

Issue 287

PS

October
1976

THE PREVENTIVE MAINTENANCE MONTH

CONNIE!
ARE THOSE
GUYS FIXIN'
TO SHOOT
AT ME?

DON'T
SWEAT IT,
DING DONG!

WITH
THEIR PM,
EVEN A
TARGET
BIG AS
YOU IS
SAFE!

NOPE!
OPTICS
ARE ALL
FOGGED
UP!

YOU
ON
TARGET?

FIRE!...
FIRE
ANYHOW!

C-CAN'T,
SARGE...
THE
AMMO'S
CRUDDY!

MURPHY
ANDERSON

START NOW TO—

THINK METRIC

Soldiers who own foreign made autos are already "thinking metric." As time goes by more and more soldiers will be "thinking metric" on the Army equipment they operate and maintain.

Of course, some hardware and containers you now use are in metric measurements. You've been using meters for weapons firing ever since you joined the Army. Some units have equipment made in Europe that's metric. So, some soldiers have been working with metric parts and tools for a while now.

LENGTH		
Unit	Abbreviation	Number of Meters
myriameter	mym	10,000
kilometer	km	1,000
hectometer	hm	100
decameter	dkm	10
meter	m	1
decimeter	dm	0.1
centimeter	cm	0.01
millimeter	mm	0.001
CAPACITY		
Unit	Abbreviation	Number of Liters
kiloliter	kl	1,000
hectoliter	hl	100
decaliter	dcl	10
liter	l	1
deciliter	dl	0.10
centiliter	cl	0.01
milliliter	ml	0.001
AREA		
Unit	Abbreviation	Number of Square Meters
square kilometer	sq km or km ²	1,000,000
hectare	ha	10,000
are	a	100
centare	ca	1
square centimeter	sq cm or cm ²	0.0001
VOLUME		
Unit	Abbreviation	Number of Cubic Meters
decistere	dks	10
stere	s	1
decistere	ds	0.10
cubic centimeter	cu cm or cm ³ also cc	0.000001
MASS AND WEIGHT		
Unit	Abbreviation	Number of Grams
metric ton	MT or t	1,000,000
quintal	q	100,000
kilogram	kg	1,000
hectogram	hg	100
decagram	dag	10
gram	g or gm	1
decigram	dg	0.10
centigram	cg	0.01
milligram	mg	0.001

EYEBALL THIS CHART!

As major pieces of equipment are put into use that have all metric measurements built in—like nuts, bolts and screws—you'll be using metric tool sets. For a period of time units will even have both metric and English tool sets. Then, sometime in the future every thing will go metric.

THE CHANGE IS COMING! IN FACT...

IT'S ALREADY HERE! SO...

THINK METRIC!

96
61
86

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
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Lexington, KY
40511

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COMBAT
SUPPORT

BATTERY CHARGING:

A PANEL FOR EXPERTS

OK, EXPERTS... CAN YOU DETERMINE THE OCCUPATION OF OUR GUEST PANEL, NSN 6130-00-940-7866?

HMMMM... IS HE SUPPLIED BY A 3-KW, 28-VDC?

DOES TM 5-6130-301-12 APPLY TO HIM?

IS HE KNOWN TO ASSOCIATE WITH TM-9-6140-200-12?

THINK I GOT IT, CONNIE!...
IS HE BEST KNOWN FOR PROLONGING BATTERY LIFE?

WHAT'S MY MOS?

BIG POINTS TO REMEMBER

The care you give a lead-acid battery and the way you charge it can either kill it quick . . . or let it live the battery equivalent of a ripe old age.

In short, a well-maintained battery can last up to 4 times as long as a poorly maintained one.

One practice that chops months off any battery's life is to charge it directly from a generator set—which feeds an overdose of current that can tear it up.

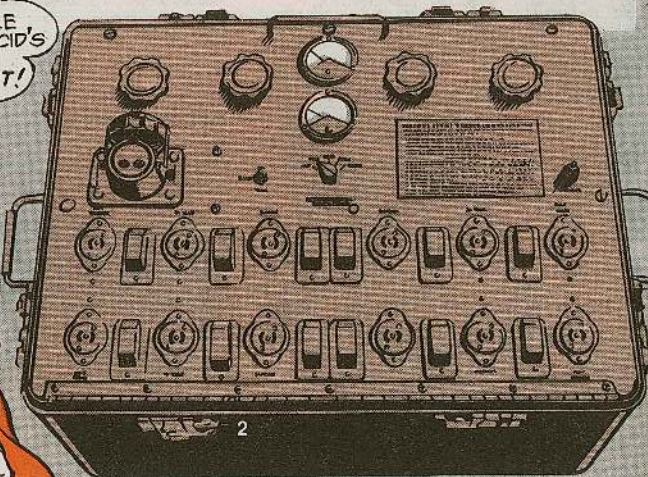
The best way to preserve battery life is to charge them with battery charging distribution panel NSN 6130-00-940-7866.

Power for the panel is supplied by Mil Std, 3-KW, 28-VDC generator set NSN 6115-00-017-8239.

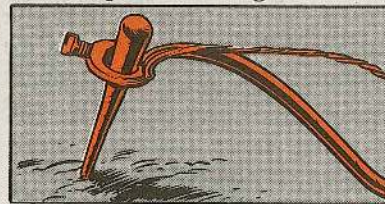
TM 5-6130-301-12 (Oct 69) tells you how to use the panel.

TM 9-6140-200-12 (Sep 73) gives you the scoop on battery care.

THIS PANEL CAN QUADRUPLE YOUR LEAD-ACID'S LIFE!
USE IT!



For safety's sake, you must ground both the panel and the generator set.



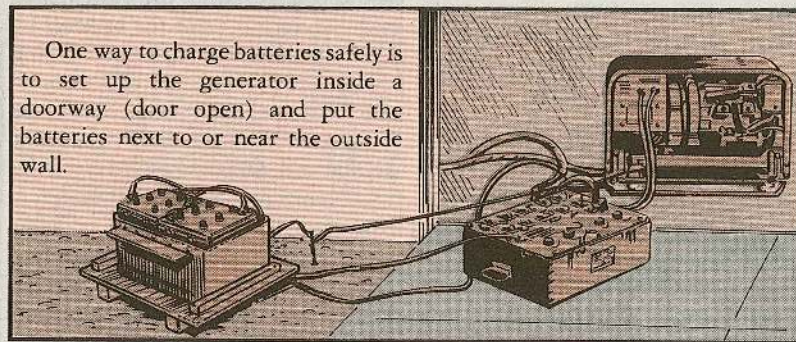
Good ventilation is important . . . both at the generator location and where you set up your batteries. The

batteries give off hydrogen gas during charging, and a spark or flame could set it off. So, it's a good idea to remote the batteries as far from the generator as possible.

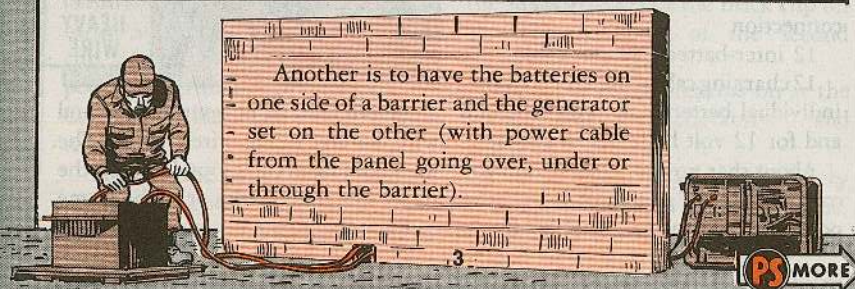
It should go without saying that you neither smoke nor permit an open flame near the batteries during charging.

Also, use safety goggles, a rubber apron and gloves . . . for your own protection.

One way to charge batteries safely is to set up the generator inside a doorway (door open) and put the batteries next to or near the outside wall.



Another is to have the batteries on one side of a barrier and the generator set on the other (with power cable from the panel going over, under or through the barrier).



PS MORE

PUSH OFF THE CIRCUIT BREAKER BEFORE TRYING TO CONNECT!

THE PANEL

You've got to remember to push off the circuit breaker at the station outlet you're using on the panel. Push it off

PUSH OFF BREAKER BEFORE CONNECT OR DISCONNECT

before you connect or disconnect a battery charging cable at the outlet. That prevents sparks, arcs . . . explosions and whatever.

The panel comes with:



A power cable for the generator connection.

12 inter-battery jumper cables.

12 charging cables used for charging individual batteries, 24-volt batteries and for 12-volt batteries in series.

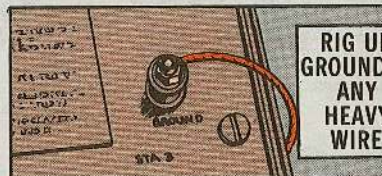
About that power cable: before you connect it to the generator, be sure the power switch on the panel is off.

To charge 24-volt batteries or single 12-volt batteries from the 2 12-volt station outlets, all you need is the charging cable. You put the connector end of the cable on the station outlet



and the clip ends on the positive and negative terminals of the battery.

You need a combination of charging cables and inter-battery cables for 6-volt batteries and for when you charge 2 12-volt batteries from a 24-volt station outlet. The panel TM gives you details on how to hook the inter-battery cables up.



You have to rig up your own ground wire, so any heavy wire will do. The wire goes from the ground stud on the panel to a metal stake or to the frame of the generator.

HOW TO CHARGE

Basically, here's all you do to charge batteries with the panel:

Keep the batteries themselves and the generator set in well-ventilated areas.

Remote the batteries from the generator set as far as possible.

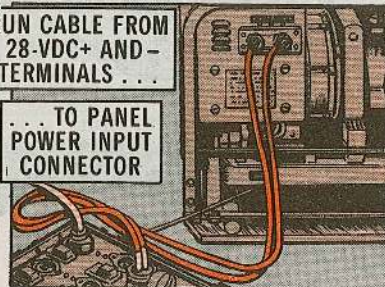
Ground the generator set and the charging panel. Flip off the generator circuit breaker.

Start the generator set and adjust it to deliver 28 volts DC.

With the power switch on the panel off, connect the power cable to the power input connector on the panel. Connect the other end of the cable to the 28-VDC + and - terminals on the generator.

RUN CABLE FROM 28-VDC+ AND - TERMINALS . . .

... TO PANEL POWER INPUT CONNECTOR



Push off the circuit breakers at the station outlets you plan to use.

If you're going to charge 24-volt batteries, connect the charging cable to the station outlet. Connect the red clip of the charging cable to the positive terminal of the battery. Connect the black clip to the negative terminal.

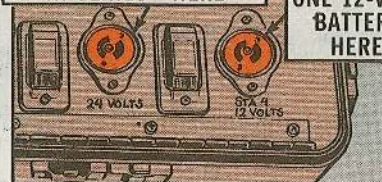
Turn on the panel power switch.

Press the circuit breaker on . . . and you're in business. You do exactly the

same thing for 12-volt batteries, providing you use the 2 station outlets marked for 12-volts.

TWO 12-VOLT BATTERIES IN SERIES—HERE

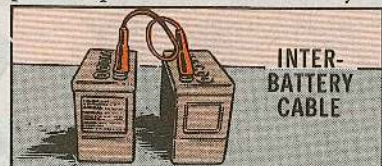
ONE 12-VOLT BATTERY HERE



If you've got to charge more than 2 12-volt batteries at the same time, you can use any 24-volt station outlet.

But, you've got to charge 2 12-volt batteries from it. In that case, you hook up the 2 batteries in series with the inter-battery cables, like so . . .

Clip one end of the inter-battery cable to the negative post of one battery and the other end to the positive post of the other battery.



Connect the charging cable at the station outlet. Clip the red clip of the charging cable to the positive post of the first battery. Put the black clip on the negative post of the second battery.

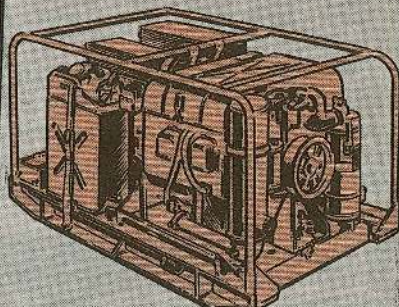
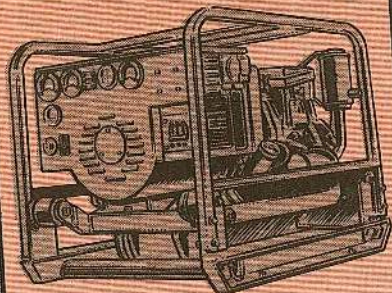
Press the circuit breakers on at the station outlet and generator . . . and you're in business.

The state of charge of the battery will determine the charging time. Read TM 9-6140-200-12 for details.

OFF TO A FRESH START

Erase those memory dots about the warmup and shutdown poop on small gasoline engine driven generator sets you read about in PS No. 277 (Dec 75).

Forget the info in your 0.5, 1.5, 3.0, 5.0 or 10-KW GED set's TM if it doesn't match this new poop.



PULL AN EAGLE-EYE OPERATOR'S BEFORE OPERATIONS PM LOOK 'N' DO DEAL!

HAVE A FIRE EXTINGUISHER HANDY!

NOW, FOR ALL DOD MODELS MEP-014A THRU MEP-026A SETS HERE'S HOW TO...

START 'EM UP

1. Set the circuit breaker to OFF or OPEN, position.



2. Set the fuel selector valve to the TO TANK or TO AUX position—whichever fuel source you're using.



3. Set the output selector switch—it's inside the control box—to the generator (voltage) output that matches the connected load.



4. Turn the voltage adjusting rheostat all the way to the left.



5. Set the carburetor throttle control in START position.



6. Start the engine like so—if it's a 0.5, 1.5, or 3-KW set, manual choke:

■ Set the engine RUN-OFF switch to RUN position.



■ Put the choke in about a ¾-closed position.



■ Make 1 pull of the starter rope with a quick, steady motion.



If the engine starts, move the carburetor control to GOVERN or RUN position and open choke as steady engine operation permits.

to GOVERN or RUN position. Run engine at half choke, then open choke as steady engine operation permits.

If the engine does not start, close choke to full. Take 1 pull of starter rope. If engine starts, move choke to about a ½-position and move the carburetor control

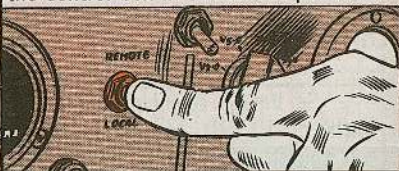
CAUTION: Unnecessary or excessive use of the choke can cause the lubricating oil to dilute.

HOLD ONE!

HERE'S NUMBAH ONE INFO ON AUTO CHOKE MODELS...

START A 5.0 OR 10-KW GENERATOR SET, AUTOMATIC CHOKE, LIKE THIS...

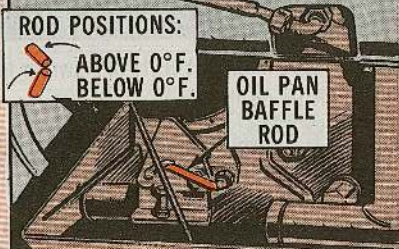
■ Set the REMOTE-LOCAL switch on the control box in the LOCAL position.



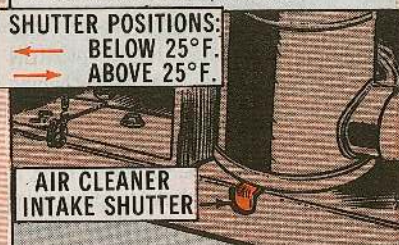
■ Set the NORMAL-EMERGENCY RUN-EMERGENCY STOP switch on the control box in NORMAL position.



