

Issue 485

PS

April
1993

THE PREVENTIVE MAINTENANCE MONTHLY

TB 43-PS-485

Has your
buddy read
this issue?
Pass it along!

OUR STOCK FUND
DEPOT LEVEL REPARABLES
PROGRAM IS IN FULL SWING
AND WORKING FINE.

EQUIPMENT STATUS

GROUP ID	TY	QTY	HOW MANY	DATE	REMARKS	STATUS	DATE	BY	REMARKS
10000000	1	1	1	1/1/93	OK				
10000000	1	1	1	1/1/93	OK				
10000000	1	1	1	1/1/93	OK				
10000000	1	1	1	1/1/93	OK				
10000000	1	1	1	1/1/93	OK				
10000000	1	1	1	1/1/93	OK				
10000000	1	1	1	1/1/93	OK				
10000000	1	1	1	1/1/93	OK				
10000000	1	1	1	1/1/93	OK				
10000000	1	1	1	1/1/93	OK				

IT'LL KEEP
RUNNING SMOOTHLY
AS LONG AS YOU
REMEMBER
THE BASICS.

Approved For
Public Release;
Distribution is Unlimited

SFDLR
... See Page 27

MAINTENANCE

TIME OUT FOR PM

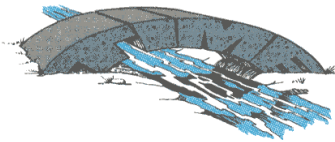
It is time to start thinking of time as steel.

To think of it as rigid, not flexible. To realize that it does not bend to a mechanic's demands, nor yield to a supervisor's will.

Every maintenance task has a span of time it takes to do the job right.



If that time is shortened, the job will not be done right. Yet, all too often we choose to shorten that time.



Because we shorten that time, we don't do two checks and an M2 machine gun backplate flies off during firing.

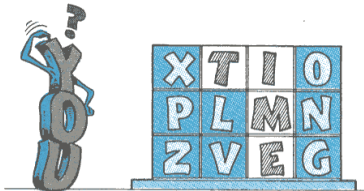
Because we shorten that time, we forget to lube a HMMWV's pintle and rust freezes it into place.

Because we shorten that time, we make a two-man maintenance job a one-man job and a 20mm gun feeder falls to the floor.

Because we shorten that time, we don't wipe out a wet battery compartment and corrosion stops communications cold.

The age-old question, "If you can't find the time to do the job right, how are you going to find the time to do the job over?" should cross your mind before you begin a task.

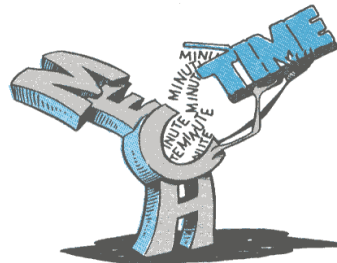
NCOs, it is your duty to make sure that the right amount of time is allocated for each job so that the job is done right.



Make your judgment on the amount of time needed on the task and the experience and training of the soldier doing the task.



Mechanics, it is your job to take every minute of that time so that the job is done



right. If it takes more time than allocated, let your sergeant know why. If you're finished with time to spare, review your steps. See if you've missed anything.

Too often, time has been a bone of contention between a supervisor and a



mechanic. Those days have to be in the past. Not enough time can no longer be an acceptable excuse for poor maintenance.

Every job takes a certain amount of time. . . plan for it. . . and use it.



TB-43-PS-485, The Preventive Maintenance Monthly, is an official publication of the Department of the Army, providing information for all soldiers with unit maintenance and supply duties. All information has been reviewed and approved by the agency responsible for the equipment, publication or policy discussed. Application of the information is optional with the user.

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You are invited to send PS your ideas for improving maintenance procedures, questions on maintenance and supply problems, and questions or comments on material published in PS. Just write to: *MSG Holly-Mat, The Preventive Maintenance Monthly, Lexington, KY 40511-5101.*

By order of the Secretary of the Army:
GORDON R. SULLIVAN
General, United States Army Chief of Staff

Official:
Milton H. Hamilton
Milton H. Hamilton
Administrative Assistant to the Secretary of the Army
03684

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STOP Transfer Problems



IF YOUR UNIT'S M249S HAVE BEEN MODIFIED WITH THE NEW TRANSFER MECHANISM, THERE ARE **TWO CRITICAL THINGS YOU NEED TO KNOW... HOW TO INSTALL IT AND HOW TO FIX IT.**

To put in the new pin, place the transfer assembly in a vise. Put the pin's beveled end in the hole with the pin's split end facing the return rod. (If the pin's upside down, it will wear out the receiver walls.)



Tap the pin in the hole with a hammer until the pin stops

The pin's flat end should stick out. If it doesn't, the pin's too short and the transfer assembly won't fit in the receiver grooves. Take the pin out and put in another one.

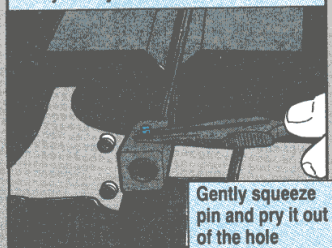
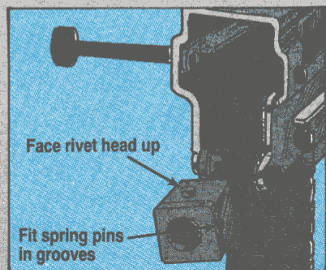
If the transfer mechanism's put in wrong, it can ruin not only the mechanism itself, but also the receiver grooves. The only fix is a new receiver.

Make sure every gunner in your unit knows to put the transfer mechanism in so its large rivet head is up and its side spring pins fit in the receiver grooves.

Train them to check that the pins are in the grooves before they snap the buttstock in place.

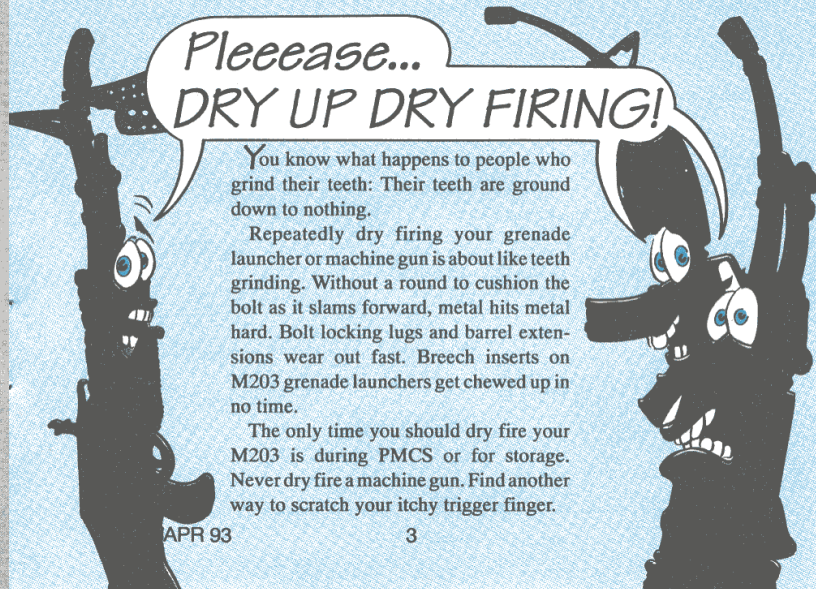
If the transfer mechanism's spring pins are broken or bent, you no longer need to replace the whole return transfer mechanism. (But if the pins are sheared, you will need to replace the whole mechanism.) You now can replace the spring pins, NSN 5315-01-362-5071, like this:

Use needle nose pliers from your small arms tool kit to grip the spring pin at a 90° angle with the pin's split end away from you.



Gently squeeze pin and pry it out of the hole

Small Arms . . .



Pleease...
DRY UP DRY FIRING!

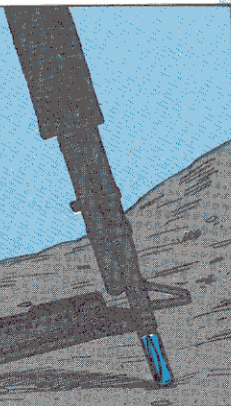
You know what happens to people who grind their teeth: Their teeth are ground down to nothing.

Repeatedly dry firing your grenade launcher or machine gun is about like teeth grinding. Without a round to cushion the bolt as it slams forward, metal hits metal hard. Bolt locking lugs and barrel extensions wear out fast. Breech inserts on M203 grenade launchers get chewed up in no time.

The only time you should dry fire your M203 is during PMCS or for storage. Never dry fire a machine gun. Find another way to scratch your itchy trigger finger.

Kick Footballs, Not Machine Guns

Kicking the cocking handle to free the bolt generally produces these results: On the M60, it breaks the operating rod; on both the M60 and M249, it bends the cocking handle and dents the cocking handle slot.

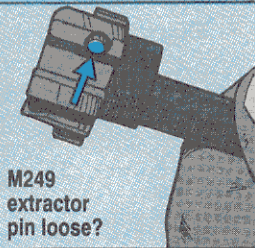
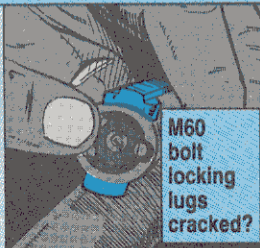
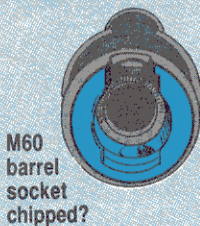


Leaning your machine gun forward on the flash suppressor to get better leverage on the cocking handle is no good, either. That bows the bipod, breaks the flash yoke, loosens the flash suppressor, and plugs the barrel.

Good PMCS can stop many stuck bolts. On the M60, bolts usually get hung up because of chips on the bolt locking lugs and barrel socket or the extractor is broken. On the M249, a loose extractor pin or dirty chamber is usually the problem.



Before you go to the field, eyeball the M60 barrel socket, bolt locking lugs, and extractor for cracks, burrs, and chips. On the M249, check the chamber for dirt and extractor pin for looseness. Report problems.



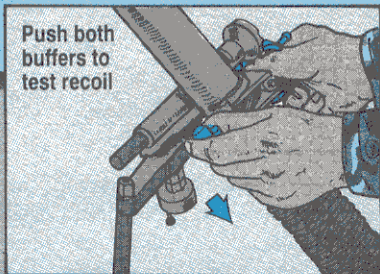
Don't Slip Up on Slippage

BONNIE, I'M WOBBLY AND INACCURATE! I MAY HAVE A TOTAL COLLAPSE!

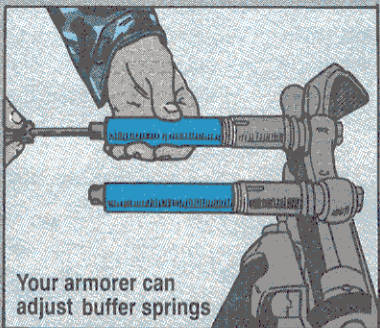
HMMM... SOUNDS LIKE A SLIPPAGE PROBLEM.

Install the cannon in the mount. Slippage is OK in the barrel clamp until the baseplate is settled. But once the baseplate's settled, the clamp should move only slightly. If the clamp moves more, report it.

Push both buffers to test recoil



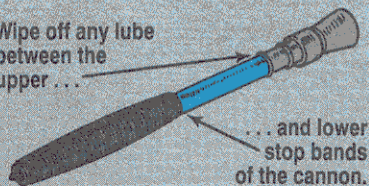
You should feel spring tension immediately when you move a buffer. If you don't, have your armorer adjust the buffer spring retaining bolts.



Your armorer can adjust buffer springs

If your M252 mortar's mount has too much slippage, you'll suffer big-time slipups during firing: dangerously poor accuracy and maybe total collapse of the mortar. Put the skids to slippage like this:

Wipe off any lube between the upper . . .



. . . and lower stop bands of the cannon.

If that doesn't cure free play, something's wrong with the buffer springs. Support needs to check them.

Tell your armorer if the buffers bind, too. He'll send the mount to support for cleaning and lubing.

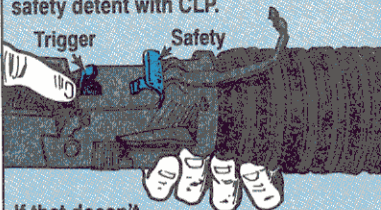
Helpful Hints for Armorers

Make your job easier—
and your M203 grenade launchers fire better!

Lubing

Stress light lubing to your unit. The firing pin hole and safety detent need daily lubing when firing, but only a few drops. Extra lube hurts, not helps. The lube mixes with sand and forms a gunk that cakes up the M203's insides.

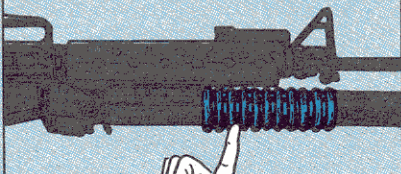
If the trigger and safety are stiff or won't move at all, take the receiver apart. Clean the follower guide with CLP and a rag. Wash the receiver with dry cleaning solvent, wipe it out, and let it air dry. Lightly lube the trigger assembly and the safety detent with CLP.



If that doesn't
fix the problem, tell support.

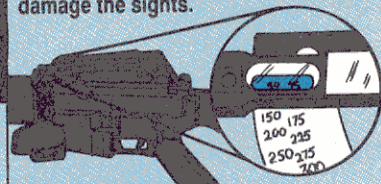
Grip

Grips crack. But that doesn't mean you need a new barrel. Support can replace the grip, NSN 1055-01-065-3704. Make sure they know that, too.



Storage

Store M203s in M12 racks with the sights set for 50 meters. For M11 racks, set the sights between 175 and 200 meters. You'll need to experiment to find the best setting. At other settings, both racks' bars will damage the sights.



Movement

An M203 cannot move side-to-side more than one-eighth inch left or right of center or one-quarter inch overall. There can be no movement up and down.

Double Your Adapter Pleasure

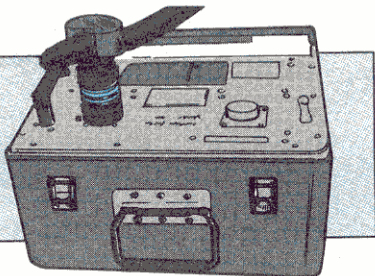
Dear Editor,

The adapter for the TOW's missile guidance set (MGS) cable has done a great job of protecting the cable connector pins.

Trouble is the MGS connector doesn't have the same protection. The plastic in the connector gets banged around. If the connector has to be replaced, the whole MGS interface board—a \$2,000 item—must also be replaced.

What works for the cable works for the MGS. We put an adapter, NSN 5935-01-117-3304, on the MGS connector. Now the adapter takes a beating, not the MGS connector. The MGS lid can still be closed with the adapter installed.

To make sure the adapter stays on, put four drops of Loctite (NSN 8030-01-014-5869 for a 50cc bottle) on the adapter threads (each drop 90 degrees apart) before you screw it in the MGS connector.



SGT Brent Gautreau
CW2 Adrian Yunson
Ft Bragg, NC

FROM THE DESK OF THE Editor 

Your suggestion shows great adaptability. Thanks.

MK 19 Machine Gun . . .

Key to Plunger Problems

Dear Half-Mast,

Nobody on our post received the tool to clean the MK 19's ogive plunger. We've ordered it with no luck. What should we do?

