

PS**THE
PREVENTIVE
MAINTENANCE
MONTHLY**

ISSUE 588 NOVEMBER 2001

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

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MSG Half-Mast

PS, the Preventive Maintenance Monthly

USAMC LOGSA (AMXLS-LP)

5307 Sparkman Circle

Redstone Arsenal, AL 35898-5000

Or e-mail to:

psmag@logsa.army.mil

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

By order of the Secretary of the Army:

ERIC K. SHINSEKI

General, United States Army Chief of Staff

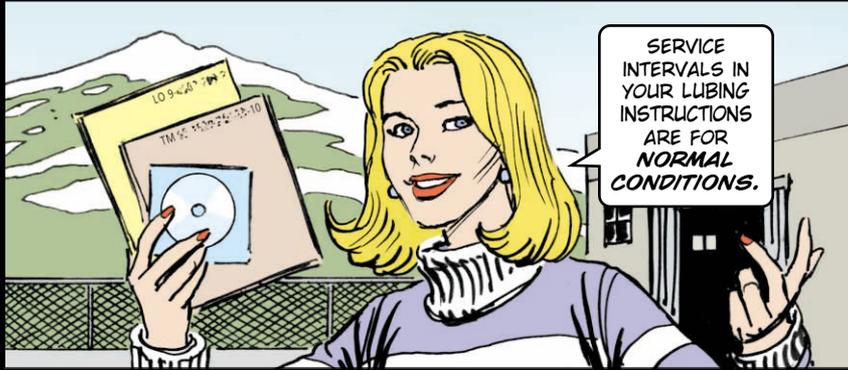
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JOEL B. HUDSON

Administrative Assistant to the Secretary of the Army
0124902

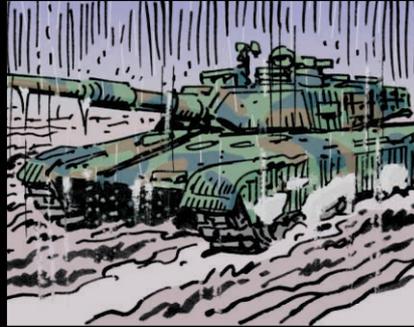
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SERVICE INTERVALS IN YOUR LUBING INSTRUCTIONS ARE FOR **NORMAL CONDITIONS.**

BUT UNUSUAL CONDITIONS LIKE THESE...



...CALL FOR MORE FREQUENT LUBING, CLEANING, INSPECTIONS AND CARE!

Issue 588

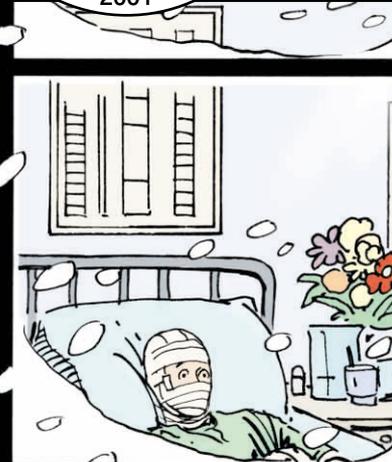
PS

November 2001

THE PREVENTIVE MAINTENANCE MONTHLY

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WHAT HAPPENED TO HIM?

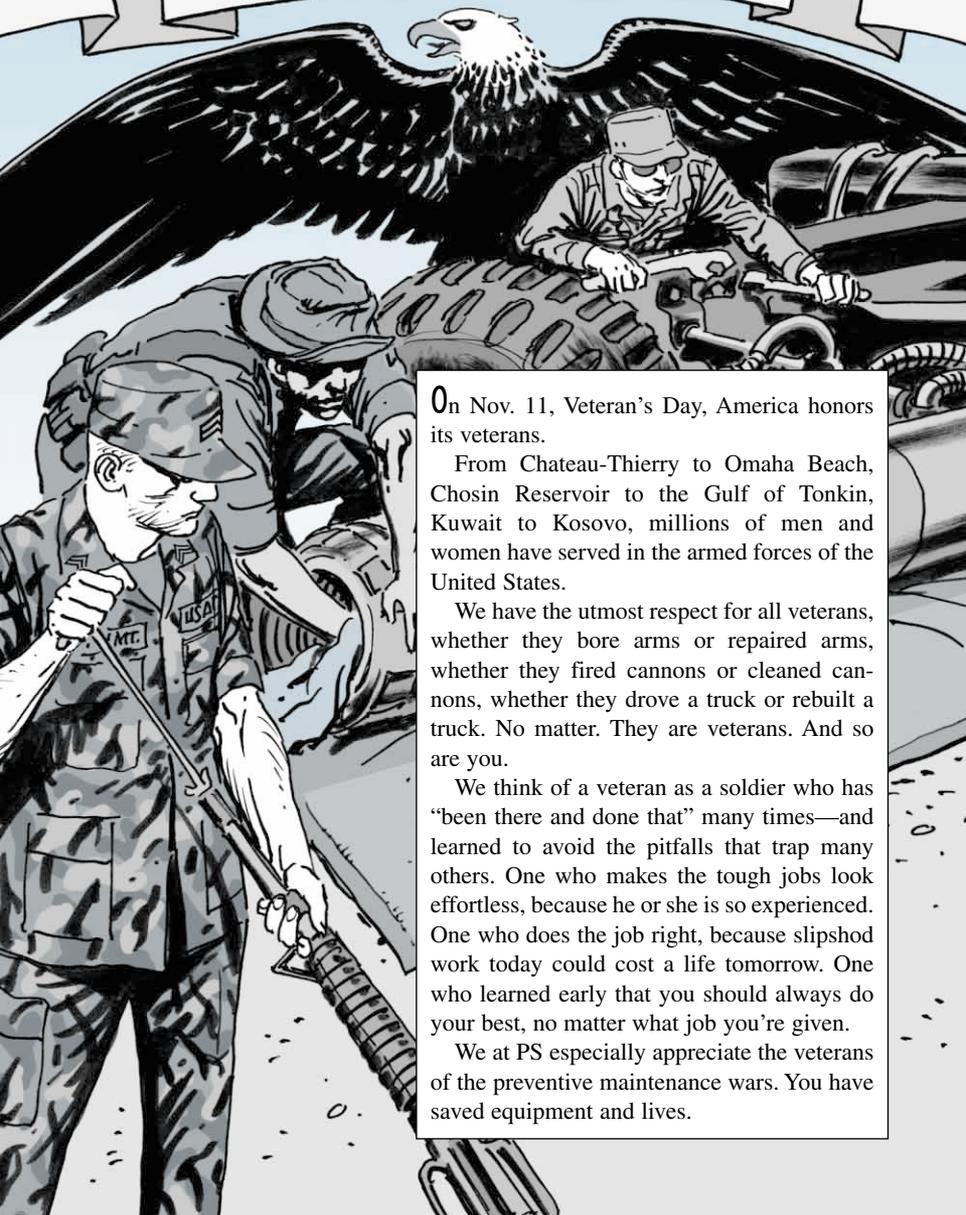
IT'S A CHILLING STORY OF CARELESSNESS ON ICE AND SNOW!



JOE KUBERT



VETERANS ALL!



On Nov. 11, Veteran's Day, America honors its veterans.

From Chateau-Thierry to Omaha Beach, Chosin Reservoir to the Gulf of Tonkin, Kuwait to Kosovo, millions of men and women have served in the armed forces of the United States.

We have the utmost respect for all veterans, whether they bore arms or repaired arms, whether they fired cannons or cleaned cannons, whether they drove a truck or rebuilt a truck. No matter. They are veterans. And so are you.

We think of a veteran as a soldier who has "been there and done that" many times—and learned to avoid the pitfalls that trap many others. One who makes the tough jobs look effortless, because he or she is so experienced. One who does the job right, because slipshod work today could cost a life tomorrow. One who learned early that you should always do your best, no matter what job you're given.

We at PS especially appreciate the veterans of the preventive maintenance wars. You have saved equipment and lives.

PS

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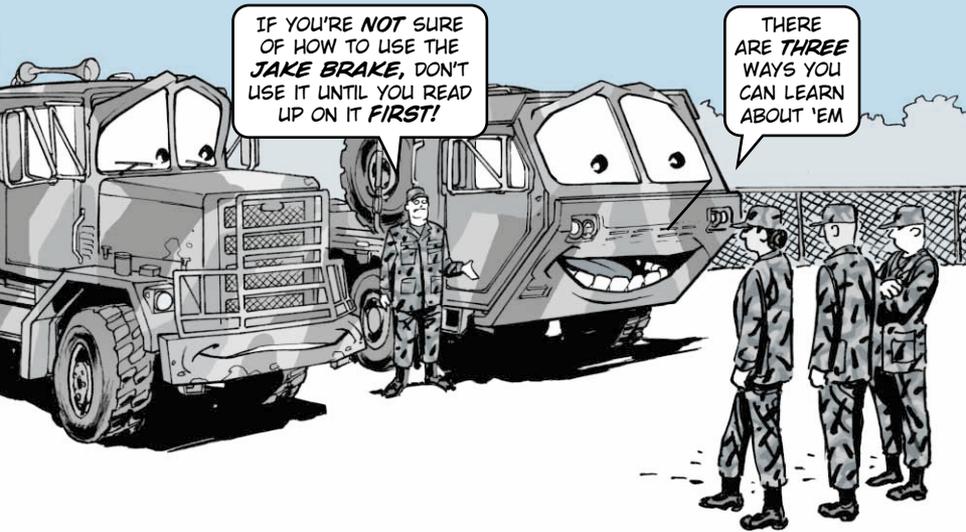
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JACOBS BRAKE



Not everyone who shows up in your unit as a driver is familiar with trucks that use a Jacobs engine brake, commonly referred to as a Jake brake. Some may not even know what an engine brake is.

An engine brake is a hydraulically-operated device on a diesel engine that converts the engine into a power-absorbing air compressor for the purpose of slowing the vehicle. It may be used for descending grades, in-city traffic, approaching stop lights and anywhere else engine braking is required.

But it should **never** be used as a service brake.

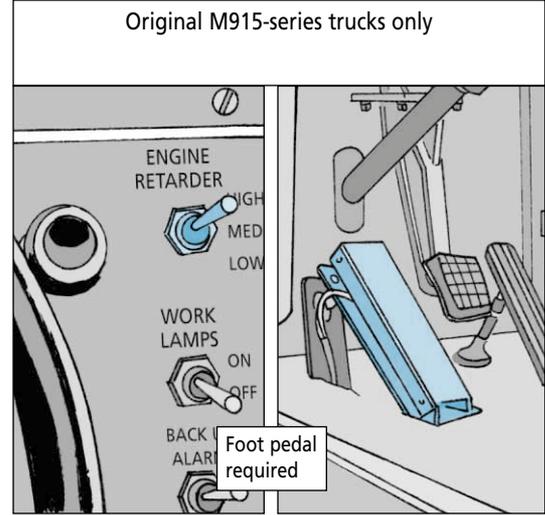
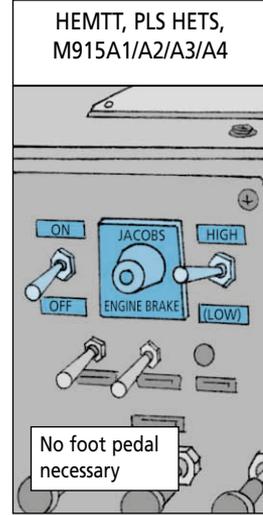
Nor is it for use when bobtailing, pulling an empty trailer or when driving on slippery pavement. Using the engine brake under those conditions can cause jackknifing because the braking force is applied to drive wheels only. Non-drive wheels have no braking.

To help train drivers how to use engine brakes, lessons are included in the following training circulars for trucks that use them:

TC 21-305-1—HEMTT
TC 21-305-6—M915-series tractors
TC 21-305-9—HETS
TC 21-305-10—PLS

The circulars are available through your unit pubs clerk or on the Internet in the Army Doctrine and Training Digital Library (ADTDL) at <http://155.217.58.58>.

INSTRUCTION



The following television tapes (TVT) and compact discs (CDs) also contain lessons on the use of the engine brake:

	TVT 55-26—HEMTT
	TVT 55-18—M915-series tractors
	TVT 55-36—PLS (use for HETS also)
	CD 55-16—HEMTT
	CD 55-20—M915-series tractors
	CD 55-23—PLS
	CD 55-17—HETS

The TVTs and CDs are available on the Internet through DAVIS/DITIS at <http://dodimagery.afis.osd.mil/>. Once there, click on Search DAVIS/DITIS and follow the ordering info.



Mail:
 Joint Visual Information
 Services Distribution Activity
 Warehouse 3/Bay 3
 11 Hap Arnold Blvd
 Tobyhanna, PA
 18466-6102

Fax:
 DSN 795-6106,
 (717) 895-6106

E-mail:
vibuddy@hq.afis.osd.mil

Keep Wheels Tight and Balanced

W-WHAT'S WITH A-ALL THIS SHAKING!?

I-I DUNNO! IT SEEMS TO BE C-COMING FROM THIS STEERING WHEEL, THO!

“What’s shakin’?” takes on an entirely different meaning when the steering wheel of your wheeled vehicle is doing the shaking.

Generally, the steering wheel will shake when the front wheels aren’t balanced, the wheel lug nuts are loose, or the toe-in adjustment is off.

If you don’t identify and repair what’s shaking, your tires are headed for the graveyard, and you may be, too.

That’s because serious shaking can loosen or break wheel studs. That leaves you with no control over your vehicle as you fly down the road.

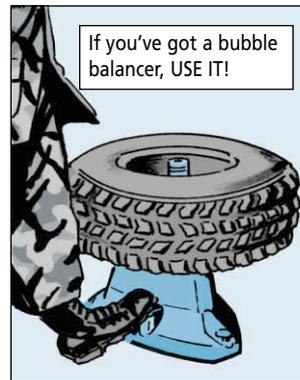
So find your friendly mechanic and introduce him to the bubble balancer, the right lug nut torquing pattern and torque requirements and details on making toe-in adjustments.



Wheel Balancing

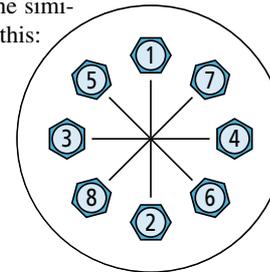
The bubble wheel balancer, NSN 4910-01-093-0167, is part of both the No. 1 and No. 2 Common shop sets. Since you won’t find any wheel weights in the supply catalogs, here’s a list of weights:

NSN 2530-	Size (ounces)	NSN 2530-	Size (ounces)
01-235-8688	0.5	00-050-2064	6
01-188-1349	4	00-050-2060	6
00-050-2067	4	00-709-5922	16

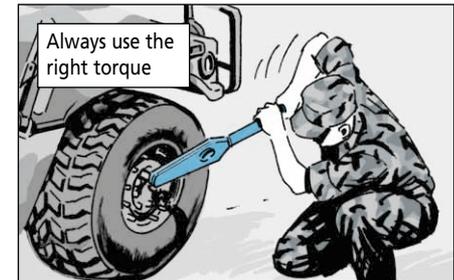


Torquing Lug Nuts

Make sure lug nuts are tightened in the proper order and torqued correctly. Look for the right tightening order in your vehicle’s TM. If your TM doesn’t show a pattern, use one similar to this:



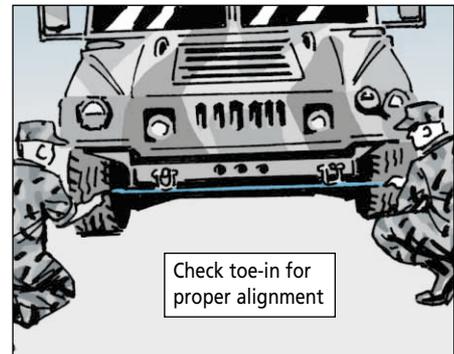
The right torque should be listed in your vehicle’s TM in the paragraph on removing and installing wheels. For example, Page 8-6 of the HMMWV’s -280-20-2 shows that 90-110 lb-ft is the correct torque for lug nuts.



