

Issue 548

PS

July
1998

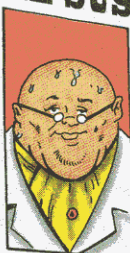
TB 43-PS-548

THE PREVENTIVE MAINTENANCE MONTHLY

WANTED: THE USUAL SUSPECTS



DIRT
DILLINGER



BUGSY
HEAT



LUBELESS
CAPONE

... See Page 27

WHAT
A BUNCH OF
LOSERS!

DON'T
WORRY... PM
WILL RUB OUT THESE
SCOUNDRELS!

Approved for
Public Release;
Distribution Is
Unlimited

Maintenance Won't Wait

One thing's for sure—time marches on. It won't stand still for anything or anybody.

tick...tick...tick...tick...

While the hands on the clock circle endlessly—hour after hour, day after day—you can't sit idly by and hope that your equipment will be ready to go when the whistle blows.

Will it be ready tomorrow?

Like the relentless passage of time, your maintenance must be relentless. You can't skip a beat and hope to catch up later.

tick...tick...tick...tick...

Whether it's your weapon, your radio set, your vehicle, your chopper or your generator...it makes no difference. Your equipment is designed to play an important part in your future. And you're betting your life on its ability to come through when the chips are down.

So don't do half a job...or put off today's PMCS or inspection until tomorrow. Someone may push the button tonight.

Tomorrow may be too late.

tick...tick...tick...tick...





THE PREVENTIVE MAINTENANCE MONTHLY

ISSUE 548 JULY 1998

TB 43-PS-548, 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.



WHEELED VEHICLES

2

HMMWV Hardware to Check	2-3
HMMWV Front Radio Mounts	3
HMMWV Spindle Retaining Nut	4
M939-Series Truck Radio Mounts	5
5-Ton Truck Trunnion Bearing Lube	6
HEMTT Tan Cargo Covers	7
FMTV Air Cleaner Seal, AOAP, Tiedown Ring	7
Electrical System Checks	8-9
M101/M116 Trailer Handbrake Adjustment	9
Tire Tread Wear Check	10
2 1/2-, 5-Ton Truck Cab, Cargo Covers	11



COMBAT VEHICLES

12

M1-Series Tank Engine Exhaust Heat	12-13
M1-Series Tank Loader Oddment Tray	13
M1-Series Tank M2 MG Sight Guard	14
MLRS Air Filter Care	15
M2/M3 Bradley ISU Light Bulb	16-17
Combat Vehicle Wheel Hub Lube	17
M88A1 Recovery Vehicle Track	18-19
M88A1 Recovery Vehicle Wheel Hub Vent	19
M577/M1068 CP Carrier Dome Lights	20
M198 Howitzer Breechblock	21
Cannon Cleaning Kit Sleeves	21



COMBAT ENGINEERING

22

M139 Volcano Mine Dispenser Care	22-23
SP-848 Vibratory Roller Hoses	23
SEE Brake Antifreeze Reservoir Cap	24
SEE Driveshaft Torsion Boot	25
B15F Compactor Fuel Tank Drain Plug	25
SEE Power Steering Fluid Check	26
D7F Tractor Hydraulic Connector	26
M4K Forklift Safety Caution	26



MISSILES

35

TOW 2 MGS Cable Adapter	35
TOW 2 Sight Care	36-39



SMALL ARMS

40

M120/M121 Mortar Lubing	40-42
Machine Gun Rack Plans	43



NBC

44

M17-Series Decon DOs and DONTs	44-45
M12A1 Decon Battery Drain Check	46-47



COMMUNICATIONS

48

AN/PVS-6 MELIOS PMCS	48-49
Communications Shelter Batteries	50-51



SOLDIER SUPPORT

52

MILVAN Care	52
Vacuum Jug Parts	53
Wet Weather Rainsuit Care	54, 55
Extension Cord NSNs	56-57
AN/PSS-12 Mine Detecting Set Volume	57



LOGISTICS MANAGEMENT

58

ULLS-G Version Conflict Fix	58
ULLS Data Base Rebuilds	59
PLL/ASL and CSRL Available	60

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:

Joel B. Hudson
JOEL B. HUDSON

Administrative Assistant to the Secretary of the Army
04725

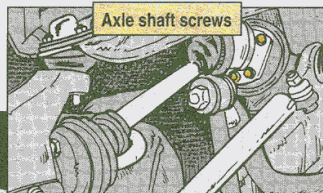
PS, The Preventive Maintenance Monthly (ISSN 0475-2953) is published monthly by the Department of the Army, Redstone Arsenal, AL 35898-7466. Periodical Postage is paid at the Huntsville, AL post office and at additional mailing offices.

Postmaster: Send address changes to PS, The Preventive Maintenance Monthly, LOGSA, Redstone Arsenal, AL 35898-7466.

Top Five to Keep Tight

Here's the latest Top Five list of bolts, nuts and screws to keep tight on your HMMWV. Make sure this hardware is in place and installed tight during your after-operation PMCS:

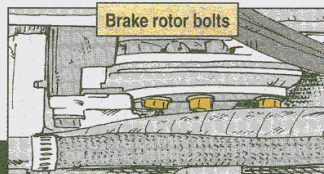
Axle shaft screws—Eyeball the screws at the wheel end and the differ-



Axle shaft screws

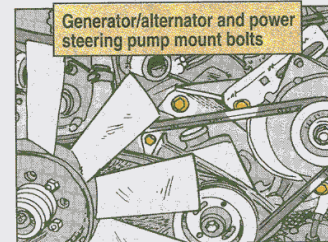
ential end often so you can report looseness **before** enough screws let go to cause damage or injury.

Brake rotor bolts—If these bolts loosen enough, you'll play heck stopping your vehicle, and that can hurt.



Brake rotor bolts

Generator/alternator and power steering pump mount bolts—This hardware has caused more maintenance and repair work than anything else on the HMMWV. Keep a close watch on these bolts and yell when you see loose ones.



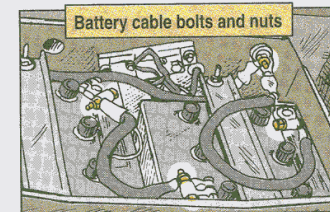
Generator/alternator and power steering pump mount bolts

often forgotten...until the truck won't start.



Starter wiring studs and nuts

Battery cable bolts—You go nowhere fast if these bolts are loose. If they look loose, tell your mechanic.



Battery cable bolts and nuts

Starter wiring studs and nuts—These are under the truck and most

NOW,
NAME THE TOP
FIVE NUTS, BOLTS,
AND SCREWS TO KEEP
TIGHT ON A HUMVEE,
AND YOU'RE A
WINNER!



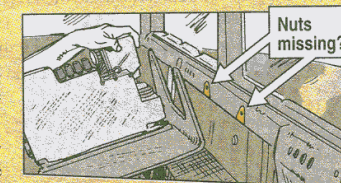
I KNOW
THAT CATEGORY
INSIDE OUT!

Front Radio Mount Fixes

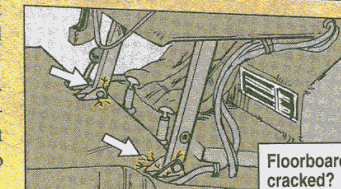
Those of you HMMWV owners who have front radio mount problems can solve two of them with information in TACOM's EIR Digest and elbow grease from your DS unit.

Pages 3-80 through 3-100 of TB 43-0001-39-3 (Dec 94) tell DS how to solve problems with the disappearing bracket nuts for the top of the mount and tunnel floor cracks where the rack fits.

Where do you find a Dec 94 EIR Digest? Try your local TACOM logistics assistance representative. If that move comes up short, ask Half-Mast to send you the info.



Nuts missing?



Floorboard cracked?

USE WRENCH, NOT SCREWDRIVER

Spindle retaining nuts and lockwashers must be installed correctly to keep wheel assemblies from flying off your HMMWV.

Here are some tips that'll help you install 'em correctly:

◆ Use only retaining nut wrench, NSN 5120-01-185-7963, to remove and install the retaining nut. The screwdriver-and-hammer method used to install the lockwasher doesn't work with the retaining nut. It leads to damage you don't need, plus there's a torque requirement that's hard to meet with a hammer.

Follow Para 6-14 of TM 9-2320-280-20-2 for geared hub spindle bearing adjustment procedures.

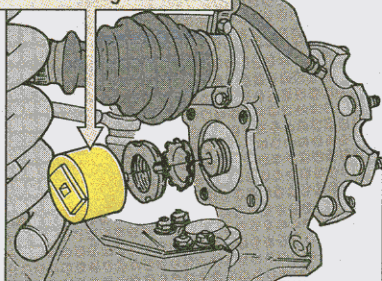
◆ Toss out the old spindle nut lock washer, NSN 5310-01-213-4185, every time you adjust spindle bearings.

Reused lock washers fail, which lets the retaining nut loosen. Then the wheel assembly can fly off.

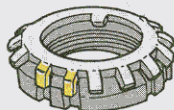
◆ Bend two tabs of the lock washer into the retaining nut's slots. If your truck still uses the four-slotted nuts, that means bending only one tab into the nut slot. Make sure it's lined up and bent firmly into the slot.

Consider replacing the four-slotted nut with the eight-slotted retaining nut, NSN 5310-01-382-5031. You can bend two tabs down for added security.

Use retaining nut wrench



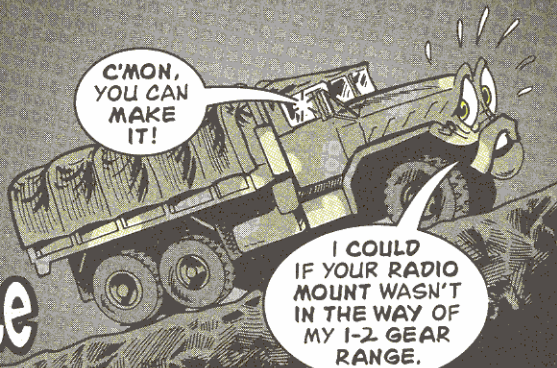
Bend two tabs when using eight-slotted retaining nut



YOU
MEAN WE'RE
NOT NEEDED
ANYMORE?

NEVER WERE!
IT TAKES A TORQUE
WRENCH TO DO THE
JOB RIGHT.

Radio Mount Interference



Dear Half-Mast,

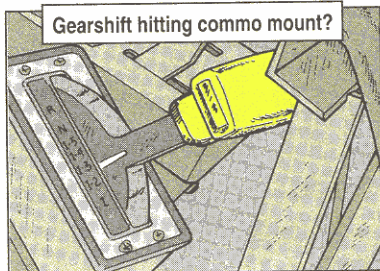
We've got an M939-series 5-ton truck that's been fitted for communications equipment in the cab. The mount fits between the driver's and passenger's seats, with braces at the floor and dashboard.

The problem is that with the mount where it is, we can't get the transmission into gear ranges 1-2 and 1 because the mount blocks the gearshift handle.

Is this a design flaw?

SGT C.H.A.

Ft Stewart, GA



Dear Sergeant C.H.A.,

It's no design flaw, just an installation miscue. Have your support move the mount to the right just enough to clear the shifter. One-and-a-half or two inches should do the trick. This'll work for both the MK-2301/G installation kit for AN/VRC-12 series radios and the MK-2378/VRC kit for SINCGARS.

Support will also repair the floorboard holes so your truck remains deep water fordable.

Half-Mast

Grease Spring Trunnion Bearings

WHAT'S THAT NOISE? HOW OFTEN DO YOU LUBE YOUR TRUNNION BEARINGS?

NOT OFTEN ENOUGH, I GUESS!

GRIND!

The tandem axles on M809- and M939-series trucks spread the load and the road shock to all rear wheels—if the spring trunnion bearings are doing their job.

They can only do that job if you do yours by keeping them lubed.

Many spring trunnion bearings burn out because lube is never applied, even though a greasing with GAA is required

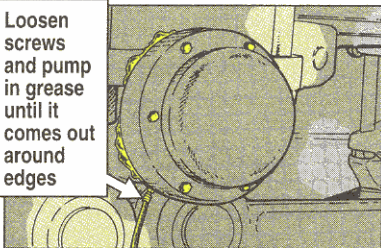
If you don't know where the spring trunnion bearings are found, check out your truck's lubrication order (LO), then do this:

- At the semiannual service (or at 3,000 miles, whichever comes first), loosen the screws on the trunnion bearing cap and pump GAA into the grease fitting until it comes out from under the cap. Tighten the screws.

Repack bearings at every annual service or 12,000 miles



Loosen screws and pump in grease until it comes out around edges



every 3,000 miles or six months—and a tear-down and repack of bearings is required annually.

- At the annual service (or at 12,000 miles), remove, clean, dry and repack the bearings with GAA.

Tan Cargo Cover

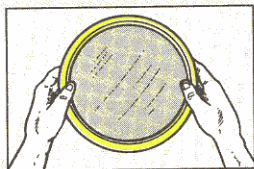
Here's what you need to add a tan cargo cover to your M977, M984, M985 and M985E1 HEMTTs. Make a note until the NSNs are added to Fig 246 of TM 9-2320-279-20P.

Item	NSN
Assembly, cargo cover	2540-01-440-4157
Bow body, rack (7 ea)	2540-01-440-4340
Assembly, stack (14 ea)	2510-01-440-4280
Capscrew (14 ea)	5306-01-062-1022
Locknut (14 ea)	5310-01-062-1062
Kit, cargo cover (Includes end curtains, cargo cover and straps)	2540-01-440-5064
End curtain, cargo body (2 ea)	2540-01-440-4384
Cover, cargo body (1 ea)	2540-01-440-4153
Strap, tie-up (2 ea)	5340-01-440-5879

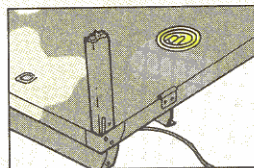
TM Corrections & Additions

Here are a few TM corrections and additions to keep your FMTVs rolling on down the road.

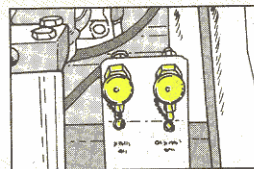
Air cleaner seal: There's no replacement air cleaner cover seal shown in either FMTV parts manual. Add NSN 5330-00-477-0338 to Fig 25 in both TM 9-2320-365-24P and -366-24P.



Tiedown ring lube: Put the oil can to cargo bed and dump bed tiedown rings every 1,000 miles or once a month. This info will be added to the LOs in both -10s.



AOAP interval: Add a note to your truck's LO that the AOAP sampling interval is every 90 days, not 60 as shown in the -10s. The change agrees with the interval required by Para 4-12, DA Pam 738-750.



Taking It in the Shorts



You mechanics probably spend more time hunting shorts in wheeled vehicles than any other maintenance job you do. That's because there are so many places where shorts can occur.

