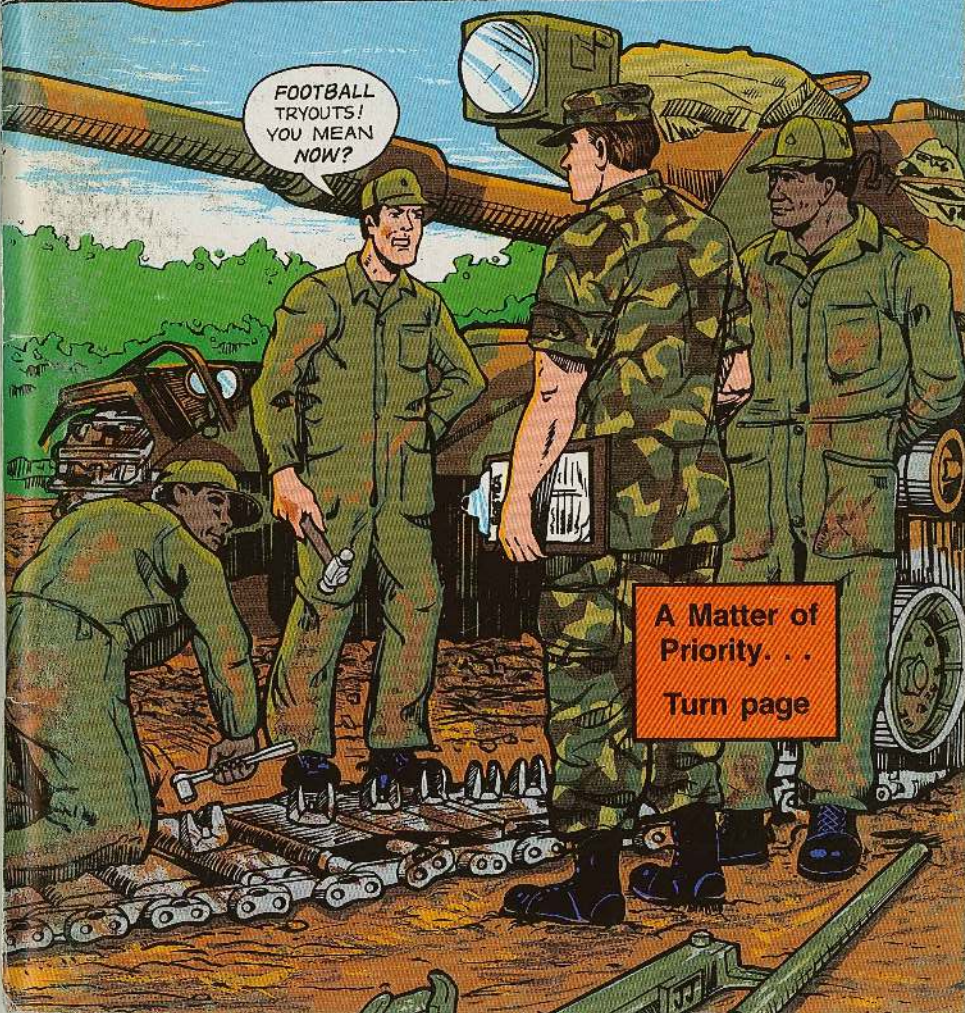
Issue 381

PS

August 1984

THE PREVENTIVE MAINTENANCE MONTHLY



Time for Readiness

Somehow there's never enough time to do all of the equipment maintenance that needs to be done. Yet there seems to be time for things that have little, if anything, to do with "what it's all about"—combat readiness.

There's hardly a day when lights are turned off and doors locked with a finality that says all scheduled periodic services are wrapped up. . .all problems reported on DA Form 2404 are solved. . .all equipment is in top working order and ready to go!

When there's truly not enough time to do what must be done, something's got to give. But when precious time is spent on "cosmetic maintenance" or other low priority activities, the problem is simply in time management. And this goes hand-in-hand with effective use of personnel during that time.

For supervisors, the message comes thru loud and clear in DA Cir 750-83-3, Maintenance Management Improvement Program (MMIP):

- "Elimination of obstacles in maintenance operations is essential."
- ". . .utilization of personnel (is) essential to the maintenance mission of all units."
- "Maintenance personnel utilization is a critical area."
- "Major Army commanders, supervisors, managers, and MMIP coordinators at all levels are responsible for assuring (that) adequate time is provided and scheduled to accomplish the maintenance mission."
- "Command emphasis will. . . minimize maintenance detractors (formations, parades, details, etc.) during scheduled maintenance periods."
- "Commanders will. . .eliminate bottlenecks and restrictions to efficient and effective maintenance related procedures."

For you equipment operators and maintenance personnel, the MMIP means time to do the job—and the means to do it right.

PS THE PREVENTIVE MAINTENANCE MONTHLY

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

MSG Half-Mast
PS Magazine
Lexington, KY
40511

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BEAT the LEAK!

Dear Half-Mast,

We've replaced so many inner axle seals on our 2½-tonners, we can do it blindfolded.

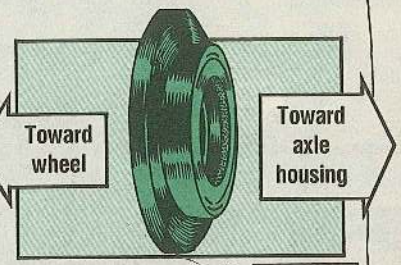
After we install them and get the trucks rolling, gear oil starts leaking from the axle housing into the steering knuckle boot again.

What's the solution to this problem?

SP4 D. I. K.

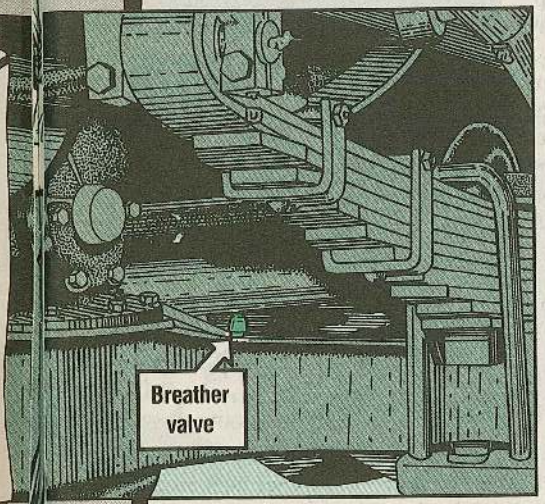
Dear Specialist D. I. K.,

According to the headshed, you're not supposed to replace the axle seal separately, but rather as part of the retainer/seal assembly—NSN 5330-00-075-1764. This way, you can be sure the seal is installed properly. The seal's already pressed into the retainer and faces the right direction—seal lip toward the axle housing.



Regardless of how you install the new assembly though, it won't help if the axle housing breather valve is clogged with dirt. Heat and pressure build until the seal blows, causing a leak. A new seal will just blow if the breather is plugged.

Twist the breather cap to remove dirt, and tap it to make sure the spring-loaded valve inside works.



If all else fails, could be the axle shaft within the axle housing is misaligned. Get your DSU to check it.

Half-Mast

Now Posts Get Grease, Too!

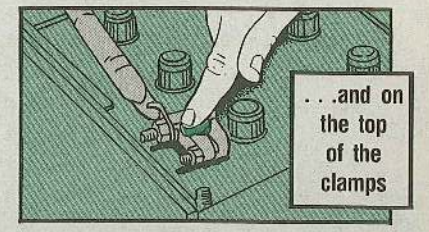
Listen up, all you mechs! There're a couple of new words on using GAA to prevent corrosion on battery hookups:

Before you install the terminal clamps on the posts, give the battery posts a very light coat of GAA—top, side and around the base where they come through the top of the battery.

Then, after you've got the clamps tightened on the terminals, coat only the top of the clamps lightly with grease.

Not to worry about grease between the clamp and post upsetting electrical current flow. The headshed says GAA is conductive and won't present a problem.

Also, they say the film of grease on the post won't lead to the clamp's loosening and coming off.



TB 43-0001-39-6 (Jul 83), Page 3-107, says this new requirement will be showing up in TM 9-6140-200-14.

TPU Too High To Fly

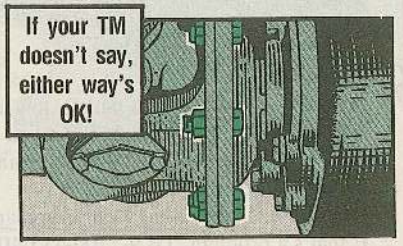
Your 5-ton cargo truck carrying a tank-and-pump unit (TPU) can't fly in a C130 or C141 aircraft. It won't fit through the door—102 inches high on the C130, 108 on the C141. So you've got to take the tank-and-pump unit off to load the truck.

Make It Easy!

Can't decide which is the right way to install prop shaft coupling bolts and nuts on your vehicle? If your TM doesn't specify a certain way, it makes no difference whether the nut is toward the front or the rear.

Put the nut on the side that you can get at easier. That'll make it easier to use a torque wrench to get the right torque on the nut.

Bugged by loose bolts? Remember, you turn the nut onto the bolt—not the bolt in. the nut. This puts the torque where it does the most good.



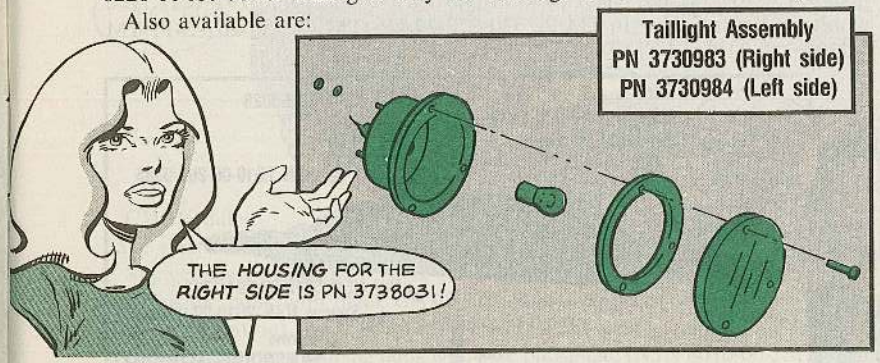
M886, M893 Ambulances...

Brighten Your Corner

TM 9-2320-266-20P needs clearing up on taillight parts covered by Fig 93.

NSN 6220-00-103-9528 for the left taillight housing should be NSN 6220-01-039-9528. This gets only the housing, not the entire assembly.

Also available are:



Use FSCM 86403 for the non-NSN items. Order on a DD Form 1348-6. The RIC is S9C.

Stow a Tow the Easy Way

Here's a simple way to park a towed vehicle with a truck.

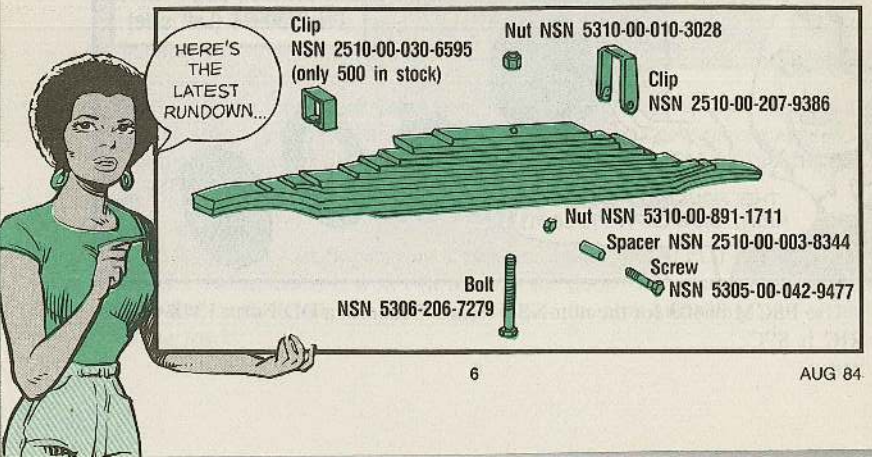
Get a Gama Goat or an M880 truck tow pintle from your local can point. Mount it on the truck's front bumper and you're in business—no need to back a towed vehicle into place.

Of course, you'll need local command approval to modify the bumper.

If that's a problem, TB 9-2300-415-40 has plans for a universal front bumper towing hitch that can be installed on ¼-ton thru 5-ton vehicles. You can switch it around so no one vehicle has to do all of the parking. Your support makes the hitch for you.

Trailer Spring Breakdown

If you're looking for repair parts for spring, NSN 2510-00-797-9217, you won't get the full story in TM 9-2330-272-14&P, TM 9-2330-207-24P, TM 9-2330-220-24P and TM 9-2330-258-14.



Mech Helps on Battery PMCS

Dear Half-Mast,

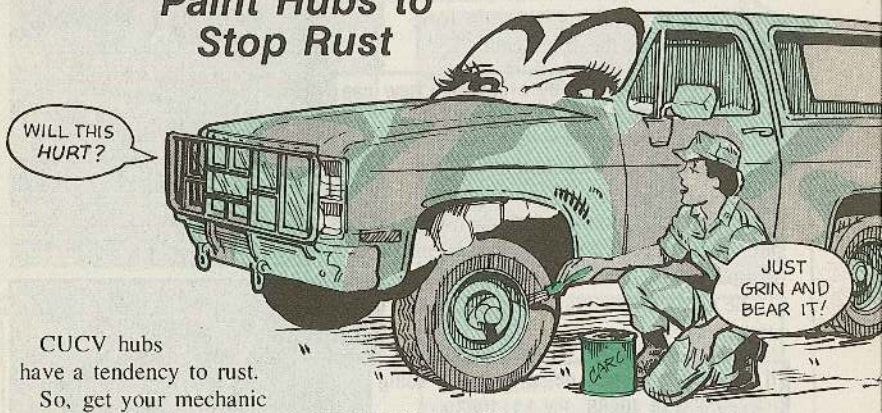
One of the pair of 6TN batteries in my M880-series truck's 24-volt system is hard to get to when doing my PMCS. Three cells under the fender can't be checked for fluid level without removing the battery—and that's not authorized for operators. Got any ideas? ***SSG S. L. P.***

Dear Sergeant S. L. P.,

The only way you can perform the PMCS on that outside 6TN battery is to get your mech to remove the battery.

CUCV Hubs. . .

Paint Hubs to Stop Rust



CUCV hubs have a tendency to rust.

So, get your mechanic to paint the hubs with black CARC (Chemical Agent Resistant Coating) paint. NSN 8010-01-131-6254 gets a gallon.

Before painting, clean the hubs with zinc phosphate (NSN 8010-00-281-2726) and pre-treat them with epoxy primer (NSN 8010-00-082-1714).

Auger Abuse Augurs Trouble

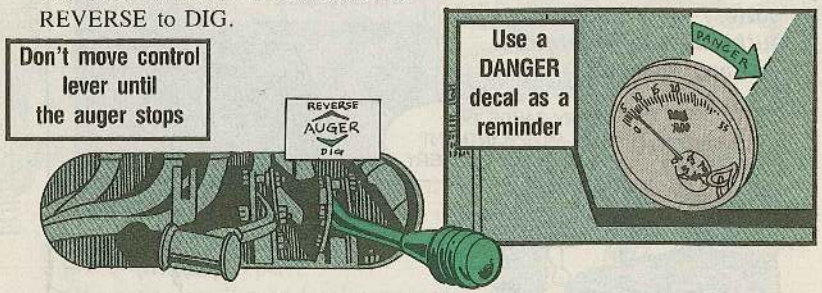
Your auger's hydraulic motor can be ruined by—

★ Reversing the direction of the auger while it's still turning.

★ Letting the engine go over 2,300 RPM while digging.

Always make sure the auger comes to a dead stop before moving the control lever from DIG to REVERSE or REVERSE to DIG.

Engine speed must be between 1,800 and 2,300 RPM while the auger's digging. As a reminder, stick DANGER decal, NSN 7690-00-924-4318, by the tachometer. The authority is CTA 50-970, Appendix A. This is the same decal listed in TM 9-2320-209-20P for 2½-ton trucks.



Forklift Rust Beaters

Water gets trapped in the original fuel tank cap on M4K rough terrain forklifts. This rusts the filler neck.

Head off the problem by ordering a new cap using FSCM 08244, PN 41740.

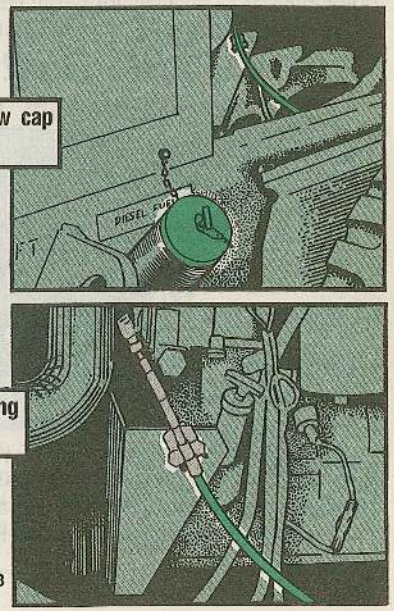
This cap has improved seals around the tightening screw to keep water out.

Be sure to tighten the cap when you put it back on after refueling. Water can slip past the cap if it's loose.

The accelerator cable can rust up and stick, too.

If your cable's shot, get a new one using FSCM 10988, PN L111987.

Order by FSCM and PN on a DD Form 1348-6. The SOS is S9C.

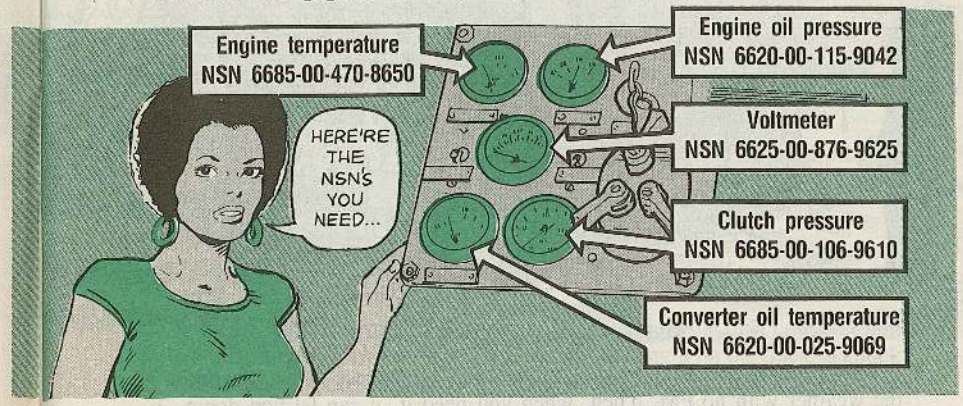


"Look-Alike" Won't "Work-Alike"

If you replaced a bum gage on your F1500M grader and it still won't work, the problem could be the new gage.

Maybe you used a "look-alike" gage from another vehicle instead of the one called for in your TM. The gage might look the same, but not work the same way.

Stick with the gages listed in your grader TM.

