

Issue 366

# PS

May  
1983

## THE PREVENTIVE MAINTENANCE MONTHLY

Spread the  
Good Word...  
Pass this copy  
along!!

YEAH-- THAT'S OUR  
PUBS LIBRARY,  
CONNIE!...

WE RUN A TIGHT SHOP  
HERE, HALF-MAST-- NO FRILLS--  
SO WE KEEP ONLY TH' PUBS  
WE REALLY NEED!

!!!

MURPHY  
ANDERSON

NAHHH-- THAT PART'S  
NOT IN OUR PUBS...

YOU'LL HAVE TO  
CANNIBALIZE --  
OR SOMETHIN'!!

NEXT!!

Cure YOUR Information Shortage...  
See Page 52



Rewarding Maintenance...

# They Are Number

THE VOTES ARE IN...

THE BALLOTS HAVE BEEN COUNTED...

MAY I HAVE THE ENVELOPE, PLEASE?

AND THE WINNERS OF THE **FIRST CHIEF OF STAFF, ARMY AWARD FOR MAINTENANCE EXCELLENCE** ARE...

- ★★★★  
Maintenance Excellence  
CHIEF OF STAFF  
ARMY AWARDS

ONE WITH  
RE  
MA

96th Tr  
Light U  
The War  
R 12 11 11
- Light unit (50 to 700 total authorized items)

Winner 96th Trans Co (Hvy Trk), 180th Trans Bn, 13th SUPCOM, III Corps and Ft Hood, TX (FORSCOM)

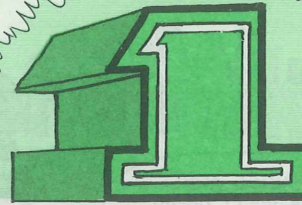
Runner-up US National Support Element, 8th Spt Gp, Camp Darby, Italy (USAREUR)
- Intermediate unit (701 to 1,000 items)

Winner B Co, 54th Engr Bn, 130th Engr Bde, V Corps, Wildflecken, Germany (USAREUR)

Runner-up B Co, 44th Engr Bn (CBT) (Hvy), 2nd Engr Gp, Camp Nimble, Korea (8th Army)
- Heavy unit (1,001 or more items)

Winner 2/6 Inf, US Command Berlin, US Army Berlin, West Berlin, Germany (USAREUR)

Runner-up 6/37 Field Artillery, 2nd Inf Div, Camp Essayons, Korea (8th Army)



From all MTOE units in the Army, these units rated Number 1 in maintenance! In the test for the best at installation and major command levels, they beat all comers for organizational maintenance in 5 areas: Readiness, maintenance training, maintenance management, costs and innovation.

Members of all 6 units went to the American Defense Preparedness Association convention in Washington, DC, to receive their trophies, plaques and well-deserved congratulations!

Our hats are off to the winners!

If you think your outfit belongs in that company, hang in there! New winners will be selected each year.

SEE  
DA CIRCULAR  
750-83-1  
FOR  
INFORMATION  
ON THE  
CURRENT  
COMPETITION  
AND ITS  
THEME!

## PS THE PREVENTIVE MAINTENANCE MONTHLY

Published by the Department of the Army for the information of all soldiers assigned to combat and combat support units, and all soldiers with organizational maintenance and supply duties. Within limits of availability, older issues may be obtained direct from Editor, PS Magazine, c/o US Army Materiel Readiness Support Activity, Lexington, KY 40511.

ISSUE NO. 366 MAY 1983

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PS wants your ideas and contributions, and is glad to answer your questions. Name and address are kept in confidence. Just write to: **MSG Half-Mast PS Magazine Lexington, KY 40511**

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GROUND



MOBILITY

M151-Series 1/4-Ton Trucks...

# Right 'n' Wrong of Brake Cylinders



?

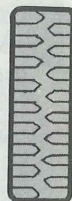
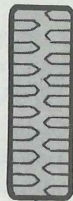
SOME MECHANICS ARE MISMATCHING WHEEL BRAKE CYLINDERS ON 1/4-TON TRUCKS!  
THE RIGHT WAY IS SHOWN IN TM 9-2320-218-20P, Fig 67 and Fig 68.

ER-- BONNIE... D'YA THINK YA COULD BRING THAT CHART OVER TO OUR MOTOR POOL?

## Wheel Brake Cylinders for 1/4-ton Trucks

OLDER MODELS  
M151, M151A1 ETC.

FRONT



They're

3/4-in bore diameter  
NSN 2530-01-071-9851  
(PN 11669158 in -20P TM)

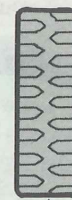
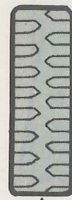
the SAME

REAR

See Fig. 67 & Page 145  
TM 9-2320-218-20P

NEWER MODELS  
M151A2 ETC.

FRONT



1-in bore diameter  
NSN 2530-01-071-9850  
(PN 11669159 in -20P TM)

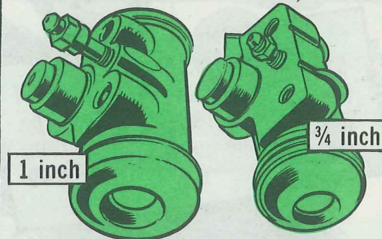
They're  
DIFFERENT

3/4-in bore diameter  
NSN 2530-01-071-9851  
(PN 11669158 in -20P TM)

REAR

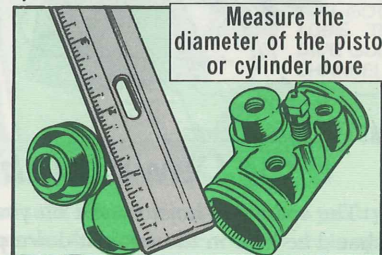
See Fig. 68 & Page 149  
TM 9-2320-218-20P

If you're not sure which cylinder is 3/4 inch and which is 1 inch, measure



the diameter of the piston or the cylinder bore. This size difference is

Measure the diameter of the piston or cylinder bore



not covered in your TM 9-2320-218-20-1-2, Page 8-28, Para 8-13, Wheel Cylinder Assembly Maintenance.

Or you can measure the outside—1.31 inches for PN 11669159, 1.06 inches for PN 11669158. It still comes out to 1/4 inch difference.

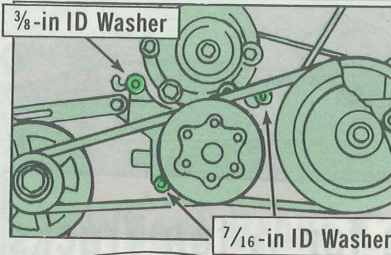


## M809-Series Trucks...

### Fan Bracket Washers

The fan bracket mounting screws can come loose if you don't have the right washers. The fan can tear into the radiator.

Check the bracket on your engine. If you find a spacer and a lock washer at each of the 3 screws, replace them with hardened washers—1 washer for each screw.



HERE'S WHAT YOU NEED...

• 2 washers, 7/16-in ID, NSN 5310-01-112-4306. These go on the top left screw and the bottom screw. Torque the screws to 44-49 lb-ft.

• 1 washer, 3/8-in ID, NSN 5310-00-486-2505. This one goes on the top right screw. Torque the screw to 30-35 lb-ft.

Put the washers on one at a time. Check the fan belt tension when you finish. If there's more than 1/4-in play in the belt, adjust the tension like it says in Para 6-12c of TM 9-2320-260-20-3-1.

## M915-Series Tractors...

### Down With Hoist Handles

The spare tire hoist handle on your M915, M916 or M920 tractor truck should be kept in the straight-down position only.



Keep handle down

In any other position the handle will get bent or broken by the trailer when you turn.

TM 9-2320-273-10, Page 3-24, Para 3-4, b.6, says the straight-up position is OK. But the handle could vibrate loose, fall and be struck by the trailer.

## M151-Series Trucks...

### Ignition Coil Connector

DON'T FRET, JEEP, OL' BUDDY... I'LL FIND TH' PARTS HERE IN TH' -ZOP!

THAT'S WHAT HE THINKS!

There's no breakdown for the ignition coil connection (primary wire) on the distributor in TM 9-2320-218-20P.

If the connector is damaged or missing, the wire can short out.

HERE'RE THE PARTS YOU NEED...

Connector plug shell assy	NSN 5935-00-686-2610	
Rubber bushing	NSN 5365-00-772-2343	
Bushing nut	NSN 5935-00-333-3088	
Coupling nut	NSN 5975-00-697-6991	

## M915-Series Trucks...

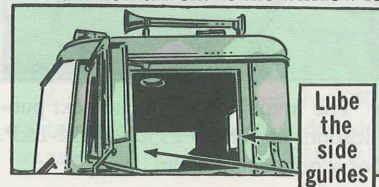
### Lube Saves Cab Windows

HEY--THIS WINDOW WON'T BUDGE... EVEN THO' I CRANKED IT DOWN!! I'LL SUFFOCATE!

NO SWEAT, SOLDIER...

YOU GOTTA LUBE THE SIDE GUIDE CHANNELS!

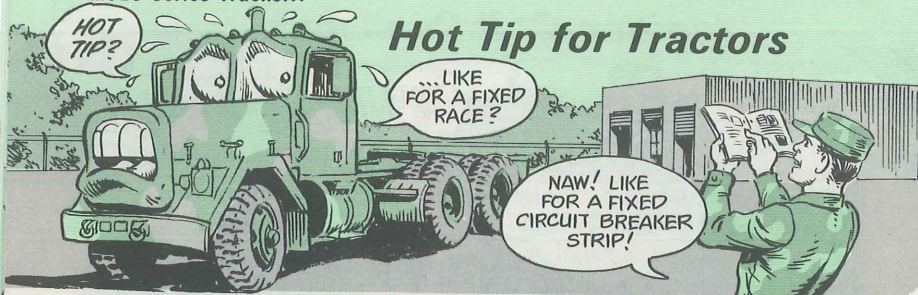
The cab door window of your truck can stick in the up position when you try to roll it down. The window support cranks down but the window stays up. Vibration can shake the window loose—enough to cause it to fall and break.



Lube the side guides

Get some silicone compound, NSN 6850-00-880-7616, and lubricate the inside channels of the side guides. They're so tight they don't let the window move up and down freely unless you lube them.

## M915-Series Trucks...



### Hot Tip for Tractors

Short circuits in electrical wiring don't help your operation at all—and that's what can happen in your M915, M916 or M920 tractor truck. Wiring to the circuit breakers rubs against the backside of the instrument panel—wearing thru the insulation.

Don't wait for trouble! See the fix in TB 43-0001-39-4 (Jan 83). This calls for relocating the circuit breaker strip to head off that wear.

## M416A1 ¼-Ton Trailers...

### Get New Master Cylinder Cap



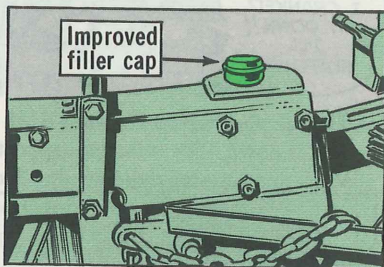
Tired of replacing those master cylinder filler caps that get corroded, or are damaged during inspection of the brake fluid level?

Wish you didn't have to replace brake fluid contaminated by water and dirt seeping through the vent hole in the cap?

Well, now there's an improved filler cap, NSN 2530-01-131-7527, and gasket, NSN 5330-00-291-6658, available.

This steel, diaphragm-type cap is waterproof and requires no tools to tighten.

Order the new cap and gasket only when the existing parts fail.



The items will be in the next publication of TM 9-2330-251-14-1&P. Jot a note about them.

## M911 Tractor Truck...

### Stop to Lock!



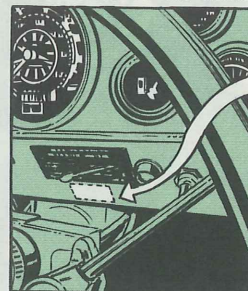
Damage to rear axles and the transfer is a sure bet if you fail to do right with your M911's driveline locking system. Trouble starts if you switch to LOCK while your truck is moving.

Make a note for your TM 9-2320-270-10, Page 2-17, Key 39, and—especially—Page 2-58, Using Driveline Locking System. That CAUTION on Page 2-58 should say:

"Do not move lever to LOCK position while your truck is moving."

Before you drive into an area where you expect poor traction, stop—and then switch your INTER-AXLE DIFFERENTIAL AND TRANSFER CASE to the LOCK position. The light just to the right of the switch will come on to show when the driveline system is locked.

When you get back onto a good traction surface, switch to UNLOCK. You can do this while your truck is moving. Then, when the light goes off, move the lever to the center position.



Cut out and mount under control

Broken line indicates self-stick plastic sheet

**DO NOT SWITCH TO LOCK WHILE TRUCK IS MOVING**

If your command gives the OK, here's a reminder you can put on the instrument panel right under the lock/unlock control. Use a self-stick transparent plastic sheet, NSN 9330-00-618-7218, to mount this.

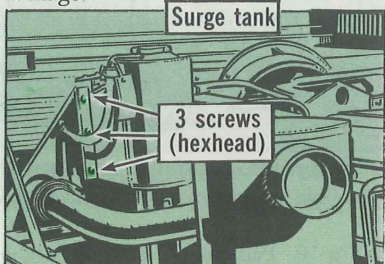


## Save Your Surge Tank!



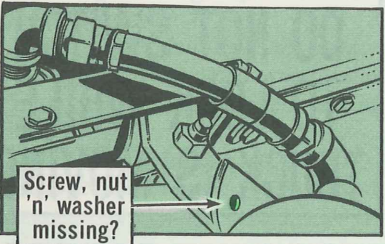
No, there's no repair authorized for your radiator surge tank. If it gets damaged because of loose mounts, you get a new one, NSN 2930-01-113-1065.

But you can save time, trouble and expense by preventing surge tank damage.



Keep those 3 mounting bracket screws, nuts and washers tight. (Items 3, 4 & 5, Page 6-29, TM 9-2320-242-20-3-1.) They get 10 lb-ft torque. Jot this down for your TM.

Big trouble usually starts, tho, where the surge tank, radiator cross-member bracket and right-hand support are hooked together. If that screw's missing, the surge tank and radiator will flop back 'n' forth. Besides



throwing an extra strain on the surge tank mounting bracket, this'll break the hose hookup at the radiator.

There's better hardware for this hookup than is in your -20P TM—Items 2, 6, & 7, Fig. 29.



You torque this setup to 96 lb-in. Note this torque for your TM 9-2320-242-20-3-1 (Page 6-28).

YUP... JARVIS TORQUED TH' SURGE TANK MOUNTS CORRECTLY...  
... NEXT, HE USED GRADE 8 SCREWS AND TORQUED TH' ALTERNATOR DOWN GOOD 'N' PROPER...  
BUT THEN HE REALLY GOOFED...



## No Lube for U-Joints

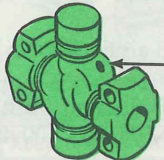
Power train U-joint parts kits come with plugs instead of grease fittings.

Never replace these plugs with grease fittings!

This goes for kits, NSN 2520-00-086-1940, NSN 2520-00-086-1953 and NSN 2520-00-781-7806.

LO 9-2320-242-12 says these U-joints are lubed for life by the manufacturer. They're filled with high-performance grease, MIL-G-23827, which makes them last longer.

If you replace the plugs with grease fittings and add more grease, you'll



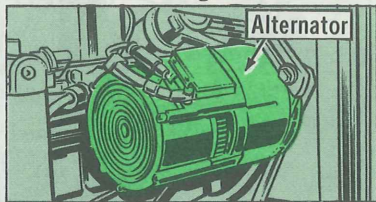
Don't replace plugs with grease fittings

make the seals fail. That will cut down on the life of the U-joints.

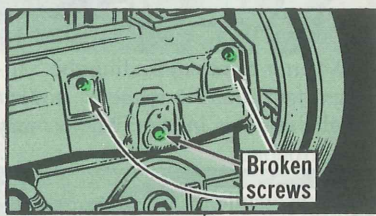


## Better Alternator Mounting

You don't have to suffer with busted alternator mounting bracket screws.



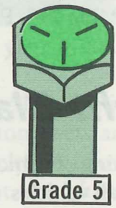
Replace those 3 Grade 5 screws with tougher Grade 8 screws, NSN



5305-00-068-0511. Make a note of this NSN for Item 17, Fig 32, in your TM 9-2320-242-20P.

