

Issue 406

PS

September  
1986

# THE PREVENTIVE MAINTENANCE MONTHLY



*Fair Frank's*

**USED CARS**

•BARGAINS •EASY TERMS  
•DISCOUNTS •HONEST DEALS

HAVE YOU TRIED  
FAIR FRANK'S  
FOR A CAR?

YEAH, BUT HE  
GOT TICKED OFF  
WHEN I USED MY  
COMMERCIAL VEHICLE  
OPERATOR PMCS TO  
CHECK 'EM OUT!

See OPERATOR CHECKS  
Page 29



## IT'S ABOUT TIME!

As the sands of time allotted for a maintenance job dwindle down, emotions creep in to fill the void.

Anxiety . . . frustration . . . irritation . . . desperation.

And it is during these moments of stress that a high percentage of maintenance-related accidents happen. People in a hurry tend to take short-cuts and perform unwise and unsafe acts. The usual result is injury to themselves or others . . . and damage to equipment.

Explanations, reasons and excuses abound:

"I didn't have time to get the safety goggles. . ."

"Sure, I knew I should have gotten somebody to help me lift it, but there wasn't anybody around. . ."

"Well, somebody had already checked out that tool so I thought I'd use a cheater bar on a different wrench. . ."

"But there wasn't anybody around to serve as ground guide!"

And so it goes.

The shortness of the allotted time may or may not have been the enemy in these cases. But the message comes through loud and clear—the individual had some reason to believe that there wasn't enough time to do the job by the book . . . and safely.

Now, the bright side of this sad situation is that it's easier and quicker to allocate time than it is to change human nature. You supervisors can help eliminate a lot of accidents just by making sure enough time is allocated for the job. Not just the amount of time you think it should take, mind you, but enough time to accommodate all the little hitches and snags that develop on any job.

And then, of course, you make it crystal clear that if the job can't be done safely, it's time to reassess the situation and re-establish priorities.

Time may—or may not—heal all wounds. But enough time can surely prevent those that are caused by the shortage of it.



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PS wants your ideas and contributions, and is glad to answer your questions. Name and address are kept in confidence. Just write to:

**MSG Half-Mast**  
PS Magazine  
Lexington, KY  
40511-5101

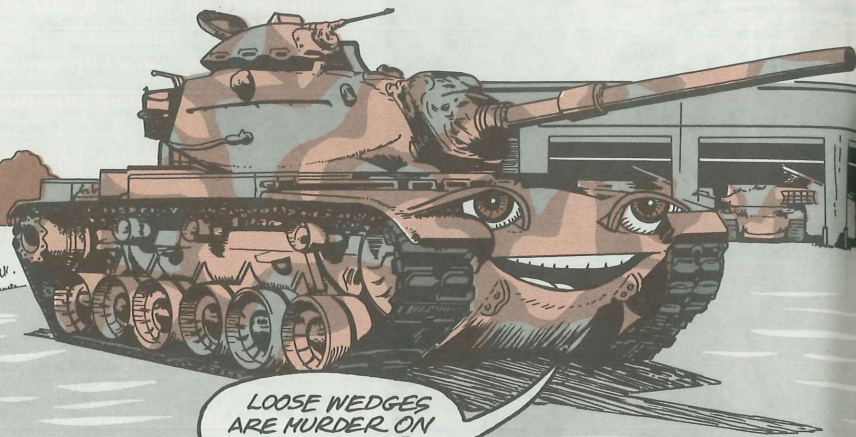
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# Tightening End Connector Wedges



LOOSE WEDGES ARE HURDER ON MY TRACK!

You either do it right, or it's wrong! End connector wedge bolts must be tightened by the book or you've set up your track to fail.

The track shoe must be in the right place at the right time when you tighten the bolt or the wedge won't fit into the notch cut in the pin.

Plus, on M60-series tanks you've got to loosen the center guide nut before tightening the end connector. Otherwise, the track pin notches won't line up with the wedge. The wedge won't seat, the bolt will loosen and sooner or later the track will fail.

Here's how it goes for M60-series tanks:

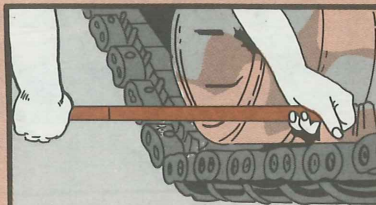
- Move the tank so the end connector to be tightened is between the No. 1 roadwheel and the compensating idler.
- Release the track tension.



KEEP YOUR TANKS ON THE RIGHT TRACK BY FOLLOWING THESE SIMPLE PROCEDURES!

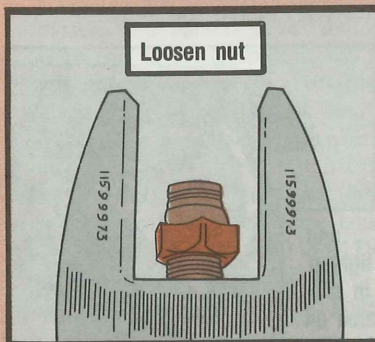


- Loosen the end connector wedge bolt and make sure the wedge is fitting

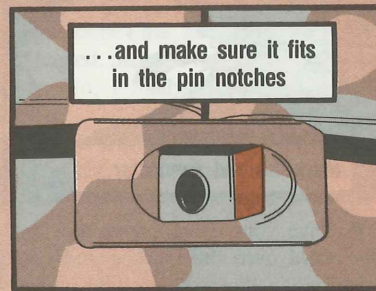


Loosen the wedge bolt...

- Loosen the center guide nut.



into the pin notches. Move the end connector in or out on the pins until the wedge fits.



...and make sure it fits in the pin notches



2



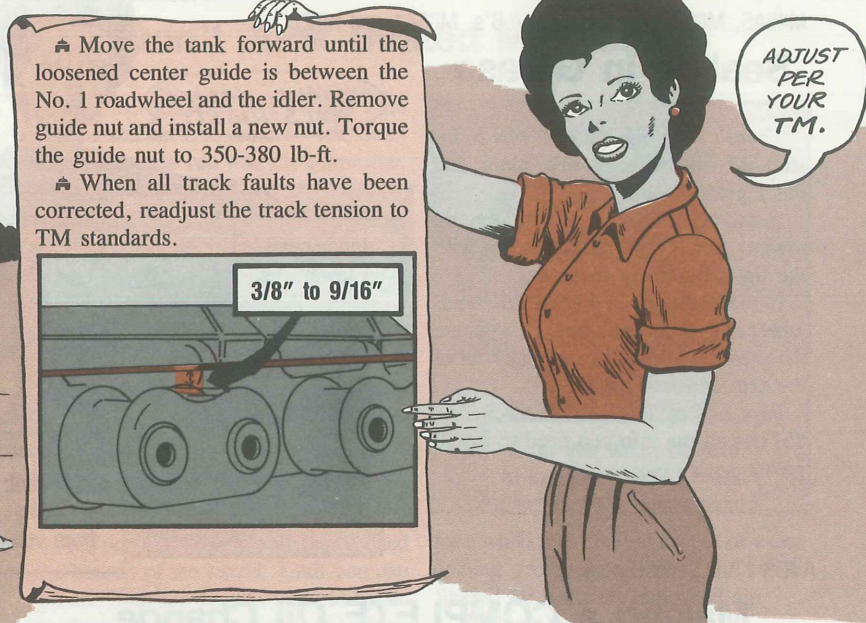
3





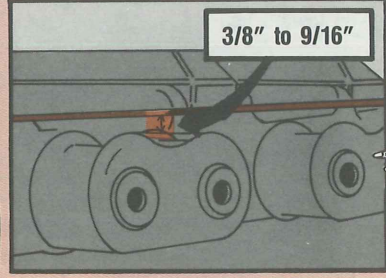


PROPER PM IS MY SECRET WEAPON!



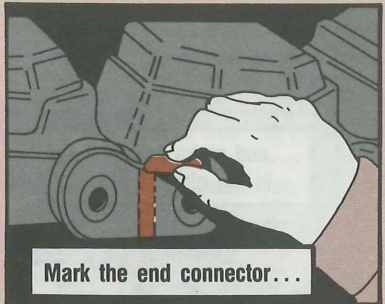
ADJUST PER YOUR TM.

- ✦ Move the tank forward until the loosened center guide is between the No. 1 roadwheel and the idler. Remove guide nut and install a new nut. Torque the guide nut to 350-380 lb-ft.
- ✦ When all track faults have been corrected, readjust the track tension to TM standards.



3/8" to 9/16"


✦ Snug up the wedge bolt and mark the end connector.



**Mark the end connector...**

✦ Have your driver move the tank backward until the marked end connector is in the right position around

the compensating idler. This is where the shoes are at 16° angles (between 8 and 11 o'clock positions). The wedge will seat right only at this place. Torque the bolts to 180-200 lb-ft.



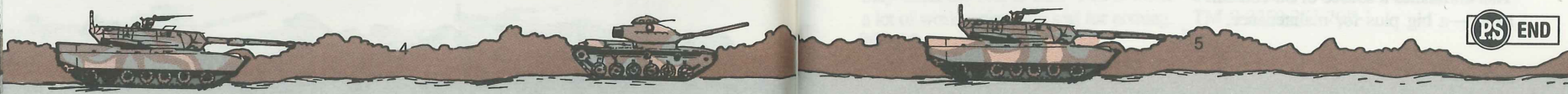
**...and tighten in this area on the idler**

For M1 tanks, things are a bit different.

For openers, you don't have to release track tension or loosen the track guide to tighten a wedge bolt.

But, you do have to make sure you tighten the bolt at the right place and time.

- ✦ Once the wedge is in place and snugged down, mark the end connector.
- ✦ For outside connectors, have the driver move the tank backward until the forward edge of the shoe behind the marked connector just touches the idler wheel.
- ✦ Torque the wedge bolt to 320-380 lb-ft.
- ✦ For inside connectors to be tightened at the same time, have the driver move forward after the outside wedge has been tightened. Stop the tank when the inside wedge is midway between the idler and the No. 1 roadwheel.
- ✦ Tighten the wedge to 320-380 lb-ft.
- ✦ After the bolts are tightened, have the driver move the tank forward 6 feet and backward 6 feet. Stop the tank at the right point to torque the outside connectors again to 320-380 lb-ft. Do the same with all inside connectors to be tightened at their right location.
- ✦ After 20 miles, torque the bolts again to 320-380 lb-ft.





M48A5, M60-Series Tanks, AVLB's, M88A1 and M728...

## Sealing in Grease

There's only one RIGHT way to install the roadwheel arm's inner and outer grease seals:

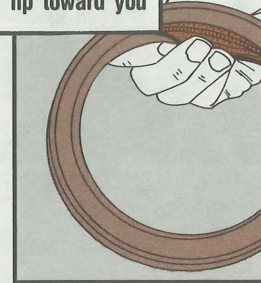
Install the inner seal with the lip toward you. Install the outer seal with the lip going away from you.

If the seals are in backward, roadwheel arms don't get lubed. Meanwhile, the grease you're pumping leaks out of the arm and into the hull.

Para 2-5j of TB 43-0001-39-5 (Apr 85) has all the info you need to install grease seals.

INSTALL GREASE SEALS RIGHT!

Inner seal:  
lip toward you



Outer seal:  
lip away from you

AVDS-1790 Series Engines...

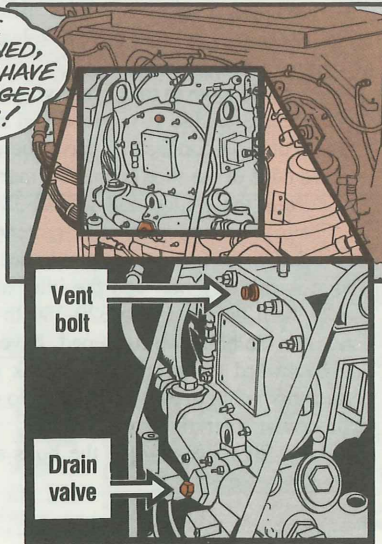
## Making a COMPLETE Oil Change



Do yourself a big favor, mechs, when the AOAP lab tells you to change the engine oil in an M48A5 or M60-series tank, AVLB, M728 or M88A1.

Get all the dirty oil out or you'll probably have to change it again after the next sample.

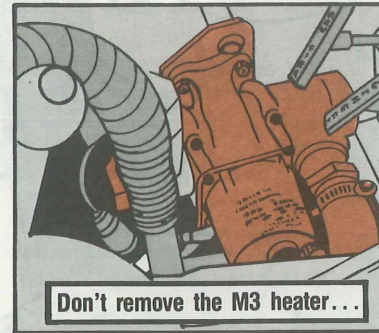
Make sure you drain the oil from the oil coolers. There are 4-5 gallons of oil in the coolers. Open the drain valve just under the oil filter and the oil filter vent. This lets the dirty oil drain into the crankcase and then out of the engine. This eliminates a source of oil contamination—a big plus for maintenance.



Combat Vehicles...

## Don't Junk Busted M3 Heaters

If the M3 heater on your vehicle's gas particulate filter unit doesn't work, don't remove it while you wait for a new one.



And you will wait. Supply has reached the bottom of the barrel. Until you can get one from supply, leave the old heater in place. That's because there's nothing to connect the M25A1 mask hose to if the heater's missing.

Your crews might be uncomfortable

for a while with cool air instead of warm coming from the GPFU. But, cool, filtered air beats contaminated air.

You can live with it.

AMCCOM Maintenance Advisory Msg 86-6 has the word.

M60-Series Tanks...

## Real Leak, or Missing Spacers?

Make sure, mechs, that you don't create a leaking fan tower spindle seal when you prepare for ground-hopping.

When you get ready to run up an M60-series tank engine, you remove the cooling fans, right? But do you make sure you install a spacer on each spindle before you tighten the nuts?

If you don't, the seal has no pressure on it to keep it in place. It will loosen during run-up. You'll see a leak and you may think the seal is bad. You'll waste a lot of work replacing a seal for nothing.



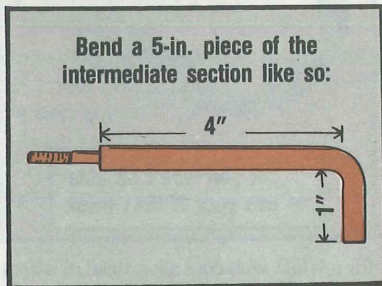
Remember the spacer and forget the extra work. The spacer, NSN 4910-00-795-7952, is Item 39 of Fig 213 in TM 9-2350-253-20P-1.



## .50 Cal Charging Update

If the M10 charger cable breaks on your tank-mounted M2 machine gun, you can make this emergency charging device.

You need the handle and the intermediate section of an M7 cleaning rod for a .50 Cal MG.



You can use a piece of unserviceable rod if you have one, or order a section, NSN 1005-00-556-4102, for about 80 cents.

Hook the bent end into the bolt stud hold hole on the right side of the bolt and pull back on the handle. This will charge the weapon.



## Parts Manual Change

Dear Connie,

Please pass the word that there's an error in TM 9-2350-255-20P-2. Item 24 in Fig 95 is a Gear Set, Spur Match, NSN 3020-01-216-4507, not a Simulator System, F1.

You'll cure lots of headaches, including mine, if you print this in PS.

Linda Sutherland  
AMCCOM, Rock Island, IL



## Protect Your Sight



Your Bradley's Integrated Sight Unit (ISU) windows are fragile. Just touching them damages the coating.

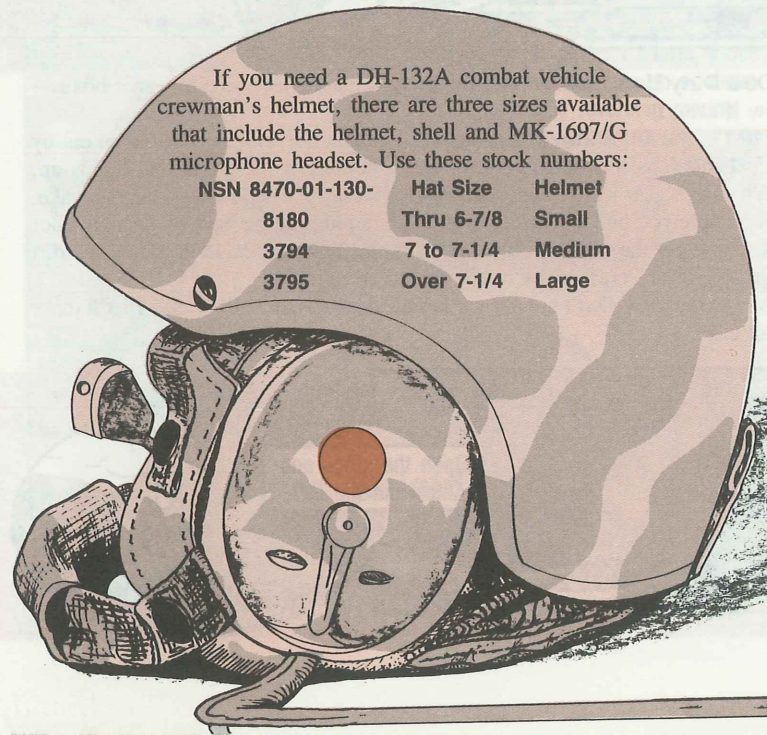
That's why you crewmen must pull down the ballistic cover doors any time you're not looking through the ISU. Those doors are the only protection the ISU windows have against dust, humidity and anything else that could pit or scratch them.

