

Issue 453

PS

August  
1990

TB 43-PS-453

# THE PREVENTIVE MAINTENANCE MONTHLY

*The Army Relies on*  
**"OPERATION FEEDBACK"**  
*for Equipment Improvement Ideas!*



WE ALL  
BENEFIT  
WHEN  
KNOWLEDGE  
IS  
SHARED!

*The Voice of EVERY*  
**SOLDIER COUNTS!**

*see page 27*



# Drip Drops add Up

Drip, drip, d-rip... an oily puddle forms under your parked truck... one drop at a time.

Drip, drip, d-rip... a little Class III leak may look harmless. It does not make your vehicle NMC unless the fluid comes from one of the components specified in your vehicle's -10 PMCS. Some -10 TM's spell out in the "Not Ready" column



how much oil a vehicle can lose before it becomes NMC.

But no Class III oil leak should be ignored. You cannot be sure where a leak is coming from by just eyeballing your vehicle. Report all leaks. Have your mechanic run your vehicle up on the rack and give it a good going over.

One leak can lead to another. Any machine operated without enough crankcase oil runs hotter than it should. Same goes for the transmission and hydraulic system. The added heat warps parts, cracks seals and causes the gaskets to leak.

All leaks cost money, even if they do not make the vehicle NMC.

**A one-drop-per-second fluid leak loses:**

**68 ounces per hour**

**33 gallons per month**

**396 gallons per year**

**That's \$435.60 of engine oil per year.**

Most leaks slow down when the engine is turned off. Put the machine to work, and the pressure can turn a one-drop-per-second leak into a small stream.

No matter how you look at it, a little drip, drip, d-rip... never adds up to just a drop in the bucket. Report it.



TS 43-PS-463, 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:

MSG Half-Mast  
The Preventive Maintenance Monthly  
Lexington, KY 40511-5101

FAX: DSN 745-3855  
or Comm 806-293-3855

By Order of the Secretary of the Army:

**CARL E. VUONO**  
General, United States Army  
Chief of Staff

Official:

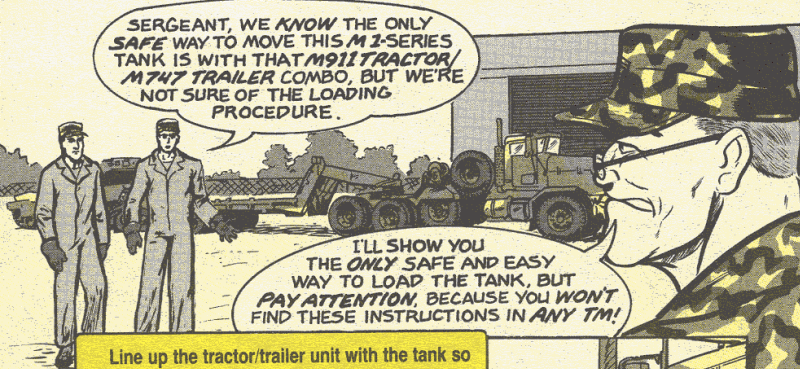
**WILLIAM J. MEEHAN II**  
Brigadier General, United States Army  
The Adjutant General

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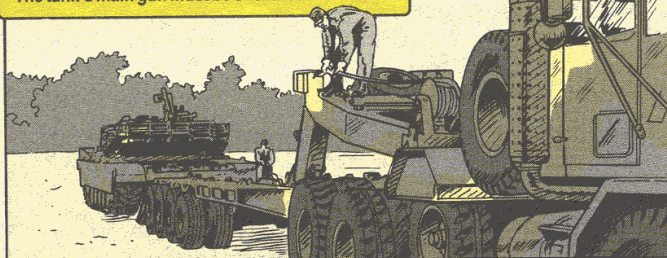
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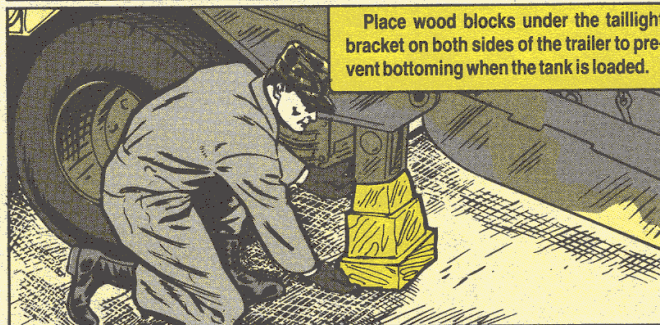
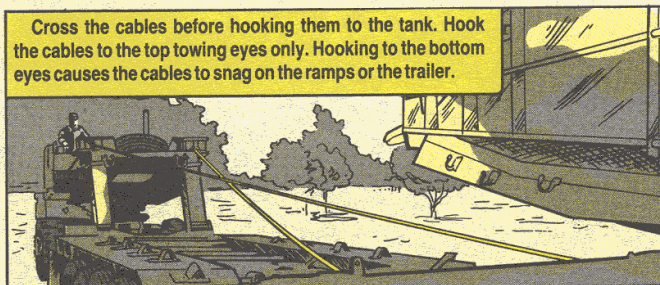
# Load It Right on Semitrailer



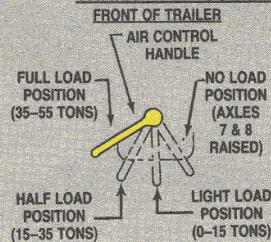
Line up the tractor/trailer unit with the tank so that the tank will come onto the trailer straight. The tank's main gun must be over the rear deck.



Pay out the winch cables, checking for kinks, broken strands, etc. Make sure the cables are reeved right, too. Wear heavy leather gloves whenever you handle cable.



## TRAILER AIR SUSPENSION CONTROL OPERATION



MAKE SURE THE TRAILER'S AIR SUSPENSION CONTROL IS SET IN THE FULL LOAD POSITION.

OPERATION FOR CARGO L

WAP

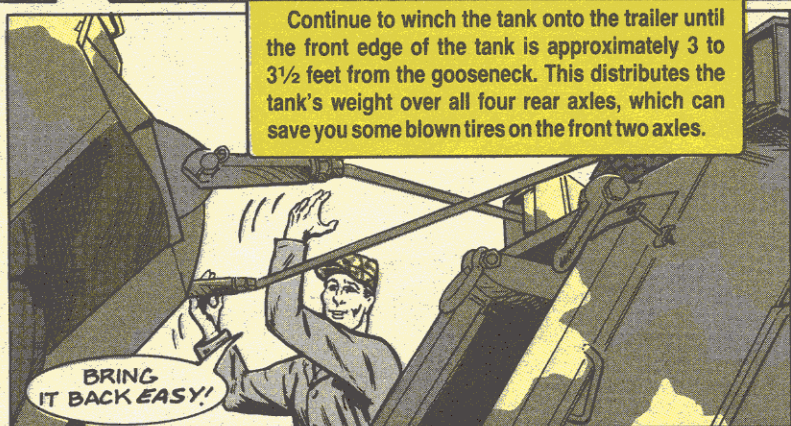
EXTENDED OPERATION WITH AXLES 7 & 8 EXCEEDING 5 M.P.H. TO SUSPENSION, WHEN FORWARD TRAILER AXLES







As you begin to winch the tank onto the trailer, keep the tracks in line with the track guides. The tank is positioned right when the track guides are just inside the track's inboard edge.



Continue to winch the tank onto the trailer until the front edge of the tank is approximately 3 to 3½ feet from the gooseneck. This distributes the tank's weight over all four rear axles, which can save you some blown tires on the front two axles.



Tie down the tank, using the info in Chapter 5 of TM 55-2350-255-14 (Transportability Guidance for M1s). Also see Pages 2-21 through 2-31 of TM 9-2330-294-14 (the M747's TM).



## Deflect Heat During Towing

**P**revent heat damage to vision blocks, hatch covers and other front end components when towing an M1 with another M1 by using a heat deflector.

You can make a deflector that attaches to the towing M1's exhaust grate.

Plans for the deflector are on Pages 2-3 through 2-8 of TB 43-0001-39-1 (Jan 88). If your local TACOM Logistic Assistance Representative doesn't have a copy, write to Half-Mast.

## Deflect M240 Crushed Covers

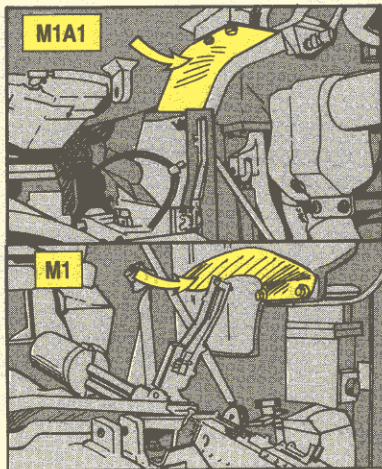
**I**f you're tired of seeing M240 machine guns returned with crushed feed tray covers, here's a solution.

CPT Michael D. Landers, Ft Knox, KY, has developed a deflector that is installed on an M1 or M1A1 tank's turret ceiling. The deflector pushes an M240's open cover down and prevents it from being crushed by the turret.

All you need to make the deflectors are sheet metal, a drill, and a bench grinder. Cost is 15 cents per deflector.

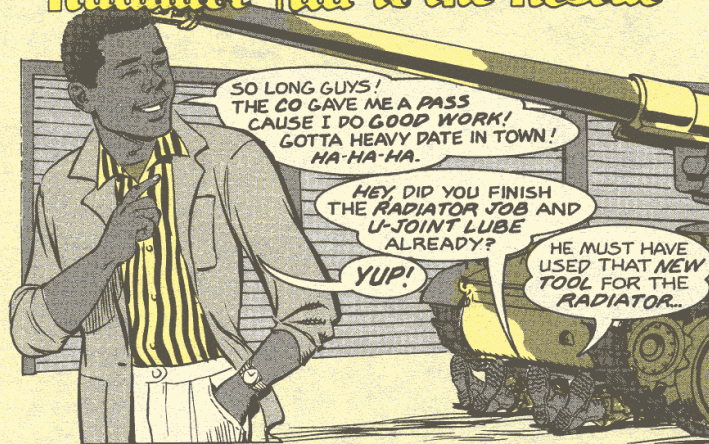
For deflector plans, write:

**US Army Armor Center & Ft Knox  
ATTN: ATSB-CD-TE (Thunderbolt)  
Ft Knox, KY 40121-5215**





## Radiator Aid to the Rescue



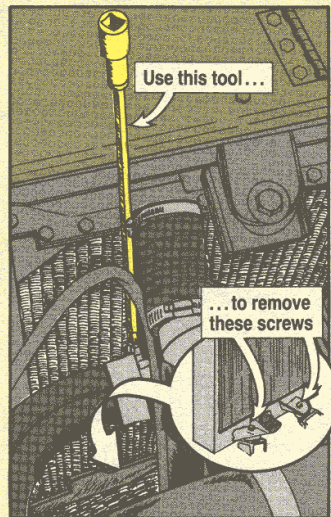
Save a lot of time and effort, mechs, in loosening and tightening lower radiator mounting screws with a home-made extension.

The tool lets you do the work on your 110s and 578s from above the hull, not under it.

What you need is a couple of sockets, a 40-in length of steel rod and a few minutes of your welder's time.

Socket drive size depends on the diameter of the steel rod that you use. Rod diameter of  $\frac{3}{8}$  to  $\frac{1}{2}$  inch works well. The only mandatory size consideration is that one socket fit over the  $\frac{3}{8}$ -in hex head radiator mounting screw.

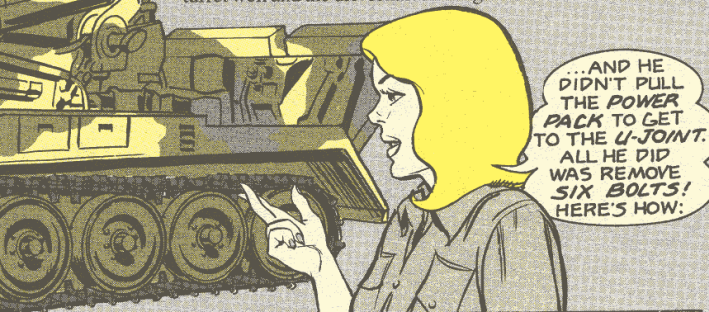
Best bet—use sockets that will just fit on the steel rod. That way, your welder won't have any trouble making a solid connection between socket and rod.



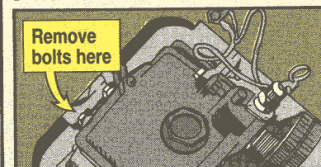
## LUBE AUXILIARY DRIVE U-JOINTS

Never overlook the carrier bearing U-joint when you pull your quarterly service.

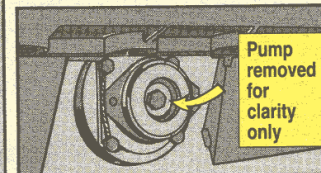
That U-joint lies between the hydraulic pump in the turret well and the driveshaft coming off the clutch unit.



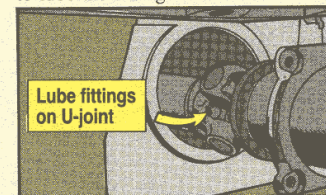
1. Remove the lock wire and two bolts that mount the rotary hydraulic pump to the carrier bearing.



2. Remove the lock wire and four bolts that mount the carrier bearing to the bulkhead.



3. Pull the carrier bearing and drive shaft just far enough into the turret well to lube the fitting with GAA.



JUST REVERSE THE PROCEDURE TO REINSTALL THE CARRIER BEARING AND PUMP. THEN, TIGHTEN THE SCREWS TO 78 LB-FT AND LOCKWIRE 'EM FOR SURE!