Give those Grade 8 screws 44 lb-ft torque. Jot down this torque in TM 9-2320-242-20-3-1, Page 7-11, for the 60-amp alternator and in TM 9-2320-242-20-3-2, Page 20-7, for the 100-amp alternator.

You can tell if you've got Grade 5 screws by the 3 markings on the head.



Grade 5



Grade 8

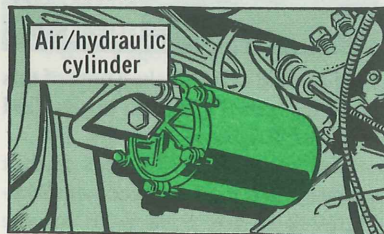
Grade 8 screws have 6 markings on the head.

2½-Ton Trucks...

## Fittings Giving You Fits?



When it comes to finding the 5 fittings for the 2½-tonner's air/hydraulic cylinder in the TM, you may have trouble.



They're in there...you just have to look real close. What makes 'em so hard to find is they're not called fittings.

Those for the 2 hydraulic lines are in TM 9-2320-209-20P, Fig 117, Page

251, Items 22 & 23. For easier ordering, Item 22 is NSN 4730-00-591-5134.

Fittings for the 3 air lines are in Fig 122, Page 276, Items 48.1, 48.2 and 50.

However, Items 48.1 and 50 are incorrectly listed. NSN 4730-00-469-7797 is correct for Item 48.1. Item 50 should be an elbow, NSN 4730-00-289-0051.



## Weight Classification Info

TB 43-0209 on marking of vehicles, Pages 41-51, has the rundown on weight classification signs for all vehicles. It includes the complete sign kit, NSN 9905-00-565-6267, and the replacement kit, NSN 9905-00-565-6268. Your authorization for ordering these is CTA 50-970, Appendix A.

## Keep Those Drains Open!



Trapped water can rust the body panels of your wheeled vehicles before you know what's happening! That's why it's a must to keep all drain holes open.



You'll find them on the bottom door panels, the frame and the cab floor—places where water could build up if not for the drains.

It's easy for any kind of dirt to clog up the small openings. If they're not cleaned out regularly, you're asking for bigger problems.

So give the drain holes the once over often, especially after fording operations. That's when rust and corrosion begin to set in.

## Improved Horn Button Kit



If horn button rust is a big problem on your military-design truck, a new repair kit will save you time and trouble.

The kit comes under NSN 2590-01-093-4152 and includes instructions. It can be used on 2½-ton trucks, all three 5-ton fleets and the Goers.

But the kit's listed on the AMDF with a price tag of over \$40. So, if you're not replacing horn buttons often, you may want to stick with the horn button kit now in your parts manual—NSN 2590-00-043-4378 or NSN 2590-00-606-8504. Either costs about \$3.

Ribbon Bridge  
Transporter...

# Winch

Launching and retrieving ribbon bridge bays put a lot of strain on the transporter's winch assembly. That means extra PM is needed to stop downtime on the wire rope and hook.



HERE'RE SOME GOOD TIPS TO HELP YOU BRIDGE TYPES PROTECT AND PRESERVE YOUR CABLE!...

## During Operations

Watch for bent hooks and frayed or broken strands of wire near the hook when you're running cable. Since the hook's not attached to the cable by a

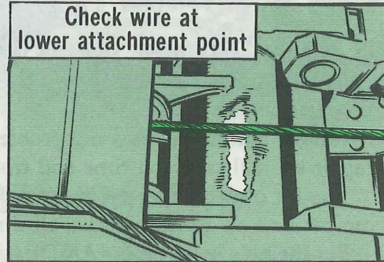
Frayed strands  
near the hook?



swivel, all the torsion on the hook is transmitted to the wire rope.

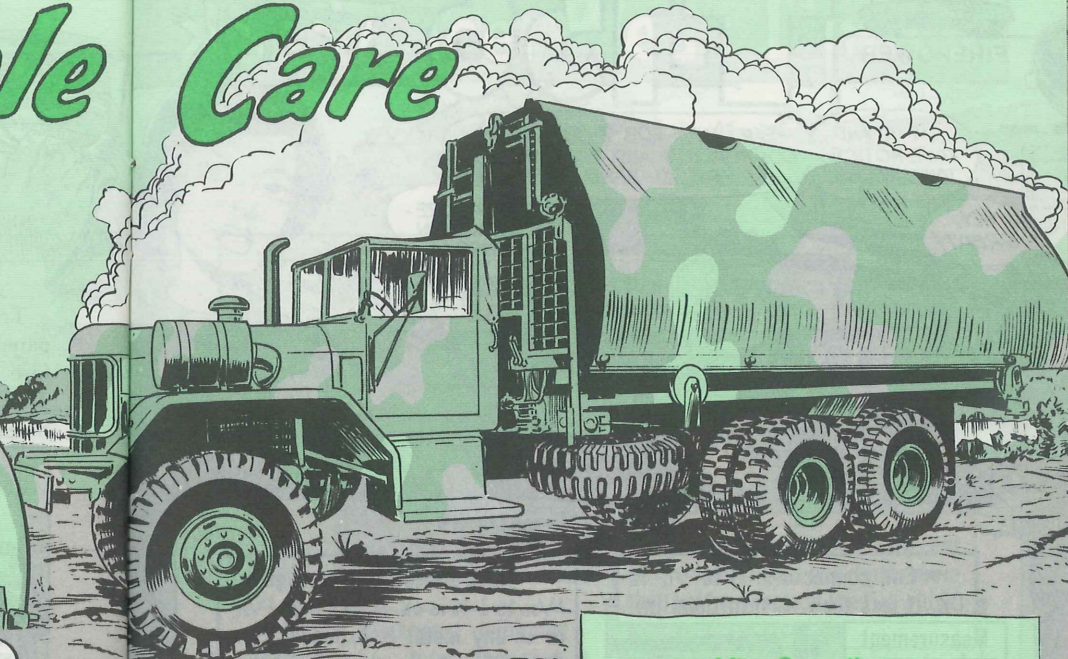
Another wear spot is where the cable chafes on the bridge bays at the lower attachment point.

Check wire at  
lower attachment point



Finally, watch the cable as it rewinds on the spool. The cable will snarl itself because there's no tension

# Cable Care



## After Operations

Start your cable care after every operation by hosing away all dirt and muck on the cable assembly.

Clean and oil the cable with OE/HDO 10 engine lubricating oil. NSN 9150-00-191-2772 gets 55 gallons.

Every 6 months, unwind all the cable and clean it with a new batch of engine lubricating oil. Use a brush to be sure the oil gets down between the strands.

Wipe off any extra oil and coat the cable with exposed wire lubricant. NSN 9150-00-234-5197 gets a 5-lb can. Don't forget to give the winch drum a coat of the wire lubricant before rewinding the cable on the drum.

Look for wear  
as cable rewinds  
on the spool!



Keep tension on the cable and you can stop the snarl-up deal. See Para 4-48 in TM 5-5420-209-10 for caution info.

Keep tension on the cable and you can stop the snarl-up deal. See Para 4-48 in TM 5-5420-209-10 for caution info.





M1 Tanks...

# T-156 Track, Roadwheel Wear Limits

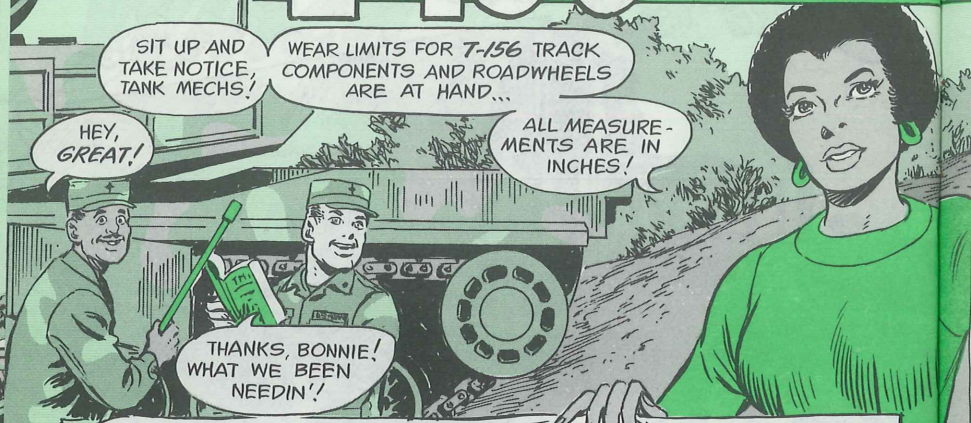
SIT UP AND TAKE NOTICE, TANK MECHS!

WEAR LIMITS FOR T-156 TRACK COMPONENTS AND ROADWHEELS ARE AT HAND...

HEY, GREAT!

ALL MEASUREMENTS ARE IN INCHES!

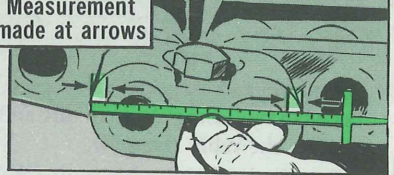
THANKS, BONNIE! WHAT WE BEEN NEEDIN'!



## T-156 Track

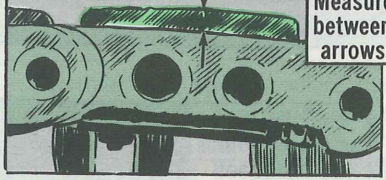
• End connectors:  $\frac{1}{8}$  to  $\frac{5}{16}$  is OK. If less than  $\frac{1}{8}$ , turn them in.

Measurement made at arrows

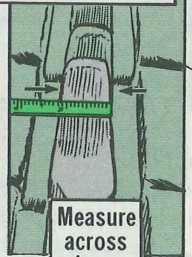
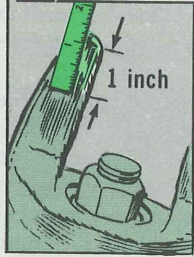


• Track shoes: grouser height of  $\frac{15}{32}$  to  $1-\frac{1}{8}$  is ok. If less than  $\frac{15}{32}$  or if any metal is exposed, turn them in.

Measure between arrows

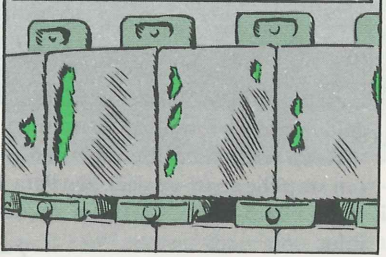


• Center guides:  $\frac{1}{2}$  to  $1\frac{1}{4}$  thick measured at a point 1 inch down from the tip is OK. If less than  $\frac{1}{2}$ , turn them in.



Measure across here

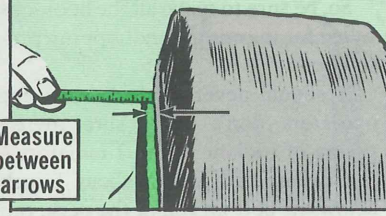
Chunking must not exceed 20 percent of the rubber area.



## Roadwheels

• Wear flange thickness:  $\frac{1}{16}$  to  $\frac{17}{64}$  is OK. If less than  $\frac{1}{16}$ , replace the flange.

Measure between arrows

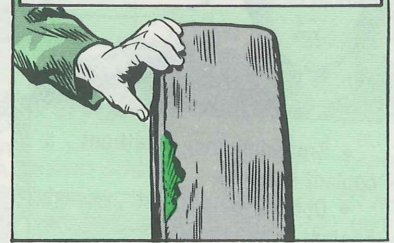


• Rubber separation: no more than 1 inch on each side is OK. If not turn it in.

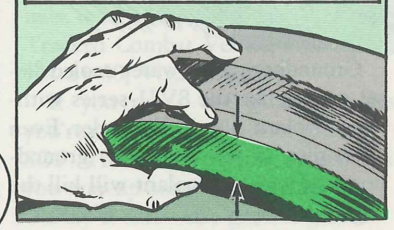
Measure where shown under rubber



If chunking exceeds 20 percent of the rubber area or extends more than half-way across the tire width, turn it in.



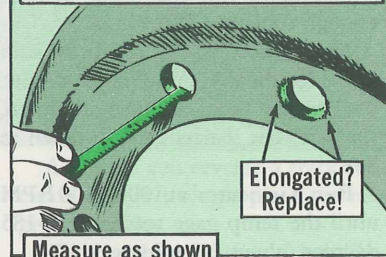
• Gouges, dents; up to  $\frac{1}{2}$  deep allowed in area shown.



• Wheel thickness: minimum thickness is  $\frac{5}{16}$ . If less than that, replace the wheel. Also replace the wheel if it has elongated bolt holes.

Elongated? Replace!

Measure as shown

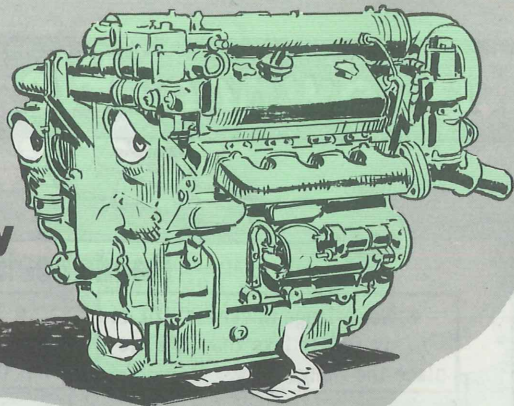


A GOOD RULER IS A NECESSARY TANK "TOOL"... USE THE ONE IN YOUR TOOL KIT, NSN 5210-00-182-9656!



For 8V71-Series Engines...

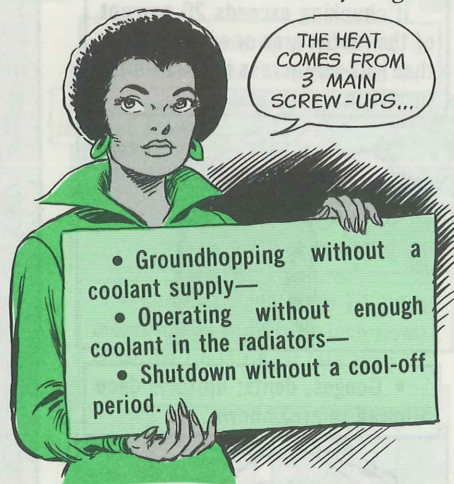
## Long Life and Prosperity



NOT FOR ME --  
...IF MY MECHS  
CONTINUE THEIR GROUND-  
HOPPING PRACTICES!!

A lot of diesel engines in M110-series howitzers and M578 recovery vehicles are being clobbered with heat prostration!

Too much heat kills more engines in these vehicles than anything else.



THE HEAT  
COMES FROM  
3 MAIN  
SCREW-UPS...

- Groundhopping without a coolant supply—
- Operating without enough coolant in the radiators—
- Shutdown without a cool-off period.

Groundhopping a water-cooled diesel engine like the 8V71-series without a coolant supply is murder. Even short-tern (a few minutes!) groundhopping without coolant will kill the engine.

So, be sure to make all the hook-ups called for in your groundhopping procedure.

It should never happen, but some operators don't make sure there's plenty of coolant in the 2 radiators.

Fill 'em both up to about 1 inch below the bottom rim of the neck, run the engine for 5 minutes and check again. Add more coolant if necessary.

Keep an eye on the coolant temp gage and the low-engine-coolant warning light, if your vehicle has one.

Just don't run the thing without enough coolant, OK?

Now when you're ready to shut down for the day, don't forget to give your engine a cool-off. It's not human, for sure, but it needs a cool-down to live.

Run it in neutral at 1000-1200 RPM until the temp gage reaches 170-185 degrees (about 2-5 minutes).

Then let the engine idle at 550-600 RPM for a short time before shutdown.

Do it right and "live long and prosper" will apply to your engine for a long time.

