

Issue 298

PS

September  
1977

# THE PREVENTIVE MAINTENANCE MONTHLY

SORRY 'BOUT YOUR  
EMERGENCY, BUT...

...THE RULES SAY I  
GOTTA PLAY IT WHERE  
IT LIES!

GET ON  
THE  
STICK,  
SMITH!

B-BUT, MISTER...  
YOUR SPIKED SHOES  
ARE CAUSING VOIDS  
EVERY STEP YOU  
TAKE!

I HOPE  
HE DOESN'T  
DIG DIVOTS,  
TOO...

SLOWEST  
FOURSOME  
ON THE  
COURSE...

WHO'S IN IT?

SOME  
WASHINGTON  
TYPES, I  
HEAR...

HMMM

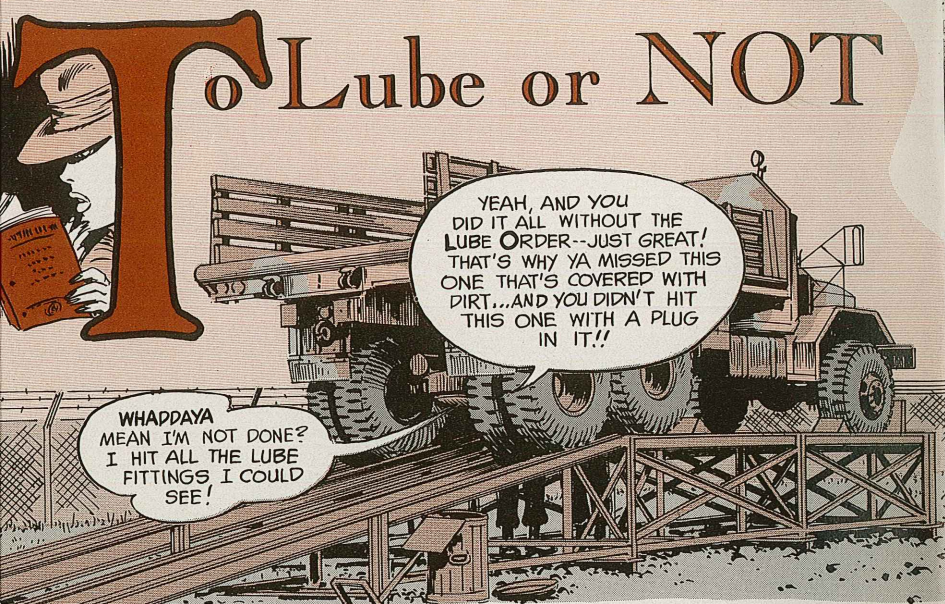
MURPHY  
ANDERSON



Brute Force  
"A REAL NO-NO!"  
Page 29



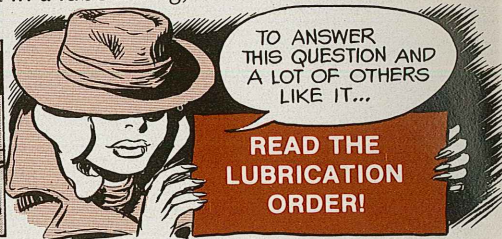
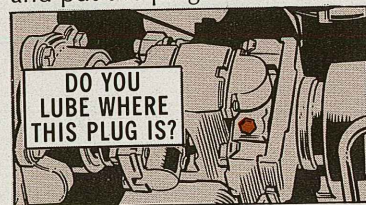
# To Lube or NOT



What's the big mystery? Why all of the confusion? Seems some people can't figure out what they should lube on their vehicles and what they should not lube.

F'rinstance, you'll hear a lot of arguing about U-joints that have plugs where you usually find lube fittings.

Do you take out the plug, put in a lube fitting, shoot the lube to 'er and put the plug back in?



Most Lubrication Orders have a Notes section in the back. This gives you any special instructions needed. It'll save you a lot of arguing, confusion and sleepless nights.

And it may save you from screwing up some part of your vehicle—like lubing something that should not be lubed. Like those lube-for-life bearings that're lubed by the manufacturer. You can foul up that special grease when you pump GAA in there. Then that bearing is on the way to ruin!

# to Lube?

You don't need a crystal ball to get this poop.

For your Gama Goat, see LO 9-2320-242-12 (Apr 72), Note 21.

## 21. PROPSHAFT U-JOINTS

PROPSHAFT U-JOINTS WITH LUBE FITTINGS REQUIRE LUBRICATION EVERY 6,000 MILES OR AT "S" SERVICE. U-JOINTS WITHOUT FITTINGS ARE LUBED FOR LIFE BY MANUFACTURER AND DO NOT REQUIRE LUBRICATION SERVICE.

This does not mean that plugged U-joints in all vehicles are lube-for-life U-joints.

For your M54A2 5-ton cargo

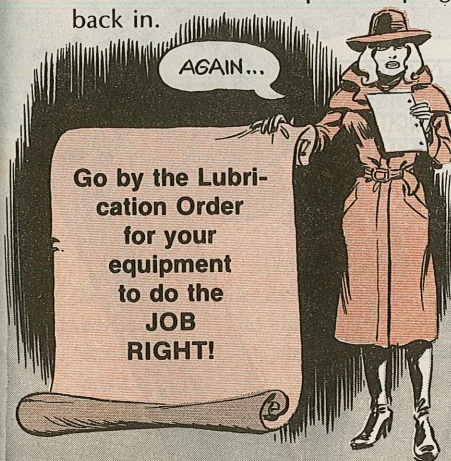
## 9. PROPELLER SHAFT UNIVERSAL AND SLIP JOINTS

Every 1,000 miles or semiannually, whichever occurs first, on universals equipped with plugs, remove filler plug at each joint and install pressure fittings; fill using low pressure gun. Remove fitting and reinstall plug.

truck or other TM-211-series vehicle, see LO 9-2320-211-12 (Jun 72), Note 9. It tells you to take out the plug, put in a lube fitting, shoot in the GAA and then put the plug back in.

AGAIN...

Go by the Lubrication Order for your equipment to do the JOB RIGHT!



## PS THE PREVENTIVE MAINTENANCE MONTHLY

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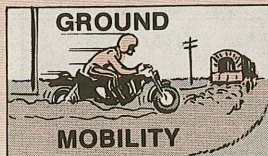
PS wants your ideas and contributions, and is glad to answer your questions. Name and address are kept in confidence. Just write to: Or call AUTOVON 745.3503

MSG Half-Mast  
PS Magazine  
Lexington, KY  
40511

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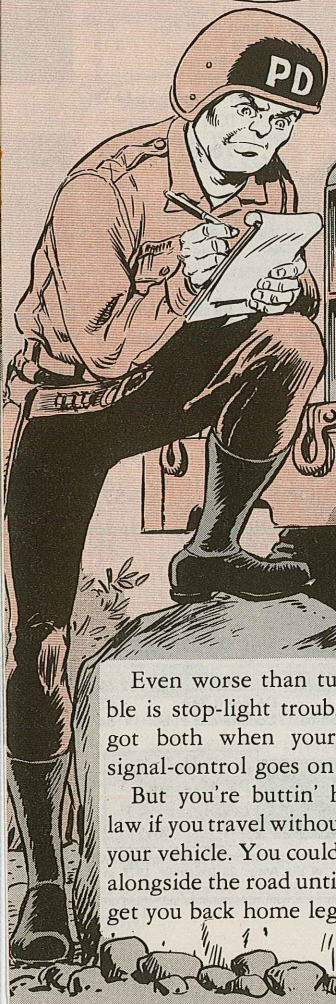


# Turn Signal **STOP TO GO** Trouble?

NO TURN SIGNALS...

...BUT WORSE-- NO STOP LIGHTS!

I TOLE YA!... YOU SHOULD ALWAYS CARRY A PAPER CLIP!!



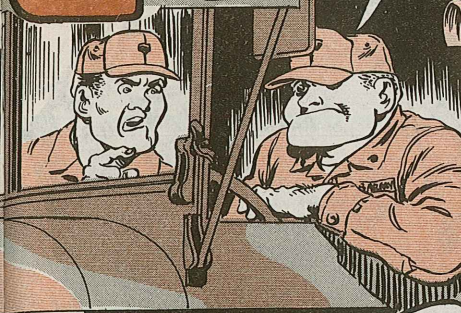
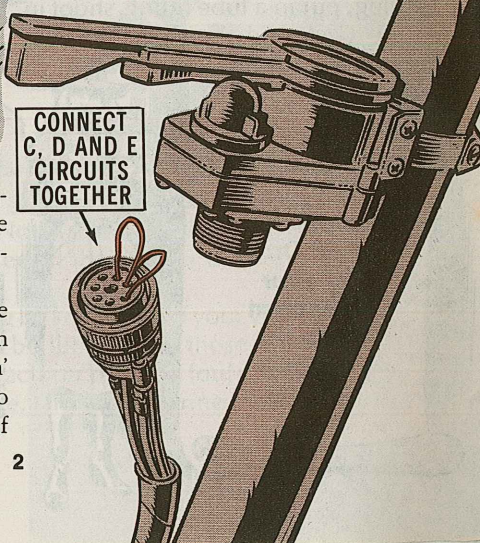
Even worse than turn-signal trouble is stop-light trouble—and you've got both when your truck's turn-signal-control goes on the fritz.

But you're buttin' heads with the law if you travel without stop lights on your vehicle. You could wind up sittin' alongside the road until help comes to get you back home legally. Unless, of

course, you've got a couple inches of scrap wire in your pocket or kickin' around in your truck. Even paper clips will do.

Just unhook the cable connector from your turn signal control. Then connect the C, D and E circuits together by pushing wire into the holes.

CONNECT C, D AND E CIRCUITS TOGETHER



With Solid State Regulators . . .

## A Small Spark's Normal

DIDN'T EVEN SEE A SPARK THAT TIME!

YEAH, HALF-MAST SAID IT'D BE SMALL!



Dear Half-Mast,

I often get small sparks at terminals when I hook-up batteries on vehicles that have solid state voltage regulators.

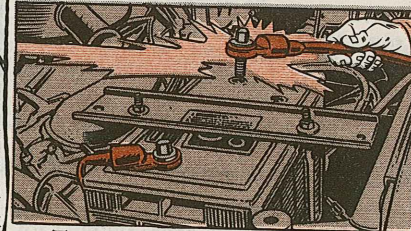
Is this sparking normal, or does it mean there's a battery-killing short in the vehicle electrical system?

SFC R. D. E.

Dear SFC R. D. E.,

A small spark is normal—that's small, as in tiny. It's caused by leakage of energy from solid state circuitry. It won't drain your vehicle battery.

A larger than tiny spark—a flash—spells s-h-o-r-t.

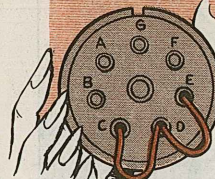


Troubleshoot the vehicle electrical system.

Half-Mast

THIS'LL GIVE YOU STOP LIGHTS UNTIL YOU GET A PROPER REPAIR IN THE SHOP!

KEYWAY



If you can't make out the circuit letters alongside the holes, use the keyway as a guide—put your wires in at the 4 o'clock, 5 o'clock and 7 o'clock positions.



## Vehicle Troubleshooting

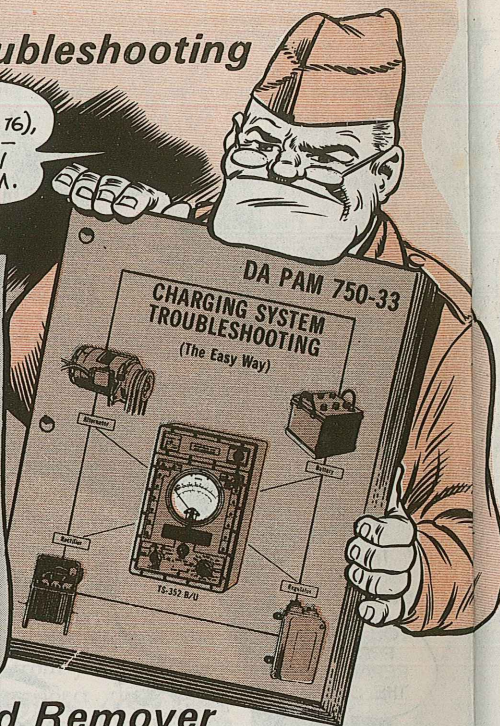
IF YOU'RE WORKING WITH DA PAMPHLET 750-33 (DEC 76), CHARGING SYSTEM TROUBLE-SHOOTING, HERE ARE A FEW NOTES TO MAKE IN THE PAM.

•No matter which vehicle you're testing, first do the battery voltage checks on pages 8 and 9.

•Page 31, Fig 7-10. Change the wording to "DISCONNECT BULKHEAD-TO-ALTERNATOR CABLE."

•Page 45, title. Cross out "M48". There is no test in the pamphlet for the M48.

•Page 48, Figs 10-15 and 10-16. Change words in each figure to read "COVER NUT".



THAT'S ME!

## Nutty Stud Remover

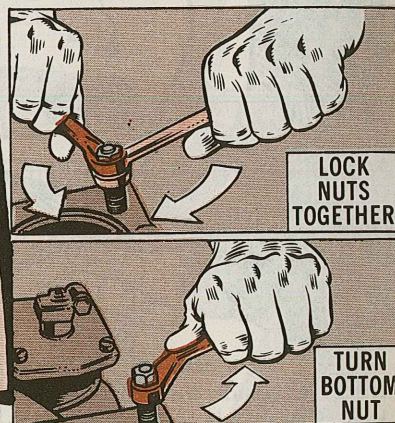
Dear Editor,

Here's how you remove a threaded stud—without ruining it—when it's stuck tight:

Turn 2 nuts onto the stud. Hold the bottom nut with a wrench and lock the top one to it with another wrench.

Then turn the bottom nut counterclockwise to turn the stud out.

SFC Luis H. Rodriguez  
MAIT, 3d Aug Det, 3d Inf Div



(Ed Note: Remember this, all you mechs, if you don't have the stud remover, NSN 5120-00-596-0980, in the No. 2 Common and No. 1 Supplemental shop sets.)

THERE MUST BE A WAY...

SOB!

## Tip Makes Life Easier



Dear Editor,

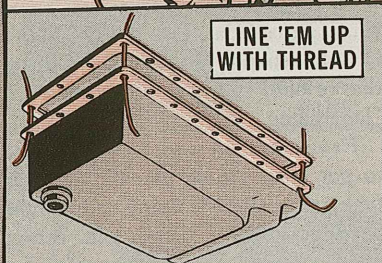
Installing an engine pan or cover can drive you nuts when you're trying to line up its holes with the gasket holes and the engine mounting holes.

But a piece of fine thread will make it easy—even a loose thread from your coveralls.

Just tie the gasket to the pan or cover through one or more of the holes, whatever it takes to keep 'em lined up together. Then you mount this assembly to the engine.

Don't worry about the thread left there—it won't cause any leaks.

SP5 Kenneth Thompson  
MET  
Fort Knox, KY



(Ed Note: Chances are, the mounting screw will cut the thread anyway, and you can pull it out if there's any worry about it.)

## Gasket S-T-R-E-T-C-H-E-R



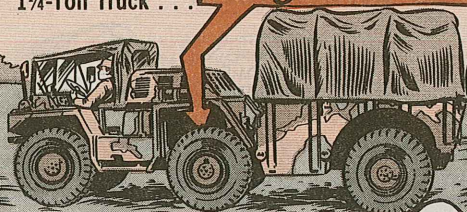
Sometimes you get a new cork gasket that's a shade too small. It's the right gasket, but it seems to have shrunk a little. If you try to stretch it, you'll probably pull it apart.

Try this. Soak the gasket in hot water for a minute or so. Then you can usually stretch it out to the right size.



TM-242-Series  
1¼-Ton Truck . . .

## Angle of Attack—For Lubing



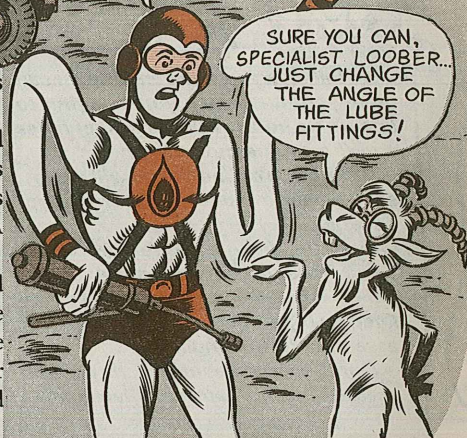
For sure, what's easiest to lube is most likely to get lubed.

So make it easier on yourself and your Gama Goat. Get the Ol' Man's OK to change some lube fittings that're hard to get at with your GAA "lube luger."

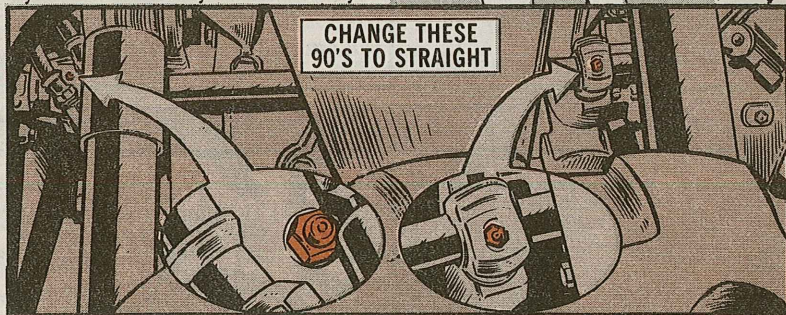
F'rinstance, on some Goats it's hard to get your grease gun on the lube fittings for the 2 steering torque tube bearings—behind the left center wheel. This's because the air and hydraulic lines may be in the way.

IT'S NO USE, GAMA! EVEN I CAN'T GET INTO THOSE TIGHT SPACES!

SURE YOU CAN, SPECIALIST LOOBER... JUST CHANGE THE ANGLE OF THE LUBE FITTINGS!



CHANGE THESE 90'S TO STRAIGHT



A 90-DEGREE FITTING HERE IS HANDIER

That 90-degree fitting can be changed to a straight job, NSN 4730-00-050-4208, or a 45-degree fitting, NSN 4730-00-172-0028—whichever works out best.

And how about that straight fitting, NSN 4730-00-050-4208, on the wheel spindles? You can change all 6 of 'em to a 90-degree fitting, NSN 4730-00-

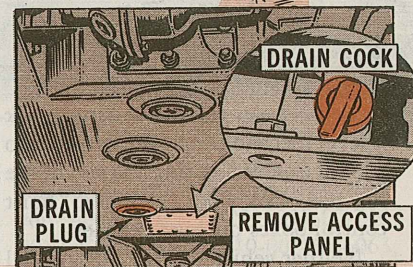
172-0034, or to a 45-degree fitting, NSN 4730-00-172-0028.

