Issue 339

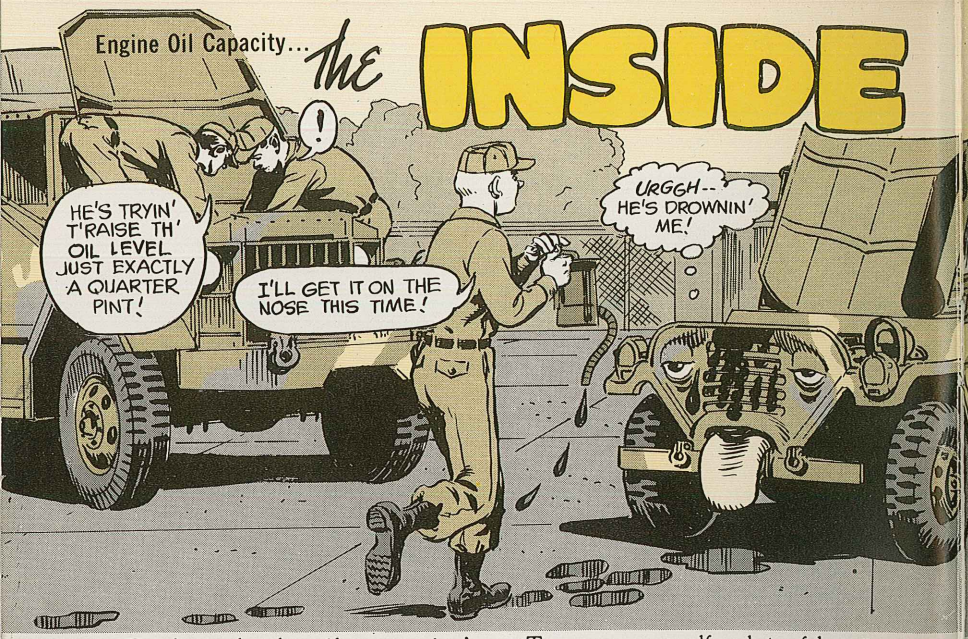
PS

February 1981

THE PREVENTIVE MAINTENANCE MONTHLY

"Murphy Strikes Again! See page 29

Engine Oil Capacity... the INSIDE STORY



Don't get shook up if your engine's crankcase needs a little more or less oil than called for by the TM and LO. The exact capacity may vary slightly from engine to engine covered by the same pubs.

The right amount of oil required is what it takes to get a **FULL** reading on the dipstick—or whatever level is specified by the TM or LO for cold check, hot check, etc.

To save yourself a lot of heartburn, don't put in the entire specified amount at first. Hold back some, a quart or so, when you're filling an engine. Check to make sure the oil level is at least over the ADD mark on the dipstick. Then run the engine for a few minutes. Shut it down. Wait a few minutes. Check the oil level. Add a half-pint or a pint or a quart—whatever it takes—to bring the oil level up to the **FULL MARK**.

Even if you have to add the oil in several dabs, it's a lot less trouble than draining some when you go over.

Remember, too, that a little under **FULL** is **OK**. Anywhere between

ADD and **FULL** is safe for engine operation, but it's just common sense to start out with the oil level as close to **FULL** as you can get it. A fraction of an inch under **FULL** is no reason, however, for teaspooning in enough to hit **FULL** on the nose.

PS THE **PREVENTIVE MAINTENANCE** MONTHLY

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TROOP 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
40511

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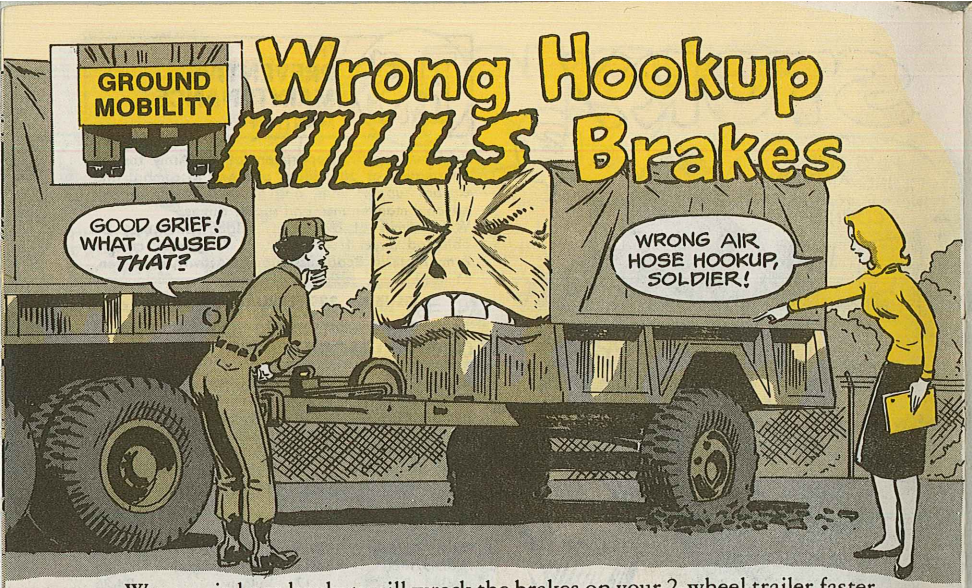
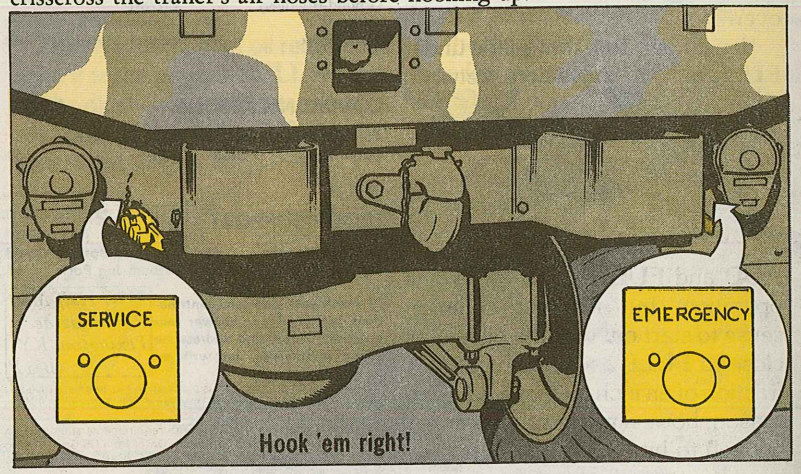


Wrong air hose hookup will wreck the brakes on your 2-wheel trailer faster than you can say, "Wrong hookup kills brakes."

Wrong air hose hookup locks the trailer's brakes. This can burn 'em out and tear up your trailer's tires.

Always hook up your trailer's air hose to the truck's SERVICE air coupling. If your trailer is equipped with 2 air lines, the emergency air line hooks up to the EMERGENCY coupling on the tow vehicle. To do this you must always crisscross the trailer's air hoses before hooking up.

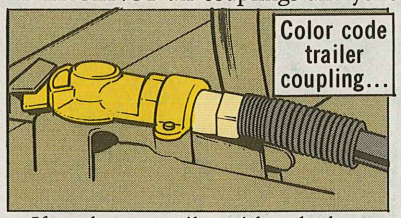


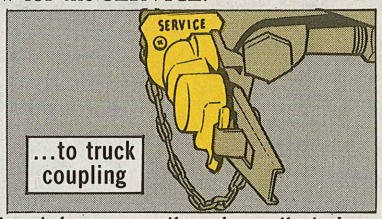
Identification Plates

To help you keep the couplings straight, make sure your truck has the right air coupling identification plates.

ID Plate	2½-ton truck	5-ton truck
EMERGENCY	NSN 9905-00-774-4284	NSN 9905-00-999-7369
SERVICE	NSN 9905-00-740-9721	NSN 9905-00-999-7370

Also, you can use a bit of paint to help match trailer air hoses with the right couplings on the tow vehicles. Color code the trailer air hose coupling and the proper coupling on the truck with a matching color. Use red for the EMERGENCY air couplings and yellow for the SERVICE.

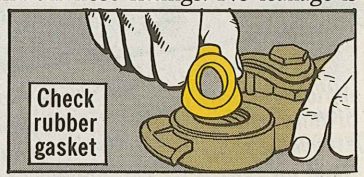




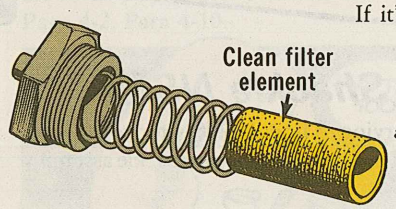
If you have a trailer with only the service air hose, stencil on the trailer's draw bar this reminder: CONNECT TO SERVICE AIR ONLY. Before you make with the paint, tho, get your commander's OK.

Brake Line Inspection

After hooking up, check the air hoses for damage and inspect the couplings for air leaks. With the brakes applied in the tow vehicle, use a soap and water solution on the SERVICE air coupling and air hose fittings. No leakage is allowed. If you get leakage around the coupling, check the rubber packing ring. Make sure it is seated in the trailer's hose coupling and not worn or torn. If the rubber gasket is bad, replace it with NSN 5330-00-090-2128.



A clogged air filter will put your trailer's brakes out of operation. Drain moisture from the air filter assembly and remove and clean the filter element. If it's not done it's sure to cause problems.



Use PD 680 drycleaning solvent to clean the filter assembly and the filter element. NSN 6850-00-664-5685 will get you a quart. Let the air filter assembly parts dry before you put them back together.

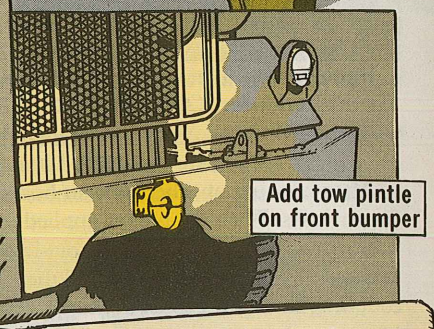
Trailer Parking Made Easy

Dear Editor,

Our drivers have a lot of trouble getting towed vehicles put in place. Some drivers have trouble getting the knack of backing a towed howitzer or trailer.

We picked up a couple of Gama Goat pintles from the can point and mounted them on the front bumpers of our 2½-ton trucks. We use these trucks for spotting—parking—towed vehicles. Sure makes the job easier.

CW3 Eugene Gibson
DIVARTY
Ft. Campbell, KY



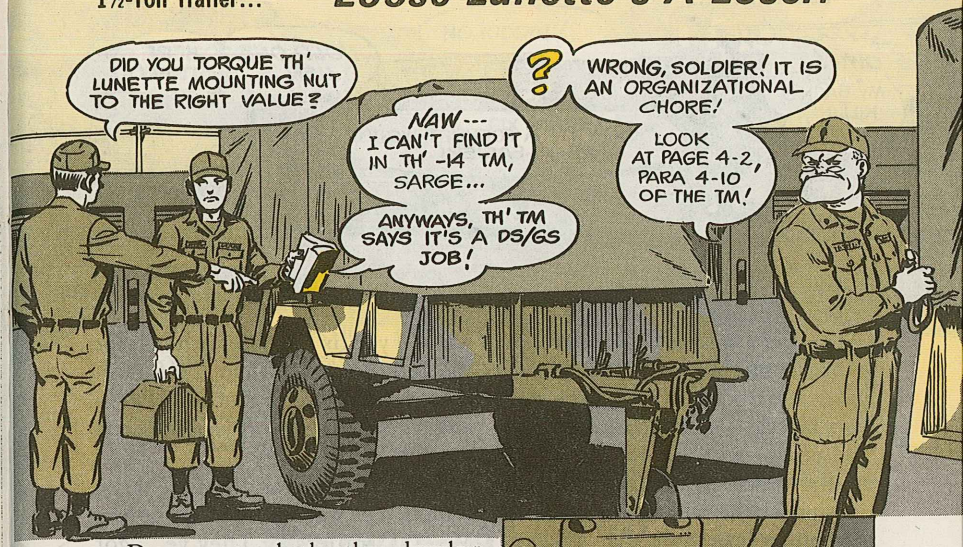
(Ed Note—Another approach, if local command won't authorize modification of the bumper, is this: Get a universal front bumper towing hitch made up. It's covered by TB 9-2300-415-40 (Nov 72). The hitch can be used on ¼-ton thru 5-ton vehicles. An advantage is that it can be switched from one vehicle to another so that no particular vehicle has to be assigned to the job.)

Missing Trailer Shackle NSN

Forget TM 9-2330-202-14P if you're trying to find the NSN for your ¾-ton trailer's lifting hook and pin assembly. It is not there. Get the shackle assembly with NSN 4030-00-542-3181.

TM-213-Series
1½-Ton Trailer...

Loose Lunette's A Loser!

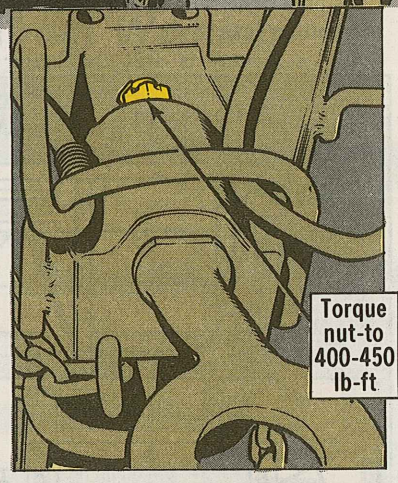


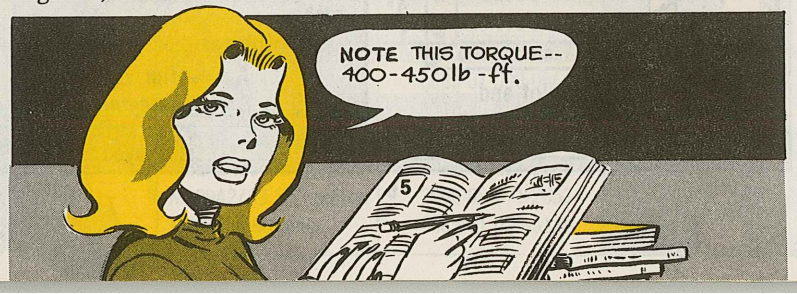
Damage to both the drawbar coupler (lunette) and the frame bore can come from not putting enough torque on the lunette mounting nut.

But you won't find the torque specified in TM 9-2330-213-14.

Fact is, the TM says this is a DS/GS job—even tho the lunette's listed as an Organizational Maintenance repair part. It's not mentioned in the MAC (Maintenance Allocation Chart).

