

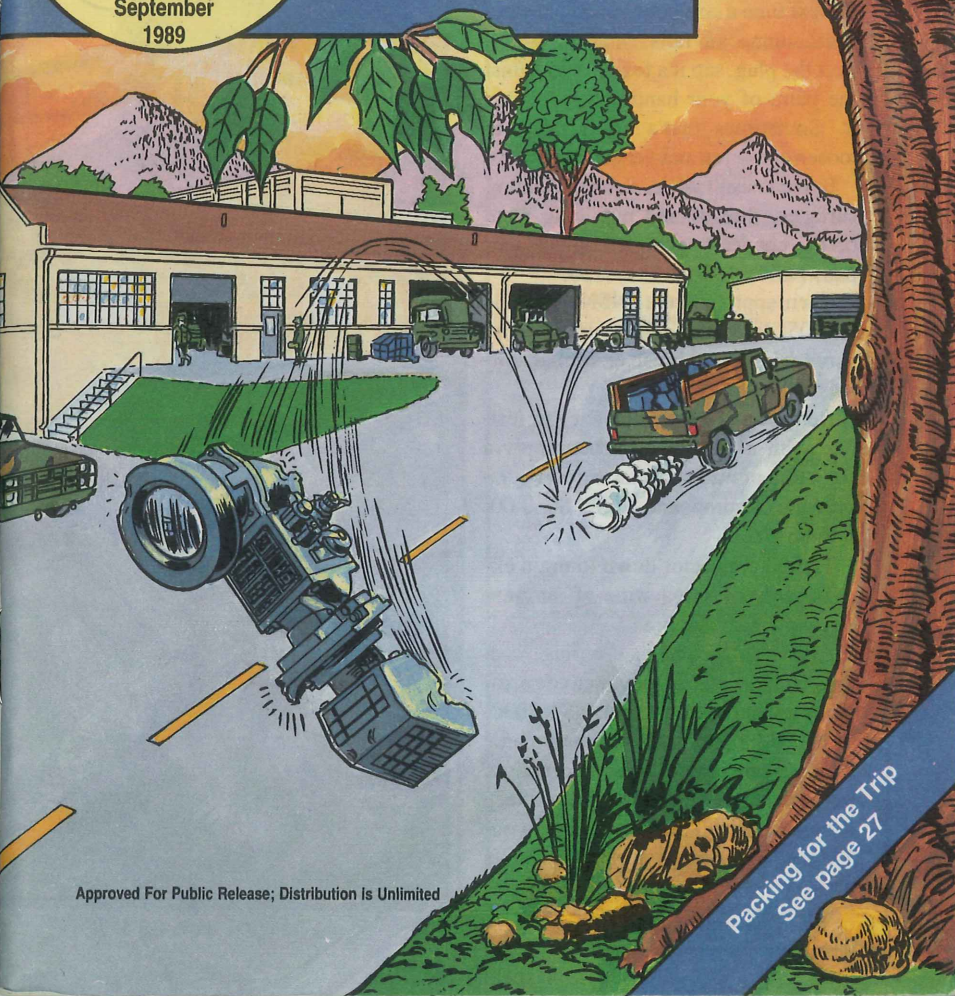
Issue 442

PS

September
1989

THE PREVENTIVE MAINTENANCE MONTHLY

TB 43-PS-442



Approved For Public Release; Distribution Is Unlimited

Packing for the Trip
See page 27

OLD ENEMIES

The same old bugaboos—moisture and corrosion—are knocking out a lot of avionics and electrical systems.

Here's a short-term fix to reduce downtime and save dollars.

Next time a component with an electrical connector fails, simply disconnect the plug, tap it a few times against the palm of your hand and reconnect it. Sometimes that's all it takes to loosen corrosion and get good contact.

If that doesn't work, scrub the mating surfaces, threads and mounting plate of the connector with a non-abrasive pad, NSN 7920-00-151-6120.

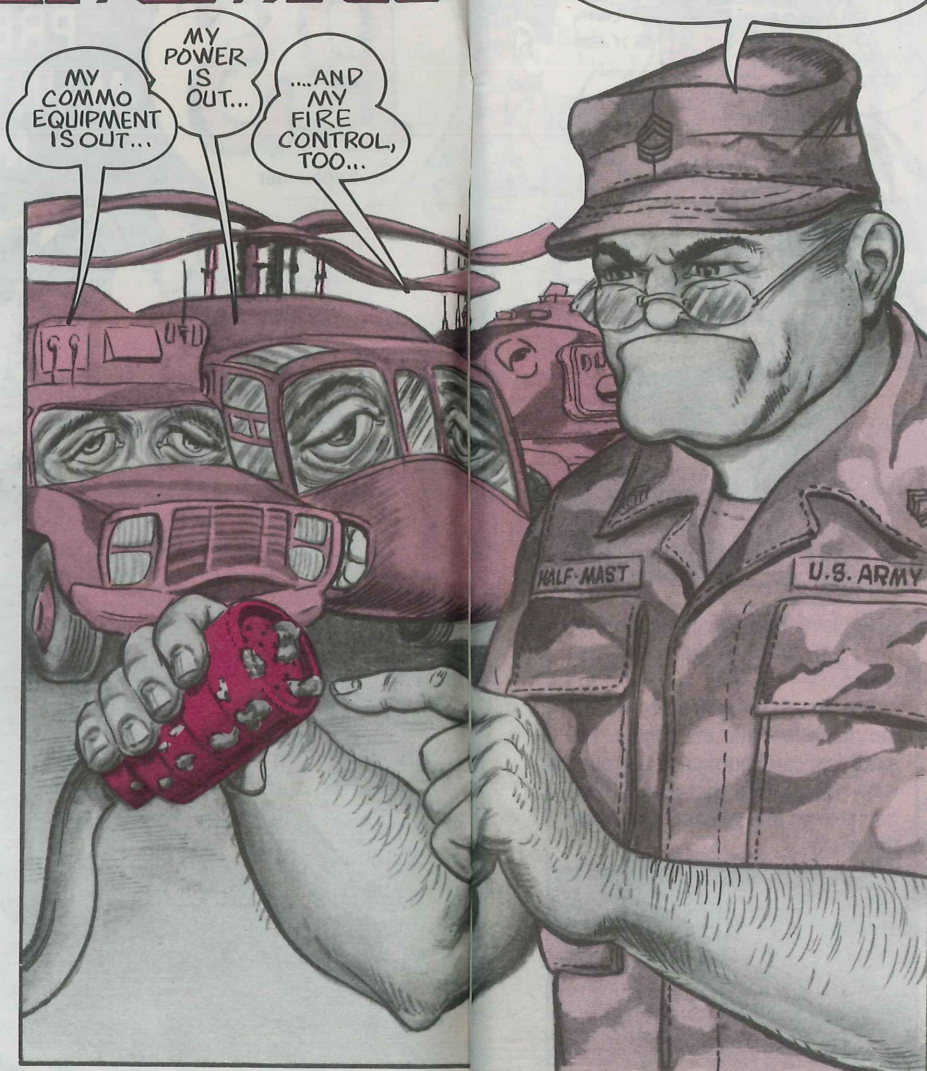
Then apply solvent, NSN 6850-01-269-0513, to the same surfaces and scrub with a toothbrush or similar soft-bristle brush.

Remove the excess solvent and residue with a clean cloth, then apply a light film of water-displacing corrosion preventive compound, NSN 8030-00-546-8637.

Tilt the connector down to drain excess compound and wipe off any excess with a clean cloth.

After you reconnect the plug, coat the outside with non-conductive corrosion preventive compound. NSN 8030-01-041-1596 gets a 16-oz spray can.

There's no magic cure for corrosion, but preventive maintenance can keep it under control. Read and heed your TM's and inspect your connectors often.



PS

THE
PREVENTIVE
MAINTENANCE
MONTHLY

TB 43-PS-442, The Preventive Maintenance Monthly, is an official publication of the Department of the Army, providing information for all soldiers assigned to combat and combat support units and all soldiers with unit maintenance and supply duties. All information published has been reviewed and approved by the agency responsible for the equipment, publication or policy discussed. Application of the information is optional with the user.

ISSUE 442 SEPTEMBER 1989

FIREPOWER

M1-Series Tanks	2, 3	M992 Vehicles	9
M2/M3-Series		M110A2 SP Howitzer	11
Bradley, MLRS	4, 5, 6	HELLFIRE	12-13
STE-M1/FVS	6	Stinger	14-15
M242 Automatic Gun	7	M60 Machine Gun	16, 17
M109-Series SP			
Howitzer	8, 9, 10, 11		

GROUND MOBILITY

HMMWV	18-19, 20	1½-ton Trailers	24
CUCV	21	¾-ton Trailers	24
M939/M939A1	22	M872 Semitrailer	25
Brakes	23	M747 Semitrailer	25

AIR MOBILITY

B4-A Maintenance		Aviation Messages	41
Platform	35	AH-64A	42
UH-60A	36, 37, 38, 39, 40	AVSCOM Hotlines	43
M134 Minigun	41	Storage Container	43

COMMUNICATIONS

TACCS	44-45	RT-1402A	47
SINCGARS	46-47	AN/UGC-74	48-49

TROOP SUPPORT

SOU's, SMART Msg	26	5-, 10-KW DED Gen	56
Packing for the		Clark MHE 184	56
Trip	27-28, 33-34	D7E Tractor	56
SMART Card	29-32	Equipment Record	
DA Form 2028-2	49	Folder	57
Fuel Freeze Up	50-51	Microfiche Readers	58-59
Antifreeze	52-53	MRSAs Customer	
Utility Wire Dispenser	53	Assistance	60
M1941 Space Heater	54	New Pubs, Audio-	
4K/6K Forklifts	55	Visuals	61
3-KW Gen	55		

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

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

By Order of the Secretary of the Army:

CARL E. VUONO
General, United States Army
Chief of Staff

Official:

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

PS, The Preventive Maintenance Monthly (ISSN 0475-2953) is published monthly by the Department of the Army, Washington, D.C. Second Class Postage is paid at the Lexington, KY post office and at additional mailing offices.

Postmaster: Send address changes to Cdr. US Army Pubs Ctr, 2800 Eastern Blvd, Baltimore, MD 21220-2896.

STARTS, STOPS ARE CRITICAL

Drivers, only you can prevent engine damage caused during startup and shut-down. Follow the procedures in your -10 TM and these five cautions to prevent excessive wear and tear, along with outright engine failure:

1 First and foremost, forget the combat start information in TM 9-2350-255-BD, Battlefield Damage Assessment and Repair. That information is only for use in an emergency or in real combat when directed by your CO.

2 Never press the START button longer than one second. Don't push the button more than once, or hold it down until you get a start or an abort.

STARTED

PUSH
TO
START

ABORT

3 Never use the STARTER ONLY switch before or while pressing the START button.

STARTER ONLY

PANEL
LIGHTS
TEST

ENGAGED

SHUTOFF

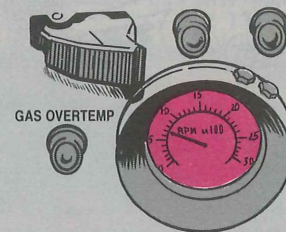
THE
TOTAL
DAMAGE
TO THE M1
ENGINE IS
\$353,622.27

WELL
I... I...TOTAL
\$353,622.27DAMAGE
COST
ON
M1

4 Never turn any circuit breaker OFF once the start cycle has begun.

The last three actions could put too much fuel into the engine. The extra fuel can't burn in a controlled way—it explodes. That causes internal damage that will eventually ruin the engine.

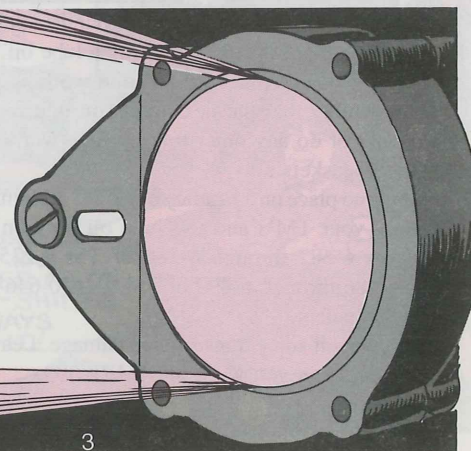
5 Give the engine at least two minutes at idle to cool off before shutdown. Let it idle while you check out gages, switches and warning lights.



That will prevent heat soak-back, which cracks turbine rotors and clogs oil passages. The cracks will ruin the rear module, and that costs \$121,000+. Clogged oil passages can ruin a whole engine, at \$353,000.

M1 Tank Headlight Highlights

Headlight assembly, NSN 6220-01-179-1061, can be used only on M1A1 tanks. You must order NSN 6220-01-073-7994 to get the right headlight assembly for M1 and IPM1 tanks.



Use No Sealants on Transmission



The HMPT-500 transmission on your Bradley or MLRS carrier doesn't take kindly to anything inside it other than lube oil.

In fact, it'll sometimes up and quit working if foreign material gets inside.

So remember that the next time you unit mechanics install a power takeoff (PTO) unit or do any other transmission work that requires the replacement of O-rings or gaskets.

There's no place on a Bradley or MLRS transmission for any kind of sealants.

Follow your TM's and use lube oil only on the O-ring of the PTO. Check out Pages 6-582 through 6-586 of TM 9-2350-252-20-1-3 for Bradleys and Pages 6-486 through 6-490 of TM 9-1450-646-20-3 for MLRS. Nowhere does it call for sealers.

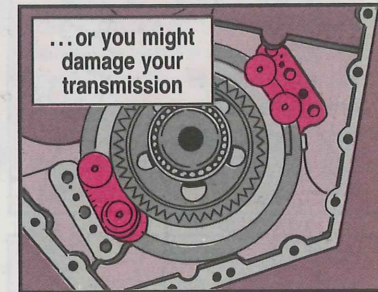
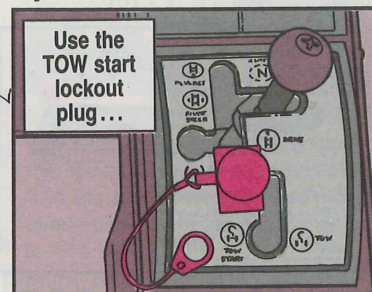
Save yourself some transmission damage. Leave the sealers in the tube when you work on HMPT-500 transmissions.

