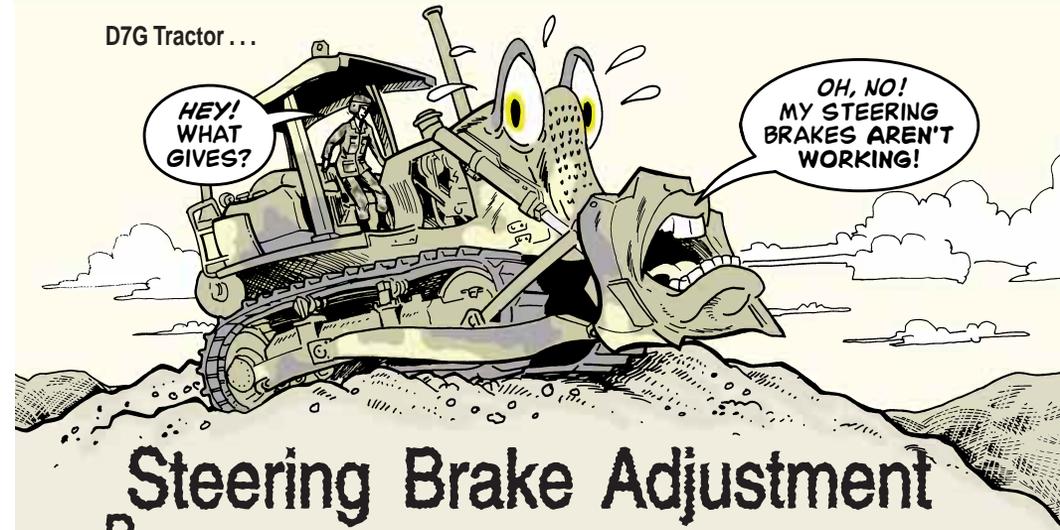
Mechanics, it's easy to damage the engine's throttle linkage and mounting bracket when you open or close the SEE's cab.

Both the linkage and bracket are connected to the driver's side of the cab's engine wall. There's not much room between them and the hood. A damaged throttle linkage means you're stuck with an engine that won't accelerate or decelerate smoothly, if at all.

To protect the linkage and bracket, have a buddy hold the other side of the cab when it's tilted forward or back. That extra help keeps the cab clear of the linkage.



Pages 4-418 through 4-432 of TM 5-2420-224-20 have the complete lowdown on how to raise and lower the cab.



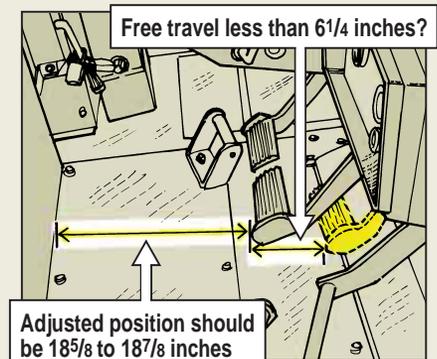
Steering Brake Adjustment

Putting the pedal to the metal is great at the race track. When you're working your D7G, though, it puts you on the wrong track. When the tractor's steering brake pedals reach the floor, you can't turn the tractor. It's time for an adjustment.

Have your mechanic adjust the brakes when the pedal free travel is more than 6 1/4 inches with the parking brake disengaged. Take the measurement at the center of the pedals. Check 'em every 250 hours.

Mechanics, here's how to make the adjustment:

1. Remove the guard and the brake screw cover.
2. Use a torque wrench and turn the adjusting screw clockwise until you get a reading of 14-16 lb-ft.
3. Back off the screw 1 1/2 turns. This gives the right clearance between the brake linings and the drum.



4. Then, adjust the pedal linkage so there's 18 5/8 to 18 7/8 inches between the brake pedal face and the front of the seat support.
5. Replace the cover and guard. Replace the cover gasket if it's damaged.

Repeat the procedure for the other pedal.

Grease Fittings in the Dark

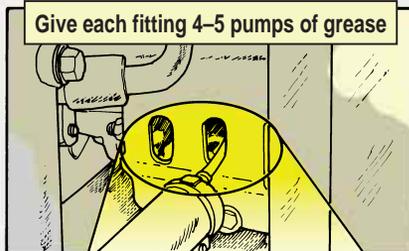


Operators, three grease fittings on the 130G grader's hydraulic pump's drive get overlooked during scheduled services.

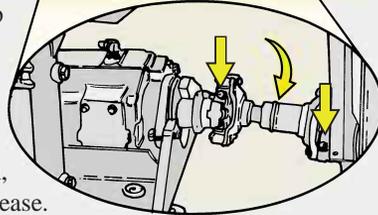
Without lube, the U-joints on the pump's drive shaft shake loose from vibration and excessive wear. Also, the shaft's bearings rust and burn out.

Eventually, the drive shaft and pump stop working. Then, no hydraulic fluid gets pumped to the grader's blade, circle drive, scarifier or front wheel tilt. Then, the grader's NMC.

So, keep the pump's drive shaft U-joints lubed. During scheduled services every month, give each of the fittings four to five pumps of grease.



Give each fitting 4-5 pumps of grease



RS-28 Roller Seat Cushion

NSN 2540-01-225-1107 gets the back seat cushion for the RS-28 vibratory roller. The NSN shown as Item 2 in Fig 85 of TM 5-3895-346-24P gets only the bottom cushion.

Have Grease Gun- Will Travel

FINALLY I
CAN CATCH UP ON
PAPERWORK AND
REVIEW SOME TMs
AND LOS-

-OR,
MAYBE
NOT!

RR-RING

HAVE GREASE GUN
-- WILL TRAVEL

LOG #12-01-2-
TM 6101-2-1152
LO1-2340 74724
TM

HAVE GREASE GUN—WILL TRAVEL, SPECIALIST PALADIN SPEAKING. WHAT'S THE JOB?

THERE'S GOING TO BE BIG TROUBLE ON POST, PALADIN, UNLESS YOU DO YOUR THING. GET HERE QUICKLY—BEFORE IT'S TOO LATE!

THE PAPERWORK WILL JUST HAVE TO WAIT—

A FEW MINUTES LATER AT THE AIRFIELD...

THIS APACHE TAIL ROTOR GEARBOX IS NEARLY DRY. IT'S JUST A MATTER OF TIME BEFORE IT FAILS AND THIS CHOPPER COMES DOWN.

See tool plans on page 46 of PS 553.

I'VE GOT SOME LUBIN' TO DO!

LATER, AT A MOTORPOOL ...

I DON'T KNOW WHAT HAPPENED—THE PROP SHAFT JUST CAME LOOSE AND RIPPED OUT THE WIRING HARNESS!

SOME G-A-A MIGHT HAVE PREVENTED THAT!

SPECIALIST PALADIN! I HEARD YOU AND YOUR GREASE GUNS WERE AROUND!

BUT I THINK WE CAN SAVE THE REST OF YOUR FLEET!

I BET THE PROP SHAFT U-JOINTS WEREN'T LUBED REGULARLY!

YOU HAVE TO LUBE PROP SHAFT U-JOINTS SEMIANNUALLY, OR EVERY 1,500 MILES.

NEXT STOP; A PATRIOT BATTERY...

THOSE OUTRIGGER FITTINGS WERE CRYING OUT FOR G-A-A, BUT THEY DIDN'T GET ANY.

THEN THE PINS BIND AND OUTRIGGERS ARE DAMAGED.

"KEEP THE OUTRIGGER PINS LUBED."

WE WOULDN'T BE ABLE TO FIRE ACCURATELY IF WE COULDN'T LEVEL THE TRAILER.

THAT'S RIGHT. GOTTA GO— I HAVE A COUPLE OF MORE STOPS.

LATER, AT A CONSTRUCTION SITE...

HEY PALADIN, WHAT BRINGS YOU HERE?

I CAME TO REMIND YOU TO GREASE THE BEARINGS WITH G-A-A AFTER MUD AND WATER OPERATIONS TO HEAD OFF PROBLEMS CAUSED BY WATER AND DIRT CONTAMINATION.

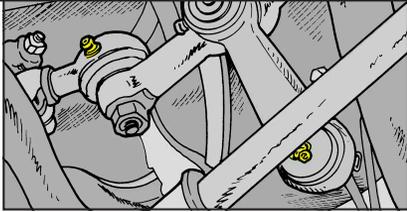
WORN BEARINGS LET THE TRACK GET OUT OF ALIGNMENT AND WEAR OUT QUICKLY. A FEW SQUIRTS SHOULD DO.

