

Issue 437

PS

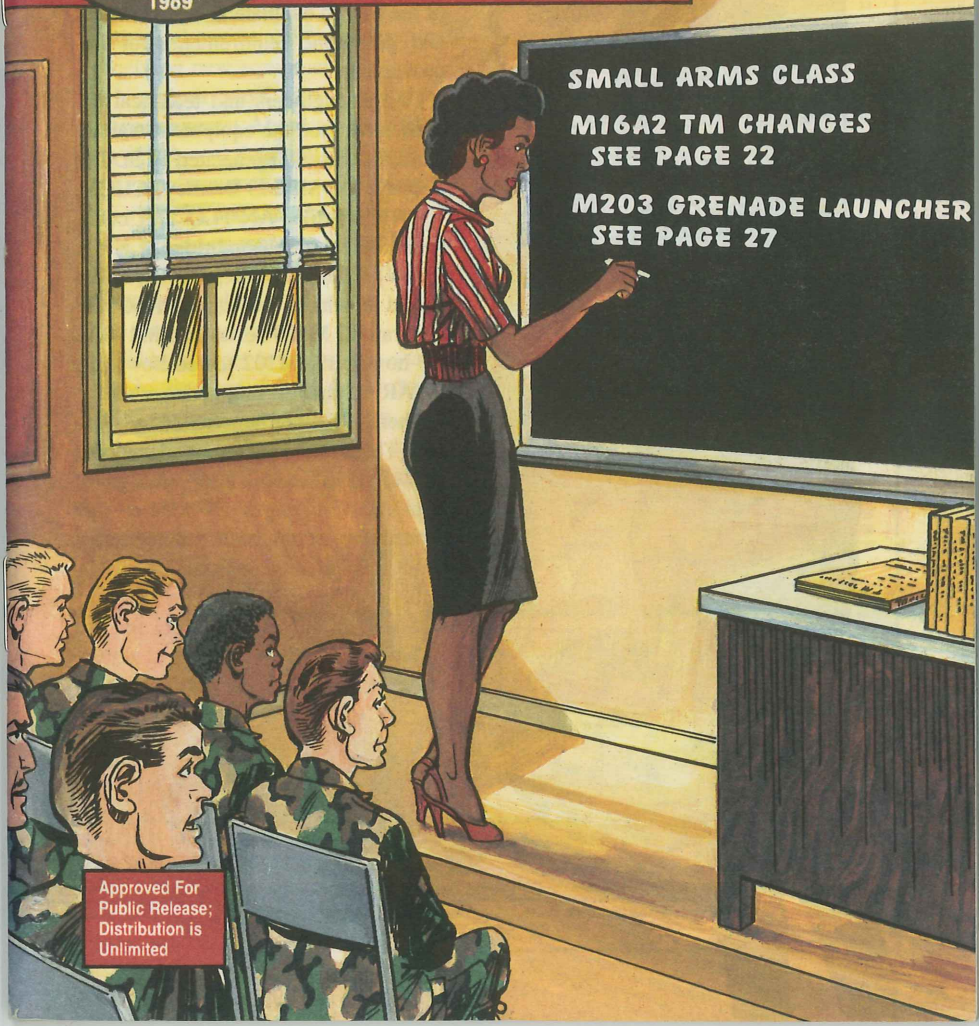
April  
1989

# THE PREVENTIVE MAINTENANCE MONTHLY

**SMALL ARMS CLASS**

**M16A2 TM CHANGES  
SEE PAGE 22**

**M203 GRENADE LAUNCHER  
SEE PAGE 27**



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# SDC IT WORKS FOR

If your unit is taking part in a sample data collection effort, welcome the opportunity to improve the Army's equipment.

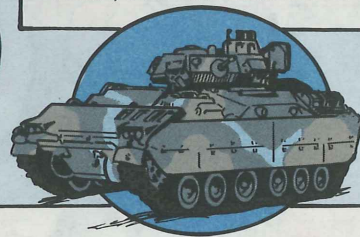
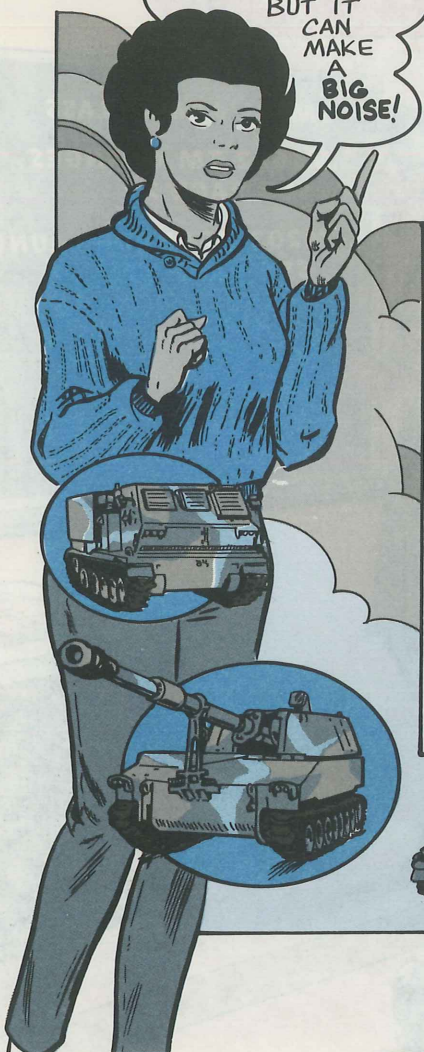
The Army needs field performance information on equipment in the hands of the user to evaluate its effectiveness and determine requirements for improvements.

Design engineers and technical experts have used the equipment maintenance information generated by SDC to improve the M2/M3 Bradley, CUCV, HAWK missile, AN/TLQ-17A countermeasure set, ribbon bridge, CH-47, UH-60, FIREFINDER, MLRS, M198 towed howitzer, 10- through 60-KW generators, M109-series and M110A2 SP howitzers, M102 towed howitzer, FAAR, Chaparral and many others.

There are other benefits not as visible. These include improved data for TM's, modification and redesign of equipment, changes in policies and procedures, scrapping of unnecessary product improvement proposals (PIPs), initiation of other PIPs and much more.

You also get real time data for use in predicting POL usage, PLL adjustments, failure rates and MTOE modifi-

SDC DOESN'T BLOW ITS OWN HORN, BUT IT CAN MAKE A BIG NOISE!



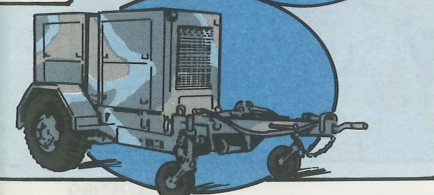
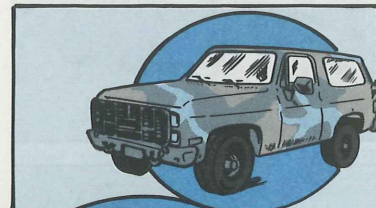
# ALL OF US!



cations either in exercises or prior to receiving new equipment.

Your unit "pays" very little for these improvements: About all you have to do is allow a data collector access to your maintenance forms and freedom to visit for on-site observations. On rare occasions you may have to record some additional information, such as man-hours, elapsed time, etc., mainly for aviation units only.

What you get in return is a share in the millions of dollars saved through SDC by improving equipment, reducing logistic support costs, making equipment more reliable and supportable, and increasing readiness.



**PS** THE PREVENTIVE MAINTENANCE MONTHLY

TB 43-PS-437, 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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If you have problems with random shorts in your gun turret drive, line-of-sight unit, electronics control unit or other under-breech electronic component, you may be able to just wring them away.

The recoil fluid residue collector sponge in the tray under the gun mount fills up with hydraulic fluid during firing. Nothing wrong with that; in fact, it's normal.

However, you're supposed to wring that fluid out of the sponge every day after firing. If you don't, the fluid will eventually leak down onto the electronics gear, causing shorts.

It's a simple job that simply doesn't get done often enough. One precaution to take, though: Make sure you've got rubber gloves on when you wring out the sponge. Keep the hydraulic fluid off your skin, if possible, and wash up real quick if you do get it on you.

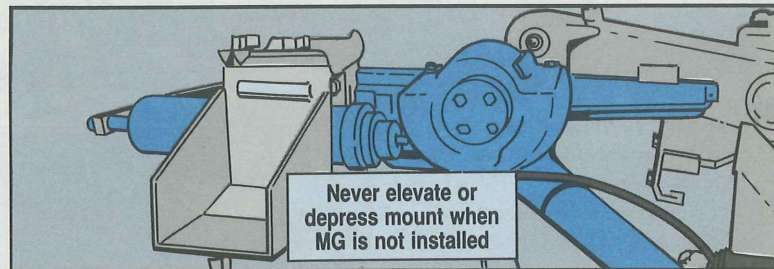


## Reduce MG Mount Gear Damage

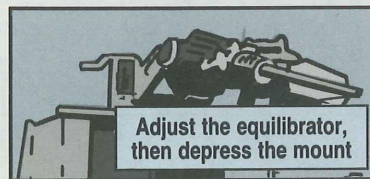
Spur gear set damage is a fact of life with the commander's machine gun mount. You get the damage when the gun's not mounted, and you get it when it is mounted.

So how can you reduce the damage?

- \* Make sure you never try to elevate or depress the mount when the machine gun is not mounted. The mount equilibrator is set up to work right only when the gun is mounted. Turning the elevation handle when this "balance" is not met puts too much stress on the bronze sector gears, stripping or breaking them.



- \* Once the machine gun is mounted, adjust the equilibrator as shown in your -10 TM, then depress the mount all the



way before you begin cross-country travel. When you install MILES equipment, you'll need to readjust the equilibrator before depressing the mount. Depressing the mount prevents most of the shock from getting to the gear set.

Until some kind of positive mechanical travel lock can be designed for the mount, follow these tips to save a lot of gear damage.

# NOT ALL NMC WITH



**T**here's still confusion about whether a busted tachometer makes your equipment NMC. Some revised TM's have the right information, but others don't.

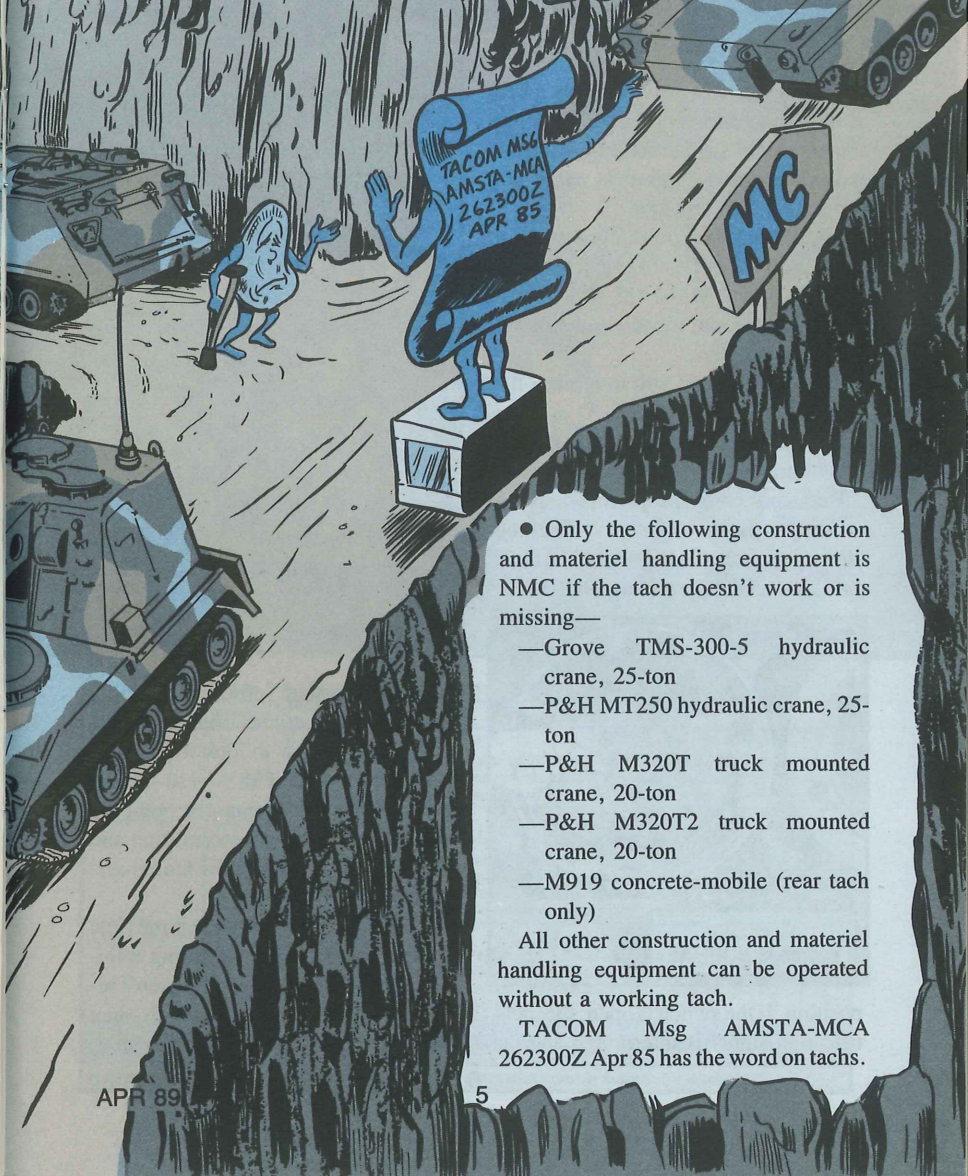
Here's how to be sure for your equipment:

- Any tactical truck equipped with a tachometer/tachograph is NMC if the tach doesn't work or is missing.
- Only the following combat vehicles are NMC if the tach doesn't work or is missing—
  - M88A1 recovery vehicle
  - M578 recovery vehicle
  - M728 combat engineer vehicle
  - M48A5 AVLB
  - M60A1 AVLB
  - XM501E3 HAWK loader transporter

All other combat vehicles can be operated without a working tach.



# BUM TACH



• Only the following construction and materiel handling equipment is NMC if the tach doesn't work or is missing—

- Grove TMS-300-5 hydraulic crane, 25-ton
- P&H MT250 hydraulic crane, 25-ton
- P&H M320T truck mounted crane, 20-ton
- P&H M320T2 truck mounted crane, 20-ton
- M919 concrete-mobile (rear tach only)

All other construction and materiel handling equipment can be operated without a working tach.

TACOM Msg AMSTA-MCA 262300Z Apr 85 has the word on tachs.