# Clean Guides Save Ruined Curtains

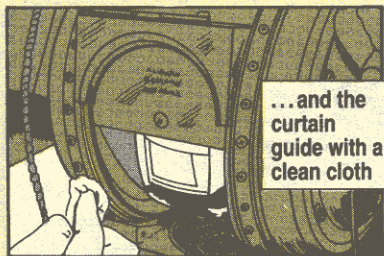
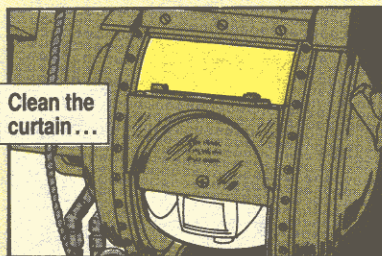
**B**ent, buckled or binding curtains on your M981 FISTV's tank periscope assembly or M901 ITV's image transfer assembly leave the dome lens open to damage.

Prevent lens damage by cleaning the front and rear curtain guides during quarterly ITA or tank periscope cleaning.



Dust settles in the guides during operation. Enough dust causes the curtains to bend, buckle or bind.

Here's the extra work you need to do during dome lens cleaning, shown on Pages 3-208 and 3-209 of TM 9-2350-266-20 (for the FISTV) and Pages 3-80.1 and 3-80.2 of TM 9-2350-259-20 (for the M901 ITV):



- ➡ After disassembling down to the dome lens and erector assembly window, wipe the curtain guides using clean water and a lint-free cloth.
- ➡ Dry the curtain guides with another lint-free cloth.
- ➡ Wipe the curtain itself with a lint-free cloth while you're at it.

The curtain guide cleaning information will be added to your TM's, but you can start saving curtains right now.



# Wheed Out Mushrooming

Dear Half-Mast,  
To remove the Vulcan's elevation drive assembly, you must drive out the shouldered shaft that holds the assembly to the mount. After you drive the shaft out a few times, its end mushrooms and you can't force it out. DS has to remove the whole turret to get the shaft out.

Any suggestions on how to stop mushrooming?  
SSG G.K.

Dear Sergeant G.K.,  
Yes. Loosen the shaft's retaining screw **before** you tap on the shaft. Use a brass drift from your No. 1 Common shop set instead of a steel punch to drive the shaft out.

Half-Mast

Retaining screw

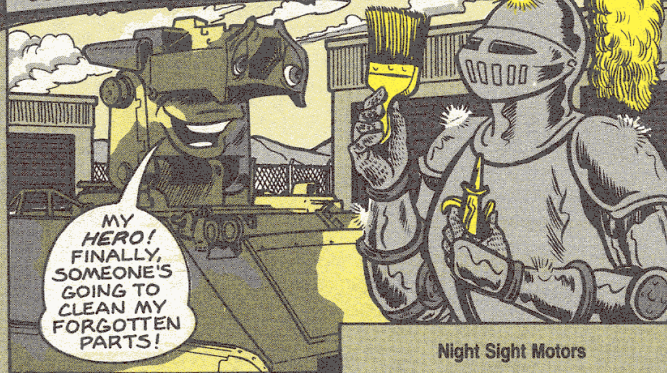
Loosen retaining setscrew before you remove shouldered shaft

Shouldered shaft



# Air and Brush Work

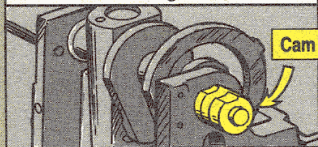
It's amazing what a little compressed air and a brush can do to get rid of a lot of the dirt and sand that cause moving parts to bind and break.



Clean these areas on the M901A1 at least quarterly with a clean paint brush and 30 PSI air. Remember to wear your goggles.

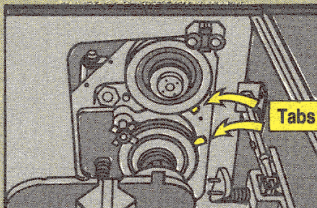
## Remote Arming Devices

Dirt builds up around a RAD's bearing and cam. The RAD won't seat in the launcher and the TOW can't be armed. Pull the RAD covers and clean the RAD, especially around the bearing.



## Night Sight Motors

The motors for the brightness, contrast, and focus controls get clogged with dirt. Pull their access covers and clean 'em.

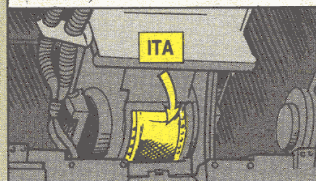


Do the same with the lateral alignment tabs for both the night sight and day sight. The tabs get jammed with dirt and can't be adjusted.

# Wonders

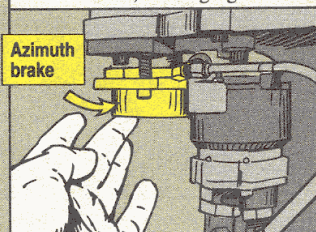
## Image Transfer Assembly

Dirt builds up around the ITA curtains and causes them to bind. Dirt gets in the ITA and makes for bad vision. If your unit's crews complain about bad vision, tell them to brush off the curtains as part of their daily PMCS. (See Page 8 of this issue for more information.)



## Azimuth Brakes

Dirt and grease gum up the brakes and they quit working. Brush and blow away dirt. Remove grease with a clean cloth. Use trichloroethane, NSN 6810-00-664-0387, on tough grease.



If a blow and a brush won't cure dirt problems, tell DS.

## NSNs for New Hydraulic Reservoir

MWO 9-2350-259-20-1 replaced the M901A1's metal hydraulic fluid reservoir with a plastic one.



| Item                                   | NSN              |
|----------------------------------------|------------------|
| Tank, Oil, Hydraulic                   | 2590-01-172-7907 |
| Cap, Filler, Opening                   | 2590-01-172-7911 |
| Nut, Plain, Hexagon                    | 5310-00-934-9765 |
| Screw, Machine                         | 5305-00-059-3660 |
| Washer, Lock                           | 5310-00-933-8120 |
| Washer, Flat                           | 5310-00-781-9483 |
| Clamp, Loop                            | 5340-00-754-2183 |
| Marker, ID (Turret Operation)          | 7690-01-201-1090 |
| Marker, ID (Do Not Overfill)           | 7690-01-201-1089 |
| Marker, ID (Date of Seal Installation) | 7690-01-201-1088 |
| Washer                                 | 5310-01-189-8481 |
| Elbow, Tube to Boss                    | 4730-01-092-8203 |

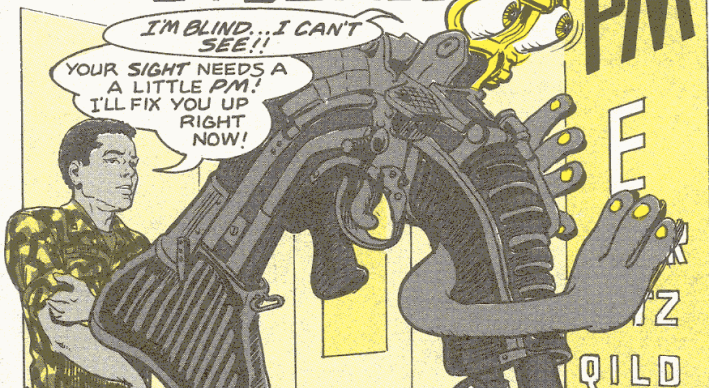


# EYEBALL

PM

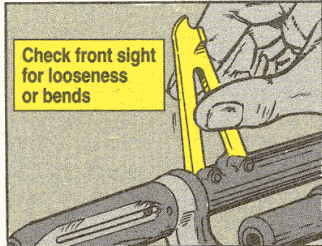
I'M BLIND... I CAN'T SEE!!

YOUR SIGHT NEEDS A LITTLE PM! I'LL FIX YOU UP RIGHT NOW!



Unless you keep an eye on your M60's sights, your machine gun will soon be as accurate as a seven-day weather forecast. But just a glance at sight PM will keep the sights 20/20.

The front sight's easy. Just make sure it's not loose or bent. Grip the

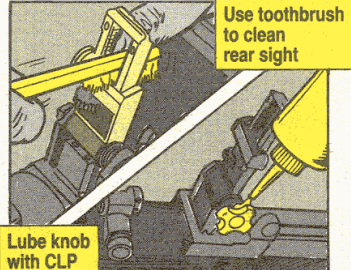


Check front sight for looseness or bends

barrel with one hand and try to move the sight side-to-side. If it moves, report it. Sight down the barrel. If the sight's not straight up-and-down, report that, too.

The rear sight takes a bit more work. It needs cleaning and lubing. If dirt and corrosion get into the sight's moving parts, it becomes hard to adjust.

Use a toothbrush to get all the dirt out of places like the notches in the range scale. Once the sight's clean,



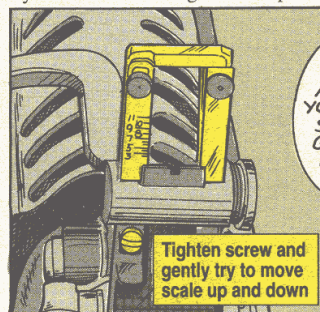
Use toothbrush to clean rear sight

Lube knob with CLP

feel the sight knobs for binding. If any move stiff, put a drop of CLP on the knob and work it back and forth until the knob moves freely.

# for GOOD SIGHT

Tighten the adjusting screw. Gently try to move the range scale up and



Tighten screw and gently try to move scale up and down

A LITTLE PM ON YOUR M60 SIGHT GOES A LONG WAY!



down with the tip of your finger. If it moves, tell your armorer. The screw hole's a little big and the scale will jump around during firing.

During breaks in firing, tighten the screw. Vibration eventually loosens the screw.

Remember to always loosen the screw before you adjust the scale. Forget just once and you break the scale.



Keep sight down when not firing

All this PM will be for nothing if you don't keep the sight in the down position when you're carrying or transporting your M60. Left up, the sight's ruined from one good bump.

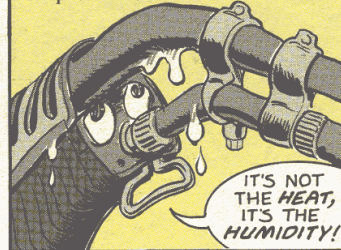
Small Arms...

## Beating Humidity

It's not the heat, it's the humidity.

That statement hits home for armorers. Humidity in the arms room lets moisture form in weapons during storage. That leads to corrosion.

You can fight humidity with a dehumidifier in the arms room. NSN 4440-00-566-0616 gets you one for \$147. Chap 63 of CTA 50-909 authorizes it.



IT'S NOT THE HEAT, IT'S THE HUMIDITY!



# Launcher

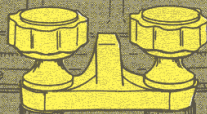
WHEN YOU'RE SETTING UP OR MAINTAINING YOUR HAWK LAUNCHER, IT'S EASY TO OVERLOOK LITTLE THINGS LIKE STOW LOCKS AND BASE PLATE KNOBS.

BUT THOSE LITTLE MISSES CAN RESULT IN BIG LOSSES... LIKE RUINED PRESSURE VALVES AND BASE PLATES!

BE A HAWK ON:

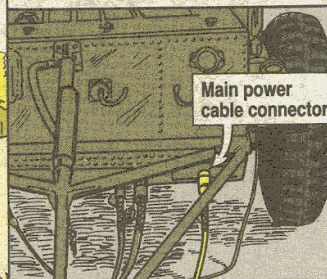
**■ AZIMUTH STOW LOCK.** If you move the boom without unlocking the lock, you blow the main system pressure valve. A glance will tell. If the lock's unlocked, the locking pin faces you.

When the launcher is road-marched, be sure to lock the stow lock. Otherwise, the boom can swing around and hit someone or something when the launcher's moved.



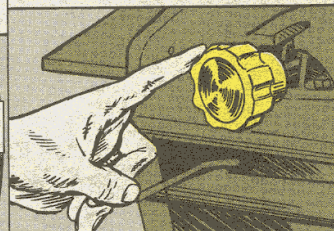
# Lowdown

**■ MAIN POWER CABLE CONNECTOR.** The connector's keyed. If it's not plugged in right, cross-phasing burns out the distribution box. And you can be electrocuted. Make sure the generator main circuit breaker's off before touching the cable. Line up the connector carefully.



Main power cable connector

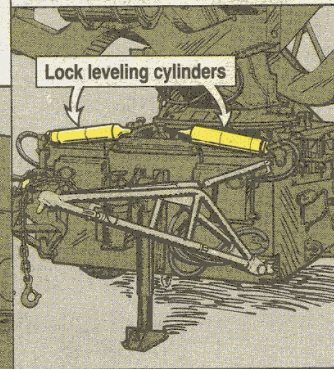
**■ HATCH LOCK HANDNUTS.** If all 8 of the handnuts are not unscrewed, you break the base plate when you raise the hatch. That's a big repair. Doublecheck that all 8 handnuts are hanging down before you raise the hatch.



**■ REAR SUPPORT UMBILICAL COVER.** If you don't support the cover with one hand when you pull the release with your other hand, the cover bangs down and is damaged...and you are too, if your head's too close.