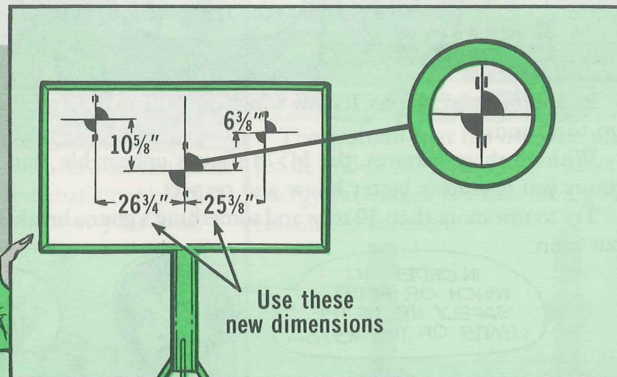
M110A2 SP Howitzers...

## Boresight Target Changes

If your howitzer has had MWO 9-2350-304-50-5 applied, you need to change the boresight target you're using.

Check out Page 2-80 of TM 9-2350-304-10, C2, which shows the target.

INCREASE  
THE 2 TARGET  
DIMENSIONS  
AS FOLLOWS...



- The butterfly to the left should be moved out 1 inch so that it's 26 3/4 inches from the plumb line.
- The butterfly to the right should be moved out 1 inch so that it's 25 3/8 inches from the plumb line.

ALL OTHER  
TARGET  
DIMENSIONS  
REMAIN THE  
SAME!

Combat Vehicles...

## Bullish on Ground Guides



Any time you reverse a track vehicle or drive it in a tight place, you need ground guides.

Without them, your vehicle is like a bull in a china shop—out-of-place and looking for a chance to cause a lot of damage.

Everything you need to know about using ground guides, including the proper hand, flag and flashlight sig-

nals, is in TM 21-306, Manual for the Tracked Combat Vehicle Driver, and FM 21-60, Visual Signals.

If you don't use ground guides, you're on the wrong side of your unit's SOP. That can cost you, especially if you tear up some equipment.

Play it safe—use ground guides.

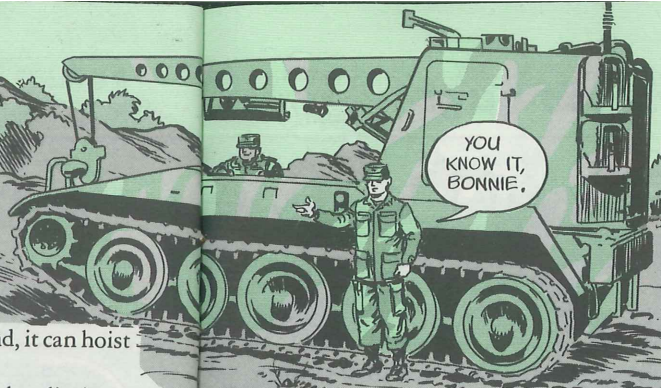
...BUT HE  
SHOULDA  
READ  
TM 21-306  
NOT T'  
MENTION  
FM 21-60!

M578 Recovery Vehicle...

It's a **LIMITED** Edition

YOUR M578 RECOVERY VEHICLE IS A REAL WINNER!

IT'S LIGHT, MOBILE AND POWERFUL FOR ITS SIZE!



YOU KNOW IT, BONNIE.

It can tow up to 30 tons. Its tow winch can pull up to 30 tons. And, it can hoist up to 15 tons.

With all these features, the M578 sounds unbeatable. But...it has limits—limits you operators better know and respect.

Try to tow more than 30 tons and something's gonna break. Maybe not now, but soon.

IN ORDER TO WINCH OR HOIST SAFELY UP TO THE LIMITS OF THE M578...



...YOU'VE GOTTA MAKE SURE THAT...

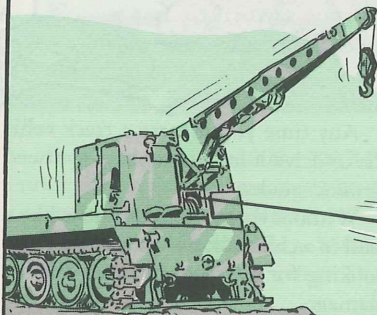
• The spade is emplaced



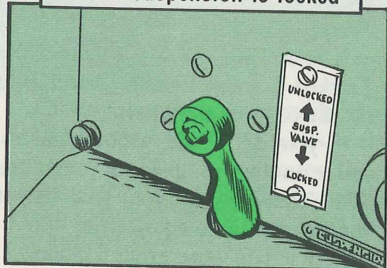
• The vehicle is on level ground.

If you can't emplace the spade or operate from level ground, then your winching and hoisting limits have to be lowered.

It's obvious when you've passed your winching limit—your vehicle starts to creep toward whatever it is



• The suspension is locked



you're trying to move. Once you feel the motion, you can stop and try something else.

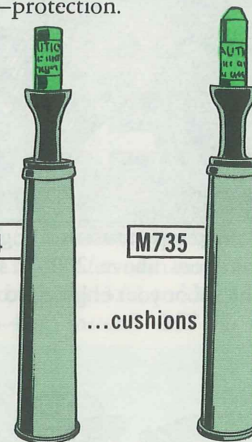
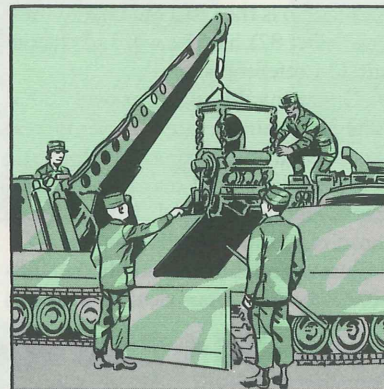
M735, M774 Ammo...

## Save Those Cushions



The cushion that fits over the projectile end of M735 and M774 kinetic energy cartridges is there for a good reason—protection.

In hoisting, an overload can cause an overturn—and that's not good for you, your equipment or your load.



M774

M735

With...

...cushions

Right now is a great time to check out Pages 2-59 and 2-60 of TM 9-2350-238-10 (March 78 w/C1).

There you'll find all you need to know about keeping your camouflage side up and greasy side down when hoisting.

For more info on recovery operations, see FM 20-22, Vehicle Recovery Operations.

Respect your recovery vehicle's limits and it'll work for you again and again. Overload or abuse it, and it'll soon be a piece of expensive junk.

The cushion protects the windshield of the round from damage during handling, and also helps keep out moisture.

It's labeled with a caution to remove the cushion before chambering the round. And that's exactly when you remove it. Otherwise, leave the cushion on the round at all times.

If you need replacement cushions, save a few when rounds are fired. There're no replacements in the supply system.

M113 FOV...

# 200°F Is Hot Enough!

THAT'S MY MECH!

Y'MEAN BOTH TH' -10 AND TH' -20TM ARE WRONG?

YUP! TH' RIGHT INFO IS IN TB 43-0001-39-3 (Oct 82)!

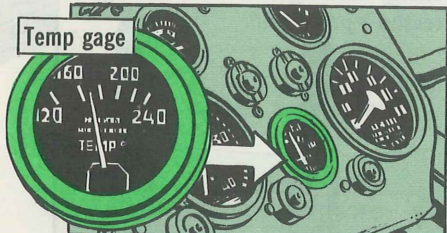


The normal operating temperature range for the engines in all M113 family vehicles is 160-200°F.

The -10 TM says the normal temp range can be 160-230°F—but that's wrong! So is the -20 TM. TB 43-0001-39-3 (Oct 82) has the word to change all TM references.

Operating the engine at over 200°F sets up maintenance problems real fast and can cause expensive repairs. If the pistons seize, it may mean a complete engine overhaul. If the engine head cracks, it'll cost big bucks.

Just remember the numbers...160-200...and keep your carriers cool.



If the temperature reading on your carrier goes above 200°F, stop and troubleshoot your engine according to your -10 TM.

## Add Fittings,

OK-- WE'RE OUT--

NOW YOU GUYS CAN DO YOUR THING!



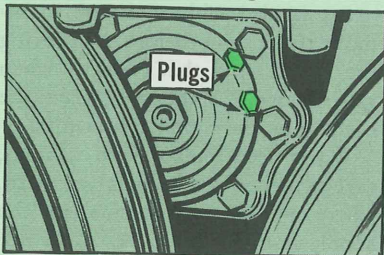
If roadwheel arms 4 and 5 on your M113A2-series vehicle have plugs instead of grease fittings and relief

valves, that doesn't mean they don't need lubrication. They do.

The plugs are there to prevent damage to the fittings. Seems the old style arms (still used on A2's that were converted from A1's and gassers) require an adapter for the fittings.

That makes the fittings stick up so high they can be damaged in cross-country operation. So the plugs were used for protection.

What you do is remove the plugs



## False Economy

REPLACE THE WHOLE SET!!

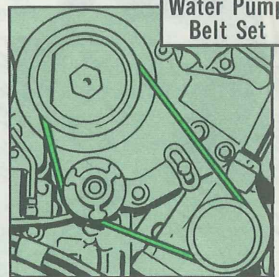
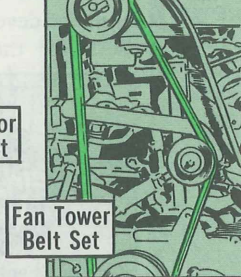
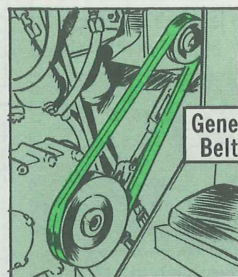
BUT YOU ONLY GOT ONE BROKEN BELT...

You carrier mechanics may figure you're saving Uncle some bucks when you replace fan belts one at a time.

Sorry, you're wasting money instead.

Say a belt breaks after it's been run for 25 hours. If you replace it and tighten it to TM specs, the other belt or belts will be loose. Sooner than necessary, they'll wear out or get thrown off, possibly causing damage.

Replace the belts as a set. You'll need sets for the generator, fan tower and water pump.



Check out TM 9-2300-257-20P for the correct NSN's for each set of belts. The NSN shown for the water pump belts on both M113A1 and M113A2-series vehicles is wrong. Use NSN 3030-00-088-4643 instead.

## Then Remove 'em

THANKS, OL' BUDDIES--

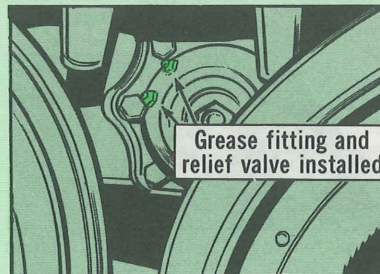
WE'LL ONLY BE A MOMENT!!



and install the grease fitting and relief valve each time you lube the sus-

pension. Afterward, remove the fitting and valve and reinstall the plugs.

You need lubrication fitting, NSN 4730-00-050-4208, and relief valve, NSN 4820-01-070-7670, to do the job.



TAKES A LITTLE EXTRA EFFORT...

...BUT IT CAN MEAN THAT YOUR APC WILL GO THE ROUTE!

# TOW ITV Hydraulics

The hydraulic system on the M901 Improved Tow Vehicle (ITV) can give the crew and turret mechanic 6 kinds of fits if the system's taken for granted.

HERE'RE  
SOME WAYS  
TO KEEP THE  
PRESSURE UP!

## Leaking Lines

Hydraulic line connections work loose and develop leaks. You've got to check for them, especially in those



Check lines for leaks

hanging lines in the gunner's compartment.

Eyeball the lines before, during and after operations. If you spot leaks, get them fixed.

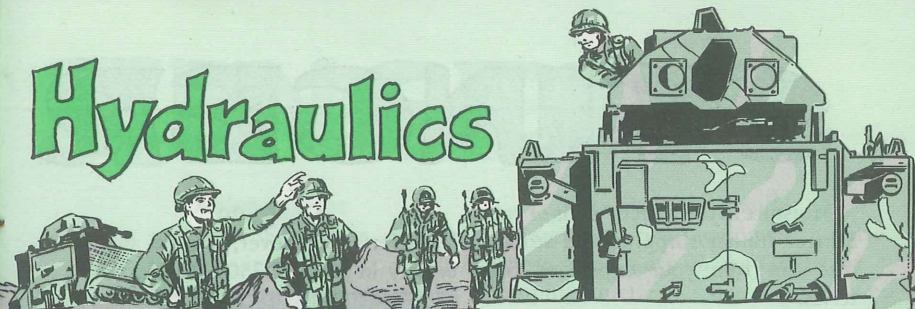
## Dipstick Level

You've got to give a second look to the turret hydraulic dipstick to get a



Give dipstick  
a careful  
look!

good reading. The clear fluid blends into the dipstick.



## Erection Arm Locks

With the best of hydraulics, an under- or over-lubed erection arm lock will bind.

The arm locks should get a light coat of grease for best performance.



Spare  
the  
lube

Too much grease will pick up dirt and make the locks bind. Too little, or no grease, will bind too. Just give them a thin coating. LO9-2350-259-12, Card 9, spells it out.

## Odds 'n' Ends

When you use the erection arm handcrank to work the launcher, remember to replace the handcrank cap.



Replace  
cap

If you forget the cap, water and moisture will seep into the arm and foul up the bearings, among other things.

## Bumps and Mounts

Reminders: Things that go bump in the night can flip your ITV day or night. Accidents have happened. Bumps and grades call for caution.

Conditions can call for speeds even slower than your TM spells out.

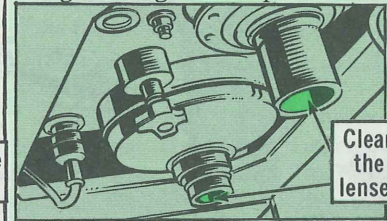
## Gun Mount

Keep your memory working, too, where the machine gun is concerned. The gun must be in the stowed position during travel and turret operation. That saves mount and gun damage, as well as allowing turret operation.

## Lens Cleaning

Clean optics the way pages 3-40, 3-41 of TM 9-2350-259-10 tell you.

Periodically clean the lenses that are covered by the lens adapter. Sand and dirt get through the adapters.



Clean  
the  
lenses

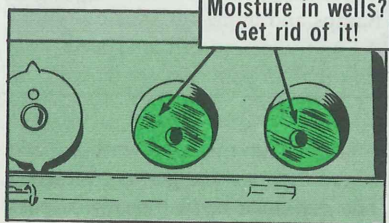
It'll help to tape the ITA end, but tape at the day sight end is not practical.

# STINGER

# ZINGERS

Moisture in the battery wells of your Stinger trainer shipping and storage case can ruin your expensive batteries.

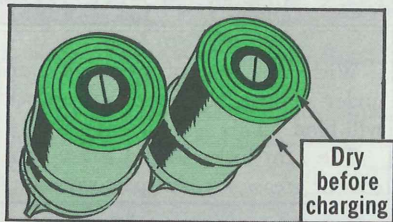
So, when humidity's high or the rains are falling, give the battery wells an extra hard look before you put the batteries in them.



To prevent shorts and rapid corrosion, dry the wells thoroughly...and keep them that way.

## Charging

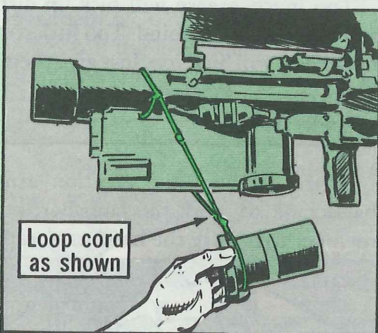
Never, but never, put a damp battery in your PP-7309 charger. Not



only will you short and damage the battery, you'll damage the charging well and charger, too.

## String Sling

During training, or whenever you have to install and remove the battery repeatedly, tie a strong cord around



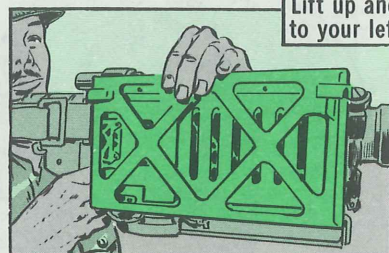
the neck of the battery. Loop the other end over the launch end of the tracking head trainer (THT) and tie it.

Then, if the battery should fall during removal or installation, the string will keep it from being smashed. It can prevent replacing a battery.

## Antenna Tips

To prevent IFF antenna damage when you raise it, do this:

Press the antenna firmly toward the tube to release the catch.



In the same motion, lift the antenna and pull slightly to your left.

That saves broken catches and other antenna damage.

## Tracking

During tracking, when the THT is activated and uncaged, lay your trigger finger along the gripstock until you get a "weapons free" or fire order.



