

Issue 552

PS

November
1998

THE PREVENTIVE MAINTENANCE MONTHLY

TB 43-PS-552



gobble

gobble

gobble

TURN OFF
THE OVEN,
MAMA!

THANK
GOODNESS
NO ONE TOLD
HIM ABOUT
AXE PM!

I HEAR
THAT SPAM
CARVES
EASILY.

gobble

gobble

DON'T COME
A CHOPPIN' IF
YOUR AXE IS A
ROTTEN!

gobble

D.R. Jekyll and SPC Hyde
... See Page 27

Shoot First, Ask Questions Later

Operators, you might save yourself a lot of hassle someday by knowing a little secret that's hidden between the covers of your operator's tech manual—it's troubleshooting information.

Well, OK, it's not really hidden.

It just sometimes seems that way to unit leaders and repair types. They've seen too many operators fail to troubleshoot when equipment won't work. And, operators who wait for a maintenance person to come to their rescue.

That loss of time can mean the failure of a mission, danger to the operator, or both.

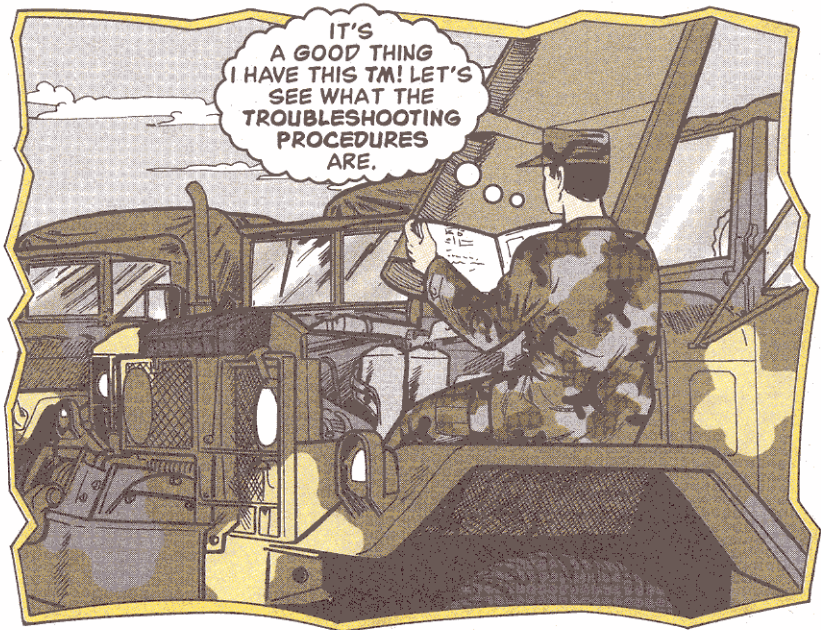
It doesn't have to happen. As any maintainer will tell you, a little troubleshooting will often get a vehicle up and running, a radio up and communicating, or a weapon up and firing.

Do yourself two favors.

One, carry a copy of the operator's TM with you when you're using the equipment.

Two, find the troubleshooting info, get familiar with it, and use it when things aren't working right.

That will keep you—and your repair shop—happy.



TB 43-PS-552, 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. Masculine pronouns may refer to both genders.

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

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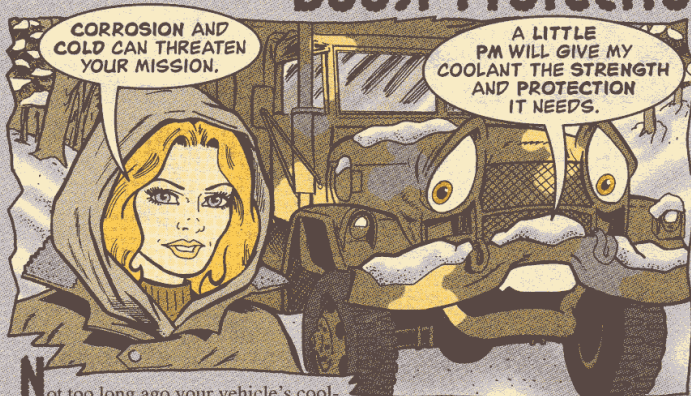
Joel B. Hudson
JOEL B. HUDSON

Administrative Assistant to the Secretary of the Army
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Boost Protection Against Rust



Not too long ago your vehicle's coolant was replaced every year. You didn't have to worry about freeze and corrosion protection.

Well, the ball game has changed. Uncle's money is a lot tighter and coolant is used much longer. Over time, the coolant's corrosion inhibitor and freeze protection can lose their effectiveness. That's when your cooling system suffers big time.

Here's how to make sure your coolant is up-to-snuff:

Non-arctic Military Antifreeze

Check the freeze protection. Use the battery/antifreeze tester, NSN 6630-00-105-1418, from the Common shop sets.

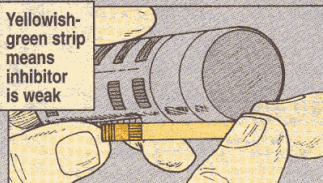
Check freeze protection with tester



Always use a 60/40 mix of antifreeze to water. This protects against freezing down to -50°F. It's better than plain water in hot climates, too. That's spelled out in Para 4b of TB 750-651.

Use antifreeze test kit, NSN 6630-01-011-5039, to make sure the reserve alkalinity (corrosion protection) levels are normal.

Dip a test strip into the coolant. A blue strip is OK. A green strip means the coolant is marginal, but is OK to use until the next service. A yellowish-green strip means the coolant needs a shot of inhibitor right away.



You can boost the coolant only once, so make sure you note it on a DA Form 5986-E. The next time the level of corrosion protection is down you have to replace the coolant.

Here's how to use the corrosion inhibitor:

1. Draw a sample of the coolant in a clear container. If it's contaminated with rust or solids, replace the coolant.
2. Add one pint of corrosion inhibitor for every 17 quarts of coolant. One quart of inhibitor comes with NSN 6850-01-160-3868. NSN 6850-01-287-8067 gets a gallon.

3. Mix the boosted coolant by running your vehicle for a few minutes. After the engine has cooled, retest the reserve alkalinity level. If the coolant fails the test, replace it.

Arctic Antifreeze

Things are a bit different if your vehicle uses full strength arctic antifreeze during the winter months in extremely cold weather (-50°F and lower).

When the weather gets warmer, switch back to non-arctic military antifreeze. The rotation between the two types of antifreeze will ensure your coolant's corrosion protection stays in good shape.

All Vehicles ...

Flexible Exhaust Extensions

Keeping the cold outside is Job No. 1 when you're working in the maintenance bay—but make sure Job No. 2 is venting exhaust fumes outside.

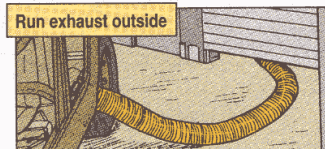
Running vehicles indoors without venting is asking for trouble and court-judgment.

Run exhaust fumes safely outside by using flexible exhaust extensions.

You need a snug fit of extension-to-

exhaust pipe to prevent leaks, so eyeball this list of extensions that fit common tailpipe sizes:

NSN 4720-00-	Inside diameter
174-4668	1 inch
278-8030	1½ inches
278-8027	1¾ inches
278-8031	2 inches
174-6818	2½ inches
174-4664	3 inches
174-4671	4 inches



The unit of issue is feet, so order the length you need.

Keep Water Out of Fuel

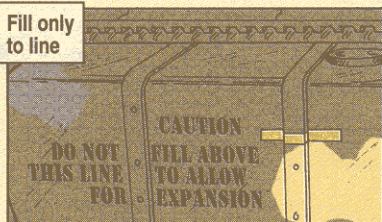
A LITTLE
INHIBITOR WILL
KEEP FUEL LINES
ICE FREE.

Any water in your vehicle's fuel lines will turn to ice once the temperature falls below freezing. And ice stops fuel flow cold.

Here's how to keep the fuel flowing, and your vehicle going:

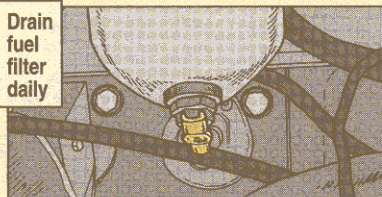
Fill fuel tanks to within two inches of the bottom of the filler neck (or to the mark painted or stenciled on the tank). When you fuel your vehicle, keep ice and snow away from the tank opening.

Fill only
to line



Drain fuel filters every day you operate. If you get more water than usual, report it.

Drain
fuel
filter
daily



If you're still using old-style diesel fuel or gasoline, consider adding icing

inhibitor to the fuel. Make sure that it hasn't already been added (JP-8 comes with an inhibitor already in it).

If you can use the inhibitor, use no more than one pint per 40 gallons. More can cut performance and damage engines.

Add the inhibitor first, so it can mix properly. Use this much inhibitor:

Fuel	Inhibitor
40 gallons	1 pint
30 gallons	$\frac{3}{4}$ pint
20 gallons	$\frac{1}{2}$ pint
10 gallons	$\frac{1}{4}$ pint

Here's the stuff to use:

Diesel fuel inhibitor

NSN 6850-01-	Size
377-5074	5-gal can
089-5514	55-gal drum

Gasoline inhibitor

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

Jet A-1 fuel does not contain an inhibitor. Treat it like diesel fuel.

Going to the Mat

Folks, cleaning out a battery box that's covered in corrosion is not your favorite job. *Duh!!*

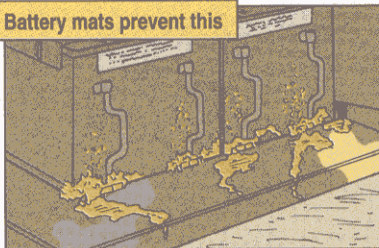
Prevent some of that work by putting a corrosion-resistant battery mat on the bottom of the box.

The mat absorbs the acid that causes corrosion on battery boxes, hold-downs and surrounding parts. It can also prevent corrosive sludge buildup on plastic trays.

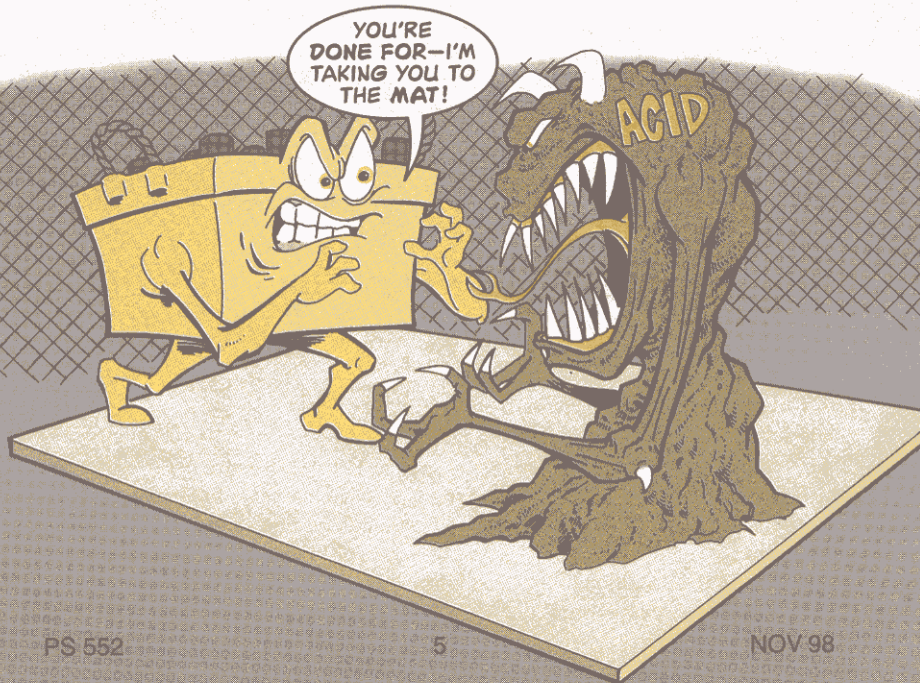
NSN 6160-01-389-1966 brings a 1x100-ft roll of matting. Cut it to fit the bottom of your vehicle's battery box.

Replace the mat during a battery service, or when you replace a battery or when it gets torn or cut. Put the old mat in a plastic bag and turn it in for disposal as hazardous waste.

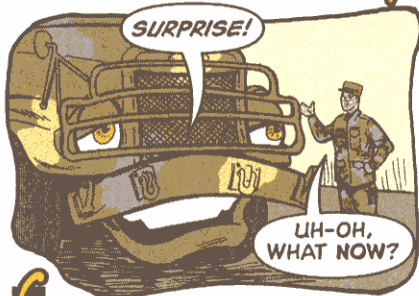
Battery mats prevent this



YOU'RE
DONE FOR—I'M
TAKING YOU TO
THE MAT!

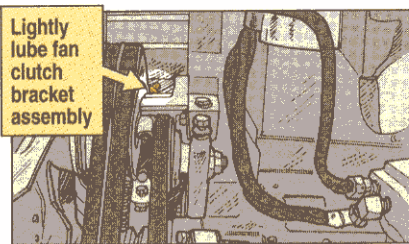


TAKE A LOOK, DO SOME PM



Surprises are good for parties, but rarely any fun at work. Such is the case with the following **gotchas** on your M915-series and M915A1 tractors:

✓ **eyeball the fan clutch bracket assembly for a grease fitting. If there's a fitting, make sure it's lightly lubed (couple of squirts only with GAA) every six months or 6,000 miles. Don't use more or grease ends up on the V-belts.**



Not enough grease can cause overheating when the clutch no longer can "kick in" and turn the fan.

If the bracket doesn't have a fitting, relax. Not all 915s have lubed fan clutches.

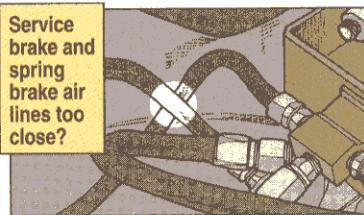
✓ **Take a look under the front wheel wells to scope out the condition of the headlight wiring harness. Sometimes the wiring**

is poorly routed and sharp metal edges cut through the cover, causing a short.

If you need to protect wiring, consider applying RTV to the sharp edges. Use either NSN 8040-01-215-3426 or NSN 8040-00-833-9563. Let the stuff dry before operating the truck.