Keep Lockout Plug in Place

Any time you Bradley or MLRS drivers can prevent transmission damage, take advantage of the opportunity.

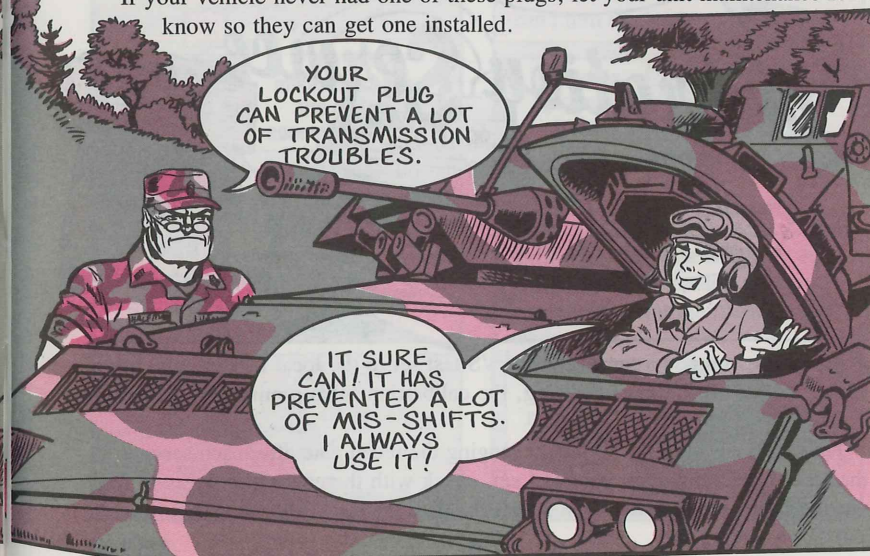
One such opportunity involves the use of the TOW start lockout plug. When the plug's in place on the gear selector, you can't accidentally shift into TOW START or TOW while your vehicle's moving.

If the plug's gone or just not in place, an accidental mis-shift can really do a job on the transmission.



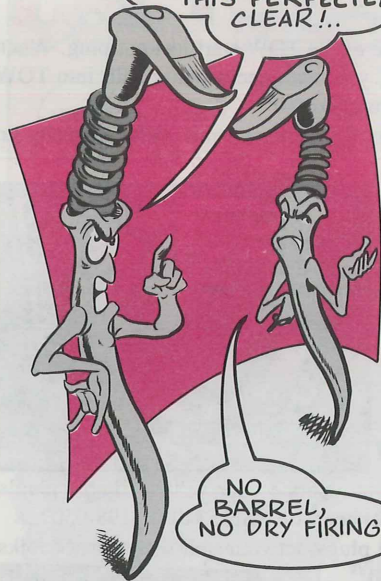
Make sure to use the plug any time you operate your vehicle. If the plug's missing, have your friendly mechanic order one with NSN 5340-01-198-0507.

If your vehicle never had one of these plugs, let your unit maintenance folks know so they can get one installed.



Never Dry Fire Without Barrel

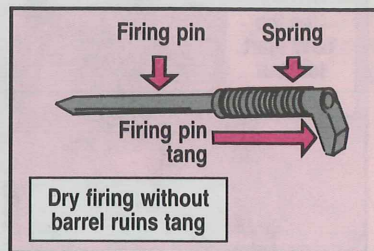
NOW, LET US MAKE THIS PERFECTLY CLEAR!...



NO BARREL,
NO DRY FIRING!

Dry firing wears out the firing pin on your M242 automatic gun fast. That's why you should dry fire only during PMCS and training.

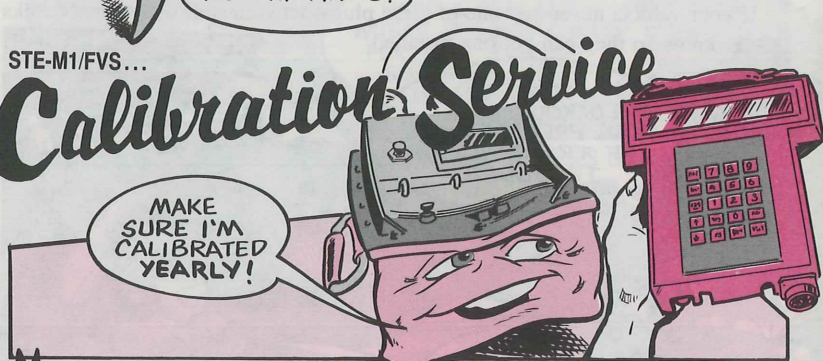
But never dry fire without the barrel. With no barrel, the bolt slams past where it should stop. That ruins the firing pin tang.



STE-M1/FVS...

Calibration Service

MAKE SURE I'M CALIBRATED YEARLY!

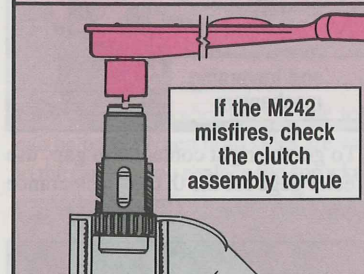


Make sure you add your STE-M1/FVS test set to the local master calibration listing. If it's on the master listing, the calibration folks remind you when the yearly calibration service is due.

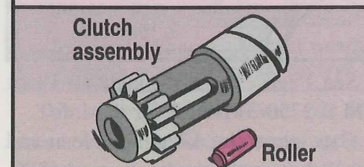
The test set gets a DA 80 label changing the recall date after each service. If the label is missing from your test set, check with the calibration folks to find out the next service date. Then adjust the date on your calibration records.

HERE ARE A FEW TIPS FOR YOU MECHANICS WHO REPAIR THE BRADLEY AUTOMATIC GUN!

1 For guns that misfire, suspect a weak clutch assembly spring. A weak spring won't let the clutch assembly hold the correct torque. Check the torque like it says on Page 2-320.1 in TM 9-1005-200-20&P (Jan 85). Test single- and double-spring clutch assemblies at least semiannually.



2 If you replace the spring, also replace the roller. The roller gets flat spots and lets the clutch slip.



PM Payoff



3 During semiannual maintenance, replace all the gun's O-rings. Solvent causes the O-rings to deteriorate. Then they can't keep damper fluid in and water out. It's easier to replace the O-rings while you have the gun apart than to wait for an O-ring to go bad.

4 Before you issue an M242, make sure the pin inside its drive shaft is at the top of the shaft. If the pin's spring collapses, the pin falls down the shaft and the drive shaft can't turn the feeder.



5 For a gun that suddenly quits firing, look for a broken sear pin. A broken pin means the interlock won't work.

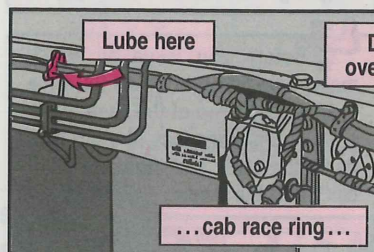


NO POWER MEANS NO POWER

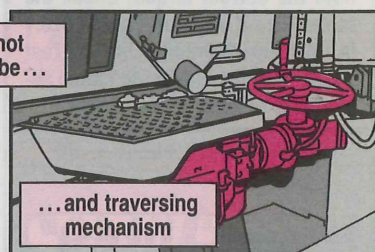
Contact arm brushes and slip ring segments must be clean and gapped right, or you'll get no electricity to your howitzer cab.

That's clean—as in no grease or oil. Grease and oil keep brushes from making good contact with the slip ring segments. No juice means no power to cab components and instruments.

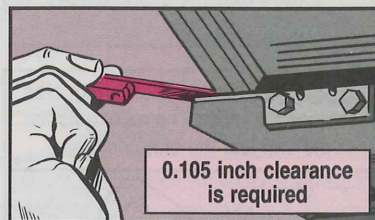
Crews, that means be real careful lubing the cab race ring. Follow the word in LO 9-2350-311-12. Lightly lube the race surfaces, springs/separators and balls with GAA.



Mechanics, don't overlube the traversing mechanism ring gear and output drive gear. If GAA drips onto the slip ring segments and brush holders, you'll get an electrical failure.



To get the right contact arm gap, use a feeler gage for the 0.105-in clearance needed.



See Pages 10-16 through 10-18 of TM 9-2350-311-20-2 for the info.

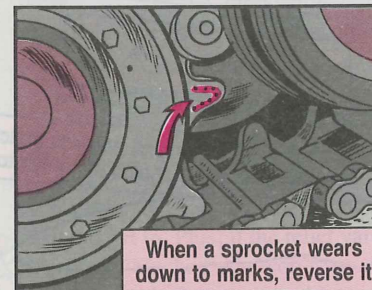
Gap 'em right, keep 'em clean and you'll have power when you need it.



Making the drive sprocket wear check for 109's and 992's is a cinch if the sprockets have built-in wear marks.

It's a little more difficult if you have to use wear gage, NSN 4910-00-908-7344.

With the built-in wear marks, once wear reaches the marks you reverse the sprocket so the other side of the teeth can be used. When both sides are worn to the marks, you replace the sprocket.



The wear gage, however, has four measurements called out on its surface. Which one (or ones) do you use? Use

only the last one— $\frac{1}{2}$ inch. When wear reaches $\frac{1}{2}$ inch, reverse the sprocket. Again, when both sides are worn, replace the sprocket.



Crew level checks are made monthly and unit maintenance checks are made annually. If these checks are overlooked, sprockets can wear too far into one side of the teeth.

That causes the sprockets to "hook" track end connectors when you're moving. The connectors are damaged, track life is reduced and sprockets are broken.

Rx for SAGGING SEATS

WHAT'S THAT PILLOW FOR?

IT TAKES THE PAIN OUT OF THAT DARN SEAT!

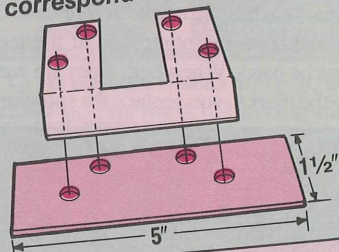
Dear Editor,
We got tired of busted crew seats on our M109's, so we came up with a solution that's real cheap and real simple. The support bracket connector, Item 16 of Fig 133 in TM 9-2350-311-24P-1, bends easy. When it bends, the seat takes on a V-shape that makes it hard to sit in.

When the bracket bends, the seat V's

We took a 5-in piece of channel iron that's 1 1/2-in wide and drilled holes in it that correspond to the holes in the connector.

Use the channel iron as a replacement for the connector. It's strong enough to keep the seat from sagging in the middle.

Readers from the
1/78th FA
Ft Sill, OK



Drill holes to match holes in connector

(Editor's note: You can sit back and relax, folks. You've put the word in the right channel.)

Y-, Power Cable NSN's



Y-cables and 4-ft power cables for M109-series and M110A2 howitzers were issued with the battery computer system/gun data units (BCS/GDU). But TM's do not have NSN's for replacement cables.

If you need 'em, order new ones with these NSN's:

Y-cable—

NSN 5995-00-713-1056

4-ft power cable—

NSN 5995-01-062-8176

Here's a tip for you, too. Remove the Y-cable and the power cable any time you turn in BCS/GDU. If you turn in the cables, you won't get them back.

Fittings Work Better on Top

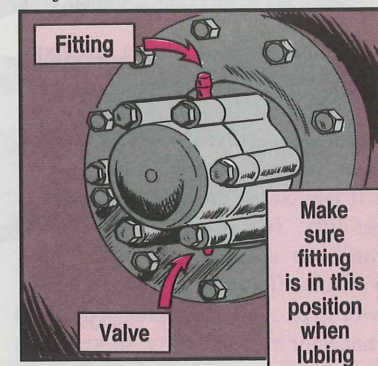
LO 9-2350-304-12 says to "orient" the roadwheels and trailing idler wheels so that the lubrication relief valve is above the grease fitting when you lube the wheels.

That's not the best way.

It's better to move the vehicle so that the fitting is above the relief valve. That way, you can catch spilled grease in a rag or bucket, and the fitting is easier to get to. Plus, if the relief valve is partially blocked you won't run the risk of grease in the eyes if the blockage breaks loose.

Technically, it makes no difference what position the fitting and the valve

are in, and the LO will be changed to reflect that. But, it makes sense to do the job so there's less mess and effort.



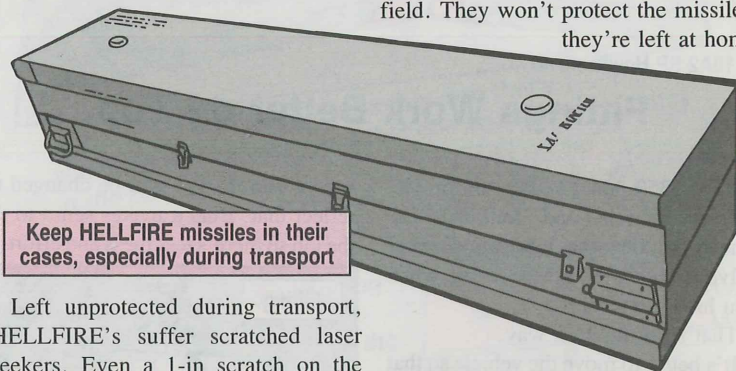
THE Word on PM



You've heard it before, but it's still the word when it comes to saving HELLFIRE missiles. You've got to protect the HELLFIRE's sensitive parts!

And that applies just as much to the training missile. It may only simulate firing, but it can suffer real damage that keeps it from doing its job.

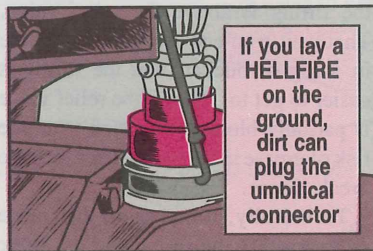
The most important rule: Keep all missiles—real and training—in their storage containers when they're not on the launcher. And take the containers to the field. They won't protect the missile if they're left at home.



