

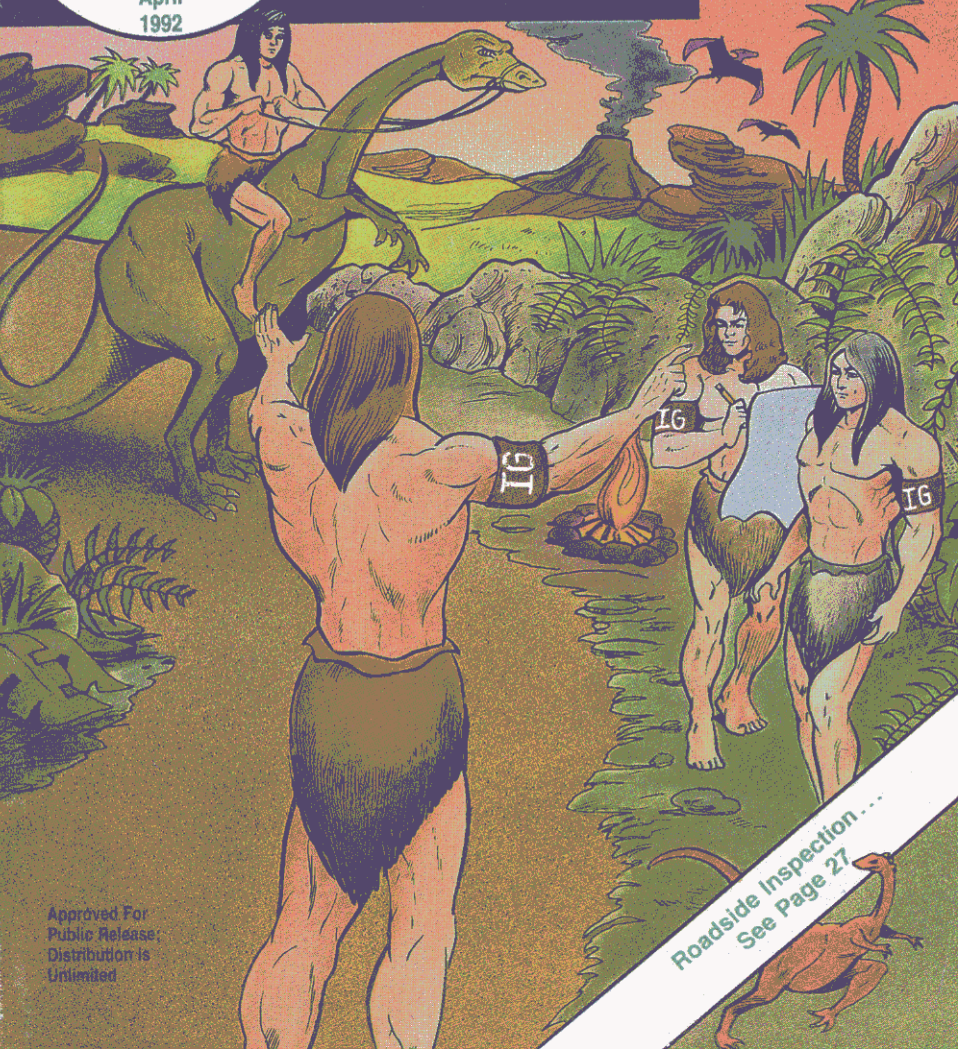
Issue 473

PS

April
1992

THE PREVENTIVE MAINTENANCE MONTHLY

TB 43-PS-473



Approved For
Public Release;
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Roadside Inspection...
See Page 27

Short Cuts Lead to Detours

If you're going from Point A to Point B and the map shows the quickest way to go is Route 1, you'd be foolish to head off on Route 2 or Route 3. That would only make your trip longer and waste your valuable time.

Following the troubleshooting steps or diagrams in your equipments' TMs is like following the map. The steps are arranged according to probability. That means if your machine gun won't chamber and the first step in the troubleshooting chart says "check for ruptured cartridge case," ruptured cartridge cases are the most likely cause. The next step is the next most likely cause.

WE'RE STEPPING IN THE RIGHT DIRECTION!

HEY, SOLDIER! THIS IS THE RIGHT PATH TO TAKE!

BUT THIS IS A SHORT CUT.

DETOUR

APR 92

In other words, the troubleshooting steps are taking you the quickest route to the solution.

If you skip around among the steps, you're not taking shortcuts to the solution, you're making detours.

Follow the troubleshooting steps like you do a map. You'll get to your destination faster.

APR 92

PS

THE PREVENTIVE MAINTENANCE MONTHLY

TB 43-PS-473, The Preventive Maintenance Monthly, is an official publication of the Department of the Army, providing information for all soldiers assigned to combat and combat support units and all soldiers with unit maintenance and supply duties. All information published has been reviewed and approved by the agency responsible for the equipment, publication or policy discussed. Application of the information is optional with the user.

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

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What SOUs Should Mean to You

A safety-of-use message (SOU) is not just another piece of paper. It directs you to do something to avoid danger to crew and equipment.



Unfortunately, many maintenance facilities never see SOUs, don't understand what they're supposed to do with the information, or don't keep track of whether they're being followed. In too many instances, equipment damage and personal injury result from these problems.

Here's a rundown of SOUs and what they require, plus some suggestions on how to get and handle them:

Types of SOUs

Emergency—these SOUs make equipment immediately NMC because of deficiencies that can cause personal injury or equipment damage. Equipment remains NMC until modified through an emergency modification work order (MWO).

Operational—these SOUs change the way you operate your equipment or set limits on what you can and can't do with your equipment.

The restrictions stay in effect until the problem is corrected by a limited urgent MWO.

Technical—makes NMC all or part of your equipment that has materiel or maintenance deficiencies. It remains NMC until the problem is corrected by an urgent MWO.

One-time inspection—may be categorized as "emergency" or "limited".

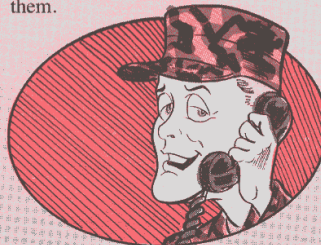
—Emergency one-time inspection SOUs immediately make NMC specific fleets of equipment. If the specified discrepancy is not found in the inspection, the equipment is good to go. If the problem is found, the equipment is NMC until the discrepancy is eliminated.

—Limited one-time inspection SOUs don't immediately make fleets NMC. Only the equipment found to have the specified discrepancy is NMC.

Advisory—contains new operating or maintenance info the operator or mechanic needs. These SOUs don't make equipment NMC or require immediate inspection or maintenance.

How to Get SOUs

If you do not get SOUs (they should come thru regular chain of command routes), contact your DS unit, the Logistics Assistance Office (LAO) or Safety Office. Make sure **someone** sends you SOUs every time they get them.



You might also consider sending a message or memo to the headquarters that sends the SOUs, asking that your unit be included as a specific addressee for SOUs.

How to Handle SOUs

Many times SOUs don't get into the right hands locally because the recipients don't know whom to give them to for action. The best thing to do here is to officially designate one person or office to clear all SOUs that come in. In addition to giving a copy to whoever will complete the action, the designee must also give a copy to the unit commander.

Commanders must get SOUs so they know about the problem, and what must be done to comply with the mes-

sage. They must make sure the equipment is good to go, which they can't do if they don't know there's a problem.

Because SOUs have varying life-spans, there must be some kind of file system used to keep them on record. File copies must be kept at the receiving office and at the action level.

At the unit level, you might consider a file folder on each piece of equipment with a note or memo in the folder. Or you could make a small pencil note in the Remarks block of DD Form 314.

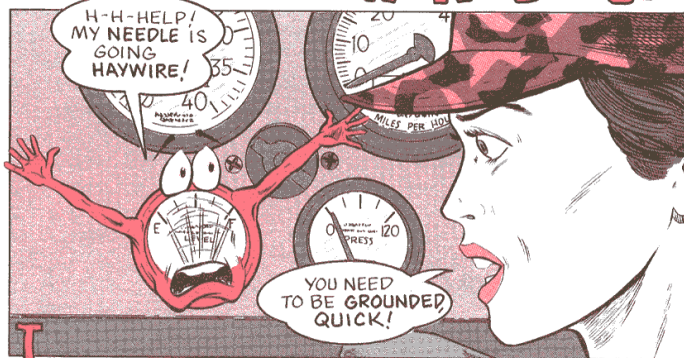
Either way, include the command issuing the SOU and the SOU's number. Then new unit personnel can track what's happened to equipment previously.

Whatever method you use to get, use and handle SOUs, be sure to follow the info in the messages. It can prevent equipment damage and maybe save a life—even yours.

Once you've complied with an SOU, record it on forms and records as called for in DA Pams 738-750 and 738-751.



In Need of a Good Ground



Think twice before tossing out that bum electrical gage. Could be the gage is not getting a good ground. A good ground separates an accurate reading from one that leaves you guessing.

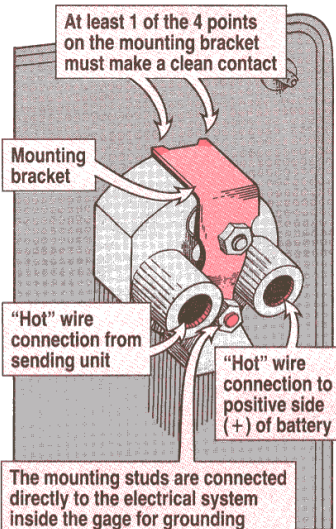
That same ground is like a "second wire" in DC (direct current) electrical systems. It completes the electrical circuit.

The battery's negative terminal is connected to the chassis—usually to the vehicle's frame—by a wire.

This means all of those electrical components with chassis ground are connected to the battery's negative terminal through the chassis.

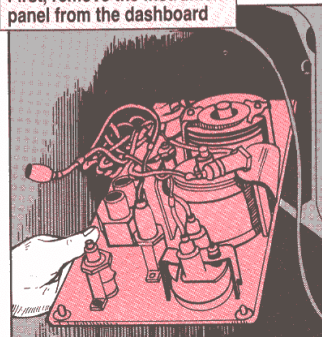
Anything between the metal chassis and ground connection, like rust, corrosion, even moisture, stops the flow of electricity to the gages. The gages will give a false reading or won't work at all.

Your vehicle's fuel gage, for example, is connected internally to the ground by a mounting bracket. It must make solid contact with clean, bare metal.



Not sure if you've got a bum gage? Here's the low down on finding out what's what.

First, remove the instrument panel from the dashboard



Set your multimeter to the lowest ohms scale and adjust to zero.

Measure resistance between the gage's mounting bracket and the panel. Touch one probe to the bracket and the other to the panel where they meet. A "0" reading means the bracket and the chassis have a good connection.

If you get any other readings, remove the bracket. Scrape off any paint, corrosion or dirt that's built up on the panel. Put the bracket back on and try the test again.

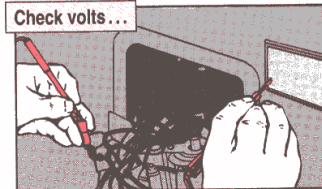
Multimeter still giving bum readings? Do this:

~~✗~~ Touch one probe to the bracket and the other to the bracket's attaching stud. A "0" reading means you have a good connection. With any other reading, clean the stud, washer and bracket

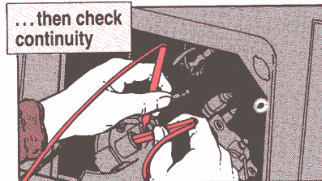
and try the test again. Still a no-go? Try this:

~~✗~~ Turn the ignition switch ON.
~~✗~~ Set your meter to voltage and set the meter voltage range selector switch to the correct range.

Check volts...



...then check continuity



~~✗~~ Pull the hot wire (+) off its terminal. Touch the meter's positive probe to the hot wire and ground the negative probe to metal. If the needle registers voltage, test the gage for resistance.

~~✗~~ Move the meter's switch to ohms. Disconnect the sending unit wire from its terminal on the gage.

Do a continuity test by touching one probe to the positive terminal and the other probe to the sending unit terminal on the gage. If the needle moves to "0," the gage is OK. The problem's the sending unit circuit.

If the needle stays still or flickers, the gage's defective. Replace the gage.

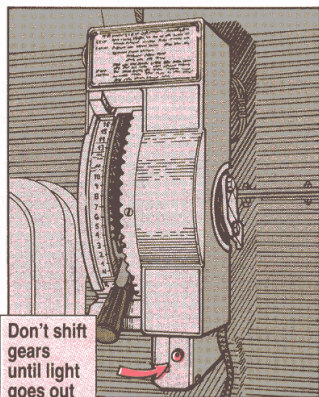
Shifty Gamblers Beware

The stakes are high when you gamble on when and how to shift your big rig.

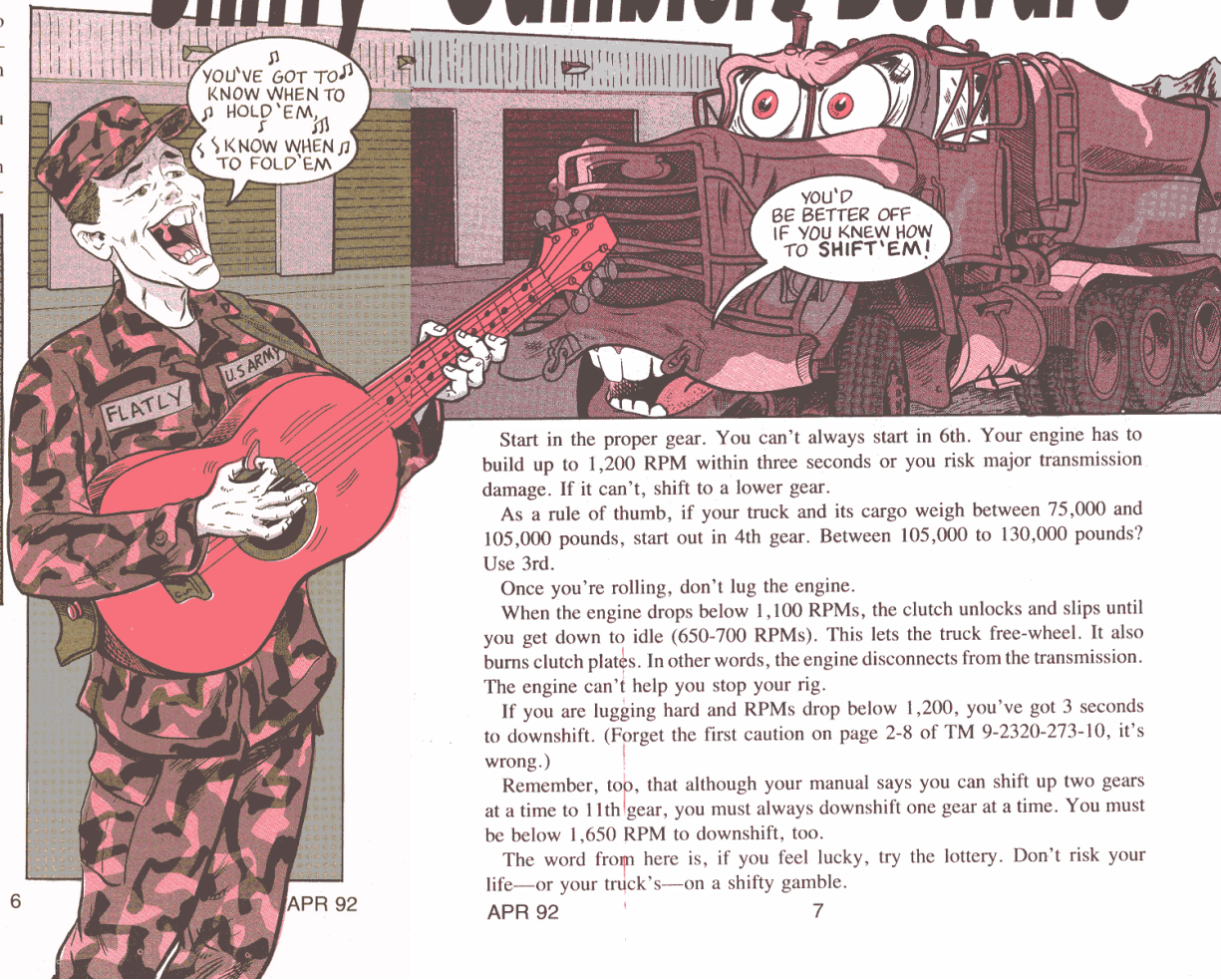
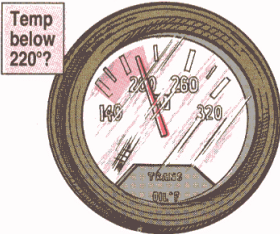
Pick the wrong gear, take off too quickly, let the engine's RPMs lag—and your little gamble can lose you an expensive clutch or transmission.

