

Issue 467

PS

October
1991

TB 43-PS-467

**THE
PREVENTIVE
MAINTENANCE
MONTHLY**



**HAZARDOUS
MATERIAL
HANDLING**
... SEE PAGE 27

SAFETY

Breaking the End-Item Code

I'LL BE
HERE **ALL NIGHT**
TRYING TO FIND THE
CODES FOR THESE
SUPPLY REQUESTS.



Good news!!

Finding the End Item Code (EIC) for your equipment is easier than ever.

Now instead of looking up the end item NSN on the AMDF to find out the EIC, you can get it from SB 38-102. Appendix B lists the EICs that are used on your repair part supply requests. The items are listed in end item NIIN sequence. The LIN, model number and nomenclature are also listed.

The EIC on your supply requests is what drives the supply people to stock the repair parts for your end item.

WHY LOSE
SLEEP WHEN **SB 38-102**
HAS ALL THE INFO
YOU NEED!

SB 38-102 has been distributed. If your unit didn't receive a copy, get your pub's clerk to order it on DA Form 4569. He'll also need to add it to the 12-series forms to get future changes. He should put it on DA Form 12-99, using form number 12-34-E and block number 4004.



THE
PREVENTIVE
MAINTENANCE
MONTHLY

TB 43-PS-467. 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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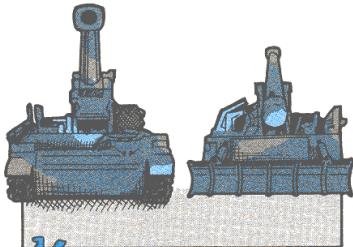
Slave 'em the Right Way



Careful is the word to keep in mind when you slave start any tracked vehicle. Positioning of vehicles is the key to slaving. You've got to know when and how to position them. Here's how to do it for all combat vehicles except the M1-series tanks and Bradley vehicles.

Positioning

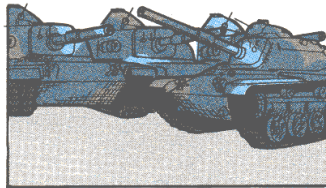
Park vehicles side by side facing in opposite directions.



Never put a live vehicle head-to-head with a dead one—a soldier can get hurt if either vehicle jumps ahead.

Safe slaving means thinking things out first. Study the slaving info in your -10 TM before you begin, and always have a ground guide overseeing the operation. That extra pair of eyes can save lives.

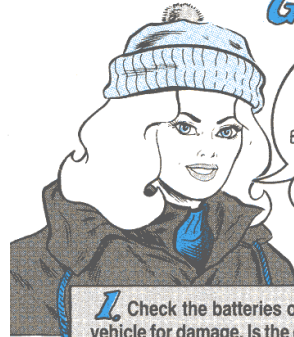
When the vehicle you want to slave is sandwiched between other dead vehicles, put the live one in front of and at right angles to the dead vehicle.



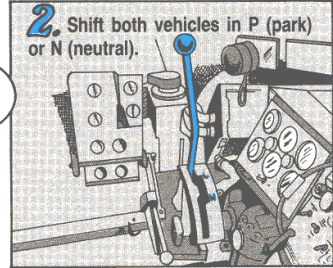
WE SAVE LIVES



Getting Ready

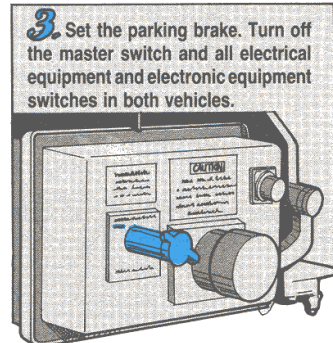
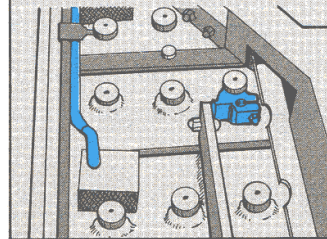


DO THESE THREE THINGS BEFORE YOU HOOK UP THE CABLE...



2. Shift both vehicles in P (park) or N (neutral).

1. Check the batteries of the dead vehicle for damage. Is the electrolyte level OK? Are the cables and terminal lugs tight and firm? Report anything you can't fix yourself.

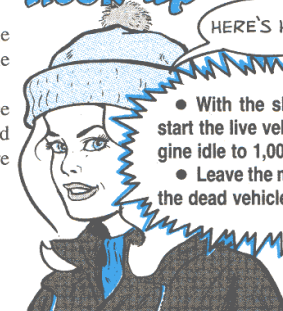


3. Set the parking brake. Turn off the master switch and all electrical equipment and electronic equipment switches in both vehicles.

Hook-up

Attach the slave cable securely to the dead vehicle first, then the live one.

If you have time, charge the batteries in the slaved vehicle 15 minutes before you try to start it.



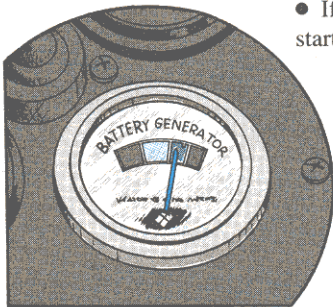
HERE'S HOW.

- With the slave cable installed, start the live vehicle and set the engine idle to 1,000–1,200 RPM.
- Leave the master switch OFF in the dead vehicle during this time.

Starting

Now you're ready to start.

- With the master switch OFF, run the engine in the live vehicle at normal idle. Turn the master switch in the dead vehicle ON and press the start button.
- If the vehicle starts, get the engine running smoothly, then turn the master switch OFF.
- If it doesn't start within 15 seconds, release the start button.



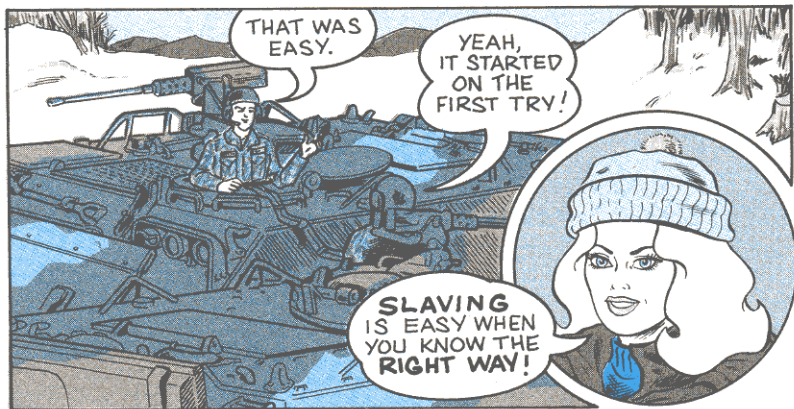
- Check the battery-generator gage. If the needle's in the green or yellow, wait 3–5 minutes and try again. If the needle's in the red, recharge for another 15 minutes before the next try.

- Never grind the starter for more than 15 seconds at a time or you'll burn it up. If your vehicle won't start after three tries, call in your mechanic.

Disconnecting

Once the dead vehicle is started and running OK, you still have to be careful in disconnecting the slave cables.

- Switch the master switches in both vehicles OFF. Remove the cable from the slaved vehicle first, then from the slave vehicle.
- Once the cables are disconnected, turn the master switches ON. Run both engines at 1,000–1,200 RPM to recharge the batteries.



You Can't Roll Without Wheels

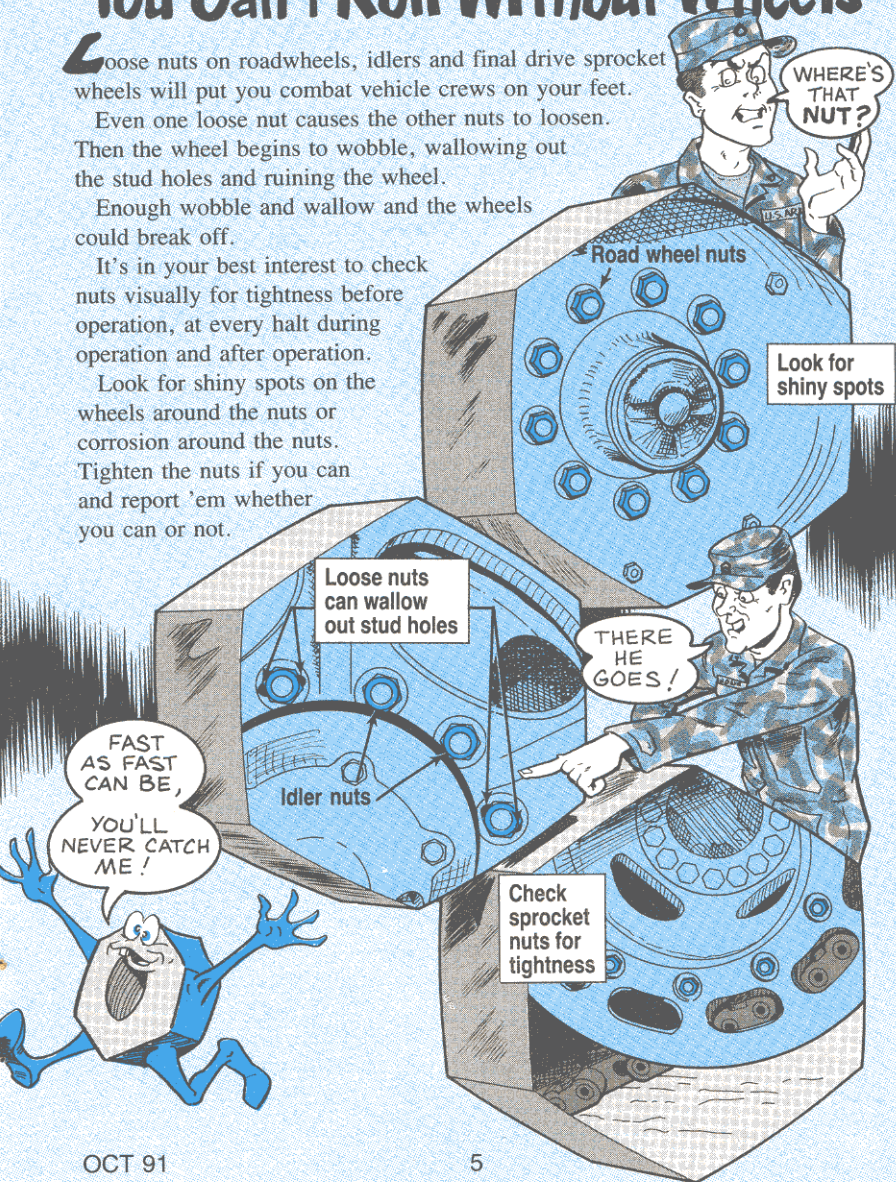
Loose nuts on roadwheels, idlers and final drive sprocket wheels will put you combat vehicle crews on your feet.

Even one loose nut causes the other nuts to loosen. Then the wheel begins to wobble, wallowing out the stud holes and ruining the wheel.

Enough wobble and wallow and the wheels could break off.

It's in your best interest to check nuts visually for tightness before operation, at every halt during operation and after operation.

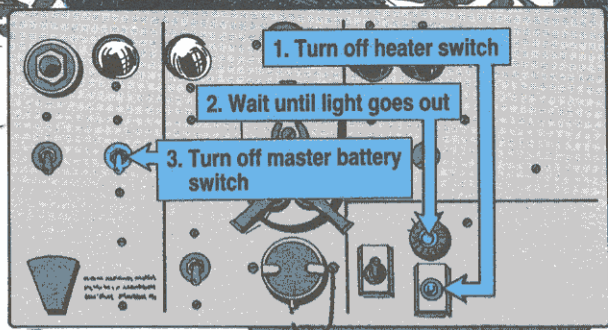
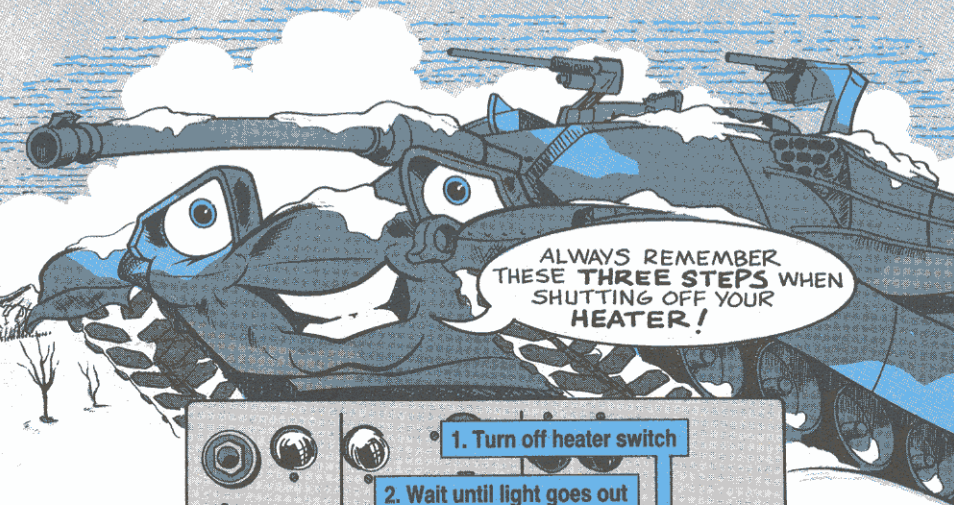
Look for shiny spots on the wheels around the nuts or corrosion around the nuts. Tighten the nuts if you can and report 'em whether you can or not.



SHUT DOYVN HEATERS RIGHT

Combat vehicle heaters won't run right if you don't shut them down right. And if they don't run right, you will get mighty cold this winter.

One big thing to remember is this: Once you've started a personnel heater, let it run for at least five minutes. If you shut down before then, the heater may flood. You won't be able to restart it for a long time.






Allow a heater to purge itself at shut-down. Some vehicles have electrical circuitry that lets the heaters run and purge themselves even with the master switch off. Others must be allowed to run until purging is finished before you hit the master switch.

Do not guess how the heater works. Check out your vehicle's -10 TM and follow the instructions. Heaters that aren't purged completely build up carbon and flood easily. Not only won't a flooded heater start, it's also a fire trap. Do it right and stay warm—and safe.

Y Personnel Heater Igniter

ou'll not have much chance of getting heat from your combat vehicle's personnel heater if the igniter or glow plug is bad. Check now to see if you need new ones.

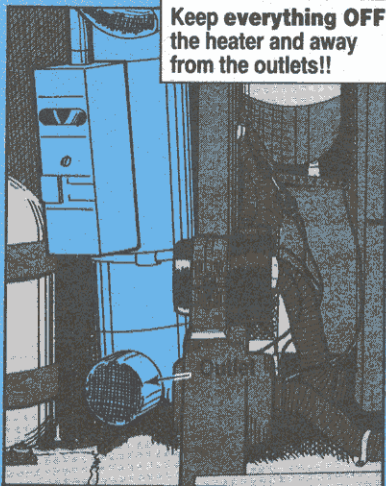
Here's a handy cross-reference of igniter/glow plug-to-heater model:

Igniter glow plug	Heater	
4520-00-790-8417	Stewart-Warner 8460C24	
4520-00-217-5782	Stewart-Warner 10560C, 10560M, 10560M24B1	
2540-01-115-1805	Hupp MF510A, MF510B	
2540-01-167-7248	Hupp MF510C	
2540-12-167-3599	ESPAR V7S	

For more information on personnel heaters and how to keep 'em burning this winter, see TM 9-2540-205-24&P.

Keep Flammables Away

Keep everything OFF the heater and away from the outlets!!