Gama Goat Brake System

## Drain Air Tank Monthly

LO 9-2320-242-12 (Apr 72) says to drain the condensation from the air reservoir tank of the sealed brake system every 6 months. But a lot of water can accumulate in that time—so drain the tank monthly. The LO is being changed to show the monthly interval.

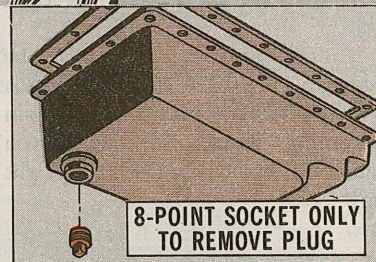
If you can't reach the drain cock by pulling the rear hull drain plug, remove the hull access panel.



## Wrench for Goat Plug

GAMA! CAN YOU HELP ME? THIS YO-YO MECH IS KILLIN' ME!

SURE! TELL HIM T'LEAVE THE METAL CHEWIN' TO ME.

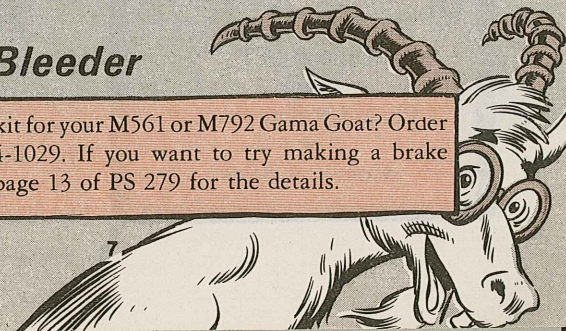


Removing a square-headed oil pan plug from your Gama Goat calls for ⅝-in drive, ⅝-in, 8-point socket, NSN 5120-00-180-1020. Appendix A, CTA 50-970 is your authority to order.

Using a 6- or 12-point socket will eventually make that plug's square-head round. Replace a chewed-up plug with NSN 4730-00-288-7829.

## Goat Brake Bleeder

Need a brake bleeder tool kit for your M561 or M792 Gama Goat? Order one with NSN 5120-00-024-1029. If you want to try making a brake bleeder tool, take a look at page 13 of PS 279 for the details.





2½ and 5-ton . . .

## Dump Truck Trick



You 2½-ton and 5-ton dump truck 0-level mechanics can get tricked into a lot of troubleshooting and downtime by the look-alike hydraulic hoist control boxes on your vehicles.

Neither vehicle's Dash 20P-manual lists the box. Here're the numbers to watch for: NSN 2520-00-740-9090 gets a control box for your 2½-ton dump truck; NSN 2520-00-740-9245 gets one for the 5-ton job.

These boxes are not interchangeable!

Knowing which box works on which vehicle can save you lots of downtime. Here's how to spot the right box:

Hold a control box with the retaining wings facing up—on or top.

For the 2½-ton truck, the control box lever-PN 192077409099 sticks way out on the right rear of the box. It

sticks out on the left rear if the box is for the 5-ton dump truck.



One more check: On the smaller truck's control box, the remote control lever—PN 192077409094—sticks out on the left front. For the 5-ton truck box, this lever sticks out on the right side.

These control box NSNs will be added to TM 9-2320-209-20P (Oct 76) and TM 9-2320-211-20P (May 73) in upcoming changes. Meanwhile, you can pencil 'em in your Dash 20Ps right now.

## IT SHOULDN'T HAPPEN . . .

SP4 F.U.D. burned out his truck's starter after 5 minutes of trying. Then he found out the fuel system was plugged. He hadn't drained the fuel filter for a month.



## Dump Tailgate Pin

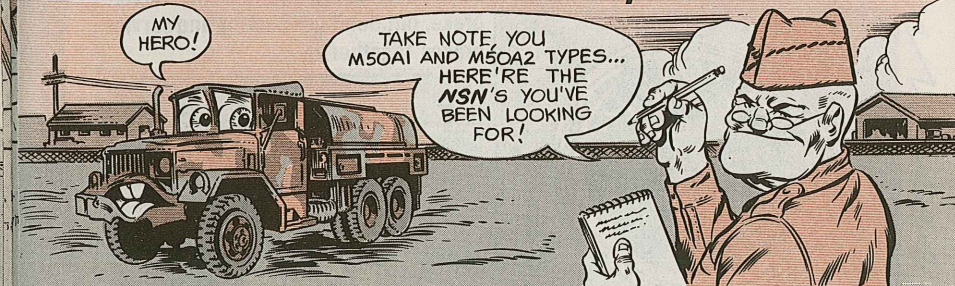


If you're missing the whole pin and chain for your M51-series or M817 5-ton dump truck's tailgate, here's what you need: Pin, NSN 5315-00-740-9017; Chain, NSN 4010-00-165-6063; S-hook (2 of 'em), NSN 4030-00-948-7315. That NSN for the chain will get you enough to last for quite a while—100 feet to a box.

## Brake Shoe Pin

The brake shoe stabilizer spring pin pictured on page 240, item 33 of TM 9-2320-209-20P has NSN 5315-00-316-0992. Page 15 of TM 9-2520-246-34P lists it as an organizational item. It's not yet listed in the -20P.

## Water Tanker Pipe



Need an NSN for the bypass fording valve pipe shown in Fig 122, page 101, TM 9-2320-209-10 (Feb 65)? NSN 2540-00-040-2150 does it for the M50 tanker. NSN 2990-00-004-4273 fills the bill for M50A1 and M50A2 trucks.



20-Ton CCE  
Dump Truck

# DUMPING

HEY, CONNIE...  
YOU SEEN OUR TECH REP?

HE WAS S'POSED T'  
TALK TO US 'BOUT  
KNOWHOW AND  
PATIENCE!

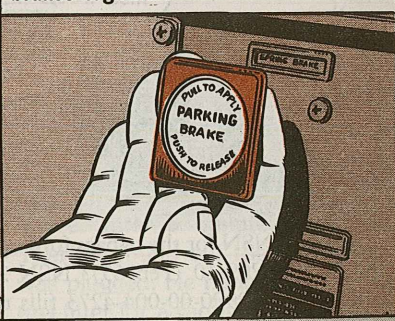
Knowhow and patience are the key words when it comes to dumping with your 20-ton CCE.

Tough as the beast is, you'll tear up parts—like the power take off (PTO) shaft—if you don't dump right. So, you supply the patience—here's the knowhow . . . by the numbers:

1. Let the engine idle—about 600 RPM.



2. Pull out the "yellow" parking brake control. Or apply and lock the service brake, but don't use parking and service brakes together.



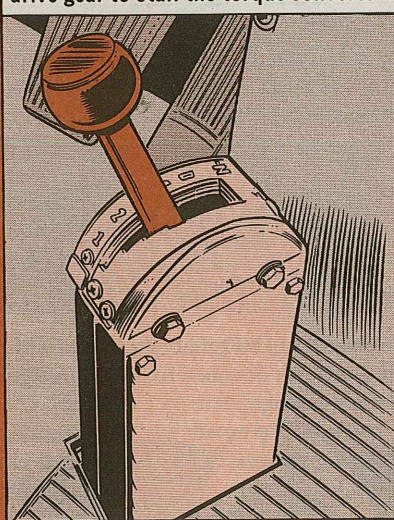
# MADE RIGHT!



KNOWHOW  
I'LL GIVE 'EM,  
CONNIE!...

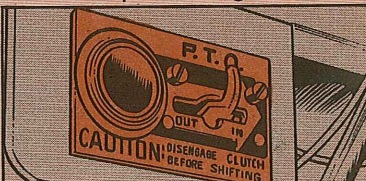
... BUT I THINK I  
JUST LOST MY  
PATIENCE!

3. Put the main transmission in any drive gear to stall the torque convertor.



## READ AND HEED!

4. Put the PTO in the IN position. The red PTO lamp should light. CAUTION:



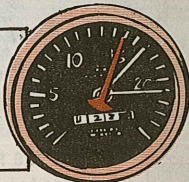
Leave the dump body control locked, and don't rev-up till you see the light. No light? Ease off the brakes, let the truck roll forward and then reset the brakes. This gives the PTO gear a shot at meshing with the transmission driving gear. Still no light? Put the powershift transmission in neutral—you should hear engine/pump load noise. If you hear gear clash—get back in a drive gear. Repeat these procedures till you see the light!



5. If you're going to dump your load in one spot, you want the transmission in neutral. Then, release the safety lock on the dump body control lever. Move the lever back to raise the dump. If you let go of the lever, the dump will stop in whatever raised position it's in at that time.

Before you dump, make sure the tailgate's unlatched so the load can slide off free and even.

6. Rev-up to a maximum of 1500 RPM. NEVER RUN OVER 1500 RPM.



7. If you want to spread or move when dumping, release the brakes, shift transmission into first gear and move out up to 1500 RPM. Control dumping by raising the dump bed rather than speeding up the truck. More than 1500 RPM will tear up the PTO drive shaft and the hydraulic pump.

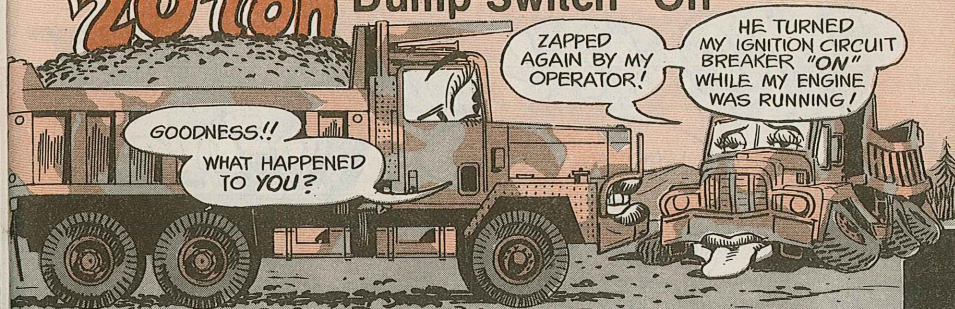
8. Relief! The load's been dumped. Switch the PTO lever to out . . . never travel between work sites with the PTO engaged. Lock tailgate.



You're ready to load up again. Make sure the dump body floor is covered with wood or dirt if you're going to load large shot rock or concrete. This dunnage will decrease the chance of body and chassis damage.

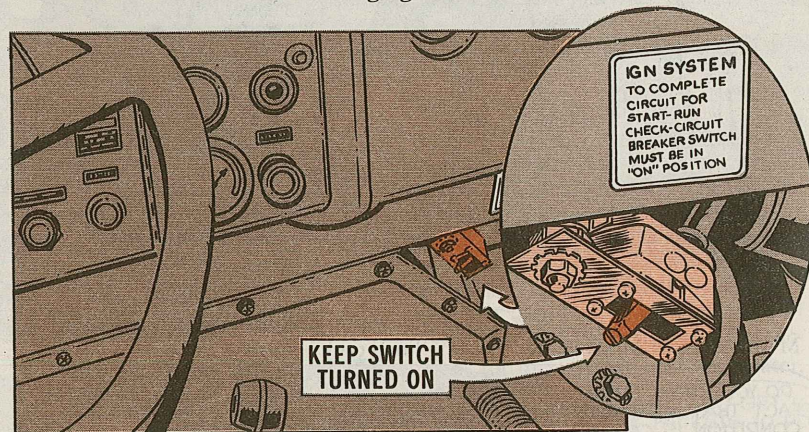
GET IT ON, TROOPS!

## 20-ton Dump Switch "On"



Keep that ignition circuit breaker switch turned ON when you use the CCE 20-ton dump truck.

The circuit breaker protects the alternator against reverse polarity. The alternator is taken out of the charging circuit when the switch is OFF.



There are 3 ways that switch can get turned OFF.

1. It's intentionally turned OFF.
2. You might 'bump' it and turn it OFF.
3. You could reverse polarity when reconnecting the batteries or when slave (jump) starting. Reverse polarity will kick the switch OFF automatically.

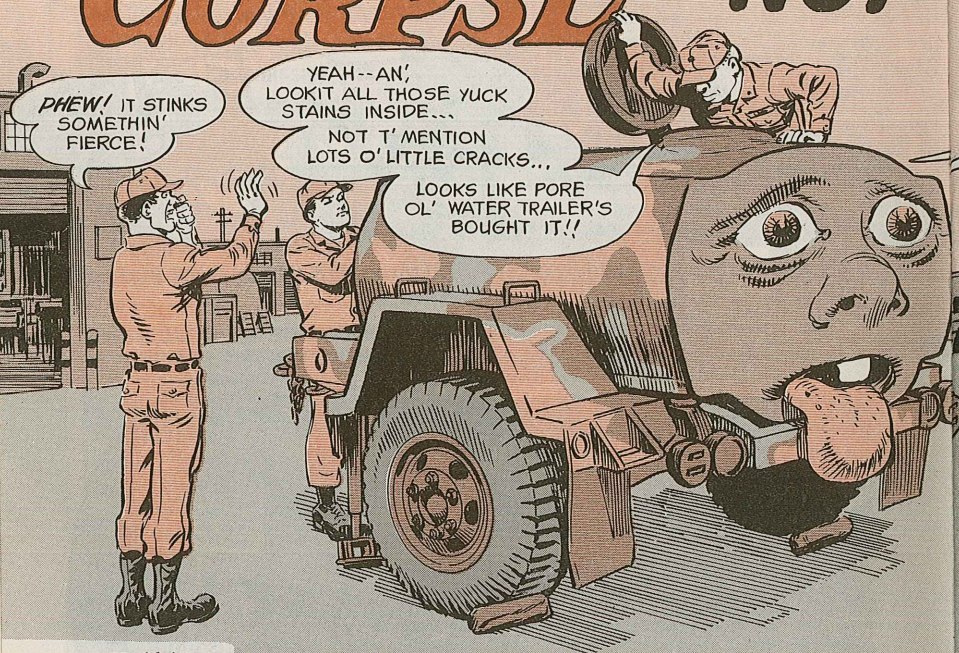
Never turn the circuit breaker switch ON while the engine is running. The current surge will blow the diodes in the alternator.

So, if the switch gets turned OFF because of reverse polarity, turn it ON before starting the engine. And if you've got the engine running and the switch gets turned OFF, stop the engine, turn the switch ON, then restart the engine.



# "CORPSE" NOT

TM-267-Series Water Trailer . . .



PHEW! IT STINKS SOMETHIN' FIERCE!

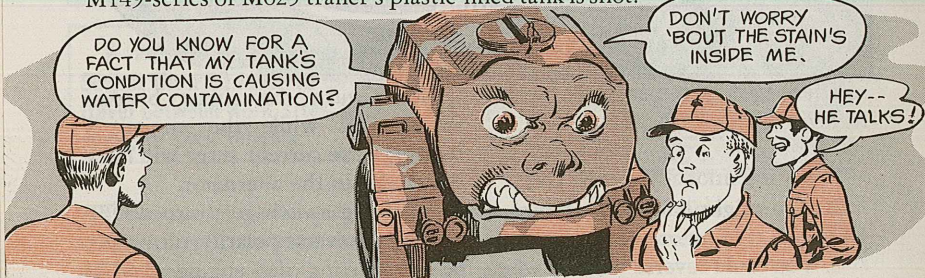
YEAH--AN, LOOKIT ALL THOSE YUCK STAINS INSIDE...

NOT T'MENTION LOTS O' LITTLE CRACKS...

LOOKS LIKE PORE OL' WATER TRAILER'S BOUGHT IT!!

Hold it!

Do you really need a new 400-gallon water tank trailer? Are you sure that M149-series or M625 trailer's plastic-lined tank is shot?



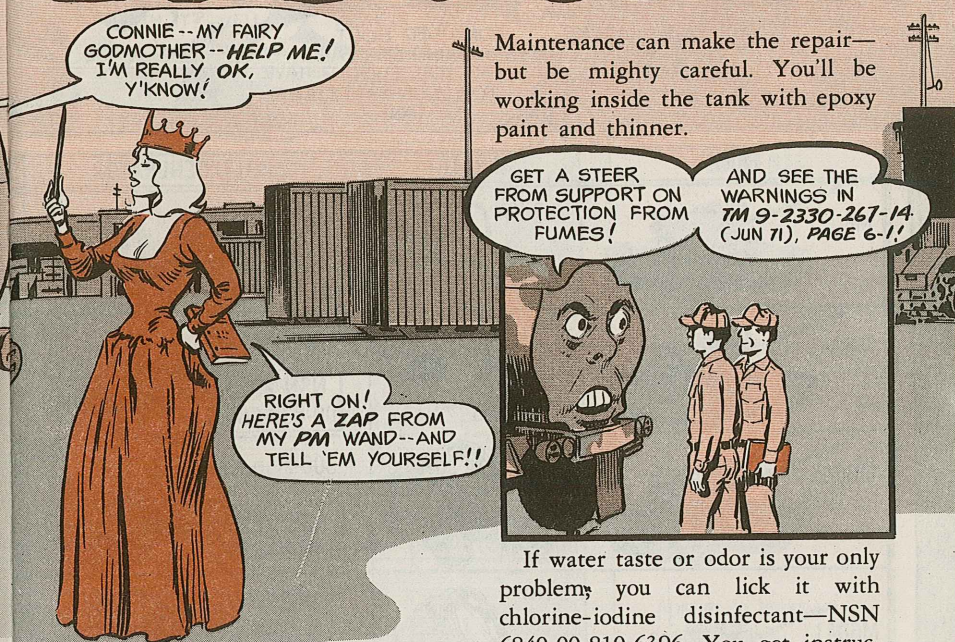
DO YOU KNOW FOR A FACT THAT MY TANK'S CONDITION IS CAUSING WATER CONTAMINATION?

DON'T WORRY 'BOUT THE STAIN'S INSIDE ME.

HEY-- HE TALKS!

Some outfits are turning in these trailers only because of stains inside the tank—stains that've got nothing to do with the quality of the water. Or the trailer's shot down for tiny surface cracks inside the tank—cracks that're no trouble at all if the tank's kept clean.

# EVEN SICK



CONNIE--MY FAIRY GODMOTHER--HELP ME! I'M REALLY OK, Y'KNOW!

RIGHT ON! HERE'S A ZAP FROM MY PM WAND--AND TELL 'EM YOURSELF!!

Maintenance can make the repair—but be mighty careful. You'll be working inside the tank with epoxy paint and thinner.

GET A STEER FROM SUPPORT ON PROTECTION FROM FUMES!

AND SEE THE WARNINGS IN TM 9-2330-267-14 (JUN 71), PAGE 6-1!