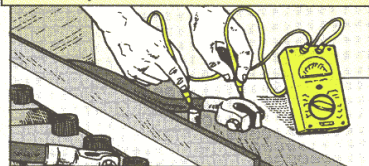
Gary Ward, a Tank-automotive and Armaments Command logistics assistance representative at Schofield Barracks, HI, passes along this information which may help cut down on the time spent hunting—and finding—an electrical short:

1. Do PMCS on the batteries. Moisture or corrosion on top of the batteries can cause a power draw. You'll also find out if there are weak or dead cells or an in-

ternal short in the batteries.

- 2.** Turn off all on-board electrical components.
- 3.** Disconnect the negative battery cable and connect a voltmeter/multimeter between the negative battery post and the negative cable.

Use battery and multimeter to track down shorts



If there is a voltage reading, then some on-board component is still turned on, or there is a short somewhere in the system.

4. To isolate the short on HMMWVs, for example, remove the PCB body harness connector and take another voltage reading on the battery. If the voltage is gone, the problem is localized to the body harness or body components.

If the voltage is still present, then the problem is in the PCB, engine harness or engine components.

Once you know the general area, you disconnect and take readings until you get no voltage reading. Repair or replace the dead component and you're done.

Handbrake Adjustment

Most small trailer handbrake adjustments are simple—just turn the handbrake handle clockwise until the trailer wheels no longer turn when the handbrake is applied.

But handbrake adjustments for M101- and M116-series trailers are not so simple.

You—the operator—can't just turn the handles to adjust the handbrakes.

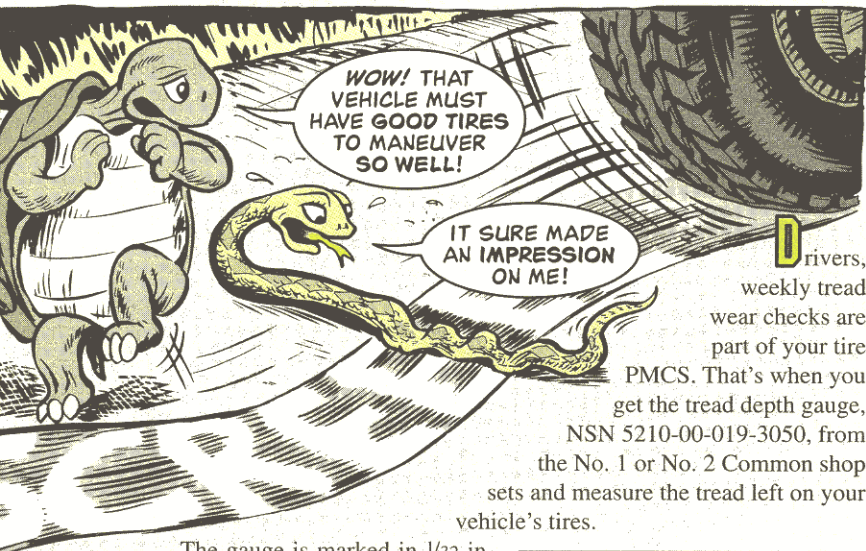
Your mechanic must make the adjustments, using chocks, a jack and a hex-head wrench. Understanding that, never drive off with your trailer unless you know for sure the brakes will hold.

Test them. After you hook up to the trailer, apply the handbrakes and move the trailer slightly to see if the brakes hold the trailer wheels. If they do, go ahead and finish your mission.

If the brakes don't hold, call in your mechanic. He's the only one who can put the "brake" back in your handbrakes.



CHECK TREAD WEAR WEEKLY



Drivers, weekly tread wear checks are part of your tire PMCS. That's when you get the tread depth gauge, NSN 5210-00-019-3050, from the No. 1 or No. 2 Common shop sets and measure the tread left on your vehicle's tires.

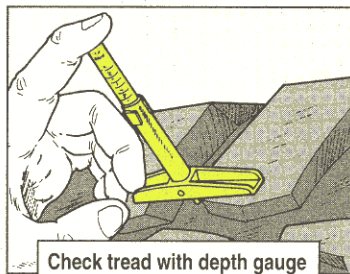
The gauge is marked in $\frac{1}{32}$ -in increments. Instructions on how to use it are in Para 2-16 of TM 9-2610-200-14, Care, Maintenance, Repair and Inspection of Pneumatic Tires and Inner Tubes.

You'll be looking for more than $\frac{4}{32}$ inch of tread on each standard highway tread or light tactical vehicle tire, as well as large truck and trailer tires. If you find $\frac{4}{32}$ inch or less tread, or if the tread is worn to the tire's wear bar, let your mechanic know you need a new tire.

Commercial tires (non-military design) have a minimum tread requirement of $\frac{4}{32}$ inch of tread on steering axles. The requirement is $\frac{2}{32}$ inch on other axles.

Off-road tires, like those used on engineer equipment, have no minimum tread depth. The tire TM recommends tire replacement when the tread no longer provides traction. See Para 2-16(d)(5).

Report any uneven wear patterns you find during your PMCS. Too many tires are worn out before their time because no one reports wear until it's too late.



Check tread with depth gauge

This Isn't Canvas Anymore

Once the supply of cotton duck canvas is gone, all the "canvas" you'll be able to get for your 2 1/2- and 5-ton trucks will be vinyl.

Here's the breakdown of NSNs for cab covers, cargo covers, and bow and tarp kits for these trucks:

Cab Covers

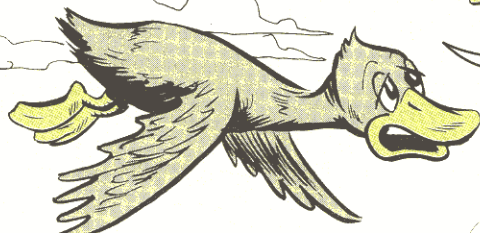
Vehicle	NSN 2540-	Color
M939-series	01-417-6379	Camouflage
	01-435-4924	Tan
	01-435-4931	White
M44, M39 and M809-series	01-413-3143	Camouflage
	01-435-0126	Tan
	01-435-4933	White
2 1/2-ton ESP	01-443-7032	Camouflage

Cargo Covers

Vehicle	NSN 2540-	Color
M44-series (fixed and dropside)	01-434-0944	Camouflage
	01-434-0954	Tan
	01-438-4922	White
M44-series (extra-long wheelbase)	01-438-4960	Camouflage
	01-438-4927	Tan
	01-438-4956	White
M39, M809 and M939-series (fixed and dropside)	00-933-8645	Camouflage
	01-435-4936	Tan
	01-424-9440	White
M39, M809 and M939-series (extra-long wheelbase)	01-434-8725	Camouflage
	01-435-4928	Tan
	01-435-0568	White

Bow and Cover Kits

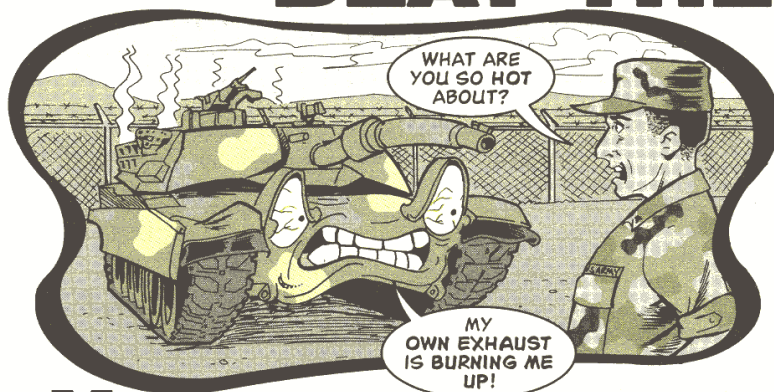
Vehicle	NSN 2540-	Color
2 1/2-ton (cargo, fixed side)	00-319-5724	Camouflage
	01-438-8791	Tan
	01-434-6839	White
2 1/2-ton (cargo, dropside)	00-322-8957	Camouflage
	01-434-6864	Tan
	01-434-6868	White
2 1/2-ton (cargo, extra-long wheelbase)	00-327-1845	Camouflage
	01-434-6851	Tan
	01-435-4941	White
5-ton (cargo, dropside)	00-121-9082	Camouflage
	01-368-9848	Tan
	01-369-1392	White
5-ton (cargo, fixed side)	00-121-9077	Camouflage
	01-423-1968	Tan
	01-423-1964	White
5-ton (cargo, extra-long wheelbase)	00-121-9081	Camouflage
	01-365-2936	Tan
	01-365-2937	White



WHATTAYA
MEAN THE ARMY
DOESN'T COTTON TO DUCKS
ANYMORE? WHAT DID
WE DO?

BEAT THE

HEAT

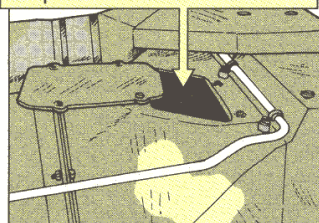


Mechanics, it pays to keep engine exhaust heat directed away from the oil coolers and crossover hose on the M1-series tank.

Step one is to keep the oil cooler plenum clean of leaves, twigs, grass and other debris that can cut down air flow.

If you see an oily, dirty mess covering the fins, use a couple of buckets of water to remove it. Run the engine at tactical idle, then pour the water into the engine access holes.

Dump water here to clean oil cooler fins

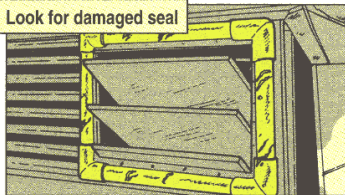


The cooling fans will propel the water against the cooler fins hard enough to wash away most of the gunk.

Step two is to keep the oil cooler fins from getting clogged in the first place. Do that by making sure the exhaust grille seal is in place and undamaged.

A torn, crushed or brittle seal allows heat damage that can cost you an engine or transmission as oil breaks down and moving parts aren't lubricated.

Look for damaged seal

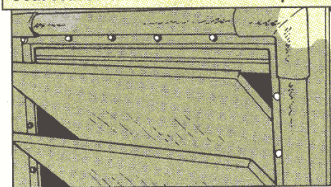


Even worse, the heat makes the oil cooler hose brittle. It cracks open and lets oil leak onto the hot exhaust manifold—a fire just waiting to happen.

If you spot a bad seal, replace it with NSN 5330-01-099-6331. Replace old seal screws with stainless steel ones, NSN 5306-01-309-7031.

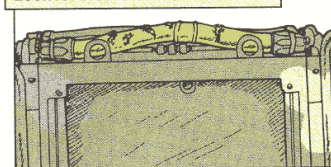
Coat the new screws with antiseize compound, NSN 8030-00-597-5367. Then torque 'em to 120-130 lb-in. They'll come out much easier next time.

Coat seal screws with antiseize compound



Scan the oil cooler crossover hose for cracks and wear. If the hose is damaged, replace it with NSN 4720-01-067-9039.

Look for cracks on crossover hose

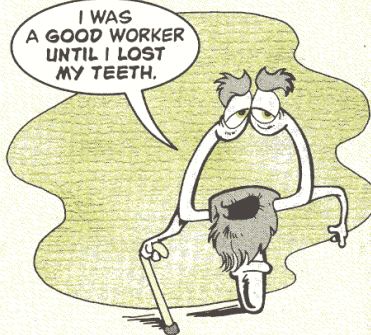


Secure the hose so it doesn't touch the exhaust duct or the top deck. If it does, loosen the mounting bolts and reposition the hose. Torque the bolts to 46-58 lb-ft.

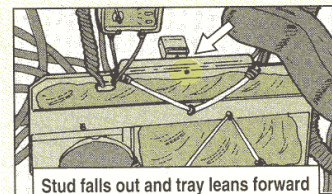
Start the engine and check the hose clamp O-rings. If they leak, replace 'em with NSN 5331-00-165-1944.

The Odd Couple

Loaders, the oddment tray and its turn-locking stud make for a real odd couple in your M1A1/M1A2 tank.

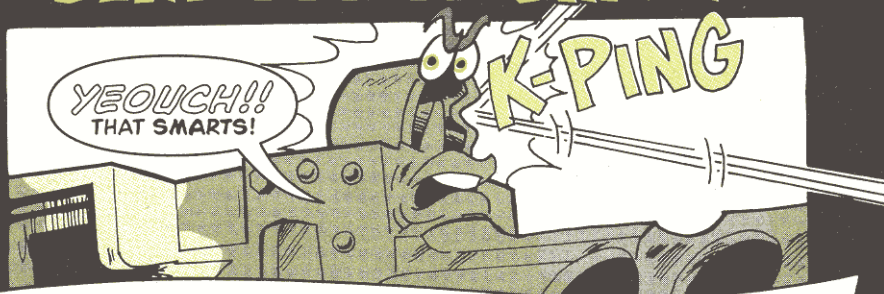


The stud, NSN 5325-01-214-6287, is supposed to hold the top of the tray against the turret wall bracket. But vibration wears out the stud's two locking teeth. Then the stud falls out and the top of the tray leans forward—right in your way.



Fix that problem by replacing the stud with a spring clip, NSN 5325-00-998-3351, that will hold the tray in the wall bracket. Make a note until the clip can be added to the -24P-2 TMs.

BENT OUT OF SHAPE?



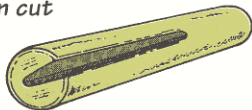
Dear Editor,

The sight guards on an M1-series tank's M2 machine gun take a lot of punishment. Branches, thrown rocks and other debris mash and bend the guards.

A bent guard can't protect the sight. When the sight's out of whack, you can't hit the target.

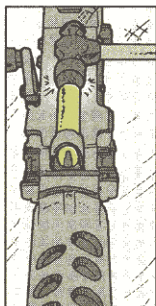
Before I replace a bent sight guard, though, I try to straighten it with a special tool I've made from a 6-in piece of 1-in diameter brass bar stock.

Chamfer one end of the bar, then cut a 1/4-in wide by 7/8-in deep by 4-in long channel starting from the chamfered end of the tool.



File the edges of the channel to remove any rough spots and insert the chamfered end of the tool into the sight guard so that the channel fits over the sight. Then, gently tap the tool into the sight guard with a small hammer.

That slowly straightens the guard while still protecting the sight.



Tap gently to straighten guard

SSG Stacy Beougher
MATES, KSARNG
Ft Riley, KS

FROM THE DESK OF THE Editor



Your homemade tool is a sight for sore eyes! Just make sure you replace the sight if it gets bent.

KEEP AIR FILTER CLEAN AND DRY

Driving your MLRS with a wet or dirty air filter leads straight to engine damage, drivers. That's why you should always get the filter cleaned or replaced when the PMCS says to do it.