■ Set the OIL PAN BAFFLE ROD for the ambient temperature.



■ Set AIR CLEANER INTAKE SHUTTER for the ambient temperature.



■ Hold the START-STOP switch in START position until engine starts and engine oil pressure reaches operating pressure.

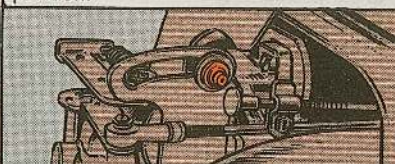


Here's a check to be sure the auto choke is working: The choke will move in or out when starter is energized.

CAREFUL: Never hold this switch in

more 'n 15 seconds. Let the starter cool off for 1 minute before you try a restart.

■ When the engine starts, move the carburetor control to the GOVERN or RUN position.



Warm up the engine at rated speed for 3 to 5 minutes.

NEVER IDLE

Never run your GED sets at idle—less than rated speed. Here's why: Your generator's excitation system functions any time the rotor is spinning. This is true whether the generator set's circuit breaker is closed—ON—or open—OFF. The rated operating speed is easiest on the exciter, voltage regulator, and rotating rectifier diodes—the whole excitation system.

OK?... NOW... SPECIALLY NOTE THIS!

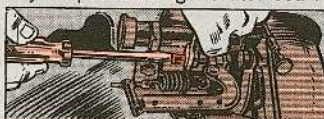
NOW BACK TO GENERATOR WARMUP POOP!

7. Adjust the voltage rheostat to the output needed.



8. Adjust the governor control—if necessary—so that the frequency meter shows the rated hertz for your particular generator set. Remember...

Hertz rating high—
decrease governor RPM



Hertz rating low—
increase governor RPM

9. Set the circuit breaker to CLOSED or ON position.



AND HERE'S HOW YOU PERFORM THE...

SHUTDOWN

1. Set the circuit breaker to OFF or OPEN position.



2. Turn the voltage RHEOSTAT full counter-clockwise.



3. Run the generator set at rated speed for 3 to 5 minutes to cool down the set.

4. Stop engine:



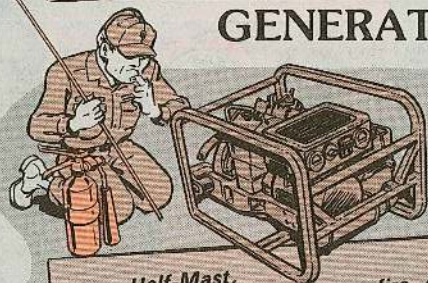
For 0.5, 1.5, and 3.0-KW sets, push the ignition switch on the engine to the OFF position.

For 5.0 or 10-KW sets, place the STOP-START switch on the control box in STOP position.

Keep these start and stop points in mind for all normal operations. Your downtime and parts replacement will decrease like you wouldn't believe. If you're operating in unusual conditions see your generator's TM for the straight poop.

This start 'n' stop info will be included in the generator TM's when they're revised. Meanwhile, you can make it part of your unit SOP. Just get the CO's OK.

GENERATORS NEED 'EM



Dear Half-Mast,
Do we have to have a fire extinguisher and a ground rod for our smaller size generators?
Some of the newest TM's have dropped these Basic Issue Items, some have not. We're confused.

SFC R.J.H.

Dear SFC R.J.H.,

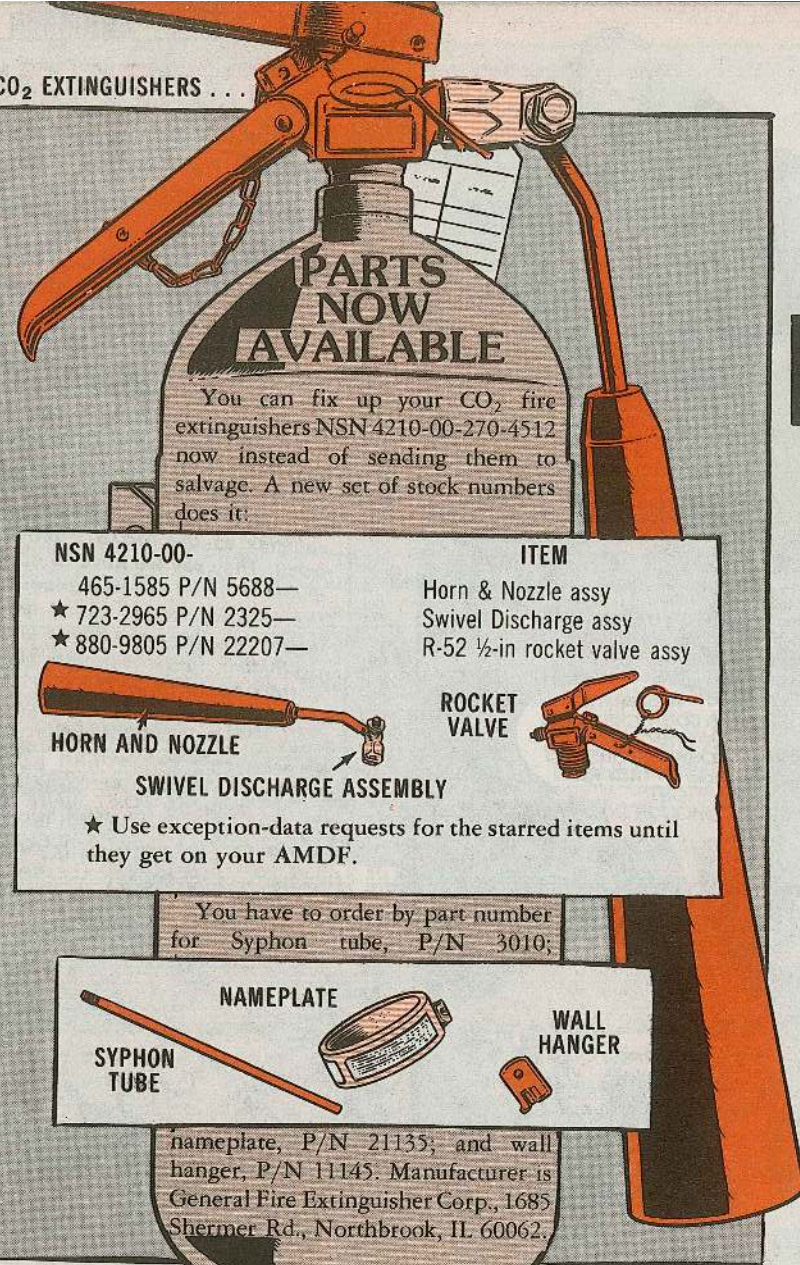
You need a fire extinguisher and a ground rod hook up when operating any size generator.

A few recently published TM's did goof. Changes or revisions to the TM's will put these items back on the ITIAL-Items Troop Installed or Authorized List.

SPEAKING OF FIRE EXTINGUISHERS...



5-LB CO₂ EXTINGUISHERS . . .



PARTS NOW AVAILABLE

You can fix up your CO₂ fire extinguishers NSN 4210-00-270-4512 now instead of sending them to salvage. A new set of stock numbers does it.

NSN 4210-00-

- 465-1585 P/N 5688—
- ★ 723-2965 P/N 2325—
- ★ 880-9805 P/N 22207—

ITEM

- Horn & Nozzle assy
- Swivel Discharge assy
- R-52 ½-in rocket valve assy



HORN AND NOZZLE

ROCKET VALVE



SWIVEL DISCHARGE ASSEMBLY

★ Use exception-data requests for the starred items until they get on your AMDF.

You have to order by part number for Syphon tube, P/N 3010;

NAMEPLATE



WALL HANGER

SYPHON TUBE



nameplate, P/N 21135; and wall hanger, P/N 11145. Manufacturer is General Fire Extinguisher Corp., 1685 Shermer Rd., Northbrook, IL 60062.

BATTERY

HOOKUPS

Dear Half-Mast,

"Under the head" is the rule for connecting battery cable terminals to the clamp bolt. That's what it says in the TM on lead-acid batteries—TM 9-6140-200-12 (Sep 73), page 3-10, para 3-4.

But our MAIT says this's not true for some of the battery cables on such vehicles as the M818 5-ton tractor truck. They say we have to go by the diagram on the battery box cover. And that shows some cable terminals under the nut on the clamp bolt.

Which is right, the battery TM or the battery box diagram?

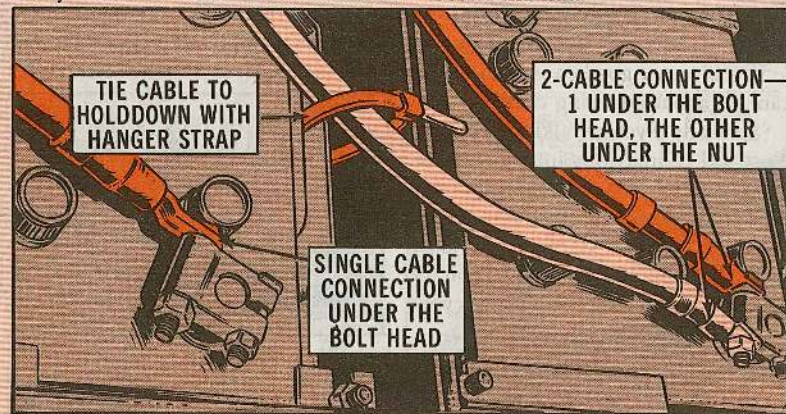
CW2 J.H.K.

HE WANTS A JOB—CHECKING BATTERY CABLE CONNECTIONS TO SEE IF THEY'RE TIGHT ENOUGH.

OKAY, BUT WE DON'T WANT ANY PUMP—HANDLE CHECKING—THAT JUST LOOSENS A GOOD HOOKUP!

KEEP CHECKING ALL CONNECTIONS TO MAKE SURE THEY'RE TIGHT!

THE LATEST STOCK NUMBER, NSN 5975-00-074-2072, BRINGS 100 STRAPS!



Dear Mr. J.H.K.,

It depends on what sort of setup you've got.

When there's only one cable going to a battery post, put the cable terminal under the head end of the clamp bolt. This holds tighter than under the nut—because that heavy cable bounces some during travel and can work the nut loose.

But, when you've got 2 cables going to the same battery post, put one under the head and the other under the nut. You want electrical connections as short 'n' close as possible. And clean and snug.

Take another look in TM 9-6140-200-12—on page 3-12—and you'll find some insurance against those under-the-nut hookups coming loose. That's the plastic hanger straps. You tie the cable to the battery holddown—or whatever's handy—and the cable won't bounce and loosen the nut.



MAKING the CONNECTION

THIS IS 35, BRING THE MESS TRUCK TO POINT ZULU TAN...

?! HEY--@*!!...
SETS GONE DEAD!

SC-RAWK!

MAN! CONRAD SURE HAS TH' RIGHT CONNECTIONS, HUH?

NOT WITH HIS ELECTRICAL GEAR HE AIN'T!

PROB'LY "VOLTAGE SPIKES" AG'IN!

YA THINK THE DUDE'LL EVER LEARN?

But how tight is tight enough? Like the referee said, that's a judgment call. So go easy. You want it tight enough to make a good connection, but not so tight that you start stripping threads or messing up battery terminals. 'Course, if the manual calls for a specific torque, use a torque wrench.

And be gentle when you're checking those connections. Just a little wiggle is enough—with the master switch off, of course.

SOME HEAVY HANDED CHECKING CAN CAUSE BAD CONNECTIONS WHERE THERE WEREN'T ANY BEFORE!

THIS ONES LOOSE, CONNIE!

EASY, DING DONG!

Speaking of grounds, how about the other end of that battery ground cable—where it attaches to the frame or engine block. Is it tight?

BATTERY GROUND CABLE TIGHT?

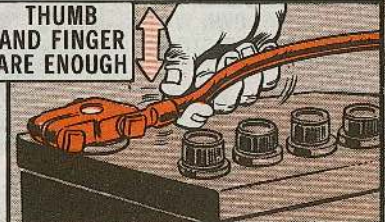
Sometimes a part can act like it's bad when all it needs is a good hook-up. One example of that is the 100-amp generator on the M715 series 1¼-ton trucks. If you don't get that ground strap from the block to the frame tight, the toothed washer won't scrape through the paint, and you'll think you've got a bad generator.

STRAP FROM BLOCK TO FRAME—TIGHT

radio, voltage regulator and other solid state vehicle components.

So you check your battery connections just like it says in the manual. But

THUMB AND FINGER ARE ENOUGH



NO PLIERS—JUST FINGERS!



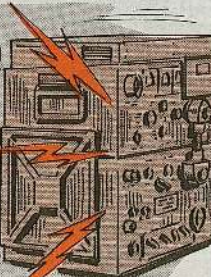
remember, there're other connections in there. Any of 'em can cause trouble if they're loose.

If you've got good connections, you can get about anything done.

'Specially if you're talking about the electrical connections in your vehicle.

A loose battery post connector can cause all kinds of trouble. Like maybe the engine not starting. A loose ground can also cause "voltage spikes," which can really spike your

HEH-HEH!



AIR-HYDRAULIC CYLINDERS

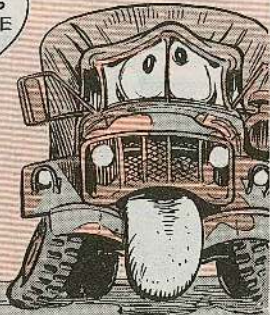
BLEED ... OR BE BLED

Too many operators and too many mechanics are causing too many brake air-hydraulic cylinders to be dumped on their support for rebuild—at about \$50 a crack.

Drivers are not draining the air reservoir tanks daily—after every operation. Water in the tanks is getting into the cylinder and causing damage.

WHATSA MATTER WITH YOU? THAT'S THE FOURTH CYLINDER THIS MONTH YOU'VE POPPED!

HEAVEN SAVE ME FROM THIS CLOD... BEFORE HE BREAKS ME AN' UNCLE BOTH!



Mechanics are not bleeding the cylinder when they install a new or rebuilt one. So the cylinder won't work right. Or it poops out in a short time.

PROTECTING THE CREASE IN YOUR FATIGUES OR SAVING YOURSELF A COUPLE O' MINUTES IS NOT WORTH THE \$50 IT COSTS FOR AIR-HYDRAULIC CYLINDER REBUILD.

What started out as a perfectly good air-hydraulic cylinder is kicked right back for rebuild.

DIRTY KNEES

If you can drain the air tanks on your 2½-ton truck or 5-tonner (TM-211-series) without getting your knees dirty, that's great.

But you've got to squat or hunker down to get at the air tank drain valves



on those trucks. They're under the truck. Not too easy to reach. But, remember, that squat 'n' reach can save 50 bucks!



No sweat at all when you're draining the air tanks on the M813 and other TM-260-series 5-ton trucks. The drain cock is handy under the left running board.

MECHANIC BLEEDS CYLINDER

Every good mechanic knows to bleed the brake hydraulic system any time a connection has been taken apart.

Natch, this goes for installing an air-hydraulic cylinder. Failure to bleed leads to cylinder failure. It's that simple.



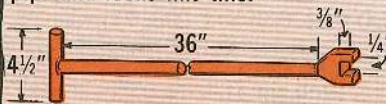
5-ton truck, TM-211-series—TM 9-2320-211-20 (Jun 73), pages 2-155 thru 2-158, paras 2-190 & 2-191.

