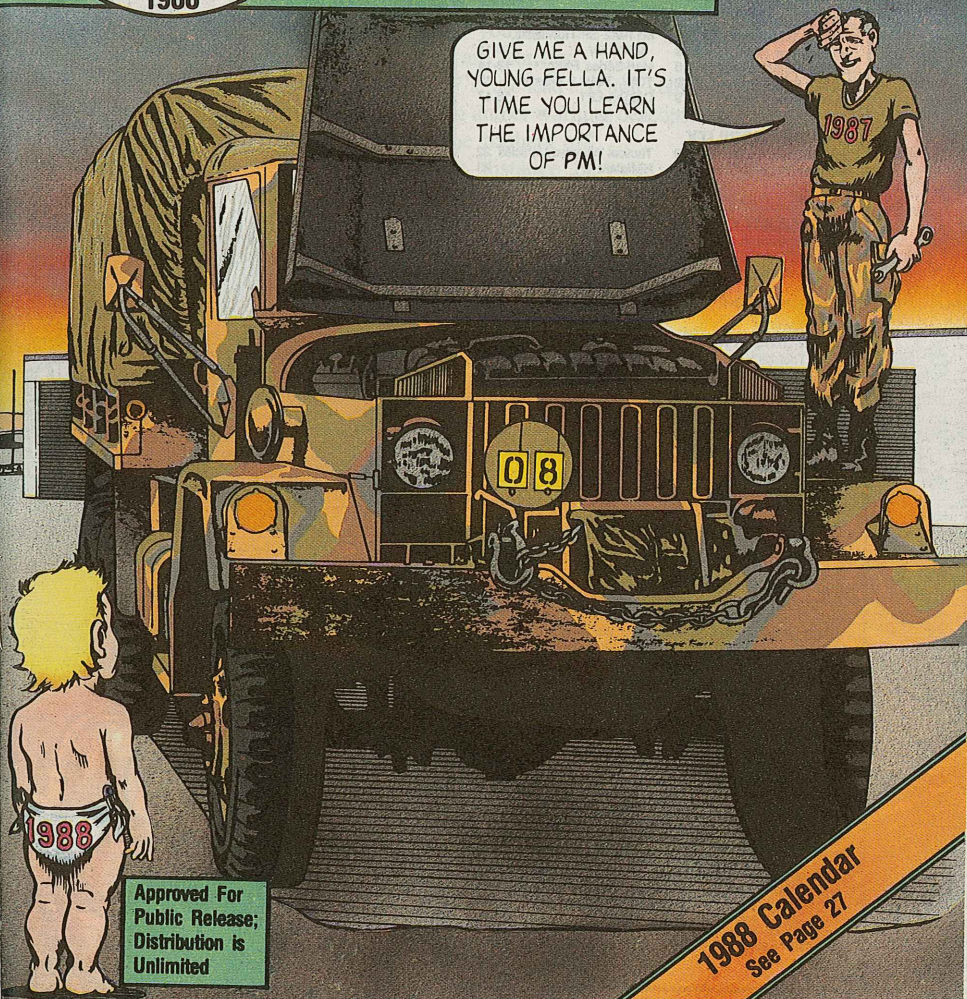


Issue 422

**PS**January  
1988**THE  
PREVENTIVE  
MAINTENANCE  
MONTHLY**

GIVE ME A HAND,  
YOUNG FELLA. IT'S  
TIME YOU LEARN  
THE IMPORTANCE  
OF PM!



Approved For  
Public Release;  
Distribution is  
Unlimited

**1988 Calendar**  
See Page 27





# THE PREVENTIVE MAINTENANCE MONTHLY

TB 43-PS-422, 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.

ISSUE 422 JANUARY 1988

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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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By Order of the Secretary of the Army:

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General, United States Army  
Chief of Staff

Official:

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Brigadier General, United States Army  
The Adjutant General

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Convoys and CUCVs...

# Lead, Follow or Get Run Over

You can't be too careful when it comes to convoying over public highways. Lead and trail vehicles should have rotating amber warning lights or use their emergency flashers, as spelled out in local regulations.

But, on most vehicles, when the flashers are on, the brake lights won't work! Following vehicles don't know you're stopping!

The CUCV is the only tactical truck with brake lights that override the flashers. So, if you can, use CUCV's as the first and last vehicles in any convoy.

If you don't have CUCV's, use lead and trail vehicles equipped with rotating amber warning beacons.

Be sure to keep the flashers off!

Maintain a safe distance between vehicles in the convoy, too. That's covered on Page 5-8 of FM 55-30.







M48A5, M60-Series Tanks...

## Clean Air's a Must

Your tank engine needs clean air to breathe, and clean air depends on the condition of the air cleaner system.

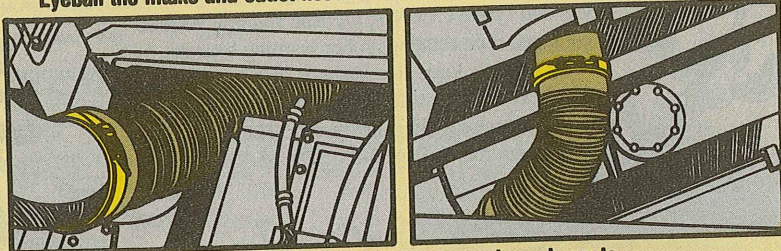
Keeping air filters in prime condition is a job for mechs.

But you crew members keep an eye on the air cleaner system to make sure everything's OK.

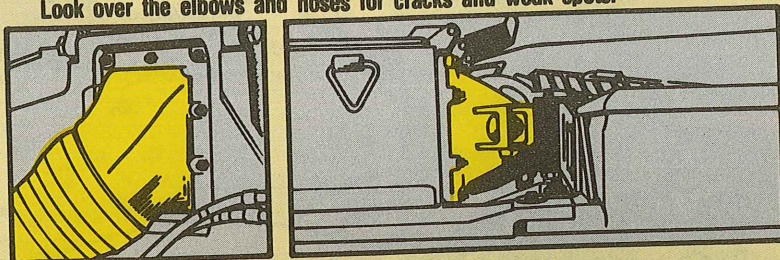
Loose, cracked or missing hoses and clamps and damaged or missing seals let in the dirt that ruins expensive engines.

Here are things you need to do everytime you operate:

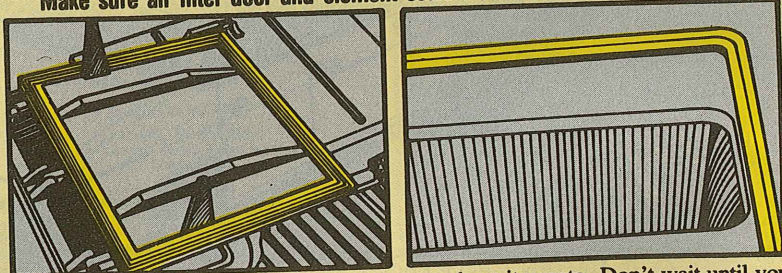
**Eyeball the intake and outlet hoses. Make sure nuts, clamps and gaskets are tight.**



**Look over the elbows and hoses for cracks and weak spots.**



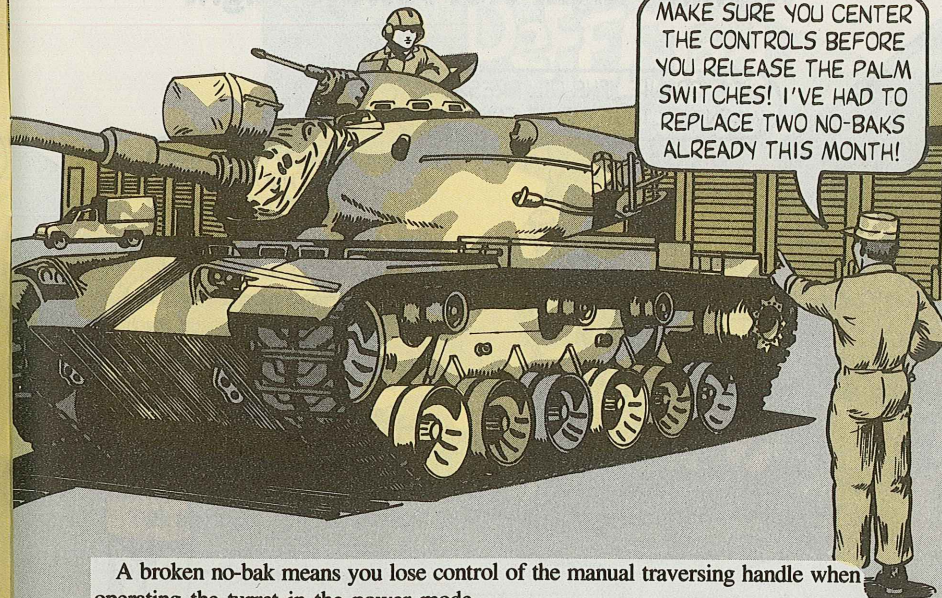
**Make sure air filter door and element seals are not cracked, dented or brittle.**



If you spot problems, let your mech know about it pronto. Don't wait until you ruin an engine.

M48A5 and M60-Series Tanks...

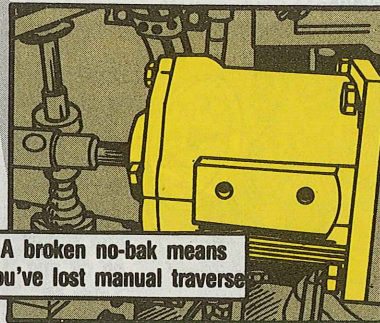
## Who's in Control?



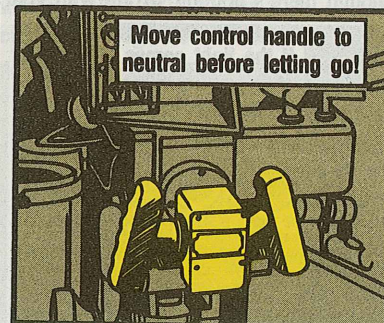
A broken no-bak means you lose control of the manual traversing handle when operating the turret in the power mode.

The no-bak keeps the manual traversing handle from moving when the gunner's or commander's control handle is in motion.

But you strain that relationship to the breaking point when you rapidly traverse with the control handles and then let go of the palm switch without first getting the handles to straight-up neutral.



**A broken no-bak means you've lost manual traverse**



**Move control handle to neutral before letting go!**

So, move your power control handle to neutral before you let go of it—every time.

In addition, never release the control handle palm switch while traversing the turret.

If you do, you could cause wear or damage to the magnetic brake and the pin lock.

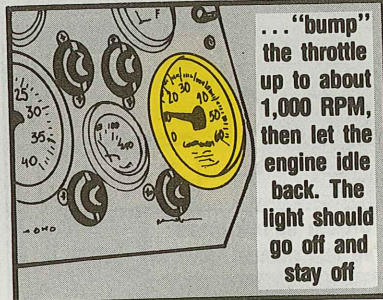
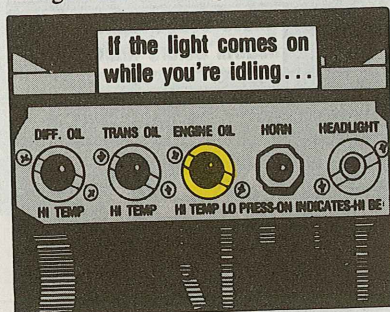


## Warning Light Not Always Right



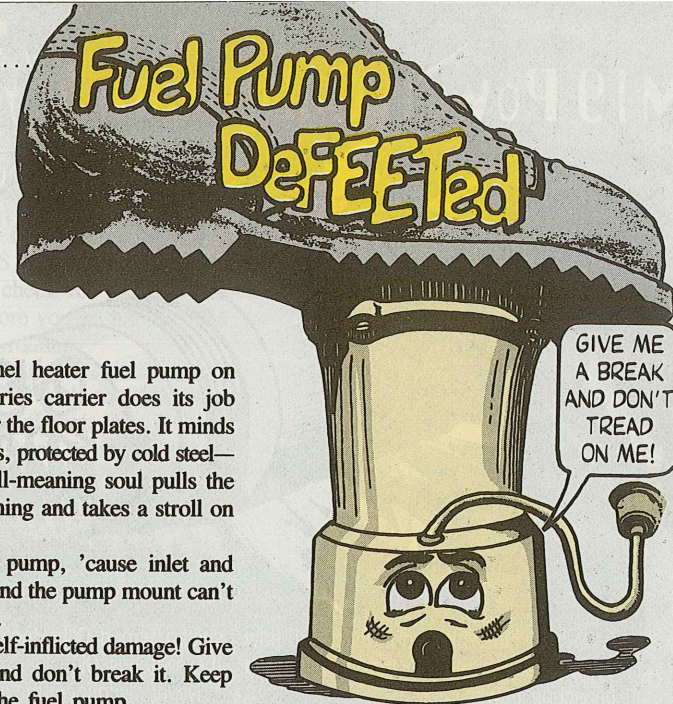
The oil pressure warning light on M113-series vehicles may light up even when the engine oil pressure is OK.

Here's the story. The actuating pressure for the pressure switch is 4-8 PSI. The minimum acceptable oil pressure at idle is 5 PSI. So the light may come on even though there's nothing wrong with your engine.



If so, you're good to go.

But if the light comes ON and will not go off after goosing the engine, shut down—NOW—and call in your mech.



The personnel heater fuel pump on your M113-series carrier does its job secluded under the floor plates. It minds its own business, protected by cold steel—until some well-meaning soul pulls the plates for cleaning and takes a stroll on the pump.

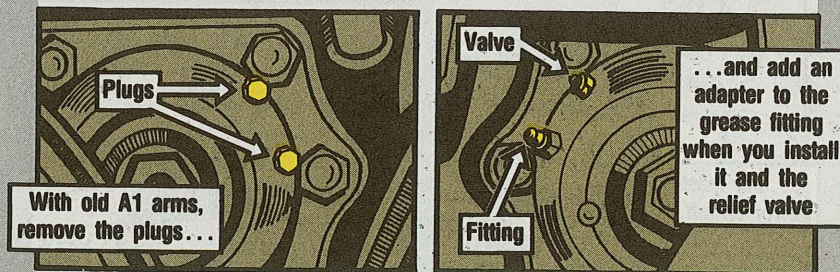
Scratch one pump, 'cause inlet and outlet elbows and the pump mount can't take the strain.

Talk about self-inflicted damage! Give it a break...and don't break it. Keep your feet off the fuel pump.

## Fitting Adapters for Roadwheel Arms

LO 9-2350-261-12 shorts you some info for lubing roadwheel arms.

Some old-style roadwheel arms from M113A1-series carriers were re-used on the A2-series. You need to add special adapters, NSN 4730-00-186-3024, to make the lube fitting stick up far enough to be lubed. If plugs are installed on any road-



wheel arms, remove them and install fitting, NSN 4730-00-050-4208, and relief valve, NSN 4820-00-845-0067. Add lube, then remove the fitting and valve and reinstall the plugs.

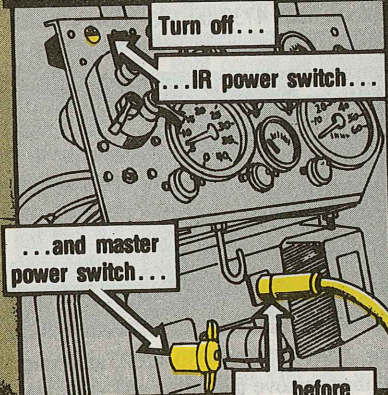


# M19 Power Cable Can Kill You

Pay real close attention, drivers, to how you install and remove the M19 infrared periscope power cable.

