

Issue 474

TB 43-PS-474

THE PREVENTIVE MAINTENANCE MONTHLY

PS

May
1992

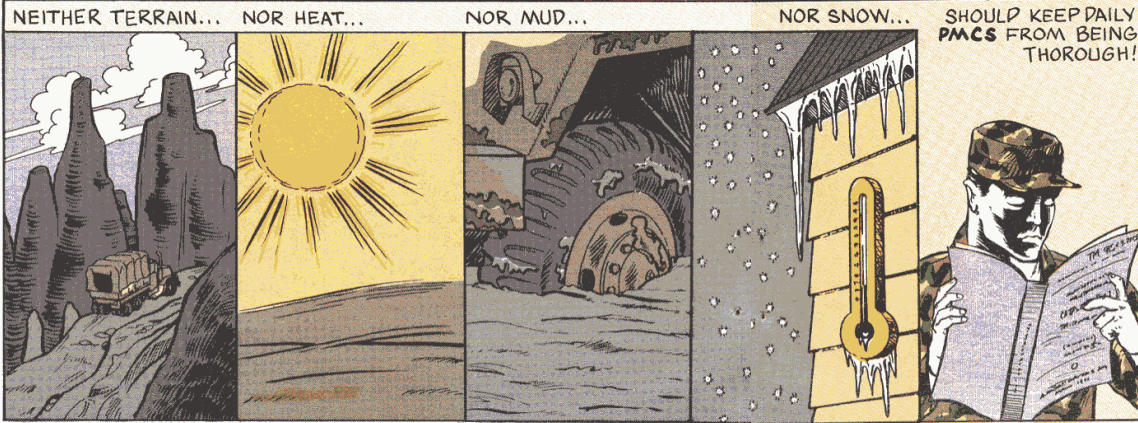
WHAT'S
THE **BIG DEAL?**
I **DOUBT** IF THESE
SUPPLIES ARE
HAZARDOUS
ANYWAY.

YOUR
DOUBTS
COULD BE
HAZARDOUS!



Approved For
Public Release;
Distribution is
Unlimited

For Handling Materials and Hazardous Waste
See Page 25



SHOULD KEEP DAILY
PMCS FROM BEING
THOROUGH!

Before the Day's Run

Keeping up on your vehicle's preventive maintenance, day in and day out, is no easy task.

So you ask, "Is preventive maintenance worth all of the extra effort?"
You bet your life!

Why? Because military-designed equipment is exposed to the worst conditions possible.

- Bouncing and twisting on rough terrain . . .
- Fine sand dust, not to mention sticky mud . . .
- Hub-deep water and repeated hosing at the wash rack . . .
- Desert heat and Alaskan chill . . .
- Operators who forget daily doses of PMCS.

But despite all of these conditions, equipment is expected to be mission capable at all times!

It's impossible to design equipment that can take this abuse and still perform thru thick and thin.

So, before each day's run, apply the equalizer—PM.

PM—Tomorrow's Life Saver

Preventive maintenance includes heading off the need to repair and replace parts. That means being your own inspector and checking for leaks, loose fittings, and broken wires before each day's run. If you can't fix it, report it. What seems like a small problem today can end up a big problem tomorrow—especially when your life and the lives of others depend on it.

ASK YOURSELF,
"WOULD I STAKE MY LIFE—
RIGHT NOW—ON THE
CONDITION OF MY
EQUIPMENT?"



TB 43-PS-474, 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:

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

By Order of the Secretary of the Army:

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General, United States Army Chief of Staff

Official:

Milton H. Hamilton
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Administrative Assistant to the Secretary of the Army
01249

PS, The Preventive Maintenance Monthly (ISSN 0475-2953) is published monthly by the Department of the Army, Lexington, KY 40511-5101. Second Class Postage is paid at the Lexington, KY post office and at additional mailing offices.

Postmaster: Send address changes to PS, The Preventive Maintenance Monthly, US Army Pubs Ctr, 2800 Eastern Blvd, Baltimore, MD 21220-2896.

Keep the Spark Alive



ARE YOU SURE ABOUT THIS?

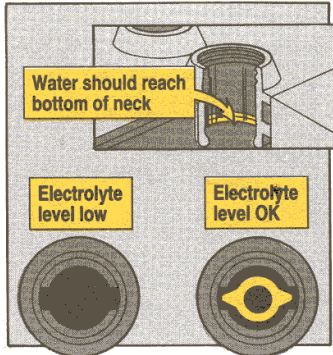
I HAVE ALL THE TOOLS I NEED TO REMOVE THE BATTERY!

WHAT YOU NEED IS A MECHANIC TO DO THE JOB!

Those 12- and 24-volt workhorses that provide the electric power to your vehicle don't need kid glove treatment to keep operating. They do need regular attention, tho.

Keep 'em Watered

As the operator, your biggest job is to make sure the battery always has enough water. Water is the lifeblood of your battery.



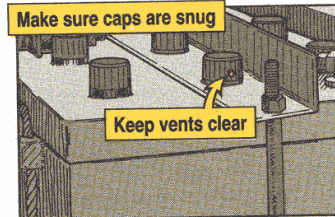
Water levels are easy to check. Just remove the caps and look inside. Water should be about three-eighths of an inch above the plates. If your battery has filler cap necks, water should reach the bottom of those necks.

(On a maintenance-free battery, just eyeball the indicators on top. You should see a green dot. If the indicator is dark or clear, notify your mechanic.)

If your battery needs water, it needs distilled water. NSN 6810-00-682-6867 brings six 1-gal jugs. NSN 6810-00-356-4936 brings one 5-gal container. Depending on your system, either you or your mech adds the water. Check your -10's PMCS if you're not sure who does the adding.

If you need water and the distilled variety is not available, use rain water, tap water or even melted snow. Strain any of these substitutes through several layers of clean cloth. Catch and store this water in a clean plastic jug or covered glass container.

Never overfill a cell. If you do, electrolyte will escape through the cap vents when the battery charges. This creates two problems. One, electrolyte dries and coats the outside of the battery. Two, the battery can't charge without electrolyte.



You'll get a similar problem if you forget to tighten the vent cap. The electrolyte splashes through the gaps.

If the cell always seems to need water, the battery has a leak or is overcharging. Call your mech for help.

Be sure you keep the holes in the vent caps clear, too. That allows built-up gas inside the cells to escape.

Easy Does It

Lay off the heavy-handed stuff when it comes to the outside of your battery.

It's your mech's job to remove a bad battery, or to remove a good one to inspect the battery case for corrosion damage.

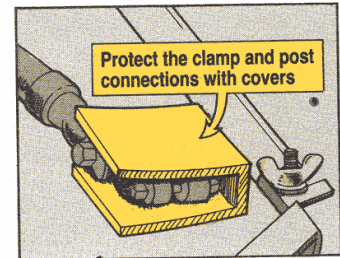
Trying to pry a cable clamp from a terminal with a screwdriver is a no-no. Chances are you'll punch a hole in the battery case or break the terminal post.

Same goes for banging the clamp with a hammer. Something will give and it will probably be costly.

Your mech has all the tools he needs to remove the clamps quickly, easily and safely.

It can be dangerous to mess around the top of the battery, too. Touching the positive terminal and the side of a metal case with a metal tool creates a shocking situation.

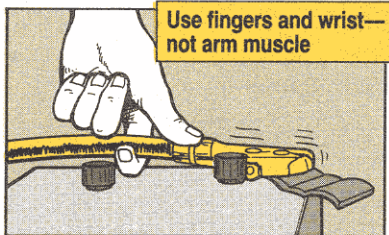
You can short stop that danger by putting rubber covers over the clamp and post connections. The cover is NSN 5940-00-738-6272.



One thing you can do at the top of the battery is check hold-downs and terminal lugs for tightness.

Test hold-downs by trying to move the battery. If it moves easily, have your mech tighten the nuts.

Using just your thumb and two fingers, try to move the cable-to-clamp connections. If they're loose, report



them. Likewise, gently test the tightness of the clamp on the terminal. It has to be tight, too.

You can clean light corrosion from terminals with a dry rag. Toss the rag when you're done. It has acid on it now.

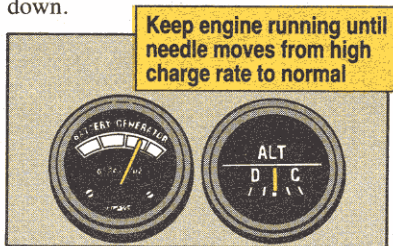
From the operational side, don't discharge your battery by leaving the lights on when you don't need them, or using your radio for long periods without starting your vehicle and charging the battery.

Check the Charge

Your battery's health is in your hands. Keep it charged up. If you use up its power—hard starts, short trips, etc.—and don't make sure it's being charged, you'll have a dead power source next time you need it.

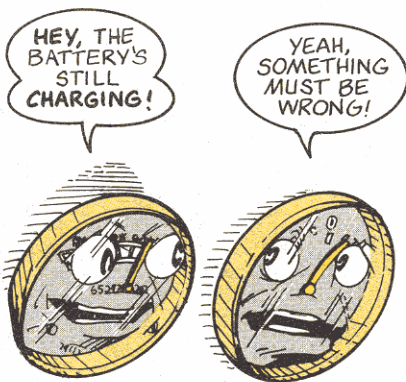
Charging is vital in the winter when cold weather saps a battery's oomph.

How do you know if it's being recharged? Watch the BAT-GEN indicator or ammeter before you shut down.



With your engine running at high idle, the gage should be in the charging zone. Keep the vehicle running until the charging rate drops back. Then the battery is ready to go next time.

Don't overcharge, tho. If your gage shows it's still charging after 30 minutes, something's wrong.



Overcharging boils off water. The plates inside the battery buckle from the heat. The battery's ruined—it can't be charged again.

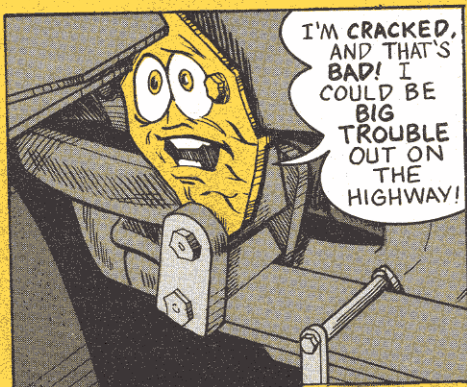
If your battery's overcharging, report it. Your mechanic will check out the charging system for you.

Spring Brackets Cracked?

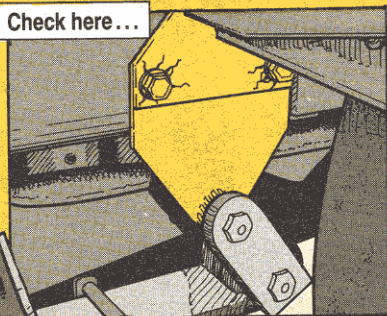
The rear mounting bracket on the front axle spring can break.

Mechanics have found cracks in the rear bracket mounting holes and in the welds.

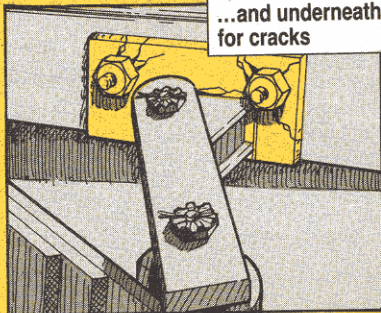
Right now, before you drive that big truck again, eyeball the rear mounting bracket on the front spring. If you find a cracked bracket, report it. It's support's job to replace a bracket.



Check here...



...and underneath for cracks



I'M A NEW HEAVY-DUTY BRACKET, AND THAT'S GOOD! BRACKETS LIKE ME ARE AVAILABLE WITH NSN 2510-01-272-7648 FOR THE LEFT SIDE AND NSN 2510-01-272-7649 FOR THE RIGHT.

Cracks are not always easy to see, so clean off all grease and dirt from the brackets before you eyeball them. Use a stiff bristle wire brush to remove stubborn dirt.



MASTER SERGEANT HALF-MAST, OUR TRANSMISSION MOUNTING BOLTS KEEP SHEARING OFF! WHAT SHOULD WE DO?



Grade 8 Bolts Can Do the Job!

Transmission mounting bolts on these 5-tonners have a nasty habit of vibrating loose and shearing off.

That's because some trucks still have the Grade 5 mounting bolts that were installed by the manufacturer. They are not strong enough—and can't be tightened enough—to hold the transmission.

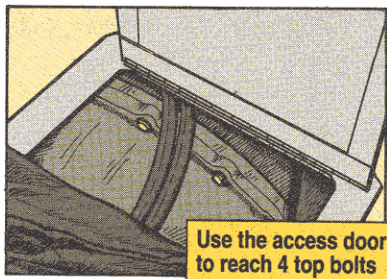
Check for loose bolts, fluid leaks or signs of gasket damage during the next scheduled service.

Give DS the repair job if you find any sheared bolts, gasket damage or leaks.

If the bolts are just loose, you unit mechanics can replace them with Grade 8 bolts, NSN 5305-00-638-8920, and lock washers, NSN 5310-00-004-5033. Be sure to replace one

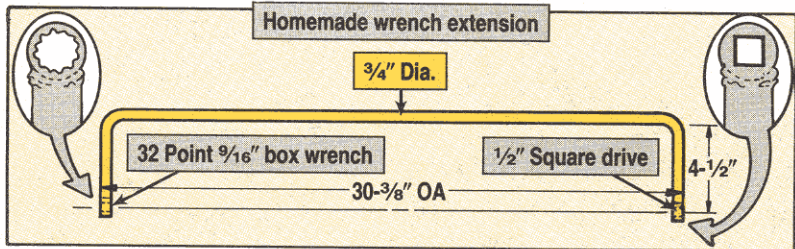
bolt at a time, though. The whole transmission will fall out if you remove all the old bolts before putting in the new ones.

You can reach the four top bolts through the transmission access door in the floorboard of the cab. Use a



Use the access door to reach 4 top bolts

homemade wrench extension to get to the other eight bolts underneath.



Torque the Grade 8 bolts to 41-49 lb-ft. Never use too much torque. If you do, you'll twist the heads off, and that means a DS repair job.