So, like the song (almost) says, you got to know when to shift 'em.

Never shift until the transmission console's indicator light goes out. Eye-



ball the transmission oil temperature gage, too. Anything up to 220° is OK.



Start in the proper gear. You can't always start in 6th. Your engine has to build up to 1,200 RPM within three seconds or you risk major transmission damage. If it can't, shift to a lower gear.

As a rule of thumb, if your truck and its cargo weigh between 75,000 and 105,000 pounds, start out in 4th gear. Between 105,000 to 130,000 pounds? Use 3rd.

Once you're rolling, don't lug the engine.

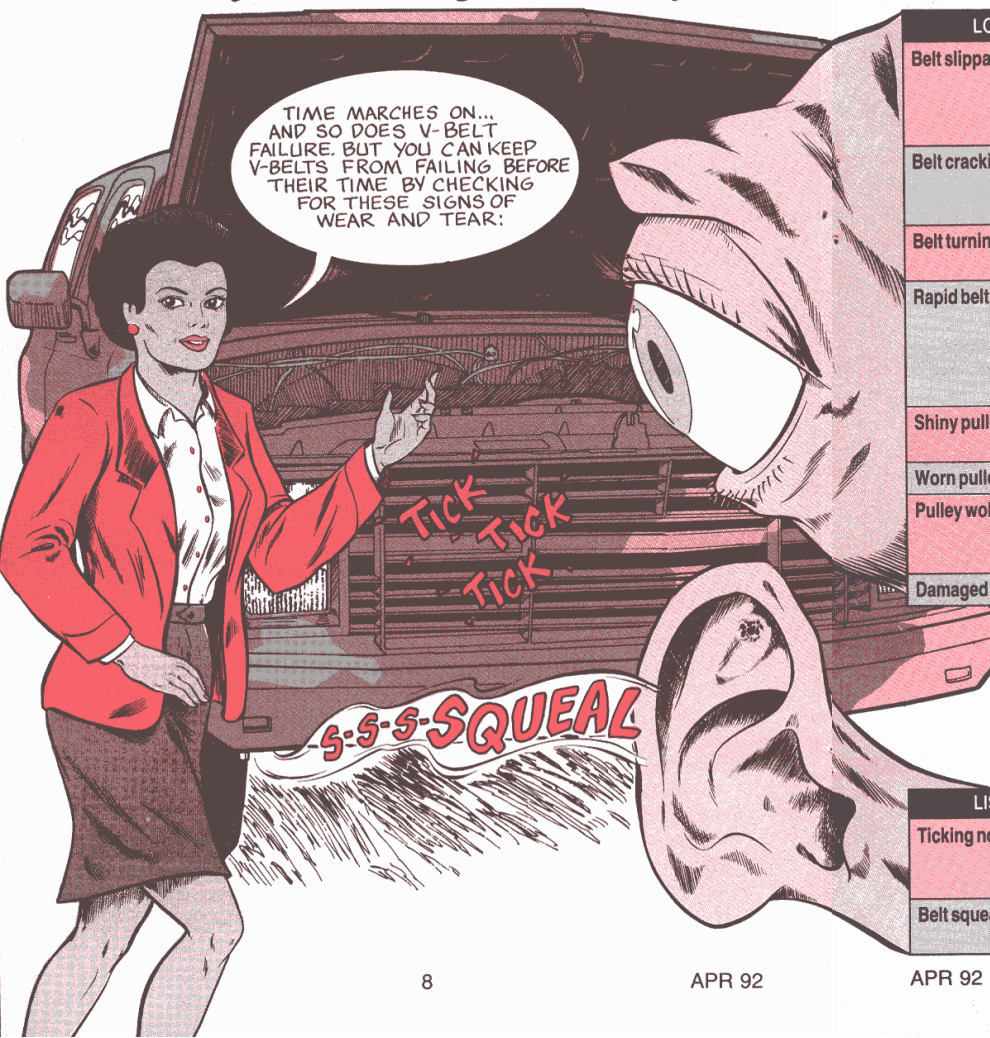
When the engine drops below 1,100 RPMs, the clutch unlocks and slips until you get down to idle (650-700 RPMs). This lets the truck free-wheel. It also burns clutch plates. In other words, the engine disconnects from the transmission. The engine can't help you stop your rig.

If you are lugging hard and RPMs drop below 1,200, you've got 3 seconds to downshift. (Forget the first caution on page 2-8 of TM 9-2320-273-10, it's wrong.)

Remember, too, that although your manual says you can shift up two gears at a time to 11th gear, you must always downshift one gear at a time. You must be below 1,650 RPM to downshift, too.

The word from here is, if you feel lucky, try the lottery. Don't risk your life—or your truck's—on a shifty gamble.

Take Time for V-Belt Checks



TIME MARCHES ON...
AND SO DOES V-BELT
FAILURE. BUT YOU CAN KEEP
V-BELTS FROM FAILING BEFORE
THEIR TIME BY CHECKING
FOR THESE SIGNS OF
WEAR AND TEAR:

TICK
TICK
TICK

S-S-S-SQUEAL

LOOK FOR:	CAUSE	SOLUTION
Belt slippage	Tension too loose Oily, greasy belt Worn pulleys Overload	Increase tension Replace belt Replace pulleys Get right belt
Belt cracking	Belt slipping Overheating	Increase tension Proper ventilation, check belt guards
Belt turning in groove	Broken cords in belt Overloaded drive	Use new belt Use correct belt
Rapid belt wear	Belt installed incorrectly Tension too tight Mismatched belts (in set) Pulley misaligned Overloaded drive	Install new belt right Adjust tension Replace with matched set Align or replace pulley Use correct belt
Shiny pulley-groove bottom	Belt is bottoming in the groove or pulley's worn	Replace belt or pulley
Worn pulley	Worn pulley sidewalls	Replace pulley
Pulley wobble	Shaft bent, worn bushing, improper installation Pulley bent	Correct defects, reinstall pulley Replace pulley
Damaged pulley	Bent, chipped pulley	Replace pulley

NEVER CHECK
BELTS WHILE THE
ENGINE IS
RUNNING.



LISTEN FOR:	CAUSE	SOLUTION
Ticking noises	Belt rubbing or striking a belt guard	Check belt-guard clearance and remove obstacles
Belt squeal	Overload Loose belt	Get proper belt Tighten belt

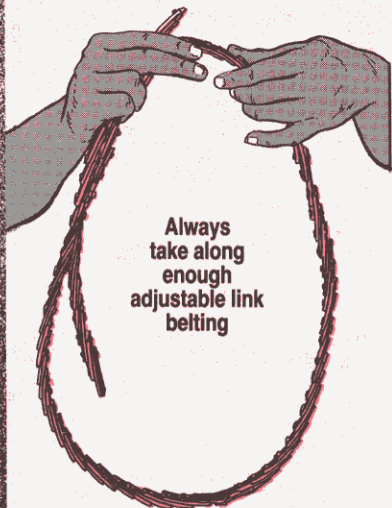
V-BELTS

for an Emergency



There's no good reason for being stranded out in the boonies because of a broken V-belt.

With your CO's OK, every truck can carry enough adjustable link belting to make a temporary emergency repair.



Always
take along
enough
adjustable link
belting

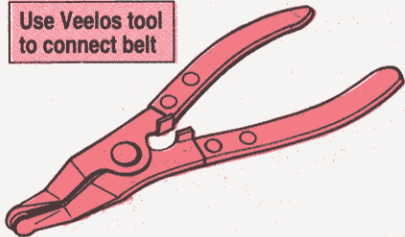
Here's what's needed:

Belting width	NSN 3030-00-
$\frac{3}{8}$ inch	224-8357
$\frac{1}{2}$ inch	224-8358

The instructions for making the belt the correct length come with the belting.

Get a tool to connect the belting with either CAGE 76157, PN Veelos Tool, or CAGE 24161, PN 7469-700. Order the tool on a DD Form 1348-6 by using the CAGE, part number and RIC S9C.

Use Veelos tool
to connect belt



You don't need the tool, but it makes connecting the belting a lot easier. A screwdriver can also be used to spread the link slot.

HEMTTs...

Rear Axle Clatter Chatter



Dear Connie,

Help me pass the word.

HEMTT drivers are asking what that sharp popping noise is coming from the rear axles on their HEMTTs.

What they're hearing is nothing to lose sleep over. The HEMTT's outer wheel rotates faster than the inner wheel when turning a corner. As torque builds up between the clutch plates in the differential, the plates will "pop" to help release torque pressure.

Thanks.

Ms Patricia Grashik
TACOM Equipment Specialist

Consider it done.

Connie

Tactical Vehicles...

Brake Hose Check

Your truck's TM says to check the flexible hydraulic brake hoses during PMCS. However, the TM doesn't say how to check them.

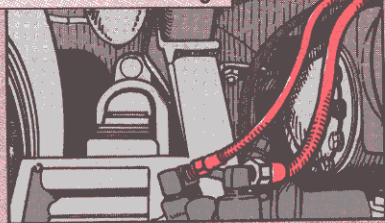
Semiannually, eyeball the brake hose where it's close to the frame. Look for wear, pinching or a cramped position.

Replace the hose if it is cracked, scraped, crimped, or its outer casing is worn down to the first ply of fabric.

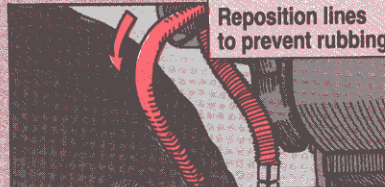
Reposition the hose if it's still serviceable.

TB 9-2300-405-14, Mandatory Brake Hose Inspection, and Replacement—Tactical Vehicles, has the info.

Check lines for damage



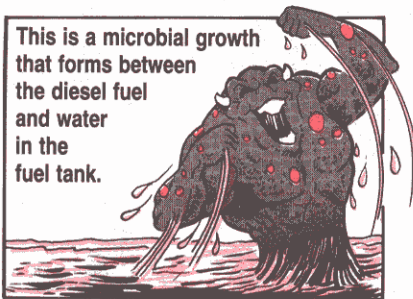
Reposition lines to prevent rubbing



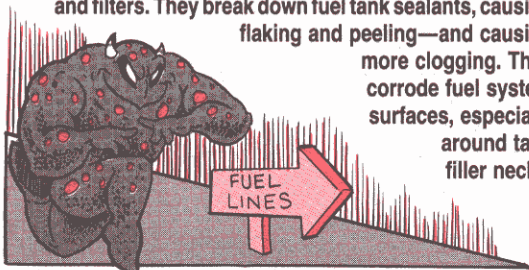
See Sludge and Slime?

If your equipment sits idle for one... two... three months or longer, you're going to see sludge and slime in your fuel.

This is a microbial growth that forms between the diesel fuel and water in the fuel tank.



Sludge and slime clog up fuel lines, injectors, pumps and filters. They break down fuel tank sealants, causing flaking and peeling—and causing more clogging. They corrode fuel system surfaces, especially around tank filler necks.



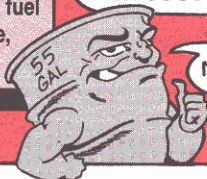
To keep sludge and slime out, flush and clean your fuel tanks and replace fuel filters.



After the fuel tank's clean, add diesel fuel stabilizer additive, MIL-S-53021.

GET A 5 GALLON CAN WITH
NSN 6850-01-246-6544

OR A 55 GALLON
DRUM WITH
NSN 6850-01-246-6545.



The stabilizer slows fuel breakdown, kills microbial growth and inhibits rust and corrosion.

Here's how to mix it:



One gallon of
additive to 3,500
gallons of fuel.

or

3½ ounces of
additive to 100
gallons of fuel.
(3½ ounces will
fill about half
of a styrofoam
coffee cup).

Make sure your tank's half full before adding the additive.



LOOKS
HALF EMPTY
TO ME!

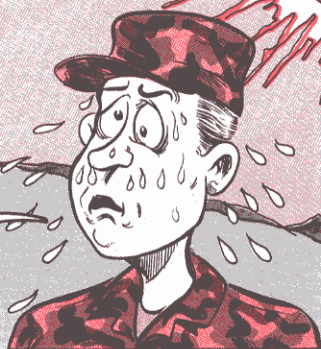
This additive won't take out the sludge and slime that's already in your fuel tank. But it will prevent all that crud from growing in diesel fuel in the first place.

CUCV...

Cool It with Sliding Windows



DOES YOUR
M1009 TURN INTO
A SAUNA IN THE
SUMMER?



Have your DS shop replace your one-piece rear side windows with a sliding glass version.

Kits are available for both side windows. The left side is PN 14027457; the right is PN 14027458. Both use CAGE 11862. The RIC is S9C.

Installation instructions are in Para 10-4 of TM 9-2320-289-34 (Jan 89).

HMMWV...



Bushing NSN

Use NSN 5365-01-213-5739 to order the rubber bushing for the HMMWV's deep water fording exhaust pipe. The NSN is wrong in TM 9-2320-280-20P.

Siren/Light Info

The procedures for installing a siren and warning light assembly on M1025 and M1026 ambulances are missing from the -20 TM. But you can find the word in Para 3-12(d) of TACOM EIR Digest, TB 43-0001-39-5 (Dec 91).