Toe-in Adjustments

Most toe-in adjustments involve measuring the distance between the midpoint of both front tires when that midpoint is facing the front of the vehicle and also when that midpoint is facing the rear of the vehicle.

To determine how your vehicle shapes up for toe-in, eyeball the TM. As an example, front wheel toe-in alignment is covered in Para 8-10 of the HMMWV -280-20-2.



HMMWV...



The following snow plow kits have been developed for use on many HMMWV models by the Army's Cold Regions Research and Engineering Laboratory (CRREL):

- * The complete package kit, NSN 3820-01-473-2777, which includes the snow plow with hardware and hydraulics.
- * Removable plow assembly, NSN 3820-01-473-2783.
- * Affixed vehicle plow kit hardware, NSN 3820-01-473-2793.

Instructions come with each kit, but only depot is authorized to install it on your HMMWV. If your maintenance facility doesn't have depot capability, call the CRREL at DSN 220-4470 or (603) 646-4470. They can help you arrange an appointment with the plow's manufacturer to install it on your HMMWV.

The plow can be mounted on all basic M998, M1037 and M1097 models except those with a winch.



Wheeled Vehicles...



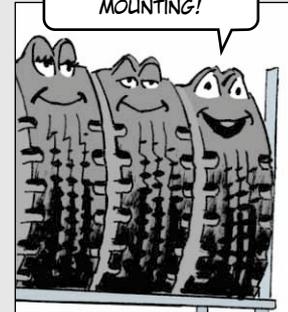
PRE-MOUNTING TIRE TIPS

Take some of the hassle out of mounting tires—especially on HMMWVs—by following these simple tips.

- Remove tires from their restrictive manufacturer's packaging as soon as you can after they get to your motor pool. That lets them loosen up a little before you work with them.
- Tires that sit in cold weather should come indoors at least 24 hours before they're mounted. Cold weather contracts and stiffens rubber.
- Store tires on their treads. That widens the gap between the beads and makes mounting easier.

These tips will make installing a runflat spacer, for example, much easier for your HMMWV maintainers.

STORE US ON OUR TREADS AND LET US WARM UP BEFORE MOUNTING!



FMTV...

DOOR HANDLE NO HANDHOLD

Operators and mechanics, the door handle on FMTVs is no handhold for climbing into or out of the cab. Use it only to help push the door open or swing it shut.

WRONG

Door handle is not strong enough to support your weight



RIGHT

Instead, use handholds just inside door on either side of cab



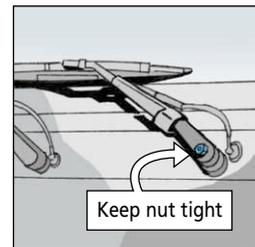
WIPE OUT WIPER PROBLEM

A loose nut on an FMTV wiper arm shaft can cause erratic wiper action and eventually tear up the blade.

Yep, it's a small thing, but small things often tend to cause bigger problems. Like trying to drive in a pouring rain or trailing another vehicle through mud with wipers that don't work.

Nip this wiper problem in the bud by lifting the cover off the blade base and checking the shaft nut. Make sure it's tight and that no damage has already been done. If the nut is loose, or if you can see damage, let your mechanic know.

He can find the removal/replacement info in Para 6-13 of TM 9-2320-365-20-3 for 2 1/2-ton models and in Para 18-3 of TM 9-2320-366-20-3 for 5-ton models.



BENDIX AND DOUGLAS ELECTRICAL CONNECTORS

ELECTRICAL TOOL KIT, NSN 5180-00-876-9336, BRINGS YOU ALL THE TOOLS YOU NEED TO INSTALL BENDIX AND DOUGLAS ELECTRICAL CONNECTORS.



BUT IT DOES **NOT** BRING THE CONNECTORS THEMSELVES.

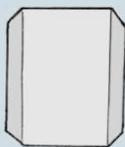
HERE'S WHAT YOU NEED TO MAKE UP THE BENDIX AND DOUGLAS KITS.



YOU **CAN** ORDER THE ENTIRE KITS, BUT **DON'T** UNLESS YOU NEED EVERY TYPE OF CONNECTOR LISTED.

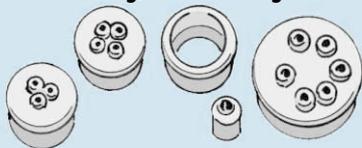
Bendix Kit, NSN 5999-00-570-1380

Bushing, rubber: 30° chamfer



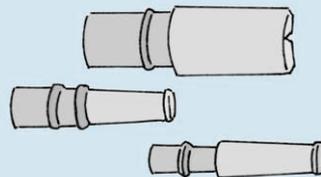
NSN	ID (inches)	OD (inches)	Length (inches)
5365-00-			
641-8645	0.495	0.715	0.481
514-4455	0.620	1.057	0.717
514-4457	0.682	1.057	0.697
514-4454	0.745	1.057	0.633
514-4456	0.932	1.370	0.684

Bushing, rubber: flanged



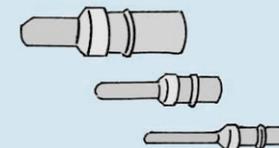
NSN	# holes	OD (inches)
5365-00-772-2343	1	0.375
5340-00-752-7630	1	0.625
5365-00-559-0283	3	0.625
5365-00-752-7628	4	0.625
5365-00-772-2323	6	1.000
5325-00-338-1274	3	1.000
5365-00-772-2322	8	1.000
5365-00-090-5426	12	1.240

Connector, electrical: solder, female



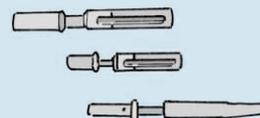
NSN 5999-00-	Size	Length (inches)
771-6523	0	1.750
771-6525	4	1.438
771-6527	8	1.438

Connector, electrical: solder, male



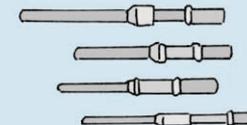
NSN 5999-00-	Size	Length (inches)
368-4852	0	1.750
771-6524	4	1.438
771-6526	8	1.438

Connector, electrical: solderless, female



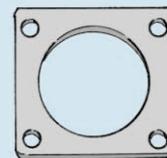
NSN 5999-00-	Size	Length (inches)
636-6876	12	1.438
752-7648	16	1.047
259-3143	16	1.438

Connector, electrical: solderless, male



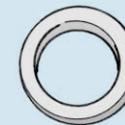
NSN 5999-00-	Size	Length (inches)
752-7655	12	1.438
758-7651	16	1.047
752-7649	16	1.047
491-8194	16	1.250

Gasket: square, 1/2-in rubber



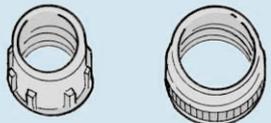
NSN 5330-00-	ID (inch)	OD (inch)
593-6442	3/4	1 1/2
641-4338	7/8	1 3/8
543-6849	1	1 1/2
641-4336	1 3/8	1 5/8

Retainer, packing: 30° countersink



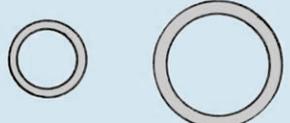
NSN	ID (inches)	OD (inches)
5330-00-514-4461	.516	0.710
5330-00-514-4460	.641	1.052
5310-00-771-6716	.703	1.052
5330-00-514-4459	.766	1.052
5330-00-514-4458	.953	1.365

Nut, bushing, retainer



NSN	Description
5935-00-333-3088	5/8-24 NEF-2 x 1 15/16
5935-00-772-3307	7/8-20 NEF-2 x 1 15/16
5935-00-333-9414	1 1/4-18 NEF-2 x 1
5310-00-393-6685	1 1/8-18 NEF-2 x 1

Washer, spring tension: curved



NSN 5310-00-	Description
752-7639	1/4-in screw size (1 1/4-in ID, 1/16-in OD), 4 leaves
752-7640	1/2-in screw size (3 3/4-in ID, 2 1/2-in OD), 2 leaves
595-7486	3/4-in screw size (4 9/16-in ID, 1-in OD)
771-6722	7/8-in screw size (1 15/16-in ID, 1 15/16-in OD)

Douglas Kit, NSN 5999-00-570-1060

Bushing

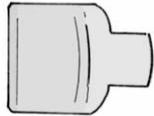


NSN	Description
5975-00-614-9460	1/2-in long, 3/16-in wide (for two 16 AWG wires)
5975-00-614-9458	1/2-in long, 1/16-in wide (for two 14 AWG wires)

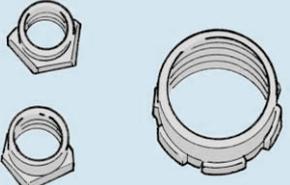
Cutting oil,
2-oz bottle
NSN 9150-00-234-5198



Splice connector:
Y-type,
NSN 5935-00-501-7177



Nut, coupling, electrical conduit: hex



NSN 5975-00-	Description
522-7125	3/4-20 NEF-2 x 4 5/8-in thick
752-7644	7/8-20 NEF-2 x 1/2-in thick
697-7769	1-20 NEF-2 x 4 5/8-in thick
697-7860	1 1/8-18 NEF-2 x 4 5/8-in thick
771-6634	1 1/4-18 NEF-2 x 2 1/2-in thick

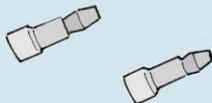
Silicone compound,
2-oz tube,
NSN 6850-00-177-5094



Methyl ethyl ketone,
3-oz bottle
NSN 6810-00-264-8983



Contact, electrical



NSN 5999-00-	For AWG wire
925-6495	12
057-2929	14
926-3144	16

Shell, electrical: male



NSN 5935-00-	Description
030-1563	For male, waterproof, Y-type, 3-conductor assembly (mates with shell, NSN 5935-00-201-8143)
300-9909	For male, waterproof, straight, 2-conductor assembly (mates with shell, NSN 5935-00-768-7042)

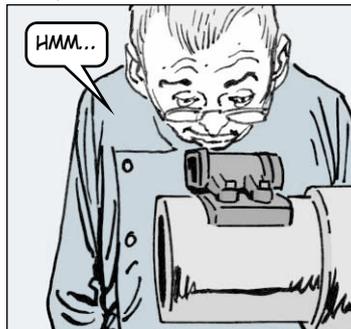


Shell, electrical: female

NSN 5935-00-	Description
201-8143	For female, waterproof, Y-type, 3-conductor assembly (mates with shell) NSN 5935-00-030-1563
768-7042	For female, waterproof, straight, 2-conductor assembly (mates with shell) NSN 5935-00-300-9909



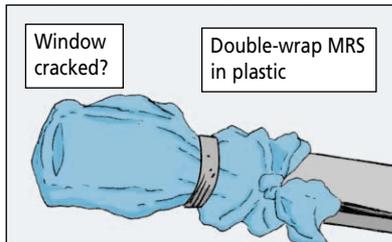
WATCH FOR



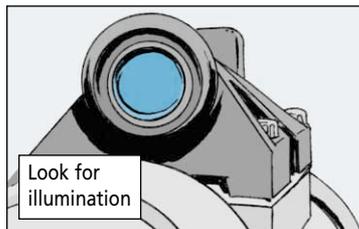
The desiccant inside a tank's muzzle reference sensor (MRS) is there to soak up moisture, but if it freezes, the MRS window can break. Since the MRS uses radioactive tritium for its light source, cracks are real bad news.

The desiccant is supposed to be changed during semiannual maintenance, but to prevent freeze cracks, it's important to check the desiccant for moisture at least monthly during cold weather.

Before you start, take a look at the MRS window. If you see cracks or excessive amounts of moisture, double-wrap the MRS in plastic and notify your support.



If there is no evidence of leaks, check the MRS for proper illumination. Cover the MRS's window and look into the objective end for illumination from the tritium light source. If there is no glow, it could mean the tritium cell is leaking inside the MRS. Stop and call in your radiation protection officer (RPO) immediately!



Finally, always wear the latex gloves that come with the desiccant kit, NSN 1240-01-424-4628, to protect yourself against potential tritium leaks.

FROZEN DESICCANT

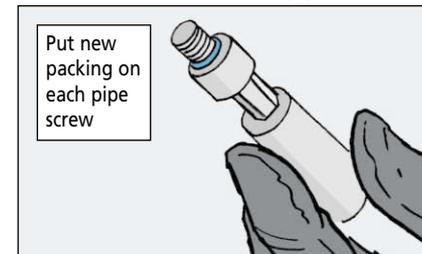
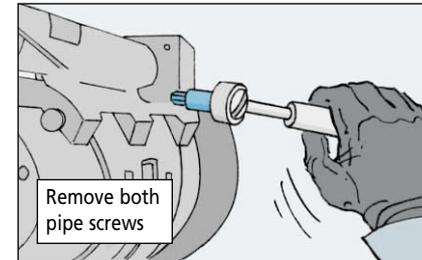


IF THE DESICCANT NEEDS TO BE REPLACED, DO IT LIKE THIS...

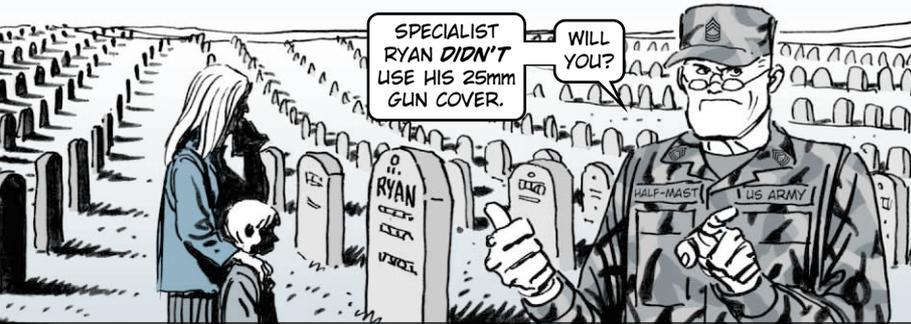


AND DON'T FORGET TO WEAR GLOVES!