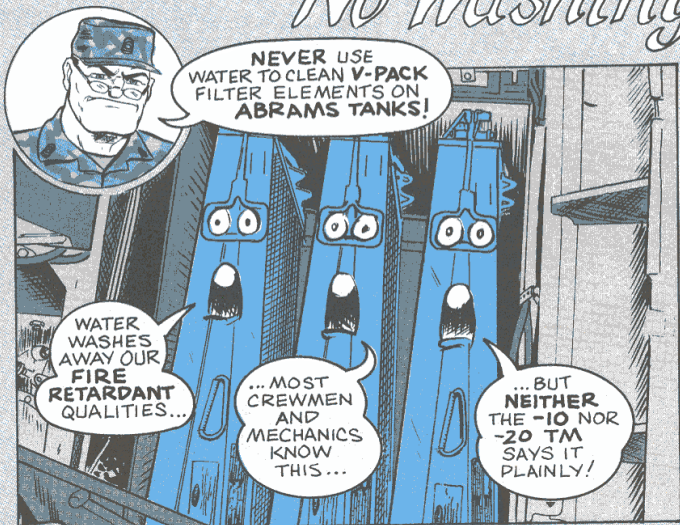


Warm just about any part of your body you like from the outlets of your vehicle's personnel heater, but never, ever dry powder or store ammo or clothing or anything else that can burn near them.

The air temperature at the outlets can reach nearly 300°F when the heater is running on HI. That's plenty hot enough to burn most everything in a combat vehicle. And it's definitely hot enough to burn clothes, ammo and powder bags.

Don't be among the many who've been convinced the hard way—by fires or explosions from stuff put too near the outlets.

No Washing for Air Filters



There are some guys who believe anything goes in cleaning the V-packs. Here's how V-pack cleaning must be done:

By Crews

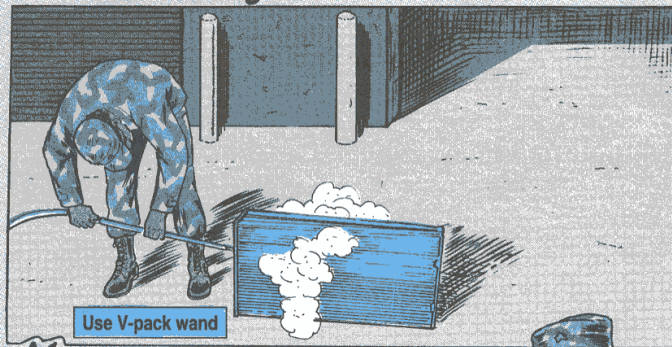
Crews can clean V-packs only when there is no time to get a mechanic on the scene to do the job. There are two acceptable methods—and neither involves water:

- Shake the V-packs, making sure not to hit them against anything harder than your hand. Hand-brush dirt and dust from the elements. This info is found in the "emergency procedures" section of your -10 TM.
- Use the V-pack cleaning wand, if available. Info on this is found in the "unusual conditions" section of your -10 TM.

Whichever method you use, notify your unit maintenance folks as soon as possible that you had to clean your packs.



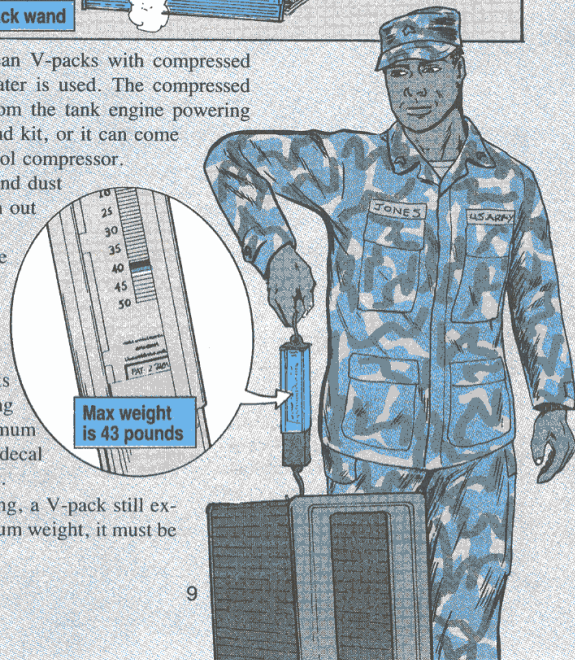
By Mechanics



Mechanics clean V-packs with compressed air only—no water is used. The compressed air can come from the tank engine powering the cleaning wand kit, or it can come from a motor pool compressor.

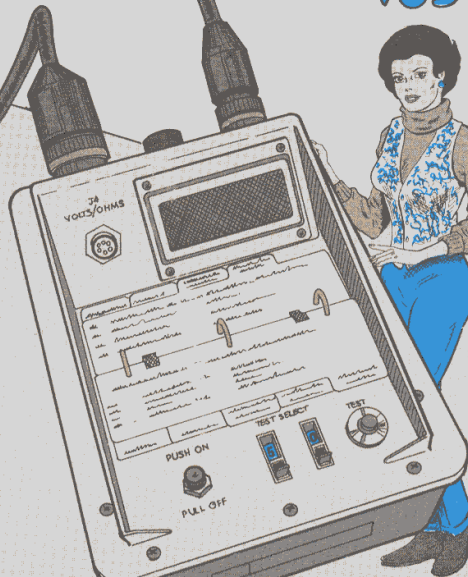
Once all dirt and dust have been blown out of the V-packs, each one must be weighed. The -20-1-3 TMs cite a 43-lb limit, but there are some V-packs with decals giving a different maximum weight. Use the decal weight if present.

If, after cleaning, a V-pack still exceeds the maximum weight, it must be replaced.



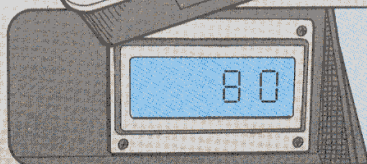
Test Before

Transmission Swap



SOMETHING AS SIMPLE AS THE STE-ICE TEST 50 FOR TRANSMISSION OIL PRESSURE MAY SAVE YOU AN UNNECESSARY MLRS OR BRADLEY TRANSMISSION REPLACEMENT.

After you've done the troubleshooting called for in your -20-1 TM, and right before you job order it to DS, run Test 50 for the following pressure readings:



With the engine at idle, service brakes applied and gear selector in neutral, the pressure level should not be lower than 80 PSI.

For the next part of the test, block your vehicle's tracks so it cannot move when the transmission engages. With the engine at idle and gear selector in neutral, release the service brakes and observe the pressure level. Within five to 60 seconds, pressure should increase above 115 PSI. If the pressure does not rise, there is a brake coolant valve problem in the transmission. It must be replaced.



With the engine at idle and the service brakes released, place the gear selector into pivot steer. When the transmission disconnect clutch engages, pressure should increase above 150 PSI.

For MLRS, Test 50 is found on Pages 3-583 through 3-585 of the TM 9-1450-646-20-1.

For M2/M3 and M2A1/M3A1 Bradleys, the test is found on Pages 3-552 and 3-553 of TM 9-2350-252-20-1-1.

For M2A2/M3A2 Bradleys, the test is found on Pages 3-542 and 3-543 of TM 9-2350-284-20-1-1.

BELOW-NORMAL READINGS INDICATE HYDRAULIC SYSTEM PROBLEMS IN THE TRANSMISSION.

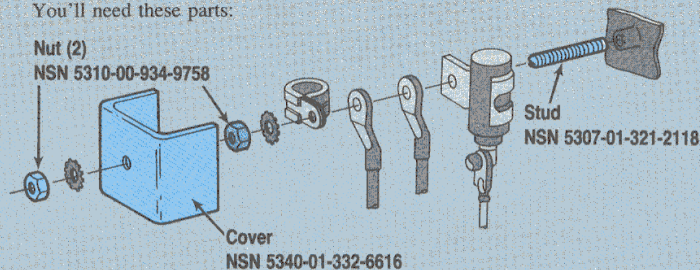


M981 FISTV...

Added Protection for Capacitor

You can provide more protection for the exposed capacitor at the auxiliary power receptacles on your FISTV with an add-on cover.

You'll need these parts:



Remove the screw that holds the capacitor in place and toss it. Install the stud in the hull wall. Put the capacitor, terminals, clamp, starwashers, cover and nut on the stud as shown.

Get a Grip on the Mirrors

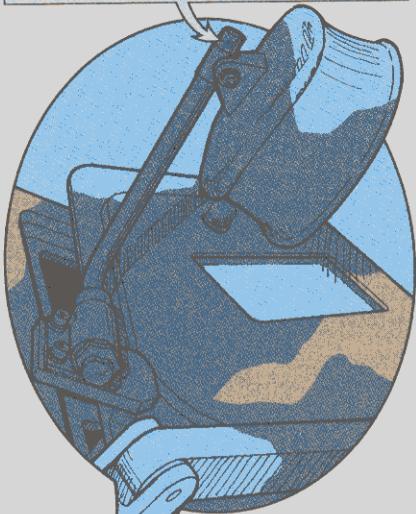
The clamps that hold rear view mirrors on MLRS carriers have a bad habit of loosening so much that the mirrors slide right off the mount rods.

2LT Charles E. Grindle of Ft Polk, LA, came up with an easy fix to keep the mirrors on the rods, which he shared with the SMART folks and received some cool cash.

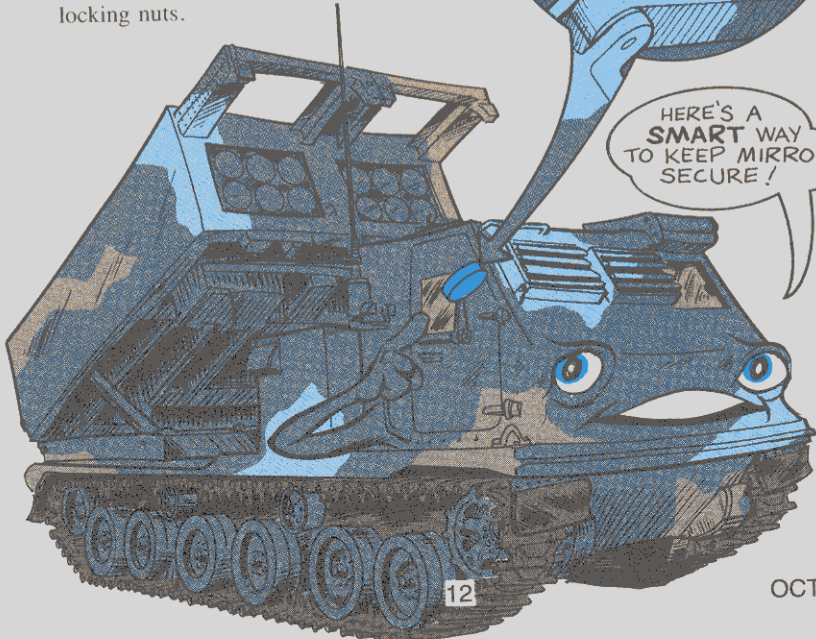
Here's how he keeps the mirrors on the rod:

Drill a $\frac{5}{16}$ -in hole through the mounting rod about one inch from the mirror end. Insert screw, NSN 5305-00-988-1728, or one similar and secure it with locking nut, NSN 5310-00-088-1251, or one similar. The screw can also be secured by double-nutting it with non-locking nuts.

Drill a $\frac{5}{16}$ -in hole here, insert screw, NSN 5305-00-988-1728, and secure mirror to rod with nut, NSN 5310-00-088-1251



HERE'S A SMART WAY TO KEEP MIRRORS SECURE!



Go Erect Before Stow

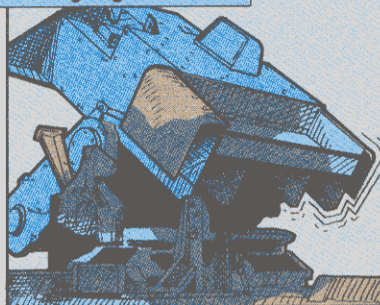
Unless you stow the launcher from the "LOAD" position right, you can damage your M901A1 Improved TOW Vehicle's erection chain assembly.

After loading, raise the launcher to the "ERECT" position before going to "STOW". Do not go directly from

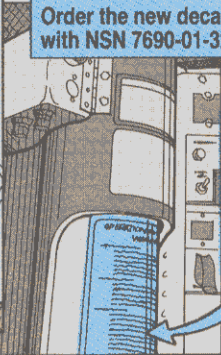
"LOAD" to "STOW" or you'll break the chain.

This change in operating procedure is on a new decal. Order it with NSN 7690-01-324-1738. Mount the new decal over the old Operating Procedures decal on the hydraulic accumulator.

Raise launcher to ERECT before going to STOW



Order the new decal with NSN 7690-01-324-1738



3e. Erect launcher when loading is complete. Perform Steps 2B and 2C to return launcher to ERECT position

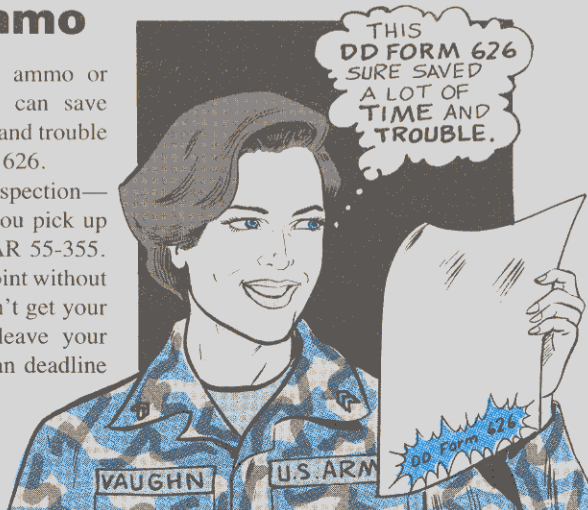
Ammunition...

Haul Out Form Before Hauling Ammo

Truck drivers who haul ammo or other hazardous materials can save themselves a world of time and trouble by checking out DD Form 626.

The form—a vehicle inspection—must be filled out before you pick up your load, like it says in AR 55-355. If you arrive at the ammo point without the form, you not only won't get your load—you may have to leave your truck parked. Inspectors can deadline an unsafe truck.

OCT 91



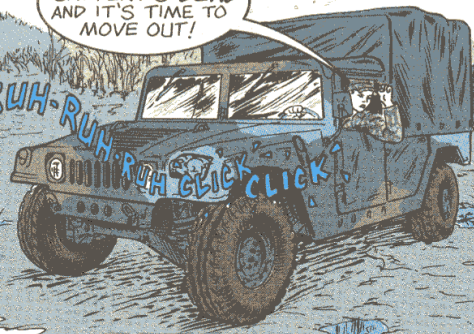
SLAVE STARTING

COLD TEMPERATURES SAP YOUR VEHICLES' BATTERIES. ENGINE OIL THICKENS, WHICH MAKES PARTS STIFF AND SLOW AS MOLASSES. A FEW CRANKS ON THE STARTER ARE ALL IT TAKES TO FINISH OFF WEAK BATTERIES.

DRAT! THE BATTERY'S DEAD AND IT'S TIME TO MOVE OUT!

WHEN YOUR BATTERIES ARE GONE AND YOU HAVE TO GO, YOU CAN SLAVE START YOUR VEHICLE.

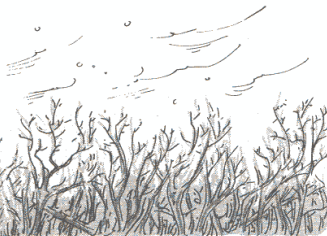
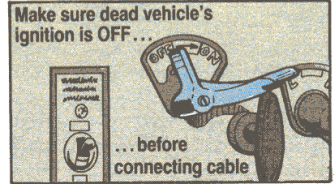
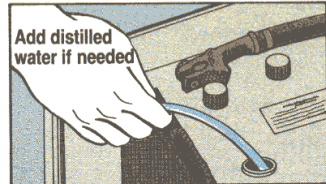
RUH-RUH-RUH
GLICK-CLICK!



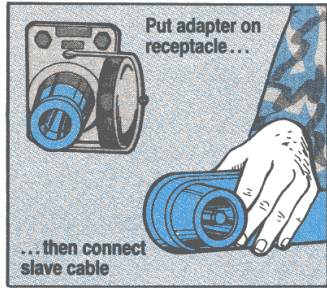
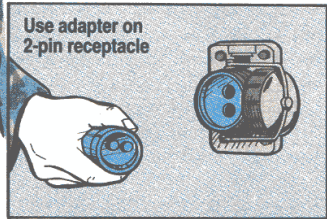
HERE'S HOW:

- Get familiar with the slave starting instructions in your vehicle's -10 TM.
- Make sure the electrolyte level in all cells of the batteries is above the plates.