TIRELESSLY, PALADIN MOVES ON...

HOW'S IT LOOK, PALADIN?

JUST LIKE I THOUGHT. SOME STEERING COMPONENTS WERE OVERLOOKED.

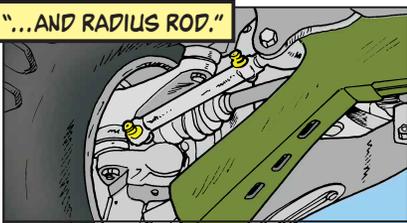
"LUBE IDLER ARM AND TIE ROD ENDS..."



"...PITMAN ARMS AND UPPER BALL JOINTS..."



"...AND RADIUS ROD..."

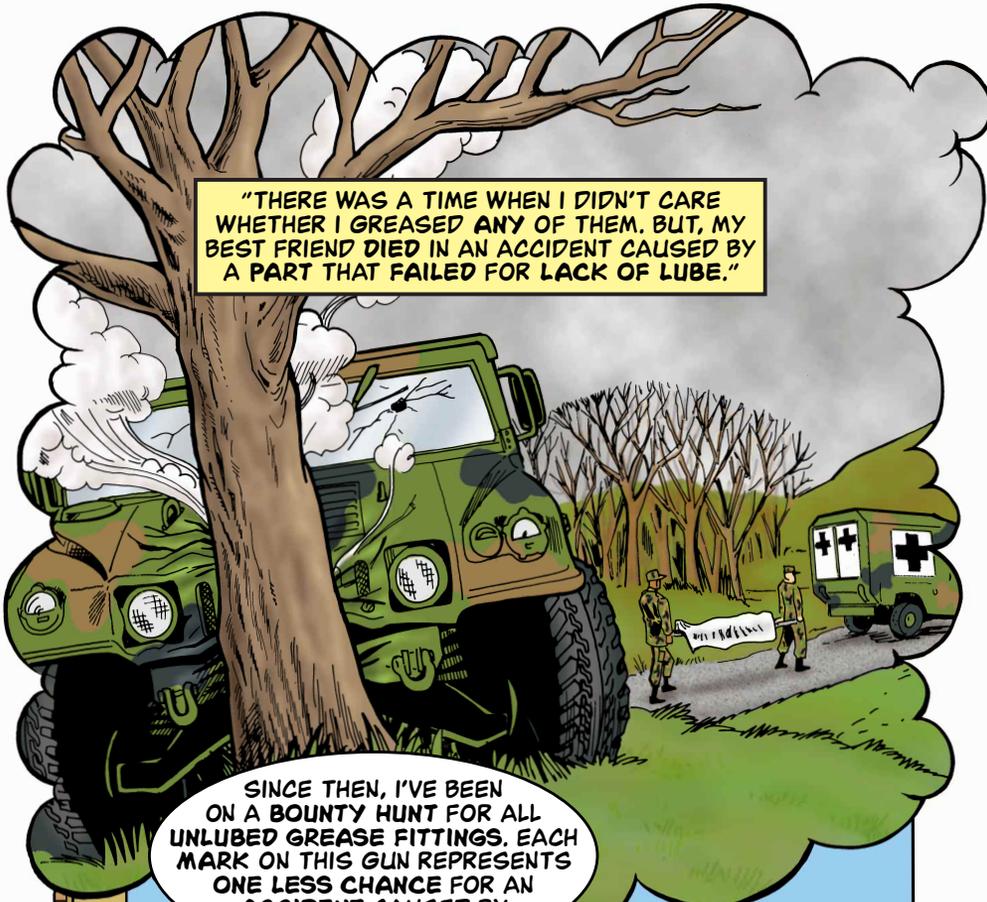


STEERING COMPONENTS SUCH AS THE IDLER ARMS, TIE ROD ENDS, PITMAN ARMS, BALL JOINTS AND RADIUS RODS MUST HAVE G-A-A OR ELSE!



WHY DO YOU MARK YOUR GREASE GUN AFTER A JOB?

THERE WAS A TIME WHEN I DIDN'T KNOW HOW IMPORTANT LUBING ALL FITTINGS WAS TO EQUIPMENT OPERATION. THERE WAS A TIME WHEN I ONLY WORRIED ABOUT FITTINGS THAT WERE EASY FOR INSPECTORS TO SEE.



"THERE WAS A TIME WHEN I DIDN'T CARE WHETHER I GREASED ANY OF THEM. BUT, MY BEST FRIEND DIED IN AN ACCIDENT CAUSED BY A PART THAT FAILED FOR LACK OF LUBE."

SINCE THEN, I'VE BEEN ON A BOUNTY HUNT FOR ALL UNLUBED GREASE FITTINGS. EACH MARK ON THIS GUN REPRESENTS ONE LESS CHANCE FOR AN ACCIDENT CAUSED BY LACK OF LUBE.



I'D JUST AS SOON NOT WAIT FOR AN ACCIDENT TO GET INVOLVED IN THAT KIND OF HUNT.



WHAT DO I NEED TO DO TO BE A GREASE FITTING BOUNTY HUNTER?



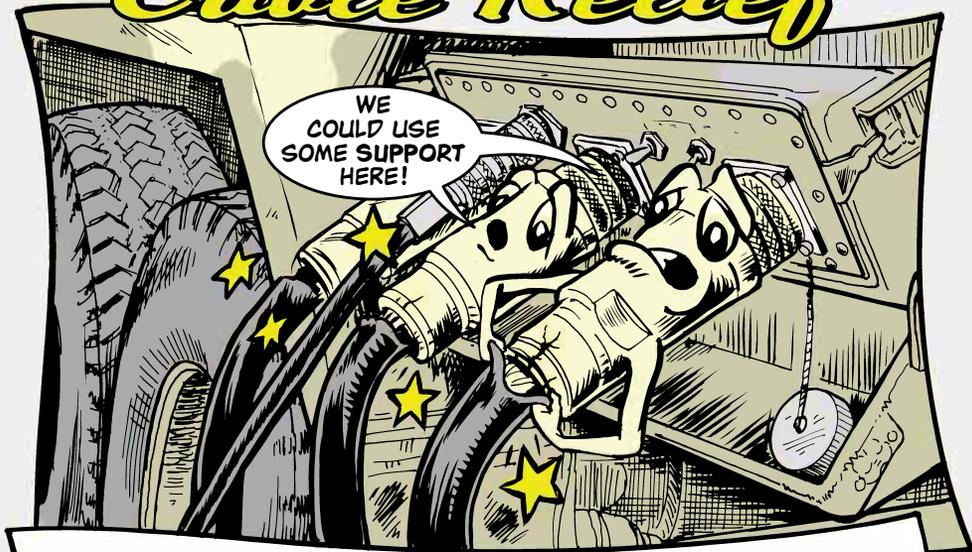
JUST DO YOUR LUBE SERVICES ON TIME AND COMPLETELY. FOLLOW THE LUBE ORDER. DON'T OVERLOOK A SINGLE FITTING. I'M TRYING TO MAKE UP FOR SOMETHING I LOST, BUT YOUR EFFORTS NOW AND TOMORROW CAN PREVENT ANOTHER LOSS...

Have Grease Gun- Will Travel
paladin@i.army.mil

...THAT'S WHAT PREVENTIVE MAINTENANCE IS ALL ABOUT!

“HAVE GREASE GUN—WILL TRAVEL”
READS THE CARD OF A MAN...
A MAN ON A MISSION
IN A GREASELESS LAND.

Cable Relief

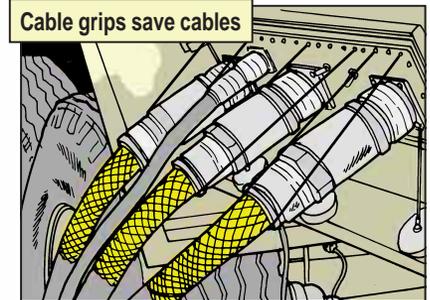


Dear Editor,

In PS 543, you said Patriot crews need to be careful with the heavy cables used on the Patriot's antenna mast guide and other components. The cables are too heavy for their connectors and often split.