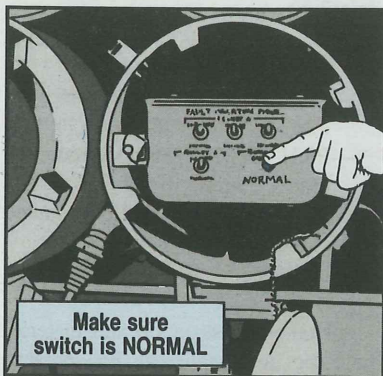
# USE ALL the PUBS

**G**ot an operator error prompt when you're using training launch pod/containers? Here's a caution to remember if the prompt is "umbilical cable not properly connected:"

Troubleshooting with the info on Page 2-86 of TM 9-1425-646-10 and Page 2-41 of TM 9-1425-646-20 can cost you time and money and still not solve the problem.

The -20 TM tells you to replace the fire control unit (\$42,000+) and the umbilical cable adapter (\$240+) if you can't correct the error prompt.

But, correcting the prompt may be as simple as moving the rocket pod identity switch on the fault insertion panel in rocket tube 4 to the NORMAL



position. If the switch is open, the identification signal is interrupted and the



fire control system senses an improper umbilical cable connection.

You won't know to look for this unless you also use TM 9-6920-646-14 for the M27 training launch pod/container. That TM has the operation and troubleshooting info for the fault insertion panel.

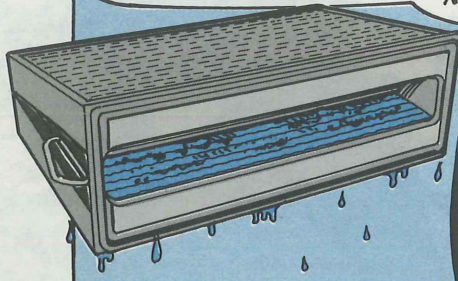
The panel is used almost all the time to simulate malfunctions during training exercises. If the switches aren't returned to NORMAL afterward, then you'll get error prompts until they are.

Table 2-1. Fault Insertion Panel Controls and Indications

SWITCH	POSITION	FCP FAULT INDICATION
Rocket 4 Fuze	Normal Dud	None D will appear for rocket No. 4 in selected LP/C. If skip option was selected during system start up, the rocket will be skipped and the next rocket will be selected to be fired. If fire option was selected, the rocket will be fired but not counted as one to be fired on a target.
Rocket 4 Status	Normal Open Hangfire	None Blank space under rocket No. 4 in selected LP/C. H will appear for rocket No. 4 in selected LP/C. If stop option was selected during system start up, the firing sequence will stop and HANGFIRE—SAFE AND ARM TO CONTINUE will appear on line 7. If continue option was selected, the system will attempt to fire the rocket again, and then firing sequence will continue until the required number of rockets is fired.
Rocket 4 Misfire	Normal Misfire	None M will appear for rocket No. 4 in selected LP/C. If stop option selected during system start up, the firing sequence will stop and MISFIRE—SAFE AND ARM TO CONTINUE will appear on line 7. If continue option was selected, the system will attempt to fire the rocket again and then the firing sequence will continue until the required number of rockets is fired.
Rocket Pod Ident	Normal Open	None UMBILICAL CABLE NOT PROPERLY CONNECTED will appear on line 11.
Rocket 2 Misfire		Same as ROCKET 4 MISFIRE except M will appear for rocket No. 2 in selected LP/C.

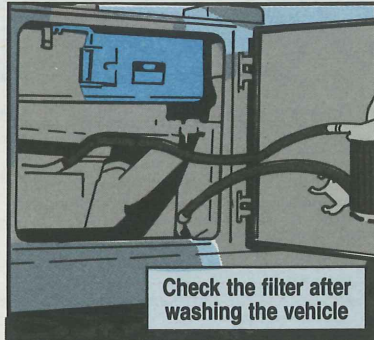
# Keep Air Filters Dry, Clean

USING A WET, DIRTY AIR FILTER IN COLD WEATHER IS AN OPEN INVITATION TO FILTER FREEZE-UP AND THAT MEANS ENGINE PERFORMANCE SUFFERS.



You can prevent the air filter from getting wet by making sure no water gets into the air filter box while you're washing the vehicle with high-pressure hoses. Check the air box after washing, and if the filter is damp, air dry it before using. Use no high pressure air for drying.

Given all this good information, all you drivers need to do is keep an eye on the AIR CLEANER CLOGGED light and monitor engine performance.



Check the filter after washing the vehicle

All air filters get dirty after enough use. But your PMCS schedules give you plenty of opportunities to clean them or have them replaced by your mechanics.



Watch the air cleaner clogged light on the Bradley

If your vehicle starts blowing too much black smoke or engine power starts lagging, look to a clogged V-pack element as the first cause.

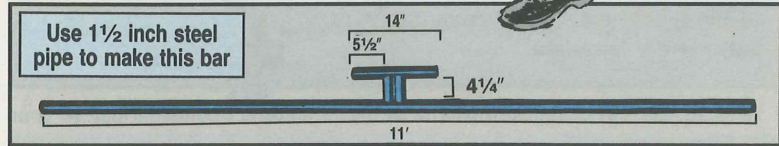
Take no shortcuts with filter cleaning or filter replacement. The result of any shortcut is reduced performance or engine damage.

# Lifter Eases Tow Bar Hookup



THIS LIFTER MAKES RECOVERY HOOK-UP MUCH EASIER.

AND IT'S MUCH SAFER THIS WAY.



Use 1 1/2 inch steel pipe to make this bar

A lifter for holding the tow bar during recovery hookup takes some of the danger and a lot of work out of the job.

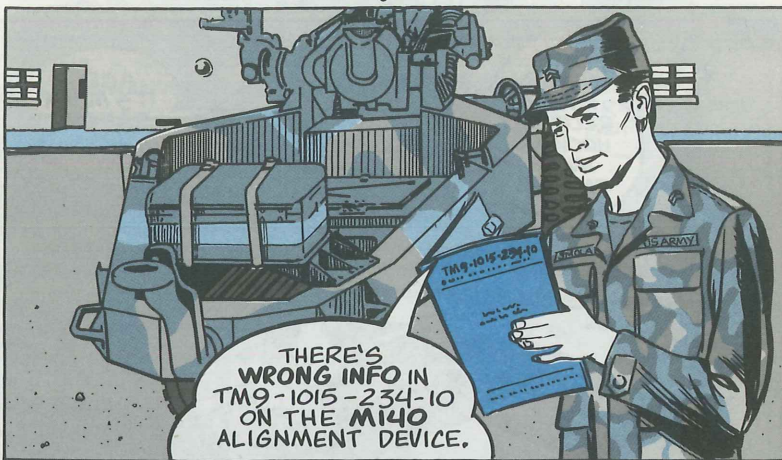
With the lifter, recovery personnel don't have to stand between vehicles to hook up tow bars, and injuries are reduced. And, if two people can help lift the tow bar, the work is shared.

One such lifter was described in PS 394. It's an 11-ft bar made of 1 1/2-in steel pipe. It has a 14-in tee made of the same 1/8-in thick pipe welded in the center.

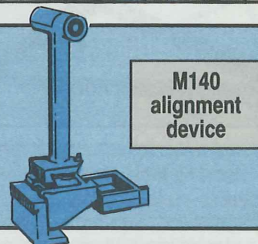
The operator of the disabled vehicle and the assistant driver for the recovery vehicle use the bar to hold the tow bar while the recovery vehicle driver makes the hookup with the help of the ground guide. The bar tee fits in the V-shaped end of the tow bar.

The bar works with heavy duty Army tow bars and recovery vehicles (M578 and M88A1).

# M140 NO BORESIGHT DEVICE



Information in TM 9-1015-234-10 for the M102 leads you to believe the M140 alignment device can be used to boresight the weapon. Wrong!! It only verifies boresight.



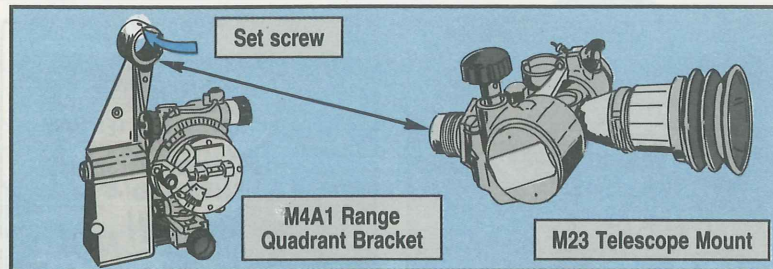
M140 alignment device

Here are the TM changes to follow to insure a correct boresight before your next firing mission:

- Change Paragraph 2-12 (8) on Page 2-46 to read—"Weapon is boresighted. If not, conduct M140 alignment device comparison test (Page 3-60). After verifying the accuracy of the M140, if the pantel azimuth counter exceeds the tolerance of plus-or-minus 0.5 mil, boresighting must be conducted using the test target or distant aiming point method before the weapon can be fired."
- Delete Paragraph 2-12 (9) and (10) on Page 2-47, along with the two figures above those items.
- Change Paragraph 3-34 (1) on Page 3-61 to read—"Check boresight using the M140 alignment device."
- Delete Paragraph 3-34 (6) on Page 3-61.

Bottom line: The M140 alignment device is not a boresight device. Make no fire control sight adjustment assuming that it is.

## All Set With Set Screw



Without the set screw that holds the M23 telescope mount to the M4A1 range quadrant bracket, there's no way to install the M16A1 elbow telescope on your M101A1 howitzer.

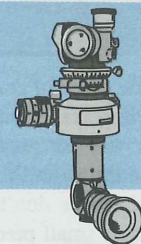
So, add this information to PMCS Item 14 on Page 2-21 of TM 9-1015-203-12: "Check to see that set screw is present and securing M23 telescope mount to M4A1 range quadrant bracket."

Make it one of your weekly checks until the TM is updated.

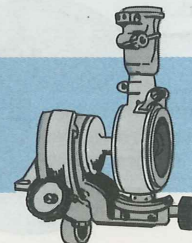
## Alignment Checks Added to PMCS

TM 9-1015-203-12 does not have all you need to know for weekly PMCS for fire control alignment checks. Make these notes until your TM is updated:

▶ Under Item 12 for the pantel, change the check for the azimuth micrometer knob (31) to read "check for smooth operation without sticking and/or binding of gears." At the end of the last sentence, add "Go to Page 3-70 for fire control alignment tests and measurements."



The reference to backlash is deleted.



▶ Under Item 13 for the M21A1 telescope mount, add "Go to Page 3-70 for fire control alignment tests and measurements."

# CORK PROTECTS

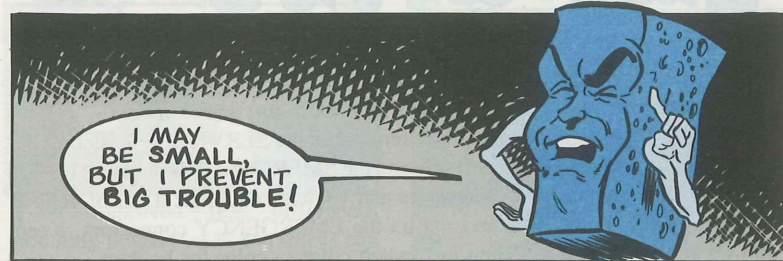
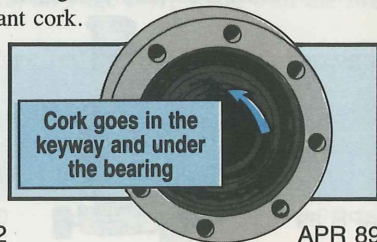
# BRAKES and BEARINGS



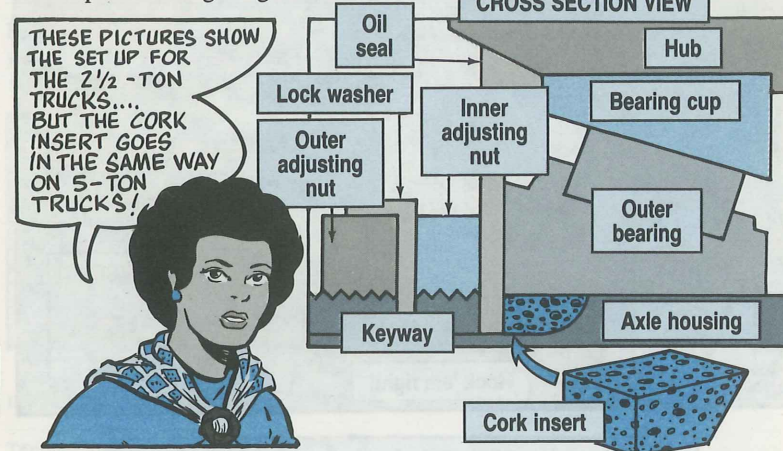
**T**hat little piece of cork that goes on the rear wheel drums of these trucks may not look important, but it is. It keeps oil from washing grease out of the wheel bearings. Without grease, the bearings burn up. The oil will get on the brake drum, the lining and the brake shoes.

Oil and brakes don't mix. The brakes will go out and cause an accident all because of a small piece of very important cork.

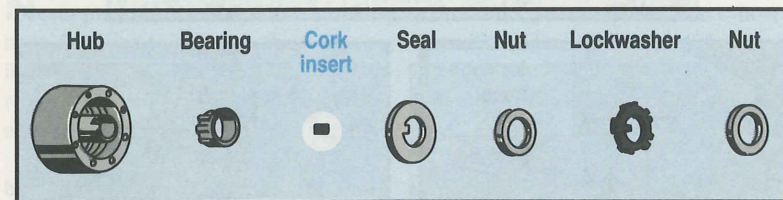
Oil in the axle housing travels out to the end of the axle housing spindle. The outer seal blocks this oil from getting into the hub, except where the spindle keyway provides a handy channel under the outer bearing.



That's where the cork insert does its job. It plugs the keyway under the bearing and stops oil from getting into the hub.



Cork insert, NSN 5330-00-348-8365, is used on the 2½-ton's, while insert, NSN 5330-01-133-7262, is used on all 5-tonners. Here's where it goes:



The cork insert is jammed under the bearing by the seal keyway tang when pressure is applied to the nut.



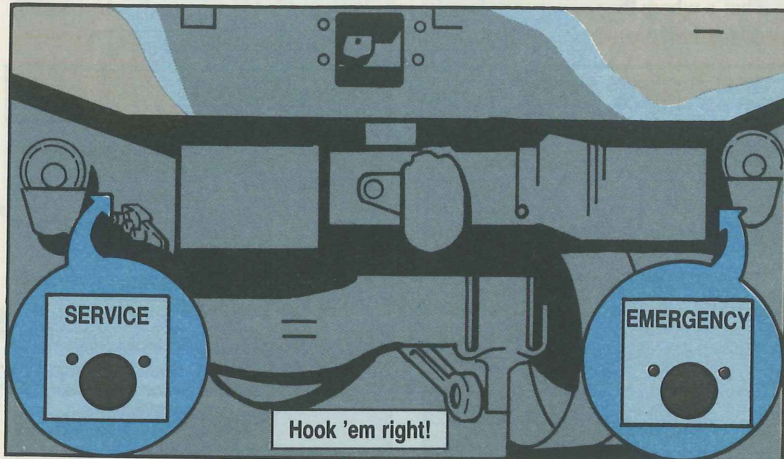
# Give yourself the Brakes

Careful when you hook up the brake air hoses from your trailer to your 2½- or 5-ton truck. You can end up with the brakes that won't let go.