1. Use a 3/8-in socket-head screw key to remove both pipe screws on the barrel of the MRS.
2. Remove the old O-rings and put them in a plastic bag.
3. Unwrap a new desiccant, NSN 6850-01-081-4193, and check its color. If it's blue, use it. If it's some other color, turn it in and get another.
4. Push the old desiccant out of the barrel hole by sliding in the new desiccant. Put the old desiccant in the plastic bag along with the O-rings from the pipe screws.
5. Install two new O-rings, NSN 5331-00-724-7902, from the desiccant kit. Install the screws and torque 'em between 240-250 lb-in.
6. Put the latex gloves in the plastic bag and seal it. Place the bundle into a second plastic bag and seal it.
7. Turn the bag in to your RPO for disposal as radioactive waste.



USING COVER A NO-BRAINER



Sure, it's less work to leave the M242 25mm chain gun's cover, NSN 1005-01-171-8316, folded up and out of the way when firing. The zippers, hook-and-pile tabs, and tight space make installing the cover before firing a royal pain.

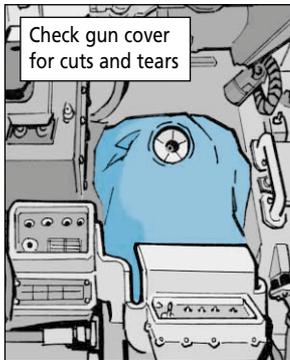
'Course, the pain could be a whole lot worse if you **don't** use the cover.

When you fire the 25mm gun, it produces a colorless, odorless gas called carbon monoxide. The Bradley's rotor fan pulls the fumes from the gun cover and sends them out the plenum.

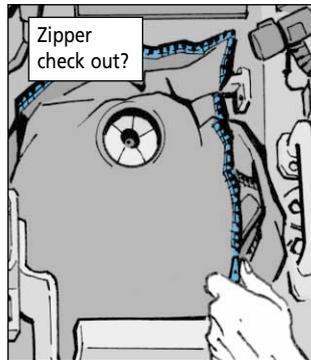
If the gun cover is not used, those fumes end up right there in the turret with you. Limited exposure can cause headaches, nausea, shortness of breath, dizziness and confusion. Extensive exposure can kill you.

So make sure the gun cover is used **every time** the 25mm gun is fired. And make sure the cover is in good working condition.

Eyeball the cover for rips and tears. Check the zipper and hook-and-pile tabs to make sure they work. If the cover is damaged or missing, your Bradley is NMC.



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THIS WORD IS ALSO IN TACOM GROUND PRECAUTIONARY MESSAGE 01-008.

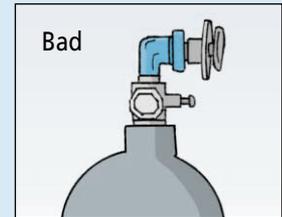
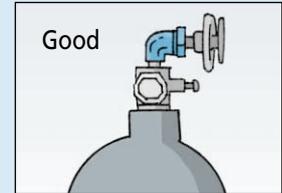


Fire extinguisher bottles aren't much good if they can't hold a charge. But leaking bottles are exactly what some Bradleys and MLRS carriers are carrying.

Between Sep 99 and Feb 00, some FM 200 engine compartment fire bottles, NSN 4210-01-463-0807, came equipped with a defective elbow on the valve. The elbow allows a slow leak that eventually empties the bottle.

If your vehicle had new fire bottles installed during those 6 months or if you're unsure when the bottles were installed, check them now.

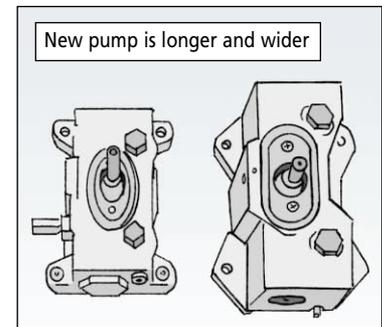
If you've got a bad elbow, contact Windell Bishop, Red River Army Depot's customer service representative, at DSN 829-4816, (903) 334-4816 or (800) 442-0816 to arrange for a replacement elbow.



New Pump Needs New Bracket

The M2/M3-series Bradley's engine access door pump, NSN 4320-01-271-0297, has been replaced by a new pump, NSN 4320-01-432-6208. Since the new pump is built longer and wider, it needs its own mounting bracket, NSN 5340-01-458-7289. Make a note in your parts TM until it's updated.

Those of you with basic model Bradleys don't have to worry. Your vehicles don't have an engine access door pump.

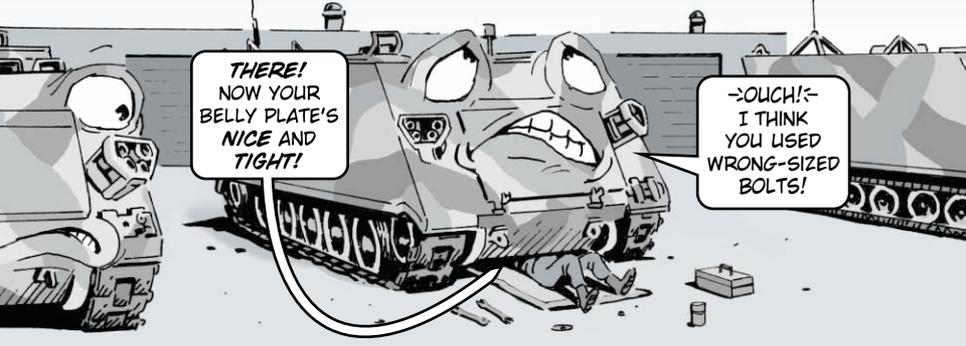


PS 588

15

NOV 01

Cover Connection's Critical



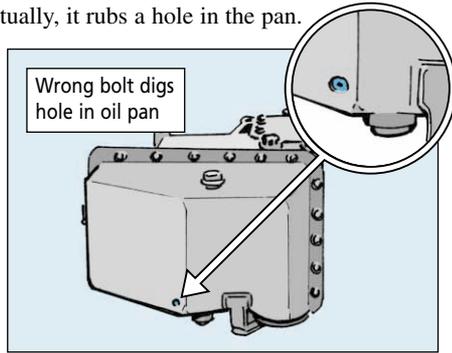
When it's time to bolt the hull access cover, NSN 5340-00-759-5409, onto an M113-series vehicle, are you one of those mechanics who grabs whatever hardware's handy?

If so, that vehicle may soon be included on your unit's NMC list.

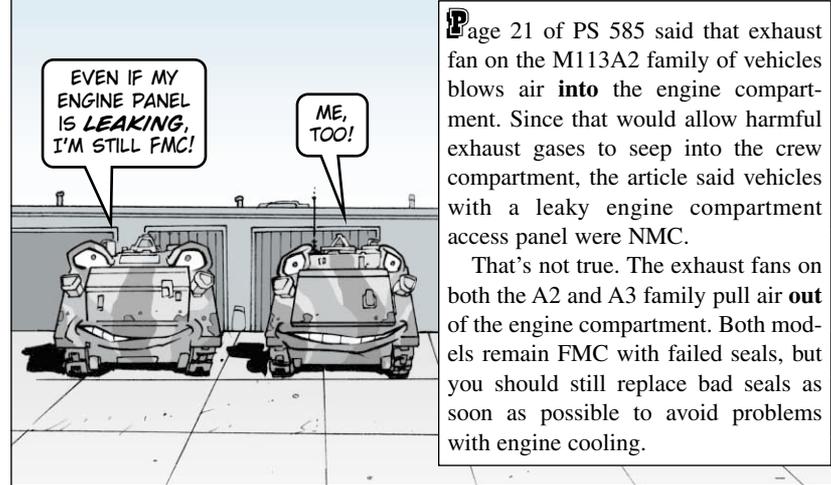
The problem comes when you use a bolt that's 2 inches long or longer. That bolt will hit the transmission oil pan. Eventually, it rubs a hole in the pan.

When the transmission loses enough oil, the clutches burn up and you're left with a vehicle that's going nowhere.

So make sure you use only the 1/4-in bolts, NSN 5305-00-719-5219, that are called out in Fig 208 of TM 9-2350-261- 24P and Fig 190 of TM 9-2350-277-24P. They hold the access cover in place without damaging the transmission oil pan.



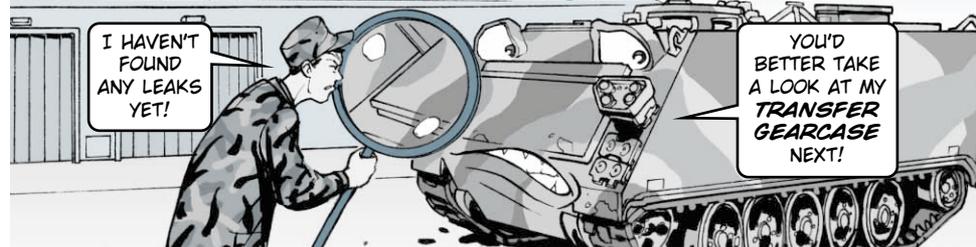
Panel Seal Revisited



Page 21 of PS 585 said that exhaust fan on the M113A2 family of vehicles blows air **into** the engine compartment. Since that would allow harmful exhaust gases to seep into the crew compartment, the article said vehicles with a leaky engine compartment access panel were NMC.

That's not true. The exhaust fans on both the A2 and A3 family pull air **out** of the engine compartment. Both models remain FMC with failed seals, but you should still replace bad seals as soon as possible to avoid problems with engine cooling.

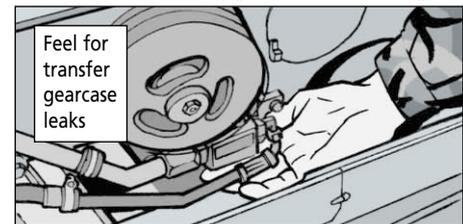
LOCATE THE LEAKY TRANSFER



While you're doing PMCS on your M113-series vehicle, take a quick look at the transfer gearcase for leaks.

It seems that some new gearcase seals aren't getting any sealant when they're first installed. It doesn't take long for those gearcases to leak, so pretty soon you're paying for a new gearcase.

So be alert for leaks. If you spot one, let your DS know right away. And make sure they add a bead of sealant, NSN 8030-00-291-1789, around the outside circumference of the seal's metal frame where it touches the gearcase housing.



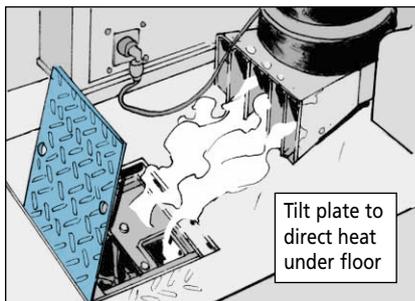
DIVERT HEAT WITH FLOOR PLATE



The personnel heater in the back of your M88A1 recovery vehicle puts out a lot of heat. Unfortunately, that means crewmen in the back of the vehicle cook while the driver freezes.

You can better regulate the flow of heated air by opening the oil reservoir access plate and leaning it at an angle toward the heater vent.

That diverts the air under the floor plates so that it warms the entire vehicle by slowly radiating upward through the steel floor plates. It keeps everyone comfortable in the front and back of the vehicle.



There's another benefit, too. In extremely cold temperatures, the heated air under the floor plates helps keep the hydraulic system warm. It's ready to go whenever you need it.

Make sure you run the vent blower whenever the heater is on, though. That prevents a buildup of carbon dioxide in the vehicle.

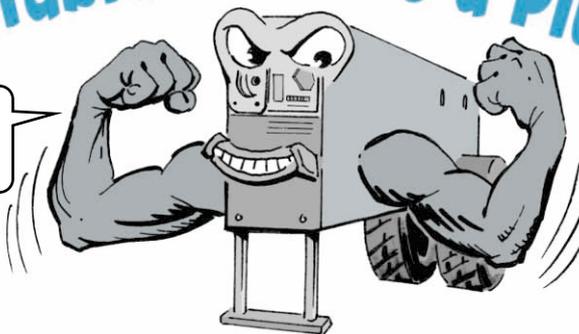
You'll also need to move the portable fire extinguisher that's near the right side air particulate filter. Otherwise, diverted air heats up the extinguisher and can cause a discharge.

When you put the floor plate back in place later, be sure to put the extinguisher back in its original position.



portable Power's a Plus

NEED SOME POWER?
I'M YOUR GUY!



Dear Editor,

Anyone who's had to slave start a tank knows how tough it is to maneuver another vehicle close enough to perform the operation, especially within the close confines of a motor pool.

Not only is it time-consuming, but it usually takes two or three soldiers to do the job. And if there's one thing maintenance managers can't spare, it's personnel.

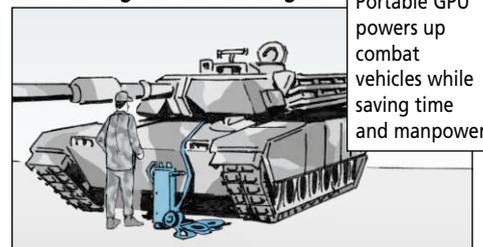
We've solved this problem by buying a ground power unit (GPU), NSN 6130-01-475-5321, for our motor pool. The GPU is a Class IX item, weighs only 56 pounds and is easy to move between vehicles. It'll restart several vehicles without having to be recharged.

The GPU recharges in about 75 minutes from a 110/220-volt or 240-volt outlet. You can recharge it in the field by leaving it hooked up to a running vehicle.

The GPU uses a dry-cell design, so there's no battery acid to handle.

With the GPU, a maintenance team in a small vehicle can make repairs to a disabled tank, re-start it and send it back into action without having another tank or recovery vehicle on site to provide power.

CW4 Gilbert Phifer
US Army Ordnance Center and School
Aberdeen Proving Ground, MD

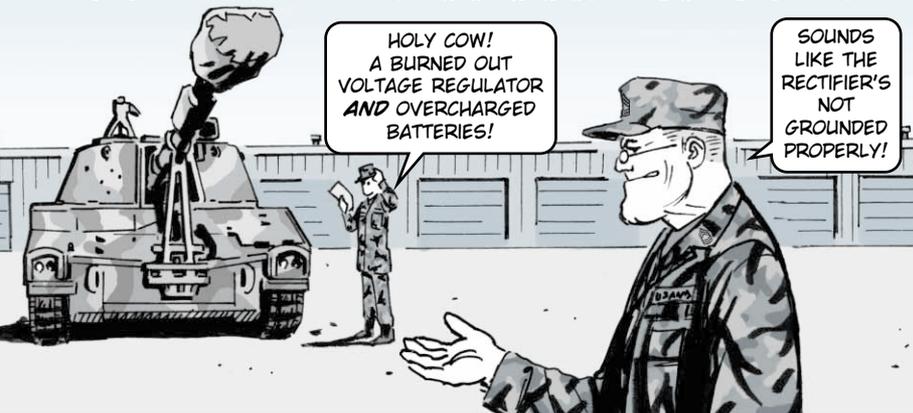


Portable GPU powers up combat vehicles while saving time and manpower

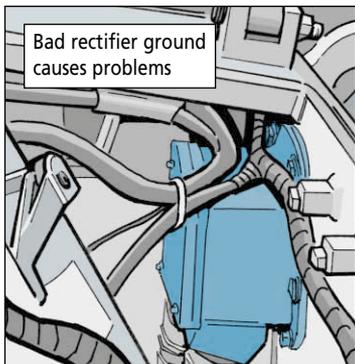
From the desk of the Editor

We get a real charge out of that idea! The GPU works great with all combat, tactical and construction vehicles—anything that uses a 24-volt system.

