

Issue 446

PS

January  
1990

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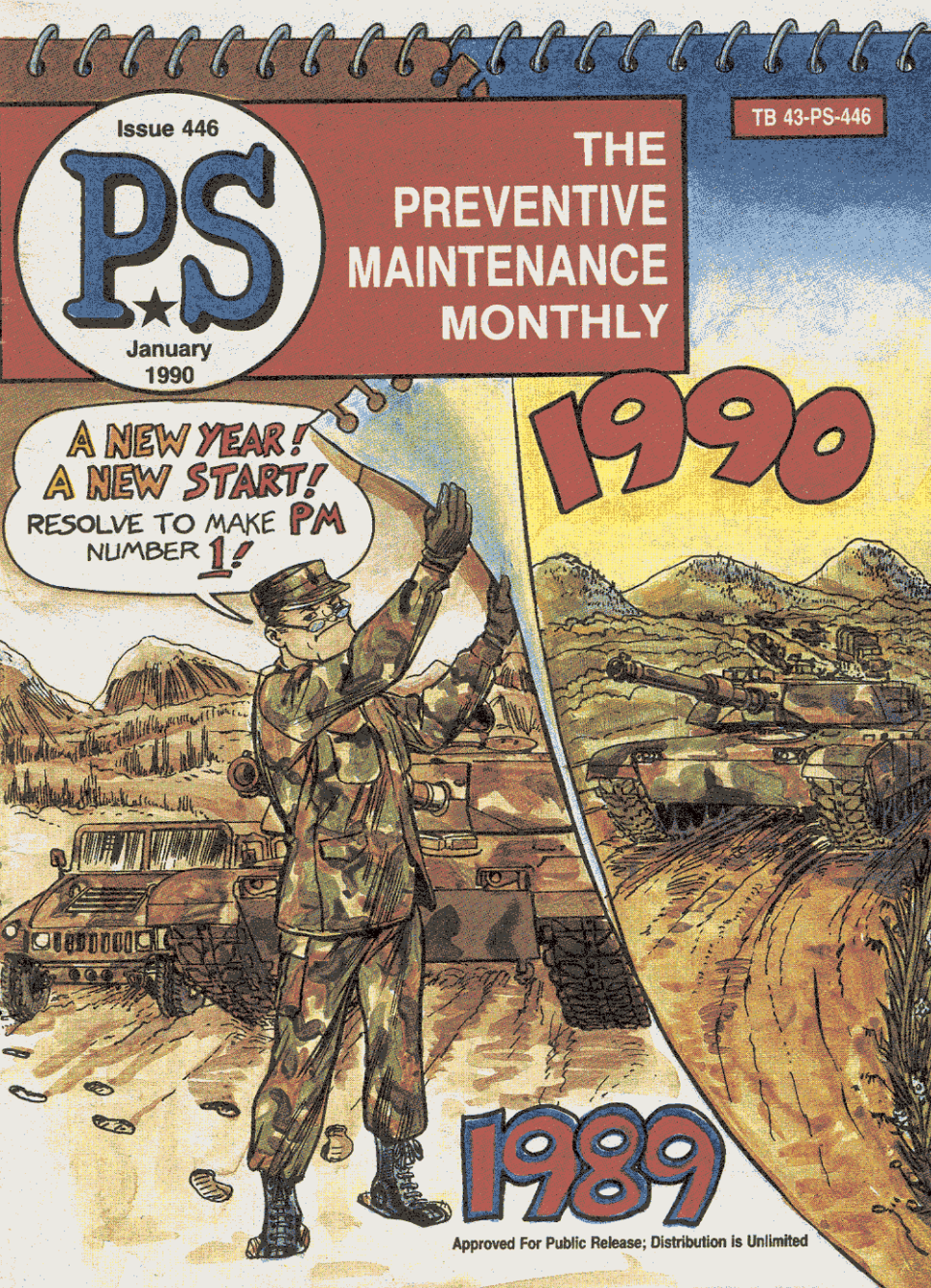
THE  
PREVENTIVE  
MAINTENANCE  
MONTHLY

A NEW YEAR!  
A NEW START!  
RESOLVE TO MAKE PM  
NUMBER 1!

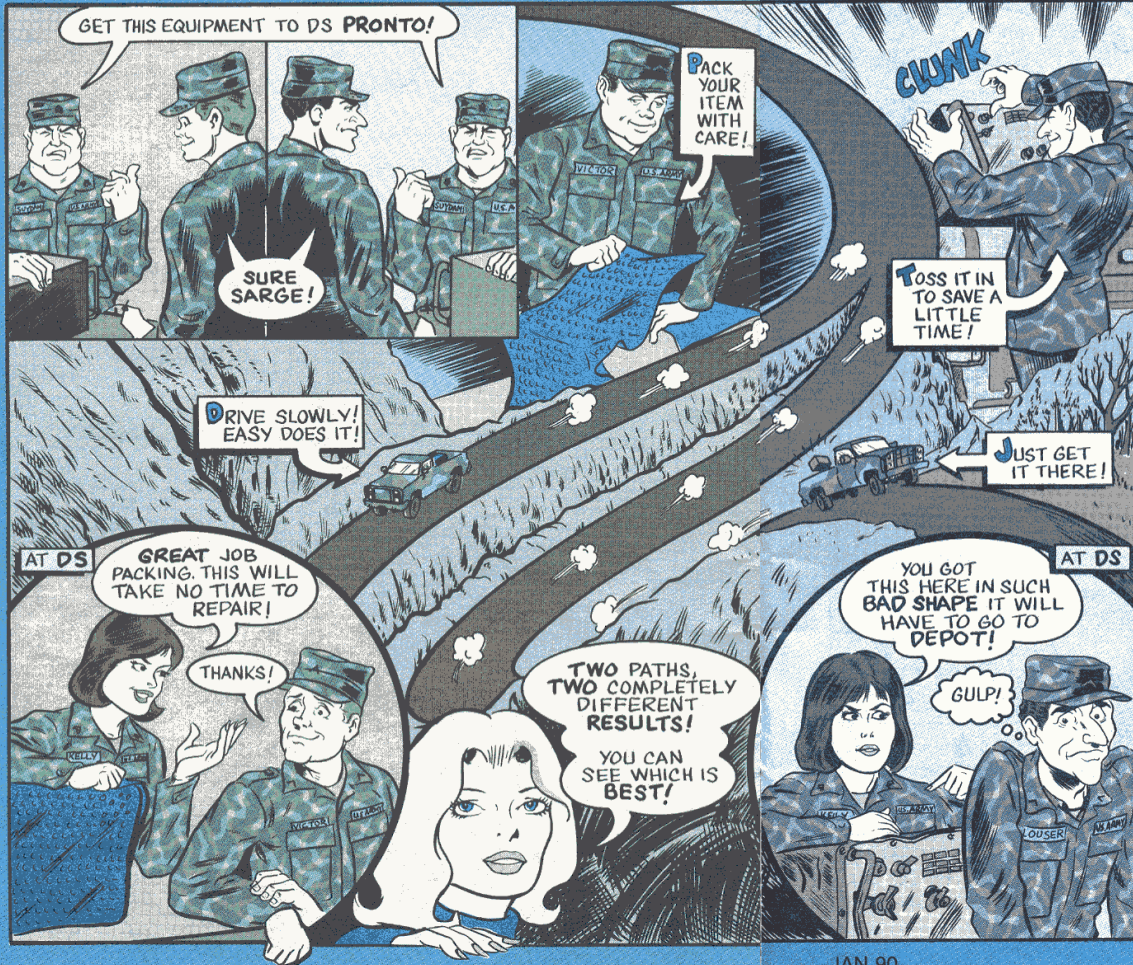
1990

1989

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# WHICH PATH WILL YOU PICK?



**PS** THE PREVENTIVE MAINTENANCE MONTHLY

TB 43-PS-446, The Preventive Maintenance Monthly, is an official publication of the Department of the Army, providing information for all soldiers assigned to combat and combat support units and all soldiers with unit maintenance and supply duties. All information published has been reviewed and approved by the agency responsible for the equipment, publication or policy discussed. Application of the information is optional with the user.

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

MSG Half-Mast  
The Preventive Maintenance Monthly  
Lexington, KY 40511-5101

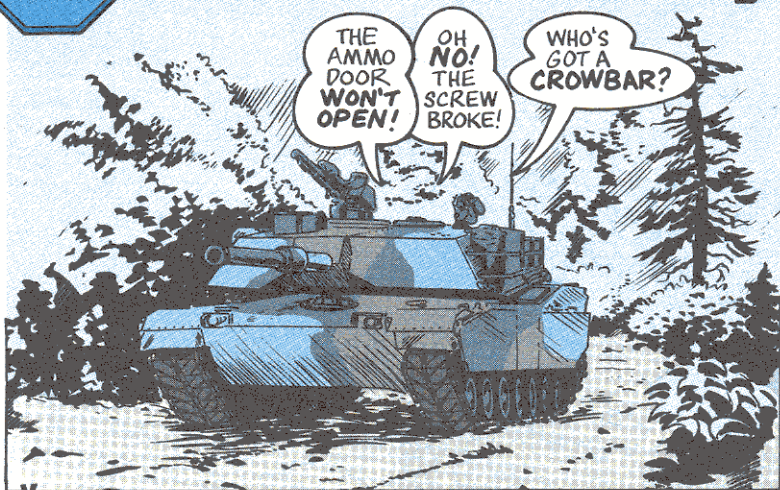
By Order of the Secretary of the Army:  
**CARL E. VUONO**  
General, United States Army  
Chief of Staff

Official:  
**WILLIAM J. MEEHAN II**  
Brigadier General, United States Army  
The Adjutant General

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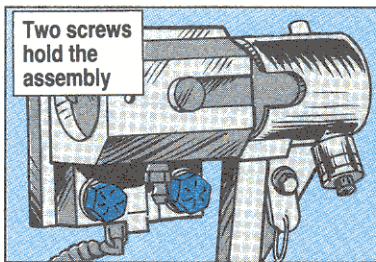


# Ammo Door Lock Breakage



Your basic turret PMCS overlooks a couple of screws that, if loose, can ruin your day.

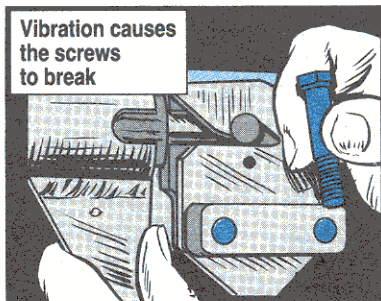
The ammo door hook and housing assembly is mounted by two screws to the top left of the door. These screws are installed from behind the door.



Vibration during operation loosens those screws, but you won't know about it until too late—when the screws get broken off or the door gets

jammed as you try to open it.

Then you'll either have an open door you can't close, or a closed door you can't open. Either way, there'll be no firing for you.



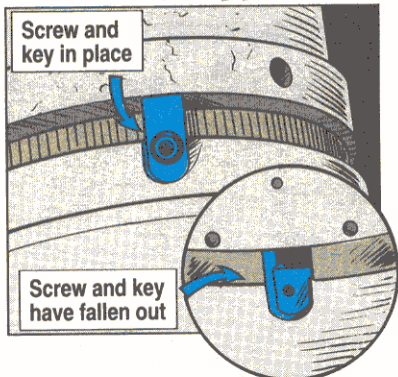
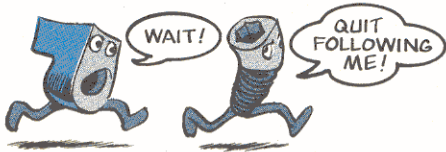
Make a point to eyeball those screw heads with a flashlight every time you check out the ammo doors and racks. If you see that they're loose, sing out to your mechanic.

# Tighten Bore Evacuator Screws

The two socket head screws that hold the bore evacuator on your M1-series tank have a bad habit of vibrating loose and falling off, taking the retaining key with them.

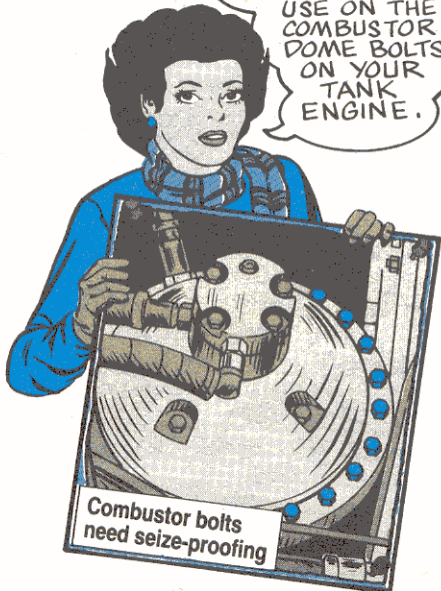
Keep this in mind when you're down range already, and also before you leave the motor pool on the way to the range. Firing with a loose bore evacuator destroys the evacuator and keeps it from helping ventilate the cannon.

Tighten the screws as often as necessary to hold the evacuator in place. Ask your mechanic to put a drop or two of sealing compound, NSN 8030-00-081-2340, on the screw heads if they loosen often.



# Seize-Proof Combustor Bolts

YOUR TM'S ARE A LITTLE SHORT ON INFO AS TO THE RIGHT ANTI-SIEZE COMPOUND TO USE ON THE COMBUSTOR DOME BOLTS ON YOUR TANK ENGINE.

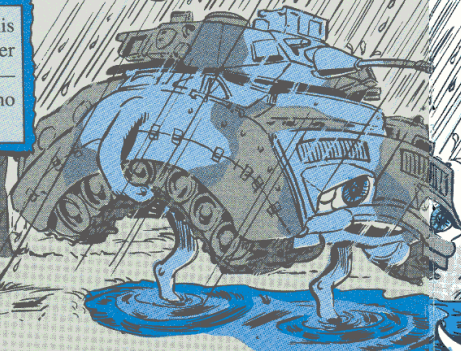


All you'll find in Appendix C of TM 9-2350-264-20-1-5 and TM 9-2350-255-20-1-5, where expendable items are listed, is a part number for Item 150. To get the right seize compound, order NSN 8030-01-244-7179. Since this NSN does not appear in the AMDF, order on DD Form 1348-6 using CAGE 05972, PN 05972-76777, RIC AKZ. In card columns 65 and 66, put advice code 2B—no substitute.

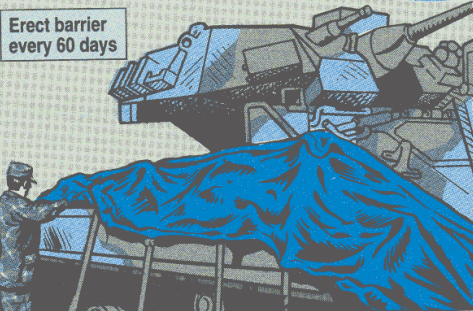
Never use Item 14 in Appendix C, NSN 8030-00-597-5367, on the combustor dome bolts. That compound cannot stand the heat put out by the combustor. The bolts "weld" to the dome housing.

# “Rotting” From the Inside Out

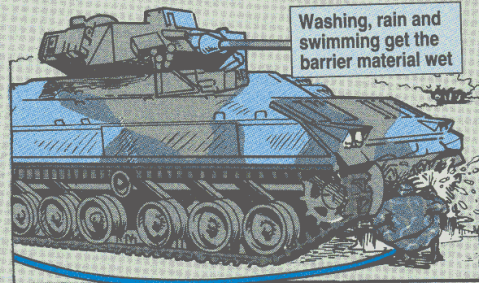
Right now, while you're reading this article, your Bradley's water barrier could be rotting from the inside out—unless you're a first-rate crewman who performs your PMCS.



If you don't erect the water barrier every 60 days to look for rips, tears and defective hardware and to clean off dirt, like you're supposed to, not only are you not doing your maintenance job, you're paving the way for moisture to ruin the barrier fabric.



Erect barrier every 60 days



Washing, rain and swimming get the barrier material wet

There are many ways moisture can get to the water barrier. The obvious ones are swimming, fording and vehicle washing after a field exercise. The not-so-obvious include rain and snow.

There is, however, only one way for the moisture to get out or dry up. That's when the barrier is erected and allowed to dry every 60 days. The best way is to leave the barrier up after swimming. But the tactical situation doesn't always allow that.

Otherwise, the moisture stays in the folds and corners. Mildew works like rust, eating away at the strength of the barrier fabric until you get holes and tears that can't be patched.