5-ton truck, TM-260-series—TM 9-2320-260-20 (Jul 72), pages 2-250 & 2-251, paras 2-138 & 2-141.

2½-ton truck, TM-209-series—TM 9-2320-209-20 (Apr '65), page 283, para 177.

Over the years, some guys have come up with ideas for arm-stretchers—fabricated tools to reach the drain valve easier. They're made from scrap metal—steel rods and strap iron.

The tool is kept in the motor park handy for all drivers. It's made of scrap pipe and looks like this.



Here's another tool for the job. It's a piece of ½-in strap iron, ½ inch wide and 36 inches long. The slot in one end grabs the petcock. The drilled hole in the other end takes a rod (or screwdriver) to form the handle.

Usually, the air tank drain cock has to be repositioned so the tool can lock onto it. Coating the drain cock's threads with sealing compound will keep it in the right position.

JAWS!

GAAAA-AH!

'SCUSE ME--
MY JAWS
NEED
ADJUSTING,
TOO!



A few seconds of your time can save you from a month o' nightmares about losing your semitrailer!

Are you sure you're safe with that 5th wheel on your 2½-ton or 5-ton tractor truck? You've checked it over good?

How 'bout the jaws?

Right now, check for too much play in those jaws.

Close the jaws—like you do when you hook up a semitrailer. Then use a short pry bar to lift one of the jaws. Measure the upward movement at the tip of the jaw. If it's more than ½ inch, get the jaw and its securing pin replaced.

Then check the other jaw, too.

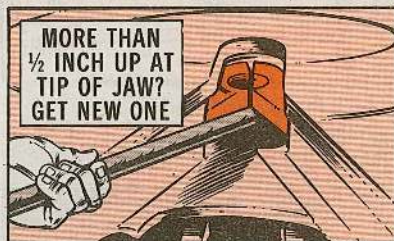
You can head off sloppy jaws by making sure the new pins are well lubed—so the jaws open and close easy.

HEY--
SUDDENLY
PULLS EASIER!

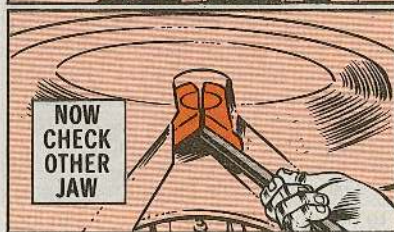
HALP—I'M
BEING ATTACKED!

And keep those pins lubed reg'lar with GAA—every 1,000 miles or semiannually, whichever comes first, like it says in LO 9-2320-209-12 (Oct 71), LO 9-2320-211-12 (Jun 72) and LO 9-2320-260-12 (Dec 73).

MORE THAN
½ INCH UP AT
TIP OF JAW?
GET NEW ONE



NOW
CHECK
OTHER
JAW



SWITCH ON TIRE SWITCHING

Hold it! You don't rotate tires on your M880 or other TM-266-series 1¼-ton truck like you do on your military-design trucks.

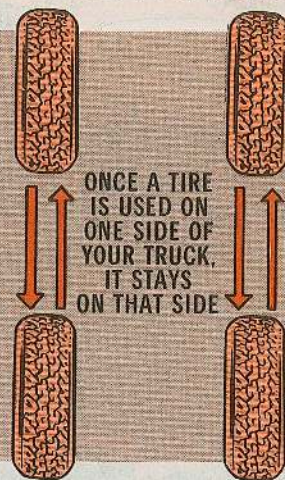
This truck's got radial tires—tubeless steel belted radials—so you never change 'em from one side of your truck to the other. Instead, you switch 'em only on the same side—front tire to the rear and rear tire to the front. See the poop in TM 9-2320-266-20 (Jan 76), page 2-62, para 2-76a(2) and Fig 2-71.

The TM shows 2 different ways of rotating tires—the 4-wheel pattern and the 5-wheel. But, like the TM says, it's best to stick to the 4-wheel setup.

And you never mix radial tires with bias-ply tires—see "Warning," para 1-8f, page 1-5, TM 9-2320-266-10 (Jan 76). You can tell a radial by the "R" on the tire.

That "65 PSI" on your M880's tires is not your operating pressure. That's top pressure—maximum.

Tire pressure for your truck is 35 PSI front and 55 PSI for the rear and spare.



R MEANS
RADIAL

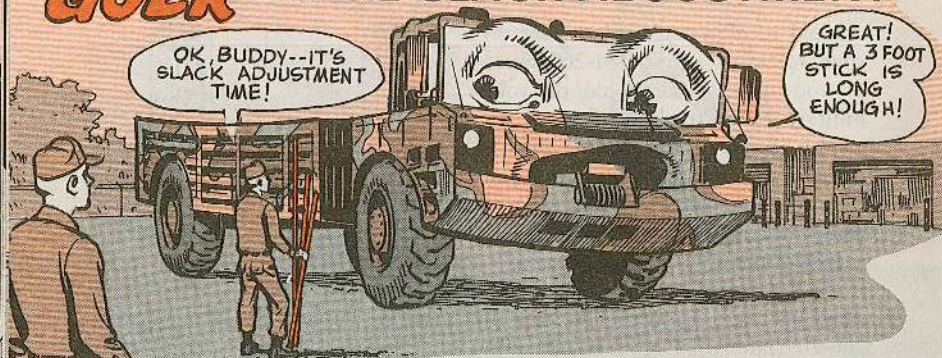


NO!
NO!

DON'T
PUT THAT
ON ME!...



GOER BRAKE SLACK ADJUSTMENT



Having trouble measuring for brake slack adjustment on your Goer?

Use this poop with the instructions in TM 9-2320-233-20, para 2-73:

Notch the end of a thin, flat stick about 3 feet long.

Rest the notch against the clevis.

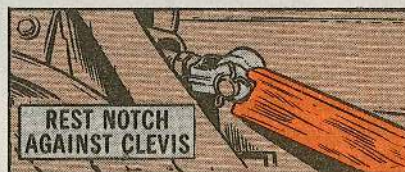
Mark the stick next to some point on the hull—like the trailing edge under the bottom front step or the rear tiedown eye.

When your helper hits the brakes, the stick'll be pushed out. Mark the stick again—right at your hull reference point.

The distance between your 2 marks shows the travel of the slack adjuster. It should be 1 3/4 inches.

If it's not, adjust like it says in the TM—clockwise for less travel, counterclockwise for more travel. A half-turn of the adjusting bolt will change the travel 1 inch.

Make sure you loosen the lock bolt before turning the adjustment bolt. And tighten the lock bolt when you're done.



PUTTING YOUR FOOT IN IT

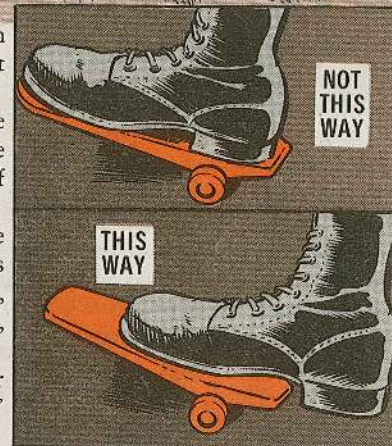


Here's how you Goer jockeys can save some bouncing around when that monster starts "loping."

Keep your heel planted on the floorboard, and operate the accelerator with just the top half of your foot.

This will reduce the vicious circle where the vehicle's bouncing makes your foot bounce on the accelerator, making the vehicle bounce more, making your foot bounce more

Never use the governor lever for driving; it could get you in a heap o' trouble.



Next Month In LS

SQUAD RADIO PM

M107/M110 SP ARTILLERY



106-MM RR REMINDERS

KIOWA TIPS

CAREFUL! WITH A
RECOILLESS RIFLE MOUNTED --
**YOUR 1/4-TON'S
TRICKY**

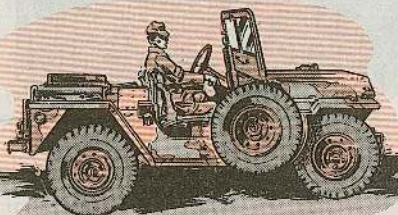
YEAH, BUT...
WHEN WEAPON'S NOT MOUNTED ...
IT'S EVEN TRICKIER...



You gotta be sharp—on your toes—when you're driving a 1/4-ton truck mounting the 106-MM recoilless rifle or the TOW missile launcher.

Slow 'n' careful—or you can flip it over.

But you gotta be even sharper when you're not carrying the weapon.



**WEAPON OFF
MAKES VEHICLE
HARDER TO HANDLE**

There're several changes made in these M151-series vehicles when they're set up to carry the recoilless rifle or missile launcher. These changes are to take care of the extra weight and the load distribution.

All of this is upset when you take the weapon off the vehicle.

It's something like taking one front wheel off a truck. You could probably travel in such a truck, but it'd call for some very special handling.

Very special handling—slow 'n' easy—is what's needed when you operate the M151A1C, M825 or TOW vehicle without the weapon. Fact is, it shouldn't be driven at all, except in the motor park to get it into or out of the shop.

You never use it for a "utility truck," like the M151, M151A1 or M151A2.

And you never tow a trailer with it, even though it's got a tow pintle. That pintle's only for recovery of the vehicle. This's made clear in TM 9-2320-218-10 (Sep 71), page 2-21, para 2-3m, and on the plate or decal mounted near the pintle.



HOT TIPS ON PERSONNEL HEATERS



On these chilly days your track or wheeled vehicle personnel heater helps keep your assets warm.

So what's the difference?

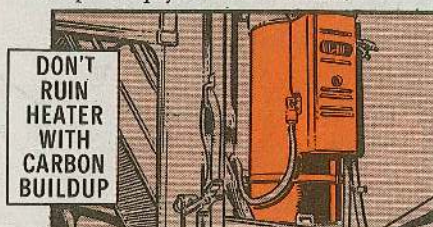
If you turn the master switch OFF first, the heater gets no chance to purge itself of fuel and fumes. This causes a carbon buildup which soon ruins the heater.

If you turn the heater switch OFF, the heater keeps on running until the fuel is burned and the exhaust gas is purged after which the indicator light will go out. This will cool the heater down and it'll just take a short while. It is then safe to turn OFF the master switch.

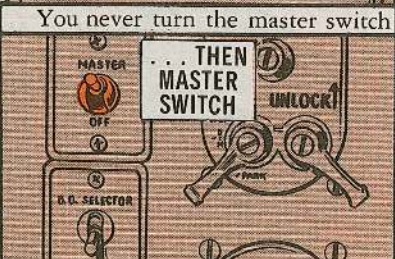
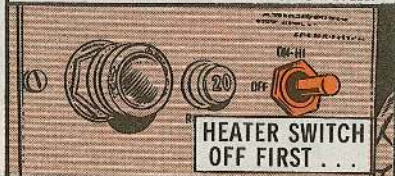
Some new production vehicles are wired so you can't make a mistake: The only way the heater can be turned off is with the heater switch.

For many vehicles, tho, you gotta remember ... Heater switch OFF first. Let the heater purge. Then master switch OFF.

DO THIS
AND YOUR
HEATER WILL
GIVE YOU A
WARM
FEELING ALL
WINTER!



So remember ... always ... Turn the heater OFF with the heater switch.



OFF until you have first turned the heater switch OFF.

MISHANDLING THE HANDLE?

WHO MOVED
THE DISCONNECT
HANDLE WITH THE
ENGINE RUNNING?

GULP

As all good drivers know, there's a time to push and a time to pull the engine disconnect handle.

Before you start in cold weather, you push the disconnect handle IN to cut the engine off from the gear train.

Before you pull it out, shut down the engine.

Some drivers go wrong and pull the handle OUT while the engine is still running.

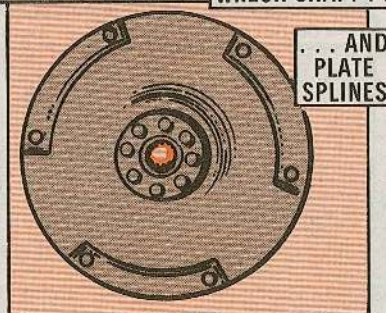
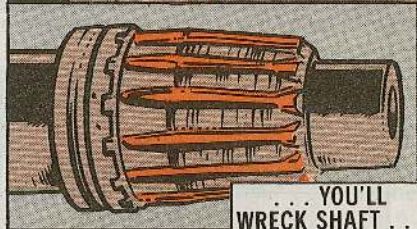
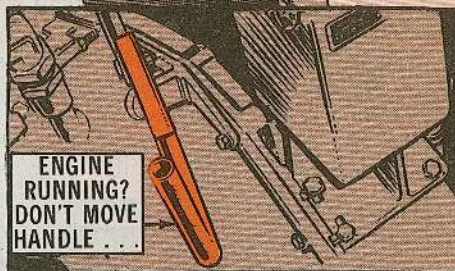
This is strictly a bummer.

If you pull the handle out with the engine running, you're jabbing a shaft into a hole that's moving as fast as the engine.

The splines on the shaft and in the hole rub together so hard they're likely to chip. If the worst happens, the entire engine disconnect system can break down.

So take a fast look at para 2-58 on page 2-31 of TM 9-2300-257-10 (Dec 73), 'specially where it says: "Do not attempt to move handle while engine is running."

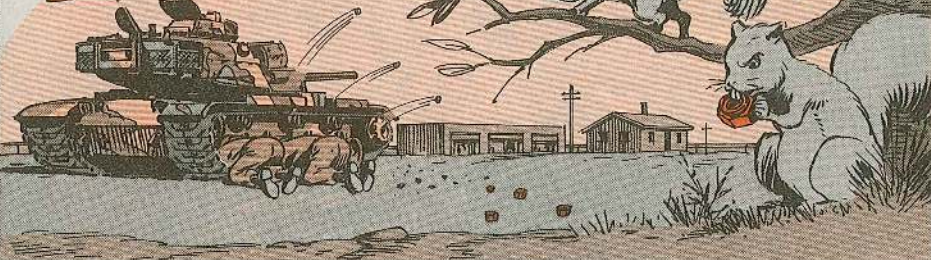
You always turn off the engine and wait until it stops before you pull the disconnect handle OUT to connect the engine and the drive train.



TANK TRACK IPS

HEY, CHESTER, LOOK!!
FREE NUTS!

P-TOO-EE!
NO GOOD, WALLY!
NEVER LAST THRU
WINTER... THEY'VE
LOST THEIR HOLDING
POWER!



Here're 2 hot NSN's you can add to your TM 9-2300-378-20P/1.

The center guides and wedge nuts are the same on T97 and T142 track.

NSN 5310-01-006-2085



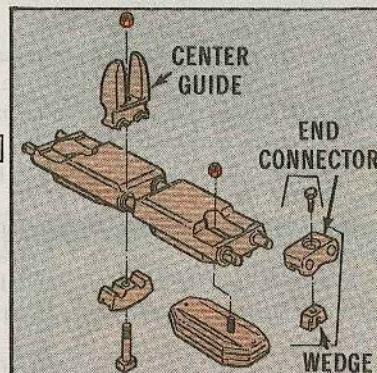
NSN 5310-00-873-6955



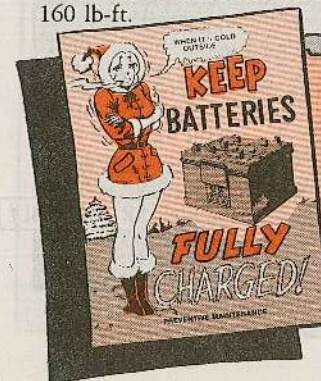
CENTER GUIDE NUT TRACK GUIDE NUT

Self-locking nuts lose up to half of their holding power after they've been screwed off and on. So, use new nuts to secure the expensive assemblies the nuts are attached to.

