

Issue 367

PS

June  
1983

# THE PREVENTIVE MAINTENANCE MONTHLY

Make sure  
a friend  
sees this  
issue...  
Pass it  
on!

WELCOME TO THE  
COMPANY ARMS ROOM...

... THIS PLACE  
NEEDS A LOT  
OF WORK!

OUR FORMER  
ARMORER WASN'T  
HERE LONG ENOUGH TO  
GET THE JOB DOWN!



See  
"So You're the New  
Armorer..."

Page 29



Commercial Numbers Added...

# For HOTLINE



CALL THESE AUTOVON OR COMMERCIAL NUMBERS ANY TIME... NIGHT OR DAY...

- ★ Tanks, small arms, missile guidance/control systems for LCSS, ground and air TOW, Dragon, LANCE, Shillelagh  
**AUTOVON 694-6582    COMM 205-238-6582**
- ★ CH-47  
**AUTOVON 977-6408    COMM 717-782-6408**
- ★ Aircraft engines  
**AUTOVON 861-2651    COMM 512-939-2651**
- ★ Cat 1 EIR (Aircraft)  
**AUTOVON 693-2066    COMM 314-263-2066**
- ★ M113 FOV (incl Vulcan, Chaparral)  
**AUTOVON 829-3100    COMM 214-838-3147**
- ★ Power generation eqpt, wheeled vehicles, Redeye, topo eqpt  
**AUTOVON 790-2129    COMM 801-833-2129**
- ★ All howitzers, M578, FAAR, FADAC, ground guidance and shop/test eqpt for I-HAWK and Nike-Herc  
**AUTOVON 242-7693    COMM 717-263-7693**
- ★ Commo/Electronics (Sacramento)  
**AUTOVON 839-2839    COMM 916-388-2839**
- ★ Commo/Electronics (Tobyhanna)  
**AUTOVON 795-7900    COMM 717-894-7900**

# Help

Remember: Before you call, check out your problem with your MAIT, DSU, local DARCOM Logistic Assistance Office and Field Maintenance Technicians. They are also working to help you.



SORRY-- SUGGEST YOU GET HOTLINE HELP!

THANKS... WILL DO... PRONTO!

AFTER YOU DO WHAT THE HOTLINE FOLKS TELL YOU TO DO, CALL 'EM BACK AND LET 'EM KNOW HOW IT WORKED.



OR DIDN'T WORK!

## 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.

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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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The More You Know...

# The Higher You Go!

There are operators and then there are sharp operators. But the sharpest of all know where they're going—and plan to arrive in style!

If you want to be in charge one day, know-how is power!

You know your operator's TM by heart, right?

When your gear needs a lube service, you know where the LO is and what it's for.

BUT YOU MAY NOT KNOW THAT THERE ARE OTHER PUBS YOU NEED TO BE FAMILIAR WITH IN ORDER TO PERFORM YOUR BEST AND ADVANCE IN RANK!

TH' SHARPEST SOLDIER CAN ALWAYS BECOME JUST A LITTLE SHARPER, HUH?



**FIELD MANUALS (FM)** discuss military doctrine, tactics and techniques, training and operations. A special series of how-to-fight FM's tells you how your gear or your unit works in combat. FM 90-3, Desert Operations, for example, tells you how the desert affects you, your gear and mission.

**DA PAMPHLETS** generally discuss admin-type subjects, or policy and instructions on policy—but not always!

**TECHNICAL BULLETINS (TB)** key in on specific subjects rather than a whole piece of gear. TB 9-1200-209-10, for example, covers the new Multiple Integrated Laser Engagement System (MILES) that teaches you how to survive in combat. TB 43-0239, Maintenance in the Desert, tells you about the special problems of running your gear in sand and arid areas.

**TRAINING CIRCULARS (TC)** explain how to do a particular job or train on your gear.

### What's Available?

So how do you find out what other pubs are available on your gear? Check DA Pam 310-1, Consolidated Index of Army Pubs and Forms.

That index is on microfiche, so you'll need to find somebody with the fiché and a reader. Try your PLL clerk first.

You may find some training items on your gear or job, too. Your training NCO, battalion or post learning center or Training and Audio-Visual Support Center (TASC) can steer you to Graphic Training Aids (GTA), TEC lessons, films and tapes.

The DA Pam 350-series lists all approved training material for specific Army Training and Evaluation Programs (ARTEP) and Military Occupational Specialties (MOS).

The pams are called Extension Training Materials (ETM) Catalogs. They list all kinds of training materials—Training Extension Courses (TEC's), audio-visual items, Graphic Training Aids (GTA's) and more.

Your unit should have the catalog that supports your ARTEP, or DA Pamphlet 350-100, Consolidated MOS Catalog.

Need a catalog? Tell your pubs clerk to order it on DA Form 4569 from:

US Army AG Publications Center  
2800 Eastern Blvd.  
Baltimore, MD 21220

DA Pam 310-1, Consolidated Index Army Pubs and Forms, lists all the catalogs.



If You Know the LIN...

# You Can

You know what's wrong with most publication indexes? You have to know what the pub is before you can look it up! Talk about going in circles!

LIN		GENERIC NOMENCLATURE		NSN NOMENCLATURE		CROSS-REFERENCE INDEX BY SB700-20 LINE ITEM NUMBER		PAGE	
A00303	5810-01-037-1156	ACCESSORY BOX TESTER	TSEC/KG-81 E1						
COMSEC ITEM - SEE DA Pam 310-9									
A01889	5820-00-493-7533	ACCY KIT	MK-1258/GRC F/AN/VRC-12 47 53 84	GRC-125 160 IN M551					
BASIC PUBS									
	SB 11-131			DATE	CHS	IN	FORCE	DA	LC
	TM 11-2300-360-15-1			OCT 74					
				SEP 68					
A01870	5820-00-493-7535	ACCY KIT	MK-1259/G F/AN/VRC-48 53 84	GRC-125 160 VIC-1 IN M88					
BASIC PUBS									
	SB 11-131			DATE	CHS	IN	FORCE	DA	LC
	TM 11-2300-355-15-4			OCT 74					
	TM 11-2300-355-15-5			MAR 87					
	TM 11-2300-355-15-6			MAR 87					
	TM 11-2300-355-15-7			FEB 87					
PUBS ON COMPONENTS									
	TM 11-5885-282-13			DATE	CHS	IN	FORCE	DA	LC
	TM 11-5885-288-50			FEB 86					
				JAN 71					
A01872	5820-00-493-7545	ACCY KIT	MK-1265/GRC F/AN/VRC-43 48 53 84	GRC-125 160 IN M113					
BASIC PUBS									
	SB 11-131			DATE	CHS	IN	FORCE	DA	LC
	TM 11-2300-355-15-4			OCT 74					
	TM 11-2300-355-15-5			MAR 87					
	TM 11-2300-355-15-6			MAR 87					
	TM 11-2300-355-15-7			FEB 87					
PUBS ON COMPONENTS									
	TM 11-5885-255-14P			DATE	CHS	IN	FORCE	DA	LC
	TM 11-5885-282-13			MAR 75					
	TM 11-5885-288-50			FEB 86					
				1-2	MAR 75				
				JAN 71					
A01873	5820-00-492-8096	ACCY KIT	MK-1262/VIC-1 FOR USE W/AN/VIC-1	IN M113					
BASIC PUBS									
	SB 11-131			DATE	CHS	IN	FORCE	DA	LC
	TM 11-2300-355-15-7			OCT 74					
	TM 11-5885-282-13			MAR 87					
	TM 11-5885-288-50			FEB 86					
				1-2	MAR 75				
A01874	5820-00-493-7537	ACCY KIT	MK-1236/V F/AN/VRC-12 OR 47	IN M48 SERIES					
BASIC PUBS									
	SB 11-131			DATE	CHS	IN	FORCE	DA	LC
				OCT 74					

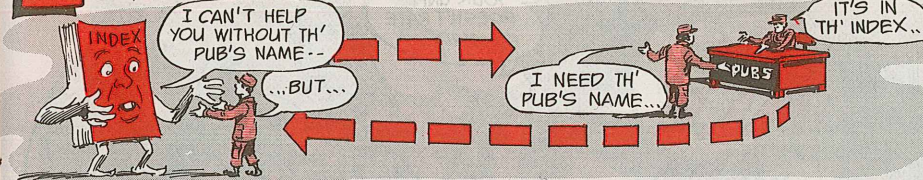
But DA Pamphlet 310-1, Consolidated Index of Army Pubs and Forms, may have the remedy for your "travel sickness".

At the back of the "book", Section XI, you'll find some microfiche pages called "Cross-Reference by SB 700-20 Line Item Number (LIN)". That section will help you find the pubs (LO's, TB's, SC's, TM's and MWO's) needed to keep your gear in shape.

If you know the LIN on the equipment you want a pub for, you're in business. Don't know the LIN? Ask your TAMMS or supply clerk. The LIN is on a bunch of forms and records they keep; or if the NSN is known, it can be cross-referenced to a standard LIN using SB 700-20, App B.

Now go to the LIN cross-reference section of DA Pam 310-1. The LIN-to-pubs cross-reference listing is in alpha-numerical order. Find your LIN?

# Find the Pubs



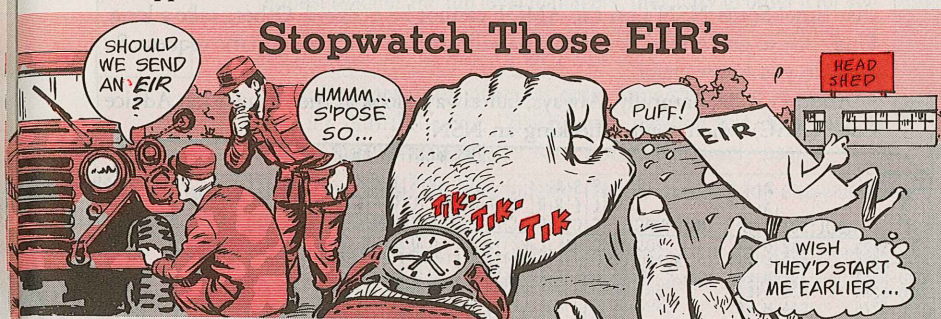
Beside the LIN you'll see the "official" name for your gear, its NSN and (maybe) model. But the jackpot is the list of pubs underneath.

And that list of pubs covers more than just the end item, too. Any and all tech pubs that apply to the end item and its components will show up there. No more chasing down hard-to-find component pubs!

If the item you're looking for is a COMSEC item, the index will tell you to go to DA Pam 310-9.

So, with that LIN cross-reference you can find just about any tech pub relating to your equipment and all its components.

Course, you won't find general subjects pubs like those on welding and painting there. But the index does show you all the specific tech pubs required to support an item, all in one neat list.



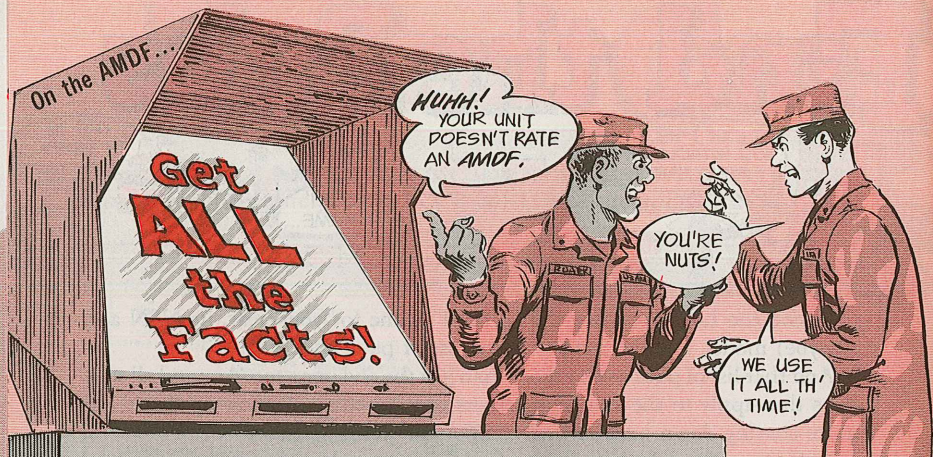
Want some fast action on a problem? Well, the sooner you send in your SF 368, Equipment Improvement Recommendation (EIR), the sooner you get help!

TM 38-750 tells you to send in an EIR within 5 days of discovering a defect in your equipment. Course, a Category I EIR—life, limb or mission in danger—goes in immediately by phone or message. But Category II EIR's go on SF 368.

A recent check of EIR's showed the average time it takes from discovery of defect to mailing in the SF 368 was 9.27 days. That's too long!

Unless you're in the field or snowed under, move out on EIR's. The early bird gets action—not worms!





You can start a lot of arguments over how the Army Master Data File (AMDF) should be used—and who should use it!  
 But if you have an AMDF—and the reader to use it—here're some tips on making the AMDF work for you.

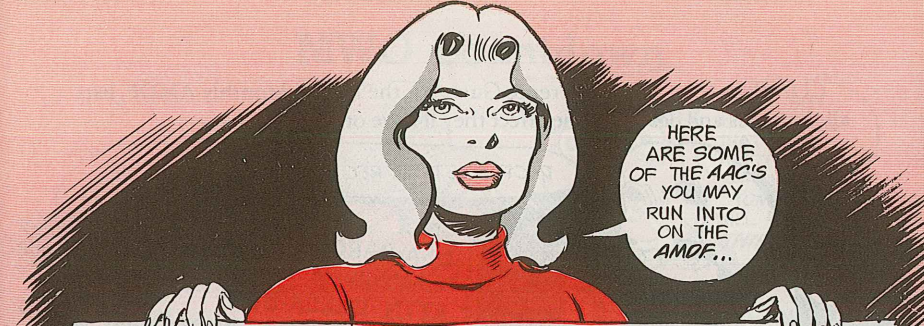
If you're just making sure the NSN is on the AMDF—maybe giving the unit of issue (UI), price, noun and phrase code (PC) a glance—you could be wasting that time! Some NSN's on the AMDF cannot be ordered. Others take a long, long time to get. A few take special handling or Advice Codes on the request. So how do you know that?

Another code, naturally. Always, but always, look at the Acquisition Advice Code (AAC) when you're checking an NSN.

ARMS MONTHLY AMDF															EFFECTIVE D			
OLUPRN 16	A	S	S	A	R	M	D	F	I	S	L	I	S	A	U	MEASMT	P	NOMENCLAT
/MCN	ADDL	SOS	C	UI	UNIT PRICE	I	E	R	C	C	C	C	C	C	C	C	C	PHRASE STATE
00-6220	H32	D	E	A	203.00	0	U	X	Z	P211A	D	0	0	R	4	99	G	CIRCUIT CARD
00-6229	H32	D	E	A	3,240.00	0	U	X	H	P211A	D	0	0	R	4	99	G	CIRCUIT CARD
00-6261	S9C	D	E	A	5.05	0	U	U	X	Z	J2200	A	0	0	R	4	99	G
00-6274	H32	D	E	A	543.00	0	U	U	X	Z	P211A	D	0	0	R	4	99	G
00-6270	D54	H	E	A	1,492.00	0	U	U	X	Z	Z22F4	D	0	0	R	4	99	G
00-6292	S91	Z	E	A	2.37	0	U	U	X	Z	T2200	A	0	0	R	4	99	G
00-6297	S91	D	E	A	1.12	0	U	U	X	Z	T2200	A	0	0	R	4	99	G
00-6301	S96	V	E	A	79.91	0	U	U	X	Z	J2200	A	0	0	R	4	99	G
00-6304	S9E	J	E	A	67.70	0	U	U	X	Z	Q2200	A	0	0	R	4	99	G
00-6330	S91	Z	E	A	1.03	0	U	U	X	Z	T2200	A	0	0	R	4	99	G
00-6331	S91	Z	E	A	3.67	0	U	U	X	Z	T2200	A	0	0	R	4	99	G
00-6340	K6Z	D	E	A	1.01	0	U	U	X	Z	T2200	A	0	0	R	4	99	G
00-6367	S9E	D	E	A	1.10	0	U	U	X	Z	T2200	A	0	0	R	4	99	G
00-6368	S9E	D	E	A	4.82	0	U	U	X	Z	T2200	A	0	0	R	4	99	G

Need an item the AAC says may not be available? Look for more info or a substitute

The AAC tells you which items take a l-o-o-o-n-g time to fill, which ones are dropping out of the system, which ones need special info, etc.  
 In other words, the AAC tells you how and under what conditions the item will be ordered or acquired.

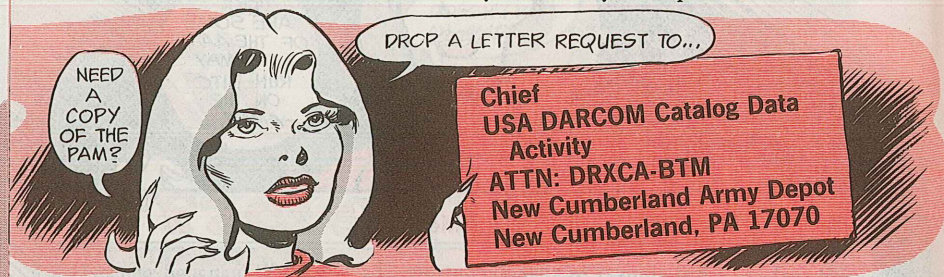


Code	It Means
D	<b>Not subject to special controls.</b> The item's DOD-managed, stocked and issued. Your request should have no trouble.
F	<b>Fabricate or assemble.</b> If the item has an SMR source code of XB in the parts manual, get it through cannibalization. The nomenclature column on the AMDF or your parts TM tells you what you'll need to make or put the item together. No luck on a cannibalize item? Order it, but put Advice Code 2A on your request. Expect a long wait.
J	<b>Not stocked, centrally procured.</b> No stocks are on hand. When your request reaches the top level managers, they'll try to order it for you. You could luck out if somebody else ordered this one recently, but chances are you're in for a long wait on it.
K	<b>Centrally stocked for overseas only.</b> Some stocks are on hand, but only for OCONUS units. CONUS units needing this item have to request local purchase from their installation supply people.
L	<b>Local purchase.</b> Your installation supply support (or equivalent) buys this item for you.
M	<b>Major overhaul item.</b> You order this item only if your unit's OKed to do major overhaul work. Normally M-coded items cannot be ordered below the depot level.
T	<b>Condemned.</b> The item with this code is no longer OKed for procurement, issue, use or requisitioning. Even if you need it, no sale. Check the phrase code (PC) and nomenclature column for a replacement or substitute NSN.
V	<b>Terminal item.</b> Some stocks may be on hand, but no further buys will be made. When stocks are gone, forget it. Look for a note on a replacing NSN in the PC and nomenclature column.
Y	<b>Terminal item.</b> When stocks are gone on a V-coded item, the AAC changes to Y. Find a substitute item.



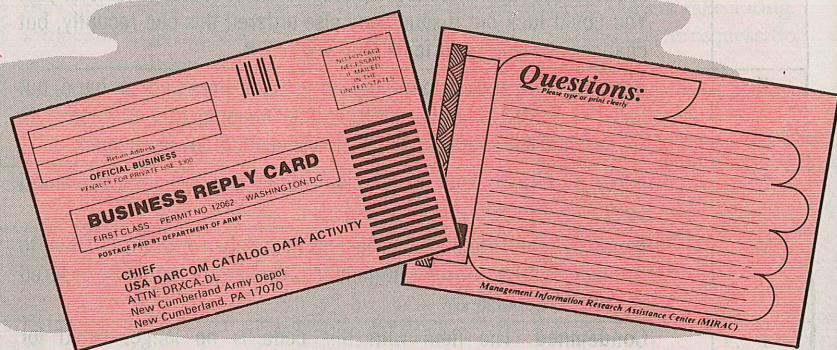


CDA Pam 18-1, Code Reference Guide for the ARMS Monthly AMDF, lists all the codes and describes the effect they'll have on your request.



