

Issue 439

PS

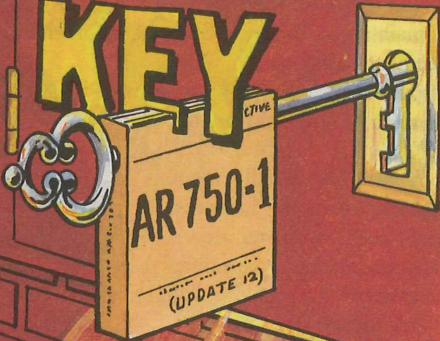
June
1989

**THE
PREVENTIVE
MAINTENANCE
MONTHLY**

TB 43-PS-439

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**NOW
ONE
KEY**



SEE
PAGE
27

**UNLOCKS THE DOOR TO
MAINTENANCE STANDARDS**

FULLY MISSION CAPABLE is JUST

Benjamin Franklin tells in his autobiography about a man who bought an ax from a blacksmith and then asked him to make the whole head as bright as the edge. The blacksmith agreed to grind the head if the buyer would turn the grindstone. As the turning became harder and harder, the buyer kept stopping the grindstone to see what progress was being made. Finally, completely worn out, he told the blacksmith he would take the ax just as it was. But the blacksmith asked him to keep on turning since the ax head was not bright but only speckled. "Yes," said the man, "but I think I like a speckled ax best."

Faced with the endless grinding needed to keep equipment fully maintained, it's not surprising that a lot of commanders have decided they like speckled equipment best. They make sure the cutting edge is bright and shiny (Fully Mission Capable), but any polishing beyond that becomes a catch-as-catch-can proposition. They fail to take into consideration another Franklin observation: "A little neglect may breed mischief: for want of a nail. . . ."

Equipment that is not fully maintained simply wears out before its time, creating enormous replacement costs.

When maintenance that is supposed to be pulled at the lowest—and cheapest—level is passed on to DS and higher, the costs escalate.

Equipment that has gotten by as FMC usually requires tremendous expenditures to bring it up to transfer standards.

The only way these unnecessary costs can be reduced is for the unit commander to implement a maintenance policy that says in effect: "These bucks stop here!" As Franklin would say: "A stitch in time saves nine."

As explained on Pages 27-34, the commander now has a precise definition of the desired maintenance goals. With everyone playing from the same sheet of music, success will be measured by the results achieved rather than the effort expended. It could well be that the days of "speckled" equipment are numbered.

A STITCH IN TIME SAVES NINE!



the START

THAT SPECKLED AX IS GOOD ENOUGH!

BUT, YOU ASKED FOR A SHINY AX SO KEEP ON TURNING THAT WHEEL.

YES, BUT I'LL SETTLE FOR A SHINY CUTTING EDGE!



See page 27 for PMCS Standards

PS THE PREVENTIVE MAINTENANCE MONTHLY

TB 43-PS-439, 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:

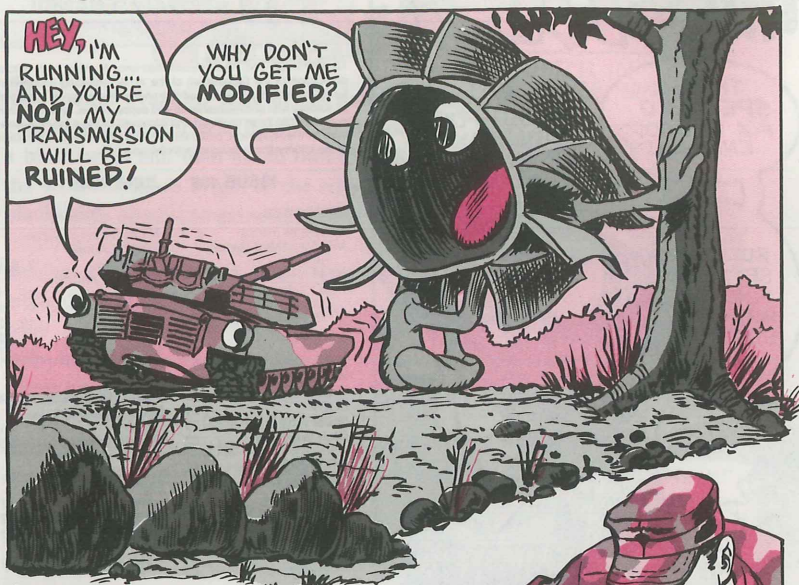
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The Preventive Maintenance Monthly
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By Order of the Secretary of the Army:
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Chief of Staff

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WILLIAM J. MEEHAN II
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Right Trans Fan Runs Continuously



If the right transmission cooling fan on your M1 tank does not run when the engine is running, have it modified by DS/GS now.

The modification disables the electric clutch for the right fan, allowing the fan to run continuously. Without the modification, the fan won't cut on automatically until the transmission oil temperature reaches almost 320 degrees F. By then, the transmission is already damaged.

Open the right rear hand grille door and have the engine started. If the modification has been applied, the fan will operate as soon as the engine is started.

Your DS/GS shop will apply modification XMB-1156-B when you tell 'em you've got an unmodified fan.



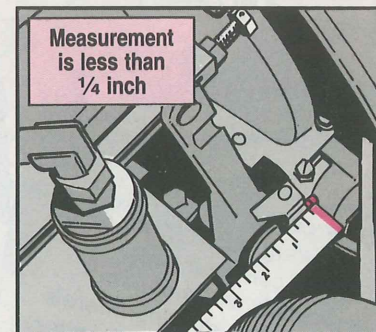
Add IGV Spring Pin Check to PMCS

Loss of engine power can sometimes be traced to a missing spring pin on the inlet guide vane bellcrank (IGV).

The spring pin sometimes backs out during normal operation.

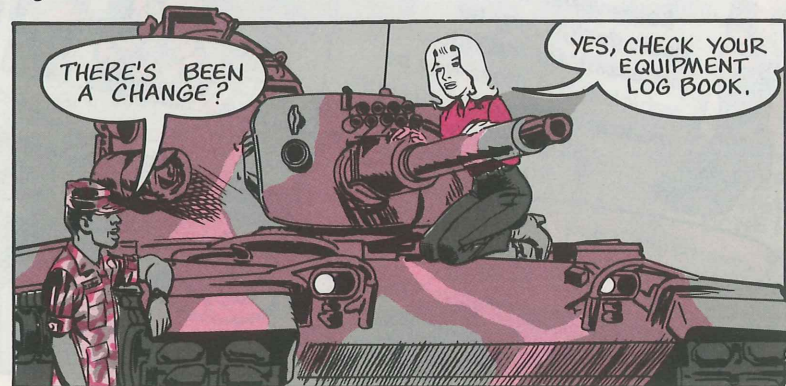
During your next semiannual scheduled services, measure the IGV bellcrank spring pin to make sure it doesn't extend more than 1/4 inch out of the bellcrank.

If the spring does extend more than 1/4 inch, notify DS.



M48A5, M60-Series Tank Cannon PMCS

In case any of you M48A5 or M60-series tank owners missed it, here's the word: Page 6-20 of TB 43-0001-36-6 (Jul 82) changed the annual maintenance program for the M68 cannon and breech ring assembly to a 2-year program. Some TM's haven't been changed yet, so if the gun hasn't been removed or replaced for maintenance service within a period of two years, notify support maintenance. See the "Remarks" column of DA Form 2408-4 in the equipment log book for the service information.



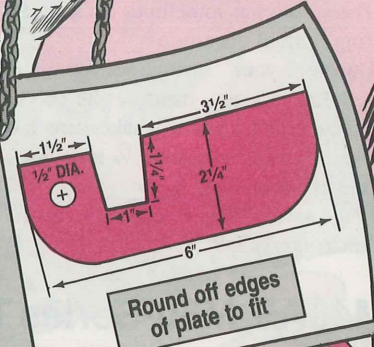
Security Comes With a Plate

HERE'S A WAY TO SATISFY LOCAL AUTHORITIES WHEN CHAINS WON'T!

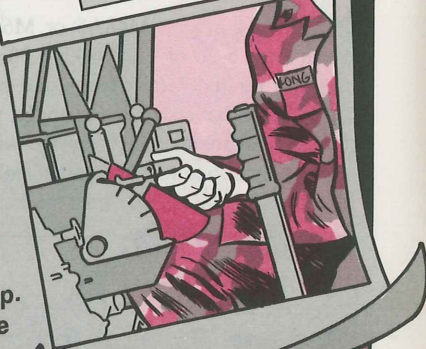
Dear Editor,
 Locking up an M548 cargo carrier can be a pain, especially when chains around the steering laterals won't satisfy local authorities. I've come up with a metal plate, made from 1/4-in flat steel, which fits in the transmission gear selector. I lock the plate in position with the standard Army lock. When the plate's installed right, it keeps the gear selector in neutral.

Some variations from the basic design may be necessary for individual vehicles, but those can be made in a unit's welding shop.
 SSG Joseph T. Ware
 Ft Stewart, GA

(Editor's note: Units need to get their CO's OK before using this method.)



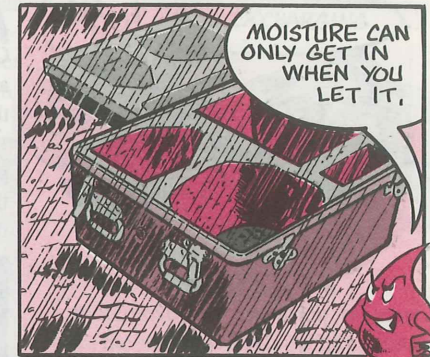
Round off edges of plate to fit



KEEP A LID ON IT!

You wouldn't leave the cover off your favorite compact discs during a rainstorm, so it doesn't make much sense to leave off the top cover of the M90 radar chronograph's carrying case either.

Fact is, though, quite a few carrying cases are being treated that way—and the real damage shows up in the chronograph.



The rubber cushioning in the case soaks up the water. Then an unsuspecting soldier stores the M90 in the wet case. Moisture causes the paint to bubble and peel, letting corrosion go to work.

Moisture also loosens the sealer holding the cover on the back of the antenna bracket assembly, which causes short circuits in the electronics and more corrosion.

LATER...

Next thing you know, the M90 is shot, all because the case cover was left open in the rain.

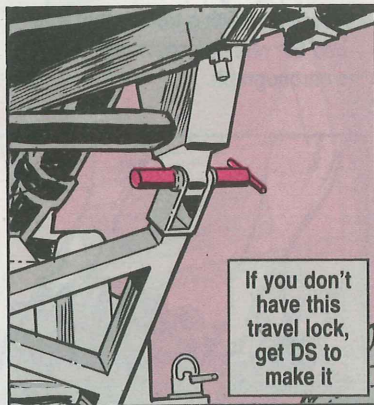
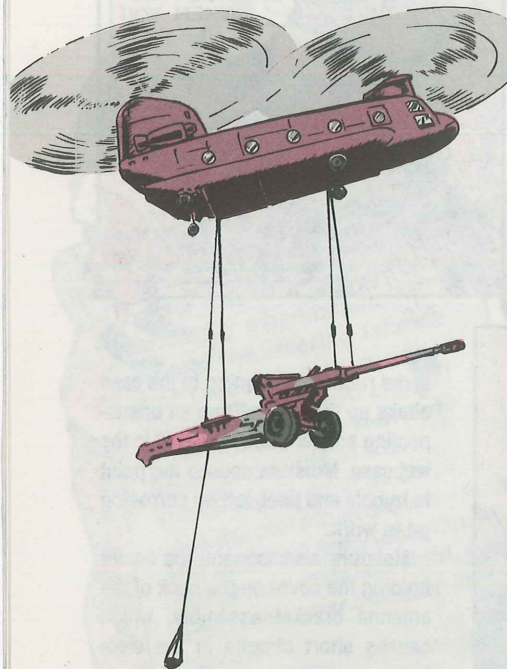
Use your heads, gun crews. Close the cover tight every time you use the M90.



Airlift Travel Lock's a Must

Airlifting an M198 howitzer with a CH-47D helicopter requires the use of a special-made travel lock that lowers the gun tube about 5 feet 4 inches.

Without the special travel lock, the gun tube comes dangerously close to the aircraft fuselage and can damage the UHF navigation antenna.

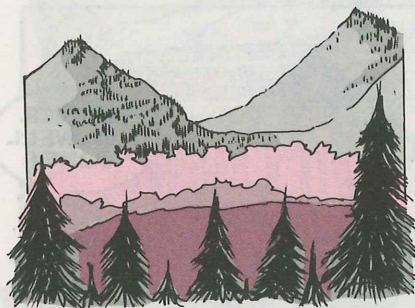


If you don't have this travel lock, get DS to make it

If you don't have this travel lock, have your DS unit make it for you. Instructions are found in KNOW-HOW II (AMCCOM Pam 750-10-3, Dec 88). A copy of this pam is available from HQ, AMCCOM, ATTN: AMSMC-ASN-M (Mr Lipton), Rock Island, IL 61299-6000.

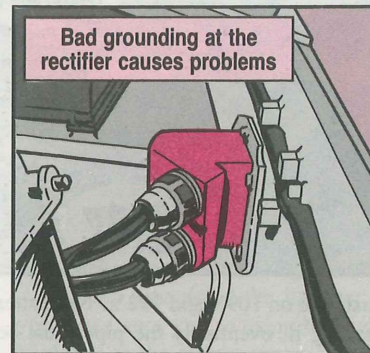
Final note—DO NOT use the airlift travel lock during towing.

The reduced pintle weight could cause handling problems and increased pintle wear and the reduced tube height will increase interference with terrain, buildings and other vehicles.



Make Right Ground for Rectifiers

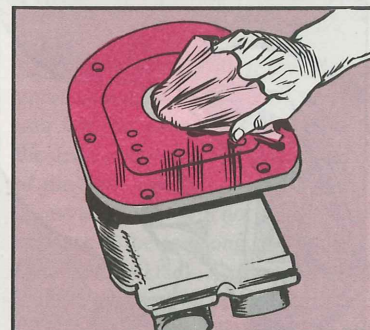
Bad grounding at the rectifier on your 109's and 992's can cause high voltage readings, overcharged and boiled-over batteries and burned-out voltage regulators.



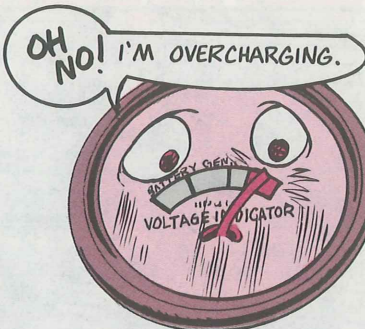
Bad grounding at the rectifier causes problems

Eliminate the poor ground by doing the following:

- Remove the rectifier and clean the corrosion and paint from the mounting base and the hull mating surface with clean rags and crocus cloth, NSN 5350-00-221-0872.



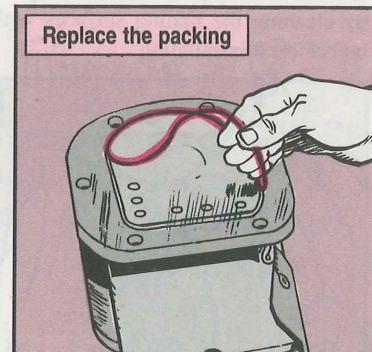
Clean corrosion and paint from the base with clean rags and crocus cloth



- Remove any corrosion or paint from the six screw holes on the rectifier mounting base. Also remove the packing from the base, scraping the groove clean of all silicone compound.

- Apply a fresh coat of silicone compound, NSN 8030-00-159-8176, to the circular area in the center of the mounting base.

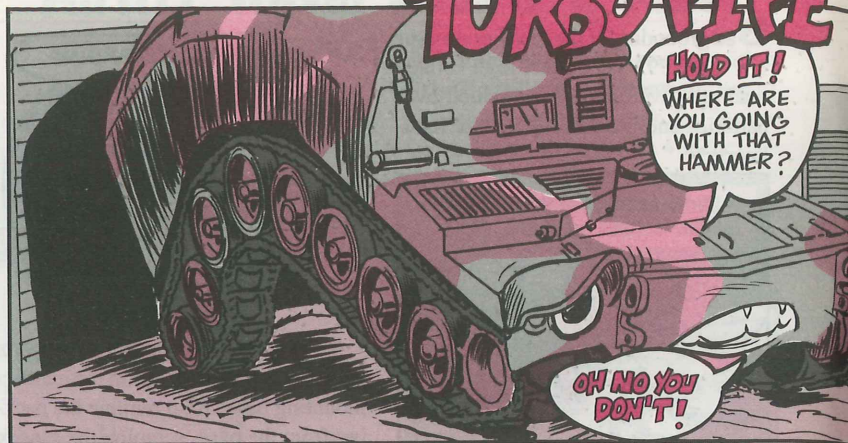
- Replace the packing, NSN 5330-01-113-9865. Then install the rectifier.



Replace the packing

Even though the two brass screws are the real grounding points, this procedure insures that no foreign material prevents a good ground.

