

Issue 509

PS

April
1995

THE PREVENTIVE MAINTENANCE MONTHLY

TB 43-PS-509

Has your
buddy read
this issue?
Pass it along!

I'VE GOT
JUST WHAT I NEED TO
MAKE MY SHOP RUN
SMOOTHLY!

HI-DE-HO,
OVER-AMBITIOUS
NEIGHBOR! THAT'S
NO WAY TO BUILD
AN ORGANIZED
SHOP!

Building an
Organized Shop
... see page 27

Approved for Public Release;
Distribution is Unlimited

A Lifetime of Effort

General George Patton set a standard for effort many years ago when he said . . .

WHEN A MAN DOES HIS BEST, WHAT ELSE IS THERE?



No one can ask more of you than your best. However, some would say that there are times when less than your best is good enough. And in some motorpools, so-so effort is tolerated. How many times have you heard . . .

IT'S GOOD ENOUGH FOR GOVERNMENT WORK.



Can you live with yourself if you don't do your best every time, in everything you do?

And even more to the point, can your unit's equipment "live" on the battlefield with maintenance you applied with just a lick and a promise?



Readiness takes a huge hit when PMCS is poorly done or not done at all. It takes another hit when repair work is sloppily performed or just given a half-hearted effort.

General Patton didn't say that just any effort was good enough. He asked for the best. The best effort is when an operator or mechanic . . .

...Takes full responsibility for the maintenance of his or her equipment.

IT'S READY FOR ANYTHING. I'D STAKE MY PAYCHECK ON IT!



...Knows how to pull maintenance by the TM.



...Does preventive maintenance the best he or she can, and asks questions when answers are needed.



GOOD QUESTION! I'LL SHOW YOU WHAT THE TM MEANS BY THAT.

GIVE YOUR BEST, NO MATTER HOW SMALL THE JOB. YOUR BEST EFFORT IN THE MOTORPOOL WILL PAY DIVIDENDS LATER - IN THE FIELD.



THE PREVENTIVE MAINTENANCE MONTHLY

TB 43-PS-509, 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, suggestions for articles, or comments on material published in PS. Just write to:

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By Order of the Secretary of the Army:

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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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Fuel Systems ...

NO WATER HERE!

YIKES!
IT'S THE
CONDENSATION
COP!

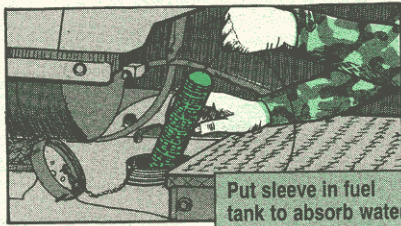
HEY,
YOU DRIPS,
C'MERE!

Water in your vehicle's fuel system is the biggest cause of clogged fuel filters and ruined injectors.

Nearly all fuel contains some water, and condensation adds more moisture to closed fuel systems. So what can you do to stop water damage?

You can help keep water out of ground equipment fuel systems with an in-tank water absorber. It comes in two parts: a plastic sleeve and guard, and a cartridge. And, it comes in several sizes for different size tanks.

Here's what's available:



Item	For tanks up to 250 gallons NSN 5430-01-	For 200 to 500 gallon tanks NSN 5430-01-	For tanks over 500 gallons NSN 5430-01-
Sleeve	350-1446	349-8727	349-8730
Cartridge (2)	349-8729	349-8728	350-5465

No cartridges come with the sleeve. Be sure to dispose of the used cartridge in an approved hazardous waste container.

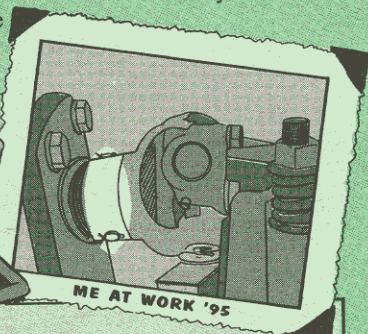
Shear Pins, Not Gears

HERE'S
THE SCOOP
ON ME!

Shear pins are a winch's circuit breaker—they break before gears or cables do.

The pins are made of soft metal, designed to shear when the winch is overloaded. Avoid the temptation to use a harder pin in place of the shear pin. Never use nails, bolts, pins or rivets. They won't shear when needed. They'll let the winch continue pulling until something expensive gives.

IF YOU
NEED AN
EMERGENCY
SHEAR PIN,
MAKE ONE
LIKE SO ...

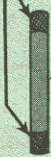


ME AT WORK '95

Original shear
pin length



Discard 2 ends
of sheared pin



Cut this
piece
in half



Add
wood
dowel

Wrap shaft with
tape to hold
pieces in place

HERE
ARE SOME
COMMON
SHEAR
PINS...

IF YOUR TRUCK
ISN'T LISTED AND YOU'RE
NOT SURE IF ITS WINCHES
USE SHEAR PINS, SEE
YOUR TM OR NCO.

Truck	Front Winch NSN 5315-	Rear Winch NSN 5315-
2 1/2-ton TM-361-series	00-736-8685	01-044-8362
5-ton TM-211-, -260-series	00-209-7979	00-282-2583
5-ton TM-272-, -358-series	01-109-6846	00-282-2583

HMMWV ...

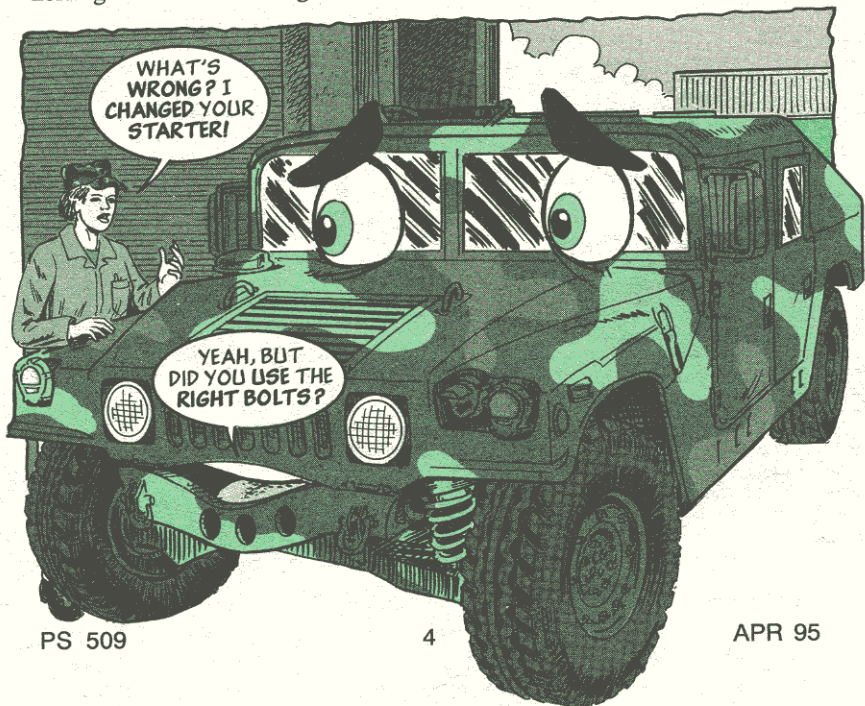
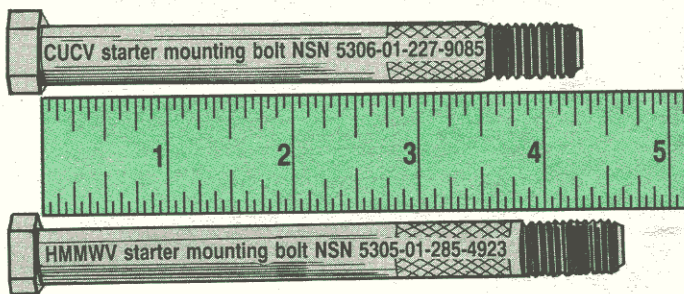
Get the Right Starter Bolt

Forget everything you've been told about ordering starter mounting bolts for your HMMWV.

You need a bolt that's $4 \frac{5}{8}$ inches long — no more, no less. Order it using NSN 5305-01-285-4923.

Even when you receive the bolt, get out your trusty ruler and measure it before you install it in the starter.

Never use the CUCV starter bolt, NSN 5306-01-227-9085, on the HMMWV. They're only $4 \frac{5}{16}$ inches long. That means you'll only have about three threads holding the starter to the engine block. It's not enough.



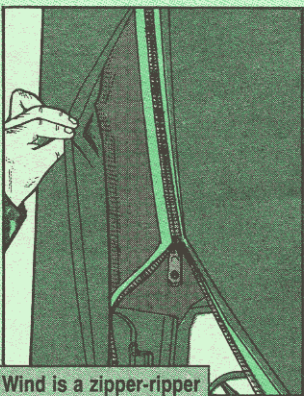
BUCKLE DOWN BUCKLE UP

BUCKLE DOWN AND SECURE THE TIEDOWN STRAPS OR YOUR SOFT TOP WILL BE TWISTING IN THE WIND.

Before you buckle yourself into your HMMVV and drive off, buckle down the soft top enclosure's tiedown straps, too.

If you leave the tarp flapping, wind will tear it up.

That's especially true of the rear flap. Wind whipping through the vehicle will tear the zipper holding the flap shut.



Wind is a zipper-ripper

Then, before you can close up the enclosure, your HMMVV needs a trip to support.

PS 509



HMMWV ...

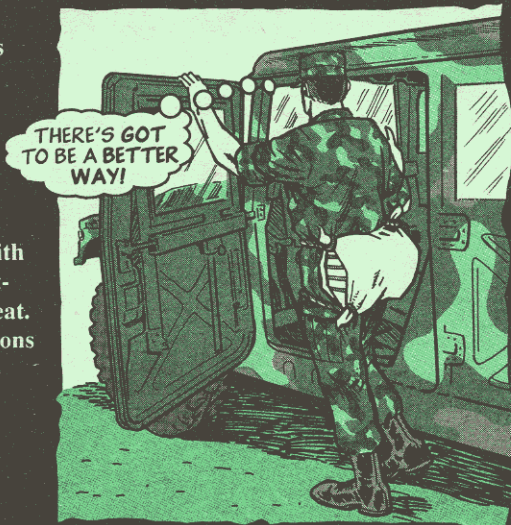
New Seats Soften Ride

Tired of your HMMWV's hard ride? Soften the seats.

NSN 2590-01-393-3796 brings a kit with the same seats that come with the new -A1 HMMWVs.

You get a driver's and a commander's bucket seat with better cushions and more sitting positions than the old seat. The kits come with instructions and hardware. Unit maintenance makes the switch.

These seats won't fit in ambulances or shelter carriers — yet. An adapter kit is in the works, though.



M1009 ...

Key to Removing Key

When servicing the '84 model M1009's front wheel bearings, you mechanics need a special tool to remove the bearing's locking key.

Problem is, that special tool is not listed in any CUCV™ special tools list.

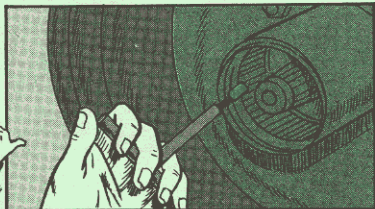
You can make one by welding a 5 inches long "T" handle to the head of a 4-40 screw, NSN 5305-00-984-4976.

Special tool looks like this...

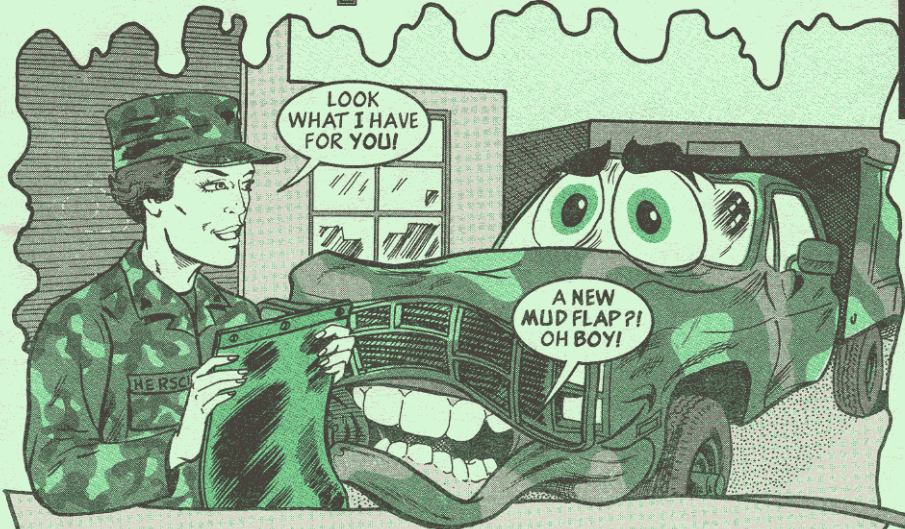


The key lock has a threaded hole. Screw in the tool and pull.

THE
KEY LOCK
COMES
RIGHT
OUT!



Mud Flap Protects Tank



Dear Editor,

We have three M1031 contact maintenance trucks. On these trucks, the fuel tank is exposed to stones and other road hazards thrown by the rear tires.