But no matter what AAC an NSN carries, if you need that item, you need it! Look for a substitute in the PC and nomenclature column on the AMDF. Nothing there? Get on the horn with support. They have a bunch of other microfiche supply files—like the I & S and History Files—with that type info.

But you could find an item on the AMDF with a “no-go” AAC that your parts manual says you can have and need. That’s a goof on the AMDF. Tell the AMDF people about it. Use the preprinted, addressed and ready-to-mail DRXCA Form 131 that comes with each AMDF.



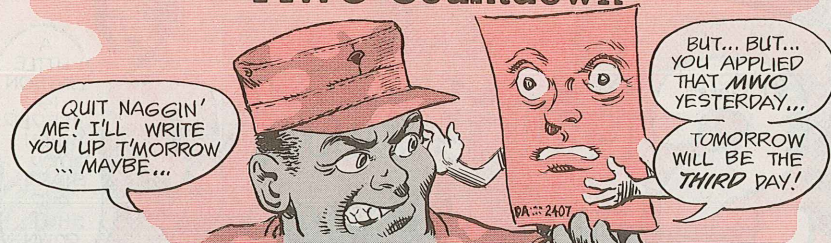
Tell them which code on which NSN is wrong. If you know what the code should be, tell 'em that, too! Write your name, complete mailing address and commercial or AUTOVON number on the form.

No forms? Drop a letter to the same place you order CDA Pams 18-1 from, except use ATTN: DRXCA-DL.

Too mad to wait? Call the CDA Hotline, AUTOVON 977-7431.

Getting all the “fAACts” when you look up an NSN will save you a lot of fuss and put you “one up” on the supply system!

## MWO Countdown



Do you or your outfit have the action on applying a modification work order (MWO)? Well, there's no time to waste!

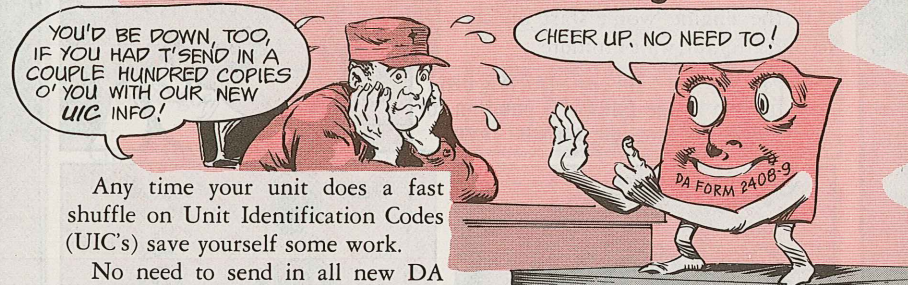
Most MWO's have a limit on how long you have to apply that mod and report it. The headshed that sponsors the MWO needs to know you finished the work just as soon as you do!

Send the NMP copy (#2) of the DA Form 2407 to the sponsoring headshed within 3 days after you've done the job. Keep copy #4 until the next MWO Validation is completed.

Para 3-8c (2) and 3-8e (2) of TM 38-750, The Army Maintenance Management System (TAMMS), tell you how to get the form together.

Double-check all the information on the form—like man-hours, serial number and NSN's. Fast forms with good info keep the headshed from coming back at you to do the work—or the form!—over again.

## Shortcut on UIC Changes



Any time your unit does a fast shuffle on Unit Identification Codes (UIC's) save yourself some work.

No need to send in all new DA Forms 2408-9 reporting the new UIC.

Give them your full unit identification, location and old and new UIC. (Tell 'em which UIC is which!) They'll take it from there.

Then you just erase or line through the old UIC on your equipment records and write in the new UIC above it.





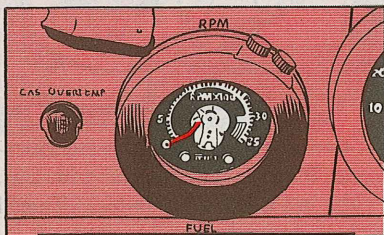
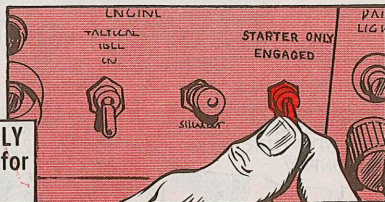
# M1 Tanks... Start and Shut Down ...By-the-Book

The caution is...do it by the TM.  
Shortcuts won't hack it. In fact, shortcuts could cut short your life in combat.

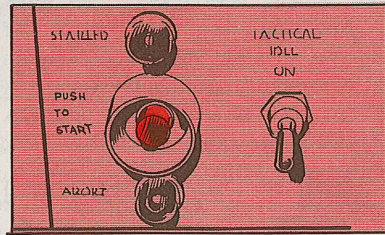
A LITTLE CAUTION IS NEEDED WHEN YOU START AND SHUT DOWN THE M1 ABRAMS...

- Pay attention to the starting instructions and you'll save your starter. If the engine won't start on the second attempt, wait 1 minute.

1. Set and hold the STARTER ONLY switch to the ENGAGED position for 20-30 seconds, then let it go

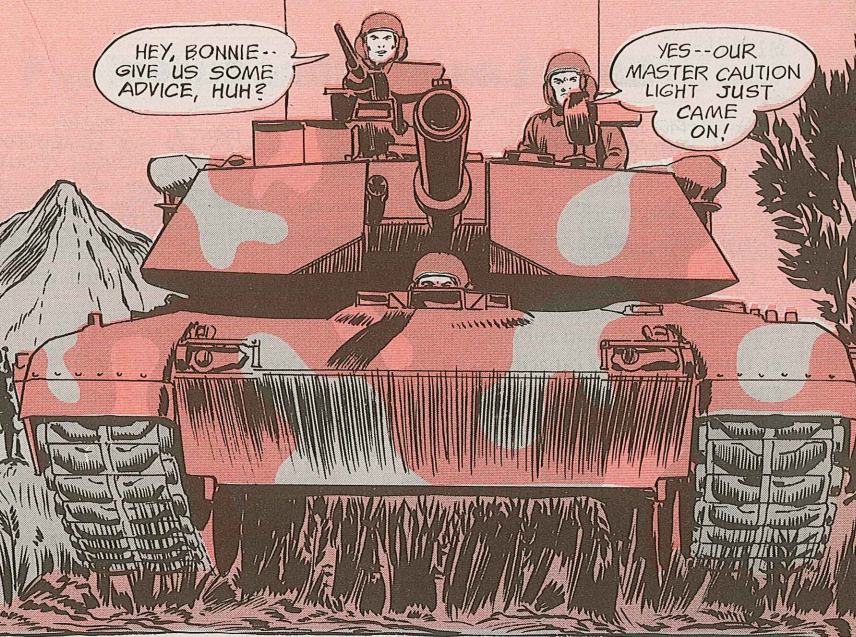


2. Wait until the engine stops turning (RPM gage'll read 0)



3. Press and hold the starter button for 1-3 seconds, then let it go

If the engine still won't start, troubleshoot it. Never grind and grind on the starter. It'll burn up and then you won't start for sure.



HEY, BONNIE-- GIVE US SOME ADVICE, HUH?

YES--OUR MASTER CAUTION LIGHT JUST CAME ON!

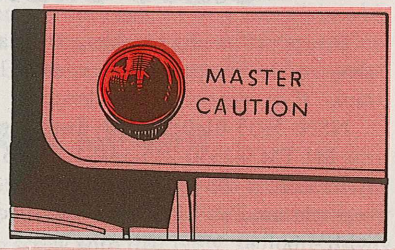
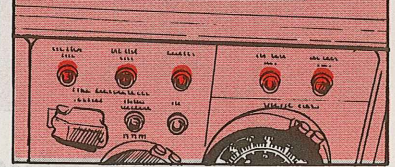
- At shutdown, the name of the game's the same...by the TM. It'll save your engine.

Pay attention to the warning lights for the engine and transmission, as well as the fire light. If any of them are lit, you've got work to do now, not later.

Check the MASTER CAUTION light. If it's lit, see where the problem is on the instrument panel and follow TM instructions to fix it.

But most of all, let that turbine engine idle for 2 minutes before shutdown. None of this "park and cut" stuff, drivers! You're pros. You know that engine needs time to slow down and cool down before it's turned off.

Watch these lights!



ALL OF THIS INFO, AND MORE, IS AVAILABLE TO YOU NOW... IN THE BOOK!  
TM 9-2350-255-10-2, THAT IS!





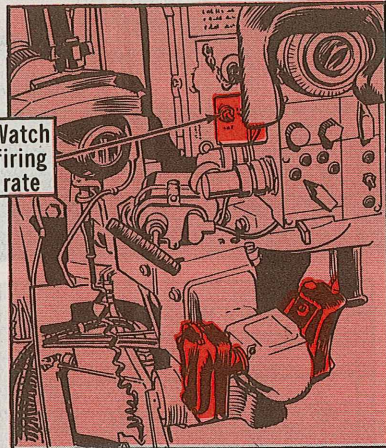
## Lazy Laser Procedures

DID YOU CHECK TH' TM FOR LIMITS ON FIRING LASER PULSES?

ER...

WHEW! GLAD SOMEBODY THOUGHT ABOUT IT!

Firing the laser rangefinder more often than the -10 TM says is just like trying to force 60 watts of stereo power through 30-watt capacity speakers.



Either way, you get busted components.

Pay particular attention to the caution on Page 2-247 of TM 9-2350-255-10-2.

You can overheat and damage the laser if:

- You fire the laser more often than once each 20 seconds in continuous firing.
- You fire more than 4 pulses, with 2 seconds between each pulse, in rapid firing.

Remember—Never fire more than 4 pulses in an 80-second period. In rapid firing, a cool-down period is necessary to make up the 80-second period. Fire your 4 pulses—that takes 8 seconds—then wait 72 seconds before firing again.

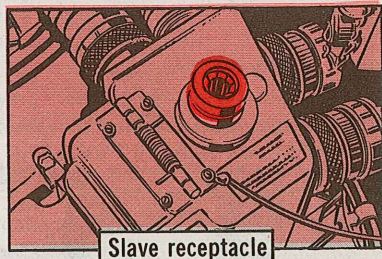
## Slave Cable Receptacle

Is support having trouble getting a slave cable receptacle for your M1 tank? If so, pass this info along.

NSN 5935-01-059-0117, listed in the M1 TM 9-2350-255-34P-1, Fig 63, Item 110, is wrong. That gets a receptacle used on M60's. It's mounted with 4 bolts.

The headshed is working to get the right receptacle, NSN 5935-01-012-9820, in stock, and to correct the pubs.

In the meantime, make a note in your TM.



Slave receptacle

## Fuel, Hydraulic Hookups Critical

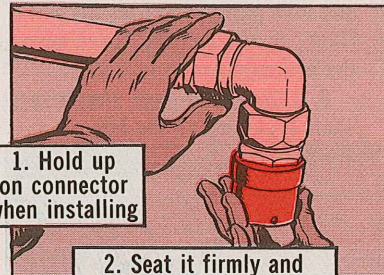
HE WAS THE FASTEST MECH ON POST WITH QUICK DISCONNECTS...

YEAH--TOO BAD HE HAD TO HAVE A SMOKE!

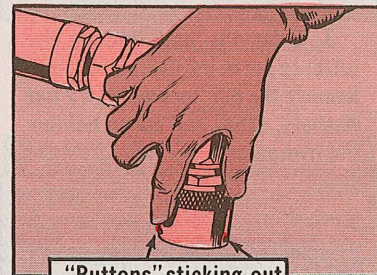
Make a half-hearted attempt when you connect the fuel or hydraulic lines after installing the M1's powerpack and what do you get?

A dangerous situation where either fuel or fluid could be ignited and turn your tank into a 60-ton bonfire.

You mechanics think about that the next time you connect those lines. Be sure the quick disconnects are seated right and turned clockwise as far as they'll go.



2. Seat it firmly and turn clockwise until tight



"Buttons" sticking out tell you it's locked

Get sloppy, and a bum connection can vibrate loose. At best, there'll be a big mess to clean up in the engine compartment. At worst, there'll be an engine-ruining fire that could also be dangerous to somebody's health—even yours.

## Bad Screw Loose

Hex head screw, NSN 5305-01-117-7768, used to attach the sprocket to the final drive hub on M1 tanks, may come in the wrong length. The correct screw is 3½ inches long. If you get a 4-in long screw with that NSN, reorder. Specify in the "remarks" block that only 3½-in screws are acceptable. Then, fill out SF 364, Report of Discrepancy (ROD), and send it to the Defense Industrial Supply Center, Philadelphia, PA 19111.



# Simplified Lubing Process

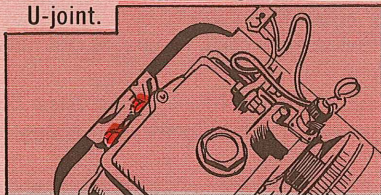
POWER PACK  
PULLING DAYS  
ARE OVER,  
BUDDIES!



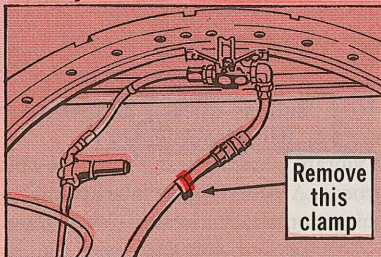
Dear Editor,

I've found an easier way to lube the auxiliary drive U-joint on M578 and M110-series vehicles. You don't have to remove the power pack. Here's how you can do it:

1. Remove the fan well deck cover.
2. Remove the lock wire and 4 bolts securing the magnetic clutch U-joint.

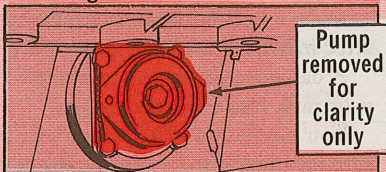


3. Enter the hull through the turret to get to the hydraulic pump. Remove the nut, lock washer, 2 flat washers, screw and clamp holding the hydraulic hose.



Remove this clamp

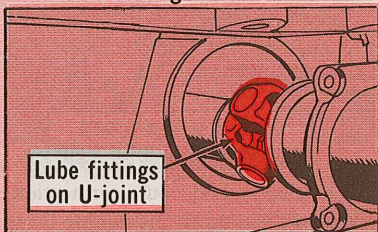
4. Remove the lockwire and 4 screws holding the auxiliary drive bearing unit.



Pump removed for clarity only

5. Pull the bearing unit, pump and shaft partly away from the hull. (Don't disconnect the hoses from the hydraulic pump.)

6. Lube the U-joint and driveshaft according to the LO.



Lube fittings on U-joint

7. To install, just reverse the procedure.

That's all there is to it. It saves about 4 hours and 18 to 20 gallons of coolant.

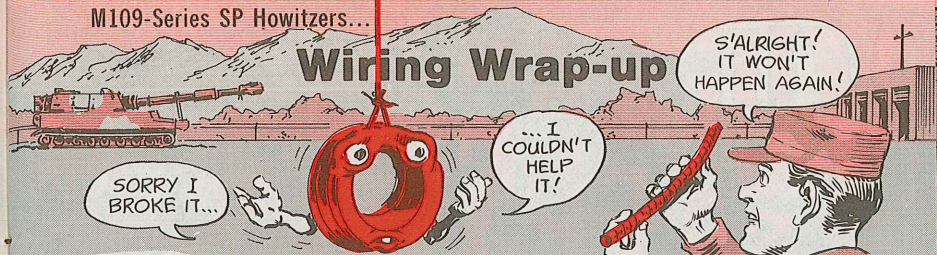
SP4 William R. Wallace  
Ft Polk, LA

(Ed Note—The headshed agrees with your procedure. In fact, the same procedure will be used in the next revision of the M110A2 lubrication order. Be sure to tighten the driveshaft bolts and screws to 78 lb-ft and lock wire 'em when you're finished.)

M109-Series SP Howitzers...

# Wiring Wrap-up

S'ALRIGHT!  
IT WON'T  
HAPPEN AGAIN!

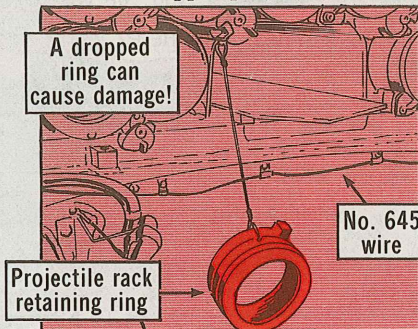


Are dropped projectile rack retaining rings causing a lot of damage to your howitzer's No. 645 wiring harness? Like, "cutting" into your weapon's readiness?

You mechanics can solve the problem and cut out some maintenance downtime by wrapping the harness with plastic tubing.

Use NSN 9330-00-130-2751 to get spiral wrap plastic tubing. Use 61 inches to wrap the harness wherever retaining ring damage can occur.

A dropped ring can cause damage!



No. 645 wire

Projectile rack retaining ring

?

M88/M88A1 Recovery Vehicles...

# Snatch Block Danger!

HOLD ON,  
FELLAS...  
HELP IS  
HERE!



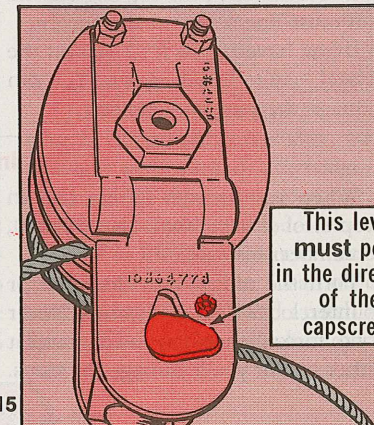
You M88-type crewmen need to beat feet right now to your vehicle and carefully inspect your 25-ton snatch block.

See if there's a hole already drilled and tapped for a screw. If there is, make sure the cap screw, NSN 5305-00-269-2798, is in place.

Without the screw, the hinge can open when there's no load on the block and let the block fall. If someone's under it, bad news.

Call your mechanic if there's no hole in the block. He can drill and tap a 3/8-24 UNF-2A hole and you can order the screw.

Do it now. Don't wait for the fall. And don't use the 25-ton snatch block until the screw is installed.



This lever must point in the direction of the capscrew!



# VULCAN STEPS

Changing the radar frequency on the AN/VPS-2 radar set of your M163A1 and M167A1 Vulcan systems can be quick and easy...or a botch.

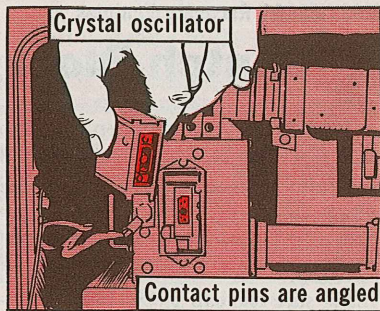
IT DEPENDS ON HOW YOU USE YOUR HANDS AND EYES...

## Line Up Contact Pins

For instance, when you reach Step 7 of Para 3-16 of your M163A1 operator TM or Para 3-17 of your M167A1 TM, eyeball the crystal oscillator before you try to plug it into its socket on the I-band oscillator.

The 4 contact pins are angled, and you must line them up right to fit.

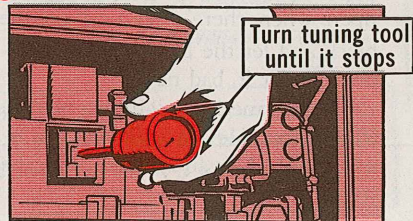
If you have to use force to seat the crystal, you're upside down. You can damage the pins and contacts.