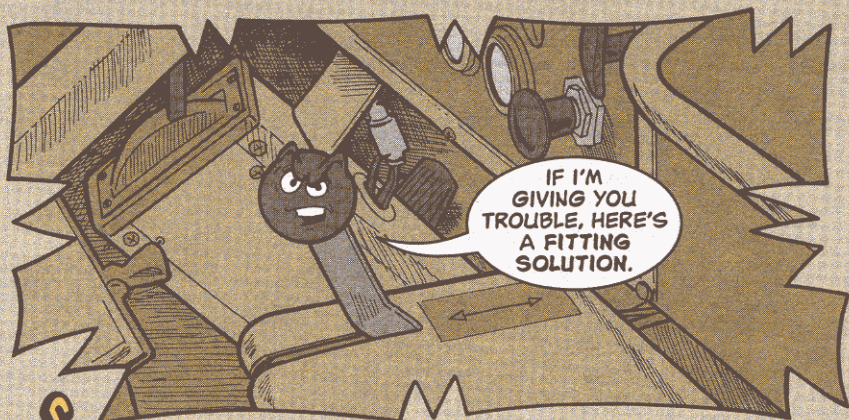


✓ **Finally, cast a glance at the service brake air line and spring brake air line where they meet at the rear axle. These lines have a nasty habit of rubbing against each other—it's nasty because friction can wear a hole in the lines—and you lose brakes.**



If your truck's lines rub, get your hands on one or two electrical wire ties to keep the lines apart. You can get 10-in long ties with NSN 5975-00-570-9598.

GIVE CROSS-SHAFT SOME LUBE



Shifting an M939-series truck's transfer, and combating corrosion, would be easier if you could lube the transfer case cross-shaft collar. But you can't because there's no fitting to lube.

If shifting transfer is difficult ...

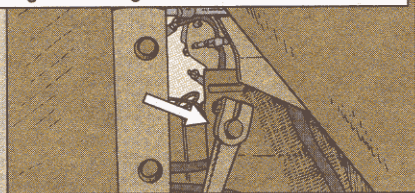


There is a way to get lube to the cross-shaft, but it takes your support unit to make it happen.

Next time the transfer linkage freezes up (or DS has to work on PS 552

the transfer), ask your support to remove the transfer case cross-shaft for this fix.

...grease fitting can be added between levers

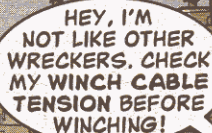


They'll drill a 0.339-in diameter hole in the collar. Then they'll cut internal threads using a 1/8 NPTF tap. After removing all burrs, sharp edges and metal chips, they'll install lube fitting, NSN 4730-00-050-4208.

Lube it every three months with GAA as part of the quarterly lube service.

You can also ask DS to install the replaceable grease fittings for the PTO cross-shaft if they're missing on your truck. Lube it every quarter, too.

New Wrecker Is Different



HEY, I'M
NOT LIKE OTHER
WRECKERS. CHECK
MY WINCH CABLE
TENSION BEFORE
WINCHING!

Any new vehicle has differences from other vehicles that you must learn if you are to use and maintain it correctly.

Such is the case with the M1089 FMTV wrecker. Eyeball the TMs and note this big difference:

Always run a cable tension check before main winch use.

On the sides of the M1089's frame, just above the rear bogie, is a yellow stencil marked TIGHT and LOOSE. The winch cable runs in front of the stencil so you can tell whether there's too much or too little tension in the cable. Either extreme can damage wrecker equipment through bird nesting or improper laying or retrieving of the cable.

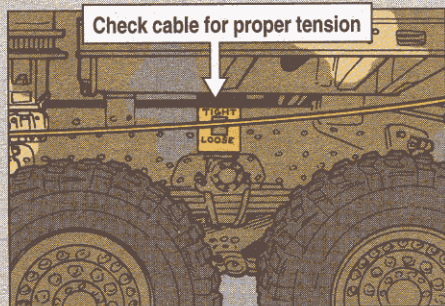
The cable should be about half-way between LOOSE and TIGHT on the stencil.

To check tension, pay out cable for about 20 seconds. The power fairlead should pay out cable at the same rate of speed as the main winch. If payout speed is different, tell your mechanic. While standing about three steps away from the truck, look at the stencil as the cable passes.

If the cable is too loose and hangs below the LOOSE mark, stop payout and perform Steps 18, 20 and 21 on Pages 2-415 through 2-417 in TM 9-2320-366-10.

If the cable is too tight and is above the TIGHT mark on the stencil, stop payout and perform Steps 19 through 21.

Also note that all operations around wire cable require the use of heavy leather-palmed work gloves, NSN 8415-00-634-4658. The gloves are shown in the AAL for the wrecker.



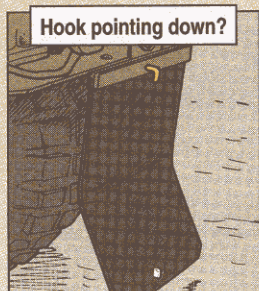
Mud Flaps at Risk

The rear wheel mud flaps on both 2½-ton and 5-ton FMTVs are so long that they get ripped off easily when you're operating in reverse in off-road conditions.

Say you're backing up in really muddy conditions. The mud pushes the flap against the tire, and the tire then rips the flap off its bumper mount or bends the bumper.

Follow the TM cautions on Page 119 in TM 9-2320-365-10, and Page 211 in the 366-10. Before operating off-road, fold up the flaps and secure them on the mounting strap hooks.

Note that the open end of the hook on some FMTVs points down. That'll never hold the flap for long. So, take a pair of pliers and move the hook so the open end is up. Then the flap will stay in place.



HMMWV...

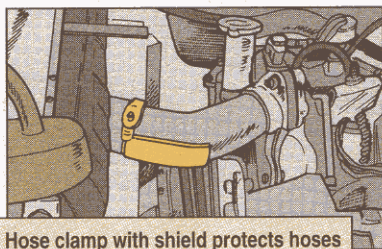
Radiator Hose Protector

If you've noticed that the top radiator hose on your HMMWV is taking hits from the drive belts, it's time to take some preventive measures.

First of all, check the belt tension per Table 3-2 on Page 3-141 of TM 9-2320-280-20-2. Loose belts can flap enough to hit the hose.

Then, make sure the hose is installed so it's as far away from the belts as possible. The little bend in the hose should not point down toward the belts.

Whether you reinstall a serviceable hose or put on a new one, add a clamp-with-shield, NSN 4730-01-194-2002, to prevent hose damage. Make sure the shield is on the bottom of the hose.



But Not a Drop to Drink?



Prevent frozen pipes and faucets on M149-series and M625 400-gal water trailers with a little common sense and good PM during the winter months.

- Park the trailer in a shelter, especially if temperatures dip 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.

- Keep the manhole and filler covers closed. That keeps the heat in the tank and freezing cold air out.

Keep manhole cover closed



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. If there's no water in the faucets or pipes, it can't freeze.

Use T-valve to shut off water



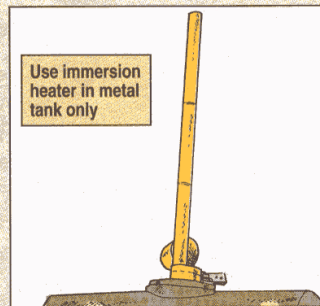
- Use an immersion heater only in metal tanks. Never use one in the fiberglass tank. It will melt the tank.

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 as 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 2-18 through 2-20 of TM 9-2330-267-14&P (Jul 91) to adjust the heater bracket to make it fit the tank.

Use immersion heater in metal tank only



Radial Tire Changeover

Mechanics, the M989A1 trailer's bias-ply tire, NSN 2610-00-139-3699, is no longer available. When one tire needs replacing, replace them all with radial tires that last longer and help the prime mover get better mileage.

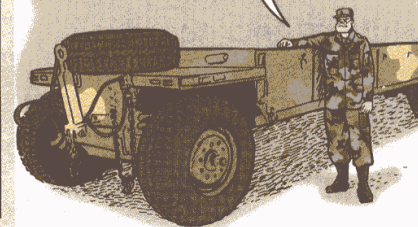
Get the new 385/65R22.5 load range J radial tire with NSN 2610-01-436-3332 or NSN 2610-01-452-0605.

Bias-ply and radials do not mix, so replace all tires, including the spare, when you make the change.

Here's the recommended pressure and speed for these new tires on the HEMAT:

Surface	Pressure (psi)	Speed
Highway	100	50
Secondary	100	20
Cross-country	65	14

IF YOU CHANGE ONE, YOU'VE GOT TO CHANGE 'EM ALL!



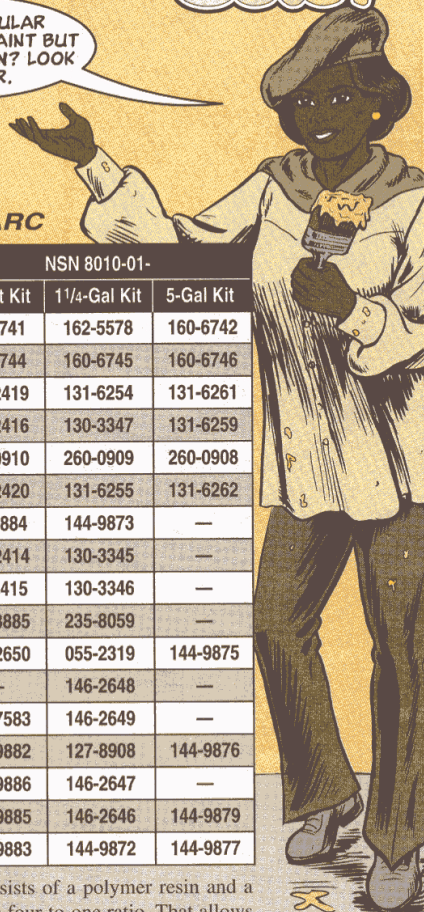
NEED A PARTICULAR
COLOR OF CARC PAINT BUT
CAN'T FIND AN NSN? LOOK
NO FURTHER.

Two-Component CARC

Color/ Federal Std No.	NSN 8010-01-		
	1 1/4-Qt Kit	1 1/4-Gal Kit	5-Gal Kit
Green 383/34094	160-6741	162-5578	160-6742
Brown 383/30051	160-6744	160-6745	160-6746
Black/37030	141-2419	131-6254	131-6261
Sand/33303	141-2416	130-3347	131-6259
Tan 686A/33446	260-0910	260-0909	260-0908
Aircraft green/34031	141-2420	131-6255	131-6262
Aircraft red/31136	144-9884	144-9873	—
Field drab/33105	141-2414	130-3345	—
Earth yellow/33245	141-2415	130-3346	—
Aircraft yellow/33538	247-8885	235-8059	—
Olive drab/34088	146-2650	055-2319	144-9875
Insignia blue/35044	—	146-2648	—
Interior gray/36231	170-7583	146-2649	—
Aircraft gray/36300	144-9882	127-8908	144-9876
Aircraft black, interior/37031	144-9886	146-2647	—
Aircraft black/37038	144-9885	146-2646	144-9879
Aircraft white/37875	144-9883	144-9872	144-9877

Two-component CARC paint consists of a polymer resin and a curing agent that must be mixed in a four-to-one ratio. That allows you to mix up only as much paint as you need and save the rest for later.

Color



Coordinated

Single-Component CARC

Color/ Federal Std No.	NSN 8010-01-			
	1-Qt Can	1-Gal Can	5-Gal Can	55-Gal Drum
Green 383/34094	229-7546	229-9561	229-7547	232-8514
Brown 383/30051	229-7543	229-7544	229-7545	233-0060
Black/37030	229-7540	229-7541	229-7542	233-1568
Sand/33303	234-2934	234-2935	234-2936	—
Tan 686A/33446	276-3638	276-3639	276-3640	276-3641
Aircraft green/34031	246-0717	246-0718	246-0719	—

Single-component CARC already has the curing agent added, so the paint will dry quickly once the can is opened.

TM 43-0139, Painting Instructions for Army Materiel, spells out what colors to use with your equipment. It also contains a more comprehensive list of colors and NSNs.

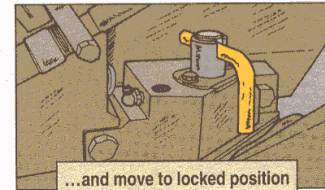
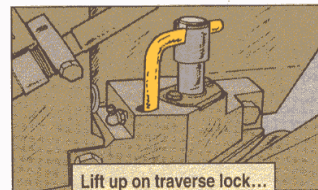
M198 Towed Howitzer ...

Lock Out Major Damage

Forgetting to use the traverse lock on your M198 towed howitzer will cost your unit.

Without the lock in place, the top carriage moves back and forth when the howitzer is towed. That movement tears up the traversing angle drive and the internal ring gear. Replacing those items will cost your unit more than \$15,000.

It only takes a few seconds to lift up on the locking pin and swing it to the locked position. Make sure you do it.



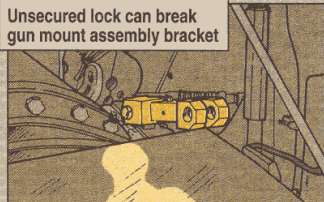
Are You Feeling Lucky Today?

For forgetful M1A1/A2 tankers, pure luck is the only difference between a main gun elevation lock that works and one that's broken.

Forgetful tankers don't pin the lock to the gun mount assembly bracket after releasing the cannon from the stowed position.

If they're lucky, the lock will go forward out of the way. As luck would have it, though, it often falls against

Unsecured lock can break gun mount assembly bracket

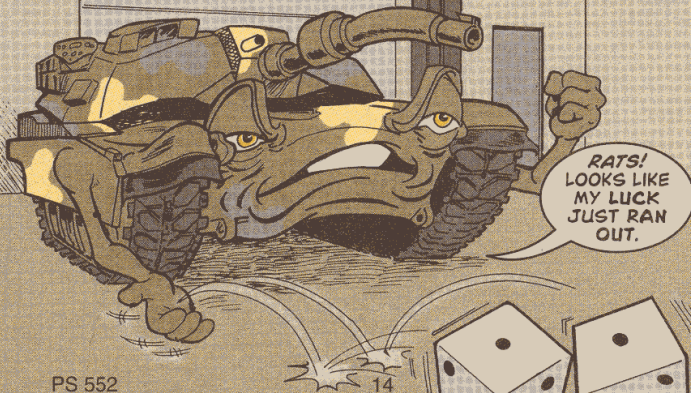
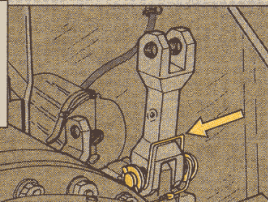


the breech. When the gun is fired, the breech recoils and snaps back against the lock, breaking it and shearing off part of the bracket.

That little slip-up will cost you a lot of downtime while DS repairs or replaces the gun mount assembly.

Mechanics, you can take luck out of the equation by adding a spring to the lock. The spring automatically forces the lock forward and away from the breech.

Spring keeps lock from hitting breech



Here are the parts you'll need:

Item	NSN
Spring	5360-01-384-5338
Washer	5310-01-384-4231
Pin	5315-01-385-7871
Cotter pin	5315-01-378-7858

Here's how to put the parts together:

1. Remove the old cotter pin and straight-headed pin.
2. Place the new spring over the elevation lock.
3. Slip a washer over the new pin and slide the pin through the spring and lock.
4. Place another washer over the open end of the pin.
5. Secure the pin in place with the new cotter pin.