- Make sure battery cables and terminals on the dead vehicle are tight and free of corrosion.
- Set the parking brakes on both trucks. Shift the transmission of each truck to neutral. Keep the live vehicle's engine running.



- If either vehicle has the old 2-pin slave receptacle, push the NATO 2-pin adapter on the truck's slave receptacle.
- Always connect the slave cable to the dead vehicle's slave receptacle first. Make sure the connection is good and tight.

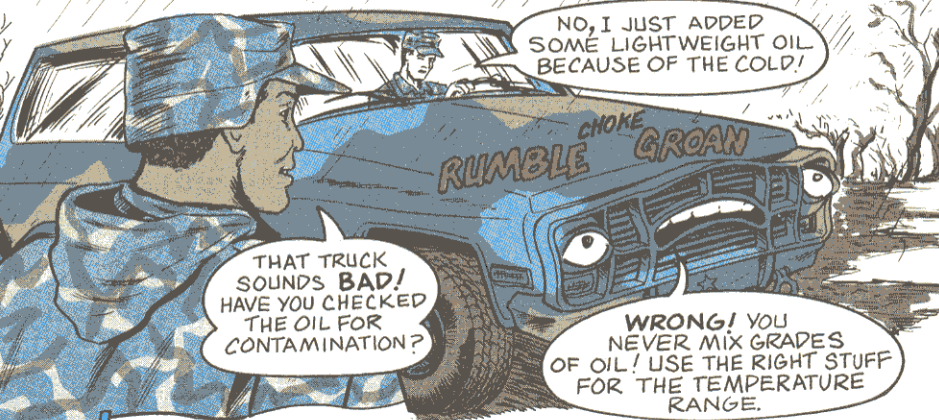


- Push the slave cable connector into the slave receptacle on the live vehicle.
- Wait at least 1 minute—but no more than 3—before starting the dead vehicle.
- Try to start the dead vehicle.
- Always step on the clutch pedal if the vehicle has a manual transmission. This helps the vehicle start easier by cutting down on engine drag. If the vehicle fails to start after three tries—stop! The vehicle has problems that slaving won't solve.
- Keep the cable connected until the vehicle starts. Never unhook a slave cable while the starter is engaged, or you'll see fireworks like the 4th of July.
- Let the engine run at fast idle after it cranks.



ONCE YOU GET THE DEAD VEHICLE STARTED, PULL THE CABLE OFF THAT VEHICLE AND THEN REMOVE IT FROM THE OTHER VEHICLE.

Cold Weather Lubrication

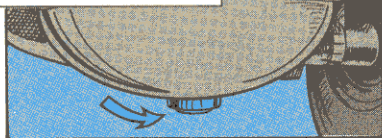


If your trucks aren't under AOAP, it may suffer from oil contamination during winter months. Buildup from condensation and dilution from fuel are the culprits.

After every daily oil-level check, sniff the dipstick for fuel. Use your eyes and fingers to detect sludge. Look for bubbles in the oil on the dipstick. That's moisture contamination. If you see bubbles, draw a sample and let it stand in a glass jar. Water will separate from the oil. Oil's lighter than water, so it floats.

Change the oil and oil filters when you find contaminated oil.

**Oil contaminated?
Drain water off bottom**



If you're using OEA arctic engine oil, check your oil level every time you shut down and before you start up again. This is because an engine will consume more of this thin oil than OE/HDO.

Keep an eye on the oil pressure gage. A pressure drop can mean low oil. On long runs, check the oil level several times a day. NEVER overfill to cut or skip oil checks. Overfilling brings on other troubles, like blown seals.

Same goes for the rest of the chassis—don't over-lube. Globes of cold-stiffened grease can cause parts to bind and lock.

Condensation is always knockin' at the door. So, in between your regular lube services, check one or two of your gear cases—like a differential, transmission or transfer. Remember, it's time for an oil change when there's oil contamination.

Glow Plug Warning Label

You can now get a warning label to stick on the dashboard of the HMMWV or CUCV to remind drivers to wait till the ready light goes out before they try to start the engine. It comes with NSN 7690-01-267-7370. It says:

Warning: Do not start engine until wait light goes out.

2½-Ton Truck Retainer Ring

NSN 5310-00-516-0337 gets a package of 50 retainer rings for the 2½-ton truck's brakeshoe anchor pin. The ring is shown as Item 16, Fig 114 of TM 9-2320-209-20P. Make a note until the TM is updated.

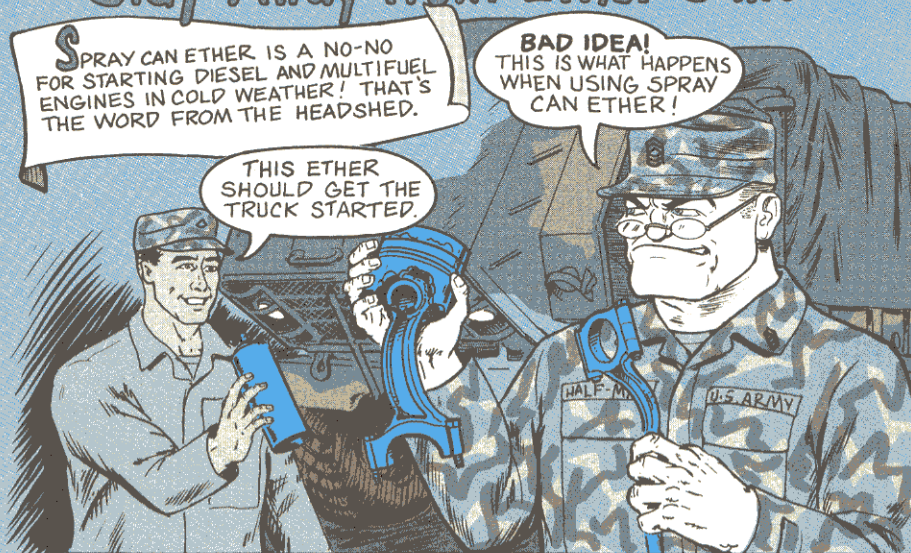
Engines...

Stay Away from Ether Cans

SPRAY CAN ETHER IS A NO-NO FOR STARTING DIESEL AND MULTIFUEL ENGINES IN COLD WEATHER! THAT'S THE WORD FROM THE HEADSHED.

THIS ETHER SHOULD GET THE TRUCK STARTED.

BAD IDEA!
THIS IS WHAT HAPPENS WHEN USING SPRAY CAN ETHER!

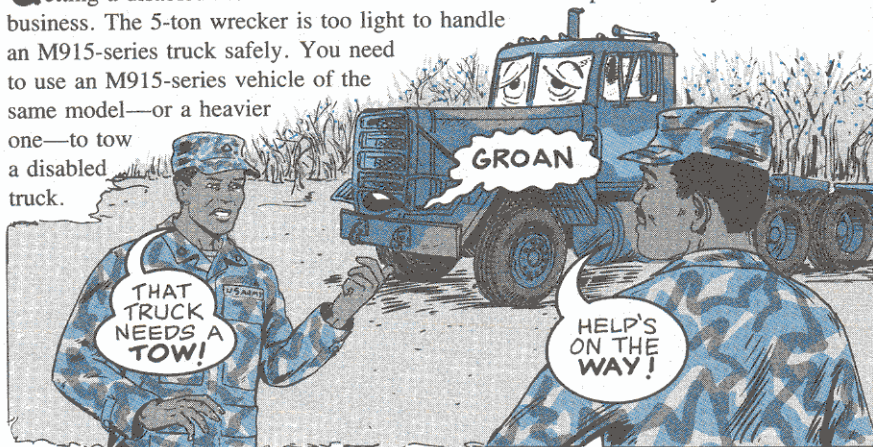


Ether can cause cracked pistons, bent rods and ruined heads. The engine is ruined.

Some engines have starting aids built right in; others don't. Whether yours does or doesn't, never use spray ether.

Use the Right Tow Bar

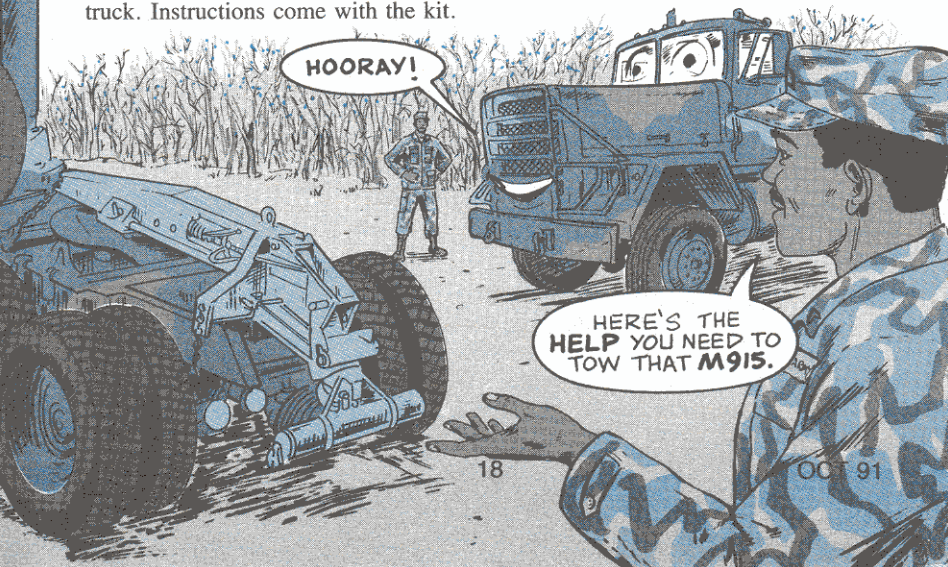
Getting a disabled M915-series truck back to the motor pool is tricky business. The 5-ton wrecker is too light to handle an M915-series truck safely. You need to use an M915-series vehicle of the same model—or a heavier one—to tow a disabled truck.



The wrecker's tow bar, NSN 4910-00-433-7094, is too light to tow an M915-series truck, too. It will break or bend when you use it.

What you need is the medium tow bar, NSN 2540-01-267-2912. It's the bigger one that's carried on M578 and M88A1 recovery vehicles.

If you must lift and tow, use a 5th wheel wrecker kit, NSN 2510-01-032-7123. The wrecker kit mounts on the 5th wheel of an M915, M916 or M920 tractor truck. Instructions come with the kit.



Keep Engine RPMs Up



BY USING THE
RIGHT RPMs I CAN
EASILY LIFT THE
LOAD!

Keep RPMs between
1350 and 1400

Too low an engine RPM makes the M936A2 wrecker's transmission "seek" a gear range to maintain power. Constant shifting from one gear to another ruins the 4th and 5th gear disk packs.

Keep RPMs between 1,350 to 1,400 like it says on Page 2-115 in Change 3 of TM 9-2320-272-10. Then when you put a load on the wrecker boom—like raising the front of a truck for lift towing—the automatic transmission stays in the right gear to provide the engine power needed to lift the load.

Windshield Washer Fluid

Use NSN 6850-00-926-2275 to get a pint of concentrated windshield cleaning compound.



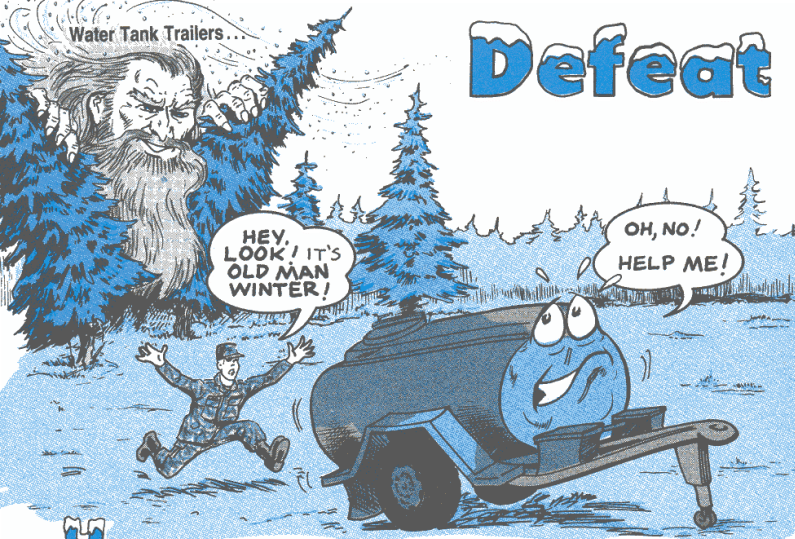
HERE'S
THE
FORMULA
FOR
MIXING!

+40°F TO -10°F,
1 BOTTLE COMPOUND
TO 2 BOTTLES OF WATER;

0°F TO -40°F,
1 BOTTLE COMPOUND
TO 1 BOTTLE OF WATER;

-30°F TO -65°F,
2 BOTTLES OF
COMPOUND TO
1 BOTTLE OF WATER.

Defeat Ol' Man Winter

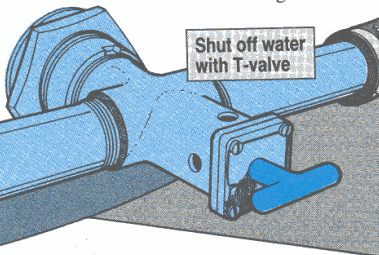
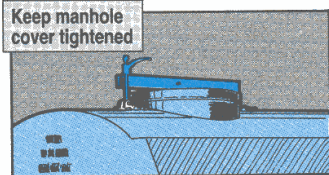
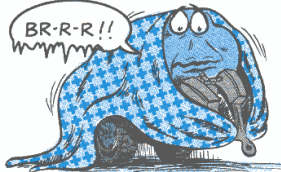


Here are some cold weather PM techniques to keep ol' man winter from freezing the pipes and faucets on your M149, M149A1, M149A2 or M625 400-gal water tank trailer.

- Place the water tank trailer in a shelter, especially if the temperature is below 0°F. A warm tent where there's a field range operating is best. If a shelter's not available, cover the trailer with canvas and keep warm air circulating with a Herman-Nelson heater.

- Always keep the manhole and filler covers tightened. That keeps the water heat in the tank and freezing cold air out!

- After each use, drain the pipes by shutting off the water with the main T-valve in front of the tank. Then open all faucets. Prop them open with a piece of wood. No water—no freezing!



- Use an immersion heater only in the metal tank. Never use it in the fiberglass tank. It's heat will melt fiberglass.

The best immersion heater for the job is NSN 4540-00-266-6834. It has a steel disk that's used as a cover for the tank and a support for the heater assembly. The heater's in Chapter 5 of TM 10-4500-200-13.

If you already have an M67 immersion heater, use it. Just follow the instructions on Pages 2-31 and 2-32 of TM 9-2330-267-14&P about how to adjust the heater bracket to make it fit the tank.



Desert Lubrication...

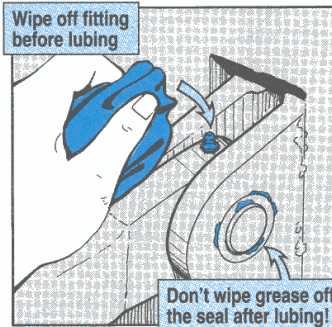
Lube It and Leave It

Page 4 of TB 43-0239, Maintenance in the Desert, tells you to wipe excess grease from bearings or seals after you've finished lubing them.

Experience has shown that wiping off the lube pushes sand past the bearing's seal. Sand and grease scratch bearings and shafts inside.

From now on, just pump the bearing full of grease and leave it.

Make sure you wipe fittings clean before you plug in the grease gun, tho. Otherwise, you pump in sand.



CUCV...

Filler Cap Needs Relief



Before Old Man Winter comes calling this year, make sure your CUCV's vented oil filler cap has a pressure relief valve. The cap you need is NSN 2940-01-217-8089.

