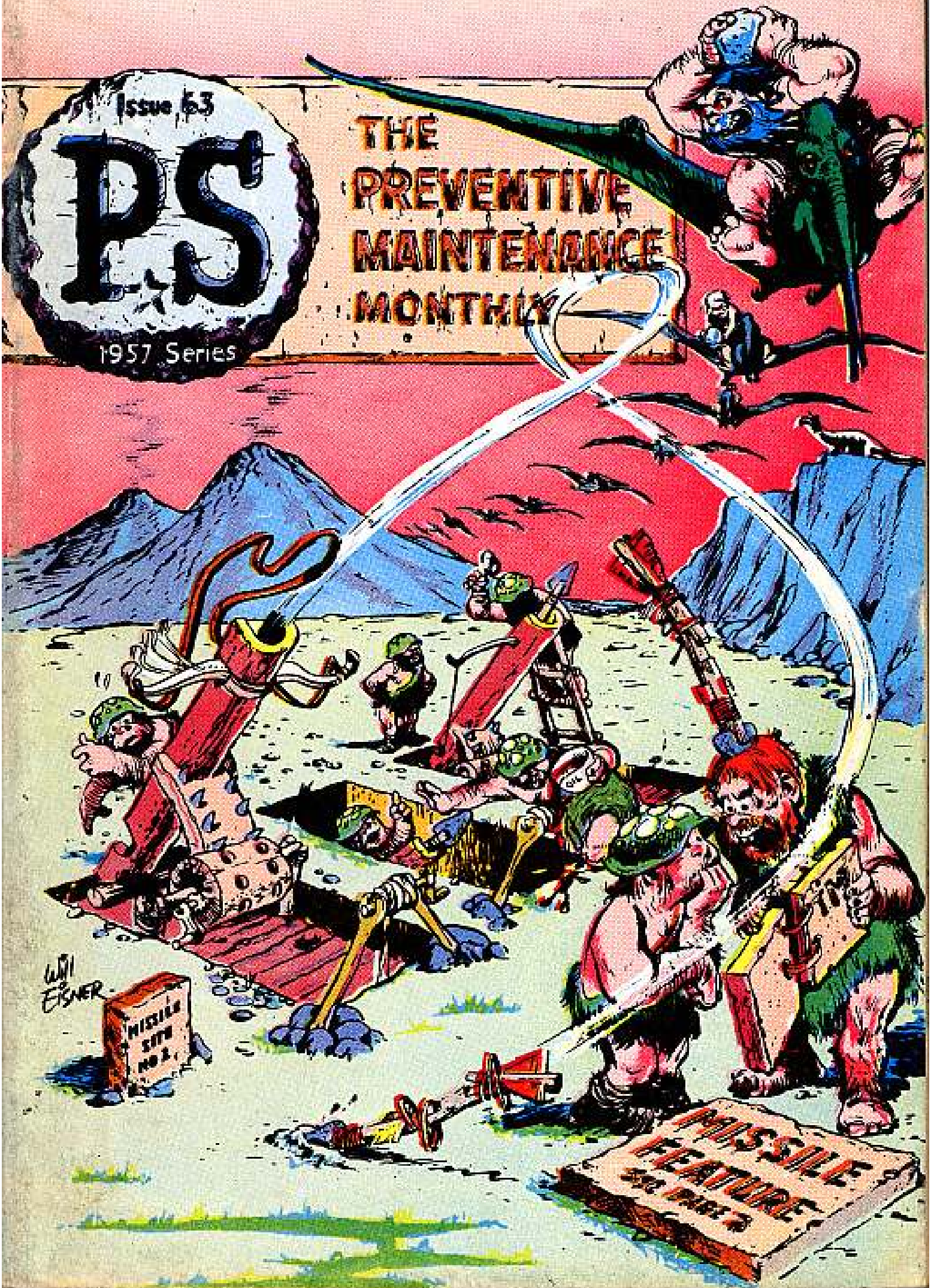
Issue 63
P.S
1957 Series
THE PREVENTIVE MAINTENANCE MONTHLY
WILL EISNER
MISSILE SITE NO. 1
MISSILE FEATURE

The
Cornerstone:

PREVENTIVE MAINTENANCE

When you want to know all about the kinds of maintenance your equipment gets, just scan your eagle eye over... AR 750-1, which says:

11. Preventive maintenance. Preventive maintenance is the systematic care, servicing, and inspection of equipment for the purpose of maintaining it in serviceable condition and detecting and correcting incipient failures. Preventive maintenance is the responsibility of commanders at all echelons. It is the cornerstone of efficient and economical maintenance.

and ...

12. Organizational maintenance. Organizational maintenance is that maintenance authorized for, performed by, and the responsibility of, a using organization on its own equipment. This maintenance normally consists of inspecting, cleaning, servicing, preserving, lubricating, and adjusting as required and also may consist of minor parts replacement not requiring highly technical skills.

"And, if you want to know more, take a squint at **13. Field maintenance** which is done by your support unit (Ordnance, Engineers, Chemical and Quartermaster)... and at **14. Depot maintenance** which is done further back.

Know these and you'll understand better how you fit in the overall picture of maintenance and why your job is so important ...because Preventive Maintenance is—like the AR up there says—"the Cornerstone of efficient and economical maintenance."

PS THE PREVENTIVE MAINTENANCE MONTHLY

Issue No. 63 1957 Series

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IN THIS ISSUE

FEATURE ARTICLES

DEPARTMENTS

PS wants your ideas and contributions, and is glad to answer your questions. Just write to: **Sgt Half-Mast, PS, Raritan Arsenal, Metuchen, New Jersey.** Names and addresses are kept in confidence.

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MISSILE BLASTS

When the man says "Fire," a Nike-Ajax outfit is gonna find out right quick whether it's been on the maintenance ball.

But that's not the time to learn what might be the arful truth . . . 'cause there's nothing worse than being haunted by the ghost of maintenance that was never performed.

The answer is to keep using your requisitions, tools and "bottles of elbow grease" so's your equipment will be in shape now, a minute from now, a month from now, a year from now.

IT'S ALL IN KNOWING ABOUT THINGS LIKE . . .

WHY FLIRT WITH DIRT?

Contamination is a dirty word.

And that kind of word just doesn't go with guys who work around the Nike-Ajax missile hydraulic system.

The hydraulic system is closed . . . so if the hydraulic oil (MIL-0-5606) becomes dirty, you know somebody goofed.

Maybe you think it takes a shovelful of sand dumped into a 55-gal drum of oil to make the stuff dirty. That sure will do it, but so will specks of dust.

You know how dust will grind scratches into a lens. Same thing with dust in a missile's hydraulic system. A lotta parts fit close together and some have surfaces that look like a mirror. When they're scratched, it's like a horse being scratched from a race. No run.

The thing that's giving mucho hydraulic systems a hard time is the missile probe—or maybe you call it the missile plug. If you don't keep the protective sleeve on the probe when you're not using it, you're holding open house for dust.

Wipe the probe and areas around all filler and pour caps with a clean, lint-free cloth before you do any filling. Blow off any dirt or dust that's left with an air hose (but don't use that powerful capping compressor for this).

Use lots of elbow grease in cleaning all equipment you use to get the oil into the missile.

And run the hydraulic oil through the rail lines for a coupla minutes before removing the protective sleeve and putting the probe into the missile. This'll flush the ports in the probe and mean dirt and dust will be trapped in the filter.

ON THE LIST, DISTRIBUTION

You Nike-Ajax missilemen rate three LO's, altho you're not on the distribution list for 'em.

Those LO's are LO 9-5018, LO 9-5020-1 and LO 9-5020-2.

Requisition 'em like you would any other LO's . . . and if you get word you can't have 'em because you're not on the distribution list, just say AR 310-1, para 41, is your authority on a need-to-know basis.

MISSILE BLASTS

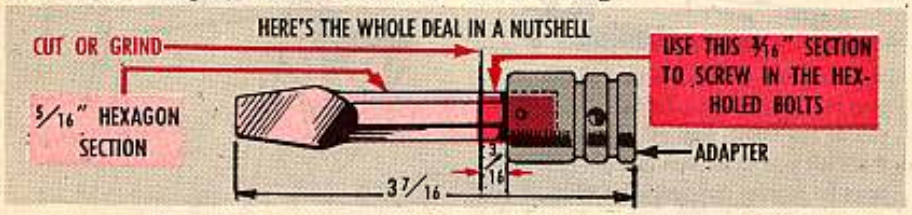
FIX YOUR WRENCHES

'Tis said trouble comes in threes. And three is the number of tool problems missilemen are having because of design changes to the Nike-Ajax missile.

For one thing . . . maybe you've been building up a full head of steam while trying to remove or install the missile guidance section against the center warhead section. It's just plain tough—and rough on the attaching bolts—when you use an Allen wrench.

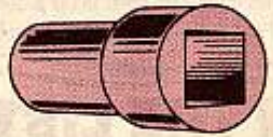
There's a way to beat the problem, tho, and it's in your Nike missile assembly area tool set. You know that screwdriver bit FSN 5120-288-6547 with the ⅜-in square-drive adapter? You've got three of 'em.

Well . . . push the bit into the adapter as far as she'll go. Then cut the bit shank clear through at a point 3/16-in from the adapter opening. The piece that's still in the adapter should be about 9/16-in long.



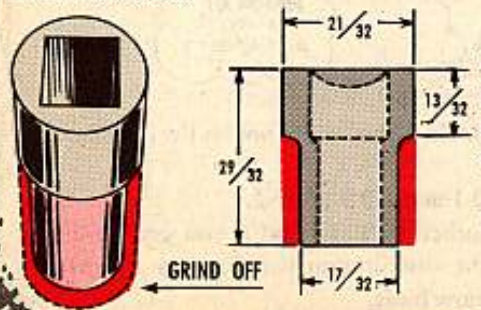
Get yourself a ⅜-in square-drive extension bar and a ⅜-in square-drive universal joint and you're all set to work on those bolts.

Another job that can be rough is trying to remove, install and torque the main fin forward attaching bolts on the 8000-series missiles.



If you have a tapered shank, ⅜-in opening socket wrench, you're in good shape.

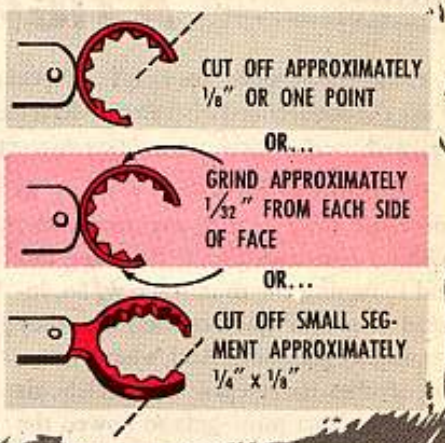
Then again . . . your wrench may have a straight shank and you just can't put this wrench to work on the bolts. You get both wrenches under the same FSN 5120-227-6702.



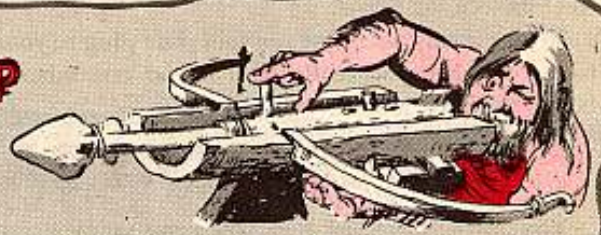
If the straight shank job turns up on a requisition, try grinding away a little of the outer edge of the wrench. Not too much grind, tho . . . it'll weaken the wrench.

The third thing that's giving guys a bad time is the ¼-in hydraulic return line connecting nut—the one in the rudder and elevator control section—under tunnel 2.

The tool you're supposed to use on the nut is the 11/16-in double hex, "B" nut, torque wrench, FSN 5120-302-1691. The going is rough with the wrench unless—unless you do some fixing. The three pictures show three different ways you can fix the wrench.

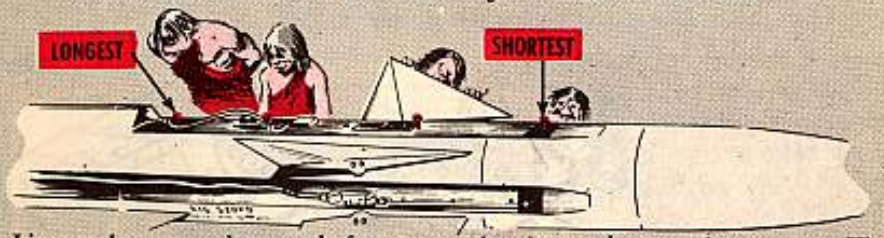


SIZE 'EM UP



You wanna remember the long and short of the tunnel studs when you adjust the stud and valve assembly to aline forward tunnel No. 1 on the guidance section.

There're four different stud lengths, and when you stand 'em at attention, they go from the shortest at the forward end to the longest at the aft end of the tunnel.



Line up the screws that way before you replace 'em and you can't go wrong. The stud'll drop below the Schrader fitting cap and dent the tunnel if you try to put a long stud in a short hole.

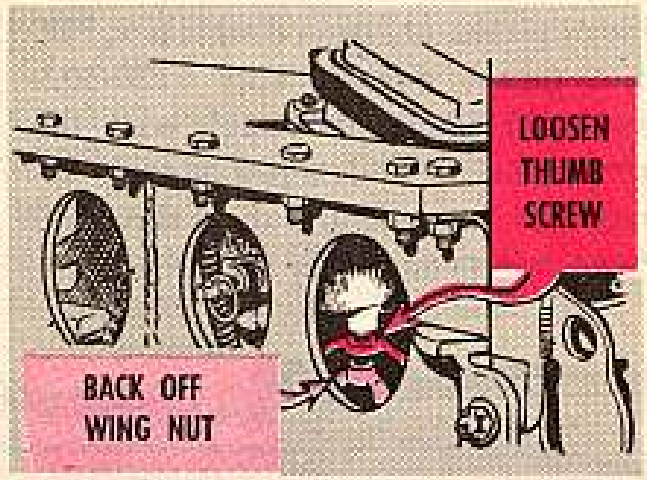
And don't tighten the stud like they hafta hold till the 30th century. You'll damage the head of the screw if you do, and you may never get it out again.

MISSILE BLASTS

A TIGHT FIT

Good connections are helpful, 'specially when you get 'em on your missile. Take the connection between the electrical ground power plug on the transporter rail and the electrical ground power receptacle on the missile as an example.

Some Joes've been known to try to force the plug against the receptacle, without first backing off the wing nut and loosening the thumb screw. So, instead of makin' good connections, they get mighty poor ones. And, what's worse lots of times, the receptacle—which holds all the contact pins—gets so bowed the whole wiring harness has to be sent back to Ordnance for repair.



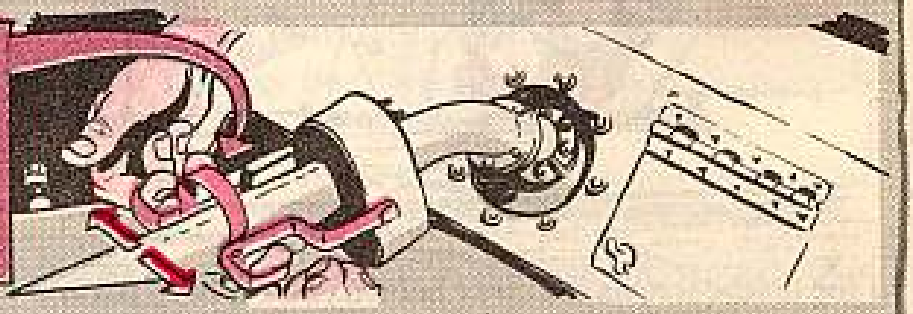
So take it easy next time you join your plug to your receptacle. Save that brute force for when you really need it and remember to loosen the thumb screws before you start joinin'.

SCRATCHY SADDLE

You gotta have know-how when you saddle up your horse, else that stompin' critter's apt to kick you over the fence.

Same thing's true when you remove the test saddle from the antenna horn on the guidance section of your missile. You know the saddle's got a couple of spring clamps which fasten on the horn so's you can transmit and receive RF energy from the guidance section for test purposes.

When you remove the saddle, take time to spread the clamps with your fingers and ease the saddle off the horn, 'stead of just yanking it off.



When you jerk it, you not only scratch the paint, you also punch small holes in the horn. And the least little dent on that horn can mean the difference between right and wrong when the missile's flyin' high.

QUIT HORNING IN

Next time you go to can your Nike-Ajax missile for shipping, it'd pay to do a little maintenance on the antenna horn before you pressurize the unit.

All you need to do is remove a port hole plug on the guidance unit of the missile and tape a piece of QM batiste cloth, FSN 8305-206-5461, over the port hole.

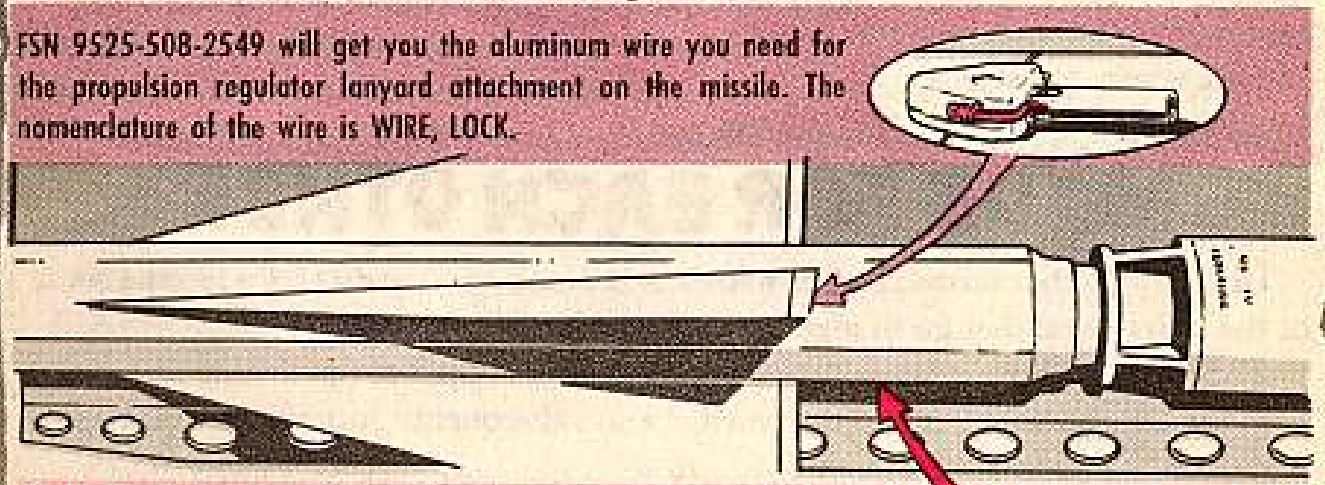
Then when you put the needed 5-PSI in the container, the cloth'll keep the pressure inside the guidance package and outside the missile on an even keel. Otherwise, the pressure outside the missile is liable to cause inward popping of the antenna windows.

You'll find the latest missiles are changed to avoid broken antenna windows, but 'till you get 'em, you gotta take care of the old ones.