When you're finished, make sure the chain attached to the lock's quick-release pin is short enough to keep the pin from getting caught under the lock. Remove a few links if necessary.

IT TAKES GOOD PM TO BEAT THE ODDS.



M1-Series Tanks ...

O-ring Reminder

Over time, the two O-rings that go between the quick-disconnects and the main hydraulic pump on M1-series tank powerpacks deteriorate. Eventually, they leak.

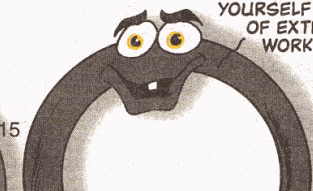
There's nothing in the TM about replacing the O-rings when the pack is pulled during semi-annual maintenance, but that's still a good time to do it. Changing the O-rings takes only a few minutes and can save you the hours of work and frustration caused by leaking O-rings.

Get the small O-ring with NSN 5331-00-165-4565, the large one with NSN 5331-00-165-1978. See Fig 290 in TM 9-2350-264-24P-1.

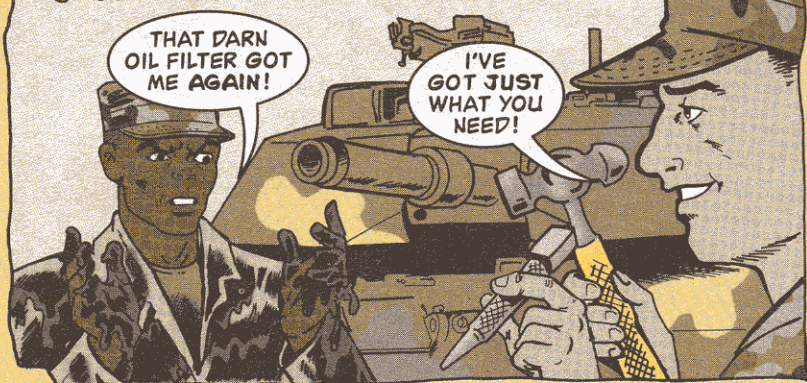
REPLACE US DURING SCHEDULED MAINTENANCE...



...AND SAVE YOURSELF LOTS OF EXTRA WORK!



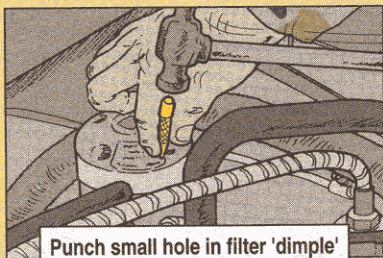
Take a Punch at Oil Filter



Mechanics, removing the engine oil filter from your tank is dirty business.

No matter how carefully you drain the oil system, there's always enough vacuum pressure left to keep a considerable amount of oil in the filter. When you take off the filter, the vacuum is released and out comes the oil—all over you, the engine and the ground.

A center punch, hammer and a few minutes are all that's needed to prevent that messy problem. Use the center punch to poke a small hole in one of the dimples on top of the oil filter. That releases the vacuum and lets the oil drain out normally.



Just make sure you only puncture the outer skin of the filter element. Piercing the inner portion of the element allows chips to fall into the suction side of the oil pump.

If that happens, you'll soon be buying a new pump.

M1 Idler Arm Seal

Mechanics, don't replace the idler arm seal on M1-series tanks with NSN 5330-00-978-7353. Too many of those seals have developed leaks. Order a stronger seal with NSN 5330-01-407-9045. Note the NSN change in your -24P-1 TMs.

Check M242 Cable First

Dear Editor,

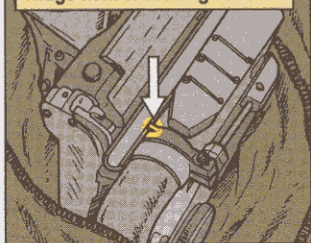
We see 14-pin connectors on the feeder for the M242 automatic gun damaged because Bradley crews and repairmen forget the importance of a clamp. A connector is expensive.

If the 2W10 cable works loose, the M242 shuts down. Too often the 14-pin connector is suspected. The usual quick fix is to shake the feeder to reestablish electrical contact with the connector. That bangs up the connector. The first check should be to see if the 2W10 cable is loose. Reconnect it if necessary. Then, check out the clamp.

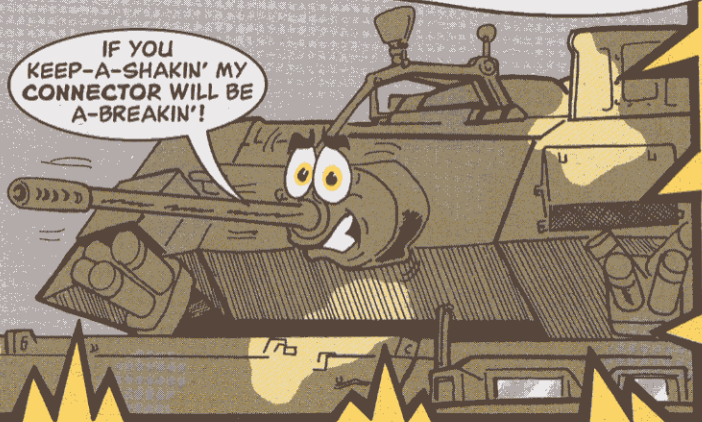
The cable shouldn't work loose if its clamp has been installed correctly. With the 2W10 cable and clamp installed, push the feeder locking handle down. The clamp's ridge should be right next to the handle. If it's not, reposition the clamp so it is. Tighten the clamp. In that position, the clamp should hold the 2W10 tight.

Gary Williams
29th Infantry
Ft Benning, GA

Ridge next to locking handle?



IF YOU
KEEP-A-SHAKIN' MY
CONNECTOR WILL BE
A-BREAKIN'!



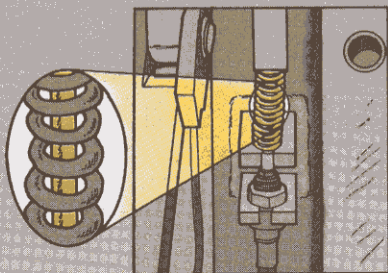
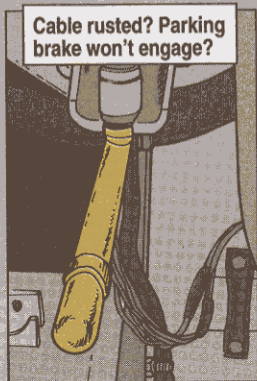


Drivers, a little water in the **right** place keeps the inside of your M113A3 carrier nice and clean. But if that water gets in the **wrong** place, you'll have no end of trouble with the parking brake.

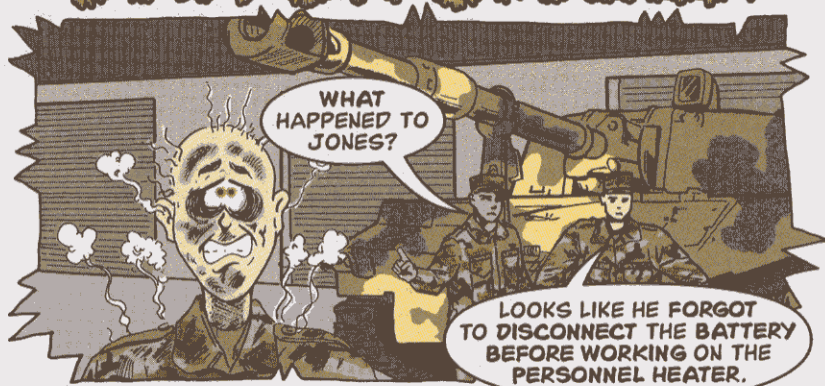
When you clean the inside of the driver's compartment, water splashes on the parking brake cable. Eventu-

ally, rust forms and the cable freezes in place. The brake won't engage or release.

You can prevent this by keeping water off the cable as much as possible. It also helps to lube the cable with OE/HDO semiannually or every 1,500 miles, whichever comes first. After you lube the cable, engage and release the parking brake a few times to help coat the entire cable.



DON'T GET SHOCKED!



Mechanics, even when it's off, the personnel heater in the M109-series howitzer and M992-series ammo carrier is **hot**.

In other words, it still has current running to it—even when the MASTER switch is turned OFF. The heater needs that current to purge fuel fumes after shutdown.

Play it safe. Always disconnect the battery before removing or pulling maintenance on the heater. You could save yourself a **shocking** surprise!

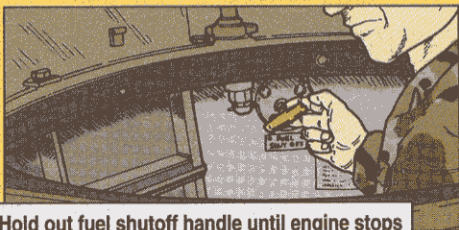
Hold the Handle

A rash of busted alternator shafts and fan drive shafts on M992 carriers and M109 howitzers had the headshed puzzled.

The culprit? A too-quick release on the vehicle's fuel shutoff handle.

If you don't hold out the shutoff handle until the engine stops, the engine restarts. That causes torque that breaks both shafts. Then your vehicle is NMC.

During vehicle shutdown, play it safe. Be sure to hold the fuel shutoff handle until the engine quits running.



It's the Start That Counts

LET'S GET CRANKING, BIG GUY!

BRRR!
I'M T-TOO COLD TO D-DO ANYTHING BUT SH-SH-SHIVER THIS M-MORNING!

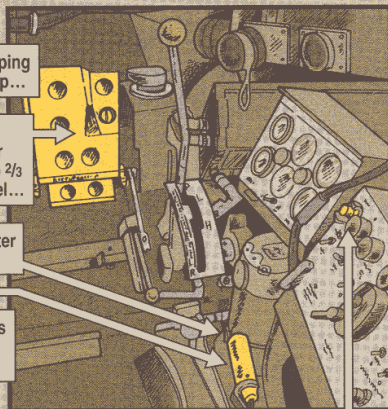
0. If the engine on your AVLB can be a little cranky when it comes to starting in cold weather. Follow these steps to get that big diesel running:
1. Follow your -10 TM to the letter. Test for hydrostatic lock. Make sure all your controls are set right.
2. Pump the purge pump until you feel firm back pressure. It takes about a minute.

3. While pumping purge pump...

4. ...press accelerator down 1/2 to 2/3 of full travel...

5. ...hold heater switch in...

6. ...and press and hold starter



7. If the engine starts, keep pumping the purge pump with steady strokes, holding the manifold heater switch and the engine starter button until the tachometer reads 450–500 rpm.

As long as you use the manifold heater switch and the primer pump, you must continue to hold the starter switch. That's because the starter's electrical circuit controls the manifold heater's current.

Once the engine is running smoothly at about 700 rpm, stop pumping. Release the heater manifold switch and starter button, and increase rpm to 1,000–1,200 for the warm-up period.

During warmup and afterwards, don't idle at less than 700 rpm. Low idling causes engine cooling, not heating. When you idle your engine for long periods, use high idle: 1,500–1,600 rpm.

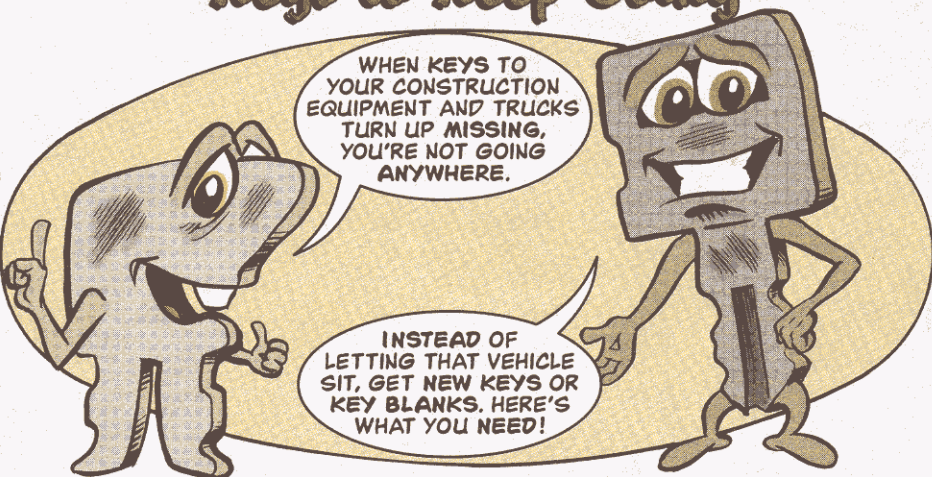
If you must idle at a lower speed, watch the exhaust. If you see white smoke, increase the rpm to 1,500–1,600. If the engine misfires or blows heavy blue-white smoke, you'll have to blow out the induction and exhaust systems.

To do that, increase rpm to 1,600–1,800 for 30 seconds to one minute. **Stop the engine fast if the power plant warning light comes on.**

If the engine won't start, stop cranking after 15 seconds. Wait 3–5 minutes and try again. If it still won't start, don't grind away on the starter. It'll burn up and then the engine definitely won't start.

Follow the -10 TM troubleshooting procedures to get the tank started. If that doesn't work, it's time to call your mechanic.

Keys to Keep Going



Equipment	Item	NSN
F5070 dump truck	Switch with key	2540-00-609-8296
M915-series trucks	Ignition switch	2920-01-092-9134
	Lock cylinder with key	2540-01-155-3601
	Key blanks	5340-00-357-9269
C530A roller	Ignition key	CAGE 80924, PN 0932237
SP 848 roller	Ignition key	5930-01-039-2939
RS-28 Tampo roller	Ignition lock switch	2920-01-185-3686
MT-250 crane	Ignition switch with key	2920-00-307-8107
SEE	Ignition key	5340-01-248-1341
621B scraper	Disconnect switch key	5930-00-715-1939
130G grader	Battery disconnect switch	2920-00-775-7691
D7G tractors	Ignition switch key	5340-01-257-6042
	Battery disconnect switch key	5930-00-715-1939
D8 tractor	Battery disconnect switch key	5930-00-715-1939
MW24C scoop loader	Key blank	5340-01-275-7751
815F compactor	Ignition lock switch	2920-01-258-3471

SAFETY INCLUDES CLEANUP

OPERATORS,
HERE ARE TWO
HOUSEKEEPING TIPS THAT
CAN HELP YOU MAKE
THE GRADE.

Cab Floor Cleanup

The grader's cab floor seems like a handy area to put rags, tools, soda cans and chains during the day's operations.

Problem is, these items can get under the accelerator, decelerator or brake pedals and keep them from working when you need them. That can lead to an accident.

Before the day's run, get rid of anything on the cab floor that gets in the way of the controls. Use the toolbox that's in the front of the grader, above the circle drive, to store items.