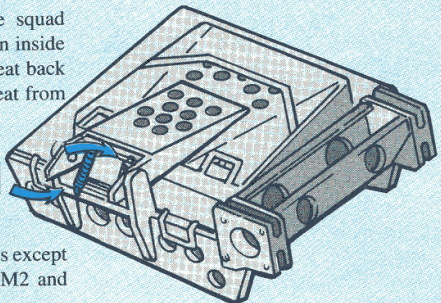
Moisture stays in folds and corners unless you dry 'em out

ALL THIS RAIN, I HOPE THEY PULLED THEIR PMCS ON MY WATER BARRIER.

You can't fool nature, crewmen. You either dry out the barrier every two months, or you get mildew damage. That's just the way it is.

## Seats Must Have Pins

Bradley crews, look at the squad seats **now** to see if there's a pin inside the two springs between the seat back and pan. That pin keeps the seat from collapsing.



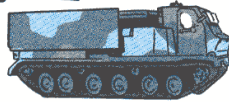
Check for pin inside springs

This applies to all squad seats except the left rear (No. 6) seat on M2 and M2A1 vehicles.


If any pins are missing, report it. Your mechanics order new ones with NSN 5315-01-256-5319. That NSN crosses to this part number shown as Item 13A in Fig 198 of Change 1 to TM 9-2350-252-24P-1.

Information on how to install the pins is found on Page 15-52 of Change 1 to TM 9-2350-252-20-1-5.

# CAB PM

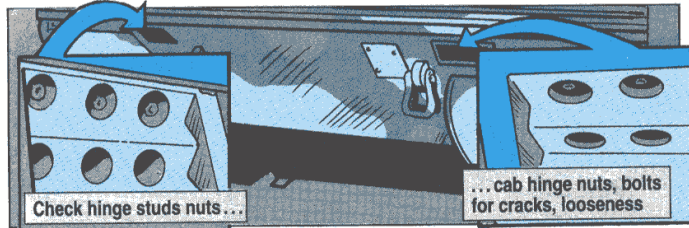



**R**aising and lowering the cab on your MLRS is almost a daily exercise, but don't get lulled into thinking there's nothing to it. Keep these tips in mind for the cab:


 **Eyeball** the cab hinge studs and nuts for cracks or looseness. The torsion bar makes raising and lowering easier, but it puts a considerable strain on the hinges.

If you find cracked studs or loose nuts, let your mechanic know. Don't raise or lower the cab until the nuts or studs have been replaced.

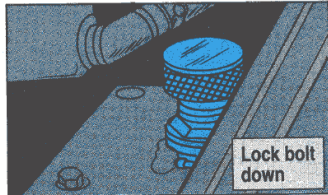
If the nuts just need retorquing, the mechanics need to tighten them when the cab is raised. That's when the torsion bar is under the least strain and most of the torque will go on the nuts.



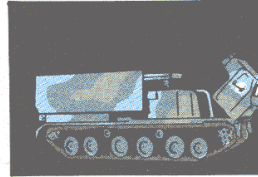
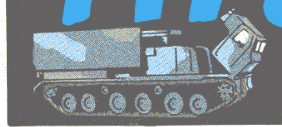
 **Make sure** any equipment stowed on top of the cab is removed before raising or lowering. The elevating jack assembly can't take the extra strain.


 **Keep the cab locked down** right or you'll mess up the lock-down bolt threads or crack the frame.

When the bolt is not seated or tightened right, the cab sits cockeyed. The frame can crack as the cab flexes. The bolts can bind, so clean the threads and make sure they're seated right. Cross-threading means replacing the entire lock-down assembly. A little oil on the bolts from time to time makes the job easier.



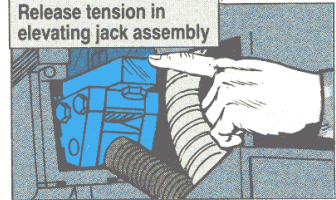
# TIPS



 **Release the tension** on the elevation mechanism after the lock-down bolts are tightened. That way, there's no pressure left on the mechanism while you're in operation. It'll save busted parts.



**Release tension in elevating jack assembly**



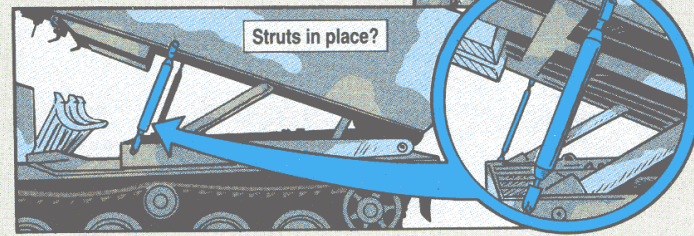
## Strutting Your Stuff

**I**f you're going to work in the cage area of the MLRS' launcher/loader module, make sure the jury struts are in place first.

You definitely don't need the module coming down around your ears, sudden-like.

Use both struts every time you're going to work in the cage. It's your neck you'll be saving.

**KEEP YOUR MODULE FROM FALLING!**

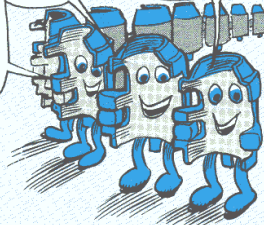


# FOOD FOR THOUGHT

I'M 117!  
NO WORN OR SHARP LINK!

I'M 118,  
I FIT SNUG!

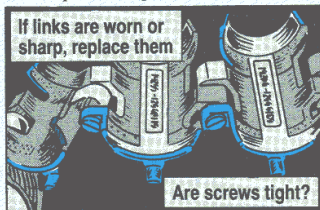
I'M 119! STOP, ENOUGH! NOW!  
I'LL FEED WITHOUT A JAM!



A Vulcan that can't feed is a Vulcan that can't shoot. You mechanics can keep M163 Vulcans feeding by tending to a few small details.

The recipe for good feeding begins with ammo links. First, count 'em. There must be exactly 119 elements in a belt. More cause the DC feeder to jam and break the chute. Fewer bend the shafts that move the links.

Eyeball the links. If you see a worn or sharp link, replace it.



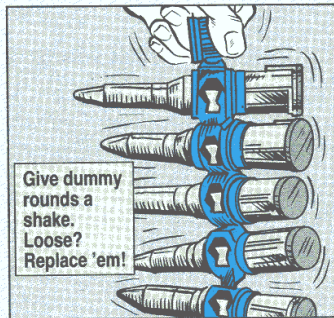
Stick a new dummy round in each link. The round should fit snug. If it doesn't, replace the link.

Move the links back and forth and side to side. If there's much movement, tighten the screws.

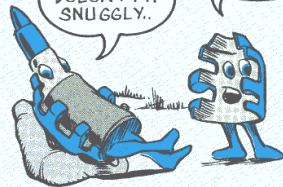
Clean dirty links with SD-2 dry-cleaning solvent and an old small arms

cleaning brush. But keep CLP and other lubricants away from links. They attract dirt that will jam up the feed system.

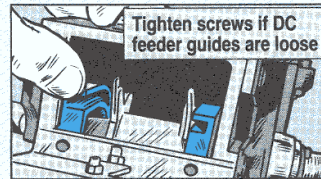
If your unit's firing dummy rounds, give them a good check-out. A dummy round that's been used develops a worn back plate that causes short and long rounds. Just give linked rounds a shake. If a round's loose, it's bad. Ammo Supply should have lots of replacements, NSN 1305-00-157-4616 (A781).



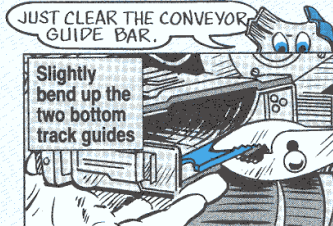
IF YOUR ROUND DOESN'T FIT SNUGGLY...  
... REPLACE THE LINK!



Feel the DC feeder guides for looseness. Two screws in the feeder housing work loose and cause the Vulcan to jam. That bends the feeder shaft. Tighten loose screws yourself.



If feed chute track guides are constantly being torn up by poor alignment between the feed chute and conveyor unit, use pliers to slightly bend up—about 1/16 inch—the two bottom track guides of the feed chute end assembly.

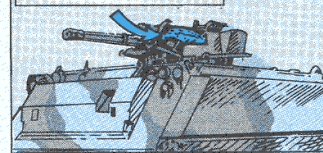


When you lubricate the rotor and the gun drive assembly with GIA, give them a light—not heavy—coat. Too much grease attracts dirt that will jam the gun.

But keep GIA away from the rotor tracks and breech bolt. Grease makes it tough for the bolt to move. Use LAW only.

Get feed chute covers for every one of your Vulcans. The covers will seal

## Vulcan feed chute cover

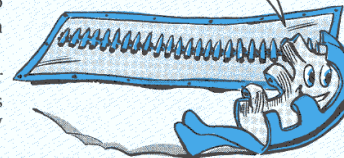


out dirt during travel that can cause jamming. Here are their NSN's:

Part	NSN 1005-00-410-
Feed	2178
Midsection	2063
Return	2079
Return midsection	2065
Conveyor	2135

Make sure every Vulcan has a tarp that the crews can lay the ammo belts on when they're loading.

LAY BELTS ON TARP TO KEEP 'EM FREE OF DIRT THAT JAMS THE FEED SYSTEM.

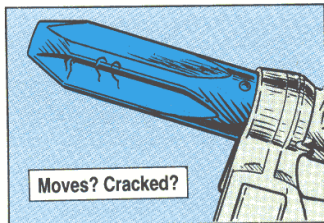


# Barrel Tips

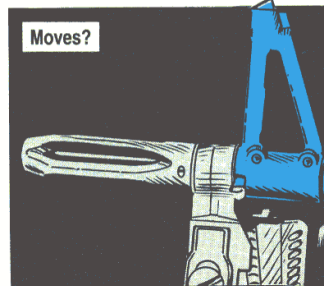
The M60's barrel takes a beating during firing. The bolt slams into it again and again and the rounds explode out of it. If you haven't given the barrel a thorough checkout, you'll have a barrel full of problems in the field. Check out both barrels like this:

**Flash Suppressor.** Turn the flash suppressor. If it turns or has any side-to-side or up-and-down movement, it's too loose.

Any cracks in the suppressor mean it's bad, too.



**Front Sight.** Grip the barrel with one hand and gently twist the sight with the other. If it's loose, report it.

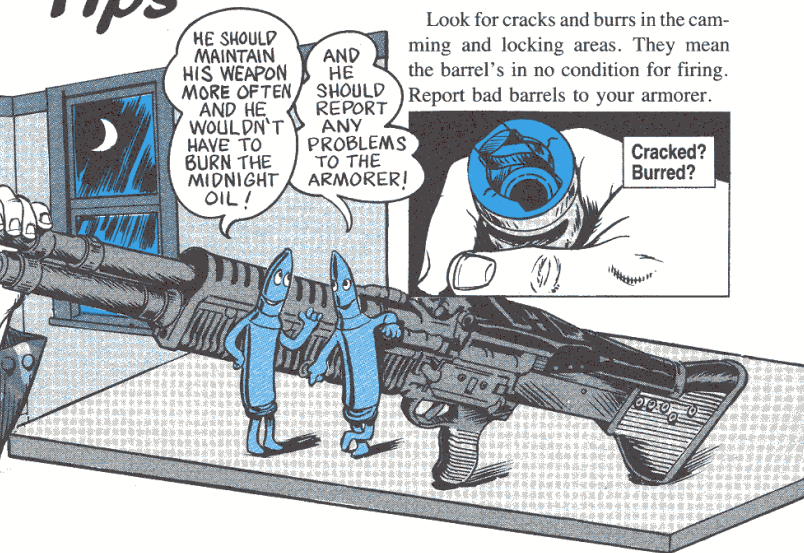
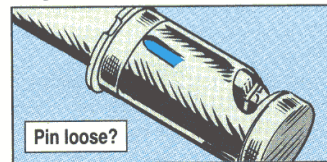


**Gas System.** Feel for movement up and down the barrel. There shouldn't be any. A loose gas system causes double feeding.



Tilt the barrel up and down. If the piston doesn't click quickly, clean the gas system. Make sure the cylinder's bleeder hole is open, too.

**Barrel Socket.** Feel the barrel socket pin for looseness.



Look for cracks and burrs in the camming and locking areas. They mean the barrel's in no condition for firing. Report bad barrels to your armorer.

## Make Belt PM a Cinch

Your M60's a lot like your own body: if you feed it bad stuff it won't work well. If the ammo belts get wet and dirty, mud can freeze the feed levers. If mud gets in the chamber, the cartridge can't extract and the gun jams.



Protect the belts by keeping them in the canvas carrier until it's time to fire. Don't count on the belt's cardboard container. Its top pops off easily, plus it comes apart in the rain.

If you don't have a carrier, wrap the container in a plastic bag.

If you have to lay the belts out, lay them on a poncho or tarp—not the ground.



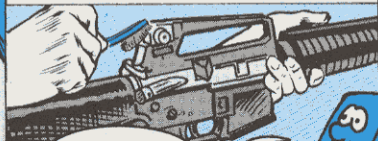
# Keep Sights 20/20

YOU'VE GOT TO CLEAN BOTH FRONT AND REAR SIGHTS WITH THE REST OF YOUR M16 OR THEY START TO BIND

SOON YOU CAN'T ADJUST THEM AT ALL!

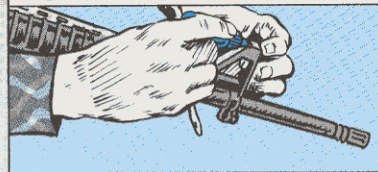
## TO CLEAN 'EM:

**1.** Use a toothbrush to knock away dirt from both sights.



GET THE TOOTHBRUSH INTO ALL THE LITTLE CREVICES!

**2.** Depress the front sight detent and give it a drop or two of lube. Work the detent and sight up and down until it moves smooth. Return the sight to its original position.

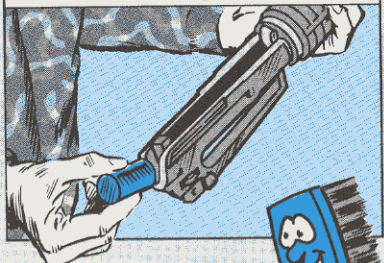


**3.** On the rear sight, squirt a drop or two of lube on all moving parts. Rotate the windage and elevation knobs to work the lube in. Return the windage knob to its original position.



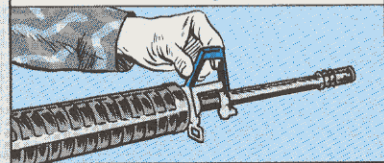
A DROP HERE AND THERE!

**4.** Turn the upper receiver upside-down and remove the charging handle. Put a few drops of lube on the bottom of the elevation screw shaft and the detent spring hole. With the receiver still upside-down, move the elevation knob back and forth several times. Return the elevation knob to its original position.



NOW THE SIGHTS ARE READY FOR ACTION!

**5.** If the wings that protect the front sight are bent, tell your armorer. He can straighten them.



# Dull is Nice

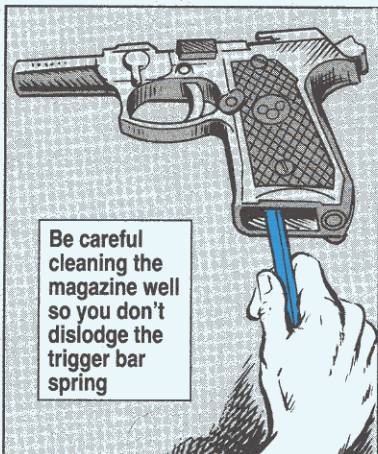
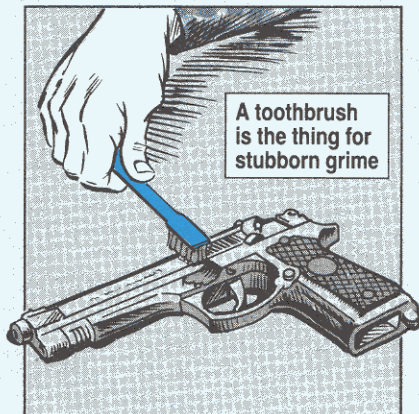


**Y**ou don't want your M9 nice and shiny. A shiny pistol can act like a neon arrow telling the enemy where to shoot.

So keep wire brushes away from the outside of your pistol. They take off the pistol's finish. Use CLP and a cloth to clean the outside. For tough grime, use a toothbrush. Touch up shiny spots with solid film lubricant, NSN 9150-00-754-0064.

Wipe off the pistol after you're through firing. Moisture from your hand will cause corrosion on the M9's finish.

Careful around the trigger bar spring when you clean the magazine well. The cleaning brush can dislodge the trigger bar spring. The spring falls out and is lost. No spring, no shoot.