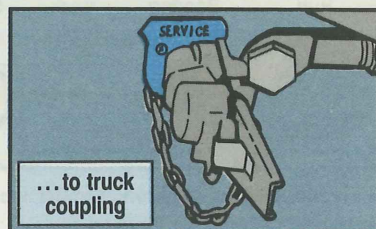
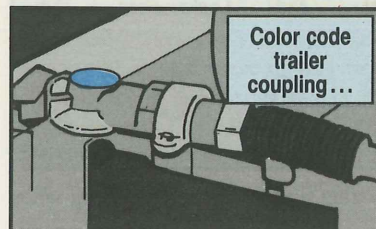
If you cross the lines, the brakes will lock, burn up, and ruin tires.

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

Or color-code the air hose connectors and vehicle couplings: a dot of yellow on the SERVICE connectors and red on the EMERGENCY connectors. Keep paint off rubber couplings. Then just match color to color for hookup.



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

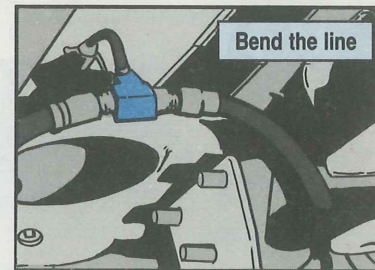


# STOP BRAKE LINE RUB



That improved rear differential mounting bracket on ¼-ton trucks can rub a hole in the brake line—leaving you with no brakes.

Take a look at the hose. There should be at least ⅛-in clearance between the line and the top of the bracket, and ½-in of space at the bottom.



line at the "T" and turn the hose clamp on top of the rear suspension arm.



Careful though, don't move them more than they need.

Once the line is in the clear, have a buddy apply the brakes while you check the line for leaks.

# NEVER

## Paint Brake Hoses

Never paint a flexible hydraulic brake hose, but if paint is already there, leave it alone. The harsh solvents needed to remove the paint will harm the hoses more than the paint.

Paint hides cracks and cracks in a brake hose lead to brake failure. Replace a painted brake hose at the next scheduled service or anytime you spot a crack that goes all the way down thru the cover to the fabric.

For more info, see the brake hose inspection TB, TB 9-2300-405-14.



## Dust and Dirt Mean More Lube



**G**rease, grease and more grease is what you need to keep your vehicles going in dry, sandy areas.

Sand and grit are everywhere in these areas: in the air, on the ground and between all the moving parts on your vehicle. Sand and grit mix with the grease and grind up bearings unless you keep 'em full of clean grease.

To save bearings, grease all fittings **daily**. Wipe the fitting clean before you pump in grease. That way grit won't get pumped into the fitting... and into the bearing.

Pump until you see new grease oozing out the seal. This gets rid of the old grease and any grit that's inside. Wipe the excess grease off with a rag. This keeps the grease from catching more sand and grit that can get between moving parts.



HEMTT...



**T**he slosh-pound, slosh-pound of fuel inside your HEMTT's 154-gal fuel tank loosens the nuts on the tee bolts that hold the 3 tank straps tight. Then the tank scoots or rolls sideways.



The driver can be in a real pickle when this happens. If the tank rolls back a few inches, the fuel cap is blocked. If it scoots forward, it blocks the tool box lid. Either way it goes, you could be in trouble.

The best thing to do is eyeball those holddown straps before you leave the

motor pool. If the tank has slipped, or you see signs of loose nuts—rust or



shiny spots—get your mechanic to reset the tank and tighten the tee bolt nuts on each strap. Adding a second nut, NSN 5310-01-155-1888, as a jam nut will keep the tee bolts tight.



# WATER 'EM

JACK-N-JILL WENT UP THE HILL  
TO FETCH A PAIL OF WATER...

**B**atteries, like people, die without water. But water that's OK for you to drink may not be OK for batteries. Most tap water has minerals in it that will ruin a battery. Distilled water is pure, and it's what you use for batteries. You can get a gallon with NSN 6810-00-682-6867, or the 5-gallon jug with NSN 6810-00-356-4936.



Don't let a battery go thirsty if you get caught without distilled water. Rain-water, melted snow and even tap water will work if you strain it through a few layers of clean cloth. Substitution

is risky, but the strained water is good enough to get you home.

Catch and store the water in a clean plastic jug or a covered glass container.

### Adding Water

The two ways to add water are with a syringe, NSN 6140-00-643-4492, and battery filler, NSN 6140-00-635-3824.



# WITH CARE

Keep a supply of distilled water in battery filler. They're both in the No. 1 Common shop set.

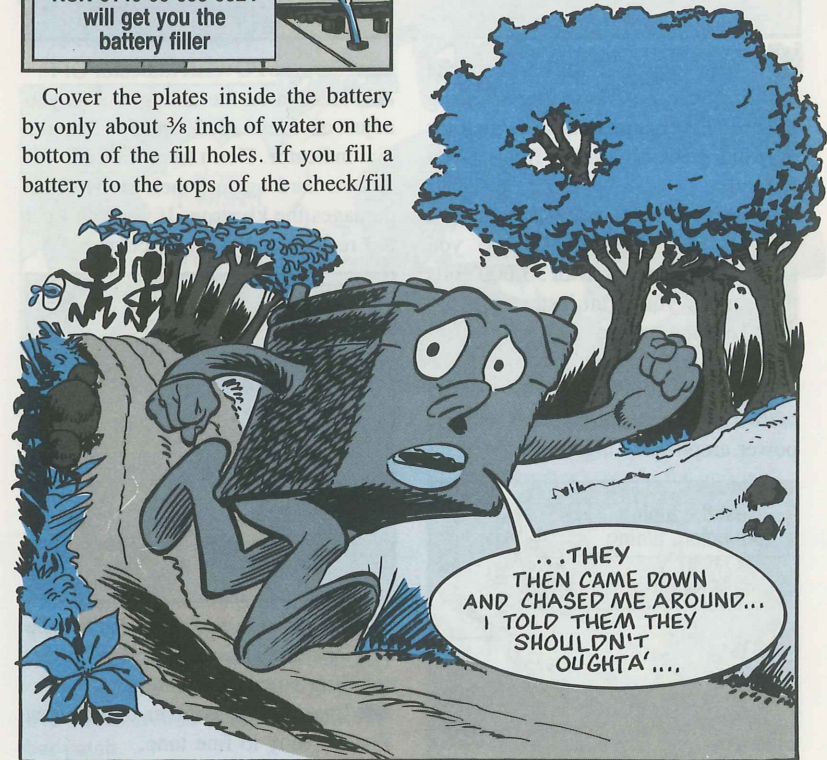


Cover the plates inside the battery by only about 3/8 inch of water on the bottom of the fill holes. If you fill a battery to the tops of the check/fill

holes, the electrolyte will boil out through the vent caps when the battery charges.

Never use a water hose to add water. It's easy to overfill a battery with a water hose. That flushes out the electrolyte. A battery cannot be fully charged if electrolyte is weak.

And any spilled electrolyte will give you headaches. It dries as a gray/white powder that eats up metal battery boxes and destroys connections.



I'M BURNING UP, DOC!

# FINE TUNE THE

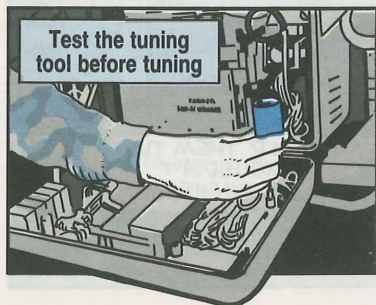
THIS PATIENT HAS AN ACUTE CASE OF KLYSTRONITIS.

OH MY, THAT'S BAD!

**K**lystron power amplifiers on the Vulcan's receiver-transmitter are being burned out because some crewmen are not tuning the amplifiers right. Do it like this:

Remove all jewelry—like rings, watches and dogtags—before you start. You're dealing with 30,000 volts that can fry you in an instant.

Test the tuning tool in the frequency adjuster before you tune. If the tool doesn't read 6, it's bad. Tuning with a bad tuning tool burns out the power amplifier.



- Turn the POWER indicator OFF.
- Push in on the tuning tool as you adjust cavities 1, 2, 3, and 5 to 3 on the dial indicator. Don't force the cavities' screws hard against their stops. That damages the klystron. If you can't get a 3 reading, tell your mechanic.



- Adjust cavities 1, 2, 3, and 5 to the new operating frequency. The power amplifier's now coarse-tuned.
- Energize the receiver-transmitter. You're ready to fine tune.

# TUNING PROCEDURE

Gently now. Do not press in on the tuning tool as you fine tune. If you



press in, you burn out the klystron.

Adjust cavity 3 until you get a peak reading on the RF POWER meter. Adjust cavity 3 down until the RF POWER is cut in half.

Tune cavities 1, 2, and 5 to their peak RF POWER readings.

Adjust cavity 3 up to peak RF POWER.

The klystron power amplifier's tuned.

M190 Rocket Launcher...

## BOOT FIX



**T**he M190's detent and firing mechanism pinch the detent boot, causing holes. If the holes in the boot are not repaired, the operator's thumb can be pinched.

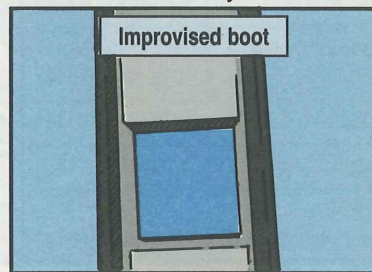
An easy fix is to get an old tire inner tube from the motor pool and cut out a piece of tube  $1\frac{3}{8}$  by  $1\frac{1}{8}$  inches.

Use a knife to remove the old boot.

Put silicone sealant, NSN 8040-00-843-0802, around the edges of the rubber patch.

Stick the patch on the launcher and let it dry overnight.

The launcher's ready for action.



# M16A2 RIFLE



On Page 4-1, add these NSN's:

ITEM	NSN
Bayonet-Knife M7	1095-00-073-9238
Bayonet-Knife Scabbard, M8A1 or M10	1005-00-223-7164
Grenade Launcher M203	1010-00-179-6447
Lock Plate	1005-00-233-9031
Top Sling Adapter	1005-00-406-1570
Blank Firing Attachment, M15A2	1005-00-118-6192

Add these items:

ITEM	NSN
Low Light Level Sight (front)	1005-00-234-1568
Conversion Kit, M261 (.22-cal Rimfire Adapter)	1005-01-010-1561

# NSN UPDATE

On Page C-10, change the cartridge magazine (Item 1) NSN to 1005-00-921-5004.

On Page C-21, change the stepped spacer (Item 8) NSN to 5365-01-267-2169.

On Page C-22, change the stowage door assembly (Item 6) NSN to 1005-01-228-8504.

On Page D-3, add to Rifle Bore Cleaning Compound (Item 9):

NSN 6850-00-224-6657	8-oz can
NSN 6850-00-224-6663	1-gal can

Change the pipe cleaner (Item 8) NSN to 9920-00-292-9946.

On Page D-4, add to Chemical and Oil Protective Gloves (Item 15):

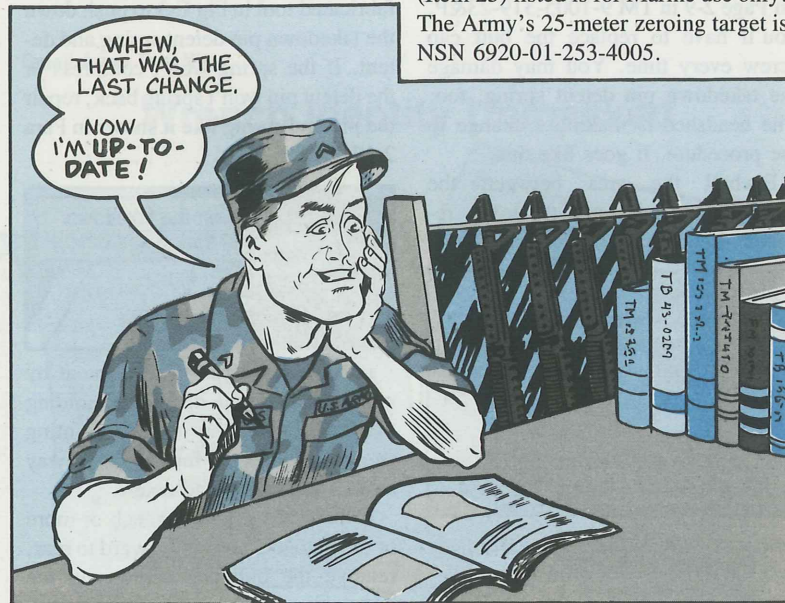
NSN 8415-00-823-7455	size 9
NSN 8415-00-823-7456	size 10
NSN 8415-00-823-7457	size 11

Change the NSN for LAW Lubricating Oil (Item 19) to NSN 9150-00-292-9689.

Add to LSA Lubricating Oil (Item 20):

NSN 9150-00-687-4241	1-qt can
NSN 9150-00-753-4686	1-gal can

On Page D-5, the Zeroing Target (Item 25) listed is for Marine use only. The Army's 25-meter zeroing target is NSN 6920-01-253-4005.



# Better Buttstock



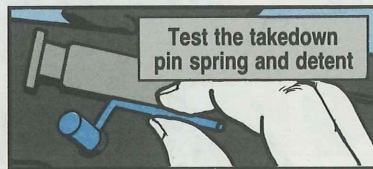
If you inspect the buttstock like it says on Page 2-9 in TM 9-1005-319-23&P, you'll have to replace the butt cap screw every time. You may damage the takedown pin detent spring, too. The headshed is making a change to the procedure. It goes like this:

Eyeball the area between the buttstock assembly and the lower receiver. Remove the butt cap screw and



buttstock only if there's a gap of  $\frac{1}{32}$  inch or more or the buttstock moves forward to rear.

Use a jeweler's screwdriver or the fabricated tool in Fig E-3 to push down the takedown pin detent spring and detent. If the spring won't compress or the detent pin won't spring back, repair the pin and spring like it shows in Para 2-17.



Lube the pin, spring and detent by putting lube on the detent and holding the rifle with the barrel pointing straight up. Let the lube work its way around the spring and detent.

If there is a gap of  $\frac{1}{32}$  inch or more or the buttstock moves forward to rear, remove the butt cap screw and the buttstock assembly. Take care not to

# Check

lose the spacer, takedown pin, detent and spring. Examine the lower receiver extension for looseness and corrosion. If it's loose, send it to DS. If corroded, clean with solid film lubricant.



