

Issue 255

PS

February  
1974

THE  
PREVENTIVE  
MAINTENANCE  
MONTHLY

THERE'S  
ONLY ONE  
GUY WHO  
CAN CONSERVE  
ENERGY AND STOP  
POLLUTION...

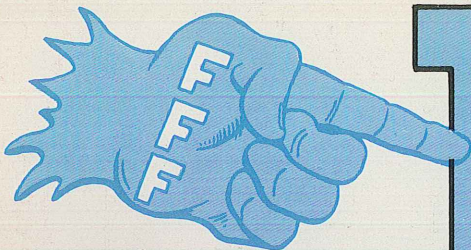
**YOU!**

MURPHY  
ANDERSON



MOS TRAINING...

# FICKIE FATE AND YOUR FUTURE



THERE'S NOTHING FICKIE ABOUT CONSIDERING THE FATE OF YOUR FUTURE.

part of the US Army. Helps make you a better soldier. Greater pay, higher grade, and more challenging maintenance or supply assignments can come your way.

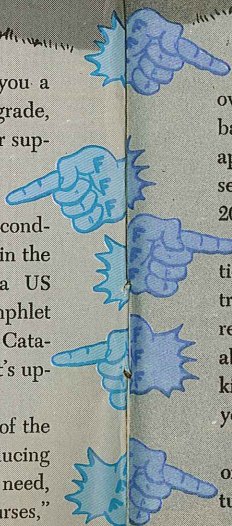
And you get this training free!

You betcha. You can apply for secondary or advanced-level MOS training in the maintenance or supply fields at a US Army school. Look at DA Pamphlet 350-10, "US Army Formal Schools Catalog." And finger the pub to be sure it's up-to-date with all 82 changes.

Appendix VII of this pain is a list of the Army schools and all the MOS-producing courses they offer. Find what you need, then go to Sect V, "Enlisted Skill Courses," for a full course description.

To secure your future, you need a sound investment. And the surest thing you can invest in today is your own education and training.

Specialized training helps make you a more necessary—in fact, an indispensable—



A special finger-point to you troopers overseas: If you're scheduled for rotation back to CONUS soon, you're eligible to apply for course attendance at an Army service school. See Chapter 11 of AR 614-200.

Next, get in touch with your unit education officer. He knows what your extra training can mean to the unit, and he's ready and willing to help you. He knows about quotas your commander must fill, kinds of personnel your unit needs, forms you have to fill out—all that.

So instead of waiting for the fickle finger of fate to favor you, favor your own fortune. Find your education officer's office and—take a finger!—inquire within!

**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.

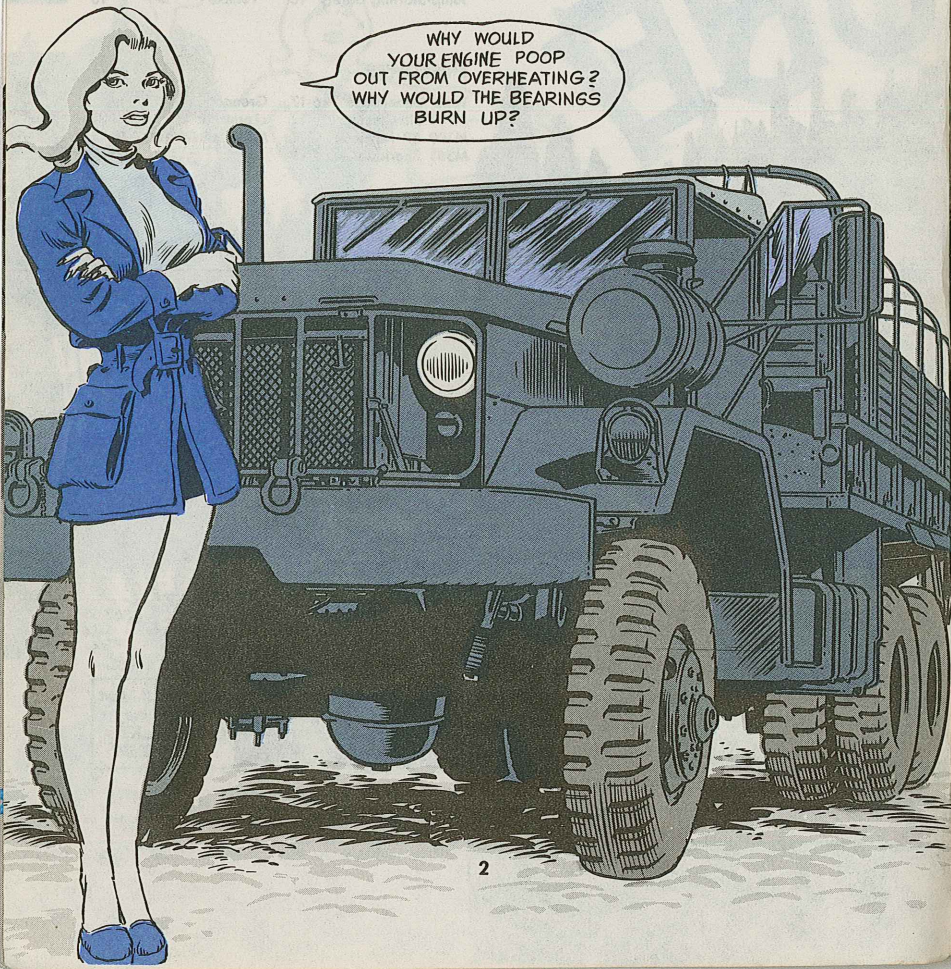
**MSG Half-Mast PS Magazine Lexington, KY 40507**

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# ENGINE FAILURE...

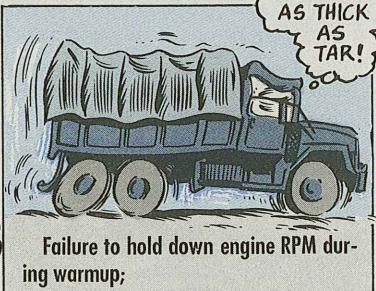
Not many engines break down just out of pure meanness. There's usually a better reason.

Take that NHC-250 diesel engine in your M813 cargo truck — or in any other vehicle in the TM-260-series 5-ton family.



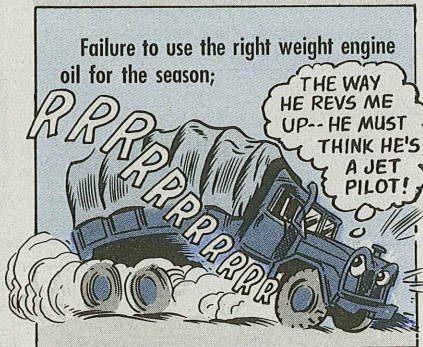
## MOST ENGINE FAILURES CAN BE PINNED DOWN TO:

Failure to start up the engine like it's s'posed to be done;

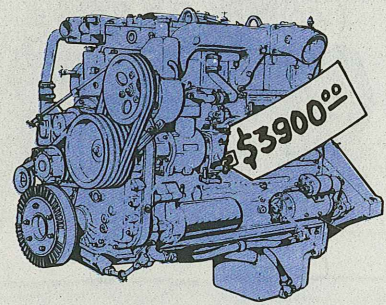


Failure to hold down engine RPM during warmup;

Failure to use the right weight engine oil for the season;



Failure to do a good job of inspecting under the hood — especially, for coolant leaks and oil leaks.



The cost for tearing down an engine, replacing parts and putting the engine back together is steep. If the engine's shot, the cost for a replacement can run from \$2,600 for a rebuilt job to \$3,900 for a brand-new one.

And don't expect the manufacturer's warranty on your engine to take care of the cost when the failure is your fault.

## TOO FAST FOR OIL TRAVEL

Some "qualified" drivers don't understand their engine's lube system. Just because they've got a full crankcase, they think the engine's getting full lubrication as soon as they start up.

Not so!

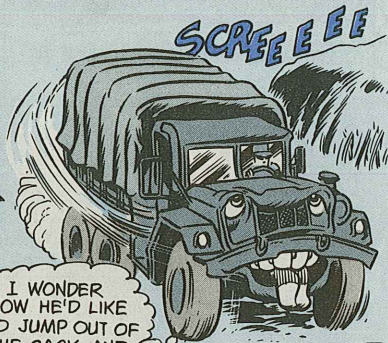
Oil has to be pumped to those bearings — through tubes and "galleries." This oil just gets started on its way from the crankcase when you crank up. Finally — when your engine's purring smooth and your oil system's up to full pressure — all bearings are getting their lube.



Rod bearings are the last to get oil in your NHC-250 engine.

So, if you rev up your engine too high after it's started, those bearings are working under full load with hardly any lubrication — only the little bit that stuck to 'em after you shut down last time.

If your truck's been sittin' still for a week or so, your bearings are nearly dry! They burn up!



I WONDER HOW HE'D LIKE TO JUMP OUT OF THE SACK AND TAKE OFF AT A DEAD RUN?

## DRIVER OR "PRO"?

Just about any guy in the Army can be a plain ol' driver — steering, shifting gears, using the brake, clutch and gas pedals. He may even get back from the place he headed for.

But a real "pro" comes back with his truck in as good shape as when he took off. He knows what's going on inside his engine. He works with his truck, not against it. He cares.



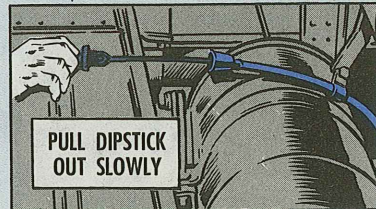
4

HERE'RE SOME SIMPLE TIPS THAT'LL KEEP YOU AND THAT NHC-250 DIESEL ENGINE GOOD FRIENDS — FOR A LONG TIME:



## ENOUGH OIL — RIGHT OIL

Make sure your crankcase oil level is at least over the add mark on the dipstick (L for "low"). Best, though is near or right up to the full mark (H for "high"). Pull your dipstick out slow 'n' easy — or suction from that rubber plug will make the oil mark higher than it should be.



AND MAKE SURE YOU'VE GOT THE RIGHT WEIGHT OIL...

- OE/HDO 10 for winter (+40°F down to -10°F)
- OE/HDO 30 for summer (above +32°F)
- OES for arctic (0°F to -65°F)

FSN's for these different lubes are listed in Maintenance And Operating Supplies, page B-23, TM 9-2320-260-10 (Jan 72).

Right weight oil is mighty important! If you use summer weight oil (OE/HDO 30) in your engine in cold weather, you're

a sure bet for burned out bearings. That oil's too thick. And it gets thicker when it gets cold. By the time engine heat thins it enough to be pumped through to your bearings, those bearings are shot!

But how can you tell if you've got the right weight oil in your crankcase? You can't — unless local SOP requires this info in the "Remarks" block of your truck's DA Form 2408-1 (monthly).

Remarks  
ENGINE OIL OE/HDO 10--15 NOV 73  
DA FORM 2408-1 (monthly)

If, in doubt, change your oil — to the right grade. After all, the cost of an oil change is a lot less than the cost of replacing burned out bearings. Or a whole engine!

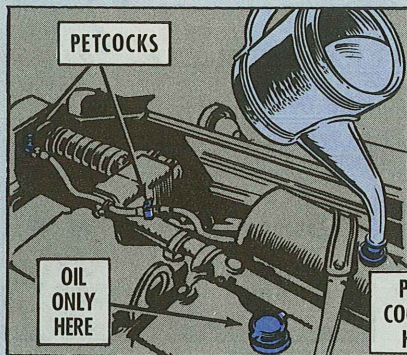


I DON'T ASK FOR A FUR COAT OR RED FLANNELS IN WINTER--JUST THE RIGHT WEIGHT OIL!

5

## HEAT IS ENEMY

Your coolant level has to be at half-full in the surge tank on a cold engine. Then you've got enough to carry away that heat your bearings don't like.



WOULD YOU BELIEVE SOME GUYS HAVE PUT WATER IN THE CRANKCASE? AND OIL IN THE COOLING SYSTEM? SHOT--ONE ENGINE!



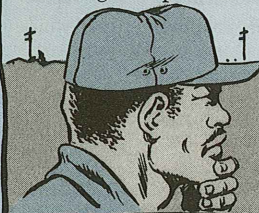
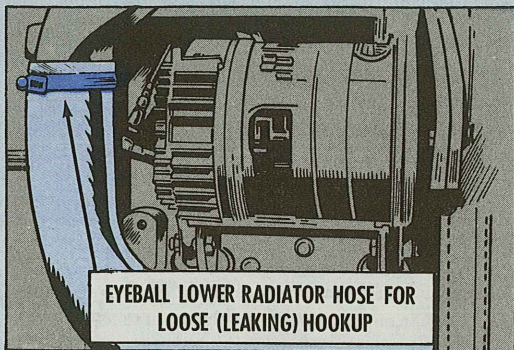
If it's low, open the 2 petcocks to the vent lines. Then add coolant until it starts running out of the petcocks. Close the petcocks and keep adding coolant until it reaches half-full in the surge tank.

Even if you don't need coolant, check real close for leaks — any kind of leaks — around and under your engine. This goes for all lines, hoses and connections — coolant, oil, fuel.

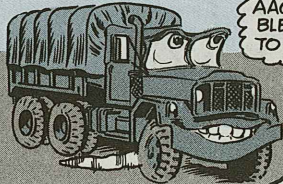
Pay special mind to the lower radiator hose. It's a heavy hose and may come loose — even fall off. Grab ahold and make sure it's tight. If you think it's a leaker, get it checked out by your mechanic before you move that truck an inch.

Look on the ground under your engine, too. Any fresh wet spots may spell

leaks. Later, when you've got your engine running good, check in the engine compartment again — pressure can make a leak you couldn't spot on a cold engine.



HMMM!



AAGH--I'M BLEEDING TO DEATH!

## JUICE FOR HORSES

There's a lot of horsepower to get moving when you start your NHC-250 engine — and it's not easy. You need all the juice your batteries can put out to turn your starter motor.

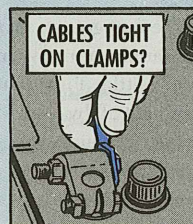
If you've got weak batteries, you get weak cranking from your starter.

You probably won't get your engine started. You'll run your batteries down to nothing. You may even burn up your starter motor.

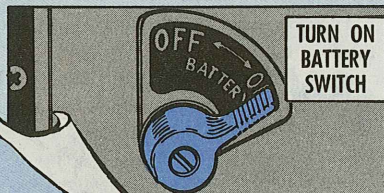
All 4 of your batteries have to be in top shape!

First, make sure the electrolyte in every battery cell is over the tops of the plates. Air ruins those plates. Ruined plates mean a ruined battery. Add water, if needed, to bring up the electrolyte level.

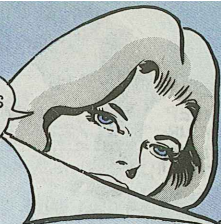
And make sure your battery cables are tight on the clamps — and the clamps are tight on the posts.