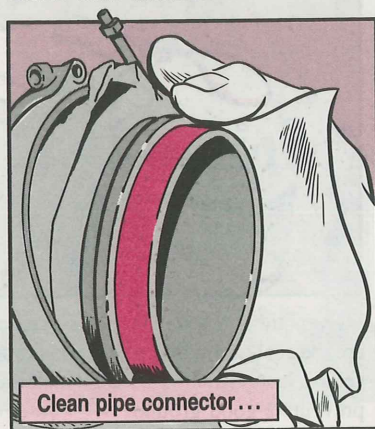
TURBO PIPE



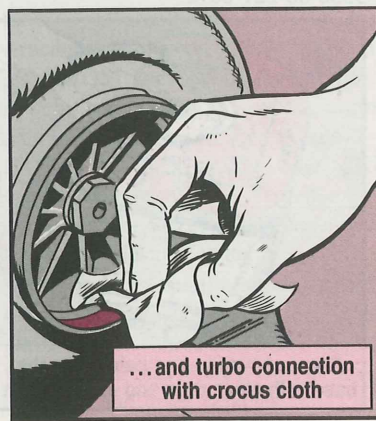
What can you say about the turbo exhaust pipe on 109's and 992's? No matter how careful you are in removing or installing it, eventually the pipe must be replaced.

Even though heating and cooling take an unavoidable toll on the pipe, the biggest cause of damage is the hammer.

Because carbon deposits tend to "freeze" the joints, it's often very difficult to remove the pipe without some persuasion. You can limit the amount needed by cleaning the mating surfaces with crocus cloth, NSN 5350-00-221-0872, before each installation.

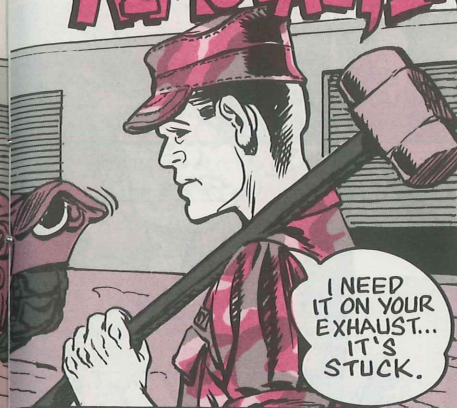


Clean pipe connector...



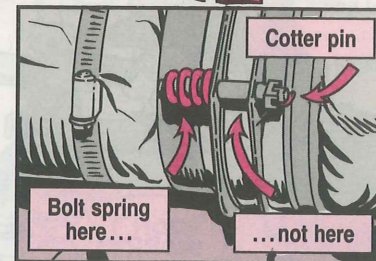
...and turbo connection with crocus cloth

REMOVAL, INSTALLATION



You can also avoid the hammer if you make sure you're using the right hardware in the right manner.

Never use just any old bolt on the spring clamp. Machine bolt, NSN 5306-00-151-1714, is right. Tighten it just enough to install the cotter pin.



This gives you as much play as possible. Also, make sure the helical spring is under the bolt head, not between the clamp lips. Again, this provides some maneuvering space during pipe installation.

Try not to deform the pipe or break it during installation. The pipe will not last very long at all.

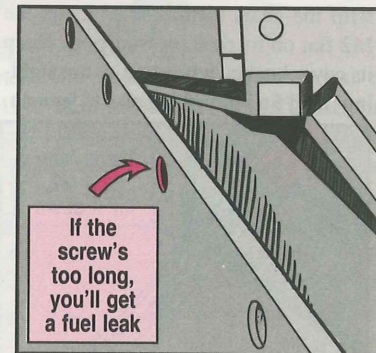
Follow the other installation instructions in the -20 series TM's for both the 109 and the 992.

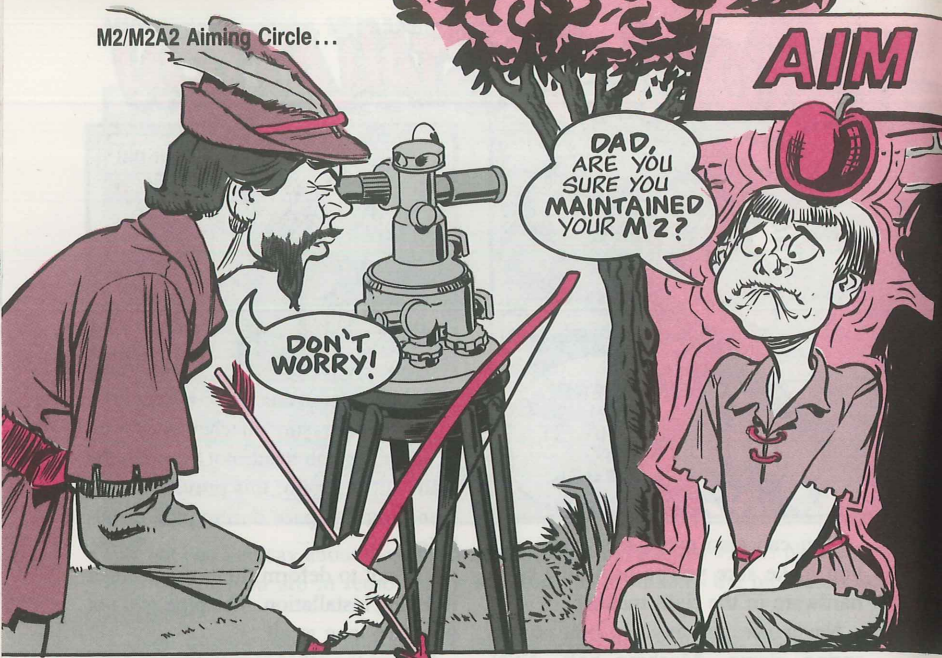
There's A HOLE, There's A HOLE

Very likely there will be a hole in the upper fuel tank of your 109 or 992 if you use the wrong mount screws for the deck plate assembly that sits on top of the tank.

Just any screw will not do. If a screw happens to be too long, it'll punch a hole in the fuel tank. That means a leak, which should say all you need to hear.

Use only screw, NSN 5305-00-164-6971, to mount deck plate PN 12351665 to prevent fuel tank damage.

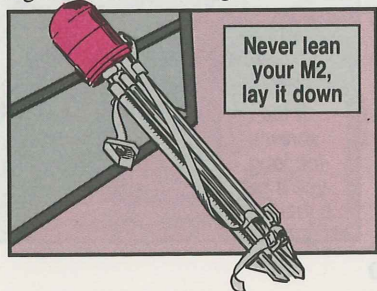




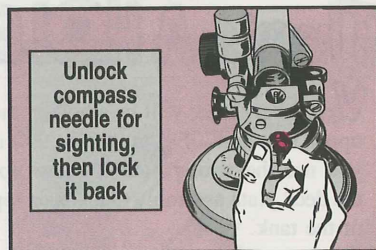
If you expect your aiming circle to tell you true, you need to make an honest effort to take care of your M2.

For instance:

◆ Never lean on your M2. You'll bend the screws in the locking plate or strip the gears inside the M2. Set the M2 flat on its case for transport. Keep its cover latched when you're not sighting. And find something else to lean on.



◆ Unlock the compass needle only for sighting. Lock it back up when you're through. Otherwise, the needle can be damaged.



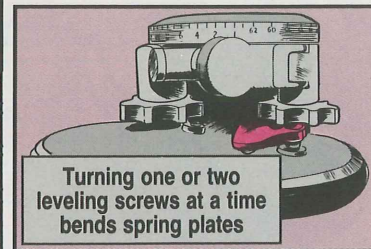
◆ Always turn all three leveling screws at the same time. Or turn each leveling screw no more than 1/4 turn at a time. If you turn one screw too far, the others bind.

If you can't turn all three leveling screws with your fingertips, loosen the

AIM

TRUE

adjusting screws on the base 1/4-turn. If the screws still turn hard, report it. If you force the leveling screws, you strip their threads.



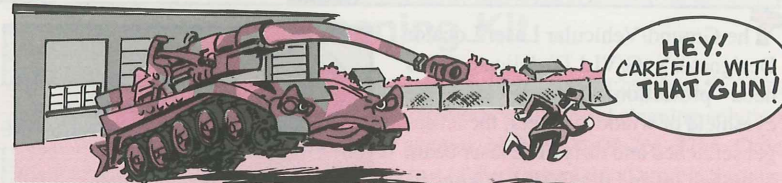
◆ Check leg screws before going to the field. The screws work loose and your M2 has shaky legs. Tighten loose screws.



If a screw's missing, don't try to replace it yourself. Get your repairman to put in the right screw, one that's brass or aluminum. A steel screw throws off the compass.

Howitzers...

You've Got to Boresight 'em, Too



Just because the fire control instruments on your M102, M109-series, or M110A2 howitzer check out with the M140 alignment device doesn't mean the howitzer's boresighted.

The M140 checks fire control instruments only. If you know your howitzer is boresighted, and the M140 shows that the fire control instruments are aligned, you're good to go. If you don't know, boresight the cannon and then align the sights, or your howitzer could hit the wrong target... or people.

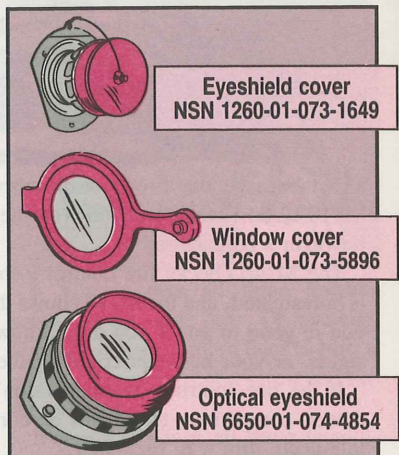
If the fire control instruments don't align with the M140, do the alignment device comparison test again or boresight again. If the M140 still is out of tolerance, turn it in for repair.

GUARD LENS GUARDS



The Ground/Vehicular Laser Locator Designator's (G/VLLD) delicate optics need protection. If you lose the eyeshield or window covers, the lenses get scratched and dirty. The laser beam is broken up and the G/VLLD loses its accuracy. If the optical eyeshield is lost, you have trouble seeing through the G/VLLD.

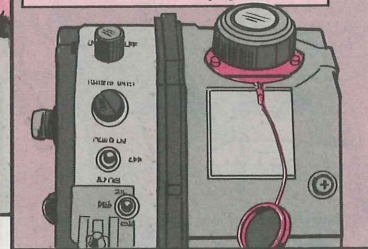
Before you go to the field, make sure the eyeshield cover, NSN 1260-01-073-1649, window cover, NSN 1260-01-073-5896, and optical eyeshield, NSN 6650-01-074-4854 are in place. If they're missing, get your repairman to replace them.



To keep the covers and eyeshield off the missing list, do this:

Make sure the eyeshield cover lanyard is securely fastened to the cover and the eyepiece. If it's loose, report it. Lacing wire, NSN 9505-00-293-4208, makes a good temporary replacement.

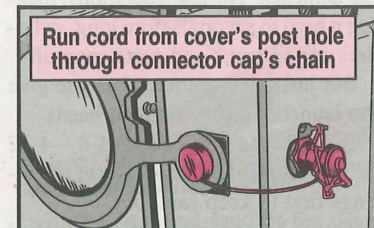
Make sure lanyard is fastened to cover and eyepiece



Use a nylon cord to keep the window cover from dropping off. Attach one cord end through the cover's post hole

and the other through one of the connector cap chains. Get a nylon cord with NSN 4020-00-262-2019.

Run cord from cover's post hole through connector cap's chain



Feel the optical eyeshield for tightness. If it doesn't fit snugly, report it.



Cleaning Kit

When you order the G/VLLD's lens cleaning kit, NSN 1260-01-151-2698, you'll get a bag, bottle, brush and tissue. But you'll also need cleaning solution, NSN 7930-00-880-4454, and isopropyl alcohol, NSN 6505-00-261-7256. Order them when you order the kit. They're all part of the Expendable/Durable Supplies and Materials List in TM 9-1260-477-12.



LAUNCHER LUBE

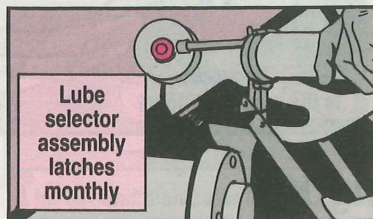
Some HAWK mechanics overlook important lube points when they lube the launcher. The launcher binds, making it hard to set up. Before long, cylinders spring leaks and parts snap off.

But just a few squirts of grease give the launcher all the relief it needs.

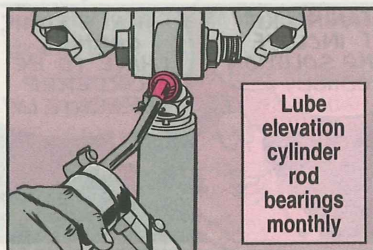
Do it like it says on Pages 4-8—4-12 in TM 9-1440-531-12-1. Clean off fittings first to keep sand out.

These lube points get overlooked most:

► **Sector assembly latches.** If the latches freeze, the missile takes part of the launcher with it. Give all three latches at least monthly shots of GAA.



► **Elevation cylinder rod bearing.** If it doesn't get GAA at least monthly, the cylinder springs hydraulic leaks because too much pressure's put on it when the boom's raised.

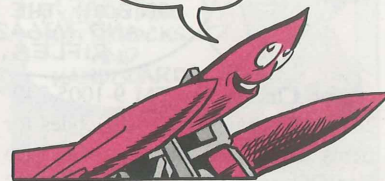
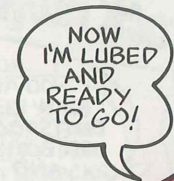
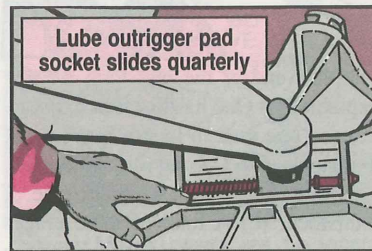


► **Outrigger leveling cylinders.** They leak, too, if their exposed surfaces aren't lubed weekly with GAA. Before lubing, clean off the cylinders with dry cleaning solvent P-D-680 and wipe the cylinders dry. Otherwise, the old, dirty grease keeps the new grease from doing its job.



LOWDOWN

► **Outrigger pad socket slides.** Without quarterly lubing with GAA, pads freeze and snap off the ends of outriggers during firing.



In the heat and sand of the desert, the launcher needs lubing more often. Test moving parts at least weekly for binding.

Lube the Loader, Too



Some mechanics are forgetting to lube the main support bearings—top and bottom—quarterly with GAA. In hot, dry, sandy areas, you need to lube 'em monthly.

Shoot the lube to the hoisting beam latches, too. If rust or dirt or corrosion gets in the latches and freezes them, missiles can't be unloaded. Lube latches with OAI oil at least monthly—more often in the desert.



Buttstock Now Armorer's Job

NOW YOU ARMORER'S CAN REPLACE THE BUTTSTOCK ASSEMBLY ON BOTH THE M16A1 AND M16A2 RIFLES.



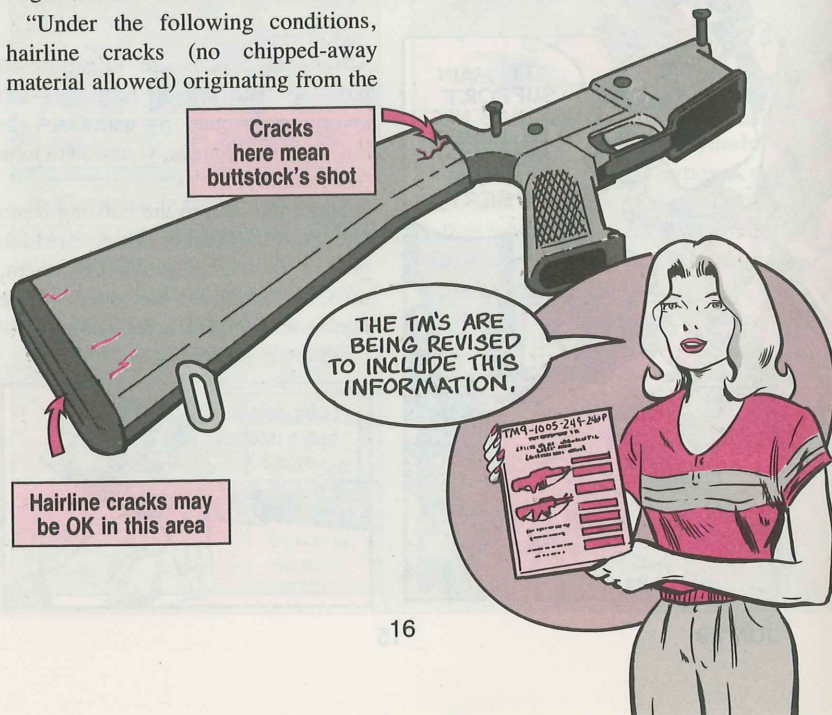
Grab Change 3 to TM 9-1005-249-24&P and change the SMR codes for Items 7 and 7a on Page C-21 to PAOOO and for Item 7 on Pages C-22 and C-22-1 to XAOZZ.