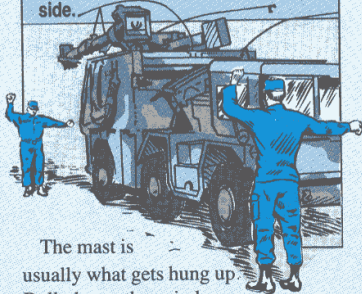
# Help Your

You and your Forward Area Alerting Radar (FAAR) are the eyes and ears for your unit. If the FAAR can't spot the enemy, they have a wide-open door for attack. Help your FAAR see far by doing the PMCS in TM 9-1430-588-10 and paying attention to these points:

## Backing

Under the best conditions, it's hard to back up a FAAR safely. That's why you need backing help.

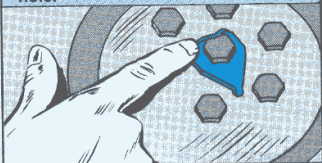
**Always use ground guides: One in front, one in back, both on the mast side.**



The mast is usually what gets hung up. Roll down the windows, drivers, so you can see better.

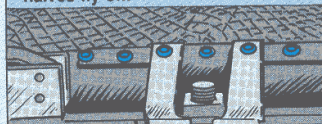
**BEFORE PMCS**  
Look for the clips that lock on the wheel spindle bolts. The clips work out and then the bolts can come out.

**One end of the clip must be bent against the bolt, the other in the hub hole.**



Eyeball the two rivets that hold on each reflector half and the four locking pins that lock each half of the reflector on the storage rack. Rivets and locking pins work out or break during rough travel.

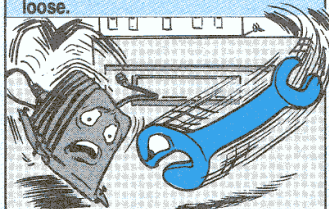
**Without rivets and pins, reflector halves fly off.**



# FAAR See Far

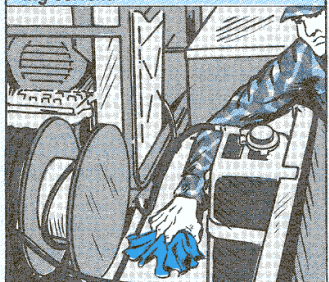
Secure everything inside the shelter. TM's, tools, and the bandpass filter storage box fly around during travel and break cables and components.

**Something as simple as a wrench can cause major damage if it's left loose.**



The generator often leaks oil. Fuel cans leak if they haven't been tightly capped. Oil gums up cable connectors and causes a fire hazard when the cable's plugged in. A spark from the generator starter can ignite fuel.

**Eyeball the trailer floor around the generator. Mop up any oil or fuel. Clean out gunk from cable connectors with a tooth brush and dry cleaning solvent.**

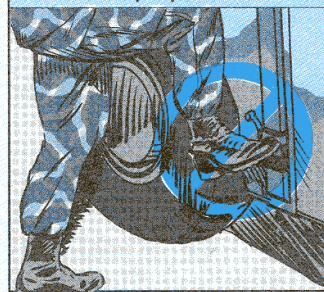


If the generator leaks a lot, get a pan to catch the oil. Spread oil absorbent, NSN 7930-01-145-5797, around the generator, too. Report bad leaks to your repairman.

## Weak Spots

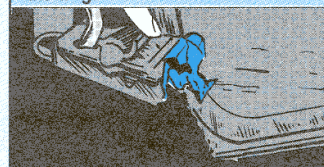
Keep your feet off the hand pump brackets when you climb up and down on the shelter.

**When brackets break you can't use the hand pump.**



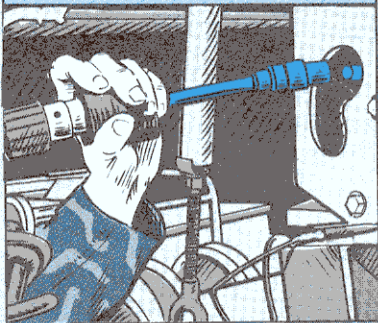
Step—don't jump—down to the tailgate.

**The tailgate brackets break off from the shock of your jumping on the tailgate.**



Jump and you'll hit the ground face-first.

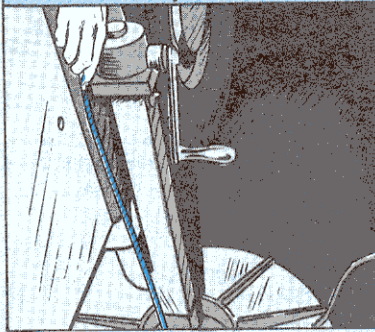
Use your hand to carefully line up the hand-held drive motor with the actuator drive shaft.



If it's not aligned right, you break the motor's key pin as soon as you turn it on. Make sure the motor has quit spinning before you pull it off.

Never leave the drive motor connected to the drive shaft. If somebody's foot catches the motor cord, the key pin's broken.

Keep cables clear when you install the four shelter jacks.

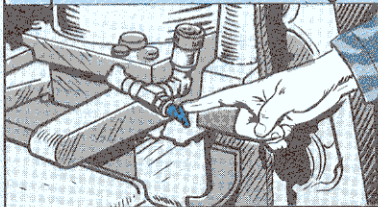


If a cable's caught between a jack and the shelter, the cable's covering will be torn off when the jack's pumped up. A torn-up cable is dangerous when electricity runs through it.

## Antenna Advice

If you're using the electric air pump or hand pump to lower the mast, be sure to pump at least 10 PSI of air into the mast before you pull the locking lanyards. Without the air, you'll break the latch pins and mast collars when you pull the lanyards. Once the lanyards are pulled, just open the air valve petcock to lower the mast.

Leave the petcock open all the way to prevent corrosion and freezing.



That lets all the air out of the system and prevents condensation from freezing and corrosion from forming inside the mast. Corrosion can freeze the mast sections.

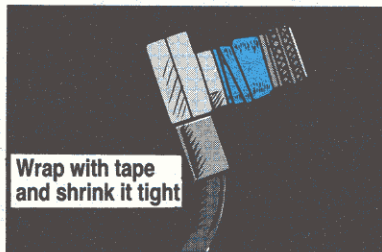
To keep the mast moving smoothly, lube the mast sections and the mast collar latching mechanisms like it says in Notes 1 and 5q in LO 9-1430-588-12.



# Keep Adapters Connected

Still having problems with missing 2W1P1 connector adapters, TOW repairmen? Here's a way to keep them in place. And it's good for all TOW 2's, whether they're ground-mounted or on a truck or the M901.

Screw the adapter tightly in place on the connector.



LOSING THE CONNECTOR ADAPTER? WRAP IT IN SHRINK TAPE, THEN SHRINK IT AND COVER WITH ELECTRICAL TAPE!



Wrap shrink tape, NSN 5970-00-955-9976, twice around the area where the adapter screws in the cable. Do not cover the adapter locking sleeve.

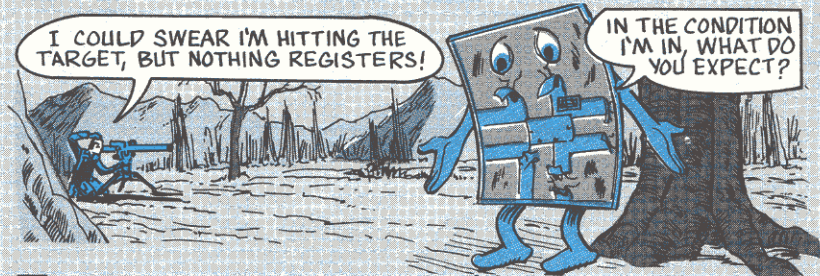
Use a heat gun to shrink the tape tight.

Wrap electrical tape several times over the shrink tape.

If you need another adapter, order it with NSN 5935-01-117-3304.

TOW/Dragon Missiles...

## Target Protection



The target used with the TOW and Dragon has lots of fine wires that break easily. If the wires are broken, the heat strips won't work and the target's useless.

It's simple to protect the targets. Keep and use the box two targets come in, as well as the styrofoam divider that separates them.

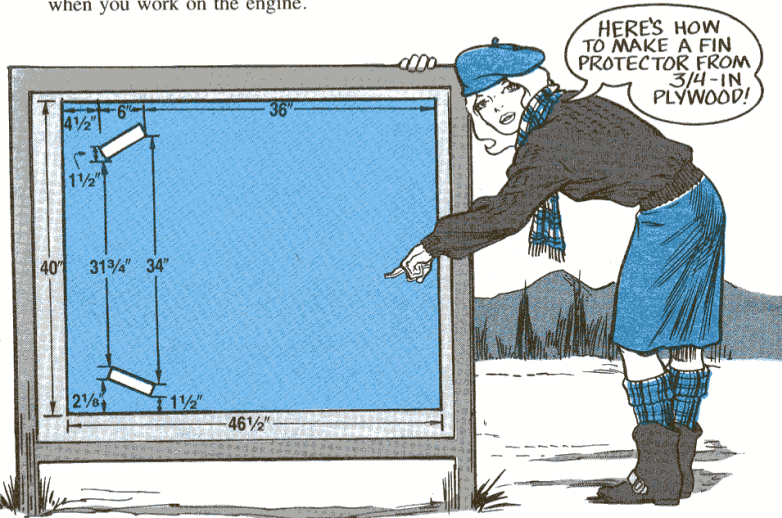
When you store or transport the targets, put them in the box with the targets facing each other and the divider in between.

If you don't have the box, cover the target face with canvas or cardboard—or anything that can protect those little wires—before you load it in the truck.

# PROTECTOR SAVES

**B**ent fins on the transmission oil cooler stop air flow through the cooler to the radiator. That causes both the engine and the transmission to overheat.

Fins often get bent when a mechanic has to crawl over the cooler to do PM on the engine or to adjust belt tension. It's a good idea to use a fin protector when you work on the engine.



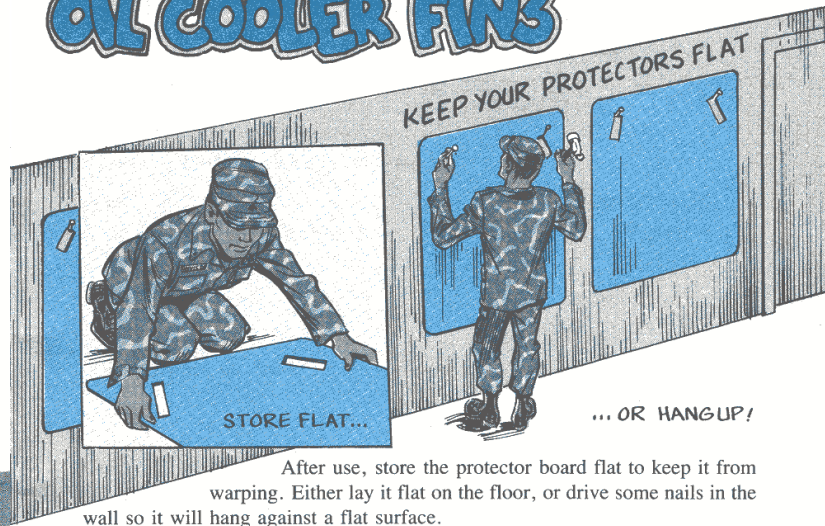
Round off the edges and paint the board to prevent splinters.

To use it, remove the eye-hook seals and slip it over the two lifting rings and lay it flat on the oil cooler frame. The rings prevent it from sliding into the raised hood.

Never use the board when the engine is running. It stops air flow and will cause the engine to overheat. Be sure to replace the eye-hook seals when you're finished.



# OIL COOLER FINS



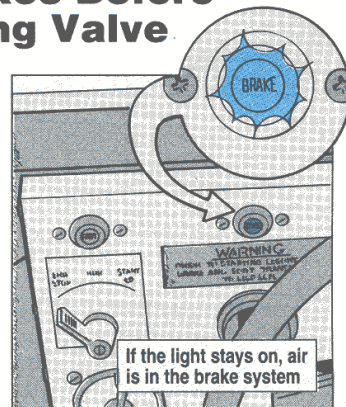
After use, store the protector board flat to keep it from warping. Either lay it flat on the floor, or drive some nails in the wall so it will hang against a flat surface.

## Bleed Brakes Before Replacing Valve

**M**echanics, a lot of good brake proportioning valves are needlessly replaced because of some bum info in Para 19.1 of TM 9-2320-280-20.

Step 1 is wrong in the troubleshooting procedure for the warning light. It says replace the proportioning valve if the master cylinder is full but the warning light stays on. That's wrong.

The warning light stays on when air is in the brake system. Bleed the brake lines. Replace the proportioning valve only if bleeding does not turn off the warning light.



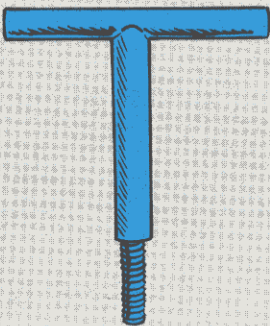
# Wrench Match-up



In addition, the 1984 M1009's have a locking key in the front wheel bearing nut. A special tool makes removing it a lot easier, but the tool is not on the special tools list.

You can make one by welding a "T" handle, 5 inches long, to the head of a 4-40 screw, NSN 5305-00-984-4976.

Special tool looks like this:

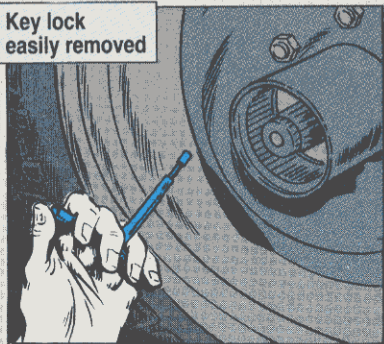


The key lock has a threaded hole. Screw in the tool and pull. The key lock comes right out.

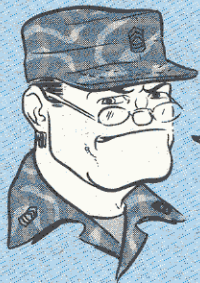
**T**hree front wheel bearing wrenches are shown on the special tools list in Appendix B of TM 9-2320-289-20. All the NSN's are good, but the TM does not tell which wrench is used on which model of CUCV.

Wrench, NSN 5120-01-170-0628, fits all models except the M1009. The 1984 model M1009's need wrench, NSN 5120-01-170-6664, while 1985-87 model M1009's use NSN 5120-01-219-6753.

Key lock easily removed



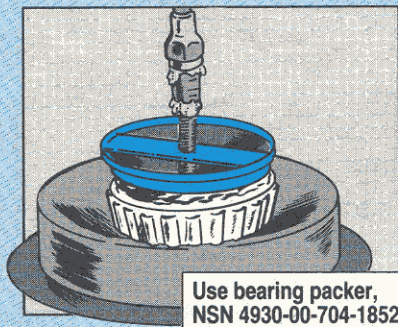
# PACK WHEEL BEARINGS RIGHT



PACKING  
WHEEL  
BEARINGS  
IS A  
MESSY  
JOB!

**S**ome mechanics end up with more grease on them than the bearings. That's bad for the mechanic and even worse for the wheel bearings.

Wheel bearings need a good, even coat of grease to hold down friction. Bearing packer, NSN 4930-00-704-1852, makes packing the bearings a lot easier. It's in the No.1 Common shop set.



Use bearing packer,  
NSN 4930-00-704-1852

Screw the packer on the wheel bearing cone. Pump in the grease. The grease flows evenly in and around the rollers, without the mess and bother of hand packing.

If you have to pack the bearings by hand, keep away from dirt and grit. Place a wad of grease in the palm of your hand. Push the bearing down into the grease. Turn the bearing as you go until you've packed the entire bearing.

WORK THE ROLLERS  
UNTIL THEY'RE  
THOROUGHLY  
COATED WITH  
LUBE. THEN  
PRESS MORE  
LUBE INTO  
THE  
BEARINGS.



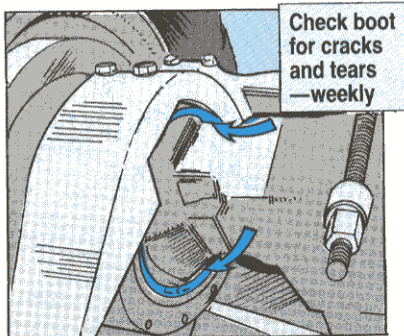


# Steering PMCS Change

A torn steering knuckle boot does not make an M939-series 5-tonner NMC. TM 9-2320-272-10 is being changed to read like the -10 TM's for the M39 and the M809 trucks.

