

Issue 533

PS

April  
1997

THE  
PREVENTIVE  
MAINTENANCE  
MONTHLY

TB 43-PS-533



YOU'VE GOT  
A HEADSPACE  
PROBLEM.

GEE,  
SERGEANT,  
THAT'S NOT  
VERY NICE.

Approved for Public Release  
Distribution is Unlimited

How to Time and Headspace Your M2  
... See Page 36

# PS: Good Info ... for Free

Dear Commanders and NCOs,

Too many times when talking to repairmen in the field, I'm told they never see PS Magazine. "Oh, they get PS at headquarters, but it never gets down to us" or "I haven't seen PS in the six months I've been at Ft Anywhere" are typical comments.

The information in PS is aimed directly at the soldiers who turn the wrenches and fix the flats—and the soldiers who support them. If they're not seeing PS, they're missing information that could save your unit money, effort, and equipment downtime.

It doesn't cost a cent to get enough PS copies for everyone in your unit who needs it. PS is free to soldiers. Here's a suggested distribution:

CO and XO	1 copy	Arms Room	1 copy
1st Sergeant	1 copy	NBC NCO	1 copy
Supply Sergeant	1 copy	PLL Section	1 copy
Commo Chief	1 copy	Maintenance Section	5 copies
Operators/Crew	1 copy for every 5 soldiers		

Total up what you need and get with your pubs clerk. Have him add it to your initial distribution. If your pubs clerk has questions, give me a call at (205) 955-0892, DSN 645-0892.

Once PS arrives, don't let it get hung up at headquarters. Work out a distribution system that ensures PS goes to the motor pools, arms and supply rooms, and hangars.

IF YOU'RE MISSING COPIES OF ANY RECENT PS ISSUES, I CAN HELP. JUST WRITE TO ME, OR E-MAIL ME, AT THE ADDRESS ON THE NEXT PAGE.





**THE  
PREVENTIVE  
MAINTENANCE  
MONTHLY**

TB 43-PS-533, 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, and questions or comments on material published in PS. Just write to:

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

Or E-mail to:

[psmag@logsa.army.mil](mailto:psmag@logsa.army.mil)

Internet Address:

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

By Order of the Secretary of the Army:

**DENNIS J. REIMER**

General, United States Army Chief of Staff

Official:

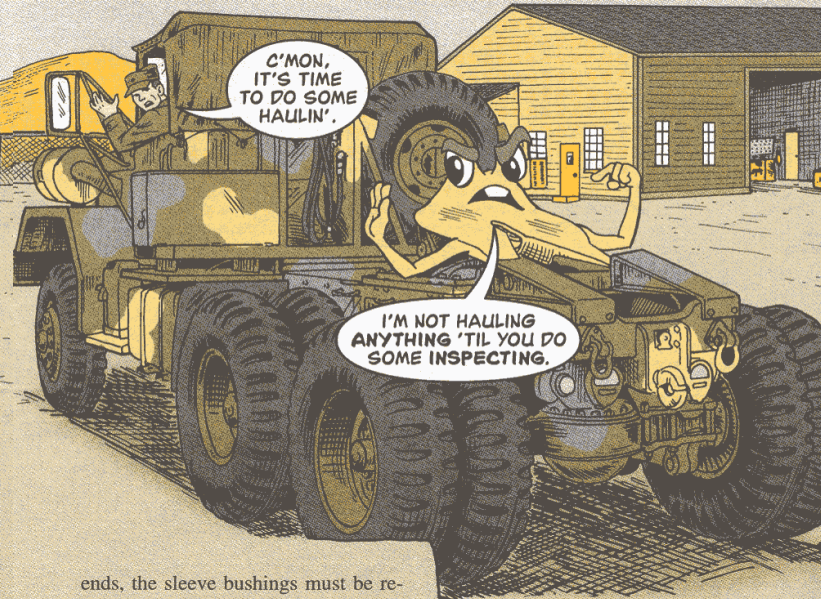
*Joel B. Hudson*  
**JOEL B. HUDSON**

Administrative Assistant to the Secretary of the Army  
03195

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# FIFTH WHEEL INSPECTION UPDATE



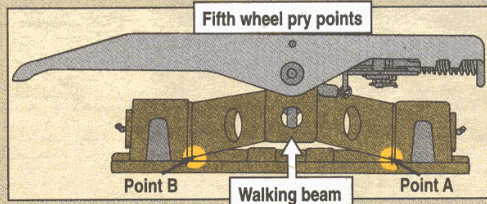
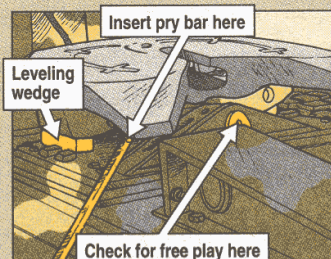
The TMs for M931/932 and M818 tractor trucks are lacking in fifth wheel inspection criteria.

Specifically, what's missing in the -20 level PMCS is how to check for wear and free play in fifth wheel components.

Until your TMs are updated, here's what to do at the semiannual PMCS:

- 🔧 Remove the two leveling wedges from the fifth wheel's sub-base.
- 🔧 Slip a pry bar under the walking beam at position A and press down on the bar.
- 🔧 Keep an eye on the walking beam shaft where it is supported in the sub-base assembly as you press down on the pry bar.
- 🔧 Insert the bar at point B and keep an eye on the other support for the walking beam as you press down on the bar.

If you notice any free play at the shaft

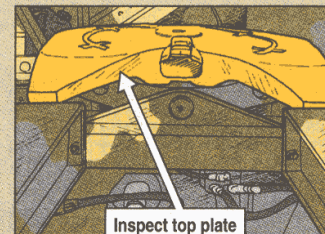


ends, the sleeve bushings must be replaced. Check the walking beam shaft and the headless grooved pin for scores, cracks and wear. DS/GS must repair or replace damaged and worn parts.

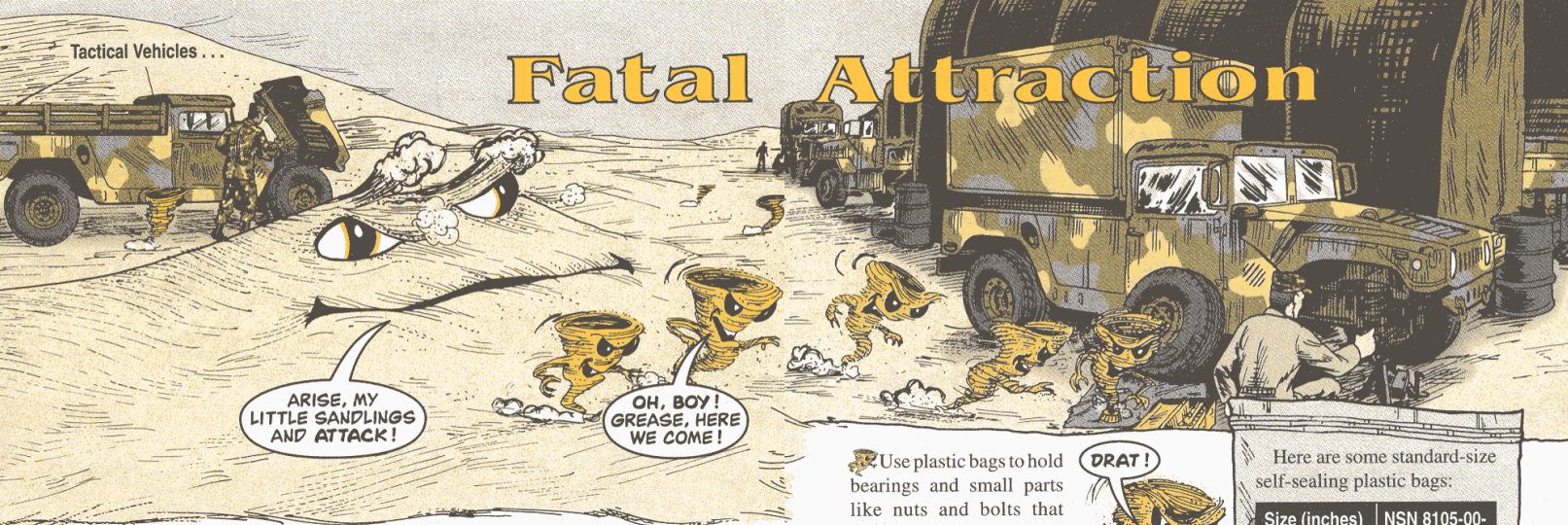
- 🔧 Inspect the top plate assembly for cracks, broken springs and binding linkage. Pin-mounted bushings should not be brittle or have severe gouges or ripped areas. DS/GS must replace any bushings that are damaged or flunk the wear limit.

The bushings have a wear surface 0.060-in thick made of sintered bronze surrounded by a steel sleeve. If the bushing wears more than 0.060 inch, the shaft no longer bears on the intended wear surface. The bushing then needs to be replaced.

You can get a good idea of the bushing's condition by measuring with the machinist's ruler in the general mechanic's tool kit. If the bushing is less than 1/16-in thick, (that's a little more than 0.060 inch, but close enough for unit checks), call in your DS/GS folks.




# Fatal Attraction

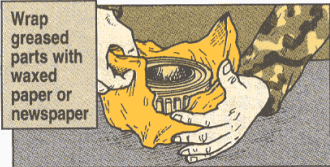


**M**aintenance in the desert can be a dirty job. Anything covered with grease or oil attracts dust and sand like a magnet

Sand and grease make a gritty combo that works like scouring powder on metal surfaces and rubber seals.

You can't shut out sand completely, of course. But you can...


 Keep sand and dust off parts while you're making repairs by wrapping greased parts with waxed paper or newspaper.

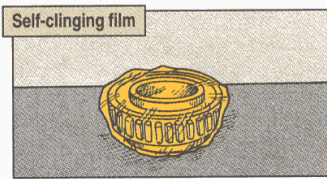


Wrap greased parts with waxed paper or newspaper




 Keep grease cans covered

 Use plastic wrap to keep dust and sand out. NSN 8135-00-043-5331 gets you an 11 1/2-in by 100-ft roll of this self-clinging plastic film.



Self-clinging film

 Use plastic bags to hold bearings and small parts like nuts and bolts that might get lost or dirty before you need them again. You should also tag the bags to make sure everything goes back on exactly where it came off.



Here are some standard-size self-sealing plastic bags:

Size (inches)	NSN 8105-00-
6 x 6	837-7754
8 x 8	837-7755
10 x 10	837-7756
12 x 12	837-7757

## Diesel Engines ...

### JP-8's Filtering In

**M**echanics, no doubt you've noticed more fuel filters being replaced on tactical, construction and material handling equipment.

That's because the military is slowly switching to one fuel—JP-8 turbine fuel. JP-8 is a kerosene-based fuel that breaks gunk and contaminants free from the sides of fuel tanks and lines.

After the switch to JP-8, you have to pay close attention to the vehicle's engine. When it starts to idle or run rough, replace all fuel filters. They're clogging up. This clogging should stop after two or three refuelings.

JP-8 won't damage the engine. And you don't have to add any lubricating help—engine oil, brake fluid or transmission fluid—to the fuel. They can clog filters, too, and affect engine performance.

# Use Spanners or Grips

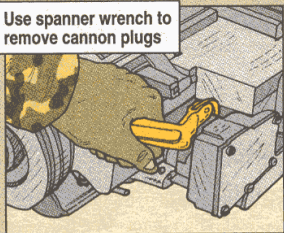
Just about all mechanics can tell war stories about electrical connectors that are so close to a fender, firewall or other obstruction that you can't get a grip on 'em.

And just about all mechanics will tell you that they've got a way to remove the connectors—some of which aren't very kind to the connectors.

Here are the two best ways to remove those hard-to-get-at connectors and still save them for another use:

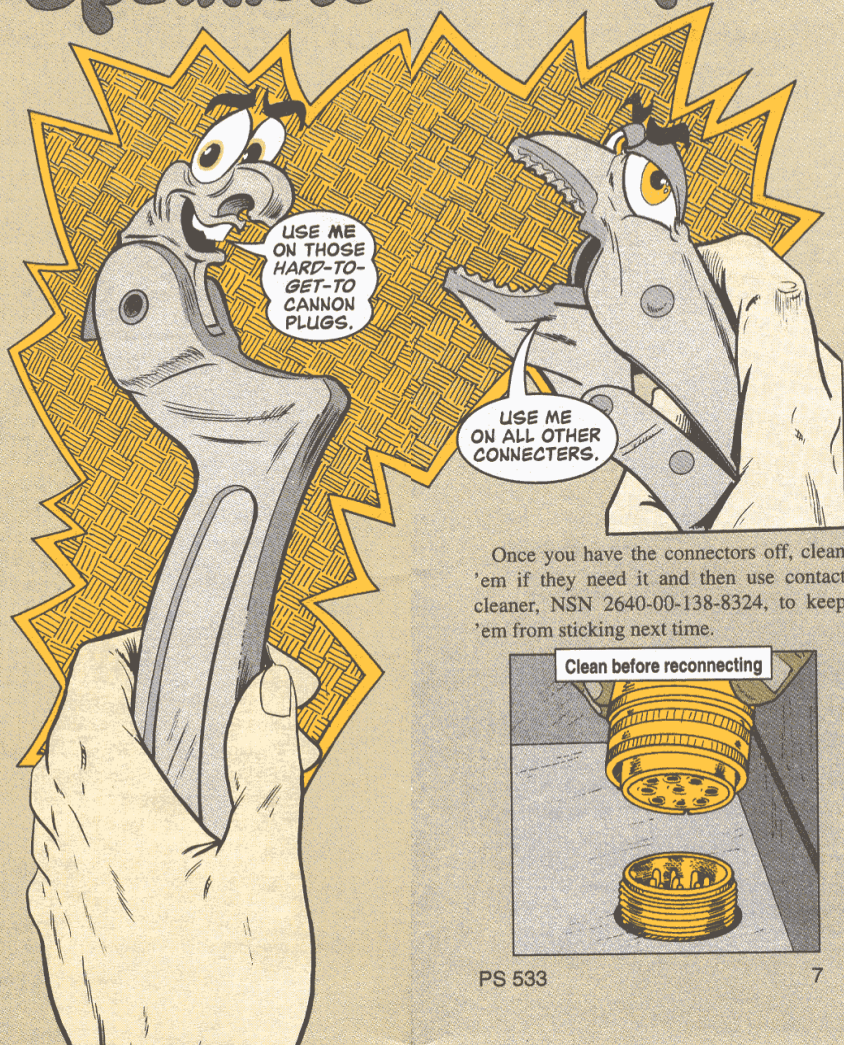
**Spanner wrench.** If the connectors are cannon plugs, the  $\frac{3}{4}$ - to 2-in spanner wrench found in the General Mechanic's tool set or the No. 1 Common shop set works just fine.