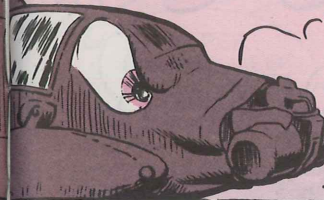
Keep HELLFIRE missiles in their cases, especially during transport

Left unprotected during transport, HELLFIRE's suffer scratched laser seekers. Even a 1-in scratch on the seeker will prevent the HELLFIRE from fixing on a target.

If laid on the ground, HELLFIRE's get dirty. That plugs up the umbilical connector and coats the laser seeker with dust. If you try to upload a missile with a plugged connector, you bend connector pins. A dirty seeker can't find the target.



If you lay a HELLFIRE on the ground, dirt can plug the umbilical connector



HANDLE MY HELLFIRE RIGHT... AND I'LL FIRE RIGHT!

When missiles are not on the launcher, keep dust covers on launcher connectors to shut out dirt.

Before uploading, eyeball the launcher and umbilical connectors and the laser seeker for dirt. If the connector's dirty, clean it with soap and water and a swab brush. Dry it with forced air or let it air dry. Never use hot air. That damages the connector.

Clean the laser seeker with a soft, lint-free cloth slightly dampened with isopropyl alcohol. Let it air dry. Wipe away any fingerprints with a soft, dry cloth.

HELLFIRE's should slide in the launcher easily. If a missile won't go, don't force it. Something's probably wrong with the missile connector or shoes. Slamming the missile in will only damage it or the launcher. Try a different missile.

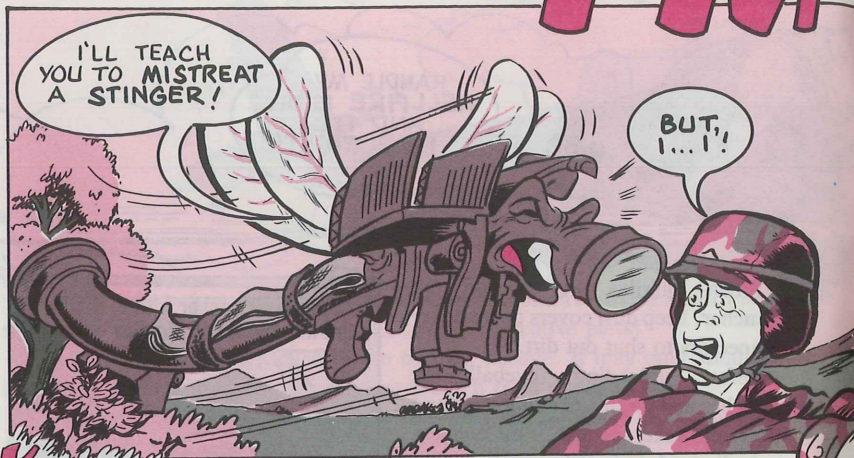


Clean laser seeker with a lint-free cloth and alcohol



Don't jam missile in launcher

PM TIPS



KeeP these tips in mind when you take your Stinger to the field.

Eyeball the infrared windows on all your Stinger—or trainer—launchers for dirt and oil. If the IR window's dirty, your Stinger will have trouble seeing the target.

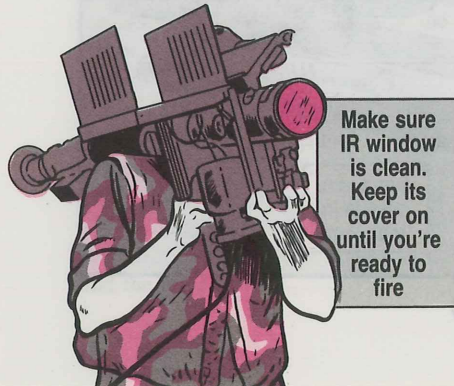
Clean off dirt and oil with lens tissue and optical cleaning compound, NSN 6850-00-392-9751, only. Cloth will scratch the window. Dry the window thoroughly.

Make sure all the launchers have IR window covers. Covers protect the delicate windows from dirt and scratching.

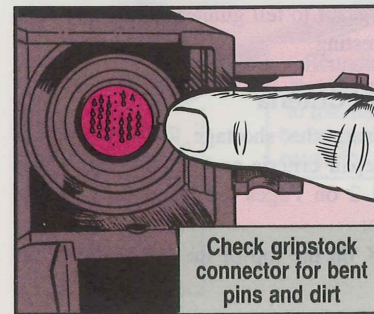
Never point the IR window toward the sun. That blinds your Stinger.

Make sure the sights lock in place. Only two screws lock in the sight. If they work loose, the sight won't lock and you can't fire.

Eyeball the wiring on the launcher for bare spots. Bare spots are electrical hazards.



Eyeball the gripstock electrical connector for bent pins and dirt. Both keep you from getting a good electrical connection and cause misfires and hangfires. Clean out dirt with an artist's brush. Never use a gripstock with bent pins. Turn it in and get a good gripstock.



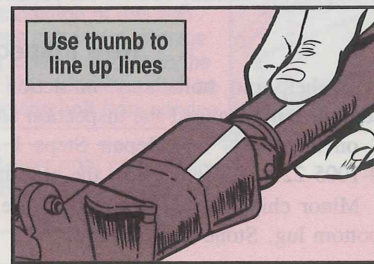
Make sure the container's lid locks in place. The latches wear out fast. If the lids won't stay up, you won't pass your timed drill.



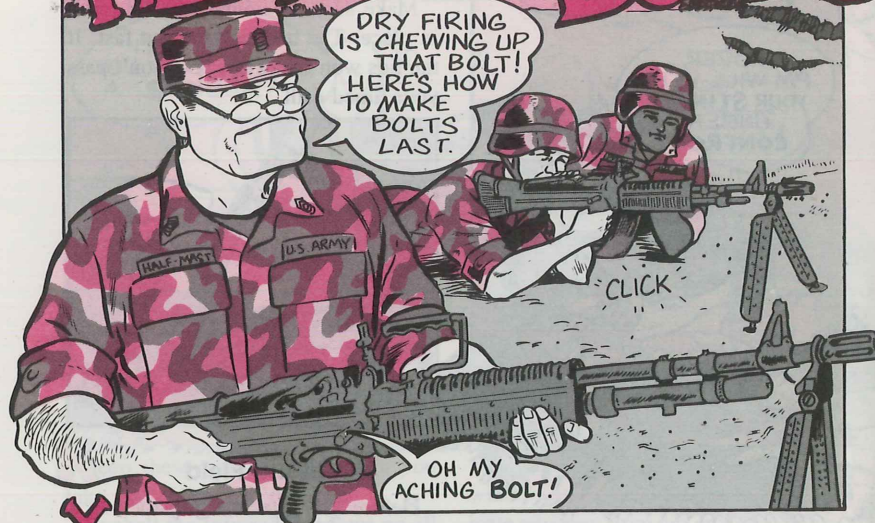
In the Field

Before you attach a gripstock to a launch tube, make sure its battery coolant unit isn't screwed in. Otherwise, you could have a live Stinger... and not realize it.

You can assemble your Stinger faster and protect the IFF pins if you use your thumb as a guide when you plug in the IFF cable. Put your thumb on the connector's white line. Line up your thumb with the gripstock's white line. Plug in the connector.



KEEPING BOLTS



You better be good to M60 bolts, armorers. They're in very short supply. If a bolt's ruined, it will be a long time before you get a replacement. That means an M60 won't be firing.

Dry firing is the chief reason bolts are going to the junkyard. When the bolt slams forward on an empty chamber, the bolt locking lugs are damaged, as well as the barrel socket and the operating rod tower.

Stress to your unit's gunners not to dry fire. Go over with them how to ride the bolt forward (holding the charging handle to the rear, squeeze the trigger and ease the bolt forward) when the chamber's empty. Ask people like the fire team leader, squad leader, and platoon sergeant to tell gunners not to dry fire. And provide dummy rounds for function testing.

New Inspection Criteria

To help old bolts stay in action during the shortage, AMCCOM has temporarily changed the inspection and repair criteria on bolts in Steps 1 thru 3 on Page 2-49 and Repair Steps 1 and 2 on Pages 2-50 and 2-51 in TM 9-1005-224-24. Here's how the criteria go:

Minor chips, dents, and gouges are OK on the top of the back side of the bottom lug. Stone them smooth.

HEALTHY

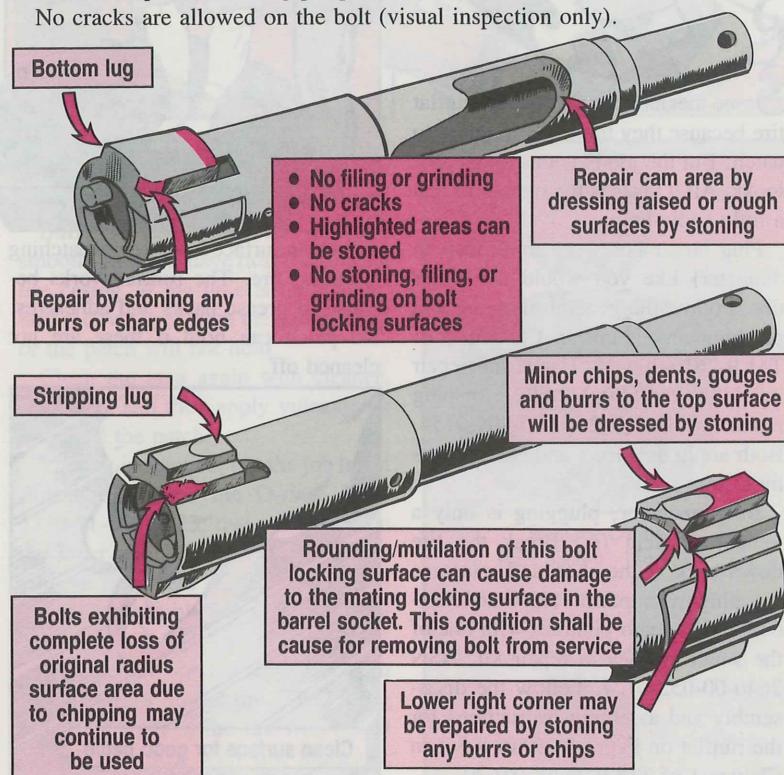
Minor chips, dents, and gouges are now OK at the leading edge of the bottom lug if they are within $\frac{1}{8}$ inch of the front or sides of the lug. You can stone them smooth as long as the rounded area of the lug is no more than $\frac{3}{32}$ inch. Use your machinist rule to measure.

Chips, dents, or gouges beyond this area make the bolt unserviceable.

Chips, dents, or gouges are also OK on the top lug if they're within $\frac{1}{8}$ inch of the lug's leading edge. They can be stoned smooth as long as the rounded area of the lug measures within $\frac{3}{32}$ inch. If they're beyond this area, the bolt's unserviceable.

After any stoning on the leading edges of the lugs, a bolt must be gaged by DS for headspace and firing pin protrusion and function checked.

No cracks are allowed on the bolt (visual inspection only).



HMMWV...

PATCHING AND PLUGGING



FIXING A FLAT RUNFLAT IS EASY WHEN YOU KNOW HOW!

Some mechanics turn in a flat runflat tire because they think it's too hard to patch. But the job is not as tough as it looks. All it takes is the right stuff and a little know-how.

Plug larger holes (up to 1/4 inch in diameter) like you would any other tire. Follow the general plugging and patching procedures in Chapter 3 of TM 9-2610-200-24. Use string repair kit, NSN 2640-00-922-6921, or plug repair kit, NSN 2640-00-404-0754. Both are in the No. 1 and No. 2 Common shop sets.

But remember, plugging is only a temporary field fix. Break the tire down back at the shop and reinforce the plug with patch, NSN 2640-01-018-1955. Patch pinholes with one of the small patches in repair kit, NSN 2640-00-052-6724. Follow the disassembly and assembly instructions for the runflat on Pages 8-4 thru 8-8.1 in Change 1 of TM 9-2320-280-20.



FIRST DISASSEMBLE THE TIRE.



Clean surface for good patch

RUNFLAT TIRES



PATCH THE TIRE AFTER RUBBING THE SURFACE SMOOTH WITH LIQUID BUFFER.



Clean the area with cleaner, NSN 2640-00-138-8324. It's listed in Appendix C of TM 9-2610-200-24.

Buff the puncture area until it's smooth. Runflats have ridges inside the tire casing. If the hole is on a ridge, buff it down even with the surface area or the patch will not hold.

Clean the area again with cleaner. Wipe dry and then apply vulcanizing fluid and the patch.

The tire is patched, but the job is not finished. Replace the O-ring, NSN 5330-01-176-0923, that goes between the inner and outer rim halves before you put the wheel back together. Follow the reassembly instructions in Para 8-3 of the -20 TM.

Replace the O-ring any time you break down a runflat tire. The O-ring must seat right or the tire won't hold air. Help it seat with tire lubricant, NSN 2640-00-256-5526.



Replace O-ring, NSN 5330-01-176-0923

HMMWV...

Not 12 O'clock High

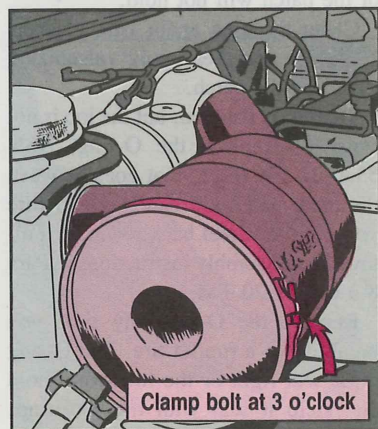


The clamp bolt on the HMMWV air filter pokes holes in the fiberglass hood when you leave it at 12 o'clock.

Some soldiers move the bolt to the top of the assembly when they service the air cleaner, which leads to trouble. The hood smacks the bolt when you drop it. The fiberglass cracks, and then cracks some more as the bolt head rubs against the hood with each bump in the road.

