Issue 249
PS
1973 Series
August

THE PREVENTIVE MAINTENANCE MONTHLY

DA Pam 351-20, "Announcement of Army Correspondence Courses," doesn't stack up much as a rainbow. Little short on color. But as a pointer outer of pots of gold it just can't be beat!

It has detailed dope on ways you can use home study to learn your job better. It can help get you promotions, pro pay, better assignments.

A real bonus you've got going for you is the support you'll get from your command. Your CO knows that any extra training you can get in maintenance and supply operations is going to pay off big for him in the combat readiness of his equipment. That's what's called "enlightened self-interest," and it can clear more paths and knock down more obstacles than just about any other motive known to man.

Have your pubs clerk round up a copy of the pam if you don't have one. Give it a careful going over.

The courses you need may be offered by more than one Army school. If you're looking for specific branch-oriented courses, you can probably find them at the branch service school. Every year each school puts out a catalog of its correspondence courses. Need one? Write and ask for the catalog from the school that has courses you want. Look 'em over before you make your choice.

Your unit education officer will be glad to help you find and select the course most suited to your needs. Pick the course that'll help you most right now—and get a completed DA Form 145 submitted, like Sect I, para 4 says.

He who knows not and knows he knows not is a wise man. Wise enough to recognize a rainbow—no matter what its color!

PS THE PREVENTIVE MAINTENANCE MONTHLY

Published by the Department of the Army for the information of organizational maintenance and supply personnel. Distribution is made through normal publication channels. Within limits of availability, older issues may be obtained direct from Editor, PS Magazine, Lexington, Ky. 40507.

ISSUE No. 249 AUGUST 1973

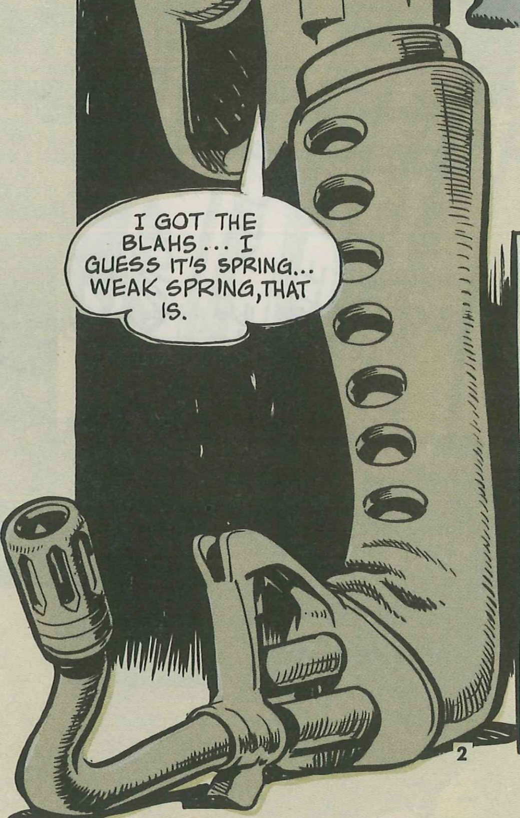
FIREPOWER
GROUND MOBILITY
COMMUNICATIONS
AIR MOBILITY
COMBAT SUPPORT

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

MSG Half-Mast
PS Magazine
Lexington, Ky.
40507

Use of funds for printing of this publication, has been approved by Headquarters, Department of the Army, 11 April 1972.

DISTRIBUTION: In accordance with requirements submitted on DA Form 12-4.

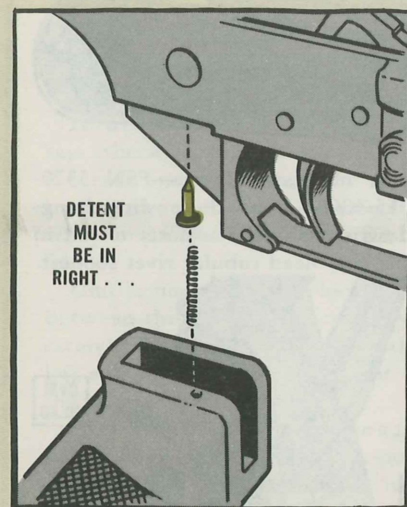


Does your Sweet 16's selector lever have a case of weak spring blahs or wiggle-waggle blues? Like maybe it's slipping from SEMI into the AUTO or SAFE position during firing. And nobody should have to go thru the experience of an accidental slip from SEMI to AUTO!

Here's how to tell if your rifle is free of these maladies: When you select the mode of fire, or SAFE, be sure the selector lever has a definite, firm "snap in" at each position. Extra movement in the selector lever ain't cricket.

LEVER "SNAP IN?"

A rifle with the blahs or blues needs a checkup by your unit armorer. He'll check the selector lever detent and detent spring. Could be the detent was left out during periodic inspection of the lower receiver group.


DETENT MUST BE IN RIGHT . . .


. . . OR SPRING'LL GET CHEWED UP.

Without the detent, the selector lever chews up the end of the selector lever detent spring. A damaged or short spring puts no tension on the selector lever. You've got a case of the wiggle-waggle blues.

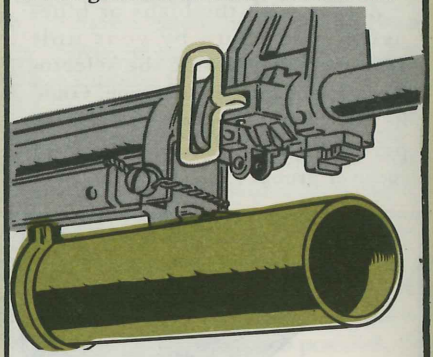
'Course, a weak detent spring won't keep the selector in the right position, either, and that's a case of weak spring blahs.

PS MORE

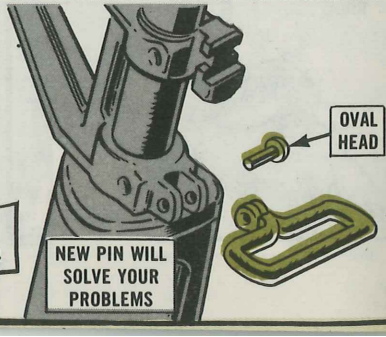
SLING SWIVEL FIX

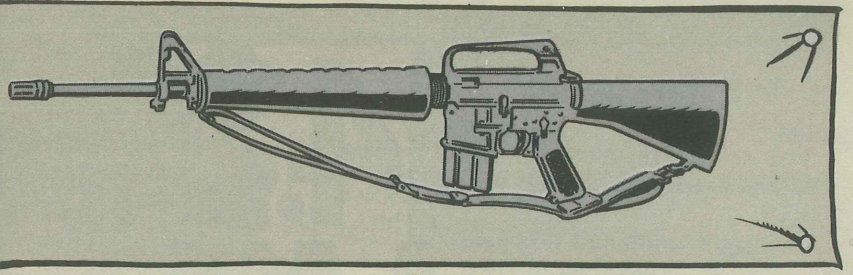
Ever have a case of Sweet 16 fumbleitus? Like maybe one of the sling swivel pins works loose and drops out? And your rifle hits the dirt with the most embarrassing sound in the world?

Happens most often when the M203 grenade launcher is attached.



A new swivel pin—FSN 5320-055-3066—stops these sling hangdowns. Ask your armorer to put in the oval head tubular rivet soonest.





LOCK PLATE PM

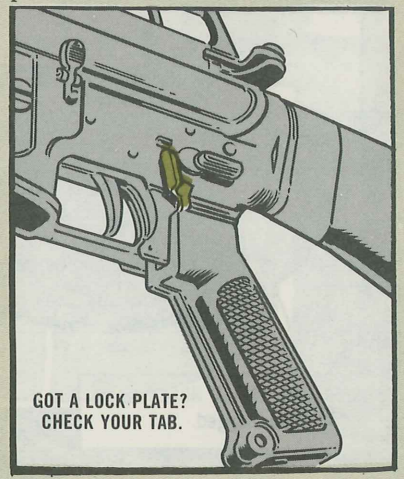
Rough handling of special-purpose equipment is causing a heap of maintenance downtime and parts replacement for some M16A1 rifles.

Far too many lock tabs are being broken for no reason at all.

The lock plate stops the selector lever on SEMI. Keeps nervous and curious fingers from accidentally throwing the rifle on AUTO fire.

However, when the commander says otherwise, you can break off the tab easy enough. When the tab's broken, your Sweet 16's selector works normally—SEMI, AUTO or SAFE.

Unit armorers add the lock plate between the pistol grip and lower receiver. The breakaway tab is on the left side of the receiver in front of the selector lever.



So-o-o-o, all you riflemen take a good look at your M16A1 if it's equipped with a lock plate. If the lock-out tab's gone, report it ASAP. If it's still attached, take good care of it.

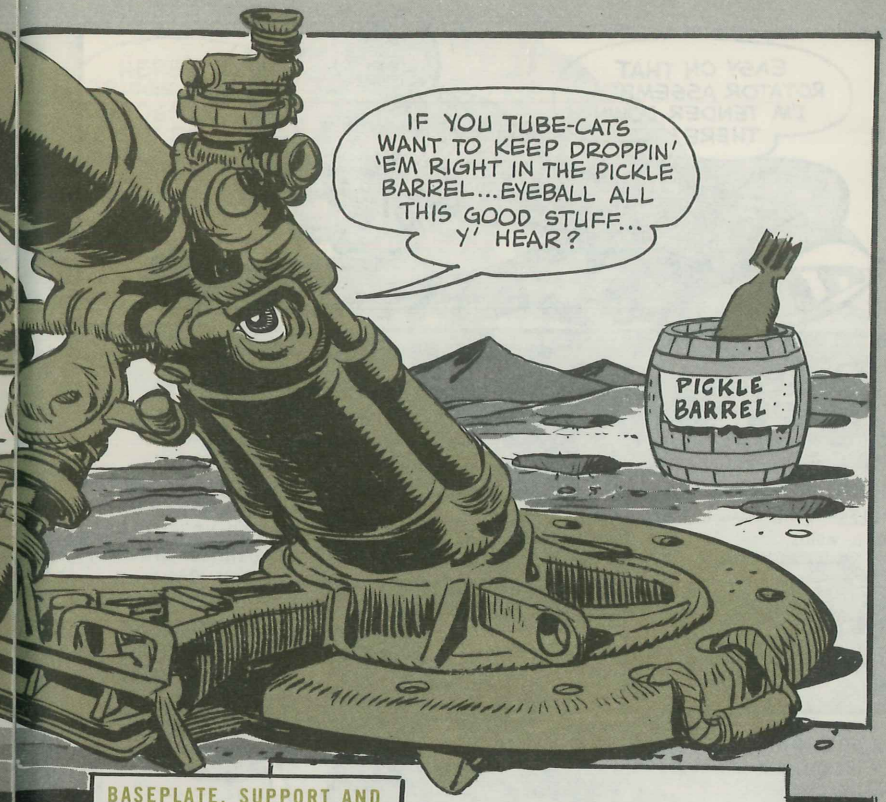
BE YOUR OWN INSPECTOR . . .

You muscle men who manhandle the 4.2-in mortar know it takes a light touch.

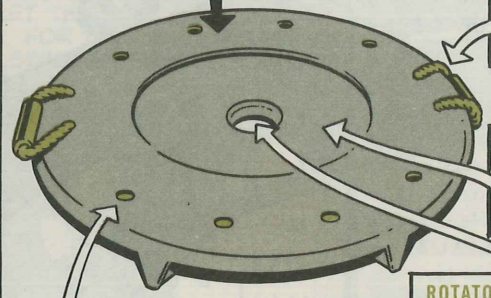
Because if anything's unlubed, jimmied up, broken or missing, you're hurting all over. In the worst way.

Follow your 4-Deuce publications —TM 9-1015-215-12 (Jul 66) and FM 23-92 (Jun 70) right down the pike. They're your maintenance bibles for these daily before-operation checks. Faults in **bold type** are the most serious . . . so take care of 'em soonest.

4.2-IN MORTAR MASTERY



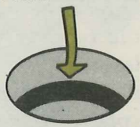
BASEPLATE M24 or M24A1—Rusted, deformed, cracked, broken; scratched, chipped, blistered paint; painted metal-to-metal surfaces are no-nos.



ROPES AND HANDLES — Frayed, cut, loose, missing nylon rope; broken, missing handles.

BASEPLATE BEARING SURFACE AND WELL—Muddy, gritty, scored, **warped;** need GAA.

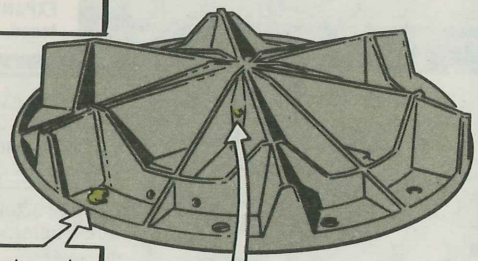
ROTATOR LOCK SLIDE GROOVE —Bent, sand- or mud-filled; needs GAA.



PRESSURE RELIEF HOLES (8 in all) — Mud-clogged.

GAA=Grease, automotive and artillery

BASEPLATE, SUPPORT AND LATERAL RIBS—Loose, **broken welds.**



ROPE ENDS—Untied, unburned.

DRAIN PIPE PLUG—Loose, damaged, **missing.**

ROTATOR ASSEMBLY (MAGNESIUM OR STEEL) — Cracked, **broken; binds; won't seat on baseplate;** scratched, chipped, blistered paint.

HANDLES—Bent, broken; pulled loose at welds.

BRIDGE BEARING SURFACE —Nicked, painted, **cracked, broken;** needs PL, GAA.

BRIDGE TRUNNION SOCKET —Cracked, **broken;** needs PL, GAA.

PL=Lubrication oil, General purpose

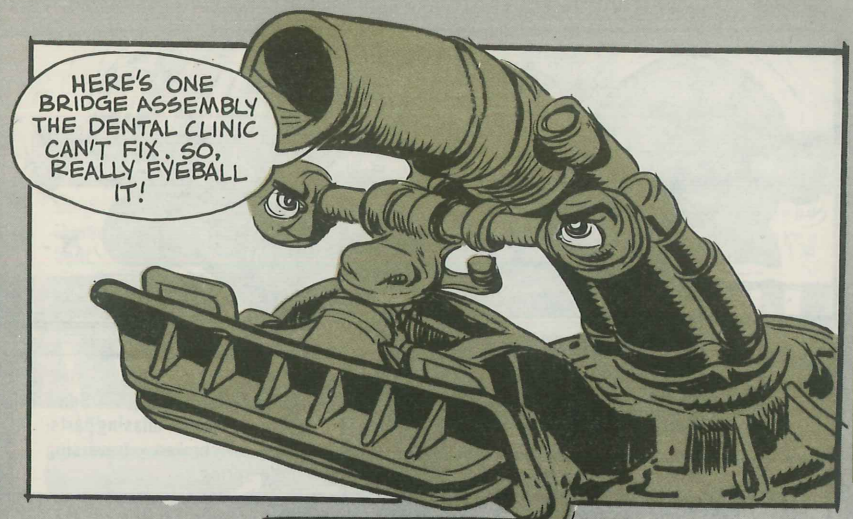
EXPANSION PIN—**Frozen,** flattened, nicked, painted.

BASEPLATE ASSEMBLY BEARING SURFACE—Dirty, gritty, cracked, **broken, warped;** needs GAA.

ROTATOR SLIDE LOCKS — **Stuck; won't unlock** when bridge is removed.

SET SCREWS — Loose, damaged, **missing.**

GROOVES — Dirty, clogged.



BRIDGE ASSEMBLY— Scratched, chipped, blistered paint; rusted, bent or cracked body.

BODY CARRYING HANDLE — Loose, bent, broken, missing; broken welds.

TRUNNION BEARINGS AND SOCKET — Burred, warped, cracked, **broken,** painted; need GAA.

JAM SCREW, WASHER AND NUT — Loose, bent, **broken, missing.**

SPADE—Cracked, bent, **broken;** broken welds; **won't swivel;** bent, smashed, broken handles.

P.S. MORE

STANDARD ASSEMBLY—Scratched, chipped, blistered paint; rusted; bent, cracked.

TRAVERSING SLIDE AND HOUSING — Bent, burred, painted; needs PL.

ELEVATING AND TRAVERSING MECHANISMS — Bent, **broken;** dirt- or grit-jammed gears; **binding, skipping;** won't work smoothly thru entire range. (Elevating gear case cover must be tight.)

EXPOSED BEARING SURFACES — Dirty, scored; need PL.

ELEVATING MECHANISM CAM — **Frozen; won't catch tightly** at high and low elevations; dirt- or grit-jammed; worn cam levers.

RECOIL MECHANISM—Weak, worn, **broken springs;** damaged or deformed parts.

TRUNNIONS — Bent, chipped, burred, rusted, painted; need PL, GAA.

ELEVATING AND TRAVERSING HANDLES AND CRANKS — Bent, damaged, **broken, missing parts;** weak or broken traversing handle spring.

ELEVATING SCREW SLEEVE — Bent, burred, rusted, painted; needs PL.

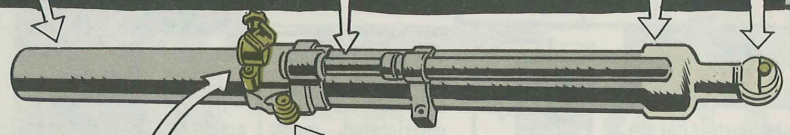
CANNON ASSEMBLY — Muddy, gritty; scratched, chipped, blistered paint; rusted; **missing or damaged parts; cracked; broken welds; unusual wear.**

BARREL — **Dirt-** or **powder-fouled;** excessive oil in bore; **bent, bulged, out of round; pitted;** worn lands or grooves.

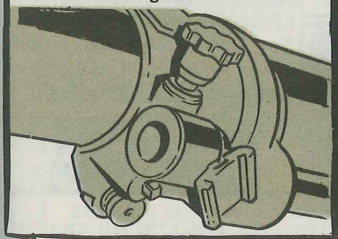
SHOCK ABSORBERS—**Binding;** weak, worn.

TRUNNION PIN—Chipped, burred, cracked, **broken;** painted; needs PL.

TUBE CAP—Damaged, **cracked; leaks gas.** (Look for powder burns around cap.)

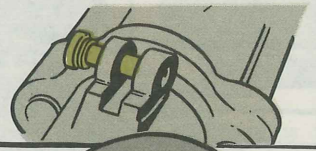


SIGHT MOUNT ASSEMBLY —Cruddy, binds; chipped or **broken worm gear.**



BEARING SURFACES—Cruddy, painted; need PL.

BARREL LOCKING PIN — Bent, **broken; won't stay latched;** needs PL; bent, damaged, missing setscrew.



SIGHTUNIT M53 or M34A2, WITH ELBOW TELESCOPE M109— Dirty, corroded, rusted; scratched, chipped, blistered paint; wet; missing parts.

OPTICS—Smeared, scratched, **obstructed, broken.**
RUBBER EYESHIELD—Dirty, deteriorated, moldy, cracked, loose.

INDEX LINES AND SCALES — **Blurred,** gouged, dirty; painted; **missing.**

LEVEL VIAL COVERS—**Bind;** won't snap into detent in both positions.
LEVEL VIALS—**Broken;** loose.