What those heavy cables need are cable grips, NSN 5120-01-213-9538. These grips lace around the cable and hook to the component's trailer so that the cable has support and isn't pulling at its connector.

Cable grips save cables



SSG Patrick C. Burton
USMC

FROM THE DESK OF THE *Editor* 

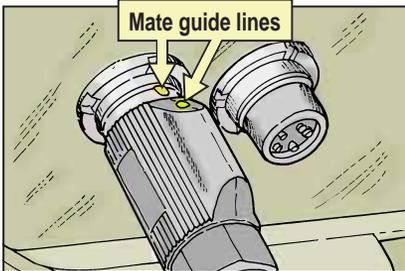
What a relief to get your suggestion. All of the Patriot's heavy cables should be laced with these grips. They save expensive repairs. They're listed as Item 11 in Fig 2 of TM 9-1430-603-24P.

Remotely Good Ideas

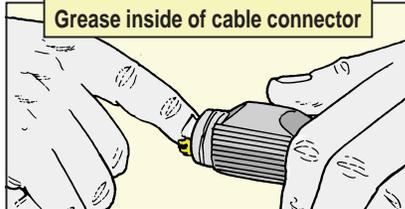
Dear Editor,

We've come up with a couple of ideas for the Avenger's remote control unit (RCU) that will help other Avengers fire remotely.

Mating the RCU commo cables is a delicate business. If you don't line up the connectors' guide lines before you twist the cable connector to lock it on, you destroy the connector pins.



But sometimes being careful isn't enough. Particularly in dry climates, the cable connector can refuse to turn, even if you've lined up the guide lines right. Forcing the connector damages the pins. The solution is to put a light coat of silicone grease, NSN 6850-00-880-7616, around the inside of the cable connector. That lets the cable connector turn easily.



In a pinch, you can use your own saliva to help the connector turn.

Wet your finger and run it around the outside of the RCU connector.

Remember, the RCU commo cables can be hooked to the wrong connectors if you're not careful. That can jam the radio network. Check the cable ID before hookup. The yellow-banded cable goes to the connector with the yellow stripe.



The RCU is heavy, bulky, and difficult to carry. The best bet is to make it a two-man carry, but that's often not possible in the

field. Give yourself a hand by wrapping the two RCU handles with friction tape or some other



non-slick tape. The tape will give you a better grip, especially in cold weather.

SP Manuel Jimenez
SP Carla Belk
Maintenance Support
3d ACR
Ft Carson, CO

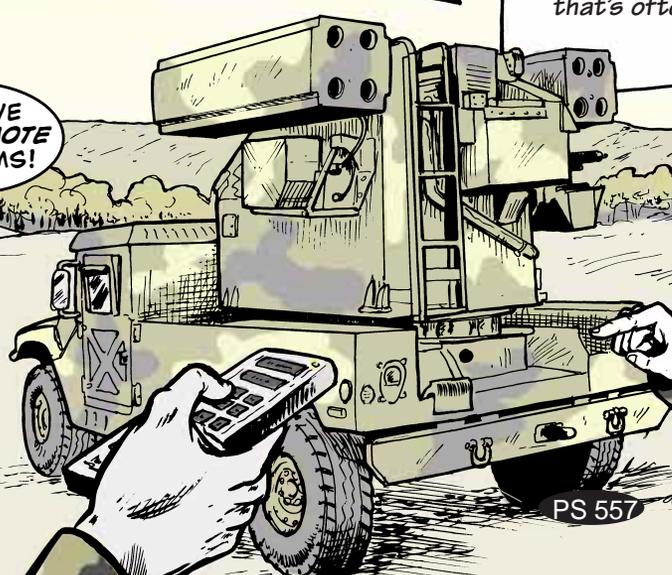
FROM THE DESK OF THE Editor

Those aren't remotely good ideas, they are great ideas! Thanks.

YOU'VE BEEN WATCHING TOO MUCH TV! READ THIS ARTICLE ABOUT THE RCU TO GET TUNED IN!



HEY! I'VE GOT REMOTE PROBLEMS!



PS 557



Tougher Buffers

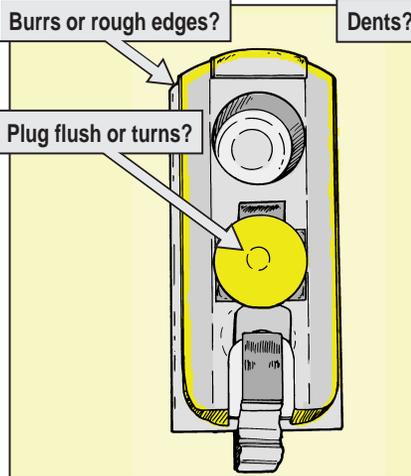
Armorers, you know how worn out shocks on your car cause all sorts of damage because they can't soften the hard bumps of the road. Well, think of what your M240 machine guns suffer when their buffers have stopped buffering the blows of the bolt slamming back.

Here's how to ensure a buffer is up to the job:

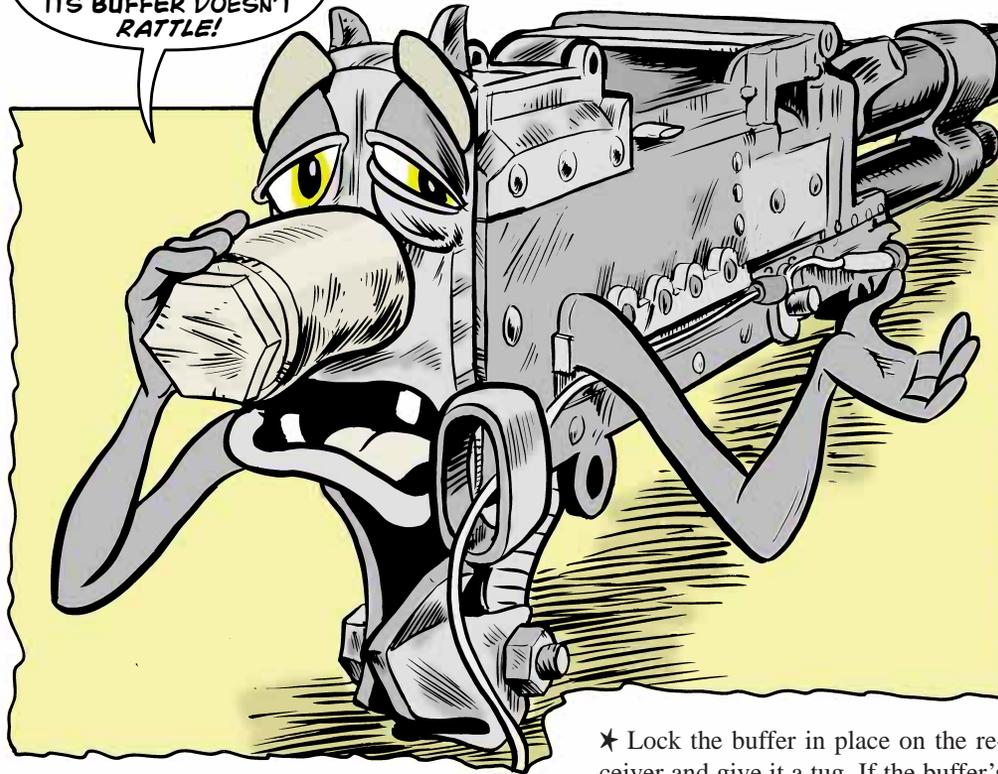
★ Shake it. If it rattles, the buffer discs are shot.



★ Check for burrs or rough edges on the areas where the buffer mates with



IF YOU WANT YOUR M240 TO BE READY TO RUMBLE, MAKE SURE ITS BUFFER DOESN'T RATTLE!

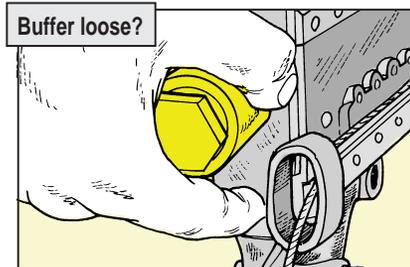


the receiver. They prevent a tight fit. Stone them smooth.

★ Make sure the buffer plug is at least flush with the protrusion below the plug. Try to turn the plug with your finger. If the plug isn't flush with the protrusion, or if it turns, report it.