Clean and lubricate the extension and the takedown pin, detent, spring and its hole.

Eyeball the buttstock assembly for cracks or other damage. Replace damaged parts like it shows in Para 2-18.

THE PROCEDURE APPLIES TO THE M16A1, ALSO.



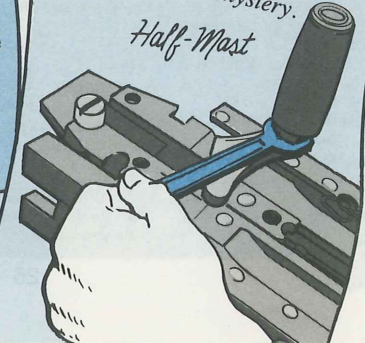
Small Arms Tool Kit...

## Wrench Identity Unmasked

Dear Half-Mast,  
I and a lot of other armorers have wondered what exactly the  $\frac{3}{4}$ -in open-end fixed wrench, NSN 5120-00-293-1828, in the small arms tool kit is for. We've never been able to find a use for it. We've started calling it the "infamous fixed wrench."  
SGT J.J.

Dear Sergeant J.J.,  
The mystery wrench is used to put on and take off the retracting slide handle on the M2 machine gun's retracting slide lever.  
Glad to solve the mystery.

Half-Mast



# PUBS

## Maintenance & Safety-Of-Use Messages

**PM 9MM PISTOL PROGRAM MSG**—Advisory, Operational, Clarification of exchange procedures for M9 pistol slide, AMCRM-9MM 301800Z Jan 89.

**CECOM SOU-MSG**—Advisory, Operational, Update to SOU-MSG 88-10-03 on mercury batteries, AMSEL-SF-REE 121800Z Jan 89.

**CECOM SOU-MSG-89-01-01**—Advisory, Maintenance, Testing intervals for AN/PVS-5 and AN/PVS-7 night vision goggles, AMSEL-SF-SEC 121800Z Jan 89.

**CECOM SOU-MSG-89-01-02**—Advisory, Grounding procedures for the AN/TRC-173 Digital Group Multiplexer (DGM) equipment, NSN 5820-01-161-9422; TD-1233(P)/TTC, NSN 5820-01-145-2462; and TD-1234(P)/TTC, NSN 5820-01-145-2458, AMSEL-SF-SEP 171800Z Jan 89.

**CECOM SOU-MSG-89-02-02**—Mandatory, Operational, Fatal accident or serious injury can occur when personnel erects OE-254 and RC-292 antennas, AMSEL-SF-SEC 031800Z Feb 89.

**TACOM SOU-MSG-88-56**—Advisory, Operational, M1/PM1/M1A1 tank fire reduction safety measures, AMSTA-M 181300Z Dec 88.

**TACOM SOU-MSG-88-57**—Advisory, Operational, Brake air lines on the M870A1 semitrailer, NSN 2330-01-224-9245, procured under contract numbers DAAE07-85-C-J042 and DAAE07-86-C-J063, become stiff and break if moved in temperatures below -12°F, AMSTA-M 281430Z Dec 88.

**TACOM SOU-MSG-88-59**—Advisory, Technical/Maintenance, Follow-up Msg to SOU-MSG 88-49, Inspect M1/M1A1 tank steer/throttle housing assembly, NSN 2530-01-083-5337, AMSTA-M 201900Z Jan 89.

**TACOM SOU-MSG-88-53**—Advisory, Technical/Maintenance, Follow-up Msg to SOU-MSG 88-48, problem still exists with fires in Modular 4x4 ambulance, NSN 2310-01-091-1684, and 4x2 ambulance, NSN 2310-01-094-1372 procured under contract DAAE07-83-C-H272, AMSTA-M 231400Z Jan 89.

**TACOM SOU-MSG-89-2**—Advisory, Operational, Follow-up Msg to SOU Msg 88-57, All precautions of original message are still valid, AMSTA-M 241730Z Jan 89.

**TACOM SOU-MSG 89-1**—Technical, Loose brake mounting hardware on 4,000/6,000 lb Clean Burn Diesel (CBD) forklift, NSN's 3930-01-172-7891 and 3930-01-172-7892, AMSTA-M 301800Z Jan 89.

**TROSCOM SOU-MSG-26-88**—Advisory, Hose failure on fire extinguisher recharger, Model RHA-101-M, NSN's 4210-01-176-3511 and 4210-01-145-3927, AMSTR-MES 051700Z Jan 89.

**TROSCOM SOU-MSG-01-89**—Advisory, Operational, Grounds Interim Ram Air Parachute Systems (IRAPS), MT1-XX, NSN 1670-01-212-3335 and MT1-S, No NSN, AMSTR-MES 101445Z Jan 89.

**TROSCOM SOU-MSG-02-89**—Advisory, Potential safety hazard on fire extinguisher fill hose, P/N 5D5FA-5DN-36, CAGE 81300 on fire extinguisher recharger, NSN's 4210-01-176-3511 and 4210-01-145-3927, AMSTR-MES 261800Z Jan 89.

**AMCCOM SOU-MSG**—Advisory, Operational, Rear sight slide replacement on M9 pistol, AMSMC-MA 201635Z Jan 89.

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

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 9-1430-2528-24P** Dec 88 AN/MPQ-62 radar set for HAWK

**TM 9-1430-2533-24P-1** Dec 88 AN/MPQ-61 radar set for HAWK

**TM 9-1430-2533-24P-2** Dec 88 AN/MPQ-61 radar set for HAWK

**TM 9-1430-2535-24P** Dec 88 AN/GSA-137 cable assembly set battery command post for HAWK

**TM 9-2320-218-20P** Dec 88 M151-series ¼-ton truck

**TM 9-3431-266-14&P-1** Aug 88 Welding machine mod DCC-353-P

**TM 9-4935-2544-24P** Dec 88 AN/TSM-179 shop equipment shop 1, (NSN 4935-01-218-7089), supplementary equipment guided missile system test station AN/TSM-180 (HAWK air defense guided missile system)

**TM 11-5815-615-23P** Nov 88 AN/UXC-7 lightweight digital facsimile

**TM 11-5820-549-24P** Nov 88 AN/PRR-9 radio receiving set and AN/PRT-4 radio transmitting set

**TM 11-5820-864-12-1** Jan 89 AN/TRC-174 radio repeater set

**TM 11-5820-864-12-2** Jan 89 AN/TRC-174 radio repeater set

**TM 11-5820-865-12-2** Jan 89 AN/TRC-173 radio terminal set

**TM 11-5820-890-20P** Oct 88 AN/PRC-119, AN/VRC-87, AN/VRC-88, AN/VRC-89, AN/VRC-90, AN/VRC-91, AN/VRC-92 radio sets

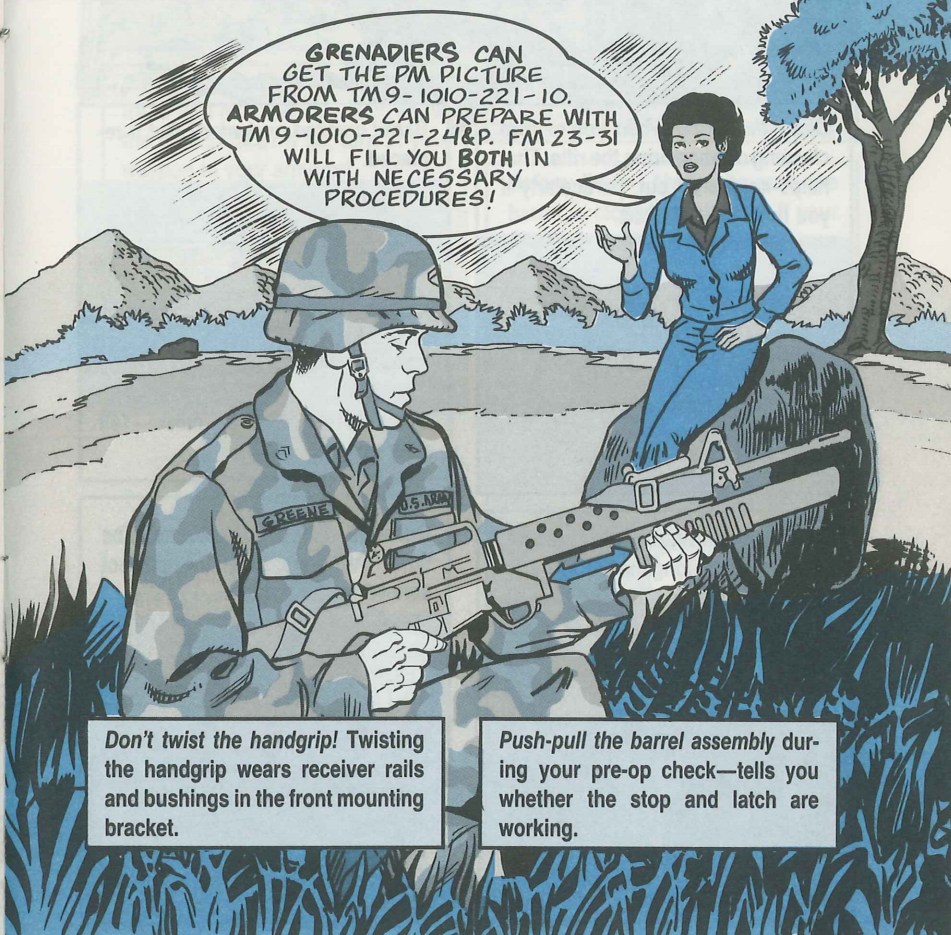
**TM 11-5820-926-12-2** Jan 89 AN/TRC-138A radio repeater set

**TM 11-5820-931-12-1** Jan 89 AN/TRC-175 radio terminal set

PLUCK THIS SECTION OUT FOR HANDY REFERENCE!

# So how's Your M203?

HERE'S AN UPDATE ON JUST ABOUT EVERY PM POINTER PS HAS EVER RUN ON THE M203



Don't twist the handgrip! Twisting the handgrip wears receiver rails and bushings in the front mounting bracket.

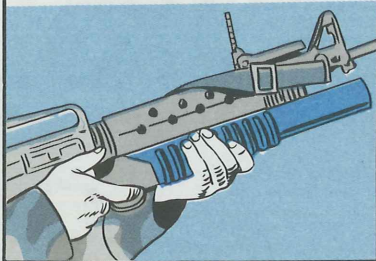
Push-pull the barrel assembly during your pre-op check—tells you whether the stop and latch are working.



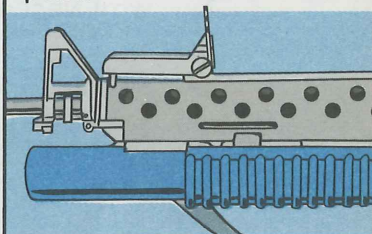
ANY DIRT  
IN YOUR  
LAUNCHER?

NOPE!  
I HAD THE  
BARREL CLOSED  
THIS TIME!

Close the barrel when you're thru cleaning or when firing the rifle. That helps keep crud out, particularly if you have to hit the dirt.

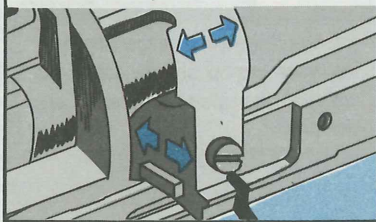


Barrel cracked or dented? Get it replaced.

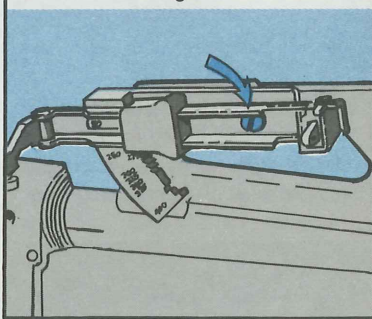


If the barrel's hard to move—Tell your armorer!

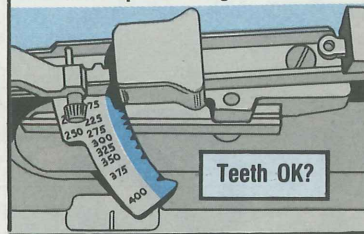
Check your barrel assembly bracket. No movement along the barrel is permitted. Total side-to-side play is limited to 1/8-inch each side of center for total 1/4-inch. If you've got more—DS must repair it!



Quadrant sight pivot screw must be tight! Armorer's, use the correct screwdriver to tighten.

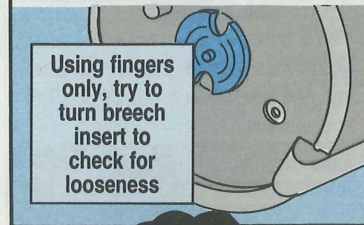


How're the teeth on your quadrant sight? If a tooth is broken, have your armorer repair the sight.

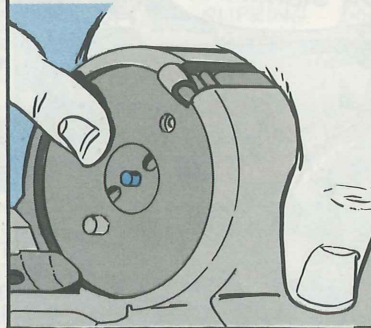


Is your breech insert loose when you try to turn it? Does it stick up above the breech face? If so, turn in your weapon to your armorer!

Using fingers only, try to turn breech insert to check for looseness



Protruding firing pins can cause accidental firing. If it protrudes, get it fixed.



Before firing—Always be sure the barrel is closed and locked. If your firing pin sticks or breaks, tell your armorer!

Never use a broken pin or try to force a stuck one to work.



A  
RAISED  
INSERT  
CAN KEEP  
YOUR  
WEAPON  
FROM  
FIRING...

...AND  
FIXING  
IT IS A  
JOB FOR  
DS.

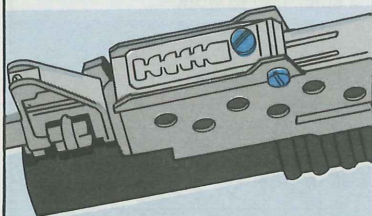
Armorer's—Loose or protruding breech inserts are DS repair jobs. DS has the tools to do the job right.



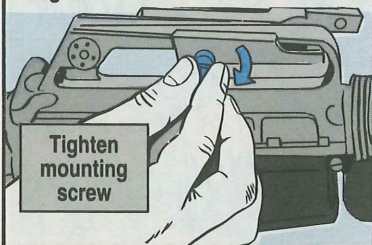
OFF TO THE LEFT AGAIN...  
BETTER CHECK YOUR  
LEAF SIGHT!



Off target? Check the leaf sight screw. A loose screw lets the sight slip. If loose, have your armorer tighten it with the right screwdriver.



Check your quadrant sight. If it's loose, tighten mountings to keep on target.