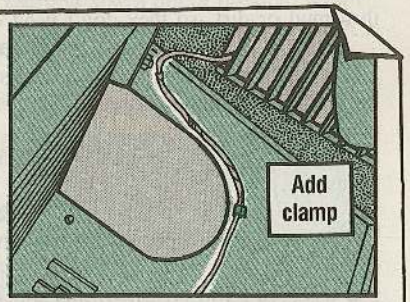


Save Your Roller's Wiring

Dear Half-Mast,

When we raise or lower the engine compartment cover on our Hyster C350B-D roller, the headlight wire snags on the air cleaner and breaks. The wire's got more patches than a teenager's jeans. Help!

SGT R. D. B.



Dear Sergeant R. D. B.,

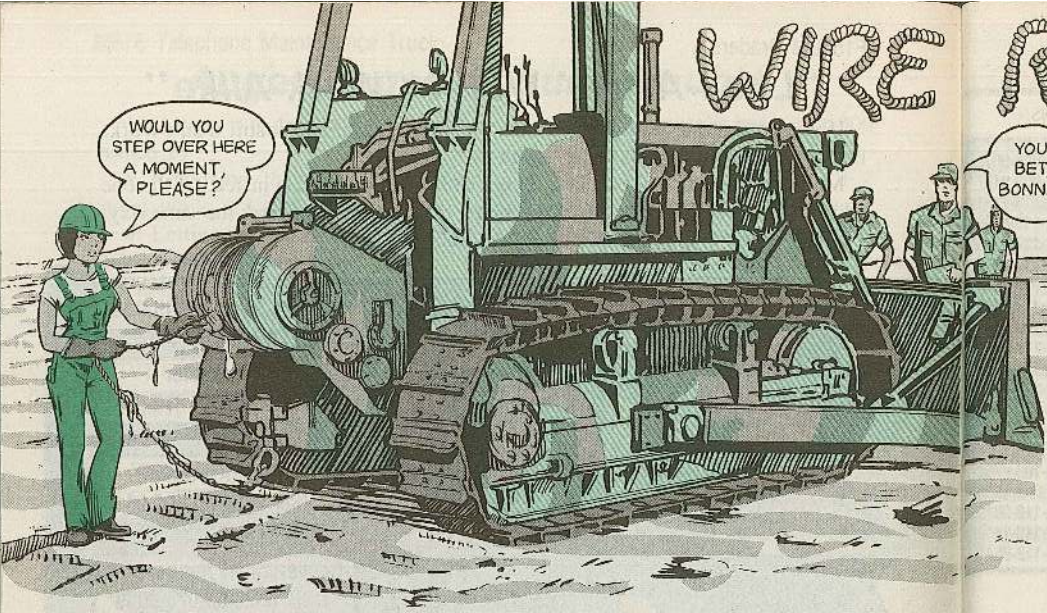
Add another clamp on the cover below the cutout for the air cleaner to keep the wire out of the way.

Here's what you need:

ITEM	NSN
Loop clamp	5340-00-881-5303
Lockwasher	5310-00-407-9566
Nut	5310-00-880-7744
Bolt	5305-00-837-3023

Half-Mast

WIRE ROPE WRAP-UP



Wire rope on cranes and winches often gets no respect. It's left exposed to the weather with no PM. Then, when you need it, it can let you down.

Good care begins with cleaning. As a general rule, winch cable should be cleaned and oiled after each operation. Crane cables don't often get dragged thru mud or dirt, so they don't need cleaning as often.

Cleaning

Unreel the wire rope and lay it out straight. Use a wire brush—like the one in the No. 1 Common shop set—to get off old lube or dirt. Clean every inch of the cable.

Look for broken strands, kinks, and other damage. Replace the cable if necessary.

Lubing

Lube your wire rope according to the LO for your gear. If the LO doesn't cover it, do it like so:

If it's used a lot, coat it with clean OE-HDO 30 engine oil. Never use used oil. It contains acid that'll eat up the rope fast.

If you're in a dry, dusty area, rope doesn't need an oil coating. Fact is, the oil will collect dust and grit that will chew up the cable.

If your wire rope is not used very much, or if conditions are real damp or salty, your rope may need extra protection. That's when you use CW-II, Lubricating Oil, Exposed Gear, Fed Spec VV-L-751.

It's stickier than engine oil, so it'll pick up dirt when the rope drags on the ground. It's best for cranes, because the rope doesn't drag on the ground or get handled as much.

CW-II comes 3 ways. Pick the one that's right for the temperature in your area.

These NSN's are for 35-lb cans	
CW-IIA (for −30° to +30°F)	NSN 9150-00-261-7891
CW-IIB (for +30° to +80°F)	NSN 9150-00-246-3276
CW-IIC (for +80° to +130°F)	NSN 9150-00-264-2918

CW-II pours better when it's heated—and it'll soak into the wire rope better when it's hot.

Covering your winch is OK for travel. That'll keep the cable from picking up a lot of dirt. But don't leave the winch covered. The cover traps moisture under it that will rust the rope.

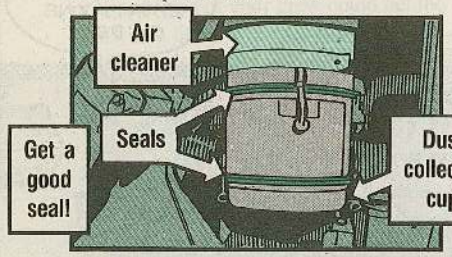
D7E Tractors...

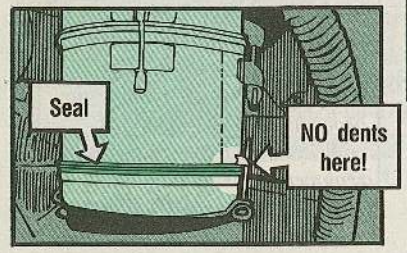
Good PM for Clean Air

A leaky air cleaner on your D7E tractor lets dirt through that will damage the turbocharger and engine.

And, if seals are missing or damaged, the air cleaner leaks.

Check for nicked, broken or torn seals. Replace bum seals.





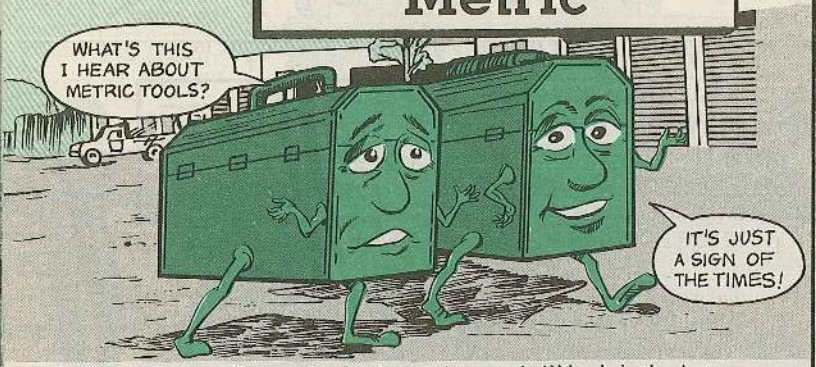
You can dent the dust collector cup lip if you bang it on the track to knock out the dust. A bent lip will keep even a good seal from sealing.

Rap the cup against your hand to clean it. Use a rag or brush to remove the dirt that has collected. Or wash it out with warm water and nonsudsing detergent. Rinse and completely dry it before you reassemble the air cleaner.

When you service the air cleaner, check for leaks at the joints between the air cleaner and the turbocharger. Leaks let in unfiltered air that can damage the turbocharger and the engine.

Metric Tools...

Shop Sets Are Going Metric



Metric tools are authorized on an "as needed" basis in the Automotive General Mechanic's tool kit and the No. 1 and No. 2 Common shop sets. If you need them, your commander can authorize them.

Here's a list of metric wrenches, sockets and such that are available and the quantity authorized for each set.

NSN	ITEM	No. 1 Common	No. 2 Common	Gen Mech
5120-01-046-5079	Key set, socket head screw, 14 keys, 2 to 19 mm	1	1	1
5180-00-000-0157	Ready reference metric conversion factor chart	5		1
5120-01-115-1151	Socket set, 6 pt, ¼-in drive, 12 sockets, 4 to 14 mm	1	1	
5120-01-115-9169	Socket set, 6 pt, ¼-in drive, 11 sockets, 4 to 14 mm		1	
5120-01-117-0465	Socket set, 12 pt, ¼-in drive, 11 sockets, 5 to 14 mm		1	1
5120-01-117-3876	Socket set, 6 pt, 3/8-in drive, 21 sockets, 6 to 26 mm		1	
5120-01-112-9544	Socket set, 12 pt, 3/8-in drive, 17 sockets, 8 to 26 mm	1	1	
5120-01-113-8078	Socket set, 6 pt, ½-in drive, 18 sockets, 10 to 27 mm		1	
5120-01-115-1149	Socket set, 6 pt, ½-in drive, 14 sockets, 10 to 27 mm	1	1	
5120-01-113-8076	Socket set, 12 pt, ½-in drive, 24 sockets, 10 to 32 mm		1	
5120-01-116-6047	Socket set, 12 pt, ½-in drive, 23 sockets, 10 to 32 mm			1
5120-00-113-8077	Socket set, 6 pt, ¾-in drive, 8 sockets, 19 to 38 mm		1	
5120-01-117-0466	Socket set, impact, 6 pt, ¾-in drive, 15 sockets, 17 to 46 mm	1		
5140-00-315-2747	Tool box, portable			1
5140-01-119-2516	Tool box, portable		1	
5120-00-103-9782	Wrench set, box, 12 pt, 8 wrenches, 6 to 20 mm			1
5120-01-041-1585	Wrench set, comb box and open end, 6 pt, 6 wrenches, 5 to 9 mm		1	
5120-01-119-0010	Wrench set, comb box and open end, 12 pt, 19 wrenches, 10 to 32 mm	1	1	1
5120-01-115-1148	Wrench set, open end, 11 wrenches, 6 to 32 mm	1	1	1
5120-01-112-9541	Wrench set, socket, 6 pt, ½-in drive, 21 sockets, 10 to 32 mm		1	

M113 FOV...

Oil Cooler Work to DS

Dear Half-Mast,

Why is repair of an engine oil cooler on an M548 cargo carrier engine DS level by TM 9-2350-247-20, when repair of the M113A1 and M577A1 engine oil cooler is organizational maintenance?

SSG S.E.M.

Dear Sergeant S.E.M.

Work on engine oil coolers is DS level. A change to TM 9-2300-257-20 will remove the procedures. DS will do all engine oil cooler repair and replacement from now on.

Half-Mast

M113-Series Carriers...

Put Out the Guard

You or one of your crew could get the shock of a lifetime if your AN/GRC-106 radio is missing its antenna guard.

Up to 10,000 volts of radio-frequency output are hitting that AB-652 connector during transmission.

Be safe. If the guard is missing, get your org shop to replace it. It's NSN 5820-00-879-7591 and part of the installation kit.

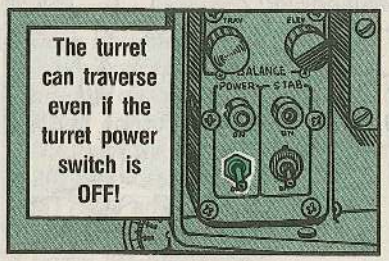
Keep Turret Under Control!

That feeling of power you tank gunners and commanders have when your hands are on the controls can suddenly turn into a nightmare!

If there're any problems with the hydraulic or electrical systems, you could lose control over the movement of the turret and the firing of the main gun.

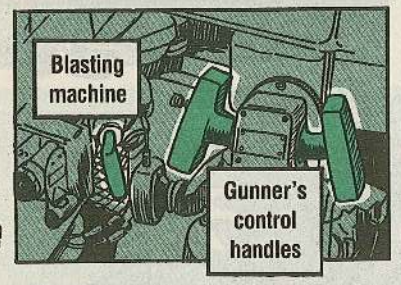
It works like this:

If you have a hydraulic malfunction, the turret can traverse when the gunner's turret power switch is OFF and the gun travel lock and turret lock are in the unlocked position.

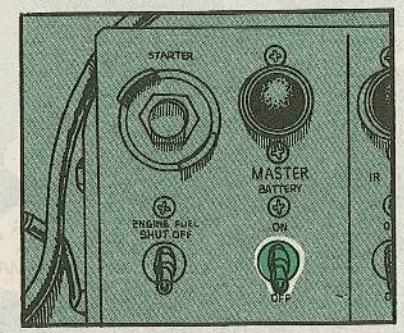


Like it says in your PMCS, if you get turret movement when the switches are off, let your turret mechanic hear about it fast.

1. Be sure no crewmember is where he can be hurt if the turret traverses before you touch the control handle.



2. Never assume the handles won't work just because the master battery switch is off.



3. Never use the handles to help yourself get into or out of the turret.

4. Be sure the turret lock is locked and the gun is in travel lock before you leave the tank.

5. Don't operate the master battery switch by reaching through the crew compartment. If the turret moves, you could be injured or killed.

The driver and all other crewmen must be in safe positions before the master battery switch is turned off or on. Operate the master battery switch only from the driver's seat.

Operate the turret power switch only from the gunner's seat. Don't reach over the main gun and breech, placing your body between it and the turret roof, to turn the turret power switch on or off. If the main gun moves down, you could get killed.

6. You could run into a problem with the firing circuits for the main gun. Three connectors could have been crisscrossed. You don't need stray current running through the firing circuits. That could give you a big headache.

Pull the main gun firing test called for in your –10 TM. If the circuit tester lights when you are not pressing the trigger, or if it doesn't light when a trigger is pressed, let your turret mech know.

And, if the tester lights when you operate either trigger or the blasting machine with the loader's safety switch in the SAFE position, let your mech know about it **yesterday!**

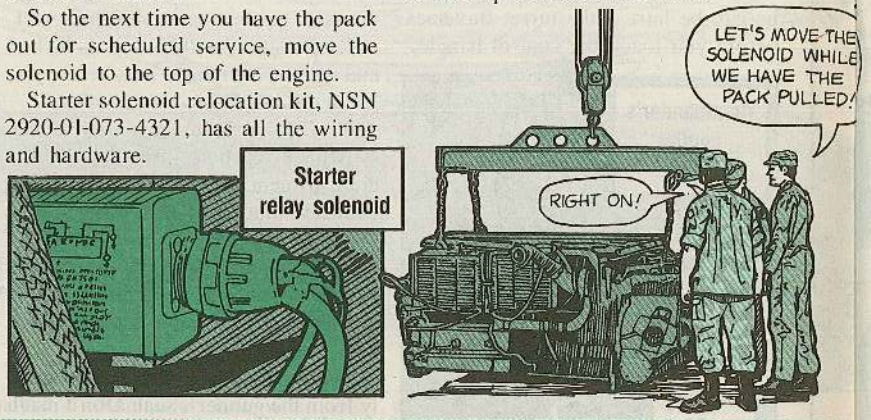
Move the Starter Solenoid

You have to pull the power pack to replace the starter relay solenoid on the AVDS 1790-2C or 2D engine. And that's hard work.

So the next time you have the pack out for scheduled service, move the solenoid to the top of the engine.

Starter solenoid relocation kit, NSN 2920-01-073-4321, has all the wiring and hardware.

All the info on how to make the change is in TB 43-0001-39-5 (Apr 81). If you don't have a copy or can't locate one, drop a line to Half-Mast.

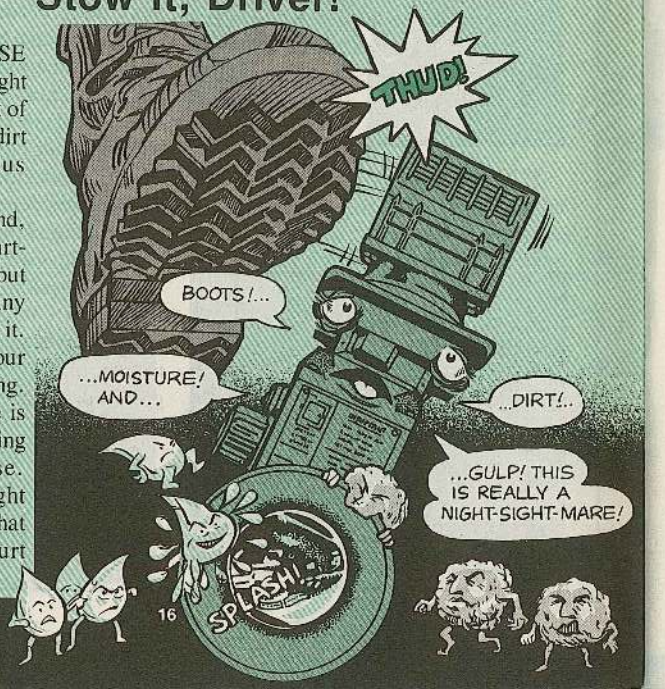


Stow It, Driver!

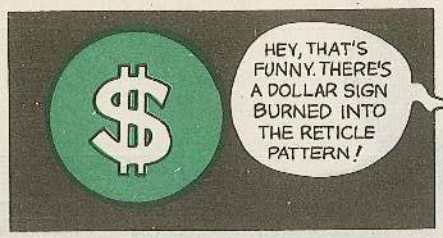
Your M60A1 RISE Passive AN/VVS-2 night vision viewer has a lot of enemies—feet, seats, dirt and moisture, plus others.

It's got one big friend, tho—a stowage compartment. Be sure you put your viewer there any time you're not using it.

Left out under your seat, it takes a beating. The power receptacle is snapped off or something inside comes loose. There go your night eyes. Remember, what you can't see **can** hurt you.



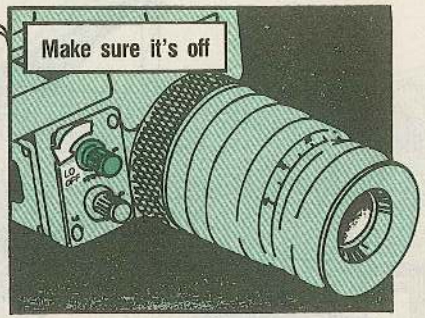
Periscope Turn-Off



Anytime you're not using gunner's periscopes M32E1 and M35E1 and commander's periscope M36E1, turn the light off in the periscope reticles.

Leaving the light on burns the reticle pattern into the image intensifier tube screen. Then the passive image tube has to be replaced—and that tube is very expensive!

Leaving the light on when you're using battery power discharges the batteries, too.



So, use the lowest possible light intensity for reticle illumination. And, always turn the reticle power off when a periscope is not in use.

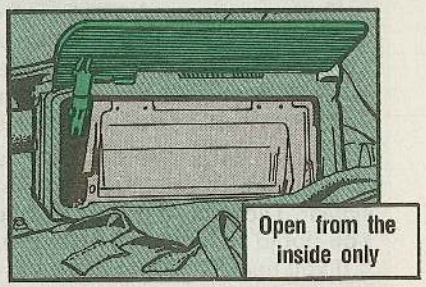
It's an Inside Job

The only safe way to open the ballistic shield doors for the periscope mounts on your tank is by using the operating handles inside the turret.