There's only one way to tell if the tank is causing contamination.

TESTING'S DONE BY THE MEDICS!



If surface cracking inside the tank is a worry, there's a detailed repair procedure in TB 43-0001-39-1 (Apr 76), pages 49-51. This EIR Digest article says Organizational

If water taste or odor is your only problem, you can lick it with chlorine-iodine disinfectant—NSN 6840-00-810-6396. You get instructions for mixing this stuff with water.

YOU NEED ONE PACKET FOR EVERY 25 GALLONS...

...SO GET 16 PACKETS TO DOSE MY 400 GALLON INNARDS!



Then you flush the tank out with fresh water.



# FIREPOWER

M60, M60A1, M60A1 (RISE), M60A2, M48A5 Tanks—

## What Searchlight

HEY, TANK  
JOCKS...

CONFUSED 'BOUT  
WHAT KIND OF SEARCH-  
LIGHT YOU SHOULD HAVE  
FOR YOUR PARTICULAR  
TANK?

## Goes Where?

... AND WHAT TYPE  
OF GENERATOR OR  
ALTERNATOR GOES  
WITH IT? WELL ...

FRET NO MORE!  
HERE'S THE SCORE!...

TANK	LIGHT	ALT/GENERATOR	REGULATOR	COMMENTS
M60	2.2-KW AN/VSS-1	300-amp gen NSN 2920-00-830-6660	300-amp NSN 2920-00-088-3989	With the 1790-2A engines
M60A1	2.2-KW AN/VSS-1	300-amp gen NSN 2920-00-830-6660	300-amp NSN 2920-00-088-3989	Applies to tanks before serial No. 6742.
M60A1	1-KW AN/VSS-3A	300-amp gen NSN 2920-00-830-6660	300-amp NSN 2920-00-088-3989	Applies to tanks with serial No. 6742 and after.
M60A1 (RISE)	1-KW AN/VSS-3A	650-amp alt NSN 2920-00-441-8137	650-amp NSN 6110-00-467-4000	Applies to tanks with serial No. 7335 and after with 1790-2C engines.
M60A2	2.2-KW AN/VSS-1	300-amp NSN 2920-00-830-6660	300-amp NSN 2920-00-088-3989	With 1790-2A engines.
M48A5	2.2-KW AN/VSS-1	300-amp NSN 2920-00-830-6660	300-amp NSN 2920-00-088-3989	With 1790-2A/2D engines.

(NOTE: An MWO to convert from the 2.2-KW to the 1-KW light is in the works, but the 2.2-KW light will be around for a long time yet.)

Some carbon pile regulators, NSN 2920-00-335-4264, are still in the system. They're slated for replacement with the solid state regulator.



## Ground Strap Go Around



You have finished ground hopping and now you have the power pack back in your combat vehicle. Does it matter if you hook up the ground straps?

That's an affirmative, Good Buddy!

A missing or unconnected ground strap can mess up your electrical system like you wouldn't believe, 'specially your generator.

All combat vehicles have at least one ground strap running from the power pack to the hull. Most, like the M60-series tanks, have ground straps at both the generator and starter, even if they're not shown in all the -20P type manuals.

**CHECK YOUR  
GROUND STRAPS ...**



**ANY MISSING OR  
UNCONNECTED?**

So if one is missing, order it and keep it tight at both ends.

Batteries that are in poor shape can also cause electrical problems. Check 'em out the way it says in TM 9-6140-200-12 (Sep 73) and make sure you have a matched set with not more than 25 specific gravity points or 0.2 volts difference between batteries.

## New AOAP AR

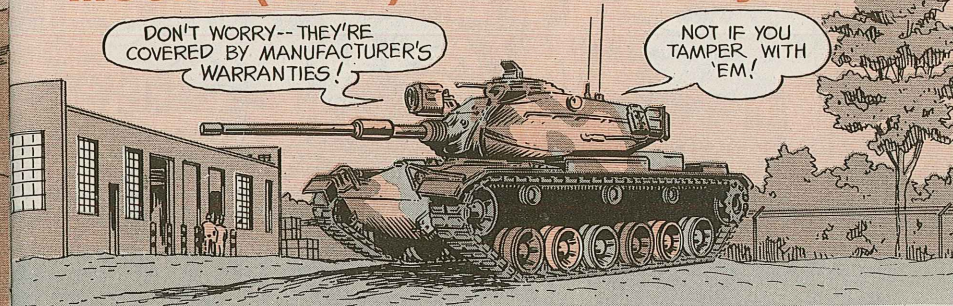
The Army Oil Analysis Program (AOAP) is getting in high gear. AR 750-22 (12 Apr 77) outlines the big picture. Check it out!

## Need Back Copies of PS?

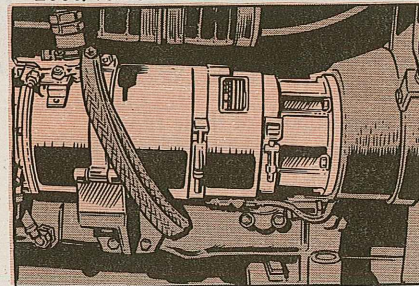
Just drop a line to Connie, PS  
Magazine, Lexington, KY 40511.



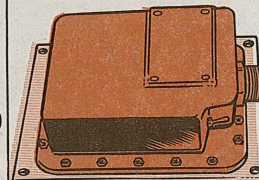
## M60A1 (RISE) Tank Warranty Rules



The NSN 2920-00-441-8137 generator-alternator and NSN 6110-00-467-4000 regulator on your M60A1 (RISE) tank have a manufacturer's warranty for 18 months or 2000 vehicle miles.



**SOMETHING  
WRONG?  
SEND  
THEM  
THROUGH  
CHANNELS TO  
WARRANTY  
SERVICE**



However, the warranty will self-destruct if these items are tampered with, abused, or even if they get beat up on the way back to the manufacturer.

So if anything goes wrong that some TM 9-2350-257-20-1 trouble-shooting won't cure, never try to fix it yourself. That will blow the warranty. Take the item off, **very carefully**, tag it with exchange tag (DA Form 2402) per TM 38-750, Chapter 3, para 3-2, page 3-1, and send it on through channels for warranty service.

Likewise, all DS/GS maintenance types are asked not to repair (or even test) a warranty item. They just make sure it's well wrapped and send it on to the end of the line which is:

For CONUS units:

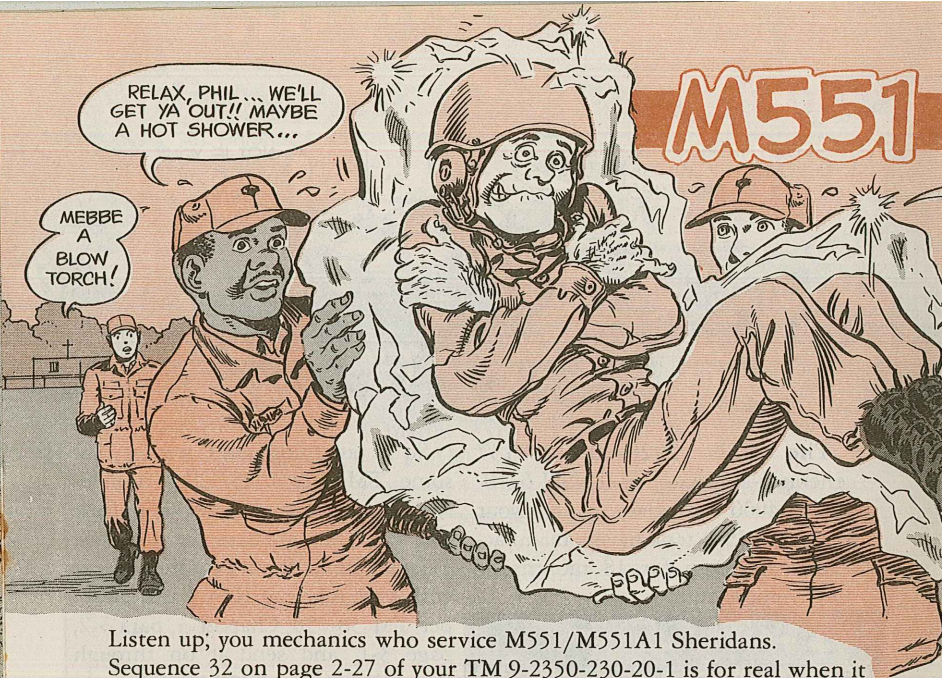
Anniston Army Depot  
ATTN: DRXAN-PP  
Anniston, AL 36201

For USAREUR units:

US Army Maintenance Plant, Mainz  
ATTN: DRXMZ-MT  
APO 09185

If you have any questions on the warranty, contact the Tank-Automotive Materiel Readiness Command, ATTN: DRSTA-M Warren, Michigan, 48090



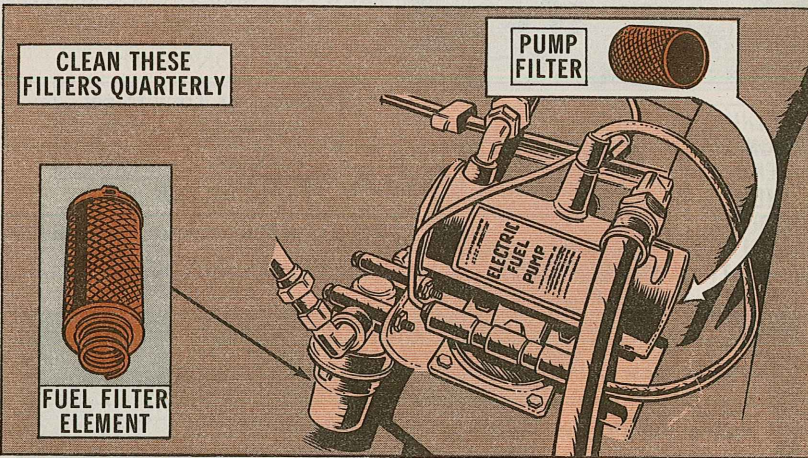


## Sheridan Heater Care



Listen up; you mechanics who service M551/M551A1 Sheridans. Sequence 32 on page 2-27 of your TM 9-2350-230-20-1 is for real when it says: "Clean fuel filter element and pump filter."

Every quarterly (Q) service you have to clean both of these filters. Sure, they're hard to get to there in the driver's compartment, but clean 'em anyway.



The info on fig 2-159 on page 2-277 of your TM 9-2350-230-20-1 throws you a curve. Forget it. Trust page 229 of TM 9-2350-230-24P/1 for the OK stock number . . .

### PREFORMED PACKING



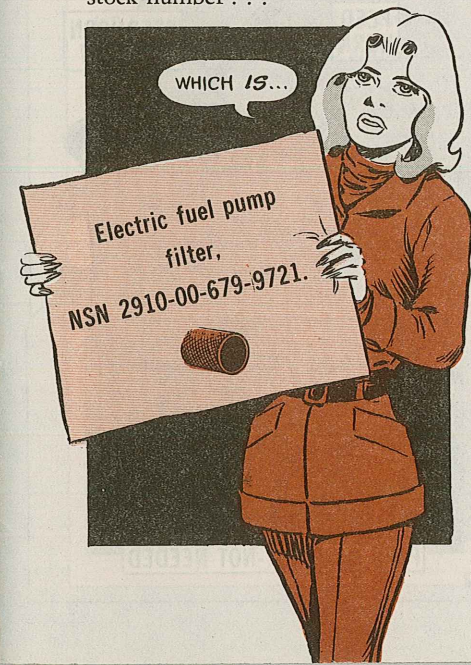
Make sure you screw the fuel filter metal bowl in straight after you clean the filter. If you cross-thread it the junction can leak fuel and start a fire.

Also, remember that the elements for the fuel filter and for the electric fuel pump are not interchangeable.

In case the igniter is burned out a new one is NSN 4520-00-790-8417 for heater NSN 2540-00-759-8018.

Use igniter NSN 2540-00-217-5782 for heater NSN 2540-00-113-4180.

If you need a control box, it's NSN 2540-00-995-1635 for vehicles thru series number 798, plus 804 and 810. Use NSN 2590-00-169-5749 for vehicles after serial number 798 except for 804 and 810.





Come and get it, friend.  
Here's some straight  
poop on parts and PM  
especially made to take  
a worry or two off your  
mind in so far as the  
M163 and M167  
Vulcans are concerned.

# VULCAN

## Sharpshooting



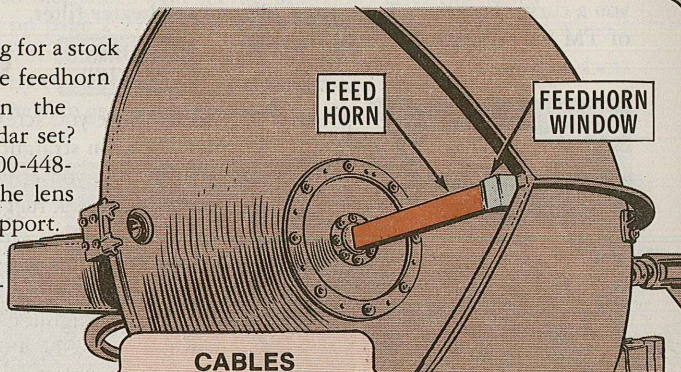
WHO'S THE  
HIPPIE, CONNIE?..

...AN' WHAT'S  
HE SHOOTING OFF  
HIS BIG YAP ABOUT?

WHY, THAT'S  
VULCAN,  
SARGE--  
HE'S  
GIVING  
THE TROOPS  
HOT TIPS ON  
HIS NAME-  
SAKE!

### FILTER LENS

Been looking for a stock  
number for the feedhorn  
filter lens on the  
AN/VPS-2 radar set?  
NSN 1285-00-448-  
4222 will get the lens  
... for your support.  
It'll be added  
to TM 9-1285-  
200-30P.



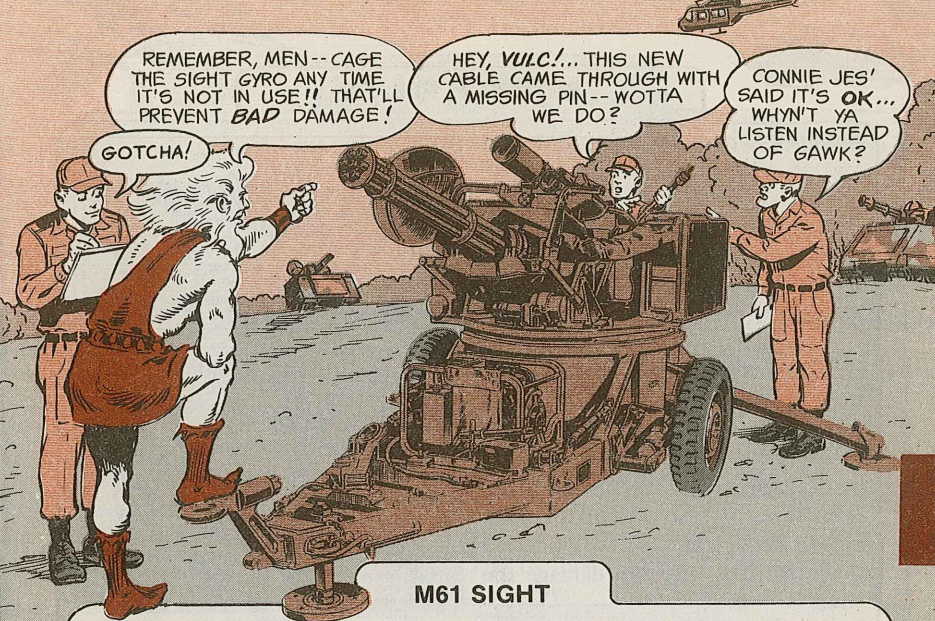
### CABLES

If replacement cables have been  
coming through with "missing" pins,  
don't ship them back to supply.

The pins are not there because  
they're not needed. So, go ahead and  
use the cables.



PINS MISSING? NOT NEEDED



REMEMBER, MEN--CAGE  
THE SIGHT GYRO ANY TIME  
IT'S NOT IN USE!! THAT'LL  
PREVENT BAD DAMAGE!

GOTCHA!

HEY, VULC!... THIS NEW  
CABLE CAME THROUGH WITH  
A MISSING PIN--WOTTA  
WE DO?

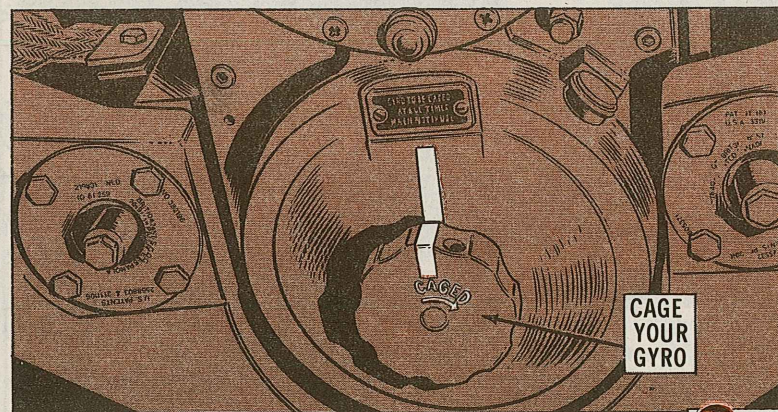
CONNIE JES'  
SAID IT'S OK...  
WHY'NT YA  
LISTEN INSTEAD  
OF GAWK?

### M61 SIGHT

Cage the M61 sight before checking out the system... and especially before  
you make checks which include revolving the turret or cannon. If your sight  
isn't caged, you can do bad damage to the sight gyro.

Fact is, the sight gyro should be caged whenever the sight's not in use.

For units with the product improved Vulcan, the sight must be caged before  
power can be applied to the system.





## PATIENCE, PLEASE

Cables, wherever they go, need a few seconds patience when you install or remove them.

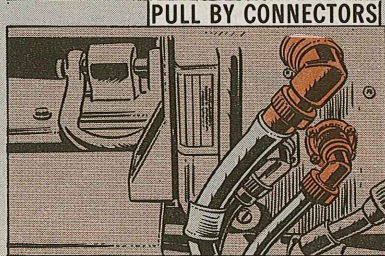
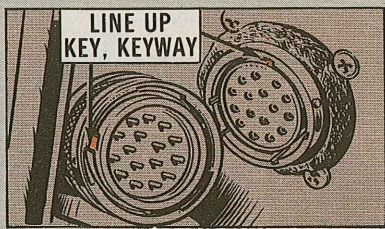
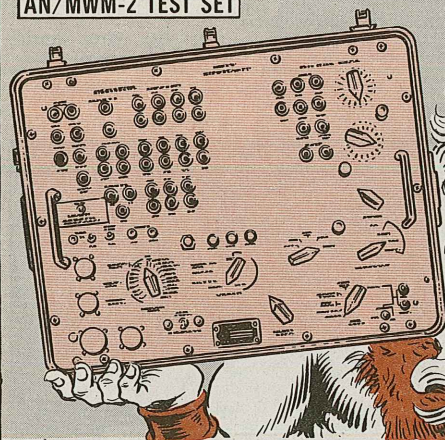
Many are damaged because they are forced or turned before the pins and sockets on the connectors and jacks are lined up.