Use spanner wrench to remove cannon plugs



**Plier wrench.** If the connectors are any other style, and you cannot loosen them by hand, use the curved jaw plier wrench found in the General Mechanic's tool set.

Never use more grip than needed, or you could damage the connector.



Once you have the connectors off, clean 'em if they need it and then use contact cleaner, NSN 2640-00-138-8324, to keep 'em from sticking next time.

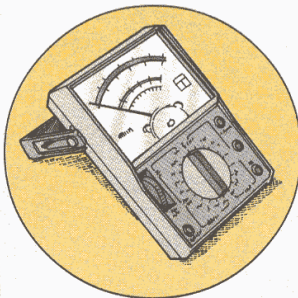
Clean before reconnecting



## It's Handy, So Use It

We're talking about a handheld multimeter that'll make voltage and continuity checks real simple.

NSN 6625-00-914-4113 fits in a BDU pocket, costs less than \$20 and works great on tactical vehicles.



It's an expendable item authorized by Appendix A, CTA 50-970.

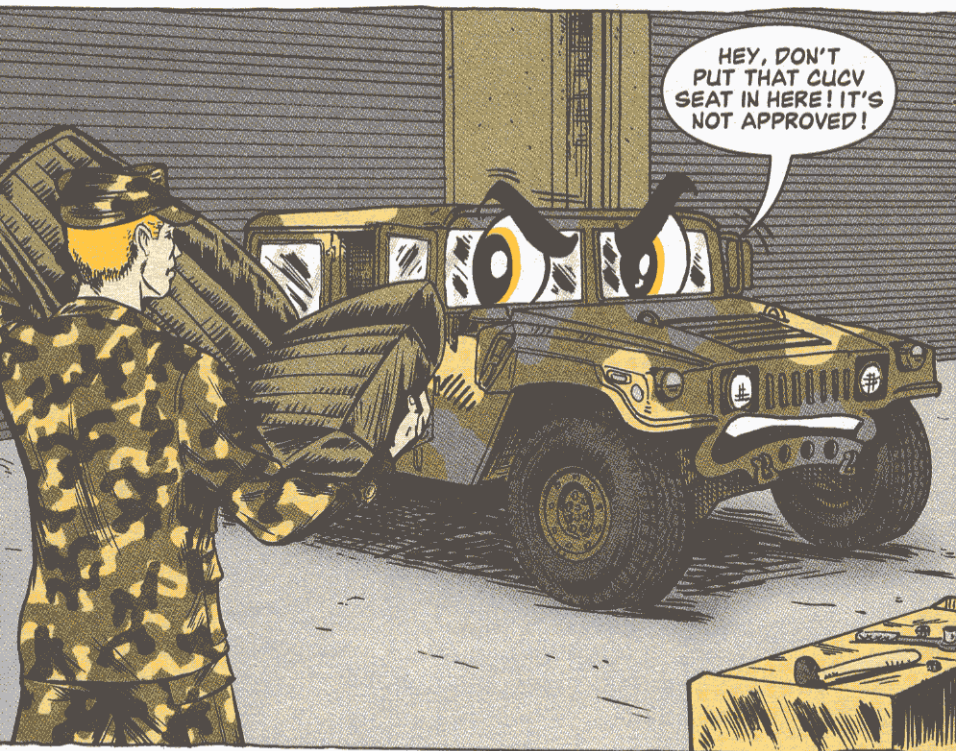
When you get the multimeter, take it to your local calibration office to be checked. How often it must be calibrated depends on the manufacturer.

Every so often, turn the meter to the highest ohms range and check to see that the meter zeroes when no load is applied.

If the meter fails the test, eyeball the battery and test leads. If the meter still must be replaced, turn it in according to your unit's SOP.

HMMWV...

# Get New Seats, but Not CUCV's



**Y**ou can save your keister from a bum ride by installing bucket seats in your old HMMWV—but not the seats from a CUCV. They're not authorized.

NSN 2590-01-393-3796 brings a kit with the same seats as the A1-series HMMWVs.

You get a driver's and a commander's bucket seat with better cushions and more sitting positions than the old seats. The kit also includes mounting instructions and hardware.

You'll need adapter kit, NSN 2540-01-429-9903, to mount the seats in HMMWV ambulances and shelter carriers, however.

As for using CUCV buckets in HMMWVs, forget it. They were never tested or approved for use in HMMWVs.

# Plans for Storage Boxes

If you need new storage boxes or compartments for your M872-series trailer, and you've noticed that the parts TM is no help, listen up:

The boxes are not available through the supply system. They must be fabricated at your DS/GS.

TO GET PLANS FOR THE BOXES AND COMPARTMENTS, CONTACT HALF-MAST...

BY PHONE...

phone: DSN 645-0856,  
(205) 955-0856

FAX...

fax: DSN 645-0961,  
(205) 955-0961

E-MAIL...

e-mail:  
psmag@logsa.army.mil

...OR LETTER!

PS Magazine  
ATTN: AMXLS-APS  
Redstone Arsenal, AL  
35898-7466

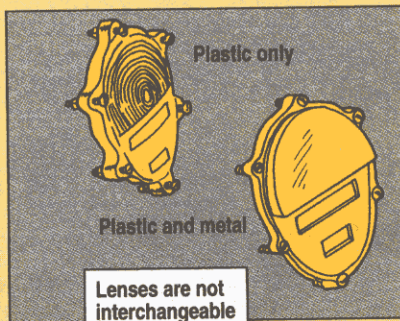
## Wheeled Vehicles ...

# Match Lenses to Bodies

**M**echanics, you can't use a plastic and aluminum taillight lens on a plastic body. Neither can you use an all-plastic lens on a metal body. The parts are not interchangeable.

Use NSN 6220-00-179-4324 to get a plastic and aluminum lens. It carries part number 11639535. Use NSN 6220-01-359-2870 to get an all-plastic lens. It carries part number 12375841.

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If you look out for problems with PM, your FISTV will help you stay on the lookout for danger in the field.

### Power On, Power Off

Use engine power, not battery power, to move the head. Moving the head uses lots of juice fast. If battery voltage gets low enough, the erection arm locks retract and the head takes a nasty fall.

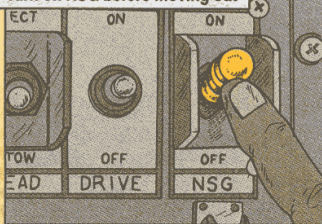
To charge the batteries, run the engine at 1,000 rpm, not at idle. Trying to charge at idle speed won't give the batteries enough juice and causes engine blowby.

Turn the turret power off, though, to hook up or unhook the G/VLLD. If turret power is on, voltage zaps the G/VLLD's laser.

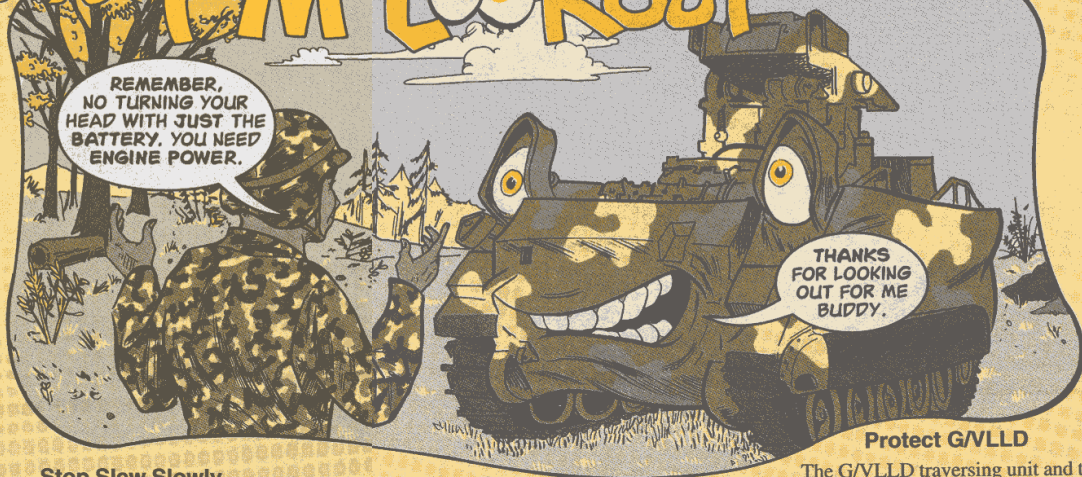
### North Seeking Gyro

Before moving the FISTV even one inch, turn on the NSG. That lets the NSG spin and gives it a cushion for movement. Without that cushion, the NSG beats itself out of alignment. An NSG alignment costs about \$35,000.

Turn on NSG before moving out



# The PM Lookout

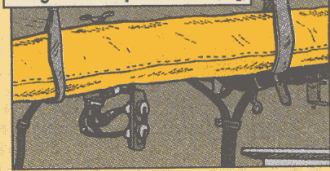


### Protect G/VLLD

The G/VLLD traversing unit and tripod are stored on the floor near the ramp on the curb side. They are sitting ducks for feet and other gear. The usual victim is the TU cable assembly. There are few replacement cables available, so you may not get one, or you may wait for one a long time.

Protect the TU and tripod by slinging them from the ceiling on the road side next to the ramp.

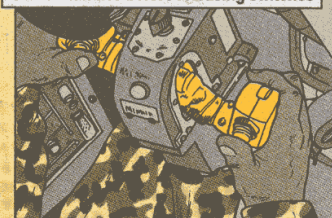
Sling TU and tripod from ceiling



### Stop Slew Slowly

The azimuth drive is history if you let the head slam to a stop at slew speed. That's like putting your car in reverse while it's moving. Never let go of the control handles at slew speed. Bring the handles slowly back to center and then release the SLEW and ACTION switches.

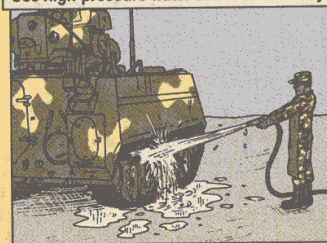
Center handles before releasing switches



### Washing

Keep high-pressure water at track level...and no higher. Spraying higher not only shorts out electrical stuff, but gets in the lower periscope assembly and fogs up the sights. You can't see where you're going.

Use high-pressure water at track level only



## Installing G/VLLD

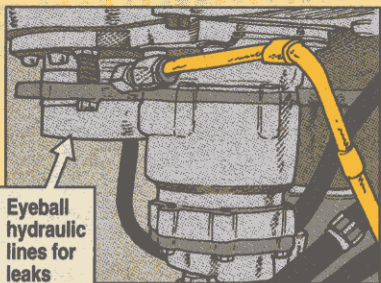
Remember, the head needs to be in STOW position to install or remove the G/VLLD. Otherwise, the G/VLLD eyepiece or tank periscope optical coupler may be damaged. The turret power also needs to be off or G/VLLD components may be shorted out.

Head in STOW and power OFF to install G/VLLD



## Leaks and Oil

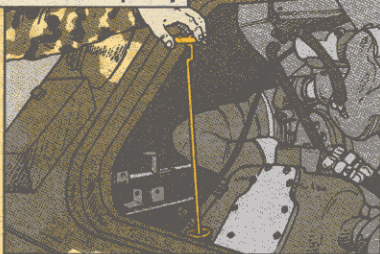
The FISTV vibrates big time during operation. That loosens hydraulic lines and causes leaks. During BEFORE PMCS, eyeball the lines for leaks. Tighten leaking connections. If that doesn't stop a leak, tell your repairman.



The FISTV consumes oil, mostly because crews idle it at a too low rpm for too long and that causes blowby. Check the oil before you go the field and during stops to prevent engine damage.

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Check oil frequently



## Air Filter Removal

Removing the air filter is a two-man job. One person cannot do it alone—without breaking something. While one person unlatches the filter from inside the vehicle, the other supports the filter from the outside. Working together, they can maneuver it safely out of the engine compartment.

Removing air filter is two-person job



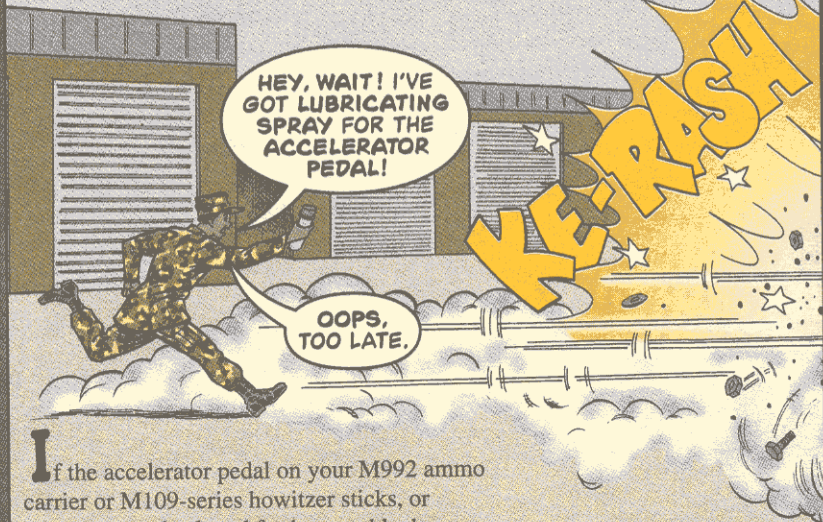
## Parts Are Parts...Not!

Repairmen, the M113 carrier and FISTV parts are interchangeable—except for the voltage regulator. The FISTV needs a 200-amp system, while the M113 uses a 100-amp system. If the wrong regulator's in the FISTV, batteries will die quickly, it will be difficult to raise the head, and the commo won't work well. If you're troubleshooting these problems, make sure that the correct voltage regulator's installed.

12

PS END

# Pedal Return



If the accelerator pedal on your M992 ammo carrier or M109-series howitzer sticks, or doesn't move back and forth smoothly, have your mechanic use lubricating spray, NSN 9150-00-458-0075, on the return spring and the return arm. That should get the pedal moving smoothly again.

Replace a stretched or broken spring with NSN 5360-00-805-3685.

PREVENT FUTURE STICKING PROBLEMS BY LUBING THE RETURN SPRING AND ARM QUARTERLY WITH CLP LIKE IT SAYS IN YOUR VEHICLE'S LO.