You can damage both the gunner's and the commander's shield doors by opening them from the outside.

The gunner's shield door operating shaft gets bent if the door is pried open from the outside. With a bent shaft, the shield is useless until it's repaired.

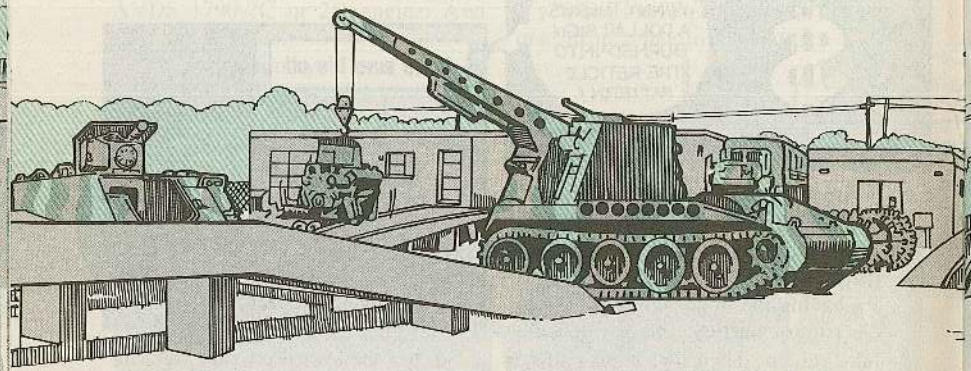
The commander's shield door is opened and closed by a spring. Since there's no mechanical stop to keep the door from being opened too wide, the spring can be stretched or even broken.



Again, the ballistic door is useless until it's fixed.

In both cases, never open the doors from the outside. Use the operating handles. It's an inside job.

You Can't Be Too Careful!



The slings used to lift powerpacks and such for combat vehicles are a heap sight more than messes of chains, hooks and spreader bars.

They're lifting devices—and that puts them right in there with the big stuff covered by TB 43-0142, Safety Inspection and Testing of Lifting Devices.

Appendix C of the TB lays it on you, so be sure you've got a copy in your hands for ready reference.

In addition to the inspections called for in the TB, here are a few tips to help keep your slings in shape for safe lifts:

■ **Keep slings clean. Clean off dirt and oil, especially on the chains, cables and hooks. You don't want to be working with slick surfaces when you're lifting heavy loads. Also, remember that oil attracts dirt. If your wire rope gets lube, do it sparingly. Dirt can cause wear if it works into wire rope strands.**

■ **Keep parts together. Don't use the wire ropes, chains or hooks for some other job. Don't replace any sling parts with some that look similar. They may not meet load requirements for use with your sling. You could be setting yourself up for a very bad accident.**

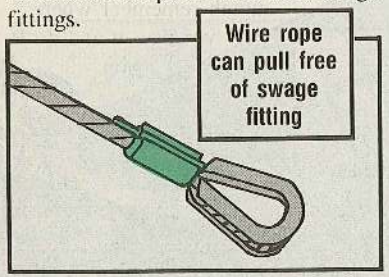
If you need replacement parts (wire rope, chains, shackles, pins, etc.), get with your local DARCOM Logistic Assistance Representative. He's as close as your nearest Logistic Assistance Office.

■ **Don't use a sling to lift more weight than it was designed to lift. It's hazardous to your health, and you may drop a heavy component and damage it.**

Lame Lifting Slings

M109 mechs, your power pack lifting sling may be faulty and dangerous to use.

Seems the sling's wire rope assemblies can pull free of their swage fittings.



Already two incidents have been reported, leading the headshed to deadline all M109 powerpack lifting slings until they're safety-inspected and load-tested. That info is in TACOM Msg DRSTA-MCC 092200Z Dec 83.

Follow-on TACOM Msg DRSTA-MCC 221200Z Feb 84 gives the poop on making repairs, the NSN's for necessary repair parts, and tells how you dispose of faulty wire rope assemblies.

Check with your local TACOM Logistic Assistance Representative for info.

Keep Idler Nuts Tight

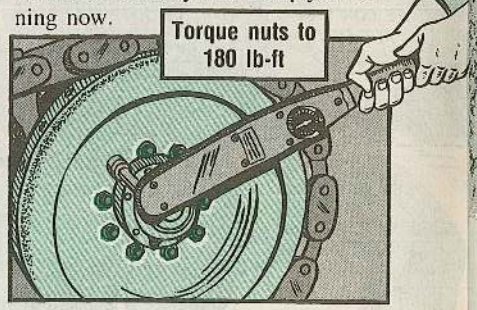
You have to check your M109 howitzer's idler wheel nuts regularly.

Those nuts get jarred loose during operation and firing.

That pound-pound-pound over the cold, cold ground beats the tar out of the suspension—and the idler nuts just won't hold.

So, crewmen, when you're making your before-operation PMCS, give a close eyeball to the idler wheel. If you see shiny areas or rust around the bolt holes, you've got a loose nut.

Get your mechanic to torque it to 180 lb-ft. Check out the nuts at halts, too. Any loose nuts you tighten up will save time later, and they could keep you running now.

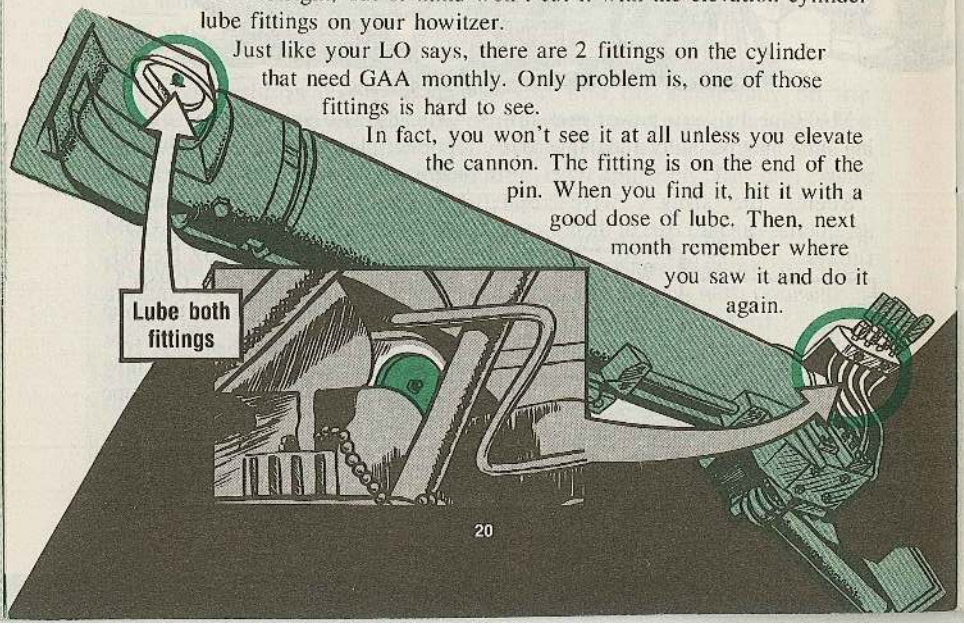


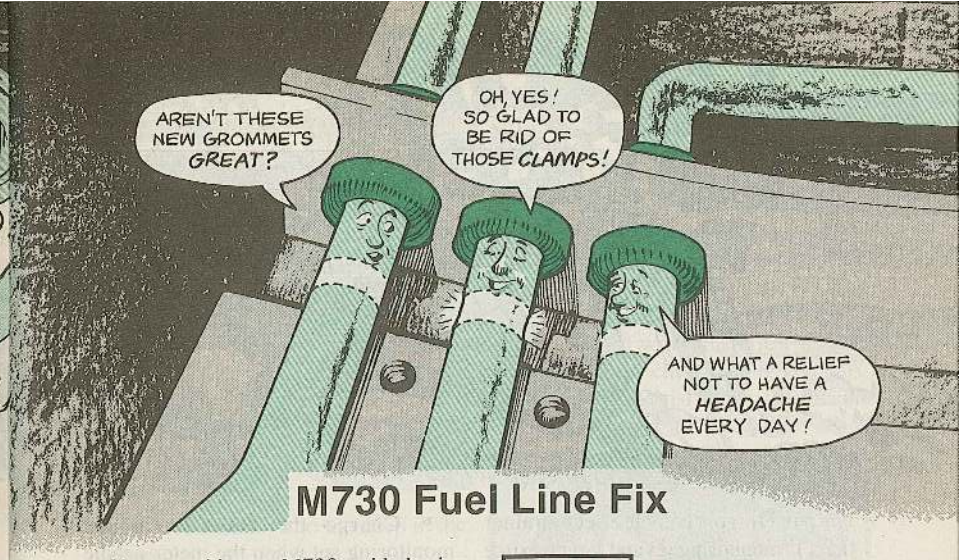
Elevation Cylinder Lube

Out of sight, out of mind won't cut it with the elevation cylinder lube fittings on your howitzer.

Just like your LO says, there are 2 fittings on the cylinder that need GAA monthly. Only problem is, one of those fittings is hard to see.

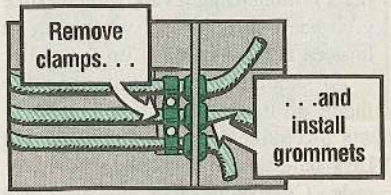
In fact, you won't see it at all unless you elevate the cannon. The fitting is on the end of the pin. When you find it, hit it with a good dose of lube. Then, next month remember where you saw it and do it again.





M730 Fuel Line Fix

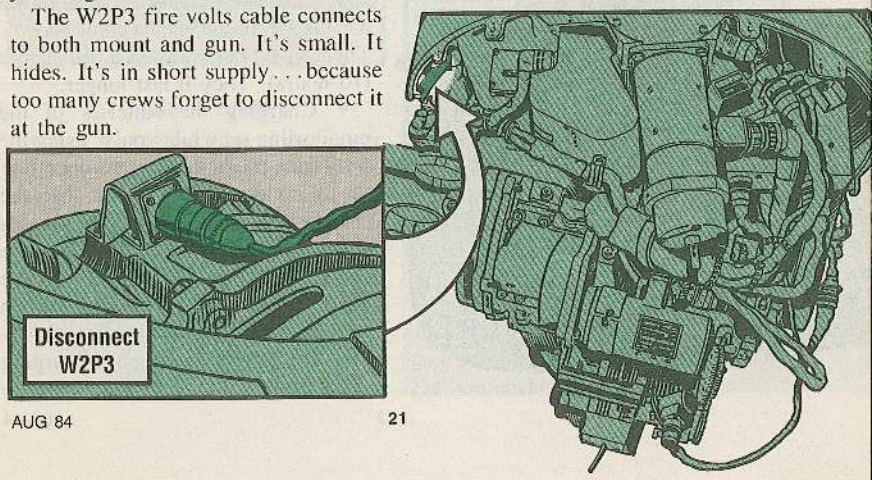
You can rid your M730 guided missile carrier of its fuel line abrasion problem. TB 43-0001-39-1 (Apr 84) has the info on how to remove the old clamps and install grommets where the fuel lines pass through the engine compartment rear bulkhead.



Remember the Cable!

You can damage the cable (W2P3) on your M97 armament subsystem if you forget to disconnect it before you remove the M197 cannon.

The W2P3 fire volts cable connects to both mount and gun. It's small. It hides. It's in short supply...because too many crews forget to disconnect it at the gun.



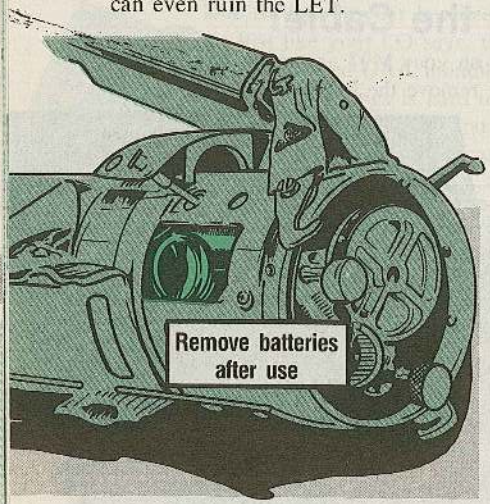
LET's Go!

Dragon on the Charge!

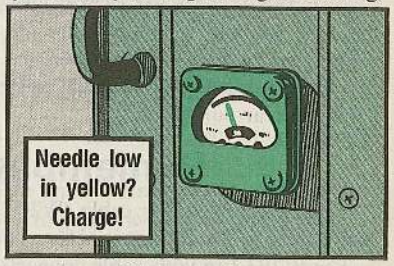
Your Dragon launch effects trainer (LET), monitoring set and target source give peak performance when they're hooked up and charged up.

To shoot the maximum power to them, do this:

- Remove and separately store the LET batteries after use. Batteries corrode. Corrosion steals power...and can even ruin the LET.



- Charge the batteries in the monitoring set when the meter needle reaches into the lower third of the yellow. If you've got a higher reading,

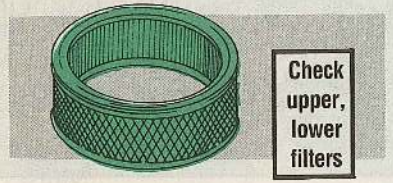


use the set till the needle comes down. Then, give your batteries a full charge (16 hours). They'll last longer.

- Charging the batteries of the monitoriing set while you're using the set drains the batteries. An operating set uses more battery power than the charger puts in the battery. The set uses about ¾ amp-hour power more than the charger puts in. If the meter's in the lower third of the yellow, shut down and charge the batteries.
- If you're operating and charging at the same time, eyeball the meter to make sure it doesn't go too deep in the yellow.
- When you set up your M89E1 infrared target source on an M5 pedestal in your vehicle, take the vehicle battery terminal nuts off and slip the power supply cable terminals over the bolts. Put the nuts back on.

Odds & Ends

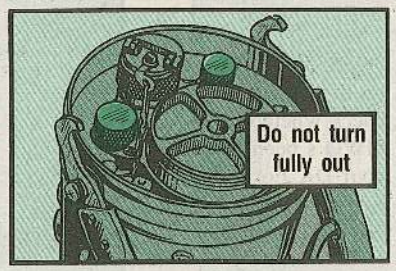
Check the 2 filters in the target source often in sandy, dusty conditions. Replace as needed.



Breech headspace in the LET has a close tolerance...as little as .001-in. That causes 2 problems.

1. Misfires. If your troubleshooting doesn't locate the cause, turn the LET in to Direct Support for a headspace check (headspace is set by the manufacturer, so don't mess with it).
2. Breech misfits. Tag your breech if you clean it with other LET's. The tolerance is so close that if you mix them you'll get misfires or the breech may not work at all.

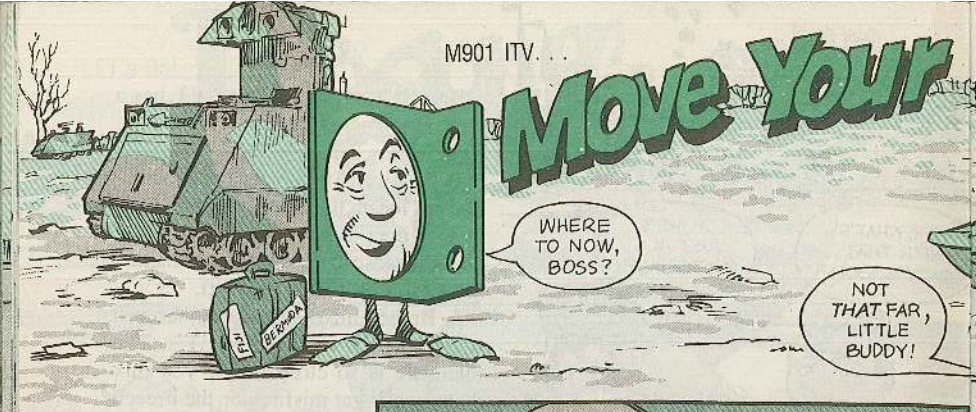
When you feel resistance as you turn out the LET thumbscrews, stop!



You can back the screws all the way out with a little force, and that means a tough job getting them back in. You may have to turn the LET in to DS to get 'em back in.

M901 ITV. . .

Move Your Bracket



Eyeball the W1J1 cable connector bracket on the Missile Guidance Set's emergency battery box to be sure it's at the base of the box.

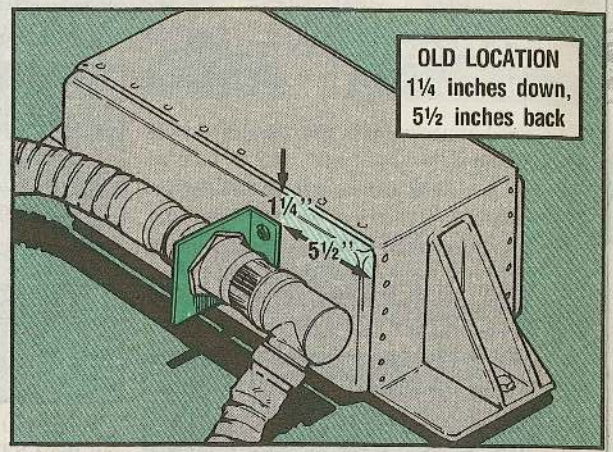
If it's not, and MWO 9-2350-259- 50/2 has been applied, move it!

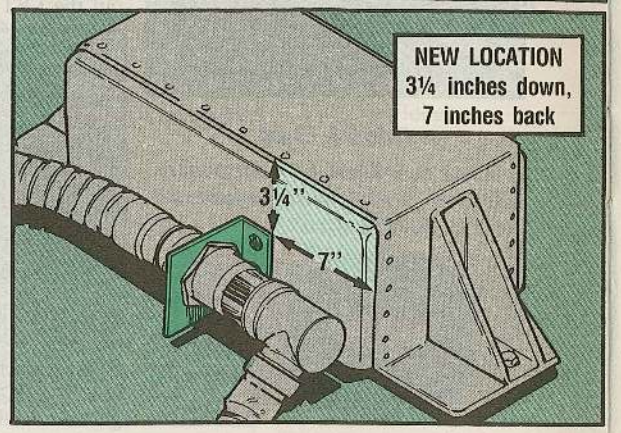
If it's already at the base, it's OK. And, the cable, connector and adapter will be safe from feet, snags and so forth.

Look for the MWO 9-2350-259-50/2 decal on the battery box, or check whether the MWO's been logged in your DA Forms 2409.

For the M901A1, the bracket should be 3¼ inches from the top and 7 inches from the edge.

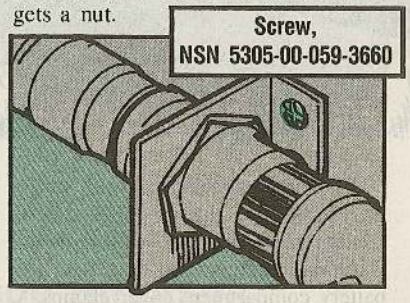
The old location of the bracket was 1¼ inches down and 5½ inches back.