A second or two to line up the key and keyway or, in some cases, markings, are well spent. Push or turn after you're lined up.

When you remove the cables, pull by the connectors. If you yank on the cable or wiring, you can pull the wires out or loosen them so they can't do their job. You also can damage the jacks.

Organizational test sets AN/TPM-23 and MWM-2 or -3 save time, effort and money in troubleshooting the radar and fire control equipment. Use them.

### AN/MWM-2 TEST SET



GOT IT, YOU GUYS?

UNCLE VULCAN WANTS YOU TO CAREFULLY CHECK WITH YOUR TEST SETS BEFORE REPLACING COMPONENTS!!

HMMP!... HE'S LETTING THAT BEARD GO TO HIS HEAD!

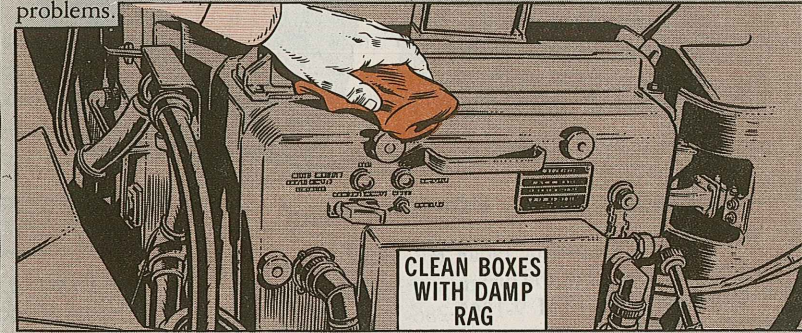
They'll save you from changing a lot of boxes that don't need changing. They'll also save components a lot of unnecessary trips to your DSU.

If you're not up on use of the test sets, your unit can get you some first class training from MAIT, LAO or other sources. It's worth the investment.

## WASHING

Washing the fire control and radar boxes with gobs of water makes for grief. Keep water away. If the boxes get cruddy in the field, wait'll you get back to base and use a damp sponge or rag to clean 'em. Do the outside of the box only ... with as little water as necessary.

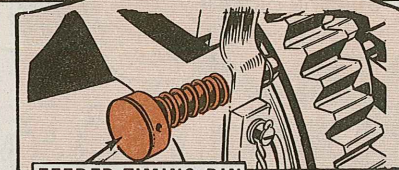
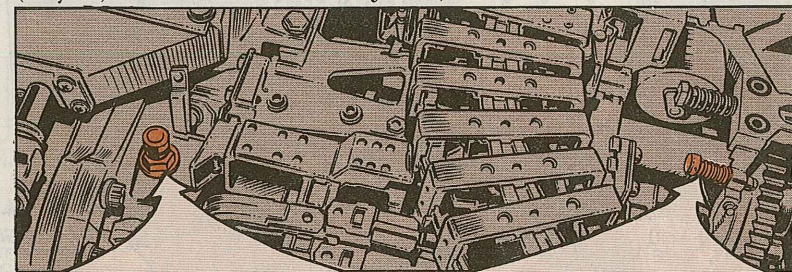
Water in the boxes makes for corrosion, shorts and other unwanted problems.



## TIMING

Correct timing on the feeders and the cannon is a must. Some troops get careless with timing (they don't do it, mostly), and that results in destroyed declutching feeders and barrels. It's not so great for your health, either.

Best bet is to get with it ... the way it's spelled out in TM 9-1005-286-10 (May 76) and TM 9-2350-300-10 (Jan 76).

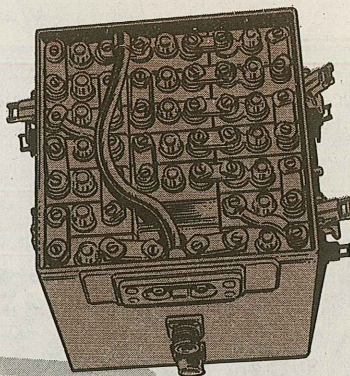




## BATTERIES

Terminal screws on nickel cadmium batteries should be torqued to 35-50 lbs-in (see TM 11-6140-203-15-3, ch 3). If not, they work loose and touch the battery case. That creates arcing, shorts, fires and a few other things you can do without.

Soon-to-be published -20-1 TM's on each system move the screw torquing to support level, so you can forget that chore soon.

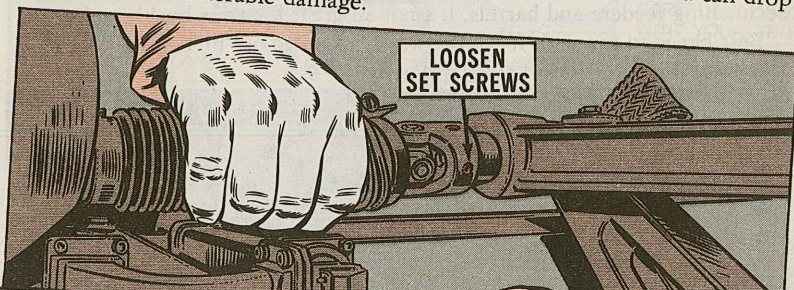


## BORESIGHTING

When you boresight the radar, take the TM steps in order. If you forget or skip Steps 29 and 30 of the distant aiming point method, or Steps 32 and 33 of the target method, (TM 9-1005-286-10), you can tear up the gears in the antenna and damage the servo system.

In other words, you loosen the gun elevation input shaft before you make adjustments in those steps.

Be careful not to loosen the input shaft too much. The antenna can drop down and do considerable damage.



LOOSEN  
SET SCREWS

... SO, WHEN YOU  
BORE SIGHT, TAKE THE  
TM STEPS IN ORDER!

GOTCHA,  
VULC!

GRR-RROMP!  
I'VE SIGHTED  
A BORE  
ALRIGHT!

WHY, SARGE,  
I NEVER NOTICED  
BEFORE-- YOU'VE  
GOT GREEN EYES--

26

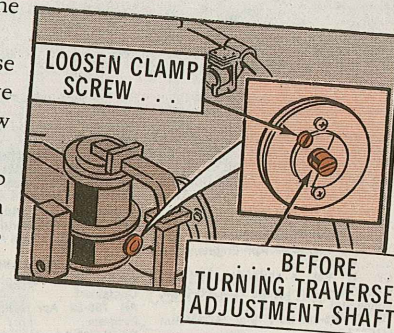
## ... MORE BORESIGHTING

Jog your memory with this note on:  
Steps 30, distant aiming point  
method, and 33, target method, for the  
M163 and M167.

Never try to turn the traverse  
adjustment shaft until you have  
loosened the locking clamp screw  
(next to it).

Some troops forget the clamp  
screw, spread the screwdriver slot in  
the adjustment shaft when they try to  
force it ... and make one bitch of a  
repair job. The shaft replacement is a  
tough job.

So, loosen the clamp screw.



LOOSEN CLAMP  
SCREW ...

... BEFORE  
TURNING TRAVERSE  
ADJUSTMENT SHAFT

YEAH--AND THEN TH'  
GORILLA COMPLETELY RUINED  
ME--WHEN HE TRIED TO  
ADJUST ME BY FORCE!

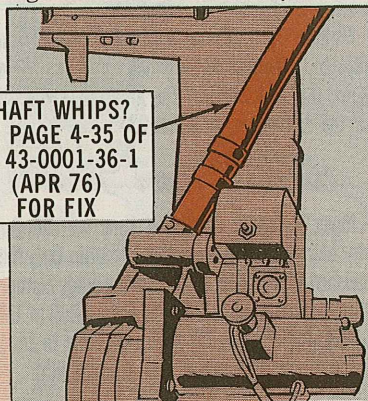
TERRIBLE--  
AN' ALL TH' KLUTZ  
NEEDED TO DO WUZ  
LOOSEN ME, YER  
CLAMP SCREW!

## M163 FLEXIBLE SHAFT

If your M163 flexible drive shaft whips around when the gun's fired at high elevation, here's a fix you should know about:

Page 4-35 of TB 43-0001-36-1 (Apr 76) tells you how to install a U-bolt on the turret partition and put shrink tubing on the end of the flex shaft.

SHAFT WHIPS?  
SEE PAGE 4-35 OF  
TB 43-0001-36-1  
(APR 76)  
FOR FIX



YOUR TECH  
LIBRARY  
PROBABLY  
HAS A COPY  
OF THE TB!

PS END

TB 43-0001-36-1

27



# PUBS

This is a selected list of recent pubs of interest to organizational maintenance personnel. This list is compiled from recent AG Distribution Centers Bulletins. For complete details see DA Pam 310-4 (Nov 74), and Ch 3 (Oct 75), TM's, TB's, etc.; DA Pam 310-6 (Jul 76) and Ch 3 (Mar 77), SC's and SM's and DA Pam (O) 310-9 (Aug 74), COMSEC pubs.

## TECHNICAL MANUALS

TM 5-2805-203-24P Apr Engine, Gasoline, 6-HP Mil Std  
Ch 4, TM 5-4330-232-12 Apr Filter/Separator Liquid Fuel 60-GPM, Frame Mtd  
TM 9-1005-286-20-1 Mar ADA Gun M167A1  
Ch 1, TM 9-1345-203-12&P May Land Mines  
TM 9-1410-530-24P Feb Improved HAWK  
TM 9-2320-206-10 Apr M123-Series 10-Ton, Truck  
TM 9-2320-242-10 Mar 1½-Ton Truck M561 and M792  
Ch 16, TM 9-7012 Feb M48 Tank  
TM 11-5840-208-10 Apr Radar Set AN/MPQ-4A

TM 11-5985-334-20P May Mast AB-621/G  
TM 55-1510-209-CL-1 Mar RU-21A, RU-21D  
Ch 31, TM 55-1520-210-20 Apr UH-1D/H  
Ch 24, TM 55-1520-228-20 May OH-58A  
Ch 1, TM-1520-234-23P-1 Mar AH-1S  
TM 55-1520-236-PMS Apr AH-1S (Mod)  
TM 55-1520-236-10 Apr AH-1S (Prod)  
TM 55-1730-221-20P Apr Hydraulic Jack, Aircraft, 10-Ton Type A-6

## MISCELLANEOUS

AR 725-12 Apr Shipping and Storage Containers  
AR 750-22 Apr Army Oil Analysis Program  
DA Cir 708-6 Apr Manufacturers Part and Drawing Numbering Systems  
DA Cir 750-50 May Modification of Material  
DA Cir 755-17 May Disposition of Un-economically Repairable Major End Items  
DA Cir 755-18 Apr Reutilization of Material Precious Metals Recovery Program  
DA Pam 108-1 Jan Index of Army Motion Pictures and Audio-Visual Aids

DA Pam 310-1 Mar Index—Admin Pubs  
Ch 3, DA Pam 310-6 Mar Index—Supply Pubs  
FM 6-15E1/2 and FM 6-15E3 Apr Pershing Missile Crewman  
FM 9-55D3 Jun EOD Manual  
FM 9-55G1/2 May Nuclear Wpns Maint Spec  
FM 9-55G3 May Nuclear Wpns Maint Spec  
FM 9-63C/CM May Commander's Manual MOS 63C Track Veh Mech  
FM 9-63C4 May MOS 63C Track Veh Mech, Skill Level 4  
FM 11-34B4 May MOS 34B, E, F, H, I, K, Skill Level 4  
Ch 1, FM 38-750 May Logistics Maintenance Management  
FM 55-506-1 Apr Basic Electricity  
LO 5-2805-203-12 Mar Gasoline Engine 6-HP Mil Std  
LO 9-2320-258-12 Apr M746 Truck Tractor, 2½-Ton  
SC 4910-95-CL-A51 Apr Hoisting Unit, Truck Mounting Set No. 7  
SC 5180-90-CL-N36 Apr Tool Kit, General Mech TMP  
TC 11-4 Apr Handbook for AN/VRC-12 Series Radio Sets

## AUDIO-VISUAL STUFF—Available at Your Local TASC (Training and Audiovisual Support Center)

### FILMS, TV TAPES

TVT 7-52 TOW Modifications, Maintenance  
TF 9-4923 M60A2, Tank Computer M19

### TEC LESSONS

010-071-6633-F 81-MM Mortar Sights, M53 and M34A2  
010-071-6640-F 81-MM Mortar Maintenance  
020-171-1132-F M73/M219

Coaxial Machinegun: Cleaning, Inspection and Lubrication  
020-171-1660-F Before Operation Checks and Services, M551, Part I

043-441-7870-F Introduction/Inspect Redeye  
250-061-6313-E FDC Computer's Record Pretest  
910-071-0007-F Preventive Maint for Leather Goods

## Digging a Good NSN

Use NSN 5307-00-371-6714 to get the plain studs for both front and rear wheels on your Model 440HA DED grader. Item 15, Fig 98, TM 5-3805-237-20P (Dec 71) is being changed to show this NSN.

## Wheel for Transporter

Aircraft types should make an addition to TM 55-1740-201-13 (Apr 71) on the Airmobile Transporter, Model 4003. Page 79, item 29, should read: Wheel, NSN 2530-00-287-2314, P/N 7387807, Mfg Code, 21450.

## New Form Signature

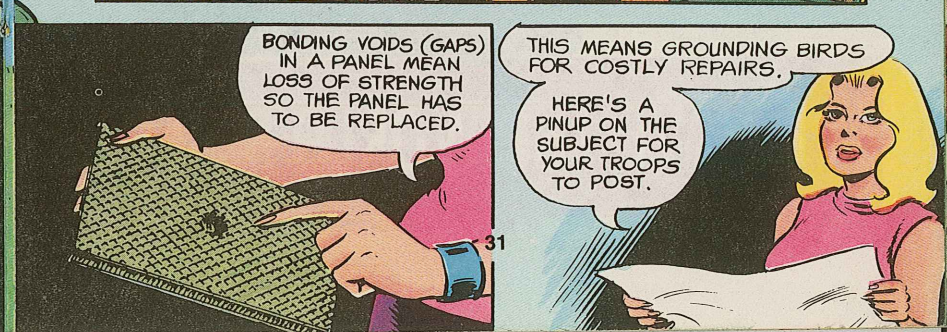
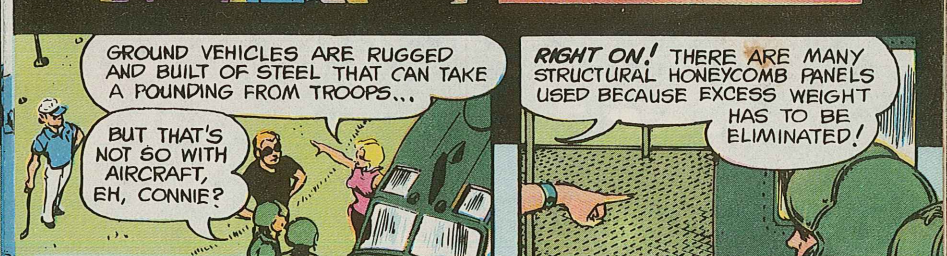
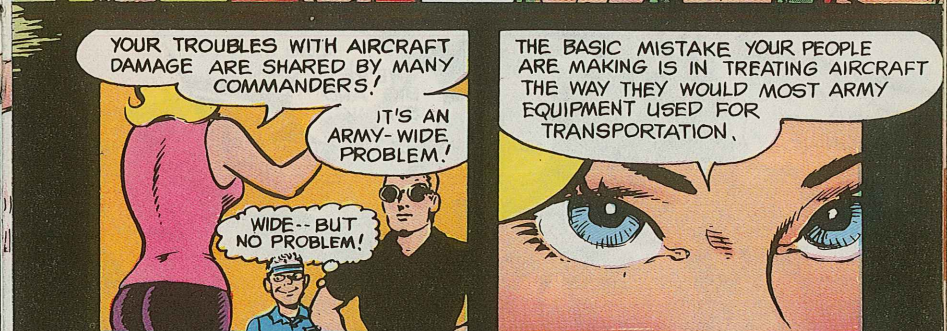
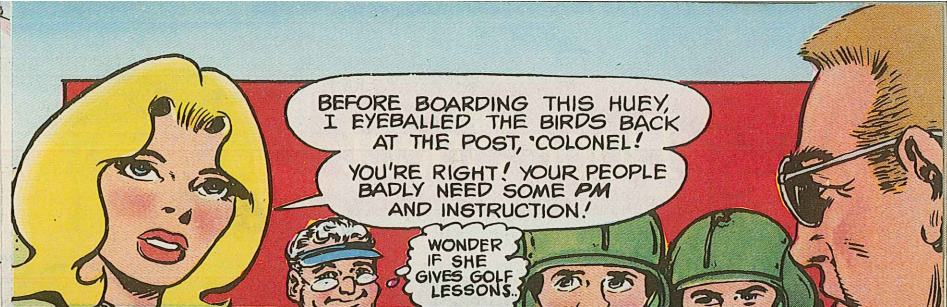
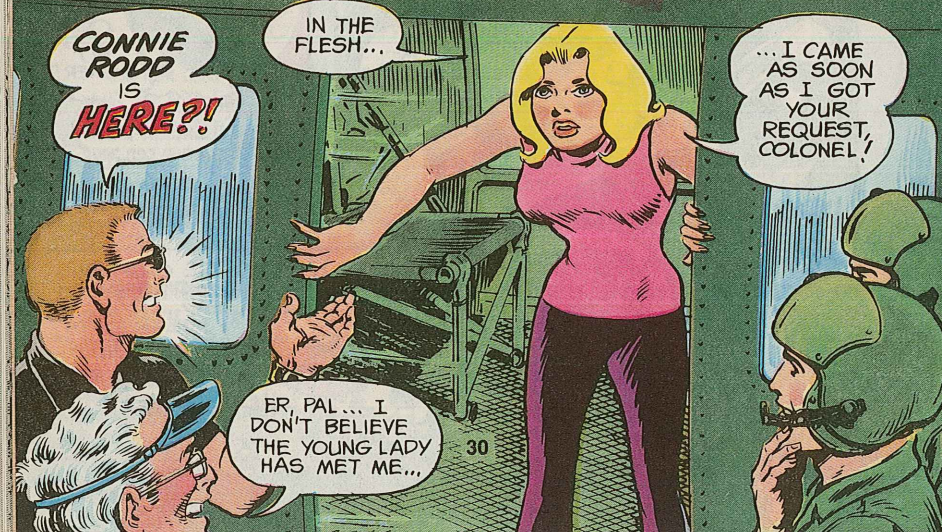
Making up a "Corrected Copy," "New Form Initiated," permanent logbook copy or Gain Report DA Form 2408-9? The Julian Date you fill out the form goes in Block 23.