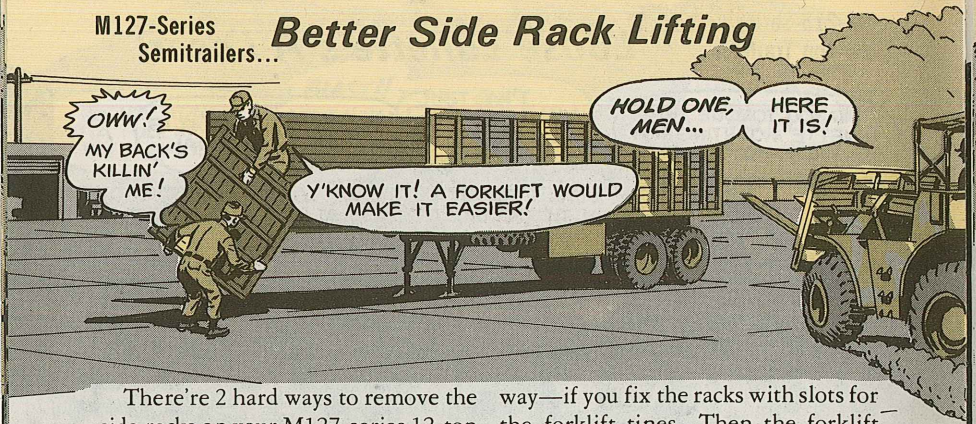
Let's clear up the confusion. Lunette removal/installation is an Organizational Maintenance job. Instructions are in the DS/GS section of the TM—Page 4-2, Para 4-10.





M127-Series Semitrailers...

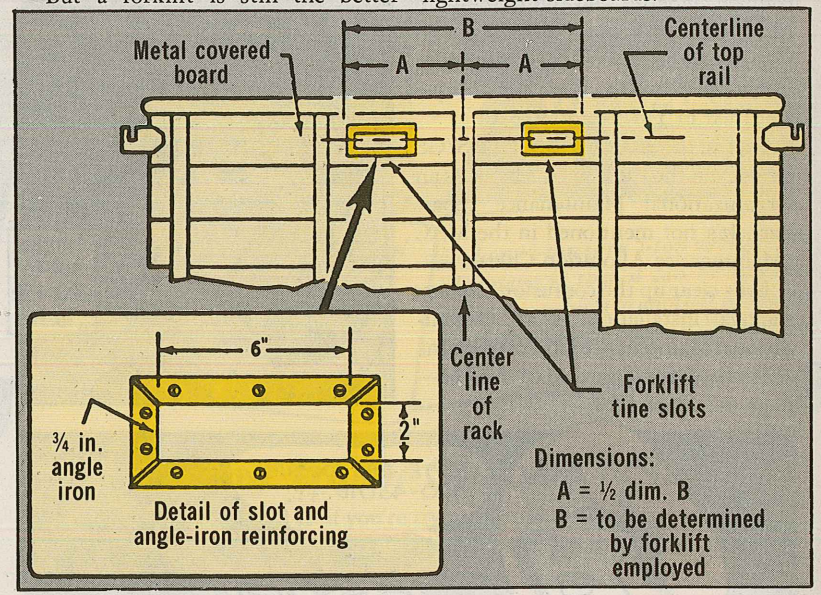
Better Side Rack Lifting



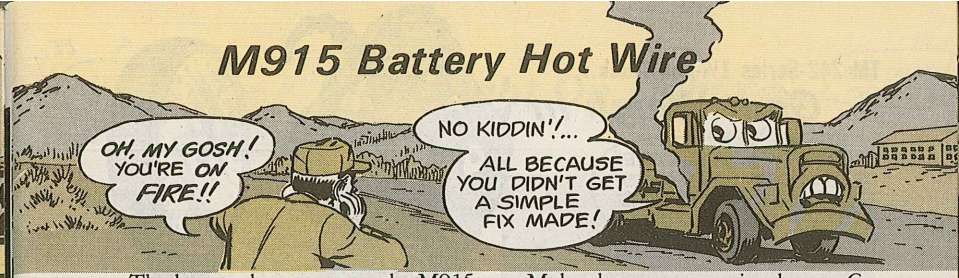
There're 2 hard ways to remove the side racks on your M127-series 12-ton stake semitrailer. One—with your own muscle—is hard on your back. The other—with a forklift—is hard on the racks. Jamming the forklift tines under the rack is sure death for the bottom board.

But a forklift is still the better way—if you fix the racks with slots for the forklift tines. Then the forklift does the job easier, faster 'n' better—and takes the strain off your back and the side racks.

This fix is only for the M127-series trailers. You won't need it for the new M871 trailers. They've got lightweight sideboards.



M915 Battery Hot Wire

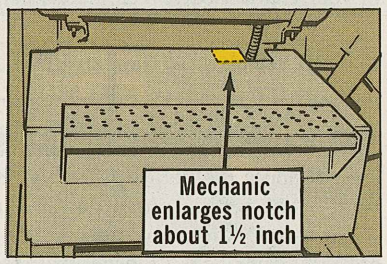


The battery box cover on the M915-series trucks can cause an electrical short—maybe a fire.

The battery cables rub the edge of the cable opening. The rubbing wears thru the cable's covering. Then the bare wire shorts against the sheet metal cover. Hot stuff!

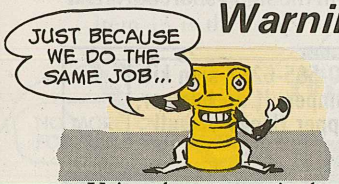
Check your truck's battery cables. If they're frayed, get 'em replaced.

Make the cover opening larger. Cut out about 1½-in more material.



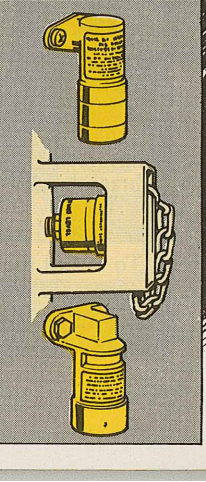
Air Cleaner Indicator...

Warning—About Warning



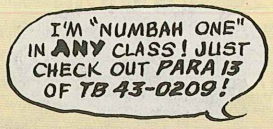
Using the wrong air cleaner warning indicator on your tracked or wheeled vehicle is not too smart. The wrong one will show red when it shouldn't, or it won't show red when it should.

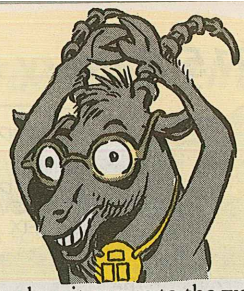
Vehicle	NSN
Gama Goat	2940-00-998-4696
2½-ton multifuel	2940-00-909-2453
5-ton M39-series	2940-00-909-2453
5-ton M656-series	2940-00-909-2453
10-ton diesel	2940-00-909-2453
5-ton M809-series	2940-00-071-2653
Goer	2940-01-038-8317
M915-series	6685-01-093-0566
M911 C-HET	4310-00-228-1107
M113A1/A2 APC	2940-00-909-2453
M88A1 recovery vehicle	2940-00-071-2653
M109A2/A3 SP howitzer	2940-00-071-2653
M48A5/M60 tanks	6685-01-055-5116

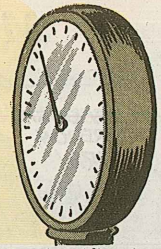


TM-242-Series 1¼-Ton Truck...

Goat Weigh In





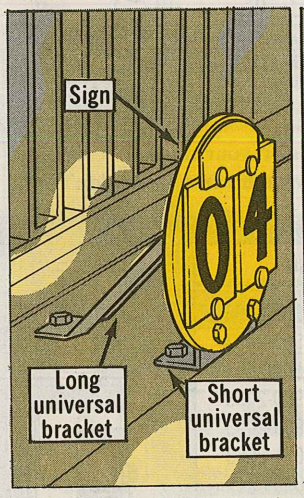


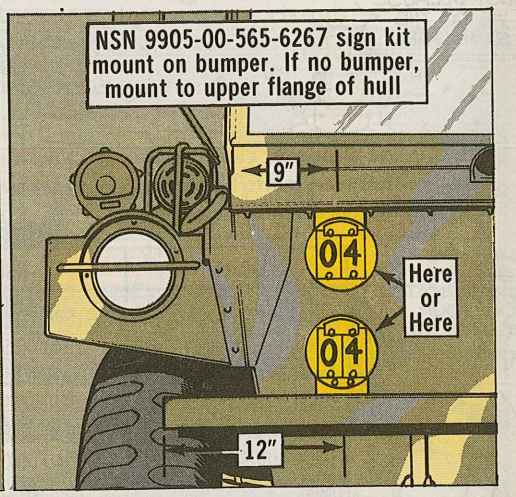
Are you playing a guessing game when it comes to the weight classification of your Gama Goat? Well, here's help:

Vehicle	Weight Class		
	Empty	Loaded	
		Highway	Cross Country
M561, Truck, Cargo	3	4	4
M792, Truck, Ambulance	3	4	4

You mount the Vehicle Class Sign Kit NSN 9905-00-565-6267 on the right front of the vehicle, either on the bumper or on the upper hull flange.

For bumper mounting, position the classification disc's bracket so the center of the weight sign is 12 inches from the end of the bumper and ½ inch above it. Drill $^{5}/_{16}$-in holes in the bumper to match the holes in the sign's short universal bracket.





To install the weight class sign on the upper flange of the hull, locate the sign's center 9 inches from the end of the flange and ½ inch below it.

For other good dope about the when, where and how of the weight classification signs, eyeball TB 43-0209(Oct 76), Para 13.

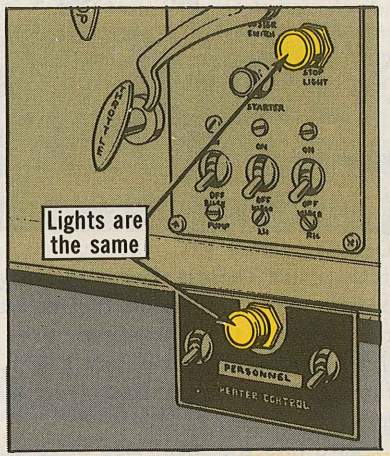
More Light On Light

"And now for the rest of the story" on your Gama Goat's instrument panel carrier stop signal light...

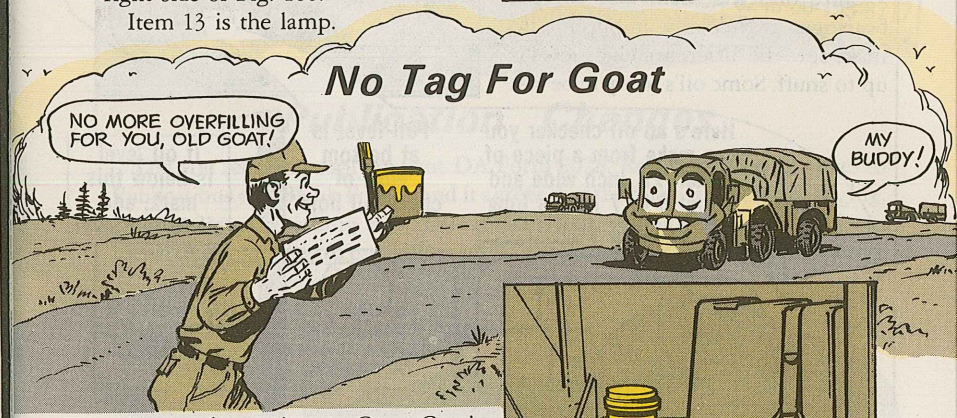
All you get on Page 91, TM 9-2320-242-20P (Mar 77), is Light Assembly: w/dimmer, NSN 6210-00-688-5088. But the same light is used with the heater control box—and you find the complete breakdown on Page 244 in your -20P TM.

Item 11, Fig. 160, is the complete light assembly. Item 12 is everything except the wiring on the back of the light. Both come with the lens, nut (2 nuts) and washer "ghosted" on the right side of Fig. 160.

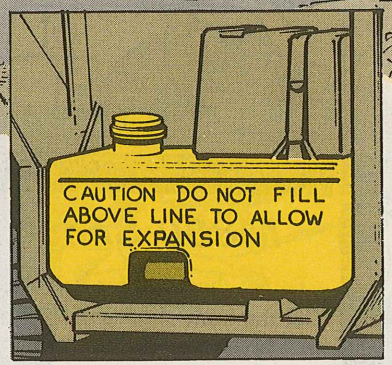
Item 13 is the lamp.



No Tag For Goat



Forget the tag in your Gama Goat's fuel tank filler tube. It marks the fuel fill line too close to the top of the tank, which may cause fuel spillage. Instead, stencil a do not overfill warning line 2 inches from the top of the fuel tank. Check para 12.f of TB 43-0209 (Oct 76) for details.



TM-266-Series 1¼-Ton Truck...

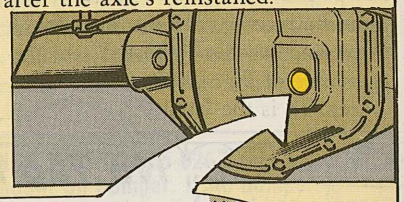
Axle Bearings Need Oil

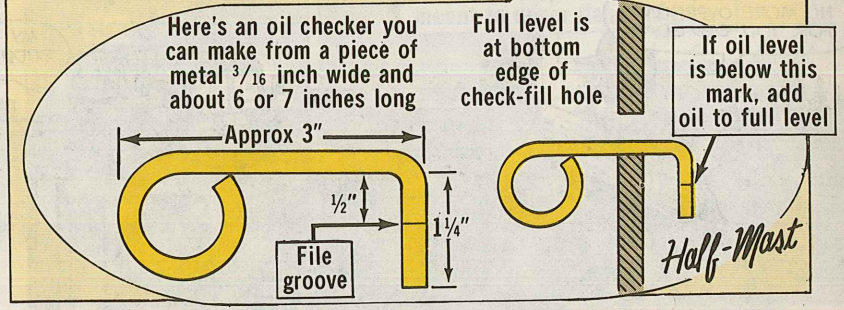
Dear Half-Mast,
How do we keep differential oil from seeping into the rear axle bearings on our M880-series trucks and washing out the GAA? **SFC T. J. C.**

Dear Sergeant T. J. C.,

You don't. Those bearings are lubed by both GAA and gear oil. The main reason for the GAA is to insure that the bearings are protected by a grease film when the vehicle's inactive for a long spell.

Since oil's the main lube for the bearings, it's doubly important to make sure the differential lube level is up to snuff. Some oil's likely to be lost when the axle's removed. That means the differential oil level's got to be checked—and oil added as needed—after the axle's reinstalled.





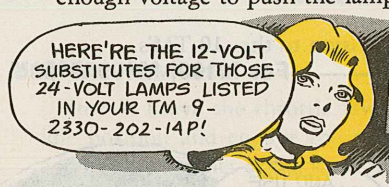
M880 Shock Absorber NSN

Forget the NSN for Item 10, Fig. 73, TM 9-2320-266-20P. Get the front shock absorber for the 4x2 M880-series vehicles with NSN 2540-00-340-0795.

Brighten Your Corner

Dim lights are what you get on your ¾-ton trailer when you're towing with an M880-series 1¼-ton truck—if you're using the standard lamps on your trailer.