RECTIFYING A BAD GROUND



A bad rectifier ground causes a whole slew of problems for M109A2-A5 howitzers and the M992A2 ammo carrier. Low voltage readings and burned-out voltage regulators are pretty common.



If you see any of these problems, mechanics, re-ground the rectifier like this:

1. Remove the rectifier from the hull wall.
2. Clean the corrosion, paint and sealing compound from the mounting base, the mounting base bolt holes, and the hull mating surface with clean rags and crocus cloth, NSN 5350-00-221-0872.

Take special care to clean the threads on the two brass bolts, too. They are the real grounding points for the rectifier.

3. Apply a fresh coat of silicone compound, NSN 6850-01-137-8525, to the bottom of the mounting base and the mating surface of the hull.

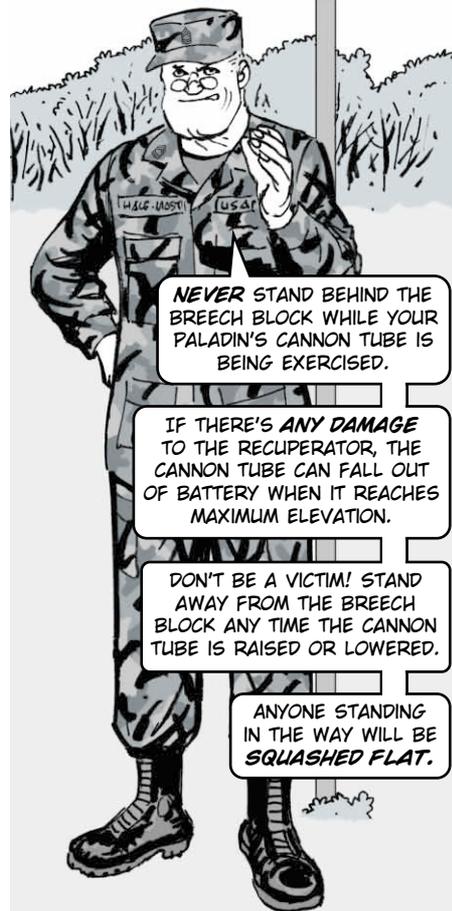
4. Reinstall the rectifier. Make sure you use new lock washers on the mounting bolts. If you don't, the bolts come loose and the rectifier loses its ground.

Get new lock washers with NSN 5310- 01-334-4710 for the M109A2-A5 and NSN 5310-00-913-9776 for the M992A2.

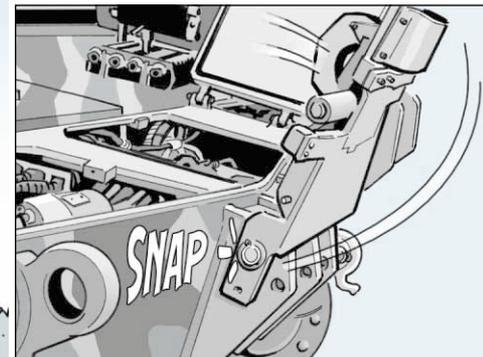
Remember, only the two brass bolts take lock washers on the M109A2-A3 rectifier. It's OK to reuse the flat washers that come with the remaining four bolts.



**Beware
of Falling
Cannons**



DON'T DROP THE TRAVEL LOCK!



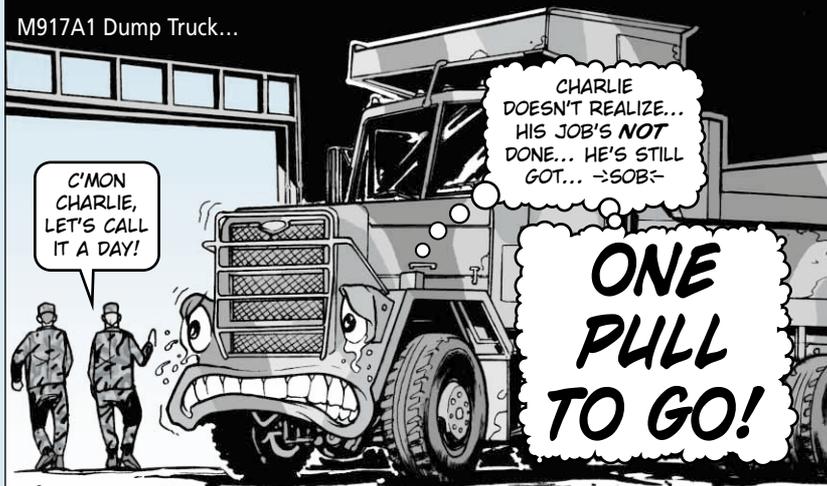
When it's time to move the Paladin's gun tube travel lock to the maintenance position, do it right or you and the travel lock could need maintenance—maybe even replacement!

The travel lock weighs almost 500 pounds, so never let it drop against the bracket rests after removing the quick-release pins. The bracket rests are designed to hold the travel lock in the maintenance position, but only if the lock is lowered gently. If it's dropped, the bracket rests could shear off.

When that happens, the travel lock falls forward until its bottom hits the hull. The lock is damaged—and so are you if you happen to be in the way!



Protect yourself and your Paladin. Lower the travel lock slowly to the maintenance position.



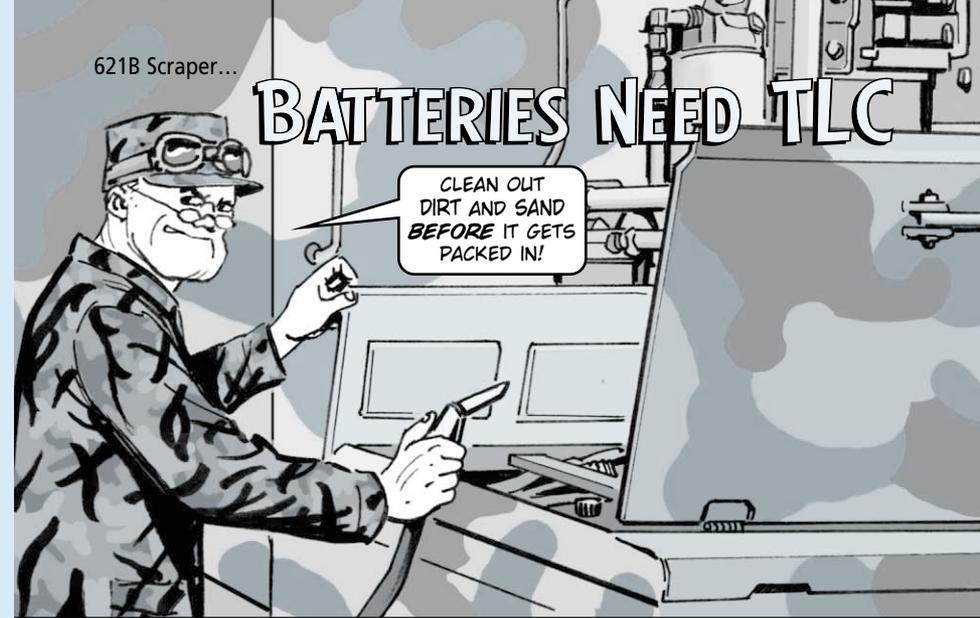
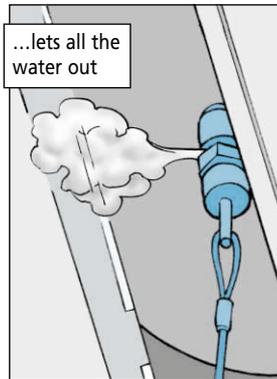
After draining the air tanks on your M917A1 dump truck's air brake system, you're ready to call it a day.

But wait a sec.

What about the air tank for the truck's tailgate and material control system (MCS)? It's seldom drained because it's in the back of the vehicle under the tailgate's cover. But when the temperature drops, condensation gets into the airlines and solenoid-controlled air cylinders.

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

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



Don't forget your scraper's batteries during your weekly PMCS, operators.

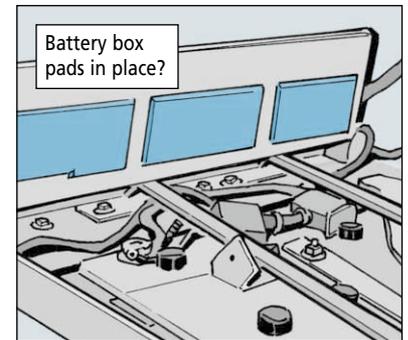
During operation, the battery box collects sand and dirt that turns to mud in wet weather. Mud holds moisture that can close the circuit between the positive and negative terminals. That causes batteries to discharge.

With the battery box open, remove any dirt and sand you find. Then make sure the foam pads on the box's access doors are in place. The pads keep the battery clamps, battery posts and the box's support rails from touching the access door. Without the pads in place, the batteries can short out.

If a pad is torn or missing, your mechanic can replace it. NSN 9320-00-060-9363 brings a 24 x 24-in rubber sheet. Keep the pads in place with cyanoacrylic adhesive, NSN 8040-00-142-9193. This NSN will bring you ten 1-oz bottles.

Any time batteries are removed, eyeball the condition of the battery box. Remove any moisture you find in the bottom of the box. It could cause the box to rust and deteriorate.

Your mechanic can use a wire brush to scrape off rust and old paint. After cleaning, protect the bare metal inside the box with bituminous coating compound, NSN 8030-00-290-5141.



Construction Equipment...

Spray-can Ether? Forget it!



Some vehicle engines have starting aids built in and others don't. But never use spray-can ether regardless of whether or not your equipment has a starting aid.

Using ether where it's not supposed to be used cracks pistons, bends rods and ruins heads.

When your construction equipment won't start, here's what to do:

- Troubleshoot your vehicle according to its TM.
- Go easy on the vehicle's starter. Never keep the starter engaged for more than 15 seconds.
- Have your mechanic replace an empty ether canister if the vehicle has one.
- If your vehicle won't start in three tries, call in your mechanic to find out what's wrong.

130G Grader...

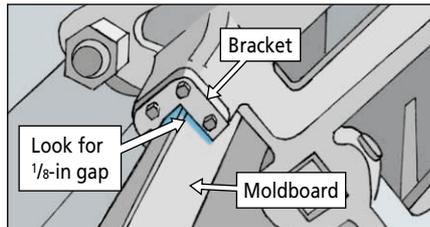
Moldboard Bushing Has Limits

There is no wear limit criteria or PMCS check in the grader TMs for the moldboard's slide bushing.

But when the bushing wears out, the moldboard's slide cylinder starts to shift and drop. Eventually the weight of the grader's blade puts too much strain on the cylinder. That damages the cylinder seal and causes it to leak.

To head off this damage, eyeball the brackets that hold the moldboard in place. The brackets are located at both ends of the blade.

There should be at least $\frac{1}{8}$ inch between the moldboard and bracket. Less than that means the slide bushing is shot. Your unit mechanic must replace it. Make this a quarterly check until it's added to the TM.



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NOV 01

M9 ACE...

KEEP ROLLERS ROLLING

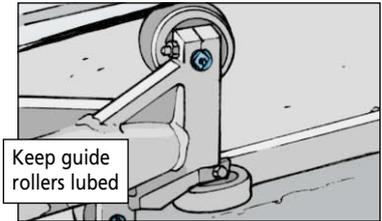
The ACE's ejector guide roller fittings get missed during services because they're out of sight in the earthmover's bowl. Without lube, the rollers lock up.

A roller that won't turn on one side of the bowl causes the ejector to bind or drag on the other side of the bowl. The end result is a lot of wear and tear and early failure for the ejector or bowl.

If you see a rub or indent on the roller bench, it means a roller isn't turning freely.

During scheduled services, give each roller's grease fitting several pumps of grease. While you're at it, do the same for the grease fitting on the ejector's cylinder rod.

For safety's sake, make sure the ejector is pushed completely forward and the lock is engaged before you go into the bowl.



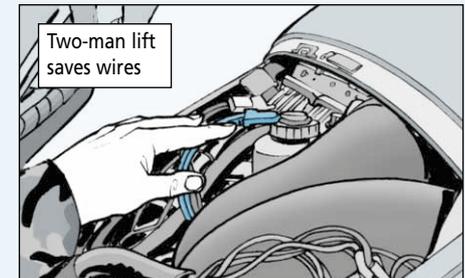
SEE...

WIRE DISCONNECT?

When an excavator's hood is removed, wires to the brake and clutch fluid reservoir sending units hang out like sore thumbs. If the wires get broken, you won't get a reading inside the cab when the fluid levels are low.

So get a buddy to help out when you remove the hood. Make sure you lift instead of slide the hood off. It'll save wires and your back.

Once the hood's off, check the wires where they clip into the reservoirs. Make sure they're good and tight. If they're not, snug 'em up. If the connectors are loose on the wires, report them.



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NOV 01

SEE...

CHECK HYDRAULIC HOSES



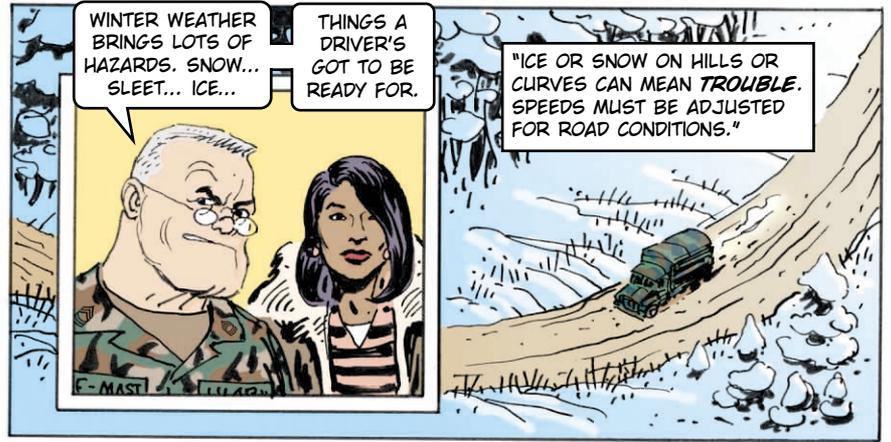
The right amount of clean hydraulic fluid will lubricate the small emplacement excavator's components and keep 'em operating smoothly. That is, if the hydraulic hoses are in good shape.

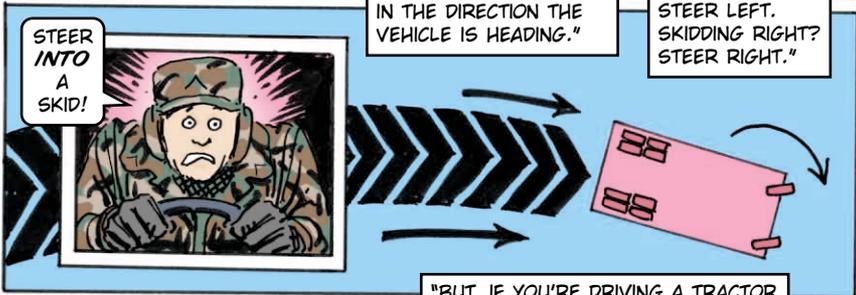
Hoses get brittle from constant exposure to the elements. Hoses to the front loader bucket get the worst of this exposure—especially where they bend and mount into the shutoff valves.