DEXRON II - Macht Nichts

DEAR HALF-MAST,

DURING SCHEDULED MAINTENANCE, I NOTICED THAT OUR UNIT'S M939-SERIES 5-TON TRUCK CAME FROM THE FACTORY WITH DEXRON II TRANSMISSION FLUID IN THE TRANSMISSION AND POWER STEERING SYSTEM.

BUT THE LO SAYS TO USE OE/HDO-10 IN THE TRANSMISSION.

WHAT GIVES? WHAT DO WE USE WHEN WE NEED TO ADD OR CHANGE OIL?

SGT M.S.F.



IF YOU NEED TO ADD OIL, USE OE/HDO-10. IT'LL MIX WITH DEXRON II JUST FINE.

WHEN YOU CHANGE THE OIL, USE OE/HDO-10.

M916-M920 Cable NSN

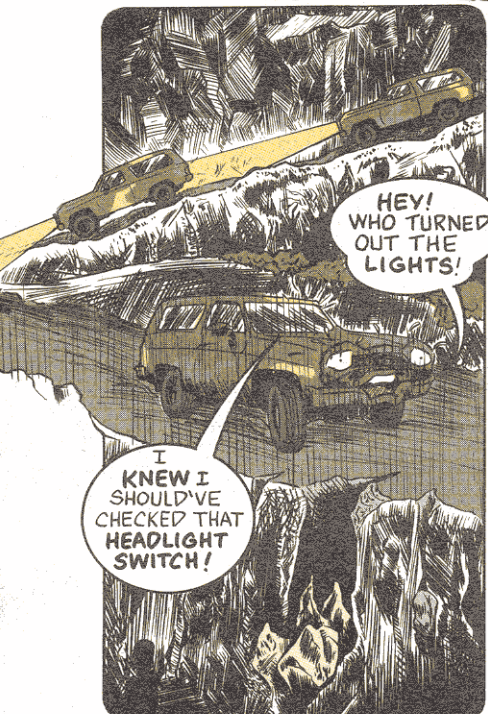
Use NSN 2590-01-114-2113 to get a push-pull control cable for the driver's side air vent on M916 thru 920 trucks. This cable is also used for the heater and defroster control. The part number listed in TM 9-2320-273-24P is no good.

HEMTT Mud Flap Chain

You won't find an NSN for the chain for the mud flap in the parts TM. Use NSN 4010-01-154-2290 to get the chain. Make a note until the HEMTT -20P TM is updated.

CUCVs...

Keep Your Lights Shining



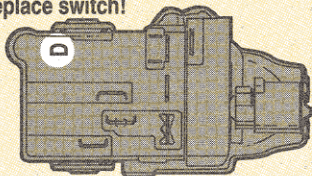
Some early 1986 model CUCVs have bum headlight switches. Lights can go out when you need 'em most—in the dark of the night or in a dense fog.

If your CUCV is a 1986 model, check the vehicle identification number (VIN).

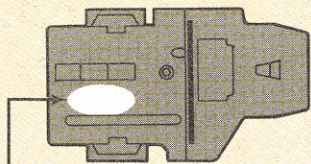
All except M1009
GF 318360 to GF 319976
GF 388768 to GF 393843
M1009
GF 113688 to GF 114911
GF 167051 to GF 170532

If the VIN is within these ranges, get your mechanic to remove the headlight switch and look at the top for a code D or M. If you find one of these codes, replace the switch.

Code of D or M?
Replace switch!



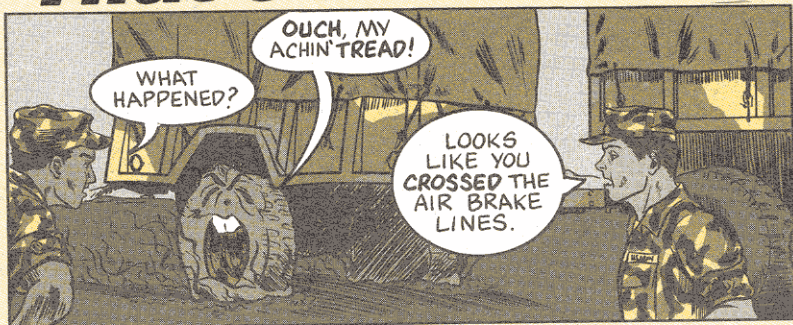
If you don't see a D or M, turn the switch over and look at the bottom. If the Julian date is 0015 or the code is between 9235 and 9305, the switch is a bummer.



Look for Julian Date or Code here

Report bum switches per TACOM Safety-of-Use Message 91-10. If you don't have a copy, see your DS shop, TACOM Logistics Assistance Representative, or write MSG Half-Mast. Nearly 800 trucks have bum switches. Get yours checked now to make sure your headlights don't check out when you've gotta have 'em.

That's the Brakes

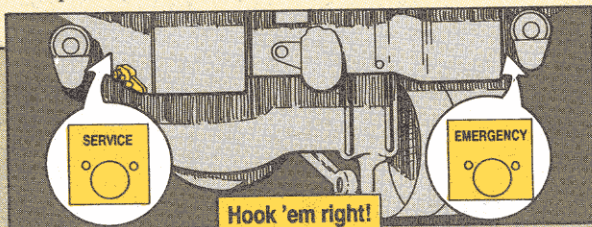


“**C**areful” is the word to keep in mind when you hook up the brake air hoses from your 2-wheel trailer to your 2½- or 5-ton truck. If you cross the air lines, the trailer brakes will lock up, burn out and ruin the tires.

So-o-o-o, make sure your trailer's hooked up right!

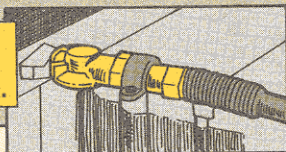
It's easy to get it right. Just remember the SERVICE air coupling on the tow vehicle is always on the road side and the EMERGENCY is on the curb side.

Best bet is to color-code trailer air hose connectors and the truck's glad hand couplings—a dab of yellow paint on the SERVICE connectors and red on the EMERGENCY pair.

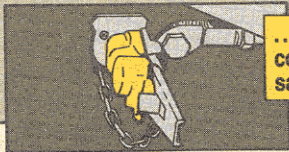


ID plate	2½-ton truck	5-ton truck
EMERGENCY	NSN 9905-00-774-4284	NSN 9905-00-999-7369
SERVICE	NSN 9905-00-740-9721	NSN 9905-00-999-7370

Paint trailer coupling ...



... and truck coupling the same color



Chock Blocks

If your parked truck or trailer rolls away on its own, there's no telling where it might end up! The parking brakes don't always hold.

One way to keep a vehicle in place when parked is to use chocks. They keep the wheels blocked when the brakes fail to hold.

You can order wooden chocks with NSN 2540-00-912-1848 or hard plastic ones with 2540-01-244-3672. Or, get your shop to make chock blocks to use. They can use scrap lumber to make them.

Use a wooden chock that's on hand as a pattern for size and for locating the bolt holes.

Here's the hardware needed:

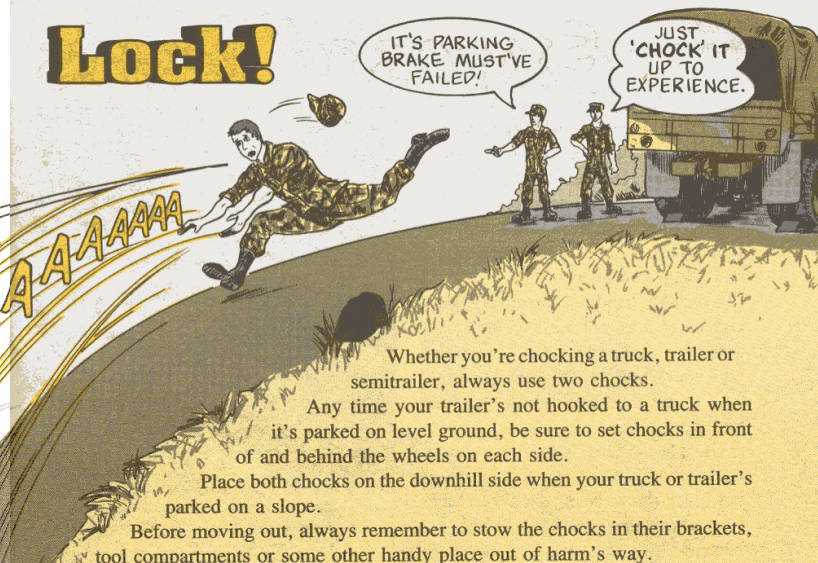
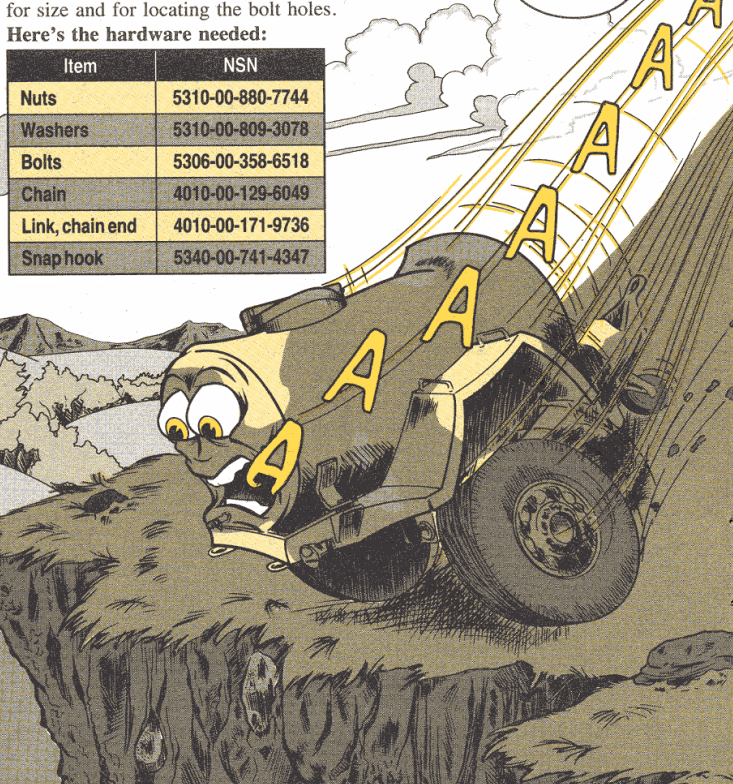
Item	NSN
Nuts	5310-00-880-7744
Washers	5310-00-809-3078
Bolts	5306-00-358-6518
Chain	4010-00-129-6049
Link, chain end	4010-00-171-9736
Snap hook	5340-00-741-4347

HEY!
WHERE
ARE YOU
GOING!?

Lock!

IT'S PARKING
BRAKE MUST'VE
FAILED!

JUST
'CHOCK' IT
UP TO
EXPERIENCE.



Whether you're chocking a truck, trailer or semitrailer, always use two chocks.

Any time your trailer's not hooked to a truck when it's parked on level ground, be sure to set chocks in front of and behind the wheels on each side.

Place both chocks on the downhill side when your truck or trailer's parked on a slope.

Before moving out, always remember to stow the chocks in their brackets, tool compartments or some other handy place out of harm's way.

Caution: Hearing Decals

Want to put up a lasting reminder where hearing protection is needed? Here are the signs and decals you need.

For those places a small decal will do, ask for a 2.13- by 4.6-in caution sign. It's NSN 9905-00-198-2728. The sign is black on yellow and has an adhesive backing.

For bigger jobs, try these on for size:

CAUTION
HEARING
PROTECTION
REQUIRED

Size 10 x 14
NSN 9905-01-100-8205

CAUTION
HEARING
PROTECTION
REQUIRED
IN THIS AREA

Size 10 x 14
NSN 9905-01-031-1247

CAUTION
HIGH
NOISE AREA
WEAR
EAR PLUGS

Size 10 x 14
NSN 9905-01-122-1140

Exposed Parts Need Coverup

All your maintenance work is wasted—and your problems multiplied—unless you protect exposed parts from dirt, dust, sand and damage.

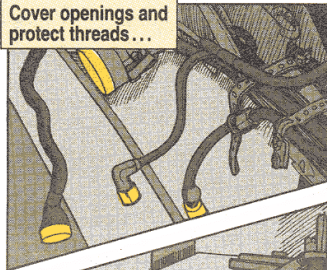
Any time you work on equipment that has hoses, lines, tubes and fittings, bad things can happen.

- Rough handling breaks delicate connector pins and mashes threads.

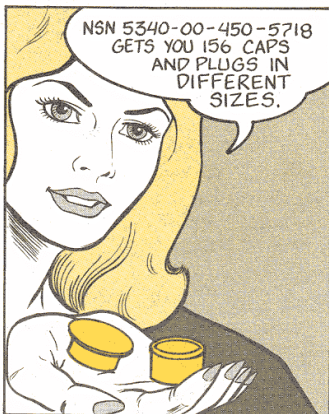
- Dirt, dust and sand get into holes and open lines, contaminating fluids and gritting up connections so they won't seal.

Use plastic caps and plugs to cover openings and protect threads until you put everything back together. Save caps and plugs that came with new hoses or lines for reuse.

Cover openings and protect threads...



...on all equipment you take apart for service or maintenance



Need only certain sizes? Check the FSC 5340 IL microfiche under "Cap, Protective, Dust and Moisture Seal," or "Cap, Plug, Protective, Dust and Moisture Seal."



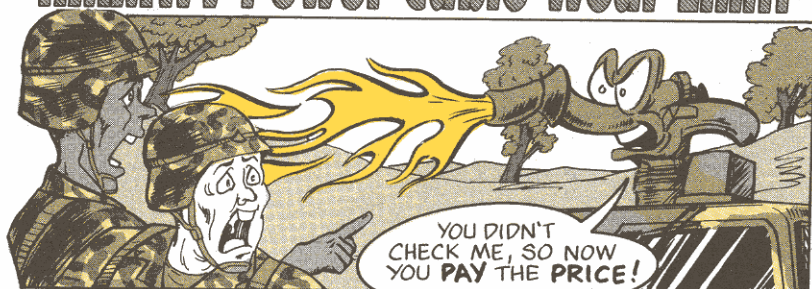
Larger bags can hold larger parts or disconnected cables, for example. You can tag the bags to make sure everything goes back to the same place.

