Issue 276

PS

THE PREVENTIVE MAINTENANCE MONTHLY

November 1975

"FINGER ON THE FUEL" see Pages 29-36

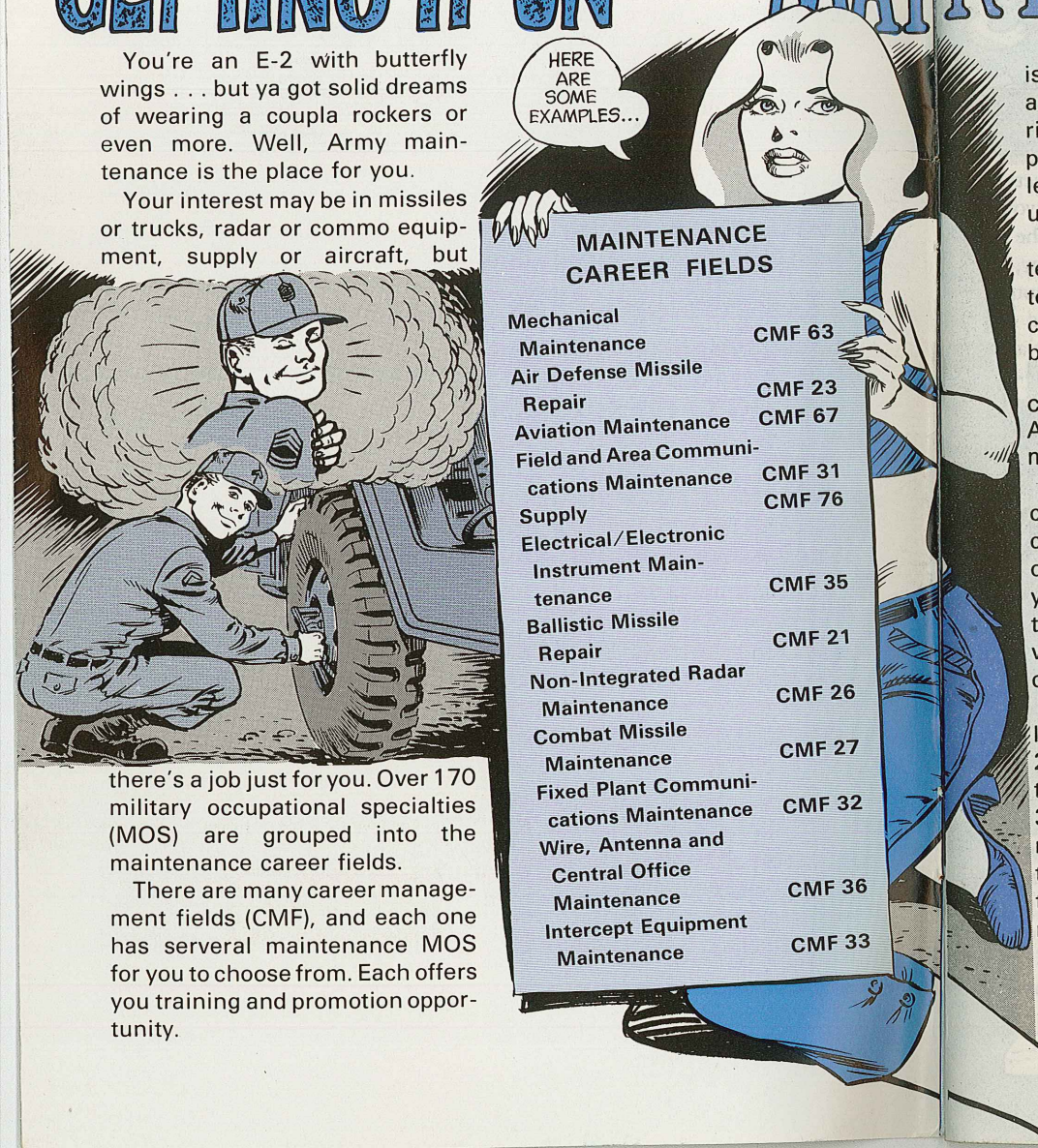
YOUR CAREER . . .

GETTING IT ON with MAINTENANCE

You're an E-2 with butterfly wings . . . but ya got solid dreams of wearing a coupla rockers or even more. Well, Army maintenance is the place for you.

Your interest may be in missiles or trucks, radar or commo equipment, supply or aircraft, but there's a job just for you. Over 170 military occupational specialties (MOS) are grouped into the maintenance career fields.

There are many career management fields (CMF), and each one has serveral maintenance MOS for you to choose from. Each offers you training and promotion opportunity.



MAINTENANCE CAREER FIELDS

Mechanical Maintenance	CMF 63
Air Defense Missile Repair	CMF 23
Aviation Maintenance	CMF 67
Field and Area Communications Maintenance	CMF 31
Supply	CMF 76
Electrical/Electronic Instrument Maintenance	CMF 35
Ballistic Missile Repair	CMF 21
Non-Integrated Radar Maintenance	CMF 26
Combat Missile Maintenance	CMF 27
Fixed Plant Communications Maintenance	CMF 32
Wire, Antenna and Central Office Maintenance	CMF 36
Intercept Equipment Maintenance	CMF 33

Getting started on getting ahead is as easy as opening your mouth and spreading the word—to the right people, which includes your platoon sergeant and platoon leader. They can direct you to your unit's career counselor.

Whether you're in a maintenance job already or would like to be assigned to one, your career counselor can help you plan the best way to get ahead.

The basic reg that covers career planning is AR 611-201. AR 600-200 outlines the way to make it to the top.

Training required for promotion can include Army schools, civilian classes, correspondence work or on-the-job development. Once you know the requirements, it's up to you to get smoking. AR 140-158 with Ch 1 has detailed info on career field promotions.

If you're interested in "sampling" maintenance, look over FM 29-2, Organizational Maintenance, or Army pamphlets in the 350-series. Or, see your unit mechanic or armorer for a copy of the maintenance manual on a truck, tank or some other equipment that interests you.

Try it; you'll like it.

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: *M S G Half-Mast PS Magazine Lexington, KY. 40507* Or call: AUTOVON 745-3503.

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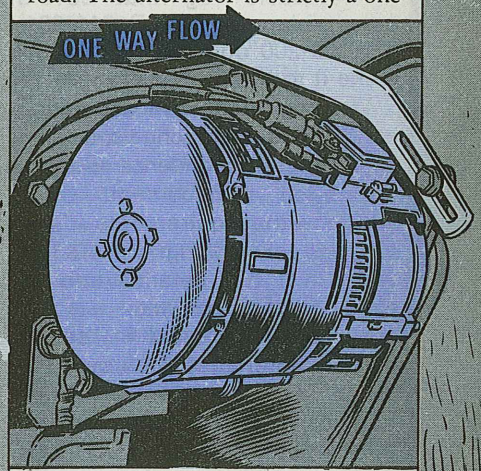
DISTRIBUTION: In accordance with requirements submitted on DA Form 12-5.

Watch Your P's AND N's

They say that opposites attract—but that's not the case with your vehicle's battery. If you hook up the electrical system the opposite way, what happens to the alternator is not very attractive.

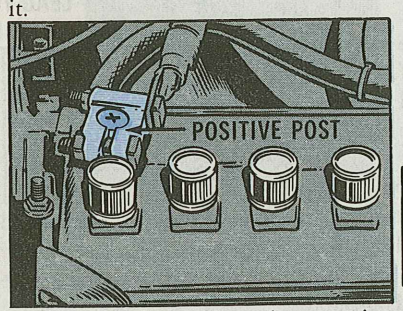
Electricity flows like traffic on a road. The alternator is strictly a one-way street. Electrical "traffic" going the wrong way will burn it out for sure.



So, when you're replacing a battery or slave-starting a vehicle, you make sure you've got the right polarity. This means positive-to-positive and negative-to-negative.

BACKWARDS BATTERY

One of the surest ways to ruin an alternator is to put in the battery bass-ackwards. The positive post of a battery usually has a P or + stamped on it.



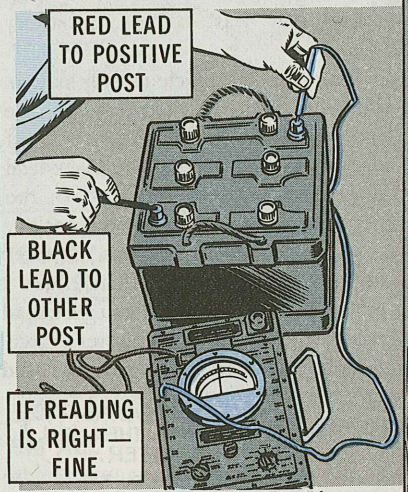
Also, it's fatter than the negative terminal. This side is connected to the cable that goes to the starter.

The negative connection, with an N or minus (-) mark on it, goes to the ground on the vehicle frame or engine.

If you're not sure which is the positive post of the battery, you can check it out with your multimeter.

Plug the black lead into the OHMS -DC ± AC jack on the upper left of the TS 352 B/U meter. Plug the red lead into the 50V jack below that, and set the FUNCTION switch to DIRECT.

Touch the red lead to what you think is the positive post, and the black lead to the other post. If you get the right reading (the voltage of the battery) you're in business. If the needle tries to go the wrong way, reverse the leads. When the meter reads right, the red lead is on the positive post. (Since red goes to positive (+), remember red cross.)



If you get no reading either way, you've got a dead battery.

PS MORE

SLAVING

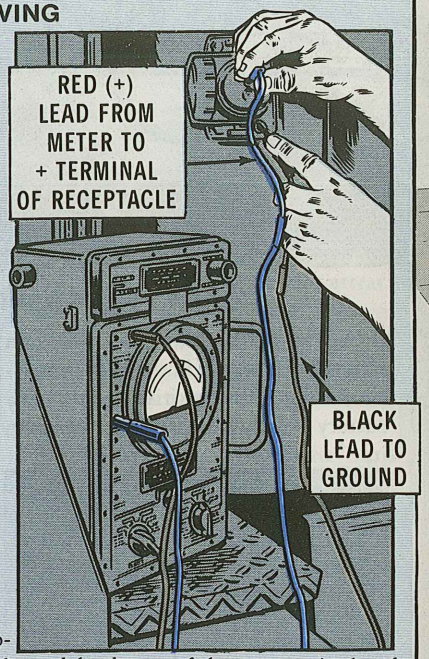
Slave cables and receptacles make the jumping job easy. But if you're not careful, they can zap your alternator.

Some of those cables are cross-wired, and the receptacles might be hooked up wrong, too.

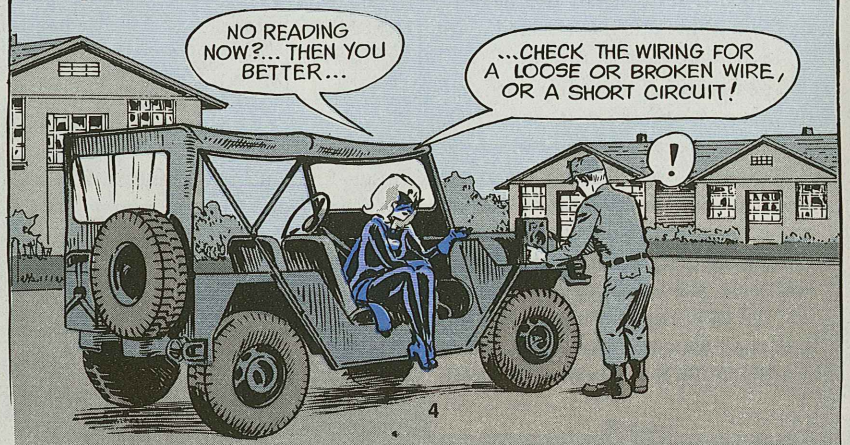
Take some time to check out the connections. TB ORD 537 (Sep 56) gives organizational mechanics the go-ahead for these tests.

First, check the receptacles on the vehicle with your multimeter set up the way it was to check the battery voltage.

Turn on the vehicle master switch. Put the positive (red) lead of the meter in the positive (+) terminal of the receptacle. Ground the black lead to the vehicle frame—not to the negative terminal of the receptacle.



If the voltmeter registers, the receptacle is installed right. If not, take the red lead out of the + terminal and put it in the - terminal. If you get a reading this time, the leads are crossed in the receptacle. Turn off the master switch and disconnect the battery. Remove the receptacle and change the power leads around.

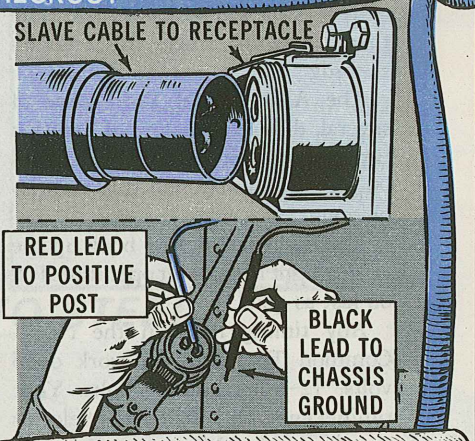


CABLE CHECKOUT

Turn on the vehicle master switch. Connect one end of the slave cable to the receptacle. Make sure that it's plugged in right. If you have to force it, it's probably upside down.

Connect the red lead of the voltmeter to the positive post on the free end of the slave cable, and the black lead to a ground on the vehicle. It should read the vehicle's voltage.

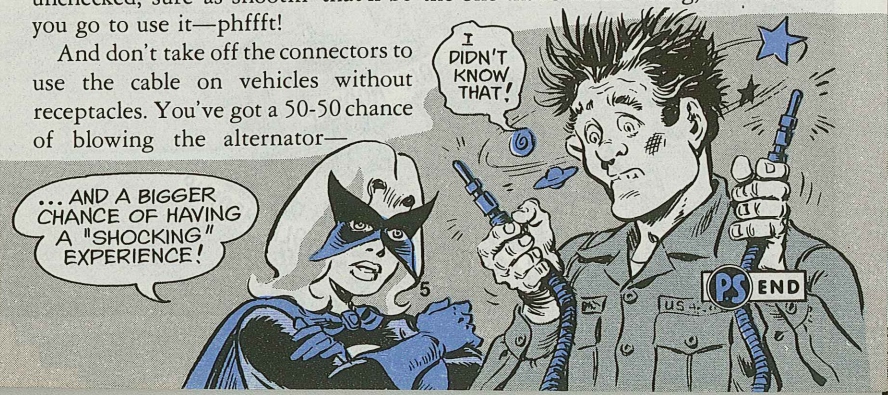
If you get no reading, try the red lead on the negative post of the cable. If you get a reading there, reverse the leads on one end of the cable. If you still don't get a reading, the cable is defective.



CHECK 'EM ALL

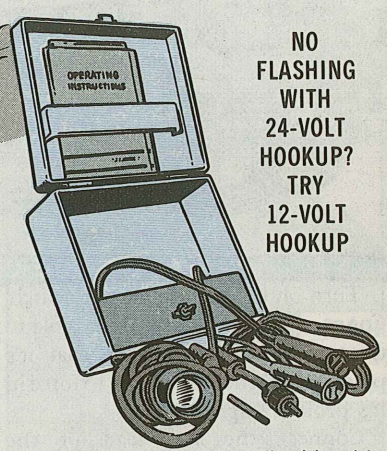
Make sure you check all vehicles and cables in your unit. If you leave just one unchecked, sure as shootin' that'll be the one that's wired wrong, and when you go to use it—phffft!

And don't take off the connectors to use the cable on vehicles without receptacles. You've got a 50-50 chance of blowing the alternator—



TIMID TIMING LIGHT?

Generally, when you're working with a 24-volt system, you hook up your timing light for 24-volt operation—like you see on page 23 in DA Pam 750-22 (Nov 73), Troubleshooting Equipment in Combat Units. Two batteries are connected in "series" for 24-volt output.



NO FLASHING WITH 24-VOLT HOOKUP? TRY 12-VOLT HOOKUP

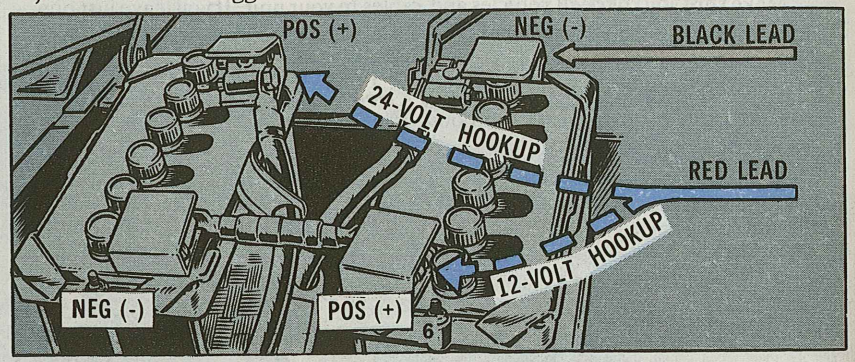
Your timing light may quit flashing if it gets more than 24 volts—and there's a good chance that a 24-volt battery setup will put out a little more than 24 volts when the engine's running.

The Allen Model 30-91—one of several different makes of ignition timing lights issued under NSN 4910-00-937-5724—may pull this surprise on you.

No big problem. Just hook up the timing light for 12-volt operation. It'll do just as good.

Any timing light in the No. 1 Common Tool Set will work on 6 volts, 12 volts and 24 volts. Your timing light set may have a selector switch for the different voltages or just an ON-OFF toggle switch.

To connect your timing light for 12-volt operation, just hook up to one of the batteries. Your red timing light lead goes to the positive (+) post of one of the batteries. Your black timing light lead goes to the negative (-) post of the same battery.



THEY DON'T SPIN

Dear Half-Mast,

We get gigs because the lunettes of our M416 ¼-ton trailers are not free to be rotated by hand. This is blamed on rust, lack of lube, etc. After shining and greasing the tapered stem, we adjust the spring to the specs in our manual. This makes the lunette tight like a cork in a bottle.

Must we continue to discard all the thrust washers to pass inspections?

SP6 D.P.T.

Dear SP6 D.P.T.,

Hang on to those washers. There's no requirement for those lunettes to be rotated by hand. Fact is, when they're adjusted to the 0.010 in. clearance like it says on page 29 of TM 9-2330-251-14 (Oct 70), it'd take a hefty guy on the end of a long breaker bar to get them to move at all.

They're not supposed to rotate easily. They are supposed to give a little when they have to—like when the trailer goes over rough terrain, so the frame won't get bent out of shape.

Half-Mast

STICK TO STEEL

Dear Half-Mast,

Is copper tubing safe for hydraulic brake lines? If not, why not?

CPT N.K.W.

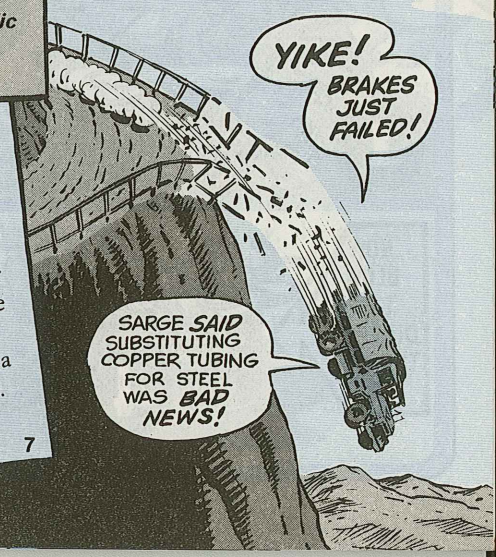
Dear Captain N.K.W.,

Copper cannot be safely substituted for steel in a hydraulic brake system.

The reason is simply that copper is not as strong as steel. The steel tubing specified is designed to hold up under terrific hydraulic pressure. Copper tubing of the same size can't be expected to take the same pressure.

Substituting copper for steel in a brake system can be a fatal mistake.

Half-Mast



WASHABLE AIR CLEANER ELEMENT . . .

GUESS NOT, WASTE NOT!

What d'ya wanna bet that there are perfectly good diesel engine air cleaner elements in your Property Disposal yard?

And you're having a tough time getting new ones?

Too many guys are tossing out air cleaner elements that only need blowing out with compressed air—or a good wash-rinse-dry treatment.

These are the dry-type air cleaner elements you find on all multifuel engine trucks and most other diesel engine equipment. You can use 'em over 'n' over again if you handle 'em carefully and clean 'em.

Your -20 TM tells how to clean the element. Or, if the TM for your equipment hasn't yet picked up the word, get TM 9-2320-209-20 (Apr 65) for the 2½-ton truck and check the poop in Ch 3, page 218, para 70b.

After it's washed and dried (about 3 days for drying), this element can be used again—

—if there're no holes or tears in it;

—if the ends are not bent so they make a bad fit; and

—if air can still get through.