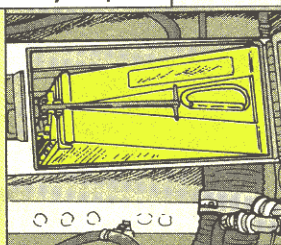
Between services, keep an eye on the air cleaner indicator next to the air filter. If the indicator is red, get the filter cleaned or replaced right away.

Keep tabs on engine performance, too. If

See red? Report it!

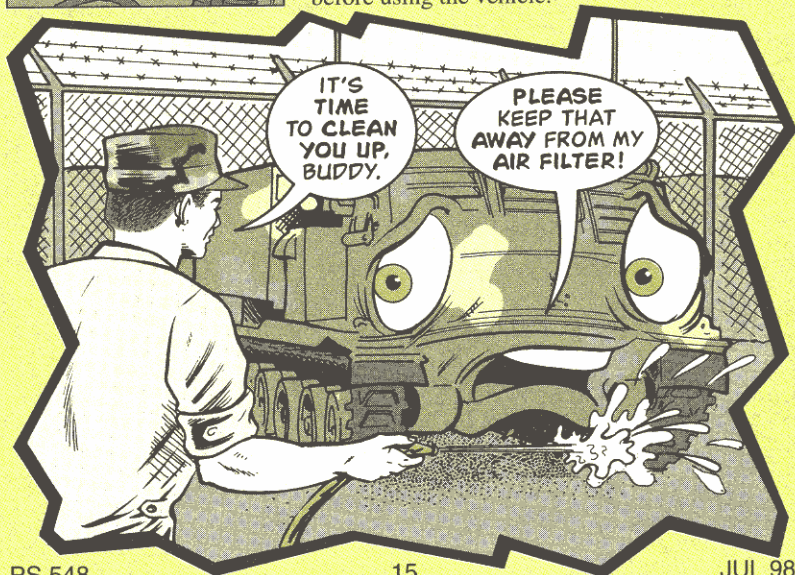


Air dry damp filter



your vehicle starts blowing too much black smoke or if engine power starts lagging, a clogged air filter element is the likely cause.

Another big filter killer is water—especially water from high pressure hoses. Keep water away from the filter when you wash your vehicle. Always double-check the air box afterwards, just in case. If the filter is damp, let it air dry thoroughly before using the vehicle.



Lighten Up on ISU Bulb

It takes only one mechanic to change a light bulb on the M2/M3 Bradley's Integrated Sight Unit (ISU), NSN 1240-01-096-5151—if it's done right!

Here's how:

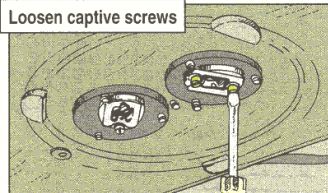
1. Press up on and turn the ISU lampholder assembly cover. If the cover is stuck, gently tap the cover ears with something non-metallic. Not too hard, though, or you'll break the ears and gouge the cover. Then you'll have to buy a new one.

Tap ears lightly to loosen cover



2. Loosen the two captive screws on the lampholder assembly and pull the assembly free. There are two assemblies, so only remove the one that needs a new bulb.

Loosen captive screws



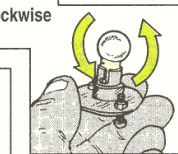
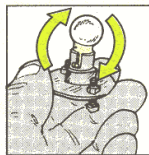
3. Push in on the old bulb and twist it counterclockwise. That frees the bulb from its socket. Turn the bulb the wrong

HEY, HOW MANY MECHS DOES IT TAKE TO CHANGE AN ISU BULB?



way and it breaks off. You can ruin a lampholder assembly—and your fingers—by trying to pry out a broken bulb.

Counterclockwise to extract



Clockwise to insert

4. Install the new bulb by pushing down and turning clockwise.

5. Lightly coat a new preformed packing, NSN 5330-01-158-0361, with silicone lubricant, NSN 8030-01-190-8562, and install it on the cover. Reusing an old packing can lead to nitrogen leaks.

on ISU Bulb

YOU GOT ME, I'M STUMPED.



OOH, OOH, I KNOW! ONLY ONE—IF HE KNOWS WHAT HE'S DOING.



6. Apply a thin coat of the silicone to the cover threads. Press the cover in and turn it until it's in place.

Finish the job by checking carefully for any leaks after charging.

Cover threads get a light coat of silicone

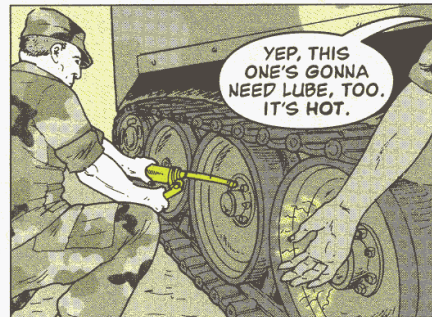


Combat Vehicles...

Hot Hubs? Lube 'em!

Operators, most LOs tell you to lube the bearings on grease-filled roadwheel and idler hubs semiannually. That usually works out about right, but not always.

So, immediately after a good run, put the back of your hand close to—but not touching—the hub surface. If the hub is hot, friction is the likely cause. Get your mechanic to lube it.



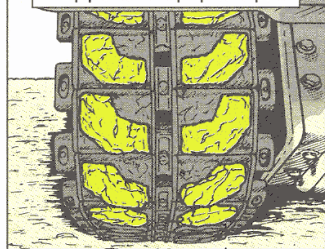
YEP, THIS ONE'S GONNA NEED LUBE, TOO. IT'S HOT.

Slow and Easy



Drivers, you can't treat your M88A1 recovery vehicle like a race car. High speeds and a few sharp pivot steer turns shear off more rubber than hours of normal operation in the motor pool.

Sharp pivots will rip up track pads

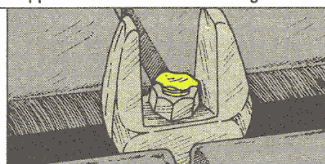


And when you're out on a recovery operation, you don't have time to make a pit stop for repairs.

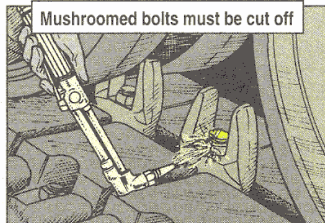
Sharp turns also throw rocks, dirt and other junk on the track. The rocks lodge between the center guides and the road

wheels. As the track moves under the road wheels, the rocks caught in the center guides mushroom the guide bolts. Your mechanic has to cut off the nut and bolt with a torch.

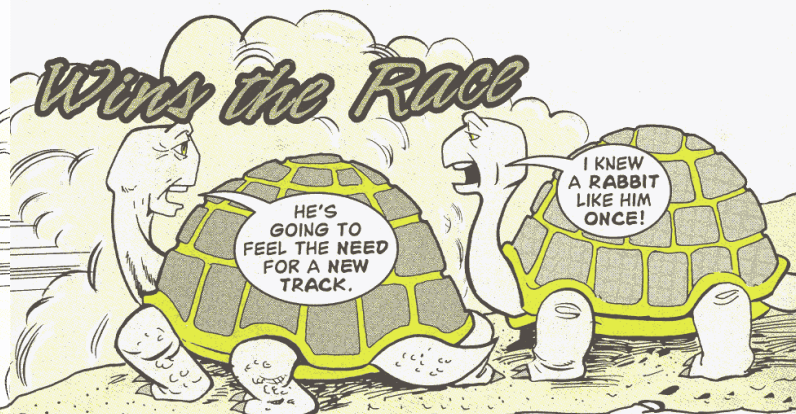
Trapped rocks mushroom center guide bolts



Mushroomed bolts must be cut off



Wins the Race



Dirt and rocks can also pile up on the final drive hubs. The accumulated crud lifts the track off the sprocket and you end up with a thrown track.

So, if you want to take the checkered flag...

➡ Turn in long, smooth curves. That'll save on track pad wear.

➡ Keep speed slow and steady. A constant, slower speed will get you there quicker than fast driving that results in a thrown track or broken torsion bars.

➡ Start and stop your vehicle slow and smooth. Quick starts and jerky stops wear out track pads fast.

Contents Under Pressure

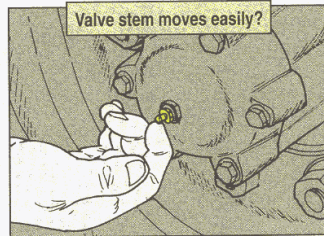
Crewmen, check your M88A1's roadwheels to make sure the relief valves are working.

A relief valve that's clogged shut with road crud lets pressure grow until something has to give—usually the hub seal. When the seal goes, so does the lube. The result is burned-out bearings.

Wipe away any accumulated dirt and mud with a cloth. Then, pull out on the valve stem.

If it slides in and out smoothly, the valve's OK. If it doesn't, get your mechanic to replace it with relief valve, NSN 4820-01-070-7670.

Valve stem moves easily?



Keep Mount Resilient

The resilient mounts that hold the dome light brackets to the ceiling of your M577- and M1068-series command post carriers aren't really very resilient.

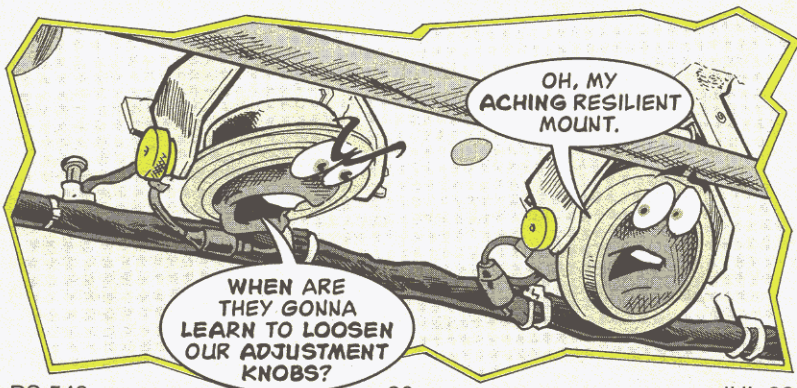
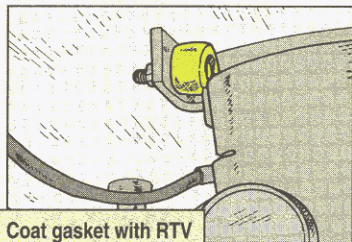
Each mount, NSN 5342-00-705-7191, consists of two bolts joined in the middle by a rubber gasket.

Condensation, temperature changes, and constant use take a heavy toll on the gasket. The rubber gasket wears out, tears and eventually falls apart. Then there's nothing left to hold the dome light up except a few wires.

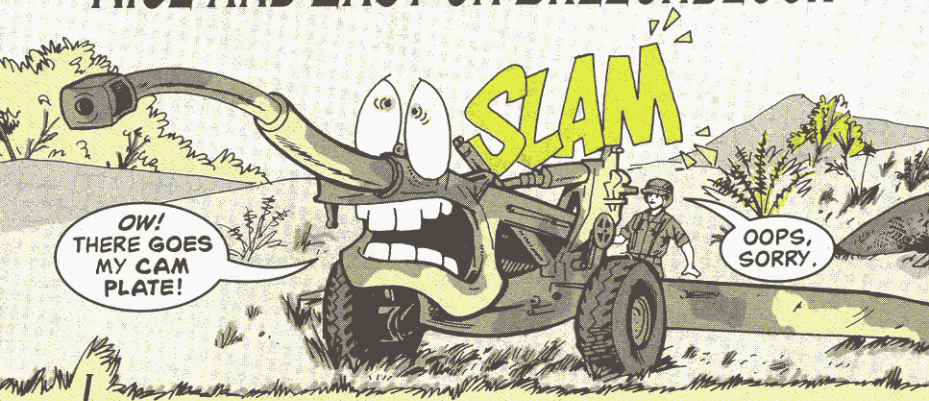
You can extend the life of replacement mounts by coating the gasket with RTV and by always loosening the dome light's adjustment knob before swiveling the light.

If you forget to loosen the adjustment knob, the dome light moves at its weakest point—the resilient mount. The gasket tears and your mechanic has to replace one or both mounts.

RTV, NSN 8030-00-251-2312, shields the gasket, slowing down the effects of moisture, heat and cold.



NICE AND EASY ON BREECHBLOCK



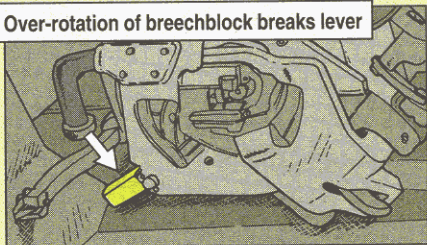
Lighten up a little, crewmen and mechanics, when you close the breechblock on an M198 howitzer after removing the obturator spindle assembly.

If you don't close the breech gently, the spring tension of the counterbalance slams the breechblock against the cam plate. That shears the screws that connect the cam plate to the breech.

The breechblock can also rotate past the fully closed position. That lets the breechblock lever override the latching pin on the breech ring. Enough of that will break the lever.

If possible, always clean and store the howitzer with the spindle assembly in place. If your local SOP says you must, let the breechblock rotate down slow and easy. That way, everything will work the way it should the next time you need it.

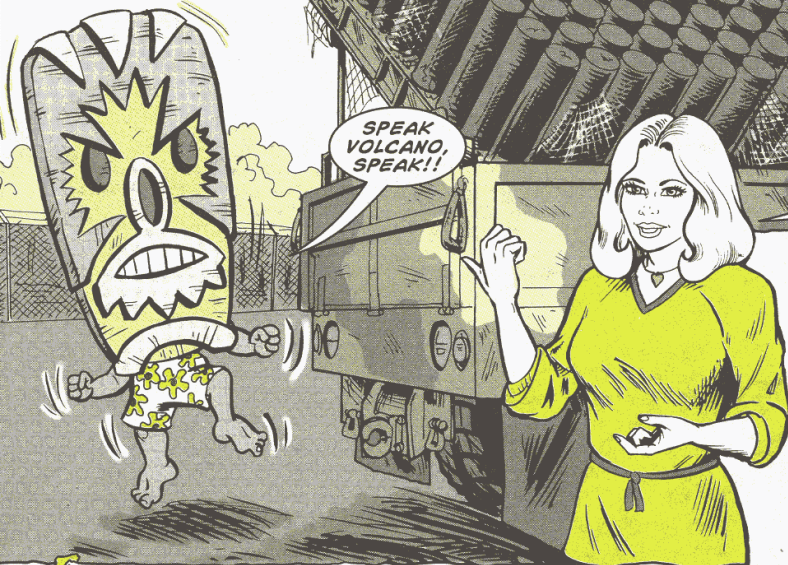
Over-rotation of breechblock breaks lever



Cannon Cleaning Sleeves

Need some extra cleaning sleeves for your tank or howitzer's cannon cleaning kit? Get a box of 30 sleeves for the 105/120mm cannon with NSN 1025-01-316-9250. Use NSN 1025-01-311-3770 to get a box of 30 sleeves for the 155mm cannon.