Here are some standard-size self-sealing plastic bags:

Size (in)	NSN 8105-00-
8 x 6	137-9133
10 x 8	137-9134
12 x 10	137-9136
12 x 12	837-7757

Bags in different sizes and styles are on FSC 8100 IL microfiche, under Bag, Plastic.

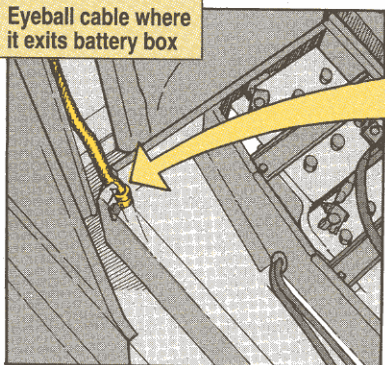
HMMWV Power Cable Wear Limit



The battery box on some older HMMWVs has cut through the cover of the TOW power cable. That can lead to fire or a battery explosion. If your unit has HMMWV TOW carrier models M966, M1045, or M1046 with serial numbers between 1 and 19,410, inspect them like this:

Eyeball the TOW power cable where it exits the battery box. As long as the cable's outer covering is not so worn that the wire inside shows, the cable's OK, even if its cover is chafed.

Eyeball cable where it exits battery box



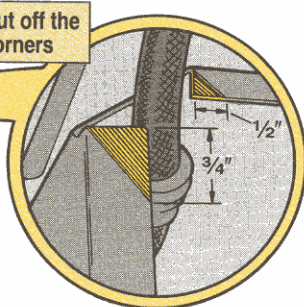
If you see bare wiring, order a new cable, NSN 5995-01-195-1918 (this is

a new NSN). Do not continue to use the old cable.

Disconnect the cable like it shows in your -20 TM. For firing, your crewmen should use the missile guidance set (MGS) battery instead of the vehicle power conditioner.

If the top edge of the battery box forms two points where the power cable comes out, cut off the corners with shears. Use a file to round the corners and remove any burrs. Spot paint if necessary.

Cut off the corners



For more info, see TACOM Safety of Use Message 91-22. Your TACOM Logistics Assistance Representative will have a copy.

Insulate Against High Costs

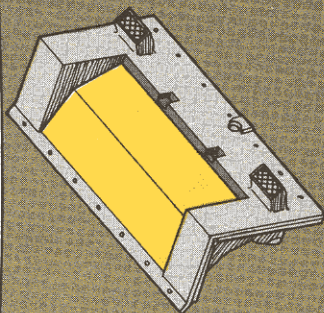
Dear Editor,

When the insulation on the panel assembly (Item 183, Sheet 11, Fig 5 in TM 9-1440-1585-24P) in the gunner's compartment wears out, which it does frequently, the TM says replace the panel assembly. That costs \$2,636.

We've found it's much cheaper and simpler to just replace the insulation. NSN 5640-00-198-7255 gets the insulation for \$64. Use the old insulation for a pattern and cut the new insulation to fit. Glue the new insulation in place with adhesive, NSN 8040-00-262-9031.

Sal Manfredi
Ft Bliss, TX

Use old insulation
for a pattern

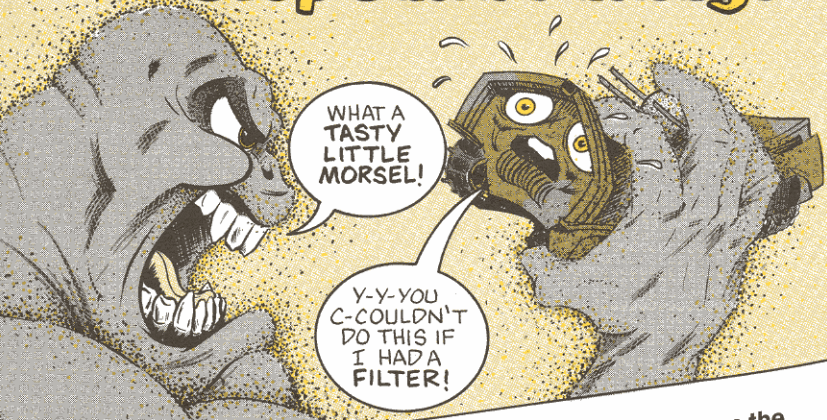


(Editor's note: Your suggestion insulates against high-cost replacements. Thanks.)

IT'S A
GREAT IDEA
WITH BIG
SAVINGS!



Stop Sand Damage



Dear Editor,

Sand can do a real number on the main power unit (MPU). If it's sucked in the MPU compartment, it can ruin clutch plates, the generator, the bearings on the fan tower and belts. And there's really not much to stop the sand.

We've found scouring pads, NSN 7920-00-045-2940, do a good job filtering out sand. They're porous enough to let in air, but not sand.

We cut one pad to fit over the inlet hole in the MPU compartment and another to fit over the inlet to the

structure vent fan. Tape the pads on with duct tape.



Also, if the line replacement unit filters for the Forward Looking Infrared get too beat up in the field to do their jobs, you can put a pad behind each filter to keep the FLIR going until you can get the filters replaced.

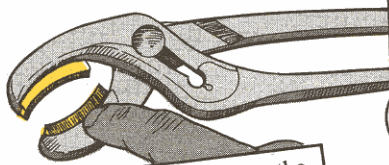
SGT Joseph Marcheggiani
Ft Bliss, TX

(Editor's note: Your pad solution should clean up sand problems, although the pads shouldn't be needed except in very sandy areas like the desert.)

NSNs to the Rescue

HERE ARE A FEW NSNs TO HELP YOU CHAPARRAL REPAIRMEN:

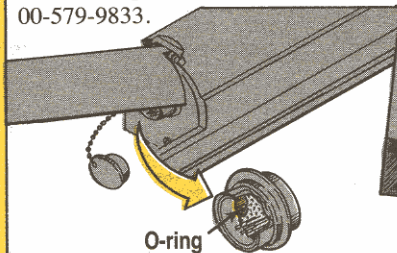
- Order new jaws for the pliers in your tool kit with CAGE 00784 and PN AT508K4 on a DD Form 1348-6 from RIC B64.



- Order a grease plug for the azimuth trunnion with NSN 4730-00-278-2965.



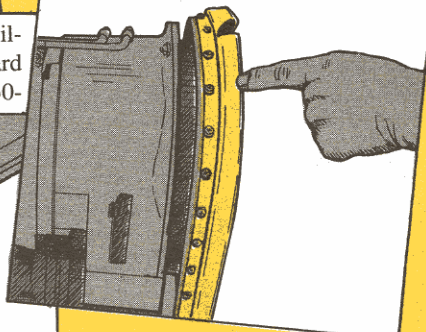
- Order a new O-ring for the umbilical cable receptacle in the forward access compartment with NSN 5330-00-579-9833.



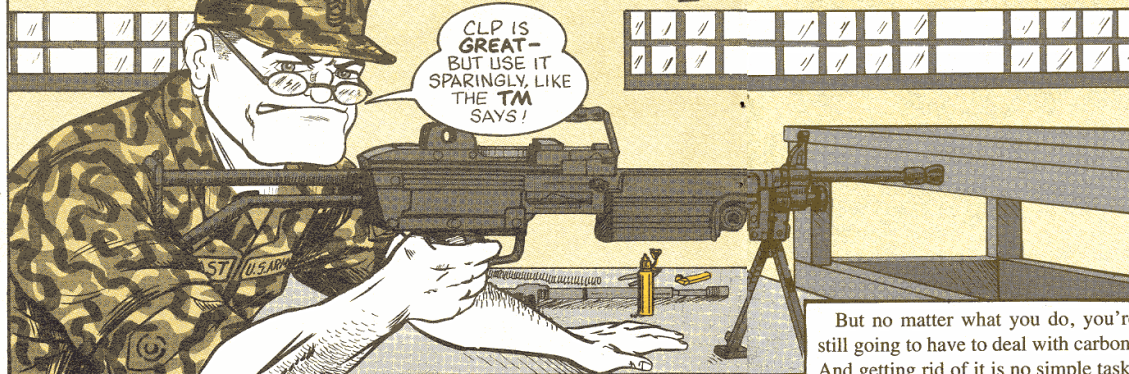
O-ring

WOW!
THESE NSNs
REALLY ARE A
LIFESAVER!

- There are no ready-made seals for the cover assembly on the diesel power unit, but you can make a new one with P-strip, NSN 5330-01-346-7834. The P-strip is Item 122 in the bulk listing of TM 9-1440-1585-24P, but its NSN is wrong. Jot down the new one.



CLP + Carbon = Bad News

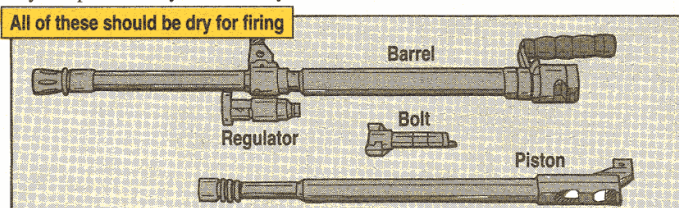


Carbon means death to your M249 squad automatic weapon (SAW). After just a couple hundred rounds, carbon starts to coat moving parts and plug the gas system. Soon your M249 is straining to feed and eventually it stops feeding... and firing.

CLP is great for cleaning and lubricating your M249. But it's also great for attracting carbon. That's why you must use CLP sparingly and only like TM 9-1005-201-10 says.

Some gunners think CLP is good for the M249's gas system. It's not. CLP helps carbon plug up the gas system even quicker. Keep CLP—and all other lubes—away at all times from the barrel's gas regulator hole, the gas regulator, the gas cylinder, and the piston end of the piston assembly.

For firing, the regulator, chamber, barrel, piston and bolt face should all be dry. Wipe them dry if necessary.



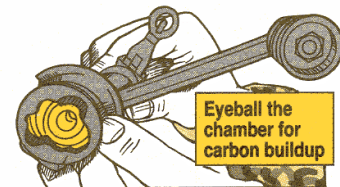
But no matter what you do, you're still going to have to deal with carbon. And getting rid of it is no simple task. The most important cleaning rule is clean off carbon as soon as possible after firing. Heat from firing bakes carbon into the regulator. The longer the carbon sits, the harder it is to remove.

Your scraper and muscle are the only way you'll get rid of most carbon. Pay particular attention to the grooves in the regulator and in the piston and the hole on the piston's front—they're often missed.



Don't forget the barrel, either. Carbon builds up in the chamber and causes extraction problems and poor feeding. Use your chamber brush to clean it out.

If your M249 isn't extracting well, eyeball the chamber for carbon. If you spot any, remove the barrel and run your chamber brush through it.



Tell your armorer about stubborn carbon. He can whip it with drycleaning solvent.

NEVER USE AN ABRASIVE LIKE SANDPAPER TO REMOVE CARBON. IT ALSO REMOVES THE FINISH, THEN COMES CORROSION!



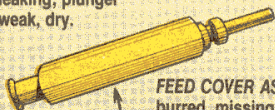


M60 Machine Gun

FRONT SIGHT: out of line, loose.

LITTLE THINGS BECOME BIG PROBLEMS IF YOU DON'T CATCH THEM IN TIME. USE THIS HANDY GUIDE FOR BAD LITTLE THINGS TO LOOK FOR ON YOUR M60.

BUFFER: dented, cracked, leaking; plunger weak, dry.



FEED COVER ASSEMBLY: feed cam bent, burred, missing spring; front and rear cartridge guides stick; feed tray rollers bind; cartridge guide shaft missing cotter pin.

SHOULDER STOCK: releasing latch doesn't hold; rivets loose, missing.

RECEIVER: loose rivets; cocking handle moves hard; safety weak.

REAR SIGHT: bent, sticks, markings hard to see, knobs loose.

CARRYING HANDLE: won't hold in all three positions.

BARREL LOCK: doesn't hold barrel.

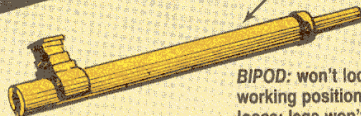
TRIGGER ASSEMBLY: sear chipped, cracked, worn; sear hump not to rear; sear plunger not on top of spring; leaf spring under sear pin.

GAS CYLINDER: plug and washer not safety-wired; piston doesn't slide quickly; piston holes don't match cylinder holes; nut, rivets loose; key washer not seated.

BARREL: twisted, bulged, cracked; socket area cracked, badly worn; bore pitted. (Check spare barrel, too.)

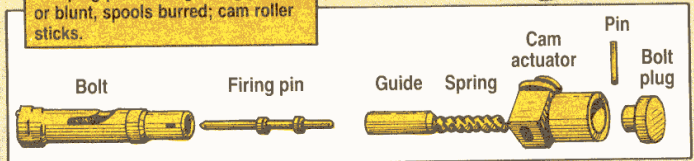
FLASH SUPPRESSOR: cracked, moves more than 1/16 inch.

OPERATING ROD: bent, cracked; roller moves hard; sear notch worn; driving spring weak, kinked, has flat spots.



BIPOD: won't lock in stowed and working positions; bipod screws loose; legs won't lock in all four positions; pads loose; leg locks move hard.

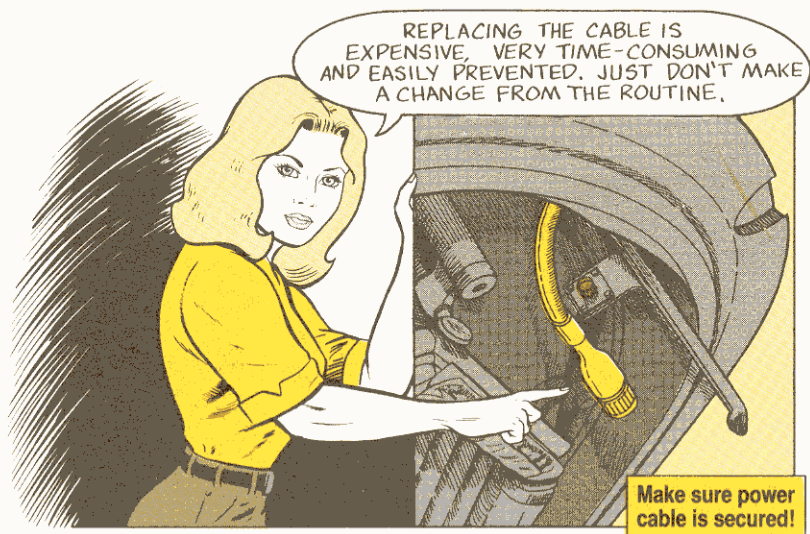
BOLT: face cracked, pitted; lugs chipped; ejector or extractor weak; bolt plug pin missing; firing pin bent or blunt, spools burred; cam roller sticks.