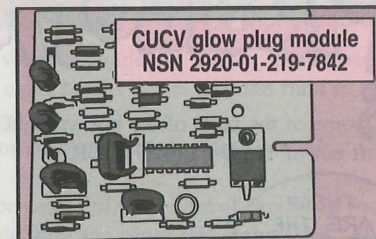
Only you can stop that damage. The caution statements on Page 3-16 of TM 9-2320-280-10 and Page 3-22 of TM 9-2320-280-20 say to make sure the clamp bolt is correctly positioned to prevent damage to the hood. But the TM's forgot to tell you what the correct position is.

Always put the clamp bolt between 3 and 6 o'clock on the air cleaner assembly. It's easy to get to and it keeps the bolt out of harm's way.



CUCV GLOW Plug Module NSN

Mechanics, you can now replace a bum glow plug module in a CUCV. The SMR Code for the module is PAOZZ in the new TM 9-2320-289-20P (Sep 88). But the new TM forgot to list the NSN. Order the module, Item 2 in Fig 54, with NSN 2920-01-219-7842.



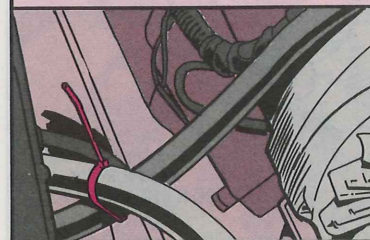
CUCV...

Too Close for Comfort

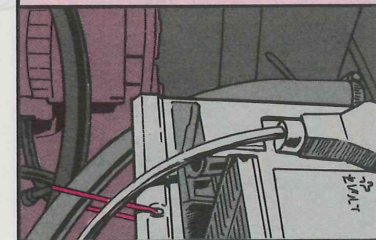
The heater inlet hose lays on the alternator on all vehicles except the ambulance. Engine vibration causes the hose to rub and wear thru.

Solve the problem like this:

1 Slide the tiedown strap that holds the inlet and outlet hoses together toward the battery tray.



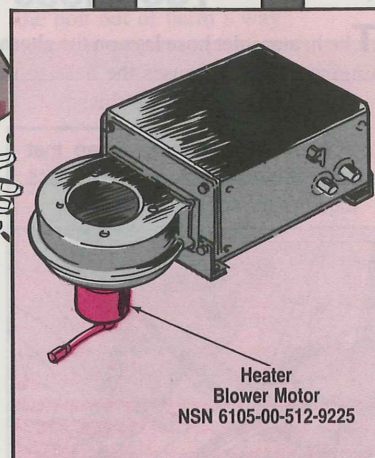
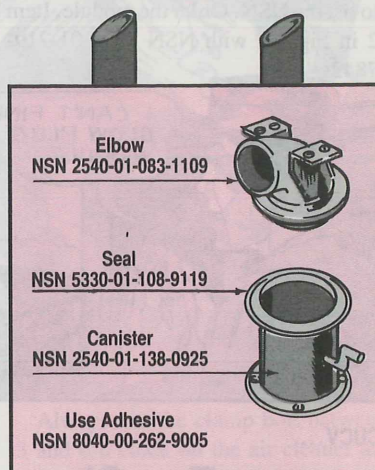
2 Tie the inlet hose to the battery tray with the tiedown strap, NSN 5975-00-156-3253.



MISSING HEATER PARTS

Some of the parts of the hot water heater and switch for these 5-tonners were left out of TM 9-2320-272-20P.

THESE
ARE THE
PARTS AND
THEIR
NSN'S:



SILICONE BRAKE FLUID COLOR

Silicone brake fluid (BFS) in your vehicle should be purple. Sometimes, though, the dye that gives it the purple color breaks down, and the fluid in the master cylinder becomes brown or amber.

There's no cause for alarm if the color changes. The dye does not affect the performance of the brake fluid.

However, if the fluid is not purple, you can't tell what kind of fluid is in your brake system. You might have a vehicle with the older HB brake fluid. And you shouldn't mix the brake fluids.

Here're two ways to tell what kind of brake fluid you have:

1 Mix a few tablespoons of the unknown fluid with a little BFS. If the two mix, it's BFS, too. However, if the two fluids separate into layers, the unknown fluid is HB. Your vehicle needs to have the brake fluid changed.



2 Put some of the unknown fluid in a jar with a little water and shake it. BFS does not mix with water, and you'll see distinct layers. Water mixes with HB, on the other hand, and will remain mixed. You won't see separate layers.



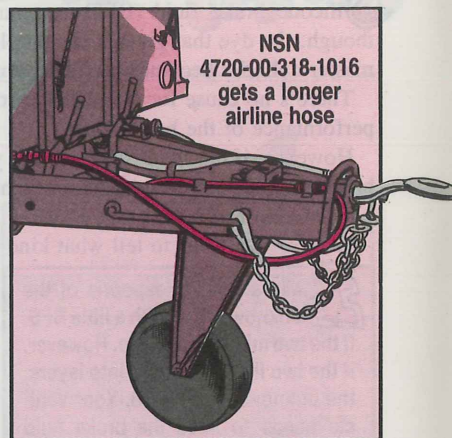
1 1/2-Ton Trailers...

GET A LONGER HOSE

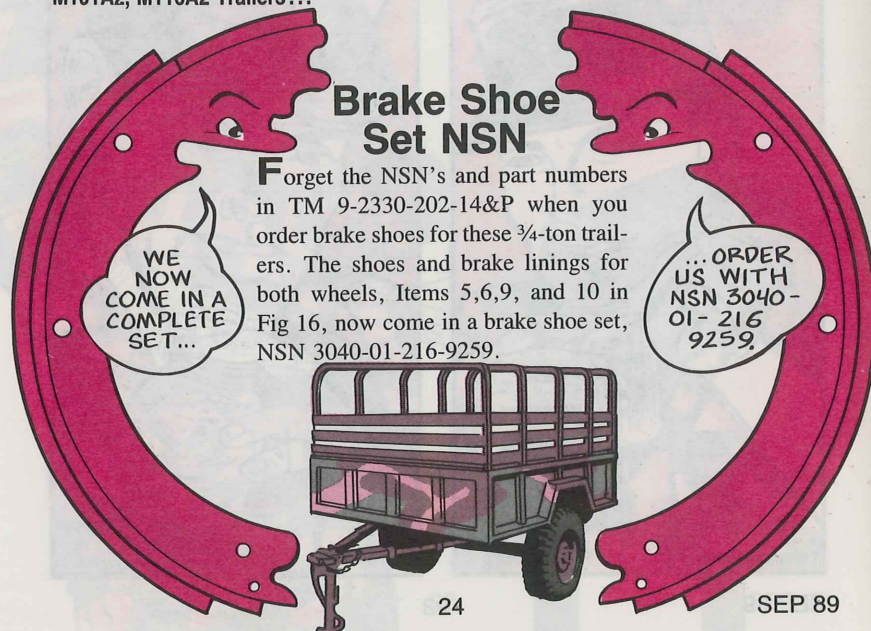
The air line hose assembly on your M103-, M105- and M107-series trailer or M448 shop van trailer will only s-t-r-e-t-c-h so far and... POP! It's broken.

When you take your trailer around tight turns you need a hose long enough to make the turn with you. The hose assembly that's shown as Item 2 on Page F-49 of TM 9-2330-213-14&P is too short to do that.

Get a longer air line hose assembly with NSN 4720-00-318-1016. It comes as a complete assembly, not by parts. Make the change in your TM until it's updated.



M101A2, M116A2 Trailers...



Brake Shoe Set NSN

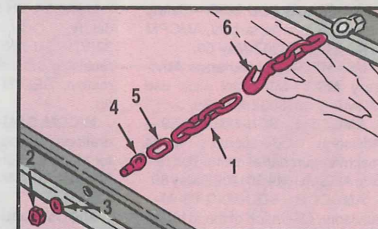
Forget the NSN's and part numbers in TM 9-2330-202-14&P when you order brake shoes for these 3/4-ton trailers. The shoes and brake linings for both wheels, Items 5,6,9, and 10 in Fig 16, now come in a brake shoe set, NSN 3040-01-216-9259.

M872 Semitrailer...

SPREADER CHAIN CHANGE

The spreader chain info on Page E-89 of TM 9-2330-359-14&P for your 34-tonner is not right. You can't order the complete assembly anymore. Each part has to be ordered separately.

Some of the NSN's and part numbers for the spreader chain have been changed.

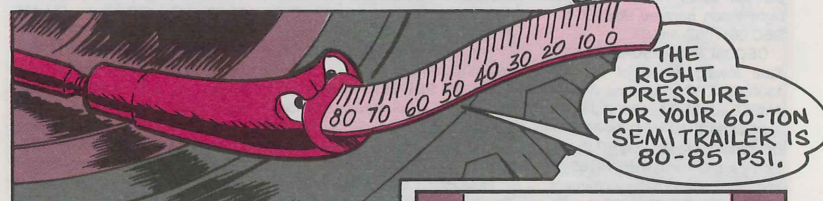


Here's what Fig E-41 and Page E-89 in the TM should look like:

(1) ILLUSTRATION		(2)	(3)	(4)	(5)	(6)	(7)	(8)
						DESCRIPTION		
(a) FIG NO	(b) ITEM NO	SMR CODE	NATIONAL STOCK NUMBER	PART NUMBER	FSCM	USABLE ON CODE	U/M	QTY INC IN UNIT
GROUP 18—BODY—Continued 1801—SPREADER CHAIN								
E-41	1	PAOZZ	4010-00-930-5409	8739382	19207	CHAIN, 54 IN LG	EA	2
E-41	2	PAOZZ	5310-00732-0558	M551967-8	96906	NUT, PLAIN HEXAGON	HD	2
E-41	3	PAOZZ	5310-00-637-9541	MS35338-46	96906	WASHER, LOCK, SPRING	EA	2
E-41	4	PAOZZ	5306-00-050-0346	M551937-3	96906	BOLT, EYE	EA	2
E-41	5	PAOZZ	4010-01-144-1734	11935P-1	93255	LINK, CONNECTING	EA	3
E-41	6	PAOZZ	4030-01-106-5969	SW14696P	98255	HOOK, HOIST	EA	1

M747 Semitrailer...

Tire Pressure Change



The PMCS chart on Page 3-6 of TM 9-2330-294-14 gives the wrong tire pressure for your 60-ton semitrailer. It should be 80-85 PSI cold.

To make sure the tires on your heavy equipment transporter get gaged right, stencil the tire pressure on each side of the trailer.

Make a note in your TM until it's updated.



Maintenance & Safety-Of-Use Messages

PM TRADE SOU MSG—Safety hazard on thermal targets, AMCPM-TND-SP 171630Z May 89.

USAMPOA Maintenance Advisory MSG—M9 pistol slide use MOMP-O 081300Z May 89.

AMCCOM SOU-MSG-09-89—Advisory, Operational, M134 machine gun barrel clamp bolt failure, AMSMC-MA 301430Z May 89.

AMCCOM SOU-MSG-08-89—Advisory, Operation of the M163A2 and M167A2 PIVADS, AMSMC-DSM 021600Z Jun 89.

AMCCOM Maintenance Advisory MSG-89-4—M17 series protective mask PMCS, AMSMC-MAR-EC 251400Z May 89.

AMCCOM Maintenance Advisory MSG-89-6—Discrepancy between the TM's and FM 3-5 regarding the M280 and M258A1 decon kits, AMSMC-MAR-EC 311600Z May 89.

CECOM SOU-MSG-89-05-03—Mandatory, Operational, Safety hazard in erecting the AS-3886/TRC-191 RAU OMNI antenna, AMSEL-SF-SEP 301700Z May 89.

CECOM SOU-MSG-89-06-01—Mandatory, Operational, Missing part on some AN/PVS-5 series night vision goggles, AMSEL-SF-SEP 061700Z Jun 89.

CECOM SOU-MSG-89-06-02—Safe towing speed of the AB-1309(V)4/TRC antenna mast, AMSEL-SF-SEP 091800Z Jun 89.

CECOM SOU-MSG-89-06-04—Operational, Mandatory, Potential safety hazard with the PP-1659/G and PP-1659A/G battery chargers, AMSEL-SF-SEP 281500Z Jun 89.

CECOM SOU-MSG-89-06-05—Operational, Mandatory, Inspect AB-621/G antenna mast drive pin, AMSEL-SF-SEP 281700Z Jun 89.

CECOM SOU-MSG-89-06-06—Advisory, TD-1233(P)/TTC, TD-1234(P)/TTC and AN/TRC-173 digital group multiplexer equipment power cables descriptions and NSN's, AMSEL-SF-SEP 281800Z Jun 89.

USACEA VHFS SOU-MSG—Mandatory, Operational, Possible personal injury in raising AB-1350/TLQ-17A(V) antenna on the AN/TLQ-17A(V)3 countermeasures set, SELVH-SF 301600Z May 89.

USACEA VH SOU-MSG—Mandatory, Operational, AN/TRC-32(V)1 and AN/TRC-32(V)2 radio receiving set vehicle towing information, SELVH-SF 201600Z Jun 89.

MICOM SOU-MSG-89-06—Operational, Inspection requirement for Multiple Launch Rocket System (MLRS), AMSMI-LC-AM 301425Z May 89.

MICOM SOU-MSG-89-07—Advisory, Operational, Secure PATRIOT launching station and AN/MPQ-53 radar set power cables, AMSMI-LC-AM 231125Z Jun 89.

TACOM SOU-MSG-89-38—Advisory, Operational, Closing message for SOU 88-57, M870A1 commercial equipment transporter, AMSTA-QWH 301730Z May 89.

TACOM SOU-MSG-89-40—One-time inspection, Emergency, Inspect welds in the bogie area of M871 22 1/2-ton semitrailer, AMSTA-M 131530Z Jun 89.

TACOM SOU-MSG-89-41—Advisory, Operational, M113 FOV potential heat stress health hazard, AMSTA-M 141245Z Jun 89.

TACOM SOU-MSG-89-42—Operational, M2A2/M3A2 Bradley fighting vehicle system suspension of swim operations because of defective swim curtains, AMSTA-M 162200Z Jun 89.