Playing fast and loose with the TM procedures can leave you seriously burned or dead—from a jolt of electricity in excess of 16,000 volts.

Never connect the cable to the periscope with the MASTER SWITCH and IR POWER

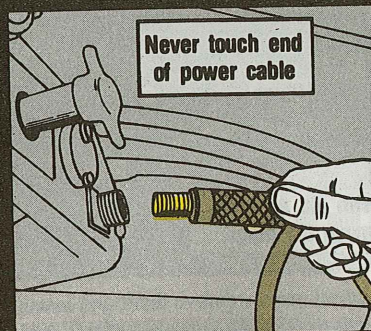


...before  
disconnecting  
the cable

switch turned ON. Hook it up, then turn the switches ON.

Never disconnect the cable until you (1) turn both switches OFF, (2) wait at least two minutes, and (3) make sure the image has disappeared from the periscope screen.

Never touch the end of the power cable or let it touch a metal surface. Make absolutely sure there are no rips, tears or bare wires on the cable before you use it.



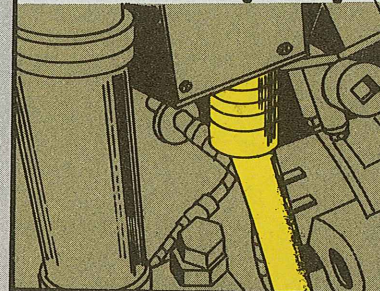
Never touch end  
of power cable

## Loose Cables—Start Problems

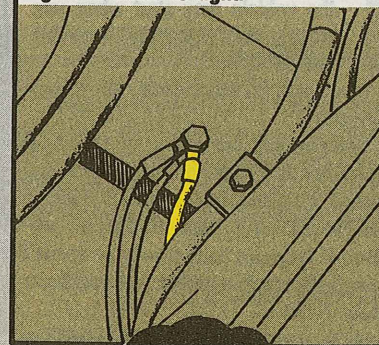
MAKE SURE ALL CABLES  
AND CLAMPS ARE TIGHT  
BEFORE YOU TROUBLESHOOT!

If your MLRS or Bradley won't start, make a quick check for loose cables and clamps before you go into the TM troubleshooting routine.

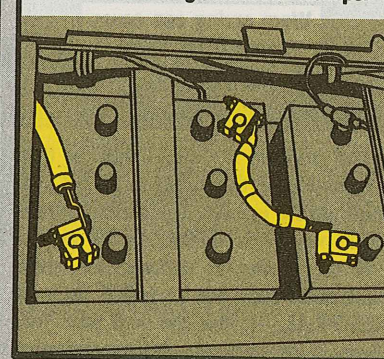
Eye the 1W7P1 cable connector at the engine distribution box. Make sure the cable is on right and tight.



Check the ground wire from the battery to the hull. Make sure the ground cable is tight.



Look for loose cables or clamps on the batteries. Tighten loose clamps.



IF YOU STILL  
DON'T GET A  
START, REPORT IT!



## Spring Sprung? Surprise Start!

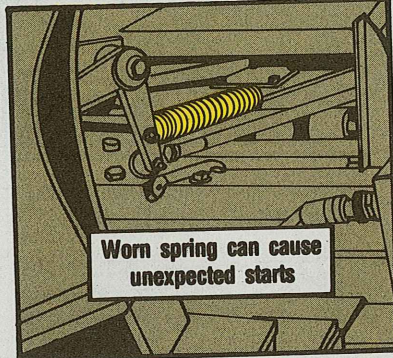
I DIDN'T SAY TO START IT YET!



GEE, SARGE, IT STARTED BY ITSELF!



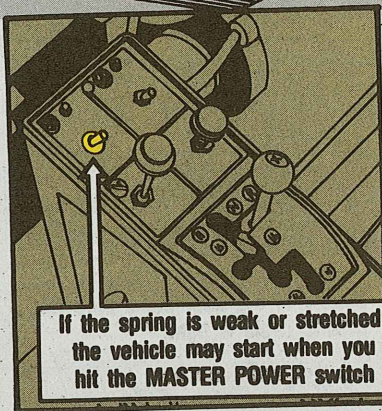
A weakened or stretched spring in the gearshift linkage on your MLRS could give you an unexpected start, drivers.



Worn spring can cause unexpected starts

The gearshift is spring-loaded so that you must push the shifter to START to crank up the engine. The shifter is then pulled back to NEUTRAL by the spring.

If the spring is sprung, the shift mechanism may not be pulled back to NEUTRAL—so that the next time you climb in to start up, the transmission may not be in NEUTRAL when you throw the MASTER POWER switch to ENGINE ON.



If the spring is weak or stretched, the vehicle may start when you hit the MASTER POWER switch

When you hit the switch, the vehicle may start.

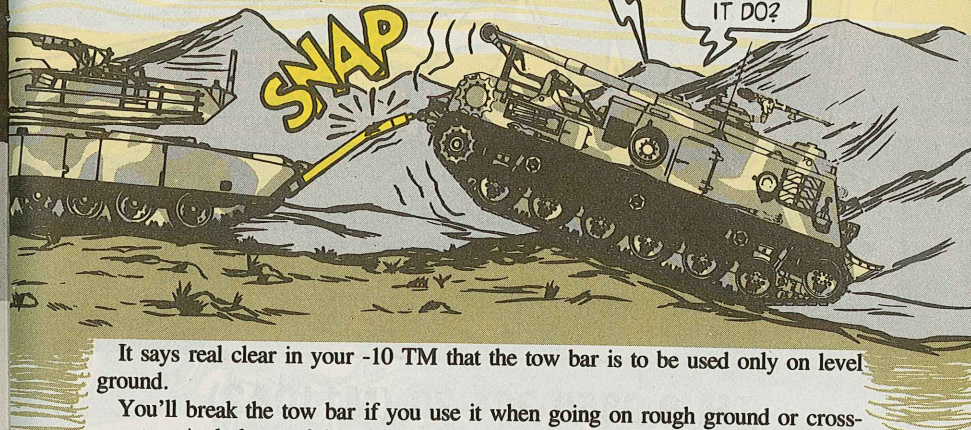
You can test the spring by watching the shifter as you push it to START and release it. If the shifter comes back to NEUTRAL easily and quickly, no problem. If it comes back slowly or doesn't come back much at all, let your mechanic know NOW!

He'll need NSN 5360-01-106-6438 to put the spring back in the shifter mechanism, and take the surprise out of your starts.

## Know Your Tow Before You Go

I THOUGHT WE WEREN'T SUPPOSED TO USE THE TOW BAR OVER ROUGH TERRAIN!

AW, WHAT HARM CAN IT DO?



It says real clear in your -10 TM that the tow bar is to be used only on level ground.

You'll break the tow bar if you use it when going on rough ground or cross-country. And plenty of them are getting broken—about 1,000 a month, according to the headshed.

Follow your TM. Use towing cables when pulling heavy vehicles over rough ground or cross-country. Once you get to level ground, change back to the tow bar.

The fact that you'll need another vehicle to provide braking for the disabled vehicle shouldn't tempt you to break the rule—or the tow bar.

Tow smart—with the cables on rough ground and cross-country.

## M992 Fire Light TM Correction

Page 2-117 of TM 9-2350-267-10 says the crew compartment ENGINE FIRE lamp will light when you perform the lamp test. That's not true on M992 ammo carriers with serial numbers from 1 through 344, tho. The lamp on the remote status indicator will not light during the test. Carriers numbered 345 and higher have lamps that light during the test.

## Avoid Deck Bolt Seizure

Bolting down the deck plates on your M109-series SP howitzer or M992 ammo carrier without using anti-seize compound is like using a welder for the job. Corrosion sets in and keeps the bolts "welded" to the insert threads. Prevent this by using anti-seize compound, NSN 8030-00-087-8630. That NSN gets a 1-lb can.



# NEW

# Troubleshooting Info

The -20 TM's for both the M110A2 and M578 are a little short on transmission troubleshooting, especially when you need to do a pressure test.

Until the TM's are updated, here's what to add to the procedures in the books:

## TM 9-2350-304-20 (M110A2)

- On Page 3-280, under the problem heading, "Oil Pressure Too Low," change step 3 and add a step 4—

3. Check the oil level and add oil if necessary (LO 9-2350-304-12).

4. Check the transmission oil pressure (Pages 4-80 through 4-83). If below specified pressure, notify DS.

- Also on Page 3-280, under the heading, "Oil Pressure Too High," change step 3—

3. Check transmission oil pressure (Pages 4-80 through 4-83). If above or below specified pressure, notify support.

- On Page 3-281, under the heading, "Oil Temperature Too High," change step 3 and add steps 4, 5 and 6—

3. Check the oil level and add oil if necessary (LO 9-2350-304-12).

4. Check to make sure the transmission oil filter is clean. Install it properly (Pag 4-84).

5. Adjust the brakes (Pages 4-86 through 4-87).

6. Check the transmission oil pressure (Pages 4-80 through 4-83). If below specified pressure, notify support maintenance.

- On Page 3-282, under the heading, "Vehicle Does Not Shift Properly," change step 2 and add step 3—

2. Check the oil level and add oil as required (LO 9-2350-304-12). If the oil level is low, check seals, plugs and gaskets for oil leaks. Correct the cause of the leak. If you can't make the repairs, see DS.

3. Check transmission oil pressure (Pages 4-80 through 4-83). If below specified pressure notify support.

MY TM'S A LITTLE SHORT  
ON TRANSMISSION  
TROUBLESHOOTING!

MINE  
IS TOO!

## TM 9-2350-238-20 (M578)

The instructions for the M578 are the same as for the M110A2. The page numbers in the TM and the LO are different, however.

- The "Oil Pressure Too Low" info is on Page 3-274 and the LO to use is LO 9-2350-238-12. Pressure check info is found on Pages 4-82 through 4-86.

- The "Oil Pressure Too High" info is also on Page 3-274. Pressure check info is on Pages 4-82 through 4-83.

- The "Oil Temperature Too High" info is on Page 3-275. Oil filter info is on Page 4-86. Brake adjustment info is on Page 4-87 through 4-89. Pressure check info is on Pages 4-82 through 4-85.

- The "Vehicle Does Not Shift Properly" info is on Page 3-279. Pressure check info is on Pages 4-82 through 4-85.



# The

# Right Stuff



To do the PM job right on your M16 rifle you have to use the right tools. Otherwise, PM can turn into MP...major problems.

Clean the bolt carrier key only with an old bore brush, CLP and a pipe cleaner.

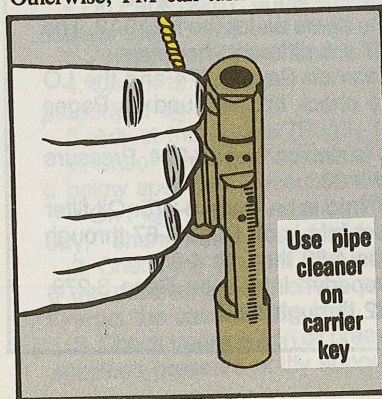
Never use a cotton tip. Cotton comes off and mixes with lube and carbon. The gunk hardens and plugs the gas port, shutting down your M16.

Clean the lower receiver extension's buffer tube only with swabs, CLP and your swab holder.

Never substitute things like paper towels or old rags. They break apart inside the tube and get jammed in the rear of the tube. Then when you fire you could damage your rifle...or hurt yourself.

JAN 88

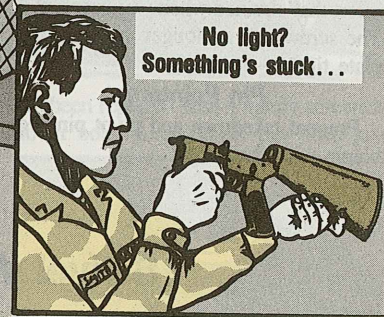
12



## Tube Cleaning

Armors, if you get complaints about the buffer not fitting all the way in the lower receiver extension, make sure nothing's blocking the buffer tube like this:

Clean the drain hole. Hold the lower receiver up to the light and look down



## Drain Moisture Threat

Keep the lower receiver extension unplugged by running a pipe cleaner through the butt cap screw drain hole when you're in the field. Resting the rifle butt down in the mud or sand clogs the drain hole. Moisture can't get out. Corrosion ruins the extension.



JAN 88

the tube. If something's in there, you won't see light.

Clear the tube by taking out the butt cap screw and pushing a cleaning rod handle section through the screw hole,



being careful not to damage the threads of the lower receiver extension. That will unlodge whatever's in the tube.

13



Remember, you can't put the old butt cap screw, NSN 1005-00-992-6657, back

**Replace  
buttplate  
screw**



in. The screw has a self-locking nylon insert that's ruined when you unscrew it. The screw can no longer keep the butt plate tight.

### Pin Pointers

Prevent takedown and pivot pin problems with these tips:

After you have the pin holes aligned, wiggle the pin in the hole as you push down. If you muscle or hammer it, you'll bend the pin or damage the receiver.

If a pin just won't go, clean it with CLP. Make sure you get all crud out of the groove that runs the length of each pin. If the pins still won't go, let your armorer know.

**Clean groove and  
push pin in hole**



## Swivel Won't Do

When the new M16A2 rifle has the M203 grenade launcher mounted on it, you can't use the swivel mount for attaching the small arms sling. The M16A2 has a larger barrel diameter that keeps the swivel mount from fitting. Instead, use the top sling adapter kit, NSN 1005-00-406-1570, for attaching the sling. The kit is part of the rifle's Additional Authorization List.

## Rimfire Adapter

The M261 rimfire adapter lets your M16A2 rifle use .22-cal ammo, just like the adapter did for your M16A1. The adapter's available thru your local Training and Audio-Visual Support Center. TM 9-6920-363-12&P tells how to use the M261.

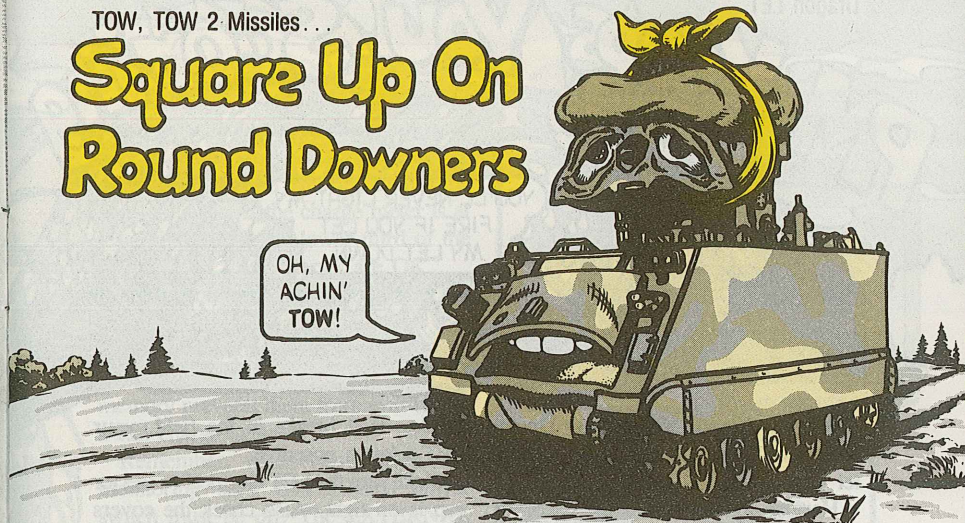
## Mounting Kit for Trucks

You can get an M16 rifle mounting kit for M44A1-, M31A1/A2-, and M809-series trucks with NSN 2540-01-223-0041.