Make sure you torque the nuts tight. Track pad nuts need 240-270 lb-ft and track center guide nuts take 300-320 lb-ft. End connectors should have 140-160 lb-ft.



INCLUDES ALL M48/M60 SERIES TANKS, AVBL'S AND M728 COMBAT ENGINEER VEHICLES.

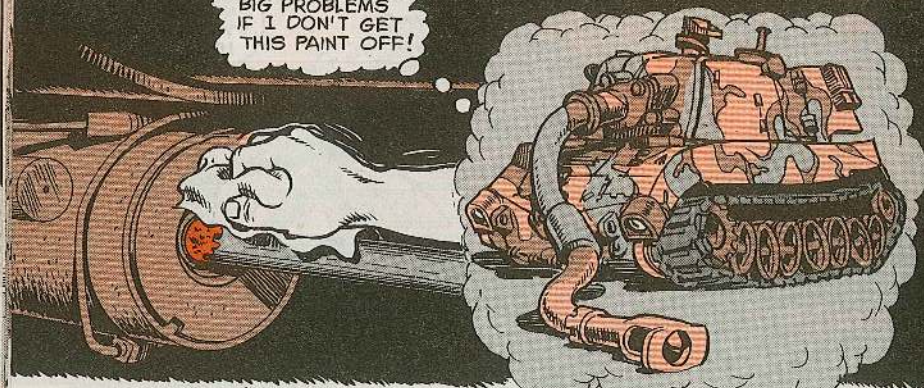


WINTER POSTER

For your batteries: DA Poster 750-72, "Keep Batteries Fully Charged." Order copies from the Baltimore pubs center today.

BUFFER ROD

BIG PROBLEMS
IF I DON'T GET
THIS PAINT OFF!



Everybody knows you never paint the counter recoil buffer rod on your M109/M109A1 howitzer.

So how does the paint get there?

No matter how it happens, you have to get the paint off.

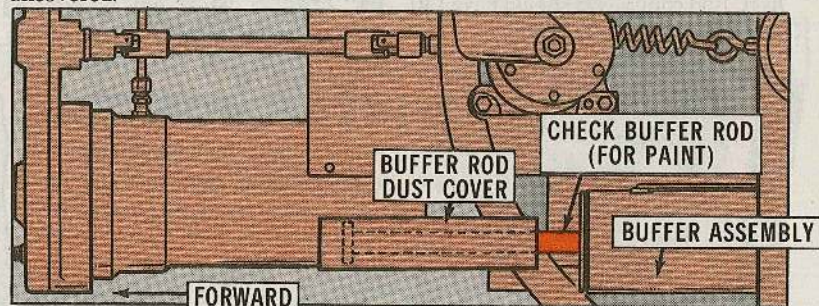
Why? Because the paint will jam between the rear bushing assembly and the buffer rod giving you a fast counter recoil. This can damage the cradle rollers and the cradle and buffer assembly.

With the cannon in the in-battery position, take a flashlight and check out your buffer rod for paint.

If you find any, use diesel fuel and steel wool to get it off. Never use any type of sandpaper.

After you have the paint off the rod, push the cannon out-of-battery at least 24 inches using the method given on page 423 of Ch 8 to your TM 9-2350-217-20. Check for leaks.

While the rod is extended, get off any additional paint you might have uncovered.



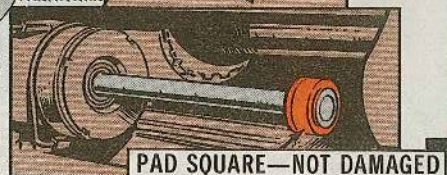
PAINT PROBLEM

BIG PROBLEMS
IF I DON'T
GET THIS
PAINT OFF!



Look over the rod. The pad must be square and undamaged. Get it fixed if necessary.

Now push the rod in. If the rod pushes in real easily, (like with one hand) the buffer is bad and must be replaced.



When the rod is free of paint and in good shape, you're ready to fire.

GET THE NEW PUB

A lot of you M109/M109A1 howitzer crewmen are still using the old TM 9-2350-217-10. What you need is the new TM 9-2350-217-10N. It supersedes the -10 TM for the M109/M109A1.



HOLD ONE!



LATEST PUB FOR
HOWITZER CREWMEN!



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 75), and Ch 3 (May 75), SC's and SM's; and DA Pam (O) 310-9 (Aug 74), COMSEC Pubs.

TECHNICAL MANUALS

TM 3-4230-200-10 May Testing Kit, Impregnate-In-Clothing ABC-M2; Impregnating Set, Clothing, Field; M3
TM 5-3020-235-23P May Drill, Pneum, Drifter, Crawler Mtd. (Chicago Pneum Tool Co Mod G-900)
TM 5-3095-272-20P Jun Model T-58-M GED Roller
TM 5-4310-352-12 Jun Model CM234F2
TM 9-1005-288-10 May Gun, ADA, Towed 20-MM, M167
TM 9-1425-480-10 Apr Dragon M47
TM 9-1430-588-20P May Radar AN/MPQ-49 (XO-1) FAAR
TM 9-2300-216-10 May M107/M110 SP Artillery
TM 9-2320-258-10 Apr Truck, Tractor, 22½-Ton, M746
TM 9-2320-258-20P May Truck, Tractor, 22½-Ton, M746
Ch 1, TM 9-2350-238-20 May M578 Recovery Vehicle
TM 9-2350-247-10 Apr M548 Carrier
TM 9-6920-378-20P May Training Set, Azimuth Laying (PERSHING)

TM 10-8110-201-14 Jun Fuel/Water Drums, Fabric Collapsible, Non-Vented
TM 11-5905-650-12AP Apr TA-93B/TT Telephone Set
TM 11-5815-208-12 May AN/PGC-1 and AN/PGC-3 Teletypewriter Sets and TT-4, TT-335, TT-537, TT-696 Teletypewriters
Ch 1, TM 11-5815-204-12 Jun Teletypewriters TT-47(1), TT-243/FG, TT-247/FG, TT-713(U)/UG, TT-719/FG and TT-720/FG
Ch 5, TM 11-5815-331-14 May AN/VSC-2 Radio Teletypewriter Set
Ch 4, TM 11-5815-332-15 Jun AN/VSC-3 Radio Teletypewriter Set
Ch 6, TM 11-5820-520-12 Jun AN/GRC-106(i) Radio Set
TM 11-5820-580-14 Jun AM-4832 Amplifier-Power Supply
TM 11-5820-603-14 Jun AM-4419/GRC Amplifier-Power Supply
Ch 2, TM 11-5820-610-14 Jun AN/TRC-133A Radio Terminal Set
TM 11-5820-803-12 Jun MD-921/G Digital Data Modem
TM 11-5820-823-14 May AN/FRC-155(V) thru -160(V) Radio Sets
Ch 2, TM 11-6865-213-12 May IM-174/PD Radiometer
TM 11-5985-296-23P Jun MK-1697/G Headset-Microphone Kit
Ch 23, TM 55-1500-204-25/1 Jul General Aircraft Maint
Ch 6, TM 55-1520-209-20-2 Jul CH-47A
TM 55-1510-209-23P-2 May Utility Airplane U-21-series
Ch 8, TM 55-1520-210-20P-1 May UH-1

TM 55-1520-214-23P May OH-6A Helicopter
Ch 11, TM 55-1520-227-20-2 Jul CH-47B/O
TM 55-1520-234-23P-1 Jun AH-1S (Mod) (Bell)
TM 55-1520-234-23P-2 Jun Helicopter, Attack AH-1S (MOD)
TM 55-2020-201-24 Jun Application Table for Aircraft Tires and Tubes
TM 55-2835-203-23P Jun Aux Power Unit, Turbine Engine (Solar)
TM 55-2840-231-23P May Aircraft Engine Gas Turbine (Allison) (T-63-A-5A) (T-63-A-700)
TM 55-4920-378-14S/P Jun Tester, Pilot and Static
TM 385-4 Jun Safety for Maint of Electrical/Electronic Equip

MISCELLANEOUS

FM 9-63M3 May MOS 63H Automotive Repairman, Skill Level 3
LO 5-3805-252-12-2 May Road Grader DCD (Cat Mod 112F)
LO 5-3810-290-12-1, Mar Crane, Wheel Mid: 5-T (Hansen Mod H-446A)
LO 5-8115-590-12 May Power Plant Util, Turbine Engine (Amertech Mod APP-1)
LO 9-2320-258-12 Apr Truck Tractor, 22½-Ton, M746
LO 9-2320-260-12 May Truck, 5-Ton, M809-Series
LO 9-2350-258-12 Jun M48A5 Tank
TB 748-95-1 May Color, Marking, Camouflage Pattern Painting for Armament Command Equip

AUDIO-VISUAL STUFF

Available At Your Local TASO

TEC LESSONS

020-171-1672-E M561 Pretire Procedures
020-171-1674-E Placing Turret into Operation, M551
041-061-6119-F Tube Artillery Fire Control Alignment Test
043-441-5906-F Vulcan Pre-Op Checks—Part I

043-441-5908-F Vulcan Pre-Op Checks—Part III
043-441-5938-F Vulcan Engagement of Aerial Targets—Part II
043-441-5948-F March Order—SP and Towed Vulcan
936-061-01210F Radio Set Control Group—AN/GRA-39 Install, Test
936-061-0122-F Radio Set Control Group—AN/GRA-39 Operation

952-061-0050-F Expedient Early Warning Devices—Part I

NEW FILMS

TF 5-4940 Mine Detecting Set
TF 17-4667 Cal 50 HB M2 Machine Gun (FLEX) Part 1: Assembly/Disassembly

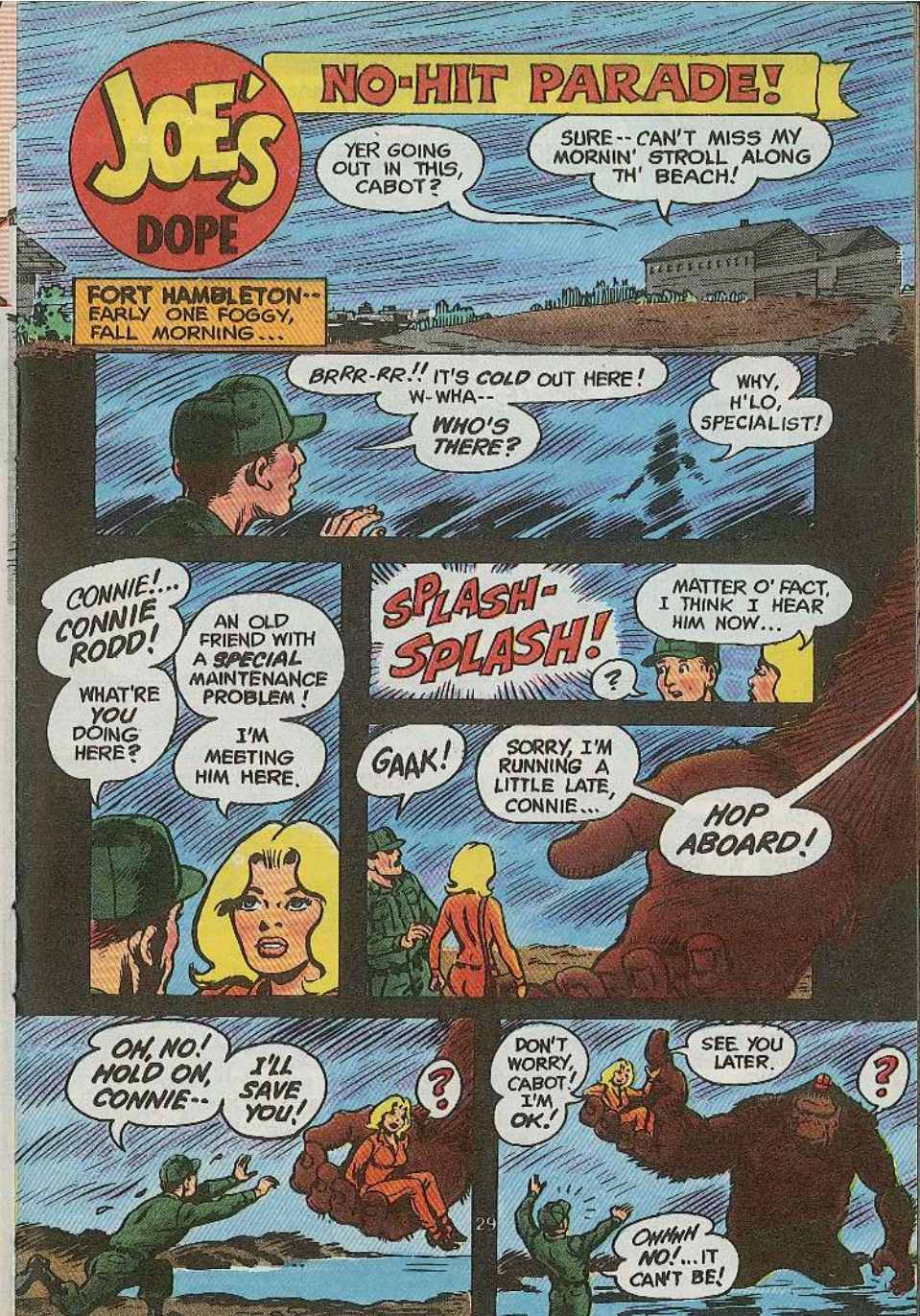
TF 44-4583 Hawk System: Pulse Aco Radar Emplacement, March Order

TV TAPES

TVT 6-103 Field Artillery Weapons
TVT 38-102 Crate Construction
TVT 44-104 Intro to Redeye

Redeye Mirrors
Need a secondary projector mirror for the M87 Redeye trainer device (moving target simulator)? Part No. 10229119-1, NSN 6920-01-013-5179, gets you the front mirror and Part No. 10229119-2, NSN 6920-01-012-6952, gets you the rear. They'll be added to TM 9-6920-427-20P.

DA Form 444 Info
Before you lose your cool trying to fill out a DA Form 444 with 2 sets of directions, make a note in your AR 710-2. The instructions on page 2-67 are correct. Ignore the info on page 2-69. That page was accidentally left in when Change 3 was printed.





...IT'S **DING DONG!**

...B-BUT
HE'S A
FICTIONAL
MONSTER
WHO **GULP?**
DOESN'T
EXIST!



TH- THEY'VE DISAPPEARED
INTO TH' FOG!

GOTTA
HURRY BACK--
TELL HQ!!



HEY, SARGE!
SARGE, YA WON'T
B' LIEVE...

QUICK, CABOT!
**NO TIME
T' WASTE!**

GET YER BUTT ON
BOARD... **PRONTO!**
ALL "H" HAS
BROKEN LOOSE!



SOME KIND MONSTER'S
BEEN SPOTTED OFF-SHORE
--AN' TH' GOOD OL'
6/48th ARMOR IS
ELECTED TO CHECK
IT OUT!

THAT'S TH' **GOOD**
NEWS-- NOW
TH' **BAD--**

OUR '60 TRACK
IS TH' ONLY
OPERABLE
ARMOR WE
GOT... SO

**MOVE
IT!**



...AN' THEN
HE TOOK OFF
WITH HER!

THERE'S
WHERE I
LAST SAW
'EM!

POOR CONNIE!

HEY!-- FOG'S
PARTING...