TACOM SOU-MSG-89-44—Advisory, Technical/Maintenance, Followup on SOU MSG 89-40, M871 22 1/2-ton semitrailer, AMSTA-M 162200Z Jun 89.

TACOM SOU-MSG-89-39—Deadlines M076 rotary tiller mixer, NSN 3895-01-141-0882, AMSTA-M 271800Z Jun 89.

TACOM SOU-MSG-89-37—Advisory, Technical/Maintenance, Inspect HEMTT inner tubes, NSN 2610-01-165-0567, AMSTA-M 302042Z Jun 89.

TROSCOM Maintenance Advisory MSG-89-25—Corrosion control and repair on check valve retaining ring of MUST inflatable shelter, AMSTR-MES 251630Z May 89.

TROSCOM Maintenance Advisory MSG-89-26—Reconnection rotary switches for the 5-KW GED generator sets, AMSTR-MES 011945Z Jun 89.

TROSCOM Maintenance Advisory MSG-89-28—Air spring bag inflation for topographic support system (TSS), NSN 2330-01-076-4797, AMSTR-MES 021500Z Jun 89.

TROSCOM Maintenance Advisory MSG-89-27—Follow-up on SOU MSG 89-17, FARE closed circuit refueling nozzle, NSN 4930-01-264-2067, AMSTR-MES 061830Z Jun 89.

TROSCOM Maintenance Advisory MSG-89-32—Serial number identification on the deployment personnel parachute bag, NSN 1670-00-590-9909, AMSTR-MES 201600Z Jun 89.

TROSCOM Maintenance Advisory MSG-89-33—Additional packing procedures for the personnel type, 35-foot diameter, MC1-1C parachute, AMSTR-MES 221830Z Jun 89.

TROSCOM SOU-MSG-15-89—Advisory, Technical, Derating of circuit breakers on M200, M100, and M40 DISE electrical feed systems, AMSTR-MES 141900Z Jun 89.

TROSCOM SOU-MSG-12-89—Operational, Failure of closed circuit refueling (CCR) nozzle on FARE, CH-47C and CH-47D, AMSTR-MES 221300Z Jun 89.

TROSCOM SOU-MSG-17-89—Operational, Transportation information on 3,000/5,000-gal semitrailer-mounted water tanks, AMSTR-MES 221330Z Jun 89.

TROSCOM SOU-MSG-16-89—Limited One-Time, Inspect power cable assemblies on battery charger, NSN 6130-00-940-7866, AMSTR-MES 221900Z Jun 89.

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

SMART Message

SMART MSG #82—Gives new repair and requisitioning procedures for the M872 semitrailer tarpaulin.





DEPARTMENT OF THE ARMY

OFFICIAL BUSINESS

SMART
U.S. ARMY LOGISTICS CENTER
ATTN: ATCL-CFI-S
FORT LEE, VIRGINIA 23801-6000

REFERENCES (If any): _____

CURRENT PROBLEMS/PROCEDURES: (Print) _____

RECOMMENDATION FOR IMPROVEMENT: (Print) _____

FULL NAME	RANK

MILITARY ADDRESS (city, state, zip code) _____

AUTOVON PHONE NUMBER	COMMERCIAL PHONE NUMBER
----------------------	-------------------------

LOGC SMART USE _____

IDEA CONTROL NUMBER _____

PROJECT SMART

Supply and Maintenance Assessment and Review Team

Project SMART is designed to improve combat readiness by reducing the burden of logistical operations and functions for the individual soldier by evaluating and recommending changes to the Army's logistical doctrine, policy, and procedures. Ideas may be submitted by anyone regardless of rank. No command approval is required.



YOUR IDEAS MAY PUT
MONEY IN YOUR POCKET—
TRY IT!

**\$\$\$ WORK
SMARTER,
NOT
HARDER \$\$\$**





B4-A Maintenance Platform ...

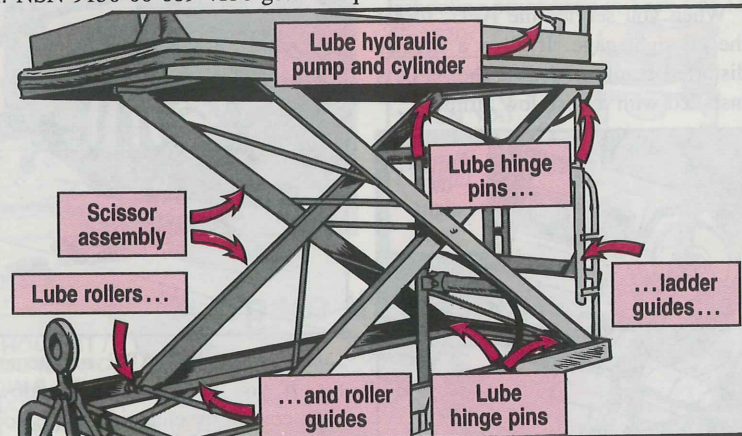
Head 'em up, Move 'em out

Most maintenance platforms are just naturally ornery and stubborn, but who wouldn't be ornery and stubborn if they got no more attention than most maintenance platforms.

The B-4A platform, in particular, needs periodic care and attention.

TM 55-1730-215-13&P says to lube it every 100 hours of use or every quarter.

Lube the scissors rollers, roller guides and hinge pins with general purpose oil. NSN 9150-00-689-4138 gets a 1-qt can.



Lube the ladder guides, caster bearings and other less critical points of friction with grease. NSN 9150-00-190-0904 gets a 1-lb can.

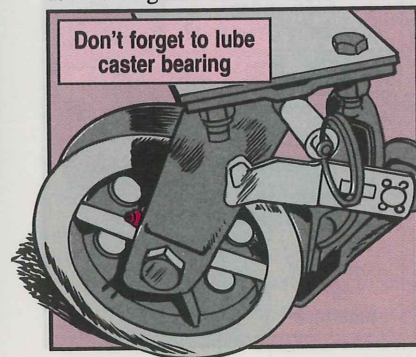
Lube the pump and cylinder assemblies with hydraulic fluid. NSN 9150-00-149-7431 gets a 1-qt can.

Keep your platforms as clean as possible, too, especially the scissors channels and ladder guides. Dirt and grit in those places can prevent the platform from raising and lowering properly.

Use P-D-680 dry-cleaning solvent to remove the tough stuff, like grease and oil.

'Course, you should replace worn out or missing parts as soon as you find they're bad.

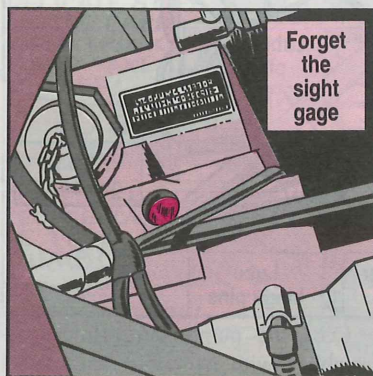
Appendix C of the TM lists all the repair parts you'll need.



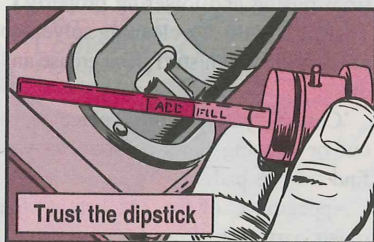
If your Black Hawk's auxiliary power unit (APU) "high oil" warning light flashes when you least expect it, or if the APU is spewing oil on the ramp, you may be overservicing the APU.

Too much oil in the APU sump is almost as bad as not enough oil in the sump.

When you service the APU, forget the oil sight gage. It gives a slightly distorted reading because the APU is installed with a nose low attitude.

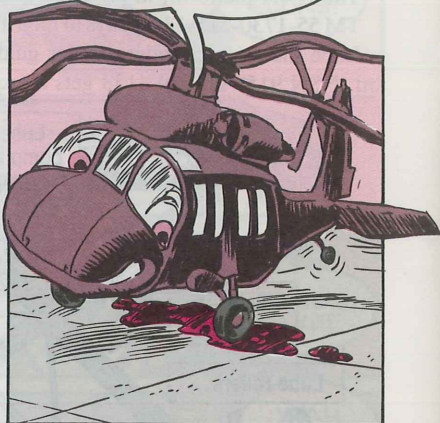


Instead, put your trust in the APU's oil dipstick. Add oil gradually until the level in the sump is between the ADD and FULL marks on the dipstick when the oil is cold.

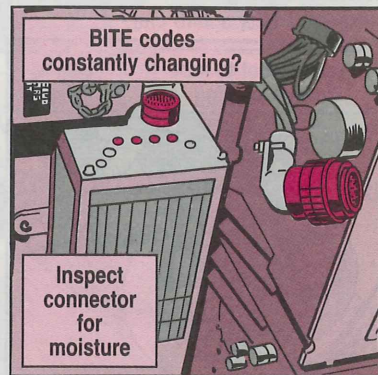


Too Much of

LOOK AT THAT OIL SPILL... TOO MUCH OIL IN MY APU SUMP!

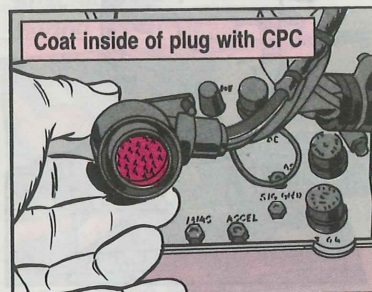


Here's another APU maintenance tip: If you have random shutdowns with constantly changing BITE codes on the electronic sequencing unit, inspect the connector between the APU and the ESU for moisture or corrosion.



a Good Thing

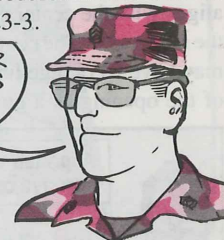
If you find moisture or corrosion, wipe it off with a clean cloth. Then coat the inside of the plug with corrosion preventive compound, NSN 8030-00-546-8637.



Even if you don't find any moisture or corrosion, disconnecting and reconnecting the cannon plug may solve the problem.

But if you still get random shutdowns and constantly changing BITE codes on the ESU, follow the troubleshooting procedures in Task 1 of TM 55-1520-237-23-3.

REMEMBER THESE TIPS WHEN YOU SERVICE THE APU.



UH-60A...

Spare the Spindles

HOLD IT! YOU'RE NOT GOING TO USE THAT BRUSH ON ON MY BONDED WASHERS, ARE YOU?



When your TM says to clean the bonded washers of your Black Hawk's main rotor spindles with abrasive cloth, that's what it means.

It does not mean you can use sandpaper or wire brushes. They scratch the hardened bottom surface of the washer. Then you have to replace the whole spindle, like it says in Step 4 of Task 16, TM 55-1520-237-23-7.

So use only abrasive cloth to clean the washers. You can get a package of 50 sheets with NSN 5350-00-192-5050.



Hand Tighten Electrical Connectors

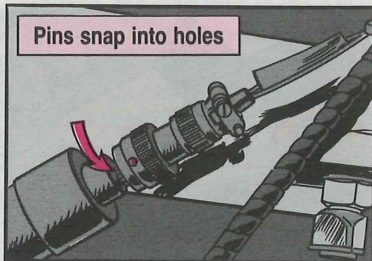
NOT ALL ELECTRICAL CONNECTORS ON YOUR BLACK HAWK ARE ALIKE, BUT THEY ALL HAVE TO BE HAND-TIGHTENED TO GET A GOOD CONNECTION.

You have to hand-tighten the ring on self-locking threaded connectors until the tab on the locking device aligns with the center of the groove on the receptacle. The center of the groove may have an orange line on both sides of the opening as a guide.



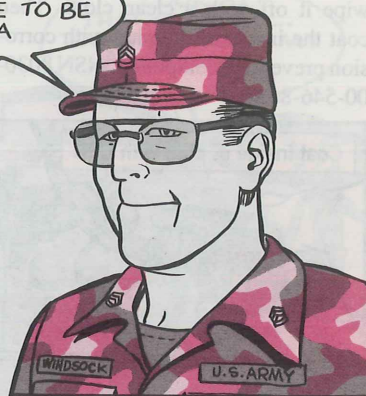
Align tab with center of groove on receptacle

On bayonet coupling connectors, hand-tighten the coupling ring until you hear, see and feel the bayonet pins snapping into the holes of the coupling ring.



Pins snap into holes

DO NOT lockwire self-locking threaded connectors or bayonet connectors because it would act against the locking feature of each connector.



A few old style threaded connectors don't have locking mechanisms. You can identify them by a half-inch red dot located on the structure next to the connector receptacle. You have to hand-tighten these connectors, then safety wire them to keep them from vibrating loose.



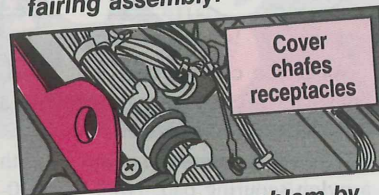
Use safety wire on old-style connectors

Be sure to use only 0.020-in steel lockwire, NSN 9505-00-596-5101, when you safety wire electrical connectors. Larger wire will break out the hole in the coupling ring of the connector.

Tail Rotor Pylon Chafing Fix

Dear Editor,

Vibration causes chafing on our Black Hawks' tail rotor pylon between the antenna cover and the right hand side attaching receptacles on the fairing assembly.



Cover chafes receptacles

We solved the problem by putting rubber strips along the chafed areas, including the receptacles.

Here's how:

- Clean the receptacles and the area between the receptacles where the antenna cover makes contact.
 - Cut rubber strips, NSN 9320-00-878-6507, to fit.
 - Apply a thin coat of adhesive, NSN 8040-00-097-6524, along the chafed areas.
 - Press the rubber strips firmly onto the adhesive.
 - Let the adhesive cure 24 hours at room temperature.
- The rubber strip is only $\frac{1}{16}$ inch thick, so it does not prevent you from latching the cover to the pylon.

Paul St. John
Ft Ord, CA

(Editor's note: Sounds like a simple and easy way to prevent excessive wear and tear.)