In TM 9-1005-319-23&P (Aug 87), change the SMR code for Item 7 on Page C-21 to PAOOO and for Item 7 on Page C-22 to XAOZZ.

Add this inspection procedure to Page 2-41 in TM 9-1005-249-24&P and Page 2-51 in TM 9-1005-319-23&P:

"Under the following conditions, hairline cracks (no chipped-away material allowed) originating from the

buttplate end of the buttstock are acceptable. (a) One hairline crack, not to exceed one inch in length, per side of buttstock. (b) Two additional hairline cracks up to 1/4 inch long per side of buttstock. (c) A total of three cracks per side of the buttstock, originating from the buttplate end, are allowable. Cracks in the critical area at the front end of the buttstock are not acceptable."



Cracks here mean buttstock's shot

THE TM'S ARE BEING REVISED TO INCLUDE THIS INFORMATION.

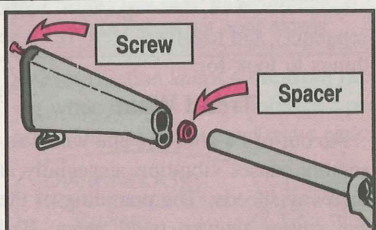
Hairline cracks may be OK in this area

Changing from A1 to A2



BUT WE'VE STILL GOT SOME A1'S!

THAT'S NO PROBLEM EXCEPT FOR BUTTSTOCKS AND HANDGUARDS.

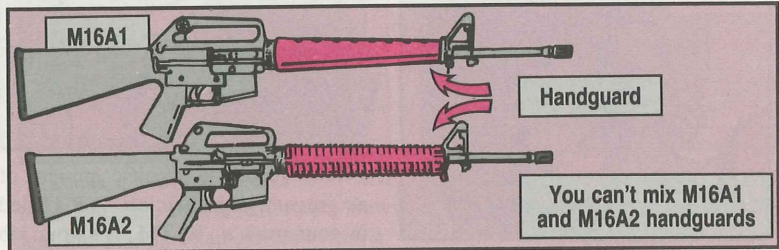


Some M16A1 parts are no longer available. When you order those parts, you'll receive M16A2 parts instead.

The M16A2 parts are a bit different. The new pistol grip is slightly longer and has a bump on the front. The new sling ring is tapered instead of straight. The new front sight is square instead of round. But they'll work fine on M16A1's.

There are two exceptions:
 * The M16A2 buttstock is 5/8-in longer than the M16A1's. To install it on the M16A1, you'll need a spacer, NSN 5365-01-267-2169, and screw, NSN 5305-01-147-8585, to secure it to the receiver.

* There are no more M16A1 left-hand handguards. If you need a new left-hand handguard, you must order two M16A2 handguards, NSN 1005-01-134-3629, because M16A1 and M16A2 handguards can't be used together. You can still order M16A1 right-hand handguards, NSN 1005-00-056-2252.



You can't mix M16A1 and M16A2 handguards

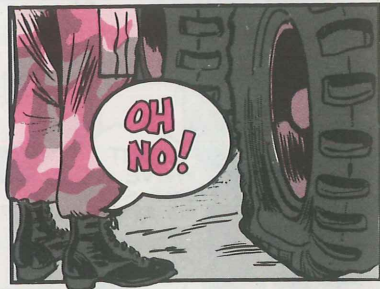
TIRE INSPECTION

Drivers, it takes a little time and a keen eye to give the tires on your truck a good inspection. But regular, thorough tire inspections pay off. You can spot and fix little problems before they ruin tires. That saves you a flat on the road, and maybe your life.

Tires have a very close working relationship with several mechanical systems on your truck. Problems in the brakes, wheels, and suspension system often show up first in the tires. Tires affect how well these systems work separately and together. Here're some things to look for:

Tread Wear

An out-of-balance tire and wheel assembly causes vibration, especially at highway speeds. The pounding of the tire causes uneven tread wear. Bad



shocks, poor alignment, bum brakes, loose ball joints and other problems in the suspension system also cause rapid and uneven tire wear.

To Air is Human

Wrong tire pressure is the biggest cause of uneven tread wear. Underinflation wears out the outside edges of the tread, while overinflation eats out the center of the tire.



Tires require a specific amount of air pressure to do their job... it's listed in your truck's -10 TM. It's your job

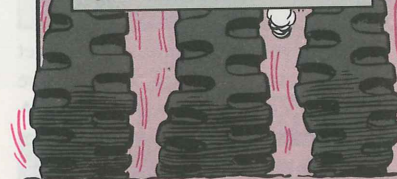
SAVES TIRES

to make sure the right amount of air is in the tires at all times.

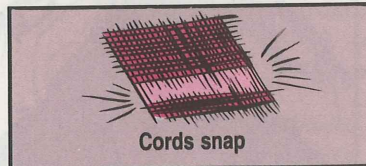
Check the tire pressure every week. Ask your friendly mechanic to use his tire pressure gage to measure the pressure in every tire, including the spare.

Check 'em when they're cold. A short drive creates heat in the tire and causes the air pressure to rise. You get a false reading if you gage the tires when they're hot, and end up running the tires underinflated.

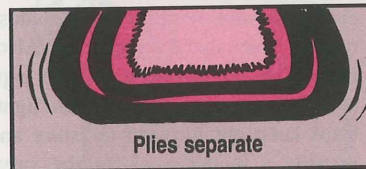
UNDERINFLATION DAMAGE



Overflexing of the walls causes the fabric of the walls to break



Cords snap



Plies separate

Report a tire that checks low each time you gage it. The tire has a slow leak and your mechanic needs to find it.

OVERINFLATION

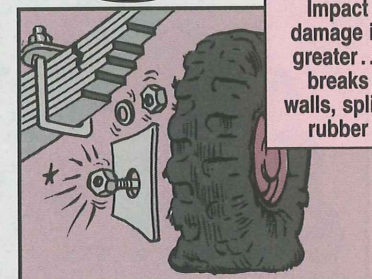
AN OVERINFLATED TIRE PUTS ONLY THE CENTER OF THE TIRE ON THE ROAD!



You get fast wear in the center... while the edges wear slowly

Overinflation keeps a tire from flexing when it takes a hard jolt like a pot-hole. The extra stress and strain makes

OVERINFLATED TIRES CAUSE HARD RIDING... WHICH CREATES VIBRATION WHICH LOOSENS BOLTS, SNAPS SPRINGS, ETC...



Impact damage is greater... breaks walls, splits rubber

bruises, breaks and leads to tread separation. Overinflated tires are also hard on the truck's suspension system.

Eyeball the tread everytime you gage the tires. If the tire looks like it has less than 1/8 inch of tread left, get your mechanic to measure it with tread depth gage, NSN 5210-00-019-3050. It's in the No. 1 and No. 2 Common Shop sets.

While you're looking at the tread, remove any bits of glass or rocks stuck in the tire. Also remove stones or anything else caught between duals.

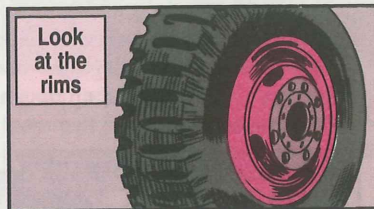
Unholy Holes

Small punctures lead to more damage if they're not repaired in time. Eyeball cuts, cracks or gouges closely. Call your mechanic if you see white cord in the puncture. He will take the tire off and look it over to make sure it can be repaired.

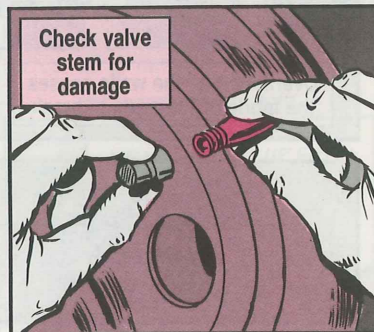


Nuts and Such

Look at the wheel lug nuts, studs, rims and side rings for damage. If lug nuts are loose or missing, tighten or replace 'em. Look close at the rim. If it's cracked, have your mechanic replace it. It can't be repaired.



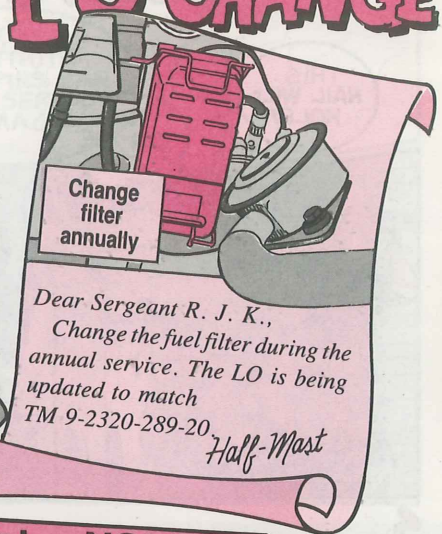
During your inspection, don't forget the valve stems and caps. Check valve stems for cracks, scrapes and cuts. A



damaged valve stem is often the cause of slow leaks that damage tires. Also, make sure all valve stems have caps and that they are screwed on tight. Caps keep out dirt and moisture and provide a second seal for the valve core. It also keeps the valve core from getting accidentally pushed in and air released.

CUCV... FUEL FILTER LO CHANGE

Dear Half-Mast,
When do you replace the fuel filter on a CUCV? LO 9-2320-289-12, Card 7 of 8, says replace it at 15,000 miles or when STE/ICE indicates a pressure drop of 6 inches Hg or more. TM 9-2320-289-20 says replace it during the annual service. Which is correct?
SSG R. J. K.

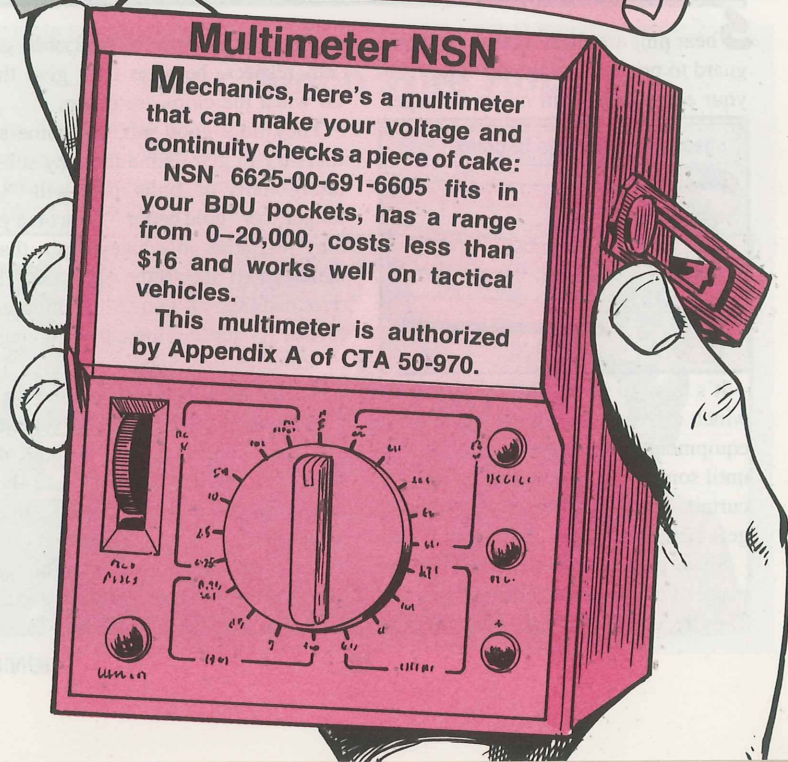


Dear Sergeant R. J. K.,
Change the fuel filter during the annual service. The LO is being updated to match TM 9-2320-289-20.
Half-Mast

Multimeter NSN

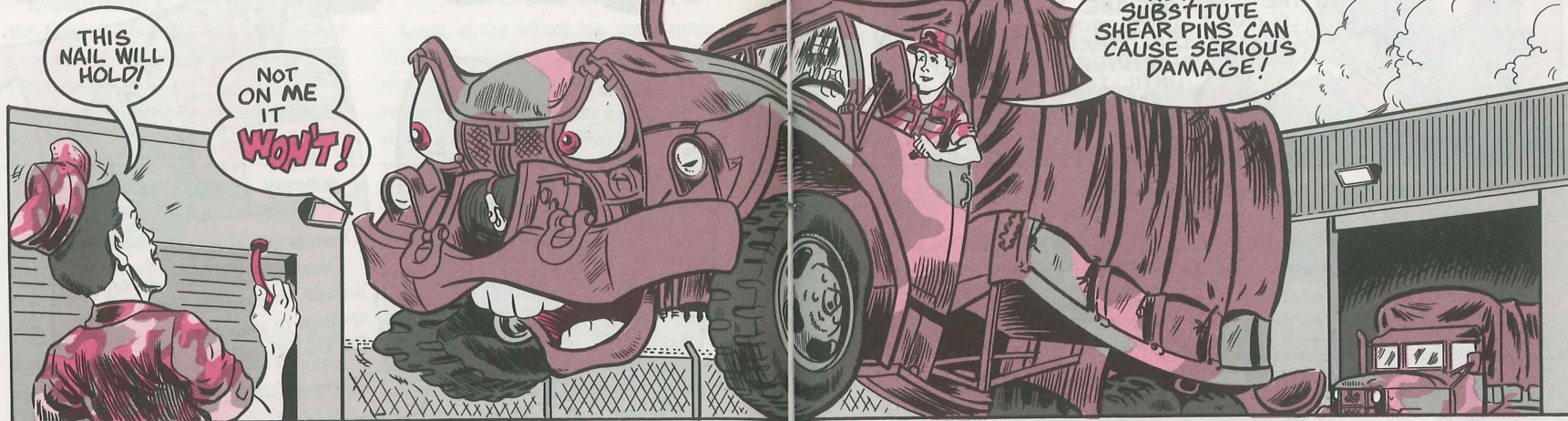
Mechanics, here's a multimeter that can make your voltage and continuity checks a piece of cake: NSN 6625-00-691-6605 fits in your BDU pockets, has a range from 0-20,000, costs less than \$16 and works well on tactical vehicles.

This multimeter is authorized by Appendix A of CTA 50-970.



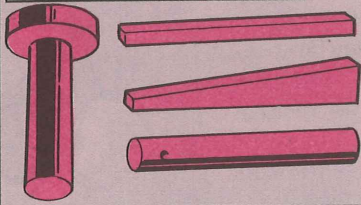
SHEAR PINS ARE

MADE TO BREAK



Shear pins are silent sentries, standing guard to protect you against injury and your equipment from major damage.

Shear pins are made to break



It's easy to forget they're there, on winch drives, cranes, augers and other equipment. They quietly do their job until something goes wrong—then it's curtains for them. They snap. Nobody gets hurt. Nothing is damaged.

Shear pins are born losers. They are made of aluminum or other soft metal. They're cheap and relatively easy to

replace. They may be soft, but give 'em respect, because they give their all when the chips are down.

They do a good job, but some soldiers try to give 'em a hand by substituting nails or bolts that will "last longer," or "hold better." Or worse yet, they just stick in whatever pin that's handy and is almost the right size. That overloads the system. Something else breaks . . . and equipment is damaged or someone gets hurt!

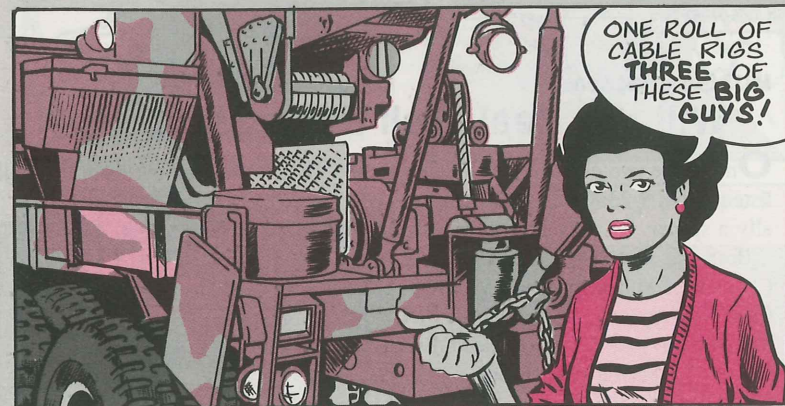
Accept no substitutes for the shear pin shown in the BII of your vehicle's -10 TM. The book may not call it a shear pin, but if it's designed to shear before something else breaks, that's what it is.

The only way to go is with the right pin in the right place, standing guard until it is needed . . . to shear.

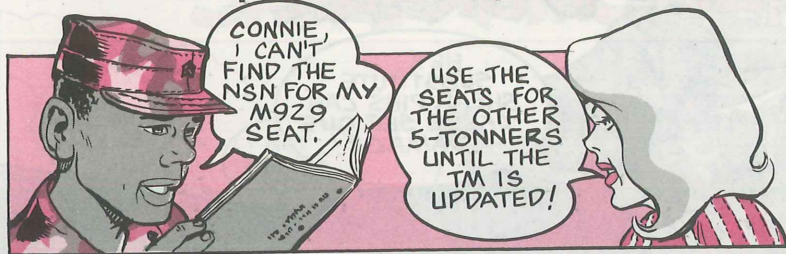
5-ton Wreckers...