Keep the ballistic cover doors closed to trouble.

## CVC Helmet NSN's

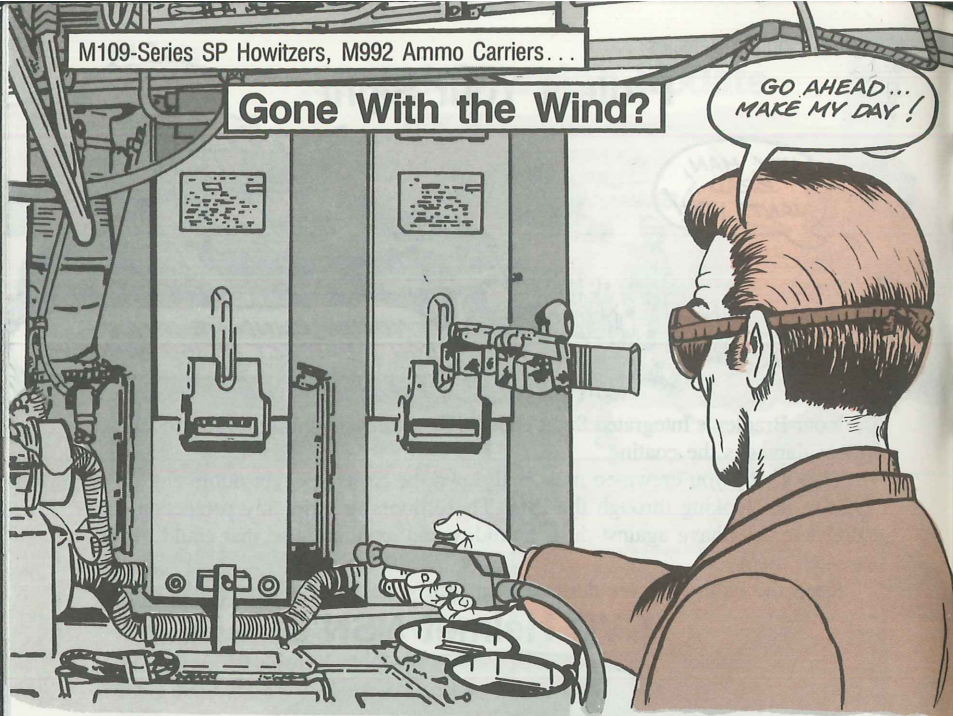
If you need a DH-132A combat vehicle crewman's helmet, there are three sizes available that include the helmet, shell and MK-1697/G microphone headset. Use these stock numbers:

NSN 8470-01-130-	Hat Size	Helmet
8180	Thru 6-7/8	Small
3794	7 to 7-1/4	Medium
3795	Over 7-1/4	Large





### Gone With the Wind?



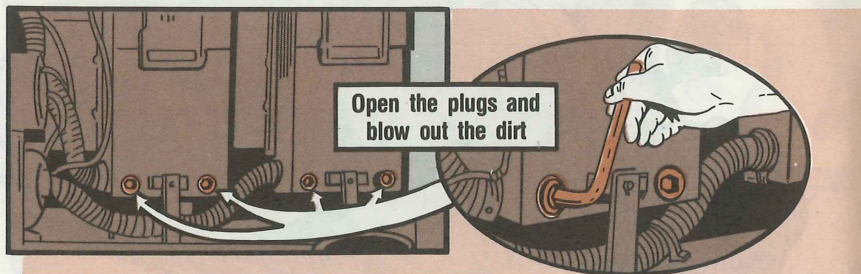
Do a Dirty Harry number on dust and grit that collects in air cleaner boxes—blow it away.

Most of the dirt drawn in through the air induction system gets blown out by the exhaust fans, but some collects in the bottom of the boxes and builds up.

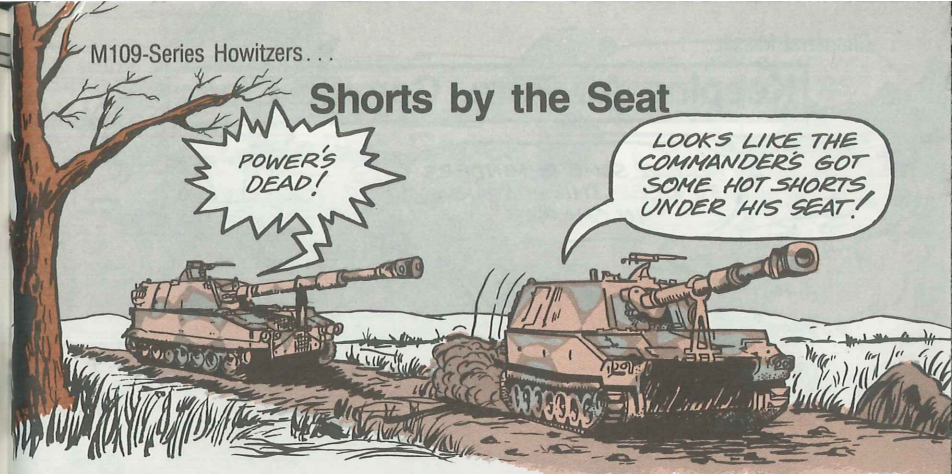
When dirt gets wet—most often from a hose—it becomes a hard mudcake.

Next time you pull a service, open the two plugs at the base of each air filter box. Blow out the dirt with low-pressure air. You may have to loosen the dirt with a knife or screwdriver if it's packed in tight.

And remember—don't use a water hose inside any combat vehicle. That'll make your day.



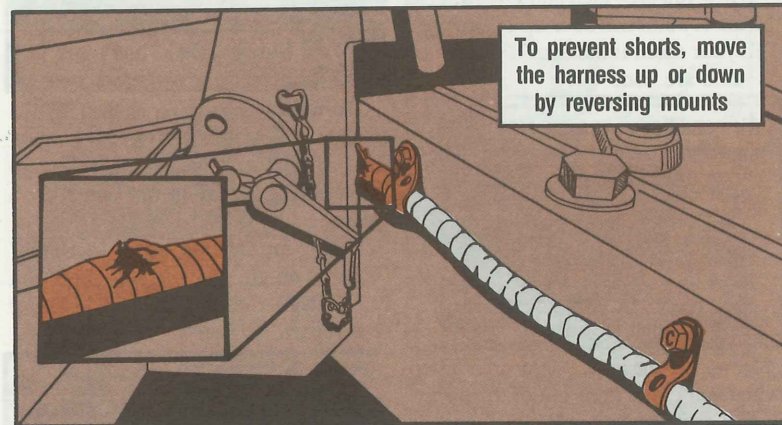
### Shorts by the Seat



Shorts in the cab power harness (wire 100) at the rear of the cab can often be traced directly to the commander's seat mount.

The mount, when folded down, rubs the harness. This rubbing wears off the covering and you've got a short—and no power to the cab.

Take a look to see if the harness is worn. If it is, tape it real good or let your mechanic know so he can move the harness a bit to clear the mount.

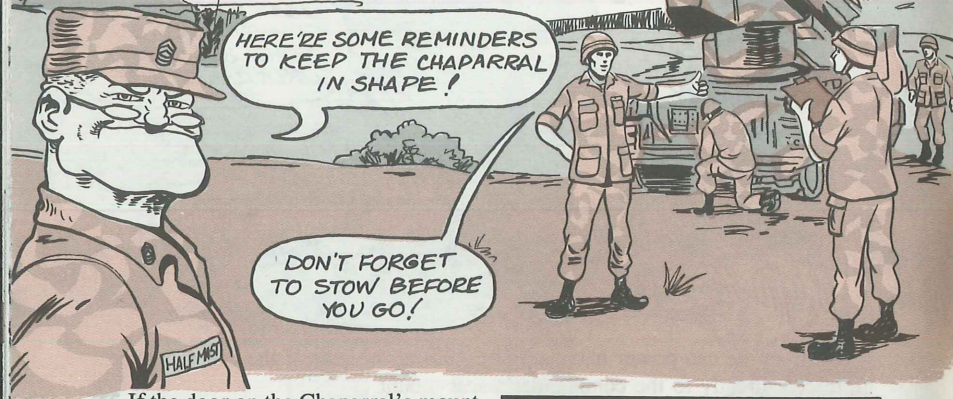


### Ballistics Shield Defogger

Prevent fogging on your M109A2 or A3 howitzer's panoramic telescope ballistic shield by using antifogging kit, NSN 6850-00-127-7193. Keeps the glass fog-free on cold, wet days and nights.



## Keeping Air Pure, Commo Clear



If the door on the Chaparral's mount air conditioner won't close tight, unfiltered—possibly poisonous—air seeps into the turret.

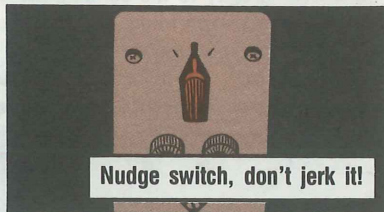
When you crewmen pull PMCS, give the air conditioner door an eyeballing. Tell your mech if the door's warped or its seals are bad.

### Air conditioner is a no step



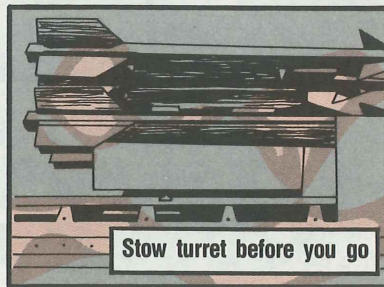
Never use the air conditioner as a step when you climb in or out of the turret. You'll push the air conditioner door out of shape and ruin its seals.

Help keep your commo talking by taking it easy with the gunner's INTER-COM AND RADIO RCVR SWITCH. Pushing the switch too far left or right kills it. That means no commo for the gunner.

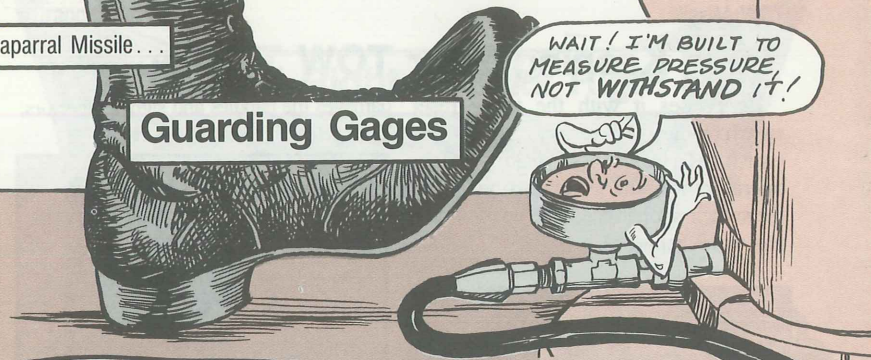


Turn the switch as far as the INTER-COM or RADIO XMTR markings—and stop! You'll hear a click through your earphones when the switch is in place.

Final tip: Put the turret in STOW before you go. Moving with the turret up damages the elevator shaft—a major DS repair.



## Guarding Gages

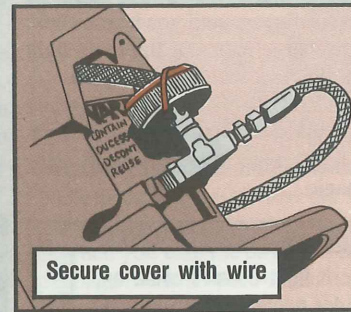


Dear Editor,

The hydraulic servicing unit for bleeding lines on the Chaparral system has an unprotected pressure gage that's easily broken during field trips.

The gage gets stepped on or things are dropped on it. The gage glass breaks and the gage gets thrown out of calibration. It's a DS job to replace it—if a gage is in stock.

Maintenance types can protect the gage by cutting out a round



piece of sheet metal slightly larger than the gage's face. When the gage is not in use, lock the metal cover on the gage's top by wrapping wire over the cover and under the gage.

Or you could take a wire mesh and wrap it over the gage face. Fasten the mesh with a clamp.

Or find a plastic top to fit—like those on potato chip or catfood cans. Tape it on.

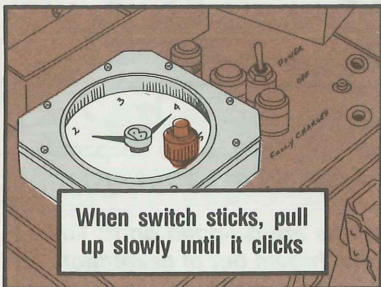
SSG David Leach  
Redstone Arsenal, AL

(Editor's note: Sounds like you've got the problem well covered.)



## Keeping Your TOW Tip-Top

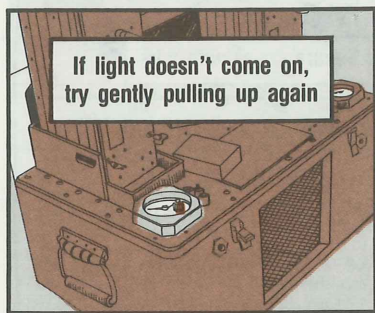
Easy does it with the timer reset switch on the TOW battery charger. The switch has a bad habit of sticking. If you operators jerk the switch up, you ruin the switch's tolerance. The whole timer has to be replaced.



**When switch sticks, pull up slowly until it clicks**

If the switch sticks, slowly pull it up with your fingers until you hear a click. The discharge indicator light will light when the reset switch is fully up.

If the light doesn't come on, try gently pulling the switch up again. If the light is still off after two tries, call your mechanic.

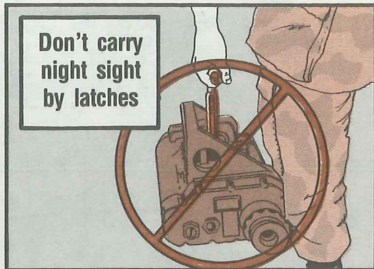


**If light doesn't come on, try gently pulling up again**

### Two Hands Only

The latch handles on your TOW's optical sight and night sight may look sturdy, but using them as carrying handles

damages the handles and sight connectors. That makes the sights NMC.



**Don't carry night sight by latches**

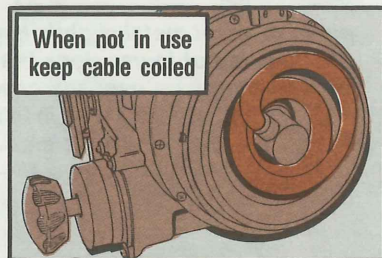
Carry both sights with two hands, like you would a baby.



**Carry sight like this**

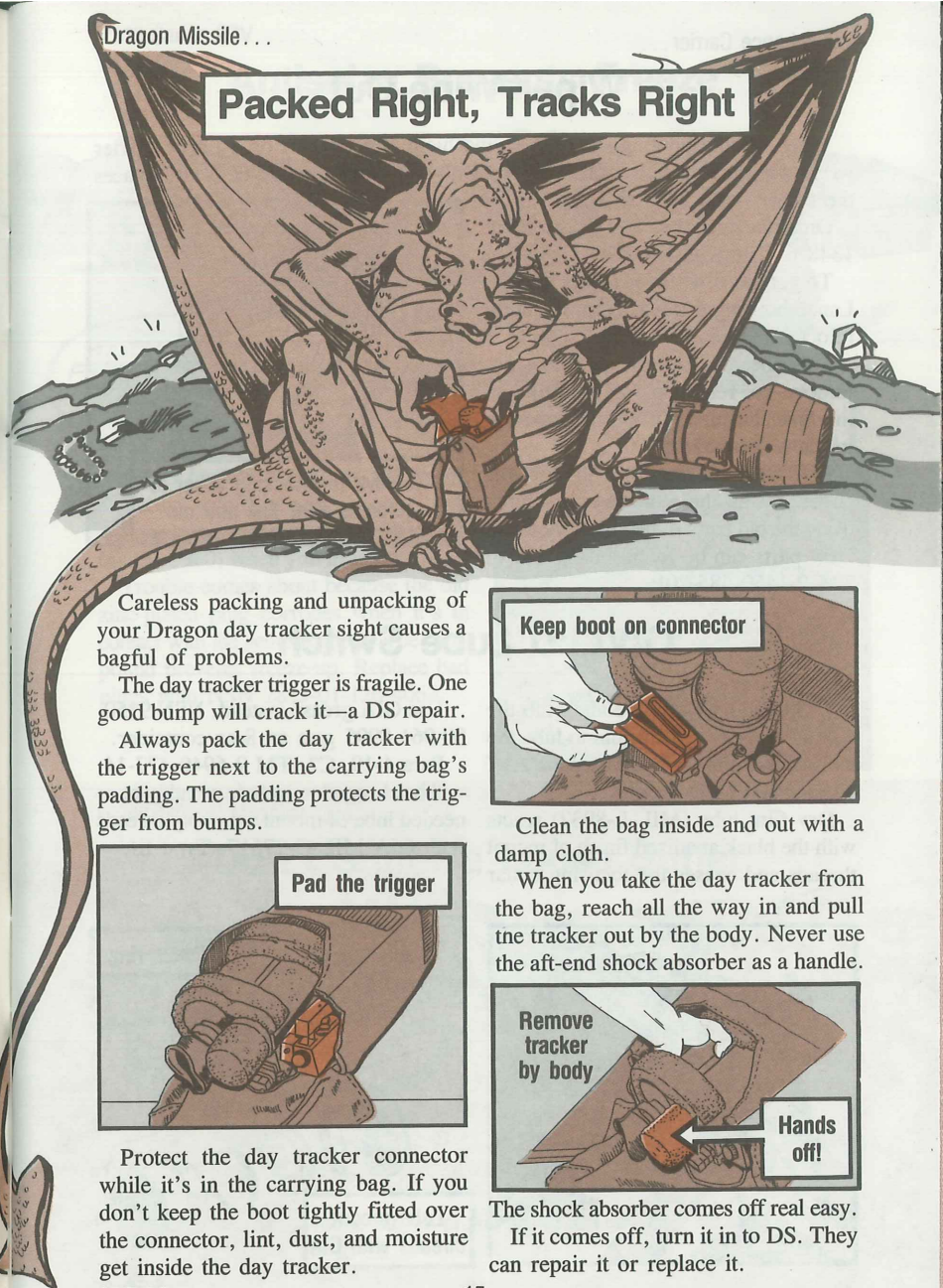
### Coiled or Spoiled

When your TOW traversing unit's not in use, keep the 2W1P1 cable coiled inside the unit's azimuth cavity. If you don't, you can damage the cable when



**When not in use keep cable coiled**

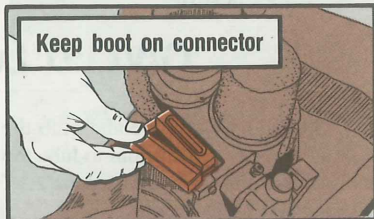
## Packed Right, Tracks Right



Careless packing and unpacking of your Dragon day tracker sight causes a bagful of problems.

