

Issue 494

TB 43-PS-493

PS

January
1994

THE PREVENTIVE MAINTENANCE MONTHLY



IF YOU CAN
REMOVE THE SWORD,
YOU CAN SLAY ALL
THOSE EQUIPMENT
DRAGONS THIS
NEW YEAR!

94

WATCH OUT,
YOU CRUMMY
MONSTERS...
..HERE I COME!

Approved for
Public Release;
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LOS
CMs
ARs
CBs
SBs

Lucky, Unlucky or Good?



SOME FOLKS SAY IT'S BETTER TO BE LUCKY THAN GOOD.

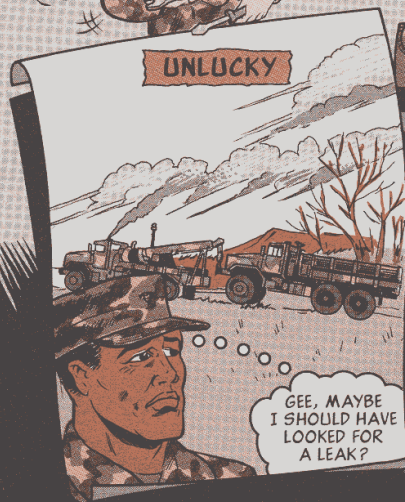
FOR INSTANCE, HAVE YOU EVER NOTICED THAT THE SOLDIERS WHO WORK THE HARDEST, USE THE MANUALS THE MOST, AND ASK THE MAINTENANCE SERGEANT THE BEST QUESTIONS, SEEM TO BE THE LUCKIEST ONES?



"LUCKY" VEHICLE OPERATORS ARE ALSO GOOD AT SPOTTING TROUBLE. BECAUSE THEY SPOT TROUBLE EARLY—AND REPORT IT—THEY INCREASE THE ODDS THEY WILL CONTINUE TO BE LUCKY.



LUCKY IS BETTER THAN UNLUCKY, BUT GOOD IS BETTER THAN EITHER!



GEE, MAYBE I SHOULD HAVE LOOKED FOR A LEAK?



GOOD THING YOU CAUGHT THAT LEAK NOW. ANOTHER DAY OR SO AND THAT DIFFERENTIAL WOULD BE HISTORY.



IT'S A CLASS III LEAK. I'LL LET MY MECHANIC KNOW.



THE PREVENTIVE MAINTENANCE MONTHLY

TB 43-PS-494, 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:

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By Order of the Secretary of the Army:

GORDON R. SULLIVAN
General, United States Army Chief of Staff

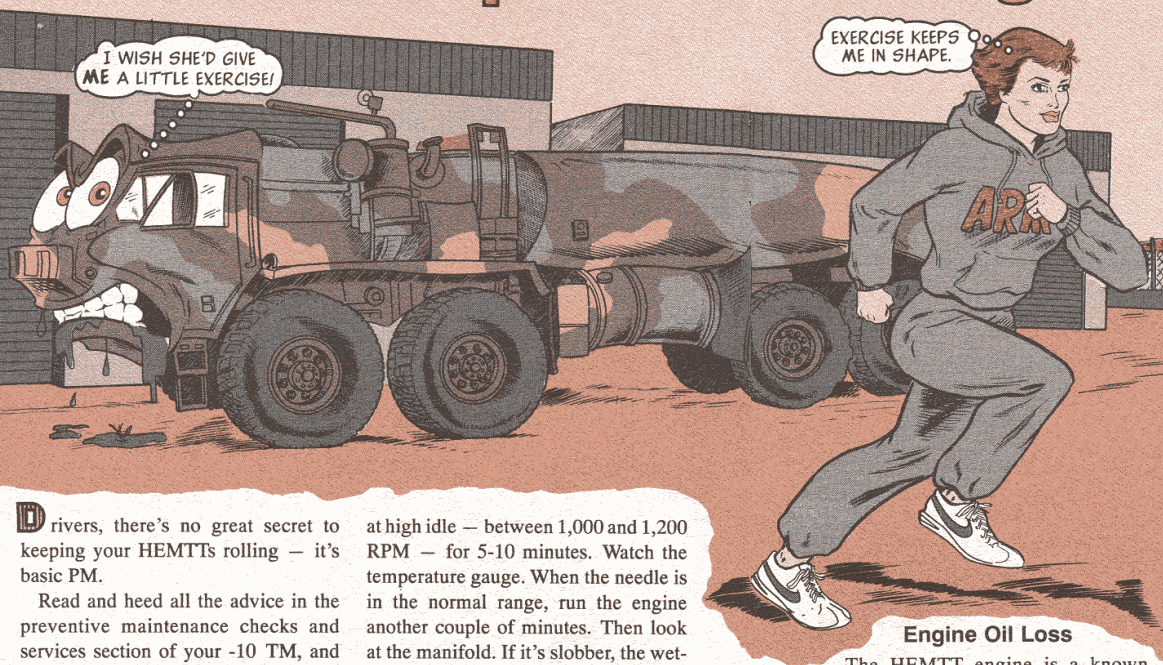
Official:

Milton H. Hamilton
MILTON H. HAMILTON

Administrative Assistant to the Secretary of the Army

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PM Keeps 'em Rolling



Drivers, there's no great secret to keeping your HEMTTs rolling — it's basic PM.

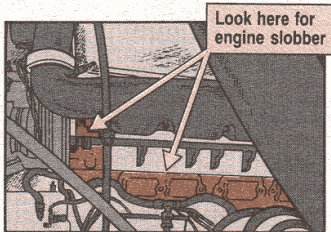
Read and heed all the advice in the preventive maintenance checks and services section of your -10 TM, and make sure to stay on top of these areas:

Clobber Slobber

HEMTT engines are known "slobberers" that make a mess when you idle the engine too long. Unburned fuel condenses around the exhaust manifold. This oily mess looks like an oil leak. Some drivers write up the "leak" and mark the truck NMC.

To tell the difference between slobber and a leak, warm up the engine. Run it

at high idle — between 1,000 and 1,200 RPM — for 5-10 minutes. Watch the temperature gauge. When the needle is in the normal range, run the engine another couple of minutes. Then look at the manifold. If it's slobber, the wetness will be gone.



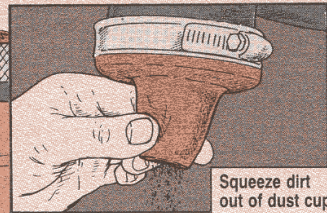
Engine Oil Loss

The HEMTT engine is a known leaker, too. It drips oil from the front and rear oil seals.

But not every Class III leak makes your truck NMC. Report the leak, of course, but keep an eye on it. That big engine holds 7 1/2 gallons of oil. A little loss is OK. A good rule of thumb is that if you add less than 20% of the oil — 6 to 7 quarts—between scheduled services, it's still OK to run the truck. If you use more than that, get it fixed.

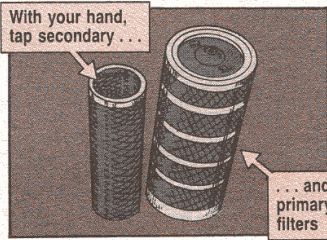
Keep Air Cleaner Clean

Your HEMTT must have lots of clean air to run right. Do your part to keep clean air flowing. Before the day's run, squeeze the dirt out of the dust cup on the bottom of the air canister. Do it more often if you're operating in a dusty or sandy area.



Keep an eye on the air cleaner indicator, too. If it shows red, stop and clean out the filters.

Pop the canister lid and pull out the air filters. The secondary filter is inside the primary filter. Tap each filter — hard — with the heel of your hand to loosen dirt. Then tap some more to knock junk out of the filters. Never bang filters on a rock or hard surface. You might dent them so much they won't fit again.

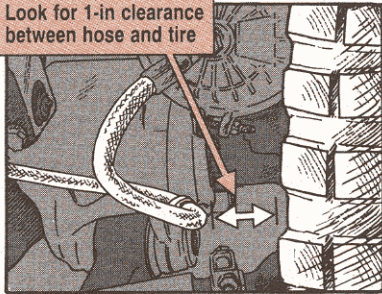


Snub Tire Rub

Once those big wheels get rolling, it takes a lot of braking power to stop 'em. The key to stopping power is air. To make sure air goes to the brake chambers, not the atmosphere, eyeball the hoses to the front wheel brake chambers. Hoses tend to rub against the tires when you turn. Rubbing wears through hoses, leaving you stomping a dead brake treadle.

Before leaving the motor pool, turn the wheels full right. Get down and look for a hose worn through the outer cover. Look also for an inch of clearance between the hose and the tire. Then turn the wheels full left and check that side. If you find wear or a clearance problem, report it. Your mechanic will replace any worn hose or adjust hoses until there is enough space.

Look for 1-in clearance between hose and tire

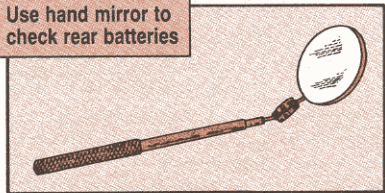


Rear Battery Check

Checking the HEMTT's back batteries for cracks, leaks and low electrolyte levels during the monthly PMCS is real tough — unless you pull the batteries.

To make the check without pulling the batteries, use a hand mirror, NSN 5120-01-278-8257. Use Appendix A of CTA 50-970 as the authority to order.

Use hand mirror to check rear batteries

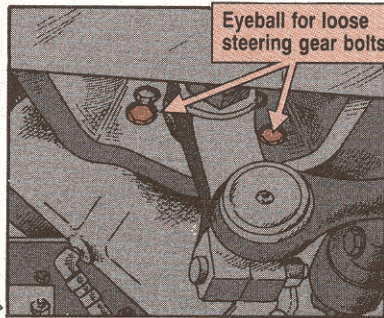


Loose Steer Gear

Steering gear bolts work loose. This makes for sloppy steering. Eyeball the bolts before you move out. If you see shiny or rusty spots around the bolt heads or nuts, report it.

Your mechanic will back off each bolt and then torque it to 125-135 lb-ft.

Eyeball for loose steering gear bolts

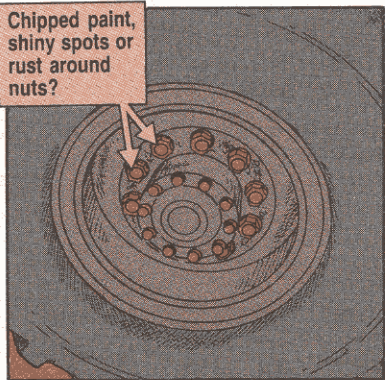


Wheel Nut Torque

Wheel nuts loosen by themselves. This leads to bent or broken studs and possibly a runaway wheel.

Before heading off, take a look at the nuts on each wheel. Look for chipped paint, shiny spots or rust around a nut. See any? Tighten each loose nut by backing it off and retighten-

Chipped paint, shiny spots or rust around nuts?



ing it. During scheduled service, your mechanic will torque nuts to:

Vehicle	Front (lb-ft)	Rear (lb-ft)
All (except M984E1)	575-625	450-500
M984E1	575-625	575-625

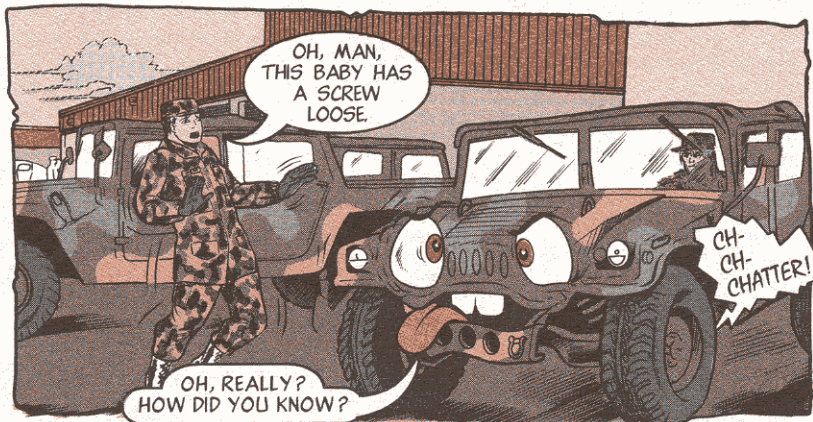
Exercise 'em

If your HEMTT is idle for long periods, seals and gaskets dry out and leak. To prevent that, exercise 'em. That means at least once each month start the engine and run it up to 1,000-1,200 RPM for about 20 minutes or so. While it's running, turn the steering wheel full left and full right a couple of times. Shift it through its gears. This will keep seals holding back fluids. Keep a record of the truck's operation on a DD Form 1970. DA Pam 738-750 tells how.

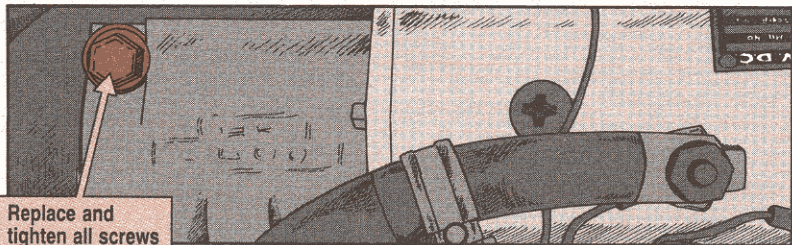
NOW IT'S TIME TO GET YOU IN SHAPE!

GREAT! I LOVE A GOOD WORKOUT!

FINISH THE STARTER JOB



Replacing the starter on your Humvee is a re-bolting experience, mechanics. You've got to use the right fasteners — and use them all.



Loose or missing fasteners let the starter move as it engages with the fly-wheel gear. That causes starter chatter and grinds down gears.

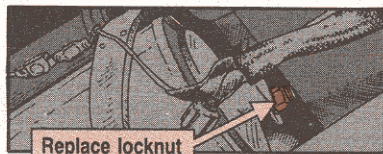
Always use a new locknut, NSN 5310-00-935-9021. It doesn't have the same gripping power the second time.

The capscrew called out in your parts TM, NSN 5306-01-301-0523, is coded as a terminal item on the AMDF. If you still have some around, use them. Put sealing compound, NSN

8030-00-148-9833, on the threads before installing them.