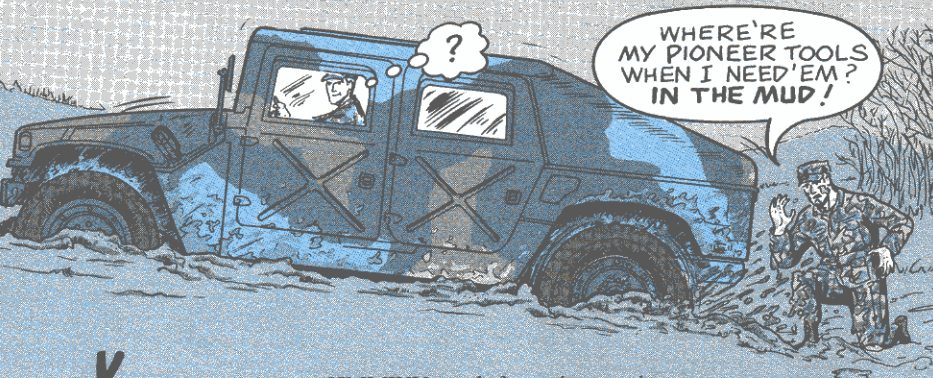
Cold weather causes moisture to freeze in the CUCV's crankcase system. If the freeze blocks the ventilation tube, internal pressures can blow seals and ruin engines.

An engine that's warming up will quickly melt the blockage, but not before pressure builds up.

A vented oil filler cap with a relief valve gets rid of the pressure.

HMMWVs...

Move Pioneer Tool Bracket



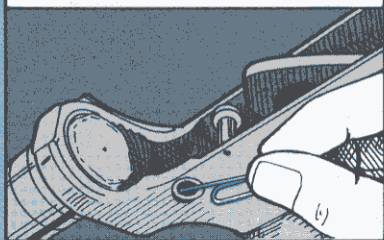
You're gonna get your HMMWV stuck from time to time. Problem is, you can't get to the pioneer tools stowed under the vehicle's back end to get unstuck.

The truck headshed says you can move the pioneer tool bracket to inside the cargo area. You'll find that info in TB 43-0001-39-6 (Jul 91).

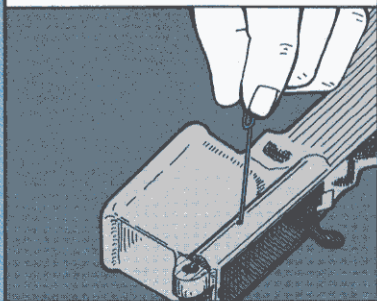
Pin Down Spring Problem

If you armorers have trouble removing the M16's takedown or pivot pin springs or detents, a paper clip may be the solution.

Use a straightened paper clip to push out a stuck takedown pin spring or detent.



If the pivot pin's helical spring or detent won't come out, push the straightened paper clip through the small hole in the side of the lower receiver to push it out.

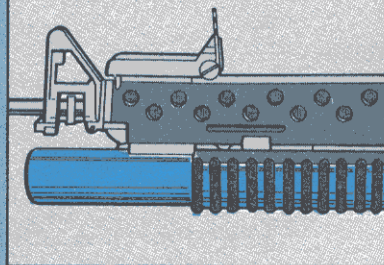


M203 Grenade Launcher...

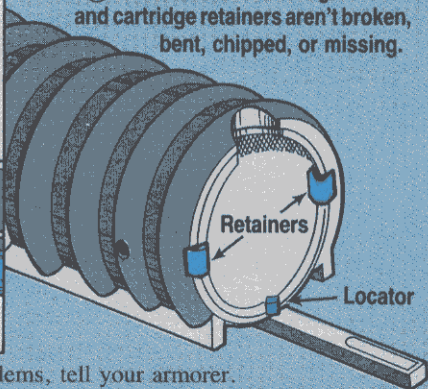
Barrel Boosters

The PMCS in TM 9-1010-221-10 comes up a bit short on tips to maintain the M203's barrel. You not only need to wipe any oil and debris from the barrel bore, but also add these two checks to be sure your M203 is ready to fire:

① Eyeball the barrel for cracks, dents, or bends.



② Make sure the cartridge locator and cartridge retainers aren't broken, bent, chipped, or missing.



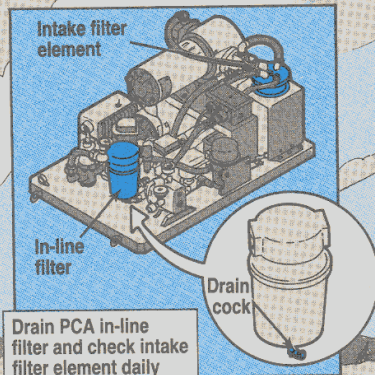
If you spot problems, tell your armorer.

PM Boosts AMG

Communications

Before Operations

Condensation forms inside the AMG and causes corrosion. Drain the mast air tank and pneumatic component assembly's (PCA) in-line filter unit

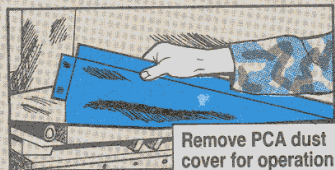


Drain PCA in-line filter and check intake filter element daily

daily. Open the drain cock all the way to let all water out. Remember to close the drain cock when you're through.

Eyeball the PCA's intake filter element. If it looks dirty, report it. The PCA's out of business if the filter clogs.

Take off the PCA's dust cover before start-up. Otherwise, the PCA overheats and the mast can't be extended.



THANKS TO YOUR PM, MY SIGNAL IS SHARP AND STRONG.

MY PLEASURE!

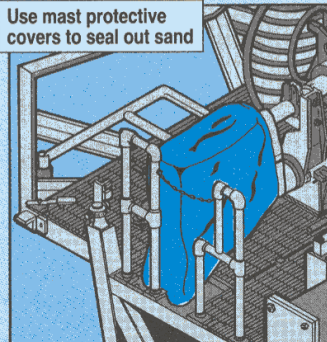
If the Antenna Mast Guide (AMG) signal is weak, the Patriot slows way down.

The split-second reaction time the Patriot needs to knock down missiles is lost because the Engagement Control Station and the Information and Coordination Central have trouble getting info. Keep the commo signal strong with this PM.

After Operations

There are no shortcuts for lowering the masts. It's always a three-person job or you risk crushing crew and equipment. One person must feed the cable into the cable tray as the mast is lowered or the cable will be crushed between the mast and cradle.

Use mast protective covers to seal out sand

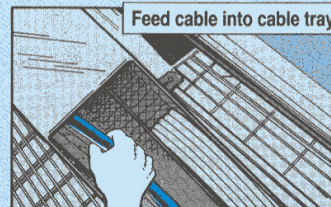


Check that the cables for the antenna amplifier assemblies are tied back securely before you raise the masts. If the cables dangle, they'll be ripped off when the assemblies are lowered.

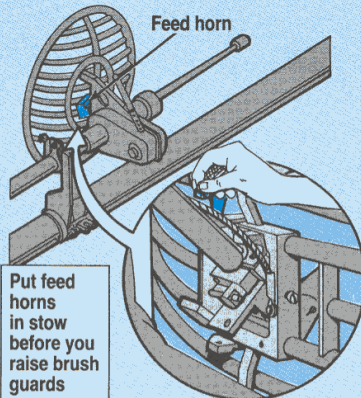
If you've been on a rough road-march, eyeball the welds for the winch's hydraulic reservoir. The reservoir vibrates

a lot. Movement can crack the welds. Then the reservoir falls off.

Feed cable into cable tray



Be sure you put the feed horns in stow and put down the brush guard



safety rails before you raise the brush guards. Otherwise, the feed horns are bent and the amplifier cables are torn.



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

TM 5-3805-253-20P Apr Road grader, Model F1500M, Model F1500 MW
TM 5-3895-219-24P Dec 90 Mixer, concrete, trailer mounted
TM 5-3895-287-24P Feb Mixer, bituminous material, Model KA60
TM 5-3895-364-24P Feb Bitumen kettle, trailer mounted Model TPS-165-A
TM 5-6115-593-24P May Generator set, MEP-029A, MEP-029B, MEP-029
TM 9-1090-208-23P Jul M139, M230, M140 helicopter armament systems
TM 9-1230-476-20-2 Jul Troubleshooting AH-64A fire control system
TM 9-1425-433-10-HR Apr Avenger air defence weapon system
TM 9-1427-475-20 Jun AH-64A Helifire missile equipment
TM 9-1430-602-24P-1 Jun AN/MSQ-116 for Patriot Missile
TM 9-4910-751-14&P May Test set, STE-M1/FVS
TM 9-5855-1253-10 Apr AN/UAS-11A night vision sight set
TM 10-3930-233-24P Dec 90 Fork lift, Model MHE-182
TM 10-3930-238-24P Dec 90 Fork lift, Model MHE-193
TM 10-3930-243-20P Apr Truck, lift, fork; Model MHE 199 and MHE 215
TM 10-3930-606-24P Dec 90 Fork lift, Model MHE-205
TM 10-3930-627-24P Dec 90 Fork lift, Model MHE-221
TM 10-4320-256-14&P Jun Pump assembly, 100-GPM (Model FARE 3950)
TM 10-4330-234-13&P May Filter/separator, liquid fuel, 600-GPM capacity, Model GFS-30-V-600
TM 10-4610-229-10 Apr Water purification unit, Model PD 81146

TM 10-8110-201-10-HR Apr Drums, fabric, 500-gal fuel
TM 11-5895-1281-23P Jul C-11804/ALQ control panel
TM 11-5895-1318-24P Apr RT-1151/GRC-215 receiver-transmitter
TM 11-5895-1406-24P Aug AN/MSQ-85B mobile audio-visual system
TM 11-5895-1482-23P Apr OG-190/TSC amplifier-indicator group
TM 11-6625-3150-23P Jul TS-4221/U interface unit test set

TM 11-6625-3216-14&P Jul TS-4256/G power amplifier test set
TB 1-1500-200-30-2 Mar Extended time between overhaul hours for aircraft from ODS
TB 1-1510-204-30-9 Apr Inspection of landing gear on OV-10(C), OV-1D
TB 1-1510-208-20-8 Mar One time inspection of cabin door latch
TB 1-1520-228-20-56 Jun Quick positioning system installation, OH-58C
TB 1-1520-228-20-61 May Replacement of separator nozzles on OH-58A/C with T63-A-720 engine.

Maintenance Advisories & Safety-Of-Use Messages

CECOM SOU MSG 90-04-01—Operational, Advisory, Gives procedure for erecting the AB-1309 antenna, AMSEL-SF-SEP 091800Z Apr 90.

CECOM SOU MSG-91-06-02—Advisory, Operational, Gives test procedures on BB-542/U Nickel-Cadmium batteries that were overhauled by Tobyhanna Army Depot, AMSEL-SF-REE 281800Z Jun 91.

CECOM SOU MSG-91-05-03—Mandatory, Operational, Identifies a defect which causes the monocular housing to separate from the pivot and adjustment shelf assembly on the AN/AVS-6 night vision goggles, AMSEL-SF-SEC 052100Z Jun 91.

CECOM SOU MSG-91-06-04—Mandatory, Operational, Gives information on how to identify defective monocular housings on the AN/AVS-6 night vision goggles, AMSEL-SF-SEC 061900Z Jun 91.

CECOM SOU MSG—Correction to CECOM SOU MSG-91-06-04, Authorizes inspection procedures of AN/AVS-6 night vision goggles to be conducted by AVUM personnel, AMSEL-SF-SEC 071900Z Jun 91.

CECOM SOU MSG-91-07-04—Operational, Gives additional information on AN/AVS-6 night vision goggles monocular housings, AMSEL-SF-SEC 301800Z Jul 91.

TACOM SOU-MSG-91-07—One-Time Inspection, Limited, Inspect M998 HMMWV A and B pillars for missing mounting hardware, AMSTA-MTA 111800Z Apr 91.

TACOM SOU-MSG-91-14—Limited One-time inspection, Recalls Navistar International Corporation's S-series trucks, models 1824 4X4, 1854 4X4 and 1954 6X6, built from 21 Jun 78 through 30 Apr 87, AMSTA-M 172000Z Jul 91.

TACOM SOU-MSG-91-13—Limited One-Time Inspection, Check electromagnetic relay on M109, M992, M551A1 and M746 vehicles, AMSTA-M 262330Z Jul 91.

TROSCOM Maintenance Advisory MSG-91-20—Gives NSNs for the pump rebuild kits for Halon recharger, NSN 4210-01-176-3511, AMSTR-MEPP 101500Z Jul 91.

TROSCOM Maintenance Advisory MSG-91-22—Inspect valve stem assemblies on P-19 fire trucks, AMSTR-MEPP 101501Z Jul 91.

TROSCOM Maintenance Advisory MSG-91-26—Corrects tire substitute for the P-19 fire trucks, AMSTR-MEPP 101502Z Jul 91.

TROSCOM Maintenance Advisory MSG-91-28—Identifies a voltage drain on trailer mounted quiet reliable 5-KW generator battery, AMSTR-MEP 301518Z Jul 91.

TROSCOM Maintenance Advisory MSG 91-29—Gives proper laundry instructions for top flap of field pack, AMSTR-MEP 061340Z Aug 91.

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

SOME OF THE ITEMS WE HANDLE EVERY DAY ON THE JOB ARE **DANGEROUS** TO US AND THE ENVIRONMENT. THESE ITEMS CAN BE **FLAMMABLE, EXPLOSIVE, CORROSIVE OR TOXIC !**

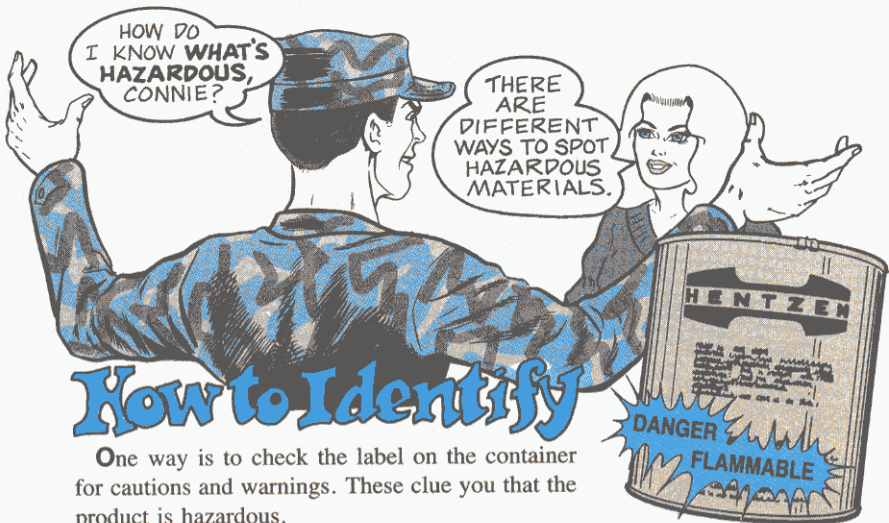
YES BUT...

...Safety Is the Key!

HAZARDOUS MATERIALS HAVE TO BE USED, HANDLED AND DISPOSED OF CAREFULLY OR YOU RUN THE RISK OF **ENDANGERING** THE ENVIRONMENT AND YOUR HEALTH!

THAT'S RIGHT, AND THE LIVES OF OTHER PEOPLE AS WELL!

THE WORD ON THE HAZARDOUS MATERIALS PROGRAM IS IN CHAPTER 5 OF AR 200-1.



How to Identify

One way is to check the label on the container for cautions and warnings. These clue you that the product is hazardous.

Hazardous materials are also identified through the supply channel by a Material Safety Data Sheet (MSDS). The manufacturer is required to send an MSDS with the item to the installation supply people. In turn, the supply people send a copy of the MSDS to the unit. Hang on to this MSDS. You'll need to make a copy of it when you turn in the material as hazardous waste.