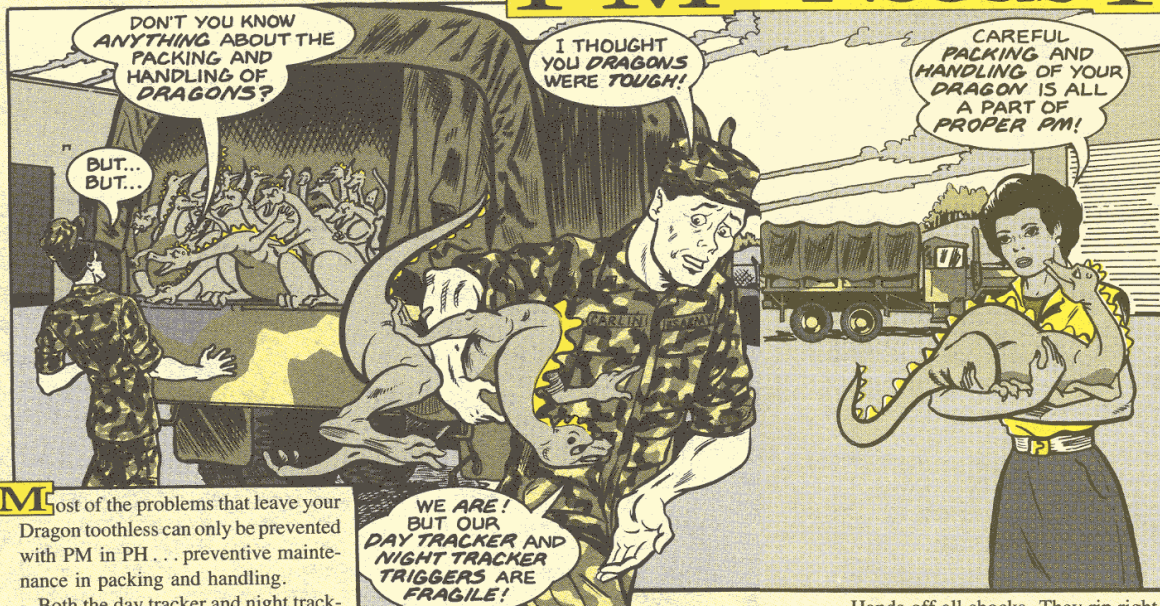
**■ LOCK LEVELING CYLINDERS.** Before you hit the road, always lock down those leveling cylinders. If you leave the cylinders hanging loose during travel, the cylinder will flop around and crack the corner bracket.



Lock leveling cylinders

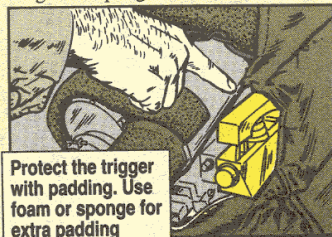


# PM Needs PH

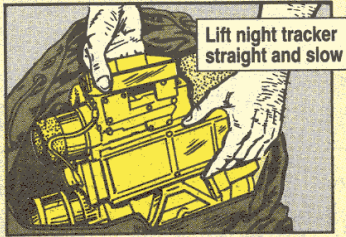


**M**ost of the problems that leave your Dragon toothless can only be prevented with PM in PH... preventive maintenance in packing and handling.

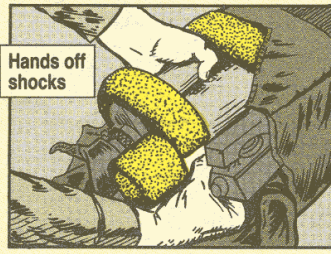
Both the day tracker and night tracker triggers are fragile. One good bump and they're gone. Pack the day tracker with the trigger next to the carrying bag's padding. Give the trigger more protection by adding to the bag's padding with sponge or foam rubber.



Lift the night tracker out of its bag straight and slow. If you jerk it up, you crack the trigger. As soon as the tracker's out of the bag, switch hands to the carrying handle. And use only the carrying handle for carrying.

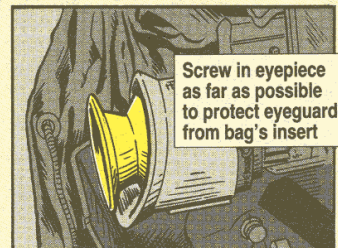


Hands off all shocks. They rip right off. Grip the bodies of the trackers to pull them out of their bags. Grip either tracker with both hands in front when you slide it back on the round's rails.

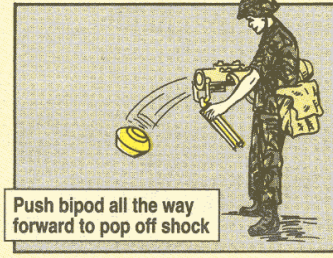


Hands off both trackers' eyeguards. Some eyeguards are only glued on. They rip off if you use them as handles or focus knobs. Without an eyeguard, either tracker gives you a black eye when the Dragon fires.

Protect the night tracker eyeguard when you pack the tracker by screwing in the eyepiece as far as possible. Otherwise, the bag's plastic insert rubs off or damages the eyeguard.

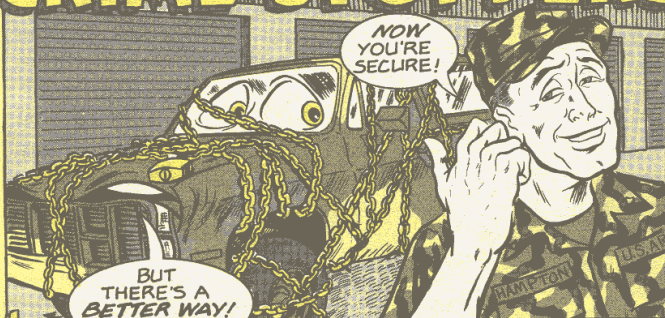


Pop the round's front shock off only by pushing the bipod all the way forward. If that doesn't do it, get another round. If you pull the shock off, the plastic holding knobs are damaged. The shock's ruined.





# CRIME STOPPERS



If you don't secure your truck, you might find a thing or three missing. Like the batteries, power steering pump caps, oil filter caps, dip sticks, spare tires, or even your vehicle.

Stop "midnight requisitioners" in their tracks by locking the hood, steering wheel and spare tire.

Here's what you need:

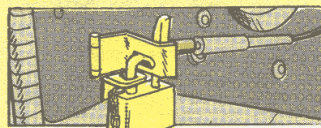
| Item                             | NSN              |
|----------------------------------|------------------|
| 1/4-in Chain                     | 4010-00-129-6049 |
| Padlock Set (3)<br>(keyed alike) | 5340-00-912-4087 |

Here's what you do:

## HOOD

Pop rivet a hasp, NSN 5340-00-664-1707, to the left side panel inside the cab compartment. Align it in front of the hood release lever when it's closed.

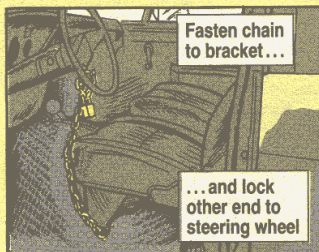
Close the hasp, and lock it.



## STEERING WHEEL

- 1 Cut off about 3 feet of chain.
- 2 Fasten one end to the left front bracket on the driver's seat for the M1008 and M1009 models.
- 3 Fasten it to the right front bracket on the M1010.

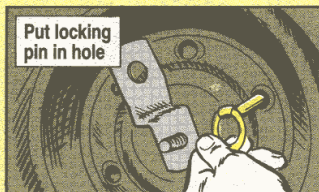
Put the chain through the steering wheel and lock it.



## M1009 Spare Tire

Use a locking pin. Make it by cutting off a link of the chain and welding it to one end of a 4-in length of 1/2-in round stock.

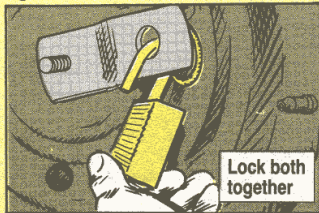
Poke the bare end of the locking pin into one of the lug nut holes.



Tighten the retainer nut and align the hole over the locking pin's chain link.



Slip the lock through the retainer nut and locking pin link and lock them together.

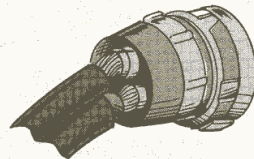


## BARE WIRE WRAP-UP

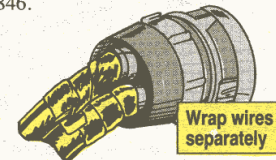
Naked cables on the cannon plug connection on the M1008A1's communication rack power junction box are trouble waiting to happen. If anything metal, like a wrench or screwdriver blade, touches the bare wires, it will cause a real shock.

So eyeball that plug. If you see a bare wire at the connector, get it wrapped now.

BEFORE



Your mechanic can fix the problem by wrapping each wire separately with electrical tape, NSN 5970-00-949-4846.



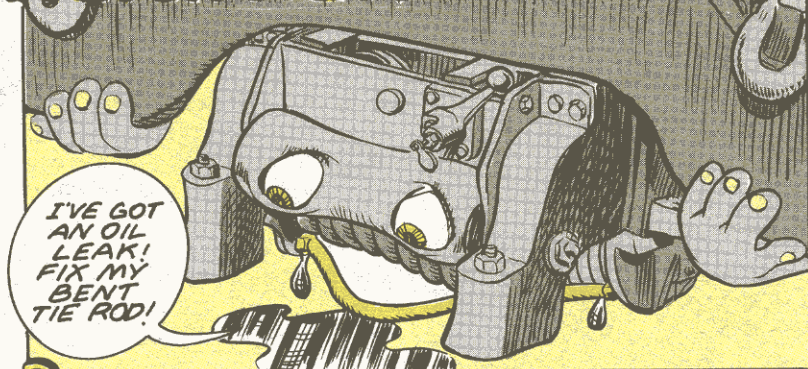
Then the wires and connector need to be wrapped together.

AFTER



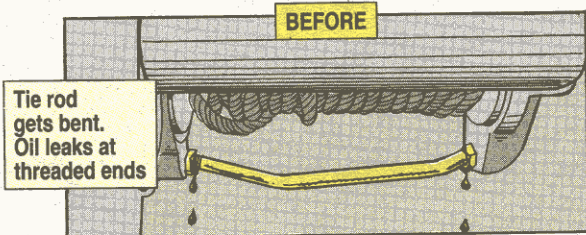


# Winch Tie Rod Leak Fix

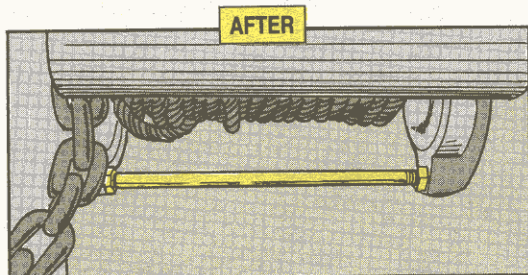


**B**umps and bangs and heavy strains bend the tie rod on front winches. When the tie rod bends, it breaks the seat on the fittings at both ends. Gear oil leaks out.

Most times you can stop the leaks without replacing the tie rod. Remove the tie rod, put it in a vise and straighten it. Be careful not to damage the threaded ends.



Wrap threads with anti-seize tape, NSN 8030-00-889-3535. Screw tie rod back in.



Refill the gear box reservoir with oil and it's ready to go.



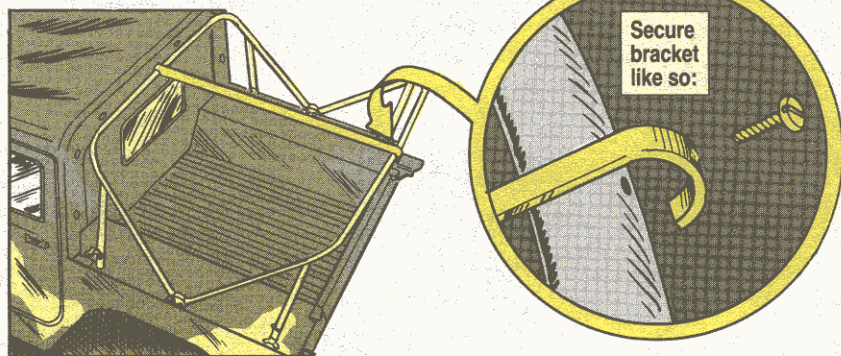
# Prop Up Drooping Cover



Standing water will rot canvas. And water stands on the soft top cover on the M998's and M1038's cargo area.

Head off puddle problems by using a third bow as a brace between the other two to hold the cover up enough so the water will run off.

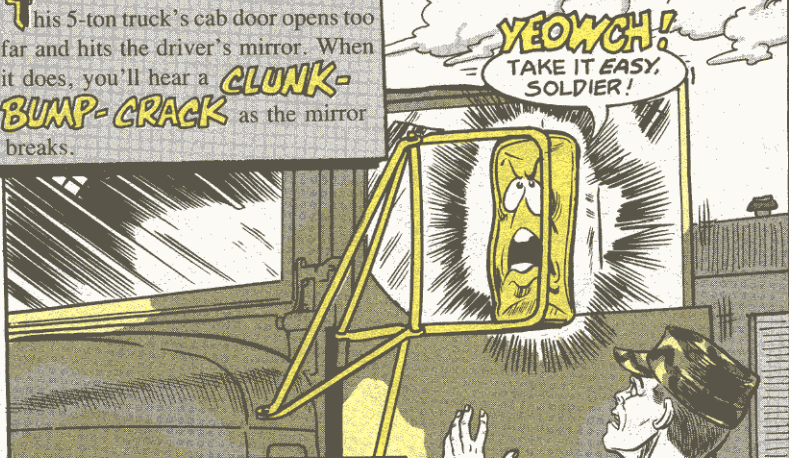
All the info on how to make the set-up is on Pages 3-42 and 3-43 of TB 43-0001-39-4 (Oct 88). If you don't have a copy, see your TACOM Logistics Assistance Representative, or write Half-Mast.





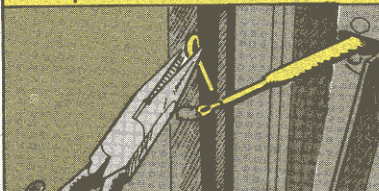
# Too Much Back Swing

This 5-ton truck's cab door opens too far and hits the driver's mirror. When it does, you'll hear a **CLUNK-BUMP-CRACK** as the mirror breaks.