If you have to move it (organizational level maintenance), do this:

- Remove the battery so you won't drill through it.
- Remove the bracket and keep the screws.
- Position the bracket with the top edge 3¼ inches down and outside edge 7 inches back.
- Mark the screw holes.
- Using the 90° angle portable drill in your No. 1 Common tool set and .272-in I-twist bit, drill 2 holes in the box.
- Reattach the bracket with the old screws, install the connector and battery, and you're done! If you need replacements, NSN 5305-00-059-3660 gets the screw and 5310-00-844-3302 gets a nut.



TOW/Dragon . . .

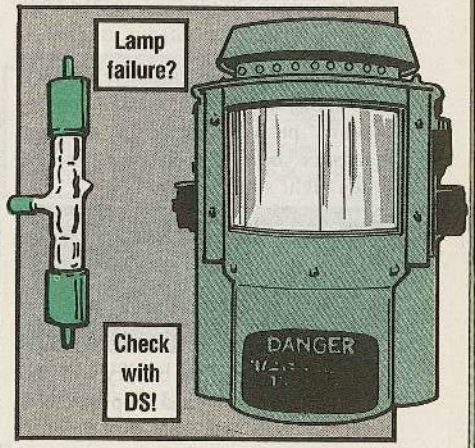
Target Lamp Blues

Next time the target lamp fails on your M89E1 (Dragon) transmitting set or M70 (TOW) training set, don't swap lamps or put in a new one.

The lamp most likely failed because of too high a power output (300 watts or more). Any replacement you put in would probably fail, too.

Get hold of your support contact team. There's an alinement procedure in C5 to TM 9-1425-470-34 that'll cut down the problem.

If the contact team needs help, it's available through technicians at the nearest DARCOM Logistic Assistance Office.



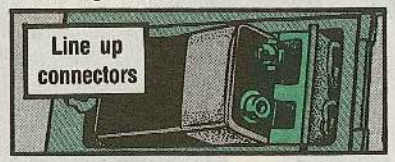
MILES

When you're setting up your Multiple Integrated Laser Engagement System transmitters on small arms for a training exercise, go easy with the battery compartment cover clamps.

Transmitters used with small arms have battery covers with fragile catches. If you force the cover closed, you'll break the catch.

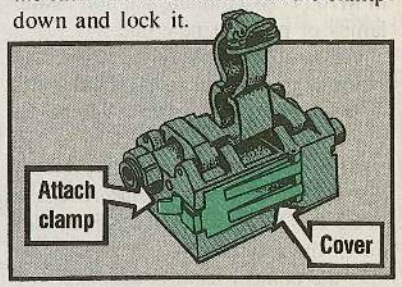
So, do this:

• Seat the battery carefully. It only goes in one way, so line up the connectors and push it home. If you get resistance, be sure the connectors are in the right slots.



• The bottom of the battery will pop up when installed . . . and keep the cover open.

• The idea is, push the cover down and hold it. Then, attach the clamp to the catch on the cover. Push the clamp down and lock it.

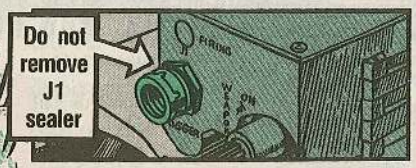


• Do not attach the clamp to the open cover and force it closed. That'll bust the catch . . . right now or next time.

Clamp Down!

No Dry-Fire

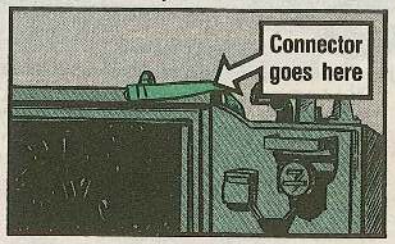
The dry-fire connector on transmitters is sealed to prevent use. Reason: There is no dry-fire training with MILES.



Do not gouge away the epoxy seal and try to hot wire the connector. All that'll do is damage the transmitter. It will not activate the laser beam for dry firing.

APC Sensor Belt

The connector end of the rear sensor detector belt for APC's should be installed the way TM 9-1265-370-10-3



tells you. That keeps the connector end away from the fuel cell. Then diesel fuel won't eat into the tape and generally foul things up.

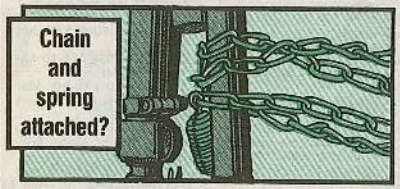
M29-Series Mortars . . .

81-MM Damage Stoppers

When you transport or store the bipod assembly, keep the traversing handwheel crank in stowed (closed) position.

If you leave the crank open, it snags on just about anything . . . and bends or breaks. No crank, no traversing, no mortar.

Make sure the chain and spring on the bipod legs are attached and complete before you haul the mortar off for training or whatever. The chain helps



keep the legs from spreading and the tube from doing a nosedive.

When you do get to the field, and you need something for rapping stakes, etc., find a hammer! Some troops use the sabot round as a hammer sub. Don't do it!

This is a selected list of pubs of interest to organizational maintenance personnel. This list was made from a computer printout provided by The Adjutant General.

Miscellaneous

LO 5-3895-219-12 Jun Concrete mixer, trailer mtd; Construction Machinery 16SM
LO 9-1425-625-12 Mar AN/GSG-11(V)2
LO 9-1430-600-14 May Patriot
LO 10-3930-627-12 Jun Forklift; 4,000 lb Baker FJF-040, MHE-221
SC 5180-91-CL-R03 Feb TK-90/G tool kit
SC 5895-91-CL-E02 Apr MK-623/GSQ maintenance kit
STP 9-63T12-SM May Soldier's manual, Bradley
TB 9-2300-295-15-25 Mar VTA 903T Cummins engine warranty
C2, TB 55-1500-307-24 Jul Aircraft maint Mgt and hist data
C6, TB 55-1500-334-25 Apr Fire resistant hydraulic fluid
C2, TB 746-95-1 Jun Camouflage pattern for armament command eqpt

Technical Manuals

C2, TM 5-3805-239-20P Jun 645M scooploader
TM 5-3805-249-20P Mar Road grader, Caterpillar 120
TM 5-3895-330-24P Mar Aggregate spreader, towed, Burch Model FF-8
TM 5-4120-370-14-HR Mar Vertical compact air conditioner, 36,000 BTU/HR cooling 28,600 BTU/HR heating
TM 5-4310-345-24P May Rotary air compressor, 250 CFM, Davey 14M250RPV
C2, TM 5-4610-215-10 Mar Reverse osmosis water purification unit
TM 5-5420-202-20P May M60A1 AVLB chassis, launched
C3, TM 9-1260-477-12 Jun AN/TVQ-2 (G/VLLD), G/VLLD M113A1 vehicle adapter
C2, TM 9-1425-1525-24P Jul HAWK
C5, TM 9-1430-589-12 Jun Forward area alerting radar system
TM 9-1450-500-24P Jun Loader-transporter XM501E3
TM 9-2320-266-20P Jun M880-series 1¼-ton trucks
TM 9-2320-269-10-HR Jun Truck, telephone maintenance, M876
C1, TM 9-2330-356-12&P Apr 5,000-gal tank trailer, M967, M967A1, M969, M969A1, M970, and M970A1
C5, TM 9-2350-253-10 Jun Tank, M60A3 and TTS
C4, TM 9-2350-253-20-1 Jun Tank, M60A3 and TTS
C1, TM 9-2350-255-CL Jun Tank, M1
C5, TM 9-2350-258-10 Apr Tank, M48A5
TM 9-2350-272-20 Mar M973 small unit support vehicle (SUSV)
TM 10-3930-623-20P Jun Forklift, Baker Model FJF-040, MHE-211
TM 10-3930-624-20P Jun Forklift, 6,000 lb, Allis-Chalmers F60-24PS-180, MHE-212
TM 10-7360-206-13 Jun Field kitchen, trailer mtd, MKT-75, MKT-75A and MKT-82
TM 10-8475-202-13 Feb Anti-exposure flying coverall, Type CWU-16/P
TM 11-4940-238-24P-1 Feb AN/ASM-146B, and -147B electronic shops
TM 11-5805-256-13 Feb TA-43/PT telephone set
TM 11-5805-486-14 Feb SB-3259/G switchboard
TM 11-5820-489-10 Nov 83 AN/GRA-6 control group
TM 11-5820-489-20 Nov 83 AN/GRA-6 control group
C2, TM 11-5855-213-10 AN/PVS-4 night vision sight
C3, TM 11-5855-214-10 May AN/TVS-5 night vision sight
TM 11-5985-262-14 Jan AS-1729 antenna
TM 11-5995-208-24&P-1 Mar Cable, CX-11230A
TM 11-6625-3015-14-HR Sep AN/PRM-34 radio test set
TM 11-6625-3015-24P Feb AN/PRM-34 radio test set
TM 11-7010-203-10 Feb AN/MYQ-4 automated data processing system
TM 11-7010-203-10-HR Mar AN/MYQ-4 automated data processing system
TM 11-7010-203-23 Mar AN/MYQ-4 automated data processing system
C7, TM 55-1420-227-23-4 May AVUM/AVIM CH-47B, C
C1, TM 55-1510-215-10 Apr Operator's manual, U-21G
C7, TM 55-1520-209-23P-1 Apr AVUM/AVIM CH-47A, B, C tools
C6, TM 55-1520-209-23P-3 Apr AVUM/AVIM CH-47A, B, C tools
C19, TM 55-1520-210-23-2 Apr AVUM/AVIM UH-1D/H, EH-1H
C21, TM 55-1520-214-23 May AVUM/AVIM OH-6A
C2, TM 55-1520-214-PMS May OH-6A PMS
C4, TM 55-1520-217-10-1 Apr Operator's manual, CH-54A
C4, TM 55-1520-220-PM May UH-1C/M PM checklist
TM 55-1520-227-10-2 May Operator's manual, CH-47C
C34, TM 55-1520-228-23-1 Apr AVUM/AVIM OH-58A, C
C15, TM 55-1520-234-10 May Operator's manual, AH-1S (mod)
TM 55-1520-234-CL May Operator's and crewmember's checklist: Army Model AH-1S (Mod)
C18, TM 55-1520-236-23-1 May AVUM/AVIM AH-1S
C16, TM 55-1520-237-23-2 Apr AVUM/AVIM UH-60A gen info
C26, TM 55-1520-237-23-4 Apr AVUM/AVIM UH-60A gen maint
C1, TM 55-1520-239-23P Jul AVUM/AVIM tools, AH-1S (mod)
C3, TM 55-1520-240-10 Apr Operator's manual CH-47D
C1, TM 55-1520-240-23-4 Apr AVUM/AVIM CH-47D
TM 55-1730-227-13&P Jan Operator's AVUM/AVIM standard aircraft maintenance trailer
TM 55-1905-219-14-7 May Landing craft utility, LCU 1667-1670
C5, TM 55-2840-248-23P May AVUM/AVIM T700-GE-700

AUDIO-VISUAL STUFF

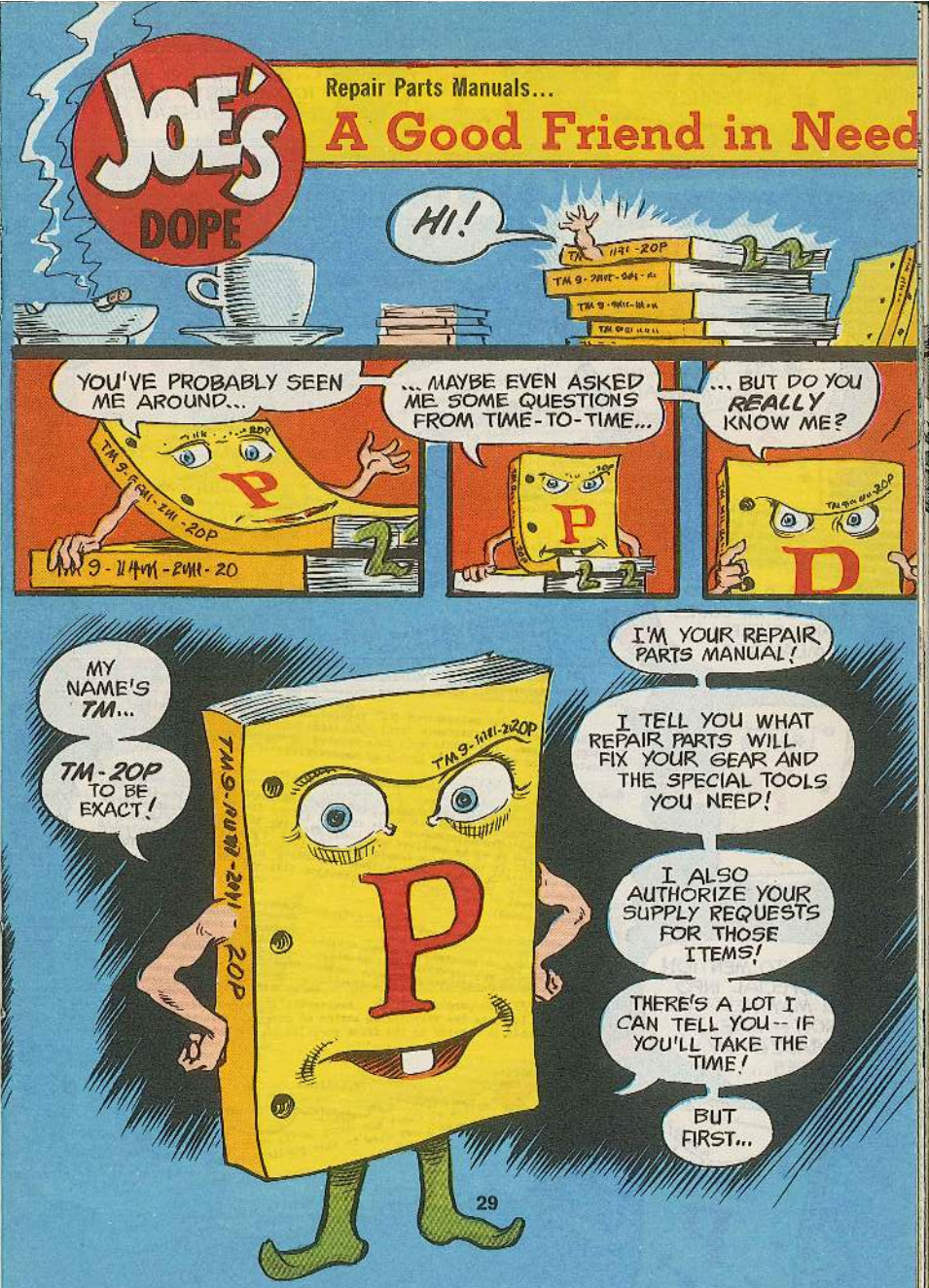
Available at battalion or post Learning Center

TV Tapes

TVT 6-134 AN/TPS-25 March Order
TVT 9-69 Characteristics of Track Vehicles
TVT 55-135 Army Helicopter External Load Operations—Part I

TEC Lessons

2C-011-5004-F UH-60A Electrical Systems, Part I
600-551-8855-F Adjusting Autorotation RPM on CH-47
600-551-8859-F Install Aft Right Fuel Cell on UH-ID/H
602-551-9601-F Repair Hydraulic Valves and Hydraulic Reservoir/Tanks
730-051-8405-F Crawler Tractor Sidehill Excavating - Part I
720-051-8406-F Crawler Sidehill Excavating - Part II



...WE NEED TO BE INTRODUCED!

...SO BEFORE YOU FLIP TO MY PARTS SECTION, GLANCE OVER MY SECTION I...

SECTION I

YOU'LL FIND A LOT OF GOOD INFO IN MY INTRODUCTION...

WITH USEFUL GUIDANCE TO USING THE REST OF THE MANUAL.

ALSO, A BREAK-OUT OF MY CODES AND THEIR MEANINGS...

NOT TO MENTION ANY SPECIAL INFO YOU MAY NEED TO KNOW -- LIKE *USABLE-ON* CODES...

Section I. INTRODUCTION

1. Scope.

This manual lists spares and repair parts required for [illegible] National direct support and general [illegible] Guided Missile, AN/DSM-79.

2. General.

This Repair Parts and Special Tools list is divided into the following sections:

a. Section II. Repair Parts List. Lists repair parts authorized for use in the maintenance of Guided Missile, AN/DSM-79.

3. Explanation of Columns.

The following provides an explanation of columns found in the tabular listings:

a. *Illustration.* This column [illegible]

b. *Source, Maintenance, and Recoverability Codes (SMR).*

(1) *Source Code.* Source codes are assigned to support items to indicate the manner of acquiring support items for maintenance, repair, or overhaul of end items. Source codes are entered in the first and second positions of the Uniform SMR Code format as follows:

Code	Definition
PA	Item procured and stocked for anticipated or known usage.
PB	Item procured and stocked for insurance purpose because [illegible]
PC	Item procured [illegible] dictates that a minimum quantity must be [illegible]

(2) *Maintenance Code.* Maintenance codes are assigned to indicate the levels of maintenance authorized to [illegible]

(a) The maintenance code entered in the third position will indicate the lowest maintenance level authorized to remove, replace, and use the support item. The maintenance code entered in the third position will indicate one of the following levels of maintenance:

Code	Application/Explanation
C	Crew or operator maintenance performed [illegible] nance.
O	[illegible]

(b) The maintenance code entered in the fourth position indicates whether the item is to be repaired and identifies the lowest maintenance level with the capability to perform complete repair (i.e., all authorized maintenance functions). This does not preclude some repair which may be accomplished at a lower level of maintenance. This position will contain one of the following maintenance codes:

Code	Application/Explanation
O	The lowest maintenance level capable of complete repair of the support item is the organizational level.
	[illegible] maintenance level capable of complete repair of the support [illegible] level.

(3) *Recoverability Code.* Recoverability codes are assigned to support items to indicate the disposition action on unserviceable items. The recoverability code is entered in the fifth position of the Uniform SMR Code format as follows:

Codes	Definition
Z	[illegible] serviceable, condemn and dispose at the [illegible]
O	[illegible] condemn and dispose

Usable on codes are shown in the description column. Identification Code of the usable on codes used in this publication are:

Code	Used On
FAG	Shop Equipment, Guided Missile System AN/TSM-95 (XO-3)
FAH	Test Set, Guided Missile, AN/DSM-79 [illegible] System

NOW YOU'RE READY TO MOVE ON TO MY SECTION II...

SECTION II

SECTION II IS A COMBINATION OF DRAWINGS OR PICTURES AND LISTS OF REPAIR PARTS!

AN AVERAGE REPAIR PARTS PUB PAGE LOOKS PRETTY STRAIGHT FORWARD! BUT WE HAVE A LOT MORE THAN MEETS THE EYE!

THE FIRST COLUMN USUALLY TELLS YOU *WHICH* FIGURE AND WHERE IN THE FIGURE THE PART YOU WANT SHOWS UP!

WHO CARES ?