Cut to fit around receptacle

Install rubber strips here

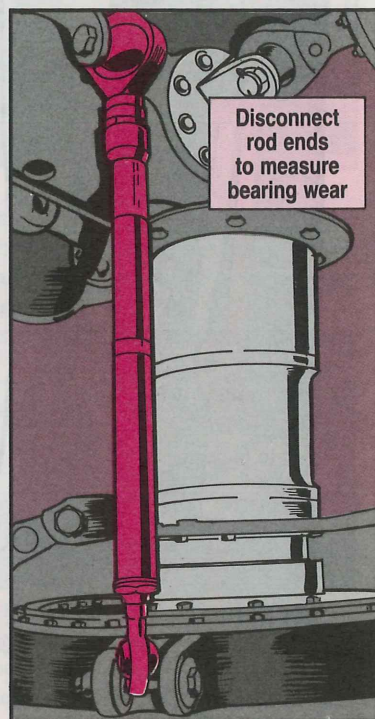
CONNECTION OBJECTION CORRECTION

Some Black Hawk mechanics don't believe you have to disconnect the ends of the main rotor head pitch control rods to inspect the bearings for wear.

They say you can get a good reading by just lifting the rod to relieve the pressure.

They're also mistaken.

If you don't disconnect the rod, you can't put the feeler gage straight in to get an accurate reading. Plus, you won't get a good view of the whole bearing surface.



THE ONLY WAY TO GET AN ACCURATE READING IS TO DISCONNECT THE ROD!



What you can see may look good, but what you can't see may be corroded or pitted beyond limits.

If you find corrosion, remove it with a nylon scouring pad, NSN 7920-00-934-3469. Never use solvent to clean the bearings.

If you see 5 or more pits in a 1/2 inch diameter circle, or if any pit is deeper than 0.050 inch, replace the affected rod end like it says in Step 3 of Task 11, TM 55-1520-237-23-7. Use dial indicator, NSN 5210-00-277-8840, to measure pitting depth.

To check the bearings for wear, use a locally made plastic feeler gage. Fig 6-1.1 of the TM shows how to make the feeler gage. You no longer use the dial indicator method to check bearing wear.



For Night Firing Only

THAT FLASH SUPPRESSOR IS FOR NIGHT FIRING ONLY.... THE SUN IS RISING! GET IT OFF QUICKLY!

The flash suppressor of your Cobra's M134 minigun is for night firing only, but some units leave the suppressors on all the time—day and night.

That means the tangs of the suppressor get bumped and knocked around—all day long. It's no wonder so many suppressors have to be replaced at \$500 a whack.

Remove the suppressor after every night firing exercise. Then look at it for cracks or other visible damage. If it's OK, store it until the next night firing exercise.

If you find cracks or bends, replace the suppressor with NSN 1005-00-253-5885.



Aviation Messages

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

UH-1-89-MIM-03 Verifying the failure code on tail rotor grips, and using the correct retirement life on tail rotor grips, 032130Z May 89.

AH-1-89-MIM-04 Limited firing of rockets with MK66 motor, 042200Z May 89.

UH-1-MIM-89-04 Allowable conditions for ground—runups, 052030Z May 89.

CH-47-89-MIM-09 Fuel cell inspection schedule, 081900Z May 89.

UH-60-89-MIM-04 Remainder of

stabilator inspection requirements and advance notification of manual changes, 102115Z May 89.

AH-1-MIM-89-05 Salvo firing of rockets, 172130Z May 89.

UH-60-89-MIM-05 Advance notification of TM manual change concerning the engine support tube, 232200Z May 89.

UH-1-89-MIM-05 All UH-1 aircraft with rebuilt T-53 engines, components requiring DA Form 2410 reporting, 312130Z May 89.

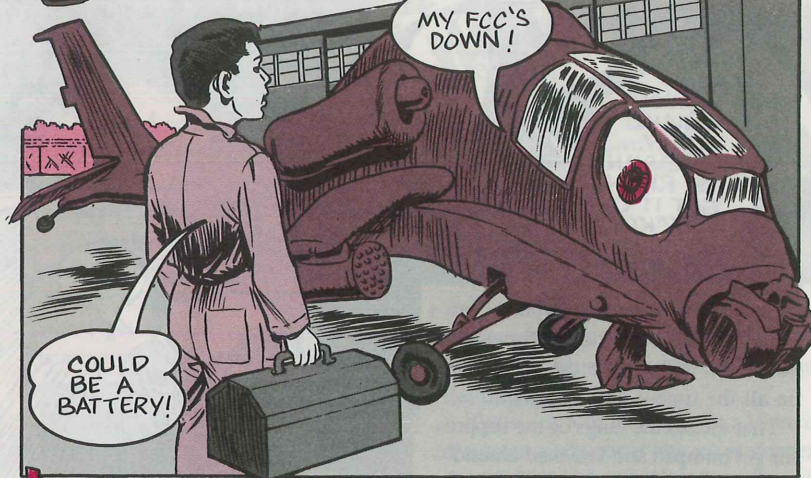
AH-64-89-07 SOF, Technical, inspection of refueling line coupling assemblies, 032100Z May 89.

AH-64-89-08 SOF, Maint Mandatory, Replacement life change of canopy removal system (CRS) components and change to emergency egress procedures, 091800Z May 89.

AH-64-89-09 SOF, Maint Mandatory, Inspection of tail rotor swash-plate bearing, 171717Z May 89.

CAT 1 EIR Phone:
AUTOVON 693-2066
(24 HOURS)

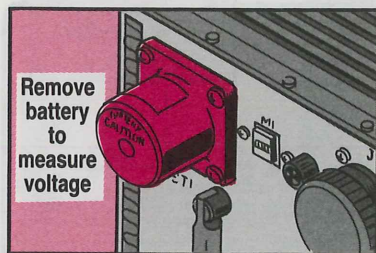
END THOSE BATTERY BLUES



If your Apache's fire control computer (FCC) goes down, don't panic. It could be nothing worse than a bad battery.

Be sure to pull the battery and test it before you replace the FCC.

Follow the procedures in Task 3-4-3 of TM 9-1230-476-20-1 to remove the battery.



Then use a multimeter to measure the battery voltage while loading the battery with a 75 ohms ± 1 percent, $\frac{1}{4}$ watt resistor.

If the voltage is 3.8 volts or above, the battery's OK and you know something's gone haywire in the FCC.

But if the voltage is below 3.8 volts, turn the battery into DRMO and replace it with a good one.

If you have to replace an FCC battery before its retirement interval of 12 months, report it to Missile Command by telephone, AUTOVON 746-3208 or Commercial 205-876-3208.

MICOM needs the date of manufacture, the failure date and the serial number of the bum battery in order to perform an engineering analysis.

Use extra care when you take defective or damaged batteries to DRMO because the cells contain mercury. DO NOT seal the batteries in gas-tight plastic bags, drums or any non-vented container.

GET HELP IF YOU NEED IT



HAVING PROBLEMS WITH YOUR BIRD'S AVIONICS OR ELECTRONICS SYSTEMS?

Or call any of these numbers:

AUTOVON

Now there's a place to go for help. It's the new Aviation Electronics Management Office at AVSCOM.

Write to:

Commander
AVSCOM
ATTN: AMSAV-2
4300 Goodfellow Blvd
St Louis, MO 63120-1798

Aviation Electronics Management Office	693-1243
Plans and Programs Division	693-1103
Electronic Systems Support Division	693-1391
Electronic Systems Standardization Division	693-1198
Data Fax	693-1296

Hardware...

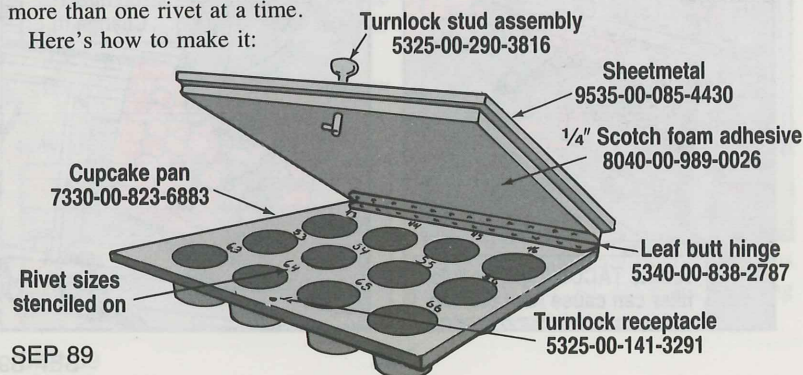
A Riveting Subject

You sheet metal mechanics ever get your rivets mixed up while you're working on the flight line?

One unit at Fort Campbell, KY, solved the problem by making a rivet storage container from a cupcake pan.

It helps you locate the right size rivet in a hurry, plus you don't have to handle more than one rivet at a time.

Here's how to make it:



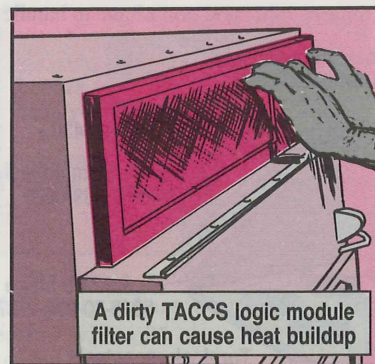
SEP 89

THE FILTER DIFFERENCE

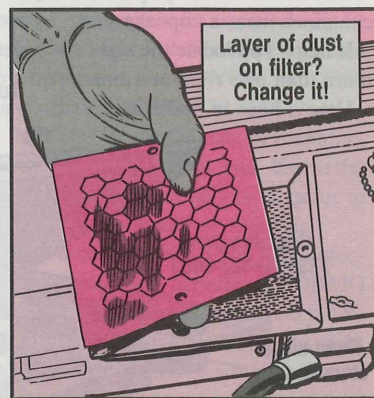


One thing you must do on the AN/TYQ-33(V), Tactical Army Combat Service Support Computer System (TACCS), is make sure the air filters do their job.

Air filters located in the logic module (LM), printer and remote logic module (RLM) keep dirt and dust from getting inside the equipment.



A dirty TACCS logic module filter can cause heat buildup



Layer of dust on filter? Change it!

Dust and dirt keep cool air from circulating, causing heat buildup that stops your TACCS from working.

If the filters are missing, they can't work... and they won't work if they're dirty.

Changing the filters is one of the simplest, but most important, parts of TACCS preventive maintenance.

TM 11-7010-213-12 does not show the NSN's for the three air filters. Here they are:

Item	NSN
Logic module	4130-01-271-2890
Printer	4460-01-264-4035
Remote logic module	4130-01-271-1966

Check out Table 3-1 and Paras 3-7.1 through 3-7.1.3 of TM 11-7010-213-12 for when and how to change the filters.

In a pinch, a used foam filter can be rinsed out in warm water, dried and reused. Make sure the filter is completely dry before putting it in the equipment.

Other areas to keep clean and free of dust and dirt are the floppy disk drive and tape drive.

Dirt on the heads of these drives can damage the floppy or tape. Or even worse—the computer won't be able to read your files.

Get the floppy disk drive cleaning kit with NSN 7045-01-154-1315 and the tape drive cleaning kit with NSN 7035-00-348-1864.



Follow the procedures given in Paras 3-1.2.2.f and 3-1.2.2.g for cleaning these drives.

HCI, HCP and

What do these letters mean?

HCI = hardness critical item.

HCP = hardness critical procedure.

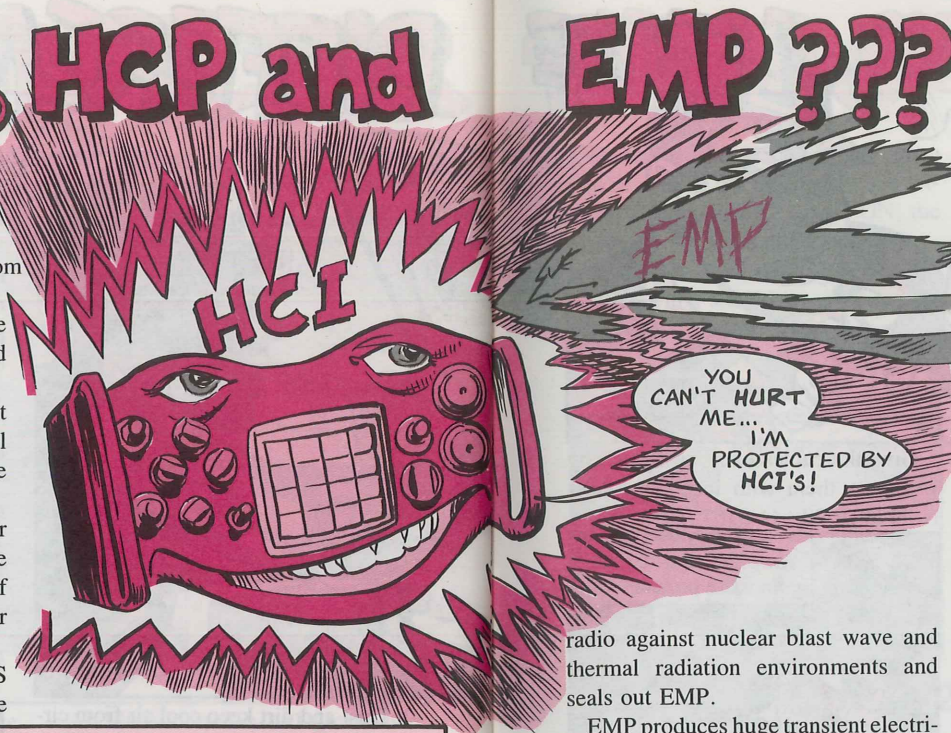
EMP = electromagnetic pulse from a nuclear weapon burst.

You'll find these letters beside some of the paragraphs, processes, steps and repair items in your SINCARS TM.

The letters HCI beside a repair part show that the item provides special protection so your equipment is more resistant to nuclear hazards.

Never substitute a "pinch-hitter" for an HCI. Replace HCI's with only the parts called for in your parts TM. If you use a substitute, it will stop your radio cold under a nuclear attack.

The outer case of the SINCARS radio is an HCI. The case protects the



EMP ???

radio against nuclear blast wave and thermal radiation environments and seals out EMP.

EMP produces huge transient electrical currents and voltages that destroy electronic components. Special spark gaps (HCI's) are used to protect the antenna and field wire inputs to the receiver-transmitter (RT) and mounting adapter from these nuclear produced voltage and current transients.