That way you avoid squeezing the trigger accidentally or involuntarily. Saves unnecessary strain on both you and the battery.

## Gas Pumping Unit

Here're a few equipment- and people-saver hints on the GPU (gas pumping unit):

- When the GPU's not operating, cover it with a tarp or blanket. Dust and dirt tear it up, and a cover cuts damage.

- Make your leak tests with the soap solution material noted in the appendix of TM 9-6920-430-14. Using your fingers is no way to go. You could get frostbite or cut a finger with the tremendous gas pressure.

- Keep your hands clear when you pour the soap solution on the



connections. No bubbles means no leaks. If you get bubbles, refer to the troubleshooting section of the TM.

## Check Your TM

Guesswork and the GPU make a lousy couple. The GPU is dangerous, so you've got to know your TM. If you have a question or a problem, stop right now.

GET THE ANSWER AND THEN CONTINUE!

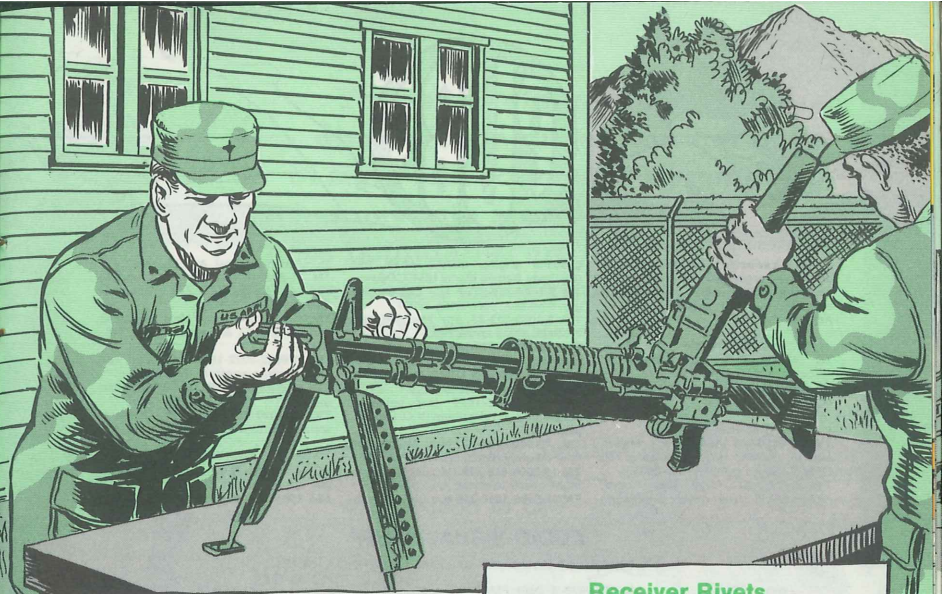


# M60 MG

## Bolts to Rivets

PM  
BY THE  
7M IS  
THE KEY...

... BUT  
HERE ARE A  
FEW TIPS  
TO KEEP  
YOUR M60  
IN TOP  
SHAPE!



A bolt can screw you up and a rivet can give you the shaft...if you get careless with maintenance on your M60 machine gun.

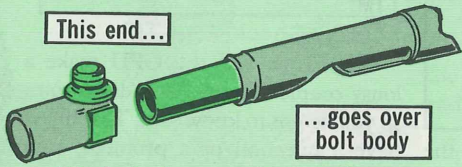
Hang a mo' while that unravels.

### Bolt Cam

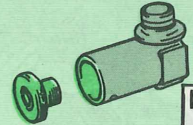
When you put together the bolt assembly after cleaning and lubing, take an extra second to get the cam actuator on right. If you put it on wrong, you'll screw up the bolt.

So, eyeball the roller side of the cam.  
The roller side goes over the body of the bolt first.

This end...



...goes over  
bolt body



Plug goes  
in this  
end

The bolt plug goes through the round side of the cam (opposite the squared off roller side) and screws into the bolt body. It holds the actuator, firing pin spring, guide and firing pin in place.

### Bipod Legs

A place you want to screw up is the bipod legs. Check the 2 pivot leg screws before you go banging the bipod into the dust or mud or gravel. If



Check for  
tightness

the screws are loose, tighten them with the screwdriver section of your combination tool.

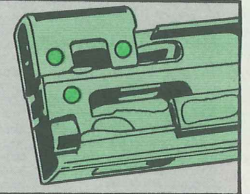
That can prevent bent, broken or lost bipod legs.

When you turn your gun in, tell your armorer so he can stake the screws to keep them tight.

### Receiver Rivets

Receiver rivets can clue armorers on serviceability of the weapon.

Rivets  
loose?  
Contact  
DS!



If receiver or bridge rivets are loose, have your DS check them out.

### Firing Tip

A steady pull on the trigger saves unnecessary wear on the sear and sear notch.

Hold the trigger full back till you're through firing.

THEN,  
REMOVE YOUR  
FINGER TO  
RELEASE THE  
TRIGGER!

YOUR  
SEAR  
WILL  
LAST  
LONGER!





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

#### EIR Digests

TB 43-0001-40-2 Jan Commercial automotive equipment  
TB 43-0001-42-2 Jan Material handling equipment

#### Technical Manuals

TM 5-3895-358-14&P Dec Melder, asphalt, skid mtd, hot oil circulating, 750 GPH (Chaussie model STMD-3000)  
TM 5-4320-275-13&P Mar Pump, reciprocating, power-driven; diaphragm,

gasoline engine driven, wheel mtd (Peabody Barnes Model US40CDG)  
TM 9-1005-309-23&P Mar Submachine gun 5.56-MM; port, firing, M231  
TM 9-1005-313-23 Apr Machine gun, 7.62-MM M240 and M240C  
TM 9-1430-1536-24P Dec Battery replaceable units, tracking adjunct subsystem (Improved HAWK Air Defense Guided Missile System)  
TM 9-4910-227-14&P Mar Indicator, connecting rod alignment (K.O. Lee Co., Model C3)  
TM 11-5805-638-12 Nov Multiplexer, time division, digital, TD-1069/G  
TM 11-5895-846-24P Dec Satellite communications terminal, AN/TSC-86  
TM 11-5895-1043-20P Mar Satellite com-

munication terminal, AN/GSC-39(V)2  
TM 11-5895-1118-13-1 Mar Keyboard display, KY-880/TSC-84A (Hewlett-Packard Model 2645A)  
TM 11-5895-334-10 Nov Mast, AB-621/G and AB-621A/G, and extension kit, MK-2044/G  
TM 11-6625-3023-14-HR Jan Test set, electric surge arrestors, TS-3684/T  
TM 11-7025-221-20P Dec Multiplexer, digital  
TM 55-2090-201-14&P Jan Oil-water separators, 5 CFM

#### Miscellaneous

LO 5-6115-598-12 Sep 82 Generator set, gas turbine engine driven, tactical, skid mtd, 150 KW, 400 HZ, alternating current

### AUDIO-VISUAL STUFF

Available at battalion or post Learning Center

#### Films, TV Tapes

TF 6-6280 Biomedical equipment maintenance—training & operations

#### TEC Lessons

030-051-6438-F Maintain pneumatic assault boats and 24-ton floats  
030-051-6464-F Assemble double story medium girder bridge up to 103 feet; Part III  
043-061-6623-A Check and service the Lance NI-CAD battery  
043-061-6624-A Daily PMCS on Lance launcher fixture  
043-061-6625-A Perform checks & services on the Lance M667 carrier  
043-061-6638-A Daily PMCS on Lance firing device

043-061-6639-A Daily PMCS on Lance monitor-programmer  
043-061-6651-A Inspect and perform maintenance on the T1533 portable decoder  
043-061-6669-A Equipment inspection and maintenance worksheet, DA Form 2404  
043-061-6675-A Daily PMCS on Lance mobility kit  
043-061-6676-A Daily PMCS on Lance loader-transporter handling unit  
043-061-6679-A Org maint on MMA and the MMA shipping and storage container  
043-061-6680-A Org maint on Lance carrier-mounted launcher, Part I  
043-061-6681-A Org maint on Lance carrier-mounted

launcher, Part II  
043-061-6682-A Org maint on Lance carrier-mounted launcher, Part III  
043-061-6683-A Org maint on Lance loader-transporter, Part I  
043-061-6684-A Org maint on Lance loader-transporter, Part II  
043-061-6685-A Org maint on Lance mobility kit, Part I  
043-061-6686-A Org maint on Lance mobility kit, Part II  
043-061-6687-A Daily PMCS on Lance sling beam assembly  
043-061-6692-A Daily PMCS on Lance aiming equipment launcher  
043-061-6695-A Org maint on Lance azimuth laying set  
102-113-5510-A Identify and

replace faulty components of AH-1S radar altimeter AN/APN-209  
102-113-5511-A Identify faulty wiring of AH-1S radar altimeter AN/APN-209  
102-113-5516-A Identify and replace faulty components of the SCAS-E in the AH-1S  
551-101-8351-A Preparation of the M16A1 rifle  
551-101-8352-A Disassembly and assembly of the M16A1 rifle  
551-101-8353-A Cleaning & lubricating the M16A1 rifle  
551-101-8355-A Preventive maintenance on the M16A1 rifle  
551-101-8457-A Filling out DA Forms 2404 and 2407

### RL-31 Toe Clamp

Mounting your reel unit in a vehicle? Hold it down with clamp, NSN 5340-00-128-9610.

### M320T Crane Hoses

Need to replace the rubber inlet or outlet radiator hose on your M320T 20-ton crane? Use NSN 4720-00-116-6841 for Item 22, Fig 100, TM 5-3810-294-20P. Use FSCM 96906, PN MS51008-16G and RIC S9C to get Item 11.

### Commercial Pubs Index

Need a commercial manual for welding machines, torch cutting outfits, chain saws, sewing machines, kitchen equipment, etc? Defense General Supply Center can help you get it. They have pubs for a number of commercial items. Items supported by DGSC publications are listed in DGSCM 4140.1, Index of Technical Manuals. Order a copy from: Commander; Defense General Supply Center; ATTN: DGSC-SDM; Richmond, VA 23297.

You're traveling through another dimension, a dimension not only of sight and sound but of mind; a journey into a wondrous land whose boundaries are that of the imagination. That's the signpost up ahead—your next stop—the

## Zone of Twilight!

Meet Specialist John Smith—a nervous sort of fellow—with reason to be!!

He's got a load of parts he doesn't need...

John's about to find a use for these parts in a remote supply unit located in the Zone of Twilight!

HEH-HEH! THIS'S TH' ONLY WAY T' BEAT TH' SYSTEM...

WE'VE GOT ENOUGH EXTRA PARTS TO SEE US THRU ANY RAINY DAY!

HEY, SMITTY!...

**JOE'S**  
DOPE

The Why's and How's of Free Turn-In





UH-OH-- IT'S SARGE...

GOTTA BUTTON UP THESE CABINETS QUICK!...

HE DOESN'T UNDERSTAND THE NEED FOR STOCKPILING THESE KEY PARTS...

HEY, SMITH! DID YOU READ ME? I NEED YOU OUT HERE-- ON TH' DOUBLE!!

ER... COMING, SERGEANT!



YES, SGT, STUTTS...

SMITTY, I JUST HAD A CALL FROM THE 714TH! THEY NEED A FRAMMIS BADLY...

SEEMS THEY'VE HAD AN ORDER IN FOR WEEKS-- BUT THERE'S A SHORTAGE IN THE SUPPLY SYSTEM--

HAVE WE GOT ONE WE CAN LEND 'EM?

WELL, ER... I'LL CHECK OUR STOCK...



HMMM... WE'VE ONLY GOT 10... BUT I S'POSE WE CAN LEND 'EM ONE...

GOOD THING I HAD TH' FORESIGHT T' LAY THESE IN BEFORE THIS SHORTAGE DEVELOPED!

YEAH, SERGEANT-- WE CAN SPARE ONE-- LONG AS THOSE 714TH GUYS RETURN IT SOONEST!!

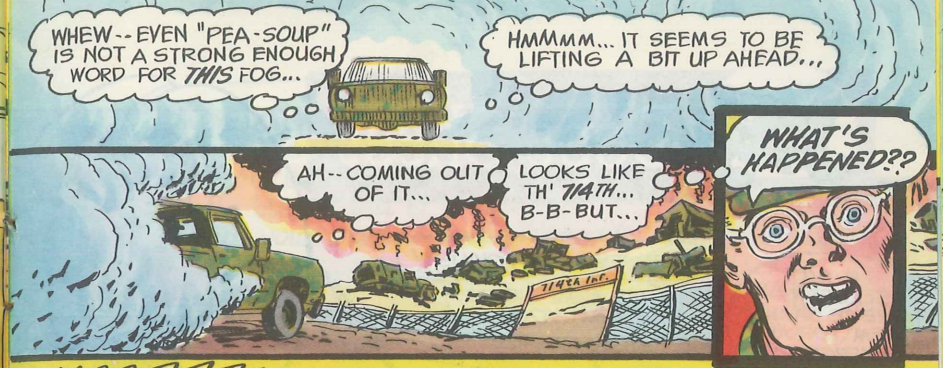
GOOD! RUN IT OVER TO THEM, HUH? PRONTO!

WHAT A GLOOMY MORNING FOR DRIVING...

... AND TH' 714TH IS AWAY OVER ON THE OTHER SIDE OF TH' POST!



HEY-- LOOK AT TH' CRAZY FOG AHEAD!



WHEW-- EVEN "PEA-SOUP" IS NOT A STRONG ENOUGH WORD FOR THIS FOG...

HMMMM... IT SEEMS TO BE LIFTING A BIT UP AHEAD...

AH-- COMING OUT OF IT...

LOOKS LIKE TH' 714TH... B-B-BUT...



WHAT'S HAPPENED???



OH MIGOOSH-- THEY'VE BEEN ATTACKED-- THE WHOLE AREA'S BEEN GUTTED-- DESTROYED!!

I-- I CAN'T BELIEVE IT...

... ARE THERE NO SURVIVORS?

NO, SPECIALIST SMITH... NONE!!



ALL WERE WASTED BY AN ENEMY ATTACK...

... THEY FOUGHT GALLANTLY, BUT...

... THEIR EQUIPMENT WAS EITHER INOPERATIVE... OR QUICKLY BROKE DOWN...

WH-WHO ARE YOU? WHERE'D YOU COME FROM?



WELCOME TO THE ZONE OF TWILIGHT, SOLDIER...

YOU HAVE ENTERED THE WORLD AS IT COULD BE...

I AM STERLING RODD YOUR GUIDE...

ONCE I EXISTED ON YOUR PLANE!

MY JOB IS TO SHOW YOU THE POSSIBLE CONSEQUENCES OF HOARDING...

THIS POSTER MAY BE HELPFUL!

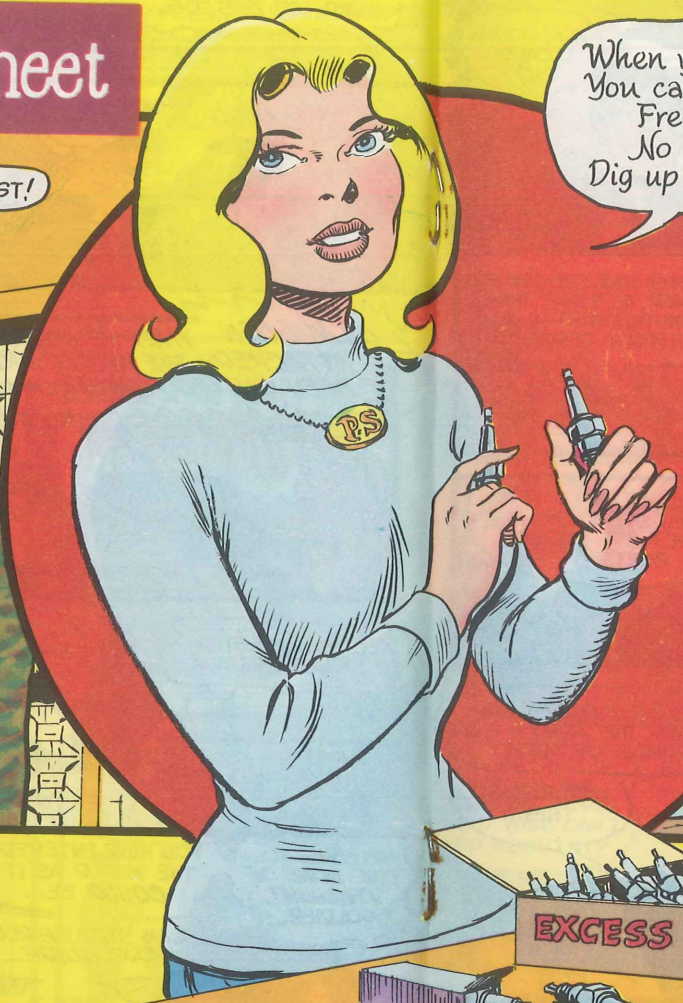
?GULP?