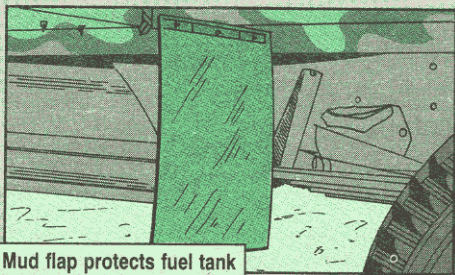
There is a small pad on the tank, but we've found it comes up short protecting the tank.

We cured this problem by mounting a mud flap to the bed of the vehicle in front of the rear tire.

We cut a 19-in x 14-in section from an old M915 mud flap. We then cut a 14-in length of 1-in band iron. We drilled three $\frac{5}{16}$ -in holes in the iron, the rubber and the M1031 and attached the new flap.

This keeps the tank clean and safe from road hazards.

Brian A. Garcia
Stockton, CA



Mud flap protects fuel tank

FROM THE DESK OF THE Editor 

Tanks for the tip. Get your CO's OK first.

2 1/2-Ton Trucks . . .

End Lockup Headache

Dear Editor,

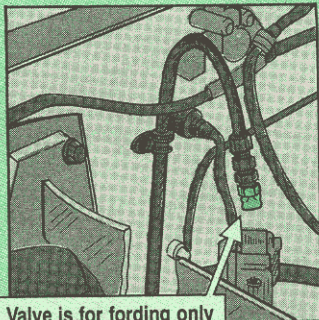
We've installed brake vent lines on all of our 2 1/2-ton trucks.

While making a trip recently, the brakes on one of them locked up.

Our inspection of the brake system showed it was OK, but we found that the vent valve (NSN 4820-00-726-4719) at the end of the vent line was clogged.

We replaced it, and our lockup problem was solved.

John C. Burgo
Brockton, MA



Valve is for fording only

FROM THE DESK OF THE Editor

Good detective work. You can save other drivers the lockup headache by removing the vent valve during normal operations. It's needed only during deep water fording. It keeps water from getting into the brake lines. By leaving it on, you increase the chances it will plug up and lock up the brakes.

Lube Spring Pin

Freeze!

That's easy for a pin that's rusted into a rear saddle spring on your M44-series trucks. It'll stay frozen even when you want it to move.

Stop dirt and rust from locking the pin in place. Remove the pin, clean it and lube it with GAA every six months. Clean and lube the saddle holes, too.

Keep an eye on the detent ball and spring when you remove the pin, though. They are easily lost.

Make a note until this info is added to the semiannual services in the 2 1/2-ton truck TMs.

First remove pin...



...then clean and lube



STOP SPRING BRAKE SURPRISE

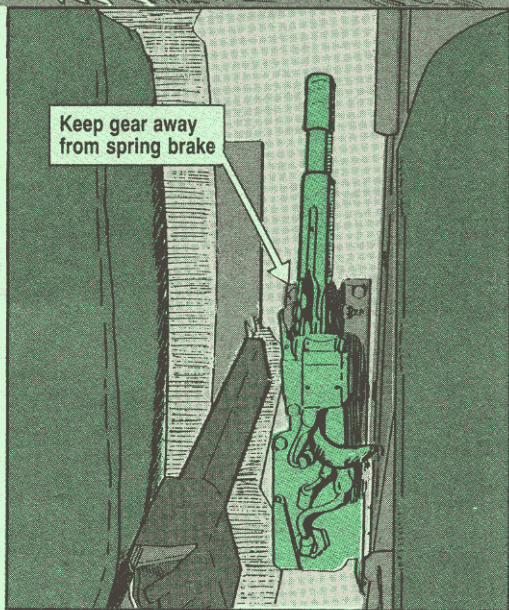


Operators, stowing gear on or near the spring brake lever on your 5-tonner is asking for trouble.

The lever is easy to trip. Just a flip of the finger will set the brake, so anything on or near the lever can trip it when you hit a bump in the road.

Locked brakes are bad news anytime. Someone could get killed as the truck screeches to a halt.

Play it safe and keep everything away from the spring brake lever. That way there are no surprises.



M939-Series Trucks . . .

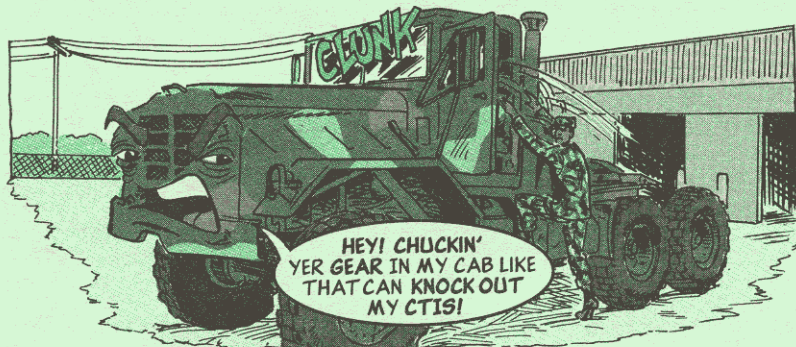
TRANSMISSION FILTER ONLY

If all you need is the spin-on transmission oil filter element for your 5-ton truck, order it with NSN 2940-01-110-2489.

The NSN for Item 17 in Fig 92 of TM 9-2320-272-20P brings both the filter and its cover.

M939A2-Series Trucks . . .

Practice Connection Protection

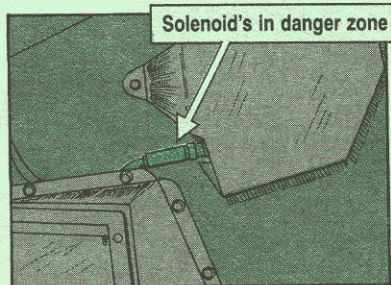


Going to the field? Coming back? Loading up the cab of your 5-ton truck can end your trip before it starts.

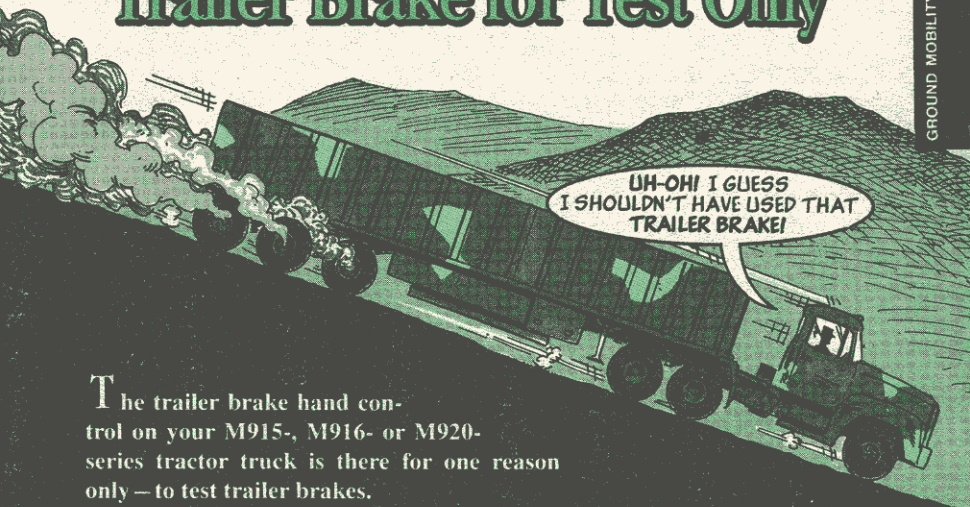
When you're trying to cram just one more thing into the cab, watch out for the Central Tire Inflation System's (CTIS) wiring harness connectors.

If you push in one too many items, you can bump one of the connectors under the dash. Damaging just one can knock out the CTIS.

The easiest target is the connector for the pneumatic controller solenoid. It's in the open and easily broken by cargo or a stray boot.



Trailer Brake for Test Only



The trailer brake hand control on your M915-, M916- or M920-series tractor truck is there for one reason only — to test trailer brakes.

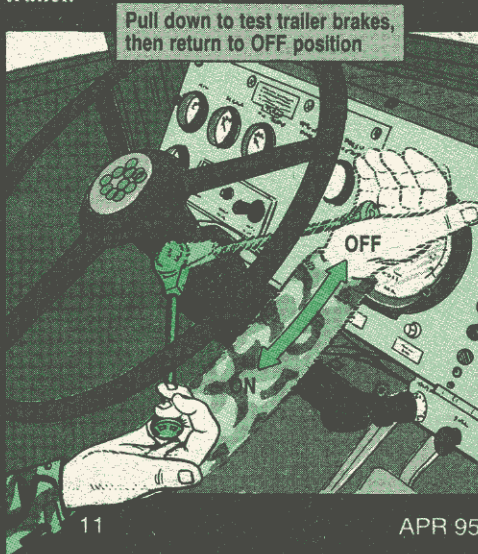
Hands off the trailer brake control while driving or you could cause the trailer's wheels to skid, possibly causing a jackknife.

When parking, use the parking brake or chock the wheels. Using the trailer brake will just bleed air from the air brake system. That means no brakes for the tractor or the trailer.

Always remember to return the hand control to the OFF position after testing the trailer's brakes. If you don't, the trailer brakes are still applied.

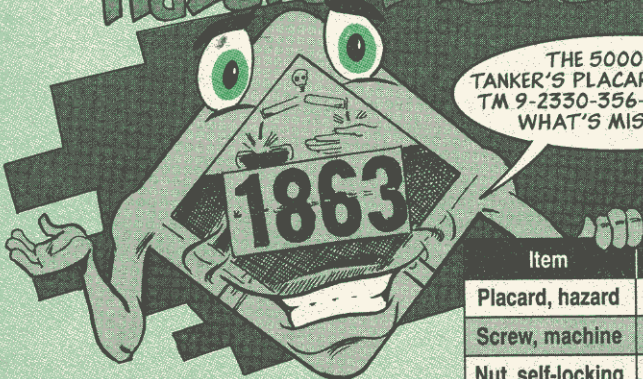
Moving your rig with the brakes applied wears out brake pads and creates heat...lots of it...and heat causes fires.

Make a note of this new info until the -10 TM is updated.



M900-Series Fuel Tankers . . .

Hazard Placard NSNs



THE 5000-GAL TANKER'S PLACARD IS NOT IN TM 9-2330-356-24P. HERE'S WHAT'S MISSING . . .

The kit will work on all M900-series, 5000-gal tankers.

If your tanker doesn't have a bracket for the placard (older models don't), you'll have to get DS to make brackets for you. Note the NSNs until the TM's updated.

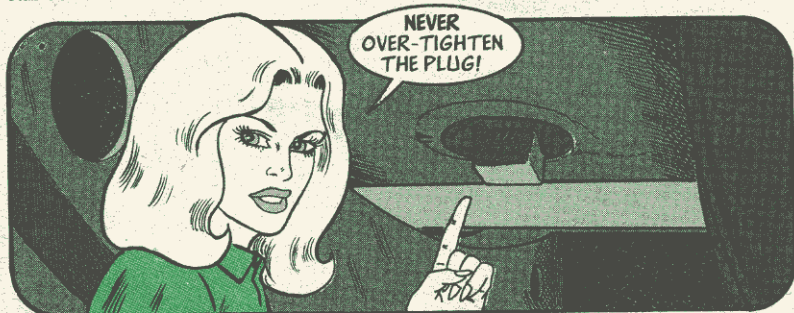
Item	NSN	QTY
Placard, hazard	9905-01-379-5693	4
Screw, machine	5305-00-989-7434	16
Nut, self-locking	5310-00-902-6676	16
Washer, flat	5310-00-014-5850	32

M149A2 Water Trailers . . .

Plastic Plug Repair

If the plastic plug, NSN 4730-01-086-1620, in the bottom of your water trailer leaks, it may be because it was overtightened when it was first put in. That strips threads, causing leaks. It also makes the plug hard to remove.

You can head off leaks by wrapping a new plug's threads with teflon tape, NSN 8030-00-889-3535, and only lightly snugging the plug in place. This way, the plug can be used several times.