No Leak Here

Another good housekeeping rule is to use a clean rag under the dipstick when you check the engine's oil level. Without a rag, oil drips off the dipstick and onto the engine compressor's coolant and governor lines. Those drips leave an oil stain that can lead you or your mechanic to look for leaks that aren't there.



Make Compact

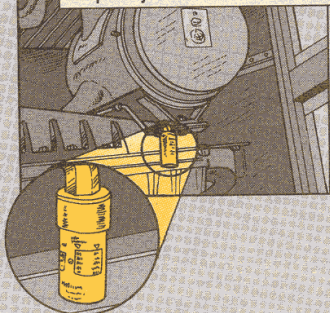
Operators, your 815F compactor is a real workhorse during construction operations.

To keep your compactor on the job, you should get familiar with the compactor's TM 5-3805-380-10 for sure, but also heed these PM tips.

Air Filter Brush-off

A clean air filter element is crucial, especially in dusty areas. Keep an eye on the air cleaner indicator next to the

Keep an eye on air cleaner indicator



canister. If the indicator moves from yellow to red, open the canister and pull out the air filters. The secondary filter is inside the primary.

Use low-pressure air from a nearby tactical vehicle to blow air—30 psi or less—from inside to outside to loosen dirt and sand from the compactor's primary air filter element. Never bang the filter on a rock or hard surface. Replace the primary air filter element once a year, or after six cleanings.



Blow low-pressure air from inside to out

When the compactor's secondary filter becomes clogged, replace it. How do you tell if it's clogged? Like this:

- ⊙ After installing a clean or new primary filter element, the indicator

for Good PM

moves into the red zone when you start the engine or you see black exhaust smoke.

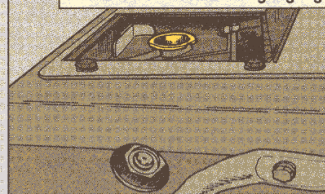
- ⊙ When you've reset the indicator and it stays in the red zone after installing a new or clean primary filter element.

Coolant Level Check

Eyeball the engine coolant every day before start-up. That's easy because the coolant's sight gauge is in open view on the curb side of the vehicle, next to the radiator.

Coolant low? Open the radiator's filler cap slowly. Add coolant until it fills the sight gauge.

Add coolant until it fills sight gauge



Oil Level Check

When you check the compactor's engine oil level, make sure you read the right scale on the dipstick. It could save your unit a big repair bill.

Oil expands when it heats up, so readings will change. If the engine is cold, make sure the oil level is above the ADD mark on the ENGINE STOPPED side of the dipstick.

If the engine is hot, the oil level should be between ADD and FULL on the ENGINE RUNNING side of the dipstick.

Use correct scale when checking oil level



If you accidentally add too much oil, shut off the engine, remove the oil fill plug and use an AOAP vampire pump to remove the excess.

SEE Wiring Diagram

There's now an easier way to track down an electrical short, or other wiring problem on your small emplacement excavator. A laminated, 23x30-in wiring diagram details the SEE's electronics. See your local Freightliner dealer for a copy or order the diagram on a DD Form 1348-6 with CAGE 64678 and PN GOV-041.

Uplifting PM

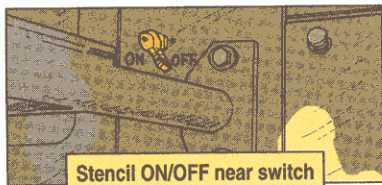
THIS OUGHT
TO END ALL THE
CONFUSION.



The M10A rough terrain forklift has been around many years, but it still gets the job done—if you pull your PM and heed these tips:

★ The master battery switch must be turned OFF after operation. If it's left ON, the batteries will run down. But there is no mark near the switch to note OFF and ON.

To keep from draining batteries, stencil OFF and ON near the switch. You can tell which switch position is ON when you hear the fan clutch engage.

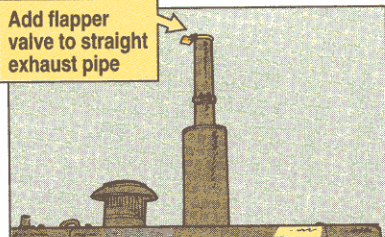


★ Because there is no air dryer for the M10A's compressed air system, you must drain the air tanks per Item 13 of the PMCS, on Page 2-28 of TM 10-3930-643-10. Drain them after operation, and more often—during breaks—in very humid conditions. Leaving moisture in the

air system leads to corrosion and system failure.



★ Late model M10As (serial numbers 2000 and higher) came with mufflers with a bend in them so that water can't get into the exhaust manifold. Early models (serial numbers under 2000) came with a straight muffler and a flapper valve. If you need a flapper valve for a straight muffler, get one with NSN 2990-01-165-8242.



D.R. JEKYLL AND SPC HYDE

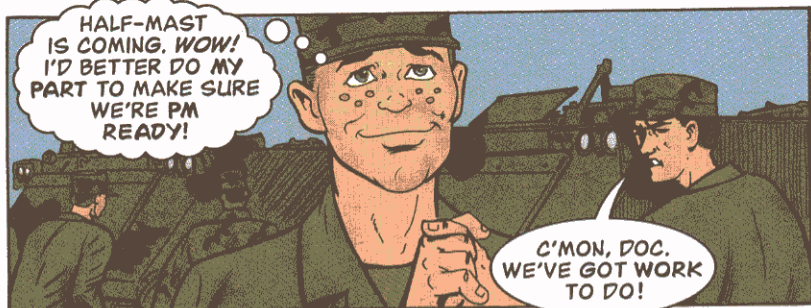
A CROWD GATHERS IN THE MOTOR POOL OF THE 5/32D ARMOR BATTALION. SPECIALIST DAVID ROBERT JEKYLL—D.R. OR 'DOC' TO HIS FRIENDS—STOPS TO SEE WHAT'S HAPPENING.

WHAT'S ALL THE HUB-BUB?

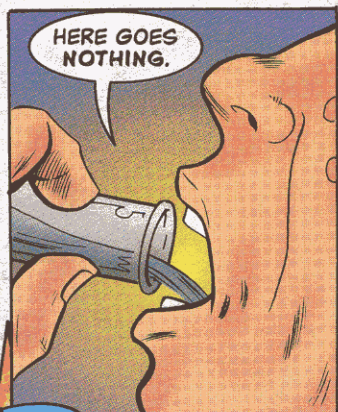
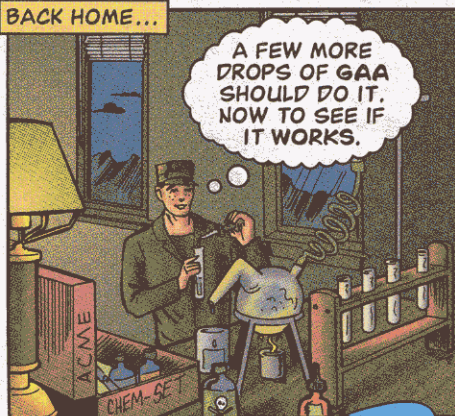
MASTER SERGEANT HALF-MAST OF PS MAGAZINE WILL BE PAYING US A VISIT TOMORROW.

HALF-MAST? IN THE FLESH? I'M HIS BIGGEST FAN!

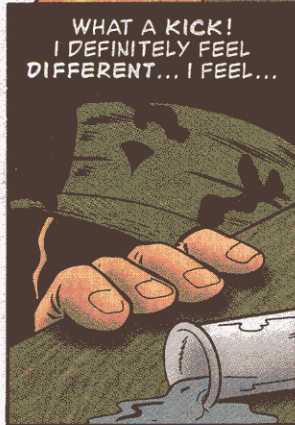
YES, SPECIALIST JEKYLL. HE'S STOPPING BY ALL THE UNITS IN THE AREA TO TALK ABOUT PM.



BACK HOME...



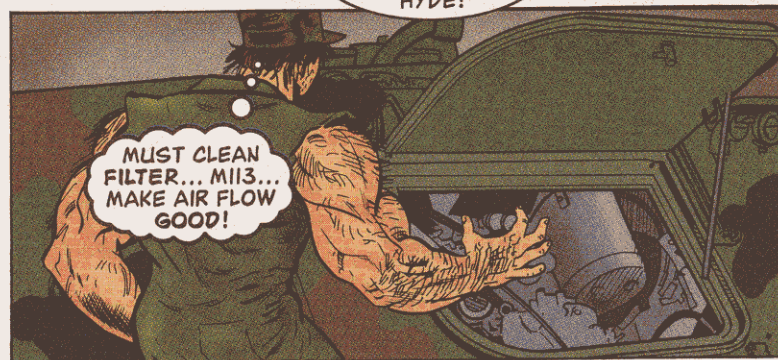
WHAT A KICK!
I DEFINITELY FEEL
DIFFERENT... I FEEL...



...STRONG LIKE
TEN MEN.



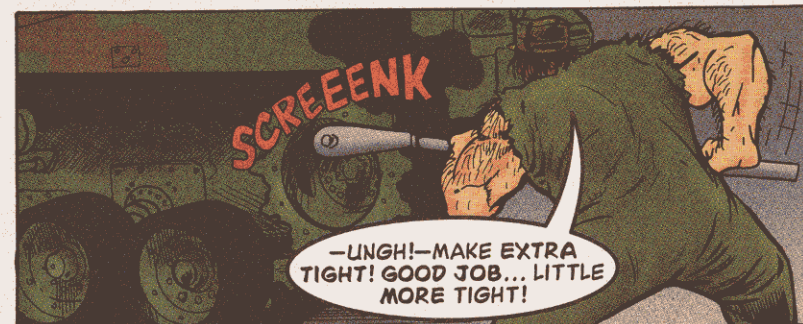
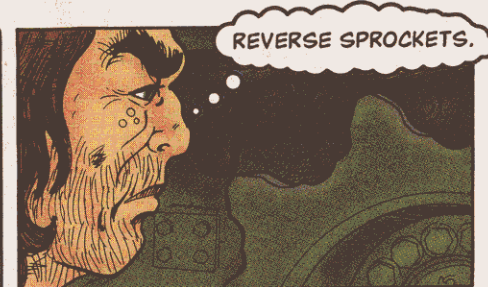
BACK AT THE MOTORPOOL...



PS 552

30

NOV 98



PS 552

31



UH-OH!

-SIGH-
THE FORMULA
WORE OFF, BUT I
GOT ALL THE
PM DONE.

MY
FORMULA WILL
REVOLUTIONIZE
PM.

THE SUN IS
COMING UP. I'VE
GOT JUST ENOUGH
TIME TO CHANGE
INTO CLEAN
COVERALLS.

I CAN'T
WAIT TO SEE
WHAT MASTER
SERGEANT
HALF-MAST
THINKS.

LATER...

JEKYLL, MEET
MASTER SERGEANT
HALF-MAST.


WOW!
IS IT REALLY
YOU?

GLAD
TO MEET YOU,
SPECIALIST.

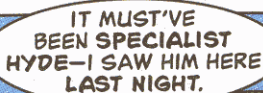
OH, IT'S MY
PLEASURE.

WHAT THE...?
WHERE DID THIS SPILL
COME FROM?

YOU SHOULD
ALWAYS DRAIN FUEL
INTO A CAN AND THEN
DISPOSE OF IT IN AN
APPROVED CONTAINER.
FUEL SPILLS SOAK INTO
THE GROUND AND CAN
CONTAMINATE WATER
SUPPLIES.



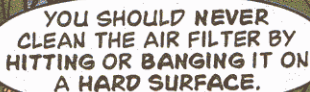
SOMEBODY REALLY BANGED THE HECK OUT OF THIS FILTER. IT'LL HAVE TO BE REPLACED.



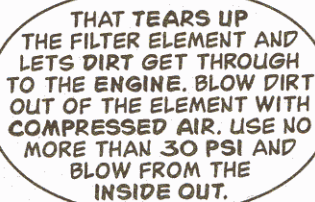
IT MUST'VE BEEN SPECIALIST HYDE—I SAW HIM HERE LAST NIGHT.



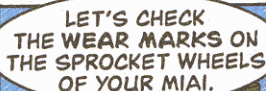
UH-OH.



YOU SHOULD NEVER CLEAN THE AIR FILTER BY HITTING OR BANGING IT ON A HARD SURFACE.



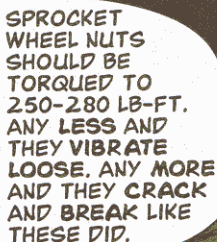
THAT TEARS UP THE FILTER ELEMENT AND LETS DIRT GET THROUGH TO THE ENGINE. BLOW DIRT OUT OF THE ELEMENT WITH COMPRESSED AIR. USE NO MORE THAN 30 PSI AND BLOW FROM THE INSIDE OUT.



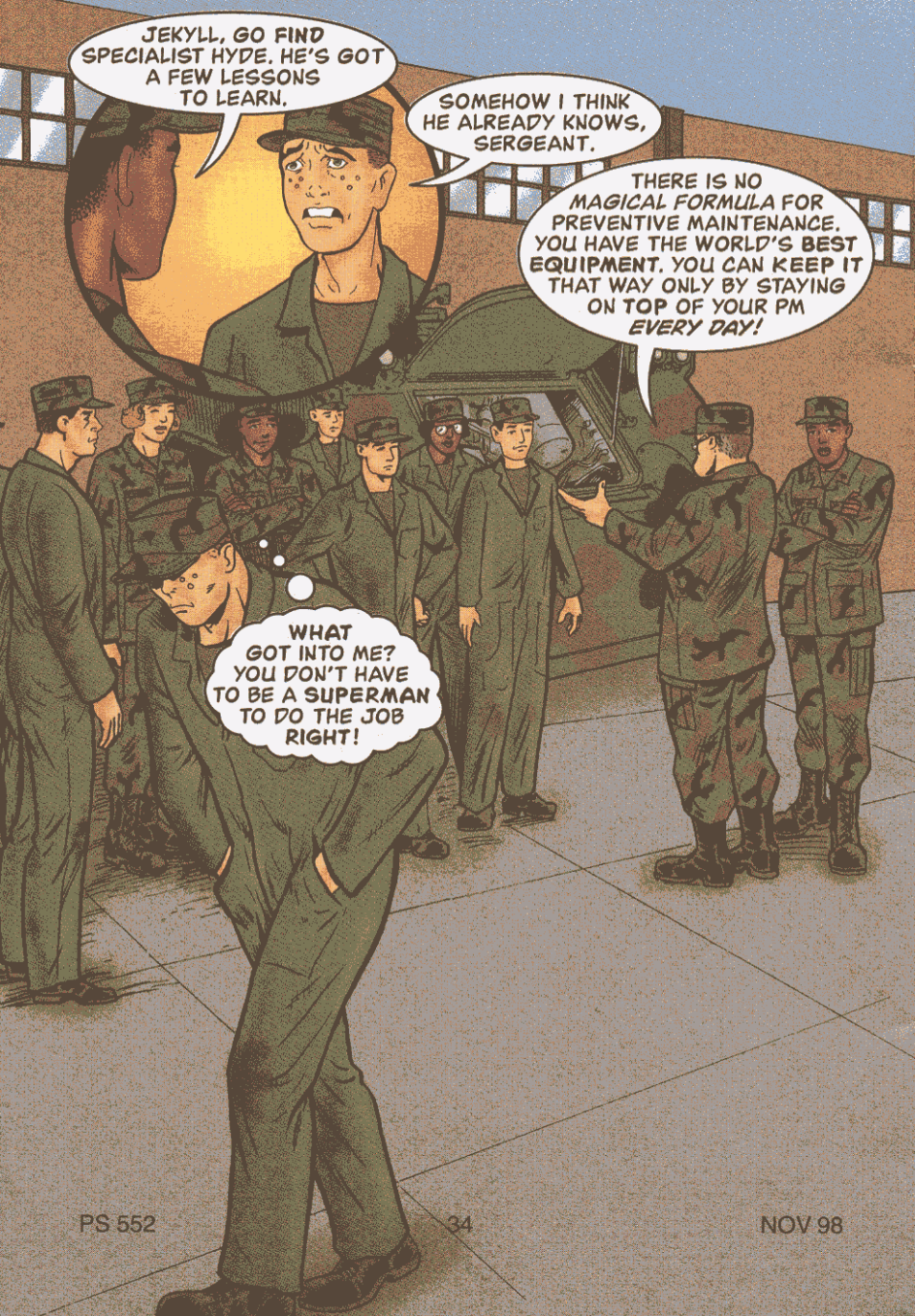
LET'S CHECK THE WEAR MARKS ON THE SPROCKET WHEELS OF YOUR MIAI.