The day tracker trigger is fragile. One good bump will crack it—a DS repair.

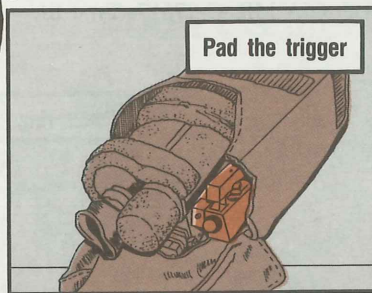
Always pack the day tracker with the trigger next to the carrying bag's padding. The padding protects the trigger from bumps.



**Keep boot on connector**

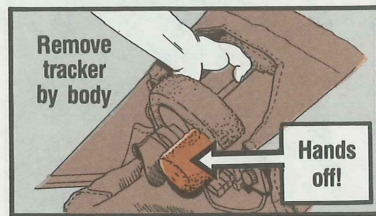
Clean the bag inside and out with a damp cloth.

When you take the day tracker from the bag, reach all the way in and pull the tracker out by the body. Never use the aft-end shock absorber as a handle.



**Pad the trigger**

Protect the day tracker connector while it's in the carrying bag. If you don't keep the boot tightly fitted over the connector, lint, dust, and moisture get inside the day tracker.



**Remove tracker by body**

**Hands off!**

The shock absorber comes off real easy.

If it comes off, turn it in to DS. They can repair it or replace it.



## Wiper Wipe-Out

When troubleshooting shows the windshield wiper motor on a Lance carrier won't wipe any more, go for a new one with NSN 2090-00-937-6012. It replaces the motor listed in your TM.

Order the motor by NSN on DD Form 1348-6. The RIC is S9G.

To get the new motor to work in the Lance housing, though, you'll need to relocate the gear link and pin.

Take the cover off the gear housing, remove the retaining ring and lift out the link and pin. Put the link and pin in the hole marked 100°.

Re-install the retaining ring and the cover. Install the motor and assembly using the old parts if they're serviceable. New parts can be found in Fig 132 of TM 9-1450-485-20P.



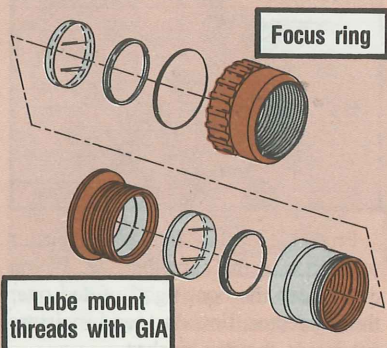
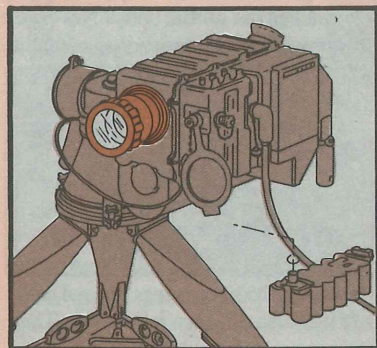
## G/VLLD Lube Switch

Drop the dry film lube and grab the GIA next time you're about to lube the mount assembly threads of your AN/TVQ-2 G/VLLD trainer.

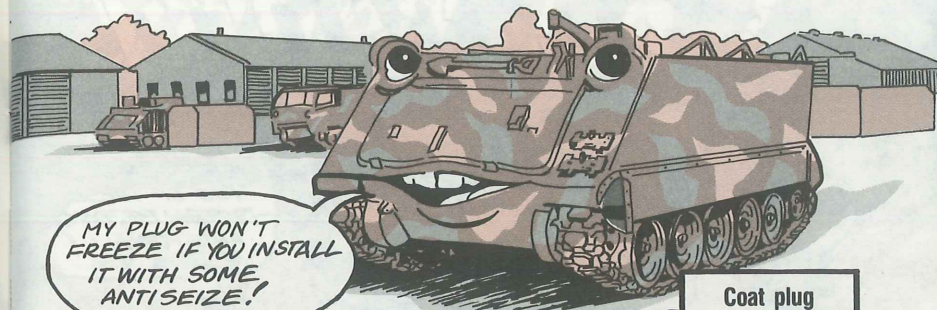
Dry film lube (MIL-L-8937) reacts with the black anodized finish of mount threads and causes the focusing collar to seize.

Use GIA grease instead. NSN 9150-00-961-8995 gets an 8-oz container.

Para 4-19, C2, TM 9-6940-477-14, will be changed to include monthly or as needed lube of mount assembly threads with GIA MIL-G-27617, Type III.



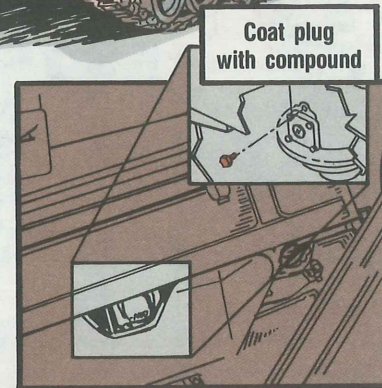
## Antiseize Prevents Freeze



Avoid fan drive gearbox filler plug freeze-up with this info:

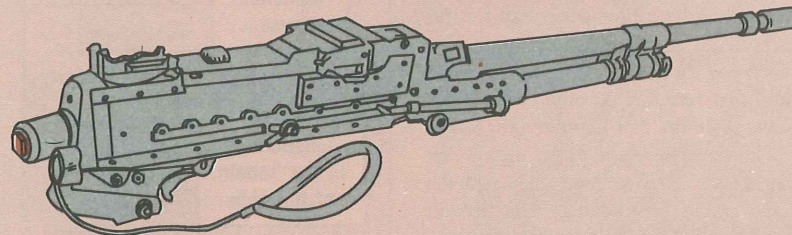
Use antiseize compound, NSN 8030-00-251-3980, when you install the plug.

Trouble comes about because the old zinc-plated plug corrodes when it's in contact with the gearbox metal. The compound prevents freeze-up. Replace bad plugs with NSN 2835-01-126-4063.



M240/M240C Machine Gun...

## Don't Suffer a Loose Buffer



If the buffer plug on your M240/M240C machine gun comes loose during firing, stop firing! Continuing to bang away will ruin the buffer assembly's back plate.

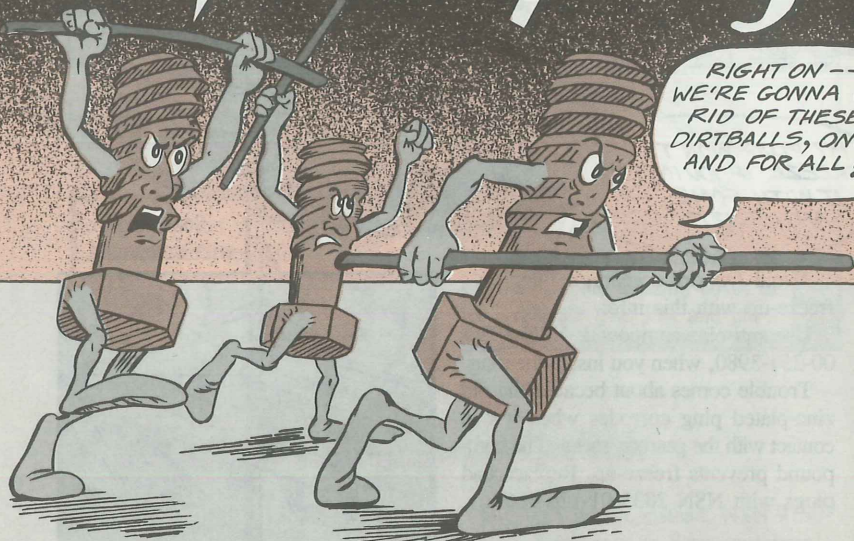
Never try to fix a loose buffer plug yourself. Turn your M240 in to your armorer. It's a DS job to fix it.



LET'S GET RID OF THOSE DIRTY GUYS!

# Everything's

RIGHT ON -- WE'RE GONNA GET RID OF THESE DIRTBALLS, ONCE AND FOR ALL!

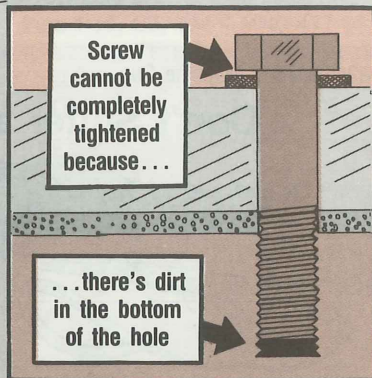


One of nature's little laws is that no two things can occupy the same space at the same time. When they try it, one or the other—or both—ends up taking a beating, as any running back clobbered in the hole by a linebacker can testify.

You get the same violent reaction when you try to screw a bolt into a blind hole that has dirt or other crud in it. Several things can happen—all bad.

The resistance you get from the dirt might lead you to believe you've got the right torque. But chances are the bolt head stopped short of its goal and you end up with untightened gasket or whatever. When things aren't tight, a leak is bound to follow.

Even worse, you can keep on torquing a dirt-stopped bolt till you strip the



threads of the bolt or the housing.

You can make sure this never happens by checking and cleaning out all blind holes with a thin wire. Then blow it out with air.

# Screwed Up!

WE'VE HAD IT — THEY'VE GOT WIRES!

WE'RE IN FOR IT NOW!



M728 CEV...

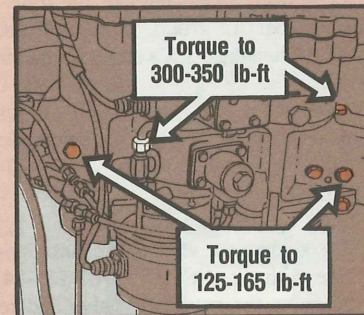
## Securing the Gearbox

Loose traversing gearbox bolts on M728's can't take much strain before they break.

The weight of a heavy load on the M728's A-frame, plus a turning turret, will break the bolts. The gearbox will fall into the crew compartment. Someone can get hurt.

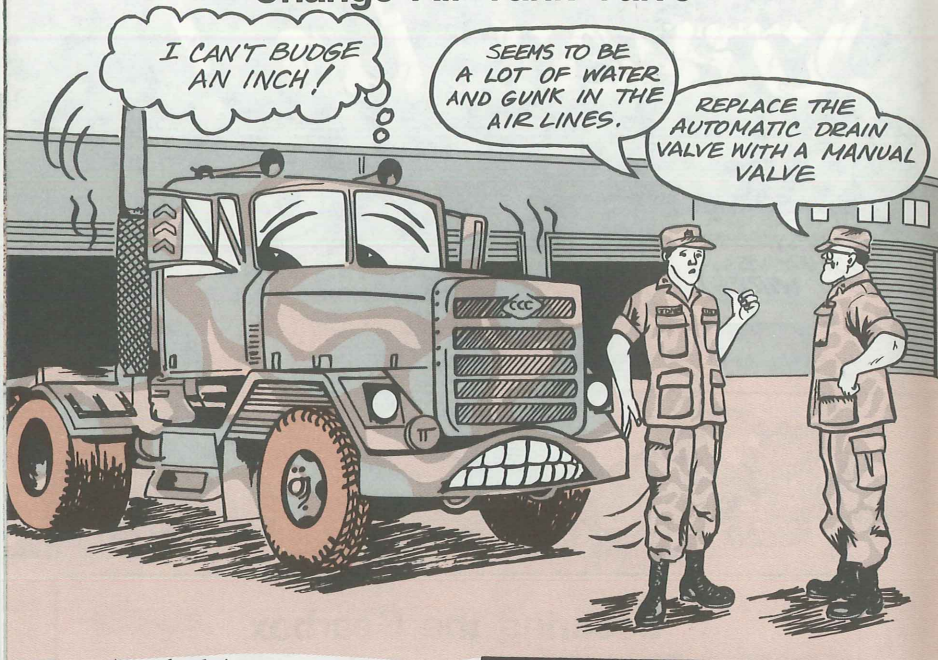
You can stop falling gearboxes by doing this when you have the CEV in for quarterly service:

- Inspect the gearbox for missing bolts.
- If you find any bolts missing, get support to replace 'em.
- Manually turn the turret in all ranges.
- Have someone watch the gearbox. If it moves, bolts are loose.
- Torque the two top bolts to 300-350 lb-ft and the six side bolts to 125-165 lb-ft.





## Change Air Tank Valve



Aw, shucks!

Turns out that the automatic drain valve can't be trusted to automatically drain water and glop from the tank. The valves get gooped up and fail to work.

The water 'n' glop then gets carried over into the brake lines or the transmission control group, fouling up the works. Then the truck's down for major work.

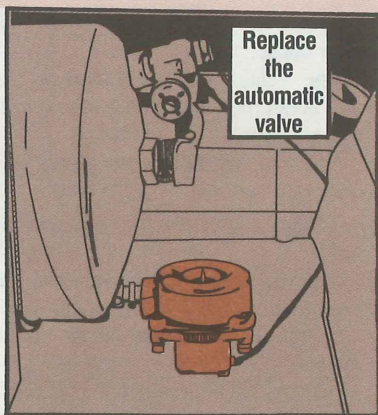
You mechs can save yourself a lot of time and trouble. Replace the automatic valve with a manual valve, NSN 4820-00-621-3066.

Start by draining air tanks.

Disconnect the wire to the automatic valve at the connection and tie it to the frame with tie, NSN 5975-01-155-8412.

Remove the automatic valve and replace it with the manual one.

Para 2-12b of TB 43-0001-39-2 (Apr 86) has the word on this change.



## U-Joint Kits Available

Mechs, you can save big bucks by repairing, instead of replacing, prop shafts on M39/M809-series trucks.

Most prop shafts can be fixed by using U-joint repair kits. The kits are available but are not listed in the truck's -20P TM's.

There are two different types of U-joints used on prop shafts for 5-tonners—Dana and Mechanics. Here's a breakdown, by prop shaft, of the U-joint repair kits available:

### FRONT WINCH TO PTO

DANA	MECHANICS
NSN 2520-00-028-3434	NSN 2520-00-999-7808

### PTO TO TRANSFER

DANA	MECHANICS
NSN 2520-00-388-4197	NSN 2520-00-766-7607

### FRONT AXLE TO TRANSFER

DANA	MECHANICS
NSN 2520-00-388-4197	NSN 2520-00-766-7607

### TRANSFER TO FORWARD REAR AXLE

DANA	MECHANICS
NSN 2520-01-082-8619	NSN 2520-01-144-8874

### TRANSFER TO CENTER BEARING

DANA	MECHANICS
NSN 2520-00-388-4197	NSN 2520-00-766-7607

### CENTER BEARING TO FORWARD REAR AXLE

DANA	MECHANICS
NSN 2520-01-082-8619	NSN 2520-01-144-8874

### FORWARD REAR AXLE TO REAR AXLE

DANA	MECHANICS
NSN 2520-00-388-4197	NSN 2520-00-766-7607

### PTO TO HYDRAULIC PUMP

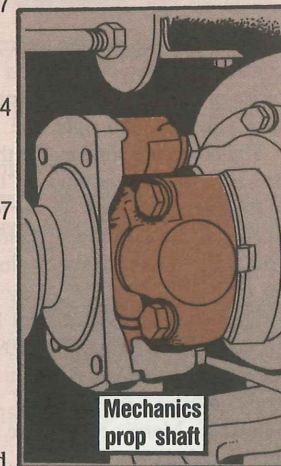
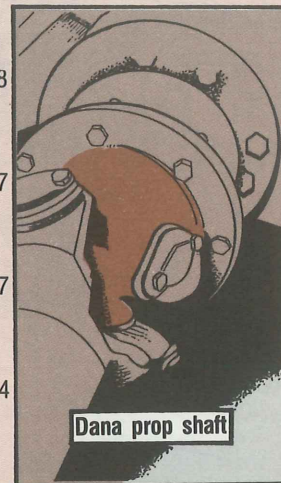
(For wreckers only)

NSN 2520-00-740-9240

### POWER DIVIDER TO REAR WINCH

(For wreckers only)

NSN 2520-00-846-2375



Get two kits if both U-joints on the shaft are bad.