Shedding A Little Light

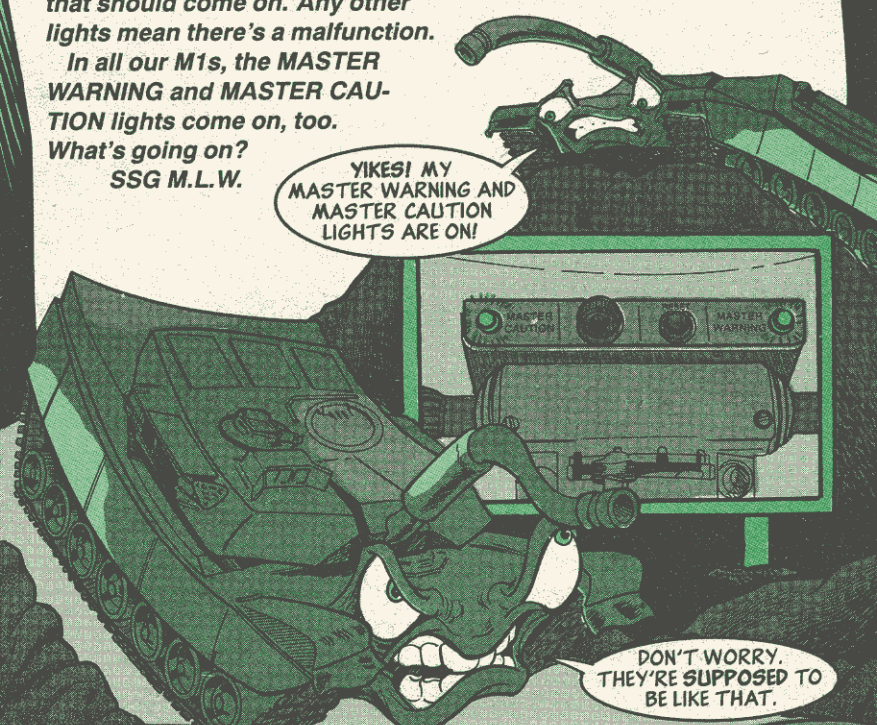
Dear Half-Mast,

There's a note on Page 2-112 of TM 9-2350-264-10-1 and Page 2-109 of TM 9-2350-255-10-1 that's got me confused.

The note says whenever the VEHICLE MASTER POWER switch is turned on, the VEHICLE MASTER POWER light and PARKING/SERVICE BRAKES light (if the brakes are applied) are the only lights that should come on. Any other lights mean there's a malfunction.

In all our M1s, the MASTER WARNING and MASTER CAUTION lights come on, too.

What's going on?
SSG M.L.W.



YIKES! MY
MASTER WARNING AND
MASTER CAUTION
LIGHTS ARE ON!

DON'T WORRY.
THEY'RE SUPPOSED TO
BE LIKE THAT.

Dear Sergeant M.L.W.,

Not to worry, Sergeant. The MASTER WARNING and MASTER CAUTION lights are supposed to come on. They're to warn you against driving your vehicle while the parking brake is still engaged. That'll tear up the transmission in no time. Make a note until the manuals can be updated.

Half-Mast

Keep Engine Breathing Easy

The air induction system for your M1-series tank engine works like a giant vacuum cleaner—it sucks in anything that gets close.

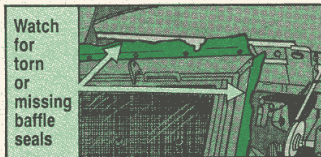
That's the reason for your tank's seals and filters. They're needed to screen out sand, dirt, and rocks so that only clean, fresh air gets through.

If the seals and filters aren't doing their job, dust accumulates and makes the engine overheat. Larger particles can dent, crack or break the compressor blades. The end result is a dead engine.

Put a stop to engine failure by paying special attention to the precleaner, skirt seals, and ground hop filter.

Precleaner

Look closely for damage to the baffle seals. Cracked, torn or missing seals allow dirt and oil from the engine to clog the air cleaner assembly element strainers.

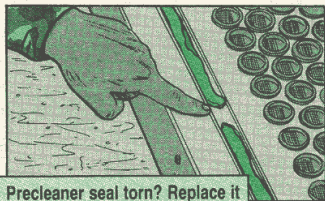


Watch for torn or missing baffle seals

NSN 5330-01-225-6106 gets a new short seal. The longer seal comes with NSN 5330-01-320-3696.

Now eyeball the bottom precleaner seal. If the seal is missing, loose or

torn, replace it. NSN 5330-01-166-5798 gets a seal for the type A precleaner.



Precleaner seal torn? Replace it

The type B precleaner takes NSN 5330-01-329-6614. A new seal is useless, though, unless you put it on right. Here's how:

- 1 Clean off the old seal and adhesive completely. To do it right you'll need a lot of elbow grease — combined with a rag, dry cleaning solvent and a wire brush.
- 2 Spread adhesive, NSN 8040-00-664-4318, in the seal groove. Use enough to hold the seal, but not enough to squeeze around the seal. That'll keep the seal

from sticking to the airbox frame and ripping loose every time you remove the precleaner.

3 Apply a very light coat of adhesive to the bottom of the new seal and press it into the groove with your finger. Take extra care not to twist the seal as you put the rounded side in the mounting groove. A twisted seal is not airtight.

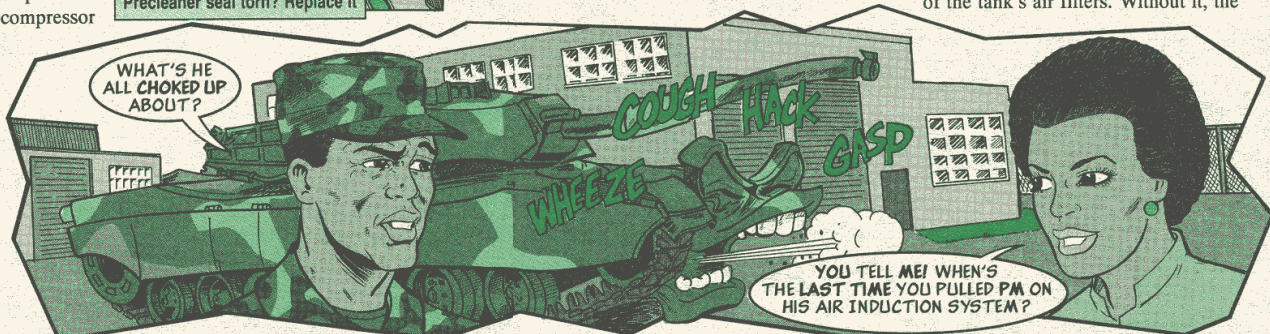
4 Let the new seal dry before you put the precleaner back in place.

NSNs for the seals are listed in Figs 261-264 and 266 of TM 9-2350-255-24P-1 for the M1. For the M1A1, the seals are listed in Figs 256-259 and 261 of TM 9-2350-264-24P-1.

Ground Hop Filter

Mechanics, whenever you pull the powerpack for maintenance and run-up, remember to use the ground hop filter.

The ground hop filter takes the place of the tank's air filters. Without it, the

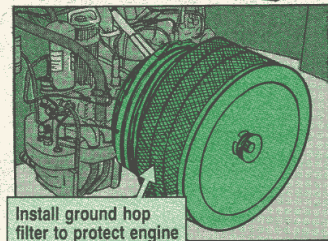


Skirt Seals

Look for missing fender skirt seals. Those rubber strips are there to seal the area between the skirts and hull.

Missing seals allow dirt and dust to be sucked up the inside of the fender skirts. The dirt gets pulled into the air intake system where it clogs up the filters fast.

All the seals are important, but pay special attention to the seals at skirts 4, 5 and 6 on the left side of the vehicle. These seals are closest to the air intake grills.



Install ground hop filter to protect engine

engine sucks in dirt, dust, sand and whatever else is handy. That's an engine killer for sure.

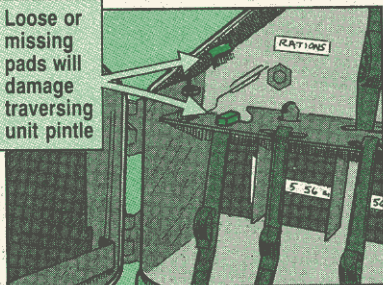
PAD YOUR PROTECTION

Crewmen, loose or missing bracket pads in your Bradley's accessory storage box mean trouble. Loose pads turn up missing. Missing pads let the brackets damage the traversing unit pintle.

Keep a close eye on the bracket pads. Once they loosen or disappear, report them to your mechanic so he can replace them. Here's how:

1. Remove the old pads.
2. Clean the bracket mating surface with isopropyl alcohol and a clean rag.
3. Make two new pads from seal stock, NSN 5330-01-138-4856. Cut one pad $3/8 \times 3$ inches and the second $3/4 \times 2$ inches.
4. Put a small dab of adhesive, NSN 8040-01-303-3082, on the bottom of each pad with adhesive brush, NSN 7920-00-255-7529. Let the adhesive dry until tacky.
5. Press each pad firmly against the brackets.

Loose or missing pads will damage traversing unit pintle



WELL, EVERYTHING'S STOWED. I GUESS WE'RE READY TO ROLL.

NOT YET, SOLDIER! DID YOU CHECK THE BRACKET PADS?

Use the Right Tool

Dear Editor,

If you've ever had to remove MLRS batteries, you know how frustrating and time-consuming it is to take the nuts off the battery tiedown bolts.

We can't use the 10mm sockets from our tool sets because the bolts are too tall. That means you have to slowly work all 12 nuts off with an open-end wrench. Then you have to do the same thing all over again when you're finished with the batteries.

I found some deep-well 10mm sockets that make removing the nuts a matter of minutes instead of hours. Just order the one that fits the drive on your socket wrench:

SGT Bryan Dodd
Ft Hood, TX

Drive	Type	NSN 5120-01-348-
1/4-in	6pt	7263
1/4-in	12pt	7276
3/8-in	6pt	9189
3/8-in	12pt	9174
1/2-in	6pt	9052
1/2-in	12pt	9071

MAN, LOOSENING
 THOSE BATTERY TIEDOWN
 NUTS PUT A STRAIN ON
 MY ARM!

IT WOULDN'T
 HAVE IF YOU HAD THE
 RIGHT SOCKETS!

FROM THE DESK OF THE *Editor* 

Good idea! Having the right tool can make all the difference. Use Appendix A of CIA 50-970 as your ordering authority.

BUCKLE UP @ SEATBELT PROBLEMS

MLRS seatbelt boots or sleeves tend to spread and crack with repeated use. If the boot spreads enough to trap the seatbelt release, your crewman may have trouble getting the belt off.

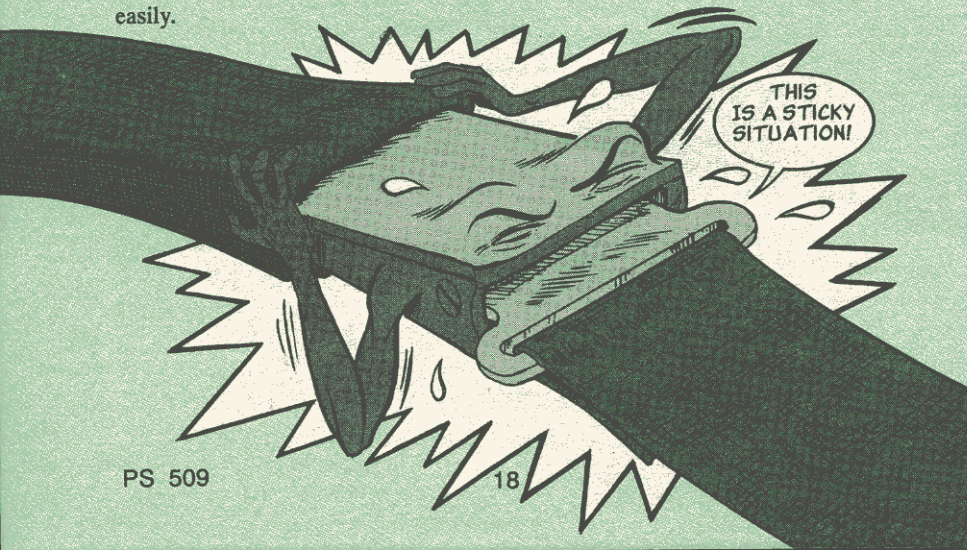
When buckle release gets blocked here, remove boot material to provide 1/4 inch clearance



And that could be bad news in case of fire or an accident.

Here's how your friendly repairmen can buckle up that problem:

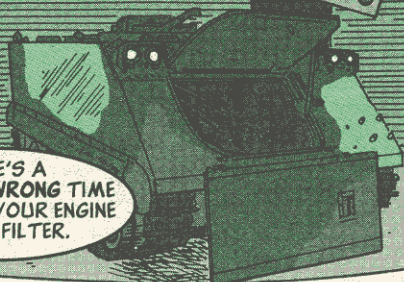
- ① Find the edge of the boot nearest the buckle release lever.
- ② Use diagonal cutters to clip the boot so that there's at least 1/4 inch clearance between the boot and the buckle release.
- ③ Make sure the belt webbing hasn't been damaged. If it has, replace the belt, NSN 2540-01-147-9977.
- ④ Close and open the buckle several times to make sure the belt release operates easily.



'HARD TIME'



THERE'S A
RIGHT AND WRONG TIME
TO CHANGE YOUR ENGINE
OIL AND FILTER.



Dear Half-Mast,

Card 2 of LO 9-2350-261-12 (Ch 3) says that the engine oil filter elements in our M113A2 carriers must be changed according to "hard time" intervals.

We're running into situations where AOAP testing requires us to change the oil and oil filter, only to turn around and do it again a few weeks or months later because the hard time interval comes up. That's a big waste of time and resources.

Also, there's disagreement about just what the hard time interval really is. Para 6 on Card 8 says it should be 1,500 miles or annually. But the pointer on Card 7 calls for a semiannual interval. Which one is right?

SSG J.A.

Dear SSG J.A.,

The LO is a bit confusing on those points, Sergeant. First of all, the hard time interval should be one year instead of six months. Make a note in your LO until it can be updated.