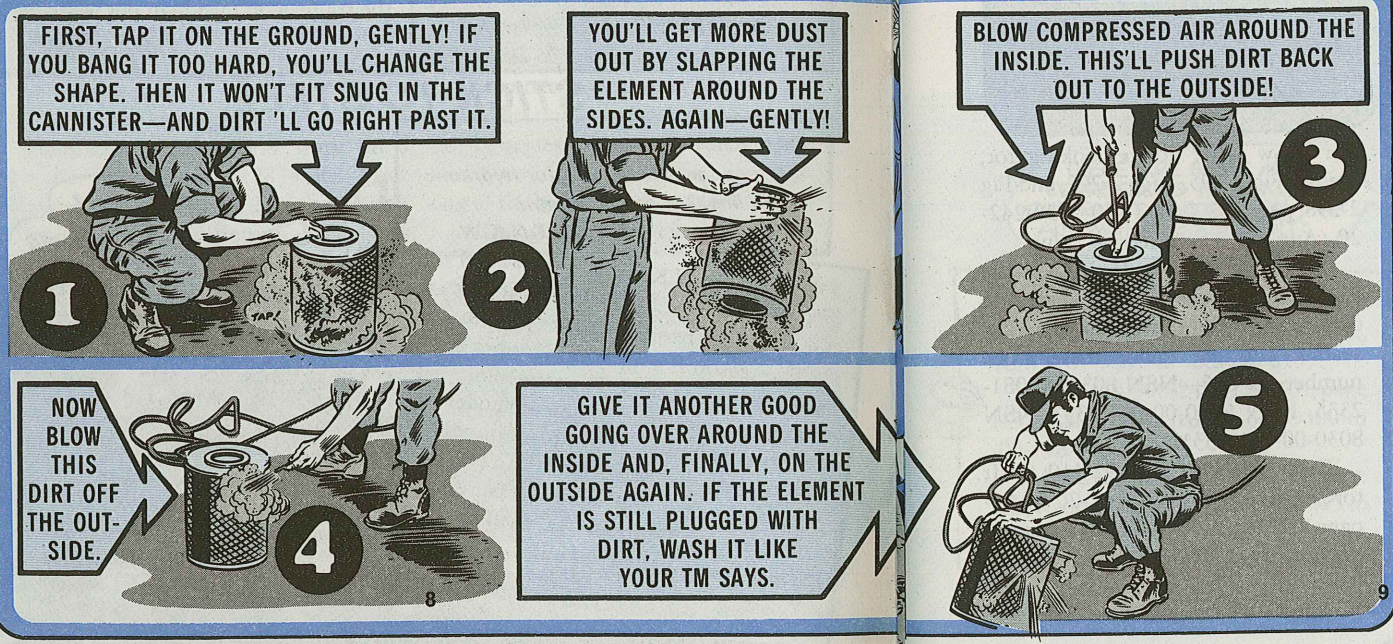
When you put a cleaned element back in your equipment, run the engine for a few minutes and watch that indicator. If the little red flag shows up in the window and then locks into full view, the air cleaner element is plugged up so bad it can't be used anymore.

That's when you put in a new one.

Trouble is, some guys just take a look at a dirty element and say:

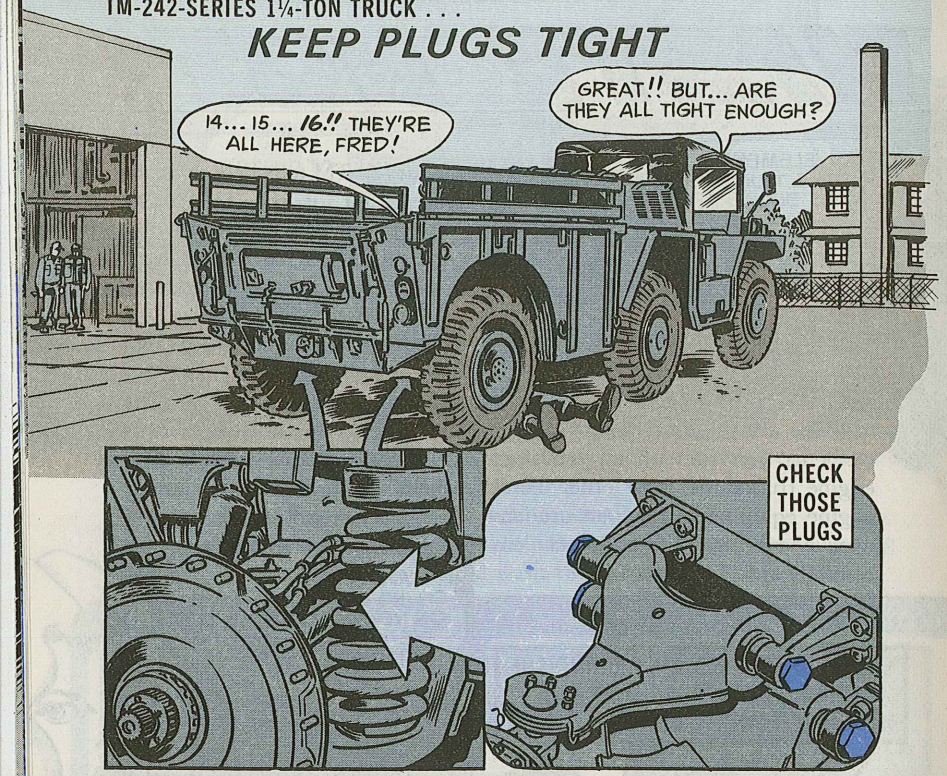
"I guess I need a new one."

FOLLOW THESE FEW SIMPLE STEPS AND SAVE A LOT OF BUCKS FOR "UNCLE":



TM-242-SERIES 1¼-TON TRUCK . . .

KEEP PLUGS TIGHT



Life's a lot sweeter for your Gama Goat when it's got all 16 of its front and rear suspension arm plugs—and they're all tight.

Trouble is, these plugs have a way of loosening up—and even falling out. So here's what you do:

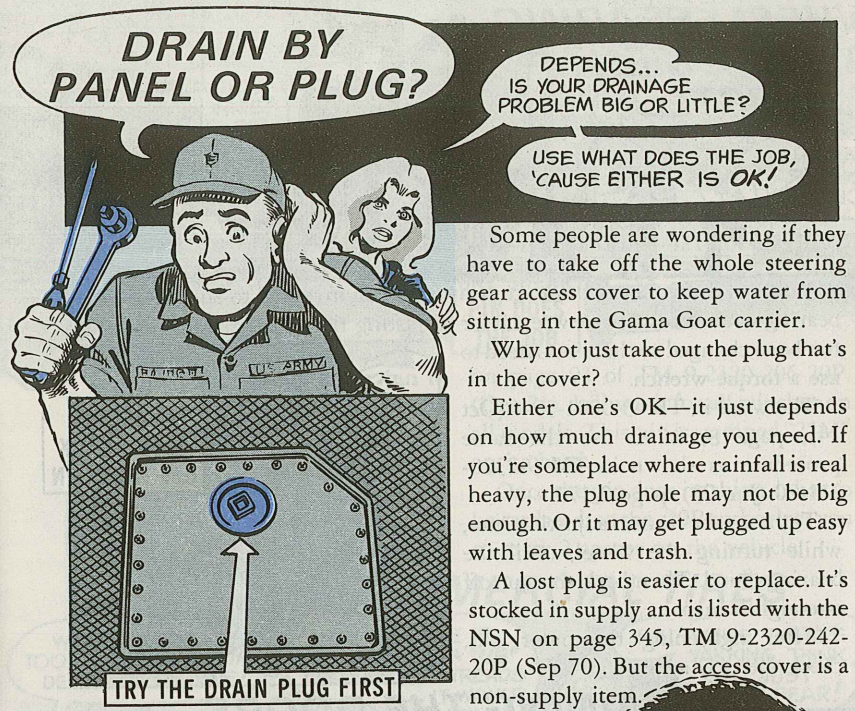
If a plug's missing, get a new one—NSN 5365-00-079-2203. It's listed on both page 210 and 225 in your TM 9-2320-242-20P (Sep 70). The 5340 there has been changed to 5365.

But even if they're all "present" 'n' accounted for, "check 'em—every one of the 16—to see if they're loose. So you know what you're looking for, eyeball Fig 2-295, page 2-292, and Fig 2-298, page 2-296, in TM 9-2320-242-20 (Aug 70) where it says "plug".

If you find a loose plug, unscrew it from the suspension arm shaft and dab some sealant on the threads. Any sealant you get under these stock numbers is OK—NSN 8030-00-081-2335, NSN 8030-00-081-2333, NSN 8030-00-081-2331.

Then give the plug 92-110 lbs-ft torque, like it says in the -20 TM—page 2-292, para 2-198d (2), and page 2-295, para 2-199d (2).

DRAIN BY PANEL OR PLUG?



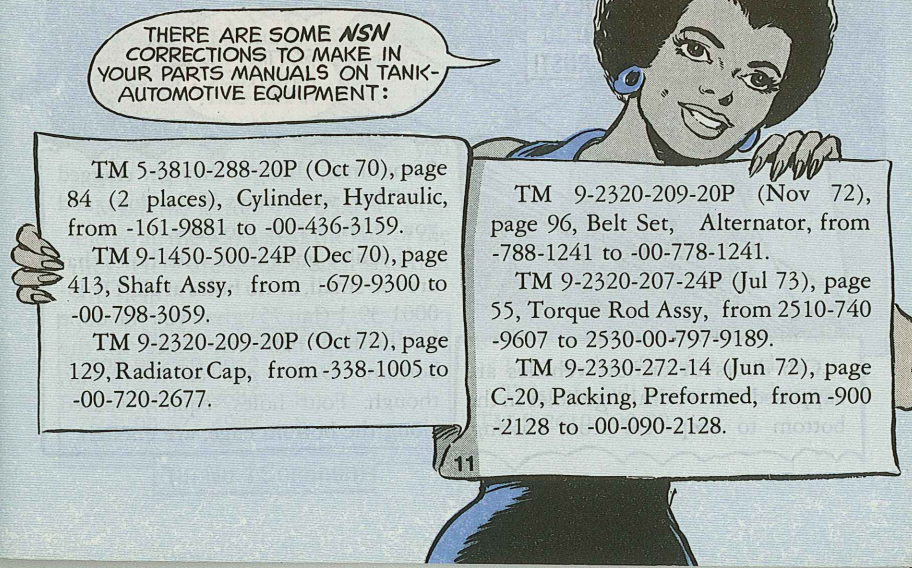
Some people are wondering if they have to take off the whole steering gear access cover to keep water from sitting in the Gama Goat carrier.

Why not just take out the plug that's in the cover?

Either one's OK—it just depends on how much drainage you need. If you're someplace where rainfall is real heavy, the plug hole may not be big enough. Or it may get plugged up easy with leaves and trash.

A lost plug is easier to replace. It's stocked in supply and is listed with the NSN on page 345, TM 9-2320-242-20P (Sep 70). But the access cover is a non-supply item.

NSN UPDATE



TM 5-3810-288-20P (Oct 70), page 84 (2 places), Cylinder, Hydraulic, from -161-9881 to -00-436-3159.

TM 9-1450-500-24P (Dec 70), page 413, Shaft Assy, from -679-9300 to -00-798-3059.

TM 9-2320-209-20P (Oct 72), page 129, Radiator Cap, from -338-1005 to -00-720-2677.

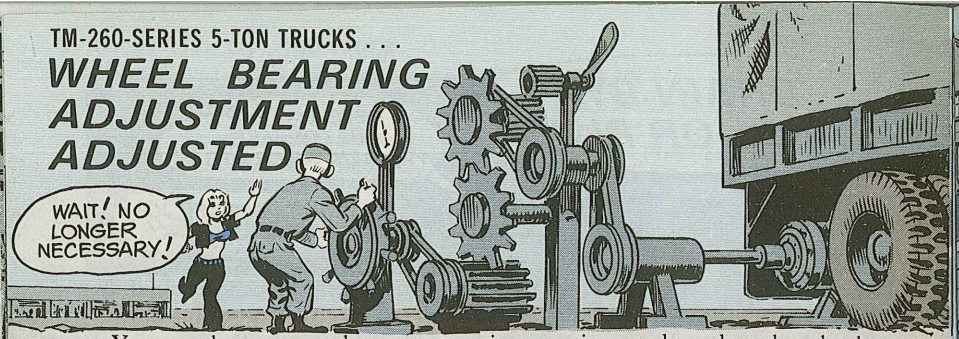
TM 9-2320-209-20P (Nov 72), page 96, Belt Set, Alternator, from -788-1241 to -00-778-1241.

TM 9-2320-207-24P (Jul 73), page 55, Torque Rod Assy, from 2510-740 -9607 to 2530-00-797-9189.

TM 9-2330-272-14 (Jun 72), page C-20, Packing, Preformed, from -900 -2128 to -00-090-2128.

TM-260-SERIES 5-TON TRUCKS . . .

WHEEL BEARING ADJUSTMENT ADJUSTED

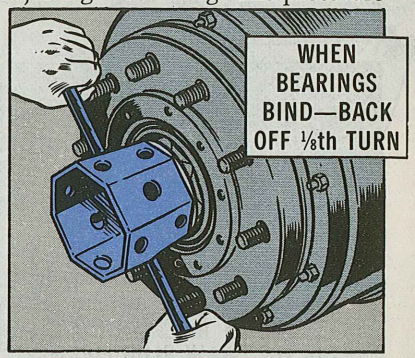


You can throw away those contraptions you invented to adapt the wheel bearing wrench to a torque wrench for adjusting the bearing. The procedure has been changed so there's no need to use a torque wrench.

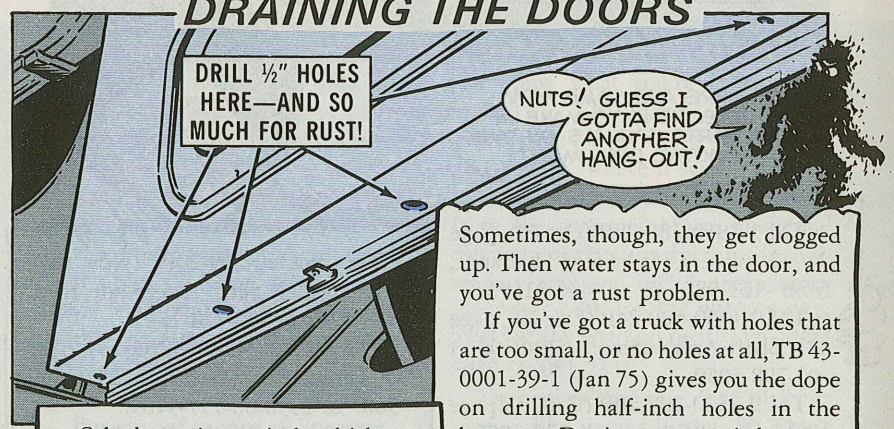
The word in TB 43-0001-39-4 (Oct 74), page 8, is to use the same procedure as shown in TM 9-2320-211-20 (Jun 73), page 2-171.

Tighten the inner adjusting nut, while turning the wheel, until the bearings bind. Then back the nut off one-eighth turn.

After tightening the outer nut, check the play again.



DRAINING THE DOORS



Cab doors in tactical vehicles are supposed to have drainage holes in the bottom to keep 'em from rusting.

Sometimes, though, they get clogged up. Then water stays in the door, and you've got a rust problem.

If you've got a truck with holes that are too small, or no holes at all, TB 43-0001-39-1 (Jan 75) gives you the dope on drilling half-inch holes in the bottom. Don't get carried away, though. Four holes, equally spaced along the bottom edge, are enough.

TM-206-SERIES 10-TON TRUCKS . . .

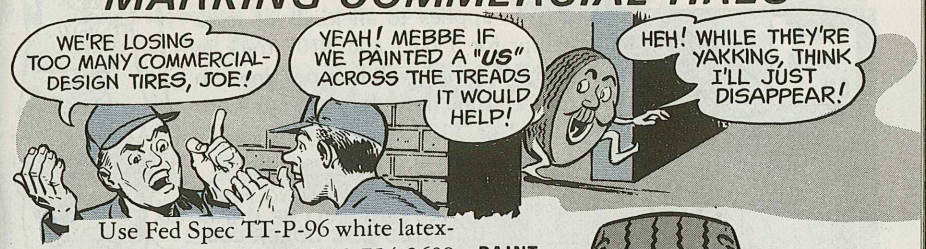
ONE FOR ALL

Confused about what shear pin to use in the winches on your M125 and M123 series 10-tonners? You don't need to be confused any longer—there's only one pin for all of them.

There used to be 2 pins. The one you used depended on what model truck you had. But now one does the job for all—NSN 5315-00-421-1676, as listed on page 93 of TM 9-2320-206-20P. (Dec 71). It'll work for all winches on all models. This pin is stamped "25M" on its head.

Once the pin does its thing, it has to be replaced, so the -20P authorizes you to carry 2 spares on the vehicle.

MARKING COMMERCIAL TIRES



Use Fed Spec TT-P-96 white latex-base paint. NSN 8010-00-754-2608 will get you a 1-gal can.

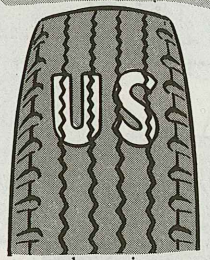
Clean 'n' dry the tires before you start.

Make the letters 4 to 6 inches high and go all the way across the face of the tires. Here are some stencil sets that will help:

NSN	HEIGHT (Inches)
*7520-00-269-9012	4
7520-00-272-9684	5
7520-00-577-4888	6

*(In No 1 Common)

PAINT 'EM LIKE SO . . .



Make sure the paint gets into the grooves. That way the "US" will show as long as there's some tread.

This info will be in a new change to TM 9-2610-200-20.

TRACK SHOE WEAR LIMIT CHANGE

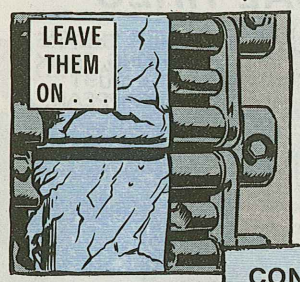
Time to get a little more wear out of your shoes—your track shoes, that is.

The new wear limits will be in the new TM 9-2530-200-24 on tracks; it supersedes TM 9-2630-200-14.

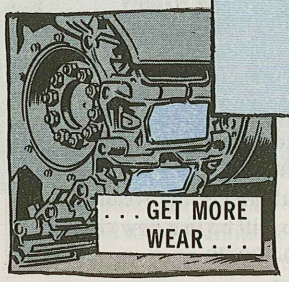
It'll also show in a change to your track vehicle TM. It's your authority for track replacement.

Meanwhile, word has gone out to your command by US Army Tank-Automotive Command Message AMSTA-M (NMP) 031910Z Mar 75.

What it amounts to is lower standards for longer wear. It lets you use track shoe assemblies until they reach unserviceability code "H" wear limits.



This applies to all kinds of track except for T97E2 and T107 track in CONUS, which will be worn down to the "F" code limit. Report your worn T97E2 or T107 track to your supply support. They'll take it from there.



WHILE YOU'RE WAITING FOR THE **TM**'S AND **ESC**'S TO BE CHANGED, USE THIS **ESC** COLOR CODE:

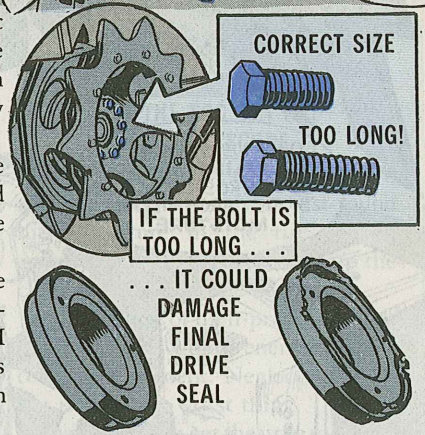
CONDITION	ESC COLOR	REMARKS
A, B or C	Green	In CONUS, replace T97E2 or T107 when it reaches Code F—Amber
F	Amber	
H	Red	

On detachable pad track, the condition of the track pad has nothing to do with the ESC rating of the track. Continue to replace the pads when the steel grouser begins to damage the roadway.

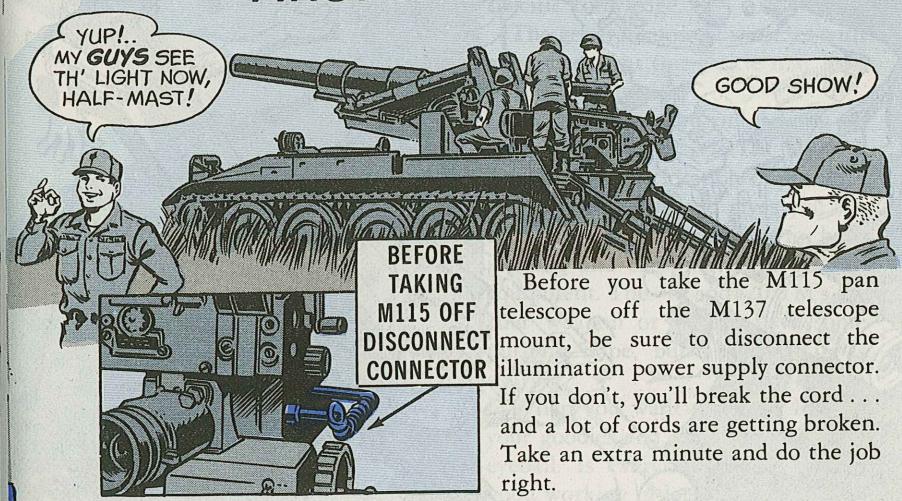
So what happens if a unit mechanic uses too long a bolt to mount the sprocket wheel to the final drive of an M113A1 personnel carrier . . . or any member of the M113A1 family?

It's likely to damage the final drive seal, NSN 2520-00-679-9626, and that's going to give somebody the blues.