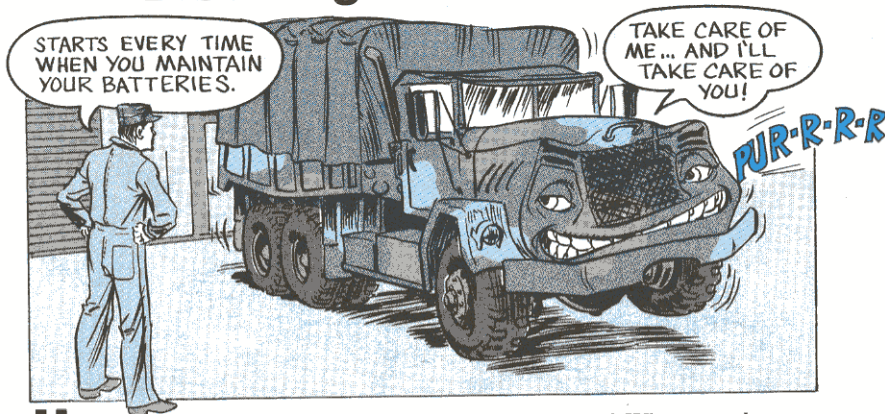
Eyeball the boots during weekly PMCS to see if they're torn or cracked. If a boot is torn at the bottom, get it replaced. The grease gets "runny" when it heats up, and leaks out.

If the tear is at the top or on the sides, get your mechanic to pack the boot with grease. The grease will protect the knuckles until the boot can be replaced.



## M939-Series Trucks...

# Discharged Batteries?

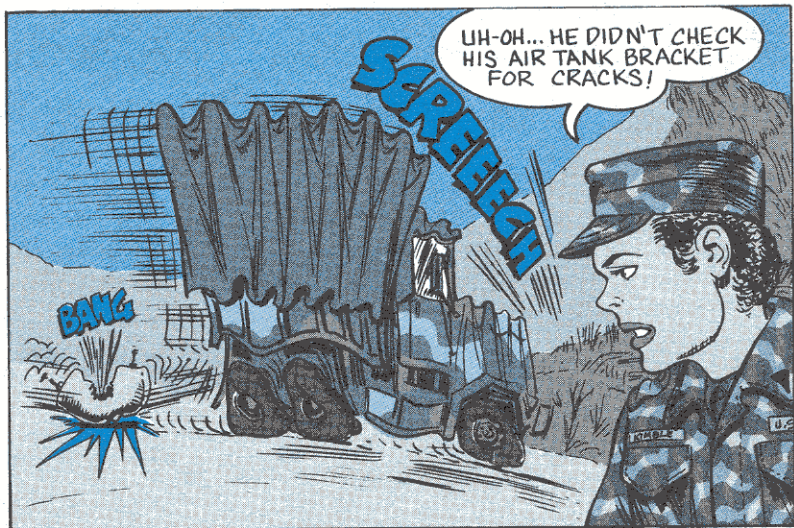


Have a truck with a battery that has a case of the blahs? Where you have to slave start it to get it going? And there's nothing in the troubleshooting routine in the -20 TM that helps?

Check the output of the alternator.

Hook a multimeter in line to measure the voltage the alternator is putting out. If it's not putting out at least 27 volts, enough to run the accessories and charge the battery, replace the alternator.

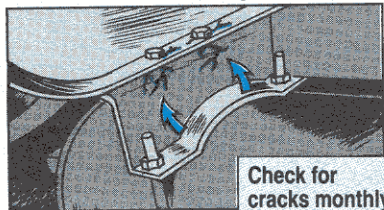
# Broken Bracket Locks Brakes



**D**rivers, you're in trouble if the air tank bracket breaks on one of these 5-tonners. The air tank drops, the brake line snaps and the spring brakes lock the wheels.

The bracket cracks around the frame bolts on the long wheel base models—the M927/A1, M928/A1, M934/A1, M935/A1 and M945/A1. Vibration from the long frame, coupled with the weight of the air tank puts a lot of stress on that area. But do not take chances. Check out the brackets on all M939's.

Crawl under the truck and eyeball the brackets at least once a month. They're shown as Item 11 in Fig 129 of TM 9-2320-272-20P. Call your mechanic at the first sign of a crack.



Check for  
cracks monthly

**TM WRONG:**

# TRACTOR CARRIES THE LOAD

The Note in Table 4-5 (Tire Inflation Data) of Change 1 to TM 9-2320-272-10 says the -A1 5-ton tractor trucks with a towed load are not designed for cross-country, mud, sand or snow operations. That's wrong! The note should read, "The -A1 tractor has the same mission support design as the M931 and M932 basic tractor model."

The tire pressure ratings are also wrong. The correct pressure is:

Highway  
80/551

Cross-Country  
Standard (PSI)/Metric (KPA)  
40/275

Mud, Sand, Snow  
25/173

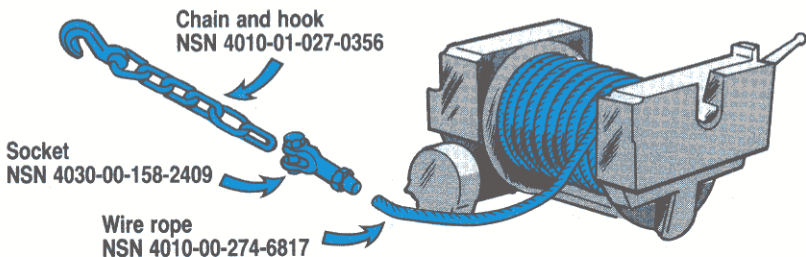
5-Ton Trucks...

## Front Winch Rope Rap

Now it's simple. You use the same wire rope, socket and chain with hook for the front winch of all 5-ton trucks.

Wreckers take 280 feet of wire rope, while other trucks use 200 feet. NSN 4010-00-274-6817 gets a 600-ft spool. That means you can rig two wreckers or three trucks from one spool.

Here's what you use:



# TOUGH TIRE TALK



**S**ixty tons of tank put a lot of stress and strain on the M747's tires. Only the toughest tires can take it. The toughest tire for the job is the desert tire, NSN 2610-00-177-7022. The highway tire called out in TM 9-2330-294-24P does not hold up in the long haul.

Make sure the tires have the correct air pressure, 80-85 PSI, before you move out.

When temperatures go up, the roads get hot. The combination of speed and heat will cause your trailer's tires to blow out. So slow's the only way to

go when you have a heavy load.

No need to guess at what speed you should travel when toting 60 tons. Here's a handy chart:

Maximum Speed Limit (miles per hour)	Temperature
15	80°F and up
25	50°-80°F
35	Below 50°F

If you don't know the temperature, stay under 27 MPH on the road and between 10 and 15 MPH off the road.

Gasoline Engines...

## Carburetor / Choke Cleaner NSN

WHEN GOOK AND GUM GET A CHOKE HOLD ON YOUR TRUCK OR CAR'S CARBURETOR, SPRAY IT AWAY WITH CARBURETOR AND CHOKE CLEANER, NSN 6850-01-085-1423



The spray can comes with a plastic tube extension and is authorized by Appendix A of CTA 50-970.



# PUBS

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 5-3805-251-24P** Aug Case MW24B scoop loader  
**TM 5-3820-242-24P** Aug Texoma 254-8X2 earth mover  
**TM 5-4310-370-24P** Aug Compressor unit, 5 CFM, 175 PSI, model 50-6715  
**TM 5-4310-373-24P** Aug Air compressor, 15 CFM at 175 PSI  
**TM 5-811-5** Sep Army aviation lighting  
**TM 9-1265-202-10-HR** Oct MILES for M901 improved TOW vehicle  
**TM 9-1265-368-10-1-HR** Oct MILES for Dragon weapon system  
**TM 9-1265-368-10-2-HR** Oct MILES for TOW 2, TOW long range, TOW II extended weapon systems

**TM 9-1265-368-10-3-HR** Oct MILES for Viper rocket  
**TM 9-6140-200-14** Jul Lead-acid batteries  
**TM 10-1670-274-23&P** Aug 28-ft chest personnel parachute  
**TM 10-1670-279-23&P** Aug 22-ft cargo extraction parachute  
**TM 11-5805-747-20P** Apr AN/TTC-39A(V)1, 2 automatic telephone central office  
**TM 11-5805-750-14&P** Aug CV-4068/TTC-39A digital-to-digital converter  
**TM 11-5895-1449-12** Oct AN/ASC-15B communications central  
**TM 38-LO3-22** Jan SAILS procedures  
**TM 55-1680-320-23&P** Aug RPSTL for high performance rescue hoist assembly, part No. 42305R1  
**TM 55-1905-222-14** Jul LCM-8 landing craft  
**TM 55-2320-282-14** Nov Transportability guide for M.A.N. truck  
**TB 5-4610-215-24/2** Jun ROWPU warranty

**TM 9-1265-369-10-1-HR** Oct M65 MILES  
**TM 9-1265-369-10-3-HR** Oct M67 MILES for M551 vehicle  
**TM 9-1265-370-10-1-HR** Oct MILES for M16A1 and M16A2 rifle  
**TM 9-1265-370-10-2-HR** Oct MILES for M60 machine gun  
**TM 9-1265-370-10-3-HR** Oct MILES for M113 APC and M220 TOW vehicle  
**TM 9-1425-480-L** Sep Dragon weapon system  
**TM 9-1430-605-10** Aug Patriot missile system  
**TM 9-2320-242-20P** Sep M561/M792 Gama Goat  
**TM 9-4935-451-24P** Aug AN/TSM-153 TOW 2 heavy antitank/assault weapon system; Dragon medium antitank/assault weapon system and TOW subsystem Bradley fighting vehicle system  
**TM 9-4935-452-14** Jul AN/TSM-140A or AN/TSM-140B (TOW or TOW 2 weapon system)

## Maintenance & Safety-Of-Use Messages

**AMCCOM SOU-MSG-17-89**—Operational, Demolition Kit, Mine Clearing Line Charge (MICLIC), AMSMO-DSM-MG 192310Z Sep 89.

**AMCCOM SOU-MSG**—Advisory/Operational, M9 pistol, AMSMC-MA 292100Z Sep 89.

**AMCCOM SOU-MSG-02-90**—Operational, Launcher and CTG 84MM M136 (AT4), AMSMC-DSM-MA 201501Z Oct 89.

**AMCCOM SOU-MSG-03-90**—Advisory, 40MM, MK19 Mod 3 grenade MG weapon system, AMSMC-DSM-MA 302030Z Oct 89.

**AMCCOM Maintenance Advisory MSG-90-1**—M157 smoke generator set, AMSMC-MAR-ED (A) 101600Z Oct 89.

**AMCCOM Maintenance Advisory MSG-120MM, M256 Cannon**, AMSMC-MAW 010900Z Nov 89.

**CECOM SOU-MSG-89-09-01**—Mandatory, Operational, C-6533/ARC control box, AMSEL-SF-SEC 181500Z Sep 89.

**FT MONROE SOU-MSG-89-09**—DRAGON missile, ATOS 030915Z Oct 89.

**TACOM SOU-MSG-89-76**—Operational, M2A2/M3A2 Bradley, AMSTA-M 231900Z Oct 89.

**TACOM SOU-MSG-89-75**—Operational, Pneumatic inner tube, NSN 2610-01-287-6410, AMSTA-M 261230Z Oct 89.

**TROSCOM SOU-MSG-21-89**—Advisory, Electrical receptacle connectors used on distribution illumination system electrical (DISE), AMSTR-MES 291900Z Sep 89.

**TROSCOM SOU-MSG-22-89**—Advisory, Technical, Pneumatic riveter gun, NSN 5130-01-044-7207, AMSTR-MES 131430Z Oct 89.

**TROSCOM SOU-MSG-23-89**—Advisory, Technical, Mechanic hammer, NSN 5120-00-061-8543, AMSTR-MES 131500Z Oct 89.

**TROSCOM SOU-MSG-24-89**—Emergency, Bridle, extraction line, deployment bag, used on LAPES, AMSTR-MES 161530Z Oct 89.

**TROSCOM Maintenance Advisory, MSG-89-44**—Reverse osmosis water purification unit, AMSTR-MES 292000Z Sep 89.

**TROSCOM Maintenance Advisory, MSG-89-43**—Firefighting vehicle, Model 2500L, AMSTR-MES 111900Z Oct 89.

**TROSCOM Maintenance Advisory, MSG-89-47**—Grounding of power generation equipment with the surface wire grounding system, MK-2551A, AMSTR-MES 012130Z Nov 89.

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

# 1990 PW DATES

## January

S	M	T	W	T	F	S
	1	2	3	4	5	6
	0001	0002	0003	0004	0005	0006
7	8	9	10	11	12	13
0007	0008	0009	0010	0011	0012	0013
14	15	16	17	18	19	20
0014	0015	0016	0017	0018	0019	0020
21	22	23	24	25	26	27
0021	0022	0023	0024	0025	0026	0027
28	29	30	31			
0028	0029	0030	0031			



POST YOUR CALENDAR SO EVERYONE CAN SEE IT!

## February

S	M	T	W	T	F	S
				1	2	3
				0032	0033	0034
4	5	6	7	8	9	10
0035	0036	0037	0038	0039	0040	0041
11	12	13	14	15	16	17
0042	0043	0044	0045	0046	0047	0048
18	19	20	21	22	23	24
0049	0050	0051	0052	0053	0054	0055
25	26	27	28			
0056	0057	0058	0059			

COMMAND MAINTENANCE SOP UP TO DATE AND DISTRIBUTED?

DA 12-SERIES FORMS FOR PUBS UPDATED? TM'S CURRENT? CHANGES POSTED?

GOING TO AIM FOR THE FY90 ARMY AWARD FOR MAINTENANCE EXCELLENCE? SEE DA CIR 750-90-1 ON MAINTENANCE EXCELLENCE AWARDS

PART PRICES SEEM HIGH? CALL THE AMDF PRICE CHALLENGE AUTOVON 977-7431

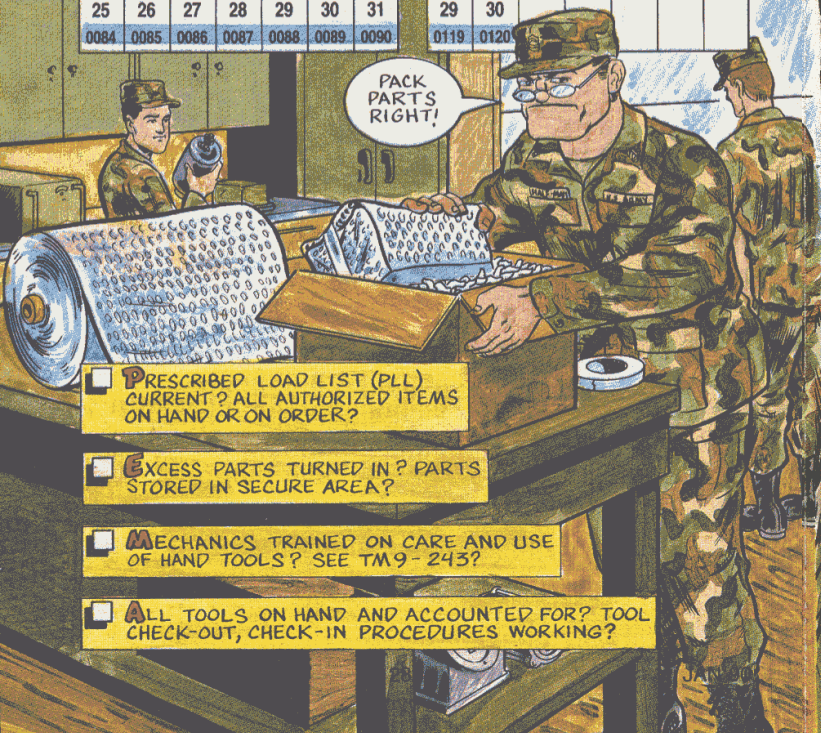
IDEAS AND SUGGESTIONS? SUBMIT THEM TO PROJECT SMART AND TOOL IMPROVEMENT PROGRAM SUGGESTIONS (TIPS).