# Joe's Dope Sheet

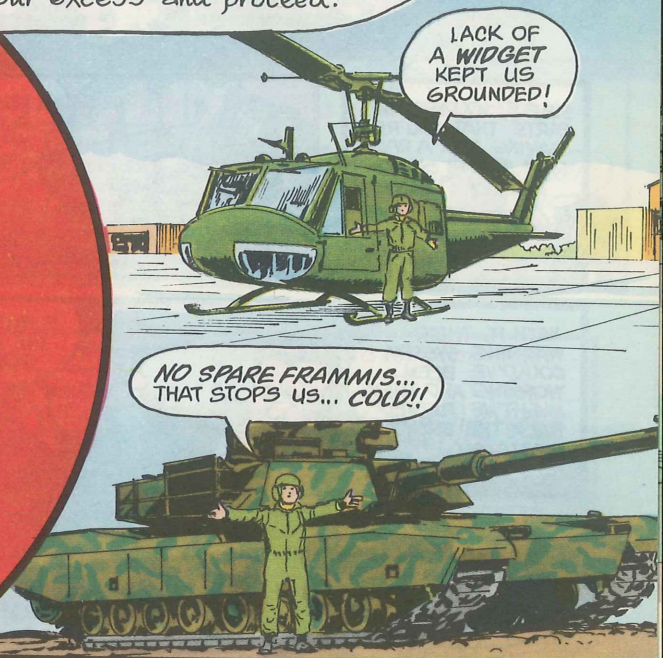


B-BUT SERGEANT-- WE'RE SAYIN' 'EM FOR AN EMERGENCY!

TURN 'EM IN, SPECIALIST!  
THE ARMY NEEDS 'EM NOW!



When you have more parts than you need  
You cause the whole system to Bleed!  
Free Turn-Ins the thing--  
No blame will it bring--  
Dig up your excess and proceed!



LACK OF A WIDGET KEPT US GROUNDED!

NO SPARE FRAMMIS... THAT STOPS US... COLD!!



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.



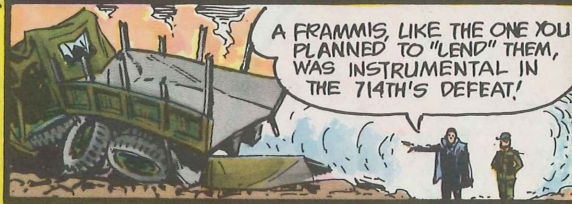
SPECIALIST SMITH, THIS SCENE IS A POSSIBLE RESULT OF YOUR ACTIONS!

YOU'RE NUTS, MISTER!

HOW COULD I CAUSE THIS?



SIMPLE, SOLDIER. THE PARTS THAT YOU'RE "SAVING FOR A RAINY DAY" ARE IN SHORT SUPPLY...



A FRAMMIS, LIKE THE ONE YOU PLANNED TO "LEND" THEM, WAS INSTRUMENTAL IN THE 714TH'S DEFEAT!



WITH IT, THEIR WARNING SYSTEM COULD'VE BEEN WORKING AND THEY MIGHT'VE TURNED BACK THE ENEMY ATTACK!

B-BUT... CAN I HELP IT IF THE ARMY SUPPLY SYSTEM DOESN'T BUY ENOUGH PARTS?



YOU'RE MISTAKEN, SPECIALIST... THE ARMY BUYS AMPLE PARTS! WHAT YOU-- AND MANY OTHER SOLDIERS-- FAIL TO REALIZE IS...

... EXCESS PARTS ARE ALWAYS THE ARMY'S FIRST SOURCE OF SUPPLY!

UNDERSTAND THIS...



The Army supply system needs parts to keep the system working...



Excess parts sitting around do no one any good!

ANOTHER SCROUNGED FROOBIS! WHERE CAN I FIND ROOM FOR IT?

But they can help a buddy in the next unit who could need just the part that's being hoarded!

IF I COULD ONLY LOCATE A FROOBIS, I COULD GET THIS 2½-TON BACK ON LINE!

And excess parts are targets for gigs during inspections!



The supply system is geared toward real demands!

CAN'T UNDERSTAND IT...

... WE'VE SUDDENLY GOT A SYSTEM-WIDE FROOBIS SHORTAGE?



I'M GETTING TH' PICTURE, MR. STERLING RODD, BUT WHAT CAN I DO ABOUT IT?

GLAD YOU ASKED!

DON'T STOCKPILE PARTS!



Order only what you need each time you need it.

WHY NOT ORDER 6? WE CAN USE THE EXTRAS LATER-- MAYBE...

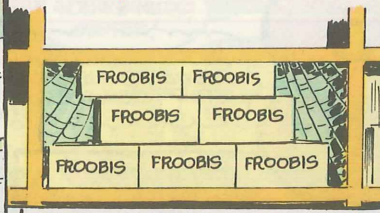
NOPE! ONLY NEED ONE!

Most posts have free turn-in days. Check your SOP.

You can turn in your extra parts with no questions asked...



FREE TURN-IN EVERY FRIDAY AT YOUR DSU!



Units can return excess parts to the supply system without explaining why you have 'em...and with little or no paper work.

No one gets in trouble, and the system gets the parts it needs!



! SUPPLY



THANKS, BUDDY! WE NEED FROOBIS!

WELCOME!

HEY-- I NEVER KNEW THAT HANDLING EXCESS PARTS WAS THAT EASY! NOW THAT I HAVE THE WHOLE PICTURE, I GOT THINGS TO DO, MR. STERLING RODD...

GOOD! THOUGHT YOU WOULD...

...YOU CAN RETURN TO YOUR WORLD BY REENTERING THE MISTS OF THE ZONE OF TWILIGHT...



Soon...

YEP! I LOANED THAT FRAMMIS TO THE 714TH, SGT. STUTTS...

...EXCUSE ME, BUT I GOT SOME... ER... HOUSE CLEANING T' DO IN TH' SUPPLY ROOM! JUST HEARD WE GOT FREE TURN-IN TODAY!

SO YOU'RE FINALLY BACK, HUH, SMITH & SMITTY, I...



CAN YOU BEAT THAT? HE DIDN'T EVEN NOTICE YOU SITTING HERE, CONNIE...

HA... HA... NEVER MIND, SERGEANT!

I WANTED TO SPEAK TO HIM ABOUT EXCESS PARTS AND FREE TURN-IN... BUT...

... I SEE MY COUSIN, ONCE REMOVED, MUST HAVE TALKED TO HIM ALREADY!



AIR MOBILITY

Special Delivery?

B'LIEVE IT!!

... THE 999TH CAV NEEDS A HUEY ... PRONTO!!



If you're planning an airlift of your Huey aboard a C-141 or C-130 aircraft, the preparation info is in TM 55-1520-242-S.

When moving the bird up the ramp of the cargo aircraft, you need a single ground-handling wheel in place of the dual wheel setup. Clearance along the pallet rail is critical. Remember, also, that the single wheels are for loading only.

Dual wheels won't hack it!



There are actually 2 wheel adapter kits listed on Page 1908 in TM 55-1520-210-23P-3. You do not want NSN 1730-00-760-3368 because it does not meet safety requirements.

Fact is, TSARCOM Msg DRSTS-SDP 181840Z Oct 82 says you should destroy those old wheels if you have them.



Single wheel adapter kit needed!



YOU WANT THE OTHER WHEEL ADAPTER KIT, NSN 1730-00-140-4364!

### Aircraft Forms Safe

You aircraft types, relax! Interim Changes 2 and 3 to TM 38-750 dropped the DA Form 2408-14 and DA Form 2408-18 for nonaeronautical gear only. Aircraft still keep the DA Form 2408-14 and DA Form 2408-18.

### Aviation Messages

Cat 1 EIR Phone: AUTOVON 693-2066 (24 hours)

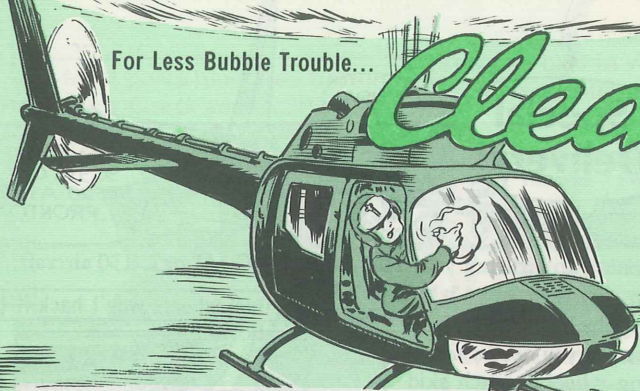
If your unit has not received a message in which you have an interest, check with your next higher headquarters.

- 072300Z Jan 83
- T73-82-01 MIM Engine hot section inspection DRSTS-MEA 031910Z Jan 83
- AH-1S-82-01 MIM Transmission main mount nut and bolt DRSTS-MEA 072000Z Jan 83
- AH-1-83-01 MIM Transmission main mount nut and bolt DRSTS-MEA 031910Z Jan 83
- T73-83-01 MIM Engine hot section inspection DRSTS-MEA 281400Z Jan 83
- T73-P-1, T73-P-700-83-01 MIM Engine hot section inspection DRSTS-MEA 031910Z Jan 83

- T73-P-1, T73-P-700-83-01 MIM Engine hot section inspection DRSTS-MEA 281400Z Jan 83
- UH-60A-83-01 MIM APU compartment cleaning DRSTS-MEA 261945Z Jan 83
- UH-60A-83-02 MIM Elimination of trail rotor control rod boots DRSTS-MEA 271840Z Jan 83

For Less Bubble Trouble...

# Clean and Polish



WOULDN'T IT HAVE BEEN EASIER TO DO IT BEFORE WE TOOK OFF?

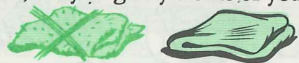
Keeping the windshield in your car clean is a no-sweat deal. You can always pull to the side of the road to clean dirt and bugs off the windshield to improve the view!

The airplane driver doesn't have that option. The windshield has got to be clean to start with, which calls for day-to-day washing.



## Use the Right Materials

Cleaning the Plexiglas on an OH-58A, for example, is no chore when you use the right materials. You never want to use hard, dirty or gritty cloths or you'll scratch the plastic. Always use a soft, clean cloth like flannel, NSN 8305-00-641-5606.




The plastic can actually be ruined, requiring replacement, due to "crazing." This is a series of tiny cracks that turn the plastic so hazy the pilots can't see thru it. It's caused when any of the following materials you work with accidentally get on the transparent plastic:

Gasoline, jet fuel, benzene, toluene, kerosene, methylethylketone, acetone, paint, trichlorethylene, and aliphatic napha TT-N-95, Type 1.

Even window cleaning sprays can ruin the plastic. Use the cleaning materials listed in Table 2-1 of TM 55-1500-333-24 on cleaning aircraft or the materials given in Para 1-18, TM 55-1520-228-23.

So, you can use dishwashing compound (powder), P-D-410; NSN



OR  7930-00-880-4454 for a gallon; NSN 7930-00-281-4731 for 50 pounds. You can also use bar soap, NSN 8520-00-531-6484.

Mix the detergent in concentrations of 1 or 2 ounces per gallon of water.

Before you make the suds, tho, pocket any ring or watch so you won't scratch the plastic.



## Let the Water Flow

Flush the bubble with low-pressure tap water, using your hands to gently peel or loosen dirt.

Rinse off the suds before they dry. Otherwise, you'll wind up with white

Flush it!



Pour the detergent mixture over the plastic and again use your hands to spread the soap suds and remove stubborn dirt. You can also spread the cleaner by using flannel cloth, NSN 8305-00-641-5606, that has only been used on transparent plastic.

Use a disposable paper towel, NSN 7920-00-965-1709, or a flannel cloth,

Lightly...on dirty spots



to lightly rub dirty spots. Never scrub the plastic.



Rinse off all the suds

streaks and have to do the job over. Use chamois, NSN 8330-00-965-1725 or a paper towel to dry the plastic

Use paper towel to dry plastic



and you won't end up with water spots.

## Polish the Bubble

Bubble polish, NSN 7930-00-634-5340, is what you use when you want to polish the plastic.

For long-term protection, you can apply a coating of Rain Repellent and Surface Conditioner (REPCON), NSN 6850-00-139-5297. Apply it according to the info in Para 2-37, TM 55-1500-333-24.

The next time you clean the bubble, be sure you again wash it with detergent. You have to remove any old polish or it will build up and be hard to remove.

First...Last...Always...

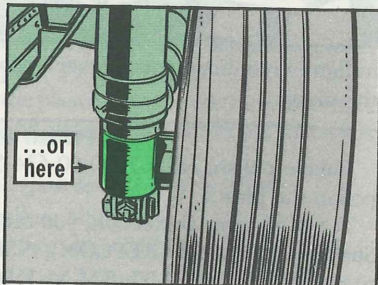
# Use the

# Checklist



"Thorough" is the word, crew chiefs, when you pull the 10-hour/7-day inspection on the Black Hawk.

- ✓ For example, when wiping dirt off the landing gear lower shock struts, never use a dry cloth. If you do, you'll scratch the piston. Sand forced into the seals will



also tear them, giving you a hydraulic fluid leak. So, use a cloth dampened with MIL-H-5606 hydraulic fluid to remove all the dirt on those babies.

## Secure Covers

- ✓ When you eyeball the cabin skin, be sure that the intercom external connector covers are in place. If a cover is not secured, the rotor breeze will break the chain and you'll have to go to tech supply for another one.

Except when in use, intercom cover...



...must be in place



- ✓ Always look for damage and excessive wear during your inspection, bird mechs. Write up all uncorrected discrepancies so the pilots are also up-to-date on the status of your aircraft.

## Empty Your Pockets!

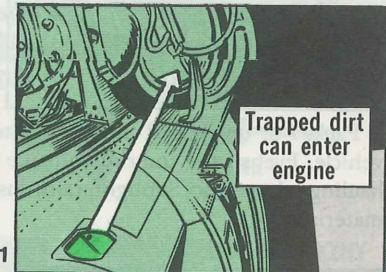
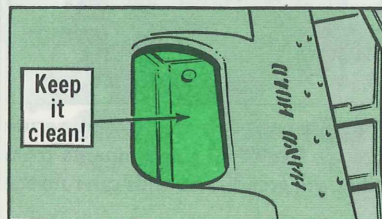


The handhold above the gunner's window is real handy for mounting your Black Hawk.

It's also directly in line with the engine.

And, if you're operating in the boonies, the pocket handhold will collect dirt that can wind up in the engine inlet.

Head off foreign object damage. Keep the handhold clean.



## Emergency Parachutes...

GRRRR!

WELL--ER--I DIDN'T THINK GREASE AN' GRIT WOULD MATTER MUCH, SERGEANT... ER... I...

# Handle With Care!



Listen up, Aircraft Life Support Equipment (ALSE) handlers! The personnel parachutes you send to Support for repacking need special handling.

Sure, paratroopers and riggers know how to handle chutes, but vehicle operators transporting them need to know something about the delicate merchandise. The material can easily be damaged in transit.

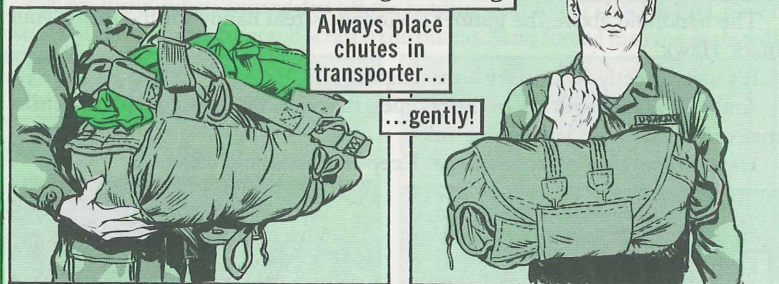


Riggers handle 'em with care...you do the same!