MATERIAL SAFETY DATA SHEET

MANUFACTURER: KLEAN-STRIP, DIVISION OF W.M. BARR & COMPANY
 2105 CHANNEL AVENUE
 P.O. BOX 1879
 MEMPHIS, TENNESSEE

DATE PREPARED: 10/01/85

TELEPHONE NUMBER: (901) 775-0100

SECTION I - PRODUCT IDENTIFICATION

FORMULA NUMBER: 1675
 PRODUCT NUMBER: PT-1K
 PRODUCT NAME : PAINT THINNER KLEAN STRIP
 PRODUCT CLASS : PAINT-SOLVENT

SECTION II - HAZARDOUS INGREDIENTS

INGREDIENT	CAS #	PERC WT	OCCUPATIONAL EXPOSURE LIMITS		VAPOR PRESSURE	
			TLV	PPM	MM	@C
MINERAL SPIRITS	64741-41-9	<100	100 ppm	500 ppm	2	20

SECTION III - PHYSICAL DATA

BOILING RANGE: 310 THRU 405 F
 EVAPORATION RATE: Slower Than Ether

VAPOR DENSITY: Heavier Than Air
 % VOLATILE: 100.0 LBS/Gal: 6.450

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLAMMABILITY CLASS: OSHA-Class II
 DOT-Combustible Liquid

FLASH POINT: 105F Seta LEL: 1.0
 c/c

EXTINGUISHING MEDIA: Use Carbon Dioxide, Dry Powder or Foam.

Another way to identify hazardous material is through a set of microfiche called the Hazardous Materials Data File. It's distributed quarterly by the Catalog Data Activity.

Hazardous Materials Data File

NEW CUMBERLAND (CONTINUED)				MAR91			
6850-00-181-7933				NRC LICENSE NUMBER			
ITEM NAME		R NMFC NMFC		ACTIVITY		CHEMICAL AND PHYSICAL FORM	
SUB-CODE		SUB-CODE		MEASUREMENT		LOGISTICS	
RFEM CODE		UFC CODE		RADIO-NUCLIDE		RADIO-NUCLIDE	
FLASH POINT TEMP 245F		FLASH POINT METHOD C		SPECIAL INSTRUCTIONS NARRATIVE			
				WEAR APPROVED RESPIRATORY EQUIP & PROTECTV CLOTHES. DI KE. REMOV LIQ W/VACUUM TRUCK, PUMP TO SALVAGE DR. ABSORB RESIDUE W/ABSORBENT (CLAY). PLACE IN TIGHT CNTNRS. FLUSH AREA W/H2O. KEEP PRODUCT OUT OF SEWERS & H2O-WAYS. SKIN WASH W/SOAP & H2O. REMOV CONTAMINATD CLOTHES.			
ITEM NAME		R NMFC NMFC		NATIONAL MOTOR FREIGHT		INT LTL	
SUB-CODE		SUB-CODE		DESCRIPTION		RAT MAT COM O M DIM SPHDL	
RFEM CODE		UFC CODE		PROPRIETARY ANTI-FREEZE ETC		W W 530 Z 9 A CZ D CD	
ANTI-FREEZE PERM M		25180					

These microfiche show the hazardous items listed by the NIIN (the last 9 digits of the NSN) with hazardous data, description, freight data and proper shipping name.



Write:
USAMC
Catalog Data Activity
ATTN: AMXCA-DL
New Cumberland, PA 17070-5010

Or call:
DSN - 977-6741/6608
COMMERCIAL (717) 770-6741/6608

HERE ARE SOME OF THE COMMON HAZARDOUS MATERIALS USED AT UNIT LEVEL...

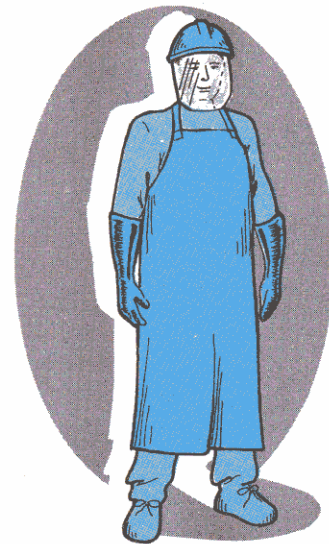
Operation or Process	Hazardous Material
Painting	Thinners; heavy metals; polyurethanes; waste epoxy; paint strippers
Vehicle maintenance	Used oils; lubricants; coolants; petroleum; alcohols; solvents; asbestos (brake linings)
Cleaning, degreasing	Solvents; detergents; ketones; Freon
Electrical/electronic maintenance	Heavy metals; PCBs
Battery shop operations	Acids; bases; cyanides; heavy metals
Industrial waste treatment	Sludges; spent carbon ion exchangers; filters
Washracks and motor pools	Used oil; solvents; heavy metal contaminated sludges
Disaster/NBC preparedness	Bleach (STB); decontaminating gases (ethylene oxide) and liquids (DS-2, DANC)

Personal Protection

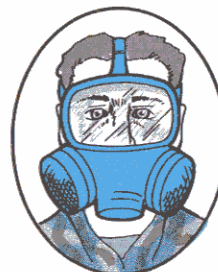


You need to protect yourself from absorbing harmful chemicals through your skin or breathing in hazardous particles, vapors or gases. Never rely on smell as a guide to whether you need to use protective equipment or not. Just because you can't smell the material doesn't mean that it's harmless.

Rubber-framed goggles without ventilation holes or plastic face masks can protect your eyes from the mist and sprays or splashes of liquids such as acids or alkali solutions. Make sure your face mask or goggles are free of scratches before you use them. Scratched lenses block your vision.



Wear gloves, hoods, aprons, sleeves, suits and boots for protection.



Full-facepiece dual cartridge

If you're working with paint or paint thinners, you may need to use a respirator designed to keep out paint fumes. Respirators should be fitted by your medical folks. Use the respirator only in well-ventilated areas. Be sure to wear clothing that covers as much skin as possible.



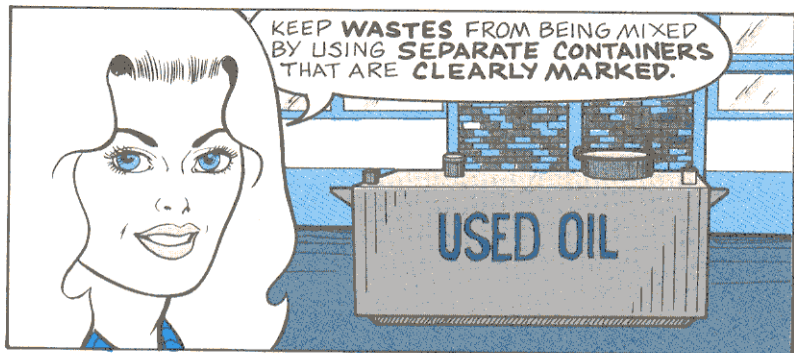
Half-mask, facepiece-mounted cartridge

Remember to clean your equipment before putting it away. Keep the inside of gloves, boots and goggles clean. If the inside becomes contaminated, clean it immediately.



Waste Disposal

Some waste, such as used motor oil, can be recycled. However, if the oil is contaminated with things like antifreeze, the recyclers can't use it. Then it becomes hazardous waste.



If an item's not identified properly or packaged correctly, it could lead to spills that jeopardize life and the environment. You could also be charged with environmental and transportation violations.

HAZARDOUS WASTE

FEDERAL LAW PROHIBITS IMPROPER DISPOSAL.
IF FOUND, CONTACT THE NEAREST POLICE OR PUBLIC SAFETY
AUTHORITY OR THE U.S. ENVIRONMENTAL PROTECTION AGENCY.

GENERATOR INFORMATION:

NAME _____ PHONE _____

ADDRESS _____ STATE _____ ZIP _____

CITY _____

EPA /MANIFEST ID NO. / DOCUMENT NO. _____

ACCUMULATION START DATE _____ EPA WASTE NO. _____

DOT PROPER SHIPPING NAME AND UN OR NA NO. WITH PREFIX

HANDLE WITH CARE!

The containers are required to be marked with a hazardous waste label or marking that includes the name of the unit, address, space for the manifest document number (which is added before transporting the product off post), and the hazardous waste statement.

Warning labels are also required for products that contain asbestos. The labels must include this statement:

**DANGER. CONTAINS
ASBESTOS FIBERS.
AVOID CREATING DUST.
CANCER AND LUNG
DISEASE HAZARD.**

3. Check with your local Defense Reutilization and Marketing Office (DRMO) folks to make sure that they can take your hazardous property.

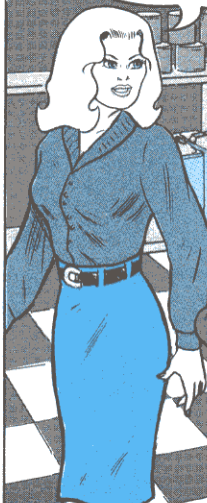
There are many different reasons why the DRMO might not be able to receive your property. The most common is that their hazardous property storage area is full and until the area is cleared they cannot accept any more hazardous waste.

Most posts have environmental coordinators to help with your hazardous property. Check your local phone book for the one nearest you.

For additional information on managing hazardous materials and hazardous waste, check out AR 420-47 and AR 700-141.



NOW I'M REALLY
READY. ANY
LAST
WORDS,
CONNIE?




TAKE CARE OF YOURSELF!
REMEMBER, THAT FROM THE
TIME YOU RECEIVE **HAZARDOUS**
MATERIAL TO THE TIME YOU
TURN IT IN AS **WASTE-**
SAFETY IS
YOUR KEY!

WELL I'M OFF!
LOOK OUT **HAZARDOUS**
MATERIAL WHEREVER
YOU MAYBE!



HE
SURE IS
OFF,



OFF
TO A **GREAT**
START - NOW
THAT HE HOLDS
THE **KEY!**

Selecting Silicone Sealant

When you put RTV silicone sealant on avionic equipment, never use sealants that release acetic acid during curing.

When those sealants come in contact with metal, they cause rapid corrosion. So, never use them on electronic or electrical circuits.

Most of the time you can identify those sealants with your nose. Sealants with acetic acid give off a **vinegar odor** while they are liquid or curing.

The only RTV sealants approved for aircraft conform to MIL-A-46146 specifications.

Some adhesives and sealants have several applications, but unless your TMs say you can substitute one adhesive/sealant for another, don't do it. Stick to the one called for in your TM.



RTV

Do not use any of these RTV sealants on avionics:

102	140	236	784	3144	92-009	96-009
103	142	730	785	20-046	92-010	96-034
106	154	731	891	20-078	92-018	96-005
108	156	732	999	30-079	92-024	96-080
109	157	733	1502	30-121	92-048	96-081
112	159	734	1503	90-092	94-055	Q3-6090
116	192	780	1508	92-005	90-092	Q4-2817
118	198	781	1890	92-007	94-003	94-002

When It's REALLY Cold!

BONE-CHILLING
KNEE-KNOCKING COLD IS
HEADED YOUR WAY. IT WILL
CRIPPLE YOUR MISSION
IF YOU'RE NOT PREPARED.

SO POST
THESE TIPS ON
YOUR BULLETIN
BOARD.

Fuel

Water in your fuel can turn to ice that will block fuel lines. Keep your fuel tanks topped off. The gap between the top of the tank and the fuel is full of cold moist air. That air gives birth to condensation. That condensation drips into your fuel. When you take fuel samples, drain enough fuel to get rid of all the water. Drain the sumps on every daily inspection.

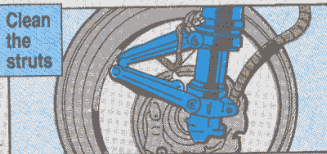
Oil and Grease

Fuel is not the only fluid affected by the cold. Most fluids get stiffer as temperatures fall; oil thickens, fuel's harder to ignite, and grease gels. You must use the right fuel and lube for cold weather. The lube chart in your maintenance manual lists the fuel, oil and grease to use.

O-rings and Gaskets

Seals and gaskets contract in cold weather. That leads to leaks. Moisture can seep in around seals, freeze, and form ice that will cut the seal. Make a list of your aircraft's seal and gasket potential trouble spots. Post that list next to these tips on your bulletin board. A good place to start is with your landing gear. Dirty ice finds a home on struts and pistons.

Clean
the
struts



Refueling

Static electricity can warm your winter real fast... but you won't be around to enjoy the warmth. Remember, the colder the weather, the dryer the air; the dryer the air, the more static electricity. Good grounding is a must. When you're freezing while refueling, you might neglect a ground... DON'T! Follow all your grounding procedures, no shortcuts.

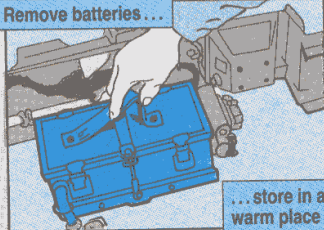
Be sure
nozzle, aircraft
and tanker
are grounded



Batteries

Unless you're in the deep freeze for a long string of days, your nickel-cadmium batteries will do their job well in cold weather without too much extra effort on your part. However, every cold start shortens their life. So, if possible, bring your batteries indoors

Remove batteries...



... store in a
warm place

when the weatherman predicts several days of sub-freezing temperatures. If it's not possible, turn on the landing light, searchlight or other equipment for 30 seconds before an engine start. That "load" will warm up the battery a bit. Always use an auxiliary power unit on the first start of the day. It saves a lot of drain on cold batteries.

Tire Pressure

Air pressure drops with the temperature, so check your bird's tire pressure. Tires frozen to the ground can be freed with liquid deicer. Move the aircraft immediately to keep it from freezing down again as the slush formed by the deicer refreezes.

A FLYING MACHINE IS NOT LIKE A CAR. YOU CAN'T JUST SCRAPE ICE OFF THE WINDSHIELD AND TAKE OFF. AIRCRAFT HAVE TO BE FREE OF FROST, ICE AND SNOW BEFORE THEY'RE GOOD TO GO.

Frosty? No Man!

WE'LL USE THIS TO SWEEP THE SNOW OFF THAT BIRD!

WHEN YOUR WEATHERMAN PREDICTS ICE OR FROST:

COAT your aircraft with anti-icing and defrosting fluid. NSN 6850-00-558-1248 brings a 55-gal drum; NSN 6850-00-901-0591 gets a 5 gallon can. Put it on all surfaces except wiper blades and glass windows.

COAT aircraft late in the day . . . the closer to midnight, the better. If it rains, coat again. Rain washes the anti-icing fluid off.

COAT the aircraft even if you're using covers. The coating will prevent covers from sticking.

COAT blades and glass windows with isopropyl alcohol. NSN 6810-00-855-6160 brings 5 gallons.

Never use water—hot or cold—to clean a windshield. Hot water will crack a windshield. Cold water will freeze.

De-ice glass windshields and blades with isopropyl alcohol. Remember, though, not all anti-icing and deice fluids are good for all aircraft. Some areas on some aircraft like teflon-lined bearings need special treatment. Read your aircraft TM. Each one has a section on deicing. And right now, before bad weather hits, review Section IV of TM 55-1500-333-24, on removal of snow, ice and frost.

When the weatherman says snow, your only real protection is to cover the aircraft. If you can't, grab a broom and sweep the aircraft during the snowfall. Don't use the anti-icing fluid to protect against snow. The fluid is diluted by melting snow. This diluted solution forms a slush that freezes into a hard coating. Even worse, the slush can ooze down into the controls.

If you've missed the weather report and your aircraft is covered with ice or frost, spray the aircraft with anti-icing fluid. If you can, dilute and heat the fluid. Heated fluid makes ice removal faster. Diluted fluid saves bucks. Table 2-3 of TM 55-1500-333-24 gives dilution percentages. Para 2-23c gives heating instructions.

ALL DEICING FLUIDS ARE TOXIC! FOLLOW ALL SAFETY PRECAUTIONS IN THE TM AND ANY LOCAL ENVIRONMENTAL RESTRICTIONS.