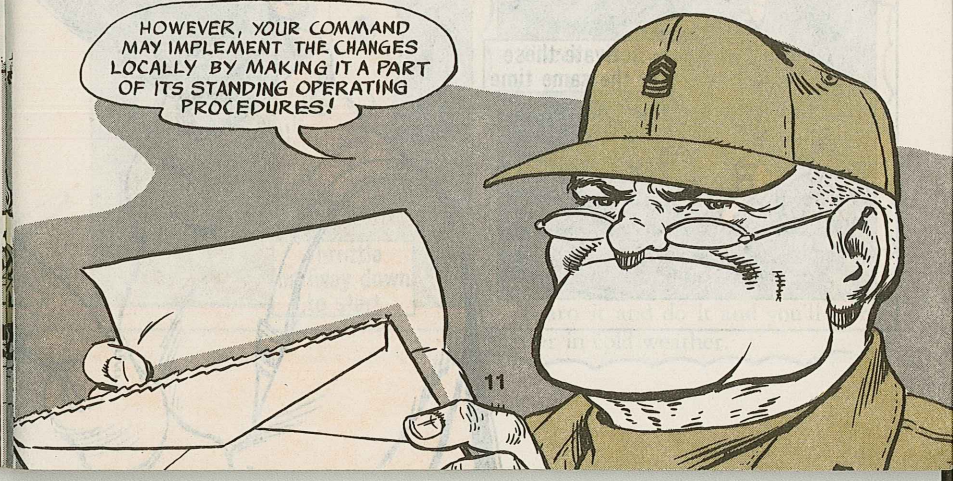
This's because the truck's electrical system feeding the trailer is 12 volts, and the lamps normally used in your trailer are made for 24 volts. There's not enough voltage to push the lamps up to full brightness.



Instead of 24-volt	Use 12-volt
NSN 6240-00-044-6914	NSN 6240-00-617-0991
NSN 6240-00-019-0877	NSN 6240-00-155-8717
NSN 6240-00-019-3093	NSN 6240-00-143-3159

Publication Changes

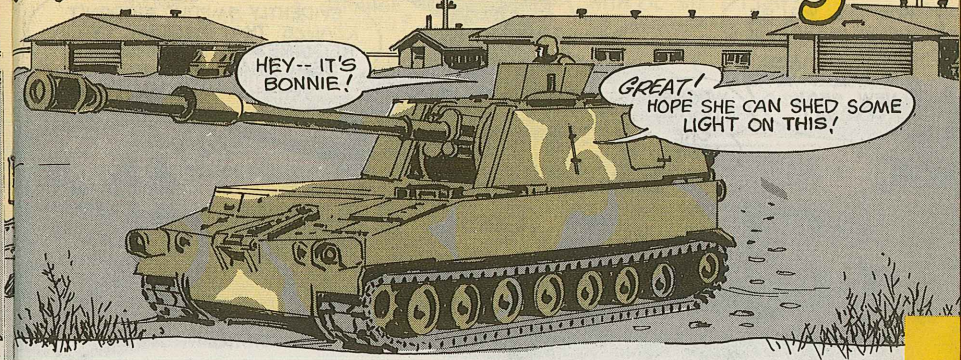
Did you receive a reply to your DA Form 2028, Recommended Changes to Publications and Blank Forms, and it agrees that the pub needs some changing. Don't change anything yet. The information you got is not considered Department of the Army policy until it appears in an Army publication.



FIREPOWER

M109 Howitzer Family...

COLD Weather Starting

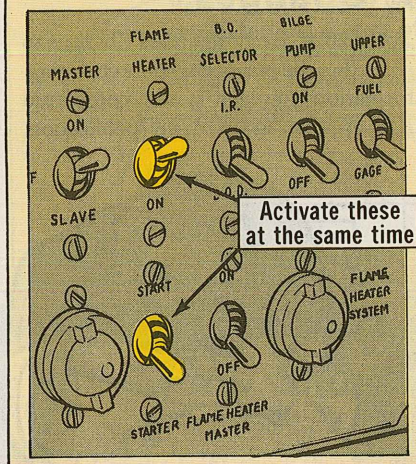


Here's the latest info on cold weather starting. Follow these steps and you'll cut down on preheater pump failures.

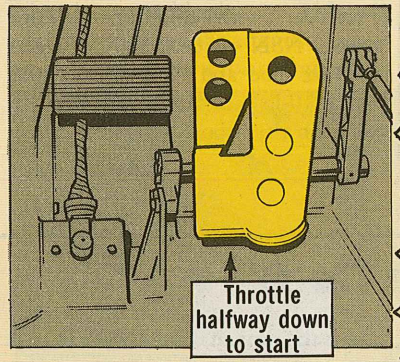
This dope will be in the next change or revision to the -10 TM's.

For M109, M109A1 and M109A3 Howitzers

Turn to page 2-115 of the basic TM 9-2350-217-10N (Dec 78) or its C1 if you have it. Jot a note about this: "Starter switch and cycle flame switch must be activated at the same time."



Step 7. Leave the throttle lever at idle position and engage the starter and heater switches at the same time. Crank the engine while applying heat for about 30 seconds. Now release the heater switch and press the foot throttle down about halfway. If the engine starts, let go of the starter switch.



Step 8. If the engine won't start, keep on cranking with the throttle in the idle position. Cycle the heater as you crank, 10 seconds on and 3 or 4 seconds off until the engine starts. If the engine won't start after 30 seconds of cranking, or if it starts and then stops and won't start again within 10 seconds, stop trying to start it and get help from your unit mechanic.

For M109A2 Crewmen Only

Check out the info on pages 2-194 and 2-195 of TM 9-2350-303-10 (Jul 79). Make a note on the same things the M109, M109A1, M109A3 guys did, and file it with your TM.

The only difference, that Step 7 for them becomes Step 8 for you and what was Step 8 for them becomes Step 9 for you.

Learn it and do it and you'll start better in cold weather.

M48A5/M60-Series Tanks...

Air Cleaner Door Seal

The top-loading air cleaner door must seal. If it won't, your M48A5 or M60-series tanks will suck up a lot of dirt and dust...and there goes your engine!

When you have the air cleaner element out for service, check the door seal. Is it brittle? Does it have tears, cuts or gouges? If so, put in a new seal.

NSN 5330-00-259-0469 gets the seal for the aluminum door; NSN 5330-01-030-6807 is the seal for the steel door. Never substitute. The seals are different sizes.

Use the same adhesive on both seals. Get a 2½-oz can with NSN 8040-00-152-0063 or a 6-oz can with NSN 8040-00-152-0067.

The seal won't stick to the housing if you coat it with a thin film of silicone grease. NSN 6850-00-880-7616 gets an 8-oz tube and 6850-00-295-7685 gets a 10-lb can. Never use GAA. It will ruin the rubber seal.

"Late Co B"

If you have not seen "The Late Co B", now is the time. Ask for MF 21-1152. It shows how a unit loses because of maintenance and supply failure.

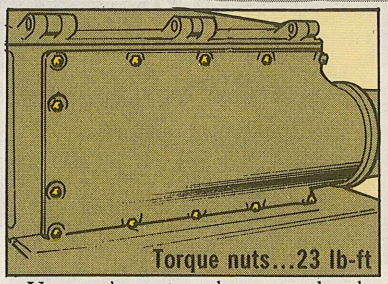
M60-Series Tanks...

Top-Loading Air Cleaner Elbow

Keep an eye on your top-loading air cleaner outlet elbow. The nuts loosen. Dust and dirt get sucked in and will grind up your engine.

Use self-locking nuts. NSN 5310-00-950-0039 gets 'em.

Torque them to 23 lb-ft. Start with the corner nuts on one end of the elbow, then the center nuts, top and bottom, then the corner nuts at the other end of the elbow. Torque the remaining nuts, starting at one end, alternately from top to bottom.



You can't torque the nut under the outlet end of the elbow unless you have the air cleaner off.

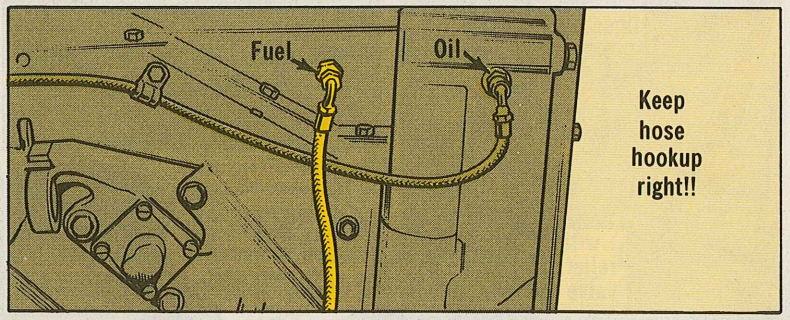
Hose Crisscross

You can cross up the hose hookup on your AVDS 1790-series engine. The right bank oil cooler vent hose can be interchanged with the primary fuel filter constant bleed hose. This will suck the oil out of the engine. And you know what happens to an engine with low oil...it's a goner.

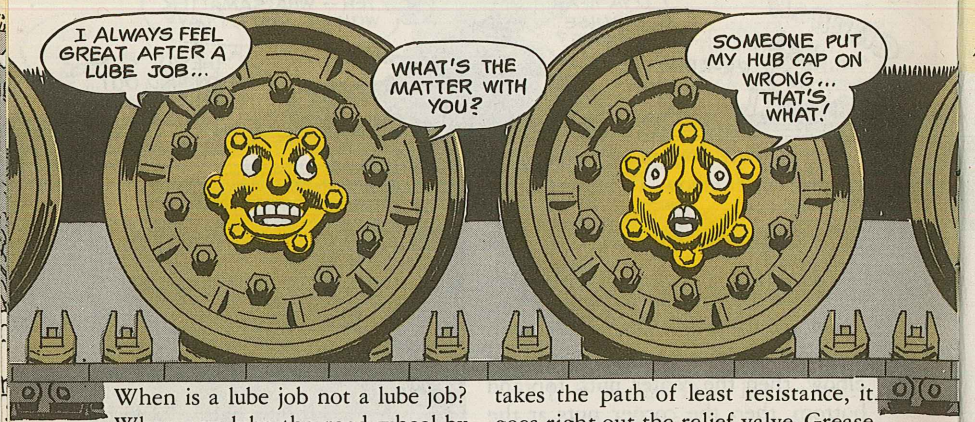
Keep the hose hookup right to keep the engine in your tank.

The hose across the rear of the engine goes to the oil cooler.

The hose coming from the filter goes to the bulkhead fitting.



Road Wheel Lubing



When is a lube job not a lube job?

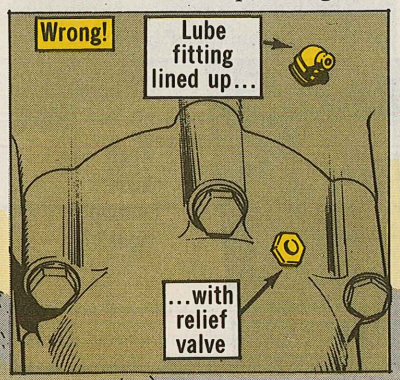
When you lube the road wheel by the LO—pump grease in the lube fitting until it comes out the relief valve—and still end up with a dry bearing!

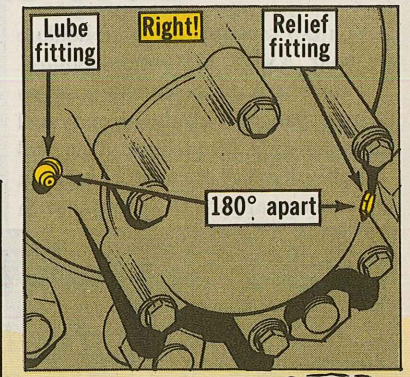
It happens when somebody puts the hub cap on wrong.

The TM doesn't tell you, but the lube fitting and the relief valve must be 180° apart.

Suppose the lube fitting and the relief valve are lined up. Since grease takes the path of least resistance, it goes right out the relief valve. Grease won't fill the bearing cavity. You'll get a dry bearing, it'll get hot and maybe burn out.

To get an all-around lube job, make sure the fittings are 180° apart.





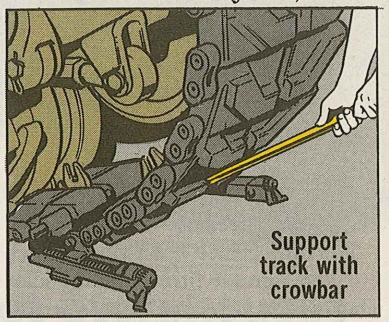
Track Disconnect Correction

Here's a case where doing it by the book can hurt you.

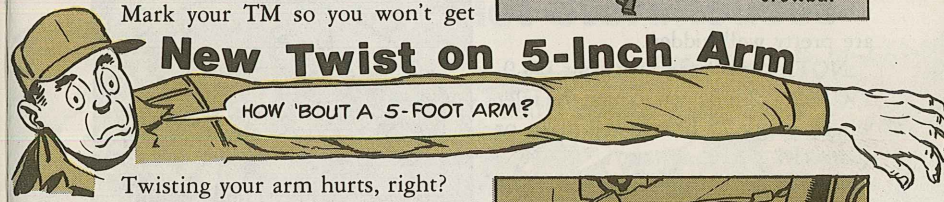
You're in danger if you disconnect track like it says on page 3-34 in TM 9-2350-257-10 (Jun 78). The track could come apart and hurt you.

Steps 9 and 10 are reversed. You've got to have something holding the track together while you remove the center guide. And for safety's sake, support the track with a crowbar when you loosen the track fixtures. Remove the fixtures and lower the track to the ground.

Mark your TM so you won't get hurt. All the other M60 tank -10 TM's have it right. The corrections have been made on pages 3-62 and 3-63 in TM 9-2350-257-10-3 (Jul 80).



New Twist on 5-Inch Arm



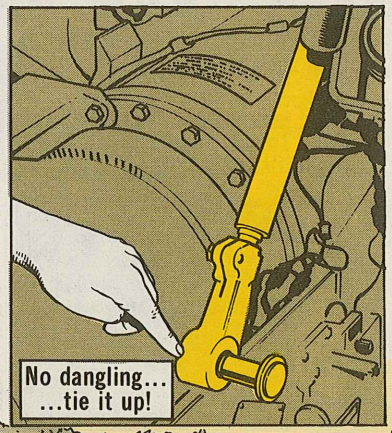
Twisting your arm hurts, right?

Well it also hurts if you twist the 5-in ballistic drive arm in the M60A3.

The ballistic drive arm must be disconnected from the receiver-transmitter when you take out the R/T.