Now, hop into the cab and turn on your battery switch — but no other electrical switches. Eyeball your battery-generator

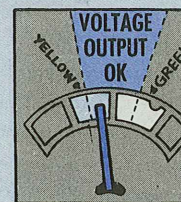


MAKE SURE ALL 4 BATTERIES ARE WORKING GOOD!



indicator — it tells you how much voltage your batteries are putting out. (See the whole story on page 2-40 in TM 9-2320-260-20 (Jul 72).

You need at least 24 volts for good starting. This means the bat-gen needle should settle in the right half of the yellow section or left half of the green section.

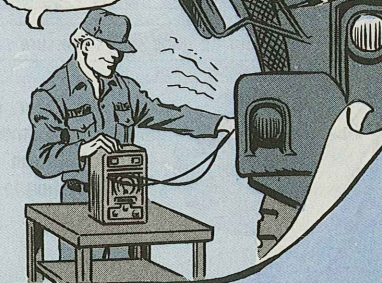


HERE'S WHERE YOUR BAT-GEN INDICATOR NEEDLE SHOULD BE WITH ONLY THE BATTERY SWITCH ON

If the needle hangs any lower — in the left half of the yellow section or, worse, in the left red section — your batteries are in trouble. Get your mechanic to check out your electrical system before you try to start up.

HEE! HEE! IT TICKLES!

HA! SO THAT'S YOUR WEAKNESS-- BATTERIES!



KEEP YOUR STARTER COOL!

### LOOK 'N' LISTEN

Here's where we separate the so-so drivers from the real "pros."

Play it cool — like an airline pilot. Make all those "before operation" checks and services on page 3-19 and 3-20 in your TM 9-2320-260-10. Watch those gages on your instrument panel — they tell you what's going on inside your engine. Keep a sharp ear out for any oddball noises that might mean trouble-in-the-making.

Go only by the book — "Starting The Engine," page 2-33 in your -10 TM — not

by what some sharpshootin' shortcutter tries to hand you.

For instance, never use any engine starter fluid, like ether, to boost your engine. It's definitely not authorized for this vehicle or any other tactical truck in the Army.

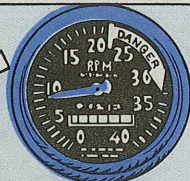
If your engine preheater — or a tow start — won't do the trick in cold weather, you've got starting problems that need your mechanic's hand.

And give your starter motor a break. Never keep it turning over for more than 10 seconds. If your engine doesn't take ahold, let your starter cool off for 10 to 15 seconds. Then try again. Quit after 3 tries. If you can't get your engine going with a tow start or by using jumper cables, it's no go. It's your mechanic's baby.

### TOO SOON... TOO LATE

Say it again, Sam:

"Keep your engine RPM down to idle speed — 800 to 1,000 RPM — during warmup!"



So how long does this "warmup" take? — until your temperature gage shows 120°F... and

— until your oil gage shows pressure... and



— until your engine's running smooth — when you can be sure oil's getting to all your bearings.

If you rev up your engine too soon, you'll find out — too late — that oil wasn't getting to your bearings.

Some guys think they've got to razz their engine while it's warming up — when it's snortin' and buckin' a little. Fight that temptation! It'll smooth out all by itself — at idle speed — or there's something wrong with it that razzing won't help.

Would you believe what tender ears some guys've got? They can't stand the noise of the air pressure warning buzzer — so they jack up the engine RPM to build up air pressure faster.

They save their dainty ears — and lose their engine bearings!

**BROARRRR**



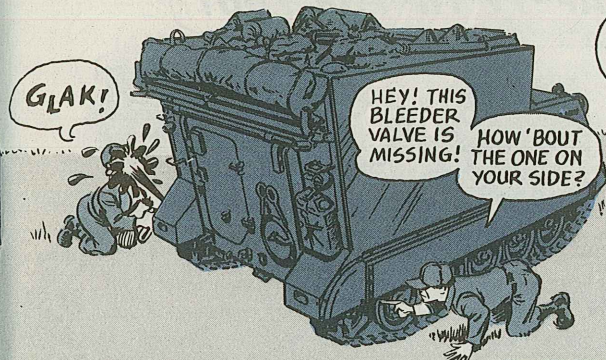
THE DEATH-ROAR OF AN ENGINE!



PS END

### M113/M113A1 FAMILY

## BLEED GREASE, NOT BLOOD

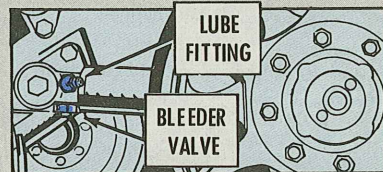


A ROUTINE CHECK BEFORE YOU SHOOT THE GREASE -- CAN SAVE YOU GRIEF!



If the bleeder in the track tension adjuster is missing, you may be the one who will do the bleeding.

Just so you don't learn this the hard way, make sure the bleeder is present and OK before you shoot grease into the lube fitting of a track tension adjuster on any one of your M113/M113A1 family of vehicles.



A couple of people have been hurt by grease squirting through the hole where the bleeder should have been. 'Nuff said!

## FUEL GAGE WASTE

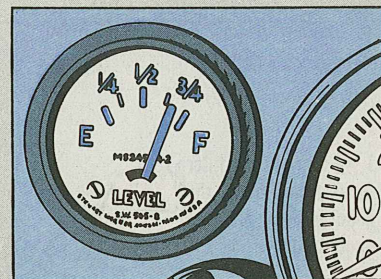
Dear Half-Mast,

I've seen fuel gages on trucks and other equipment replaced just because the needle hesitates for a second before going up.

That seems like a waste of money to me. Except for that little hesitation, those gages worked perfectly.

What do you say?

SSG G. B. S.



Dear Sergeant G. B. S.,

I say you're right in most cases.

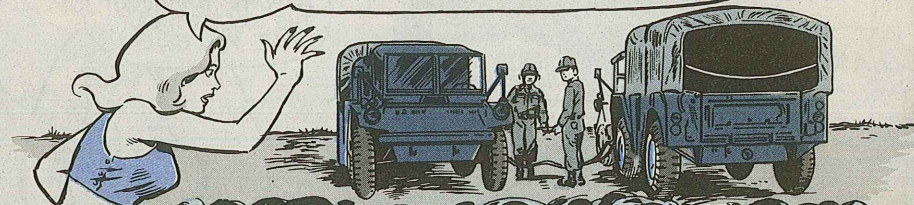
A slow takeoff can be normal — as long as the needle stops when it hits the right reading on the gage.

If there's any question, check all electrical hookups for tightness and good contact — especially at the ground connection.

Half-Mast

HEY, WAIT  
A MINUTE--  
I'VE GOT A

### SAFETY TIP FOR YOU!



TOO  
LATE!

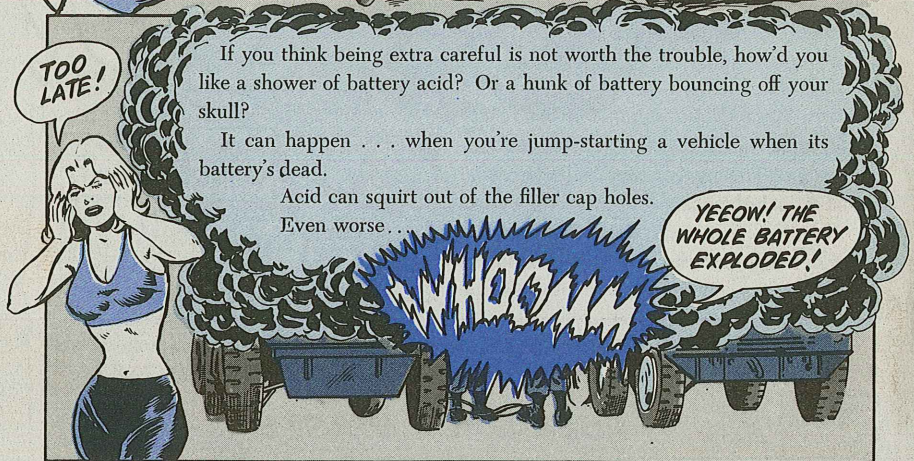
If you think being extra careful is not worth the trouble, how'd you like a shower of battery acid? Or a hunk of battery bouncing off your skull?

It can happen . . . when you're jump-starting a vehicle when its battery's dead.

Acid can squirt out of the filler cap holes.

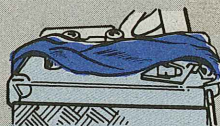
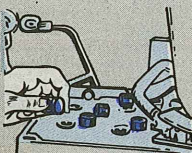
Even worse . . .

YEEOW! THE  
WHOLE BATTERY  
EXPLODED!



Take no chances. Before you hook up your jumper cables —

1 — Remove the filler caps from both the dead battery and the good battery.



2 — Lay a clean cloth over the filler holes of both batteries.

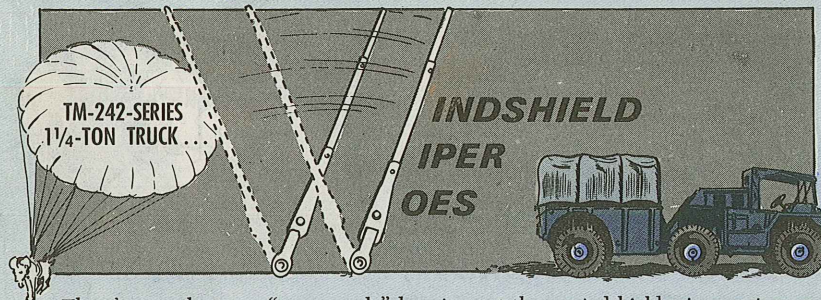
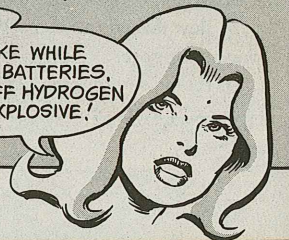
When you're done with the jump-start job and you've taken off the jumper cables —

1 — Take off the cloths and toss 'em into a GI can. Careful, they may have acid on 'em.



2 — Put the filler caps back on the batteries.

**DANGER --**  
NEVER SMOKE WHILE  
WORKING ON BATTERIES.  
THEY GIVE OFF HYDROGEN  
GAS. IT'S EXPLOSIVE!



There're no ghosts or "wee people" burning out those windshield wiper motors on your Gama Goat. This goes for both the M561 1 1/4-ton truck and the M792 ambulance.



NOPE, DRIVERS ARE DOING  
THE DIRTY WORK--OR LETTING  
IT HAPPEN--IN A COUPLE OF  
DIFFERENT WAYS.

F'INSTANCE...



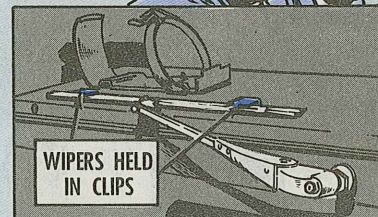
Nobody knows better'n the driver if the wiper blades are swinging too far over or too far down — hitting the center piece of the windshield frame — or banging the bottom of the windshield frame.

This's sure hard on those wiper motors . . . and there's no need for it.

Just report this problem on your DA Form 2404. Your mechanic will fix it. Para 2-227 in TM 9-2320-242-20 (Aug 70) w/Ch 1 and 2 tells how. The wiper arms can be taken off the motor shaft and put back on in a different position. Then they'll stay on the glass while they're moving.

And you guys in air-drop operations have to watch extra close.

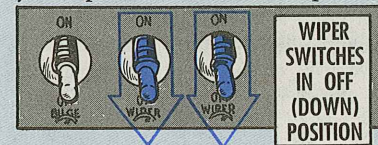
When your windshield is taken off for air-drop, you stow the wipers in those clips. The problem comes when you happen to bump the wiper switches on your



instrument panel — and you turn one of those switches ON. With the wiper blade held tight in the stowage clips, the motor can't run.

So it burns up!

So watch it! Make sure your wiper switches — both of 'em — are OFF when your wipers are stowed in the clips.



# M548 CARRIER

## TRANSFER TRAUMA

CLACKETY  
DUMMKOPF!  
KIANK RATTLE



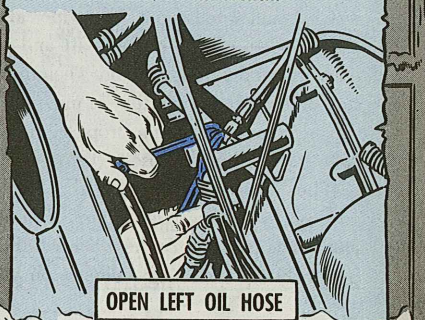
ACH!

Having problems with the transfer case on your M548 cargo carrier?

Some people do and some people don't.

If your transfer case is noisy and makes with a lot of rattles, groans and moans when you run the vehicle, it needs looking at before you make a long road march.

1. With the engine compartment access panel off, your mechanic reaches in with a 9/16-in open-end wrench and holds the transfer gearcase oil inlet tee steady while he "opens" the left oil hose with another 9/16-in wrench.



OPEN LEFT OIL HOSE



YOU AND YOUR FRIENDLY COMPANY MECHANIC CAN CHECK IT OUT.

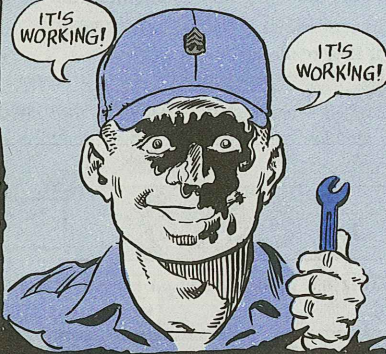
GOTCHA.



2. The driver makes sure the transfer is engaged and starts the engine.

3. If oil is rushing through the line the way it should, it will squirt out the left oil hose at the loosened tee. Whether it does or not, the mechanic tightens up the hose and tee after this test.

4. The mechanic then tests the oil circulating (scavenger) pump by loosening the oil pump outlet hose at the oil pump outlet elbow with a 5/8-in open-end wrench. When the engine is started, oil should squirt out at the loosened fitting.



IT'S WORKING!

IT'S WORKING!

LOOSEN HOSE



If the vehicle passes both these tests, you should be able to road march with no problems.

If it fails either test (oil won't flow freely), your mechanic will troubleshoot the lubricating system and correct whatever is wrong.

IST DER GARBAGER?

NEIN! IST EIN SCHLECHT M548 TRANSFER.

VOT GIFFS?

DER SCHLECHT TRANSFER MY HERO!





ARE THESE MWO'S APPLIED TO YOUR CARRIER? SEE ITS FORM 2408-5.

MWO 9-2520-238-30/2

MWO 9-2300-401-20/1

To get the best performance out of your transfer gearcase, make sure MWO 9-2520-238-30/2 (Mar 71) and MWO 9-2300-401-20/1 (Mar 71) have been applied. These 2 MWO's work together to improve lubrication in your M548 or XM727 or M730 guided missile equipment carrier. The -30/2 MWO, put on by direct support, adds an oil deflector to your transfer case, while the -20/1 MWO, applied by organizational maintenance, increases the transfer gearcase input lubrication line from 1/4-in to 3/8-in.

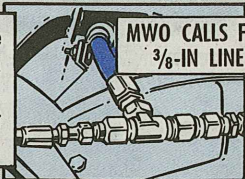
Here's how to tell if they're already on or not . . .