Protect Cable

Breaks from the routine often help give you a new perspective, a better way of looking at day-to-day activities. But a break from the routine in handling the night viewer power cable can break the cable.

The vehicle power cable should be hooked to the night viewer or screwed into the hatch cover adapter. Left loose, the cable dangles below the edge of the hatch. When the hatch is closed, the cable gets caught and crushed.



Track Shoe Crack Info

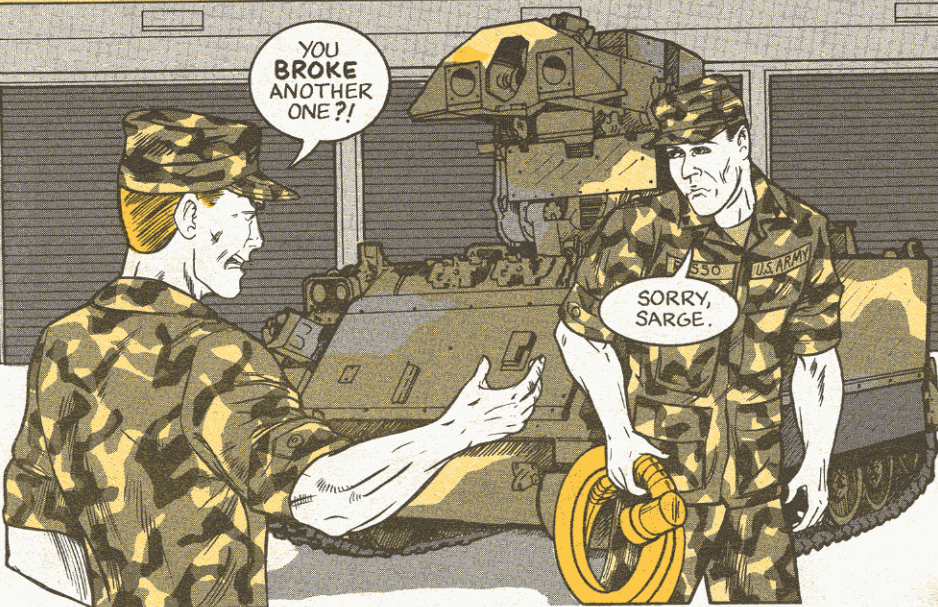
Changes to the -10 TMs for the M110A2 SP howitzer and the M578 recovery vehicle omitted needed artwork and a note concerning allowable cracks on the

3/4" cracks allowed in shoe

No metal-to-metal contact between nut and shoe

track shoes. Here's what you should use in addition to the info in Change 1, Page 2-44, Item 40, TM 9-2350-304-10 and in Change 1, Page 2-38, Item 38, TM 9-2350-238-10:

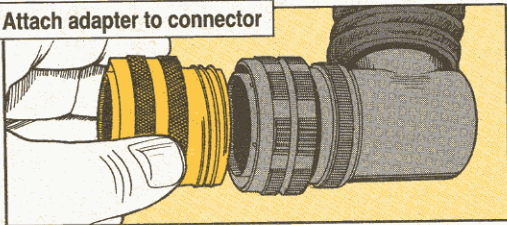
Cable Adapter's a Dilly



The MGS 2W1P1 cable on your TOW is an expensive piece of equipment. It's also hard to plug in. The pins bend and break easily if they're not lined up just right. When that happens, not only is your equipment down for the count, but you're also out a big chunk of money.

The solution's simple. Just attach adapter, NSN 5935-01-117-3304, to the cable's connector before plugging it in. If the adapter breaks, you've lost less than \$100 instead of more than \$1,000.

Attach adapter to connector



More importantly, using an adapter gives you a second chance. If the adapter breaks, you can still remove it and plug in the cable. And that could mean the difference between life and death in a battle situation.

One more thing. Make sure the adapter stays with the cable and not the MGS. That'll keep you from losing it.

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 5-3805-254-20P Apr Model F-5070 truck, dump, 20-ton

TM 5-4320-307-24P Jan Pumping assembly (mainline)

TM 5-4930-233-24P Apr 91 Lubrication and servicing unit

TM 5-5420-209-12 Jan Improved float bridge (ribbon bridge)

TM 9-1090-208-23-1-1 Feb M139 gun: M230 rocket subsystem

TM 9-1090-208-23-1-2 Feb Helicopter M139 gun, M230 rocket management subsystem

TM 9-1430-601-20-3 Feb AN/MPQ-53 radar set, semi-trailer mounted (Patriot missile system)

TM 9-2320-363-10 Nov 91 M915A2 and M916A1 trucks

TM 9-2330-218-14&P Nov 91 M310 trailer

TM 9-2350-311-24P-2 Dec 91 M109A2, M109A3, M109A4, M109A5 SP howitzer

TM 10-3930-618-24P Dec 91 6,000 lb truck, forklift

TM 10-4320-324-14 Sep 91 350 GPM pumping assembly

TM 10-4610-240-24 May 91 600 GPH ROWPU

TM 10-4930-229-12&P Sep 91 Forward area refueling equipment, Model RFE 1000

TM 11-1520-240-23P Sep 91 Electronic equipment configuration CH-47D

TM 11-5865-200-20P Jan AN/ALQ-144A(V)1 countermeasures sets

TM 11-5895-1315-24 Jan Controller, receiver-transmitter C-11670/G

TM 11-5895-1358-23P Jan Satellite network monitoring subsystem AN/GSC-51(V)1 and AN/GSC-51(V)2

TM 11-5895-1391-23P Jan DSCS automatic spectrum analyzer (DASA) system AN/FSQ-142(V)1, 1S, (V)2 and 2X

TM 11-5895-1433-12-1 Sep 91 Satellite communications terminals AN/TSC-85B(V)1 and AN/TSC-85B(V)2

TM 11-5895-1434-12-1 Sep 91 Satellite communications ter-

minals AN/TSC-93B(V)1 and AN/TSC-93B(V)2

TM 11-6625-3094-24P Jan Test program sets (TPS) for radio sets AN/PRC-119, AN/VRC-87, 88, 89, 90, 91, 92 with AN/USM-410(V)2 and 465A

TM 11-7025-283-12&P Sep 91 Display units IP-1620(V)1/U and IP-1620(V)2/U

TM 11-7025-286-12&P Jan Magnetic tape transport MU-1012(V)1/U and magnetic tape transport MU-1012(C)2/U

TB 1-1500-200-20-29 Jan Desert operation PM AH-1, AH-64, CH-47, OH-58, UH-1 and UH-60

TB 1-1520-237-20-129 Feb Inspect all H-60s for 3 unserviceable spindle assemblies

TB 1-1520-240-20-60 Dec 91 CH-47D, MH-47D and MH-47E

TB 1-2840-241-20-6 Dec 91 Recall of T63-A-720 engine fuel controls on OH-58A/C

LO 5-2420-222-12 Apr JD410 tractor

LO 5-4320-273-12 Jan 350 GPM pumping assembly

LO 5-4930-228-12 Jan Model 1800 tank and pump unit

LO 5-5420-202-12 Mar AVLB with M60A1 chassis

LO 10-4320-324-12 Sep 91 350 GPM pumping assembly

LO 10-4610-215-12 Jan 600 GPH ROWPU

Maintenance Advisory and Safety-of-Use Messages

AMCCOM SOU Msg 92-03—Advisory, M102 105MM howitzer, AMSMC-MA 141600Z Feb 92.

AMCCOM SOU Msg 92-04—Advisory, M198 155MM howitzer, AMSMC-MA 262100Z Feb 92.

AMCCOM Maintenance Advisory Msg 92-02—M1-series tanks, AMSMC-MA 271300Z Feb 92.

AMCCOM Maintenance Advisory Msg 92-04—M1A1 tank, AMSMC-MA 041004Z Mar 92.

AVSCOM Safety in Use Msg—Interim-unit maintenance aerial recovery kit (I-UMARK), AMSAV-9G 241200Z Feb 92.

AVSCOM Safety Action Msg—Edwards' Automated

Weight and Balance System, AMSAV-MPPD 241500Z Feb 92.

CECOM SOU Msg 92-02-01—Mandatory, Operational, OE-254/GRC antenna, AMSEL-SF-SEC 111900Z Jan 92.

TACOM SOU Msg 92-01—Limited One-Time Inspection, CUCV tires, AMSTA-M 211414Z Feb 92.

TROSCOM SOU Msg 92-02—Limited One Time Inspection, 15- and 30-KW trailer mounted generators with acoustic suppression kits (ASK), AMSTR-ME 282245Z Feb 92.

TROSCOM SOU Msg 92-03—Technical, Type V aerial delivery

platform, AMSTR-M 061515Z Mar 92.

TROSCOM Maintenance Advisory Msg 92-04—MC-4 RAM personnel parachute, AMSTR-ME 121530Z Feb 92.


TROSCOM Maintenance Advisory Msg 92-05—5- and 10-KW generator sets, AMSTR-ME 181430Z Feb 92.

TROSCOM Maintenance Advisory Msg 92-06—60-KW, 400 Hz precise, DED generator set, AMSTR-ME 062015Z Mar 92.

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

Handling Materials

Things are changing in the motor pool. No longer can you treat every day supplies and materials you use to perform scheduled services in an every day way. Every item must be handled with care. Engine and transmission oils, antifreeze, brake fluid, hydraulic fluid, cleaning solvents, paint and the like can be hazardous to the environment—if you spill them or dispose of them in the wrong way.



SOME OF YOU, LIKE CORPORAL THOMAS HERE, DOUBT EVERY DAY SUPPLIES AND MATERIALS ARE HAZARDOUS TO THE ENVIRONMENT.

THAT'S RIGHT!

BUT, IF YOU SPILL THEM OR DISPOSE OF THEM IN THE WRONG WAY THEY BECOME A HAZARD!

Black and white photostats of this article are available from PS Magazine for reprinting.

Shipping and Storing



The big news for shippers of hazardous materials (including the Army) last year was the adoption of tougher packaging guidelines.

Effective 1 Jan 91, performance oriented packaging recommendations adopted by the United Nations (UN) became international law.

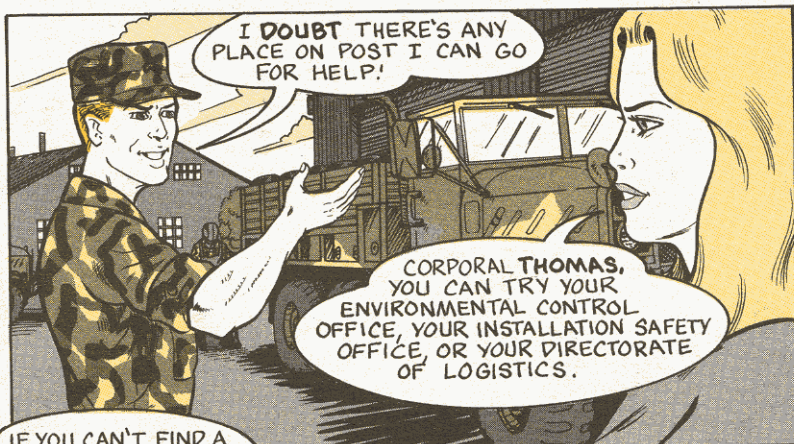
The UN requirements involve changing from detailed construction specifications to packaging certified and marked as having passed specified and uniform performance tests.

While these requirements are aimed primarily at packaging manufacturers, shippers and transporters of hazardous material must obey them also.

The Army Materiel Command Packaging, Storage and Containerization

WHICH MEANS YOU NEED HELP ANY TIME YOU PREPARE TO SHIP OR TRANSPORT ANYTHING THAT IS OR CAN BE CONSIDERED HAZARDOUS MATERIAL.





I DOUBT THERE'S ANY PLACE ON POST I CAN GO FOR HELP!

CORPORAL THOMAS, YOU CAN TRY YOUR ENVIRONMENTAL CONTROL OFFICE, YOUR INSTALLATION SAFETY OFFICE, OR YOUR DIRECTORATE OF LOGISTICS.

IF YOU CAN'T FIND A REFERENCE IN YOUR LOCAL PHONE BOOK FOR ENVIRONMENTAL CONCERNS, CONTACT YOUR LOGISTICS ASSISTANCE OFFICE.



WHAT DO I DO IF THEY CAN'T HELP?

Center (PSCC) in Tobyhanna, PA, is the Army's policy maker.

Questions that cannot be answered locally may be addressed to PSCC by calling DSN 795-7070/7147 or COMM (717) 844-7070/7147.

You may also write to them at:

**Director, AMC Packaging, Storage and Containerization Center
ATTN: SDSTO-TT
Tobyhanna, PA 18466-5097**

You may also call the US Army Safety Center, DSN 558-2450 or COMM (205) 255-2450. The Safety Center address is:

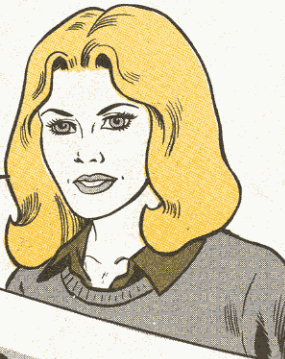
**US Army Safety Center
ATTN: CSSC-SPI
Ft Rucker, AL 36362-5363**

REMEMBER THIS:

AS LONG AS YOU'RE ON A MILITARY INSTALLATION, DEPARTMENT OF DEFENSE REGULATIONS APPLY. ONCE YOU LEAVE THE INSTALLATION, LOCAL AND STATE RULES ALSO APPLY. THESE RULES MAY BE EVEN MORE RESTRICTIVE THAN THE NEW UNITED NATIONS RULES. YOU MUST KNOW HOW TO PACKAGE BEFORE YOU SHIP OR TRANSPORT.