Rear Winch Wire Rope

The TM's say to use 350 feet of wire rope to replace the cable on a 5-ton wrecker's rear winch. But the Tank-Automotive Command says you need only 333 feet. You can rig three wreckers from a 1,000-ft reel of 3/4-in cable, NSN 4010-00-618-7697.



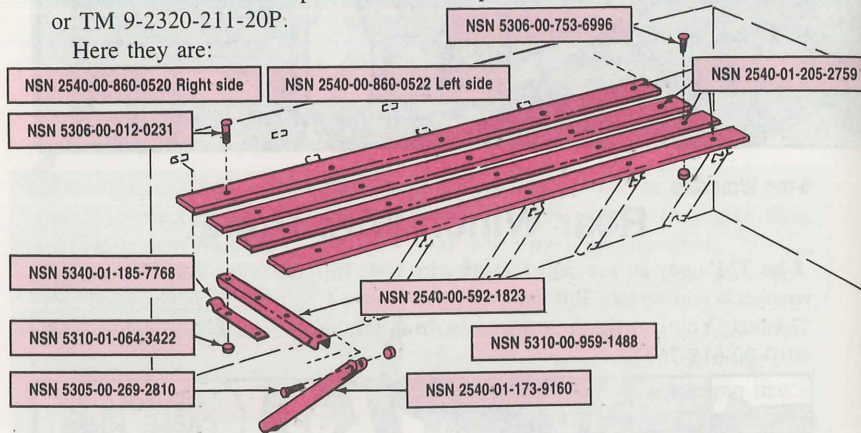
M939-series... **Dump Truck Troop Seat NSN's**



Replacement parts for the troop seats in your M929 or M929A1 dump trucks are not listed in TM 9-2320-272-20P (Sep 83).

The seat used on the M817 and M39-series dump trucks fits the M929's. Until TM 9-2320-272-20P is updated, order the parts listed in TM 9-2320-260-20P or TM 9-2320-211-20P.

Here they are:



M313 Expansive Van...

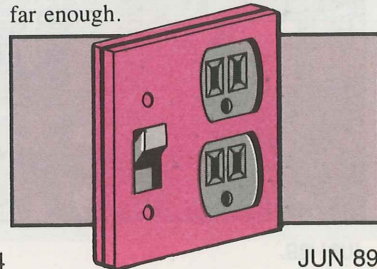
Will the Real Wall Plate Stand Up?

One of the two electrical wall plates listed in TM 9-2330-238-14&P is actually a spacer.

Both are shown as Item 67 in Fig C-1 of the TM. The plate is NSN 5975-00-403-9490, and the spacer is NSN 5975-00-491-0491. You'll need two spacers for each electrical box.

Spacers are handy when the switch

and plug don't stick out from the wall far enough.



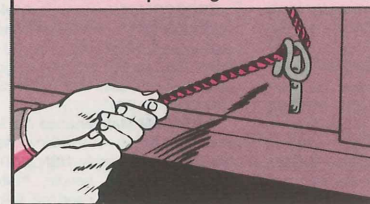
Canvas Covers...

KNOT-SO-HARD TIED DOWN

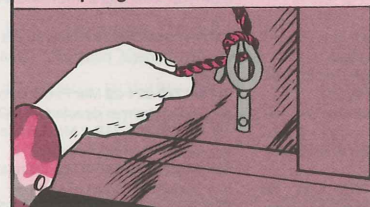


Don't get tied up in knots when you tie down a truck's canvas cover. Here's an easy, no-knot tiedown that keeps the canvas snug:

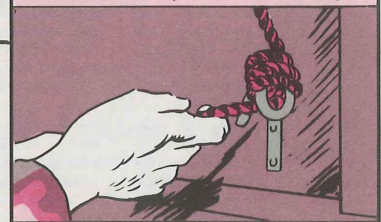
1. Pull the rope snug



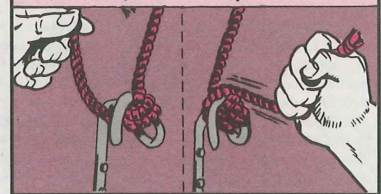
2. Take one wrap around. Pull tight enough to squeeze back of the loop together



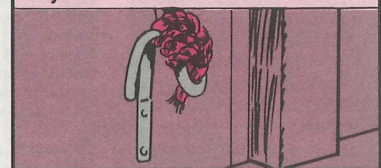
3. Take two wraps around the loop



4. Pull up through the wedge and yank to pinch the rope



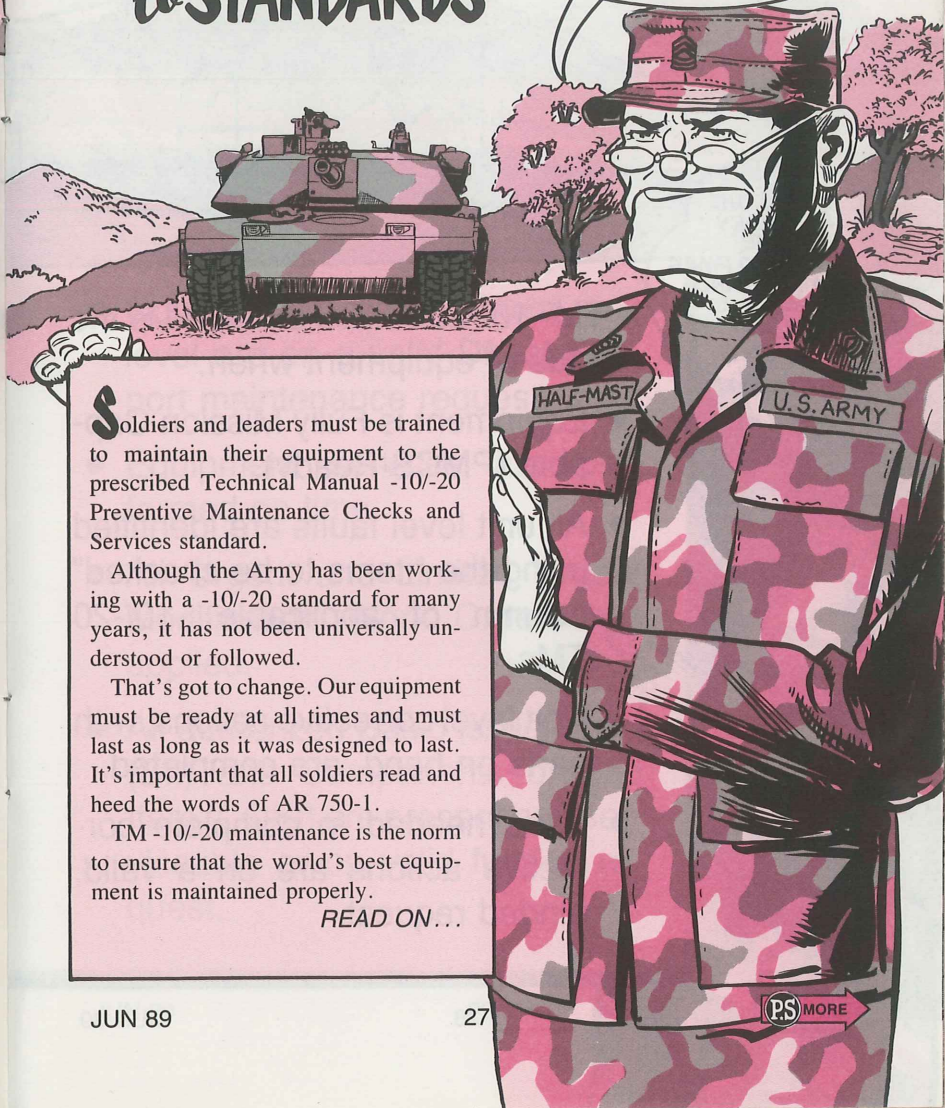
5. Tuck the end through the loop and you're finished





PERFORMING MAINTENANCE to STANDARDS

GOOD TRAINING
REQUIRES GOOD MAINTAINING.
GOOD MAINTAINING
REQUIRES GOOD
TRAINING.



Soldiers and leaders must be trained to maintain their equipment to the prescribed Technical Manual -10/-20 Preventive Maintenance Checks and Services standard.

Although the Army has been working with a -10/-20 standard for many years, it has not been universally understood or followed.

That's got to change. Our equipment must be ready at all times and must last as long as it was designed to last. It's important that all soldiers read and heed the words of AR 750-1.

TM -10/-20 maintenance is the norm to ensure that the world's best equipment is maintained properly.

READ ON...

Maintenance & Safety-Of-Use Messages

AMCCOM SOU-MSG-89-02—Operational, Inspect trigger assembly on M62 laser firing simulator system (Dragon Miles), AMSMC-MA 241330Z Mar 89.

CECOM SOU-MSG-89-03-01—Advisory, Operational, Reclassification of BA-5567/U Lithium-sulfur dioxide batteries made by Saft America, Inc. under contract numbers DAAB07-85-C-H332 and DAAB07-86-C-C029 AMSEL-SF-REE 031800Z Mar 89.

CECOM SOU-MSG-89-03-02—Mandatory, Operational, Fatal accident or serious injury can occur when personnel erects radio access unit (RAU) Ornni antenna, NSN 5980-01-253-6851, AMSEL-SF-SEP 091700Z Mar 89.

USACEA-VH SOU-MSG—Mandatory, Operational, Potential danger with AN/TRQ-32(V)1 and AN/TRQ-32(V)2 dipole array element falling, SELVH-SF 091600Z Mar 89.

TACOM SOU-MSG-89-12—Advisory, Operational, Second follow-up message on TACOM SOU-MSG 88-57 concerning brake air lines on M870A1 semitrailer, AMSTA-M 281700Z Feb 89.

TACOM SOU-MSG-89-9—Advisory, Technical/Maintenance, Potential failure of M109 SPH and M992 FAASV steering control linkage lock pins, AMSTA-M 031800Z Mar 89.

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 3-4240-300-10-2 Aug 88 M42 combat vehicle chemical-biological mask

TACOM SOU-MSG-89-14—Advisory, Technical/Maintenance, Brake safety on all hydraulic/air hydraulic brake systems on tactical wheeled vehicles, AMSTA-M 061300Z Mar 89.

TACOM SOU-MSG-89-7—Advisory, Operational, Inspection of cast latches on XM501E3 Hawk loader/transporter, AMSTA-MCB 091700Z Mar 89.

TACOM SOU-MSG-89-18—Advisory, Operational, Vehicle personnel heater safety on M992 FAASV, M109 SPH, M109A1 SPH, M109A2 SPH, and M109A3 SPH, AMSTA-M 152200Z Mar 89.

TACOM SOU-MSG-89-10—Advisory, Operational, Rear step assembly change on HMMWV M996 and M997, AMSTA-M 171200Z Mar 89.

TACOM SOU-MSG-89-23—Inspection of fire extinguisher manifold check valve, NSN 4820-00-903-3756 used on M1 vehicles or NSN 4820-01-179-1255 used on IPM1 and M1A1 series vehicles, AMSTA-M 171800Z Mar 89.

TACOM SOU-MSG-89-26—Advisory, Technical/Maintenance, Inspecting, replacing and adjusting parking brake assembly on M60A3, M60A1, M60A1 RISE, M60A1A05, M728, and M48A5, AMSTA-M 251500Z Mar 89.

TM 3-4240-300-20&P Jun 88 M40 chemical-biological mask

TM 3-4240-311-20&P Dec 88 M56 filter unit, gas particulate

TM 3-4240-316-20&P Dec 88 Cooling shroud and fan

TM 3-4240-333-20&P Aug 88 M84 filter unit

TM 5-3815-225-13&P Dec 88 Clamshell bucket ¾ yd general purpose Intergy model 34GP S

TROSCOM SOU-MSG-06-89—Inspection on hexagon nut on control rod, firefighting truck, 1000 GPM, Model 2500L, AMSTR-MES 091900Z Mar 89.

TROSCOM SOU-MSG-07-89—Alternate floor latch on shelter, portable, for aircraft maintenance (SPAM), AMSTR-MES 161800Z Mar 89.

TROSCOM Maintenance Advisory MSG 89-01—Modification to fire trucks incorporated (FTI), AMSTR-MES 021205Z Mar 89.

TROSCOM Maintenance Advisory MSG 89-12—Oil filter conversion kit for 6, 10, 14 and 20 HP Mil Std engines, AMSTR-MES 160800Z Mar 89.

TROSCOM Maintenance Advisory MSG 89-11—Alteration to the arming wire, NSN 4010-00-431-8490, used on M-1 and M-2 cargo parachute release, AMSTR-MES 072025Z Mar 89.

TROSCOM Maintenance Advisory MSG 89-14—Alteration to the leveling jack assembly, NSN 2590-01-246-9259 and handle, NSN 5120-01-044-8224, used on field kitchen, trailer mounted, AMSTR-MES 221925Z Mar 89.

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

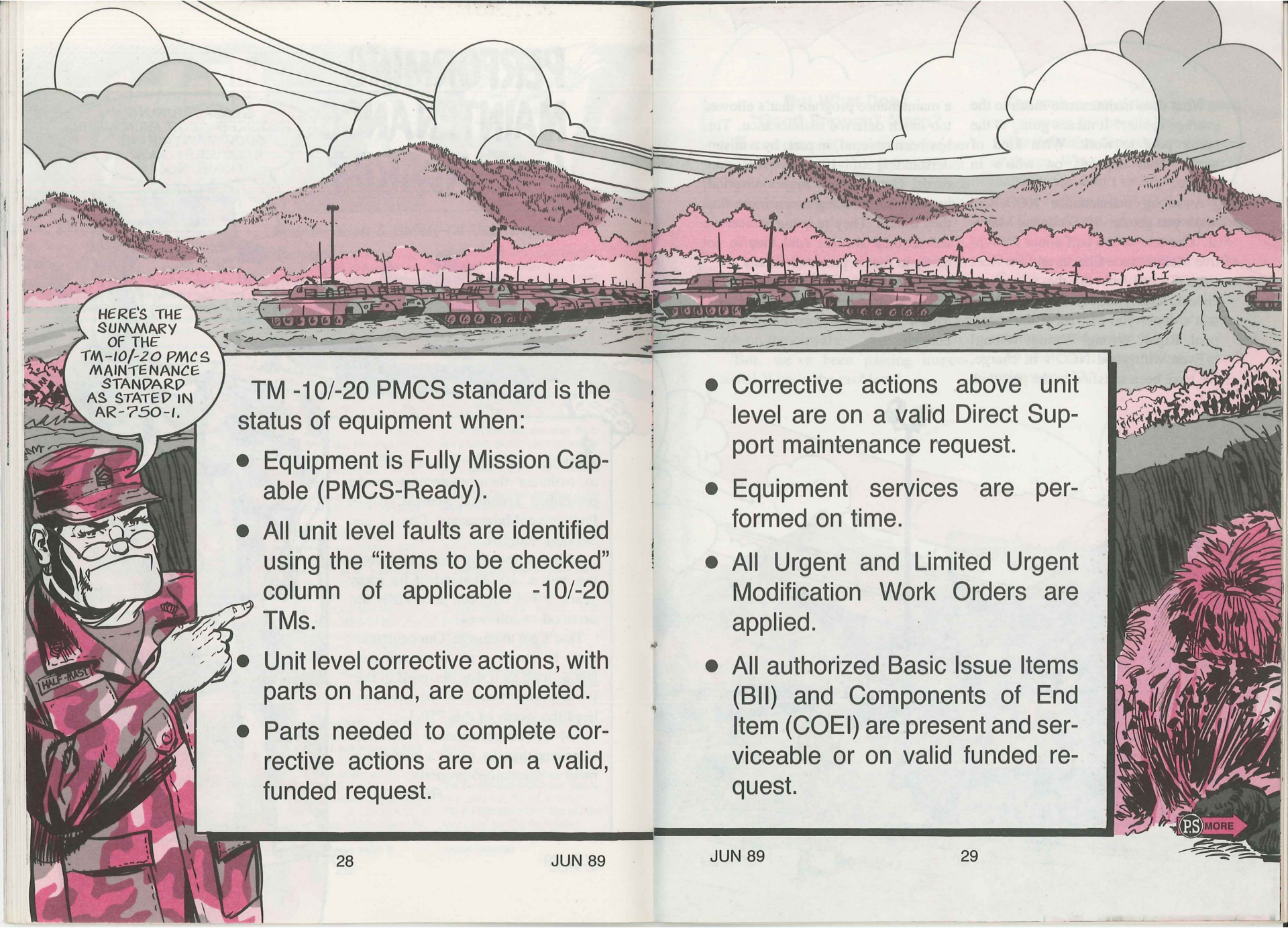
TM 9-1095-206-23&P Nov 88 Dispenser, general purpose aircraft: M130

TM 9-1270-221-23 Mar Fire control subsystem helmet directed: M142

TM 9-1425-600-24P-2 Mar Mandatory parts list (Patriot missile)

TM 9-1425-600-24P-3 Mar Mandatory parts list (Patriot missile)

TM 9-1425-646-BD Dec MLRS rocket launcher



HERE'S THE
SUMMARY
OF THE
TM-10/-20 PMCS
MAINTENANCE
STANDARD
AS STATED IN
AR-750-1.