## Dump Control Confusion



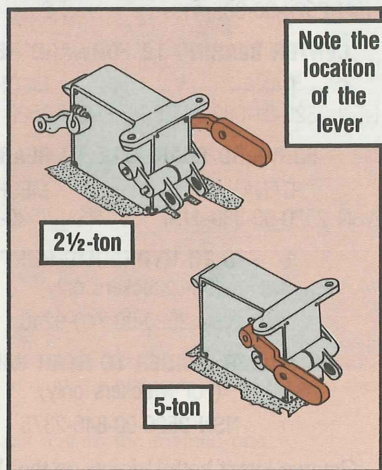
When you replace the hydraulic hoist control box on your 2½-ton or M51-series or M817 5-ton dump truck, make sure you have the right one.

The boxes are similar, but the control box for a 2½-ton dump won't work on a 5-tonner, and vice versa.

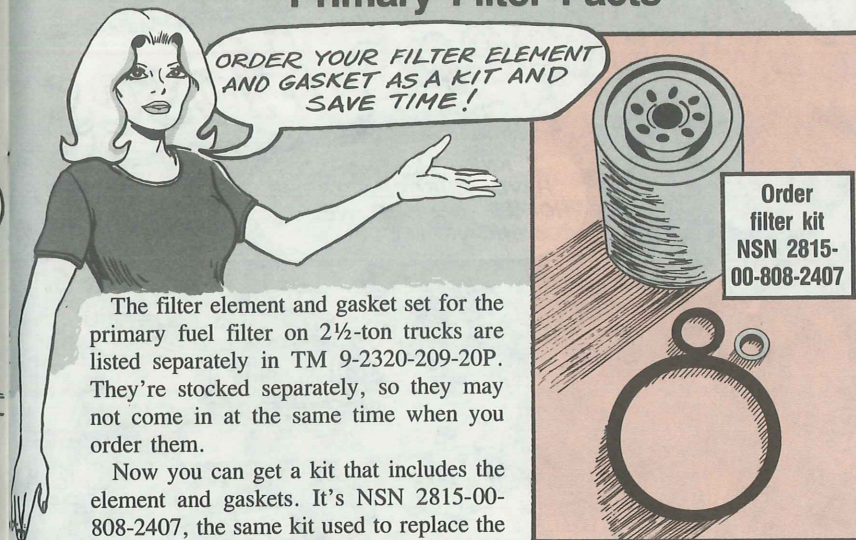
To tell the difference, hold the box with the retaining wings facing up—or on the top.

Then look for the control lever.

Use NSN 2520-00-740-9090 to get the control box for a deuce-and-a-half. The 5-tonner's box is NSN 2520-00-740-9245. Make a note of the NSN's—they aren't in the -20P TM's.



## Primary Filter Facts



The filter element and gasket set for the primary fuel filter on 2½-ton trucks are listed separately in TM 9-2320-209-20P. They're stocked separately, so they may not come in at the same time when you order them.

Now you can get a kit that includes the element and gaskets. It's NSN 2815-00-808-2407, the same kit used to replace the fuel filter elements in M60-series tanks.

Order filter kit  
NSN 2815-00-808-2407

Fuel Transfer Pumps...

## Takes One to Know One

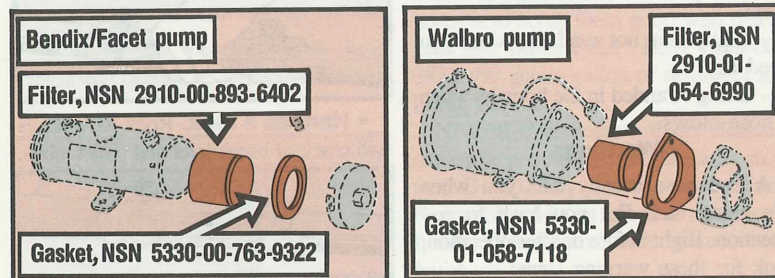
Electric fuel transfer pump, NSN 2910-00-930-9367, comes in two configurations.

You've got to know which is which before you try to replace filter elements and gaskets.

The Bendix/Facet pump takes filter element, NSN 2910-00-893-6402, and gasket, NSN 5330-00-763-9322.

The Walbro pump takes filter element, NSN 2910-01-054-6990, and gasket, NSN 5330-01-058-7118.

Elements may be wire mesh, ceramic or nylon material.





# PM Keeps Hoses Healthy

I KNEW WE SHOULD HAVE CHECKED THESE HOSES BEFORE WE HEADED OUT!



Hoses don't last forever—nobody expects them to. Even with the best of care, they wear out.

But with just a little PM, you operators can stretch rubber hose life to the max—and stop leaking hose problems.

If you ignore hoses, you set yourself up for the triple threat:

- Cost of parts and time for replacement.
- Equipment not available when you need it.
- Being stranded in the boonies when a hose blows.

### Warnings

A bad hose usually tells you when it's going bad. But you have to pay attention. Right before or after operation, look for these warning signs:

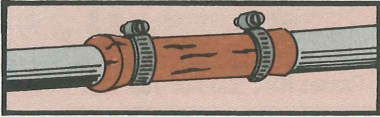
- **Cracks.** Eyeball both ends of hoses. Cracks mean rot.



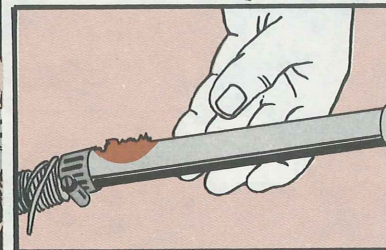
- **Soft spots.** Hoses should feel springy, not mushy. Mushy means rot.



- **Hard as a rock.** Rock-hard hoses will crack or break inlet and outlet tubes.



- **Worn or frayed.** A worn or frayed spot in the outer layer on a hydraulic hose leaves the reinforcing wire underneath open to rust. Those may rupture.



On trucks, don't forget the bottom radiator hose. Because it's hard to see, it's easy to forget. But it takes more of a beating from rocks and bushes than the other hoses and it's often the first to go. Eyeball the bottom hose with the engine running. If it's collapsing, it's too weak to do the job.

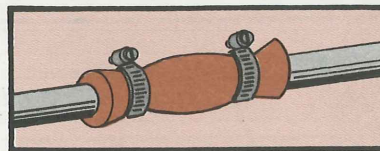
Notify your mechanic if you have a bad hose.

### Clean Up Hose Problems

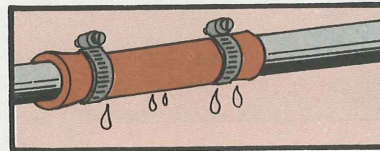
Oil eats rubber. A dirty, oily hose is a hose in trouble. The best way to clean hoses is to scrub them good with detergent and warm water. NSN 7930-00-282-9699 gets a gallon of detergent for lifting off oil.

NEVER clean hoses with dry cleaning solvent or petroleum-based cleaners, such as P-D-680. Dry cleaning solvents are flammable and can produce dangerous fumes. Petroleum-based cleaners eat hoses.

- **Puffed.** A puffed spot is a weak spot waiting to burst.



- **Dampness.** You could have a hose leak, loose clamp, or bad inlet or outlet tube.





# Tire and Wheel NSN's

EVEN SHERLOCK HOLMES WOULD HAVE TROUBLE FINDING REPLACEMENT PARTS FOR YOUR F1500M ROAD GRADER IN YOUR MANUAL.

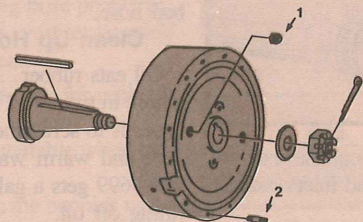


Finding replacement parts for the tires and rims of your F1500M road grader takes a little detective work.

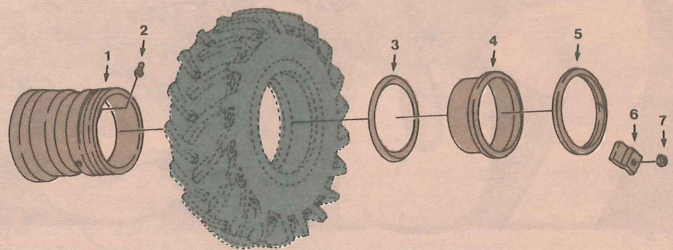
The parts are shown in Fig 62 of TM 5-3805-253-20P, but only the tire is listed—and without an NSN.

The other items are listed on Page 135 and identified as being part of Fig 61—but they're not.

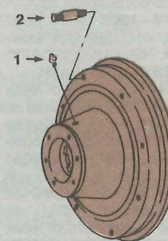
Here's the way wheel and tire listings will appear in a change to the -20P manual:



(1) ILLUSTRATION	(2) SMR CODE NUMBER	(3) NATIONAL STOCK	(4) FSCM	(5) PART NUMBER	(6) DESCRIPTION	(7) USABLE ON CODE	(8) U/M	QTY INC IN UNIT
(A) FIG. NO.	(B) ITEM NO.							
1	PAOZZ	4730-01-017-8971	82666	FIG184-1½	Plug, pipe .....	EA		8
2	PAOZZ	5307-01-028-0595	83156	B-601	Stud, plain .....	EA		60



(1) ILLUSTRATION	(2) SMR CODE NUMBER	(3) NATIONAL STOCK	(4) FSCM	(5) PART NUMBER	(6) DESCRIPTION	(7) USABLE ON CODE	(8) U/M	QTY INC IN UNIT
(A) FIG. NO.	(B) ITEM NO.							
1	PAO00	2530-00-562-9662	11083	2D2568	Base, Rim .....		EA	6
2	PAOZZ	2640-00-555-2825	10988	A20058	Valve, Pneumatic Tir .....		EA	6
3	PAOZZ	5330-00-815-4046	73842	OR224TG	Packing, Preformed .....		EA	6
4	PAOZZ	2530-00-881-4967	73195	SR88T5	Ring, Side .....		EA	6
5	PFOZZ	2530-00-879-5174	73195	LR88T5	Ring, Lock .....		EA	6
6	XDOZZ		99832	102205	Clamp Front and Rear Wheel .....		EA	16
7	PAOZZ	5310-00-222-7235	73842	NU65	Nut, Plain, Hexagon .....		EA	16



1	PAOZZ	4730-00-050-4208	96906	MS15003-1	Fitting, lubrication .....		EA	2
2	PAOZZ	5307-01-028-0595	83156	B-601	Stud, plain .....		EA	16



1	PAOFF	2610-00-580-3221	81348	ZZ-T-1083/GP3A/13.00-24/E/RGGP	Tire, pneumatic .....		EA	6
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# Rubs

This is a selected list of recent pubs of interest to organizational maintenance personnel. This list was made from a computer print-out provided by the Adjutant General.

TM 3-6920-100-12&P Mar Launcher, Projectile, liquid airburst: M267  
 TM 5-2420-222-20P Feb JD 410 tractor  
 TM 5-3805-254-10 Jan F5070 20-ton dump truck

TM 5-3805-254-20P Apr F5070 20-ton dump truck  
 TM 9-1090-206-20-1 Mar 20-MM automatic gun helicopter armament subsystem: M97A2  
 TM 9-1090-206-20-2 Mar 20-MM automatic gun helicopter armament subsystem: M97A1  
 TM 9-1090-206-23P Mar Armament subsystem, helicopter, 20-MM automatic gun M97A1 and M97A2  
 TM 9-2350-264-20-1-2-3 Dec 85

M1A1 tank  
 TM 9-2350-264-20-2-2-3 Nov 85  
 M1A1 tank  
 TM 9-2350-311-20-2Jun M109A2 and M109A3 howitzer  
 TM 11-5805-715-20P Sep 85 CV-3478/TTC telephone signal converter  
 TM 11-5805-727-12 Mar OA-9102(V)/FSC and OA-9103(V)/FSC voice orderwire groups  
 TM 11-5820-517-20P Jun AT-903/G antenna assembly

## Maintenance & Safety-of-Use Messages

**MICOM**—Engineering Technical Letter, AMSMI-LC-ME Apr 86.

**MICOM SIL 2-86**—Supply Information Letter, AMSMI-LC-MM Jun 86.

**MICOM**—G/VLLD, AN/TVQ-2, Nominal ocular hazard distance change, AMCPM-HD-S-S 271905Z May 86.

**MICOM**—Radar set, AN/MPQ-53, PN 11448099 and modulator-power supply PN 11441329 Patriot, spark gap radio-active, AMSMI-LC-ME-M 161430Z Jun 86.

**TROSCOM SOU-MES-03-86**—Divers Air Sampling Program (DSAP) requirements, AMSTR-MES 271501Z Feb 86.

**TROSCOM SOU-MES-06-86**—Re-compression chamber, NSN 4220-00-540-2785, Model RC-100-2, Serial No. 08A-163 thru 08A-172 deadlined due to chemical contamination, AMSTR-MES 041316Z Apr 86.

**TROSCOM SOU-MES-11-86**—MT1-XX Interim Flam-Air Parachute System (IRAPS) container separating from harness, AMSTR-MES 282100Z May 86.

**TROSCOM SOU-MES-13-86**—MT1-XX IRAPS parachute risers, loose or missing grommet, AMSTR-MES 091300Z Jun 86.

**TROSCOM SOU-MES-14-86**—Follow-on message to SOU-MES-11-86 and SOU-MES-13-86 on MT1-XX IRAPS, AMSTR-MES 181630Z Jun 86.

**TROSCOM SOU-MES-17-86**—Seatec life preserver/buoyancy compensator inflator mechanism damage, AMSTR-MES 031300Z Jul 86.

**TROSCOM**—15/30KW, 60/400HZ DOD generator sets with loose exciter stator, NSN 6115-00-370-2738, AMSTR-MES 261300Z Jun 86.

**AMCCOM**—Suspension of repair kit, NSN 1015-01-071-5645, used on gun mounts, M87A1 as modified for M48A5; M116 and M140 gun mounts for M60/M60A1/M60A1 Rise/M60A1 Rise-Passive tanks, and M150 gun mount for M728 CEV, AMSMC-MA 162230Z Jun 86.

**AMCCOM**—Suspension of repair kit, NSN 1015-01-071-5645, on M140/M140A1 gun mount, AMSMC-MA 130400Z Jun 86.

**AMCCOM**—Follow-on message of AMSMC-MA, 162230Z Jun 86, repair kit, NSN 1015-01-071-5645, AMSMC-ILO-R 201705Z Jun 86.

**AMCCOM**—Importance of head-space and timing of the M2 Cal .50 machine gun flex and M48 Cal .50 turret type used on M1 tanks, AMSMC-MA 061400Z Jun 86.

**AMCCOM**—Operation of the AT-WESS with the MILES TOW system, AMSMC-MAT-D 062200Z Jun 86.

**AMCCOM 86-17**—Fuel filter for M3A3/M3A4 smoke generator, AMSMC-MAR-C 121310Z Jun 86.

**AMCCOM 86-18**—M2 mount, NSN 1040-00-347-2434, LIN M74001 used with M3A3/M3A4 smoke generator, AMSMC-MAR-C 121345Z Jun 86.

**TACOM 86-27**—Deadlining of aircraft fuel servicing vehicles, 4x2, NSN 2320-01-090-7802 and 4x2, NSN 2320-01-090-7800, AMSTA-MVA 291430Z May 86.

**TACOM 86-28**—Recovery operations using front winch for 5-ton, M39, M809, M939 series trucks, AMSTA-MTB 031800Z Jun 86.

**TACOM 86-34**—Potential safety hazard when using slip ring cover on M578 recovery vehicles, AMSTA-QRT 181200Z Jun 86.

**TACOM 86-37**—HMMWV Cooling fan blades developing cracks, AMSTA-MTA 011530Z Jul 86.

**Your Direct Support or Logistic Assistance Office (LAO) can provide you with more information.**

### SMART Message

**SMART Msg #72**—Clarifies disposal procedures for broken hand tools with a value of \$5.00 or less, DALO-PLA 191704Z Jun 86.

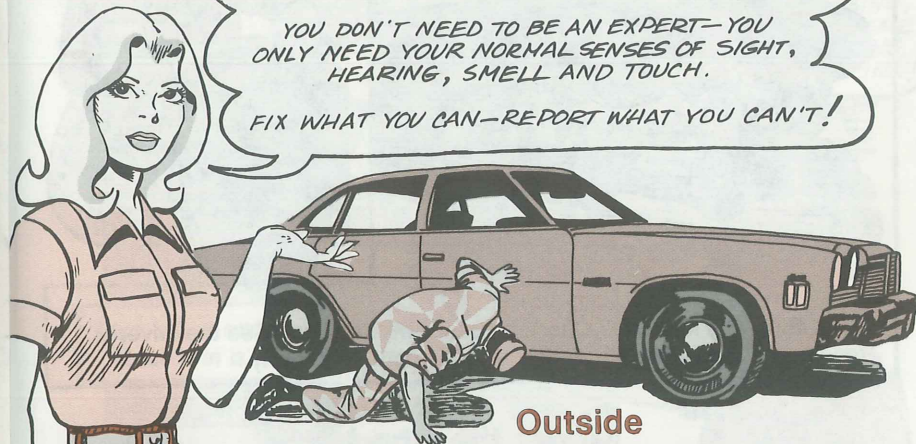
Commercial Non-Tactical Vehicles...