## Tuning Tool

When you use the tuning tool in Step 11 of either system (same paras), remember this caution:

Turn the tuning tool clockwise or counterclockwise until it stops. Never try to force the tool beyond the stop at either end or you'll damage the stops.



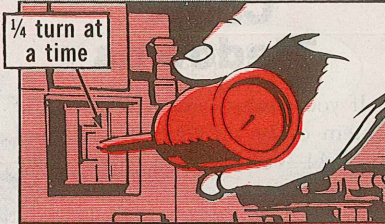
? IT'S VULCAN...

HEY, VULC, WE CAN USE HELP!

## Cavity Tuning

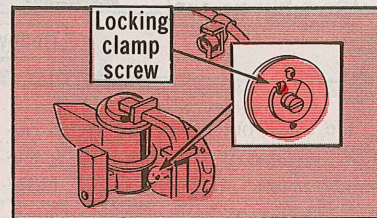
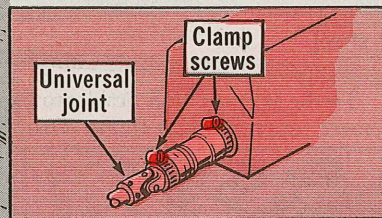
In Step 12, after you adjust to channel 3, keep this thought for the next adjustment.

Do not turn the tuning tool more than 1/4 turn at a time when you adjust cavities 1, 2, 3 and 5 for the new operating frequency.



## Clamp Screws

When you do Steps 32 and 33 in boresighting either the M163A1 or M167A1 by target method, be sure to tighten the clamp screws called out in your TM's.

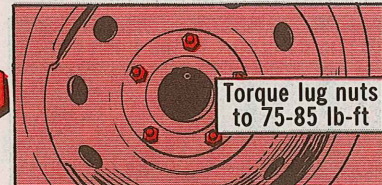


Same goes for Steps 29 and 30, distant aiming point method.

Loose clamps allow radiation leakage and signal loss.

## M167A1 Lug Nut Torque

The lug nut torque for the dual wheels of your M167A1 Vulcan is 75-85 lb-ft for both the inner and outer wheels.



The word will be along in a change to TM 9-1005-286-10. Meanwhile, to keep the wheels on your rig, make the lug nut torque a part of your PMCS checks.

## M16A1 Gas Tube PM



Too much leakage in the gas tube of your M16A1 rifle causes short recoil (the bolt won't pick up a cartridge). In that case, DS repair is needed. Carbon build-up or discoloration, described on Page 22 in PS 356, does not make the gas tube unserviceable. Clean off carbon residue with CLP and a patch, and forget discoloration anywhere on the tube.



## Cable Tiedowns

If you don't tie them down, radar system cables on your M163A1 and M167A1 Vulcans drag, snag, shake and break.

When loose cables snag, they damage connectors, plugs, people...and the things that people carry.

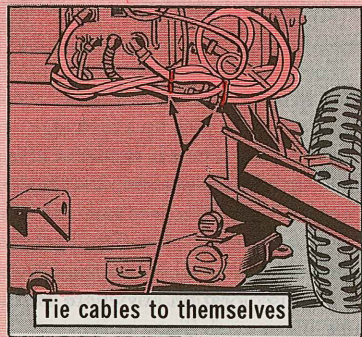
### So what to do?

#### Tiedown strap

Tie them out of the way with tie-down straps. If you don't have the handy plastic straps (like 7-in NSN 5975-00-074-2072), use strong twine, rope or even tape. The idea is to keep the cables out of the way.

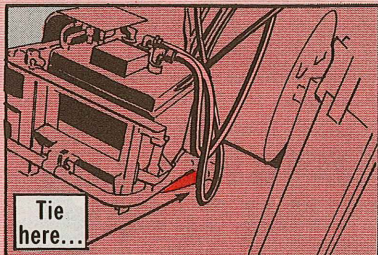
Be extra careful with the Unit 2 (RT) cables on both Vulcan systems. Those, and the Unit 5 (power supply) cables on the M163A1, stick out like a sore thumb.

Tie the M167A1 cables to themselves. That usually keeps them clear.



Tie cables to themselves

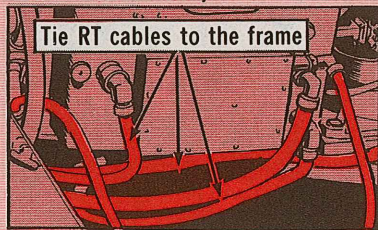
Tie the M163A1 Unit 5 cables to the power supply support frame. That'll



Tie here...

keep them away from anyone working on or near the ammo drum.

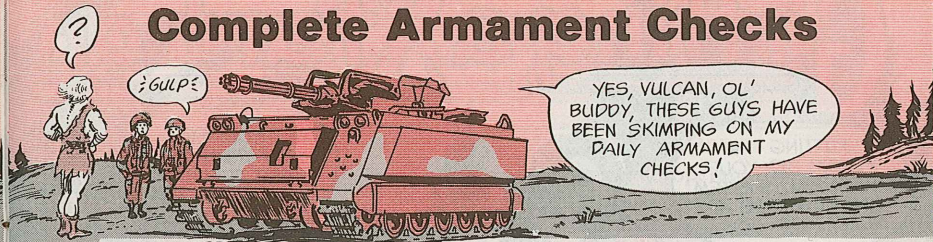
You can also tie the base of the RT cables to the battery frame.



Tie RT cables to the frame

Tie any cable that invites snags to a non-moving, safe anchor. Pick the anchor carefully.

## Complete Armament Checks



?  
:GULP:

YES, VULCAN, OL' BUDDY, THESE GUYS HAVE BEEN SKIPPING ON MY DAILY ARMAMENT CHECKS!

When you perform armament system checks, do all of Step 1, Table 3-2.

3-13. Table 3-2 includes all the checks necessary to prove the system operational. Set up the Precheck Conditions of step 1 then perform the checks in sequence as listed.

Table 3-2. Daily Armament System Check

CHECK	NORMAL INDICATION	IF INDICATION IS ABNORMAL
<b>1. PRECHECK CONDITIONS</b>		
Arming connector	removed	CAGED
Sight caging knob	OFF	500
SYSTEM POWER	OFF	300
GUN POWER	500	AUTO
RANGE in meters	300	MAN
TARGET SPEED in knots	AUTO	
GUN CLEAR	MAN	
MODE		

THE STEP 1 PRECHECK CONDITIONS IN TABLE 3-2 OF TM 9-1005-286-10 AND TM 9-2350-300-10 ARE IMPORTANT TO THE SYSTEM CHECKS!

B'LIEVE IT!

Never skip or ignore parts of the procedure. Each step is important in checking whether the overall system is operational. It's better to locate problem areas before the load hits the road...right?

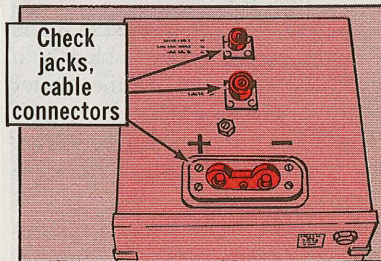
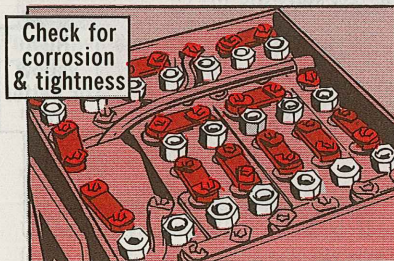
### Battery Check

Your M163A1 PMCS doesn't call for it, but you can add mission insurance in your daily before-operations check if you eyeball your nickel-cadmium batteries.

Check the connectors and clean off any corrosion.

Be sure connectors are tight.

Check and clean, if necessary, cable connectors and jacks.





# Getting a Start on Your Chaparral



PUTTING THE POWER TO YOUR CHAPARRAL SYSTEM CAN GIVE YOU A SURGE OF JOY...

...OR THE AGONY OF DEFEAT...

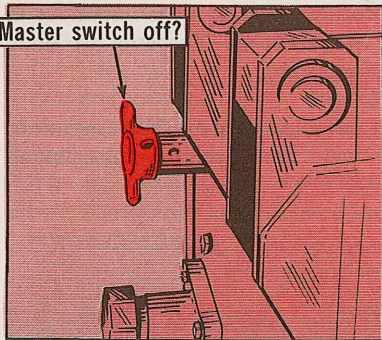
...LIKE SO...

HEY-- THAT CABLE'S MASHED!

NO WONDER! YOU DIDN'T KEEP IT CLEAR OF TH' DOOR!

When you slave start from the vehicle to the launching station, be sure the master switch in the carrier cab is OFF before making a cable connection.

Master switch off?



Connect the W39 slave cable at both ends...and then turn on the master switch for slave starting.

If you don't the connections will arc and you may have to have the slave receptacle replaced.

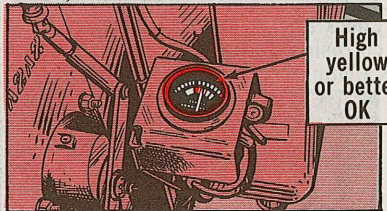
As soon as the MPU starts, remove the slave cable.

## MPU Use

Never start the main power unit (MPU) on low batteries to operate the launching station.

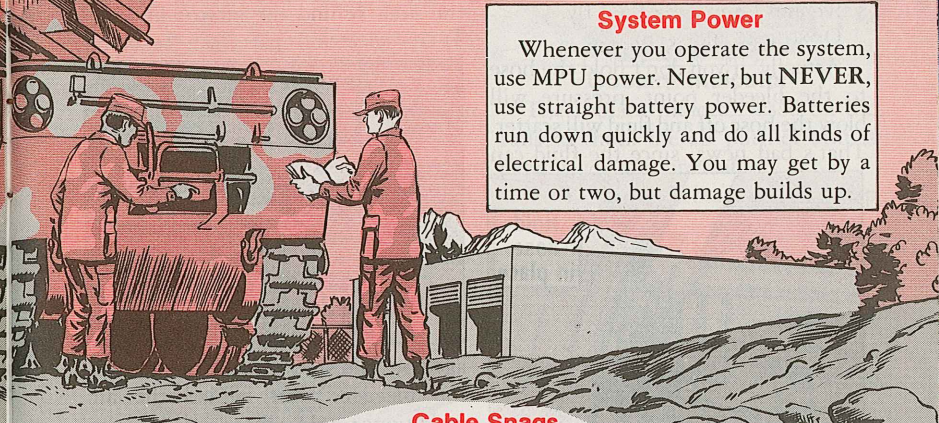
If you do, you'll kiss the generator set control box (GSCB) goodbye, right now or soon. The GSCB can be burned out from low-charge batteries. You'll damage the batteries, too.

Before you start the MPU, eyeball the charge meter on the inside of the rear electrical compartment door. If the meter reads in the high yellow or better, start the MPU.



High yellow or better OK

If it doesn't, slave start the MPU from the vehicle.

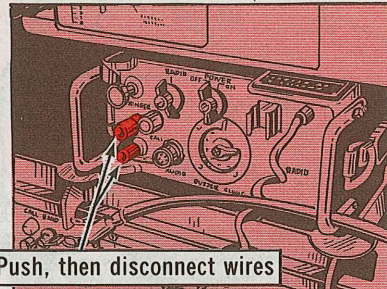


## System Power

Whenever you operate the system, use MPU power. Never, but NEVER, use straight battery power. Batteries run down quickly and do all kinds of electrical damage. You may get by a time or two, but damage builds up.

## Cable Snags

When you disconnect the telephone wires from your AN/GRA-39 local or remote control units, push down the LINE binding posts first. Then, pull the wires free.



Push, then disconnect wires

Some troops yank first and pick up the pieces later. Posts are damaged. Wiring is damaged. The GRA-39 is damaged.

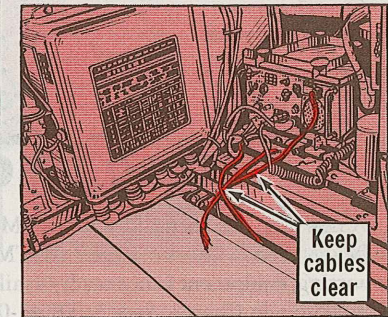
Push down. Then pull.

Other commo cables take a beating from the rear electrical compartment

door. Troops disconnect cables for various reasons. They dangle through the door or on the launch platform frame where the door can pinch them.

When the door is closed by wind, rain or people, the cables get crunched...and usually have to be replaced. It's expensive...and frequent.

Keep cables clear of the door. When you close it, first be sure the cables are clear.



Keep cables clear

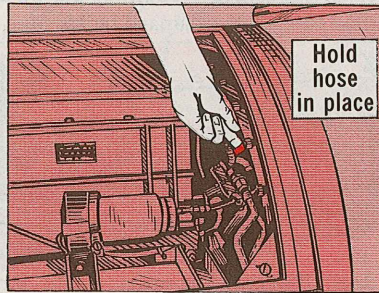


## Hydraulics

Bleeding hydraulic fluid from the system is as simple as attaching a hose to a bleeder point, turning the bleeder valve and letting the fluid fly.

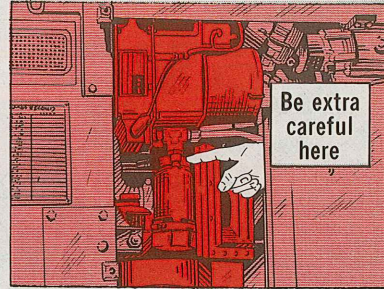
Or so it would seem.

Actually, if you don't hold the hose to the bleeder point, pressure will blow the hose off and fluid will scatter. That's bad news, since the fluid can



damage cable assemblies, rubber hoses and other parts.

You've got to be extra careful with the area behind the air conditioner. Turret electrical parts can be dam-

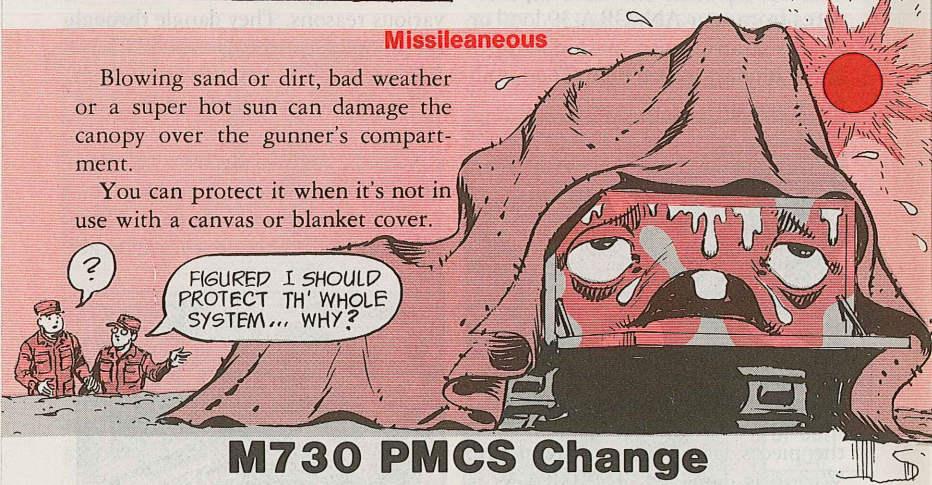


aged by fluid spray. Install the hose on the bleeder point behind the air conditioner, hold it there and bleed the fluid.

## Missileaneous

Blowing sand or dirt, bad weather or a super hot sun can damage the canopy over the gunner's compartment.

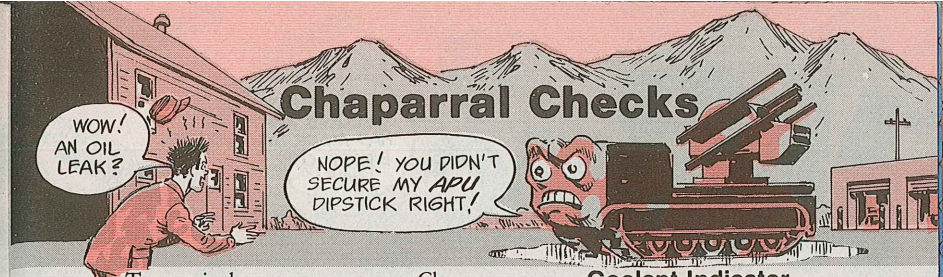
You can protect it when it's not in use with a canvas or blanket cover.



## M730 PMCS Change

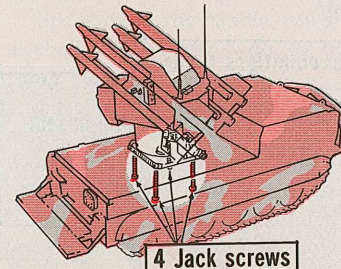
A new step has been added to the PMCS on your M730 Chaparral carrier. It's to be included in Check 6, Page 2-21, TM 9-1450-585-10, like so: "For readiness reporting, equipment is not ready/available if: engine fails to start in neutral." The word's in Chap 3, Sect 3, TB 43-0001-39-4 (Jan 83).

## Chaparral Checks

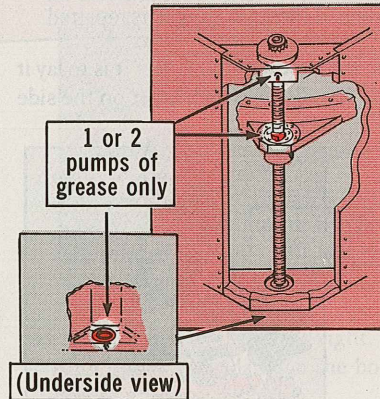


Turret jack screws on your Chaparral missile system can be victims of too much or too little grease.

Like, 1 or more of the 4 jacks may be ignored during lubrication. The jack binds, and the turret fails.



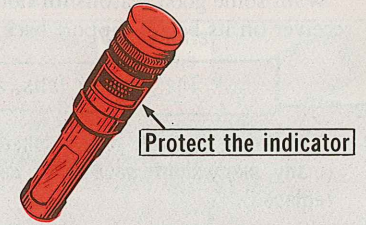
Also, too much lube can put enough pressure on the jacks to hamper turret operation. Best bet is to give each jack 1 or 2 pumps of grease...and quit. Don't force the grease into the fitting.



## Coolant Indicator

The coolant indicator used on the rails to check the air purifier unit is expensive...and breakable.

When you're through with it, wrap

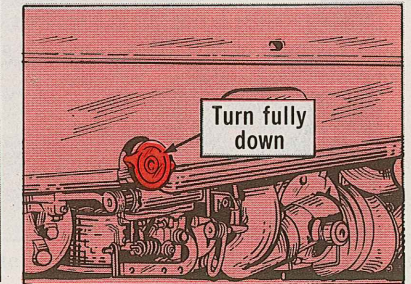


it in foam rubber, newspaper or whatever and stow it in a safe spot in the crew equipment compartment.

Never, but never, stash it in your tool bag. It'll break. Each indicator costs \$760...a very expensive break!