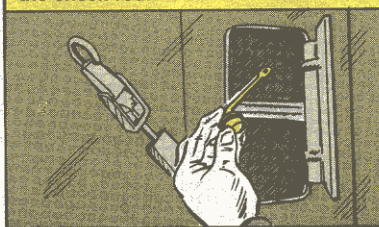


Here's how to keep the door from hitting the mirror:

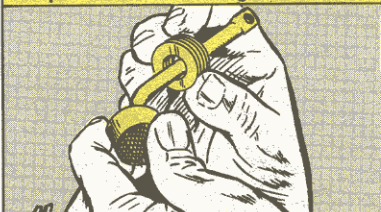
1. Open the cab door. Remove the cotter pin from the check rod.



2. Open the vent door and pull out the check rod.



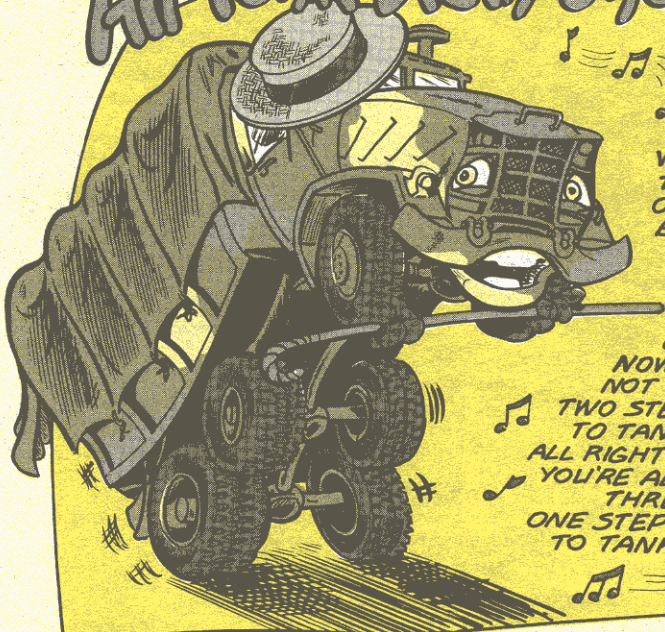
3. Add enough washers, NSN 5310-00-808-4085, to the check rod to keep the door from hitting the mirror.



4. Put the check rod back in the door. Lock it in place with the cotter pin. If you need a new one, get it with NSN 5315-00-059-0205.



# Air Tank Drain Change



START  
WITH WET  
TANK #3—  
ONE STEP  
BACK TO  
TANK  
#4—

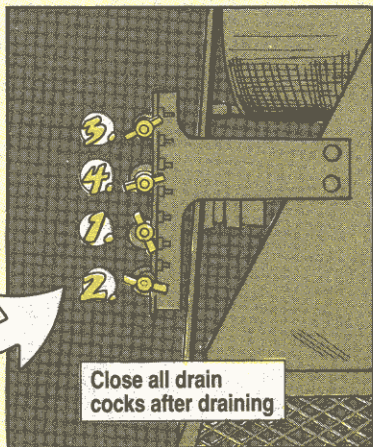
COME ON  
NOW, YOU'RE  
NOT DONE—  
TWO STEPS UP  
TO TANK #1—  
ALL RIGHT GANG,  
YOU'RE ALMOST  
THRU—  
ONE STEP BACK  
TO TANK #2!

If you drain air tanks on these 5-tonners like it tells you in TM 9-2320-272-10, you'll leave moisture in the tanks. Water leads to rust and corrosion... and brake failure.

To get water out, you've got to drain just right. Every time you shut down for the day, drain the tanks. Instead of opening the drain cocks 1,2,3,4 like it says on Page 2-46...

...drain them by these numbers:

Do this and your soggy air brake troubles will be over.





# Turn Batteries to

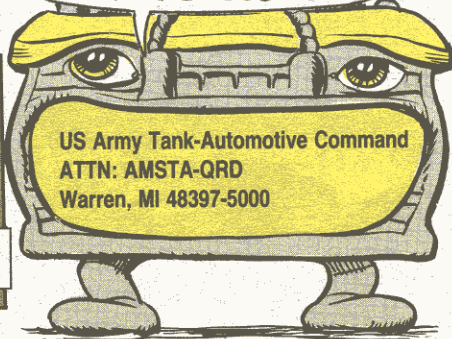
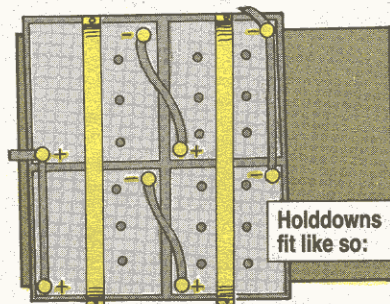


The new green 6TL 12-volt lead-acid batteries don't fit in the HEMTT's battery box. These batteries are taller and wider than the old batteries. The filler caps do not line up with the holes in battery box braces.

To get the 6TL batteries to fit in the battery box, turn them 90 degrees counterclockwise from the old position. Bend the battery box tabs out about 10 degrees. Then the battery hold

down bracket will fit between the battery filler caps.

BATTERIES ARE SUPPOSED TO FIT LIKE *GLOVES* IN ALL EQUIPMENT THAT USES THEM. IF YOU GET GREEN BATTERIES THAT *DON'T FIT RIGHT* IN ANY OTHER OF YOUR EQUIPMENT, THE HEADSHED *WANTS TO KNOW!* FIRE OFF A *QUALITY DEFICIENCY REPORT (QDR) SF 368* TO:



US Army Tank-Automotive Command  
ATTN: AMSTA-QRD  
Warren, MI 48397-5000

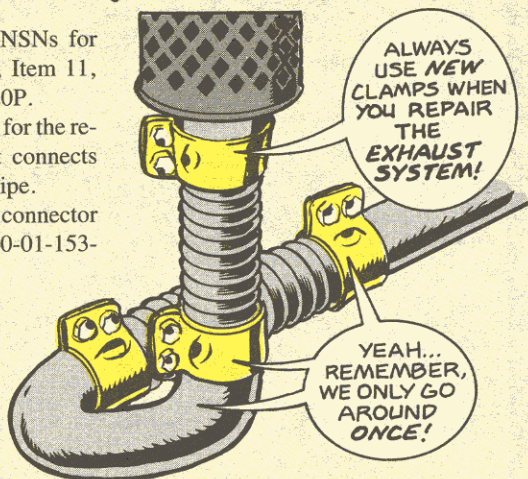


## Use Exhaust Pipe Clamps Once

Your TM has the wrong NSNs for exhaust clamps on Page 45, Item 11, Fig 17 of TM 9-2320-273-20P.

NSN 5340-01-153-9424 is for the reducer connector clamp that connects the muffler to the exhaust pipe.

The remaining straight connector clamps come with NSN 5340-01-153-1429.



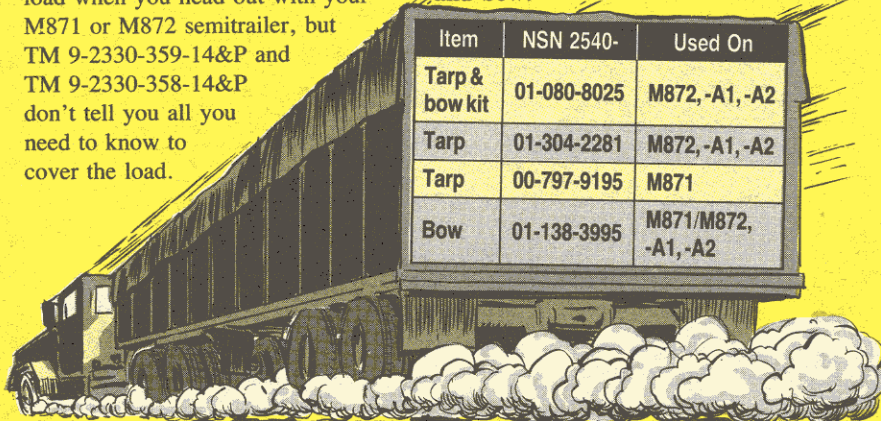
### M871/M872 Semitrailer...

## The Great Coverup Caper

You know you've got to cover your load when you head out with your M871 or M872 semitrailer, but TM 9-2330-359-14&P and TM 9-2330-358-14&P don't tell you all you need to know to cover the load.

Here are the parts for the tarp and bow:

| Item           | NSN 2540-   | Used On             |
|----------------|-------------|---------------------|
| Tarp & bow kit | 01-080-8025 | M872, -A1, -A2      |
| Tarp           | 01-304-2281 | M872, -A1, -A2      |
| Tarp           | 00-797-9195 | M871                |
| Bow            | 01-138-3995 | M871/M872, -A1, -A2 |

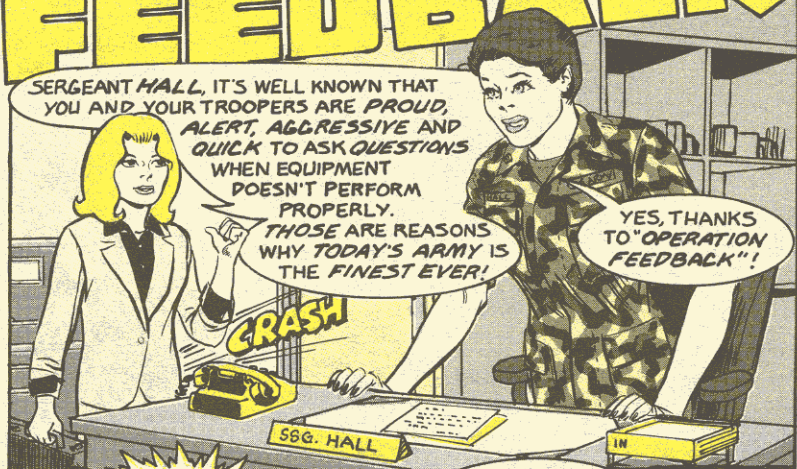




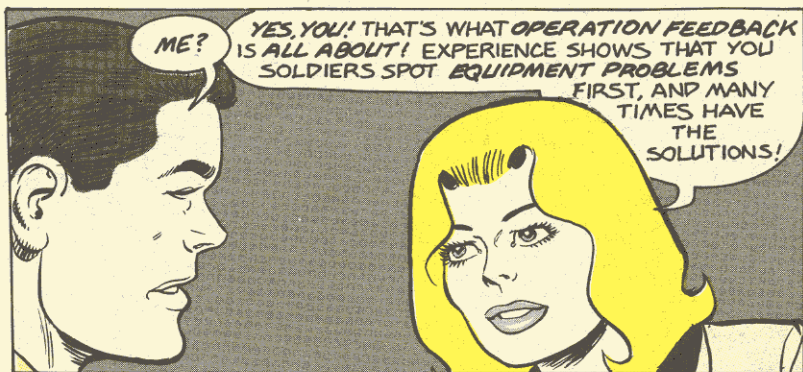




# OPERATION FEEDBACK







ME?

YES, YOU! THAT'S WHAT OPERATION FEEDBACK IS ALL ABOUT! EXPERIENCE SHOWS THAT YOU SOLDIERS SPOT **EQUIPMENT PROBLEMS** FIRST, AND MANY TIMES HAVE THE SOLUTIONS!

IT'S ALWAYS THE SAME PROBLEM - NOW IF THEY WOULD INVERT THE INPUT IT WOULD MEAN LESS BREAKDOWN, LESS DOWN TIME AND GIVE ME TIME FOR MORE VITAL PROBLEMS.

THAT'S WHAT I MEAN! THE ARMY IS THE SUM OF ITS PEOPLE'S EXPERIENCE -- SO BE THE BEST YOU CAN BE. THE ARMY AND ALL OF YOU WILL BE BETTER FOR IT!

YES, BUT HOW CAN A PRIVATE LIKE ME TELL THE RIGHT PEOPLE?

GLAD YOU ASKED... ONE WAY YOU CAN BE HEARD IS THE SMART FORM. IT'S EASY TO USE! FILL IT OUT AND SEND IT THROUGH YOUR UNIT MAILROOM.





USE AN  
**SF 368,**  
**EQUIPMENT**  
**IMPROVEMENT**  
**RECOMMENDATION, WHEN YOU CAN**  
**IMPROVE YOUR GEAR. EQUIPMENT**  
**DESIGNERS WANT YOUR**  
**FEEDBACK! FOR AVIATION EQUIPMENT,**  
**CHAPTER 2 OF DA 738-751 WILL GIVE**  
**INFO ON HOW TO FILL OUT AND WHERE**  
**TO SEND THE SF 368. FOR OTHER**  
**GEAR, CHECK CHAPTER 11 OF**  
**DA 738-750.**

**WHEN YOU CAN EQUIPMENT YOUR 38-751 WILL GIVE OUT AND WHERE 3. FOR OTHER TER 11 OF 38-750.**

**QUALITY DEFICIENCY REPORT (Category II)**

**SECTION I**  
2a. 14 (Scoring point)

2b. Typed Name, Duty Phone and Signature

3a. Serial No. (NSN) 3b. Manufacturer

4a. Part No. 4b. Lot/Batch No.

5a. Operating Time at Failure 5b. Government Furnished Material ☐ Yes ☐ No

6a. Inspected 6b. Defect ☐ Yes ☐ No

7a. Serial No. 7b. In Stock

8a. Serial No. 8b. In Stock

9a. Serial No. 9b. In Stock

10a. Serial No. 10b. In Stock

11a. Serial No. 11b. In Stock

12a. Serial No. 12b. In Stock

13a. Serial No. 13b. In Stock

14a. Serial No. 14b. In Stock

15a. Serial No. 15b. In Stock

16a. Serial No. 16b. In Stock

17a. Serial No. 17b. In Stock

18a. Serial No. 18b. In Stock

19a. Serial No. 19b. In Stock

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198a. Serial No. 198b. In Stock

199a. Serial No. 199b. In Stock

200a. Serial No. 200b. In Stock

201a. Serial

# DA FORMS 2028 & 2028-2

USE DA FORMS 2028 AND 2028-2 FOR PUB PROBLEMS. THE 2028-2 IS IN YOUR TM. USE THIS FORM FOR WRONG NSNs, CONFLICTING INSTRUCTIONS OR CONFUSING PICTURES. YOUR HEADSHED WILL SUPPLY THE CORRECT INFO.