# March

S	M	T	W	T	F	S
				1	2	3
				0060	0061	0063
4	5	6	7	8	9	10
0063	0064	0065	0066	0067	0068	0069
11	12	13	14	15	16	17
0070	0071	0072	0073	0074	0075	0076
18	19	20	21	22	23	24
0077	0078	0079	0080	0081	0082	0083
25	26	27	28	29	30	31
0084	0085	0086	0087	0088	0089	0090

# April

S	M	T	W	T	F	S
1	2	3	4	5	6	7
0091	0092	0093	0094	0095	0096	0097
8	9	10	11	12	13	14
0098	0099	0100	0101	0102	0103	0104
15	16	17	18	19	20	21
0105	0106	0107	0108	0109	0110	0111
22	23	24	25	26	27	28
0112	0113	0114	0115	0116	0117	0118
29	30					
0119	0120					



PACK PARTS RIGHT!

**PRESCRIBED LOAD LIST (PLL) CURRENT? ALL AUTHORIZED ITEMS ON HAND OR ON ORDER?**

**EXCESS PARTS TURNED IN? PARTS STORED IN SECURE AREA?**

**MECHANICS TRAINED ON CARE AND USE OF HAND TOOLS? SEE TM9-243?**

**ALL TOOLS ON HAND AND ACCOUNTED FOR? TOOL CHECK-OUT, CHECK-IN PROCEDURES WORKING?**

**GOT THE LATEST AMDF AND MCRL? DA PAM 310-10 ON HAND?**

# May

S	M	T	W	T	F	S
		1	2	3	4	5
		0121	0122	0123	0124	0125
6	7	8	9	10	11	12
0126	0127	0128	0129	0130	0131	0132
13	14	15	16	17	18	19
0133	0134	0135	0136	0137	0138	0139
20	21	22	23	24	25	26
0140	0141	0142	0143	0144	0145	0146
27	28	29	30	31		
0147	0148	0149	0150	0151		



PM ON YOUR COMMO GEAR...

**QUESTIONS WITHOUT ANSWERS? LAO AND MAIT PERSONNEL ARE THERE TO HELP.**

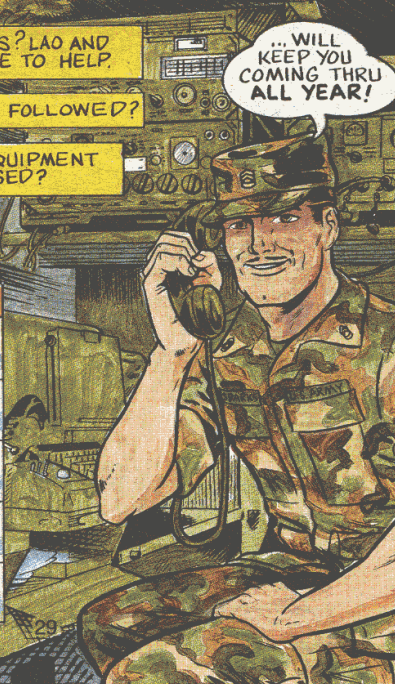
**SAFETY SOP POSTED... AND FOLLOWED?**

**SAFETY CLOTHING AND EQUIPMENT AVAILABLE AND BEING USED?**

... WILL KEEP YOU COMING THRU ALL YEAR!

# June

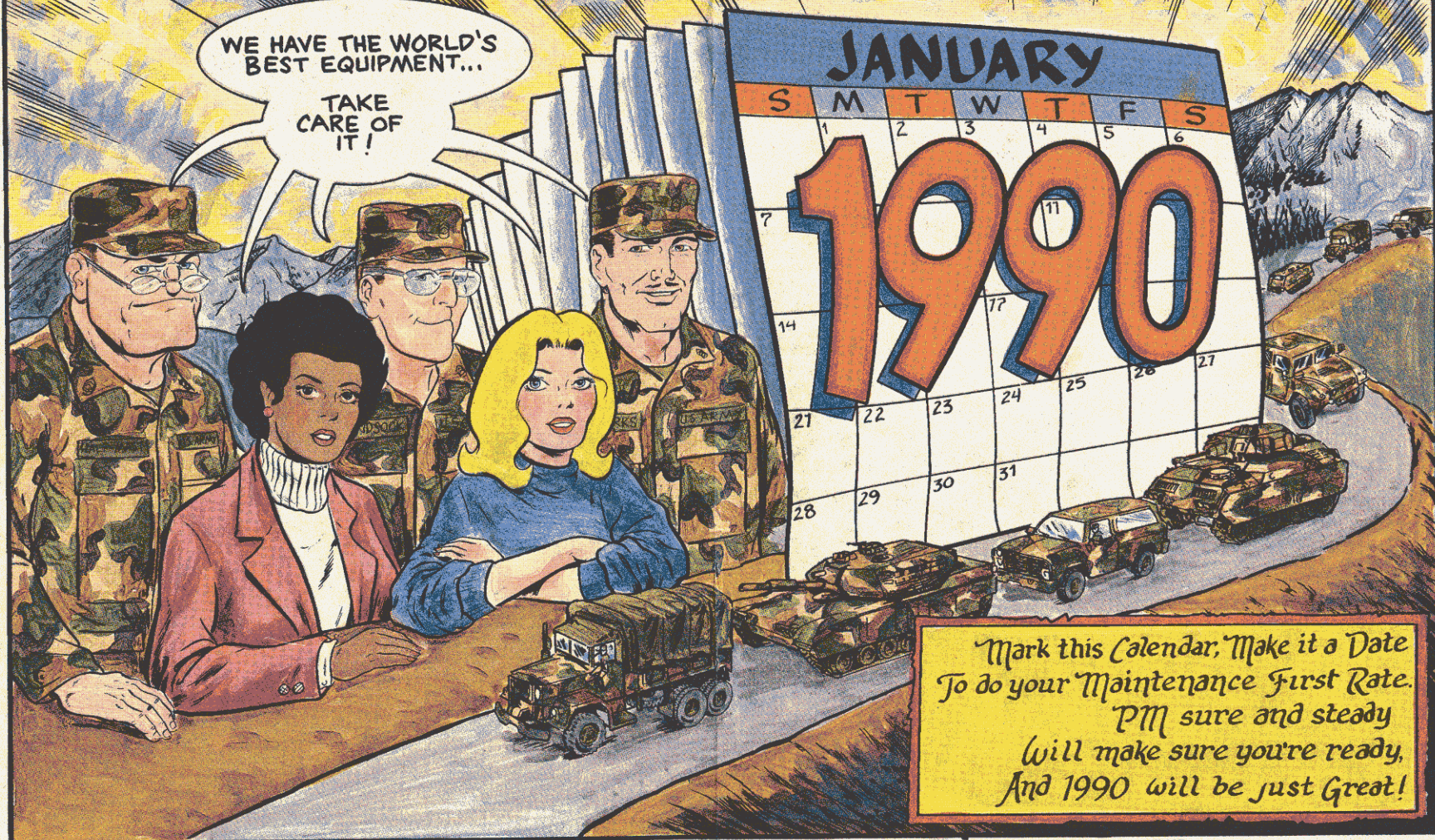
S	M	T	W	T	F	S
					1	2
					0152	0153
3	4	5	6	7	8	9
0154	0155	0156	0157	0158	0159	0160
10	11	12	13	14	15	16
0161	0162	0163	0164	0165	0166	0167
17	18	19	20	21	22	23
0168	0169	0170	0171	0172	0173	0174
24	25	26	27	28	29	30
0175	0176	0177	0178	0179	0180	0181



# YEAR-ROUND PM!

WE HAVE THE WORLD'S  
BEST EQUIPMENT...

TAKE  
CARE OF  
IT!



Mark this Calendar, Make it a Date  
To do your Maintenance First Rate.  
PM sure and steady  
Will make sure you're ready,  
And 1990 will be just Great!

IF YOU WANT TO DISPLAY THIS CENTERPIECE ON YOUR BULLETIN BOARD, OPEN STAPLES, LIFT IT OUT AND PIN IT UP.



# July

S	M	T	W	T	F	S
1	2	3	4	5	6	7
0182	0183	0184	0185	0186	0187	0188
8	9	10	11	12	13	14
0189	0190	0191	0192	0193	0194	0195
15	16	17	18	19	20	21
0196	0197	0198	0199	0200	0201	0202
22	23	24	25	26	27	28
0203	0204	0205	0206	0207	0208	0209
29	30	31				
0210	0211	0212				

ENOUGH TIME ALLOWED FOR PM? MAINTENANCE FACILITIES CLEAN AND ORGANIZED?



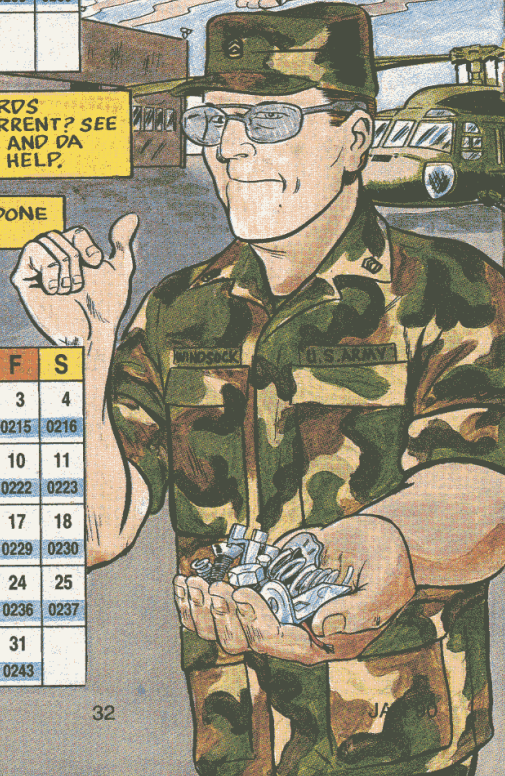
PREVENT FOD! DON'T LET AN INNOCENT ITEM BECOME YOUR ENEMY!

EQUIPMENT RECORDS COMPLETE AND CURRENT? SEE DA-PAM 738-750 AND DA PAM 738-751 FOR HELP.

AOAP SAMPLING DONE ON SCHEDULE?

# August

S	M	T	W	T	F	S
			1	2	3	4
			0213	0214	0215	0216
5	6	7	8	9	10	11
0217	0218	0219	0220	0221	0222	0223
12	13	14	15	16	17	18
0224	0225	0226	0227	0228	0229	0230
19	20	21	22	23	24	25
0231	0232	0233	0234	0235	0236	0237
26	27	28	29	30	31	
0238	0239	0240	0241	0242	0243	



# September

S	M	T	W	T	F	S
						1
						0244
2	3	4	5	6	7	8
0245	0246	0247	0248	0249	0250	0251
9	10	11	12	13	14	15
0252	0253	0254	0255	0256	0257	0258
16	17	18	19	20	21	22
0259	0260	0261	0262	0263	0264	0265
23	24	25	26	27	28	29
0266	0267	0268	0269	0270	0271	0272
30						
0273						

OJT AND CROSS-TRAINING PLAN BEING FOLLOWED?

ARE SOLDIERS DOING RIGHT JOB? MATCH ASSIGNMENT TO MOS.

NOW'S A GOOD TIME TO CHECK YOUR COOLANT.



# October

S	M	T	W	T	F	S
	1	2	3	4	5	6
	0274	0275	0276	0277	0278	0279
7	8	9	10	11	12	13
0280	0281	0282	0283	0284	0285	0286
14	15	16	17	18	19	20
0287	0288	0289	0290	0291	0292	0293
21	22	23	24	25	26	27
0294	0295	0296	0297	0298	0299	0300
28	29	30	31			
0301	0302	0303	0304			

TEST EQUIPMENT USED TO IDENTIFY FAULTS?

IS TESTING EQUIPMENT CALIBRATED ON SCHEDULE?

**KEEPING TRACK OF EQUIPMENT WARRANTIES? CHECK OUT APPENDIX K IN DA PAM 738-750.**

**DRIVER TRAINING PROGRAM SET UP? DRIVER'S RECORDS CURRENT? SEE AR 600-55.**

DON'T FORGET YOUR WINTER PM!

# November

S	M	T	W	T	F	S
				1	2	3
				0305	0306	0307
4	5	6	7	8	9	10
0308	0309	0310	0311	0312	0313	0314
11	12	13	14	15	16	17
0315	0316	0317	0318	0319	0320	0321
18	19	20	21	22	23	24
0322	0323	0324	0325	0326	0327	0328
25	26	27	28	29	30	
0329	0330	0331	0332	0333	0334	

# December

S	M	T	W	T	F	S
						1
						0335
2	3	4	5	6	7	8
0336	0337	0338	0339	0340	0341	0342
9	10	11	12	13	14	15
0343	0344	0345	0346	0347	0348	0349
16	17	18	19	20	21	22
0350	0351	0352	0353	0354	0355	0356
23	24	25	26	27	28	29
0357	0358	0359	0360	0361	0362	0363
30	31					
0364	0365					

**OPERATORS GETTING A CHANCE TO READ PS? MAKE SURE COPIES ARE AVAILABLE.**

**1991 RESOLUTIONS? DO AN EVEN BETTER JOB OF PREVENTING PROBLEMS WITH PREVENTIVE MAINTENANCE.**

## Be Adept at Adapting

**W**hen you install your Black Hawk's main transmission, you have to be adept at adapting or you'll adopt big problems.

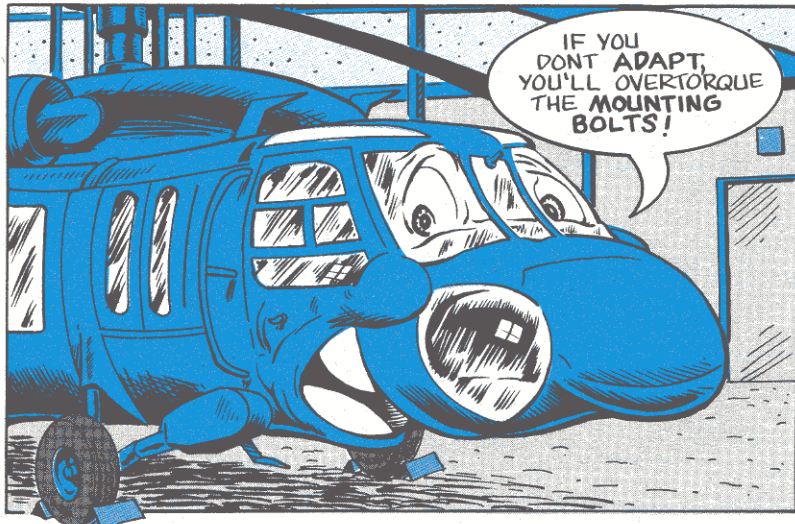
Like your TM says, you torque the mounting bolts to 154–170 lb-ft. But since the bolts are located up under the main bridge, you have to add a locally made extension to your torque wrench so you can get at them.

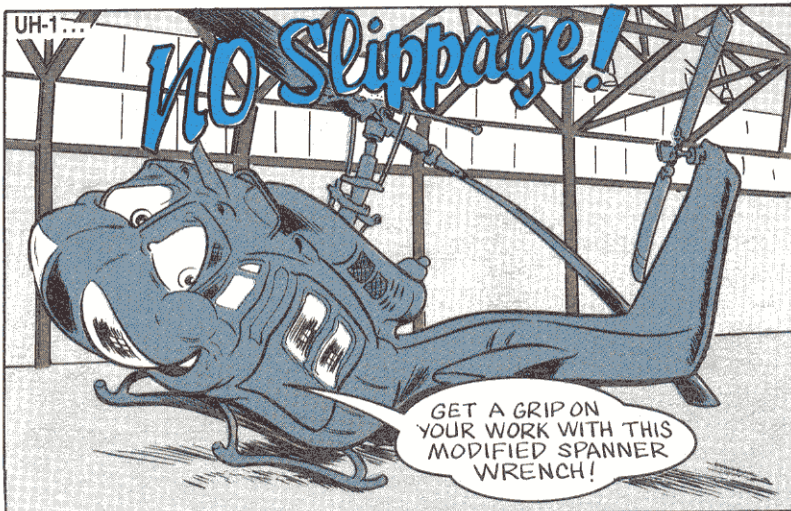
Fig H-51 of TM 55-1520-237-23-8 shows how to make an extension.

But when you start adding extensions to your torque wrench, you get more or less torque on the bolt than you read on the wrench. You have to recalculate the torque wrench reading needed to tighten the mounting bolts to 154–170 lb-ft.

You're adding 4¼ inches to the length of your lever with the home-made extension, so use the formula in Fig 6-61 of TM 55-1500-204-25/1 to calculate the correct torque reading on your wrench.