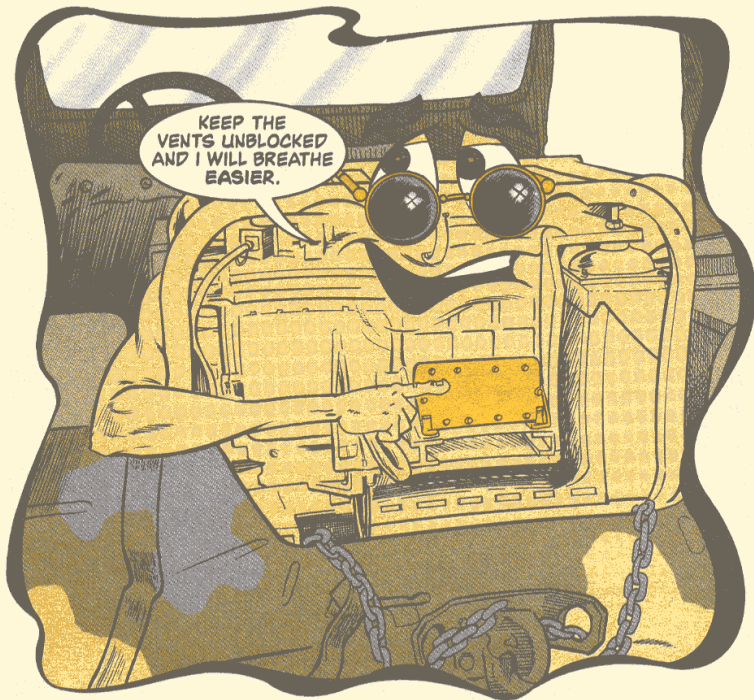


## M109A2/A3, M992 Rectifier

A new, more reliable voltage rectifier, NSN 6130-01-430-4537, is now available for the M109A2/A3 SP howitzer and M992 ammo carrier. The old rectifier, NSN 6130-00-999-9825, doesn't last as long and will soon be dropped from the system. Make a note until the TMs are updated.

# Keep Your PADS Cool, Dude!

**P**osition azimuth determining system (PADS) PM begins with something very basic: fresh air. If your PADS doesn't get plenty, it overheats. That causes the control and display unit to malfunction or it can shut down the whole PADS. Overheating is usually caused by equipment stacked on top and around the

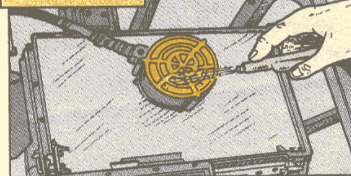


PADS. That blocks vents and the PADS thermostat. Store nothing on or around the PADS.

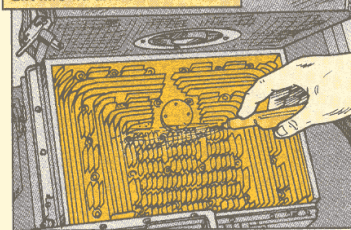
But fresh air won't do the PADS any good if the vents and blowers are clogged with dirt. Use an air hose to clean the inertial measurement unit (IMU) vents, the blowers on the IMU and power supply, and under the computer—especially

after a dusty road march. Lift the lid of the IMU so you can blow out all dirt. If you don't have an air hose, use a brush.

**Blow out blowers**

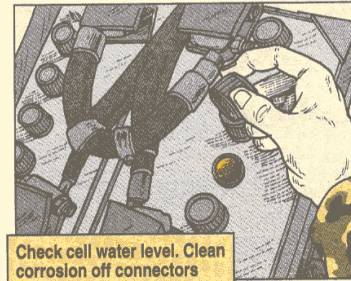


**Lift IMU lid and blow out vents**



## Batteries

The backup batteries for the PADS are often forgotten . . . until it's too late. As part



**Check cell water level. Clean corrosion off connectors**

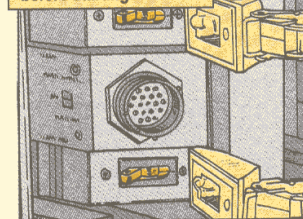
of BEFORE PMCS, check the water level in battery cells and clean any corrosion off battery posts and connectors.

Don't forget the 100-amp fuse in the W-11 interconnection cable. If it's blown, the batteries won't be any use. The procedure for testing the cable and fuse is in Malfunction 12 in Table 4-2 on Page 4-20 of TM 5-6675-308-12. Your repairman can do a quick continuity check to see if the cable, NSN 6150-01-124-8039, or fuse, NSN 5920-01-130-9683, is bad.

## Startup, Shutdown

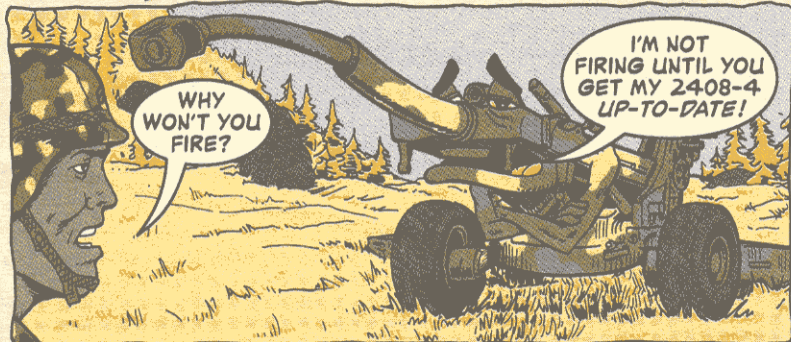
Check that the two PADS circuit breakers are switched off before you start up the HMMWV. If the circuit breakers are on, the surge of voltage will burn out the power supply circuit cards.

**Turn OFF circuit breakers before starting HMMWV**



After shutting down the PADS, wait at least two minutes before moving the vehicle. Otherwise, the gyros in the IMU will be damaged.

# The Lowdown on 2408-4s



When filled out properly, DA Form 2408-4 keeps track of the number and type of rounds fired from your mortars and cannons.

Without that information, your support has to play it safe and figure a much higher round count. That leads to more frequent tube inspections, lost time and increased costs.

Depot must assume the cannon or mortar tube has fired all the rounds allowed. The tube has to be replaced, even though it may have a lot of life left.

Keep your 2408-4s up-to-date. And remember, before you send the form in to Watervliet Arsenal, like it says in Para 5-3 of DA Pam 738-750, carry the old info forward to a new 2408-4. Otherwise, you lose track of rounds fired and your tubes go down the tube.

If you need more info on tube life, contact Watervliet Arsenal at DSN 974-5127, (518) 266-5127, or fax them at DSN 974-5261, (518) 266-5261.

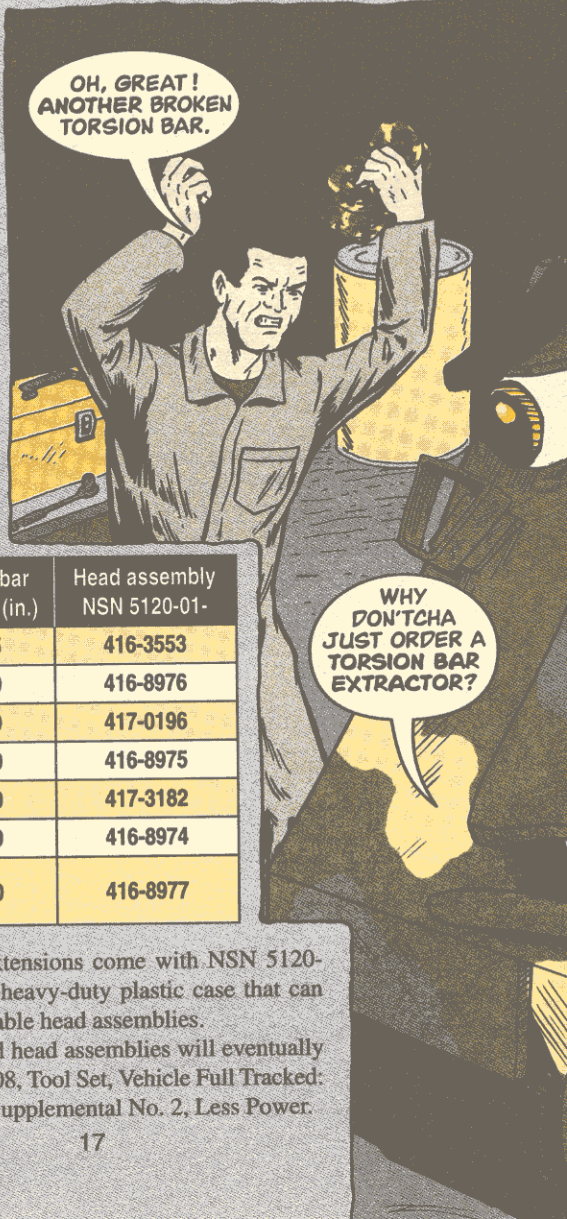
WEAPON RECORD DATA										REGISTRATION NO.		ISSUE NO.			
FOR USE OF THE TUBE, THE DATA SHOULD BE FOLLOWS THE F20 AND F20-1 FOR PROPERTY										1. SECTION		2. ORGANIZATION (UNIT)		3. SPECIAL LIFE DATA	
1. TUBE SERIAL NO.		2. CANNON TYPE, MODEL, OR SERIES				3. CANNON TYPE, MODEL, OR SERIES				4. A Co. USA <sup>1</sup>		5. BORESCOPE TEST/			
XXXX		120 MM M256				120 MM M256				FSDS-T EFC 10		18 DAYS OR 5000 ROUNDS			
6. END USER IDENTIFICATION		7. CANNON SERIAL NO.				8. RETRIEVAL		9. REISSUES		10. FSDS-T		11. EFC 10			
TRNK COMBAT MIA		XXXX				350		350		RE-T-T		1000 ROUNDS AT 1500			
XXXX		XXXX				350		350		RE-T-T		EFC 10			
12. DATE		13. TYPE		14. QUANTITY		15. REMARKS		16. CUMULATIVE EFC 10		17. REMARKS		18. REMARKS			
10 APR 95		HEAT		25		375		1150		REMANAGED 4 DEC 95		XXXX			
11 MAY 95		HEAT		25		375		1125		REMANAGED 18 APR 95		XXXX			
11 MAY 95		SABOT		50		425		1075		REMANAGED 18 APR 95		XXXX			
10 OCT 95										10 OCT 95 Report		XXXX			
										New Pam Initiated		XXXX			
Keep 2408-4 up-to-date															
DA FORM 2408-4															

# PAINLESS TORSION BAR REMOVAL

Removing broken torsion bars is no fun! Even after you pull the vehicle's power pack and drain the fuel tanks, those broken pieces of torsion bar are almost impossible to get out.

Unfortunately, rough terrain and training requirements will continue to take their toll on torsion bars. So, instead of pulling your hair out, pull out those broken pieces easily with a torsion bar extractor.

The head assemblies you need will depend on the vehicle and the size of the torsion bars used. Here's what's available:



Vehicle	Torsion bar diameter (in.)	Head assembly NSN 5120-01-
M113A2	1.405	416-3553
M548	1.610	416-8976
M109-series	1.559	417-0196
M109-series	1.770	416-8975
M110A2	1.820	417-3182
M110A2	1.990	416-8974
M60A3, M88A1, AVLB, M728 CEV	2.350	416-8977

The extractor handle and extensions come with NSN 5120-01-416-3356. That includes a heavy-duty plastic case that can also hold all seven of the available head assemblies.

The torsion bar extractor and head assemblies will eventually be added to SC 4940-95-CL-A08, Tool Set, Vehicle Full Tracked: Organizational Maintenance, Supplemental No. 2, Less Power.

# Keep MRS High 'n' Dry



**M**echanics, if you want the muzzle reference sensor (MRS) on your M1-series tank to keep your main gun on target, you have to keep it dry.

You do that by replacing the desiccant, NSN 1240-01-424-4628, during semiannual maintenance or more often in high humidity areas.

But remember that the MRS contains radioactive tritium. It may have contaminated the desiccant, so you'll have to take special precautions—like wearing gloves, NSN 6515-01-150-2977—to protect yourself from exposure.

Follow these steps:

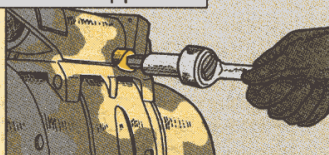
**1.** Take a look at the MRS's window. If you see any standing moisture, there's a good chance the MRS has a leak. Leave the MRS alone and get your support to check it out.

Check window for standing moisture



**2.** If you don't see moisture, remove both pipe screws on the MRS barrel, then remove the preformed packings from the pipe screws.

Remove both pipe screws

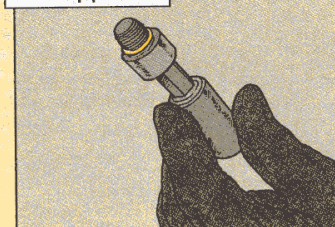


**3.** Push out the old desiccant and dispose of it and the two preformed packings from the pipe screws like this: Turn one plastic bag, NSN 8105-00-935-7147, inside out and insert your gloved hand. Roll the bag off your hand and over the desiccant and packings. Seal the bag and place it into a second plastic bag. Seal the second bag and turn the whole package in to your local radiation protection officer (RPO) for proper disposal.

**4.** Unwrap a new desiccant and check its color. It should be blue. If it's not, replace it.

**5.** Push the desiccant into the barrel hole.  
**6.** Put a new preformed packing, NSN 5330-00-724-7902, on each of the two pipe screws. Torque the pipe screws between 240-360 lb-in.

Put new packing on each pipe screw



When you're finished, make sure you double bag the gloves, cleaning rags and anything else that may have become contaminated. Turn the bags in to your RPO.

Last, but not least, wash your hands carefully with soap and water to eliminate any chance of contamination.

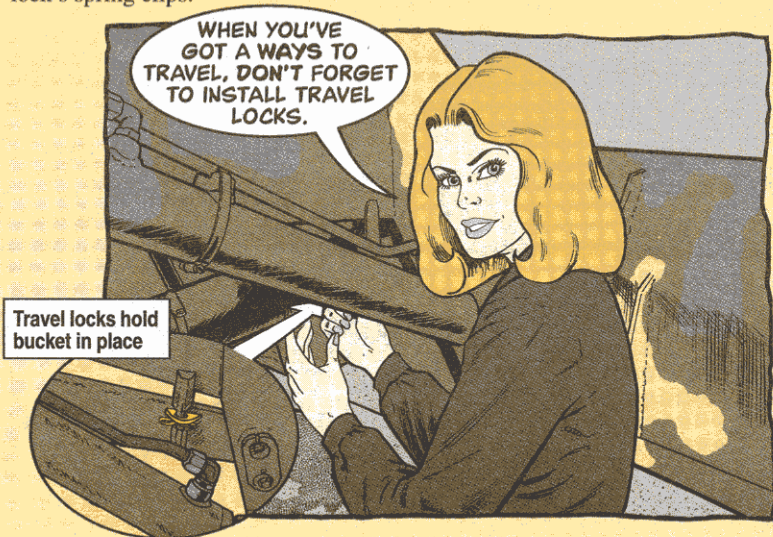
SEE...

# Stop Those Bucket Woes

**B**efore traveling long distances with your small emplacement excavator—or anytime the front loader won't be used for awhile—make sure you install the loader's travel locks.

The travel locks hold the bucket in place, about a foot above ground. That way the bucket's weight isn't riding on the hydraulic cylinders. The bucket also won't hit the ground if the cylinders let it drop.

Pages 2-87 and 2-88 of the -10 TM tell how to install and remove the travel lock's spring clips.



## Travel Low

Run your SEE low and balanced, especially when going over bumps, gullies and slopes.