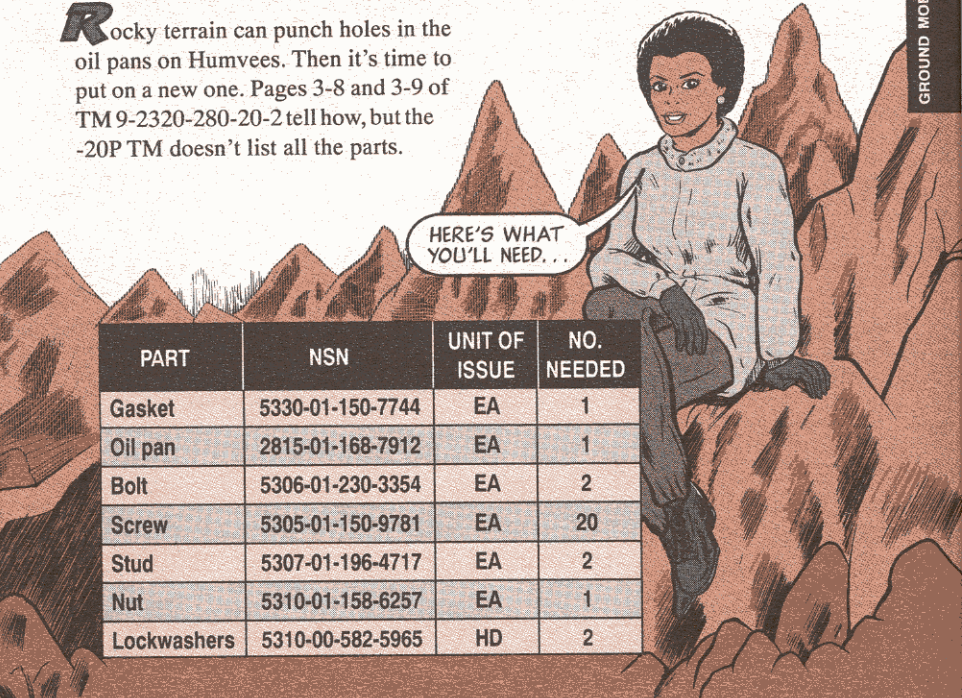
If you need new capscrews, order them on a DD Form 1348-6 using CAGE 34623, PN 5598856 from S9C.

Torque the capscrews to 36-44 lb-ft and the locknut to 22-26 lb-ft.



Oil Pan NSNs

Rocky terrain can punch holes in the oil pans on Humvees. Then it's time to put on a new one. Pages 3-8 and 3-9 of TM 9-2320-280-20-2 tell how, but the -20P TM doesn't list all the parts.



HERE'S WHAT YOU'LL NEED...

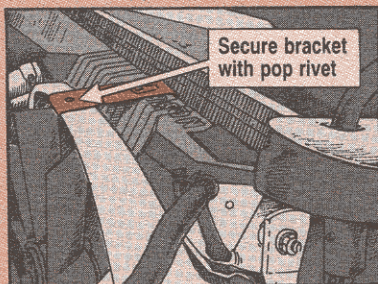
PART	NSN	UNIT OF ISSUE	NO. NEEDED
Gasket	5330-01-150-7744	EA	1
Oil pan	2815-01-168-7912	EA	1
Bolt	5306-01-230-3354	EA	2
Screw	5305-01-150-9781	EA	20
Stud	5307-01-196-4717	EA	2
Nut	5310-01-158-6257	EA	1
Lockwashers	5310-00-582-5965	HD	2

Rivet Holds Shroud Bracket

The Humvee fan shroud bracket has a habit of loosening and flying off. That lets the fan hit the shroud, shattering fan blades and damaging the shroud.

Check your vehicle's bracket, and if it's loose, get your mechanic to secure it.

All it takes is the blind riveter from the Humvee special tool kit and pop rivet, NSN 5320-01-151-1061. That'll hold the bracket in place.

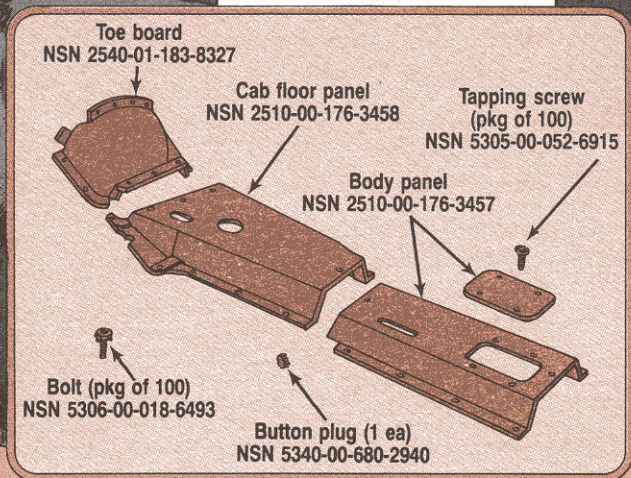


Tunnel Cover NSNs Uncovered



TM 9-2320-209-20P doesn't list the tunnel cover for your 2 1/2-ton truck's cab floor

HEY, DON'T WORRY, THERE'S A LIGHT AT THE END OF THE TUNNEL. HERE ARE THE COVER NSNs . . .

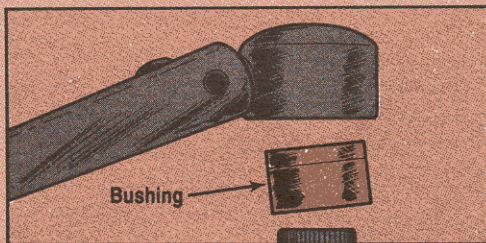


M44-, M39-, M809-Series Trucks . . .

Wiper Bushing Missing?

The bushing you need to mount wiper arms on your 2 1/2- and 5-ton trucks is NSN 3120-00-293-5041.

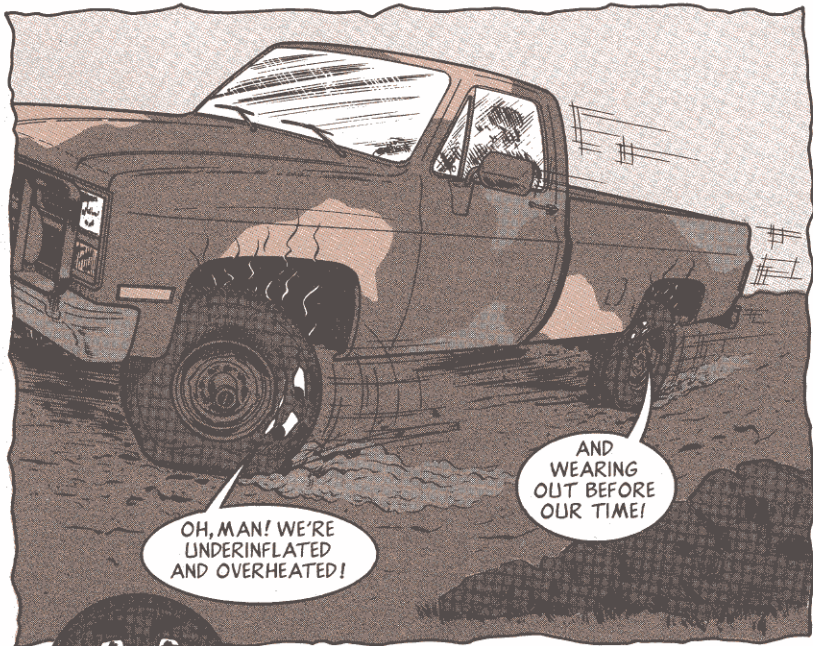
The bushing is part of the wiper motor, but doesn't show up in the TMs.



Tires...

Underinflation: What's the Cost?

UNDERINFLATED TIRES COST BIG BUCKS. THEY RESIST ROLLING, CAUSING POOR FUEL MILEAGE. THEY HEAT QUICKER, RUN HOTTER, AND WEAR OUT FASTER.



OH, MAN! WE'RE UNDERINFLATED AND OVERHEATED!

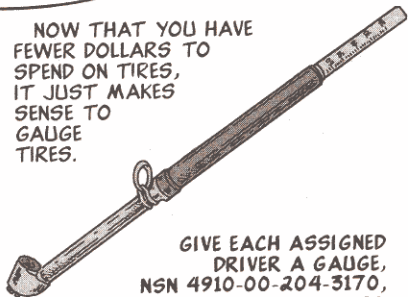
AND WEARING OUT BEFORE OUR TIME!

YOU PAY BIG BUCKS FOR UNDERINFLATION!

NOW THAT YOU HAVE FEWER DOLLARS TO SPEND ON TIRES, IT JUST MAKES SENSE TO GAUGE TIRES.

Under-inflation*	Reduced Life	Lower fuel mileage
10% (to 50 PSI)	5%	2%
15% (to 47 PSI)	20%	3%
20% (to 44 PSI)	28%	4.5%
30% (to 38 PSI)	37%	6%

*Based on 55 PSI



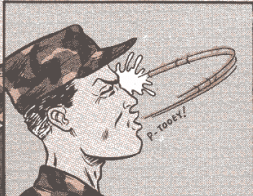
GIVE EACH ASSIGNED DRIVER A GAUGE, NSN 4910-00-204-3170, TO CHECK TIRE PRESSURE.

IT'S COSTS ONLY \$5.12.

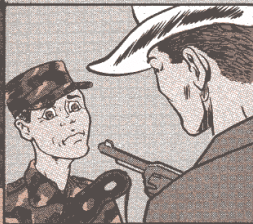
YOU DON'T TUG ON SUPERMAN'S CAPE...



YOU DON'T SPIT INTO THE WIND...



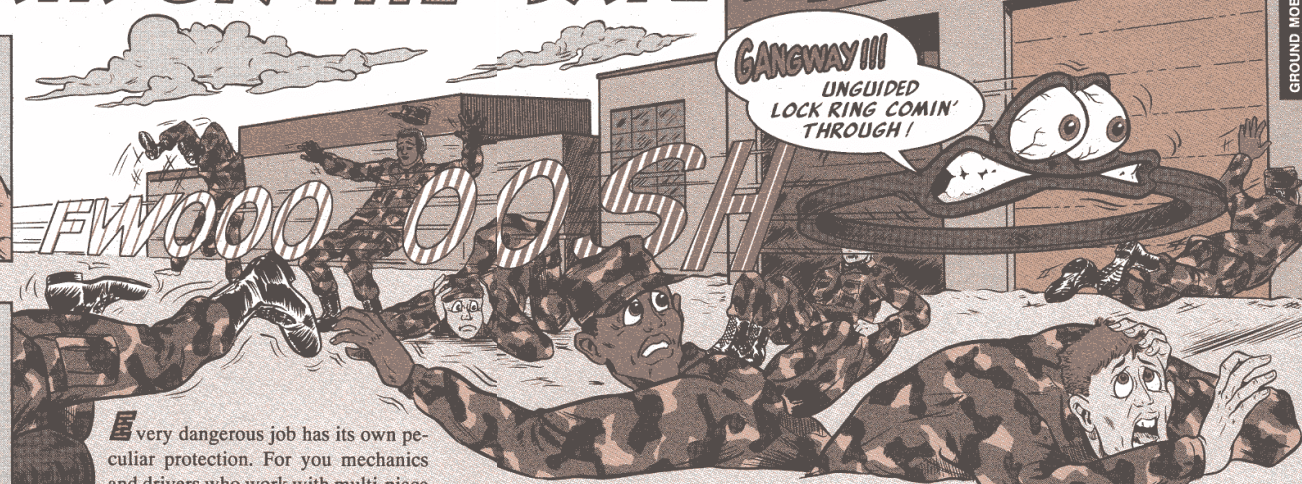
YOU DON'T PULL THE MASK OFF THE OL' LONE RANGER...



... AND YOU DON'T MESS AROUND WITH RIMS! NEVER INFLATE A MULTI-PIECE RIM WITHOUT...

- AN INFLATION CAGE.
- A 10-FT AIR HOSE WITH CLIP-ON CHUCK.
- PROPER TRAINING.

AIR ON THE SAFE SIDE

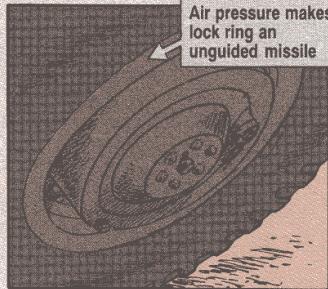


Every dangerous job has its own peculiar protection. For you mechanics and drivers who work with multi-piece rims, protection is those things that put some distance between you and the tire.

Inflation Cage

Air puts tons of pressure against the rim's lock ring. If it blows off, and you're in the way—well, the rim can probably be used again.

Air pressure makes lock ring an unguided missile



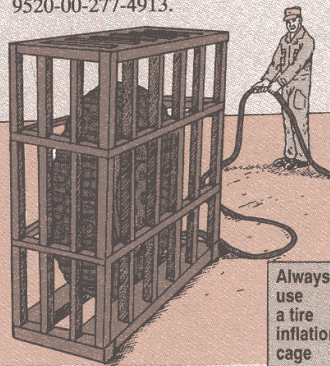
Your first line of defense is a tire inflation cage. You can order a ready-made cage with NSN 4910-00-204-2448, or you can have one fabricated with 2 x 2 x 1/4-in angle iron, NSN 9520-00-277-4913.

The plans are in Para 2-3 of TM 9-2610-200-14.

This cage will hold a tire as big as 14.00 x 24. By adding four inches to the width of the cage, you can inflate a tire up to 18.00 x 33.

Of course, even if the tire is in a cage, don't stand near it. The force of an explosion can bow or break the angle iron, and even shear off the bolts anchoring the cage.

If you do have a wheel blow up in the cage, contact your local safety office. The Occupational Health and Safety Administration (OSHA) requires a cage inspection after a blowout. Your safety office should be able to help you handle it.

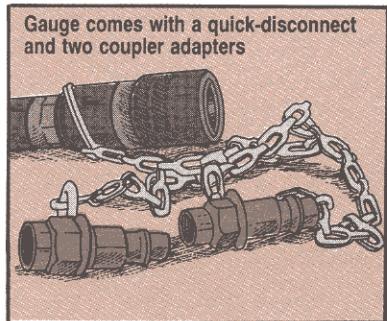


Always use a tire inflation cage

10-ft Air Hose

You keep your distance from the tire and cage by using a 10-ft air hose/tire gauge combination, NSN 4910-00-441-8685. That gets you a safe distance from the cage.