If the part number on your transfer is still 10949816, then MWO 9-2520-238-30/2 has not yet been applied. If the 10949816 is defaced, like so,

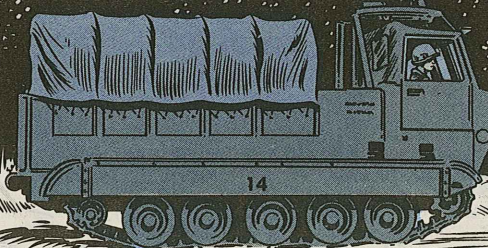


and the number 11633942 has been stamped on instead, then the MWO has been applied.

If the transfer gearcase lubrication line to the tee on top of the transmission is 1/4 inch I.D., then MWO 9-2300-401-20/1 has not been applied yet because that calls for 3/8 inch line.



NO MORE COMPLAINTS ABOUT NOISE SINCE WE'VE APPLIED THOSE MWO'S!

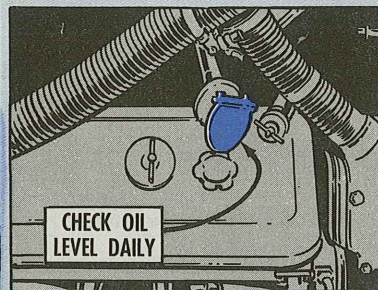


PS END

### M578 RECOVERY VEHICLE AUXILIARY DRIVE COSTS \$\$\$\$

If you can't see it, forget about it.

That's the way some M578 drivers have been treating the auxiliary drive. The fill and level tube is out of sight under its little cover so the drivers forget about Note 5 to LO 9-2350-238-12 (Feb 72) which says to check the auxiliary drive oil level DAILY.



Some drivers check their auxiliary drives the way they oughter, but then they goof by using ordinary OE instead of the grade of OE/HDO that page 6 of the LO calls for.

USE THE RIGHT GRADE OF OE/HDO AND YOUR AUXILIARY DRIVE SHOULD GIVE YOU NO PROBLEMS.

HEY, MAN! THAT'S SOME HEAVY LOAD WE'RE HOISTING!

RIGHT ON! BUT AS LONG AS WE CARRY IT, UNCLE SUGAR WON'T HAFTA!





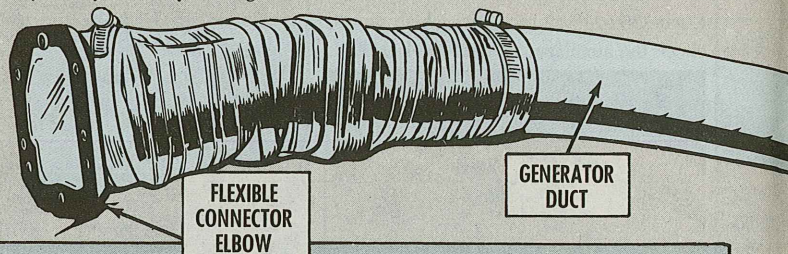
## TANK GENERATORS OUT OF STOCK

Read this loud and clear, you M60-series tanker: generators, FSN 2920-830-6660, and axial fan tubes, FSN 2920-895-3417, are both out of stock.

This can mean that if your generator conks out on you, your tank can sit there deadlined for a long time.

So what can you do about it?

You can make sure your generator stays in good shape by testing the generator blower every time you start your engine.



Hold a piece of cloth or paper in front of the air intake screen. The cloth or paper should be sucked against the screen. If it isn't, then:

CHECK AIR INTAKE SCREEN FOR SUCTION

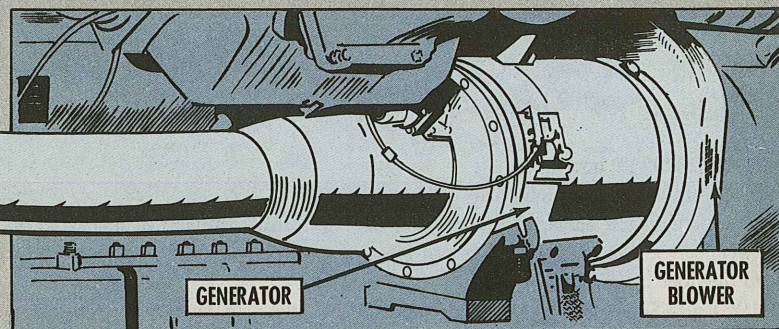
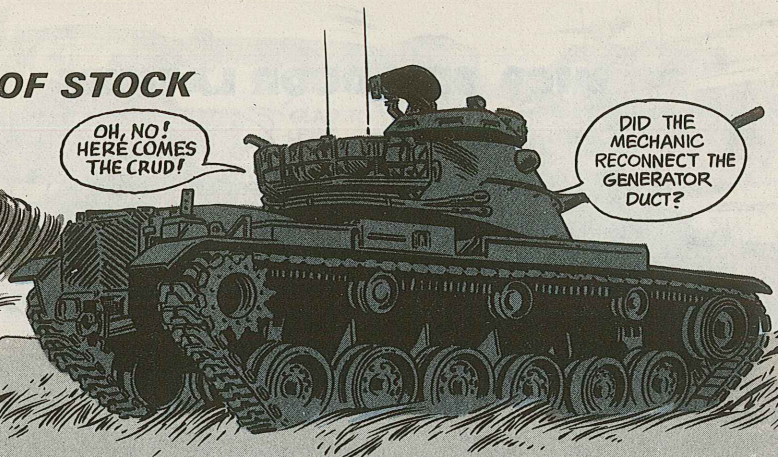


1. The mechanic forgot to reconnect the flexible connector of the generator duct after a power pack was replaced.
- OR 2. Your generator blower is not working.

Find out which and get it fixed before your generator overheats and burns out.

If your generator blower is working OK but the generator duct has not been reconnected, then the generator blower will suck in water, leaves, mud, sticks and stuff that will soon ruin the generator.

Besides being in short supply, these generators are expensive. The generator alone runs about \$660 and by the time you've counted the cost of the blower and other parts plus the labor of removing/installing the power pack, a big \$1,000 gets shot every time you jam up a generator.



## M101 HOWITZER WHEEL DEAL

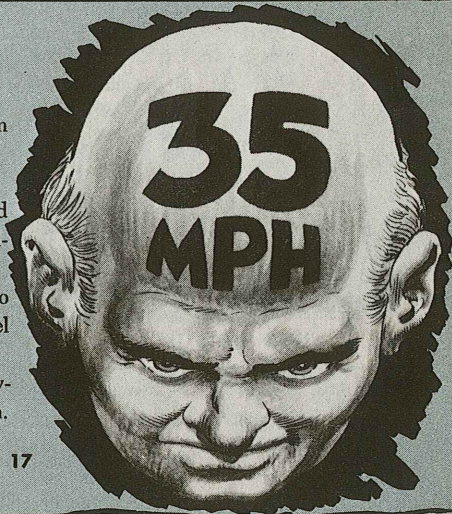
So what's the deal with the wheels on your M101A1 105-mm towed howitzer?

Just don't run 'em too fast is all.

Your M101A1 should never be towed faster than 35 MPH, the fastest speed allowed by TM 9-1015-203-12 (Oct 70).

In one outfit they were trying to go faster when a bearing failed and a wheel was lost.

So remember—35 MPH is tops for towing the M101A1. Engrave it on your brain.



## M109 SIDE DOOR LATCHES



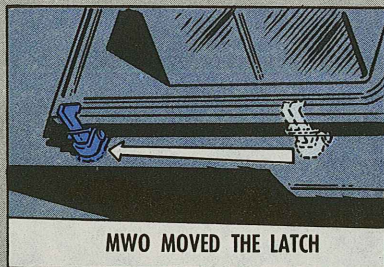
In Your M109 SP howitzer:

Check the hold-open latch on its side doors soonest.

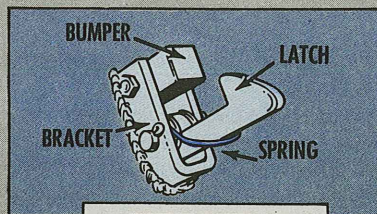
If the latches are damaged, those heavy doors can tear loose and slam shut when the weapon's moved or fired. That can mean missing fingers for anyone hanging on to the door frame.

MWO 9-2350-217-30/21 (Oct 71) relocated the side door latches to give 'em a better grip. But the change didn't solve the latch wear problem.

So, check the latches careful-like. They may be out of line. Or the latches, pins or brackets may be busted or worn. The rubber bumpers may be beat up, or the springs may be weak—or installed wrong.

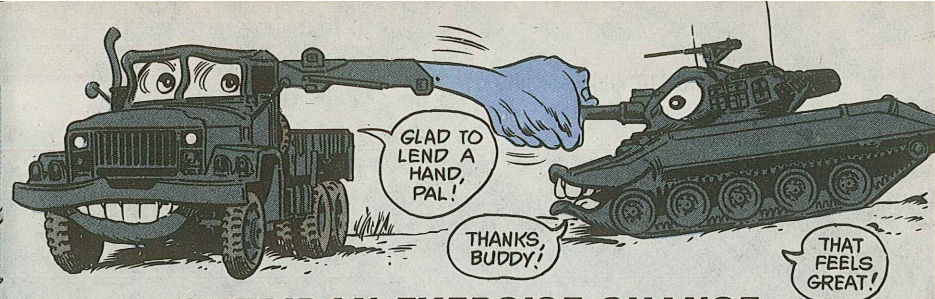


MWO MOVED THE LATCH



INSPECT PARTS...  
SPRING INSTALLED RIGHT?

If you find bum latches, warn everybody to keep hands off the door frames when the doors are open. And, report the problem to your unit mechanic soonest.



## SHERIDAN EXERCISE CHANGE

Know about the changes in exercising the recoil in your M551 Sheridan?

The new word for using units is this: The M551 must now be exercised every 30 days. Organizational maintenance has to do the job using either the M543A2 or the M62 wrecker with the right kind of extension bracket to fit.

The word on this is in Ch 2 (Jun 73), Page 4, note 2.1 to LO 9-2350-230-12 (Nov 71).

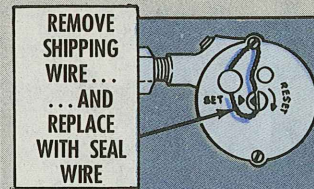
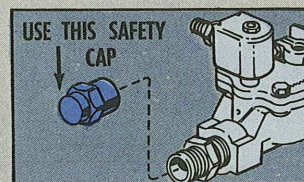
M551 SHERIDAN

## FIRE EXTINGUISHER HAZARDS

A face full of fire extinguisher fluid probably wouldn't kill you but it wouldn't do you much good, either.

So here's how to avoid it . . .

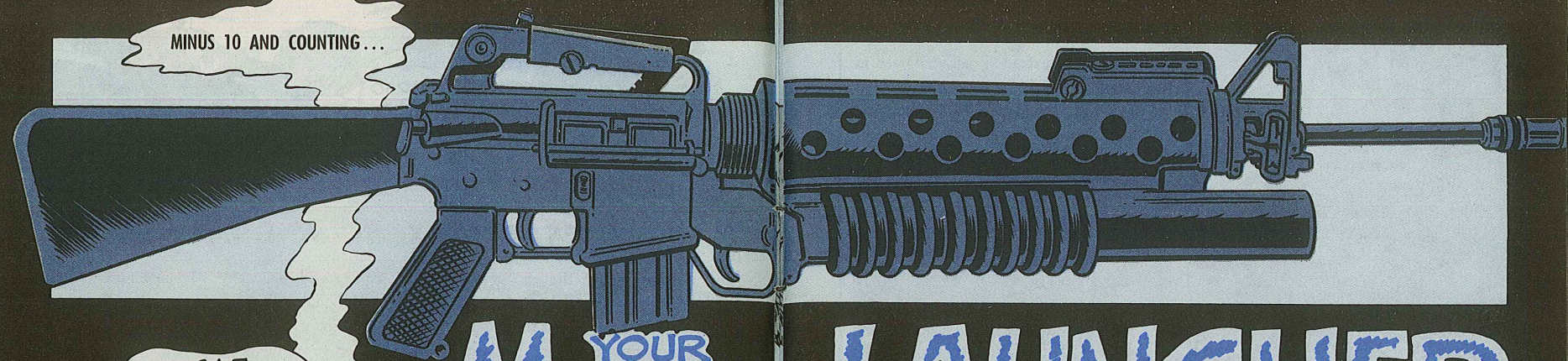
Right after you disconnect your fixed fire extinguisher for the Q service weighing, put the safety cap on. If the cap has been lost, get a replacement as FSN 4730-554-3122.



With the cap in place, you can twist the extinguisher any way you want without running the risk of getting a blast of fluid in the face. ('Course, before that could happen, the seal wire, FSN 5340-835-9815, would have to break, but that could happen pretty easy.)

By the way, make sure the seal wire has been put on to replace the shipping wire the fire extinguisher cylinder came with. The shipping wire is too strong and the extinguisher won't go off when you pull the release.

MINUS 10 AND COUNTING...



# YOUR M203 LAUNCHER

HE SHOT A GRENADE INTO THE AIR-- IT FELL TO EARTH HE KNEW NOT WHERE---

## SET TO GO?

POOR PM?

It's gentle handling and good PM that put pizzazz in your M203 grenade launcher. Cut down help yelps, parts replacement and maintenance, too.

Start your PM countdown with a look at these problem points—and TM 9-1010-221-10 (Feb 72) in your mitts.

20

**QUADRANT SIGHT**—This lightweight metal job breaks easy-like. Rough 'n' tumble handling will get you lots of downtime.

Keep the rear sight aperture and the front sight post in the closed — down — position until you're ready to use 'em. Slapping them around could abort your blast off.

KEEP FRONT SIGHT POST IN DOWN POSITION

KEEP REAR SIGHT APERTURE IN DOWN POSITION

The whole sight stays as nearly in line with the handle as possible—sight window at 50. That way you're less likely to bang it up.

Eyeball the front sight post. If it's loose, your armorer will have to replace it.



**LEAF SIGHT**—No extra looseness allowed in the elevation adjustment screw and the windage adjustment screw. This sight's important because you'll use it for most of your aiming.



**SAFETY**—It's gotta work in the **SAFE** and **FIRE** positions. Sand and dirt jam a dry



safety every time. The safety detent gets LSA every day—like so . . .



. . . Turn the launcher upside down. Put the safety on **SAFE**. Squeeze 1 or 2 drops of LSA into the receiver opening—in front of the safety.

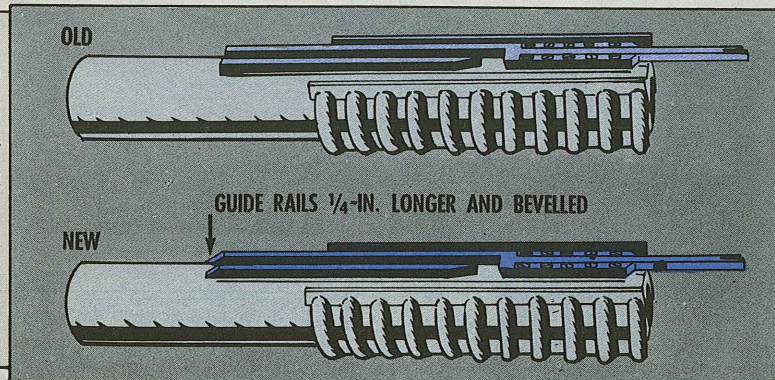
Operate the safety several times. This'll work the lube around the detent and the grooves in the safety.