The oil filter element should be changed every time the oil is changed. As the LO says, that oil change can be dictated by AOAP, hard time intervals, or operation under unusual conditions.

In any event, whenever the oil and filter are changed, the hard time interval immediately resets. Unless you are directed by AOAP or unusual conditions, you shouldn't change the oil or filter again for one year or 1,500 miles.

Half-Mast

Use Care with Control Box

SQUARK
ON NET
SQUEAL



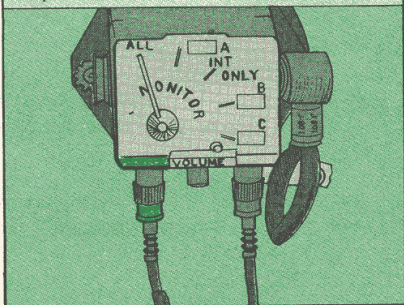
WHAT'S THAT?
SAY AGAIN? ALL I'M HEARING
IS ANIMAL SOUNDS!

If the sound coming from your tracked vehicle's AN/VIC-1 intercom system squeals like a stuck pig, try these PM tips:

Make sure the CVC cords are hooked up right. If you accidentally reverse the connections, your set is hot miked. That means keying the helmet switch will override all other comms on the net.

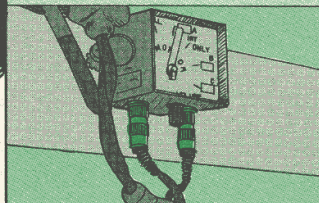
You can tell which one goes where by the yellow markings on the long cord and the control box.

No marks? Make them yourself by dabbing some yellow paint on the recessed ring on the long cord's connector and above the control box's left receptacle

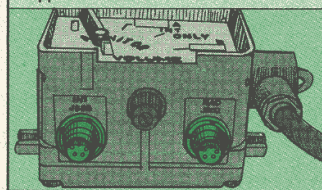


Doublecheck the connection with this quick test: Move the helmet switch forward. If it keys the radio, you're OK. If you don't break squelch, switch the connectors at the control box.

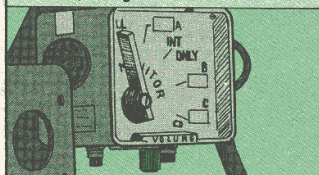
Snug up cable connectors. You get static or silence if connectors are loose



Keep contacts clean and dry. That keeps static from drowning out words you're supposed to hear



Turn the volume down. When volume is on HIGH, background noise is louder



If your intercom is still squealing, see your repairman.

This Tent's for You, Combat Crew

Combat vehicle crews, there's a new tent just for you. It's the Soldier Crew Tent (SCT).

The tent is lightweight and easily erected by one or two soldiers. It has a reversible fly and is made of water- and flame-resistant nylon. The aluminum frame unfolds, and is connected by wire cables.

Put up the frame first, then suspend the tent under it. Then stretch the fly over the whole thing.

There are two identical tents except for the fly color. Type I, NSN 8340-01-359-0084, has a reversible green and tan fly. Type II, NSN 8340-01-359-1481, has a reversible green and white fly.



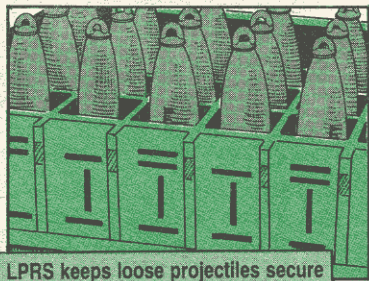
Put Projectiles in Their Place



Transporting a load of 155mm projectiles is a breeze as long as the pallets are full. It's when the steel bands are cut and the pallet's not quite full that you've got a problem. Unless you're careful, you'll have a bunch of loose projectiles rolling around in the back of your ammo vehicle — and maybe all over the road.

Put those projectiles in their place with the loose projectile restraint system (LPRS). LPRS is a set of long and short plastic panels that fit together into an "egg crate" configuration. Loose projectiles are kept right side up and steady.

Each LPRS, NSN 2590-01-223-2949, holds 15 individual projectiles. Separate panels are also available as replacement parts. NSN 2590-01-223-2944 gets one long panel. A short panel comes with NSN 2590-01-223-2945.



LPRS keeps loose projectiles secure

PLUGGED UP

HMM-M,
LOOKS LIKE
A CASE OF
ONE PIN TOO
MANY.

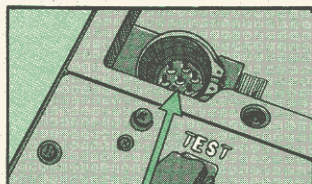
A bunch of TOW vehicle power conditioners (TVPC) that have a plug in the J2 connector have gotten into the field. That plug prevents a good connection between the TVPC and the J10 connector in the digital missile guidance set (DMGS).

No problem, though.

Just remove the battery or TVPC from the DMGS. Eyeball the J10 connector in the TVPC compartment. If the J10 has seven pins, that's one too many.

Support needs to remove pin 1, the center pin, with the pin extraction tool in their tool kit.

Once the extra pin's gone, you're back in business.



Pin in center? Support will remove it

It's the Knobs

If your TOW fails the self-test with four dots on the outside of the test display corners, suspect the op sight knobs.

Continued twisting of the azimuth and elevation knobs wears away the knob stops and makes it difficult to center the knobs for boresighting. That means a failed self-test.

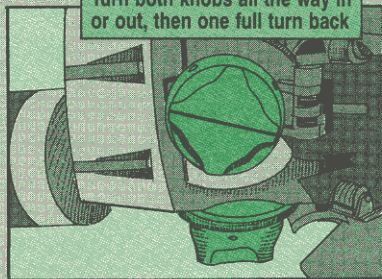
Don't let bad stops stop you. Turn off the power. If knob stops are gone, turn both knobs either all the way in or out. Then turn both knobs back one complete turn. That gives you a rough center to pass the self-test and lets you fine tune the sight.

Save stops by not muscling the knobs. When you reach the knob stop, stop

turning. Pushing the knob past its stop is not the way to boresight. If the sight's not centered when you reach one knob's limit, it's the other knob that needs adjusting.

Your repairman can take care of bad stops.

Turn both knobs all the way in or out, then one full turn back



More Power TO YOU

YOU'D BETTER DO MY BATTERY PM IF YOU WANT ME TO BE AN ACTIVE AVENGER!

A POWERFUL SUGGESTION!



Batteries are the heart of your Avenger. If they weaken, your Avenger weakens. It doesn't have enough juice to rotate and shoot.

But that's not all that weak or poorly-maintained batteries cause.

Poorly-charged batteries often boil out their electrolyte. Every time electrolyte boils out, the battery loses charge capacity and the acid damages batteries and sometimes the Avenger itself.



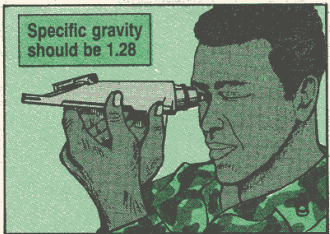
NO PM BURNS ME UP!

Poorly-charged batteries also freeze more readily and have more problems with sulfuric acid caking around the terminals.

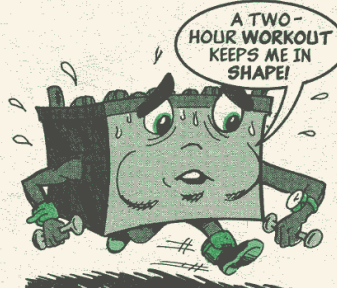
And it takes so much current to charge badly-discharged batteries that the power control box and the alternator/regulator are often knocked out.

So what can repairmen do to keep Avenger batteries in the pink? Lots.

To begin with, make sure all your Avenger batteries have a specific gravity of 1.28 ($\pm .005$). You may need to run your vehicle for up to 16 hours to get that kind of charge.

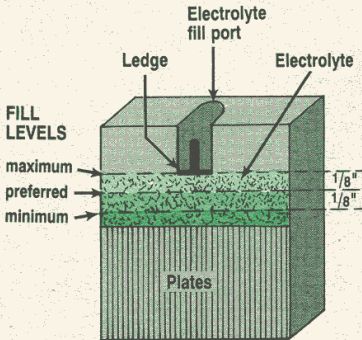


Once the batteries are properly charged, operate your Avenger at least two hours every week to maintain the charge. Keep records on each Avenger to make sure they get the two hours.

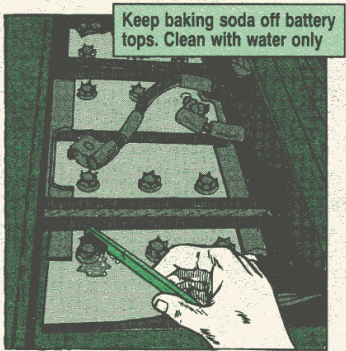


A TWO-HOUR WORKOUT KEEPS ME IN SHAPE!

Fill battery cells to $\frac{1}{8}$ inch of the cell ledge. The battery cap says fill the cell to the ledge. Forget that. At that level, the battery's more likely to boil over.

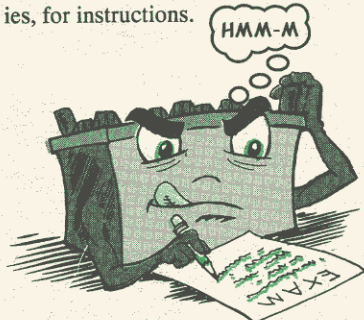


If batteries leak acid, neutralize the acid with baking soda and rinse with clean water. But keep baking soda away from the tops of batteries where it can contaminate electrolyte. Clean the tops with water only.



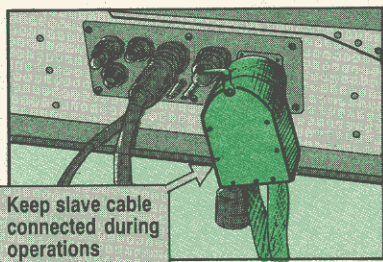
If a battery is badly discharged, charge it before you add distilled water to the electrolyte. This will reduce the amount of electrolyte boiled out during charging.

At least quarterly, test the batteries and charging system to make sure the electrical system's working and the batteries are charged and matched. See TM 9-6140-200-14, Maintenance Manual for Lead-Acid Storage Batteries, for instructions.

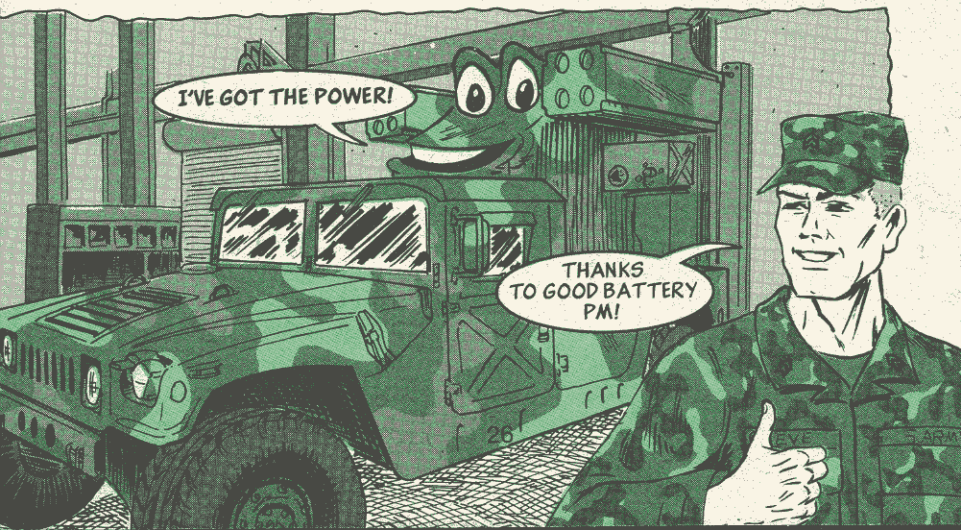
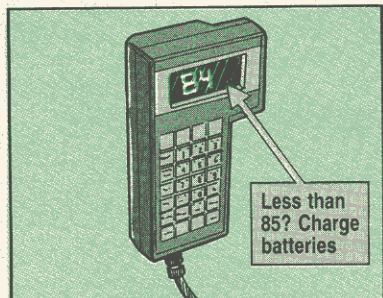


Never run the Avenger with the slave cable to the system batteries disconnected. (This is the opposite of what we said in PS 499). The Avenger was meant to be run on both the system and

vehicle batteries. Using only the system batteries reduces available power.



But when crews operate with the vehicle off, they must keep an eye on the battery indicator. Once the indicator shows less than 85 percent, start the engine and charge the batteries.