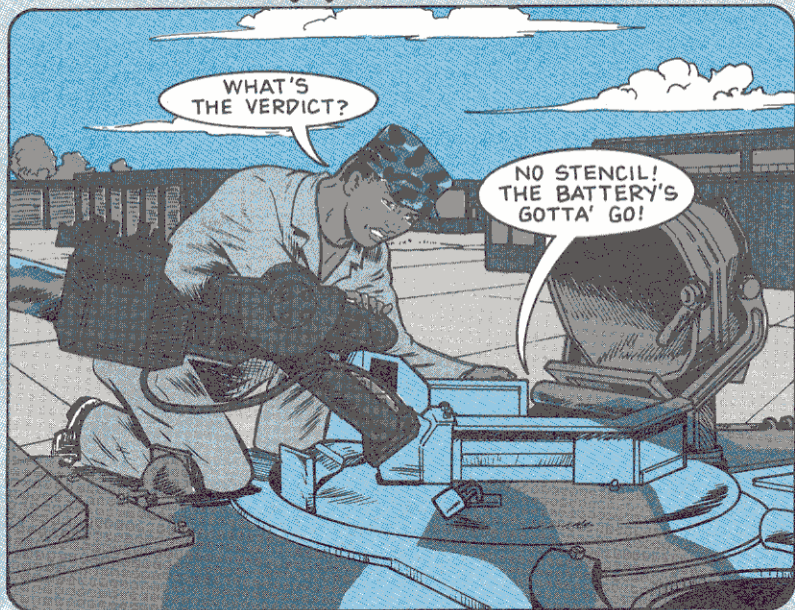
SGT G.F.

Dear Sergeant G.F.,

AMCCOM says 800 ogive plunger tools, NSN 1010-01-130-3434, are in stock. Order what you need. In the meantime, your support can disassemble the ogive plunger and clean it.

Half-Mast

Remove Supplemental Battery



Tankers, is your M1A1 tank's serial number between D6414 and D11192 or between L7002 and L11186? If so, make sure the battery in the ECU supplemental battery box has been removed.

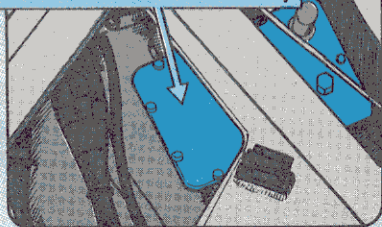
If the battery fails, one of two things can happen:

1. The 2W103-9 wiring harness shorts out, causing a loss of vehicle power.
2. The harness continues to work and prevents the engine overtemp light from coming on.

Rotate the turret until the gun tube is over the NBC sponson box. Open the turret floor access door and look at the battery box cover.

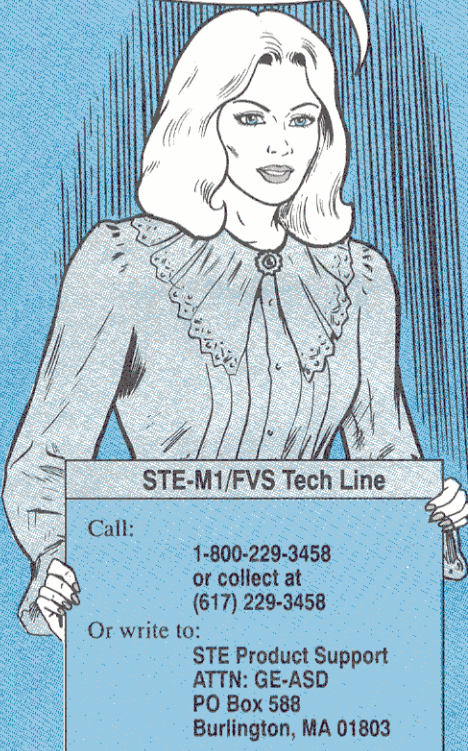
If the cover is stenciled BATTERY REMOVED, your tank is good to go. Otherwise, have your mechanic remove the battery per the instructions in TB43-0001-39-3 (Dec 92). If you don't have the TB, see your TACOM LAR or write to Half-Mast for a copy.

**No stencil on cover?
Have mechanic remove battery**



Are You Up-to-Date?

DO YOU HAVE THE
LATEST SOFTWARE UPGRADE?
BETTER CHECK NOW.



STE-M1/FVS Tech Line

Call:

1-800-229-3458
or collect at
(617) 229-3458

Or write to:

STE Product Support
ATTN: GE-ASD
PO Box 588
Burlington, MA 01803

C10, the latest STE-M1/FVS software update, lets you run all current diagnostic tests with greater accuracy than ever before.

If your test set is not yet modified or if you have questions or problems with test procedures, contact your local TACOM LAR or call the STE-M1/FVS "Tech Line."

Not sure your set has the C10 upgrade? Look for a sticker that reads THIS UNIT IS EQUIPPED WITH C10 PROGRAMMING. Your set should have four stickers — one each on the VTM and CIB and one each on top of the VTM and CIB cases.

Look for C10 sticker



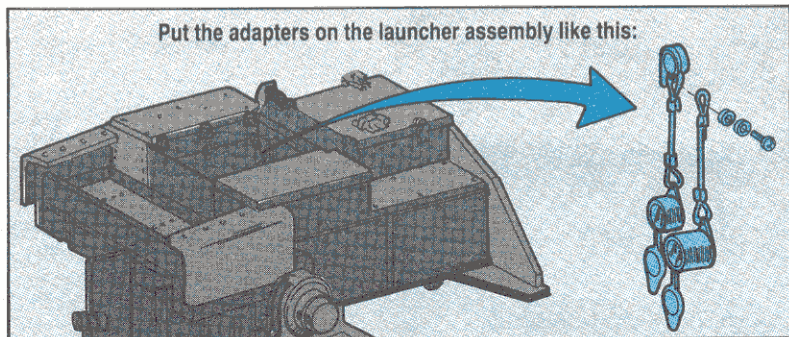
Ammo Hotline

Got a question about ammunition? Call the AMCCOM ammo hotline at DSN 793-2666 or Commercial (309) 782-2666. The hotline is "live" weekdays from 0700 to 1530 hours Central Time. Code-a-phone service takes after-duty calls. DSS1@RIA-emh2.army.mil is the E-mail address.

Protect Periscope Lenses

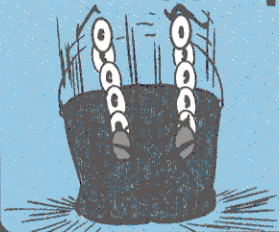
When the day and night sights are removed from the M901 ITV tank periscope assembly, the periscope lenses usually have no protection against dirt and moisture because the lens adapters have disappeared.

Now you can order lens adapters, NSN 6650-01-343-4170 and -4169, that attach to the launcher assembly and never get lost.



Remember, stick the adapters on the periscope lenses whenever you remove the sights.

Collapsible Pail NSN

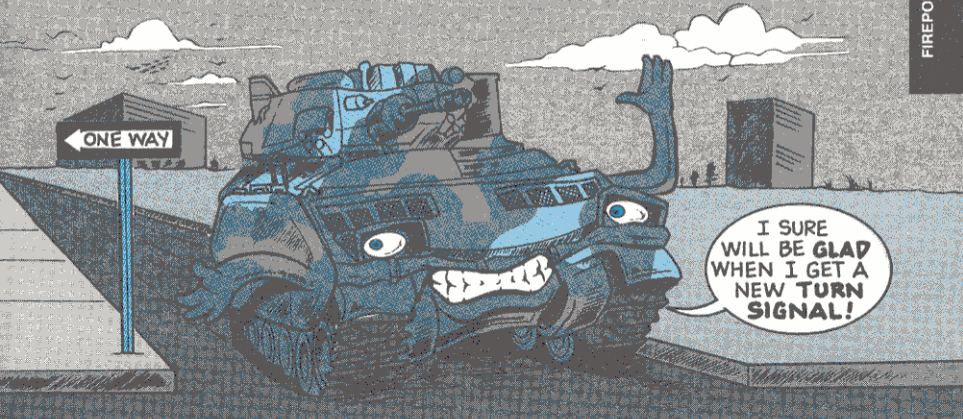


For less than \$5, you can get a plastic, collapsible pail that expands up to 9 inches in diameter and 11 $\frac{1}{2}$ inches in height. The pail, NSN 8465-00-128-6928, is not listed on the ADMF. Order on a DD 1348-6 from RIC GSA and state in the remarks block that the "NSN is not on the ADMF."

OILY WASTE TRASH CAN

NSN 7240-00-282-8411 gets a 6-gal trash can for oily rags. The can meets fire safety code requirements and is authorized by CTA 50-970.

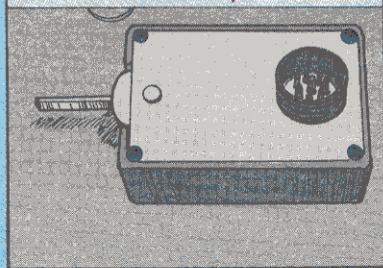
Turn Signal Turnaround



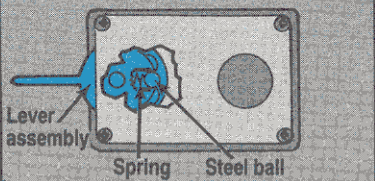
Mechanics, a busted turn signal on an MLRS or M2/M3-series Bradley used to mean replacing the entire directional control unit, NSN 6220-01-107-9933. At more than \$210 a shot, that hits the unit's pocketbook hard.

Not any more. Now, for just \$12, you can repair that control unit with turn signal repair kit, NSN 2540-01-350-7077. Here's how:

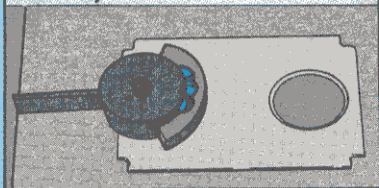
1. Remove the four screws from the bottom of the turn signal assembly and detach the bottom panel.



2. Throw away the lever assembly, spring and steel ball.



3. Lubricate the repair kit parts with grease, NSN 9150-01-197-7692. Then, place them into the turn signal assembly.

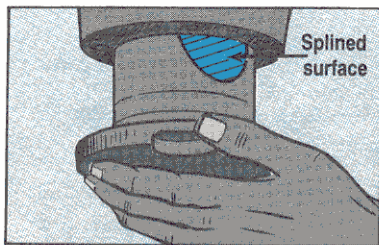


4. Replace the bottom panel and re-install the four screws.

HEAD OFF FROZEN TORSION BARS

Mechanics, you CAN cut down on the number of frozen torsion bars and anchors you have to remove. Follow these simple steps and you can kiss that cutting torch and sledgehammer goodbye!

1. Clean the torsion bar splines and anchor with PD-680 drycleaning solvent.
2. Wipe off the torsion bar and spline with a clean, dry rag.
3. Apply a coat of corrosion preventive compound, NSN 8030-00-231-2345, to the splined surface of the torsion bar anchor, using brush, NSN 8020-00-297-6657.

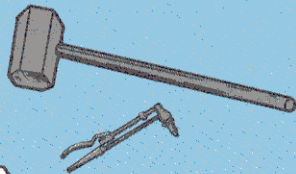


4. Brush a thin film of dry film lube, NSN 9150-00-948-7025, on the outside surface of the anchor just before you install it in the roadwheel housing.



Next time you have to remove a torsion bar, it'll come out slick as a whistle.

I CAN KISS THESE TOOLS
GOODBYE NOW THAT THEY'RE
NOT NEEDED ANYMORE...



Canvas Cover Confusion

Dear Half-Mast,

The canvas covers for the smoke grenade launchers on our M88A1 recovery vehicle are worn out.

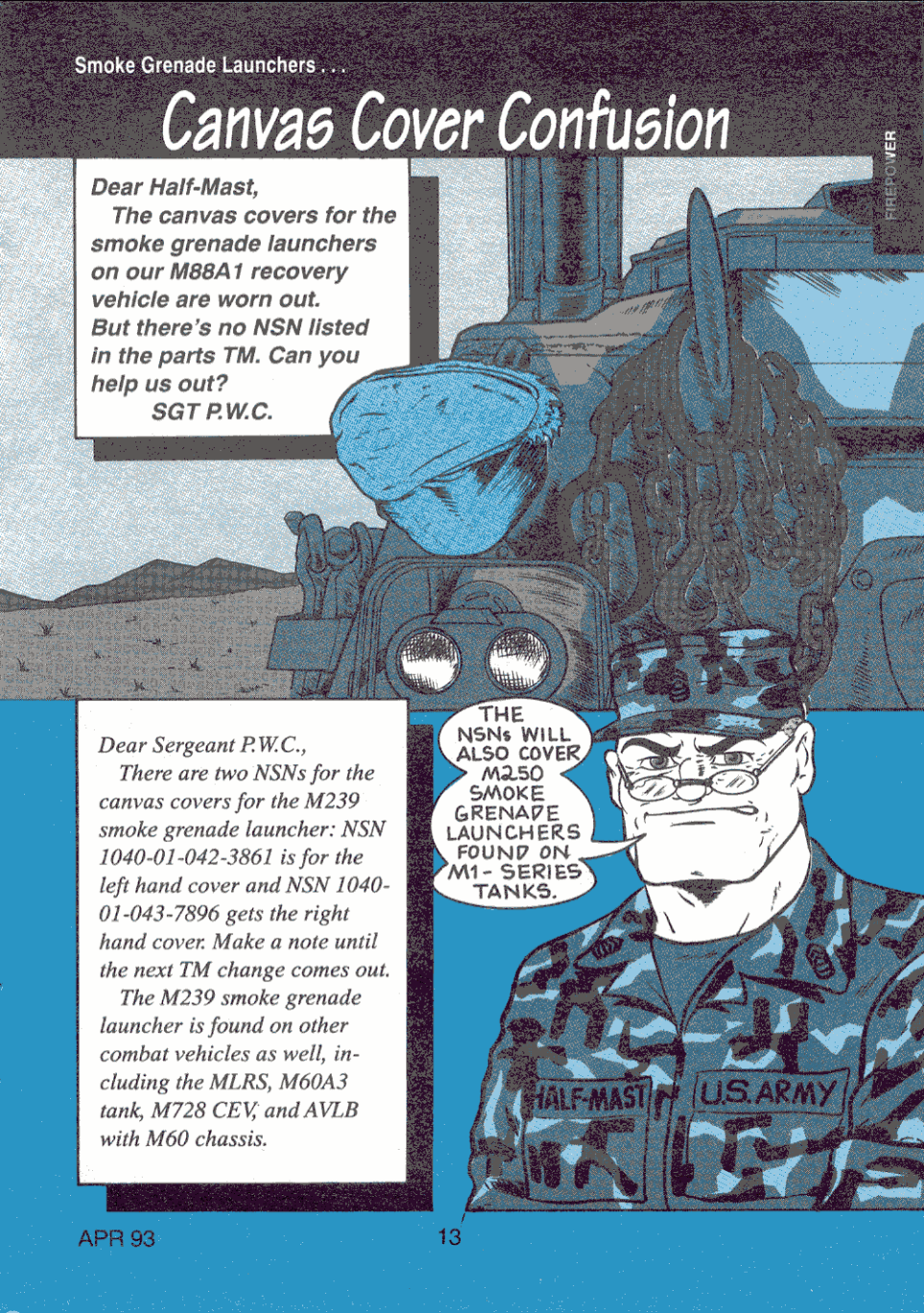
But there's no NSN listed in the parts TM. Can you help us out?

SGT P.W.C.

Dear Sergeant P.W.C.,

There are two NSNs for the canvas covers for the M239 smoke grenade launcher: NSN 1040-01-042-3861 is for the left hand cover and NSN 1040-01-043-7896 gets the right hand cover. Make a note until the next TM change comes out.

The M239 smoke grenade launcher is found on other combat vehicles as well, including the MLRS, M60A3 tank, M728 CEV, and AVLB with M60 chassis.



THE
NSNs WILL
ALSO COVER
M250
SMOKE
GRENADE
LAUNCHERS
FOUND ON
M1-SERIES
TANKS.