★ Look for dents in the buffer caused by the op rod. If you spot any, the buffer should be replaced.

★ Lock the buffer in place on the receiver and give it a tug. If the buffer's loose, report it to support.



Rack Report

Good news, armorers! You no longer have to get racks made for your machine guns. The Army now has one rack that can handle the M2, MK 19, M240, M249, and M60 machine guns.

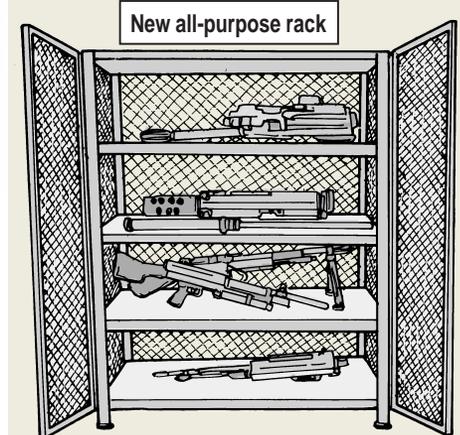
Order the new rack with NSN 1095-01-454-6320. You can also order an M13 rack made just for the M249 with NSN 1095-01-197-7902 or a rack only for the MK 19 with NSN 1095-01-216-9295.

If your unit can't afford \$900 for the new rack, you can still have your support fabricate a rack for you. Plans for constructing the rack are available from your local ACALA logistics assistance representative (LAR).

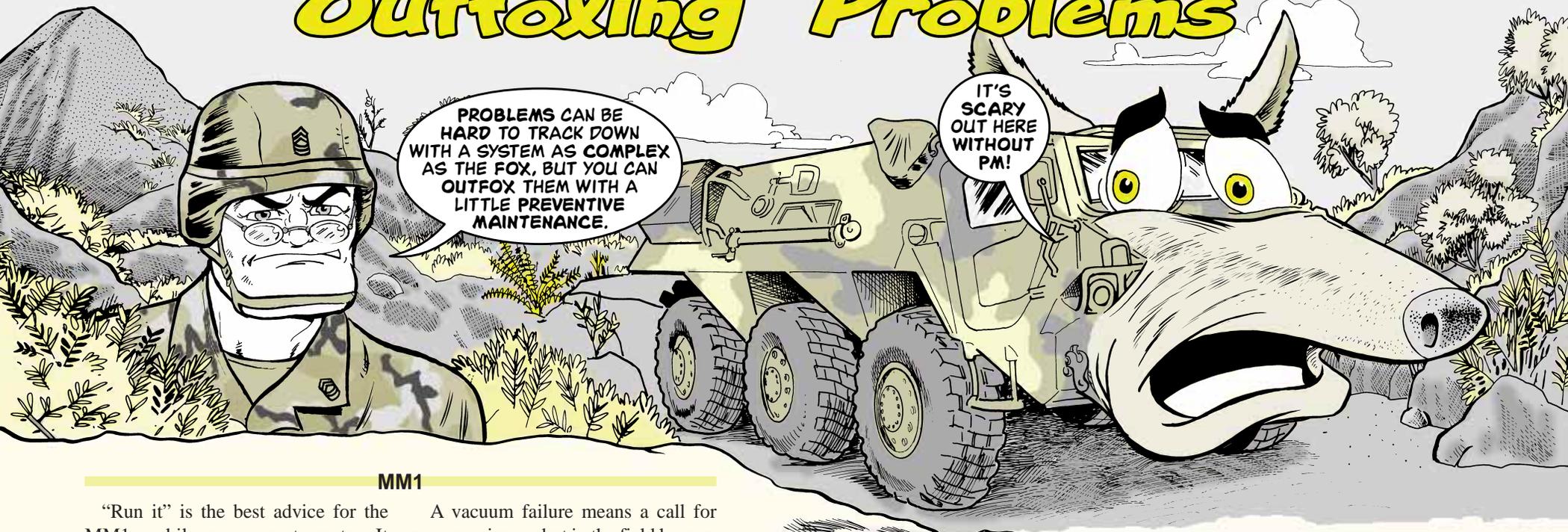
If you are on the Internet, you can also find the plans on the Soldier Support Network at:

<http://aeps.ria.army.mil/>

under Technical & Maintenance Documents.



Outfoxing Problems

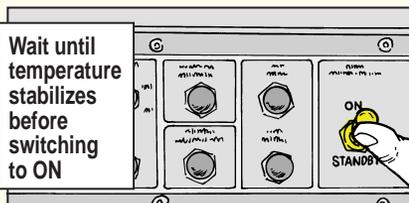


MM1

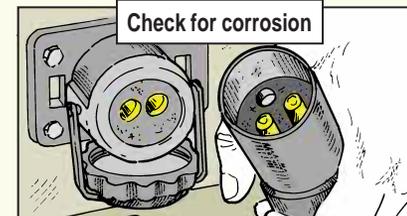
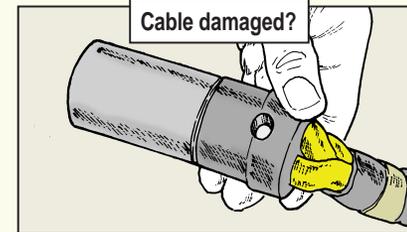
“Run it” is the best advice for the MM1 mobile mass spectrometer. It should be run at least four hours every week. Without that weekly run, the MM1 will probably produce faults during its self-test.

After starting the MM1, check that its temperatures have stabilized before switching from STANDBY to ON. It usually takes 15 to 20 minutes. If you switch to ON before that, you risk a vacuum failure.

A vacuum failure means a call for your repairman, but in the field he may not be around. Sometimes a vacuum failure can be cured by turning off the MM1 power switch and waiting 15 minutes before switching it back on. This often brings the MM1 voltage back to the correct level. Try this fix no more than five times. After that, the MM1 will have to wait for your repairman.



Before going to the field, eyeball the cable to the MM1 battery box for



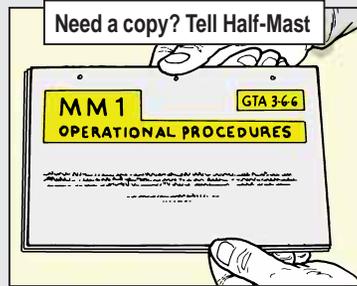
damage at the connector. The connector is often used for a step in and out of the hatch. Also look for corrosion inside the connector. Clean out any you find with a toothbrush.

Prevent damage to the connector by using the seat next to the battery box—not the connector—as a step.



Make operating the MM1 easier by getting a copy of "MM1 Operational Procedures". It lists the MM1 startup and shutdown procedures in an easy-to-follow booklet. Contact Half-Mast if you need a copy.

Never spray water into the NBC area of the Fox. That damages expensive electronic components like the MM1. If you must clean, use a sponge and bucket.



VOS

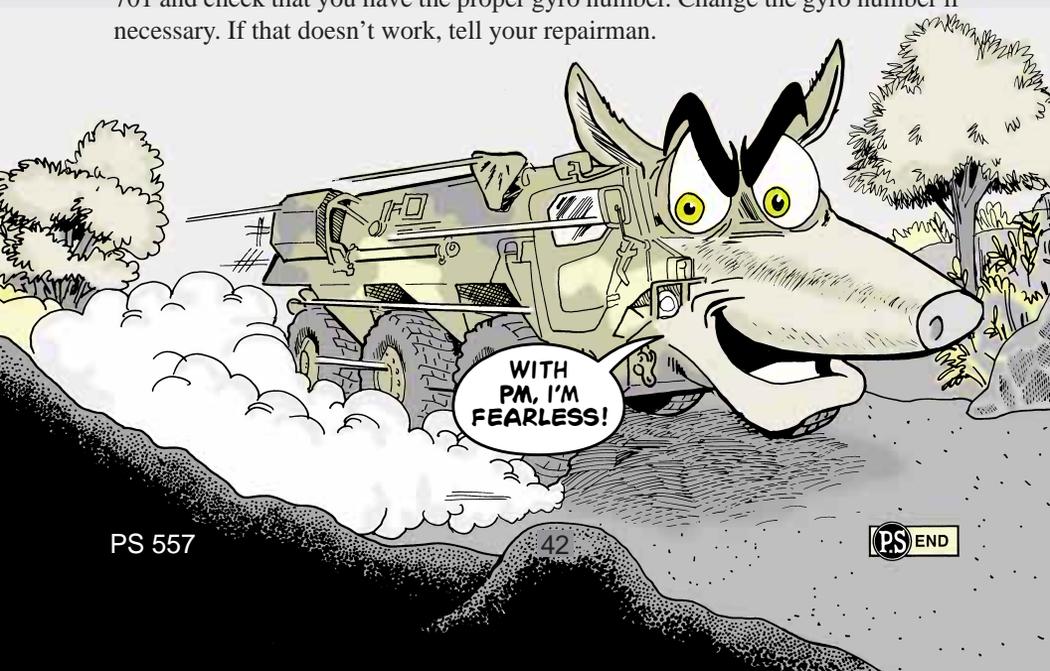
The biggest threat to the vehicle orientation system (VOS) is your feet. Watch where you're stepping when you climb in the commander's side.