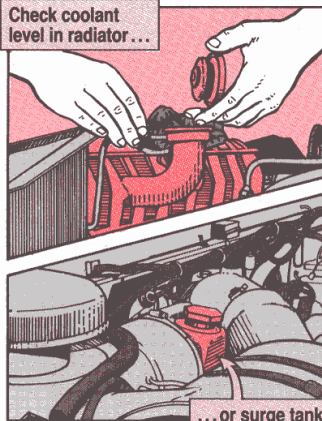
Cool Enough

COOLANT KEEPS YOUR ENGINE COOL IN THE SUMMER, KEEPS IT FROM GETTING TOO COOL IN THE WINTER, AND HEADS OFF CORROSION ALL THE TIME.

That is, it does those things if you remember to check it as your PMCS says, and keep it at full strength.

So, check your vehicle's coolant levels during your PMCS. If your vehicle has a surge tank, the coolant should be at the cold fill or cold normal line. If there's no surge tank, the coolant should be no more than an inch below the filler neck in the radiator.

Check coolant level in radiator...



...or surge tank

Here's a special reminder for vehicles returning from Desert Storm. Many vehicles are showing up with contaminated coolant or too little freeze protection. If yours is one, replace the coolant ASAP.

Keep Everything Cool

IF IT NEEDS COOLANT, REMEMBER:

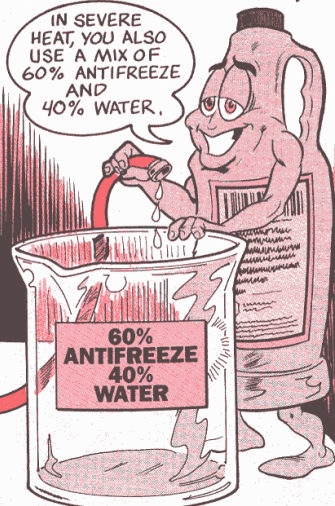
- ADD COOLANT ONLY WHEN THE ENGINE IS COOL. COLD LIQUID IN A HOT ENGINE CAN CRACK A BLOCK OR BURST A RADIATOR SEAM.
- NEVER OVERFILL. WHEN THE LIQUID HEATS, IT WILL EXPAND AND OVERFLOW.
- USE AT LEAST A 50/50 MIX OF ANTIFREEZE AND WATER UNTIL THE OUTSIDE TEMPERATURE REACHES -10 DEGREES F. THEN INCREASE THE MIX TO 60/40 ANTIFREEZE TO WATER.

When extended periods of -40°F are expected, change to undiluted arctic-type antifreeze (MIL-A-11755). NSN 6850-00-174-1806 brings 55 gallons.



For Ya? Good!

IN SEVERE HEAT, YOU ALSO USE A MIX OF 60% ANTIFREEZE AND 40% WATER.



That's because antifreeze can raise the point at which coolant will boil. With a mix of 60 percent antifreeze and 40 percent water you gain 4 degrees over a half and half mixture.

If you want to check the strength of your antifreeze, use the battery/antifreeze tester, NSN 6630-00-105-1418, in the No. 1 Common shop set, or the

Test for freeze protection

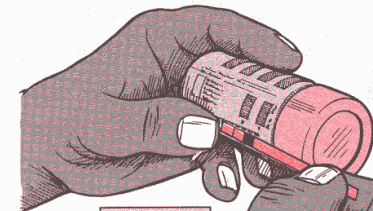


antifreeze test kit, NSN 6630-01-011-5039, listed in Para 2b, TB 750-651, Use of Antifreeze Solutions and Cleaning Compounds in Engine Cooling Systems.

Protected From Corrosion?

If you're happy with the freeze point, check reserve alkalinity (corrosion protection), using the antifreeze test kit. Remember, tho, it's only for military antifreeze, MIL-A-46153, not for commercial or arctic types.

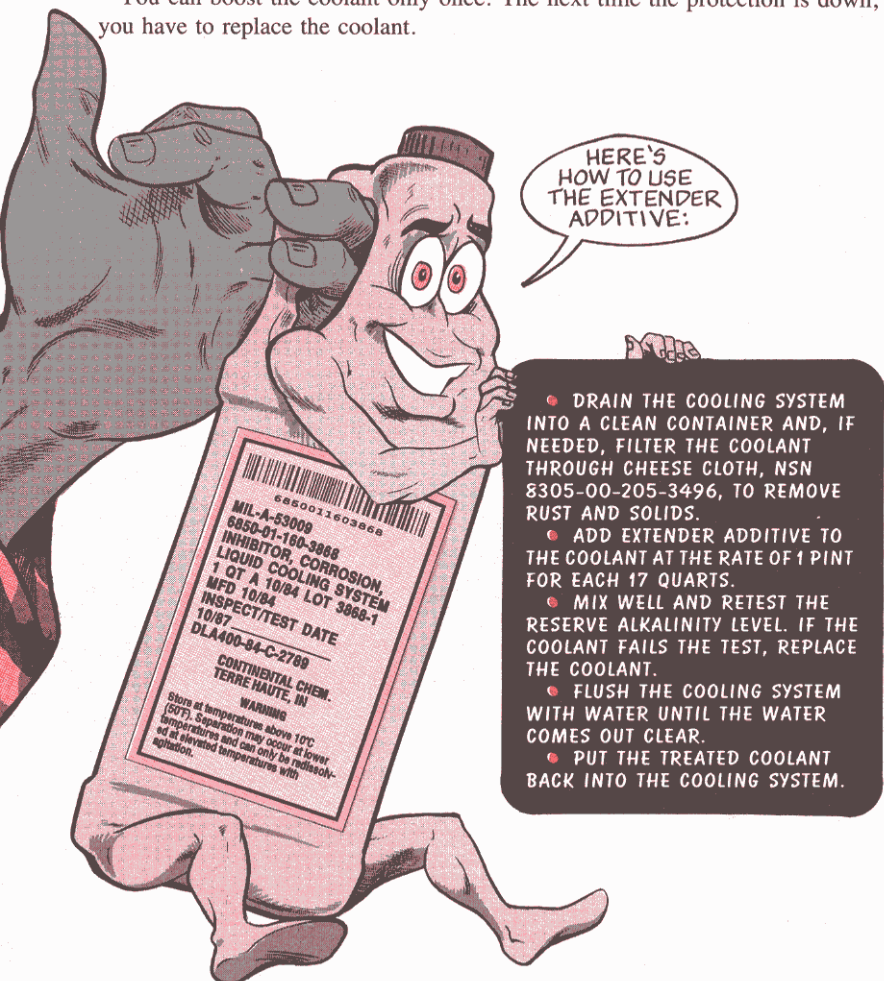
Dip a test strip in the coolant. Match the strip to the color code on the bottle.



Note color on test strip

If it needs a boost, add antifreeze extender additive, NSN 6850-01-160-3868. It's also listed in Para 2b of the TB.

You can boost the coolant only once. The next time the protection is down, you have to replace the coolant.



Run the vehicle for 10 minutes, then recheck the antifreeze. Some of the water used to flush the engine may have been trapped in the engine and could dilute your coolant.

Record this treatment in the REMARKS block of the vehicle's DD 314. This will keep someone else from trying to extend the inhibitor a second time.

M44-Series Load Limits

You'll have to change data plates if you want the right payload poop for your cargo trucks.

The old data plates show highway payloads. Uncle Sam uses only one payload now—cross-country.

NOW
DATA
PLATES
HAVE ONLY
ONE
LOADED
COLUMN.

CHECK THE
LIST BELOW FOR
THE DATA PLATES
YOU NEED.

① TRUCK, CARGO, DROP SIDE: 2 1/2 TON, 6X6, M35A2C, WO/W

CG LOCATION BASED ON 5,000 LBS PAYLOAD W/O CREW TO 81.12 REDUCIBLE TO 81.47, 8 DA REDUCIBLE TO 86.7

82.8 EMPTY
101.1 LOADED
36.3 EMPTY
45.6 LOADED

FA57, FA47, FA78, RA52, 5

LO 3ED CG BASED ON LOAD OF UNIFORM DENSITY COMPLETELY FILLING BODY TO RACK HEIGHT

WEIGHTS W/O CREW	EMPTY	LOADED	FOR AIR TRANSPORT ONLY
PAYLOAD	5,000	5,000	
FRONT AXLE	6,105	6,250	7,640 MAX
INTER AXLE	3,548	5,975	7,850 MAX
REAR AXLE	3,547	5,975	7,850 MAX
TOTAL LBS	13,200	18,200	21,300 MAX
MAX TOWED LOAD LBS	6,000		

SHIPPING CUBAGE: 1.185 CU FT

MFD BY: _____

CONTRACT NO. _____

U.S. PROPERTY

Vehicle	NSN 9905-01-	Vehicle	NSN 9905-01-
M35A2 WO/W	333-4760	M50A3 W/W	334-7112
M35A2 W/W	333-4759	M50A2 WO/W	333-4764
M109A3 WO/W	333-4869	M49A2C WO/W	333-4763
M109A3 W/W	333-4642	M49A2C W/W	333-4645
M35A1 WO/W	333-4875	M36A2 WO/W	334-7108
M35A1 W/W	333-4874	M35A2C WO/W	333-4762
M275A1 WO/W	333-5958	M35A2C W/W	333-4761
M49A1C WO/W	333-5957	M36A2 W/W	334-7109
M49A1C W/W	334-7114	M46A2C WO/W	334-7110
M44A1 W/W	333-4644	M46A2C W/W	333-4758
M44A1 WO/W	333-4643	M46A2 WO/W	333-4757
M185A3 WO/W	333-4870	M45A2 WO/W	333-4648
M275A2 W/W	333-4871	M45A2 W/W	334-7111
M275A2 WO/W	333-4872	M44A2 WO/W	333-4641
M756A2 W/W	333-4646	M44A2 W/W	333-4647
M764 W/W	333-4873	M342A2 WO/W	334-2669
M50A3 WO/W	333-4868	M342A2 W/W	334-7113

WO/W = Without Winch W/W = With Winch

Lasso Steering Problems

If you don't corral loose steering gear mounting bolts early, they'll drive you down a trail of big maintenance problems:

- ✦ lost bolts;
- ✦ steering gear ripped from the frame;
- ✦ ruptured hydraulic hoses;
- ✦ loss of steering power assist or brake assist.

Lasso and remember these symptoms:

- ✦ loose steering;
- ✦ popping sensation felt through the steering wheel as you turn;
- ✦ rattles or "chuckles" coming from the steering gear box;
- ✦ steering that binds.

If your CUCV has any of these symptoms, take a minute to check for a loose mounting.

Set the parking brake and start your vehicle. Leave the transmission in PARK.

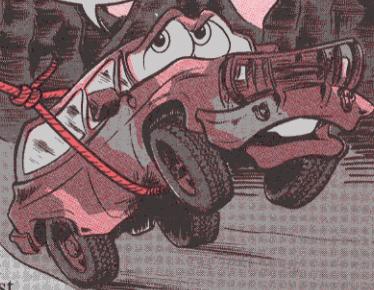
Get a buddy to turn the steering wheel back and forth while the engine runs.

Look down on the steering gear box. See any movement? If so, get your mechanic to torque the mounting bolts to 75 lb-in.

Report any movement of gearbox



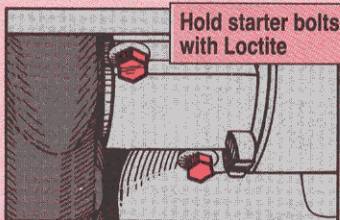
THANKS!
I NEEDED
THAT!



Loctite Starter Bolts

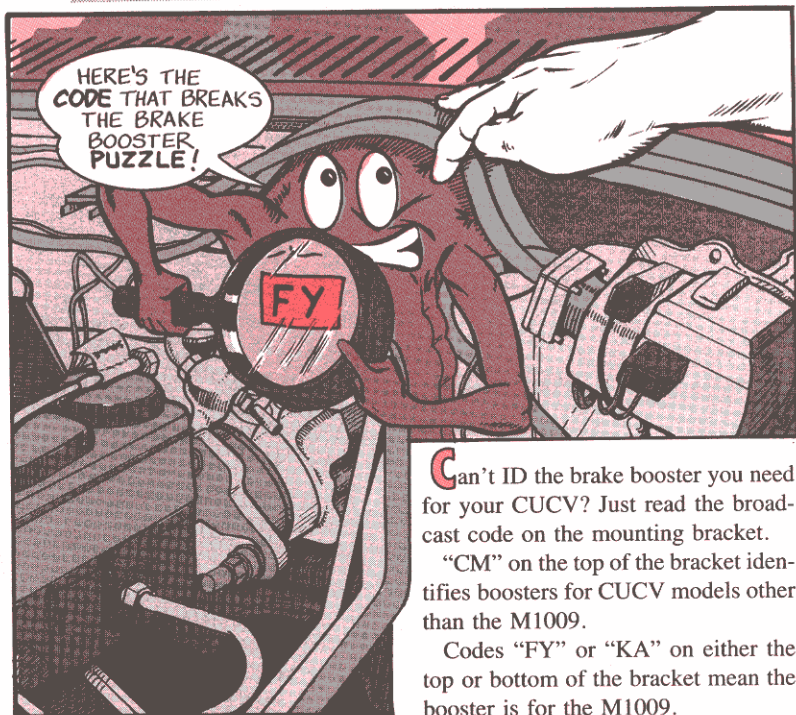
If you've got a slow-cranking CUCV, your TM 9-2320-289-20 says check for loose starter mounting bolts.

If you have and did, but the bolts still work loose, try Loctite on the bolt threads.



You get a a box of ten 10cc bottles with NSN 8030-00-148-9833. NSN 8030-01-158-6070 brings one 50cc bottle.

Know Your Boosters



Can't ID the brake booster you need for your CUCV? Just read the broadcast code on the mounting bracket.

"CM" on the top of the bracket identifies boosters for CUCV models other than the M1009.

Codes "FY" or "KA" on either the top or bottom of the bracket mean the booster is for the M1009.

M860A1 Trunnion Not "O" Level

Inspecting, adjusting and replacing the trunnion bearing on your trailer is a DS job. Since doing the work requires a crane found at support level, the headshed plans to change the MAC and repair parts list info in TM 9-2330-357-14&P.

M939A2 Transducer Change

Stock is no longer available for the fuel pressure transducer, NSN 6685-01-167-8050. If the transducer fails or leaks, and the truck is out of warranty, replace the transducer with pipe plug, NSN 4730-00-011-2578. Tape the electrical leads. Measure fuel pressure with the TK transducer in the STE/ICE.

Get a Leg Up on PM



Before you move your trailer one foot down the road, make sure its landing legs are fully retracted.

If they're still on the ground, or barely off it, they're cruising for a lame leg.

The legs will hit something on the ground or just above it, and bend, break, toss your load, or ruin the trailer.

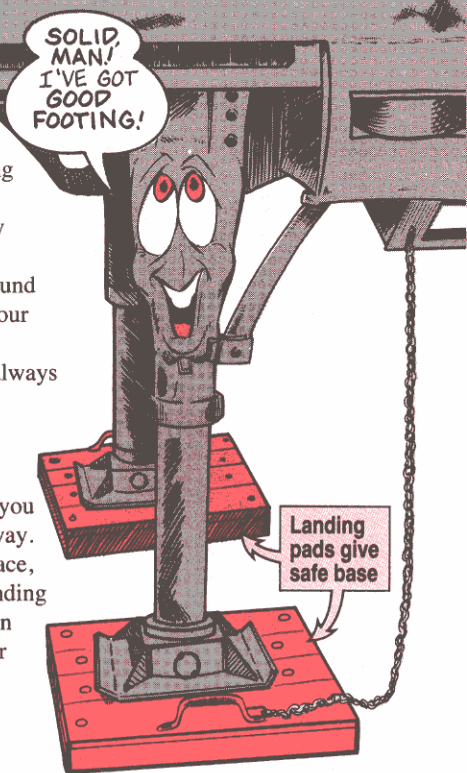
Don't take a chance. Make a note to always check the legs before you take off.