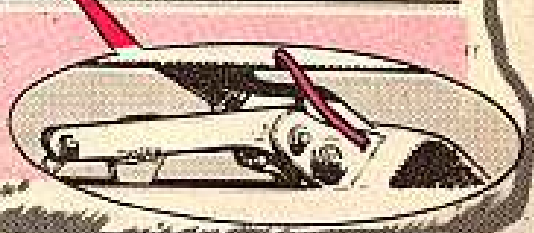
NO WIRE WORRIES

You can save yourself some scrounging for a coupla pieces of wire used on the missile if you'll keep these facts and figures in mind.

FSN 9525-508-2549 will get you the aluminum wire you need for the propulsion regulator lanyard attachment on the missile. The nomenclature of the wire is WIRE, LOCK.



The hydraulic bayonet safety wire on the missile is a different story. It doesn't have a stock number of nomenclature. But, you can get it on local purchase by asking for carbon steel wire that's 20 thousandths of an inch in diameter.



OUT WENT THE DESICCANT

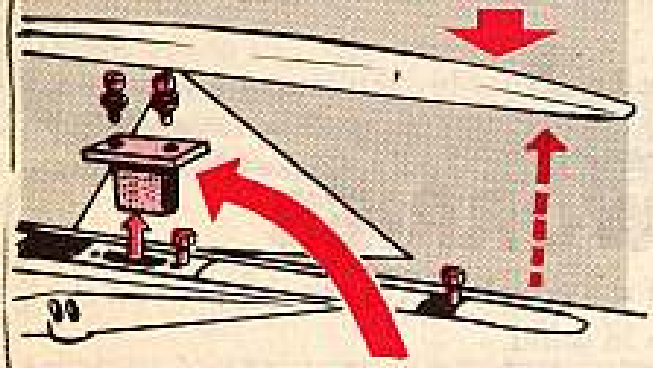
You Nike-Ajax missilemen don't have to fuss around any more with the desiccator assembly in the rudder and elevator control section of the missile.

Since the rudder and elevator control section wasn't made to be moisture proof, the desiccator (FSN 1420-217-2215) has been used to stop any harm that high moisture content may cause. Of course, having a desiccator means replacing the desiccant now and again. And guys in damp areas find those "now and agains" coming around a lot.

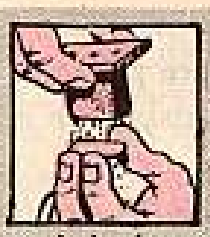
The word now is that the desiccant is no longer needed in the rudder and elevator control section, because experience has shown that moisture will do no dirty work there. So . . . out go the desiccant crystals.

DO IT THIS AWAY:

1. Remove tunnel No. 1 from the missile.

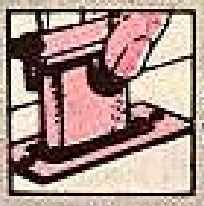


2. Remove the desiccator assembly from the rudder and elevator control section.

3. 

Open the bottom of the desiccator assembly and take out the desiccant.

Wash the desiccator assembly in volatile mineral spirits . . . let it dry real good . . .



and then replace it and the gasket in the rudder and elevator control section. Attach tunnel No. 1.

MADE FOR EACH OTHER

Didja know that missile bodies with serial numbers above 7150 will take some of the spare parts that go in missiles below that number?

They sure will providing—providing now—the supply manual doesn't say the part has only one use . . . and the words "and subsequent" follow the serial number—like "4193 and subsequent."

Y002-8022412	8022412	BOLT, INTERNAL WRENCHING: hex-hd, S, cd-pltd, 5/16-18UNC-3 x 1½ (attaches guidance section to center warhead section) (ser No. 4193 and subsequent).	8	10	1

Use Ord 7 SNL Y-2 (Nov 56) to order the parts . . . and be sure to mention on the requisition the serial number of the missile which'll get the spare parts.

Your Jeep's a Jewel... So Keep It Sparkling

BE YOUR OWN INSPECTOR

That ¼-ton M38 or M38A1 Jeep you're driving is one of the most useful vehicles you can get your hands on. It'll take you and bring you—and all without any trouble.

Here's a guide you drivers can use when checking your Jeep over. There's a few points you gotta remember when using this guide. Catch—

O'course, you may find some deficiencies that are a lot more serious than others. They're the ones that make it unsafe and downright dangerous to operate a vehicle. For example, a tire that's cut to the fabric is a lot more serious than a tire with a shallow cut, and should be changed before operating a vehicle.

The big issue is this: Major deficiencies must be fixed before taking your vehicle on the road and in the guide on these pages, they're shown in RED TYPE.

On the other deficiencies, you must use your head. If you find a deficiency that's not a major one, but **could** turn into a major one—get it fixed as soon as you can. But, if you find a small dent in your fender—and that dent'll do no harm—don't keep going back to your mechanic to ask him to fix it. That's a waste of time and money.

In other words, when you come across one of these piddling little things—fix it up, if you can. If not, make a note of when you reported it, and keep the note in your vehicle's map compartment, so you won't get gigged again and again for it. Your inspector'll know that you recognize the deficiency and intend to get it fixed when your vehicle goes to Ordnance or for rebuild. As long as a deficiency doesn't hurt the operation of your vehicle, doesn't make your vehicle unsafe to run and doesn't cut down on its performance, it can be fixed up when time and circumstances allow.

Never replace any part just for the sake of replacing it—for spit-and-polish purposes. By all means, if a cable, say, is really worn through and sparks are jumpin' like the famous frog, get a new one. But, if the cable looks like it has plenty more hours of life in it, let it be —you're saving your Uncle money.

It'd be a good idea to make your checks at your outfit's motor pool, so if you need any tools, you can get 'em from your unit's second echelon tool kit.

This guide lists all the MWO's that have been put out so far on the Jeep—what they apply to, the dates they came out, who's supposed to do the job and whether it's a normal or urgent order. MWO's marked G758 apply to the M38A1 Jeep; those marked G740 apply to the M38 Jeep; and the ones marked G1 go for both Jeeps.

OUTSIDE OF VEHICLE (FRONT)

HOOD—Hinges **missing, broken,** loose (five mounting bolts on hinges must be tight), rusted, not lubricated. Fasteners **missing, broken,** loose, not lubricated (should be a light coat of oil). Hood loose, squeaks when opened, out of alinement. Two wooden hood bumpers on M38 only missing, loose.

HEAD LIGHTS—**Not working.** Lenses **cracked,** clouded, contain water, obstructed with paint.

BLACKOUT LIGHTS—**Not working.** Lenses **cracked,** clouded, contain water, obstructed with paint. Shield missing, not in place. Rubber (BO) pad missing.

LIFTING SHACKLES—Missing, bent, stuck.

BUMPER—Bent, loose, cracked.

FRAME—**Bent, cracked,** side rails and cross members loose.

NATIONAL AND UNIT MARKINGS—Missing, incorrect, not legible. (See AR 746-2300-1 for all the correct poop on this.)

BATTERY BOX—Screws or clamps missing, rusted, damaged. Corrosion on battery box. (On M38, one battery's located on right side under hood, and other battery is located on right side in cowl. On M38A1, both batteries are located in cowl.)

WINDSHIELD WIPERS—**Blades missing, arms broken,** dead or hardened rubber. (With wiper on, it **shouldn't** hit the weather stripping on each side of the windshield.)

WINDSHIELD—**Cracked on driver's side, clouded enough to block driver's vision.** Weather stripping around windshield cracked, torn, coming loose.

MIRRORS—**Missing, broken, clouded enough to block rear-view vision.** Can't be adjusted for movement in every direction.

BODY BOLTS AND MOUNTINGS—Missing, loose, broken.

SEATS—Cushions torn, have holes.

FILLER CAP—**Gas leaking** (check gasket). Strainer in filler neck missing, rusted, has holes. Cap not properly positioned (should be backed off one notch from full seat). Gas level too high (must be at least 2 inches below top of tank). Dirt and junk around filler hole. Chain that holds cap missing or rusted.

GENERAL VEHICLE APPEARANCE—Dirty, rust spots, body dents. Split seams (welds must be intact).

*MWO ORD G740-W7 (15 July 53)—"Installation of Front Hub Oil Seals." By Ordnance. Normal.

GAS TANK—**Tank leaking. Fuel filter gasket missing, damaged.** Tank loose. Top of tank dirty, rusted, needs paint. Tank mounting strap rusted through, loose. Screws holding fuel level sending unit and fuel filter assembly missing or rusted. Fuel lines clips missing.

FUEL LEVEL SENDING UNIT—**Gas line crushed.** Unit connector crushed. Wire broken.

OUTSIDE OF VEHICLE (REAR)

CANVAS—Missing, torn.

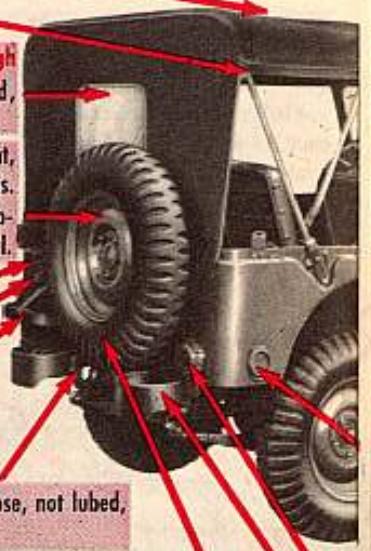
CANVAS SUPPORTS—Missing, bent, rusted.

TRAILER RECEPTACLE—Corroded, threads stripped, outer ring damaged. Lugs broken. Cap missing or sprung. Polarizing bracket missing, bent.

*MWO ORD G1-W35 (28 Feb 57)—"Installation of Polarizing Bracket on Intervehicular Cable Receptacle." By organizational mechanic. Normal.

REAR WINDOW—Fogged enough to hamper vision. Ripped, broken.

SPARE TIRE CARRIER—Loose, bent, rusted, dented, broken spot welds. *MWO ORD G1-W76 Reinforce Support Bracket. By Ordnance. Normal.



*MWO ORD G740-W6 (14 May 53)—"Reinforcement of Body Panels." By Ordnance. Normal.

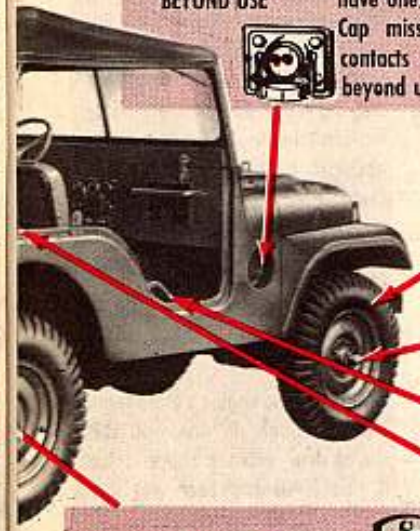
GASOLINE CAN BRACKET—Missing, loose, bent, dirty. Tie-down strap missing, torn.

PINTLE—Missing, loose, not lubed, can't be opened.

SPARE TIRE—Missing, incorrect pressure (correct pressure—25 PSI), not secured, less than three securing bolts.

CONTACTS BURNED BEYOND USE

SLAVE RECEPTACLE (If you have one)—Cracked, broken. Cap missing, cross threaded, contacts badly burned and beyond use.



TIRES—Tread worn smooth (time for recapping); cut to fabric; uneven wear. Incorrect tire pressure (correct pressure—highway and cross country, 25 PSI; mud, sand and snow, 10 PSI. AR 385-55 sez you can have a 10 per cent tolerance either way on this pressure). Valves bent. Valve caps missing.

WHEELS—Lube or brake fluid leaking (NOT A SEEP).
STUDS—Broken. Bent.
RIM AND AXLE FLANGE NUTS—Missing, loose. Rims dented.

*MWO ORD G740-W10 (6 Oct 55)—"Securing Front Passenger Seat Pivot Pin to Seat Hinge Pivot." To be done by Ordnance. Normal modification.
*MWO ORD G1-W50 (4 Oct 56)—"Anchoring Front Passenger Seat." By Ordnance. Normal.

REFLECTORS—Missing, cracked, broken, dirty, discolored. Red backing peeled beyond 1/2 inch.

REAR LIGHTS—Not working. Lenses cracked, broken, discolored.

BUMPERETTES—Bent, loose, broken.

TOOL COMPARTMENT—Rusted, dirty. Trash or unnecessary parts. Weather stripping around lid cracked, torn. Tools missing, dirty, broken.
MISSING TOOLS—You should have these tools (the tools for the M38 and M38A1 are the same, except the M38 is authorized an extra screwdriver):
BAG, tool, empty, 20 1/4x18 1/4 in to top of flap, open (FSN 5140-772-4142).
HANDLE, JACK: collapsible, 36 1/4 in lg (FSN 5120-708-3364).
JACK, SCREW, HAND: geared, upright, 1 1/2 ton cap, 7 1/4 in. closed h, 17 1/4 in extended h, w/screw extn (FSN 5120-708-3365).
PLIERS, SLIP JOINT: stgth nose, comb, w/cutter, 8 in lg (FSN 5120-223-7397).
SCREWDRIVER, FLAT TIP: mtl w/wood inserts hdl, flared tip, 3/8 in w, 6 in lg blade (FSN 5120-227-7349).
SCREWDRIVER, FLAT TIP: wood hdl, flared tip, 1/4 in w, 4 in lg blade (FSN 5120-277-9491) (authorized for the M38 only).
WRENCH, OPEN END, ADJUSTABLE: sgle end, 15/16 in jaw opng, 8 in lg (FSN 5120-240-5328).
WRENCH, PLUG, STRAIGHT BAR: sq 1/2 in plug, 2 1/2 in lg (FSN 5120-708-3302).
WRENCH, WHEEL STUD NUT: sgle-hd, offset socket, hex, 3/4 in opng, 9 1/2 in lg (FSN 5120-422-8603).

*SEE YOUR FILE JACKET (DA FORM 478)

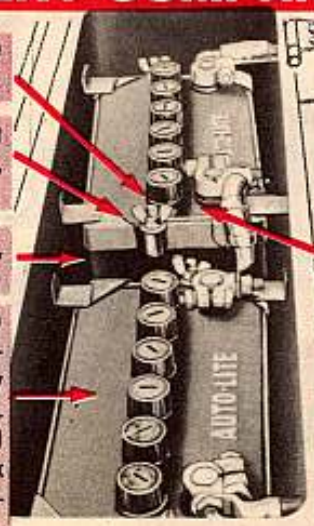
BATTERY COMPARTMENTS

HOLD-DOWN FRAME BOLTS AND NUTS—Missing, rusted, corroded.

HOLD-DOWN FRAME—Too tight (cuts into battery). Loose, rusted, corroded.

BATTERY COMPARTMENT—Rusted, corroded, trash.

*MWO ORD G740-W8 (20 Oct 55)—"Installation of Battery Hold-Down Frame Angle Bracket." By organizational mechanic. Normal.
*MWO ORD G758-W2 (24 Mar 55)—"Installation of New Battery Box Tray Hanger Brackets." By Ordnance. Normal.



BATTERIES—Vent caps missing or clogged. Specific gravity below 1.225 at 80-degree temperature (the hydrometer you'll need to make this test is yours from your unit's second echelon tool kit, which is kept in the motor pool). Case cracked, acid salts. Case loose in carrier. Water level not to slots in vent wells.

BATTERY CONNECTIONS—Loose. No grease or more than a thin coat on terminals.

ENGINE (LEFT SIDE)

RADIATOR COOLANT — Below proper level (should be within 1 inch of filler neck). Water rusty, dirty.

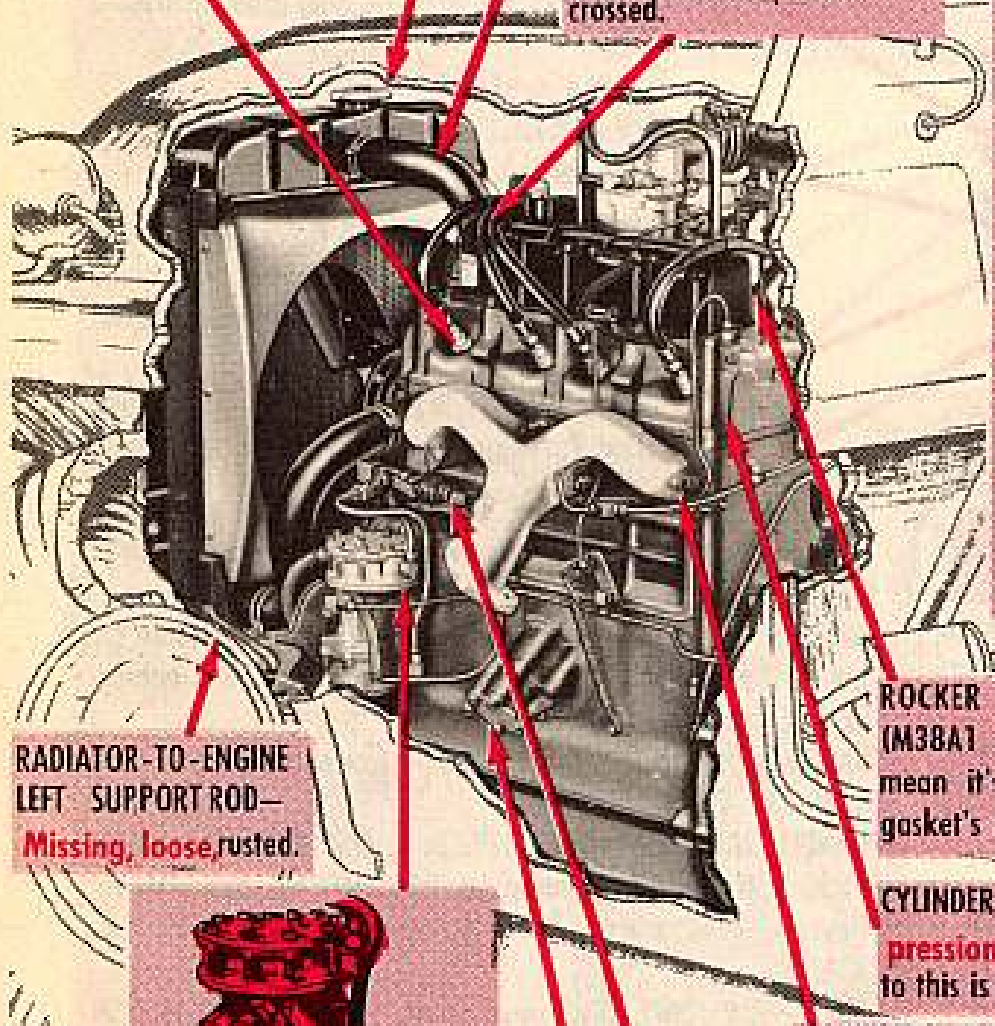
RADIATOR, COOLING SYSTEM HOSES, CLAMPS—Radiator leaking (radiator gasket missing), radiator fins dirty, lotta bugs. Hoses worn, torn. Clamps missing, broken.

SPARK PLUGS — Cracked, loose, dirty.

IGNITION WIRING—Cracked, shield broken open, threads crossed.