Pick Up

There's no kit available that gets you the waterproof electrical connectors—sometimes called Packard connectors—used on tactical vehicles.

And they don't come in the electrical connector tool kit, NSN 5180-00-876-9336, in the No. 1 Common shop set. In short, you have to order each one, piece by piece.










Before you go through the list, here are a few hints to make connections easier:

- Pick out the right parts to go with the gauge wire to be used (12, 14, or 16 AWG wire).
- Use washer, NSN 5310-00-298-8903, instead of plastic sleeve, NSN 5970-00-833-8562, when working with 12 AWG wire.
- Use the two types of male shells (ribbed and plain) to identify the plus (+) and minus (-) hookups on polarized units.

NSN	Description	Quantity
5935-00-900-6281	Adapter, connector "Y" 	1
5975-00-660-5962	Cable nipple Male shell for 16 AWG wire 	100
5975-00-833-8561	Connector Male shell for 14 AWG wire 	1
5935-00-399-6673	Connector Ribbed male shell for 14 AWG wire 	1
2590-00-695-9076	Shell, headlight circuit Male shell for 12 AWG wire 	1
5935-00-691-5591	Shell, electrical connector Female shell for 16 AWG wire 	1
5935-00-572-9180	Connector Female shell for 14 AWG wire 	1
5935-00-695-9077	Shell, electrical connector Female shell for 12 AWG wire 	1
5999-00-926-3144	Electrical contact for 16 AWG wire 	1

the Pieces

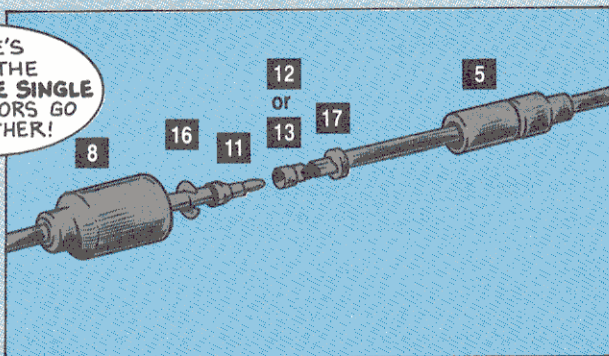
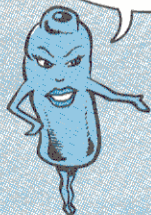
- Do not mash down on the rubber shells to get a good connection. You'll mangle the female connector and make it tough to get a connection.
- Distinguish between the two types of female connectors—crimp-on and solder. The connector with a solid sleeve gets crimped on the wire. With the other type, the larger tabs are bent around the insulated part of the wire and the smaller tabs are bent around the bare wire. Then add a dab of solder.
- You can use either type with 14 or 16 AWG wire. For 12 AWG, the crimped version is better. If you use the solder type, the larger tabs can't be used to latch on to the insulation because the small washer must be used. The washer goes between the insulation and the terminal. So peel off the insulation, slip on the washer and add the terminal. Bend over the tabs and solder on the terminal.

NSN	Description	Quantity
5999-00-057-2929	Electrical contact for 14 AWG wire 	1
5999-00-925-6495	Electrical contact for 12 AWG wire 	1
5940-00-846-5012	Ferrule, electrical connector Female solder terminal for 12, 14, and 16 AWG wire 	Pg of 5
5940-00-399-6676	Terminal assembly Female crimp terminal for 12, 14, and 16 AWG wire 	1
5310-00-656-0067	Slotted washer for 16 AWG wire 	100
5310-00-833-8567	Slotted washer for 14 AWG wire 	100
5310-00-595-7044	Slotted washer for 12 AWG wire 	100
5310-00-298-8903	Flat washer Terminal retainer for 12 AWG only 	100
5970-00-833-8562	Insulator Plastic insert for 14, 16 AWG wire 	100

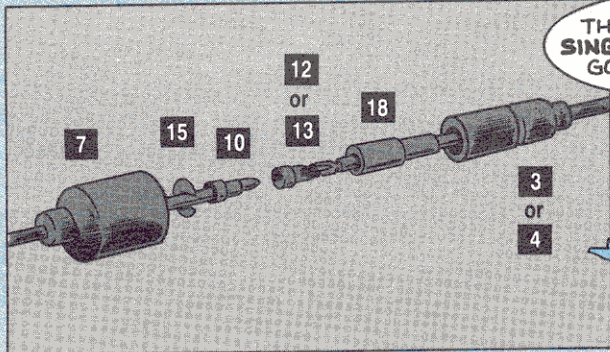


■ Use a dab of silicone compound, NSN 6850-00-880-7616, to make hookups easier. Put the compound on the male shell before you mate it to the female shell. It'll also help when you disconnect the connection.

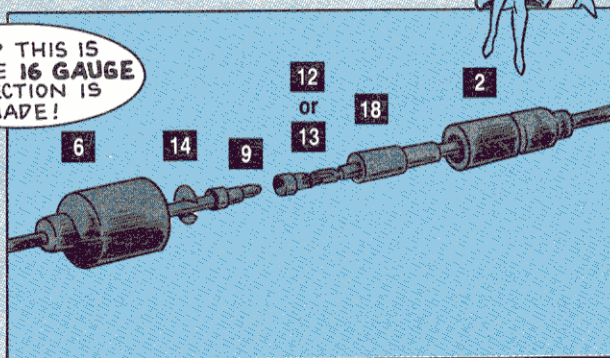
HERE'S HOW THE 12 GAUGE SINGLE CONNECTORS GO TOGETHER!



THE 14 GAUGE SINGLE CONNECTION GOES LIKE SO!

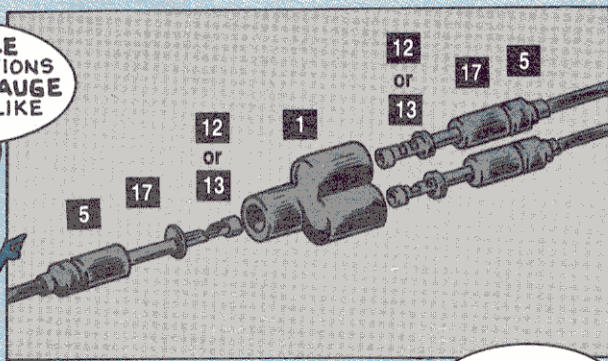
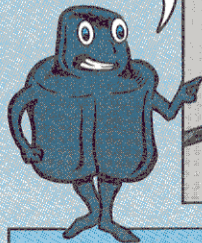


... AND THIS IS HOW THE 16 GAUGE CONNECTION IS MADE!

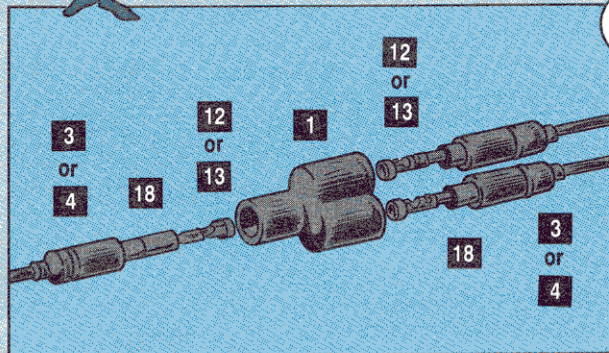


■ Don't bend connections up and down to separate them. If you can't pull on the wires to separate the connection, try inserting something down between the shells — carefully — and pry gently until the connectors can be pulled apart.

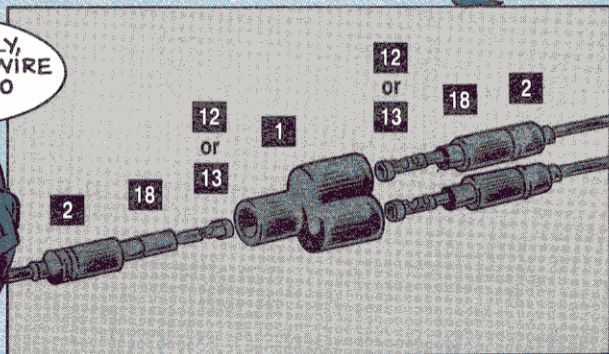
DOUBLE CONNECTIONS FOR 12 GAUGE WIRE GO LIKE THIS!



HERE'S HOW THE 14 GAUGE CONNECTIONS GO!



... AND FINALLY, THE 16 GAUGE WIRE CONNECTIONS GO LIKE SO!



No Need for Seasonal Change

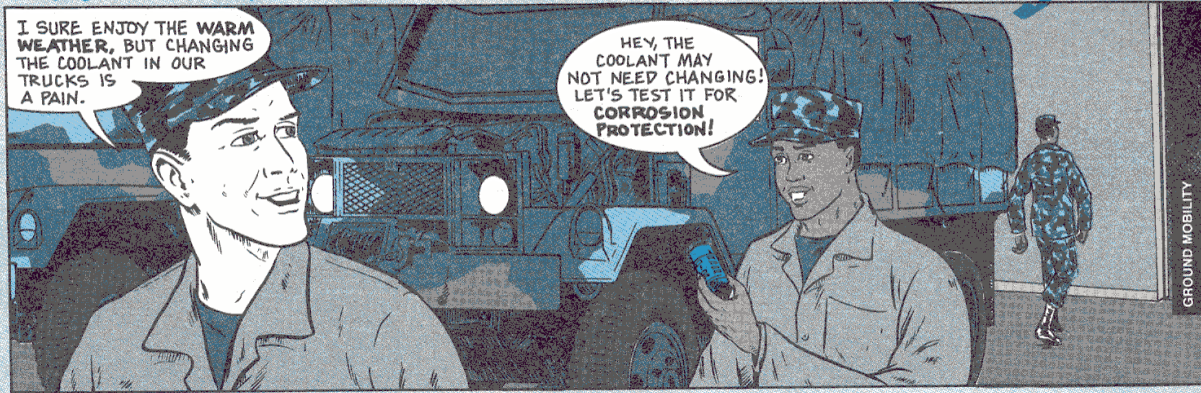
There's no need to drain the winter coolant from your radiator once spring-time comes.

That coolant not only helps stop corrosion in the engine's cooling system, it also increases the boiling point. Your vehicle's engine can run hotter and not boil over.

For instance, water boils at 212° F. A 50/50 mix of antifreeze and water boils at 226° F. A 60/40 mix of antifreeze and water boils at 230° F.

Usually you'll find that the coolant corrosion protection is OK, but you need to check to make sure.

You'll need the antifreeze test kit, NSN 6630-01-011-5039. It comes with 50 test strips in a bottle. Just dip the end of a test strip in the coolant. Match the color on the strip with the scale on the bottle. Add more inhibitor if the test strip turns yellowish-green.



No matter what the season, you can only add corrosion inhibitor to the coolant one time. Eyeball the vehicle's DD Form 314. If the REMARKS block

of coolant. Then run the engine to operating temperature to mix the inhibitor with the coolant.

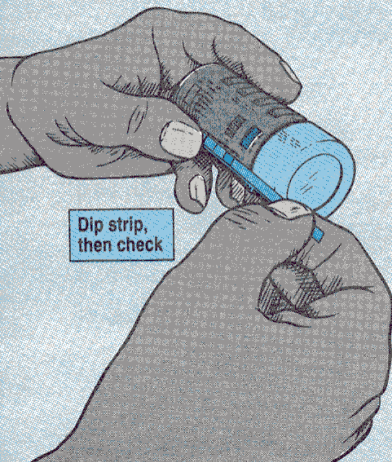
Be sure to make a note in the REMARKS block of DD Form 314 whenever you add inhibitor or replace the coolant.

Freeze Protection

Whoa! Don't touch that drain cock to drain and change coolant for the upcoming cold season either. The freeze protection of coolant that's already in the engine's cooling system may be OK.

Use an antifreeze and battery tester, NSN 6630-00-105-1418, to test the coolant. You'll find the instructions right on the tester. If freeze protection's weak, add more antifreeze to the coolant.

Add inhibitor when needed

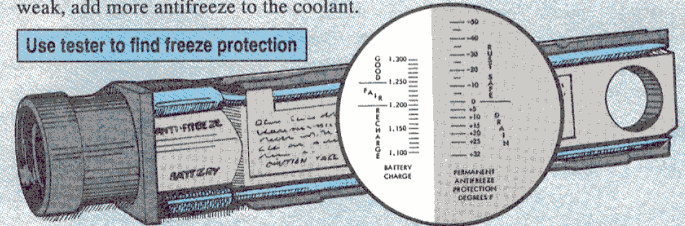


Dip strip, then check

says that inhibitor has been added, drain and replace the coolant.

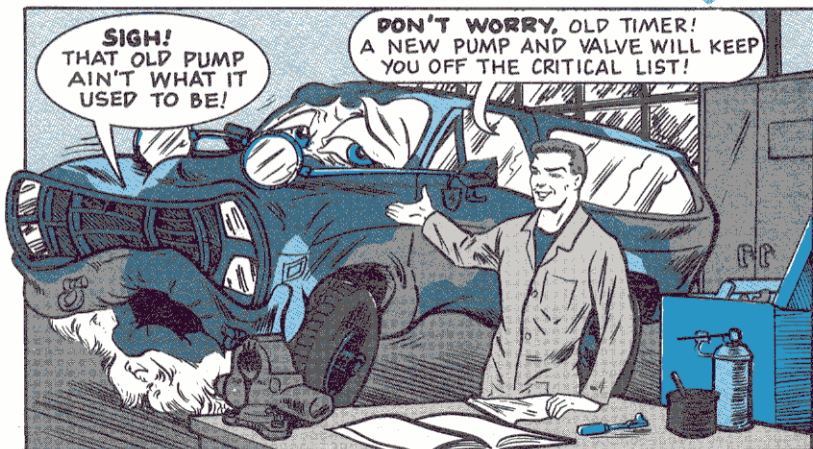
Add inhibitor, NSN 6850-01-160-3868, at the rate of one pint to 17 quarts

Use tester to find freeze protection



For more testing info, see TB 750-651, Use of Antifreeze Solutions and Cleaning Compounds in Engine Cooling Systems.

Hot Tip for Hard Starting



CUCVs are getting old . . . and like old folks, getting harder to start in the morning.

Even when you flip the switch and hold steady till the WAIT light goes out, the critter still grinds and grunts before the engine fires off. You mechanics check out the glow plug system and find it's working like it should. So what could be wrong?

Seems like a couple of critical parts of the fuel system are susceptible to old age problems, like weak springs and such.

To cure a hard starting engine, jerk out the old fuel supply pump and the in-line check valve connector on top of the fuel injection pump. Replace the pump with fuel supply pump, NSN 2910-01-331-3614. Get a new in-line check valve with CAGE 84760 PN 28993. Order it on a DD Form 1348-6 from S9C.

Cheaper CUCV Seat Lanyard

Need a new troop seat lanyard for your M1008 or M1008A1? Forget Item 2 in Fig 238 of TM 9-2320-289-20P. It costs more than \$15. Order NSN 4010-00-829-8740 instead. It's used in the M2/M3-series Bradley turret. It costs only 40 cents. Jot down the NSN until your TM is updated.