Brittle hoses can leak, then there's not enough hydraulic pressure to operate the front loader bucket.

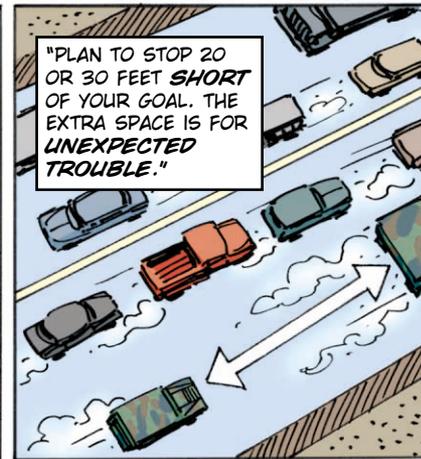
So eyeball each hose, including the ones tucked behind other hoses. Look for oil stains behind or along the bottom of each hose. A Class III leak deadlines the SEE.

Always wear safety goggles when tracking down a leak—oil can be forced out of a pinhole-sized opening with damaging force. If you find a leaking or damaged hose, call in your mechanic to replace the hose—ASAP!





ALWAYS BE AWARE AND ALERT TO OTHER VEHICLES.





"WHEN GOING UPHILL, **MOMENTUM AND TRACTION** GETS YOU THERE."

I KNOW I CAN, I KNOW I CAN...



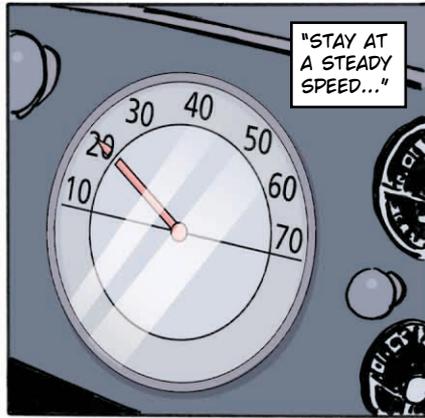
I KNOW I WILL... I KNOW I WILL...

"THE MORE MOMENTUM YOU HAVE, THE LESS TRACTION YOU NEED."

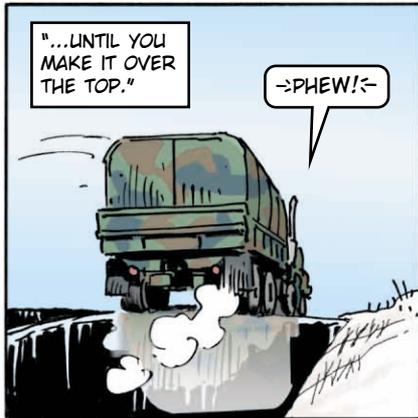


I KNEW I COULD, I KNEW I COULD!

"GET A RUNNING START AND TRY TO MAKE IT TO THE TOP IN ONE UNINTERRUPTED RUN."

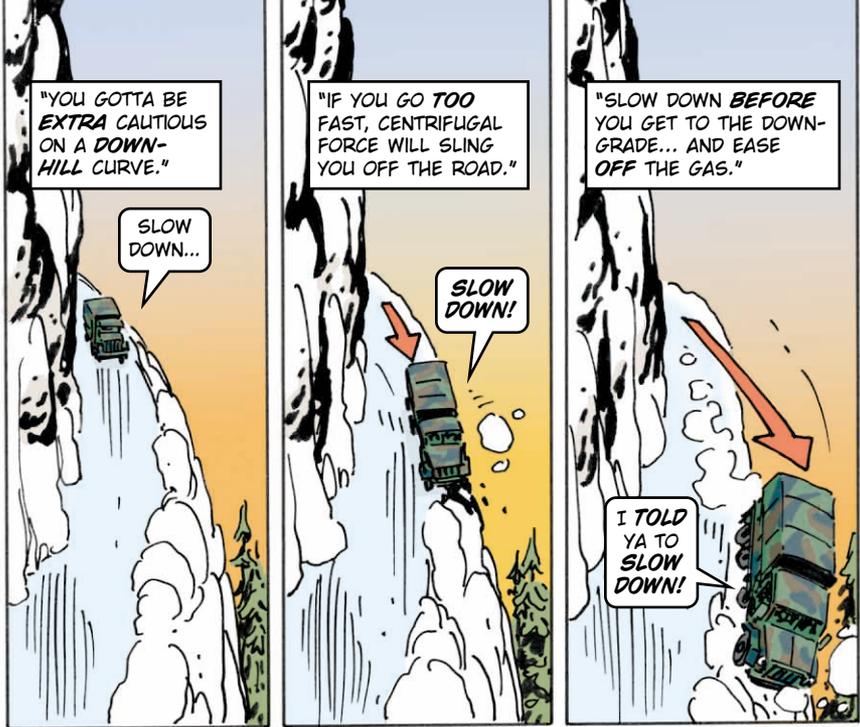


"STAY AT A STEADY SPEED..."



"...UNTIL YOU MAKE IT OVER THE TOP."

->PHEW!<-



"YOU GOTTA BE **EXTRA CAUTIOUS** ON A **DOWN-HILL** CURVE."

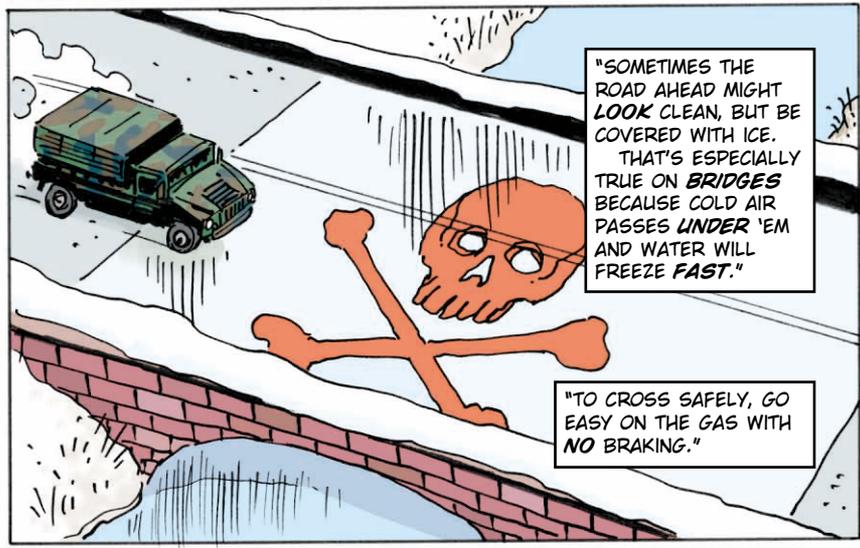
SLOW DOWN...

"IF YOU GO TOO FAST, **CENTRIFUGAL FORCE** WILL SLING YOU OFF THE ROAD."

SLOW DOWN!

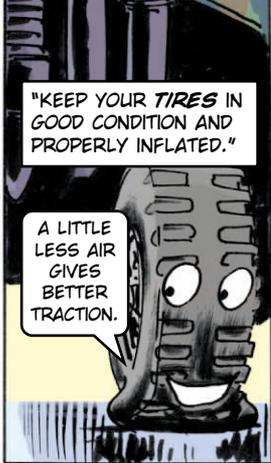
"SLOW DOWN **BEFORE** YOU GET TO THE **DOWN-GRADE**... AND EASE OFF THE GAS."

I TOLD YA TO SLOW DOWN!



"SOMETIMES THE ROAD AHEAD MIGHT **LOOK CLEAN**, BUT BE COVERED WITH ICE. THAT'S ESPECIALLY TRUE ON **BRIDGES** BECAUSE COLD AIR PASSES **UNDER 'EM** AND WATER WILL **FREEZE FAST**."

"TO CROSS SAFELY, GO EASY ON THE GAS WITH **NO BRAKING**."

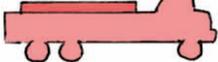


"KEEP YOUR **TIRES** IN GOOD CONDITION AND PROPERLY INFLATED."

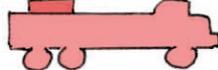
A LITTLE LESS AIR GIVES BETTER TRACTION.

"MAKE SURE THAT LOADS ARE **EVENLY DISTRIBUTED** FOR BALANCE."

Spread full load evenly



Place partial load over rear axle



"AVOID JACK-RABBIT STARTS, SUDDEN STOPS AND SHARP TURNS."

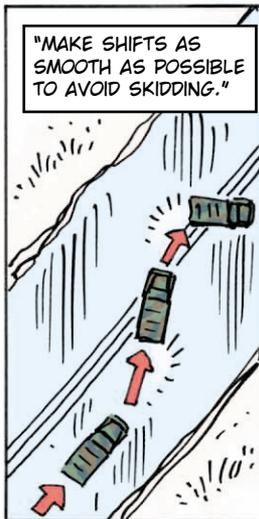
HOLD IT!
THIS AIN'T **INDY!**



ANYTHING THAT CUTS TRACTION FOR YOUR VEHICLE CUTS CONTROL AND CAN PUT YOU IN DANGER.



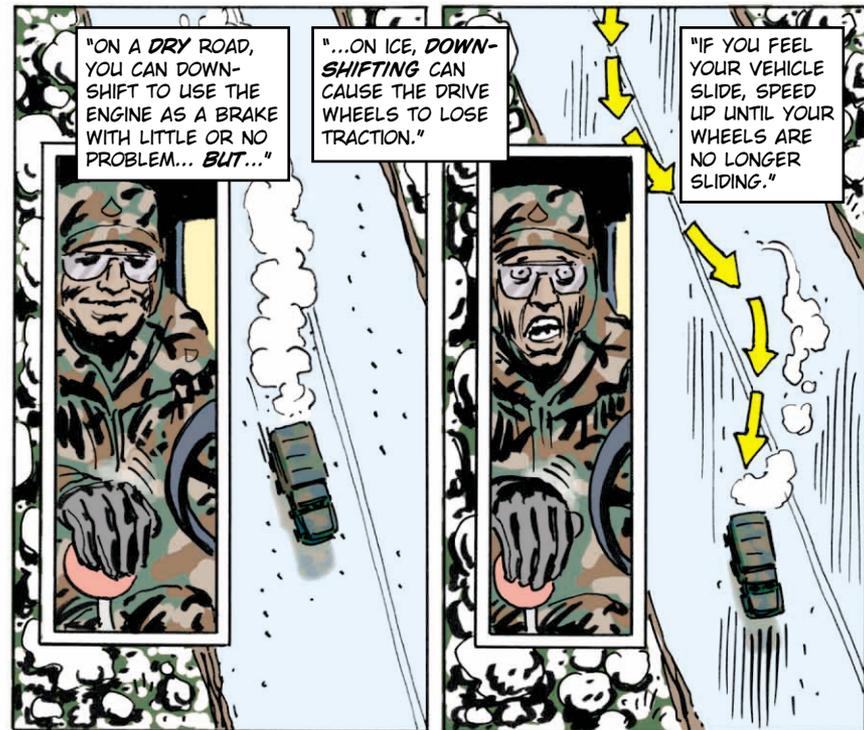
"Y'GOTTA WATCH **SHIFTS** WHEN IT'S ICY... ESPECIALLY **DOWN SHIFTS.**"



"MAKE SHIFTS AS SMOOTH AS POSSIBLE TO AVOID SKIDDING."



"WITH A MANUAL SHIFT, HIGHER GEARS SMOOTHLY ENGAGED CAN TAKE YOU TO THE TOP OF THE GRADE."



"ON A **DRY ROAD**, YOU CAN **DOWN-SHIFT** TO USE THE ENGINE AS A BRAKE WITH LITTLE OR NO PROBLEM... **BUT...**"

"...ON **ICE**, **DOWN-SHIFTING** CAN CAUSE THE DRIVE WHEELS TO LOSE TRACTION."

"IF YOU FEEL YOUR VEHICLE SLIDE, SPEED UP UNTIL YOUR WHEELS ARE NO LONGER SLIDING."



"IF YOU'RE DRIVING A VEHICLE WITH **ANTI-LOCK BRAKES**, TAP-TAP-TAP 'EM. DO NOT PUMP 'EM."



"IF YOU HAVE **AIR BRAKES**, APPLY A LIGHT STEADY PRESSURE."

AHHHH!



NEVER USE JAKE BRAKES IN SLIPPERY CONDITIONS.



"DON'T FORGET THAT UNDER ICY CONDITIONS IT CAN TAKE UP TO 12 TIMES THE NORMAL DISTANCE TO STOP."



"NEVER SLAM ON BRAKES. FRONT WHEELS WILL LOCK AND YOU'LL LOSE YOUR STEERING."

UH-OH ...I'M LOCKED!



HOW'D PRIVATE UNSER GET HURT? WHAT DID HE DO WRONG?

HIM? OH, NOTHIN' MUCH.

HE GOT OUT OF HIS VEHICLE AND SLIPPED ON THE ICE.

HGU-56/P AIHS...

Keep Visors on Track



OUCH! DON'T PULL MY KNOBS!

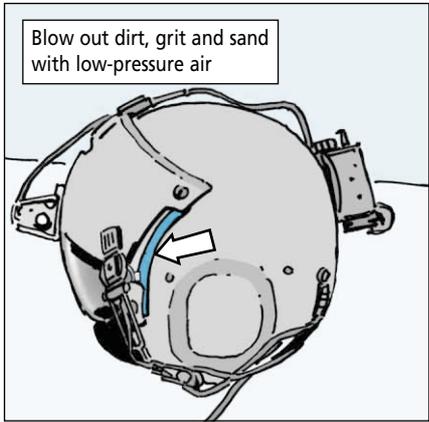
ALSE techs, keep HGU-56/P aircrew integrated helmet system (AIHS) visor tracks clean and you'll avoid jams.

The visors have guides that ride in tracks. The build-up of dirt, sand and grit in the tracks makes raising and lowering the visors difficult. It can also cause the visors to bind or jump out of the tracks.

When the visors start sticking, resist pulling on the right and left actuating knobs. You'll end up breaking the knobs. Then the helmet is NMC until you get new visors.

To keep your visors operating smoothly, use low-pressure air to blow away dirt, grit and sand. Or use a pipe cleaner to get the gunk out. But no lubricants! They attract dust and leave a sticky residue.

Course, you should also keep up with the helmet PMCS in Para 3-3 of TM 1-8415-216-12&P.



Blow out dirt, grit and sand with low-pressure air

LET GO!

Stop Cable Tug of War

NO! YOU LET GO!

THE ANTENNA CABLE ON THE CHINOOK'S AN/ARC-186 RADIO IS A **SHORT ONE**.

THERE'S ONLY ONE GOOD WAY TO STOP THAT TUG OF WAR, AIRCRAFT REPAIRMEN!

When you remove the radio for maintenance or to work on other components, the pulling and tugging can strain and break the cable's shielding.