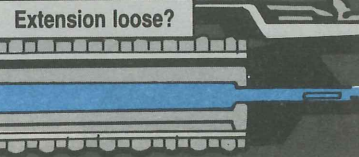


Tighten  
mounting  
screw

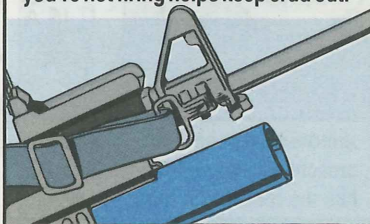
Dry fire only for PMCS or storage.



How's your barrel extension? Loose extensions keep the barrel from closing and keep you from firing. Tell your armorer.



If you have to *hit the dirt*, check the barrel before you fire again. If there's dirt or crud in the barrel, clean the stuff out before you fire. Keeping the barrel closed and latched when you're not firing helps keep crud out.



Post-op cleaning, lubing and storage  
take their toll of launchers.

I PULL  
THE GUARD UP  
AND OUT...

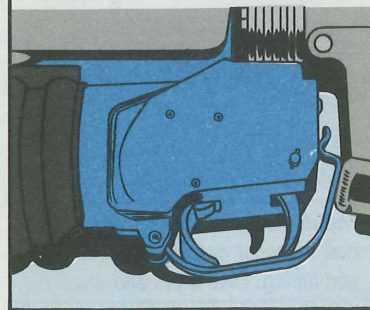
...WHILE  
I PRESS THE  
SLIPRING  
DOWN!



USE THE  
BUDDY SYSTEM  
TO PREVENT  
THE HANDGUARD FROM  
BEING BROKEN  
DURING REMOVAL!

Never try to pry the handguard off  
with a screwdriver or other makeshift  
tool. You'll crack it...and maybe  
even have to get a replacement.

Never take apart the trigger assembly  
—That's DS's job—it's easy to screw  
up and you won't be able to fire when  
you have to.



Use a little extra elbow grease as you  
clean the barrel after firing. Leave on  
a light coating of CLP. Uncleaned  
carbon, rust or crud can keep your  
rounds from seating.

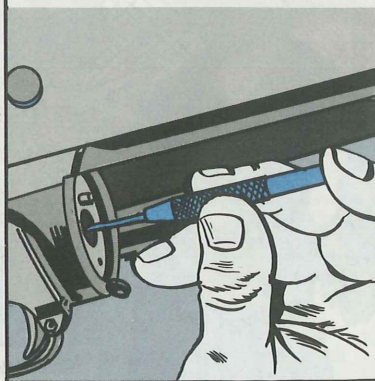


Push the safety ON, and put a couple of drops of CLP or other authorized lubricant into the opening between the safety and receiver. Work the safety to spread the lube—this keeps the safety from jamming the next time you have to fire your launcher.

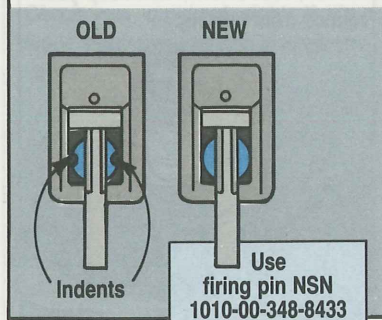
After firing or field exercises, check the barrel for cracks or dents. If you find any, get the barrel replaced.



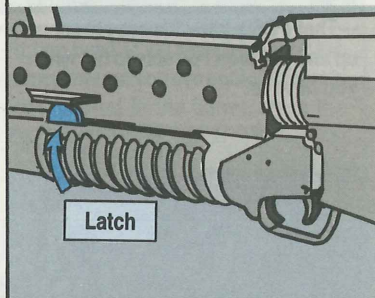
Reinstalling the backplate and follower is tricky. Install the follower and compress its springs enough to get the backplate and screw in place. Insert your  $\frac{3}{32}$ -in drive pin punch through the firing pin hole.



**Armors:** Check the firing pins in all your launchers. All launchers should have the newer firing pins, NSN 1010-00-348-8433, which have no indents on the side. Old, indented pins must be replaced by support. The old pins have a bad habit of puncturing primers.



Push the firing pin into the receiver until it clicks... the rest is easy. Install the barrel assembly, close and latch the barrel, and squeeze the trigger until the firing pin releases.

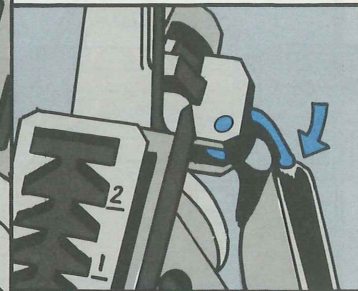


The metal on the follower tends to rust unless it gets regular cleaning and lubing. Take it out and clean it.



Insuring the sling swivel is mounted properly prevents damage to the swivel and mount—and improves the usefulness of your sling.

Check that the rivet which secures the swivel to the mount is to the rear (toward the buttstock end). Check that the swivel swings toward the buttstock...and not toward the muzzle.

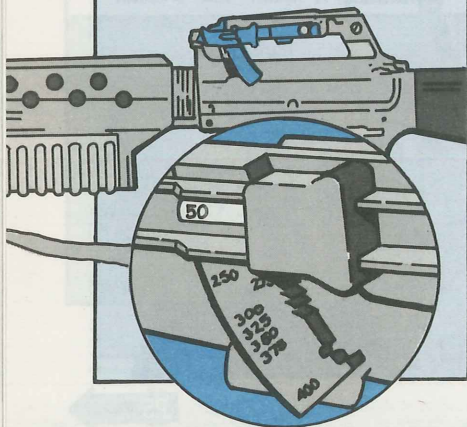


REMOVE BARRELS FOR STORAGE IF YOUR ARMS ROOM DOES NOT MEET AR 190-11 SECURITY STANDARDS!



If your arms room meets security standards of AR 190-11, you can store your launchers in one piece. If not, remove the barrels and lock them away in a separate storage spot.

When using the M12 rack for storage, put your quadrant sights in the 50-meter position—This prevents damage when you close the locking bar.



If you have modified M11 racks, put the sight between the 175- and 200-meter position. Try the locking bar easy-like to see what sight position clears the bar.

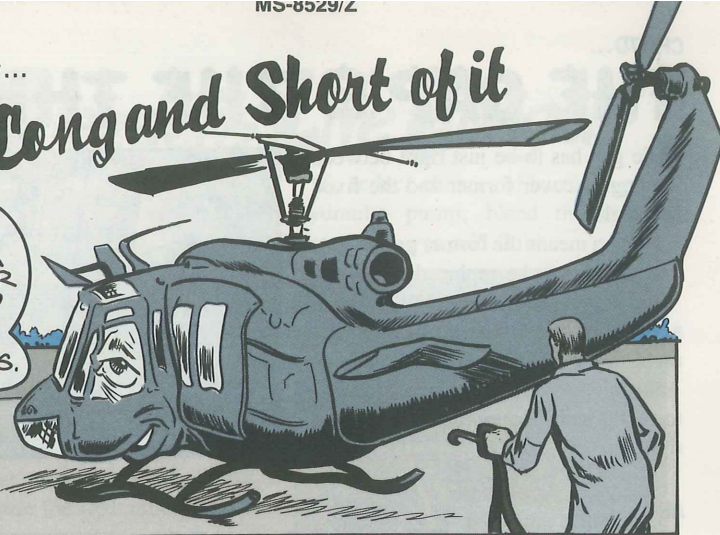
Locking bar positions on the modified M11's vary. If you can't clear the sight, remove and store the sight separately.

On the supply side, armorers can now get the new repairable quadrant sight with NSN 1010-01-122-9680. This more rugged model replaces NSN 1010-00-483-1155.

UH-1 Huey...

# The Long and Short of it

YOU'LL NEED A LADDER NOW TO REACH MY BLADES.



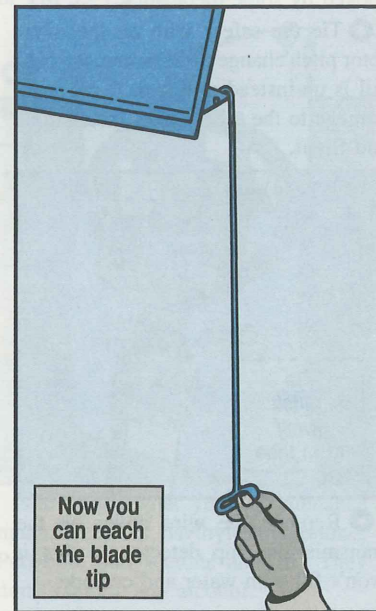
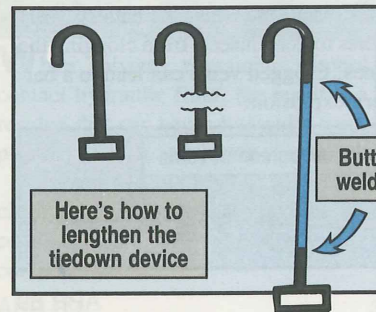
When your bird gets the hub spring modification, MWO 55-1520-242-50-1, you may need elevator boots to tie down the rotor blades.

Your modified tiedown will be 42 inches long—plenty long for all of you crew chiefs and mechanics to reach the blade tip.

That's 'cause you won't be able to flex the blades enough to reach the blade tip unless you're tall enough to jump center for the Boston Celtics.

But you won't need a stepladder to reach the blade tip if you lengthen the tiedown device. Here's how:

Cut a 6-in tiedown, NSN 1730-00-427-7939, in half. Weld a 36-in piece of 0.25-in wire, NSN 9525-00-167-1817, to each half of the tiedown.



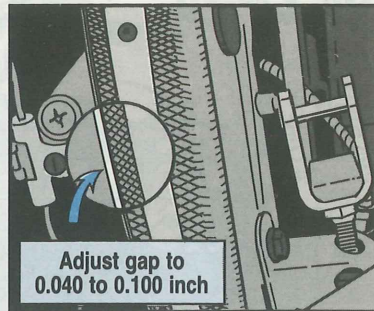
# THE GAP'S THE THING

The gap has to be just right between the engine cover former and the fixed fireshield.

No gap means the former gasket gets torn and has to be replaced.

Too much gap lets fire extinguishing agent leak out of the engine compartment in the event of an engine fire.

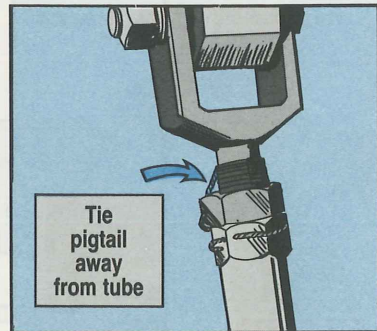
So, always adjust the gap to 0.040 to 0.100 inch. No more. No less. Just right.



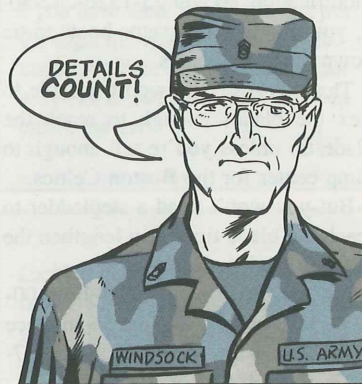
## Overlooked PM

Here are some common Cobra maintenance procedures that are overlooked by some mechanics:

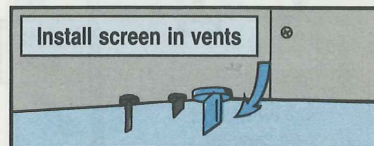
✱ Tie the safety wire on the main rotor pitch change tubes so that the pigtail is up instead of down. It prevents damage to the tube during installation and flight.



✱ Remove the wire cover on the transmission chip detector so that it won't fill with water and corrode.



✱ Install screens in battery vent holes to keep insects from clogging the lines. Clogged vents can lead to a battery explosion.



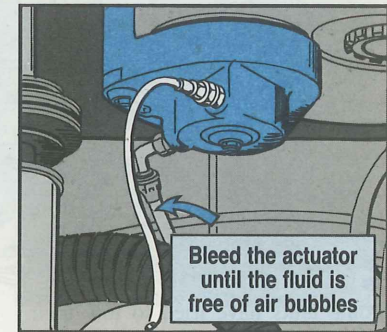
# Bleeders Live Longer



Air in your Apache's hydraulic system will cause the hydraulic pump to "cavitate."

That's just a fancy way of saying it'll lose all suction. When that happens, it takes less than 30 seconds for the pump to burn up.

To reduce chances of burning up the hydraulic pump, bleed the system every time you add fluid.



Follow the procedures in Para 1-5-20 of TM 55-1520-238-23-1.

## Prohibition on Alcohol

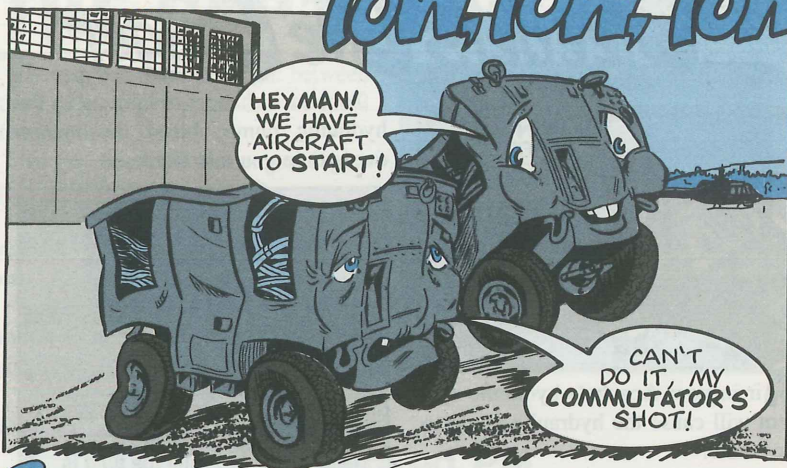


When solvents containing alcohol contact hydraulic fluid, the result is a residue that can cause hydraulic components to seize up during operation.

So never use any kind of solvent or cleaning compound that contains alcohol to clean your bird's hydraulic components.

Stick with what your maintenance manuals call for. Methyl-ethyl-ketone, P-D-680, and acetone are OK. They don't contain any alcohol.

# TOW, TOW, TOW!



Some units have tried to tow their AGPU with the self-propulsion traction motor clutch engaged.

Those units now have AGPU's that are no longer self-propelled.

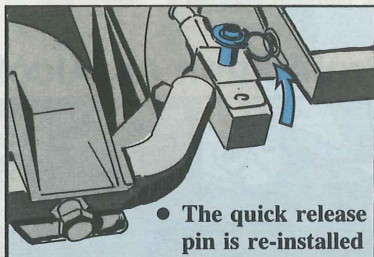
Towing like that overspeeds the traction motor and destroys the commutator.

The newest AGPUs (serial number 254 and up) have electric brakes which lock the wheels if you forget to disengage the self-propulsion clutch.