TOW, TOW 2 Missiles...

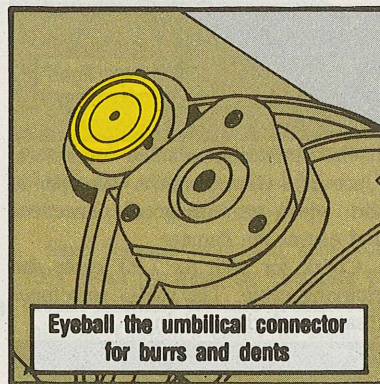
# Square Up On Round Downers

OH, MY  
ACHIN'  
TOW!



TOW simulation rounds can be a real headache if you mechs forget to make these quick checks before sending a round to the field.

has been replaced with a tightly screwed-down bolt. A holdback pin does just

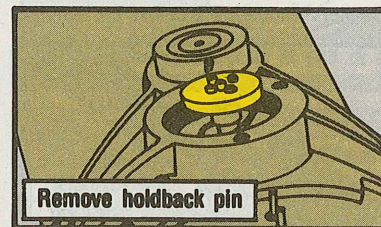


**Eyeball the umbilical connector  
for burrs and dents**

Make sure the aluminum label is peeled completely off the connector. Otherwise, the scraps can short out a round's connecting pins, which damages circuit cards in the M70 instructor console.

### Holdback Pin Holdback

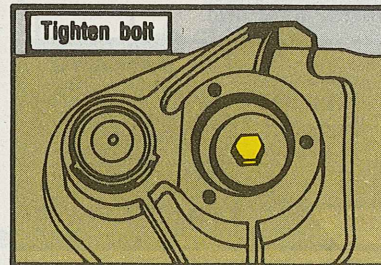
Remove the rubber diaphragm covering the holdback pin and make sure the pin



**Remove holdback pin**

that—holds back the launcher's holdback pin plunger and causes a stalled launch.

Watch for loose bolts, too. A loose bolt causes a stalled launch. But even worse,



**Tighten bolt**

the round's lead weight can fall out and make the round a dud.



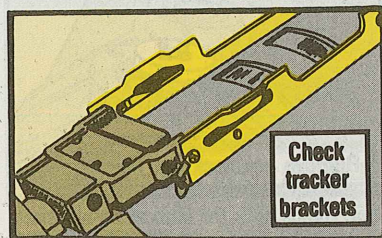


Never let up on PM, and your Dragon Launch Effects Trainer (LET) won't let you down.

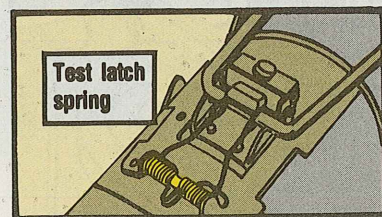
Here're some ways to keep scoring.

### Brackets, Latches and Caps

During BEFORE PMCS, eyeball the trackers' mounting brackets for damage.



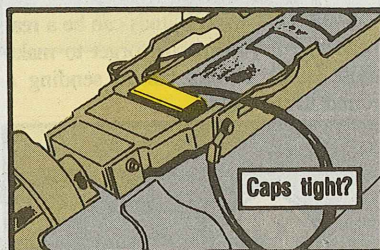
They're often dented by feet and heavy objects. Bent brackets make your LET useless in the field.



Test the LET's bipod latch. Through use, the latch's spring gets weak and

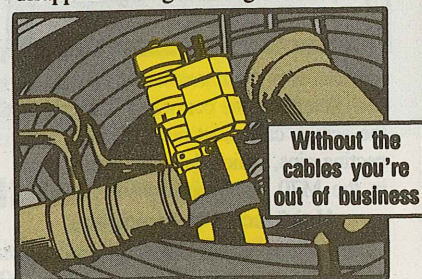
breaks. If it breaks in the field, your LET takes a nosedive.

Make sure the LET electrical connector cap is on tight. Also check the covers



on the monitoring set's four connectors. Uncovered connectors are wide open to dirt, which prevents good connections and causes pin damage.

Check for both the LET cable and charging cable. The cables sometimes disappear during training.



### Battery Boosters

The LET's monitoring set batteries need special attention after operations if they're to stay strong. At the end of the day, make sure the batteries have some sort of charge. If the charge meter is at least higher than the lower third of the yellow zone, the batteries are OK.

When you charge the monitoring set batteries, first discharge them deep into the meter's yellow zone. Then give them a full charge. If you don't, the batteries' memory prevents them from ever taking a full charge again.

Remember, when you charge, the monitoring set's INTERNAL power switch must be off. The EXTERNAL switch must be set to AC or DC depending on the power source. The charging procedure's in Para 3-6 of TM 9-6920-484-12.

Before storing, be sure the INTERNAL power switch is off. Otherwise, the batteries will be drained dead.

Remove the LET's 16 dry cell batteries at the end of operations. Left in, the batteries swell and are impossible to remove. If they leak, they ruin the LET.

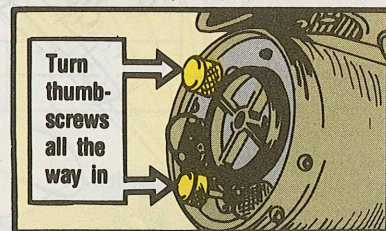
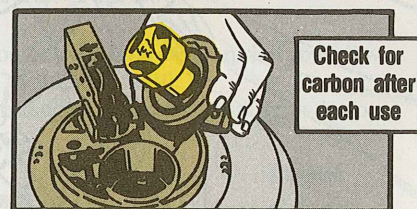
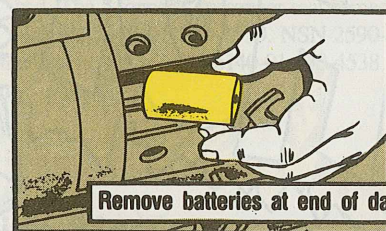
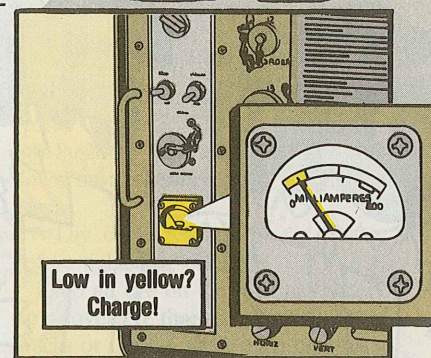
### Into the Breech

Save yourself work and keep your LET from jamming by checking the breech assembly for carbon after every mission. Carbon's easier to clean off when it's fresh. If it cakes up on the breech assembly, the assembly jams.

Before you put your LET away, turn the forward end's thumbscrews in all the way. That protects them from being mashed or bent.

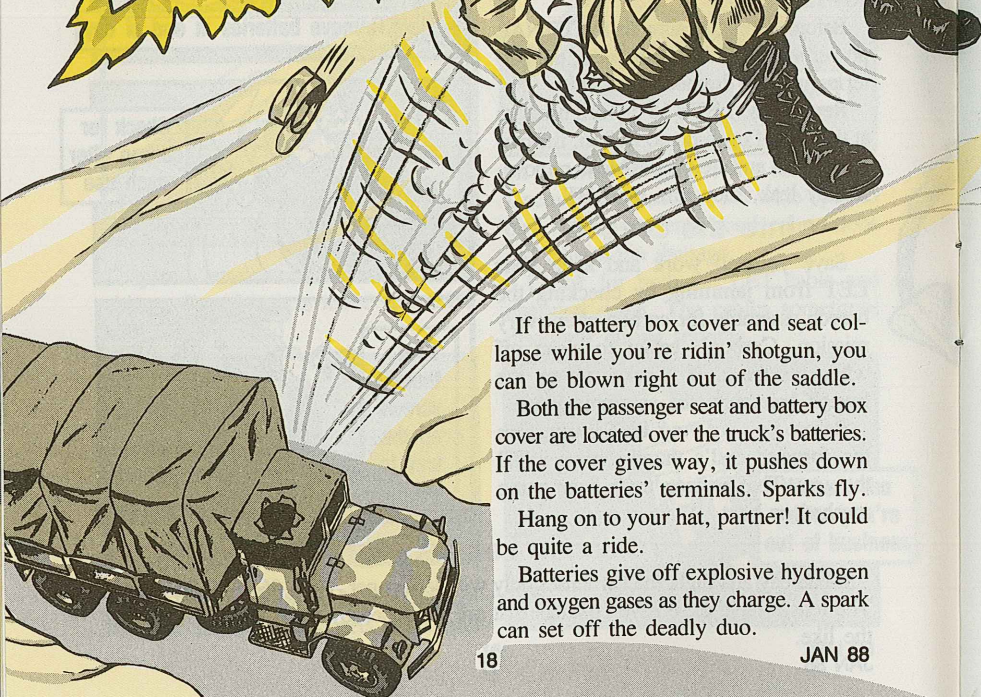
### Cleanse Lenses Right

Clean day and night tracker lenses only with lens paper, NSN 6640-00-597-6745. The lenses have expensive coatings that are scratched by rags, facial tissues and the like.





# On the Hot Seat



If the battery box cover and seat collapse while you're ridin' shotgun, you can be blown right out of the saddle.

Both the passenger seat and battery box cover are located over the truck's batteries. If the cover gives way, it pushes down on the batteries' terminals. Sparks fly.

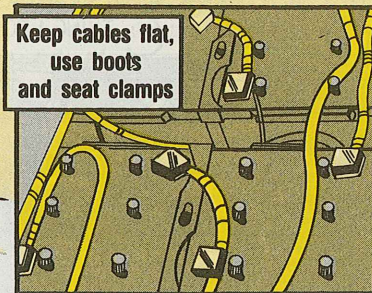
Hang on to your hat, partner! It could be quite a ride.

Batteries give off explosive hydrogen and oxygen gases as they charge. A spark can set off the deadly duo.

You can't always prevent collapsed seats and covers, but you can keep the sparks from flying when the cover gives way. Here's how:

Make sure the batteries are seated and clamped down.

Put rubber boots, NSN 2530-01-089-4992, on all terminals. The boots stop sparks.



Push the cable clamps all the way down on the battery posts and tighten them.

Lay cable flat against the battery before tightening the bolts.

Keep an eye on the seat and battery box cover. If there are any signs of cracks or breaks, replace the one that's bad. The 5-tonner's passenger seat comes as NSN 2540-01-082-7510. NSN 2590-

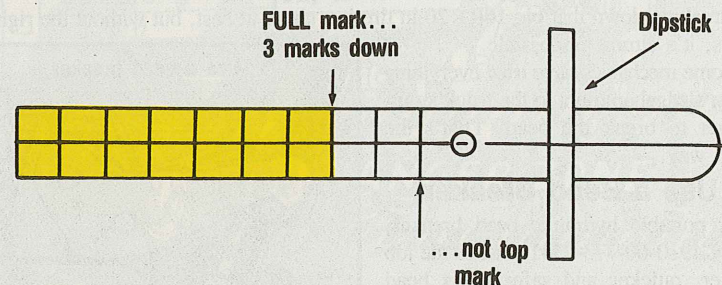
01-130-8045 gets a battery box cover and the battery box is NSN 6140-01-143-4538. The seat you save could be your own.

M929/M930 Dump Trucks...

## Hydraulics Tips

You'll overfill the hydraulics oil reservoir on your 5-ton dump truck if you follow the info in Item 35a of the PMCS in TM 9-2320-272-10.

The right FULL mark with the dump bed down is the third mark from the top, not the top line.



When it's time to change the oil in the dump cylinder hydraulic system, be sure the bed is all the way down before you disconnect the line to the reservoir. And change the oil only when the AOAP lab directs it, not every 12 months like called for in LO 9-2320-272-12.



# Keepin' Those



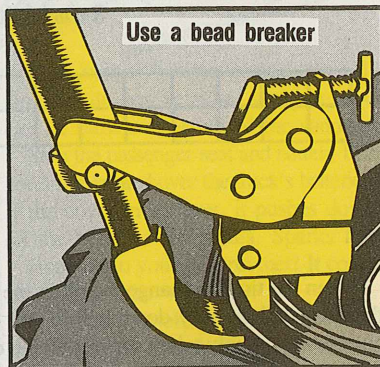
Soldier, when you've got a flat tire on a HEMTT, you've got a FLAT! Breaking down that big 16R×20-in tire is a chore at best, but without the right tools, it's almost impossible.

Some mechanics have tried everything from sledgehammers to the truck's out-rigger to break the bead. That's the hard way.

## Use a Bead Breaker

A portable hydraulic bead breaker, NSN 4910-00-773-9341, makes the job easier, quicker and safer. This bead breaker is designed for big tires—sizes 14.00 × 24 thru 37.50 × 33.

The bead breaker is listed and authorized in Appendix B 3-3 of TM 9-2610-200-24.



# Big Wheels Rollin'

## Mount It Right

What comes off must go on. Again, using the wrong tools to mount a HEMTT tire makes the task a royal pain.

Lubrication makes mounting easier. Use the tire and rim lubricant, NSN 2640-00-256-5527, that's listed in TM 9-2610-200-24. If you don't have any on hand, liquid soap will do in a pinch.

Do not use grease or oil. Petroleum products damage tires by causing rubber to rot.



## Inflate It Safely

Play it safe and use a tire cage when inflating the tire. If your cage is not large enough to handle the HEMTT's tire, either build a bigger cage (Para 2-20 of the -24 TM gives general instructions), or you can order cage, NSN 4910-00-025-0623. This NSN is not on the AMDF, so order on DD Form 1348-6. The RIC is FPZ, and it costs \$2,147.55.

## For Low Tires

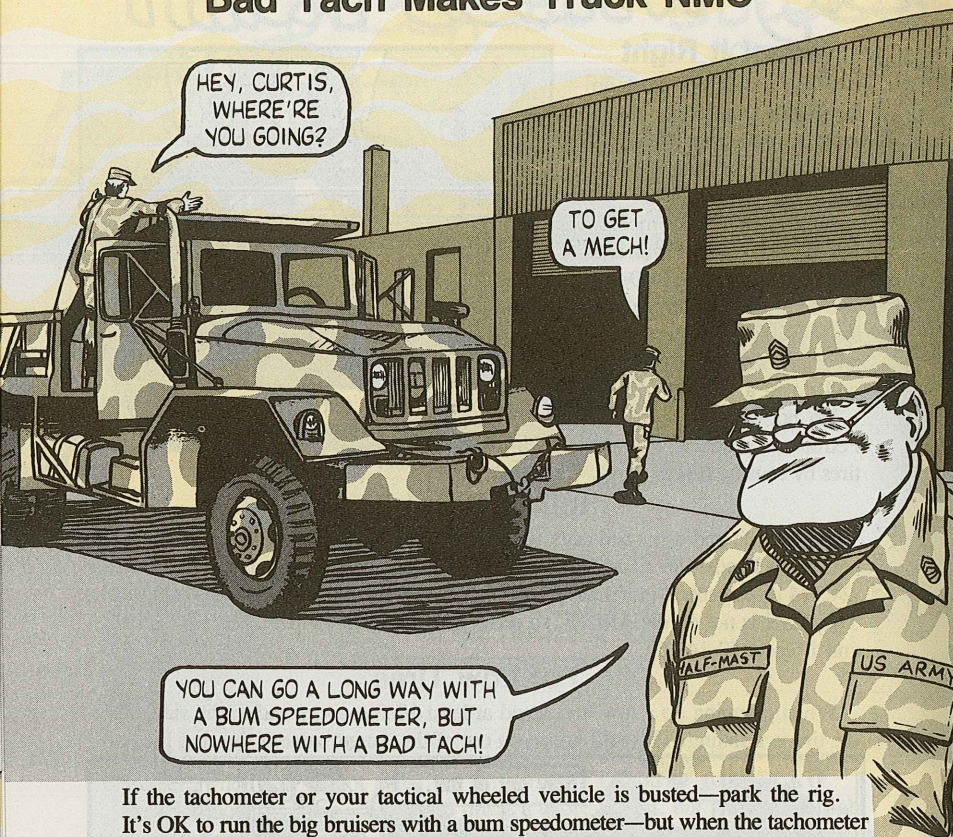
When pumping up a low tire, stand at least 10 feet away and to the side while the tire is inflating. This will keep you out of the danger zone if the ring flies off.