The gauge should come with a quick disconnect coupling and two coupler adapters. Some have been sent out with only the large adapter. To get an adapter for small valve stems, use NSN 2640-00-758-6274.



Appendix A, CTA 50-970 is your authority to order the gauge and adapter.

To connect the air supply hose to the air gauge, you need a straight pipe-to-tube adapter, NSN 4730-00-391-3771. It's in the brass fitting kits in the Common shop sets.

If you're using an air compressor, keep it out of the line of fire of an exploding wheel, too.

Low Tire Inflation

If you find a low tire on a vehicle that's been operating—be careful. Safety-types say to remove it and cage it before adding air.

That's because low pressure on a rolling tire lets the lock ring shift and slip

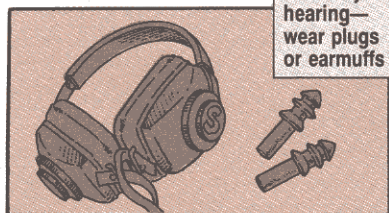
PS 494

out of its groove. The ring can take off like a rocket when you add air.

So, if you figure to work with tires during a field problem, you should try to take a cage with you. Before you air up the tire, secure the cage in some way to keep it from tipping over if a split ring blows off.

Hearing Protection

Hearing protection when servicing tires is not an OSHA or Army requirement, just common sense. If you've got earplugs, or earmuff-type ear protectors, wear them. Your ears will thank you if the tire blows.



For Supervisors

A final word for BMOs or motor sergeants: Think safety. OSHA Standard 1910.177 charges you to make sure your mechanics and operators are trained in the servicing of multi-piece rims and wheels.

If you—or they—aren't up to speed on that standard, contact your local safety office. They will have a copy of it, or know where to get one.

WHEW!
THAT WAS
CLOSE.



PS END

SEE ...

KEEP THE KEY

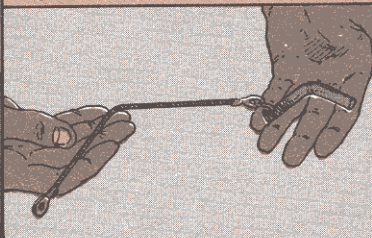
The master power disconnect key, that is. You can't start your SEE without it. Problem is, it's not fastened, so it's easily lost.

Your mechanic can fix it so it stays where it belongs, though. He'll need:

ITEM	NSN
Wire Lanyard	2590-00-018-3248
S-hook	4030-00-270-5436

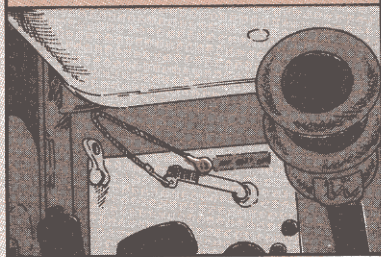
He'll do it like this:

- ❖ Enlarge one aluminum tab on the lanyard to $13/64$ -in.



- ❖ Put one end of the S-hook through the other tab on the lanyard and the other end of the S-hook through the hole in the master power disconnect key. Crimp the hook ends with a pair of pliers.

- ❖ Connect the drilled end of the lanyard under the top left screw of the access cover.

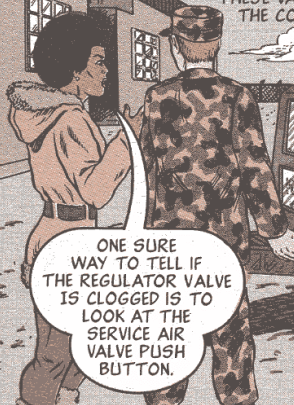


WELL, MAYBE I LEFT THE KEY
BACK IN THE SHOP, OR ...

OH
BA-ROTHER,
NOT
AGAIN!

Clogged Valve Means No Air!

A FEW 250 CFM INGERSOLL-RAND AIR COMPRESSORS IN MOTOR POOLS ARE MISSING THE NEW AIR SILENCER, NSN 4330-01-192-8269, IN THE PRESSURE REGULATOR VALVE. THESE VALVES CLOG EASILY AND WHEN THAT HAPPENS, THE COMPRESSOR CAN'T BUILD UP AIR PRESSURE.

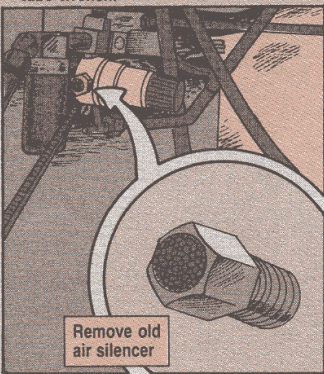


ONE SURE WAY TO TELL IF THE REGULATOR VALVE IS CLOGGED IS TO LOOK AT THE SERVICE AIR VALVE PUSH BUTTON.

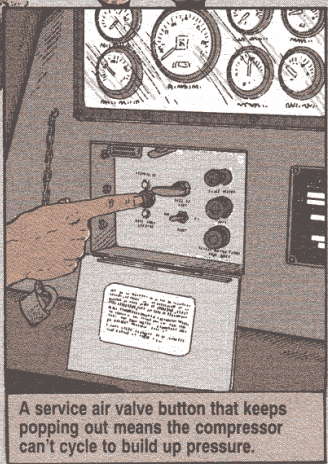
The valve with the new air silencer does a better job. But it's a little tricky to install.

Here's what to do:

1. Remove the old silencer with a 5/8-in tube wrench.



Remove old air silencer



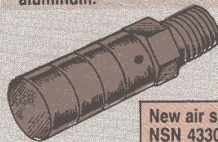
A service air valve button that keeps popping out means the compressor can't build up pressure.

2. Loosen the tube fitting nut on the moisture filter using an 11/16-in tube wrench.

3. Turn the moisture filter by hand to about the 3 o'clock position. Then you have enough room to put in the new air silencer.

4. Put two or three wraps of Teflon tape, NSN 8030-00-889-3534, on the threaded end of the silencer.

5. Screw in the new silencer. Tighten it with a 3/4-in open end wrench. Don't over-tighten or you'll crack the aluminum.



New air silencer
NSN 4330-01-192-8269

6. Turn the moisture filter assembly back to the 6 o'clock position. Retighten the tube fitting.



YOUR NEW VALVE IS NOW INSTALLED AND READY TO KEEP THE PRESSURE ON.

Away with Water!

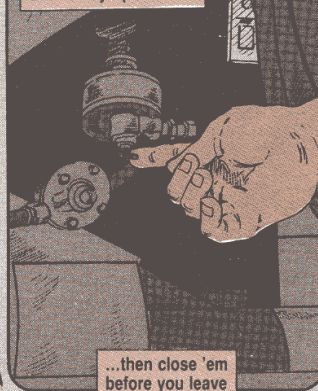
If water gets in the brake air lines on your Clark scoop loader, the brakes will lock up or fail.

Water causes corrosion in the emergency quick-release valves or power clusters which leads to brake lock-up or failure.

There are automatic drain ("spitter") valves and manual drain petcocks on the air tanks (the wet tank and the two emergency tanks).

The spitter valves empty most of the water automatically—but not all of it. So be sure to open the petcocks after every operation. You should see a little moisture. But if you see a lot of water, the automatic valve's not working. Get your mechanic to replace the valve.

Open the petcocks after every operation...



...then close 'em before you leave

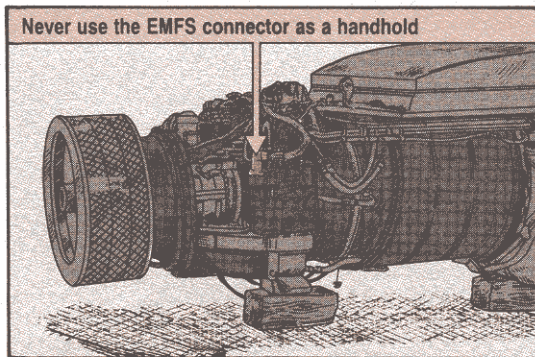
Hands Off the EMFS Connector



Despite how tough the M1 tank power pack is, some of its parts are real delicate.

Take the electromechanical fuel system (EMFS) connector and wiring harness, for example. Use them as handholds when pulling or replacing the pack and you'll end up with broken pins inside the connection.

That results in shorts in the EMFS and complaints of low engine power and erratic RPM levels.



So resist the urge to use what looks to be a strong handhold. If the pack won't go in or come out without extra pushing or pulling, something's not right.

Check your sling, lift points and lift angle and try again.

Retain the Retainer



Mechanics, before throwing away the old primary fuel filter element from that M1-series tank, take a close look at its bottom.

The retainer has a tendency to stick to the bottom of the element. If a new element is installed without the retainer in place, fuel is not filtered before it enters the fuel system.

And if that's not bad enough, the retainer is not in the tank's parts TM. To get it, you have to cough up \$70 for a complete fuel filter housing assembly, NSN 2910-00-467-2580.

So save yourself a whole bunch of trouble by retaining the retainer at service time.

No More Crushed M240 Covers

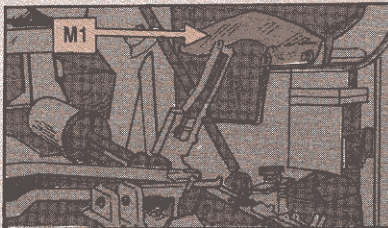
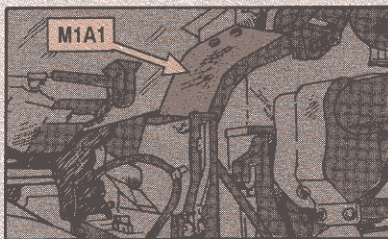
Tired of M240 machine gun covers being crushed by the M1 turret? The folks at Ft Knox have a way to deflect the problem.

They developed a deflector that's installed on the tank's turret ceiling. The deflector pushes an M240's open cover down so it can't be mangled by the turret.

All you need to make the deflector is sheet metal, a drill, and a bench grinder. It costs pennies to make.

For deflector plans, write:

US Army Armor Center & Ft Knox
ATTN: ATZK-CDC
Ft Knox, KY 40121-5100



Give Carbon Buildup the



Boot

Crewmen, keeping carbon out of the muzzle brake and bore evacuator is one secret to straight shooting with your M109-series SP howitzer.

Each time the cannon is fired, a little carbon builds up inside. Too much carbon means the muzzle brake and bore evacuator freeze together.

Avoid that sticky problem by removing, cleaning, and greasing the parts quarterly or after every 300 rounds fired.

Here's what to do:

1. **Eyeball the muzzle brake for cracks.** If any are longer than one inch, you need a new muzzle brake.
2. **Remove the muzzle brake and bore evacuator.** The muzzle brake weighs about 350 pounds, so be sure to use heavy duty lifting equipment.
3. **Scrub both items with CLP and a clean rag.**
4. **Lightly coat the muzzle brake threads with general purpose grease, NSN 9150-00-985-7316, or molybdenum disulfide grease, NSN 9150-00-754-2595.** Then, lube the inside, valve balls, valve ring, and all unpainted surfaces on the bore evacuator.
5. **Reassemble the muzzle brake and evacuator.**

A CLEAN
RAG, A LITTLE
CLP, AND SOME
ELBOW GREASE
DO THE TRICK!

CONGRATS!
THAT'S THE
WAY TO GIVE
CARBON BUILDUP
THE BOOT!

Get a Grip on the Mirrors

OH-H-H NO!
THERE GOES MY
MIRROR! I SURE HOPE
THE NEXT 7 YEARS
GO BY FAST!!

T-SMASH!

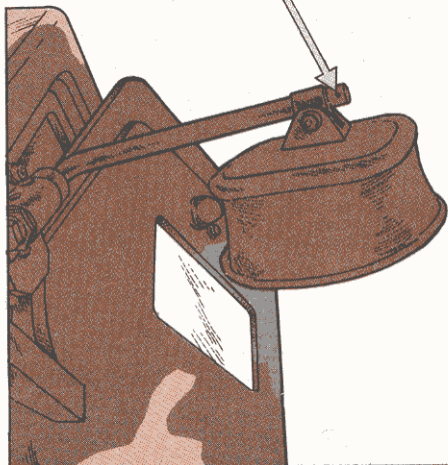
If you rely too heavily on the clamps that hold rear view mirrors on MLRS carriers, you're in for some bad luck—about seven years' worth.

The clamps have a bad habit of loosening so much that the mirrors slide right off the mount rods and crash to the ground.

Turn your luck around by keeping the mirrors in place like this:

Drill a $\frac{5}{16}$ -in hole through the mounting rod about one inch from the mirror end. Insert screw, NSN 5305-00-988-1728, and secure it with locking nut, NSN 5310-00-088-1251.

Drill hole here for screw and locknut. Mirror stays in place



SLICING AND DICING



THAT SURE WAS AN AGGRAVATING JOB WITH THE OLD ACETYLENE TORCH!

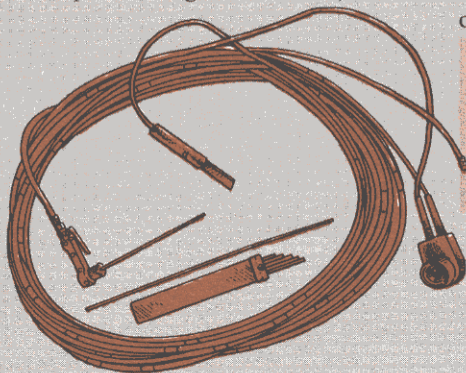
THIS EXOTHERMIC CUTTER IS LIKE THE PROVERBIAL HOT KNIFE!

Crewmen, if you've ever had to use the old acetylene torch from your M88A1 recovery vehicle, you know what a slow, frustrating process it is to cut up combat vehicle armor.

And any time you work with an acetylene tank, there's a certain element of explosive danger to deal with, too.

No longer. The new exothermic cutting device (ECD), NSN 3433-01-327-4609, is being made available as an Additional Authorized Item. The ECD slices through armor faster than acetylene, but without the danger of explosion.