WELL, SOMETIMES THE PEOPLE WHO GIVE NAMES TO THE PARTS SHOW A LOT OF CREATIVITY! THE NAME JUST DOESN'T MATCH ITS JOB OR LOOKS!

SO LOOK AT THE FIGURE TO MAKE SURE THE PART YOU WANT IS THE PART YOU'VE FOUND.

(1) ILLUS. (a) FIG NO.	(1) ILLUS. (b) ITEM NO.	(2) SMR CODE	(3) NATIONAL STOCK NUMBER	(4) *PART NUMBER	(5) FSCM	(6) DESCRIPTION USABLE ON CODE	(7) U/M	(8) QTY INC IN UNIT
277	1	PAOZZ	5315-00-064-2701	11677139	19207	PIN, STRAIGHT HEADED: shear, rear winch drive sprocket (M756A2)	EA	1
277	2	PAOZZ	[illegible]	11647739	19207	HUB: rear winch drive sprocket, 4.25 od (M756A2)	EA	1
277	3	PAOZZ	[illegible]	[illegible]	19207	PIN, STRAIGHT, HEADLESS: rear winch hub to sprocket (M756A2)	EA	1
277	4	PAOZ[illegible]				[illegible] drive sprocket	EA	1
277	5	PA[illegible]					EA	1
277	6	[illegible]						
277	7	[illegible]						
277	8	[illegible]						
277	[illegible]							

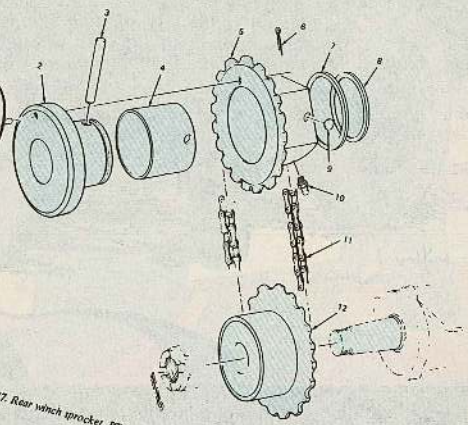


Figure 277. Rear winch sprocket, PTO sprocket and drive chain assembly (M756A2 truck).

TA 031374

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

SMR Codes and NSN's

Part Numbers and FSCM's

THE *SMR*-- *S*OURCE *M*AINTENANCE AND *R*ECOVERABILITY -- CODE COMES NEXT!

MOST MECHANICS FIGURE CODES ARE FOR COMPUTERS AND SUPPLY TYPES ONLY...

NOT SO!

'COURSE, THE *NSN* IS THE NUMBER TO USE WHEN YOU'RE ASKING FOR OR IDENTIFYING AN ITEM! BUT WHEN MY *NSN* COLUMN IS BLANK, MOVE OVER TO THE *PART NUMBER* AND *FSCM* COLUMNS!

THE PART NUMBER IS THE NUMBER ASSIGNED TO THAT ITEM BY THE MANUFACTURER!

(a)	(b) ITEM NO.	SMR CODE	(3) NATIONAL STOCK NUMBER	PART NUMBER	FSCM	
	8		4770	MS16624-12S5	96906	R sp
			1589	MS35648-3	96906	PL an
	7	XBOZZ		11647729	19207	R S, (M
	1	P	2701			
		ZZ	3040-00-402	5646	19207	H
	7	PAOZZ	2367	11	207	
	7	PAOZZ	3120-00-689	3585	11647731	192

ONE CODE RIGHT IN THE MIDDLE OF THE *SMR* TALKS TO *YOU*!

YOU CAN REPLACE AND USE ONLY THE REPAIR PARTS THAT CARRY A C (OPERATOR/CREW) OR O (ORGANIZATION) IN THE THIRD PLACE OF THE *SMR*!

NO C OR O THERE?

SOMEBODY ELSE DOES THAT JOB!

BUT THE ARMY DEALS WITH A LOT OF MANUFACTURERS...

IF THE PART YOU WANT HAS NOTHING BUT SPACE IN THE *NSN* COLUMN, LOOK UP THE SOURCE CODE IN MY *SECTION I*!

THE *SOURCE CODE*-- THE FIRST TWO LETTERS IN THE *SMR*-- MAY TELL YOU *WHY* THERE'S NO *NSN*!

...SO THE ARMY GIVES A SPECIAL 5-PART FEDERAL SUPPLY CODE FOR MANUFACTURERS (*FSCM*) TO EACH COMPANY OR DIVISION OF A COMPANY THAT SUPPLIES PARTS!

THE *FSCM* ADDED TO THE PART NUMBER TIES YOUR PART DOWN TO EXACTLY WHAT YOU NEED! NO *GUESSWORK*!

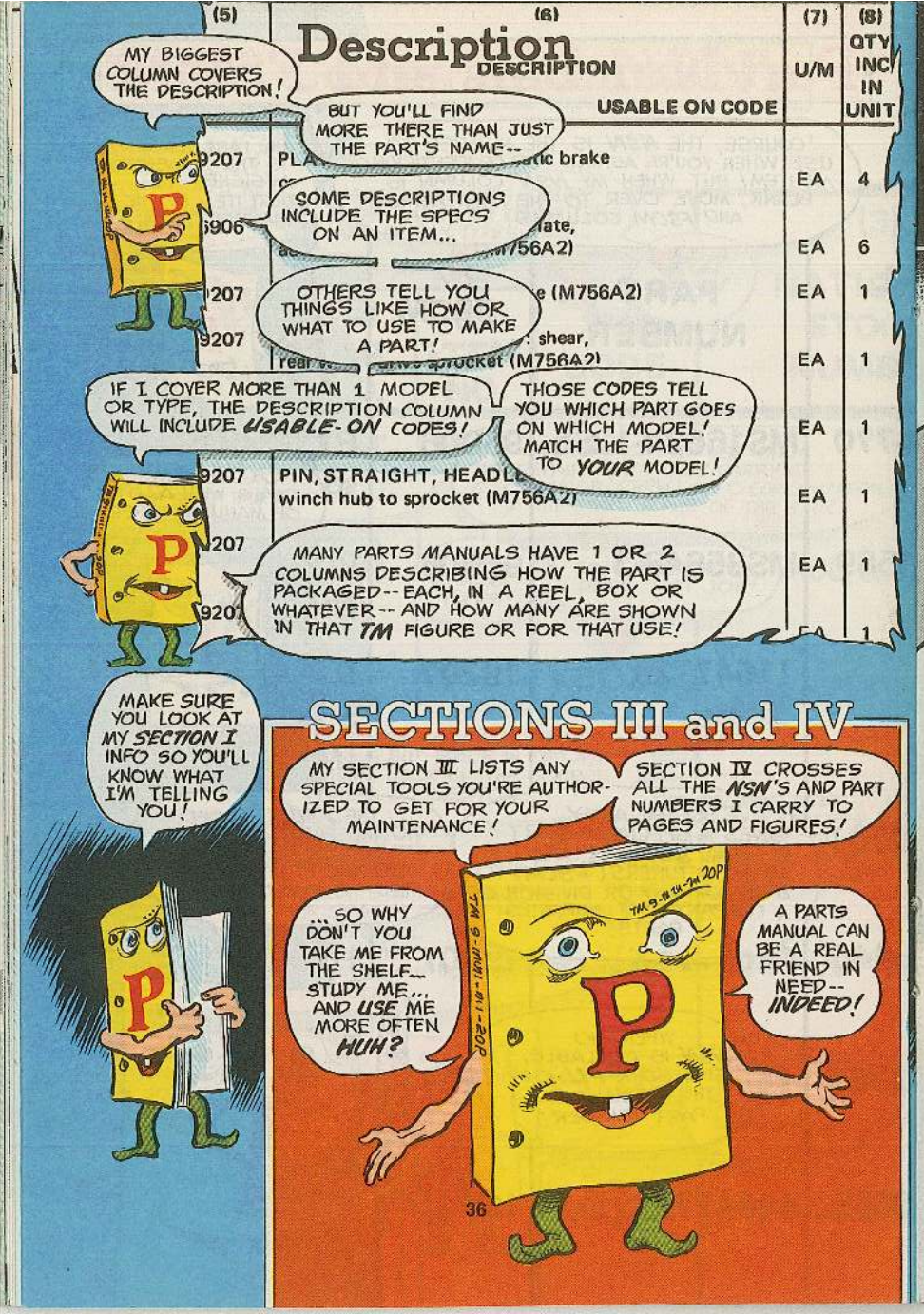
FOR EXAMPLE, THOSE REPAIR PARTS MAY NOT HAVE *NSN*'S AND THEIR *SOURCE CODES* TELL YOU SO:

- Items issued only as part of a kit,
- Items you make or put together,
- Parts you get by ordering the next higher assembly,
- Parts not stocked in the system.

THE FOURTH AND FIFTH LETTERS OF THE *SMR* TELL YOU WHO DOES *EVERYTHING* POSSIBLE TO THAT ITEM AND..

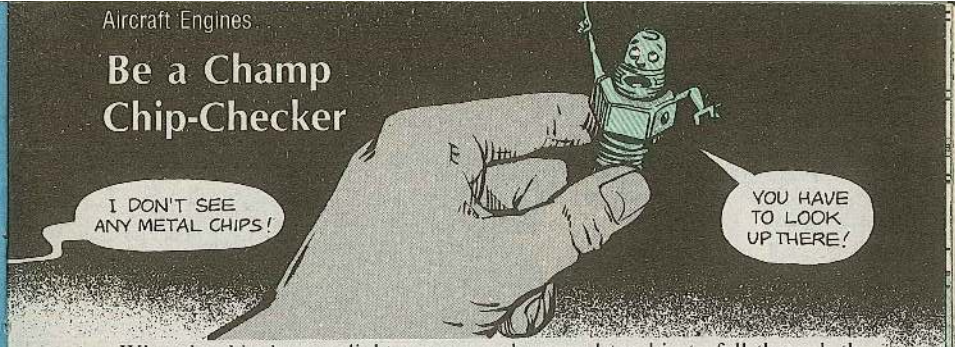
...WHO HANDLES IT WHEN IT BECOMES UNSERVICEABLE!

WHEN NO *NSN* IS AVAILABLE, GIVE YOUR *PLL* CLERK THE *FSCM* AND PART NUMBER!



Aircraft Engines

Be a Champ Chip-Checker

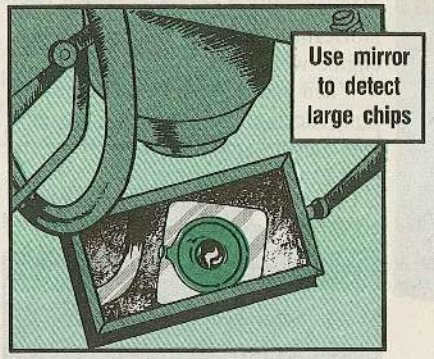


When the chip detector light goes on in the cockpit, it usually means the magnetic plug has caught metal particles—a sure sign of danger. But sometimes when you remove the detector, you may not see anything. So, you replace the detector—and the light goes on again.

After a couple of go-rounds like that, you may think you have an electrical problem, either in the detector or the bird's wiring.

Hold one! Before chasing down a faulty wire that isn't there, grab a mirror from the No. 2 AVUM set and take a look-see into the oil outlet port. Chances are, a metal piece's hung up there. It's big enough to make a connection when the chip detector's in place, and too big to fall through the outlet.

A chunk that large earns the bird a big Red X—fast! Otherwise, the engine's likely to fail on its next time out.



Aviation Messages

If your unit has not received a message you have an interest in, check with your next higher headquarters.

UH-1-84-02 SOF Maintenance Mandatory, Amending UH-1-84-01 concerning UH-1 turnbuckle bodies 051845Z Apr 84.
UH-1-84-03 SOF Maintenance Mandatory, Amending UH-1-84-01 and UH-1-84-02 concerning UH-1 turnbuckle bodies 161400Z Apr 84.
UH-60A-84-03 SOF Maintenance Mandatory, UH-60A 1-time inspection tail rotor pylon cover hinge bracket 042115Z Apr 84.
UH-60A-84-04 SOF Maintenance Mandatory, UH-60A 1-time inspection and repair of stabilator amplifier 101930Z Apr 84.
UH-60A-84-05 SOF Maintenance Mandatory, UH-60A repetitive inspection of pitch control rod attaching bolts for security 231715Z Apr 84.
UH-60A-84-06 SOF Maintenance Mandatory, UH-60A 1-time inspection tail rotor gearbox and intermediate gearbox oil level 231700Z Apr 84.
OH-6A-84-02 SOF Maintenance Mandatory, Inspection of OH-6A main rotor and damper attaching pins 042100Z Apr 84.
CH-47-84-06 SOF Maintenance Mandatory, Inspection of CH-47A/B/C forward transmission actuation connections 062130Z Apr 84.
CH-47-84-07 SOF Maintenance Mandatory, Inspection of CH-47A/B/C/D flight control tubes in the aft cabin area 302200Z Apr 84.
MIM-UH-1-84-MEM-05 Removal of screen mesh in UH-1H/V and EH-1H/X 031730Z Apr 84.
MIM-UH-60A-84-MEM-01 UH-60A supplemental covert illumination for night vision goggle training flight 101830Z Apr 84.
MIM-T42-84-MEM-02 T42 inspection of elevator control push rod assemblies 302000Z Apr 84.

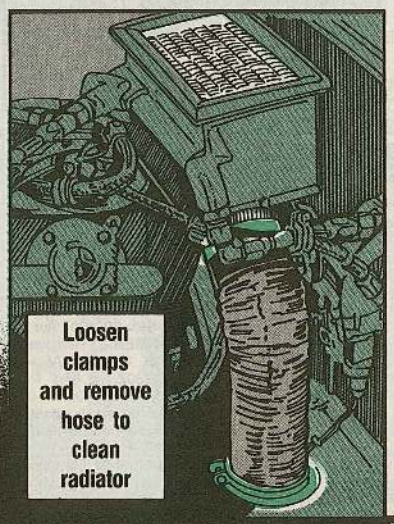
Keep That Oil Cooler Cool

The engine oil cooler radiator collects trash and gunk. That can cause overheating.

If the oil gets too hot, it loses its lubrication ability. That causes early engine wear. . .

When you do your 50-hour inspection, check and clean both the engine and transmission radiators. Here's a way to clean them:

Loosen the clamp and take the oil cooler hoses off the radiators.



Blow dust and trash out of the radiator core with dry, low-pressure air—no more than 30 PSI.

Reconnect the duct hoses.

When giving your bird a bath, make sure no water or cleaning solvent gets into the radiator cores. Put a homemade waterproof cover over the coolers to keep the wet out. Otherwise, liquid can run down into the fabric air ducts and rot them.

Flange Furnishes Fast Fix

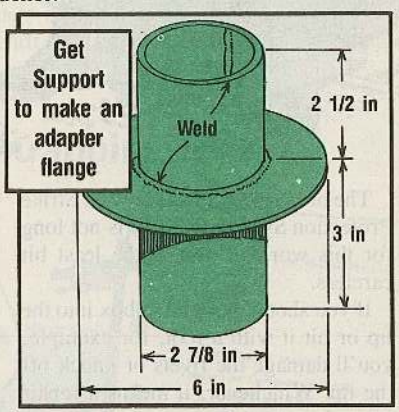
Vibration can chew up a Kiowa's oil cooler duct hose where it goes through the deck.

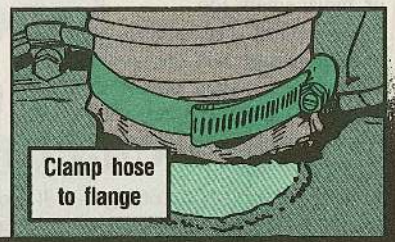
That means a time-gobbling repair job for you maintenance types.

Here's a way to save some time—and money—next time that hose goes. It was suggested by J.L. Story of Ft. Rucker.

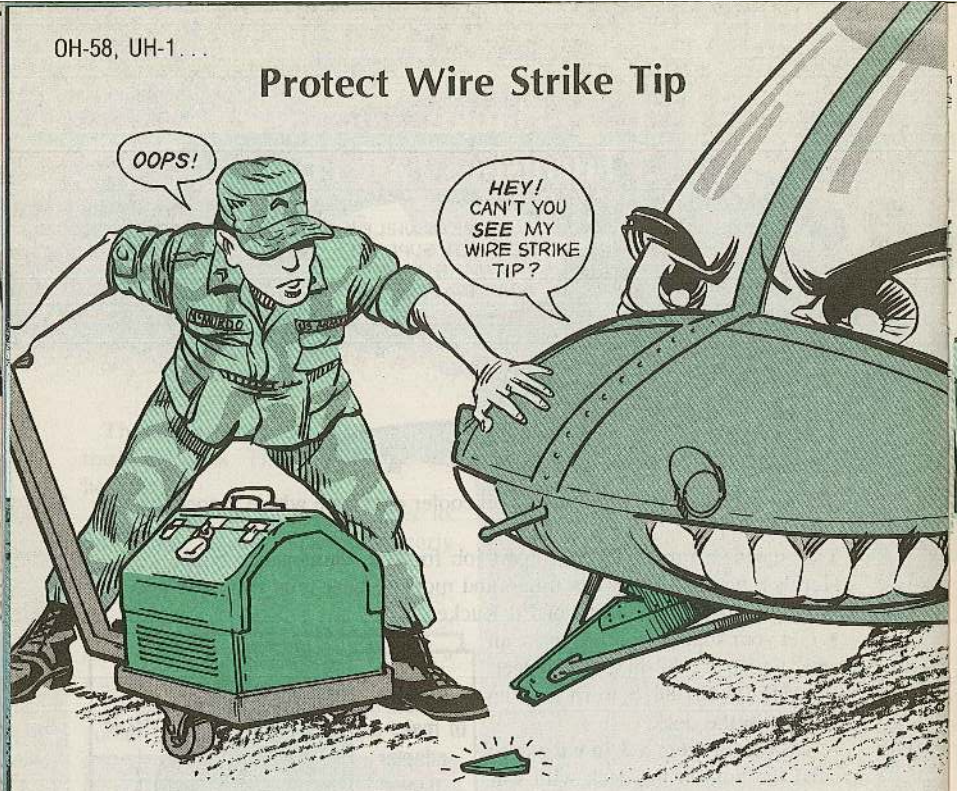
- Get your support folks to make an adapter flange of .032-in stainless steel, NSN 9515-00-231-8618, to fit into the 3-in hole in the deck.
- Strip paint from a 3-in wide area around the hole in the deck with solvent. Clean the area thoroughly with MEK, NSN 6810-00-281-2785.
- Insert the adapter flange and bond it to the deck with sealing compound. NSN 8030-00-723-2746 gets a pint that's good for 2 flange fixes.
- Attach a 12-in length of duct hose, NSN 4720-00-134-4347, to the oil cooler and upper part of the flange with clamps, NSN 4730-00-278-9138. Clamp 5 feet of hose to the lower flange and transmission assembly duct.

Now when your chopper's vibes do a number on the duct hose—usually the upper part—you can do a quick change of just the damaged section instead of a big fix.