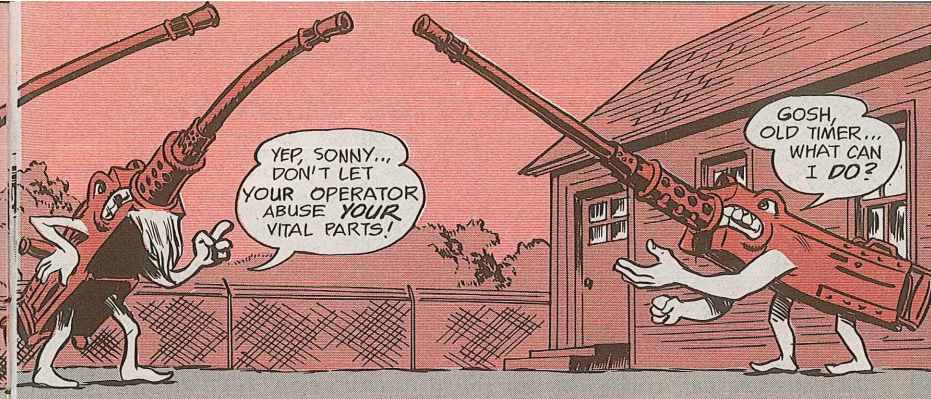
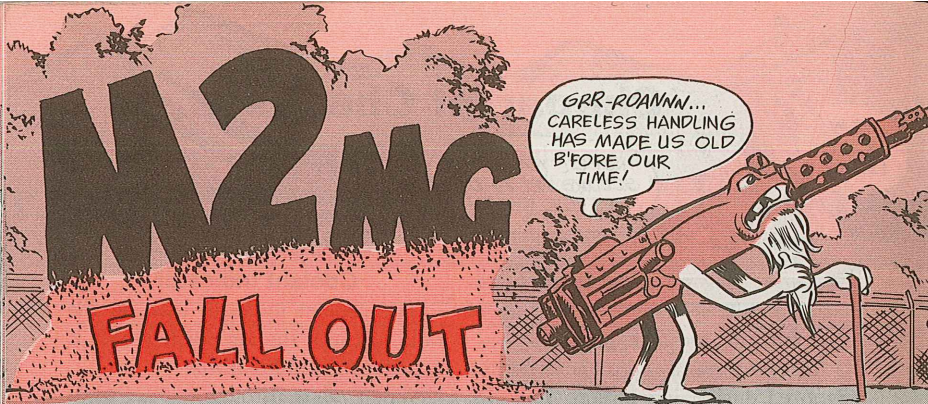
## MPU Dipstick

After you check the oil on your main power unit (MPU), be sure to screw



the dipstick all the way in. Otherwise, oil will blow out past the dipstick.



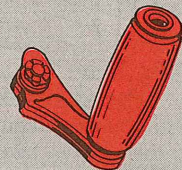


Want some good reasons for not storing or stacking your M2 machine gun receiver on its barrel support backplate end?

- The receiver falls, as it has countless times.

- The rear sight gets mashed (many, many sights have had to be replaced).

- The retracting handle assembly breaks.

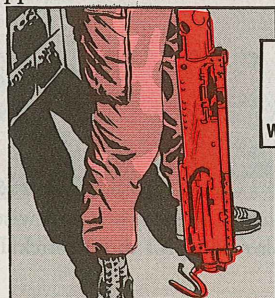


Falls result in cracked sights... and broken handle assemblies

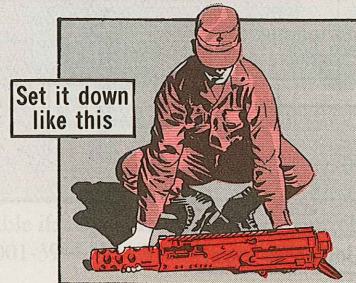
- Other, even more expensive, parts are broken.

- You're out of business with any of them till the gun is repaired.

If the receiver is not put in a secure rack, the best way to protect it is to lay it on its bottom or side. If yours has the slide handle installed, lay it on the side opposite the handle.



No!  
Not  
this  
way...



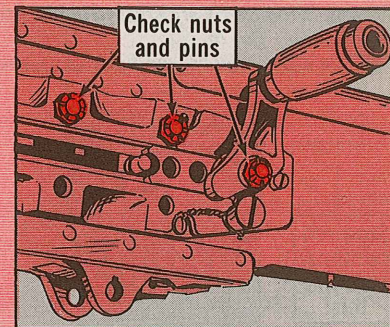
Set it down  
like this

### Retracting Slide Handle

Speaking of the handle, you should eyeball the slotted nut on the handle lever before the gun is fired.

Be sure the nut is snug and the cotter pin is fully seated and secure. Cotter pin ends must go through a slot in the nut and be bent around the nut. Same goes for the other slotted nuts on the retracting slide assembly.

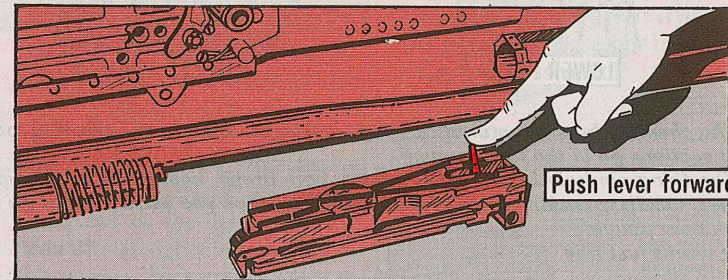
That'll save the gun and gunner some grief.



### Cocking Lever

Cleaning, lubing or repairing the bolt assembly?

Be sure the cocking lever is forward before you install the bolt in the receiver.



Otherwise, your gun won't operate and you'll have to get your armorer to remove and install the bolt right.

You might even damage the bolt.



# Accessories Storage

'S IN THE BAG...

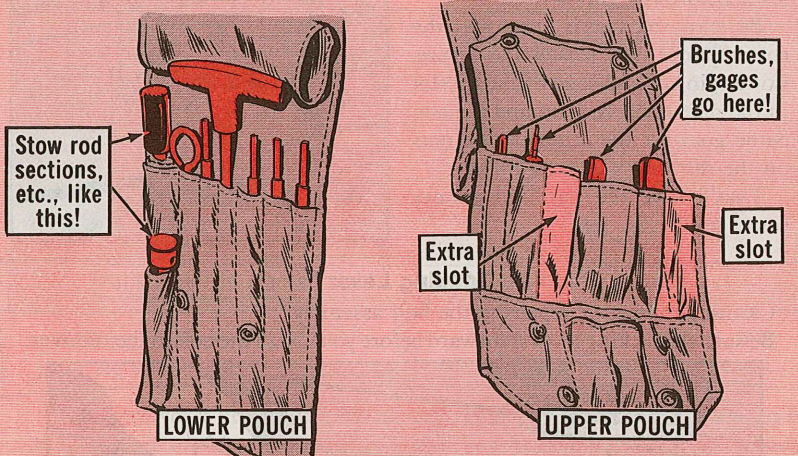
YEAH - BUT YOU DIDN'T MATCH THE ITEMS TO THE POCKETS!

Dear Editor,

M2 machine gun accessories are stored in case, NSN 1005-00-921-5821... somehow.

Since there's no word on how to do it, some case pockets get crammed, wrong-sized items are stuffed in slots too small or too large for them, and some items don't get in.

Here's the way to use both case pockets to prevent jamming and damage:



The chamber brush, ruptured cartridge extractor, M4 and M7 cleaning rods and sections go in the lower pouch.

The firing pin hole brush, swab holder, bore brush, headspace and timing gages, auxiliary cocking handle, spare parts envelope and extra patches go in the upper pouch.

It works just fine.

SP4 Jeffrey H. Simonson  
Fort Stewart, GA

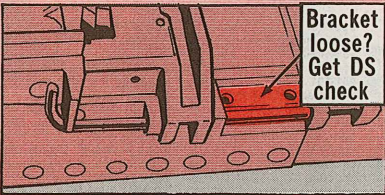
(Ed Note—Thanks for the tip.)

# Loose Rivets?



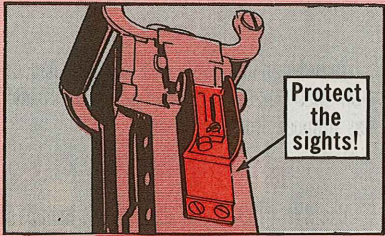
If you can move the belt-holding-pawl bracket of your M2 machine gun up and down, the rivets are too loose.

A loose bracket can cause a feeding malfunction. So, if it's loose, have your direct support check out the rivets.



## Sight Seeing

Ever try to sight-in an M2 with the front sight cover bent in and the rear sight guards bent to where they almost touched each other?



Rather frustrating, to say the least! Sights are bent in various ways: The gun is dropped or thrown; it is stood on end and falls; it is snagged or banged against steel or concrete, and so on. Much of it can be prevented.

The point is, the demand for replacement rear sights has drained the supply system. Back orders are common. No sights...no guns. So, you gunners need to protect those sights at all times.

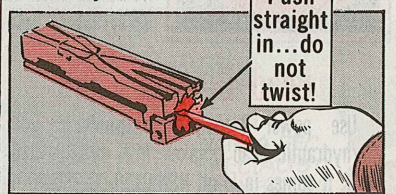
# Bolt Tips

To avoid jamming cleaning patches in the firing pin hole of your M2 machine gun bolt, try this:

- Trim the patch to a 3/4-in square.
- Apply CLP and work the cleaning rod and patch straight into and out of the firing pin hole.



- Do not twist or spin the patch in the hole. That can bend the swab holder or knot the patch...either of which jams it.



- If, despite precautions, you still jam a patch, turn the gun in to your direct support unit. Trying to get it out with makeshift tools can ruin an expensive bolt.

You may spot dents and pits on the bolt face. If the dents interfere with feeding and ejection, ask your armorer to check it out.





# PUBS

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

## Technical Manuals

TM 9-1010-224-20&P Dec 81 Launcher, projectile, 64-MM; Riot control, M234  
TM 9-6920-675-14&P Jan Viper tracer bullet trainer with 7.62-MM tracer bullets

TM 10-3930-634-20P Nov Truck, forklift, diesel engine driven; pneumatic, tired wheels, rough terrain; 6,000-lb capacity  
TM 11-5820-553-23P Apr Radio set, AN/PRC-70  
TM 11-5895-808-23P Feb Satellite communications set, AN/USC-28 (V)  
TM 55-2835-205-23 Mar Gas turbine engine, Mod T-621-23  
TM 55-2840-254-23P Mar Engine, gas turbine, T55-L-712

## AUDIO-VISUAL STUFF

Available at battalion or post Learning Center

### Films, TV Tapes

TF (VT) 20-6275 Driving for the Army - A Job for Professionals

### TEC Lessons

043-061-6712-A Inspect operator maintenance on the Lance tripod hoist  
043-061-6713-A Inspect operator maintenance on the M687 carrier  
043-061-6714-A Inspect operator maintenance on the Lance loader transporter handling unit  
043-061-6719-A Perform daily FM checks and services on Lance laying equipment  
043-061-6720-A Inspect

operator maintenance on Lance launch fixture  
551-101-8372-A Preparation of the M3A1 submachine gun  
551-101-8373-A Disassembly and assembly of the M3A1 submachine gun  
551-101-8374-A Cleaning and lubricating the M3A1 submachine gun  
551-101-8375-A Trouble-shooting the M3A1 submachine gun  
551-101-8376-A Preventive maintenance on the M3A1 submachine gun  
551-101-8379-A Preparation of the M60 machine gun  
551-101-8380-A Disassembly and assembly of the M60 machine gun

551-101-8381-A Cleaning and lubricating the M60 machine gun  
551-101-8382-A Trouble-shooting the M60 machine gun  
551-101-8383-A Preventive maintenance on the M60 machine gun  
600-011-6626-F UH-1H tail rotor removal and installation  
600-551-9806-F Replace AH-1S main drive shaft  
600-551-8829-F Remove AH-1S main transmission  
662-091-7700-A Perform semi-annual PMCS, 5-KW GED generator set  
662-091-7755-A Perform semi-annual PMCS, 60-KW DED generator set.

## Bead Breaker Fluid

Use power transmission fluid in your air/hydraulic bead breaker, NSN 4910-01-015-7667. It comes in 1/2-pt, NSN 9150-00-290-4091, and 5-gal, NSN 9150-00-261-8317, containers. The 1/2-pt NSN's not on the AMDF. Get it with a DD Form 1348-6. RIC is S9G and the price is \$1.62.

## Small Arms Storage PM

When your TM's call for maintenance on small arms stored for "an extended period of time," the phrase means stored in the arms room and not used for 90 days.

## Keep Canteen Cap

When you put the M1 canteen cap for your M17A1 mask on your canteen, stash the regular cap in your mask carrier. You'll need it when you turn in the mask and M1 cap.

## CW-206 Bag

To order an installation kit accessory bag, use NSN 5820-00-200-2329. NSN 5820-00-497-9644 has dropped from the system.

## M149 Pipe Tee

Use NSN 4730-00-247-3206 to get Item 51 in Fig 16, TM 9-2330-267-14&P. The number on Page 25 in PS 355 is wrong.

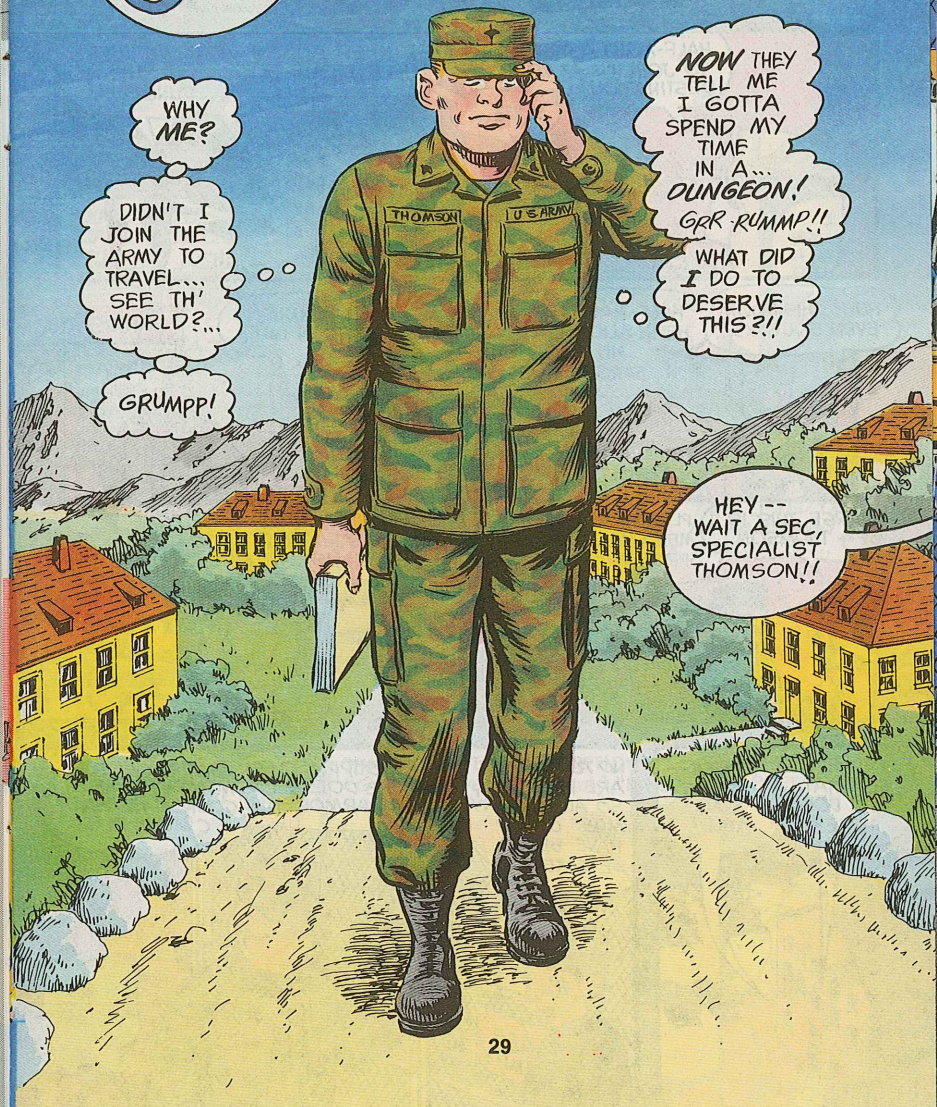
## Camouflage Hotline

Need a camouflage pattern for equipment not listed in TB 43-0118, TB 43-0209, TB 43-0147 or TB 746-95-1? Call the CAMOUFLAGE HOTLINE at AUTOVON 354-2654, or send a letter to:

Commander  
USA MERADCOM  
ATTN: DRDME-XDA  
Ft Belvoir, VA 22060

# PM Stories

## So YOU're the New Armorer...



WHY ME?

DIDN'T I JOIN THE ARMY TO TRAVEL... SEE TH' WORLD?...

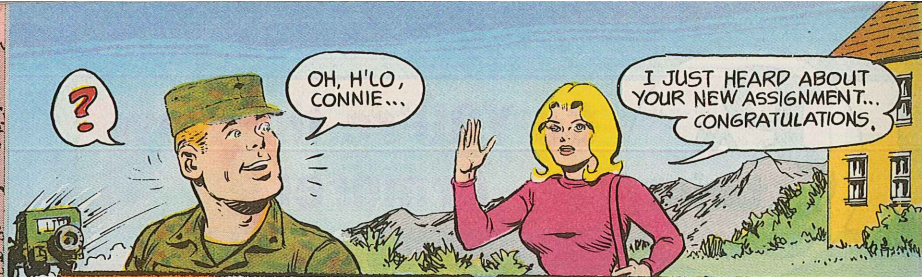
GRUMPP!

NOW THEY TELL ME I GOTTA SPEND MY TIME IN A... DUNGEON!  
GRR-RUMPP!!

WHAT DID I DO TO DESERVE THIS?!!

HEY -- WAIT A SEC, SPECIALIST THOMSON!!

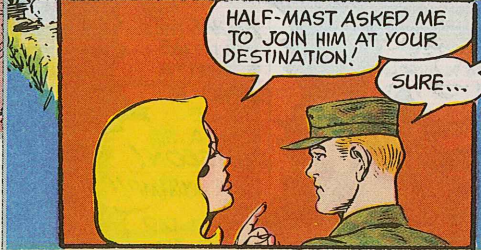




?

OH, H'LO, CONNIE...

I JUST HEARD ABOUT YOUR NEW ASSIGNMENT... CONGRATULATIONS.

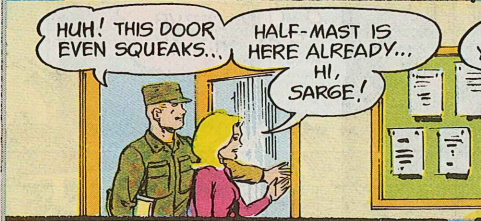


HALF-MAST ASKED ME TO JOIN HIM AT YOUR DESTINATION!

SURE...



I NEED ALL THE HELP I CAN GET... DOWN THERE IN THE DUNGEON!



HUH! THIS DOOR EVEN SQUEAKS...

HALF-MAST IS HERE ALREADY...

HI, SARGE!

MORNING, CONNIE! YOU'RE RIGHT ON TIME!

ARMS ROOM



SARGE, THIS IS SP4 THOMSON...

PLEASED T' MEETCHA, SERGEANT!

LIKE-WISE!

SO YOU'RE THE NEW COMPANY ARMORER, SPECIALIST.

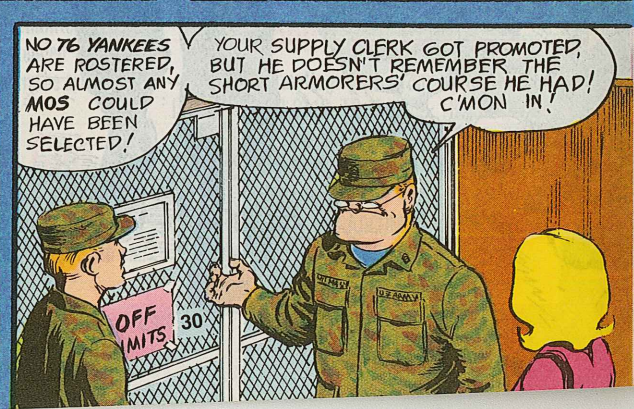
WELCOME TO THE DUNGEON!