SURE!
IT'S RIGHT OVER HERE.



SPROCKET WHEEL NUTS SHOULD BE TORQUED TO 250-280 LB-FT. ANY LESS AND THEY VIBRATE LOOSE. ANY MORE AND THEY CRACK AND BREAK LIKE THESE DID.



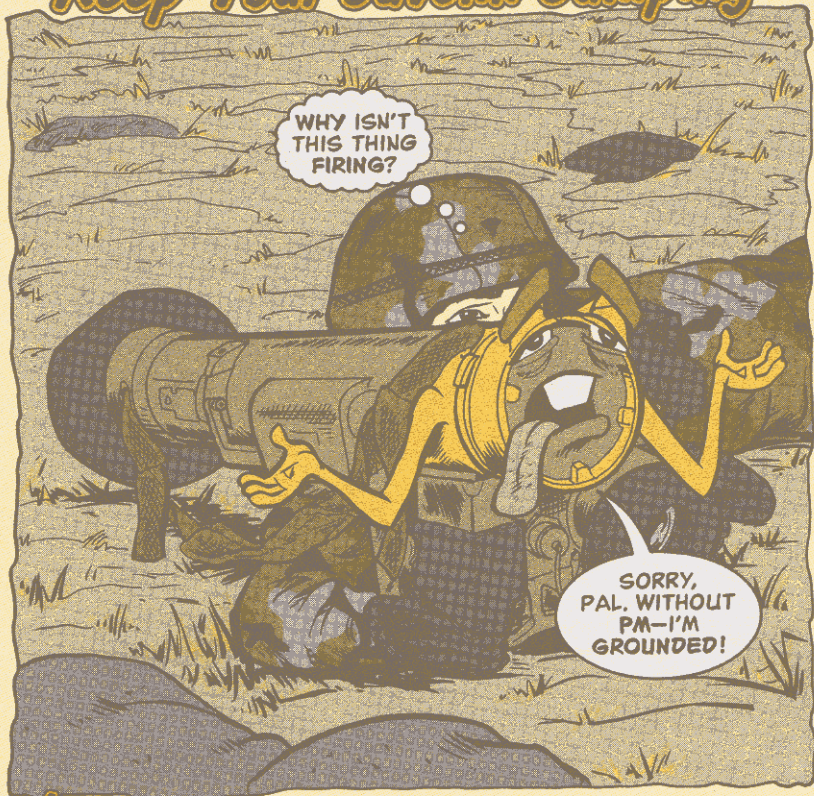
**JEKYLL, GO FIND
SPECIALIST HYDE. HE'S GOT
A FEW LESSONS
TO LEARN.**

**SOMEHOW I THINK
HE ALREADY KNOWS,
SERGEANT.**

**THERE IS NO
MAGICAL FORMULA FOR
PREVENTIVE MAINTENANCE.
YOU HAVE THE WORLD'S BEST
EQUIPMENT. YOU CAN KEEP IT
THAT WAY ONLY BY STAYING
ON TOP OF YOUR PM
EVERY DAY!**

**WHAT
GOT INTO ME?
YOU DON'T HAVE
TO BE A SUPERMAN
TO DO THE JOB
RIGHT!**

Keep Your Javelin Jumping



A little attention before you go to the field makes a big difference in how your Javelin performs.

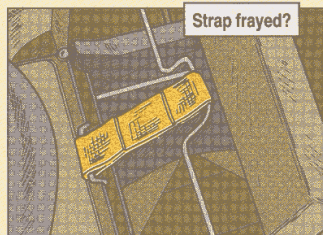
The best way to keep your Javelin jumping is to carefully do the PMCS in TM 9-1425-687-12...and pay particular attention to these points:

Battery compartment—Look for dirt and bent connector prongs, both of which cause power problems. Wipe away dirt with a clean dry cloth. If the PS 552

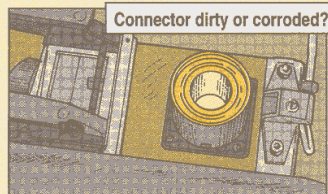
prongs are bent, you need a new command launch unit (CLU). Report it.



Also eyeball the battery cover strap. If it's cracked or frayed, tell your repairman. He can tie on the cover with a tiedown or twine to keep the cover from disappearing until the strap's replaced by the contractor.



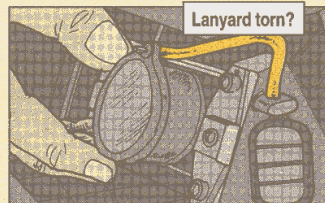
CLU interface—Check it for dirt and corrosion that can prevent a good connection to the missile. Wipe away dirt with a clean dry cloth. If necessary, rinse out the connector with water and then clean it out with a cloth. Wipe it thoroughly dry. Wipe away corrosion with denatured alcohol and the pads from the lens cleaning kit, NSN 6850-01-448-9653.



Depress the outer sleeve of the connector and check for corrosion and dirt. Clean if necessary with the pads and alcohol.

Check the interface cap's lanyard. It's not strong, so it often tears away. The cap disappears in the field. If the

lanyard's fraying, report it. As a temporary fix, the lanyard from an expended launch tube makes a good substitute.



CLU absorber—Gently tug all the absorbers to check if they're glued on securely. This is especially a problem with the absorber around the eyepiece.

Without an absorber, the delicate CLU parts don't have enough cushion. Report loose absorbers.



Day and night vision sight lenses—Look for dirt on the lenses and fogging inside the lenses that cause sighting problems. Report fogging. The CLU desiccant needs replacing.

You can handle dirt yourself with the procedure on Page 3-14 in TM 9-1425-687-12. The important things to remember are:

- Wash your hands before you clean lenses and keep your fingers off the

lenses. The oils on your skin damage the lens coating.

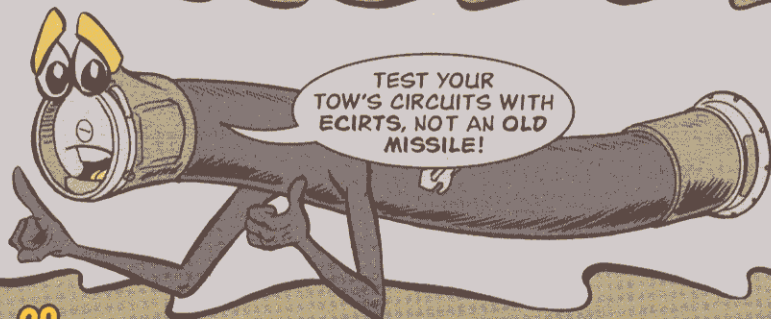
- Do not scrub on the lenses. That damages the lenses' coating. Rinse the lenses with water if you need to loosen dirt.

- Use only the cleaning pads that come with the lens cleaning kit. Anything else can scratch the lenses.

Use only pads from cleaning kit



NO SUB FOR TEST SET



Using a fired TOW missile to test TOW circuitry is a bad move.

If the trigger is pressed with an empty missile case in the launcher, wires in the rear of the used missile case touch each other and the circuitry in the missile guidance set (MGS) A22 card can be damaged. The MGS self-test won't detect the damage. As a result, your unit's next firing can include a misfire or an unexpected launch.

Use the electrical circuit test set (ECIRTS), not an old missile, to test circuits. For training, use the missile simulation round.

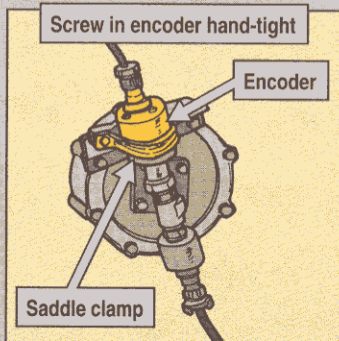
MLRS...

Follow the Code on Coders

Tighter and tighter is not the way to install the MLRS encoders.

Para 2-37 in TM 9-1425-646-20 gives an excellent breakdown on installing the encoders, except for how tight they should be. If you really pour on the muscle when you screw in the encoder on the double drive adapters, it destroys the encoder—a \$900 item.

Hand tighten the encoder. Hand tight is tight enough. Then make sure the saddle clamp is in good shape. The clamp ensures the encoder stays in place.

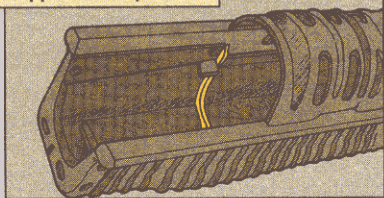


THEY CAN BE FIXED

If the M60 machine gun's forearm assembly or bridge support is damaged, don't despair, armorers. They can be fixed.

The ribs on the forearm assembly break often. Support can fix them with the procedure in work package 008300-2 in TM 9-1005-224-23&P (May 98)—with one change. Use aluminum, NSN 9535-00-250-6501, to fabricate the ribs instead of what's listed in the TM. Aluminum is tougher.

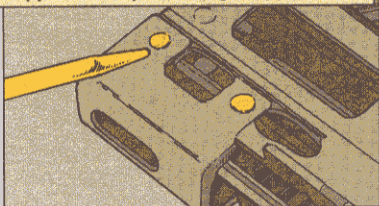
Support can repair ribs



If the rivets for the bridge support are loose, support can replace them using the procedure in work package 004400-2. These are the only rivets on

the receiver that can be replaced by support. The others are depot-level fixes.

Support can replace bridge support rivets



If any receiver rivets are loose, support should test them with the procedure in work package 002500-2.

One other thing to remember: It's OK for you to touch up spots on the cover, but you must use the flat black paint, NSN 8010-00-582-5382, listed in the TM. Shiny paint reflects light and tells the enemy where to shoot.

Use only flat black paint to touch up



NO
NEED TO BE
SAD. MY FOREARM
RIBS CAN BE
FIXED.



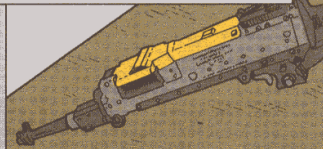


Remembering a few rules and doing a few checks make firing easier for you and your M240 machine gun.

Remember the Rules

Transport—If your M240 isn't mounted, lay it flat for transport with the feed tray up and the feed cover closed. That keeps it from taking a fall that could damage the gas tube, receiver extension, or feed tray cover.

Lay flat with feed tray up for transport



Barrel—Count clicks when you lock the barrel. If it takes none, one, or more

Count clicks—2 to 7 is OK

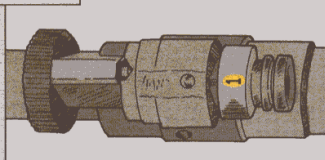


You and Your M240

than seven, the headspacing's bad and your M240 can't be safely fired. Tell your armorer.

Rate of fire—Fire with the regulator set at 1, except when your M240 slows way down in battle. Firing at 2 or 3 is like driving your car fast in low gear—plenty of power, but awfully hard on the engine. The intense heat produced at those settings burns out the barrel lining and shortens the life of other gun parts.

Set on '1'

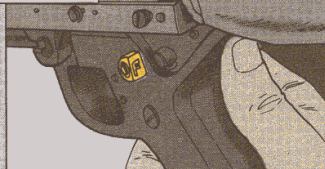


If you're getting sluggish firing, suspect a dirty gas system. Clean your M240 as soon as possible.

Charging—Before you charge your M240, make sure the safety is set to F.

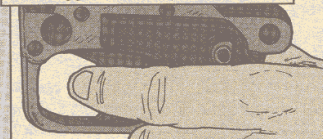
If it's set to S, the bolt will wedge on top of the sear and the gun will lock up.

'F' for firing



Firing—Hold the trigger all the way to the rear when you fire and release it completely when you quit firing. If you don't, the bolt rounds off the sear and you risk a runaway gun.

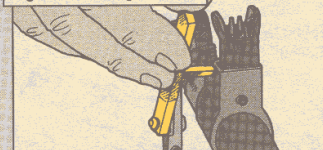
Hold trigger to rear or sear wears out



Make These Checks

Front sight screw—It works loose during firing and the sight can vibrate out of position. After you finish zeroing, tighten the screw with your combination tool. During breaks in firing, tighten the screw again.

Tighten front sight screw



Buffer assembly—Shake it. If it rattles, its discs are loose and the buffer

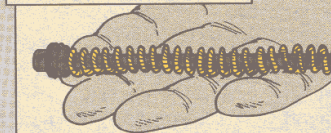
Buffer rattles? It's bad



can't handle the recoil. The op rod or the buffer will be destroyed. Tell your armorer.

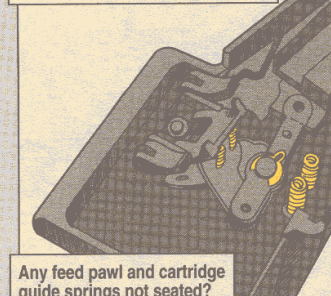
Drive rod spring—The spring strands break and the spring becomes too weak to cycle the bolt or absorb the recoil. If you find more than one break in a single coil or more than two breaks in the entire spring, get a new spring from your armorer.

More than two strands broken?



Feed pawls—Look for missing feed pawl clips and missing or unseated pawl and cartridge guide springs. Without clips, the pawls get out of position and the gun jams. A missing or loose spring causes feeding problems.