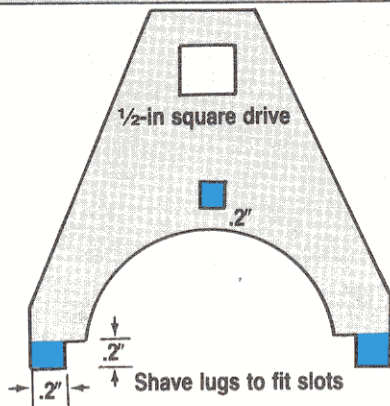
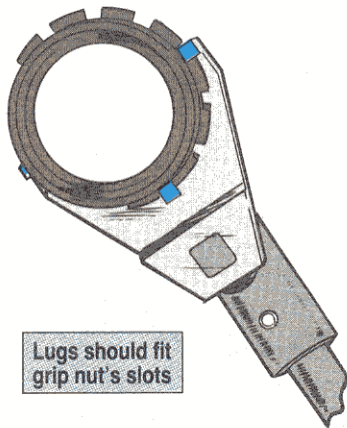
IF YOUR SET UP LOOKS LIKE THIS, TORQUE THE MOUNTING BOLTS TO 139-153 LB-FT.





The spanner wrench in your AVUM No. 2 tool set can slip off your Huey's tail rotor grip nut when you apply pressure and ruin your whole day.

So get your sheet metal shop to make a spanner wrench to fit snugly into the slots of the grip nut, Item 22 in Fig 5-55 of TM 55-1520-210-23-1.



It should be identical to spanner wrench, NSN 5120-00-421-7401, that's Item T60 in Table 1-2 of the TM, except for the size of the lugs. The lugs should be shaved to fit snugly into the grip nut's slots.

Use the tool with a 1/2-inch square drive torque wrench or breaker bar as called for in your TM.

No more busted knuckles!

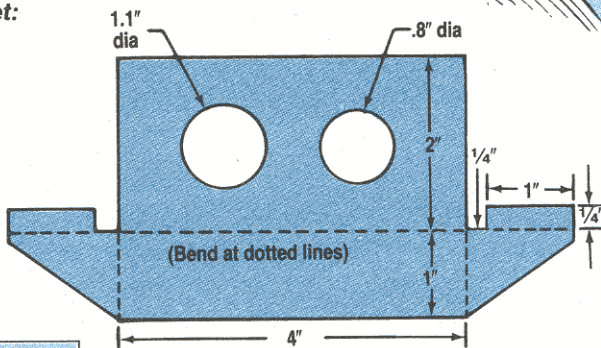
# Bracket Bonus

Dear Editor,

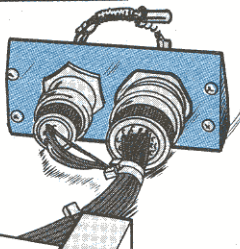
When we disconnect our KY58, we hook up the wiring to the bypass mount so the FM radios will work. But that creates a couple of problems.

First, the mount can get bent when we work in the battery compartment. Second, the electrical connectors vibrate loose and rattle against the battery compartment floor.

So we made an L-bracket from 0.032-in aluminum sheet to keep the connectors off the floor. Here are the approximate dimensions of the bracket:



Connectors in bracket



I DON'T THINK WE SHOULD BE ON THIS DIRTY FLOOR.

YEAH THERE'S GOT TO BE A BETTER WAY!

You mount the bracket to the floor using the existing hole and appropriate hardware.

SP4 Jimmy Akers  
Ft Lewis, WA

(Editor's note: Sounds like a quick, neat, temporary fix. Be sure to get your commander's OK first.)

# Set the Example with Good Samples

THAT GREASE IS CONTAMINATED. HE'LL BE BACK!

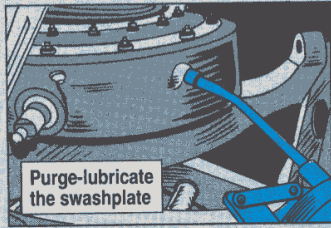


Some Cobra mechanics are just spinning their wheels when they take swashplate grease samples. Because they don't take the pains to do it right the first time, they get contaminated samples. Then, after the lab gets the sample, they have to sample again.

You've got to clean both the inner and outer ring assemblies before you shoot the juice to the swashplate.



Make sure you remove all surface grit, sand and other crud.



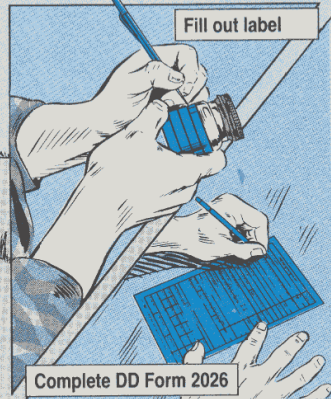
Use a wooden tongue depressor, NSN 6515-00-324-5500, or anything

else that's clean to collect enough purged grease to at least half fill a 3-oz plastic bottle, NSN 8125-01-082-9697.



Make sure all the old grease is purged, then collect and dispose of it. If the swashplate won't accept new grease, replace the swashplate.

After you get your sample, fill out the label on the bottle and complete an Oil Analysis Request, DD Form 2026.



Be sure to include your unit, your unit's POC and telephone number, the swashplate serial number and the date of the sample.

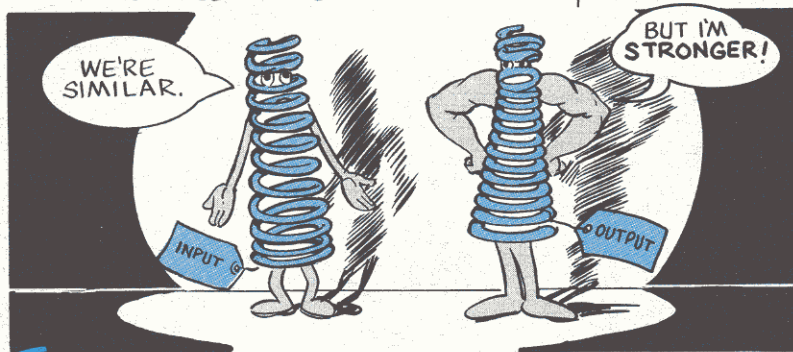
Use new self-locking nuts, NSN 5310-00-871-8758, and new cotter pins, NSN 5315-00-241-7330, when you reconnect the scissors and sleeve drive links.

Submit all grease samples to your designated lab the same day you take 'em, not next week or even tomorrow.

Do it right the first time and you won't have to do it again for another 25 flight hours.



# Beware of Spring Fever



The centering springs in your Cobra's intermediate gearbox quills are similar, but there's a big difference.

If you get them mixed up or assume they're interchangeable, you're asking for trouble. And you're sure to get it.

The input centering spring is not as strong as the output centering spring, so if they're installed wrong, the driveshaft will collapse and vibrate severely.

So be sure to label the springs or use some other means to readily identify each spring when you're ready to reinstall 'em. The output spring has a tighter coil and is slightly concave from one end to the other.

## Cobra Instrument Panel Lamps

Got a burned out lamp in the gunner's instrument panel of your Cobra? Replace the 6-volt lamps—Item 90 in Fig 107 and Item 129 in Fig 113 of TM 55-1520-236-23P-2—with NSN 6240-00-935-6972. Replace the 28-volt lamps—Item 89 in Fig 107 and Item 143 in Fig 108—with NSN 6240-00-299-4742. Make a note until the NSN's are added to Section IV of your TM.

## Cobra Cannon Connector

If the electrical connector on the feeder-delinker solenoid of your Cobra's 20-MM cannon goes bad, replace it with NSN 5935-01-150-8755. There's no need to replace the solenoid to get a connector. Jot down the NSN until your TM's are updated.

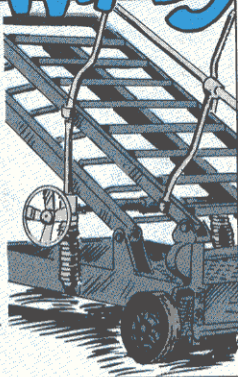
# REPAIR PLATFORM WHEELS

You can replace the bearings and seals for your B-1 maintenance platform's wheels instead of replacing the entire wheel.

Replace the outer wheel bearing with NSN 3110-00-159-1631 and the inner bearing with NSN 3110-00-198-2169.

Replace the grease seal with NSN 5330-01-133-0666. The seal NSN is not on the AMDF yet, so order it on DD Form 1348-6 using RIC S9I.

If the whole wheel needs replacing, use NSN 1730-00-657-3214. It's not on the AMDF either, so order replacements on 1348-6, too, from RIC S9C.



## Mirror Images

Mechanics, crew chiefs and tech inspectors often need a mirror and flashlight to read serial numbers on components in hard-to-reach places.

But some numbers look a lot like other numbers when viewed through a mirror in dim light.

SFC Ronald J. Skamanich of Ft Indiantown Gap, PA, solved the problem with a TIPS (Tool Improvement Program Suggestion) by using zinc chromate putty to make impressions of data plates in awkward locations.

He presses the putty onto a data plate and uses a mirror to read the impression. It takes the guesswork out of a sometimes troublesome task.

## 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-64-89-MIM-10**, Accessory gearbox filter, 061730Z Sep.

**UH-60-89-MIM-08**, Cooler inspect/maint, 071900Z Sep 89.

**UH-1-89-MIM-06**, Inspect T53-L-13B/BA engine, 072030Z Sep 89.

**AH-64-89-MIM-11**, Inspect shaft driven compressor, 132000Z Sep 89.

**AH-64-89-MIM-12**, Stabilator automatic mode failure, 152100Z Sep 89.

**AH-64-89-MIM-13**, Accessory gearbox filter, 221605Z Sep 89.

**UH-60-89-MIM-10**, Change to TB 55-1520-237-20-104, 262100Z Sep 89.

**OH-58-89-05**, SOF, Operational, OH-58D, fuel boost pump, 052100Z Sep 89.

**CH-47-89-10**, SOF, Maint Mandatory, all CH-47D, 071920Z Sep 89.

**AH-1-89-08**, SOF, Technical, All AH-1 series, 121630Z Sep 89.

**UH-1-89-09**, SOF, Technical, All UH-1 series, 121630Z Sep 89.

**AH-64-89-18**, SOF, Maint Mandatory, All AH-64A, 122030Z Sep 89.

**UH-60-89-10**, SOF, Maint Mandatory, All UH-60, T700-GE-700 engine gas generator, 141815Z Sep 89.

**GEN-89-04**, SOF, Operational, All Army aircraft, mooring/tiedown aircraft, 202145Z Sep 89.

**OH-58-89-06**, SOF, Maint Mandatory, All OH-58A/C, 211600Z Sep 89.

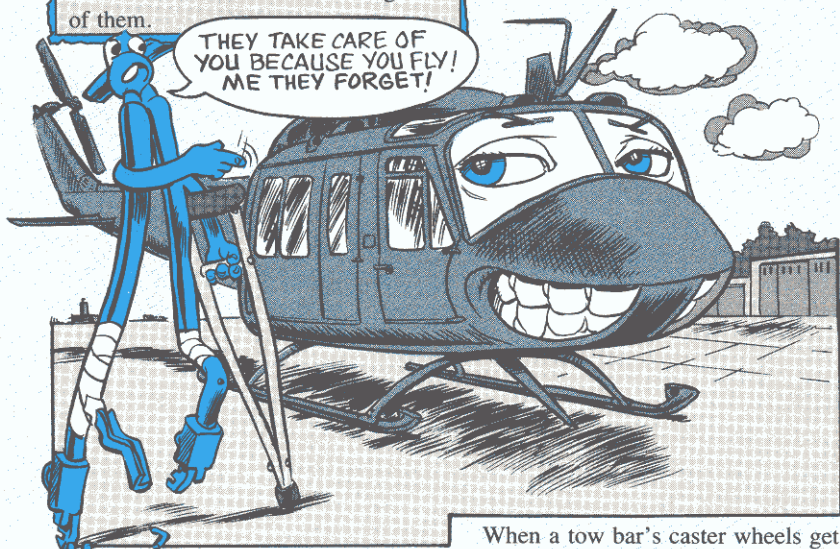
**OH-58-89-07**, SOF, Maint Mandatory, OH-58D, Fuel system, 212030Z Sep 89.



# Avoid Tow Bar TRAUMA

Just because you don't fly your tow bars is no excuse to avoid taking care of them.

THEY TAKE CARE OF YOU BECAUSE YOU FLY! ME THEY FORGET!

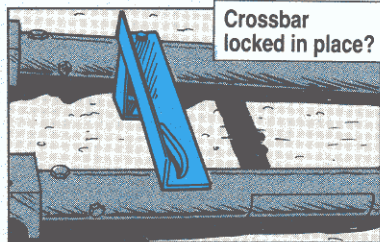


Here's how to get more mileage out of your tow bars:

Steer clear of rough surfaces on the helipad that tear up the wheels.

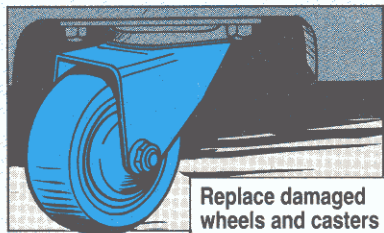
Keep tow bars painted and free of rust and corrosion.

Make sure the crossbar is locked in place and both wheels are firmly on the ground before you move your tow bar.



Crossbar locked in place?

When a tow bar's caster wheels get damaged, replace 'em. Make sure you've got a swivel caster on one leg and a rigid caster on the the other leg for better control.



Replace damaged wheels and casters

Get the swivel caster with NSN 5340-00-205-5628 and the rigid caster with NSN 5340-01-260-6258. If you need a housing for the caster wheels, get it with NSN 1730-01-087-4231.

# BITS and PIECES

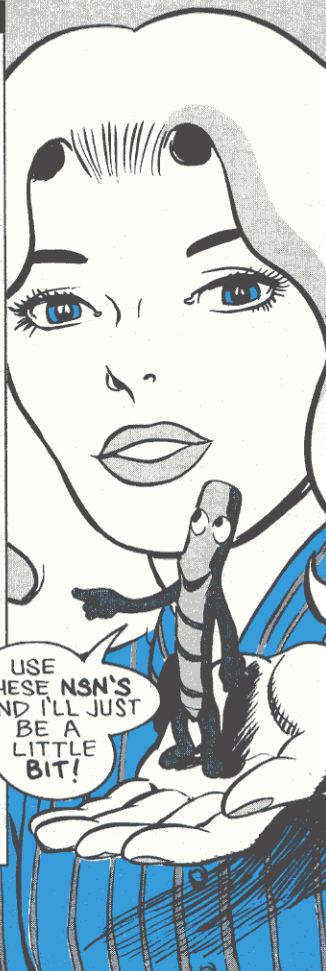
Some of your AVUM No. 2 tool set's twist drill bits are incorrectly listed in SC 4920-99-CL-A92-HR.

Twist drill set, NSN 5133-00-293-0983, is a set of 29 drill bits, sizes  $\frac{1}{16}$  to  $\frac{1}{2}$  inch. The bits are listed by NSN in the SC under drill set, NSN 5133-00-449-6775, instead of under NSN 5133-00-293-0983.

Twist drill set, NSN 5133-00-449-6775, is a set of 60 drill bits in wire gage sizes 1-60. The individual drill bits are not listed in the SC.

Order replacements with these NSN's:

NO.	5133-00-189-	NO.	5133-00-189-
1	9246	31	9276
2	9247	32	9277
3	9248	33	9278
4	9249	34	9279
5	9250	35	9280
6	9251	36	9281
7	9252	37	9282
8	9253	38	9283
9	9254	39	9284
10	9255	40	9285
11	9256	41	9286
12	9257	42	9287
13	9258	43	9288
14	9259	44	9289
15	9260	45	9290
16	9261	46	9291
17	9262	47	9292
18	9263	48	9293
19	9264	49	9294
20	9265	50	9295
21	9266	51	9296
22	9267	52	9297
23	9268	53	9298
24	9269	54	9299
25	9270	55	9300
26	9271	56	9301
27	9272	57	9302
28	9273	58	9303
29	9274	59	9304
30	9275	60	9305



# BE SAFE, NOT SORRY!!

DEAR WINDY,  
WHAT'S THE PROPER  
UNIFORM FOR REFUEL-  
ING AIRCRAFT? ARE  
FACESHIELDS REQUIRED?  
DURING REFUELING?  
WHAT ABOUT GLOVES?  
OUR LEATHER GLOVES  
DON'T SEEM TO LAST  
VERY LONG WHEN FUEL  
GETS ON THEM.

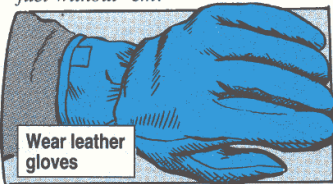
SPC. J.L.A.