To prevent this grief, be sure to use the right bolts. They're NSN 5305-00-726-2543, Item 2 on page 2-503 of TM 9-2300-257-20P. They're 1¼ inches long. If you use 1½-in bolts, you can ruin the final drive seal.



FIRST THINGS FIRST

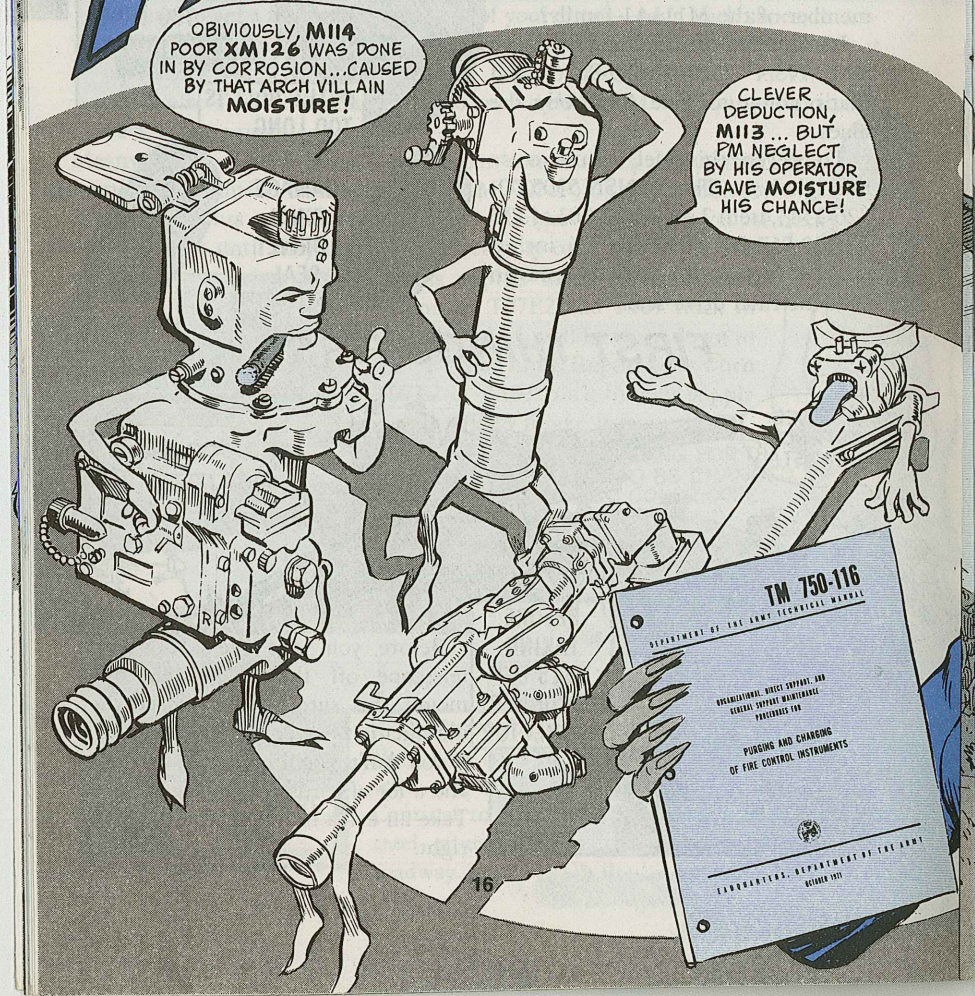


Before you take the M115 pan telescope off the M137 telescope mount, be sure to disconnect the illumination power supply connector. If you don't, you'll break the cord . . . and a lot of cords are getting broken. Take an extra minute and do the job right.

FIRE POWER

ARE YOUR SIGHTS IN A FOG?
YOU NEED—

PAINLESS PURGING

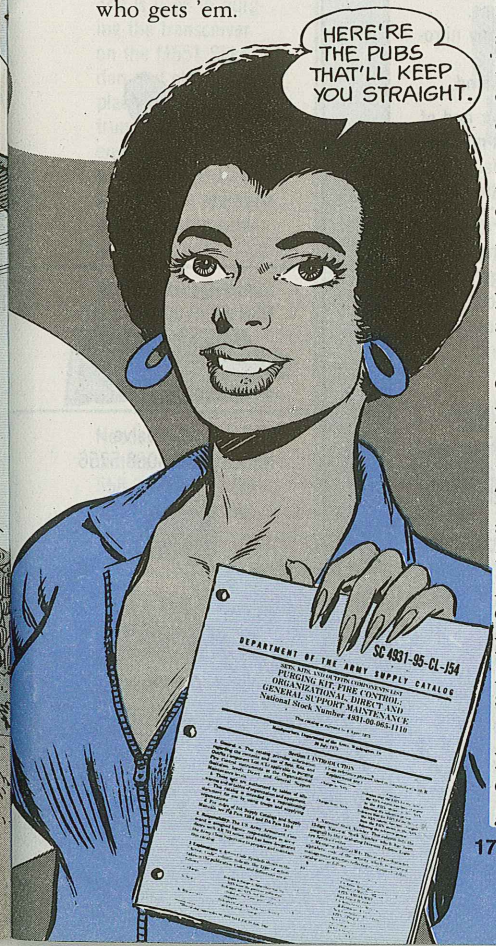


You'll like purging your fire control equipment with nitrogen. It's a real gas.

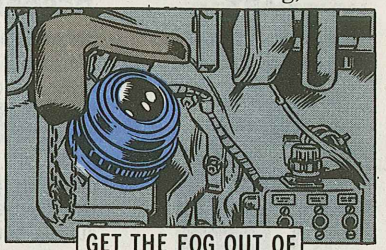
So, listen up, you organizational maintenance mechanics.

TM 750-116 (Oct 71) tells you to purge and charge your fire control items every 90 days or when condensation is evident in your instruments.

Supply Catalog 4931-95-CL-J54 (May 75) lists complete purging sets and parts, and it and the TM spell out who gets 'em.



It's necessary, too. If the fire control instruments are full of fog, dirt or



GET THE FOG OUT OF YOUR TELESCOPE

fungus, you can't use them in the fast, accurate way that gives first-round hits. Moisture in the fire control causes corrosion which screws up the close tolerances of the equipment.

Careless use of high-pressure water hoses is the worst enemy of fire control equipment. Neglect of purging is the next worst thing.

Even after you get the urge to purge, you'll need general know-how and specific knowledge.

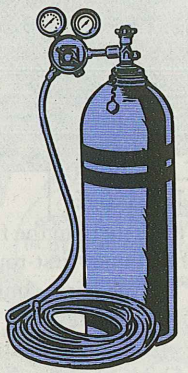
The general know-how comes with experience, but this article may help you.

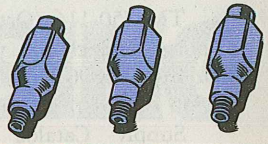
The specific word on purging all types of equipment is in TM 750-116. This TM shows location of entrance and exhaust ports and gives you the formula in pressure and time for both purging and charging every type of equipment. The -10 and -20 TM's for your weapon or vehicle have some purging dope, but TM 750-116 is sharper.

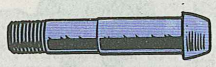
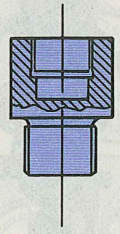
When you want to purge, line up your goodies and give them the hairy eyeball. Is everything there and in good working order?

PS MORE

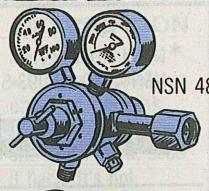
WHAT YOU NEED FOR PURGING

PART	DESCRIPTION
TANK, technical nitrogen NSN 6830-00-782-2641 	Body painted gray, with **2 black bands** on upper part of tank. If the tank has only one black band, send it back. It's not the oil-free nitrogen you need for purging, but the oily nitrogen used for charging tank recoil systems. Never use any nitrogen but the 2-black-band kind.
*HOSE, rubber, 25 ft. NSN 4720-00-561-0713	The regulator end of these hoses may have either left-hand or right-hand threads.
So—you may need either— *ADAPTER HOSE, left hand NSN 4730-00-951-8263 	You'll need this adapter to hook any of the 3 regulators up to the hose, provided the hose comes with left-hand threads.
Or— *ADAPTER HOSE, right hand NSN 4730-00-951-8264	You'll need this adapter to hook up either of the left-hand thread regulators (NSN 4931-00-558-0922 or NSN 4820-00-724-9744) to a hose with right-hand threads. Since regulator NSN 4820-00-001-7749 comes with a right-hand thread fitting, this adapter is not required if the hose has right-hand threads.

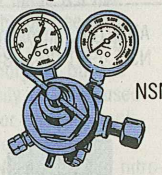
PART	DESCRIPTION
*KIT, ADAPTER ASSEMBLY NSN 4931-00-936-4283 	Contains 3 adapters with threads 10-32UNF, 10-24UNC or 8-32UNC. All under one NSN. You can't get adapters separately.
*VALVE EXTENSION NSN 4931-00-222-9056 	Looks like an auto tire valve extension and is used in purging the transceiver on the M551 Sheridan and other places where the instrument attaching end of the hose needs an extension because the entrance port is countersunk under armor.
SEALING COMPOUND NSN 8030-00-275-8110 	Black gunk for sealing entrance and exhaust port screws after charging. Comes in 2-oz tubes.
*NUT, cylinder valve NSN 4730-00-068-5756 	Needed with regulators NSN 4931-00-558-0922 and NSN 4810-00-724-9744.

PART	DESCRIPTION
*NIPPLE, nitrogen NSN 4730-00-093-5736 	Needed with regulators NSN 4931-00-558-0922 and NSN 4810-00-724-9744.
ADAPTER, nitrogen filling NSN 4931-00-508-5453 	This is not used with either nitrogen cylinder NSN 6830-00-782-2641 or with regulator NSN 4820-00-001-7749. It can be used only to make an old nitrogen cylinder with left-hand thread fit with regulator NSN 4931-00-558-0922 or NSN 4810-00-724-9744.
PURGING KIT, fire control NSN 4931-00-065-1110	*All the *items are included in this kit. Note that the kit is not complete. You'll still need a tank of nitrogen and sealing compound.

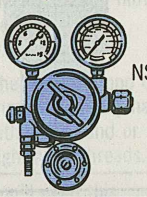
GUIDE TO REGULATORS



NSN 4820-00-001-7749 — The newest regulator and the only one now being made for stock. Needs no extra fittings. Right-hand thread.



NSN 6685-00-724-9744 — The most common one in the supply system now. Left-hand thread.



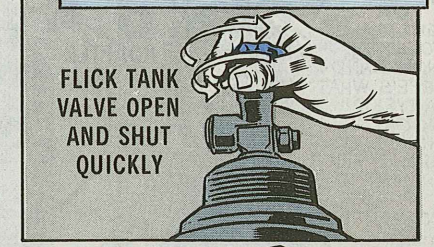
NSN 4931-00-558-0922 — Has a circular pressure relief. Left-hand thread.

(NOTE: All these regulators have low-pressure gages calibrated at 50-PSI maximum or less and high-pressure gages at 4000-PSI, or less. A regulator with higher limits is for jobs like nitrogen charging on tank recoil systems and is DANGEROUS if used for fire control work.)

GETTING IT ALL TOGETHER

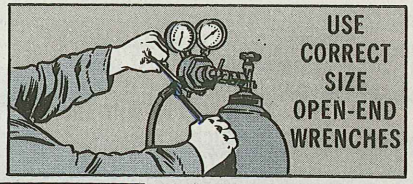
First off, look at your nitrogen tank. It'll be painted gray with 2 black bands. (If it's not, stop right there. You've got the wrong tank.)

Take the protective cover off. This can be either a small plug screwed into the tank valve outlet or a dome screwed over the the neck of the tank. Quickly flick the tank valve open and shut. This will blow any dust or water away from the valve seat or it will let you know the tank is empty. If you smell anything you're in trouble because nitrogen has no smell.

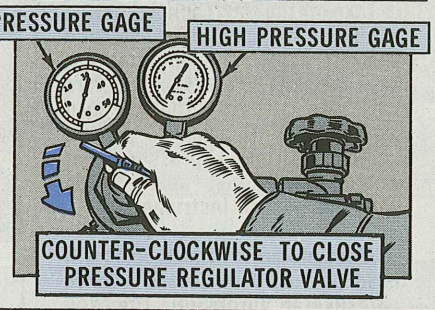


Use correct size open-end wrenches to put the parts of the set together. You'll need 11/16, 9/16 and 5/8 wrenches.

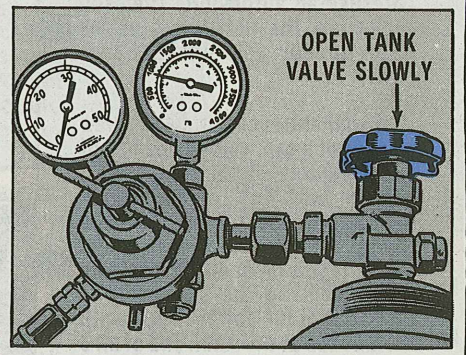
Mount the regulator on the tank using the fittings needed for the particular kind of regulator you have.



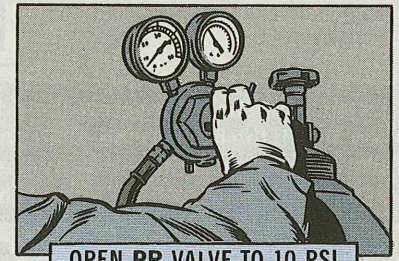
Close the pressure regulator valve by moving the handle to the left, counter-clockwise. This is opposite to the way you normally close a valve. (Be careful because you can really mess up a valve seat by turning the handle the wrong way.)



Slowly open the tank valve until the high-pressure gage needle stops moving forward. It is now registering (outer ring) the PSI of the gas within the cylinder. Pressure must be over 100 PSI or you can't do a good job of purging. (If the pressure is down, get a new cylinder from supply.) If gas is escaping at the end of the hose, it means the diaphragm is broken on your pressure-regulator valve. Get a new regulator because you can't control purging/charging pressures with a leaking diaphragm.

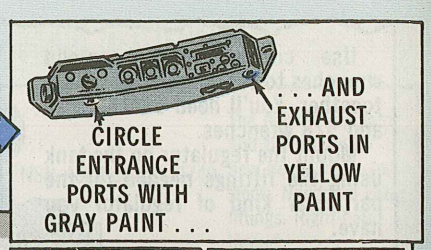


Slowly open your pressure-regulator valve until the low-pressure-regulator valve until the low-pressure gage registers 10 PSI and then close the valve right away. (This looks like a waste of nitrogen but it clears water, dust, spiders, etc., out of your hose instead of blowing them into your fire control instrument.)



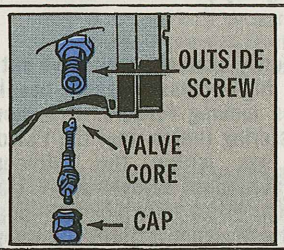
PS MORE

Entrance ports should be circled in gray paint and exhaust ports in yellow paint, but even if they're not, your TM 750-116 will show you which is which.

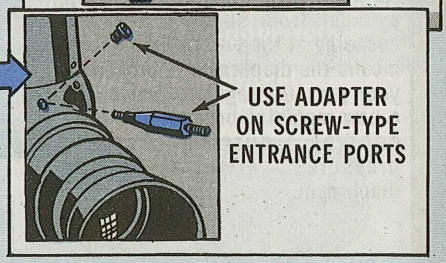


Take off the caps (or unscrew the screws) of your entrance and exhaust ports. It's important to have the exhaust ports open before you start. If not, the nitrogen would have no place to go and could build up a pressure that would blow things apart inside your fire control instrument.

Most of your entrance ports will have outside threads and a valve core like an automobile tire. You can screw the outlet end of the hose directly into the entrance port.



If your entrance port has a screw instead of a cap, you'll need one of the adapters from the 3-part adapter kit NSN 4931-00-936-4283. TM 750-116 shows you which adapter to use in most cases. If you're in doubt, compare the threads in the screw you've taken out of the entrance port with the threads at the small end of all 3 of the adapters. Use the adapter with a thread identical with the screw thread.

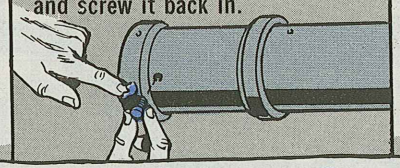


It may be easier to screw the adapter into the entrance port and then attach the hose to the other end or it may be easier to attach the hose to the adapter first. In any case, be careful of side-wise motion which could snap off the end of the adapter.

NOW-YOU PURGE . . .

After you have the hose hooked up, check your TM 750-116 again to make sure you know the purging formula (pressure and time) and then open the pressure regulator valve until the proper pressure—nearly always 5 PSI—shows on the low-pressure gage. When it has purged for the required time, shut off the pressure regulator valve.

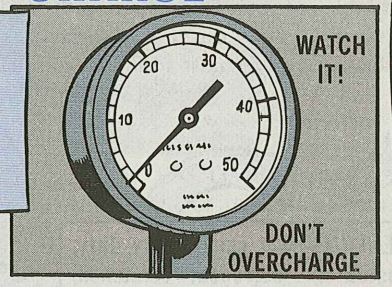
Lightly coat the threads of the exhaust port screw with sealing compound NSN 8030-00-275-8110 and screw it back in.



(NOTE: Many of the entrance and exhaust port screws have lost their gaskets or lockwashers. If the screws let nitrogen escape, order new screw and gasket sets from table 2-3 on pages 2-1 and 2-2 of your TM 750-116.)

. . . AND CHARGE

Set your pressure regulator valve to the charging pressure—nearly always 1 PSI—and charge for the required time which may be as little as 20 seconds. **Do not overcharge or you could seriously damage the instruments.**

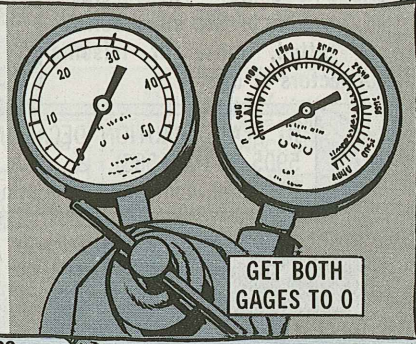


When you're finished charging, unhook the hose from the entrance port, shut off the pressure regulator valve and quickly close the port.

If it is a screw-closed port, the same rules apply as for the exhaust ports. If it's an automobile tire type valve, just screw the cap on. You do **not** use sealing compound on the threads for this type of port.

That's all there is to purging and charging.

One more big thing to remember: The nitrogen is not shut off until BOTH the high and the low pressure gages read 0. If you forget to shut off the high pressure gage, the rubber diaphragm in your pressure regulator will be under a constant strain and will wear out in a hurry. Then you'll have a permanent leak that can't be shut off at the pressure regulator valve, so you'll need a new regulator.



PS END

BE YOUR OWN INSPECTOR . . .

M18 BINOCULAR SPECTOCULAR

When the night is blackest black,
And a chill lies in the air,
When dark things lurk in shadows—
Will you know for sure what's there?

You will if your M18 infrared binocular is in top shape. And if you're up on TM 9-6650-215-12 (Apr 64) and its 2 changes.

To make sure you're action-ready, scope out these inspection points and the things that can go wrong. Faults in **bold type** are most serious . . . if you find 'em on your M18, get 'em corrected!

GENERAL—Wet, gunky, gritty, dirty, **rusted or corroded;** scratched, chipped or blistered paint; loose, worn, bent, cracked, dented, **broken or missing parts.**

CABLE ASSEMBLY—Twisted, **cracked, frayed or broken wires; corroded; pitted, loose or missing connectors or caps.**

ID PLATE, CAUTION DECAL (NSN 5905-00-140-1533) & SCALE—Obscured, obliterated or missing.

STILL CAN'T SEE NOTHIN'!

LOCK RINGS & COLLIMATING RINGS—**Never tamper** with 'em . . . only depot is supposed to adjust 'em.

W-WHAT WUZ THAT?...

DRAT!! IF ONLY I COULD FREE THIS SWITCH, WE COULD SEE...

HOOO

WHEN DIDJA LAST DO PM ON THAT BINOC.?

NECK STRAP, NSN 1240-00-764-6236—Loose, torn, cut or rotted; missing.

FORWARD & REAR HINGES—Bind or stick; too loose.

EYEPIECE FOCUSING DIALS—Jerky or **sticking.**

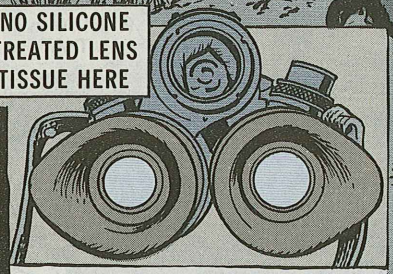
EYESHIELDS— Warped, cut, torn or rotted; loose on eyepieces; **missing.**

HEH, HEH... MISSING NECK STRAP...