If your VOS gives you faults instead of locations, try special mode 799. It reboots the VOS and gives it a fresh start. To access 799, press:

SELECT → 5 → **INPUT** →
7,9,9 → **ENTER** → 7,7,9,9

When the VOS is finished rebooting, input these values: 701, 704, 727, 729. After using special mode 799, you may need to re-initialize the VOS like it says on Page 2-16 in TM 3-6665-342-10.

If you're getting fault 64 a lot, try turning off the VOS for 10 seconds and then turning it back on. That often does the trick. If it doesn't, go into special mode 701 and check that you have the proper gyro number. Change the gyro number if necessary. If that doesn't work, tell your repairman.



AN/PDR-75 Radiac Set . . .



Staying on the Trail

The AN/PDR-75 radiac set will stay on the radiation trail if you NBC NCOs keep track of these radiac reminders:

- Have your soldiers wear the dosimeter on their right wrists if they're right-handed or left wrist if they're left-handed. That way the dosimeter receives maximum exposure and gives a truer reading.

Wear dosimeter on dominant wrist

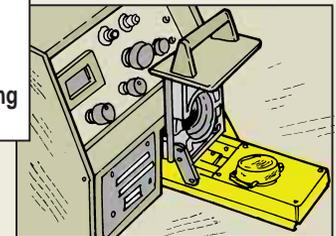


- Remember, you must wait 24 hours after a dosimeter's been worn before checking it. If you check it earlier, you get bad readings.

- Close the dosimeter drawer on the CP-696 when you're taking a reading and never look in the drawer while the CP-696 is turned on. Ultraviolet rays

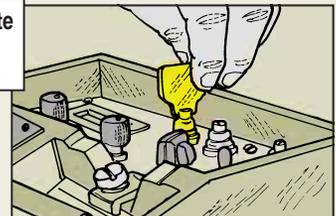
are used to read the dosimeter and they can cause cataracts.

Close drawer before operating CP-696

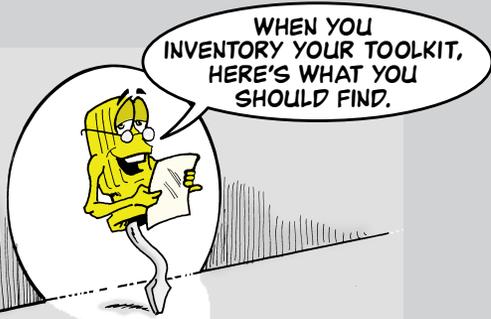


- Calibrate the CP-696 before each use. Otherwise, you get bad readings. If the key used to turn the calibration screws breaks or is lost, don't order a new one for \$14. Substitute a small flat-tip screwdriver. It works just as well.

Calibrate before reading



Electronic Equipment Tool Kit

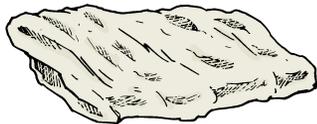


Battery, dry cell, D-cell, (pkg of 12)
NSN 6135-00-835-7210

Brush, paint, squirrel tail, 1 inch wide
NSN 8020-00-245-4509



Cheesecloth, cotton, 36 inches wide
NSN 8305-00-267-3015



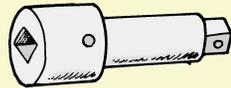
Desoldering wick NSN 3439-00-403-5321



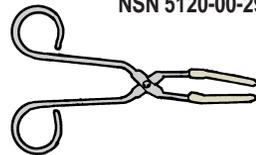
Extension, socket wrench, 3/8-in drive
NSN 5120-00-227-8107



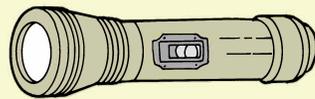
Extension, socket wrench, 3 inches
NSN 5120-00-243-1689



Extractor, electron tube, tong type
NSN 5120-00-293-0808



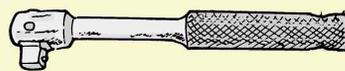
Flashlight, hand, 2-cell
NSN 6230-00-163-1856



Handle, socket wrench, ratchet, reversible
NSN 5120-00-240-5364



Handle, socket wrench, 3/8-in drive, 8 inches long, hinged
NSN 5120-00-240-5396



Heat sink, soldering aid
NSN 5999-00-076-1279

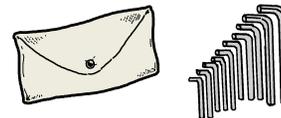


Key set, socket head screw, spline drive, L type
NSN 5120-00-087-6415



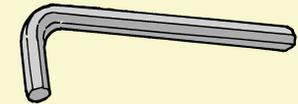
Key, wrenching size, inches	NSN 5120-00-
0.060	293-0195
0.069	224-2496
0.072	249-9670
0.096	223-6995
0.115	224-2482
0.145	277-1724
0.188	198-5410

Key set, socket head screw, hexagon, L type
NSN 5120-00-729-6392



Key, wrenching size, inches	NSN 5120-00-
0.035	198-5400
0.050	198-5401
0.062	198-5398
0.078	224-2504
0.094	242-7410
0.125	240-5292
0.156	198-5392
0.188	240-5300
0.219	242-7411
0.250	224-4659

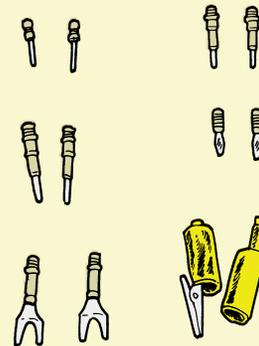
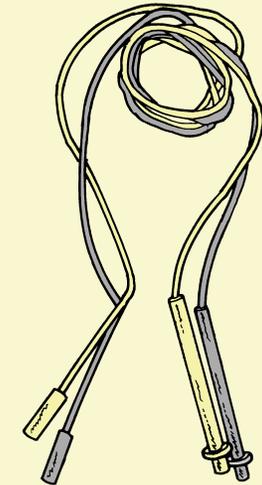
Key, socket head screw, L type, short series, 0.141 inch
NSN 5120-00-889-2163



Knife, pocket, electrician's, two blades
NSN 5110-00-240-5943



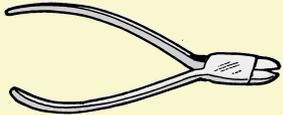
Lead set, test NSN 6625-01-121-0510



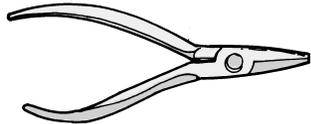
Mirror, inspection, all angles
NSN 5120-01-313-4097



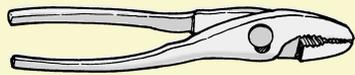
Pliers, diagonal cutting, regular nose, plain, 4 inches long
NSN 5110-00-935-0890



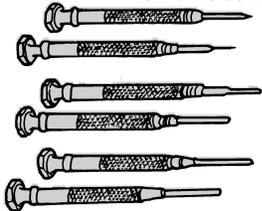
Pliers, round nose, short, without cutter, 6 inches long
NSN 5120-00-240-6172



Pliers, slip joint, regular, with cutter, 6 inches long
NSN 5120-00-223-7396

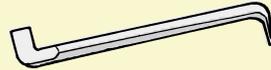


Screwdriver set, jeweler's, swivel knob
NSN 5120-00-288-8739



Screwdriver	NSN 5120-00-
0.025-in tip	180-0705
0.040-in tip	180-0706
0.055-in tip	180-0727
0.070-in tip	180-0728
0.080-in tip	180-0729
0.100-in tip	180-0730