Pull and check cable connectors for proper installation

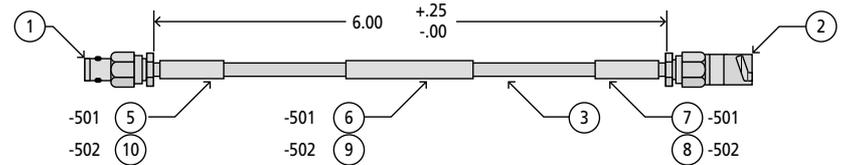
If that happens, you may lose communication, plus exposed wires will let radio frequencies interfere with the wire bundles for the automatic flight control system (AFCS).

That could mean uncommanded movements in the aft end of the aircraft during flight or on the ground during runups.

I T-T-TOLD YOU THIS C-C-COULD HAP-PEN!

SO GET YOUR AVIONICS SHOP TO MAKE A 6-INCH EXTENDER WITH MATCHING **MALE** AND **FEMALE** CONNECTORS.

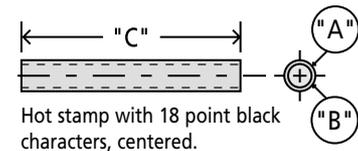
Qty/amt recd		Parts List				
502	501	Ref/find	Cage code	Part number	Description	NSN
1	-	10	20309	95298737-6	Identifier sleeve	N / A
1	-	9	20309	95298737-5	Identifier sleeve	N / A
1	-	8	20309	95298737-4	Identifier sleeve	N / A
-	1	7	20309	95298737-3	Identifier sleeve	N / A
-	1	6	20309	95298737-2	Identifier sleeve	N / A
-	1	5	20309	95298737-1	Identifier sleeve	N / A
3"	3"	4	81349	M23053/5/106-0	Sleeve, insulation	5970-00-814-2878
7"	7"	3	81349	M17/111-RG303	Cable, RF	6145-00-080-6517
1	1	2	80058	UG-1366/ U	Connector, RF	5935-00-259-4018
1	1	1	80058	UG-1415/ U	Connector, RF	5935-01-049-9867



While you're checking out the cable, check the following items that can also interfere with radio communication.

- ✓ Make sure the antenna cable connector plug body locks onto the radio AM jack J4. The pulling and tugging can loosen the connector.
- ✓ Make sure the connector is installed properly on the cable. Otherwise it won't mate properly with the receiver jack's contact.
- ✓ Make sure the connector's nuts are torqued to 9 to 11 in-lbs. Hand tight won't do.

Dash No.	Ident "A"	Ident "B"	"C"	ITEM
-1	TO	182P3	.75"	4
-2	20309ASSY	95298737 - 501	1.5"	4
-3	ARC - 186	J3	.75"	4
-4	ARC - 186	J4	.75"	4
-5	20309ASSY	95298737 - 502	1.5"	4
-6	TO	182P4	.75"	4

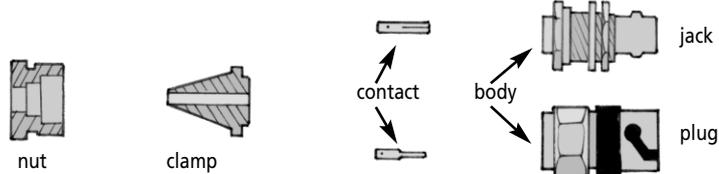


GET YOUR AVIONICS SHOP TO FIX BROKEN CONNECTORS WITH THESE INSTRUCTIONS.

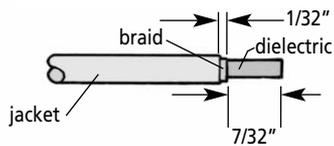


THEY'RE FROM FM 11-487-2/14, STANDARD INSTALLATION PRACTICES: RF CONNECTORS AND CABLES.

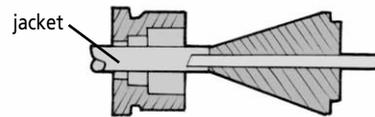
1. Disassemble connector and lay out parts as shown.



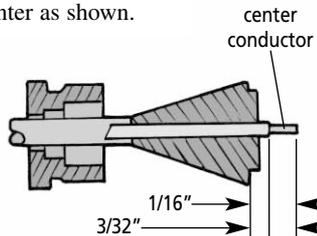
2. Cut cable off square on end. Do not deform. Cut jacket and braid to dimension shown. Do not nick dielectric.



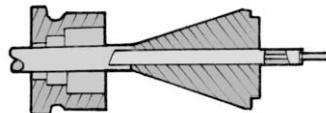
3. Slide nut over jacket and push back out of way. Slide clamp over dielectric under braid. Push firmly until clamp is flush with braid.



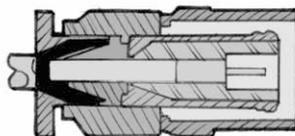
4. Trim dielectric and center as shown.



5. Solder contact on center conductor. Remove excess solder. Do not overheat.



6. Insert cable assembly into connector (either jack or plug). Push firmly into place. After nut is started, tighten with torque wrench 9 to 11 in-lbs.



NOTE: All dimensions are in inches.



CH-47D...

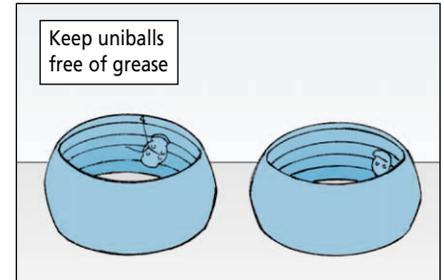
CLEAN UNIBALLS LAST LONGER



If you repairers don't keep your Chinook forward and aft uniball surfaces clean, smooth, and free of grease, friction can lock up the flight controls. That means you might see the ground sooner than you expect. So crank up the APU and move the flight control thrust lever to expose the uniballs. Inspect, clean and repair them like it says in Task 5-123.1 of TM 55-1520-240-23-4.

Go easy when you grease the washplates. If excess grease gets on the uniballs, it acts like a magnet for grit and dirt that can scratch, nick, bind or cause pitting of the uniballs. That increases uniball friction and leads to failure.

Clean uniballs last longer and only need replacing when they're out of tolerance. So keep 'em clean.



Good Launching



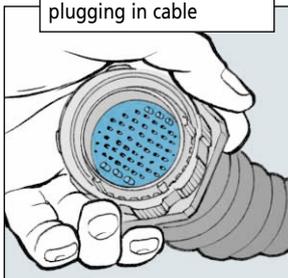
It stands to reason. If your Kiowa Warrior's M279 missile launcher is in bad shape, you won't be launching too many Hellfires. Good launching begins with launcher care and PM.

Check before you plug it in. If you plug in the launcher umbilical cable connector without first checking both the launcher and aircraft connectors for obstructions and bent pins, you risk a 3-day repair job. That's how long it takes to replace the aircraft connector.

If you spot dirt or sand in the aircraft connector, clean it out with an air hose and an artist's brush. Stubborn dirt on pins can be cleaned with water and detergent. After cleaning, rinse the connectors with clean water and then put isopropyl alcohol on the pins.

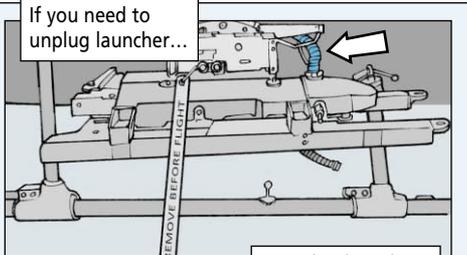
Check the umbilical connector for bent pins, particularly pins 98 and 99. If you have any doubts about either connector, don't plug in the umbilical connector. Get your repairman to check it out.

Check connectors for dirt and bent pins before plugging in cable



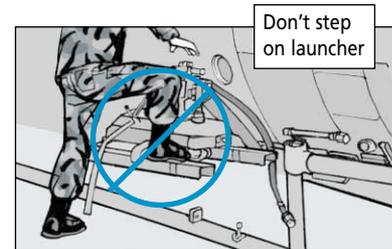
Once the umbilical cable connector is plugged into the aircraft, leave it plugged in. Plugging and unplugging the umbilical just increases the danger of damaging the aircraft connector. If you need to fold up the launcher, disconnect the connector on the launcher.

If you need to unplug launcher...

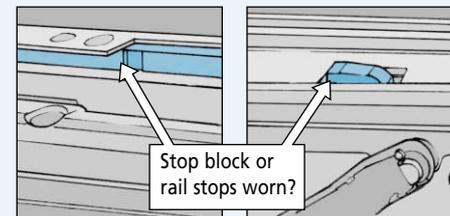


...unplug launcher umbilical connector

Don't step on the launcher. It may look like a good step, but the launcher is not built to hold your weight. If you step on it, you damage the environmental cover assembly and, worse yet, bend the launcher rail. Result: the missile doesn't hit the target or doesn't even make it off the launcher.

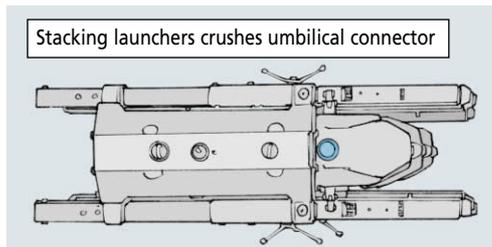


Eyeball the stop block and rail stop on each rail. If a block is worn, a missile could slide right off the launcher. If a rail stop is working itself out, the missile won't stay locked in. Your mechanic can replace worn stop blocks and rail stops.

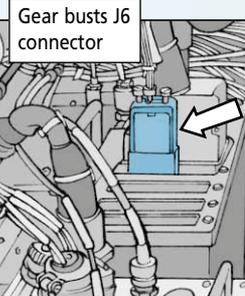


Never stack launchers on top of each other when you remove them from the aircraft. That crushes the launcher's umbilical connector. Keep the launchers in their protective cases.

Stacking launchers crushes umbilical connector



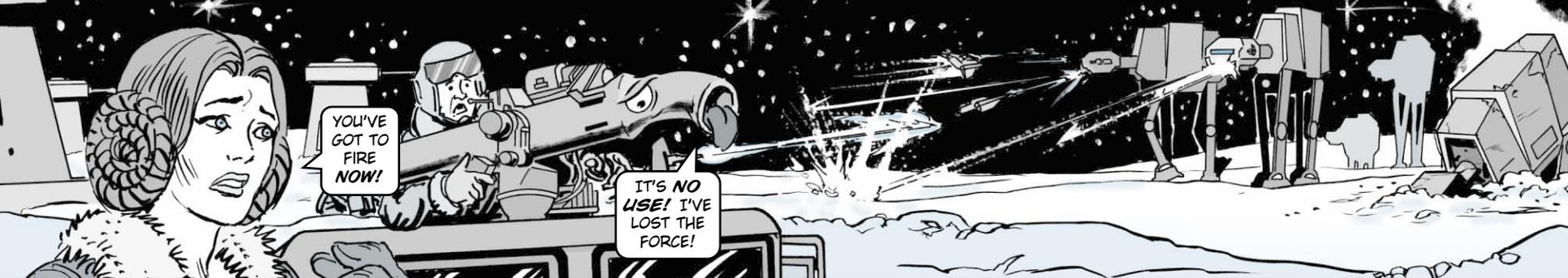
Don't store gear in the avionics compartment. The remote Hellfire electronics unit (RHE) has a delicate J6 connector. A duffel bag can snap it right off and keep you from firing any missiles. And it's difficult to get replacement connectors.



WHATEVER YOU DO, DON'T STACK LAUNCHERS!



BATTERY BOOSTERS



A WEAK MGS BATTERY MAKES FOR A NO-GO TOW. TO KEEP THE TOW ON ITS TOES, GOOD BATTERY PM IS A MUST. AND IT BEGINS WITH YOU, REPAIRMEN.



Every battery should be charged at least every 30 days. To keep track, write the charging date on a piece of tape and stick it to the top of the battery.

If you charge correctly but the battery still doesn't have much power, dirty connectors could be the problem. So, clean both battery and charger connectors with denatured alcohol and a swab made from a clean cloth and a stick. Then discharge and recharge again.

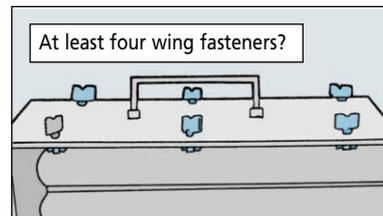


Sometimes chargers just plain go bad. If three or more batteries fail to take a charge, have support check the charger.



When the TOW 2 is back home, store batteries in a dry, cool place. Heat and humidity weaken batteries.

Operators, make sure each battery has at least four fasteners. If it doesn't, the battery can't be secured and the MGS will start showing faults. Replacement fasteners can be ordered with NSN 5325-01-148-8601.



Make sure each fastener has a retaining clip. Without a clip, the fastener will disappear. If the clip is missing, get your armorer to lockwire the fastener. That actually works better than the clip.



Less Is Better

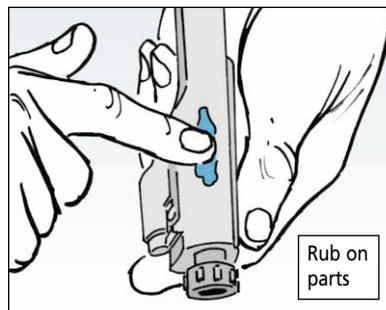
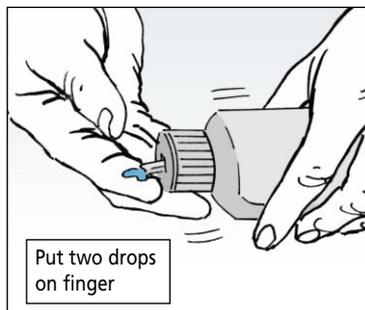


Too much lube is bad for your rifle or machine gun. If you put a heavy coat of CLP or one of the other lubricants on moving parts—like a bolt—carbon quickly builds up during firing. Soon, moving parts have difficulty moving.

Your lubing guide is the maintenance section in the -10 TM for the weapon. It tells you which parts get a light coat and which get a heavy coat.

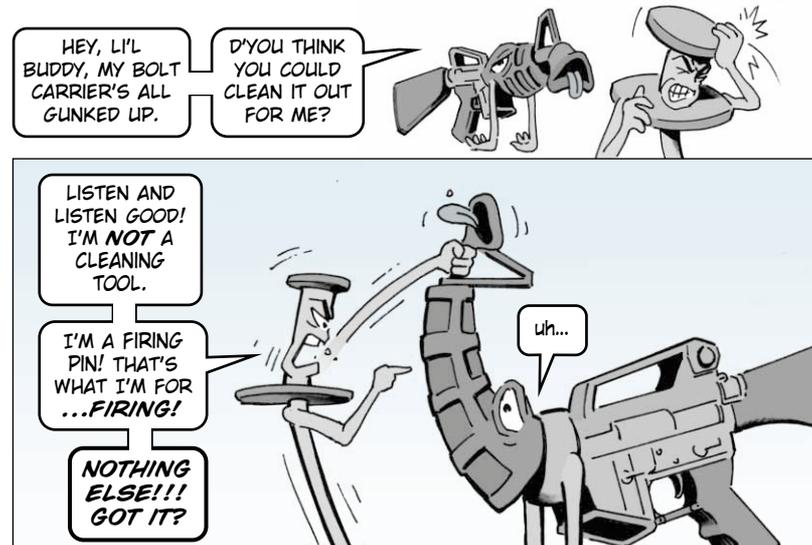
What's the difference between light and heavy? A light coat is just enough to see. If the lube can be moved around with your finger, it's a heavy coat.