SOUNDS SIMPLE,
CONNIE... **TOO**
SIMPLE!

YOU SURE I
CAN **REALLY**
SWING
(HEH-HEH)
IT?

POS-I-TIVELY,
DING DONG!
YOU KNOW I WOULDN'T
MONKEY AROUND
WITH YOU!

WOW!
THE
MONSTER...

...AND
CONNIE!



ALL RIGHT, DING DONG!
DROP TH' GIRL -- OR IN
NO SECONDS WE FIRE!

?



SHOULD I DUMP
YOU IN THE WATER,
CONNIE?

**NO
WAY!**

?



TIME'S UP!

FIRE!

C-CAN'T, CHIEF!
OPTICS ARE ALL
FOGGED UP!

NOW, DING
DONG, YOU
SEE WHY
I'M VISITING
THIS
POST!

CONNIE--
THEY MAKE
ME FEEL
AT HOME!



PUT ME DOWN
BESIDE THEM!
NO BETTER
TIME FOR
INSTRUCTING!

RIGHT
ON!

MAYBE
I CAN
HELP!



YOU GUYS HAVE JUST LEARNED THAT NEGLECTING
YOUR FIRE CONTROL PUTS YOU IN A HOLE.
UNLESS THE FIRE CONTROL WORKS RIGHT NO
WEAPONS SYSTEM IS ANY GOOD-- INCLUDING TANK,
TOW, RECOILLESS RIFLE,
HOWITZER OR MORTAR.

HEY, PEOPLE!
WHAT GIVES?...
?
!
!
?
?



HEY! IT'S THE REST OF THE
6/48th ARMOR!... GREAT!
SO GATHER 'ROUND,
MEN... UNLESS YOU'D
RATHER DANCE WITH
MY FRIEND... AND TAKE
A LOOK AT SOME
POSTERS I BROUGHT!



FIRST... HERE'S
ONE YOU CAN PUT UP
IN YOUR R+R AREA...

JOE'S Dope Sheet



If you can't see the target to hit
like the proverbial duck you just sit.
Give your optics and such--
Your most delicate touch--
Or your firepower won't help you a bit!

FIRE--
FIRE!

--WOULD IF I
COULD ONLY
SEE, SARGE!

BOOMM!

BLAM!

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

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



NOW-- EYEBALL THIS... **WRONG** THINGS ARE SHOWN WITH A ❌ ... **RIGHT**, WITH A ★ !!

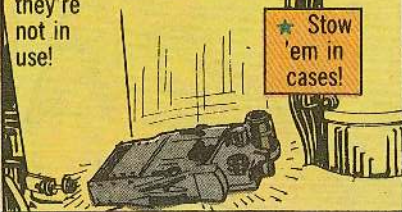
❌ WRONG ★ RIGHT

❌ You make damaged Fire Control equipment still worse by sending it for repair without packing it right!



★ Ship it in a protective case for long trips or padded cartons for short trips!

❌ You let instruments tumble around in the vehicle when they're not in use!



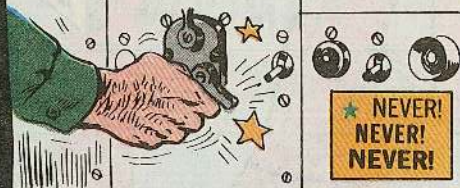
★ Stow 'em in cases!

❌ You try to make unauthorized repairs on Fire Control Gear!

★ Send it to **SUPPORT!**



❌ You force knobs, switches and controls past their limits of travel!



★ **NEVER! NEVER! NEVER!**

❌ You stick a screwdriver into your M32/M36 IR periscope, to check for current. This short-circuit can damage both you and your equipment!



★ Use a circuit tester!

❌ You call mechanic when Fire Control won't work without making sure all the cables are hooked up.



★ Check cables and connections regularly to make sure they are secure and in good condition!

AS YOU SEE, MEN... YOU'LL DO IT RIGHT IF YOU JUST CARE ENOUGH AND USE YOUR COMMON SENSE!

ATTAGIRL, CONNIE! SOCK IT TO 'EM!

❌ You leave turret electrical power ON when you start the vehicle and ...



★ Follow TM procedures.

❌ You forget to turn the power and light switches OFF when the instrument is not in use or when you are installing or removing it.



❌ You ignore High Voltage Decals

DANGER-HIGH VOLTAGE

★ THINK! Heed warning decals.

❌ You use diesel fuel, gasoline or benzyl to clean electrical components.



★ You should only wipe these things off!

❌ You try to condition "O" rings and gaskets by rubbing them with paint cleaner, solvent, mineral spirits, engine fuels or lubes.

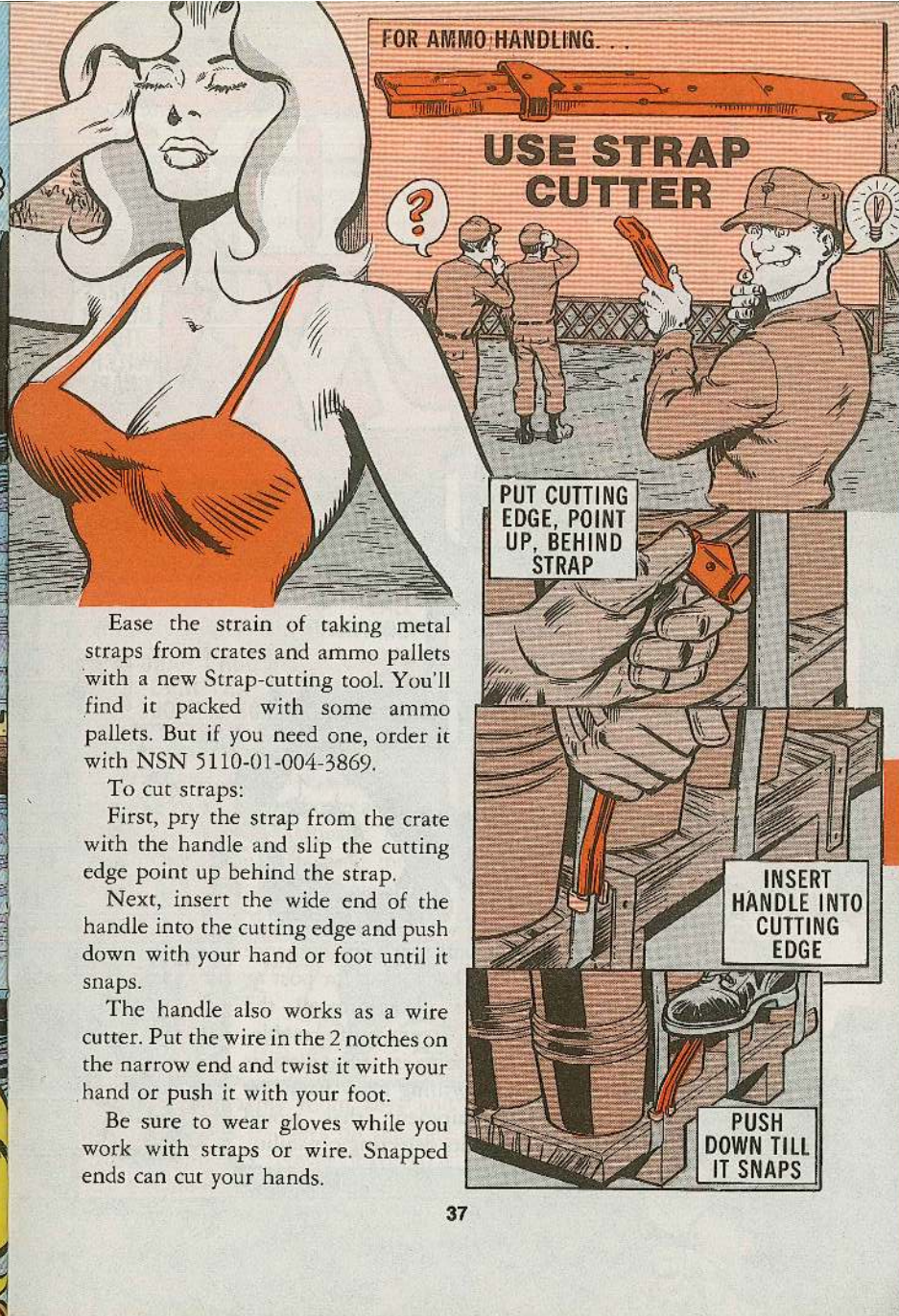
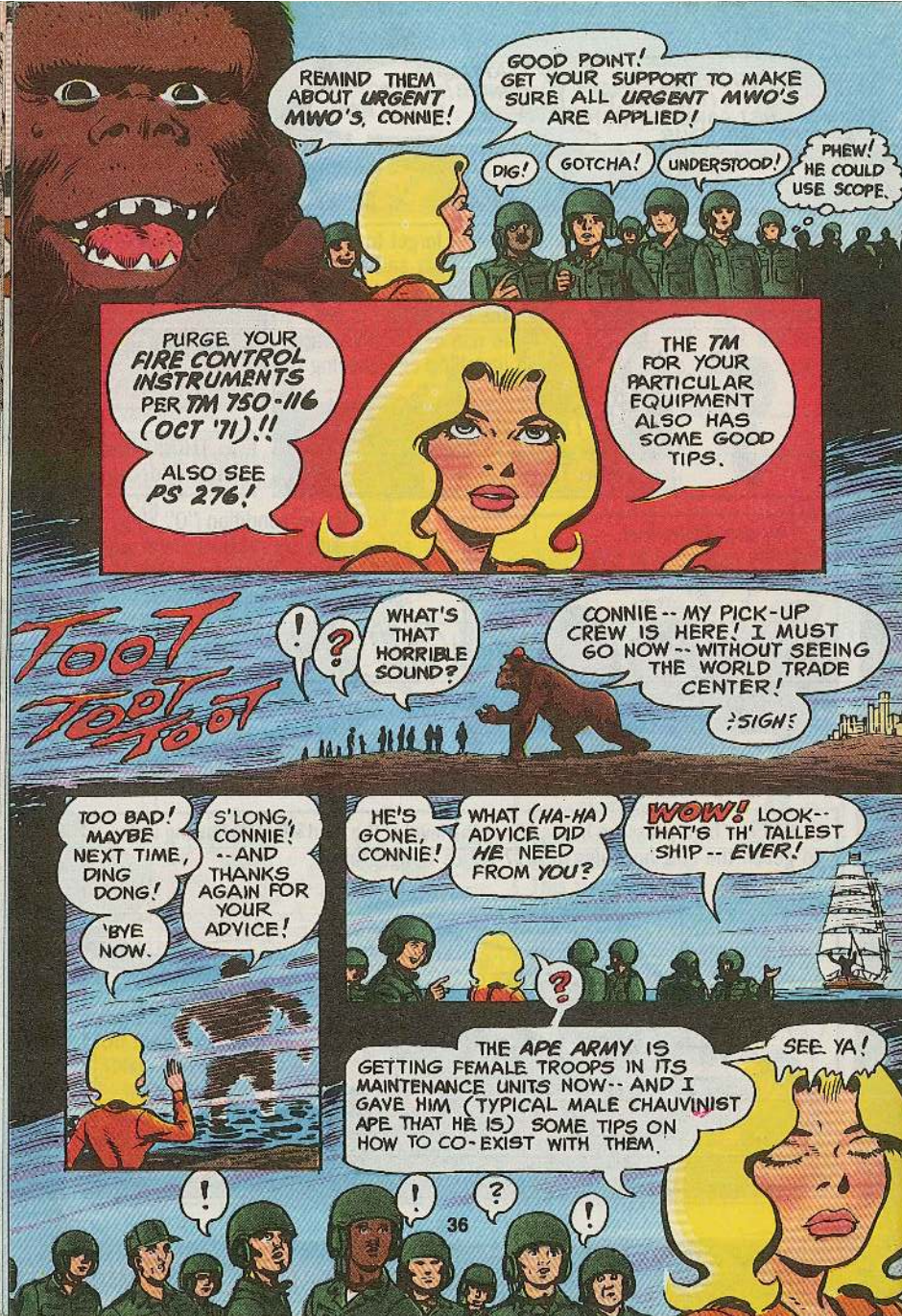


★ **LAY OFF!** These things RUIN rubber!

❌ You use high pressure hoses above the level of the road wheels allowing water to get in the end housings of M17 series Range Finder.



★ If water does get in, tell mechanics so water can be cleaned out before gear is harmed.



ARMS ROOM SECURITY . . .

J-SIIDS PM

WORKS
BETTER
THAN
WITCH-
CRAFT!

Unit arms rooms are getting more protection with Joint-Services Interior Intrusion Detection Systems (J-SIIDS).

J-SIIDS sensors detect things like people or machines entering or moving about in a protected area, weapons being moved from racks and forced entries. Also, you can use the system to signal for help when you need it.

This sensitive, sensing equipment needs your help to steal the PM scene.

**DON'T HANG
ANYTHING
ON SENSORS**

You don't pull much maintenance on J-SIIDS. That's a job for post or base engineers. They install the system, keep it up, sniff, troubleshoot and repair it. But it's your job to keep anything away from the sensing equipment that would interfere with its detecting capability.

So, keep your roving, curious hands out of any J-SIIDS box in the arms room.

You can tighten a loose screw on a sensor box door. F'rinstance, on the capacitance proximity processor. If the screw's missing, call the engineers.

**SCREWS
LOOSE?
TIGHTEN . . .
MISSING?
CALL
ENGINEERS**

Keep pubs, personal gear, tools or other items off control boxes and away from the front of acoustic pickup openings in the ultrasonic motion sensor and passive ultrasonic sensor receivers.

Keep your arms room keys and control unit—CU—keys on separate rings or holders. Never leave your arms room keys in the CU.

Keep all posters, pictures, instructions, regulations and publications off a wall or door that's protected with a grid wire sensor. Things like tape, nails, hangers and coat-hooks are verboten.

KEEP ALL POSTERS OFF . . .



**NO HANGERS
ON CONDUITS!**

**DON'T LEAVE
KEYS HERE**



Keep equipment—and your big foot—off the alarm latching switch cover.



Keep equipment—and your foot—off conduits.



Leaning or resting against a control box is a no-no!

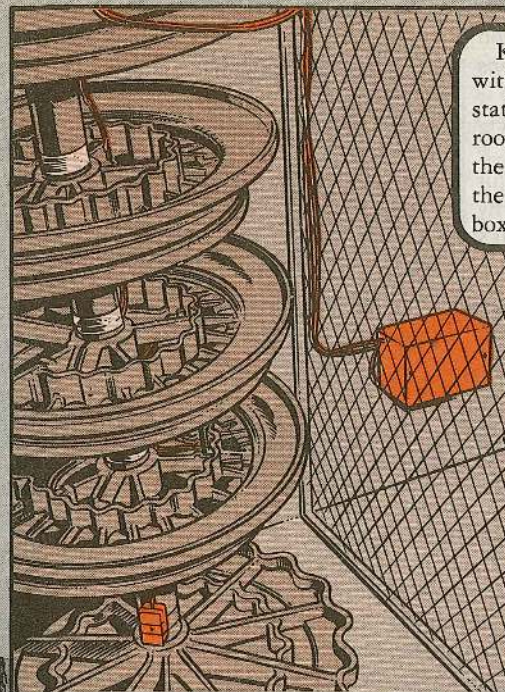


Keep away from the magnetic weapons sensor End of Line —EOL—module. Take care not to bash it with equipment, tools or your body.