Rods for the ECD come in packages of three in these sizes:



ECD eliminates acetylene dangers

Size (Inches)	NSN
1/4 x 22	3439-01-325-7641*
3/8 x 36	3439-01-325-7642
3/8 x 18	3449-01-346-2545

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

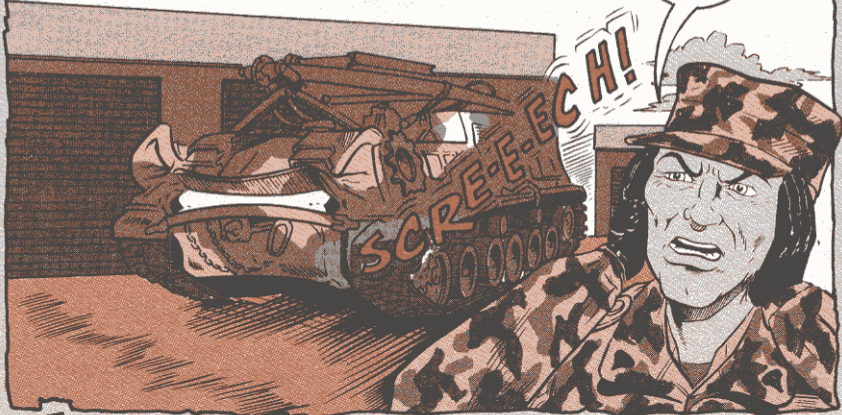
Use Appendix A of CTA 50-970 as your ordering authority.

M88A1 Recovery Vehicles ...

Relieve Roadwheel Pressure

JUST AS THE PRESSURE FROM TOO MUCH STRESS CAN BE HARMFUL — EVEN DEADLY — TO THE HUMAN BODY, THE PRESSURE IN SEALED BEARINGS CAN DAMAGE EQUIPMENT IF THERE'S NO WAY IT CAN BE RELEASED.

WHAT'S THAT
AWFUL
NOISE!



FIREPOWER

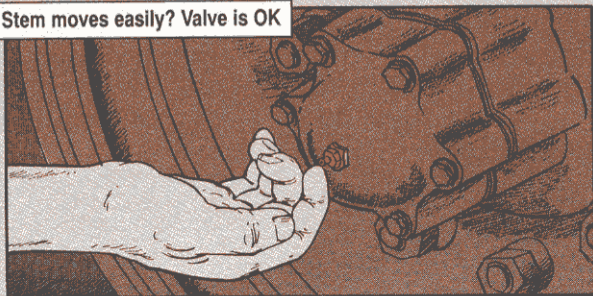
Take the roadwheels on your M88A1 recovery vehicle, for example. Each hub cover has a relief valve to release excess pressure.

A clogged valve lets pressure build until something gives — usually the hub seal. When the seal goes, so does the lube. The result is burned-out bearings.

When you do your daily PMCS, make sure the relief valves are working. Wipe away any accumulated dirt and mud with a cloth. Then, pull out on the valve stem.

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

Stem moves easily? Valve is OK



Better Traversing PMCS

The traversing and slewing BEFORE PMCS for both the M901A1 and M981 will send your vehicle to the shop when there's really nothing wrong with it. **HERE'S THE STRAIGHT STUFF:** When you get to PMCS Item 23 for the M901A1 and Item 25 for the M981, turn the handgrips to the right and left without squeezing the action switches.

The launcher/targeting head should either not move or move with resistance—you'll hear more noise than usual. If the launcher moves without resistance, something's wrong. Tell your repairman.

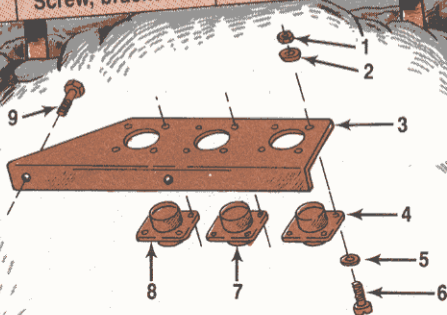
M981 FISTV . . .

Bracket for G/VLLD Cables

Without a connector stowage bracket for the G/VLLD, cables hang loose in the M981 FISTV's targeting head and can be damaged.

IF
YOUR FISTVs
DON'T HAVE BRACKETS,
GET THESE
PARTS...

No.	ITEM	NSN	QTY
1	Nut, receptacle	5310-00-934-9739	12
2	Washer, lock	5310-00-543-2410	12
3	Bracket	5340-01-330-3242	1
4	Dummy connector	5935-00-938-1272	1
5	Washer, flat	5310-00-951-4679	12
6	Screw, receptacle	5305-00-889-2999	12
7	Dummy connector	5935-00-947-1036	1
8	Dummy connector	5935-00-891-4084	1
9	Screw, bracket	5310-01-163-5761	2



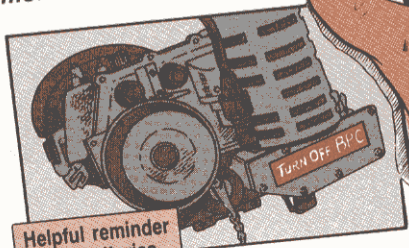
Save BPC Batteries

Dear Editor,

We were running through a lot of night sight battery power conditioners (BPC) because TOW crews were forgetting to turn them off at shutdown. The lithium batteries would completely drain and have to be replaced. And they cost more than \$55.

The solution was simple. We taped a small sign saying **TURN OFF BPC** under the night sight ON/OFF switch. Then, when TOW gunners turn off the night sight, they're reminded to turn off the BPC, too.

SSG David Cody
Redstone Arsenal, AL



Helpful reminder
saves batteries

FROM THE DESK OF THE Editor

Neat solution! More power to you!

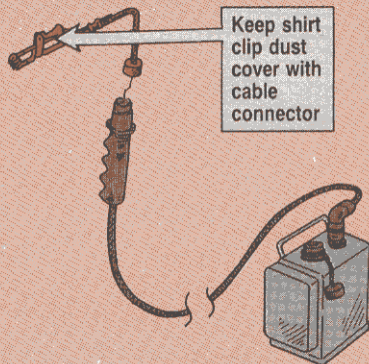
Stinger . . .

Dust Cover Stays on Interrogator

When you turn in an IFF Interrogator Set, AN/PPX-3A, -3B, for repair, make sure the shirt clip dust cover stays on the cable connector.

Some folks aren't turning in the dust covers with the interrogator, and that costs the Army big bucks—\$100 for each lost cover.

The cover keeps out dirt, dust and moisture that can knock out your interrogator.



KEEPING 'EM JUICED



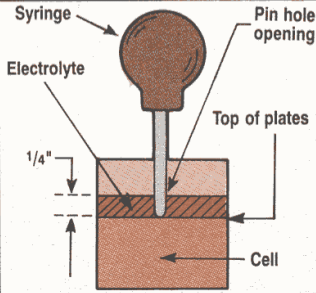
BATTERY POWER IS EVEN MORE IMPORTANT TO YOUR NEW PRODUCT IMPROVED VULCAN AIR DEFENSE SYSTEM (PIVADS). IF VOLTAGE DROPS BELOW 26, THE PIVADS WILL ACT FUNNY...

HEY! DID YOU HEAR THE ONE ABOUT THE RUNAWAY MOUNT... IT'S A LU-LU!

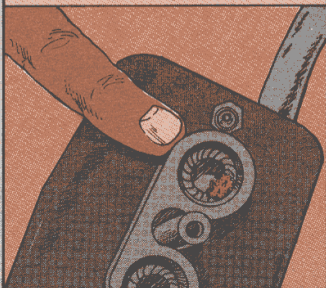
The **LOW VOLTAGE** light doesn't kick on until the voltage drops to 22. By then you're already having problems. So that makes battery PM **before** you go to the field doubly important. Keep your Vulcans juiced like this:

Check the electrolyte levels in the system batteries. Remember the system batteries must be fully charged—27-28 volts—to get an accurate reading. If you have to charge the batteries, wait at least 30 minutes after charging to do the check.

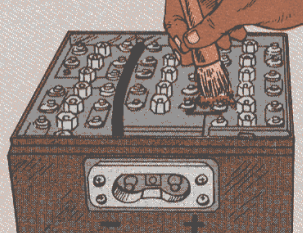
The electrolyte should be at least 1/4 inch above the cell plates. If necessary, add distilled water, NSN 6810-00-682-6867, with a syringe.



Unscrew the connectors and eyeball the sockets. Clean out any corrosion with soap and water and a nylon brush. For tough problems, use a green cleaning pad. Never use a wire brush. It can cause short circuiting.



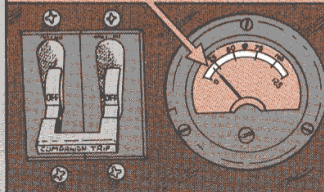
Clean off any corrosion on the terminals, hold-down clamps, and battery box the same way.



Pull the battery case cover and check for potassium carbonate powder—the white stuff—on the outside of cells and on the case. If you spot any, tighten the vent caps to keep powder out of the cells. Use a nylon brush to brush away the powder.

If that doesn't get rid of all potassium carbonate, follow the more thorough cleaning procedures on Page 4-5 in TM 11-6140-203-14-4&P.

During charging, if the amps meter on the M163 doesn't drop to 5 or less or the load current on the M167 does not drop to 10 percent or less after 30 minutes, tell your repairman. Something is wrong.

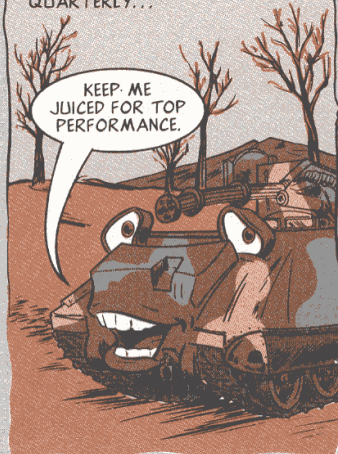


Also report if the Auxiliary Power Unit (APU) slows way down or the APU circuit breakers pop when you begin your operational checks. That indicates problems with the batteries or APU.

All this PM will be for nothing if you operate the Vulcan without the APU or the vehicle running. That quickly drains the system batteries and soon your Vulcan has problems.

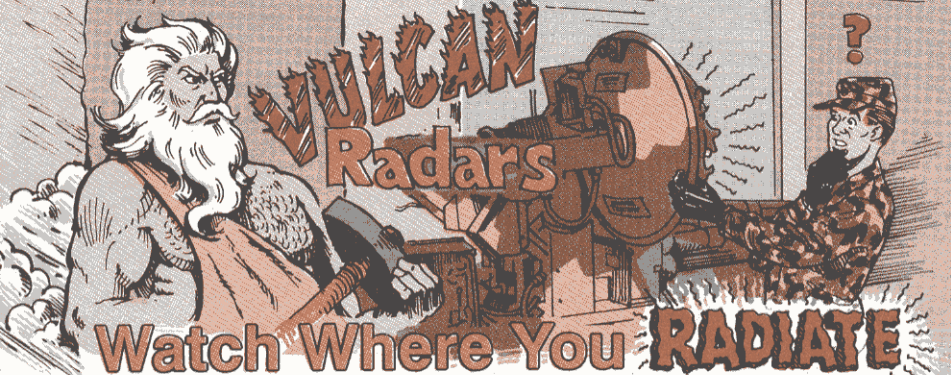
If your Vulcan does begin to operate poorly, make the batteries your first check. Often simply charging low batteries will solve problems.

YOUR REPAIRMAN CAN HELP VULCAN BATTERIES LAST LONGER AND HOLD A CHARGE BETTER BY DEEP DISCHARGING THEM QUARTERLY...



KEEP ME JUICED FOR TOP PERFORMANCE.

M163-, M167-Series . . .



Know what happens when you make the mistake of putting a metal dish in your microwave oven? The metal reflects the microwaves, and your oven—not the dish—is cooked.

It's the same principle when it comes to radiating with your Vulcan. If you don't make very sure you're radiating at objects at least 250 meters away, your radar will be cooked.

At closer distances, radar waves come crashing back with more power than the radar can handle. Things like RF detectors, mixer crystals and microwave components are knocked out.

If you must do your armament checks where there are too many large objects—buildings, trucks, tanks—radiate straight up at the open blue sky.

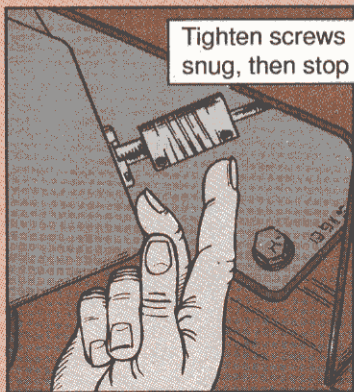
BORESIGHT GENTLY

If you over-tighten the four setscrews on the antenna's elevation input shaft coupling during boresighting, your Vulcan won't hit anything.

Forcing the screws strips them. If just one screw is stripped, the shaft will slip and the cannon and antenna won't work together.

Tighten the screws snug. Then stop.


Repairmen, anytime you remove the coupler, replace the setscrews, NSN 5305-00-990-7848. Even with the best of care, the setscrews begin to strip out and cause boresighting problems. Plus, they become difficult to remove.



Hawk Missile System . . .

Fly High with PM

YOUR HAWK WILL NOT FLY UNLESS YOU TREAT THE SYSTEM WITH TENDER LOVING CARE AND LOTS OF PM. HERE ARE SOME HELPFUL HINTS TO KEEP YOUR HAWK FLYING HIGH AND HAPPY.



YOU CAN'T LAUNCH US WITHOUT GOOD PM!

YEAH, GET OUT OF HERE UNTIL YOU LEARN SOME!

SAY, CONNIE, WE...ER...NEED A LITTLE HELP!

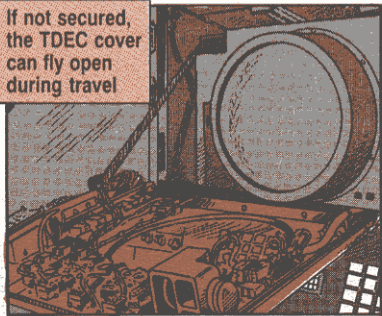
LUCKY FOR YOU I HAVE AN EXPERT ALONG WITH ME.

Travel



✓ Close all circuit card drawers before travel. Otherwise, drawers slide back and forth to let dirt and moisture get at cards and cables. Be especially sure to shut the Tactical Display Engagement Control (TDEC) console's spring-loaded cover.