UNUSUAL ENGINE NOISES—If you hear any unusual noises coming from under that hood—if your engine's running rough—better not take any chances. Get suspicious and report it to your organizational mechanic—he wants to know about it. Here're the things that could be wrong—

CARBURETOR IDLE SETTING—Engine idling too fast or too slow.
CYLINDERS—Listen to engine idle—does it run rough? Is engine missing?
TIMING—If the engine's outta time, it'll run rough. In line with this timing deal, you can check to see if this MWO has been put into being on your vehicle:
*MWO ORD G1-W54 (25 Jan 57) —"Installation of Timing Indicator." By Ordnance. Normal.



RADIATOR-TO-ENGINE LEFT SUPPORT ROD—Missing, loose, rusted.

ROCKER ARM COVER ASSEMBLY (M38A1 only)—Leaks oil (could mean it's loose, cracked or the gasket's damaged).

CYLINDER HEAD—Cracked, compression or water leaks (a tip-off to this is a hissing sound).

MANIFOLDS—Cracked, loose. Studs broken, missing. Nuts missing, loose. MANIFOLD HEAT CONTROL VALVE—Stuck fast.

FUEL AND VACUUM PUMP—Broken, loose. Primer handle, missing, broken.

Fording valve not in non-fording position.

OIL PUMP ASSEMBLY BRACKET—Broken, loose.

ENGINE (RIGHT SIDE)

CARBURETOR AIR CLEANER—Oil level low (must be up to level mark). More than ¼ inch of dirt in bottom of cleaner.

CARBURETOR AND LINKAGE—Sticking.

CARBURETOR AIR INTAKE PIPE—Cracked, bent, loose.

CARBURETOR AIR HOSE—Cracked, leaking, holes, not clamped right.

TOO MUCH DIRT UNDER SNORKEL COVER

CRANKCASE OIL—Level too low (no lower than ½ inch below top full mark). Too high (no higher than ⅛ inch above top full mark). (Don't check dipstick immediately after stopping.) Cap missing, gasket damaged or missing. Stick's baffle missing.

ENGINE WATER TEMPERATURE SENDING UNIT—Loose, rusted, mounting cracked. Loose electrical connection.

ENGINE OIL PRESSURE SENDING UNIT—Loose, rusted, mounting cracked. Loose electrical connection.

OIL FILTER AND BRACKET—Filter leaks, dirty, loose. On Cuno type—oil filter handle will not turn.

DISTRIBUTOR WITH COIL ASSEMBLY—Distributor cracked, broken. Loose electrical connections. Distributor mounting loose.

STARTER MOTOR—Loose electrical connections. Starter motor mounting loose.

ENGINE MOUNTING—Bolts missing, loose.

RADIATOR-TO-ENGINE RIGHT SUPPORT ROD—Missing, loose, rusted.

FAN BELT—Belt cracked, dangerously frayed or shredded. Incorrect adjustment. Proper adjustment for the M38 and M38A1, with 24-volt systems, ¾-in deflection. If you've got a 100-amp system on your Jeep, that fan belt deflection should be very slight. If you're not sure, loosen the generator adjusting bolts and wedge a pry bar between the generator and engine block. Then, with a pull of about 100 pounds, pry the generator tight on its mountings and tighten the generator's adjusting bolts. This'll tighten those fan belts to the right deflection.

GENERATOR—Loose electrical connections. Generator mounting loose.

REGULATOR—Loose electrical connections. Regulator mounting loose.

RECTIFIER (for 100-amp systems only)—Dirty.

*SEE YOUR FILE JACKET (DA FORM 478)

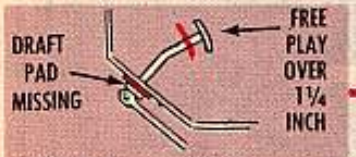
CAB

WATER TEMPERATURE GAGE — Lens cracked, dirty, clouded. Doesn't work right (temperature should read between 180 degrees F and 220 degrees F when engine's warmed up).

GLOVE COMPARTMENT—Loose, latch broken, falls open, leaks water, dirty. FORMS AND PUBLICATIONS (LO, TM, DD Form 518, SF 91)—Missing, unreadable, incorrect publications, DD Form 518 not filled out. Flywheel housing drain plug (for fording).

CHOKE CONTROL—**Missing, not operating,** loose.

DIMMER SWITCH—**Broken,** loose, delay between high and low beam.



CLUTCH—Improper free play (should travel free 1¼ inches), **grabs, chatters, slips.**
*MWO ORD G1-W88 (30 Oct 56)—"Modification of Clutch Release Pedal Stop." By organizational mechanic. Normal.

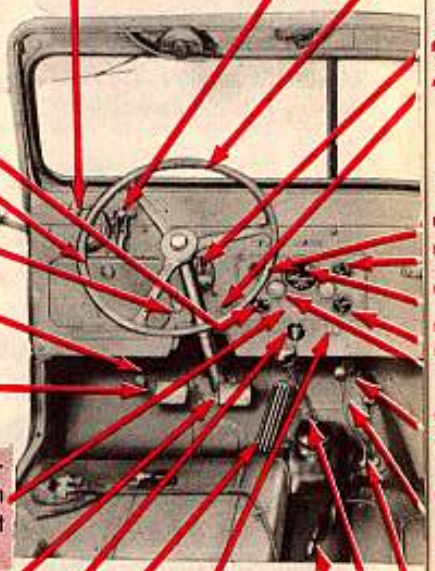
BRAKE PEDAL — **Spongy, improper adjustment (travels to a point less than 2 inches from floor), gives way under pressure.**
BRAKE MASTER CYLINDER—**Leaking, not up to level (must be at least ¾ full).**

IGNITION SWITCH—Loose, broken.
*MWO ORD G740-W5 (27 Oct 52)—"To Identify ON and OFF Positions on Ignition Switch." By Ordnance. Normal.

ACCELERATOR PEDAL—**Sticks,** loose, boot missing or torn.

WINDSHIELD LOCK—Missing, rusted, not operating.

WINDSHIELD WIPER AIR REGULATING VALVE—**Not operating.** Leak in line (a tip-off is a strange hissing sound).



HEADLIGHT HIGH BEAM INDICATOR LIGHT—**Missing.** With upper beam lights on, doesn't work.

FORDING VALVE HANDLE—Does not close and open all the way.

HANDBRAKE — **Incorrect adjustment (should require no more than ¾ travel for full application.) Handbrake doesn't hold, cable busted.**
*MWO ORD G758-W5 (10 Oct 55)—"Drilling of Lubrication Holes in Handbrake Handle." By organizational mechanic. Normal.

STEERING WHEEL—Bent.

HORN—**Not operating.** Loose, broken.

LIGHT SWITCH—**Not operating.** main switch moves beyond "BO" when locked, broken, cracked.

ONLY FREE MOVEMENT

THROTTLE CONTROL—**Missing, not operating.** loose.

WINDSHIELD WIPER MANUAL CONTROL HANDLE—Missing, bent, broken.

BAT-GEN INDICATOR — Lens cracked, dirty, clouded. Doesn't work right (with engine running at fast idle, indicator should not show discharge).

FUEL GAGE—**Not registering.** Lens cracked, dirty, clouded.

NAME, DATA, CAUTION AND INSTRUCTION PLATES—Not readable, painted.

SPEEDOMETER—**Not working.** Lens cracked, dirty, clouded.

OIL PRESSURE GAGE—With engine running, **gage doesn't register** (should show some indication at fast idle). Lens cracked, dirty, clouded.

*MWO ORD G1-W63 (27 June 55). "Replacement of Oil and/or Air Pressure Gage." Change 1 (13 Aug 56) says this is to be done by organizational mechanic. Normal.

STARTER — **Not working** Bent, loose.

TRANSFER FRONT WHEEL DRIVE GEARSHIFT LEVER — **Stuck,** loose, bent, knob missing. (Check while driving.)

TRANSFER HIGH AND LOW RANGE GEAR SHIFT LEVER—**Stuck,** loose, bent, knob missing. (Check while driving.)

TRANSMISSION GEAR SHIFT LEVER — **Stuck,** loose, bent, knob missing, boot torn.

INSTRUMENT PANEL LIGHTS—Burned out, missing, not working.
*MWO ORD G740-W1 (3 Dec 51)—"Relocation of Circuit Breaker (behind instrument panel)." By Ordnance. Normal.

*SEE YOUR FILE JACKET (DA FORM 478)

UNDERNEATH THE VEHICLE

SPRINGS, U-BOLTS, CLIPS, SHACKLES— **Broken leaves.** Loose U-bolts, loose or missing rebound clips.

Left front shackles bushings must have left-handed threads.

*MWO ORD G740-W9 (2 Feb 56)—"Waterproofing of Steering Gear and Draining of Steering Jacket." By Ordnance. Normal.

*MWO ORD G758-W1 (28 Sept 56)—"Waterproofing of Steering Gear and Draining of Steering Jacket." By Ordnance. Normal.

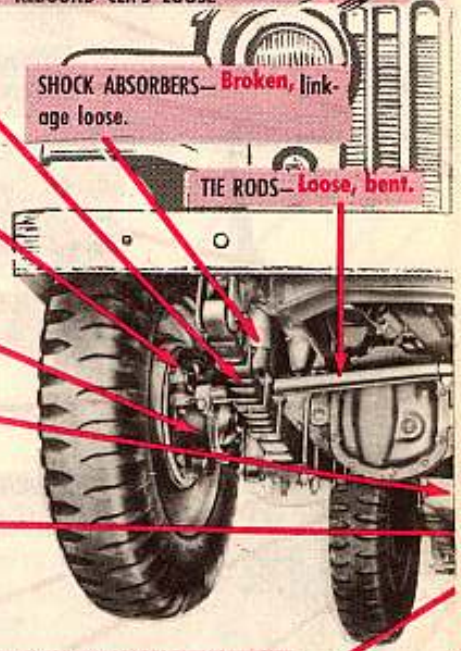
SHOCK ABSORBERS— **Broken,** linkage loose.

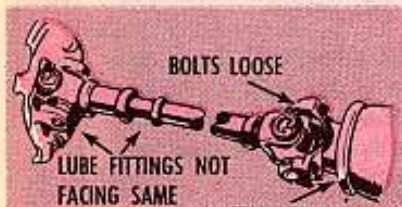
TIE RODS— **Loose, bent.**

FRONT AXLE HOUSING (CV JOINTS)— **Dry** (gotta be lubed to plug level with GAA). Rusty, badly scored. Flange bolts loose. Turning-stop bolt weld-broken.

ENGINE OIL PAN— **Leaky gasket. Leaky plug (check for looseness). Bolts loose (leaks, again).**

DIFFERENTIAL— **Leaky plug** (check for looseness). Improper lube level—on a cold engine—(stick in a clean finger up to the first joint—the tip should just be touching the lube. When hot—should be at plug level). Bolts loose. Vents plugged.





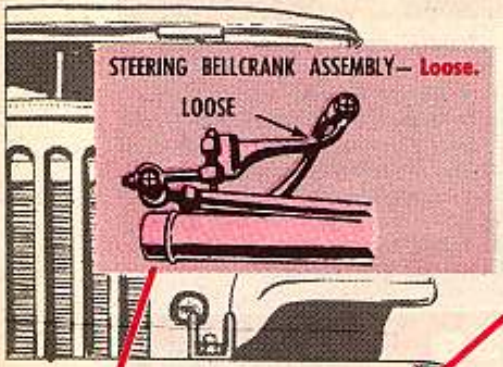
DRIVE SHAFTS AND UNIVERSAL JOINTS— Bolts or shaft loose. Universal joints loose. (Grease fittings on each shaft should face the same direction).

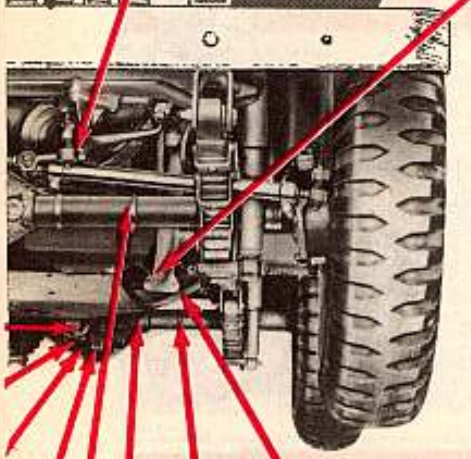
*MWO ORD G758-W4 (2 May 55)—"Provide Propeller Shaft Universal Joint Assemblies with Lubricating Fittings." By organizational mechanic. Normal.

TRANSMISSION— **Leaky drain plug** (check for looseness). Improper lube level (when lube's cold—stick in a clean finger up to the first joint—the tip should just be touching the lube. When lube's hot, should be at plug level). Bolts loose.

FLYWHEEL HOUSING—Drain plug removed (in only for fording).

STEERING BELLCRANK ASSEMBLY— **Loose.**





*MWO ORD G1-W44 (28 Feb 57)—"Welding Rear Shock Absorber Brackets." By Ordnance. Normal.

*MWO ORD G740-W3 (5 Nov 52)—"Installation of Baffle on Rear Axle-Housing Cover." By organizational mechanic. Normal.

***MWO G1-W43 (12 Jan 54)—"Removal of Rear Axle Lubrication Fitting." By organizational mechanic. Urgent.**

*MWO ORD G740-W4 (24 Nov 52)—"Fabrication of Cover Plate for Bell Housing." By organizational mechanic. Normal.

BRAKE LINES AND HOSE CONNECTIONS— **Lines leaking.** Lines twisted, kinked, frayed. Connections loose. Brake anchor pins-punch marks not pointed at one another.

MUFFLER AND CLAMPS— **Holes in muffler. Muffler cracked.** Clamps worn, loose.

TAIL PIPE AND CLAMPS— **Tail pipe clogged, collapsed, cracked.** Tail pipe dented. Clamps worn, loose.

THOSE MWO'S

On this MWO deal, there are a few things you gotta keep in mind:

*When checking over your Jeep and you can't actually see if an MWO has been put on, check that vehicle's 478 jacket file, which you'll usually find in the motor pool. It'll tell you if the MWO's been put on.

If you find an MWO that hasn't been put on, find out whether it's an urgent or normal modification. If it's **urgent** and is to be done by your second echelon mechanic, contact him right-quick and make sure he makes a date to put it on. If the job's to be done by Ordnance support, your motor officer contacts **them** immediately. They want to know, 'cause those urgent jobs are real priority deals.

A normal modification's handled different, tho. If you find one that hasn't been put on, don't go bothering your Ordnance support to get the job done. Your motor officer'll contact them and let 'em know. They'll make a note of it and put the work on the Jeep next time it's in their shop.

Now, for the TB's—

ON THE M38 AND M38A1

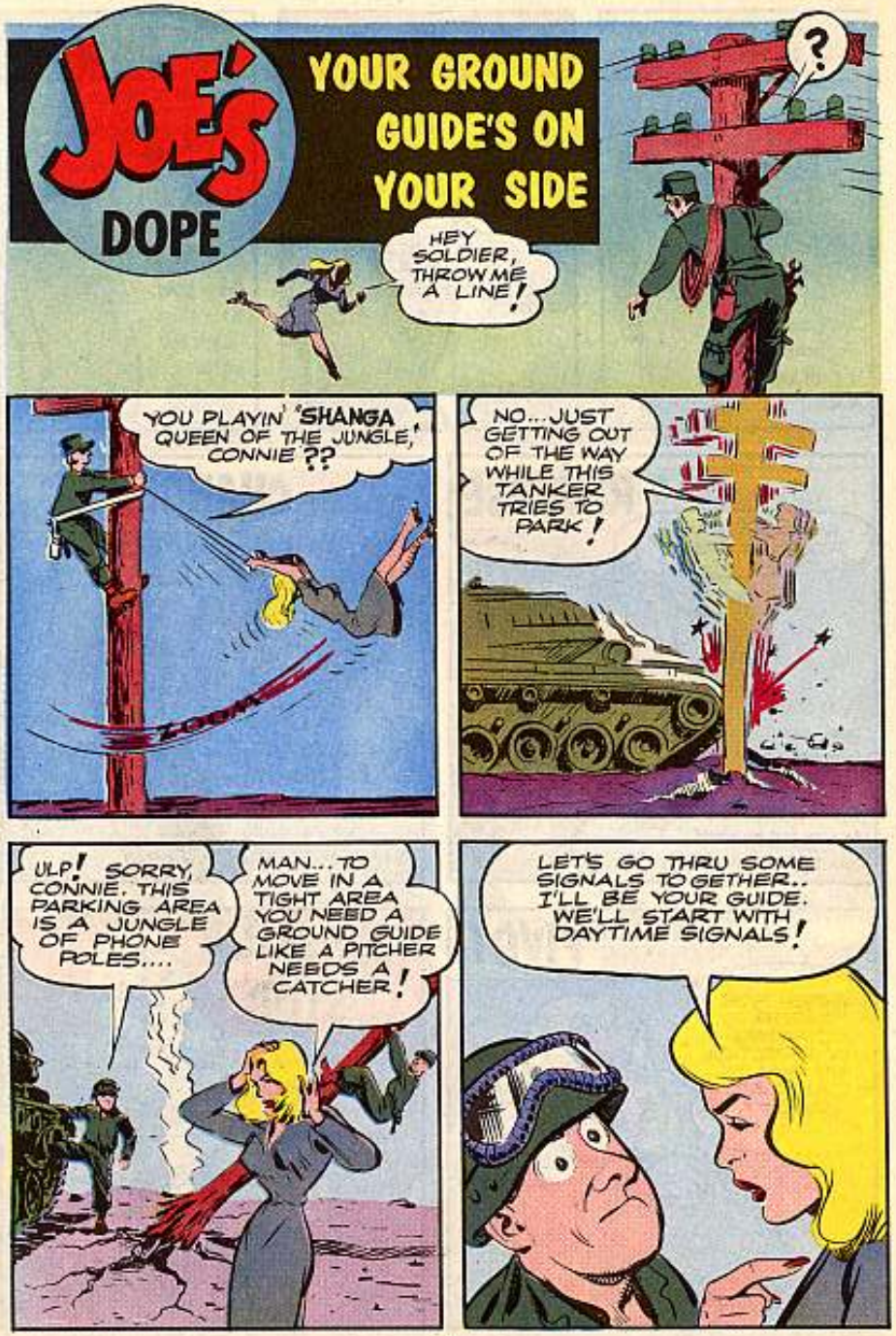
TB Ord 465 (Apr 54): Pedestal Truck Mounts M31A1, M31C: Installation
TB Ord 487 (Feb 53): Identification, Maintenance of Fuel Filters
TB Ord 547 (Dec 53): Prevention Crankshaft Pulley Failures
TB Ord 554 (Sep 56): Removal Flywheel Housing Drain Plug
TB Ord 560 (May 54): Revision Tire Pressures on Servicing Plates
TB Ord 570 (Aug 54): Use Front Axle Nondriving Flanges Temporarily Converting Vehicles Four-Wheel to Two-Wheel Drive
TB Ord 610 (June 55): Fording Valve Operation
TB Ord 635 (Apr 56): Fuel Tank Rust Prevention