Get the Lowdown, Too

While you're remembering those legs, don't forget to crank them down before you unhook the load and pull your tractor away.

Make sure the legs are on a solid surface, too. That may mean putting out your landing pads, NSN 2510-00-741-7585, which can be used on most trailers, or boards under the landing leg shoes.

Use these leg savers when the terrain is uneven or soft.



Get the Right Shoes

Dear Half-Mast,
Help! We need brake shoes for our trailer. TM 9-2330-205-14&P lists numbers for many different shoes. They are also listed as right and left hand. Do they mean front and rear? What shoes do we need?

WO1 J.G.W.

THE SHOES ARE THE SAME ON THE FRONT AND REAR.



Dear Mr. J.G.W.,

The brake system for your trailer has changed, but the manual hasn't. At one time, you needed different shoes for the front and back (or left and right hand). No more.

The same shoe, NSN 2530-00-693-1007, is used for both front and rear. You need two per side, four for the trailer.

Half-Mast

M939-Series Trucks...

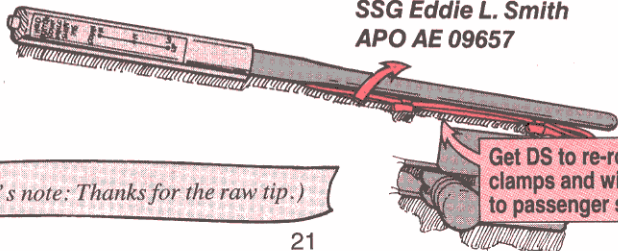
Transfer Lever Disconnect

Dear Editor,

Our unit's 5-tonners were plagued with transfer shift problems. Wires mounted on the microswitch on the driver's side of the transfer shift lever rub against the parking brake lever. Enough rubbing wears through the outer covers. Bare wires short out.

We took care of the rubbing problem by getting our DS to re-route the clamps and wires on the switch to the passenger side of the shift lever. This keeps the microswitch wires from being cut. No more electrical shorts.

SSG Eddie L. Smith
APO AE 09657



(Editor's note: Thanks for the raw tip.)

Get DS to re-route clamps and wires to passenger side

Cleaning Up? Hold the Steam!



Steam's a mean cleaner. It's too mean for rustproofing. It can loosen or even remove that protective coat.

So, hold the steam on rustproofed vehicles. Not sure if your vehicle is? Look and feel for a black, tar-like coating in the wheel well. That's rustproofing.

Check here for rustproofing



The best way to clean a rustproofed vehicle is with high pressure water and detergent. Of course, you never direct water at electric or electronic parts, seals or carburetors.

If you're using a combination steam cleaner (heated and cold pressure washer), be sure you're in the pressure mode. Stay below 160 degrees or 500 PSI.

If "Storm" Took It, Replace It

If your vehicles were steam-cleaned as part of an agricultural inspection on their way back from Desert Storm, you lost your rustproofing protection.

To keep corrosion at bay, get that protective coating restored ASAP. Not sure the coating's gone? Rustproofing is a black and tar-like coating.

See TB 43-0213 for more info on rustproofing.



LOOK, SARGE, YOU WERE RIGHT! ON THE TRIP BACK FROM DESERT STORM, WE LOST OUR RUSTPROOFING!

LET'S REPLACE IT NOW!

2½-ton Knob NSN

NSN 5355-00-152-8353 gets the M44-series truck's gearshift knob. The NSN in the -20P TM is wrong.

HMMWV Fuel Gage NSN

The NSN is wrong for the fuel gage shown as Item 15 in Fig 32 of TM 9-2320-280-20P. Order the gage with NSN 6680-01-298-0498. Jot down the NSN until your TM is updated.

HEMTT MAC Change

Unit mechanics, not direct support, now replace the primary pump hydraulic motor on HEMTTs. That's the word in TACOM EIR Digest TB 43-0001-39-7 (Oct 91). Note the change on Para B-22 of TM 9-2320-279-20-3. Change Tools and Equipment to "6".

M113-Series FOV...

"Shock" Shocks for Good Check

You won't get a good shock absorber check by making a test run on a smooth road. It takes a rough, bumpy surface to identify bad shocks on M113-series carriers.

To keep from tossing good shocks that you've mistaken for bad ones because they didn't get warm after operation, take your carrier for a good run over rough terrain or bumpy course.

This run will leave only bad shocks cold, so your PMCS will give true results.

GIVE ME A GOOD
WORKOUT BEFORE YOU
CHECK MY SHOCKS!

Battle Damage Repair Kits

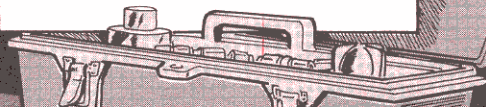
Battle Damage Repair Kits (BDRK) are now available. Crewmen and operators need the kits to make battlefield repairs on fuel, hydraulic and electrical systems.

INSTRUCTIONS
COME WITH ALL
OF THESE KITS. REMEMBER,
ALWAYS GET YOUR
CO'S OK BEFORE
YOU USE 'EM.

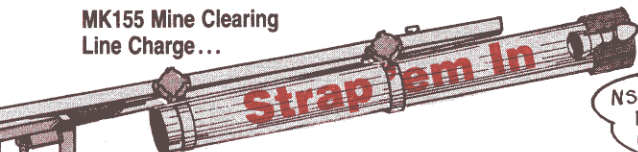
NSN 2510-01-327-4170 gets the BDR kit for the M1-series tank.

NSN 2510-01-327-4171 gets a kit for tactical vehicles and the Bradley.

NSN 2510-01-327-4172 gets the kit for M88 recovery vehicles.



**MK155 Mine Clearing
Line Charge...**



Vibration loosens the MK155's sway brace handknobs. If the handknobs release, the rocket swings freely, which wears out the launcher rails and button lug bands. Then you get accidents.

TIE STRAPS,
NSN 5975-00-074-2072,
KEEP SWAY BRACE
HANDKNOBS TIGHT.

Guide
pin
plate

Handknob
shaft

PUT
ON THE
TIE STRAPS
LIKE
THIS:

1 Stick the tapered end of the strap through the gap between the rear edge of the rocket's suspension band and above the front edge of the guide pin plate on the rear handknobs. If the gap between the band and plate isn't big enough, slide the rocket forward $\frac{1}{16}$ inch until you can slip the strap through.

3 Wrap the strap's latch end around the handknob's shaft and latch the strap.

Guide
pin
plate

2 Pull the tapered end under the guide pin so the strap's equally above and below the guide pin.

4 Pull the strap tight until there's no slack.

Do the same with the front handknob set.

Every time you load another rocket, use new straps to ensure the rocket stays where it's supposed to.

PUBS

This is a selected list of recent pubs of interest to organizational maintenance personnel. This list was made from a computer printout produced by the Adjutant General's Office.

TM 9-1270-221-23P Dec 91
M142 fire control subsystem

TM 9-2330-246-24P Aug 91
Semitrailer, van: M348A2C, -D, -F, -G, -H, -K, -N, M373A2, -C, -D, M373A3, M373A4, M373A5, XM1005 and XM1007

TB 1-1510-213-307 Oct 91
Inspect T53-L-701 engine fuel heater and filter

TB 1-1520-228-20-63 Oct 91
Critical MS nuts for cracking

TB 1-1520-236-20-4 Dec 91
Inspect particle separator left screen and right bypass door, AH-1E/F mod per MWO 55-1520-236-50-12

TB 1-1520-237-30-2 Oct 91
Desert Storm aircraft inspection and cleaning, UH-60A/L and EH-60

TB 1-1520-238-20-24 Nov 91
Expanded inspection procedures for the main landing gear mount, AH-64A

TB 1-1520-238-30-01 Nov 91
Desert Storm aircraft inspection and cleaning, AH-64A

TB 1-1520-240-20-59 Oct 91
Inspect engine cross shaft clearance, CH-47D, MH-47D and MH-47E

TB 1-1520-240-30-01 Oct 91
Desert Storm aircraft inspection and cleaning, CH-47D

TB 1-1520-248-30-01 Oct 91
Desert Storm aircraft inspection and cleaning, OH-58D

TB 5-2350-262-15 Oct 91 M9
Armored combat earthmover (ACE)

TB 9-1300-385 Jan Munitions,
restricted or suspended

SC 5180-90-N09 Jan
Carpenter's, engineer platoon tool kit (NSN 5180-00-293-2873)

SC 6675-90-N02 Jan Artillery
fire control plotting set (NSN 6675-00-641-3630)

TC 3-4-1 Dec 91 Chemical
agent monitor employment

TC 21-305-5 Dec 91 Equipment
transporters; C-HET, MET, and LET

Maintenance Advisory and Safety-of-Use Messages

AMCCOM SOU MSG 92-01—
Operational, Gives firing guidelines
for 81MM M800 and M300 series
mortar cartridges, AMSMC-DSM-
MG 161815Z Jan 92.

AMCCOM SOU MSG 92-02—
Operational, Prohibits towing MIC-
LIC behind M1-series tank,
061817Z Feb 92.

CECOM SOU MSG 92-01-02—
Mandatory, Operational, Follow-up
of SOU MSG 91-12-20 on the
AN/AVS-6(V)1 and -6(V)2 night vision
goggles' monocular housing
assembly, AMSEL-SF-SEC
171600Z Jan 92.

CECOM SOU MSG—Urgent,
Advises users of the TS-3620 laser
IR observation device, used to test
the AN/GVS-5 laser rangefinders,

made under contract DAAB07-88-
C-F430, to immediately stop using
them, AMSEL-SF-SC 171800Z Jan
92.

TACOM SOU MSG 91-28—Oper-
ational, Provides inspection
guidelines for motor vehicle towbar,
NSN 4910-00-433-7094, made
under contract DAAA09-81-C-
4279. Towbars used on M984 10-
ton and all 5-ton wreckers,
AMSTA-M 221500Z Jan 92.

TACOM SOU MSG 91-27—Ad-
visory, Technical/Maintenance,
Follow-up on SOU MSG 90-20 on
SUSV fire safety, AMSTA-M
311800Z Jan 92.

TACOM MSG—Maintenance
related information concerning
M35/M44 series vehicles' spotlight

switch, AMSTA-MTB 291600Z Jan
92.

TROSCOM Maintenance Advi-
sory 92-03—Gives repair infor-
mation for fuel pressure gage on
120,000 BTU portable heater,
AMSTR-ME 231945Z Jan 92.

TROSCOM Maintenance Advi-
sory 92-02—Gives maintenance
information on acoustic suppres-
sion kits (ASK) for 15- and 30-KW
DED generator sets, AMSTR-ME
281815Z Jan 92.

Your Direct Support or Lo-
gistics Assistance Office (LAO)
can provide you with more in-
formation.

OH-58D T703 Engine SCU

When the T703-AD-700 engine goes to depot for repair or overhaul, turn in the supervisory control unit (SCU), too. Turn in the unit whether it's serviceable or not. When an engine is issued, a control unit is issued with it. That control unit must stay with the engine.

New PMCS for M102 Cocker

Add a third quarterly PMCS check for the M102 towed howitzer. Make sure the spring pin and sleeve bushing of the cocking mechanism assembly are in place and serviceable. If the spring pin, Item 3, Page 2-60, TM 9-1015-234-20, is missing, do not fire the weapon until the pin, NSN 5315-00-058-6078, is replaced. Also check that the hole in the sleeve bushing, Item 4 on Page 2-60, will hold the pin securely. If the hole is too large, replace the bushing, NSN 3120-00-863-1051, before firing.

Roadside Inspection



WHAT IS IT, CHIEF?

WE CAME AS QUICKLY AS WE COULD!

THE BIG CHIEF HAS ORDERED A **ROADSIDE INSPECTION!** SO, HAVE THE MECHANICS PULL A TECHNICAL INSPECTION ON VEHICLES NUMBER 6 AND 7... AND DISPATCH 'EM AS SOON AS THEY'RE READY. MAKE SURE THEY GO BY THE INSPECTION POINT.



WHEN THE INSPECTORS SEE WHAT GOOD
SHAPE THESE VEHICLES ARE IN THEY WON'T
BOTHR TO INSPECT ANY OF OUR OTHERS!

HERE WE GO AGAIN!
WE'RE GOING TO SPEND SO
MUCH TIME TI-ING THOSE
VEHICLES, WE WON'T BE ABLE
TO GET ANY MAINTENANCE DONE.

YEAH, INSTEAD
OF FIXING OUR VEHICLES
SO THEY'LL MEET 10/20 STANDARDS,
WE'LL SPEND ALL OUR TIME MAKING SURE
OUR DEMONSTRATION VEHICLES ARE GIG-PROOF.

LATER IN THE
DAY....



GOOD TO
SEE YOU,
CONNIE.

YOU'RE
LOOKING
MIGHTY PLEASED!
HOW'RE THINGS
GOING?

WELL, I JUST
GOT A CALL FROM
THE **BIG CHIEF**. HE
WANTED TO CONGRATULATE
ME ON OUR MATERIEL READINESS.
SEEMS OUR VEHICLES MAXED
OUT ON THE ROADSIDE
INSPECTION.



HEY, THAT'S A REAL FEATHER IN YOUR CAP, CONGRATULATIONS!

I HOPE YOU'RE PREPARED TO COPE WITH ALL THAT SUCCESS.

WHAT DO YOU MEAN?

WELL, IT SEEMS THE BIG CHIEF HAS THIS THING ABOUT UNITS PASSING 100 PERCENT ON THE ROADSIDE SPOTCHECKS.

A UNIT DID JUST THAT LAST WEEK AT CAMP BACKWATER. THE BIG CHIEF WAS SO IMPRESSED WITH THE UNIT HE DECIDED TO USE IT AS AN EXAMPLE FOR THE WHOLE BATTALION. HE STOPPED THE ROADSIDE INSPECTION AND...

... HAD ALL THE INSPECTORS VISIT THE UNIT TO FIND OUT HOW THEY KEEP THEIR MAINTENANCE UP!

OH, NO!
WHAT HAPPENED?

IT WAS SORT OF SAD... SEEMS THE COMMANDER HAD PUT ALL OF HIS MAINTENANCE EFFORT ON A COUPLE OF DEMONSTRATION VEHICLES AND...

... THEY WERE THE ONES DISPATCHED FOR THE INSPECTION.

LET'S SEE... IF WE GET THE MECHANICS BACK ON THEIR JOBS...AND PULL IN ALL OF THE OPERATORS... AND DISCONNECT THE TELEPHONE...

... AND WITH A LITTLE LUCK.

IT TAKES MORE THAN LUCK! TO RUN THROUGH TI'S... YOU WALK THROUGH PMCS!