Hazardous Material Safety Data Sheets

To know which materials you need to worry about before you transport them, you need the latest dope on which ones are considered hazardous to the environment. But where do you find this information?



THE GENERAL SERVICES ADMINISTRATION HAS MADE IT EASY FOR YOU. THEY LIST ABOUT 4,000 OF THEIR HAZARDOUS MATERIAL ITEMS THAT REQUIRE A MATERIAL SAFETY DATA SHEET.

Material Safety Data Sheet

Respiratory Protection

USE NIOSH/MSHA APPROVED RESPIRATOR IF ABOVE PEL/TLV OR SCBA IN AN ENCLOSED AREA.

Ventilation

LOCAL/GENERAL TO MAINTAIN PEL/TLV.

Protective Gloves

IMPERVIOUS.

Eye Protection

SAFETY GLASSES W/SHLDS.

Other Protective Equipment


APRON, EYE-WASH FACILITIES, SAFETY SHOWER.

Work Hygienic Practices

AVOID CONTACT WITH EYES AND SKIN; DO NOT BREATHE VAPORS/MIST. DO NOT TAKE INTERNALLY.

Supplemental Safety and Health Data

INHIBITORS RESULT IN PH BETWEEN 5.8-6.8.



TO MAKE MSDSs AVAILABLE TO THE UNITS THAT USE THE ITEMS, GSA HAS ESTABLISHED A DATABASE CALLED FAST ACTION SAFETY DATA TRANSMISSION.

To access this database, you'll need the following equipment:

- IBM/IBM-compatible personal computer.
- 2,400- 1,200- or 300- baud modem.
- Communication software package.

If you have the right equipment, you'll need to set your modem parameters to:

- Speed: 2,400, 1,200, 300
- Duplex: Full
- Parity: None
- Stopbit: 1
- Data: 8

Use these phone numbers to access the database:

FTS 365-6360
COMM (703) 305-6360

After you dial the telephone number, the system will ask for your login. At this time, type **bbs** in *lower case letters*.

After the login prompt, the system is menu driven. However, if you need additional help, call FTS 841-5855 or Commercial (404) 331-5855.

If you get garbage when you first connect with the FAST database, you need to tell the FAST modem to slow down. To do this, send a communications package **BREAK** command.

The system will let you transfer a copy of a file/MSDS to the user's hard disk by downloading, or you can copy the file directly from the FAST computer to the user's FAX machine.


To get an MSDS that's not on the database, send the following information to GSA and they'll provide you a copy.

- NSN
- Manufacturer name
- Batch or product number
- Mil-Spec number
- Your name and title
- Agency/address
- Telephone number—commercial or FTS
- FAX number—commercial or FTS




General Services Administration
Federal Supply Service (4FQ)
ATTN: MSDS Coordinator
401 W. Peachtree St, NW, Suite 3021
Atlanta, GA 30365-2550

Or fax it to:
FTS 841-2066 or
Commercial (404) 331-2066



HAVE YOU NOTICED HAZARDOUS WASTE PILING UP IN YOUR WORK AREA? MAYBE WE CAN HELP!



WE'VE LISTED SOME WAYS TO REDUCE THE AMOUNT OF THESE MATERIALS. WHY NOT GIVE THEM A TRY?

Reduce Waste

DON'T

STOCKPILE HAZARDOUS MATERIALS. ORDER ONLY WHAT YOU'LL USE AND USE ONLY WHAT YOU NEED.

USE A HAZARDOUS PRODUCT IF YOU CAN CHANGE IT FOR ONE THAT'S NONHAZARDOUS. FOR EXAMPLE, USE A SOAP AND HOT WATER PARTS CLEANER INSTEAD OF A VAPOR DEGREASER.

MIX HAZARDOUS AND NONHAZARDOUS WASTES TOGETHER.

LEAVE THE WASTE CONTAINER OPEN EXCEPT WHEN YOU FILL OR EMPTY IT.

DO

ROTATE STOCK TO USE THE OLDEST ITEM FIRST.

RECYCLE USED WASTE OIL, SOLVENTS, ANTIFREEZE AND OTHER WASTES WHEN POSSIBLE.

STORE MATERIALS PROPERLY TO PREVENT DETERIORATION OF CONTAINERS.

KEEP IN TOUCH WITH YOUR LOCAL ENVIRONMENTAL PEOPLE FOR OTHER WAYS TO REDUCE WASTE.

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

New Non-hazardous Cleaner

There's a water-based cleaning compound available. Use it instead of the drycleaning solvent, except for cleaning aircraft aluminum surfaces.

This cleaner is biodegradable. It will not contribute to hazardous waste. Since it's non-toxic you won't have to worry about using your protective clothing and equipment.

Mix 1 part cleaner with 3 parts water for all your tough cleaning jobs like: removing grease and oil from brake shoes and cleaning individual web gear, tires, canvas, plastic and wood material.

GET THE
CLEANER WITH
THESE NSN'S



NSN 7930-01-	Size
319-5373	55-gal drum
336-7198	5-gal pail
336-7197	1-gal case (6)
331-1507	32-oz spray bottles (12)

Handling Motorpool Supplies

I DOUBT IF ALL
THIS INFO WILL HELP IN
THE MOTOR POOL.

EVEN IN THE
MOTOR POOL YOU
HAVE TO BE MORE CAREFUL
HOW YOU HANDLE AND
STORE SUPPLIES, TOO.

Here are a few good housekeeping tips:

- ✓ Keep the floor dry.
- ✓ Remove anything that would cause someone to trip.
- ✓ Make sure work areas are cleaned up as soon as work is completed.
- ✓ Keep access clear to fire extinguishers, protective equipment and eyewash stations.



Hazardous Waste

After use, service supplies and materials become waste. It's important that you handle and store waste oil and the like safely so it does not damage the environment. Stock up on these tips on storing waste.

Store waste in containers that are in good condition. Check the containers for rust or dents.

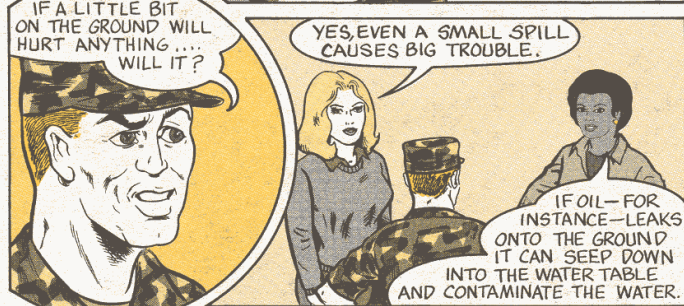
Make sure the waste containers are away from the traffic flow so that accidental spills won't occur. Isolate containers with flammable or reactive waste.

Mark containers with the words **HAZARDOUS WASTE**. Put a label on the outside of the container to identify the type of waste inside.

HAZARDOUS WASTE	
FEDERAL LAW PROHIBITS IMPROPER DISPOSAL.	
IF FOUND, CONTACT THE NEAREST POLICE OR PUBLIC SAFETY AUTHORITY, OR THE U.S. ENVIRONMENTAL PROTECTION AGENCY.	
FORMER E.O. 12956	USE OR REUSE
GENERATOR INFORMATION	
NAME	ADDRESS
CITY	STATE
ZIP	PHONE NO.
REGISTRATION	IDENTIFICATION NO.
DATE	NO.
HANDLE WITH CARE!	
CONTAINS HAZARDOUS OR TOXIC WASTES	

Keep the waste containers off the ground where moisture will cause them to rust and cause a spill. Set the containers on wooden pallets.

- Put different types of hazardous waste in separate containers. Don't mix hazardous and nonhazardous wastes together.
- Keep containers closed except when you fill or empty them.
- Make sure you have a secondary containment, such as sand bags, around the container that'll catch and contain spills.



Handling Spills

Here are 5 things to remember when a spill occurs:

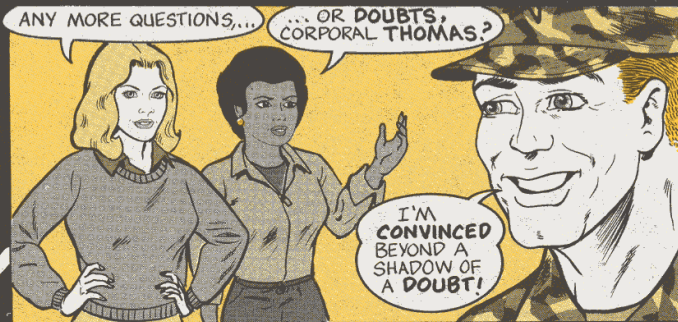
1. PROTECT YOURSELF. Know where protective equipment is kept, whether it has been properly cleaned and maintained and how to use it. Check the item's Material Safety Data Sheet for the right type of protective equipment to use.

2. STOP THE FLOW, if possible. If the spill is out of control, evacuate the area and call the installation spill response team and let them handle the situation.

3. CONTAIN THE SPILL. Floor dry (floor sweep) material, NSN 7930-00-269-1272, is the most effective material to contain and clean up small spills. Store the floor dry in a separate container and treat it the same as the hazardous waste of the spill.

4. REPORT THE SPILL. Check your SOP for reporting procedures. Usually this means notifying your supervisor. However, if your supervisor's not handy and it's a real emergency situation, call the installation response team.

5. KNOW WHO TO CALL. Make sure you know whom to call with questions about hazardous waste or materials. Make out a list with POCs and post it. The primary POC usually is your local environmental officer.



Give Special Attention to **HAZARDOUS WASTE!**

TREAT ITEMS LIKE THESE

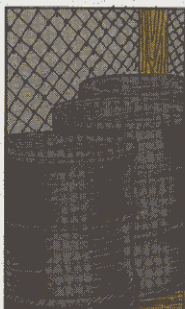
- ☠ *Oils* ☠ *Lubes* ☠ *Solvents*
- ☠ *Chemicals* ☠ *Cleaners* ☠ *Fuels*
- ☠ *Used Antifreeze* ☠ *Paint Thinners*
- ☠ *Asbestos* ☠ *Used Electrolyte*
- ☠ *Lithium and Ni Cad Batteries*

WITH EXTRA CARE IN—

Handling



Storing



Marking

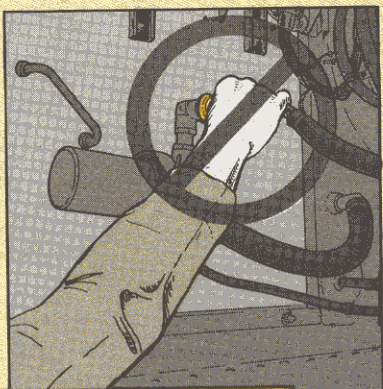
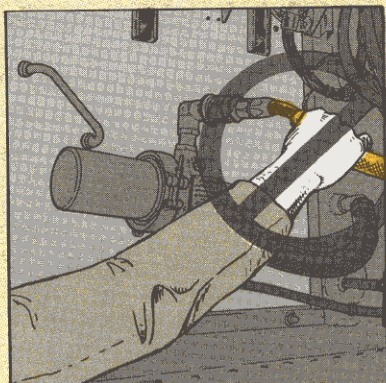


Disposing



AR 200-1 Has the Word!

It's Not a Handle!

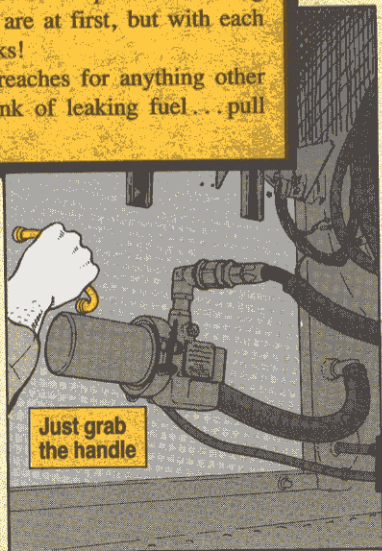
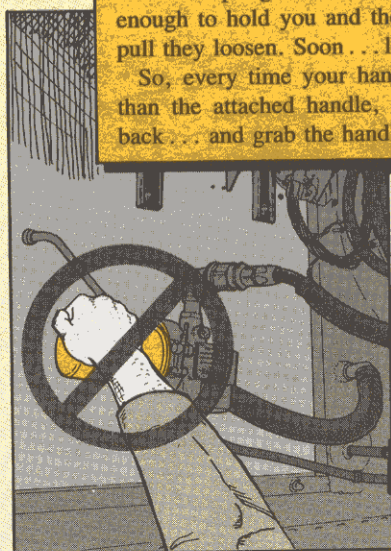


To get to the engine deck you have to grab on and pull up. To make this easy, the Huey has a handle. That handle is right next to the fuel filter, its hoses and its couplings.

Uh-oh!

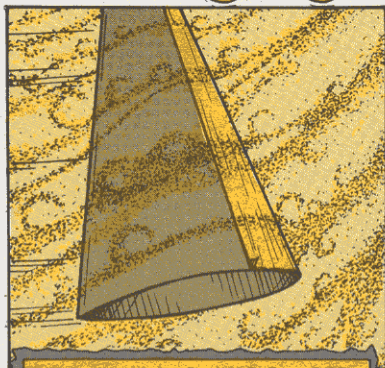
Right! Too many of you are using the filter or the hoses or the couplings as the handle. These parts look strong enough to hold you and they are at first, but with each pull they loosen. Soon . . . leaks!

So, every time your hand reaches for anything other than the attached handle, think of leaking fuel . . . pull back . . . and grab the handle.

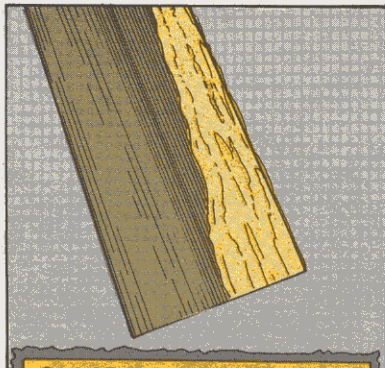


Just grab
the handle

Bringing Blades Back



TAPING HELPED YOUR BLADES SURVIVE THE MIGHTY DESERT ENEMY, WHIRLING SAND.