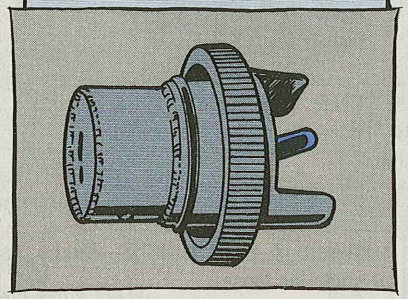
FORWARD & REAR LENSES—Wet, moldy, oily, smeared, **chipped or cracked.**

(TIPS: To clean, use only alcohol, bleached white cheesecloth or clean lens tissue paper—such as NSN 6640-00-597-6745, and a small, clean camel's hair brush. Never use silicone-treated lens tissue.)

NO SILICONE TREATED LENS TISSUE HERE



ON-OFF SWITCH—Won't snap securely into ON or OFF positions.



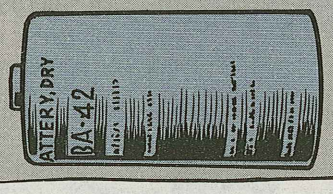
BATTERY CAP & HOUSING—**Dirty, greasy, corroded or pitted contacts and housing;** cap not replaced right 'n' tight.

(TIPS: Keep contacts clean with a burnishing tool or crocus cloth. When you replace cap, line up the slot, push cap down, then turn knurled knob snug. When you back the cap out, wiggle it slowly. Saves busted caps and slots.)

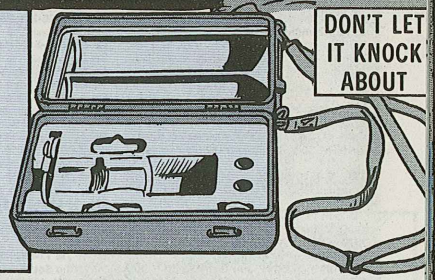
BATTERY, 1½ VOLTS—**Weak, dead, corroded or leaking; cracked case.**

(TIP: If available, alkaline battery BA-3042/U, NSN 6135-00-935-5301, is preferred. Otherwise, use the BA-42 battery listed in your TM.)

TRY TO GET ALKALINE BATTERY



CARRYING CASE—Torn, cut or rotted rubber seal; bent, damaged or broken locking clamps or hinges; loose, damaged or out-of-place interior packing; missing or unserviceable spare batteries (2 of 'em) or cable assembly; loose, torn, cut or rotted strap, NSN 6650-00-953-0120.



SOME CAUTIONS

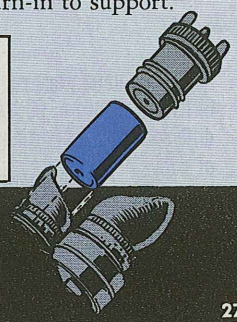
The M18 binocular can't take rough handling or abuse. Never fool or tamper with it. Use it only as the TM says you can. Never try to force any knobs past their stops. If you can't get the binocular to adjust or operate right by following the TM, give it to your organizational maintenance types for repair or for turn-in to support.

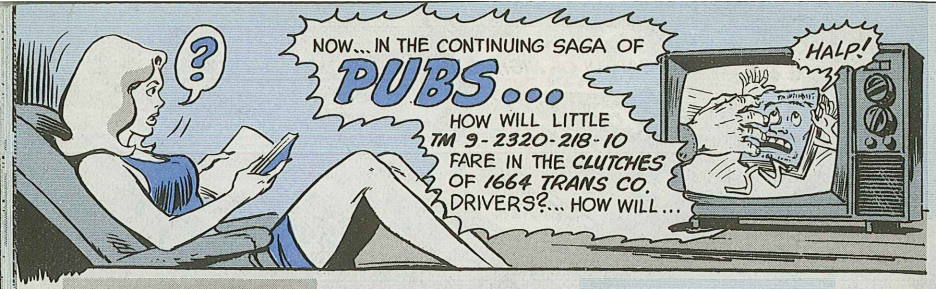
Direct, strong sunlight will damage the lenses 'n' innards. Never operate under bright daylight conditions. And never point the binocular directly at the sun when the lens caps are off—not even with the switch in OFF position.

Save your M18 from corroded contacts and such by removing the battery when the binocs are not in use.

Keep these points in mind, and the dark will hold no terror.

BA-42 BATTERY . . . TAKE OUT WHEN NOT IN SERVICE





This is a selected list of recent pubs of interest to organizational maintenance personnel. This list is compiled from recent AG Distribution Centers Bulletins. For complete details see DA Pam 310-4 (Nov 74), and Ch 1 (Feb 75), TM's,TB's, etc., DA Pam 310-6 (Jul 75), SC's and SM's; and DA Pam (C) 310-9 (Aug 74), COMSEC Pubs.

TECHNICAL MANUALS

TM 3-4240-212-14&P Jul M20 Breathing Apparatus
TM 5-4310-275-14 Jun Compressor G.E.D., 2, 4 CFM, 3000 PSI (Stewart-Warner 43040-301-01)
TM 5-4310-335-14 Jun Compressor Wheeled, GED 4 CFM, 3000 PSI Kiddie Mod 693811
TM 5-6115-464-24P Jun Gen Set 15 KW DOD Mods MEP-004A, MEP-103A, MEP-113A, MEP-005AWF, MEP-005AWE, MEP-004ALM, MEP-005AWM
TM 5-6115-465-24P Jun Gen Set 30 KW, DOD Mods MEP-005A, MEP-104A, MEP-114A, MEP-005AWF, MEP-005AWE, MEP-005ALM, MEP-005AWM
TM 5-6350-255-13 Jul Alarm Set, Anti-Intrusion Minisid III, AN/GSQ-154 and 154A (V)
TM 5-6675-306-14 Jul Theodolite 5.9 In. Tel Heerbrugg Mod T2-74DEG
Ch 4, TM 9-1015-200-12 Jul M29/M29A1 81-MM Mortar
TM 9-1270-212-14 Apr Helmet-Directed XM128
Ch 21, TM 9-1300-203 Aug Ammunition
TM 9-1425-525-24P-1 Jun IMPROVED HAWK
TM 9-1425-525-24P-2 Jun IMPROVED HAWK
TM 9-1425-585-ESC May M48 CHAPARRAL
TM 9-1430-526-24P Jul IMPROVED HAWK
TM 9-1430-528-24P Jul IMPROVED HAWK
TM 9-1430-529-24P Jul IMPROVED HAWK
TM 9-1430-589-24P Jul Display Set AN/GSQ-137
TM 9-2350-257-ESC Jun M60A1 Tank(Rise)
TM 9-6920-485-20P Jul LANCE
TM 10-3930-632-20P Jul Fork Lift Truck, MHE-229
TM 11-1520-221-ESC Jul AH-1G, AH-1Q Helicopter
Ch 7, TM 11-5135-15 Aug AN/GSA-7 Radio Set Control
Ch 1, TM 11-5805-582-15 Aug AN/TTC-29 Manual Telephone Central Office
Ch 4, TM 11-5815-331-14 Jul AN/VSC-2 Radio Teletypewriter
Ch 2, TM 11-5815-332-15 May AN/VSC-3 Radio Teletypewriter
Ch 3, TM 11-5815-332-15 Jul AN/VSC-3 Radio Teletypewriter
Ch 4, TM 11-5815-334-12 Aug AN/GRC-142(), 122() Radio Teletypewriter
TM 11-5820-295-ESC Jun AN/GRC-19 Radio
TM 11-5820-401-ESC-2 May AN/VRC-46 Radio
Ch 4, TM 11-5820-518-20 Jul AN/ARC-51()X Radio Set
Ch 5, TM 11-5820-520-12 Jul AN/GRC-106() Radio Set
Ch 8, TM 11-5820-549-12 Jul AN/PRR-9 Radio Receiving Set AN/PRT-4() Radio Transmitter
Ch 5, TM 11-5820-667-12 Jul AN/PRC-77 Radio
Ch 4, TM 11-5830-254-14 May AN/UIC-5 Intercom
TM 11-5840-348-20P Jun AN/TPS-58 Radar
Ch 1, TM 11-5855-238-10 May AN/PVS-5 Night Vision Goggles
TM 11-5855-238-24&P Jun AN/PVS-5 Night Vision Goggles
TM 11-5895-224-ESC Jun Op Central AN/MSC-32
TM 11-5895-366-ESC Jul AN/TRC-117(V) Radio Terminal
Ch 3, TM 11-5985-284-15 Jul AT-784/PRC Loop Antenna
TM 11-6625-537-14-1 Jul ME-202()/U Voltmeters
Ch 1, TM 11-6625-564-20P Jul MD-731()/ARC-51X, Electrical Equipment Maintenance Kits
Ch 6, TM 11-7440-215-15 Jun RP-152/G Punched Card Reader
Ch 5, TM 11-7440-217-15 Jun RO-312/G High-Speed Card Punch
Ch 6, TM 11-7440-218-15 Jun RO-313/G Low-Speed Card Punch
TM 43-0139 Jul Painting
TM 55-2320-209-15-1 Jun Transportability Guidance 2½-Ton Trucks
TM 55-4240-284-12&P Jun Rescue Seat, Forest Penetrate

MISCELLANEOUS

C3, AR 710-3 Jul Asset & Transaction Report Systems
DA Cir 710-7 31 Jul 74 Equip Status Reporting (Extended 1 year)
C1, DA Cir 700-26 Jul COMSEC Equip Mod Apply & Reporting System
DA Form 4379-1 Jun Missile, Rocket Malfunction Report
DA Pam 310-3 May Index Doctrinal, Training & Organization Pubs
DA Pam 750-32 Apr M551 Sheridan
LO 10-3930-633-12 May Tractor Warehouse MHE-228
LO 5-4210-217-12 May Fire Truck, (Engineered Devices Inc. Mod 0814 AAF) Mods FT 750 and 750W
LO 5-5420-209-12-2 May Transporter Bridge Float Ribbon
LO 5-6115-545-12 May Gen Set, Diesel 60-KW, 50-60 and 400-HZ
TB 9-380-101-11 Jun Security Classif Guide, HAWK
TB 9-380-101-12 Jun Security Classif Guide, IMPROVED HAWK

SLIDES AND MOVIES

TF 3-4798 Masks: Protective Aircraft and Tank
TF 3-4800 Alarm, Chemical Agent, Automatic Components
TF 11-4844 Introduction to TD-660/G, TD-660/AG Multiplexers
TF 11-4845 AN/GRC-144 Radio Set—Part I-Introduction
TG 9-8-7 Armament Pad, Aircraft, 7.62-MM Machinegun M18A1

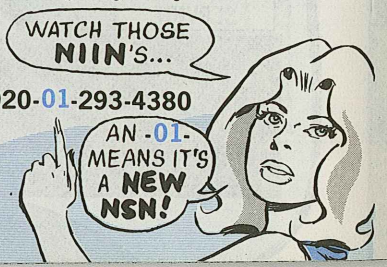
Now There're 01's Too

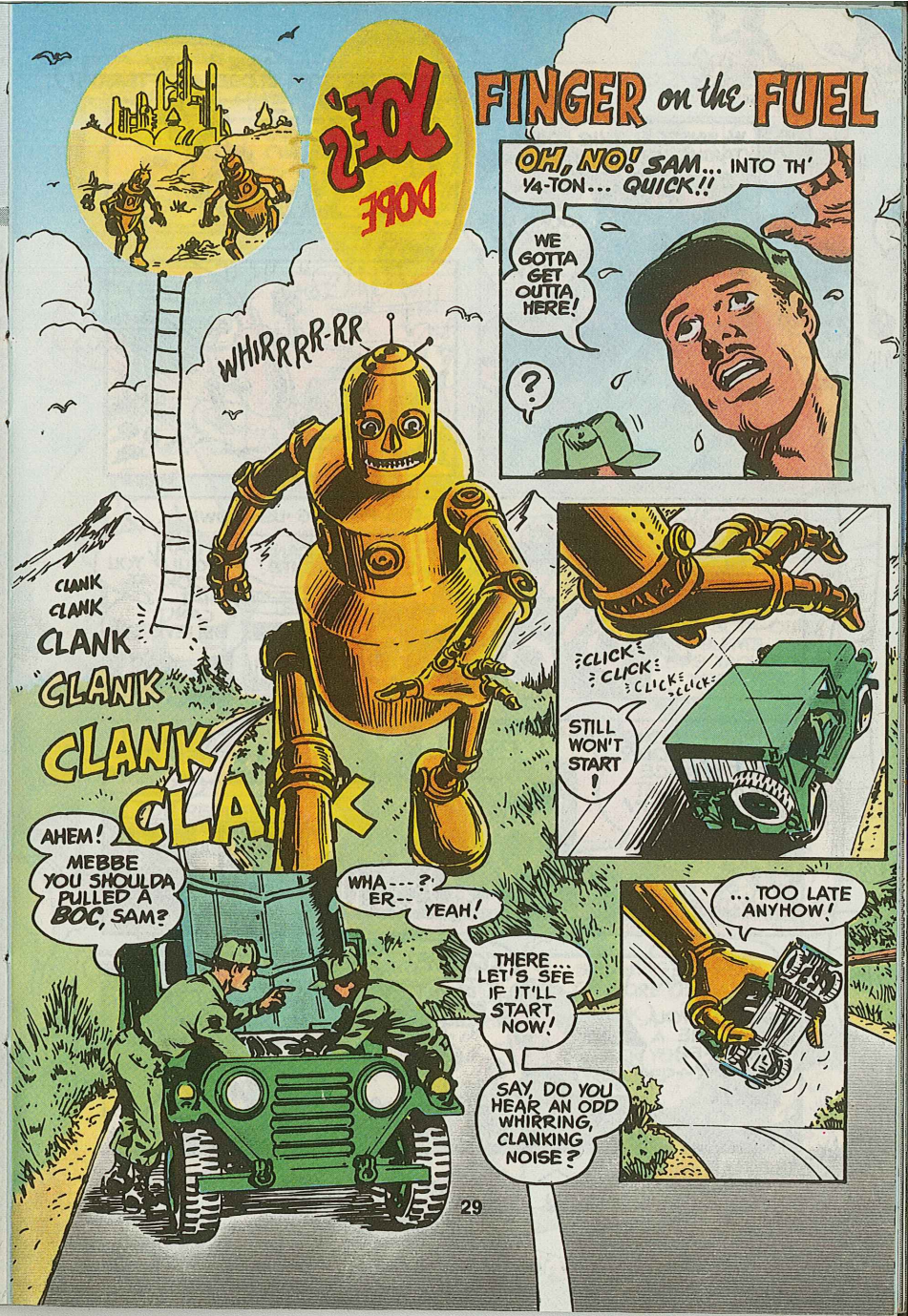
There's something new on the stock number scene—NSN's with 01 as the first 2 numbers of the NIIN (National Item Identification Number).

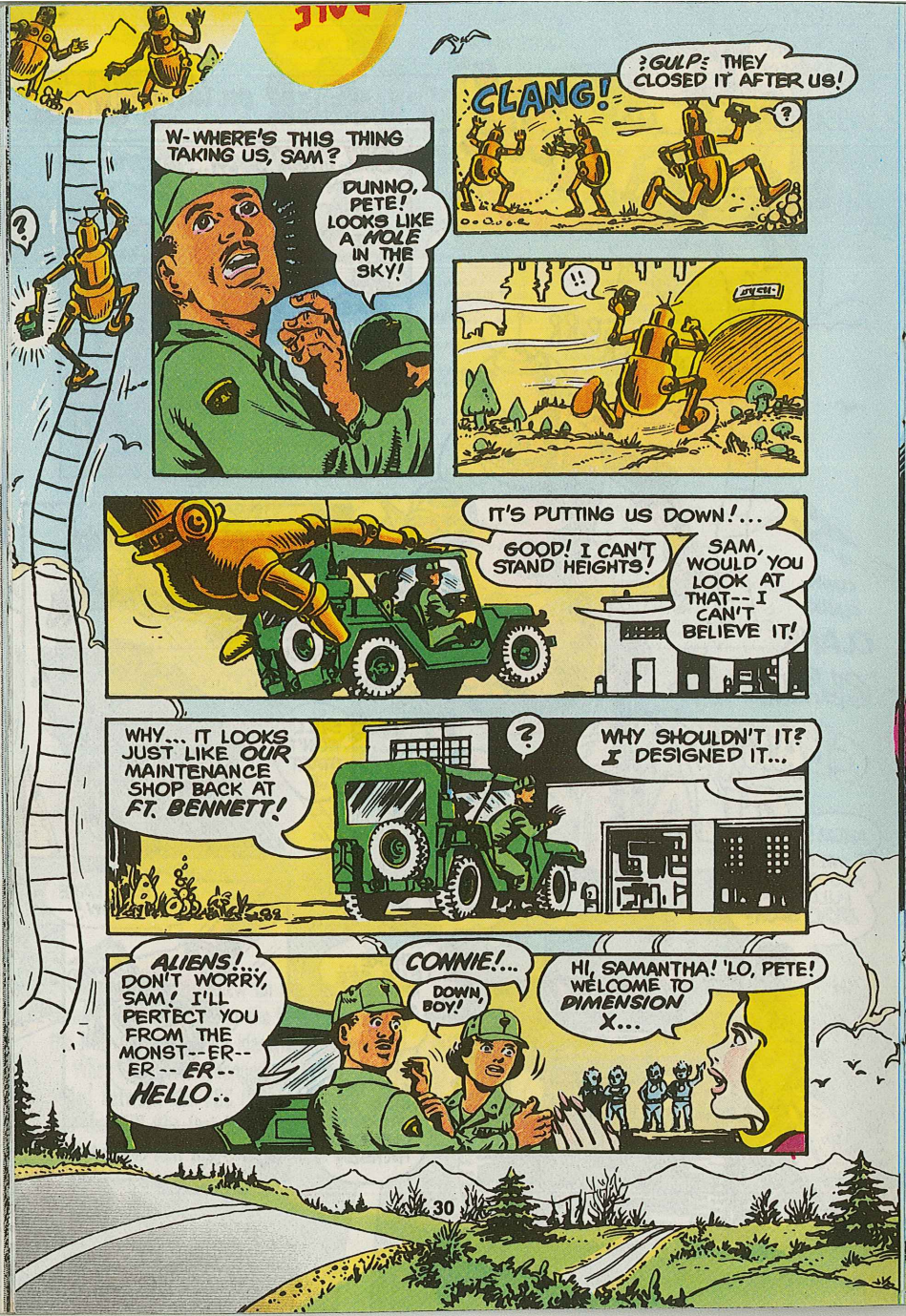
When old FSN's changed to NSN's, 00 was added between the FSC (Federal Supply Class) and the FIIN (the last 7 numbers).

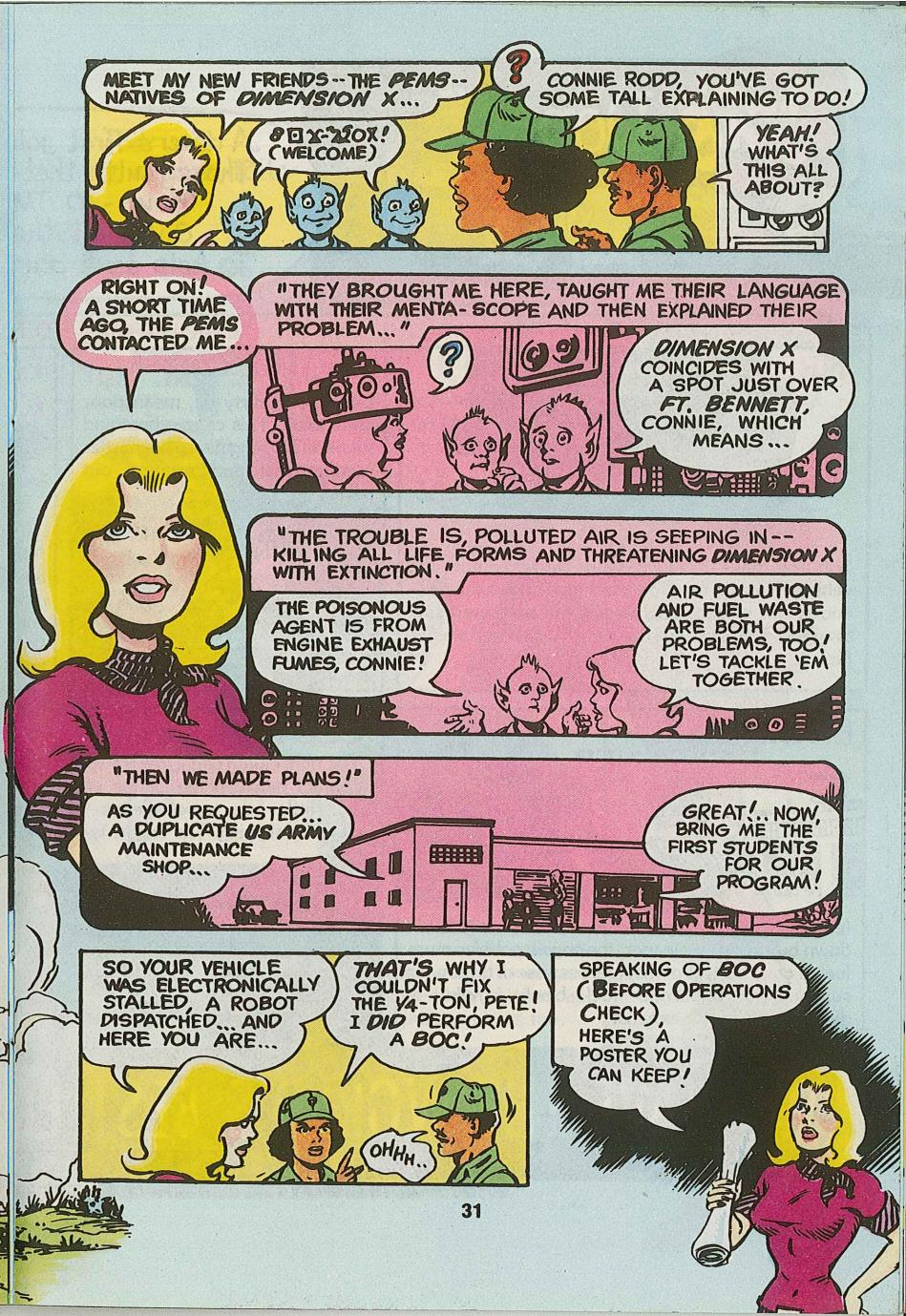
But brand new NSN's added since 30 Sep 74 have 01 in that position.