If not secured, the TDEC cover can fly open during travel



PS 494

- ✓ Tie down the chairs in the command post. If they fly around during travel, all sorts of expensive equipment takes a beating.
- ✓ Tow the launcher with the boom arms pointing toward the rear when using a 5-ton truck. Towing the launcher with the arms pointing forward will damage the boom supports and the truck when you make tight turns.



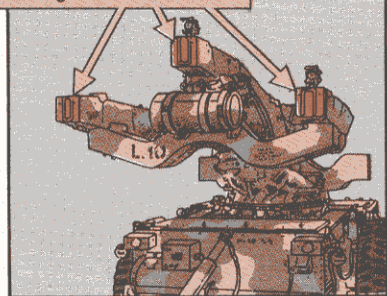
Boom arms should point to rear for travel

28

JAN 94

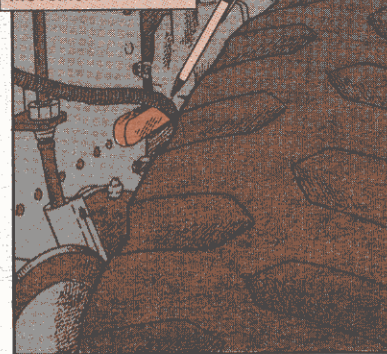
✓ Watch out while backing or making turns when towing with an M939-series 5-ton truck. The higher tailgate on these trucks can crush the launcher's umbilical doors.

Back carefully to prevent damage to umbilical doors



✓ Before moving out, release the launcher's suspension lockout. Otherwise, the launcher shocks can't do their job and the suspension is banged to death.

Release suspension lockout before movement



✓ Make sure you have a safety pin on every clevis hook. Without pins, the hooks open and the launcher breaks loose.

PS 494

On Grounding

AFTER WE GET TO THE BATTERY SITE, THEN WHAT DO WE DO?

GROUNDING IS YOUR FIRST PRIORITY.

CARELESS GROUNDING AND LINKUPS BETWEEN THE RADARS AND THE PLATOON COMMAND POST MEAN THE HAWK CAN'T HIT ITS TARGET.



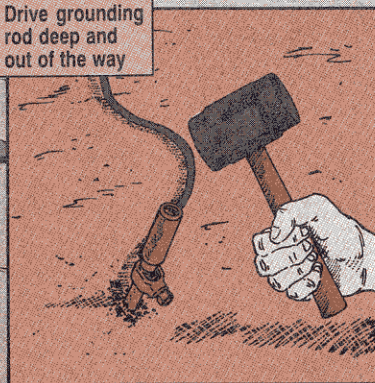
29

On Grounding

DRIVE THE
GROUNDING RODS
IN AT LEAST 2 FEET
TO ENSURE A
GOOD GROUND!

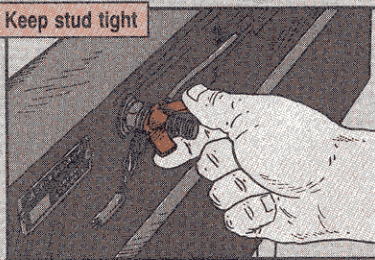
✓ If you leave much of the rod sticking up, you leave a hazard. Someone jumping off a radar or command post can become a human shish-kebab. Your best bet is to either bury the grounding rod completely or drive it in out of the way under the equipment.

Drive grounding rod deep and out of the way



✓ Tighten the grounding stud as tight as you can by hand and check it during BEFORE PMCS for looseness to make sure it stays tight.

Keep stud tight



HE SURE
KNOWS
HIS STUFF.

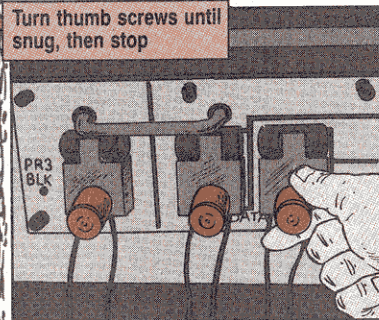
HE'S
THE
EXPERT.



Linkup

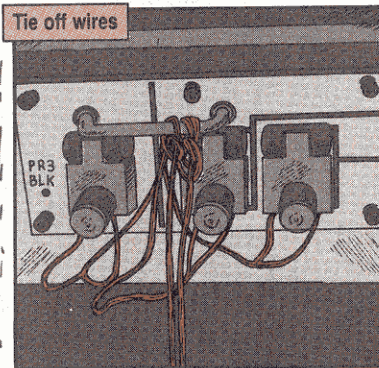
✓ Turn the data link terminal thumb screws — by hand — until they're snug, then STOP. If you force them you'll strip the stud or pop off the entire terminal.

Turn thumb screws until snug, then stop



✓ Tie off the wires to the terminal's handle. That keeps dangling wires from being ripped out of the terminal if someone trips on them.

Tie off wires



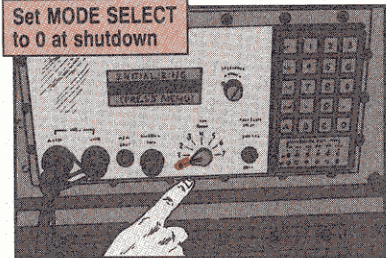
✓ Bury the wires running between systems under a few inches of dirt. This keeps people from tripping over them.
✓ Tie down terminal covers once the wires are hooked up to shut out moisture and dirt. This makes for clean, tight connections.

Making Things Compute

A few bits and bytes to save yourself troubleshooting time when you power up your Hawk:

✓ Turn the Mode Select Switches on the radars' and PCP's standard improved micro computers to 0 at shutdown. If you leave them in the off-line mode, the computers will have trouble integrating when you start operations.

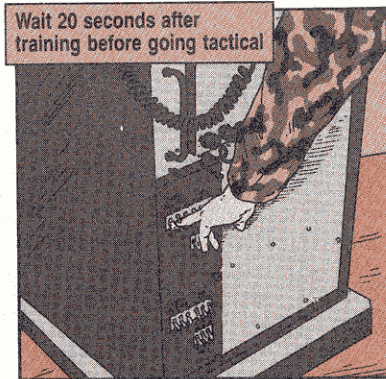
Set MODE SELECT to 0 at shutdown



If you do get computer faults when you power up, make the mode select switches your first check.

✓ When you finish training with the integral operator trainer, wait at least 20 seconds before going tactical. If you switch right away, your info will be lost in the transfer, which causes computer faults.

Wait 20 seconds after training before going tactical

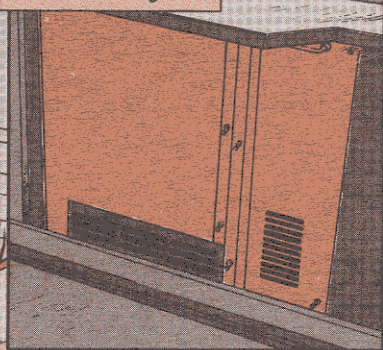


Command Post PM

The platoon command post is the brains of the Hawk missile system. It has lots of fancy electronic equipment that needs lots of fresh air to keep components from overheating. Here are some cooling tips.

- ✓ Set the air conditioner at mid-range. That will keep the PCP cool, and make the AC last longer.
- ✓ Keep the doors to the TDEC console closed. This will prevent cool air from escaping.

Keep TDEC doors shut for better cooling

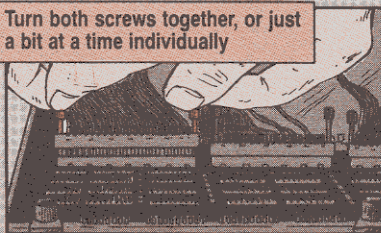


- ✓ In sandy areas, clean the AC filters weekly. Elsewhere, do it monthly. Clogged filters choke off air flow to the air conditioner.
- ✓ Careful with circuit cards. They're fragile and it doesn't take much to damage them. Put the holder on the circuit card so its prongs don't touch card components. Line up the card carefully before you put it in or you'll bend its pins. Wear your electrostatic discharge equipment any time you have the card drawers open.

PS 494

- ✓ Simultaneously tighten the screws holding circuit card cable connectors or turn each screw just a little at a time until all are tight. If you turn one screw all the way in or out, you'll bend the card's pins.

Turn both screws together, or just a bit at a time individually



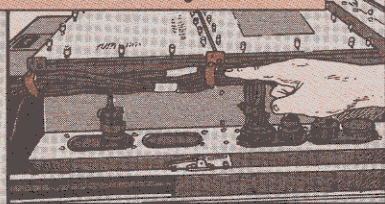
WOW, LOOK AT HIM GO!

WOW! THAT'S A LOT OF INFO ON THE PCP!



✓ Before you close the card drawers, make sure all the cover screws are completely screwed down and the cables are tied back. If just one screw is up, you'll bend it when you close the drawer. Besides, bent screws make drawers hard to open.

Screw down all screws and tie back cables before closing drawers



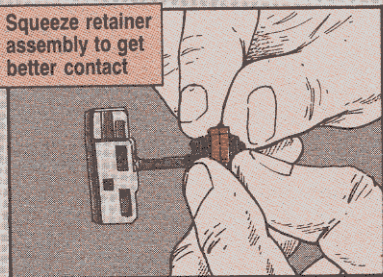
Tie back cables to keep them from being crimped, scraped and ruined.

✓ Don't be so bright with the display engagement control console's brightness controls. Operating with displays at max brightness burns out the screens. If screens are too bright or out of focus, turn down the brightness.

✓ To replace TDEC lamps, carefully align the lamp retainer with the groove on the shaft. If it's on right, the retainer will move easily on the shaft. Otherwise, you break the retainer when you stick in the lamp.

✓ If a lamp won't light, could be the light emitting diode is not making contact. Take the lamp out and squeeze the retainer. Plug in the light. It should make contact and glow.

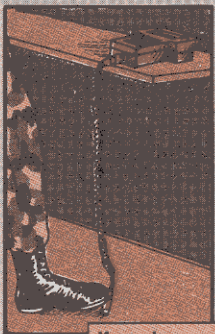
Squeeze retainer assembly to get better contact



WE'RE NOT FINISHED YET!

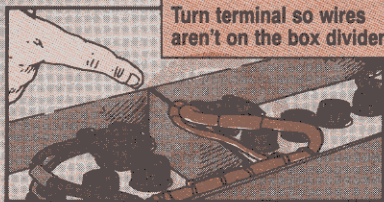
THERE ARE 2 MORE POINTS TO COVER!

✓ When you're not going to be using the TDEC's remote control unit, hang it up and wrap its cord over its top. Dangling cords are targets for big feet.



If you leave the RCU out, this happens

✓ After you're through servicing the battery, turn the terminals so their wires don't stick across the battery box dividers. Otherwise, the wires will be cut when you put on the box lid. Paint NO



STEP on the lid, too. The battery box will rip off if used as a step.



THANKS FOR THE HELP, OLD FRIEND!

PM LIKE THAT'S A FEATHER IN MY CAP!

AAL You Need to Know

Knowing what BII, COEI, and AAL are all about can make all the difference when you're trying to figure out what gear your unit needs and how to order it.

BASIC ISSUE ITEMS (BII) are what you absolutely must have to support and maintain an end item—screwdrivers, TMs and lubricating guns are usually BII. BII stay with the equipment at all times, even when the equipment's turned in. Your -10 TM is the authority for ordering BII.

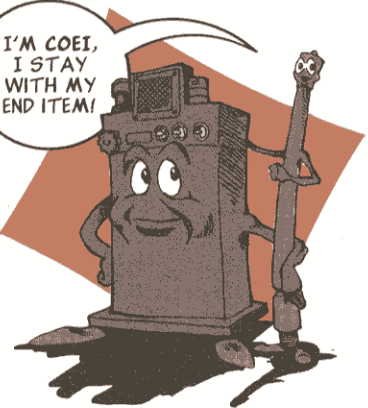
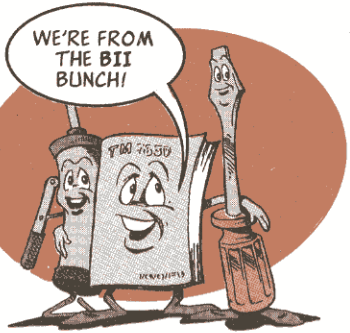
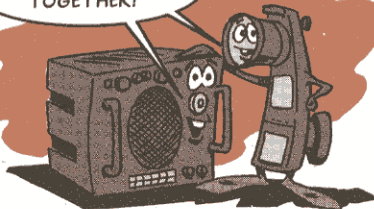
COMPONENTS OF END ITEM (COEI) are parts of the end item that are packed and shipped separately. COEI stay with the end item if it's turned in. The short antenna for the AN/PRC-126 radio set is an example of COEI.

COEI are listed in your -10 TM only so you will have their NSNs if you need to order replacements. That's the only time you order COEI—when you need a replacement.

Your -10 TM is not an authority for ordering COEI. Your authority is the parts manual the item is listed in.

The only exceptions are COEI listed under **ON-BOARD SPARES**. Your -10 TM is the authority for ordering them.

WE STAY AAL
TOGETHER!



I'M COEI,
I STAY
WITH MY
END ITEM!

ADDITIONAL AUTHORIZATION LIST (AAL) items are things like range finders and radio sets that support an end item like the M2 Bradley. AAL items stay with your unit if an end item's turned in. The ordering authority for AAL is a CTA, TDA, JTA or an MTOE.

EXPENDABLE/DURABLE supplies and materials are things like rags and lens paper that you need to take care of an end item. They're yours to keep. Authority to order them is CTA 50-970 or CTA 8-100 (medical).

Exceptional Part Number Requests



YOU'VE HEARD THE OLD SAYING, "THERE'S AN EXCEPTION TO EVERY RULE!"



THAT STATEMENT IS TRUE OF SOME ARMY SUPPLY RULES, TOO.

Ordering repair parts for Commercial Construction Equipment (CCE), Materiel Handling Equipment (MHE), commercial vehicles or commercial design tactical vehicles by CAGE and part number is the exception.

You handle those part orders a little differently than routine requisitions. Instead of sending the requisition to the end item manager, CONUS units can get the part one of two ways.

AR 725-50 GIVES THEM THE OPTION OF GOING LOCAL PURCHASE OR SENDING THE DD FORM 1348-6 TO RIC 59C USING THESE PROJECT CODES...

Equipment	Project Code
CCE	JZC
MHE	JZM
Commercial vehicles/ commercial design tactical vehicles	JZO

CONUS UNITS SEND THEIR PART-NUMBER REQUISITIONS FOR THIS EQUIPMENT TO RIC 59C USING THE PROJECT CODE.