YOU'RE AN 11 BRAVO, RIGHT?



RIGHT! SO WHAT AM I DOIN' HERE?

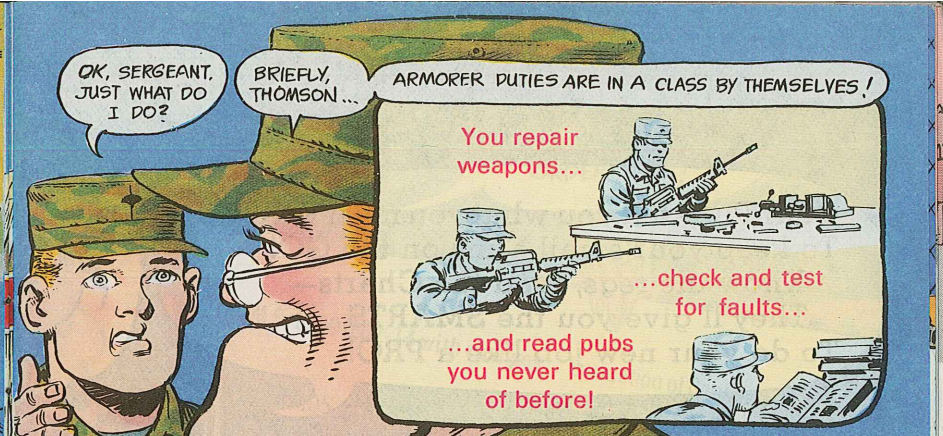
SIMPLE-- YOU'RE AVAIL-ABLE!



NO 76 YANKEES ARE ROSTERED, SO ALMOST ANY MOS COULD HAVE BEEN SELECTED!

YOUR SUPPLY CLERK GOT PROMOTED, BUT HE DOESN'T REMEMBER THE SHORT ARMORERS! COURSE HE HAD! C'MON IN!

OFF LIMITS 30



OK, SERGEANT, JUST WHAT DO I DO?

BRIEFLY, THOMSON...

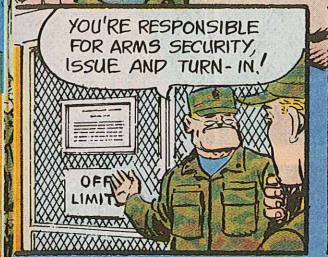
ARMORER DUTIES ARE IN A CLASS BY THEMSELVES!

You repair weapons...



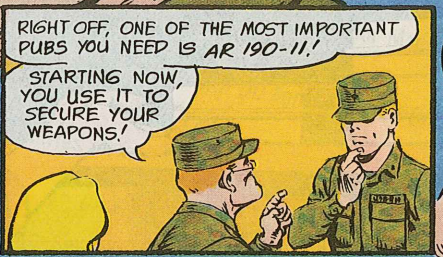
...check and test for faults...

...and read pubs you never heard of before!



YOU'RE RESPONSIBLE FOR ARMS SECURITY, ISSUE AND TURN-IN!

OFF LIMITS



RIGHT OFF, ONE OF THE MOST IMPORTANT PUBS YOU NEED IS AR 190-11!

STARTING NOW, YOU USE IT TO SECURE YOUR WEAPONS!

I BROUGHT A COPY FOR YOU!

AR 190-11



CHECK THE PUBS THE LAST ARMORER LEFT!



YOU'LL NEED THE LATEST TM'S ON EVERY WEAPON YOUR COMPANY HAS!

YOU'LL FIND THE TM'S LISTED ON DA PAM 310-1 MICROFICHE...



... AND THAT'S WHERE YOUR SUPPLY CLERK CAN HELP!

MICROFICHE AND A VIEWER USUALLY ARE IN THE SUPPLY AREA!



TM'S ARE LISTED ALPHABETICALLY: "Gun," "Machine," "Pistol," "Rifle," AND SO ON...

MAKE A LIST, INCLUDE DATES, AND GIVE IT TO YOUR BATTALION PUBS CLERK TO ORDER!

31



HERE'S A POSTER FOR YOU ON PUBS...



Your Pubs tell you what you must **KNOW**  
To keep your small arms on the **GO!**  
Know the regs, read the Charts—  
They'll give you the **SMARTS**  
To do your new job like a **PRO!**

HERE'S A LIST OF SOME IMPORTANT  
PUBS YOU'LL NEED!...  
ORDER THEM!

- TM 9-1000-202-14 with changes, Evaluation of Cannon Tubes (a must for mortars, recoilless rifles, etc.)
- TM 9-1005-245-14, Maintenance, Repair Parts for Machine Gun Ring Mounts
- TM 38-750 (A must. Get familiar with DD Form 314 and DA Forms 2404 and 2408-4 soonest).
- TB 43-0001-36-series (Armament Command maintenance digest. Your pubs clerk can get it by checking Block c-14, DA Form 12-34c (Aug 79)
- TB 43-0196 Gage Calibration
- CTA 50-900, 50-970, Common Tables of Allowances (for some weapons' accessories)
- Field Manuals (Such as FM 23-9, 23-67, on weapons you maintain; good supplemental info, all listed on DA Pam 310-1 microfiche)
- DA Pam 710-2-1 (Jan 82) and DA Form 3749, info and form for weapons' sign out.

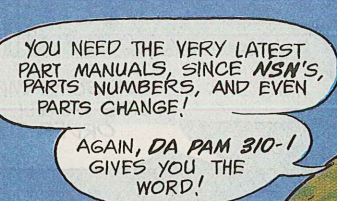
**WE HAVE THE WORLD'S BEST** ... *Take care of it*

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



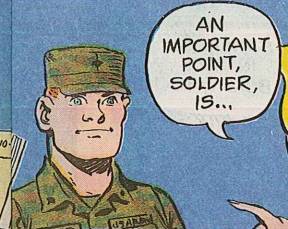


HERE'S A BIG ONE, THOMSON...

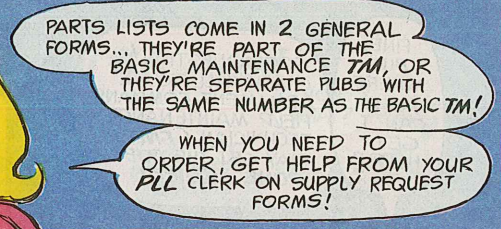


YOU NEED THE VERY LATEST PART MANUALS, SINCE *NSN*'S, PARTS NUMBERS, AND EVEN PARTS CHANGE!

AGAIN, *DA PAM 310-1* GIVES YOU THE WORD!



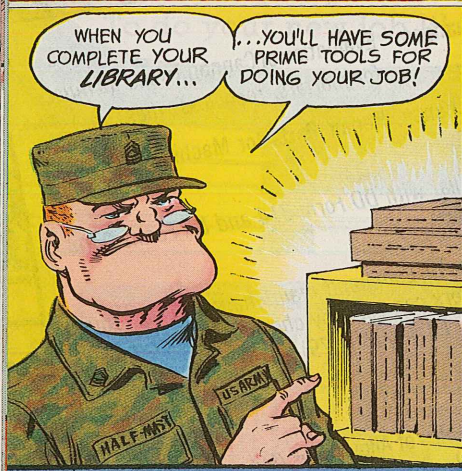
AN IMPORTANT POINT, SOLDIER, IS...



PARTS LISTS COME IN 2 GENERAL FORMS... THEY'RE PART OF THE BASIC MAINTENANCE *TM*, OR THEY'RE SEPARATE PUBS WITH THE SAME NUMBER AS THE BASIC *TM*!

WHEN YOU NEED TO ORDER, GET HELP FROM YOUR *PLL* CLERK ON SUPPLY REQUEST FORMS!

# Maintenance



WHEN YOU COMPLETE YOUR *LIBRARY*...

...YOU'LL HAVE SOME PRIME TOOLS FOR DOING YOUR JOB!



... BUT YOU'VE GOT TO READ AND USE THOSE *TMs*... AND GET AS MUCH HANDS-ON EXPERIENCE AS YOU CAN!

HMMM... SOUNDS LIKE THIS JOB IS NOT GOING TO BE TOO TOUGH!



DON'T BET ON IT, SOLDIER! YOU'RE GONNA HAVE PROBLEMS, *Tm*'S OR NO, AND THAT'S WHEN YOU SHOULD THINK *MAIT*!

B-BUT I DON'T EVEN HAVE A STEADY GIRL FRIEND...



HA, HA! *MAIT* IS AN ACRONYM FOR MAINTENANCE ASSISTANCE AND INSTRUCTION TEAM, SPEC...

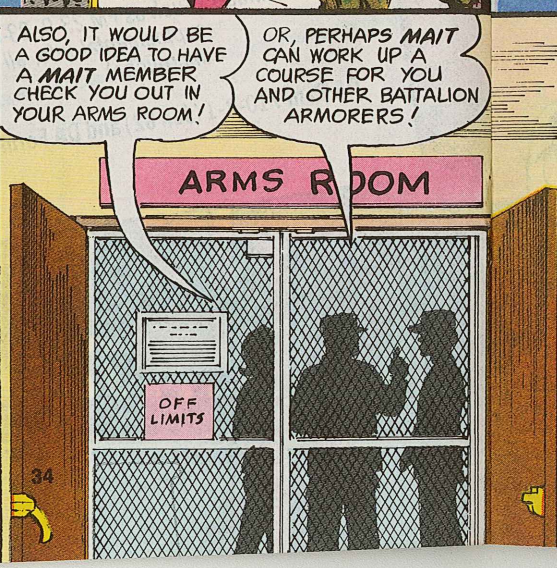
YOUR LOCAL *MAIT* IS IN THE POST PHONE BOOK UNDER EITHER *DIVISION 64* OR *DIO* (DIRECTOR OF INDUSTRIAL OPERATIONS)!

WHEN?



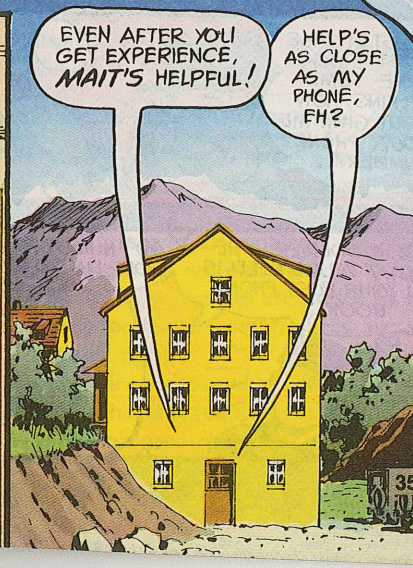
FIND OUT IF A *MAIT* ARMORER'S COURSE IS COMING UP!

IF ONE IS, ASK YOUR SUPERVISOR TO GET YOU IN!



ALSO, IT WOULD BE A GOOD IDEA TO HAVE A *MAIT* MEMBER CHECK YOU OUT IN YOUR ARMS ROOM!

OR, PERHAPS *MAIT* CAN WORK UP A COURSE FOR YOU AND OTHER BATTALION ARMORERS!



EVEN AFTER YOU GET EXPERIENCE, *MAIT*'S HELPFUL!

HELP'S AS CLOSE AS MY PHONE, FH?



YOU GOT IT, THOMSON!

AND DON'T OVERLOOK THE LOCAL LOGISTIC ASSISTANCE OFFICE (*DARCON LAO*)... YOUR UNIT CAN REQUEST HELP FOR YOU!



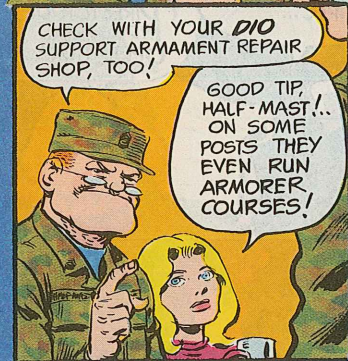


FINE, BUT WHERE ELSE CAN I GET HELP?

GOOD QUESTION! A QUICK CALL TO AN ARMAMENT COMMAND FIELD MAINTENANCE TECHNICIAN (FMT) MAY GET THE JOB DONE... QUICK!

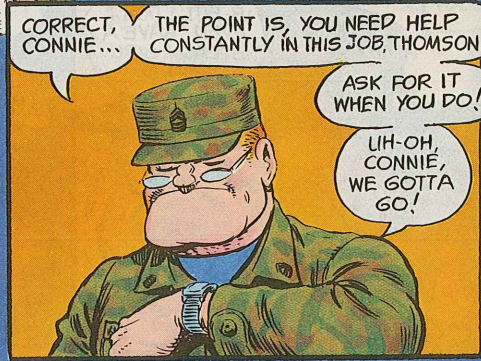


RIGHT, SARGE! THEY'RE IN THE PHONE BOOK, TOO!



CHECK WITH YOUR *DIO* SUPPORT ARMAMENT REPAIR SHOP, TOO!

GOOD TIP, HALF-MAST!... ON SOME POSTS THEY EVEN RUN ARMORER COURSES!



CORRECT, CONNIE...

THE POINT IS, YOU NEED HELP CONSTANTLY IN THIS JOB, THOMSON!

ASK FOR IT WHEN YOU DO!

UH-OH CONNIE, WE GOTTA GO!



OH, YES-- THEY'RE EXPECTING US OVER AT THE 369th INFANTRY!

GOOD LUCK, SPECIALIST-- YOU'LL NEED THAT, TOO!

THANKS, SERGEANT!

ER... CONNIE...

LET'S GO!



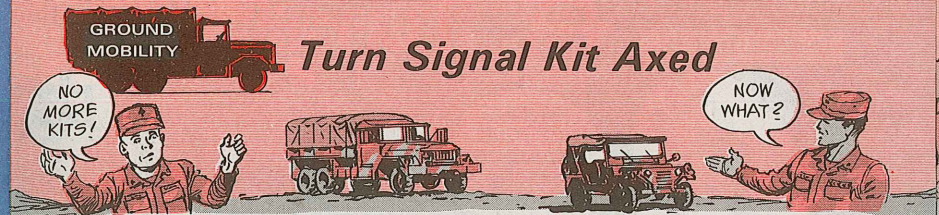
...JUST IN CASE I GET STUCK HERE SOME EVENING, HOW 'BOUT GIVIN' ME YOUR PHONE NUMBER?...

?



SORRY, SOLDIER... THE *MAIT* YOU'LL NEED IS IN YOUR POST PHONE BOOK...

MY NUMBER IS OFF LIMITS!



GROUND MOBILITY

## Turn Signal Kit Axed

NO MORE KITS!

NOW WHAT?

Forget about ordering signal kit, NSN 2590-00-050-8821, for trucks. It's no longer available.



YOU ORDER EACH COMPONENT!

NSN	ITEM
6220-00-808-6072	Control
5945-00-789-3706	Flasher
2590-00-308-2781	Cable
5940-00-399-6676	Terminal
5970-00-833-8562	Insulator
5935-00-833-8561	Connector
5305-00-042-3545	Screw and Washer Assy
5310-00-080-9786	Washer
6240-00-419-3185	Lamp, Incandescent
5305-00-225-3838	Screw, Cap
5310-00-209-0786	Washer, Lock
5340-00-168-7179	Clip
6220-00-181-2388	Lens Assy

Tactical Wheeled Vehicles...

## Turn Signal Trouble?



I'M ORDERING A NEW FLASHER FOR MY TRUCK... WHY?

PROB'LY NOT NECESSARY!

A bad flasher is seldom the cause of a turn signal problem on your tactical wheeled vehicles.

In fact, most troubles are caused by loose wiring or corroded terminals.

Many perfectly good flashers are replaced because the problem's not diagnosed right.

So check out the troubleshooting procedures in your TM before you replace a flasher. That way you'll solve the problem faster and won't replace something that doesn't need replacing.



# A Turn for the Better



BACKING UP YOUR TRAILER IS EASIER THAN YOU THINK!

Most drivers learn to back their truck 'n' trailer the hard way.

**HARD** on the trailer and, sometimes, hard on the truck, too;



**HARD** on anything that happens to be in the way;



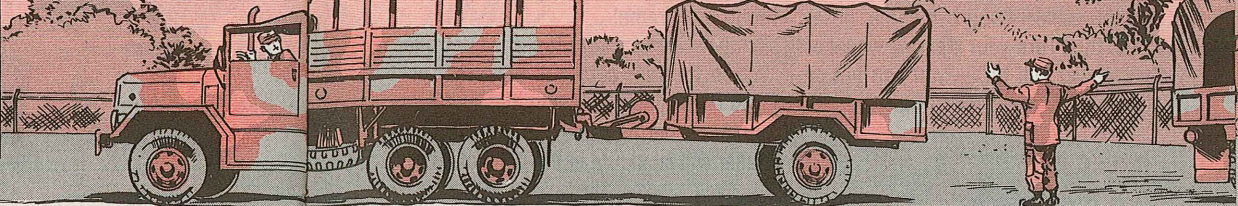
**HARD** on the driver's nerves and, maybe, hard on his pocketbook.



But trailers suffer the most—specially ¼-ton, ¾-ton and 1½-ton trailers. Electrical cables are pinched, mashed, smashed, torn up and torn off. Brake hoses on the 1½-tonners are damaged the same way. Lunettes and frames are bent.

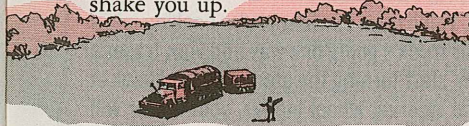
Training and testing on truck operation are required, but "qualified" drivers often get no instruction at all on pushing a trailer. Yes, pushing! That's what you do when you back your truck 'n' trailer. And, for a beginner, it's like trying to shove a wet noodle up a wildcat's nose. That trailer wants to go every way except the way you want it to go!

It's a fact: Backing a small trailer can be trickier than backing a long semitrailer. The smaller trailer "answers" quicker as you turn your truck's steering wheel. It'll jackknife before you know it!



## Practice First!

You're asking for big trouble if you put off learning until you've got a hurry-up mission—maybe in snow, rain, fog, mud and other things that'll shake you up.



You need a big space for practicing—someplace where nothing's in your way and where you won't be in anybody else's way. You'll find good tips on driver training layouts in FM 55-30, Army Motor Transport Units & Operations, Appendix T, The Driving Range.

You can get some help, too, from FM 21-305, Manual for the Wheeled Vehicle Driver, Page 6-4, Para 6-7b, Backing the Semitrailer. But you need more than that to get a good handle on backing small, lunette-type trailers.

Most important, you need a ground guide—a buddy who'll tell you what's going on behind you as you back up. When you're backing toward your "blind" (right) side, you won't be able to see enough in your right side mirror. And it's hard to judge how much your trailer is turning—a setup for jackknifing.

S-L-O-O-O-W'S THE WORD!

BEFORE YOU CLIMB INTO YOUR TRUCK...

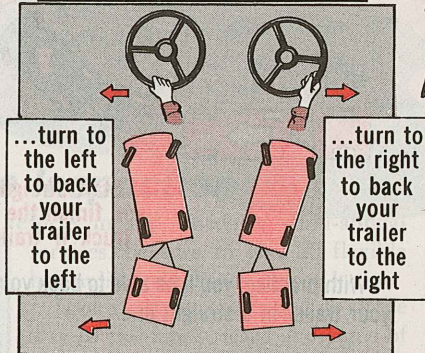


GET THESE BASICS IN YOUR HEAD...

• When you turn the steering wheel to the LEFT, your trailer turns to the RIGHT. And, natch, steering wheel RIGHT is trailer LEFT.

It may be easier for you to get the feel by steering with your hand on the bottom of the steering wheel—so steering wheel

With your hand on the bottom of the steering wheel...