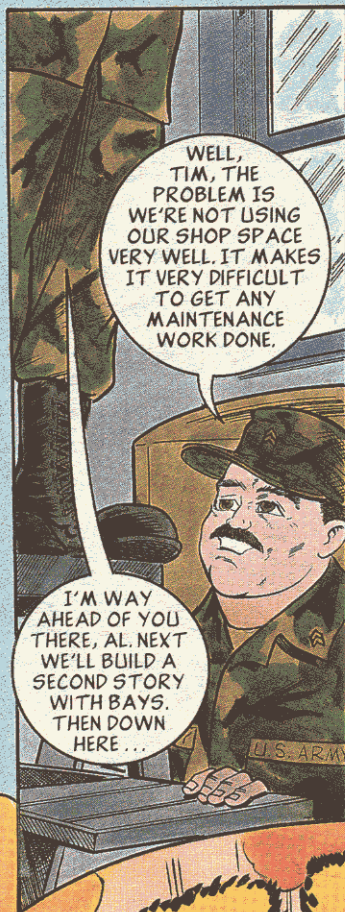


Shop Improvement

HEY, AL.
THIS TRAFFIC LIGHT
WILL HELP CONTROL
THE MAINTENANCE FLOW.
SORTA LIKE STOP IN
THE NAME OF PM.

I DON'T
THINK SO,
TIM.

WHAT DO
YOU MEAN?



WELL, TIM, THE PROBLEM IS WE'RE NOT USING OUR SHOP SPACE VERY WELL. IT MAKES IT VERY DIFFICULT TO GET ANY MAINTENANCE WORK DONE.

I'M WAY AHEAD OF YOU THERE, AL. NEXT WE'LL BUILD A SECOND STORY WITH BAYS. THEN DOWN HERE ...



... WE'LL INSTALL THE BIMFORK 10,000, A STATE-OF-THE-ART, DIGITALLY ASSISTED, HYDRAULIC POWER LIFT!

THAT BABY WILL LIFT ANYTHING, EVEN ONE OF YOUR MOM'S MEATLOAFS!



WHOOAA ...
YIKES!

CAREFUL, TIM!

CRASH!

I THINK MAYBE I'D BETTER GET A BIMFORK 300 "STEADY-LADDER" FIRST!

LATER THAT EVENING...

HEY, RANDY, IT'S TIME TO WASH UP FOR DINNER.

AHH-H, DAA-AD.

HI-DEE-HO, GLOOMY NEIGHBOR.

OH, HI, PAL.

WHY SO GLUM?

I'M HAVING TROUBLE SETTING UP OUR MOTOR POOL SO THE WORK FLOWS SMOOTHLY.

WHEN SETTING UP A MOTOR POOL, YOU'VE GOT TO REMEMBER — BEHIND ANY EFFICIENT SHOP IS AN ORGANIZED BUILDING LAYOUT.


YEAH, BUT THE COMMANDER KILLED MY IDEA FOR A SECOND STORY BAY.

AN ORGANIZED SHOP IS THE KEY FOR SECURITY, FLOW AND SAFETY. TAKE A TIP FROM TIM AND YOU'RE SURE TO WIN THE PRIZE OF PM EFFICIENCY!

AN ORGANIZED SHOP SURE RUNS SMOOTHLY. AL, I'M GLAD I THOUGHT OF IT.

ER...UH...I DON'T THINK SO, TIM.


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



THERE'S NOT TOO MUCH YOU CAN DO ABOUT CHANGING YOUR BUILDING'S SIZE OR SHAPE, NEIGHBOR.

BUT, HOW YOU ORGANIZE THAT SPACE IS UP TO YOU!

WHAT DO YOU MEAN?



WELL, TIM, YOU CAN GET THE MOST OUT OF YOUR BUILDING BY USING THESE LEADS.

SEPARATE AREAS SHOULD BE ORGANIZED FOR REPAIR PARTS, SUPPLIES AND TOOLS. REMEMBER, SUPPLY ROOMS AND TOOL ROOMS REQUIRE SECURITY, SO PLAN A GOOD LOCK-UP SYSTEM FOR THEM.



THE LION'S SHARE OF SPACE GOES TO ACTUAL MAINTENANCE WORK.

YOU'RE NOT LION ABOUT THAT!

VERY CLEVER, TIM ...


OWR, OWR, OWRU!



... ANYWAY, EACH SECTION OR AREA HAS ITS OWN NEEDS ...

... AND SAFETY HAZARDS!

VERY GOOD, SERGEANT TAILOR.



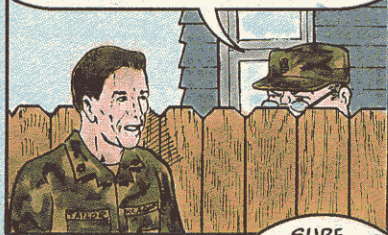
PLACE THE SHOP OFFICE, THE DISPATCHER AND TAMMS CLERK NEAR THE ENTRANCE. OPERATORS, UNIT PERSONNEL AND VISITORS USUALLY ARE LOOKING FOR ONE OF THOSE AREAS, SO PLACE THEM WHERE THEY'RE EASILY FOUND. THAT KEEPS DOWN TRAFFIC INSIDE THE SHOP.

ORGANIZE YOUR SHOP FOR CONVENIENCE, SAFETY AND A SMOOTH, EFFICIENT TRAFFIC FLOW. AS EQUIPMENT MOVES FROM PERSON TO PERSON OR SECTION TO SECTION, IT SHOULD FOLLOW A STRAIGHT LINE. EQUIPMENT OR PAPERWORK THAT BACKTRACKS GUMS UP THE WORKS AND SLOWS EVERYBODY DOWN.



I SEE, GUMMY SHOPS ARE BAD, BUT GUMMY BEARS ARE GOOD!

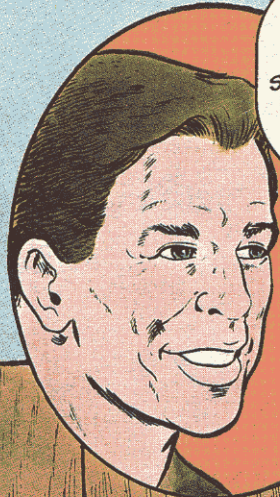
PUT PEOPLE WHO WORK TOGETHER, DO THE SAME KINDS OF JOBS, OR USE THE SAME EQUIPMENT NEAR ONE ANOTHER. THAT WAY TOOLS, SUPPLIES AND ADVICE ARE HANDY.



LOCATE FILES, CABINETS, AND RECORDS NEAR THE PEOPLE WHO NEED THEM. GOT IT?



SURE, PUBS SHOULD BE SET UP CENTRALLY, EITHER IN THE SHOP OR TAMMS OFFICE WHERE THEY'RE HANDY FOR EVERYONE.



VERY GOOD, TIM, BUT ...

DON'T FORGET TO CHECK FOR THE RIGHT AMOUNT OF DRAINAGE, LIGHT, AND VENTILATION WHERE YOU PULL CERTAIN JOBS.





Rubbed Wrong

Dear Windy,

The camlock locking ears on the Black Hawk's tail rotor pylon get badly rubbed by the fairing/antenna. Any advice on how to stop the rub?

SGT H. M.

Dear Sergeant H.M.,

Here's a fix Paul St. John at Ft Ord recommended a handful of years ago.

— Clean the locking ears and the area between the ears where the antenna cover makes contact.

— Cut rubber strips, NSN 9320-00-878-6507, to fit.

— Apply a thin coat of adhesive, NSN 8040-00-097-6524, along the chafed areas.

— Press the rubber strips firmly onto the adhesive.

— Let the adhesive cure 24 hours at room temperature.

The rubber strip is only $\frac{1}{16}$ inch thick, so it won't prevent you from latching the fairing/antenna to the pylon.

That's one fix, mechanics. Let me know if there are others out there.

Windy



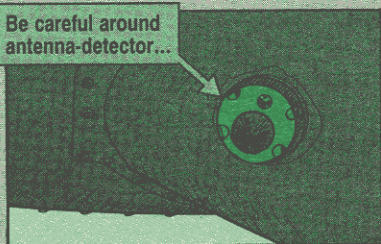
DETECTION PROTECTION

When the bad guys light up an Apache with their radar, the two good guys in that bird darn sure want to know.

They can—if their radar signal detecting set is doing its job. But the detecting set is only as good as its antennas.

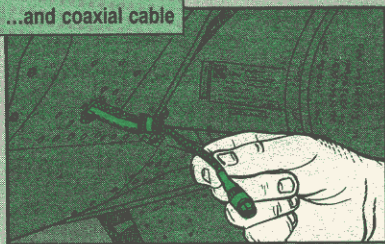
When you're doing maintenance on the Apache, take special care around the two antenna-detectors on the nose of the forward avionics bays.

Be careful around antenna-detector...



Pay close attention to the coaxial cable that ties the antenna to the receiver.

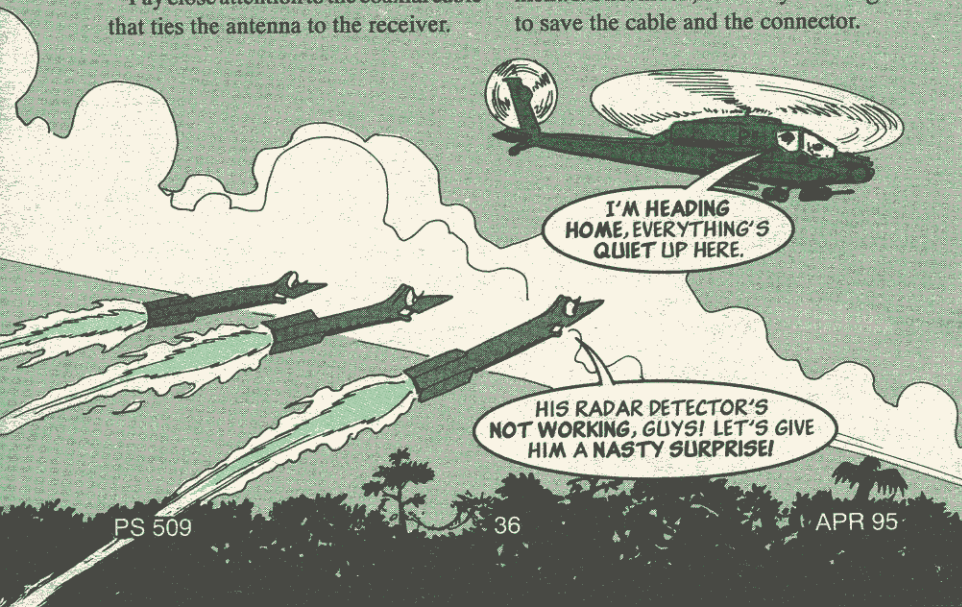
...and coaxial cable



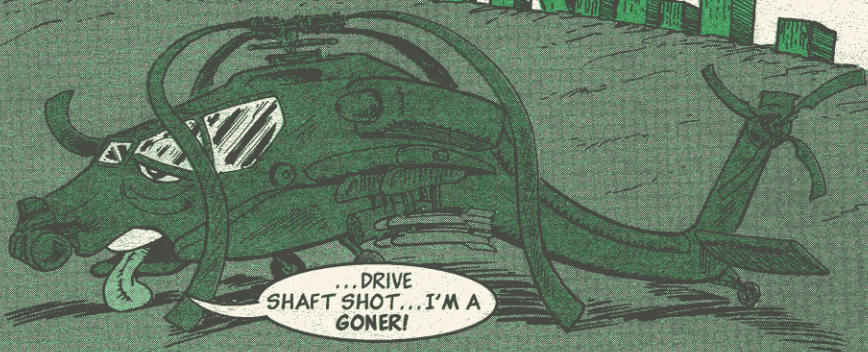
That cable has a solid wire core that's very fragile. It doesn't take much pressure to break it.

That cable also has a connector with a center pin that's brittle. Jamming the connector home or yanking it out to the side will snap the pin.

Making sure neither of these things happens starts when you remove the fairing. Loosen the antenna first. This gives the cable a little freedom of movement. It's not much, but it may be enough to save the cable and the connector.



IT'S PMORRIP!



"Innocent Bystander Bites the Dust" is the tragic headline coming out of too many maintenance hangars.

Those bystanders are drive shafts. It doesn't take much of a scratch or dent to write their obituary.

Too often drive shafts are damaged while you're working around the shaft and not on the shaft itself.

Removing the shaft-driven compressor, for example, is not a tough job in itself, but it sure puts the Number 3 tail rotor drive shaft in harm's way. There's just not much clearance around the shaft when you pull the compressor.

So there the shaft sits—an innocent bystander. Then, bingo! It takes a hit.

The fix is simple. Wrap the shaft with cloth or packing. Make sure it's clean and thick enough to protect the shaft. And don't forget that every piece of wrap that goes with you to the top of the bird better make the trip back down.

Another solution is to remove the shaft. It's held on by 10 bolts and can be quickly removed. Once the shaft is out, you can work on the compressor easily.

Be careful when you're handling the shaft or you'll still do the damage you were trying to avoid.



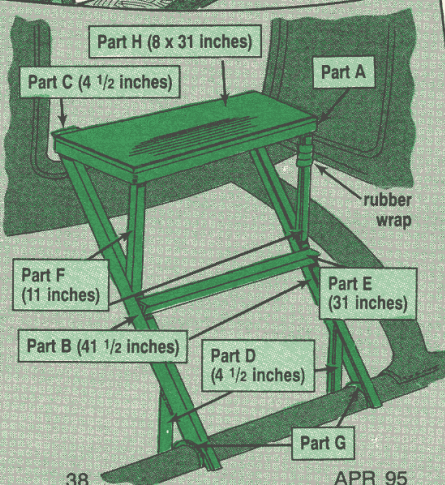
Stand by Your Bird



Dear Windy,
Most of us, when we pull inspections or do maintenance topside on our Kiowas, plant our big feet on the rear seat.