Screwdriver, offset, double offset, single flat tip each end, 0.156-in tip
NSN 5120-00-287-2129



Screwdriver, cross-tip, Phillips (size, length)
NSN 5120-00-

No. 2, 1 1/2 inches 227-7293

No. 1, 3 inches 240-8716

No. 2, 4 inches 234-8913

No. 3, 6 inches 234-8912

Screwdriver, flat tip, 0.141-in tip
NSN 5120-00-278-1267



Screwdriver, flat tip, non-magnetized, 1/8-in tip
NSN 5120-00-236-2140



Screwdriver, flat tip plain, 1/4-in tip, 4-inch long
NSN 5120-00-222-8852



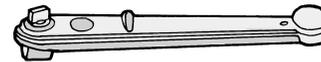
Screwdriver, flat tip plain, 1/4-in, 1 1/2 inches long
NSN 5120-00-596-8502



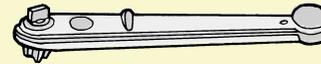
Screwdriver, double offset, flat tip each end, 5/32-in tip
NSN 5120-00-288-9710



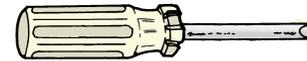
Screwdriver, offset, ratchet, flat tip, double-ended bit, 1/4 inch short end and 3/8 inch long end
NSN 5120-00-595-9574



Screwdriver, offset, ratchet, crosspoint
NSN 5120-00-892-5931



Screwdriver, flat tip, 3/16-in tip
NSN 5120-00-278-1270



Socket, socket wrench, double hex
NSN 5120-00-

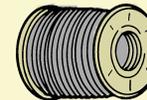
3/8-in socket, 3/8-in drive 227-6702

7/16-in socket, 3/8-in drive 227-6703

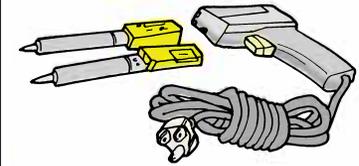
1/2-in socket, 3/8-in drive 237-0977

9/16-in socket, 3/8-in drive 227-6704

Solder, lead-tin alloy, rosin core, 1-lb, spool
NSN 3439-00-555-4629



Soldering gun, temperature-controlled
NSN 3439-00-004-0915



Consists of the following:
Housing, with trigger and power cord
NSN 3439-00-004-0913

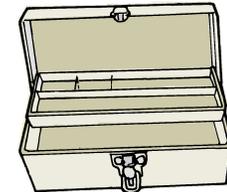
Powerhead, 0.187 inch wide chisel point head, rated 700°
NSN 3439-00-004-0917

Powerhead, 0.125-in conical point head, rated 600°
NSN 3439-00-004-0916

Tape, insulation, electrical, black, 0.75 inch wide
NSN 5970-00-419-4291



Tool chest
NSN 5140-00-315-2747



THERE'S MORE TO THIS INVENTORY STORY!



Tool, load-tightening
NSN 5120-01-172-8079



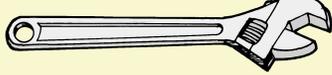
Universal joint, socket wrench attachment,
3/8-in drive
NSN 5120-00-224-9215



Wrench set, spanner
NSN 5120-00-658-9805



Wrench, open end, adjustable, size 6, 5 1/2
to 6 1/2 inches
NSN 5120-00-264-3795



Wrench, torque, 0-100 in-lbs
NSN 5120-00-720-1975



Wrench	NSN 5120-00-
3/8 inch	228-9504
7/16 inch	228-9505
1/2 inch	228-9506
9/16 inch	228-9507

Wrench set, socket, type I spin screwdriver
NSN 5120-00-542-5799

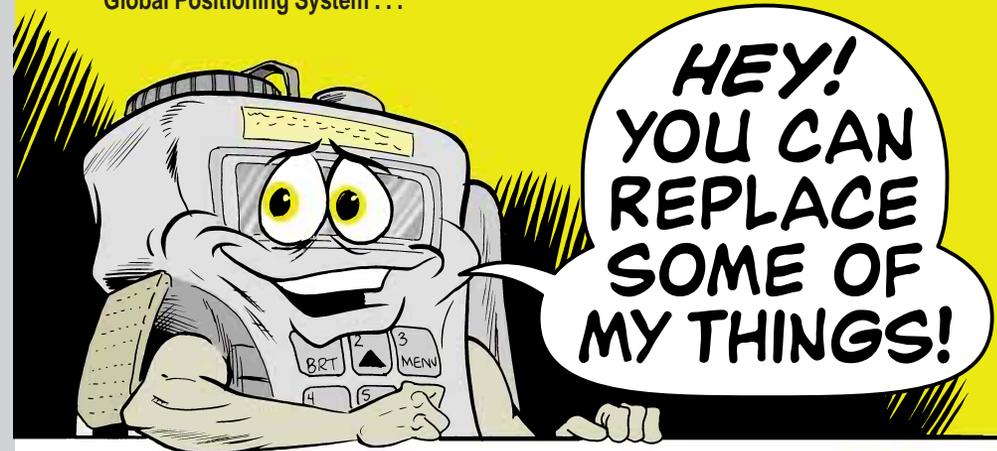


Consists of the following:
Roll, tools and accessories
NSN 5140-00-356-4503

Wrench, socket	NSN 5120-00-
3/16 inch	224-2599
7/32 inch	277-1801
1/4 inch	241-3188
5/16 inch	224-2596
11/32 inch	293-0796
3/8 inch	596-1263
7/16 inch	222-1499
1/2 inch	293-0375
9/16 inch	294-9514



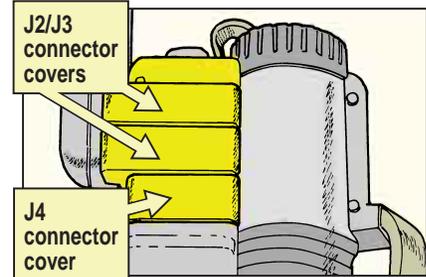
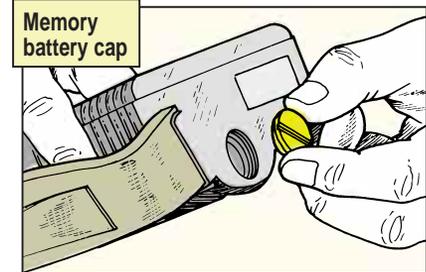
Global Positioning System ...



The "batteries only" parts replacement policy on your Rockwell-made AN/PSN-11 and AN/PSN-11(V)1 precision lightweight GPS receiver (PLGR) has been changed. You can now replace several external components.

In addition to the batteries, here are the things you can replace on your PLGR:

Item	NSN 5340-01-449-
Memory battery cap assembly	1033
J2/J3 connector cover mudflap	1045
J4 connector cover mudflap	1036
Prime battery cap assembly	1029



Find repair and replacement instructions in Change 2 to TM 11-5825-291-13 (Nov 97).

Even though you can now replace some external PLGR parts, the insides are still off limits. Opening the PLGR will void the warranty!

Power Battery? It's Your Call



When it comes to powering your AN/PSN-11 precision lightweight global positioning system receiver (PLGR), you have four battery options:

Battery	NSN	Unit of Issue	Unit Cost
BA-5800 lithium	6665-99-760-9742	1	\$18.36
AA alkaline	6135-00-985-7845	24	\$3.63
AA lithium	6135-01-333-6101	1	\$2.65
Nickel cadmium	6140-01-400-2902	1	\$77.50

BA-5800

The lithium battery lasts much longer than the others, from 10–15 hours when you’re using software version 613-9854-002. If you’re using software version 613-9544-007, you should get 20–25 hours of use. This is important for continuous tracking.

Lithium also gives you an even power output until it dies. The PLGR’s operation won’t be diminished by a weak battery.

Lithium batteries also have a longer shelf life and withstand heat and cold better than other batteries. The downside is its high cost and special disposal requirements.



The BA-5800 is long-lasting

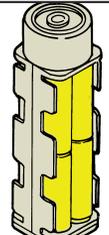
AA Alkaline

For most training exercises and everyday use, cheap AA alkaline batteries are the way to go.