[illegible]DA FORM 2028  
1 FEB 74

RECOMMENDED CHANGE TO EQUIPMENT TECHNICAL PUBLICATION

REASON FOR CHANGE: REVISION

ACTION: REVISION

REMARKS: REVISION

DA FORM 2028-2 1 JUL 79

DA FORM 2028-2  
JUL 79

With the 2028, your ideas, experiences, and suggestions go right to the people who prepare the publications.

You can also use it to make suggestions and recommend changes to Army concepts and policies reflected in the publications.



# DA FORM 1045

**SUGGESTION**

For use of this form, see AR 672-20; the proponent agency is the Office of the Deputy Chief of Staff for Personnel.

2 NAME OF SUGGESTER (Last, first, middle initial)

3 POSITION TITLE, GRADE AND SOCIETY

4 INSTALLATION OR ACTIVITY

5 ORGANIZATION

7 SUBJECT OF SUGGESTION

The acceptance by me of a cash award or other form of recognition for this suggestion shall constitute an agreement that the United States shall not form the basis of a further claim of any nature upon the United States by me, my heirs, or assigns.

8 DATE

9 SIGNATURE OF SUGGESTER

10 THANK YOU FOR YOUR SUGGESTION: It has been analyzed and approved. It has been assigned the above Suggestion Number. It has been item 1, above, and will be given careful consideration. You will be kept advised as to action taken.

11 SIGNATURE OF EXECUTIVE SECRETARY OR COORDINATOR

12 PRINTED TYPED NAME AND OFFICE OR HOME ADDRESS WHERE YOU WISH AN ACKNOWLEDGEMENT SENT

**YOU CAN ALSO SUBMIT YOUR IDEAS OR SUGGESTIONS ON DA FORM 1045. YOU COULD END UP RICHER!**

SUBJECT OF SUGGESTION

You can use the DA Form 1045 for any type of suggestion. Chapter 2 of AR 672-20 has the details.

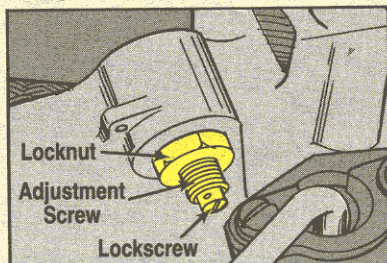




# Bleed Band Adjusting Tool

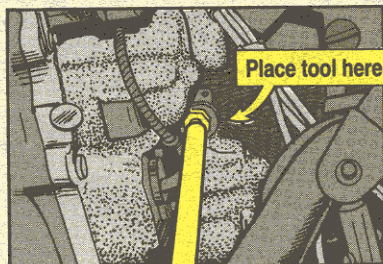
**M**aking an interstage bleed band closure adjustment on your bird's T53 engine can be a real test of patience.

That's because the adjustment screw turns when you tighten the locknut, shifting the closure point to a higher N1 speed.



Most engine mechanics hold the adjustment screw with pliers while they tighten the locknut. But pliers don't keep the screw from turning as the locknut turns. Since  $\frac{1}{8}$  turn equals one RPM of change in the N1, it's almost impossible to make an accurate adjustment.

Birchell Gragson of Ft Knox, KY, solved the problem by making a tool that grips the adjustment screw better than pliers. Even if the adjustment screw turns a little, the tool handle lets you determine exactly how much it has turned.

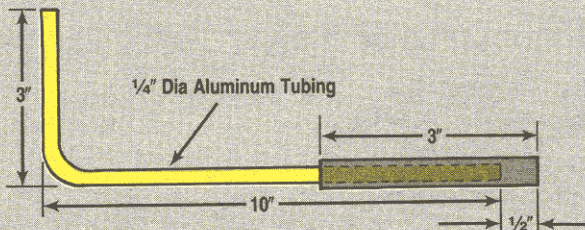


The tool eliminates a lot of guesswork, cuts the number of shut-downs and restarts required, and saves a lot of time.

All you need to make the tool is a 13-in piece of  $\frac{1}{4}$  inch diameter aluminum tubing and an oil sample tube, NSN 4720-00-964-1433.

## Here's how to make the tool:

1. Bend the aluminum tube 90 degrees three inches from one end.
2. Force the oil sample tube onto the other end of the aluminum tube.
3. Cut off most of the plastic tube, leaving only  $\frac{1}{2}$  inch extending beyond the end of the aluminum tube.





UH-1 Huey...

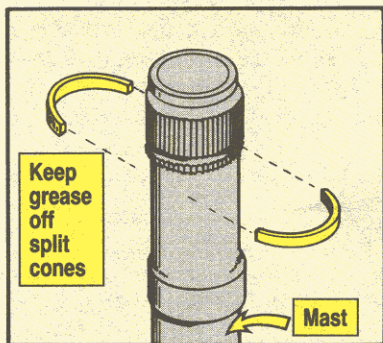
# PROTECT SPLIT CONES



Careful, Huey mechanics, next time you grease the scissors and sleeve assembly or apply corrosion preventive compound (CPC) to the mast splines.

Keep grease and CPC off the main rotor hub split cones. If it gets under the split cones, it causes the hub retaining nut to loosen and back off as the hub seats during the next flight.

If you spill grease or CPC on the split cones, wipe it up with a clean cloth before it soaks in.



## Aviation Equipment Hotline

If you've got an aviation equipment related problem and need help, call the AVSCOM Command Operations Center (COC) at any time of the day or night, AUTOVON 693-2066 or Commercial 314-263-2066.

AUG 90



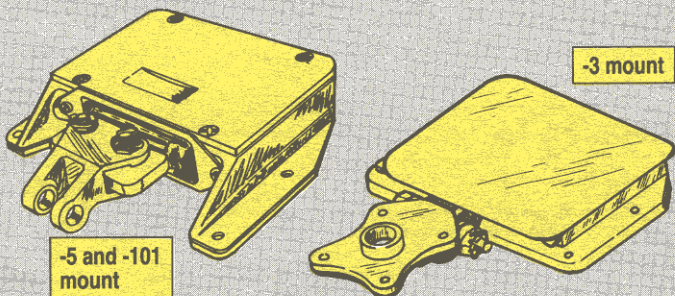
# Inspection Correction

Dear Windy,

Is there an inspection required every 12 months or 300 hours for pylon isolation mounts PN 206-030-539-5 and -101? The inspection checksheet in TM 55-1520-228-23-1 says to inspect only mount PN 206-030-539-3 and refers us to Para 2-291a and b only.  
B.G.

Dear B.G.,

TM 55-1520-228-PM is being changed to require an inspection of the -5 and -101 mounts every 600 hours and the -3 mount every 300 hours.



Go by Para 2-292 when you inspect the -5 and -101 mounts.  
Go by Para 2-291a.1 and a.2 when you inspect the -3 mount.

Windy

## Shelf Life of O-Rings

O-rings used in aircraft maintenance have an indefinite shelf life, like it says in Para 2-180 of TM 55-1500-204-25/1. But always inspect new O-rings before you install them. If you find one that's cut, brittle or flawed in any way, throw it out.



# CLEAR YOUR WEAPON - CLEARLY!

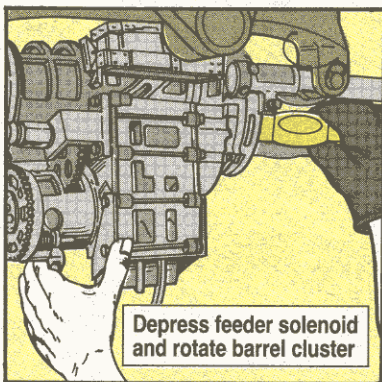
**Y**ou can be in big trouble if you fail to download your Cobra's 20-MM cannon by the book.

After you perform a safing inspection like it says in TASK 2-4 of TMs 9-1090-206-20-1 and -2, a few rounds may be left in the forward sprocket near the guide bar.

Trouble is, you can't see 'em even if they're there.

So you have to reach in and depress the feeder solenoid with your hand. Then manually rotate the barrel cluster until all rounds are ejected and all links are clear of the feeder.

That's the only way you can be sure the weapon's cleared.



## Aviation Messages

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

**UH-1-90-03**, SOF, Maint Mandatary, AH-1 and UH-1M series, main rotor pitch horn bolts, 031830Z Apr 90.

**AH-1-90-04**, SOF, Maint Mandatary, AH-1 and UH-1M series, main rotor pitch horn bolts, 031830Z Apr 90.

**CH-47-90-05**, SOF, Maint Mandatary, CH-47D, extension of vibration test on transmission cooling fans, 032000Z Apr 90.

**UH-60-90-02**, SOF, Technical, H-60 series, one time and recurring inspection of main rotor blade expandable pin, 092115Z Apr 90.

**OH-58-90-04**, SOF, Technical, OH-58/H-6 series, T64-A-700/720 turbine engine recall, 172030Z Apr 90.

**OH-6-90-03**, SOF, Technical,

OH-58/H-6 series, T64-A-700/720 turbine engine recall, 172030Z Apr 90.

**CH-47-90-06**, SOF, Maint Mandatary, CH-47D, one time and recurring inspection of aft transmission cooling fan assembly, 172245Z Apr 90.

**CH-47-90-07**, SOF, Technical, CH-47D, one time inspection of CH-47D forward transmission barrel nuts, P/N NAS577B20A, 192100Z Apr 90.

**CH-47-90-08**, SOF, Technical, CH-47D, clarification to one time inspection of CH-47D forward transmission barrel nuts, P/N NAS577B20A, 201700Z Apr 90.

**OH-58-90-05**, SOF, Technical, OH-58A/C, inspection of tail rotor yoke assemblies, 251600Z Apr 90.

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

**CH-47-90-09**, SOF, Maint Mandatary, CH-47D, one time and recurring inspection of pitch link retaining hardware, 261900Z Apr 90.

**CH-47-90-ASM-02**, ASM, CH-47C/D, changes to weight and balance calendar and battery cable inspection, 021710Z Apr 90.

**OH-58-90-ASM-02**, ASM, OH-58D, lubricating spline shafts, 032215Z Apr 90.

**AH-1-90-ASM-02**, ASM, AH-1 NSN 156-00-027-5781, P/N 209-001-908-1, elevator horn assembly inspection, 121930Z Apr 90.

**U-8-90-ASM-01**, ASM, U-8F exalibur, inspection and replacement of main gear door actuator torque tube support bracket, 182100Z Apr 90.

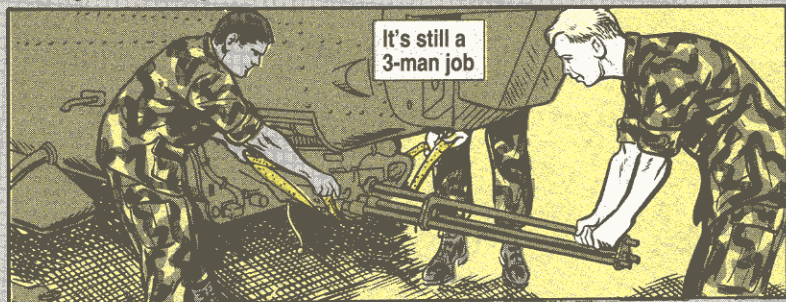


# Cobra Cannon Sling

**H**ad enough mashed fingers and wrenched backs while removing and installing your M197 cannon?

If so, use a sling to make the tasks easier and safer. Appendix E, Fig E-2 of TM 9-1090-206-20-1 and -2 shows how to make a sling from nylon webbing, NSN 8305-01-015-9434. Your local tent/canvas repair shop will do the sewing.

You still need three persons to remove or install the weapon, even with a sling. Two hold the ends of the sling with the center support under the rotor housing. The third person lifts the end of the barrel assembly.



Remember, the recoil adapter release pin is the last one out during removal and the first one in during installation.

## Armament Subsystems...

# Cobra Cannon Chug-a-Lug

**Y**ou have to replace the forward housing of your Cobra cannon's M89E1 feeder when the mounting pin lugs wear out, like it says in Para 3-42 of TM 9-1090-206-20-1 and -2.

Knowing when the lugs are worn out is the key. The lug holes don't wear out evenly. They get elongated so that the diameter is greater at some points than other points.



When you measure for wear, be sure to measure the diameter where it is the largest. If it measures more than 0.2450 inch, replace the housing. It's OK if the largest gap in the lug is less than 0.2450 inch.



# PMCS Pays Bigtime Dividends



**T**he Aviation Ground Power Unit (AGPU) is a real workhorse, providing electrical, hydraulic and pneumatic power for your thoroughbreds of the sky.

If you don't take care of your thoroughbreds, they won't fly.

Likewise, if you don't take care of your workhorses, they won't give you the ground power you need to keep your thoroughbreds flying.

Here are some things to look for every time you use your AGPU:

**GROUND WIRE**—loose or frayed.

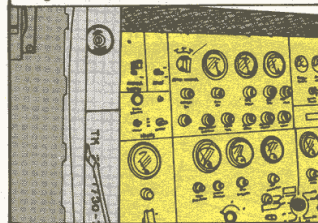


40

AUG 90

**FRAME AND HOUSING**—dents, cracks, punctures, corrosion; damaged hinges or latches on doors.

**CONTROL PANEL**—cracked glass on meters and gages, missing parts, signs of corrosion.

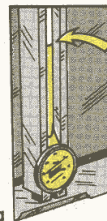


**BATTERY**—loose or corroded hold-down or guide, missing or damaged vent drain tubes, loose cables and connectors.

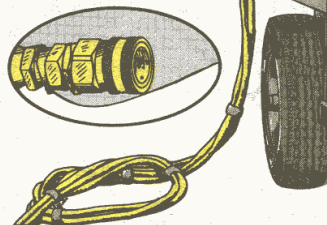


**ENGINE COMPARTMENT**—low oil level, signs of oil or fuel leaks, corrosion, punctured or corroded air intake duct assembly, loose drain tubes, loose or missing bolts on engine mounts and generator support, damaged hydraulic hoses, leaks or damage to the hydraulic pump.