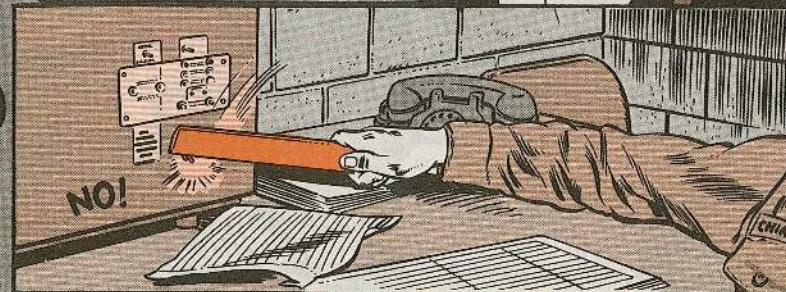


40

Keep rifle and pistol racks—fitted with a magnetic weapons sensor—stationary when you clean the arms room. Moving these racks will break the sensing wires or pull them out of the grommet on the signal processor box.



Pulling CQ duty with J-SIIDS? Never hit the micro reset switch on the monitor module with your foot, stick or ruler when you get a flashing red alarm signal or mode change. Use your finger 'n' thumb.



41

PS MORE

If you see flashing white lights on the monitor signal module it means you've lost AC power and the unit is on battery power. Call the engineers right now!

True, the battery will keep the unit operating up to 24 hours, but why abuse the backup power package. It's for emergencies.

FLASHING, CALL ENGINEERS

When you see flashing white POWER lights on a status monitor module, you've lost AC power to the Control Unit, and the CU's on battery. If this happens, and you can't get the engineers pronto, be sure to make an entry in the CQ log. Then, call the engineers as soon as they're available to repair the system.

Easy does it with the control unit mode switch key. You can force the key past the ACCESS stop if you're not careful.

With the key in the SECURE mode you can turn it counterclockwise—CCW—90° to TEST/RESET mode and then another 90° CCW to the ACCESS mode.

With the key in ACCESS mode you can turn it clockwise—CW—to TEST/RESET and another 90° to SECURE. Never turn the key CCW past the ACCESS mode.

TEST/RESET

STOP!!

Your high security key for the CU requires the same kind of gentle handling.

VULCAN IBES

YEAH, BONNIE -- VULC IS LAID UP FOR A SPELL...

HE BUSTED ALL FIVE OF HIS BREAKER KNOBS!

The space is tight. The connectors are snug. The circuit breakers are close.

Which means that when you take off or install the connectors on the J3, J4 and J5 jacks of the power supply (Unit 5) of your M163 or M167 Vulcan, you've got to be extra careful not to bust the breaker knobs (CB1, CB2, CB3, CB4 and CB6).

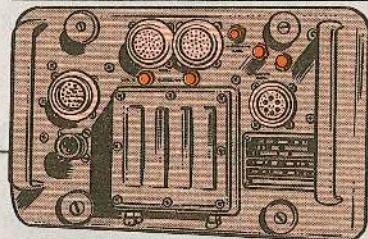
It's tough, but extra patience is the only way. If you snag the breaker knobs with your cable pliers, chances are good that you'll break them. That'll put your radar down, and your Vulcan is out of business.

Extra precaution, too, is called for when you operate the ramp locking handle on the M163.

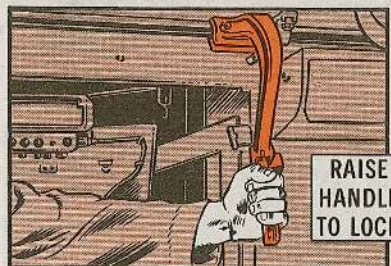
You've gotta remember to return the handle to the locked position (up) after you raise or lower the ramp.

If you forget and leave the handle down, you can snag the sight current generator when you rotate the turret. That means damage to both the handle and the SCG.

DON'T BUST BREAKER KNOBS ...



... WHEN WORKING ON CONNECTORS



RAISE HANDLE TO LOCK

REMEMBER: AFTER YOU RAISE OR LOWER THE RAMP, LOCK THE HANDLE!

WHAT'S TH' MATTER WITH CHAPPY?

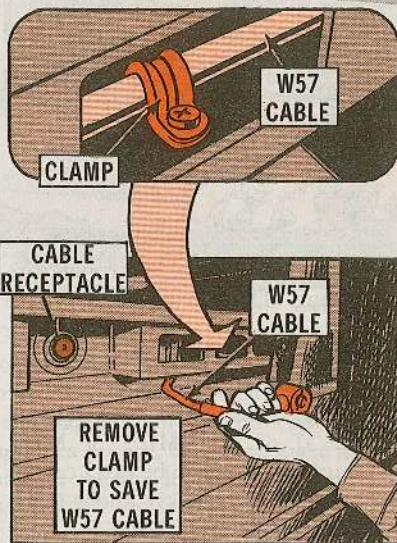
MERVYN FORGOT T' REMOVE TH' CLAMP!

CHAPARRAL COMMO CAPER

Being too anxious—or forgetful—when you demate your intercept aerial guided missile system can cost Uncle a bundle. Not to mention a lotta equipment downtime and maintenance for yourself.

Like maybe you forget to remove the clamp that supports the W57 commo cable that goes from track to system. If you leave this clamp in place you'll strip the cable when you separate the carrier and launching station. That knocks out your intercom, audio, receiver RT-524/VRC and auxiliary receiver R442/VRC.

When you mate the carrier and launching station, leave the clamp off. Then the next time you demate 'em you won't have to worry about stripping the W57 cable.



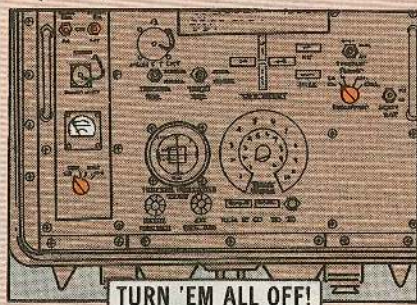
SHOO!

OFF, DRAGON!

When you secure the monitoring set (training) of your Dragon missile system, remember to turn the meter selector off... so you won't drain the set's battery.

Para 2-13b, page 2-18 of TM 9-6920-480-12-1 (Feb 74) tells you to secure the set by turning off the internal and external power switches and the meter selector and recorder switch... as well as to disconnect the cables.

The meter selector's important. If you forget it, you can cause battery failure.



M85 LOCK PIN

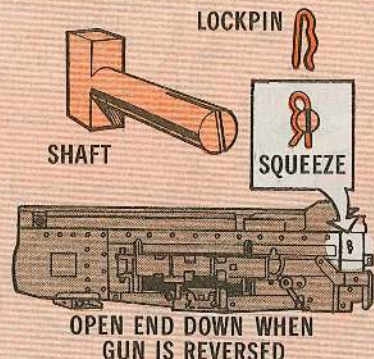
HAVE YOU SEEN SGT. LIEBER'S M85 LOCK PIN?

YUP!

Installing an M85 machine gun on your M60A2 tank?

That upside-down position of the gun can cause the lock pin (NSN 5315-00-815-4773) to back off of the time delay cylinder shaft, making the gun fail to operate.

When you install the gun on the M60A2, reverse the head of the pin... so it has the open end down... toward the ground. It also helps if you squeeze the pin together before you put it on the shaft.



M49 REDEYE TRAINER...

KEEP SEEKER HEAD COVERED

HA!... ANOTHER SEEKER HEAD INCAPACITATED!

NO, NO, SOLDIER! NEVER POINT AT THE SUN!

Keep the M49 Redeye tracker head trainer's infrared seeker head covered as much as possible.

F'rinstance, be sure to re-cover the seeker head during the 3 minutes between firing sequences, or right after cleaning the seeker head window... and when piggybacking or a-truckin' the launcher.

Never point the seeker head straight at the sun. Direct sun rays on the seeker head can put your launcher out of commission for several hours.

This same good cover-up PM goes for the M41 Redeye missile launcher during the team drill and firing deal, too.





HEY, YOU
"ON TARGET"
RIFLEMAN!...

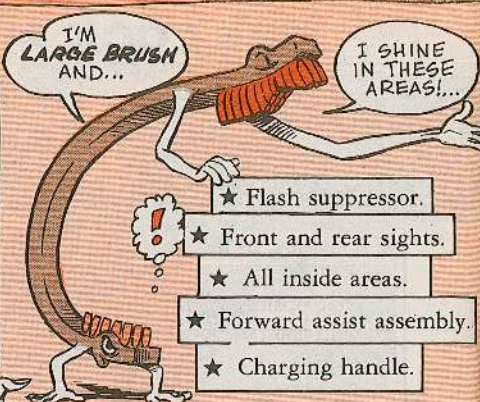
HERE'S A
HANDY GUIDE
THAT'LL HELP
KEEP YOUR
M16A1 CLEAN...

BUT YOU'LL
NEED THIS
DANDY
BRUSH FOR
THE JOB...

SO RUSH FOR THE BRUSH!

It's called Brush, Cleaning, Small Arms, and it comes with NSN 1005-00-494-6602.

TM 9-1005-249-10 (May 72), the little Blue Book for Sixteen shooters, authorizes it—so get it, like now. Every rifleman needs one, so order enough for your entire unit. They're 14 cents per.



I'M
LARGE BRUSH
AND...

I SHINE
IN THESE
AREAS!...

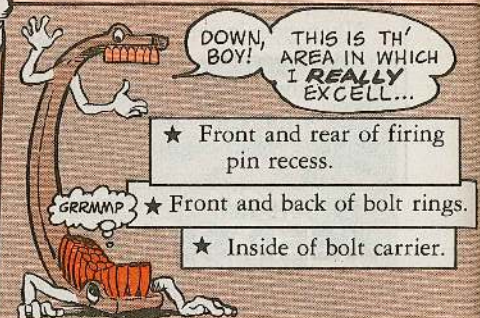
★ Flash suppressor.

★ Front and rear sights.

★ All inside areas.

★ Forward assist assembly.

★ Charging handle.



DOWN,
BOY! THIS IS TH'
AREA IN WHICH
I REALLY
EXCELL...

★ Front and rear of firing
pin recess.

GRRAMP ★ Front and back of bolt rings.

★ Inside of bolt carrier.



★ All outside surfaces.

★ Magazine well.

★ Inside pistol grip.

★ Butt plate area.

WOTTA
BORE!

MY
TURN!

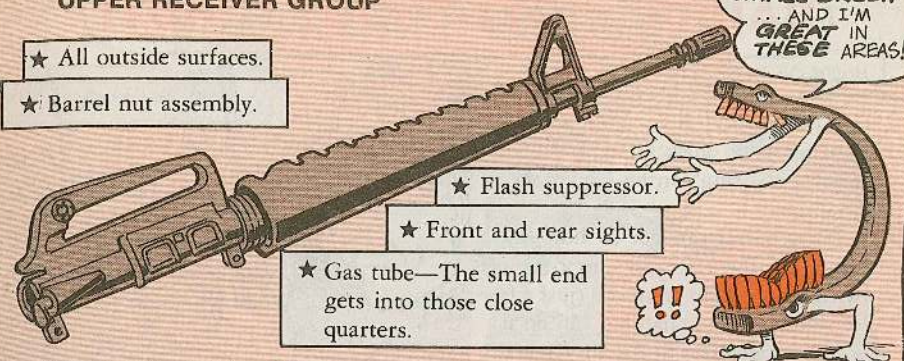
Use RBC—Rifle Bore Cleaner—with the brush.

If your M16A1 has the latest rifle stock, store the brush in it. That way you'll always have it where it's needed most... with the rifle. If you still have

UPPER RECEIVER GROUP

★ All outside surfaces.

★ Barrel nut assembly.



I'M
SMALL BRUSH
...AND I'M
GREAT IN
THESE
AREAS!

★ Flash suppressor.

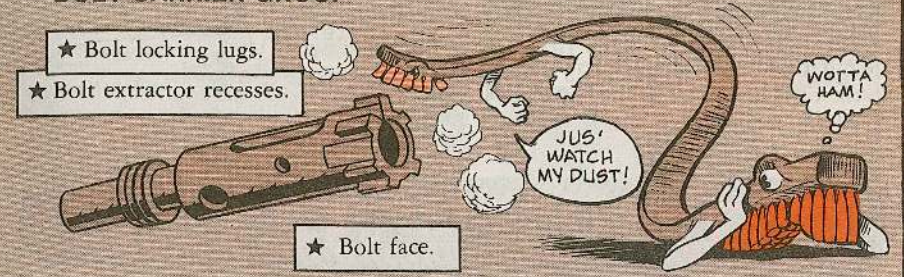
★ Front and rear sights.

★ Gas tube—The small end
gets into those close
quarters.

BOLT CARRIER GROUP

★ Bolt locking lugs.

★ Bolt extractor recesses.



WOTTA
HAM!

JUS'
WATCH
MY DUST!

★ Bolt face.

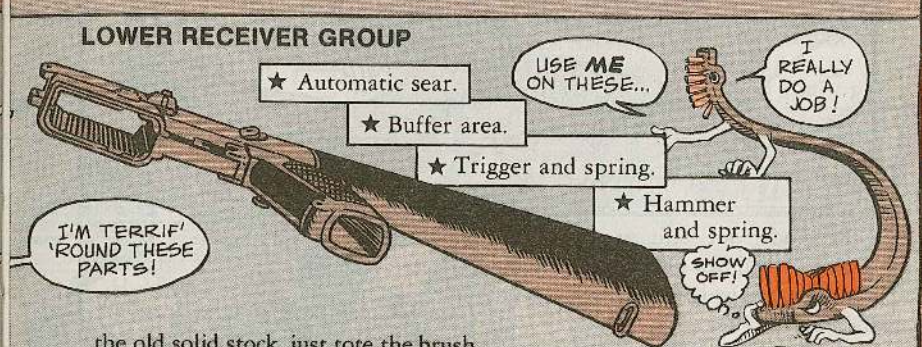
LOWER RECEIVER GROUP

★ Automatic sear.

★ Buffer area.

★ Trigger and spring.

★ Hammer
and spring.



USE ME
ON THESE...

I
REALLY
DO A
JOB!

I'M TERRIF'
'ROUND THESE
PARTS!

SHOW
OFF!

the old solid stock, just tote the brush in your pocket.

Get to know this lightweight brush baby real well. It'll stop a pound of PM trouble—like carbon deposits, dirt, grime and junk—

...Y'KNOW
THINGS THAT'LL
FRITZ BLITZ
YOUR
WEAPON!

THANKS,
CONNIE!

BARREL HOT? SHOOT IT NOT!

Your M16A1 rifle can pump out a lot of rounds quick in an emergency, but rapid firing can be dangerous to you, too.

That barrel can get so hot that a round in the chamber can cook off without any help from you (just a few seconds in a hot chamber can do it).

So, forget about firing clip after clip. If you fire the rifle for any length of time, stick to the recommended rate of fire . . . 12 to 15 rounds a minute.

If the barrel does get hot, remove the cartridges, and let the barrel cool. When it's easy to touch, you can resume firing.



M16A1 TAKEDOWN PIN SPRING



Reminder for unit armorers: Be sure the takedown pin detent spring is in place when you put the butt stock on the M16A1 rifle.

If the spring is lost, or if it gets caught between the stock and the lower receiver, the detent will not have the right tension on it. That can mean a lost takedown pin . . . and the rifle can come apart.

M60 LEAF SPRING

Dear Half-Mast,

I've seen the leaf spring on the M60 machine gun installed like it shows in the field strip section of TM 9-1005-224-10 (Oct 70) and also like it shows in FM 23-67 (Oct 64).