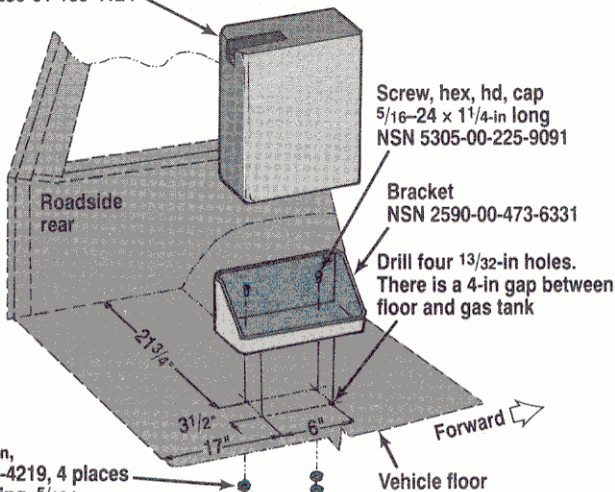
Better Spot for M13

CONNIE, WHEN THE MOBILE SUBSCRIBER RADIO TERMINAL IS INSTALLED IN THE CUCV, THE M13 DECON'S POSITION MAKES IT DIFFICULT TO GET TO THE RADIO.

SSG RONALD BROOKS OF SAN MARCOS, TEXAS, SUGGESTS MOVING THE M13 BRACKET TO THE SIDE. HE INSTALLS THE BRACKET LIKE THIS...

GROUND MOBILITY

M13 Decon
NSN 4230-01-133-4124



Washer, flat $\frac{5}{16}$ -in,
NSN 5310-00-081-4219, 4 places
Washer, lock-spring, $\frac{5}{16}$ -in
NSN 5310-00-407-9566, 4 places
Nut, Hex, $\frac{5}{16}$ -24,
NSN 5310-00-582-5615, 4 places

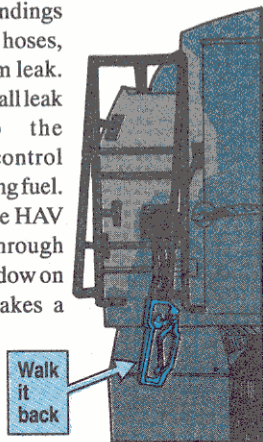
HEMTT Tankers ...

Hard Landings Kill Deadman

When you've finished pumping fuel with the M978 tanker's hand-activated valve (HAV or deadman control), walk it back to its reel. When you just let it fly, the rough landings damage air hoses, making them leak.

Even a small leak can keep the deadman control from pumping fuel.

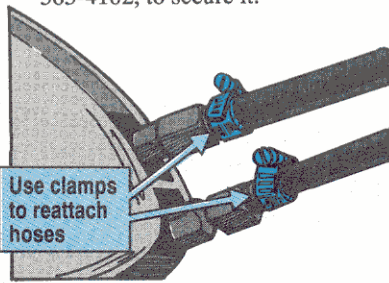
Even if the HAV makes it through the reel window on the fly, it takes a beating.



When it doesn't, the jolt on the air lines pulls the hoses away from the control.

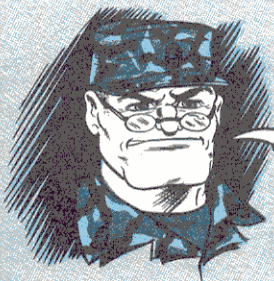
If a hose pulls away from the HAV, here's a quick fix to stop, or head off, air leaks.

Cut off a couple of inches of hose and push it back over its fitting. Then use a screw-type hose clamp, NSN 4730-00-363-4102, to secure it.



M44A2-Series 2 1/2-ton, M39-Series 5-ton Trucks ...

Ring Mount Needs Kit



**TWO
DIFFERENT
KITS ARE
NECESSARY
TO MAKE
YOUR M66
ACTION-READY!**

If you've received M66 machine gun ring mounts for your 2 1/2-ton and M39-series 5-ton trucks, your support will

need mounting kits, NSN 1005-01-226-4589, to install them.

Because the ring mounts are so heavy, they will also need cab reinforcement kits, NSN 2590-01-322-2694.

Mounting instructions come with the kits.

Once the ring's installed, you can replace most parts of the kit yourself. But the parts breakdown of the kit is found only in Fig 513 in TM 9-2320-260-34P-2 (Jan 92). You can get a copy from your support or your TACOM LAR.

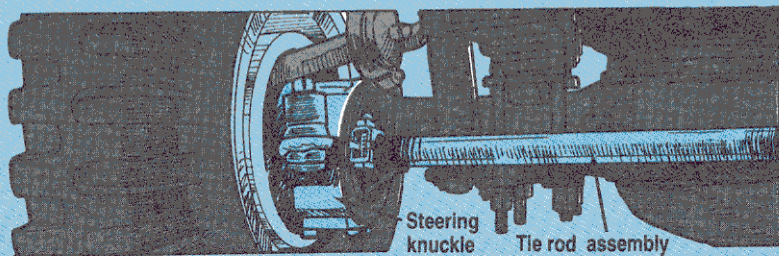
Tie Down Tire Woes

When the ball joints in your 5-tonner's tie rod assembly go bad, they cause uneven tire wear that can cause a blowout.

Loose, worn or broken ball joints let wheels wobble. This builds up heat and causes uneven wear.

If tires show uneven wear, check the steering setup. Get a buddy to help.

Turn the steering wheel about two inches to the left and then to the right. Do it several times. Watch for free play between steering knuckles, the tie rod assembly, steering knuckle arm, drag link and pitman arm. There should be no play.



If there is play, report it. Your mechanic will tighten steering knuckle nuts to between 155 and 170 lb-ft. If there's still free play, he'll replace the tie rod end.

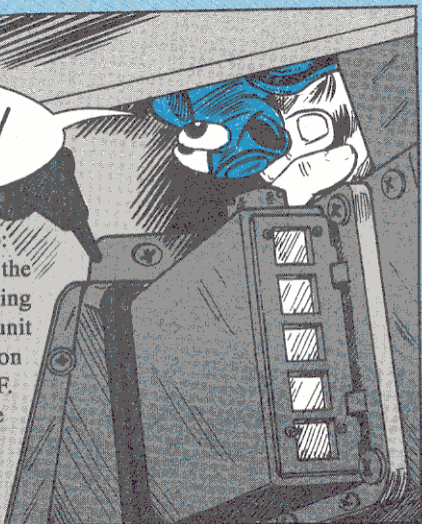
M939A2-Series Trucks . . .

**Switch Battery
OFF First!**

*D*rivers and mechanics, listen up:

Before you connect or disconnect the central tire inflation system's wiring harness from the electronic control unit (ECU) in an M939A2-series 5-ton truck, switch the vehicle battery OFF.

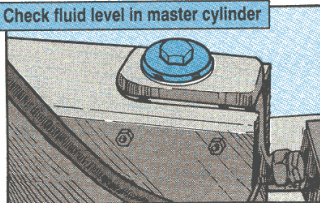
Making a harness move while the battery switch is ON can damage the ECU. Both of you will lose if the ECU goes down.



Hook Up with PM

you let the cylinder go dry, you stop the brakes from stopping you.

Check fluid level in master cylinder

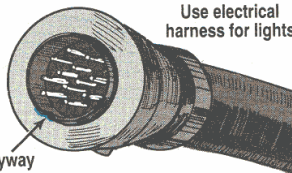


Lights

Hook up the electrical harness cable. Turn signals and brake lights are a warning to vehicles behind you that you're changing direction or speed. That clear warning can save you a rear-end collision, especially at night.

Save pins and connectors on the cable by lining up the connector's keyway

Use electrical harness for lights



Keyway

with the receptacle key. If the keyway is too snug, spread it with a screwdriver blade.

Then make the connection firmly but slowly. Forcing the connection can bend or break pins and leave you without lights.

If pins do get bent, straighten them with needlenose pliers. You can even pull them back into place if they get pushed back into the plug.

Worried about cables or air lines getting pinched or run over? Tie them to the safety chain eyebolts with nylon ties, NSN 5975-00-156-3253.

Likewise, when you unhook the trailer at the end of your mission, remember to unhook the harness and brake lines, too. If you forget that, you'll lose connectors or cables or both.

When you hook up lights and brakes, hook up the safety chains to the prime mover. That keeps the trailer connected if you lose the pintle hookup.

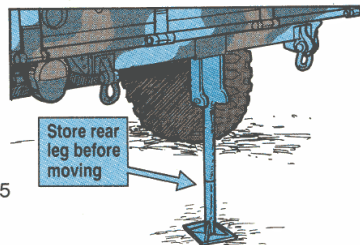
Think safety chains



Legs

Remember to raise the landing leg or rear support leg before you take off, too. Running through the motor pool with a leg lowered is bad news. Going cross-country with it down is a death sentence for the leg and maybe the trailer. The leg will snag on something and break, bend or toss your trailer for a loop.

Store rear leg before moving



HOW ARE MY TRAILER BRAKE LIGHTS?

YOUR BRAKE LIGHTS ARE LOOKING A-OK, BUDDY!

Brakes, lights, action—but don't break a leg!

Hollywood talk? Nope, a checklist before you head out with your single-axle cargo or water trailer.

Brakes

Always hook up both the service and emergency air brake lines between your trailer and its prime mover. You can't depend on your truck brakes alone to stop you when you're towing a loaded cargo or water trailer.

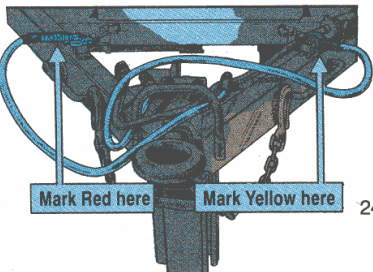
Make sure you hook up the lines properly, too. The service line goes to the hookup on the driver's side rear of the towing vehicle; emergency goes to the right. Get it backwards and the trailer brakes will lock up, burn out and ruin tires.

To make sure you've got it right, color code your air hoses. Put matching dots of yellow paint on the service line connector and its vehicle receptacle. Use red dots on the emergency side.

Don't forget the hydraulics of your brake system, either. Check the fluid level in your trailer's master cylinder. If

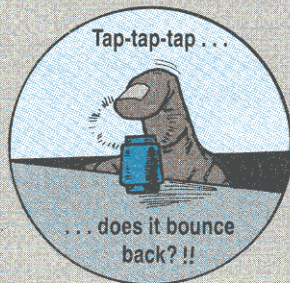
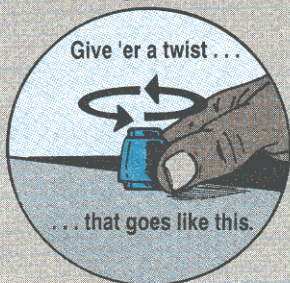
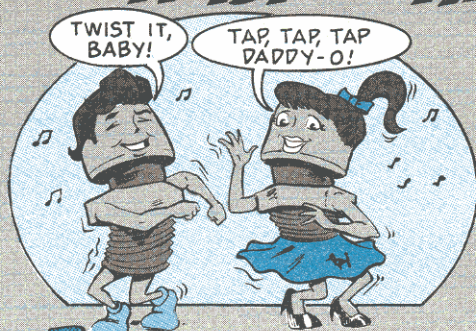
Mark Red here

Mark Yellow here



Breather Valves . . .

Twist—Then Tap



Pressure buildup in vehicle gear cases will destroy hub seals — unless the breather valves are clean and operating.

A clogged valve keeps pressure inside until something gives — like an axle seal. And when the seal goes, so goes the lube.

Pay close attention to all breather valves, especially those on axle housings — they get plastered with all sorts of crud coming off the road.

Twist the valve cap to loosen any dirt stuck inside. Tap the cap to knock dirt out. Inside the cap is a spring, so the cap should bounce back when you tap it. If the cap won't turn or bounce, get a new breather valve.

Also make sure breathers aren't clogged with paint. If they are and you can't clean them, replace them.

Tactical Trucks . . .

Windshield Wiper Kit NSNs

Those NSNs listed in your -20P TM are no good for windshield wiper and washer kits or parts. Now when you need parts, you have to order a new setup.



HERE'S WHAT'S AVAILABLE:

Truck	Kit	NSN 2540-01
HEMTT	Wiper	313-4307
HEMTT	Washer	313-4308
M915-series	Wiper	312-4718
M915-series	Washer	312-4719
M939-series	Wiper	303-0600
M939-series	Washer	101-0010

Unit Commanders . . .

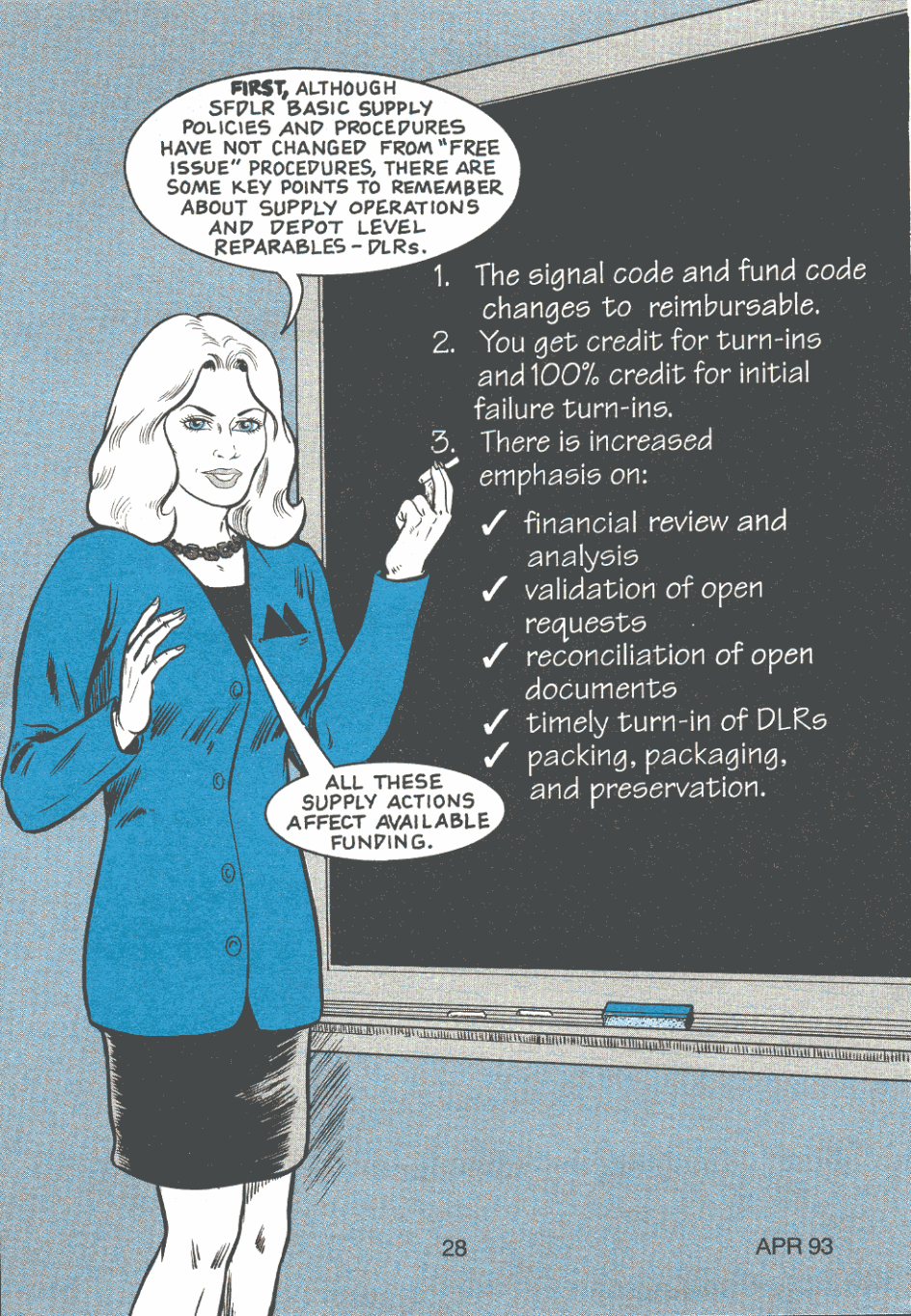
Getting in Swing with **SFDLR**

THE STOCK FUND DEPOT LEVEL REPARABLES PROGRAM - **SFDLR** - IS A YEAR OLD AND IT'S WORKING WELL.