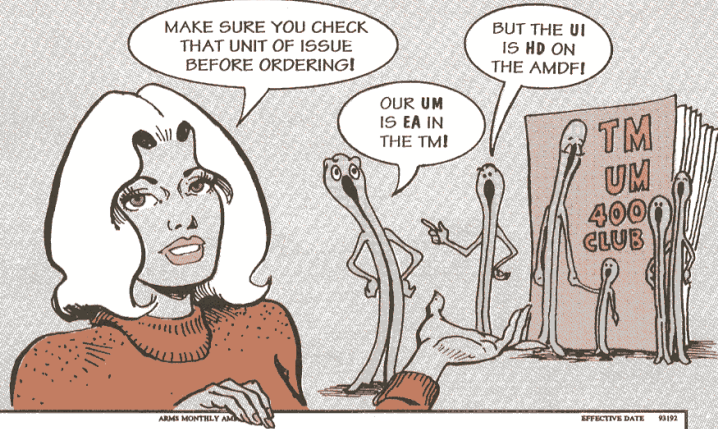
DOCUMENT IDENTIFIER		ROUTING PREFIX		M	MANUFACTURER'S CODE AND PART NUMBER		UNIT OF ISSUE		QUANTITY		DOCUMENT NUMBER		
1	2	3	4	5	6	7	8	9	10	11	12	13	
FORM					PART NUMBER					REQ. ISSUE DATE		REQUISITION DATE SERIAL	
REQUISITION DATA													
1. MANUFACTURER'S CODE & PART NO. (See 22)						2. MANUFACTURER'S NAME							
3. MANUFACTURER'S CATALOG IDENTIFICATION AND DATE						4. TECHNICAL ORDER NUMBER							
5. TECHNICAL MANUAL NUMBER						6. NAME OF ITEM REQUESTED							
7. DESCRIPTION OF ITEM REQUESTED						7a. COLOR		7b. SIZE					
8. END ITEM APPLICATION AND SOURCE OF SUPPLY													
8a. MAKE			8b. MODEL NUMBER			8c. SERIES			8d. SERIAL NUMBER				
9. REQUISITIONER (Clear Text Name and Address)						10. REMARKS							

DD FORM 1348-6

1 APR 77 EDITION OF 1 MAR 74 MAY BE USED UNTIL EXHAUSTED

NON-NSN REQUISITION (MANUAL)

GETTING WHAT YOU WANT



ARMY MONTHLY AMDF													EFFECTIVE DATE 93192										
PRIME NSN MCHN	A	A	UNIT PRICE	C	I	A	R	D	M	R	S	C	SC	MC	UM	HOMENCLATURE P PHRASE STATEMENT/RELATED NSNONCH OOU JTC	EC LIN	P	A	M	D	T	
FSC NSN ADDL	SOB	EA		U	X	H	Z	A	O	O	O	O	O	O	O								
2510-01-018-1838	SPC	Z	EA	349.25	O	U	X	H	Z	A	O	O	O	O	4	9K	J	3					
4710-01-018-1840	SPC	Z	EA	87.87	O	U	X	H	Z	A	O	O	O	O	4	9K	J	1					
4710-01-018-1841	SPC	Z	EA	96.96	O	U	X	H	Z	A	O	O	O	O	4	9K	O	3					
2910-01-018-1842	SPC	Z	EA	97.84	O	U	X	H	Z	A	O	O	O	O	4	9K	O	3					
4710-01-018-1843	SPC	Z	EA	46.20	O	U	X	H	Z	A	O	O	O	O	4	9K	O	2					
6645-01-018-1874	B14	V	EA	18,071.00	O	U	X	H	Z	A	O	O	O	O	9	Z	B	1					
5975-01-018-1878	SPC	V	EA	2.55	O	U	X	H	Z	A	O	O	O	O	5	9G	C	3					
5975-01-018-1879	SPC	V	EA	7.29	O	U	X	H	Z	A	O	O	O	O	5	9G	O	1					
5975-01-018-1880	SPG	D	EA	10.84	O	U	X	H	Z	A	O	O	O	O	4	9F	C	3					
5315-01-018-1881	SPG	D	EA	13.40	O	U	X	H	Z	A	O	O	O	O	4	9F	C	3					
5315-01-018-1882	SPG	D	EA	11.40	O	U	X	H	Z	A	O	O	O	O	4	9F	C	3					
2640-01-018-1888	AKZ	D	EA	41.54	O	U	X	H	Z	A	O	O	O	O	5	9K	O	1	EA	12			
2640-01-018-1889	AKZ	D	EA	41.54	O	U	X	H	Z	A	O	O	O	O	4	9K	O	1	EA	12			

Filling in the unit of issue (UI) on your supply request is easy when all you have to write is "EA" for each, "OZ" for ounce or "TU" for tube.

But you can't always use the unit of measure (UM) listed in TMs on your request, because the UI on the Army Master Data File (AMDF) might be different.

For example, the UM listed in the TM for cotter pins is "EA". The UI listed on

the AMDF is "HD" for hundred. If you need 4 cotter pins, but you put the UM from the TM instead of the UI from the AMDF on your request, you could get 400 cotter pins. The story's a little different when you have to figure the unit of issue for common hardware items that are issued in boxes, rolls, spools or lengths. You have to know exactly how much is in a unit.

When you go to the AMDF for data on these items with nondefinitive UIs, put on your thinking cap.

The AMDF not only lists the UI for these items, it also lists the UM and measurement quantity (MEASMT QTY).

Getting the quantity you need is a matter of logical deduction. Once you know the unit of measure for the item you need, all you have to do is adjust the quantity to fit the unit of issue.

For example, say you need 18 tire patches for the vehicles in your unit's motor pool. The patches are issued by the box. The UM is each and the

MEASMT QTY is 12. One box has 12 patches, so to get the 18 you need, just order 2 boxes. You'll have 6 left over, but that's OK. You can use them as you need them.

LOGSA Pam 18-1, Code Reference Guide for the AMDF, tells you more about nondefinitive units of issues.

Of course, if you get your supplies from your local Quick Supply Store (QSS), getting what you want is easy. Just tell QSS the exact size or amount you want and they hand it over to you!

ARMY MONTHLY AMDF													EFFECTIVE DATE 93192										
PRIME NSN MCHN	A	A	UNIT PRICE	C	I	A	R	D	M	R	S	C	SC	MC	UM	HOMENCLATURE P PHRASE STATEMENT/RELATED NSNONCH OOU JTC	EC LIN	P	A	M	D	T	
FSC NSN ADDL	SOB	EA		U	X	H	Z	A	O <td>O</td> <td>O</td> <td>O</td> <td>O</td> <td>O</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	O	O	O	O	O									
2510-01-018-1838	SPC	Z	EA	349.25	O	U	X	H	Z	A	O	O	O	O	4	9K	J	3					
4710-01-018-1840	SPC	Z	EA	87.87	O	U	X	H	Z	A	O	O	O	O	4	9K	J	1					
4710-01-018-1841	SPC	Z	EA	96.96	O	U	X	H	Z	A	O	O	O	O	4	9K	O	3					
2910-01-018-1842	SPC	Z	EA	97.84	O	U	X	H	Z	A	O	O	O	O	4	9K	O	3					
4710-01-018-1843	SPC	Z	EA	46.20	O	U	X	H	Z	A	O	O	O	O	4	9K	O	2					
6645-01-018-1874	B14	V	EA	18,071.00	O	U	X	H	Z	A	O	O	O	O	9	Z	B	1					
5975-01-018-1878	SPC	V	EA	2.55	O	U	X	H	Z	A	O	O	O	O	5	9G	C	3					
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5315-01-018-1881	SPG	D	EA	13.40	O	U	X	H	Z	A	O	O	O	O	4	9F	C	3					
5315-01-018-1882	SPG	D	EA	11.40	O	U	X	H	Z	A	O	O	O	O	4	9F	C	3					
2640-01-018-1888	AKZ	D	EA	41.54	O	U	X	H	Z	A	O	O	O	O	5	9K	O	1	EA	12			
2640-01-018-1889	AKZ	D	EA	41.54	O	U	X	H	Z	A	O	O	O	O	4	9K	O	1	EA	12			



The Floppy Fallies



Sometimes the only thing that stands between you and lost data is a floppy disk. Unfortunately, your floppy is easy prey for dust, smoke, liquids and more. They can ruin the delicate disk surface and destroy or garble your info.

Here are some ways to safeguard your floppy and keep your data intact:

❶ Start by storing disks the right way. Slip the floppy into its protective envelope when not in use. Store it vertically in a plastic disk case. These NSNs will get cases for 5¹/₄-in disks:

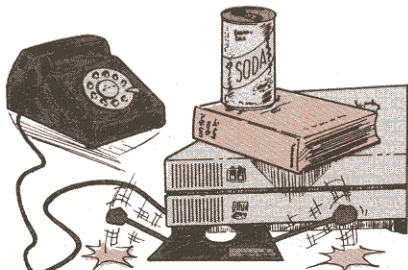
# of Disks	NSN
100	7520-01-239-1504
80	7045-01-192-7002*
50	7045-01-179-2980
25	7045-01-195-5260*
10	7045-01-218-0494*

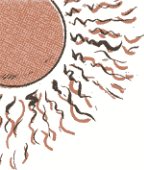


*Order on DD Form 1348-6 and put "NSN not on AMDF" in the Remarks block.

❷ Never toss a floppy loosely in a drawer. Same goes for putting it on computer terminals, in books or under equipment. You risk scratching the magnetic disk surface or bending the plastic jacket.

❸ Keep the floppy away from magnetic sources, such as a telephone, radio, tape recorder, dictaphone, speaker, electrical wire or extension cord. The magnetic field they generate could erase stored information.





❗ Never lay a floppy in direct sunlight or on a heater/radiator. Heat will warp the plastic jacket.

❗ Protect the disk from extreme cold. Cold makes the disk contract, and it'll have to return to room temperature before you can retrieve information. Frost on the plastic jacket is a sign that moisture may be trapped on the magnetic disk, and that could make it permanently unreadable.

❗ Paper clips and rubber bands on your floppy spell trouble. Keep them away. Paper clips scratch the disk, and rubber bands bend it. Either way the disk drive can't read or write to the disk.



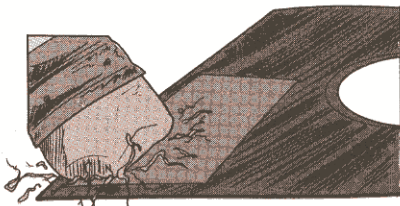
❗ Never wipe the magnetic disk with a cloth to clean it. That's a sure way to scratch it.



❗ Always use a felt-tip pen to fill out the floppy's label. A pencil or ball-point pen will mark the disk.



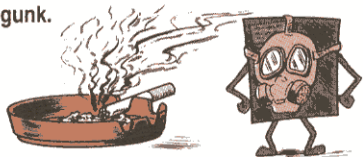
❗ Never use an eraser on the floppy's label. Eraser shavings dirty the disk surface and can damage the disk drive. Instead of erasing info, use a new label. Remove the old label first, if possible.



❗ Keep fingers away from the floppy's magnetic disk or you'll leave behind fingerprints. The oil from these prints can cause reading errors or data loss.

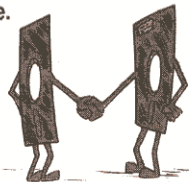


❗ Keep the floppy away from cigarette smoke and ash. They leave a residue of tar and carbon, and the computer has a hard time reading the disk through this gunk.



❗ Avoid spilling cola, coffee, milk or water on the disk. When the liquid dries, it leaves behind deposits that can make the disk unreadable.

❗ To protect really important data, make back-up copies on more than one floppy disk. Do it now!



REPORT ERRORS FASTER!



If you have a problem with a General Services Administration (GSA) product, you can now report it quicker and easier.

The GSA National Customer Service Center (NCSC) handles complaints on shipping errors, transportation problems, billing errors and product quality.

YOU CAN GET IN TOUCH BY CALLING...

Toll-free—
1-800-488-3111
Commercial—
(816) 926-7447
DSN—465-7447.

OR YOU CAN FAX THE INFORMATION USING COMMERCIAL (816) 926-6952

OR YOU CAN WRITE TO:

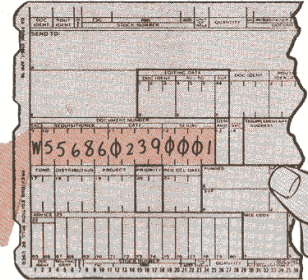
GSA National Customer Service Center (6FR)
1500 East Bannister Rd
Kansas City, MO 64131-3088

They'll need the following information:

- ✗ Your name, agency, phone number, and full mailing address.
- ✗ The 14-digit supply requisition number. (This consists of your Activity Address Code, Julian date of the order and serial number.)
- ✗ NSN of the item ordered.
- ✗ Type of problem—overage, item damaged, shortage, wrong item, or item not received.

On transportation claims, such as damage or shortage, you'll also need to furnish GSA these items:

- ✗ Copy of annotated delivery receipts. Make sure you note the problem on the delivery ticket and that the truck driver's signature is on your copy.
- ✗ Copy of the GBL (Government Bill of Lading).



A Good Removal



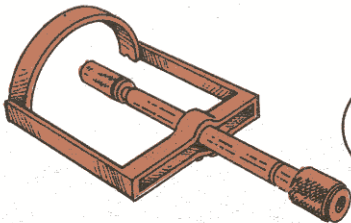
Dear Windy,

One day I passed a mechanic who was banging on a Huey's 90-degree tail rotor gearbox to remove the gearbox from the fitting.

As a sheet metal technician, the sound of banging on a helicopter set my teeth on edge. Even worse, though, I found out this was common practice for removing the gearbox.

To stop the banging and make gearbox removal easier, I made an extraction tool.

What do you think about it?



Ronald L. Bretz
LAARNG

MR. BRETZ, I THINK IT'S A GREAT IDEA. LISTEN UP, HUEY MECHS, IF YOU WANT RON'S MATERIAL LIST, INSTRUCTIONS AND DRAWINGS, LET ME HEAR FROM YOU.