Missing feed pawl retaining clips?



Any feed pawl and cartridge guide springs not seated?

Walk the PM Line

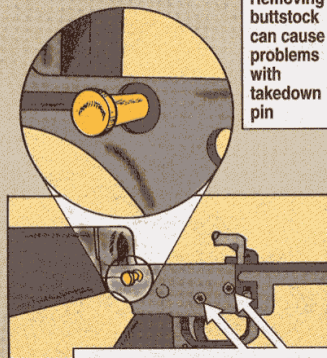
There's a PM line. It's clearly drawn in your M16 rifle's -10 TM. It's the line between the PM you're responsible for and the PM your armorer or direct support is responsible for.

If you cross that line, you usually wreck your rifle. For instance...

Removing the buttstock to clean the lower receiver extension. The takedown pin spring is easily damaged. If the spring and detent are not put back exactly right, the takedown pin won't lock in and your rifle can come apart.

Taking apart the lower receiver and trigger assembly for better cleaning. If you push out the receiver pins, the pins' holes become enlarged. The holes can't hold the pins and the lower receiver's ruined.

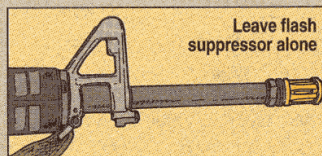
Removing buttstock can cause problems with takedown pin



Punching out pins enlarges holes

If the trigger assembly is put together wrong, the rifle can fire automatic when it's not supposed to. That's dangerous.

Removing the compensator (flash suppressor) to clean the barrel. The compensator must be torqued just right when it's screwed back on. If it's torqued too much, the barrel threads... and the barrel...are ruined. If it's not torqued enough, the compensator can work off during firing.



Leave flash suppressor alone

Taking off the heat shields. You can't get them back on tight. The shields rattle and must be replaced.

If you take heat shield off...



...you'll never get it on tight again

Using miracle cleaners or homemade cleaning tools. Stuff like oven or carburetor cleaner will certainly clean your rifle, but they also strip off its finish. No finish means no corrosion protection. Homemade cleaning tools scratch off carbon, but they also scratch up the rifle.



Giving your rifle a bath. Water trapped in tight places corrodes parts like the carrier key and forward assist spring.

Do your rifle a favor by doing only the maintenance called for in TM 9-1005-319-10 for the M16A2 and TM 9-1005 249-10 for the M16A1. If more needs to be done, tell your armorer.

Never cross the line between what you should and shouldn't do.



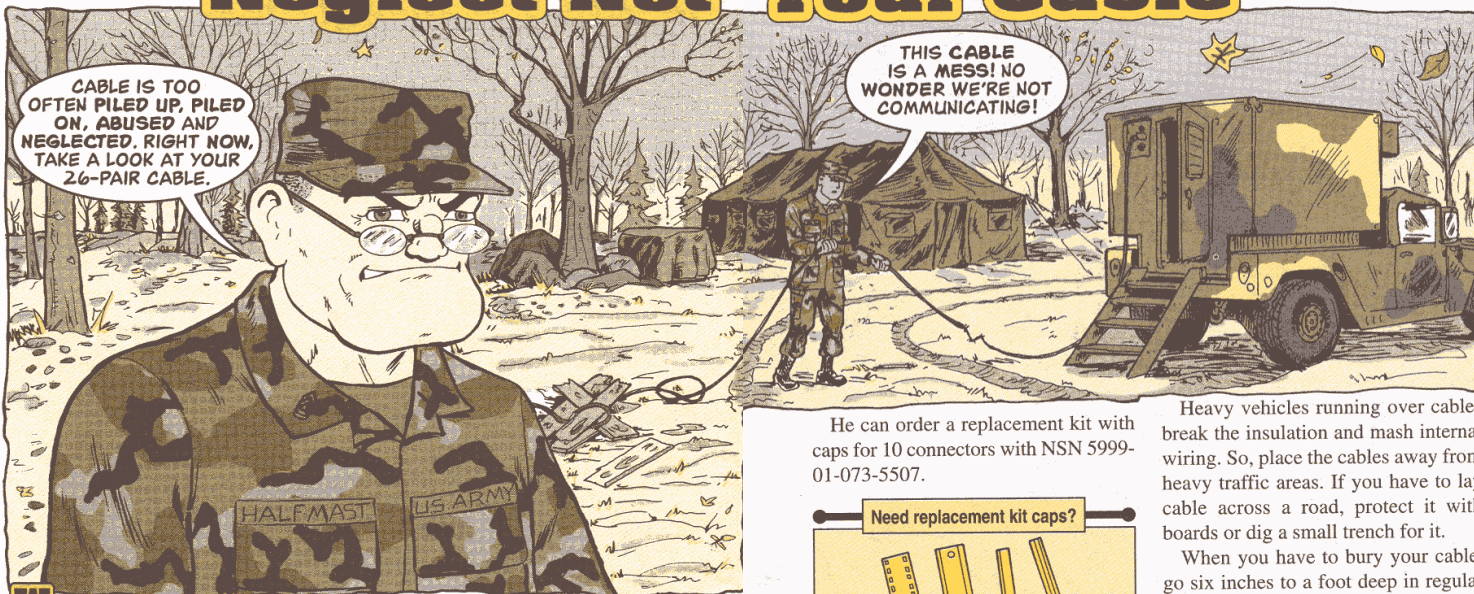
WAIT A MINUTE! DON'T CROSS THAT LINE!

OPERATOR RESPONSIBILITY

ARMORER RESPONSIBILITY

TM 9-1005-319-10

Neglect Not Your Cable

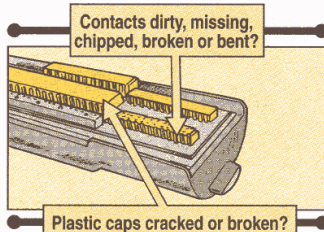


When you're not using the cable, put covers, NSN 5935-00-883-4265, on receptacles and connectors. The covers keep out dirt and moisture.

If the wire cords holding the covers are lost or damaged, ask your unit repairman to make new ones out of wire rope, NSN 4010-00-575-6233, and swaging sleeve, NSN 4030-00-431-5536. He'll also need compressing tool, NSN 5120-00-323-2292, to crimp the sleeve.

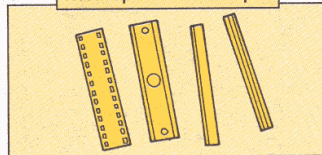
Appendix A of CTA 50-970 is the ordering authority for all three pieces of equipment.

The plastic caps on your connectors and receptacles protect the contacts from bending during hookup. If the caps are cracked or broken, get your repairman to replace them.



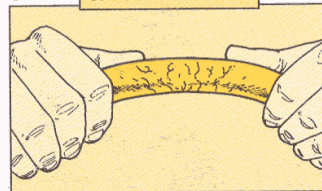
He can order a replacement kit with caps for 10 connectors with NSN 5999-01-073-5507.

Need replacement kit caps?



Use electrical tape, NSN 5970-00-685-9059, to patch cracked or cut cable.

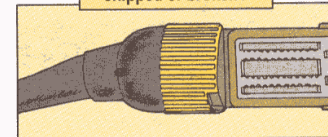
Cable cracked or cut?



Heavy vehicles running over cables break the insulation and mash internal wiring. So, place the cables away from heavy traffic areas. If you have to lay cable across a road, protect it with boards or dig a small trench for it.

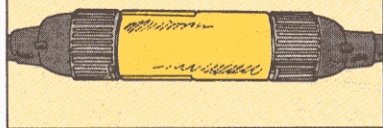
When you have to bury your cable, go six inches to a foot deep in regular soil. Sandy soil might mean a foot or two deeper.

Locking ring or housing chipped or broken?



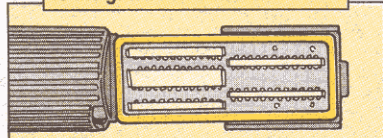
When you reel in cable, protect the connector. Tie it to the inside of the reel rim with field wire or twine. If it's not hanging loose, it can't get stepped on or banged around.

Is it tough to mate the connectors? Are the connectors' threads stripped?



Line up the cable connector and the receptacle before you squeeze them together. Forcing them at an angle can bend or break contact pins. Once they've mated, fasten the connector and receptacle locks at the same time.

Is the gasket or rubber boot cut?



Get your repairman to order a replacement if the cut is too bad to have fixed. He can order the gasket with NSN 5935-00-542-1433, and the rubber boot with NSN 5975-00-874-3541.

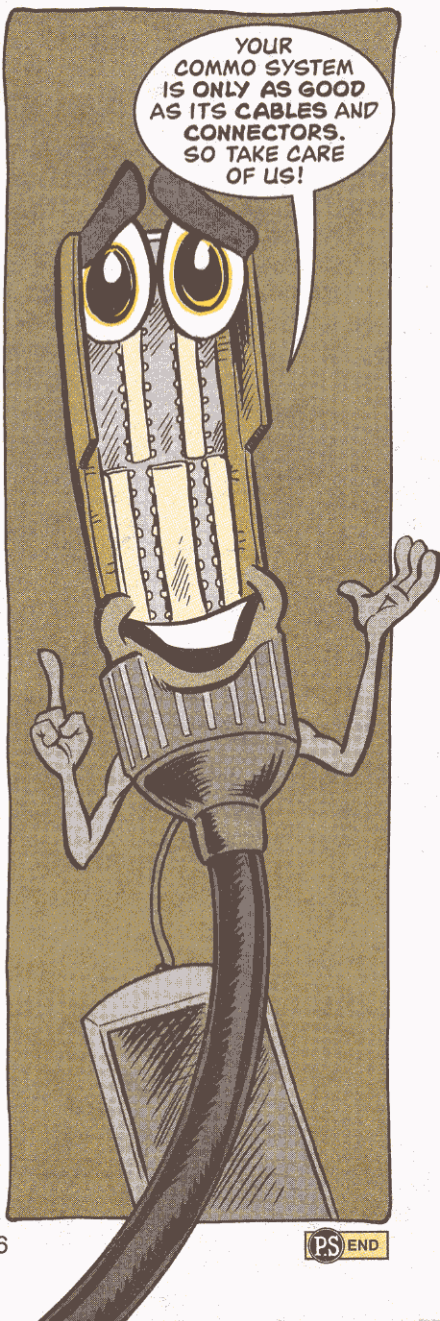
Need cable NSNs?

New CX-4566A/G cables come in these lengths:

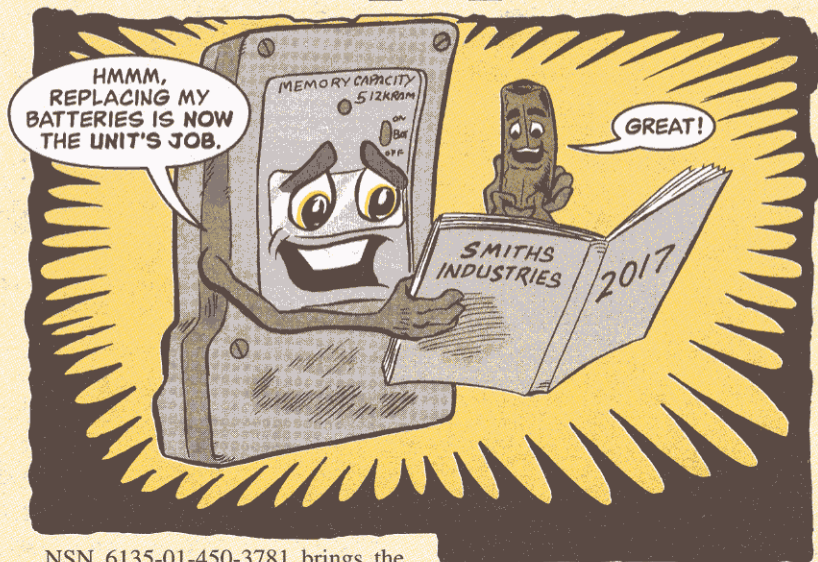
Cable	NSN 5995-00-
250-ft (with RC-435 reel)	823-2715
250-ft (no reel)	985-7569
125-ft (no reel)	177-4500
25-ft (no reel)	985-7571

Use NSN 5995-00-889-0803 for a 15-ft, CX-4760A/G cable with pigtails, but no reel.

YOUR
COMMO SYSTEM
IS ONLY AS GOOD
AS ITS CABLES AND
CONNECTORS.
SO TAKE CARE
OF US!



DTM Battery Replacements



NSN 6135-01-450-3781 brings the battery used in the 512K data transfer module (DTM), NSN 7045-01-444-7905, aboard Black Hawk and Chinook helicopters. The DTM is used with the AN/TYQ-77A(V)1 aviation mission planning system to transfer GPS data to the UH-60A/L and CH-47D.

Until recently, contractors were the only ones authorized to change out batteries. Now the user can do it.

For battery replacement procedures, get a copy of the Smiths Industries pub DTM 2017, Organizational Maintenance Instructions. CECOM will send you a copy. Call the project manager at DSN 992-5321. Or e-mail him at: lawrencp@doim6.monmouth.army.mil

Or write to him at:

CECOM
ATTN: SF AE-AEC-F
Bldg 1200E
Ft Monmouth, NJ 07703

Check the NSN

One more DTM thing. Check the data plate. Some plates have the wrong NSN due to a manufacturer's mistake. Make sure the labeled NSN is 7045-01-444-7905, not 7025-01-172-6541.

If you have the wrong data plate, it's OK for now. Just correct the NSN on the plate and also in your records. If your DTM goes back to the contractor for maintenance, they will put on a new data plate.

Rechargeables Replace Non-Rechargeables

The days of using primary (non-rechargeable) batteries for commo equipment used in training and garrison duties are gone. On 1 Oct 98, the DA rechargeable battery policy went into effect—rechargeables are now the only way to go!

There are two exceptions to the new rechargeable battery policy:

- It does not apply during war.
- When air temperatures exceed 130°F or fall below 4°F, primary batteries will be used.

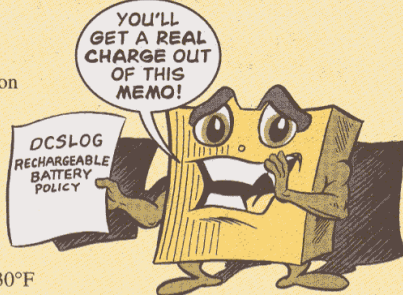
You'll find this new battery policy in a DA memo from the Army Deputy Chief of Staff for Logistics, DALO-SMR, 29 Aug 1997. If you need a copy or have questions on the policy, call or e-mail CASCOM at:

DSN 687-0040 (804) 734-0040
cigalc@lee-dns1.army.mil

Rechargeables initially cost more than non-rechargeables. But their long life will save big bucks compared to the replacement costs of primary batteries (non-rechargeables).