Dear Specialist J.L.A.,

There is no special uniform for handling aviation fuels. Just wear your BDU's.

Leather gloves provide some protection against accidental fuel splashes, so don't ever handle fuel without 'em.



Wear leather gloves

If your gloves get soaked with fuel, replace 'em immediately.

Order the size to fit your hands snug:

SIZE	NSN 8415-00-268-
1	7871
2	7872
3	7869
4	7870
5	7868

Harping about helmets, there's a new Helmet Assembly for Rearming/Refueling Personnel (HARRP). It's designed to protect the user from head bumps and high intensity noise.

For eye protection, use goggles, NSN 8415-01-004-2893, with your HARRP. Build your helmet assembly from the following parts.

CLOTH HELMET	NSN
Size 6¾	8415-00-861-3527
Size 7	8415-00-071-8785
Size 7¼	8415-00-071-8786
Size 7½	8415-00-071-8787
Back Pad	8415-00-178-6830
Front Pad	8415-00-178-6831
Shield, back	8415-00-178-6855
Shield, front	8415-00-178-7013

#### AURAL COMPONENT

Headset-Mike or Protector	5965-01-204-8505 4240-00-759-3290
---------------------------	--------------------------------------

Don't ignore your boots, either. They should be standard rubber-soled, leather combat boots. No heel taps, toe taps or cleats. And if they become fuel saturated, replace 'em.

Another word of caution—don't carry anything in your shirt pockets when you're refueling. Small items could fall out of your pockets and cause sparks when they hit the ground. Or they could drop into the fuel tank. And never wear watches or jewelry that could spark against metal surfaces.

No matter how careful you are, sooner or later you're going to get fuel on your clothing, so here's what to do when that happens:

Leave the refueling area as soon as you finish refueling. Wet your clothes with water before you take them off. If there's not enough water at the site to wet the clothes thoroughly, ground yourself to a piece of grounded equipment by taking hold of it before taking off the clothes. That will help eliminate any static discharge.

If you get fuel on your skin, wash it off as soon as possible with soap and water. In forward areas, use the water in your canteen.

*Windy*

## HDU Maintenance Change

All field maintenance on the Apache's Helmet Display Unit—except replacing the tube and cable assembly—is now authorized at AVUM level. Make a note until TM 9-1270-221-23 and TM 9-1270-221-23P are changed.

## Brace Your Launchers

If your Apache's HYDRA 70 lightweight launchers fire erratically, the problem could be loose sway braces. So torque the sway brace pads to 100 lb-in to keep the launchers from moving during firing.

## An Open and Shut Case

Never save half-full opened containers of turbine engine oil.

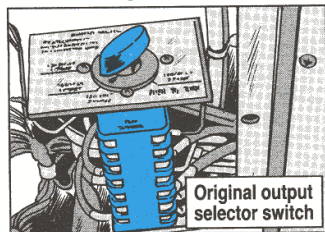
You risk contaminating the oil. Instead, use small-sized containers to top off your bird's engine oil.

Get a 7½-oz can of MIL-L-7808 lube oil with NSN 9150-00-108-5359. Get an 8-oz can of MIL-L-23699 lube oil with NSN 9150-00-180-6266.

# OUTPUT SELECTOR SWITCH REPLACEMENTS



The replacement output selector switch, NSN 5930-00-066-1275, for the MEP-017A GED generator may not have the terminals in the same location as the original switch.



If the replacement switch was made by American Solenoid, you have to make a few changes for it to work.

Lengthen the X7A10, X7C18, X6B10C and X11A10A wires so you can connect the switch properly.

Use the wire and terminal cross-reference list from the top of the next page for the American Solenoid switch. This list is to be used with the decal of the terminal diagram on the switch.

Rotary Switch Contact Numbers	Screw Terminal Numbers	Wire Designation Numbers	Wire From Designations
A2	4	X3B10	TB2-4
B1	2	D24B18	CT-B2
D5	6	X6B10C	TB2-1
E8	12	X1A10	J2-F
F7	10	X7C18	C4
H9	14	X7A10	TB1-L0
I12	20	X11A10A	TB2-3
J11	18	D20A18	A-12
K15	24	D19A18	A-11
L14	22	D18A18	A-15
A4	3	D17A18	A-14
B3	1	X4B10B	TB2-2
C6	7	D16D18	S1-13
G10	15	X5A12	J2-B
H3	19	X2A12	J2-A
		D16D18	S1-3
		D16A18	CT-C1

TROSCOM Maintenance Advisory Msg, AMSTR-MES 011945Z Jun 89 has the word.

BA-5567/U Battery...

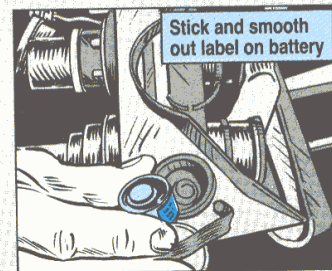
## KEEP BATTERY ABLE, CHECK LABEL!

A wrinkled stick-on battery life label can put a crimp in AN/PVS-5 night vision goggle viewing.

The paper label jams up inside the battery compartment. Then the battery won't make contact.

To make sure the label is smooth on the battery, do this:

- ✓ Carefully stick a new battery life label on the battery, ensuring that there are no wrinkles in the label.
- ✓ Make sure the label reaches no more than halfway around the battery. This is enough to keep track of battery life.

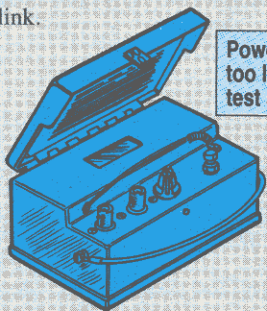


# Output Test Tip



**W**hen your RT-524 or -246 receiver-transmitter fails the AN/PRM-34 test set's power output test, hold one before you pull your RT for major repairs.

Could be a bad RF cable or an antenna contact or element that's on the blink.



Power output  
too low on  
test set? ...

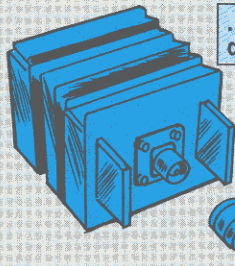
Give your RT a double check with a dummy load.

Unhook the RF antenna cable from the test set.

Hook up a dummy load to the test set. Use CG-409(U) cable. NSN 5995-00-985-8287 is for a 1-ft cable. NSN 5995-00-235-5048 is for a 1½-ft cable.

If the power test is good, then the fault's in the RF antenna cable or in a part of the antenna.

When you use a DA-437(U) dummy load, NSN 5985-00-089-8990, you'll need a BNC female to Type C male adapter, NSN 5935-00-557-9862.



... then use  
dummy load ...

... with  
male  
adapter

# SAVE BATTERY POWER

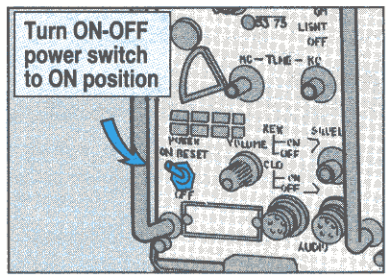


**A**re little gremlins draining your vehicle's battery power while your vehicle and AN/VRC-12-series radio set are idle?

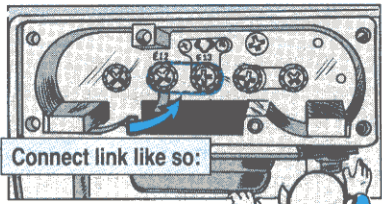
With all switches on your vehicle and radio OFF, turn the power ON-OFF switch on the R-442 receiver to ON.

Here's another way to spot a battery power loss.

Disconnect the negative power cable from the battery, listen for a clicking sound in the KY-57 security equipment junction box. Or, you hear a clicking sound when you reconnect the power cable. Either way, the R-442 power is on.



To stop the battery power drain, make sure the receiver J box link is connected in the remote DC power position, E13 to E12, like it says in Para 2-8 of TM 11-5820-401-20-1.

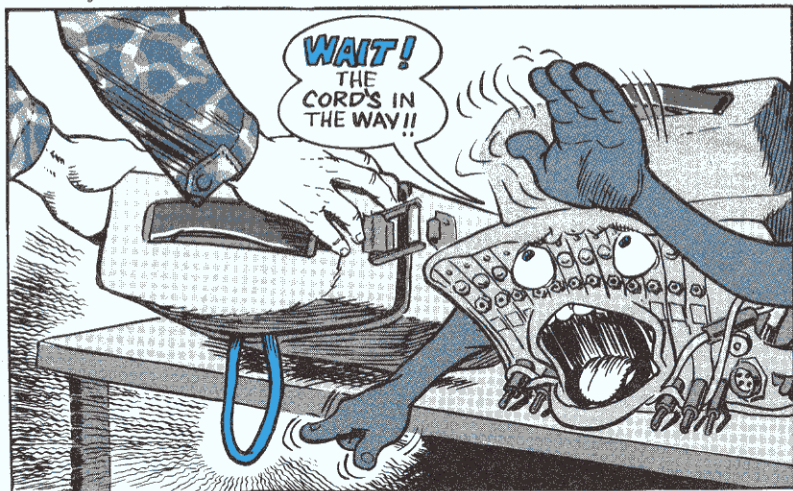


If the receiver comes on and the radio's RT-524 receiver-transmitter is OFF, there is a power drain from the vehicle battery.



# CORD WRAP UP

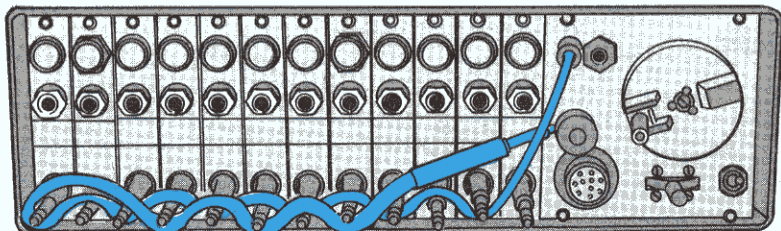
Before you pack up after a field exercise, take time to store the operator's cord on your SB-22 switchboard.



Paragraph 5-5 of TM 11-5805-262-12 says to lay the cord on the line packs. But, when you replace the front cover, the cord falls down in the way. Then you'll be ordering a new cord.

Some folks try to poke the cord back inside the pack. There's no room inside for the cord. When the cord is shoved back inside, it bends and breaks the wiring. Then support will be repairing the switchboard, probably when you need it the most.

To store the cord and keep it out of the way when you're packing up your switchboard, wrap the cord around the line pack plugs, like this:



Wrap cord between plugs

# Operator Printer Tests

When you have a problem with your Tactical Army Combat Computer System (TACCS) printer at either a master or a remote workstation, be sure you do all the operator tests—and then some—before sending the printer to DS for repair. Here are the steps to follow:

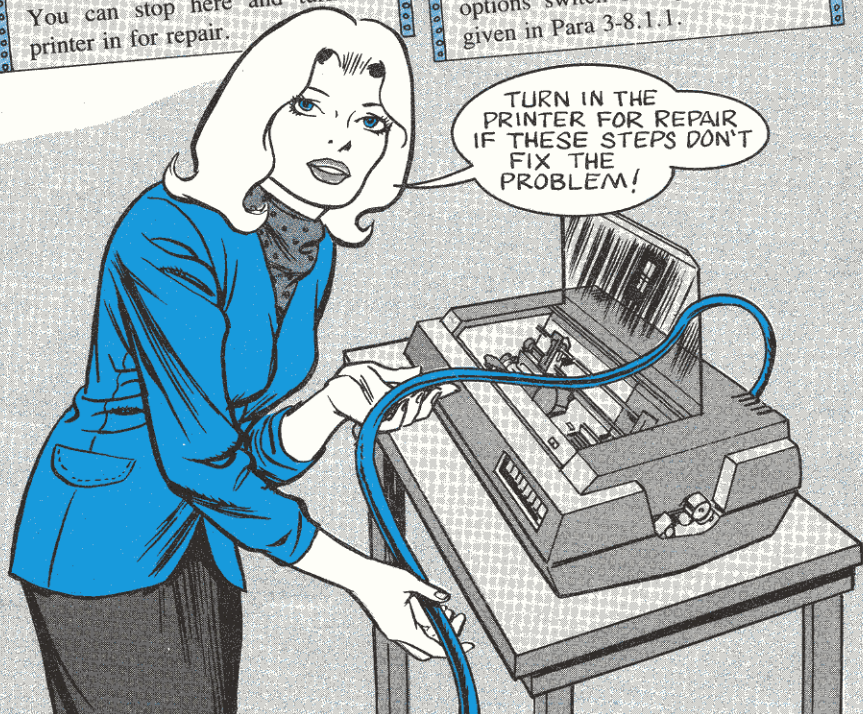
1. Troubleshoot the printer for faults listed in Table 3-3 of TM 11-7010-213-12. If a fault is found, try to correct it with one of the solutions given in the table.

2. If a fault is not found, do the printer self-test in Table 3-4. The printer is bad if the fault appears when you do the printer self-test. You can stop here and turn the printer in for repair.

3. But if the fault does not appear during the self-test, look at the data cable between the logic module or remote logic module and the printer for damage. Check that the cable is tight at both ends. Replace the cable if cracks or breaks are found or if the connector pins are bent, loose or corroded.

4. Cable not damaged? Do the options switch settings procedures given in Para 3-8.1.1.

TURN IN THE  
PRINTER FOR REPAIR  
IF THESE STEPS DON'T  
FIX THE  
PROBLEM!

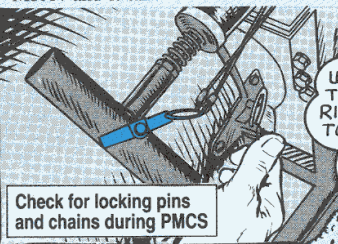




# A GUIDE TO SMOKING

If you expect your M3A4 to keep belching smoke, you'll need to fire up on these PM points:

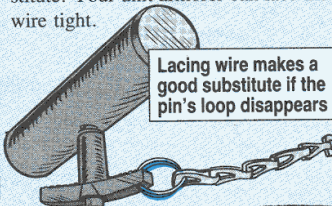
**Chains, bolts, and pins.** As part of PMCS, eyeball your M3A4 for locking pins and their chains. Chains break and pins disappear. Without locking pins, carrying and air pump handles come sliding out while you're carrying your M3A4 and it takes a tumble.



USE THE RIGHT TOOL!

Check for locking pins and chains during PMCS

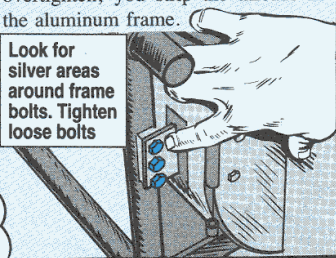
If the air pump pin's retaining wire keeps breaking, get your mechanic to replace it with one of the carrying handle locking pin chains. They last longer. If the pin's ring is missing, lacing wire run through the pin and chain several times makes a good substitute. Your unit armorer can lace the wire tight.



Lacing wire makes a good substitute if the pin's loop disappears

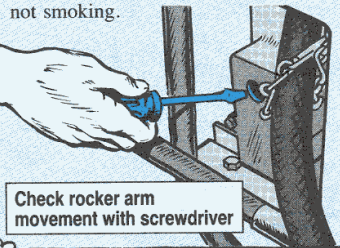
Vibration shakes the frame bolts loose. If a bolt comes out, the generator bounces around and the engine can die. Look for shiny spots around the bolts. Tighten loose bolts snug only. If you overtighten, you strip the threads in the aluminum frame.

Look for silver areas around frame bolts. Tighten loose bolts



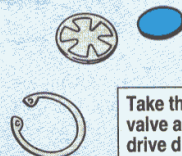
**Fog oil pump.** Dirt and corrosion get in the pump and freeze the rocker arms. That stops the flow of fog oil and causes major damage to the M3A4 if it's run that way for more than two minutes. Check with a screwdriver during PMCS for free movement of the rocker arms. Tell your mechanic if they don't move freely.

Seal out dirt and moisture by keeping the access covers down when you're not smoking.



Check rocker arm movement with screwdriver

**Air check valve.** The dime-size disc in the valve gums up and stops air flow. The M3A4 sputters to a stop. Take the valve apart during PMCS to see if the disc is dirty. Clean the valve parts with dry cleaning solvent if necessary. Keep track of the disc. There are few replacements.



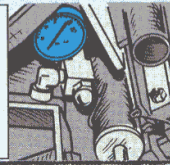
Take the air check valve apart and clean drive disk if necessary

HOW ABOUT THE O-RING!