For that long reach, you'll need a tire pressure gage, NSN 4910-00-441-8685. It comes with a 10-ft hose, a quick-disconnect coupling and two coupler adapters. Hook it to the air supply hose with a straight pipe-to-tube adapter, NSN 4730-00-391-3771. It's in the No. 1 Common shop set's brass fitting kit.



## Bad Tach Makes Truck NMC



If the tachometer or your tactical wheeled vehicle is busted—park the rig. It's OK to run the big bruisers with a bum speedometer—but when the tachometer goes, the truck is NMC.

The PMCS tables in the -10 TM's don't say it that plain, but that's what they mean.

A working tachometer is the only way to know if your engine is running at the right RPM's. If the RPM's are too low, the engine lugs. If they're too high, the engine overspeeds. Damage can result either way.

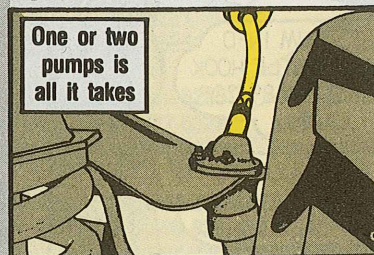
check the following instrument readings:		within given limits, except fuel gage.
•	a. Tachometer (5) reads 600-650 rpm.	Tachometer is not functioning.
•	b. Fuel gage (4) indicates fuel level	

Then there's the transmission...shift at the wrong RPM and WHAM! You could have big t-r-o-u-b-l-e! That goes for your brakes and steering, too.

## PM Helps It Hummmmmmm

Keep those HMMWV's humming with these tips.

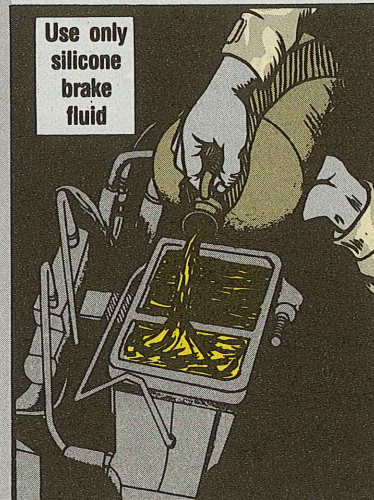
Too much grease is as bad as too little in the ball joints. If you pump in too much grease, the joint's rubber boot pops off. Then the whole ball joint has to be replaced.



Give each ball joint one or two shots of Grease...and STOP.

### Silicone Alone

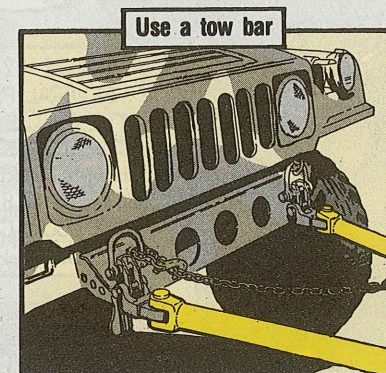
When you add brake fluid, make sure the can is labeled silicone brake fluid and



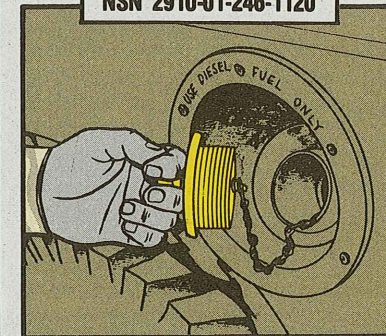
the fluid's purple. Any other fluid gums up the equalizer valve and master cylinder and jells in the system. This makes for a big job to take the brake system apart and clean it.

### Tow Bar Towing

Always use a tow bar to tow a HMMWV. Using a chain lets the HMMWV bang into the towing vehicle and smash its front end.

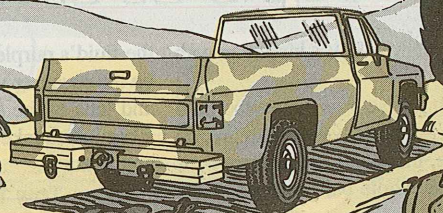


The fuel cap NSN is not in the TM. Order it with NSN 2910-01-246-1120





## Pintle Parts



THERE'S BUM INFO ABOUT THE PINTLE HOOK IN TM 9-2320-289-20P (JUN 85)

FIGURE 102 TELLS YOU THAT SEVERAL PARTS COME WITH THE PINTLE, BUT THEY DON'T

WHEN YOU ORDER PINTLE, NSN 2540-00-078-6633, YOU GET THE HOOK, COTTER PIN AND CASTELLATED NUT

HERE ARE THE OTHER PARTS YOU CAN GET:

NSN 5315-00-752-4316  
NSN 5365-00-803-7301  
NSN 4730-00-050-4203

NSN 5315-00-243-1169  
NSN 4030-00-916-2141  
NSN 4730-00-050-4205  
NSN 5365-00-803-7301  
NSN 5315-00-290-6132  
NSN 4010-00-129-3221  
NSN 5305-00-253-5626

NSN 5305-00-719-5235  
NSN 2540-00-127-5322  
\*NSN 5306-01-157-3330

\*NSN 2540-01-200-3167  
\*NSN 5310-00-834-76076  
\*NSN 5310-01-070-2105

\* Used on all except the M1009

NSN 5310-00-834-7606  
NSN 5310-00-943-2141  
NSN 4730-00-050-4203

NSN 5360-00-704-4253  
NSN 2540-01-023-5116  
NSN 5365-00-803-7301

NSN 2540-00-078-6633

NSN 5315-00-846-0126  
\*NSN 2540-01-200-3167

NSN 2540-00-408-2432

NSN 5310-00-735-5396

NSN 5310-00-709-6711

## Reroute Wiring Harness

The engine wiring harness on some CUCV's is looped in front of the engine oil cooler lines. That causes chafed wiring or shorts.

Check the oil lines at the left rear side of the engine under the brake master cylinder.

The main wiring harness (inside the corrugated plastic tube) should run straight across the front of the firewall. If it's in front of the oil lines, it's wrong.

Your mechanic will disconnect the wiring harness at the main connector on the firewall, check for worn or broken wires and reroute the wiring behind the oil lines.



Wire harness goes behind oil lines

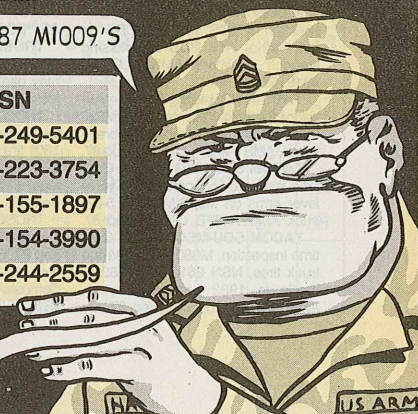
## Front Axle Parts Different

The front axle spindle on the 1985-87 M1009's is 1/4 inch longer than the 1984's. The later models use different parts, too. But TM 9-2320-289-20P shows only the 1984 front axle and its parts.

HERE ARE THE PARTS YOU NEED FOR 1985-87 M1009'S

Part	NSN
Spindle	2530-01-249-5401
Axle shaft (all M1009's)	2520-01-223-3754
Locknut (inner wheel bearing)	5310-01-155-1897
Locknut locking ring	5310-01-154-3990
Locknut (outer wheel bearing)	5310-01-244-2559

YOU'LL ALSO NEED A SPECIAL TOOL, NSN 5120-01-219-6753, TO REMOVE THE FRONT HUB LOCKNUTS





# PUBS

This is a selected list of recent pubs of interest to unit maintenance personnel. This list was made from a printout provided by The Adjutant General.

TM 5-2420-222-20-1 Sep JD410 loader backhoe  
TM 5-2420-222-20-2 Sep JD410 loader backhoe  
TM 5-2420-222-20-3 Sep JD410 loader backhoe  
TM 5-3805-258-10 Sep 950BS scoop loader  
TM 9-1005-318-20-2 Sep M167A2, air defense artillery gun

TM 9-1425-647-24P Sep Multiple Launch Rocket System (MLRS)  
TM 9-1425-655-24P Sep AN/TSQ-73 air defense command and control system  
TM 9-1430-388-24P Sep Pershing II missile  
TM 9-1450-485-10 Sep M667 (Lance missile) carrier  
TM 9-2320-354-10 Sep M984 HEMTT wreckers  
TM 11-5895-1366-24P Sep OG-174/VRC amplifier/power supply group  
TM 55-1520-237-23P-1 Dec UH-60A helicopter

TM 55-1520-237-23P-2 Dec UH-60A helicopter  
TM 55-1520-237-23P-3 Dec UH-60A helicopter  
TM 55-1915-203-24-2 Sep 3406-B generator set engine 250-KW  
TB 5-4200-200-10 Dec Hand portable fire extinguishers for Army  
TB 55-1520-241-20-44 Aug Inspection of forward and aft transmission on CH-47A, B, C  
LO 5-2420-222-12 Sep JD410 loader backhoe  
LO 5-6115-593-12 Aug Generator set, diesel driven, 500-KW

## Maintenance & Safety-of-Use Messages

**AMCCOM MSG—** Maintenance Advisory, Instructs operators and organizational maintenance regarding installation and removal of the M-1 tank eye-safe filter, AMSMC-MAW, 051700Z Oct 87.

**AMCCOM SOU-MSG—** One-time inspection of 7-ton trestles (jack stands), NSN 4910-00-251-8013, Contract DAAA09-79-C-4216 Martinez and Sons, Inc., AMSMC-MA, 092030Z Oct 87.

**AMCCOM SOU-MSG—** Advisory, Operational, M57 firing device, DODAC's 1345-K008 and 1345-K143, fire when accidentally bumped, AMSMC-ILO-R, 101840Z Sep 87.

**AMCCOM SOU-MSG—** One-time inspection and load testing of lifting sling assembly, NSN 1055-01-218-2823 from Navy Contract N00164-84-C-0242, A&W Fabrication, Cookeville, TN, AMSMC-QAG-M, 221430Z Sep 87.

**MICOM SOU-MSG—** One-time inspection of ECS, ICC and CRG on the Patriot A66 PDU for missing standoff insulators, AMSMI-LC-AM, 061915Z Oct 87.

**TACOM SOU-MSG-87-57—** Advisory, Technical/Maintenance, M920 truck/M870 trailer combination brake failure, AMSTA-FTH, 121430Z Aug 87.

**TACOM SOU-MSG-87-62—** One-time inspection of spring brake valve lever arms on M939/M939A1 5-ton truck, AMSTA-MTB, 021900Z Oct 87.

**TACOM SOU-MSG-87-67—** One-time inspection, M880 series 1 1/2-ton truck tires, NSN 2610-01-011-8216, made in 1982 production year, AMSTA-MTA, 151500Z Sep 87.

**TACOM SOU-MSG-87-69—** Advisory, Supplement to SOU-MSG-87-61, 061300Z Aug 87 on HEMTT M978 tank truck fuel level sensor probe, AMCPM-TVH, 251800Z Sep 87.

**TACOM SOU-MSG-87-70—** One-time inspection of M978 HEMTT static cable reel, AMCPM-TVH, 251900Z Sep 87.

**TACOM SOU-MSG-87-79—** Advisory, Operational, Inspect M992 FAASV upper rear door angle/mounting bracket for cracks, AMSTA-M, 221500 Oct 87.

**TACOM SOU-MSG-87-75—** Technical, Transmission steering problems deadline M113A3 and M730A2 vehicles, AMCPM-M113-T, 092135Z Oct 87.

**TACMIS SOU-MSG—** Correction to TACCS SOU MSG on 3KW, MEP 016A, AC generator. Possible hazard exists when using the convenience outlet as the TACCS power source.

**AS-PES-TPS-H, 162000Z Sep 87.**  
**TROSCOM MSG—** Maintenance Advisory, Marking parachute canopies may damage the material, AMSTR-MES, 271710Z Sep 87.

**TROSCOM SOU-MSG-17-87—** Advisory, Technical/Maintenance, Halon 1301 fire extinguisher, NSN 4210-00-555-8837, valve assembly nut torque requirements, AMSTR-MES, 241600Z Sep 87.

**TROSCOM SOU-MES-18-87—** Follow-up of SOU-MES-16-87, 091201Z Sep 87, Provides additional approved tires for the 600 GPH, Reverse Osmosis Water Purification Unit, NSN 4610-01-093-2380 and NSN 4610-01-

234-2196, AMSTR-MES, 051000Z Oct 87.

**TROSCOM SOU-MES-20-87—** Emergency, Deadline of survival knife MC-1, NSN 5110-00-526-8740, MFG by Logan-Smith Co., Venice, FL, AMSTR-MFS, 280800Z Oct 87.

**TROSCOM MSG-87-31—** Maintenance Advisory, New bag closing procedures for the 28 foot heavy duty cargo parachute, NSN 1670-00-040-8135, used on low altitude parachute extraction system, AMSTR-MES, 091410Z Oct 87.

**TROSCOM MSG-87-22—** Maintenance Advisory, Maintenance for Position and Azimuth Determining System (PADS), NSN 6675-01-071-5552, battery charging system, AMSTR-MES, 221500Z Sep 87.

**TROSCOM MSG-87-25—** Maintenance Advisory, Some MUST inflatable shelters, NSN 5410-01-175-2383, have electrical receptacle wires reversed, AMSTR-MES, 221000Z Oct 87.

**TROSCOM MSG-87-26—** Maintenance Advisory, Warns of failure of electric pump panel power supply relay, NSN 5945-01-170-6666, on aircraft crash and structural fire fighting truck, Type A/S32P-19A and B caused by water, AMSTR-MES, 151900Z Sep 87.

**TROSCOM MSG-87-28—** Maintenance Advisory, Authorizes sewing wrist-mounted altimeter, MA2-30, NSN 6685-01-213-9035, to velcro strap, AMSTR-MES, 141815Z Sep 87.

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

# 1988 PM Dates

SAVE TIME AND TROUBLE  
HUNTING UP JULIAN  
DATES. PULL THIS  
SECTION FOR A  
READY  
REFERENCE!