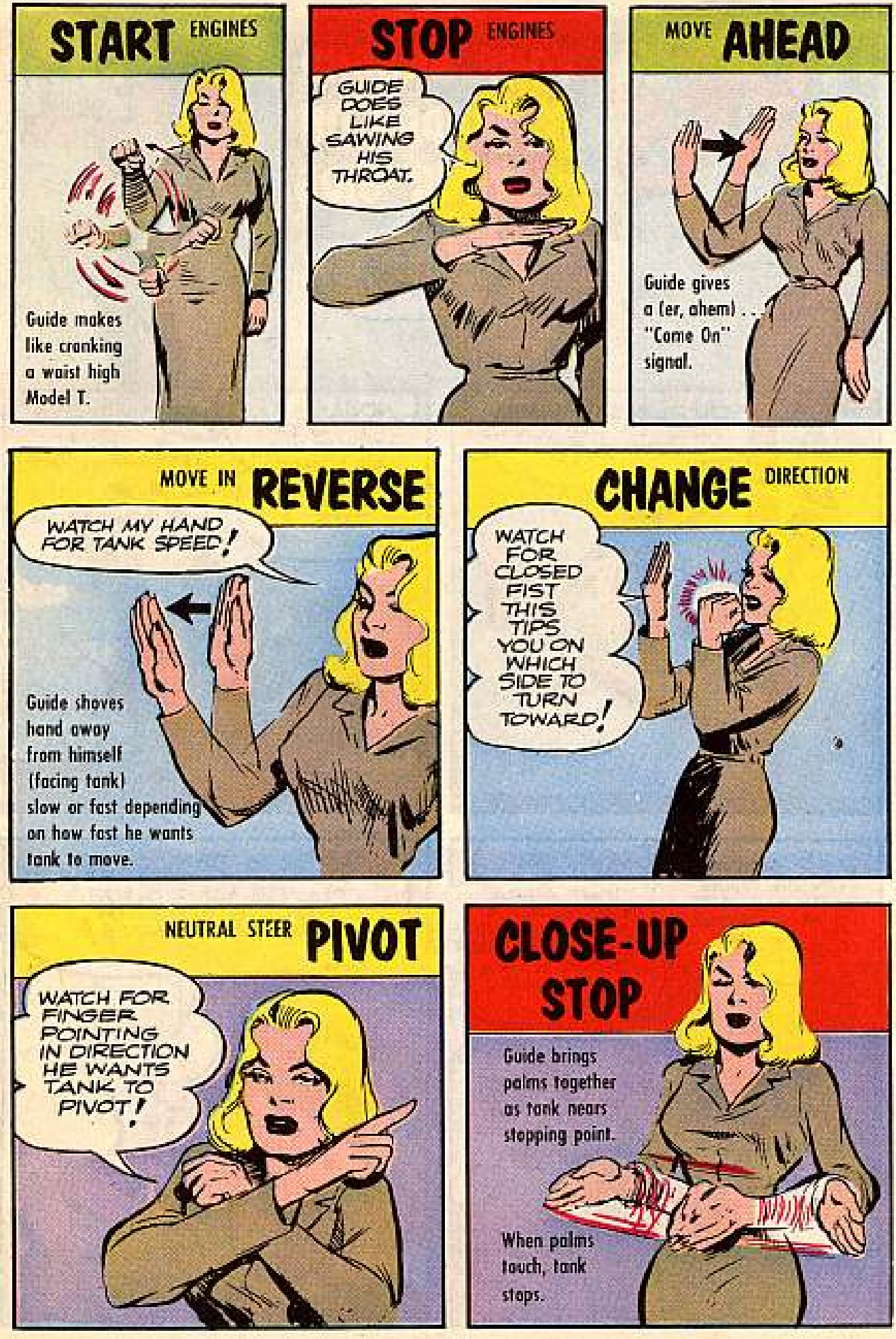
ON THE M38

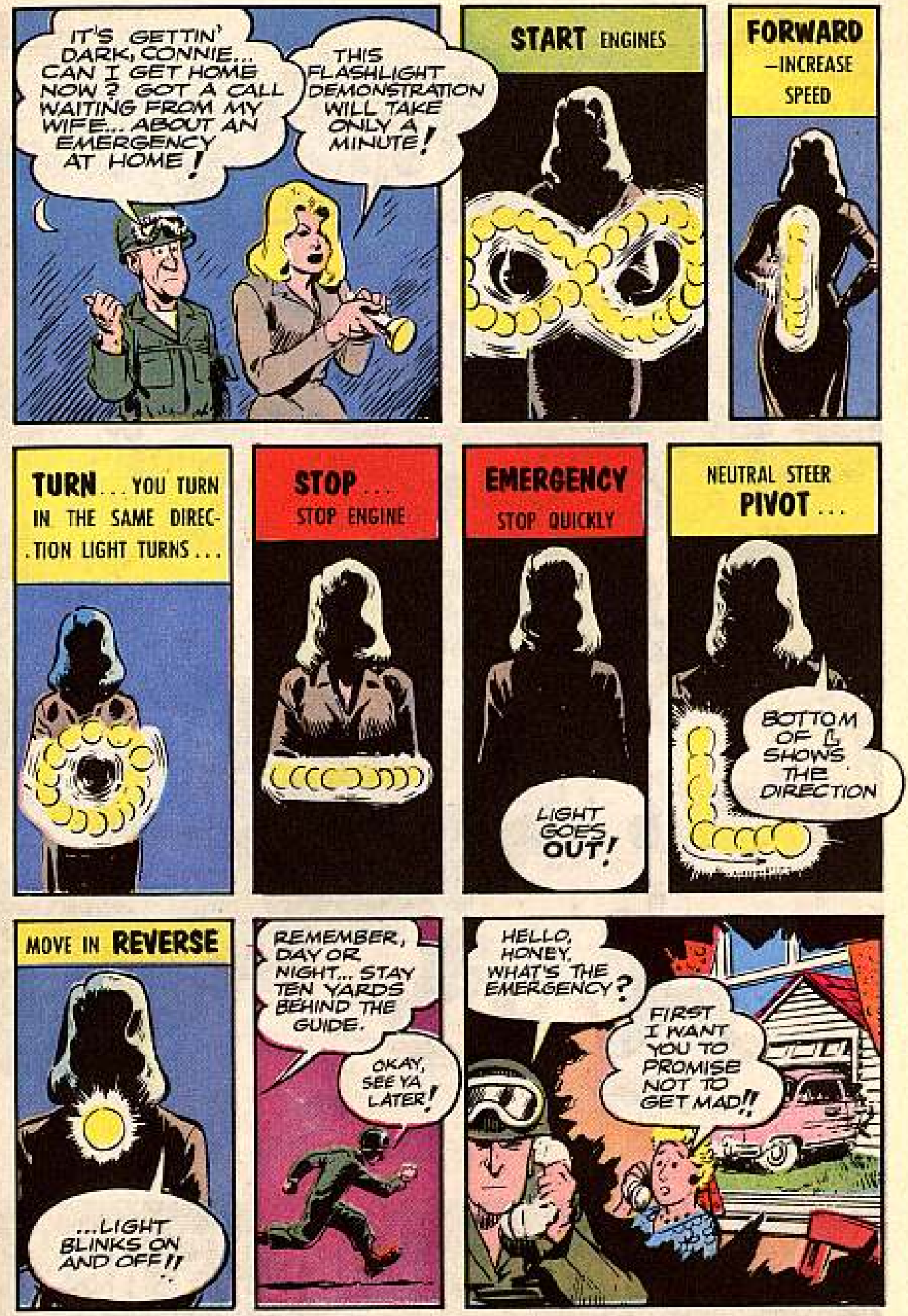
TB Ord 589 (Jan 55): Installation Distributor Point Set
TB 9-804-3 (Jan 53): Replacement Lifting-Shackle-Pin Retaining Clip
TB 9-804-11 (July 54): Elimination Fuel Pump Diaphragm Failures
TB 9-1804B-1 (Feb 54): Kingpin Bearing-Cap Screw Selection
TB 9-1859-1 (Apr 52): Time Schedule Guide
TB 9-2855-2 (Dec 52): Instructions, Personnel Heater Kit Installation
TB 9-2855-3 (Dec 52): Instructions, Power Plant Heater Kit Installation (0 degrees to —65 degrees)
TB 9-2855-4 (Oct 52): Instructions, Hardtop Closure Kit Installation
TB 9-2855-37 (Dec 56): Instructions, Hot Water Personnel Heater Kit Installation
TB 9-8012-1 (June 56): Elimination of Interference Between Front Rebound Clips and Tie Rods
TB 9-8012-2 (Oct 56): Replacement of Fuel Pump

ON THE M38A1

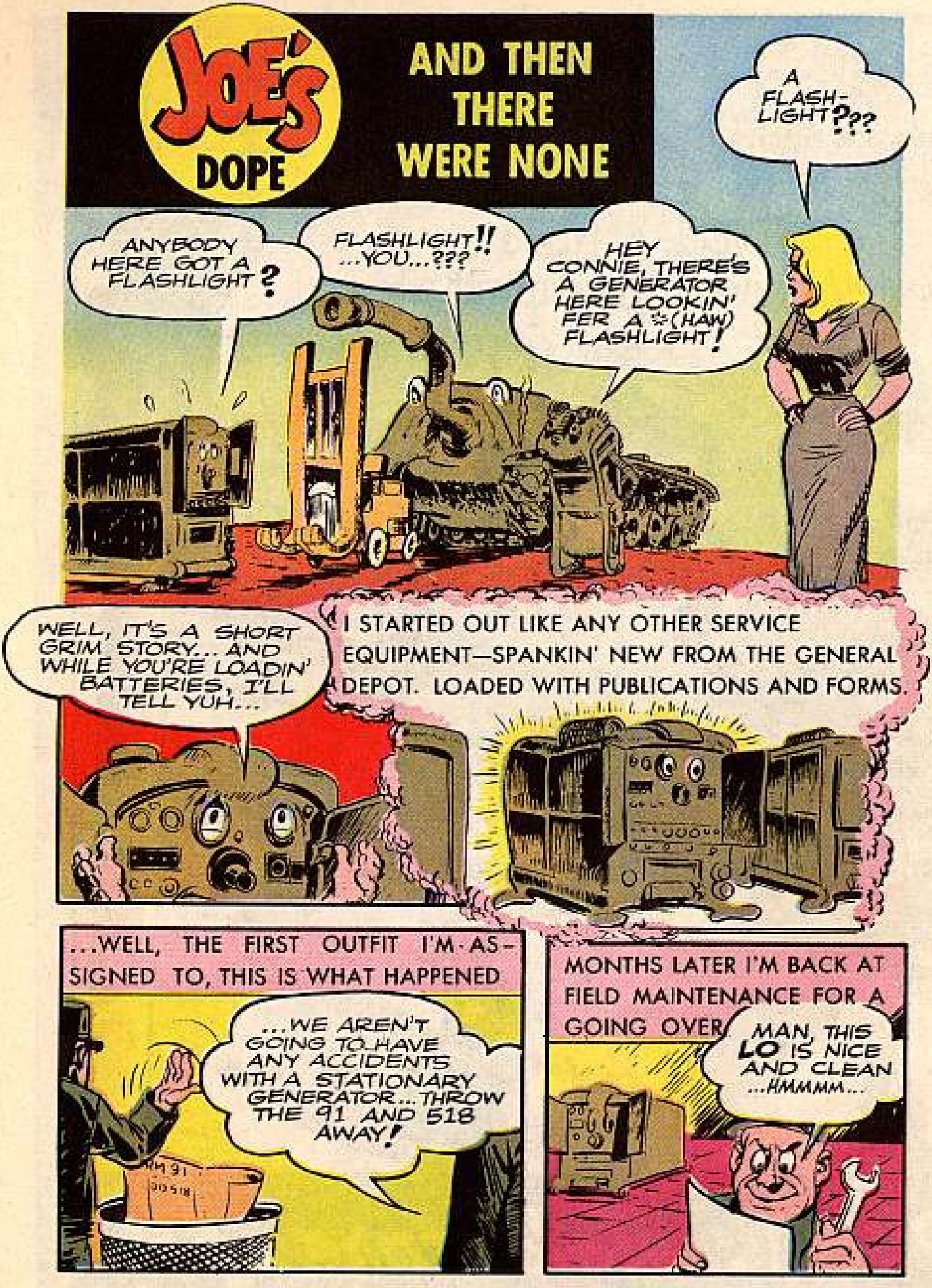
TB 9-804A-1 (Nov 53): Remove Slack of Wiring Harness
TB 9-804A-2 (Jan 54): Front Spring Rebound Clip Interference with Tie Rods
TB 9-804A-3 (Feb 54): Adjustment of Glove Compartment Door Striker
TB 9-1859-20 (Dec 53): Time Schedule Guide
TB 9-2855-43 (Nov 56): Instructions, Personnel Hot-Water Heater Kit Installation



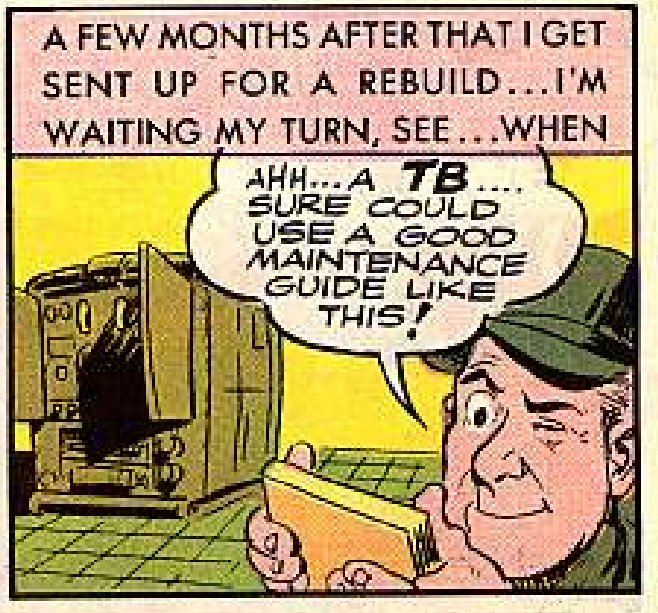

START ENGINES
Guide makes like cranking a waist high Model T.
STOP ENGINES
GUIDE DOES LIKE SAWING HIS THROAT.
MOVE AHEAD
Guide gives a (er, ahem) . . . "Come On" signal.
MOVE IN REVERSE
WATCH MY HAND FOR TANK SPEED!
Guide shoves hand away from himself (facing tank) slow or fast depending on how fast he wants tank to move.
CHANGE DIRECTION
WATCH FOR CLOSED FIST THIS TIPS YOU ON WHICH SIDE TO TURN TOWARD!
NEUTRAL STEER PIVOT
WATCH FOR FINGER POINTING IN DIRECTION HE WANTS TANK TO PIVOT!
CLOSE-UP STOP
Guide brings palms together as tank nears stopping point.
When palms touch, tank stops.


IT'S GETTIN' DARK, CONNIE... CAN I GET HOME NOW? GOT A CALL WAITING FROM MY WIFE... ABOUT AN EMERGENCY AT HOME!
THIS FLASHLIGHT DEMONSTRATION WILL TAKE ONLY A MINUTE!
START ENGINES
FORWARD —INCREASE SPEED
TURN... YOU TURN IN THE SAME DIRECTION LIGHT TURNS...
STOP... STOP ENGINE
EMERGENCY STOP QUICKLY
LIGHT GOES OUT!
NEUTRAL STEER PIVOT...
BOTTOM OF L SHOWS THE DIRECTION
MOVE IN REVERSE
...LIGHT BLINKS ON AND OFF!!
REMEMBER, DAY OR NIGHT... STAY TEN YARDS BEHIND THE GUIDE.
OKAY, SEE YA LATER!
HELLO, HONEY. WHAT'S THE EMERGENCY?
FIRST I WANT YOU TO PROMISE NOT TO GET MAD!!


JOE'S Dope Sheet
The tank park is covered with gloom,
Cause Joe thought he had lotsa room...
When his iron steed he backed,
A ground guide he lacked...
Now they're sweepin' guys up with a broom!
SLOW
WE HAVE THE WORLD'S BEST EQUIPMENT...Take care of it

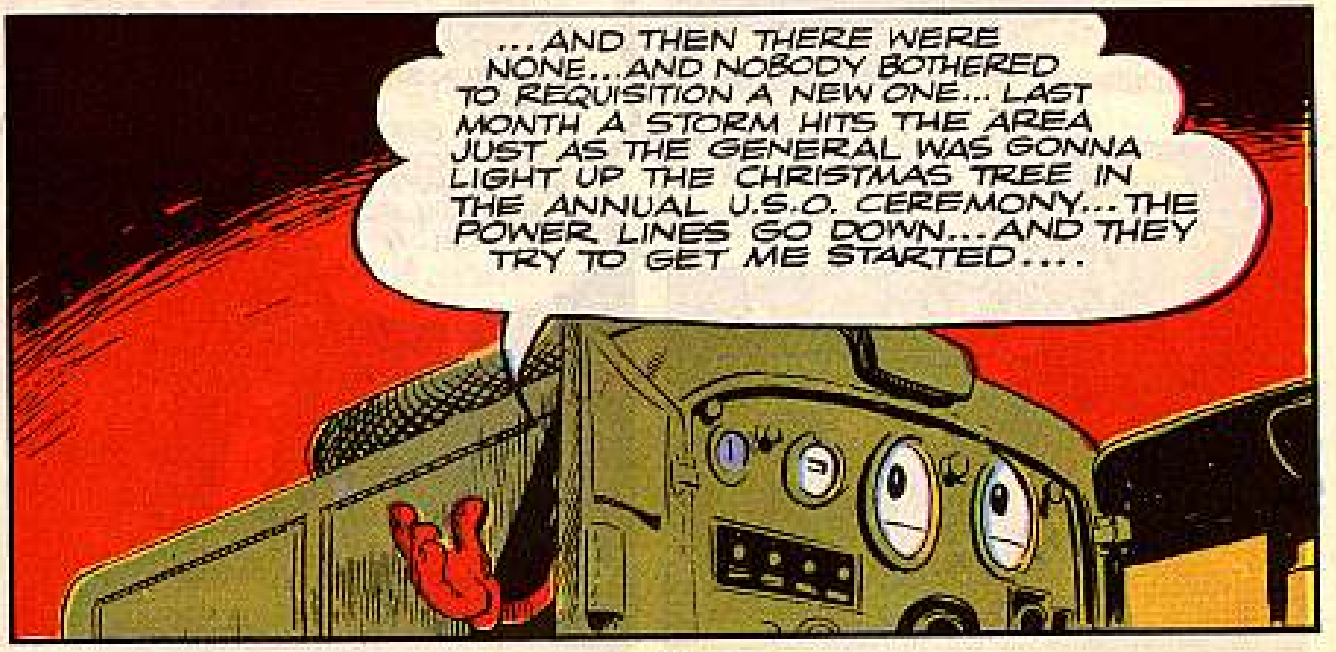

JOE'S DOPE
AND THEN THERE WERE NONE
ANYBODY HERE GOT A FLASHLIGHT?
FLASHLIGHT!! ...YOU...???
HEY CONNIE, THERE'S A GENERATOR HERE LOOKIN' FER A ☆(HAW) FLASHLIGHT!
A FLASH-LIGHT???
WELL, IT'S A SHORT GRIM STORY... AND WHILE YOU'RE LOADIN' BATTERIES, I'LL TELL YUH...
I STARTED OUT LIKE ANY OTHER SERVICE EQUIPMENT—SPANKIN' NEW FROM THE GENERAL DEPOT. LOADED WITH PUBLICATIONS AND FORMS.
...WELL, THE FIRST OUTFIT I'M ASSIGNED TO, THIS IS WHAT HAPPENED
...WE AREN'T GOING TO HAVE ANY ACCIDENTS WITH A STATIONARY GENERATOR... THROW THE 91 AND 518 AWAY!
MONTHS LATER I'M BACK AT FIELD MAINTENANCE FOR A GOING OVER
MAN, THIS LO IS NICE AND CLEAN ...HMMMM...