RETICLE ILLUMINATING WINDOW—Dirty, cracked, unsealed, **broken;** bent, loose, off-center Instrument Light Holder.

TELESCOPE MOUNT LOCKING LATCH—Binds; **broken.**

ELEVATION AND AZIMUTH KNOB —Wobbly; binds, works rough; loose worm mechanisms (backlash exceeds 3/4 mil).

DOVETAIL BRACKET—Nicked, burred, **bent, broken,** painted.

AZIMUTH THROWOUT MECHANISM (M34A2 Only)—Dirty, broken; worn gears won't mesh.

SIGHTUNIT ACCESSORIES

AIMING CIRCLE M2 and TRIPOD M24 — Dirty, greasy, gritty, bent, **broken,** damaged; **missing parts.**

BORESIGHT M45—Loose, bent, **broken;** moldy, **torn strap; missing parts.**

COMPASS M2—**Stuck needle;** scratched, broken glass; dirty, bent, **broken, missing parts.**

INSTRUMENT LIGHT M42 or M53 AND AIMING POST LIGHT M14

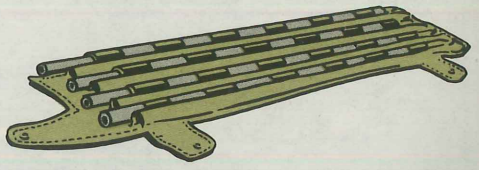
—Weak, **dead, corroded batteries;** dented, **corroded, broken, missing parts;** frayed, **bared, shorted wires;** damaged or missing aiming post light filters.

PS MORE

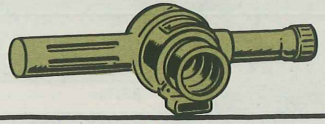
AIMING POST M1A2 AND COVER M401

AIMING POST—Muddy, greasy; scratched, chipped, blistered paint; bent, **broken, missing parts.**

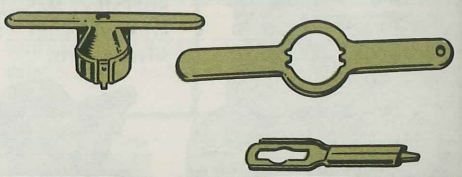
COVER—Torn, rotted; damaged or missing snaps.



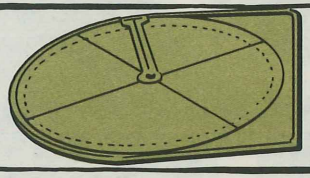
FUZE SETTER SET M63—Weak, **dead, corroded batteries;** dented, corroded, worn, broken.



FUZE SETTERS M27 and XM34, AND FUZE WRENCH M18—Bent, worn, **broken, missing.**

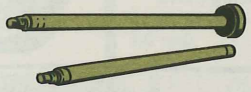


PLOTTING BOARD M16—Dirty, greasy, smeared; bent, warped, **broken, missing parts.** (Pivot point needs light lube.)



MUZZLE COVER—Torn, rotted, **missing.**

CLEANING ROD AND BRUSH—Dirty, bent, worn, **broken, missing.**



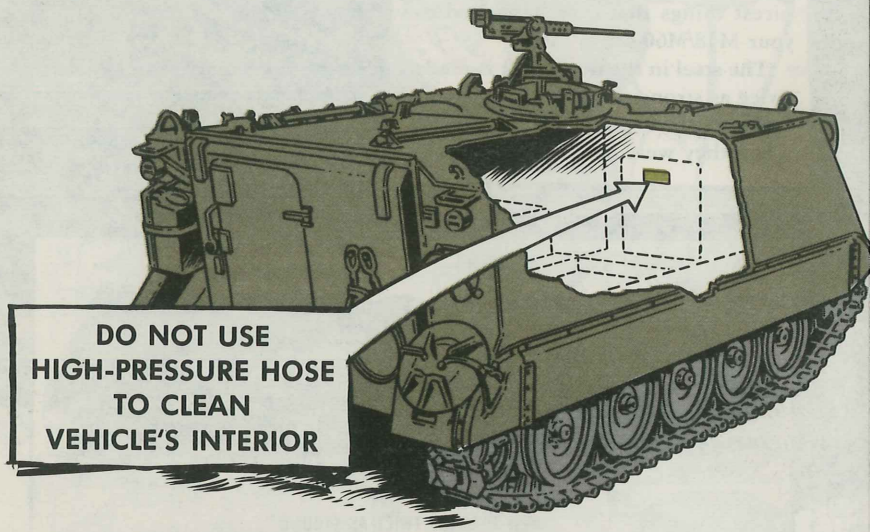
END

MORTAR CARRIER WATER WARNING

The mortar in your M106, M106A1 or M125A1 mortar carrier is a rugged weapon. So, who'd think a little water would hurt it?

It will. High-pressure water, if used to clean the inside of the carrier, gets into the mortar shock absorbers and ruins them.

To keep 'em firing, the 2d Armored Division at Fort Hood painted this good advice inside every one of their mortar carriers:



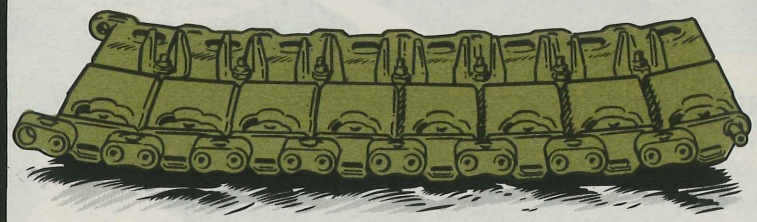
Try it in your outfit on any equipment where a high-pressure hose might be used. Your -10 TM has the word on cleaning.

M48/M60-SERIES TANKS—

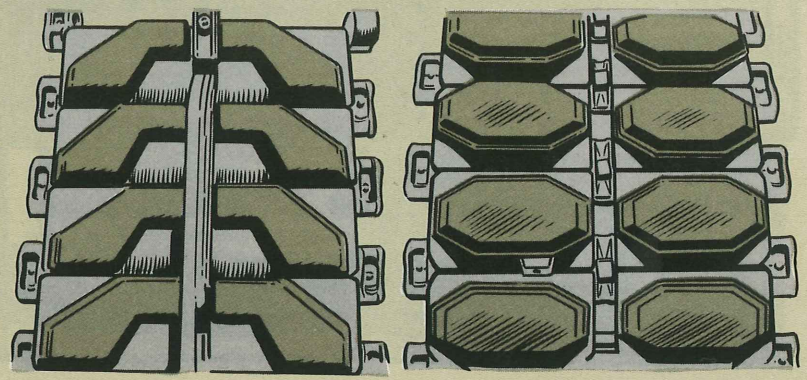
YOUR NEW TRACK

That new T142 track is one of the nicest things that ever happened to your M48/M60-series tank.

The steel in the new track is made twice as strong to last twice as long, and you can replace the track pads when they wear out.



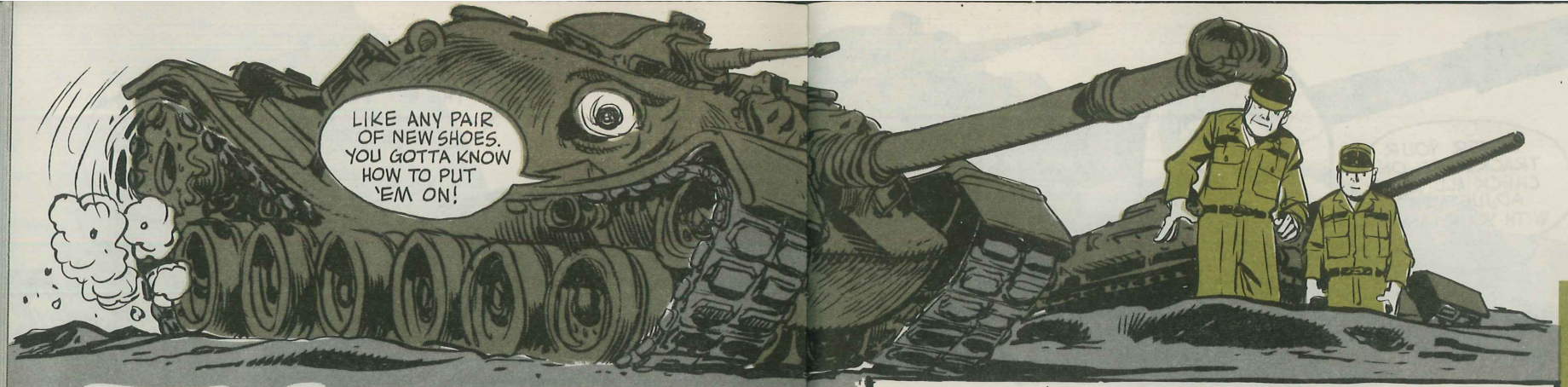
NEW TRACK IS TWICE AS STRONG



THE OLD . . .

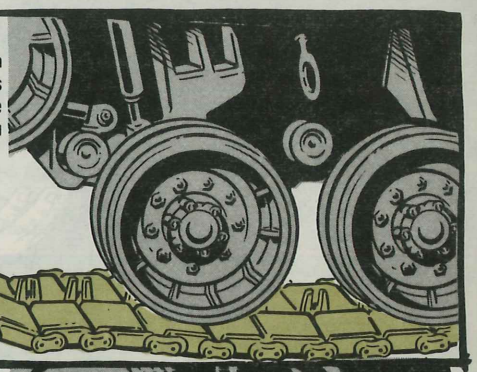
. . . AND THE NEW

PS MORE



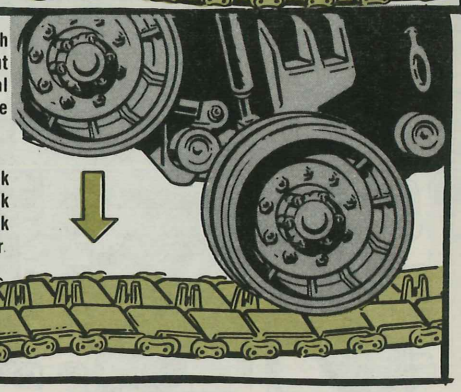
Just go slow and do it like so, first one side of the tank and then the other, like this—

1. Put 10 sections (8 shoes to a section) in line with center guides up. (This will be right for any of the M60-series tanks. For an M48 you need 79 shoes, so take one off.)

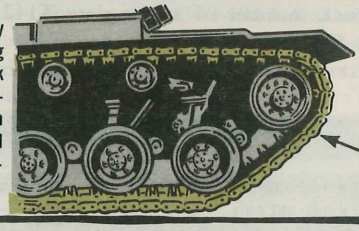


2. Hook the sections together with center guides and end connectors but leave the connecting hardware real loose so the sections can bend where they're joined.

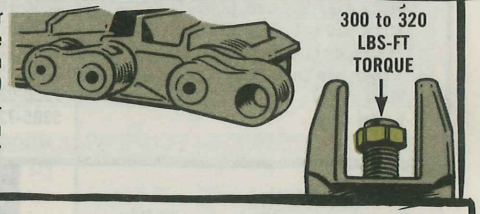
3. After getting the old T97E2 track off one side, put the new T142 track on, joining the 2 ends of the track between the idler wheel and Number One roadwheel.



4. Now move the tank slowly ahead. Stop when the connecting point between each of the 10 track shoe sections is ahead of the compensating idler wheel. In this position tighten both inboard and outboard end connector wedge bolts to 140-160 ft-lbs.

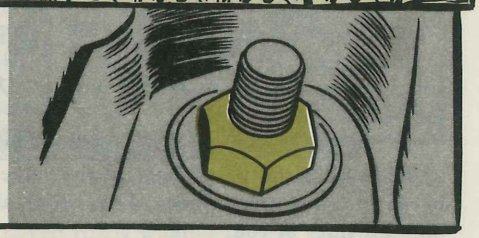


5. After all the track connector wedge bolts are tightened, run the track around again. This time tighten all the center guide nuts to 300-320 ft-lbs torque, at any convenient position. Now adjust your track tension the way it says in the -10 TM for your tank.

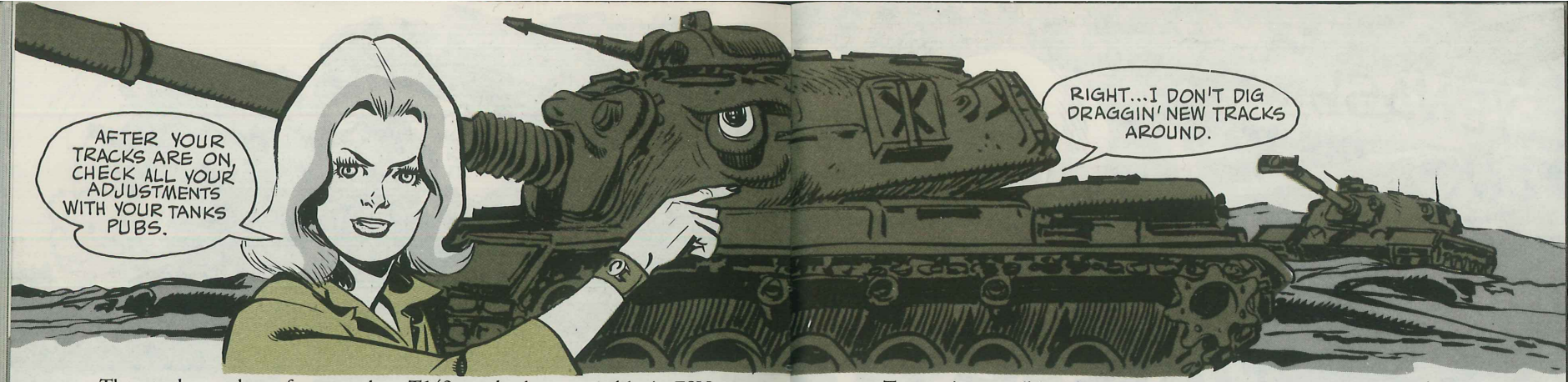


6. After running for 50 miles, retorque all connecting hardware. This is real important. It means all connecting hardware, not just where you joined track sections.

7. Every day, look for loose end connectors, center guides or track pads. (Track pad nuts need 240-270 ft-lbs torque.) Tighten or replace as needed. See TM9-2630-200-14 (Jun 72) for wear limits.



PS MORE



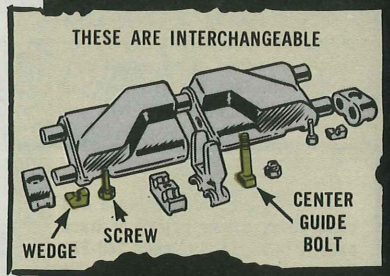
The stock number of a complete T142 track shoe assembly is FSN 2530-150-5897. (Order in multiples of 8.)

Once you get your T142 track on, you can use these kits for replacement parts:

KIT	FSN	
Center guide with bolt and nut	2530-150-5893	
Center guide nut only	———	(MS 51943-18)
Track pads and nuts (2 each)	2530-150-5895	
Track pad nut	5310-873-6955	
End connector wedge and screw	2530-150-5896	
Wedge and screw only	2530-150-5894	
Wedge only	2530-039-9153	
Screw only	5305-726-2544	

Like you can see, some of the new track parts are the same as the old ones and some are not.

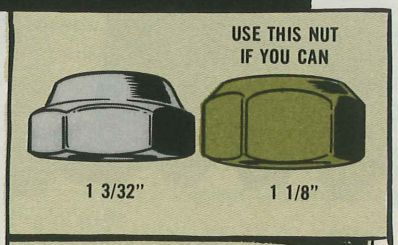
Wedges and screws are interchangeable between old and new track and so are center guide bolts. However, center guide nuts for the new track are different and so are center guides (both pieces) and the track connectors.

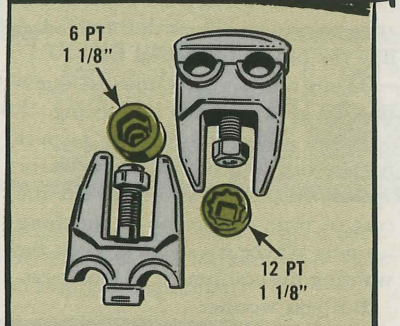


Aside from the parts that are the same on both old and new track, never intermix track shoes. Use either all new track or all old track on both sides of your tank.

Torque is no problem because center guides (300-320 ft-lbs) and wedge bolts (140-160) are torqued the same on both old and new track. The new thing to remember is the torque for the track pad nuts (240-270). Write it in your TM for easy reference.

Speaking of track pad nuts, on some early production T142 track, the track pads were put on with either of 2 different types of nuts. One of these nuts may be hard to remove or tighten with the 12-point 1⅛-in socket wrench socket (½-in sq dr) FSN 5120-189-7914 from your basic issue items. The socket you need for the job is a 6-pt 1⅛ inch (¾ sq dr) FSN 5130-227-6681. It's in both the No. 1 Common and No. 2 Supplemental tool kits and is part of the basic issue items for the M88 tank recovery vehicle.





In case you're wondering, taking off some or all of the track pads is authorized to improve traction in snow or sand. You just have to be careful not to beat up any paved roads when you have the pads off.

EYEWASH...
COSMETICS...
SPIT'N'POLISH

CAN YOU REALLY AFFORD IT?

TIRE PAINTING

LICK'N' PROMISE PM

"What can I mix with paint so my spot-painting will look dull and faded like the old paint around it?"

That's not the most unusual question PS gets, but it is interesting.

Here's a guy you have to respect for wanting to protect his equipment against rust, for wanting to cut the cost of time and paint by touching up only where it's needed, even for wanting his equipment to look neat.

But you wonder . . . .

Is his equipment in such good shape that he can worry about the exact match of new and old paint?

If so, he's lucky. And so's his equipment. More power to and old paint's not all that important.

His "problem" makes us think about all the spit 'n' polish maintenance we see around—at the expense of real maintenance.

Like painting tires for appearance's sake—which is against DA policy to begin with.

Like repainting a whole vehicle just so its color shade will match other vehicles in the unit.

Like replacing perfectly good parts because they look old and worn—just to impress inspectors.

Or, a real dilly, like pulling a mechanic out of the shop to whitewash stones around a flower bed.

COSMETIC MAINTENANCE

—Tires worn out before their time because of needed alinement.

—Tires wasted because they weren't caught in time for retreading.

—Wheel bearings ground to dust because they weren't pulled, cleaned and relubed often enough.