BUT REMOVING THAT TAPE IS TURNING SOME SURVIVORS INTO CASUALTIES.

Here's the way to remove tape residue from rotor blades.

Use toluene solvent, NSN 6810-00-579-8431. If you don't have toluene, you can use trichloroethane, NSN 6810-00-292-9625.

Don't use Methyl Ethyl Ketone (MEK). MEK eats into the coating on some blades.

When applying the solvent, wear rubber gloves, eye protection, protective clothing and a respirator.

Dampen a clean cloth with solvent. Rub the solvent on the tape residue. Let it work 5-10 minutes, then wipe it and the residue off. If the solvent runs on the blade or drips off, you're using too much! Never pour the solvent directly on the blade. When using solvents adhere to the warnings listed on page 4-3 of TB 1-1500-200-20-28.

If you don't get all the residue off the first time, go back and do it again—after the blade has dried.

If the adhesive proves really stubborn, use abrasive mat, NSN 5350-00-967-5093, to scour the blade. Be careful, the mat can damage and scratch the blade if you rub too long and hard.

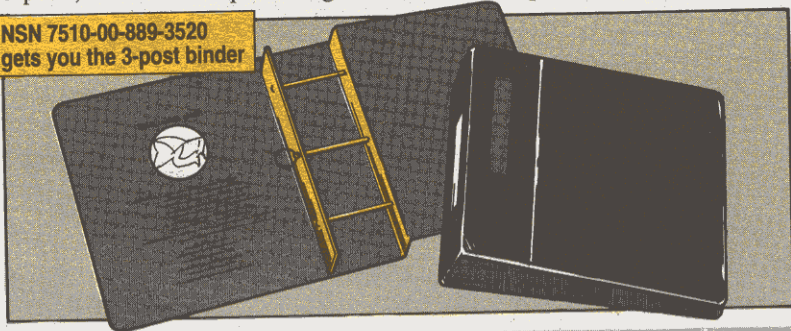
AND THAT'S HOW TO CLEAN OFF THE STICKY RESIDUE LEFT BEHIND BY THE REMOVED TAPE.



3-Post TM Binder

Some aircraft TMs, like TM 55-1520-236-23-3 on the Cobra, think they're big shots. They think no wimpy 3-ring binder can hold 'em. And they're right! Put those fat TMs in their place with loose leaf binder, NSN 7510-00-889-3520. It has 3-posts, with the center post acting as a lock, and it's expandable to 6½ inches.

NSN 7510-00-889-3520
gets you the 3-post binder



CH-47D Utility Cooling Fan...

Flush Lugs, First

The four mounting lugs used to secure your utility cooling fan must be flush to the deck before you start to torque. Otherwise, the extra stress will cause the lug to crack during use. A cracked lug causes fan vibration. Fan vibration causes more cracked lugs and eventual fan failure.

If a mounting lug does not seat flat to the deck, check under the lug to see what's holding it up. It could be a rivet head or dirt.

Torque lugs to 70 lb-in.

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-10, Maint Mand, OH-58D with T703-AD-700/700A engines, for inspection of the main fuel filter for fuel leaks, 262000Z Feb 92.

AH-1-92-ASAM-09, Maint Mand, AH-1 & UH-1M, inspect for slippage of main rotor extension sleeve, 102030Z Feb 92.

UH-1-92-ASAM-06, Maint Mand,

AH-1 & UH-1M, inspect for slippage of main rotor extension sleeve, 102030Z Feb 92.

U-8-92-ASAM-02, Oper, U-8F, note TM 55-1510-201-10/5 change, 281800Z Feb 92.

AH-64-92-ASAM-02, Maint Mand, AH-64A, inspect shaft driven compressor coupling clamp for correct lot number, 101800Z

Feb 92.

AH-64-ASAM-03, Maint Mand, AH-64A, inspect of tail rotor shaft wear sleeve, 122120Z Feb 92.
Gen-92-ASAM-03, Info, night vision goggle/SPH-4B Avn helmet, 031500Z Feb 92.

Gen-92-ASAM-04, Info, use of project code as a result of SOF/ASA messages, 041630Z Feb 92.

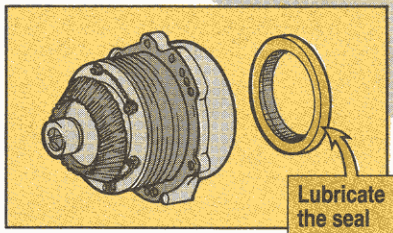
Step Back to Seal

DID THE OLD DRIVE QUILL LEAK?

YEAH, BUT I'LL MAKE SURE THAT THE NEW ONE DOESN'T!

If you're installing a Huey input drive quill because your old one leaked, take a step back to make sure your new one doesn't.

Before you do Step 6-108g of TM 55-1520-210-23-1, lubricating the new preformed packing, slide back to Step 6-107, the assembly of the input drive quill. Follow the instructions for lubricating the seal, Item 10 of Fig 6-26.



To do it, you'll have to remove the freewheeling clutch assembly like it says in Step 6-103.

Once you've got the new seal lubed, finish installing your input drive quill.

Stepping back will cost a little time and effort now, but it will save big repairs in the future.

Seal Antenna Screws

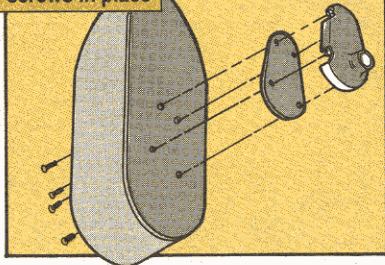
The 4 screws holding the #1 FM antenna to the cover of the coupler on your Huey tail fin can work loose and fall out or break.

Without the screws, the antenna flies off and into the tail rotor. At the very least you'll have a damaged rotor. At the worst, well...

The screws come loose because nothing locks them in place.

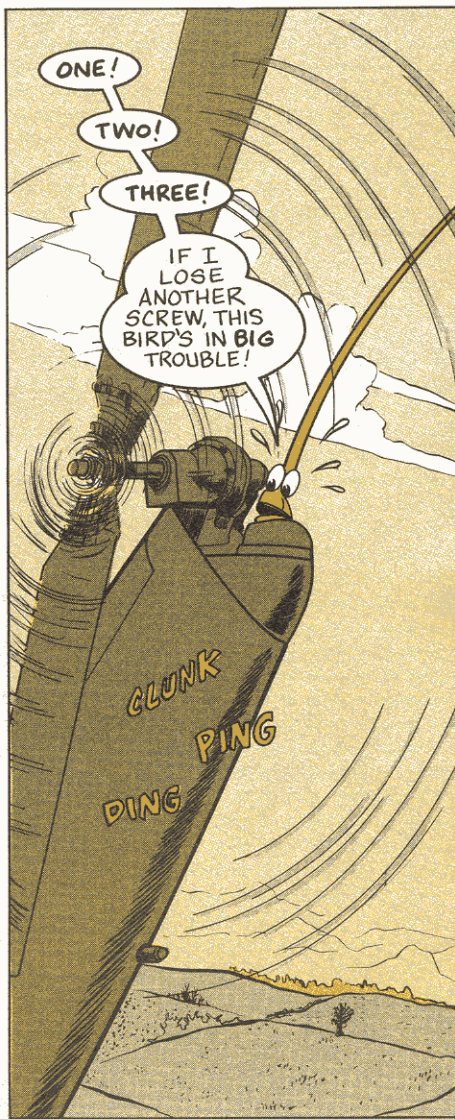
So, take off the coupler cover and check the screws. If they're loose, lock 'em in place with sealing compound, NSN 8030-00-935-7100. Replace any missing screw, NSN 5305-00-727-8832.

Lock the screws in place



The word on the loose screws is in Aviation Safety Action Message, UH-1-91-ASAM-15. Even tho you checked the screws when the message came out, now's a good time to recheck 'em.

Good advice is that at the next scheduled service, remove the screws, apply a light coating of sealant, then put them back in. Make a note to use sealing compound every time you tighten or replace an antenna screw.



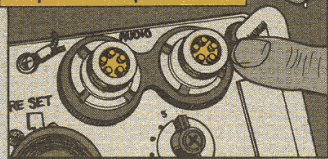
Spare Some Care For Radio Set

THAT WAS SOME DOWNPOUR! YOU OK BACK THERE?

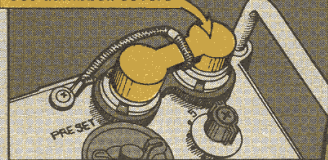
Getting ready to take your AN/PRC-77 to the field? Here are a few tips to keep it on line:

Keep dull or corroded audio contacts shined with cleaner, NSN 6850-00-105-3084. Keep 'em clean by using dumbbell covers, NSN 5340-00-973-1732.

Keep audio receptacles clean

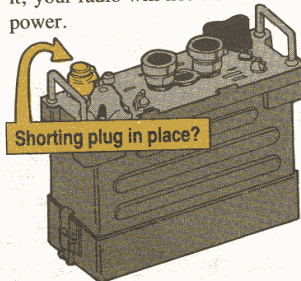


Use dumbbell covers



AFTER THAT PM YOU PULLED, I'M READY FOR ANYTHING!

Weatherproof your set by making sure all other connector covers are in place. That includes the power shorting cap, NSN 5935-00-973-1859. Without it, your radio will not work on battery power.



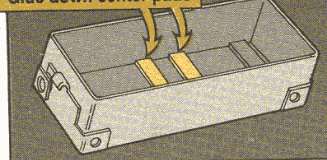
Shorting plug in place?

Eyeball the front panel, battery box, and battery connector plug gaskets for cracks, breaks, or excessive flattening. Your repairman can replace a battery connector gasket, NSN 5330-01-049-0038. All the others are DS.

Battery Bits

Whether you use one BA-4386/U magnesium battery or two BA-5598/U lithium batteries, keep 'em snug with two extra rubber pads, NSN 9320-00-930-0724, in the center of the battery box. Glue the pads down with adhesive, NSN 8040-00-664-4318.

Glue down center pads



Cap missing? Replace it

The battery box needs a pressure relief valve to vent hydrogen gas from the BA-4386. If it doesn't have one, get the box modified by support.

And remember, lithium batteries must be completely discharged before being tossed. Just follow the instructions printed on each battery.

Antenna Tips

No matter how well your radio works, a poorly maintained antenna will ruin your comms. Screw the antenna all the way down to the mount. Leaving a gap makes it easy for the antenna to snap off.

If you're using the AT-271A antenna, make sure the small spring inside the lower element stays clean and dry. It holds the antenna cord tight. Moisture will rust it and you'll be left with a sprung spring.

Add a few drops of CLP down the tube of the lower element to keep the spring ship-shape. Get a 4-oz bottle with NSN 9150-01-079-6124.

If the AT-271A's cap is missing, get a new one with NSN 5999-00-259-5009. The antenna's pointed end is a real hazard when it's uncovered.



Keep Old-Timer Spry with PM

YOUR SB22 SWITCHBOARD HAS BEEN ON THE JOB FOR QUITE A FEW YEARS. MAKE SURE IT STAYS THERE WITH THESE **PM TIPS**...

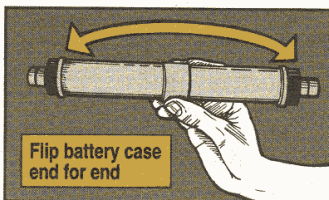


Battery Care

The batteries in your SB-22 keep working even when the SB-22 is not. The batteries can start leaking at any time, so look 'em over every day.

If you're not going to be using the switchboard for a week or so, take out the batteries. Most corrosion damage comes from leaking batteries left in gear when it's not being used.

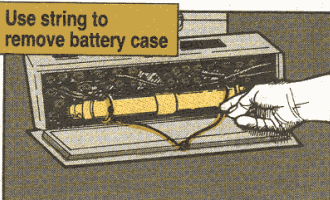
Weak audio signals and dim lights on your switchboard are clear signs of weak batteries. But before you replace 'em, try reversing the battery case.



Flip battery case end for end

Two batteries power the telephone, and two power the switchboard. The telephone uses less power, so switching the batteries may keep you operating longer.

Trying to remove the battery case with big fingers will usually result in bent or broken retaining springs and contacts. Instead, use a 24-in piece of string to remove the case like this:



If even new batteries leave your SB-22 without power, chances are the spring clips are either corroded or aren't making contact with the battery case.

Shine up corroded clips with a treated polishing cloth, NSN 7920-00-985-6849.

Loose springs can be gently pinched together to make better contact



A loose battery case will cause poor contact, too. The large clips that hold the case in place aren't stocked. If they're broken or missing, order battery retainer assembly, NSN 6160-00-635-6243.

Plug Protection

A light touch counts when connecting or disconnecting a line plug.

A little finger pressure is all that's needed to insert the plugs. Jamming them in with your palm will split the rubber cord sleeves.

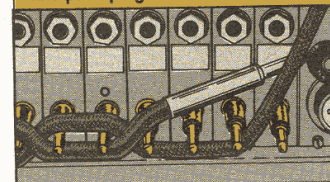


When the call's over, slide the plug slowly back into the pack. Don't let it fly back or the plug will damage itself, the case and the cateye.

Keep the brass end of those plugs bright and shiny by rubbing them down with a treated polishing cloth. The cleaner the plug, the better your signal will be.

When packing up your SB-22, store the operator's cord properly.

Carefully wrap the cord around the line pack plugs



Trying to shove the cord inside will bend and break the wiring.

Turnabout's Fair Play



Because that new H-182A/PT microphone headset you just plugged into your SB-22 switchboard won't work, don't pull your hair out. Most likely the microphone connector got turned around at the manufacturer.

Reverse the microphone connector plug, then try it again. If that doesn't work, use another headset to make sure the SB-22 is working the way it should. Then turn in the defective H-182A/PT to support for repair.

Perplexing Pin Problem



WHAT ARE YOU LOOKING FOR?

Dear MSG Half-Mast,
I've lost the pins for the cross brace on my RL-31E reel unit. I checked TM 11-3895-202-13 and -24P, but the pins aren't listed. Can you help?

SSG B.R.C.

Dear Sergeant B.R.C.,

The pins used to attach the cross brace to the frame of the RL-31E aren't available. You can only get them by ordering a new cross brace assembly, NSN 3895-00-127-1051.