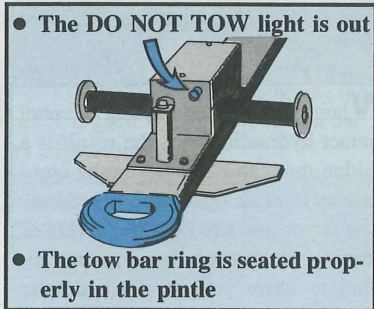
So until older units are retrofitted, be sure to push in the clutch lever to

disengage the drive mechanism before you tow your AGPU.

Also make sure:



- The quick release pin is re-installed

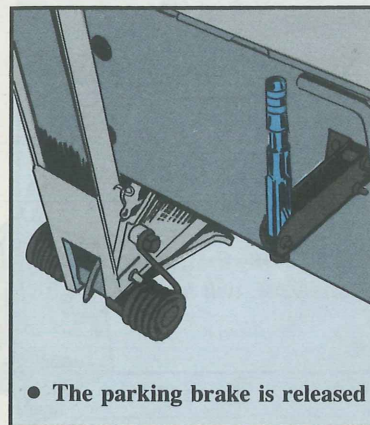


- The DO NOT TOW light is out
- The tow bar ring is seated properly in the pindle

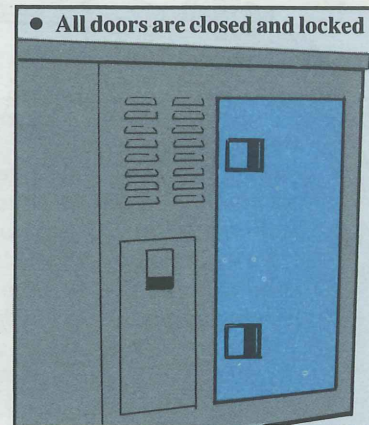


Push in clutch lever BEFORE towing

# YOUR AGPU



- The parking brake is released



- All doors are closed and locked

## 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.

**CH-47-88-19**, SOF, Maint Mandatory, Inspection of forward transmission impeller assembly, 062300Z Dec 88.

**UH-1-88-07**, SOF, Maint Mandatory, Inspection of high performance hoist system, 072200Z Dec 88.

**UH-60-88-14**, SOF, Maint Mandatory, Inspection of high performance hoist system, 072200Z Dec 88.

**CH-47-88-20**, SOF, Emergency, All CH-47 series, immediate suspension of all flight operations, 122330Z Dec 88.

**CH-47-88-21**, SOF, Technical, All CH-47 series, instructions for returning aircraft to full flight status, 132350Z Dec 88.

**CH-47-88-22**, SOF, Technical, CH-47D, Inspection for certain serial number transmissions, 230430Z Dec 88.

**CH-47-88-23**, SOF, Maint Mandatory, CH-47D, Inspection of forward transmission impeller assembly, 240055Z Dec 88.

**CH-47-88-24**, SOF, Maint Mandatory, Revision to SOF CH-47-88-23, Preparation instructions for the Boeing internal transmission inspection, 281625Z Dec 88.

**UH-60-88-MIM-11**, Interchangeability of stabilator amplifiers, 062200Z Dec 88.

**UH-1-88-MIM-08**, Night vision goggles, 092100Z Dec 88.

**GEN-88-MIM-06**, General, Requesting serial numbers for aircraft and support equipment, 122330Z Dec 88.

**AH-64-88-MIM-17**, Return of defective axial piston pumps to contractor, 192130Z Dec 88.

**AH-64-88-18**, SOF, Maint Mandatory, Inspection of the shaft drive compressors, 142230Z Dec 88.

**UH-1-88-08**, SOF Maint Mandatory, Inspect logbook, submit legible reproduced copy of each DA Form 2408-16, aircraft component historical record, for each aircraft, 152230Z Dec 88.

**UH-8-88-03**, SOF Maint Mandatory, Inspection of nose landing gear torque transfer tube assembly, 152320Z Dec 88.

**OH-58-88-07**, SOF, Technical, Inspection of tail rotor yoke assemblies, 142200Z Dec 88.

**OH-58-88-08**, SOF, Technical, Inspection of T-63-A-700 engine by contractor team, 162230Z Dec 88.

**OH-6-88-09**, SOF, Technical, Inspection of T-63-A-700 engine by contractor team, 162230Z Dec 88.

# PREVENT COSTLY OVERSPEEDS

Dear Editor,  
UH-1 and AH-1 maintenance manuals are short info on monitoring the accuracy of the N1 gas producer tachometer on T53 engines.

We've come up with a little adapter cable that, when used with the BH112JD Jetcal analyzer, will let you prevent engine overspeeding.

Here are the parts you need:

ITEM	NSN/PN	ITEM	NSN/PN
Connector (P1)	5935-00-228-4395	2 nuts	5310-00-857-5558
Connector (P2)	5935-00-257-6679	8 machine screws	5305-00-889-2998
Connector (P3)	5935-00-725-4638	8 flat washers	5310-00-187-2397
Terminal Board	5940-00-950-1610	8 nuts	5310-00-807-1471
#16 Wire	6145-00-056-8484	8 terminal lugs	5940-00-204-8966
Box 2¾ x 2½ x 1½	PN CU2100-B, CAGE 71218	2 nuts	5310-00-807-1465
2 machine screws	5305-00-889-2997	2 flat washers	5310-00-167-0831
2 flat washers	5310-00-550-5009	1 grommet	5325-00-276-6228

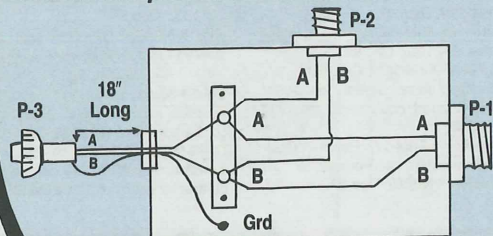
Here's how you use it:

Connect P1 to the RPM input instrument cable connector on the Jetcal analyzer.

Connect P2 to your bird's tachometer generator wire harness.

Connect P3 to your bird's tachometer generator.

Follow the procedure in Para 2-7 of TM 55-4920-401-13&P.



Carroll W.G. Neal  
Chris Kramer  
Ft. Ord, CA

(Editor's note: Looks like you're wired for success.)



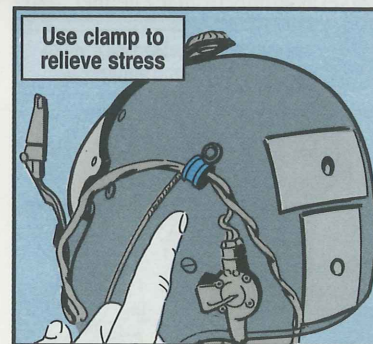
The headset-microphone wiring harness on your SPH-4A flight helmet suffers more stress than an air traffic controller at a major airport.

That's because it dangles from your helmet like a puppet on a string. It gets bumped, bruised, battered and bent. Then it has to be replaced.

Relieve some of the stress and give the wiring harness some protection by taking up the slack with a cushioned loop clamp, NSN 5340-00-533-3514.

Open the clamp enough to insert the wiring harness, then attach the clamp to your helmet with one of the screws already attached to your helmet.

Be sure not to bend the cables too much or the wires inside will break.





**T**oo many adjustments to the mike and boom of your Apache helmet shell assembly wear out the shell's antirotation slots. Then the shell assembly must be replaced.

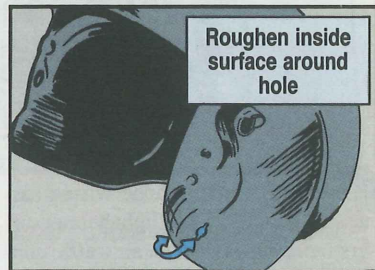
But your ALSE technician can extend the life of the shell assembly. Here's how:

Remove the boom microphone swivel assembly from the helmet shell.



Use #80 grit sandpaper, NSN 5530-00-598-5537, to roughen one surface

of the slotted washer and the inside surface of the helmet shell around the attachment hole.



Clean both sanded surfaces with denatured alcohol, NSN 6505-00-299-8095. Let them dry.

Put a thin coat of adhesive, NSN 8040-00-273-8717, on both sanded surfaces. Allow the adhesive to dry 3 to 5 minutes before pressing the washer against the inside of the helmet shell.

Reassemble the mike boom and swivel assembly. Allow the adhesive 2 hours to set and you're back in business.

## A VESTED INTEREST

If your bird ever goes down in the boonies, you're going to need all the help you can get.

That's why you shouldn't take any chances with your SRU-21/P survival vest. Check it often for rips, tears, broken stitching, missing or damaged fasteners and deterioration, and keep it clean.

An oil-soaked or grease-caked vest loses its flame-retardant properties. It'll just add fuel to the fire, if there is one.

Brush away all dirt, dust or mud with a soft-bristle brush. Get rid of oil and grease by spot cleaning with aromatic naphtha, NSN 6810-00-223-9067, and a soft-bristle brush.



Rinse the scrubbed area with clear, lukewarm water. Then hang up your vest to dry in a well-ventilated room.

If you can't remove oil or grease from your vest, or if you find rips or tears that you can't repair easily, turn your vest into your ALSE technician and get a replacement.



It's a good idea to keep your flight gloves clean, too. Put 'em on and wash 'em with soap and water just like you were washing your hands.



Rinse the soap out good and then squeeze your gloves to remove excess water. Don't wring or twist them. Put each glove on a towel and roll the towel to cover each glove.

Or you can clean your gloves in your own washing machine. Use warm—not hot—water, and tumble dry at a moderate temperature. Washing with other articles will help reduce tumbling shock. Never use bleaching compound to clean your gloves.



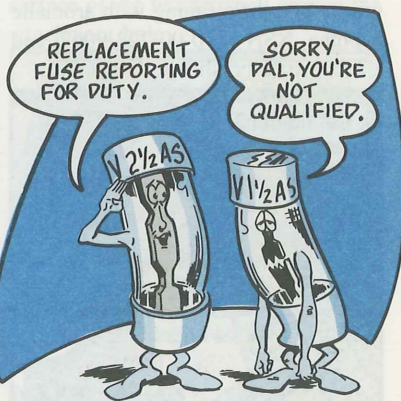
# Fuse

Your equipment is built so it has a weak link—the right fuse. When surge bolts of power try to zap your gear, the fuse blows first.

If you're not careful, you can overfuse and not know it. Fuses look exactly alike, but are electrically different.

So you can't just put two along side each other and compare 'em. You've got to know what to look for. And everything you need to know is on the fuse—in the code.

The important thing is to remember you never use a fuse with an amp rating higher than the one it replaces. A fuse is built to carry just so much current. If the current goes over that, the metal link melts.



A fuse with too high a rating will go on carrying the higher current that will damage parts the original fuse was meant to protect.

But you can—in an emergency—substitute a fuse with one of a higher voltage rating if the amp rating is the same. Just don't substitute fuses with a lower volt rating.

# News



Fuses come in various shapes and sizes—cartridge, plug, link and knife blade.

## THE CARTRIDGE FUSE



The cartridge fuse is probably the most common. It's tubular with glass, ceramic or plastic between two ferrules or end caps. There's a metallic link attached to the inside of the caps.

This low-current capacity fuse—.002- to 60-amp—is used in low-powered circuits such as radios, radars, telephones, switchboards, etc.

For equipment with more than 60-amp circuits, there are knife-blade cartridge fuses.

## THE LINK FUSE



The link-type, which includes the indicator-alarm, is a simple wire, ribbon or flat sections with connecting necks making up the fuse metal.

The indicator-alarm-type is usually found in telephone circuitry systems where a buzzer, noisemaker or signal lights lets you know the fuse has gone kaput.

## THE PLUG FUSE



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

## THE KNIFE-BLADE FUSE



Last, but not least is the knife-blade fuse which likes to play the role of tough guy 'cause it can take currents ranging from 60 to 600 amperes. That's why it's usually found in main fuse boxes and electrical power plants or installations.

CHECK THE VOLTAGE AND AMPERAGE RATINGS...

... AND THE BLOW TIME CODE!

REPLACEMENT FUSE REPORTING FOR DUTY.

SORRY PAL, YOU'RE NOT QUALIFIED.



## ID of Fuse

If you're not sure which size replacement fuse your equipment needs, eye the TM. If the info's not there, send in a DD 1348-6, Exception Data Request, to your supply folks. Be sure to include the current and voltage ratings and any other info you have about the fuse, including the equipment it's used in.

While you're waiting, never use a piece of wire or foil in place of a fuse. Such a substitute gives your equipment no protection at all.

### BREAK THE CODE



Say the fuse you are holding has this combination of letters and numbers:

FO1 A 250V 1/2A S  
or  
FO1A250V1/2AS

Style  
code

The FO1 is the style code which tells you the fuse size and type.

Blow  
time

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

If the letter is B, there is a blow time lag or slow blow.

And, if the letter is C, the blow time is fast or very high interrupting capacity.

Voltage  
rating

The 250V lets you know the voltage capacity of the fuse.

Current  
rating

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

Coating

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

HERE ARE SOME OF THE MORE COMMON FUSES IDENTIFIED BY STYLE CODE, TYPE AND SIZE.



## Fuse PM

After you have the right fuse you want it to stay on the job for a long time.

Make sure the equipment circuit is off before you put in the fuse. Slipping a fuse into a live circuit could create an arc between the fuse and the fuseholder. This burns the ferrules or terminals which will limit good contact and increase the resistance. You can also get a shock and transient electricity can damage the equipment.

Whenever a terminal gets pitted or dirty, shine it up with an emery cloth.



Keep the fuseholder clips tight. The clips should have a firm hold on the fuse. Squeeze loose clips together. If they still don't have a firm grip on the ferrules, get the clips replaced.

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

# Beat Downtime



**B**efore you rush your radios to DS for repair, give a thought to the four "A's":

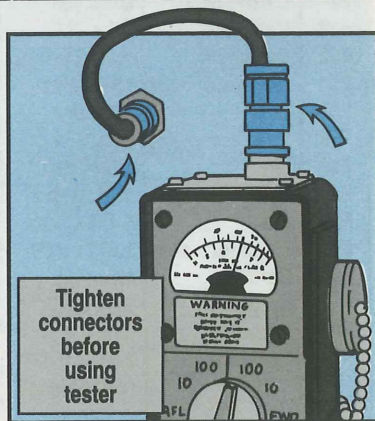
- Antenna RF output test set
- Antenna elements
- Antenna RF cable
- Antenna matching unit cable.

Any one of these minor components will cause major downtime on your RT-524 receiver-transmitter.

When using the AN/PRM-34 or AN/URM-182 radio test set, like it says in Para 3-14 or 3-15 of TM 11-5820-401-20-1, make sure all cable connectors are snug.