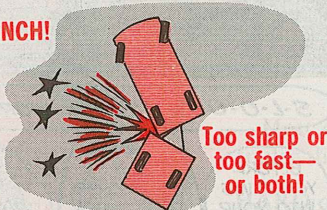
LEFT is trailer LEFT and RIGHT is RIGHT. Later, when you've got it down pat, you can go back to the top of the wheel for smoother, faster operation.



• Oversteering is one of the biggest mistakes made by a beginner. Another is backing too fast. The trailer starts to jackknife—before you can stop, the truck jams into the trailer. Good-bye cable, hoses, lunette and frame!

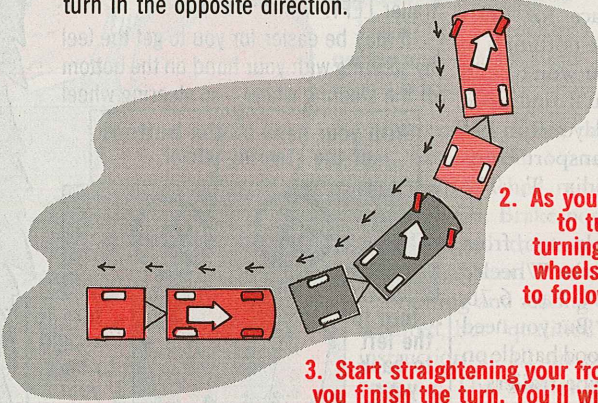
Get this! Turn your steering wheel only slightly when you want to turn your trailer. Your trailer will turn—you can bet on it. Watch the rear corner of the trailer as it moves out or in—depending on which way you're turning. Don't jump the gun! If you turn the steering wheel too far, that short trailer will jackknife in the blink of an eye.

**CRUNCH!**



**Too sharp or too fast—or both!**

• Get the knack of following your trailer. You'll need to when you're backing into a parking space. When you start the turn, your truck's going one way and your trailer's going the other. As you get well into the turn, start turning the steering wheel back in the opposite direction. Easy! If you turn the steering wheel too far, your trailer will turn in the opposite direction.



**1. Turn your front wheels to the right to start your trailer backing to the left.**

**2. As your trailer begins to turn, start turning your front wheels to the left to follow the trailer.**

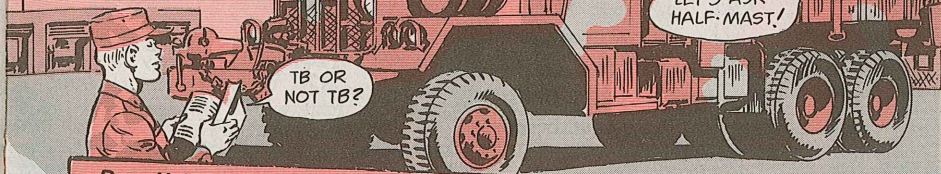
**3. Start straightening your front wheels before you finish the turn. You'll wind up with your truck 'n' trailer traveling in a straight line.**

With practice, you'll be able to back your outfit around a corner—and then follow your trailer in a straight line.

• When you're backing around a turn, make it toward your "good" (left) side when possible. There's less chance of clobbering something behind you.

And make it easier on the next driver if you're among several parking in a line. Park so he can back alongside on his "good" side. This'll head off damage to both outfits.

## Wrecker Leaks = NMC?



Dear Half-Mast,

Our wreckers used for missile handling operations are written up as Not Mission Capable (NMC) if there is evidence of any leakage in the hydraulic system.

As a result, the wrecker is deadlined for repair of minor leaks—called Class I or Class II leaks in the operator/crew PMCS in TM 9-2320-260-10-2 and -211-10-2

This deadlining is based on TB 43-0142, Safety Inspection and Testing of Lifting Devices, Para A-1a (4) and Para A-1b.

Which do we go by—the -10-2 TM PMCS or the TB?

W01 G.G.R.

Dear Mr. G.G.R.,

Only the operator/crew PMCS determines mission capability of equipment. A Class III hydraulic leak makes your wrecker NMC. Class I or Class II leaks do not affect mission capability.

Such minor leaks should be reported, however, and corrected when there's an opportunity.

The classes of hydraulic leaks will be added to TB 43-0142 when the next change comes out.

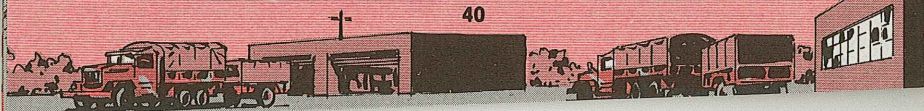
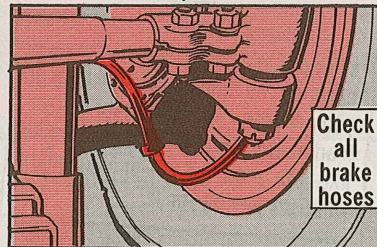
Half-Mast

## Brake Hose Inspection

Next time you have a tactical vehicle in for scheduled semi-annual services, be sure to give all flexible hydraulic brake hoses a close look.

Look sharp for cracks that go all the way to the fabric, leaks and signs of internal hose damage. They all signal it's time for a new hose.

TB 9-2300-405-14, Mandatory Brake Hose Inspection and Replacement-Tactical Vehicles, has the word.

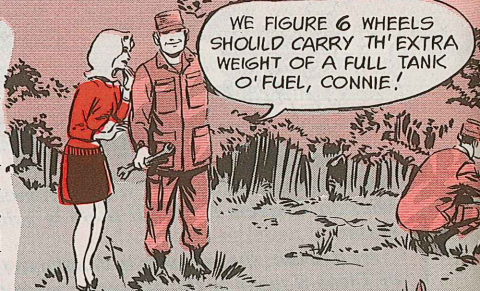




# Coping with the ODD

Gettin' there firstest with the most-est may win a battle—but the "most-est" won't help if you don't get there at all.

That's happening when 1½-ton trailers are overloaded with full 600-gal fuel pods. That "1½-ton" is the load capacity of the trailer, but a full fuel pod is over 2 tons!



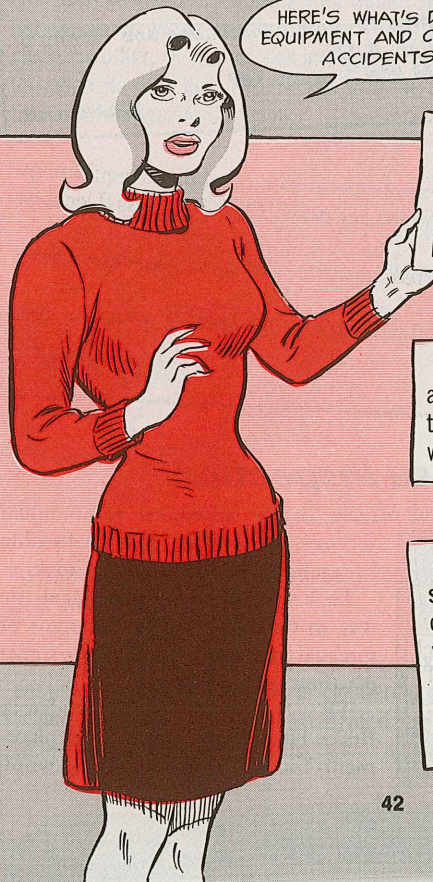
WE FIGURE 6 WHEELS SHOULD CARRY TH' EXTRA WEIGHT OF A FULL TANK O' FUEL, CONNIE!

HERE'S WHAT'S DAMAGING EQUIPMENT AND CAUSING ACCIDENTS...

• **Overloading the trailer.** Besides busting it up from carrying too much weight, you make it top heavy. It'll flip over easy! So make sure your load's no more than the 1½-ton limit.

• **Driving too fast—**'specially around curves. You can flip that trailer in a second. And you may go with it! Take it e-a-s-y.

• **Hitting potholes, ditches, stumps 'n' rocks.** Even if you're carrying the right load, you'll bust up your trailer. If your trailer's overloaded, it's murder! Treat your trailer like you paid for it—or you might wind up paying for it.



# Couple!



MAYBE IF HE WORE AN EXTRA PAIR O' BOOTS, HE COULD CARRY AN EXTRA FIELD PACK...

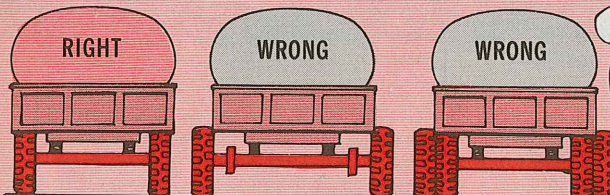
• **Reversing the wheels to make the load less top heavy.** This's a big loser! First off, your overall trailer width becomes more than the 96 inches allowed for highway use. And those wheels sticking out will throw rocks 'n' stuff at other traffic.

You may suffer, too, because you think you've got "top heavy" whipped—until you put-the-pedal-to-the-metal whipping around a curve. You, your truck, your trailer and your load won't mix well when you flip!

Then there's the leverage that comes from increased axle length. This overloads wheel bearings and suspension components. They won't last long!

• **Adding a wheel to each side—to make duals.** You think you're beating the game 2 ways—lowering the center of gravity and beefing up your trailer to carry a heavier load.

Not so! Your trailer will suffer from some of the same things that come from reversing the wheels, and, besides, the axle spindles can't take it.



GET IT? STICK TO THE CONFIGURATION AS YOUR TRAILER WAS DESIGNED!



Again—keep your trailer the way it was issued to you.

For the full story on trailers 'n' fuel pods, see TACOM M<sub>sg</sub> DRSTA-MVA 211530Z Oct 82 and TB 43-0001-39-6 (Jul 81), Para 2-16, Trailers, Cargo M105 Series, Cargo Limit and Distribution to Avoid Tipping.



## Tire Repair Kit Parts

Tire repair kit, NSN 2640-00-092-4004, listed in TM 9-2610-200-20, has been discontinued.

YOU CAN GET THE PARTS IN THE KIT, THO!



Item	NSN
1 9/16-in patches (box of 100)	2640-00-138-8328
8-oz can vulcanizing fluid	2640-00-242-3467
16-oz can rubber buffer	2640-00-138-8324

These items are listed in Tables 4-1 and 4-2 of TM 9-2610-200-10. The buffer is incorrectly listed on the AMDF as vulcanizing fluid.

## No More Hot Patches



Next time you have to fix an inner tube, don't get all bent out of shape. Be cool.

You don't have to sweat over using hot patches anymore. They've been replaced by better chemical cure patches.

TM 9-2610-200-20, Pages 4-30 thru 4-38, has the word on the newer repair method.

Table 4-9 of the TM lists the different chemical cure patch kits available. The NSN for the master kit is wrong. Use NSN 2640-00-052-6724.

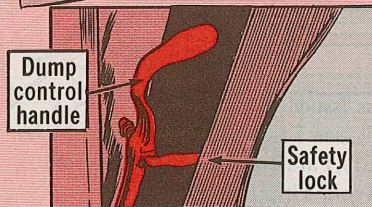
## Safety Lock Enough



Dear Half-Mast,  
Para 2-17b(2) of AR 385-55 requires a "positive locking device" on dump trucks when used to haul troops.

Does the safety catch on the dump body control lever meet that requirement?

SSG D.F.C.

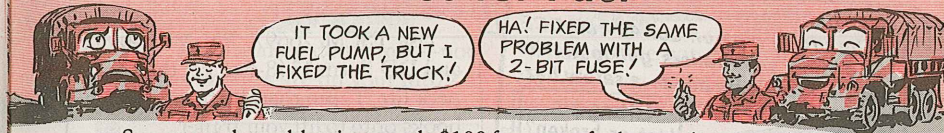


Dear Sergeant D.F.C.,  
Yes. The safety catch is a positive locking device. Never use a bolt or pin to lock the dump body to the frame. If you forget to remove it, you can damage the hydraulic system.

Half-Mast

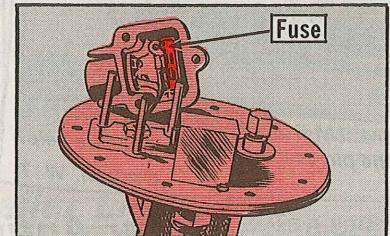
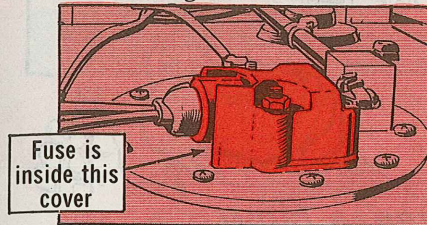
2½- & 5-Ton Trucks...

## Fuse for Fuel



Some people are blowing nearly \$100 for a new fuel pump because of a blown 2-bit fuse.

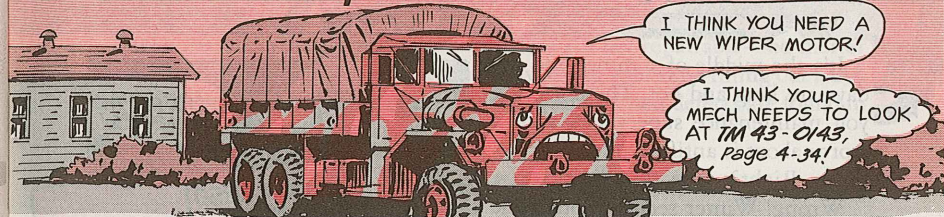
The fuse, NSN 5920-00-238-3087, is inside the in-tank fuel pump for all multifuel engine trucks.



Troubleshooting and fuse replacement in 2½-ton trucks are covered by TM 9-2320-209-20-1, Pages 25-274 thru 25-278, and TM 9-2320-209-20-3-1, Pages 4-51 thru 4-54.

This info can also be used for the M39A2-series 5-ton trucks and the M656/M757/M791 5-ton trucks.

## Wiper Motors Rust



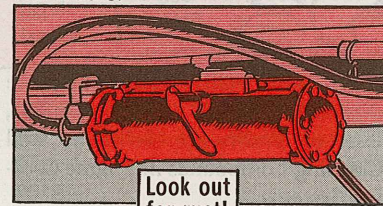
Rust is the main enemy of windshield wiper motors for 2½-ton and 5-ton trucks.

It builds up on the shafts and causes the motors to fail.

You can head off a lot of damage, tho, if you detect that rust early.

At least once a week, manually move the wiper paddle back and forth. If the lever binds or can't be worked freely, the motor needs fixing.

TM 43-0143, Page 4-34, has the info your unit mechanic needs to do the job.



Look out for rust!



## 40-Ton Trailer "I" Pin

Dear Half-Mast,  
The lifting pins on our 40-ton CCE Load King semitrailers get lost. The ones we fabricate bend—a safety hazard.

Lifting pin lost or broken?



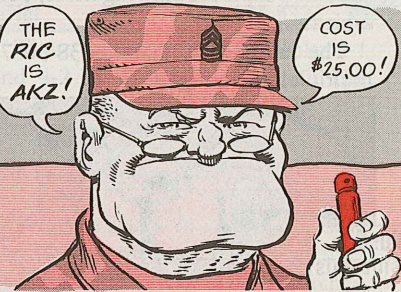
ard. TM 5-2330-360-14 does not list the pin as a repair part. Can you help?

CW3 M. W. T.

Dear Mr. M. W. T.,  
Use FSCM 26697, PN MPO-0902 and DD Form 1348-6 to get the goose neck lift "I" pin that the tractor winch hooks onto to lift your trailer.

THE RIC IS AKZ!

COST IS \$25.00!



## Order Antifreeze Now

ANTIFREEZE?

THERE'S PLENTY OF TIME TO ORDER THAT!

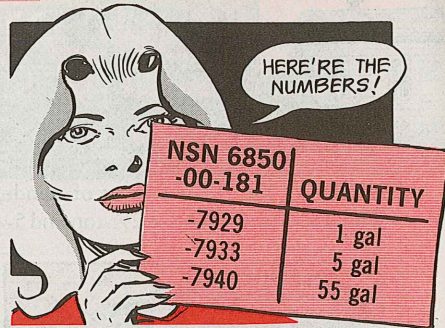


It's the middle of summer and the days are long and hot. The last thing you maintenance supervisors should worry about is antifreeze for your vehicles. Right?

Wrong! Winter seems a long time off, but cold weather has a way of creeping up and catching you off guard.

So now's exactly the right time to prepare. Put in your order for a supply of antifreeze.

Depending on your priority, it may take 2 months to get your order. If you act now, you'll have the antifreeze in time to winterize your vehicles.



HERE'RE THE NUMBERS!  
For more details on antifreeze, take a good look in TB 750-651 (Jan 83), Use of Antifreeze Solutions and Cleaning Compounds in Engine Cooling Systems.

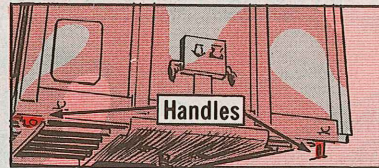
M872 34-Ton Semitrailer...

Handle's No Step!

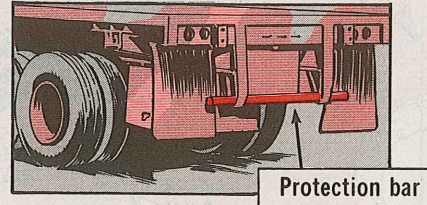


Feet and handles don't mix—not when the handles are on your M872's retractable twist locks.

When you've got to climb up onto the trailer—or down off from it—use something else for a step. On the back, for instance, use the rear end protection bar.



Those handles are not built to be used as steps. They can't take it. They bust!



## M872 Trailer Light

You won't get the rubber mounting grommet when you order mount, clearance light base, Item 6, Fig E-1, TM 9-2330-359-14&P, for your M872 34-ton semitrailer.



SO MAKE A NOTE OF THIS FOR Page E-7: Grommet, mounting, NSN 5325-01-068-3428!

## Get New Master, Wheel Cylinders

Brake master cylinders and wheel cylinders are not repairable—no matter what your -20P TM may say. You can quit wasting your time filling out a DA Form 2407 and sending the parts to your DS unit. When defects are found in the cylinders, order new ones.

## 2½-Ton Brake Tube

TM 9-2320-209-20P has the wrong NSN for the vent tube running from the top of the brake master cylinder to the air-hydraulic cylinder. It's Item 10, Fig. 19. The right NSN is 4710-01-010-3624.

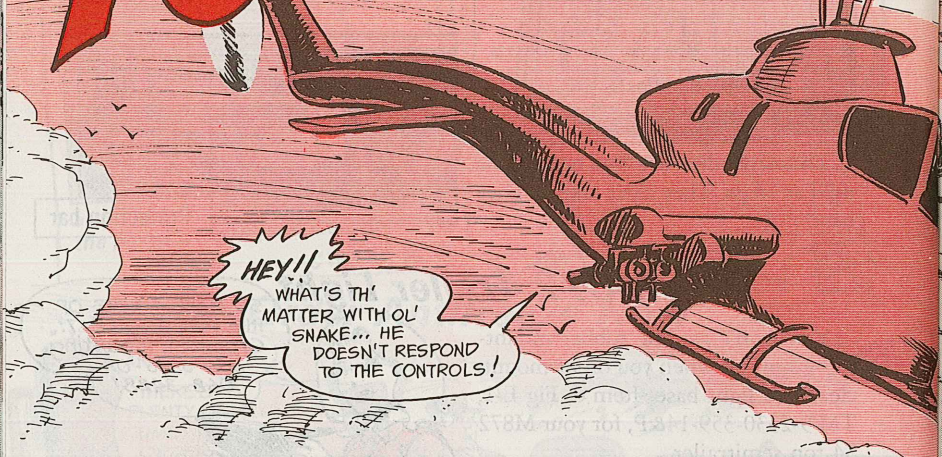
## 2½-Ton Lug Nuts

You won't get ¾-in wheel-mounting nuts with the info in TM 9-2320-209-20P for Item 16, Fig 108. Here's the straight info you can jot down for Page 228: Nut, lefthand, NSN 5310-00-518-5566; nut, righthand, NSN 5310-00-594-8038.