THINK I'LL KEEP THIS.... OUR'S IS SO BEAT UP.... BESIDES THEY PROBABLY GOT OTHERS ANY-HOW....

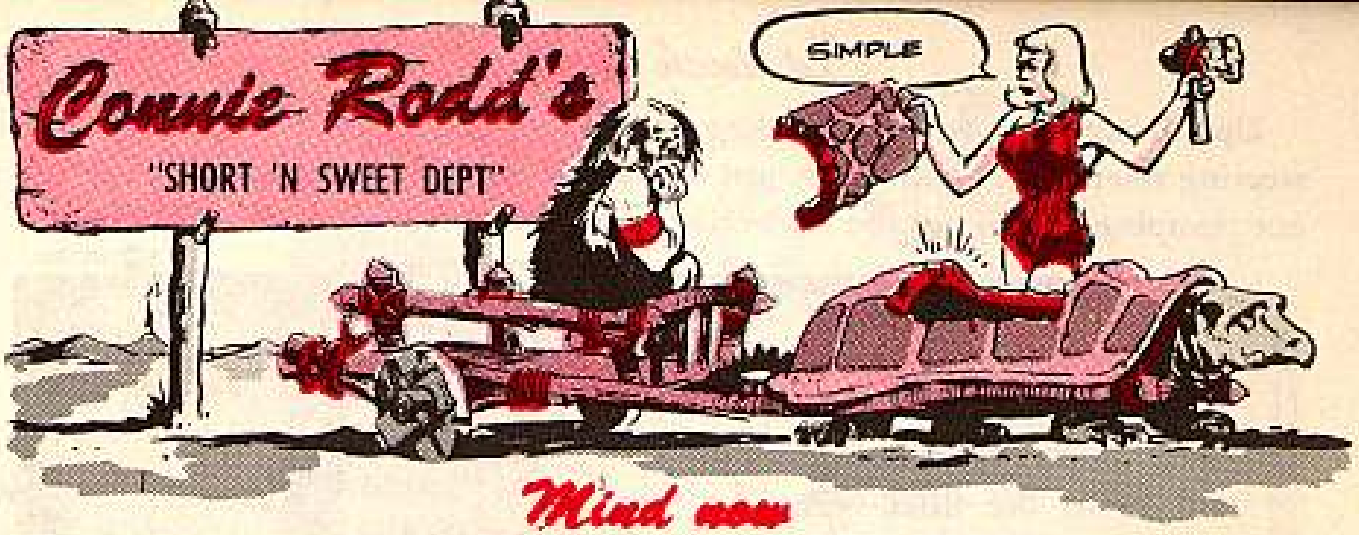

A FEW MONTHS AFTER THAT I GET SENT UP FOR A REBUILD...I'M WAITING MY TURN, SEE...WHEN
AHH...A TB.... SURE COULD USE A GOOD MAINTENANCE GUIDE LIKE THIS!


FINALLY, I HIT THIS OUTFIT WITH ONLY A TM...IT STAYS WITH ME FOR A WHILE UNTIL...
...LET'S KEEP THIS IN THE ORDERLY ROOM!


SOMETIME LATER...A GUY FROM THE NEXT COMPANY COMES OVER TO BORROW SOMETHING
WE COULD USE THIS OVER AT OUR SHOP... DUM...


...AND THEN THERE WERE NONE...AND NOBODY BOTHERED TO REQUISITION A NEW ONE... LAST MONTH A STORM HITS THE AREA JUST AS THE GENERAL WAS GONNA LIGHT UP THE CHRISTMAS TREE IN THE ANNUAL U.S.O. CEREMONY...THE POWER LINES GO DOWN...AND THEY TRY TO GET ME STARTED....

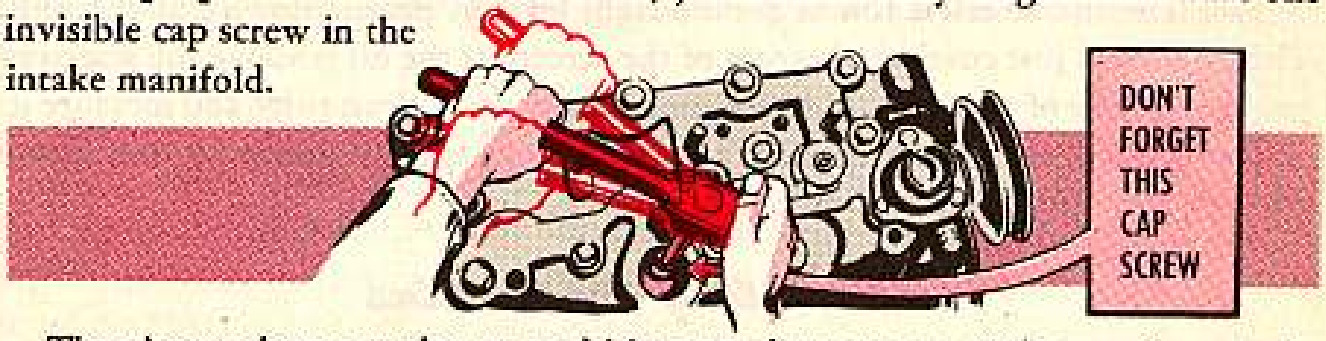

YEH, WHAT HAPPENED ???
N-O-T-H-I-N! ...THE BOYS COULDN'T GET ME STARTED!
BOY, AIN'T THAT A FAMILIAR TALE OF WOE? HAPPENS OFTEN IN MY OUTFIT!!
I HAD A BROTHER WITH ANOTHER OUTFIT, SAME THING HAPPENED TO HIM!
IT COULD HAVE BEEN AVOIDED.. SO EASILY!
IT'S THE OLD HORSESHOE NAIL BIT... IF THEY HAD A TM THEY COULD HAVE LOOKED UP THE TROUBLE-SHOOTING SECTION AND DIAGNOSED IT!!
IF THE TB HAD BEEN KEPT... AND THE DAILY MAINTENANCE DONE ON THE DD 110.... IT WOULDN'T HAVE HAPPENED IN THE FIRST PLACE!
EVEN THE LO WOULD HAVE HELPED... WHY THERE WASN'T EVEN A COPY OF
AROUND.
HERE'S YOUR FLASHLIGHT!!
THANKS, CONNIE!
POOR OL' FELLER! WHAT A HUMILIATION!
HOLD THAT @*#!!! FLASH STEADY... I FINALLY SCROUNGED A TM... IF I DON'T GET THIS DONE BY DAWN, I'LL BE BOILED IN OIL!!
SORRY... Y'R TICKLIN' ME!!



Mind now

Wa' hoppen' last time you tried to get the cylinder head off your M38A1 Jeep? Did you use a pry bar? Did you use a wrecker? Did you use dynamite?

Some people have come to these ends, just because they forgot about that one invisible cap screw in the intake manifold.



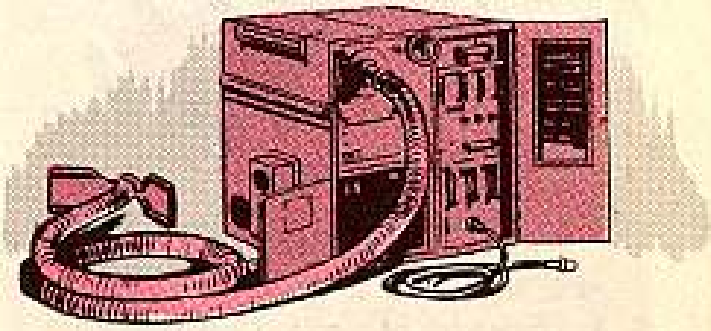
There's one there, you know, and it's a tough one to see. What you have to do is remove the carburetor, get your wrench down into the carburetor opening in the cylinder head and screw out the cap screw.

In other words, gents, follow the dope given in para 111 of TM 9-8014 on replacing head gaskets—and don't forget about that one screw.

Handy Hot Box

Comes cold weather, any of you who are stationed in an area where the average temperature for the coldest month is +5° to −20°, or lower, want to remember that you can get the cold weather starting aid kit, the so-called "Slave Kit," if you need it.

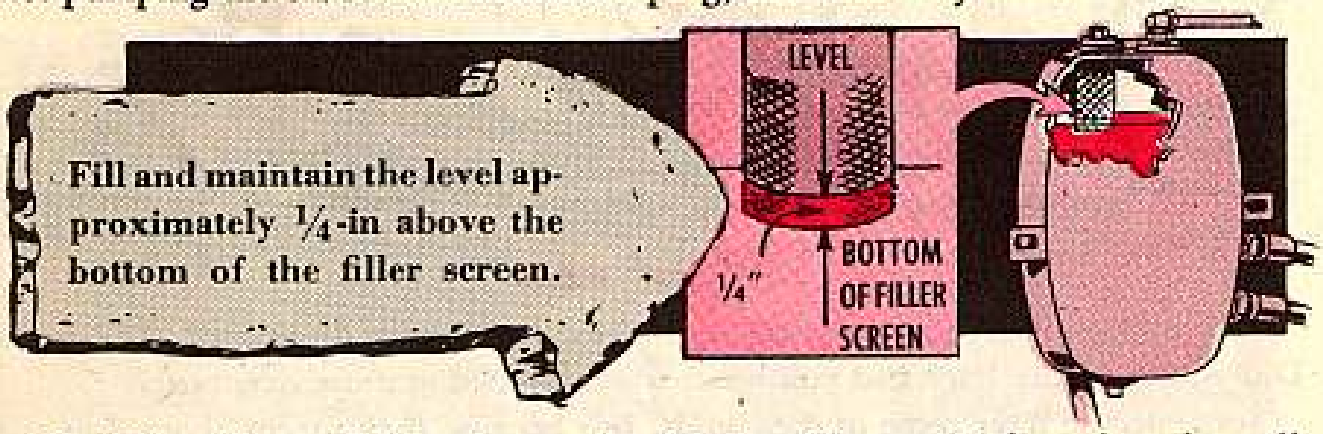
Kit, cold weather starting aid, FSN 2540-570-1354, is the gadget you want, also called the M40. SB 9-16 (21 Oct 54) page 6 tells you the territorial areas where these kits are authorized. TB Ord 390 comes with it and tells how to work it. It's a G-249 Sect 3 item.



If you have one of these around, you sure won't have to idle your engines all winter as some poor guys have done in the past.

1/4 inch does it

Up till now you've been keeping your G744-series 5-ton truck's hydraulic steering reservoir ¾-full. Now, just to make it easier to maintain this level so it's not pumping the oil out the vent relief plug, this is the way it should be done.



You'll be able to tell if you've got the right level by peerin' down into the well. The oil should just cover the bottom of the screen. If the oil is above the screen so you're not sure of the level, it'd be a good idea to use a clean ruler and measure it.

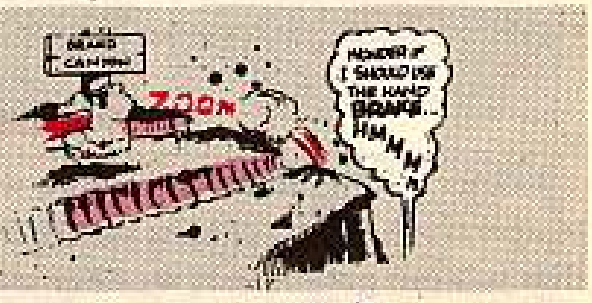
Too much—get'er outta there. It's gotta be kept approximately ¼ inch above the screen or you'll have a mess on your hands.

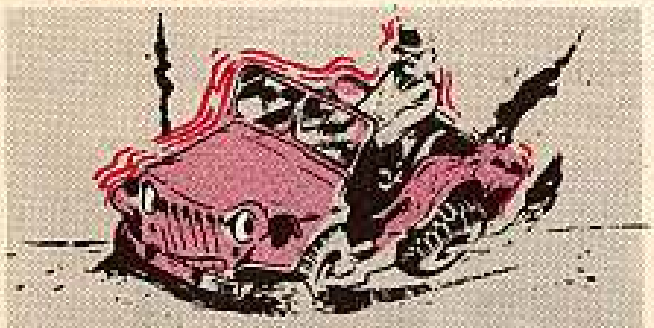
No beating these skins

Some drums are being drummed right to death—those hand-brake drums that give you that safe feeling when you need it.

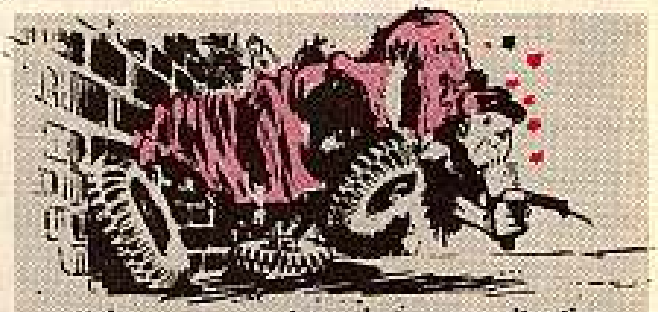
Here's what you gotta shy away from when driving those M-series wheeled vehicles:

Never use that hand brake when going down a hill except for absolute emergencies. Avoid gathering too much speed. Before starting down just downshift into the right lower gear and use your foot brake occasionally to slow you down.



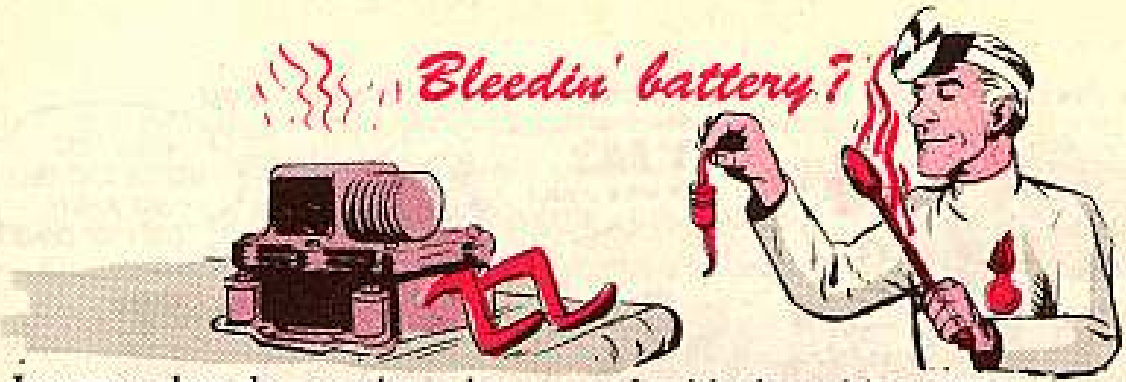


For that get-up-and-go feeling make sure your hand brake is off when starting out. You'll save lots of wear and tear on the parking brake drum.



Unless you get into that crazy situation where you've gotta stop—but quick, never use that hand brake when coming to a stop. You may find yourself without it when you really need it.

Bleedin' battery?



It seems that the regulator boxes used with the vehicle 100-ampere charging systems first came out with a resistor across the field relay. But current passing through this relay discharged the batteries when the vehicle wasn't operated regularly. So it was taken out of production at regulator serial number 2612.

If you happen to have a system with a regulator below No. 2612 in that vehicle, it's gotta be taken back to your Ordnance support to get its resistor removed.

Don't goof the glop

Whoa now! Even though TM 9-2857 allows for the adjusting of specific gravity in storage batteries, that doesn't mean that everybody rushes off for an acid bottle. Too much electrolyte is being used by people who don't fully understand batteries. And they're ruining batteries.

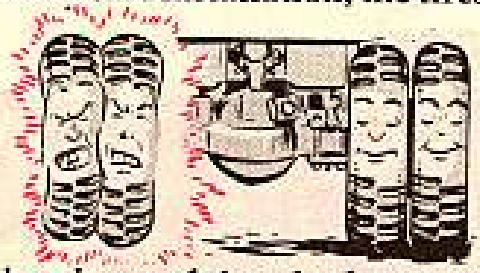
Unless you're a trained battery man, don't attempt to adjust the gravity of a storage battery. Charge it fully like TB Ord 463 says, and don't add anything but clean water, preferably distilled. If this doesn't bring the gravity up, send it back and let your Ordnance support take care of it.

Deep dish

Some men are still confusing the wheels for the G742 2½ ton single-tire and dual-tire trucks.

The only difference between these wheels is in the depth of the dish (that's the offset between the hub mounting flange and the rim).

A 9-in tire can be mounted on a rim designed for the 11-in tire, but the 11-in rim's not dished deep enough for dual use. So, when 9-in tires on 11-in rims are put on in a dual installation, the tires will press together—even more so with 11-in tires.



So, best be careful to check your stock numbers and get the right wheel for your truck.

Here's how they stack up—

G742 SERIES	TIRE SIZE	WHEEL FEDERAL STOCK NO.
FOR SINGLE MOUNT	11-in	FSN 2530-738-9618
FOR DUAL MOUNT	9-in	FSN 2530-738-9621

Only One Person Knows What You Need In Publications...You

GO GET 'EM

There may be some Joes what think the Army is letting them down by not having the Inspector-General come around personally to see if they've got all the TM's, FM's, LO's, and other books they need.

Well, guess again, Joe. There's nobody in this Army going to get those publications an outfit's missing, unless it's Joe himself. And that's a sure-fire, guaranteed, ever-lovin' fact.

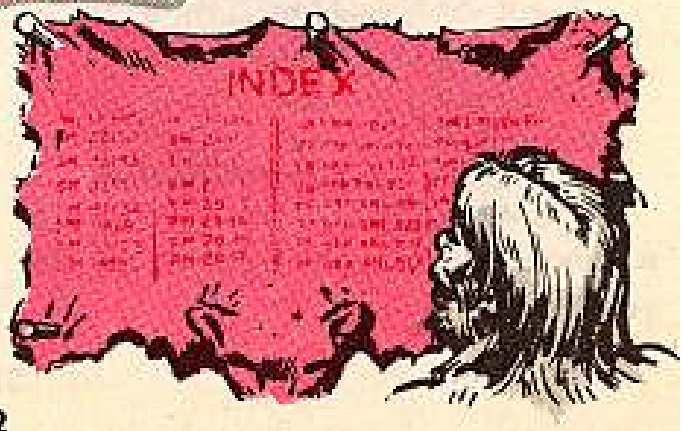
The big question is...how do you keep track of all the new TB's, MWO's, FM's, AR's, SM's and LO's?