So, be careful when you're writing NSN's. The difference between 00 and 01 could be the difference between getting an engine and a box of nuts.

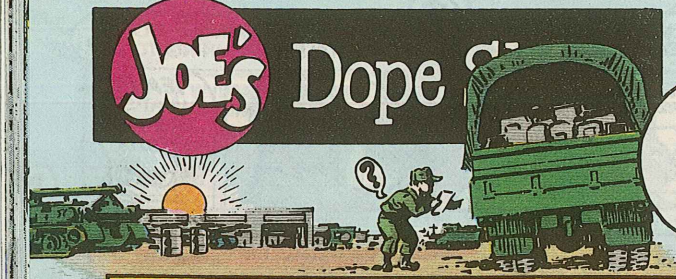




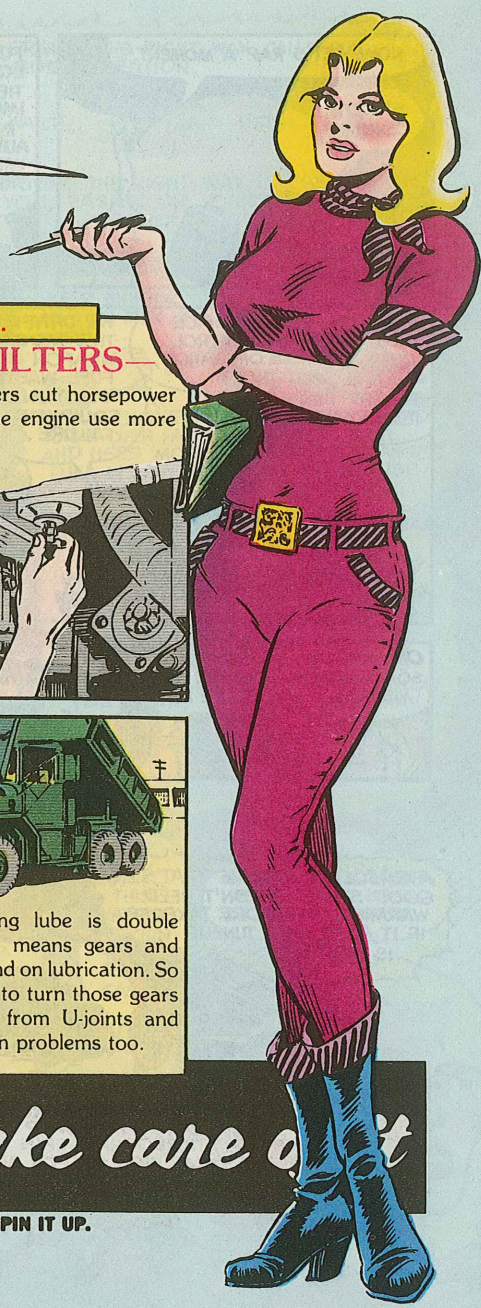

W-WHERE'S THIS THING TAKING US, SAM?
DUNNO, PETE! LOOKS LIKE A MOLE IN THE SKY!
CLANG!
GULP: THEY CLOSED IT AFTER US!
?
!!
IT'S PUTTING US DOWN!...
GOOD! I CAN'T STAND HEIGHTS!
SAM, WOULD YOU LOOK AT THAT-- I CAN'T BELIEVE IT!
WHY... IT LOOKS JUST LIKE OUR MAINTENANCE SHOP BACK AT FT. BENNETT!
WHY SHOULDN'T IT? I DESIGNED IT...
ALIENS!... DON'T WORRY, SAM! I'LL PERTECT YOU FROM THE MONST--ER--ER--ER-- HELLO..
CONNIE!...
DOWN, BOY!
HI, SAMANTHA! 'LO, PETE! WELCOME TO DIMENSION X...


MEET MY NEW FRIENDS--THE PEMS--NATIVES OF DIMENSION X...
BOX-AOX! (WELCOME)
CONNIE RODD, YOU'VE GOT SOME TALL EXPLAINING TO DO!
YEAH! WHAT'S THIS ALL ABOUT?
RIGHT ON! A SHORT TIME AGO, THE PEMS CONTACTED ME...
"THEY BROUGHT ME HERE, TAUGHT ME THEIR LANGUAGE WITH THEIR MENTA-SCOPE AND THEN EXPLAINED THEIR PROBLEM..."
DIMENSION X COINCIDES WITH A SPOT JUST OVER FT. BENNETT, CONNIE, WHICH MEANS...
"THE TROUBLE IS, POLLUTED AIR IS SEEPING IN--KILLING ALL LIFE FORMS AND THREATENING DIMENSION X WITH EXTINCTION."
THE POISONOUS AGENT IS FROM ENGINE EXHAUST FUMES, CONNIE!
AIR POLLUTION AND FUEL WASTE ARE BOTH OUR PROBLEMS, TOO! LET'S TACKLE 'EM TOGETHER.
"THEN WE MADE PLANS!"
AS YOU REQUESTED... A DUPLICATE US ARMY MAINTENANCE SHOP...
GREAT!.. NOW, BRING ME THE FIRST STUDENTS FOR OUR PROGRAM!
SO YOUR VEHICLE WAS ELECTRONICALLY STALLED, A ROBOT DISPATCHED... AND HERE YOU ARE...
THAT'S WHY I COULDN'T FIX THE ¼-TON, PETE! I DID PERFORM A BOC!
OHHH..
SPEAKING OF BOC (BEFORE OPERATIONS CHECK), HERE'S A POSTER YOU CAN KEEP!

JOE'S Dope

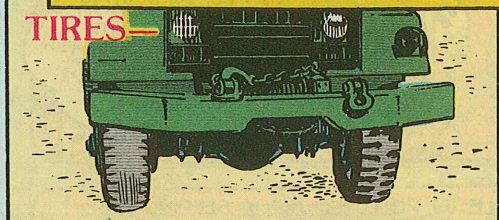


A driver's first job is to foil
Those faults that increase engine toil:
Your - 10 TM
Gives all the PM
To help save our air, fuel and oil.



ANYTHING THAT MAKES THE ENGINE WORK HARDER TO MOVE THE VEHICLE WASTES FUEL.

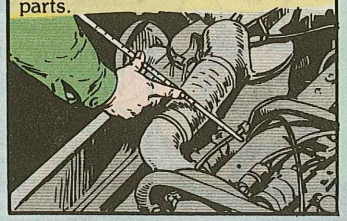
TIRES—



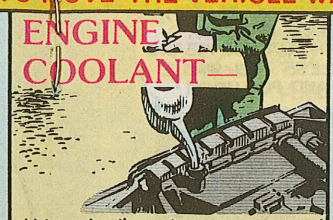
Soft tires make the engine work harder to move the vehicle. Uneven wear on front tires shows the front end is out of line. This means the tires are being dragged. This shortens the life of the tire, and wastes fuel.

ENGINE OIL—

Low oil, or dirty oil, mean poor lubrication. This causes heat and friction. The engine works harder wasting fuel and wearing out parts.



ENGINE COOLANT—



Although oil carries away some of the heat, the cooling system does most of the job. When there's not enough coolant, the whole engine suffers . . . less power . . . more fuel.

FUEL FILTERS—

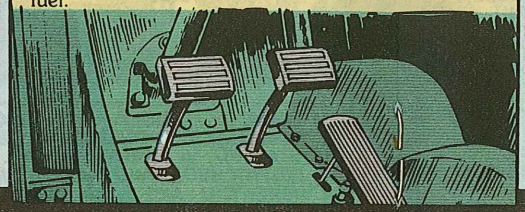
Dirty fuel filters cut horsepower and make the engine use more fuel.

ENGINE AIR CLEANER—

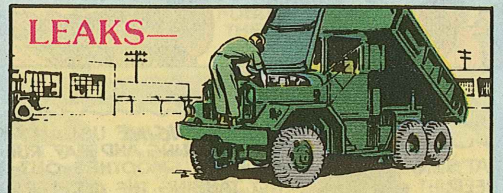
(especially the dry type)—When the air supply is cut down by a dirty air cleaner, the engine gobbles more fuel. It can't burn all of that fuel because of the low air supply. So unburned fuel—black smoke—is dumped out of the exhaust.

CLUTCH—

The right clutch pedal free travel means there is solid contact between the engine and the power train. Too little free travel means weak contact—the clutch is slipping. The engine is wasting work—and fuel.



LEAKS—



(anywhere, any kind)—Leaking lube is double trouble. Beside wasting oil, it means gears and bearings are getting the short end on lubrication. So the engine has to work harder to turn those gears and bearings. Grease thrown from U-joints and other lube points signals friction problems too.

WE HAVE THE WORLD'S BEST EQUIPMENT ...*Take care o t*

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

NOW, LET'S RAP A MOMENT.

SHOOT, CONNIE!

FUEL WASTE, AIR POLLUTION AND EQUIPMENT FAILURE ARE ALL TIED TOGETHER--ANY IMPROVEMENT IN ONE AUTOMATICALLY IMPROVES THE OTHERS.

RIGHT ON, CONNIE! SINCE WE ARE IN TOTAL CONTROL DURING VEHICLE OPERATION, WE CAN SPOT THOSE FAULTS THAT LEAD TO BREAKDOWN.

WE DRIVERS ARE THE MOST IMPORTANT WEAPON IN FIGHTING FUEL WASTE, AIR POLLUTION AND EQUIPMENT FAILURE.

YOU'RE CATCHING ON...

A GOOD DRIVER IS GOOD IN PM, TOO! EFFICIENT OPERATION MEANS LESS FUEL WASTE AND POLLUTION!

OK, NOW FOR SOME AUDIO-VISUALS..

HIT THE STARTER AND YOU'RE IN...

OPERATION..

AND YOU START LOOKING FOR INEFFICIENT, FUEL WASTING FAULTS...

A GASOLINE ENGINE THAT'S IN GOOD SHAPE DOESN'T NEED WARMING UP BEFORE TAKEOFF. IF IT ACTS UP, A TUNEUP IS NEEDED!

A DIESEL ENGINE USUALLY NEEDS WARMUP IDLING AND MAY RUN ROUGH BEFORE IT SMOOTHES OUT. BUT NO JABBING THE ACCELERATOR--YOU'LL OVERSPEED THE ENGINE BEFORE OIL GETS TO ALL OF THE BEARINGS!

A TURBOCHARGED DIESEL ENGINE FOR SURE GETS A WARMUP IDLING--TO GET OIL INTO THE TURBOCHARGER'S BEARINGS BEFORE IT STARTS TURNING AT HIGH SPEED! AND IDLING BEFORE SHUT-DOWN LETS THE TURBOCHARGER SLOW DOWN BEFORE ITS OIL SUPPLY IS SHUT OFF!

ENGINE PROPERLY WARMED UP? OK, NOW YOU'RE...

ON THE ROAD

DRIVING THE RIGHT WAY CALLS FOR CLOSE ATTENTION.

WATCH... LISTEN...

DRIVING THE RIGHT WAY IS EASIER ON YOU, EASIER ON YOUR VEHICLE... AND EASIER ON FUEL.

JACK RABBIT TAKEOFFS

GULP FUEL. WORK UP TO CRUISING SPEED... EASY.

KEEP SHIFTING AS YOU PICK UP SPEED...

YOUR ENGINE TURNS OVER FASTER AND USES MORE FUEL IN LOWER GEARS.

A STEADY SPEED SAVES FUEL. SUDDEN CHANGES IN SPEED USE MORE FUEL.

KEEP YOUR FOOT OFF THE CLUTCH PEDAL AFTER SHIFTING GEARS.

THE CLUTCH SLIPS. THE ENGINE WASTES POWER AND FUEL. AND YOU WEAR OUT THE CLUTCH.

LOOK AHEAD FOR:

STOP SIGNS STOP TRAFFIC LIGHTS RAILROAD CROSSINGS.

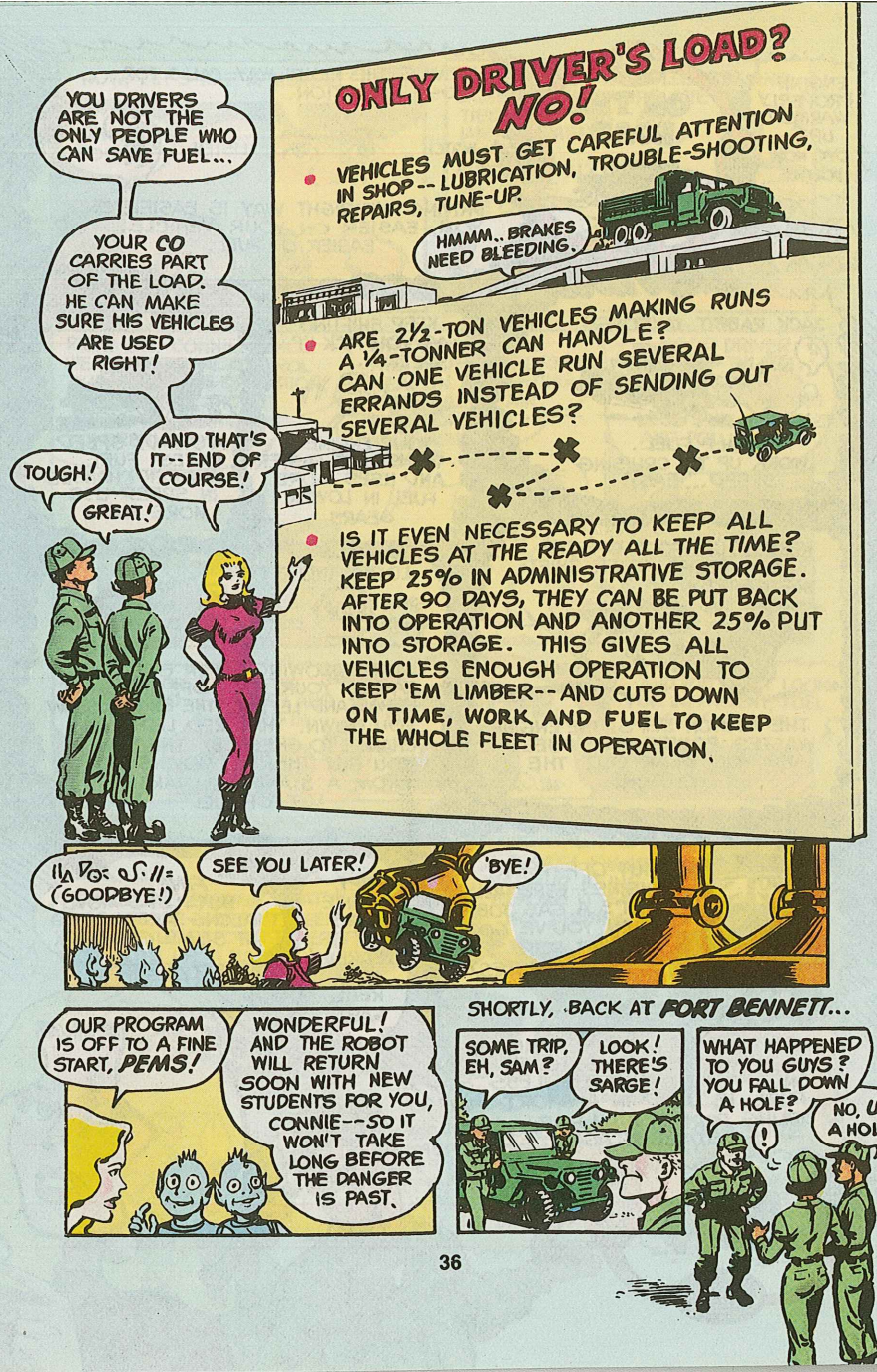
START SLOWING DOWN EARLY BY TAKING YOUR FOOT OFF THE GAS PEDAL AND LETTING THE ENGINE SLOW YOU DOWN. THAT RED LIGHT MAY CHANGE TO GREEN, BY THE TIME YOU GET THERE! MOVING OUT FROM A STANDSTILL TAKES A LOT OF FUEL.

SHUT OFF YOUR ENGINE--ESPECIALLY IF IT'S A GAS JOB--WHEN YOU'VE GOT TO WAIT FOR SEVERAL MINUTES!

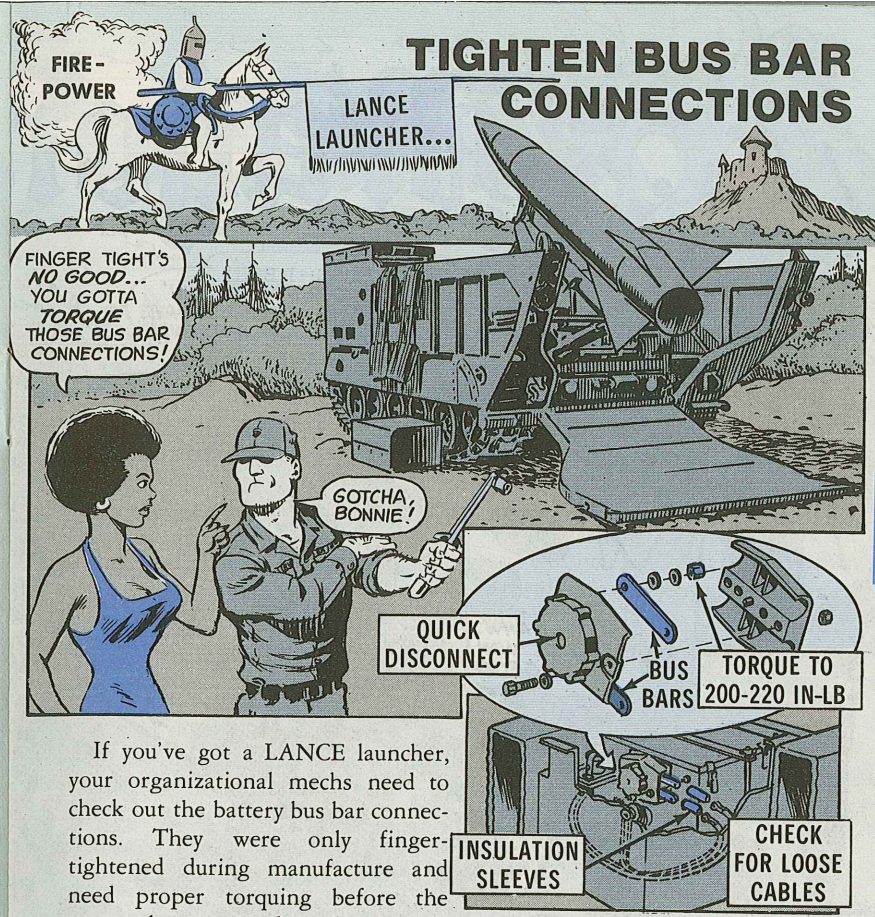
KEEP A DIESEL ENGINE IDLING IF YOUR WAIT IS GOING TO BE ONLY A FEW MINUTES. LESS FUEL IS USED IN A SHORT IDLING PERIOD THAN FOR STARTING AGAIN.

HEY, CONNIE--THIS WAY OF LEARNIN' IS A REAL GAS!

FINE!... BUT LET'S MOVE ALONG AND LOOK AT SOME CHARTS...



TIGHTEN BUS BAR CONNECTIONS



If you've got a LANCE launcher, your organizational mechs need to check out the battery bus bar connections. They were only finger-tightened during manufacture and need proper torquing before the storage battery can do its best.

Do this to check for proper tightness:

Disconnect the quick disconnector from the battery.

Check the cables leading into the bus bars for looseness. If loose, remove the insulation sleeving and discard it.

Slip new sleeving down the cable and out of your way. Torque the nuts attaching the cables to the bus bars to 200-220 in-lbs.