However, using a different pin will give you the same results. Order two pins, NSN 5315-00-825-8350, for each reel unit. Put a retaining pin, NSN 5315-00-712-4724, in each pin to keep 'em in place.



THESE NEW PIN CATCHES WILL REALLY CATCH YOUR EYE.

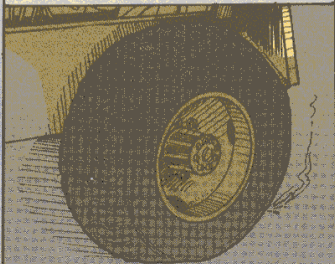
Half-Mast

M4K Forklift

NOW WE'RE RARING TO GO!

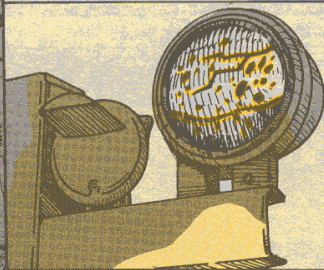
YEAH, ESPECIALLY AFTER THE PMCS YOU JUST PULLED!

TIRES—Tread worn smooth, cut to fabric, uneven wear, low or flat. Incorrect pressure (check vehicle's manual for right pressure). Valve stems bent, cap missing.



WHEELS—Loose or missing lug nuts.

LIGHTS—Not working. Clouded, waterlogged, wires exposed or frayed, lenses cracked, broken, paint-splattered.

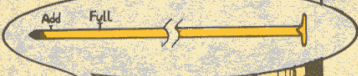


CHAINS AND SPROCKETS—Links broken, cotter pins missing, mud-caked, dry.



HYDRAULIC CYLINDERS, LINES—Leaking, kinked, deeply nicked.

HYDRAULIC FLUID—Level too low, contaminated.



Get Under the Hood

Here are some tips on what to look for there:

V-BELTS—Broken, loose, cut, frayed.

ENGINE OIL LEVEL—Low.

RADIATOR/COOLING SYSTEM—Trash clogged, core leaking; coolant level low, hose clamps loose.



BATTERIES—Electrolyte level low, case cracked, terminals corroded or loose, cables frayed.

Your M4K rough terrain forklift ranks high among the strong and mighty, but it needs help to keep its strength. Vitamins won't help, but you can.

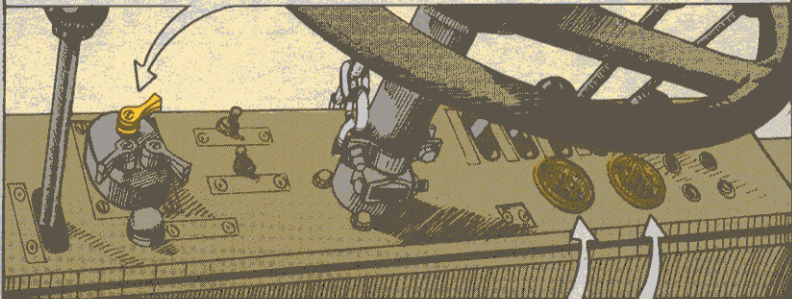
You and your -10 TM need to be on a first name basis, especially you and the PMCS. While you pull your PMCS, here are some things to look for:

GENERAL CONDITION—Excess dirt, chipped paint, rust-spots, cracked or broken welds, oil, fluid, lube, fuel, coolant or hydraulic leaks, loose assemblies.

Get in the Cab

Now that you've completed your walk-around, crank 'er up and check these items before moving out:

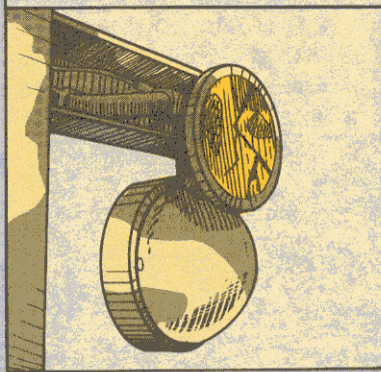
LIGHT SWITCH—Locking switch not working



GAGES—Not working, lens cracked, dirty, clouded.

HORN—Weak toot, no toot, bent, loose.

MIRROR—Missing, broken, clouded enough to block rear-view vision; bracket loose, cracked.



Truck Controls

FORWARD-REVERSE LEVER
—Sticks in neutral, engages hard, handle loose, bent. Knob missing.

TRANSMISSION-TRANSFER
—Shifts hard, growls, controls loose.

Fork Controls

Take one at a time in rotation to be sure they don't jump back and forth, up and down, or rattle:

TILT—Won't swing evenly in each direction.

LIFT—Drags, jerks.

SHIFT—Drags, works erratically.

ROTATE—Uneven in operation.



Slickum Gets 'em



Putting a light coat of grease on the fork slide shaft on the 6,000-lb variable-reach rough terrain forklift may seem like a good idea for sliding the forks back and forth.

Problem is, grease attracts dirt, grit and sand like a magnet. That combo acts like sand paper and scores the bearings inside the fork tines.

Use drycleaning solvent to remove the gunk, then grease no more.

If it's not already marked, get your mechanic to stencil "DO NOT LUBE FORKS" on the brace above the forks.

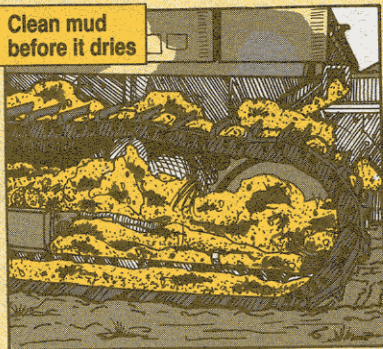
D7/D8 Tractors...

The Muddy Lowdown

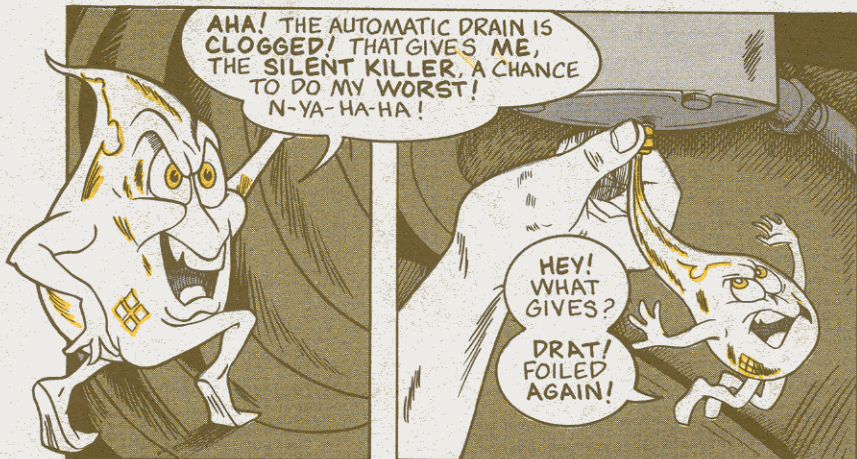
Dried mud on your Cat tractor's track hardens like cement. The carrier rollers won't turn like they're supposed to. You'll wear flat spots on the rollers and cause extra link wear.

So-o-o-o, after you're through for the day, dig out all the mud before it gets as hard as cement. While you're there, look for loose bolts, leaking seals, oil on the roller and uneven track wear. Report bum parts or anything that needs adjusting.

Clean mud before it dries



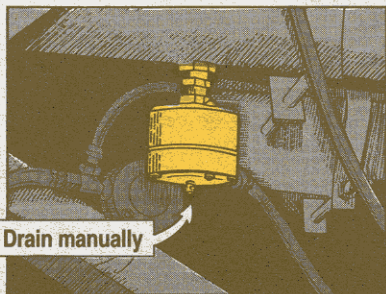
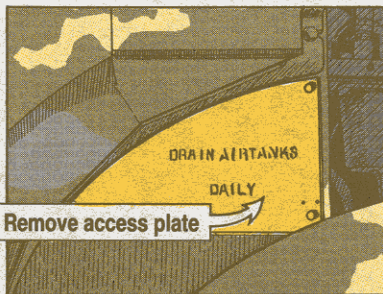
Condensation Corrodes



Condensation is a silent brake killer. Drop by drop it builds up in the loader's brake air tanks. Water passes on into the air lines, where rust and corrosion clog passages in the master cylinder power booster and the emergency quick-release valves. Then one day, without warning, you lose brake power assist. You're in for a slow stop.

Don't trust the automatic drain valves to drain all the water out of the tanks. They clog up. Drain the tanks yourself, manually, after every day's operation. Here's how:

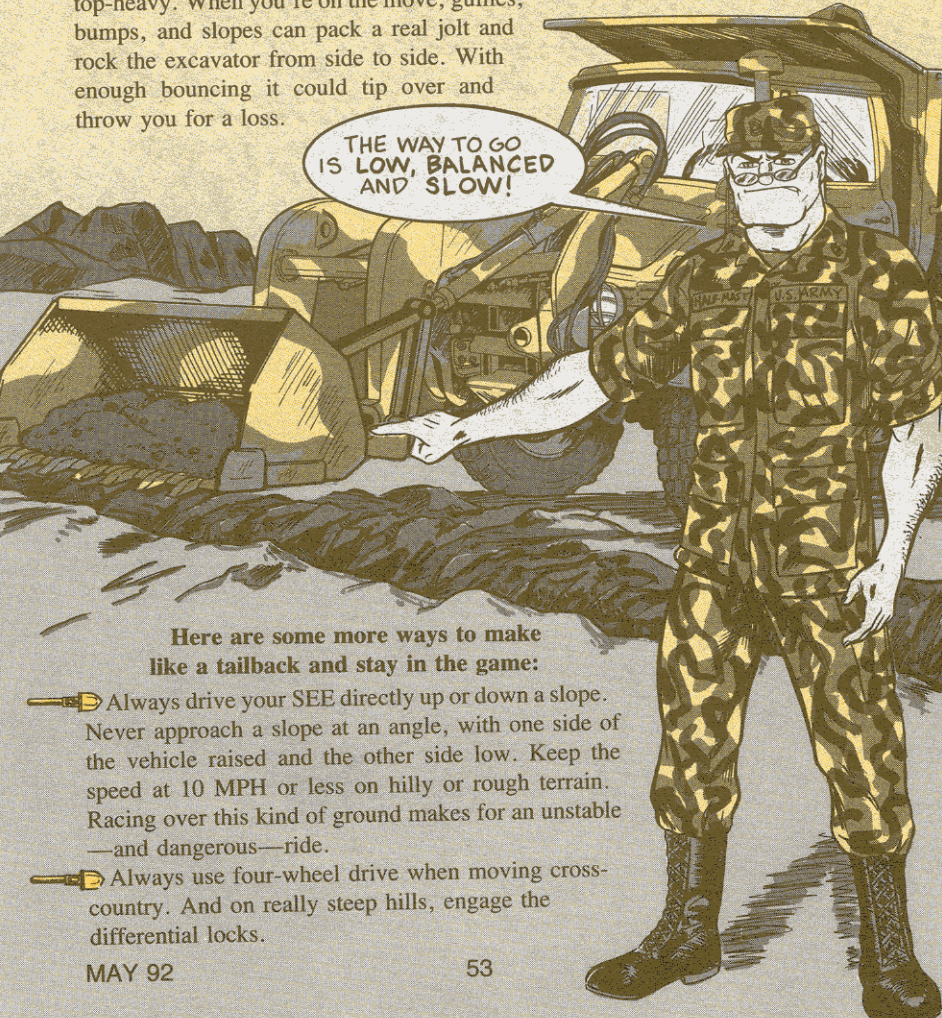
- Completely lower the bucket to keep the loader from moving.
- Shut down the engine.
- Open the manual drain cocks and drain all the water out. Close the drain cocks when you're finished.



RUNNING THE SEE

A good tailback learns to run low and hard, always keeping his balance. That way he can absorb some punishing hits and still stay on his feet.

Run your SEE the same way—low and balanced—especially when traveling over rough or hilly ground. If you're hauling a bucket of dirt, keep it low until you're ready to drop the load. A full bucket carried overhead makes the SEE top-heavy. When you're on the move, gullies, bumps, and slopes can pack a real jolt and rock the excavator from side to side. With enough bouncing it could tip over and throw you for a loss.



THE WAY TO GO
IS LOW, BALANCED
AND SLOW!

Here are some more ways to make like a tailback and stay in the game:

- Always drive your SEE directly up or down a slope. Never approach a slope at an angle, with one side of the vehicle raised and the other side low. Keep the speed at 10 MPH or less on hilly or rough terrain. Racing over this kind of ground makes for an unstable—and dangerous—ride.
- Always use four-wheel drive when moving cross-country. And on really steep hills, engage the differential locks.

A Riveting Tent Story



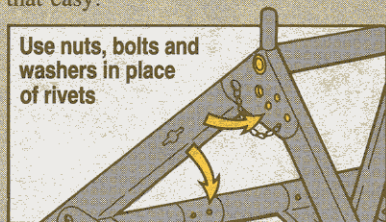
Your frame tent won't have a leg to stand on if the rivets work loose from the frame. Forget about putting in new rivets. You need a special machine for that, and the machine's not available to the field.

But there's a simple fix to put the frame back on its feet. Here's what you need:

Item	NSN
Screw, hexagon head	5305-00-068-0501
Nut, plain, hexagon	5310-00-761-6882
Washer, lock	5310-00-582-5965

And here's what to do:

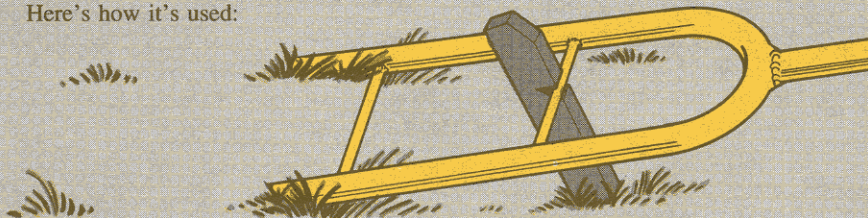
- Drill out the rivet hole all the way through the frame. You'll notice the original hole for the rivet was only half-way through.
- Slide in a bolt and fasten it on the other side with a washer and nut. It's that easy.