## Unknown Rotor Time?

Never estimate operating time on chopper rotor blades that arrive without records. Only the headshed (TSARCOM) can make the blade history estimates based on a formula. Para 4-8(3) of TM 55-1500-328-25 (Jul 72) spells out how to send an inquiry to reconstruct the missing info.

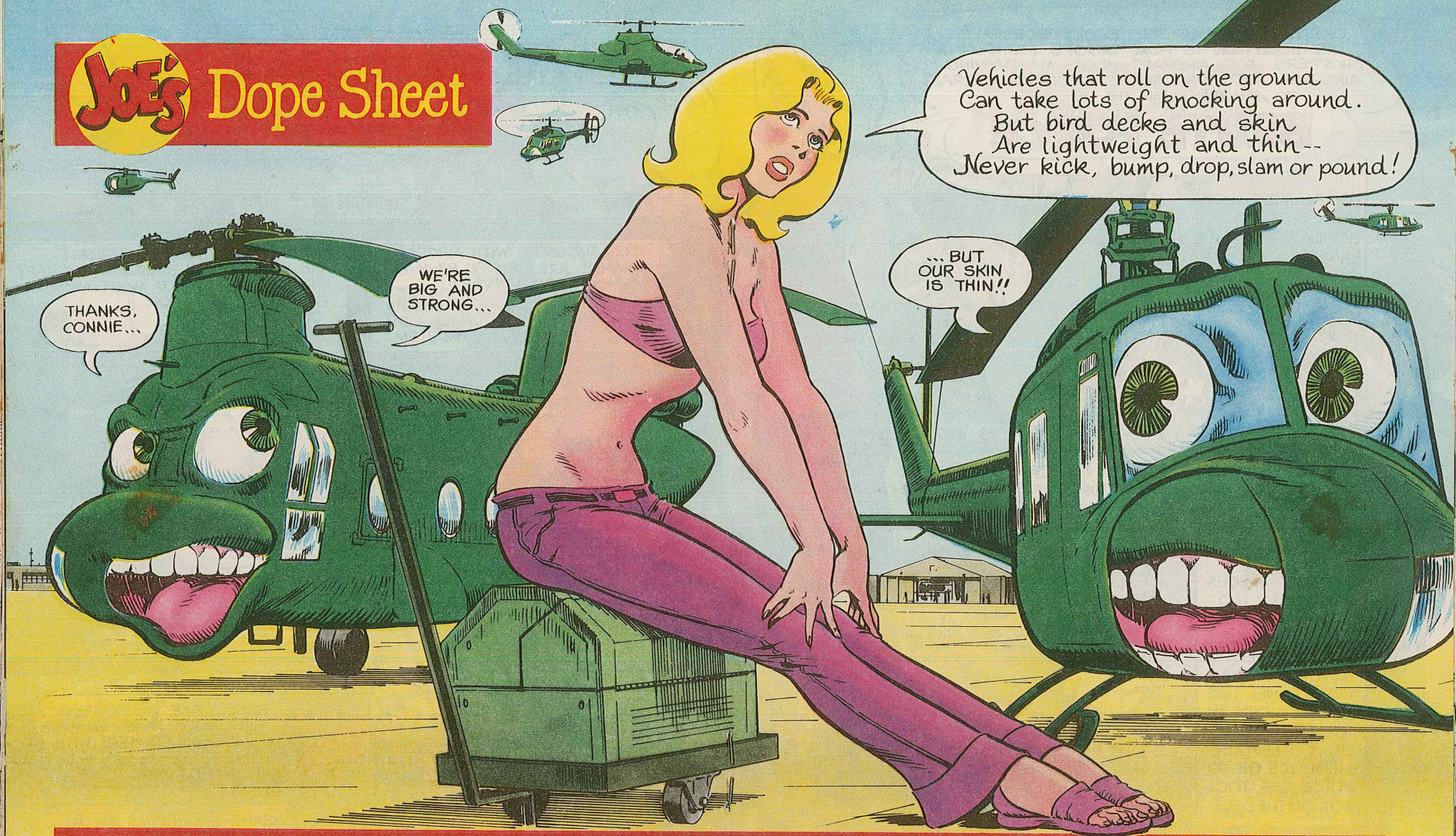








# Joe's Dope Sheet



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

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



OK! THAT SUMS UP THE BASIC PROBLEM!  
THE SOLUTION IS FOR TROOPS FLYING IN  
CHOPPERS, FOR AIRCRAFT MECHS MAINTAINING  
AIRCRAFT AND FOR TROOPS SERVICING AIRCRAFT  
TO **ALWAYS** AVOID THE USE OF

## BRUTE FORCE

FOR EXAMPLE, THE  
HUEY FLOOR IS A  
HONEYCOMB  
PANEL.

TROOPS SHOULD NEVER THROW OBJECTS ON THE FLOOR  
WHICH CAN PUNCTURE THE FLOOR PANEL. THIS WILL LEAD  
TO EARLY REPLACEMENT.

AIRCRAFT MECHS  
SHOULD NOT  
THROW TOOL  
BOXES ON THE  
ENGINE DECK—  
ANOTHER HONEY-  
COMB PANEL. THIS  
CAUSES VOIDS IN  
THE DECK—MORE  
EARLY REPLACE-  
MENT. IT'S OK TO  
PLACE THE TOOL  
BOX ON THE DECK.

JUST AS IMPORTANT, OF COURSE, IS TO  
**ALWAYS** GO BY THE **TM'S** -- **NEVER** USE

## INCORRECT HARDWARE

AIRCRAFT MECHS  
SHOULD ALWAYS  
USE THE HARDWARE  
THAT IS CALLED OUT  
IN THE PARTS PUB.  
INSERTS IN THE PAN-  
ELS HAVE SPECIAL  
SCREWS AND IF A  
SCREW IS INSERTED THAT IS TOO LONG, IT'LL PENE-  
TRATE THE BACK OF THE PANEL AND CAUSE A VOID.

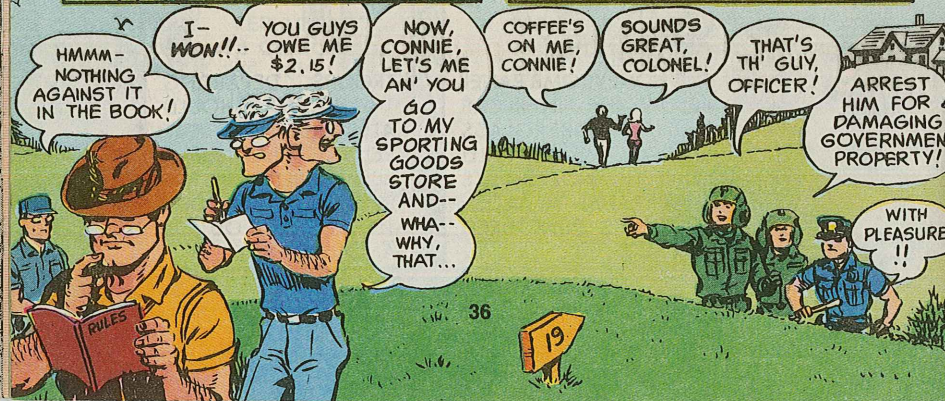
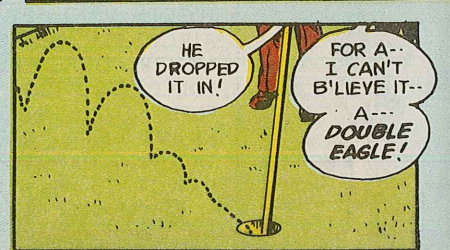
KIOWA TYPES SHOULD BE ESPECIALLY  
CAREFUL NOT TO DO DAMAGE TO THEIR BIRD  
BY JUST PLAIN

## CARELESSNESS

TROOPS WHO SERVICE  
AIRCRAFT SHOULD  
NEVER USE BRUTE  
FORCE. SHOVING THE  
FUEL NOZZLE INTO A  
KIOWA FUEL RECEPTACLE IS A DANGEROUS  
PRACTICE.

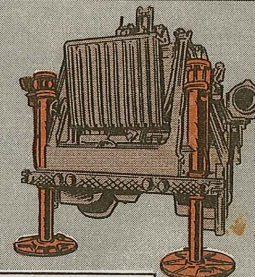
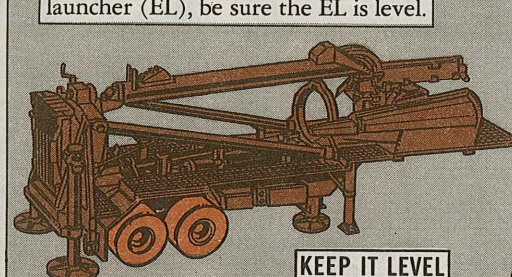
TROOPS DEPARTING  
THE KIOWA SHOULD  
ALSO FASTEN THE SEAT  
BELT. OTHERWISE, A  
BELT FLAPPING IN THE  
BREEZE WILL KNOCK  
THE STUFFIN'S OUT OF  
ANOTHER PANEL.





1. Before you attempt to lift any load with the davit assembly on the erector launcher (EL), be sure the EL is level.

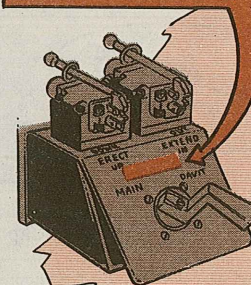
2. Be sure, too, that all jacks are extended.



If the EL is not level and the jacks are not out, the EL can swing on the front jack and roll over. In which case, you could be looking up at an OD Tijuana taxi while the Bears try to haul you out from under.

You can cut yourself an 11-in by 2-in stencil and paint a warning on the control panel of the davit assembly... as a reminder. The warning can read:

**WARNING**  
DO NOT LIFT LOAD WITH DAVIT UNLESS ALL JACKS ARE EXTENDED AND EL IS LEVEL



THE "WARNING" SHOULD BE ABOUT 1/2-INCH HIGH, WITH THE REST OF THE LETTERS ABOUT 1/4-INCH HIGH.

10-4, OLD BUDDY?

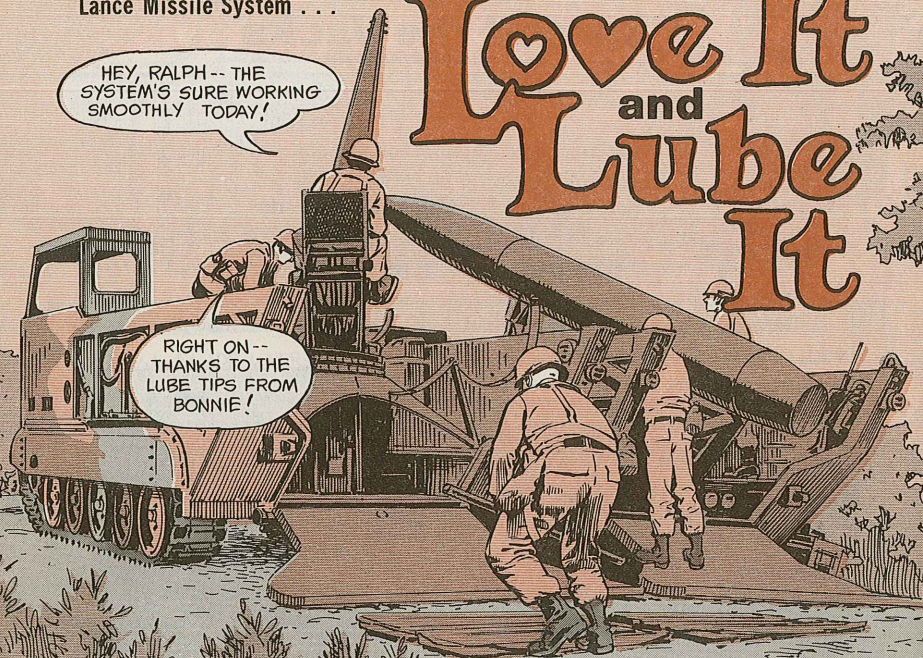




HEY, RALPH-- THE SYSTEM'S SURE WORKING SMOOTHLY TODAY!

RIGHT ON-- THANKS TO THE LUBE TIPS FROM BONNIE!

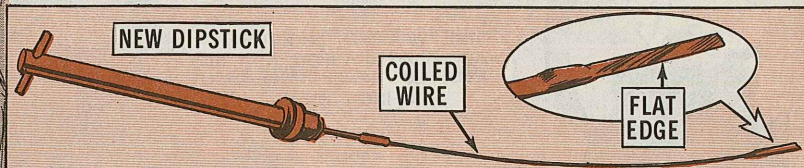
# Love It and Lube It



The Lance missile is a mighty big stick to swing when you need it. Whether you can make the swing depends on how well you take care of the entire system . . . especially the M752, M667 and M688 carriers.

For instance, the original oil dipstick (gauge rod assembly) broke off quick and often. But, there's a replacement out . . . and if you don't already have it, listen hard:

Most important, if your dipstick's broken, **do not** replace it with one from any other M113-series carrier. You won't get the right reading, and you'll do more harm than good.



The new one you need is NSN 6680-01-019-9333, P/N 1920710290541. That gets you the entire assembly, dipstick and all. Ask for Gauge Rod-Cap Liquid Level.

The new dipstick is round, like a speedometer cable, with a flat edge where you measure the oil.

The new job is installed by the manufacturer, (Hull Ser. No. LSJ0208 and higher), so you may not need it. It's also installed by field units when and if the dipstick you've got breaks.

The new one also will be listed in appropriate parts manuals. And remember, it's for the M752, M667 and M688.

## ROAD WHEEL LUBE

The road wheels on the 3 carriers also get a new lube job. The oil hubs are out (or going out) and there's a field fix which switches to grease fittings and allows you to use GAA.

You make the field fix whenever the hubs are disassembled.

To do the job, drain the oil from the hubs and remove the pipe plugs.

Then, insert reducer, NSN 4730-00-186-3024.

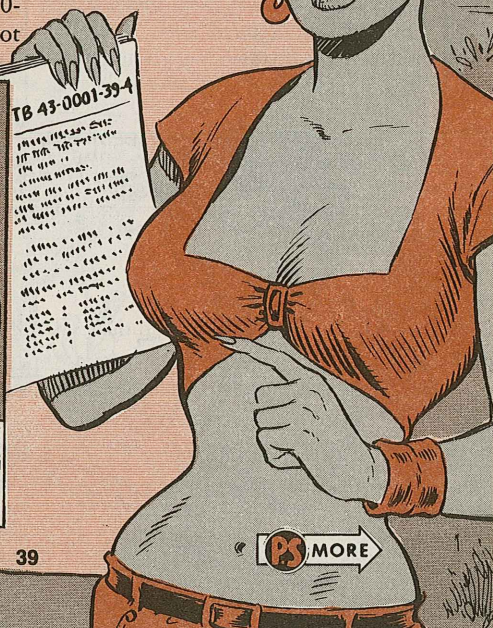
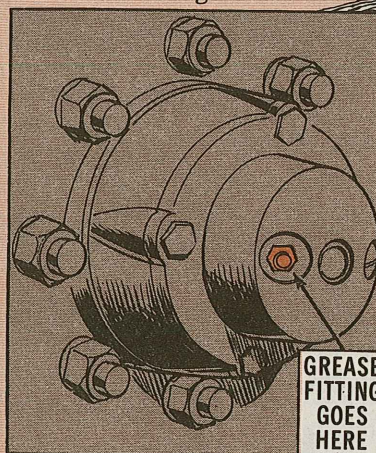
Put valve, NSN 4730-00-542-5683, in the reducer.

Finally, grease fitting NSN 4730-00-172-0028 goes in the valve. Do not remove the fitting.

You should pack the hub completely with GAA first time around (when the hub's disassembled).

THEN, KEEP THE HUB LUBED THROUGH THE FITTING.

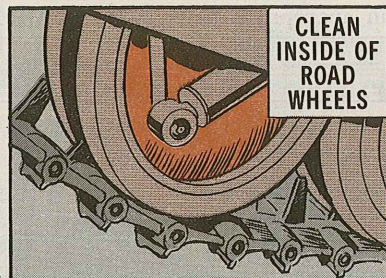
TB 43-0001-39-4 (Jan 77) IS YOUR AUTHORITY.





## CLEAN UP

Roadwheels on the 3 carriers clog up with mud, stones, dust and whatever else they can pick up. No news there.



CLEAN  
INSIDE OF  
ROAD  
WHEELS

But, Lance crews tend to do a good cleaning job on the outside of the wheel . . . and forget or ignore the inside. It's harder to get to, sure, and maybe even harder to see. It's worth it to you to clean both sides of the roadwheels, though.

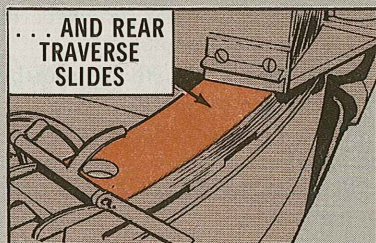
Reason: As that gook dries, it sets up like concrete. It can, and has, cracked the roadwheels . . . and that's not good for you or the vehicle.

BEST BET,  
TIME  
PERMITTING, IS TO  
CHIP THE STUFF OFF  
WHILE IT'S MOIST.

Traverse slides on the launcher also need cleaning. Dirt and other bad stuff build up and chop the efficiency of the Teflon discs.



CLEAN  
FRONT . . .



. . . AND REAR  
TRAVERSE  
SLIDES

So, clean 'em as they need it . . . but don't add to the problem by lubing the slides. They've got a permanent lube. More lube hurts rather than helps.

## MORE TRAVERSING

The traverse brake, as you know, locks the traverse frame in any azimuth . . . and "lock" is the clue you're looking for.

All that's necessary to lock it is to turn the brake screw hand tight.

After the firing or training operation is over, back off the brake screw  $2\frac{1}{2}$  to 3 turns. Leave it that way.

The roller chain that connects the traversing handwheel and traversing shaft is nicely hid and easy to forget under its cover. And, that's what some crewmen tend to do . . . forget it.