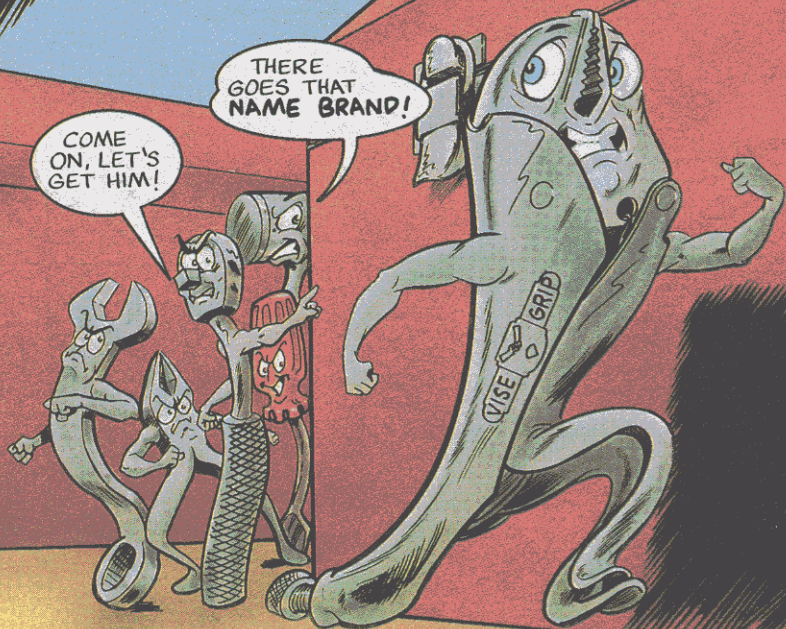
ALL OF HIS OTHER EQUIPMENT WAS IN PRETTY BAD SHAPE... IT WAS REALLY EMBARRASSING!

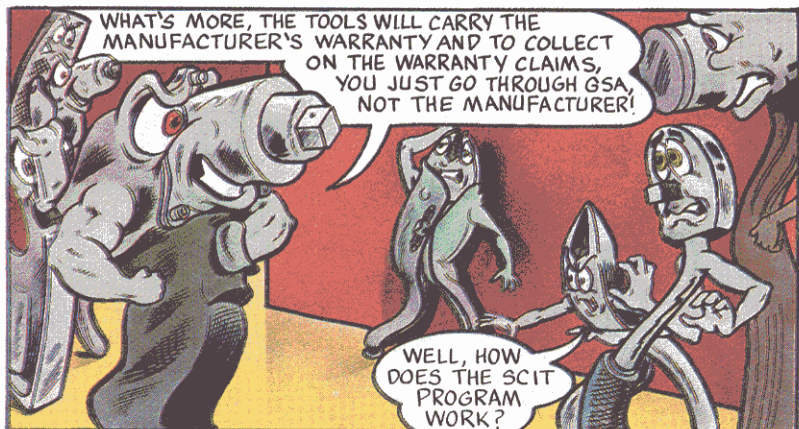
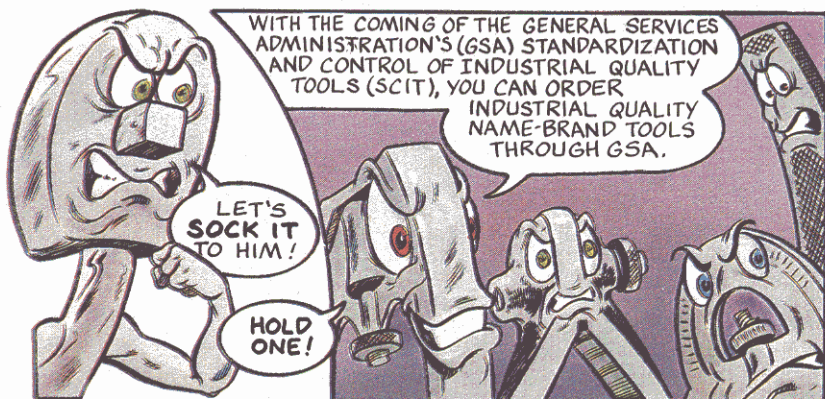
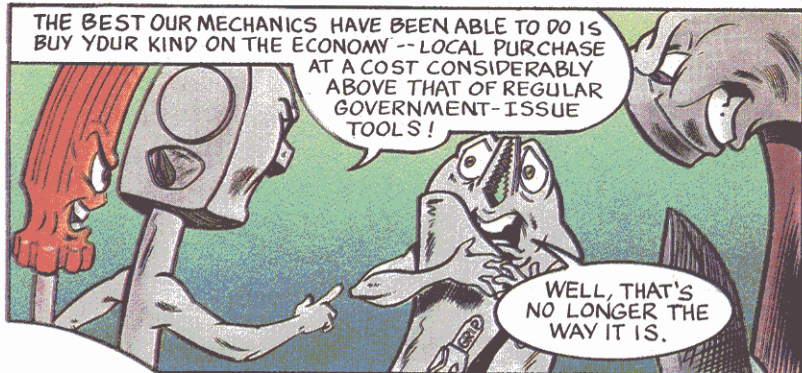
SAY, ARE YOU FEELING OK, CHIEF? YOU DON'T LOOK SO GOOD.

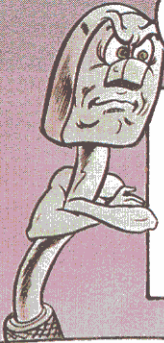
UH, SORRY TO BUG OUT ON YOU, CONNIE, BUT I JUST REMEMBERED SOMETHING. SEE YOU LATER, I HOPE!

What's a Name Brand Like You Doing in the Army?

Mechanics have wondered for years why they don't find name-brand industrial quality tools in the army supply system








FIRST OF ALL, YOU GET THE
SPECIAL GSA CATALOG FOR
SCIT TOOLS BY WRITING
TO THIS ADDRESS:

**GSA Federal Supply Service
Tools Commodity Center (6FE-0)
1500 East Bannister Road
Kansas City, MO 64131**

or call DSN 465-2390 (Commercial
816-926-2390).




KEEP
THIS
INFO
ON
FILE.



ORDER THE NAME-BRAND
TOOLS YOU NEED BY NSN
AS SHOWN IN THE CATALOG.
THERE WILL BE NO
SUBSTITUTIONS. YOU'LL
GET EXACTLY WHAT YOU
WANT FROM THE
MANUFACTURER
YOU SELECT.
SCIT TOOLS
ARE STOCKED
IN A GSA
WAREHOUSE
AND ARE
QUICKLY
AVAILABLE.



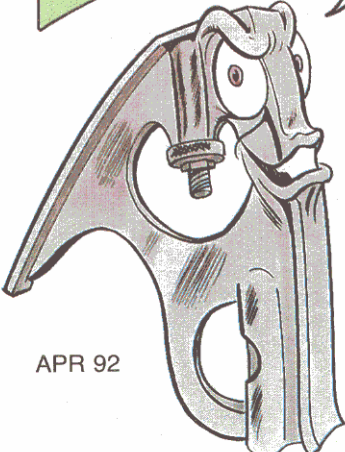
WHAT
IF A
TOOL
FAILS?

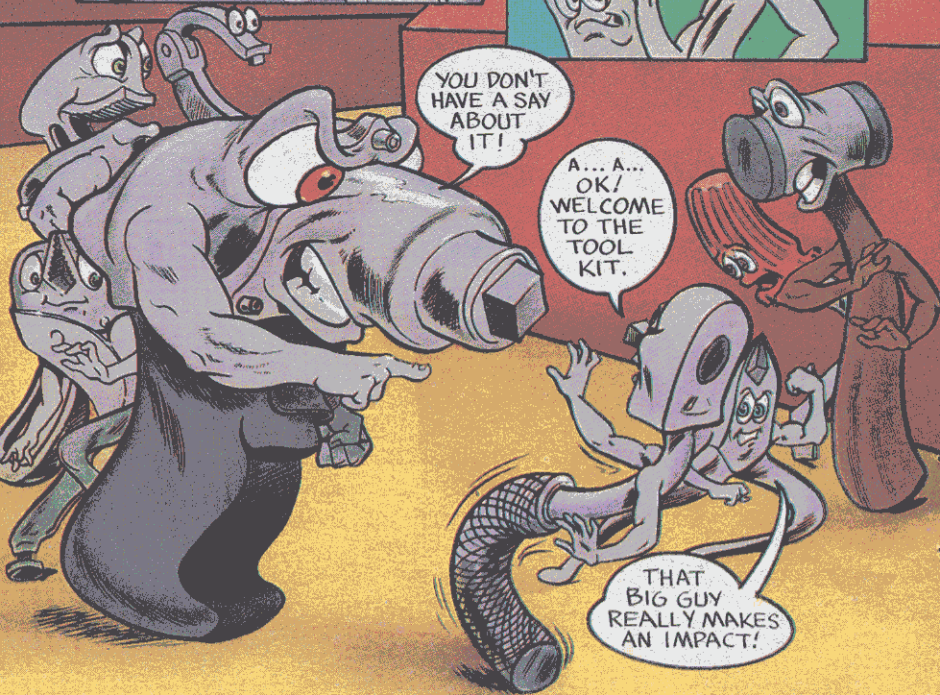


PIPE
DOWN!
SHOULD A SCIT
TOOL FAIL WITHIN THE
WARRANTY PERIOD,
CALL THE
SCIT WARRANTY
REPLACEMENT CLERK
TOLL-FREE AT
1-800-488-3111



GIVE HIM THE FOLLOWING
INFORMATION:

- 
- NSN or manufacturer's part number and CAGE Code ID Number of the item being reported (5130-00-XXX-XXXX, widget; P/N XXX).
 - Your name
 - Your activity
 - Your activity address, with zip code
 - Your telephone number (Commercial only)
 - Quantity/unit of issue
 - Description of failure





Has your Black Hawk's cargo hook been modified by MWO 55-4030-237-50-1? Is your cargo hook now PN FE7590-145, NSN 4030-01-238-4394?

If so, the Pressure Cartridge Assembly, Item 6 of Fig 824 of TM 55-1520-237-23P-4, is PN FE7590-98, NSN 1377-01-211-7212.

This replaces the cartridge assembly listed in the TM, PN FE 7590-160, NSN 1377-01-254-1683. It includes the cartridge, squib, squib housing and top cover.

You can no longer order just the squib alone, so Item 7 of Fig 824 is also wrong for the modified hook.

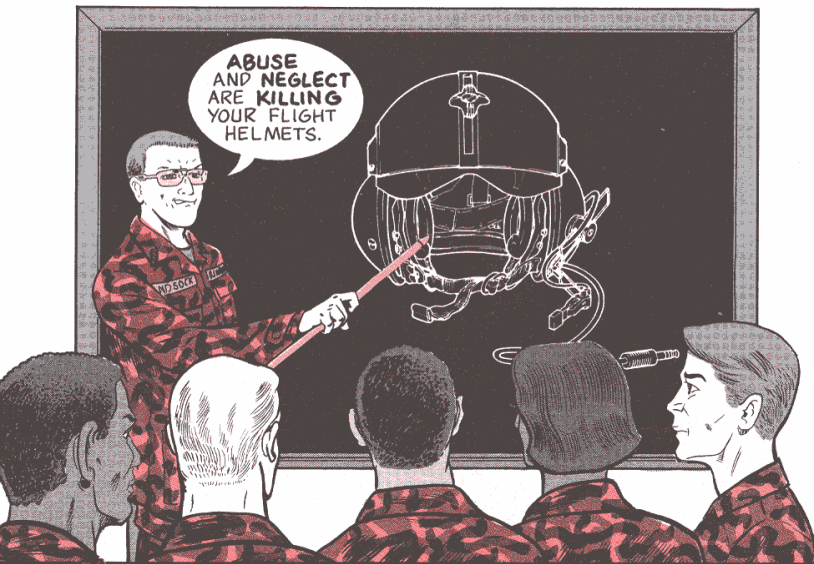
Apache, Black Hawk T700 Engine...

Loosen the Grip!

Too many engines show the bad effects of seized borescope plugs.

To avoid seized plugs, lightly coat the plug threads and casing with antiseize compound each time you install a plug.

Just Use Your Head



The SPH-4 flyer's helmet is a rare jewel. It gives crash and noise protection; provides protection from fragments, glare, dust and wind blast; and it holds vital commo gear. If it could talk, all it would ask in return is for you, air crews and ALSE techs, to use your head when handling it and to do preventive maintenance.

The helmet has 11 major components and all need PM:

VISOR and VISOR LOCK—PM on the visor and visor lock means taking action to prevent the three most common problems... a visor

that sticks, a lock that doesn't hold, and a scratched visor.

Prevent a sticking visor by using beeswax, NSN 9160-00-253-1171. Take off the visor and rub both visor tracks and the sides of the visor with the wax. (P.S. Beeswax is also good to prevent sticking flight suit zippers.)

A visor lock that doesn't hold usually means stripped threads in the lockstem or lockstem center screw. The threads get stripped when the lock release button head is over tightened. It only takes a quarter clockwise turn to lock the visor in place. Preventive maintenance here means don't over tighten.

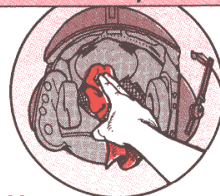
A scratched visor most often happens from poor cleaning techniques. Only clean the visor with a damp, clean soft cloth. Moist towelettes, NSN 8520-00-782-3554, will fit in your helmet bag and do a fine job, both on hands and on the visor. (P.S. Prior to stowing the helmet, wipe the entire helmet with a towelette, including the headband, crown pad and ear cups.)

VISOR HOUSING—The top problem with the visor housing is cracks. PM is simple... keep your butt off the helmet. The helmet is not a chair. (P.S. This will also stop cracks in the shell.)

CHIN STRAP—The two most common chin strap problems are unable to adjust and unable to attach. Both happen from abuse, mainly from carrying the helmet with the strap and from jerking the strap off with excessive force. PM here is simply to slow down and think. Chin strap problems occur when you're in a hurry and careless.

RETENTION HARNESS, SUSPENSION ASSEMBLY and LINER—Cleanliness is the best PM measure here. Sweat and dirt weaken fabric and lead to tears and unraveled stitching.

Wipe down harness, suspension and liner after every use



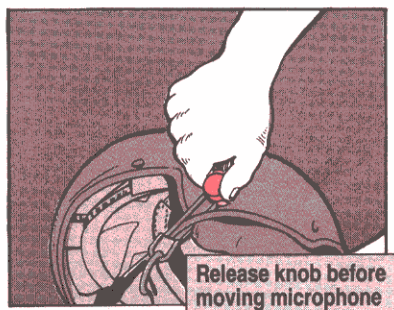
Wipe down the harness, suspension and liner after every use of the helmet. Think about how your hair gets greasy and dirty if you don't wash it for a couple of days and realize that's the stuff that's accumulating on your harness and suspension. (The TPL conversion kit can be used to replace the suspension assembly, see page 39.)

EARPADS—Dirty earcup cushions harden and deteriorate. Soon the fit is poor and the helmet is uncomfortable to wear. Wipe earpads after every helmet use with a moist towelette.