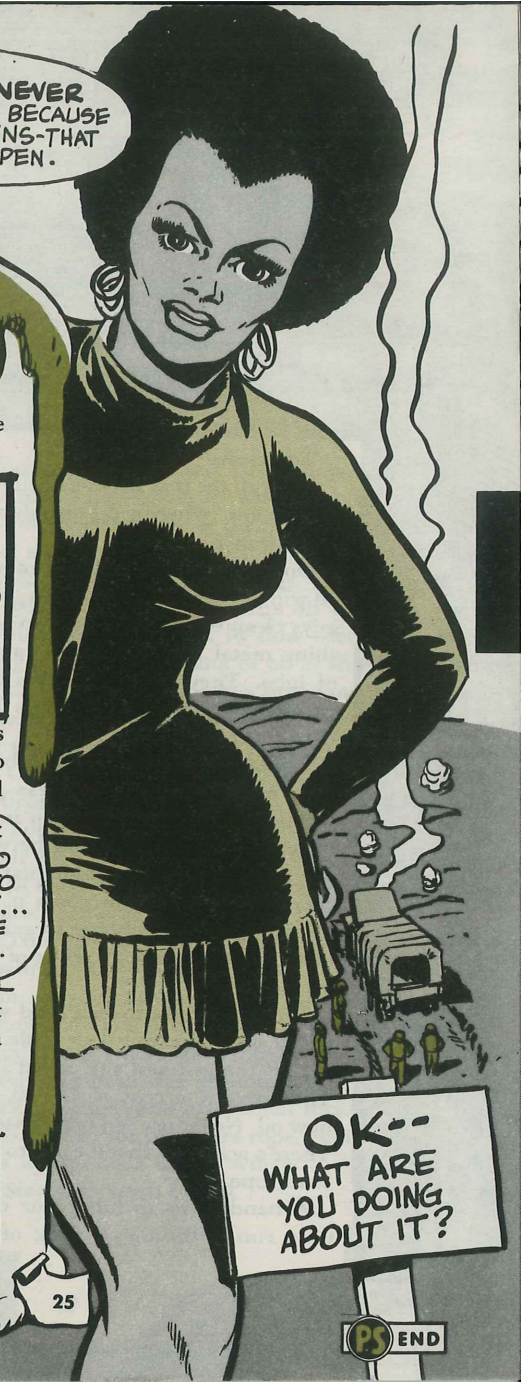
—Engines ruined because coolant was allowed to drop too low, because crankcase oil was allowed to turn into gritty muck, because oil filters got so filthy they had to be pried out of their housings, because air filters got plugged solid with dirt, because fuel filters were allowed to load up with dirt and water.

—Clutch parts gone to pot for the need of a simple clutch adjustment.

—Gears torn up and gear case seals blown because of too little lube, too much lube, dirty lube, plugged breathers.

—Prop shaft U-joints burned out because somebody didn't give 'em a shot of grease when they needed it.

All of which means more time, effort and material down the drain.



FUSS MAKES RUST

Too clean?

With all the fuss about dirt ruining equipment, where's the problem of "too clean"?

On wire rope—like truck-mounted winch cables—that's where. Some guys clean their cable down to bare, shiny metal before giving it a coat of lube. They think it's gotta look chrome plated. This kindness kills wire rope.

With only a thin coat of lube on that bare metal, dampness gets through fast. It works down in between the layers and even between the strands of wire—and just sits there. Rust sets in. You clean 'n' lube all over again—scrubbing away more of your wire rope. It's a waste of time 'n' money.

You don't have to lean hard when you're wire-brushing your cable. Just get off the grit and any caked stuff. Then give it a coat of OE 30. Use new oil. Never use old crankcase oil. There's acid in it that'll eat into your wire rope.

A handy way to lube your cable is to run it through a tank of oil.

Some outfits like this homemade rig—a half-drum with a hook on each end. This tank is slid along the cable while one guy brushes off the dirt and the other sloshes on oil.

You can make a tank by cutting a drum in half—length-wise. Cut a notch in each end—at the middle of the straight edge—for cable guides. Weld on some angle iron legs.

With your clean cable run off the winch, wind 'er back in slow—letting it dip into the tank of oil as she goes. You'll need one guy operating the winch and another one or two at the tank for a smooth job.

Or you can paint the oil on with a brush.

You don't even bother with oiling your wire rope in dry, sandy country. Rust is no problem. Besides, oil will collect grit and dirt.

There're some special wire rope coatings, but you don't want any of 'em on your truck's winch cable. They preserve better than oil, but they're too sticky for cables that're likely to run on the ground. They'll pick up gravel and even small rocks—bad news for your wire rope when it's wound back on the winch.

Stay with fresh OE 30.

PS END

IDLE TALK

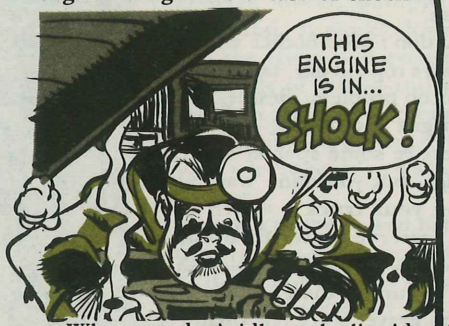
*PLAY IT COOL!

Idle, yes. Pointless, no.

This is to remind you about why it's real important for you to idle-cool your engine before you shut 'er down.

No matter if it's liquid or air cooled. They all get the same shut-down treatment.

Your TM tells you to take this wee bit of time after a run to idle 'em—to cool 'em slow-like. The experts know that if you fail to idle-cool 'em, the engine can go into a case of shock.



When you don't idle-cool a liquid-cooled engine after a hot run, the sudden rise of heat from the engine's block will travel thru to the water jacket and turn the water to steam. That's when the dirty work starts.

It can crack or warp a head, or valves, or ruin head gaskets and carbon-up the rings. On a diesel engine, it can cause the fuel injection nozzles to plug up.

This idle-cool is real important to the sleeve bearing life in your engine's turbo-chargers. Idle cooling lets the oil cool down the turbo. Shutting down the engine without idling 'er doesn't give the turbo time to cool. This results in baked oil that's not slick enough to lube the bearings . . . and zap, no bearings!

So, when it comes to idling, haste makes waste. Take at least the time the TM's ask you to take when you idle-cool your engine.

You'd better sharpen your eye when you're looking for repair parts in your TM 9-2320-209-20P (Oct 72). This goes 'specially for parts related to the engine in those multifuel jobs—vehicles with the LDS 427-2, LD 465-1, LD 465-1C or LDT 465-1C engine.

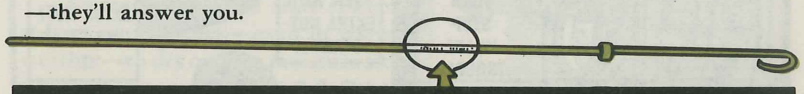
The "usable on" code, explained in paragraph 4 can throw you. Three of the code symbols — AF, AG and AK — stand for "not applicable to this vehicle". But you just watch for the code symbol that says a part is for your vehicle.

If your supply support kicks back your request because of this code, your own local command will have to straighten it out.

PA	O	ZZ	5310-143-6481	NUT, PLAIN, HEXAGON: oil gage rod support bracket 7748972 (19207) AL
PA	O	ZZ	2815-177-8215	SUPPORT, ROD, OIL GAGE: 10912591 (19207) AF, AG, AH
PA	O	ZZ	6685-441-8803	BRACKET, PRESSURE GAGE: oil gage rod support 10935375 (19207) AH, AI, AJ
PA	O	ZZ	5340-196-6710	SPACER, RING: oil pan drain plug EA AN 901-10C (88044) AG, AH, AI, AJ, AK
PA	O	ZZ	5330-199-5884	GASKET: oil pan drain plug MS35769-31 (96906) AF
PA	O	ZZ	5365-288-8483	PLUG, MACHINE THREAD: oil pan drain 445097 (21450) AG, AH, AI, AJ, AK

Pay no mind to the "AG" and "AK" codes in this listing. The "AH", "AI" and "AJ" tell you what vehicles this part is for.

You may still have to do some figuring to make sure you've got your finger on the right part. If possible, get the Part Number off your old part and pin it down in the -20P. If there's any doubt, fire off a DA Form 2028 to the Tank-Automotive Command, like it says in para 7 —they'll answer you.



The "AL" says this dipstick is only for the 465-series multifuel engines—but it's also for the 427-2 engine. You'll find the Part Number—10912158—right on that dipstick in your LDS 427-2 engine.

-10912158

To clear up the picture on some of those most-used parts for your multifuel, here's a rundown. These parts are for 2½-tonners with any of those 4 multifuel engines, and the FSN's are all in your -20P.

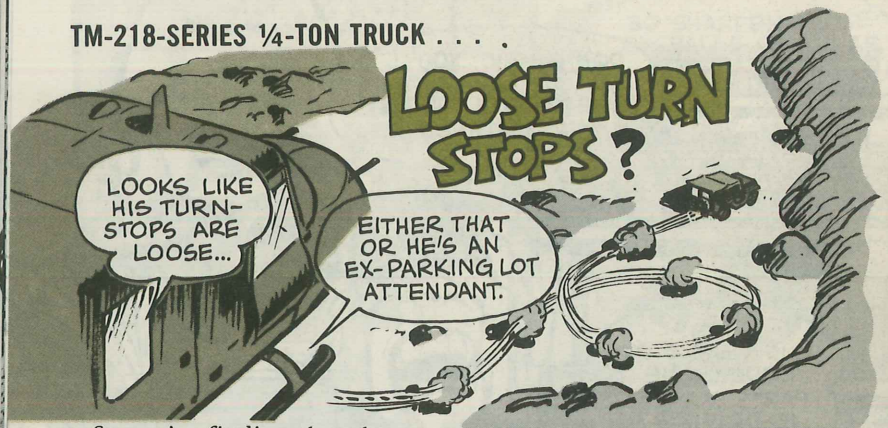
—Air cleaner element, FSN 2940-804-7898 (see also PS 225, page 17).

—Oil filter parts kit (element and gaskets), FSN 2940-884-4801 (see also PS 248, page 20).

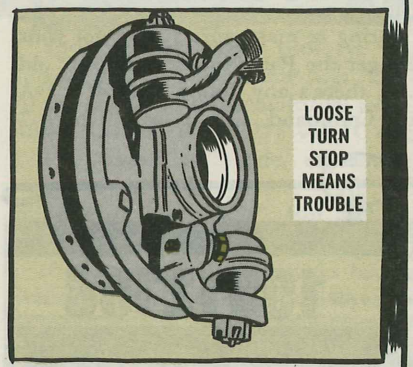
—Primary fuel filter element, FSN 2910-790-2300, and gasket set, FSN 2910-678-3298 (see also PS 216, page 50).

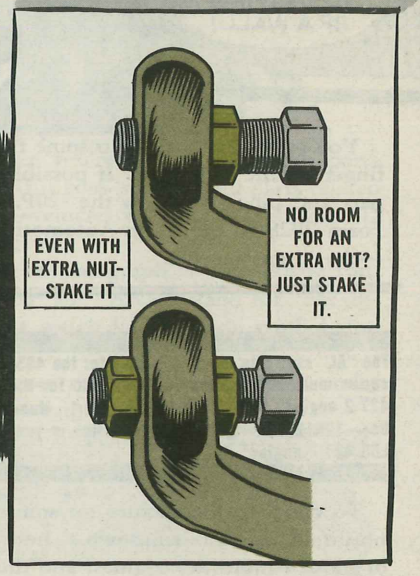
—Secondary and final fuel filter parts kit (1 needed for each filter), FSN 2910-134-7835 (also in PS 216).

TM-218-SERIES ¼-TON TRUCK . . .



So you're finding that the turn stops are coming loose on your M151 or other TM-218-series ¼-ton vehicle?





And you're afraid you'll have an accident because your turning radius suddenly becomes too great or too little?

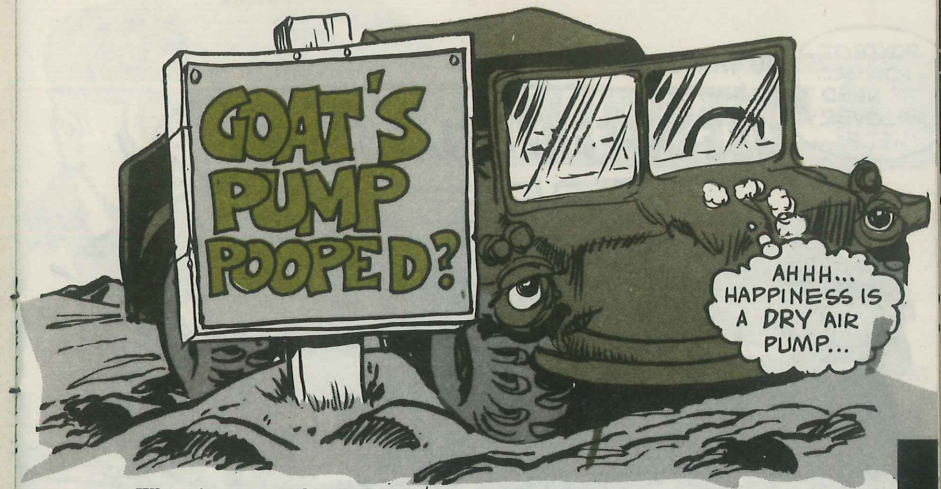
And you have to buck your truck up to DS because they have to check the turn stop adjustment before they tighten 'em?

And they come loose all over again?

There're 2 different things you can do—or you can do 'em both.

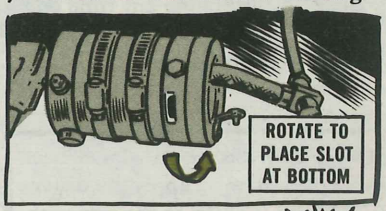
—Put on an extra nut. Snug it against the lock nut. That may hold it.

—Take a punch and upset the threads a little to stake the lock nut on the bolt. Maybe you'll have it knocked.



Water's no good . . . when it's inside the cold start system air pump on your Gama Goat. It causes corrosion. Then the pump won't work. And then you don't get that hot boost you need for cold-weather starting.

But you can head off this problem—Make sure the pump's turned so the air inlet slot is on the bottom. If it's not, water gets in easy.



—Operate your cold start system at least once a week—even in warm weather—to dry out any moisture sittin' inside the pump. Para 2-8a(7)(a), (b) and (c) in your TM 9-2320-242-10 (Mar 70) gives the rundown. But

catch that correction in Ch 1 (Apr 71) to the TM—you push the Engine Stop handle in, you don't pull it out.

This air pump exercise goes for both the M561 1¼-ton truck and the M792 ambulance.

FOXTROT, POWER... WE NEED RECOVERY HELP.

NO TRACTION . . . ?

USE DIFFERENTIAL BRAKE

Your M123-series, 10-ton truck-tractor will stop rolling any time one of its rear wheels loses traction. When that happens, never go into front wheel drive. You'll damage the front axle.

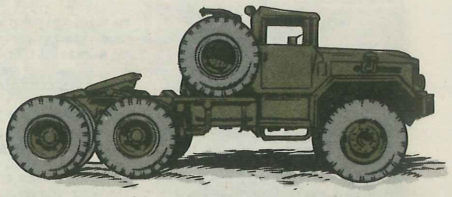
Thing to do is go into all-wheel drive. To do that you apply the differential brake (lightly) to the side with the slipping wheel.

That'll get you going again.

But work the differential brake easy, or you'll damage the vehicle. And, you'd best memorize all the scoop in the*TM's para 2-53h, or you'll deadline your tractor fast.

*TM 9-2320-206-10

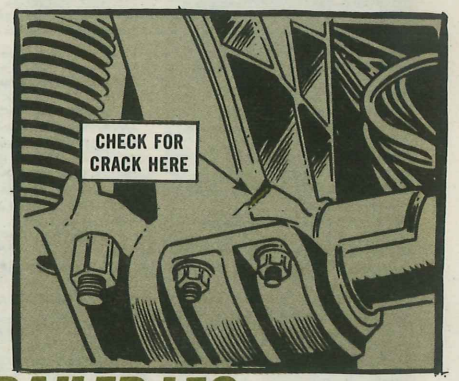
10-TON TRUNNION

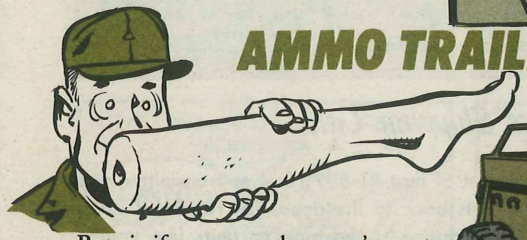


Just in case your memory has faded, it's still good PM to eyeball, daily, the rear spring trunnion shaft bracket on your 10-ton truck-tractor, M123A1C.

TB 750-981-3 (Jul 69) pointed out that an improved bracket, FSN 2510-178-1047, was available, but old brackets are still on, are still cracking, and still need eyeballing. If the bracket breaks, you can lose your transmission and power to the rear end. Or worse.

So, if you spot a crack, report it immediately. If a new bracket isn't available, your Support has to weld the old one, per instructions in the above TB.





AMMO TRAILER LEG

Repair if you can when you've got a busted landing leg on your M332 1½-ton ammo trailer. There're about 3 dozen repair parts in TM 9-2330-231-14 (Mar 72). But if you need a whole new leg, you can get it with FSN 2590-782-3008. This FSN's not yet in the TM, but the AMDF says it's a good number.

FSN 2590-782-3008 GETS WHOLE NEW LEG

This is a selected list of recent pubs of interest to organizational maintenance personnel. This list is compiled from recent AG Distribution Centers Bulletins. For complete details see DA Pam 310-4 (Jun 72), and Ch 3 (Feb 73), TM's, TB's, etc.; DA Pam 310-6 (Jul 72), and Ch 2 (Jan 73), SC's and SM's; and DA Pam (C) 310-9 (Nov 71), COMSEC Pubs.