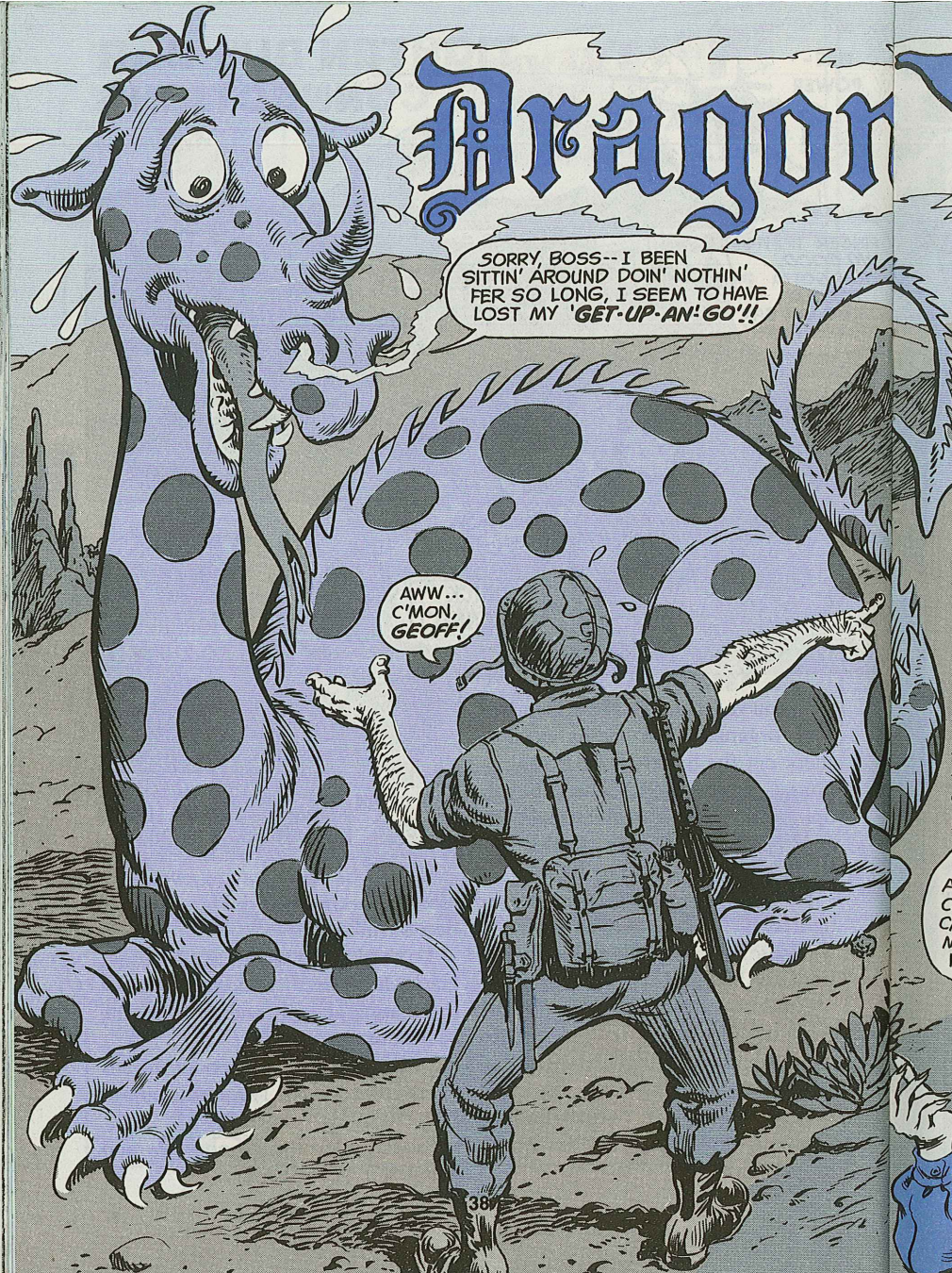
Install the new sleeving over both cable connections to the bus bars and heat shrink it.

To check the nuts inside the battery quick disconnect connector, remove the 2 nuts at each end to open the connector.

Loosen the nuts that mount the bus bars to the contacts. Torque the nuts to 200-220 in-lbs.

Reassemble the connector and reattach it to the battery.

Dragon LAGGIN'?

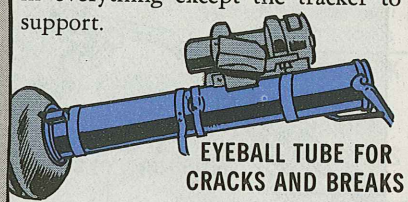


Your tank-busting Dragon missile system comes packed in a neat, simple, ready-to-use package, right?

About all you have to do to set it up for firing is adjust the bipod legs and mount the tracker. Right?

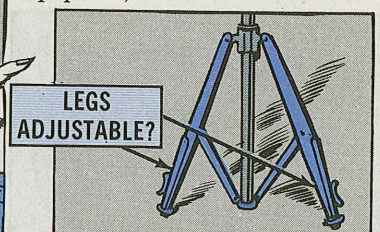
Well, right and wrong. Like, the Dragon is easy on the operator, with practically no maintenance required. But if it's been sitting around awhile, it can stand an eyeballing to be sure that it'll blast off when it has to.

Check the fiberglass launch tube for cracks or breaks. If you find any, turn in everything except the tracker to support.

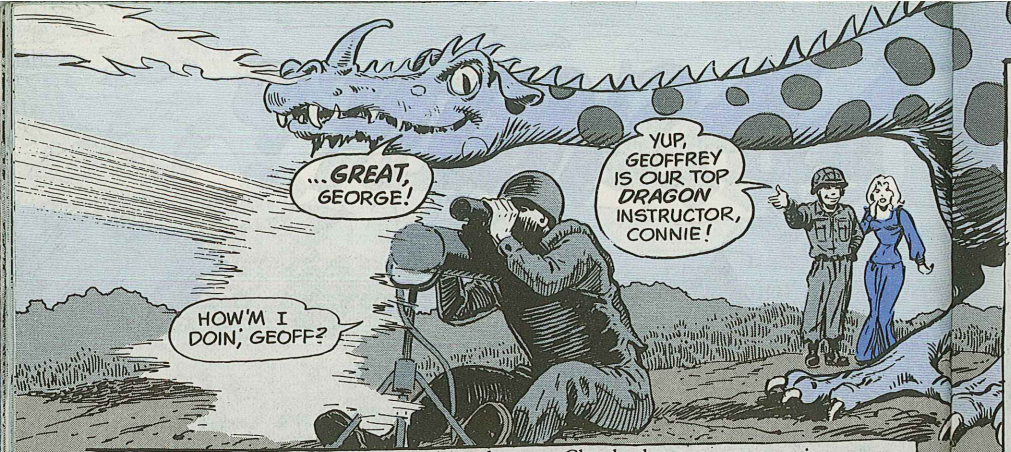


EYEBALL TUBE FOR CRACKS AND BREAKS

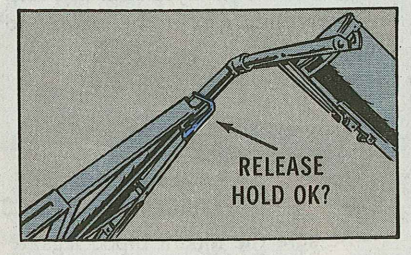
—Be sure the mount bipod legs are adjustable all the way up and down their length. (Since the front cover pops off when the bipod is lowered, you can't make this or the following check until the missile is ready for firing. You can replace the cover when it pops off).



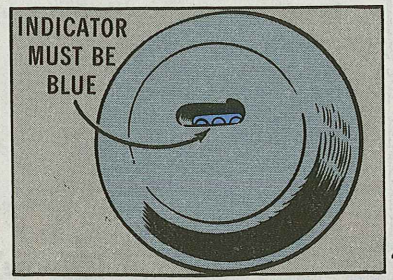
PS MORE



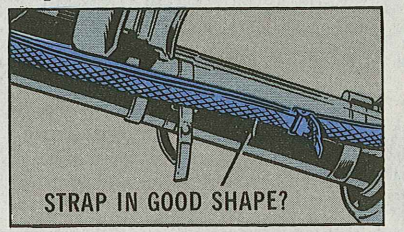
—The release device for the bipod legs must be able to hold the legs firmly in position, wherever you set 'em.



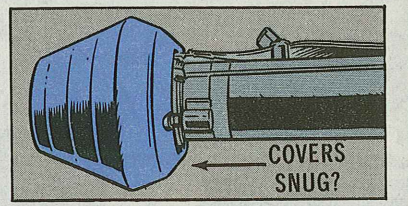
—Eyeball the dessicant package window on the front cover of the launch tube. The indicator should be blue. If it's pink, or turning pinkish, let your support know so that they can install a new dessicant package. That, naturally, prevents moisture damage.



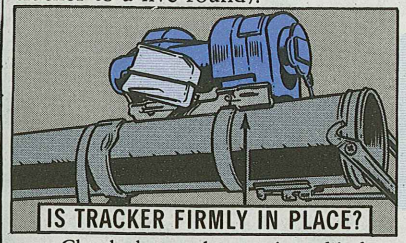
—Check the canvas carrying strap (used for back-packing) on the launch tube for mildew or other damage. Also, make sure you can adjust the strap.



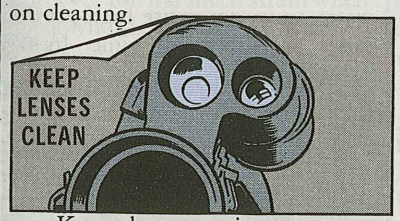
—The front and back covers on the launch tube must stay in place until the missile is ready for firing. If your covers are loose, or show any evidence at all that looks like someone may have taken them off . . . or tried to get 'em off . . . let your support know about it.



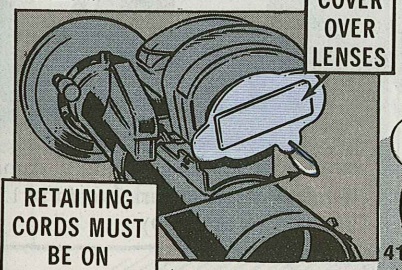
—Be sure the tracker can be slid into place on the bracket along the top of the tube. The tracker must hold firmly in place. (You make this test in an approved firing area, with SOP safeguards to prevent accidental firing. Otherwise, you never mate the tracker to a live round).



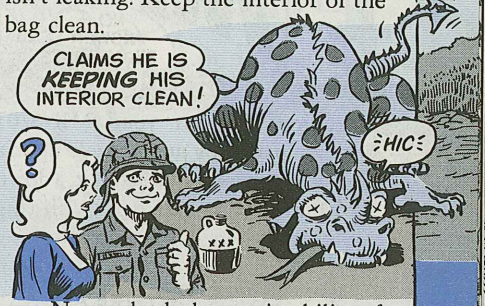
—Check the tracker optic and infrared receiving lenses for damage, scratches or dirt. Clean 'em with lens tissue and ethyl alcohol, if necessary. Read TM 9-1425-480-10 for the word on cleaning.



—Keep the protective covers over the lenses and the electrical connector on the tracker . . . and be sure the retaining cords on both covers are attached.



—Eyeball the tracker carrying bag assembly to be sure the lens tissue and dowel sticks are present and that the alcohol bottle (for lens cleaning, man) isn't leaking. Keep the interior of the bag clean.



—Never check the serviceability of the tracker trigger mechanism when the tracker's in place on a live or training missile (the missile'll go, man). That's done when the tracker's off the missile.

—And remember, support checks the serviceability of the tracker itself.

Remember, too, that the missile requires no inspection. It comes in the tube . . . and stays there until it's fired.

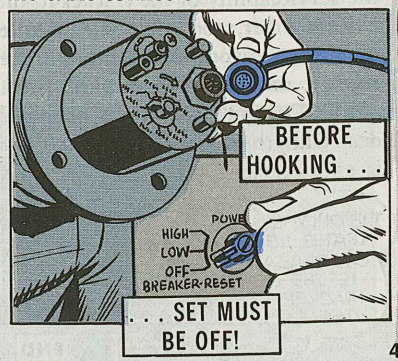
The Dragon system is a one-shot deal. Once the missile goes, what's left is expendable.

ELECTRONICS

MX-6707 PM

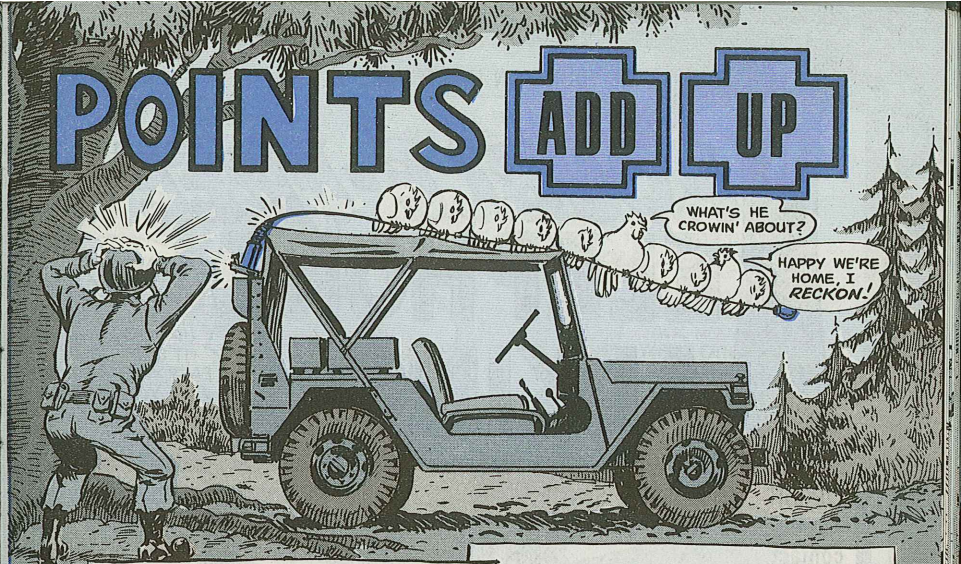
Pulling PM on your MX-6707 antenna matching unit can add up to a real plus for your radio set. But, a down matching unit will leave you with a big fat zero when it's communicating time.

CX-4722/U ANTENNA CONTROL CABLE—Before hooking it to the MX-6707's J2 plug, be sure your radio set is turned off. If the matching unit's not alined with the frequency radio setting, and the radio is on, you can wind up with arcing and burnt pins in the cable connector.

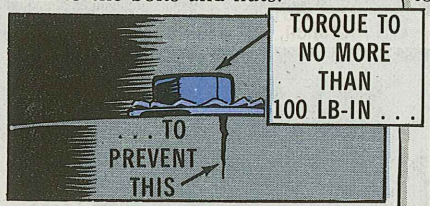


THAT DAMP STUFF—One of the worst whammers of your matching unit is water. When it gets inside, water can knock out the unit. To keep water away, never use high-pressure hoses at bath-giving time. In fact, you're way ahead by using a damp cloth, like it says in para 3.6 of TM 11-5985-262-15 (Mar 69).

POINTS ADD UP



HAIRLINE CRACKS—To cut down on cracking, use care when bolting the unit to the mounting assembly and never use too much strain when tying down the antenna. When you're bolting the unit, always use a torque wrench and apply no more than 100 lb-in to the bolts and nuts.



When you're tying down the antenna, leave the tip of the AT-1095 antenna element about 9 feet above the ground. Be sure to use the triangular tiedown configuration that restricts sway. Also, be sure the antenna element goes into the upward facing slots of the antenna clip.

PAINT POOPS PLASTIC—Touchup painting of metal parts can help lengthen the life of your unit. Keep the metal free of rust and corrosion, and touch 'er up. Be careful, though, to keep the paint off the plastic or your MX-6707 will be hurting. Paint tends to break down and damage plastic.

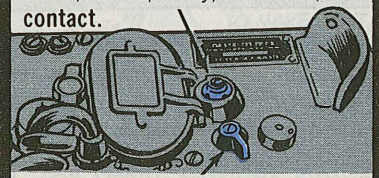
If you get a dab or 2 of paint on the plastic and it dries before you notice, leave it alone.

BE YOUR OWN INSPECTOR . . .

FOR TROUBLE-FREE TELEPHONE TALKING

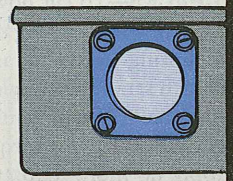
HAVING YOUR *TA-43/PT* OR - *312/PT* TELEPHONE UP-TO-PAR WHEN IT'S NEEDED IS EASY WHEN YOU CAN *BE YOUR OWN INSPECTOR!!*

CIRCUIT SELECTOR SWITCH— Loose, binds, dirty, corroded, **no contact.**

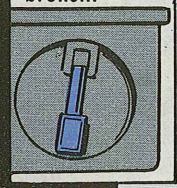


EXT-INT SWITCH—Loose, binds, **no contact.**

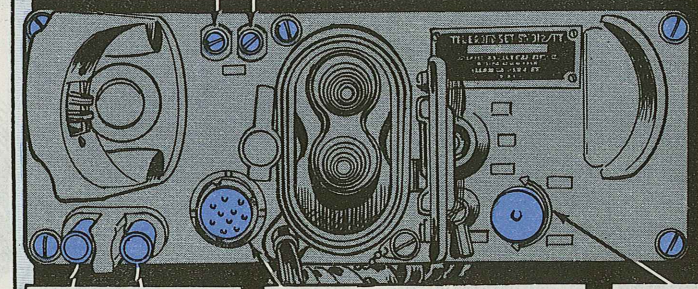
BUZZER DIAPHRAGM— Dented, screws loose or missing, **broken.**



GENERATOR HANDLE— Bent, binding, **broken.**



EXTERNAL BATTERY TERMINALS— Dirty, broken, **not usable.**



PANEL SCREWS— Loose, missing.

BINDING POSTS— Damp, dirty, broken, **not usable.**

U-79/U RECEPTACLE CONNECTOR— Loose, bent or loose prongs, dirty, **not making contact.** (TA-312 only)

BUZZER VOLUME CONTROL KNOB— Loose, binds.

YOU'LL BE TIPPED OFF TO PENDING TROUBLE BY EYEBALLING THESE TIPS.

KEEP A SPECIAL WATCH ON THE ITEMS IN BLUE *BOLD TYPE*-

SOME CAN STOP YOUR TALK NOW WHILE OTHERS CAN CAUSE FUTURE PROBLEMS!

RECEIVER AND TRANSMITTER CAPS—Loose.

MOISTURE SCREEN— Missing, dirty, clogged.

CORD—Frayed, **cut, torn, insulation damaged.**

RETAINING SPRINGS— Bent, fail to hold handset.

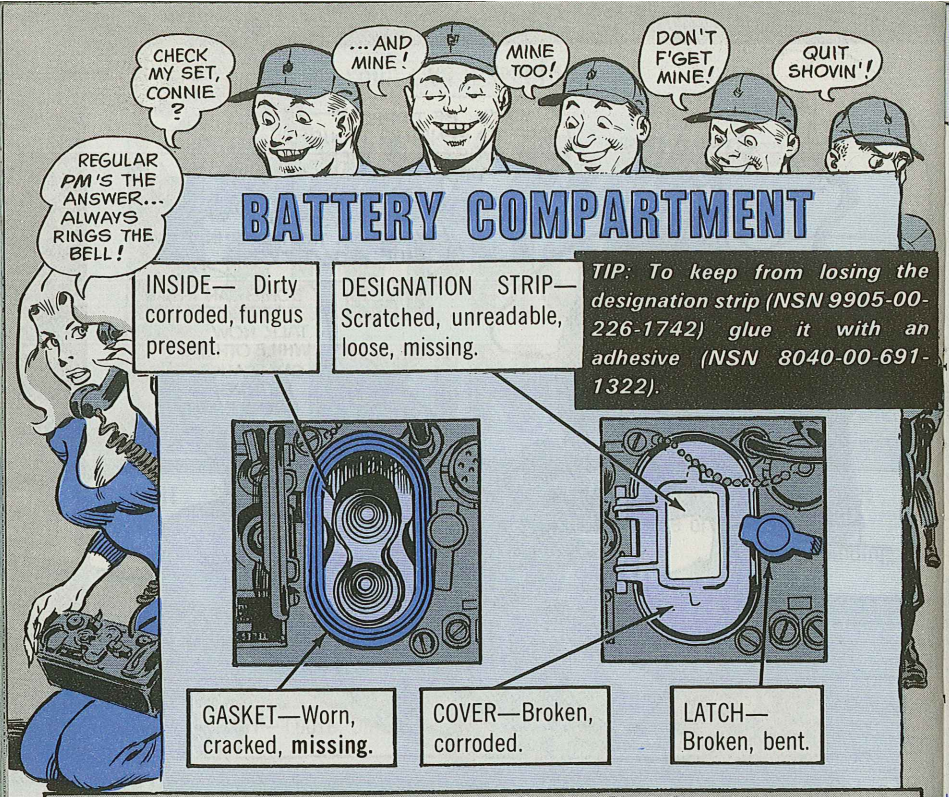
PUSH-TO-TALK SWITCH— Binds, **no contact.**

RETAINING BRACKET— Coating damaged, cracked.

LINE SWITCH— Binds, **no contact.**

PAINTED SURFACES— Cracked, chipped, rusted, corroded.

P.S. MORE



Pubs for TA-43, -312 Telephones

TM 11-5805-201-12 (Jun 67)
TM 11-5805-256-24P (Jul 73)
TM 11-337 (Jul 54) w/changes

Pub for H-60 Handset

TM 11-5965-224-15P (Aug 63)

PS END

COUPLE OF CLIP COVERS

Dear Half-Mast,
I need the insulator sleeves or covers for the alligator clips on my RL-172()/G cable reeling machine. They're shown in Fig 1.1 of Ch 3 to TM 11-3895-207-10 (Apr 62).
Without these covers there's a tendency for the clips to short out the equipment, or somebody gets shocked. Can you give me a hand?
SP5 M.L.K.

Dear Specialist M.L.K.,

Sure can.

Get your support to get 'em and put 'em on. These cable nipples are color coded for polarity. The black one goes by NSN 5975-00-727-6099 and the red one goes by NSN 5975-00-727-6098. They're in TM 11-3895-207-35P (May 71) as insulator, clip.