Be sure not to by-pass these protective devices. EMP will destroy the circuits in the RT unless they're protected.

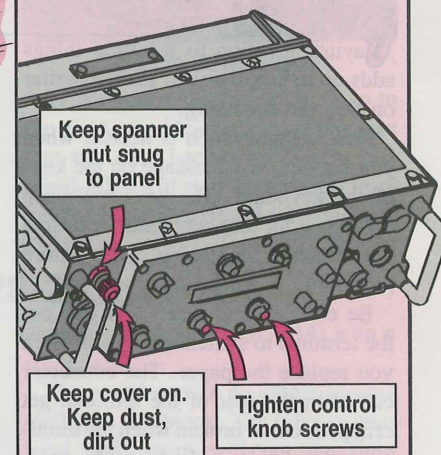
When you see the letters HCP in the maintenance instructions, be sure to follow the special maintenance procedures to the letter. That helps keep the equipment's nuclear hardness. Otherwise, your gear won't work when you need it most!

RT-1402A...

Connector, Knob Care

A loose antenna connector or control knob will damage your receiver-transmitter controls and cause lousy commo contact.

Keep the connector snug on the front panel. Make sure the spanner nut is tight before attaching the RF cable connector.



If the antenna connector is loose, the wiring inside will get twisted or broken.

When the antenna cable is not in use, keep the cover on the connector. This'll keep out dust, dirt and moisture.

If a panel control knob is loose, tighten the knob screw or the knob will get stripped. Then, you can't set the controls.

3.19. MAINTENANCE OF COMPONENTS. Continued

d. Mounting Adapter.

ITEM	ACTION	REMARKS
a. HCP Shorting bar (3).	Loosen screws in cover (1). Remove cover (2). Loosen screws on terminal block. Remove screws.	Screws are captive to prevent loss. Do not remove them from cover.
	Remove shorting bar (3). Install shorting bar on terminal block as shown. Install screws in shorting bar and tighten. Install cover (2).	

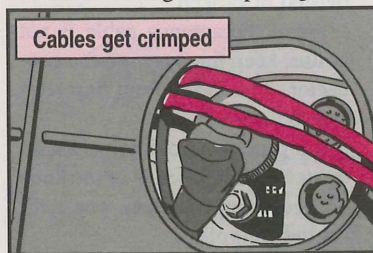
HCP means to follow special maintenance procedures



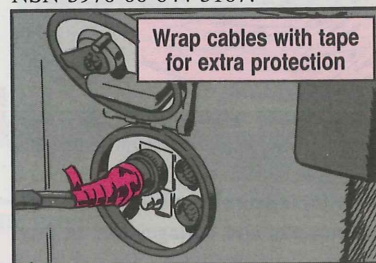
Paying attention to the little things adds up to keeping your teletypewriter on-line and operating.

First, a light touch is needed when you tap out your message on the keys of the keyboard. The keys will snap off if you hit 'em real hard. A busted key means replacing the entire keyboard.

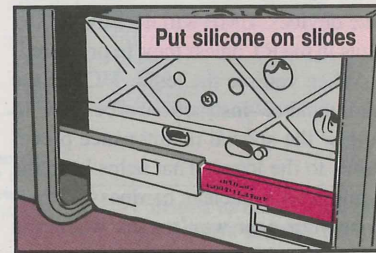
Be extra careful when you pull out the terminal to switch settings or when you replace the paper. The connector cables in the rear of the terminal get crimped, cut or broken when the terminal is carelessly pushed into the case. When you push the terminal into the case, reach in the back and gently pull the cables through the opening.



Give the cables extra protection by wrapping them with insulation tape, NSN 5970-00-644-3167.



If the terminal sticks when sliding it out of the case to the stop locks, clean the inside of the terminal case like it says in Table 2-4 of TM 11-5815-602-10-1 (Mar 87). Dab a little silicone, NSN 6850-00-880-7616, on the slides.



THINGS COUNT

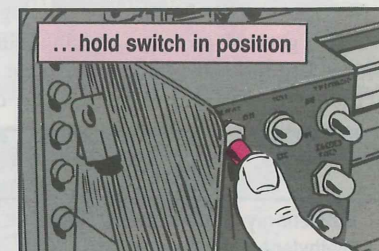
Switch Attention

Be sure to turn the power OFF when you're making or changing switch settings. If you keep the power ON, the driver card module might burn out.

When you close the dust cover, the power switch should be set the same as the switch lever. The yoke on the toggle switch can break if the switches are not set the same.



Hold the switch in the position—ON or OFF—that the terminal is operating in when you replace the cover.



Latch Attention

When you're getting ready to go to the field, double-check to make sure that the case latches are firmly fastened. This will stop the terminal from winding up on the floorboard during a sharp turn.

DA Form 2028-2 Cover-Up

ment of the Army, DOD-314) with a white label.

The postal service no longer accepts mail with this block. The folks in your local mail room will put the right amount of postage on the 2028-2 form.



Before you send a DA Form 2028-2 recommending changes to your equipment TM, cover the standard penalty indicia (Postage and Fees Paid, Depart-



Fuel...

STOP Fuel System

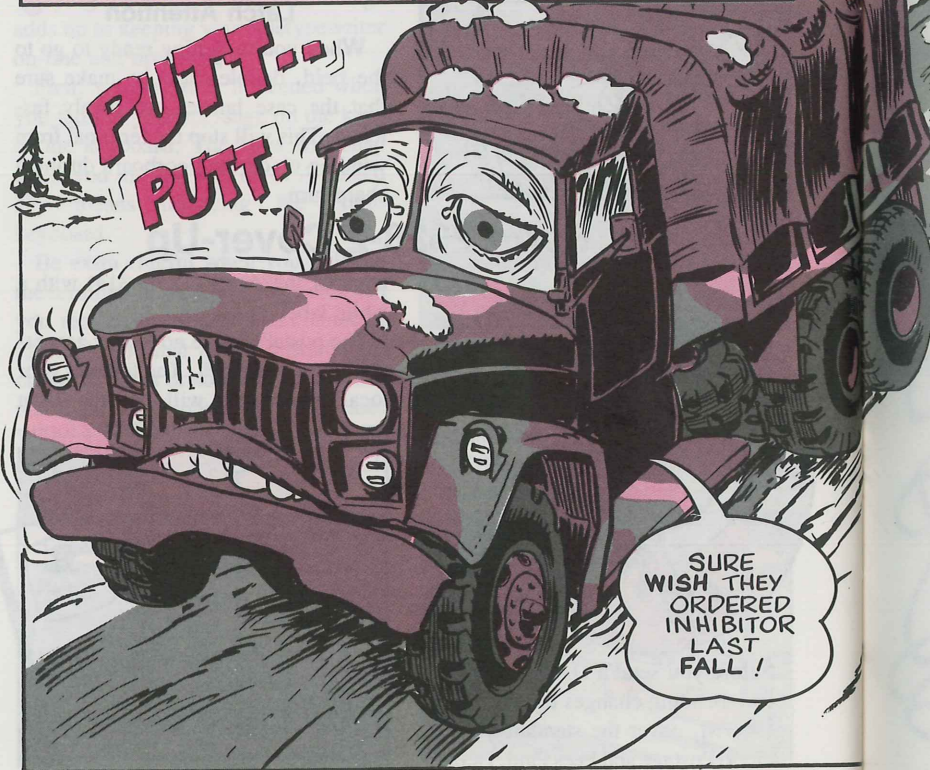
You won't go far when moisture in your fuel freezes in your vehicle's fuel system.

You can prevent freeze-up with icing inhibitors for diesel or gasoline.

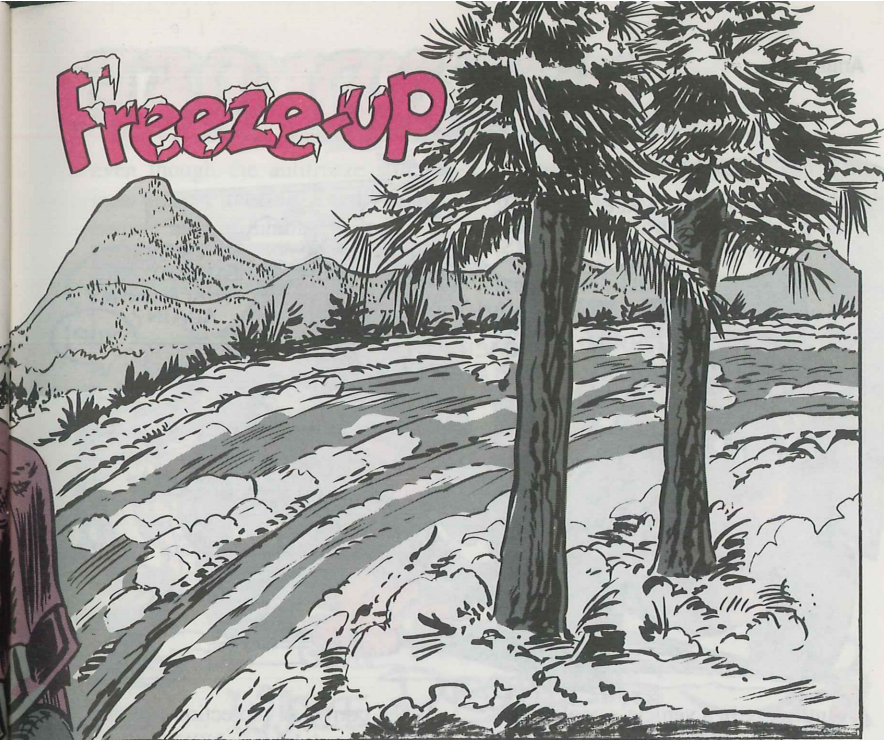
Diesel gets a 1-pint dose of icing inhibitor to 40 gallons of fuel. More is not better! Too much inhibitor makes your engine run poorly.

There are two kinds of inhibitor for diesel. Get them with these NSN's:

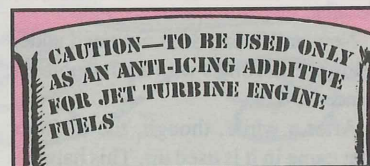
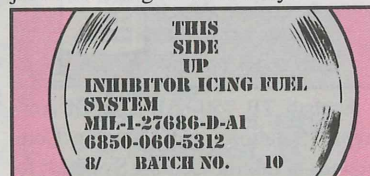
Inhibitor	5-gallon can NSN 6850-	55-gallon drum NSN 6850-
Ethylene glycol monomethyl ether	00-753-5061	00-060-5312
Diethylene glycol monomethyl ether	None	01-089-5514



Freeze-up



Ethylene glycol monomethyl ether is the icing inhibitor listed on Page B1 of FM 9-207. It works just fine in diesel, so don't worry about that caution on the container that says it's for jet turbine engine fuels only.



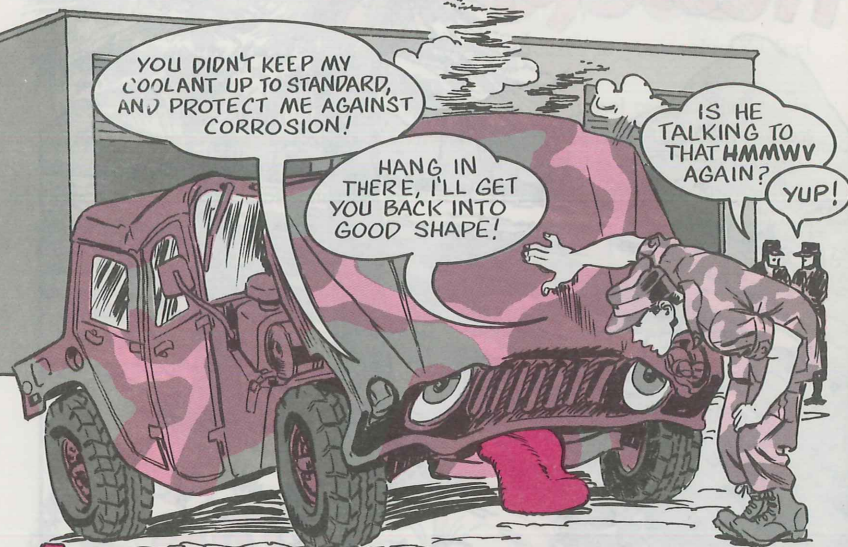
For gasoline, use 1 pint of technical methanol to 40 gallons. Pour the methanol on top of the fuel and they will mix better.

Size	NSN 6810-00-
1-gal can	597-3608
5-gal can	275-6010

You can't keep water out of fuel since it comes from condensation. Drain fuel filters daily even if you add icing inhibitor. If water builds up, you may need to drain the fuel tank, too.

Cut down on condensation by keeping your fuel tanks full. Wipe away snow or ice from fuel tank filler openings and hose nozzles before refueling, too.

HEAD OFF



Antifreeze in a vehicle's coolant prevents cooling system freeze-ups—and it also prevents corrosion in the engine and radiator. When the coolant stops doing either, serious damage results.

Test the coolant at least once each year with antifreeze and battery tester,

When corrosion protection is down, add corrosion inhibitor, NSN 6850-01-160-3868.

Add inhibitor when needed



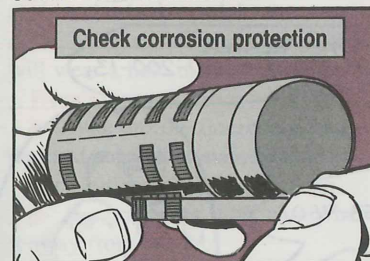
Eyeball TB 750-651, Use Of Antifreeze Solutions and Cleaning Compounds in Engine Cooling Systems, for details.

New antifreeze does not need added inhibitor. It comes with all the inhibitor it needs.

After a while, though, the inhibitor that came in it is used up. This happens

CORROSION

even though the antifreeze still protects against freezing. Then you add a booster shot of inhibitor.



To check the corrosion protection level, use antifreeze test kit, NSN 6630-01-011-5039. If the test strip

comes out yellowish-green, you need to add inhibitor.