HERE ARE SOME IMPORTANT REMINDERS FOR YOU UNIT COMMANDERS TO KEEP **SFDLR** ON THE RIGHT TRACK!

SFDLR
THE
BASICS

PS MORE



FIRST, ALTHOUGH SFPLR BASIC SUPPLY POLICIES AND PROCEDURES HAVE NOT CHANGED FROM "FREE ISSUE" PROCEDURES, THERE ARE SOME KEY POINTS TO REMEMBER ABOUT SUPPLY OPERATIONS AND DEPOT LEVEL REPARABLES - DLRs.

1. The signal code and fund code changes to reimbursable.
2. You get credit for turn-ins and 100% credit for initial failure turn-ins.
3. There is increased emphasis on:
 - ✓ financial review and analysis
 - ✓ validation of open requests
 - ✓ reconciliation of open documents
 - ✓ timely turn-in of DLRs
 - ✓ packing, packaging, and preservation.

ALL THESE SUPPLY ACTIONS AFFECT AVAILABLE FUNDING.

SECONDLY, ALTHOUGH WHEN YOU THINK OF SFDLR YOU THINK SUPPLY, THERE IS A GREATER IMPACT ON UNIT MAINTENANCE.

MOST TRADITIONAL UNIT MAINTENANCE FUNCTIONS DO NOT CHANGE,

HOWEVER A CHANGE IN MAINTENANCE THINKING IS NEEDED!



We must modify...

"Readiness at any cost"

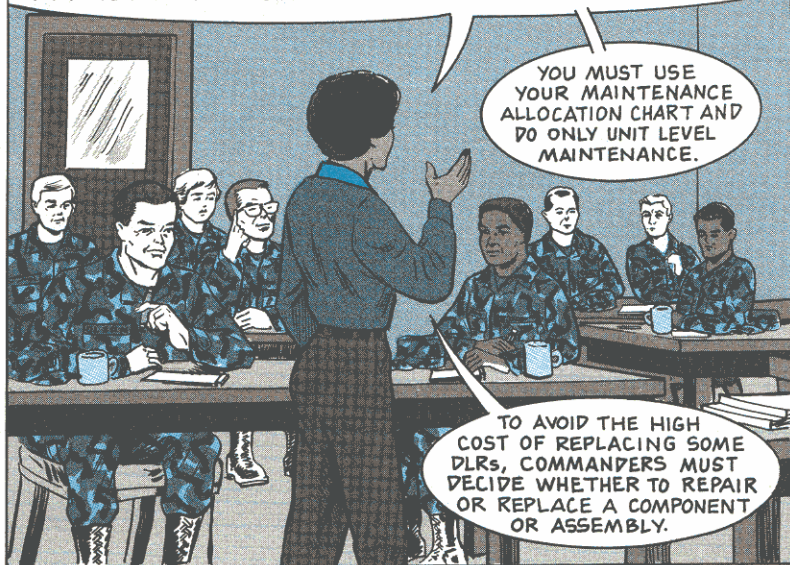
to

"Readiness and what is the cost"



STRIKING A BALANCE BETWEEN READINESS RATE AND COST IS NOW THE KEY.

TO DO THIS, YOU MUST **ANALYZE** PERSONNEL AND THEIR SKILLS. YOU MUST **DECIDE ISSUES** ON THE BEST TOOLS TO USE AND THE BEST FACILITIES TO GET THE MAINTENANCE JOB DONE—AND YET BE FINANCIALLY RESPONSIBLE.



YOU MUST USE YOUR MAINTENANCE ALLOCATION CHART AND DO ONLY UNIT LEVEL MAINTENANCE.

TO AVOID THE HIGH COST OF REPLACING SOME DLRs, COMMANDERS MUST DECIDE WHETHER TO REPAIR OR REPLACE A COMPONENT OR ASSEMBLY.



NEXT, STAYING FINANCIALLY AFLOAT AND STILL MAINTAINING READINESS MAKES TIMELY PARTS REQUEST VALIDATION AND TIMELY TURN-IN OF REPARABLES OR EXCESS PARTS ESSENTIAL.

FINALLY, YOU MUST STAY ON TOP OF TRANSPORTATION. MAKE MAXIMUM USE OF WHAT TRANSPORTATION YOU HAVE TO MOVE ITEMS AND ENSURE YOU MAKE REQUESTS FOR OUTSIDE SUPPORT ONLY WHEN NEEDED.

MOST OF YOU UNIT COMMANDERS HAVE ALREADY GOTTEN INTO THE SWING OF SFDLR. YOU CAN SMOOTH THE RIDE BY ALWAYS KEEPING THE BASICS IN MIND!

Shipping/Packaging ...

Don't Spare the ROD!

THIS IS THE **SECOND** TIE ROD I'VE ORDERED THAT WON'T FIT THE CUCV!

WE'RE USING THE RIGHT NSN, BUT WE KEEP GETTING THE WRONG TIE ROD.

SOUNDS LIKE WE NEED TO PUT IN A **ROD** ON THOSE TIE RODS.

When it comes to shipping and packaging problems, if you spare the ROD, you spoil any chance to save money. Use an SF 364, Report of Discrepancy (ROD), to let the shipper hear about the foul-up.

Shipping

The ROD lets you gripe on shipping mistakes when:

➤ You receive the wrong item or a substitute that won't work.



➤ You get more or fewer items than you ordered. The line item cost of each item should be more than \$100. However, send in a ROD on any classified, sensitive or controlled inventory item regardless of dollar value.

➤ The item has missing or incorrect data markings (such as the wrong NSN painted on the item).

➤ You get an item after you've cancelled it and received a cancellation OK from support—if the item costs more than \$100. Send a copy of the status card that OK'd the cancellation with the ROD.

➤ You receive an item with an expired shelf life. Here, too, the item cost must be more than \$100.

➤ You get a duplicate shipment.

➤ You receive somebody else's order.



➤ You get status on an item—more than \$100 in value—telling you a government activity or depot is shipping you the item by parcel post, but it never arrives or arrives damaged.

➤ The supply paperwork (DD Form 1348-1) is wrong or missing.

➤ The condition code of the item you receive is wrong on the shipping document.

All errors on shipments from contractors or vendors should be reported on a ROD regardless of dollar value.

If the same error happens again and again from the same supply source, fill out a ROD—no matter what the item costs.

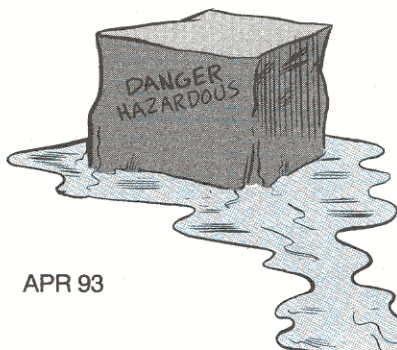
Packaging

Send in a ROD on packaging blunders when:

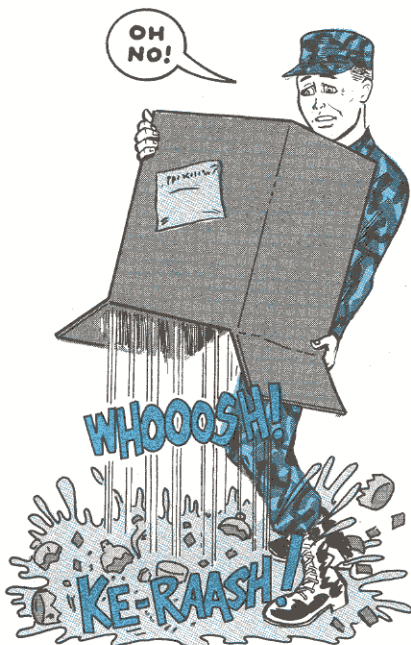
➔ Bad packaging leads to damage on gear or items that affect your combat or combat support mission or your safety and health. You need a hurry-up reply in this case.



➔ You get hazardous materials that are not packaged properly.



➔ You get a package that failed to protect the item. It was damaged or lost—or parts of it were lost—and repairing it or replacing the missing parts will cost you more than \$50.

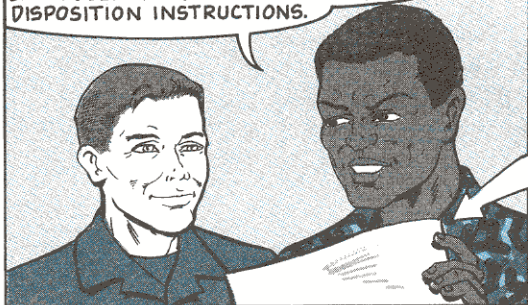


The ROD is used for a slew of other packaging problems, but most of those apply to warehousing and shipping folks.

RODs make lots of noise. They get everyone's attention and save you money on bad shipments.

An SF 364 ROD will not take the place of your supply request, though. If you still need the original item, put in a new request for it.

CHECK THE **ACTION CODES** ON THE FORM CAREFULLY. THEY HELP YOU ASK FOR DISPOSITION INSTRUCTIONS.



2 ACTION CODES

- 1A — Disposition instructions requested (*Reply on reverse*)
- 1B — Material being retained (*See remarks*)
- 1C — Supporting supply documentation requested
- 1D — Material still required expedite shipment (*Not applicable to FMS*)
- 1E — Local purchase material to be returned at supplier's expense unless disposition instructions to the contrary are received within 15 days (*Reply on reverse*) (*Not applicable to FMS*)
- 1F — Replacement shipment requested (*Not applicable to FMS*)
- 1G — Reshipment not required. Item to be re-requisitioned.
- 1H — No action required. Information only
- 1Z — Other action requested (*See remarks*)

If you need more room to tell them about your problem, use the Remarks block.

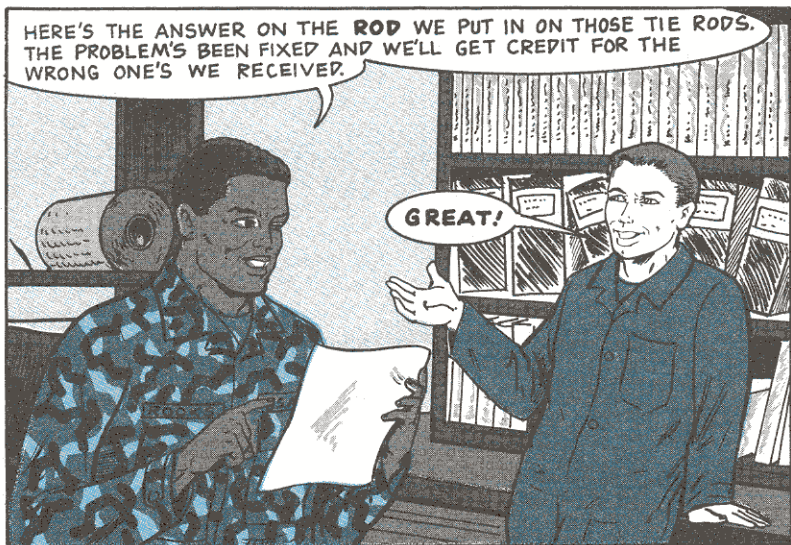
When you have both a shipping and packaging problem on the same item, mark both boxes on the ROD.

Get help on where to send your SF 364 from AR 735-11-2, Reporting of Item and Packaging Discrepancies. If you don't have a copy, get your pubs clerk to order it from the Baltimore Pubs Center.

TEC Lesson 645-093-7565-A, available from your local training folks, gives help on preparing the ROD.

If you don't have any SF 364s in stock, order a pad of 100 with NSN 7540-00-159-4442.

HERE'S THE ANSWER ON THE **ROD** WE PUT IN ON THOSE TIE RODS. THE PROBLEM'S BEEN FIXED AND WE'LL GET CREDIT FOR THE WRONG ONE'S WE RECEIVED.



Test for Electrical Leakage!

Dear Windy,

When we install Ni-Cad batteries in our Hueys, we do all the inspection required by TM 55-1520-210-23. Do we also need to do the electrical leakage test called for in Table 4-1 of TM 11-6140-203-14-2?

SFC B.J.C.

I HOPE YOU TESTED ME FOR ELECTRICAL LEAKAGE.

Dear Sergeant B.J.C.,

You bet! The requirements in both TMs need to be followed for good battery maintenance.

Windy

TM 11-6140-203-14-2

Table 4-1. Organizational Preventive Maintenance Checks and Services, 30 days or Every 25 Flight-Hours

Item No.	Item to be Inspected	Procedure	Equipment will be reported not ready (Red) if:
6	Battery	Perform the electrical leakage test in accordance with the instructions in paragraph 4-8. Perform the instructions in paragraph 4-9.	The battery does not pass the electrical leakage test.

Mounting the AN/AVS-6

Dear Windy,

When we add mount assembly, NSN 5855-01-151-4229, to attach the AN/AVS-6 night vision goggles to our SPH-4 flight helmet, the visor link sometimes breaks. Item 28 of Fig. E-4 of TM 10-8415-206-12&P shows the link as a part of the mount assembly. That assembly costs \$161. Can't we just order the link and save some bucks?

WO1 D.W.

Dear Mr. D.W.,

Yes, Sir. Replace a broken visor link assembly with NSN 5855-01-260-6451. That will save your unit \$150 every time you make the repair.

Windy

Getting the Best Out of Bearings

If bearings in your main rotor hub are failing, chances are the first failure was in preventive maintenance. When the grease doesn't do its job in the grease-lubricated main rotor hub, the bearing will groove the race and fail.

The preventive maintenance key is keeping fresh grease in the hub. Fig 1-5 of TM 55-1520-228-23-1 gives a lube interval of every 25 hours, but you should think of that as the maximum interval. There are many factors, like climate and soil, that could lessen the interval.

If you operate in a hot, sandy area, for example, that interval may need to be as low as 10 hours.

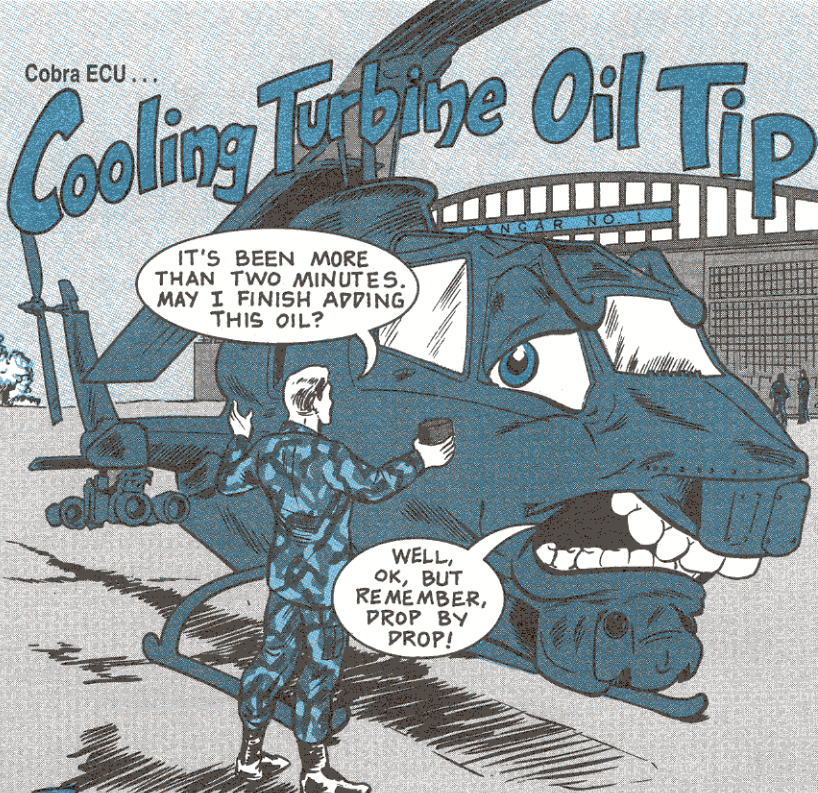
Preventing failures is what PM is all about. If you're wearing out bearings and races, ask your commander to lower that 25 hours to 20 hours. Watch your repair record. Reduce time until you're getting maximum performance out of the bearings.