**BARRELS**—Your DS armorer fits the M203 launcher to the M16A1. But you can take the barrel off to clean and lube the bore and guide rails.

After cleaning, lube the bore with a light coat of LSA.

Always be careful when pulling launcher PM. You never want to switch barrels and launchers.



**NEW LAUNCHERS**—Some grenadiers may have some M203 barrel assemblies with guide rails that crumble—even with by-the-book PM care. No sweat. Have your unit armorer order a new assembly with the same FSN 1010-438-7414.

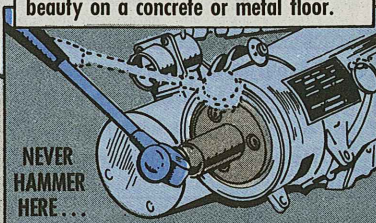
Guide rails on the new stronger barrel assembly are  $\frac{1}{4}$  inch longer.

YES SIR-E-E-E, YOUR M203 40-MM GRENADE LAUNCHER DESERVES THE BEST. BE GOOD TO IT, AND IT'LL BE GOOD TO YOU--WHEN YOU NEED IT MOST.

# MINIGUN



1. Never drop or bang this 6-barrel beauty on a concrete or metal floor.



# SURE SHOT



2. Never hammer the gun support or rotor with a metal object.

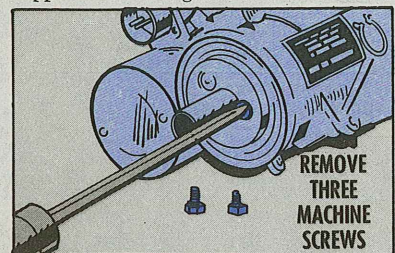


Here's why: Dropping, banking or hammering on these items will burr, deform or dent 'em. This is guaranteed to interfere with the fit of the aft support to the rotor, and maybe a smooth weapon subsystem installation job.



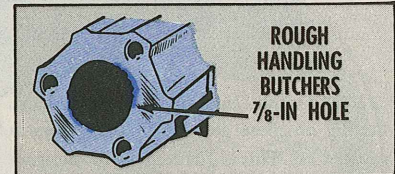


Say you're trying to free the rotor assembly from the gun housing. You've removed the 3 machine screws, but the gun support won't budge.



REMOVE THREE MACHINE SCREWS

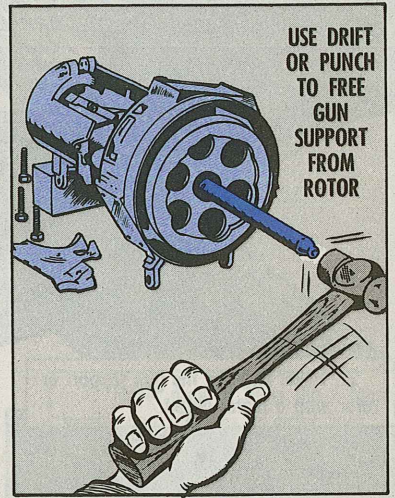
This's probably because the last man who assembled the gun removed the rotor from the gun housing the hard way—by hammering on the end of the rotor. This distorted the 7/8-in hole at the rear of the



ROUGH HANDLING BUTCHERS 7/8-IN HOLE

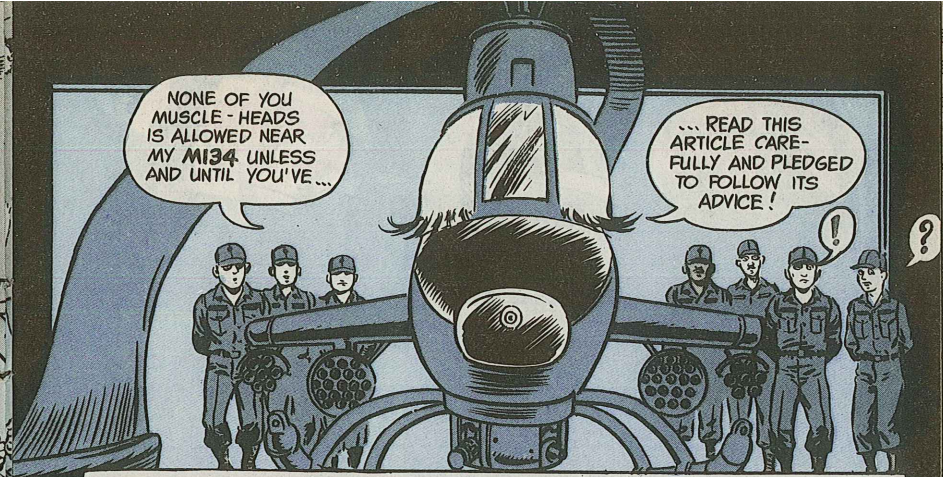
rotor. When he put it all together he had to force the support to seat. No wonder it stuck!

Free a frozen gun support this way: Insert a punch or drift—brass is best—through the center hole in front of the rotor. This is the barrel end—minus the barrels.

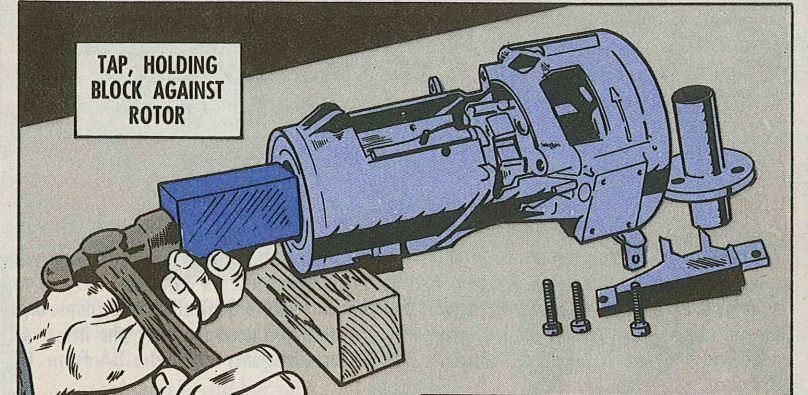


USE DRIFT OR PUNCH TO FREE GUN SUPPORT FROM ROTOR

About 8 1/2 inches inside the rotor, the drift or punch will contact the inner lip of the aft support. Light tapping on the punch with a hammer should free the support without damage.

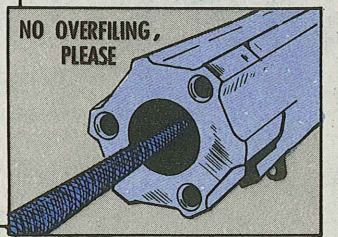


If you have trouble removing the rotor from the gun housing, place a piece of wood against the rotor and tap it with a hammer.



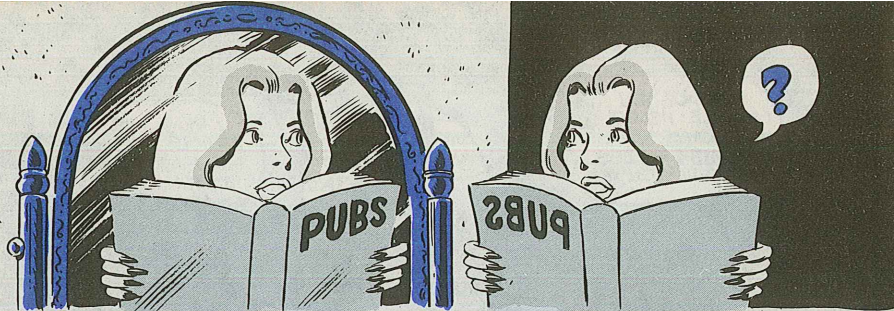
TAP, HOLDING BLOCK AGAINST ROTOR

When ready to assemble the minigun, eyeball the rear of the rotor. If necessary, dress it with a half-round medium cut file to remove any burrs.



NO OVERFILING, PLEASE

You may need to stone the aft support for a real easy-on, easy-off deal.



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 (Jun. 72), and CH 4 (Apr. 73), TM's, TB's, etc.; DA Pam 310-6 (Jul. 73), SC's and SM's; and DA Pam (C) 310-9 (Mar. 73), COMSEC Pubs.

#### TECHNICAL MANUALS

TM 9-2320-212-20P CI Oct ¾-Ton, M43 M43B1 M37 M37B1 M201 M201B1  
 TM11-283 C9 Oct AN/VRC, -6X, -6Y Radio Sets  
 TM 11-809-10 C5 Oct T-368(I)/URT Radio Transmitter (C) TM 11-5810-224-15 Sep TSEC/KY-8 COMSEC Equipment  
 TM 11-5810-242-12P CI Oct TSEC/KI-1A COMSEC Equipment  
 TM 11-5820-307-20P Oct AN/TRC-42 Radio Set  
 TM 11-5820-477-12 C3 Oct AN/GRA-39(I) Radio Set Control

TM 11-5820-490-15 C3 Oct AN/SRC-8BZ and -8AX Radio Sets

\*TM 32-4940-202-15P Nov Admin Control Central AN/TSQ-79  
 \*TM 32-5835-204-25 Oct Control, Recorder C-8449/U (Incl. Repair Parts)  
 \*TM 32-5895-248-15P Nov Data Analysis Central, AN/TYQ-5  
 \*TM 32-5895-264-25 Oct Signal Data Converter - Storer, CV - 2790/TRC - 148 (Incl. Repair Parts)  
 \*TM 32-5895-29-25 Oct Direction Finding Interface Panel, SB-3452/U (Incl. Repair Parts)  
 \*TM 32-5985-202-25 Oct Control Indicator, C-8615/ALT-29 (Incl. Repair Parts)  
 \*TM 32-6615-200-25 Oct Data Link Adapter, MX-8585/U (Incl. Repair Parts)

The publications marked (\*) available only from the US Army Security Agency, Material Support Command, Vint Hill Farms, Warrenton, VA 22186.

#### MISCELLANEOUS

DA Form 4161b Oct Oil Analysis Record Card  
 DA Cir 700-24 Oct Supply, Direct Exchange (DX)  
 TB 9-4935-552-14-2, -3, Oct Test Station AN/TSM-93 (Land Combat Support System)  
 TB 750-981-3 Jul Equipment Improvement Report and Maintenance Digest Tank and Automotive Equipment

#### NEW FILMS

MF 9-5818 Gun Stabilization System, M60A1 Tank, Part I  
 TF 5-4615 Recovery Operations Using Heavy Engineer Equip  
 TG 9-6-41 Grenade Launcher XM203  
 TG 9-9-3 Machine Gun, Cal 50, M85  
 TG 17-6-3 Pistol Automatic Cal .45, M1911A1

## Hurtin' For Pubs?

In an emergency, you can phone in your request for up to a total of 5 TM's or other tech or supply pubs. The number is Autovon 698-7339 (commercially, its 314-268-7339). Give this info: your St. Louis publications account number and your organization; your name and Autovon number: the reason for the emergency; the date you need the pubs, the items required and how many you need. Remember, this is for emergency only. Use DA Form 17 otherwise.

## No Copies Of PS?

If your pal in the unit across the road has not been getting PS Magazine lately it's because his unit didn't send in a new order on DA Form 12-5 (Oct. 73). It's a new form. All earlier orders for PS were canceled in December. All pin-point distribution for PS Magazine is now based on orders units send in on DA Form 12-5.



Gasping and coughing,  
 their eyes streaming tears,  
 they climbed the mountain,  
 seeking the old hermit  
 in his lofty lair.

=KOFF=

=HACK=

WHEEZE

Some weakened and fell,  
 never more to rise,  
 as they breathed their last.  
 Others pressed on through  
 the poisonous air.



At last they found him  
on the highest peak,

CAN IT  
BE?

IT IS!

THE  
GREAT OG.

AHH...  
GET  
LOST!

where he, too, had fled  
to escape the advance  
of thickening smog.

ONLY  
OG  
CAN  
HELP  
US  
NOW!

≡FAP≡  
POLLUTION I'VE  
ESCAPED-- BUT NOT  
THE POLLUTERS!

Though they felt relief  
in the fresh, clean breeze,

I WUZ  
HERE FIRST!

MERCY!

HELP US,  
OH, OG!

PITY!

BACK  
WHERE YOU  
CAME FROM,  
LOUIS!

this was not their goal...  
they'd come for answers  
from the Wizard of Og.

BUT YOU  
DON'T UNDER-  
STAND...

WANNA  
BET?...

"Oh, Wizard," they begged,  
"Tell us what to do  
to combat this scourge  
and rid our land of  
horrid air pollution."

GUIDE  
US, OH  
MIGHTY  
INTELLECT!

HOW CAN  
WE CLEAN  
UP THE AIR?

SHOW  
US THE  
WAY...

WHAT SAGE  
ADVICE CAN YOU  
GIVE US?

**DROP  
DEAD!**

With a baleful glare  
and trembling with rage,

SELFISH...  
STUPID... UNWORTHY  
INGRATES!...

YOU DON'T  
DESERVE  
HELP!  
BUT...

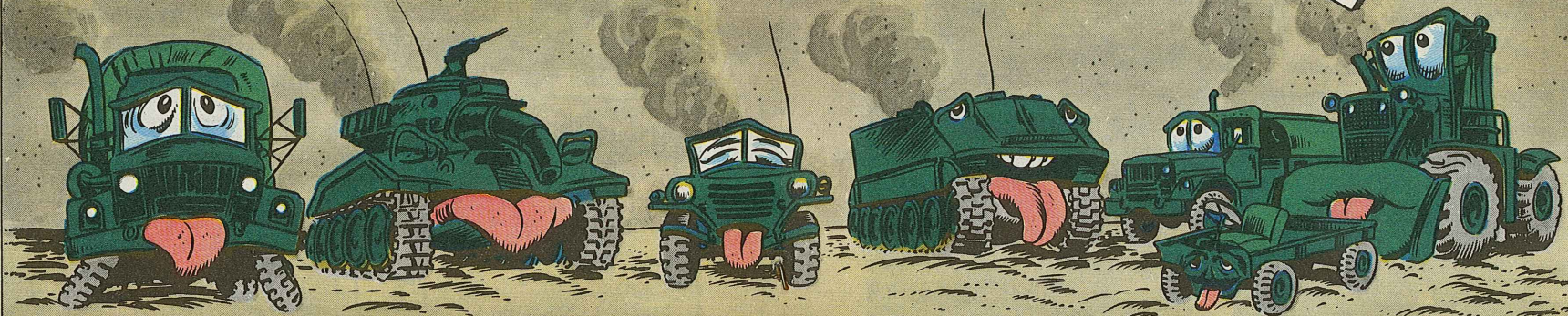
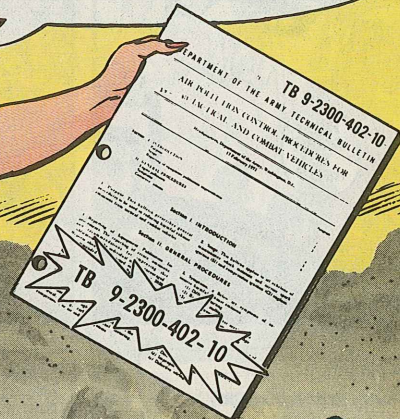
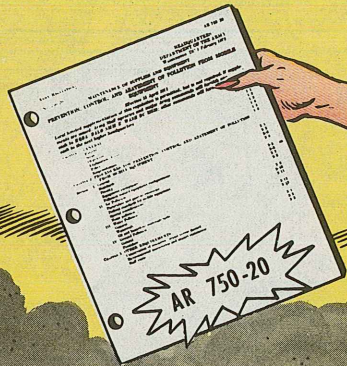
...OVER  
THERE...

the Wizard pointed  
and roared, "Pay heed,  
right there is your solution!"