Make a Suitable Wrench

Dear Windy,

Page 5-32.1 of the T53 engine repair manual, TM 55-2840-229-23-2, says when replacing the inner drive seal spacer on the starter generator drive seal, to use a suitable wrench. The problem is, there is no suitable wrench in our tool boxes! Sockets and crowsfeet don't really fit and they break.

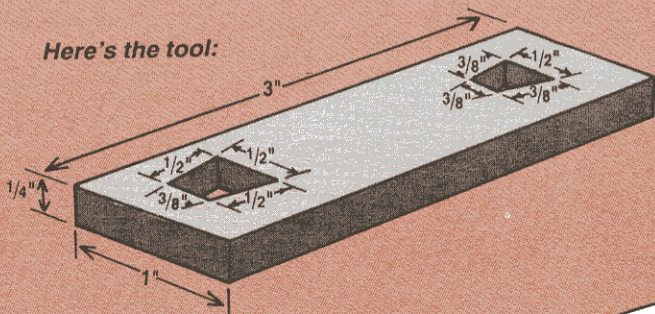
So I made a tool out of 1/4-in flat steel stock.

Now the job gets done and no tools are broken.

SGT Craig S. Downey
FLARNG

T53 ENGINE MECHANICS OUGHT TO GIVE A LOOK SEE!

Here's the tool:



Dear Sergeant Downey,

You've solved a problem and saved money, too. What more could you ask for! Good job, Craig.

Windy

MAKE ABDUs COME CLEAN

YOUR FIRST DAY WEARING THE NEW TWO-PIECE AVIATION BATTLE DRESS UNIFORM (ABDU) IS OVER, BUT A FLAT TIRE ON THE WAY HOME HAS GOT YOU DIRTIER THAN THE FACE OF A 3-YEAR OLD WITH A HERSHEY BAR.

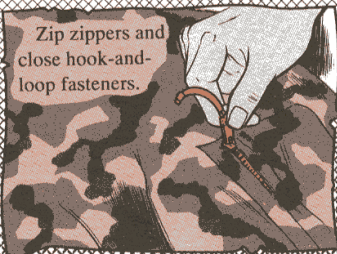


So you decide to wash those bad boy ABDUs.

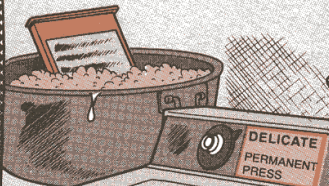
They may look like regular BDUs, but you know they're made with Nomex/Kevlar material. That means there is a specific way to clean 'em or they'll lose their anti-static/flame retardant properties.

HERE'S HOW...

Zip zippers and close hook-and-loop fasteners.

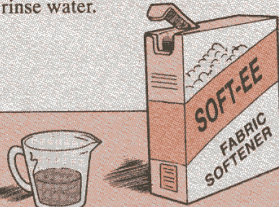


Wash by hand in warm water, or by machine in warm water on the permanent press or delicate cycle.



Use mild laundry detergent, but use just what's needed. Don't overdo it!

Use a fabric softener in your rinse water.



Rinse thoroughly in warm water. You must completely wash out all detergent or fabric flame resistance will be reduced.

Do not use starch or bleach! If the uniform has been starched, restore the fire resistance by washing and rinsing in warm water.



You must wash this Nomex/Kevlar clothing exactly as prescribed if you want to retain the anti-static/flame retardant protection.

CLEANING YOUR NEW ABDUs IS NOT TOUGH, BUT IT MUST BE DONE RIGHT!

Either drip dry or tumble dry at low heat. If you tumble dry, use an anti-static fabric softener sheet. This does not eliminate the need to use a fabric softener in the rinse cycle. These sheets alone do not prevent a buildup of static electricity.

To drip dry, hang uniform on a rust proof hanger.

To tumble dry, remove from the dryer as soon as the items are dry and hang them up.



Let There Be Light

Here's a list to help you get what you need:



OUCH!!

I CAN'T SEE A DARN THING!

OW-W-W! MY ACHING HEAD!

WHERE'S THAT HANDLE?

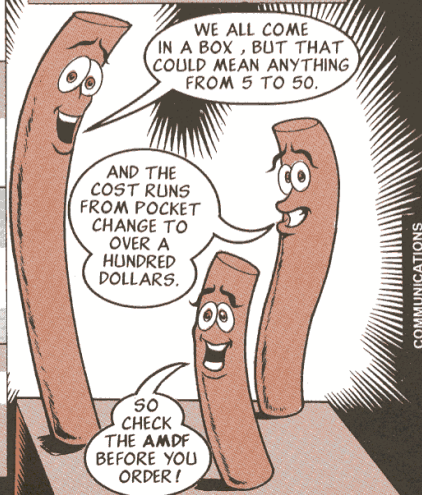
CAN ANYONE SHED SOME LIGHT ON THIS PROBLEM?

THERE'S AN ABUNDANCE OF CHEMICAL LIGHT STICKS IN THE SUPPLY INVENTORY.

MANY UNITS ARE USING THEM TO SHED LIGHT ON THINGS LIKE CARGO HOOKS, DOOR HANDLES AND HEAD-BUMPING OR SHIN-BASHING OBSTACLES.

Color	Length (in)	Duration	NSN 6260-01-
Red	1 1/2	4 hrs	230-8600
Red	4 1/4	4 hrs	349-0396
Red	6	12 hrs	178-5559
Red	6	30 mins	230-8601
Red	7 1/2	4-6 hrs	230-8596
Red	15	12 hrs	265-0612
Blue	1 1/2	8 hrs	209-4436
Blue	4 1/2	4 hrs	349-0394
Blue	6	8 hrs	178-5560
Blue	7 1/2	4-6 hrs	230-8598
Blue	15	8 hrs	265-0614
Blue	15	12 hrs	341-8710
Green	1 1/2	8 hrs	209-4434
Green	4 1/4	4 hrs	349-0398
Green	7 1/2	4-6 hrs	230-8599
Green	15	12 hrs	247-0362
Yellow	1 1/2	8 hrs	209-4435
Yellow	4 1/4	4 hrs	349-0395
Yellow	6	12 hrs	196-0136
Yellow	15	12 hrs	265-0613
Yellow	15	12 hrs	341-8711
Orange	6	12 hrs	195-9753
Orange	6	5 mins	247-0363
Orange	7 1/2	4-6 hrs	230-8597
Orange	15	6 mins	341-8715

Color	Length (in)	Duration	NSN 6260-01-
White	6	8 hrs	218-5146
White	6	30 mins	247-0368
White	15	8 hrs	247-0367
White	15	8 hrs	341-8713
InfraRed	1 1/2	3 hrs	247-0364
InfraRed	4 1/4	4 hrs	349-0397
InfraRed	6	3 hrs	195-9752
InfraRed	7 1/2	3 hrs	247-0365
InfraRed	15	3 hrs	247-0366
InfraRed	15	3 hrs	341-8714



WE ALL COME IN A BOX, BUT THAT COULD MEAN ANYTHING FROM 5 TO 50.

AND THE COST RUNS FROM POCKET CHANGE TO OVER A HUNDRED DOLLARS.

SO CHECK THE AMPF BEFORE YOU ORDER!

GOING WITH THE WIND



MIZ SCARLETT,
I NEED TO TRANSMIT AN
URGENT MESSAGE TO
GENERAL LEE!

BUT, THE WIND
HAS DESTROYED
THE ANTENNA!

IT'S AN
ILL WIND!

SNAP



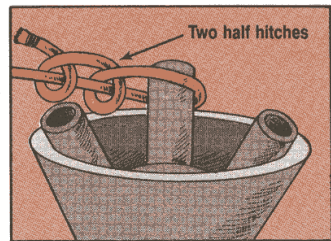
DEAR, LONG ABSENT RHETT...

Last week an ill-fated wind swept through Tara and proceeded to batter the livin' daylights out of my precious OE-254 antennas. The wind pried the glued-on cones clean away from the housing. I haven't seen such destruction since that dreadful General Sherman marched through Georgia.

Anyway, our commo was gone with that wind—not to mention more than 77 Yankee dollars to replace each feedcone. Why, the entire episode very nearly gave me the vapors.

Well, fiddle-dee-dee. I reinforced all the replacement feedcones myself with nylon cord, NSN 4020-00-262-2019. Here's how sweet little ol' me managed it:

Cut off about 3 feet of cord. Tie one end to an upper cone antenna feed, using two half hitches. Cinch the knot tight, like Aunt Pittypat would a corset.



ON MY
WORD, MA'AM,
YOU CAN BE
ASSURED OF ITS
DELIVERY.

I THANK
YOU KINDLY,
SIR!



Y'ALL BE CAREFUL, NOW!

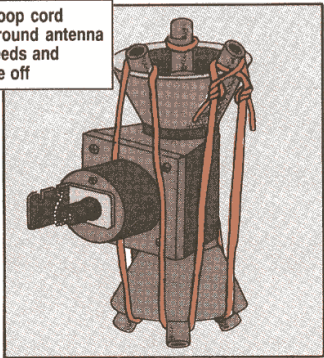
I SHALL FLY SWIFTER THAN THE ARROW FROM THE BOW!

IF SCARLETT FOLLOWS THESE SAFETY TIPS, SHE'LL BE MORE THAN A MATCH FOR THOSE YANKEES!

Loop the cord around an antenna feed on the lower cone. Then loop it around a feed on the upper cone.

Weave the cord up and down and around until you get back to where you started. Kinda like a Virginia reel. Pull it tight and tie it with two half hitches.

Loop cord around antenna feeds and tie off



Trim any extra cord and melt the ends to prevent fraying.

I do declare, this tiedown is as formidable as General Stonewall Jackson himself. It also makes a bodacious field repair. And the cord will not interfere with storage, installation or operation of the antenna set.

Ashley Wilkes (sigh!) says he truly admires a girl who can fix antennas.

*Your Long-suffering
Southern Belle,
Scarlett*



Dear Long-suffering Scarlett,
Frankly, my dear, with more Confederate PM like that, Sherman wouldn't have made it to the sea. Just make sure you follow all safety precautions in your TM before raising or lowering the antenna. Things like . . .

- Never erect an antenna under power lines.
- Use a full team to raise the antenna.
- Allow only a slight bow in the mast when you lower it.

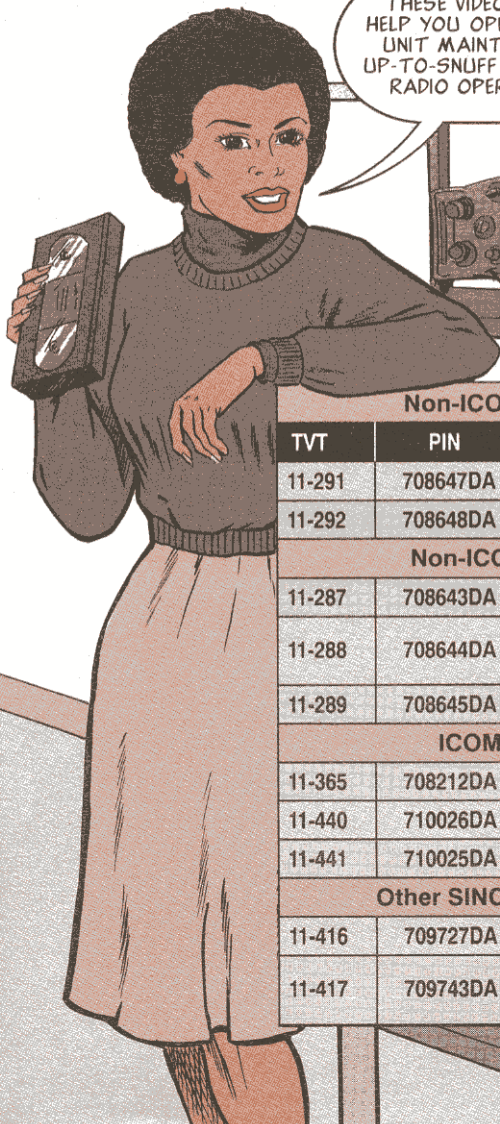
Pledge your undying loyalty to this noble cause, my dear, and the South will surely rise again.

*Yours coolly, but still living,
Rhett*

Training Videos Available

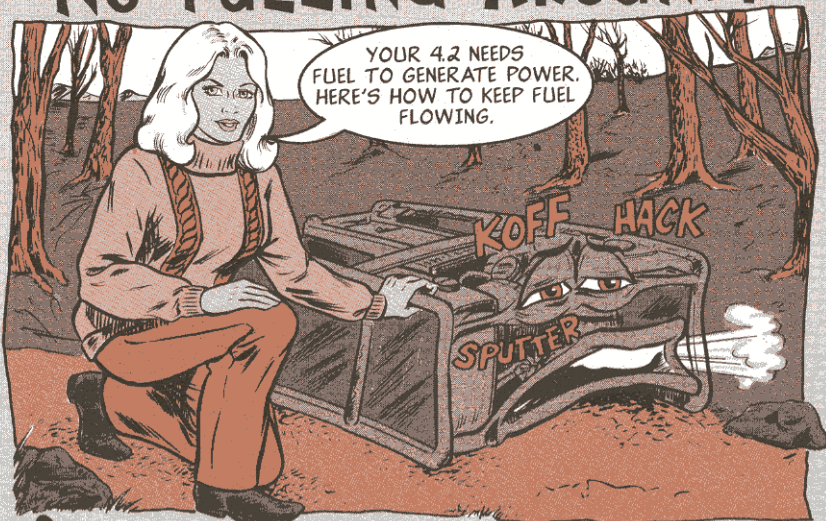
THESE VIDEOTAPES CAN HELP YOU OPERATORS AND UNIT MAINTAINERS KEEP UP-TO-SNUFF ON SINGGARS RADIO OPERATIONS . . .

HEY, BONNIE! MAYBE I'LL WIN AN OSCAR FOR "BEST SUPPORTING COMMO EQUIPMENT!"