Protect Wire Strike Tip



The breakaway tip of the Wire Strike Protection System (WSPS) is not long for this world if you're the least bit careless.

If you should push a toolbox into the tip or hit it with a tool, for example, you'll damage the rivets or knock off the tip. Whichever, it means a repair or replacement job.

The easiest way to keep the WSPS in tip-top shape is to keep heavy boxes, tools or equipment out of its reach. Here's a way to remind yourself that the tip is there.

Highlight and protect that tip during maintenance with something bright and soft. A tennis ball, NSN 7810-00-516-0152, or a Styrofoam ball will do the job. Paint it a bright color as an eye-catcher. NSN 8010-00-958-8148 gets a 1-pt can of fluorescent orange paint.

The cover does double duty by protecting your head from a close encounter of the painful kind.

Remember to take the cover off the tip after maintenance.

UH-1 Offset Gage

NSN 5210-00-804-2660 gets a 30° offset thickness gage you need to install the collective lever on the UH-1. Your authority is Appendix A of CTA 50-970.

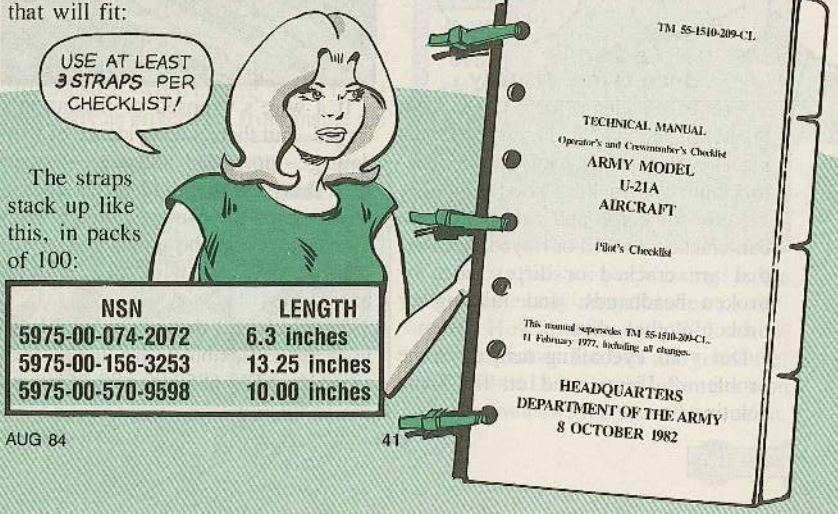
Use Only Aircraft O-Rings

The only O-rings you use on aircraft are those listed in aircraft TM's. The O-rings in various O-ring assortment kits do not meet aircraft requirements and should never be used on aircraft.

An O-ring failing on a ground vehicle is no big deal—a momentary inconvenience. An O-ring failing on an aircraft can be disastrous. Just go by the pub and you won't flub.

Check This Strapping Idea

Here's how to keep loose-leaf pubs under control when there's no binder that will fit:



The straps stack up like this, in packs of 100:

NSN	LENGTH
5975-00-074-2072	6.3 inches
5975-00-156-3253	13.25 inches
5975-00-570-9598	10.00 inches

Handsets, Headsets, Microphones...

'Little' PM Pays Big Dividends

Those small audio accessories play a big part in your commo. Fact is, you couldn't talk to anyone but yourself without them.

So why give them the short end of the PM stick? There's not much to them. Usually just a connector, some cable and the case that holds the more delicate parts.

Once Over, Visually

Are cases clean, dry, free from breaks and cracks? Are mouth and earpieces complete and snug? Are connectors tight and making good contact?

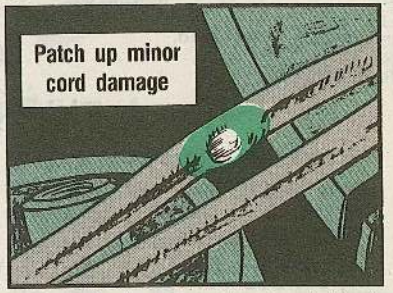
Look for cords and cables that are cut, cracked, kinked or frayed; headsets that are cracked or dirty; worn or broken headbands; and missing or broken clothes clips.

Did your eyeballing turn up some problems? If so, read on for some solutions.

Cords and Cables

Treat them with respect. No twisting, pulling or yanking allowed. That can tear up inside wiring or pull the cord loose from the case.

Remember, tho, that damage doesn't always mean replacement. A strip of tape, NSN 5970-00-419-4291, will sometimes do the trick.



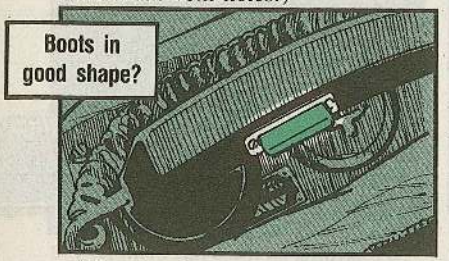
If a wire's exposed or insulation's frayed—but there's no evidence of wire damage—go ahead and tape. Use at least 2 layers, and spread the tape an inch beyond the damaged area in both directions. Skip the taping if you see dry rot, damaged wire or 2 or more bare wires.

You can stall dry rotting and keep your cables flexible with a light coat of silicone, NSN 6850-00-880-7616, on the insulation.

Staying Dry

Make sure your accessory's moisture defenses are up.

Rubber boots over push-to-talk and ring generator switches should be present and in good shape. No cuts, cracks or holes allowed. (The TA-1 telephone covers are an exception. They come with small vent holes.)



Many handsets come with moisture shields to protect the elements from the weather. If yours have them, be sure they're on the job.

Likewise, if the shield goes on the outside of the handset—like the H-60's, for instance—keep it there. It can't fight moisture as effectively from inside the cover.

If your accessory has no shield, or if yours is damaged or lost, try a substitute. The cellophane from a cigarette pack can be cut to size and glued over a damaged shield.

You can even cover the entire mouthpiece with a thin plastic bag. Just be sure you can be heard and understood by those receiving your transmissions.

Getting Down to Cases

Keep the outside of your gear in top shape with a little care and cleaning.

It's rugged, sure, but it won't take a lot of banging and bouncing. Plastic cases need extra care, especially in the cold when they get brittle.

Keep your accessories clean with cleaning compound, NSN 6850-00-597-9765. For CVC helmets and headset headbands, use mild soap and warm water for a good cleaning.

Are ear pads torn or missing? Is the boom assembly dirty, broken or corroded? How about ball joints? Look inside earphones for dirt and moisture.

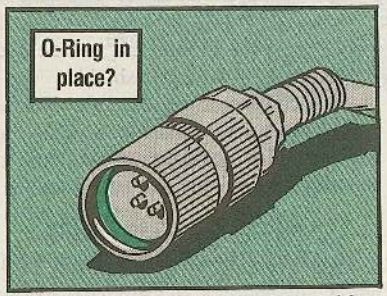
TB 43-0118 has more information on fighting mildew, fungus and corrosion.

PS MORE

Connection Protection

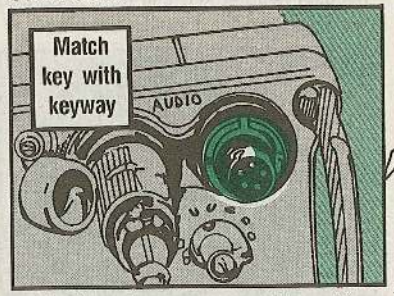
Now you're ready to get down to business. Don't mess it all up with a sloppy connection.

First, make sure your connector has its O-ring. A smooth and snug connection is tough without it.



Smooth the way even more with a light coat of silicone on the rubber. Don't get any on the contacts, tho. If you do, wipe it off ASAP.

Now, check your connector and receptacles for keys and keyways. Be sure you mate them before making your connection.



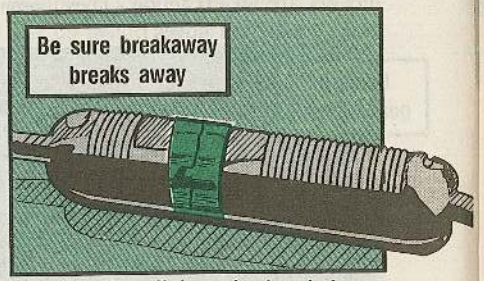
Don't go by memory, either. Your support may have changed the position of the receptacle since the last time you made a hookup.

OK, slide the plug on. Turn it clockwise with a steady forward pressure. When your guide pins hit the right groove, the connector will move forward and seat itself.

When it's seated, turn the knurled portion to the right and tug—on the connector, not the cord, of course. That insures a proper hookup.

To disconnect, turn the plug counterclockwise with a steady forward pressure until it's loose.

If you have a headset with a breakaway connector, make sure it will. If it doesn't come apart easily, the cord may snap instead.



By keeping all these tips in mind, you can keep your accessories ready to go.

Coverup Gives "Extra" Protection

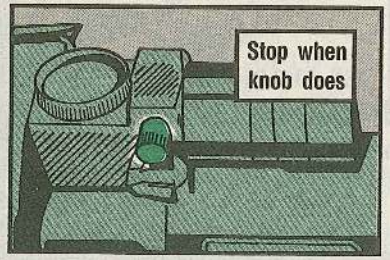
Give your AN/VRC-12-series receiver-transmitters and TA-312 telephones a PM edge with protective caps.

Neither are required by the TM's. But both can head off the dirt and moisture damage that puts you out of commission.

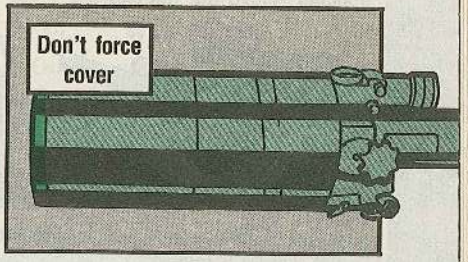
Sight Saver

A light touch now on both ends of your AN/TVS-2 night vision sight can save a trip to support later.

First, easy does it when making a reticle intensity adjustment. Stop turning when the knob does. Twisting it further just breaks inside wiring.



On the other end, never muscle the boresight cover on or off. You'll break either the rivets on the sight or ruin the slots on the cover.



Support replaces the rivets. If you can't repair the slots, replace the cover. That insures safety for the sight.

PM From the Ground Up

A wireman's work is never done.

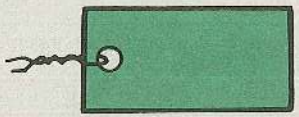
You put wire down, pick it up and maintain it in between.

Here's a round-up of good tips and handy NSN's that can make your job easier.

Before You Go

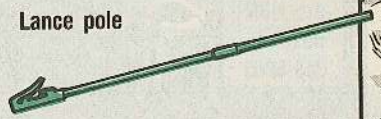
Before you head to the field, be sure you have the goods you'll need when you get there. Items like:

Wire tags



NSN
9905-00-537-8954 (red)
9905-00-537-8955 (yellow)
9905-00-537-8956 (green)
9905-00-537-8957 (white)

Lance pole



NSN 5975-00-407-6371

Wire hanger

NSN 5975-12-120-0691

Splicing sleeve (for MK-356 kit)

NSN 5940-00-818-1774

M-221 terminal board (for DR-8 spool)

NSN 5940-00-164-8112

Electrical tape		
ITEM		NSN
TL-636 (warm weather)		5970-00-685-9059
TL-600 (cold weather)		5970-00-240-0620
Friction tape		5970-00-644-3167

Reels Ready to Roll?

Eyeball your DR-8 spools. If yours still have the bent over tabs, have support spot weld them. Left loose, they can let an end pop off if a fully loaded spool hits the ground.

Make sure your RL-39 reels are whole. They now have repair parts. Only one is org level. That's the handle assembly, NSN 3895-01-135-2538. Your support can get a housing assembly (bearing and housing) with NSN 5805-01-151-9929, the plate assembly (plate and stop) with NSN 5805-01-151-9928 and the snap ring, NSN 5365-00-803-7306.

Your RL-31 reeling machine needs regular lubing per Para 22c of TM 11-362. That means a good greasing each 8 hours of use, and cleaning and greasing after 40 hours. Without the lube,

friction can bring you to a screeching halt. Keep grease off the brake, of course.

Make sure the crank fits snugly on the axle. If there's too much play, the crank is unserviceable. It'll just round off the edges on the axle.

Of course, you use the crank for reeling in only. Left on when you pay out cable, it becomes a free-wheeling club.

If you want to install the RL-31 on your M151-series ¼-ton truck, use NSN 3895-00-537-7947 for the kit. The NSN added by C7 to the TM is no good.

Wire Supply

Once you've got all your stuff together, you can grab your wire and go when the call comes.

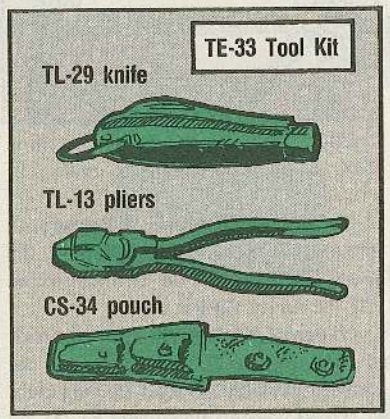
Need wire, too? Here're the numbers that get it:

WD-1A wire	NSN 6145-01-
¼ mile on DR-8 spool	047-4345
½ mile on MX-306 bag	041-9989
1 mile on RL-159 reel	047-4344

PS MORE

Keep in mind that once its wire is gone, the MX-306 is no good. The headshed doesn't need it for refill or reissue. Check with your support for disposition.

Finally, before you set off, be sure you have your TE-33 tool kit. Splicing the new wire is tough without it. Order the TL-29 knife with NSN 5110-00-240-5943; the TL-13 pliers with NSN 5120-00-247-2063 and the CS-34 pouch with NSN 5140-00- 498-8898.



Put It Down

In the field, your job is to get the wire down and keep the lines open. That means keeping the wire out of the way of man and machine.

Overhead is one way. A lance pole or wire hanger does the trick. So will a handy limb or two when you can find them.

An easy way to sling the wire over tall branches is to tie something heavy—like a discarded howitzer projectile nose plug—to one end.

Trenches are handy for crossing roads. See FM 24-20, Field Wire and Field Cable Techniques, for more on laying, recovering and splicing wire.

Pick It Up

Once your field work is done, and you've gathered up your miles of wire, you need to know what's good enough to use again.

Look the wire over closely as you put it back on reels. Look for cuts, splices, worn spots or insulation damage.

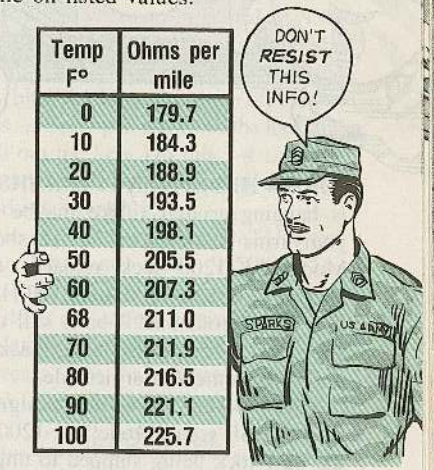
If a bad spot covers less than 3 inches of wire, tape it. Longer ones have to be spliced.

Put your recovered wire to the test to make sure it's good to go next time.

Use a multimeter to check for loop resistance. Good wire will show about 212 ohms per mile at 70°F. Remember that temperature affects resistance and resistance changes proportionately with length. Thus, a half-mile of wire would test out at 106 ohms at 70°F.

Use this chart to figure resistance, giving yourself a ±15 ohms leeway per mile on listed values.

Temp F°	Ohms per mile
0	179.7
10	184.3
20	188.9
30	193.5
40	198.1
50	205.5
60	207.3
68	211.0
70	211.9
80	216.5
90	221.1
100	225.7

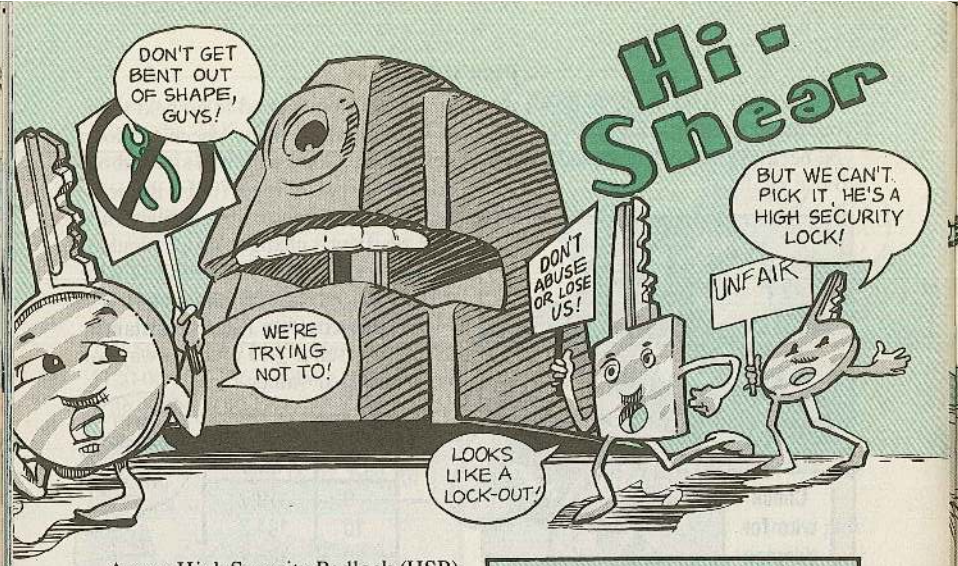


A considerably higher than normal reading means bad splices or a break in the wire. Too low indicates a leak or short circuit.

If it passes the resistance test, but has more than 4 splices per half-mile, it's good only for training. If it fails the splice test, save what you can, and turn in the rest. Check with your support for the procedure.

When you bundle it up, forget about cutting it into strips. It's usually unnecessary and always dangerous. PDO is interested in the weight, not the length of unserviceable wire.

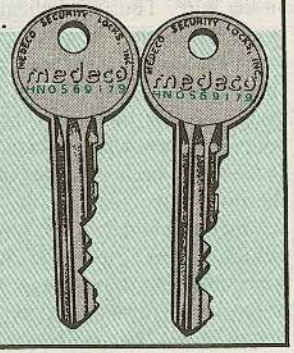
Hi-Shear



A new High Security Padlock (HSP) is hanging around . . . like maybe on your arms room door. The Hi-shear Model LK-1200 lock replaces the Sargent & Greenleaf Model 831B HSP (PS 363). Hold one! You'll still use your S&G Model 831B (closed shackle) until it becomes unserviceable.

NSN 5340-00-799-8248 is assigned to both HSP's, but Model LK-1200 is the only lock being shipped to units.

Each Hi-shear lock has its own matched set of serial numbered keys. . .