# Operator Checks

*TROUBLE INSURANCE! IT'S FREE-COSTING ONLY A FEW MINUTES OF YOUR TIME TO BE 99 PERCENT SURE OF TROUBLE-FREE OPERATION.*

*YOU DON'T NEED TO BE AN EXPERT—YOU ONLY NEED YOUR NORMAL SENSES OF SIGHT, HEARING, SMELL AND TOUCH.*

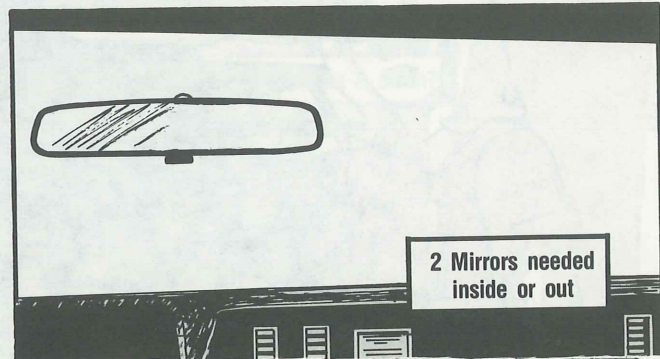
*FIX WHAT YOU CAN—REPORT WHAT YOU CAN'T!*



## Outside

One corner lower than the others means a bad spring. Puddles under the vehicle may signal leaks. Find out where they came from! Look for any damage that could upset your mission.

**GLASS**—Vision blocked by cracks or cloudy areas?  
**MIRRORS**—There must be at least two usable mirrors (inside or out).



**2 Mirrors needed inside or out**

**Pull this section out and keep it with your vehicle's logbook**



Remove nails or glass embedded in tires



REPORT WEAR IF YOU SEE TREADWEAR INDICATOR BARS OR IF THERE'S LESS THAN 1/16-in. OF TREAD.



**TIRES**—Any look low? Check pressure with a gage. (See the driver's manual or sticker on the door frame for right pressure.)

### Under the Hood (engine off)

**ENGINE OIL**—Below ADD or above FULL? If it's low, add oil to raise the level to between the marks. If it's over FULL, report it.



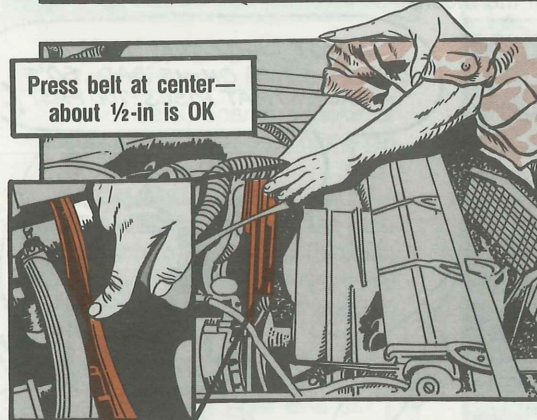
OVER FULL IS BAD, TOO!

Muck or oil in the coolant? Report it. Report Leaks



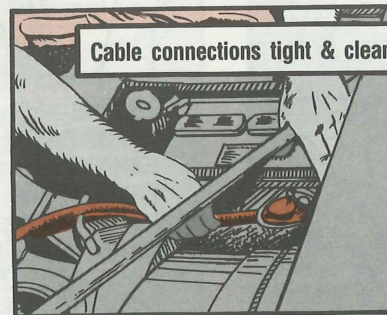
BELTS AND HOSES—REPORT BELT MISSING, FRAYED OR LOOSE. SAME FOR HOSES LEAKING, BULGING OR CRACKING!

Press belt at center—about 1/2-in is OK



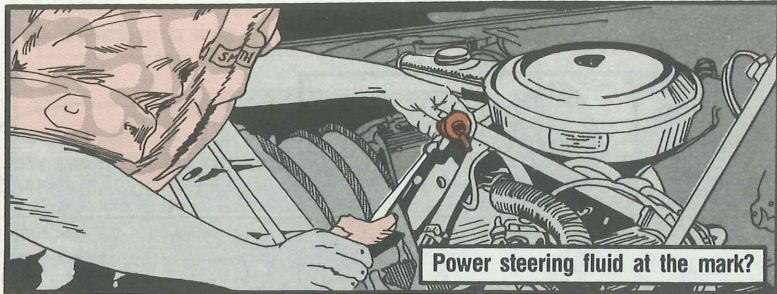
**BATTERY**—Cable clamps loose or corroded are trouble. Indicator (if it has one) should show green. Electrolyte below the filler cap neck (if caps can be removed)? Report it!

Cable connections tight & clean?





**POWER STEERING**—Fluid low? (Check driver's manual for the correct level.)



Power steering fluid at the mark?

### Start Up

Note problems when cranking the engine.

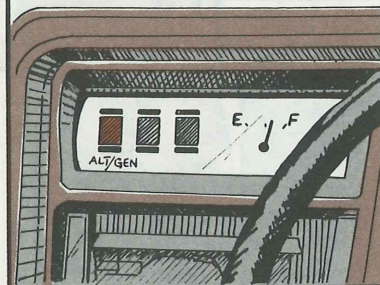
**GAGES**—Oil pressure gage shows "0" pressure or OIL light stays on? If so, shut down—NOW! Call the mechanic.



A HOT LIGHT THAT COMES ON-OR STAYS ON-IS BAD. SO'S A GAGE THAT RISES TOO FAST!



**ALT/GEN GAGE**—Showing discharge or high charge? ALT/GEN light stays on? Report it!



**ENGINE**—Idling rough? Smoky exhaust? Report it!  
**EXHAUST**—Report leaks.  
**WINDSHIELD WIPER AND WASHER**—Wiper blades torn or missing? Washer tank empty? Spray nozzles clogged? No good!  
**HORN**—It must work!



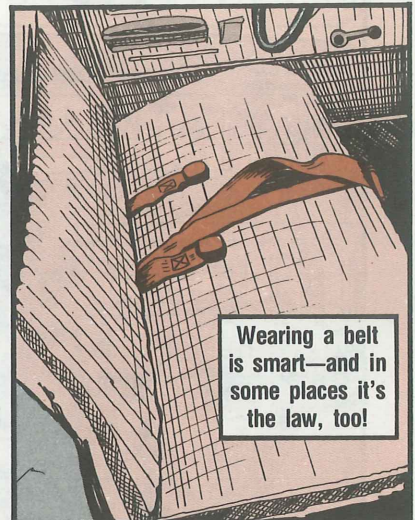
### Under the Hood (engine running)

Report leaks, sparks, smoke or unusual noises. Stay clear of the fan blade and drive belts.

**AUTOMATIC TRANSMISSION**—After it's warmed up, move the gear selector thru all the gears. While in PARK, check the fluid level. If it's below ADD or over FULL, shut down and report it.



**Back Inside**  
Seatbelts are required for you and all passengers. Buckle up!



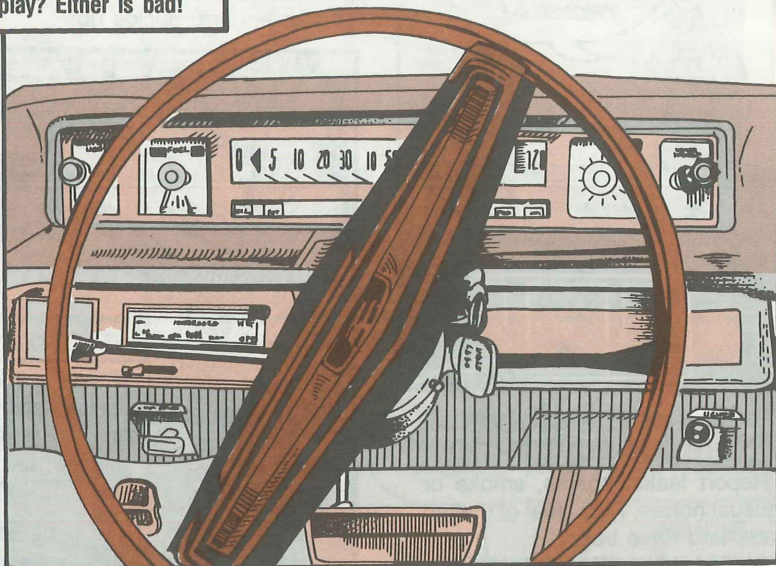
**PARKING BRAKE**—With the brake on and the transmission in DRIVE, the brake must hold the vehicle.



**FOOT BRAKE**—If the pedal goes to the floor or feels mushy, report it. The brakes must stop the vehicle smoothly.



Steering—Steering wheel bind? A lot of free play? Either is bad!



### During Operation

**BRAKES**—Pulling to one side or loss of stopping power is dangerous!

**STEERING**—Does the vehicle wander, shimmy or steer hard? Report it when you get back.

**GAGES/WARNING LIGHTS**—Any lights come on? Oil pressure drop? Engine temperature rise? ALT/GEN show discharge? Stop! Check under the hood for leaks, loose hoses or belts, or other problems.

**TRANSMISSION (and clutch, if you have one)**—Shifting rough or not shifting? Clutch grabs, chatters, binds or slips? Remember to tell the mechanic.

**NOISES**—Report any unusual noises.

### At Halts

Clean the windshield, windows, and lights as needed. Check for nails or glass in the tires. Look underneath for leaks.

### After Operations

Give your vehicle another walkaround inspection. Make a note on the -2404 if it's using oil or other fluids. Report other problems.

## Checklist

HERE'S A CHECKLIST THAT PUTS IT ALL TOGETHER. IF YOU FIND ANY OF THESE PROBLEMS, GET THEM FIXED BEFORE YOU MOVE OUT!

### PMCS Chart for Commercial Vehicles

Those items listed in **bold color** will make your vehicle Non-Mission Capable (NMC).

#### BEFORE OPERATIONS

##### Exterior & underside

- 1 Damage
- 2 Leaks
- 3 Wheel & tires (including spare)
- 4 Suspension & shocks
- 5 Lights
- 6 Tools & emergency gear
- 7 Exhaust system

##### Faults to look for

- Windshield cracked enough to block view.**
- Any fuel or brake fluid leaks; Class III leaks of oil, coolant, or transmission fluid.**
- Cuts, cracks, air bubbles or damage that could cause tire failure during operation; one or more tires flat or bald; wear bars visible.**
- Broken springs; more than one bounce when you push down on fender and let up quick.
- Headlights, tail/stoplights, or turn signals won't work.
- Jack, lug wrench missing or damaged.
- Any leaks.**

##### Under the Hood

- 1 Fluid levels:
  - Oil
  - Transmission
  - Coolant
  - Power steering
- 2 Belts
- 3 Battery

Below ADD; water or fuel in oil.

Below ADD or **over FULL**; **"burned" smell.**

Below COLD FULL mark on surge tank.

Fluid low.

**Broken, loose, frayed, missing.**

Damaged; **won't start vehicle; missing.**

##### Interior

- 1 Gages/warning lights
- 2 Seat belts

**Temperature, oil pressure or alternator gage/light not working, giving wrong readings, or indicates a problem.**

**Frayed, broken, not enough for driver & all passengers.**



- |                               |   |
|-------------------------------|---|
| 3 Windshield wiper & washer   | Won't work; blade missing, damaged; no fluid. |
| 4 Heater/air conditioner      | Won't work.                                   |
| 5 Horn                        | Won't blow loudly                             |
| 6 Mirrors (need at least two) | Broken, missing                               |

### DURING OPERATION AND AT HALTS

#### Faults to look for

- |                         |  |
|-------------------------|--|
| 1 Brakes                | <b>Pulling, grabbing; won't stop vehicle.</b>                      |
| 2 Steering              | <b>Steering loose or binding; vehicle wanders.</b>                 |
| 3 Transmission & clutch | <b>Transmission won't work; clutch won't work, grabs or slips.</b> |
| 4 Engine                | Lacks power; unusual noises; <b>won't run.</b>                     |
| 5 Tires                 | <b>Soft, flat.</b>   |
| 6 Instruments           | <b>Won't work; giving readings indicating problems.</b>            |
| 7 Leaks                 | <b>Any Class III.</b>  |
| 8 Exhaust system        | <b>Leaks.</b>  |
| 9 Drive shafts & axles  | <b>Unusual noises or vibrations.</b>                               |

### AFTER OPERATIONS

- 1 Vehicle clean, inside and out
- 2 Damage, body or glass
- 3 Fluid levels
  - Oil
  - Coolant
  - Power steering
  - Windshield washer
  - Transmission
  - Fuel
- 4 Hoses & belts
- 5 Radiator
- 6 Wheels & tires
- 7 Lights
- 8 Tools & emergency equipment

**YOU'RE NOT DONE UNTIL YOU'VE MADE SURE ALL OF THESE ARE RIGHT!**



## No Cleats Around Aircraft



Cleats were made for the likes of George Brett and Walter Payton, not aviation types.

If you're a pilot, crew chief or mechanic, you shouldn't be wearing cleated combat boots. Wear only flyers boots or safety boots when working around aircraft. They have non-slip soles instead of cleated soles.

Cleats are taboo around aircraft because they pick up rocks, trash and hardware that can be a source of FOD if they fall into an engine inlet or become wedged around controls.

Metal taps and nails protruding from worn-out heels can also play havoc with your bird's thin skin. So forget about taps and check your boots often to make sure nothing sharp is sticking out.

## AVIATION MESSAGES

CAT 1 EIR Phone  
AUTOVON 693-2066  
(24 hours)

If your unit has not received a message you have an interest in, check with your next higher headquarters.  
AH-1-86-03, SOF, Maintenance Mandatory, Comprehensive safety inspection of AH-1, TAH-1 and TH-1, 111830Z May 86.  
UH-1-86-05, SOF, Technical, One-time inspection, nuts, tail rotor driveshaft, 111800Z May 86.  
UH-1-86-06, SOF, One-time inspection of trunnion bearings, 111815Z May 86.

UH-1-86-07, SOF, Technical, Revisions to inspection of trunnion bearings (UH-1-86-06), 190200Z May 86.  
CH-47-86-04, SOF, Operational, Revision to message on cold weather procedures (CH-47-86-02), 072350Z May 86.  
OH-58-86-03, SOF, Operational, OH-58A and C with Miles/Ages equipment installed, 232300Z May 86.  
UH-60-86-08 Replacement of UH-60A/EH-60A stabilator actuators, 072355Z May 86.

AH-64-86-09, SOF, Technical, Laser boresight safety, 081800Z May 86.  
U-9-86-01, SOF, Technical, One-time inspection of wing attachment fittings, 222200Z May 86.  
MIM-UH-1-86-ME-02, Main rotor blade daily inspections, 190730Z May 86.  
MIM-OV-1-86-ME-01, Status of wire wrapped main system oxygen cylinder and valve assemblies - status of pneumatic actuator assembly, 211600Z May 86.



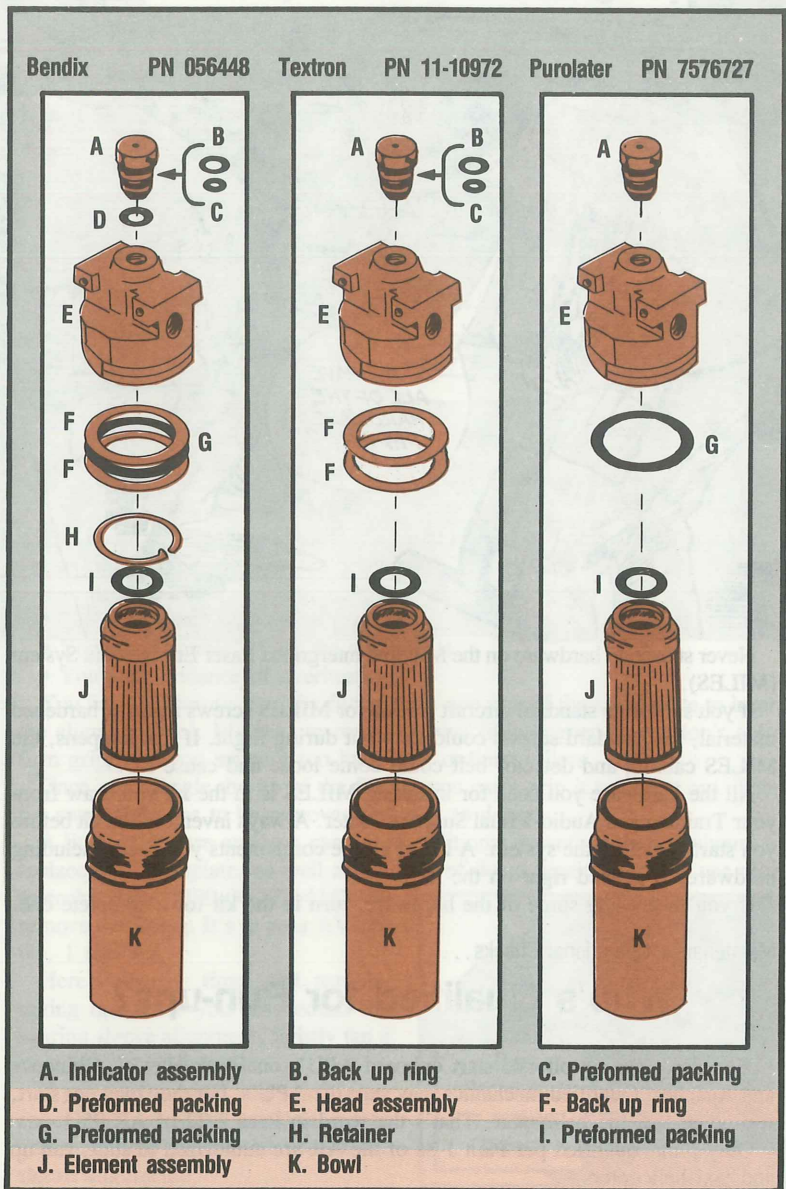
## Hydraulic Filter Confusion



Replacing the filter element of your Huey's hydraulic filter assembly can leave you scratching your head, especially if you don't heed the NOTE in Para 7-48a(12) of TM 55-1520-210-23-2.