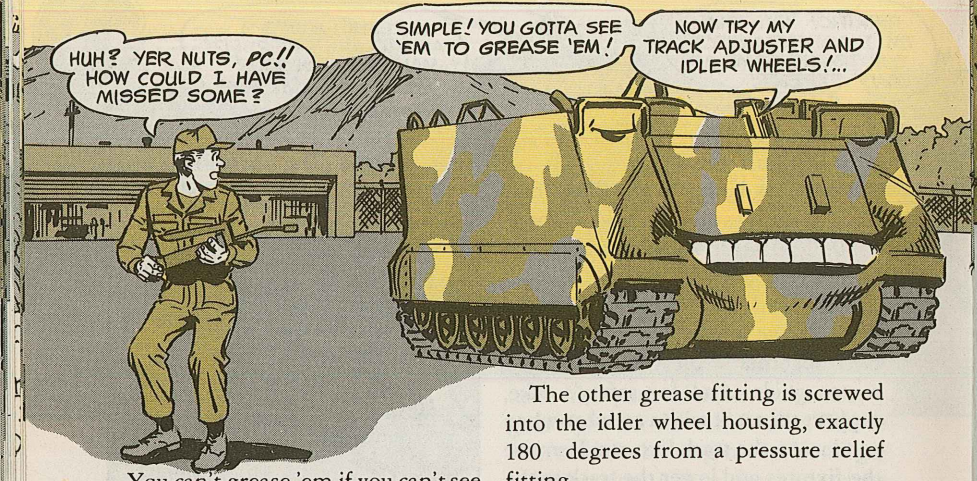
What you, the turret mechanic, must do after you uncouple the ballistic drive, is to tie up the loose end with a piece of string.

If you leave it untied, it will rest on the gun. Then, the first time the crew lowers the gun muzzle, it'll twist the arm.



M113 Family of Vehicles...

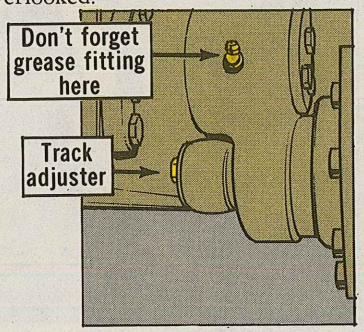
Hidden Grease Fittings



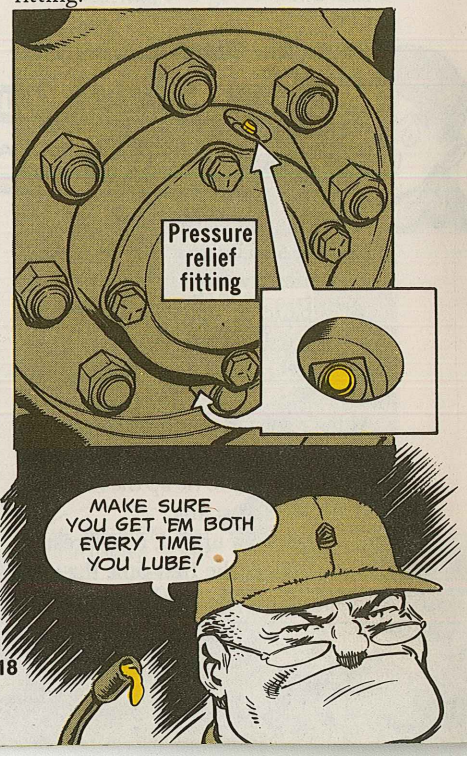
You can't grease 'em if you can't see em, and 2 grease fittings on the idler wheels of M113A1/M113A2 carriers are pretty well hidden.

NOTE 4 on Card 1 of your LO 9-2300-257-12 tells you to lube the idler wheels every 75 hours, 750 miles or quarterly.

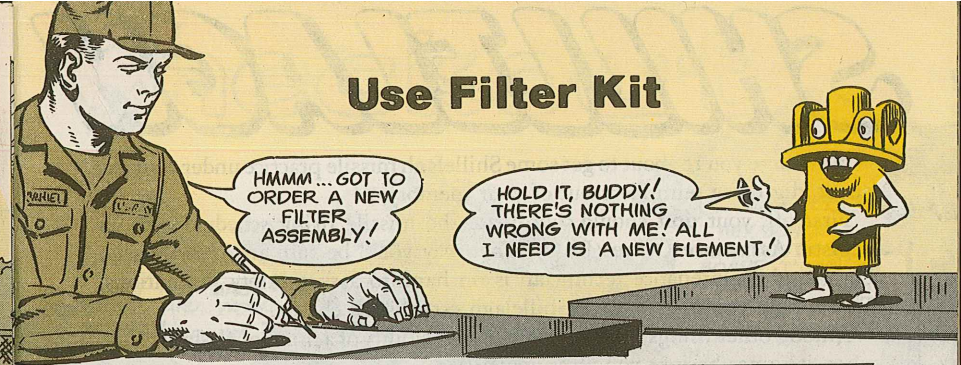
One grease fitting is just above the end of the track adjuster. It is generally covered with mud so it is often overlooked.



The other grease fitting is screwed into the idler wheel housing, exactly 180 degrees from a pressure relief fitting.

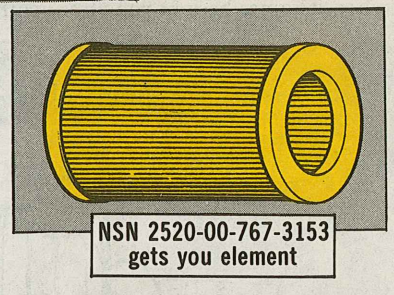


Use Filter Kit

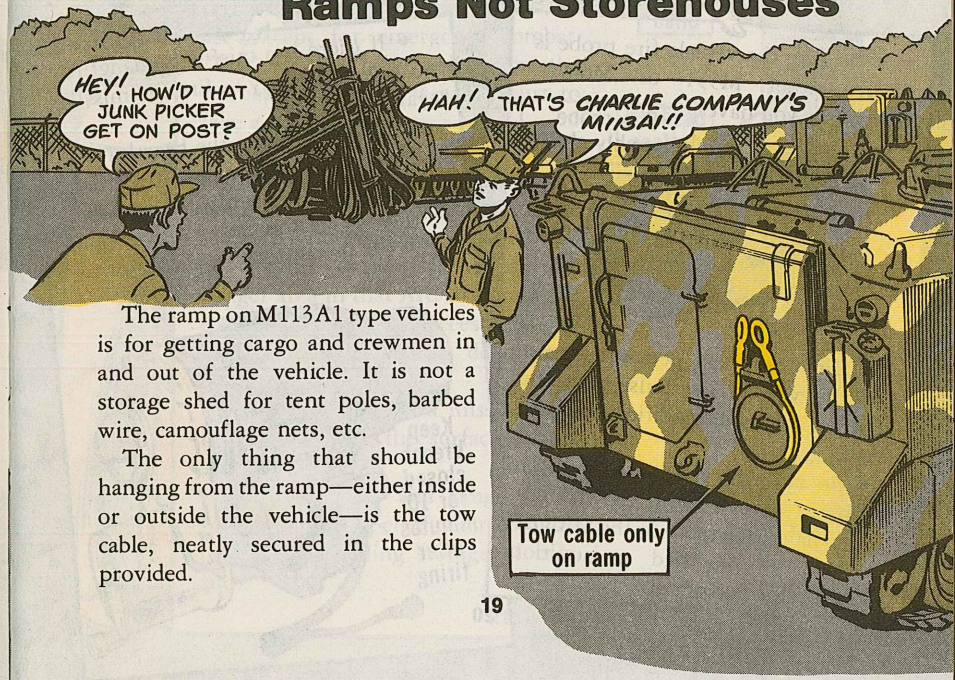


Hey, who's ordering all those differential filter assemblies?

A lot of troops are replacing the whole filter assembly when all they need is the filter element. The element and O-ring come as a kit with NSN 2520-00-767-3153, listed on Page 69 of C3, TM 9-2300-257-20P.



Ramps Not Storehouses



The ramp on M113A1 type vehicles is for getting cargo and crewmen in and out of the vehicle. It is not a storage shed for tent poles, barbed wire, camouflage nets, etc.

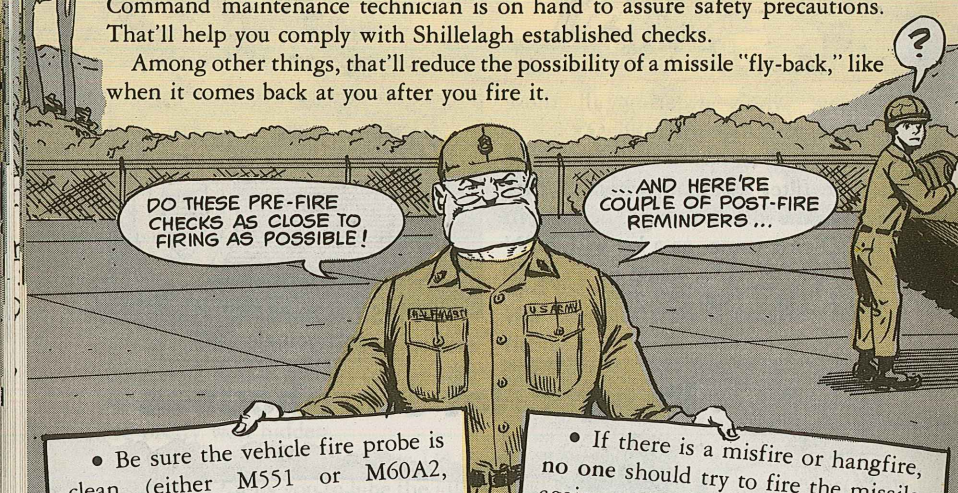
The only thing that should be hanging from the ramp—either inside or outside the vehicle—is the tow cable, neatly secured in the clips provided.

SHILLELAGH

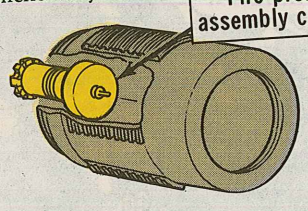
Next time you're about to get some Shillelagh missile practice under your, er, turret, dig these reminders out of your memory.

First off, your unit should coordinate the missile firing schedule with its Logistic Assistance Office (LAO). That way you'll be sure an Army Missile Command maintenance technician is on hand to assure safety precautions. That'll help you comply with Shillelagh established checks.

Among other things, that'll reduce the possibility of a missile "fly-back," like when it comes back at you after you fire it.



• Be sure the vehicle fire probe is clean (either M551 or M60A2, whichever you have).

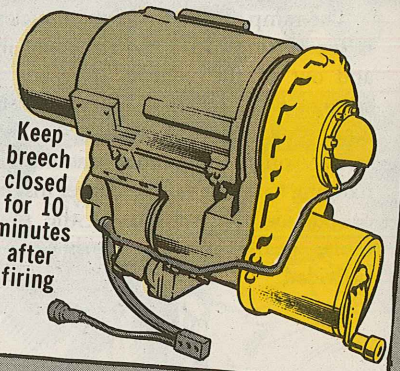


• Direct support personnel must test the vehicle fire pulse with the Missile Command modified aft cover tester.

• Be sure the missile propulsion squib circuit tests (with the TB 101 tester) have been made by the MICOM tech rep or qualified ammunition supply point personnel.

• If there is a misfire or hangfire, no one should try to fire the missile again.

• After a misfire, the breech must stay closed for 10 minutes. After that, only EOD or qualified personnel designated by the range officer may open the breech and troubleshoot.



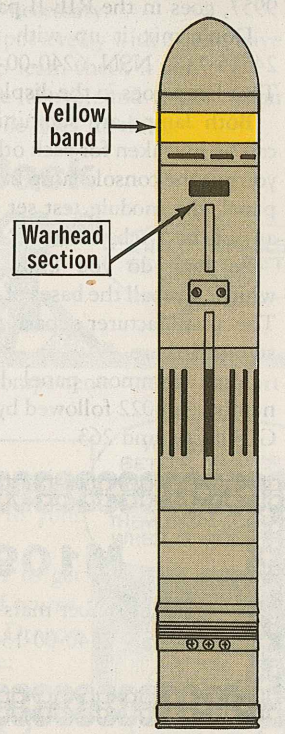
Checkout

Tactical MGM-51 series missiles (HEAT) are suspended from issue or use except for emergency combat. They're color-coded yellow on the warhead section so it won't hurt to take a quick look.

When you fire the MTM-51 practice missile, you must observe the procedures listed above, stick to the safety requirements in AR 385-62, and do a little revision on the surface danger area in that AR. Recommended is an area of 360 degrees, radius of 1500 meters, 30 meters downrange from the point of fire.

Keep personnel and missiles to a minimun within the surface danger area.

Pre-fire checks and range safety precautions are spelled out in MICOM messages, including storage of missiles.



AN/TSQ-73 Lamp Change

When you change a coupla' lamps in components of your AN/TSQ-73 command and control systems, be careful you don't interchange them.

For instance, power indicator lamp P/N 10282545, NSN 6240-00-117-9957, goes in the RIE II panel.

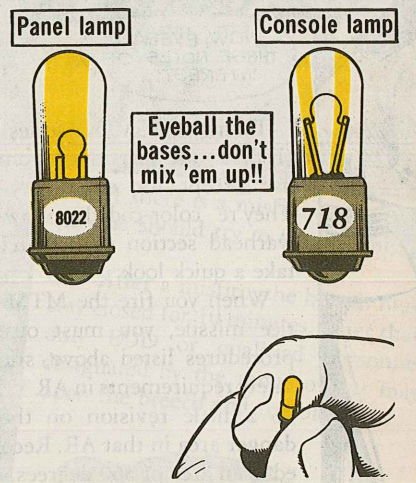
Don't mix it up with lamp, MS 24515-718, NSN 6240-00-764-8237. That lamp goes in the display console.

Both lamps are subminiature and can be mistaken for each other. But, if you put the console lamp in the RIE II panel, the module test set won't test any of the 5 subsystems in that panel.

So how do you know which is which? Eyeball the bases of the lamps. The manufacturer's part number is stamped there.

Most common panel lamp part number is 8022 followed by CM8022, GL808CB3 and 263.

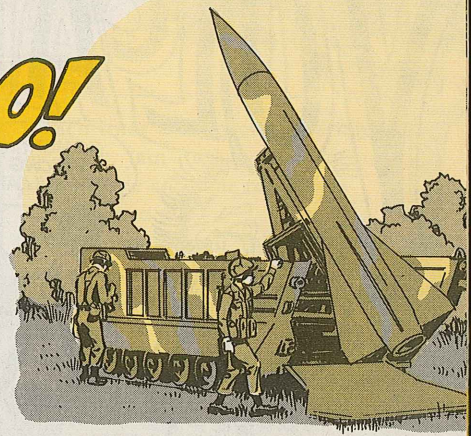
Most common console lamp part number is 718, plus 718C, CM8-718, D175, LA63002-4, W-L-00111/29, 1946012-27, 210165, 2312914, 27, 71BA525 and 4149000-048.



M109 Howitzer Mats

To get rubber mats for the floor of your M109 howitzers, ask for Mat NSN 2540-00-134-4976. Each howitzer needs 2.

Don't Knock the LANCE K20!



A dented K20 fire relay in your LANCE missile system monitor-programmer (MP) can and has caused missile misfires.

So, don't dent 'em!

Maintenance types shouldn't bang, knock or tap the plug-ins to get 'em going. You make dents, and a dent in the relay case can short against its electrical contacts. Your missile won't go.