TM -10/-20 PMCS standard is the status of equipment when:

- Equipment is Fully Mission Capable (PMCS-Ready).
- All unit level faults are identified using the "items to be checked" column of applicable -10/-20 TMs.
- Unit level corrective actions, with parts on hand, are completed.
- Parts needed to complete corrective actions are on a valid, funded request.

- Corrective actions above unit level are on a valid Direct Support maintenance request.
- Equipment services are performed on time.
- All Urgent and Limited Urgent Modification Work Orders are applied.
- All authorized Basic Issue Items (BII) and Components of End Item (COEI) are present and serviceable or on valid funded request.

What does maintenance mean to the average soldier? It means going to the motor pool to work. What kind of work? That depends on who's in charge.

A strong maintenance NCO will make you get the -10 Technical Manual. You turn to the part about Preventive Maintenance Checks and Services (PMCS) and you do the things the checklist table tells you to do. After that's done, you can leave the motor pool. Right? Wrong! Wrong! Wrong!

Even with good NCO's in charge, we have been satisfied in the past with

a maintenance program that's allowed too much deferred maintenance. This has been covered, in part, by a misunderstanding of -10/-20 PMCS standards. Our weapons may look good, but they're breaking down more than they should. They're going to wear out before they should. And they're not ready to face a potential enemy.

That's the reason why we've got to maintain to the -10/-20 standards. That's the only standard that's good enough.

But What Does "Good Enough" Mean?

Every piece of equipment in your motor pool is a little bit different. Tanks may look the same, but each has little peculiarities that makes it different.

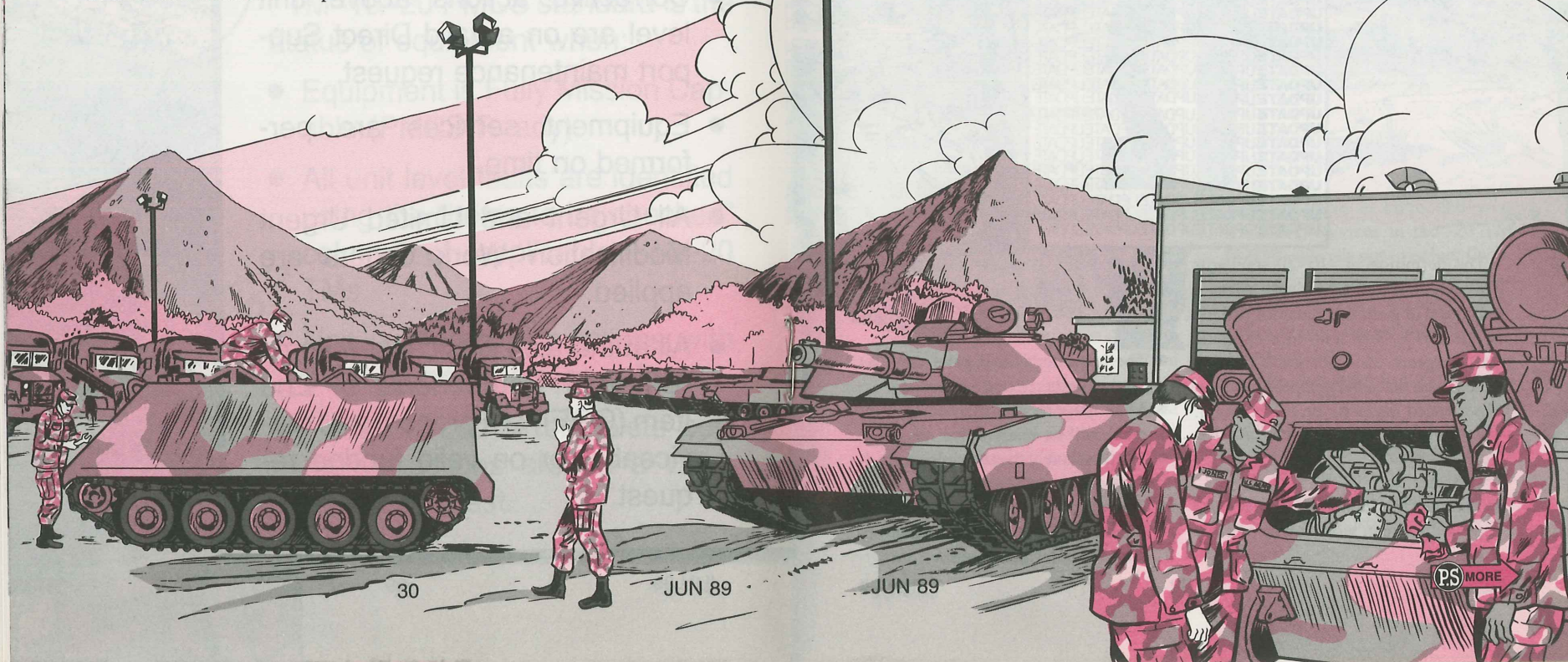
That's why each tank, each truck, each artillery piece needs a special pair of eyes looking at it. These special eyes have got to be trained to see what's below the surface, not just the paint job on the outside.

But, we've been passing inspections! What's the problem?

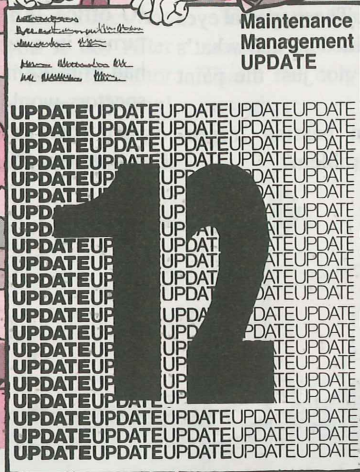
The truth is our definition of good maintenance has been a little fuzzy.

The definition depended on who was in charge. What you thought was good maintenance didn't satisfy your maintenance tech in the BMO shop. What he thought was good maintenance didn't satisfy the instructor from the MAIT team or the inspector from the IG office. And what about when you turned in a vehicle? You practically had to make it like new before the inspectors would accept it.

So where does it stop? What is "good maintenance"?



YOU'LL FIND THE TM-10/-20 PMCS STANDARD IN AR 750-1.

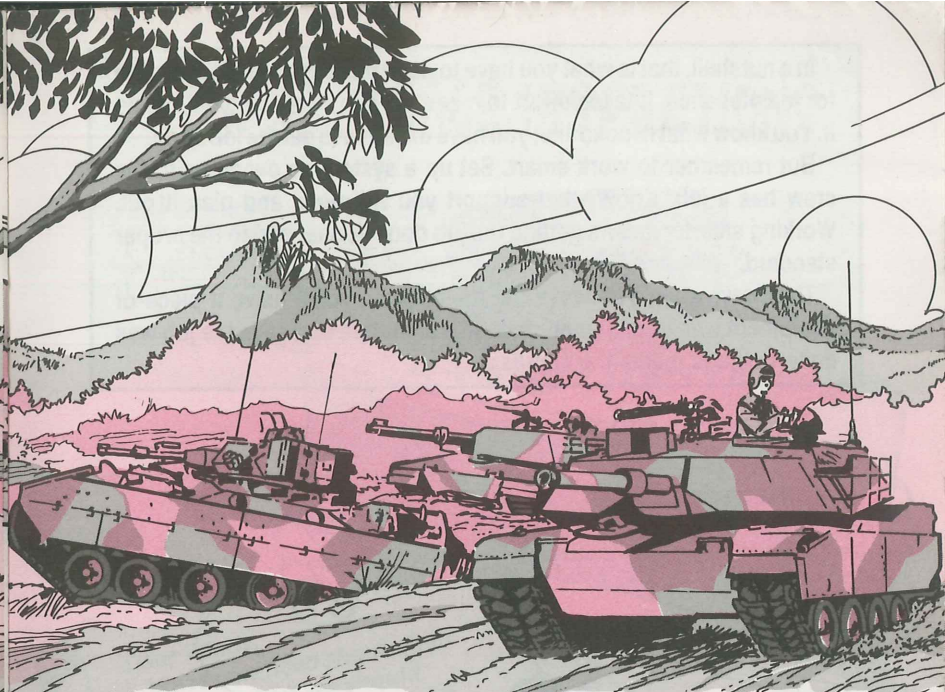


The definition of -10/-20 standards has been pinned down. It's the Army's definition of good maintenance and it's in AR 750-1. Now a no-time-in-grade staff sergeant can spot good maintenance from the same perspective as the experienced inspector on the IG team. They both can agree on how good is "good enough".

This means:

- The staff sergeant knows what's expected and can work toward a clear goal.

- The inspector is using the same set of standards.
- Most importantly that our equipment will be ready when needed.
- We can protect the technological advantage our weapons have.
- Our tanks and trucks will be running smoothly 15 years from now the way they were designed to do.



What is Expected?

Make sure:

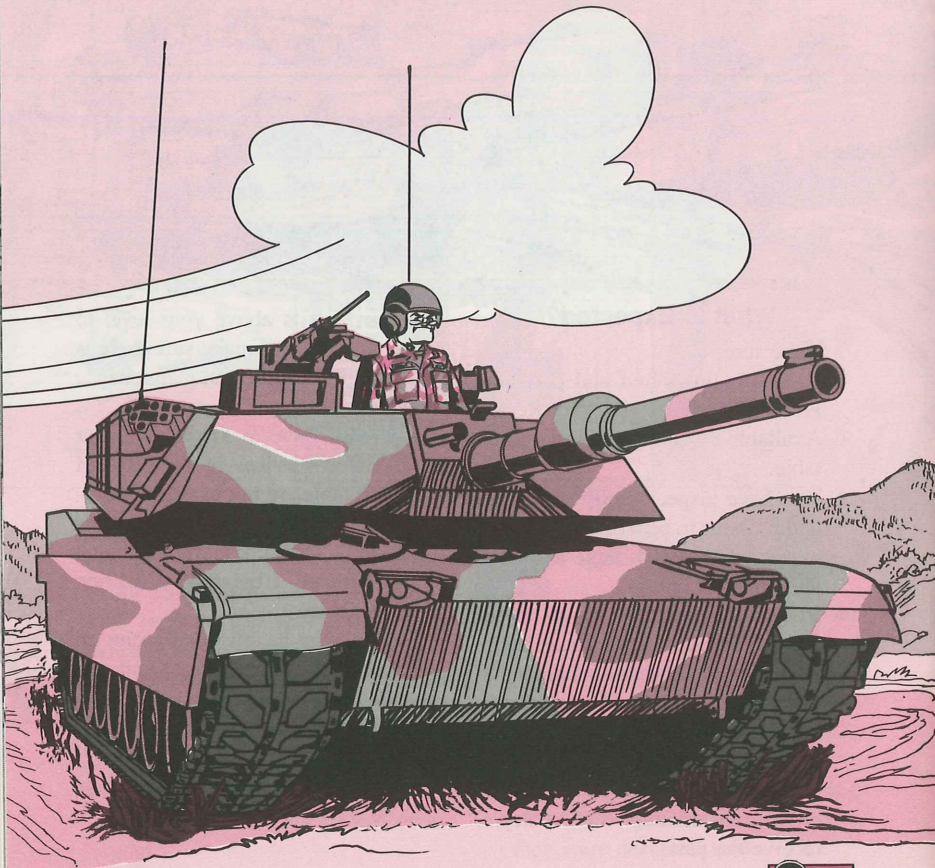
- You have inspected and corrected all items found in the "Not Ready/Available if" column of your PMCS table.
- You have inspected all other items in the "items to be checked" column of your TM PMCS table and have identified all faults.
- You have fixed those faults where you had the necessary parts on hand.
- You have ordered needed parts that were not on hand and your supply request is alive and well in the Army supply system. This means someone has to follow up to make sure the requisition remains valid until you receive the part.

- If the fault is above your level to fix, you have to make sure there is a valid Direct Support maintenance request.
- You also have to know that your scheduled services in the -20 TM PMCS table are not overdue. Overdue services make the vehicle below standard. The same is true of Urgent and Limited Urgent Modification Work Orders.
- Finally, you have to make sure all BII and COEI are present and serviceable. You can find a list of these things complete with pictures in the back of your -10 TM. If you don't have these items on hand, they have to be on a valid supply request.

In a nutshell, that is what you have to do to meet the Army's standard for maintenance. It takes effort to meet this standard, but you can do it. You know what it looks like; you have the tools to get the job done.

But remember to work smart. Set up a system so everyone in the crew has a job. Know what support you will need and plan it out. Working smarter means getting the job done sooner and to the proper standard.

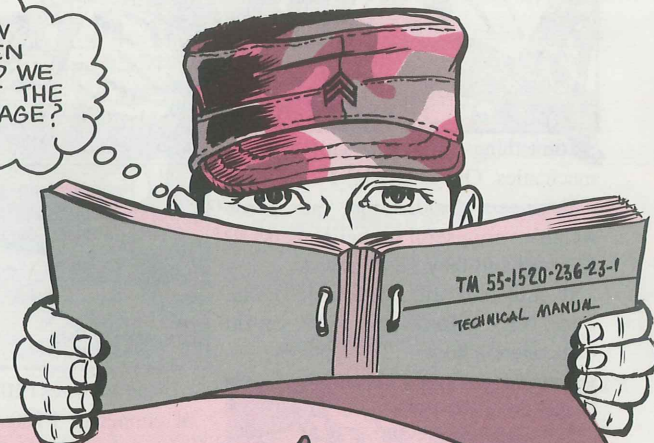
That way, when you leave the motor pool, you'll leave a piece of equipment with your signature on it, a signature that says the job was done well and meets the standard.



AH-1...

FAT GAGE INSPECTIONS

HOW OFTEN SHOULD WE INSPECT THE FAT GAGE?



Dear Windy,
We're confused about when and how often we should inspect our Cobra's Free Air Temperature (FAT) gage. The inspection was deleted from TM 55-1520-236-23-1 by Change 41 and from the Phase book by Change 15. So when do we pull the inspection?
SFC G.A.



Free Air Temperature gage

Dear Sergeant G.A.,
AVSCOM engineers have decided to standardize the inspection interval for all FAT gages. From now on, inspect your bird's gage every 12 months or during the nearest Phase inspection to the 12-month interval, whichever comes first. That goes for all Army aircraft. If the guidance in your bird's maintenance manual says otherwise, make a note until it's updated.

Windy

Remove Useless Gyro



Some things you can do without Huey mechanics. One is an MC-1 rate gyro.

Engineers decided that rate gyros weren't very useful on helicopters, so they ordered they be removed.

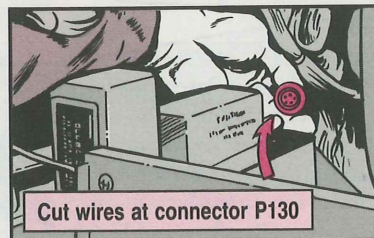
If your bird still has an MC-1 rate gyro, NSN 6615-00-768-5019, get rid of it. Here's how:

Get rid of MC-1 rate gyro



Turn off all electrical power on your bird.

Cut wires F110A22 and F100B22 at connector P130. Cap them with end caps, NSN 5999-00-661-0416. Tie them into the existing wire bundle using tie straps, NSN 5975-00-156-3253.



Cut wires at connector P130

Also cut wires F102E22 and F102F22 at connector P130 and connect them with splice, NSN 5940-01-079-1647. Tie them into the wire bundle also.

Tie wires...



...into wire bundle

Remove the rate gyro's four mounting screws, the connector and the wiring. Trash the connector and turn the gyro into supply.

Perform functional checks on the pilot's and co-pilot's attitude indicators like it says in Para 8-196 of TM 55-1520-210-23-2.

Work Aid for Driveshaft Adapter

Dear Editor,

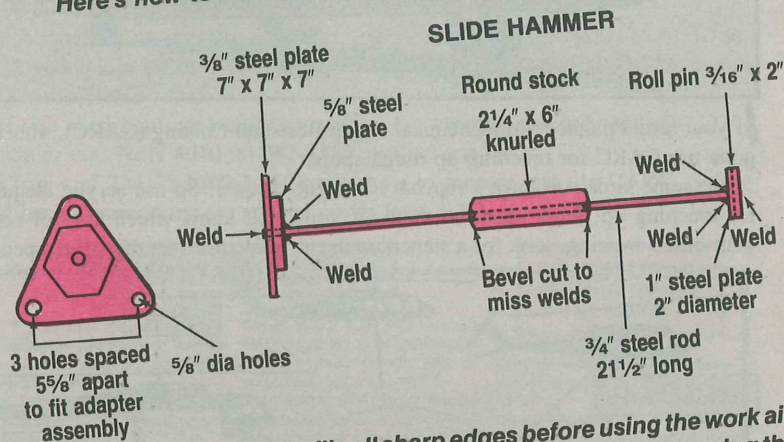
Grease and dirt cause our Chinook's forward transmission adapter assembly to lock up. So we remove it and pull a special inspection every 200 hours to check for corrosion.