## January

S	M	T	W	T	F	S
					1	2
					1	2
3	4	5	6	7	8	9
3	4	5	6	7	8	9
10	11	12	13	14	15	16
10	11	12	13	14	15	16
17	18	19	20	21	22	23
17	18	19	20	21	22	23
24	25	26	27	28	29	30
24	25	26	27	28	29	30
31						
31						

## February

S	M	T	W	T	F	S
	1	2	3	4	5	6
	32	33	34	35	36	37
7	8	9	10	11	12	13
38	39	40	41	42	43	44
14	15	16	17	18	19	20
45	46	47	48	49	50	51
21	22	23	24	25	26	27
52	53	54	55	56	57	58
28	29					
59	60					

☐ Command maintenance SOP up to date and distributed?

☐ DA 12-series forms for pubs updated? TM's current? Changes posted?

☐ Going to aim for the FY 88 Army Award for Maintenance Excellence? See DA CIR 750-87-1 on Maintenance Excellence Awards.

☐ Part prices seem high? Call the AMDF Price Challenge, AUTOVON 977-7431.

☐ Ideas and suggestions? Submit them to Project SMART and the Tool Improvement Program Suggestions (TIPS).



PACK AND SHIP  
WITH CARE. IT'S  
YOUR BEST MOVE



☐ Prescribed Load List (PLL)  
current? All authorized items on  
hand or on order?

☐ Mechanics trained on care  
and use of hand tools? See  
TM 9-243.

☐ Excess parts turned in? Parts  
stored in a secure area?

☐ All tools on hand and ac-  
counted for? Tool check-out,  
check-in procedures working?

# March

S	M	T	W	T	F	S
		1	2	3	4	5
		6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

# April

S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

# May

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

☐ Got the latest AMDF and  
MCRL? DA Pam 310-10 on hand?

☐ Questions without answers?  
LAO and MAIT personnel are  
there to help.

REMOVE BATTERIES  
WHEN COMMO  
GEAR IS IDLE!

# June

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

☐ Safety SOP posted...and  
followed?

☐ Safety clothing and equip-  
ment available and being used?



# PM TIPS

MARK THIS CALENDAR, MAKE IT A DATE  
TO DO YOUR MAINTENANCE FIRST RATE!  
PM SURE AND STEADY  
WILL MAKE SURE YOU'RE READY  
AND YOU'LL HAVE A GREAT '88!



WE HAVE THE WORLD'S BEST EQUIPMENT ... *Take care of it*

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



☐ OJT and cross-training plan being followed?

☐ Are soldiers doing right job? Match assignment to MOS.

KEEP STEAM AND HIGH PRESSURE WATER HOSES OFF ELECTRONIC GEAR

# July

S	M	T	W	T	F	S
					1	2
					183	184
3	4	5	6	7	8	9
185	186	187	188	189	190	191
10	11	12	13	14	15	16
192	193	194	195	196	197	198
17	18	19	20	21	22	23
199	200	201	202	203	204	205
24	25	26	27	28	29	30
206	207	208	209	210	211	212
31						
213						

# August

S	M	T	W	T	F	S
	1	2	3	4	5	6
	214	215	216	217	218	219
7	8	9	10	11	12	13
220	221	222	223	224	225	226
14	15	16	17	18	19	20
227	228	229	230	231	232	233
21	22	23	24	25	26	27
234	235	236	237	238	239	240
28	29	30	31			
241	242	243	244			

☐ Test equipment used to identify faults?

☐ Is testing equipment calibrated on schedule?

FILLING A FUEL TANK? GROUND YOUR BIRD!

# September

S	M	T	W	T	F	S
				1	2	3
				245	246	247
4	5	6	7	8	9	10
248	249	250	251	252	253	254
11	12	13	14	15	16	17
255	256	257	258	259	260	261
18	19	20	21	22	23	24
262	263	264	265	266	267	268
25	26	27	28	29	30	
269	270	271	272	273	274	

☐ Enough time allowed for PM? Maintenance facilities clean and organized?

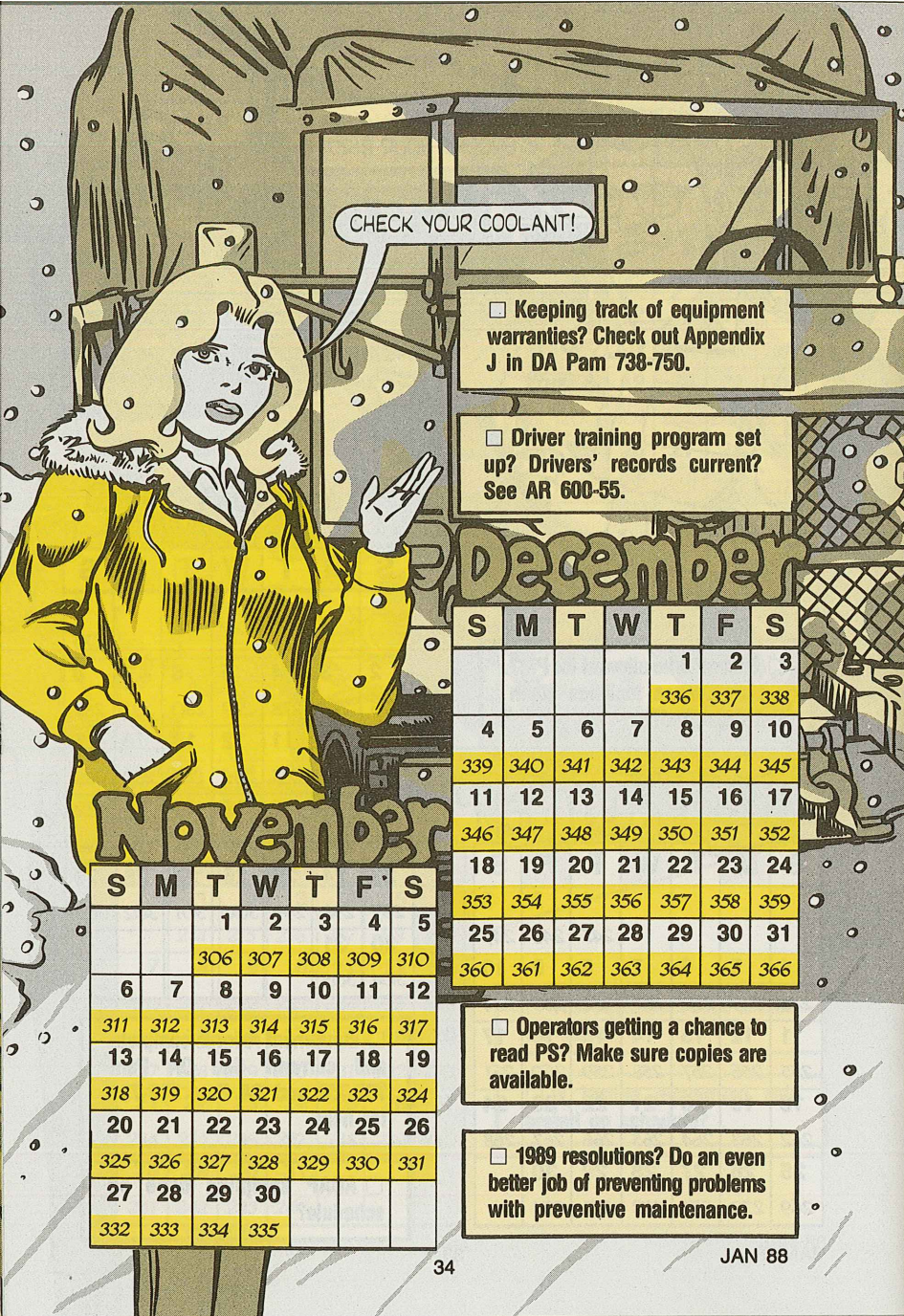
# October

S	M	T	W	T	F	S
						1
						275
2	3	4	5	6	7	8
276	277	278	279	280	281	282
9	10	11	12	13	14	15
283	284	285	286	287	288	289
16	17	18	19	20	21	22
290	291	292	293	294	295	296
23	24	25	26	27	28	29
297	298	299	300	301	302	303
30	31					
304	305					

☐ Equipment records complete and current? See DA Pam 738-750 and DA Pam 738-751 for help.

☐ AOAP sampling done on schedule?





## O-Rings for T55 L712 Engine

Dear Editor,

Many of the O-rings needed for the T55 L712 engines and listed in TM 55-2840-254-23P are not listed on the AMDF.

I've researched the -23P and developed a list of alternate O-rings for those NSN's listed but discontinued or not easily available.

### Old NSN

5330-00-014-5940  
5330-00-051-0899  
5330-00-604-1455  
5330-00-604-1466  
5330-00-689-8643  
5330-00-845-8318  
5330-00-847-4949  
5330-00-847-4950  
5330-00-878-5580  
5330-00-882-9104  
5330-00-939-0804  
5330-00-950-2935  
5330-00-950-2945  
5330-00-951-8678  
5330-00-951-8679  
5330-00-951-8681  
5330-00-951-8682  
5330-00-951-8684  
5330-00-983-7395  
5330-00-983-7396  
5330-00-985-0212  
5330-00-990-3220

### Alternate NSN

5330-00-167-5124  
5330-00-166-0992  
5330-00-166-0980  
5330-00-166-0969  
5330-00-166-1010  
5330-00-166-1001  
5330-00-166-0988  
5330-00-166-0990  
5330-00-166-8406  
5330-00-166-8403  
5330-00-166-1011  
5330-00-165-1942  
5330-00-166-8397  
5330-00-421-9387  
5330-00-165-1946  
5330-00-167-5147  
5330-00-167-5148  
5330-00-166-0968  
5330-01-010-3369  
5330-01-006-3931  
5330-00-167-5146  
5330-00-166-0994

**Jerry Hallmark**  
Corpus Christi Army Depot

(Editor's note: The best way to use this info is to turn to the NSN index in your -23P and find each of the old NSN's. Note the Fig and Item number of each O-ring. Turn to the page of the TM and jot down the alternate NSN.)



# Now You See It, Now You Don't

ONE, TWO, THREE, FOUR...  
MY EYELIDS ARE GETTING  
VERY, VERY HEAVY...



Slow! That's what some Huey anti-collision lights are.

Para 9-209 of TM 55-1520-210-23-2 says those lights are supposed to rotate at approximately 45 RPM, giving 90 flashes per minute to be functional.

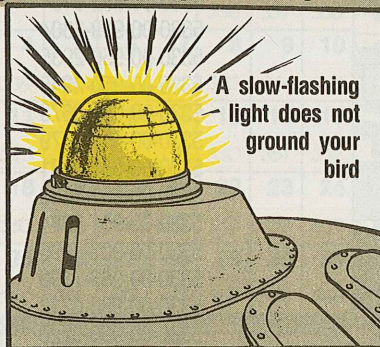
But what to do if you have one that flashes only 23-25 RPM?

Use it!

If the light rotates at all, it's operational and meets the equipment requirements outlined in Table 4-2 of AR 95-1.

Anticollision lights should flash  $70 \pm 30$  times per minute for single bulb lights and  $90 \pm 9$  times per minute for dual bulb lights.

So if you have a light that doesn't flash within those ranges, you should replace it as soon as possible.



## Black Hawk Seat Covers

No need to order a complete crew chief or gunner seat because the cover's worn out. Cover, NSN 1560-01-123-2544, is available again, and requests are being filled on a priority basis.

## Pitch Link Security

The bird headshed says to forget about lockwiring the clevis to the upper jamnut when you're installing or adjusting the pitch change links.

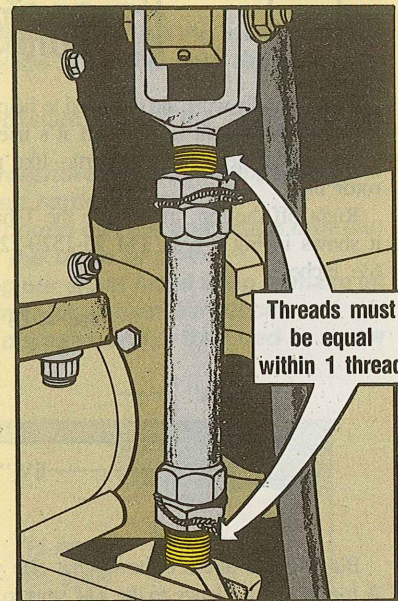
If you lockwire the upper jamnut to the barrel of the link, that's good enough. If it's done right, it won't slip.

'Course, you still have to lockwire the lower jamnut to the barrel, too. That hasn't changed.

After you make the final link adjustment, the exposed thread length of the upper and lower bearings must be equal within 1 thread for links that don't have thread engagement inspection holes.

For pitch links with inspection holes, just make sure the threads are adequately engaged at each hole.

Stick a piece of safety wire through each inspection hole. If the wire hits the bearing, you're OK. If not, the link needs to be readjusted for adequate thread engagement.



## 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.

AH-1-87-07, SOF, Operational, Armament pre-landing procedure for the M197 gun system, 141800Z Sep 87.

AH-1-87-08, SOF, Maintenance Mandatory, Removal of night vision landing light bracket, 142300Z Sep 87.

AH-1-87-09, SOF, Technical, One-time inspection of Kaman 747 rotor blades for proper installation of slip fit bushings, 260130Z Sep 87.

AH-64-87-20, SOF, Technical, Un-grounding of AH-64A, 081345Z Sep 87.

AH-64-87-21, SOF, Maintenance Mandatory, BB-564A battery heater disconnection and battery PM, 161400Z Sep 87.

AH-64-87-22, SOF, Maintenance Mandatory, Revision to inspection aft engine mount pins, 171345Z Sep 87.

UH-1-87-10, SOF, Maintenance Mandatory, Special inspection of tail rotor hub retaining nut, 081345Z Sep 87.

OH-58-87-07, SOF, Maintenance Mandatory, Inspection of engine exhaust stack coupling clamp, 022100Z Sep 87.

OH-58-87-08, SOF, Operational, Flight and ground operational restrictions, 222200Z Sep 87.

OH-58-87-09, SOF, Operational, Revision to flight and ground operational restrictions due to torque meter gear failures, 282200Z Sep 87.

OH-6-87-04, SOF, Operational, Flight and ground operational restrictions, 222200Z Sep 87.

OH-6-87-05, SOF, Operational, Revision to flight and ground operational restrictions due to torque meter gear failures, 282200Z Sep 87.

CH-47-87-10, SOF, Technical, CH-47B, C and D inspection of shaft coupling washers, 142230Z Sep 87.

CH-47-87-11, SOF, Maintenance Mandatory, CH-47D, Reduced inspection interval of combiner transmission fan and driveshaft, 242000Z Sep 87.

MIM-GEN-87-02, Forms and level of maintenance for TAMMS reporting, 021330Z Sep 87.

MIM-OH-58A-87-04, Torque meter gear replacement program, 301700Z Sep 87.

MIM-OH-6A-87-02, Torque meter gear replacement program, 301700Z Sep 87.

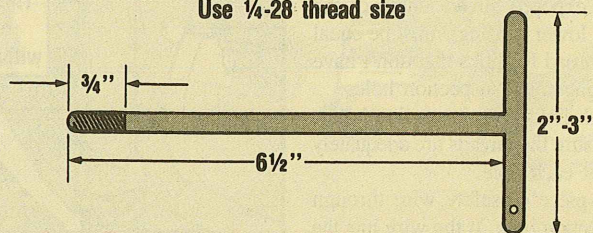


# T-Handle Mast and Trunnion Damage

The T-handle work aid designed to help you remove Kiowa main rotor assemblies is worth its weight in gold—if it's used right. If it's misused, you may have to replace some expensive parts—like pitch horn trunnions and even the main rotor mast.