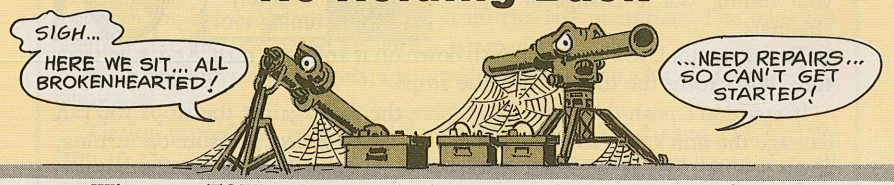
When you remove or install the K20 or other plug-in relays in the MP, do it by hand! If you use cable connector pliers or other tools, you set up a dent.

Do it by hand, with a wiggle, push or pull as necessary.

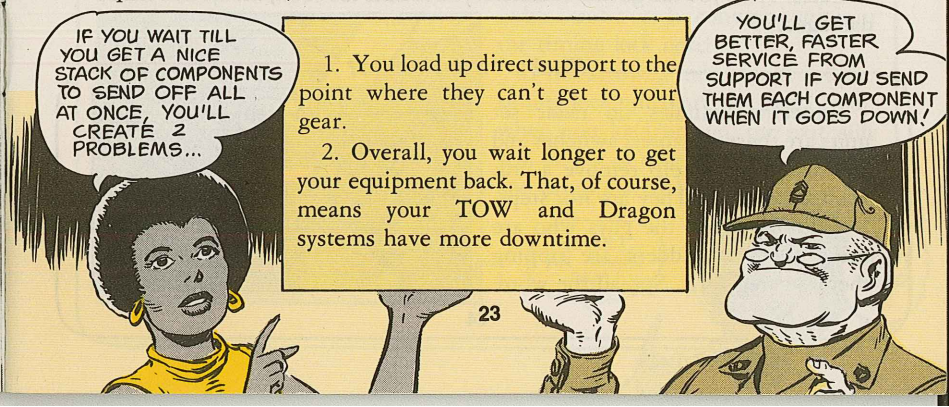
If you spot a relay with a dent, have your LCSS team check it out.

Try the above...and smile when your missile does its thing.

No Holding Back



When your TOW or Dragon missile system components need support repair or checkout, never hold them back.



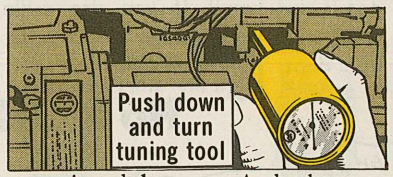
1. You load up direct support to the point where they can't get to your gear.

2. Overall, you wait longer to get your equipment back. That, of course, means your TOW and Dragon systems have more downtime.

VULCAN Radars and Timers

A coupla precautions and adjustments on the AN/VPS-2 radar units of your M163A1 and M167A1 Vulcan systems can keep you radiant...so to speak.

Like, don't take your radar's tuning for granted. Before you use the receiver-transmitter (Unit 2), use your tuning tool to change or adjust channels.



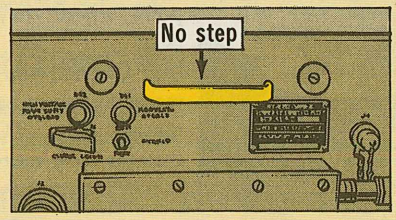
To use the tool, you've got to push down on it and **then** turn. And, when you turn, don't force the tool beyond the stops.

If you don't push down or if you force the tool against the stops you can damage the unit's expensive klystron. So, when you feel pressure on turning, stop.

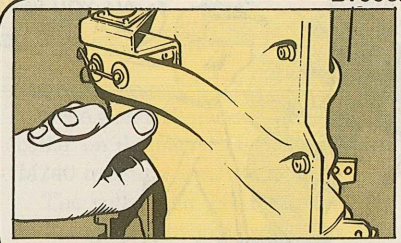
When you're ready to operate let the system warm up, with power on, for 2 minutes. Then you can go into radiate. If you radiate too soon, the system can be damaged.

What's Your Handle?

Protective handles on radar set units are there to protect switches and controls, and to help remove a unit from the system. They **are not** steps. You know it, but the guys who are using them as ladders are ripping them out regularly. Spread the word.



Breech Bolts



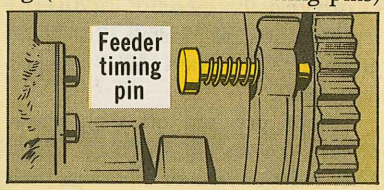
Each rotor track gets 1 breech bolt per track. Jam in 2 by mistake, and you've made a 2-hour repair job.

So what to do?

When you install the bolts, first reach 2 fingers up into the track. If you feel no bolt in place, install away (by TM steps, of course).

Timing

Don't pass up before operation timing (cannon and feeder timing pins)

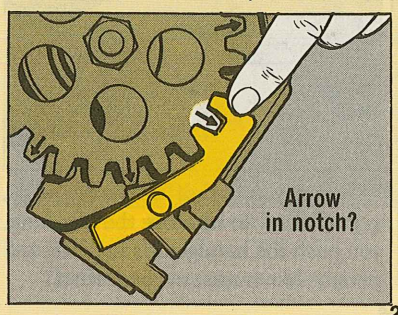


because you think the timing's OK from the last operation. The odds are against you, and you'll end up with a jammed gun.

With the Vulcan A1 models, a jammed gun will mean a lot of extra work to clear it.

Timing procedures are spelled out in TM 9-1005-286-10 and TM 9-2350-300-10. Do 'em...step by step, no shortcuts, no guess work. You'll save work all around.

Reminder: Before you load or unload ammo, be sure that one of the index arrows on the conveyor unit is in the timing lock notch.



If the arrowed index tooth and the timing lock notch are not matched up when you load/unload, the exit unit will be out of time with the conveyor and drum assembly.

M16A1 Handguard Removal

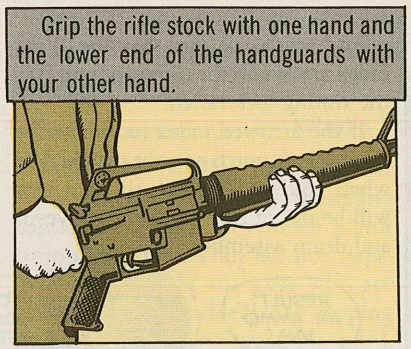
Handguards on your M16A1 rifle get bent, folded and spindled (rolled) from various sources. The replacement rate is high enough to make a billionaire weep.

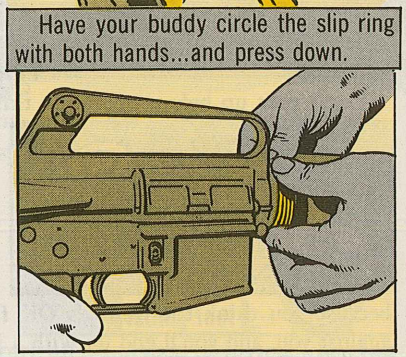
A prime cause for replacement is cracks caused when handguards are removed (for routine maintenance...to install an M203 grenade launcher...for inspection...etc.).

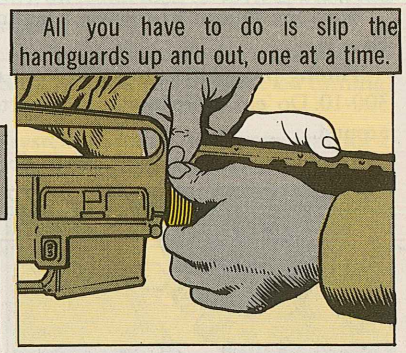
Troops pry 'em off with screwdrivers, knives or anything handy. They twist or yank or otherwise force them. Result, crack!!! Too often, the handguards have to be replaced.

There's an easy way, and it saves a lot of explaining about cracked guards.

To remove the handguards, hail a friend. You'll need him in a minute.

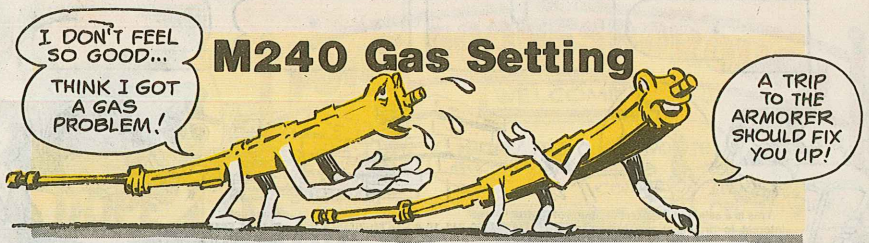






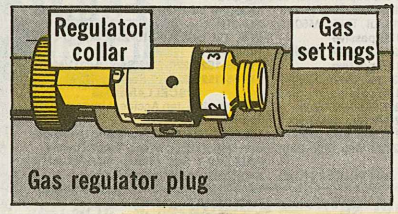
When you install the handguards, get a friend to depress the slip ring, you push the handguards in place, and presto! No cracks, no headaches.

M240 Gas Setting



Been wondering about the regulator collar on the barrel assembly of your M240 machine gun? Read on.

The collar and gas regulator plug lock together to give your gun a 3-position gas setting. It adjusts the gas exhaust to the number of rounds-per-minute you fire. It keeps your rate of fire smooth and even.



The 3 settings are marked on the gas regulator plug. The setting is made by your armorer (with the barrel held in a vise). Here's what each does:

Setting No. 1—Preferred setting.

Setting No. 2 and 3—For adverse conditions, when carbon buildup, cold weather or dust reduce the rate of fire.

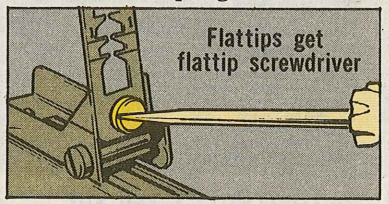
The settings are explained in TM 9-1005-313-20.

M203 Leaf Sight

If you've still got an old-style quadrant sight on your M203 grenade launcher, use a crosstip screwdriver on its crosstip screw.

A flattip screwdriver will bung it up.

The leaf sight (atop the handguard) is even more tempting. It has a mix of



screws, flattip and crosstip, and it's hard to resist using one screwdriver for all.

Resist...and save a repair job. Use the crosstip where you have to.

PUBS

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, DA Pam 310-6 and DA Pam (C) 310-9.

TECHNICAL MANUALS

TM 5-3810-293-14 & P-1 Sep Crane, trk mtd, hyd 25-ton Harnischfeger Mod MT-250

TM 5-4310-369-14 Sep Compressor, GED reciprocating: air: 5-CFM, 175-PSI Melley Energy Sys Mod IS-7.95-5CFM

TM 5-5420-210-20 Jul Transporter, MOFAB Condec Mod 2270

TM 5-6675-312-24P Sep Theodolite T16-75 Deg

TM 9-1010-224-10 Oct Projectile launcher, 64-MM riot control, M234

TM 9-1375-213-12-1 Sep Demolition kit, Cratering: M180, Training: M270

TM 9-1425-1525-10-HR Feb Improved HAWK

TM 9-1450-485-20 Sep Lance carrier, M667

TM 9-2320-209-10-1 Sep 2½-ton multi-fuel truck

TM 9-2320-209-10-4 Sep 2½-ton multi-fuel trucks

TM 9-2320-211-10-1 Sep Multifuel 5-ton trucks

TM 9-2320-211-10-2 Sep Multifuel 5-ton trucks

TM 9-2320-211-10-4 Sep Multifuel 5-ton trucks

TM 9-2320-242-10-2 Sep M561 and M792 1¼-ton vehicles, Gama Goat

TM 9-2320-242-10-3 Sep M561 and M792 1¼-ton vehicles, Gama Goat

TM 9-2320-260-10-3 Aug 5-ton, M809-series trucks

TM 9-2320-260-10-4 Aug 5-ton M809-series trucks

TM 9-2350-222-20-2-1 Sep M728 turret

TM 9-2350-222-20-2-1 Sep M728 turret

TM 9-2350-222-20-2-2-2 Sep M728 turret

TM 9-2350-222-20-2-3-2 Sep M728 turret

C 2, TM 9-2350-253-20-1 Sep M60A3 tank

TM 9-2350-257-10-1 Jul Tank, M60A1 RISE and M60A1 RISE passive

TM 9-2350-257-10-2 Jul Tank, M60A1 RISE and M60A1 RISE passive

TM 9-2350-257-10-3 Jul Tank, M60A1 RISE and M60A1 RISE passive

TM 9-2350-260-20-2-1 Sep M60 tank

TM 9-2350-260-20-2-3-2 Sep M60 tank

TM 9-2350-260-20-2-3 Sep M60 tank

TM 9-2350-260-20-2-3-1 Sep M60 tank turret

TM 10-3930-242-12 Jul Fork lift 6,000-lb RT

TM 10-4930-204-13 Jul Tank and pump unit, trk mtg

TM 11-5840-281-12-1 Sep AN/TPN-18A radar set

TM 11-5840-361-12 Aug AN/TKQ-2B radar data receiving set

TM 11-5895-1048-13 Jul AN/MGC-19A TT operations central

TM 11-6130-412-14 Sep PP-2926D/U battery charger

TM 11-6625-599-20P-1 Sep AN/USM-98A electronic voltmeter

TM 11-6625-2949-14-HR Sep AN/URM-200 radio interference measuring set

C 14, TM 55-1520-210-23-1 Oct UH-1D/H/EH-1H

C 8, TM 55-1510-214-23 Mar RU-21B, RU-21C

C 8, TM 55-1510-215-23-1 Mar U-21G, RU-21H

C 5, TM 55-1510-215-23-2 Mar U-21G, RU-21H

TM 55-1520-220-23-2 Sep UH-1C/M

TM 55-1520-220-10 Sep UH-1C/M

MISCELLANEOUS

DA Form 285 Jan Accident Investigation Report

DA Form 285-1 Aug Accident Investigation Report, 2½-, 5-Ton Truck Brakes

PAM 310-1 Sep (fiche) Index of AR's, pamphlets, posters, circulars

PAM 310-2 Sep (fiche) Index of forms

PAM 310-7 Aug MWO index

C 1, TB 9-380-101-1 Jul Security guide for TOW

AUDIO-VISUAL STUFF

Available at battalion or post Learning Center

TV Tapes, Movies

TVT 6-108 Field artillery digital commo

TF 21-6111 Introduction to northern operations - winter phase

TF 44-6137 Chaparral/Vulcan unit

TVT 44-114 Vulcan battery (SP), prep for air move

TVT 44-117 Chaparral missile loading, resupply

TVT 44-119 Chaparral missile misfire/hangfire, malfunction

TF 46-6119 Profile of an accident—helicopter

TF 46-6204 Aviator's survival vest

TF 46-6205 Inspect cold climate survival kit

TEG Lessons

030-051-6304-F M4T6 fixed span bridge

030-051-6320-F and 6321-F M4T6 float bridge/raft

030-051-6328-F thru 6330-F M4T6 float bridge/raft

030-051-6416-F Ribbon bridge/raft

043-441-5556-F IBCC (improved battery control central) synchro alinement, Part III

043-441-6006-F Vulcan (AN/MWM-3)