**Air pressure gage.** If the gage doesn't show 60 PSI after 45 strokes of the air pump handle, don't deadline your M3A4. Most generators take more strokes because the handle's slide piston seal wears out and lets air escape. Tell your mechanic, but keep using your M3A4 until the seal's replaced.

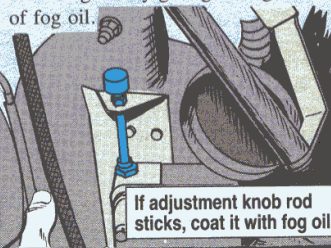
If your mechanic doesn't have a seal on hand, he can put an O-ring between the seal and sleeve nut to improve pressure. Or he can soak the seal in fog oil.

If air pressure gage doesn't reach 60 PSI after 45 strokes, tell your mechanic. But don't deadline it



COME ON, STEP OUT OF THE FOG!

**Adjustment knob.** If the knob's rod sticks, you'll bend the aluminum rod when you adjust the float bowl. Cure a sticking rod by giving it a light coat of fog oil.



If adjustment knob rod sticks, coat it with fog oil

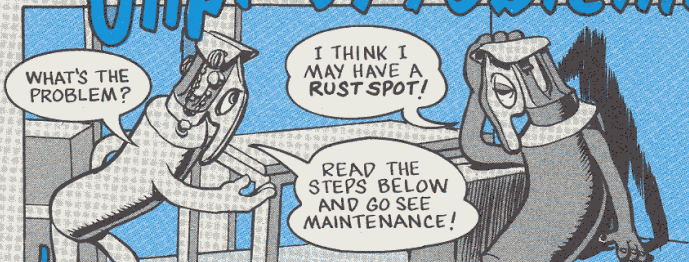
ASK YOUR MECHANIC FOR EXTRA HEAD SEALS  
NSN 5330-00  
507-4900 to TAKE TO THE FIELD!

**Head.** The seals wear out fast, the head overheats, and the M3A4 shuts down. Help the seal last by not overtightening the head.

If the head heats up fast after startup, shut down and troubleshoot. Something's probably wrong with the flow of fuel or fog oil. The head should still be cool after one minute of operation.

KEEP 'EM SMOKIN!

# Unplug Problems



Just because the M11 is pretty simple doesn't mean you can take it for granted. The M11 has a few areas that demand special attention if it's to spray freely.

For instance:

**Container rust.** It's the number one killer of M11's. Fight it by making sure M11's are completely dry before you store them. You used to do that by letting them air dry. Now TM 3-4230-204-12&P says to wash the M11 with dry cleaning solvent after you wash it with soap and water. Pour solvent out of the container when you're through. Stuff a clean rag in the container and work the rag until you've got the inside of the container dry.

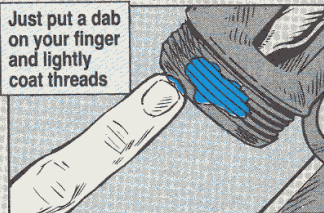


Before you put in the  $\frac{1}{2}$  teaspoon of corrosion inhibitor, eyeball the inhibitor for lumps. Lumps signal moisture contamination and that means no rust protection. Seal out moisture by keeping the inhibitor's can sealed tight.

## Lumpy corrosion inhibitor won't fight rust



Apply antiseize compound to the threads of the container and the drain plug.



Screw in the head and the plug tight to keep out moisture.

# with PM

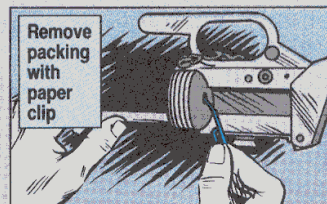
Rust doesn't automatically knock out an M11. As long as rust doesn't break off and block the siphon tube strainer, keep using the M11. Just wipe out rust flakes and shake them from the container. Then clean and dry the M11. If it's pitted, order a new container and label.



## O- and Retaining Rings

Eyeball the condition of every O-ring before you send M11's back to the field. As few as 6 charges can wear out the O-ring inside the spray head. A bad O-ring won't let the M11 pressurize.

If an O-ring's split, deformed, cracked or loose, replace it. But never use a screwdriver or knife to take it out. That hurts the piercing pin that punctures the nitrogen cylinder. Use a taped screwdriver or straightened paper clip instead.

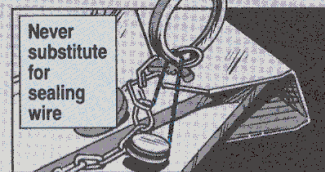


Retaining rings disappear in the field. Without the ring, the handle locking groove headed pin falls out. Check for and replace missing retaining rings.

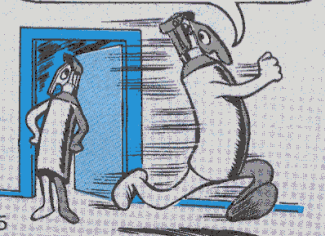


## Sealing Wire

Never substitute for sealing wire. NSN 5340-00-835-9815. The copper wire breaks easily when the handle's pulled. Other wire might not. That could be a disaster in a real chemical alert.



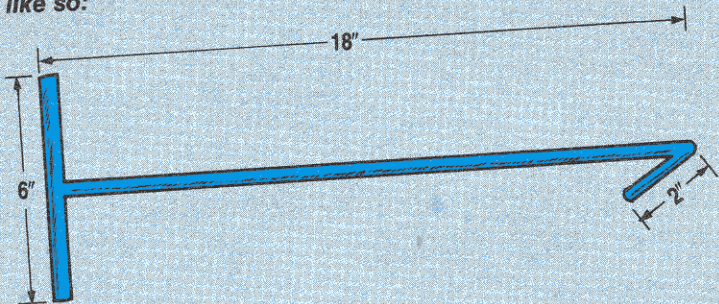
THANKS, YOU SAVED MY LIFE!



# Starting Aid

Dear Editor,

The compression release handle on the F5070 dump truck's engine is hard to pull. And you have to put your hand dangerously close to the fan to pull the release. So I made an extension handle like so:

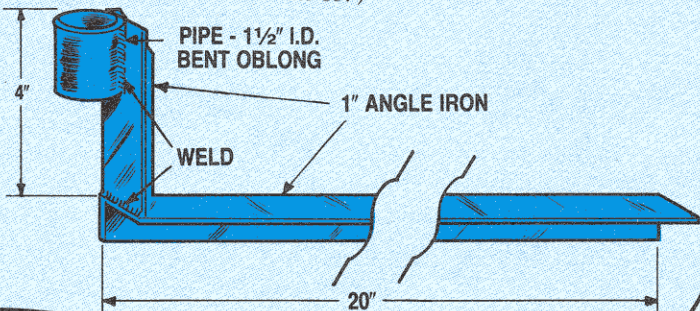


Just slide the extension over the compression release and pull on the extension. You get more leverage and it keeps your hand out of the engine compartment.

Starting is easier when you make sure the fuel filters are full and primed, and that the batteries are fully charged.

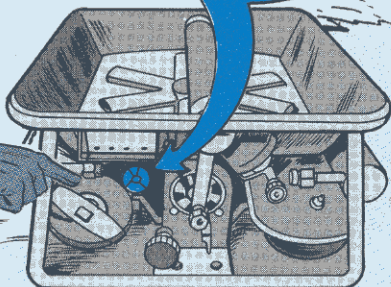
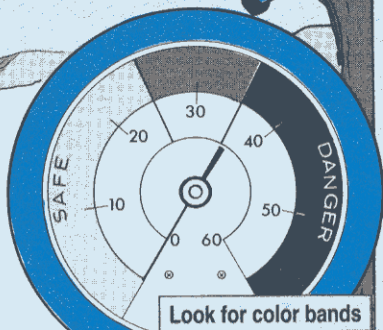
SGT Keith A. Wilcox  
MOARNG

(Editor's note: That's a good idea. An alternative, suggested by SPC Edward W. Herman at Ft Leonard Wood, is a rod you can hook over the compression release to pull on. Make it like so:)



# Check for Bum Gage

NSN 6685-00-999-2503 WILL GET YOU A NEW GAGE!



**S**ome M2 and M2A burner units have fuel pressure gages that you can't read easily. That makes for a safety hazard.

The dial on the gage is supposed to have a green band from 0 to 25, yellow from 25 to 35, and red from 35 to 60.

Look at the gage on your burner unit. Bad gages have black numbers on a plain white face. It's hard to read the pressure.

If you find a bad gage, replace it with gage, NSN 6685-00-999-2503 that has color bands.

## Send the old gage to:

Defense General Supply Center  
ATTN: DGSC-QDA-3 (Dale Edwards)  
Richmond, VA 23297-5000

The word is in TROSCOM Safety-of-Use Msg 14-89, AMSTR-MES 191500Z May 89.

# Reporting

HERE ARE SOME TIPS TO HELP YOU FILL OUT DA FORM 2406 TO REPORT EQUIPMENT STATUS.

# Tips

**DO NOT** separate ERC A and ERC B items in the main part of the DA Form 2406. To separate these items, use a header line and divide the ERC A and B items on separate lines under the FOR LOCAL USE ONLY portion of the 2406.

**MAKE SURE** your horizontal and vertical computations add up. The nonavailable and available days must equal possible days. Vertical lines must add up to the header summary line.

**END** your DA Form 2406 on the 15th of each month like it says in AR 700-138. If you close out the 2406 before the 15th, you won't have an accurate status report.

Non-aeronautical...

## AOAP Sampling

HQDA Message DALO-SMP-M 311422Z May 89 authorizes extensions of sampling intervals for trucks, combat vehicles, construction, material handling and other equipment enrolled in the Army Oil Analysis Program (AOAP).

HERE ARE THE NEW AOAP SAMPLING INTERVALS.



	ACTIVE ARMY	RESERVE & NATIONAL GUARD
Combat Vehicles (except M1, M1A1 and M1IP transmissions)	25 HRS/60 DAYS	25 HRS/180 DAYS
M1, M1A1 and M1IP Transmissions	75 HRS/90 DAYS	75 HRS/180 DAYS
Tactical Wheeled Vehicles	100 HRS/90 DAYS	100 HRS/180 DAYS
Locomotives*	25 HRS/90 DAYS	25 HRS/90 DAYS
Watercraft	100 HRS/90 DAYS	50 HRS/180 DAYS
Material Handling Equipment	50 HRS/90 DAYS	50 HRS/180 DAYS
Construction Equipment	50 HRS/90 DAYS	50 HRS/180 DAYS
Support Equipment	50 HRS/90 DAYS	50 HRS/180 DAYS

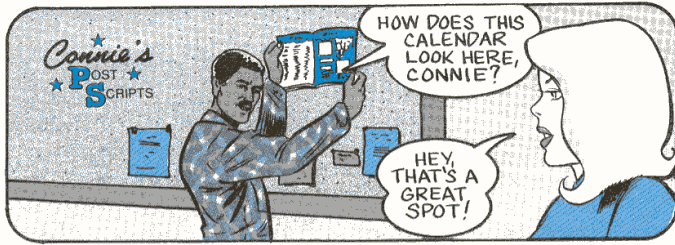
\*Locomotives in daily use may be extended to 100 hours or 90 days for Active Army, Reserve and National Guard.

**MAKE SURE** the model and line item number (LIN) are listed in the reportable items list in Appendix B of AR 700-138.

**ENTER** the same model number entries only one time under the same ECC/LIN.

**DON'T ENTER** the same ECC/LIN on more than one sequence number.

**IF** you're required to report equipment status on items that are not listed in Appendix B of AR 700-138, make the entries below the main portion of the report. Drop a couple of lines below your last entry and put FOR LOCAL USE ONLY. That way the Materiel Readiness Support Activity folks know those entries are not part of the status report.



### CARC Tape Available

There's a new video out telling how to do spot painting with Chemical Agent Resistant Coating (CARC). Get a tape, TVT 3-40, from your training and audio visual support center.

### M88A1 Regulator NSN

To get the regulator used in the single-regulator electrical system on M88A1 recovery vehicles, use NSN 2920-01-054-0479. It replaces the original regulator, NSN 2920-00-088-3989, which is no longer available.

### Use PRM-45 Probe Right

Never put the AN/PRM-45 digital multimeter's 80K-6 high voltage probe in a 220-volt AC outlet. The probe is for DC testing only. Plugging into AC voltage will damage the probe and burn you. Use the probe only for high DC voltage measurements, like it says in TM 11-6625-3199-14.

### 6K Fuel Filter NSN

NSN 2910-00-163-5752 gets the fuel filter for the 6K forklift. The NSN's missing from Item 6 in Fig 14 of TM 10-3930-242-20P.

### Speed-lace Boot Lace NSN's

Shoe laces for the speed-lace combat boots come in three lengths, based on the size boot. Here's what's available:

NSN	Lace length (inches)	Boot Size
8335-01-234-		
8146	72	3to6½
8147	87	7to11
8148	97	11½to14

### Arctic Heater Conversion Kits

If the heater in your vehicle gives out in bitter cold, no need to freeze up. Have your DS shop convert it from 20,000 to 30,000 BTU's with one of these arctic heater conversion kits:

Kit	Vehicle	Location
NSN 2540-01-		
142-8261	M35A2, M35A2C	Cargo area
142-1446	M44A2-series	Cab/personnel
127-5046	M109A3, M185A3 vans	Primary heater
127-5047	M109A3, M185A3 vans	Secondary heater

### CUCV Blackout Headlight NSN

Use NSN 6220-01-248-6269 to get the blackout headlamp assembly for your CUCV. The NSN is listed as Item 1 in Fig 42 of TM 9-2320-289-20P is wrong. Make a note until the TM is updated.

### M915A1 Cable Needs OE/HDO

LO 9-2320-283-12 contradicts itself on whether OE/HDO or GAA is the right lube for the cable on the spare tire hoist. OE/HDO is what you use. Note 16 on Page 18 of 19 is wrong and the picture on Page 6 of 19 is right.

### M146 Sash and Screen NSN's

The NSN's for the M146 6-ton semi-trailer's sash assembly or screen are not listed in TM 9-2330-227-14&P. Get the sash assembly with NSN 2510-01-286-3418, and the screen with NSN 5670-00-449-5071.

### M720 Dolly Brake Hose NSN

NSN 4720-01-098-3277 gets the rubber hose to the front wheel cylinder. The NSN called out for Item 10 in Fig 17 of TM 9-2330-285-14&P for the 3-ton dolly set is wrong.

### CUCV Transmission Kit Update

Some changes have been made in the transmission filter kit for the CUCV's. The NSN for the kit has changed to 2940-01-121-6350. The kit now includes the filter, O-ring for the intake pipe and the pan gasket.

Distribution: To be distributed in accordance with DA Form 12-34-C-R, for TB-43-series.

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

### M746 Brake Drum NSN

Use NSN 2530-01-300-9391 to get the brake drum called out as Item 6, Fig 143 of TM 9-2320-258-20P. The NSN's missing from the TM.

### M49A2C Fuel Sampling Kit NSN

A fuel sampling parts kit, NSN 2910-01-207-9023, makes fuel sampling a lot easier. Installation instructions come with the kit. Get your CO's OK before ordering.

### HMMWV Slave Receptacle Box

Big boots break the slave receptacle box under the edge of the passenger seat. The box is not listed in TM 9-2320-280-20P, but it's the part Item 16 in Fig 46 fits on. You can get the box with NSN 5340-01-282-4853.

### Knuckle Boot Adhesive NSN

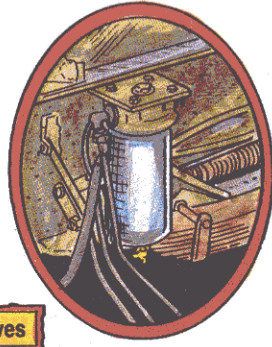
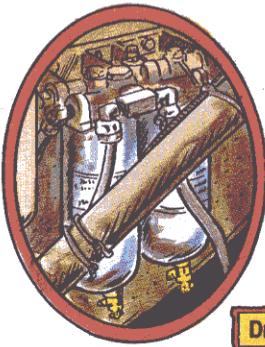
When you order new steering knuckle boots for your 2½- or 5-tonner, go ahead and order the adhesive for the zipper. The new boot kits don't have the adhesive, and it's usually so dried up in the old kits that you can't use it. Get an 8-oz tube with NSN 8040-00-298-1946.

**IT'S FREEZIN' SEASON!**

**DRAIN Multifuel Filter**

**MOISTURE**

**• DAILY •**



**Drain valves**

**READ**

**FM 9-207 on Vehicle Cold Weather Operations**