Which way is right?

SFC H.R.M.

Dear Sergeant H.R.M.,

The TM shows the right way. Fig 9 of the FM has the spring reversed and the slot on the end facing up. The slot goes down . . . and over the sear pin on the trigger grip. If you install it wrong, the spring will slip out.

Half-Mast



LEAF SPRING

SLOT GOES OVER SEAR PIN

FLASH SUPPRESSOR FLASH!



SOAK IN P-C-111 . . . APPLY RBC

Hold one, unit armorer!

Removing the flash suppressor on the M16A1 rifle, for cleaning or whatever, rates a great big NO!

The suppressor must be torqued by support (15-20 ft-lbs) when it's put back on the rifle. It needs a combination of a torque wrench and installation wrench . . . as spelled out in the

34 TM . . . and you don't have either wrench.

So-o-o, if you've got a suppressor problem, let support handle it. Armorers can clean the suppressor by leaving it attached to the rifle and soaking it in P-C-111 (carbon removing compound). After you clean it, apply RBC.

THE ESCALATING PUSH



To get a look at the T-53 engine compressor blades during your inspections, you mechs just naturally push on the inlet guide vane actuator linkage arm.

The hand pressure is transmitted to the actuator lever which opens up the inlet guide vanes. You can then see if there're any oil streaks or foreign object damage on the compressor blades.

No sweat . . . or is there?

Pushing on the linkage arm over a period of time will actually bend the actuator lever. Remember, the actuator is filled with fuel. The principle of hydraulics being what it is, something has to give.

'Course, a bent lever means your engine won't get optimum power. The vanes can't open up all the way, messing up the fuel/air ratio. High exhaust gas temperature, low torque and high N1 speed is the result.

To head off an actuator replacement, just disconnect the 2 fuel lines to relieve the pressure.

Then—push on the linkage arm to open up the inlet guide vanes, and reconnect the lines.



“HANDS OFF, PLEASE!”

The word from the head shed is to keep your cotton-pickin' mitts off the T53-L-13B engine exhaust gas temperature connector adapter.

That baby, mounted on the Cobra and Huey firewall, may look like a natural hand-hold but you never want to use it as one. Even twisting and bending the adapter or harness during your inspections is a no-no.

How come? Well, any stress on the adapter weakens the bond between the elbow and the knurled ring nut, causing the elbow to split. When that happens, the connector wires break from increased flexing.



NO HAND
GRIP

Rapidly changing EGT readings, or no readings at all, are the result of the shorted-out connector.

And . . . if you do come up with faulty EGT readings, eyeball the connector before you change the gage or harness. An analyzer may not pick up a faulty connector during static testing.



“TO THE BRIM, LADS”

The flow of engine oil in your Snake, from the tank to the engine and back, has a long way to go.

And if the oil level in the tank is really low, the pump is moving air—not oil.

Unstable oil pressure is the result! Never go overboard, tho, figuring that an engine change is needed.

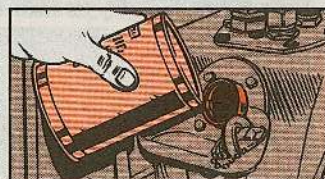
Sure, maybe some oil seal rings in the engine are not what they used to be. However, leakage is OK. Your engine should be able to go the Time Before Overhaul route. Remember—maximum oil consumption for the T53L-11 and L13 engines is .56 qt per hour.

To keep the oil pressure needle steady, remove the filler cap and eyeball the oil level every PM Daily. The sight gage may not be accurate.

Fill the tank to the lip of the filler neck and you've got it made in the shade.

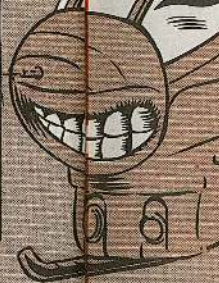


NEED OIL? OPEN FILLER CAP—
EYEBALL OIL LEVEL



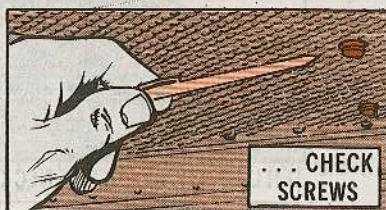
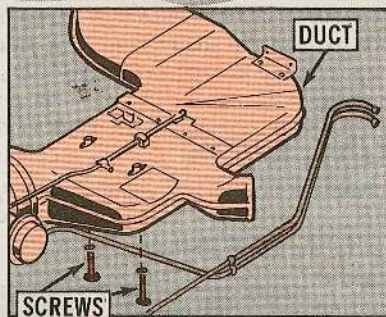
FILL TO LIP OF FILLER NECK

MY
TAIL'S
DRAGGIN'
'CAUSE
SOME
TURKEY
LET MY
OIL
LEVEL
GET TOO
LOW!



SCREW LOOSE???

AHHHH! GREAT! YOU'VE FOUND IT!



There're a couple of screws in the top of the ammo compartment of your Snake that don't look too important.

But if they vibrate loose, or are missing, your favorite throttle jockey's going to break out in a cold sweat!

The screws go thru the lower part of the heat and ventilation duct. They thread into the upper part and keep it from expanding.

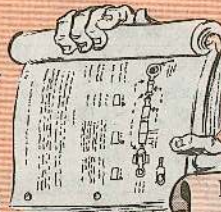
If the screws are missing, the duct will expand when the system is turned on and make contact with the base of the cyclic control.

A development like that can run a mech around in circles trying to "figure" the reason for a jammed cyclic control.

So, the first chance you get, stick your noggin in the ammo compartment to make sure the 2 screws are in place and tight.

If not, add a washer, NSN 5310-00-167-0753, with each screw, NSN 5305-00-958-0586.

AREA OF CONFUSION



IS IT THISAWAY... OR IS IT THISAWAY?

Dear Windy,

The way the lines are drawn on Fig 8-13, TM 55-1520-221-20 (Dec 75), it's hard to tell how big the no-damage area is supposed to be on the Cobra main rotor pitch change link.

Can you clarify this?

SSG W.W.

Dear Sergeant W.W.,

The no-damage area on the link starts .5 inch inboard from the end of the tube and extends .75 inch past the beginning of the swage.

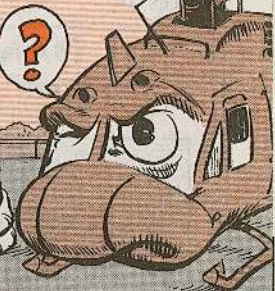
Since the swage begins about 1.25 inches inboard from the end of the tube, you get a no-damage area of about 1.5 inches in length. The vertical black line in the center of the no-damage area indicates the start of the swage.

Windy

WHY NOT THIS BOLT?

HOW CUM?

HOW CUM?



Dear Windy,

On the UH-1H, we have to change the rotating bolts on the mast assembly every 600 hours.

Why don't we have to change the damper push rod bolts? They get more work than some of the bolts you change at 600 hours.

SP4 J. I.

Dear Specialist J.I.,

You change only the bolts that control the pitch change motion of the blade.

THE DAMPER BOLTS DO NOT CONTROL THE PITCH... SO THEY'RE NOT REPLACED!



"MAN, WHAT A REACH!"

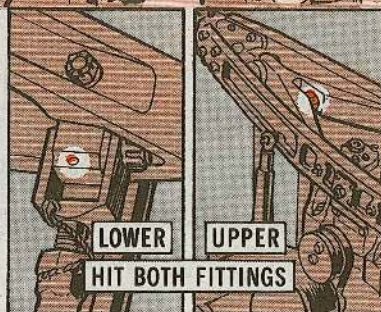
THAT REMINDS ME, I BETTER USE A MAINTENANCE STAND!

A lot of Huey pitch change link universal bearings bite the dust at overhaul just because they're not completely lubed with the grease gun during PM Periodics.

One side of the bearing winds up smooth as silk—the other side rough as a cob.

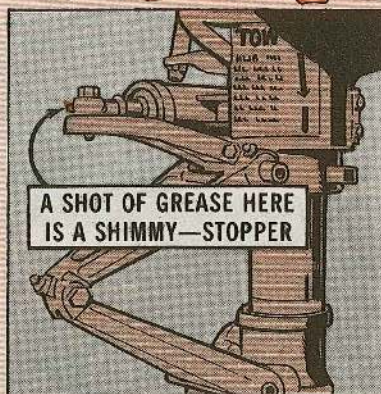
'Course, it's easy to reach the lower grease fitting with your needle nose adapter . . . not so with the upper grease fitting.

So you're not 7 feet tall with the reach of a gorilla! Go up there, anyway, using a maintenance stand if necessary.



Purge-lube both fittings until you see the old grease coming out of the bearing, and wipe off the excess. Then, a lot of expensive bearings won't have to be replaced.

PUT DAMPER ON SHIMMY



You say your favorite U-21 aviator is experiencing nose wheel "shimmy" when he barrels down the runway?

And this sets his teeth to chattering?

Is that what's buggin' you, Sarge? Well, now hear this!

Before you head for your tools to change the shimmy damper, reach for a grease gun instead.

A few shots of MIL-G-81322 grease in the damper is guaranteed to stop the shimmy.

Try it—he'll like it!

STICK WITH JET JUICE

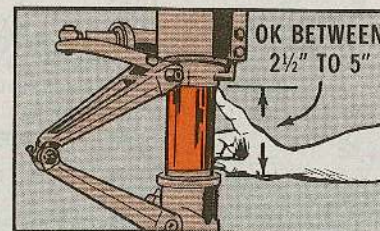
TOO MUCH AVGAS IN HIS DIET!



The T74-CP-700 engines in the U-21 are taking it on the chin because they get too much Avgas in their diet. The result is heavy lead deposits, which ruin turbine wheels.

So, choose these fuels wisely, hot pilots:

Primary	JP4 or Commercial Jet B
Alternate	JP5 or Commercial Jet A/A1
Emergency	Avgas (limited to 150 hours during any engine TBO period)



Dear Sergeant A.R.,

You might say the weather determines whether . . .

If the aircraft's in an area where daily temperature changes cause wide variations from the 3-in strut piston extension measurements, a maximum of 5 inches and a minimum of 2½ inches are OK.

This is provided the aircraft strut piston is serviced to a 3-in extension with normal fuel load and at average temperatures. The aircraft should also be rocked gently up and down on each side to make sure the shock strut piston is not in a bind when it's adjusted.

Windy

Dear Windy,

The RU-21E main shock struts are required to have an extension of 3 inches, according to TM 55-1510-209-20/3 (Jan 72).

We've found that during daily temp changes, the strut extension varies from 2½ inches to 4½ inches. What are the maximum and minimum extensions permissible?

SFC A.R.

JD410 TRACTOR . . .

ALTERNATOR ACTIVATOR

Your JD410 model tractor has just arrived. You're anxious to climb aboard and see how well it crushes rocks, excavates, digs ditches, bores holes, drives posts, tamps, etc.

But give it a real eagle-eye-before-operations-check. A bum PM readout now could mean downtime and expensive parts replacement later. Your operator's manual is thin on the checkout poop, so it's up to you to do a good job. Frinstance . . .

Be sure to take the shipping resistor off the alternator.

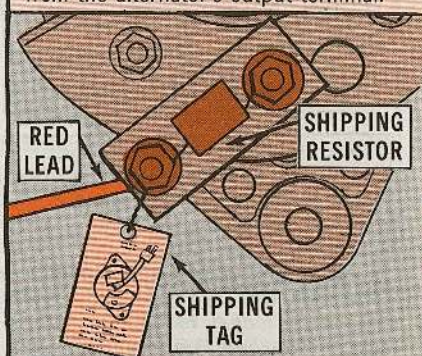
That fibreboard and external resistor are put on at the factory so the tractor can be operated during shipment without the battery.

You have to take the board and resistor off or the alternator will burn up.

A shipping tag — with instructions—should be wired to the alternator. If it's there, remove it and follow the instructions.

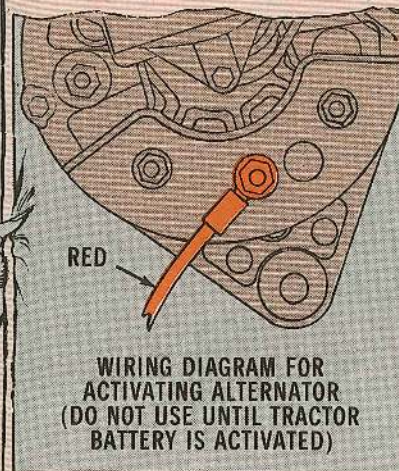


1. Remove the resistor and fibreboard from the alternator's output terminal.

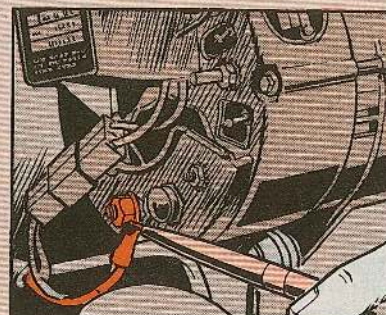


2. Disconnect it from the main wiring harness—red lead. Toss the resistor and mount. You won't need 'em after you fill the battery with electrolyte.

3. Connect the red lead of the engine harness to the alternator's output terminal.



4. With a filled and charged battery, you can now crank up and move out.



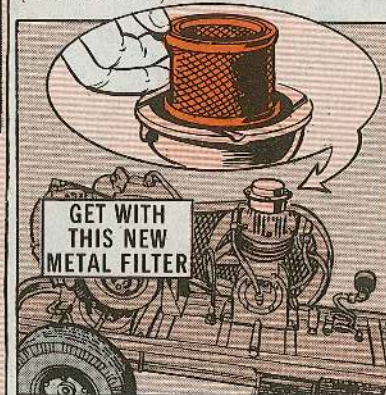
NOTE: If you use a slave battery to start the tractor with the resistor still on, be sure it's connected with the negative (-) ground. If polarity is reversed, the engine will stop running when the slave battery is disconnected.

AIR COMPRESSOR . . . AIR CLEANER CLEAN-UP

Your Kellogg American Model G-311-PC reciprocating air compressor comes equipped with a plastic air filter element.

Trouble is, chips from the plastic filter are jamming some valves.

A new non-chipping metal filter is now part of the air cleaner—NSN 4310-00-521-8488, P/N A1613-1 (FSCM 18170).



If you have an air cleaner on order—or a component of it—don't cancel it and request a new item. All the plastic filters have been pulled out of the supply system. Your supply request will be filled with the new metal filter automatically.

Forget the air cleaner parts breakdown in Fig 9, TM 5-4310-276-25P (Dec 68). You get all 5 parts when you use the NSN, P/N, and FSCM above.

BE-YOUR-OWN-INSPECTOR...

The JD 410

With this John Deere off-the-shelf tractor you can excavate, stockpile,

load trucks 'n' trailers, transfer materials, backfill, break up rock 'n'

concrete, ramp, cut asphalt, bore holes, in the good earth, and drive posts!

OPERATORS HAVE TO BE SPECIALLY **PM**-WISE WHEN SERVICING AND INSPECTING THIS DO-IT-ALL TRACTOR!

YOUR OPERATOR'S MANUAL TELLS YOU HOW OFTEN TO PULL THESE **PM** INSPECTIONS!

MAINTENANCE RECORDS—Missing; not up to date.

TRACTOR

SPEED CONTROLS / LINKAGE — Return spring weak, broken, missing; cotter pin missing.

ENGINE/DATA PLATES—Missing; unreadable.

MUFFLER—Mashed, loose, bent, holes; clamps broken, missing, rain cap missing.