CONNIE'S  
PIN-UP SEZ  
IT ALL!

# JOE'S Dope Sheet

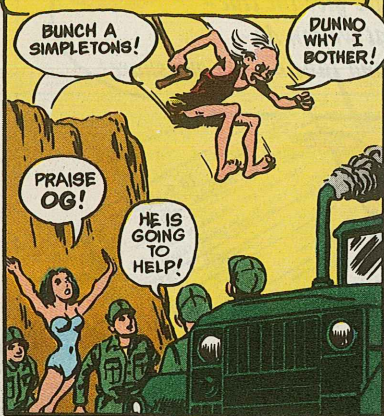
The secret of maintaining clean air?  
It's inspection... adjustment... repair!  
These pubs give the clue -  
Tell what we can do -  
Let's tune in and tune up - do our share!



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.

"All engine exhaust is dirty at best, but you've made it worse by pouring unburned fuel into the air."



BUNCH A SIMPLETONS!

PUNNO WHY I BOTHER!

PRAISE OG!

HE IS GOING TO HELP!

"Besides the poison you bring on yourself, you're wasting your gas when there's little enough of that to spare."



STARTED UP THE MOUNTAIN WITH A FULL FUEL TANK...

PROBABLY NOT ENOUGH LEFT TO GET YOU BACK DOWN EVEN IF YA COAST...

"Fuel is power but only when burned, so it's plain to see that's wasted power coming out your exhaust."



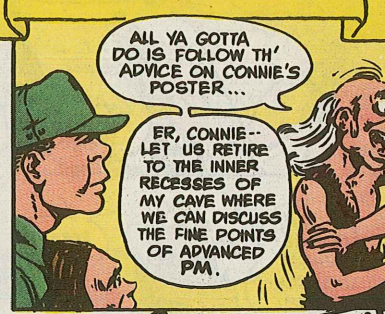
ALMOST PURE DF NO. 2 COMIN' OUTTA THAT STACK!

YER PM STINKS AS BAD AS YER PUTRID AIR!



"Stalling, hard starting, no poop in a pull means air pollution. If you don't see the cause, then your cause is lost!"

"But why journey here for so clear a truth when the word is out? ... The AR and TB on air pollution controls."



ALL YA GOTTA DO IS FOLLOW TH' ADVICE ON CONNIE'S POSTER...

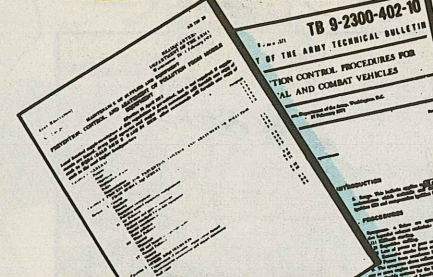
ER, CONNIE-- LET US RETIRE TO THE INNER RECESSES OF MY CAVE WHERE WE CAN DISCUSS THE FINE POINTS OF ADVANCED PM.

"They spell out the 'why' and give you the 'how' ... all you need to know. They're for trucks 'n' tanks — any engine that rolls."



DOWN BOY!

HERE'S SOME MORE POOP THAT'S SURE TO CURE YOUR POLLUTION PROBLEMS, PEOPLE.



CHECK OUT THE WORD IN THESE PUBS.

CORRECTIVE ACTIONS



- Removal and replacement of spark plugs — insure proper gap-setting and torque.
- Removal and replacement of distributor points and condenser — insure proper distributor point gap.

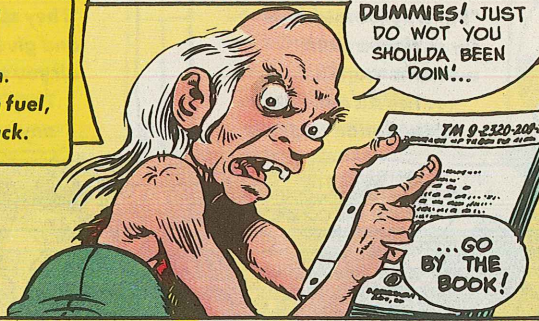


IF YOU FOLLOW THESE CORRECTIVE MEASURES, YOU'LL VIRTUALLY ELIMINATE THE CONDITIONS THAT CAUSE POLLUTION AND WASTE FUEL.

- Compression test of all cylinders. This reveals ring, piston and valve defects indicating possible need for engine overhaul.
- Adjustment of all fuel and air controls in accordance with specified technical manuals.
- Removal, cleaning and/or replacement of all fuel and air filters as cited in pertinent technical manuals.
- Cleaning or replacing of emission control devices as necessary, (6,000 miles or semiannually).



"So tune up your mill according to specs and keep filters clean. When you save on fuel, you're saving a buck."



DUMMIES! JUST DO NOT YOU SHOULD'VE BEEN DOIN'...

...GO BY THE BOOK!

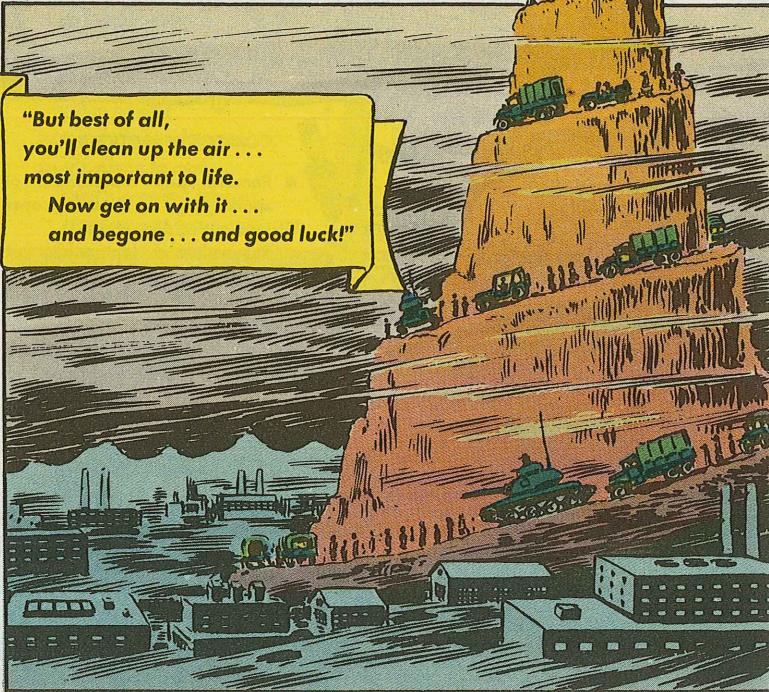
THEY'RE ALL LEAVIN'!

GOOD RIDDANCE...

NOW, CONNIE-- ABOUT OUR CONFERENCE...

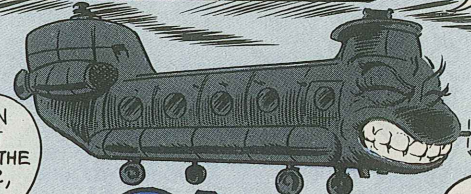
HALP!

"But best of all, you'll clean up the air... most important to life. Now get on with it... and begone... and good luck!"



UP-DATE YOUR SLING

PLEASE...



YOU CAN HEAR IT OUTSIDE THE HANGAR, TOO!

MY ENGINE MIGHT BE NEXT!

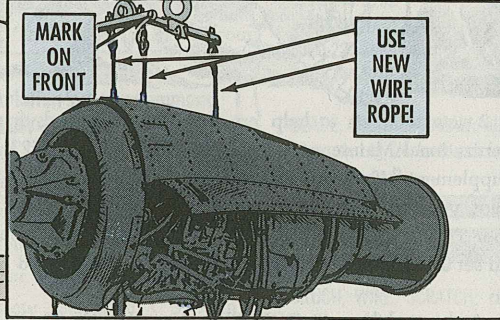
CAA-RAAA-SSSHH



When an engine sling breaks and a T55 engine hits the pavement you can hear the ca-runch all over the hangar!

Can happen—if you're still using sling, FSN 1730-133-6277, LTCT13083, Rev B. Wire rope LTCT1764 has already broken on some slings.

You Chinook (CH-47) types don't want to get your big bird in a sling, so, ask for wire rope assemblies, LTCT14382, FSN 4010-200-4457.



Scrap the old cables on your sling and add the 3 new ones.

Then, re-identify the sling to show you have the fail-safe cables. Change Rev B to—Rev C, marking to a depth of .001-.006-inch with a vibroetch tool.

THAT'S ALL THERE IS TO IT!



NEW O-LEVEL MAINTENANCE...

# AIRCRAFT TOOL SETS

HEY, BIRDMEN!

HERE'S THE LATEST INFO ON YOUR TWO NEW TOOL SETS!



See Page 49 For  
Recip Engine Tool Set

tured sets. Order shelters and cabinets from

**Commander**  
**US Army Aviation Systems Command**  
**ATTN: AMSAV-QQS**  
**PO Box 209, Main Station**  
**St. Louis, MO 63166**

Either transfer excess tools to RPSTL tooling account or to your TOE/TDA records as appropriate, or turn 'em in to supply.

Order complete sets from US Army Aviation Systems Command only for brand new aviation units, and replacement parts from the item manager.

If some of the tools in your sets aren't carbon copies of those shown, it's because different manufacturers made 'em. Don't sweat it, they should do just as good a job.

## TOOL SET, ORGANIZATIONAL MAINTENANCE, ARMY AIRCRAFT

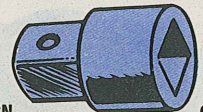
FSN 4920-159-8727

ADAPTER, GREASE GUN COUPLING: hyd type inlet ftng & noz, stght, flex ext, 10,000-psi max wp, 12 to 14-in lg o/a



FSN 4930-288-1511

ADAPTER, SOCKET WRENCH: male to female, sq dr



FSN  
5120-240-8702  
5120-240-8703  
5120-227-8088  
5120-144-5207

Opngs, in  
3/8 (m); 1/2 (f)  
1/2 (m); 3/4 (f)  
1/2 (m); 3/4 (f)  
3/4 (m); 1/2 (f)

BLADE, HAND HACKSAW: all hard type, HSS, 10-in nom lg, 24 teeth per in, 0.025-in thk, 10 blades per bndl



FSN 5110-237-8107

BRUSH, WIRE, SCRATCH: curved hdl, rocker rect face, 1 1/8 to 1 1/4 in lg S wire clear of block; 4 rows w, 5 1/2 to 6 1/2-in lg of brush part, 13 11/16 to 14 1/4-in lg o/a



FSN 7920-291-5815

Airtypes have 2 new tool sets to help 'em maintain their birds in tip-top shape: A Standard Organizational Maintenance Tool Set, FSN 4920-159-8727, and a Reciprocating Engine Supplemental Tool Set, FSN 4920-159-8728.

Each set — plus your General Mechanics Tool Kit and the major tool set items authorized by your TOE/TDA — will support 1 to 8 turbine-engined birds. You'll need the Supplemental set and the Standard set if you're supporting 1 to 8 birds with recip engines.

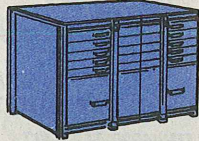
These sets are authorized by unit TOE/TDA. Use SC 4920-99-CL-A90 (Mar 73) for reference and identifying complete sets or individual items.

So, what happens to your old organizational maintenance sets you cut your maintenance eye teeth on? You'll still use 'em, Knucklebusters. For a while, anyway.

Like so.

With a copy of the new SC in your mitts, make up a Standard set — and a Supplemental set, if required. Requisition only those tools needed to complete the restruc-

**CABINET, TOOL AND SPARE PARTS:**



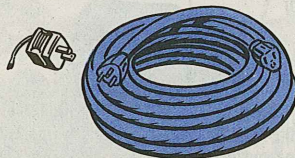
**FSN 4920-903-0258**

**CABINET, TOOL AND SPARE PARTS:**



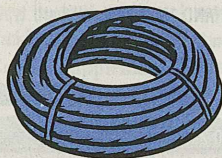
**FSN 4920-903-0260**

**CABLE ASSEMBLY, POWER, ELECTRICAL:** 3 cond, 600 v, No. 12 AWG, 84 strnds, No. 31 AWG, rub insul cov term, 1st end, 1 plug; 2d end, 1 recep; male & female ftngs, 50 ft lg o/a



**FSN 6150-682-3460**

**CABLE ASSEMBLY, POWER, ELECTRICAL:**



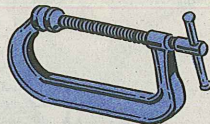
**FSN 4920-903-0270**

**CHISEL, COLD, HAND:**



FSN	cut w, in	lg, in
5110-234-1927	1/4	4
5110-186-7107	1/2	5 3/4

**CLAMP, C:** lt svc rat, 3,000-lb test load, 3-in nom size, 1 1/8-in deep throat



**FSN 5120-180-0907**

**CLEANER, VACUUM, PNEUMATIC:** hand, w/ exposed sep, w/o skids, wheels, revol brush or blower outlt, 60-psi min air pres req, w/rd brush, crevice tool, tube ext



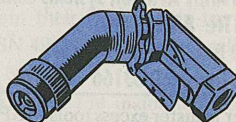
**FSN 7910-807-3704**

**COUPLING, GREASE GUN:** flush noz, 1/2-27NPT female connec



**FSN 4930-200-1841**

**COUPLING, GREASE GUN:** hyd noz, 360 deg swivel, 1/2-27NPT female connec



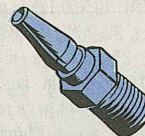
**FSN 4930-585-0209**

**COUPLING HALF, QUICK DISCONNECT:** stght, S bdy, male push-pull coup, u/w Schraders check unit No. 8050-12 and/or 8052-12, fluid end 1/4-18NPT, internal



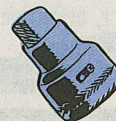
**FSN 4730-142-1960**

**COUPLING HALF, QUICK DISCONNECT:** stght S bdy, male push-pull coup, u/w Schraders check unit No. 8050-12 and/or 8052-12, fluid end 1/4-18NPT, ext