Never run the SEE with a full bucket carried overhead. It makes the excavator top-heavy and could cause a rollover. Too many SEEs have been seriously damaged from rollovers.

## Bucket Drain Holes

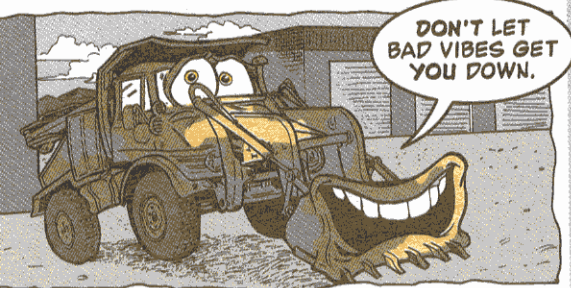
After the day's run, park the SEE with the bucket resting on the ground. That saves hydraulic cylinders. Then, make sure the bucket's drain holes aren't clogged. That way water will drain out.

Water that sits in the bucket causes rust. In cold weather, that water will freeze and split the bucket's welds.



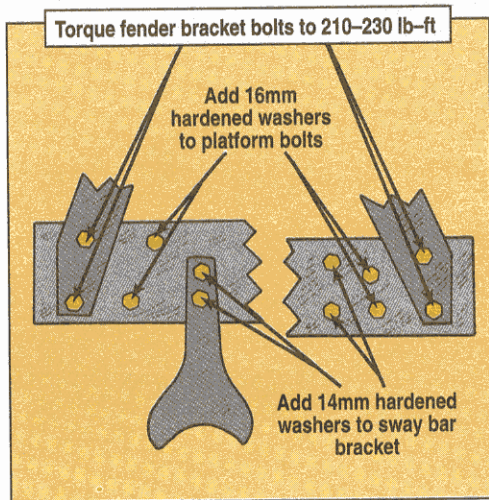
SEE...

## Fender Bolt Jolt



**V**ibration loosens the SEE's rear fender and sway bar bolts. Left alone, those bolts will chew into the vehicle's frame.

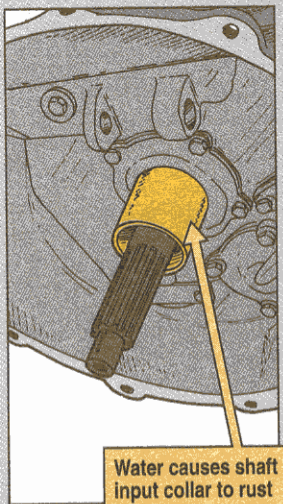
Mechanics, before that happens to another SEE, torque the fender bolts to 210–230 lb-ft and add 16mm hardened washers, NSN 5310-01-305-2539, to the sway bar bracket and torque them to 142–158 lb-ft. Order the 14mm washers on DD Form 1348-6 using CAGE code 64678 and PN 6819900440.



## Ban Birdbath Blues

**O**perators, you can do your small emplacement excavator a big favor by not running it through the birdbath to clean it up.

Any water above the wheel line seeps into the transmission housing. When water sits in the clutch group, it rusts the collar on the input shaft. Eventually, the throwout bearing seizes and the clutch won't actuate. Then you're stuck with a vehicle that won't shift gears.



Next time your SEE needs a bath, spray it with a high-pressure hose instead. It'll save you some headaches in the long run.

# Them Dozer Blues



**Y**ou and your dozer just pushed a load of dirt out of the way and you're heading back for more. But, when you slammed those gears into reverse and moved out, you heard a mournful whine. That's your dozer's transmission singing the blues.

Every time you shift in or out of reverse without reducing engine speed you put unnecessary strain on your dozer's transmission. That's bound to shorten its life.

Here's how to change that tune:

1. While your dozer's still on the move, push down the decelerator pedal. That slows down engine speed without changing the governor control setting.
2. Stop your Cat dead in its tracks.
3. Shift in or out of reverse.
4. Then ease up on the decelerator pedal to speed up the engine and return it to the governor control setting.



**Decelerate to shift into or out of reverse**

D5B Cat Tractors . . .

# Pull Yourself Up - Not!

**U**se the D5 dozer's winch to recover debris like logs, stumps and fallen trees, but **not** for self-recovery. The winch and cable cannot handle the dozer's weight. Using the winch to pull it out of a tight spot will wreck the winch motor's internal gear mechanisms. That info was left out of TM 5-2410-236-10.

Make a note until the TM is revised.



I'M TOUGH ENOUGH FOR BIG JOBS, BUT SELF-RECOVERY IS OUT OF MY LEAGUE.

M9 ACE . . .

## Let the Water Out!

**O**perators, fording can fill the ACE's sponsons with water. Trapped water can freeze, cracking the sponsons, or damaging the apron's hydraulic hoses and connectors.

Protect your sponsons and hydraulics. Have your mechanic remove both left and right hydraulic access plates and then use loctite, NSN 8030-00-981-7005, on the self-locking screws when mounting the access plates back in place. That keeps 'em good and tight—and keeps water out.

If you see any bulges or stress cracks near the access plates, report it right away.



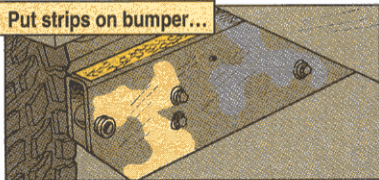
AND HERE'S A TIP FOR YOU ACE OPERATORS.

# The Right Step

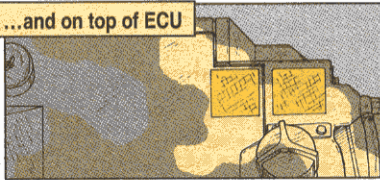
Dear Editor,

*During services and operations, Avenger crews have to constantly climb up and down on the vehicle. Rainy or cold weather can make those climbs slippery, especially if the non-skid strips have worn off. We've had several people take nasty falls.*

Put strips on bumper...



...and on top of ECU



*We made things less slippery by regularly inspecting the non-skid strips (made from bulk material, NSN 7220-00-823-7419) on the bumpers, on top of the environmental control unit and ladder steps. If they're worn or gone, we put on more strips—and we put them anywhere else you need good foot traction.*

**CW2 Jeffrey Swindle**  
3/61 ADA  
Ft Carson, CO

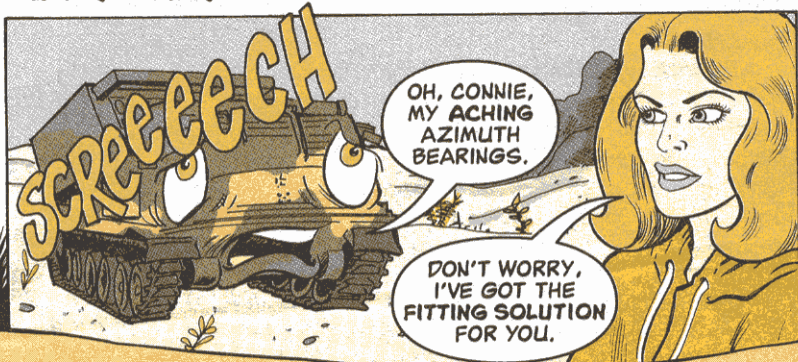
**FROM THE DESK OF THE Editor**

*Now that's a sure step in the right direction. Change 3 added the non-skid stripping to TM 9-1440-433-24P. It's item 65 under bulk materials. Any time you notice non-skid strips have disappeared or worn off, get them replaced ASAP.*

**OO-WWW!**  
**I SURE COULD'VE USED**  
**A NO-SKID STEP.**



# Grease Relief in the Desert



Dear Editor,

Sand can get into what is supposed to be a sealed system, like the azimuth drive geared bearings for the MLRS launcher. In the desert, that can be an expensive problem. Sand can quickly wear out the bearings and there's not much you can do about it.

A good field fix when the azimuth bearings start to grind is to install standard-size grease fittings in place of the 12 azimuth grease plugs.

Raise the launcher and install both jury struts. Replace the plugs with fittings.

Use a grease gun to pump no more than three shots of aircraft grease in each fitting. After you finish the first three fittings, slew the launcher 90° clockwise. Do the next three fittings, slew the launcher another 90° clockwise, and so on until all 12 fittings have been greased.

Slew the launcher 180° each direction to spread the grease. Replace the fittings with plugs. Do this any time the bearings make noise.

Pete Williams  
USA Field Artillery School  
Ft Sill, OK

Install grease fittings in place of plugs



Give each fitting no more than three shots of aviation grease

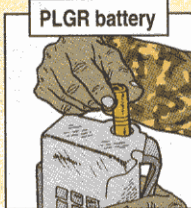


# NEW BATTERY AND FILTER

Dear Half-Mast,

Our Patriot missile unit is having trouble getting NSNs for the memory battery for the Precision Lightweight Global Positioning System Receiver (PLGR) and the filter for the optical disk drive in the engagement control station and the information coordination central. Can you help?

WO1 M.H.



Dear Mr. M.H.,

Yes and no. Order the PLGR battery with NSN 6135-01-301-8776. It's listed along with the other PLGR batteries on Page G-1 in TM 11-5825-291-13. But right now there is no way to order the filter. MICOM hopes to have it in the supply system soon. In the meantime, if the filter becomes clogged, tap it lightly against your palm and then blow it out with low-pressure air.

*Half-Mast*

## Reader Quiz

HERE ARE SOME  
QUESTIONS ABOUT THE  
EQUIPMENT FEATURED  
IN THIS ISSUE.

- WHEELED VEHICLES—How can you tell if your tractor's fifth wheel is in good operational condition? (Pages 2-3)
- COMBAT VEHICLES—What happens when you install a G/VLLD in an M981 FISTV with the power on? (Pages 10-12)
- COMBAT ENGINEERING—Under what conditions should you install your small emplacement excavator's travel lock? (Pages 20-21)
- MISSILES—How can you reduce the hazard of climbing up and down your Avenger's vehicle during rainy or cold weather? (Page 24)
- SMALL ARMS—How do you correct headspace that is too tight or too loose on your M2 machine gun? (Pages 36-40)
- COMMO—How do you clean your night vision goggles? (Pages 42-44)
- AVIATION—Where can you find aviation electronic combat information on the Internet? (Page 51)
- LOGISTICS MANAGEMENT—How do you report an equipment deficiency or make recommendations to improve equipment? (Pages 52-57)

# Unlucky Lindy's Last Flight

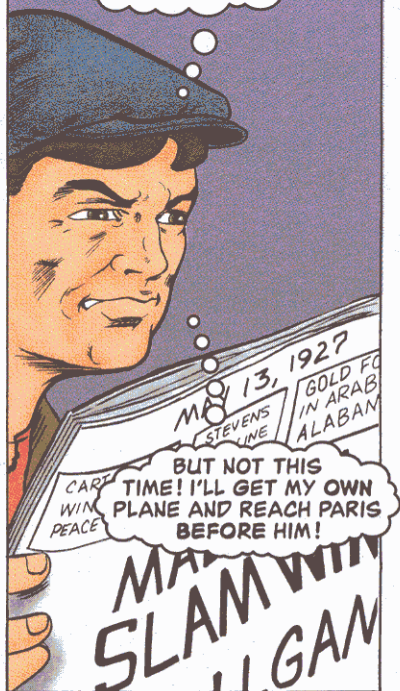
EXTRA! EXTRA!  
READ ALL ABOUT IT!

CHARLES LINDBERGH  
TO MAKE TRANSATLANTIC  
SOLO FLIGHT FROM NEW  
YAWK TO PARIS!

WHAT?

MADSEN  
SLAM WIND  
GAME

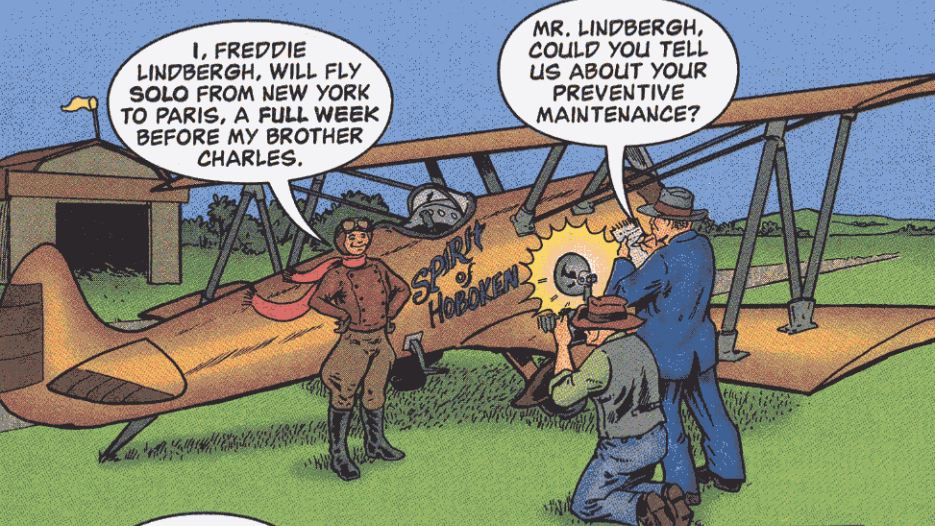
NO MATTER WHAT  
I DO, MY BROTHER ALWAYS  
HAS TO DO IT BIGGER  
AND BETTER.





THEN, FREDDIE LINDBERGH WILL BE A BIG DEAL FOR A CHANGE.

**R-I-I-I-P!**



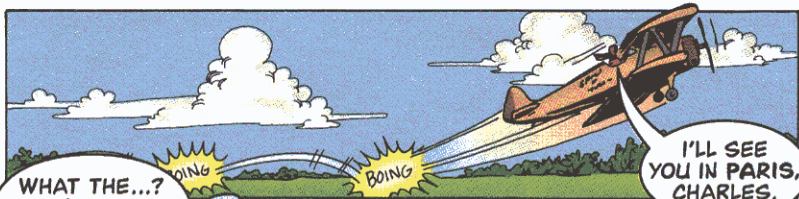
I, FREDDIE LINDBERGH, WILL FLY SOLO FROM NEW YORK TO PARIS, A FULL WEEK BEFORE MY BROTHER CHARLES.

MR. LINDBERGH, COULD YOU TELL US ABOUT YOUR PREVENTIVE MAINTENANCE?



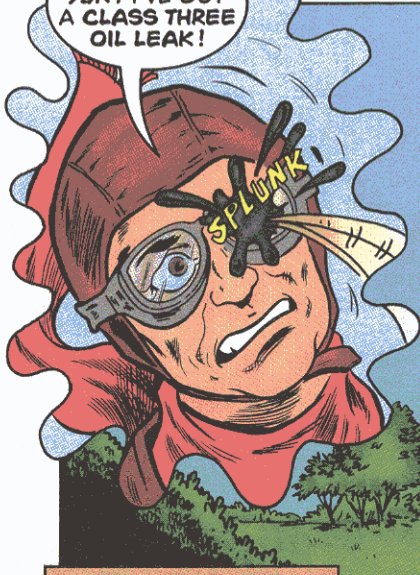
PM? WHO NEEDS IT? THIS PLANE'S IN GREAT SHAPE!