MAKE A TOW BAR EXTENSION

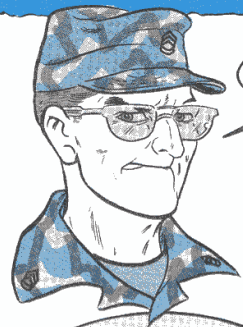
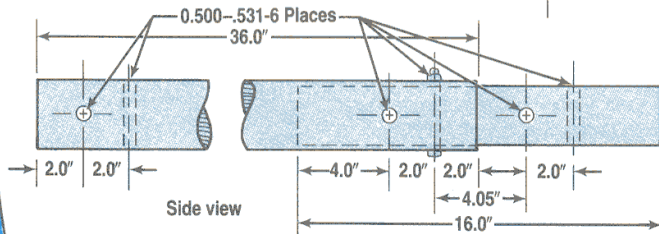
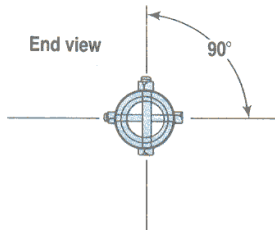
Dear Windy,
We were using a HMMWV to tow a Black Hawk and the tail rotor hit the top of the HMMWV. Do you have plans for making a tow bar extension?

MSG A.C.

Dear Master Sergeant A. C.,
Yes. To make extensions for tow bar legs, you need:

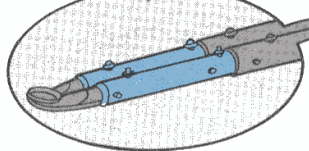
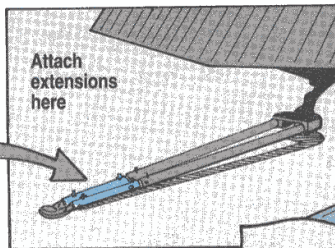
Item	Qty	NSN
Nuts	4	5310-00-062-4954
Washers	4	5310-00-167-0823
bolts	4	5306-00-208-3649
2½-in OD tubing	2 pieces 16-in long	4710-00-278-0478 (order by foot)
3-in OD tubing	2 pieces 3-ft long	4710-00-278-6417 (order by foot)

Make one extension for each leg of the tow bar like so:



ATTACH THE EXTENSIONS BY:

disconnecting the tow bar's legs from the lunette eye; installing the extensions; and reconnecting the lunette to the extended legs.



Windy

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)

AH-1-91-ASAM-11, Info, AH-1, Tail Rotor Counterweights, NSN 1615-00-254-2204, 11200Z Jun 91.

AH-1-91-ASAM-12, Info, AH-1, Provide fatigue lives for components installed IAW MWO 55-1520-244-50-3, 112100Z Jun 91.

OH-58-91-ASAM-12, Info, OH-58A/C Maint of main rotor

most assembly, 112200Z Jun 91.
AH-64-91-ASAM-10, Maint Mand, One time inspect and replace of non-standard tip cap screws used on AH-64, 252000Z Jun 91.

GEN-91-ASAM-06, Info, U-21, RU-21, A-90 and VC-6, nose landing gear info, 252330Z Jun 91.
UH-60-91-ASAM-10, Maint Mand,

H-60, One time inspect and replace of main landing gear, brake assembly piston insulator, 272100Z Jun 91.

UH-1-91-01, SOF Message, operational, UH-1/EH-1, Operational restriction on aircraft with T43-L-13B, P/N 1-000-060-11 engines, 042140Z Jun 91.

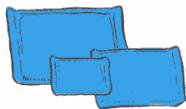
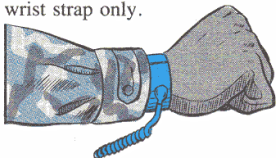
Stop the Static



Electrostatic Discharge (ESD), the discharge of static electricity, ruins the sensitive electronic parts of circuit cards.

Here are the weapons you need to win the ESD war:

- NSN 4940-01-087-3458 brings a static control work station kit. It includes a 4×6-ft floor mat, a 2×4-ft table mat, a 15-ft ground cord and a wrist strap.
- NSN 4940-01-250-4235 brings an ESD protective work station used in clean rooms or laminar flow booths. It includes a rigid table mat, common point ground system and wrist strap.
- NSN 4940-01-250-4236 brings an ESD protective work station used in all other areas other than clean rooms or laminar flow booths. It includes a soft table mat, a common point ground system and a wrist strap.
- NSN 4940-01-250-4237 brings an ESD protective work station kit used where other static controls used in work stations are not available. It includes a portable work surface, a common point ground system and a wrist strap.
- NSN 4240-01-063-4889 brings a wrist strap only.
- NSN 5975-01-209-5753 brings a 4×6-ft static floor runner and a 15-ft ground cord.
- NSN 5920-01-253-5368 brings a field service kit containing three Type II pouches, three Type I barrier bags, two wrist straps, a ground cord and a static dissipating mat.
- NSN 8105-01-096-9527 brings 100 5×8-in, MIL-B-81705, Type II, single wall, antistatic storage bags.



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Here are some other sizes:

Inches	NSN 8105-01-
3 × 5	120-3382
4 × 4	120-3381
4 × 6	120-3380
5 × 8	096-9527
5 × 10	120-3379
6 × 8	217-3773 (zipper closure)
6 × 10	120-3378
6 × 10	162-2174 (zipper closure)
8 × 8	120-3377
8 × 10	120-3376
8 × 10	181-5534 (zipper closure)
8 × 12	097-4507
10 × 12	120-3375
10 × 12	180-7919 (zipper closure)
10 × 14	120-3374
10 × 16	185-9680 (zipper closure)
10 × 24	119-8110
11 × 15	120-3373
12 × 16	120-3372
12 × 18	096-9528
12 × 18	185-2633 (zipper closure)
14 × 18	120-3371
15 × 18	120-3370
18 × 18	119-8109
24 × 36	185-2632 (zipper closure)

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And some MIL-B-81705 Type I, opaque bags. These aren't on the AMDF, so order on a DD Form 1348-6:

Inches	NSN 8105-01-
4 × 6	236-5944
6 × 8	235-5474
8 × 6	235-5473
8 × 12	236-0149
9 × 15	235-5475
10 × 12	235-2688
10 × 14	236-0150
12 × 18	235-2689
13 × 15	235-5476
14 × 16	235-5477
15 × 25	243-6629
18 × 22	235-9829

And some MIL-P-81997 Type I sizes:

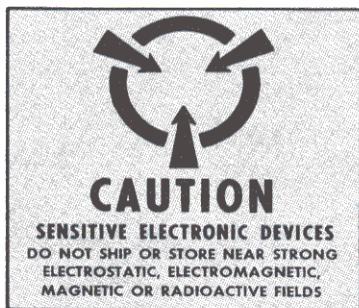
Inches	NSN 8105-01-
8 × 8	215-0462
8 × 12	216-7804
10 × 10	197-2966
10 × 12	197-7846
12 × 12	197-2965



● NSN 8115-00-787-2142 brings a 6×5×2½-inch antistatic, Fast Pack, cushioned shipping container, PPP-B-1672, Type II, Style D, good for a circuit card with an optimum weight of ½ pound. Here are some other sizes:

● NSN 7540-01-109-8815 brings 500 2×2-in yellow and black CAUTION labels; NSN 7540-01-110-4906 brings 100 4×4-in labels; NSN 7540-01-317-7371 brings 100 2×⅝-in labels. Make sure each package you mail that contains an ESD-sensitive item has a caution label on the outside.

Inches	NSN 8115-	Optimum Card Wt (lbs)
6 × 5 × 3½	00-787-2147	1
9 × 6 × 2½	00-101-7647	.9
9 × 6 × 3½	00-101-7638	1.8
12 × 8 × 2½	00-787-2146	1.8
12 × 8 × 3½	00-787-2148	3.6
18 × 12 × 2½	01-019-4085	4.3
18 × 12 × 3½	01-019-4084	8.6
10 × 10 × 3½	01-057-1244	3.75
13 × 13 × 3½	01-057-1243	6.3
16 × 16 × 3½	01-057-1245	9.6
24 × 16 × 3½	01-093-3730	14.4



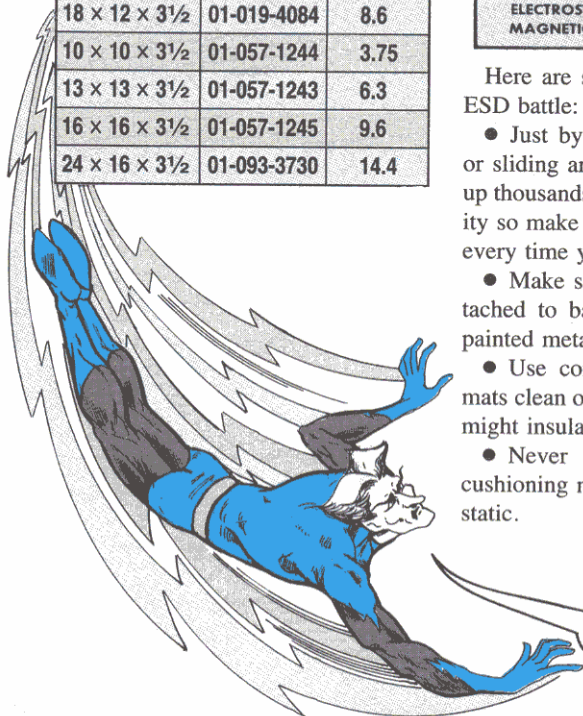
Here are some tips for fighting the ESD battle:

● Just by walking across the floor or sliding around in your chair builds up thousands of volts of static electricity so make sure you use a wrist strap every time you handle a circuit card.

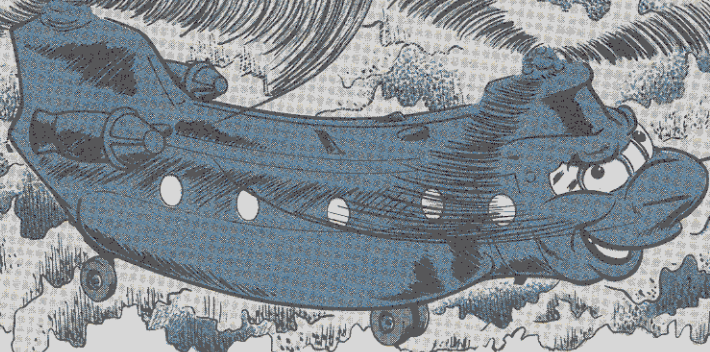
● Make sure your wrist strap is attached to bare, grounded metal, not painted metal.

● Use conductive mats. Keep the mats clean of dirt and other debris that might insulate the mat.

● Never use packaging films or cushioning materials that are not anti-static.

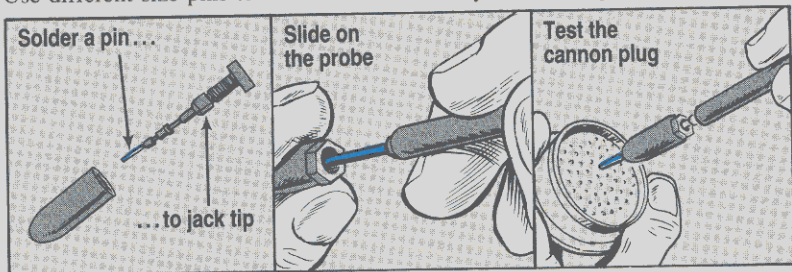


Conquering Cannon Plugs



Having trouble getting multimeter test lead probes into the cannon plug receptacles to do continuity or voltage checks?

Solder a replacement pin onto the end of jack tip, NSN 5933-00-909-7894. Use different size pins to match the connector you're testing.



Get an assortment of pins in test lead set, NSN 6625-01-121-0510. To test, put the multimeter probe into the adapter and put your adapter into the cannon plug.

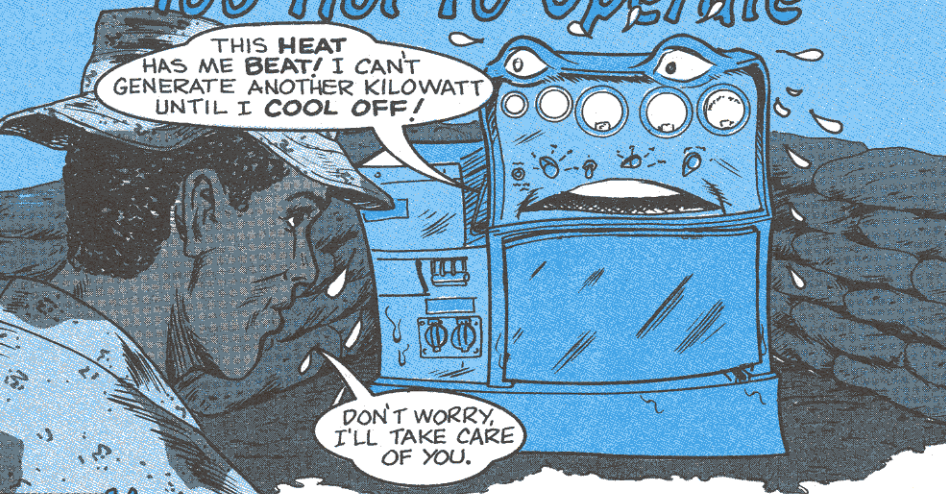
CH-47 Chinook...

Replacement Decals

Replace missing or worn Chinook decals. Order using the CAGE and part numbers in TM 55-1520-240-23P-1 on a DD form 1348-6. Send the 1348-6 to:
OCT 91

Commander
US Army CECOM
ATTN: AMSEL-LC-MMD-MDB
Ft Monmouth, NJ 07703-5006

Too Hot to Operate



Your 5- or 10-KW DED generator with acoustic suppression kit (ASK) has a high temperature protection device that shuts down the generator when it gets too hot.

Although the ASK cuts down generator noise, it also restricts the amount of air flow around the generator. A steady flow of air is needed to keep inside temperatures down.

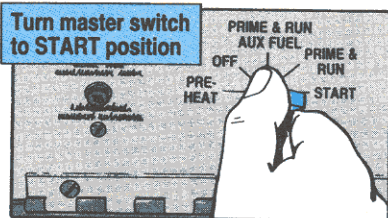
When the engine overtemp protective device's temperature reaches 470°F, the generator engine is shut off. The device will not let you restart the generator until it cools down.

To cool down your generator, open all the doors. Wait 15 minutes. Then try to restart the generator.

If you need power in a hurry, tho, you can bypass the device like this:

- ① Place the output breaker to OPEN.

- ② Turn the master switch to START. After the engine turns over, hold the switch in the START position for 2½ minutes. This keeps the fan turning to cool the generator and high temperature protective device.



- ③ Release the master switch. It automatically moves to PRIME and RUN.
- ④ Switch the output breaker to CLOSE.

The word's in TROSCOM Maintenance Advisory Message 91-02, AMSTR-MEP 090830Z Jan 91.

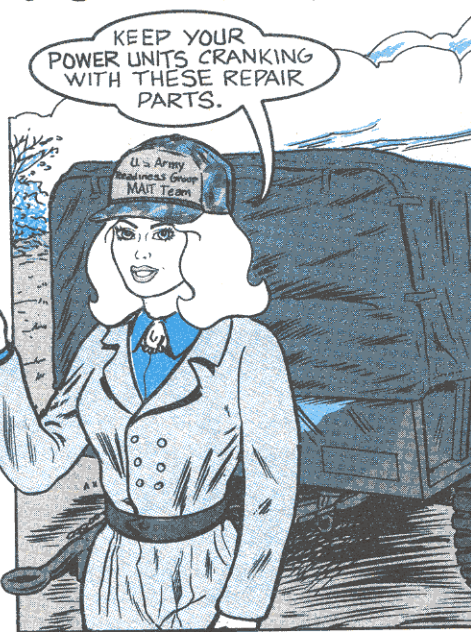
Lamp and Knob NSNs

TM 5-6115-365-15 shortchanges you on repair parts for the distribution box on the PU-617/M power unit. Get the switch knob and glow lamp wire assembly with these NSNs and PNs:

Size	NSN PN
Switch knob	5355-01-294-6431*
Selector knob screw	02016-27
Glow lamp	G9B(GB)
Glow lamp wire assembly	6210-00-420-8628

*NSN not on AMDF. Order on DD Form 1348-6 from S9G.

Order the selector knob screw and glow lamp on DD Form 1348-6 using part number and CAGE. The CAGE for the screw is 82121 and for the lamp 58224. Use RIC S9I for the screw and S9G for the lamp.