043-441-6014-F Vulcan

043-441-6020-F Vulcan

043-441-6022-F Vulcan

043-441-7921-F Chaparral

043-441-7922-F Chaparral

101-113-7102-A Intercom AN/VIC-1

101-113-7106-A AN/GRC-106 radio

101-113-7107-A AN/GRC-106 radio

101-113-7109-A AN/GRC-106 radio

101-113-7111-A AN/GRC-142 RTT

101-113-7113-A AN/GRC-142 RTT

101-113-7114-A AN/GRC-142 RTT

101-113-7121-A AN/GRC-160 and AN/PRC-77 radios

101-113-7151-A AN/VRC-46 radio

101-113-7162-A AN/URM-182

101-113-7167-A AN/GRA-39 radio

102-906-1005-A AN/URM-25F signal gen

102-906-1007-A AN/TNH-20(V) recorder/repro

102-906-1015-A AN/TRQ-25A demultiplexer

102-906-2008-A AN/GLR-9(V) receiver

202-113-5141-A TSEC/KG-27

202-113-5142-J TSEC/KG-27

202-113-5144-A TSEC/KG-27 in AN/TCC-65

250-071-6810-A Inspect small arms and small arms ammunition storage

610-091-6158-F Recover mired tank, Part II

670-091-5253-J Infinity sight wiring circuit, M60-series tanks

931-171-0313-F Zeroing IM-93/UD dosimeter

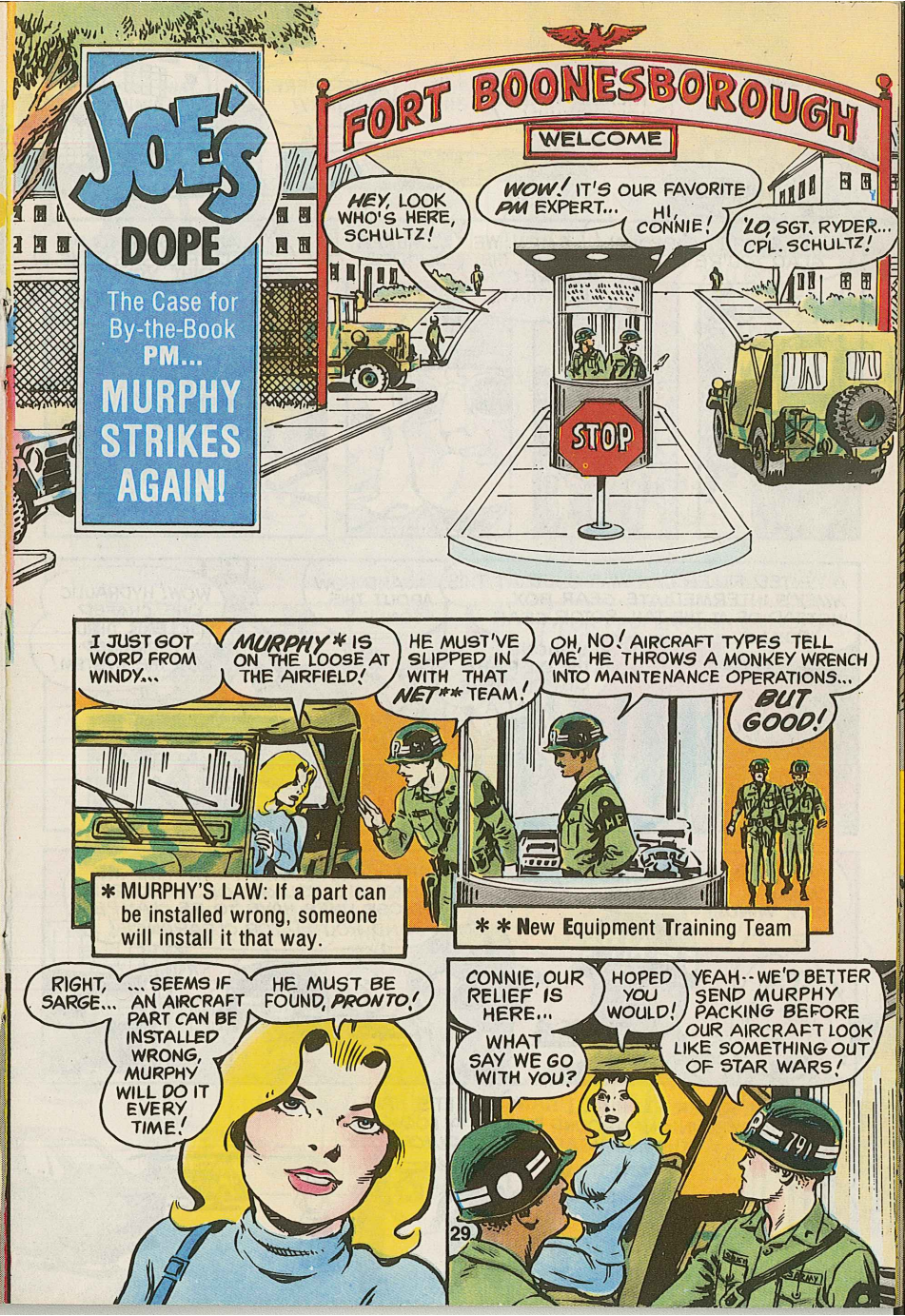
944-171-0107-F Before op checks 5-ton truck, Kit 2

Tree/Pole Gaff Set

To get gaffs for your Tree and Pole Climbers Set, use NSN 4240-00-530-4289. It gets a set of 4 gaffs—2 for climbing trees and 2 for climbing poles.

5, 10-KW Generators

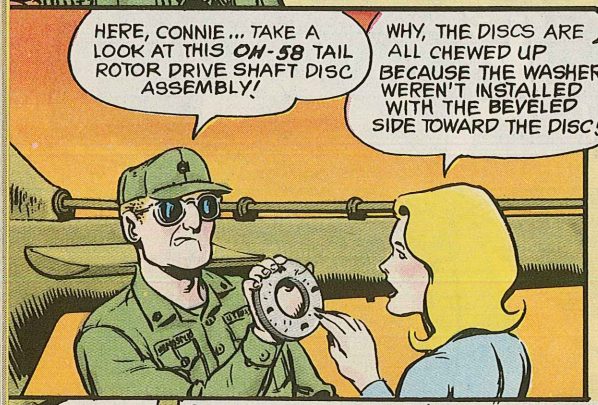
Note this NSN change for your DOD generators supported by TM 5-6115-332-24P (5-KW) and -275-24P (10-KW) manuals. The NSN for the Oil Pressure Indicator is 6620-01-017-8765.

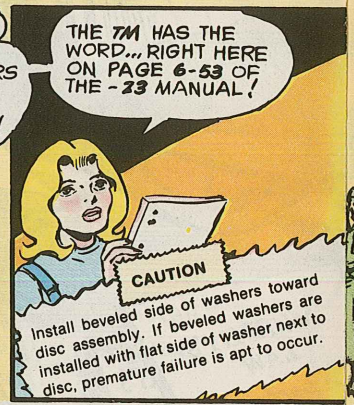



SO, QUICKLY...
THERE'S WINDY NOW, CONNIE!
OVER HERE... HURRY!
H'LO, SARGE... CORPORAL! GLAD YOU'RE HERE!
C'MON! WE NEED ALL THE HELP WE CAN GET! THAT...
...MURPHY IS A SLIPPERY ONE!...
...AN' HE'S UP TO HIS OLD TRICKS, CONNIE...
LOOK!
A VENTED FILLER CAP WAS USED AT THIS HUEY'S INTERMEDIATE GEAR BOX, INSTEAD OF AT THE TAIL ROTOR GEAR BOX!...
SIPHONED THE OIL RIGHT OUT OF THERE... WHAT A MESS!
...AND HOW ABOUT THIS, CONNIE?
WOW! HYDRAULIC LINE CHAFED CLEAR THRU... DRAINED THE SYSTEM!
THAT OIL PUDDLE'S ENOUGH T'MAKE A GROWN MAN CRY, WINDY!
RIGHT, SARGE... WHAT WITH ALL THE VIBRATIONS YOU GET ON A CHOPPER, THOSE LINES HAVE TO BE CLAMPED AND ROUTED FOR CLEARANCE!
?
HEY, SGT. RYDER--I THINK I SAW SOMEBODY SLINKIN' AROUND IN THAT HANGAR!
LET'S HAVE A LOOK-- QUICK!
30
GONE! WE MISSED HIM, CONNIE!
?
YES... BUT HE LEFT HIS MARK...
WINDY, THIS HUEY'S TAIL ROTOR DRIVE SHAFT COUPLING DOESN'T LOOK RIGHT TO ME!
YOU GOT IT, CONNIE... PUT ON BACKWARDS!
Flexible coupling goes forward...
FOR PROPER CUSHIONING, THIS FLEXIBLE COUPLING HAS TO BE LOCATED FORWARD ON THE SHAFT!
TRACKIN' DOWN THIS MURPHY DUDE IS A CHORE, HUH, WINDY?
RIGHT, SARGE!
WELL, TROOPS, THERE'S ONE SURE WAY TO STOP MURPHY...
...AND THIS POSTER SPELLS IT OUT!
31

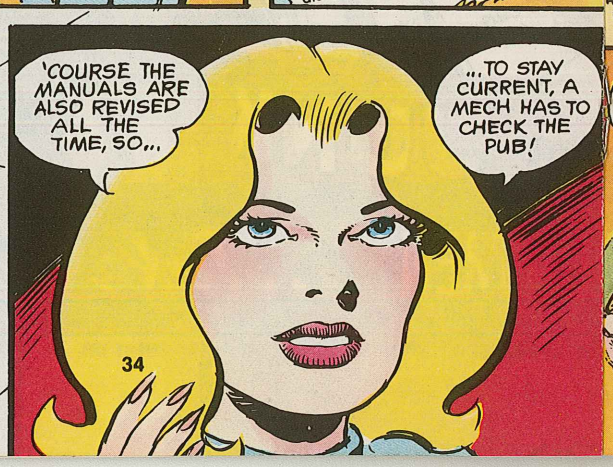

JOE'S Dope Sheet
There's a LAW created by schnooks
That says, "Fit the PART by its LOOKS!"
We must DEBUNK it!
Yes!... and then JUNK it!
Scrap MURPHY'S LAW--Follow your books!
MY PAL!
MURPHY'S LAW
If a part can be installed wrong, someone will install it that way.
MURPHY'S LAW
If a part can
FOD AND OTHER JUNK
WE HAVE THE WORLD'S BEST EQUIPMENT ...Take care of it
IF YOU WANT TO DISPLAY THIS CENTERPIECE ON YOUR BULLETIN BOARD, OPEN STAPLES, LIFT IT OUT AND PIN IT UP.


JUST WHAT KIND OF MECHANIC IS MURPHY, WINDY?
WELL...
.. HE'S THE TYPE WHO KNOWS A JOB BY HEART... DOESN'T NEED TO LOOK AT THE TECH MANUAL...
DOESN'T TH' TM SAY TO USE A TORQUE WRENCH, MURPH?
YA KIDDIN'? NO ENGINEER TYPE WRITING IN HIS IV'RY TOWER KNOWS CHOPPERS LIKE OL' MURPH!


HERE, CONNIE... TAKE A LOOK AT THIS ON-58 TAIL ROTOR DRIVE SHAFT DISC ASSEMBLY!
WHY, THE DISCS ARE ALL CHEWED UP BECAUSE THE WASHERS WEREN'T INSTALLED WITH THE BEVELED SIDE TOWARD THE DISC!


THE TM HAS THE WORD... RIGHT HERE ON PAGE 6-53 OF THE -23 MANUAL!
CAUTION
Install beveled side of washers toward disc assembly. If beveled washers are installed with flat side of washer next to disc, premature failure is apt to occur.


RIGHT, CONNIE... COULDN'T PUT IT ANY PLAINER!

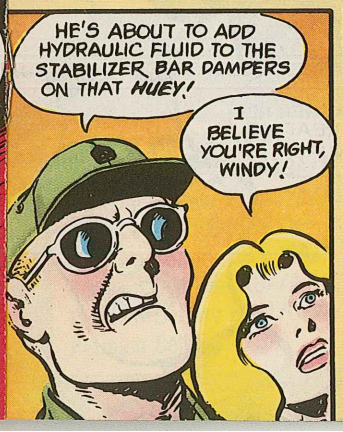

'COURSE THE MANUALS ARE ALSO REVISED ALL THE TIME, SO...
...TO STAY CURRENT, A MECH HAS TO CHECK THE PUB!

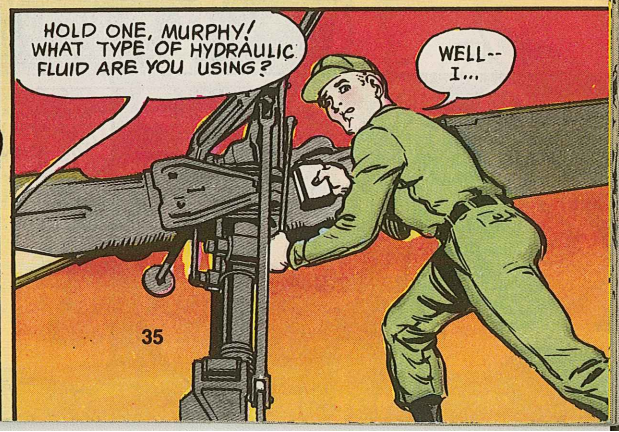

EQUIPMENT ALSO BECOMES MORE COMPLEX ALL THE TIME!
IT'S SO SOPHISTICATED, IT'S IMPOSSIBLE FOR A MECH TO REMEMBER HOW EACH TASK IS DONE RIGHT!


YOU KNOW IT, CONNIE!
THE ONLY WAY TO HEAD OFF A MURPHY IS TO READ THE MANUAL!
SPEAKING OF "HEADING OFF"... DO YOU SEE THAT SHADOW OVER THERE, SARGE?
?
SURE DO, SCHULTZ...


...LET'S MAKE TRACKS...
...CAN'T LET HIM SLIP AWAY AGAIN!
RIGHT ON, SARGE!


FREEZE, SOLDIER!...
YOUR NAME MURPHY?
CONNIE... LOOK!
HOW'D Y' GUESS?

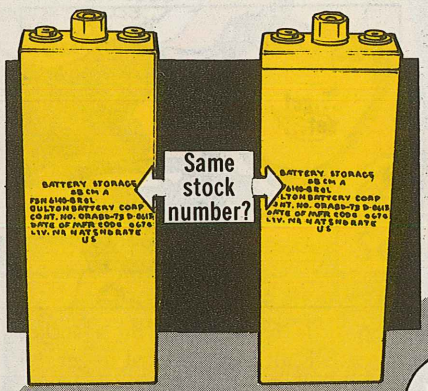

HE'S ABOUT TO ADD HYDRAULIC FLUID TO THE STABILIZER BAR DAMPERS ON THAT HUEY!
I BELIEVE YOU'RE RIGHT, WINDY!


HOLD ONE, MURPHY! WHAT TYPE OF HYDRAULIC FLUID ARE YOU USING?
WELL-- I...