I'LL SEE YOU IN PARIS, CHARLES.

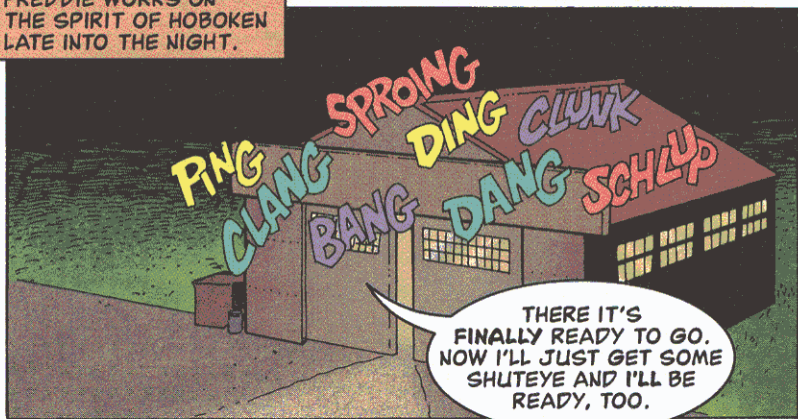
WHAT THE...?  
YUK! I'VE GOT  
A CLASS THREE  
OIL LEAK!



MAYBE I  
SHOULD HAVE  
DONE SOME PM  
AFTER ALL.

BOY, IS  
THIS GONNA  
HURT!

FREDDIE WORKS ON  
THE SPIRIT OF HOBOKEN  
LATE INTO THE NIGHT.



THERE IT'S  
FINALLY READY TO GO.  
NOW I'LL JUST GET SOME  
SHUTEYE AND I'LL BE  
READY, TOO.

*Whether flying or fighting, the result is the same:  
Do all your PM or you're out of the game.  
Do it now, don't wait,  
'Cause soon it's too late,  
And there'll be no one else left to blame.*



**WE HAVE THE WORLD'S BEST EQUIPMENT ...** *Take care of it*

THERE, I'VE MADE ALL THE REPAIRS AND DONE MY PM. NOW I'M READY TO GO.

WHAT ABOUT AN OP-ER-A-SHUN-AL CHECK?

HEY, MISTER?

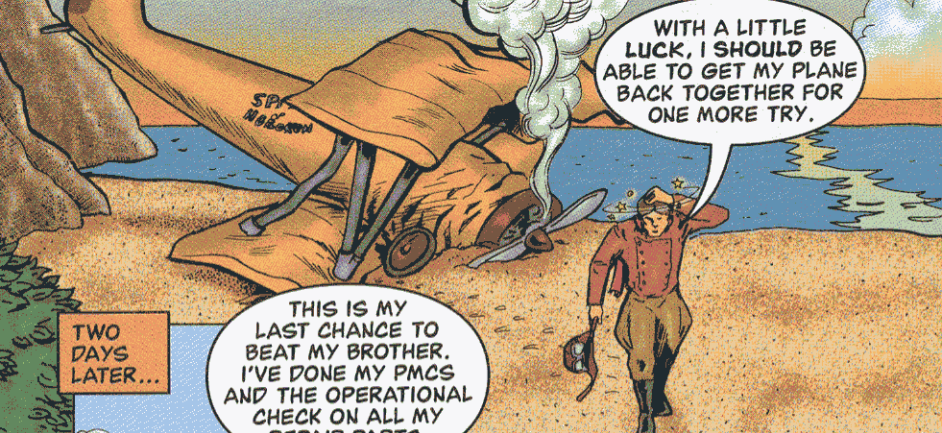
OPERATIONAL CHECK? I'LL JUST DO THAT WHEN I GET IN THE AIR.

EIFFEL TOWER, HERE I COME!

UH-OH.

THIS PLANE IS HANDLING FUNNY.

MAYBE I SHOULD'VE DONE AN OPERATIONAL CHECK.



WITH A LITTLE LUCK, I SHOULD BE ABLE TO GET MY PLANE BACK TOGETHER FOR ONE MORE TRY.

TWO DAYS LATER...



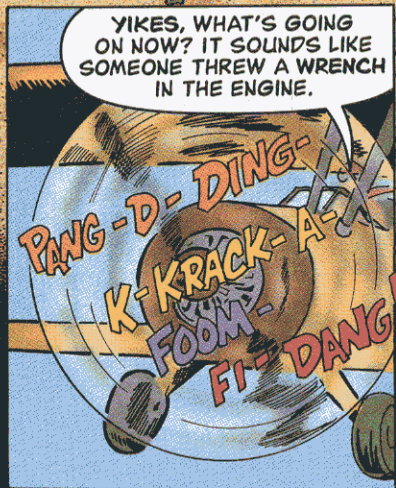
THIS IS MY LAST CHANCE TO BEAT MY BROTHER. I'VE DONE MY PMCS AND THE OPERATIONAL CHECK ON ALL MY REPAIR PARTS.



NOTHING CAN STOP ME NOW.



WRENCH!  
OH-NO, I FORGOT TO INVENTORY MY TOOLS.



YIKES, WHAT'S GOING ON NOW? IT SOUNDS LIKE SOMEONE THREW A WRENCH IN THE ENGINE.

PANG-D-DING-  
K-KRACK-A-  
FOOM-  
FI-DANG!



HEY  
MISTER, NEED  
A RIDE?

DRAT!  
HE BEAT  
ME AGAIN.

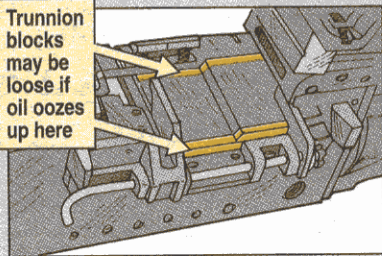
# Loose Trunnions and Hot Barrels

Loose M2 machine gun trunnion blocks and hot barrels make for big problems in the field.

Wobbly trunnion blocks mean the M2 could actually come apart during firing. A hot barrel can lead to a nasty burn. Armorers, cool down those problems like this:

**Trunnion:** Check for loose trunnion blocks by using both hands to squeeze the top of the receiver. If oil oozes up in the trunnion block grooves, the blocks may be loose. Support needs to check it out.

Trunnion blocks may be loose if oil oozes up here



YOW!  
THAT'S HOT!

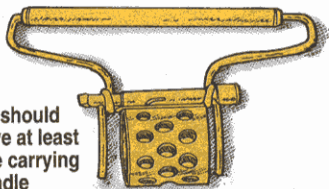
WHAT YOU NEED  
IS A MITT AND A  
BARREL-CARRYING  
HANDLE.

**Hot barrels:** Good armorers know that the best protection against hot barrels is a mitt, NSN 8415-01-092-0039. Make sure you have at least one mitt for every M2. Extras would be a good idea—mitts disappear. The mitt is part of the BII in TM 9-1005-213-10.

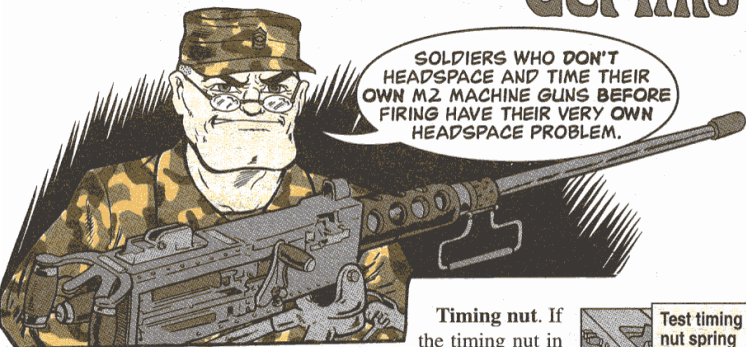
But just the mitt is not enough. The barrel is too heavy and awkward to be handled with one hand. Every M2 also needs a barrel-carrying handle, NSN 1005-00-550-4080.

Using the handle, the gunner can unscrew the barrel with the mitt and remove it with the handle. The handle is part of the AAL in TM 9-1005-213-10.

M2 should have at least one carrying handle



# Get into a Timing Pattern



SOLDIERS WHO DON'T HEADSPACE AND TIME THEIR OWN M2 MACHINE GUNS BEFORE FIRING HAVE THEIR VERY OWN HEADSPACE PROBLEM.

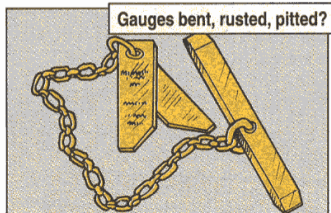
Every year M2s explode because gunners didn't headspace and time their weapon.

Use your head for more than a hat rack—headspace and time your gun before you fire.

## First Things First

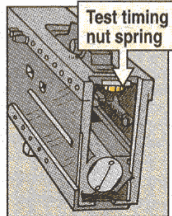
Your M2 won't hold headspace if it's in bad shape. Before you go to the field, make these checks:

**Gauges.** If the headspace and timing gauges are bent, rusted or pitted, you won't be able to headspace and time accurately. Get new gauges from your armorer.



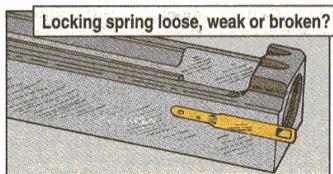
Gauges bent, rusted, pitted?

**Timing nut.** If the timing nut in the receiver can be moved with one finger or it doesn't click as you do the timing, its spring is weak and it won't hold timing. Tell your armorer.



Test timing nut spring

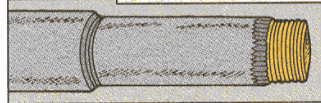
**Barrel locking spring.** If the spring is weak, worn, loose or broken, the barrel can turn during firing and headspace is lost. Test the spring by getting the correct headspace first, then try to unscrew the barrel. If the barrel turns, the spring is weak, worn or loose. Your armorer can stake a loose spring, or get the other problems repaired for you.



Locking spring loose, weak or broken?

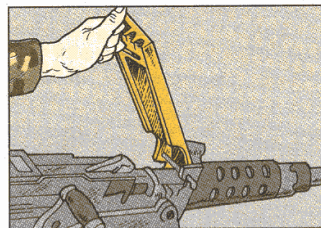
**Barrel and barrel extension threads.** If the threads are chipped and burred, screwing in the barrel will be a pain—and you may think you have the barrel screwed in when you don't. Result: incorrect headspace. Your armorer may be able to stone chips and burrs smooth.

Burred or chipped threads?

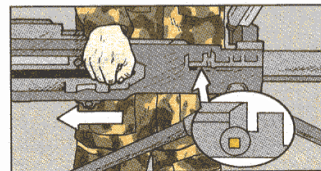


## Headspacing

1. Raise the cover completely.

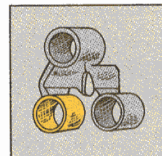


2. Pull the charging handle back until the bolt is far enough back that the barrel-locking spring lug is aligned with the 3/8-in hole on the right side of the receiver.

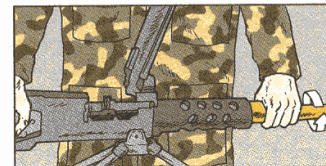


PS 533

Inserting the small loop of an M2 ammo link between the trunnion block and barrel extension is the easiest way to keep the bolt back.



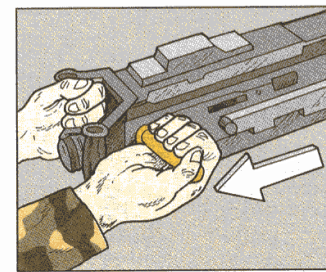
3. Screw the barrel all the way into the barrel extension.



4. Unscrew the barrel two clicks, remove the link and let the bolt go forward.

To see if the barrel is locked with the bolt in the forward position, try to turn the barrel in either direction. If it turns, **don't fire**. Tell your armorer.

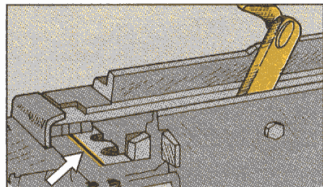
5. Pull the charging handle back to cock the weapon.



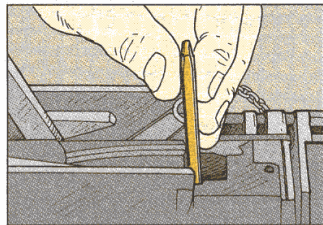
37

6. Ease the bolt forward, but do not fire the weapon.

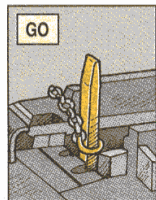
7. Pull the charging handle back until the barrel extension and trunnion block are no more than 1/16 inch apart.



8. Keeping the charging handle back to maintain the 1/16-in separation, raise the extractor and try to insert the GO/NO GO gauge in the T-slot between the face of the bolt and the rear of the barrel, all the way up to the ring.



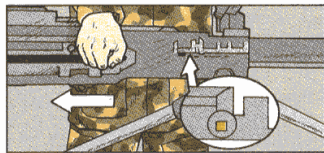
If the GO end goes down the T-slot to the center ring of the gauge and the NO GO end will not go in, headspace is OK.



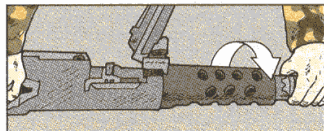
## Headspace Too Tight

If the GO end won't enter the T-slot, the headspace is too tight. Do this:

1. Pull back the charging handle until the barrel-locking spring lug is centered in the receiver 3/8-in hole.

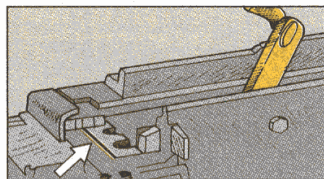


2. Unscrew the barrel one click.

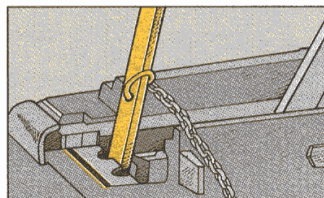


3. Ease the bolt forward.

4. Pull back on the charging handle until the barrel extension and trunnion block are about 1/16 inch apart.



5. Insert the GO/NO GO gauge again.

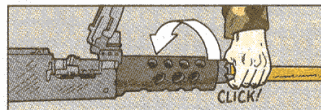


If the GO end fits and the NO GO, end doesn't, the headspace is OK. If the GO end still won't fit, repeat these five steps until it does.

Do not unscrew the barrel more than five clicks beyond the first two clicks in steps 1-5. If you have to go more than seven total clicks, tell your armorer.

## Headspace Too Loose

If the NO GO end of the gauge fits into the T-slot, the headspace is too loose. Fix loose headspace by doing the same five steps used for too-tight headspace, except one thing. Instead of unscrewing the barrel one click, **screw it in** one click.