Inactive Volcanoes



YOU DON'T
NEED A WITCH
DOCTOR TO BRING YOUR
VOLCANO TO LIFE. GOOD
PM IS ALL IT
TAKES.

Don't store and forget the Volcano.

If the Volcano sits idle for more than a year, the electrolytic capacitors for the DCU and the launcher racks lose their

charge and develop a permanent short. Shorted capacitors damage DCU electronics and prevent the launcher racks from correctly timing the mines to explode. That's dangerous.

So, write on a piece of tape the last time the Volcano was used and stick the tape on the side of one of the storage cases (plus follow the maintenance forms and reports requirements in DA Pam 738-750). If a year goes by without the Volcano seeing action, your support needs to do the preconditioning procedure in Para 3-29 in Change 1 to TM 9-1095-208-23-1&P to keep the capacitors in shape.

Every Volcano unit has long periods of time when the mine dispenser is not used. Inactive Volcanoes can develop serious problems if you forget these rules:

Disassemble and pack the Volcano system in its containers as soon as possible after a mission. It should not be left permanently on its carrier. Moisture causes corrosion and can ruin the electrical connectors and make it impossible to fire mine canisters. Dirt and sand make it difficult to operate the

arming and latching levers.

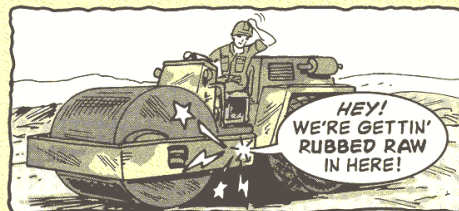
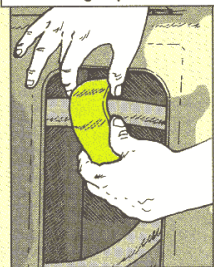
For short periods, zip the launcher rack covers to protect the arming and latching levers. Install the top cover on the dispenser control unit (DCU).

Disassemble the Volcano by components for storage. Some units have used a hoist to remove the Volcano as one piece. But the Volcano is designed to be disassembled component by component—by hand. Besides being dangerous, hoisting damages canisters and the DCU.

SP-848 Vibratory Roller ...

Wrap Up Hose Rub

Add tubing to protect hose



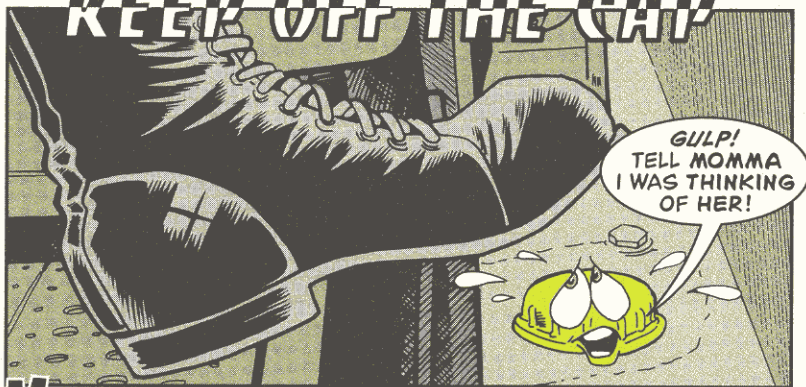
The hydraulic hoses that feed the SP-848 roller's drum get a raw deal. During operation, the hoses rub against the roller frame. Enough rubbing and they start to leak.

You can stop the rubbing—and leaking—by protecting the hoses. Here's how:

Remove the top bolt of the rear access cover on the roller frame. Eyeball the hoses to see if they're rubbing against the frame.

Wrap a piece of rubber tubing around the hoses where they rub. Hold the tubing in place with tie straps, NSN 1080-01-022-8633.

KEEP OFF THE CAP



Mechanics, the cap on the SEE's service brake antifreeze reservoir is an open target for a soldier's boot. If the cap gets crunched, it breaks. Then dirt and water get into the reservoir.

One way to alert operators to stay off the cap is to put an aluminum sign on the tool box just above the cap. It says, CAUTION—WATCH YOUR STEP. Get it with NSN 9905-01-054-0450. Order the sign on DD Form 1348-6 from RIC GSA.

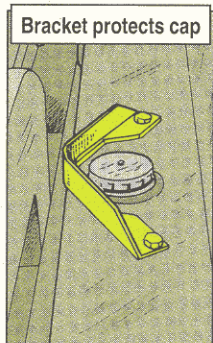
Here's how it goes on:

1. Use the decal as a template to mark the location of four mounting holes.
2. Drill four 1/8-in holes.
3. Pop rivet the sign in place.

Use NSN 5320-00-510-7823 to get a package of 100 rivets.

Another way to keep a soldier's boot away from the cap is to use a protective bracket that fits around the cap. Here's how to make it:

1. Remove the nuts and bolts that hold the reservoir in place.
2. Cut an 8-in piece of 1/8 x 2-in angle iron. Order it by the foot with NSN 9220-00-277-4911.
3. Heat and bend the middle part of the iron. Then cut away enough of the middle section so it fits close to the cap. Drill a 1/4-in hole in each end of the bracket so the holes line up with the holes for the reservoir.
4. Use the reservoir's bolts and nuts to hold the bracket in place.



TORSION BOOT NEEDS SECOND LOOK

Operators, an oil spot under your SEE could be telling you the driveshaft's torsion boot is shot.

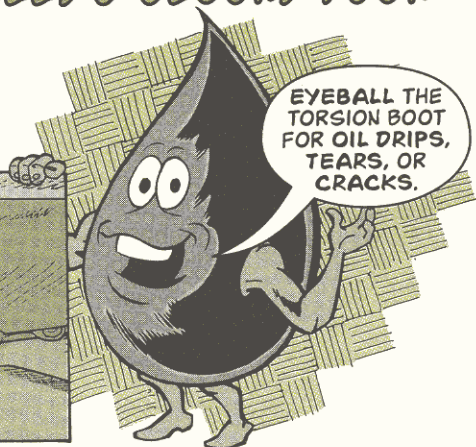
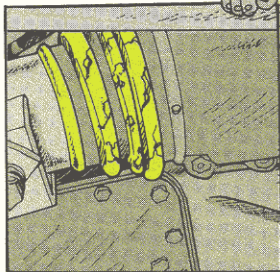
Over time, dry rot weakens the boot. Then, during off-road use, the boot takes a beating from rocks and rough brush.

Once the boot tears and starts

leaking, gear oil drips out and the driveshaft's U-joints are exposed to dirt and water. Transmission failure is the end result.

Each week, crawl under the vehicle and eyeball the boot for oil drips, tears or cracks.

Report problems to your mechanic, *pronto!*



EYEBALL THE
TORSION BOOT
FOR OIL DRIPS,
TEARS, OR
CRACKS.

815F Compactor ...

Tape Does the Trick

Mechanics, after cleaning out the crud in the 815F compactor's fuel tank, you have to reinstall the tank's drain plug. Make it leak proof with antiseize tape, NSN 8030-00-889-3535.

When you do:

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

PS 548



USE
ANTISEIZE TAPE,
NSN 8030-00-889-3535,
ON THE DRAIN PLUG'S
THREADS.

SEE...

TOUGH STEERING? CHECK FLUID

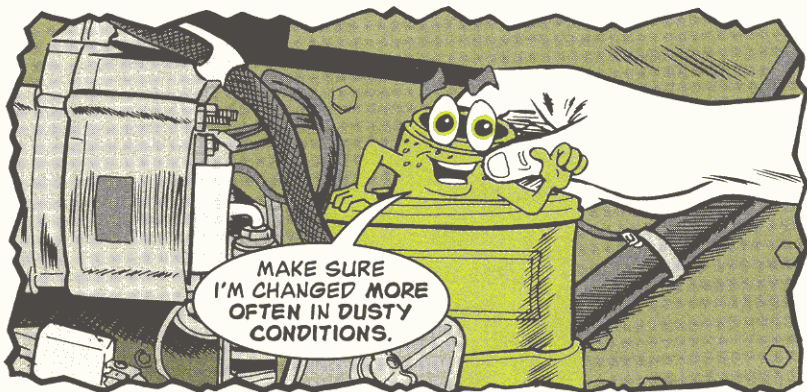
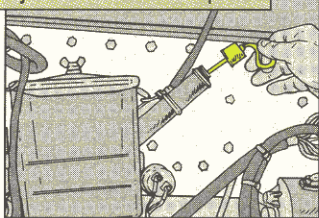
Hard or erratic steering on your small emplacement excavator means either the power steering fluid is low or the steering pump's filter element is clogged.

Eyeball the fluid level on the dipstick. Make sure it's between the ADD and FULL marks.

In dusty conditions, the pump's filter element can clog and starve the system for oil. That means tough steering.

Make sure your mechanic replaces the pump's filter element, NSN 2910-01-224-5509, during scheduled service. It may need changing more often during dusty operations.

Eyeball fluid level on dipstick



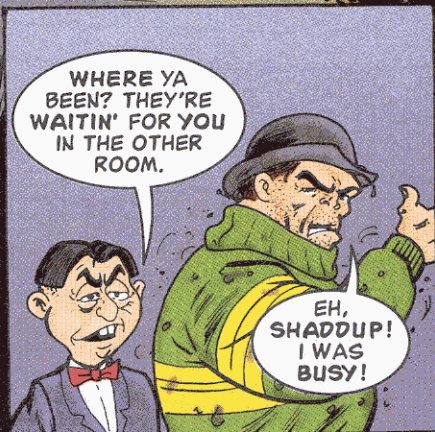
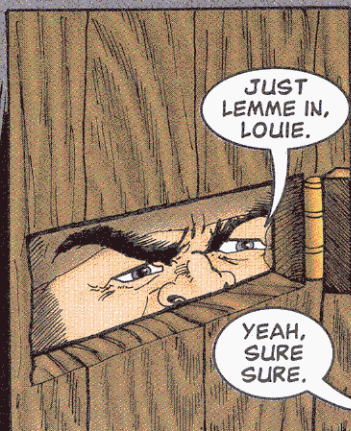
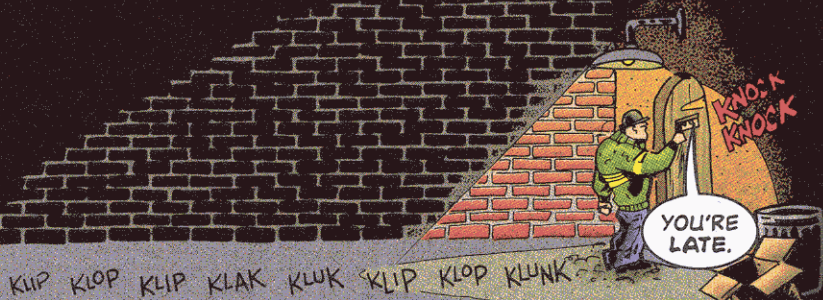
D7F Swivel Connector

NSN 3830-00-251-6618 gets the swivel connector for the D7F tractor's hydraulic lift cylinder line. The parts info is missing from Item 19 in Fig 189 of TM 5-2410-233-24P.

M4K Forklift Update

Mechanics, Page 26 of PS 543 tells how to inspect for a hydraulic leak under the M4K's main hydraulic lift cylinder. For safety's sake, use jack stands to block up the cylinder or forks before doing the inspection.

THE USUAL SUSPECTS





I CAKED MUD
ON ROLLERS, BEARINGS,
TRACKS, CHASSIS—
YOU NAME IT!

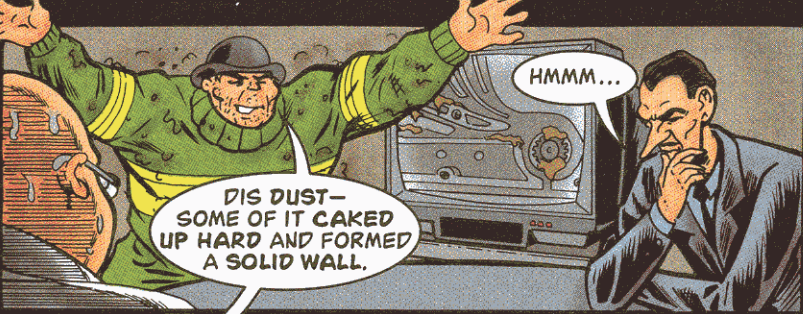
NOT ONLY
THAT, BUT LOOK AT
THESE RADIATORS
AND GRILLES!

NOTICE HOW
MUD CAKED UP ON
BRAKE LININGS
AND DRUMS!

GRIND


WHEN DA RAIN STOPPED AND
DA GROUND TURNED DUSTY, LOOK AT
WHAT HAPPENED. DA VEHICLES CREATED
HUGE CLOUDS OF DUST!

SEE HOW DA DUST
BUILT UP IN DA FILTERS
OF TRUCKS, RADIOS,
AND ELECTRONIC
EQUIPMENT.

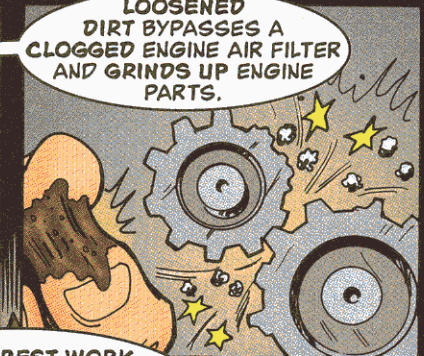


DIS DUST—
SOME OF IT CAKED
UP HARD AND FORMED
A SOLID WALL.

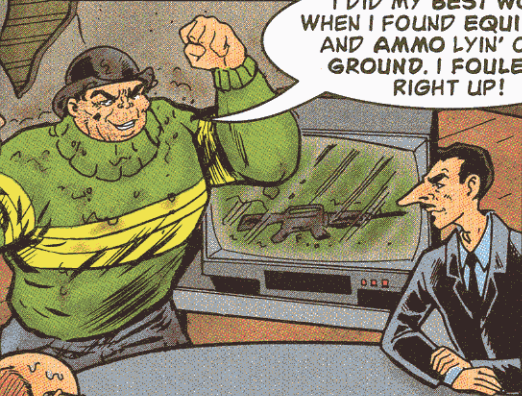
HMMM...




DIS WALL
CUTS OFF AIR
AND THINGS GET
BURNED OUT.



LOOSENED
DIRT BYPASSES A
CLOGGED ENGINE AIR FILTER
AND GRINDS UP ENGINE
PARTS.



I DID MY BEST WORK
WHEN I FOUND EQUIPMENT
AND AMMO LYIN' ON DA
GROUND. I FOULED IT
RIGHT UP!