### Pass the Word

All it takes is a few choice words from you ALSE types and an inspection of the vehicle. The driver won't have tech manuals and messages on parachutes.

As pointed out in TSARCOM Msg DRSTS-MCAPL 122130Z Oct 82, there are special requirements when handling and shipping chutes. That's because the material is made of synthetic materials, which will go to pot quick-like in a dirty environment or because of rough handling.



Always place chutes in transporter...

...gently!

Packed or un-packed chutes have to be transported in an inclosed, secure vehicle. Eyeball the interior to make sure it's free of all contaminants from hauling other cargo. Sunlight, rain, dust, dirt, oil, grease, and acids can ruin the material.

### Keep 'em Separated

Be sure you pack each chute individually in a plastic, waterproof bag that is placed within a cushioned fiberboard box or shipping container.

Never put one container inside of another one.

Seal the container and mark it: **CAUTION—LIFE SUPPORT EQUIPMENT.**

You'll find more shipping info on parachutes in Chap 4 of TM 10-1670-201-23 on general parachute maintenance. Check it out!

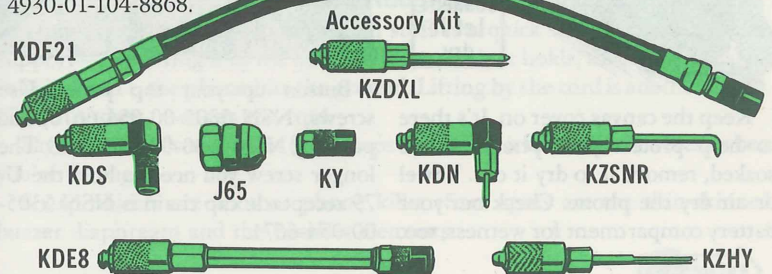
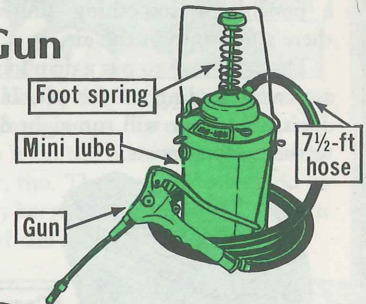


Chute goes in self-contained bag, plus other container

## New AVUM Set Lube Gun

The headshed has authorized a new grease gun and its accessory kit for the AVUM No. 2 set.

Until a change to SC 4920-99-CL-A92 adds these items, use App A, CTA 50-970 to get the lube unit, NSN 4930-01-108-6524, and the accessory kit (extension, couplers) NSN 4930-01-104-8868.



COMMO

Stop Corrosion,  
Abuse...

# Field Phone First Aid

An ounce of PM on your TA-312 telephone set can head off a pound of sweat and worry when you're in the middle of some hot action!

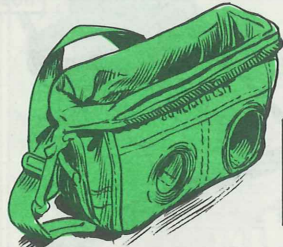
Sure, that phone will take a lot of abuse. It'll work after a good dousing of water, too. It was built for use in the field, after all.

BUT YOU CAN RELIEVE SOME OF THE PAIN OF FIELD USE WITH AN OUNCE OR 2 OF THE FOLLOWING PREVENTIONS...

## Button Up

Keep your phone dry. Cover it with a poncho or something similar if there's moisture in the air.

Then, be sure to put a drip loop in any wire leading to the set. If you don't, the water will run right down to the binding posts.



Canvas soaked? Let it dry

Keep the canvas cover on. It's there to help protect your phone. If it's soaked, remove it to dry it out. Towel or air dry the phone. Check out your battery compartment for wetness, too.

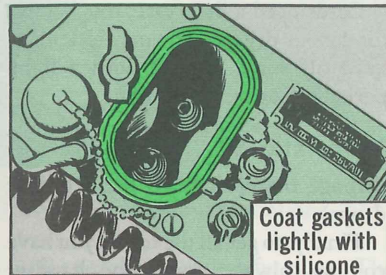
Button up your top panel. Use screws, NSN 5305-00-054-6670, and packing, NSN 5330-00-448-1018. The longer screw you need to hold the U-79 receptacle cap chain is NSN 5305-00-054-6671.



BONNIE-- I GOTTA PROBLEM WITH A DRIP...

...ON THE OTHER END O' THIS WIRE!

Before fastening the screws, give the gasket a light coating of silicone, NSN 6850-00-880-7616. Do the same with the battery compartment gasket.



Coat gaskets lightly with silicone

If the gasket needs replacing, get one with NSN 5330-00-663-5777. Keep the gasket alive by leaving the lid unfastened when the set is being stored.

Another moisture fighter to keep an eye on is the switch hook. If it gets torn, have support replace it.

The disk inside the U-79 cap will stop moisture. If it's loose, make sure it sticks around with a little adhesive,

NSN 8040-00-270-8150.

Finally, even tho your TM's don't require 'em, use boots on your binding

Boots...

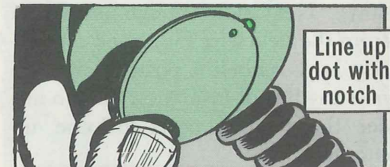


Get 'em!

Use 'em!

posts. You get some with NSN 5970-00-869-6263.

Cold weather moisture protection is



Line up dot with notch

provided by the deicing shield. Snap it on when temps dip toward freezing. Snap it on the outside of the mouthpiece, tho. That lets the screen do its job by keeping moisture in your breath out of the mouthpiece.

## Don't Rough It

Your phone will take it, but rough stuff is a quick way to get your set to support—like lifting it by the handset. If the retainer holds, the lift will weaken it. If it doesn't, the phone hits the ground. Lifting by the cord is another no-no. That stretches or snaps the cord.

Save your handcrank from fatal snaps by folding it back into the recess when you're through.

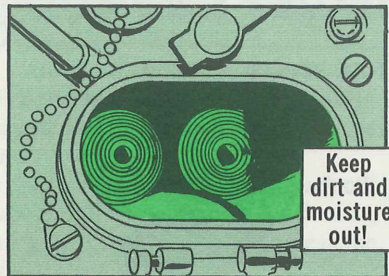
Sharp objects are another phone killer. Sore spots are the thin-skinned buzzer diaphragm and the handset elements.





Leaving batteries in your set during storage is an open invitation to corrosion. But moisture and dirt will foul up the compartment, too.

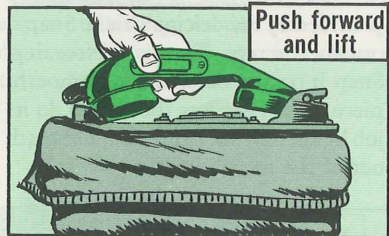
Wipe the compartment with a clean dry cloth and cleaning compound, NSN 6850-00-597-9765. A burnisher, NSN 5120-00-255-4458, will polish up contacts.



### Be a Smooth Operator

A careful operator can head off some maintenance problems.

First, install batteries one up, one down. Next, skin enough insulation from the field wire for a good connection at your binding posts. Make sure no stray bits of insulation remain under the binding posts to louse up commo.



Keep the retainer spring in shape by removing the handset properly. Push forward and lift the rear of the handset. Pulling it straight up can weaken the spring.

To test the spring for proper tension, stand the phone on end. If the handset holds, you're OK. Testing it by lifting the phone by the handset can

For tougher spots, use sandpaper. Springs will shine with a dose of cleaner-lube, NSN 6850-00-003-5295.

Cords need a little care, too. Watch for cuts or dry rot. You may be able to head off some dry rot with a light periodic coating of silicone.

damage the springs or the set (if it drops).

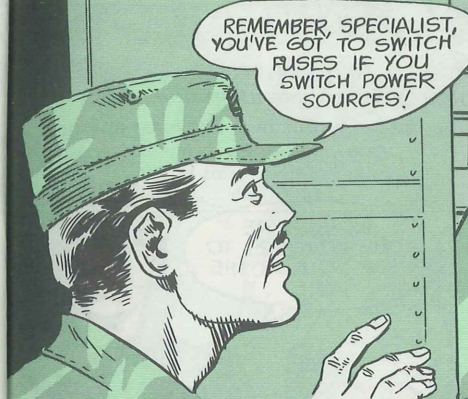
Finally, to get all the traffic you have coming, always reseat the handset



after a call. The hook switch must be depressed before someone can buzz you.



## Fused Together?

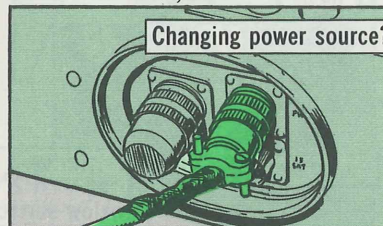


Changing power sources for your AN/UGC-74 communications terminal?

Remember to switch fuses, too. The small fuses your terminal uses for backup battery or generator power won't handle the juice drawn when using vehicle power. That takes a 6½-amp fuse, NSN 5920-00-529-0618.

Likewise, when you switch to smaller power sources, use the smaller fuses. The bigger ones won't protect your circuits as well.

Make a mental note. When you switch power cables, open up the terminal and switch fuses, too.



Keep a good supply of those 1½-amp (NSN 5920-01-023-4822) and 2-amp (NSN 5920-01-023-5878) circuit protectors on hand. Then you or a buddy won't have to use the bigger fuse in an emergency.

# UP and DOWN PM

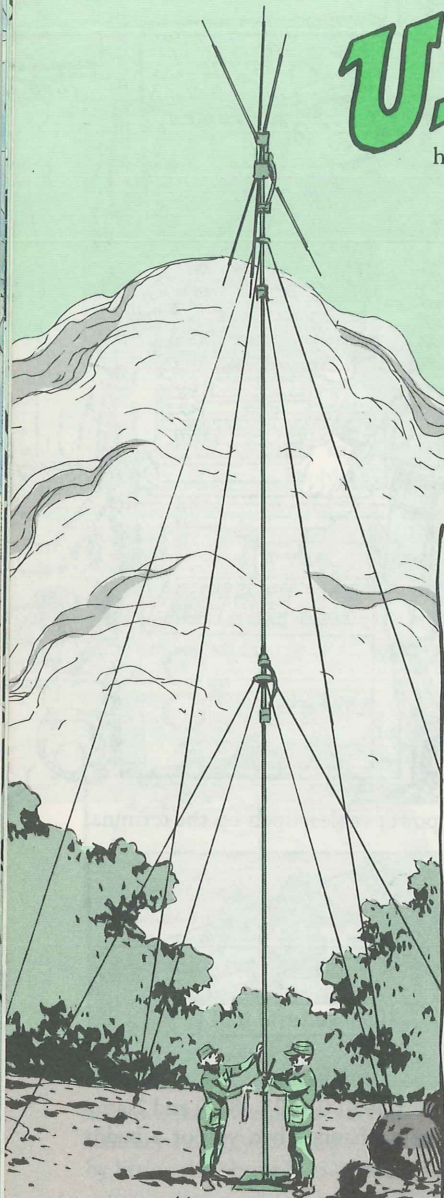
In the air, on the ground or somewhere in between, careful handling can keep your new FM mast antenna doing its job for you.

... AND HERE'RE SOME POINTERS TO KEEP YOU ON THE AIR!

THAT'S GREAT, SERGEANT!

LET'S ASK FOR HELP RAISING OUR ANTENNA...

GOOD IDEA!

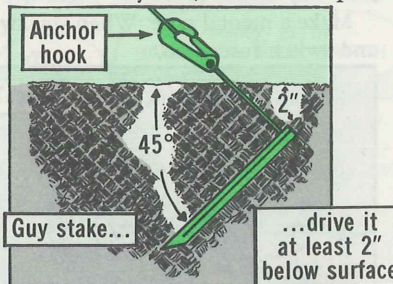


## In the Air

Once your mast is standing tall, it needs your support. Use all guy assemblies and be sure they're staked and tensioned right.

Without the added support these guys offer, mast sections can bend easily.

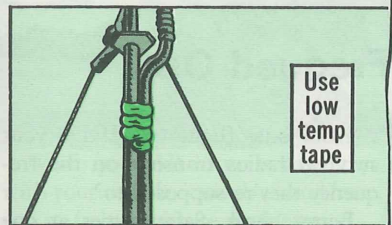
When putting a ground stake into soft or sandy soil, drive the tops at



least 2 inches below the surface. That'll leave the anchor hook just above ground.

In harder ground, drive stakes until only the cable connection hole is showing.

Give your coax cable and its connector a fighting chance for survival. Use the PF-211 strain relief. Then,



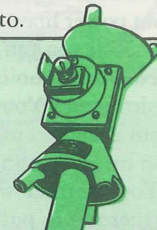
tape the cable to the mast just below the feedcone.

THEN, TAPE IT EVERY 5 FEET OR SO, LIKE YOUR TM 11-5985-355-13 SAYS...

## On the Ground

Protect your antenna cable at ground level, too. Hatches, ramps, cargo doors and vehicle wheels will cut or damage it if given a chance. And, when these crunchers hit the cable, they can damage the antenna or radio set it's connected to.

Feedcone's not for tossing

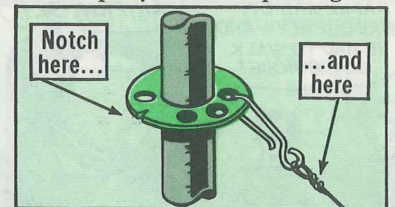


The feedcone on top of your mast may look like a football, but it's too fragile to be tossed like one. Handle it carefully.

Be sure you've cleaned all mast sections before slipping them together for storage. If they're dirty or have tape on 'em, they'll be a bear to pull apart later.

Same thing goes for any sections bent from lack of support in the air too.

Groundwork can save you some time later on, too. Like notching the top guy plate for easy ID when you have to put your mast up at night.



By cutting a small notch in the red plate, and on the swaging sleeve of each of the red guy wires, you can pick 'em out quickly in the dark.

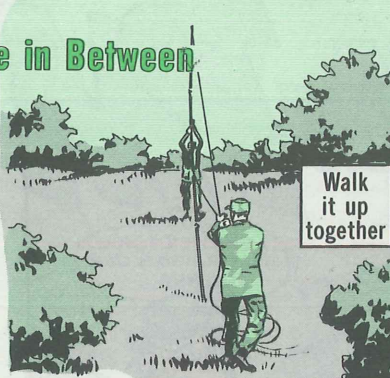
## Somewhere in Between

Erecting the antenna is not a tough job, and doing it right makes it even easier.

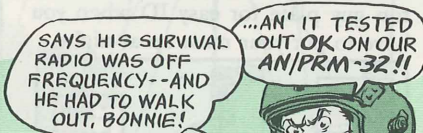
Safety first, of course. Pick a spot that's at least twice the mast's height from power lines. Wear gloves during the job if you can, too.

Now, station a partner at the feedcone end. You hold the guys. Keep them even and maintain a slight tension on 'em during the operation.

Your partner will now walk toward you, pushing the mast up. Tell your partner not to push up faster than you pull, tho.



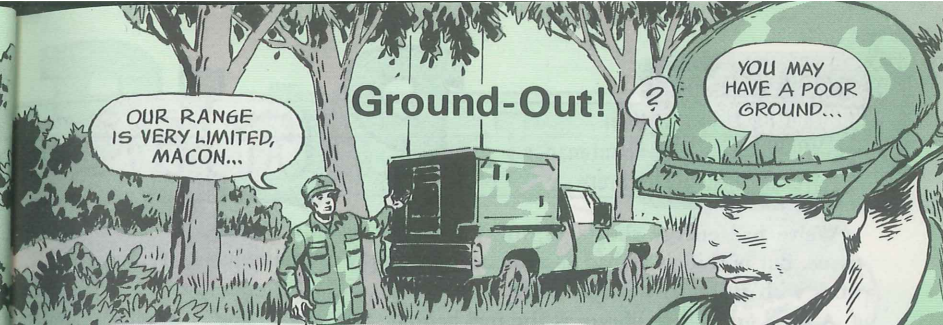
## AN/PRC-90 Frequed Out?