**FSN 4730-142-1958**

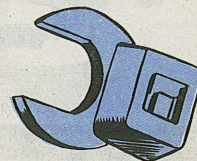
**COUPLING HALF, SELF-SEALING:** stght S bdy, 1.813 nom lg o/a, thd female conec, fluid end 1/4-18NPT, poppet at self-sealing end is recessed



**FSN 4730-595-1813**

**CROWFOOT ATTACHMENT, SOCKET WRENCH:** nonratcheting

FSN	type	dr opngs	dr size	wrncn opng
5120-184-8383	opn end	2	3/8-in	7/16-in
5120-184-8384	opn end	2	3/8-in	1/2-in
5120-184-9387	opn end	2	3/8-in	9/16-in
5120-935-8397	12-pt opn wall bx		3/8-in	11/16-in
5120-935-7397	12-pt opn wall bx		1/2-in	1 5/16-in
5120-935-7400	12-pt opn wall bx		1/2-in	1 1/2-in
5120-935-7406	12-pt opn wall bx		1/2-in	1 7/8-in

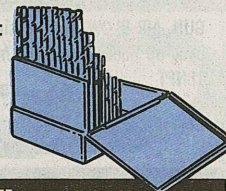


**DRILL, HAND:** w/side hdle & hollow end hdle, 8 drills furn, 0 to 3/8-in cap



**FSN 5110-293-3411**

**DRILL SET, TWIST:** No. 60 to 1 size rg, rh cut, HSS, stght rd shank, 60 drills, case



**FSN 5133-449-6775**

**EXTENSION, SOCKET WRENCH:** 1/2-in sq dr



**FSN 5120-243-7326**

5-in lg

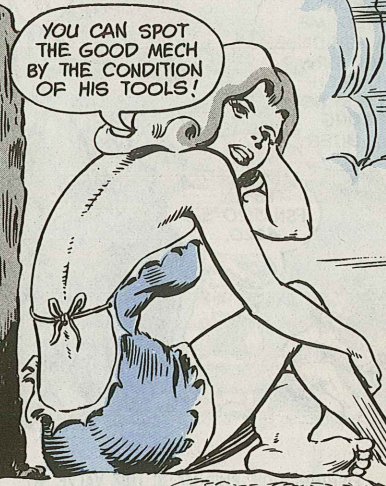
**FSN 5120-227-8074**

10-in lg

**FACE, HAMMER, INSERTED:** screw-in type, plastic, hard, 2-in dia, flat striking face



**FSN 5120-540-4273**

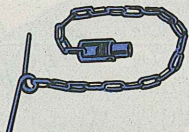


CONNIE 'N' BONNIE INVITED ME TO A FISH DINNER IF I'D BRING THE FISH-- BUT I'M NOT GETTING ANY BITES!

WHAT YOU NEED IS AN FSN 5120-516-4220.

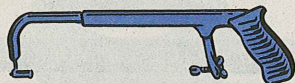


FISHING TOOL, PNEUMATIC TIRE VALVE: w/ valve core for tire inflation



FSN 5120-516-4220

FRAME, HAND HACKSAW: adj for 10 & 12-in blade, 3 to 3½-in deep throat, open pistol grp handl



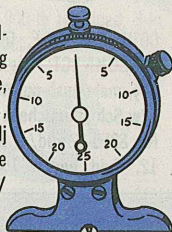
FSN 5110-289-9657

FUNNEL: plastic, 2-qt cap, w/rigid spout



FSN 7240-165-6924

GAGE, DEPTH, DIAL INDICATING: 0-0.125-in gaging rg, 2¼-in dia across face, 0-250-0 face mrkgs, 0.0005-in min grad, adj dial, ndle pt, w/o reverse move, w/jewel brngs; w/ case



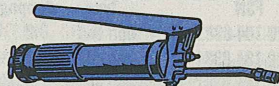
FSN 5210-710-4359

GAGE, DEPTH, TIRE TREAD: for insp of acct tires



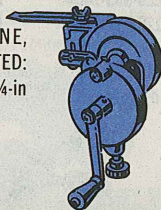
FSN 5210-357-5951

GREASE GUN, HAND: lever op, hand push primed, 14-oz cap, 6,000-psi max pres, w/one 6½-in lg rigid bent angle tube ext, hyd coup



FSN 4930-253-2478

GRINDING MACHINE, BENCH, HAND OPERATED: hv dty util, 6-in dia, 1¼-in thk mdm grit whl



FSN 3415-241-3116

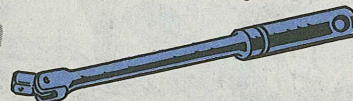
GUN, AIR BLOW: stght design, button op, w/ hang-up hook, remov tip, make thd coup, ¼-18NPT



FSN 4940-241-3075

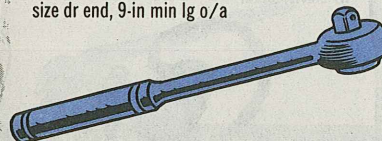


HANDLE, SOCKET WRENCH: hinged (flex) type, ½-in size dr end, 12 15/16-in lg o/a



FSN 5120-221-7958

HANDLE, SOCKET WRENCH: rtc type, rvrs, ½-in size dr end, 9-in min lg o/a



FSN 5120-230-6385

HOLDER, INSERTED HAMMER FACE: screw-in face, 2-in dia face, 2-lb nom wt, 2½-in nom lg head, 13-in nom lg hdle



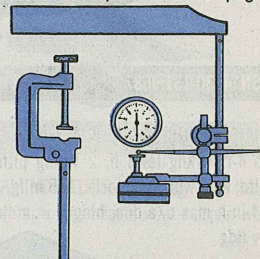
FSN 5120-903-8553

HOSE ASSEMBLY, NON-METALLIC: rub, 0.312-in id, 25-ft lg excl ftngs, ¼-18NPT male cop ftngs, 200 psi max op pres



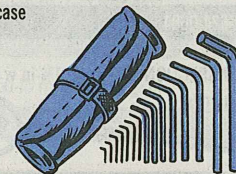
FSN 4720-356-8577

INDICATOR, DIAL: 0.001-in grad, 0-100 dial mrkng, 0.200-in rg, 1½-in dia o/a, adj dial sttng, contact pt on back, plgnr cont pt act, w/clamp attach & tool post holder w/upright spndle



FSN 5210-277-8840

KEY SET, SOCKET HEAD SCREW: hex; L-type hdle, 15 keys, 0.035 to ¾-in w across flats, w/case



FSN 5120-595-9245

KNIFE, PUTTY: flex 1¼-in w/blade



FSN 5120-221-1536

LIGHT, EXTENSION: 3-cond, w/100-ft lg cable excl term, 100 w/lamp accom, w/metal guard, hook, explsn-prf glove & phenolic hdl



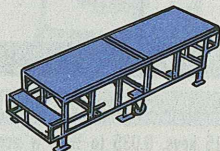
FSN 6230-268-9246

LUBRICATOR: bearing assy



FSN 4930-131-9687

MAINTENANCE PLATFORM: fxd type, 2 ft 3-in to 4-ft wrking level h, 2 wrking pltrms, mag pltd, w/2 whls w/o locks, 105 in lg, 32 $\frac{3}{4}$ -in w, 54-in h max o/a dim, hinged in mdle to inc h by fldg



FSN 1730-624-0684

MIRROR, INSPECTION: 2 $\frac{1}{2}$ -in lg, 1 $\frac{3}{4}$ -in w mirror, 16-in nom lg

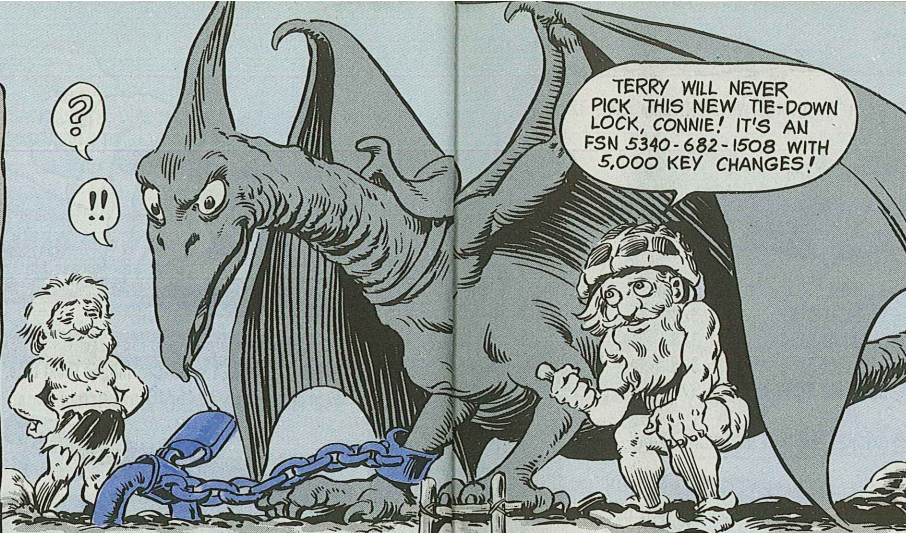


FSN 5120-618-6902

OIL GUN, PNEUMATIC: curved rigid neck, 32-oz cap



FSN 4930-222-2975

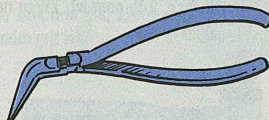


PADLOCK: pin tmblr type mech, 5,000 key chgs, 1 $\frac{1}{2}$ -in w, 1 $\frac{1}{4}$ -in h,  $\frac{3}{4}$ -in shackle clnc, w/clevis, chain



FSN 5340-682-1508

PLIERS: curved rd, ndle nose, 6-in nom size



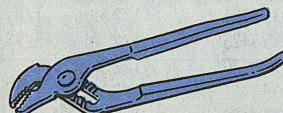
FSN 5120-239-8250

PLIERS, RETAINING RING: univ, int or ext, 93 to 200 Walde-Kohinoor rg size, 5100 to N5000 ring series



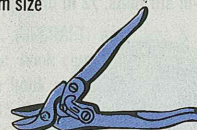
FSN 5120-088-9393

PLIERS, SLIP JOINT: angle nose, mul tong & grve, w/o insul hdl, 10-in nom size



FSN 5120-278-0352

PLIERS, SLIP JOINT: conduit, w/o insul hdl, 9 $\frac{1}{4}$ -in nom size



FSN 5120-595-9545

PLIERS, SLIP JOINT: stght, nose, comb w/cut, w/o insul hdl, 10-in nom size



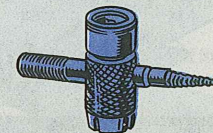
FSN 5120-223-7398

POLE, TENT: upright, telescoping, adj from 5 ft to 9 ft, 2-in dia at base, 2 $\frac{1}{2}$ -in lg spndle, O.D., w/o cleats, w/hdw



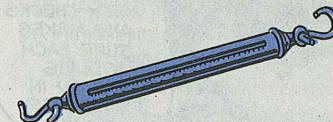
FSN 8340-188-8413

REPAIR TOOL, PNEUMATIC TIRE VALVE: for std tire valve



FSN 5120-308-3809

SCALE, DIAL INDICATING: weighing, hook load rve, sprng type, stght face, w/o cntprse wts



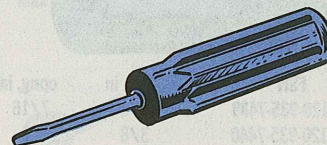
0 to 10-lb rg, 2-oz max grad

FSN 6670-240-5821

0 to 50-lb rg, 1-lb max grad

FSN 6670-254-4634

SCREWDRIVER: nonmag, 1 3/16-in lg blade, 3/16 by 3/64-in tip, 2 $\frac{3}{8}$ -in lg o/a



FSN 5120-473-6450

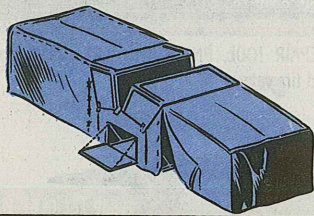


SCRIBER, MACHINIST'S: dbl pt, 1 stght & 1 reg bent pt, 8 to 9-in lg o/a



FSN 5120-221-7063

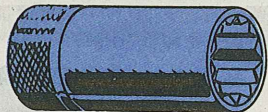
SHELTER, AIRMOBILE:



FSN 4920-900-8378

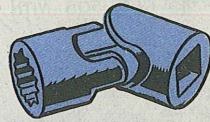
AFTER A JOB THE MASTER MECH CHECKS AND MAKES SURE EACH TOOL IS STASHED IN ITS PROPER PLACE. HE'S NEVER GUILTY OF FOD!

SOCKET, SOCKET WRENCH: 12-pt, deep style



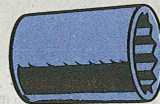
FSN	sq dr, in	opng, in
5120-935-7439	3/8	7/16
5120-935-7440	3/8	1/2
5120-935-7450	1/2	13/16
5120-935-7451	1/2	7/8

SOCKET, SOCKET WRENCH: univ joint, 12-pt



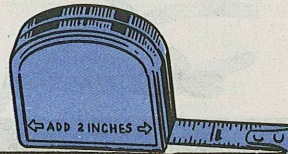
FSN	sq dr, in	opng, in
5120-142-5133	3/8	3/8
5120-142-5154	3/8	7/16
5120-142-5155	3/8	1/2
5120-142-5156	3/8	9/16

SOCKET, SOCKET WRENCH: 12-pt



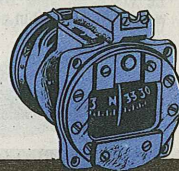
FSN	sq dr, in	opng, in
5120-935-7424	1/2	7/8
5120-935-7425	1/2	15/16
5120-935-7426	1/2	1
5120-935-7427	1/2	1 1/16
5120-935-7428	1/2	1 1/8
5120-935-7429	1/2	1 1/4

TAPE, MEASURING: S, 1/2-in w, grad in 1/32, 1/16 & 1-in std units, 72 in max lg, pull-push rewind



FSN 5210-287-3335

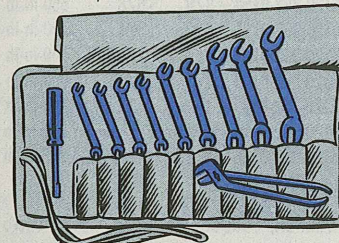
TESTER, MASTER COMPASS, SWINGING:



FSN 6605-129-6330

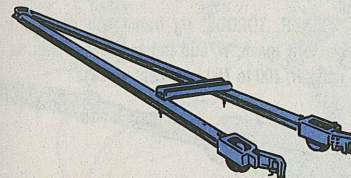


TOOL KIT, AUTOMOTIVE ELECTRICAL: c/o 9 dble head opn end midget wrenches, pliers, screwdriver, roll



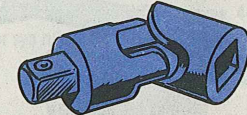
FSN 5180-422-8594

TOWBAR, AIRCRAFT: nose whl & main lndg gear type, hook conec w/lckg pins on towed end, eye hook conec on towing end, nonadj lg, 145 13/32-in lg o/a, 8.188 to 17 7/72-in spread at towed end, 2 6-in dia whls w/solid rub tires