The problem is they don’t last long—about four hours of tracking with software version 613-9854-002 and eight hours with version 613-9544-007. They’re also not good for cold-weather operations, because freezing temperatures reduce their performance.

To use AAs you need a battery holder, NSN 6160-01-385-4358. It holds eight AA batteries. The holder fits into the power battery compartment.

The alkaline is cheap



The lithium is expensive

AA Lithium

With the same battery holder, you can also use AA lithium batteries.

Lithiums using software version 613-9854-002 last about seven hours. Those using version 613-9544-007 last about 13 hours.

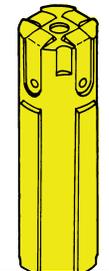
The drawback to lithium batteries is the higher cost.

Nickel Cadmium

The nickel cadmium (NiCad) battery, NSN 6140-01-400-2902, is a good choice for a vehicle-mounted PLGR that is rarely removed for hand-held operation. When the PLGR’s in the mount, the NiCad is charged by vehicle power.

Under tracking conditions, the NiCad lasts about 2½ hours with software version 613-9854-002. With version 613-9544-007, you should get five hours before it needs recharging.

The NiCad is heavier than the other batteries and much more expensive.



The Ni-Cad is rechargeable

AH-64A...

Deal HARS a New Card



Repairmen, if an Apache's Heading Altitude Reference System (HARS) fails, don't order a new one. It's cheaper to replace bad circuit cards.

Communications-Electronics Command (CECOM) has fielded a tester to units that lets you determine which card is bad. Just turn in one bad card (to the depot designated on the FED LOG's Automatic Return Item List) and order a good one.

Cards cost anywhere from \$1,000-\$4,000. The HARS, NSN 6605-01-161-3919, will run you more than \$80,000.

Here are the cards available:

Circuit card	NSN 5998-01-
A3	223-5225
A5	223-5221
A8	229-9278
A9	223-5222



CARC...

Help with Spot Painting



Good preventive maintenance often includes spot painting your equipment to prevent rust buildup. Before you pick up a paint brush, though, pick up the following pubs and tape for the lowdown on CARC paint:

- ✿ AR 750-1, *Army Materiel Maintenance Policies*, which is in Maintenance Management UPDATE 14. Para 4-41 has info on CARC painting.
- ✿ TVT 3-40 (PIN 708415) shows how to spot paint with CARC. Order the film from the Joint Visual Information Services Activity Internet site at:

<http://dodimagery.afis.osd.mil/dvi/Top/davis>

Once there, click on PIN/ICN Search. Then enter the PIN number, click on Search and follow the instructions for ordering. If you don't have Internet access, call DSN 795-7937 or (717) 895-7937 for ordering information.

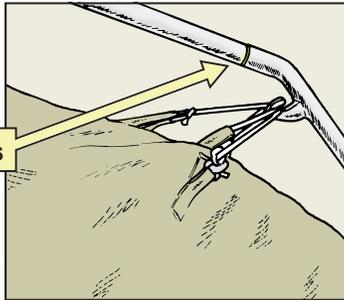
- ✿ TB 43-0118, *Field Instructions for Painting and Preserving Communications-Electronics Equipment*.
- ✿ TM 43-0139, *Painting Instructions for Army Materiel*.
- ✿ TB 43-0209, *Color, Marking and Camouflage Painting of Military Vehicles, Construction Equipment, and Materials Handling Equipment*.
- ✿ TB 43-0242, *CARC Spot Painting*, explains why CARC is used, how to apply it, and the safety precautions to follow when spot painting. It also has NSNs for the primers and paints you'll need.
- ✿ TM 55-1500-345-23, *Painting and Marking of Army Aircraft*, contains instructions on using CARC on aircraft.

A Tent for All Reasons

Soldier crew tents serve your mission in many ways—if you take care of them. To keep your tent going strong, here are some PM points to keep in mind.

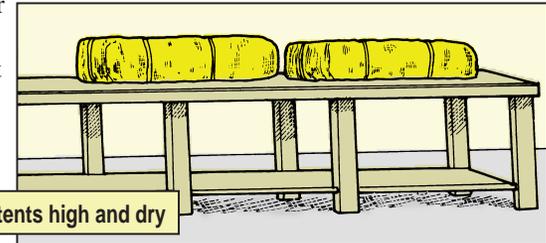
- ▶ The tent is made of a coated nylon fabric, not canvas. It doesn't breathe, so if you plan to, use the door and roof flaps to supply fresh air.
- ▶ When you use a tent stove, watch out for fuel spills. Keep fuel off the tent floor by putting a metal sheet under the stove, or setting it in a sandbox.
- ▶ The tent liner should be fastened to the tent wall so it doesn't touch the stove pipe. A fire will ruin your whole day.
- ▶ The frame is spring-loaded. When you put it together, keep your hands and fingers clear of the pole joints, or they can get pinched.

Watch fingers around spring-loaded joints



- ▶ The frame assembly is under tension. Stand to the side of the poles when you put in the pins. If the frame slips while you're putting in the pins, a pole could slap you silly.

- ▶ Don't lean on or let your weight rest on the frame—you'll damage it.
- ▶ Don't drop or drag the frame over the tent. That will damage the fabric.
- ▶ You can set up or tear down the tent in five minutes, but take a little PM time when you're ready to head home. Pack it up with some extra care. Shake out any soil, and make sure the tent's dry before stowing it away.
- ▶ When you get back, set the tent up and clean it with brush, NSN 7920-00-240-7174, soap, NSN 7390-00-965-4868, and water. Let it air dry. You can pack it without removing the liner if the fabric is dry.
- ▶ For storage, stack the tent on a wooden pallet or shelf in a dry place. Tents packed close together and without dunnage can dry rot or catch on fire.



Repairing Your Tents

The tentage repair kit, NSN 8340-00-262-5767, is changing with the times. Now that you're getting polyester tents, the old patching kit has to keep up.

The updated kit has three yards of polyester—green and tan—to go with three yards of olive drab cotton duck.

If you don't need the whole repair kit, you can get the fabric separately:

NSN 8305-	Fabric
01-238-0342	Polyester green
01-238-8076	Polyester tan
00-926-6171	Cotton olive drab

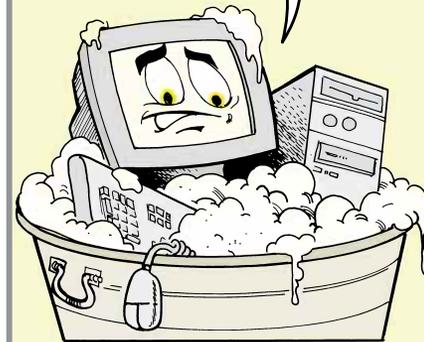
You can also get tent repair tape for small repairs on polyester tents with NSN 8340-01-423-6231. It's green polyester duck with pressure-sensitive adhesive on the back. Just rip off the paper on the back of the tape, and press it on the damaged area.

Not sure which kind of tent you have? Polyester feels slick, has a chemical smell and is bright green. Cotton smells musty, is dull green, and has a coarse feel.



Keep Computers Clean

THIS ISN'T EXACTLY WHAT I HAD IN MIND WHEN I SAID I NEEDED A CLEANING.



One of the best ways to keep your computer running is to keep it clean. That's a lot easier to do with computer cleaning kit, NSN 7035-01-450-8599.

The cleaning kit is designed for use in office and field settings. It comes in a 13-in storage box and includes:

- One 12-oz can of compressed air
- Five toner wipes
- Keyboard brush
- Large detail brush
- Two-sided detail cloth
- 3.5-in diskette cleaner
- One 16-oz bottle of computer cleaner
- Lambswool duster
- 100 wood-handled cotton swabs
- Non-abrasive scrub pad
- Cleaning instructions

Order the kit on a DD Form 1348-6 from RIC S9E and put "NSN not on AMDF" in the Remarks block. The kit costs about \$47.

Safe Reading

Safety has to be a given when you're thinking maintenance. To maintain and operate your equipment properly, you must also do it safely.

If you're not already taking advantage of the Army's safety newsletters "Countermeasure" and "Flightfax," check them out. They're full of the latest info on doing your job safely.