YOU MADE
THEM SWEAT...
EXCELLENT!



SOUNDS LIKE
YOU DESTROYED
MORE EQUIPMENT THAN
ANY ENEMY.

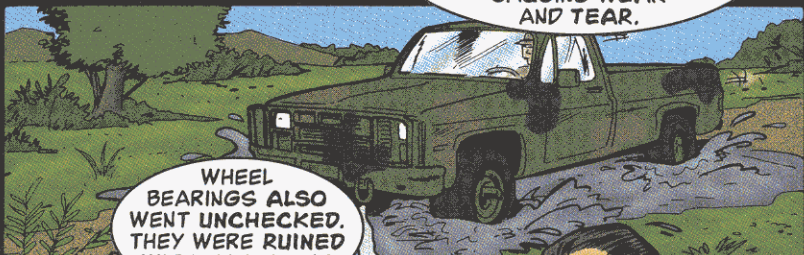
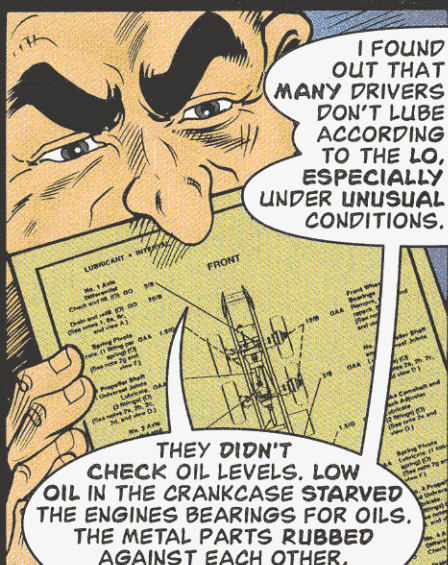
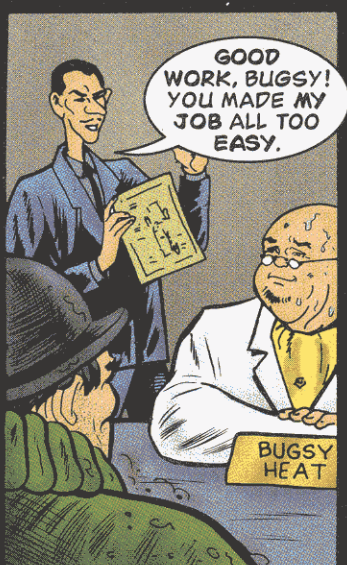
WHAT
ABOUT YOU,
BUGSY?

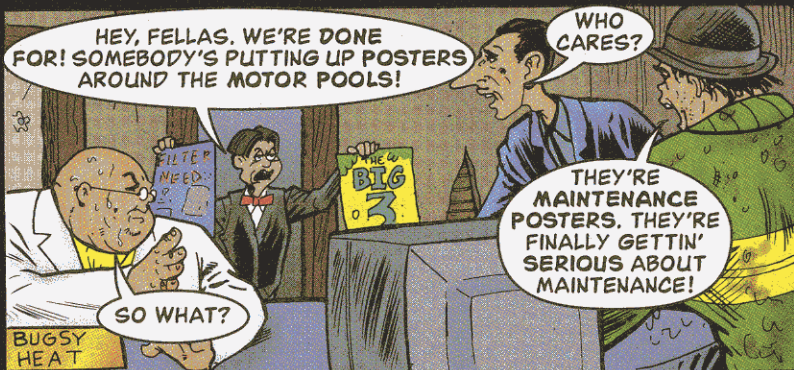


I CAME IN
BEHIND DIRT DILLINGER.
SOON I WAS BURNING
OUT EVERYTHING
IN SIGHT.

MOST OF THE
DRIVERS HELPED.
THEY DIDN'T COOL
DOWN THEIR ENGINES
BEFORE SHUTDOWN.
A SUDDEN SHUTDOWN
CRACKS A BLOCK,
WARPS A HEAD OR
VALVES, OR BAKES
THE OIL UNTIL IT'S
NOT SLICK ENOUGH
TO LUBE.

I ALSO MADE
THINGS HOT WHEN
THEY DIDN'T CHECK THE
ANTIFREEZE IN THEIR
VEHICLE'S COOLING
SYSTEM.



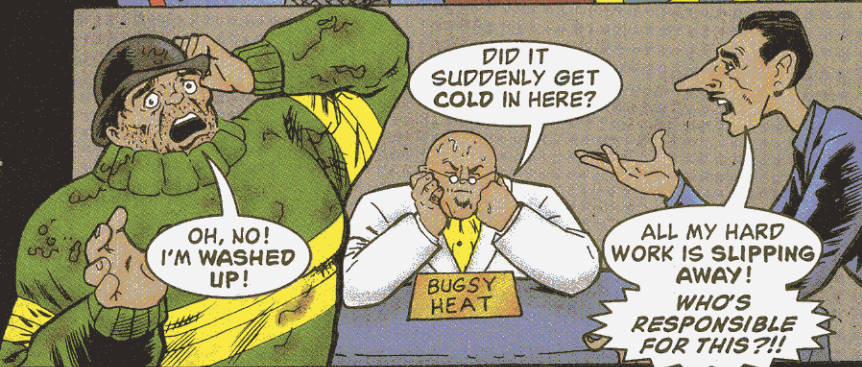
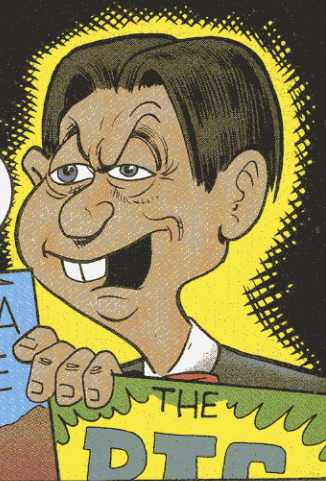


THEY SAY TO FLUSH COOLING SYSTEMS, DRAIN FREQUENTLY, AND USE RUST INHIBITOR.

IN PLACES LIKE BOSNIA, DO EXTRA LUBING, ESPECIALLY ON WHEEL BEARINGS AND CHASSIS POINTS.

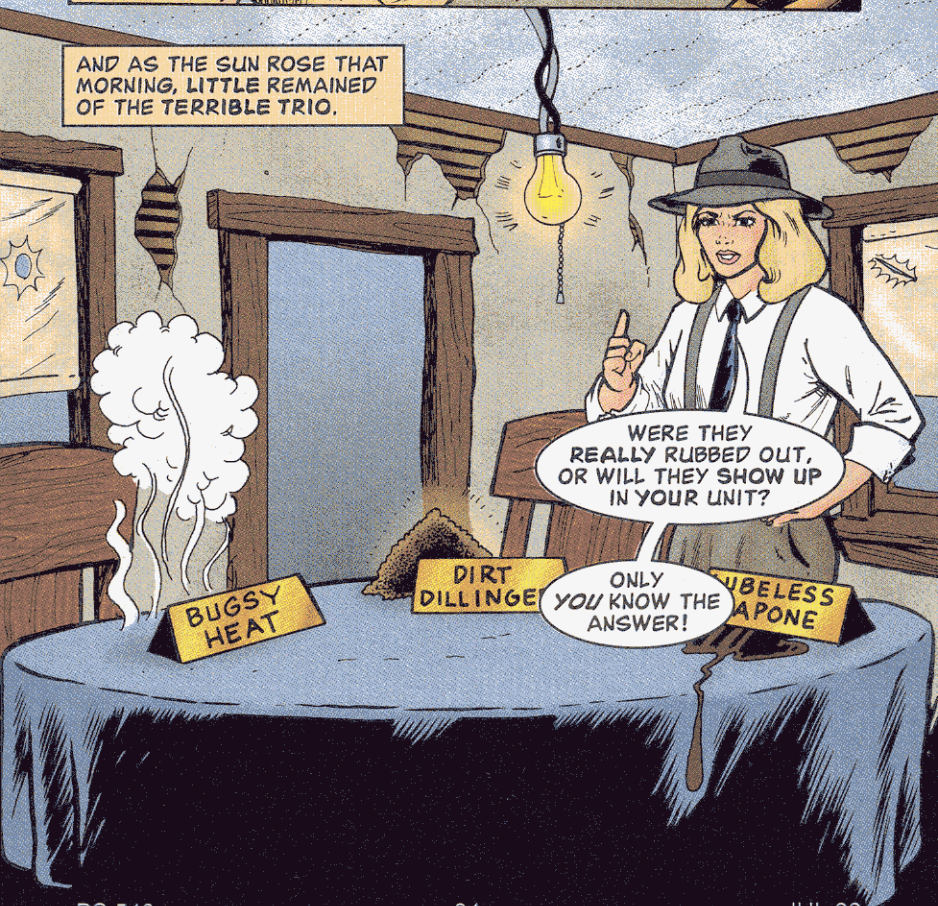
GIVE MORE ATTENTION TO FILTERS—CHANGE AND CLEAN 'EM OFTEN.

AND, FREQUENT USE OF CLEAN LUBE WILL DESTROY BIG ENEMIES—HEAT, DIRT, AND LACK OF LUBE.

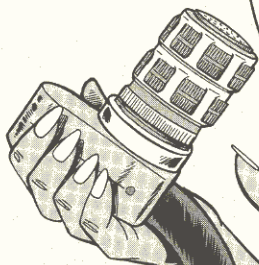




AND AS THE SUN ROSE THAT MORNING, LITTLE REMAINED OF THE TERRIBLE TRIO.



SOME TOW MISSILE
UNITS ARE MISSING OUT ON
ONE OF THE BEST MONEY-SAVERS
AROUND—THE MGS 2W1
CABLE ADAPTER.



Never Stop Adapting

The MGS 2W1 cable adapter, NSN 5935-01-117-3304, costs about five percent of what a new cable costs. With the adapter installed on the cable, it's the adapter that's damaged if the cable connector is jammed down on the MGS. Without the adapter, you're buying an expensive new cable.

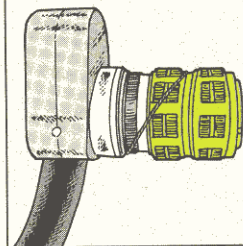
Make sure the adapter is safety-wired to the cable connector. If the adapter is missing or not wired, it's time to call direct support. They can check Change 13 to TM 9-1425-450-34-1 for directions on safety-wiring the adapter.

What's good for the cable connector is good for the MGS connector. If the MGS connector is banged up, the MGS interface board must be replaced at a cost of more than \$2,000. So stick an adapter on the MGS connector, too.

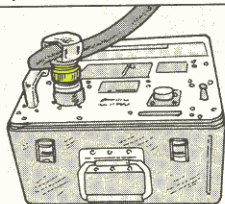
To help the adapter stick, put four drops of Loctite, NSN 8030-01-014-5869, 90° apart on the adapter threads before you screw it in.

Don't worry. The MGS lid can still close with the adapter installed.

Lock-wire adapter



Keep MGS adapter in place with Loctite



Sight Savers

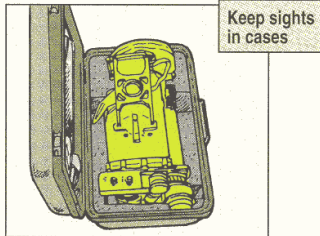


A TOW with damaged sights is a TOW that can't sight its target. That leaves it as effective as a screen door on a submarine.

Protect 'em

Believe it or not, most sights are damaged during transport, not use.

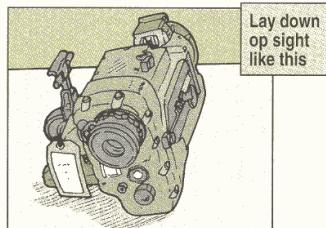
So, **always** keep sights in their cases when you're not firing. But even the



PS 548

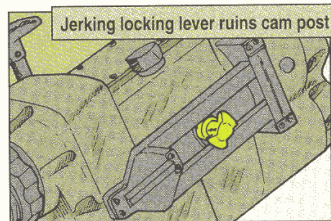
cases can't protect sights that are left to bounce around in a truck or a track. A few good bumps ruin circuitry and crack lenses. Strap the sights down for travel.

Never lay the op sight down on its rails. The weight breaks the cam post and the night sight can't be mounted. Lay the sight down with the eyepiece side off the ground.



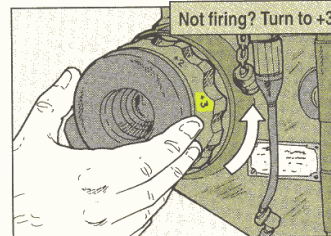
36

The cam post breaks if you jerk the night sight locking lever when you mount it on the op sight, too. If the night sight's positioned right, the lever pulls back easily. If it doesn't, reposition the night sight and try again.



Eyes Have It

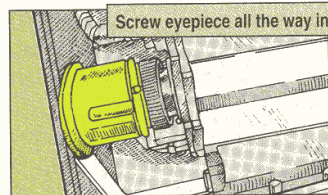
When you're not firing, turn the op sight eyepiece to the +3 position (maximum counterclockwise). If the eye-



piece is left at the -3 position (maximum clockwise), it's resting against the prism. A bump to the sight can crack or misalign the prism.

Screw the night sight eyecup all the way in before you put the sight in its case. Otherwise, the edge of the case knocks it off.

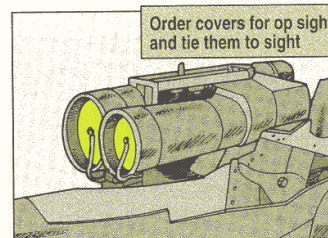
PS 548



Never cut away the center of the night sight eyeshield to make it easier to see through. That also cuts away protection from dirt and sand that scratch the eyepiece.

Got You Covered

Use the lens covers for both sights when you're not firing to prevent sand from scratching them.



The op sight doesn't come with caps, but you can order a large cover with NSN 5340-01-121-8776, a small cover with NSN 5340-00-855-7993, and an eyepiece cover with NSN 5340-01-087-1298.

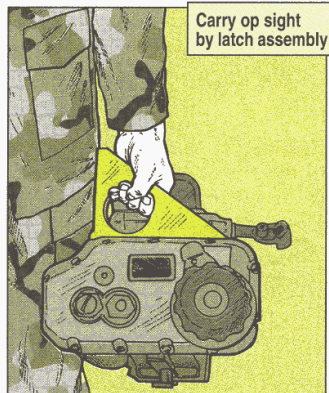
Poke holes in the covers and use string to tie the covers to the sight. Support can drill holes in the lens shields for the other ends of the string.

37

What's Your Handle?