OFF FOR POWER SHIFT

Whoa! Turn your TSEC/KW-7 COMSEC gear's ON-OFF switch to OFF before switching from vehicle to auxiliary power or vice versa. Leaving that component on during the power shift can leave you with blown fuses when it's teamed up with a RATT Rig.

SB FOR COMSEC GEAR

SB 11-700 (Jul 74) sound familiar to you? If you're a COMSEC-type who has gear installed in vehicles, get familiar with it. It lists installation kits for COMSEC equipment when used with vehicle-communication configurations.

AIR MOBILITY

THE 'EXCESSIVE' DRIP

Dear Windy.
We've been looking high and low for a definition of "excessive" leakage when eyeballing aircraft oil and hydraulic systems.
Are there limits given in a general manual which would apply to aircraft across-the board?
SP6 E.C.H.

Dear Specialist E.C.H. ,

Nosir-e-e-e! Bird manufacturers use different engines, transmissions, and gear boxes, so it's impossible to set down uniform leakage limits.

Which is why you'll find leakage limits in the individual bird pubs. Limits are published in the organizational maintenance manuals for the Kiowa, Cobra, Chinook and Huey.

Take the Kiowa, for example. The hydraulic system, freewheeling unit, transmission input quill, tail rotor gear box and main rotor hub grips are covered in Chaps 6, 7 and 8 of TM 55-1520-228-20 (Oct 72). When leakage is beyond the maximum limits listed, it's "excessive", and the bird should be grounded.

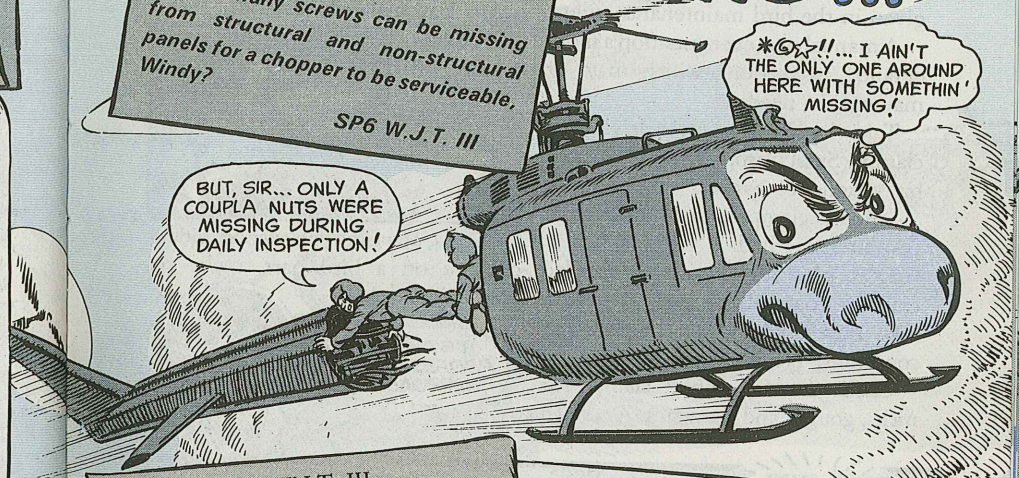
Remember that idle birds with dry seals have been known to leak like a sieve when cranked up. Even the contraction of a cold gear box can give you leakage. Expansion of a heated gear box will seal a leak.

So, mechs and tech inspectors should use good judgment in determining excessive leakage—especially where there are no published limits.

Windy

"ALL PRESENT AND..."

Dear Windy,
We have a question on aircraft hardware.
How many screws can be missing from structural and non-structural panels for a chopper to be serviceable, Windy?
SP6 W.J.T. III



Dear Specialist W.J.T. III,

None!

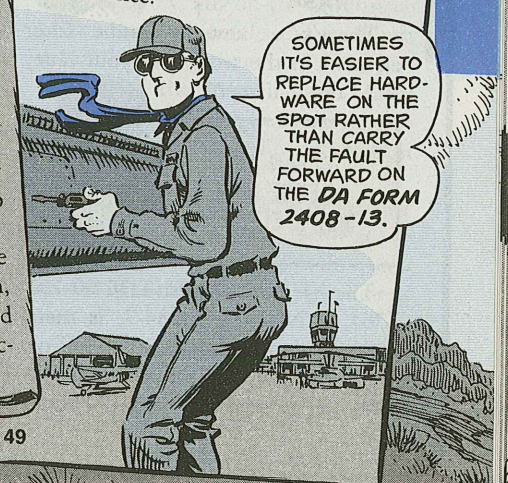
But read on . . .

The airworthiness of any bird is based on the fact that it's complete. So—all missing screws, rivets, bolts, nuts, cotter pins, safety wire, seals and gaskets should be replaced when you find them missing or damaged.

Aircraft manuals are written in this "positive" manner. If there is an allowance for leaving out hardware, or installing it in a special way, the pub will spell it out.

Your bird will lose hardware because of vibration and wear, though, and you mechs should use good judgment in getting hardware replaced.

Hardware missing from a structural panel would have to be replaced right now. In other cases you might defer the chore until you pull scheduled maintenance.



"YOU BE THE JUDGE!"

When inspecting the numerous rotating, spinning, turning parts on aircraft, your guide is the wear limits given in the bird maintenance pubs.

A manual may even mention a more detailed inspection—which may, or may not, be needed.

Take the Huey tail rotor drive shaft clamps. Steel clamps may be checked by magnetic particle inspection—aluminum clamps by the fluorescent penetrant method.

Does this mean such a detailed check is routinely needed, say, every 500 hours when you repack the couplings? Nosir-e-e-e!

Check the drive shaft clamps for nicks, gouges and scratches. A scratch can sometimes clue you that the clamp is cracked.

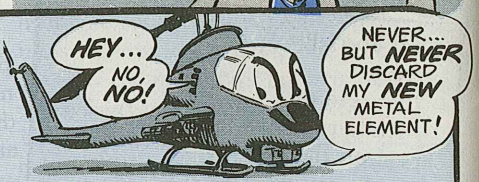
So, a thorough look might be in order. You make the decision.

Fact is, any time you suspect hidden damage on a bird part, make the scientific check.

A NEW ELEMENT

There's a new hydraulic filter element in the works for your Huey and Cobra, airmen.

The element, NSN 4330-00-106-6764, P/N 205-076-034-7, is metal and it's non-expendable. The old paper element, NSN 4330-00-442-2484, gets tossed out every 100 hours.

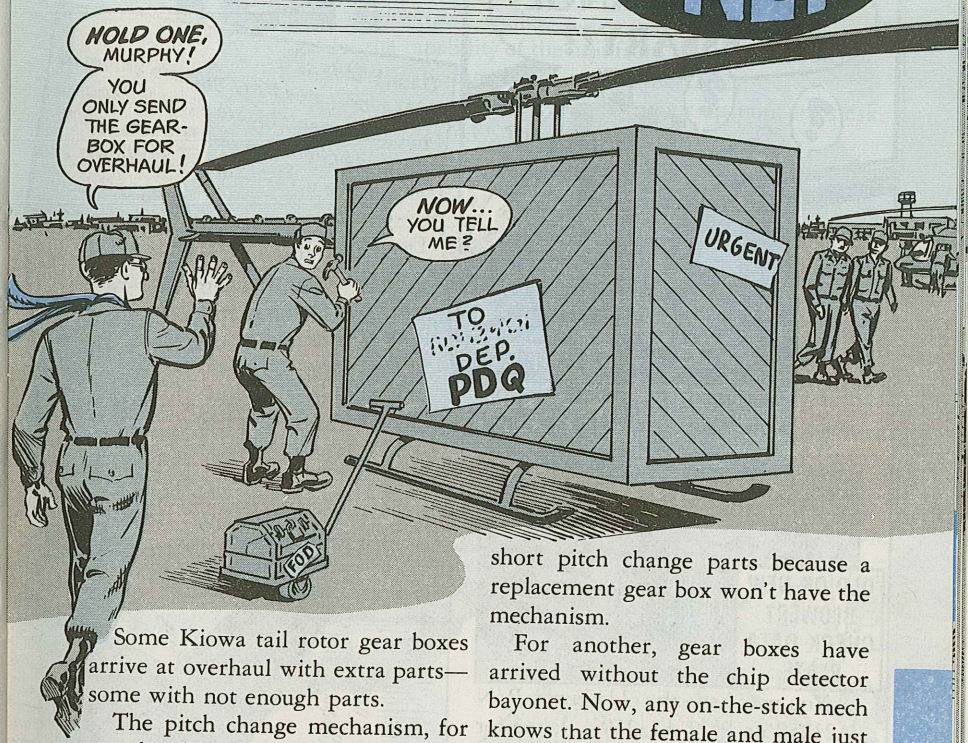


Some of the paper elements have a wire mesh and have been mistaken for the new metal ones. So, eyeball the stock number or part number stamped on the element.

Never discard those tough metal jobs. Just clean 'em with detergent, or by chemical or ultrasonic means, every 1000 hours . . . sooner if the filter indicator button pops.

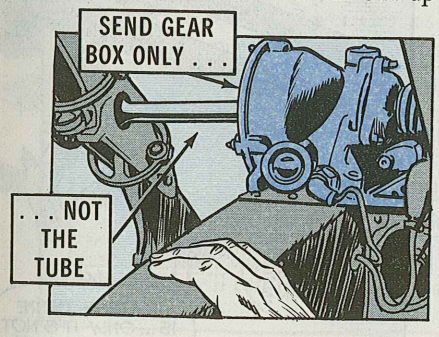
Keep using those paper elements until the supply is exhausted, tho. After awhile, the new metal elements will take over.

SEND THE "COMPLETE" PART ONLY!



Some Kiowa tail rotor gear boxes arrive at overhaul with extra parts—some with not enough parts.

The pitch change mechanism, for one, has been shipped with the gear box. This means a unit will end up



short pitch change parts because a replacement gear box won't have the mechanism.

For another, gear boxes have arrived without the chip detector bayonet. Now, any on-the-stick mech knows that the female and male just naturally go together!

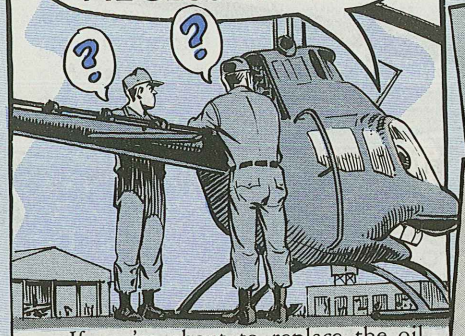
Without the male bayonet, extra ones have to be bought by support so that a complete gear box can be sent back to the field.

Sure, it may take a little more time to disconnect the chip detector at the outboard end of the bayonet. But you'll hold down the tab for replacement parts.

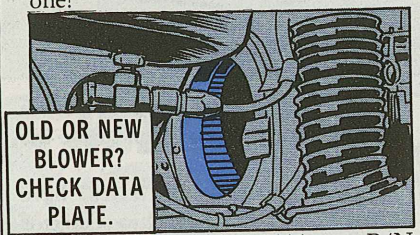
The Kiowa parts pub clues you on what parts are included in a complete tail rotor gear box assembly.

KIOWA OIL COOLER BLOWER . . .

IS THIS CHANGE NECESSARY??



If you're about to replace the oil cooler blower on your OH-58A, hold one!



You may have the old blower, P/N A23259 or P/N A23259-1, listed for retirement at 600 hours . . . no sweat! However, there are only a few of the oldies around these days.

If you're using the new blower, NSN 1615-00-169-0360, you've got a condition item which is good as long as it passes inspection.

To see which type you have, check the blower data plate. It's usually on the side or back of the blower housing on the left side of the bird. You'll need to remove the aft fairing to see the plate.

UTE ENGINE TEST

Dear Windy.

Maybe I need my glasses changed because I can't locate a turbine engine analysis check for our Ute engines?? Is there a TEAC in print, Windy?

SP6 J.J.L.

Dear Specialist J.J.L.,

No—not by that name. But a rose by any other name is still a rose. Engine performance check number 4 is your TEAC.

You'll find the poop, which came along before the TEAC program, in para 5-85 of TM 55-1510-209-34/1 (Jan 72).

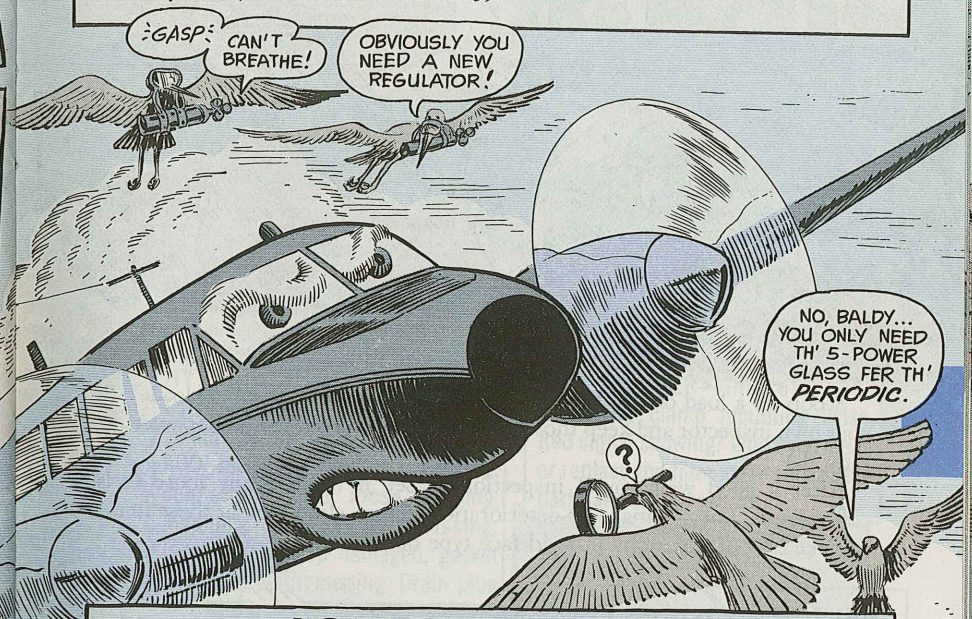
Windy

FOR YOUR HIGH FLYER

To service your high-flying birds, air types, latch onto a new regulator, NSN 4820-00-627-9816. It goes on oxygen servicing unit, NSN 1730-00-435-7817, mounted on a standard maintenance trailer.

The regulator upgrades the capability of the unit from 1000 PSI to 3000 PSI. You need the high pressure, for example, to service the U-21.

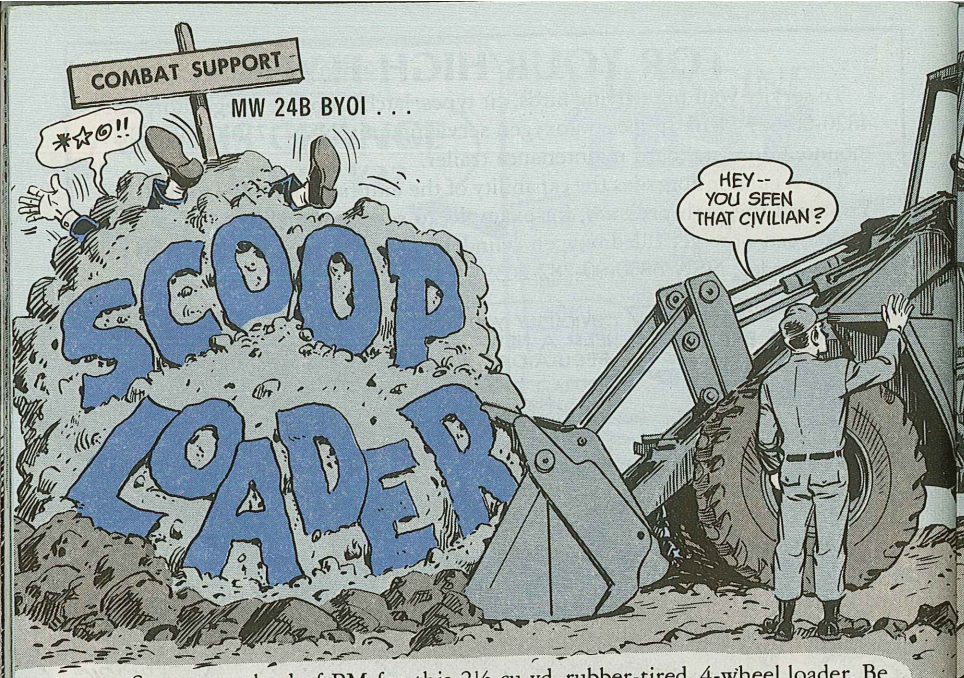
You can now get filled oxygen cylinders, also. For your upstairs trips ask for—cylinder, NSN 6830-00-782-2639.



LOW-POWER LOOK

You can skip the 5-power glass as you look for cracks on the Ute (U-21) landing gear knees. A change to the preventive maintenance intermediate

check sheets will call for just a normal vision once-over. Continue to use the glass on the Periodic check, tho.

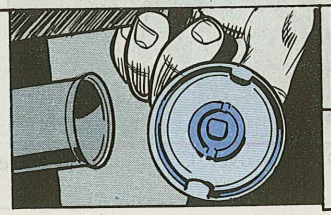


Scoop up a load of PM for this 2½-cu yd, rubber-tired, 4-wheel loader. Be your own inspector and keep those 6 cylinders putting out 157 horsepower day after day.

After a good walkaround inspection to see if there're any loose ends, connections, lines, damage or deterioration, take a close look at these items.

Take care of the items in **bold face** type quick-like.

FUEL TANK—**Leaks,** seeps; damaged. While you're looking for fuel leaks, check for lube **leaks,** too. Fuel level **low.** Filler neck dirty, damaged. damaged. Dipstick **missing.** Fuel contaminated with water, trash.



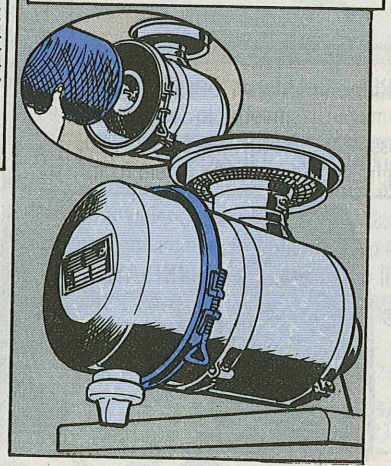
TIP: Fill tank at end of each day; that keeps moisture from collecting in the fuel system.

FUEL FILTERS—Contaminated with **water, trash.** Change filters any time conditions call for it.

RADIATOR—Cap **damaged, missing;** filler neck damaged, cap gasket missing, damaged. Coolant level **low.** Keep coolant within 1 inch of top of the radiator.

HYDRAULIC RESERVOIR—Corroded, dirty. Oil level low. (It should be between the FULL and ADD mark on dipstick.) **Leaking;** connecting lines **loose,** leaking; mounting bolts **loose, missing;** Dipstick-filler cap damaged; gasket damaged, worn, missing. Drain plug loose, **missing,** damaged. Keep fuel contaminants—grass, dirt, mud—off reservoir.

AIR CLEANER—Indicator **inoperative;** clamp mounting loose, Red signal showing? When you clean or replace the filter make sure all the parts are accounted for.



P's MORE

EARTH-QUAKE?

GRR-RR!..

WAIT'LL I GET MY HANDS ON HIM!

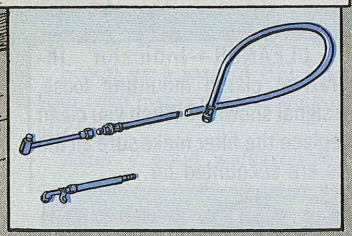
WOT ARE YOU DOIN' IN THERE?

?

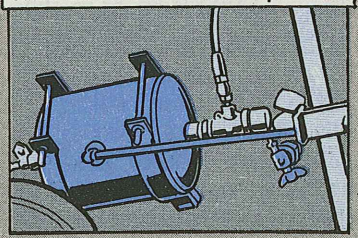
HUH?

ENGINE—Attaching bolts, nuts, screws, clamps **loose, missing.** Lube and cooling line connections **leaking;** hoses and belts rotten, cut; housing chipped, **cracked.** Engine components dented, bent, damaged. Dipstick gasket missing, damaged; filler neck damaged. Drain plug missing, **loose.** Crankcase oil level **low.** Keep oil up to FULL mark 'cause the turbocharger depends on engine oil to keep it cool and lubed.

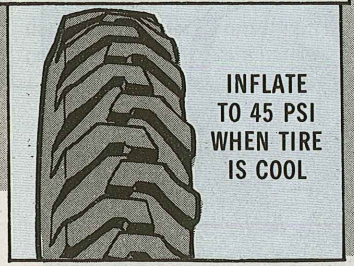
TIRE INFLATION KIT—**Missing,** parts damaged, **missing.**



AIR RESERVOIRS—Mountings, connections **loose;** leaking; drain plugs loose; lines, hoses **damaged;** drain valve stuck. Condensation **present.**



TIRES—**Cut** (to or thru the fabric), damaged, smooth in spots; excessively **worn;** pressure too high/low. Keep 45 PSI in 'em (cold).



ALCOHOL EVAPORATOR — Keep alcohol level up to evaporator's shoulder in freezing temperatures.