That's because there are three similar—but different—filter assemblies in use under the same stock number, NSN 1650-00-457-9844. Most of the same components are in each assembly, but **not all** of them. That's where the confusion crops up. In addition, the stackup of identical components is slightly different among the three models.

If you have to replace a filter element or other component in your bird's filter assembly, use the following chart:





## No Subs for MILES Hardware



Never substitute hardware on the Multiple Intergrated Laser Engagement System (MILES).

If you substitute standard aircraft screws for MILES screws made of hardened material, the standard screws could strip out during flight. If that happens, the MILES cabling and detector belt could come loose and cause FOD.

All the hardware you need for installing MILES is in the kit you draw from your Training and Audio-Visual Support Center. Always inventory the kit before you start installing the system. A list of all the components you need, including hardware, is printed right on the kit.

If you're missing some of the hardware, turn in the kit for a complete one.

Maintenance Operational Checks . . .

## Who's Qualified for Run-ups?

You don't need a pilot to start onboard APU's on Black Hawks, Chinooks and Apaches. Qualified mechanics may start the APU's, but they may not start, run up or taxi the helicopter. That's the word in Para 2-22 of AR 95-1.

Only pilots qualified per Para 1-8a of the AR are authorized to start, run up and taxi helicopters.

AH-1...

## Swashplate Lube Fitting Tips



Too many of you Cobra mechs use force instead of finesse when you check the swashplate bearing sleeve alignment.

You need to check the alignment when:

- The swashplate won't take grease.
- You have trouble lubing the swashplate.
- You find evidence of overheating.

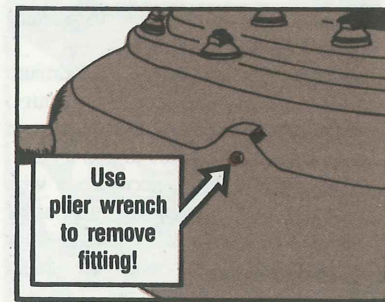
You have to remove the lube fitting from one side of the swashplate to insert the alignment tool. It's easy to round off that little bugger if you don't get a firm grip or if you squeeze too hard with ordinary pliers.

Once you mangle the tip of the fitting, you can't grip it to pull it out. Then the swashplate has to be removed and sent to depot.

A little extra care and you can avoid additional downtime and manhours to replace the swashplate, as well as the cost of depot repairs. Always use plier wrench, NSN 5120-00-277-4243, to remove the fitting. It's in your AVUM No. 1 tool set.

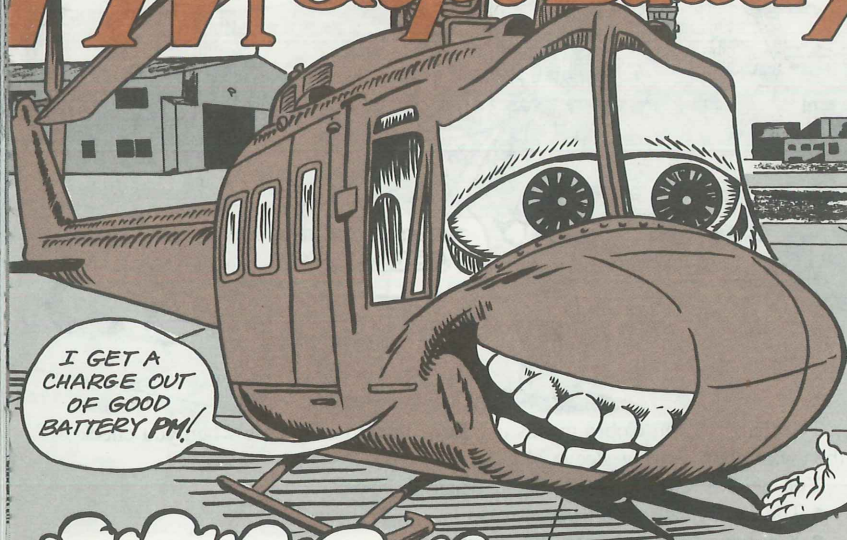
Here's another time- and trouble-saving tip: After you've checked the bearing sleeve alignment, **lightly** tap a new lube fitting into place.

If you tap too hard, you won't leave enough of the fitting sticking out to grip next time you have to check the sleeve alignment.

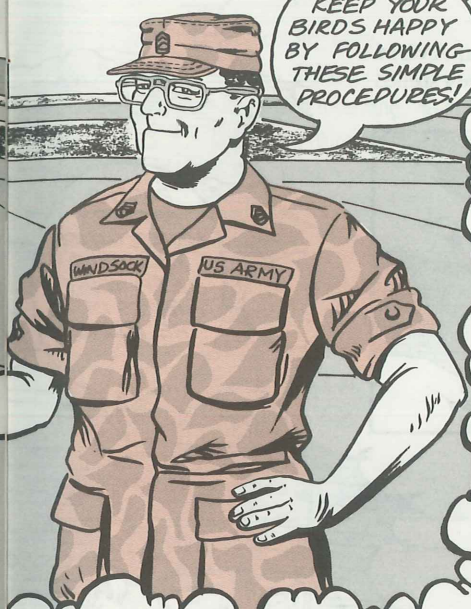




# PM Stops Battery



# Assault!



I GET A CHARGE OUT OF GOOD BATTERY PM!

KEEP YOUR BIRDS HAPPY BY FOLLOWING THESE SIMPLE PROCEDURES!

Careless battery maintenance results in many aviation mishaps each year.

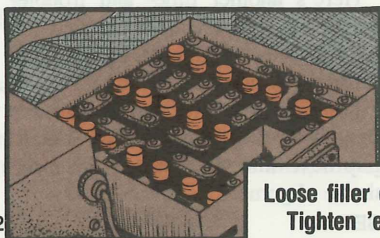
For instance, trapped battery vapors cause corrosion, which can lead battery current to ground and short circuit the system. A battery fire can result.

Here's how to make sure a bird's not grounded—or worse—due to battery failure.

Inspect, clean and test nickel-cadmium batteries weekly or 25 flight hours, whichever comes first, like it says in Table 4-1 of TM 11-6140-203-14-2.

Do your checks in accordance with Table 4-1 and cleaning instructions as in Para 4-6. Play it safe—always wear rubber gloves, apron and face shield when working with batteries.

If you find loose filler caps, tighten them carefully with vent plug wrench, NSN 5120-00-087-2969. Never use pliers. They can crack or break plastic caps.



Loose filler caps? Tighten 'em!

Use torque wrench, NSN 5120-00-117-4832, and the right adapter to tighten loose terminal screws. Para 4-13c of the TM lists the required torque based on the size of terminal screws.

Be careful when tightening terminal screws and studs. You can hurt yourself and your equipment if a wrench accidentally causes a short circuit.

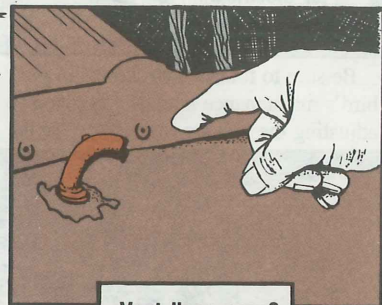
Eyeball the tops of cells for cracks and tell-tale signs of electrolyte leakage. Excess electrolyte in a cell may spew out the vent and form a white residue, which clogs vents.

Electrolyte spewed out of an over-filled or cracked cell can short-circuit the battery and cause gassing and overheating.

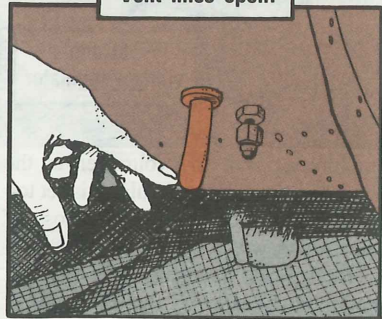
If you find or suspect leakage for any reason other than loose filler caps, remove the battery and have AVIM check it out.

Never add anything—water or electrolyte—to the battery cells. That's AVIM's job.

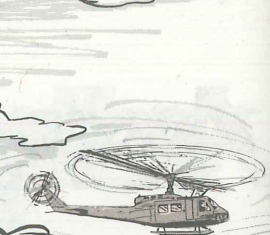
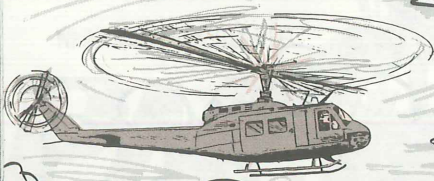
Vent lines need care, too. They ventilate the battery compartment during flight. Disconnect the vent hoses at the battery end and use low-pressure air (no more than 5 PSI) to keep them clear.



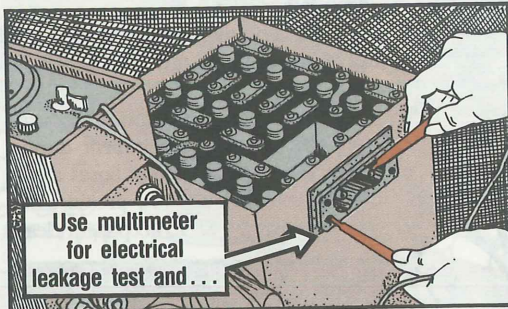
Vent lines open?





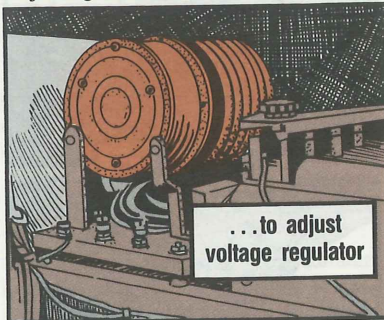


Use the AN/PSM-45 multimeter in your AVUM No. 1 tool kit to make the electrical leakage test spelled out in Para 4-9 of the battery pup.



Use multimeter for electrical leakage test and...

Be sure to follow instructions in your bird's maintenance manual when you're adjusting the voltage regulator. Use the

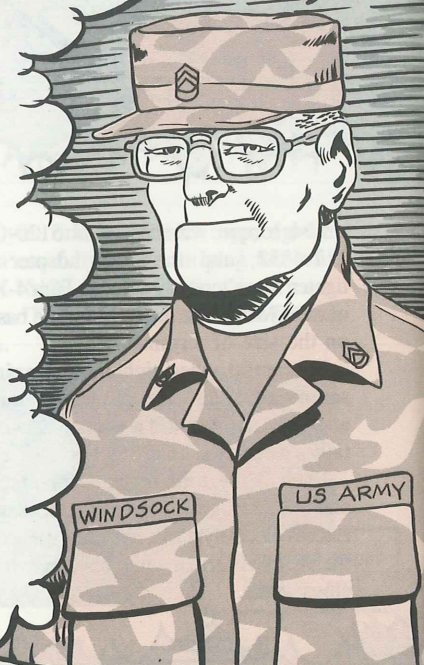


...to adjust voltage regulator

multimeter, not the voltmeter in the bird's cockpit. If the regulator is set too high, battery overheating and loss of electrolyte will result.

Remember, maintain those nickel-cadmium batteries by the book—every time—and on time.

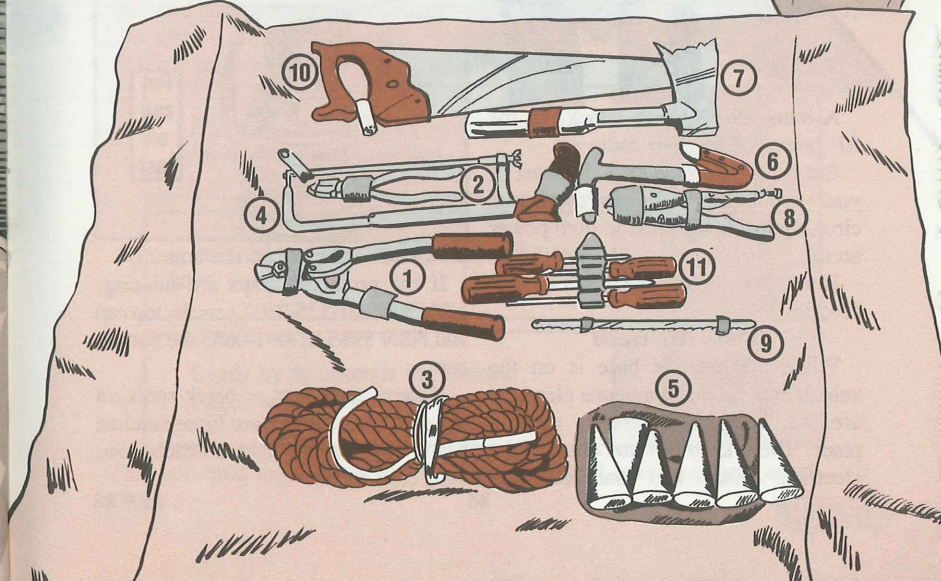
PROPER BATTERY MAINTENANCE WILL HELP KEEP YOUR BIRDS IN THE BLUE!



# Crash Rescue Kit NSN's

USE THESE STOCK NUMBERS TO REPLACE MISSING COMPONENTS OF YOUR UNIT'S AIRMOBILE FIRE FIGHTING AND RESCUE KIT, NSN 4210-00-900-8557.

ITEM	NSN	
1. Aircraft cable cutter, 14-in	5110-00-224-7055	
2. Lineman's pliers, 8-in	5120-00-239-8251	
3. Grappling hook and ropesling, 40-in	Not Available	
4. Hack saw frame, adjustable 8- to 12-in	5110-00-289-9657	
5. Fuel line plugs, 6 ea	Not Available	
6. Rescue knife	5110-00-524-6924	
7. Serrated edge axe	4240-00-169-5711	
8. Vise grip wrench, 10-in	5120-01-176-6931	
9. Hack saw blades, 3 ea, 10-in	5110-00-277-4588	
10. Metal cutting saw, 18-in	5110-00-221-0235	
11. {	Flat tip screwdriver, 4-in	5120-00-222-8852
	Flat tip screwdriver, 6-in	5120-00-234-8910
	Cross tip screwdriver, 4-in	5120-00-234-8913
	Cross tip screwdriver, 6-in	5120-00-234-8912

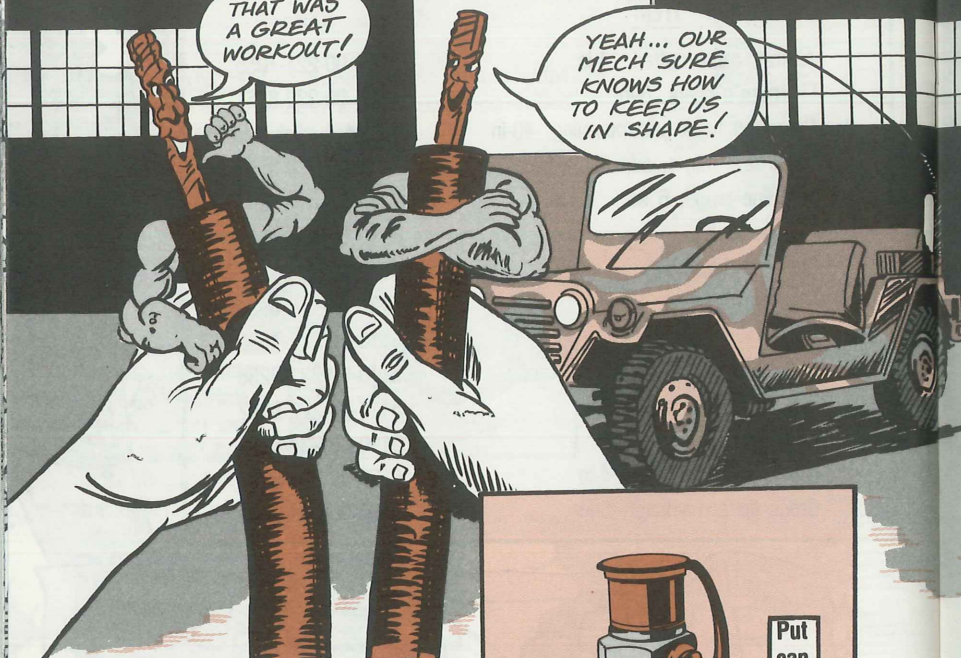




# PM MUSCLE... MAKES AVENNA TOUGH!

THAT WAS A GREAT WORKOUT!

YEAH... OUR MECH SURE KNOWS HOW TO KEEP US IN SHAPE!



A bum AS-1729 can knock out the RF power of the best radio set.

But loss of RF power is the least of your problems. You can even lose circuitry inside the radio to high power arcing.