**HYDRAULIC RESERVOIR**—oil level below  $\frac{3}{4}$  full, missing or loose parts on control panel, cracked glass on gauge or thermometer, damaged or corroded fittings, leaks or damage to hydraulic filter housing assembly and filter head indicator.



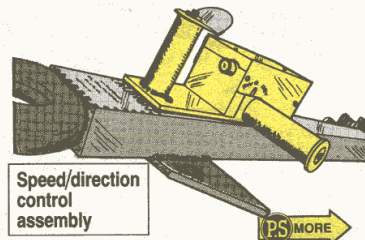
**POWER CABLES**—damaged insulation, corroded or damaged connectors.



**PNEUMATIC HOSE**—loose hose clamp, damaged hose, damaged or corroded connector fitting.



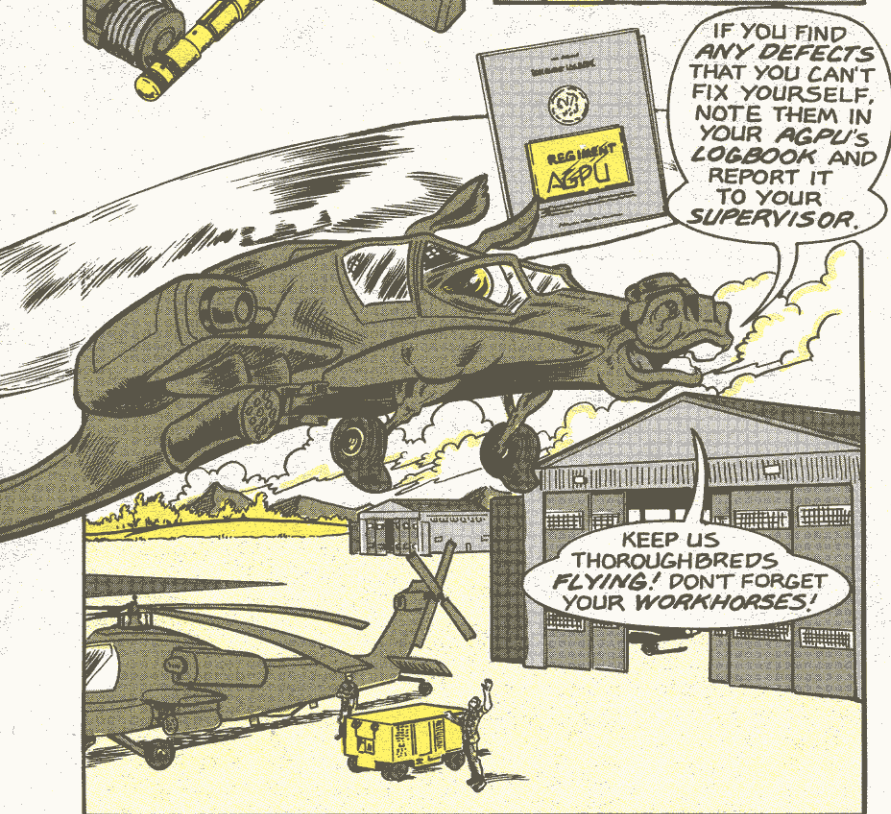
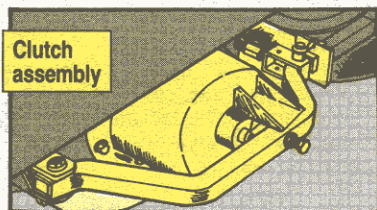
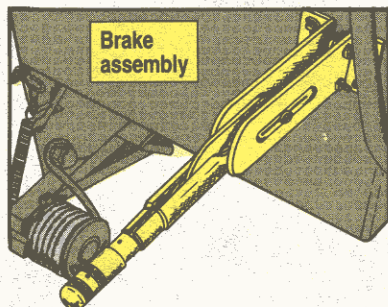
**PROPULSION SYSTEM**—bent or broken front and rear axle assemblies, oil leaks, worn, damaged or underinflated tires, missing lug nuts on wheels, loose or damaged tow bar speed/direction control assembly, damaged brake cable, missing or loose fasteners.



PS MORE



Bent or broken spring leaves, damaged traction motor, loose or missing fasteners, broken or loose terminals, loose or missing brush covers and corrosion, bent or cracked clutch and gear drive housings.



If you find something that will damage the equipment more if it's used, don't use it until it's fixed. In addition to these routine before-operation checks, you have to pull a more in-depth PMCS periodically. That's in Para 4-9 and Table 4-1 of TM 55-1730-229-12.



# NSNs for Screwdriver Bits

If you're missing some of the bits in your tool kit's screwdriver bit set, NSN 5120-00-870-6928, here are the NSNs you need to replace them:

STEP  
RIGHT UP  
AND  
ORDER YOUR  
BITS WHILE  
THEY'RE  
HOT!



| Part No. | Bit           | Hex Size (inches) | NSN 5120-   |
|----------|---------------|-------------------|-------------|
| CRA.050A | .050 Hex      | 1/4               | 00-058-5158 |
| CRA2A    | 1/16 Hex      | 1/4               | 01-104-3140 |
| CRA2.5A  | 5/64 Hex      | 1/4               | 01-104-3142 |
| CRA3A    | 3/32 Hex      | 1/4               | 01-104-3143 |
| CRA3.5A  | 7/64 Hex      | 1/4               | 00-921-0574 |
| CRA4A    | 1/8 Hex       | 1/4               | 01-106-5552 |
| CRA4.5A  | 9/64 Hex      | 5/16              | 01-104-3145 |
| CRA5A    | 5/32 Hex      | 5/16              | 01-104-3146 |
| CRA6A    | 3/16 Hex      | 5/16              | 01-104-3135 |
| CRA7A    | 7/32 Hex      | 1/4               | 01-104-3134 |
| CRA8A    | 1/4 Hex       | 1/4               | 01-104-3136 |
| CRA10A   | 5/16 Hex      | 5/16              | 01-104-3137 |
| CRD8B    | 1/4 Sq.       | 1/4               | 01-104-3144 |
| CRP1B    | Phillips No.1 | 1/4               | 01-104-3141 |
| CRP2B    | Phillips No.2 | 1/4               | 01-105-9119 |
| CRS8A    | 1/4 Flat Tip  | 1/4               | 01-104-3138 |
| CRS12A   | 1/4 Flat Tip  | 5/16              | 01-104-3139 |
| CRZ1     | POZIDRIV No.1 | 1/4               | 01-140-0955 |
| CRZ2     | POZIDRIV No.2 | 1/4               | 01-140-0956 |

Part No. R810S, double-ended ratchet wrench, 1/4-in and 5/16-in drives, is NSN 5120-01-076-2386.



# Win the War Against Corrosion

HEAT, HUMIDITY AND MOISTURE JOIN FORCES IN THE SUMMERTIME TO STOP COMMO EQUIPMENT. YOUR ONLY WEAPON AGAINST THESE VILLAINS IS PM, PM AND MORE PM!

**S**tay one step ahead of these villains by keeping your shelter dry and cool.

Keep shelter doors closed, louver covers open, and ventilating fans going. The fan will send a stream of fresh air across your gear. Fresh air helps keep the gear dry. Dry gear means no corrosion.

Since your shelters are almost airtight with the doors closed, differences between inside and outside temperatures cause condensation.

Open louver doors for air circulation

Keep the inside clean and dry like so:

## Under Mats

If the shelter has rubber floor mats, pick them up daily to look for moisture buildup underneath. That's a starting place for mold, mildew and rot. If you find moisture, dry the floor and hang the mat up to air dry.

Dry under mats daily

HELP!  
I NEED SOME PM!

I'VE GOTTEN MY PM... AND I FEEL FINE!

## Outside PM

Keep your shelter's outside in good shape, too. Look for punctures in the shelter's skin. Get all punctures fixed immediately. TB 43-0124 tells what can be fixed by unit maintenance personnel and what tools and materials are needed to do the work. Also see TM 10-5411-205-14 for the S-250 shelter and TM 10-5411-207-14 for the S-280 shelter.

## Keep Shelters Cooler

One way to keep your AN/GRC-122 and -142 shelters cool is to use a heat reflecting tarp, NSN 5820-00-937-5530. Mount it 1 or 2 feet above the shelter with tarp supports, NSN 5815-01-108-9180

Use tarp to shade shelter

## Filter Attention

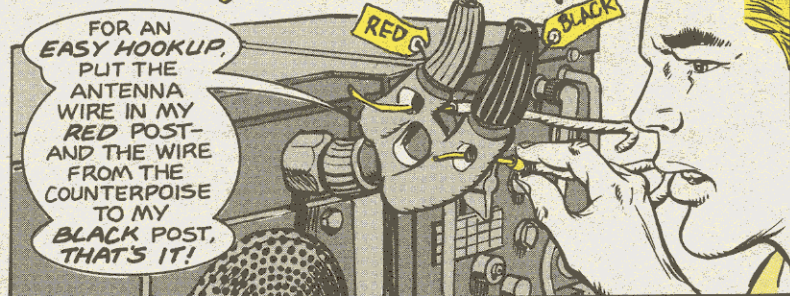
Hot weather means that you need to give air filters more attention. Remove the cover over the air filter on your AN/GRC-103 radio set daily to look and see if the filter is clean and dry.

Filters need more attention

You probably won't be able to completely stop moisture damage. But by using common sense and these PM tips you can help hold off these commo-killing enemies.



# SMOOTH OPERATOR



Looking for a smooth way to hook up a field expedient antenna to your AN/VRC-12-series receiver-transmitter (RT)?

Look no more. Make a smooth hookup between your antenna and RT with the UG-1441 adapter, NSN 5935-00-410-1399.

One end of the adapter has binding posts for field wire. The other end has a connector that fits the RT's ANT receptacle. The wire from the adapter's red binding post goes to the antenna. The wire from the black binding post goes to the counterpoise.

To keep the adapter handy, fasten it to the RT's guard handle. This fix beats trying to feed field wire directly into the set's receptacle.



Not having the right size O-rings when hooking up cable connections can be mighty frustrating!

Keep an assortment of O-rings on hand. A kit of 382 O-rings comes your way with NSN 5330-00-966-8657. Sizes range from  $\frac{1}{8}$  inch to  $1\frac{3}{4}$  inches inside diameter. A sizing gage is also included in the kit to help you decide which O-ring to use.

Even though you get a selection of 30 different size O-rings in the kit, not a single one fits an audio connector U-229/U. When you need an O-ring for your H-250 handset, H-189 handset or M-80 microphone audio connector, get it with NSN 5330-00-905-6032.



# Send Components for Faster Repair



FOLLOW THESE  
INSTRUCTIONS  
FOR RETURNING  
DGM ITEMS.

**W**hen you send your digital group multiplex (DGM) equipment to support for repair, be sure to send the components that the repair folks need to test and inspect the end item.

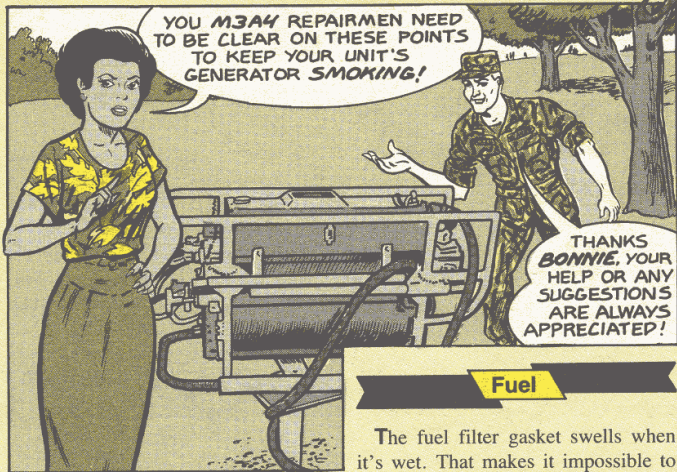
It could slow down the repair cycle if the repairman has to hunt a connector assembly or circuit card assembly (CCA) to test the equipment.

While some of the DGM equipment needs all the components returned, others can be sent without certain CCAs. Power supply CCAs should always be returned with the equipment.

| End Item       | NSN              | Return Instructions                                                                                                                                                               |
|----------------|------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| MD-1023(P)/G   | 5820-01-145-4904 | Return with all components and AC circuit card assemblies, NSN 5998-01-140-1302.                                                                                                  |
| MD-1026(P)/G   | 5820-01-145-4945 | Return without modem circuit card assemblies. Remove COND DI-PHASE A, DIPLUSE, BIPOLAR, orderwire, COND DI-PHASE B from slots A4, A5, A6, A7, A8, A9, A11, A12, A13, A14 and A15. |
| TD-1233(P)/TTC | 5820-01-145-2462 | Return with all components and loop modem circuit card assemblies, NSN 5820-01-140-1314.                                                                                          |
| TD-1235(P)/TTC | 5820-01-145-2460 | Return without the 8 circuit card assemblies. Remove loop modem and AAU circuit card assemblies in slots A6, A7, A8, A9, A10, A11, A12 and A13.                                   |
| TD-1234(P)/TTC | 5820-01-145-2458 | Return without the 4 circuit card assemblies. Remove loop modem and AAU circuit card assemblies in slots A9, A10, A11 and A12.                                                    |
| TD-1237(P)/G   | 5820-01-145-2459 | Return with all components and the 12 GP logic "A" circuit card assemblies, NSN 5999-01-140-1285.                                                                                 |

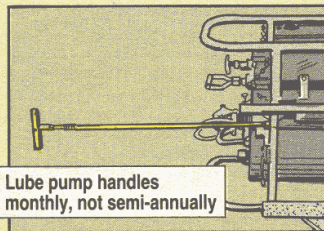


# Clear Way for Smoke



## Lubing Handles

Lubing the air pump and the magneto air pumps every six months won't do the job. Without enough lube, the operator has trouble building up enough pressure. Lube both pumps monthly with general purpose lubricating oil (VV-L-800), NSN 9150-00-273-2389.