20-HP Mil Std Engine...

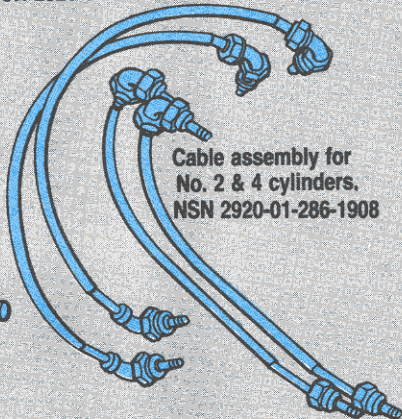
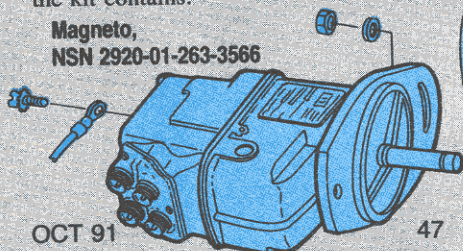
Magneto Kit NSN

You can no longer get the magneto, NSN 2920-00-781-4300, for your 20-HP Mil Std engine.

When it's time to replace the magneto, you'll need to order magneto kit, NSN 2920-01-258-6519. Here's what the kit contains:

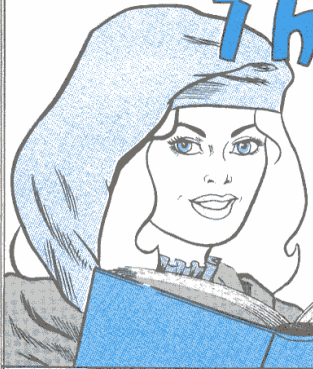
Magneto,
NSN 2920-01-263-3566

Cable assembly for No. 1 & 3 cylinders,
NSN 2920-01-266-0812



Cable assembly for
No. 2 & 4 cylinders.
NSN 2920-01-286-1908

The Rest of the Story

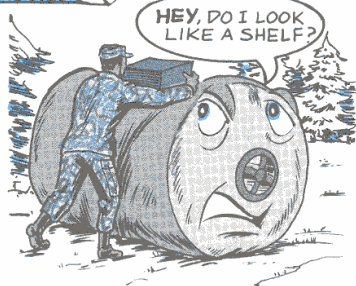


YOU WON'T FIND EVERYTHING YOU NEED TO KNOW ABOUT STORING 500-GAL COLLAPSIBLE FUEL DRUMS IN PARA 1-4 OF TM 10-8/10-201-148 P.

HERE'S THE REST OF THE STORY.

Store the drums full of fuel if you can. Too much collapsing and expanding of the drums takes its toll on the fabric. This is especially true during cold weather when the drums get brittle and crack.

However, fuel expands during hot weather. Always drain a small amount of fuel from the drums before storage, to keep pressure down when it's hot.



HEY, DO I LOOK LIKE A SHELF?



BRRRR... THIS COLD IS DOING A NUMBER ON MY SKIN!

Completely drain the drums if local fire regs say not to store them full of fuel. Follow the instructions for draining fuel drums in Para 5-10 of the TM.

Never stack the drums on top of each other or place equipment on top of the drums. That causes the fabric to wear and crack.

Never fill the fuel drums with air. There's always a little fuel left inside the drums after they've been drained. Vapors inside the drums can cause an explosion.

Store the drums indoors, if you can. Look for a dark, cool, well-ventilated area with a fairly smooth surface. Keep the drums a safe distance from anything sharp that might tear or puncture them.

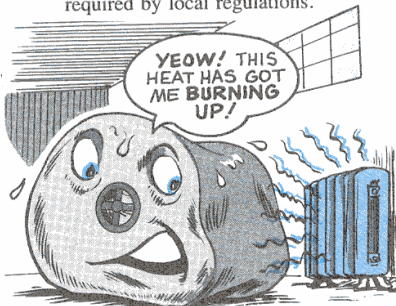
Store the drums away from any kind of heat—things like heaters, steam pipes and radiators. They can damage the fabric or start a fire. Ask your safety officer what fire safety precautions are required by local regulations.



YEOW! THIS HEAT HAS GOT ME BURNING UP!

Keep the drums out of direct sunlight when storing them outdoors. Sun will cause the fabric to dry out and crack. Place them in a tent or under a tarp to block the sun and keep snow and ice off during cold weather. Keep the canvas propped up so air can circulate.

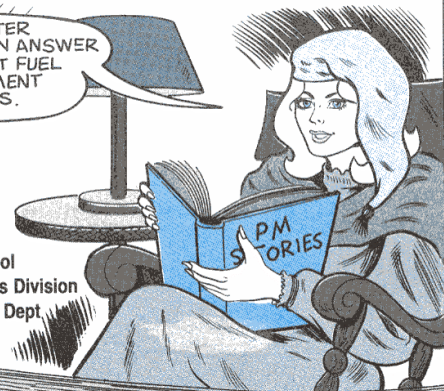
If no shelter's available in hot weather, cover the drums with wet burlap or other cloth.



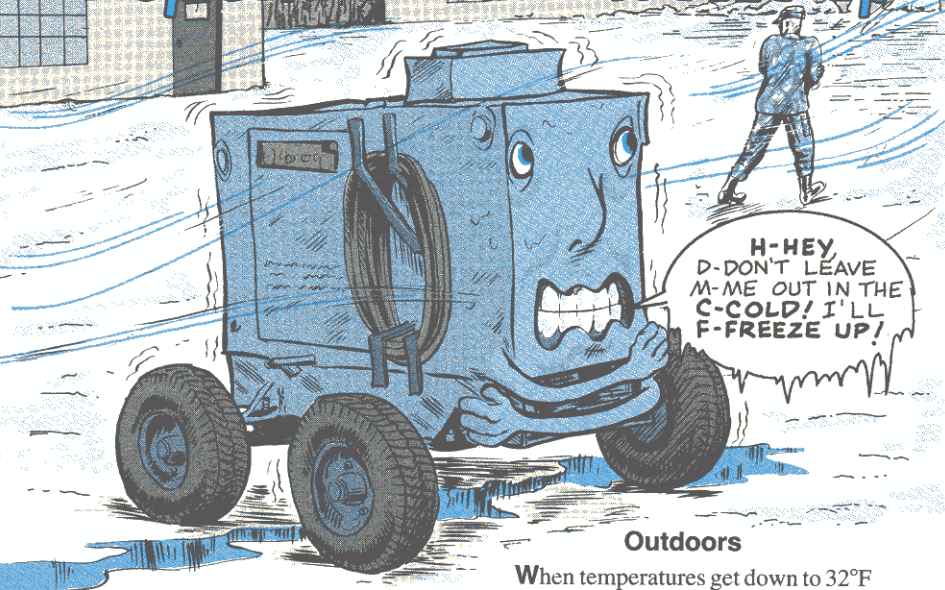
THE QUARTER MASTER SCHOOL AT FT LEE CAN ANSWER QUESTIONS ABOUT FUEL HANDLING EQUIPMENT OR PROCEDURES.

Call them at
DSN 687-1235/3427
or Commercial
(804) 734-1235/3427.

Or write:
US Army Quartermaster School
Advanced Petroleum Logistics Division
Petroleum and Field Services Dept.
Ft Lee, VA 23801-5402



Stop Cold Weather Freeze-Up



Outdoors

When temperatures get down to 32°F or below, check to see that your steam cleaner:

- has been charged with a 50/50 mixture of antifreeze and water before moving outdoors or,
- has been flushed with an anti-freeze mixture with the same degree of protection through the entire steam cleaner system.

Antifreeze NSNs

eyeball your steam cleaner manual for storage over long periods of time. Get a gallon of antifreeze with NSN 6850-00-181-7929 or five gallons with NSN 6850-00-181-7933.

Before using the steam cleaner, pump out the mix and save it for later.

Stream cleaners will freeze in cold weather because all the water can't be drained. Frozen water bursts coils, pipes and fittings.

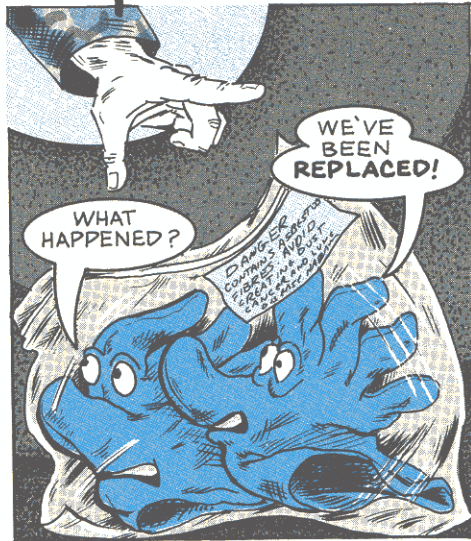
Follow these steps to protect your steam cleaner against extreme cold weather temperatures.

Indoors

Store the steam cleaner inside a heated building or shop for the winter when possible. Just make sure the area will ALWAYS be heated. If not, winterize your steam cleaner the same as if it were to be stored outdoors.

Asbestos Gloves & Mittens...

Replace Asbestos Ones Now



If you have asbestos gloves or mittens, replace them with asbestos-free ones as soon as you can.

Get asbestos-free heat-protective gloves, NSN 8415-01-092-3910, or asbestos-free machine-gunner's mittens, NSN 8415-01-092-0039. Your authority to order is CTA 50-900.

To dispose of the asbestos gloves, place them in a 1-qt interlocking plastic bag.

Label the bags: **Danger, contains asbestos fibers. Avoid creating dust. Cancer and lung disease hazard.**

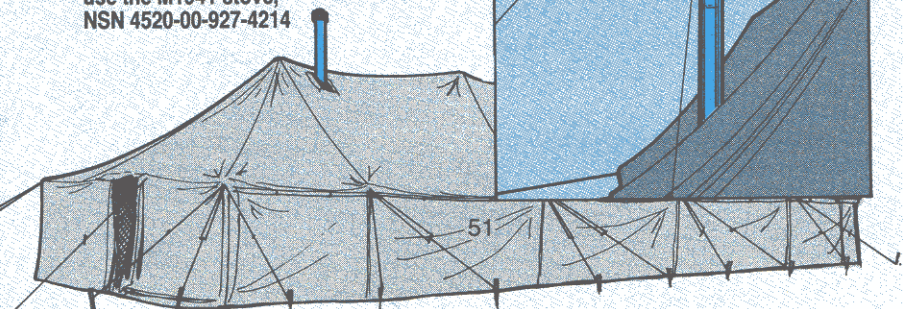
M1941 & M1950 Heaters...

Match Heater Size to Tent Size

Never add extra stovepipe sections to the M1950 Yukon stove, NSN 4520-00-287-3353, to use the stove in a larger tent. The sections can come loose and cause a fire.

If your tent needs a higher stovepipe, use the M1941 stove, NSN 4520-00-927-4214

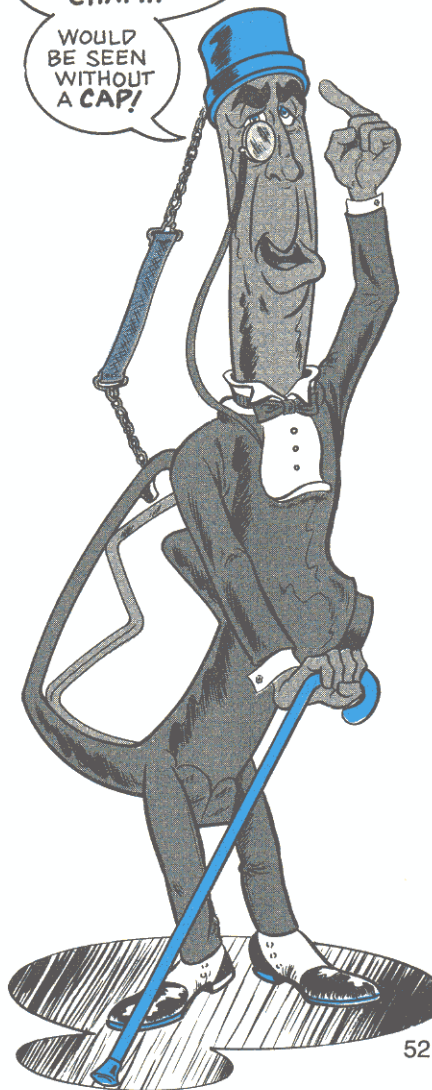
The Yukon stove is made for tents that need a stovepipe no higher than 8 feet



Caps Help Keep Fuel Clean

NO
SELF-RESPECTING
CHAP...

WOULD
BE SEEN
WITHOUT
A CAP!



Dirty fuel clogs filters and makes engines run rough.

Always use nozzle dust caps on fuel nozzles. They keep sand, dirt, dust and water from getting in the nozzle and contaminating fuel.

Here are the caps for different size nozzles:

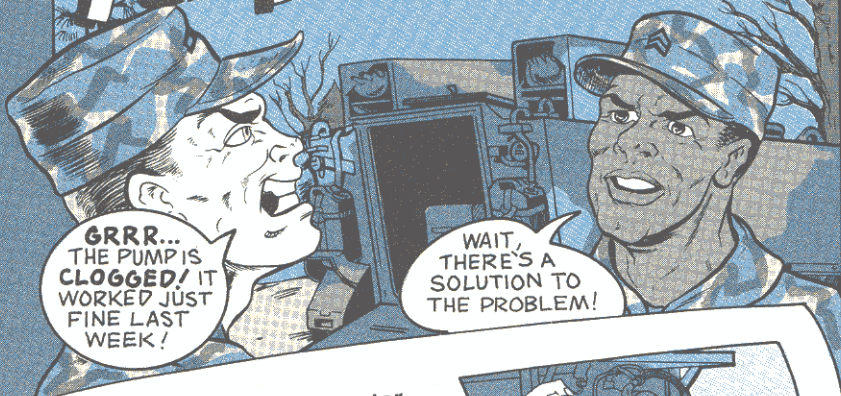
Nozzle size (inches)	NSN or PN
1 ³ / ₁₆	296CA-13-16
1	5340-00-832-7796
1 ¹ / ₈	4730-00-360-0614
1 ³ / ₈	296CA-1-3-8
1 ⁵ / ₈	4930-00-119-0452
1 ³ / ₄	296CA-1-3-4
2 ¹ / ₈	296CA-2-1-8
2 ¹ / ₄	296CA-2-1-4
2 ¹ / ₂	5430-00-720-8866
2 ⁵ / ₈	296CA-2-5-8

Order the part numbered items on a DD Form 1348-6 using CAGE 81718 and the part number from RIC S9C.

Get replacement S-hooks, chains or springs for your caps with these NSNs:

Item	NSN
S-hook	4030-00-803-0272
Chain	4930-00-120-9602
Spring	5360-00-522-2247

Pump Up with PM



GRRR...
THE PUMP IS
CLOGGED! IT
WORKED JUST
FINE LAST
WEEK!

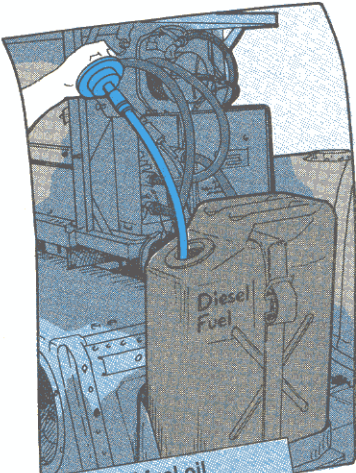
WAIT,
THERE'S A
SOLUTION TO
THE PROBLEM!

Dear Editor,
If the M157 smoke generator sits idle for more than a week, corrosion forms in the fuel pump and fog oil pump. Soon corrosion locks up both pumps and the M157 smokes no more.

We've stopped corrosion by hooking up the fuel pump to a diesel oil fuel can and letting the fuel pump run five minutes. The diesel fuel keeps the pump lubricated. Once a week is enough when the M157 is idle.

Do the same with the fog oil pump, but use fog oil instead of diesel.