TECHNICAL MANUALS

TM 5-2400-200-ESC Apr ESC for Tractor, Full Tracked, Low Speed, DED, all Sizes, Allis Chalmers Mdl HD16M, Case Mdl 450, Caterpillar Mdls D5, D5A, D6B, D7E, D7F, D8, International Harvester Mdls TD 18-182, TD 20-201 and TD 24-241: Various Attachments Covered.
TM 5-2400-204-ESC Apr Tractor, Whld, all Sizes
TM 5-3800-200-ESC Mar Scoop Loader 1½ Cu Yd and Up
TM 5-4330-217-12 Apr 100 GPM Filter Separator Mdl 844-5-V-100AL
TM 9-1015-221-ESC Apr 106-MM Recoilless Rifle
TM 9-1090-203-20-1 Oct Troubleshooting Acft Armament Subsys M28A1
TM 9-1090-203-20-2 Oct Acft Armament Subsys M28A1 Elec Troubleshooting
TM 9-1100-204-10 Feb M454 Atomic Projectile
TM 9-1400-461-20P Apr Helicopter M22 Armament Subsystem
TM 9-1410-485-20P Apr Guided Msl Main Assemblage LANCE
TM 9-1440-381-20P May Cable Mast Assy PERSHING 1A
TM 9-1450-379-20P Apr PERSHING 1A Missiles Hdlg Equip, Mtg and Accessory Kits
TM 9-1450-485-20P Apr LANCE Monitor-Programmer, Msl Guidance Set AN/GJM-24
TM 9-2300-257-20P Apr M113A1 Carrier Series
TM 9-2320-209-ESC Apr 2½-Ton Cargo Truck
TM 9-2320-211-ESC Apr 5-Ton Truck
TM 9-2320-211-20P May 5-Ton Truck
TM 9-4935-261-14 Apr NIKE Sweep Oscillator Assy Mdl 650 8031378
TM 9-4935-470-14 Apr TOW Contact Shop Set
TM 9-6920-427-20P Apr REDEYE Trng Set, Moving Target Simulator M87
TM 11-5805-296-20P Apr Telegraph Switchboards SB-6/GG and SB-6A/GG
TM 11-5810-209-ESC Apr COMSEC TSEC/KL-7, TSEC/KL-7A
TM 11-5810-221-12P Apr COMSEC TSEC/KW-7
TM 11-5820-474-24P Apr Radio AN/GRC-109
TM 11-5820-806-14 Apr AN/GRT-21 and -22 Radios
TM 11-5850-242-ESC Apr Abn Data Annotation Sys AN/AYA-10
TM 11-5850-242-12 Apr Abn Data Annotation System AN/AYA-10
TM 11-5895-418-24P Apr Recorder-Reproducer, RD-304/FYA-10(V)
TM 11-5965-214-14P Apr Loudspeaker, Perm Magnet LS-215/U
TM 11-5965-231-14P Apr Headset H-113/U
TM 11-5995-200-24P Apr Telephone Cable Assy CX-1606/G
TM 11-6760-208-14P Apr Lens, Camera, LE-6(1)
TM 55-1520-209-PMI Mar CH-47A PM Intermediate Checklist
TM 55-1520-220-PMD Apr UH-1C/M Acft PM Daily Checklist
TM 55-1520-220-PMI May UH-1C/M Acft PM Intermediate Checklist
TM 55-1520-220-PMP Acft PM Periodic Checklist
TM 55-1520-220-20 Apr UH-1C/M
TM 55-1520-228-L Apr Pubs for OH-58A
TM 55-2620-201-24 Jan Application Table for Acft Tires and Tubes

LUBRICATION ORDERS

LO 5-4310-219-12 Mar 600 CFM Rotary Compressor
LO 5-4310-250-12 Mar Compressor, Rotary, Davey 250 CFM
LO 5-4310-338-12-1 Apr 600 CFM Rotary Compressor
LO 5-4310-338-12-2 Apr 600 CFM Rotary Compressor
LO 9-1015-221-10 Dec .50 Cal 106-MM Recoilless Rifle: M40A2 and M40A4
LO 9-1090-203-12 Mar Armament Subsystem, AH-1G Helicopter
LO 9-2350-232-12 Mar M60A2 Tank
LO 10-3930-242-12-1 Mar RT Forklift Truck
LO 10-3930-242-12-2 Mar 6000-lb Cap RT Forklift Truck

MISCELLANEOUS

DA Label 76 Jan A Good Driver
SC 4910-95-CL-A72 Apr No. 2 Common Tool Kit
SC 4940-97-CL-E04 Apr Light Shop Equip, Trk Mtd

NEW MOVES

TF 10-4545 Operation of 50-GPM Petroleum Dispenser
TF 44-4468 Improved HAWK System - PART I

Stripless Shipping Tale

Stripping transistors and crystals out of that RT-857 receiver-transmitter can make a mighty hollow set when it gets back to the depot for repair. It adds downtime, besides being costly and causing a shortage to units like yours. So, remind yourself and your support to ship 'er out with the parts all there.

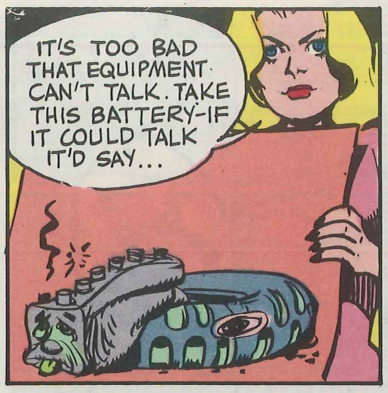
For Big Wheels

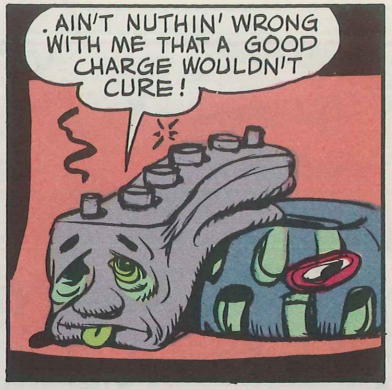
It's no sweat inflating construction equipment tires. If you have the right air chuck. The one with an adapter for those large bore valve stems comes with FSN 4930-620-4657 or 4930-400-7016. It's the same item used with most lube and service units. It'll fit standard stems, too.

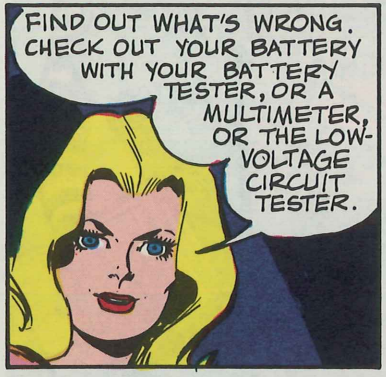

WELL, I'M HERE TO SHOW AND TELL YOU THAT IT'S NOT-
WE'LL START WITH SOME TIPS ON MAINTENANCE THAT'LL HELP YOU:
FOR EXAMPLE-NEVER SET IGNITION TIMING BY ADJUSTING THE DISTRIBUTOR BY EAR AND FEEL. YOU'LL GET POOR ENGINE FIRING.
ALWAYS USE THE TM INSTRUCTIONS AND A TIMING LIGHT!
"ANOTHER ONE-USE YOUR TROUBLESHOOTING EQUIPMENT TO MAKE SURE WHICH PART IS AT FAULT."
SAY YOU HAD A PROBLEM ON A BATTERY GENERATOR CIRCUIT- YOU WOULDN'T PUT IN A NEW BATTERY, OR GENERATOR, OR REGULATOR WOULD YOU?


I'D TROUBLESHOOT... USE A MULTIMETER...
...OR A LOW VOLTAGE CIRCUIT TESTER TO FIND OUT WHAT'S WRONG!
TEST SET, GENERATOR AND VOLTAGE REGULATOR, AUTOMOTIVE
VERY GOOD, TROOPER-YOU'RE RIGHT.
OK-ADJUSTING A CARBURETOR BY EAR COULD GIVE YOU ROUGH IDLING AND IT'LL EAT GAS LIKE CRAZY- HOW WOULD YOU ADJUST IT?
FOLLOW THE TM INSTRUCTIONS.
... AND USE THE VACUUM GAGE, CONNIE.
THE NEXT HINT IS THIS-REPLACE OR REPAIR ONLY THAT PART PROVEN TO BE AT FAULT.
ATTA' GIRL, CONNIE.

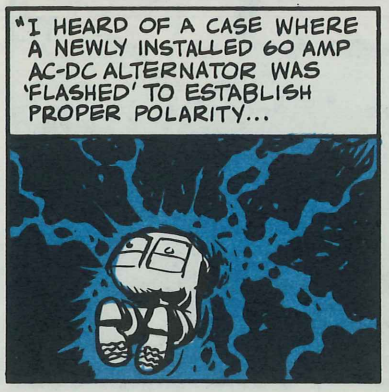
IF YOU WANT TO DISPLAY THIS CENTERPIECE ON YOUR BULLETIN BOARD, OPEN STAPLES, LIFT IT OUT AND PIN IT UP.

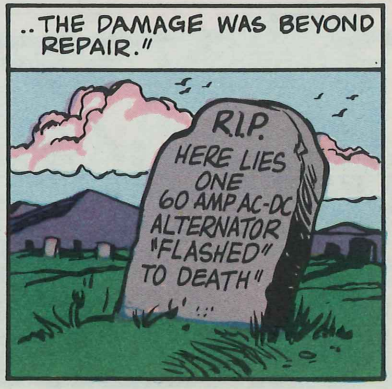

IT'S TOO BAD THAT EQUIPMENT CAN'T TALK. TAKE THIS BATTERY-IF IT COULD TALK IT'D SAY...


.AIN'T NUTHIN' WRONG WITH ME THAT A GOOD CHARGE WOULDN'T CURE!


FIND OUT WHAT'S WRONG. CHECK OUT YOUR BATTERY WITH YOUR BATTERY TESTER, OR A MULTIMETER, OR THE LOW-VOLTAGE CIRCUIT TESTER.


ALWAYS USE TM INSTRUCTIONS FOR PROPER REPLACE OR REPAIR PROCEDURES.


"I HEARD OF A CASE WHERE A NEWLY INSTALLED 60 AMP AC-DC ALTERNATOR WAS 'FLASHED' TO ESTABLISH PROPER POLARITY...


..THE DAMAGE WAS BEYOND REPAIR."
R.I.P.
HERE LIES ONE 60 AMP AC-DC ALTERNATOR "FLASHED" TO DEATH"

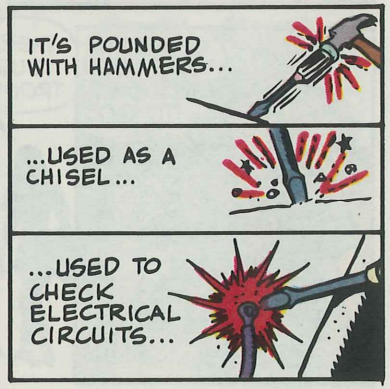

IF THAT GUY HAD READ THE TM HE WOULD KNOW HE DOES NOT "FLASH" AN ALTERNATOR LIKE HE DID THE OLD DC GENERATORS.


MAN-CONNIE CAN TEACH ANYTHING!
SHE COULD INSTRUCT ME IN ANYTHING.

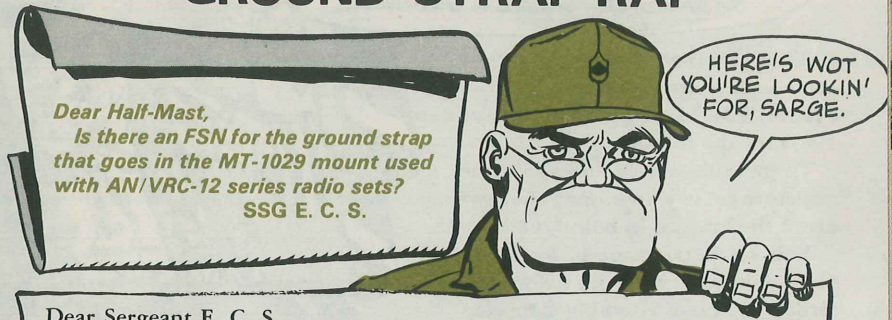

NOW, MY NEXT HINT-IT'S PROBABLY THE ONE THING THAT YOU'VE ALL DONE WRONG AT ONE TIME OR ANOTHER.


USE THE RIGHT TOOL FOR THE JOB!


FOR EXAMPLE-"SOME PEOPLE THINK THAT SCREW-DRIVERS ARE TOOLS FOR ALL JOBS..."
I CAN'T DO EVERYTHING!


IT'S POUNDED WITH HAMMERS...
...USED AS A CHISEL...
...USED TO CHECK ELECTRICAL CIRCUITS...

GROUND STRAP RAP

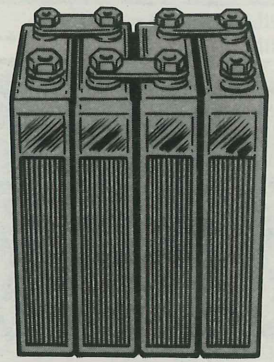


Dear Sergeant E. C. S.,

There's an FSN for a 7-in ground strap. Order Lead, electrical, FSN 5995-426-1123, listed on page 3.344 of Fed Cat C5995-IL-A (May 73).

Half-Mast

BB-622 STORAGE



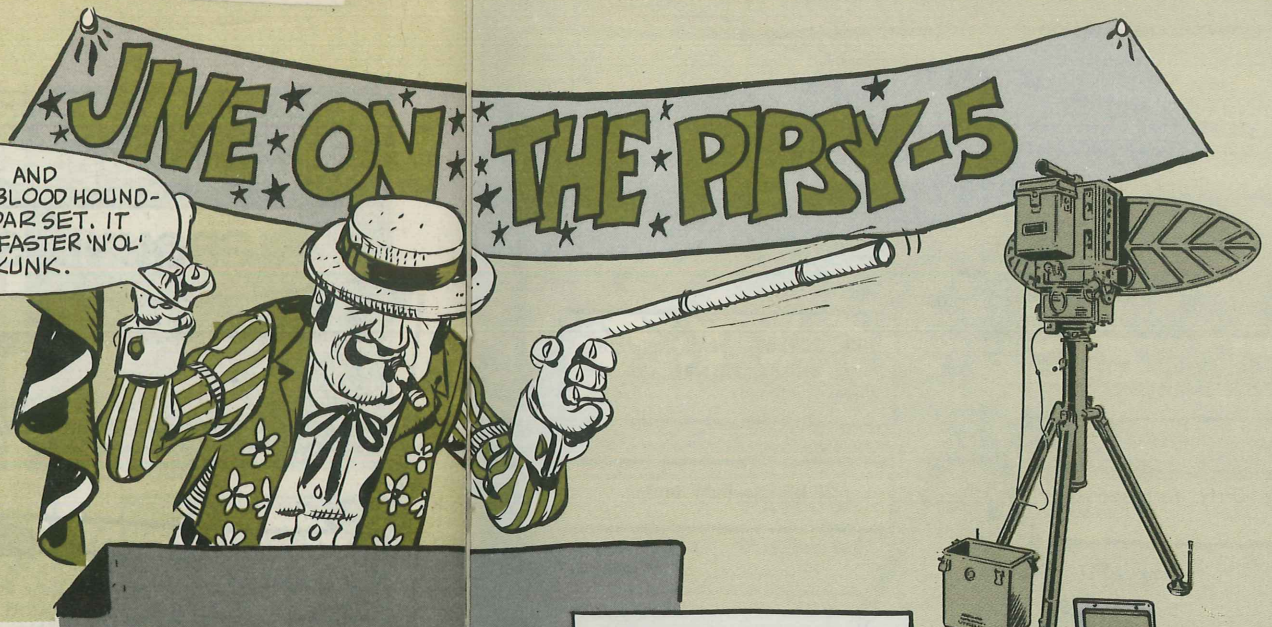
One good way to prolong the life of new BB-622( ) silver-zinc batteries is to store them dry and uncharged . . . providing, o'course, you're not going to use 'em for a month or more.

In other words, store them just as they are when they come to you.

The word's in a note on page 2-4 of TM 11-6140-214-15 (Jul 69).

BE YOUR OWN INSPECTOR—

JIVE ON THE PIPSY-5

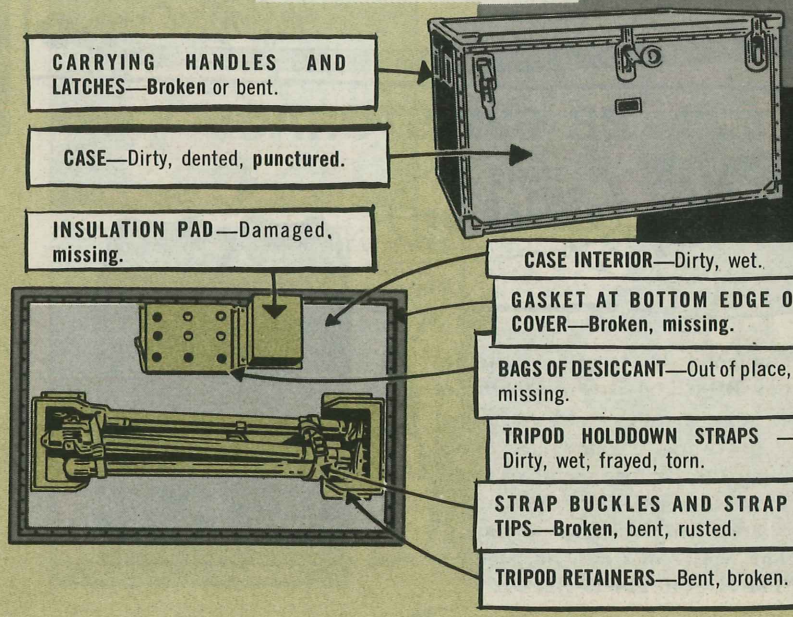


This electronic snooper needs some lookin' after, though. You can eyeball TM 11-5840-298-12 (June 1967) for the full dope.

To get you started, here're some targets to get in your scope. The lowest of the low are in **bold type**.

You wanta take care of them real soon—like maybe the day before yesterday. 'Course, anything damaged beyond use needs replacement.

CY-3872 TRANSPORT CASE



CARRYING HANDLES AND LATCHES—Broken or bent.

CASE—Dirty, dented, **punctured.**

INSULATION PAD—Damaged, **missing.**

CASE INTERIOR—Dirty, wet.

GASKET AT BOTTOM EDGE OF COVER—Broken, missing.

BAGS OF DESICCANT—Out of place, missing.

TRIPOD HOLDDOWN STRAPS — Dirty, wet, frayed, torn.

STRAP BUCKLES AND STRAP TIPS—Broken, bent, rusted.

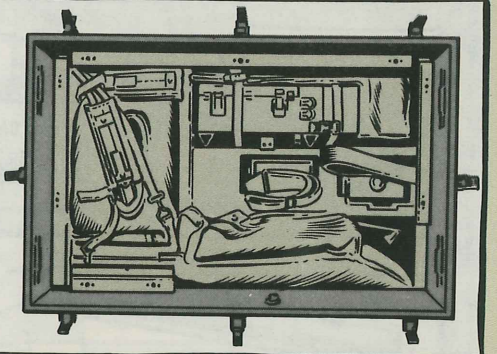
TRIPOD RETAINERS—Bent, broken.

INSULATION—Damaged.

HOLDDOWN COVER AND QUARTER-TURN FASTENERS—Damaged, **missing.**

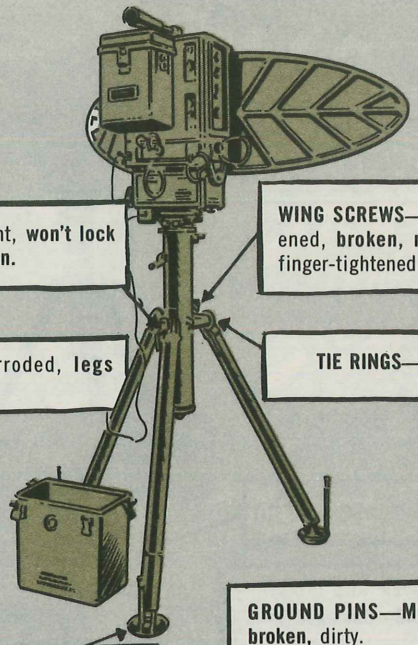
CARRYING PACKS FOR RT, CONTROL-INDICATOR, AND ANTENNA REFLECTORS

POUCHES, CARRYING STRAPS, PADS—dirty, wet, **ripped, broken. BUCKLES, STRAP TIPS, SNAP-HOOKS, CARRYING RINGS, QUARTER-TURN FASTENERS, GROMMETS—Broken,** bent, rusted.



P.S. MORE

MT-2958 TRIPOD



LEG LOCKS—Too tight, **won't lock legs in some position.**

WING SCREWS—Bent, over-tightened, **broken, missing,** can't be finger-tightened.