The problem is that it's heavy and hard to remove. I've seen some mechanics pound the assembly out with a hammer. But when you do that, you can hit and damage the cooling fan. Then your bird's down for repairs.

So I got our machine shop to make us an adapter puller that simplifies the whole operation.

The only materials you need are 2 steel plates, a steel rod, a roll pin and round steel stock.

Here's how to make the work aid:



Be sure to sand or file all sharp edges before using the work aid. To use the work aid, bolt it onto the adapter assembly using the driveshaft bolts or the coupling bolts. Then use the slide hammer to pound the adapter assembly loose. It's a whole lot easier than the way we used to do it.

CW4 Alex Broman
Ft Lewis, WA

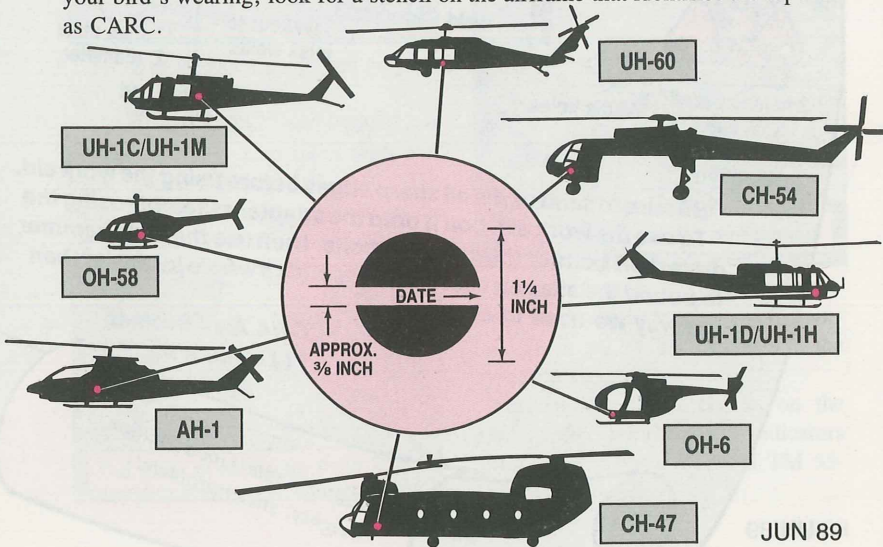
(Editor's note: Good solution to a weighty, sticky problem!)

WISE UP WHEN



If your bird's painted with Chemical Agent Resistant Coating (CARC), you've gotta use CARC for touching up rough spots.

But some birds still have a topcoat of acrylic lacquer. So use acrylic lacquer for touching up rough spots on them. If you don't know which kind of coat your bird's wearing, look for a stencil on the airframe that identifies the topcoat as CARC.



YOU TOUCH UP

The AH-64 Apache is not stenciled because ALL Apaches are painted with CARC.

If you can't find the stencil and your aircraft's not an Apache, don't assume your bird's painted with acrylic lacquer.

To make sure, moisten a cloth with MEK and rub it over a small area of your bird. CARC won't rub off.

NSN 8010-01-141-2420 gets a 1/4-qt kit of aircraft green CARC paint. It has to be mixed, but you can get a 1-qt can of pre-mixed CARC topcoat with NSN 8010-01-246-0717.

For touching up your bird's interior, use epoxy coating. NSN 8010-00-756-2411 gets a 2-pt kit of CARC in olive drab and NSN 8010-01-030-7254 gets a 2-qt kit in black.

If you need a primer before you put on the topcoat, use only MIL-P-23377, inside or out. NSN 8010-00-082-2450 gets a 2-gal kit.

Chap 4 of TM 55-1500-345-23 tells how to prepare and use CARC. Safety and health precautions are spelled out in Para 3-2.



Aviation Messages

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

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

UH-1-89-02, SOF, Technical, Inspection of main rotor hub assemblies, 012200Z Feb 89.

AH-1-89-02, SOF, Technical, Inspection of tail rotor hub assemblies and yoke assemblies for staking of yoke trunnion bearings, 022300Z Feb 89.

CH-47-89-04, SOF, Maint Mandatory, CH-47D, Inspection of fwd and aft rotary wing head, 082300Z Feb 89.

UH-60-89-01, SOF, Maint Mandatory, Inspection of T700-GE-700 engine gas generator stator shrouds, 092010Z Feb 89.

UH-60-89-02, SOF, Maint Mandatory, Correction of SOF UH-60-89-01, 101947Z Feb 89.

OH-58-89-01, SOF, Maint Mandatory, Inspection of AN320-6 (NSN 5310-00-176-8110) nuts until replacement, 162224Z Feb 89.

AH-1-89-03, SOF, Maint Mandatory, Inspection of AN320-6 (NSN 5310-00-176-8110) nuts until replacement, 162307Z Feb 89.

C-12-89-01, SOF, Operational, Operating restrictions while using JP-8/JP-5 fuel, 212300Z Feb 89.

U-21-89-01, SOF, Operational, Operating restrictions while using JP-8/JP-5 fuel, 212300Z Feb 89.

AH-64-89-03, SOF, Maint Mandatory, Fuel/oil/hydraulic lines and electrical cable chafing inspection, 282300Z Feb 89.

GEN-MIM-89-02, Update to activity concerning replacement of P/N AN320-5 (NSN 5310-00-176-8109) and P/N AN320-6 (NSN 5310-00-176-8110) nuts, 082112Z Feb 89.

CH-47-MIM-89-02, CH-47D, Weekly information update, 102000Z Feb 89.

CH-47-MIM-89-03, CH-47D, Weekly information update, 171400Z Feb 89.

GEN-MIM-89-03, Advance notice of upcoming change to TM 55-1500-345-23, 221515Z Feb 89.

CH-47-MIM-89-04, CH-47D, Weekly information update, 241700Z Feb 89.

AH-1-MIM-89-03, Advance notice of manual change resulting from installation of MWO for steel root fitting and redesigned drag strut assembly, 272200Z Feb 89.

AH-64-MIM-89-03, Advance notice of upcoming TM 55-1520-238-23 manual change, 201000Z Feb 89.

Use Lock



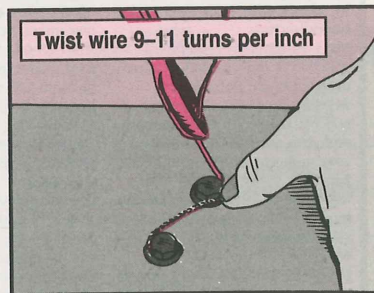
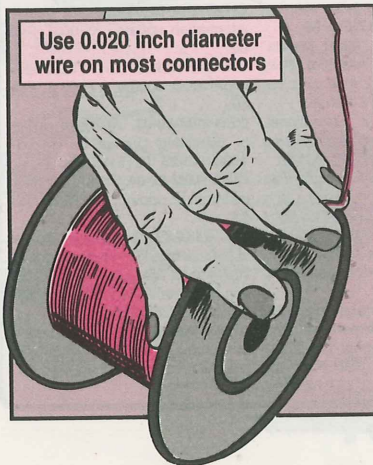
Aircraft maintenance manuals call for many electrical connectors to be lock-wired. But they don't usually specify what size wire to use.

Use only .020 inch diameter corrosion resistant, steel lock wire, NSN 9505-00-596-5101, unless your TM

says to use something else. Get a 5-lb roll and keep it handy in your tool box.

Here are some other **DOs** and **DON'Ts** for lock-wiring electrical connectors:

DO twist wire about 9 to 11 turns per inch by hand or wire twister plier.

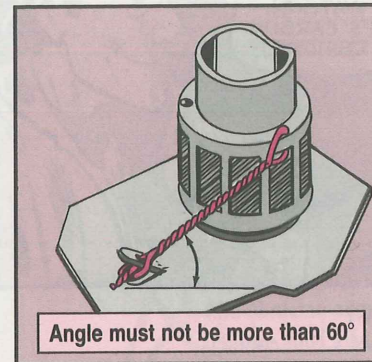


DO twist wire clockwise so it will have a tightening effect.

DO replace wire if it gets kinked or nicked during twisting.

WIRED Right

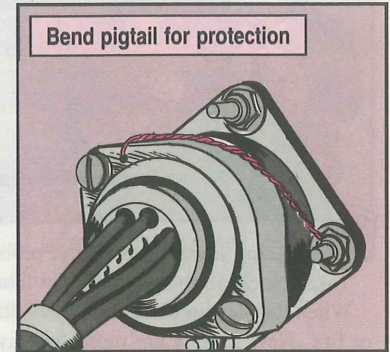
DON'T anchor wire to a screw or other object that creates an angle more than 60 degrees.



DON'T back off mounting head screws to align holes for lock wiring. Instead, if the holes don't align, tighten the screw head to the next hole that does align properly.

DO form a pigtail of 4 to 8 twists with pliers.

DO bend the pigtail back toward the body of the connector as a safety precaution.



DON'T ever lock-wire electrical connectors to fuel, oil, hydraulic or oxygen lines.

Flight Suit Nameplates

Need a nameplate for your Nomex flight suit? Here's how to get them:

If you're stationed OCONUS, order on a DD Form 1348-6 from

**Commander
Defense Personnel Support
Center**

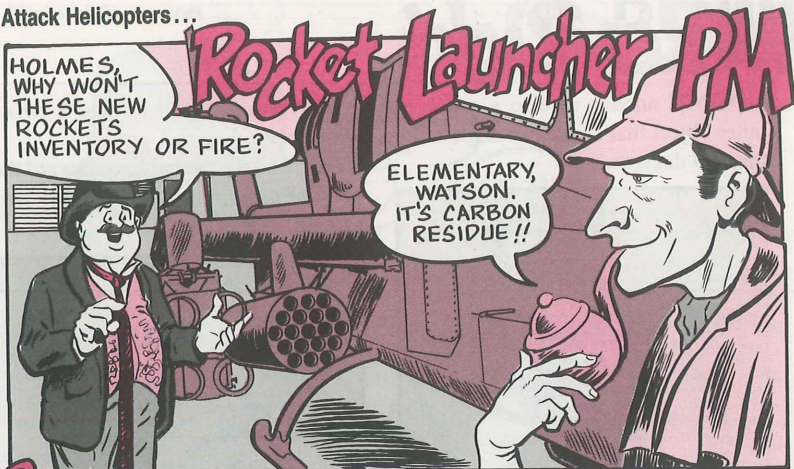
**ATTN: DPSC-FODR
2800 South 20th Street
Philadelphia, PA 19145-8419.**

The RIC is S9T. Be sure to write in the REMARKS block a complete description of the item and include your

name. The minimum quantity you can order with the same name is four. CTA 50-900 is the authority.

If you're stationed within CONUS, support local purchases your nameplates.





Been having mysterious rocket problems?

Take a look at your lightweight launcher's side contacts.

When they accumulate carbon residue, the new MK66 rockets won't inventory or fire. New rockets are more sensitive to carbon residue than older rockets.

So you have to clean the side contacts better and more often, like after every firing.

To clean the contacts, lower the igniter arms. Apply a little CLP to the bristles of a small wire brush, NSN 7920-00-900-3577, and gently scrub the contacts on all sides. A 20-MM bore brush or toothbrush will also do the job.



Be sure to clean the igniter heads, launch tubes and external surfaces, too, like it says in Para 3-11 of TM 9-1055-460-13&P.



CARGO NET REPAIR



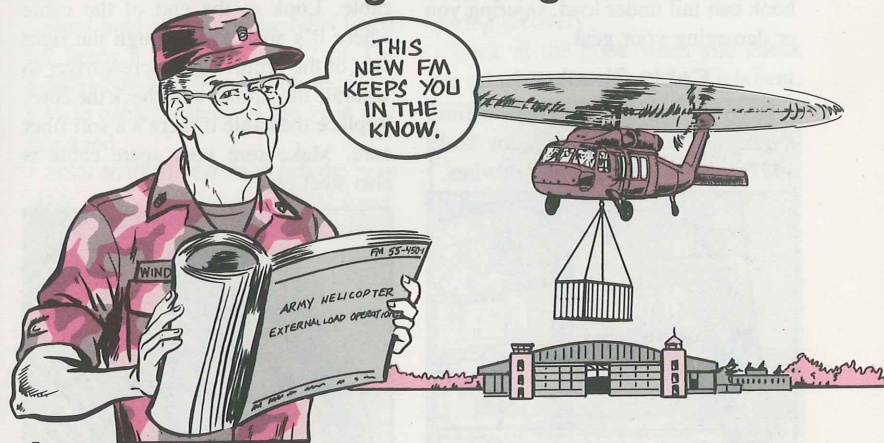
If you've got a 5,000- or 10,000-pound cargo net with a bum apex fitting, replace the fitting with NSN 1670-01-070-5276. If one of the hooks on the lifting legs is damaged, replace the hook with NSN 1670-01-067-9989.

Here are the NSN's for repair cord and anti-abrasion compound:

- 5,000-LB CARGO NET**
- Repair cord, NSN 4020-01-118-5826
- Anti-abrasion compound, NSN 8030-01-152-2286
- 10,000-LB CARGO NET**
- Repair cord, NSN 4020-01-119-5994
- Anti-abrasion compound, NSN 8030-01-154-2327

Chap 8 of FM 55-450-1 has all the info on how to repair cargo nets.

New Sling-Loading FM



Latch onto a copy of FM 55-450-1 (Oct 88), Army Helicopter External Load Operations. It tells how to inspect and repair your sling-loading equipment. It also has instructions for slinging more than 150 different loads.

Winch Cable

Change

CHECK YOUR CABLE OFTEN TO PREVENT THIS!

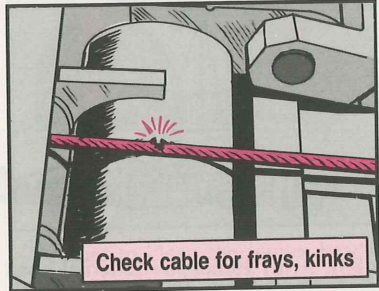


When the winch cable or hook is shot, your ribbon bridge transporter can't launch or recover a bridge bay or boat.

And a worn or damaged cable or hook can fail under load, injuring you or damaging your gear.

Cable Checkout

Keep an eye on your cable before, during and after operation for kinks and frayed, damaged or broken wires.

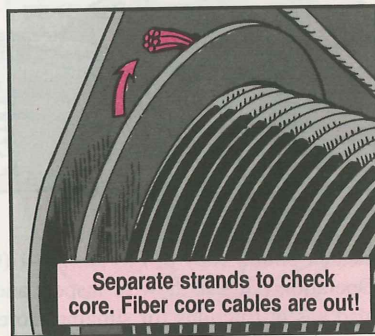


Check cable for frays, kinks

The cable is made of 6 strands of 19 wires each. Replace the cable if it's

kinked or if 12 or more wires are broken in the distance that it takes one strand to make a complete turn around the cable.

Check that you have a steel core cable. Look at the end of the cable where it's anchored through the right side of the drum. Use a screwdriver to separate the strands and check the core. Replace the cable if there's a soft fiber core. Make sure your spare cable is also steel core.



Separate strands to check core. Fiber core cables are out!

Pay out the cable and measure it to be sure you have a full 100 feet of cable, too. Shorter cables may leave you short when you need to recover a bay.

Hold one! Don't use the NSN listed for Items 8 and 9 of Fig 12 of TM 5-5420-209-20P. The NSN listed is for a 5/8-in cable, instead of the 1/2-in one you need.

NSN 4010-01-064-2623 gets the 1/2-in cable. If you put this on a M945 transporter, disconnect the cable tensioner.

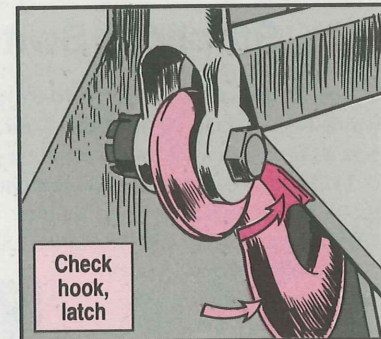
You must use 1/2-in 6 x 19 extra improved plow steel, uncoated, wire strand core or independent wire rope core, right regular lay wire cable on M945's. Use the cable tensioner with this cable. There's no NSN, so order using PN 1/2-6X19-RRL-XIP-IWRC, CAGE 80967. TROSCOM Msg AMSTR-MES 181926Z May 88 OK's local purchase of the cable.



Hoist Hook Hangups

Some winch cable hoist hooks have been twisted or bent while recovering bridge bays. That happens when a side force hits the hook when it binds up during recovery.