Hold one, flight crews! Do your survival radios transmit on the frequency they're supposed to?

Better check. Safety types at one post found that while the AN/PRM-32 radio test set showed their -90's OK, a frequency counter proved them way off base.

Solution? Have your support use a counter on 'em ASAP—and once a year from now on. After all, you don't want to miss that rescue ride home.



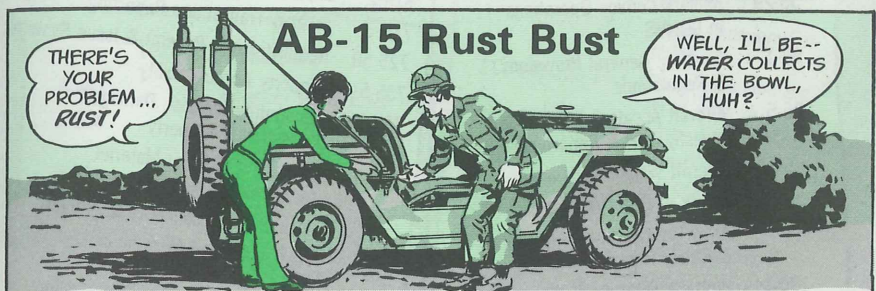
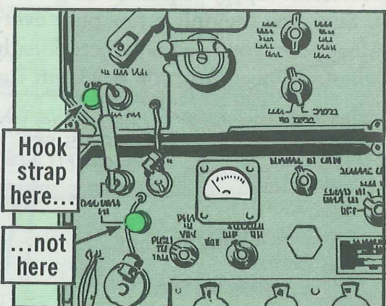
## Ground-Out!

Miss your connection and you leave your AN/GRC-106 radio set groundless.

The right connection for a good system ground is the amplifier's GRD binding post.

Never get careless and slip the ground strap into the look-alike RECEIVER IN binding post on the receiver-transmitter.

This not only leaves the radio set ungrounded, it slices the range of the antenna, too.



## AB-15 Rust Bust

When your AB-15 mast base stays with your vehicle, it needs a hand from you to fight moisture problems.

A little pool of water in that bowl can cancel out all your other good PM.

The moisture rusts the receptacle connector screw, which insulates your antenna, which shortstops your radio reception.

So, dry the bowl as often as necessary. If you see cracks or other damage

to the bowl, have your org repairman replace it.



# Pub's Patter

We've had energy shortages, meat shortages, even a shortage of latrine tissue. But nothing's as bad as somebody in supply or maintenance trying to work with an information shortage!

A good up-to-date library is the fuel behind successful supply requests and good maintenance.

Sure, you use only a few pubs every day. Most pubs, you need only occasionally. But when you need 'em, you need 'em right now!

CHECK THIS LIST OF BASIC PUBS FOR THOSE YOUR OUTFIT NEEDS...

## Army Regulations

- 11-14 Logistic Readiness
- 55-29 Military Convoy Operations in CONUS
- 95-1 Aviation: General Provisions & Regulations
- 95-5 Aircraft Accident Prevention, Investigation & Reporting
- 95-16 Aircraft Weight & Balance
- 95-18 Safety of Flight Messages
- 95-33 Army Aircraft Inventory, Status & Flying Time Reporting
- 190-11 Physical Security of Weapons
- 190-51 Security of Army Property
- 220-1 Unit Status Reporting
- 340-2 Maintenance & Disposition of Records
- 385-10 Army Safety Program
- 385-30 Safety Color Code Markings & Signs
- 385-32 Protective Clothing & Equipment
- 385-40 Accident Reporting & Records
- 385-55 Motor Vehicle Accident Prevention
- 600-55 Motor Vehicle Driver: Selection, Testing & Licensing

- 700-64 Radioactive Commodities in DoD Supply
- 703-1 Petroleum Supply & Management
- 710-2 Supply Policy Below the Wholesale Level
- 710-3 Asset & Transaction Reporting
- 725-50 Requisitioning, Receipt & Issue System
- 735-5 Property Accountability
- 735-11 Accounting for Lost, Damaged & Destroyed Property
- 746-1 Packaging of Army Materiel for Shipment and Storage
- 750-1 Maintenance Concepts & Policies
- 750-10 Modification of Materiel & Safety-of-Use Messages
- 750-20 Prevention, Control & Abatement of Pollution from Mobile Eqpt
- 750-22 Oil Analysis Program
- 750-31 Technical Publications for Aircraft Files
- 750-36 Rebuild & Retread of Pneumatic Tires
- 750-40 Missile Materiel Readiness Report
- 750-43 TMDE
- 750-51 MAIT

## Army Indexes

- DA Pam 108-1 Films, Visual Aids
- DA Pam 310-1 Consolidated Index of Army Pubs and Forms (fiche)
- DA Pam 310-99 Obsolete Forms/Pubs (fiche)

## Technical Manuals

- 5-461 Engineer Hand Tools
- 5-618 Paints & Protective Coating
- 5-725 Rigging
- 9-237 Welding
- 9-243 Use/Care: Hand Tools, Measuring Tools
- 9-2530-200-24 Solid Rubber Tires & Track Components
- 9-2610-200-20 Pneumatic Tires, Tubes and Radial Tires
- 9-2610-201-14 Tires: Inspection, Classification
- 9-6140-200-14 Lead-Acid Storage Batteries
- 9-8000 Automotive Vehicle Principles
- 10-6140-200-14 Lead-Acid Batteries for MHE

... AND YOU CAN'T BE COMBAT READY WITHOUT GOOD PM!!

... SO LOOK THIS LIST OVER CAREFUL-LIKE, TROOPS!

RIGHT, CONNIE-- THERE'S NO GOOD PM WITHOUT PUBS!

- 10-7200-200-13 Gasoline, Water Cans
- 10-8400-201-23 Repair of Clothing and Indiv Eqpt
- 11-5800-213-L List of Pubs for Commo/ Electronics Eqpt
- 11-6140-203-14-1 Nickel-Cadmium Batteries (Gen)
- 11-6140-203-14-2 Nickel-Cadmium Batteries (Air)
- 11-6140-203-14-3 Nickel-Cadmium Batteries (Non-air)
- 38-600 Admin Vehicle Management
- 38-750 TAMMS (The Army Maintenance Mgt System)
- 38-L22-15-series DLOGS Class IX Procedures
- 38-L32-series DS4 Procedures
- 43-0139 Painting Instructions
- 43-0143 EIR & Maint Summary for Tank-Auto Eqpt
- 55-1500-204-25/1 General Aircraft Maint
- 55-1500-328-25 Aviation Maint Policies & Procedures
- 740-90-1 Admin Storage
- 750-116 Purging, Charging, Fire Control Instruments
- 750-254 Cooling Systems, Tactical Vehicles

USE THE *RIGHT* PUBS--  
GET YOUR WORK DONE  
CORRECTLY--AND ON  
SCHEDULE!

### Technical Bulletins

- 5-2800-221-15 Engine Identification, Application
- 5-4200-200-10 Fire Extinguishers
- 9-337 Guided Missile Systems, Corrosion Control, Treatment
- 9-352 Load Testing Missile/Rocket Handling Vehicles
- 9-2300-295-series Warranty on Vehicles (See DA Pam 310-1 list for model)
- 9-2300-422-20 Security of Tactical Wheeled Vehicles
- 43-0001-series EIR Digests (Not stocked. Subscribe on DA Form 12-series)
- 43-0002-series Maint Expenditure Limits of Major End Items

- 43-0002-87 Conversion to Silicone Brake Fluid (Tank-Auto)
- 43-0106 Aeronautical Eqpt: Oil Analysis
- 43-0124 Maint & Repair for Shelters, Electrical Eqpt
- 43-0125 Hookup of Electrical Cables to Mobile Generator Sets
- 43-0142 Safety Inspection/Load Testing, Lifting Devices
- 43-180 Calibration
- 43-0210 Nonaeronautical Eqpt: Oil Analysis
- 43-0213 Rustproofing Procedures (tactical wheeled vehicles)
- 43-0239 Maint in the Desert
- 55-1500-307-24 Aircraft Components Requiring Maint Management & Historical Data
- 55-1500-337-34 Phased Maint System for Aircraft
- 385-3 Military Gas Cans
- 385-101 Safe Use of Cranes near Power Lines
- 600-1 Licensing Operators (support eqpt)
- 600-2 Licensing CCE/MHE/AVLB Operators
- 746-series Marking and Packaging (See DA Pam 310-1 for your eqpt)
- 746-95-1 Camouflage of Armament
- 750-651 Engine Antifreeze and Cleaning Compounds

### Supply Bulletins

- 3-30-2 Chemical-Biological Canisters and Filter Elements Serviceability List
- 9-16 Tank-Automotive Winterization Kits
- 11-6 Dry Batteries, Supply Data
- 11-30 Dry Batteries, Handling, Storage, Testing
- 11-131 Vehicular Radio Sets and Installation Kits
- 38-100 Preservation, Packaging, Marking
- 700-20 Army Adopted Items (fiche)
- 746-1 Publications: Packaging General Supplies

GET THE  
SB'S AND  
DA PAM'S  
YOUR OUTFIT  
NEEDS!!

### DA Pamphlets

- 310-10 Pubs System Users Guide
- 310-13 Posting & Filing Publications
- 350-series Training. (See list in DA Pam 310-1)
- 351-series School Catalogs. (See list in DA Pam 310-1)
- 385-1 Unit Safety Management
- 385-3 Protective Clothing & Eqpt
- 710-2-1 Using Unit Supply System Manual Procedures
- 750-1 Maint Guide for Leaders
- 750-5 Oil Analysis for Leaders
- 750-20 Test, Measurement & Diagnostic Eqpt Consultant Directory
- 750-22 Troubleshooting Eqpt
- 750-31 Gama Goat
- 750-33 Charging System Troubleshooting (The Easy Way)

... BE A SERIOUS  
CONTENDER FOR NEXT  
YEAR'S CHIEF OF STAFF,  
ARMY AWARD FOR MAINTENANCE  
EXCELLENCE!



## Field Manuals

- 5-20 Camouflage
- 5-36 Route Reconnaissance & Classification (Vehicle Load Marking, Bridge Classes)
- 9-207 Cold Weather Operations & Maint
- 10-16 General Repair: Tents, Canvas, Webbing
- 10-20 Petroleum Pipelines, Tanks and Related Eqpt
- 10-68 Aircraft Refueling
- 10-69 Petroleum Supply Point, Eqpt and Operations
- 10-70 Inspecting and Testing Petroleum Products
- 10-71 Petroleum Tank, Vehicle Operation
- 20-22 Vehicle Recovery
- 20-31 Electric Power Generation in the Field
- 21-11 First Aid for Soldiers
- 21-17 Track Combat Vehicle Driver
- 21-26 Map Reading
- 21-30 Military Symbols
- 21-60 Visual Signals
- 21-305 Manual for Wheeled Vehicle Driver
- 24-20 Field Wire and Field Cable Techniques
- 29-2 Organizational Maintenance Operations
- 29-30-1 Division Maintenance Bn
- 38-725-10 Logistics Codes, Unit/Organization
- 38-725-23 Logistics Codes
- 43-2 Metal Body Repair
- 43-3 Shop Mathematics
- 43-1 } Organizational Maint Manager's
- 43-1-1 } Guide and Indicator Lists

- 43-4 Wood & Metal Repairs
- 55-30 Motor Transport Units & Operations
- 55-41 Aircraft Organizational Maintenance Management
- 55-312 Military Convoy Operations in US
- 55-506-1 Basic Electricity

## Miscellaneous

- TC 11-5 How to Repair & Fabricate Antennas
- TC 11-6 Grounding Techniques
- CTA 23-100-6 Ammo, Rockets & Missiles for Unit Tng
- CTA 50-900 Clothing & Individual Eqpt
- CTA 50-909 Field & Garrison Furnishings & Eqpt
- CTA 50-970 Expendable/Durable Items

A SPECIAL NOTE IN CLOSING...

SOME OF THESE TITLES WERE SHORTENED!

IF YOU NEED A FULL TITLE, CHECK YOUR DA PAM 310-1!

Everything You Always Wanted to Know About...

# Supply Status



Ever think a request fell in a hole somewhere or went to supply heaven?

You follow up on the request and get nothing back? Never fear, LIF is here (Logistic Intelligence File, that is).

LIF is a computer file that keeps tabs on Army supply requests (requisitions) passed to the wholesale supply system.

THE LIF KNOWS ALL SORTS OF JUICY INFO, LIKE...

- Who requested an item
- When and where it was requested
- When and how the item was delivered—or if not, what the current status is.

## Records Folder Card

So what do you call the little card that slips into the outside pocket of your Equipment Records Folder? The card has no number—and you make your own! But it does have a name: Equipment Identification Card.



The LIF's actually under the Golden Gate Bridge, but you could have a direct line to it!

When all your normal supply options fail, check with your support or call up your DARCOM Logistic Assistance Office (LAO). Ask them if they have a remote terminal access to the LIF. Most do!

If not, call AUTOVON 586-5841, 24 hours a day. No more than 10 document numbers, please!

Give them your document number and they'll put the computer on your request's trail.

Course, if your request never left post, the LIF'll have no record of it. Put your Customer Assistance people to work on those!

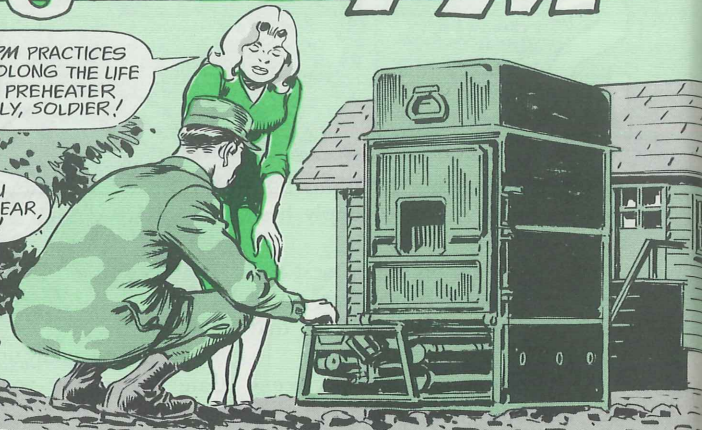
MAKE YOUR OWN!

ADMIN No. H-16 MODEL A151A2 ERC A  
 HOUN Tex 74-760 NSN 2320-10-173-9258  
 SERIAL NO. A236341  
 29 984 miles / 19 Sep 77 412 miles / 26 Aug  
 NEXT SVC AT \_\_\_\_\_  
 Pfc Sewick OPERATOR  
 SSG Chelov SUPERVISOR

# Preheater Generator PM

GOOD PM PRACTICES WILL PROLONG THE LIFE OF YOUR PREHEATER ASSEMBLY, SOLDIER!

READ YOU LOUD 'N' CLEAR, CONNIE!



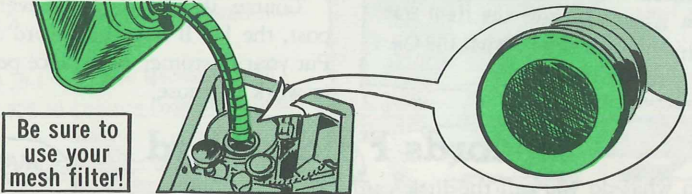
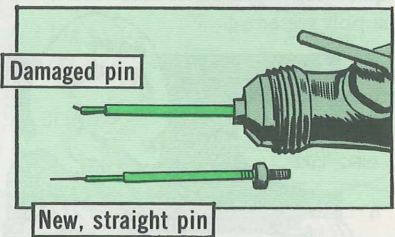
You can't keep your preheater generator assembly's metering pin from burning and bending, or the generator assembly fuel strainer from getting clogged.

You can do some things, tho, to get maxi-life from each assembly.

Make sure the gasoline you use is as fresh as you can get.

Never let gasoline stand in the burner during storage. Old gasoline causes gum deposits that clog the generator assembly screen and nozzle.