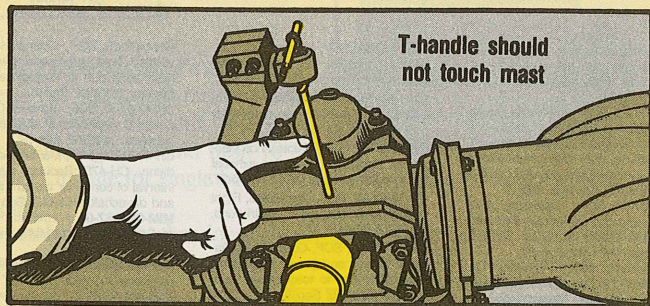
Right off the top, make sure the T-handle you're using is not too long. Like it shows in Fig 5-6 in TM 55-1520-228-23, the rod should be no longer than 6½ inches.

Use ¼-28 thread size



But Fig 5-6 doesn't show what else you can do to prevent busted trunnions. A forthcoming change to the TM says to thread the end of the T-handle (¾-1 inch with ¼-28 NF) and secure it inside the hub with nut, NSN 5310-00-167-1332, and washer, NSN 5310-00-167-0835.

You install the handle through the pitch horn trunnion and yoke, making sure it doesn't contact the mast. Either eyeball the end of the work aid with a flashlight or stick your fingers up under the yoke to feel for clearance. It wouldn't hurt to pull both checks.



If the work aid touches the mast, back it out some. Otherwise, it's sure to damage the mast when you remove the rotor assembly.

## Removing Blade Bolts

Dear Editor,

The Note in Para 5-87b of TM 55-1520-228-23 says the blade retention bolt is easily removed when the blade is aligned with the grip.

**Don't believe it!**

**In the first place, it's almost impossible to align the blade with the grip.**

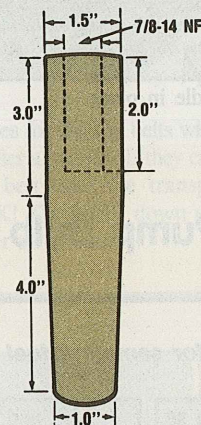
**In the second place, corrosion preventive compound applied to the bolt gets gummy and makes it even harder to remove.**

**Most people use a brass drift to pound out the bolt, but a drift can slip and damage either the pin or the blade or both.**

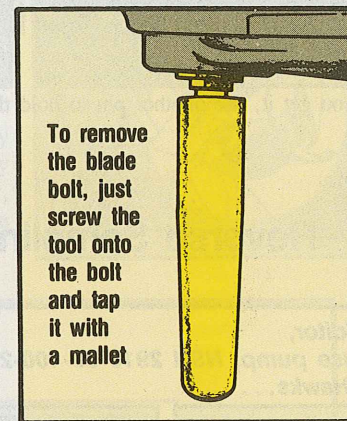
**We solved the problem by getting our sheet metal shop to make us a couple of bolt extraction tools from aluminum bar stock.**

**The tool has a 1½ inch outside diameter and is threaded to screw onto the blade bolt.**

**Here are the dimensions:**



To remove the blade bolt, just screw the tool onto the bolt and tap it with a mallet



**The bolt and tool slip through the grip and blade holes without damaging either.**

**SGT Larry Williamson  
Hunter Army Airfield, GA**

*(Editor's note: Sounds like you've driven out a tough problem. Nice going!)*

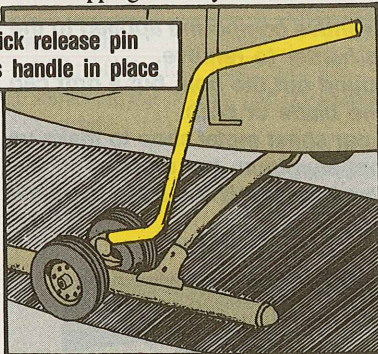


## Ground Handling Wheels Pin

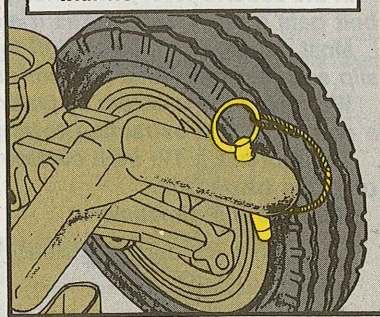
Never operate the Kiowa's ground handling wheels unless the quick release pin that holds the handle is in place.

Ground handling wheels can't be safely operated without a pin to keep the handle from slipping sideways or even off.

Quick release pin holds handle in place



Pin missing? Order a new one with NSN 5340-00-185-1411



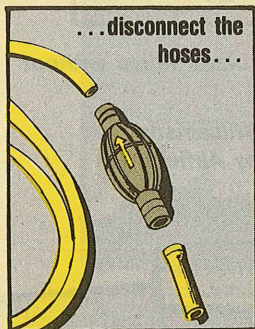
Until you get it, use another pin to hold the handle in place.

## Reverse Sampling Pump Bulb

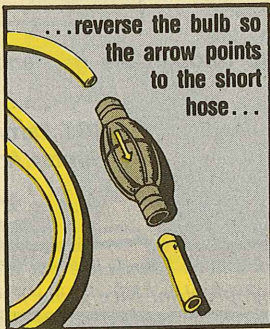
Dear Editor,

To use pump, NSN 2910-00-400-2378, for sampling fuel aboard Black Hawks...

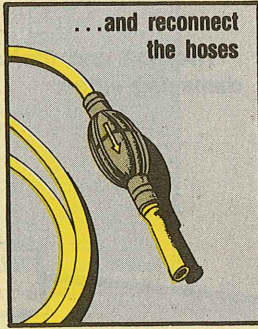
...disconnect the hoses...



...reverse the bulb so the arrow points to the short hose...



...and reconnect the hoses

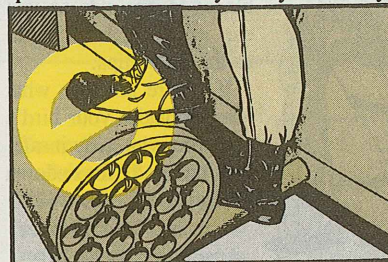


## Friendly Reminders

Don't hold back, Cobra crew chiefs!

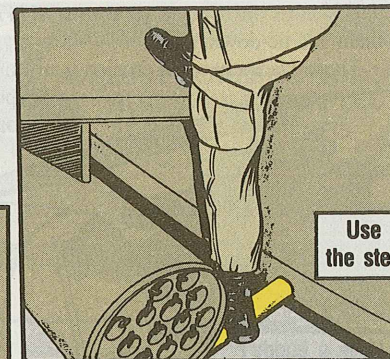
Next time a pilot or gunner abuses your bird by being careless or thoughtless, let 'em know about it.

If you find 'em climbing on board by stepping on the rocket pods, tell them that "NO STEP" stenciled on the top of each pod means what it says. Stay off! They



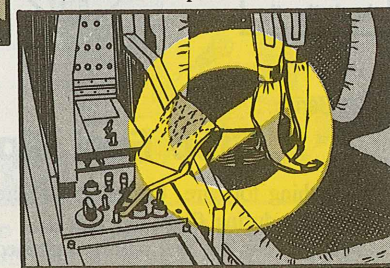
don't realize they sacrifice accuracy for convenience every time they step on the launchers.

Same goes for the seat belts when they unbuckle after a mission. If they carelessly flip their belt onto the transponder, C-R-A-C-K! The bird's down until the transponder's replaced.

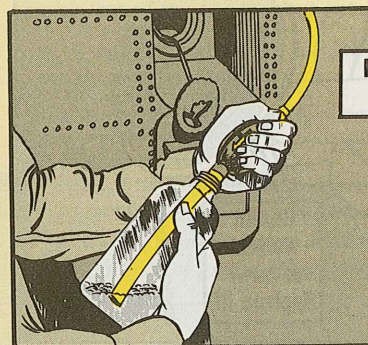


Use the step

Tell 'em to put the seat belts in the seats, not on the panel.



Now you're ready to sample fuel



SP4 Kevin H. Brookins  
Fort Ord, CA

(Editor's note: That's turning a problem into a solution. Thanks for the tip!)



## Handle Blades with Hands

If you're throwing a rope over K747-003-205 main rotor blades to position them for tie-down, quit!

Those blades have an erosion guard on the leading edge that's easily damaged.

So pull up a maintenance platform or ladder and position the blades by hand.

Better yet, get a buddy to climb up top and tip the blades to one side so you can attach tiedown ropes to the blade tips.

If you're not sure what kind of blades your bird's equipped with, play it safe. Get 'em ready for tiedown by hand.

Have a buddy  
tip the blade  
so you can  
hook the tip

U-21 Series...

## Stop Fuel Siphoning Blues

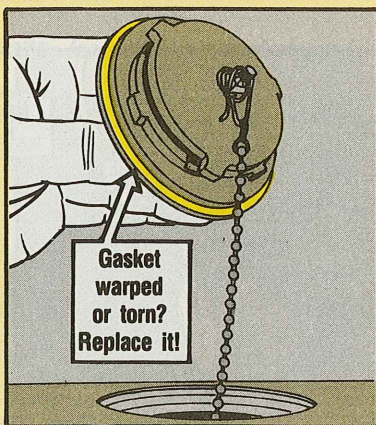
One thing for sure, Ute pilots and crew chiefs, you can't afford to have fuel siphon out during flight.

And you can bet fuel will be siphoned from the nacelle and wing fuel caps if you don't put the cap back on tight after refueling or if the gasket's shot. So make sure the cap's on tight during your pre-flight inspection.

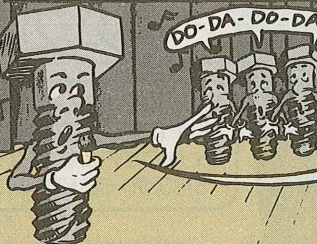
If a cap feels loose, take it off. Then screw it back on until it seats firmly. Close the latch to lock it in place.



If a cap's gasket is warped or torn, report it. You crew chiefs need to replace it with a new one, NSN 5330-00-251-9371.



## Tighten Bolts "As Required"

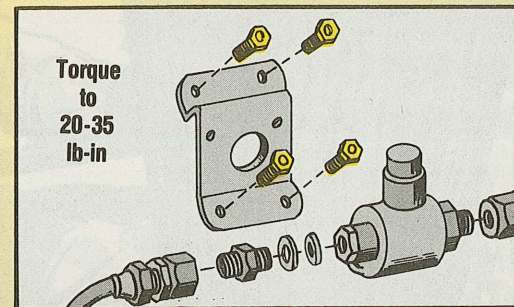


WHEN IT COMES TO TORQUING,  
HERE'S WHAT YOU DO.  
ADD THIS NEW INFO  
TO TABLE G-2!

Dear Windy,

Para 6-53 of TM 55-2840-229-23-2 says to connect the solenoid valve assembly and bracket to the compressor housing with 4 bolts. It says to tighten the bolts "as required" and lockwire.

Torque  
to  
20-35  
lb-in



For me, "as required" means to use the standard torque values in Table G-2 of the TM. For these bolts, the table calls for 40 to 45 lb-in.

But I'm afraid that's too much torque and I'll strip out the magnesium compressor housing. I've been torquing the bolts to 30 lb-in. Is that enough torque to keep the bolts from vibrating loose? Are there any guidelines for determining the proper torque in this kind of situation?

SP4 T. S.

Dear Specialist T. S.,

20-35 lb-in is the right amount of torque to use on the solenoid valve assembly attaching bolts which have a 10-32 thread size. For bolts with a 1/4-28 thread size that are screwed into the magnesium housing, use 35-50 lb-in of torque. These torque values are being added to Table G-2 of the TM.

Windy



# Keep

# Tools On Line

TOOL KIT, NSN 5180-00-408-1350, IS COVERED BY MICROFICHE PUB SC 5180-90-CL-N48 ...



... BUT IT'S TOUGH TO INVENTORY YOUR TOOL KIT FROM THE MICROFICHE ...

... SO HERE'S A LIST TO MAKE IT EASIER FOR YOU!



Item	NSN
Tool Bag	5140-00-498-8721
Safety Belt	4240-00-926-4124
Tree and Pole Climbers Set	4240-00-273-9668
Consisting of:	
Leg Irons, Slide Assemblies	(not available separately)
Climber Strap Set which has	4240-00-469-8115
ankle strap assemblies	4240-00-844-8036
calf strap assemblies	4240-00-844-8035
calf pad assemblies	4240-00-591-1240
Gaff Set	4240-00-530-4289
Leather Gloves	8415-00-274-2433
Hand Hammer	5120-00-900-6118
Lineman's Pliers,	
8-in lg w/cutter	5120-00-239-8251
Flat Tip Screwdriver	5120-00-237-6985
Safety Strap	4240-00-752-9715
Measuring Tape	5210-00-554-7085
Lineman's Wrench	5120-00-277-4248

OTHER ITEMS COVERED BY THE SC, BUT NOT IN THE KIT ARE:

Hand Hacksaw Blade	5110-00-277-4591
Hand Hacksaw Frame	5110-00-289-9657
Cold Chisel	5110-00-236-3272
Gas Pliers, 10-in lg	5120-00-293-3478
Mechanic's Tools Pouch	5140-00-408-1456
Fuse Puller	5120-00-243-2776



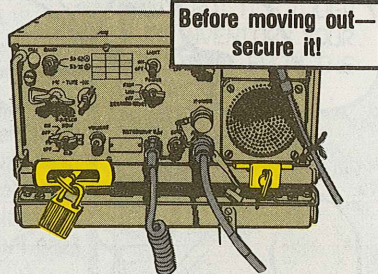
# Loose RT = Lost Commo



When you hit the road, keep your FM radio from doing the same. Tighten the thumbscrews on your MT-1029 and -1898 mounts.

If the clamps and thumbscrews are left loose or work their way loose, your receiver-transmitter will fall out and get damaged.

When you're snugging in the OA-3633 amplifier-power supply group for your AN/VRC-53, -64, AN/GRC-125 or -160 in the mount, make sure the extra set of thumbscrews are tight.



## Lock 'em in

To secure the radios in their mounts, cut a 4-in piece of angle iron for a thumbscrew on each mount.

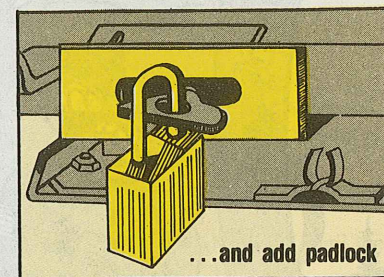
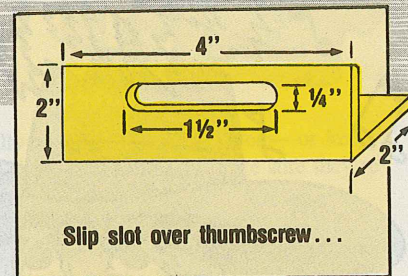
Get the angle iron with NSN 9520-00-277-4913 (2×2×1/4 inches) or NSN 9520-00-277-4911 (2×2×1/8 inches).

Make a slot 1½-in long by ¼-in wide in the center of one side of the angle. Sand off the rough edges and paint the angle iron.

Drill a hole in the thumbscrew for a padlock's shackle.