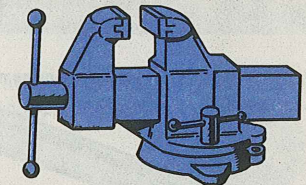
FSN 1730-967-9556

UNIVERSAL JOINT, SOCKET WRENCH: 1/2-in sq dr



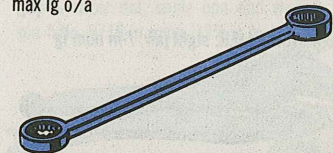
FSN 5120-269-7971

VICE, MACHINIST'S: swivel base, 4-in nom w jaw, 6-in nom opng, replabl jaw faces



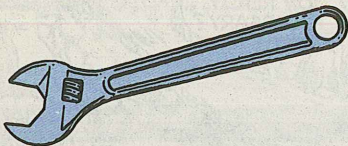
FSN 5120-293-2439

WRENCH, BOX: angular offset dble hd, 12-pt, 15/16 & 1-in opngs, 13 3/16-in min, 15 3/4-in max lg o/a



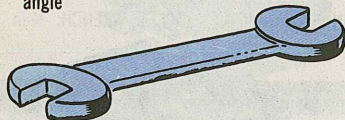
FSN 5120-204-2670

WRENCH, OPEN END, ADJUSTABLE: sgle hd



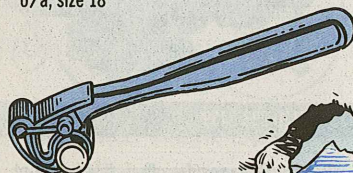
FSN	min jaw opng, in	lg, in	size
5120-264-3795	0 to 0.760	6	6
5120-449-8083	0 to 1.135	10	10
5120-423-6728	0 to 1.698	15	15

WRENCH, OPEN END, FIXED: dble hd, 15 deg angle



FSN	max hd		lg, in
	thk, in	jaw opngs, in	
5120-187-7131	13/32	7/8 & 15/16	9
5120-187-7133	1/2	1 & 1/4	10 3/4
5120-187-7134	1/2	1 1/16 & 1 1/4	11 3/4

WRENCH, PIPE: 1 to 5-in ips, 18-in nom lg o/a, size 18



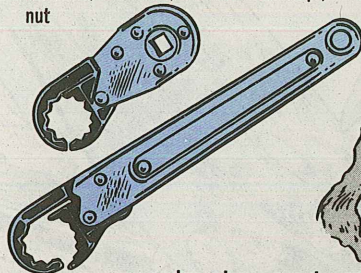
FSN 5120-262-8491

WRENCH, PLIER: stght jaw, 7-in nom lg



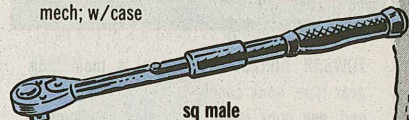
FSN 5120-277-4243

WRENCH, RATCHET, CROWFOOT: 12-pt, hex nut



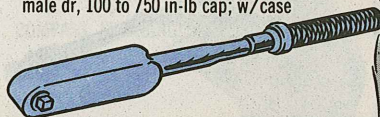
FSN	sq dr, in	size, in	torq cap
5120-962-0146	3/8	3/8	200-in-lb
5120-962-0147	3/8	7/16	250-in-lb
5120-962-0148	3/8	1/2	300-in-lb
5120-962-0149	3/8	9/16	400-in-lb
5120-962-0150	3/8	5/8	550-in-lb
5120-962-0151	3/8	3/4	750-in-lb
5120-962-0153	1/2	7/8	900-in-lb
5120-962-0154	1/2	15/16	950-in-lb
5120-962-8437	1/2	1	1,050-in-lb
5120-962-0155	1/2	1 1/8	1,200-in-lb
5120-962-0156	1/2	1 1/4	1,300-in-lb

WRENCH, TORQUE: rig frame end dr, micro adj torq mech, w/aud & slip clutch indctng mech; w/case



FSN	sq male dr, in	cap, in-lb
5120-542-4489	1/4	5 to 150
5120-270-3121	1/2	700 to 1,600

WRENCH, TORQUE: rig frame end dr, micro adj torq mech, w/aud indctng mech, 3/8-in sq male dr, 100 to 750-in-lb cap; w/case



FSN 5120-821-3441



**SUPPLEMENTAL TOOL SET**  
FSN 4920-159-8728  
For recip engine PM

WE CAN'T HOLD ON MUCH LONGER...  
HURRY CONNIE!  
AND NONE OF US LIKES SCRAMBLED EGGS FOR BREAKFAST!

IF ONLY I HAD A 12-INCH EXTENDER FOR THIS SOCKET WRENCH CROWFOOT ATTACHMENT, FSN 5120-317-8076, I COULD ATTACH IT, TICKLE HIM... AND SHOO HIM OFF!!

BATTERY FILLER, GRAVITY: jug type, 4-qt cap; nat or syn rub, w/1/4-in dia by 18-in lg hose



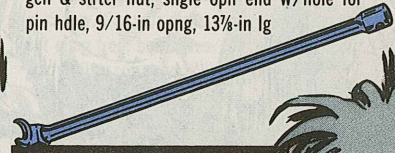
FSN 6140-635-3824

BATTERY FILLER, SYRINGE: rub bulb type, 6-oz cap; 10 3/4-in lg o/a



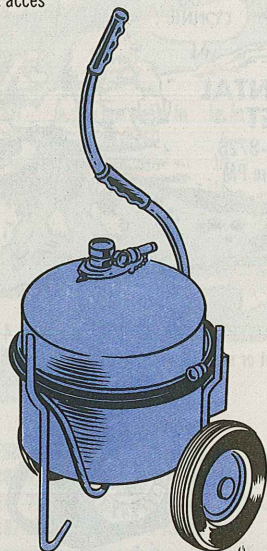
FSN 6140-643-4490

CROWFOOT ATTACHMENT, SOCKET WRENCH: gen & strtr nut, single opn end w/hole for pin hdl, 9/16-in opng, 13 3/8-in lg



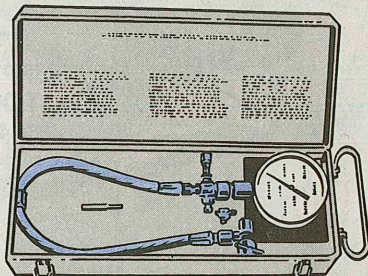
FSN 5120-317-8076

DISPENSER, HYDRAULIC FLUID, AIRCRAFT: 2-w/1, S tank, 5-gal cap; w/auto fluid shut-off inside tank, trig type dispng valve, w/hdle, hose & acces



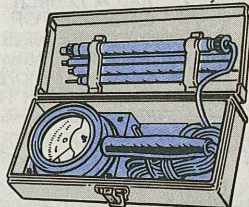
FSN 4920-245-1832

GAGE ASSEMBLY, AIR PRESSURE TESTER: screw-on chuck, single Bourdon tube, dir read dial, 0-3,000 psi, grad in 30-lb incr, 1/4-in NPT male conec, size 1



FSN 6685-248-6974

INDICATOR ASSEMBLY: cold cyl



FSN 6685-566-5202

20,000 YEARS FROM NOW, THESE ARE GONNA DRIVE SOME ARCHAEOLOGIST OUT OF HIS BIRD, CONNIE!



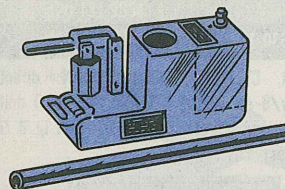
50

JACK IT UP ANOTHER 10 3/4 INCHES AND WE CAN ROLL 'ER OFF, LADS!



GOTCHA, CHIEF!

JACK, AIRCRAFT LANDING GEAR: ptbl, 5-ton cap, self-cont; 5 1/2-in min h, 9-in hyd lift, w/ screw ext; 17 1/2-in max ext h, w/o whl removal crane



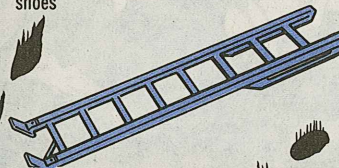
FSN 1730-540-2343

JACK, AIRCRAFT LANDING GEAR: ptbl, 10-ton cap, self-cont; 8 in max h, 13-in hyd lift, w/screw ext; 25-in max ext h, w/o whl removal crane



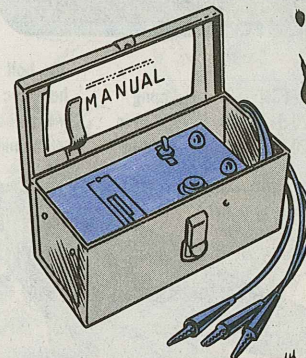
FSN 1730-203-4697

LADDER, AIRCRAFT MAINTENANCE: wood, 127-in nom lg, 9 rngs 13 1/2-in lg, w/safety shoes



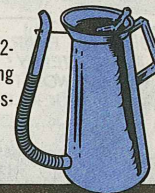
FSN 1730-253-9982

LIGHT, IGNITION TIMING: 3-lead type, neon bulb ele; less 4 1/2 v batt



FSN 4910-255-1449

MEASURE, LIQUID: S, 2-qt cap, w/flex type dispng spt opng from bot of vessel; w/flow con valve

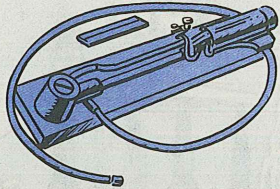


FSN 7240-255-8113

PS MORE

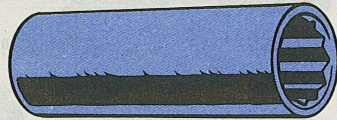
51

PUMP, BOOSTER: h pres, air op, 15 to 1 ratio, sup line air pres 1,500 psi



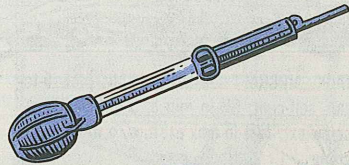
FSN 4320-390-9556

SOCKET, SOCKET WRENCH: deep style, 1/2-in sq dr, 12-pt



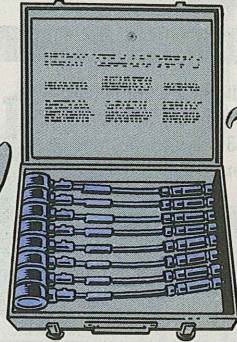
FSN	opng	dia, bolt hole clnc
5120-914-9120	13/16-in	3/4-in min
5120-914-9205	7/8-in	7/8-in min

TESTER, BATTERY ELECTROLYTE SOLUTION: 1 gls bbl, 1 float, 1.100 to 1.350 sp gr rg, w/ther; -65° to +165° F temp rg, w/integ corr chart



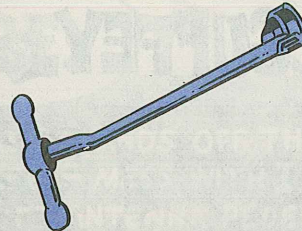
FSN 6630-171-5126

TESTER, CYLINDER COMPRESSION: direct type, w/9 ea 14MM & 18MM adptes, 9 dial indctng pres gages, 9 flex extns 8-in lg & 9 valve assy



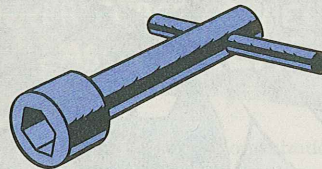
FSN 4910-086-6851

WRENCH, CONNECTOR NUT, SPARK PLUG: single opn end, 3/4-in opng, T-hdle, 4-in lg



FSN 5120-131-9554

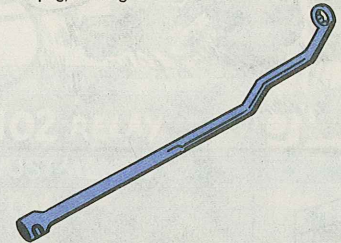
WRENCH, SOCKET: single socket T-type, fixed hdle, 3/8-in size



FSN  
5120-777-3436  
5120-777-3441

lg o/a  
4-in  
7 1/2-in

WRENCH, STARTER, ATTACHMENT NUT: sngle head, offset, 12-pt, w/hole for pin hdle, 0.566-in opng, 12-in lg



FSN 5120-317-8095

SORRY TO DELAY YOUR SCOUTING MISSION, CONNIE, BUT TH' TM SAYS TERRY'S 30 HOUR PM IS FIRST PRIORITY!

WOULDJA BELIEVE IT TAKES 30 GALLONS OH HIGH GRADE EUCALYPTUS OIL FOR EACH CHANGE?

BEAR UP, TERRY! IT WON'T TAKE MUCH LONGER!

WHEW!



# McGUFFEY to the FORE:

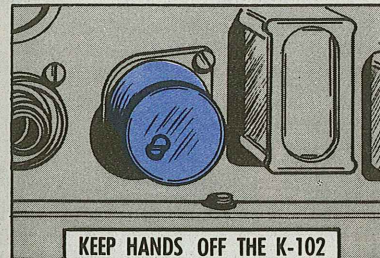
REPEAT,  
REPEAT,  
REPEAT!



- KEEP HANDS OFF THE K-102 RELAY
- NEVER MESS WITH IF ADJUSTMENTS
- LIFT ANTENNA PEDESTAL ON DIAGONAL CORNERS
- NEVER MESS WITH SLOPE ADJUSTMENT
- ON-STANDBY—WAIT 5 MINUTES
- NEVER FORCE CONNECTOR CABLES
- GO EASY ON KLYSTRON ADJUST NUT

ALWAYS  
HANDLE  
YOUR  
AN/TPS-33  
CARE-  
FULLY

If you are an operator or organizational repairman, never attempt to adjust the K-102 time delay relay in the CV-937 frequency converter-transmitter.



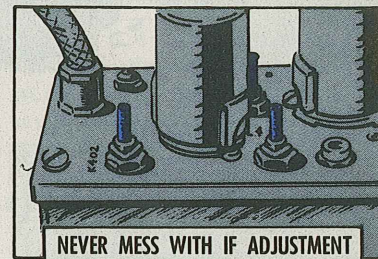
KEEP HANDS OFF THE K-102

Fiddling with the relay can give your magnetron filament its shot of high voltage before it's warmed up enough to take it. Like, the time-delay K-102 energizes 3½ minutes after you put the power to the radar set . . . to protect the magnetron. Which is a good reason for letting it alone.

Otherwise, you'll make big problems for

your support to try to solve.

One message with more repetition than a Rock song concerns unauthorized adjustments of the IF and AF strips in set components.



NEVER MESS WITH IF ADJUSTMENT

Support needs a signal generator and oscilloscope for even simple adjustments on those dudes . . . and nobody at using level has the equipment needed to adjust them.

Like, Dad, a screwdriver is just not it. You just make big problems for support.

Few soldiers in today's Army have seen a McGuffey Reader, but the formula it pushed was repetition.

And, so it is with the PS "AN/TPS-33 RADAR READER." The cautions listed here are basic to good PM and deserve a lot of repetition.

Here, for those apt pupils who need minimum reminders, is the word that'll get you straight "A's" on your PM report card.