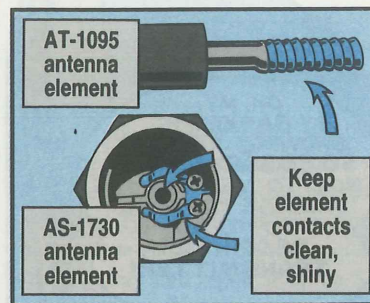
A loose connector or damaged cable will make a poor contact or no contact at all. You'll get misleading test results, indicating a bad RT.

If an antenna element contact is corroded or dirty, your RT won't communicate.



# Blues

Make sure element contacts are shiny and tight so they'll make good contact.

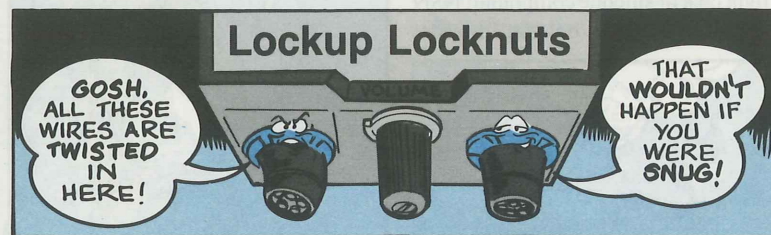


Eye the antenna CG-1773/U RF cable and the CX-4722 matching unit cable for breaks and cuts. Also, look at the connectors to make sure they're not dented or bent or have broken pins.

IF EITHER CABLE IS DAMAGED, GET IT REPLACED! A USELESS CABLE WILL LEAVE YOUR RECEIVER-TRANSMITTER LIFELESS.

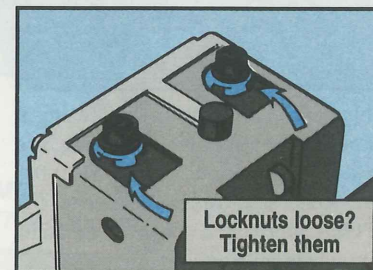


AN/VIC-1 Intercom...



**L**oose locknuts lead to twisted and broken wire inside your intercom's C-2297, -2278 or -2299 control box. If the locknuts are not snug, the receptacles get turned each time you connect or disconnect audio plugs.

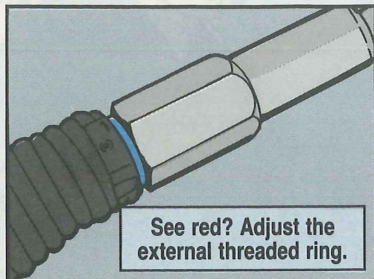
So, keep the locknuts, NSN 5310-01-062-6473, on the audio accessory jacks tight.



# A GOOD TURN

Turn the AS-1730 element tight to the MX-6707 matching unit.

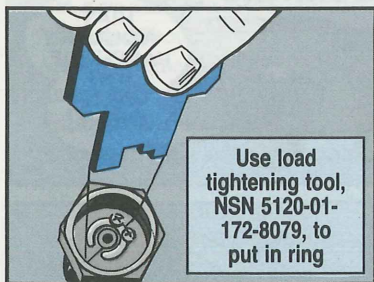
With a loose fit, you may not have RF power. This will damage the receiver-transmitter.



See red? Adjust the external threaded ring.

Take a good look. If you see red—a red gasket, that is—between the element and matching unit, adjust the external threaded ring.

When you're servicing the ring, put a light coat of silicone compound, NSN 6850-00-880-7616, on the threads.



Use load tightening tool, NSN 5120-01-172-8079, to put in ring

This keeps corrosion from freezing it in place. When putting in the ring, use load-tightening tool, NSN 5120-01-172-8079, authorized by Appendix A of CTA 50-970. A notch on the tool tells you when the ring is tightened right.

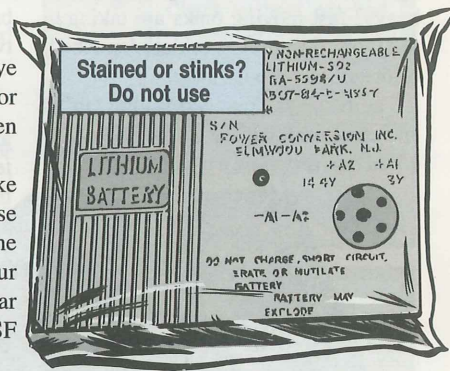
OH, MY GASKET IS SHOWING. THIS IS SO EMBARRASSING! NOT TO MENTION THE DAMAGE IT COULD DO TO MY RECEIVER-TRANSMITTER!

# DO NOT USE LEAKERS

Hold it!

Before you open the plastic bag, eye the battery box inside for stains or liquid. If you see either, do not open the bag.

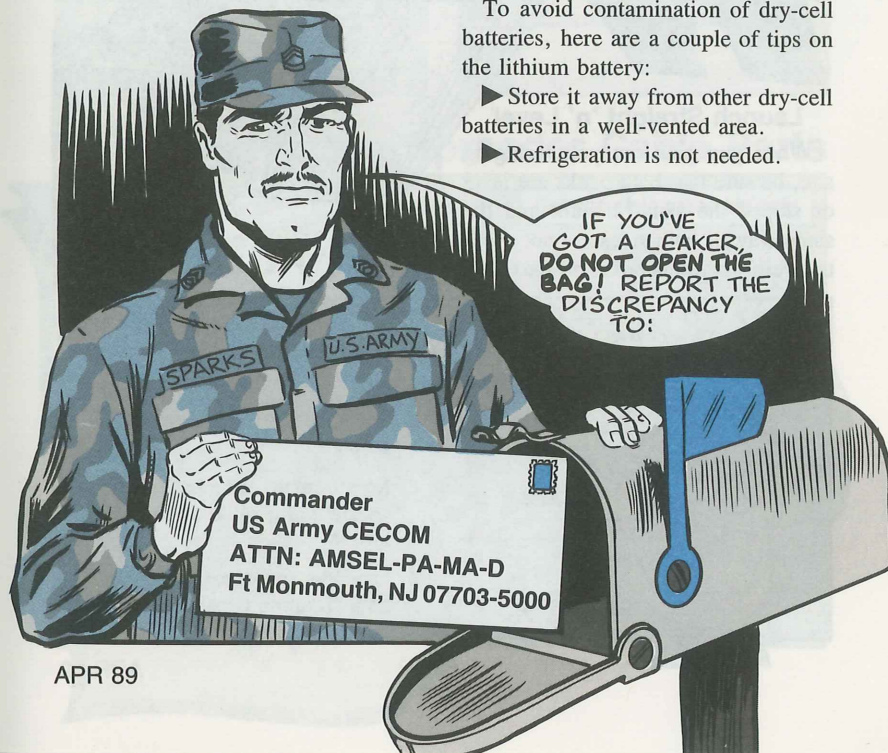
Or, if you smell a rotten egg-like odor when the bag is open, do not use the battery. Do not give the bag the sniff test. The fumes can burn your nose, tongue and throat. So, stay clear of the battery and report it on an SF 364 (Report of Discrepancy).



Keep the bad battery until CECOM gives you guidance for disposal.

To avoid contamination of dry-cell batteries, here are a couple of tips on the lithium battery:

- ▶ Store it away from other dry-cell batteries in a well-vented area.
- ▶ Refrigeration is not needed.





# FOLLOWING THE

Uneven banks at bridge sites and heavy, fast-moving tanks are taking a toll on armored vehicle-launched bridges (AVLB's).

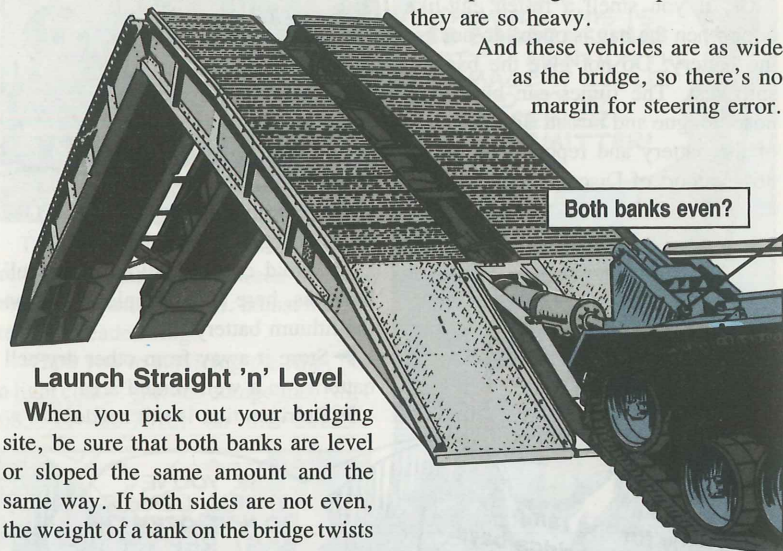
The result is damaged bridge curbs and structural damage to the bridge. It could fail, dropping a tank into the gap.

the bridge's braces and angles. Your bridge may end up with a permanent twist!

## No Speeding, Please

Speed is a bridge bender, too. Tanks and the M88A1 recovery vehicles can tear up a bridge in one pass because they are so heavy.

And these vehicles are as wide as the bridge, so there's no margin for steering error.



## Launch Straight 'n' Level

When you pick out your bridging site, be sure that both banks are level or sloped the same amount and the same way. If both sides are not even, the weight of a tank on the bridge twists

**TO PREVENT DAMAGE, YOU TANK AND RECOVERY VEHICLE OPERATORS NEED TO KEEP THESE 4 POINTS IN MIND!**

1. Keep the vehicle centered on the bridge.
2. Top speed on the bridge should be 8 MPH.
3. No stopping, accelerating or gear shifting while on the bridge.
4. Consider every bridge crossing as a "Caution Crossing."

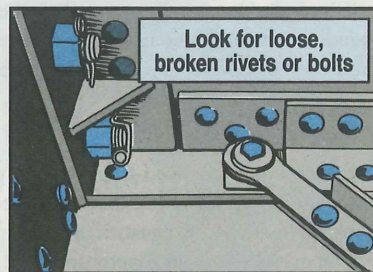
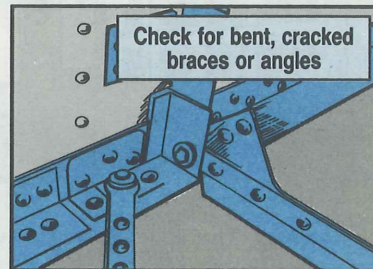
# STRAIGHT AND NARROW



## After-Crossing Checks

After your bridge has been crossed by tanks, look it over carefully for any damage to the deck or curbing, bent, twisted or cracked bracing or angles.

Look for broken or loose rivets or bolts, too. A shiny spot or rust around the head of a fastener is a tipoff that it's loose. Report any problems you find.



## Ribbon Bridge Bays...

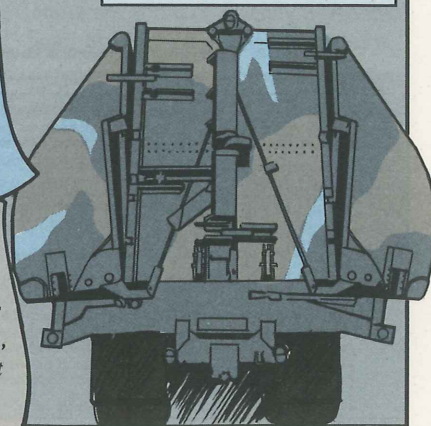
Dear Half-Mast,  
I'm looking for an NSN for the cable in the unfolding assembly for the ramp or interior ribbon bridge bays. There are part numbers listed in Fig 52 and Fig 71 of TM 5-5420-209-20P, but no NSN's.  
SGT W. R. M.

Dear Sergeant W. R. M.,  
You can only get those cables as a complete assembly. The cables must be stretched after assembly, and unit-level maintenance can't do that.

*Half-Mast*

## Spreader Cable Parts

Get complete assembly only





**W**hen you are inflating tires on split lock ring rims, you need to stay at least 10 feet away. That'll let you stay away from the side of the rim, where a loose ring might fly off.

When you're adding air to a tire that has less than 80 percent of the recommended pressure, put it in a tire cage. A WARNING statement spelling that out is being added to the PMCS in the operator's manuals for all tactical wheeled vehicles.

### Gage NSN's

Either way, you need tire pressure gage, NSN 4910-00-441-8685. It comes with a 10-ft hose, quick-disconnect coupling and a coupler adapter for large bore valve stems on construction equipment.

You may also get an adapter for regular valve stems, depending on the procurement contract. If you don't get the regular adapter, order it with NSN 2640-00-758-6274.

Use a straight pipe-to-tube adapter, NSN 4730-00-266-0533, to connect the air supply hose to the gage. It's in the brass fitting kit in the No. 1 Common shop set.

Table 2-2. Operator/Crew Preventive Maintenance Checks and Services (Cont'd)

ITEM NO.	INTERVAL					ITEM TO BE INSPECTED PROCEDURE: Check for and have repaired, filled, or adjusted as needed	EQUIPMENT IS NOT READY/ AVAILABLE IF:
	B	D	A	W	M		
2						TIRES a. Gage tires for correct air pressure using tire inflation gage and hose assembly. Adjust as necessary.  <b>WARNING</b> Do not reinflate tires mounted on multipiece rims which are below 80 percent of the recommended pressure. Reinflating a tire under 80 percent of the recommended pressure may cause separation of the wheel components with an explosive force, causing damage to equipment and injury or death to personnel.	

## Keep a Keen Cutting Edge

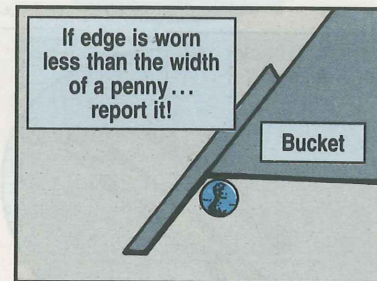
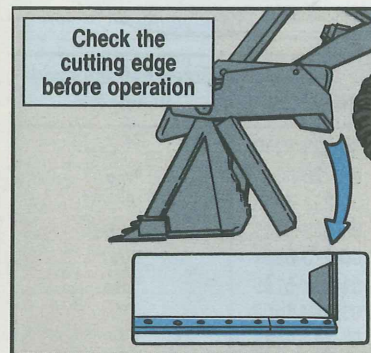


**T**ake time to check the cutting edge on your scooploader and save damage to the bucket.

The bucket wears when the edge is worn down too far. When the bucket is worn, it has to be sent to DS for repair or replacement.