Hold the device so the L-shape is toward the component. Put the slot over the thumbscrew.

Add a padlock, NSN 5340-00-298-7153, and your radio is safe and secure.



AB-15 Antenna Base...

## Block Rust! IT'S A MUST!

Rust will silence your radio receiver quicker than you think. It will insulate the antenna base so there's no radio reception.

Moisture build-up inside the bowl builds rust.

Stop dampness by draining the bowl often.

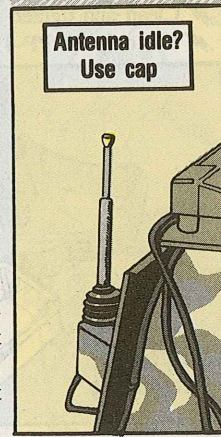
When you see a crack in the bowl, get your repairman to replace it.

If the receiver is off and the antenna elements are removed, put cap, NSN 5999-00-264-9213, over the contact. This keeps out moisture.

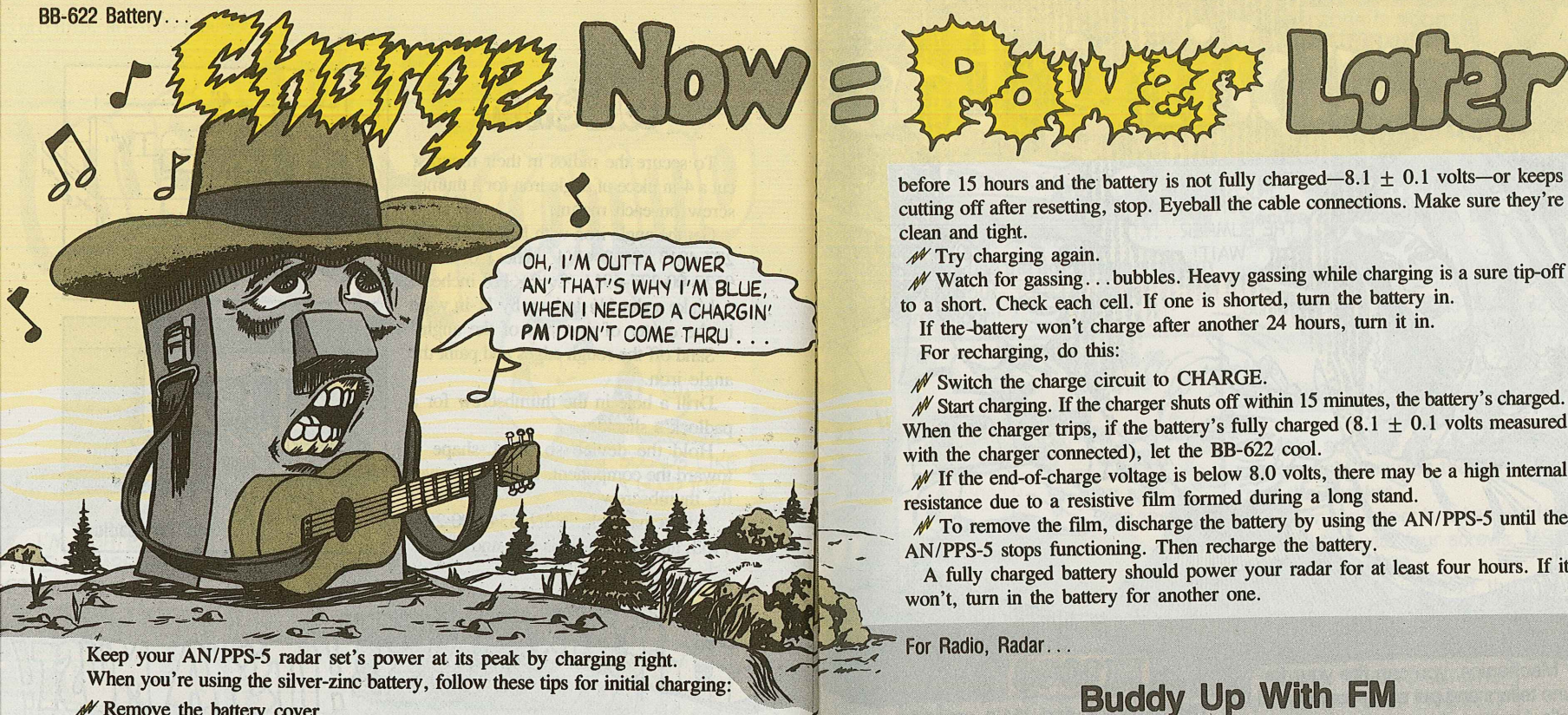
Rid base of moisture and rust



Antenna idle? Use cap

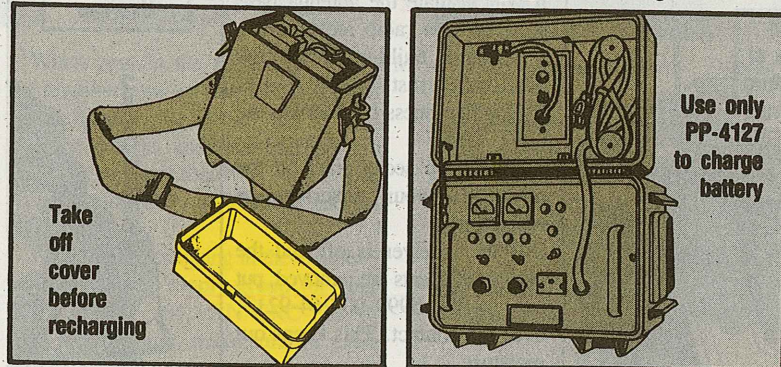






Keep your AN/PPS-5 radar set's power at its peak by charging right. When you're using the silver-zinc battery, follow these tips for initial charging:

- Remove the battery cover.
- Clean and tighten the top terminal nuts.
- Use only the PP-4127 battery charger for charging. If the charger kicks out



before 15 hours and the battery is not fully charged— $8.1 \pm 0.1$  volts—or keeps cutting off after resetting, stop. Eyeball the cable connections. Make sure they're clean and tight.

- Try charging again.
- Watch for gassing... bubbles. Heavy gassing while charging is a sure tip-off to a short. Check each cell. If one is shorted, turn the battery in.
- If the battery won't charge after another 24 hours, turn it in.
- For recharging, do this:

- Switch the charge circuit to CHARGE.
- Start charging. If the charger shuts off within 15 minutes, the battery's charged. When the charger trips, if the battery's fully charged ( $8.1 \pm 0.1$  volts measured with the charger connected), let the BB-622 cool.
- If the end-of-charge voltage is below 8.0 volts, there may be a high internal resistance due to a resistive film formed during a long stand.
- To remove the film, discharge the battery by using the AN/PPS-5 until the AN/PPS-5 stops functioning. Then recharge the battery.

A fully charged battery should power your radar for at least four hours. If it won't, turn in the battery for another one.

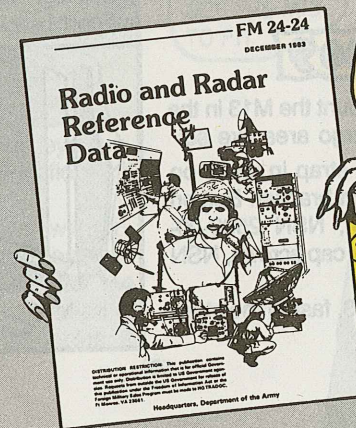
For Radio, Radar...

## Buddy Up With FM

A good pub to have is FM 24-24, Radio and Radar Reference Data.

It gives you a lot of information, such as antenna type, distance range and power output on radio and radar equipment.

Need a copy? Get your pubs clerk to order it from Baltimore Pubs Center.





# Mounting the M13 Decon



I SEE IT . . . THE M13,  
UP FRONT, NEAR  
THE BUMPER . . .  
WAIT!

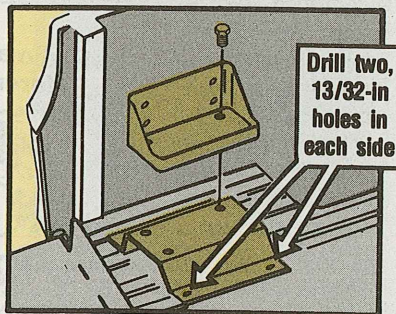
ARE YOU SURE, ROSALEE?

Mechanics, you can fire your fortune tellers and put away your crystal balls. Here are the mounting locations and instructions for the new M13 decontamination apparatus.

## M1008

The M1008's and -A1's are different. The M13 goes under the last troop seat in the left rear of the bed.

Drill four 13/32-in holes in the lower support bracket like so:



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JAN 88

## M1009

On M1009's, mount the M13 in the left rear of the cargo area like so:

- Put the can's strap in place on the existing support bracket. Bolt on the upper bracket, NSN 2590-00-473-6331, with four cap screws, NSN 5306-00-225-8499.

- Put on the M13, fasten the strap and you're done.

Secure the bracket to the cargo bed with:

Item	NSN
Screws (four)	5305-00-269-3213
Flat washers	5310-00-802-4701
Nuts	5310-00-732-0558
Flat washer	5310-00-809-4061

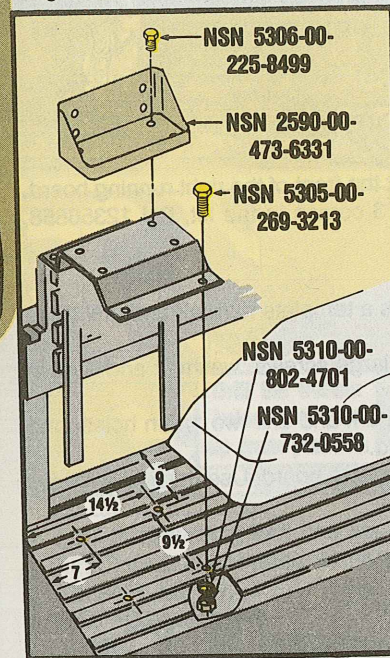
Make sure the sealer creates an airtight seal between the cargo bed and the bracket.

Put on the upper bracket and fasten it down with four screws, NSN 5306-00-225-8499.

With the M13 installed, the troop seat has to remain in the upright position.

YOU'LL HAVE TO CUT THE WOODEN FLOOR PANELS IN TRUCKS EQUIPPED WITH THE ARCTIC PACKAGE TO GET THE M13 TO FIT

Then, use the bracket as a pattern to drill four, 13/32-in holes in the cargo floor:



Move the cargo tiedown eye support bracket under the bed floor if it gets in the way.

Coat the exposed metal with primer. The holes need to be sealed to keep exhaust fumes out. After the primer is dry, apply a good bead of silicone sealer around the holes.

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WHAT ARE YOU  
LOOKIN' FOR, SOLDIER?

THE PLACE WHERE  
ROSALEE TOLD ME TO  
PUT THE BRACKET!

I'LL SHOW YOU.

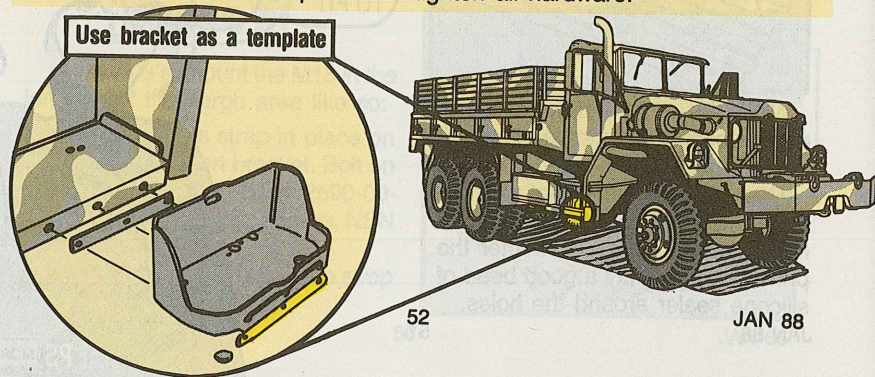
**M39**

On the M39-series trucks, mount it at the front of the right running board. Everything you need to install the M13 comes in the kit, PN 12356858, CAGE 19207.

#### Here's how you put it on:

- Use the mounting bracket hinge as a template to mark and drill three 11/32-in holes in the ledge.
- Attach the bracket hinge with the large screws, washers and nuts in the kit.
- Use the bracket as a template to mark and drill two 1/2-in holes, and four 9/64-in holes in the running board.
- Install two receptacles under the running board. Use the small screws and locknuts in the kit.
- Mount the bracket with the two studs and half grommets.
- Lock the bracket in place and tighten all hardware.

Use bracket as a template



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**M911**

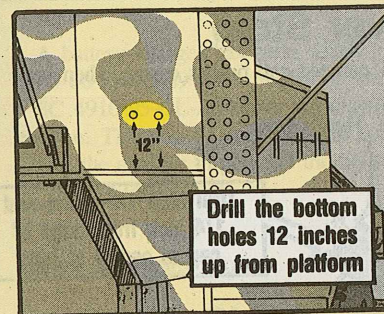
THIS IS WHERE YOU MOUNT  
THE BRACKET ON THE M911

Mount the M13 on the back of the  
cab, below the right rear window.  
Here's what you need:

Item	NSN
Bracket assembly	2590-00-473-6331
Screws	5305-00-912-5113
Self-locking nuts	5305-00-982-4908

#### Here's how to mount it:

- Center the bracket beneath the right rear window.
- Use the bracket as a pattern to drill four 3/8-in holes. Drill the two bottom holes about 12 inches up from the winch platform.
- Fasten the bracket to the cab with the four cap screws and self-locking nuts.
- Secure the M13 to the bracket with the strap.



JUST FOLLOW THESE  
DIRECTIONS AND  
YOU HAVE NO  
NEED FOR A  
CRYSTAL  
BALL!

JAN 88





## Hinge Pin Fix

A hinge without a pin won't work, and hinge pins don't last long on topographic vans.

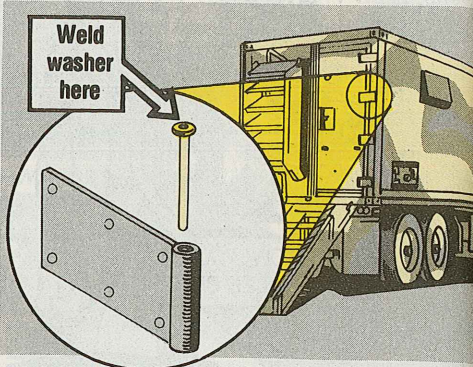
The cotter pins holding the hinge pins on rear personnel doors get broken and then the hinge pin falls out.

Solve the problem by making a head for the pin.

Remove the cotter pin, Item 26, Fig 13 of TM 5-6675-326-24P, and weld a 3/8-in inside diameter, flat steel washer to the top of the hinge pin, Item 27.

File the washer so it slips past the roof of the van.

After the fix, eye the pin whenever you enter the van. If it's rusty or corroded, clean it. If it can't be cleaned, replace it.