LUBE MORE OFTEN FOR BEST PERFORMANCE.

Cobra ECU...

Cooling Turbine Oil Tip



IT'S BEEN MORE THAN TWO MINUTES. MAY I FINISH ADDING THIS OIL?

WELL, OK, BUT REMEMBER, PROP BY DROP!

The Cobra's Environmental Control Unit cooling turbine can swallow more oil than is good for it. That excess oil leaks out and causes turbine damage.

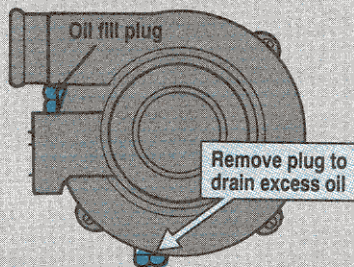
Do not overfill!!

Those words "add approximately 50cc of lubricating oil" in the service instructions allow you to add exactly the right amount of oil, but they also let you overfill.

Instead of adding the 50cc (1.68 fluid ounces) right away, add about 30cc very slowly. The oil is not held in a reservoir, but in wool wicks. This slow adding prevents the oil from backing up.

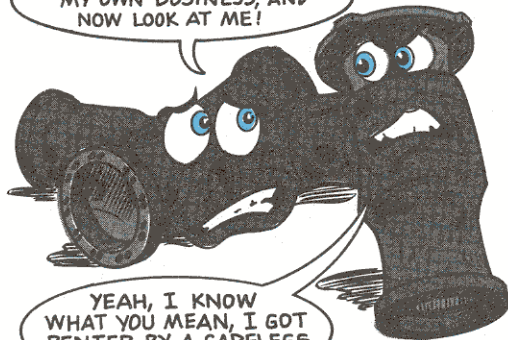
After you've added the 30cc of lube, wait a couple of minutes, then drop by drop add the rest.

Wait two minutes more and then remove the drain plug and drain any excess oil.



No Dents Allowed!

THERE I WAS, MINDING MY OWN BUSINESS, AND NOW LOOK AT ME!



YEAH, I KNOW WHAT YOU MEAN, I GOT PENTED BY A CARELESS MECH, TOO!

Black Hawk and Apache main rotor hubs must be free of nicks, dents, scratches and scuffs. If they're not, they must be replaced.

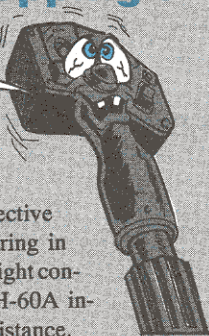
The main cause of dents in rotor hubs is carelessness!

Before you work in the rotor hub area, decide what tools you are going to need and take only those tools to the area.

Never stick extra tools in your pockets. Get another mechanic to hold them and hand to you as needed.

Stopping a Sprung Spring

BOY, AM I DIZZY!

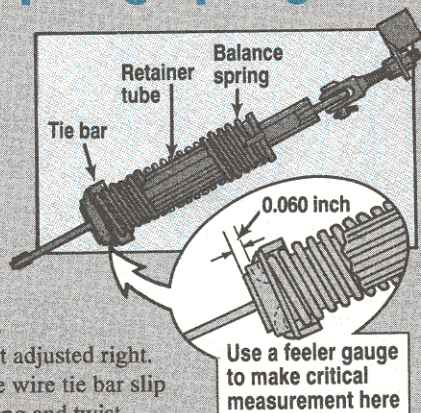


A sprung collective stick balance spring in the upper deck flight controls of your UH-60A increases stick resistance.

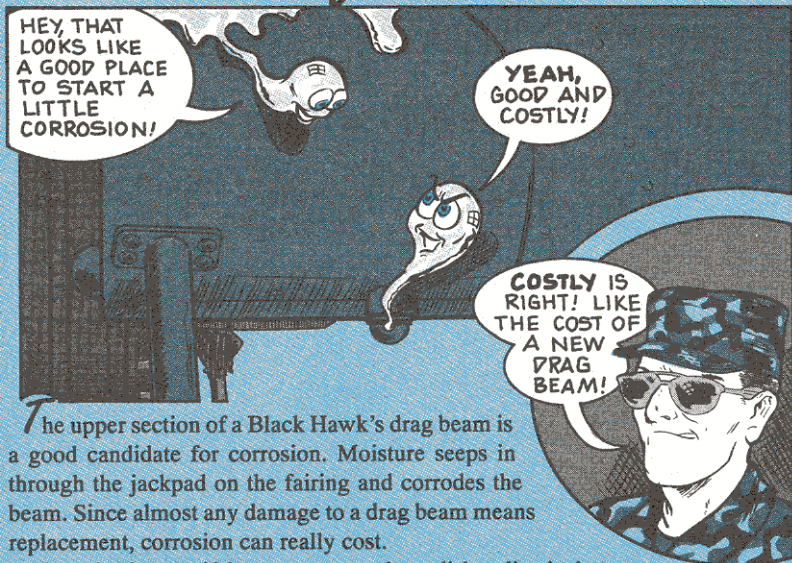
The spring gets sprung when it's not adjusted right.

Once the spring is sprung, it lets the wire tie bar slip out of the slotted grooves of the housing and twist.

The spring adjustment is critical. Adjust the spring like it says in Para 11-2.6 of TM 55-1520-237-23. Make sure the front edge of the tie bar is at least 0.060 inch in the side slot of the retainer tube and the hooks in the spring end remain in the slot. If the tie bar is too far forward, replace the spring and readjust.



Control Drag Beam Corrosion



The upper section of a Black Hawk's drag beam is a good candidate for corrosion. Moisture seeps in through the jackpad on the fairing and corrodes the beam. Since almost any damage to a drag beam means replacement, corrosion can really cost.

First, check to see if there are any cracks or disbonding in the sealing compound. If there are no signs that water has seeped in, your job is done.

If you think moisture may have seeped in, dry it up like this:

1. Take off the jackpad and wipe the stud and insert threads with cheese cloth, NSN 8305-00-267-3015, dampened with drycleaning solvent, NSN 6850-00-274-5421. Then check the stud for bad threads and make sure the insert is tight.
2. Coat the stud threads with anti-seize compound, NSN 8030-00-597-5367.
3. Reattach the jackpad and torque the stud to 176-194 lb-in.

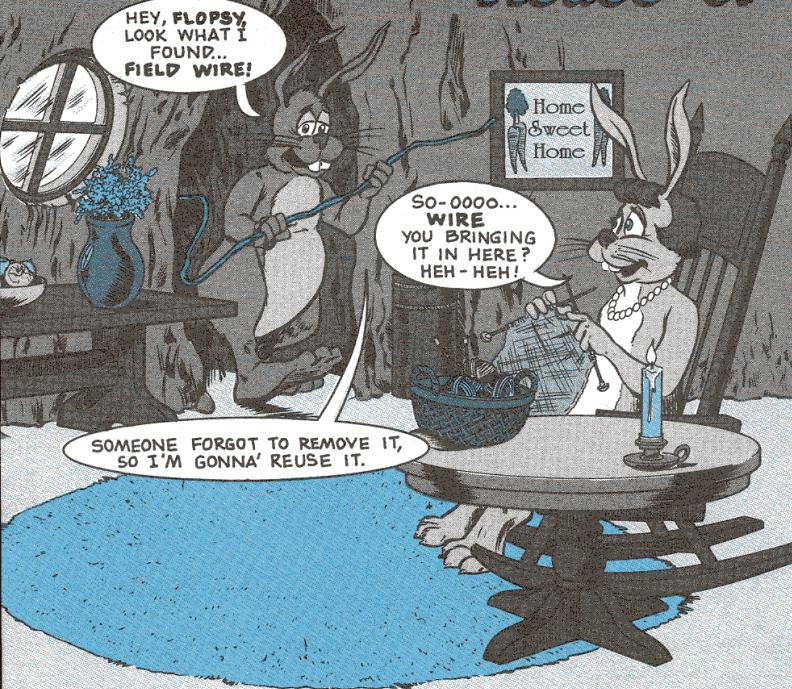
Follow the installation instructions in Para 3-1.6 of TM 55-1520-237-23.

Warning Streamer NSNs

REMOVE BEFORE FLIGHT

Need "Remove Before Flight" red warning streamers? Get a 30-in vinyl streamer with NSN 8345-00-995-7806 or a 30-in nylon streamer with NSN 8345-01-079-1869. Get a 24-in nylon streamer with NSN 8345-00-673-9992 or a 24-in cotton streamer with NSN 8345-00-181-3951. Order a 12-in streamer with NSN 8345-00-123-8973.

Reuse or



You've got to recover WD-1 wire after each use. After recovering it, you either reuse it for a mission or for training purposes, or you send it to disposal.

Recover It

Recover as much wire as you can when you get ready to go back to post.

Wear leather gloves or use pads to protect your skin, and lift the wire off the ground as much as possible to protect its skin.

Before you start to recover the wire, remove all tags, untie the wire lines, and place the wire along the side of the road in the path of the recovering equipment.

When you get time, in the field or at your unit, look over the wire to see what you've got.

Remove

Look It Over

After WD-1 wire is used, you need to service it. Get some help, a couple of reel units, tape and splicing equipment and go through your recovered wire.

Put an empty reel on one reel unit and the reel with the used wire on the other reel unit. Make sure the reel units are far enough away from each other to easily wind the wire on the empty reel.

Put a friend at each reel unit and station yourself in the middle. Inspect the wire closely as it's wound slowly on the empty reel. You can clean the wire as it winds past, too.

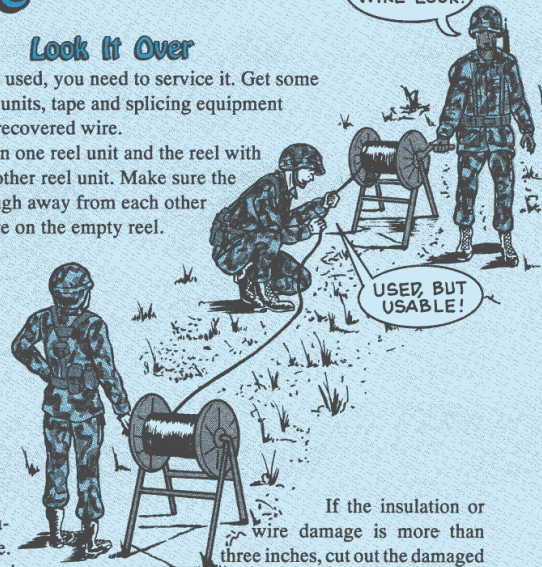
Look for cuts, excessive splices, worn spots, jacket deterioration and other damage.

If the wire has insulation skinned off for three inches or less, but the wire is not broken, cover the exposed wire with TL-636 electrical tape,



NSN 5970-00-685-9059. Use TL-600 electrical tape, NSN 5970-00-240-0620, for cold weather.

HOW'S THE WIRE LOOK?



If the insulation or wire damage is more than three inches, cut out the damaged wire and splice it.

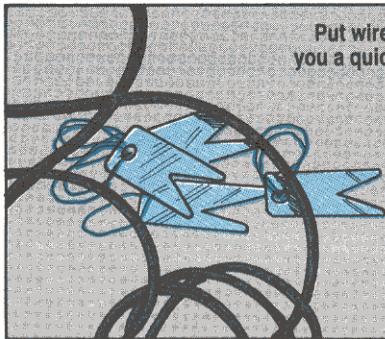
If the wire is broken, splice it. Then wrap it with TL-83 insulation tape, NSN 5970-00-644-3167.

The number of splices and the resistance of the wire tell you the condition of the wire.

Four or less splices in 1/2 mile of wire is OK for mission use as long as the electrical resistance checks out. WD-1 should show no more than 200-230 ohms per mile at 70 degrees F.

More than four splices in 1/2 mile of wire means it can be used for training only. It's ready for disposal if you don't need it for training.

Put wire tags on the spool or reel of wire to give you a quick reference on the condition of the wire. NSNs for a bundle of 50 tags with tie-on wires are:



TAGS	NSN 9905-00-537-
Red	8954
Yellow	8955
Green	8956
White	8957

Remove It

If the wire fails the splice or resistance tests, turn it in. Check with your Defense Reutilization and Management Office (DRMO) for turn-in requirements. Usually, DRMO accepts wire by the bundle, bag or roll.

Instead of measuring the wire, weigh it. One mile weighs 48 pounds.

To reorder wire and reels, use these NSNs:

ITEM	LENGTH	NSN
RL-159 (reel only)	N/A	8130-00-174-0812
RL-159 WD-1A	5,280 ft	6145-01-155-4256
MX-306 WD-1A	2,640 ft	6145-01-155-4257
DR-8 (reel only)	N/A	8130-00-407-7859
DR-8 WD-1A	1,640 ft	6145-01-155-4258
WD-1	5,280 ft	6145-00-220-9933

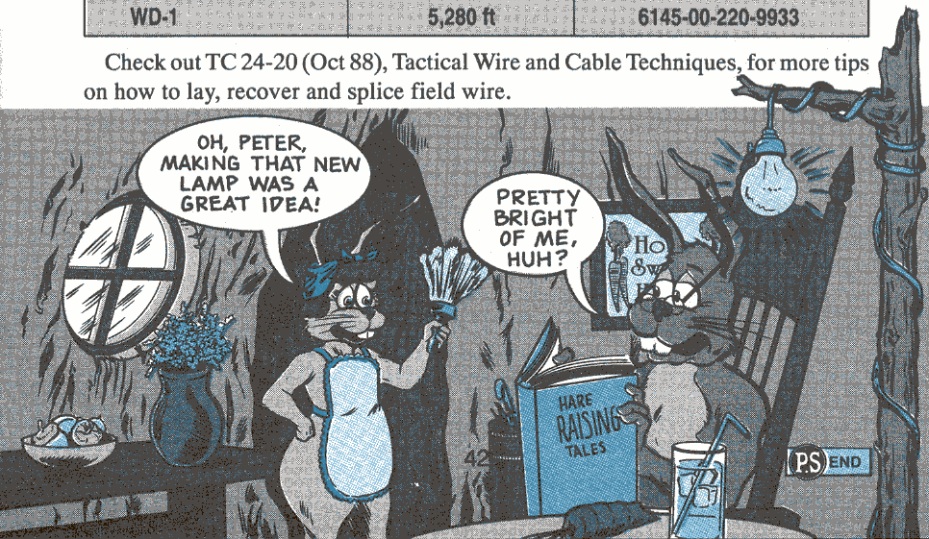
Check out TC 24-20 (Oct 88), Tactical Wire and Cable Techniques, for more tips on how to lay, recover and splice field wire.

OH, PETER, MAKING THAT NEW LAMP WAS A GREAT IDEA!

PRETTY BRIGHT OF ME, HUH?

HARE RAISING TALES

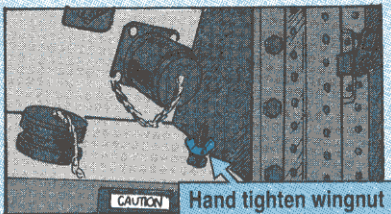
PS END



Hand Tight Is Right



When it comes to the wingnut that attaches the ground strap to your S-250 shelter, hand tight is the right way to go.