Here's how to turn the tables in your favor:

## MX-6707 Base

When the antenna base is on the vehicle but radio and antenna elements are not, keep the protective caps in place. These keep dirt and dust off the electrical contact and connectors and

protect the J2 pins on the bottom.

If the protective caps are missing, NSN 5985-01-135-2307 gets the top cap and NSN 5985-01-091-0655 the bottom cap.

If there are burns or black spots on the contacts, chances are loose antenna parts have caused bad contacts. So, snug 'em down.



### AS-1730 Element

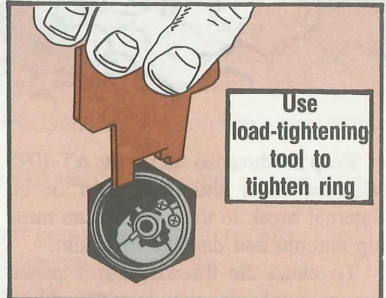
Before screwing the AS-1730 antenna element onto the base, make sure the screws, NSN 5305-00-054-5635, are tight. If their heads are damaged, get them replaced.

Same goes for the horseshoe and button contacts. If they are damaged or missing, get them replaced.

Vibration will sometimes loosen the externally threaded ring. If it isn't snugged down tight, you get poor contact.

You'll know if the ring's seated right by the red O-ring.

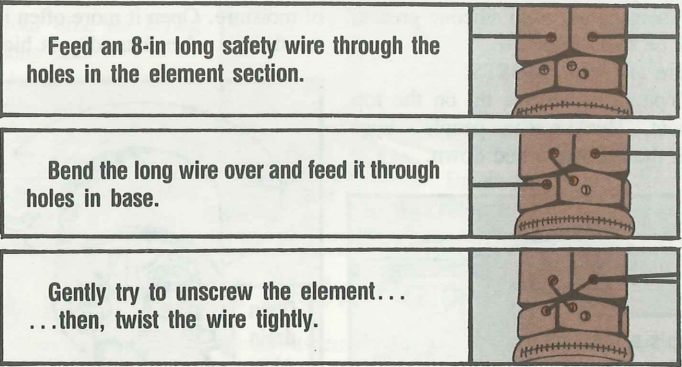
If you see red, get the ring tightened. Your organizational repairman can do this with a load-tightening tool, NSN 5120-01-172-8079.



### Safety Wire Lacing

A loose antenna makes for arcing—a radio killer. Here's how to have a safe radio-antenna hookup with safety wire, NSN 9505-00-293-4208.

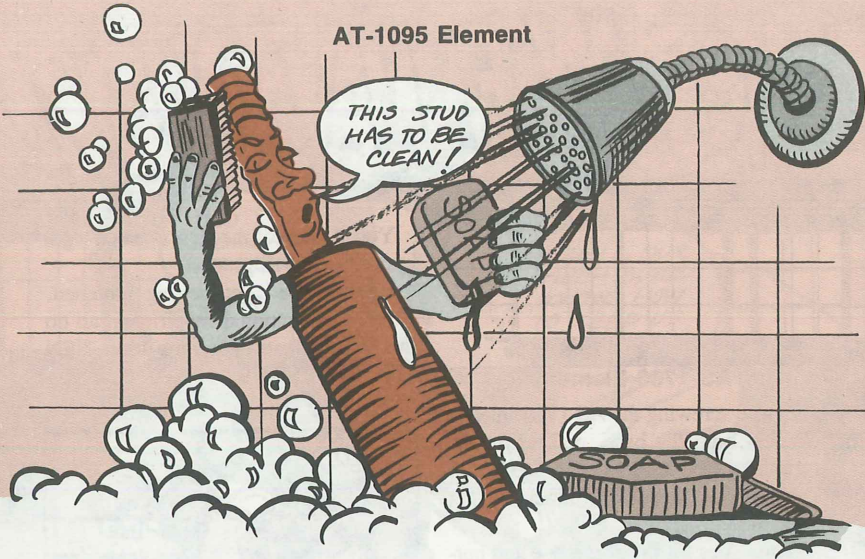
- Hand tighten the AS-1730 onto the MX-6707.



This will hold the element and base together until you take them apart.



## AT-1095 Element



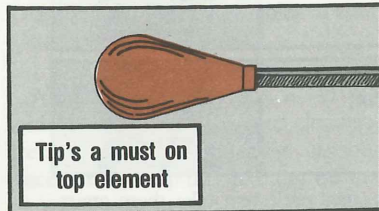
Keep the threaded stud in the AT-1095 element clean and tight. Dirt or an internal break in the element can mess up comms and damage the radio.

To clean the threads, use a pencil eraser, notebook paper or pot scrubber. But nix on sandpaper or steel wool. They are too abrasive and will remove the copper coating conductor.

Once the element's threads are clean, coat them lightly with silicone grease, NSN 6850-00-880-7616.

Here are some MUSTS:

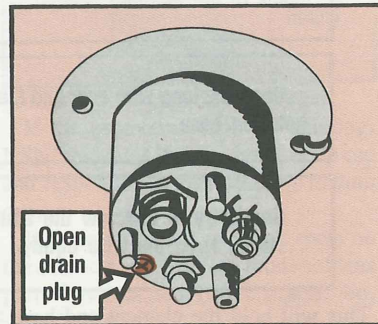
- You **must** keep a tip on the top element. This protects people's eyes when the antenna's tied down.



- You **must** tie the antenna down with the whip under the clip before moving the vehicle.

- You **must** keep antennas separated where more than one is used. Touching antennas will make signal reception suffer and may also damage receiver-transmitter circuits.

- You **must** open the drain plug in the bottom of the base quarterly to get rid of moisture. Open it more often in wet weather or when humidity is high.



## Keep Light Out of Sight



It's plain as night and day—you can't fool your night vision equipment even if you try.

The sun or any other bright light will knock out the night sight's image intensifier assembly.

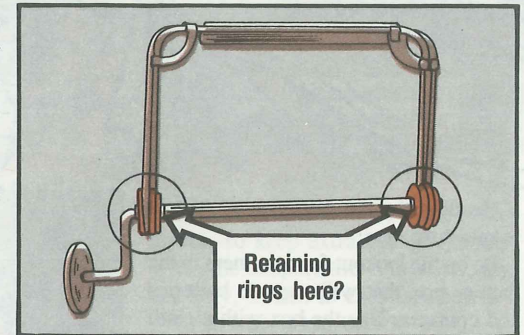
So, keep those protective covers on your gear to save sensitive parts. This'll head off a trip to support. If a cover is damaged, replace it.

## Keep Reel Rolling

A missing bearing core makes it hard to feed out or reel in field wire. This cuts into your time for laying telephone lines.

To keep the reel rolling smoothly and fast, make sure the retaining rings, NSN 5365-00-803-7302, have a firm grip on the core.

Eye rings each time you use reel.



## Night Sight Bracket

Need an M2 mounting bracket assembly for your AN/TVS-5 night vision sight? Get it with NSN 5855-01-045-5482. This NSN is not on Page C-5 of TM 11-5855-214-24&P for Item 5.



# PM Saves



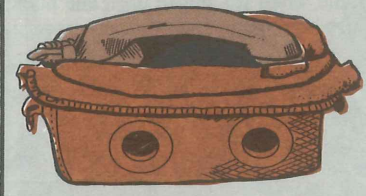
REMOVE THE COVER ON YOUR TELEPHONE IF IT GETS SOAKED. THEN WIPE THE PHONE DRY.

THANKS, MACON!

# Toll on Telephone

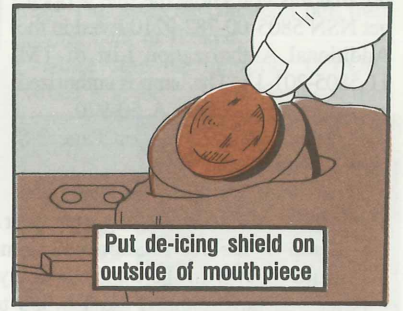
## Beat the Cold

If temperatures dip below freezing, snap the de-icing shield on the outside of the mouthpiece. Never put it on the inside of the cover. It won't do the job.



Take off case to dry

Keep the CY-1277 canvas case on your telephone set for added moisture shedding. If the canvas gets soaked, take it off the set to dry. Use a clean cloth to dry the telephone, then put the cover back on.



Put de-icing shield on outside of mouthpiece

When you connect WD-1 wire to binding posts, put a drip loop in the wire so water will run off the wire before it gets to the set.

Rubber boots, NSN 5970-00-869-6263, on the binding posts help to keep the posts dry.

Remind your repairman when your telephone has been exposed to lots of water so an extra effort will be made to examine the case gasket for tightness. If moisture is in the set, wipe it out and air dry.

Cold weather will cut down on battery power, so keep extra BA-30's handy. When the temperature is low and stays that way, switch to cold weather BA-3030's, NSN 6135-00-930-0030.

About batteries—if they are corroded or leaking, replace them.

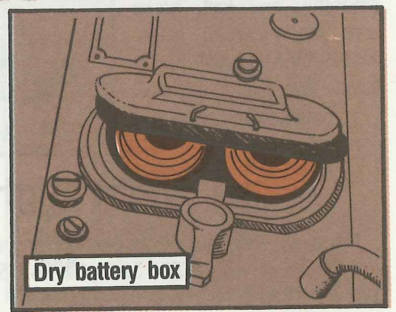
Remember when the telephone is idle awhile, take out the batteries.

If you leave them in, your telephone will be eaten up with corrosion.

Heading the list of telephone killers is moisture.

Be on the lookout for dampness in the battery box that will corrode batteries and contacts. Dry the box with a cloth or an air hose.

If a case screw, NSN 5305-00-054-6670, is loose or missing, tighten it or get it replaced. With new screws, you need new packing, NSN 5330-00-448-1018, to protect against water leaks.



Dry battery box



### Cuddle the Cradle

Never use the H-60 handset for a handle. You will rip the cord out if you drop the case.

When you're testing the holding spring for tension, stand the set on end. If the handset stays in the cradle, it's OK. If it drops out, the retaining clip spring is weak. It needs to be replaced.

One way to make the spring longer is to push the handset forward and lift up the transmitting end first.

If you jerk out the handset all the time, the retaining clip will wear and weaken the spring.

Make sure the handset is seated in the cradle when it's not in use. The hook switch must be depressed before you can get buzzed by someone.

### Heed the Tips

If you need an off-hook lamp assembly that lets you know the line is open, get NSN 5805-00-782-9210 listed in the Additional Authorization List of TM 11-5805-201-12. The lamp is authorized by Appendix A of CTA 50-970.

Hook it up like it says on Page 2-8 of the TM.

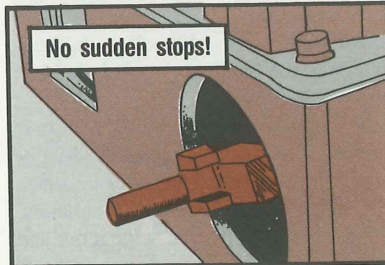
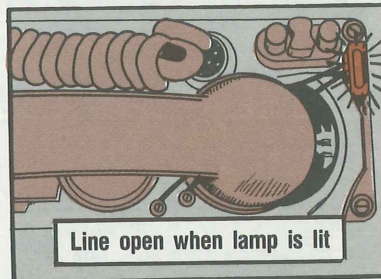
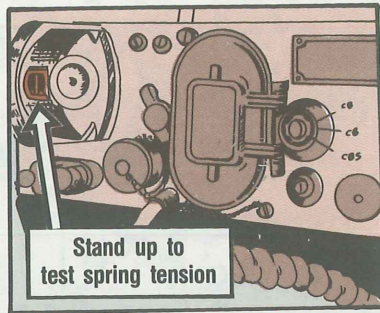
Skip sudden stops whenever you crank the G-42 hand ringing generator. It's tough. It'll take cranking. But a quick stop or reverse rotation will damage the generator.

Be sure to tuck in the handle when you're through with it.

After you have clipped the TA-955 tone-signalling adapter, NSN 5805-01-153-9158, to the telephone set, keep your fingers off the ringing generator.

When your TA-312 is tied into a switchboard, its generator, and maybe other parts, will get damaged. Leave the adapter's cover plate over the telephone whenever the TA-312 is part of a switchboard hookup.

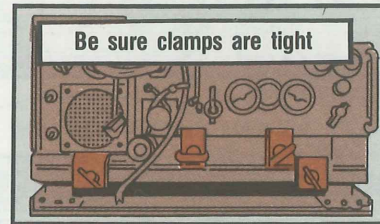
While you're taking out batteries, do the same for the 6-volt battery, NSN 6135-01-166-5042, in the TA-955. This way the adapter can be put away with the telephone in its canvas case when you're not using it.



## Dual Duty Radio Needs PM, Too

Your radio set—AN/VRC-53, -64, AN/GRC-125, -160—needs PM care to be ready for a quick change from backpack to vehicle mount or vice versa.

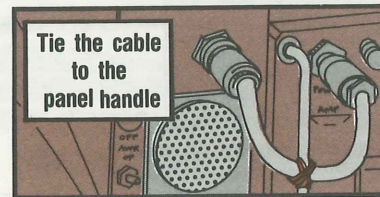
Even with the receiver-transmitter doing portable duty, make sure the clamp and thumbscrews on the MT-1029 are snug against the OA-3633 amplifier-power supply group. This keeps the gear fastened in the vehicle even if the vehicle is on the move. Loose screws can let the amplifier fly out on rough terrain or in a curve.



Be sure to tighten the amplifier clamp after the RT-505 or -841 receiver-transmitter is added to make up the mobile radio. A loose radio can be knocked or thrown out of its mount.

Before the RT is fastened into its component, take out that BA-4386 battery. Otherwise your RT will be damaged from an overdose of electrical power. When it's in a vehicle, only the vehicle battery power's needed.

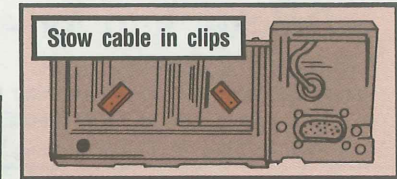
If the CX-4655 electrical cable gets bumped by boots or seats when it's connected between the OA-3633 and RT, tie



or tape it to the RT panel handle.

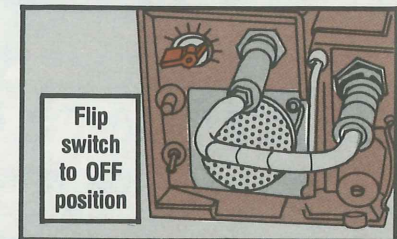
Any time the radio goes portable, never leave the cable dangling from backpack to amplifier-power supply. The cable and SET POWER connector are prime targets for damage.

Always disconnect the cable. Then stow it in the clips on the back of your set until you need it.



Remember to line up the cable connector and amplifier jack key and keyway before marrying them up with the lock ring. This saves the connector pins from getting bent or broken.

Make sure the amplifier ON-OFF switch is in the OFF position each time



it's put in or taken out of the mount. When the switch is left ON, errant arcing will burn a junction box connector.



## Long TM Binders

Caught in a bind because you have no binders for those big aircraft troubleshooting TM's? Order a box of 25 11- x 17-in pressboard binders with NSN 7510-00-281-4310.

## Bracket Info for 4.2 KW Generator

That new solid state engine generator regulator, NSN 2920-01-054-0479, that you'll be getting for your 4.2 KW generator takes a different mounting bracket. It's NSN 2920-01-070-8034. Other mounting hardware is found in TM 9-6115-202-24P.

## H446A Seat Cushion Available

Is your 5-ton crane's seat cushion losing its stuffing? Get your DS to order a new cushion with part number HAN-36264, FSCM 13841 from RIC S9C.

## Transporter NSN Update

Get the hydraulic rotary pump from ribbon bridge transporters with NSN 4320-01-206-4184. It's not listed in TM 5-5420-209-20P.

You now get a nylon roller assembly instead of the aluminum roller shown as Item 1 in Fig 12 of the -20P. It comes as NSN 2040-01-213-8796 (PN 13222E0553).

## Throttle Housing NSN

NSN 2910-00-104-4489 gets the throttle control housing for Model 2A016-1-series 3-HP Mil Std gasoline engines. The housing is listed as Item II of Fig 9 in TM 5-2805-257-24P, without the NSN.

## Parts Puzzle Patter

Dear Half-Mast,  
Where, oh where have those  
compressor parts gone?  
Oh where, oh where can they be?  
I've searched hard and long,  
where they all should belong,  
but none of these parts can I see...  
... Alternator,  
Brakes,  
Shock Absorbers,  
Mud flaps, and  
Leveling jacks, Oh gee!

SFC O.H. Woe

YOUR COMMERCIAL MANUAL IS LACKING -  
BUT THE PARTS YOU CAN SEE  
ARE ALL LISTED IN THIS NEW TB -  
- TB 43-0001-39-3 (JUL 86),  
THAT IS.

If you don't have a copy, write:

U.S. Army Tank-Automotive  
Command  
ATTN: AMSTA-MVC  
Warren, MI 48397-5000

Or call:

AUTOVON	786-7358
FTS	973-7358
COMM	(313) 574-7358



Air Conditioner...

## Flap Fix Favors Cover

Now that you're ready to turn on the 18,000 BTUH vertical compact air conditioner, roll up the cover flap.

Make sure the tie-down straps have a hold on the flap.

If you have to tug at the straps to lock 'em in place, they're too short.