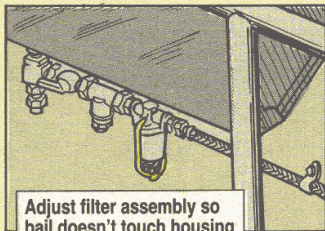


Lube pump handles monthly, not semi-annually

## Fuel

The fuel filter gasket swells when it's wet. That makes it impossible to reassemble the filter until the gasket dries and shrinks back to normal size. Take extra gaskets, NSN 5330-00-843-1685, to the field in case you must clean or replace the filter element.

Before you send your M3A4's to the field, make sure the bails of the fuel filter assembly don't touch the engine housings. That causes the bowl's gasket to leak.



Adjust filter assembly so bail doesn't touch housing

## Water Protection

Protect smoke generators from water problems by having your local canvas repair shop make 42 x 18x24-in tarpaulin covers. Then keep 'em covered.

Get your canvas repair shop to make covers for your M3A4s



## New NSNs

**Lead ignition**, NSN 2920-01-256-9675, replaces the **ignition cable**, NSN 6145-01-177-9247.

Replace the rubber O-ring on the air pump with a **flat washer**, NSN 5310-00-058-3632.

**Plug cock**, NSN 4820-01-251-8680, replaces the **fuel shutoff valve**, NSN 4820-00-541-7567.

**Air hose**, NSN 4720-00-288-9195, and **clamp**, NSN 4730-00-908-3195, replace the **nonmetallic hose**, NSN 4720-01-193-1988.

Now order the **spark igniter** with NSN 2920-01-263-9720.

## M12A1 Decon...

# Getting and Keeping Clean Fuel

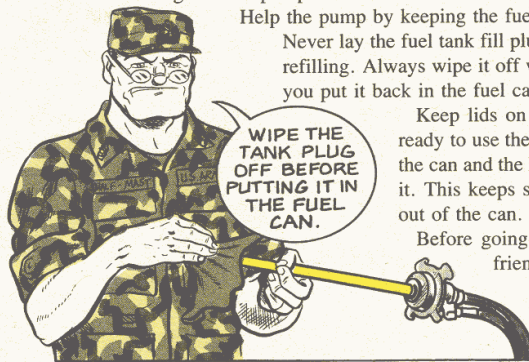
**D**irty fuel makes things tough on the fuel pump in the M12A1's M2 heater. Grit and sand get in the pump and cause it to strain to do its job.

Help the pump by keeping the fuel as clean as possible.

Never lay the fuel tank fill plug on the ground when refilling. Always wipe it off with a clean rag before you put it back in the fuel can.

Keep lids on fuel cans until you're ready to use them. Wipe off the top of the can and the lid before you unscrew it. This keeps sand and dirt and trash out of the can.

Before going to the field, get your friendly mechanic to clean the fuel pump strainer and the fuel filter.



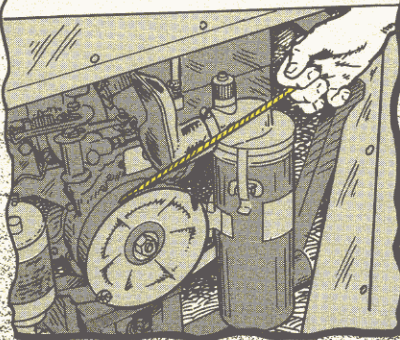


# Pull Away for Starting Problems

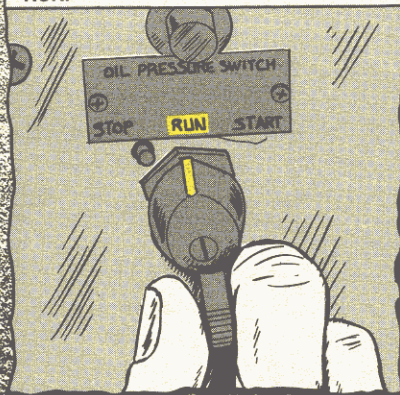
THE M12A1'S PUMP BATTERIES ARE NOTORIOUS FOR FAILING! IF THEY DO FAIL, HERE'S HOW YOU AND A BUDDY CAN MANUALLY START THE ENGINE!

**1** Follow the normal starting procedure until you get to the part on turning on the start-magneto switch.

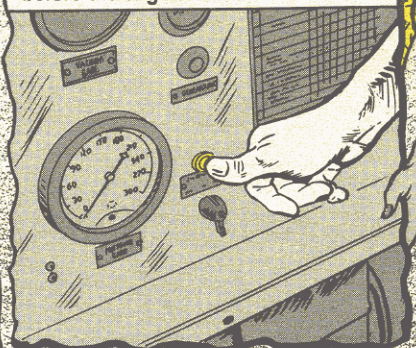
**2** Wrap the starter rope, NSN 2990-00-961-3692, around the crankshaft pulley.



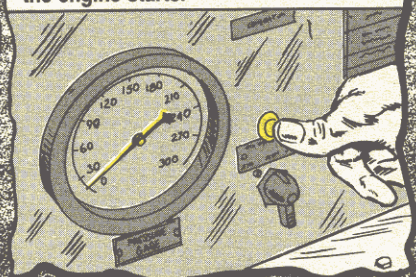
**3** Turn the start-magneto switch to RUN.



**4** Hold in the OIL PRESSURE SWITCH while your buddy pulls hard on the rope. You may have to do this several times before the engine starts.



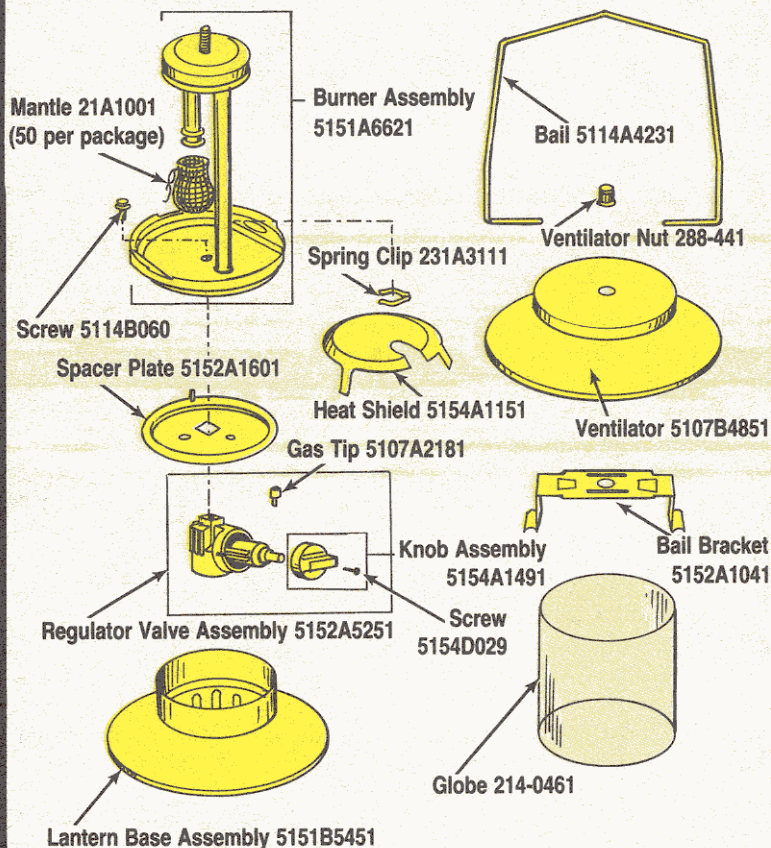
**5** Release the OIL PRESSURE SWITCH as soon as the gage reads 20 PSI after the engine starts.





# Night Light

Light up the night with your propane lantern, NSN 6260-01-124-7467. Keep it shining by ordering the repair parts on DD Form 1348-6 using RIC S9G, CAGE 80309 and these part numbers:





# CAT PATTER

YOUR CAT DOZER IS A BRUTE THAT WORKS IN A BRUTAL ENVIRONMENT! IT WILL MOVE **TONS** OF DIRT FOR JUST A FEW **POUNDS** OF TLC!

HERE ARE SOME TIPS TO KEEP YOUR CAT MAKING TRACKS!

PARK OVERNIGHT ON A LEVEL SURFACE

STOP BEFORE YOU SHIFT IN OR OUT OF REVERSE

DRIVE SLOW

LOOK FOR UNEVEN TRACK WEAR

BE ON THE LOOKOUT FOR SNAKE TRACKS

**E**yeball track shoes and other track hardware before you start moving dirt. Look for loose bolts, leaking seals, oil on the roller or uneven track wear. If you find something wrong, report it.

Look at the Cat tracks on the ground. Crooked tracks—snake tracks—are caused by too much wear on internal pins and bushings. Snakiness speeds up wear on all track parts—rollers and idlers must work harder to keep the tracks in line—and link wear is quicker and uneven.

Sprockets, rollers and idlers must lead your tractor along a straight line. If they're out of line, the new parts won't last.

Besides daily PM, your tractor's track life depends on how you work with equipment.

Slam-bang driving over ground, obstacles or rough 'n' tumble terrain smashes the tractor's weight back and forth from one roller to another. This shortens roller life—particularly the front rollers.

Keep speed down. High speed over rough ground damages the front track and idlers. It knocks them out of line, too.

Never park your dozer on the side of a hill overnight. Besides being unsafe, this puts a strain on the roller seals...and oil leaks out.

Next day, it takes a while before the seals get back to the right shape. Meanwhile, you'll lose more oil. Rollers

only hold a pint. Without oil, the roller grinds itself up in a few hours.

Stop your Cat dead in its tracks before you shift in or out of reverse. Shifting into reverse puts pins and bushings under their greatest strain. High speed reverse shifting just means faster wear 'n' tear on gears and bearings.

Never take cuts so deep that the track starts slipping. Too much down pressure on the blade raises the front of the track off the ground. All the force is on the rear and the track starts spinning. Slipping track wears shoes fast!

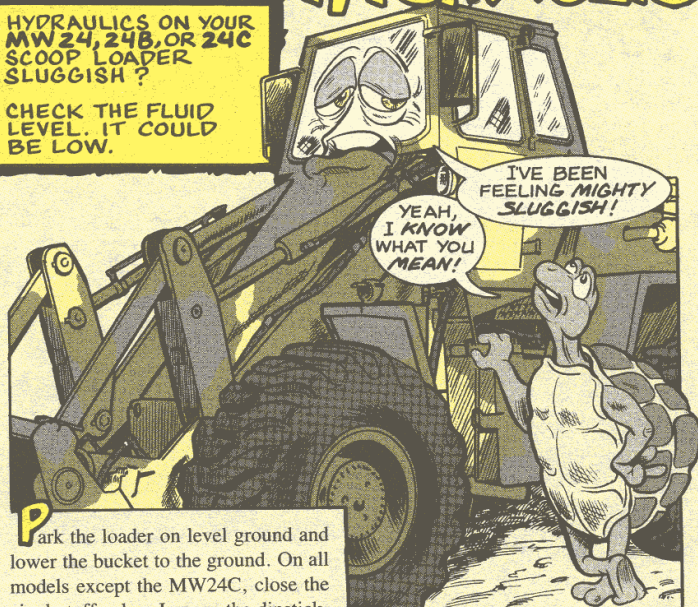
Got a big job that calls for constant right-or left-hand turns? This wears one track faster than the other. Change your pattern now and then for balanced track wear.



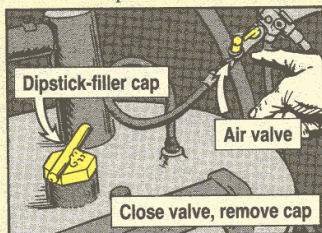
# HYDRAULIC SYSTEM TIPS

**HYDRAULICS ON YOUR MW24, 24B, OR 24C SCOOP LOADER SLUGGISH?**

**CHECK THE FLUID LEVEL. IT COULD BE LOW.**



**P**ark the loader on level ground and lower the bucket to the ground. On all models except the MW24C, close the air shutoff valve. Loosen the dipstick-filler cap to let pressure escape. Then remove the cap and check the oil level.

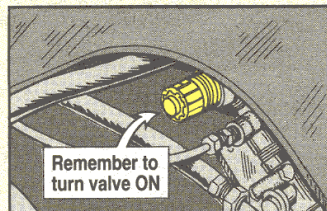


Bring the level between the ADD and FULL marks. Screw the dipstick-filler cap on, and open the air valve.

For the MW24C, park on level ground with bucket lowered. Check the sight gage on the reservoir. If you need to add oil, close the air shutoff valve.



Slowly loosen the filler cap. When the pressure is released, remove the cap and add oil. Replace the cap and turn the air valve back on.

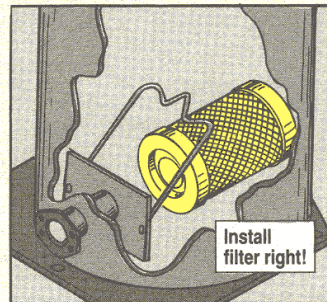


Run the engine at idle until the pump inlet pressure gage reaches 5–15 PSI to make sure oil is flowing through the pump.