Never use pliers or brute force to tighten the wingnut. That breaks the bolt and the grounding wires on the inside of the shelter. Then the ground is no good and you and your equipment are at risk.

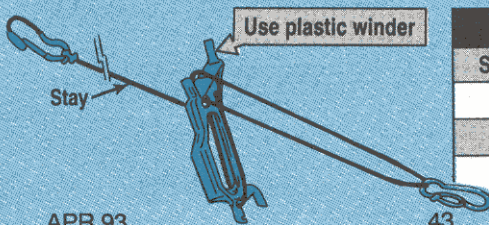
You'll know the bolt is broken inside if it stays loose despite your attempts to tighten it. When that happens, get support to replace the bolt and any broken wires right away.

Mobile Subscriber Equipment ...

Stop Rope Rub-a-Rub-Rub

If you have a metal winder on your AB-1339/G antenna mast, chances are that you also have a frayed rope. Pulling the rope tight against this metal winder rubs the rope raw and eventually cuts it. That lets your antenna down. Solve this problem by replacing the metal winder with a plastic one, NSN 5120-01-343-3326.

If you have metal winder stay assemblies, use them until you replace the assemblies. Then replace them with these plastic winder stay assemblies:

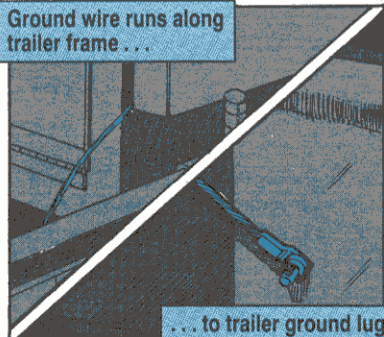


ITEM	NSN
Stay w/winder	5985-01-254-
Black	9560
Blue	9561
Red	9562

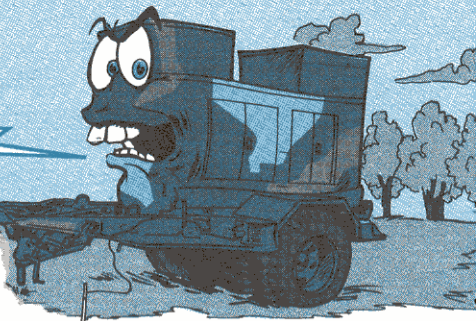
It's the SHOCKING Truth

Many trailer-mounted generators with acoustic suppression kits are not grounded correctly. Shocking!

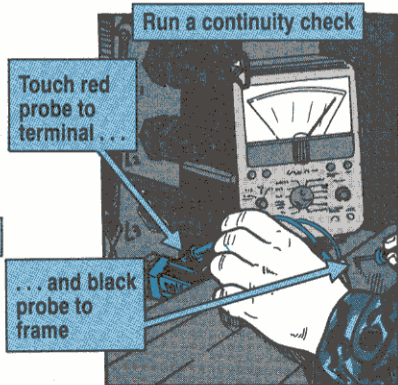
Make sure you have a good ground. Look for a copper ground wire running from the generator ground lug along the trailer frame to the trailer ground lug.



If the wire is missing, have DS install one. You'll need to run another wire from the trailer ground lug to earth ground.



Before you start your generator set, look for loose, broken, or missing ground wires. Also run a continuity check between LO (the grounding terminal on the generator) and the trailer ground lug. Report any problems to your support unit.



And while you're at it, look at the terminals and ground lugs for dirt, grease, corrosion, and paint. They can kill a good connection. Remove dirt and grease with solvent, NSN 6850-00-281-1985. Use sandpaper or a wire brush to get rid of any corrosion or paint.

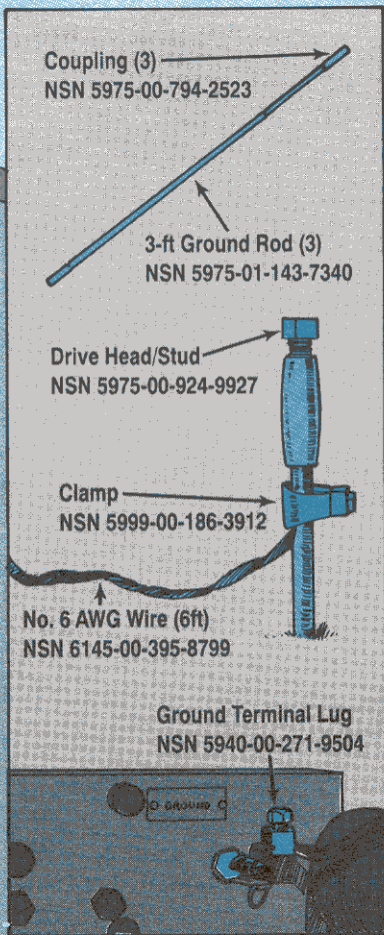
For all the details, see TROSCOM Safety-of-Use Msg 92-02, AMSTR-ME 282245Z Feb 92.

Ground Rods . . .

GROUND ROD PARTS

Ground rod assembly, NSN 5975-00-878-3791, is to protect you and your equipment from electrical shocks. Parts are easily damaged or lost.

If you need repair parts for your ground rod, use these NSNs:



TO MAKE
IT EASIER TO
DRIVE RODS INTO
THE GROUND AND GET
THEM OUT AGAIN,
USE A **SLIDE
HAMMER**,
NSN
5120-01-013-1676

COMMUNICATIONS

SEE...

Fuel Line Rub

I MUST BE HEARING THINGS...
I KEEP HEARING A LITTLE
YELL FOR HELP.

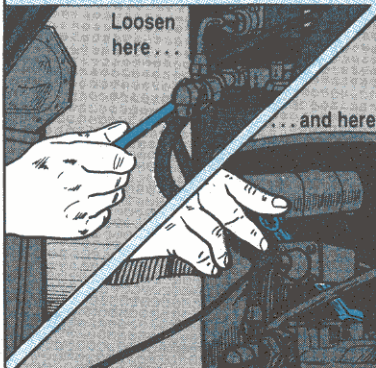
HELP...

... THIS
RUB CAN
TURN INTO A
LEAK AND
REAL TROUBLE.

It's a little too close for comfort between the fuel pressure switch feed line and the hood on some small emplacement excavators. The line rubs against the hood, and too much rubbing leads to a fuel leak above a hot engine!

Get the rub out of any SEEs that show signs of line wear with this quick fix:

✓ Use a $9/16$ -in wrench to loosen the two screw fittings that connect the T-fittings to the pressure switch. Leave the line hooked up.



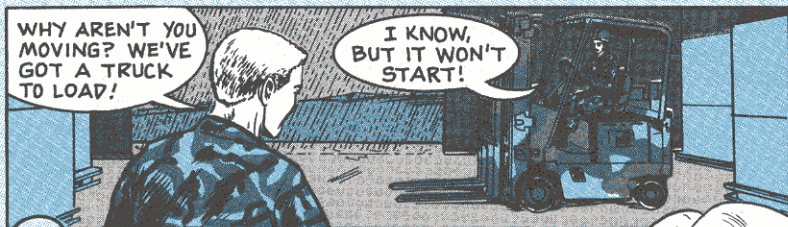
✓ Rotate the pressure switch and fuel line about 45 degrees.



- ✓ Then retighten the two screw fittings while holding the T-fitting in place.
- ✓ Check for leaks.

If the fuel line is damaged, replace it with NSN 4710-01-285-2761. The new line will clear the hood.

Moisture = Bum Switch

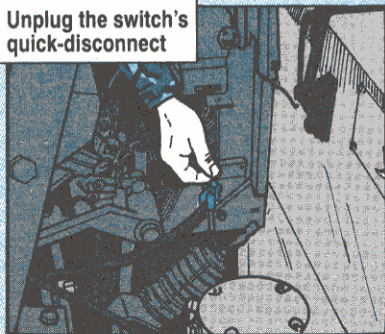


Moisture causes the safety seat switch to short out on the Hyster MHE 262 and MHE 263 electric warehouse forklifts. A bum switch stops the forklift dead in its tracks.

PREVENT THAT BY USING AN IMPROVED MOISTURE RESISTANT SWITCH. HERE'S HOW ...

1. Disconnect the battery.
2. Remove the floor boards.
3. Remove the two nuts and screws that hold the switch in place.

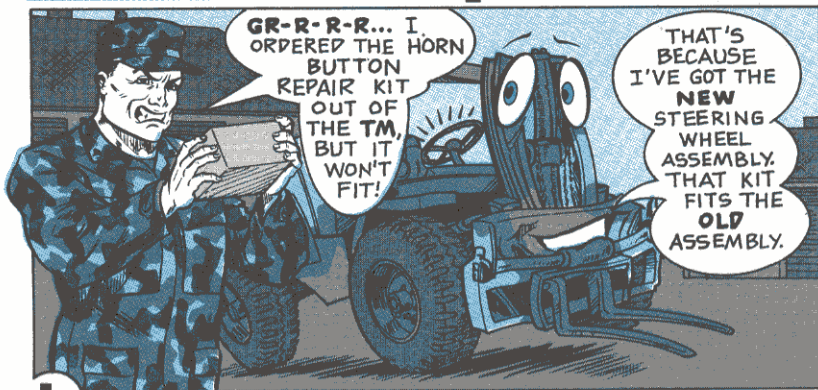
Unplug the switch's quick-disconnect



4. Replace the safety seat switch with a new switch, NSN 5930-01-315-5459, that's moisture resistant.
5. Put everything back together.



Horn Button Repair Kit NSN



If you need a new horn button for your M4K forklift, you'd better know which steering wheel you've got.

For the steering wheel that has part number A65544 stamped on the underside of one of the spokes, you must use only horn button kit, NSN 2530-01-258-5184.

Any other steering wheel takes horn button kit, NSN 2590-00-525-4387.

Unit Shop Set...

NSNs for Welding Wire

Here are the NSNs for welding wire for the new welder, NSN 3431-01-262-3566, in organizational shop set, NSN 4940-01-236-0166, LIN T13152.

ORDER THE SIZE WELDING WIRE YOU NEED WITH THESE NSNs...

NSN 3439-	Electrode, welding	Wire Diameter (inches)	Quantity in spool
01-013-2800	steel	0.030	25 lbs
01-012-1003	steel	0.045	25 lbs
00-885-3638	aluminum alloy	0.047	10 lbs
01-012-6661	aluminum alloy	0.030	10 lbs



Replacement Generators

You can no longer get the engine generator that came on your lubricating and servicing unit. The generator's obsolete.

Don't panic, though. You can get an alternator kit to replace a bum generator.

Use alternator kit, NSN 2920-01-266-0709, for lube and service unit, NSN 4930-00-935-4451. Use alternator kit, NSN 2920-01-271-6205, for lube and service units, NSN 4930-00-548-2766 and 4930-00-842-8315.



OH, NO! MY GENERATOR'S DEAD AND I CAN'T GET ANOTHER ONE!



DON'T PANIC. ORDER AN ALTERNATOR KIT!



Convoy Flag NSNs

YOU'LL FIND JUST ABOUT ALL YOU NEED TO KNOW ABOUT CONVOY FLAGS IN PARA 7A OF AR 55-29, EXCEPT THE NSNs FOR REPLACEMENTS...

HERE THEY ARE...

Flag (Color)	NSN 8345-00-543-
Black & white	6911
Blue	6912
Green	6913

Get the 3-ft flag staff with NSN 8345-00-242-3650.

Keep Track of TPU Fuel

You can get a meter to help keep track of the fuel being used by your tank and pump unit. Order the flowmeter kit with NSN 4930-01-108-9568. It comes with all the hoses and hardware needed for installation and hook up.

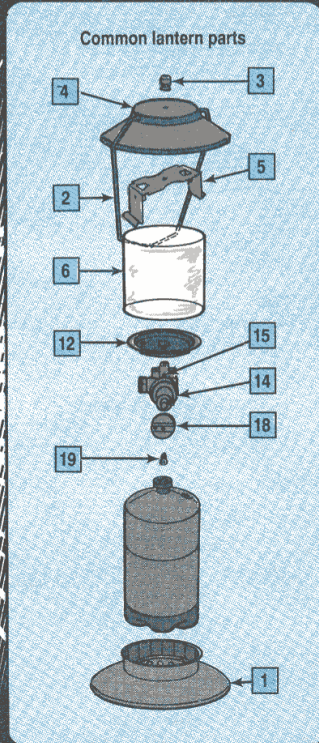


NOW I CAN REALLY GO WITH THE FLOW!

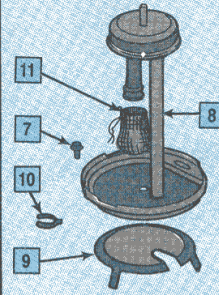
A Bright Idea

Here are the available parts for your Model 5151C700 single mantle lantern, NSN 6260-01-124-7467, and Model 5154B700 double mantle lantern, NSN 6260-01-124-7468.

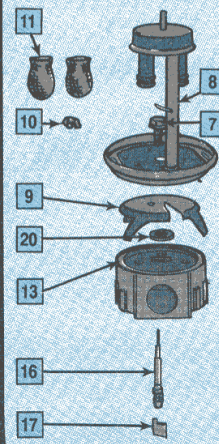
Order these repair parts on DD Form 1348-6 by part number using CAGE 80309 from RIC S9C.



**EITHER . . .
Single mantle parts**



**. . . OR
Double mantle parts**



	KEY ITEM	PART NUMBER/ NSN
1	Lantern Base (Single Mantle) Lantern Base (Double Mantle)	5151B5451 5114G1031
2	Bail (Both)	5114A4231
3	Ventilator Nut (Both)	288-441
4	Ventilator (Both)	5107B4851
5	Bail Bracket (Both)	5152A1041
6	Globe (Both)	6260-01- 340-5360
7	Screw (Both)	5114B060
8	Burner Assembly (Single Mantle) Burner Assembly (Double Mantle)	5151A6621 5154D6621
9	Heat Shield (Single Mantle) Heat Shield (Double Mantle)	5154A1151 5154-1151
10	Spring Clip (Both)	231A3111
11	Mantle (Both)	21A1001/ 6260-00- 270-4060
12	Spacer Plate (Single Mantle) Spacer Plate (Double Mantle)	5152A1601 5154D4601
13	Collar Assembly (Double Mantle Only)	5154-5911
14	Regulator Valve (Single Mantle) Regulator Valve (Double Mantle)	5152A5251 5154-5261
15	Gas Tip (Single Mantle) Gas Tip (Double Mantle)	5107A2181 5152A2181
16	Ignitor Assembly (Double Mantle Only)	5154-5851
17	Cam Follower (Double Mantle Only)	5154-1101
18	Knob Assembly (Both)	5154A1491
19	Knob Screw (Both)	5154D029
20	Washer (Double Mantle Only)	5154-320

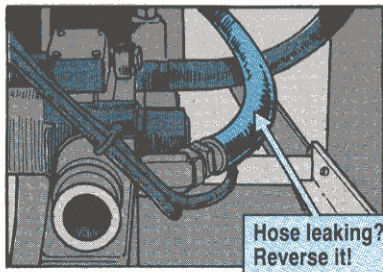
A Fitting Solution

Dear Editor,

The water hose that runs between the water pump inlet and the system pressure regulator valve leaks on our M17 decons.

Usually, this is because the hose fitting at the pump has been tightened too much. This cracks the brass fitting. Water pressure can't be controlled and the M17's out of commission.

Our simple field fix is to reverse the hose. Put the good fitting on the pump inlet. Careful, don't over-tighten the connection. Connect the other end to the regulator valve.