Always fill the tank with gasoline from containers that have a wire mesh



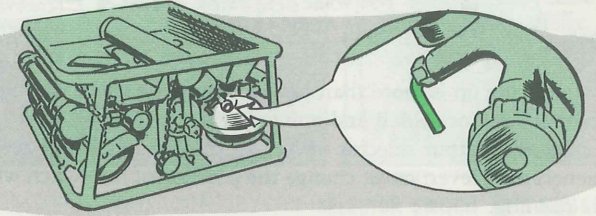
Be sure to use your mesh filter!

filter element in the nozzle. This stops foreign stuff—like bits of rubber from fuel hoses, dirt, leaves, etc—from clogging the preheater assembly.

Never use commercial gasoline. It has nearly twice the amount of lead as MOGAS. Using it is guaranteed to shorten the life of the preheater and generator assembly.

Turn the preheater cleaning orifice control completely around 2 or 3 times—and leave the handle pointing down—before each operation.

Make sure handle points down!



You may have to adjust the preheater stem left or right to get the right fuel flow.

Run the preheater just long enough to heat the full length of the generator. Make sure you can see fire coming from the burner head before you turn off the preheater.

Keep soap and water away from the preheater assembly when you're cleaning it.

## Mixing Chamber Match-Ups

YOU'RE NO MATCH FOR ME, BUB...



Y'KIDDIN' ? I'M A MATCH FOR BOTH AN M2 AN' AN M2A!

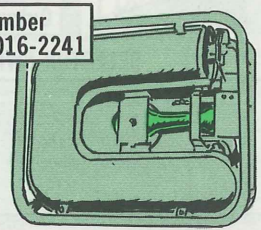


Your M2 and M2A burner unit fuel tanks have to be matched with the right mixing chamber for the best operation.

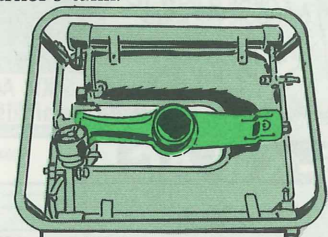
The U-tank, NSN 7310-01-016-2242, uses mixing chamber, NSN

A universal mixing chamber, NSN 7310-01-062-7074, works with any burner's tank.

Mixing chamber NSN 7310-01-016-2241



Mixing chamber NSN 7310-01-062-7074



7310-01-016-2241. This mixing chamber is designed to match with this tank and no other tank.

Never cut the end off the universal mixing chamber and try to use it on the U-tank. Sure, it looks like it would work, but it won't! All you'll do is ruin a perfectly good mixing chamber.



# Generators... Hook Them

THE WRONG LOAD HOOKUP FOR YOUR GENERATOR CAN MAKE IT WORK EXTRA HARD!

IT MAY EVEN DAMAGE IT!

Hooking up is more than just fastening the leads, tho. You have to get the output selector switch and voltage switch right, too.

Set the output selector switch to the tight position before you start the generator. Never, never change the position of the switch when the generator is running.

## Load Balancing

Three- and 4-wire hookups need to be balanced, too.

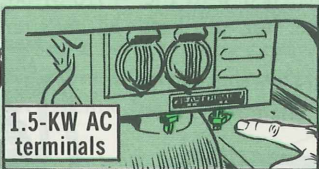
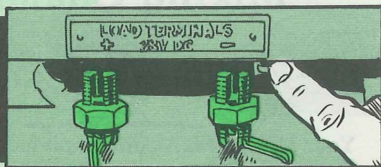
Balancing means putting the same load on each hot wire. Add up the load in kilowatts, kilovolt-amperes, or amperes for L1, L2 and L3.

Shift loads from one wire to another to make the totals as close as possible. Be sure not to exceed the rating on the generator.

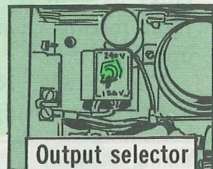
Check out the examples of load balancing in FM 20-31, Pages 3-13 thru 3-17.

## Hooking Up

**1.5-KW DC**  
**3-KW DC**



1.5-KW AC terminals



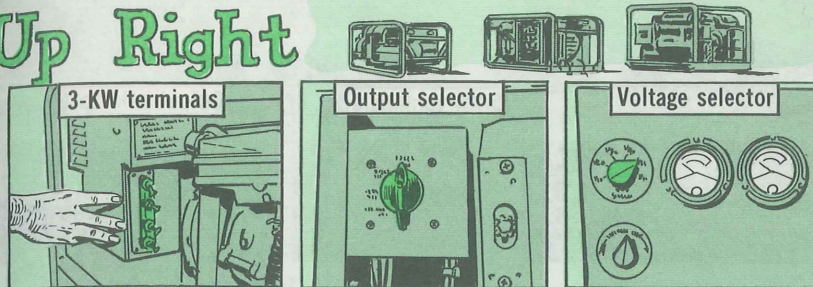
Output selector

HERE'S HOW TO HOOK VARIOUS LOADS TO 1.5-KW, 3-KW, 5-KW AND 10-KW GENERATORS...

## 1.5-KW AC

120-volt output		
Terminals		(120-v)
L1	120-v 1 phase load	
L2		
240-volt output		
Terminals		(240-v)
L1	240-v 1 phase load	
L2		

# Up Right



## 3-KW AC

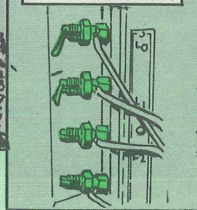
OUTPUT SELECTOR SWITCH Set to: VOLT SWITCH Set to:

<p>Single phase, 120-volt output</p> <p>Terminals</p> <p>L0 ○</p> <p>L1 ○ ——— 120-v load</p> <p>L2 ○</p> <p>L3 ○</p>	120-volt 1 phase	V1-2 (120-v)
<p>Single phase, 240-volt output</p> <p>Terminals</p> <p>L0 ○</p> <p>L1 ○ ——— 240-v load</p> <p>L2 ○</p> <p>L3 ○</p>	240-volt 1-phase	
<p>3-phase, 120-volt output</p> <p>Terminals</p> <p>L0 ○</p> <p>L1 ○ ——— 120-v 1 phase ——— 120-v 1 phase ——— 120-volt 3 phase load</p> <p>L2 ○ ——— 120-v 1 phase</p> <p>L3 ○</p>	120-volt 3-phase	V2-3 (120-v) V1-2 (120-v) V1-3 (120-v)
<p>3-phase, 120/208-volt output</p> <p>Terminals</p> <p>L0 ○</p> <p>L1 ○ ——— 120-v 1 phase load ——— 208-v 3 phase load</p> <p>L2 ○ ——— 120-v 1 phase load</p> <p>L3 ○ ——— 120-v 1 phase load</p>	120/208-volt 3-phase	V1-0 (120-v) V2-0 (120-v) V3-0 (120-v) V1-2 (208-v) V2-3 (208-v) V1-3 (208-v)

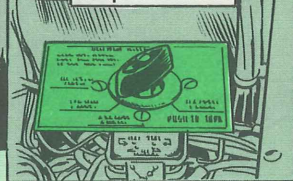




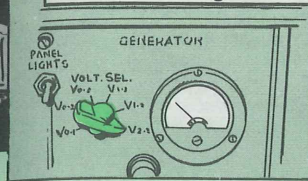
5-KW terminals



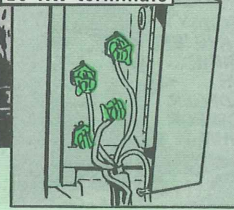
Output selector



5 & 10-KW voltage selector



10-KW terminals



## 5-KW AC

OUTPUT SELECTOR SWITCH Set to: VOLT SWITCH Set to:

<p>Single phase, 120-volt output</p> <p>Terminals</p> <p>L0 ○</p> <p>L1 ○</p> <p>L2 ○ ————— 120-volt load</p> <p>L3 ○</p>	120-volt 1 phase	V2-3 (120-v)
<p>Single phase, 240-volt output</p> <p>Terminals</p> <p>L0 ○</p> <p>L1 ○</p> <p>L2 ○ ————— 240-v load</p> <p>L3 ○</p>	240-volt 1 phase	V2-3 (240-v)
<p>3-phase, 120-volt output</p> <p>Terminals</p> <p>L0 ○</p> <p>L1 ○ ————— 120 volt 3 phase load</p> <p>L2 ○</p> <p>L3 ○</p>	120-volt 3 phase	V2-3 (120-v) V1-2 (120-v) V3-1 (120-v)
<p>3-phase, 120/208-volt output</p> <p>Terminals</p> <p>L0 ○</p> <p>L1 ○ ————— 120-v 1 phase load</p> <p>L2 ○ ————— 120-v 1 phase load</p> <p>L3 ○ ————— 120-v 1 phase load</p> <p>208-v 3 phase load</p>	120/208-volt 3 phase	V1-0 (120-v) V2-0 (120-v) V3-0 (120-v) V1-2 (208-v) V2-3 (208-v) V3-1 (208-v)

## 10-KW AC

OUTPUT SELECTOR SWITCH Set to: VOLT SWITCH Set to:

<p>Single phase, 120-volt output</p> <p>Terminals</p> <p>L0 ○</p> <p>L1 ○</p> <p>L2 ○ ————— 120-v load</p> <p>L3 ○</p>	120-volt 1 phase	V2-3 (120-v)
<p>Single phase, 240-volt output</p> <p>Terminals</p> <p>L0 ○</p> <p>L1 ○ ————— 120-v load</p> <p>L2 ○ ————— 120-v load</p> <p>L3 ○ ————— 240-v load</p>	120/ 240-volt 1 phase	V3-0 (120-v) V2-0 (120-v) V2-3 (240-v)
<p>3-phase, 120-volt output</p> <p>Terminals</p> <p>L0 ○</p> <p>L1 ○ ————— 120-v 3 phase load</p> <p>L2 ○</p> <p>L3 ○</p>	120-volt 3 phase	V2-3 (120-v) V1-2 (120-v) V3-1 (120-v)
<p>3-phase, 120/208-volt output</p> <p>Terminals</p> <p>L0 ○</p> <p>L1 ○ ————— 120-v 1 phase load</p> <p>L2 ○ ————— 120-v 1 phase load</p> <p>L3 ○ ————— 120-v 1 phase load</p> <p>208-v 3 phase load</p>	120/208-volt 3 phase	V1-0 (120-v) V2-0 (120-v) V3-0 (120-v) V1-2 (208-v) V2-3 (208-v) V3-1 (208-v)

In Your BDU—

STARCHED AND PRESSED BDU'S?

## Dress Right—Dress!

YUP! AN ARMY FELLER GAVE 'EM TO ME, CONNIE... SEEMS THEY NO LONGER DO THE JOB FOR HIM...

HE FIGURED THEY MIGHT HELP ME... BUT...

CAW!

HAW!

Your battle dress uniform is designed to protect you on the battlefield. It's not supposed to have razor-sharp, parade-ground creases!

Creases reduce the camouflage protection of the uniform. You don't gain much being sharp as a tack if it can cause you to end up dead as a doornail.

Never bleach, starch or press your BDU.

The BDU colors and patterns give you maximum camouflage protection. The infrared reflectance properties give you maximum detection protection from enemy image intensifiers.

Bleaching, starching and high temperature pressing destroy the color, reduce the camouflage protection and weaken the fabric of your BDU.

If you have starched or pressed your BDU, laundering will restore its protective characteristics. Just don't starch or hot press it again.

Taking the right PM-care of your BDU increases its useful wear life and gives you the best battlefield protection possible.

## Explosion-Proof Flashlights

NSN 6230-00-161-6422 gets the right-angle, 2-cell MX212 explosion-proof flashlight. It comes with extra lens and bulbs.

NSN 6230-00-269-3034 gets the straight 2-cell MX992.

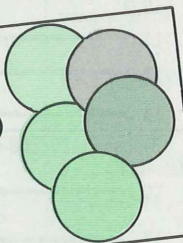
BOTH USE THE SAME FILTERS AND BULBS!

NSN 6230-00-

Filter (color)

111-0190  
128-2464  
356-4825  
504-8341  
504-8342

red  
opaque (blackout)  
diffusion  
green  
amber



NSN 6135-00-120-1020 gets a BA-30 battery; the bulb is NSN 6240-00-155-8675.

## Connie's POST SCRIPTS

HALP!!

CONNIE, I GOTTA MAINTENANCE PROBLEM!

--NO BRAKES! HALP!

?

## Exercising M110 Howitzers

We gave you a bum steer on exercising M110/A1/A2 howitzers in PS 362, Page 20. If the howitzers are in the hands of using units, DS exercises them every 30 days. But if they're in storage, DS exercises them every 90 days. TB 9-1000-234-35 has the details on exercising intervals.

## T&P Unit Oil Changes

Forget about the weekly oil change mentioned in PS 364, Pg 57 for the 3-HP Mil Std engine on tank and pump units. You change oil every 50 hours.

## HR Changes

Interim C1 to SC 4910-95-GL-A73 came out without a change to the Hand Receipt SC. If you have LIN W32867, No. 1 Common shop set, make sure you change your -HR SC to show the new items. A note on Page 2 of the interim change tells you how.

## Bag and Baggage TM

What do sleeping bags, clothing, CVC helmets, skis and accessories, mountain-climbing gear and ALICE have in common? They're all covered in TM 10-8400-201-23, General Repair Procedures for Clothing and Individual Equipment. Get a copy.

\* U.S. GOVERNMENT PRINTING OFFICE: 1983-659-007/6

## Fire Extinguisher Service

CO<sub>2</sub> fire extinguishers that have more than a 10 percent weight loss on their 30-day service must be refilled by your post fire department. DA Form 253, attached to your extinguisher, shows the charged weight.

## AB-22's New NSN

The stock number for your RC-292 antenna equipment's AB-22 mast section is now 5985-00-372-0970. Forget the number shown in TM 11-5820-348-24P.

## Brake Inspection Needed

Check all your M911 tractors and M747 semitrailers closely for heat cracks in the brake drums and for crystallized brake linings.

Either one of these can lead to brake failure.

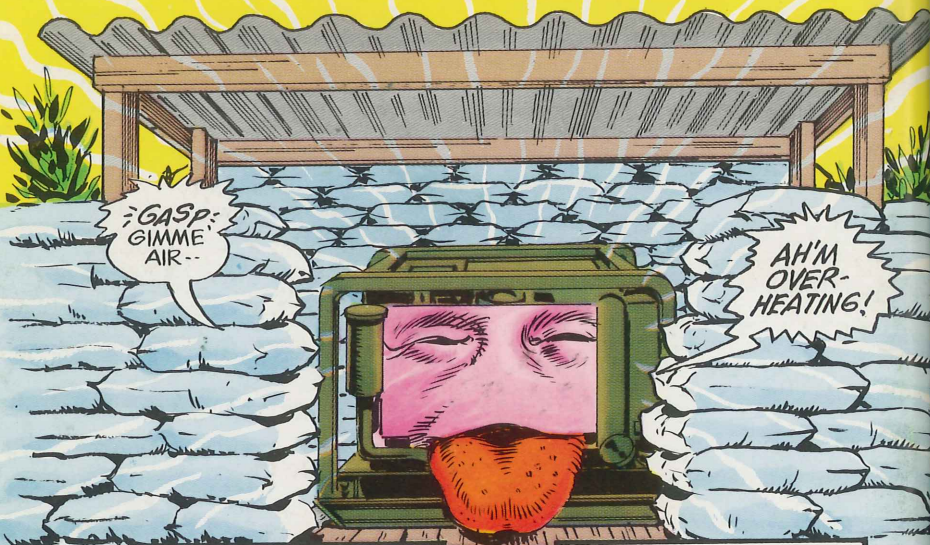
If necessary, your support will correct any problem according to details in TACOM messages DRSTA-M 111900Z Feb 83 and DRSTA-M 141600Z Feb 83.

## M667 Air Drop Bracket

You can now get an air drop transmission support bracket for your LANCE M667 missile carrier. It's used for installation of the engine air box drain container. Get it with NSN 2520-01-043-8190. The bracket will be added as Item 4.1, Fig 1, TM 9-1450-485-20P

Would You Stake Your Life <sup>right now</sup> on the Condition of Your Equipment?

# Generators Need AIR for COOLING!



Keep sandbags well away from unit—leave vents for air circulation!!



Keep canvas high enough so air gets in!!