Nickel-Cadmium Batteries... NIX on Cell MIX

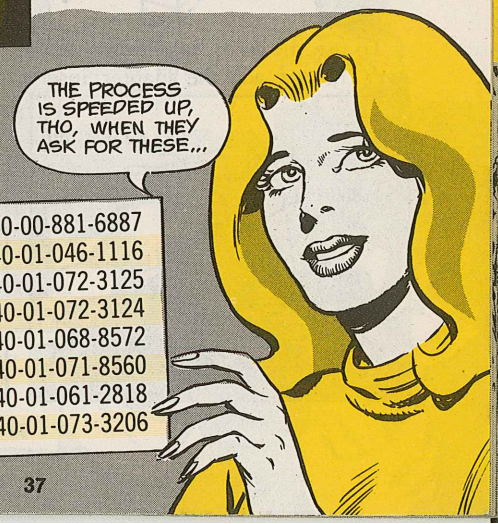
Identical cells for each battery! Keep that in mind if that dude in your aircraft is acting up. The battery may have to go back to the shop.

Never mix Permion and cellophane cells in the same battery. Fact is, only cells made by the same manufacturer should be used and then only when the cell stock numbers are the same.



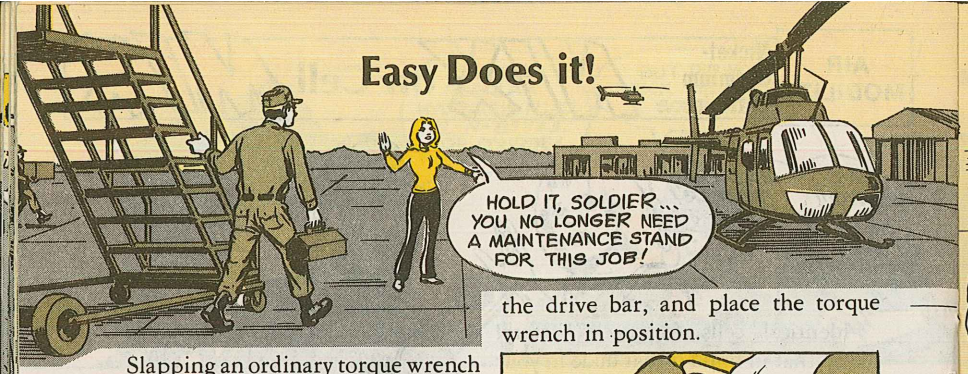
The word's in Para 5-10 of TM 11-6140-203-14-2 on aircraft nickel-cadmium batteries.

It's a chore for shop personnel to sort out cells and come up with 19 identical ones to make up a battery.



Permion Cell BB-600A/A	NSN 6140-00-881-6887
Permion Battery BB-433A/A	NSN 6140-01-046-1116
Permion Battery BB-432A/A	NSN 6140-01-072-3125
Permion Cell BB-599A/A	NSN 6140-01-072-3124
Permion Battery BB-649A/A	NSN 6140-01-068-8572
Permion Cell BB-648A/A	NSN 6140-01-071-8560
Permion Battery BB-476/A	NSN 6140-01-061-2818
Permion Cell BB-475/A	NSN 6140-01-073-3206

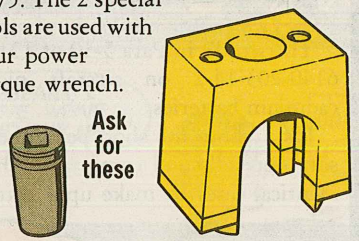
Easy Does it!



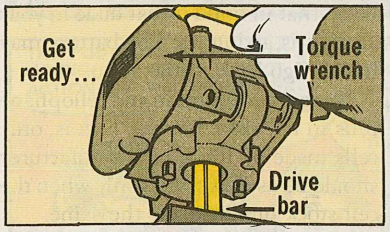
Slapping an ordinary torque wrench and extension bar on the OH-58A/C main rotor mast nut may not give you an accurate torque.

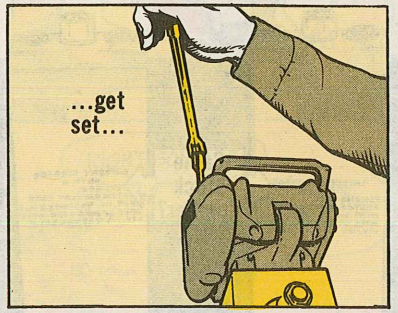
You also have to lug around a maintenance stand to get standing room.

No more! Not when you latch onto a new Adapter NSN 5120-01-098-4541 and Socket NSN 5120-01-098-4475. The 2 special tools are used with your power torque wrench.

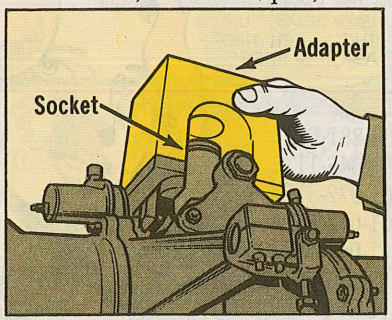


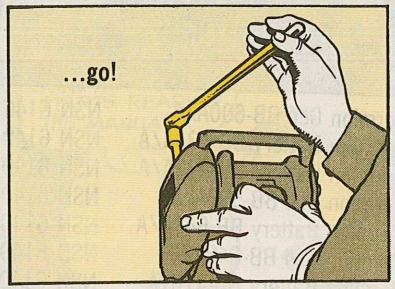
To use the tools, insert the socket over the nut, add the adapter, insert the drive bar, and place the torque wrench in position.





A little hand action on a socket wrench is all that's needed to get the 250-270 lb-ft torque on the nut.





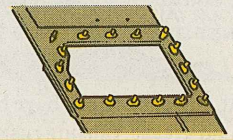
From Screws to Bolts

There're a few places on the OH-58A/C where work space is limited. You can't use enough "umph" on a screwdriver, so the screws get chewed up.

The screws are in the fuel shutoff valve cover, fire wall cone and at the particle separator. The engineers at the big hangar say you can use bolts for easy removal, instead of screws.

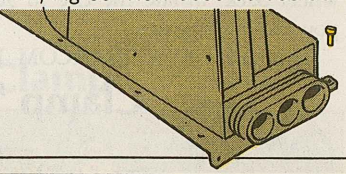
In all but one case, use washer, NSN 5310-00-167-0801, to keep the bolts from bottoming out.

Location in TM 55-1520-228-23P	Screw
Item 6, Fig 26	NSN 5305-00-180-3322



Item 125, Fig 36 NSN 5305-00-180-3322
Item 130, Fig 36 NSN 5305-00-059-3659

Item 12, Fig 55 NSN 5305-00-088-9044



Solution to the 'Gotcha'

Dear Editor,

The hydraulic lines on the Huey and Cobra ground-handling wheels stick out like a sore thumb. And that's exactly what you get when a broken strand on that steel braid sticks out and snags your hand.

To overcome the problem, we disconnected each line and covered the braid with Insulation Sleeving NSN 5970-00-843-1255.

No more cut fingers around here!

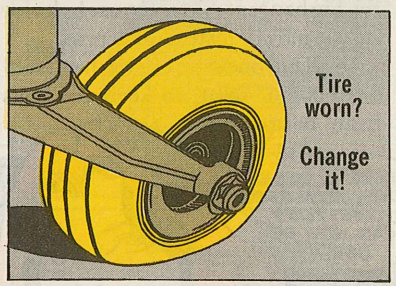
SFC Garfield J. Lavalley
Ft Devens, MA

(Ed Note—Good show! Some units use spiral wrap to reduce the possibility of an injury.)

Black Hawk... Lube the Bearings

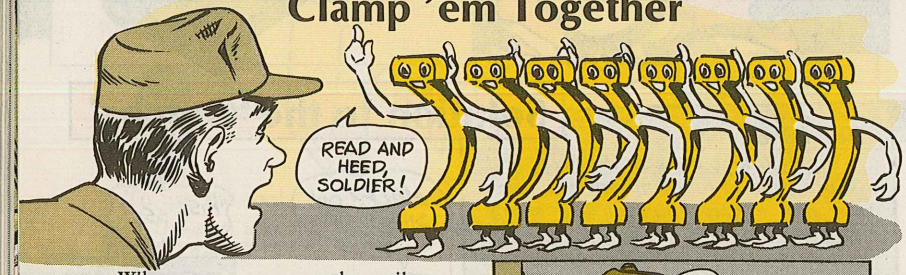
Some tail-wheel bearings have been found with no grease, causing rust and excessive wear. So deflate the tire, remove the wheel and eyeball the works for cracks on the 100-hr special inspection. Repack the bearings.

If the tire is worn to the bottom of a groove at any spot, replace it. If the sidewall is cut beyond 3/32 inch in depth, replace it. After you put the wheel back, inflate the tire to 90-95 pounds air pressure.



This info is in TSARCOM Msg DRSTS-M 301510Z Jul 80.

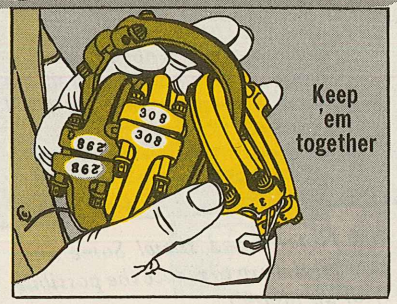
Clamp 'em Together



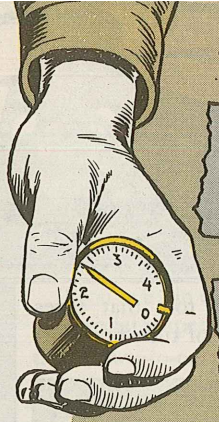
When you remove the tail rotor drive shafts on your Huey or Cobra, you want to keep the 2 numbered coupling clamp halves together because they're a matched set.

You won't upset the apple cart during installation if you bolt the halves together and retain 'em within one clamp.

Try it—you'll like it!

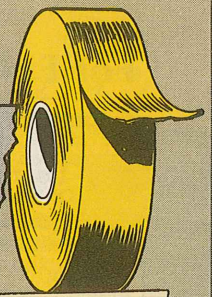


Instrument Tapes



If your search for reflective tape to mark your instruments has been in vain, try the bulk materials section of your aircraft's parts pub.

For the Chinook, for example, page 1653 in TM 55-1520-209-23P lists the following tapes, in 50-yd rolls, ½ inch wide, with adhesive backing:

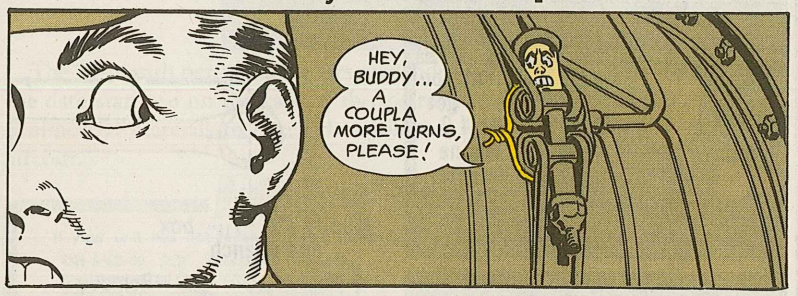


Tape	NSN
Yellow	9390-00-106-2465
Green	9390-00-106-2466
Red	9390-00-106-2467

New Engine Pub

For the latest info on the T-53 engine in your aircraft, reach for TM 55-2840-229-23. It replaces the old TM 55-2840-229-24.

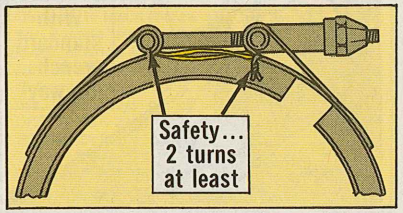
Safety the Clamp!



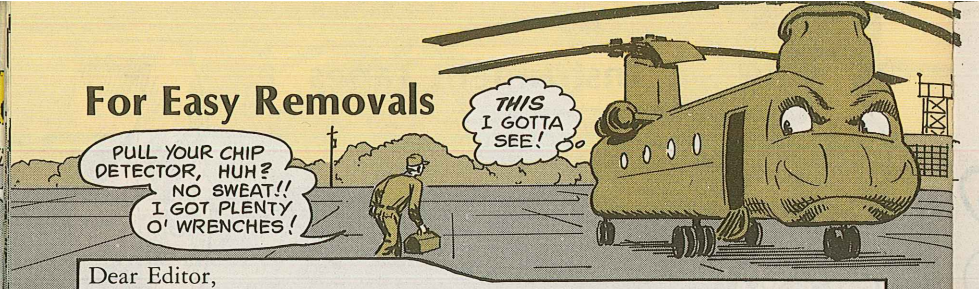
Mechs string lock wire in various ways when securing coupling clamps on aircraft engines and components. Here's the right way:

To prevent separation of a joint, in the event of a T-bolt failure, safety the clamp instead of the nut.

Para 3-178(o), C29(Dec 79) to TM 55-1500-204-25/1, on general practices, says a minimum of 2 turns of the lock wire will do the trick.

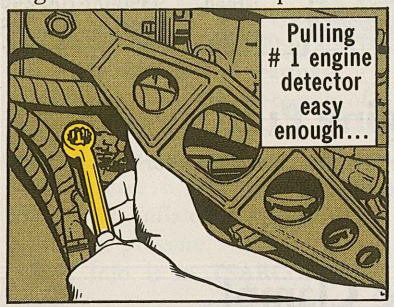


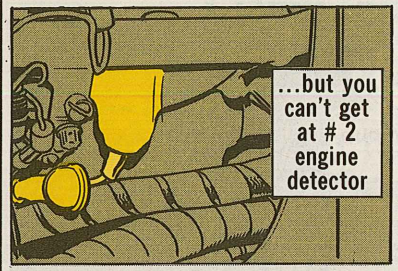
For Easy Removals

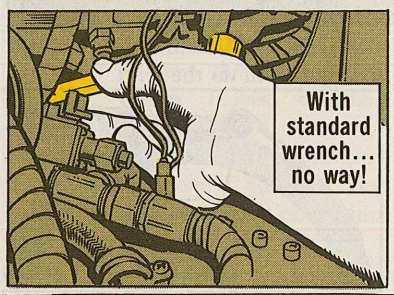


Dear Editor,

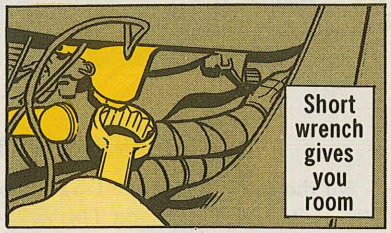
Using a standard wrench on a Chinook engine chip detector is difficult—especially on the No. 2 engine—due to the close quarters.



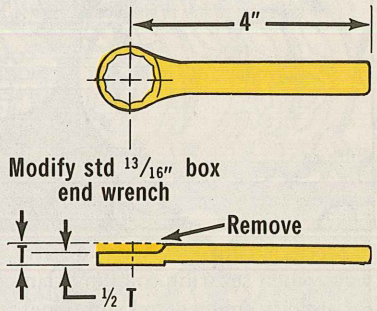




Here's a simple tool that saves about half an hour of time for other PM chores.