Not only are we always off-balance, but the seat gets dirty and greasy. Most work stands won't work, because the skid tube gets in the way.

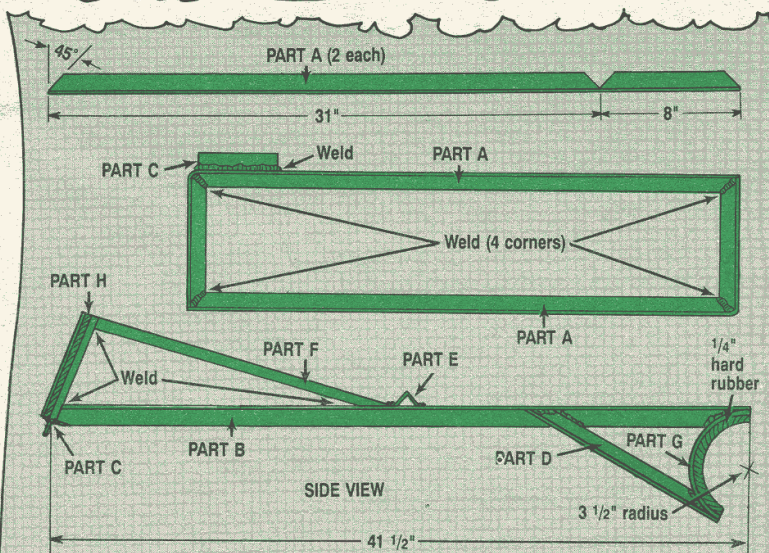
We made a maintenance stand out of 90° angle steel, 1 x 1 x .125 inch, that solves that problem. Here's what it looks like and how to make it:



PS 509

38

APR 95



1. Cut two pieces for part A as per drawing, and bend 90° at middle angle.
2. Weld two outside corners and four inside angles.
3. Weld part C on left corner as per drawing. (Weld part C on right corner for lefthand work stand.)
4. Cut appropriate pieces for parts B, D, E and F.
5. Use 1 x .125-in flat stock for part G (two pieces). Use torch to make 3 1/2-in radius bend.
6. Take all parts to aircraft and assemble with clamps.
7. Tack weld all joints and check fit.
8. Finish all welds.
9. Cut part H (top of stand) out of aluminum diamond plate or plywood (8 x 31 inches) and bolt into place.
10. Rivet a piece of 1/4-in hard rubber to each part G. This should give a good fit on 3-in skid tubes.
11. Install 1/8-in rubber to inside angle of part C.
12. Wrap rubber around part F where it touches helicopter door.

Ronald C. Dawson
Ft Meade, MD

PS 509

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APR 95

Know Where Cables Go

Your SINGGARS long range/long range (LR/LR) vehicular radio has twice the gear of other SINGGARS radios: Two receiver-transmitters (RTs), two power-amplifiers and two antennas.

That makes cable hookup twice as confusing. And it doesn't help that the RF cables look alike. A cable connected to the wrong receptacle can silence your commo or overload a power amplifier.

You can clear up cable confusion in two easy steps. The first step is learning where the cables go. The second is color coding cables and receptacles for quick identification.

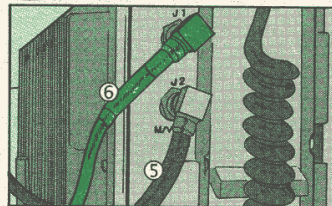
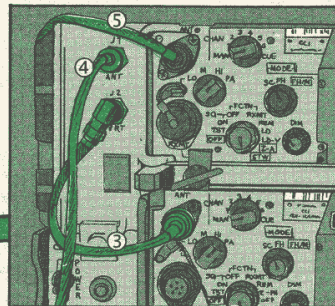
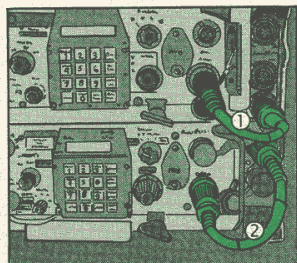
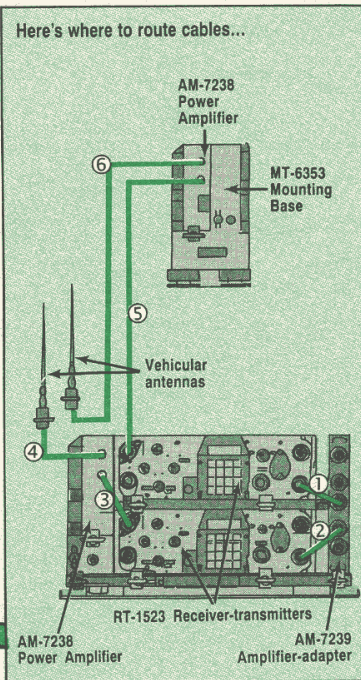
Basic Cabling

When it comes to cabling for your LR/LR radio, you need to know some basic connections.

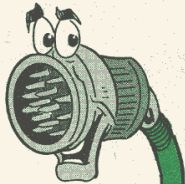
- ① W-4 audio cable from the AUD/DATA connector on the upper RT to the J4 connector on the AM-7239 amplifier-adapter.
- ② W-4 audio cable from the AUD/DATA connector on the lower RT to the J5 connector on the amplifier-adapter.

- ③ W-2 RF cable from the ANT connector on the lower RT to the J2 connector on the AM-7238 power amplifier on the left side of the amplifier-adapter.
- ④ CG-3855 RF cable from the J1 connector on the power amplifier to the vehicular antenna.
- ⑤ CG-3856 RF cable from the ANT connector on the upper RT to the J2 connector on the second AM-7238 power amplifier.

- ⑥ CG-3855 RF cable from the J1 connector on the second power amplifier to the second vehicular antenna.



FOR MORE INFO ON HOOKING UP CABLES ON YOUR LR/LR RADIO, SEE CHAPTER 3 OF TM 11-5820-890-20-1.

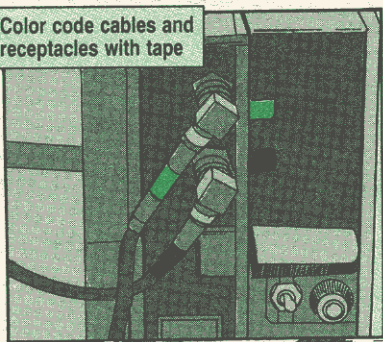


COMMUNICATIONS

Color Coding

Color coding with tape makes it easy to mate cables to the right receptacles.

Color code cables and receptacles with tape



Here are some tapes to help identify connections:

Color	NSN 7510-00-
Black	551-8474
Dark blue	550-7124
Green	550-7129
Red	550-7126
White	550-7127
Yellow	550-7125



Commo Shelters...

Covered and Cool

How do you beat the heat when the sun's beating down on your commo shelter?

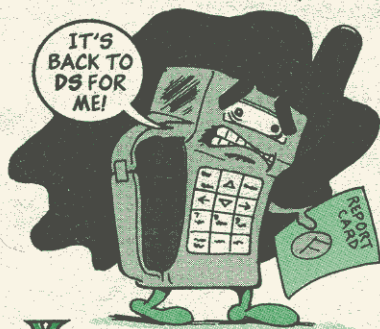
One way is to order a canopy, NSN 4940-00-937-2553, for your S-280 shelter. The canopy comes with its own mounting hardware and mounts over the roof of the shelter. It helps keep the shelter from getting too hot and damaging the equipment inside.

There's no canopy available for the S-250 shelter, but you can get a tarpaulin, NSN 5820-00-937-5530, that'll do in a pinch. The 7³/₄ X 8-ft tarp is olive drab and made of water-resistant nylon.

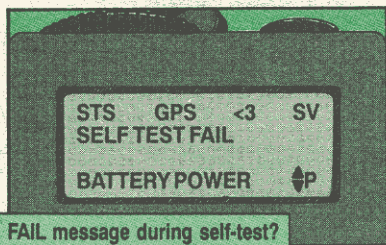
A cartoon illustration of a military truck with a smiling face and eyes. The truck is sweating profusely. A speech bubble from the truck says: "IF I DON'T GET SOME SHADE SOON, MY GOOSE—AND LOTS OF OTHER STUFF— WILL BE COOKED!". In the background, a dead goose lies on the ground under a bright sun.

IF I DON'T GET SOME SHADE SOON, MY GOOSE—AND LOTS OF OTHER STUFF— WILL BE COOKED!

Where to Send a Failed PLGR



You know how to run a self-test on your AN/PSN-11 Precision Lightweight GPS Receiver (PLGR). But do you know what to do if you get a self-test fail message on the display screen? PLGR pubs have instructions that will mislead both operators and unit maintainers.



Paragraph 12.G of TB 11-5825-275-12 (May 94), the GPS warranty bulletin, says to return the PLGR directly to the manufacturer for repair if you get a self-test fail message. That is **WRONG**.

Paragraph 8.1.1.4 of TM 11-5825-291-13 (June 94) says to return the PLGR to depot. That, too, is **WRONG**.

If you're a **Unit Maintainer**, heed the words in the **REMARKS** section

of the maintenance allocation chart in TM 11-5825-291-13. They tell you to take the PLGR to DS for an on-the-spot replacement.

MAINTENANCE ALLOCATION CHART	
SECTION IV	
REMARKS FOR AN/PSN-11	
REFERENCE CODE	REMARKS
A	Operational Test.
B	Repair is limited to the replacement of the main power battery.
C	Fault detection/verification, using Built In Test. (BIT)
D	Repair is limited to the replacement of memory battery and items coded throwaways at Org level (ie, connecting cables, other accessories, etc.). The remote and helmet antennas shall be returned to the contractor for replacement, if failure falls within the warranty coverage, otherwise they should be treated as throwaways, at the Org level.
E	Faulty LRU is evacuated to Direct Support (DS) level for Direct Exchange (DX).
F	DS function is limited to maintaining Operational Readiness Float (ORF), through fault confirmation of the BIT, and execution of the f...

After you've turned in your faulty PLGR, make sure you submit an SF 368 Product Quality Deficiency Report (PQDR) to let the headshed know there's a problem with the PLGR.

On the form, note the particular self-test fail message you got when troubleshooting your PLGR.

Mail the QDR to:

**US Army Communications-
Electronics Command
ATTN: AMSEL-LC-ED-CFO
Ft Monmouth, NJ 07703-5000**

Operators, if you get a failure message during a self-test, turn the PLGR in to unit maintenance for troubleshooting.

SAFE and SECURE in LC-2 FRAME

TMs 11-5820-667-12 and -20P are short on component NSNs for the LC-2 pack frame used to strap in your AN/PRC-25 and -77 radios.

OH, MAN, THERE GOES MY RADIO! NOW HOW WILL I CONTACT MY UNIT?!

CRASH

GET INDIVIDUAL ITEMS WITH THESE NSNs

Order entire LC-2 pack frame with NSN 8465-01-073-8326

Secure Security Equipment

The audio cables of the radios get damaged if you don't have a shelf on the pack frame for the KY-57 security equipment. This extra shelf, NSN 8465-00-001-6476, helps take the tension off the audio cables.

The shelf for the radio is authorized by TM 11-5820-667-12 and the extra KY-57 shelf is authorized by TM 11-5810-256-10-2.

RED SCOUT, RED SCOUT, DO YOU COPY?

WHAT COULD'VE HAPPENED TO HIM?

Radio

KY-57

Left quick-release shoulder strap, NSN 8465-00-269-0482

Right quick-release shoulder strap, NSN 8465-01-078-9282

Lower back strap with clamp, NSN 8465-01-151-2891

Waist strap with quick-release buckle, NSN 8465-01-075-8164

Cargo tiedown straps (2), NSN 8465-00-001-6477

Cargo support shelf, NSN 8465-00-001-6476

Strap 'em in Tight

The tiedown straps need to be tight. If the shelf pops off the frame when the straps are loose, the radio or the KY-57 could slip through the straps. In a pinch, you can use lacing wire to tie them to the frame.

Be sure you order two tiedown straps for the radio and two for the KY-57.

COMMUNICATIONS

Commo

CALL IN THE CLEANING CREW

Good PM for your commo gear means keeping it clean and protected.

HERE'S A
CLEANING CREW
THAT KNOWS
WHAT TO
DO.