To get on distribution for either newsletter, write to:

US Army Safety Center
ATTN:CSSC-SM
Ft Rucker, AL 36362-5363

Or call:

DSN 558-2062 or (334) 255-2062

Use these e-mail addresses:

countermeasure@safety-emh1.army.mil

or

flightfax@safety-emh1.army.mil



HTTP://SAFETY.ARMY.MIL

Need PS? All You Gotta Do Is Ask!

IF YOU AREN'T GETTING PS EVERY MONTH, OR AREN'T GETTING ALL THE COPIES YOU NEED, READ ON. NO MATTER WHAT BRANCH OF SERVICE YOU'RE IN, IT'S EASY TO GET ON DISTRIBUTION FOR PS.



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Your pubs clerk starts a pubs account by sending a DA Form 12-R to:

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Distribution Operations Facility
ATTN: New Account Processing
1655 Woodson Rd
St Louis, MO 63114-6128**

Questions? Call the distribution facilities customer service at DSN 693-7305, Ext 221 or 288 or (314) 263-7305, Ext 221 or 288.

With a pubs account, you can order PS:

- **By Internet:** Point your browser to:
<http://www.usapa.army.mil>

Click on Army Publications Ordering and Subscription System. Then select Publications Ordering System. Go into Subscription Add/Change/Delete and follow the instructions.

PS is IDN 340312. Put the number of PSs you want to receive each month in the Quantity block.

- **By e-mail:** Use the Customer Support Subsystem software. This is available on the Army Electronic Library (EM 0001). E-mail your subscription requirements to:

usapa@pubs.army.mil

If you can't order electronically, give the pubs folks a call. They'll help you out. Call DSN 221-6232 or (703) 325-6232.

ARMY NATIONAL GUARD

Send a request to your state headquarters on DA Form 12-99-R (Apr 96) with 340312 in the Publications ID Number block and the number of copies you need in the Quantity Required block. If you have your own pubs account, follow the Army instructions above.

NAVY

If you want PS, and have an Army account number, follow the instructions for Army units above.

If you don't have an Army account, you get one by faxing or mailing a DA Form 12-R to:

**Commanding Officer
NAVICP, Code 033343
700 Robbins Ave
Philadelphia, PA 19111-5098**

Call them at:
DSN 442-5632 or (215) 697-5632.

The fax number is -5914. E-mail:
louise_carroll@icpphil.navy.mil

If you don't have a DA Form 12-R, the folks at NAVICP will send you one. Once you have it, just fill in Sections 1, 2, and 4 and get it back to them.

To change your address, you fill in Section 3.

MARINE CORPS

Send the request to your Directives Control Point and ask for PCN 74000000000.

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Send a request for PS Magazine on AF Form 764a to your local Publications Distribution Office. If you have any questions, contact AF publications customer service at (410) 687-3330 or DSN 584-4529.

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Forward a check or money order to:

**Superintendent of Documents
PO Box 371954
Pittsburgh, PA 15250-7954**

To order with VISA, MasterCard, or Discover, call GPO at (202) 512-1800 or fax (202) 512-2250.

Ask for PS, The Preventive Maintenance Monthly, stock number 70804600000-1.

The price is \$30 per year in the US, including APO/FPO addresses. The foreign address price is \$37.50 per year (US currency only).

BACK ISSUES/(Military Only)

Send your request to:

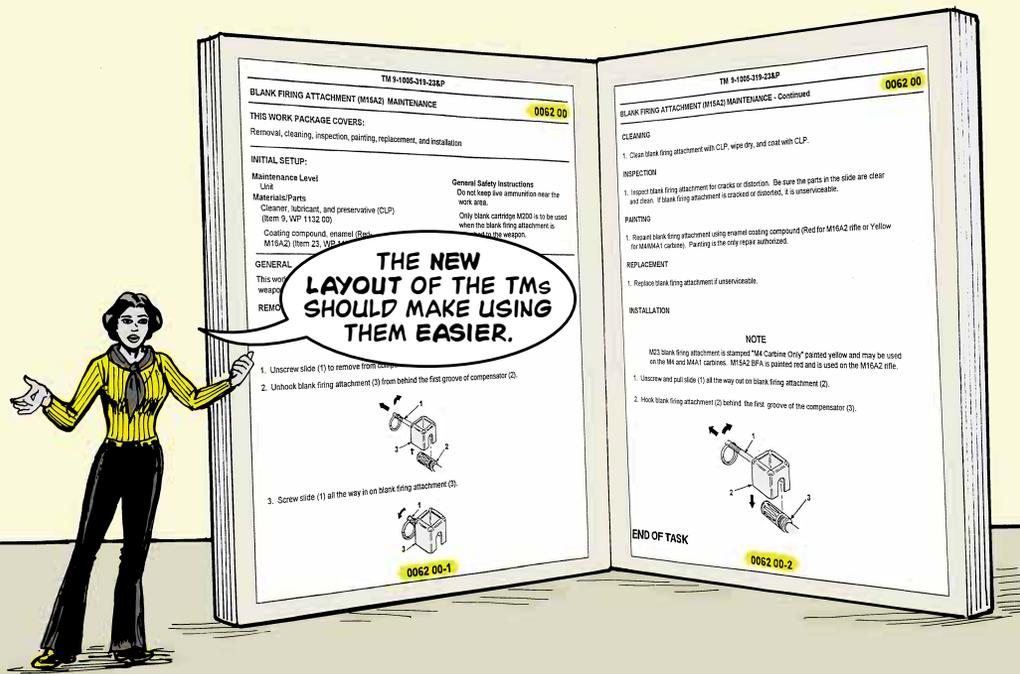
**PS, The Preventive Maintenance Monthly
ATTN: AMXLS-LP
Bldg 5307
Redstone Arsenal, AL 35898-7466**

By fax:
(256) 955-0961 or DSN 645-0961

Or by e-mail: psmag@logsa.army.mil

If you have any questions, call:
(256) 955-0892 or DSN 645-0892

NEW TMs PACKAGE YOUR WORK



Tech manuals are changing. No, not the information, just the way it's packaged. New TMs will still have all the information you need, like equipment description and data, operation under usual conditions, maintenance, troubleshooting procedures, and repair parts.

But this information will be fashioned into work packages (WPs) which operators and maintainers can pull from paper manuals when needed or quickly pull up from electronic technical manuals to read or print.

Say you need to remove and replace a circuit card. The remove/replace WP contains all the information you need—a list of tools, material, parts, and personnel—to get the job done.

Time for PMCS? Just pull out the PMCS WP and go to the equipment, leaving the rest of the TM behind.

WP numbers are printed at the top right of each TM page and the individual page numbers are centered at the bottom. The first WP in each manual, for example, will have 0001 00 at the top right, and its first page will be numbered 0001 00-1 at the bottom.



Safety on the Web

Want to keep up with the latest safety information? Need to know what safety training is available to support your mission? Check out the Army Safety Program's home page at:

<http://safety.army.mil>

In addition to training materials and resources, you'll find links to DoD-wide safety publications.

LO Change for Landing Craft

The oil change interval for the LCU-2000 utility landing craft is now six months or 250 operating hours, whichever comes first. LO 55-1905-223-12 will be changed, according to TACOM Maintenance Advisory Message (MAM) 99-003. The old oil change interval was leading to early engine failure.

Contact Pin Straightener

Got a problem with bent contact pins on electrical connectors? The slightest slip with a needlenose pliers will only bend the other pins. Instead, use contact removal tool kit, NSN 5120-00-765-3688. The kit comes with four tips to adjust to different pin sizes. Appendix A of CTA 50-970 is your authority for ordering.

SEE/HMMH Video

If you'd like a copy of the free SEE/HMMH video we noted on Page 23 of PS 555, order it by letter, e-mail or fax only. The Joint Visual Information Services Distribution Activity doesn't take telephone orders.

Use DESEX System

The Defense Emergency Supply Expert (DESEX) system is an automated system for checking requisition status and stock availability, changing or submitting requisitions, or talking to customer representatives. Visit their Internet site at:

www.desex.com

Or call DESEX at the following commands:
 AMCOM: DSN 645-8656 or (256) 955-8656
 CECOM: DSN 992-1226 or (732) 552-1226
 IOC: DSN 793-3667 or (309) 782-3667
 SBCCOM: DSN 256-6045 or (508) 233-6045
 ACALA: DSN 793-6874 or (309) 782-6874
 TACOM: DSN 786-6245 or (810) 574-6245

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