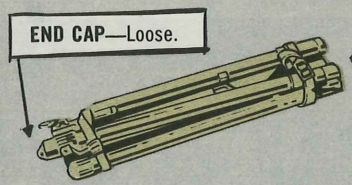
TRIPOD—Dirty, corroded, **legs bent.**

TIE RINGS—Bent, broken.

GROUND PINS—**Missing,** bent, **broken,** dirty.

FEET—**Missing,** won't swivel freely.

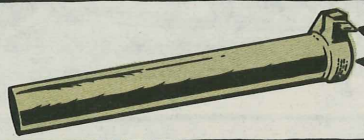
MX-7565 COLUMN ASSEMBLY



END CAP—Loose.

EXTERIOR—Dirty.

END CAP CABLE—Missing, broken. (There's no end cap cable on the MX-7565A).



WING SCREWS—**Missing,** over-tightened.

INTERIOR—**Dirty,** wet, corroded.

WAVEGUIDE HORN (FEEDHORN)

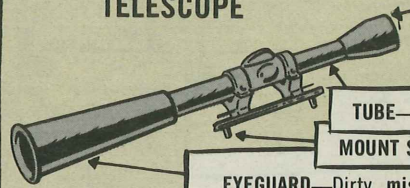
FLANGE WINDOW—Dirty, **cracked, broken.**

GROOVES IN FLANGED END—Dirty.

APERTURE WINDOW—Dirty, **cracked, broken.**

EXTERIOR—Dirty, **bent,** dented.

TELESCOPE



LENSES—Fogged, **chipped, cracked, missing.**

TUBE—Dented.

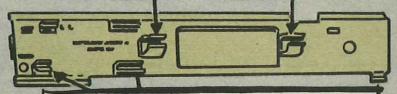
MOUNT SCREWS—Missing.

EYEGUARD—Dirty. **missing.**

STOWAGE BRACKET

BRACKET—Missing.

TELESCOPE HOLDING CLIPS—Missing.



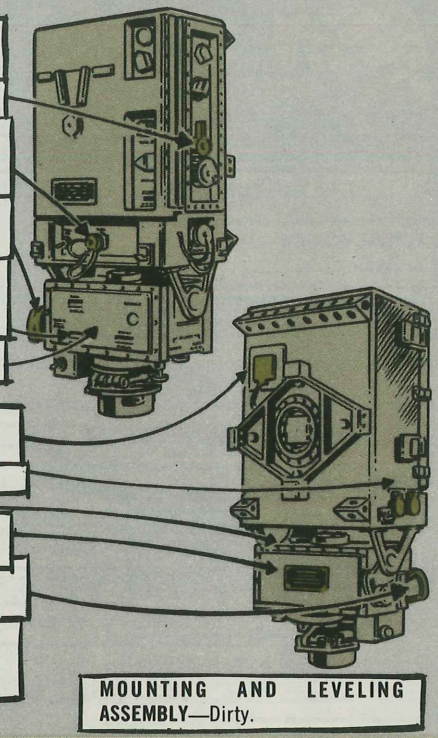
QUARTER-TURN FEEDHORN HOLDDOWN CLIP—Broken, missing.

GROUND PIN CLIPS—Broken, missing.

PS MORE

NOTICE THE RECEIVER - TRANSMITTER AND OTHER IMPORTANT COMPONENTS...

RECEIVER-TRANSMITTER



TR CIRCUITS BOX—Dirty, protective brackets damaged or missing.

CONTROL KNOBS—Loose, **missing.**

CAPTIVE PROTECTIVE COVERS FOR CONNECTORS (BATTERY AND REMOTE CABLES)—Missing.

ELEV ADJUST HANDWHEEL—**Sticking,** dirty.

INDICATOR, COUNTER, AND TEST METER WINDOWS—Dirty, fogged, **cracked, broken, missing.**

ANTENNA DRIVE UNIT—Dirty.

CAPTIVE PROTECTIVE COVER ON FEEDHORN COUPLING—Missing.

PHONES JACK COVER—Missing.

CABLE BELLOWS—Missing.

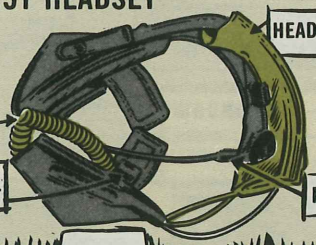
NAMEPLATE—Dirty, unreadable, missing.

ELEVATION LOCK LEVER—**Slipping,** dirty.

RUBBER BOOTS OR SEALS ON CONTROLS AND SWITCHES — Missing.

MOUNTING AND LEVELING ASSEMBLY—Dirty.

H-226 or H-251 HEADSET



HEADBAND—Bent, **broken.**

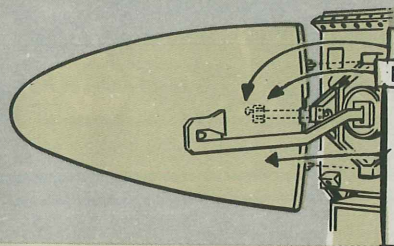
CORD—**Broken, cut,** kinked.

EAR CUSHIONS—Dirty, missing.

PHONE PLUG—Dirty.

GOOD OL' FASHION PREVENTIVE MAINTENANCE WILL KEEP 'EM ALL IN TOP SHAPE!

AS-2023 ANTENNA REFLECTORS



THUMBSCREWS—Loose, broken.

LOCATING PINS—Bent, broken.

REFLECTORS—Dirty, **cracked, dented, pierced. (NOTE: NEVER SPOT PAINT AN ANTENNA REFLECTOR. THE PAINT CAN CAUSE A SHIFT IN ELECTRICAL RESPONSES AND MESS UP YOUR READINGS.)**

CY-3871 BATTERY BOXES

MOUNT—Damaged.

CARRYING RINGS—Missing.

DUMMY STOWAGE PLUG—Missing.

STOWAGE HOOK—Missing.

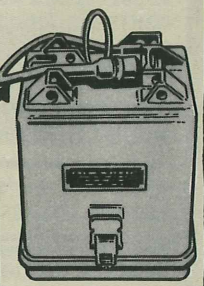
PLUG LANYARD—Broken, missing.

SNAPHOOKS—Broken, rusted, missing.

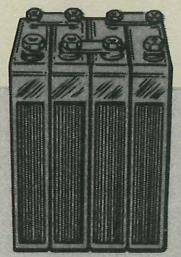
EXTERIOR—Dirty.

CARRYING STRAPS—Dirty, broken, ripped.

COVER LATCHES—Missing.



BATTERY CABLE—**Not connected tightly to terminals, wires connected to wrong terminals** (blue-and-white wire should go to positive terminal, black-and-white wire to negative terminal).



BB-622 BATTERY

TERMINALS—**Corroded.**

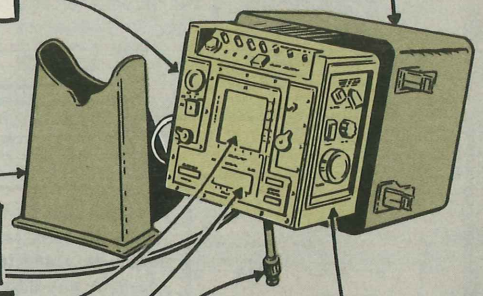
VENT HOLES—**Clogged.**

TOP TERMINAL NUTS—Loose.

SPONGE RUBBER PLUG—Saturated with electrolyte.

PS MORE

C-4610 CONTROL INDICATOR



INDICATOR AND TEST METER WINDOWS—Dirty, fogged, **cracked, broken, missing.**

RUBBER SEALS AND BOOTS ON CONTROLS AND SWITCHES—Cracked, torn, missing.

VIEWING HOOD—Dirty, torn, punctured; felt border damaged.

MARKINGS ON SCALES AND CONTROL SETTINGS—Unreadable.

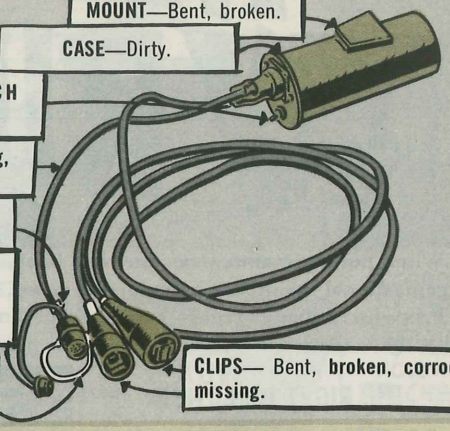
A-SCOPE AND B-SCOPE WINDOWS—Dirty, fogged, **cracked, broken.**
A-SCOPE AND B-SCOPE FACES —Burn spots present.

NAMEPLATE—Unreadable, missing.

CONTROL KNOBS AND SWITCHES—Loose, **missing.**

STAND—Dirty, **bent, broken;** rubber foot damaged or missing.

PP-4450 POWER SUPPLY



MOUNT—Bent, broken.

CASE—Dirty.

CIRCUIT BREAKER SWITCH HANDLE—Loose, **broken.**

CABLES—Cut, bare wire showing, broken.

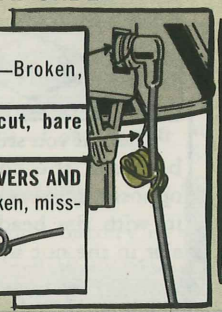
OUTPUT CABLE PLUG—Damaged.

CAPTIVE PROTECTIVE CAP AND RETAINING CABLE—Damaged, missing.

LANYARD OF PLUG—Broken, missing.

CLIPS— Bent, **broken, corroded, missing.**

CX-8666 REMOTE CABLE

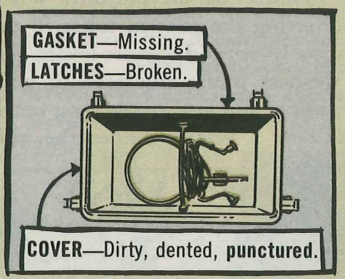


PLUGS—Damaged.
LANYARDS ON PLUGS—Broken, missing.

CABLE—Dirty, kinked, **cut, bare wire showing.**

CAPTIVE PROTECTIVE COVERS AND RETAINING CABLES—Broken, missing.

ANTENNA DRIVE COVER

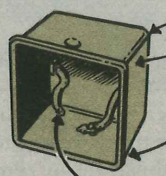


GASKET—Missing.

LATCHES—Broken.

COVER—Dirty, dented, **punctured.**

CONTROL-INDICATOR COVER



COVER—Dirty, dented, **punctured.**

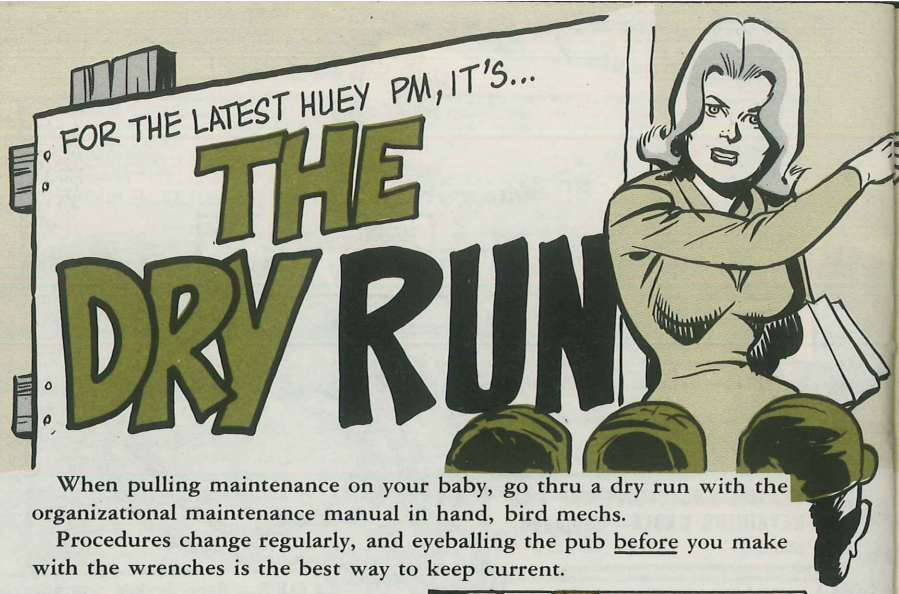
GASKET—Missing.

LATCH HOOKS—Broken, missing.

STOW CLIPS FOR STAND—Missing.

STOW STRAP FOR VIEWING HOOD—Broken, missing.

END

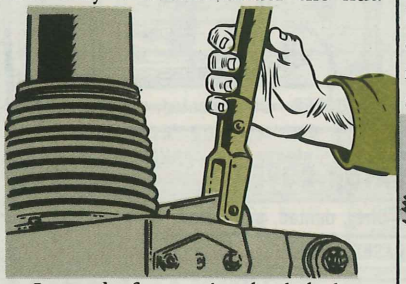


When pulling maintenance on your baby, go thru a dry run with the organizational maintenance manual in hand, bird mechs.

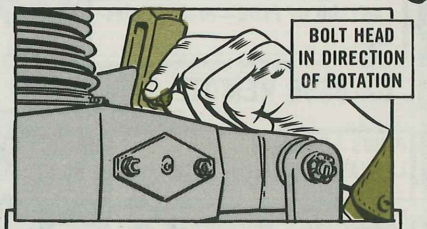
Procedures change regularly, and eyeballing the pub before you make with the wrenches is the best way to keep current.

THE RIGHT DIRECTION

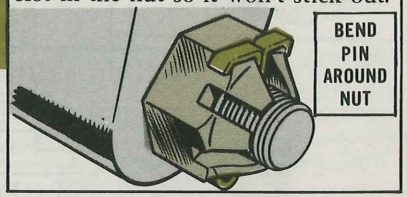
Say, for example, you're putting the stabilizer bar on your bird. When connecting the control tubes to the mixing levers and scissors levers, put 2 washers under the head of both the upper and lower-attaching bolts. Use only 1 washer under the nut.



Instead of reversing both bolts to guard against possible interference between the cotter pin and opposite scissors lever, you now install the bolt with the bolt head in direction of rotation.



Then, if you still have interference between the cotter pin and the opposite scissors, put the cotter pin in with the head horizontal to the slot in the nut so it won't stick out.



Whenever you disconnect the stabilizer bar tubes, have your buddy hold the tubes as you remove the bolts. Otherwise, those free-swinging tubes can contact other

metal on the rotor head. The resulting "clunk" can ruin a tube. Those tubes nick real easy.

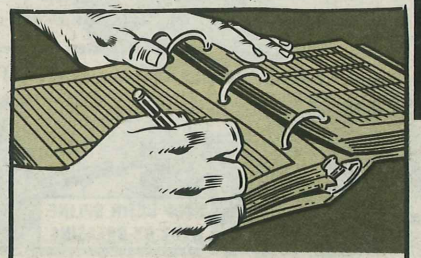
Remember—para 8-6b(1) of TM 55-1520-210-20 (Sep 71) allows nicks, dents, gouges and scratches in tubes to a maximum depth of only 0.010 inch.

NEW ENTRY NEEDED

The nickel cadmium battery in your baby is packed with power. Keeping it that way requires regular attention.

A future change to the special inspection section, Chap 3, of TM 55-1520-210-20, will list the nickel cadmium battery.

Every 25 hours or weekly, and every 100 hours or 120 calendar days —whichever comes first—you pull the preventive maintenance checks and services spelled out in TM 11-6140-203-15-2 (Dec 69).



Which means you now have to make an entry in the DA Form 2408-18 for the calendar inspections on that expensive battery, as outlined in para 4-17b(1) of TM 38-750 (21 Nov 72).

MORE

The idea, of course, is to make sure you never overlook those important PM checks and services.

When you replace the battery cover never put it on bassackwards. The strips under the cover must aline with the filler caps to keep them in place. Otherwise, the caps may loosen and allow spillage of electrolyte . . . damage the battery!!

GREASE SAVES WEAR

With all that twisting and turning, rotating parts on your chopper are going to wear. Engineers can't hang oil reservoirs all over your bird to minimize wear so they call for the use of portable oil . . . grease!

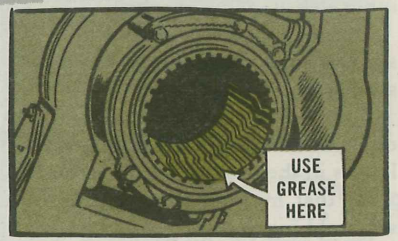
All grease and other consumable materials for your Huey are listed in Table 1-2 of the organizational maintenance pub.

Without grease on the splines of the scissors and sleeve, for example, you'll be lucky to get 100 hours out of the assembly.

With grease, as called for in para 8-9 of the pub, you'll be able to keep down spline wear. The maximum radial play between the mast and collective sleeve drive plate will stay within 0.040 inch for a long time.

By the way, you do not have to loosen or remove the friction collet to measure play.

So, lube the sleeve splines during installation of the scissors and sleeve assembly. In addition, take off the protective boot and smear grease on the exposed splines during the Periodic inspection. You'll find that word in the Huey lube chart.

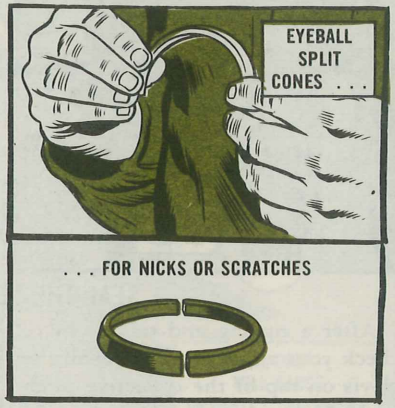


A LITTLE STICKING POWER

When you put a main rotor on your bird, eyeball the split cones. The cones have to be a matched assembly. Any nicks, scratches or other damage? Replace 'em!

Coat the mast splines and rotor hub trunnion with a light coat of corrosion preventive compound. Never use grease on the splines.

Never use grease on the inside of the cones to hold them in place. The jesus nut will lose torque as the grease is squeezed out. To hold the torque on that big nut, use a dab of CPC to hold the cones.



'Course, the cone gaps are equally spaced during installation so that the main rotor can seat properly. After the jesus nut is tightened no further maintenance is needed on the cones, even if they slip and touch during operation.

After 5-10 hours of operation following a main rotor change, re-torque the jesus nut to 520-780 ft-lbs.

P.S. MORE

HELLHOLE CLEAN?

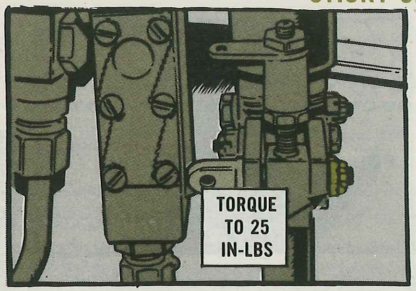
It's a capital idea to keep the hellhole free of dirt, safety wire and other debris, Huey mechs.

During a flair or hover dust is sucked up around the main drive shaft at the engine intake baffle.

The particle separator is not designed to screen this dirt, which lodges in the compressor. You know what that means—a dirty compressor, robbing your engine of power.

Keep the hellhole clean, man!

STICKY SERVOS?