A good way to make sure you don't over-lube is to put a couple of drops on your finger instead of the weapon. Rub your finger and thumb together to spread the lube and then run your finger over the part.



Lubing is helpful only if you first clean your weapon. Otherwise, you're creating a mixture of lube, carbon, dirt, and metal shavings, which will do your weapon no good.

FIRING PIN NOT FOR CLEANING



Dear Editor,

As a small arms inspector, I check out many M16 rifles and M4A1 carbines. I've found a number of weapons that had firing pins with a blunted tip and a ring cut in the pin's shaft. A firing pin in that condition probably won't ignite the cartridge and must be replaced.

Armorsers tell me the problem is that soldiers are taught in basic training to use the firing pin to clean inside the bolt carrier. But that's wrong! A worn bore brush and CLP should be used to clean inside the bolt carrier, not a firing pin.

If armorsers would stress this during training, they would save their units the cost of new firing pins.

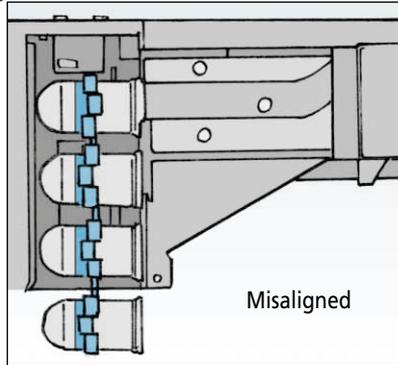
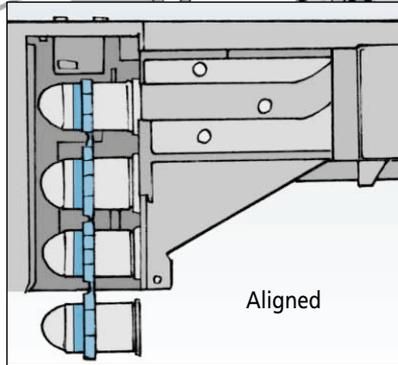
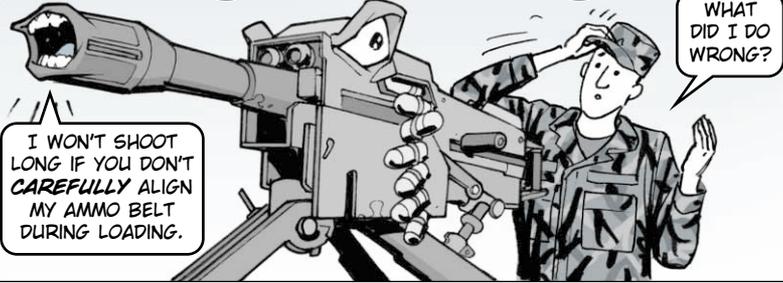
Timothy Murphy
94th Reserve Spt Cmd
Ft Devens, MA

From the desk of the Editor

Are you listening, armorsers?
Pass the word to your unit.



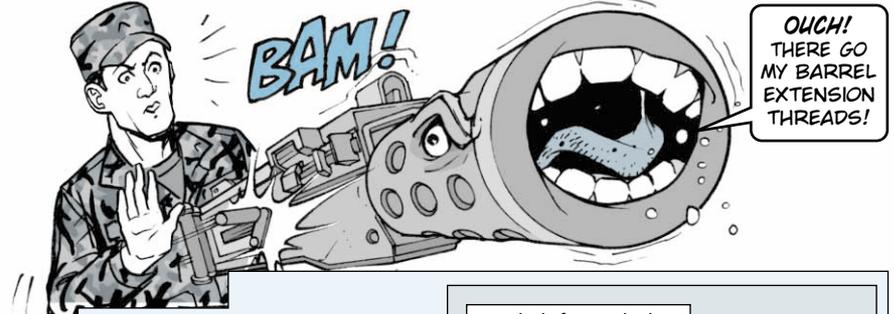
Align 'em Right



SO, WHEN YOU LOAD THE BELT CORRECTLY, THE LINKS MAKE A STRAIGHT LINE ACROSS THE RECEIVER EVENLY AND FLUSH AGAINST THE AMMO'S COPPER BAND.



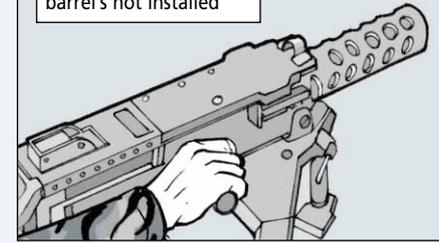
LET THE BOLT DOWN EASY



If you let the M2's bolt slam forward with no barrel installed, the bolt bangs against the barrel extension and chips its rear threads. That could ruin the extension.

So never dry fire your M2 when the barrel's not installed. Instead, ease the bolt forward.

Ease bolt forward when barrel's not installed



ARMORERS, IF THE EXTENSION THREADS ARE ONLY CHIPPED, THE M2'S LIKELY STILL USABLE. HERE ARE THE CRITERIA...

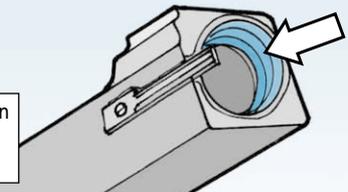
✘ Chips or cracks on the first thread on the bolt end of the extension and at the barrel end can be stoned smooth as long as the chip or crack doesn't extend beyond the thread.

✘ The remaining full threads cannot have more than one chip or crack. The crack or chip can't extend beyond the thread and the stoned area can't be longer than 1/2 inch.

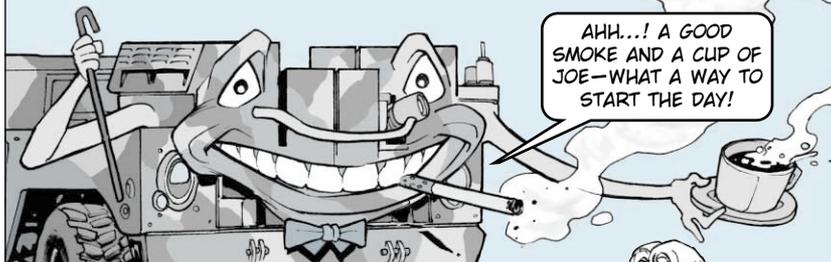


Have direct support file or stone the chipped or cracked areas smooth. If the barrel can then be easily screwed on, the M2 is OK to use.

Check extension threads for cracks or chips



HOT ADVICE FOR SMOKING

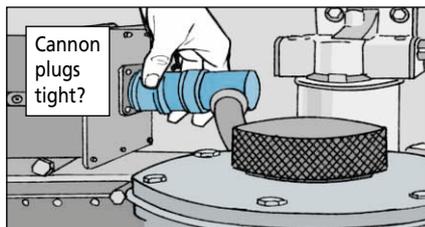


SMOKING CAN BE GOOD FOR YOUR M56 SMOKE GENERATOR...

...IF YOU REMEMBER A FEW CHECKS AT LIGHT UP TIME.

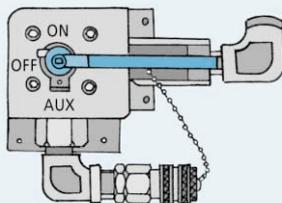


Test the four cannon plugs in the engine compartment for looseness. A loose plug causes a poor electrical connection, which makes it difficult for the M56 to start or to smoke once it starts. Just hand-tighten a loose cannon plug's connector ring.



If you spot fog oil leaking out of the dispersion cone during before-operation PMCS, make sure the fog oil 3-way valve wasn't left on last time the M56 was run.

3-way valve off?

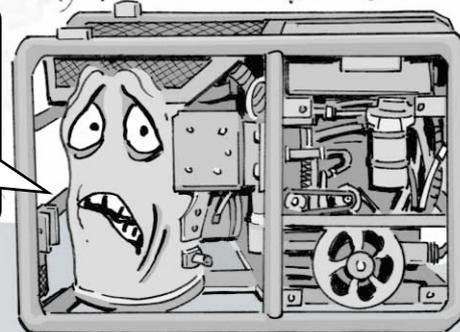


If nothing happens when you try to start your M56, check the GEN PWR switch. It should be ON. If the switch is in the correct position, make sure the three circuit breakers are pushed in. No change? Do the troubleshooting in Table 3-1 in TM 3-1040-282-10.



KEEP WATER FLOWING

UH-OH! THERE GOES MY WATER PUMP! DON'T THESE GLYS KNOW A WATER PUMP NEEDS WATER?



Dear Editor,

If water isn't running through the M17 decon's water pump, the pump can burn up after just a few minutes and the pump's belts can be shredded. And just because you have the suction hose in the water doesn't always mean water is being drawn through the pump.

So make sure that water is coming out of the pump's outlet and there is at least 90 psi water pressure with the wands attached. If it's not, move the suction hose up and down in the water and make sure the engine is turned up to the max. That often gets the suction hose to suck up water. Also make sure the water source is no more than 9 feet below the pump intake.

If that doesn't do the trick, check the water inlet intake and strainer for trash. Still no luck? Shut down the M17 immediately and tell your repairman.

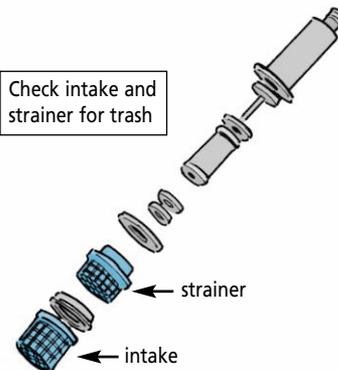
SGT Patrick Forst
US Army Chemical School
Ft Leonard Wood, MO



Water not going through pump? Try dipping hose up and down



Check intake and strainer for trash

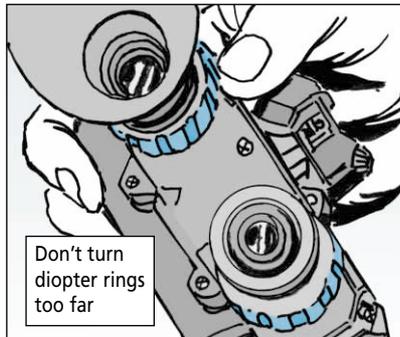


Dioptr Pins Broke? Work It Won't!

OK, let's focus on the problem with AN/PVS-7B and AN/PVS-7D night vision goggles. The problem at hand is focus! Or, rather, a lack of focus due to busted diopter adjustment ring pins.

If you break a diopter ring pin, your night vision goggles are kaput until you get the ring fixed. And a lot of pins are being broken by heavy-handed adjustments.

The ring adjusts for the sharpest image possible in a range of +2 to -6 diopters. This represents about half a turn of the ring.



But some of you want more. You keep adjusting when there is no place to adjust to! It's not long until the pins in the ring that define the stopping points are busted. Then it's impossible to hold focus.



So here's the rule: When the ring stops turning, stop turning it!



Make sure you're not taking bad rings to the field. Before you head out, do Item 4 in Table 2-2 of the Before/After PMCS in TM 11-5855-262-10-2. **But be careful!** In some cases, pins are being broken during the checks!

Unit repairmen, if you find diopter rings with broken pins, check the warranty expiration date on the warranty label on the front of the goggles. If your NVG is still under warranty, you're covered. If your NVG is out of warranty, you may be in luck. Certain older NVGs are covered under an extended warranty—good until the end of December. For more details on the extended warranty contact Lance Fujita at: DSN 654-1610 or (703) 704-1610; or e-mail him at: lance.fujita@nvl.army.mil.

If your NVGs and rear cover assemblies are still under warranty, or if they are covered under the extended warranty, follow the warranty return instructions in Section 1-7 of TM 11-5855-262-23&P-2.



To get a replacement rear cover assembly when the broken NVG is out of warranty, order a replacement through your normal supply channels.



Don't try to piece together components of different rear cover assemblies to make one good assembly. There are several types of rear covers and they are not compatible with each other. You'll just create more problems. Wait until your new rear cover assembly arrives to use the NVG.

HOW TO HANDLE LITHIUM BATTERIES

Dear MSG Half-Mast,

We recently had a lithium battery explode and catch fire. Here's how it happened...

Eight lithium batteries were disposed of in a trash heap without being properly discharged.



A loader, scooping up the trash, ran over one of the batteries. The battery exploded, caught fire and released toxic fumes.



We put the fire out with no harm done and in the cleanup process, found the other seven batteries, none of which had been properly discharged.



Will you please put out the word—again—on how to correctly handle, discharge and dispose of lithium batteries?

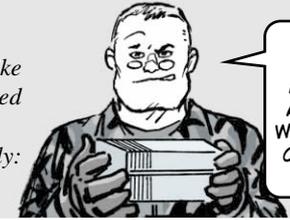
CW3 C.G.



Dear Mr. C.G.,

Lithium-sulfur dioxide batteries like the BA-5590/U contain pressurized poisonous sulfur dioxide gas.

Here's how to handle them properly:

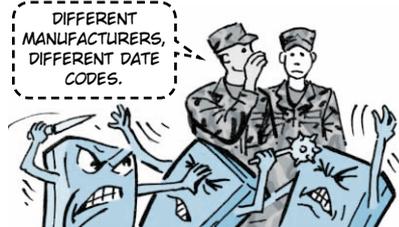


LITHIUM BATTERIES MUST NOT BE ABUSED IN ANY WAY THAT WOULD CAUSE THEM TO RUPTURE!

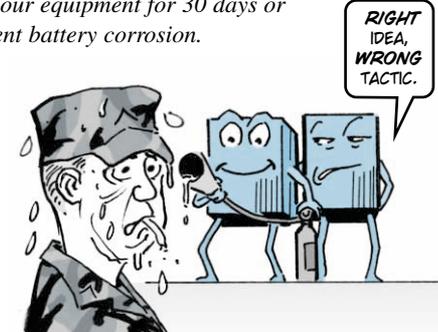
- Keep batteries in their original packaging until you're ready to use them.
- During operation, if the battery compartment is hot to the touch, hisses, makes a burping sound, or if you smell gas, turn off the equipment and let it cool for at least an hour. Keep everyone away from the area.
- Never short-circuit, crush, puncture or incinerate batteries.
- Never use batteries that are swollen, or that won't fit easily into the battery compartment.
- Never use batteries if there is liquid in the plastic storage wrap or if they've bulged or burst.
- Never attempt to charge a primary lithium-sulfur dioxide battery.
- If you test lithium batteries for capacity, use an approved test set. If you suspect bad batteries, try substituting good ones.



If there is more than one prime power lithium battery in the equipment, and you find a bad one, replace all of them. Use batteries from the same manufacturer and with the same date code, if possible. Mixing batteries can lead to violent venting.



- When you aren't planning to use your equipment for 30 days or longer, take the batteries out to prevent battery corrosion.
- Never use a Halon fire extinguisher on a lithium battery fire. In the event of a lithium fire, evacuate the area immediately and call for the assistance of trained fire fighters.
- Never store batteries near heat, flame or other hazardous materials.
- Never smoke or use an open flame in a battery storage area.