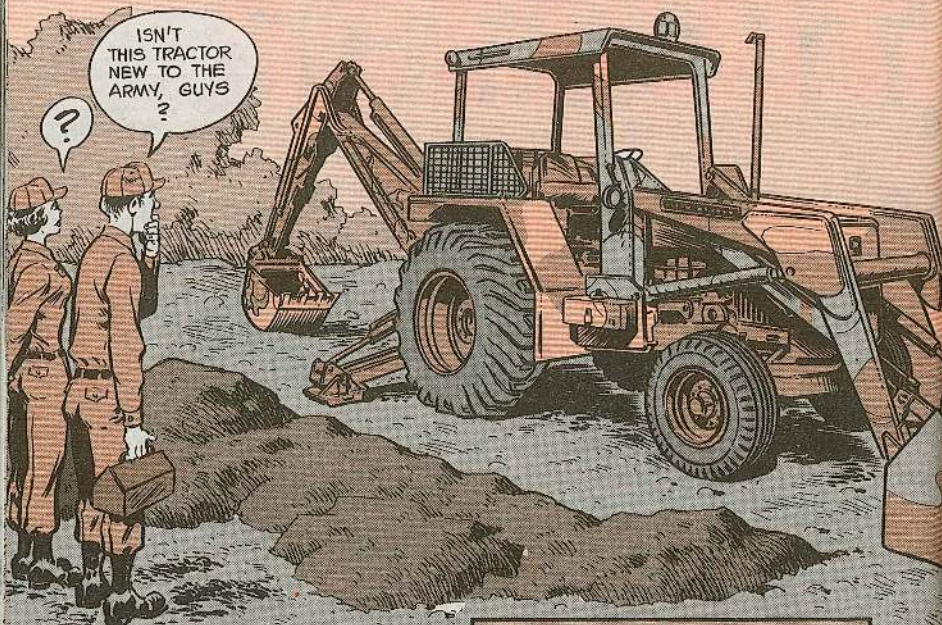
COLD START AID ASSEMBLY—Keep a full can.

TAKE CARE OF THE ITEMS IN **BOLD TYPE** SOONEST—BEFORE YOU OPERATE!

OIL FILTER—Leaking, loose; filter dirty, damaged.

OIL DIPSTICK—Broken, bent. Oil level low.

FUEL TANK—Fuel low, dirty. Cap gasket missing, damaged. Filler neck rubber ring missing.



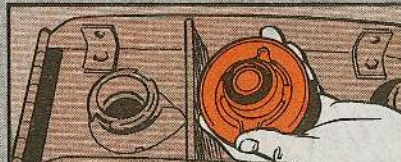
ACCELERATOR LINKAGE—Binding, broken.



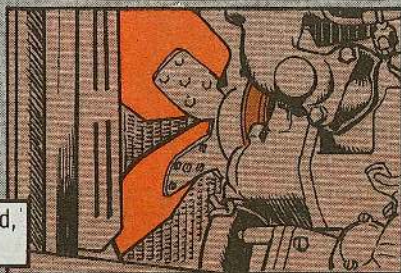
THERMOSTATS—Won't work; hoses/clamps missing, broken; housing cracked, mounting hardware missing.

WATER PUMP—Hoses/clamps missing, weak.

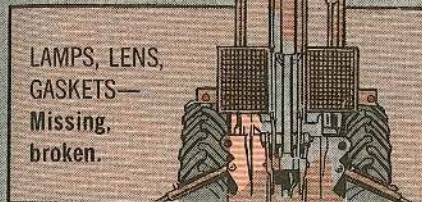
FAN ASSEMBLY—Belts frayed, loose; blades bent, chipped.



RADIATOR—Clogged, rusty, damaged; hoses/clamps loose, missing, weak; cap missing, damaged; coolant level low.



LAMPS, LENS, GASKETS—Missing, broken.

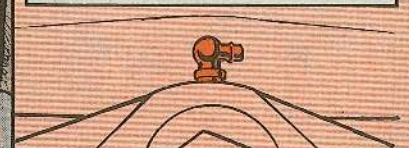


BATTERIES—Electrolyte low; access cover clamps 'n' bolts missing, bent, broken. Cables loose, burned, damaged. Holddown missing, damaged, dirty.



TIRES—Torn, ripped, gouged, excessively worn. Over- or under-inflated.

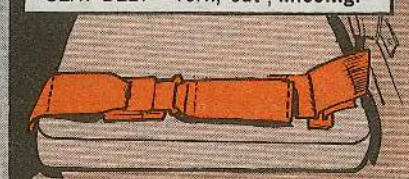
FRONT AXLE—Lube fittings missing (there's 4 of 'em); needs lubing. Mounting bolts cracked, sheared, missing.



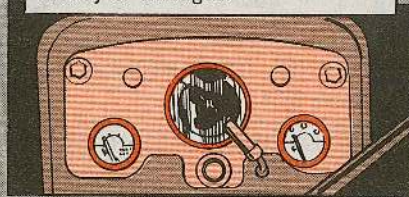
STEERING ASSEMBLY—Drag links need lube; loose, bent, binding against housing.



SEAT BELT—Torn, cut, missing.



INSTRUMENT PANEL—Gages, switches, lights loose, cracked, missing. Plastic protector missing, cloudy or smudged.

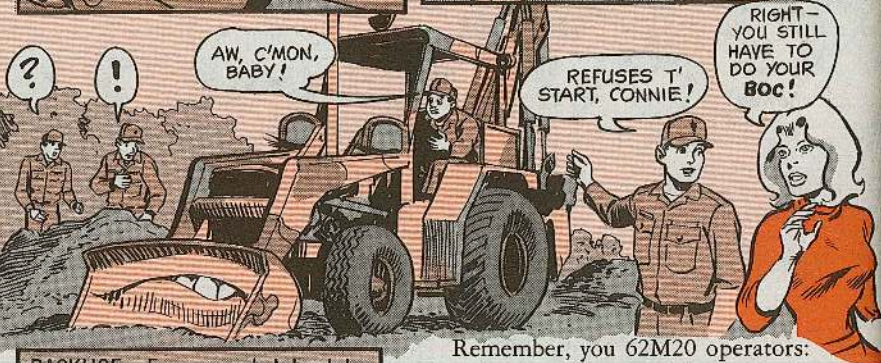
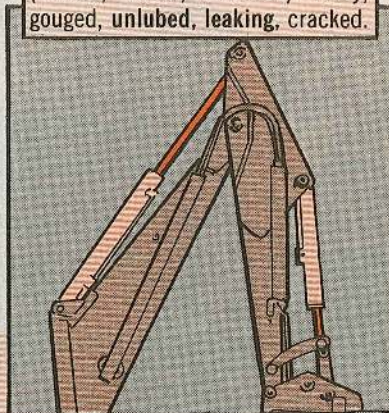


TRANSMISSION/HYDRAULIC SYSTEM—Fluid level low; lines loose, cracked, kinked; clamps miss.

MANIFOLD/CONTROL VALVES—Loader and backhoe control valves leaking; lines loose.

HOSES, FITTINGS, LINES—Loose, leaking, damaged.

HYDRAULIC LOADERS/CYLINDERS (Bucket, Boom, Backhoe)—Dirty, gouged, unlubed, leaking, cracked.



BACKHOE—Frame needs lube; lube fittings missing.

EARTH AUGER DRIVE MECHANISM—Oil level low; plug missing, loose.

LOADER BUCKET BOOM—Needs lube.

IMPACTOR DRIVE MECHANISM—Needs lube.

FIRE EXTINGUISHER—Seal missing.

Remember, you 62M20 operators: You have to use the lubes and oils called for in the CCE—Commercial Construction Equipment—Maintenance Support Plan and the manufacturer's manuals. If you try a substitute and something goes wrong, or breaks down, the warranty won't help you.

You'll need these pubs to help you do the best PM job: JD410 Operator's Manual CJT25021B, and User Maintenance Support Plan MSP5-2420-222.

DA 2408-14 CANCELLATION

Dear MSG Half-Mast,
What entries do you make on the DA Form 2408-14 when a part you've ordered and listed on the form is cancelled?
SGT G.M.P.

Dear SGT G.M.P.,
TM 38-750 doesn't spell out a procedure but the experts recommend this:

Put CXL (for cancelled) and the Julian date of the cancellation in column f and initial the status symbol.

Then, make a new entry with the new document number when you reorder the part.

Half-Mast

THE HEAD SHED TYPES RECOMMEND YOU DO IT THIS WAY!

1. NAME & TITLE		2. MOD		3. SERIAL NUMBER	
Truck, Utility		M151A2		A15158724	
4. STATUS SYMBOL	5. REASON FOR CANCELLATION	6. DATE (FROM DA FORM 2408-14)	7. AUTH APPROVAL (Signature)	8. DATE (To DA Form 2408-14)	
☒	Windshield wiper motor inoperative	6110-0007	19 Apr 76 B. Blasing	6147 CXL	
☒	Windshield wiper motor inoperative	2540-00-176-9464	19 Apr 76 B. Blasing		
		6148-0002			
		2540-00-176-9464			

WHEN YOUR REQUEST FOR A PART LISTED ON THE DA 2408-14 IS CANCELLED, PUT CXL AND THE JULIAN DATE IN COLUMN f AND INITIAL THE STATUS SYMBOL IN COLUMN a. THEN, MAKE A NEW ENTRY WHEN YOU REORDER THE PART. YOUR COMMANDER (OR HIS REP) SHOULD INITIAL OFF ON X SYMBOLS.

DA FORM 2408-14

UNCORRECTED FAULT RECORD (TM 38-750)

NONAVAILABLE DAYS

OH MY TIME IS YOUR
TIME AND YOUR TIME IS
MY TIME ♪ ♪ ?

NOT BAD,
NORS, BUT...

IF YOU WANTA KEEP
OUR TIMES STRAIGHT,
READ BELOW!

HOW'S THAT
FER DELIVERY,
NORM?

At least 4 times a year you square off with DA Form 2406.

You get ready to fill in the available and nonavailable days for a system and—oh no! The DD 314 on one subsystem shows NORS time. Another subsystem 314 has NORM time—for the same days. How do you figure DD 314 and DA 2406 system time?

As a rule of thumb on systems, when NORS and NORM time overlap, record it as NORS.

For example, you have a ¼-ton truck down 15 days for organizational maintenance. The AN/VRC-47 radio mounted on the truck has been down all 91 days for organizational supply.

Your truck system will show 91 nonavailable days under the organizational supply column of the DA 2406.

For single items, though, you figure differently. You do not start counting NORS time until all required actions falling under NORM have been performed.

In other words, you have a single ¼-ton truck that's been down 51 days for organizational maintenance at the same time it's been down 91 days awaiting parts. As long as that truck needs maintenance work that can be done without the part(s), it's NORM.

Only when all possible repair work has been done do you start counting the nonavailable days for supply on single items.

WHEN SUBSYSTEM NORS AND NORM TIME
OVERLAP, CHARGE THAT TIME TO NORS ON THE
SYSTEM DD 314 AND THE DA 2406.

DATE RECEIVED	REGISTRATION NUMBER	ADMINISTRATION NO.	NONCENSURE	MODEL	ASSIGNED TO
1974	1A2345	H-6	Truck ¼ Ton HBX60833	M151A1	Co B 122d Maint Bn
201670			Radio Set JRA 54174	AN/VRC-47	Co B 122d Maint Bn
1974	1A2345	H-6	Truck ¼ Ton HBX60833	M151A1	Co B 122d Maint Bn

Connie's
★ PS
SCRIPTS ★

CONNIE...
I GOT A
PROBLEM!

HMMMPH!
I SHOULD
HOPE SO!

Once is not Enough

Twice is right for torquing the T142 track pad nuts.

The T142 pad nuts should be torqued first when a new tank is received—or when new T142 track pads are installed.

Torque the nuts to 240 to 270 lb-ft.

Torque 'em again after 50 miles.

This retorquing prevents extra track pad wear caused by loosening of the nuts.

AOAP Sample Bottles

Plastic bottles are what you need for the Army Oil Analysis Program for vehicles covered in TB 43-0210 (Aug 75).

NSN 6640-00-165-5778 gets you 120 3-oz bottles for \$9.35. These replace the fragile glass bottles listed in the TB. Be sure to screw the caps on tight before you package and ship your samples.

All Stacked Up

The NSN shown on page 54, PS 286, for the U-8 aircraft high temperature nut AN315C5R is wrong. The correct NSN is 5310-00-268-6025, not -286.

Tarp Info Coming

Hang on for the "authorization" poop on tarp and bow kits for your vehicles. (PS Magazine 284, page 65, "Tarps? Maybe Not") CTA 50-915 (Apr 76) will be catching up to AR 310-34 (Feb 75) in an upcoming change—expected to be Change 2.

M880 Air Filter

You won't get an engine air cleaner element for your M880-series ¼-ton truck with that NSN 2940-00-764-3898 on page 2-7, TM 9-2320-266-20P (Feb 76). That NSN is for a wooly-like cover that goes around the filter element for operation in dusty areas. The filter element comes under NSN 2940-00-449-7388.

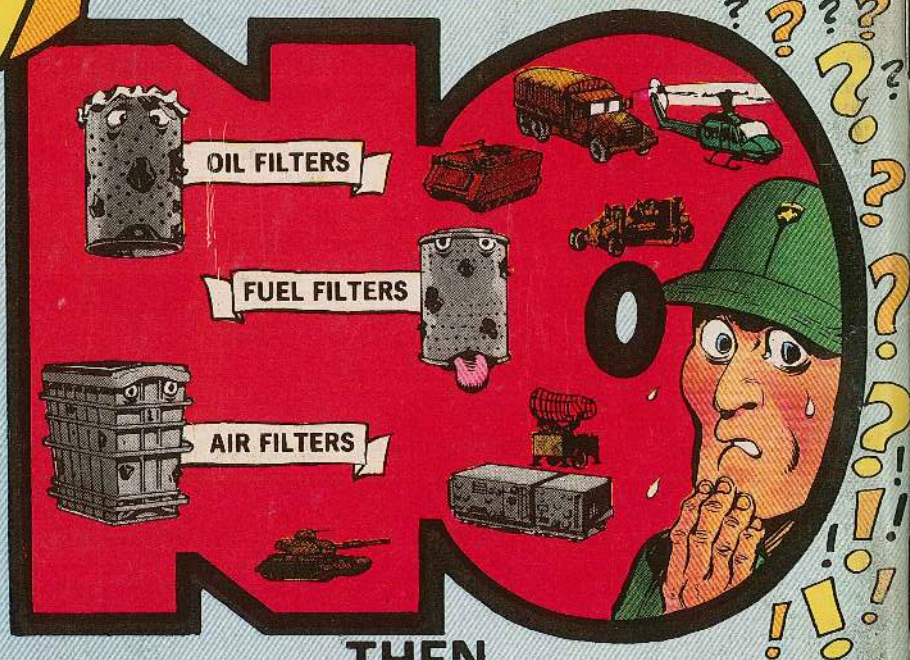
PS Magazine Subscription

Your unit's subscription to PS Magazine will be canceled if a new DA Form 12-5 is not sent in right now. Be sure to use the form dated February 1976.

So, get a DA Form 12-5 dated February 1976, fill it out and send it in. Today.

Would You Stake Your Life ^{right now} on
the Condition of Your Equipment?

is YOUR FILTER CLEAN?



THEN . . .

Clean or Change it ... NOW!

**Dirty filters help damage or destroy
EQUIPMENT!!**