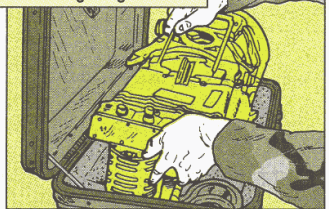
Be careful what you use as a handle for both sights. The op sight locking handle is not a carrying handle. If it breaks, the sight takes a tumble.

Cradle the sight or carry it by the hole in the latch assembly.



Same goes for the night sight. Its locking bracket is not strong enough to be a handle. When you lift the night sight out of its case, it's OK to use the bracket as a handle **if** you put your other hand between the cooler and eyepiece. But once you get the sight out of the case, cradle it with both hands.

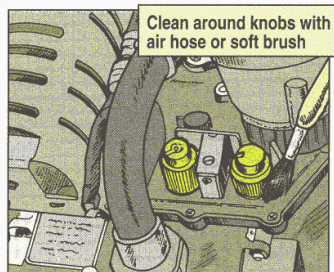
Lift out night sight like this



Easy, Fella

Forcing any of the knobs on either sight is bad news. Too much muscle breaks the op sight AZIMUTH and ELEVATION knob stops, which makes it difficult to center them.

On the night sight, force locks up the AZIMUTH and ELEVATION knobs and bends the shaft to the RANGE FOCUS knob. The knobs will be easier to turn if you clean under them with a soft brush or 30 psi air.



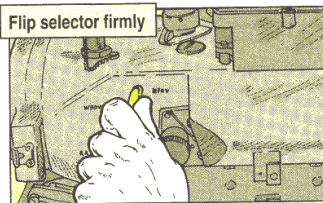
Cleaning

No substitutes will do for lens cleaning. Clean only with lens tissue, NSN 6640-00-663-0832, and cleaning solution, NSN 7930-00-880-4454. Rags, paper towels, shirttails, or the like scratch the lenses. Tissue and cleaning solution are cheap...especially compared to lenses. Your unit should order plenty.

Troubleshooting

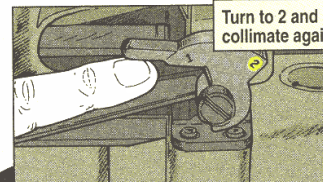
If you flip the selector from narrow to wide field of view and suddenly don't have accurate target readings, you didn't flip the selector firmly enough. Do it again with authority. A loud click indicates you did it right.

Flip selector firmly



If you have trouble mating the sight connectors, check them for dirt. An air hose with 30 psi blows out dirt. Keep the connectors off the ground and you won't have this problem.

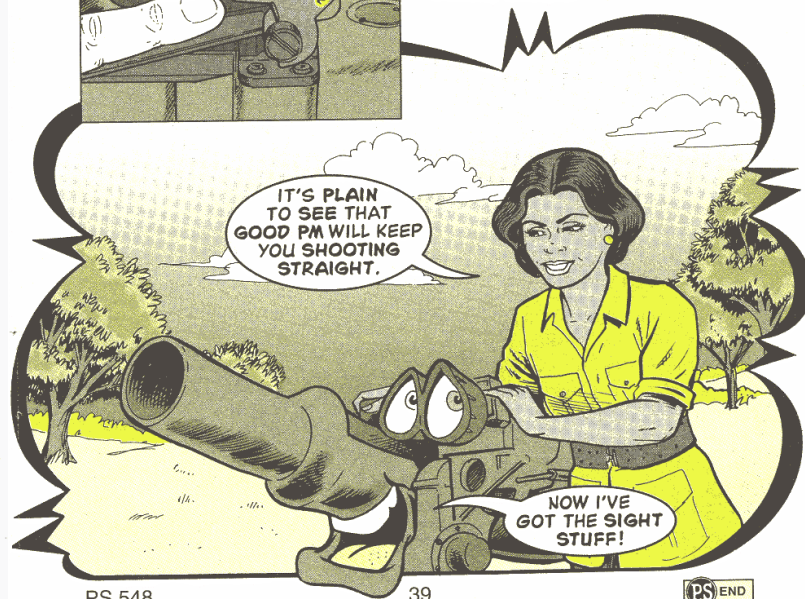
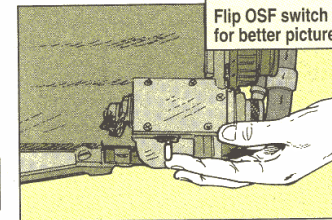
If the night sight won't collimate to the day sight, unlock the night sight,



turn the COARSE AZIMUTH knob to 2, and lock the night sight back on. Sometimes that does the trick.

If you're having trouble seeing through the night sight because of smoke or fog and you have the new AN/TAS-4C or -4D, try flipping the OSF (operator selectable filter) switch. It improves the picture.

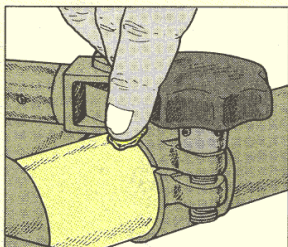
Flip OSF switch for better picture



Lack of attention to your M120/M121 mortar before you go to the field can leave you "mortarried".

PM begins for a new mortar with a trip to support before a single round is fired. Some M120/M121s weren't packed with enough grease. Firing it without adding more grease damages parts. Support can take the mortar apart and check it for grease and add more if necessary.

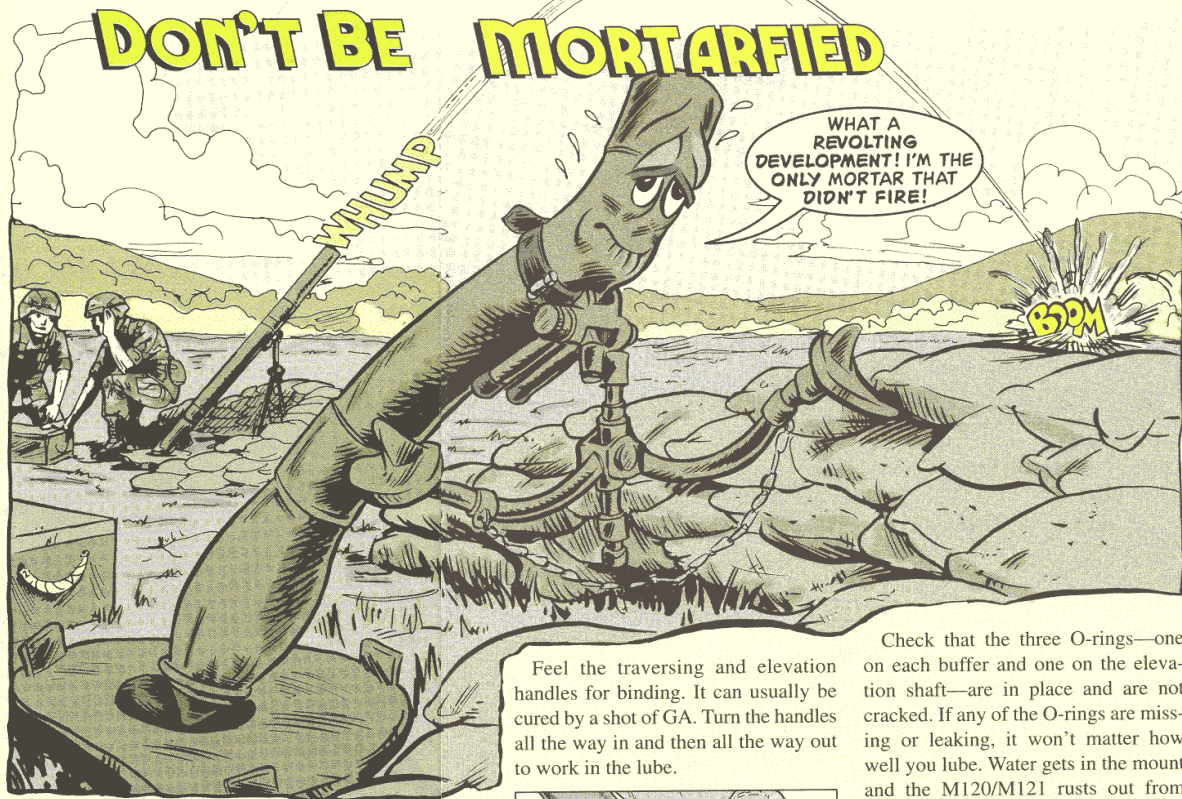
The lower part of the elevation housing is protected only with GPL. Wipe it clean before firing



Relube elevation housing after firing

so the cross-leveling clamp won't slip. But lube the housing ASAP after firing to stop corrosion.

Remember, armorers, the annual overhaul of the M120/M121 was changed to semiannual by the last revision to TM 9-1015-250-23&P. If it's not disassembled, cleaned, lubed, and inspected by support **every 180 days**, the mortar's NMC.

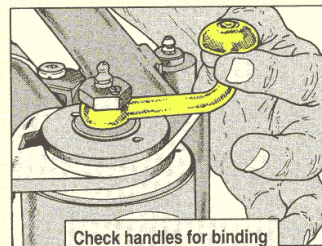


Lubing

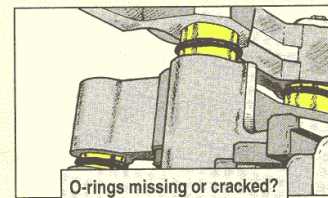
Make sure your unit knows the M120/M121 takes GA, NSN 9150-00-145-0268, not GAA like some of the other mortars. GAA breaks down and lets corrosion do its worst.



Use GA only



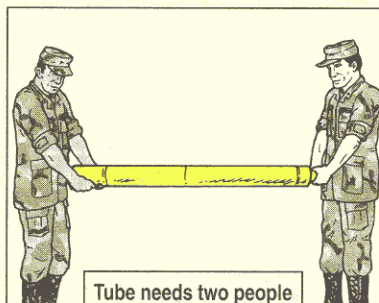
Check handles for binding



O-rings missing or cracked?

Two to Carry

The mortar's tube is too heavy for one person—it's always a two-person carry. One bad fall can ruin a tube. Any time a tube's dropped and you suspect damage, get support to check



Tube needs two people

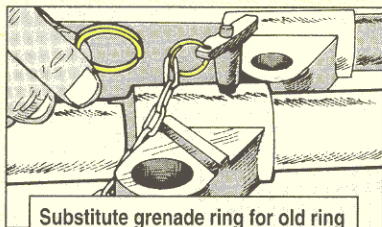
it out before it's fired again. Even a raised area inside the tube can make it dangerous to fire.

Locking on Pin Lock

The ring for the mount locking pin chain is weak. The chain slips off the ring and the locking pin vanishes.

The mount can't be used without locking pins. Replace the ring with hand grenade rings, which are much

stronger. Your local ammo people should have plenty.

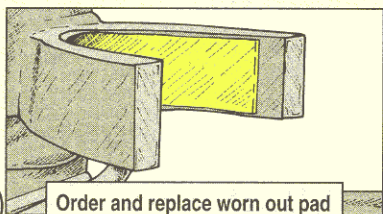


Substitute grenade ring for old ring

An improved locking pin, which comes with NSN 5315-01-386-3977, solves the ring problem.

Pad Replacement

The M120's trailer has a stick-on pad to protect the tube. But the pad wears off. You can replace the upper cannon bracket pad with NSN 1015-01-320-6538. NSN 9320-01-412-7773 has enough material for the four pads on the cannon cradle or enough material for the pad on the bridge assembly.



Order and replace worn out pad

**DON'T BE
MORTARFIED!
DO YOUR
PM!**

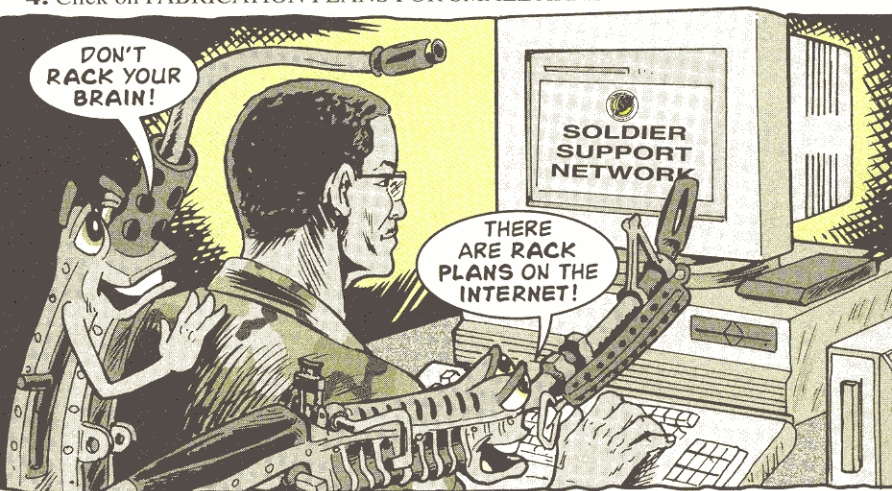


Rack Plans on the Internet

Ready-made machine gun racks are available only for the MK 19 and M249. Other racks must be made locally by your support or Directorate of Logistics.

But you no longer have to write to ACALA for rack plans if you have access to the Internet. Here's how to get plans on the Internet:

1. Go to the Soldier Support Network (SSN) at:
<http://www-ssn.ria.army.mil/ssn/larsn.html>
2. Click on TECHNICAL & MAINTENANCE DOCUMENTS
3. Click on AUTHORIZED EQUIPMENT MODIFICATIONS and enter your password. (If you don't have a password, submit the password application that's part of the SSN home page.)
4. Click on FABRICATION PLANS FOR SMALL ARMS RACKS



That's all there is to it.

If you aren't on the Internet, you can get the plans through your ACALA logistics assistance representative (LAR). Or simply write to:

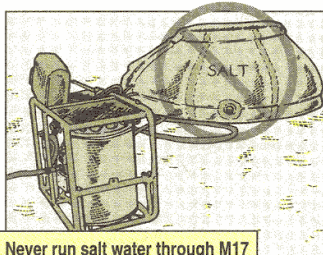
ACALA
ATTN: AMSTA-AC-ASIM
Rock Island, IL 61299-6000

Plans include NSNs for material.

Order the M249 rack with NSN 1095-01-197-7902 and the MK 19 rack with NSN 1095-01-216-9295.

To protect yourself and your M17 decon, practice these DOs and DON'Ts:

- **Do** wear hearing protection. The M17 makes a terrible racket that can leave you saying "huh?" the rest of your life if your ears aren't protected with plugs.
- **Do not** run salt water through your M17 unless it's an emergency. Much of the decon is aluminum and salt will eat it up. If your M17 is even exposed to salt air, wash it off as soon as possible with fresh water and dry it with a towel.



Never run salt water through M17

- **Do not** transport plastic fuel cans in a truck with a plastic liner.

Plastic-to-plastic contact can cause static electricity, which can spark a fire. If you have no choice, put the cans on a wooden pallet.