Look at the hook when you check the cable. Replace the hook if it is bent,



Check hook, latch

twisted, cracked or if the throat opening has increased. Fix or replace the latch if it is not working or broken.

Lube Clamshell Buckets



Tie a string around your finger. Write a note to yourself. Do anything to remind yourself to lube the clamshell bucket pivot pins every day. If you don't, you'll end up with broken pins.



The pins may not break today, or even this week. But if you neglect them, the pins will seize up. Then they break and your loader's down until the pins can be replaced.

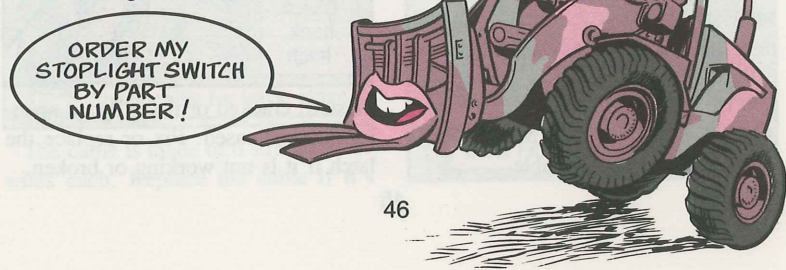
Pump grease in the pin's fittings until clean grease comes out around the pin.

If the fitting won't take grease, take it out and use a little wire to clean out the fitting. If you can't clean a clogged fitting, get it replaced with a new one, NSN 4730-00-050-4208.

RT Forklift...

Stoplight Switch NSN Wrong

Page 10 of Chapter VII in TM 10-3930-643-14&P for the M10A forklift has the wrong NSN—5930-00-358-7684—for Item 21 on Pages 8-4 and 8-8. This NSN gets an ignition switch, not a stoplight switch. The part number—1125166C1—is right tho. So line out the NSN and order the stoplight switch by part number on DD Form 1348-6 using CAGE 29510 and RIC S9C.



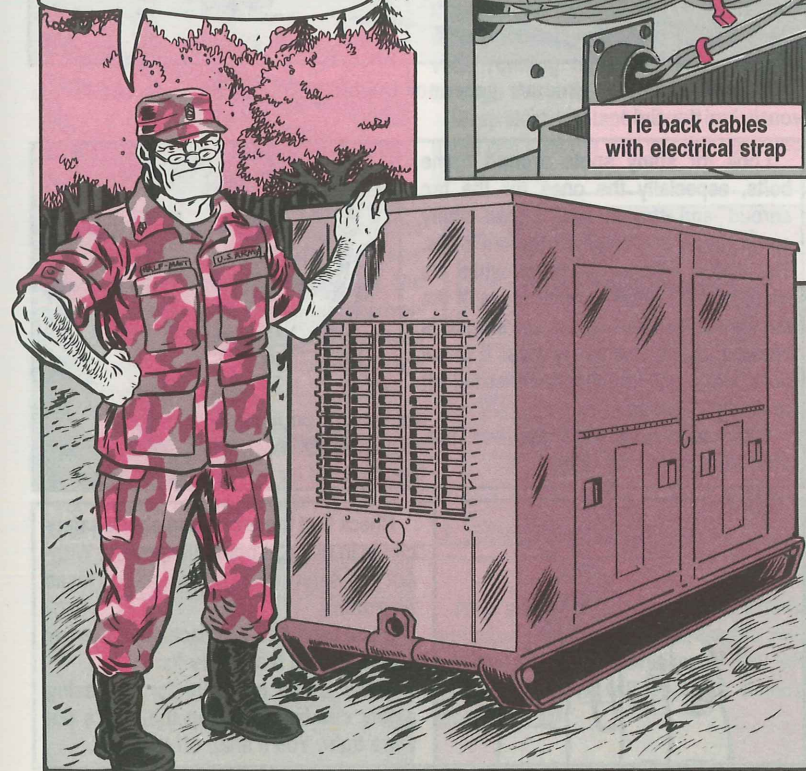
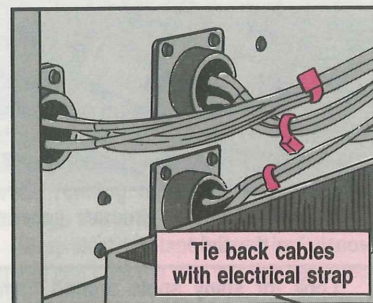
Cable Caper

Dangling wires are more than a nuisance—they're dangerous. This is especially true on the 15-KW generator's lower paralleling receptacle, behind the panel.

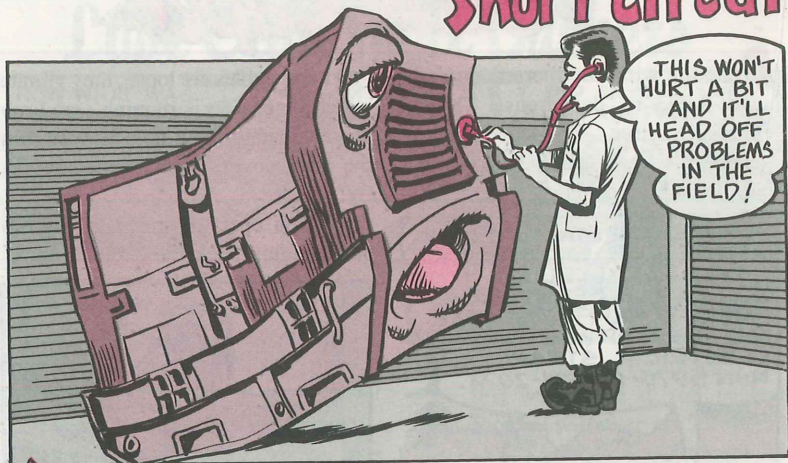
If those cables are loose, they vibrate when the engine is running—and rub against metal until a hole is worn thru the outer cover. Then Zappo! Sparks fly!

But you operators can take the rub out by tying back the cables.

BEFORE YOU START UP, LOOK AT THE FOUR PARALLELING WIRES TO THE LOWER PARALLELING RECEPTACLE, BEHIND THE PANEL. IF YOU FIND A LOOSE ONE, TIE IT UP WITH ELECTRICAL STRAP NSN 5975-00-074-2072.



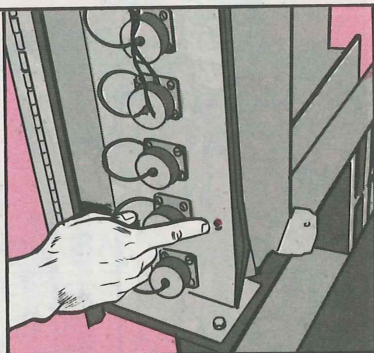
Short Circuit



Stop problems that generate generator trouble by doing these checks before you go to the field:

Look for shiny spots around frame bolts, especially the ones for the fan shroud and the panels. Those shiny spots mean you need to tighten bolts. The 60-KW vibrates so much while it's running that it shakes bolts loose. If the fan shroud bolts come out, the shroud is chewed up by the fan blades. If panel bolts work out, the panels either fall off or can't be closed.

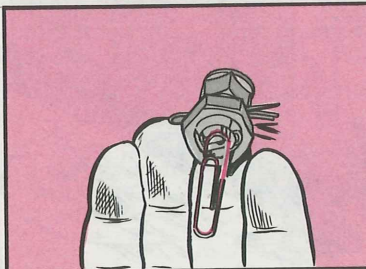
Make sure bolts have washers, too. They help bolts stay tight.



Check that the grounding stud's safety clip is in place. It often disappears. Without the safety clip, the generator loses its ground.

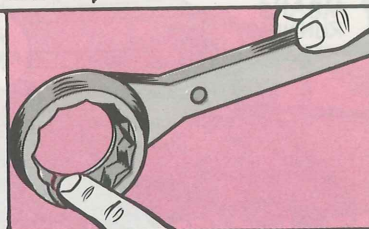
If you can't find a replacement, a paper clip is a good temporary fix.

Never try to make up for a missing safety clip by tightening the stud's nut extra tight. You'll snap off the stud.



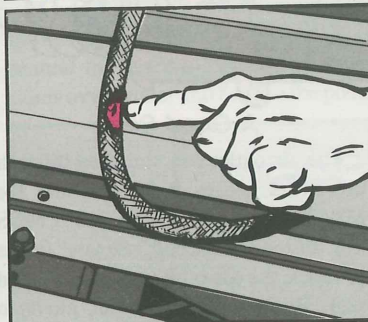
Generator Problems

Eyeball the lug wrench used on the load terminals for cracks. The fiberglass wrench cracks easily and the cracks get worse fast. If you can't use the wrench, you can't hook up cables to the generator and the generator's useless. If you spot any cracks, get a new wrench, NSN 5120-00-808-5006.



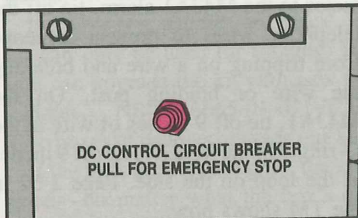
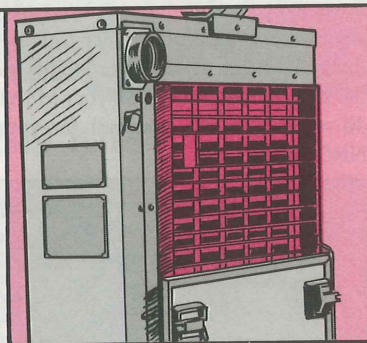
Look over cables and wires for bare spots and cracks. Spots and cracks can cause everything from grounded-out starters to burned-out batteries to electrocution. Check especially the wires across the top of the fuel tank. The 416 volts running through them can burn through the tank.

Wrap electrical tape around bad places if you can't get the wire or cable replaced immediately.



Crank up the generator and make sure the shutters open when the generator reaches operating temperature. If the shutters don't open, the generator overheats and shuts down. That damages equipment like radar that the generator's powering.

If the shutters are sticking, move them up and down and blow away dirt with an air hose. If that doesn't do the trick, tell your mech. You've probably got a bum thermostat.



After you remove the generator's load, and after you shut down the engine, pull out the DC circuit breaker. If it's left pushed in, there will be some battery drain.

DIFFERENCE MAKES

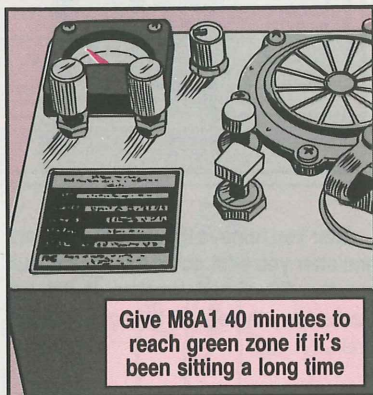


WHY ARE YOU M8A1'S RUNNING?

WE WERE SITTING TOO LONG IN THE NBC ROOM...

Sometimes you need to do things slightly different if your M8A1's to do its job. Sometimes you just need to pay attention to SOP.

For instance, if your M8A1 alarm's been sitting in the NBC room for more than a month, it may need to run longer than the 15 minutes maximum—like Page 2-21 in TM 3-6665-312-12&P says—for the detector meter to reach the green band. It may take longer for the pump to stabilize. Run your M8A1 40 minutes before you call for your NBC NCO.



Give M8A1 40 minutes to reach green zone if it's been sitting a long time

A Good Seal

The air outlet cap stretches through use. That causes it to leak and the M8A1 fails the FLOWMETER PMCS test. Instead of the cap, use your finger to block the air outlet and get a good seal. Be sure to wear your glove to protect against radiation.



Use finger for better seal

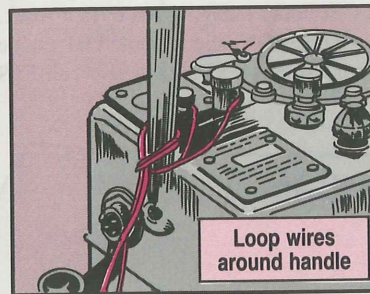
Tie Off Trouble

When you connect the M43A1 detector to the M42A1 alarm, tie off the telephone wires to prevent someone from tripping on a wire and breaking the wire or binding post. On the M43A1, tie off 9 inches of wire at the D-ring. On the M42A1, tie off 9 inches at the loop on the side. Page 2-52 in the TM shows how.

A DIFFERENCE



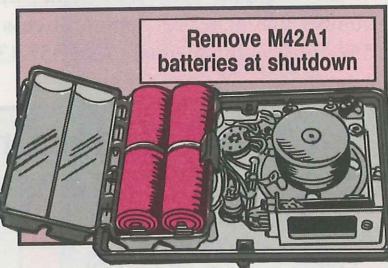
If a D-ring or loop is missing, loop the wire through the D-ring bracket or around the detector handle. Cross the wires over, under and back to the posts.



Loop wires around handle

Remove Batteries

When you're through training, take out the M42A1 batteries. If they're left in, the batteries swell and burst and damage the alarm.



Remove M42A1 batteries at shutdown

Save M229 Kits

The M229 refill kits, NSN 6665-00-859-2214, are in short supply because the M8 is being replaced by the M8A1. If you turn in kits because of expired test paddles, you may not get replacements.

If a kit's test paddles are black, the kit can only be used for training. But you can upgrade the kit with new test paddles, NSN 6665-01-071-0716. Two boxes of paddles upgrade one kit.

If the kit's paddles are gray, the kit's good—no matter what the box's discard date says.



Paddle gray, ok!
Paddle black,
order new paddles

AUTOVON for GSA Hotline



The General Services Administration (GSA) now has an AUTOVON number for its hotline for complaints or suggestions about the quality of Federal Supply Service items. Call AUTOVON 286-2486 on items such as tools, paper products and industrial products. The hotline works 24 hours a day, seven days a week. When you call, give your name, unit, AUTOVON and commercial phone number, the item you want to discuss and the problem. You can also call FTS 557-1368 or commercial (703) 557-1368.

Twist Drill Cases

Dear Half-Mast,
I lost the case for the twist drill set, NSN 5133-00-293-0983, that's in the No. 1 Common shop set. Now I have 29 drills from 1/16 inch to 1/2 inch to keep track of. Is there an NSN for the case?
SGT R.E.W.

Dear Sergeant R.E.W.,
There sure is. Use twist drill case, NSN 5140-00-277-8835, to hold those drills. Other cases available and the drill sets they hold are:

Case NSN 5140-00-	Drills accommodated	Twist drill set NSN 5133-00-
277-8836	Wire-gage drills 1 through 60	449-6775
293-1236	Tapered shank 33/64 through 1 inch by 64ths	596-8088

Half-Mast

MAKE A COPY OF THIS!

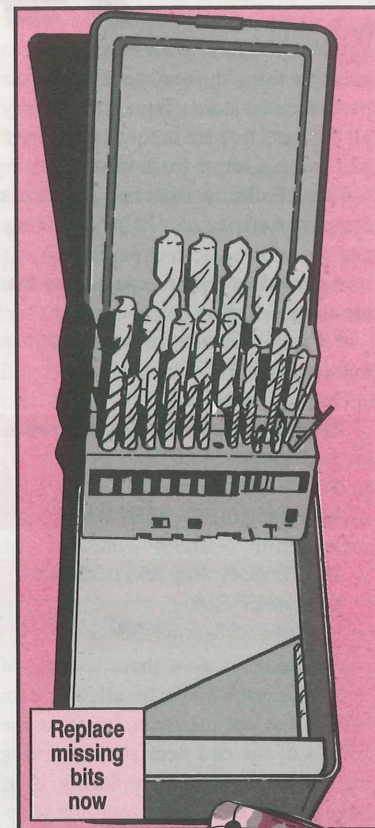
Tool Sets...

DRILL BIT NSN'S

It's frustrating when you reach for a drill bit, only to find the size you need is missing or broken.

Here's what makes up twist drill set, NSN 5133-00-293-0983, found in the No. 1 and No. 2 Common shop sets.

NSN 5133-00-	Size (inches)	Unit of issue
227-9646	1/16	dozen
227-9647	5/64	dozen
227-9648	3/32	dozen
227-9649	7/64	dozen
227-9650	1/8	dozen
227-9651	9/64	dozen
227-9652	5/32	dozen
227-9653	11/64	dozen
227-9654	3/16	dozen
243-9612	13/64	dozen
227-9656	7/32	dozen
243-9611	15/64	dozen
227-9658	1/4	dozen
227-9659	17/64	dozen
227-9660	9/32	dozen
240-8443	19/64	dozen
227-9662	5/16	dozen
243-9613	21/64	dozen
227-9664	11/32	dozen
227-9665	23/64	dozen
227-9666	3/8	dozen
227-9667	25/64	Pack of 6
227-9668	13/32	Pack of 6
227-9669	27/64	Pack of 6
227-9670	7/16	Pack of 6
227-9671	29/64	Pack of 6
227-9673	15/32	Pack of 6
227-9674	31/64	Pack of 6
227-9672	1/2	Pack of 6



REPAIR PARTS, END ITEM MATCH-UP

When you turn in an end item, you need to turn in your stock of repair parts for that item. Trying to identify all the parts that are unique to that item can cause a lot of frustration.