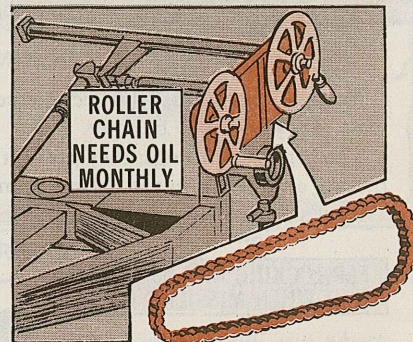
However, the roller chain needs oil, and it needs it monthly or bad things will happen. LO 9-1425-485-12 gives you the lube word, and para 4-42 of TM 9-1425-485-20 tells you how to remove the cover.

Other overlooked parts so far as lube is concerned are the traverse 2- and 3-way gear boxes.

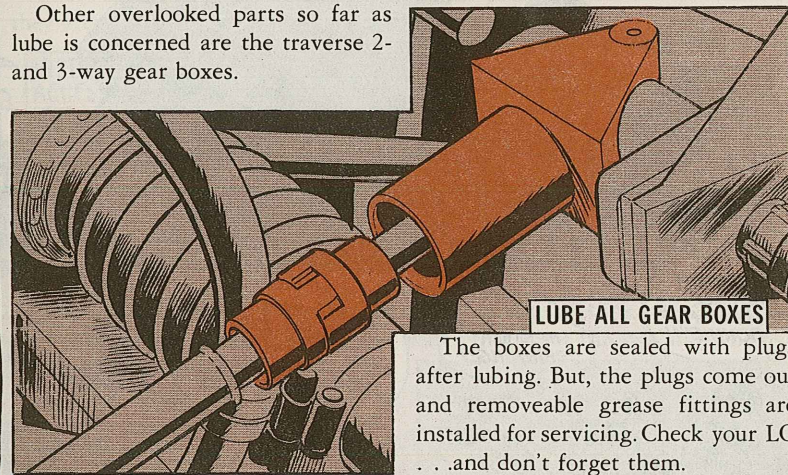
BRAKE  
SCREW  
HAND  
TIGHT  
ONLY



ROLLER  
CHAIN  
NEEDS OIL  
MONTHLY



LUBE ALL GEAR BOXES



The boxes are sealed with plugs after lubing. But, the plugs come out and removeable grease fittings are installed for servicing. Check your LO . . . and don't forget them.





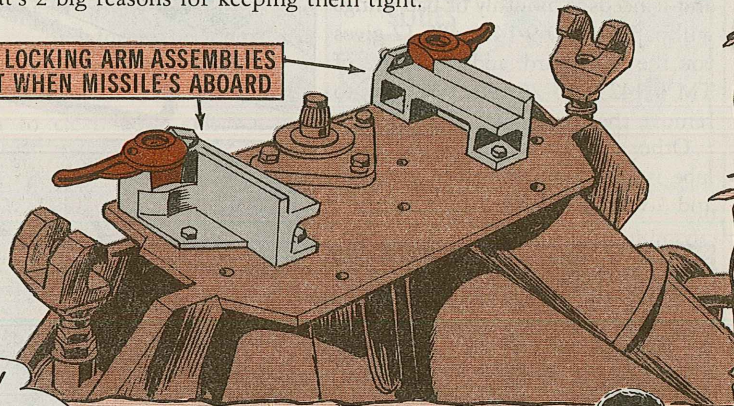
## LOCKING ARMS

You should make a daily check on the 2 locking arm assemblies on the launch truss. They've got to be tight.

The arms do 2 things: they prevent the missile from falling off the launch fixture, and they prevent it from spinning until it clears the launcher.

That's 2 big reasons for keeping them tight.

**KEEP LOCKING ARM ASSEMBLIES TIGHT WHEN MISSILE'S ABOARD**

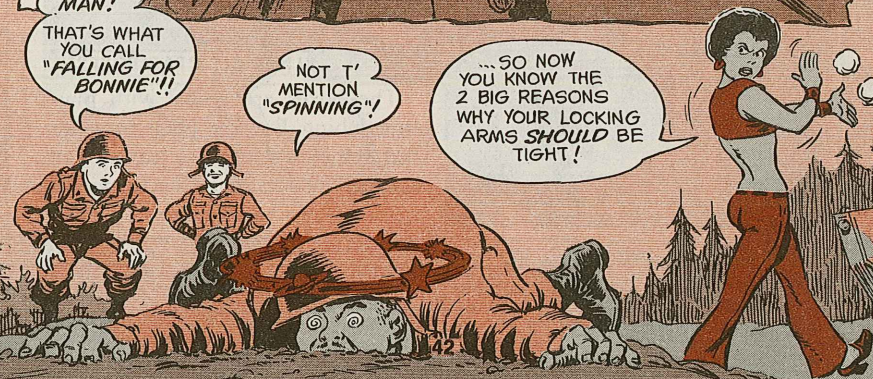


MAN!

THAT'S WHAT YOU CALL "FALLING FOR BONNIE"!!

NOT T' MENTION "SPINNING"!

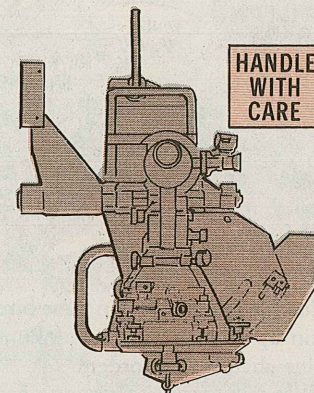
...SO NOW YOU KNOW THE 2 BIG REASONS WHY YOUR LOCKING ARMS SHOULD BE TIGHT!



## SIGHT UNIT

Care is the word when you disassemble the gunner's sight unit and store the components in the storage container on the launcher. Each component has to be in its right place, or you won't be able to get the container cover on.

And . . . that makes for a couple of cautions. Never try to jam the cover in place. Something will break or bend. The cover should go on fairly easy. You also should check the hinges and fasteners beforehand. If you spot damage, report it.

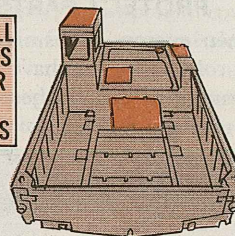


## CARRIERS

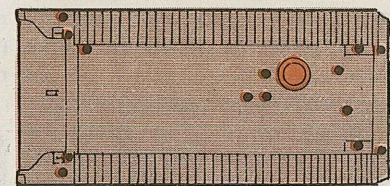
Before you hit the road, remember to install the access plates and all drain plugs.

There are a bunch of plugs, and the TM on your carrier tells you where they are.

**INSTALL ACCESS COVER AND PLATES**



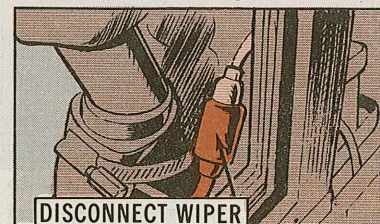
**PUT IN ALL DRAIN PLUGS**



Taking the time to put them in can save you a lot of time later . . . from cleaning up the mud, dust, dirt and water that'll get through those holes.

Finally, remember to disconnect the windshield wiper on your carrier before you lower the driver's compartment. It'll break, otherwise.

Disconnect the wiper lead from the wiper connector in the cab . . . on the right side of the cab at the bottom of the windshield.



**DISCONNECT WIPER CONNECTOR**





Troubleshoot First . . .

**It's the Only Way to Go!**

WINDY--  
HELP!!

THEY HAVEN'T EVEN TRIED  
TO TROUBLESHOOT ME!



You say the engine in your bird is kickin' up a fuss and you're thinking an engine change is in order?

Hold one, mechs! There is a better way—troubleshooting. Sure, it'll take time to find the cause of an engine problem. The name of the game is "patience."

Chapter 4 of each engine pub has the word on discovering, isolating and correcting a problem. Those words of wisdom lead you on a step-by-step process to correct the problem, without removing the engine from a bird.

A lot of engines show up at depot with faults that can be corrected in the field. For example, one T-53 arrived with only the threads of a mounting bolt hole in the housing stripped.

'Course, your support can put in an insert to hold the bolt, nice as you please.



Often depot types need only to replace an accessory, like the fuel

control, to turn an engine around and send it back to you.

Get reacquainted with those troubleshooting charts when the engine acts up.

**EYEBALL  
THE  
CHART**



### PROTECT PARTS

When engines, transmissions and other components do have to go for overhaul, give 'em all the protection

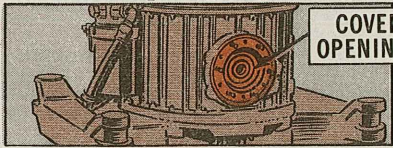
### RUSTED MAST



you can. Unprotected parts show up at depot with rust so deep that machining and replating can't restore them to service.

Cover all openings, right away.

**COVER  
OPENINGS**



To prevent parts from rusting, coat bare metal portions with a light coating of grease and wrap them in barrier paper. Plastic wrap and covers will also give added protection.

**ADD SOME PLASTIC  
PROTECTION . . .**



**. . . AND  
USE COVERS**

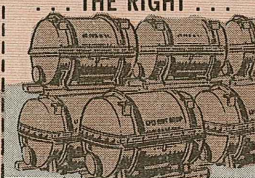


Send a part in the right shipping container, rather than a makeshift deal. The part can then be bolted down securely to prevent damage during shipment. Humidity is also controlled in the container to head off rust.

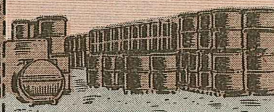
**USE . . .**



**THE RIGHT . . .**



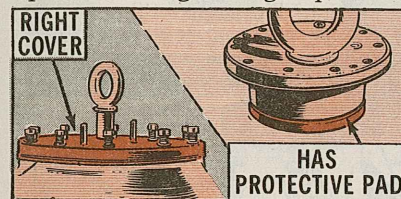
**. . . CONTAINER**



Keep your shipping containers up-to-snuff by eyeballing a copy of TB 55-8100-200-24 (Dec 76). You can replace missing hardware from the parts list in that pub.

Use of specific component covers is vital. Take a CH-47 transmission, for example. The cover (with lifting eye) not only keeps out dirt and moisture, it extends into the planetary gear train to hold the gears in position . . . prevents damage during shipment.

**RIGHT  
COVER**

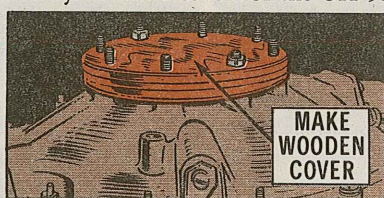


**HAS  
PROTECTIVE PAD**

By the way, Chinook mechs, when installing a transmission, leave the cover in place until you get that baby seated. A sharp tilt, with the cover off, will allow the gears to move out of

position. Then, the main rotor mast won't move all the way into the transmission. Attempting to draw the mast down with the stud nuts won't work, either. A gear misalignment can't be corrected in the field.

There are no special covers for some components. So, make 'em up locally. A wood cover for the OH-58



**MAKE  
WOODEN  
COVER**

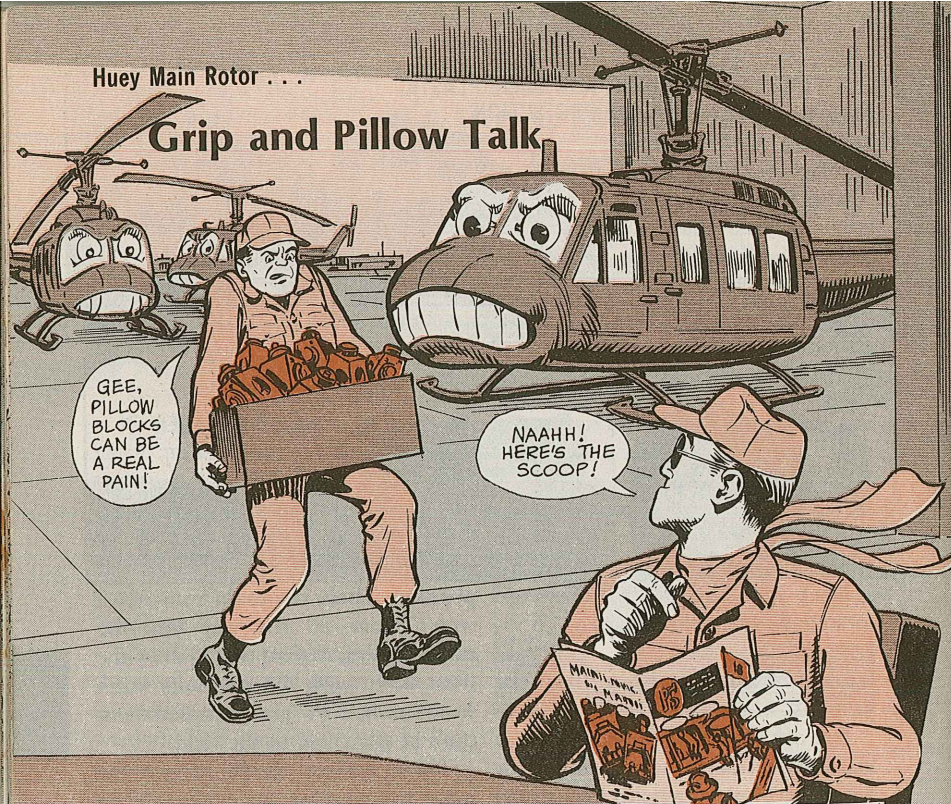
transmission, for example, protects that costly part from dirt and moisture.

It can be weeks, even months, before the parts you send to overhaul are processed. During that time bird components need the best protection you can give 'em.



Huey Main Rotor . . .

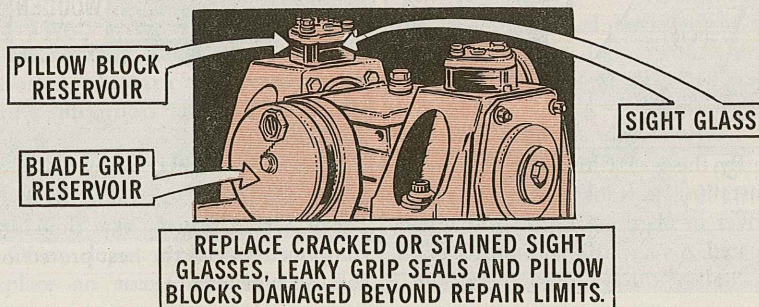
## Grip and Pillow Talk



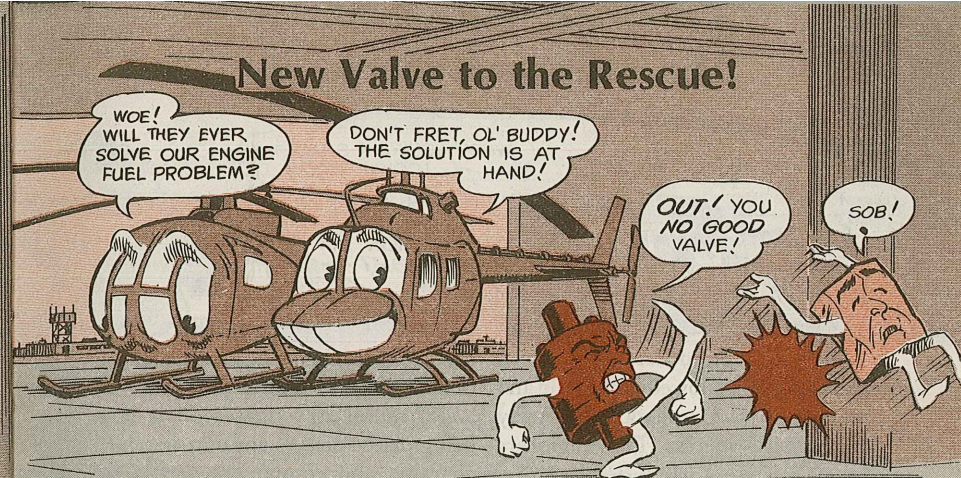
Never do anything drastic—like grounding your bird—because of main rotor blade grip or pillow block oil discoloration.

Oil dark? Forget it! It's caused by wear of the O-ring packing and the dry film lubricant put on the yoke spindles.

Beads of water or other foreign contamination? Flush and refill next time the bird is down for maintenance.



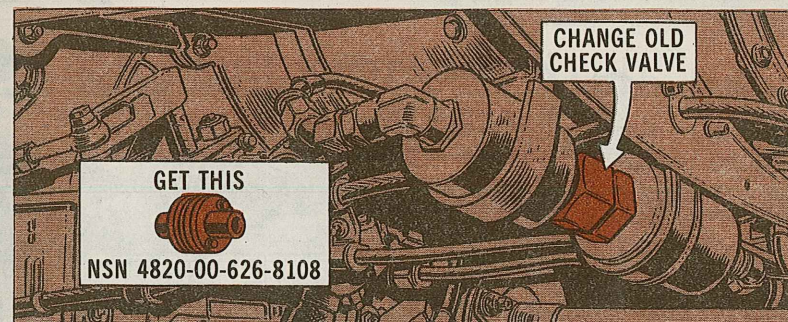
## New Valve to the Rescue!



The next time you Kiowa and Cayuse mechs tackle a T-63 engine fuel problem, eyeball the double check valve. A lot of fuel controls and governors have been changed when the real culprit turned out to be a faulty valve.

That little airflow regulator has a small opening and any amount of dirt will jam it up. Plugged valves have resulted in flameouts and forced landings.

'Course para 5-13 in TM 55-2840-231-24 (Mar 72) tells how to test the valve. When it doesn't pass inspection, tho, go for the new type as a replacement.



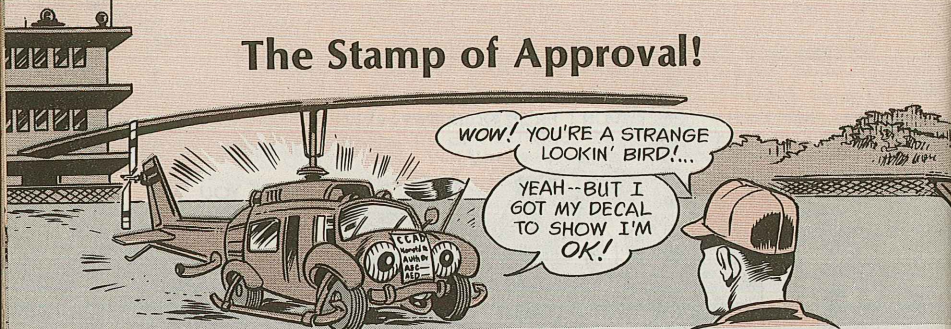
You want check valve, NSN 4820-00-626-8108, listed in Fig 13 as item 24 in TM 55-2840-231-23P (May 76). It's a big, diaphragm-type valve that won't go haywire.

To install the new check valve in your Kiowa you also need (shown in Fig 13): 1 tube, item 22; 6 packings, item 23; 1 spacer, item 26; 1 bolt, item 27. For the engine in your Cayuse you need: 2 tubes, item 22; 4 packings, item 23; 1 elbow, item 25; 1 hose, item 3.