THIS WATER HOSE WON'T STOP LEAKING!

REVERSING THE LEAKING HOSE IS A SIMPLE FIELD FIX.



It has a different kind of fitting that will press together the hose fitting and seal the crack. Teflon pipe tape or cement can also help seal it.

This keeps us in business until support can get a new hose.

CW2 Timothy Weaver
Ft Bragg, NC

FROM THE DESK OF THE Editor

A fitting solution, indeed! Thanks.

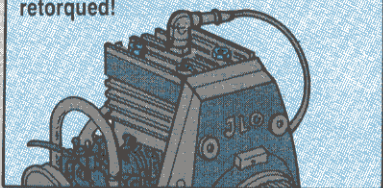
Heads Up on Leaks

Dear Half-Mast,
We've had big problems with
M17 decon head gaskets and
wands leaking. Is there
anything we can do?

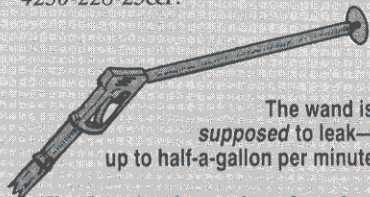
SPC J.H.

Dear Specialist J.H.,
Head gasket problems are probably
caused by loose cylinder head nuts.

Head gaskets leaking?
Get cylinder head nuts
retorqued!



Your mechanic needs to torque the
nuts to 28-32 lb-ft after the first 20
hours of operation and then torque
them again every six months or every
100 hours of operation. The
procedure's on Page 2-42 in TM 3-
4230-228-23&P.



The wand is
supposed to leak—
up to half-a-gallon per minute

The dripping keeps them from freez-
ing up in the cold and helps purge the
system of air when you prime the wa-
ter pump.

Half-Mast

Tighten Loose Belts

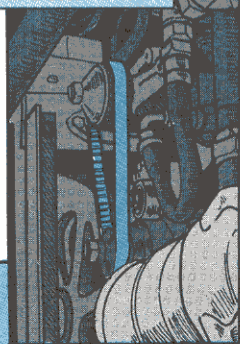
Dear Editor,

Most M17 decons get used and then sit for
several weeks. Without use, the fuel and wa-
ter pump belts stretch and dry rot. Then
when you are ready to operate again, the
belts are shot.

We shot down shot belts by taking off the
three belts when we know we won't be run-
ning the M17 for a while. You can just rotate
the belts on and off the belt pulleys.

SPC Anthony Thomas
Ft Benning, GA

M17 going to sit?
Take off the belts
and store them



FROM THE DESK OF THE *Editor*
Your belt suggestion is a cinch.
Thanks.

M2 Burner Unit

KA-BOOM!

"IF YOU CAN'T STAND THE HEAT..."

When the weather is very hot, hand pump the pressure to 3-5 PSI to leave room for the fuel to expand. Never use a compressor or an auxiliary air supply hose from a vehicle. The high pressure could rupture the tank or send flames shooting up when you adjust the flame valve.

Never put more than one burner in the range cabinet. Operating the range with 2 burners is a sure way to start a fire. Before putting a burner in either cabinet position, make sure the other position is empty.

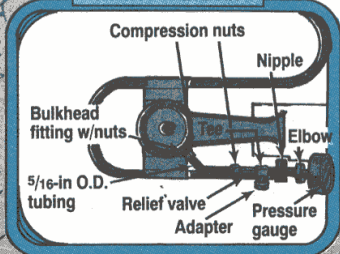
Turn the burner off and let it cool before releasing fuel air pressure. Never bleed off pressure near a lit cigarette or open flame. Even if the tank's bone dry, gas fumes linger—they can explode in your face.

Some air pressure gauges are hard to read. They have small black letters on a plain white face. If you have one, replace it. NSN 6685-00-999-2503 gets you a gauge with a larger face, but it has colored bands. Ignore them. Mark it with semitransparent tape to remind you to keep the pressure at 20 PSI or below.

If your burner unit has no safety valve on the fuel tank, get one. The valve opens if the pressure goes over 60 PSI.

REMEMBER TO FILL THE FUEL TANK AT LEAST 50 FEET AWAY FROM LIGHTING AND COOKING AREAS.

SAFETY VALVE KIT



That can head off an explosion. Get the safety valve kit with NSN 7360-01-343-9014.

Never switch the middle cooking rack with the bottom one. The aluminum middle rack can't take the heat like the steel one on the bottom.

PSI, turn the flame valve knob clockwise and lower the flame to about one-half size. Let it burn that way for half an hour. Check the gauge now and then.

If pressure builds above 25 PSI, shut down the burner. Turn the flame valve clockwise until it's tight. Then take the burner out of the range cabinet. Let it cool before lighting it again.

Before filling the fuel tank, move the burner at least 50 feet away from lighting and cooking areas. Fill the tank full—to the bottom of the filler tube. This'll cut down on condensation, especially in cold weather.

Then, when you pressurize the tank use only the hand pump, NSN 4320-00-852-9036.

Under normal conditions, work the pump until the gauge reads 6 to 8 PSI.

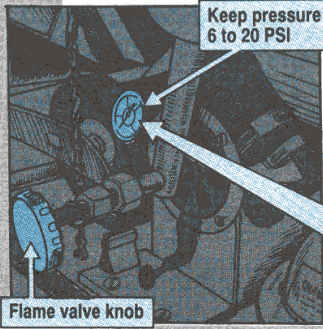
Mark the gauge between 6 and 20 PSI with semitransparent green tape, NSN 7510-00-550-7129

Stay out of the kitchen unless you're prepared to keep an eye on the M2 burner unit's air pressure gauge.

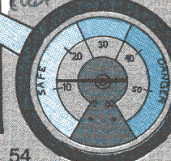
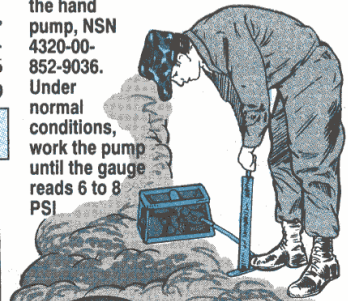
Pressure above 25 PSI fans a flame that's way too hot. We're talking heat that'll burn your chow, and maybe even melt the cooking racks. Worse yet, the fuel tank can overheat and set off a deadly explosion.

So pay attention to the pressure gauge, even if your M2 has a safety valve. Make sure the gauge reads between 6 and 20 PSI. If pressure inches past 20

Keep pressure 6 to 20 PSI



Flame valve knob



Sign Painting Components

You can no longer get sign painting set, NSN 7520-00-375-9181, but you can order the components.

Here are the NSNs:

1 Putty Knife
NSN 5120-00-221-1536



1 Stencil Set, marking, 1/4-in
NSN 7520-00-272-9680

1 Stencil Set, marking, 3-in
NSN 7520-00-272-9683

1 Stencil Set, marking, 5-in
NSN 7520-00-272-9684



1 Shipping Crate
NSN 8115-00-222-3715

1 Artist Brush, 1/8-in
NSN 8020-00-240-6361

1 Artist Brush, 1/4-in
NSN 8020-00-240-6362

8 Artist Brushes, 3/8-in
NSN 8020-00-224-8006



1 Coating Compound Kit
NSN 8010-00-664-0019

THESE
SIGNS
LOOK
GREAT!

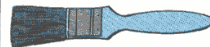
PMDUZIT

8 Metal-Bound Brushes, 3-in
NSN 8020-00-597-4770



2 Varnish Brushes, 2-in
NSN 8020-00-260-1304

4 Varnish Brushes, 1-in
NSN 8020-00-260-1306



20 Sheets of Board
for Stenciling,

8-in x 24-in

NSN 9310-00-160-7853

IT WAS
EASY BECAUSE
I HAD THE
RIGHT
TOOLS!

1 Qt Black Enamel
NSN 8010-00-527-2053*

1 Qt Red Enamel
NSN 8010-00-527-3199*

1 Qt White Enamel
NSN 8010-00-515-1596*

1 Qt Yellow Enamel
NSN 8010-00-286-7758*



Linseed Oil, 1 gal
NSN 8010-00-152-3245*



Turpentine, 1 gal
NSN 8010-00-246-6443*



Varnish, 1 gal
NSN 8010-00-160-5852*

*Order these items separately,
as needed, due to their
short shelf life.

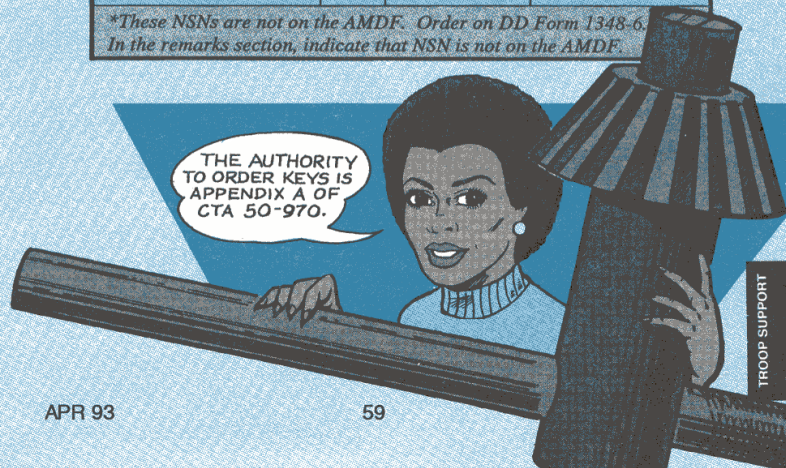
DRILL CHUCK KEYS

An electric drill's not much use without the chuck key. The key tightens the chuck around the drill bit, holding it firm. Keys are either standard or self-ejecting, depending on the style of chuck. Look on the chuck for the manufacturer's name and model number. Then order by NSN from this table:

Drill Chuck Key NSNs			
CHUCK MFRG/NUMBER	KEY #	NSN, STANDARD 3460-	NSN, SELF-EJECTING 3460-
Jacobs 1A, 1B, 1BS, MC1, MC1AD, 1M, 1MB Supreme 1J, 1A, 1T1, S1A, H1A, HM1A	K1	00-264-5577	01-018-4217
Jacobs 2A, 2B, MC5 Supreme 2A, 2B, 2TB, 2T2, H2A	K2	—	01-018-4218* [GSA, \$4.20]
Jacobs 3, 3A, 3B, 3AE, 3KD, 3PD, 3A, 34B, 34KD, 34KP, 6A, 6B, 6AE, 6A-2A, 6A-33, 14N, 55B, 56B, 58B, 75A	K3	00-264-5580	—
Jacobs 633C, 633D Supreme 6T33E	K3C	—	01-018-4220
Jacobs 16N, 18N, 36, 36B, 36E, 37, 37KD, 37PD, 59B	K4	00-144-2048	—
Jacobs 20N Supreme 26T5	K5	00-144-2049	01-018-4226
Jacobs 7, 7B, 7BA, 7-1A Supreme 4A, 4B, 4C, 4T1, 4T2	K7	00-293-1623	01-018-4221
Jacobs 30, 30A, 30B, 31B, 31BA, 8½N, MC4 Supreme 7A, 7B, 7T1, 7T2, H13A, H13B, B14T33	K30	—	01-018-4222
Jacobs 11N, 32, 32B, 32BA, 33B, 33BA, 33F, 3326A, 33KD	K32	00-203-6660	—

CHUCK MFRG/NUMBER	KEY #	NSN, STANDARD 3460-	NSN, SELF-EJECTING 3460-
Jacobs 3333C Supreme 5T33C, 15T33C	K32C	01-014-8626* [GSA, \$6.69]	01-018-4224
Jacobs 72G, SM4G61, MC2, H1, H4, U4, MC1, MC51, DC1, DC4, MC1G61, MC1G41, U4G61, U4G41, U4G60 Supreme BM1A, B1A, B80A, BM80A	KG	—	01-018-4227
Jacobs 74K, 76K, 77K, SMB, DC8, MC4K61, MC4K01, MC4K41, MC8K64, MC8K33, KC8K61, U8K61, U8K64, U8K33 Supreme B13A, BM13A, B14B, B14T33, B16A, B16B, B16T33	KK	00-264-5578	01-018-4228* [GSA, \$5.76]
Jacobs MC10R64, MC33R33, MC8K26	KR	—	01-018-4229* [GSA, \$5.13]

*These NSNs are not on the AMDF. Order on DD Form 1348-6. In the remarks section, indicate that NSN is not on the AMDF.



Pop Rivet Poop

You probably already know that the hand blind "pop" riveter in the No. 1 Common shop set is handy to have around. But you may not know that only five different sizes of rivets are listed in SC 4910-95-CL-A74.

You can get lots more pop rivets. Here are some other sizes of plain head, self-plugging blind rivets that are available:



1/8 inch diameter		
Grip Length	NSN 5320-	Qty
1/16-1/8	00-510-7823	100
1/8-3/16	00-904-4136	100
3/16-1/4	01-015-6896	100
1/4-5/16	00-052-1972	100
5/16-3/8	00-903-8778	100
3/8-1/2	00-824-4760	100

3/16 inch diameter		
Grip Length	NSN 5320-	Qty
1/16-1/8	00-408-6073	100
1/8-1/4	00-493-4101	100
1/4-3/8	00-409-6841	100
3/8-1/2	00-408-9928	100
1/2-9/16	00-753-3809	100



★
Connie's
★
POST
★
SCRIPTS

M1022's TM Is Wrong

Pulling the M1022 dolly set requires at least a 5-ton truck. So pay no attention to Page 1-11 of TM 9-2330-379-14&P where it says you can use a 2 1/2-tonner. A 2 1/2-ton truck should never be used to pull a 7 1/2-ton dolly set.

M1022 Dolly Set Gasket NSN

The NSN for the hub and drum assembly gasket that's shown as Item 11, Fig 12 of TM 9-2330-379-14&P is no longer available. Order a replacement gasket with NSN 5330-00-427-2287.

Tie Rod Bolt Torque

The correct torque for M44A2-series 2 1/2-ton truck tie rod end bolts is 170 lb-ft. That means the information on Page 9-13 of TM 9-2320-361-20 that specifies 60 lb-ft torque is wrong. Go with the 170 lb-ft shown on Page 9-16 of the same TM. Make a note until the TM is changed.

M939-Series LO Change

Lubing the front axle shaft U-joint and steering knuckle bearings on your 5-tonner is a yearly job now. The headshed is changing LO 9-2320-272-12's interval from 6,000 miles or semiannually to 12,000 miles or annually. Get your commander's OK to proceed until the LO's updated.

M4K Steering Wheel NSN

You can now get a better steering wheel assembly for the M4K RT forklift with NSN 2530-01-139-4726. The NSN's not on the AMDF, so order it on a DD 1348-6 from RIC S9C. Note in the Remarks column that "NSN is not on the AMDF."

Wrecker Fuel Can Bracket

The fuel can bracket assembly for your M543-series wreckers is NSN 2590-00-473-6331. It was left out of TM 9-2320-211-20P. The base, NSN 2590-01-168-1489, and strap, NSN 2540-00-968-4060, can be ordered separately as repair parts.

Bum Aircraft Grease

Aircraft grease, NSN 9150-00-935-5851, made under Contract No. DLA 400-92-C-5021, breaks down over time and must not be used. Check your stock for grease with this contract number. If you find any of these lots—0292012, 0715022, 0511022, and 0715022, 0511022, and 0577022—don't use it. Send a Quality Deficiency Report (QDR), SF 368 to:

Defense General Supply Center
ATTN: DGSC-QED
Richmond, VA 78241-5000

This is spelled out in ATCOM Msg AMSAT-C-XS 111847Z Dec 92.

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

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