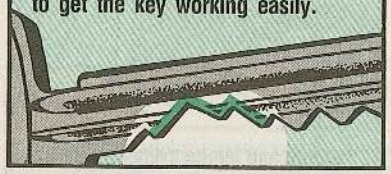
. . .but the matching cylinder is not numbered. Use an etching tool, NSN 5130-00-203-7943 (in your No. 2 Common shop set) to etch serial numbers of keys on their matching cylinders. Keys are not interchangeable with any other HSP.

HSP PM

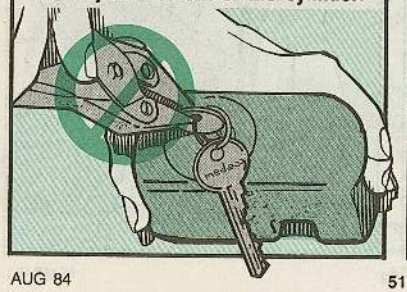
Key PM

You get 3 keys with each lock: A control key (with square bow) and 2 regular operational keys (with round bow).

The deep cuts and sharp angles make the keys prone to cracking. NOTE: Jiggle the key, or tap the lock lightly with a wood or plastic mallet to get the key working easily.



Never use pliers, key ring or extra muscle to turn the key, or to get the key into or out of the cylinder.



Never use the control key unless you want to take the plug out of the housing to service or replace a cylinder or parts.

Padlock PM

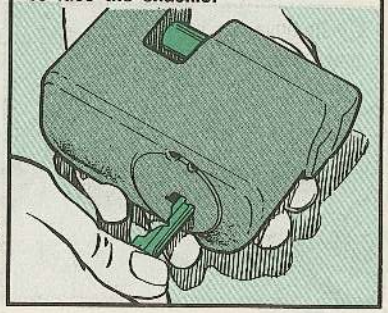
Use molybdenum disulfide, NSN 6810-00-264-6715, to lubricate the cylinder every 3 to 6 months. Dip the key blade in the powder, tap off the excess . . . then open and close the lock and pull out the key. Do this 3-4 times to spread the lubricant and get all the parts working smoothly.

No molybdenum disulfide? Use dry film lubricant, NSN 9150-00-754-0064. Spray the lock components and let them dry before reassembly.

Never use oil to lube HSP's. The oil leaves a film that attracts dirt, dust, gunk . . . gums up the lock quick-like.

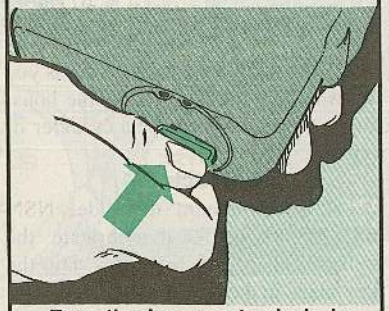
DISASSEMBLY

❶ Hold the HSP—label side down—in your hand. Insert the control key in the plug. NOTE: Key notches face the shackle.



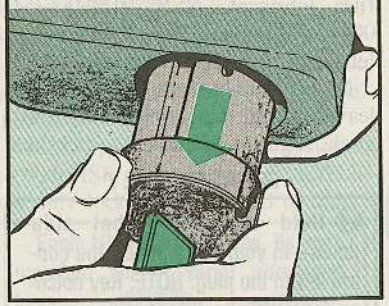
PS MORE

❷ Push the key all the way in. Remember, no pliers, no key ring, no extra muscle.

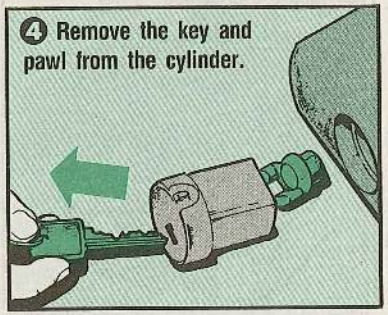


Turn the key counterclockwise past the LOCK position.

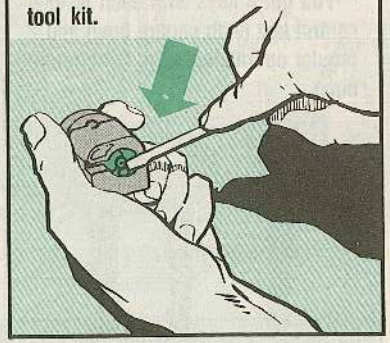
❸ Pull the key and plug away from the case (housing).



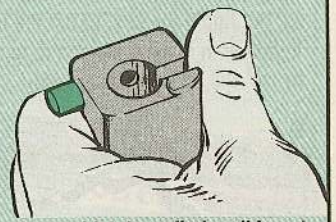
❹ Remove the key and pawl from the cylinder.



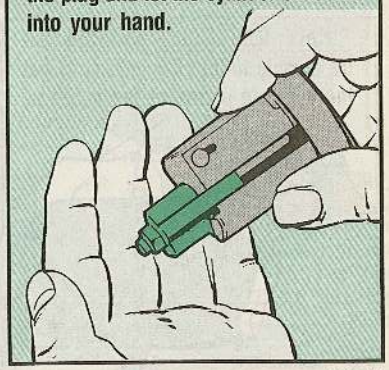
❺ Hold the plug upright so you can see the detent ball. Press the ball into the plug housing with a small tip screwdriver, NSN 5120-00-596-8502. It's in your Small Arms Repairman's tool kit.



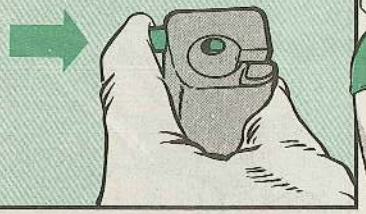
❻ The plug locking pins will hold the ball out of the way as you tilt



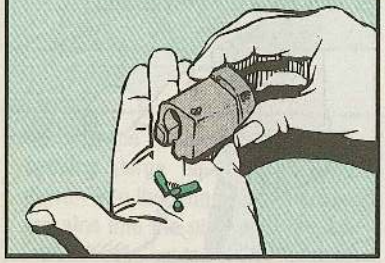
the plug and let the cylinder slide out into your hand.



❼ Set the plug on a flat surface. Squeeze the locking pins back into the plug. The detent ball will drop to the bottom of the plug.



❽ Tilt the plug and catch the ball and the spring connected locking pins in your hand. Put items in a safe place so they won't get lost. Do not remove spring from pins.



❾ Turn the plug upside down and use the screwdriver tip to push out the retaining ring, tumbler shield and cylinder shield.

All parts and case can now be inspected, cleaned and replaced as necessary. Any corrosion? Take it off with a wire brush, NSN 7920-00-449-6859, f'rinstance, and solvent, NSN 6810-00-292-9625.

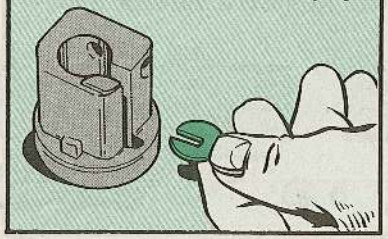
P.S MORE

Reassembling the HSP

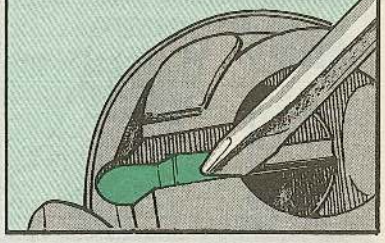
❶ Before you put the HSP back together, lightly lube the cylinder and pawl with molybdenum disulfide or dry film lubricant.

❷ Set the plug on a flat surface with the slot toward you.

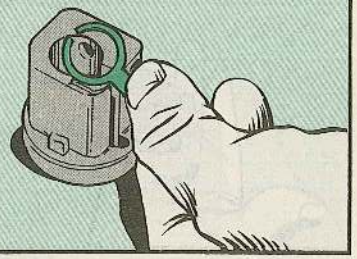
Slip the cylinder shield—with its slot away from you—into the plug.



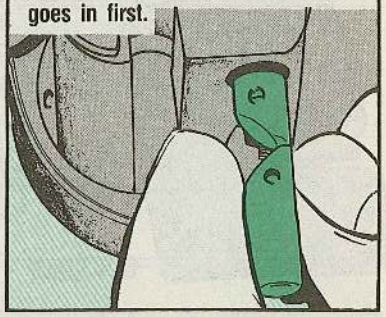
❸ Place the tumbler shield—flat side down, and curved edge pointing toward you—into the plug.



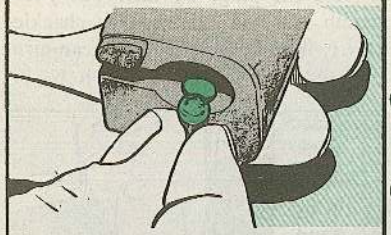
❹ Install the retaining ring. Be sure it's seated against the tumbler shield and the cylinder shield. If it's not seated good, you can't seat the cylinder.



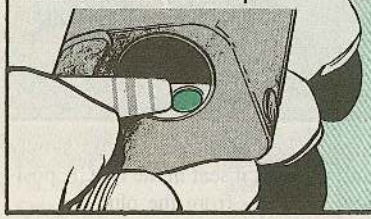
❺ Put in the locking pins—short pin goes in first.



❻ Tilt the plug toward you and put in the detent ball . . .



. . . pushing it into the plug housing with the screwdriver tip.



❼ Slide the cylinder—with the key opening (large flat end) pointing down—into the plug. Push the locking pins into the plug until the detent ball pops out to hold the cylinder in place.

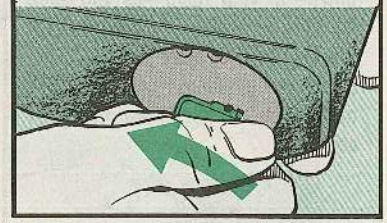
❽ Pick up the plug, insert the control key, add the pawl, and turn the key counterclockwise to the unlocked position.

❾ Hold the lock housing label side down—in your hand—as you slide the plug assembly into the case. Tilt the lock so the shackle will fall into the closed position. If the shackle is open, the pawl keeps the plug from seating.

PS MORE

⑩ With the plug in place, turn the control key clockwise about 90 degrees. . .

. . .then counterclockwise slowly until you feel it seat in the LOCK position.



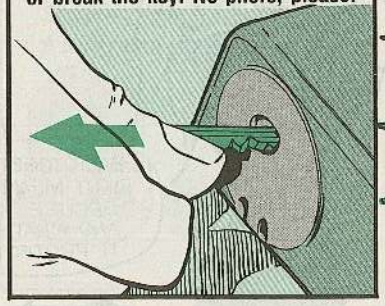
NOTE: If the key doesn't turn clockwise real easy-like, or if you can't pull it from the plug, try this: Use your thumb or finger to back the shackle slowly into the case until you can turn the key to the 90 degree position. Now,

turn the key counterclockwise slowly until you feel it seat in the LOCK position. Pull key from the plug.

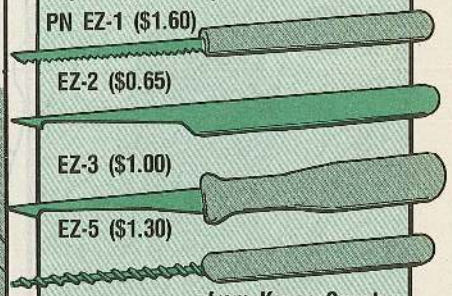
HSP Repair Information

No repairs are authorized on HSP's at unit level. Armorers replace damaged or unserviceable parts. That's all.

⑪ Pull the key straight out of the plug. You may have to wiggle the key a little as you pull it from the plug. But be careful you don't bend, twist or break the key. No pliers, please!

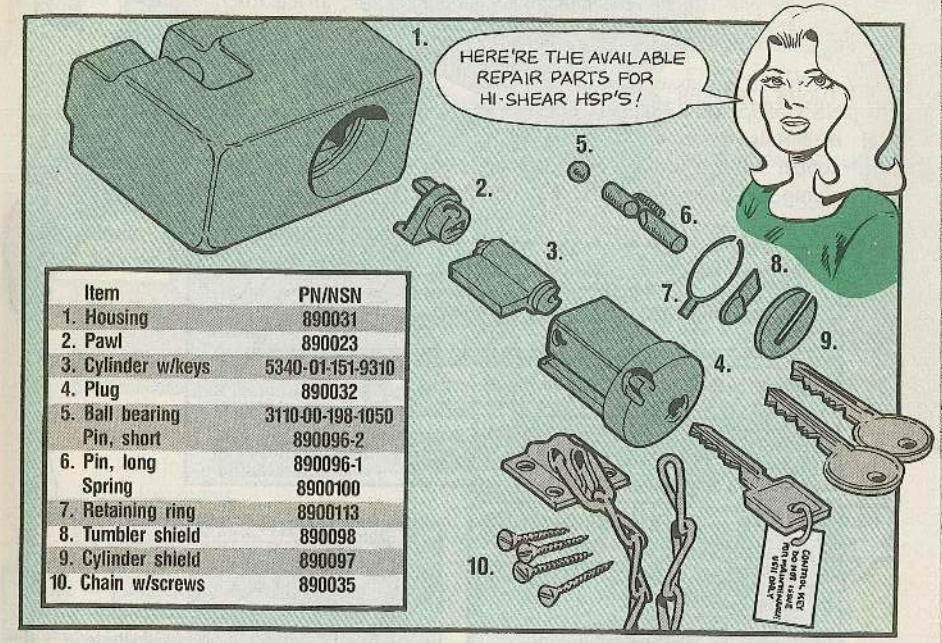


If you have an unserviceable HSP because a broken key is in the cylinder, use key extractors. . .



. . .from Kenco Supply Co., 2531 North 85th St., Omaha, NB 68134.

CONUS units go the local purchase route for these extractors. OCONUS units use DD Form 1348-6, RIC A35, and Advice Code 2A "Item is not locally obtainable thru manufacture, fabrication or procurement."



Item	PN/NSN
1. Housing	890031
2. Pawl	890023
3. Cylinder w/keys	5340-01-151-9310
4. Plug	890032
5. Ball bearing	3110-00-198-1050
Pin, short	890096-2
6. Pin, long	890096-1
Spring	8900100
7. Retaining ring	8900113
8. Tumbler shield	890098
9. Cylinder shield	890097
10. Chain w/screws	890035

OCONUS units use DD Form 1348-6, FSCM 73197 and RIC S9I for the non-NSN items. Send requisitions to Defense Industrial Supply Center, ATTN: DISC/OCAA, 700 Robins Ave., Philadelphia, PA 19111.

CONUS units order the parts from Hi-shear Corp, 2600 Skypark Dr., Torrance, CA 90509. You'll help get these items in the supply system by sending Defense Industrial Supply Center, ATTN: OEBB/JC, 700 Robins Ave., Philadelphia, PA 19111 an information copy of the quantities and cost of parts you order direct from Hi-shear.

NSN 5340-01-151-9310 gets a new cylinder with 2 operating keys and a control key for Hi-shear locks. NSN 5340-01-127-0989 gets a cylinder with a control key and an operational key for Sargent & Greenleaf's Model 831B lock. Cylinders or keys are not interchangeable between Hi-shear and S&G locks. Order replacement cylinders from DISC, ATTN: OEBB/JC.

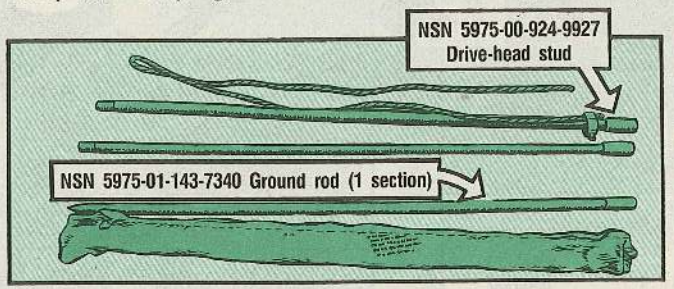
The Bottom Line

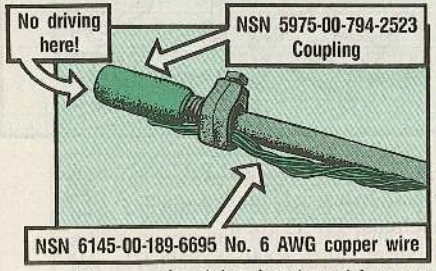
Good quarterly PM on your HSP's heads off trouble with the locks. AR 190-11 has the word on key/lock control.

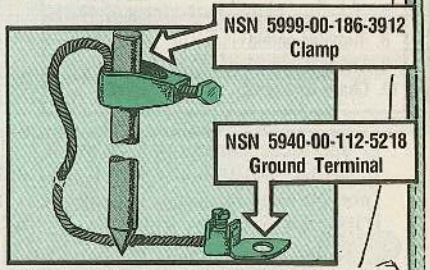
P.S. END

Components Call-Out

Ground rod assembly, NSN 5975- 00-878-3791, consists of 3 rods, 6 feet of No. 6 AWG copper wire, a terminal lug, driving stud, clamp and 3 couplings. Here're the numbers for replacement parts:







Be sure the drive-head stud bottoms on the ground rod before you start to drive the rod into the ground. Never use the coupling as a drive-head stud.

You can make a driving stud from an old ground rod. Just cut a 3-in piece from the old rod, thread it, and use it with a coupling.

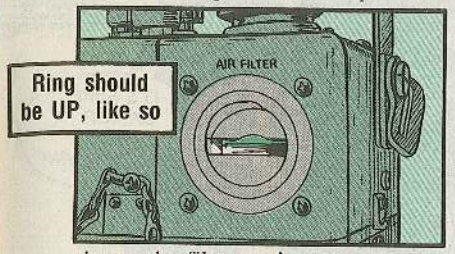
Generator Tester Lamp

Use NSN 6240-00-143-3049 for a screw-base lamp for the 500-amp generator test stand. The number shown for Item 59 of Fig 1 in TM 9-4910-663-24P is wrong.

M8 Alarm Filter Facts

When you install the air filter in your M8 chemical agent alarm, go easy. If any pushing, shoving or cramming is necessary, something's wrong!

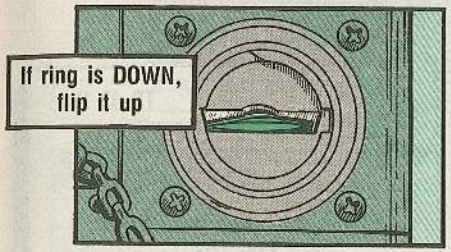
If the filter won't slide all the way in, eyeball the pressure ring in the filter slot. The ring should be up. If it's



down, the filter can't seat.

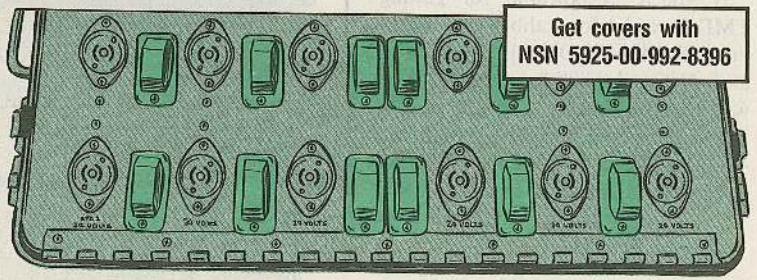
Try to flip it up. Insert the filter.