The answer is: Whether it be a vehicle, weapon, missile, light aircraft, or any other piece of equipment...by checking your **library.**

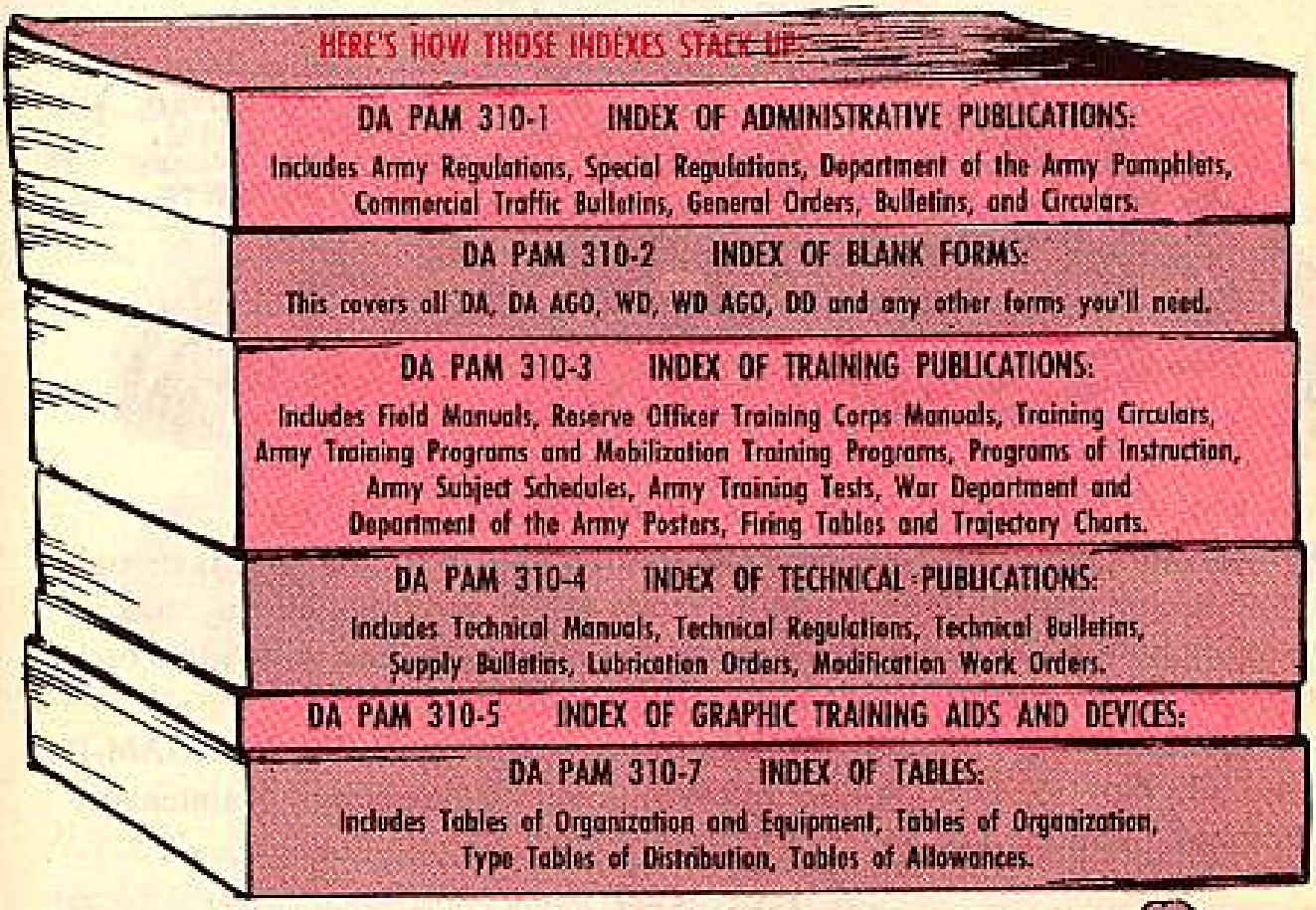
Every gol-darned thing in life starts some place. When it's books you're after, that place is a library.

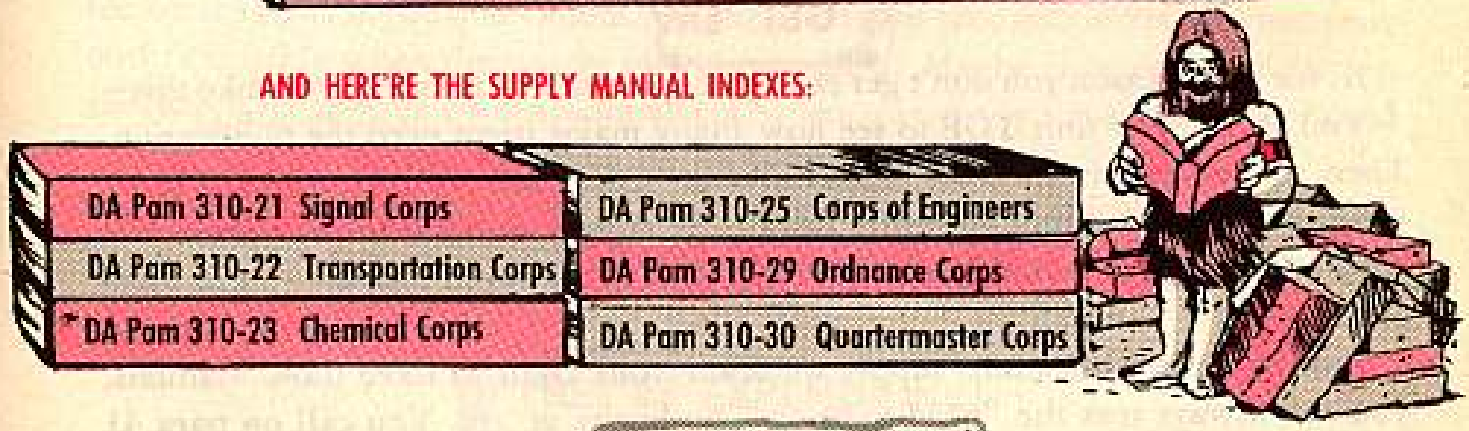
WHERE TO LOOK

The one thing that makes a library tick is its system. And right at the heart of the library system is—an **index.** It's hard enough keeping track of who's who in a fast-moving football game without a program. So, how can anybody expect to tell what's what in AR's, TM's, SM's and so on, without an index?



Every fatigue-wearing outfit gets at least one index apiece for all the different types of publications the Army puts out. These indexes all come under the 310-series of DA Pamphlets. The outfit without these books is like a hand without an index finger trying to point out road directions.





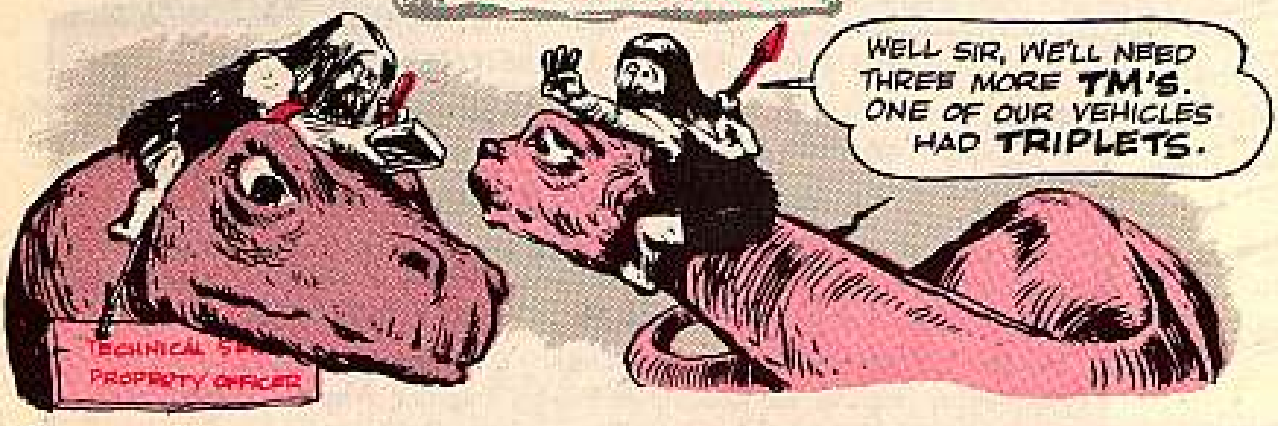
THE TOE CHECK

Once you've got your hands on these indexes, you hunt up your outfit's TOE. Every outfit is expected to check out its own TOE for the type and number of pieces of equipment assigned to it. Once it knows how many 2½-ton trucks it's authorized, for example, an outfit can put in an order for the number of TM's it needs to make a full quota—which is one TM for each vehicle.

The idea is to check each major item in the TOE against the publications listed after that item in the index—that includes the TB's and MWO's that affect the item at your maintenance level (organizational). Then, take the number of pieces

of a particular type of equipment the TOE allows your outfit—the unit of issue on publications for that item—put them together—and you know how many publications are required for you to operate efficiently. By adding up the publications needed for all your TOE items, you've got your outfit's publication order.

HOW THEY COME



The way it's supposed to work is like this:

The technical service property officer at your post (or in your unit) gets enough copies of a new manual (let's say on a certain truck) to supply all the units he services. He knows how many of that model truck each unit has, so he gives each unit the exact quantity of manuals it needs.

It might interest you to know that this system was set up by DA Ltr AGAM-P (M) 461 (25 Nov 55) LOG, Subject: "Distribution of Supply and Maintenance Publications," dated 2 Dec 55.

GET 'EM

If, for some reason you don't get enough copies, then you can get 'em like this—

You check your unit TOE to see how many major items need the publication. Then, you order 'em thru the supply system—using that TOE you looked in as your **authority**. Another authority can be the **supply manual** for that item. But if you use a supply manual for authority, stick to the seven's unless you're third echelon.

Should your publications supply question your right to have those manuals, you can always toss the "need-to-know" authority at 'em. You call on para 41 of AR 310-1 (15 May 56) for **justification**. This is the **need-to-know** paragraph. When you need certain publications to do your job right—go get 'em—by using this AR. Unless you've got a 100 per cent memory, better read that paragraph more than once.

Ordering publications takes its own form—which is **DA Form 17** (Requisitions for Publications and Blank Forms). Where to get the form—and where to

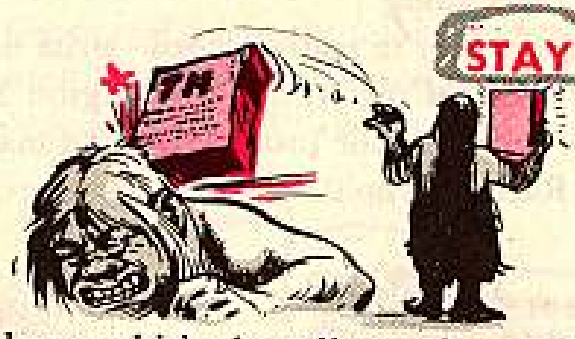
send it—depends on local policy. Find out whether your outfit is supposed to do business with post publications or its tech service support unit.

Filling out this form is easy—just look on the back of it. Laid out like A, B and C—isn't it?

ANOTHER CHECK

For an all around check on publications, don't forget to throw in the ol' jacket file—DA Form 478 (Organizational Equipment File)—on which you record MWO's and major unit assembly replacements. By looking at the jacket file on each piece of equipment, you can sorta cross-check with the index to see whether the latest MWO's and other modifications have been taken care of. The same thing goes for the gun book on weapons... DA Form 9-13 (Weapon Record Book).

STAY WITH IT



Once your outfit gets caught up, you still gotta stay on top of this situation by checking regular-like for new publications, or changes to the old ones. A good place to start is the changes to the indexes, which also tell you about publications that are superseded or rescinded.

BACKCHECKING

Get on up to your post publications library from time to time and look around to see what's new. If you don't check regularly, how're you gonna know what your outfit's missing when the system picks up a snafu? Maybe your pubs are getting shortstopped at your own headquarters where somebody's building a personal library. Could be your very own barracks has a hoarder for a boarder.

It might also be a good idea when you're around the publications stock room to ask to look at a copy of the AG depot's publication distribution list. It's right up-to-date and comes out every week or so.

THEY'RE EXPENDABLE

For proper maintenance, you need the proper pubs. Improper PM means YGT (You Got Troubles). So, remember that it costs less to get a new TM than a new vehicle, and that the TM is the cheapest item that goes with that vehicle.

Wear 'em out... publications are part of the over-all gear for each major item. They can be replaced.

COMMERCIAL PUBLICATIONS

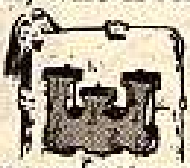
Are you one of the ones who fall in the commercial-publications class? Do you drive or work on commercial equipment and need those manufacturer's manuals and parts books? If so, there've been systems worked out which'll bring you those publications without sweat.

Ordnance

Here's all you gotta do: If your outfit needs five copies or less of a manual for your Ordnance commercial vehicle, write up which one you need, how many you want and why you need that many. Then, send your **DA Form 17** to the Commanding Officer, Raritan Arsenal, Metuchen, N. J., ATTN: ORDJR-P. As long as they have 'em, they'll be happy to send them along.

If you need more'n five—and please make sure they're really needed—write that justification to Chief of Ordnance, Department of the Army, Washington 25, D. C., ATTN: ORDFM-Pub. These people'll check your justification and make sure it's OK. If it is, they'll buck it along to Raritan, who'll send the books to you.

Engineer



The deal is a little different when you want manufacturer's publications for your Engineer equipment.

Requisition manufacturer's pubs the same way you requisition an Engineer repair part. Which means send a **DA Form 1546** to the Engineer field maintenance shop or company which supports your outfit. Make sure this information is on the issue slip:

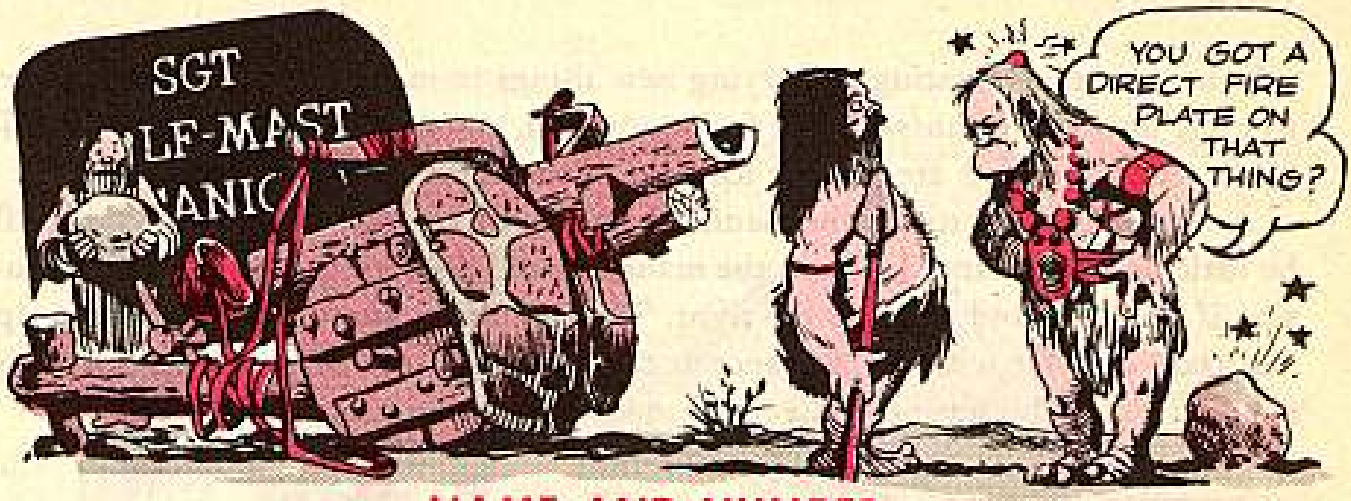
1. The type—or types—of pubs you need. F'instance, if you haven't got any for a piece of equipment, you'll need an operator's manual, a maintenance instruction manual, and a parts book. Write it down.

2. Also include on the requisition all the data on the equipment identification plates. That includes the end item stock number, make, model, and serial number. If you want manuals that cover any or all components and/or attachments of the end item, list their make, model, and serial number, too.

Remember—you get Engineer manufacturer's pubs the same way you get repair parts—from your Engineer field maintenance support.

Quartermaster

The Quartermaster Corps has somewhat the same type of deal. Manufacturers' publications are ordered the same way you ask for QM repair parts. Name the pubs you want on a **DA Form 1546** and send it to Columbus General Depot, ATTN: Quartermaster Parts Center, Columbus, Ohio.

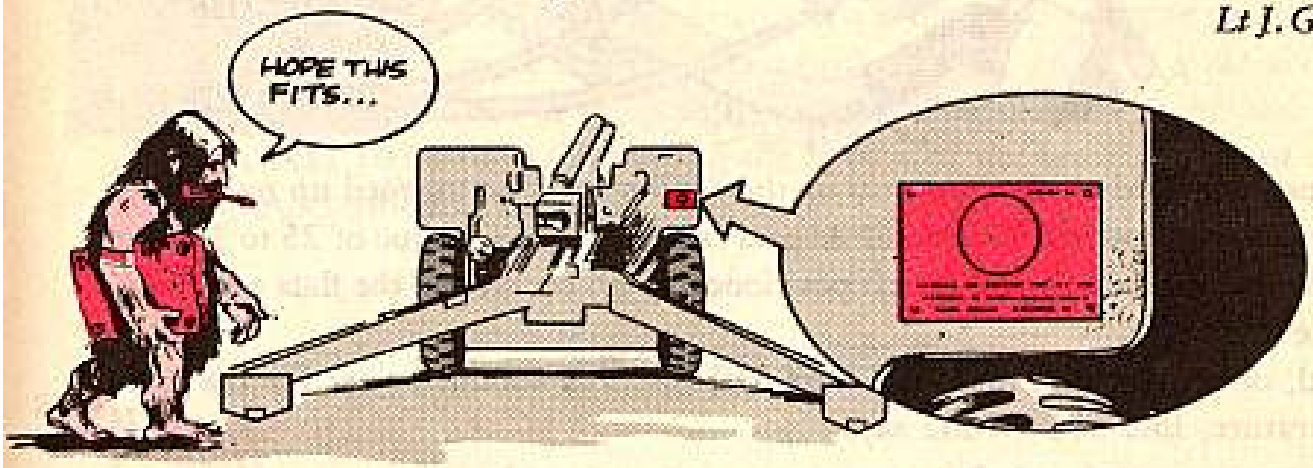


NAME AND NUMBER

Dear Half-Mast,

Quick . . . I'd like the stock number and nomenclature for the direct-fire information plate that's supposed to be attached to the upper right shield of the 105-mm howitzer M2A2 carriage.

Lt J. G. K.



Dear Lt J. G. K.,

The plate goes by this handle: Chart, aiming data, 105-E-1. It can be had under FSN 1015-396-1906. Quick enough?

Half-Mast

CRACKED MANIFOLDS

Dear Half-Mast,

We've been having a rash of cracked manifolds on our M59 armored personnel carriers. Could it be that some people are squirting water on 'em when they're hot? This is the only reason I can see—what about you?

SFC T. G.