Non-ICOM Airborne		
TVT	PIN	Title
11-291	708647DA	Operator
11-292	708648DA	AVUM
Non-ICOM Ground		
11-287	708643DA	Operator
11-288	708644DA	NCS (Net Control Station)
11-289	708645DA	Unit Maintenance
ICOM Ground		
11-365	708212DA	ICOM Operator
11-440	710026DA	NCS
11-441	710025DA	Unit Maintainer
Other SINGGARS videos		
11-416	709727DA	Frequency Hopping
11-417	709743DA	Helping You Out of a Jam

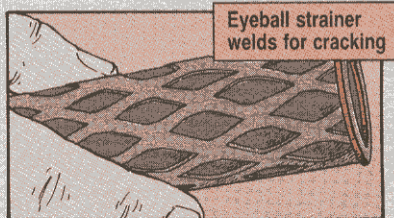
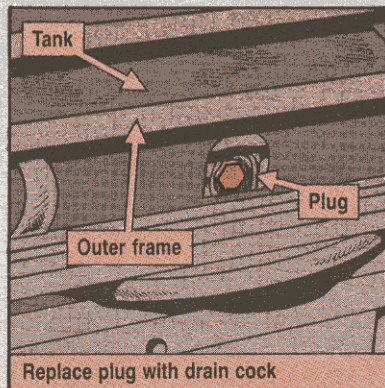
NO FUELING AROUND!



Sand and dirt get in the 4.2's fuel tank and clog the fuel system. But it's not easy to drain the sediment because the tank has a drain plug, not a drain cock.

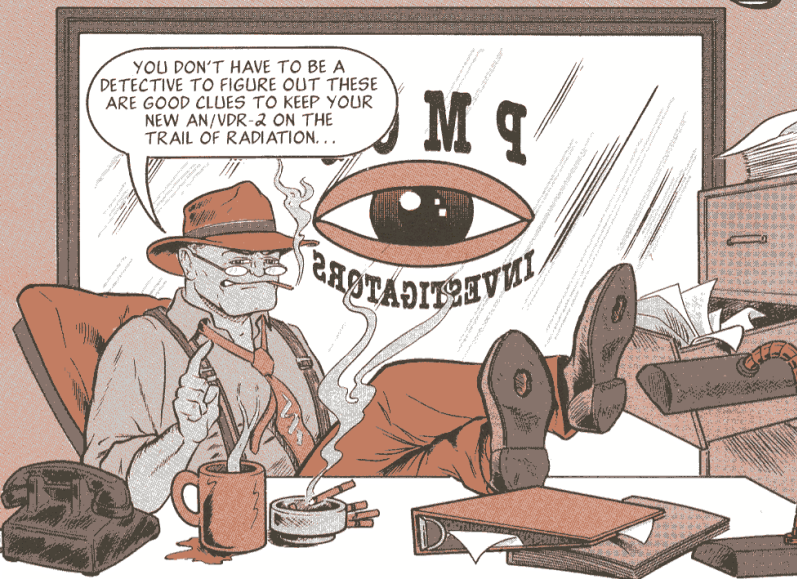
But you can order and install a drain cock, NSN 4820-00-752-9040, to make draining easier.

The welds on the fuel strainer break and the strainer falls in the fuel tank. Eyeball the strainer every time you fill the tank. If the welds show signs of cracking or breaking, get a new strainer, NSN 2910-00-981-4925.



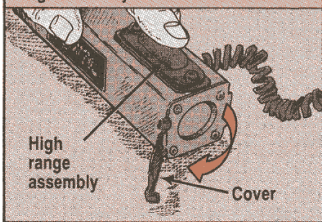
Sand and dirt still get through, though, and clog the carburetor. Instead of replacing the carburetor, try taking it off the generator and cleaning its screen. Use either a brush or compressed air. With a clean screen, the carburetor usually works fine.

Detecting Good PM



Originally, the probe cover opened back on the high range assembly. That was breaking the hinge plate for the cover. If your AN/VDR-2 has a cover like that, get support to turn the detector guard so that the cover lies flat on the probe when it's open.

Cover should open so it doesn't hit high range assembly

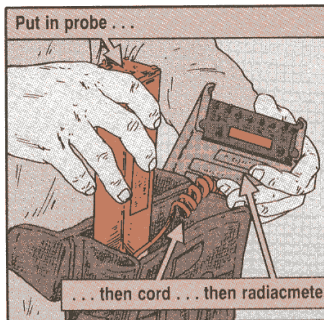


During BEFORE PMCS, make sure the screw that holds on the cover is tight. Tighten it if necessary.

Getting the AN/VDR-2 into its carrying case is a tight fit. If you don't do it by the book, you damage the probe cord or the batteries.

Put the probe in first with its high range assembly to the center and its sensing end up. Pass the cord through the opening in the compartment flaps

and store it in the bottom of the case on the right. Put the radiacmeter on top of the cord.



Store all three spare batteries with their contacts facing down. If you store them with two vertical and one horizontal, they short out.

REMEMBER:

The radiacmeter will be zapped if you connect or disconnect the probe while the power's on. As a reminder, tape a small sign next to the coil connection on the probe that says **TURN OFF PWR BEFORE PLUGGING IN OR UNPLUGGING PROBE.**

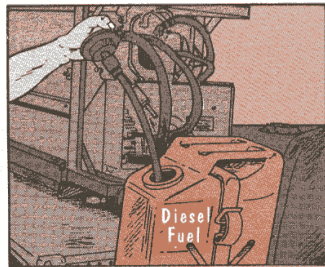


Corrosion and Camouflage

A lot of M157s aren't getting the chance to blow smoke because corrosion and camouflage are blowing out their smoke before they get to the field.

If your M157 sits idle for more than a week, corrosion gets a chance to lock up the fuel pump, fog oil pump, and hot gas check valve.

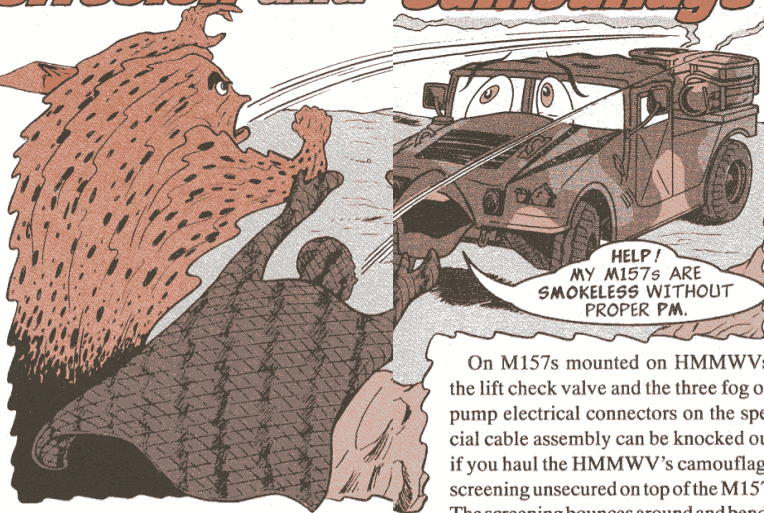
Stop corrosion by hooking up the fuel pump to a diesel fuel can when you get back from the field. Let the fuel pump run five minutes. The diesel fuel will lubricate the pump. Do the same with the fog oil pump, but use fog oil instead of diesel.



Run diesel fuel through fuel pump weekly

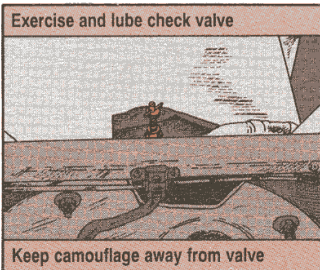
Do this every week your M157 sits idle.

Never let the starter turn over and over. You will burn up the starter or damage the fuel pump. If your M157 won't start after 30 seconds, stop and troubleshoot.



On M157s mounted on HMMWVs, the lift check valve and the three fog oil pump electrical connectors on the special cable assembly can be knocked out if you haul the HMMWV's camouflage screening unsecured on top of the M157. The screening bounces around and bends the valve and breaks off the connectors.

Before you go to the field, work the hot gas lift check valve up and down and lube it with a light-weight oil. General



Exercise and lube check valve

Keep camouflage away from valve

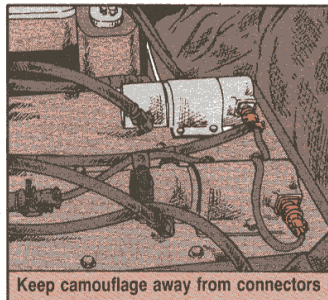
purpose lubricating oil, NSN 9150-00-273-2389, is good. That will prevent it from sticking and causing flames to shoot out of the valve.

Fuel Flow = Smoke

Fog oil has to flow in the M157 or it can't do its job—make smoke. A kink in the oil hose means no oil and no oil means no smoke. Plus, the generator will overheat.

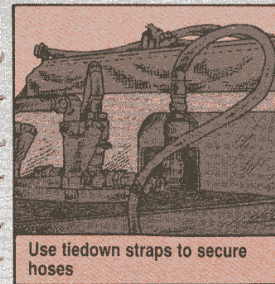
So-o-o-o, make sure the hoses are routed for a free flow of oil.

See a kink in the hose? Reroute the hose so oil flows freely. Secure hoses with electrical tiedown straps, NSN 5975-00-570-9598, or electrical tape, NSN 5970-00-543-1005.



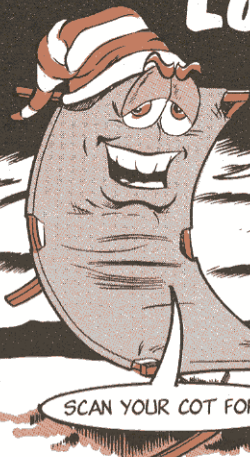
Keep camouflage away from connectors

Tie down the screening as securely as possible to the tailgate. Watch your feet, too, when you're on top of the M157. One misplaced boot quickly kills a connector or check valve.



Use tiedown straps to secure hoses

Lots about Cots



GIVE YOUR
ALUMINUM COT, NSN 7105-00-935-0422,
A LITTLE PM, AND IT'LL GIVE YOU
A GOOD NIGHT'S SLEEP.

SCAN YOUR COT FOR...



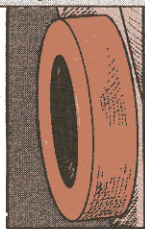
■ Broken or missing rivets—

If you find either, replace it with machine screw, NSN 5305-00-050-9236; washer, NSN 5310-00-933-8120; and nut, 5310-00-934-9760.

If the rivet holding the tiedown strap is done for, replace it with self-tapping screw, NSN 5305-00-432-4251, and washer, 5310-00-809-3078.

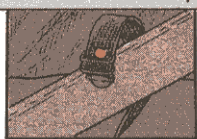
■ To cure a sinkin' and saggin' cover,

Use spacing plug to tighten cover



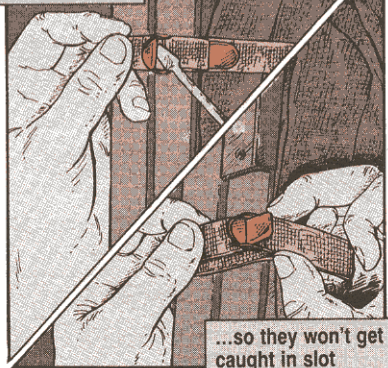
use spacing plugs, NSN 7105-00-935-0434, between the end stick and the frame to tighten the cover. A new cover may be tight enough without the plugs, so store spacers in an end stick... until you need 'em.

Replace damaged rivet on tiedown strap



■ If the buckle is bent when you pull the tab through the slot, the tab gets caught and tears off. Straighten the buckle with a screwdriver so the tab will glide through easily.

Straighten bent buckles...



...so they won't get caught in slot

Use NSN 7210-00-267-5641 to get a wooden insect bar frame to use on the collapsible canvas cot. Get the insect netting with NSN 7210-00-266-9736.

Connie's Mini Bin

New PLS Container

If you use PLS (Preservative Lubricant, Special) on your equipment (howitzers, tanks, generators, etc.), you can now get it in a plastic bottle with a trigger sprayer. Use NSN 9150-01-374-2021 or get PLS in an aerosol can with NSN 9150-00-458-0075.

TA-312 Deicing Screen

Appendix D of TM 11-5805-201-12 lists the wrong NSN for the deicing screen for your TA-312 telephone set. Use NSN 4130-00-392-7628 to order the screen. Make a note until the TM is updated.

5-Ton Steering Assembly

Is your M39- or M809-series 5-ton truck down for a back-ordered steering column upper assembly, NSN 2530-01-126-3432? That part won't be available for two years. Your best bet is to cancel that request and order steering column assembly, NSN 2530-00-134-4624. You'll also need horn button kit, NSN 2590-01-093-4152, to make it work.

M939 Exhaust Cap

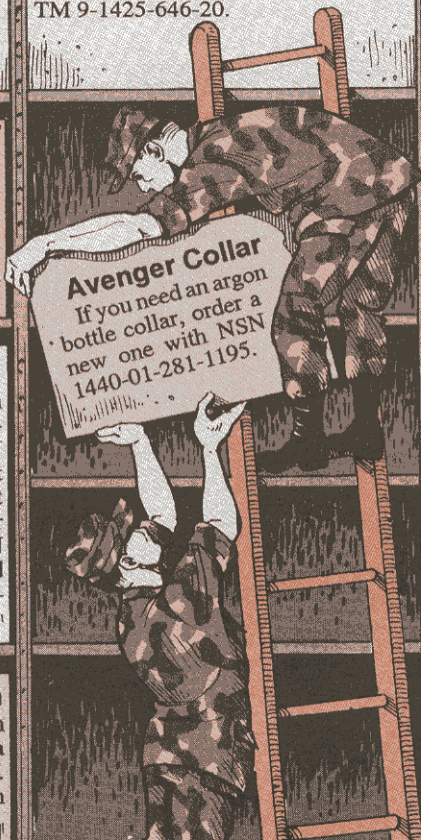
To keep rain and snow out of 5-ton truck's exhaust stacks, put on a weathercap, NSN 9390-01-204-1161. Make a note until the cap shows up in your parts TM.

MLRS Primer NSN

Use NSN 8010-00-515-2208 to get a gallon of zinc chromate primer for your MLRS's battery box. It replaces the NSN listed as Item 23 in Appendix C of TM 9-1425-646-20.

Avenger Collar

If you need an argon bottle collar, order a new one with NSN 1440-01-281-1195.



Distribution: To be distributed in accordance with DA Form 12-34-E, Block 0312, for TB-43-Series

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

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WRONG TOOLS

Ruin **1** of **3** Tires



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NEVER HAD
A CHANCE.

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NATURAL
CAUSES.

Use
ONLY Tools
Designed & Authorized for
Tire Maintenance