TAKE SPECIAL CARE WHEN LIFTING THE ANTENNA AND ITS PEDESTAL OFF THE SET. ROUGH HANDLING ALMOST ALWAYS RESULTS IN DAMAGE.

The best way to lift the antenna pedestal from the set after unlatching it is to hold it at diagonal corners of the base.

Never lift it off by grabbing the rotating section and the feedhorn . . . or the reflector. You can cause all sorts of damage. Use a firm grip at the base.

LIFT PEDESTAL AT DIAGONAL CORNERS

The range SLOPE adjustment on the AM-2575A butterfly chassis is mighty tempting for an operator. Resist, because fiddling with it can throw your range off by hundreds of meters.



Let your support make the adjustment, if one is necessary.

Another old story: when you turn on the generator set, allow the equipment to warm up for 5 minutes before you flip the ON-STANDBY switch of the C-3342 control-indicator to ON (transmit).



That way you avoid burning out resistors, which in turn causes other parts to burn out.

And, as McGuffey would put it, never, never, never force a connector onto or into a receptacle. Forcing bends and breaks pins and contacts.

Normally, if a connector won't slip on, it's because you haven't lined up the key and keyway. Or, a pebble is caught in the

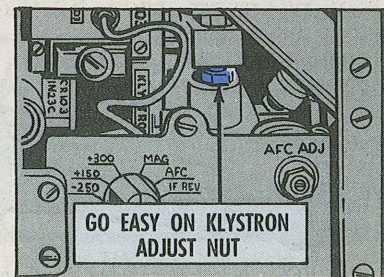
connector pins. Or, you're connecting the wrong cable to a receptacle.

THE BIG POINT: LOOK! TRY TO SEE WHY IT WON'T GO ON-- INSTEAD OF FORCING IT.



NEVER FORCE CONNECTOR CABLE

Finally, it is not one bit necessary to force the klystron adjust nut. When you get resistance, you're at the stops. If you turn it more, you'll bust the stops.



And that goes for a lot of other knobs on the set, too.

KEEPING TRACK OF YOUR...

# Nors-Norm Time



Equipment nonavailable time and NORS-NORM time are one and the same—if you're talking about totals.

But you can't report NORS-NORM time as a lump sum. You divide it into 4 parts (NORS Organizational and NORS Support, NORM Organizational and NORM Support) on DA Form 2406, cols i and j.

That's so all levels of command can tell at which maintenance level the equipment is Not Operationally Ready-Supply (NORS) and Not Operationally Ready-Maintenance (NORM) when checking the time it's nonavailable.

All equipment reportable on DA 2406 requires a NORS-NORM time breakdown.

Appendix C of TM 38-750 is your reportable list for DA 2406.

ALL THAT FIT THIS ECC AND GENERIC NOMENCLATURE ARE REPORTABLE—WHETHER LISTED OR NOT.

CB	D78907	Guided Missile System, TOW	COTM	AN/MTC-1 AN/MTC-1A	X X
JC		Central Office Telephone Manual			

ONLY MODELS LISTED ARE REPORTABLE

For ECC's B and C (guided missile and air defense systems) and JB (communication and electronics) you report "all corresponding makes and models" on DA 2406. Pay close attention to para C-2b, Appendix C of the TM.

STACK IT UP

Since NORS-NORM time is reported on DA 2406 by line number (ECC plus LIN)—not by individual equipment item—you need a way to accumulate the info at both Organizational and Support levels.

At Organizational level, this accumulation for the NORS-NORM columns is made direct on the DD Form 314 for each item.

You enter O in the box under the day of the month. To record a half day divide the O symbol. To separate NORS time from NORM time, put an s inside the O for the day (or half day) that maintenance was delayed because a repair part or component was not available.

No NORS-NORM time is recorded for the first half day (1-12 hours) that the item is in Organizational maintenance. Time over 12 but less than 24 hours is counted as a half day. Time in Organizational maintenance that falls in 2 consecutive days—even if under 12 hours each day (such as from 1700 one day to 0800 the next)—is counted as a half day. After the first day, each full (24-hr) day counts as 1 day.

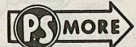
Full days in Organizational maintenance are counted as NORS or NORM, depending on whether supply or maintenance actions required most of the time. (The same applies to a half day on a date when only a half day is recorded.)

A day on which both Organizational and Support maintenance are performed is recorded as Support time—either NORS or NORM.

Even though you enter half days for individual equipment items on DD 314, you don't enter half days on DA 2406. First add all the NORS and NORM time (4 separate columns) for a particular DA 2406 line—then round each column total up to the next whole number.

ENTER TOTAL NORS/NORM TIME HERE FOR ALL ITEMS ON THIS PARTICULAR LINE. USE WHOLE NUMBERS ONLY.

For instance, DD 314's for items on a particular DA 2406 line might show Organizational NORS times of 1 + 2 + ½ + 2 which equals 5½. But it would be entered on DA 2406 as 6 days NORS (Organizational). Do the same for the Organizational NORM column.







# The WAY IT GOES

BRRR

HEY, GIRLS...  
COME IN AND THAW  
OUT BESIDES OUR  
NEW SPACE HEATER...

Dear Half-Mast,  
All signs point to confusion on where to put the spark arrester of the M1941 space heater. TM 10-4500-200-13 (Dec 69) says it goes at the top of the exhaust stack. Yet, the spark arrester decal places it between the pipe sections. Which is right?

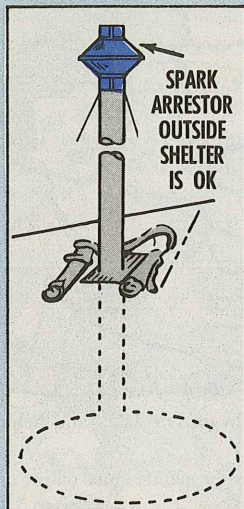
SGT S.T.P.

Dear Sergeant S. T. P.,

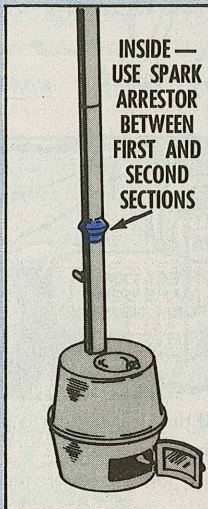
In a way they're both right . . . and wrong.

Actually, the spark arrester should go on one of two spots. On top of the stack is fine, long as it's outside of the shelter. If you're putting it between the pipe sections, make it between the first and second.

Either place will do for easy cleaning and to remove any danger of fire or injury.

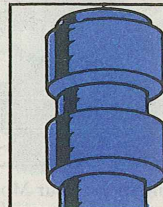


SPARK ARRESTOR OUTSIDE SHELTER IS OK

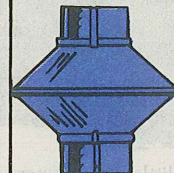


INSIDE — USE SPARK ARRESTOR BETWEEN FIRST AND SECOND SECTIONS

'Course, y' know the spark arrester should always be used with solid fuels, like wood or coal. The flue cap goes with liquid fuels.



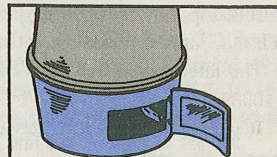
USE FLUE CAP WITH LIQUID FUELS



USE SPARK ARRESTOR WITH SOLID FUELS

While we're at it, here's a couple of other tips on this heater.

If you're ordering a new space heater, don't let SB 700-20 (Jun 73) throw you off track. The note there, "W/OB Ass," really means it's with an oil burner assembly. It doesn't mean it's without a base assembly.



BASE ASSEMBLY IS INCLUDED

Now, remember, the spark arrester, the tent shield and the elbow don't come with a new space heater. You gotta order 'em separately.

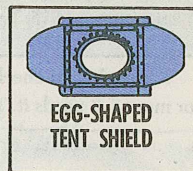
It's FSN 4520-153-4616 for the spark arrester. It's FSN 5340-153-4615 for the shield with the "egg" hole and it's FSN 5340-153-4614 for the one with the round hole. FSN 4520-272-8659 gets you the elbow.

HOW DOES THE REQUEST GO IN?

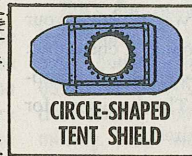
IT SEZ HERE YOU GOTTA GO AFTER THE PARTS ONE BY ONE.



SPARK ARRESTOR



EGG-SHAPED TENT SHIELD



CIRCLE-SHAPED TENT SHIELD



ELBOW

With these points cleared up you should have it made . . . a good fire, that is.

Half-Mast

# THE MAGIC ELEMENT

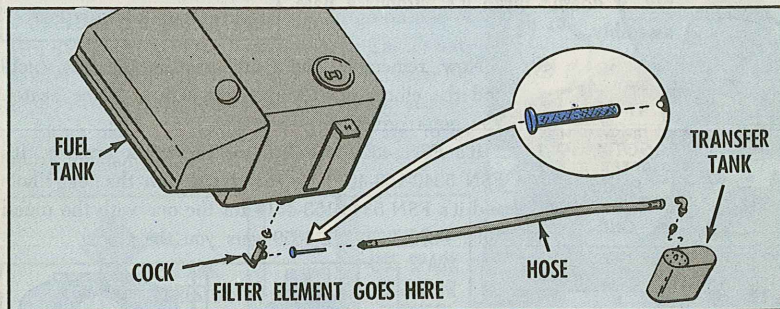


There's a little filter element that'll do wonders for your Model 2380 crane's transfer tank.

It'll stop dirt from getting into it. This'll keep the float valve from sticking. In turn, it'll cut out the breakdowns there and lots of manhours to repair them.

The filter screen that does this magic comes with FSN 2910-001-3473, P/N 21995 (10989).

It goes in the fuel line between the fuel tank and the transfer tank. Put it into the hose at the cock.



Remember to check it and service it too. Take it off, clean it and replace it monthly or more if it needs it. This'll do the trick that never fails.

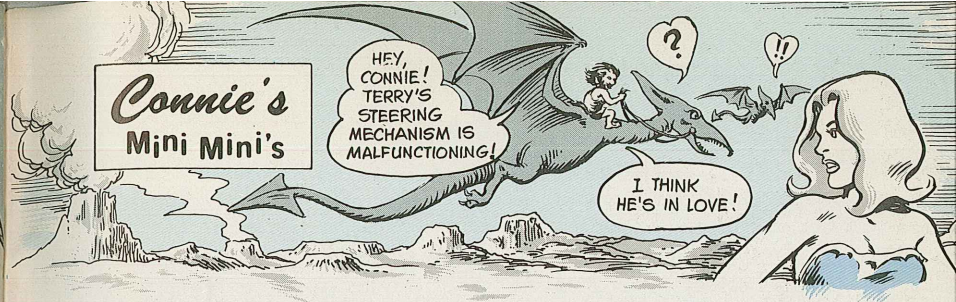
## COOL IT, MAN

Let Connie remind you to keep your small Mil Std engines cool as a cucumber. Put her decals on all your small equipment, like generators. They're yours for the asking from this address:

U S Army Troop Support Command  
ATTN: AMSTS-MGE  
4300 Goodfellow Blvd  
St. Louis, MO 63120



## Connie's Mini Mini's



## By The Model, Please!

Servocylinders for B and C Model Chinooks are becoming scarce as hen's teeth, bird mechs. Seems that some guys with A Models are requesting the servo-cylinders that can also be used on the B and C Models. Help stop the shortage by using FSN 1650-167-8190 or 1650-992-5827 when ordering for your CH-47A.

## Year Of Action

When you've got a DA Form 2408-9 on equipment that's been rebuilt or overhauled, the block 11 entry will show the last 2 digits of the year of rebuild or overhaul—not the year of manufacture. For an item rebuilt or overhauled for the second time in 1973, the entry will be 2R73 for rebuild or 2H73 for overhaul.

## Mac Is Right

You go by the Maintenance Allocation Chart in TM 9-2320-209-20 (Apr 65) when it comes to transfer seals on your 2 1/2-ton truck. It's a job for your direct support since it takes tools you don't have. So pay no mind to that "O" for Organizational Maintenance in TM 9-2320-209-20P (Oct 72) for the seal.

☆U.S. GOVERNMENT PRINTING OFFICE: 1974 - 758-443/7

## Replacement Inks

Need stamp pad inks to replace the obsolete items listed in SB 9-185 (Nov 72) for recording MWO's? If so, try FSN 7510-161-4237 for Ink, stamp pad, black and FSN 7510-161-4240 for Ink, stamp pad, red. Both are on the AMDF and will soon be put in the SB.

## Got A Gama Goat?

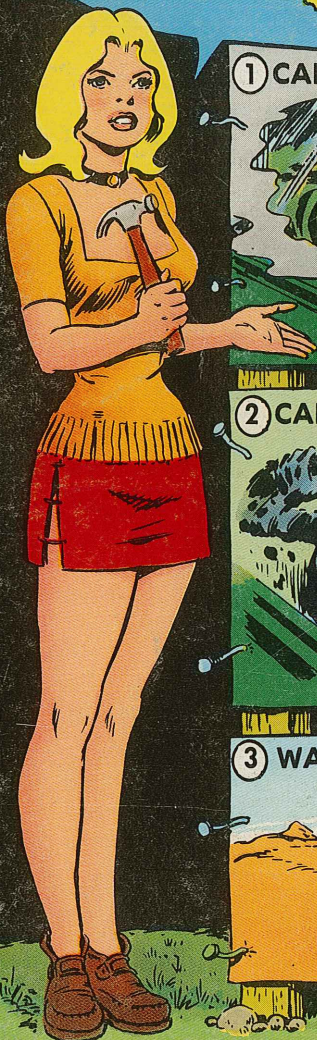
You'd better get your hands on TB 750-981-2 (Apr 73) if you've got any TM-242-Series 1 1/4-ton vehicles. There's a lot of good poop in this TB, like—repairing the cold start air pump—adjusting windshield wipers and rewiring the wiper motor circuit—repositioning the slave cable receptacle—installing the carrier canvas roll-up feature—installing the accelerator rod.

## Hot Stuff!

This's for anybody who's got a Truck, Maintenance, IHC Model 1110 (131-in wheel base) bought under Contract No. GS-00S-08938 or GS-00S-13738. The rear engine cross-member bolts may be loose—or even missing. Check 'em out. Get your truck fixed under the warranty, if it's still good, or have your own mechanic take care of it.

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

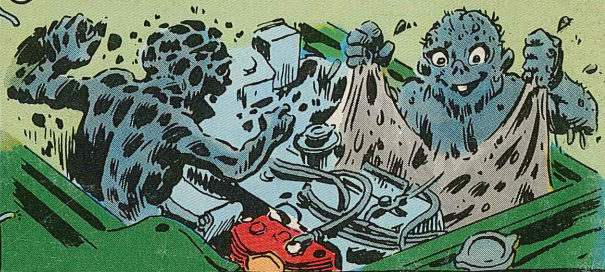
# IDLING ENGINES BREED MISCHIEF!



① CARBON MONOXIDE—IT CAN KILL YOU!



② CARBON AND CRUD—FOUL ENGINES!



③ WASTE OF FUEL!