Item/NSN	Quantity	Use
Cleaners and solvents		See TB 43-0135 for a complete listing of environmentally safe solvents and cleaners for use with communications-electronics equipment
Silicone compound 6850-00-880-7616	8-oz tube	Lubing O-rings, grommets, gaskets, antenna threads
Isopropyl alcohol 6810-00-753-4993	8-oz can	Cleaning circuit boards, electronic components, night vision optics
Varnish 8010-00-515-2487	1 pint	Moisture, fungus protection
Lubricating grease 9150-00-257-5358	8-oz tube	Antenna contacts (non-insulating)
Disposable applicator 6515-00-303-8100	package of 864	Night vision optics
Corrosion preventive* 8030-00-546-8637	16-oz can	Protects connector threads, plugs, cables
Denatured alcohol 6810-00-201-0906	1 pint	Cleaning plugs, springs (in humid areas)
Polishing cloth 7920-00-985-6849	13 1/2 x 11-in sheet	Switchboard plugs and jacks
Silicone compound 6850-00-927-9461	5-oz tube	Heatsink compound, heat protection
Lens tissue 6640-00-240-5851	100 sheets	Night vision equipment, optics
Lens cleaner 6850-00-392-9751	2-oz bottle	Projection equipment
Anti-static compound 6850-00-882-6690	3 1/2-oz bottle	Plastic gauge windows
Insulating compound 5970-00-181-0190	Kit	Protective coating for printed circuit boards


* Older stocks of this item may contain Class I Ozone-Depleting Substance (ODS) propellant. Use these until they're gone. Newer stocks under this NSN contain an environmentally safe propellant.


The Latest Word on Cleaning

If you do PM on commo equipment, you need TB 43-0135, Environmentally Safe Substances for Use with Communications-Electronics Equipment.

This TB is an absolute must for cleaning your gear. Here's a sample of what you'll find between the covers:

 A list of chemicals and cleaning solvents, like trichlorotrifluoroethane, that are no longer approved for use because they harm the atmosphere.

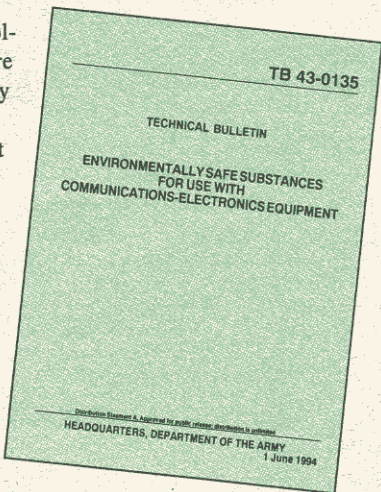
 Environmentally safe replacement solvents that are available in the supply system and through local purchase.

 Descriptions and characteristics of approved solvents.

 Guidelines for cleaning commo gear.

 Cleaning solvent and protective equipment WARNING statements.

If you didn't receive TB 43-0135 during its initial distribution, ask your pubs clerk to order it on DA Form 4569. To get future revisions and changes, make sure the TB is added to DA Form 12-34, Block 4551.



Small Generators . . .

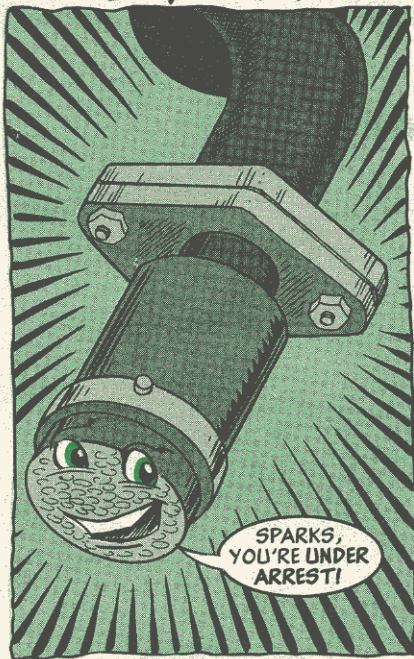
ARREST THAT SPARK!

Small gasoline generators sometime give off sparks that set dry woods or fields ablaze. So, before you run your generator in the boonies, make sure you've got a spark arrester on the engine muffler.

Try these spark arrester kits for small generators:

Generator	NSN 2990-01-032-
.5- and 1.5-KW	0755
3-KW	7384
5-KW	0757
10-KW	3750

Each kit comes with installation information.



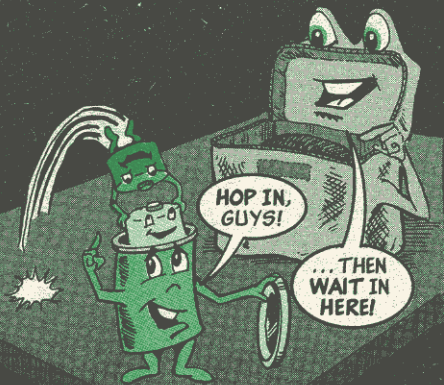
Night Vision Goggles . . .

Store Batteries Close at Hand

Operators, if you have AN/PVS-5 or -7 night vision goggles (NVGs), you know how easy it is to misplace those little BA-5567/U lithium batteries.

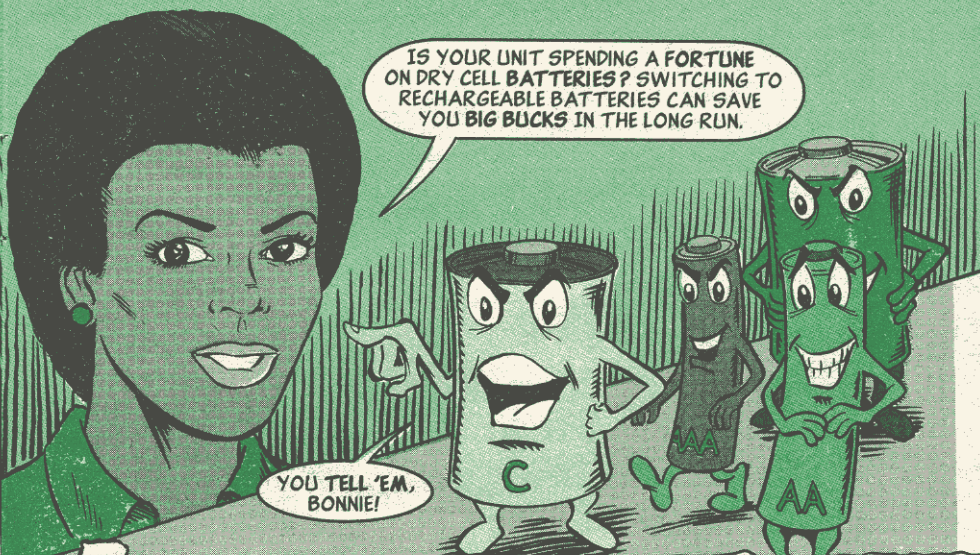
Well, here's a way to keep them handy: Just store two batteries head-to-head (positive-to-positive terminal) inside an empty 35mm film container and put it in the NVG case.

That'll keep the batteries dry, clean and close at hand.



Batteries . . .

You'll Get a Charge Out of This



Compared to non-rechargeable carbon zinc or alkaline batteries, rechargeable batteries...

- Last longer.
- Can be recharged 25 times or more.
- Don't create as much waste because they're reusable.

Here's a list of commonly used non-rechargeable batteries, along with their rechargeable equivalents:

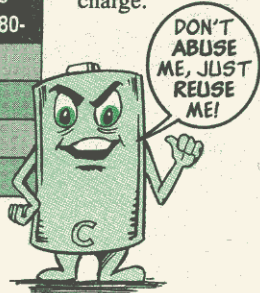
Cell size	Carbon zinc NSN 6135-	Alkaline NSN 6135-00-	Rechargeable NSN 6140-01-380-
AAA	00-816-8253	826-4798	9984
AA	00-643-1309	985-7845	9981
C	01-112-1699	985-7846	9563
D	00-835-7211	835-7210	9558

And here are two battery chargers that are available:

■ NSN 6130-01-381-0827 brings a four-position charger used to charge AAA and AA batteries.

■ Eight-position battery charger, NSN 6130-01-381-0828, charges AAA, AA, C or D batteries.

Sizes AAA and AA can be recharged in three to five hours. Sizes C and D take overnight to recharge.



Carrier and Microphone Solutions

The new M42 mask is bulkier than the old M25. That's going to cause a few problems in the M1-series tank:

The M42 carrier is too bulky for you to wear and get in and out of the M1 without banging it up. Take off the carrier and hand it through. Or if you will be wearing the mask, put it on before you get in the tank and strap the canister to your leg.



In the older M1 tank, store the M42 carrier in the same places you stored the M25s. In the M1A1, though, store the carrier like this:

Drivers, put the carrier at the rear of the driver's instrument panel (DIP). Hold it in place with a bungee cord, NSN 5340-01-029-9084.



WHAT HAPPENED TO YOU?

YOU DID! THIS IS WHAT I LOOK LIKE WHEN YOU DON'T STOW ME CORRECTLY!

Gunners, stow the carrier against the slip ring cover and secure it with a bungee cord.



Tank commanders, put the carrier in the same place you put the M25 — on the partition between the semi-ready door and the TC seat.



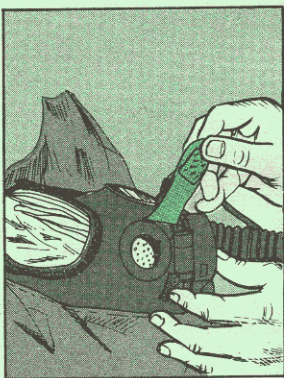
Loaders, put the carrier in the same place you put the M25s, except in the M1A2. There, put it in the holding area below the seat.



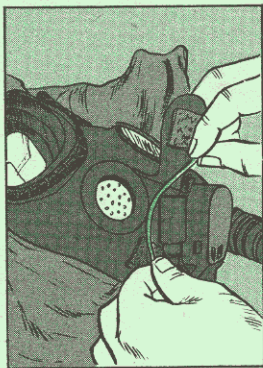
Microphone Cord

Some tank gunners may find the M42 microphone cord catches on the NORMAL DRIFT knobs or the ammunition select switch. If it does, reroute the cord like this:

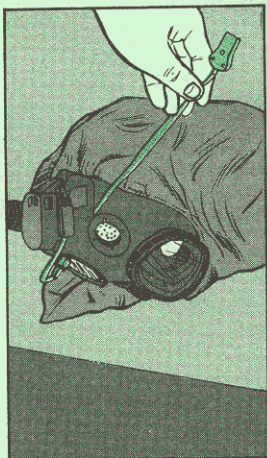
1 Lift the velcro flap on the right side of the front of the mask next to the outlet valve cover.



2 Pull the microphone cord under the flap between the outlet valve cover and the side voice-mitter.



3 Close the velcro flap so the microphone cord is under the flap rubber. The cord should come out next to and below the side voice-mitter.



If you move to a tank with a different type of ammunition select switch, check to see if the microphone cord interferes with the switch. Put back the cord the way it was if necessary.

I'LL TAKE GOOD CARE OF YOU FROM NOW ON!

THAT MAKES ME FEEL SECURE!

SHELF LIFE



HERE'S THE SHELF LIFE FOR SOME OF THE ITEMS IN THE NBC ROOM ...

Item	Shelf Life
M9 detector paper	3 years
M256A1 detector kit	5 years
MK1 injector kit	5 years
M258A1 decon kit	All kits in field are extended until July 1995 (extendable)
M291 decon	5 years (extendable)
M295 decon	5 years (extendable)
Mask filters	See SB 3-30-2

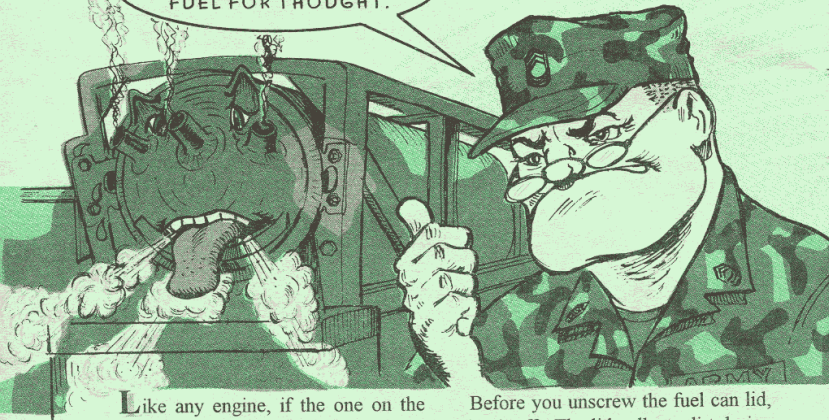
If the item's shelf life is extendable, check with your ACALALAR before you dispose of the item. Its shelf life may have been extended.

Do not throw away any of these items without talking to your environmental officer first. Some of these things are considered hazardous materials and require special handling.

Fuel

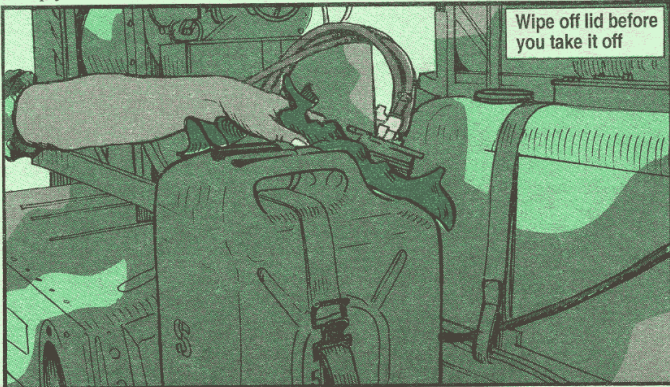
for Thought

NO FUEL MEANS
NO SMOKE. HERE'S SOME
FUEL FOR THOUGHT.