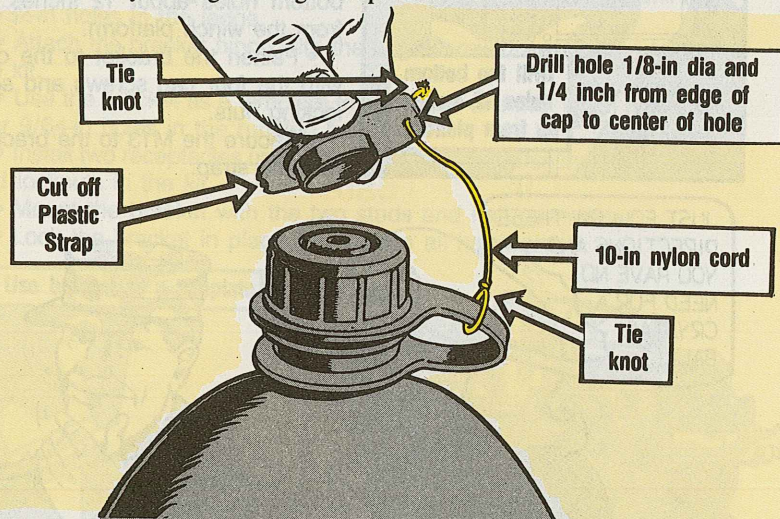


M1 Canteen Cap...

## Make a Cover Strap

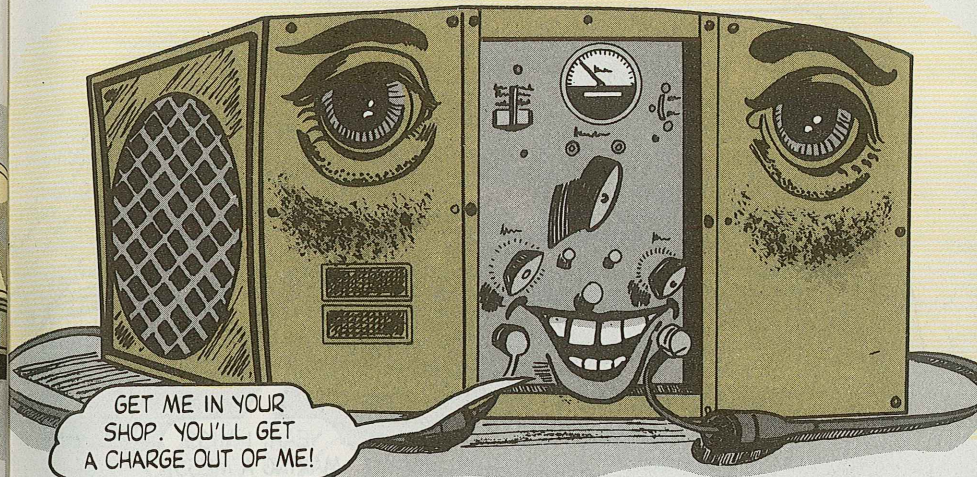
The strap holding the cover to your M1 canteen cap breaks easily. Then you lose the cover.

Prevent this by making a stronger strap. Here's how:



Melt both knots with a match or lighter. That keeps the cord from unraveling.

## Battery Charger Added



A battery charger has been added to the No. 1 Common shop set. It's NSN 6130-00-224-6089 and will charge one or two 6- or 12-volt batteries at one time.

SC 4910-95-CL-A74 lists the charger, but it has a "43" in the REMARKS column. That means your CO can authorize it as required.

Use the charger in place of the battery distribution panel covered in Para 3-10 of TM 9-6140-200-14.

General Mechanics Tools...

## Circuit Tester Wrong

The wrong circuit tester was listed in SC 5180-90-N26 (Oct 86) for the General Mechanics Automotive Tool kit. Tester, NSN 6625-01-052-2721, is only for 2 to 18 volts. If you use it on a 24-volt circuit, you'll blow the tester.

INSTEAD, ORDER A  
0- TO 36-VOLT TESTER  
NSN 6625-01-260-2387





## Slick Solution to Oil Pollution

GEEZ, WHAT  
A NEAT-NIK!

YEAH, I MISS  
MAKING A MESS!

**Dear Editor,**

**What a mess funnels, spouts, oil cans and grease guns used to leave on the motor pool floor. And what a job it was to clean up.**

**Those days are behind us now. We made an oil absorber box. Make the box any size. Use materials on hand. Then fill it with oil absorbent material, NSN 7930-00-269-1272.**

**Make it a habit to immediately return funnels, spouts and cans to the box. This keeps the motor pool clean, cuts down cleanup time and keeps oiling equipment where you can find it.**

**PVT J. M. Knerr  
Ft Benning, GA**

*(Editor's note: A slick idea. Just keep the cats away.)*

## New Washer for M2

Use NSN 5310-00-275-6604 to get the drain plug washer for the fuel tank on your M2-series burner unit. The NSN listed as Item 10 in Fig D-6 of TM 10-7360-204-13&P is wrong.

AMDF...

## Bytes of AMDF

AMDF DATA IS AS  
CLOSE AS MY KEYBOARD!

You PLL clerks can use the telephone lines, and a modem and tickle the keys of your computer to quickly get up-to-date information from the AMDF, I&S, SB 700-20, and other reference files on microfiche.

Just log on to the Remote Terminal AMDF Inquiry System (RTAIS) and you'll get an answer to your supply question.

You don't have to be a computer whiz either. The computer tells you how to make a request and it defines the system codes for you too.

FOR INFORMATION ON HOW TO GET ACCESS TO  
LOG ON RTAIS, CALL THE USAMC  
CATALOG DATA ACTIVITY AT:  
AUTOVON 977-6644/6603,  
COMM (717) 782-6644/6603

OR  
WRITE

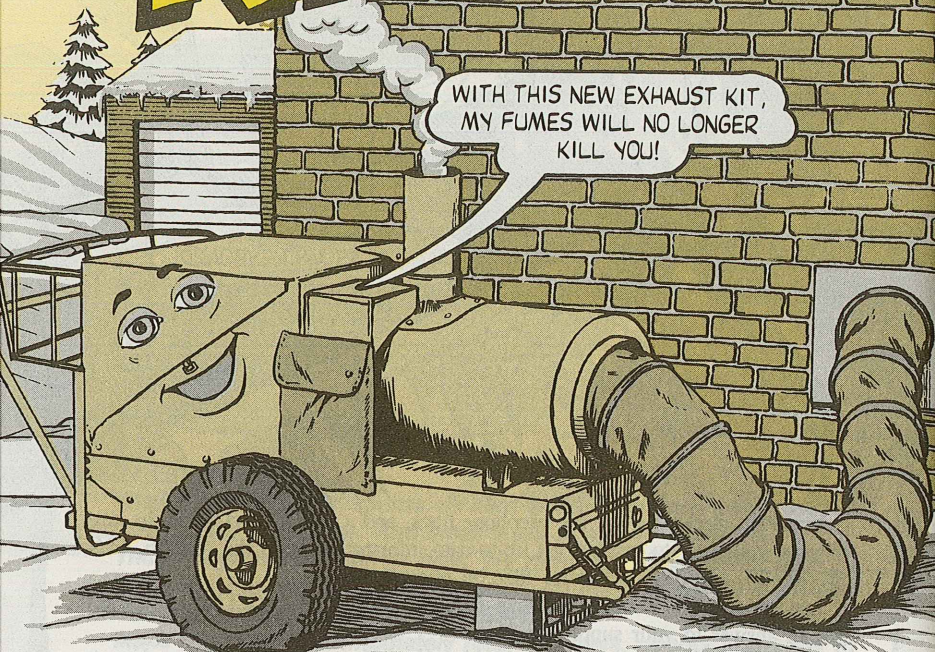
**USAMC Catalog Data Activity  
ATTN: AMXCA-DA  
New Cumberland Army Depot  
New Cumberland, PA 17070-5010**



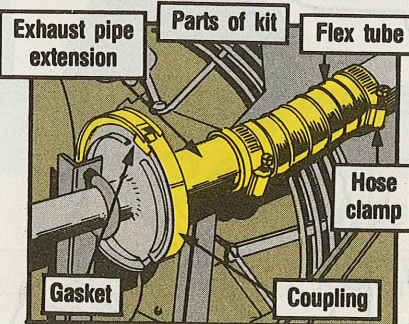
400,000 BTU Heaters...

# Kill Fumes

WITH THIS NEW EXHAUST KIT,  
MY FUMES WILL NO LONGER  
KILL YOU!



Cut down on carbon monoxide fumes from your American Air Filter 400,000 BTU heaters, by adding exhaust kit, NSN 4520-01-023-3475.



The kit works on these models:

Model	NSN 4520-00-
BT400-40	792-8257
BT400-40-1	915-7789
BT400-40-1A	223-3221

They're covered by TM 5-4520-208-15 and -25P.

# With Kit

Heaters with serial numbers higher than BT 4400865 already have the kit installed.

Even though you have the kit, you still can't heat living spaces with the heaters.

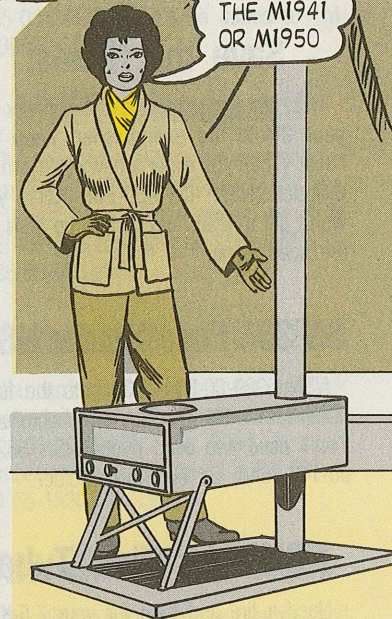
Use 400,000 BTU heaters only to heat warehouses and maintenance shops where there's good ventilation and personnel exposure is limited to 8 hours a day.

To heat living and sleeping spaces, use the M1941 or M1950 space heaters. If one won't do the job... use two.

In addition to American Air Filter models, other 400,000 BTU heaters are covered by TM 5-4520-244-14 (24P) and TM 5-4520-251-14 (24P).

Get the latest on heater safety by reading TROSCOM Safety-of-Use Message 200900Z Jan 87. See your TROSCOM Logistic Assistance Representative (LAR) for a copy.

TO HEAT LIVING  
SPACES, USE  
THE M1941  
OR M1950

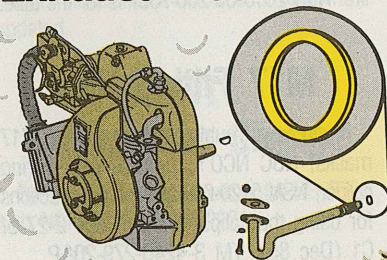


## No "O" Means Exhaust Woe!

Without the O-ring sealing the fitting between the exhaust pipe on the gasoline engine and the exhaust extension on the heater, exhaust gases will leak! An exhaust leak makes the heater NMC.

Check your heater for a missing or damaged O-ring.

Remove the exhaust extension and look at the connection. If the O-ring is missing or worn, put on a new one. Order on a DD Form 1348-6, using PN TMF 3244-6, CAGE 90598 and RIC A12.



Ring was added as Item 39 of  
Fig 24 of TM 5-4520-208-1507



## Connie's ★ POST ★ SCRIPTS

REMEMBER TO KEEP  
ON TOP OF ALL THOSE  
IMPORTANT DATES IN  
THIS CALENDAR YEAR



## Save the Heads!

Next time you replace the cylinder on your 2<sup>3</sup>/<sub>4</sub>-lb fire extinguisher, keep the head. When you order a new replacement cylinder, NSN 4210-00-708-0031, you won't get a head, and there's no NSN for the head alone.

## SN-394 Fuse Holder NSN

NSN 5999-00-834-4705 gets the fuse holder for the SN-394 electrical synchronizer. You'll need two blind rivets, NSN 5320-00-146-5814, for each fuse holder.

## NSN's for Tire, Tube

Need a tire and tube for your 7.5-KW GED generator set? TM 5-6115-351-25P doesn't list them. Use these NSN's to get them: NSN 2610-00-051-0120 is for the tire. NSN 2610-00-260-7337 is for the tube.

## M17 Fitting Help

If you have trouble sizing and fitting M17 masks, NBC NCO's, get the new spring caliper, NSN 5120-00-229-3049. Instructions for using the caliper are on Page 2-27 of C1 (Dec 85), TM 3-4240-279-20&P.

## Ring Pull

When you're doing PMCS on your M17 mask, NBC NCO's, test the carrier's D-ring by pulling both sides of the ring hard. If the D-ring splits, replace the whole carrier. Make a note until this check is added to TM 3-4240-279-20&P.

## AMDF Training

The Catalog Data Activity (CDA) offers training on the AMDF, MCRL, IL's and other microfiche products. The team instructors show how codes on these products make requisitioning, inventory and property accountability easier. Contact your Logistic Assistance Office (LAO), customer assistance office or CDA at AUTOVON 977-7136 to find out when the CDA AMDF orientation team will visit your area.

## M101A1 Howitzer Change

Item 14 on Page 2-21 in TM 9-1015-203-12 says the elevation micrometer in the fire control quadrant must be immobilized at reading 300. Not so. It's the **angle of sight knob**, not elevation micrometer, that gets immobilized at that reading.

## Weapon Data Form

When you send the Bradley's M242 25-MM automatic gun to DS for any reason—especially for shipping to depot for overhaul—make sure you send along DA Form 2408-4, Weapon Record Data. The information on the 2408-4 helps support and depot folks determine the condition of the breech and firing pin assemblies. Check out Figure 5-4.1 in DA Pam 738-750 for instructions on filling out DA Form 2408-4.

## No Extra M242 Firing Pins

M2/M3 fighting vehicle mechs, don't order extra firing pins for the M242 chain gun. The gun comes with one firing pin, NSN 5315-01-088-4376. And that's all you get until you need a replacement. The firing pin is being deleted from the Components of End Item Table in both TM 9-2350-252-10-1 and -2.

## M110A2/M578 Hydraulics

There's a new and better filter element and gasket kit for the auxiliary hydraulics on M110A2 SP howitzers and M578 recovery vehicles. Order NSN 2590-01-218-5891. It fits, it's cheaper, it lasts longer and it does just as good a job as any of the other four kits you use to get.

## NSN for PVS-5 Cap

If you need a BA-3058/U battery cap for your night vision goggles, order it with NSN 6135-01-039-2905.

## M9 Pistol Rack

Armorer's, you're supposed to get an M14 arms rack when you receive your M9 pistols. If you don't, order a rack with NSN 1095-01-236-2203. It'll be added to TM 9-1005-317-23&P.

## M16A1 Handguard

The handguard NSN's are reversed on Page C-13 of TM 9-1005-249-24&P. The RH (right hand) guard should be NSN 1005-00-056-2252 and the LH guard NSN 1005-00-056-2251.

## Conduit NSN for UH-60A

You can order nylon tubing for the Black Hawk's tail rotor control conduit with NSN 4720-01-008-9453. It's listed by part number as Items 25 and 37 in Fig 607 of TM 55-1520-237-23P-2.

## AH-1S Bolt Correction

The NSN is wrong for the machine bolt shown as Item 32 in Fig 13 on Page 35 of TM 11-1520-239-20P. Instead, use NSN 5306-00-292-8252 for a machine bolt with a drilled head. Make a note until your TM's updated.

## HEMTT Extinguisher Change

Get the 10BC fire extinguisher for HEMTT's with NSN 4210-00-889-2221.

Distribution: To be distributed in accordance with DA Form 12-5-R, for TB-43-series.

*the Condition of Your Equipment?*

*Would You Stake Your Life <sup>right now</sup> on*



Awards  
Help  
Maintain  
Maintenance  
Motivation  
and  
Momentum

See  
AR 672-5-1