- **Do** use only **liquid** detergent, NSN 7930-00-985-6911, in the M17. Detergent powder clogs the syphon injector hose nozzle.

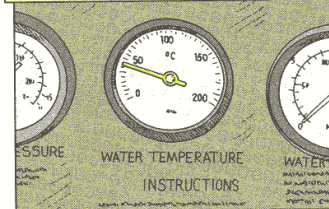
- **Do** let the water temperature cool to 40°C before you shut off the engine. And if you're forced to hit the

Decon DOs and DON'Ts



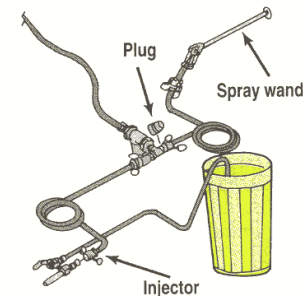
EMERGENCY STOP switch, **do** wait until the water temperature cools to 40°C before you restart the engine. If you ignore these rules, heat can ruin the burner and the igniter switch.

Let water temperature drop to 40° before turning OFF or restarting



- **Do** connect a spray wand or the dust plug, NSN 4730-01-310-7823, to the other end of the branch hose when you're going to use the syphon injector. The spray wand or plug blocks off water flow to the unused end of the hose.

Connect spray wand or dust plug to use syphon injector

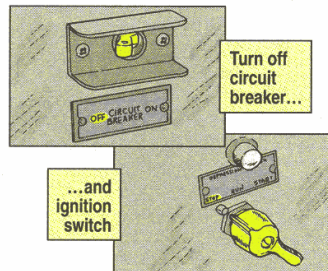


STOP BATTERY DISCHARGE

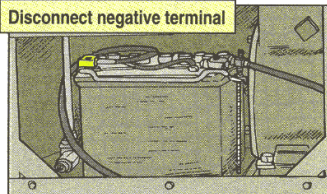


One of the most frequent complaints about the M12A1 decon is the battery. Soldiers say the battery spends more time dead than alive. There are a few simple things you can do to keep your batteries in the land of the living.

At shutdown, turn off the circuit breaker and the ignition switch. They're often forgotten in the rush. Left on, they can drain the battery overnight.



Some M12s drain batteries even if the circuit breaker and ignition switch are off. Stop that drain by disconnecting the negative battery terminal, especially if the M12's going to sit for more than a week.

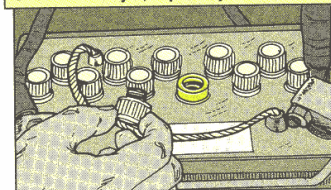


Don't forget normal battery maintenance before you let the M12 sit: Clean corrosion off the terminals, check the electrolyte level in the cells and add distilled water if necessary. See the

PMCS on Pages 2-24 through 2-25 in TM 3-4230-209-10.

In extremely hot weather, check the cells weekly when the M12's just sitting. Heat evaporates the water. And check out TM 9-6140-200-14. It has lots of good info on battery maintenance.

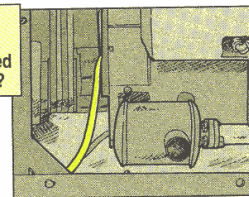
Check electrolyte, especially in hot weather



When you're ready to decon, make sure the battery ground cable is con-

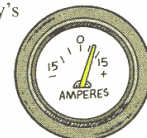
nected to the engine frame. If it's not, you'll have no juice. Feel the terminals for tightness and tighten them if necessary.

Ground cable connected to frame?

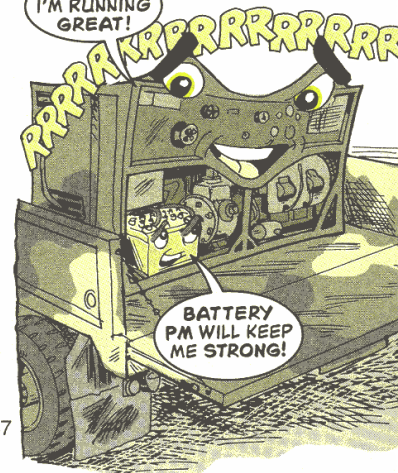


After the M12's running, eyeball the AMMETER BATTERY CHARGE gauge. If the needle's not moving to the right, the battery's not being charged.

You've got a bum regulator. Tell your repairman.



NOW I'M RUNNING GREAT!



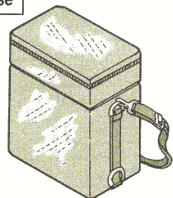
Target Your Laser on PM

Your Mini Eyesafe Laser Infrared Observation Set (MELIOS) needs some special care and PM.

Carrying Case

The most neglected MELIOS PM area is the **carrying case**. Any dirt residing there soon moves its address to the MELIOS itself.

Carrying case



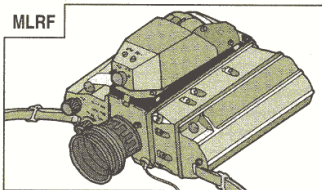
First, use a dry cloth to remove loose dirt. For tougher jobs, a wet cloth and a mild detergent can be used, but make sure to remove the MELIOS before you begin. Don't put it back until the case is dry.

While you're cleaning the case, look for damage. Damaged areas on the case may indicate the MELIOS has suffered damage, too. Be sure to look over the shoulder strap. A cut on the strap could lead to a lost MELIOS.

MLRF

Then check out the observation set itself. Start with the **Melios Laser Range Finder (MLRF)**.

MLRF



Take a close look at the objective lens, laser window and eyepiece lens for dirt, cracks and scratches.

To clean these glass areas, rotate the lens cap away from the objective lens and laser window. Then remove the eyeshield plug from the eyeshield.

Take a dry lens cleaning tissue, NSN 6640-00-393-2090, and add a drop of lens cleaning compound, NSN 6850-01-076-9656. Now lightly and slowly wipe the lens, but only one complete stroke! More than one stroke brings dirt back over the glass and leads to scratches. After one stroke, throw the tissue away. If the glass is not clean, do it all again, but each time use a new lens tissue.

Other Areas

Next, look at the **housing, mode switch knob, reticle control knob, diopter ring, lens cap, eyeshield assembly, neck strap and lanyard**.

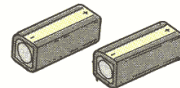
Make sure the knobs and ring are not loose, the lens cap and eyeshield assembly aren't cracked, and the neck strap and lanyard have no cuts.

Clean these areas with a dry cloth and a light touch.

Batteries

Your MELIOS uses one BB-516/U or BB-516A/U battery (two batteries are issued with the MELIOS; one is a spare). They require special handling and disposal. Read up on that info in TM11-5860-202-10 before you work with the batteries.

Batteries

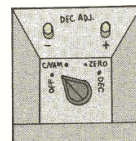


Look at the lanyard on the battery cap for cuts. Check the battery compartment for warping, corrosion, dirt and debris. Clean dirt and debris from the compartment with a dry cloth. Look at the battery cap O-ring for cuts and nicks.

C/VAM

Finally, look over the **Compass/Vertical Angle Measurement (C/VAM)**. Clean off any dust with a dry cloth. Check the housing mode switch, declination adjustment push buttons and the housing for damage. If you find damage, report it.

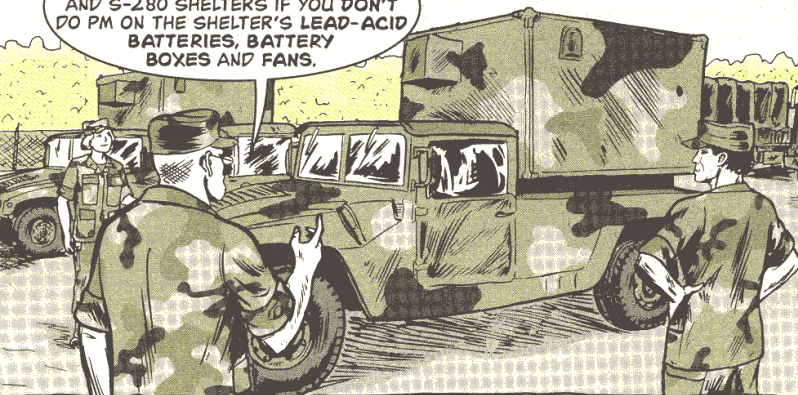
C/VAM mode switch



LENS TISSUE,
LENS CLEANER AND
A LITTLE ELBOW GREASE
WAS ALL THIS MELIOS
NEEDED.

LOOKING AT BATTERY PM

EXPLOSIVE HYDROGEN GAS CAN GET INTO TRUCK-MOUNTED S-250 AND S-280 SHELTERS IF YOU DON'T DO PM ON THE SHELTER'S LEAD-ACID BATTERIES, BATTERY BOXES AND FANS.



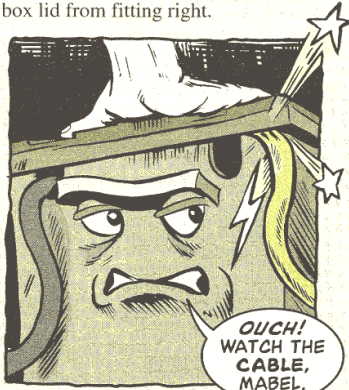
Among other maintenance tasks called for in your shelter system TMs, you might need to do these things to keep gas out.

■ Clean off the battery and the battery box so acid doesn't damage the compartment and fan.

■ Check the battery cables for proper routing. In shelters that use a battery box, misrouted cables can prevent the box lid from fitting right.



50



■ Make sure the battery box restraints are tight to prevent battery damage during cross-country travel.



Damage to the battery box, compartment and exhaust fan can lead to hydrogen entering the shelter, creating an explosion hazard.

Checking the box or compartment covers for a snug fit also helps keep hydrogen out of the shelter.

Then, make sure any box exhaust hose is installed according to the system TM. Make sure the outside vent is open and free of obstruction.

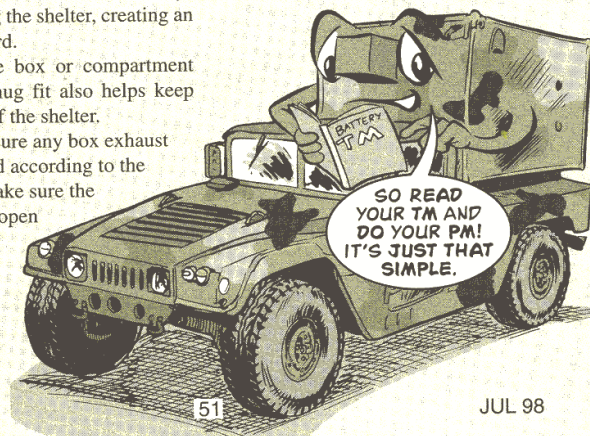
Some systems have external vent closure warning devices that'll let you know if the vent is closed during operation.

Make sure the outside area near the vent is a non-smoking area, and that the warning plate on the shelter is readable.

As a further caution, do system battery compartment maintenance only after reading your TM. In some systems, you'll get a shock if you don't power down and discharge the power supply capacitors before doing any maintenance or repair.

Use the right safety equipment for handling batteries, remove all jewelry and don't smoke.

If you have an MSE shelter, you can use a maintenance-free battery, NSN 6140-01-446-9554. It'll still need its terminals cleaned, though.



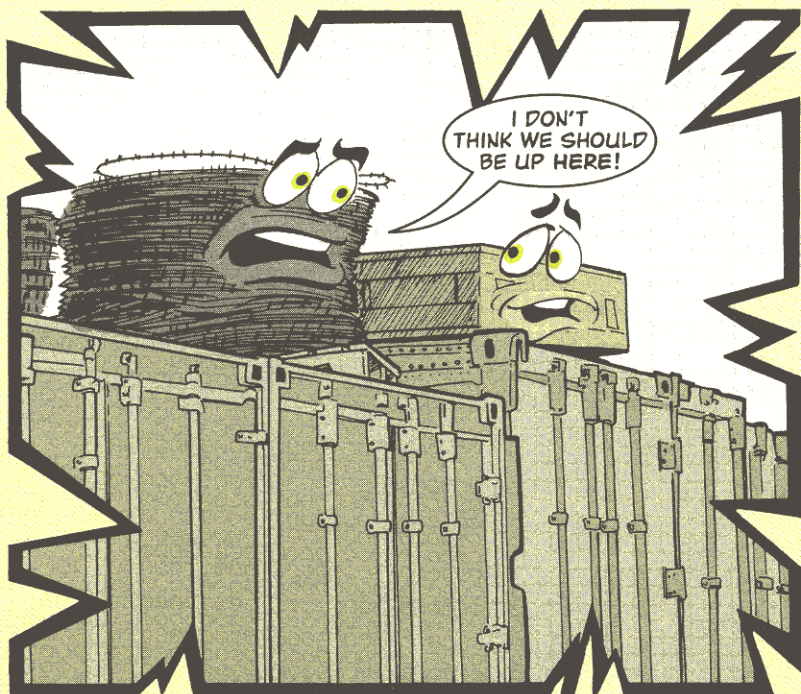
51

Stop MILVAN Wear and Tear

If you're using MILVANs for storage at your unit motor pool, here are a few things you should know.

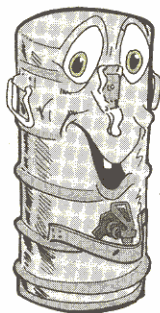
All MILVANs were originally used as shipping containers. Those being used for storage now may be needed as shipping containers again sometime in the future. That means you need to take good care of them.

- ① Always place MILVANs on concrete or 4x4-in timbers. Storing the containers on dirt or gravel will damage or warp the bottoms.
- ② Never store items on top of MILVANs. Stuff like sandbags, crates or concertina wire will tear the skin of the MILVAN.
- ③ Keep the floor drains clean and clear of blockage. That keeps moisture and mildew out of the MILVAN.
- ④ Never slam the doors. That bends the latches and keeps you from properly securing your equipment.



Vacuum Jugs . . .