Hold one, though! You can only boost corrosion protection once. Check the vehicle's DD Form 314. If inhibitor has been used, there'll be an entry saying so in the REMARKS block. If there is, drain and replace the coolant.

Add inhibitor at the rate of one pint to 17 quarts of coolant. Then run the engine until it warms to operating temperature.

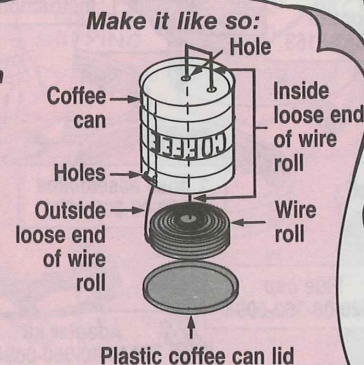
When you add inhibitor or replace the coolant, make a note in the REMARKS block of the DD Form 314.

Utility Wire...

CAN TANGLED WIRE PROBLEMS

Dear Editor,
Rolls of utility wire can end up a tangled mess long before the wire is used up. I've found that a coffee can makes a good dispenser and keeps the roll neat and tangle-free.

SPC Warren B. Elkins
Ft Richardson, AK



(Editor's note: Thanks for straightening that mess out.)

M1941 Space Heater conversions

YOU WON'T FIND YOUR M1941 SPACE HEATER CONVERSION KIT IN CHAP 2 OF TM10-4500-200-13, BUT YOU CAN GET ONE TO ALLOW A TYPE I SOLID FUEL M1941 SPACE HEATER TO BURN LIQUID FUEL.

THE KIT,
NSN 4520-00-153-4602
INCLUDES:

Burner assembly
4530-00-277-3247

Fuel control
4530-00-343-8163

Instruction sheet

2 hose assemblies
4720-00-303-4995

Flue cap
4520-00-360-0098

Adapter kit
7240-00-360-0094

54

SEP 89

4K/6K Forklifts...

Brake Line Rub-A-Dub

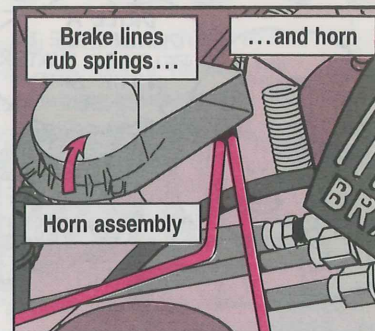
Brake lines on the Hyster 4K/6K clean burn diesel forklifts can rub against the brake pedal return spring or the horn assembly. Enough rubbing will wear a hole in the brake line.

Here's how to rub out the rub:

▶ Take out the floorboards during the next scheduled maintenance.

It's a quick fix and good to go.

▶ If a brake line rubs, gently bend it away from the rub.



3-KW Generator...

Load Terminal Cover

Dear Half-Mast,
We have an MEP016A generator set with a busted plastic cover that fits over the terminal studs. Does this cover have to be on the generator? If so, what's the NSN?

SSG J.M.J.

THAT COVER IS ON JUST FOR PROTECTION DURING SHIPPING.

Plastic cover on terminal studs not needed

Dear Sergeant J.M.J.,
No, the cover is not needed. The plastic cover is put over the terminal studs to protect them during shipping. Just take the cover off and put the screws back in the holes.

Half-Mast

SEP 89

55

DRAIN SOLUTION

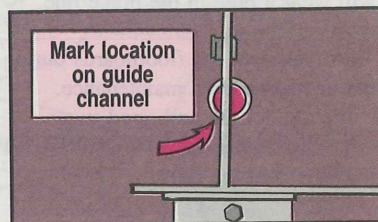


Battery electrolyte and rain water get trapped in the skid base of your 5- or 10-KW DED generator. This gunk eats holes in the skid channel.

You can solve this problem by drilling a drain hole. Here's how:

- Disconnect the ground cable from the battery.

- Disconnect the positive battery cable and remove the batteries.
- Mark the guide channel directly below the battery tray drain hole.



- Remove the battery tray.
- Drill a 3/8-in diameter hole through the top of the guide channel.
- Replace the battery tray and batteries.
- Re-connect the positive cable to the battery, then the negative cable.

Clark MHE 184 Update

The NSN is wrong for the power steering cylinder, Index No. 00550, shown on Page 32 (ghosted in Fig 32) of TM 10-3930-231-20P. The correct NSN is 2530-01-197-8692.

D7E Tractor ...

GENERATOR, REGULATOR CHANGE

The NSN's for the generator and regulator used on the Caterpillar D7E tractor are not listed in TM 5-2410-214-20P. Get the generator with NSN 2920-00-302-6499. The regulator comes under NSN 2920-00-555-2813.

MAKE
A NOTE OF
THESE
NSN'S...

THEY'RE
NOT IN YOUR
TM!



WEATHERPROOF CARDS

Dear Editor,

Equipment identification cards constantly have to be replaced because they get wet, illegible or torn. If we keep the cards inside the equipment record folder, the information on the cards may not be updated or a lubrication or oil sample may be missed.

Our solution is to print the non-changing information on the card, such as the serial number, NSN and model number. Then we acetate the front and the back of the card. Get the acetate with NSN 9330-00-752-9091.

The driver's and supervisor's names, service, lubrication and oil sample information are printed on the acetate using an alcohol-based pen. The ink stands up through water and is easily removed with rubbing alcohol.

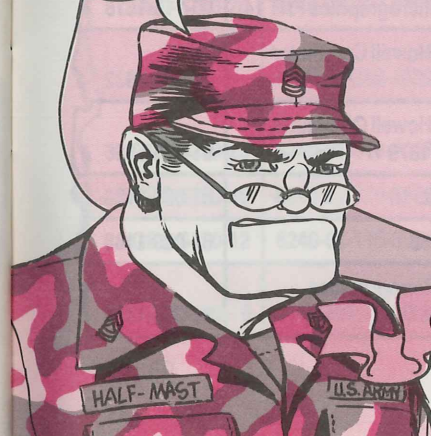
ADMIN #	C-65	MODEL	M1
NOUN	TNK CBT FT	NSN	2350-01-061-2445
SER/REG #	D5343	AOAP SAM	552 Hours 10 JAN 89
NEXT SERVICE DUE	3 APR 89/4003K/617K	NEXT LUBE DUE	3 APR 89/4003K/617H
OPERATOR	PFC BOOLE	SUPERVISOR	1LT WRIGHT
USAARMC FORM 1254 Sep 87		EQUIPMENT IDENTIFICATION CARD DA Pam 738-750 TM-8206-O-Army-Knox-Apr 88-20M	

NOW YOUR
CARDS ARE
WEATHERPROOF!

Now our cards no longer get torn from changing the information. Also, they no longer get wet because they are weatherproof.

1LT John E. Wright, Sr.
CPL Harold J. Underwood, Jr.
Ft Knox, KY

(Editor's note: Sounds like a great idea.)



MACHINE PARTS

The plastic parts in your microfiche reader get hot and melt or burn if you leave the lamp on for a long time, like over the weekend.

Of course, it doesn't take that long if the reader has a broken fan. The fan keeps air circulating around the lamp holder to take off some of the heat generated by the lamp. When the fan's broken, send the microfiche reader to your DS shop.

TO GET REPLACEMENT LAMPS AND PUBLICATIONS, USE THE FOLLOWING LIST!



VIEWER / PRINTERS

Make and Model	NSN 6730-
Bell & Howell RP 550 Spacemaster	00-116-1620
Bell & Howell ABR-610	00-116-1620
Canon 370 T-D	00-116-1620

VIEWERS

Make and Model	NSN 6730-
Washington Scientific Ind 1114D	00-116-1618
Micro Design 1200	00-116-1618
Micro Design 990	00-116-1618
Northwest Microfilm Inc 14	00-116-1618
Option 24-48	00-116-1618
Eye Communication System, Inc COM4000	00-116-1618
MPF Co 4601-01FPG	00-116-1618
Topper Micrographics FNT 14	00-116-1618
Bell and Howell Commuter Model*	01-080-7932
Bell and Howell Commuter Model 1379*	01-055-5066
Micron XL-10	01-080-1188
Micron 750	01-080-1188
Topper Micrographics COM 75X	01-080-1188

*Local purchase item. If not obtainable through local purchase, order from S9G on DD Form 1348-6.

MELTDOWN

Manual	Lamp NSN/CAGE and PN
DGSC-6730-7	6240-00-409-8295
DGSC-6730-13	6240-00-409-8295
DGSC-6730-16	6240-00-409-8295
Manual	Lamp NSN/CAGE and PN
DGSC-6730-3	6240-00-449-6003
DGSC-6730-6	6240-00-409-8295
DGSC-6730-9	6240-01-084-3571
DGSC-6730-10	55426 5542
DGSC-6730-14	80204 EWJ
DGSC-6730-26	6240-01-270-5998
DGSC-6730-29	6240-01-289-2805
DGSC-6730-20	6240-01-200-0797
None	6240-00-389-4822
DGSC-6730-23	6240-01-016-4447
DGSC-6730-28	6240-01-270-5998
DGSC-6730-12	6240-01-115-3067
DGSC-6730-19	80204 DJT

Lamp, NSN 6240-01-289-2805, isn't on the AMDF. Order on a DD Form 1348-6 using RIC S9G.

CTA 50-909 is your authorization to order viewers or viewer/printers.

GET REPLACEMENT MANUALS BY WRITING TO:
**COMMANDER
 DGSC
 ATTN: DGSC-SDA
 RICHMOND, VA
 23297-5000**



MRSA CUSTOMER ASSISTANCE



The USAMC Materiel Readiness Support Activity (MRSA) has a lot of field assistance programs to help you do your job better. And that help is just a finger tip away. Just grab a phone and dial

AUTOVON 745-3082/3083
COMM (606) 293-3082/3083

At night you'll get a recording. To help MRSA help you, have your name, rank, unit mailing address, phone number and problem ready when you call. Be very specific so MRSA can get right on your question and get you an answer.

While MRSA will provide assistance or sources of assistance on any materiel readiness subject, they can give you immediate assistance for the subjects listed here.



THIS IS A GOOD LIST TO HOLD ONTO.

Tool Improvement Program Suggestion (TIPS)
Reverse Support List Allowance Computation (SLAC)
Consolidated PLL Mandatory Parts List (MPL)
Combat ASL/PLL
Equipment Oriented Publication Data Base (EOPDB)
Army Oil Analysis Program (AOAP)
Peacetime Prescribed Load List/Authorized Stockage List (PLL/ASL)
End Item Application File (EIAF)
Army Warranty Program
Standard Army Maintenance System (SAMS)
Work Order Logistic File (WOLF)
The Army Maintenance Management System (TAMMS)
Army Vehicle Registration Program
Modification Work Order (MWO) Status
Sample Data Collection (SDC)
Army Readiness Reporting
Force Mod Lessons Learned
National Training Center (NTC) Lessons Learned



This is a selected list of recent pubs of interest to organizational maintenance personnel. This list was made from a computer print-out provided by the Adjutant General.

TM 3-4230-228-10 May M17 Decon
TM 5-2410-237-24 Apr D7G tractor
TM 5-3805-250-24P Mar MW24 scoop loader (w/rops)
TM 5-3820-256-10 Mar LP-12 rotary well drilling system
TM 5-4320-304-24P Nov 87 125 GPM centrifugal pump unit
TM 9-1425-601-12 Apr Touch-up painting instructions for color, camouflage pattern for marking of system support equipment (Patriot air defense guided missile system)
TM 11-5820-959-20P Jul MK-2171/VRC installation kit
TM 11-5820-975-20P Dec 88 MK-2376/VRC installation kit

TM 11-5805-747-20P Apr AN/TTC-39A(V)1,2 automatic telephone central office
TM 11-6625-3151-24P Apr Test program sets for digital group multiplexers
TM 11-6625-3190-24P Apr AM-6785/U,A dual trace amplifiers
TM 55-1520-238-23P-4 AVUM and AVIM RPSTL, AH-64A
TM 55-1520-238-23P-5 AVUM and AVIM RPSTL, AH-64A
TB 9-2300-405-14 Jul Mandatory brake hose inspection and replacement-tactical vehicles
TB 55-1520-242-20-41 May SOF, emergency immediate grounding all UH-1H/V and EH-1H/X
TB 55-1520-242-20-42 May Inspection of NAS 1785-8-44 bolts, all UH-1H/V and EH-1H/X
FM 1-500 Jul Army aviation maintenance
SB 700-20 Army adopted/other items selected for authorization/list of reportable items.

AUDIO-VISUAL STUFF
Available at battalion or Post Learning Center

Films, TV Tapes
TVT 9-176 M119, 105MM howitzer light towed cannon
TEC Lessons
551-101-7786-A Procedures for cancellations requests on requisitions
551-101-8090-A Process unit turn in (DS4)
551-101-8238-A Request cancellation of supplies
551-101-8239-A Maintain due-in status file for requested items
551-101-8240-A Receive supplies and equipment
551-101-8241-A Prepare and maintain hand receipt and subhand receipt files
551-101-8472-A Perform preventive maintenance on the M231 firing port weapon
580-113-6566-A Tactical communications (AN/TSC-58) power/signal cables/wires

New M3A4 Parts

The M3A4 smoke generator's fuel plug cock (shutoff valve) leaks. Replace it with plug cock, NSN 4820-01-251-8680. The old ignition cable was a bumper, too. It has been replaced by a new cable, NSN 2920-01-256-9675.

Radio Battery NSN's

If your AN/PRC-126 radio set needs a BA-5588/U lithium battery, use NSN 6135-01-088-2708. Or if you want to use a BA-1588/U mercury battery, use NSN 6135-01-094-6536. The NSN's in TM 11-5820-1025-10 are switched.

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

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

For Your Vehicles to
Take a Licking
And Go On Ticking,
Think **FLAC**:



**FILL RESERVOIRS TO
LEVEL MARKS**



**LUBRICATE BEARINGS
AND POLISHED SURFACES**



**ADJUST BELTS
AND LINKAGE**



**CLEAN GEAR BEFORE
QUITTING FOR THE DAY**