Repeat the five steps until the GO end fits, but the NO GO end doesn't fit.

## Timing

After you have the weapon headspaced, time it.

1. Pull the charging handle all the way back and cock the weapon. Then ease the bolt forward.

2. Pull the bolt back far enough to insert the NO FIRE gauge between the barrel extension and trunnion block. Insert the beveled edge of the timing gauge against the barrel notches. Slowly release the charging handle.



3. Press the trigger. If the gun doesn't fire, go to the next step. If it does fire, you have early timing.



4. Pull the bolt back just far enough to take out the NO FIRE gauge and put in the FIRE gauge with the beveled edge against the barrel notches. Slowly release the charging handle.



TO CORRECT EARLY OR LATE TIMING, TURN THE PAGE.



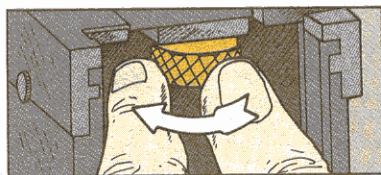


5. Press the trigger. If the M2 fires, timing is OK. If it doesn't fire, you have late timing.

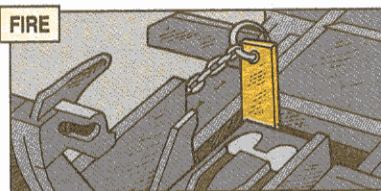
### Early/Late Timing

Never cock your M2 with the back plate off. You might "shoot" yourself with the driving spring rod. The bolt must be forward before you take off the back plate.

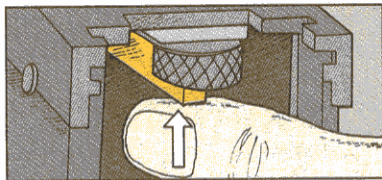
1. Take the gauge out of the weapon. Cock the M2, then ease the bolt forward.
2. Take off the back plate.
3. Turn the timing nut all the way down to the left.



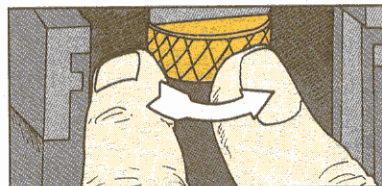
4. Pull the bolt back only far enough to insert the FIRE gauge, and slowly release the charging handle.



5. Push up on the trigger bar. The gun shouldn't fire.



6. Turn the timing adjustment nut one click to the right. Push up on the trigger bar. Continue to alternate turning the timing adjustment nut one click right, and pushing up on the trigger bar until the M2 fires.



7. After the gun fires, turn the nut to the right two more clicks and stop.
8. Take out the gauge and put on the back plate. Cock the gun, then ease the bolt forward.
9. Recheck the timing two more times with the back plate on. If the timing still isn't right, do the early/late timing one more time.

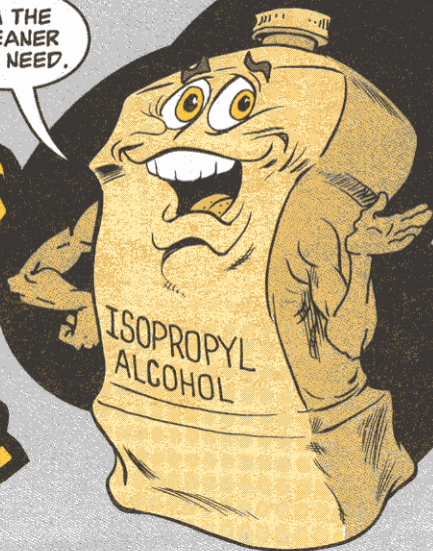
PS END



IF THAT STILL DOESN'T  
CORRECT THE TIMING, SOMETHING  
IS WRONG WITH THE WEAPON.  
TELL YOUR ARMORER.

# Wrong Cleaners Spell Trouble

I'M THE CLEANER YOU NEED.



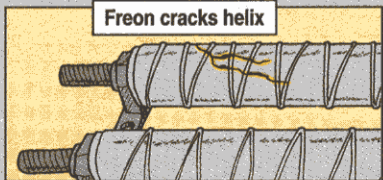
**F**orget cleaner, lubricant, preservative (CLP) and solvents containing freon when cleaning the helix on your TACFIRE system's electronic line printer (ELP).

CLP's a good cleaner, but it needs to dry overnight before you run your ELP. During a mission you probably can't wait that long.

And, if you run your ELP while the CLP's still wet, carbon dust from the printing paper mixes with the CLP on the helix. Pretty soon you've gummed up the printer.

If you still have any solvents containing freon, keep them clear of the ELP, too. Since the helix rotates at high speed, it gets very hot. When cold freon aerosol hits the hot helix, the helix cracks.

Freon cracks helix



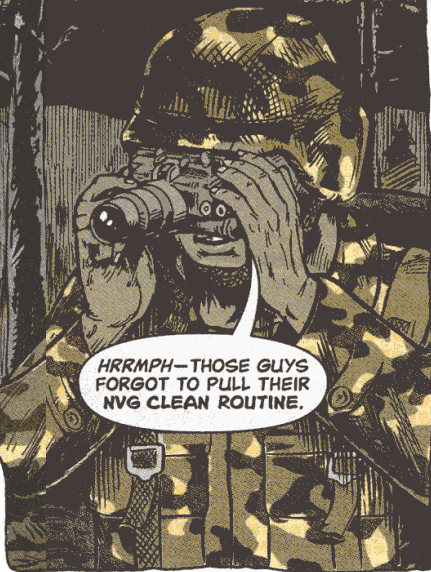
Only use alcohol to clean



There's only one cleaner for the helix: isopropyl alcohol, NSN 6810-00-753-4993. It's less likely than freon to crack the helix. To play it safe, apply the alcohol after the helix has cooled.

# NVG Clean Routine

Ahhh, spring is in the air. Flowers are blooming. Trees are budding. And a young soldier's fancy turns to thoughts of...well, ah...spring cleaning!

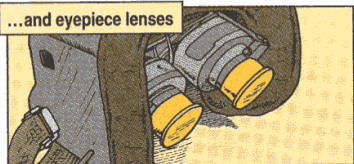
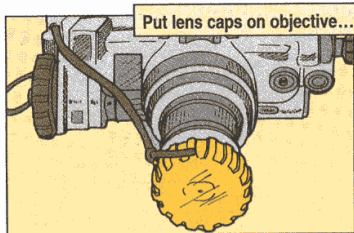


And spring cleaning's not complete without giving your night vision goggles (NVG) the clean routine. That goes especially for the objective and eyepiece lenses, demist shields, sacrificial window and light interference filter. They attract dirt, dust, oil and fingerprints that can dim your vision.

## A Few Basics

Choose your cleaning tools carefully. Never use a rag, shirt, handkerchief, tissues or toilet paper. They just grind grit into surfaces and scratch them. Do use a lens dusting brush, NSN 7920-00-205-0565, and lens paper, NSN 6640-00-240-5851, for safe cleaning.

Shield goggles from dirt. When you're not using them, put lens caps over the objective and eyepiece lenses.



Stow the goggles in the carrying case. Just make sure they're dry before you put them in; moisture in the case causes mildew.



Store the de-mist shields, sacrificial window and light interference filter in the case as well.

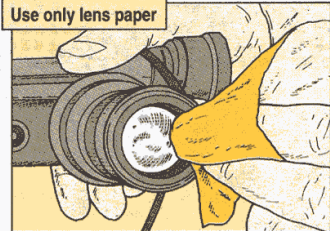
Handle the shields, window and filter by the edges to avoid getting fingerprints and oil on them.

When you operate the goggles in dusty or sandy terrain, use the sacrificial window over the objective lens. It helps protect the lens from windblown sand and dust.

## The Fine Art of Cleaning

It takes a certain knack to clean lenses, windows and filters without scratching the surfaces. Start by sweeping away loose dirt and dust with the lens brush.

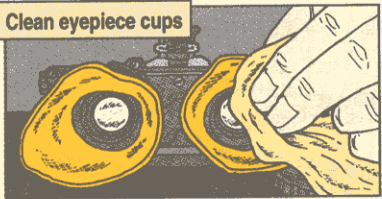
Then dampen a lens paper with clean water. Slowly and lightly, wipe the paper over the surface once. Turn to a clean area of the paper and wipe again. Keep on wiping this way until the surface is clean. Dry the surface with a clean lens paper.



Clean the de-mist shield the same way—with one important difference: Make sure both the shield and lens paper are dry. If either one is wet, you'll damage the shield's coating when you clean.

If your goggles have rubber eyepiece cups, wipe those clean also. The cups collect dirt and grit that can wind up on the lenses. And clean the objective and eyepiece lens caps. There's no sense putting dirty lens caps on your goggles.

#### Clean eyepiece cups



#### Case Closed

Finally, you need to clean the goggles' carrying case.

#### Here's how to clean a cloth case:

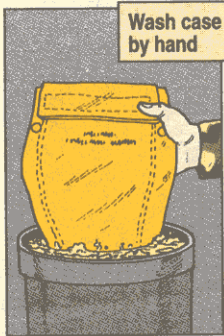
Take the accessories out of the case. Shake out dirt and sand. Wash the case

by hand in a bucket of warm water and mild detergent, NSN 7930-00-929-1221. Rinse it in clean, warm water. Hang the case up inside or outside in the shade so it can drip-dry. Never machine dry, and keep it away from heat or open flame.

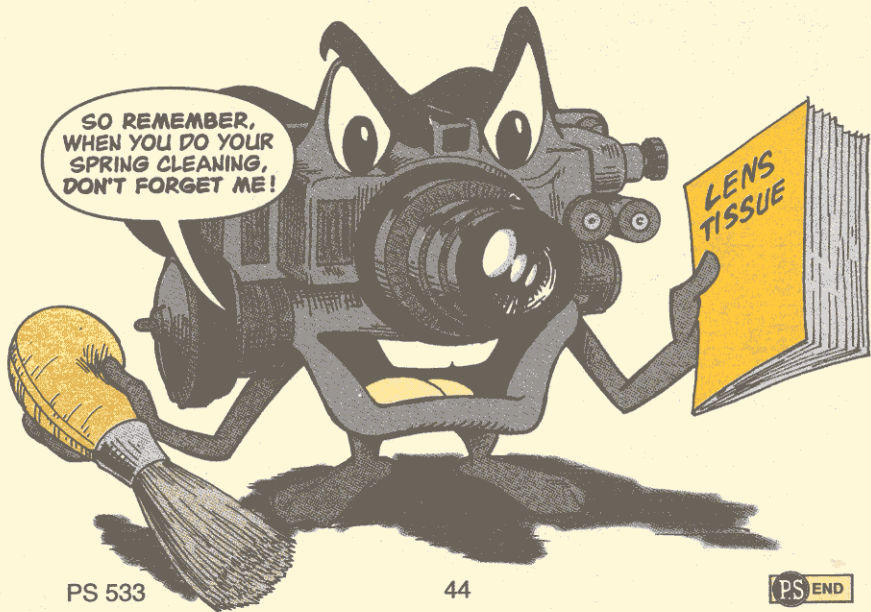
#### Here's how to clean a plastic case:

Take the accessories out of the case. Shake out dirt and sand. Wipe the inside and outside with a clean cloth. For hard-to-remove dirt and grease, wipe the case with a cloth dampened in clean water. Let the case air dry to protect the goggles from moisture.

#### Wash case by hand



SO REMEMBER,  
WHEN YOU DO YOUR  
SPRING CLEANING,  
DON'T FORGET ME!



# Stop Starting Problems



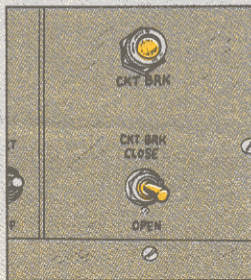
THAT'S IT FOR TODAY. TIME TO SHUT YOU DOWN.

YOU'D BETTER DO IT RIGHT IF YOU WANT ME TO WORK AGAIN TOMMORROW.

If you want your 15-KW and larger DED generators to work tomorrow, shut them down right today.

Here's how:

1. Push the throttle control all the way in.
2. Push and hold the CRT BRK switch to OPEN until the CRT BRK light goes out. Release the switch.



3. Let the generator run for five minutes to cool down. Otherwise, the engine oil will boil. That results in clogged oil passages and reduced lubrication.
4. Flip the START/RUN/STOP switch to STOP.

5. Pull out DC CONTROL CIRCUIT BREAKER button



If you forget, the generator's batteries will drain completely within 24 hours.

6. Close all doors on the generator. That keeps out dust and dirt that can cause problems the next time you start the generator.

# Extend the Tow Bar

Dear Windy,

When we tow a Black Hawk with a HMMVV, the tail rotor and stabilator can bump the vehicle and get damaged. Is there a way to extend the tow bar and prevent damage?

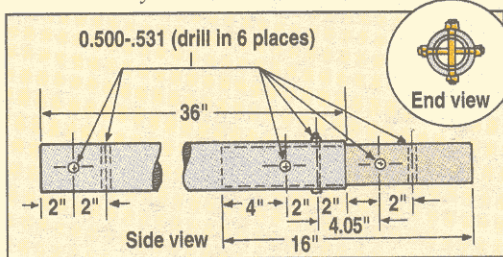
SFC M. E. M.

Dear Sergeant M. E. M.,

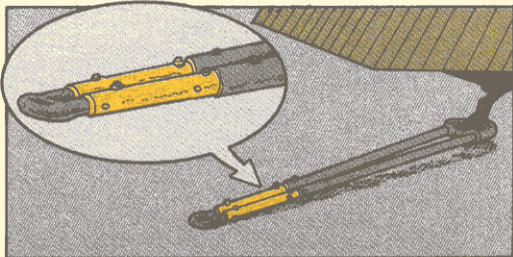
Yes. To make extensions for tow bar legs, you need:

Item	Qty	NSN
Nuts	4	5310-00-062-4954
Washers	4	5310-00-167-0823
Bolts	4	5306-00-208-3649
2 1/2-in OD tubing	2 pieces 16-in long	4710-00-278-0478 (order by foot)
3-in OD tubing	2 pieces 36-in long	4710-00-278-0492 (order by foot)

Here's how you make them:



Here's how you attach them:



Disconnect the tow bar's legs from the lunette eye. Install the extensions. Connect the lunette to the extended legs.

Windy

IT'S A  
GOOD WAY  
TO EXTEND  
THE LIFE OF  
YOUR TAIL  
ROTOR.

# NO SQUEEZING OUT A BIT MORE

Dear Windy,

The engine nose gearbox breather on our Apaches leaks around the packing in cold weather. We would like to torque it a little tighter than the 175 lb-in called for in the TM. Can we?

SGT G. A. A.

CHECK TO SEE IF I'M UNDERTORQUED, BUT DON'T OVERTORQUE ME!!