MICROPHONE, CORD and BOOM—First PM measure is don't carry the helmet by the microphone. Basic, but it's still being done.



Second PM measure, don't move the microphone without releasing it at the boom adjustment knob. Basic, but it's being done . . . a lot. Soon the microphone just flops.



Here are a few extra tips to keep your helmet in shape:

- There is really only one good place to store your helmet—in a wall locker in the maintenance hangar. That will keep your helmet cool, dry, snug and secure.

- When you fly commercial, take the helmet on-board as carry-on luggage. Don't check it as baggage.

Carry the helmet in its protective bag and by the bag handle.



- Stow the helmet inside the bag with the microphone boom pivoted inside the helmet.

- Don't toss it into the cockpit before you climb in. It might survive, but will the sensitive gear it hits?

- Don't stow your gloves in the helmet.

- Keep it clean.

- Inspect it for cracks and damage often. If it's damaged, ALSE techs need to get on the job and fix or replace it.

- Know your TMs. TM 10-8415-206-12&P is for the helmet; TM 11-5965-279-13&P is on the microphone and headset. (SPH-4B is out, but changes to TM 10-8415-206-12&P on its care and maintenance are not. Until TM changes hit the field, follow the information in the SPH-4.)



Join the TPL Club

I'M SURE GLAD
WE HAVE THESE TPL
SUSPENSION SYSTEMS,
SINCE SOME OF THE
OLD PARTS ARE
GONE ALREADY.



There's one club you have to join, ALSE techs. That's the TPL club.

And to join, you have to convert your flight helmets to the thermoplastic liner (TPL) suspension system.

That's because the parts the TPL replaces are becoming scarce. Some, like the X-large headband and suspension assembly, are already gone from supply.

The TPL replaces the front and rear headband, the headband and suspension assembly, the liner and the crown pad.

After a short period of adjustment, your aviators will find the new liner eliminates most hot spots and is much more comfortable than the old system.

So, right now, begin your TPL conversion. Order the kits with:

Size	NSN 8415-01-
Small/Regular	281-5497
Regular/Large	281-5498
X-Large	281-5499

Follow the installation instructions in TM 10-8415-206-12&P.

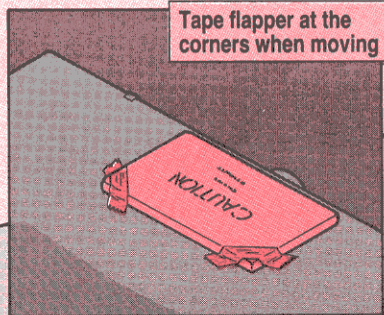
Pilot's Checklist Binder

Use NSN 7510-00-766-4269 to get the pilot's checklist binder and 25 transparent pages. Use NSN 7510-00-176-8049 for replacement pages.

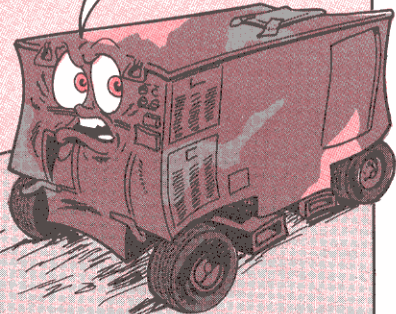
Protect the Flapper

Tape down the exhaust flapper before you transport your Aviation Ground Power Unit (AGPU).

The flapper, located on the top, front of the AGPU, can easily break off



I'M NOT GOING ANYWHERE WITHOUT TAPE ON MY FLAPPER!



during sling-loading or while being transported. A little tape at the corners will do the holding job and prevent a repair job later.

Remember to remove the tape after your moving chore is over. If left on, the tape will cause exhaust buildup that will lead to back pressure problems.

AH-64 Fuel Boost Pump...

Corrosion PM

Corrosion is causing Apache fuel boost pump motors to seize!

Stop the corrosion before it starts. Shoot a spray of corrosion preventive into the fuel boost pump exhaust port every 30 days.

You can use corrosion preventive, NSN 8030-00-938-1947, Item E97 in your expendable supply list; or corrosion preventive, NSN 8030-01-041-1596.

To do the spray job right, use an 18-in spray extension.



Aircraft Hydraulic Fluid NSNs

Once a can of aircraft hydraulic fluid is opened, it cannot be stored and reused. Stop fluid waste by ordering the right size container.

HERE ARE
THE AVAILABLE SIZES
FOR HYDRAULIC FLUID,
MIL-H- 83282:

AND,
HERE'S WHAT'S
AVAILABLE FOR
MIL-H- 46170:

Size	NSN 9150-	Size	NSN 9150-
pt	01-276-7781	pt	01-332-7819
qt	00-149-7431	qt	01-131-3323
gal	00-149-7432	gal	01-131-3324
5-gal	00-281-6191*	5-gal	01-131-3325
10-gal	01-009-7709*	55-gal	01-119-8149
55-gal	00-180-6290		

**(Not on AMDF. Order on DD Form 1348-6.)*

Aviation Messages

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

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

OH-58-92-ASAM-08, Maint Mand, OH-58A/C & OH-6 with T63-A-700/720 engines, 152145Z Jan 92.

OH-58-92-ASAM-09, Maint Mand, OH-58A/C & OH-6 with T63-A-700/720 engines, 282200Z Jan 92.

OH-6-92-ASAM-02, Maint Mand, OH-58A/C & OH-6 with T63-A-700/720 engines, 152145Z Jan 92.

OH-6-92-ASAM-03, Maint Mand, OH-58A/C & OH-6 with T63-A-700/720 engines, 282200Z Jan 92.

AH-1-92-ASAM-07, Maint Mand, AH-1 & UH-1M, revision AH-1-92-ASAM-05/UH-1-92-ASAM-03 to Para 9B, overhaul/retirement schedule of servo cylinder,

072300Z Jan 92.

AH-1-92-ASAM-08, Info, AH-1, self-locking nuts in clamps of tail rotor driveshaft, 301800Z Jan 92.

UH-1-92-ASAM-04, Maint Mand, AH-1 & UH-1M, revision AH-1-92-ASAM-05/UH-1-92-ASAM-03 to Para 9B, overhaul/retirement schedule of servo cylinder, 072300Z Jan 92.

UH-1-92-ASAM-05, Maint Mand, UH-1 & EH-1, records inspection of T53-L-13B engines, 302300Z Jan 92.

UH-60-92-ASAM-01, Maint Mand, UH-60, spindles, 061900Z Jan 92.

CH-54-92-ASAM-01, Maint Mand,

CH-54A, vertical hinge pins, 092145Z Jan 92.

C-23-92-ASAM-01, Oper, C-23B cargo/paradrop ops static line, 221900Z Jan 92.

U-8-92-ASAM-01, Maint Mand, U-8F, BE-65 & BBO, nose wheel and landing gear steering/drag links, 072100Z Jan 92.

U-21-92-ASAM-01, Maint Mand, U-21A/D/G/H, RU-21A/B/C/D/H, Beech A90, nose wheel and landing gear steering/drag links, 072200Z Jan 92.

Gen-92-ASAM-03, Info, NVG visor mount on SPH-48 helmet, 031500Z Jan 92.

Burnouts Can Be Good News

Don't blow your top over a blown fuse. After all, it saved your equipment.

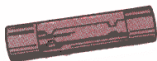
When a surge of electricity rips through your system, the fuse blows first, breaking the connection and shielding your equipment from being damaged.

That's a lot of responsibility for such a tiny item, so just any replacement will not do. Although they look alike, most fuses are different.

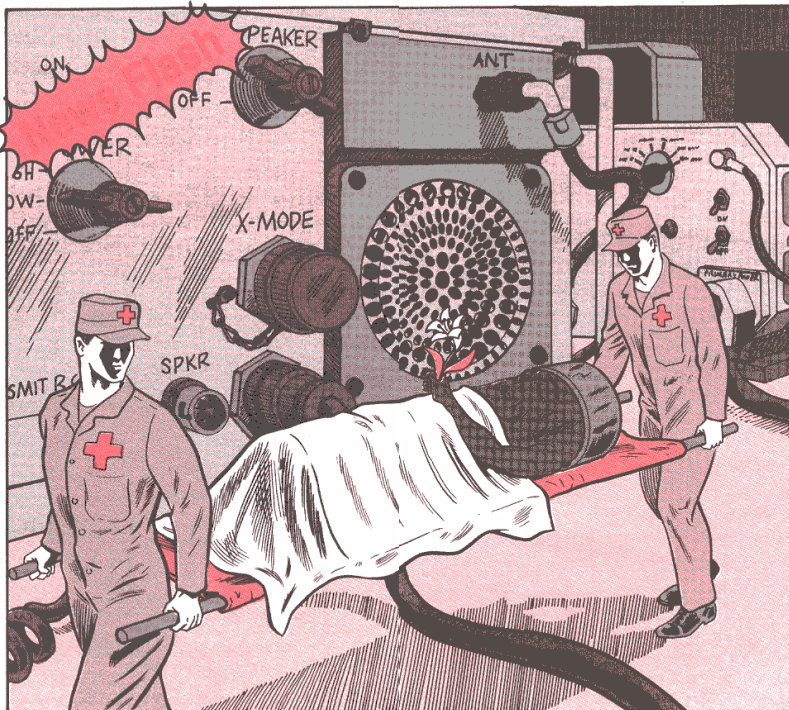
Never use a fuse with an amp rating higher than the one it replaces. Fuses are built to carry just so much current. When the current's too high, the fuse blows. But if the fuse rating is too high, it'll carry the surge and damage your gear.

Fuses come in many types, the most common being cartridge, plug, link and knife-blade.

The Cartridge Fuse



The cartridge fuse is the most common. It's a glass, ceramic or plastic



Brave little fuse kicks bucket in order to save electrical equipment.

tube between two ferrules or end caps. A thin, metallic link stretches between the caps.

The cartridge fuse has a current capacity of .002- to 60-amps. It's used in low-powered circuits, like those found in radios, telephones and switchboards.

The Plug Fuse



The plug fuse is used in 110-volt AC branch circuits, such as in house fuse boxes and older electrical equipment.

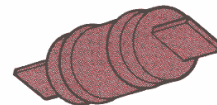
The Link Fuse



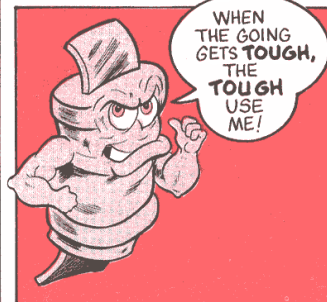
The link fuse is made of simple wire, ribbon or flat sections of fuse metal with connecting necks.

This fuse is normally found in telephone circuitry systems and sometimes includes a small indicator alarm. The alarm uses a noisemaker or signal lights to let you know when the fuse is blown.

The Knife-Blade Fuse



The knife-blade is known as the local tough guy 'cause it can handle currents ranging from 60 to 600 amps. Because it's so strong, it's normally found in main fuse boxes and electrical power plants.



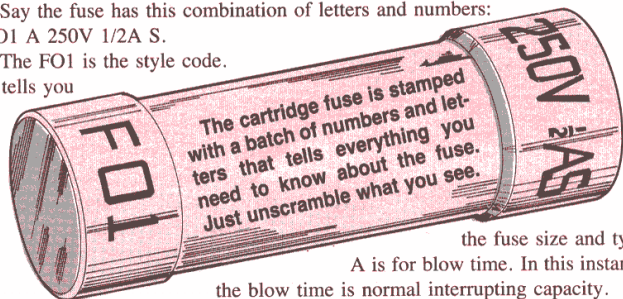
Cartridge fuse ferrules are stamped with specific info about the fuse.

Say the fuse has this combination of letters and numbers:

FO1 A 250V 1/2A S.

The FO1 is the style code.

It tells you



the fuse size and type.

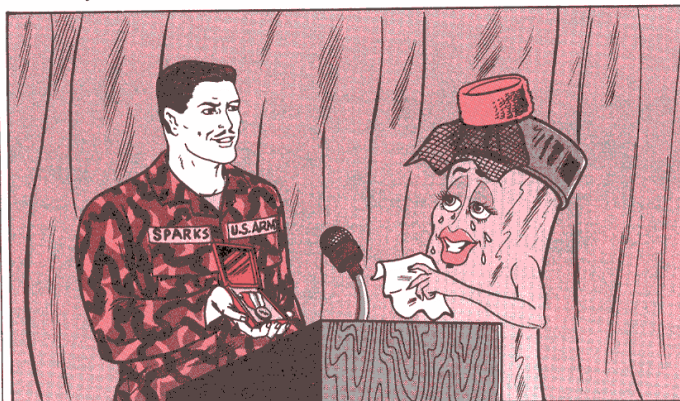
A is for blow time. In this instance, the blow time is normal interrupting capacity.

B means there is a blow time lag, or slow blow, while C stands for a fast blow time or very high interrupting capacity.

The 250V gives you the maximum voltage capacity. It should never be exceeded.

The 1/2A is the amp rating. This shows you the maximum amount of constant current the fuse will carry without blowing.

S tells you the ferrules are silver-coated. No S, no silver.



Mrs. Fuse accepts Commo Medal of Honor for late husband.

Once you've got the right fuse, you want to make sure it keeps working for a long time. Here are some of the more common fuses identified by style code, type and size.

Style Code	Type	Size (inches)
F01	Cartridge	1 x .25
F02	Cartridge	1.25 x .25
F03	Cartridge	1.125 x .25
F05	Cartridge	1.250 x 0.281
F06	Cartridge	1.250 x 0.281
F07	Cartridge	1.5 x .406
F09	Cartridge	1.5 x .406
F15	Cartridge	2.0 x .562
F16	Cartridge	3.0 x .812
F19	Knife blade	5.875 x 1.312
F20	Knife blade	7.125 x 1.875
F21	Knife blade	8.625 x 2.406
F22	Knife blade	10.375 x 2.906
F27	Cartridge	3.0 x .406
F28	Cartridge	4.5 x .406
F29	Cartridge	5.0 x .812
F30	Cartridge	10.0 x .812
F37	Link	2.5 x .562
F38	Link	3.0 x .812
F39	Link	3.5 x 1.062
F40	Link	1.75 x 1.312
F50	Link	1.406 x .406
F51	Indicator alarm	1.672 x .406
F60	Cartridge	1.2 x .406
F61	Cartridge	2.0 x 0.562
F62	Cartridge	3.0 x 0.812
F70	Cartridge	2.313 x 0.437 (values less than 5A) 2.313 x 0.687 (values of 5A & more)

Turn off the equipment circuit before you slip in the fuse. A live circuit can create an arc between the fuse and the fuse-holder. This burns the ferrules and terminals, limits good contact between the two, and increases the resistance. You can get a shock and the momentary burst of electricity can damage your equipment.

- Fuses may look good even when they're not. Test them periodically with a multimeter.

- Never use a substitute—such as a piece of wire, foil or a coin—in place of a fuse. It gives you no electrical protection, and it's a fire hazard, too.