Harold Patin
Aberdeen Proving Ground, MD

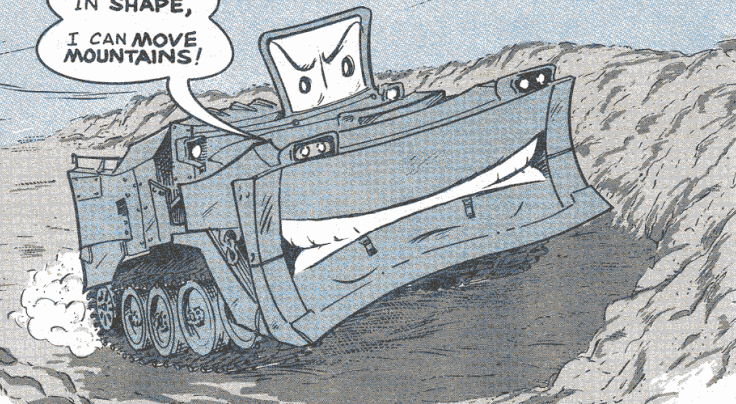


Run diesel fuel oil
through fuel pump weekly

(Editor's note: Your tips are good ways to keep the pumps pumped up. Thanks.)

Tidbits from the Sand Box

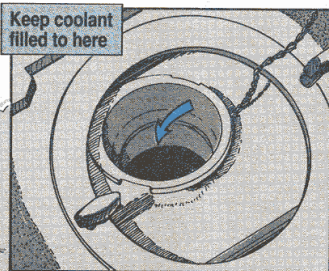
WHEN I'M
IN SHAPE,
I CAN MOVE
MOUNTAINS!



HERE'S A "DESERT" CHECKLIST TO HELP KEEP YOUR ARMORED COMBAT EARTHMOVER PERFORMING LIKE AN ACE IN THE HOLE.

1. AIR CLEANER—Keep a close eye on your M9's air cleaner service indicator. If it shows red, clean or replace the filter element. Tap the element to get out most of the sand and dust. Blow away the stubborn stuff with compressed air (no more than 30 PSI), blowing from inside the element.

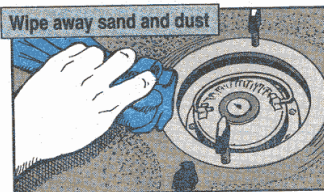
2. COOLANT LEVEL—Take a look at the coolant level every day. Add coolant until the level touches the bottom of the tube in the filler opening.



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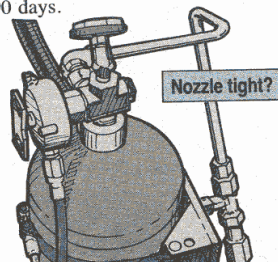
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3. FUEL TANK—Keep the fuel tank filler cap on tight. Always wipe sand and dust away from the fuel cap before filling. Same goes for the fuel nozzle. Fill to the fill line on the tank—or about 2 inches below the filler neck. Leave room for expansion on hot days so the tank does not overflow.



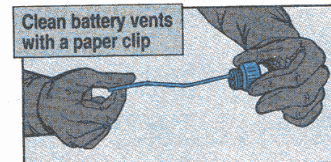
4. KEEP MOISTURE OUT—Condensation—water—forms in the fuel tank during hot desert days and cool nights. To keep water out, open the fuel shutoff valve and drain the fuel/water separator. Drain the water out through a hose and into a clear container. Drain until clean, clear fuel comes out.

5. FIRE EXTINGUISHER—Feel to make sure the nozzle is tight. Look at the lead seals to make sure they're there and tight. Eyeball the inspection tag to be sure the extinguisher has been weighed and inspected within the last 90 days.

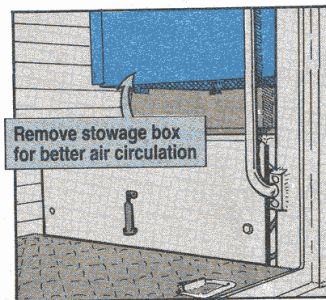


6. BATTERIES—Check electrolyte level. It should be $\frac{3}{8}$ inch above the plates. Fill only with distilled water, NSN 6810-00-356-4936, from a non-metallic container. Clean the battery cap vent with a paper clip. Plugged vents cause gases to build up so high the battery will explode.

Wipe off the vent caps before screwing 'em back in place. Same goes for the top of the battery. Don't let any sand get into those battery cells.



7. KEEP BATTERIES COOL—Remove the stowage box for better air circulation to cool batteries. Besides, it makes checking the electrolyte level a lot easier. Make sure you get your commander's OK before you do it, tho.



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AOAP Oil Sampling

Some vehicles have Army Oil Analysis Program (AOAP) sampling valves installed, and some don't. A sampling valve saves time, makes it easier to draw a sample and gives a truer sample of the vehicle's oil for lab analysis.

Eyeball the vehicle TM or TM 9-2300-422-23&P for info on installing sampling valves on combat, tactical and special purpose vehicles.

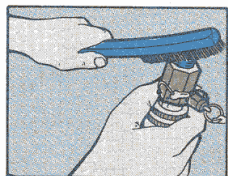
Leaky Sampling Valves

If the sampling valve on your vehicle leaks, wrap it up. You'll need this anti-seize tape:

Size	NSN
1/4-in	8030-00-889-3534
1/2-in	8030-00-889-3535

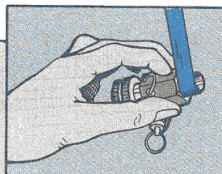
Put Tape on Like So:

1. Clean the threads with a wire brush.



2. Place the tape two threads from the end of the fitting and turn it in the direction of the threads.

3. Give the tape two wraps. Overlap the first turn halfway with the second.



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No Sampling Valve?

If your vehicle does not have a sampling valve, take oil samples with a Vampire Pump Model 43-78m, NSN 4930-01-119-4030. The pump's in the No. 1 and No. 2 Common shop sets.

Order a 1,000-ft roll of 1/4-in plastic tubing with NSN 4720-00-964-1433. Use CTA 50-970 as your authority.

Order 120 3-oz plastic oil sample bottles with NSN 8125-01-082-9697.

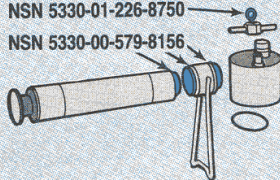
Get non-aeronautical mailers with NSN 8125-01-193-3440. You get 24 3-oz plastic bottles, 24 plastic bags and 24 leak-proof mailing sacks.

Get replacement O-rings for your oil sampling pump with these NSNs:

• O-rings for pump with stand

NSN 5330-01-226-8750

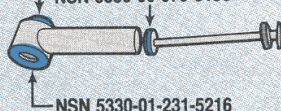
NSN 5330-00-579-8156



• O-rings for pump without stand

NSN 5330-01-133-5858

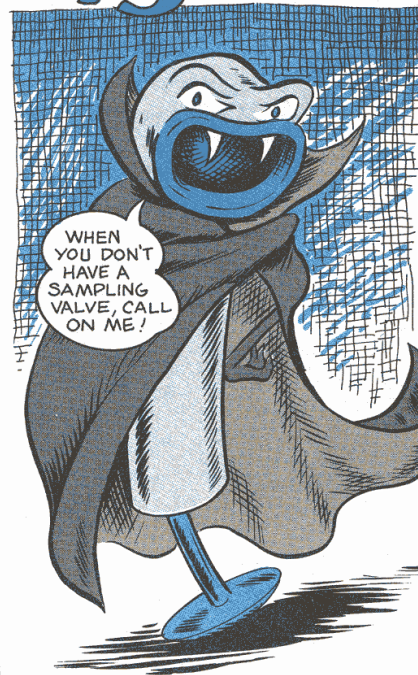
NSN 5330-00-579-8156



NSN 5330-01-231-5216

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Keep Sampling Pump Clean

A dirty oil sampling pump will ruin an oil sample. Always clean the pump, piece-by-piece, with P-D-680 dry-cleaning solvent before using it again. Wear solvent-resistant apron and gloves, and a face shield or goggles when using the solvent. If you get the solvent on your skin, wash it off with soap and water—now!

Tentage Repair Kit

Use the tentage repair kit, NSN 8340-00-262-5767, to repair small holes and rips in your tent. Here's what comes in the kit:

 <p>NSN 8040-00-264-3848 ADHESIVE</p>	 <p>NSN 5120-00-257-5541 AWL</p>	 <p>NSN 9160-00-253-1173 BEESWAX</p>	 <p>NSN 7920-00-291-5815 BRUSH</p>
 <p>NSN 8305-00-926-6171 8305-01-238-8076 8305-01-238-0342 CLOTH</p>	 <p>NSN 5325-00-231-6622 SIZE 4 GROMMETS</p>	 <p>NSN 5325-00-202-2053 SIZE 5 GROMMETS</p>	 <p>NSN 8340-00-270-1334 CASE</p>
 <p>NSN 9150-00-999-7548 SLIDE FASTENER LUBRICANT</p>	 <p>NSN 5120-00-222-2220 RAWHIDE Mallet</p>	 <p>NSN 8315-00-163-1547 SAILMAKER'S NEEDLES</p>	 <p>NSN 5120-00-223-6838 SEWING PALM</p>
 <p>NSN 5110-00-180-0923 SIZE 5 CUTTING PUNCH</p>	 <p>NSN 5110-00-180-0924 SIZE 6 CUTTING PUNCH</p>	 <p>NSN 5365-00-264-1221 CONNECTING RINGS, 1/2-INCH</p>	 <p>NSN 5365-00-264-1222 CONNECTING RINGS, 3/4-INCH</p>
 <p>NSN 5365-00-264-1219 CONNECTING RINGS, 1 INCH</p>	 <p>NSN 5120-00-221-1150 SIZE 4 PUNCH AND DIE SET</p>	 <p>NSN 5120-00-221-1151 SIZE 5 PUNCH AND DIE SET</p>	 <p>NSN 5110-00-596-9703 BENT TRIMMER'S SHEARS</p>
 <p>NSN 8465-00-269-0682 SLING</p>		 <p>NSN 8310-00-988-1301 THREAD</p>	 <p>NSN 4020-00-233-5980 TWINE</p>
 <p>NSN 8340-00-205-2759 TENT LINE SLIPS</p>			

Canvas repair instructions are in FM 10-16. The FM comes with the tentage repair kit.

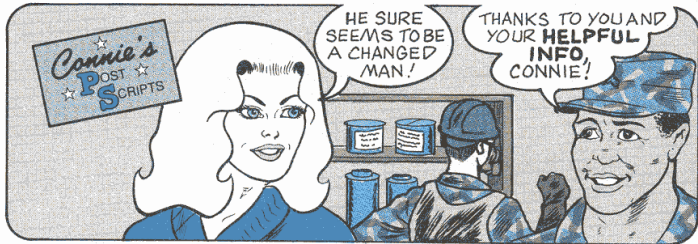
Barber Kit Components



Tracking down a list of the components for your barber kit, NSN 3590-00-058-1837, can be a real hair-pulling experience. They're not listed in any pub!

Here's a list:

Item	NSN	Qty
Barber shears	3590-00-161-6913	2
Barber cloth	3590-00-162-5630	2
Hand hair clipper, size 0, with blade set	3590-00-170-8462	1
Case	3590-00-240-2926	1
Electric hair clipper with accessories: (accessories not available separately)	3590-00-892-4525	1
Disinfecting tray	3590-00-926-3838	1
Toilet soap	8520-00-129-0803	2
Shaving cream	8520-00-285-4960	1
Plastic soap box	8530-00-261-8275	1
Safety razor double edge blades, 5 blades per pack	8530-00-782-3009	8 packs
Barber hair comb	8530-00-543-7727	2



HMMWV Ambulance Light Replacement

The replacement procedure for the tail-light housing bracket on HMMWV ambulances is not spelled out in TM 9-2320-280-20-3. But you can find the word in Para 3-14d of TACOM EIR Digest, TB 43-0001-39-5 (Apr 91).

MILVAN Brake Shoe Kit

Now you can get a brake shoe kit to do a brake job instead of ordering the individual parts. You'll need 2 kits per axle. Order on a DD Form 1348-6 with CAGE 60528 and PN 700-17-290 from S9C. Two kits run about \$15.50. That can save \$20 per axle.

M939 TM Correction

Rear leaf spring U-bolt NSN's are wrong in TM 9-2320-272-20P. Here's the way it should be:

Fig	Item	SMR	NSN	PN	CAGE	Description
196	13	PAOZZ	5306-00-741-1113	10883203	19207	BOLT, U UOC: DAV, V39
196	13	PAOZZ	5306-00-446-8763	8673779	19207	BOLT, U UOC: DAA, DAB, DAC, DAD, DAE, DAF, DAG, DAH, DAJ, DAK, DAQ, DAR, DAW, DAX, V06, V07, V12, V13, V14, V15, V16, V17, V18, V19, V20, V21, V22, V24, V25, V39

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IM-174A/PD O-ring

If you need an O-ring for the base assembly screw for the IM-174A/PD or IM-174B/PD radiacmeters, order it with NSN 5330-00-531-5287, TM 11-6665-232-20P doesn't list the NSN for the O-ring (Item 39a in Fig 1).

Fix Leaky Cargo Covers

You can put a stop to leaky seams on plastic-coated cargo covers on the HMMWV, CUCV and M880 trucks, and on the M871/M872 semitrailer's tarps. Coat the seams with adhesive, NSN 8030-01-079-3135.

TROSCOM Center Changes

The Customer Feedback Center at the Troop Support Command (TROSCOM), which offers help with gripes and suggestions on TROSCOM equipment, has a new address and telephone and datafax numbers. Here they are:

New address

Commander
US Army Troop Spt Cmd
ATTN: AMSTR-MOF
4300 Goodfellow Blvd
St Louis, MO 63120-1798

Telephone Numbers

DSN 693-2249
Commercial (314) 263-2249

Datafax Numbers

DSN 693-1836
Commercial (314) 263-1836

The Customer Feedback Center handles these forms:

- Quality Deficiency Report (QDR), SF 368—problems with new items, such as poor workmanship or defective or broken parts.
- Equipment Improvement Report (EIR), SF 368—ideas for improving equipment or parts.
- Warranty Claim Action (WCA), DA Form 2407—problems with items covered by a manufacturer's warranty.
- Report of Discrepancy (ROD), SF 364—shipping problems.

Keep Welding Electrodes Dry

Moisture ruins welding electrodes. Keep 'em dry by storing them in Moisture Stabilizer, NSN 3439-00-440-0090. You'll find a moisture stabilizer mentioned in Appendix D of TM 9-237 (Oct 76).

TMDE HOTLINE

Just a reminder to you test measurement and diagnostic equipment (TMDE) users. All test equipment modernization (TEMOD) products are now being handled by the US Army TMDE Activity at Redstone Arsenal. If you have any questions or comments, call DSN 645-6364 or Commercial (205) 955-6364. Or write:

US Army TMDE Activity
ATTN: AMCPM-TMDE-PL Bldg 5437
Redstone Arsenal, AL 35898-5400

AMDF Unit of Issue Codes

There are six new unit of issue (UI) codes on the Army Master Data File (AMDF).

They are:

FV Five
FY Fifty
TD Twenty-four
TE Ten
TF Twenty-five
TS Thirty-six

A lot of the UIs for NSNs on the AMDF are changing from each (EA) to one of these new codes. So you'll need to double check the UI when you make out your supply request or you'll get a lot more than you bargained for.

Cross Bar NSN

Use NSN 5820-00-226-5727 to get the long cross bar assembly used to attach the AM-3349 amplifier to the RT-622 receiver-transmitter in your AN/GRC-106 radio set. The NSN shown on Page 2-4 of Change 1 to TB 11-2300-478-30-1 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?



WHO, ME?

**YES,
YOU!**

**YOUR SUGGESTIONS
COUNT!**

**WRITE THEM DOWN
AND SEND
THEM TO:**

**SMART
CASCOM
ATTN: ATCL-CF1-S
Ft Lee, VA 23801-6000**

PIN: 064836-000