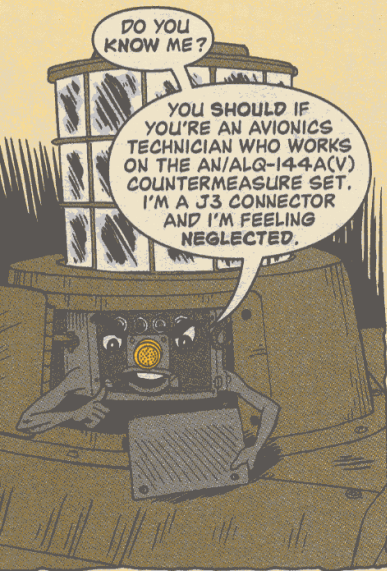
Dear Sergeant G. A. A.,

Leaks around the engine nose gearbox packing in cold weather were a problem when Apaches first hit the flight lines, because the TM called for a torque of only 85 lb-in. Since the torque was changed to 175 lb-in and the TM updated, the problem should be solved.

So, check to see if any "old-schoolers" are under-torquing. If they aren't, make sure your packing is in good shape. Replace it if necessary. But, don't torque above 175 lb-in or you could damage the magnesium gearbox housing.

Windy

# Exposing the J3 Connection



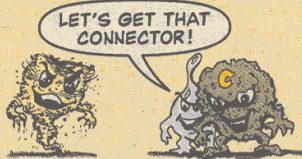
"I'll bet you know my brothers, J1 and J2, real well. They stick out like sore thumbs. They connect to aircraft cables and carry power and operator control to the transmitter. Nope, you can't miss them.



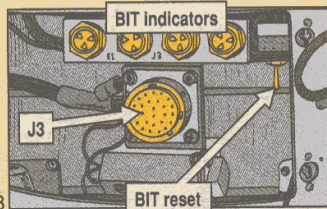
"Me, you can miss. And you often do. I'm hidden behind the BIT indicator panel access cover on the other side of the electrical equipment housing from the J1 and J2.

"I connect the countermeasure set to the multifunction test meter during bench testing. That's AVIM work, so you AVUM guys often ignore me. That's OK except when it comes to PM. Ignore me then and I'm headed for trouble. So always make sure you follow the PMCS in the TM.

"I can get dirty. I can get corroded. You see, there's a lot happening around me, so I get hurt by association.



"Sometimes you open the panel access cover to check the scheduled maintenance label on the back. Sometimes you work right above me with the four built-in test (BIT) indicators. Sometimes you work beside me when you throw the BIT reset switch.



"Worst of all, you must have all been born in barns. That's right. None of you know how to close a door tight. Or, in this case, two doors—the indicator panel access cover and the circuit card access cover.



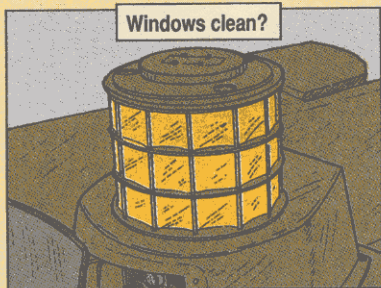
"Securing them is easy. Just tighten them down. No fuss, no muss. But I guess you get in a hurry 'cause too many doors are left loose.



"Use a soft-bristle brush for the loose dirt. A lint-free cloth, NSN 8305-00-267-3015, and isopropyl alcohol, NSN 6810-00-286-5435, will take care of the harder stuff.



“A good time to check on me is when you’re cleaning the transmitter’s covert windows.



“The windows get grimy real easy. Use that lint-free cloth and alcohol on them, too. Don’t use off-the-shelf window cleaners. The chemicals in them will damage the delicate windows. If alcohol won’t do the job, then you’re not cleaning the windows often enough.

“While you’re cleaning the windows, the transmitter housing needs a swipe or two with a lint-free cloth and alcohol, too.

WHILE YOU'RE UP ON TOP OF THE AIRCRAFT CLEANING ME, HERE ARE SOME THINGS TO CHECK...

“**Covert windows**—look for chips, cracks, or scratches.

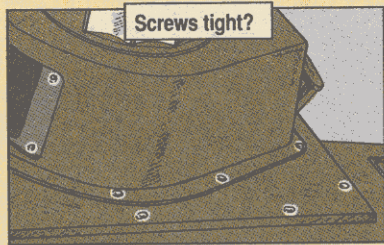
“**Connectors**—look for bent or broken pins and loose or missing hardware.

“**Ground straps**—all four should be in place and secure. Make sure the bolt that holds the ground strap in place is safety-wired.

“**Transmitter housing**—look for exposed metal surfaces, cleanliness and rust.



“Finally, check the tightness of all screws, bolts, clamps, and other structural fasteners.”



General Aviation . . .

# CAUGHT IN THE NET

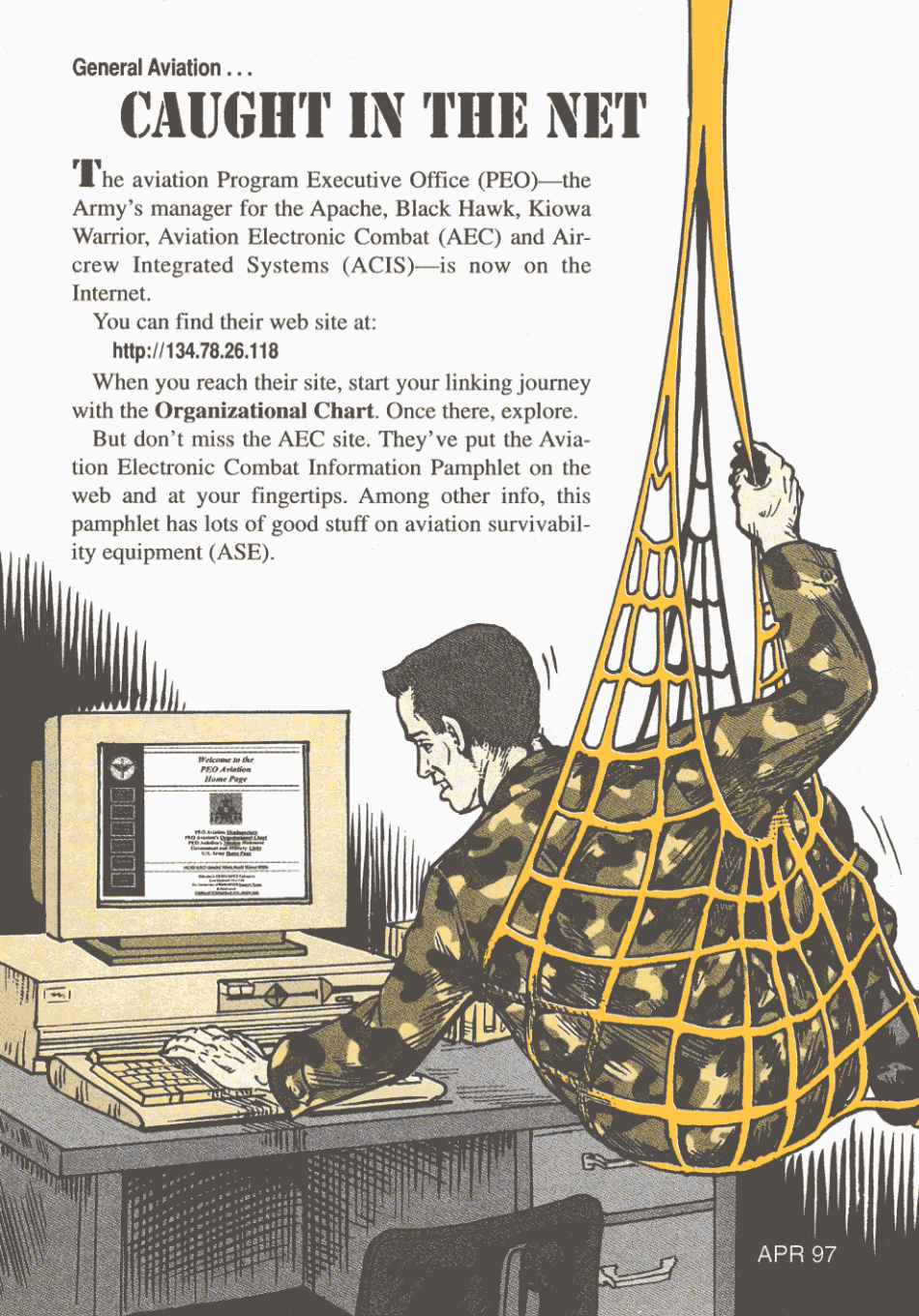
**T**he aviation Program Executive Office (PEO)—the Army's manager for the Apache, Black Hawk, Kiowa Warrior, Aviation Electronic Combat (AEC) and Aircrew Integrated Systems (ACIS)—is now on the Internet.

You can find their web site at:

<http://134.78.26.118>

When you reach their site, start your linking journey with the **Organizational Chart**. Once there, explore.

But don't miss the AEC site. They've put the Aviation Electronic Combat Information Pamphlet on the web and at your fingertips. Among other info, this pamphlet has lots of good stuff on aviation survivability equipment (ASE).



# PQDR Gets Action PDQ!

When a defective item gets into the supply system, it's hard to get it replaced or fixed. It's next to impossible unless **YOU**—the person who actually works with the equipment—get the ball rolling by sending in an SF 368, Product Quality Deficiency Report.

I'M BAD!  
WHAT ARE YOU  
GOING TO DO  
ABOUT IT?






This form has a **LOUD** voice that gets the attention of equipment managers, contractors and manufacturers.

Who fills out an SF 368? You, me, anybody who finds an equipment deficiency or has a better idea for working with or on equipment. Order blank SF 368s using NSN 7540-00-133-5541.



SF 368s fall into two categories: **Category I** covers defects that cause, or ideas that prevent:

-  death, injury or job-related illnesses.
-  loss or major damage to a weapon system.
-  problems affecting a unit's combat readiness.

**Category I** defects are so critical that you report them by message or telephone within 24 hours of finding the defect. Make sure you have all the

information before you call. Then send a follow-up message.

**Category II** covers all other equipment and quality deficiencies. Send those on an SF 368 within three workdays of finding the problem or the solution. Make sure you also send in your ideas and recommendations as suggestions. AR 672-20 tells you when and how to send in suggestions that may make you money!

Your reports go to technicians, engineers, and maintenance and quality specialists. They are **not** English teachers. They won't check your spelling, count your commas or mark your grammar. Just give them the facts—your way—in the right blocks.

Send in an SF 368 or message each time you find a problem—even if you or someone you know has already reported it. Make sure to check all your stocks of the item you're reporting, too, so the SF 368 shows the total number of bad items you have.

You need four copies of the SF 368:

1. Send the original to the proper command.
2. Keep a copy.
3. Send a copy to your support maintenance outfit.
4. Give a copy to your unit to file—but for no more than a year.

## SF 368 Exhibits

Exhibits showing the problem or defect help identify what happened and how to keep it from happening again.

Tag your exhibits with DD Form 1575, Suspended Tag Materiel, and DD Form 2332, Product Quality Deficiency Report Exhibit. Attach a copy of the message or SF 368 reporting the problem.



Hold onto exhibits for 60 days or until you get word to dispose of them.

Make sure you keep your exhibit separated from good items so it isn't accidentally issued for use.

Pack up your exhibit to protect it from more damage. But do not take it apart to see what the problem is. Leave that to the investigators.

You may get word to ship your exhibit to help the investigation. Those exhibits must go to a government representative or agency, not directly to a contractor.

## How to Fill Out an SF 368

Figures 11-1 and 11-2 of DA Pam 738-750 give step-by-step instructions on how to fill out the SF 368. If you need more help with the form—or any of its entries—call your AMC Logistic Assistance Office (LAO). See DA Pam 738-751 for help in filling out an SF 368 on aircraft items.

You can attach sketches and pictures if they'll help explain the condition or equipment improvement.

### Where Do You Send SF 368s?

The SF 368 goes directly to the screening point—not through channels. But who is the screening point? The major command within AMC that manages the item.

You can track down that address two ways: the Materiel Category Structure (MATCAT) code or the Federal Supply Class (FSC).

The MATCAT is a 5-position code on the Army Master Data File (AMDF). The first-place code of the MATCAT tells you the manager. Your supply person has the AMDF.

The FSC is the first four numbers of an NSN. This class also tells you which major command manages your item.

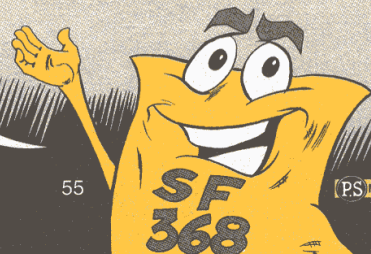
ONCE YOU KNOW THE MATCAT CODE OR THE FSC FOR THE ITEM YOU'RE REPORTING, USE THE FOLLOWING TABLES TO TRACK DOWN THE SCREENING POINT ADDRESS.