Tent Peg Puller

Here's a handy peg puller suggested by MSG Helmut J. Reichensperger of the 376th Cbt Spt Hospital in Liverpool, NY.

Here's how it's used:



Expandable Frame Tent...

Order Tent By Components

The NSN for the lightweight expandable frame tent is 8340-00-782-3232. You'd think if you ordered that NSN you'd get a complete tent... right?

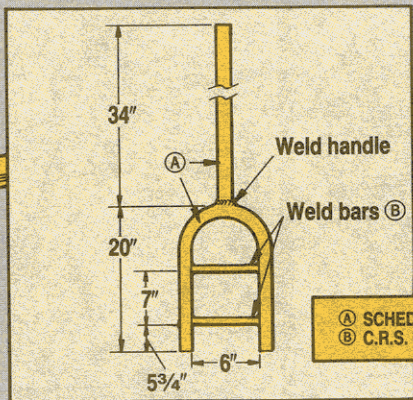
Wrong! That NSN only identifies the tent. To get the tent, you must order it piece by piece.

YOU WON'T FIND WHAT YOU NEED TO ORDER IN THE TENT'S TM 10-8340-220-23P, EITHER!

HERE ARE THE COMPONENTS...



Qty	Item	NSN 8340-00-
1	End frame section	234-4708
1	Expandable frame section	234-4712
18	9-in aluminum tent pins	261-9749
6	12-in steel tent pins	823-7451
10	16-in wood tent pins	261-9750
1	Tent canvas w/cover	782-3425



- (A) SCHEDULE 40 PIPE 1" DIA.
- (B) C.R.S. 3/8" DIA.

Give ALICE a Bath

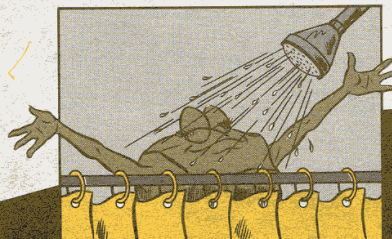
There's nothing like a little soap and water to make you feel and look fresh after a day in the boonies.

Your All Purpose Lightweight Individual Carrying Equipment (ALICE) needs the same kind of cleaning care. A bath now and then will make it last longer, and make it more comfortable to wear.

Here's a good way to clean it!

Brush off caked-on or dried-in dirt with your hands. Never use anything sharp that will cut the fabric or webbing.

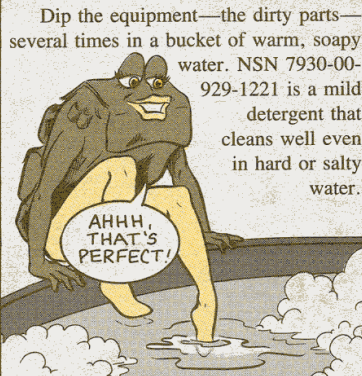
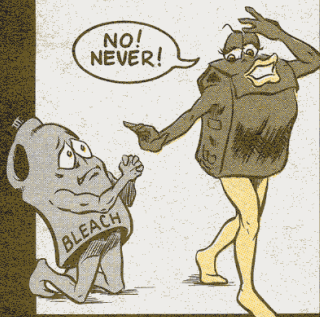
After you scrape off the heavy stuff, wipe away the loose dirt with a soft brush or cloth.



Air-dry in the shade or indoors. Never use commercial dryers. Keep ALICE away from direct sunlight, heat, or open flames—they'll fade and shrink the fabric.



Then wash ALICE by hand. Never use a washing machine. Steer clear of chlorine bleach, yellow soap, cleaning fluids, and solvents. These products will discolor ALICE and break down the fabric.



Dip the equipment—the dirty parts—several times in a bucket of warm, soapy water. NSN 7930-00-929-1221 is a mild detergent that cleans well even in hard or salty water.

Check for stubborn soiled spots that haven't washed out. Scrub them with a soft cloth. Dip ALICE again in the soapy water.

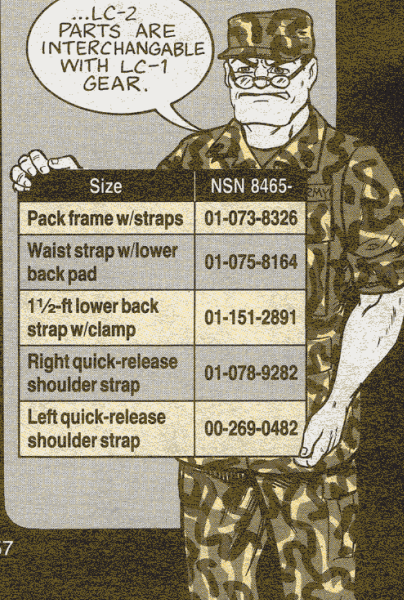
Rinse thoroughly in clean, warm water. Then stretch the fabric back to its original shape.

Field Pack Parts

Dear Half-Mast,
Help! Where do I find separate stock numbers for the padded straps and quick release straps on the LC-2 field pack, NSN 8465-01-073-8326?
SSG A.E.L.

YOU CAN USE THESE NSNs TO GET REPLACEMENT PARTS FOR YOUR LC-2 FIELD PACKS...

...LC-2 PARTS ARE INTERCHANGABLE WITH LC-1 GEAR.



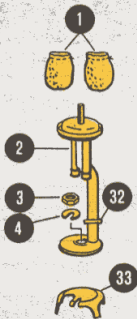
Size	NSN 8465-
Pack frame w/straps	01-073-8326
Waist strap w/lower back pad	01-075-8164
1½-ft lower back strap w/clamp	01-151-2891
Right quick-release shoulder strap	01-078-9282
Left quick-release shoulder strap	00-269-0482

A Light for the Night

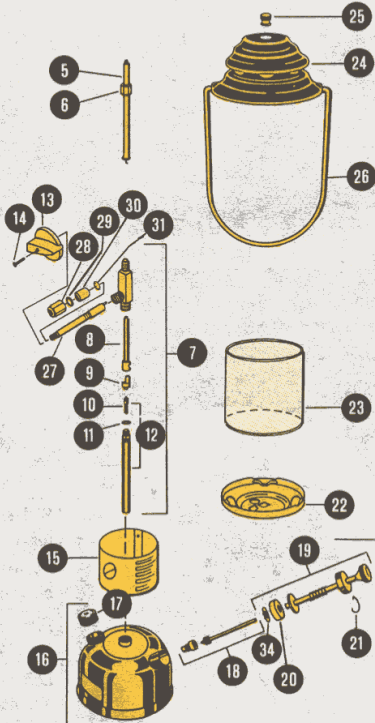
Here are the available parts for your Coleman Model 286A700 single mantle lantern, NSN 6260-01-243-6923, and Model 290A700 double mantle lantern, NSN 6260-01-032-2485.

Order these repair parts on DD Form 1348-6 using CAGE 80309 from RIC S9G.

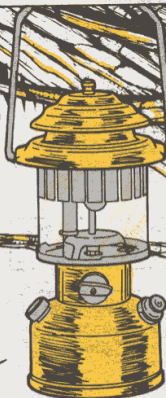
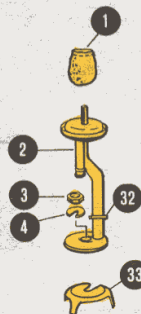
Double Mantle Parts



Common Lantern Parts



Single Mantle Parts



Key	Item	Part Number
1	Mantle (Both) NSN 6260-00-270-4060	21A1001
2	Burner Assembly (Single Mantle) Burner Assembly (Double Mantle)	286B5341 290B5341
3	Nut (Both)	288-1641
4	U-Clip (Both)	288-1251
5	Generator (Single Mantle) Generator (Double Mantle)	288-5891 290-5891
6	Jamb Nut (Both)	288-1621
7	Valve Assembly (Single Mantle) Valve Assembly (Double Mantle)	286A6571 290A6571
8	Eccentric Block (Single Mantle) Eccentric Block (Double Mantle)	286C3041 288C3041
9	Valve Block (Both)	288B3031
10	Valve Core (Both)	288-3651
11	O-Ring (Both)	288-1261
12	Feed Tube Assembly (Single Mantle) Feed Tube Assembly (Double Mantle)	286B5231 290-5231
13	Knob (Both)	288-5491
14	Screw (Both)	220C175
15	Collar (Single Mantle) Collar (Double Mantle)	286B5291 290B5291
16	Fount Assembly (Single Mantle) Fount Assembly (Double Mantle)	288-6151 290-6151
17	Fuel Cap (Both)	220C1401
18	Check Valve Stem Assembly (Both)	200-6381
19	Plunger Assembly (Both)	242D5201
20	Pump Cup (Both)	216-1091
21	Pump Clip (Both)	530A5071
22	Frame Bottom (Single Mantle) Frame Bottom (Double Mantle)	288-5401 290-5401
23	Globe (Single Mantle) Globe (Double Mantle)	214A0461 690A048
24	Ventilator & Bail Assembly (Single Mantle) Ventilator & Bail Assembly (Double Mantle)	288-5001 290-5001
25	Bail Nut (Both)	288-4411
26	Bail (Double Mantle Only)	290-1381
27	Valve Stem Assembly (Single Mantle) Valve Stem Assembly (Double Mantle)	286A6141 288A6141
28	Pack Nut (Both)	242B6161
29	Pack Washer (Both)	1202B1101
30	Packing (Both)	118D6201
31	Retaining Ring (Both)	413A2131
32	Spring Clip (Both)	231A3111
33	Heat Shield (Single Mantle) Heat Shield (Double Mantle)	286-1151 288-1151
34	Pump Cup Retainer (Both)	242-1071

Save Solvent = Save \$\$\$

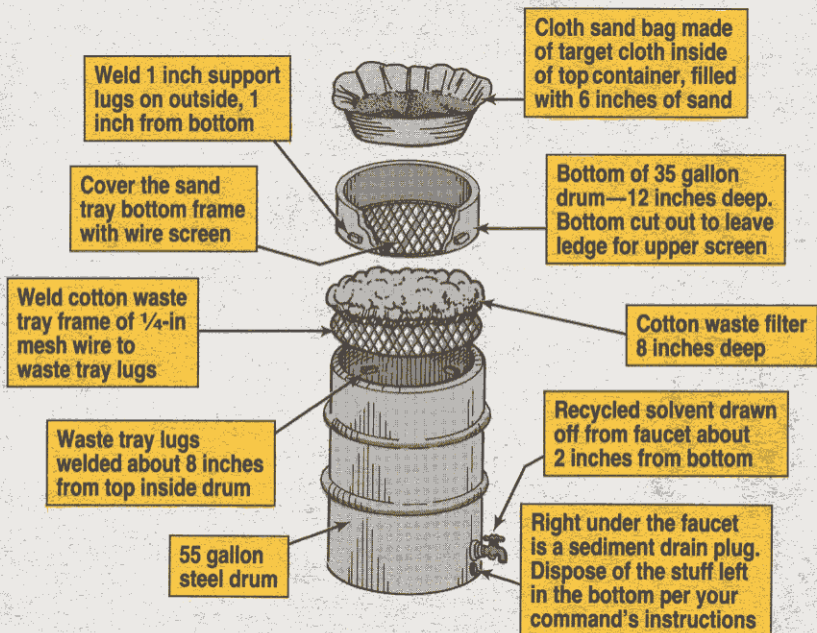
WAIT! DON'T THROW AWAY THAT CLEANING SOLVENT. THAT'S FULL OF GREASE, DIRT AND RUST. RECYCLE IT!



MAKE A DOUBLE-DECKER FILTRATION UNIT TO SAVE CLEANING SOLVENT AND CUT DOWN ON DISPOSAL PROBLEMS. CHECK IT OUT WITH YOUR UNIT SAFETY OFFICER!



HERE'S THE IDEA:





Dry Spray Lubricant NSN

In dusty areas, use dry lubricant, NSN 9150-01-260-2534, on linkages and hinges or anywhere a light lubricating oil is used.

New MSE Signal Cable NSN

Your AN/UXC-7 Mobile Subscriber Equipment (MSE) facsimile was fielded with a signal cable that won't communicate with a non-MSE facsimile. You need signal cable, NSN 5995-01-328-4603, to communicate.

HMMWV Vent Line Fix

Lots of rough ridin' causes the vent lines on the HMMWV's front geared hub to get scraped, stretched and chafed. You mechanics can reroute those vent lines to keep them in working order. Page 3-11 of TB 43-0001-39-7 (Oct 91) has the word.

Ordering Snap Ring Kit

You must order snap ring kit, NSN 5365-00-213-9035, shown on Page 52-53 of PS 471, on DD Form 1348-6. Use the NSN and put in the Remarks block, "NSN is not on the AMDF."

M915A1 Brake Plug

The protective dust plug for your truck's tandem axle brake backing plate is NSN 5340-01-135-5813. It was left out of TM 9-2320-283-24P.

Seal Vehicle Composite Lights

Burn O-ring seals let in moisture. Moisture ruins the lights. Stop moisture damage by putting in a new O-ring every time you open a light for any reason. NSN 5330-00-463-0200 gets one for the front light and NSN 5330-00-462-0907 gets one for the rear light.

M809-Series Snatch Block NSN

The snatch block, NSN 2590-00-264-8828, listed on Page C-2 of TM 9-2320-260-10 is wrong. The correct number is NSN 3940-00-630-9931.

AN/PSM-13 Battery Tester

There's a handy reference on testing dry cell batteries with the AN/PSM-13 battery tester. It's DA Poster 750-54. It tells you the right adapter to use with your radio set, how to test the battery and how to read the tester.

MHE Voltage Regulator NSN

Use NSN 2920-00-758-0008 to get the voltage regulator for the MHE 217 warehouse tractor. The information for Item 1 in Fig 23 of TM 10-3930-626-24P is wrong.

M915A1 Map Light Found

The map light you need for your truck is NSN 6220-01-149-4170. The NSN given in Item 3 of Fig 41 of TM 9-2320-283-24P is wrong.

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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WHAT'S YOUR MOTIVATION?

IF A MAINTENANCE JOB'S
WORTH DOING AT ALL, IT'S
WORTH DOING RIGHT...
EVERYTIME YOU DO IT!