You'll like the new valve because it'll head off many fuel problems.



## The Stamp of Approval!



There is a big difference between aircraft repairs allowed in the field and those done at Corpus Christi Army Depot, bird mechs. The engineers there have more leeway in restoring aircraft to service, which leads to some

non-standard items appearing in the field. RESULT: Confusion.

No more! A yellow decal is now being placed next to any non-standard airframe and component repair. In addition, the repair will be listed on the bird historical record, DA Form 2408-15.

You'll be able to tell at a glance when a depot repair was authorized by an AVSCOM engineering change or engineering directive.

THIS DECAL SHOWS THAT NON-STANDARD REPAIR IS AUTHORIZED

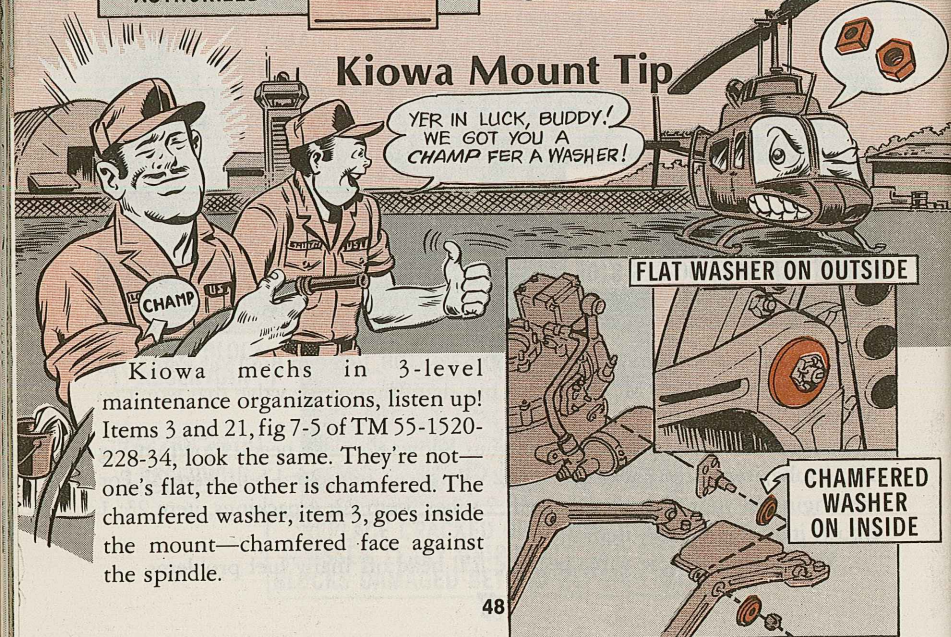
**CCAD**

Nonstd Rep  
Auth By:

AEC#

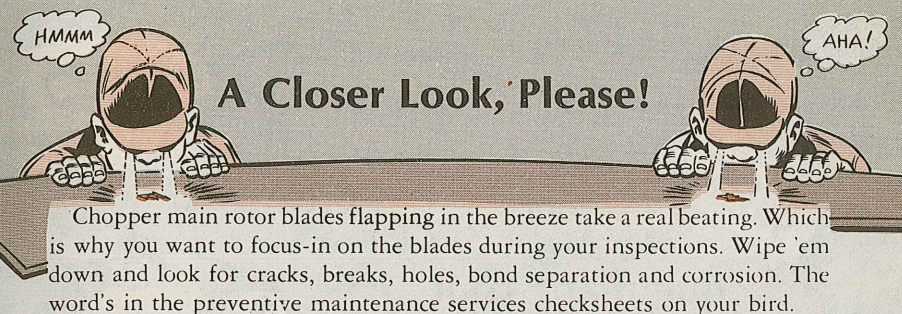
AED#

## Kiowa Mount Tip



Kiowa mechs in 3-level maintenance organizations, listen up! Items 3 and 21, fig 7-5 of TM 55-1520-228-34, look the same. They're not—one's flat, the other is chamfered. The chamfered washer, item 3, goes inside the mount—chamfered face against the spindle.

48

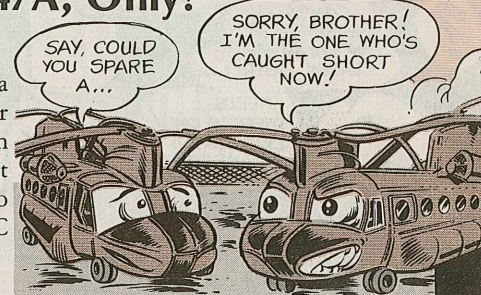


## A Closer Look, Please!

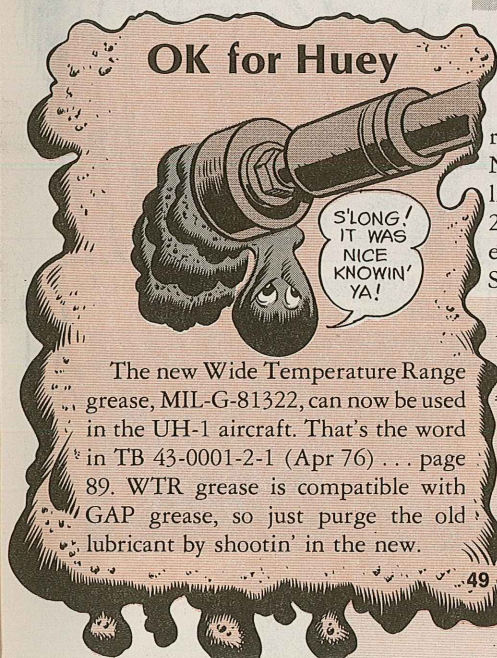
Chopper main rotor blades flapping in the breeze take a real beating. Which is why you want to focus-in on the blades during your inspections. Wipe 'em down and look for cracks, breaks, holes, bond separation and corrosion. The word's in the preventive maintenance services checksheets on your bird.

## For CH-47A, Only!

When you Chinook mechs need a servocylinder for your CH-47A, order the one listed for the **A** model only in the parts pub. If you go for a part that is usable on all models, you're going to shortchange outfits with B and C Models . . . happens!



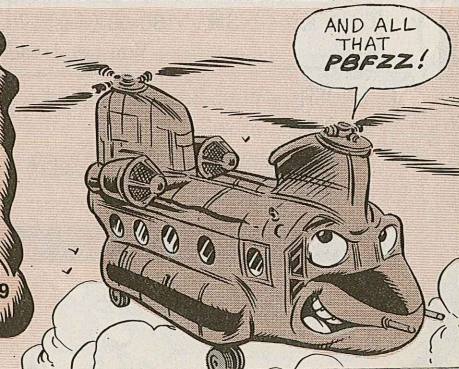
## OK for Huey



The new Wide Temperature Range grease, MIL-G-81322, can now be used in the UH-1 aircraft. That's the word in TB 43-0001-2-1 (Apr 76) . . . page 89. WTR grease is compatible with GAP grease, so just purge the old lubricant by shootin' in the new.

## Code Update

The source, maintenance and recoverability code for Bore Heater, NSN 4920-00-372-4595, is incorrectly listed for depot use in TM 55-2840-234-23P (Sep 76). The Chinook T-55 engine tool is for use in the field so the SMR code should read: PBFZZ.



49



# TK-101/G Electronic

COMMO



WARNING  
FOD

## Equipment Tool Kit

HUM-DE-  
DUM-DUM!

?

CONRAD?  
HE USED T'  
WORK AT A  
CLASSY BISTRO...

FEELS  
THERE'S ONLY  
ONE WAY T'  
TRANSPORT  
DELICACIES!

ITEMS WITH AN  
\*  
NOT ON AMDF

SC 5180-91-CL-R13 (Jan 77) has the latest rundown on your TK-101/G Tool Kit—NSN 5180-00-064-5178. Adjust your kit to match this list.  
You get 1 each of the following:

BRUSH: paint, squirrel tail hair brstls  
sq edge, 1-in wd



NSN 8020-00-245-4509

CLOTH: cheesecloth, cotton, blchd,  
36-in wd



NSN 8305-00-267-3015

EXTENSION, SOCKET WRENCH: 3/8-in  
sq dr;



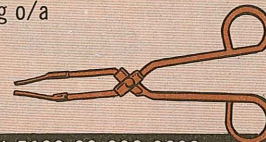
NSN	lg.	in
5120-00-243-1689	3	
227-8107	6	

EXTRACTOR: elect tube, basket type



NSN	lg.	in
5120-00-293-2696	7-pin	
5120-00-508-0584	9-pin	

EXTRACTOR: elect tube, tong type, 8-  
in lg o/a



NSN 5120-00-293-0808

FLASHLIGHT: hand, straight, tublr,  
2-cell



NSN 6230-00-635-4998

HANDLE, SOCKET WRENCH: 3/8-in sq  
dr; 8 1/2-in lg, hinged



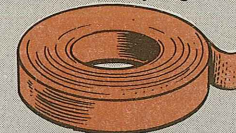
NSN 5120-00-240-5396

HANDLE, SOCKET WRENCH: 3/8-in sq  
dr; ratchet, rev; 6-in lg



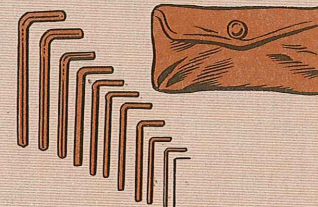
NSN 5120-00-240-5364

INSULATION TAPE: elect blk .007-in  
thk 0.75-in wd; 36-yd lg



\* NSN 5970-00-284-8410

KEY SET, SOCKET HEAD SCREW: hex  
type, L-type hndl, short series



NSN 5120-00-729-6392 c/o

NSN	wd across fl.in	lg, arm, in. max
5120-00-198-5400	0.035	1 3/8
198-5401	0.050	1 2 1/2 32
198-5398	1/16	1 3/4
224-2504	5/64	1 7/8
242-7410	3/32	2
240-5292	1/8	2 1/4
889-2163	9/64	2 3/8
198-5392	5/32	2 1/2
240-5300	3/16	2 3/4
242-7411	7/32	3
224-4659	1/4	3 1/4

WOT HAPPINT  
T'HIM? I WAS  
GONNA DEMONSTRATE  
THIS NEW TUBE  
EXTRACTOR FER HIM!

DUNNO...  
HE WAS  
COMPLAININ'  
'BOUT A TOOTH-  
ACHE A WHILE  
AGO...



KEY SET, SOCKET HEAD SCREW:  
spline drive, L-type, short series



NSN 5120-00-585-6257 c/o

NSN	wd across fl, in	no. of splines
5120-00-293-0195	.062	6
224-2496	.071	4
781-8977	.078	4
223-6995	.098	6
224-2482	.115	6
277-1724	.145	6

KNIFE: pocket, elect



NSN 5110-00-240-5943

MIRROR: inspection, all angles



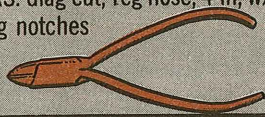
NSN 5120-00-596-1098

PIN STRAIGHTENER: elect tube, 7  
and 9 pin



NSN 5120-00-392-8361

PLIERS: diag cut, reg nose, 4-in; w/o  
strpng notches



NSN 5110-00-965-0974

PLIERS: round shrt nose w/o cutter  
6-in lg



NSN 5110-00-239-8253

PLIERS: slipjoint, strght, comb jaw  
w/cutter, reg, 6-in



NSN 5120-00-223-7396

SCREWDRIVER: Phillips cross-tip,  
strght, plstc hndl



NSN 5120-00	blde, lg, in
227-7293	1½
240-8716	3
234-8913	4

SCREWDRIVER: flat tip, plstc hndl



NSN 5120-00-	tip wd, in	blde lg, in
596-8502	¼	1 ½
222-8852	¼	4
236-2140	⅛ (pkt clp)	2
278-1270	⅜	5
278-1267	9/64	8

SCREWDRIVER: dble offset, flat tip



NSN 5120-00-	tip, wd, in	lg o/a in
287-2129	5/32	3 in
288-9710	5/16	5 in

SCREWDRIVER: offset, ratchet,  
Phillips crosspoint, #1 and #2 points



NSN 5120-00-892-5931

SCREWDRIVER: offset, ratchet ¼-in  
sm blde, ¾-in lg blde



NSN 5120-00-595-9574

SCREWDRIVER SET: jeweler's; swivel  
knob 1 ¾-in removable blde; 3 ¾-in  
lg o/a



NSN 5120-00-288-8739 c/o

NSN 5120-00-	tip, wd, in
180-0705	.025
180-0706	.040
180-0727	.055
180-0728	.070
180-0729	.080
180-0730	.100

SOCKET, SOCKET WRENCH: ¾-in sq  
dr, 12-pt



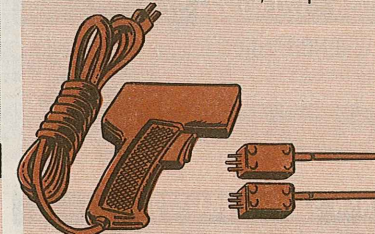
NSN 5120-00-	opng, in
227-6702	3/8
227-6703	7/16
237-0977	1/2
227-6704	9/16

SOLDER: lead-tin alloy, .032-in dia;  
rosin core, 1-lb spl



NSN 3439-00-555-4629

SOLDERING GUN: elect, temp cntrld



NSN 3439-00-004-0915 c/o

HOUSING: w/cord/ trigger	NSN 3439-00- 004-0913
POWERHEAD: rated 700°F, 3/16-in wd chisel point	004-0917
POWERHEAD: rated 600°F, 1/8-in wd conical point	004-0916

TOOL  
CHEST:



\* NSN 5140-00-678-4805

HE KEPT SAYING,  
"SOCK IT, SOCK  
IT, WENCH"  
SO...

B-BUT HERMAN  
HAS A LISP...





UNIVERSAL JOINT, SOCKET  
WRENCH:  $\frac{3}{8}$ -in sq dr; 2  $\frac{3}{16}$ -in lg



NSN 5120-00-224-9215

WRENCH: adjustable, open end 6-in lg



NSN 5120-00-264-3795

WRENCH, COMBINATION BOX/-  
OPEN END: 15° offset; 12-pt box



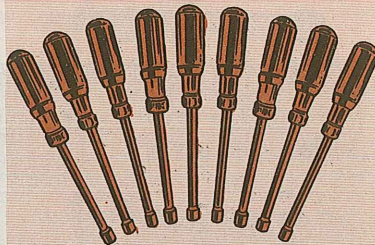
NSN 5120-00-	opngs, in
228-9504	$\frac{3}{8}$
228-9505	$\frac{7}{16}$
228-9506	$\frac{1}{2}$
228-9507	$\frac{9}{16}$

WRENCH, TORQUE: 0-100 lb-in cap



\* NSN 5120-00-720-1975

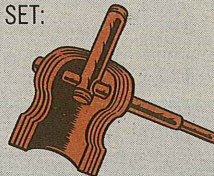
WRENCH KIT: Socket, hndld, hex,  
spin type, scrwdrvr grip



NSN 5120-00-542-5799 c/o

NSN 5120-00-	opg in.	lg in
224-2599	$\frac{3}{16}$	6
277-1801	$\frac{7}{32}$	6
241-3188	$\frac{1}{4}$	6
224-2596	$\frac{5}{16}$	6
293-0796	$\frac{11}{32}$	6
596-1263	$\frac{3}{8}$	6
222-1499	$\frac{7}{16}$	7
293-0375	$\frac{1}{2}$	7
294-9514	$\frac{9}{16}$	7

WRENCH SET:  
Spanner

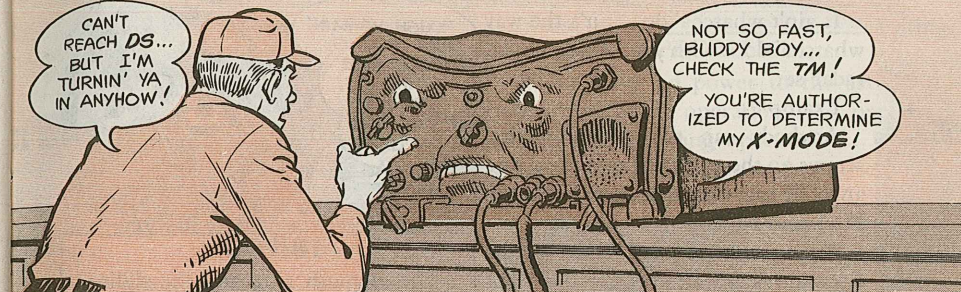


NSN 5120-00-658-9805



AN/VRC-12 . . .

## X-Mode or Norm—Which Switch?

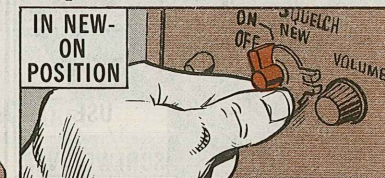


Unnecessary downtime you can do without when it comes to your AN/VRC-12 series radio set.

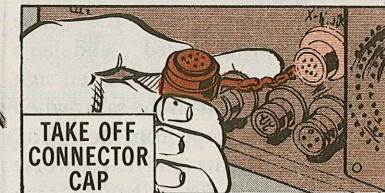
So, make sure your OP's (Operating Procedures) are not creating imaginary maintenance problems on your RT-246, -524 receiver-transmitter or R-442 receiver.

can know where you stand by moving a switch and cap.

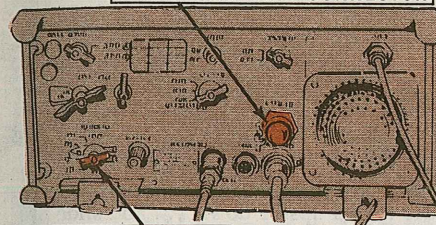
Set the squelch switch in NEW-ON position.



Then, take off the X-MODE connector cover.



### X-MODE CAP AND CONNECTOR



### SQUELCH SWITCH

Like, when your support has you plugged up, turned on and tuned in for X-MODE operation and you're getting limited communications in NORM operating position. Before you head your radio for the repair shop, ask your support about your operating position.

If your support's not handy and your set's not tagged like it says in para 2-5 of TM 11-5820-401-12 (Aug 72), you

If your RT's power stays on, your set is in NORM operating position.

If your RT's power goes off, your set is in X-MODE operating position.

Be sure to put the X-MODE cap back on the connector 'cause it has jumper wires needed for operating your radio, and the cap keeps the dirt out.



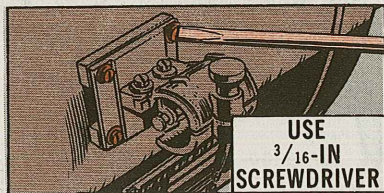
# PIPSY-4A: SCREWS

It ain't whatcha' do . . . it's the way whatcha' do it with your AN/PPS-4A radar set.