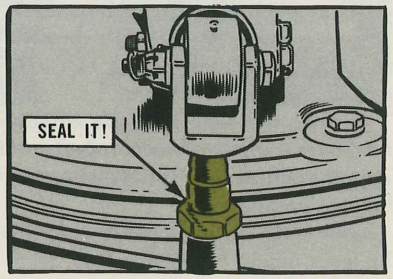
If any of the flight control servos on your baby are sticking or binding, focus in on the pilot valve bolt on the servo valve. That bolt could be the culprit.

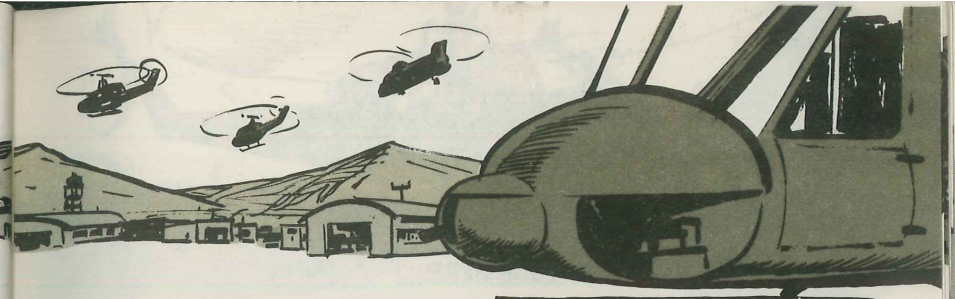
The nut gets torqued to 25 inch-pounds maximum. Any more muscle and the bolt can freeze. The bolt has to turn freely.

SEAL THE SERVO TUBE

After a rigging and test flight to check your adjustments, eyeball the clevis on top of the collective pitch hydraulic cylinder. The threads should be coated with sealing compound.

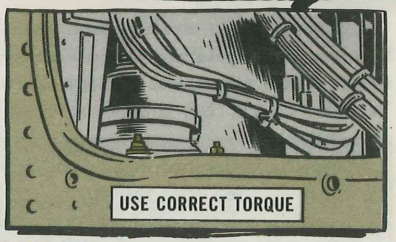
The compound will prevent water from entering the tube . . . cut down on corrosion.



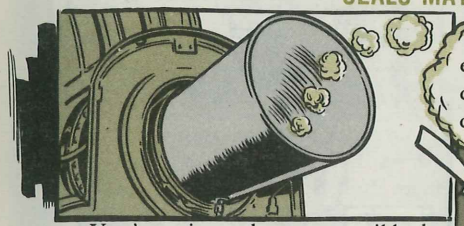


Any time you replace one of those hydraulic cylinder tubes, torque the ¼-in nuts to 50-70 in-lbs and the 5/16-in nuts to 100-140 in-lbs.

If the bolts become loose, you'll get elongation of the servo mount holes . . . means changing the servo ahead of schedule.



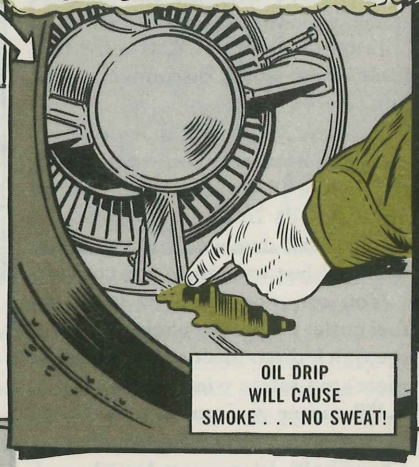
SEALS MAY BE OK

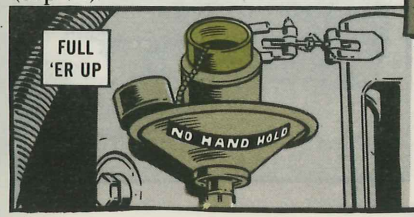


If your bird smokes when the engine is cranked up, no need to get carried away by figuring "engine change" right off the bat.

You're going to have some oil leakage from the number 3 and 4 bearing package. The seals work fine during operation. In a static condition some oil will drip past the seals and into the tail pipe. Smoking when the engine is cranked up is normal.

When is leakage excessive? When oil consumption is more than 2.4 pints per hour, according to the poop in para 1-25 of TM 55-1520-210-20 (Sep 71).





To check leakage, fill up the engine oil tank before a mission of 1 or 2 hours. Then check your bird for actual oil consumption. Chances are those engine seals are A-OK.

PS MORE

LUBE HERE

There's an area on the power turbine governor RPM controls that needs your attention during the Periodic check. It's the droop cam and slider.

Clean the slider but don't lube it. That'll keep the slider moving.

NO SAFETY

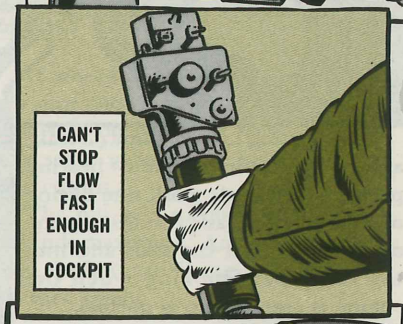
Safetying hose connections on your bird is SOP, with the exception of quick disconnects—plus 1 other.

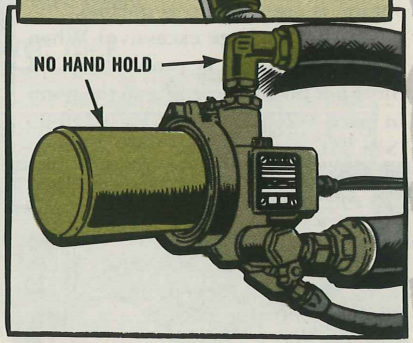
Leave the safety wire off at the fuel filter outlet quick disconnect coupling. Here's why.

Suppose you have an emergency such as a hot start. You want to stop the flow of JP-4 to the engine within 3-5 seconds in order to save the engine from damage. You can't stop the flow fast enough in the cockpit.

You can stop the flow from the fuel outlet port to the engine by using the quick disconnect at the filter—if there's no safety wire to cut.

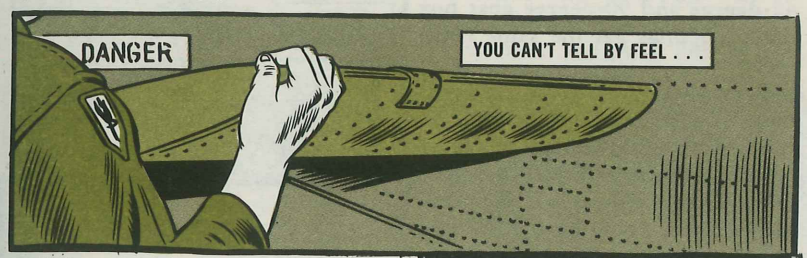
Whenever you mount your Huey, by the way, never use the filter as a hand hold. It's mounted to a honeycomb panel that will separate from stress and strain. Repairing damaged paneling is a support chore which can tie up your bird.





SHIMS NEEDED?

Judging whether the synchronized elevator on your bird has too much play during an inspection is mighty important. Without proper shimming elevator vibrations may wear out the control rod bearings. You'll find yourself replacing parts instead of shims.



When you plant your mitts on the elevator you really can't tell by feel if the shimming is OK. Judgments differ from one mech to another. So, use a dial indicator.

Hold the dial indicator on the tail boom, placing the stylus against the inboard edge of the elevator at the pivot point.

Use only moderate hand pressure when moving the elevator so you don't deflect it and get a false reading.

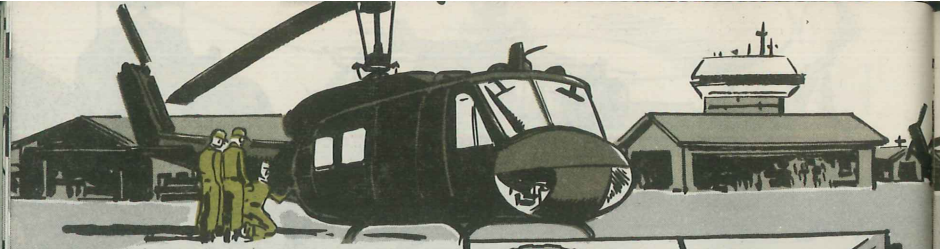
To check the axial play, move the elevator inboard and outboard—span-wise. You're allowed a minimum of 0.005-in and a maximum of 0.030-in play. If you don't have it, adjust the shims between the tail boom skin and the support retainers.

To check the radial play, hold the dial indicator on the tail boom with the stylus in contact with the upper surface of the elevator, near the inboard edge of the pivot point.

No muscle, please. Heavy force in moving the elevator will flex the spar tube and give you a bogus reading.

Lightly move the elevator up and down. The maximum reading on the dial indicator is 0.010 inch. If you're out of limits, adjust the shims and recheck the radial play between the horn and support retainers.

PS MORE



FULLY PACKED COUPLINGS

The tail rotor drive shaft flexible couplings get hand packed with grease every 500 hours and any time you change a drive shaft bearing. The 42-degree and 90-degree gear box quill couplings get the same treatment.

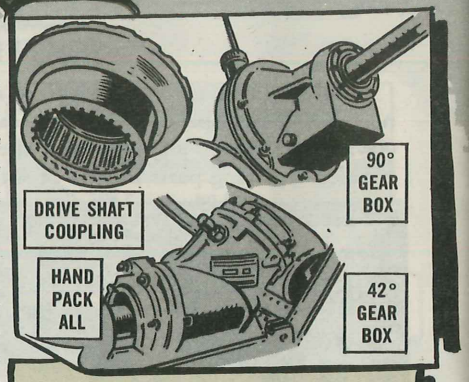
When disconnecting a drive shaft, take off both V-bands and remove the shaft from the bird. If you leave one end of a shaft hooked up, grease in the connected end will be forced out of place. You'll have a dry spot on the splines. That's no way to keep your baby lubed!

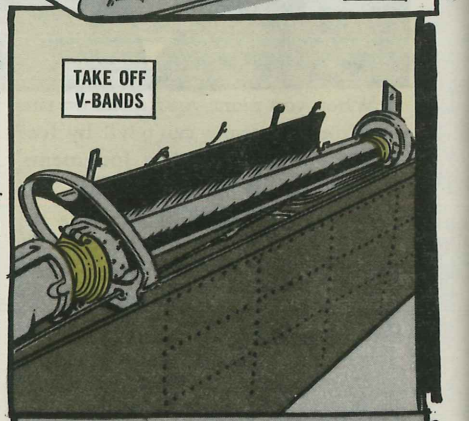
When you make with the hand action, cover the outer coupling with grease to an 0.12-in depth on top of the internal splines over the exposed full length.

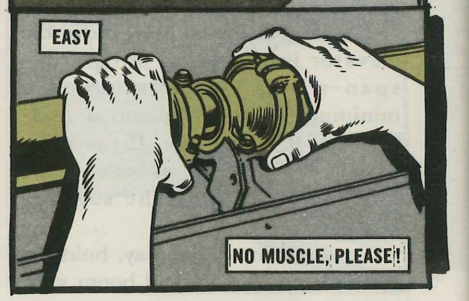
Easy does it when you put the shafts back. Compress the coupling just enough to install it. Never use muscle on the shaft or you'll bottom out the coupling.

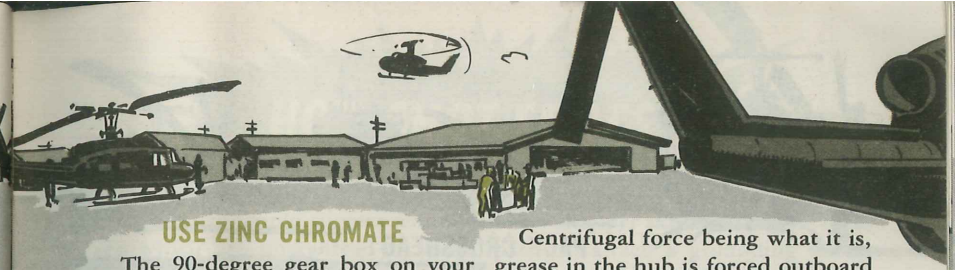
Bottoming the coupling pushes the grease off the splines, forcing it up past the seal, or even pushing out the seal.

Also, throttle jockeys should never use muscle on the vertical shaft located between the 42- and 90-degree gear box during their preflight. That shaft can bottom out, real easily and ruin the seal.



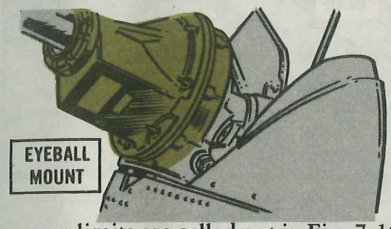






USE ZINC CHROMATE

The 90-degree gear box on your baby places quite a load on the support fitting, which is why you want to eyeball the fitting closely. The



wear limits are called out in Figs 7-16 and 7-17 in TM 55-1520-210-20 (Sep 71).

Corrosion between the gear box and support can also eat into the mating surfaces, causing major repairs. To stop it, never use anti-chafe tape because the retaining nuts will lose torque when the tape compacts. 'Tain't healthy if you want to keep the gear box on your bird.

Instead, coat the mating surfaces with zinc chromate primer when mounting the gear box. You can also use the primer on the grip part of the studs, but not on the threads.

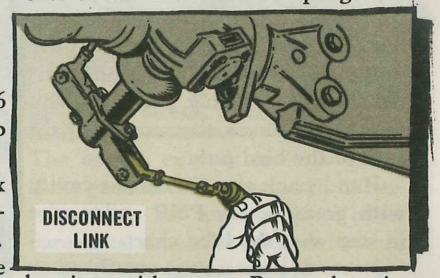
DO THE TWIST

The grip bearings in the tail rotor hub have to get lubed after each blade installation, following tracking, and every 25 hours . . . more often if conditions warrant. Operating in a rain barrel? Purge the hub after each flight!

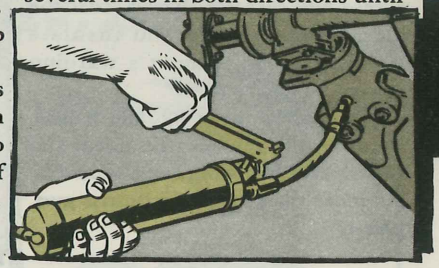
Centrifugal force being what it is, grease in the hub is forced outboard during operation. The outboard bearing gets plenty of grease but the inboard bearing can end up on the dry side.

Which is why you always want to purge those bearings, for real.

Disconnect the pitch link at one side of the crosshead and purge the



bearings with grease. Rotate the grip several times in both directions until



you see that the new grease replaced the old. Wipe off excess grease and reconnect the pitch link.

Give the grip bearings on the other end of the tail rotor hub the same treatment and your hub will be fully packed.

PS MORE

PACK CROSSHEAD

Follow the Huey lube chart in the organizational maintenance pub to the letter when pulling the Periodic. Take the tail rotor crosshead, for example.

Clean out the old grease. While you're at it, eyeball the crosshead.

Any wear could mean the bearing is turning. To prevent that type of revoltin' development, you need the proper shim to give you a pinch fit between the retainer plate and the crosshead. That's the word in para 8-11 of the bird pub.

Hand pack the crosshead cavity with grease every PMP and you're in step with the lube chart.

Never overgrease the crosshead or the excess will enter the gearbox. The grease will discolor the oil, coat the chip detector plug and insulate it—leaving you without a warning system.

If you fly in a lot of rain, a little more lubrication may be needed at the crosshead fitting between PE's. No more than 2 shots with the gun, please!

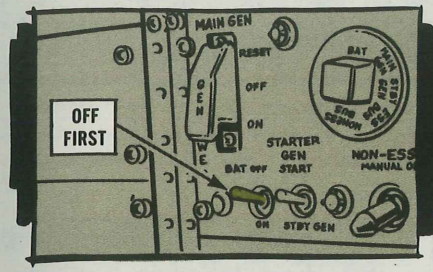
IT'S UP TO YOU

Yessir-e-e-e, bird mechs, if you want to do right by your baby, go with the dry run. The manuals are put out for your use.

HOT-SHOT SPOTS

Ready for a coupla' current reminders which are guaranteed to keep rotorbirds chirping?

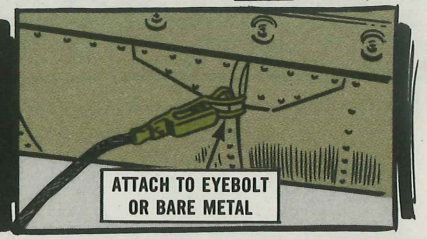
1. When you're about to slip a hot-shot to your bird by way of an APU, turn the aircraft battery switch off . . . first!



If you attach the APU power cord while the battery switch is on, you can damage the battery from an overload.

2. Chopper skids are not the ideal place to attach a grounding clamp . . . and you could find out the hard way if some stray electric spark jumps during a refuel operation.

Best bet is to attach the ground clamp to the aircraft, above the skid.



The engine exhaust stack is great, if the ground cable reaches it. Otherwise, look for an eyebolt or other bare metal above the skids and within reach of the cable.

NO ADAPTER, JACK?

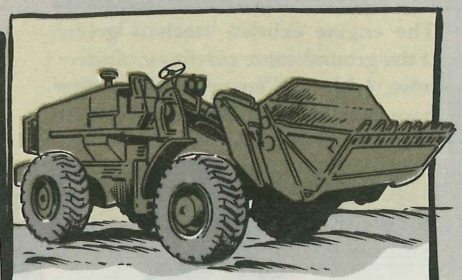
Can't find a jack adapter for your U-21A model in TM 55-1510-209 - 20P (Apr 72)? No sweat!

The adapter, FSN 1730-165-4268, is listed for the RU-21E only. But it's actually good for the U-21A, RU-21A, RU-21E, U-21G and RU-21D models.

Look for it in the new edition of your -20P.

Every trooper in the Army earth-moving business knows that a 645M scoop loader is a useful and mighty workhorse.

Keep your PM and operating habits top notch. Be on the lookout for these irksome quirks that can waylay your powerful machine.



KEEP IT EVER READY

For your $18,700 hunk of machinery to do its thing it needs PM affection. Just like it's spelled out in TM 5-3805-239-12.

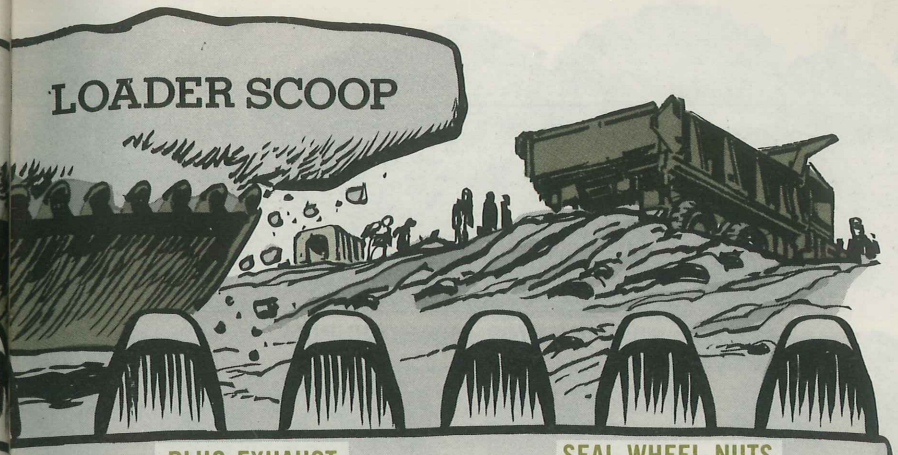
ENGINE IDLE

Treat the engine tenderly—after starting and before shutdown. After starting, run it at low idle (650-700 RPM) for 15 seconds. Then step it up to fast idle (700-1000 RPM) for 3 to 5 minutes. The low idle will give the turbocharger bearings time to get lubed, and the fast idle will warm up engine.