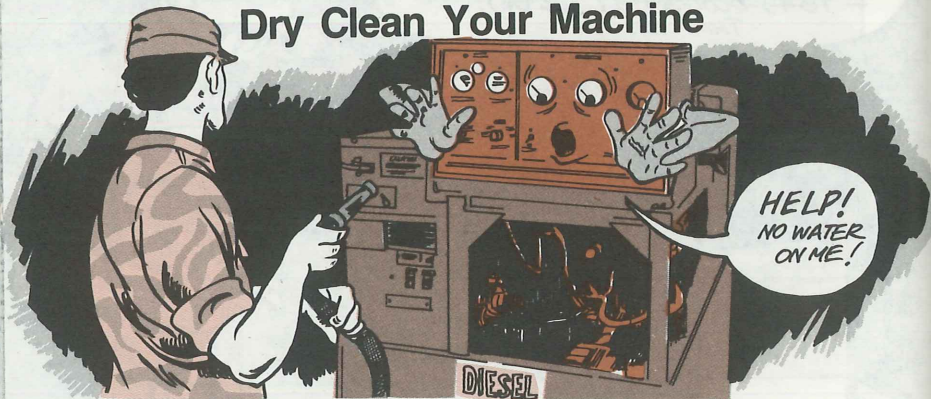
Short straps lead to a broken or torn-out fastener eyelet.

Get a 3-inch piece of vinyl coated nylon, NSN 8305-00-286-7034, sewn to each of the straps. This'll take the strain off.

While you're taking care of the cover, eye the screws holding it to the air conditioner panels. If a screw is loose, tighten it.

Small Generators...

## Dry Clean Your Machine



Your set becomes a washout with a water bath, so keep the wet stuff away. Cleaning with water will short out diodes and electric wiring when the water gets into the control panel. It'll even cause corrosion.

Wipe dirt and dust off your set with a clean, dry cloth.

Use a brush on hard-to-remove caked dirt.

And heed this caution:

Never attempt to wipe down the generator and engine with the set running. Your cleaning cloth or you might get snared by moving parts.



M17-Series Masks...

## Slipping Up on Buttons



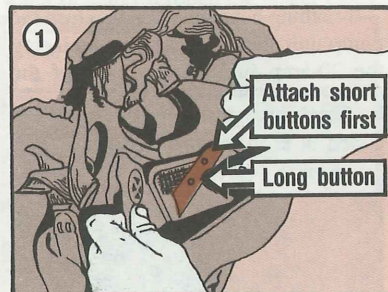
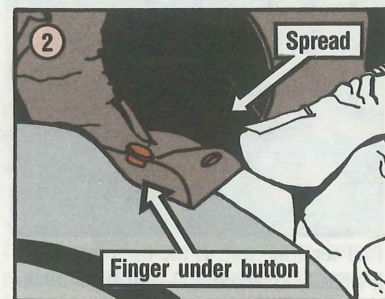
Buttoning the filter pouch flaps on the M17A1 is a real fingernail-buster... especially with new masks that refuse to stretch.

You can make a hard job easier by doing like it says on Page 3-10 of TM 3-4240-279-10. Button the short, outer buttons first, then the longer buttons.

If you're all thumbs, try these tips: Stick a finger under the button. With your other hand, stretch the flap hole over the button.

Still trouble? Dab some water on the button and hole. Then stretch the hole over the button.

Do the same thing with the longer buttons.



Never use homemade tools to help your buttoning. They can tear the button holes and ruin your mask.



# SHORT BUT SWEET



Before cranking up your M12A1's engine, make sure the rubber tip is on the cable connection at the fuel tank. The cable runs from the fuel gage to the



fuel sending unit. If the tip's missing—it's easily knocked off—you'll get metal-to-metal contact and ground out the cable when you put down the cover panel.

A quick fix for a missing tip is to glue a piece of rubber to the underside of the cover panel. You'll see an indentation where the rubber goes.

## Gas Choker

Most M12A1 gas caps aren't vented. (You can tell which cap you have by looking at its top. If it's not vented, it will say so.) During hot weather, loosen

non-vented caps just enough to break the seal. A ¼-turn should do it. That keeps

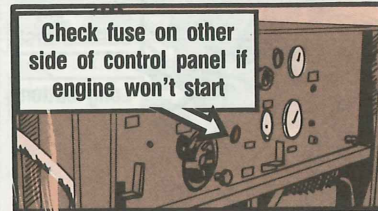


a vacuum from forming in the fuel tank and causing the engine to run rough or sputter to a stop.

You can get the new vented gas cap with NSN 2910-00-141-9758.

## Starter Savior

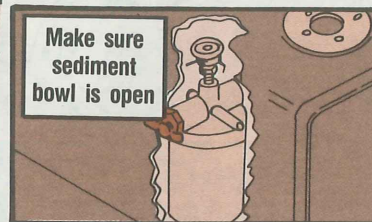
If nothing happens when you turn the pump unit starter switch, try replacing the 20-amp fuse on the back of the



control panel. There's a spare located right above the fuse.

# DECON HELPERS

If the engine sputters but won't start, make sure the valve on the sediment



bowl is open. It's below the fuel tank at the back of the pump unit. A closed valve means the engine can't get fuel.

## Shower Safety

When you put the shower assembly together, do it on the ground. Then, hoist it on the truck. If you try to save time by assembling the shower upright, piece by piece, you risk being conked on the head by a heavy shower pipe.

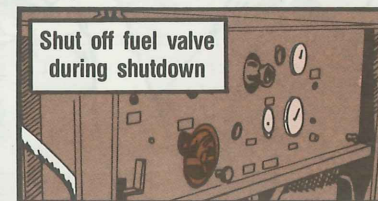
Remember, the M2 water heater takes only clean water. Running dirty or soapy water or slurry through the heater clogs



the heating tubes. Result: An M2 takes a long time to heat water—or doesn't heat it at all. An M2 with clogged heating tubes has to go all the way to depot for cleaning.

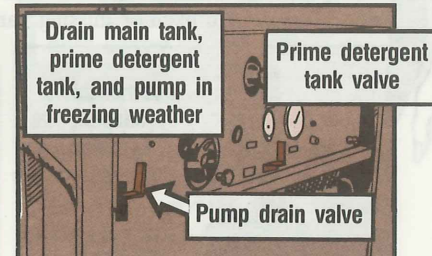
## Shut It Off

When shutdown time comes, be sure to close the pump unit fuel shut-off valve. Left open, the fuel shut-off valve causes



the carburetor to overflow. Fuel floods the engine. That makes for a hard start with lots of backfiring.

Any time it looks like the temperature will drop below freezing, drain all water from the 500-gal tank, the prime detergent tank, and the pump after shutdown. Leave the pump drain valve open.



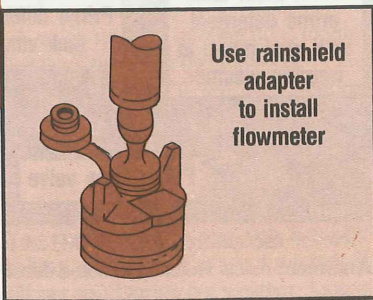
Never use antifreeze in the M12A1. Antifreeze reacts violently to some decon agents.



# Odds 'n' Ends to



Want to prevent alarming problems on your M8 chemical agent alarm? TM 3-6665-225-12 doesn't spell it out, but you use the rainshield adapter to install the flowmeter into the air inlet. The adapter protects the flowmeter's tip. Inspect a new detector cell for leaks before installation. Leaks cause corrosion. Check for broken or missing parts, too.

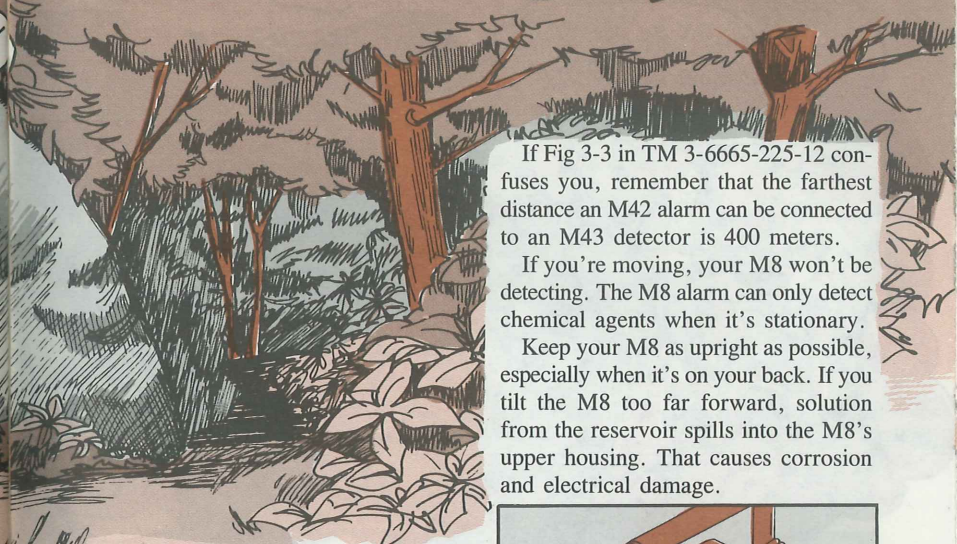


Use rainshield adapter to install flowmeter



Inspect detector cell for leaks, missing parts

# End M8 Problems!

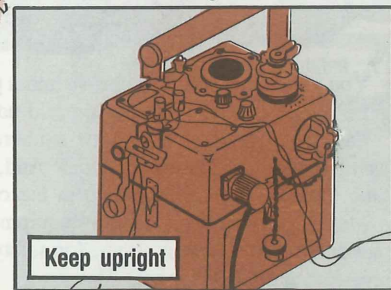


If Fig 3-3 in TM 3-6665-225-12 confuses you, remember that the farthest distance an M42 alarm can be connected to an M43 detector is 400 meters.

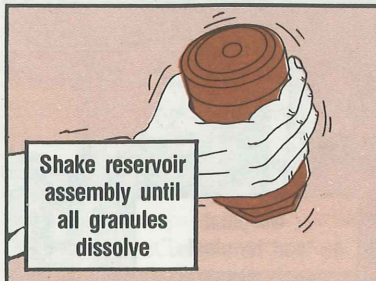
If you're moving, your M8 won't be detecting. The M8 alarm can only detect chemical agents when it's stationary.

Keep your M8 as upright as possible, especially when it's on your back. If you tilt the M8 too far forward, solution from the reservoir spills into the M8's upper housing. That causes corrosion and electrical damage.

Sometimes you need to shake the reservoir assembly longer than 1 minute to activate it. All the reservoir's crystals must be dissolved before you screw in the assembly. Undissolved crystals plug the detector cell. Hold the assembly up to the light. If you spot crystals, keep shaking.



Keep upright



Shake reservoir assembly until all granules dissolve

If your CO says OK, reactivate your M8 for the rest of a 12-hour mission after the M8's been shut down. Para 2-12 in your -12 TM has the reactivation procedure. You must do the continuous use checks and reservicing procedures in Para 2-10 at the end of those 12 hours even though your M8 was off part of that time. After 12 hours, pump-damaging impurities form in the reservoir solution.



# NOT A PRETTY PICTURE

OK 'OL PAINT...  
... NOW DON'T  
BUDGE AN INCH!!



You give some soldiers a brush and a pail of paint, and who knows what will get covered next. Remember the old adage, "If it doesn't move, paint it"?

Fact is, it was probably some exuberant trooper in Custer's command who gave the Painted Desert its name. And, maybe Ol' Paint was standing just a little too still at a PM roundup in the corral.

Make no mistake, tho, Army equipment needs paint. It fights corrosion. It makes some things easy to see for safety's sake. It makes other things hard to see, for camouflage sake.

But, just like hot sauce at a barbecue, too much of a good thing can be a bad thing.

To be a painting success is pretty simple: Paint where paint is needed and mask where paint is not needed. In between, use all the common sense you can muster.

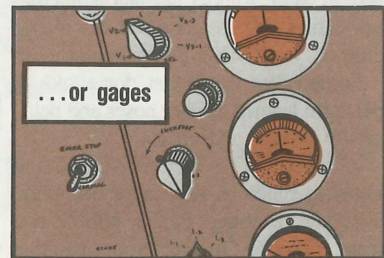
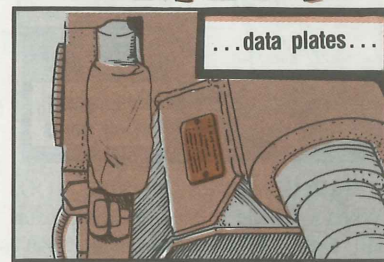
**SAFETY IS WIPED OUT** by a coat of paint that covers generator set load



terminal markings. Some operators will know which terminals are which—but some won't. Pop! goes another light bulb, or... Phfft! ...another radio teletypewriter set.

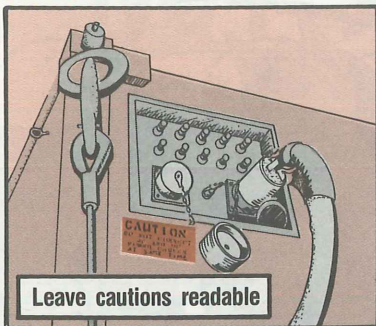
Combat vehicle mechs lose their margin of safety when data plates are painted over—a tank's ballistics drive qualification plate, for example. The data on that plate tells the mechs what corrections to make in aligning sights and weapons. That correction can be the difference between hitting what the crew aims at—or just coming close.

Safety's lost when you forget to mask temperature and oil gages or a tachometer before you paint. Unless you have X-ray vision, it'll be pretty tough to read gages through a coat of paint.

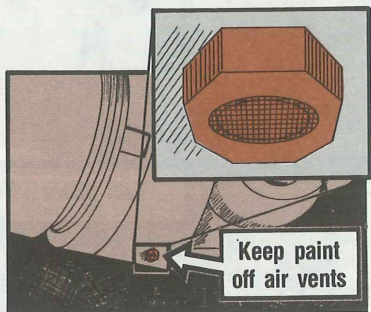




Ditto for decals. Warnings, cautions and other safety notices are lost if they're daubed over.



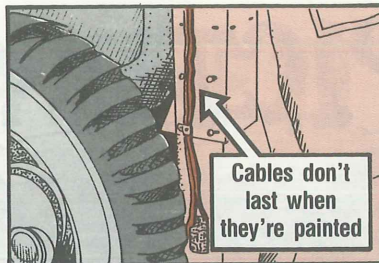
Plus, there's any number of air vents that let components breathe—as long as they aren't covered with paint.



**HASTE MAKES WASTE, TOO.** When a vehicle is due a touch-up paint job, look it over for add-ons that don't take to paint. Rubber insulation on commo cables, for instance. Or the plastic case on your MX-6707 matching unit.

Some other items that don't take to paint are leather, rubber hoses and belts, grease fittings and chains.

IT'S ALWAYS GOOD ADVICE to know as much as you can about whatever you're doing. Pick a pub or two from this list to get your painting



education:

Pub	Equipment Covered
TB 43-0118	Communications
TB 43-0144	Vessels
TB 43-0147	TROSCOM Equipment
TB 43-0166	IHAWK
TB 43-0209	Vehicles, Construction, MHE
TB 746-1	Office Furniture
TB 746-92-2	HAWK
TB 746-92-3	Pershing
TB 746-93-2	Aircraft
TB 746-95-1	Armament Command
TB 750-10	COMSEC

One pub you should be sure to read, tho, is TM 43-0139. It covers painting in general. It has everything from brushing techniques to lettering and sign painting.

Another is PS 396 which features touch-up painting with CARC (Chemical Agent Resistant Coating).



Connie's  
POST  
SCRIPTS



## HMMWV Jacks Are Free

Hold one before you order the jack and lug wrench for your HMMWV mentioned on Page 4 of PS 405. The Tank-Automotive Command now says you don't have to buy 'em. They're being issued free first time around. Your unit will be notified when they're available.

## M146 Shop Van

You now use NSN 4820-01-187-9542 for the parking brake direct linear valve—Item 15 in Fig 89 of TM 9-2320-272-20P. Make a note.

## M939-Series Truck

Get the 110-volt AC power cable for your M146 shop van semitrailer with NSN 6150-00-104-4572. The NSN listed for Item 1 on Page C-2 of TM 9-2330-227-14&P is wrong.



## DOD Maintenance Awards

Congratulations to these winners of the 1985 Secretary of Defense Maintenance Awards:

### SMALL (LIGHT) UNIT WINNERS

HHC, 197th Ord Bn, 59th Ord Bde, USA, Muenchweiler Army Depot, Germany  
6911th Electronic Sec Sqdn, Electronic Sec Cmd, USAF, Hahn AB, Germany

### MEDIUM (INTERMEDIATE) UNIT WINNERS

USS ALEXANDER HAMILTON (SSBN 617), USN.

3rd Comp Rep Sqdn, Pacific Air Forces, USAF, Clark AB, Philippine Islands.


### LARGE (HEAVY) UNIT WINNERS

3rd Force Service Support GP Fleet Marine Force Pacific, USMC, Okinawa, Japan  
416th Bombardment Wing, Strategic Air Command, USAF, Griffiss AFB, New York

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YOU!**

*The ARMY wants  
your ideas and  
suggestions... jot 'em  
down and send to:*

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AUTOVON 687-4347/5512/4480