If the ring won't stay up, turn in the alarm for repair.

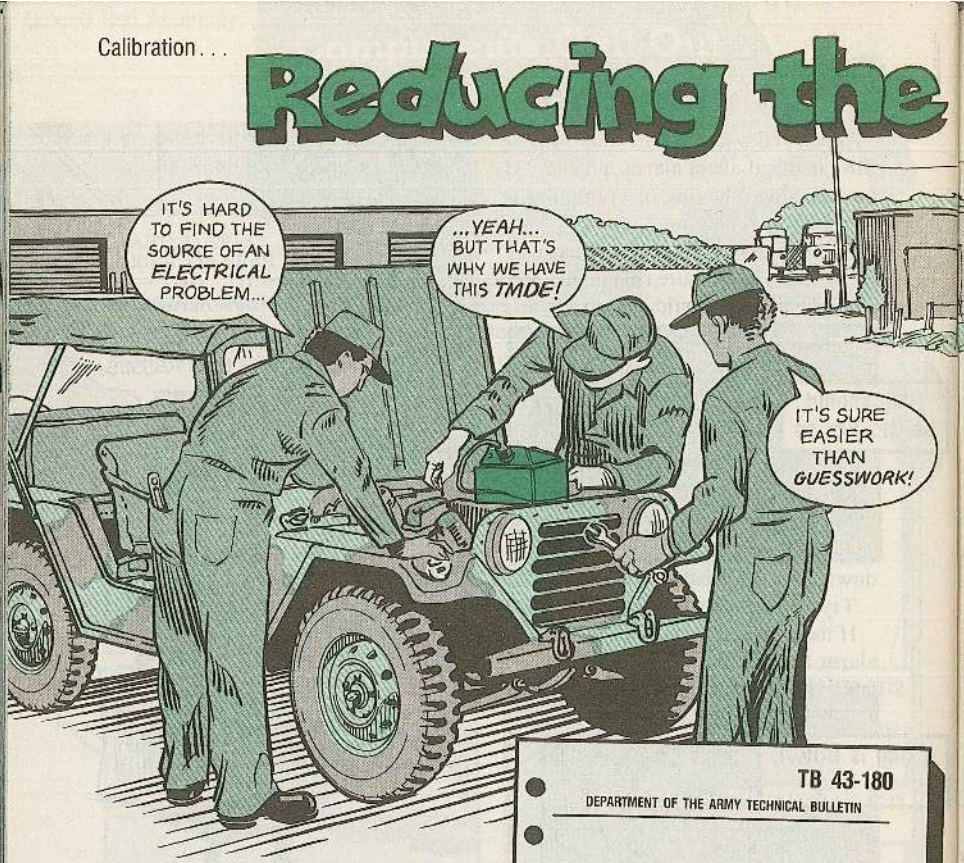


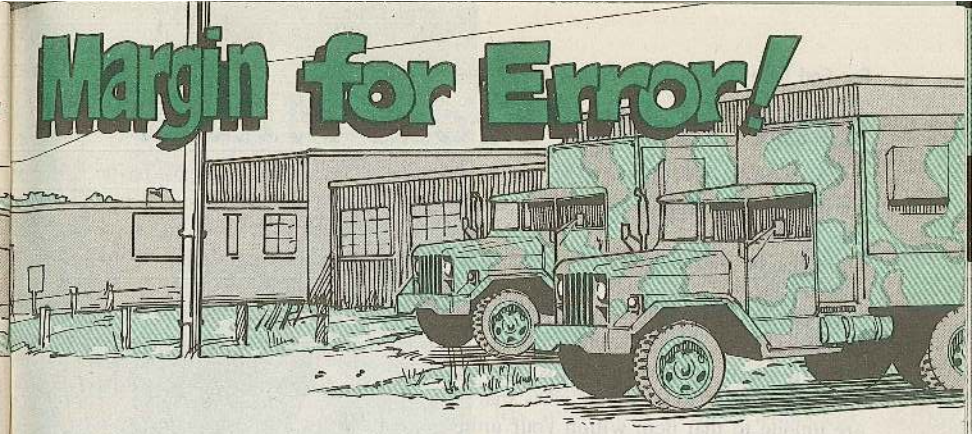
4D100 Relief Valve & Covers

The relief valve for your battery charging distribution panel is NSN 4820-01-095-0017. Use NSN 5925-00-992-8396 to get the covers. Both are missing from TM 5-6130-301-13&P.



Reducing the Margin for Error!

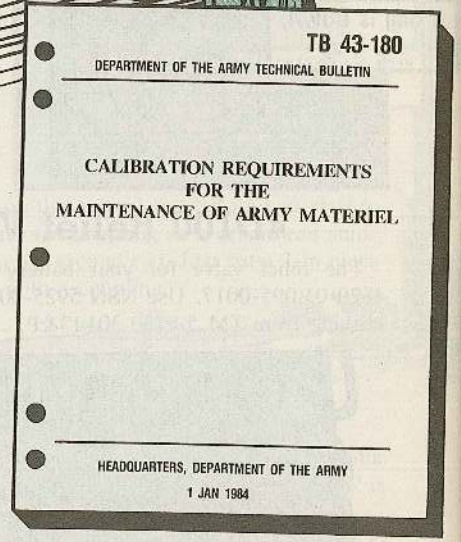




Test, Measurement and Diagnostic Equipment requiring calibration are listed in TB 43-180.

Your battalion TMDE support coordinator, calibrating teams, centers and sites have additional rules in AR 750-25 (Oct 83) and TB 750-25-1 (Oct 79).

If you're responsible for getting TMDE ready for calibration, know your battalion TMDE support coordinator. He or she will have the word on whether you ship the TMDE, keep it in the unit, when a team will visit and so forth. You schedule your TMDE at the intervals specified in TB 43-180.



TB 43-180

DEPARTMENT OF THE ARMY TECHNICAL BULLETIN

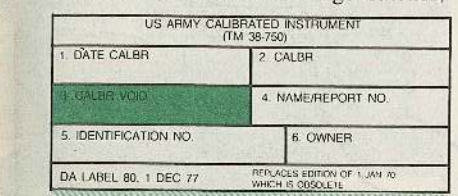
CALIBRATION REQUIREMENTS FOR THE MAINTENANCE OF ARMY MATERIEL

HEADQUARTERS, DEPARTMENT OF THE ARMY

1 JAN 1984

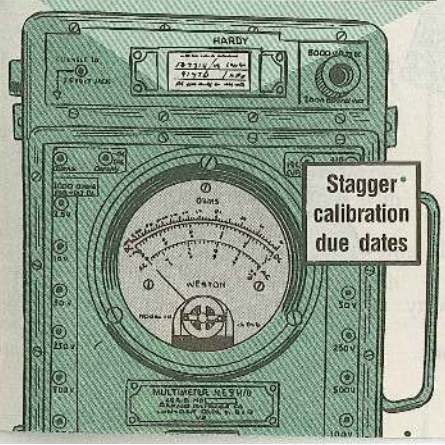
You can keep the load down by staggering the calibration due dates on the DA Label 80's. In other words, you don't want 50 dosimeters or 10 multimeters or a bunch of the same kind of test sets coming due on the same date. You want the due dates spread out so that your unit will have equipment on hand to work with.

If you've got the same kind of TMDE due for calibration in large batches, your unit can get with its battalion TMDE Support Coordinator or Area TMDE Support Team (ATST) chief and the appropriate area calibration and repair center (ACRC). They'll stagger the due dates by calibrating smaller groups at one time. . . and you end up with DA Label 80's which fall due at different times.



US ARMY CALIBRATED INSTRUMENT (ITM 38-750)

1. DATE CALBR	2. CALBR
3. CALBR VOID	4. NAME/REPORT NO.
5. IDENTIFICATION NO.	6. OWNER
DA LABEL 80, 1 DEC 77	REPLACES EDITION OF 1 JAN 70 WHICH IS OBSOLETE



One thing you should remember: When calibration is due, check with your battalion coordinator before you ship the TMDE. The ACRC may have decided to send a team to your post instead of having you send the TMDE to it. Your coordinator will have the word.

Another point: If you've got TMDE that's not used regularly, store it. Get with your coordinator first, though. Para 4-52 of TB 750-25-1 says he can OK temporary storage, but your coordinator has to stick a "CBU" label on the TMDE. CBU means "calibrate before use."

The whole idea is to make calibration of TMDE as painless to you as possible. Calibrated TMDE, used by those who should, allows the missile to fly right, the radio set to transmit, the vehicle to go.

For End Item, Repair Parts Match-up...

Get Help From MRSA

When you turn in an end item, you need to turn in your stock of repair parts for that item. Trying to identify the parts that are unique to that item can drive you up the wall.

Or maybe you have repair parts you can't peg to any end item. More frustration!

What you need is help—and the US Army Materiel Readiness Support Activity may be able to give it to you.

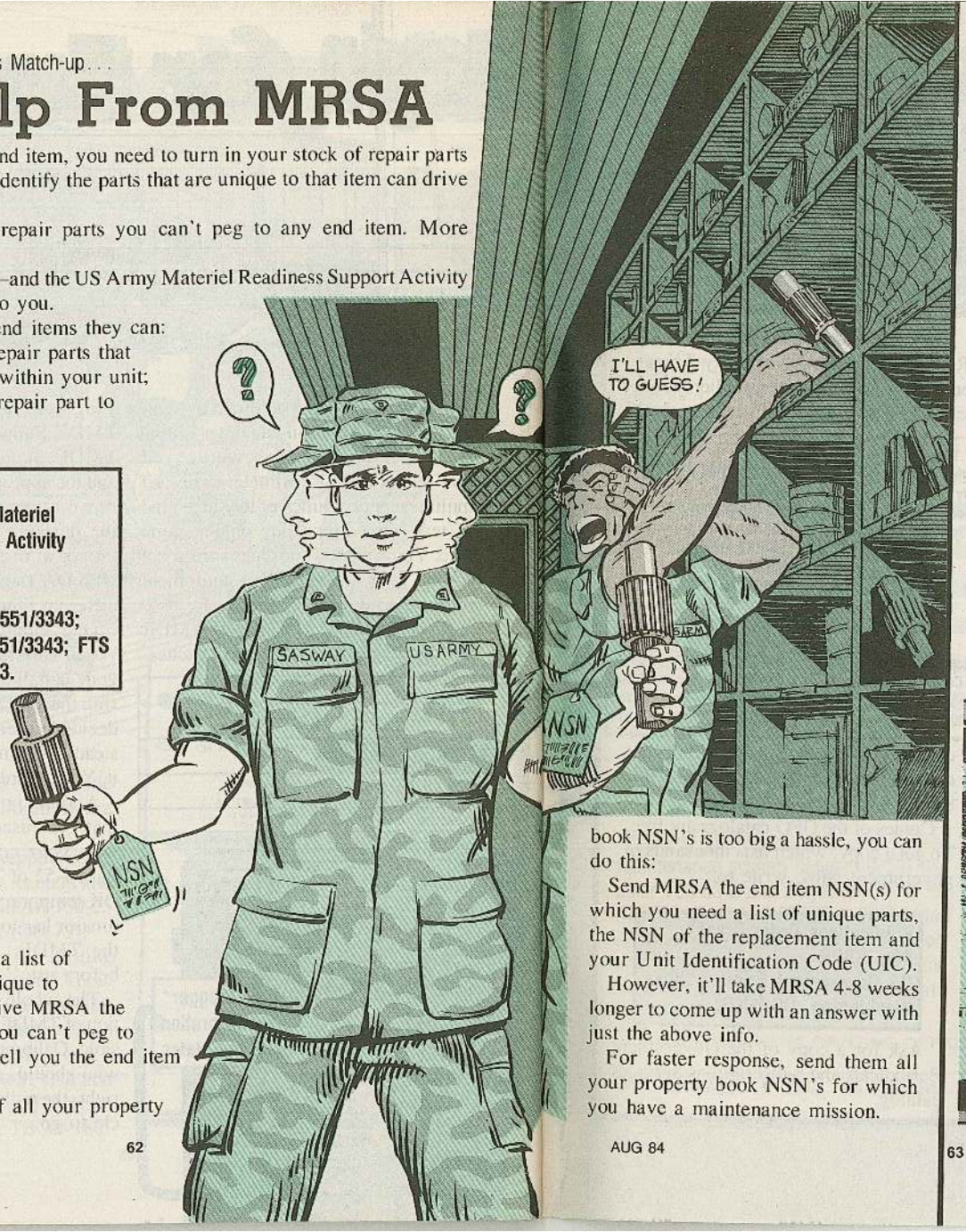
For a whole host of end items they can:

☐ Provide a list of repair parts that are unique to that item within your unit;

☐ Cross-reference a repair part to an end item(s).

Just write to:

Commander
US Army DARCOM Materiel Readiness Support Activity
ATTN: DRXMD-SE
Lexington, KY 40511
or call AUTOVON 745-3551/3343; Commercial 606-293-3551/3343; FTS 355-2833 Ext. 3551/3343.



Give them a list of all the NSN's of end items on your property book for which you have a maintenance mission. Be sure to specify the NSN you're turning in, and the replacing NSN if applicable.

MRSA can give you a list of repair parts that are unique to that end item. If you give MRSA the NSN of a repair part you can't peg to an end item, they can tell you the end item application(s).

If digging up a list of all your property book NSN's is too big a hassle, you can do this:

Send MRSA the end item NSN(s) for which you need a list of unique parts, the NSN of the replacement item and your Unit Identification Code (UIC).

However, it'll take MRSA 4-8 weeks longer to come up with an answer with just the above info.

For faster response, send them all your property book NSN's for which you have a maintenance mission.

PS Binders...

Tabulous Idea!

Three-ring looseleaf binders, NSN 7510-00-187-6486, are about the right size for filing your PS Magazines. A binder will hold at least six copies.

This requires punching holes in the magazine—not easy to do, and besides, the holes may take out needed information.

Charles Baxtresser of San Jose, CA, has solved the problem with clear, pressure-sensitive tabs. NSN 7510-00-147-8462 gets 10 tabs six inches long.

Punch holes in the tab to match up with the binder rings. For three holes it may be best to add a small section from another tab.

For quick-dry, permanent labeling of the binder, use typing correction fluid ("whiteout").

Punch holes in tabs, not magazines

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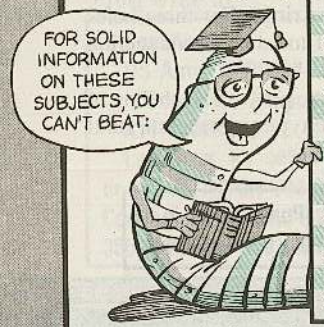

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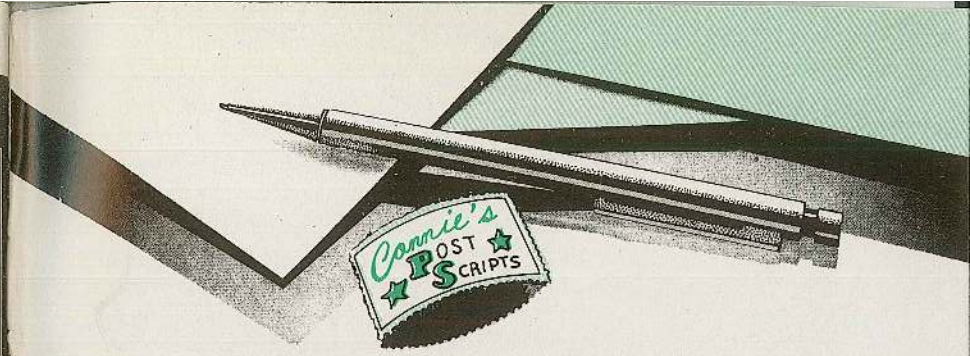


Tool Check

Use a 1-in diameter brass tag, NSN 9905-00-473-6336, to help identify tools, NBC gear and such. Use the die sets or the electric etcher in the No. 2 Common shop set to add numbers or letters to the tag.

Heater Thermometer NSN

You need a thermometer that'll read up to 500°F to check the overheat shutdown switch on personnel heaters on combat vehicles and such. You can get one with NSN 6685-00-514-3755. It's authorized by App A of CTA 50-970.

3-Level Maintenance Update

Here's an update on the 3-level maintenance system outlined in DA Circular 750-83-2 and Pages 34-36 of PS 375. DA Msg DALO-START 142010Z May 84 changes the terms Intermediate Forward to Intermediate (Direct Support) and Intermediate Rear to Intermediate (General Support).

5-KW Selector Switch

The output selector switch for your MEP-017A generator set is NSN 5355-01-162-3705. It's part of Item 14, Fig 10, TM 5-6115-332-24P. Your DS replaces it.

Keep Reliner in Shop Set

The brake and clutch reliner, NSN 4910-00-173-5310, was erroneously dropped from SC 4910-95-CL-A31, Automotive Maintenance and Repair Shop equipment. Keep the reliner. It will be added to the SC when it's updated.

M730 Carrier Correction

Some parts in Fig 92 on Page 163 of TM 9-1450-585-20P need reversing. Item 1, NSN 2530-00-912-9511, is for the left side torsion bar. Item 4, NSN 2530-00-912-9512, is for the right side torsion bar.

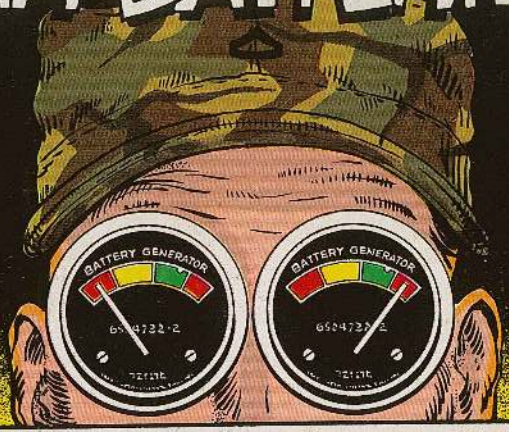
4.2 KW APU Hourmeter

Want to know how much time the APU in your M577-series command post carrier is putting in? Add an hourmeter. TB 43-0001-39-8 (Jan 84) OK's it. See Para 2-7c for parts and how-to info.

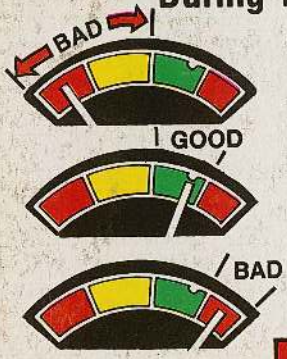
☆ U.S. GOVERNMENT PRINTING OFFICE: 1984—759-008/9

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

YOUR EYES MAKE OR BREAK YOUR BATTERIES!



During normal engine operation—



BATTERIES ALREADY SHOT OR BEING UNDERCHARGED

CHARGING SYSTEM PUTTING OUT 26-30 VOLTS

OVERCHARGING—RUINS BATTERIES

BAD? REPORT IT!

Watch your bat/gen indicator!