At shutdown do just the opposite. Fast idle for several minutes to even the engine heat to prevent thermal shock. And low idle to give the turbocharger time to slow down before its oil flow is cut off.

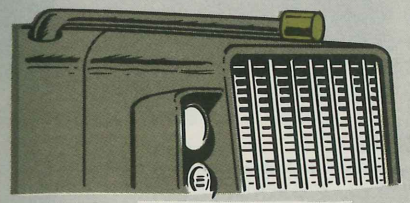
WHOA! NEVER TOW OR PUSH START

Call a mechanic when your 645M won't start under its own power. Towing or pushing can cause bad damage to the transmission. You never tow or push the loader more than a half-mile unless you disconnect both drive line shafts.



PLUG EXHAUST

This one is a sleeper. When your loader is being hauled, a turbocharger bearing can be ruined by strong

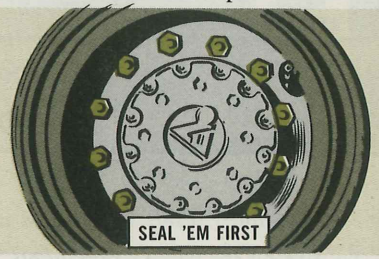


USE RAG, TAPE OR TIGHT FITTING CAN

wind pressure entering the exhaust pipe. What happens is that the turbocharger turbine spins without getting lube. To dodge this dire danger, plug the pipe with a rag, put tape over the opening, or cover it with a tight-fitting can. But don't forget to "pull out the stopper" after you get where you're going.

SEAL WHEEL NUTS

Having trouble with those 12 wheel stud nuts? Do they insist on working loose, causing studs to break off? End it all with super sealant.



SEAL 'EM FIRST

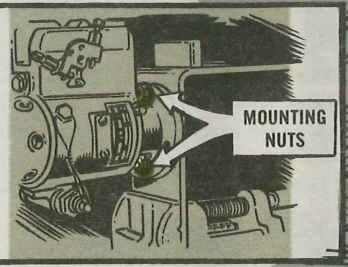
Get hold of Maintenance Kit, FSN 8030-981-7007. After you put on the sealant, torque the stud nuts down to 365-400 pounds-feet. Those stud nuts should never work themselves loose again. But check them every now and then anyway. An ounce of prevention and all that.

NOSE ON THE GROUND

That bucket will never fall on anybody or anything if you keep it lowered to the ground when not in use, and especially when servicing your loader.

FUEL INJECTOR MOUNTING NUTS

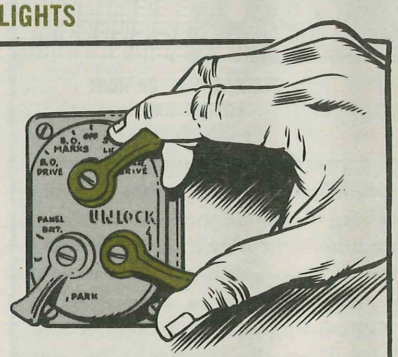
At your Q service, there's no need to back off the mounting nuts and retorque to 9-12 ft-lbs unless they're loose. If they're tight and they don't leak, leave 'em alone.



FLOODLIGHTS

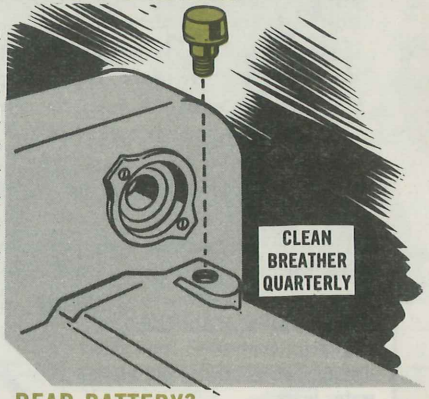
To turn on the 645M's floodlights you have to do more than just flip a single switch.

First, move the lower right-hand lever on the light switch panel up to UNLOCK. While holding, move the upper lever to SER DRIVE (Service Drive) position. Then you'll see the light by turning on the FLOOD-LIGHT or AUXILIARY FLOOD-LIGHT switch.



CLEAN TRANSMISSION BREATHER

Clean the loader's transmission breather at every Quarterly Service, or as often as operating conditions make it necessary. Wipe off dirt and grease. Then gently remove the breather and clean it in dry cleaning solvent. FSN 6850-281-1985 will get a gallon of good cleaner. Use an air hose (low pressure) to blow the part dry. Replace it with loving care . . . and breathe easy without blowing seals.



RUINED STARTER? DEAD BATTERY?

A burned-out starter or run-down battery can result from a fuel line "air-pocket." You get a pocket of air in the line when you replace the fuel filter, clean the sediment bowl, or run out of gas. Then, no matter how long you grind away on your starter, you'll never get the engine to run. You'll need to vent and prime the fuel line like para 3-9 of TM 5-3805-239-12 says.

DE-WINTERIZE THIS SPRING

After the winter months, and in warm climates, remove the cold weather starting cylinder and connectors. You'll head off engine damage from an accidental ether injection into the intake manifold.

PS END

BE YOUR OWN INSPECTOR

THE MODEL 645 M SCOOP LOADER

You name it and the Model 645M scoop loader will do it.

She'll work for you as a front-end loader or a clam-type bucket. She'll bulldoze or act as a scraper.

If you handle 'er right, she'll do a mighty good and fast job too.

You can't ask for more, right? Right.

OK now, let's turn to you, the operator.

What have you done for 'er lately? What shape's she in?

If you haven't given that a thought, better get involved with 'er now. Give 'er your personal, serious inspection.

Approach 'er directly from the front, then walk 'round 'er.

If you see something wrong, make it right again.

The serious faults are in **bold type.**

FRONT

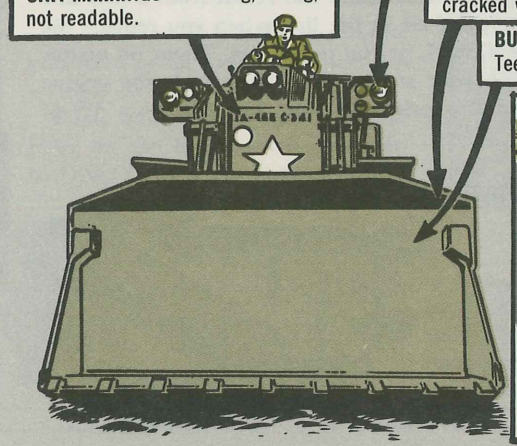
OVERALL—Mud-caked, rust, body damage, welds broken; **oil, fuel or water leaks.**

UNIT MARKINGS—Missing, wrong, not readable.

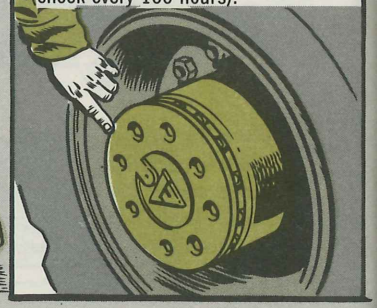
HEADLIGHTS AND FLOODLIGHTS—Glass cracked, broken. Wires broken. Lens loose. Burned out. Mountings loose.

MOLDBOARD—Broken, loose, cracked welds.

BUCKET AND CLAM—Pins missing. Teeth missing. Won't operate.

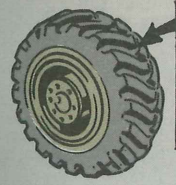


PLANETARY HUBS—Oil level low (check every 100 hours).

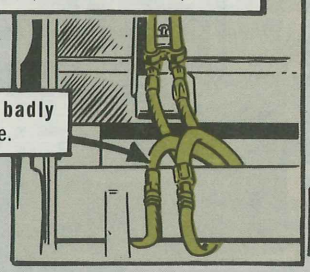


LEFT SIDE

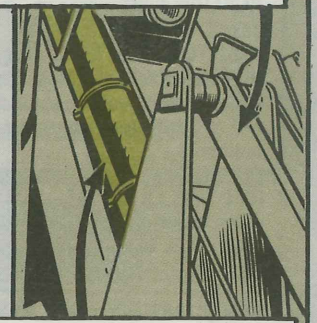
WHEELS—Nuts missing, loose. (Torque to 365-400 lbs-ft.) **TIRES**—Cuts, breaks, blisters, flat spots, deterioration. **Valve stem leaks.** Valve caps missing. Wrong pressure (should be 45 PSI).



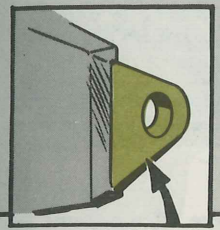
BUCKET HOSES—Kinked, **badly chafed, leaks,** fittings loose.



BOOM EXTENSION—Broken, cracked, mountings loose.

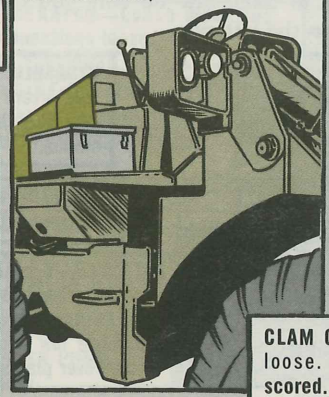


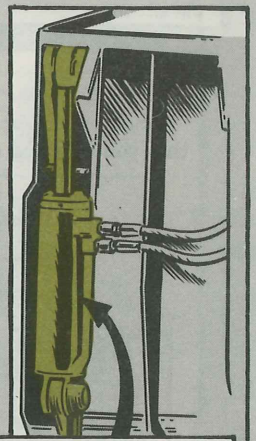
DUMP CYLINDER—Leaks; bolts loose. **Piston rod dry, badly scored.**



TIE DOWN AND LIFTING EYE—Bent, cracked, broken.

HOOD AND FENDERS—Broken, cracked, bent, missing. (Remember these items when you're checking the other side.)

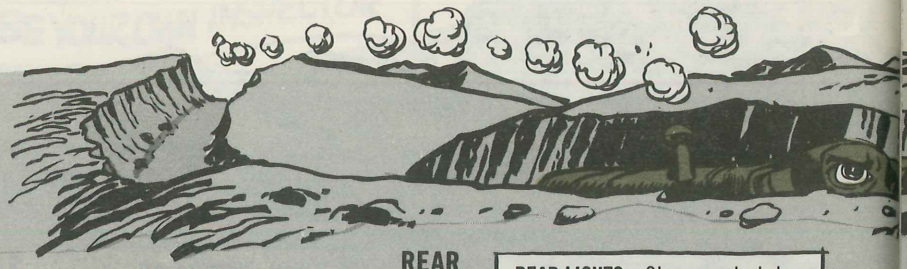




CLAM CYLINDER—Leaks; bolts loose. **Piston rod dry, badly scored.**

STEERING LINKAGE—Needs lube, loose.
LOADER LINKAGE—Needs lube.
REAR AXLE PIVOT PINS—Needs lube (lube every 10 hours), dirty.
FRAME—Bent, cracked (never operate it this way unless support says it's OK).
BODY NUTS AND BOLTS—Loose, missing. (Check 'em all around.)

P.S. MORE



REAR

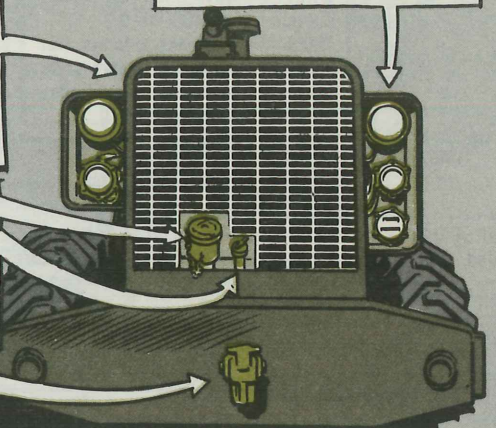
REAR LIGHTS—Glass cracked, broken. Burned out. Mountings loose.

RADIATOR GRILL—bent in, **mud-caked,** cracked; pins missing.
RADIATOR—Fins bent, **clogged with mud or foliage,** leaks. (Check water level. Coolant should be within 1 inch from the top of the radiator.)

FUEL TANK FILLER CAP—Missing. Chain broken, missing.
FUEL LEVEL GAGE—Broken, missing.

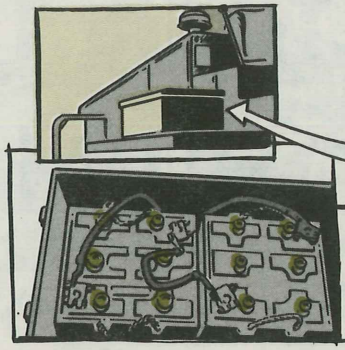
REFLECTORS—Cracked, broken, mounting loose, mud caked.

TOWING PINTLE—Cracked, broken, **pin missing.**



RIGHT SIDE

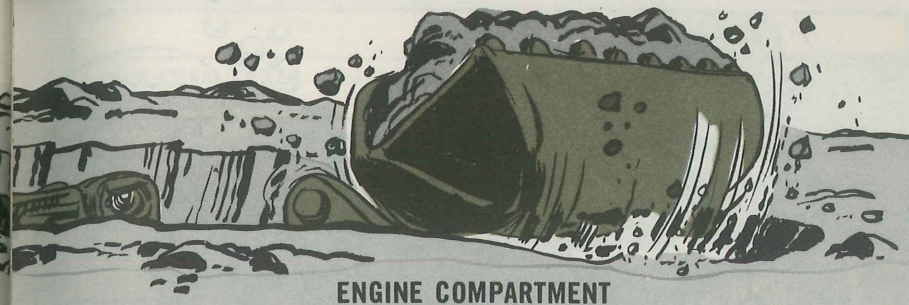
This is no place to slack off. Be sure you check here all the items that you checked on the left side.



HYDRAULIC TANK—Level low (check level every 10 hours. It must be between the FULL and the ADD marks).

BATTERY BOX—Cover missing. Hinges and latches broken.

BATTERIES—Cracked, leaks, terminals corroded; loose, **caps missing. Holddown loose, missing.** Electrolyte low (must be at least ⅜ inch over plates).



ENGINE COMPARTMENT

OVERALL—Dirty, oil caked.

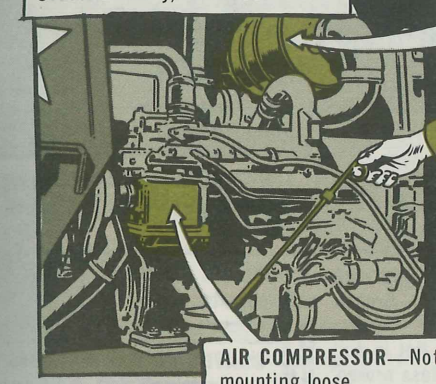
AIR CLEANER—Loose mounting, gaskets damaged, filter element dirty. **Line to indicator leaking, crushed.**

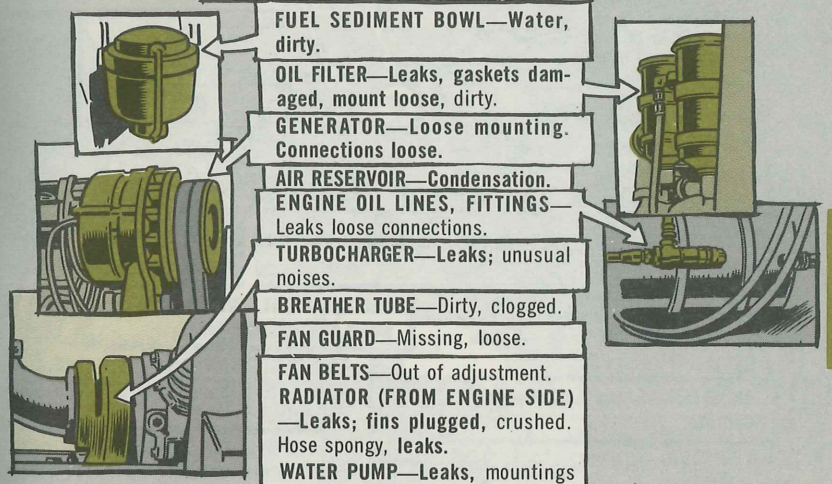
FUEL FILTER—Leaks, mount loose.

CRANKCASE—Leaks; oil level low (check level every 10 hours).

WIRING—Frayed, loose, broken.

AIR COMPRESSOR—Not alined, mounting loose.





FUEL SEDIMENT BOWL—Water, dirty.

OIL FILTER—Leaks, gaskets damaged, mount loose, dirty.

GENERATOR—Loose mounting. Connections loose.

AIR RESERVOIR—Condensation.

ENGINE OIL LINES, FITTINGS—Leaks loose connections.

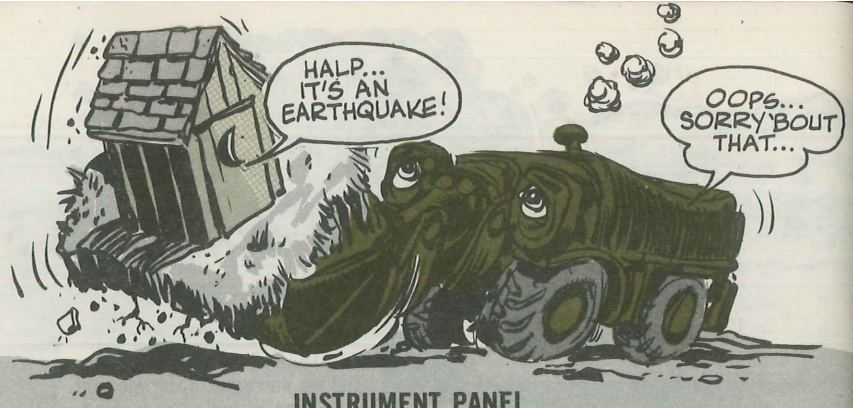
TURBOCHARGER—Leaks; unusual noises.

BREATHER TUBE—Dirty, clogged.

FAN GUARD—Missing, loose.