Examples:

Anybody can turn the adjusting screws on the telescope mount . . . and anybody can strip the screw heads off. No heads equal one repair job.

The guy who cares about the way he does it takes pains to get the right screwdriver . . . not too big nor too small. If the screwdriver won't fit, he gets one that does.



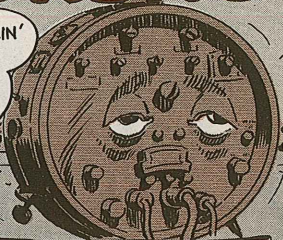
One that won't strip the heads has a 3/16-in wide flat tip.

Another thing with the scope mount: it's spring-loaded . . . and slams back against the radar with enough force to make dents in the radar when you remove the scope from the mount.

To prevent dents (and maybe worse damage) slip a finger behind each section of the mount. Then, ease the sections back against the radar.



ROUGH HANDL' AND WRONG TOOLS ARE KILLIN' ME, CONNIE! CAN YOU HELP?



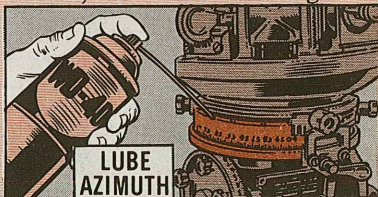
## TRIPOD

The azimuth ring and the sliding tripod legs bind with grit, sand and dirt build-up. So, you've gotta keep 'em clean. No news there.

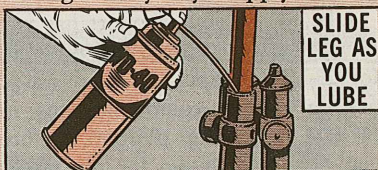
Add a lube job with WD-40 oil, and you've got a PM aid. You can get the oil in your country store.

Clean the dirt and crud from the components.

Then, lube the azimuth ring. Turn



the tripod upside down . . . and slide the legs slowly as you apply WD-40.



The oil helps dissolve old and new crud (it helps, too, to prevent new build-up).

Repeat the lubing as necessary after additional use of the radar set.

# TO SCREW-UPS

HEY  
YOU RADAR  
TYPES!

YOU  
GOTTA  
USE TLC  
ON YOUR  
PIPSY!



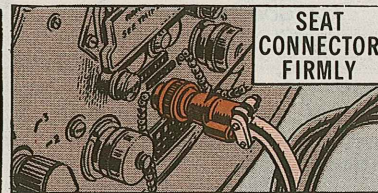
## SETTING IT UP

When you set up the radar set for operation, plant the tripod firmly in dirt or gravel whenever possible.

Avoid cement or asphalt. The tripod legs slip on that slick stuff, and you can do a variety of damage to the set.

## POWER PROBLEM?

If you have no power to the set when you begin operation . . . or there's a loss during operation . . . suspect a loose connection from the battery or other power source.



Be sure the power cable connector is seated firmly. If that doesn't work, get a repairman.

## HANDWHEEL

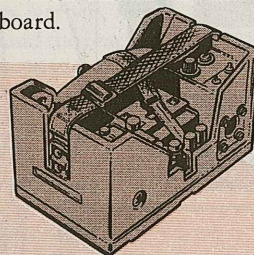
The handle on your range control handwheel must be recessed when you store the equipment.

Otherwise, if you try to store it with the handle in operating position, you can break it off.



## Cleaning Plastic Commo Case

Back off with the trichloroethane when it comes to cleaning plastic-type gear such as the TA-838 telephone set or the latest model of the SB-22 switchboard.



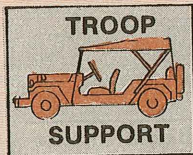
NOT  
HERE,  
PAL!



This cleaning fluid will damage your communication gear's case by dissolving it.

So, instead of wiping your set out, wipe over it with a clean sponge or cloth wrung out in soapy water.





Power Dyne Model 1201 . . .

# TORQUE

# WRENCH TEST

GOOD NEWS FOR  
YOU WRENCH JOCKS  
OUT THERE!...

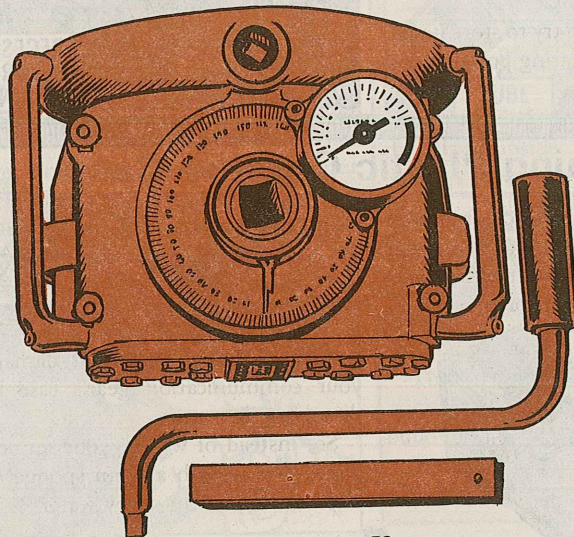
TWO GREAT NEW  
ADDITION TO YOUR OMS  
NO. 2 TOOL SET  
ARE IN THE SYSTEM...

WATCH  
IT...

THE REACTION BAR  
NSN IS NOT ON THE  
AMDF YET!

...BUT YOU CAN  
FIRE OFF AN EXCEPTION  
DATA SUPPLY TYPE  
REQUISITION AND  
GET IT!!

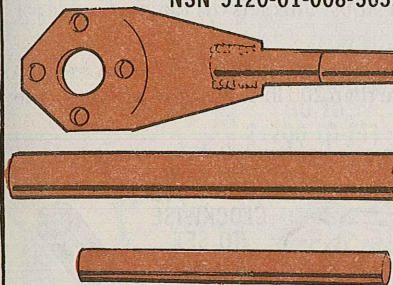
A NEW TORQUE WRENCH . . . NSN 5120-00-169-2986



58

A NEW REACTION BAR . . .

NSN 5120-01-008-3632



The wrench, NSN 5120-00-169-2986, and the reaction bar, NSN 5120-01-008-3632, have been added to your Organizational Maintenance Supplemental No. 2 Tool Set, NSN 4940-00-754-0743, on an "as required" basis.

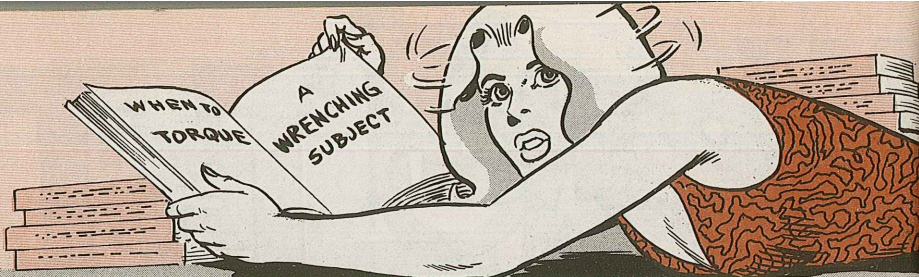
This wrench makes many critical torquing jobs a lot easier. But the wrench is heavy—about 23 pounds—and it could be dropped. If it is dropped you'll want to know if it's still accurate. So you send it off for calibration. Right?

Not necessarily so with this new wrench.

TURN THE  
PAGE FOR 2  
TESTS YOU CAN  
MAKE TO SEE  
IF THE DROP  
SHOCK  
DESTROYED  
THE WRENCH'S  
ACCURACY...

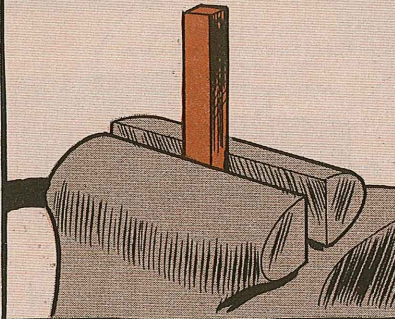
59



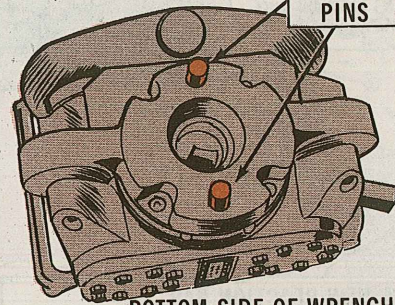


## LEAK TEST

Put the square drive bar in the vise from your No. 1 or No. 2 common shop set.



Place the wrench over the bar. Make sure the reaction pins fit inside the vise jaws.

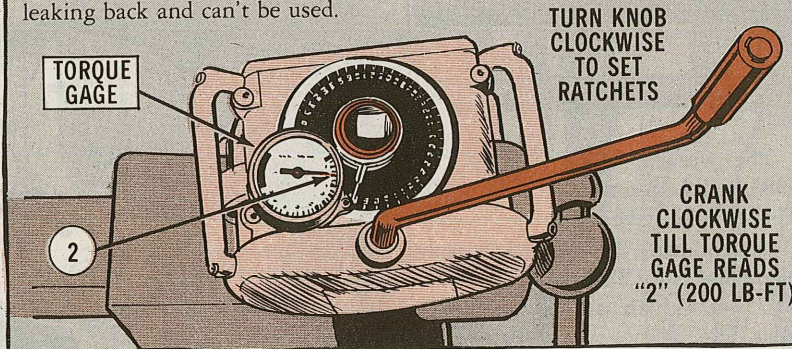


**REACTION PINS**  
**BOTTOM SIDE OF WRENCH**

Turn the knurled knob clockwise till it stops. This sets the ratchets inside for clockwise wrench operation.

Install the wrench handle. Crank clockwise up to 200 lb-ft torque—that's "2" on the torque gage. Careful—no more than 200 lb-ft or you might break the jaws of your vise.

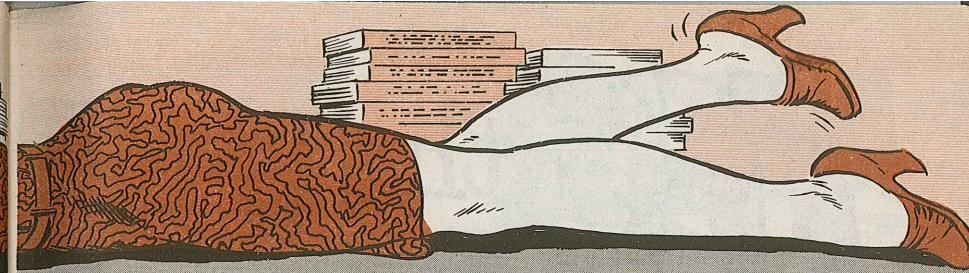
Let it sit for 3-5 minutes. If the gage won't hold at 200 lb-ft, your wrench is leaking back and can't be used.



**TORQUE GAGE**

**TURN KNOB  
CLOCKWISE  
TO SET  
RATCHETS**

**CRANK  
CLOCKWISE  
TILL TORQUE  
GAGE READS  
"2" (200 LB-FT)**



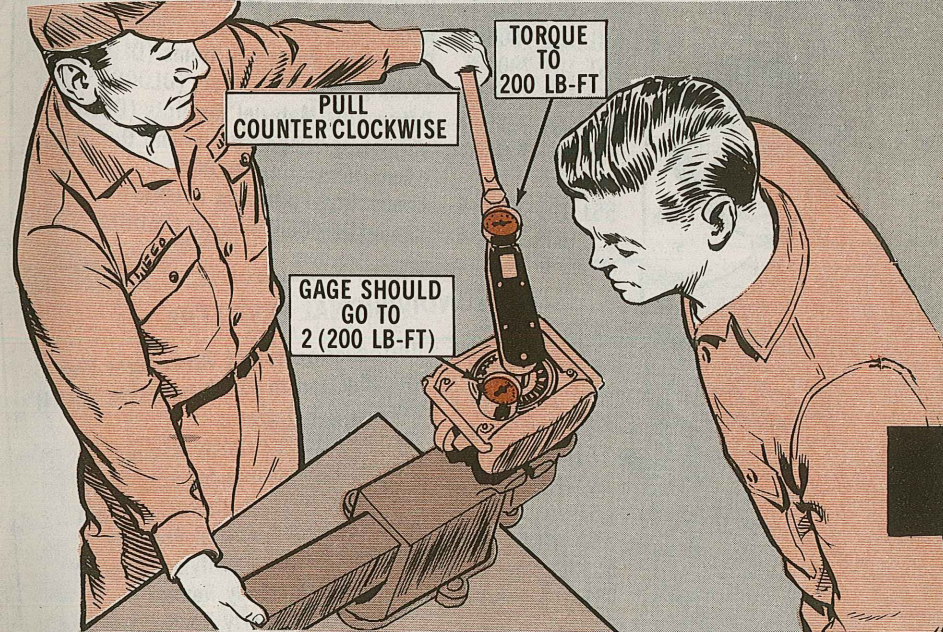
## ACCURACY TEST

Take the square drive bar out of the vise.

Place the wrench reaction pins in the vise jaws and tighten just enough to hold the wrench in place.

Insert  $\frac{3}{4}$ -in square drive torque wrench (0-600 lb-ft capacity) NSN 5120-00-221-7983—from your No. 1 or No. 2 common shop set—in the output drive of wrench. Use one that's recently been calibrated.

Apply torque counterclockwise to 200 lb-ft. That's a 2-man operation, one to turn the wrench and one to watch the dials.



**PULL  
COUNTERCLOCKWISE**

**TORQUE  
TO  
200 LB-FT**

**GAGE SHOULD  
GO TO  
2 (200 LB-FT)**

There should be no more than a 10 percent variation between the 2 gages. If there is, turn the wrench in to DS for repair and calibration. If there's not, continue to use the wrench.



## 63



Publications For . . .

## Commercial Equipment

Every Army unit uses some commercial equipment . . . and needs maintenance and parts pubs to support it.

You'll find a heap o' helpin' in a manual from Defense General Supply Center, Richmond, VA. Its number is DGSCM 4140.1 "Index to Technical Manuals for DGSC Managed Equipment."

IF YOU NEED  
OPERATOR OR PARTS  
MANUALS FOR EQUIPMENT  
IN THESE FEDERAL  
SUPPLY CLASSES...

...IT'S A  
GOOD BET  
THAT DGSC  
HAS A  
COMMERCIAL  
STYLE MANUAL  
THAT'LL HELP...

WRITE  
TO...

Commander,  
Defense General Supply Center,  
ATTN: DGSC-SD,  
Richmond, VA 23297

3220	3431	3510	3695
3405	3432	3520	3920
3413	3433	3530	4110
3415	3441	3610	4120
3416	3442	3611	6730
3417	3444	3635	7310
3419	3445	3655	7320
3424	3449	3694	8110

When you write, ask for only 1 or 2 copies of the publication you need. Be sure to identify the manufacturer, size, capacity, P/N or serial number, contract number and item description, and any other information that'll help identify the exact piece of equipment.

Connie's  
Mini Mini's

HEY, CONNIE! WE GOTTA  
MAINTENANCE PROBLEM...

?

### Use M880-Series Model Number

Your new Dodge pickup is in the Army now—and it's tactical. So it has an Army model number, and TAMMS forms should show it. When a form on your new 1½-ton asks for model, write M880, M881, M882 or whatever model you've got—not D200, which is the manufacturer's number. The Army's computers won't have any "truck" with numbers other than those assigned by Uncle Sam.

### New A/C Tool Set

A Department of the Army Letter of Instruction, DALO-AV (27 May 77), has hit the field on putting together Tool Set, AVUM No. 2, NSN 4920-00-567-0476. Use SC 4920-99-CL-A92 (Feb 77) to inventory the set, which will be LIN W60206 when your MTOE is updated.

### Fuel Control Changeover

Support is putting improved fuel controls on T53-L-13B engines as fast as they can get unserviceable ones. But they don't want serviceable modified controls shipped back with unserviceable engines. If you have a modified control, P/N 84200A7, hang onto it. If the number's different, send the control—working or not—with the engine straight to Corpus Christi Depot. Check for spare controls that haven't been modified. If the commander says it won't jeopardize the unit mission, you can ship them for the mod, too.

### Play It Safe

If staying healthy's your thing, you need DA Pam 385-3, Protective Clothing and Equipment (May 76). Order it from the Baltimore Pubs Center on DA Form 17.

### No-No on Steel Wool

Small arms gun barrels like the "no rust" look, but not when it means they lose their protective coats.

So, keep steel wool away—even just a touch of it. Get rust off with a brush, and use carbon remover (RBC) if it gets bad.

Steel wool sets the barrel up for severe rusting and for re-phosphating.

### Forklift Starter NSN

To get a starter for your 6,000-lb Rough Terrain Forklift, use NSN 2920-00-294-1627. The one in TM 10-3930-242-ZOP/2 (May 74) is wrong.

### Towed Howitzer System

When you report your towed howitzer on the DA Form 2406 Materiel Readiness Report, remember the truck that tows the howitzer is a subsystem of the howitzer system. List only the howitzer on the DA 2406. The truck's ESC rating, possible days, available days and NORS/NORM downtime count on the howitzer system. The truck is not counted on the truck line so reduce the authorization column on the truck line for each one you report as a howitzer subsystem.

☆U. S. GOVERNMENT PRINTING OFFICE: 1977 - 757-002/12

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



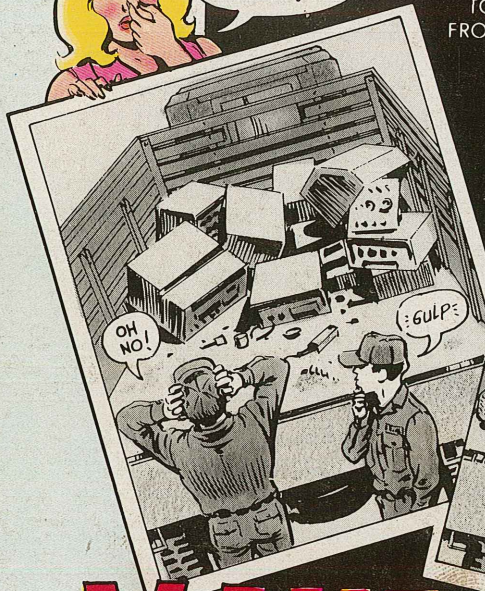
# MAINTENANCE ON A MATTRESS!



WRONG WAY--  
UGH!

TO AND  
FROM YOUR  
DSU!

RIGHT WAY--  
YEA!



# MAKE

# 1 REPAIR JOB

ON COMMO  
GEAR

# STAY

# 1 REPAIR JOB!