Never substitute these



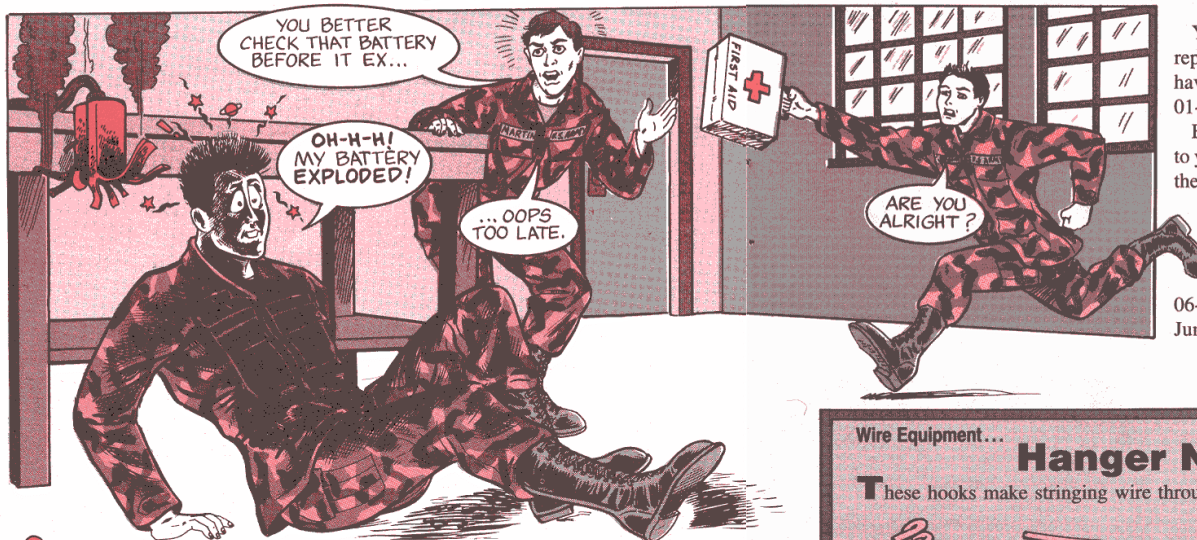
- Whenever a terminal gets pitted or dirty, shine it up with abrasive paper. Use NSN 5350-00-598-5537 for fine paper or NSN 5350-00-264-3485 for extra fine.

- Keep the fuseholder's clips tight. Squeeze loose clips together to keep a firm grip on the fuse. If this doesn't work, replace the clips.



Keep terminals clean and clips tight

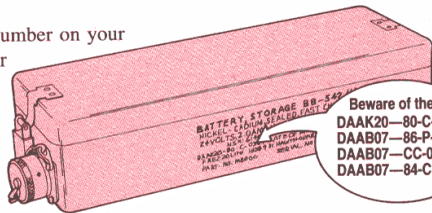
Beware of Bad Batteries



Some BB-542/U nickel-cadmium batteries may be defective. They're used in the AN/PRC-70 radio set, the AN/PPN-19 transponder radar set and the AN/PSC-3 manpack satellite radio.

When charged, the bad batteries overheat, build up pressure in the cells, and might explode!

Check the contract number on your batteries. If the number is DAAK2080C0304, DAAB0786P0445, DAAB07CC002 or DAAB0784CH322, turn the battery in to support for testing.



Beware of these:
DAAK20—80-C-0304
DAAB07—86-P-0445
DAAB07—CC-002 or
DAAB07—84-CH322

In the meantime, use substitute batteries in the AN/PPN-19 and AN/PSC-3. Two BA-5590/U lithium batteries, NSN 6135-01-036-3495, two BB-590/U nickel-cadmium batteries, NSN 6140-01-063-3918, or battery assembly, NSN 6140-01-331-4014, work well. Do not use a substitute battery in the AN/PRC-70.

You'll need a battery box for the replacement batteries. If you don't have one, order it with NSN 6160-01-128-6480.

Even if the batteries are returned to you as good, you'll need to charge them differently. Limit the charge current to two amperes for one and a half hours.

The scoop's in CECOM Safety-of-Use Message 91-06-02, AMSEL-SF-REE 281800Z Jun 91.

Wire Equipment...

Hanger NSNs

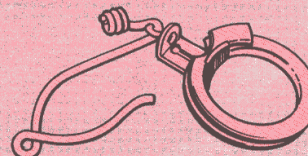
These hooks make stringing wire through trees a little easier:



NSN 5975-12-120-0691
Handles up to six strands of
WD-1 or WD-16 field wire.



NSN 5975-12-120-5288
Strings one spiral -4 or
26-pair cable



NSN 5975-12-120-5289
Holds one spiral -4 or 26-pair
cable, but does double duty as
a strain relief

These NATO NSNs follow the -01 NIINs (the last nine digits of the NSN) on the monthly AMDF. So-o-o-o, go past all the 01s until you come to the -12 NIINs.

Electrician's Tool Kit

SC 5180-90-CL-N35 COVERS THE ELECTRICIAN'S TOOL KIT, NSN 5180-00-313-3045, BUT IT'S HARD TO INVENTORY FROM THE MICROFICHE. MAY YOU FIND THIS LIST EN-LIGHTENING!

Bender, electrical conduit, 1/2 inch
NSN 5120-00-618-6898



Bender, electrical conduit, 3/4 inch
NSN 5120-00-618-6899

Bender, electrical conduit, Hickey type, 3/4 inch
NSN 5120-00-242-7413

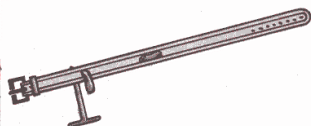


Bit, auger cutting dia.	NSN
1 inch	2907
1 1/2 inch	2900
1 1/4 inch	2901
3/4 inch	2905
3/8 inch	2902
5/8 inch	2898
7/8 inch	2903



Awl, scratch NSN 5120-00-221-1542

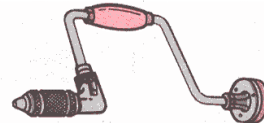
Belt, tool NSN 5140-00-529-2694



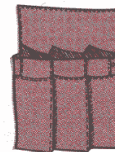
Blade, hand hacksaw
NSN 5110-00-277-4588



Brace, bit, ratchet, 10 inch sweep dia.
NSN 5110-00-293-1958



Carrier, tool, leather
NSN 5140-01-168-4474



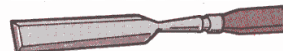
Chisel, butt, woodworking
NSN 5110-00-585-8427



Chisel, cold, hand
NSN 5110-00-186-7107



Chisel, firmer NSN 5110-00-640-5419



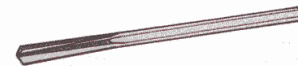
Crimping tool, terminal, hand
NSN 5120-00-278-2423

Cutter NSN 5110-00-288-6520

APR 92

Drill, masonry, hand, 3/4 inch dia.
NSN 5110-00-236-2046

Drill, masonry, hand, 5/8 inch dia.
NSN 5110-00-236-2047



Drill, push, w/8 drill pts ranging from 1/16 to 1 1/4
NSN 5110-00-293-3410

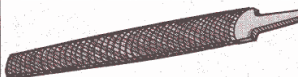


Extension, brace bit
NSN 5133-00-293-2871



Local purchase item

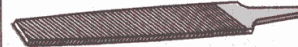
File, hand, half rd type
NSN 5110-00-241-9150



File, hand, rd type, 1/2 inch dia.
NSN 5110-00-234-6557



File, hand, 10 inch heel to pt
NSN 5110-00-242-5385



Flashlight, straight
NSN 6230-00-270-5418



49

PS MORE

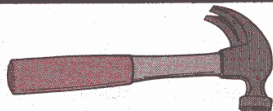
Frame, hand hacksaw
NSN 5110-00-289-9657



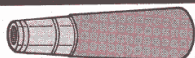
Glove shells, cold weather
NSN 8415-00-268-7869



Hammer, hand, carpenter's, nailing
NSN 5120-00-892-5485



Handle, file, 1 1/4 inch dia.
NSN 5110-00-595-8325



Knife, pocket NSN 5110-00-240-5943

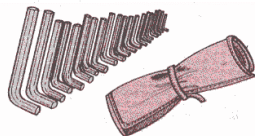


Level, plumb NSN 5210-00-516-3356

Light, test NSN 6625-00-224-6246

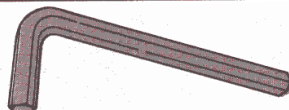


Key Set, socket head screw, hex drive,
NSN 5120-00-935-4641



L-type handle, w case

Key, inch width	NSN 5120-00-
.035	198-5400
.750	222-1489
.109	889-2162
.141	889-2163
.078	224-2504
.625	224-2510
.028	555-2639
.250	224-4659
.562	240-5268
.312	240-5274
.438	240-5277
.125	240-5292
.188	240-5300
.375	198-5390
.500	198-5391
.156	198-5392
.062	198-5398
.050	198-5401
.094	242-7410
.219	242-7411



Multimeter NSN 6625-00-121-3140



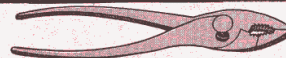
Padlock, disk tumblers
NSN 5340-01-052-0671



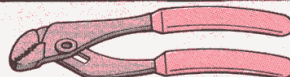
Pliers, diagonal cutting, 6 inch lg
NSN 5110-00-224-1532



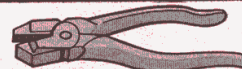
Pliers, slip joint, straight nose
NSN 5120-00-223-7396



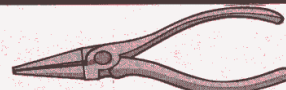
Pliers, slip joint, angle nose
NSN 5120-00-781-0819



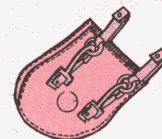
Pliers, lineman's, 8 inch lg, w/cutter
NSN 5120-00-239-8251



Pliers, round nose
NSN 5120-00-184-9403



Pouch, lineman's, belt looped
NSN 5140-01-012-7038



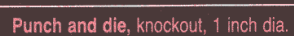
Puller, fuse NSN 5120-00-224-9453



Punch and die, knockout, 1/2 inch dia.
NSN 5110-00-288-8737



Punch and die, knockout, 3/4 inch dia.
NSN 5110-00-243-1645



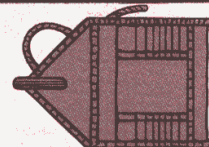
Punch and die, knockout, 1 inch dia.
NSN 5110-00-293-0108



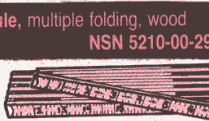
Punch and die, knockout, 1 1/4 inch dia
NSN 5110-00-293-0103



Rasp, hand, 12 inch
NSN 5110-00-233-9718



Roll, tools and accessories, cotton duck
NSN 5140-00-408-1905



Rule, multiple folding, wood
NSN 5210-00-293-3393



Saws, nested NSN 5110-00-293-0090



Screwdriver, flat tip, 5-in blade
NSN 5120-00-278-1270



Screwdriver, flat tip, 3-in blade
NSN 5120-00-236-2127

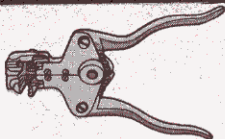


Screwdriver, flat tip, 8-in blade
NSN 5120-00-260-4837

Screwdriver, cross tip, 3-in blade
NSN 5120-00-240-8716

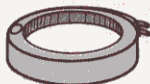
Screwdriver, cross tip, 6-in blade
NSN 5120-00-234-8912

Stripper, wire, hand
NSN 5110-01-218-5828



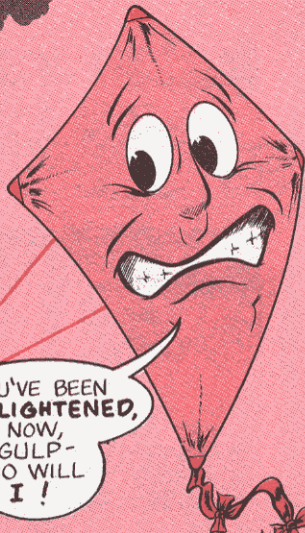
Local purchase item

Tape, fish, steel, 50 ft
NSN 5120-00-596-1584

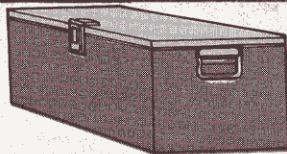


Tape, fish, steel, 100 ft
NSN 5120-00-287-4678

Tape, measuring, 16 ft
NSN 5210-00-150-2920



Tool box, portable, steel, 42 inch lg
NSN 5140-01-237-3233



Wrench, adjustable, 18 inch lg
NSN 5120-00-240-1414



Wrench, adjustable, 10 inch lg
NSN 5120-00-449-8083

Wrench, pipe, steel, straight jaw
NSN 5120-00-277-1461



Wrench, pipe, 1 inch max jaw opening
NSN 5120-00-277-1485

Dump Trucks...

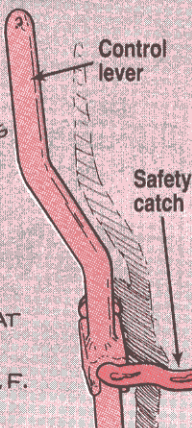
Safety Locks Enough

DEAR HALF-MAST,

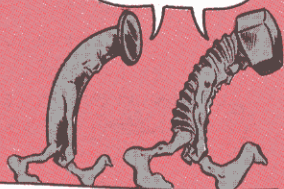
PARA 2-176(2)
OF AR 385-55
REQUIRES A
"POSITIVE LOCKING
DEVICE" ON DUMP
TRUCKS WHEN
USED TO HAUL
TROOPS.

DOES THE
SAFETY CATCH
ON THE DUMP
BODY CONTROL
LEVER MEET THAT
REQUIREMENT?

SFC M.S.F.



WE KNOW WHEN
WE'RE NOT
WANTED!



Dear Sergeant M.S.F.,

Yes. The safety catch is a positive locking device. Never use a bolt or pin to lock the dump body to the frame. If you forget to remove it, you can damage the hydraulic system.

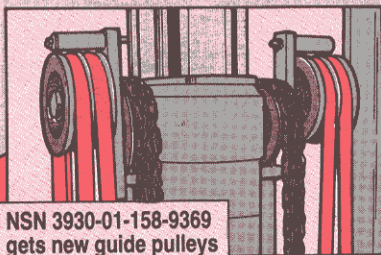
Half-Mast

M4K Forklift...

Hydraulic Hose Help

Hydraulic hoses on some M4K RT forklifts flop around, dangle and tangle up. They get damaged if they jump off the guide pulleys.

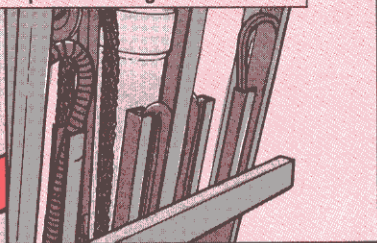
If this happens to your forklift, replace the old pulley with pulley kit, NSN 3930-01-158-9369.



If the pulley's not the problem, you may be missing hose channels. Before,

during and after operation, check to see if the hose channels are secure and

Replace missing hose channels



all there. If any are missing, replace them with these NSNs:

Channel	NSN 3930-01-168-
Main Center	9547
Left Hand	9548

Hose Rub Fix

Your scoop loader's air compressor oil supply hose rubs against the fuel sediment bowl. Enough rubbing wears through the outer cover to the fabric beneath. Then the hose leaks.