Here are the available rechargeables and the primary batteries they replace:

Primary	Rechargeable	NSN
BA-5590	BB-390A	6140-01-419-8187
BA-5588	BB-388	6140-01-419-8190
N/A	BB-516A	6140-01-419-8191
N/A	BB-503A	6140-01-419-8193
BA-5847	BB-2847	6140-01-419-8194



One of the raps on rechargeables was limited operating time and that was true with the old nickel cadmium rechargeable batteries. But the new nickel metal hydride (BB-390A and BB-388) batteries last two or three times longer (depending on application) than the Ni-Cads.

Here are some of the common run times:

Battery	Equipment Used In	Time (hours)
BB-390A/U	SINCGARS	8-18
BB-388	AN/PRC-126	27
BB-2847	Thermal weapons sight	3-7

Fast Charging

You can also charge the new batteries much quicker than before with the new PP-8444A/U universal portable charger, NSN 6130-01-443-0970. A fully depleted BB-390 can

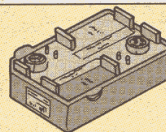
be recharged in about two hours instead of the 10 to 12 hours it used to take to charge a BB-590 (Ni-Cad) with the old PP-7286/U charger.

Universal portable battery charger, PP-8444A/U

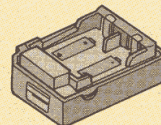
The new charger can charge two of the same batteries at once. To use it, you'll need one of these battery adapters:

Battery	Adapter	NSN 5940-01-427-
BB-390	AP-390 (J-6358/P)	9110
BB-388	AP-388 (J-6357/P)	8601
BB-516A	AP-516 (J-6356/P)	9183
BB-503A	AP-503 (J-6355/P)	9247
BB-2847	AP-2847 (J-6354/P)	9278

AP-390A adapter, NSN 5940-01-427-9110

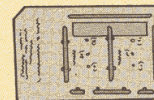


AP-388 adapter, NSN 5940-01-427-8601

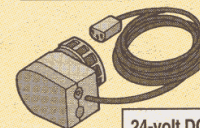


AP-516A adapter, NSN 5940-01-427-9183

AP-503A adapter, NSN 5940-01-427-9247



AP-2847 adapter, NSN 5940-01-427-9278



24-volt DC vehicular cable

You can also power the PP-8444A/U using the J-6363 24-volt vehicular cable, NSN 5940-01-427-9395, that lets the charger operate from a vehicle's NATO slave receptacle.

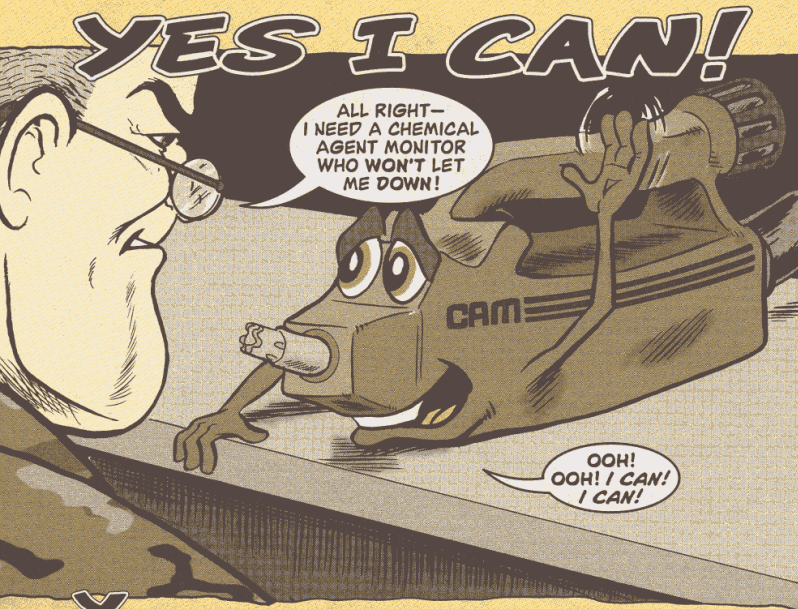
Knowing when to recharge is now easier, too. New batteries have a state-of-charge indicator that lets you know the percent of charge remaining in the battery.

If you have any questions about the new policy or rechargeable batteries, call or e-mail CECOM at:

DSN 992-4948 (732) 532-4948
brockeld@doim6.monmouth.army.mil

CECOM also has a website for the latest rechargeable battery information at: www.monmouth.army.mil/cecom/lrc/lrc.html

Just click on BATTERY SUPPORT.

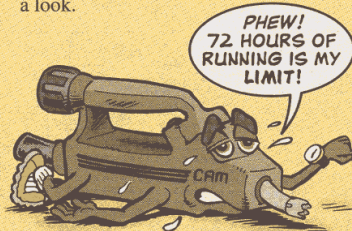


Your CAMs will say "Yes, I can detect!" if you NBC NCOs remember these PM pointers:

Running—You know by now that the most important thing you can do for your CAMs is to run them at least 30 minutes every week. A weekly run eliminates almost all CAM problems. And most other problems can be solved by running a CAM up to 72 hours. That usually clears whatever has contaminated a CAM.

But operating a CAM 72 hours straight is the limit. If you run a CAM longer, you risk burning out the pump. If a problem doesn't disappear within

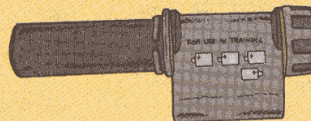
72 hours, it's time for support to take a look.



Batteries—Don't waste expensive lithium batteries powering the CAMs in the NBC room. Instead, get the battery assembly, training (BAT), NSN 6910-01-333-3631, and use cheap

D-cells or AC for power. Get one BAT for each CAM.

Use BAT for training



There are two types of lithium batteries and they require different handling. The black lithiums must be disposed of as hazardous waste. But the green ones can be thrown away after they've been discharged for five days. To discharge a green battery, follow the instructions printed on it.

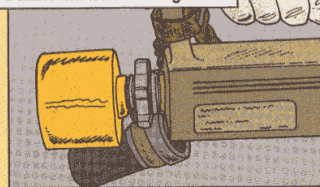
Black: hazardous waste



Green: discharge first

Buzzer—Order buzzers, NSN 6350-01-394-9916, for your CAMs. The buzzer connects to the CAM rear con-

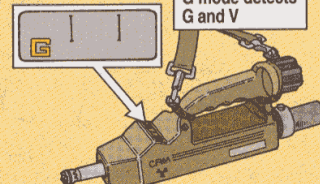
Buzzer makes detecting easier



ductor and goes off when two or more bars appear. The buzzer makes it easier to detect because the operator doesn't have to keep his eye on the bar display. He can just listen for the buzzer.

G and V—Most operators don't realize that in the G mode, the CAM monitors for both G and V nerve agents. So let them know. It could be important someday.

G mode detects G and V



Beating the Cold

Dear Half-Mast,

In cold weather, we have trouble with condensation in the M157's fog oil tank freezing and blocking the fog oil pump strainers. That stops our smoking. Is there any way to beat the cold?

SSG A.C.



Dear Sergeant A.C.,

Sure is. Keep the tank full to head off condensation, and when it's below freezing, blend the fog oil with kerosene or diesel fuel to form a mixture that flows easier. Use the table below to get the right mix of fog oil and fuel. The mixing will need to be done by your fuel supply people.

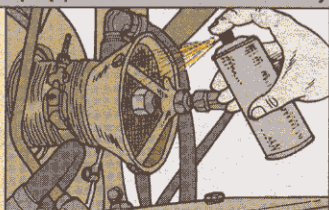
The fuel folks also need to add 16 ounces of DGME icing inhibitor, NSN 6850-01-377-5075, to every 40 gallons of fog oil.

For the engines, use type 2 automotive combat gasoline (MOGAS), NSN 9130-00-240-8201, in below-freezing weather, or mix 16 ounces of isopropyl alcohol, NSN 6810-00-286-5435, to each five gallons of untreated gasoline. Keep the fuel tanks full to prevent condensation.

If you don't have type 2 gas, use engine primer fuel, NSN 6850-00-823-7861, to start the M157 in cold weather. Spray the primer into the nozzle assembly for two to three seconds and step away (primer fuel is very flammable). Have a buddy immediately push the ENGINE switch to START. Don't hold it in START longer than 15 seconds or you'll lose too much air pressure to start. Do this procedure no more than four times. If the M157 still won't start, tell your repairman.

Air Temperature	Ratio of Fog Oil to Diesel/Kerosene
above 32°F	1:0
32° to -10°F	3:1
-11° to -25°F	3:2
-26° to -40°F	1:1

Spray primer fuel in nozzle assembly



Half-Mast

Antiseize Tape...

DRIIP, DRIIP, DRIIP!

You can dry up leaky water pipe joints with just a little antiseize tape. Here's how:

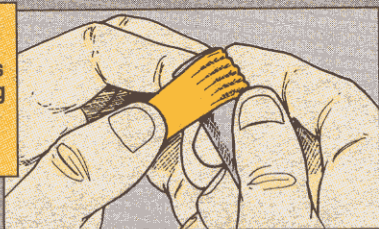
1. Wipe the threads dry with a clean cloth. Threads that are very dirty or covered with rust will need a wire brush.

Clean threads...



2. Start at the end of the pipe and wrap in the direction of the threads. Tape that's wrapped in the wrong direction will cut and tear as the joints are screwed together. That results in leaks.

...then wrap threads starting from pipe's end

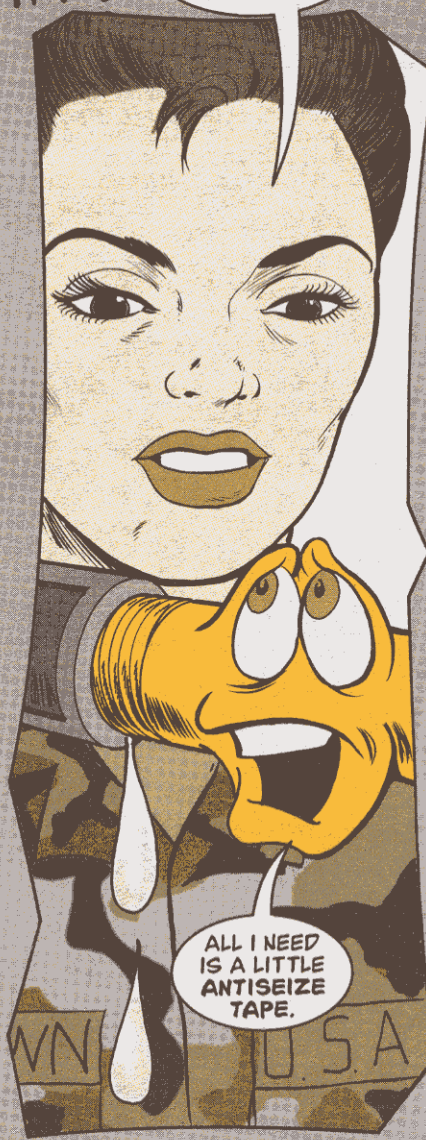


3. Use two turns around the threads and overlap about half a wrap.

Make sure you keep the antiseize tape clean—both in your tool box and when you put it on pipe threads. Dirty or oily tape doesn't seal.

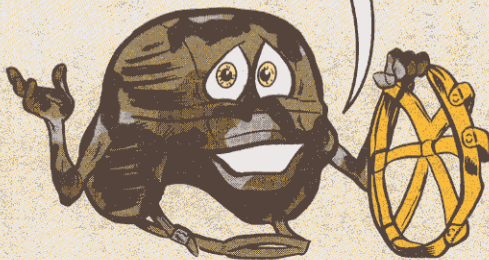
There are two sizes of antiseize tape available. NSN 8030-00-889-3534 gets a roll of 1/4-in tape for pipe threads measuring 1/8 to 3/8 inches long. A roll of 1/2-in wide tape comes with NSN 8030-00-889-3535. Use it for pipe threads measuring 1/2 inch and longer.

THAT DRIP DOESN'T LOOK SO GOOD.



Wash the Webbing, Too

THE OUTSIDE OF YOUR KEVLAR HELMET ISN'T THE ONLY PART THAT GETS DIRTY. SO, WHEN YOU CLEAN THE OUTSIDE OF YOUR HELMET, CLEAN THE WEBBING, TOO. HERE'S HOW...



1. Take off the cover and sweatband.
2. Take out the webbing by removing the six mounting screws that hold it in place.
3. Wet the webbing and sprinkle a small amount of laundry detergent, NSN 7930-01-045-3515, on it. Scrub with a stiff bristle brush, NSN 7920-00-061-0037.
4. Rinse the webbing thoroughly with clean, warm water and let it air dry.

These instructions also come in handy for cleaning the headband, chin strap, and parachutist's retention strap.

Aviation and P-D-680

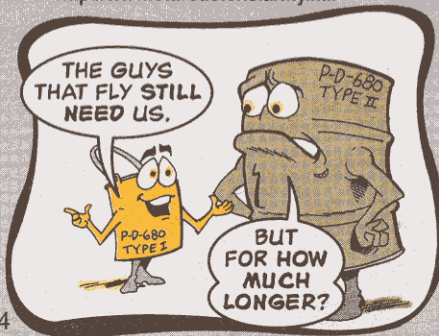
Aviation mechanics, before you substitute any cleaning solvent for P-D-680, get it cleared by the Aviation and Missile Command (AMCOM).

Although some cleaning solvents have been cleared for all uses by the Army's fuels and lubricants experts, AMCOM has not given blanket approval to substitute any other solvent for P-D-680 on its equipment.

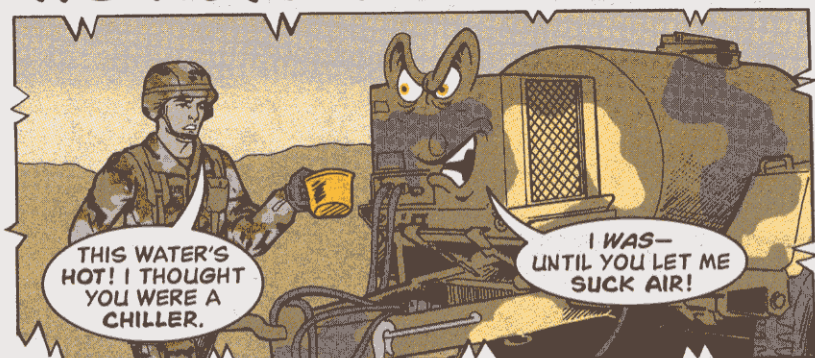
So, if local environmental rules tell you to quit using P-D-680, call the AMCOM support desk at DSN 897-1711 or (256) 313-1711 to find out what, if anything, you can use in its place.