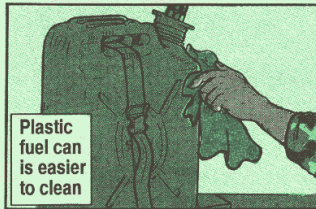
Like any engine, if the one on the M157 smoke generator doesn't get clean, uncontaminated fuel it won't run long. Here's some fuel for thought on how to keep your M157 smoking happily:

Before you unscrew the fuel can lid, wipe it off. The lid collects dirt during travel. If the lid's not cleaned, some of that dirt falls in the fuel can and then travels to the fuel pump and plugs it up.



Before you go to the field, eyeball the inside of the fuel can for dirt and gunk. Dump contaminated fuel in an approved container, rinse out the can with clean fuel, and dump it. Then refill with clean fuel.

If you're still using a metal fuel can, you might want to switch to a plastic one. Plastic fuel cans are easier to clean and service and don't deteriorate on the inside. Get an olive drab 5-gal plastic fuel can with NSN 7240-01-337-5269 or a sand-colored one with NSN 7240-01-337-5268.

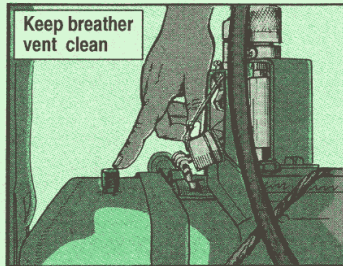


Never remove the tank strainer when you fill the fog oil tank. That lets sand and dirt head straight for the primary strainer screen. As soon as the screen's blocked, the generator shuts down.

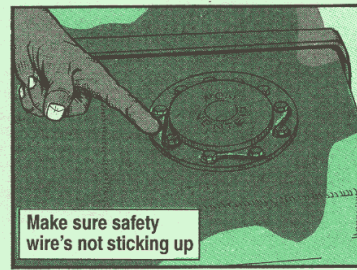


The secret to filling the fog oil tank is to push the nozzle all the way down to the strainer. That way, fog oil doesn't overflow and make a gooey mess.

Before you go to the field, clean off the breather vent to the fog oil tank. If the vent can't breathe, the generator doesn't get air and you get no smoke.



One safety tip: Eyeball the safety wire for the bolts on the fog oil tank strainer. If a wire's sticking out, use a screwdriver to bend it in. Otherwise, you're going to be stuck by the wire when you unscrew the tank cap. That smarts.



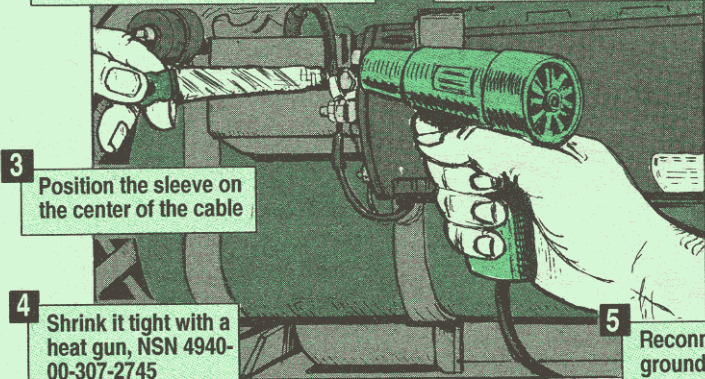
Stop **Shorts** Short



Air compressors for the M157 smoke generator are shorting out when the bare part of the compressor ground cable touches the compressor positive terminal. Stop shorts short, repairmen, with this fix:

1 Disconnect the ground cable from the air compressor mounting bracket

2 Cut a 6-in piece of 1/2-in dia. shrink electrical sleeve, NSN 5970-00-812-2967



3 Position the sleeve on the center of the cable

4 Shrink it tight with a heat gun, NSN 4940-00-307-2745

5 Reconnect the ground cable

Reporting Supply Problems

HERE ARE SOME
DIFFERENT WAYS YOU
CAN REPORT SUPPLY
PROBLEMS.



Report GSA supply problems to the National Customer Service Center (NCSC) by:

- ★ Calling the 24-hour hotline.
**Toll-free 1-800-488-3111 or
Commercial (816) 926-7447 or
DSN 465-7447**
- You can also report shipping, transportation or billing errors through this hotline.
- ★ Faxing the information.
**Commercial (816) 926-6952
DSN 465-6952**
- ★ Sending the information by electronic mail:
Military customers use--
RODSM.NCSC@GSA.GOV
Civilian customers use--
RODSC.NCSC@GSA.GOV
- ★ Using the MUFFIN (Multi-Use File for Interagency News) software bulletin board:

Access this bulletin board with a personal computer and modem.

Dial (202) 205-3890 at 300, 1200, 2400, 4800, or 9600 bps (full duplex, 7 data bits, 1 stop bit, even parity). If needed, contact your computer support folks for assistance.

When your computer is connected, hit your carriage return until a ":" appears on the screen. Then type "HELLO (space) GSA.MUFFIN".

When prompted for your ID, type your DODAAC (6 digit activity address code). If you do not know your address code, enter the acronym for your agency. For example, you'd type LOGSA for Logistics Support Activity.

Now, follow the menus generated by MUFFIN.

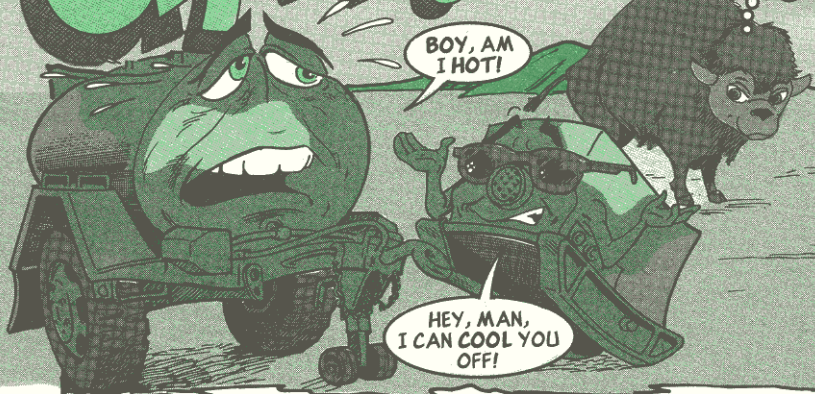
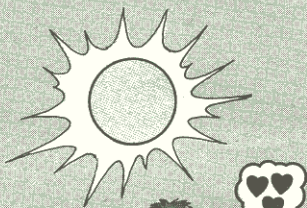
To report a discrepancy, select "E" (Quality Improvement Program) from the menu. From the next menu select either "A" or "B", depending on the type of discrepancy involved. Then just follow the instructions.

- ★ Reporting problems by message (MSG). The routing identifier for NCSC is RUEOPUO for unclassified and RULSSAA for classified.

- ★ Mailing your information to:
**National Customer Service Center (6FR)
1500 E. Bannister Rd
Kansas City, MO 64131**

Remember NCSC accepts any discrepancy, regardless of dollar amount.

Chill!



BOY, AM I HOT!

HEY, MAN, I CAN COOL YOU OFF!

Hot water in your buffalo won't cut the dust in your throat when the mercury soars!

So take that buffalo by the horns by adding a small mobile water chiller, NSN 4130-01-315-7583.

The chiller can be used on all M149-series trailers, the 250- and 400-gal water trailers, the 50-gal fabric drums and even the 5-gal cans.

To mount the chiller, modify the trailer using the mounting kit that comes with the chiller.

The chiller is powered by an 18-HP gas engine. It has an electric starter to help you get it going. But don't use it! The instructions on the chiller's data plate say you can use either 12-volt or 24-volt auxiliary power to start the engine — but don't believe it! Twelve volts

will do the job, but 24 will burn out the starter button, wiring and the starter itself.

You won't find tactical trucks with a 12-volt electrical system, so your best bet to start the chiller is muscle power.



LIFE ON THE SHELF



Most items ordered through the supply system have a shelf-life. That means that the product performs best if it's used before the date printed on the package or item.

Before you accept an item, look to make sure the shelf-life has not expired. If the item has a short expiration date, use it first.

Items you already have on your shelf should be checked monthly to determine if testing or disposal is necessary.

If you need more information on shelf-life management, write:

LOGSA PSCC
ATTN: AMXLS-TP
11 Hap Arnold Blvd
Tobyhanna, PA 18466-5097

Or call:

DSN 795-7145
Commercial (717) 895-7145

Or contact the Army shelf-life coordinator using e-mail:

olollis@tobyhanna-emh1.army.mil

Depot-level Repair



A NOTE
FOR DIRECT SUPPORT
UNITS—CHECK TO SEE IF YOUR
GS UNIT CAN PERFORM
DEPOT-LEVEL REPAIRS.

If the maintenance repair code for an end item is D or L in its parts manual, your General Support (GS) unit may be able to repair it locally.

GS units (including AVIM) that have repair capability can be named as specialized repair activities (SRAs). That means they can perform depot-level repairs on certain items.

AMC subordinate commands authorize these repairs on a case-by-case basis. GS units must check out Para 3-13 of AR 750-1 in Maintenance Management UPDATE 14 to find out how to request authorization.

For more information on SRAs, call AMC Logistics Support Activity (LOGSA) on DSN 645-9653 or commercial (205) 955-9653.

Supply. . .

Get DLA Customer Handbook

If you work in or with unit supply, be sure to get a copy of the latest edition of the Defense Logistics Agency's Customer Assistance Handbook.

In it you'll find points of contact for the various DLA distribution depots and service centers and DLA activities, such as S9G, S9C, S9E or S9I. It also has other useful info, such as supply codes, a list of acronyms, a priority

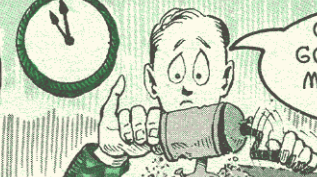
chart and a handy-dandy Julian date calendar.

To get your copy, call:
DSN 284-7871/7872/7873
Commercial (703) 274-7871/7872/7873

Or write:
Defense Logistics Agency
ATTN: MMSM
Cameron Station
Alexandria, VA 22314

APRIL
15

Connie's
POST
SCRIPTS



CONNIE...I'VE
GOT A BAAAAAD
MAINTENANCE
PROBLEM!



LRT-110 Crane Brakes

When the sun and rough handling KO the caps on an 7 1/2-ton rough terrain crane's brake master cylinders, wait one before ordering the whole cylinder. TM 5-3810-305-24P doesn't list the caps and diaphragms. You can get them separately, though, with NSN 5340-01-173-9156 (cap) and NSN 5340-01-173-9155 (diaphragm).

HEMTT Fuel Element

NSN 2910-01-022-8183 gets the right-size element for the HEMTT's secondary fuel filter. The NSN in TM 9-2320-279-20P brings an element that's too small.

Trailer Wheel Bearing

NSN 3110-00-100-5951 gets the complete wheel bearing—the cone and rollers and the cup—for the M149 trailer. Jot down the NSN until the TM's updated.

Standard Flight Suit

Flyers summer coveralls, available in NSN series 8415-01-351-0316, is now the standard military flight suit. The old flight suits, NSN 8415-01-043-8376 and 8415-01-291-1227, are being issued until exhausted.

STE-M1/FVS Hotlines

The Tank-automotive and Armaments Command (TACOM) has hotlines to answer all your STE-M1/FVS test equipment questions. Call them 24 hours a day at:

* **United States 1-800-229-3458**

* **Germany 0130-81-8694**

* **South Korea 0078-16-800-7547**

State your name, unit, telephone number (commercial or DSN), and the problem. You will usually get a reply within 24 hours.

Read SEE Hourmeter Right

The last digit on the hourmeter on the small emplacement excavator counts hours too. Even though it's RED, it counts hours, not tenths of hours. If you read the time wrong, you miss needed services.

Nix Fuel Line Mix

The fuel line quick-disconnect, NSN 4730-00-738-8571, used on M109-series howitzers or M992 ammo carriers has several manufacturers. Each works equally well—at least until you try mixing different halves. A mismatched quick-disconnect will reduce or even cut off fuel flow, stopping your vehicle in its tracks.

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?

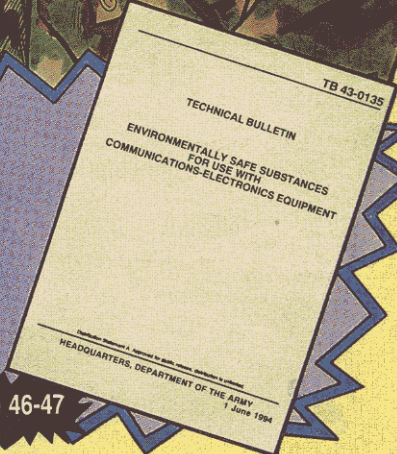
☆ U.S. GOVERNMENT PRINTING OFFICE: 1995 — 650-076/20004

For sale by the Superintendent of Documents, U.S. Government Printing Office Washington, DC

Confused over what Commo Cleaners to Use?



Get the word on
environmentally safe
cleaners in TB 43-0135



For related stories on cleaning, see page 46-47