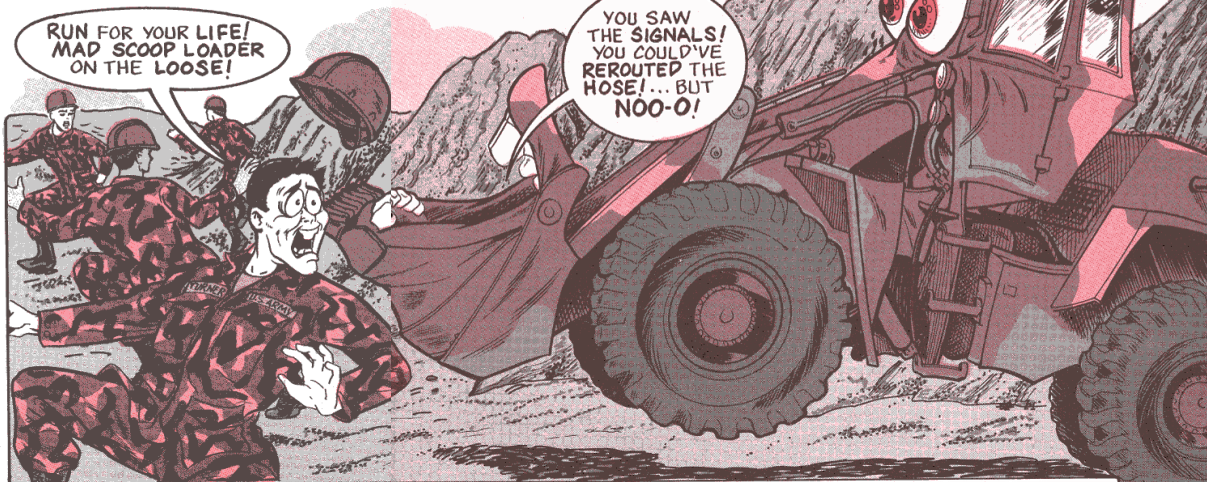
Look at the hose when you have the scoop loader in for service. If you see signs of rubbing, reroute the hose assembly.

Here's what you'll need:

Item	NSN 4730-
Elbow, 1/8-in pipe to 5/16-in tube	00-288-9440
AND EITHER	
Elbow, street, 1/8-in	00-053-0266
OR	
Nipple, close 1/8-in	00-230-1996
AND	
Elbow, 1/8-in pipe	01-171-1934

Here's how to do it:

- 1 Take off the hose and put it aside.
- 2 Take the tube off the air compressor and throw it away.

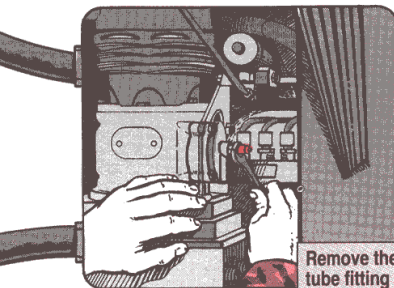


3 Screw the pipe to tube elbow, NSN 4730-00-288-9440, into the compressor with the opening facing down. Tape all pipe threads with Teflon tape, NSN 8030-00-889-3534, to get a good seal.

4 You can either screw a street elbow (NSN 4730-00-053-0266) into the fitting on the engine block OR screw a close nipple (NSN 4730-00-230-1996) and a pipe elbow (NSN 4730-01-171-1934) into the fitting on the engine block.

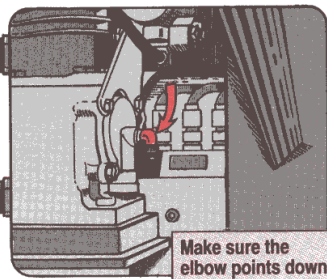
5 Be sure the elbow is horizontal and the open end of the elbow faces the air compressor.

6 Replace the hose you removed earlier.



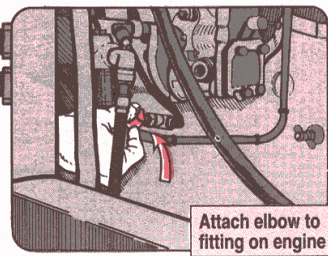
Remove the tube fitting

54



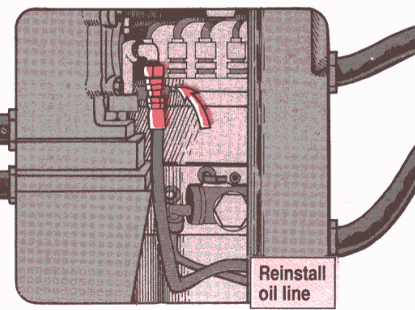
Make sure the elbow points down

APR 92



Attach elbow to fitting on engine

APR 92



Reinstall oil line

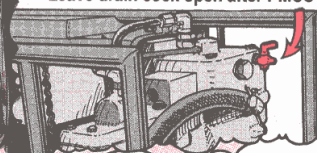
55

Smoking Satisfaction

GOOD SMOKING IS THE WHOLE POINT WITH YOUR M3A4. HERE ARE A FEW POINTERS THAT WILL HELP LIGHT UP YOUR M3A4 AND KEEP IT PUFFING AWAY.

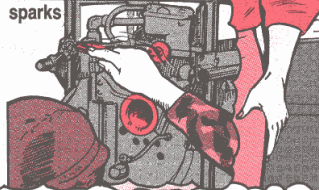
- Leave the fog oil pump drain cock open after you check it during PMCS. Otherwise, there will be too much pressure on the engine head and your M3A4 may not start.

Leave drain cock open after PMCS



- While testing the magneto-air pump during PMCS, pull the head and look in the engine chamber. You should see a bright blue spark when you pump the handle. If the spark's not bright blue, it's not hot enough and you'll have starting problems. Tell your repairman.

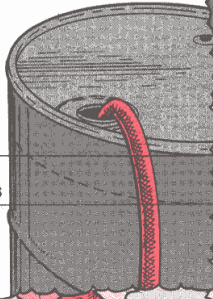
Pump handle and look for sparks



- Do not put the return hose in the fog oil drum if the drum is close to full. The air from the hose will force oil out of the bung hole. Overseas, your unit may be forced to dig up any oil-contaminated soil and dispose of it as hazardous waste. When starting a full drum of fog oil, put the return hose in an empty drum until the oil level is down 4 inches in the new drum. Ten minutes of operation is long enough.

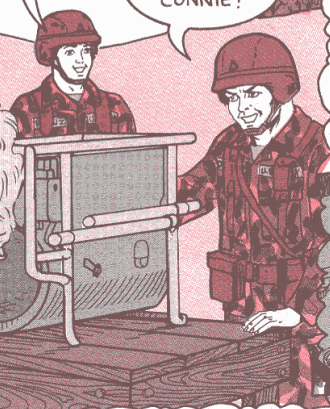
Don't put return hose in full drum

4 inches



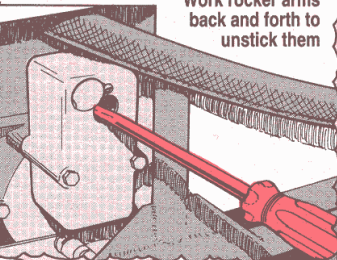
NOW THAT'S SMOKING SATISFACTION!

IT SURE IS, THANKS TO CONNIE!



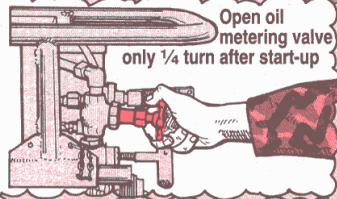
- After starting the engine, close the fog oil pump drain cock and make sure the rocker arms are moving. If they're not, fog oil won't be pumped and the engine can seize in a little more than two minutes. Shut down immediately. You can sometimes free frozen rocker arms by prodding them with a screwdriver. If that doesn't work, tell your repairman.

Work rocker arms back and forth to unstick them



- When you open the oil metering valve after start-up, turn it no more than 1/4 turn. If you turn it farther, you flood the engine chamber. If 1/4 turn doesn't produce enough smoke after a couple of minutes, slowly open the valve more.

Open oil metering valve only 1/4 turn after start-up



- Be sure to install the pressurizing disc retainer shiny side up when you assemble the air check valve. If you get it upside-down, the disc can't move and neither will the rocker arms.

Shiny side up or you won't get smoke



Dull



Shiny

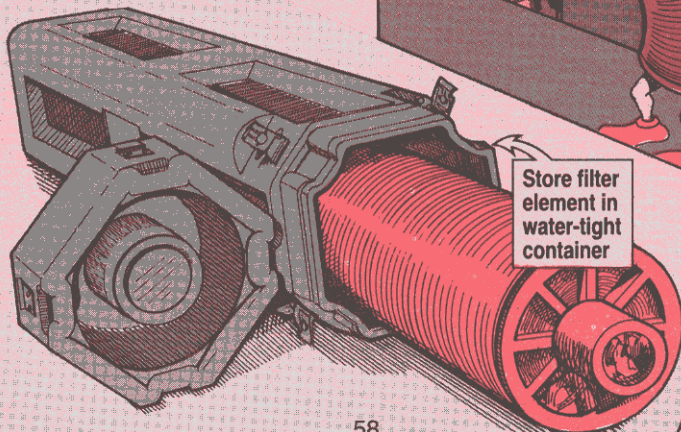
Preserve Filter Elements—Save \$\$\$

The 6-in diameter filter elements on the 600 GPH and 150K GPD reverse osmosis water purification units (ROWPUs) deteriorate if they're left on the ROWPU when it's not being used. And that costs Uncle Sam big bucks!

To extend the life of the elements, always take them out between uses and store them in water-tight containers.

Order the reverse osmosis (RO) element reusable container assembly with NSN 4610-01-212-2704. That NSN brings you eight containers. Each container will hold one 6-in RO element and will retain the moisture that is in the element. You'll need eight containers for the 600 GPH ROWPU and 80 containers for the 150K GPD ROWPU.

The desert sand-colored containers are lightweight and can be stacked four high and banded together. Store them in garrison or on the ROWPU.



Clean Correctly

THERE'S A RIGHT WAY AND A WRONG WAY TO WASH YOUR BODY ARMOR FRAGMENTATION VEST.

- Use a soft cloth or soft to medium bristle brush (NOT A STIFF BRISTLE BRUSH) to brush away loose dirt from the touch- and-close fastener and the outer cover surface.



HERE'S THE RIGHT WAY!



- Wet the vest thoroughly by holding it under a warm shower or by dunking it in warm water. Never use hot water—it'll shrink the vest.



- Rinse the suds out with warm water.



- Use a mild soap or detergent and a soft to medium soft bristle brush to clean soiled areas. Use GI soap on badly soiled areas. Scrub only long enough to remove soil.



- Place a stick or pole through the armholes of the vest and hang it to dry. But never hang it near heat or an open flame.



See in 3-D!

You don't need special glasses to learn about TACOM's 3D program, but you do need TB 43-0221-1. The 3D stands for Delayed Desert Damage.

It makes no difference that you've changed all oils, lubed every fitting,

blown out every hole and scrubbed until your hands are raw. Hidden sand and heat damage has occurred and it will cause parts to fail before their time.

IF YOU DIDN'T GET A COPY OF TB 43-0221-1, DELAYED DESERT DAMAGE, HAVE YOUR PUBS CLERK ORDER ONE.

TB 43-0221-1

TECHNICAL BULLETIN

DELAYED DESERT DAMAGE
SPECIAL MAINTENANCE PROCEDURES
FOR
TACTICAL, COMBAT AND SPECIAL PURPOSE EQUIPMENT
Unit, Direct Support and General Support Maintenance Procedures



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U.S. ARMY TANK AUTOMOTIVE COMMAND
WARREN, MI 48397-5000
13 February 1982

TACOM's 3D program is to help you extend the life of Desert Shield/Storm equipment. All that's in the 3D TB.

RL-31 NSN Correction

Use NSN 3130-01-290-6477 to get the bearing cap for the RL-31 reel unit. The NSN on Page 46 of PS 470 is wrong.

Tan Tarp NSN

NSN 2540-01-330-8062 gets a 12x17-ft tan tarp that fits over the turret of M1 tanks, M2/M3 Bradleys, M113-series APCs and the M551.

M4K Throttle Cable NSN

NSN 2590-01-211-1089 gets the forklift's throttle cable shown as Item 18 in Fig 25 of TM 10-3930-638-24P. The NSN in the TM is wrong.

2 1/2-Ton Canvas Bows

The metal bows for the cab canvas cover on your truck didn't make TM 9-2320-209-20P. To get yours, use NSN 2540-01-092-1264.



2 1/2-Ton Seat Cover NSN

There's no need to replace the driver's seat of your 2 1/2-ton truck just because the back or bottom cover is ripped or torn. Instead, order a cover that fits over the entire seat with NSN 2540-00-179-3490.

M109, M185 Blackout Panels

Been in the dark on how to get blackout panels for your shop vans? No problem. NSN 6220-00-040-2094 brings the side window panel and NSN 2510-00-763-7351 gets the front window panel.

Halon Bottle Charging Station

The NSN for the pressure regulator on the Halon bottle charging station has been deleted from the Army system. Order the pressure regulator on a DD Form 1348-6 by using CAGE 27372 and PN 87-1500-580 from RIC S9G.

E-a-s-y Does It

Be careful when you turn the water control knob on the Sanator of your M17 Decon. If you force it past the black arrow, it'll break off. Because the water recirculating valve does not have an NSN assigned, you'll have to replace the whole water pump assembly just to get the valve. Once you get to the end of the black arrow--STOP!

GPT-3D-1 Load Bank

Get the 200-amp contactor for your 0-30KW Sun Electric GPT-3D and GPT-3D-1 load banks with NSN 5945-00-982-7123. The NSN listed on page 17 of TM 5-6115-423-25P is wrong.

Fuel and Oil Nozzle

TM 10-4930-204-23P steers you wrong on the CAGE and part number for the fuel and oil nozzle on the United Manufacturing and Engineering Corporation Model 2938 tank and pump unit. Order the nozzle from RIC A12 on a DD Form 1348-6 using CAGE 97463 and part number 13217E2974.

6-Ton Van Light NSN

NSN 6250-01-138-7837 gets the fluorescent ballast lamp for the 6-ton semitrailer van (model M348A2H only). The NSN shown in TM 9-2330-246-24P is wrong.

VR11 Tamper Clamor

Forget what we said about cleaning the VR11 backfill tamper's air filter with gasoline and regapping the spark plug on Page 46 of PS 471. Gasoline for cleaning is dangerous and spark plug PM is your repairmen's job.

Flameless Ration Heater

Use NSN 8970-01-321-9153 to get the flameless ration heater. The heater works by water-activated chemical reaction to heat your MREs.

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?

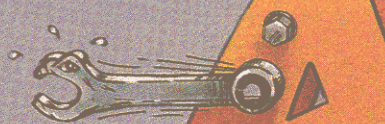
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To make your next trip in your vehicle
a good **RUN** . . . just

 **W** **ATCH-**

Burn gages lead to component failure

 **A** **CT-**

Fix faults now

 **L** **ISTEN-**

Odd sounds mean trouble

 **K** **NOW**

your vehicle's operating limits