# TOW/Cobra Test Set



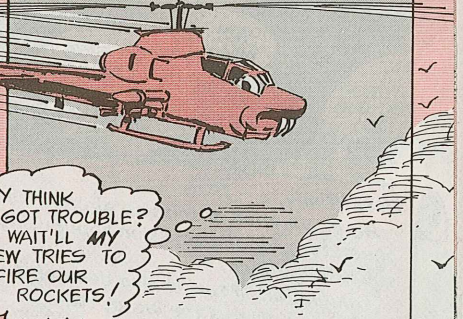
# TIPS

BEATS ME, JAKE... BUT WE'RE IN BIG TROUBLE IF WE DON'T SET DOWN-- QUICK!

THEY THINK THEY GOT TROUBLE? JUST WAIT'LL MY CREW TRIES TO FIRE OUR ROCKETS!

ARRRRGHH! HISSSS! THEY DIDN'T CHECK THOSE A1P1 AND A1P3 CABLES...

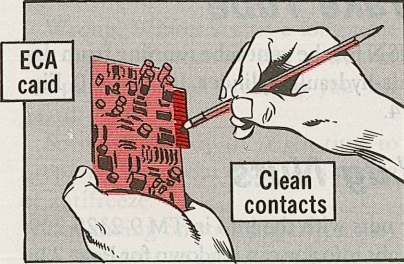
## Aircraft Rocket Launchers



When your M158, M200 or M200A1 aircraft rocket launchers come back from a firing mission, clean them as soon as you can.

Consider this the next time you're checking out the ECA used on TOW/Cobra AH-1G, H or S (Prod) models:

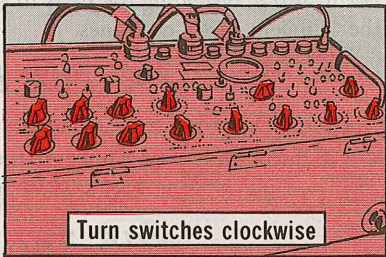
If your TS-XM28 test set/analyzer gives you a NO GO on 1 or more of the 6 circuit cards in the ECA, pull the card and clean its contacts with a pencil eraser.



Could be the only problem is some corrosion on the contacts.

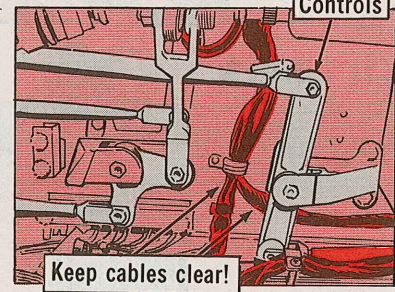
Here's a tip to keep your XM28 test set going:

When you have to turn any of the control knobs to a new setting, always go forward (clockwise).

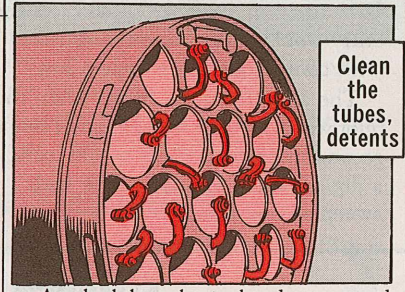


Never turn counter-clockwise (say from "4" to "2") because you can bend, chip or break the switch contacts. Go all the way 'round, clockwise, to the setting you need.

When you disconnect the XM28 after checking armament subsystem components, be sure you've hooked up the A1P1 and A1P3 cables clear of the flight controls.



Be sure the cables are not threaded through or tied to the flight controls. Controls that snag on cables do not fly aircraft very far.



Apply lube, clean the detents and otherwise do your thing quicklike, before carbon and other firing residue firm up and get hard to remove.

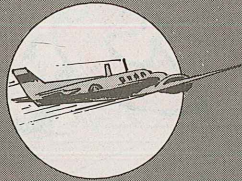




## Watch Counts!

HEY! OUR CLOCK JUST WENT OUT!

NOT TO WORRY,, WINDY SAYS YOU CAN USE YOUR FANCY DIGITAL WATCH!



Dear Windy,  
An inoperative or missing aircraft clock generates a lot of discussion about using a substitute watch.  
The aircraft status is also debatable.  
Can you give us the word, Windy?  
Mr. R. E. S.

Dear Mr. R. E. S.,  
No sweat!

When the clock is out of whack, you have a limiting deficiency on the bird. Para 10-3b in TM 38-750 indicates the bird goes on a circled red X. A typical entry would read: "Aircraft restricted from operation unless pilot has a watch with continuous second operation."

The aircraft can be flown when the pilot wears a watch that has continuous second indications. This would include a digital watch as well as one with a sweep second hand.

THAT'S THE WORD IN Para 4-17, AR 95-1!



## Survival Kit Check

Maintaining the aviation life support equipment for your unit? All survival kit inspections have now been standardized at 120 days. The word's in C 1 to AR 40-61 on medical equipment.

SAYS THEY INSPECTED THEIR KIT...

... AND EVERYTHING IN TH' KIT WAS OK ... EXCEPT TH' RADIO!!



50

## Aircraft Component Records...

You spend a lot of time filling out forms—like the DA Form 2408-16 and DA Form 2410—on your aircraft components. So you sure don't want all that work going to waste. Right?

But when you send a component to support or a depot without its historical records, your hard work goes right down the drain.

Support has to contact you for the forms or the info—which means another trip for you. And if the component goes back to depot, somebody has to redo all your work or wash the component out.

Meanwhile, your component's not fixed and returned to you or to the system for your next request.

Always doublecheck your records before you send a component back for repair. Put all the component's records inside the shipping container or in a special record holder. Mark the

## Along for the Ride

THAT'S RIGHT, MR. HOLMES... THIS COMPONENT CAME IN THAT PACKAGE -- WITH NO INFO INSIDE!

DASTARDLY!! THE FORMS WERE OBVIOUSLY TORN OFF IN TRANSIT!

EVEN I CANNOT RECONSTRUCT THEIR DATA OR ORIGIN!!

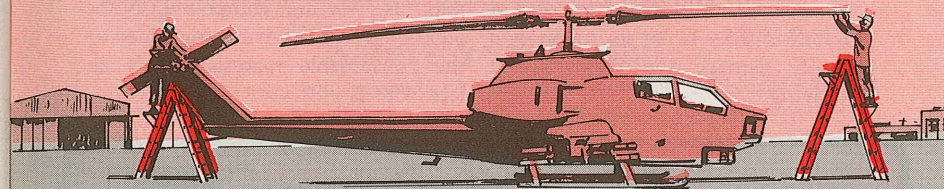
SORRY OLD CHAP, YOU MUST JUNK THE PART!



outside of the container telling where the forms are.

If you stick the forms on the outside, they'll be torn off or lost.

## Maintenance Stepladder



Aircraft mechanics can make their maintenance jobs a lot easier with a stepladder and work platform.

The 17-ft ladder is adjustable and extendable, and you can carry it to the field with you. The detachable work platform fits on a ladder rung.

Use NSN 5440-01-048-8638 for the ladder; NSN 5440-01-092-1812 for the platform. App A, CTA 50-970 is your authority for these items. The ladder and platform have been added to your AVUM No. 2 Tool Set, SC 4920-99-CL-A92.

51



AH-1, UH-1...

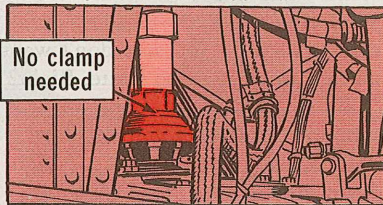
## Some Do—Some Don't

Some shields on the cyclic flight control servo-cylinder get a retaining clamp—some don't.

The new shield, NSN 1615-01-028-0451, has a built-in seal that doesn't require a clamp. So you don't have to write up the bird for missing hardware.

The old shield, NSN 1615-00-148-

9078, has no seal and requires clamp, NSN 5340-01-028-8233.



## Tough Nut to Crack?...

### No More!

OH, NO! YOU'RE NOT GOING TO USE C186 ON ME AGAIN, ARE YOU?

DON'T FRET IT! I'M GOING TO USE SEALING COMPOUND THIS TIME!



When you mechs install a floor panel in a UH-1, use an adhesive that has some "give" for future removal.

Sealant C186, in Table 1-1 of TM 55-1520-210-23-1, is so tough you actually damage the panel you're removing.

So when you apply a bead of adhesive to the panel and airframe, according to Para 2-33a in the maintenance pub, use sealing compound, NSN 8030-00-152-0022. It's being added to the consumable materials table as Item C23.2.

## Aviation Messages

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

MIM-83-47-01 CH-47 Technical manual changes 281610Z Feb 83

AH-1-83-01 & UH-1-83-03 SOF Emergency message one time inspection for certain 540 series main rotor blades on all C and M model UH-1 and all AH-1 aircraft 252305Z Feb 83

MIM-T53-83-MEA-01 Phase maint in-

spection of fuel regulator and accessory drive shaft splines 281930Z Feb 83

UH-1-83-01 SOF Maint Mandatory changes to Urgent Change 35 of TM 55-1520-210-23-1 111900Z Feb 83

UH-1-83-02 SOF Emergency message one time inspection for certain 540 series main rotor blades on all UH-1 aircraft except B, C, and M models 252300Z Feb 83

UH-60A-83-01 SOF Maint mandatory

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

engine output shaft 112000Z Feb 83

MIM-83-UH-60A-MEA-03 Temperature sensitive monitors on hydraulic pump modules 182045Z Feb 83

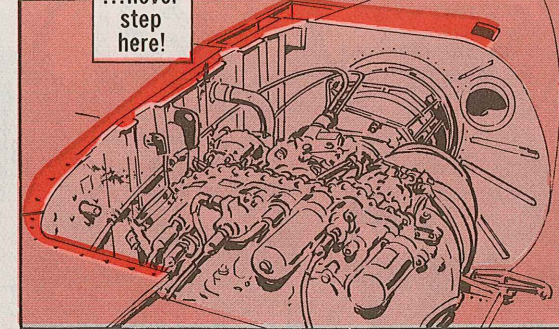
MIM-83-UH-60A-MEA-04 Change to SMR code for pitch trim assembly and yaw boost assembly 251930Z Feb 83

OH-58-83-01 SOF Emergency message one time inspection for certain 206 series main rotor blades on all OH-58 aircraft 252310Z Feb 83

## Watch Your Step!

The engine cowling on your Black Hawk makes a good platform to pull PM from.

Just be certain you don't step on the engine firewall when the cowling is open or you'll crack the metal.



When the cowling is closed, your weight is distributed along the entire firewall—no problems.

So, before checking the main rotor head, close the engine cowling...and head off sheet-metal repair!

## Blade Tip

When a main rotor blade tip cap on your Black Hawk arrives at the service life of 1,000 hours, turn it in to your support for shipment to the manufacturer. Cap, NSN 1615-01-100-1702, PN 70150-09107-041, will be reworked to the new cap, NSN 1615-01-131-9767—good for a total of 20,000 hours. The shipping info is in TSARCOM Supply Letter Number 9-82.

## Safety Vest Pigtail

Never toss away your rescue hoist operator's safety vest, NSN 1680-00-982-9973, just because of a frayed, torn or lost pigtail. Ask for a replacement for the 7-ft safety strap extension with NSN 1680-01-115-3566.



## A Couple of Couplings

You need a male and female coupling to hook a spray tank into the Black Hawk engine to wash the compressor. The new stock numbers for Item 2A, Fig A5, and Item 10, Fig 119 in TM 55-1520-237-23P are:

Coupling PN AE80712G NSN 4730-01-142-2854

Coupling PN AE80711G NSN 4730-01-142-2853



# It's All a Matter of Time

YA GOTTA HAVE TIMING!  
JUST ASK A  
BASEBALL PLAYER,  
AUTO MECHANIC,  
GRENADE THROWER  
OR AN *ARC-106*  
RADIO SET  
OPERATOR!



I GOT TIME,  
SERGEANT... IF YOU DO!



NO TIME LIKE  
TH' PRESENT,  
SGT. SPARKS!

CAN YOU SPARE  
SOME TIME FOR US,  
SERGEANT?



YEAH! IT'S TIME  
TO TUNE OUR  
-106!

## Chart Your Course

The tune and load chart on your set is a good starting point. It'll put you in the ball park when you try to match the radio and antenna.

15 FOOT WHIP ANTENNA										50 OHM DOUBLET ANTENNA													
FREQ	TUNE	LOAD	FREQ	TUNE	LOAD	FREQ	TUNE	LOAD	FREQ	TUNE	LOAD	FREQ	TUNE	LOAD	FREQ	TUNE	LOAD	FREQ	TUNE	LOAD			
2,000	500	200	8,000	450	700	13,000	550	850	4						2,000	600	500	5,000	600	800	16,000	400	950
2,500	500	300	8,000	450	600	16,000	400	500	5						2,500	600	600	7,000	500	850	23,999	400	950
2,750	500	400	10,000	300	850	20,000	400	950	6						3,000	600	700	13,000	500	900			
3,000	450	600	13,000	600	850	28,999	400	950	7														
									8														
									9														
									10														
									11														
									12														
									CH	FREQ	TUNE	LOAD	ANT										

LOGGING CHART

Radio operator? Sure, operators have to pay close attention to posted time limits or they won't be operatin'.

Like waiting 10 minutes for that big AM to warm up before applying any power. That jolt could blow a cold power tube.

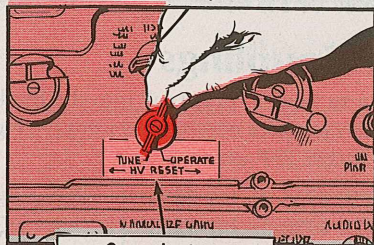
## 2-Minute Warning

And, you get only 2 minutes to tune and load your antenna. That's firm. Trying to stretch that 2 minutes can overheat your radio and blow final amplifier tubes.

If you hit 2 and you're not loaded, slip your HV RESET switch to OPERATE and your receiver-transmitter's SERVICE SELECTOR to STANDBY.

Give your set a 5-minute cooling-off period and then try to load your antenna again.

All the cards are not stacked against you in this game of "Beat the Clock." Here're some corner-cutting and timesaving tips you can use.



Once in tune,  
you have 2 minutes

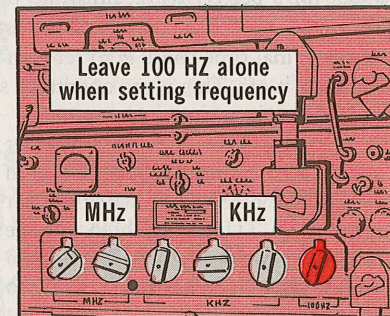
Use the right chart, tho. If you're using the whip antenna, use that chart, not the 50-ohm guide.

Remember that chart is only giving you a ballpark figure. Fine tuning puts your needles dead center.

Save yourself some time next trip by logging final readings in on the chart, too.

If your chart is missing, order a new one by part number. Ask for SMD 508586 and use a Federal Supply Code for Manufacturer (FSCM) of 80063.

Don't use the 100-Hz dial when setting freqs on your RT. You won't be able to tune or load because your set will be off frequency. Use only the first 5 dials. Numbers to the left of the decimal point are MHz; those to the right are KHz.



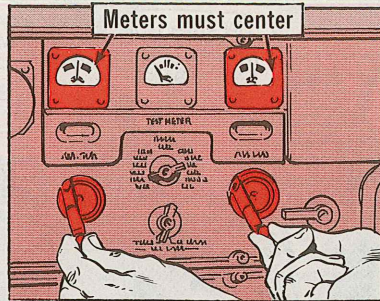


## Fine Tuning

Keep in mind that your -106 won't give the same readings day after day, even if you use the same frequency. The atmosphere can change readings, for instance.

That means tune and load each day. Another good idea, if you use the same frequency constantly, is to change the dials occasionally. That keeps the contacts inside shiny and prevents corrosion that can hinder tuning.

Or, if the meters won't center at the same time, try slowly turning both knobs at once in the direction you want the meter needles to move. They should center.



ONCE THE NEEDLES CENTER, GIVE YOUR SET A FINAL RUN-THROUGH ON THE TEST METER!

With switch on...	Indicator should be in...
LOW VOLT	Green section, top scale
HIGH VOLT	Green section, top scale
DRIVER CUR	Within 2 green wedges, top scale
PA CUR	Gray section, bottom scale
GRID DRIVE	Gray section, bottom scale
POWER OUT	Gray section, bottom scale

All set? Go to OPERATE. The test meter indicator should go to extreme left of the scale. Give the set a minute to warm up, tho. That gets rid of heat in the final amp and prevents transistor damage.

Tuned but not loading or operating when you switch to OPERATE? Before you turn the radio in for repair, make a quick switch to TUNE and back. That might clear it up.

Those in the know say you get only about a 75 percent accurate reading while HV RESET is in TUNE. That's OK for good performance. But, if you want to shoot for a perfect score, finish up in OPERATE, with the set keyed.

## Shutting Down

Your final time check is to set your RT in STANDBY for 2 minutes before shutting it off. This gives operating sets a chance to cool off before the heat exchanger shuts down.

To make sure the set will start again, see that the HV RESET is in OPERATE before you switch the set off. Left in TUNE, the high voltage reset relay won't energize, leaving you with a dead set when you're ready to start up again.



T-983 Power Cable...

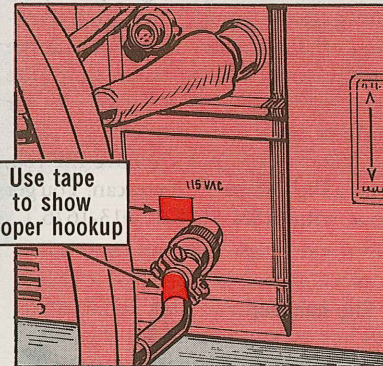
## Seeing Red?

WHAT YOU NEED, SOLDIER, IS A LITTLE RED TAPE!

THAT'S NO PROBLEM, THEN, SERGEANT... CAUSE THIS ARMY'S GOT PLENTY O' THAT!

A little red tape can head off big trouble when you hook up the power cable to your AN/GRC-103 radio set's T-983 transmitter.

The order wire and power connector look alike. With a little muscle, the CX-10762 power cable will fit on the wrong connector. That can KO the transmitter's 5TR1A5 amplifier monitor panel.

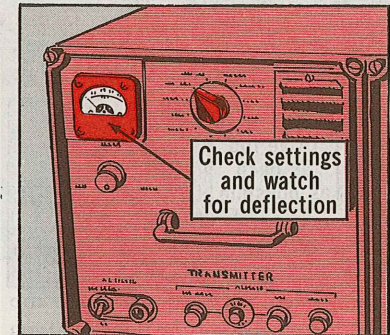


Save the headaches with a little red tape or paint. Put one strip or spot on

the cable. Another goes by the 115-VAC connector.

If you need a roll of tape, use NSN 7510-00-550-7126.

If you see a wrong connection has been made, use this quick check for damage. With the set on, turn the T-983's INPUT control knob fully



counterclockwise. Set the meter switch in the 12 CH PCM, 24 CH PCM and FDM positions. If there's a reading in any position, the panel is damaged and you have to replace it.

## Anchors Away?

A firm footing for your AN/TRA-37 antenna group takes a couple of pieces which haven't yet shown up in TM 11-5985-324-24P

Course, you still need the GP-113 stake, NSN 4030-00-298-1382, and guy stake attachment, NSN 4030-00-189-6156. You now add a shackle and pin, NSN 4030-00-599-9338. These new items are being added to the parts pub.