- If the battery has a complete discharge device (CDD), have the person designated to discharge the battery before turn-in or disposal do his stuff.
- Have personal protection equipment on hand and use it when handling batteries that are leaking, bulging, swelling or deformed. Never handle hot batteries.

NSN 4240-00-542-2048 will get you a face shield. Get a full body apron with NSN 8415-00-082-6108.



- Discharge the batteries in a secure, well-ventilated area away from people and hazardous material.
- Set discharging batteries at least 2 inches apart on all sides.
- Let the batteries sit a minimum of 5 days for complete discharge.
- Remember that discharging batteries may be hot. The heat could even deform the battery case. That's normal. But, if you hear a hissing sound or smell a strong, pungent odor, clear the area immediately until the odor has gone and the hissing has stopped. This is a battery venting and you must dispose of vented batteries as hazardous waste.



At the end of a normal, complete discharge cycle, the amount of lithium remaining in the battery will be small enough to let you dispose of the battery as non-hazardous waste. Even so, some places still require special procedures. Check with your local environmental office for any federal, state and local requirements on battery disposal.

Here are two pubs you need to handle batteries safely:
 SB 11-6, Primary Battery Supply and Management Data;
 TB 43-0134, Battery Disposition and Disposal.

Half-Mast

the Outer Limits of PM

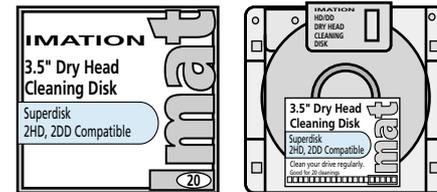
Your Standard Army Management Information System (STAMIS) computer has an LS120 disk drive that is failing because of poor preventive maintenance.

You must clean the disk drive regularly. That means in a clean environment, 80 hours of operation without a good cleaning is the outer limit. In dusty areas, 40 hours is better!

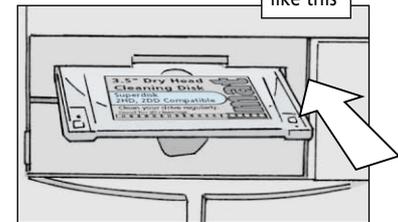
So disk drives used daily probably need cleaning at least every two weeks, or every week in less than ideal conditions.

Clean the disk drives with the LS120 head cleaning kit, NSN 7045-01-482-9063, **only!** The cleaning disk should be marked "SuperDisk Compatible." Don't use another type of disk drive cleaner! Other cleaning kits are not as sensitive and may damage the drives. If that happens, the drive warranty is voided!

Only use this cleaning kit



Insert it like this



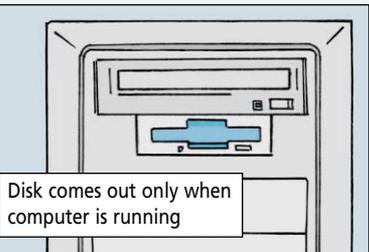
EJECTING THE DISK

Your Standard Army Management Information System (STAMIS) computer has an LS120 disk drive that doesn't eject disks like a standard floppy drive.

You cannot remove the disk from the drive if the computer is turned off because the drive does not have a manual spring. Ejection is electronic, so it must be done when the computer is turned on.

But some of you are trying to remove the disk by force when the computer is shut off. You're damaging the drive ejection system in the process.

So lay off the strong arm techniques. Just let the computer eject the disk.



Supply...

ADVICE CODES SAVE THE DAY!



A SUPPLY ROOM FOUND ITSELF IN TROUBLE WHEN UNIT MECHANICS CAME IN TO PICK UP PARTS THAT THE FED LOG-AMDF SHOWED AS LOCAL PURCHASE.

THE SUPPLY CLERK TOLD THEM THAT SINCE THEIR PARTS WERE NOT LOCALLY AVAILABLE, THEY HAD TO BE ORDERED.

NEXT, UNIT FUEL HANDLERS CAME IN TO GET THE HOSE THEY'D ORDERED. WHEN THE SUPPLY CLERK ISSUED THEM TWO HOSES, THEY WERE SURPRISED...

WHOA! WHAT'S GOIN' ON HERE? WE ASKED FOR ONE 18-FT HOSE—NOT TWO 10-FT ONES!



WE ORDERED WHAT YOU ASKED FOR, THE SOURCE OF SUPPLY (SOS) CHANGED OUR ORDER TO THE TWO 10-FT HOSES!

USE THIS CONNECTOR TO JOIN THE HOSES TOGETHER. JUST CUT OFF WHAT YOU DON'T NEED.

"LINEMEN FROM THE COMMO SECTION CAME BY NEXT, LOOKING FOR THE PLIERS THEY'D ORDERED. THE PLIERS ISSUED TO THEM WERE A SUBSTITUTE."



WE ASKED YOU TO ORDER NSN 5120-00-247-2063 AND TOLD YOU NOT TO ACCEPT ANY SUBSTITUTES. THESE PLIERS DON'T HAVE THE WIRE SKINNERS WE NEED.

SEND 'EM BACK AND GET US WHAT WE ASKED FOR.

"MOMENTS LATER THE SUPPLY SERGEANT CAME CRASHING THROUGH THE DOOR, TOSSED A BUNDLE OF REJECTED REQUISITIONS ON HIS DESK AND PLOPPED DOWN IN HIS CHAIR."



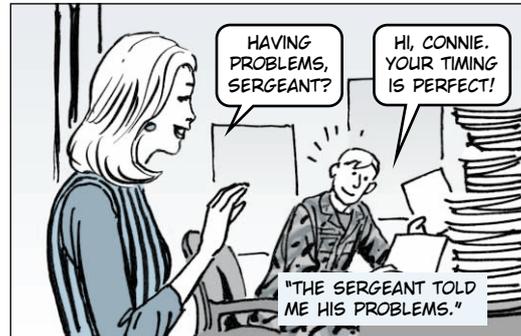
HEY, SERGEANT, WHAT'S GOT YOU RILED UP?



ALL THOSE LOCAL PURCHASE ITEMS WE ORDERED HAVE BEEN REJECTED.



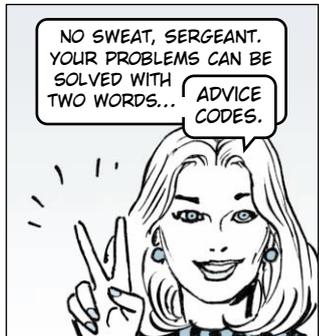
"SO, WHAT DO WE DO NOW?"



HAVING PROBLEMS, SERGEANT?

HI, CONNIE. YOUR TIMING IS PERFECT!

"THE SERGEANT TOLD ME HIS PROBLEMS."



NO SWEAT, SERGEANT. YOUR PROBLEMS CAN BE SOLVED WITH TWO WORDS... ADVICE CODES.



ADVICE CODES?

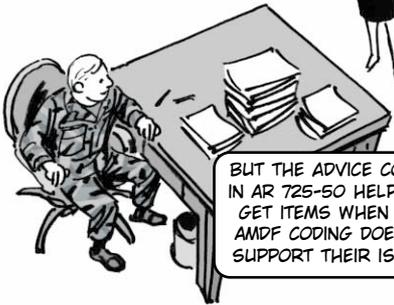
THAT'S WHAT TELLS YOU HOW TO ORDER AN ITEM.

I DON'T MEAN THE ACQUISITION ADVICE CODE (AAC) FOUND IN THE AMDF.

"I MEAN THE ADVICE CODES IN TABLE C-29 OF AR 725-50, REQUISITIONING, RECEIPT AND ISSUE SYSTEM (15 NOV 95)."

Code	Explanation	Remarks
1. Requisition advice		
1A	Quantity only	2M The MCA validation item required in Multiples of the
	only	2N
		2P
1B	Quantity object (For Fill as not)	2Q The MCA validation The total requis use on DIC AX2
1C	Fill as not	2R The MCA validation
1J	Ret	"THE ADVICE CODE GOES IN RECORD POSITIONS (RP) 65-66 OF YOUR REQUISITION."
1K	Ret	
2A	Ret	
2B	Ret	

THE AAC TELLS YOU HOW TO GET AN ITEM— FOR INSTANCE, THE AAC L AUTHORIZES LOCAL PURCHASE—



BUT THE ADVICE CODES IN AR 725-50 HELP YOU GET ITEMS WHEN THE AMDF CODING DOESN'T SUPPORT THEIR ISSUE.

TO ASSURE LEGIBILITY

DD FORM 1348 JUL 91

ADVICE		65	66	67	68	69	70	71	72
2A		DOC. IDENT.	ROUTING IDENT.						
1	2	3	4	5					

STOCK NUMBER

Place advice code 2A in RP 65-66 of your requisition

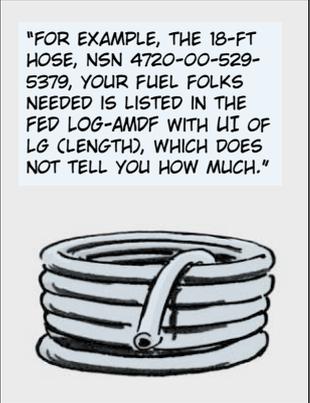


"AS FOR THE PLIERS, THE ITEM MANAGER WILL SEND A SUBSTITUTE IF IT IS AVAILABLE WHEN THE ORDERED ITEM IS OUT OF STOCK. THESE SUBSTITUTES ARE SHOWN IN THE FED LOG-AMDF."

Item Name: PLIERS
Nomenclature: PLIERS
SERVICEABLE CREDIT VALUE

RELATED NSN/MCN
5120-01-102-72

PHRASE CODE	PHRASE STATEMENT
J	INTERCH/W



"WHEN THE AMDF SHOWS A UNIT OF ISSUE (UI) THAT DOESN'T TELL YOU HOW MUCH IS IN ONE UI, CHECK OUT THE UNIT OF MEASURE (UM) AND UNIT MEASUREMENT QUANTITY (MEAS-QTY) FIELDS."

Army Master Data File

NONMETALLIC RUBBER	UNIT	PRICE	UI LG	FC	UM	MEAS-QTY	EIC
C PS		50.88			FT	10	

"IF YOU NEED A SPECIFIC ITEM— SUCH AS THE PLIERS WITH SKINNERS —USE ADVICE CODE 2B—REQUESTED ITEM ONLY WILL SUFFICE. DO NOT SUBSTITUTE. YOU WILL GET EXACTLY WHAT YOU ORDERED."

TYPE UNIT

DD FORM 1348 JUL 91

ADVICE		65	66	67	68	69	70
2B		DOC. IDENT.	ROUTING IDENT.				
1	2	3	4	5	6	7	8

FSC



"WHEN YOU CHECK OUT THE UM AND MEAS-QTY FIELDS, YOU SEE IT IS ISSUED IN 10-FT LENGTHS. TO GET ONE CONTINUOUS LENGTH OF 18 FEET, YOU NEED TO USE ADVICE CODE 2N OR, USE 2P IF A 20-FT LENGTH IS NEEDED."

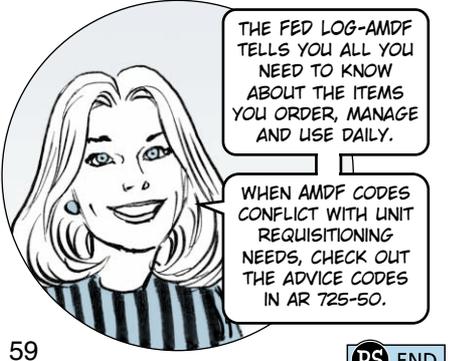
DD FORM 1348 JUL 91 (EG)

ADVICE		65	66	67	68	69
2N		DOC. IDENT.	ROUTING IDENT.			
1	2	3	4	5	6	7

Decide which advice code to use: 2N or 2P. Put it in RP 65-66 of your requisition

BOTH ADVICE CODES TELL THE MANAGER THAT YOU NEED A CONTINUOUS LENGTH OF HOSE AS INDICATED BY THE UI (RP 23,24) AND QUANTITY FIELDS (RP 25-29) OF YOUR REQUISITION.

REMARKS
18 FT



POST SCRIPTS

PS 588
NOV 01

Preserve Semitrailer Decking

Constant exposure to the elements dries, cracks and splinters the wood decking on semitrailers. Prevent that damage by spreading boiled linseed oil on the decking as needed. NSN 8010-00-152-3245 brings 1 gallon.

WANT TO GET PS EACH MONTH?

If so, have your pubs clerk go to <http://www.usapa.army.mil>. Once there, select Publications Ordering, then select Subscription System and On-Line Reports. After you log in, select menu option USAPA On-Line Ordering. Click on SEARCH and search by IDN 340312. Check the Subscribe box for the first entry of TB-43-PS-xxx, enter the number of PSs you want, hit ADD TO SELECTION, then hit Submit Selections. You're done. PS will be mailed to you monthly.

New Web Site for MWOs

The Modification Management Information System (MMIS) web site for MWOs has changed its Internet address. Go to <http://65.196.121.253/mwo> and you will be back in business. Questions about the MMIS system go to Bob Lane, MMIS Contractor, at (703) 998-1941. Questions about MWOs go to Grover Gibson, HQ AMC, at DSN 767-0856 or (703) 617-0856.

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e. Other free	180	180
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i. Total	97,174	96,812
Percent Req'd	99.07%	99.07%

Submitted by: W. Richard Morris, Production Manager

CONSTRUCTION EQUIPMENT WEB SITE

Need info on maintenance, parts or Tank-automotive and Armaments Command (TACOM) points of contact for construction equipment? Take a look at the following web site: <http://www-acala1.ria.army.mil/LC/CJ/CJC/cegroup.htm>

M915A1 WATER TEMP SWITCH

NSN 6685-01-081-9721 brings the M915A1 tractor truck's thermostatic water temperature switch. The NSN shown for Item 3 in Fig 42 of TM 9-2320-283-24P gets the wrong switch.

M109A6/M992A2 MANIFOLD STUD

Use NSN 5307-01-371-2402 to order a replacement stud for the exhaust manifold on your M109A6 Paladin and M992A2 ammo carrier's 8V71T LHR engine. The part number listed as Item 9 in Fig 27 of TM 9-2815-202-24P should be 23504822. Pencil in the right part number until the TM is updated.

External APU Starter

NSN 2920-01-467-7912 gets the new 24-volt starter for the external auxiliary power unit, NSN 6115-01-459-4514, on your M1-series tanks. The NSN shown as Item 1 in Fig 37 of TM 9-6115-542-24&P is no longer available.

M109A6 PALADIN SEALANT

Use NSN 8040-00-152-0063 to get the adhesive listed as Item 7 in Appendix C of TM 9-2350-314-20-2. The listed part number and CAGE don't cross to an NSN on the FED LOG. Make a note until the TM is updated.

AVLB VISION BLOCK

NSN 6650-01-302-7685 gets the direct vision block for the AVLB using either the M48A5 or M60A1 tank chassis. The NSN shown for Item 5 in Fig 185 of TM 5-5420-226-24P and Item 20 in Fig 196 of TM 5-5420-202-24P is no longer good.



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