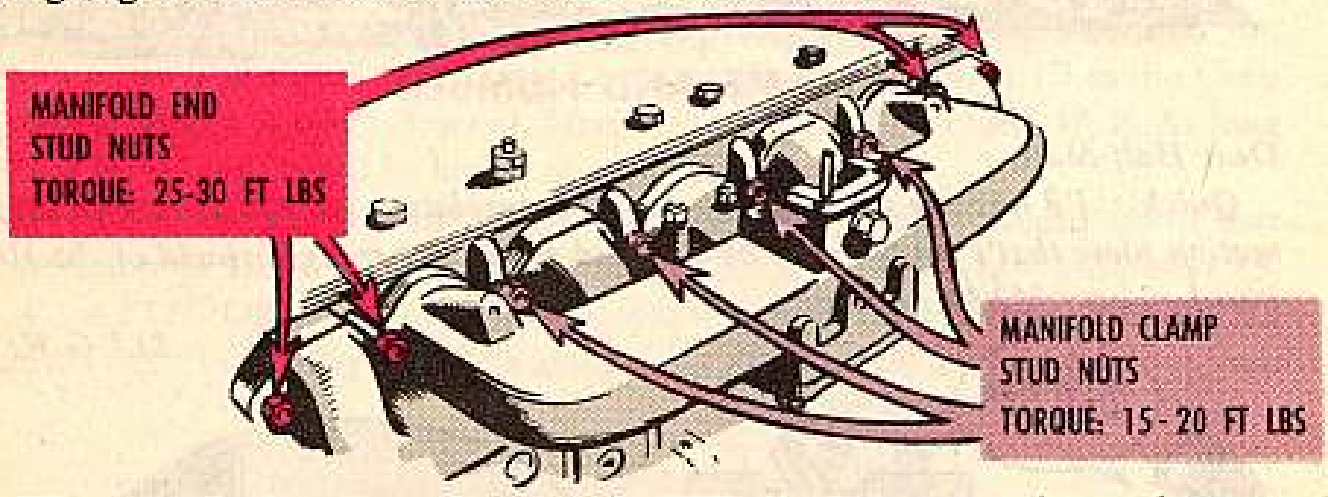
Dear SFC T. G.,

A possibility, Sarge, and one that should be looked into. But, there's one more crevice to this problem you oughta explore.

Of course, it could be that the tremendous heat is cracking the manifolds. This is something you can't do anything about—it's strictly up to the design people,

who are constantly testing and trying new things to make the equipment better, to come up with the answer. But from your end, you oughta make sure the manifold's studs and nuts are getting torqued to the right spec—not too tight.

As your engine heats up, the manifold clamps will collapse slightly and there'll be little or no clearance between the manifold and the clamps to allow for expansion if the studs and nuts are too tight. That manifold has to creep as it heats up and cools off, but with no clearance at the attaching stud nuts and clamps she's not going to. The outcome? Cracked manifolds—what else?



Those manifold-clamp stud-nuts on the M59 should be torqued up to between 15 and 20 foot-pounds. The manifold-end stud-nuts get a torque of 25 to 30 foot-pounds and the nuts should be left positioned so no corners of the flats are touching the manifold.

And, of course, that manifold heat-control-valve should be set for the right temperature, like TM 9-7002 says.

Half-Mast

Dear Half-Mast,

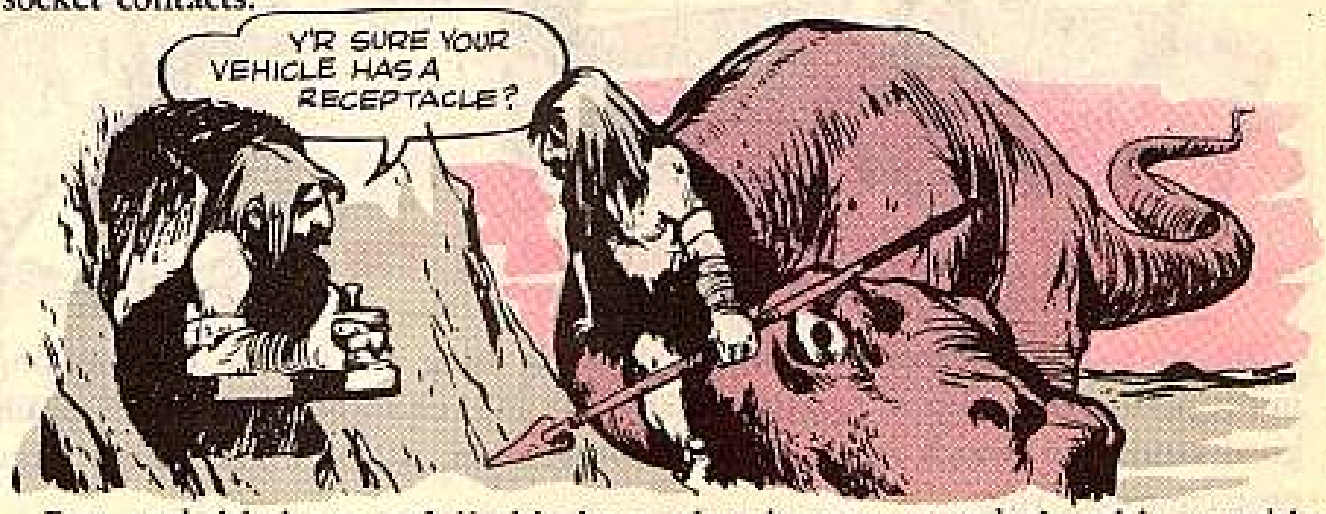
Is it a receptacle or is it a connector? Askin' about these intervehicular receptacles (connectors).

Found that the different SNL's call 'em by different names. Now, just which name is the right one?

CWO P. L. H.

Dear CWO P. L. H.,

The standard nomenclature for this item is Receptacle, trailer electrical coupling, assembly. The assembly's made up of a receptacle shell, socket insert and socket contacts.



But—and this is an awfully big but—when it comes to ordering this assembly, you'd best go by the name and Ordnance stock number given in your SNL. You see, there are differences in receptacle assemblies between the 6, 12 and 24-volt system trucks and trailers. Following the SNL will get around a lot of requisitioning problems that may crop up.

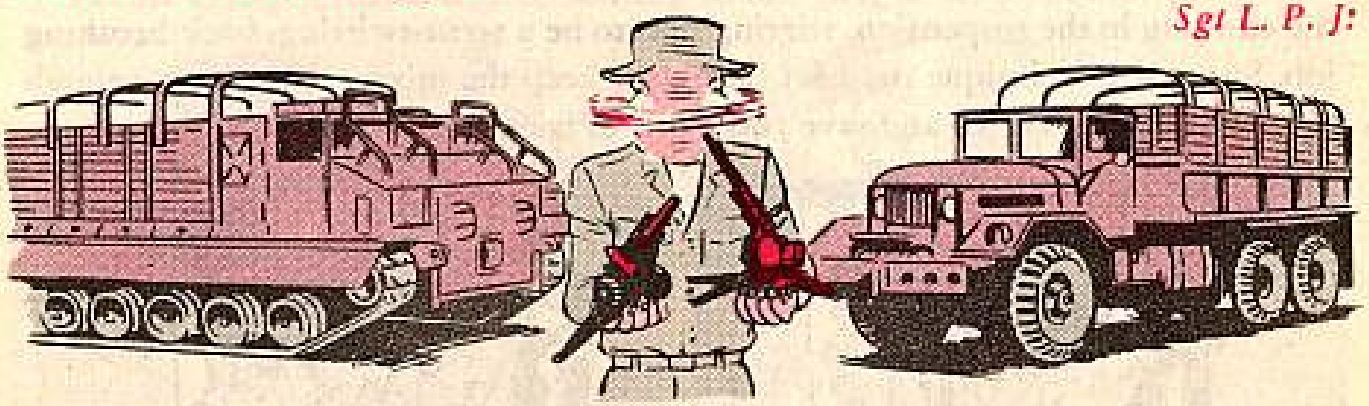
Half-Mast

TO EACH HIS OWN

Dear Half-Mast,

Which prime mover do I use to tow the 155-mm howitzer, and which do I use to tow the 90-mm gun?

Sgt L. P. J:



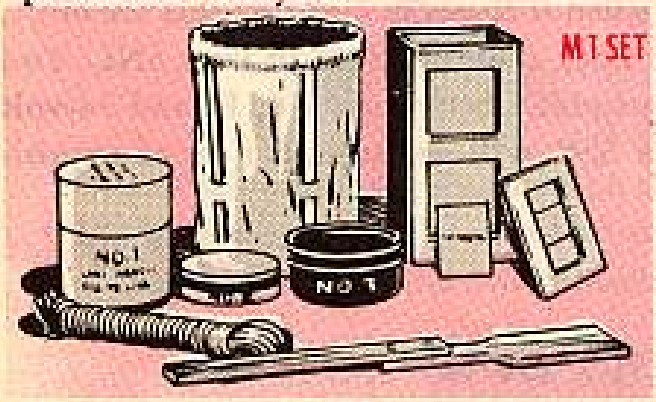
Dear Sgt L. P. J.,

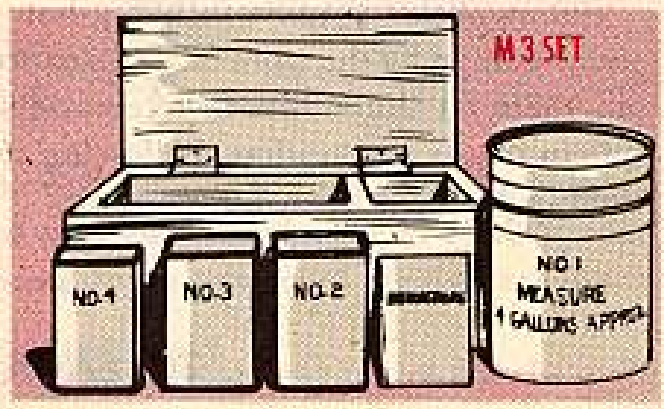
You'll use the same ones to tow both. You can use either the M8E2 tractor or the M125 10-ton truck, whichever you have. They'll both do the job nice-like. But don't try it with any truck but the 10-ton job—they're not built for it.

Half-Mast

Dip 'Em And Dunk 'Em

Agitation's the keyword when it comes to using the M1 or M3 clothing impregnating sets. Lots of agitation makes for an even suspension, which means good saturation, which means better impregnation. All of which means more protection—for you.





Like your TM 3-303 tells you, constant stirring is needed to keep the suspension all mixed up and working right. Without stirring, some mighty important chemicals will just sink to the bottom and do you no good. But after you've put the clothing in the suspension, stirring gets to be a wrist-twisting, back-breaking job. So try this technique the next time. It'll keep the mixture shook up enough to give you best results, and save you work to boot.

Prepare the suspension just like the TM tells you. Then grab a coupla fistfulls of clothing and make like an unmechanized washerwoman. Slosh 'em up and down in the suspension, pushing 'em all the way to the bottom each time.

Then pull 'em back till they almost—but not quite—come out of the mixture. You've gotta watch it, or you may splash some in your eyes. And that stuff's no eyewash.

This rub-a-dub treatment gives you the needed saturation, without long soaking and kneading. And remember, just soaking your clothes is not enough. Unless the suspension is really shook up while you're impregnating, you won't get the even distribution of impregnite that's needed to give you full protection.

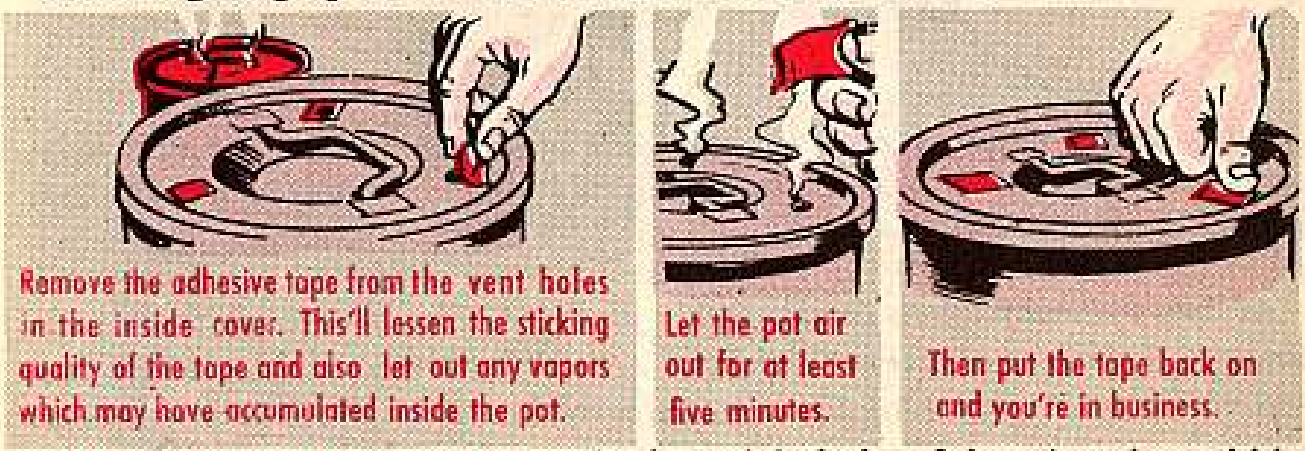
After you've dipped the clothes a few times, carry on like the TM says. Wring 'em, dry 'em and brush 'em off.

Air Condition 'Em

Your M4A2 HC floating smoke pots are pretty tricky at times—like just when you're ready to use 'em. Sometimes it happens that when you go to fire 'em, the pressure built up by the rapid burning of the first fire mixture, combined with the extra-strong adhesion of the tape over the vent holes, causes your pot to blow its top, and rupture its insides.

When pots have been in storage for some time, that tape sticks so tight that even the force of the pressure won't budge it. Result? The clamps on the pot cover are likely to give before the tape will, and that cover's apt to go sailing 6 to 10 feet in the air.

Before lighting up an M4A2 floating smoke pot, be sure you do this:



Now, this venting doesn't have to be done right before firing. Any time within 24 hours before using 'em is OK. The only thing is, if you do it ahead of time you'll have to mark 'em some way so you'll know they've been vented. But when in doubt, vent 'em before lighting. Remember tho, this applies only to your M4A2's and not to other smoke pots.

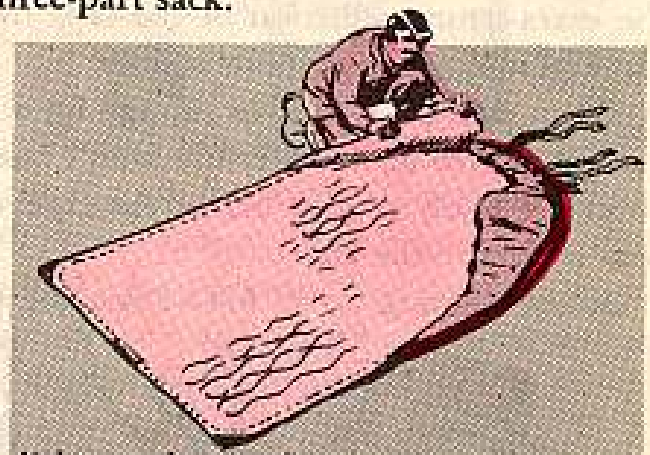
Now I Lay Me...

If all the Joes who have been frustrated by unzippy zippers were laid end to end . . . well, maybe they wouldn't be so frustrated.

But the fact is, many an otherwise good man has been left out in the cold holding his sleeping bag because the zipper wouldn't work and he couldn't get in without tearing something up. Any rough handling of a slide fastener is bound to result in some rips and tears . . . with a lot of tall explaining to do afterwards.

Here're some tips that'll help you get the most satisfaction out of your sleeping gear—whether it's a one-, two-, or three-part sack.

Take it slow with the zipper. It takes only a few seconds to straighten out the kinks and wrinkles picked up in a day's bouncin' around.



Make sure the inner flops don't get caught on the tracks. If they do, don't try to force the zipper. Back off and clear the flops.

As long as those feathers remain inside your comforter, you've got a soft sack. But a small rip, snag or tear can sink you . . . right down to the cold, cold ground. And you'll wake up looking like a fox in a chicken coop. Patch or sew up rips and tears while they're small. If your bag has too big a tear, turn it in for another one. Let the experts take over.

Remember, too, there's no smoking once you've hit the sack. Those bags don't have too much room to start, so keep the cigarette butts away. It's not only uncomfortable—it's dangerous.

Same thing goes for shoes, harness and other items. No matter how anxious you are to get in, take time to remove as much gear as the situation permits. It'll make it a lot easier on you . . . and your bag.

A comforter or bag with a bad case of spots (grease, oil, paint, etc.) can be cured with some dry-cleaning solvent. A 1-gal can FSN 6850-281-1985 (QM) will take care of many a bag.

If a pneumatic mattress comes with the sleeping gear, one rip in the fabric is like one hole in the head . . . one too many.

A regular tube-patching kit will come in handy whenever that happens. (Those cold-patch kits pack enough cement, patches and patching material to mend a mattress that's been up against the talking end of a shotgun.)

To order, ask for:

Kit, repair, pneumatic tire tube, cold, FSN 2640-272-6410 (Ord).

Big Acid Apron

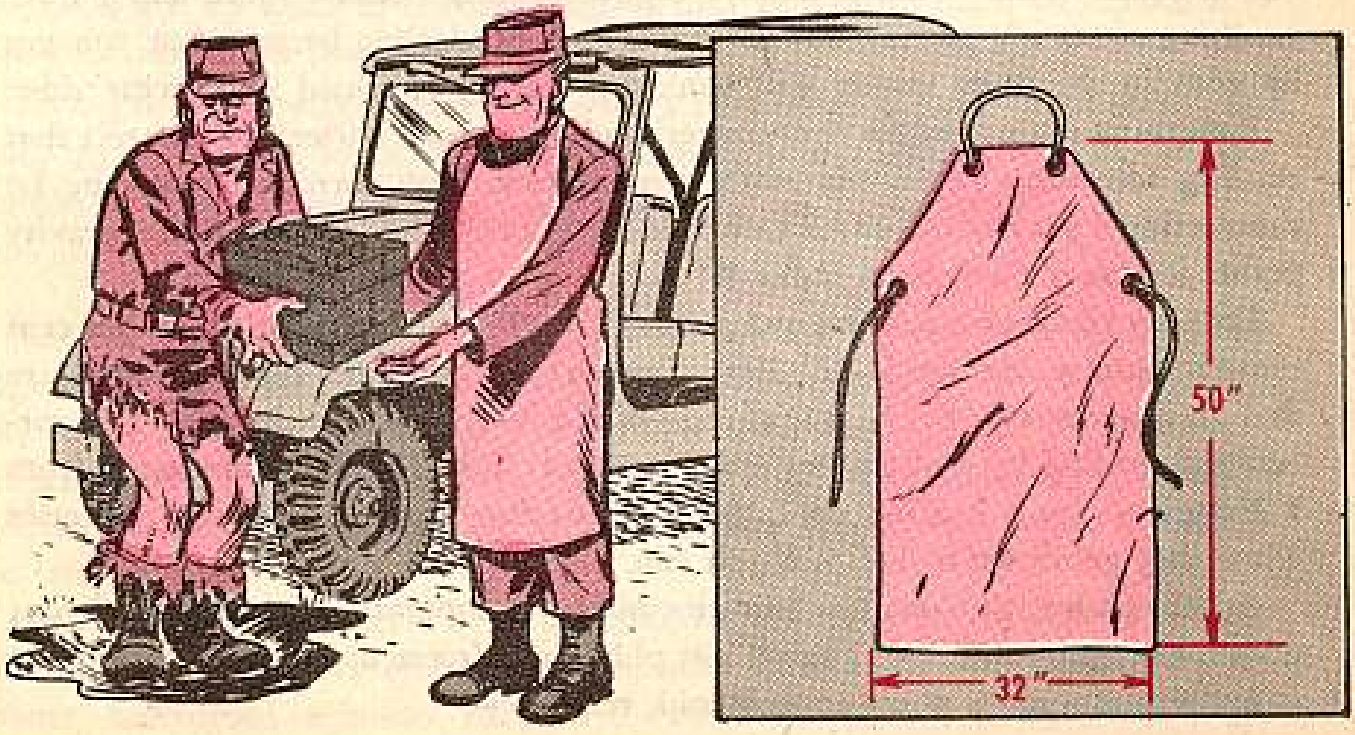
It's a cinch.