Using Generator Power...?

# Always Lay Your Groundwork

Careless grounding when setting up your commo shelter's auxiliary power is like pulling the mask off the ol' Lone Ranger—and that's trouble!

Trouble that ranges from a signal-killing circuit noise to a big voltjolt for anybody coming in contact with the gear.

In between, of course, are blown power distribution boxes, circuit breakers and commo gear.

YOUR GROUND ROD INSTALLATION IS A-OK, SOLDIER!

THANKS, MACON!

MAKE SURE THE GROUNDING STRAP CONNECTION IS TIGHT!

GOTCHA, CONNIE!

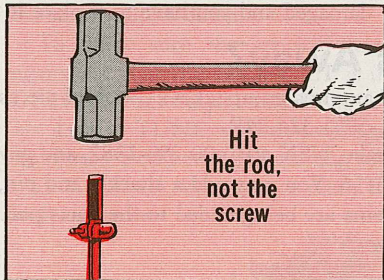
## Ground Rod

Drive the rod straight down. Putting it in at an angle is easier, but



your system suffers because the top soil doesn't give you the tight bond you need.

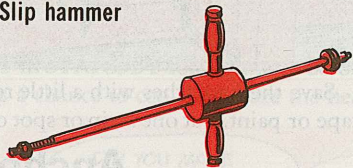
For more info on getting a solid ground in different types of soil, see TC 11-6, Grounding Techniques.



Head off rod damage by keeping misguided hammer blows from cracking off the thumbscrew. Without the screw, you'll have to fasten straps the best way you can. Not a good idea for safe or quiet operation.

When it's time to remove the rod, use a slip hammer...if you can. You get one with NSN 5120-01-013-1676.

## Slip hammer



Never use your vehicle to pull out the ground rod. That might save some time, but it'll bend the rod. Then you won't be able to drive it next time.

## Noise Stopper

Driving the rod deep not only makes a better ground, it cuts down the noise on your circuits.

Be sure to use one ground rod for each power unit and shelter you've got on the job.

Then attach 3 lengths of field wire in parallel between each ground rod. This'll keep potential voltage differences near zero, and cancel out annoying circuit hum.

You also keep circuits quiet by separating power and signal cables. Side by side is a noisemaker.

## Remember the Strap

Running a strap from the rod to the shelter or to the power generator set's trailer ground stud is simple enough. Just be sure the strap is in good shape and connected tightly.

An added bit of protection is a dab of silicone, NSN 6850-00-880-7616, on all ground terminals. This'll head off rust.

Grounding a generator set takes more than a strap to the rod, tho.

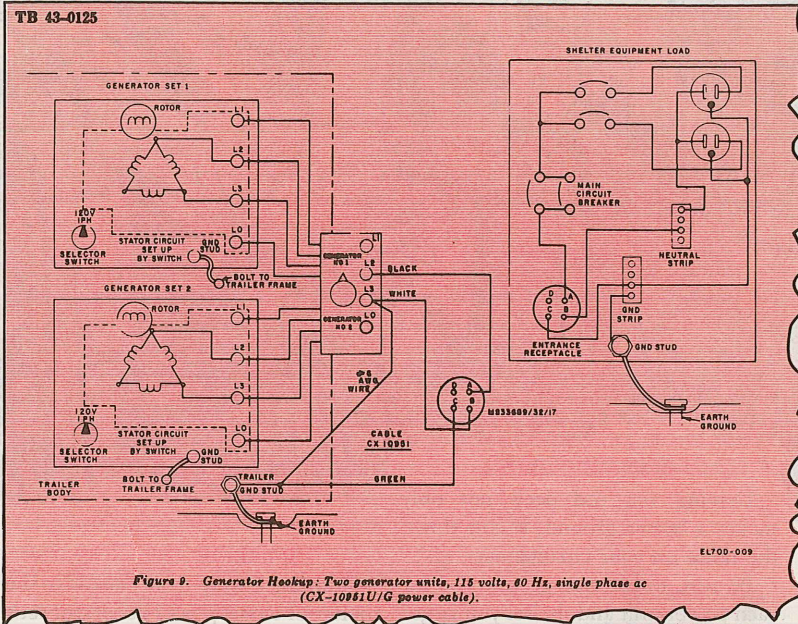


Many troops forget that 5- and 10-KW generators are not grounded internally. They need a jumper between the frame's grounding lug and the neutral load terminal. Your generator set's pub or TB 43-0125 will point out the neutral terminal.

This jumper should be at least 6 AWG wire. Order some with NSN 6145-00-652-9058.

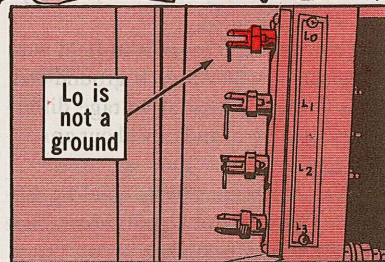
Without it, the power unit's not grounded and you risk equipment damage and noisy circuits.

Here, for instance, is the proper hookup for an AN/GRC-142, -122 radio-teletypewriter set:



If you have a different rig, the hookup should be shown in your operator's manual. If it's not, see TB 43-0125, which has all the pertinent info you need to connect primary power to your gear.

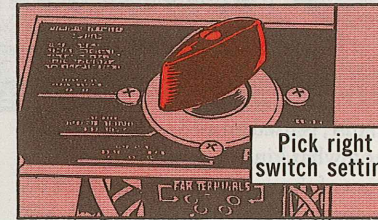
Remember, L<sub>0</sub> is not a ground. You need the wire jumper to complete the job.



## Choose Power Setting

OK, you're grounded at the shelter and the generator. Your last job is to be sure your rig gets the power it needs.

You can send a RATT Rig to the shop in a hurry if you've selected the wrong generator output. Too big a

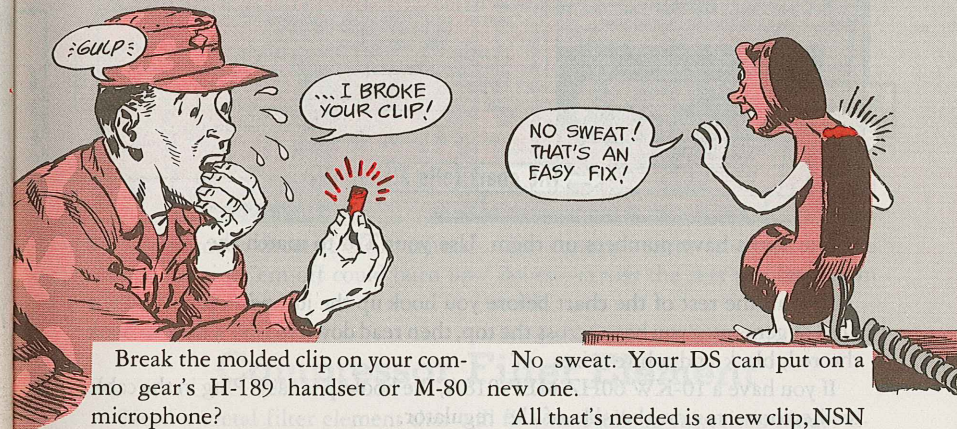


blast will knock out fragile comms gear.

eyeball the selector switch behind the generator control panel during setup operation. Don't rely on past settings. A generator set can come back from a short stay at the maintenance shop with a different setting, for example.

Also, if you have a 2-generator combo, be sure both have the same switch setting. That way, when the second one cuts in, your shelter won't get a rude shock.

## Clip Your Handset

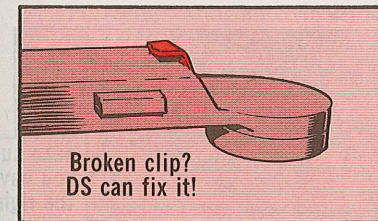


Break the molded clip on your comms gear's H-189 handset or M-80 microphone?

No sweat. Your DS can put on a new one.

All that's needed is a new clip, NSN 5340-00-064-5426; some epoxy, NSN 8040-00-753-4800; and black lacquer, NSN 8010-00-582-5382.

Support removes the stub and files down the area. Epoxy goes under the clip and around its edges. After the glue dries, lacquer tops off the quick fix.





3-, 5-, 10-KW Generators...

## Good Hookup for Good Regulation

YOU CAN DAMAGE THE VOLTAGE REGULATOR OR YOUR GENERATOR IF YOU HOOK UP THE REGULATOR WRONG!

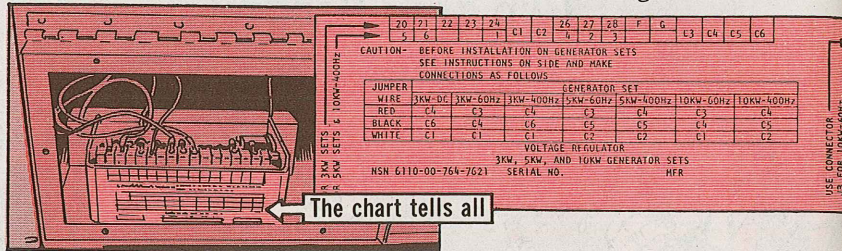
THAT'S A \$100-- OR MORE-- MISTAKE!!

THANKS, BONNIE!



The same regulator, NSN 6110-00-764-7621, is used on all 3-, 5- and 10-KW generators. How you hook it up depends on what kind of generator you have.

To make it easy, there's a chart on the front of the regulator telling where the wires go. The top row of numbers along the terminal strip is for all 3-KW generators. The bottom one is for 5-KW 60/400HZ and 10-KW 400HZ generators. Connector J3—on the side—is for 10-KW 60HZ generators.



The wires have numbers on them. Use your TM to match the wire to the terminal.

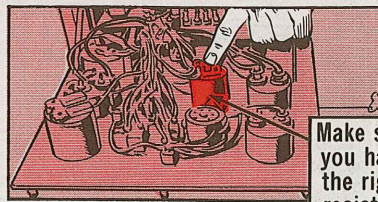
Eyeball the rest of the chart before you hook up the jumper wires. Find the kind of generator you have across the top, then read down to find where to hook the red, black and white wires.

If you have a 10-KW 60HZ MEP-018A, the hookup is easy. Plug in the cable to the connector on the side of the regulator.

### Voltage Control

When you put in a new regulator, make sure you have a 750-ohm variable resistor, NSN 5905-00-643-5129, for a voltage control.

The old variable resistor is a different size. It won't work with the new regulator.



## Heat Kills

HELP, BONNIE... HELP!

PLEASE SPEAK TO OUR OPERATOR...

URRRGH!

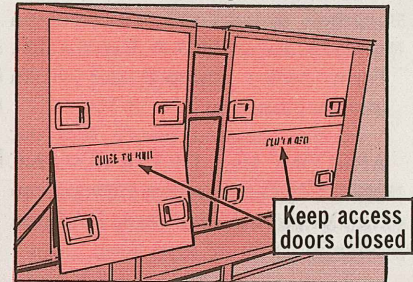
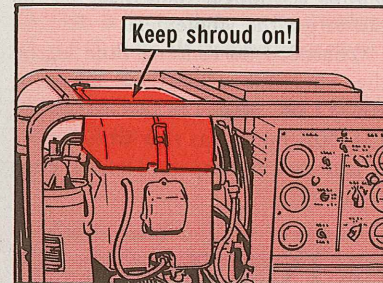
HE THINKS HE'S HELPING US KEEP COOL BY OPENING OUR SHROUDS...

... BUT HE'S KILLING US WITH HIS "KINDNESS"!



Always be sure that all engine shrouds (covers) are on your 3-, 5-, and 10-KW sets when you're operating 'em. Same goes after repairs. Put those covers on!

On larger size sets, 15-KW and larger, keep the vented access doors open when operating.



The shrouds circulate air to critical areas. Leaving 'em off could burn up the set quick-like.

Just follow the instructions stenciled on each door. The access doors force air—coming from the air intake doors—across the sets and keep 'em cool.

## Compressor Filter Element

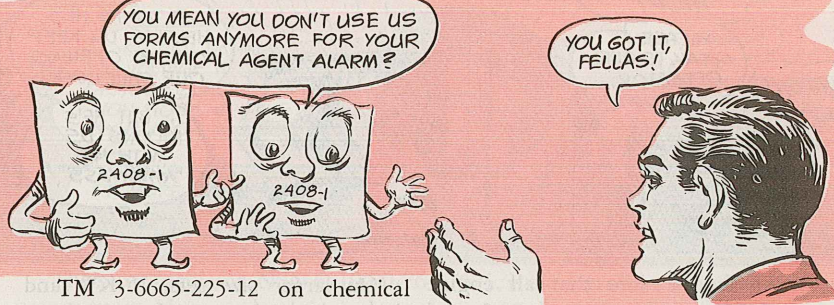
Need a metal filter element that will fit your Kellogg American Model G-311-PC reciprocating air compressor plastic air intake? Use PN 76701 FSCM 52339 and DD Form 1348-6. This'll get an element that's 4¼-in OD x 2½-in high (deep) x about 3-in ID. The RIC S9C.

## PU Quick Release Pin

Use NSN 5340-00-878-5269 for the quick-release pin assembly used on all bow-equipped 1½-ton PU trailers listed in TM 5-6115-365-15.



## No Time for Chemical Alarms



TM 3-6665-225-12 on chemical agent alarms ran out of time.

Paras 2-20 and 4-7 of that pub tell you how to keep operating hours on the DA Form 2408-1. But the DA Form 2408-1 dropped out in an interim change to TM 38-750.

So the chemical people sent out ARRCOM Msg DRSAR-MAO-NC 241445Z May 82, switching you from the DA Form 2408-1 to the DA Form 2408-20.

You kept up with run times so you'd know when 1440 hours were up—to replace the pump unit. Turns out the pumps last longer than that—so you can forget the whole deal.

You need no running time log on the chemical alarms at all now. ARRCOM Msg DRSAR-MAO-NC 151350Z Jul 82 has that word.

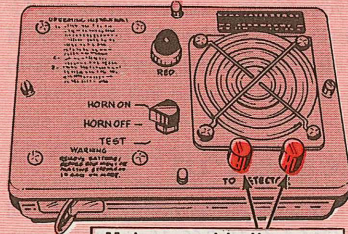
Just use the pump until it fails. Then repair it!

### M8-Series Chemical Alarm...

## Cop Some Binding Post Caps



If the remote binding post caps on your M42 alarm unit get torn off, you could get in a bind.



Make sure binding post caps are in good shape!

Like, bare binding posts can corrode and mess up your connection to the M43 detector. If the detector doesn't give the alarm unit a buzz, chemical agents could sneak up on you.

Make sure those rubber binding post caps are in good shape. Torn or missing caps? The chemical alarm TM's don't list any replacement caps. But, NSN 5970-00-869-6263 brings an electrical cap that'll fit your alarm's remote binding posts.



ARMS ROOM



## STE/ICE Test Limited

Do not use the STE/ICE for compression unbalance tests on M151-series or M880-series vehicles. These tests, 14 and 15 in TM 9-4910-571-12&P, give unreliable info for spark ignition vehicles. The tests are accurate for diesel engines.

The headshed is working on a fix to this problem. In the meantime, use the procedure on Page 2-99 of the TM for compression checks on M151 and M880 engines.

Details are in TACOM Msg DRSTA-M 0761316Z Mar 83.

## OCIE Scoop

Interim Change 2 (I02) to DA Pam 710-2-1, Using Unit Supply System Manual Procedures, cuts the red tape on losses of organizational clothing and individual equipment (OCIE). It also sets up one-stop procedures for paying for and getting replacement items. Check it out!

## DA Form 2408-5

The info on Page 49 of PS364 about the UH-1 swashplate is incorrect. An aircraft component needs a DA Form 2408-5 when it has a tech bulletin, safety-of-flight message or modification work order on it. The Note in Para 10-34b(1)(b) of TM 38-750 tells you when no form is needed.

☆ U.S. GOVERNMENT PRINTING OFFICE: 1983—659-007/7

## RCA Disperser Tests

Check the stencil or aluminum strips on the tanks of your riot control agent dispersers, such as the M3, M5 or M33. They show you the date of the last hydrostatic and volumetric tests by general support. Then, check your TM (tests are made every 3, 4 or 5 years). Schedule them for testing if you're overdue.

## M10A1 Canister Lot Shot

NBC NCO's responsible for M24 and M25A1 protective masks, or troops about to use the masks, should check the Lot No. stenciled on their M10A1 canisters.

Any canister with Lot No. BFG 22-4-7A stenciled on it must be replaced and turned in. Same goes for M10A1 canisters with that lot number that are in serviceable stock. Turn them all in.

The canister has failed gas life testing and all with that lot number are unserviceable.

## AOAP Update

Details on installing AOAP oil sampling valves on a bunch of vehicle engines and transmissions are in TB 43-0001-39-3 (Oct 82). Grab a copy and check out Pages 3-2 thru 3-61 for the vehicles covered.

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

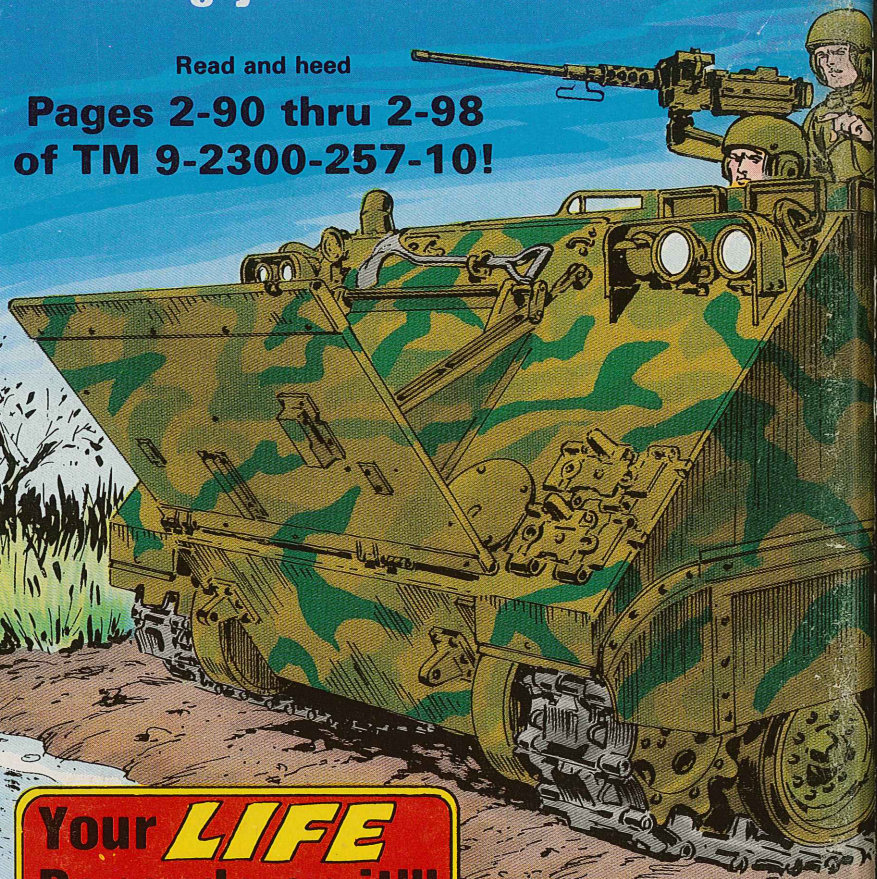


# Sink or Swim?

Stay high and dry when swimming your M113-series carrier!

Read and heed

Pages 2-90 thru 2-98  
of TM 9-2300-257-10!



Your **LIFE**  
Depends on it!!!