The US Army Materiel Readiness Support Activity can help you. They can:

- ✓ Provide a list of repair parts that are unique to that item.
- ✓ Cross-reference a repair part to an end item(s).

Drop a line to:

USAMC Materiel Readiness Support Activity
ATTN: AMXMD-SE
Lexington, KY 40511-5101

Or call:

AUTOVON 745-3551/3343;
COMMERCIAL
(606) 293-3551/3343

You need to give them a copy of your PLL and a list of all end item NSN's that you maintain. Point out the NSN's of the end item you're turning in, and the end item replacing it, if any. Be sure to include your unit identification code (UIC).

You'll receive a Reverse SLAC listing that's divided into 3 sections.

Section I—gives you a list of all the end item NSN's used in your listing.

Section II—shows all the unique repair part NSN's used on the end item you're turning in.

These unique items should be turned in when the end item is turned in.



Section III—identifies all the repair parts used on the end item being turned in, and also used on at least one of the end items remaining with your unit. These parts can be kept on your unit's PLL.

An option to requesting the Reverse SLAC list from MRSA is to use SB 38-101. The supply bulletin will help you determine if your on-hand repair parts are unique to the displaced end item or can be used on other supported equipment.

However, matching repair parts to an end item can be tough work.

But, if you have the NSN's for the repair parts, SB 38-101 can give you the end items those repair parts fit.

Let's say that you have several gaskets, NSN 5330-01-147-9808. When you look up this NSN on the SB 38-101 microfiche, it shows fourteen different end items that this gasket can be used on.

CHAPTER 3		SPARE/REPAIR PART TO END ITEM LISTING					*SB 38-101
SPARE/REPAIR PART NSN	END ITEM(S) APPLICABLE TO SPARE/REPAIR PART						
5330-01-1479802	G 2320-010478750	G 2320-010478754					
SHIM							
TOTAL EI =	0002						
5330-01-1479803	G 3930-010543833						
GASKET							
TOTAL EI =	0001						
5330-01-1479804	G 1425-011063089	G 1425-011662187	G 1425-011985892				
GASKET							
TOTAL EI =	0003						
5330-01-1479808	G 2320-011077153	G 2320-011077154	G 2320-011077155	G 2310-01112274	G 2310-01112275	J 2320-011232665	
GASKET	J 2310-011232666	J 2320-011232671	J 2320-011236827	J 2320-011275077	G 2320-011269551	G 2320-011269552	
	J 2320-011335368	G 2320-011467193					
TOTAL EI =	0014						
5330-01-1479810	C 4935-001987773	C 4935-010699144	C 4935-011585338				
SEALNONME							
TOTAL EI =	0003						

If you have only the displaced end item on hand, you can turn in those gaskets as excess.

If you find a repair part that is not on SB 38-101, submit a DA Form 2028 showing the repair part NSN, end item NSN and the applicable TM. This helps the headshed keep the SB up-to-date.

OF RIVETS

AND COVERS

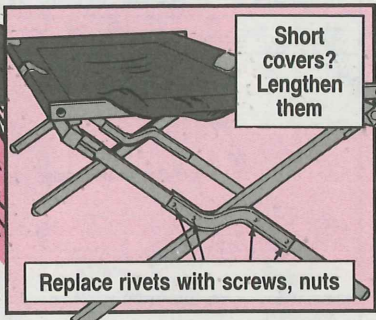


THERE ARE NO REPLACEMENT RIVETS FOR THE ALUMINUM COT.

BUT MACHINE SCREWS CAN DO THE JOB!



When you have to replace a rivet, use machine screw, NSN 5305-00-050-9236; washer, NSN 5310-00-933-8120; and nut, NSN 5310-00-934-9760.



Short covers? Lengthen them

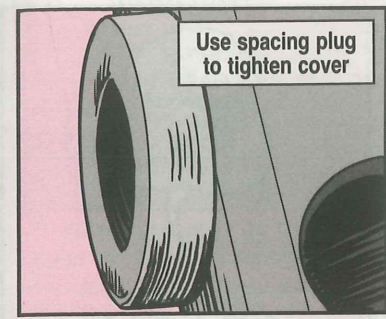
Replace rivets with screws, nuts

If the rivet holding the folding strap is damaged, replace it with self-tapping screw, NSN 5305-00-432-4251, and washer, NSN 5310-00-809-3078.

Spacing plugs, NSN 7105-00-935-0434, are used between the end stick

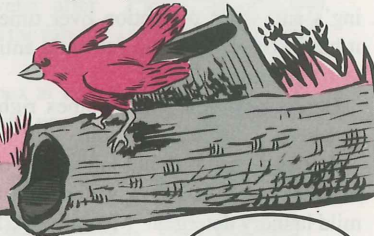
and frame to tighten up a sagging cover. A new cover may be tight

enough without the plugs, so store them in an end stick.



Use spacing plug to tighten cover

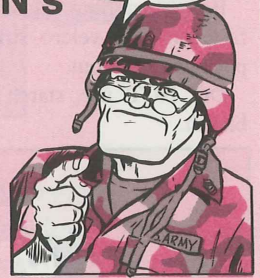
And if your cover is too short, you may need to get your support to adjust the ends. There're about 5 inches of material turned under at each end, so they can cut the stitching and restitch them so there're only about 4 inches turned under. That'll increase the over-all length by 2 inches.



HELMETS AND WATER DON'T MIX!

Wash Basin NSN's

The Kevlar helmet can't be used as a wash basin. As a substitute, order a plastic basin 10 $\frac{5}{8}$ -in wide by 3 $\frac{1}{2}$ -in deep with NSN 7240-00-985-7451. A larger, 3-qt aluminum basin comes under NSN 7240-00-634-2424. Use Appendix A of CTA 50-970 as your authority to order either one. Carry the basin in your rucksack.



Bug Off

Pulling maintenance in the field is tough enough when you're not bugged by bugs. But out in the piney woods, red bugs—chiggers—can make you look like you have a bad case of chicken pox. You can get a 4-oz bottle of chigger repellent with NSN 6505-01-137-8456.

WASHING MAKES OR

The protection that Nomex gives you against fire and static electricity is affected by how you wash the clothing.

To maintain its fire retardancy, you've got to make sure you rinse out all detergent and any starch that may have been accidentally applied.

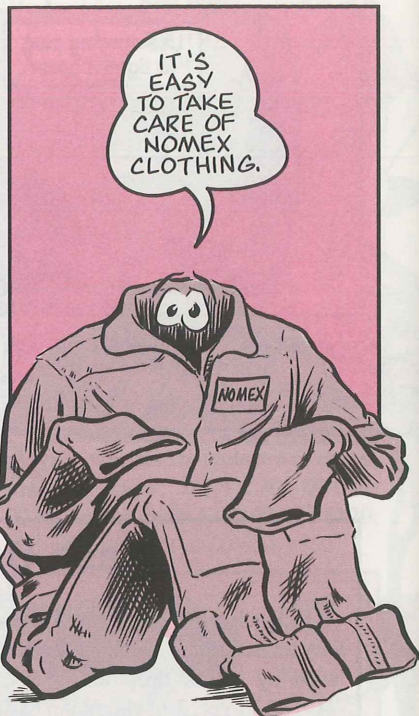
Since washing removes the clothing's anti-static protection over time, it has to be re-treated to maintain anti-static protection.

Here's how you wash Nomex right and keep it working for you:

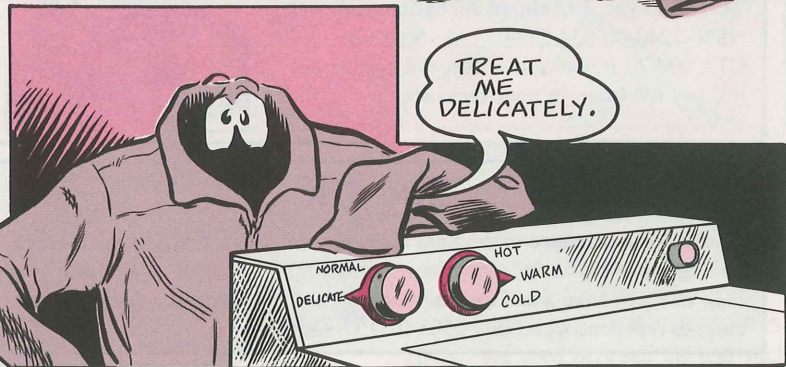
You can hand-laundry or machine-wash in warm water with a mild laundry detergent. Machine-wash using the wash-and-wear or "delicate" cycle. It's best to use a fabric softener to reduce static electricity.

Before washing, close all zippers, fasteners and velcro strips and turn pockets inside out.

DO NOT use starch or chlorine bleach.

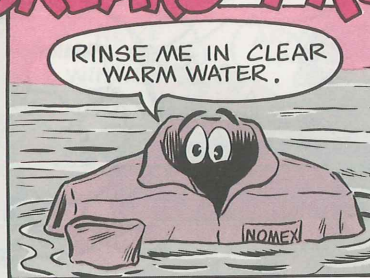


IT'S EASY TO TAKE CARE OF NOMEX CLOTHING.



TREAT ME DELICATELY.

BREAKS PROTECTION



RINSE ME IN CLEAR WARM WATER.

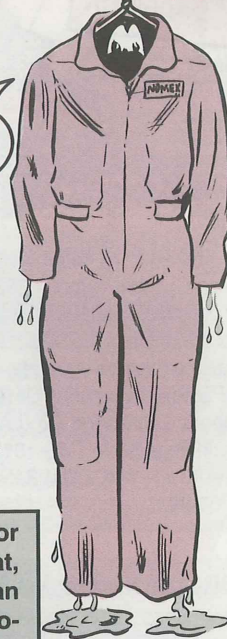


AND LET ME DRIP DRY.

Rinse thoroughly in clear warm water after laundering. Detergent must be removed or the fabric won't resist flames as designed.

Either drip-dry or machine-dry Nomex at low heat. If you machine-dry with other fabrics, use an anti-static strip. Remove the clothing from the dryer immediately. If you drip-dry, use a rustproof hanger.

WARNING: After 10 laundering cycles (or 3 months) and every washing after that, Nomex clothing must be re-treated with an anti-static agent to restore anti-static protection. TM 10-280 has the details for field operations. Your local post laundry also can handle the treatment.



Prevent Cracked Mirror

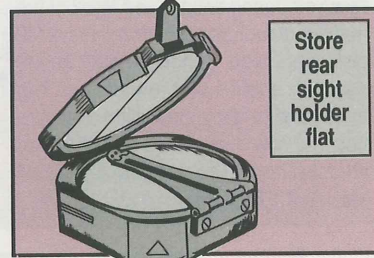
When you put the M2 compass in the M19 carrying case, be extra careful.

Make sure you put the rear sight holder flat inside the compass before closing the cover.

Put the compass into the M19 carrying case with the mirror away from the case's snap button.

You'll crack the mirror if you push down too hard on the snap button that secures the case cover. Then you have

to turn in the compass for replacement since no repairs are authorized.



Store rear sight holder flat

Connie's ★ POST ★ ★ S C R I P T S



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RAISE THE LEVEL
OF PMCS!



No CLP on M252 Mortar

Keep CLP away from M252 mortars. CLP can cause stuck rounds and pockets of corrosion in the M252. It can also cancel the mortar's warranty. Use General Purpose Lubricating Oil (GPO) and Weapons Lubricating Oil (LAW) like it says on Page 3-1 in TM 9-1015-249-10. The word's in AMCCOM Safety of Use Msg 03-89.

M109 SP Howitzer Hot Flash

Keep loose items like field jackets, gloves, technical manuals and powder bags off personnel heaters in the M109 SP howitzer and M992 FAASV. The heaters give off enough heat to start a fire.

M9 Pistol Slides

Several M9 slides have split and flown off during firing. Keep track of the number of rounds each of your unit's M9 pistols are fired, armorers. After an M9 has fired about 1,000 rounds, turn it in to support to get a new slide. If you're not sure how many times an M9's been fired, estimate. The word's in AMCCOM Msg AMCPM-9MM 301800Z Jan 89.

Worm-type Clamp Substitution

No need to phone or fuss if supply sends you a worm-type radiator clamp with a different NSN from the one you ordered. Some sizes are out of stock and back ordered. The headshed is filling orders by substituting the next largest size for the 1½-in clamp, NSN 4730-00-391-3735, and the 2-in clamp, 4730-00-585-8394. The substitutes are ¼ inch longer.

M110A2 Turret Stops to Unit Level

Turret traversing stop brackets and their hardware are now unit level repair parts for the M110A2 SP howitzer. The following parts will appear on Page 374.1, Fig 9.B, of TM 9-2350-304-20P with an SMR code of PAOZZ:

- Screw, cap, hex—
NSN 5305-00-761-4227 (need 6)
- Washer, lock—
NSN 5310-00-584-5272 (need 6)
- Pad, block turret—
NSN 2520-00-933-7463 (need 2)
- Block, turret, left—
NSN 2520-00-087-7503 (need 1)
- Block, turret, right—
NSN 2520-00-087-7501 (need 1)

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COMPETITION
AND ITS
THEME.



LIGHT UNIT WINNERS

Active MTOE, 2d Trans Co, Friedburg (USAREUR)*
Active TDA, 2042d CSG Co, Miesau (USAREUR)
Reserve MTOE, 412th Engr Cmd, Vicksburg, MS (FORSCOM)
National Guard, 3622d Maint Co, Lancaster, PA (ARNG)

LIGHT UNIT RUNNERS-UP

Active MTOE, HHC, 7th Sig Bde, Mannheim (USAREUR)
Active TDA, Base Operations Co, Okinawa (USAISC)
Reserve MTOE, 277th QM Co, Niagara Falls, NY (FORSCOM)
National Guard, 210th MP Co, Sylva, NC (ARNG)

INTERMEDIATE UNIT WINNERS

Active MTOE, 21st Trans Co, Yongsan (EUSA)*
Active TDA, HQ, VII Corps CMC, Wuerzburg (USAREUR)
Reserve MTOE, 1010th S&S Co, Pittsburg, KS (FORSCOM)
National Guard, 1133d Medium Trans Co, Mason City, IA (ARNG)

INTERMEDIATE UNIT RUNNERS-UP

Active MTOE, 295th Supply Co, Ft Lewis (FORSCOM)
Active TDA, 56th Sig Co, Camp Darby (USAISC)
Reserve MTOE, 698th Supply Co, Frederick, MD (FORSCOM)
National Guard, 121st Trans Co, Lebanon, PA (ARNG)

HEAVY UNIT WINNERS

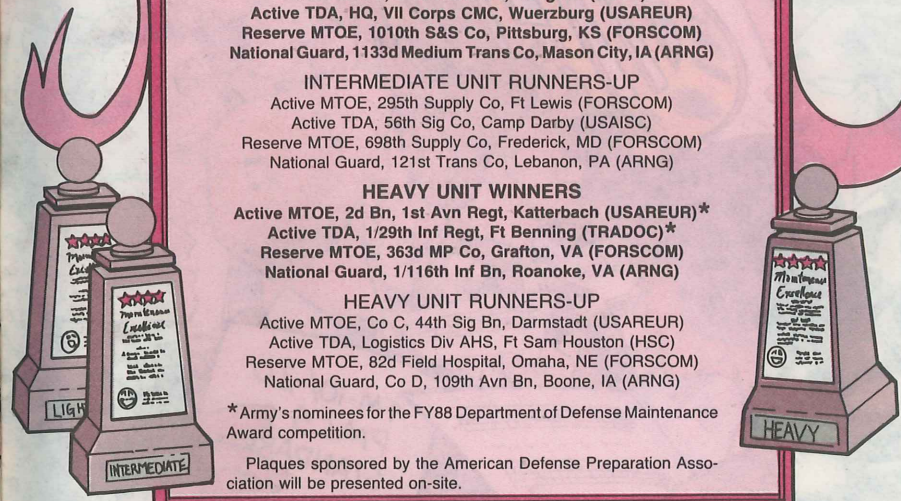
Active MTOE, 2d Bn, 1st Avn Regt, Katterbach (USAREUR)*
Active TDA, 1/29th Inf Regt, Ft Benning (TRADOC)*
Reserve MTOE, 363d MP Co, Grafton, VA (FORSCOM)
National Guard, 1/116th Inf Bn, Roanoke, VA (ARNG)

HEAVY UNIT RUNNERS-UP

Active MTOE, Co C, 44th Sig Bn, Darmstadt (USAREUR)
Active TDA, Logistics Div AHS, Ft Sam Houston (HSC)
Reserve MTOE, 82d Field Hospital, Omaha, NE (FORSCOM)
National Guard, Co D, 109th Avn Bn, Boone, IA (ARNG)


* Army's nominees for the FY88 Department of Defense Maintenance Award competition.

Plaques sponsored by the American Defense Preparation Association will be presented on-site.



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