For more information on the use and substitution of hazardous materials check out the AMCOM Environmental Technology Team's (ETT) home page at:

<http://www.ett.redstone.army.mil>



NO HEAT FOR CHILLER



The water pump on your small mobile water chiller, NSNs 4130-01-131-2685, 4130-01-315-7583, and 4130-01-333-6086, becomes a heater if you let the chiller run dry. Water **must** flow through the pump or it burns up.

So keep an eye on the water source. The inlet hose should always be at least three inches below the water level of your source. That keeps the chiller chilling.

Need a longer inlet or return hose? Make it from bulk stock, NSN 4720-01-282-9723.

Magnetic Compass ...

Glowing Reviews

Turn in your old aluminum magnetic compasses, NSNs 6605-00-151-5337 and 6605-00-846-7618. They are unserviceable and have been condemned. They often have so little illumination you have to shine a light on them to read them in the dark—not such a bright idea.

The replacement compass is NSN 6605-01-196-6971. It's plastic.

The old compasses must be turned in as radioactive waste in accordance with Para 5-9 of AR 385-11.



SEAL IN FRESHNESS

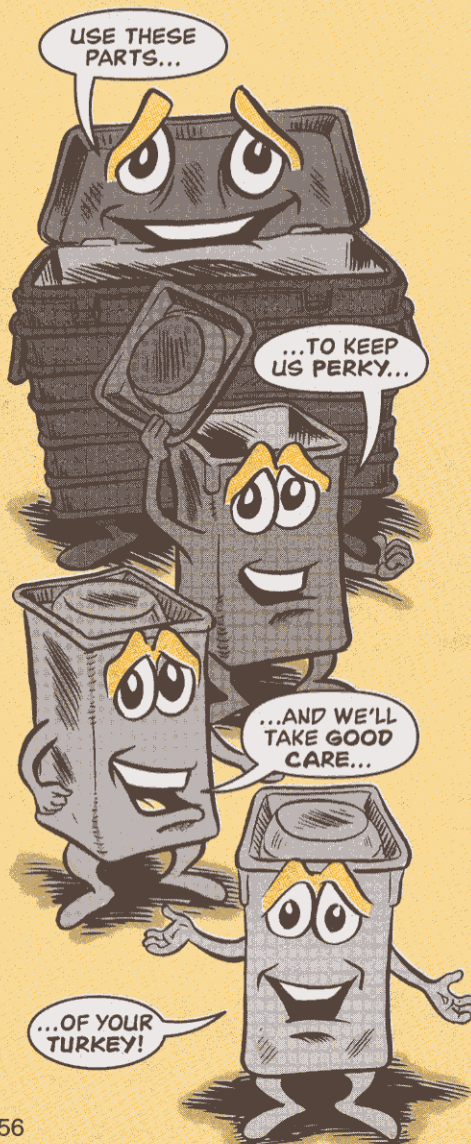
Kee your older insulated food containers, NSN 7330-00-238-2411, in apple pie order with these replacement parts. There's no TM for containers, so note these NSNs:

Part	NSN
Complete insert (includes cover and gasket)	7330-00-243-3253
Insert cover	7330-00-243-3254
Insert cover gasket	5330-00-032-2721
Outer cover gasket	5330-00-032-2722



If decals need replacing, use these NSNs.

NSN 7690-01-	Decals
224-6411	Insulated food container with inserts
220-3274	Instructions for use
223-2521	Nomenclature of parts



Active Army

MTOE Company with Property Book

Winner—56th Army Band, Ft Lewis, WA
 Runner-up—21st Trans Co, Yungson, Korea

MTOE Company without Property Book

Winner—534th MP Co (USARSO), Panama
 Runner-up—72d Ord Co, Camp Hialeah, Korea

MTOE Battalion with Property Book

Winner—28th Trans Bn, Mannheim, Germany
 Runner-up—205th MI Bn, Ft Shafter, HI

MTOE Battalion without Property Book

Winner—112th Sig Bn, Ft Bragg, NC
 Runner-up—44th Sig Bn, Mannheim, Germany

TDA Organization Lower Level

Winner—A Co, 35th Engr Bn, Ft Leonard Wood, MO
 Runner-up—HHC, USAG, III Corps, Ft Hood, TX

TDA Organization Upper Level

Winner—UN Command Security Force-JSA, Panmunjom, Korea
 Runner-up—US Army Aviation and Missile Command, Huntsville, AL

Small SSA

Winner—3d Maint Co, I/43d ADA, Korea
 Runner-up—C Co, 25th Avn Regt, 25th ID, Schofield Barracks, HI

Medium SSA

Winner—80th Area Support Group, Chievres, Belgium
 Runner-up—542d Maint Co, Ft Lewis, WA

Large SSA

Winner—D Co, 701st MSB, 1st ID, Kitzingen, Germany
 Runner-up—E Co, 704th MSB, 4th ID, Ft Hood, TX

Trans Co. Reserve

MTOE Company with Property Book

Winner—425th Trans Co, Salina, KS
 Runner-up—952d Engr Co, Paris, TX

MTOE Company without Property Book

Winner—HHC, 300th Area Support Group, Ft Lee, VA
 Runner-up—454th Replacement Det, Frankfurt, Germany

MTOE Battalion with Property Book

Winner—325th Field Hospital, Independence, MO
 Runner-up—None

MTOE Battalion without Property Book

Winner—12th Psy Ops Bn, Moffet Field, CA
 Runner-up—None

TDA Organization with Property Book

Winner—1395th Transportation Terminal Bde, Seattle, WA
 Runner-up—Equipment Concentration Site #33, Ft Riley, KS

National Guard

Company with Property Book

Winner—HHC, 30th Eng Bde (TA), Charlotte, NC
 Runner-up—1436th Engr Co, Montague, MI

Company without Property Book

Winner—43d Army Band, Lincoln, NE
 Runner-up—A Co, I/133d Inf Bn, Dubuque, IA

Battalion with Property Book

Winner—109th Med Bn, Iowa City, IA
 Runner-up—210th Finance Bn, Jackson, MS

Battalion without Property Book

Winner—1/632d AR Bn, Wausau, WI
 Runner-up—199th Support Bn, Alexandria, LA

TDA Organization Lower Level

Winner—90th Troop Command, Oklahoma City, OK
 Runner-up—None

TDA Organization Upper Level

Winner—HHD, STARC MS, Jackson, MS
 Runner-up—None

Supply Support Activity

Winner—USPFO for West Virginia, Buckhannon, WV
 Runner-up—USPFO for Mississippi, Jackson, MS

Something's AMSS!

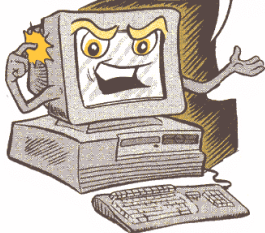
The days of using a stubby pencil and a grease-smeared form to report equipment status are gone.

BEAT IT, OLD-TIMERS! ULLS-G DOESN'T NEED YOU ANYMORE!

The Army Materiel Status System (AMSS), a part of your ULLS-G, collects data, calculates status and reports on materiel readiness. It tracks the availability of repair parts and maintenance downtime, conditions that directly affect readiness of reportable weapon systems, their subsystems and end items.

AMSS is automated, but it does not think. You, the ULLS operator, still do the thinking.

HERE ARE FIVE THINGS YOU NEED TO ENTER INTO THE DATA BANK THAT SITS ATOP YOUR SHOULDERS.



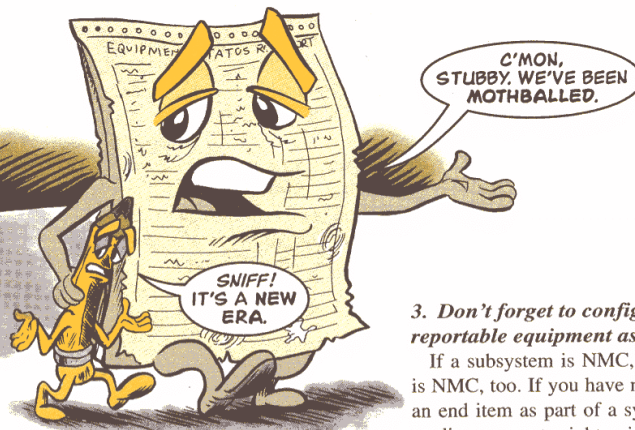
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1. Keep the Maintenance Master Data File (MMDF) current and matched.

ULLS-G uses the MMDF to identify reportable equipment and authorized substitutes. AMSS keys off that info. ULLS-G will not allow units to report equipment to higher levels unless the equipment is identified as reportable in the MMDF. If your MMDF is out-of-date, you may have reportable equipment that is not being reported.

The MMDF is produced twice a year by the USAMC Logistics Support Activity (LOGSA). Every six months a new MMDF should come to you from your Standard Army Maintenance System 1 (SAMS-1) site. Right now, check your SAMS-1 site to make sure your MMDF is current and to find out when they expect the next update. Both you and your SAMS-1 site must be using the same version of the MMDF.

NOV 98



To download the MMDF into your ULLS, select MAINTENANCE SUPPORT from the main menu and press ENTER. Then select MMDF LOAD/UPDATE.

2. Load all equipment, including reportable equipment.

Unless you load all equipment, including reportable equipment, you can't report readiness data for this equipment to higher levels or monitor the status of this equipment using AMSS readiness reports.

Identify all equipment, including reportable equipment, using your TOE and load it in ULLS. Use the EQUIPMENT DATA UPDATE/EQUIPMENT ADD menu option. The MMDF will automatically identify what's reportable.

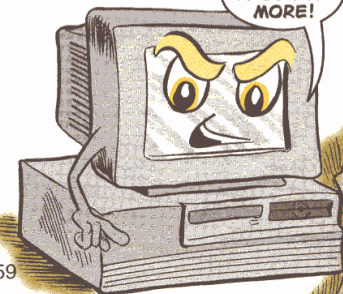
PS 552

3. Don't forget to configure reportable equipment as systems.

If a subsystem is NMC, the system is NMC, too. If you have not reported an end item as part of a system, your readiness report might paint a prettier picture than is really the case.

Systems can be configured using the SUBSYSTEM MANAGEMENT process under the EQUIPMENT DATA UPDATE/EQUIPMENT ADD menu option. Using this process allows you to hook up all subsystems with their prime item.

TURN THE PAGE FOR MORE!



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4. Remember to report for the correct period.

Too many units are reporting readiness data for the wrong period. Others are reporting readiness without a report-period date.

Units that report for the wrong period report **wrong** readiness data.

Check the report period date in your ULLS-G computer. Just print out an AMSS report and look at the report period shown on top. The first report period date should always be the 16th of the current month; the second report period date which is the last day in the current report period, should always be the 15th of the next month.

If the second date of the report period is in the past, run the END-OF-PERIOD process continuously until the report period reflects the current period.

If the first report period date is in the future, go to the UNIT PARAMETERS section of ULLS-G and change the AMSS Report Date to correspond to the last day of the current report period.

5. Keep an accurate maintenance request register.

The maintenance request register is an automated record of open maintenance requests (work orders) and their status. By not keeping accurate work order information, you will report incorrect NMC time.



WE'RE LISTENING!

Getting your supply and maintenance questions to PS is just half the battle—getting an answer is the important part.

So, whatever way you choose to get in touch with us—letter, fax, e-mail or Internet—be sure to tell us how to get back to you.

To do that we need your phone numbers, both DSN and commercial. A fax number and a snail mail address would help if we need to send you hard copy.

Finally, if you are wired in, we can get back to you bestest and fastest with the mostest if we know your correct e-mail address.

You get the ball rolling by contacting us. Here's how:

E-mail:

psmag@logsa.army.mil

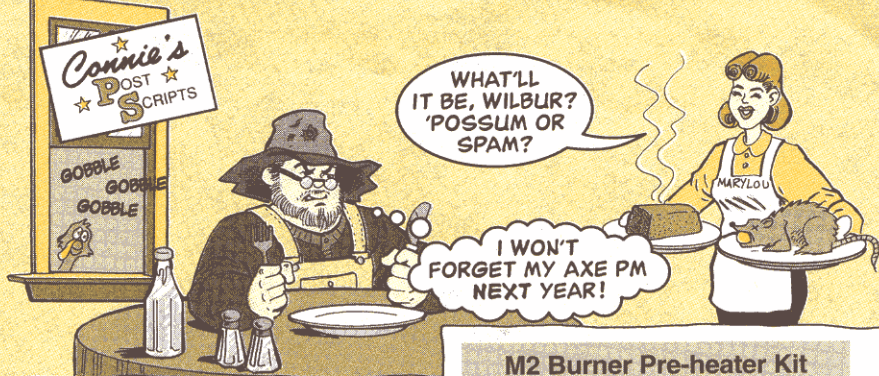
Call:

DSN 645-0892, (256) 955-0892

FAX: DSN 645-0961, (256) 955-0961

Write to us at:

MSG Half-Mast
PS, The Preventive
Maintenance Monthly
Bldg 5307, ATTN: AMXLS-LP
Redstone Arsenal, AL 35898-7466



Calling DLA

The Defense Logistics Agency's new customer support network has one toll-free number you can use to reach all of its major activities. Call 1-877-DLA CALL (1-877-352-2255) to reach customer information, inventory specialists, and logistics specialists. You can also check on a requisition, modify it, or find out if an item is in stock.

AN/PVS-7B Retainer

You no longer have to buy the battery cap assembly to replace the battery cap retainer on the AN/PVS-7B night vision goggles. You can get the retainer separately with NSN 5935-01-448-6355.

Extension Cords Revisited

Don't use the three-prong electrical adapter listed on Pages 56-57 of PS 548. Most Army equipment is furnished with three-prong plugs to provide a ground that prevents shocks and overcurrent hazards. Using an adapter could defeat that ground and make it dangerous for both you and your equipment.

M2 Burner Pre-heater Kit

The preheater assembly, NSN 7310-00-999-2549, for your M2 burner, is currently out of stock. Until it's available again, order the preheater repair kit, NSN 7310-00-302-7940, instead. This will get you the help you need to troubleshoot preheater problems when the burner or preheater fail to ignite, or when fuel leaks into the preheater valve.

HEMTT Newsletter

For the lowdown on new developments in HEMTT maintenance, safety and supply issues, take a look at the HEMTT Improvement Program (HIP) newsletter—HIP Times. It's on TACOM-ACALA's Army Electronic Product Support System (formerly the Soldier Support Network) at:

<http://www-ssn.ria.army.mil>

Click on ONLINE TRAINING and then HEMTT READINESS. All 16 back issues are available on-line.

Lantern Bulb Replacement

If your electric lantern, NSN 6230-01-251-5327, needs a replacement bulb, don't stumble around in the dark. NSN 6240-00-299-7252 brings a replacement fluorescent tube.

DISTRIBUTION: To be distributed in accordance with the initial distribution number (IDN) 340312, requirements for TB 43-PS-Series.

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

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with the **WRONG TOOL!**

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damage...**