So check the edge and end bits on the blades and buckets before you operate

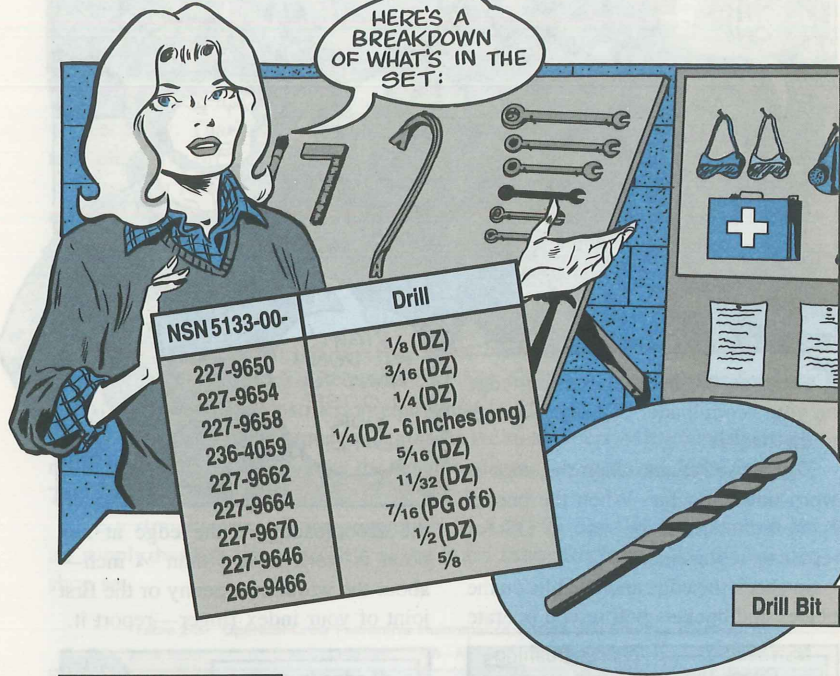
the scooploader. If the edge at any point is worn to less than 3/4 inch—about the width of a penny or the first joint of your index finger—report it.



Your mechanic can reverse the edge or replace it if it can't be reversed.

# EXTRACTOR SET BREAKDOWN

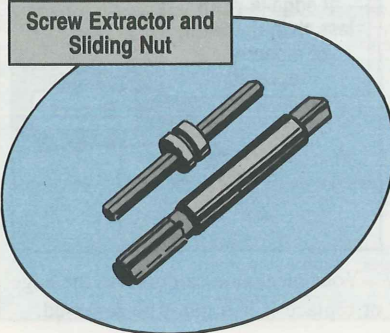
SC 4910-95-CL-A74 doesn't list all the components of the screw and pipe extractor set, NSN 5120-00-305-2275.



NSN 5133-00-	Drill
227-9650	1/8 (DZ)
227-9654	3/16 (DZ)
227-9658	1/4 (DZ)
236-4059	1/4 (DZ - 6 inches long)
227-9662	5/16 (DZ)
227-9664	11/32 (DZ)
227-9670	7/16 (PG of 6)
227-9646	1/2 (DZ)
266-9466	5/8



Drill Bit

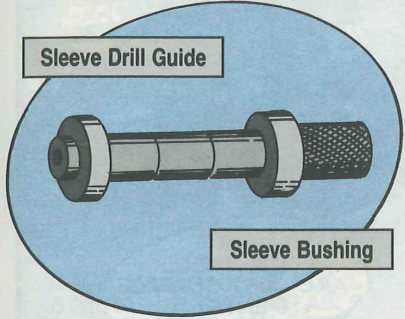


Screw Extractor and Sliding Nut

NSN 5120-	Screw Extractor and Sliding Nut
00-223-6940	1/4
00-223-6941	5/16
00-223-6942	3/8
00-223-6943	7/16
00-223-6944	1/2
01-143-5185	5/8
01-140-4497	3/4
01-140-4498	1

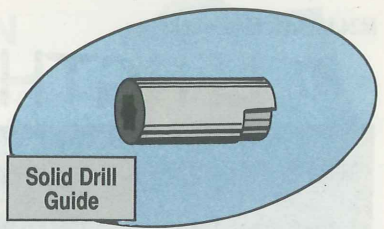
THE SIZES ARE IN INCHES. UNIT OF ISSUE IS EA UNLESS OTHERWISE INDICATED:

NSN	Sleeve Drill Guide
5120-01-225-6517*	sleeve
5310-01-205-9184	knurled plain nut
5365-01-205-5133	sleeve spacer (PG of 4)



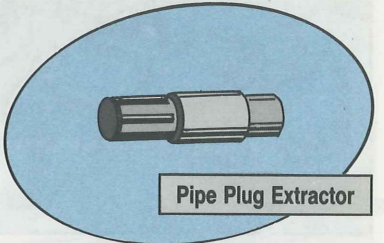
Sleeve Drill Guide

NSN 3120-01-	Sleeve Bushing
214-4925	21/32
214-4924	11/16
214-4923	23/32
205-2686	25/32
215-5209	13/16
214-4926	29/32
214-1979	15/16
214-1978	31/32
214-1977	11/32
214-1976	11/16
214-1975	13/32



Solid Drill Guide

NSN 5120-00-223-	Solid Drill Guide	OD
8868	Drill 1/8	19/32
8965	1/8	5/16
8966	1/8	11/32
8967	1/8	3/8
8968	3/16	13/32
8960	3/16	7/16
8961	3/16	15/32
8962	3/16	1/2
8963	1/4	17/32
8964	1/4	9/16

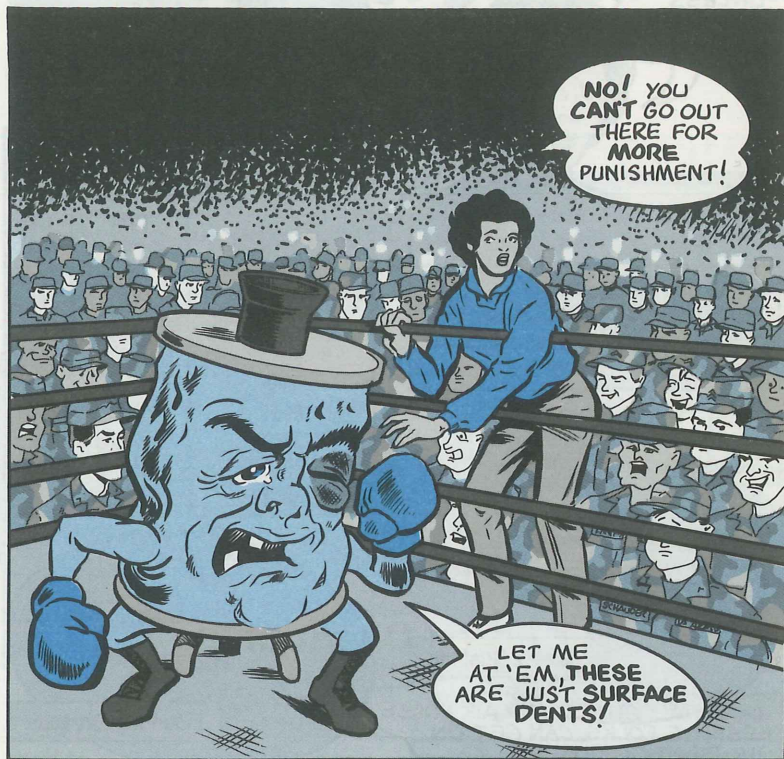


Pipe Plug Extractor

NSN 5120-01-	Pipe Plug Extractor
141-0030*	1/8
141-0031*	1/4
142-6950*	3/8
141-0032*	1/2
142-6951*	3/4
141-0033*	1

\*These NSN's are coded "L" on the AMDF. Local purchase from your nearest Snap-On dealer.

# AT LENGTH IN DEPTH



It's not how long a dent is in your mask's canister, but how deep that decides whether a canister's good or not.

The dent can't be deeper than 1/4 inch. If it is, get a new canister. The dent can be any length, though, as long as it's not more than a 1/4-in deep.

The best way to measure a dent is to stick a penny in the dent. If the penny goes in past the base of the Lincoln Memorial, the dent is deeper than 1/4-in.



## Travel Desk NSN

Use NSN 7520-01-283-9967 to get a camouflaged portable desk that keeps forms, pencils and such out of the wind and rain. It gives you a place to write and a clip to hold your papers. Get a forest green desk with 7520-01-283-9968.



## M103 Trailer Wheel Bearing Wrench

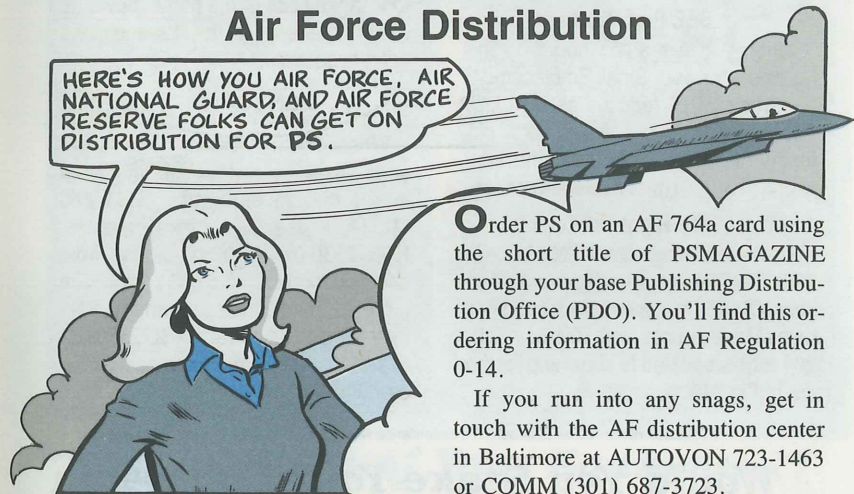
Get a 3 3/8-in, 8-pt, 3/4-in drive wrench to take off the wheel bearing adjusting nut on your M103 trailer with NSN 5120-01-105-8593. Since this NSN is coded local purchase on the AMDF, CONUS units order from the local Owatonna Tool Company (OTC) dealer using part number 1924. OCONUS units order the wrench by NSN on DD Form 1348-6 from GSA. This wrench will be added to Appendix F of TM 9-2330-213-14&P in the next update.

## Heater Access Cover Latch NSN

No need to toss MF510-series vehicular compartment heater access covers just because the latch is busted. Get oval stud (the manufacturer's name for the latch), part number M37000-76. Order on a DD Form 1348-6 using CAGE 46522 from S9C.

## Air Force Distribution

HERE'S HOW YOU AIR FORCE, AIR NATIONAL GUARD, AND AIR FORCE RESERVE FOLKS CAN GET ON DISTRIBUTION FOR PS.



Order PS on an AF 764a card using the short title of PSMAGAZINE through your base Publishing Distribution Office (PDO). You'll find this ordering information in AF Regulation 0-14.

If you run into any snags, get in touch with the AF distribution center in Baltimore at AUTOVON 723-1463 or COMM (301) 687-3723.



### Hotline for EOD, Gear

The US Army Armament, Munitions and Chemical Command now has a hotline for Explosive Ordnance Disposal (EOD) and EOD gear. If you need extra help during duty hours, call AUTOVON 793-5175 or commercial (309) 782-5175.

### New NSN for Ramp Tee

Use NSN 4730-00-618-5381 to get the tube tee for the ramp hydraulic system on the M113A2, M577A2, M125A2 and M106A2 vehicles. It replaces NSN 4730-00-570-3959, shown as Item 12, Fig 279, in TM 9-2350-261-20P.

### SEE Red, Too!

When you're reading hours on the hourmeter on your Small Emplacement Excavator (SEE), read the last digit, too. The last digit is red. It is hours, not tenths of hours. If you read the time wrong you could miss a needed service.

### The Right Nuts

Use self-locking nuts, NSN 5310-00-275-0704, for the starter-generator on your OV-1D Mohawk. You need six nuts. Make a note until TM 55-1510-204-23P is updated to show and list the nut in Fig 113.

**Distribution:** To be distributed in accordance with DA Form 12-34-C-R, for TB-43-series.

**Would You Stake Your Life** *right now* **on**

### Power Output Warning

When you tune your RT-246 or -524 receiver-transmitters, be sure to keep within the power output limits. The high power output levels for the RT's must fall in the range of 30 to 65 watts. If you exceed 65 watts, it will damage the RT units. This warning will be added to all VRC-12 manuals.

### M198 Howitzer's Mattock Changed

The mattock carried on the M198 howitzer's left trail is being replaced by attrition with a longer mattock, NSN 5120-00-243-2395. Store the new mattock in the back of the prime mover so it won't interfere with the stowage of the firing base plate.

### M151 Brake Cylinder Matchup

Wheel brake cylinders come in two sizes for the 1/4-ton trucks. Mixing them makes the brakes unsafe. M151 and M151A1's use 3/4-in brake cylinders, NSN 2530-01-071-9851, on the front and rear brakes. M151A2's use 3/4-in cylinders on the rear, but on the front they need 1-in cylinders, NSN 2530-01-071-9850. The size is stamped on the cylinders.



### Tire Constrictor NSN

Changing an M880 or CUCV tire is a tough job, but it's easier with constrictor, bead expander, NSN 4910-00-437-7215. It's listed on Page B1 of TM 9-2610-200-24, but the NSN shown is wrong.

### Brake Shoe Washer NSN

The flat washer for the inside hand-brake shoe on the 2 1/2-ton truck listed as item 40 in Fig 111 of TM 9-2320-209-20P has a new NSN and part number. The NSN is 5310-00-910-6692 with PN 322045-1 and CAGE 80020. Make a note until the TM is updated.

### The Good and the Bad

You've got to be able to separate good fasteners from bad fasteners. So keep bulk hardware items with the original packaging until the entire package is used. Never store nuts and bolts loose or mixed with other stock so that they lose contract identity. AVSCOM Gen-MIM-88-04 has the word.

### M548 Cargo Carrier Wiper NSN

Get the windshield wiper blade for your M548 cargo carrier with NSN 2540-01-098-1865. Make a note of this for Item 19 in Fig 140 of TM 9-2350-247-20P.

### Pitch Control Update

Take care when you order a new pitch control for your Cobra or you could get the wrong part. NSN 5826-01-199-4800 gets a pitch control for aircraft numbers 70-15936 and later. NSN 5826-00-087-9084 gets you the right part for aircraft numbers 66-15249 through 69-16447. The parts are not interchangeable.

### Apache Taillight Fix

If the taillight on your AH-64 Apache fails often, chances are the wire harness, W154, needs to be reworked and strengthened. If heat shrink sleeving has been installed around the harness, then it's as strong as it's going to get. There's nothing else you can do but replace the lamp. But if there's no sleeving, latch onto a copy of TB 55-1520-238-20-24. It tells how to strengthen the wires that have been breaking.

### Clean and Protect Vinyl

Use saddle soap, NSN 7930-00-170-5467, and warm water to clean your CUCV's vinyl dashboard. Rub the soap in, let it soak, and wipe it off with a clean, damp cloth.

Then protect the dashboard with Armor All. Get a 16-oz spray bottle with NSN 8030-01-103-2868.

**the Condition of Your Equipment?**



# HIGH PRESSURE WATER

**STOP!**

HIGH PRESSURE WATER GETS INTO MY SEALS AND ELECTRICAL COMPONENTS!



**CAN GROUND**  
*you* **AIRCRAFT**