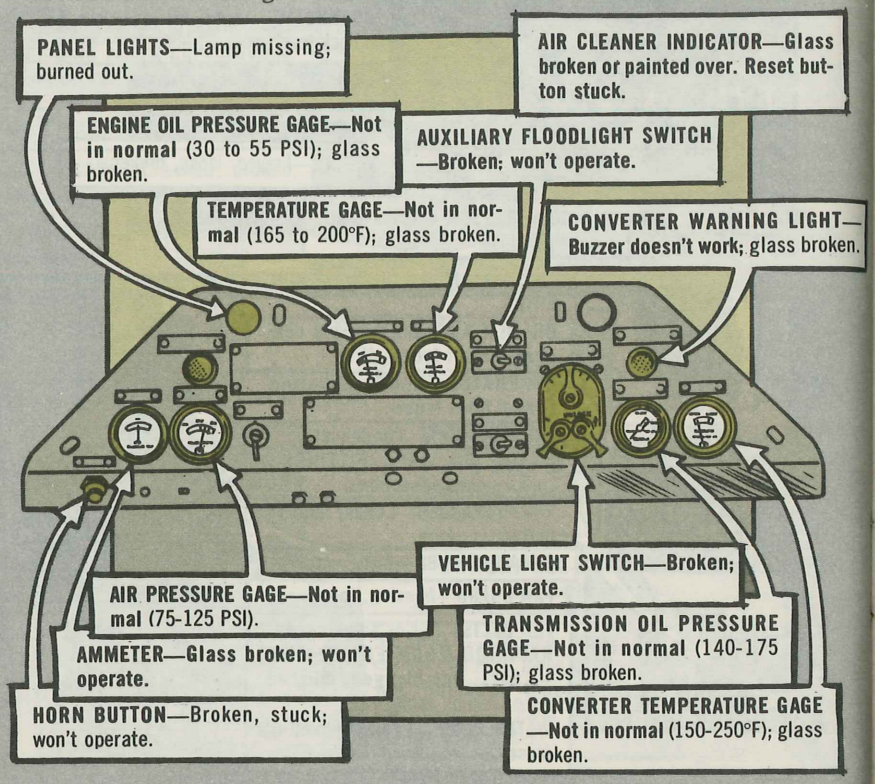
FAN BELTS—Out of adjustment.
RADIATOR (FROM ENGINE SIDE)—Leaks; fins plugged, crushed. Hose spongy, **leaks.**
WATER PUMP—Leaks, mountings loose.

P.S. MORE

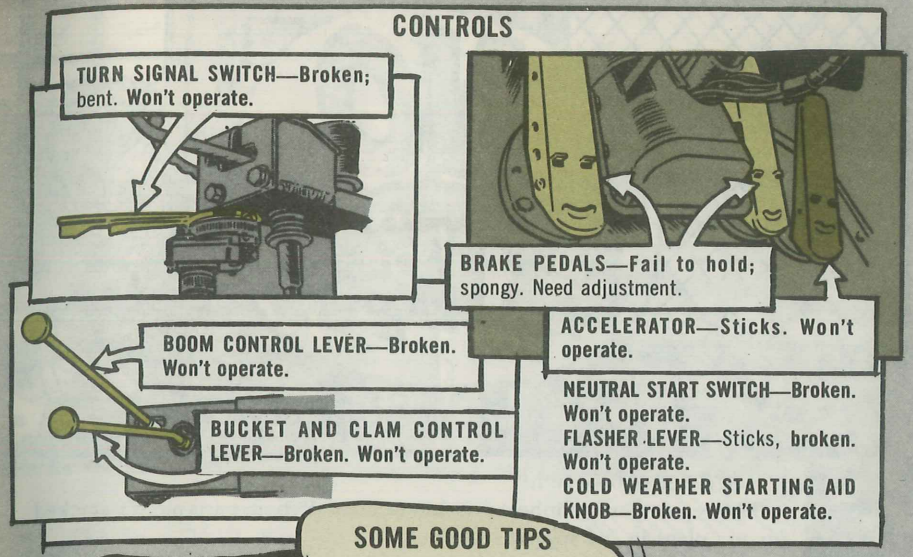


INSTRUMENT PANEL

Check your instruments and controls after you warm up the engine. Use your eyes and ears to tell you if the scoop loader is runnin' OK. No backfires. No strange noises. No misses. No black smoke.



CONTROLS



SOME GOOD TIPS

Crank the engine no more than 30 seconds. Allow a 2-minute cooling period before you try again.

Never use the bucket as a brake.

Shift from high to low range only at a speed lower than 5 MPH. Better yet, come to a stop to do it.

Always lower the bucket to the ground when the loader's not in use.

Never tow with the loader unless there's no other out. But, if you have to, be sure you exercise the hydraulic controls to cool the hydraulic system.

Before prying a wheel lock ring, for safety's sake wrap and tie a chain around the tire and the wheel.

PUBS

TM 5-3805-239-12 (Jul 68) w/Ch 5 (May 72)

TM 5-3805-239-20P (Dec 68) w/Ch 2 (Oct 70)

TM 5-3800-200-ESC (Jan 71).

LO 5-3805-239-12-1 (Apr 68)

LO 5-3805-239-12-2 (Apr 68)

PS END

You'd better believe it!

The repair parts cupboard is kinda lean. Repair parts aren't stacked up any place in the supply system.

To save yourself and your shop real grief, guard your PLL stocks:

1. Protect your repair parts from damage, loss, neglect.

2. Order only what's needed.

3. Issue only what's needed.

4. Turn in excess parts quick-like. Tag 'em and package 'em right.

5. And soonest—cancel requests for parts no longer needed.

6. Tag recoverable items (with DA Form 2402), box 'em up good, and turn 'em in soonest.

7. Use high priority codes on emergency requests only. See Para 2-2b, AR 710-2.

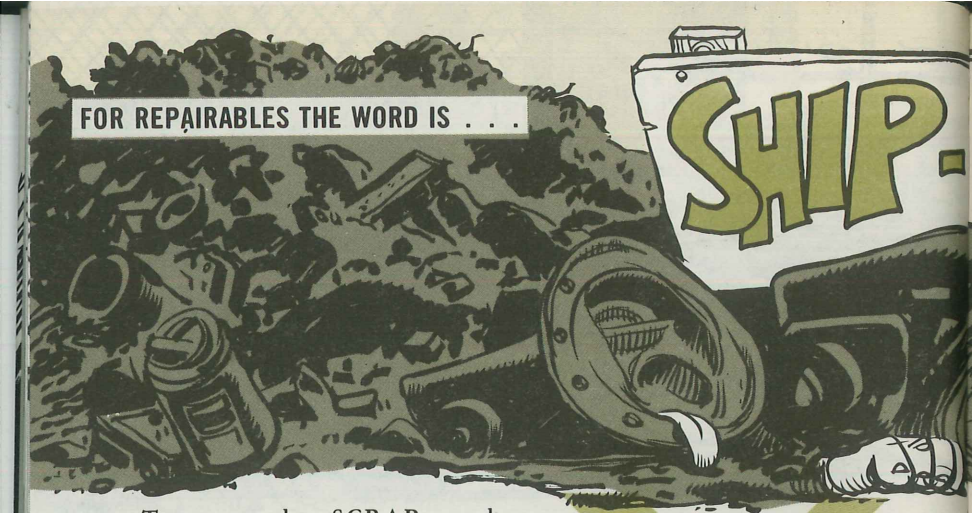
8. Use the Quick-Supply-Store (if one's handy)—or other supply sources available to you.

9. Stay on top of your local PLL SOP.

10. See App B, DA Cir 700-18 (Nov 72, Logistics, Improvements-Preventive Logistics, for tips on operating a tight PLL shop.

FOR REPAIRABLES THE WORD IS . . .

SHIP - NOT SCRAP



Two words—SCRAP and JUNK—describe lots of equipment end items and components arriving these days at repair depots.

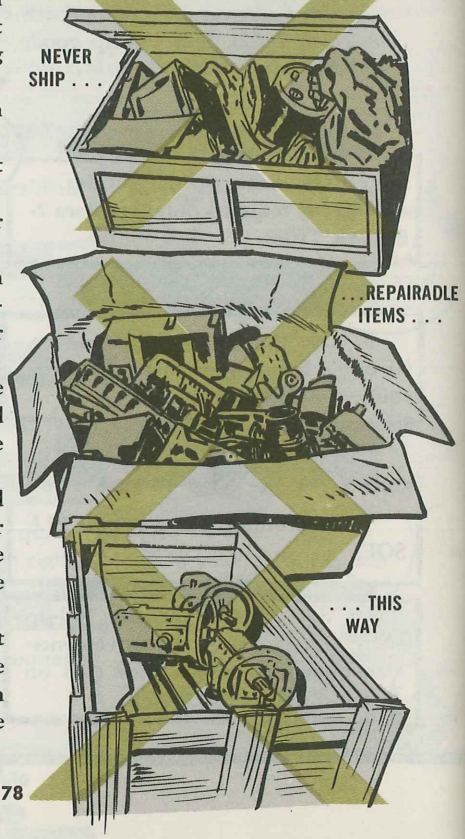
Sometimes they're not even worth the cost of return freight.

All because the shipper didn't bother to—

- Protect 'em while removing or hauling 'em to the shipping point.
- Pack 'em snugly—either in reusable containers or in new containers that will guard against further damage.
- Identify 'em with at least the (1) FSN, (2) item nomenclature and (3) the number of like items in the pack.

All components and parts coded R (for recoverable) in your repair parts TM's are designed to be repaired and returned to use—as are all equipment end items.

So one fault or a half dozen won't necessarily put an item out of service except termporarily. But rough handling can break or damage the item beyond repair.



That's especially true if repairable items are just dumped into a crate or carton for shipment. They've got to be braced or cushioned inside the container if they're to arrive in repairable condition.

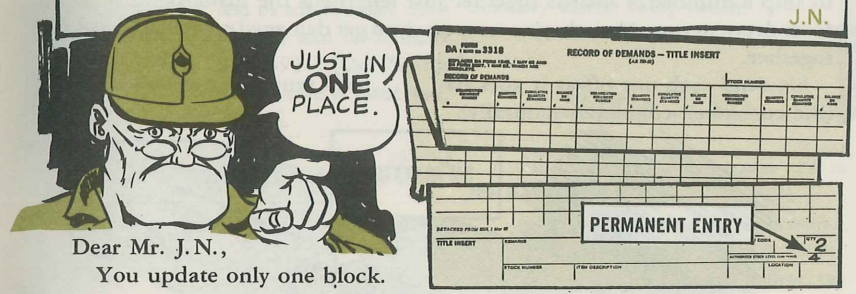
So make sure your repairable components and parts stay that way—all the way back to the repair shop.

DA FORM 3318 INFO

Dear Half-Mast,

On DA Form 3318, Record of Demands, do you update the info in the *Quantity* block and the *Authorized Stock Level* block when you adjust your PLL?

J.N.



Dear Mr. J.N.,

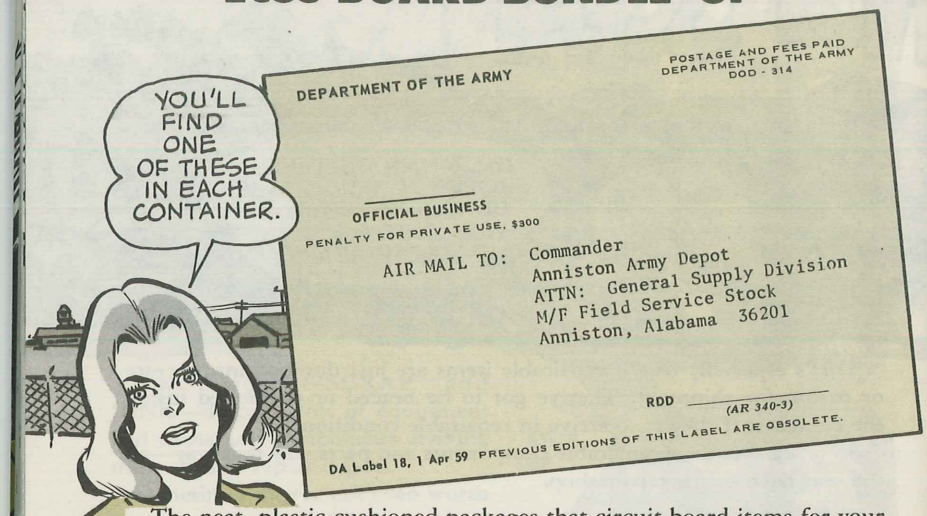
You update only one block.

You enter your *initial* PLL allowance in both blocks. When demand history changes your allowance you enter the new info in the Authorized Stock Level block.

But leave the info in the Quantity block as is. It's a permanent record of your initial allowance for the item.

Half-Mast

LCSS BOARD BUNDLE-UP

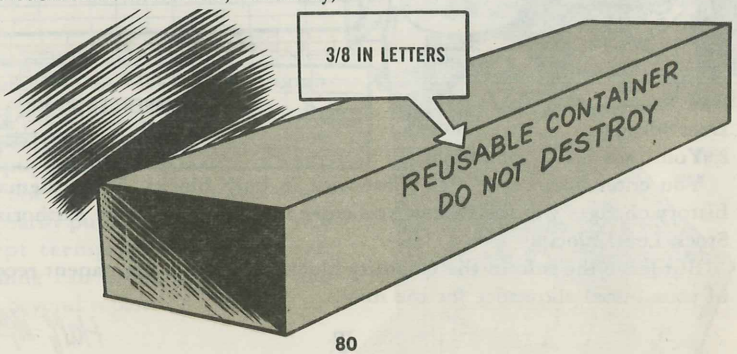


The neat, plastic-cushioned packages that circuit board items for your Land Combat Support System are now coming in just happen to be great, for the boards to go back in, too.

So, hang on to the reusable container. Use it to ship off defective boards to your mission depot. There's a pre-addressed label in each container . . . which makes the routing to depot easier.

Another point: ship off each board as it becomes defective. Waiting to ship a number of boards together just lengthens the turnaround time from depot to you. Also, they're more likely to get damaged when packaged together.

So, send each one off as it goes bad . . . and send one per container (the cushioned container, naturally).



2½-Ton Tailgate

It's for all TM-209-series 2½-ton cargo trucks except the dropside job—Tailgate, FSN 2510-301-7754. It got left out of TM 9-2320-209-20P (Oct 72).

Gyro Mount

If you're about to change the shock mount on your aircraft's MD-1 displacement gyro, it'd pay you to eyeball Item 2-1 in TB 750-911-3 (Apr 73). The item points out that Bendix-made shock mounts can't be used with gyros made by other manufacturers.

Safety Valve Seal

You may not be safe around any type of compressor 'less its safety relief valve has the wire and lead seal on it. Look to para 8 of TB 742-93-1 (Oct 72) for info on how a safety valve is inspected, tested, set and sealed.

M79 Grenade Launcher Paint

Want a spray paint to touch up the stock on your M79 grenade launcher? Order FSN 8010-201-8813 for a spray can.

No Retirment Life

You Kiowa (OH-58A) mechs know that there is a 600-hr retirement life on the old oil cooler blower. Not so with the new blower, FSN 1615-169-0360. It's yours for keeps. That's the baby you want. It'll save you sweat and elbow grease.

Gama Goat Starter

Relief is here! You can say goodbye to a lot of the starter trouble you've been having with your Gama Goats (M561 1¼-ton truck and M792 ambulance). MWO 9-2320-242-30-1 (Jan 73) does the trick with installation of an auxiliary starter relay switch.

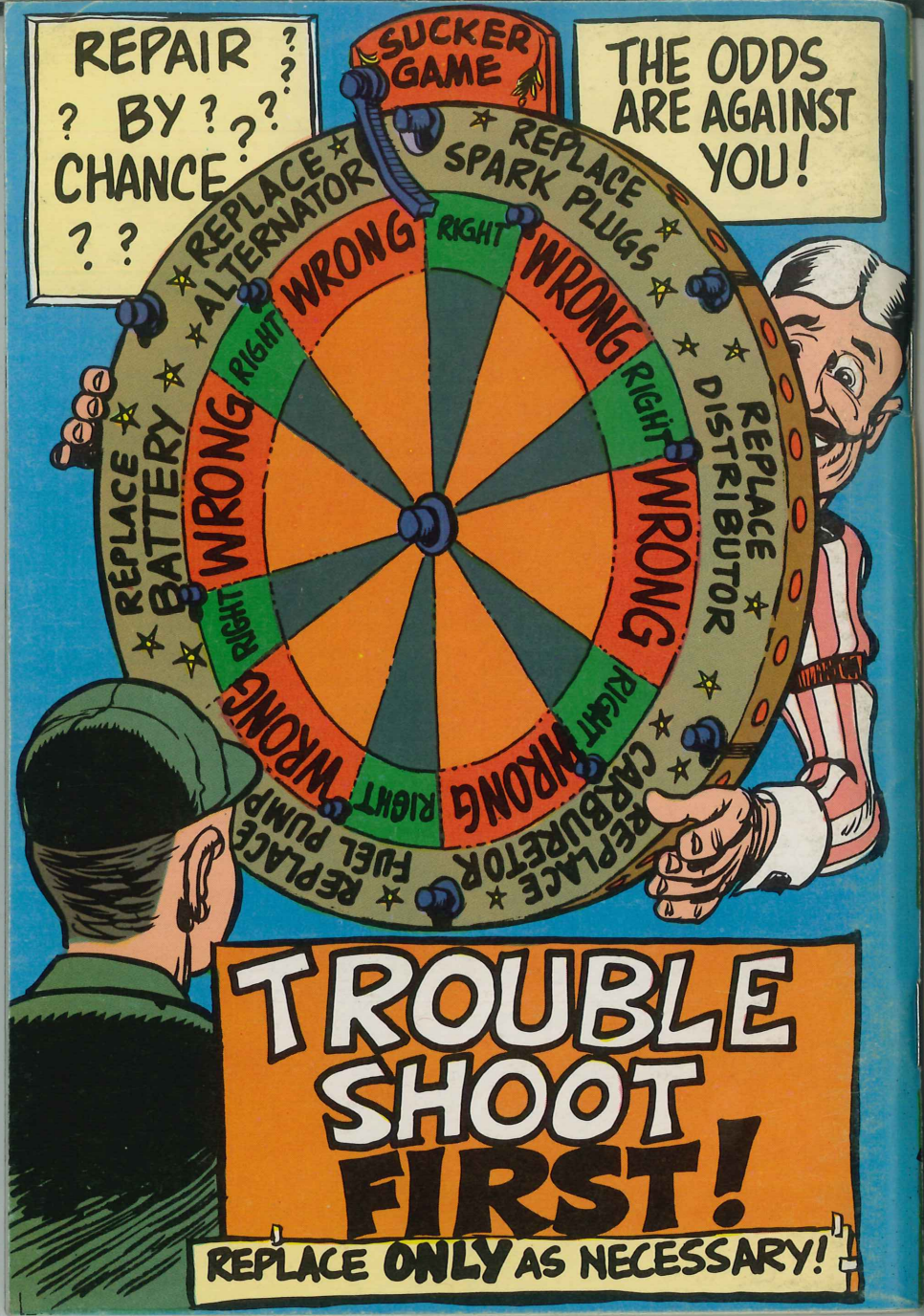
Supply Dope

All FSN's in PS Magazine are in the AMDF (Army Master Data File.)

Most FSN's cited are in parts manuals, supply catalogs and supply bulletins. SB 700-50, for example, authorizes thousands of expendable items.

☆U.S. GOVERNMENT PRINTING OFFICE: 1973 - 758-437/1

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


REPAIR BY CHANCE
SUCKER GAME
THE ODDS ARE AGAINST YOU!
REPLACE SPARK PLUGS
REPLACE DISTRIBUTOR
REPLACE CARBURETOR
REPLACE FUEL PUMP
REPLACE ALTERNATOR
REPLACE BATTERY
RIGHT
WRONG
TROUBLE SHOOT FIRST!
REPLACE ONLY AS NECESSARY!