SIZES AND REPLACEMENT PARTS

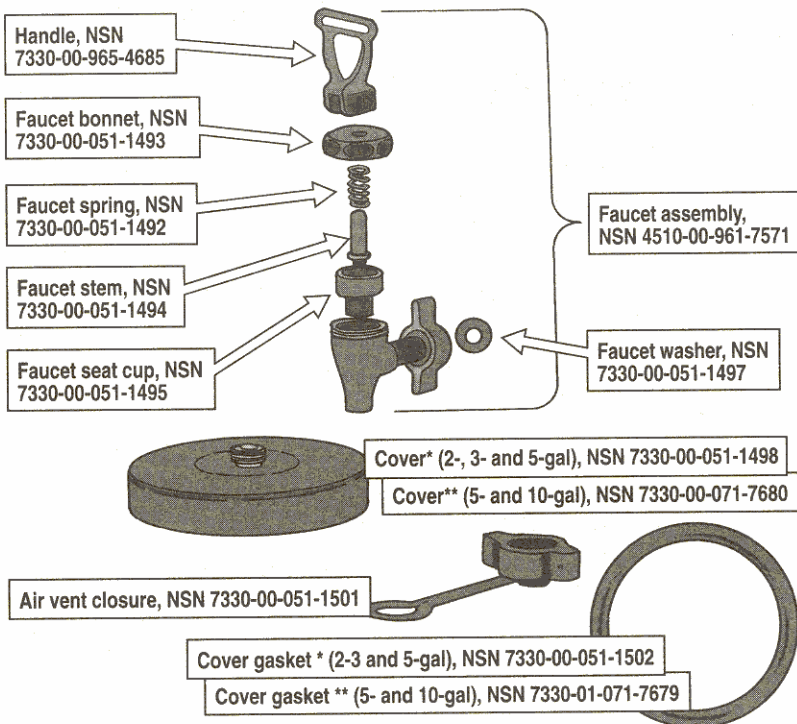


Vacuum jugs for storing and serving food are available in five sizes.

HERE'S THE LINEUP...

Size	NSN 7330-00-
1 gal	224-7051
2 gal	272-2527
3 gal	721-8499
5 gal	781-3859
10 gal	819-7738

Whatever the size, there's no technical manual. If you need replacement parts for any size jug, check out these NSNs:



* 5-gal jug with 5-in neck uses same cover and gasket as 2- and 3-gal jugs.
** 5-gal jug with 6-in neck uses same cover and gasket as 10-gal jug.

Field Fix Keeps You Dry

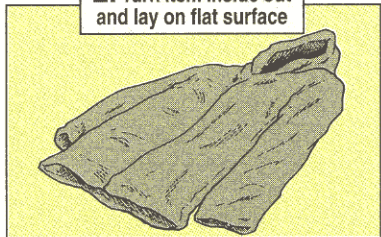


Got a cut or tear in your wet weather parka or trousers? Have your support fix it with repair kit, NSN 8405-00-198-3747.

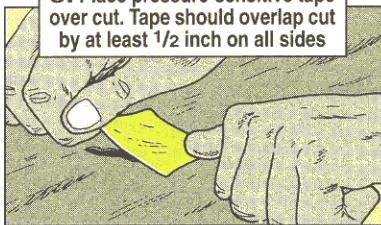
If you need a temporary fix, try pressure-sensitive tape. NSN 7510-01-246-1303 gets a 60-yd roll of this clear, plastic tape. Just make sure the cut is less than two inches long before you use it. Here's the fix:

1. Make sure area around cut—inside and out—is clean and dry

2. Turn item inside out and lay on flat surface



3. Place pressure-sensitive tape over cut. Tape should overlap cut by at least 1/2 inch on all sides



4. Eyeball repaired area closely to make sure tape has bonded well



Remember, this is only temporary. When you get back from the field, turn the parka and trousers in to DS for permanent repairs.

What's That Smell?

Dear Editor,

The wet weather parka and trousers do a great job keeping you dry in the rain, but most soldiers don't like to wear them because they smell terrible. The preservative powder on the rainsuit soaks up odors and soon it smells like a garbage can on a hot day.

The solution is the same as when you start to smell ripe: Take a shower. Turn the parka and trousers inside out, put them on, and hop in the shower. Scrub the rainsuit thoroughly with bar soap. Wash all the soap off.

Let the rainsuit air dry for 24 hours, but not in direct sunlight. The sun causes permanent creases.

Never run the parka or trousers through a washing machine or dryer, either. That ruins the sealant that waterproofs the rainsuit's seams.

The parka and trousers will smell better longer if you let them completely dry before storing them.

Hugh Benner
Camp Carroll, Korea

FROM THE DESK OF THE Editor



Good advice, Sergeant. You're right about the soap. But get it all off. If the soap's left on, you have more smell problems. If you see the parka or trouser lining has started to peel or become soft and tacky, forget washing. You won't be able to get rid of the smell. Get a new parka, trousers, or both.



A CORD FOR ALL SEASONS

Need a long extension cord for your work place? If you can't get one made locally, use this list to order one:

All orange cords are double-insulated and resistant to oil, grease, moisture, abrasion and prolonged exposure to sunlight.

The blue cord has a thermoplastic jacket that stays flexible in temperatures to -58°F.

The yellow cords have a thermoplastic elastomer jacket that is resistant to oil, grease, acid and solvent.

NSN 6150-	Length (feet)	AWG	Voltage Capacity	Color
01-429-5481*	25	12	300	Yellow
01-131-4882*	50	12	300	Yellow
00-233-4144*	50	14	300	Orange
01-245-7809	100	14	300	Orange
01-290-1707*	100	14	300	Blue
01-226-2057	100	12	600	Orange
01-320-6380	100	12	600	Yellow

* Order on a DD Form 1348-6 from S9G and put "NSN not on AMDF" in the Remarks block.

ALL SEASONS

The cord stays flexible in temperatures to -94°F and weighs about one-third less than a regular extension cord of the same length.

You can also get a standard extension cord with a three-outlet receptacle on one end.

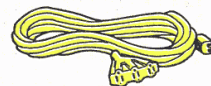
NSN 6150-01-325-6136 is 25 feet long, uses 12 AWG wire and can carry up to 300 volts.

NSN 6150-01-396-2615 is 50 feet long, uses 14 AWG wire and can carry up to 300 volts.

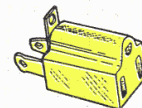
If a plug or receptacle on your new extension cord gets damaged, there's no need to toss the whole cord. Get a male, three-prong plug with NSN 5935-01-005-3579. A female, three-prong receptacle comes with NSN 5935-01-012-3066. Both plugs are rated at 125 volts and 50/60 Hz.

If you need an adapter to fit your three-prong plug into a two-prong outlet, get one with NSN 5935-00-990-2421.

Three-outlet extension cord



Three-prong adapter



AN/PSS-12 Mine Detecting Set ...

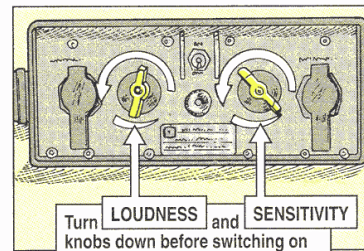
LISTEN UP!

Now Hear This!

The volume on the AN/PSS-12 mine detector can get pretty loud. Loud enough, in fact, to damage your hearing if you don't set it right.

Before turning the detector on, always turn the **LOUDNESS** and **SENSITIVITY** control knobs all the way down (counterclockwise).

Then, turn on the unit and adjust the **LOUDNESS** knob to the lowest comfortable level. Adjust the **SENSITIVITY** knob during operation, as needed.



FIGHTING THE VERSION CONFLICT

Dear Half-Mast,

Sometimes, when I'm using ULLS-G to order lots of parts, a VERSION CONFLICT error message appears. Then my computer locks up. What gives?

SGT I. W. K.

Dear Sergeant I. W. K.,

What gives is a hardware problem with Sysorex computers.

Unfortunately, as long as you have that CPU, you'll have to live with the problem. There are two ways to avoid the message—one sure and one iffy.

The sure way is to log out of the system after ordering 10 parts. Then log back on and order 10 more. Repeat the process until your ordering chore is done.

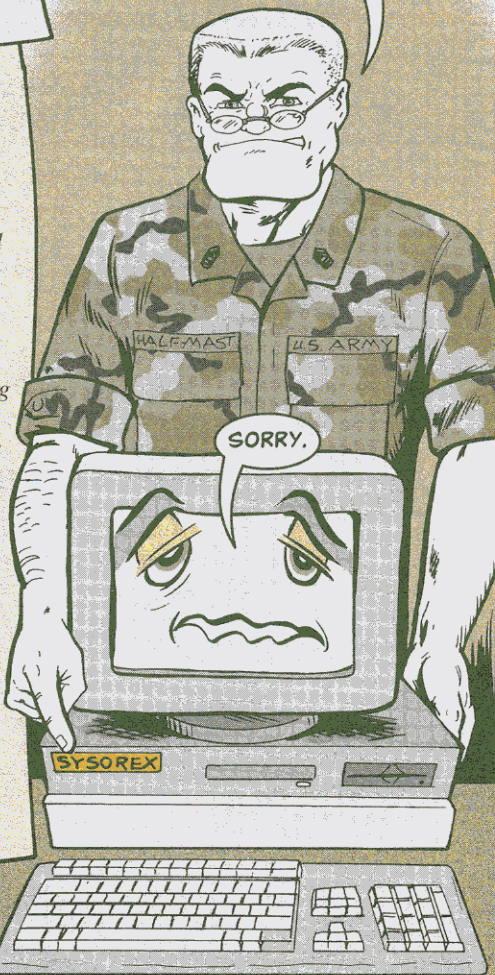
The iffy way is a boot-up procedure that sometimes works and sometimes doesn't.

1. Open the CD-ROM drive.
2. Put the CD in the drive, but don't close the drawer!
3. Turn your system on and let it boot up.
4. After the system is up, log in.
5. Now close the drive drawer.

If this doesn't work, you're stuck with option one or replacing your CPU.

Half-Mast

GETTING VERSION CONFLICT ERROR MESSAGES ON YOUR ULLS-G? THE SYSOREX CPU IS THE CULPRIT.



Take Time to Rebuild

I THINK IT'S ABOUT TIME YOU REBUILT MY DATA BASE!

ULLS

CAN DO!

Dear Half-Mast,

How often do I need to rebuild my ULLS data base? The process is time-consuming, so I don't want to do it more often than I have to.

Also, is it better to rebuild from the command line (the C:\ prompt) instead of running REBUILD from the main menu? I was told that running REBUILD from the main menu only indexes the records.

SGT P. K.

Dear Sergeant P. K.,

That was true a few years ago. But now, rebuilding reestablishes the indexes with the data and reformats the data record. If you don't rebuild, your index files and data files won't be in sync. That means garbled data. At the very least, rebuild every week.

If your unit runs a lot of ULLS actions, **rebuild the files every day.**

Also, rebuild after power failures, whenever you encounter data base problems, or when you run a restore option. All these things can keep your index and data files from being in sync.

Now, since the REBUILD option at the main menu does a complete job of reformatting and re-indexing, there is nothing gained by rebuilding from the command line. And it's not foolproof. If you don't understand all the options, you can make mistakes.

Half-Mast

Parts for Peace and War

A recommended Prescribed Load List (PLL) and Authorized Stockage List (ASL) for peacetime and a Customer Support Requirements List (CSRL) for conflict are available from the Logistics Support Activity (LOGSA).

These lists give your unit a planning tool to assist in determining what repair parts you should have for your end items and how many of those parts you need to have on hand. To get either list, write to:

**USAMC LOGSA
ATTN: AMXLS-RRR
Redstone Arsenal, AL 35898-7466**

Or call:

**DSN 645-9743/9744
(256) 955-9743/9744**

Or FAX:

(256) 955-9666

Or e-mail:

amxlsrr@logsa.army.mil

To get a PLL or ASL, LOGSA needs the following from you:

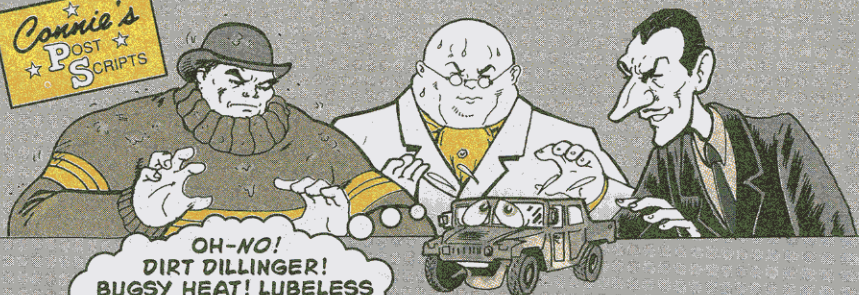
- ☞ unit identification code
- ☞ Line Item Number
- ☞ end item NSNs
- ☞ quantity of each end item
- ☞ days of supply required in 15-day increments
- ☞ maintenance level
- ☞ a point of contact with telephone number, mailing and e-mail addresses

CSRL

A CSRL is more detailed and customized to the tactical situation. To get one, you need to provide LOGSA with all the info above, plus the following:

- ☞ mode of supply, which tells whether resupply is available through the normal requisitioning process or not.
- ☞ survivability rate, which measures combat attrition. With no projected attrition, 100 percent of the weapon system density is considered available for use at all times.
- ☞ fraction of units not in reserve; that is, the percentage of weapon system density which will be "active" each day.





OH-NO!
DIRT DILLINGER!
BUGSY HEAT! LUBELESS
CAPONE! WHERE'S MY
MECHANIC WHEN
I NEED HIM?

Wear Those Ear Plugs

UH-60 or MH-60K crewmembers, protect your eardrums. AMCOM wants you to wear helmets and earplugs when flights exceed 100 minutes during any 24-hour period, or when air speeds exceed 120 knots. You should also wear hearing protection in and around the bird when the APU or main engine is operating. Maintenance manuals will add this warning.

AN/PVS-7B, 7D Kevlar Mount

Use NSN 5855-01-441-0401 to get the universal mount that holds your night vision goggles on your Kevlar helmet. Helmet mount assemblies, NSN 5855-01-381-6033 and NSN 5855-01-421-7691, are obsolete.

"Signs Of Safety" Correction

Delete the reference to AR 385-30 in the Good Signs of Safety article on Page 60 of PS 542. That AR has been rescinded. In its place, add OSHA Regulation 29 CFR 1910, subpart J. Get a copy of the regulation from your safety office.

AVLB Hotline

If you have questions about the operation and maintenance of the armored vehicle launched bridge (AVLB), call the AVLB hotline at (810) 214-0428, or e-mail:

nalleve@cc.tacom.army.mil

M256A1 Detector Extended

The shelf life of the M256A1 chemical agent detector kit has been extended from five to six years. NBC NCOs can check the sampler bags in the kits for the discard date. This change is good only for kits with a discard date on or before 2003.

M1 Steering Parts Kit

A supply shortage makes it impossible to get the steering parts kit, NSN 2530-01-270-7498, for your M1-series tank. Until the kit is available again, order the individual components:

Item	NSN 5330-	Qty
Gasket	01-063-5797	1
O-ring	00-167-5169	2
Packing retainer	01-065-6250	4
Seal	01-096-3703	1

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

**Would You Stake Your Life *right now* on
the Condition of Your Equipment?**

☆ U.S. GOVERNMENT PRINTING OFFICE: 1998 — 650-065/20043

For sale by the Superintendent of Documents, U.S. Government Printing Office Washington, DC

**BROKEN, BENT OR CRACKED
TOOLS ARE USELESS!**



**Repair or Replace
Them *NOW!***