Hydraulics system still sluggish? Get your mechanic to change or clean the filter in the reservoir.

To get to it, drain the reservoir. The MW24C's filter screws on, while other models use a clip to hold the filter.

Either way, be sure the filter is clean and properly seated so it can do its job without restricting the flow of oil.



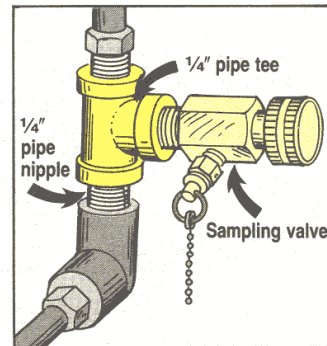
AOAP...

## D7E Tractor Oil Sampling Kit

**T**he oil analysis sampling kit, NSN 2815-01-184-4828, for the D7E tractor is no longer available. To make up a sampling device, order these parts:

| Item                      | NSN              |
|---------------------------|------------------|
| Sampling Valve            | 4820-01-120-4532 |
| 1/4-in Pipe Nipple, close | 4730-00-196-1465 |
| 1/4-in Pipe Tee           | 4730-00-257-2117 |

Para 2-24 of TM 9-2300-422-23&P has installation instructions for the sampling device.





ALWAYS KEEP A  
GOOD ASSORTMENT  
OF SMALL PARTS  
IN YOUR SHOP!

# ASSORTED

# SHOP ITEMS

HERE'S A  
HANDY LIST OF  
ITEMS THAT YOU  
OFTEN NEED!

## Absorbent compound, 25-lb bag

NSN 7930-01-145-5797

## Cotter pin assortment

NSN 5315-00-598-5916



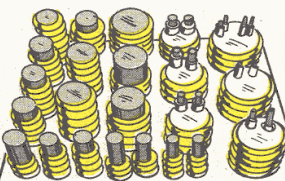
## Nut assortment

NSN 5310-00-297-3751



## O-ring assortment

NSN 5330-00-966-8657



## Lock washer assortment

NSN 5310-00-209-2312



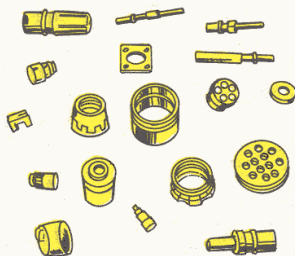
## Woodruff key assortment

NSN 5315-00-271-4251



Electrical waterproof connectors  
(for electrical tool kit in the No. 1 and  
No. 2 Common shop sets). Authority:  
SM 9-4-5935-501

| NSN 5935-00-570- | Item        |
|------------------|-------------|
| 1380             | Bendix Kit  |
| 1060             | Douglas Kit |



## Insulating varnish, electrical

NSN 5970-00-284-5448

Gasket material, animal or plant  
fiber, water, oil, grease resistant

| NSN 5330-00- | Thickness (inch) |
|--------------|------------------|
| 467-3615     | 1/32             |
| 270-8470     | 1/16             |
| 233-5845     | 1/64             |

## Gasket, cork

| NSN 5330-00- | Thickness (inch) |
|--------------|------------------|
| 233-5844     | 1/2              |
| 291-1685     | 1/32             |
| 171-9134     | 3/16             |

## Gasket shellac

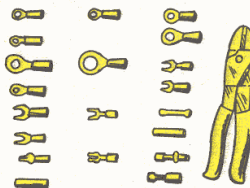
NSN 8040-00-664-4134

## Gasket sealing compound

| NSN 8030-00- | Type         |
|--------------|--------------|
| 247-2524     | Hardening    |
| 656-1426     | Nonhardening |

## Electrical terminal kit

NSN 5940-00-525-0907  
(Commercial-type connectors)  
Kit comes with crimping tool



Heat shrinkable tubing  
(for electrical wire repairs)

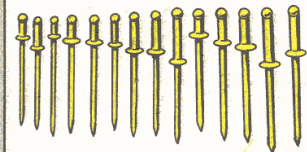
| NSN 5970-00- | Inch diameter |
|--------------|---------------|
| 812-2968     | 1/16          |
| 812-2969     | 1/8           |
| 815-1295     | 1/4           |
| 812-2967     | 1/2           |

## Pop Rivets

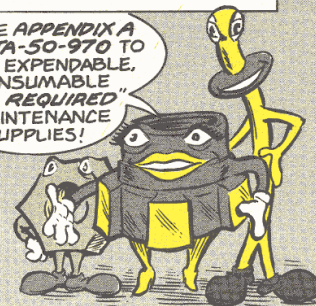
| Grip Length | 1/8-in dia<br>NSN 5320-00- | Qty |
|-------------|----------------------------|-----|
| 1/16-1/8    | 510-7823                   | 100 |
| 1/8-3/16    | 904-4136                   | 100 |
| 1/4-5/16    | 052-1972                   | 100 |
| 5/16-3/8    | 903-8778                   | 100 |
| 3/8-1/2     | 824-4760                   | 100 |

| Grip Length | 3/16-in dia<br>NSN 5320-00- | Qty |
|-------------|-----------------------------|-----|
| 1/16-1/8    | 408-6073                    | 100 |
| 1/8-1/4     | 493-4101                    | 100 |
| 1/4-3/8     | 409-6841                    | 100 |
| 3/8-1/2     | 408-9928                    | 100 |
| 1/2-9/16    | 753-3809                    | 100 |



USE APPENDIX A  
OF CTA-50-970 TO  
GET EXPENDABLE,  
CONSUMABLE  
"AS REQUIRED"  
MAINTENANCE  
SUPPLIES!





# Status Symbol Change

Dear Half Mast,  
Help! We've had some knock down, drag out "discussions" about how to show a circle X downgrade for dispatch purposes on the DA Form 2404.

Some folks go with paragraph 1-7b(1)(a) of DA Pam 738-750, which states that a status symbol change is a permanent change.

But I think paragraph 1-7b(2)(c) applies to circled X status symbols because it says that downgrading an X to a circled X for limited operations is a temporary change.

Who is right? Is a circled X status symbol permanent or temporary?

CPT E.C.B.

Dear Captain E.C.B.,

You're right. Paragraph 1-7b(2)(c) makes it clear that downgrading an X to a circled X for limited operations is a temporary change. When the dispatch is over or limited conditions no longer apply, the equipment goes back to an X status symbol.

Paragraph 1-7b(1)(a) will be changed in a future Maintenance Management Update to show that a permanent status symbol change does not apply to circled X deficiencies.

Half-Mast

A CIRCLED X STATUS SYMBOL ON YOUR EQUIPMENT INSPECTION AND MAINTENANCE WORKSHEET IS TEMPORARY!

| EQUIPMENT INSPECTION AND MAINTENANCE WORKSHEET |        |                                                   |  |                                                                                          |            |         |                 |  |  |
|------------------------------------------------|--------|---------------------------------------------------|--|------------------------------------------------------------------------------------------|------------|---------|-----------------|--|--|
| For use of this form, see TM 38 750.           |        |                                                   |  |                                                                                          |            |         |                 |  |  |
| 1. ORGANIZATION                                |        | Office of the Deputy Chief of Staff for Logistics |  |                                                                                          |            |         |                 |  |  |
| 3. REGISTRATION SERIAL/NSN                     |        | NOMENCLATURE AND MODEL                            |  |                                                                                          |            |         |                 |  |  |
| TM ITEM NO.                                    | STATUS | DEFICIENCIES AND SHORTCOMINGS                     |  | ROUNDS FIRED                                                                             | HOT STARTS | S. DATE | TYPE INSPECTION |  |  |
| a                                              | b      | c                                                 |  | d                                                                                        |            |         | e               |  |  |
| 30                                             | X      | Steering Binding                                  |  | Cleared for limited operation. For transfer to Support Maintenance. Do Not Exceed 5 MPH. |            |         | Wjf             |  |  |
| 30                                             | X      | Steering Binding                                  |  |                                                                                          |            |         |                 |  |  |

DA FORM 2404  
1 APR 79

Replaces edition of 1 Jan 64, which will be used



Duct-type Heaters....

## USE GASOLINE ONLY

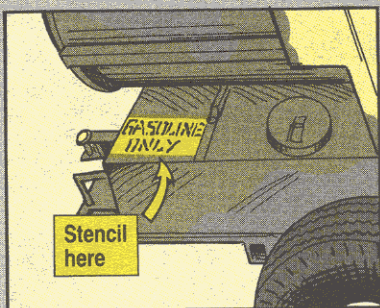
When it comes to 250,000 and 400,000-BTU duct-type heaters, diesel fuel won't cut it!

Diesel fouls the spark plug and the heater's ignitor.

Stencil "GASOLINE ONLY" in 1/2-in high letters near the fuel tank filler using a contrasting shade of CARC to remind operators to use the correct fuel.

If diesel gets added to the tank by mistake, drain and clean the fuel tank, lines, carburetor, fuel filter, primer pump, fuel control valve, temperature selector valve and the burner nozzle.

Check and clean or replace the spark plug and heater ignitor.

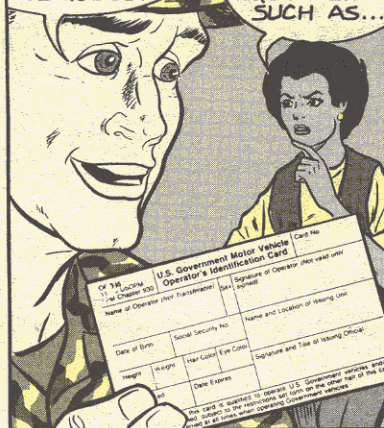


OF 346...

## Get Card, Then Operate

MOST OPERATORS HAVE AN IDENTIFICATION CARD, OF 346, TO OPERATE VEHICLES.

BUT DID YOU KNOW YOU NEED AN OF 346 TO OPERATE EQUIPMENT SUCH AS...



...AIR COMPRESSORS, CONSTRUCTION EQUIPMENT, PRINTING PRESSES AND MINE DETECTING EQUIPMENT?

CHECK OUT PARA 6-1 OF AR 600-55 (SEP 86) FOR OTHER TYPES OF EQUIPMENT THAT REQUIRE AN OF 346.





Publications...

# ***SPEEDY DELIVERY***

HERE'S HOW TO SPEED UP  
YOUR *PUBLICATIONS* REQUEST  
AT THE BALTIMORE PUBLICATIONS  
DISTRIBUTION CENTER.

FOR DA FORM 4569  
RESUPPLY, MAIL REQUEST TO:

Commander  
USAPDC  
ATTN: Requisition Processing  
2800 Eastern Blvd  
Baltimore, MD 21220-2896

MAIL  
DA 12-SERIES  
FORMS TO:

Commander  
USAPDC  
ATTN: SSAF Team  
2800 Eastern Blvd  
Baltimore, MD 21220-2896

MAIL REQUISITION  
FOLLOW-UPS OR OTHER  
TYPE OF QUESTIONS, EXCEPT  
SHIPMENT ERRORS TO:

Commander  
USAPDC  
ATTN: Customer Assistance  
2800 Eastern Blvd  
Baltimore, MD 21220-2896

IF YOU NEED ADDITIONAL  
INFORMATION, CALL:

DSN  
(AUTOVON) 584-4335  
COMMERCIAL  
(301) 671-4335

PHONE





### Where to Get Them

To get Training Extension Course (TEC) lessons, check with your unit training person or write:

**Training Support Center  
ATTN: ATIC-ET-AVIP  
Ft Eustis, VA 23604-5168**

Or call:

**DSN 927-3194/4659  
Commercial (804) 878-3194/4659**

### M198 Howitzer Inner Tube NSN

Only inner tube, NSN 2610-00-029-0563, is to be used with radial tire, NSN 2610-01-287-6409. Do not use the NSN shown for Item 28.1 of Fig 23 in TM 9-1025-211-20&P. Tubes under that NSN are for bias-type, and cannot be used with radial tires.

### Semitrailer Fuse Box Update

Forget ordering a fuse box for the M127; M128- or M129-series semitrailers with the info in TM 9-2330-207-24P. Everything listed for Item 13 in Fig 1 is wrong. The fuse box, PN 7748614, comes with NSN 5390-00-081-3611. The SMR Code is PAOZZ and CAGE is 19207.

### BDO Correction

PS 449 told you to inspect your Battle Dress Overgarments (BDO) for bad barrier bags and if you spotted any to use those BDOs only for training. Hold one on that. The new word is to hold onto the BDO's with bad bags. The Army's working on ways to save the BDOs. Handle all BDOs and BDO boxes as little as possible to prevent further damage. Always leave BDOs in their bags until the BDOs are used. The word's in CDRUSASPTA Msg STRAP-SC 142115Z Mar 90. See your TROSCOM LAR for a copy or write Half-Mast.

### M16 Rifle Loading Hazard

Recent testing has shown that under certain conditions a round can be accidentally chambered if the M16's dropped. You need to add this note to Page 62 of TM 9-1005-319-10 and Page 2-24 of TM 9-1005-249-10:

#### **WARNING**

With the bolt carrier assembly locked to the rear or in its forward position, if the weapon is dropped or jarred with a loaded magazine in place, it could chamber a round.

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

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



# Need a list of publications for your gear?

Here's how to get a tailored publication list for your equipment:

★ LINE AND NSNs OF YOUR EQUIPMENT FROM UNIT PROPERTY BOOK

★ LEVEL OF MAINTENANCE YOU WANT THE LISTING TO COVER

★ NAME  
★ RANK  
★ UNIT  
★ ADDRESS  
AND

★ DSN (AUTOVON)  
OR COMMERCIAL  
PHONE NUMBER

JOT DOWN THIS INFORMATION...

...THEN SEND IT TO:

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