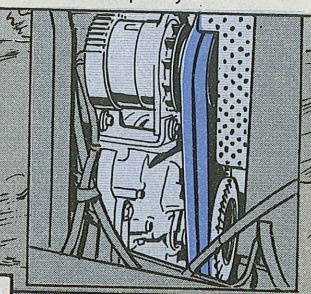
KEEP ALCOHOL TO HERE IN FREEZING TEMPERATURES

JOHNSON SAID HE'D RATHER HAVE CONNIE SHOW US HOW TO BYOI!!

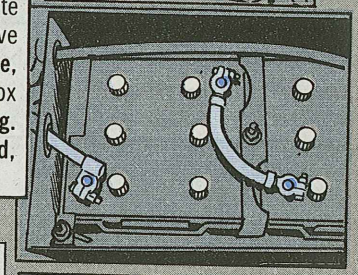
?

SHHHH... P-PLEASE DON'T MOVE, CONNIE...

FAN/ALTERNATOR/COMPRESSOR DRIVE BELTS—**Worn, cracked, frayed, stretched;** need adjustment. You should get ½-in deflection half way between pulleys.



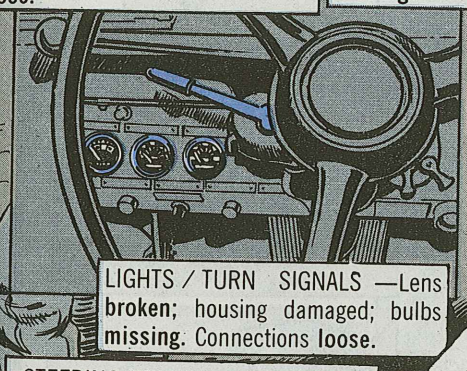
BATTERIES—**Dead.** Electrolyte levels **low.** Keep it ¾ inch above separators. Connections **loose,** dirty, **corroded, missing.** Box corroded, damaged; cover **missing.** Cables **broken;** terminals **corroded,** damaged, **loose.**



CONTROL/INSTRUMENTS—Dials, unreadable, broken; switches **missing, broken,** won't operate like they're supposed to. Connections **loose.**

HORN—Won't work. Button **missing.**

PROPELLER SHAFT—**Bent,** cracked; mounting loose; bearing/flanges **cracked, worn,** damaged.



FLOW DIVIDER VALVE—**Leaking,** damaged. Hoses, loose deteriorated; mounting **loose.**

FIRE EXTINGUISHER—Seal **broken. Discharged.** Inspection tag **missing.** (You weigh it every 6 months. Get a new one if yours weighs less than 4½ lbs, or pressure is less than 125 lbs).

LIGHTS / TURN SIGNALS —Lens **broken;** housing damaged; bulbs **missing.** Connections **loose.**

STEERING WHEEL—**Broken;** housing cracked, damaged. Mounting brackets **loose, missing.**

KEEP TM 5-3805-251-12 (Oct 73) AND LO 5-3805-251-12-2 (Aug 73) CLOSE AT HAND.

PS END

GAS CAN PARTS LIST

Dear Half-Mast,

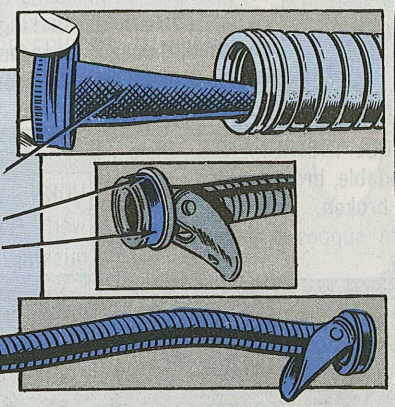
We got gigged for unserviceable 5-gal gas cans. Seems the cap screens were missing from the spouts. Could you give us the NSN we need to get out of the doghouse?

1LT R.G.C.

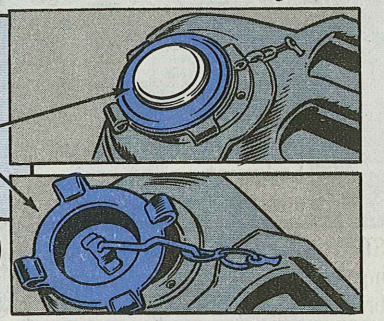
Dear Lieutenant R.G.C.,

Glad to help. Here's the number for screens, and some others that'll be useful:

SPOUT ITEMS	NSN
Cap Screen	7240-00-132-6433
Bottom (bushing)	7240-00-132-6431
Bottom washer	5310-00-228-6638
Spout assy (complete)	7240-00-177-6154



CLOSURE ITEMS	NSN
Gasket	5330-00-298-7165
Closure Assy	7240-00-025-3377



FAUCET FACTS

Dear Half-Mast,

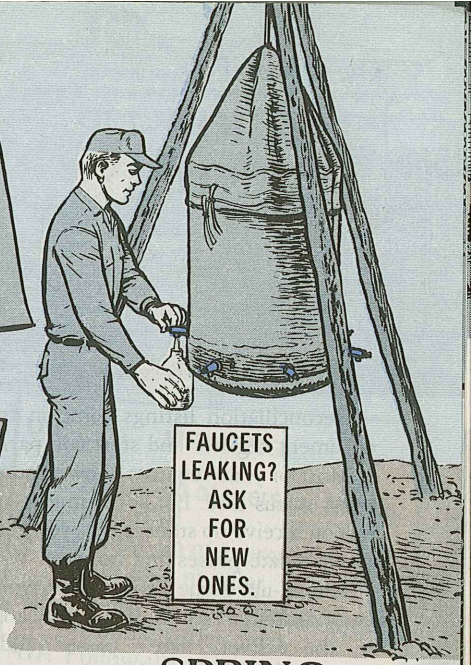
I have water sterilizing bags, NSN 4610-00-268-9890, with defective faucets. It seems a waste to replace the complete bag because of leaking faucets. Any way to get the faucets?

SFC B.E.W.

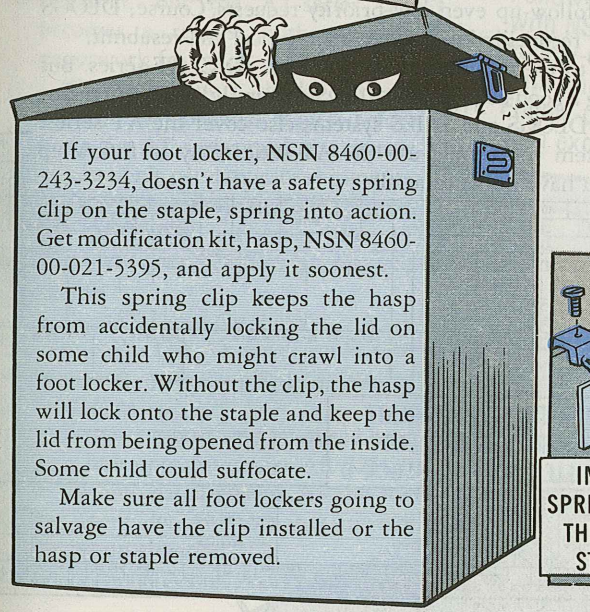
Dear SFC B.E.W.,

They're available under NSN 4510-00-277-9569, Part No. C13200E6482. They're listed as exhaust items so you may or may not get one. Your request will help build demand data for a new buy, tho.

Half-Mast



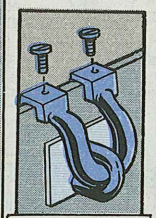
SPRING FOR SAFETY

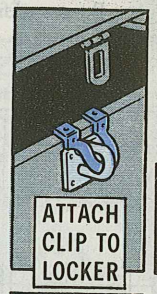


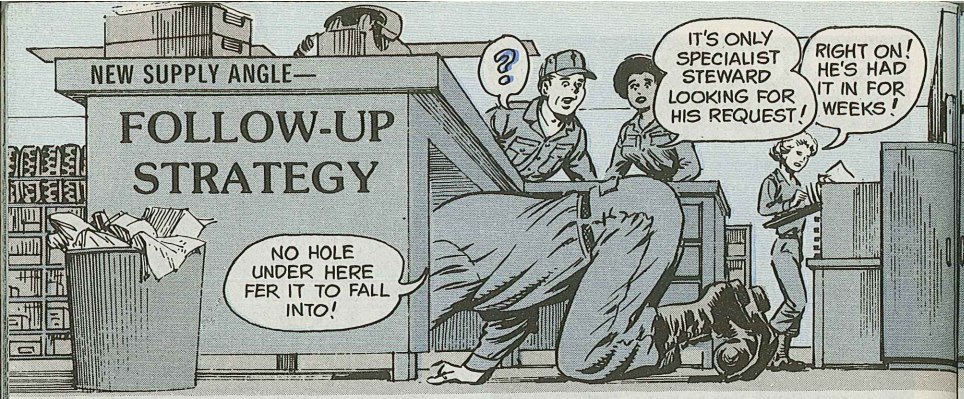
If your foot locker, NSN 8460-00-243-3234, doesn't have a safety spring clip on the staple, spring into action. Get modification kit, hasp, NSN 8460-00-021-5395, and apply it soonest.

This spring clip keeps the hasp from accidentally locking the lid on some child who might crawl into a foot locker. Without the clip, the hasp will lock onto the staple and keep the lid from being opened from the inside. Some child could suffocate.

Make sure all foot lockers going to salvage have the clip installed or the hasp or staple removed.







Reconciliation listings come in from your support. So you get out your document register and start comparing.

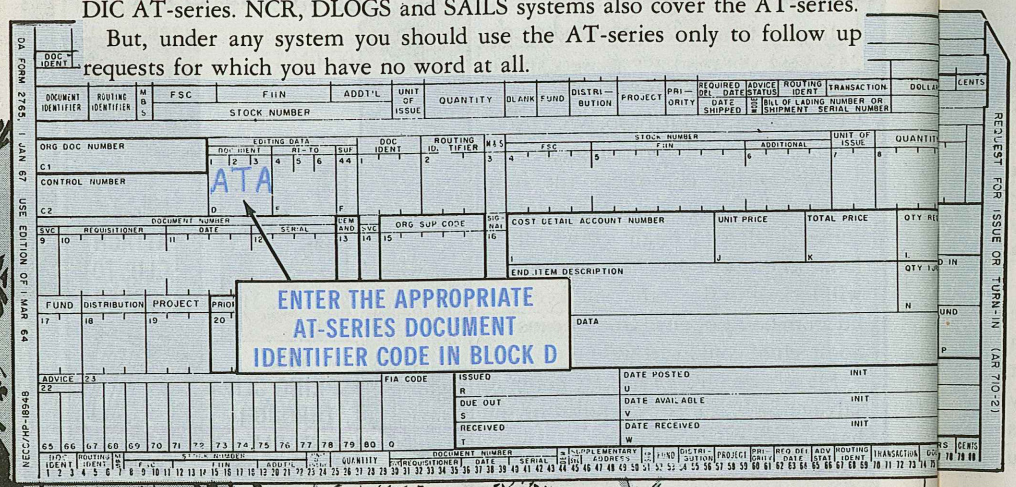
Most of your requests show up on the listing and match the info on your latest status card. But sometimes a request seems to fall in a hole.

You receive no status cards, you get a no-show on the reconciliation list, and the due date passes and no item. What do you do?

Follow-up. Some people think you send out follow-up cards only on high-priority items. Not so! If you need an item and haven't heard from support on it, the delivery date's passed and the item does not appear on your reconciliation listing follow-up even low-priority requests. 'Course, DLOGS people wait through 2 reconciliation listings, then cancel and resubmit.

AR 710-2 tells you to use document identifier code (DIC) AF-series. But could be you're missing a good bet. AR 725-50 (DSU's supply bible) recognizes DIC AT-series. NCR, DLOGS and SAILS systems also cover the AT-series.

But, under any system you should use the AT-series only to follow up requests for which you have no word at all.



The follow-up card goes through the system just as your original request did. When it reaches an action point with no record of your original request, the AT card becomes a request. AF-series DIC's only tell the computer to start looking. If there's no record of your original request, an AF-DIC earns a status card telling you to resubmit. But the AT-series card becomes a request with no more paperwork from you.

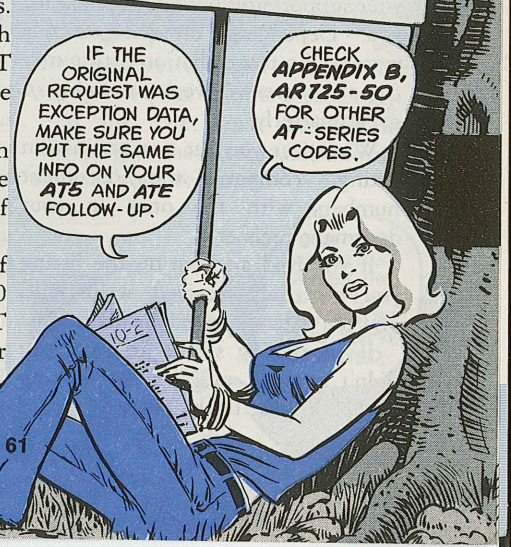
'Course, support checks for any trace of your original request before using the AT-series card as a request so you don't get duplicate shipments.

The headshed says that even though AR 710-2 does not cover the AT document series, there's no rule against it.

Your DSU can put the AT-series in local SOP. The AT-series could save you and your support a lot of headaches.

If your support says go-ahead or if your unit operates under AR 725-50 or an automated system, try the AT document identifier code that fits your follow-up situation.

DIC	MEANING
AT1	Follow-up of overseas request with NSN
AT2	Follow-up of overseas request with part number
AT5	Follow-up of overseas request with exception data
ATA	Follow-up of CONUS request with NSN
ATB	Follow-up of CONUS request with part number
ATE	Follow-up of CONUS request with exception data



USE RECONCILIATION LISTINGS TO—

RAISE YOUR ODDS

Keeping straight on supply requests is like trying to get candy from a machine. You put in your money and take your chances. Mostly you get what you want. But you can lose your money, get the wrong kind . . . or get more than you ordered.

However, there're ways to raise the odds on getting the candy bar, er . . . item you requested.

Status cards keep you up-to-date on where your high-priority requests stand. But a smart PLL type also keeps an eye out for his periodic reconciliation listing. This listing is usually a computer printout showing the supply and shipment status of each request your support unit has on the books for you. Depending on your supply system, the reconciliation listing may come out every 2 weeks, monthly or even quarterly.

Whenever you get a reconciliation listing, compare the document numbers with the ones in your document register.

If you find an item on the listing you've already received, write REC and the date it arrived beside it.

If the listing shows an item you didn't request, cancel it by writing CANCEL next to the entry.

PREPARED 75 OCT 01
STORAGE SITE. AXB

DODAAC
W22PLO

JULIAN DATE/ SERIAL NO.	PD	EAD
50140133	09	303
50142703	05	319
50143364	09	303
50143365	09	303
50143383	13	303
50143426	05	287
50143606	09	303
50143666	05	287
50149617		
5015G447		
50152317		
50152336		
50152208		

COMPARE THESE WITH YOUR DOCUMENT REGISTER

However, if you find an item in your dues-in file that's not on the reconciliation listing, never cancel the item out on your document register or submit a new request immediately unless your system or local SOP requires it.

First, check for status cards on the item. If you've received status cards on it, could be the item is due in the next couple of days. If it's a low-priority item that doesn't rate status cards under your system, check the date you sent the request in. Then see how long that priority is supposed to take. If the item is overdue, visit or call your support unit and see what their status is on the item. Then, if they don't have anything on it, either put through an AT-series follow-up or cancel the entry on your document register and submit a new request.

DUE-OUT RECONCILIATION LISTING PCN B-ALB-094

CUTOFF DATE 75274 RESPONSE DUE DATE 75304

STATUS	NSN	U/I	QTY D/O	FUND CODE	COST CODE	ASSET/ OBJECT	SOURCE SUPPLY
BB	6630 00 171 5126	EA	3		MF40	0 OK	
BG	2590 00 256 5535	EA	3		MD68	0 OK	
BA	1005 00 937 8255	EA	1		MD96	0 OK	
	1005 00 937 8255	EA	1		MD96	0 OK	
	1240 00 970 8656	EA	1		MD68	0 OK	
BB	5360 00 582 4075	EA	4		MD68	0 REC 5026	
	5910 00 649 3188	EA	2		MD80	0 OK	
	5365 00 816 4239	EA	49		MD64	0 REC 5025	
	1025 00 478 3765				MD60	0 REC 5053	
BB	1025 00 470 1664			MK	MD68	0 REC 5078	
	6685 00 763 2168				MD68	0 OK	
	2510 00 808 7767				MD60	0 OK	

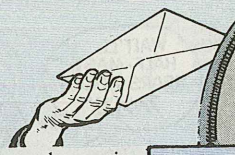
CHECK NSN'S FOR ANY CHANGES

GOT 'EM? MARK THEM RECEIVED

Give the listing the once-over, too, for any changes in NSN. If the listing has an old item with a new NSN, check with support. Could be the number's been changed on the AMDF. So, update your records accordingly.

In any case, your reconciliation listings give the latest inside information on your requests.

OUTFIT TO MOVE . . . .?



SEND THE WORD

When your outfit picks up, leaves its happy home at ol' Fort Hardnox . . .

Or, if your unit's name or number changes . . .

You're in for extra grief unless you put 3 real important letters in the mail with the right dope inside.

Your letters must give:

1. Your old address.
2. Your new address.
3. Your pinpoint account number (you have a different one for each center below).
4. When to start using the new address.

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ATTN: AMXCA-CP
New Cumberland Army Depot
New Cumberland, PA 17070

If you get moved on short notice, you can get the word up to the microfiche head shed by calling Autovon 977-6741 or 977-6608. But send a follow-up letter.

Send the word, and these outfits will make sure your microfiche and publications get to you—like schnell.

The Army AG will chop off your pinpoint account if you don't send the word and the post office sends your mail back to the pubs centers.

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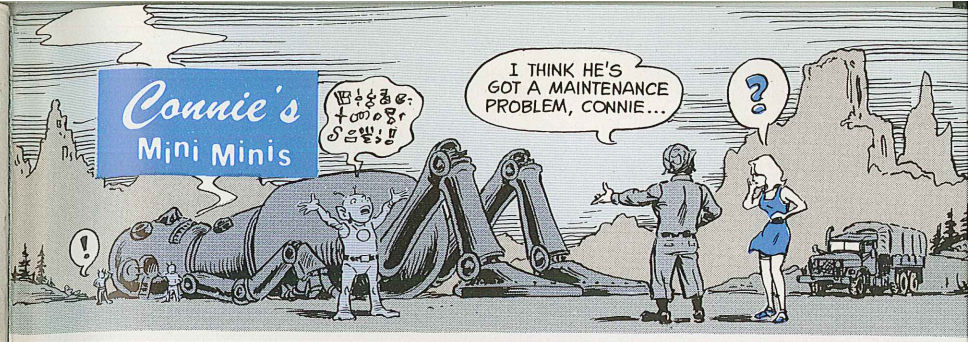


CB Mask/Hood Care

Nobody—but nobody—should repair rips, tears or pinholes in your CB mask or hood. Replace the hood or mask according to your TM and SB 740-94-120, Storage Serviceability Standards for Protective Mask (All Items) and Ancillary Items (Aug 74). Repairing damage with glue, tape or patches could cost you your life.

Splint Set For M718

The splint set in the BIIL for your M718 frontline ambulance comes under NSN 6545-00-952-6975. You'll find the components listed on page 75 of Fed Cat C6545-IL Vol. 2, (Jul 74). They're not in the TM.

2½-Ton Lube Plug, Fitting

Need a ⅛-in plug for the lube hole in the rear spring seat assembly on your TM-209-series 2½-ton truck? NSN 4730-00-221-2136 gets it. This plug goes with the drilling and tapping instructions in para 191.2, page 294.4, Ch 4, TM 9-2320-209-20 (Apr 65). The grease fitting you need comes under NSN 4730-00-172-0028.

M720 Dolly Doozy

It's a bash, man, unless you replace the no-good straight, headless towbar hinge pin P/N 116121123-1 on your M720 dolly lifter. Replace it with the stronger, safer pin, NSN 5315-00-144-9963, P/N 12250099-1. Take the exception data supply route, 'cause the NSN's not on the AMDF.

Hinge Pin Drill

A little drilling is needed to make the tailgate hinge pin work in your M105 or M104 cargo trailer. Pins ordered under NSN 5230-00-011-9285 are the right ones, but they lack a cotter pin hole. Drill a hole 1 17/32 inches from the base of the head. Either a No. 6 or a 13/64 drill bit is OK for the job.

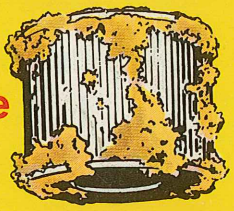
Off Before Hookup

Before hooking up the intervehicular cable between your truck and the trailer you're gonna tow, make sure your vehicle's lights are off. This will prevent sparks and shorts, which could damage the connectors.

Would You Stake Your Life *right now* on the Condition of Your Equipment?

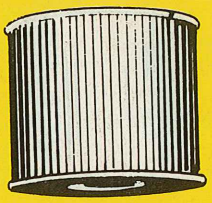
FILTER CHANGED (OR CLEANED)

COMPARE the



BEFORE

and



AFTER

NOW YOU SEE WHY

YOUR ENGINE LUVS A CLEAN FILTER