Keepin' battery acid from eatin' holes in your fatigues. No need, 'course, for a man to see his clothes chewed up by that juice.

Just slip into an apron that covers the problem from negative to positive. It's over four feet long, and its rubber-coated surface will stop just about any splash.

If your supply sergeant wants to get formal about its name, toss him this: Apron, battery workers, FSN 8405-234-9253 (QM).

TA 21 is your authority for getting this apron. It authorizes one for each man who handles batteries.



Sgt Dozer and Sgt Half-Mast give you . . .

THE COLD

(To keep your stuff on-the-ball in cold weather)

Now that your long underwear feels real good and it's tough to stand still at reveille, it's time to keep a weather eye on Old Man Winter.

You can take care of yourself . . . but your equipment depends strictly on you for cold-weather care. Be good to it, and it'll be good to you during the brass monkey season.

BATTERY-CARE

The one thing that works harder than anything else during the shiver season is the battery. During the summer, a battery that's a little low on zip can get by. Warm weather isn't as rough as cold on it, and engines will naturally kick over faster and easier with the balmy breezes blowing.

That same battery will be no-go in the snow. It's tougher for a battery to put out in cold weather. And it takes a bigger beating because more and harder cranking mean it's putting out more work. A borderline battery that you got by with in the swim season will conk out during fur-lined underwear time.

First thing to do is take a hydrometer reading on each battery and correct that reading according to the electrolyte temperature. You correct the reading by subtracting 4 gravity points for each 10 degrees below 80° F. (You add 4 gravity points for every 10 degrees above 80° F.)

Let's say you take a reading and get 1.230 at 20 degrees. That's a 50 per cent charged battery, and seems OK. But . . . when you correct the reading and figure that 20 degrees is 60 below 80 degrees—or 6 x 4—the picture changes. You correct the reading by multiplying 6 x 4 and get .024. The .024 subtracted from 1.230 gives you a reading of 1.206—a borderline battery. Recharge batteries when they get down to 1.225, if you can.

Another thing, tho—get low batteries and low temperatures together and your odds'll get plenty low, too. They'll just plumb out freeze up on you. If you want to know just what is no-go at how cold, read on —

FACTS

BATTERY ELECTROLYTE SPECIFIC GRAVITY (Corrected to 80° F)	WILL FREEZE AT THESE TEMPERATURES
1.000 (water)	+32° F
1.130	+10° F
1.160	+ 1° F
1.220	—31° F
1.250	—62° F
1.275-1.300	—85° to —95° F

So, in case you took—at bare-face value—what we said on page 26 in PS 60, or what TM 9-2855 says on page 49 in para 25, the dope in this table should ease your mind—seeing as how you may not be able to get the corrected specific gravity of a military battery above 1.260 or 1.265 or a commercial type above about 1.250, fully charged, after they've been in service a while. If you've got one that's low and on a vehicle that's not operated enough to keep it up, play it safe on those real cold winter nights. Take the battery inside a heated building and hook her up again in the morning. It may be a little extra work, but it'll save your run-down juice box.

Trying to get through the winter with a borderline battery could leave you hung up in the boondocks. If a good charge'll fix the battery up, OK. If not, replace it.

COOLING SYSTEM

Another thing to keep in good shape is the cooling system. Your temperature gage'll tell you if the engine's running too cold or too hot. If she is, it's check-up time. Be sure the thermostats open at the advertised temperatures. F'rinstance, if a thermostat is supposed to open at about 180° F, dunk it in water with a thermometer and heat to that temperature for a test. If the thermostat opens too soon or too late, get a new one.

Your cooling system has to be clean. Draining and flushing with water usually does the job. If not, try mixing a half-pound of washing soda (Sodium Carbonate, Anhydrous technical, FSN 6810-264-6521 — Chem — for a 10-lb bag)

to a gallon of water. Fill the cooling system with the solution and run the engine for 15 minutes. Flush with clear water. See TM 9-2858 for the lowdown on flushing Ordnance equipment. If the washing solution doesn't do the job, use compressed air and a flushing gun nozzle.

A real dirty block calls for special, potent stuff. It's Engine Cooling System Compound FSN 6850-272-9327 (Ord). Take care and follow instructions on the container. The stuff packs a real punch. Also check for water leaks, bad hoses, bad connections, bad drain plugs and drain cocks. Look at the water pump and fan belts.

If the unit has a winterization kit, take care of it, too. When cleaning the cooling system, open the valves from the heater to the block to clean the heater. Do the same thing when you put coolant in the system.

The most important thing is an anti-freeze solution that'll keep flowing down to 10 degrees below the lowest expected temperature in your area.

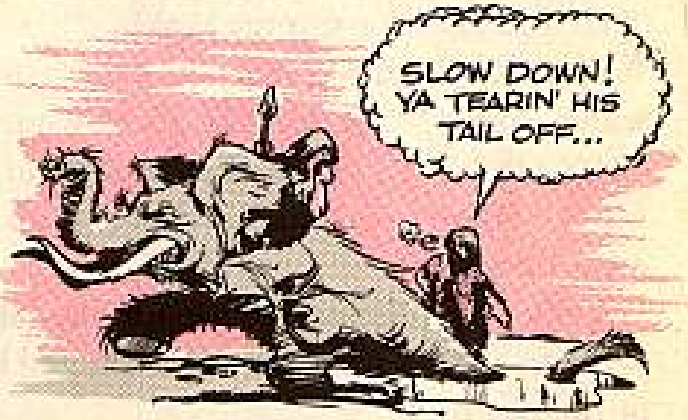
PROPER LUBRICATION

Changing to the proper lubes in the winter can be tricky. The big deal here is to follow the LO and make your changes for expected temperatures . . . not wait until freezing hits. Freezing water and sludge might plug up lube fittings. Before a grease job remove the stuck ones — replace 'em if you can — if not, put 'em in hot oil — that'll unstick 'em.

CRACKIN' UP

Operating in cold weather calls for keeping another important thing in mind: metal, rubber, plastic — just about everything — gets brittle. The same piece of stuff that bends when it's warm — rubber hose, plastic window, spark plug cable harness — won't give when it's cold — it cracks. So before you do a job that'll strain your rig or one of its parts, keep in mind that you'll likely get a break before you get a bend.

Go slow starting off with equipment that's been parked out in the cold all night. Give the parts a chance to limber up and the stiff, frozen joints to break loose easy like. After your rig's warmed up, roll about a hundred yards in low gear at low speed. That'll give lubricants in the power train and other high-friction places time to get loosened up.



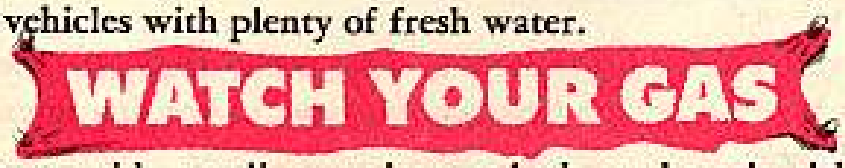
A temporary thaw brings slush that can soak brake linings. And setting a parking brake with wet lining through a freezing night will freeze 'em up solid.

When you suspect wet brake linings, chock the wheels and leave the parking brake off. Many a frozen parking brake has been busted when a driver tried to free it by jerking it loose.

At the end of a day's work, start thinking of the next morning. Park tractors and other rigs on terrain that'll be the same in the morning as it was the night before. Meaning the afternoon sun sometimes softens up ground in the winter. Park a rig there overnight, and she'll sink in a little. Next morning, when the mercury's lower than it was in the afternoon, your rig'll be frozen to the ground. Picking out a good place or parking on dunnage will save the trouble of breaking things loose.

'Nother thing: If you're working in wet dirt on a fairly warm day and a cold snap is expected that night, clean mud off parts that'll bind when the mud freezes. It's easier to do the job then instead of next morning.

About those icy roads that get a dose of rock salt. The salt gets you over the ice but it's the worst enemy of metal. Soon as the weather breaks, wash the underside of salted vehicles with plenty of fresh water.



On equipment with gasoline engines, a look at the trip ticket can prevent trouble. The little block that tells you to check the fuel after operation is mighty important. Here's why: Air in a gas tank means condensation overnight. The more space, the more water you get. The less space, the less water. So a few minutes spent filling the tank at the end of the day will keep water out of the fuel

system. If you can. also drain the fuel filter. A little hunk of ice there can cause a big delay.

Naturally, a little water will get in the fuel system no matter what you do. Fight it by draining off the water in the bottom of the tank every week or so. That also goes for storage tanks.

If you still get water in the fuel system after keeping gas tanks filled and the water drained, try this: Add a half-pint of denatured alcohol, Grade III, FSN 6810-224-6614 (Chem) to the tank for every 10 gallons of gas you put in. The water will mix with the alcohol and go through the fuel system easy as through a tin horn.

Vehicles equipped with air brakes should have the tanks drained. Open the petcocks every night, and close 'em and build up pressure before you start rolling in the morning.

On winterized equipment, the heater burner and float chamber should be cleaned, and fuel lines checked for leaks and cleaned. Check personnel heaters for fume leakage — keep a close watch on your cold weather starting equipment to make sure it's OK.

UNSTEADY STUFF

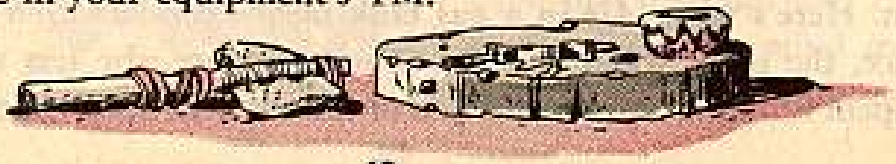
The stuff that takes the worst beating during the winter is equipment that's used just now and then. 'Specially if it sets outside. On standby generators and compressors and such, you can exercise them twice a week — or maybe more often — instead of once a week. Same goes for rigs and machinery. When you know they're not going to be operated for a while, start 'em and run 'em for exercise. The longer you let equipment set idle in cold weather, the harder it is to get it perking again.

KEEP IN TUNE

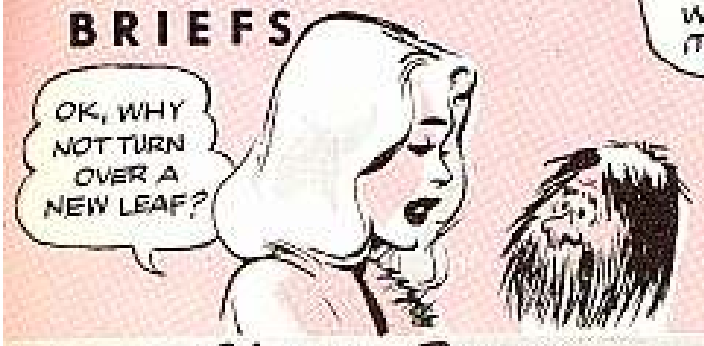
An engine tune-up can do a lot of good. While you're at it, you can richen the mixture a little (if your carburetor's adjustable) and (in extreme cold) make spark plug gaps smaller for faster starting. 'Course, that cuts down on what's called engine efficiency.

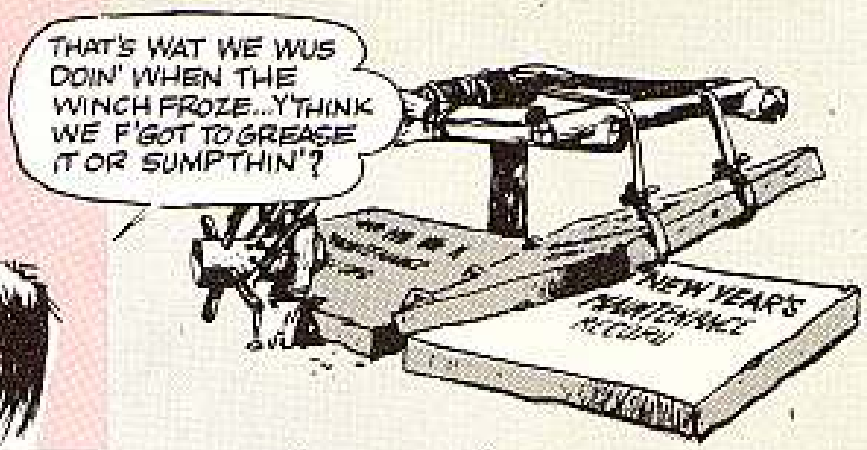
A little extra care during brass monkey time really pays off. That preventive maintenance work you do is the best bet you have in keeping ahead of the race with Old Man Winter.

A final word — be sure you check out the details of cold weather operation and maintenance in your equipment's TM.



Connie Rodd's BRIEFS





Change Screws

This scoop's for M33 FCS outfits. You'd be on the ball by changing the setscrew that holds the focus knob on the trail fire indicator in your tracking console. Get the shorter, ¼-in setscrew (FSN 5305-019-3222). It does a better job of keeping any loose electricity from getting to you. You might also put a drop of electrical insulating varnish on the screw. FSN 5970-284-5448 gets you a quart.

On Wood Only

It can't be said too often... you use linseed oil only on the wood parts of small arms. And a light coat rubbed in by hand, at that. The oil gums up metal working parts and if it gets in the bore and hardens... the barrel could split its sides when fired.

Save The Container

Say, now... those metal containers your 5780 and 5795 magnetrons come in are worth a good many greenbacks. So check around your M33 FCS or Nike-Ajax site and gather up stray containers, plus the retaining rings, gaskets and other hardware that go with 'em and turn them in for re-use. The containers are for shipping magnetrons to and from your site—nothing else.

Clean Sweep

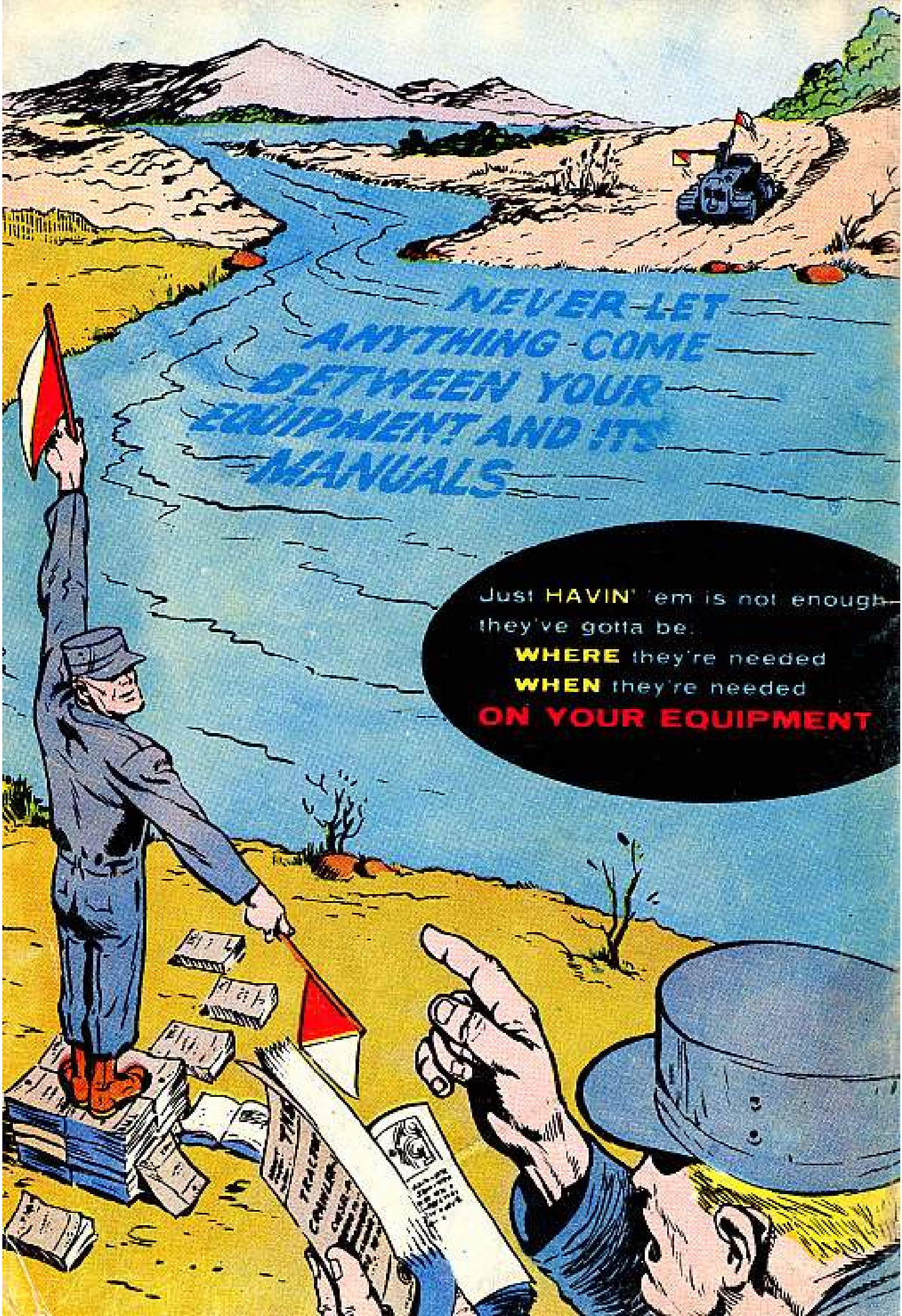
When cleaning fire-control equipment in your tank, don't forget the end windows on the range finder. The windows are in a spot where they pick up a lotta dust and dirt. Get rid of the heavy stuff with a camel's hair brush. Then finish up with liquid lens-cleaning compound, FSN 7930-227-1887, and lens tissue paper, FSN 6540-162-2993. In below freezing weather, switch from the compound to alcohol, FSN 6810-224-1576.

One Per Barrel

Got something for you crews on the M42 twin 40-mm self-propelled guns. You want four copies of Part II of your Weapon Record Book. Each barrel, including the spares, gets a Part II section—a total of four for you.

Parts Won't Part

You armorer-artificers oughta "box yourselves in" when it comes to keeping track of your small arms parts and tools. FSN 5140-449-6856 gets you a tool and spare parts box, and FSN 5140-449-6851 is worth a spare parts box. Changes 2 to Section 1 of SNL J10 Ord 6 authorizes you two of each box per tool set.


NEVER LET ANYTHING COME BETWEEN YOUR EQUIPMENT AND ITS MANUALS
Just HAVIN' 'em is not enough— they've gotta be.
WHERE they're needed
WHEN they're needed
ON YOUR EQUIPMENT