MAT CAT position 1	Federal Supply Classes	Send Reports to:	Call in Category I Reports (life, limb or combat ability endangered) or send message/fax to:
B, E, F, H, J, R, S, T	1070-1080, 1510-1740, 1860-2305, 2620, 2810-2840, 2915, 2925, 2935, 2945, 2995, 3110-3230, 3455-3770, 3820*, 3830-3845, 3915, 3940, 3960, 3990**, 4010-5210, 5305-5430, 6115, 6116, 6210-6330, 6605-6610, 6115, 6620, 6630-6640, 6670-6675, 6810-6850, 6930, 7105-7720, 8145, 8305-8475, 9110-9160, 9310-9999 * Well drilling equipment only. ** Cargo net only.	Commander U.S. Army Aviation and Troop Command (ATCOM) ATTN: AMSAT-I-MDO 4300 Goodfellow Boulevard St. Louis, MO 63120-1798 DODAAC: W81D18 (Troop) W58XJZ (Air)	Call: DSN 490-2325 Commercial (314) 260-2325 Datafax: DSN 693-1761 Electronic Mail Box: khudson@dmh1.stl.army.mil Send Message: CDRATCOM ST LOUIS MO/AMSA-T-I-MDO// Info to: CDR AMC ALEX VA//AMCRDA-A//
For Category I messages and SF 368s on aviation items, see DA Pam 738-751			
M	1005-1055, 1090-1270, 1285-1330, 1336*, 1340**, 1345-1398, 2320 and 2350**, 3405-3450, 3611, 3620, 3645, 3650, 3660-3685, 3690, 3693-3695, 4921-4925, 4931-4933, 4940, 5220-5280, 6650, 6665, 6920, 8140 *To determine correct address for particular NSNs under FSC 1336, check the AMDF for position 1 of the MAT CAT. **Except free rockets. ***SP artillery and antiaircraft guns only.	Commander U.S. Army Armament Research Development & Engineering Center (ARDEC) ATTN: AMSTA-AR-QAW-A(R) Rock Island, IL 61299-6000 DODAAC: W4MK15	Call: DSN 793-6764 Commercial (309) 782-6764 Datafax: DSN 793-6653 Electronic Mail Box: QAWQDRS@RIA-EMH2.ARMY.MIL Send Message: CDRARDEC ROCK ISLAND IL//AMSTA-AR-QAW-A(R)// Info to: CDR AMC ALEX VA//AMCRDA-A//

MAT CAT position 1	Federal Supply Classes	Send Reports to:	Call in Category I Reports (life, limb or combat ability endangered) or send message/fax to:
L	1280, 1336*, 1340**, 1337, 1338, 1410-1450, 1810-1850, 2845, 4960, 6920, 4935, 8140, 9135 *To determine correct address for particular NSNs under FSC 1336, check the AMDF for position 1 of the MAT CAT. **Free rockets only.	Commander U.S. Army Missile Command (MICOM) ATTN: AMSMI-MMC-RE-C Redstone Arsenal, AL 35898-5290 DODAAC: W81D17	Call: DSN 746-3279 Commercial (205) 876-3279 Datafax: DSN 746-8973 Electronic Mail Box: cfo@redstone.army.mil Send Message: CDRMICOM REDSTONE ARSENAL AL//AMSMI-MMC-RE-C// Info to: CDR AMC ALEX VA//AMCRDA-A//
D	1300-1399	Commander U.S. Army Industrial Operations Command (IOC) ATTN: AMSIO-QAO Rock Island, IL 61299-6000 DODAAC: W4MAA	Call: DSN 793-3761 Commercial (309) 782-3761 Datafax: 793-3056 Electronic Mail Box: DBROWN1@RIA-EMH2.ARMY.MIL Send Message: CDRIOQ ROCK ISLAND IL//AMSIQ-QAO// Info to: CDR AMC ALEX VA//AMCRDA-A//
G, P, Q, U	2596, 2598, 2691, 5450, 5805, 5810, 5811, 5815-6080, 6105, 6110, 6125-6145, 6605, 6615, 6625, 6680, 6660, 6695-6780, 6920, 6940-7050, 7450, 7550, 8130	Commander U.S. Army Communications Electronics Command (CECOM) ATTN: AMSEL-LC-LEO-D-CS CFO Fort Monmouth, NJ 07703 DODAAC: W81D16	Call: DSN 992-3808 Commercial (908) 532-3808 CFO Hotline DSN 992-4190 Commercial (908) 532-4190 Datafax: DSN 992-1413 Electronic Mail Box: cfo@cecom2.monmouth.army.mil Send Message: CDRCECOM FT MONMOUTH NJ//AMSEL-LEO-D-CS-CFO// Info to: CDR AMC ALEX VA//AMCRDA-A//
K	2310-2315, 2320 and 2350*, 2325-2340, 2410-2430, 2510-2590, 2610, 2630-2605, 2815, 2910, 2920, 2930, 2940, 2950, 3020, 3040, 3110-3130, 3805-3815, 3820**, 3825, 3830, 3895, 3910, 3930, 3950, 3990***, 4310, 5430 *Except SP artillery and antiaircraft guns. **Except well drilling equipment. ***Except cargo nets.	Commander U.S. Army Tank-automotive and Armaments Command (TACOM) ATTN: AMSTA-TR-EMPA Warren, MI 48397-5000 DODAAC: W81D19	Call: DSN 786-5422 Commercial (810)574-5422 Datafax: DSN 786-6637 Electronic Mail Box: tacmdrs@octagon.tacom.army.mil Send Message: CDRTACOM WARREN MI//AMSTA-TR-EMPA// Info to: CDR AMC ALEX VA//AMCRDA-A//

WITH THIS INFO, I'LL BE ON MY WAY IN NO TIME.



## What Happens to Your SF 368?

When your form or message reaches the managers, it's immediately evaluated.

The people who get your SF 368 should notify you in writing within seven days of its arrival. They also start investigating the problem:

- How did it happen?
- Is it a one-time-only defect?
- How widespread is the problem?
- What caused the problem?
- How can we stop it from happening again?
- How can the item be improved?

Once they have the answers, they move on to fixing the problem. At this point, they'll also tell you what action they're taking. We're talking about really high-powered actions, too—all based on your report. Actions and evaluations of SF 368s end up as:

- Modification Work Orders (MWOs)
- Product improvements

- Legal action against contractors
- Minor alterations in Equipment Improvement Recommendation (EIR) Digests in the TB 43-0001-series, which finally show up in your equipment TM
- Items repaired or replaced by contractors

Your reports even affect future equipment buys and the development of new items and models. They can force inspection of **all** stocks of an item within DOD. The SF 368s also help nail the contractors who supply bad parts and components to the Army. Then the Army can be sure you get what you need to do your job.

That's asking a lot of one form—but it's **your** information on the form that gives it the power to do all that, and more! So, report your equipment and quality problems and ideas as early and as completely as you can.



# Carry Computer Safely

A lot of Unit Level Logistics System (ULLS) computers are being left behind when units go to the field. There's just never been a good way to transport them.

Get those ULLS computers to and from the field—safely—with a carrying case.

Foam padding holds the monitor and CPU snugly. The printer and keyboard are held tightly by hook and pile straps.

When you get to the field, there's no need to unpack. You can operate the computer while it's still in the case.

The bottom of the case folds out to make a handy worktable. Just set the case—with the computer components still in it—on top of the table and you're ready for business.

Your supply support can order the computer case from GSA. Be sure to include this info on the DD Form 1348-6:

- GSA FSC Group 81, Part 1, Section B
- Unit POC and phone number in the Remarks block
- Manufacturer's name, address and telephone number. Here are four manufacturers:

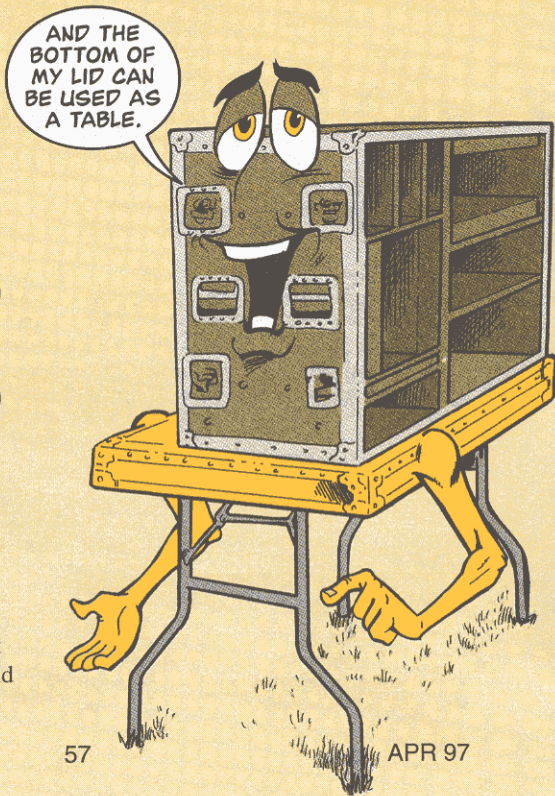
**Anvil Cases**  
15650 Salt Lake Ave.  
City of Industry, CA 91745  
(800) 359-2684 or (818) 968-4100

**ISM, Inc.**  
PO Box 2772  
Covington, LA 70434  
(800) 843-7215 or (504) 892-6700

**Jensen Tools, Inc.**  
7815 S. 46th Street  
Phoenix, AZ 85044  
(800) 426-1194 or (602) 968-6241

**Keal Cases, Inc.**  
PO Box 759  
Burleson, TX 76097  
(800) 447-9697

The vendor you select will get in touch with you to custom build a case to suit your computer.



# BATTERY SERVICE TOOL KIT

The TK-90/G battery service tool kit, NSN 5180-00-542-5812, has all the right stuff to keep nickel-cadmium batteries powerful.

Although SC 5180-91-CL-R03 (Apr 84) lists the items in the kit, the SC is on microfiche. That makes inventory difficult. This checklist makes it a lot easier. The kit contains one of each item, unless otherwise indicated.

## Apron

NSN 8415-00-082-6108



## Flashlight, two-cell

NSN 6230-00-163-1856



## Battery, Dry, 1.5 volt, D-cell, 2 ea

NSN 6135-00-835-7210



## Gloves, rubber, one pr

NSN 8415-00-266-8675



## Battery filler, bulb type

NSN 6140-00-003-6096



## Goggles, industrial

NSN 4240-00-190-6432



## Brush, artist's

NSN 8020-00-224-8028



## Holder, inserted hammer face

NSN 5120-00-903-8546



## Brush, paint

NSN 8020-00-297-6657



## Key, socket head screw: hex, 3/16 inch

NSN 5120-00-198-5410



## Cheesecloth, three yds

NSN 8305-00-267-3015



## Key, socket head screw: hex, 5/32 inch

NSN 5120-00-198-5413



## Corrosion preventive, 1-pt can

NSN 8030-00-903-0931



## Knife, pocket: electrician's

NSN 5110-00-240-5943



## Extension, socket wrench

NSN 5120-00-227-8105



## Pliers, diagonal cut: with stripping notches, 6 inches

NSN 5110-00-224-1532



## Face, hammer, insert, two ea

NSN 5120-00-293-2999



## Punch, drive pin: 1/8 inch

NSN 5120-00-242-5966



## Screwdriver, flat tip: cabinet, 3/16 by 3 inches

NSN 5120-00-236-2127



## Screwdriver, flat tip: plain, 1/4 by 4 inches

NSN 5120-00-222-8852



## Socket wrench attachment: 1/4-in sq dr, 1/8-in 6 point bit

NSN 5120-00-596-0934



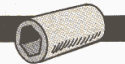
## Socket wrench attachment: 1/4-in sq dr, 5/32-in 6 point bit

NSN 5120-00-596-0940



## Socket, socket wrench: 5/16-in 6 point, 1/4-in drive

NSN 5120-00-232-5703



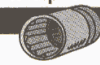
## Socket, socket wrench: 1/4-in 6 point

NSN 5120-00-236-2264



## Socket, socket wrench: 1/2-in 12 point

NSN 5120-00-189-8610



## Socket, socket wrench: reg length, 1/4-in sq dr by 3/8 inch

NSN 5120-00-241-3186



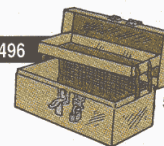
## Toothbrush

NSN 8530-01-293-1387



## Tool box, portable

NSN 5140-00-331-5496



## Wrench, vent plug: 1-in tee handle by 2.5 inches long

NSN 5120-00-087-2969



## Wrench, battery filler cap: rigid tee, 1 inch wide by 2.25 inches long

NSN 5120-00-618-5305



## Wrench, battery filler cap: rigid tee, 1.25 inches wide by 2.25 inches long

NSN 5120-00-618-5320



## Wrench, socket: spin screwdriver, 1/2 inch

NSN 5120-00-293-0375



## Wrench, socket: spin screwdriver, 5/16 inch

NSN 5120-00-224-2596



## Wrench, socket: spin screwdriver, 1/4 inch

NSN 5120-00-241-3188



## Wrench, torque: indicating, 0-25 in-lb torque

NSN 5120-00-568-4742



## Wrench, torque, 1/4-in square male drive, 0-60 in-lb torque range

NSN 5120-00-529-2552



# RIVET YOUR ATTENTION TO THIS



**DON'T LET  
A WORN PULLING  
HEAD MAKE YOUR  
RIVETING JOB  
A HEADACHE.**

In the past, when your rivet gun's pulling head wore out, you had to cannibalize parts or order a new head.

Now you can order pulling head repair kits for Cherry and Allfast/Olympic brand rivet guns. Here's what's available:

Cherry Pulling Heads	Repair Kit NSN 5320-01-415-
H753A456	1092
H781-456	1113
H701B456	1165
H749A-456	1167
H955-3	1175
H955-4	1174
H955-5	1172
H955-6	1176
H9044	1177
H9015-3	1178
H9015-4	1179
H9015-5	1181
H9015-6	1180
H9055-3	1182
H9055-4	1183
H9055-5	1184
H9055-6	1185

Allfast/Olympic Pulling Heads	Repair Kit NSN 5320-01-408-
RV815	6833
RV816	6904
RV817	6905
RV818	6907
RV819	6908
RV355-3	6911
RV355-4	7168
RV355-5	7169
RV355-6	7171
RV3355-4	7173
RV3355-5	7174
RV3355-6	7176
RV3355-8	7178
RV812-3	7181
RV812-4	7185
RV812-5	7188
RV812-6	7193
RV8812-4	7200
RV8812-5	7202
RV8812-6	7205
RV8812-8	7208
RV872-3	7210
RV872-4	7213
RV872-5	7216
RV872-6	7218
RV882-3	7223
RV882-4	7224
RV882-5	7226
RV882-6	7227





### EIR Digest Consolidation

When you get TB 43-0001-62-1 (dated 1 Apr 97), you'll be getting the combined equipment improvement reports and maintenance digests of ACALA and TACOM. It consolidates information formerly found in the TB 43-0001-36-series digests (ACALA) and the TB 43-0001-39-series digests (TACOM), which have been discontinued. No subscription changes are needed to get the new -62-series TB.

### M939 Filter Change

The transmission oil cooler filter element for your M939-series and M939A1-series trucks is NSN 2940-01-110-2489. Make a note until Item 17 of Fig 92 in TM 9-2320-272-20P is corrected.

### Battery Filler Syringe

The battery filler syringe you need for lead-acid battery PM is NSN 6140-00-808-7325. It's carried in both Common shop sets. The NSN listed on Page 2 of PS 523 was not the right item.

### TQG Fuel Return Line

Use NSN 4720-01-411-4003 to get one meter of ozone resistant fuel return line for the diesel engines on your 5-KW and 10-KW tactical quiet generators. Cut to fit and install according to TM instructions.

### DA Form 1687 Update

When you prepare a DA Form 1687, Notice of Delegation of Authority—Receipt of Supplies, leave the Social Security Number column blank, as shown in Fig 2-15 of DA Pam 710-2-1 in the Unit Supply UPDATE 2-14. The example on Page 59 of PS 530 is wrong. And put "NOT USED" on the first unused line of the name column.

### New Number for TIPS

The phone number for the Tool Improvement Program Suggestions (TIPS) has changed to (703) 428-6509, DSN 328-6509. Write TIPS at:

US Army Force Management Support  
Agency—TIPS  
9900 Belvoir Rd, Suite 120  
Ft Belvoir, VA 22060-5578

### Transponder Tester

CECOM has authorized the AN/PPX-3 interrogator for use as a stop-gap IFF transponder operational tester. Its use, due to a shortage of the AN/APM-424 transponder test set, will help units that already have the AN/PPX-3 to comply with JCOS message R272219Z Oct 94, which requires an Mk XII, Mode 4, before-flight operational check.

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

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

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**PREVENTIVE  
MAINTENANCE HAS  
A RIPPLE EFFECT**

**WITH  
IT YOU  
SHOOT, AND  
COMMUNICATE**

**WITHOUT IT YOU'RE  
DEAD IN THE WATER!**