Pulling the chip detector is a breeze when you latch onto a $^{13}/_{16}$-in box-end wrench from salvage and modify it like so:

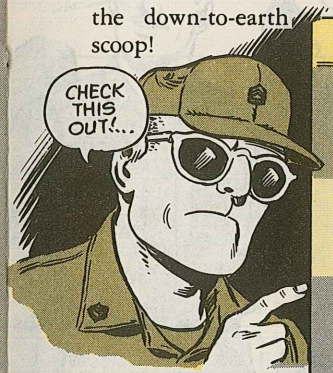


SSG Robert J. Davis
25th Avn Co
APO New York

(Ed Note—Looks like a real time saver.)

Dial Information

If you're up in the air about maintaining aircraft instruments as called for in the special inspection section of your aircraft maintenance manual, here's the down-to-earth scoop!



System/Component	24-Month Period
Pitot Static System	Inspect and test on board, using procedures in TM 55-1500-204-25/1
Airspeed Indicator	Inspect and test on board, using procedures in TM 55-1500-204-25/1
Altimeter	Remove from aircraft for inspection and test in support instrument shop, using procedures in TM 55-1500-204-25/1

The 24-month period on the airspeed indicator and altimeter is figured from the date stamped on the case of the instrument (shelf time counts). Use the commercial manuals to check the altimeter in T-41, T-42A, U-3 and U-10 aircraft.

Aviation Messages

If your unit has not received these messages, check with your next higher headquarters.

OH-6-80-06 SOF Technical: Inspect, treatment of all OH-6, OH-58A/C governors and fuel controls on T63-A5A, T63-A-700, T63-A-720 engines, TB 55-2840-255-20-1 DRSTS-MEA 232200Z Oct 80

OH-58-80-09 Maint Notice: OH-58A jet assy bleed valve removal DRSTS-MEA 141515Z Oct 80

OH-58-80-10 SOF Technical: Inspect, treatment of all OH-6, OH-58A/C governors and fuel controls on T63-A5A, T63-A-700, T63-A-720 engines, TB 55-2840-255-20-1 DRSTS-MEA 232200Z Oct 80

CH-47-80-11 SOF Technical: RCS CSGLD-1860. Inspect all CH-47A B/C stick-boost dual actuating cylinders, P/N 114H5600-16, TB 55-1520-241-20-12 DRSTS-MEA 242010Z Oct 80

OV-1-80-09 SOF Technical: Inspect all OV-1D/RV-1D-series nose gear assys for cracking, TB 55-1510-213-30-2 DRSTS-MEA 012150Z Oct 80

OV-1-80-10 Maint Notice: MK-J5D ejection escape sys OV-1/RV-1 DRSTS - MAPL 271515Z Oct 80

GEN-80-25 Maint Notice: Proper maint and use of proper tools when installing flex hose assys on all Army aircraft DRSTS-MEA 021605Z Oct 80

GEN-80-26 SOF Operational: Ref AR 95-18, RCS CSGLD-1860, MS dispersing sys DRSTS-MEA 211530Z Oct 80

COMMO

AS-1729 Antenna... Sow PM, and You'll Receive

You send, they receive. They send, you receive. Nothing could be simpler. Unless....

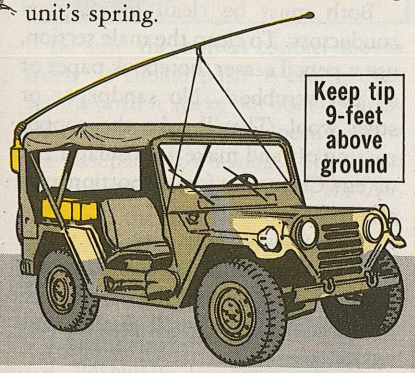
Unless something in that network of cables, connectors, antenna sections and matching units goes haywire.

SINCE MAKING SURE THINGS STAY SIMPLE IS YOUR GOAL...HERE'RE SOME THINGS YOU SHOULD KEEP AN EYE ON...

From the Top

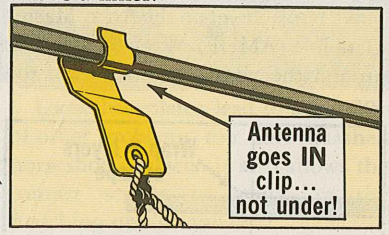
Taking care of your whip may be your hardest job. It bounces off trees, wires and anything else that gets in the way. Protecting it means having it tied down before you move your vehicle.

It also means tying it down right. Like on an M151 truck, keep the tip at least 9 feet off the ground. That eases the strain on the MX-6707 matching unit's spring.



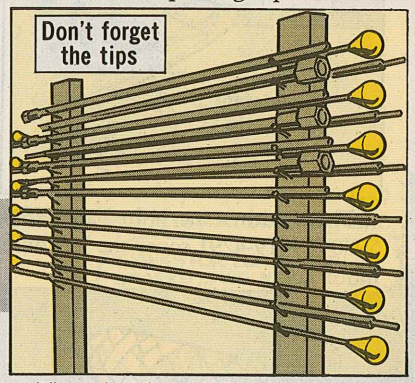
It means tying it down with the kit called for in your pubs—not anything that's handy. A piece of wire, for example. Bad idea. The wire completes a circuit back to the vehicle.

A proper tiedown also means putting the AT-1095 antenna element into—not under—the tiedown clip. Putting it under the clip keeps it from popping free when it hits a branch. That's a killer.



'Course, if you do crack or break an antenna section, replace it. A short antenna won't match the transmitter. That leads to reflected power which returns to the transmitter and can damage it.

While you're protecting your antenna, protect your buddy, too. Do it with a whip tip. Tip Assembly NSN 5820-00-437-2353 will keep the sharp antenna from spearing a pedestrian.

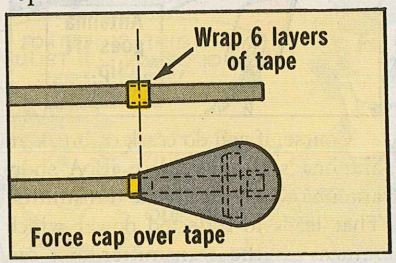


That shrink tubing tip coming on some new sections doesn't substitute for a cap, either.

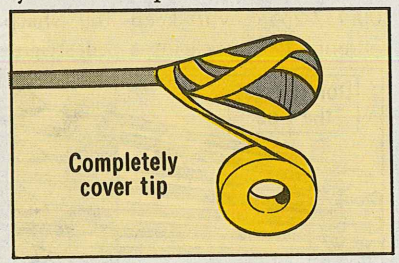
PS MORE

The top shop is still wrestling with a goofproof way to keep the ball firmly anchored to the whip. Until they do, they offer the following tape fix.

Latch on to some ½-in Tape NSN 7510-00-290-8034. The number's good, but isn't yet on the Army Master Data File (AMDF). Wrap 6 layers of it around the whip, 2 inches from the top.

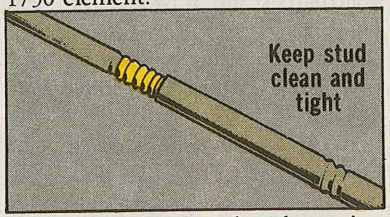


Now, force the cap over the tape. With the same tape, starting just below the first band of tape, completely cover the tip.



Then, with some ¾-in Tape NSN 5970-00-419-4291 cover the ball once more.

Taking care of the sections means making sure good contact is made. One trouble spot is the threaded copper stud at the bottom of the AT-1095 and the mating section in the AS-1730 element.

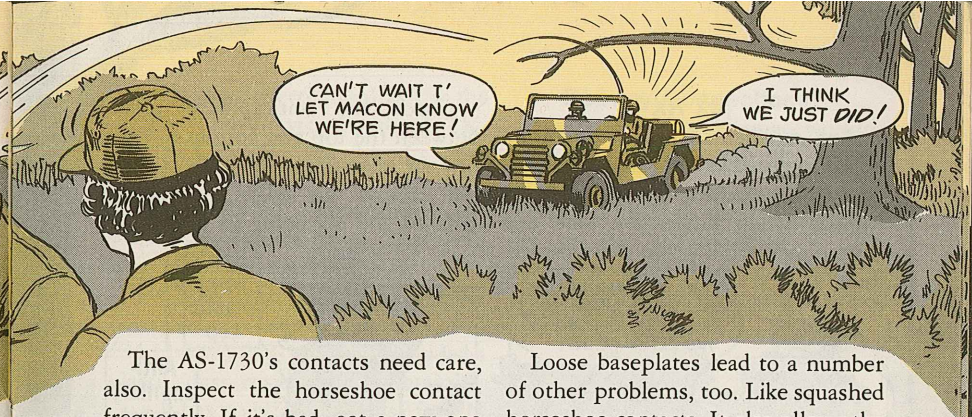


If either is loose, replace the section.

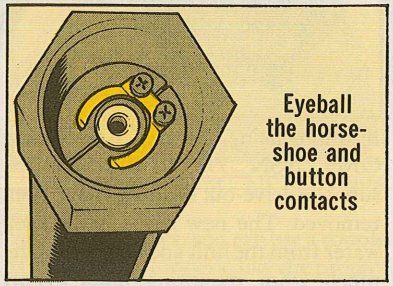
Both must be clean to be good conductors. To clean the male section, use a pencil eraser, notebook paper or a "pot scrubber". No sandpaper or steel wool. They'll take the copper coating off and make an insulator out of 'em. Clean your female portion with a bore brush.

Once they're clean, coat 'em thinly with silicone. Don't try any old grease you find lying around the motor pool. Chances are good you'll just insulate again.

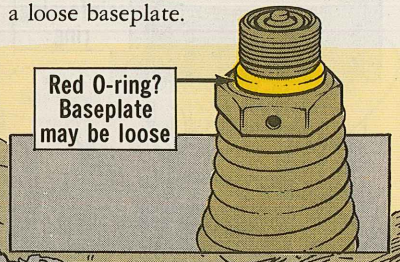
That coating improves the electrical connection and heads off elements freezing together. Another trick is to snug up the sections—then loosen 'em one turn a little.



The AS-1730's contacts need care, also. Inspect the horseshoe contact frequently. If it's bad, get a new one with NSN 5999-00-921-0630. The screws are NSN 5305-00-054-5635.



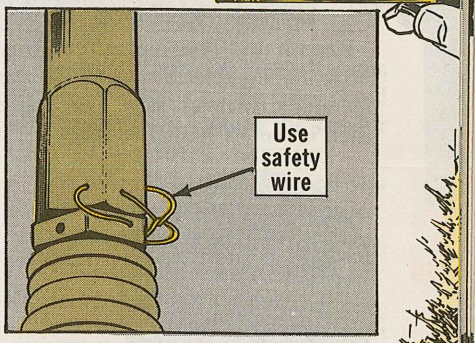
Be sure the button contact moves freely. It should push in easily, then return until it sticks out about ⅛ inch from the baseplate. If it doesn't, screw the baseplate down snugly. If you can see the red O-ring between the AS-1730 and the matching unit when the antenna is installed, you probably have a loose baseplate.



Loose baseplates lead to a number of other problems, too. Like squashed horseshoe contacts. It also allows the contact screws to grind on the matching unit's contact.

Finally, the AS-1730 element rocks on the spring and ruins the threads on the element and the MX-6707.

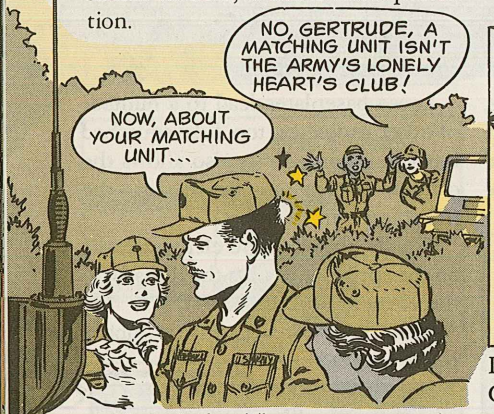
Clean both contacts with a rubber pencil eraser.



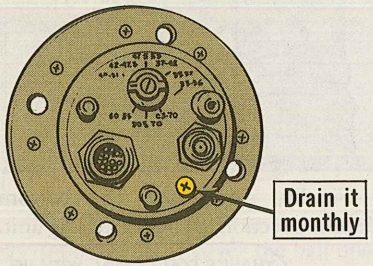
Finally, safety-wire the bottom antenna section to your matching unit.

MX RX

The middleman in this operation needs a special looking after. Since the MX-6707 matching unit stays on the vehicle when others are safe and secure indoors, it needs extra protection.



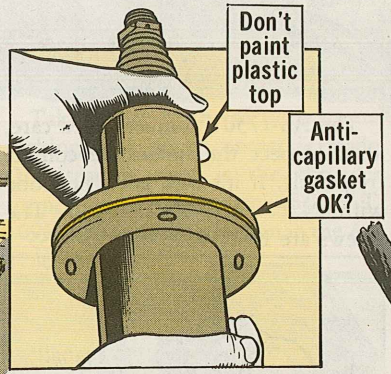
Keep it dry. That means removing the drain plug at least monthly like the operator's manual says, but more often in wet or humid weather.



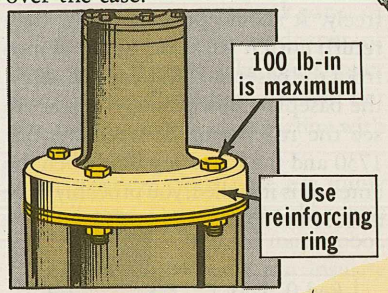
If you get water each time you drain it, chances are you've got a bad MX-6707. Turn it in.

You keep creeping corrosion from zapping your unit in a couple of other ways, too.

Check the anticapillary gasket between the top and bottom sections of your matching unit. If it's sticking out around the edges, it may be crushed and not doing its job.



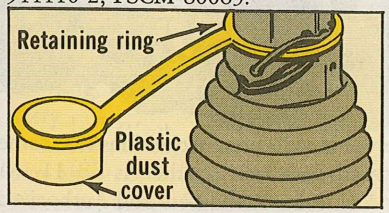
If you're using the new Reinforcing Cover NSN 5985-01-012-5425, be sure the drive-out bushings have been removed. The new cover helps keep water from the unit and distributes the pinch from mounting bolts evenly over the case.



Now, about overtightening. Use the torque wrench in your org shop's TK-101 tool kit for the job. Its max reading—100 lb-in—does the trick.

Finally, lay off your commo gear with high-pressure hoses. That'll fill your MX with water for sure.

To keep your unit's top contact clean and dry, keep it covered. C 6 to TM 11-5895-262-15 (Mar 69) added a plastic dust cover with a retaining ring. It has no NSN yet, so ask for PN 911110-2, FSCM 80063.



Mark your request "LB"—no substitutions.

Until it arrives, you can use a couple of homemade toppers, like the protective cups from M203 grenades or aerosol can lids. A pair of Dust Caps NSN 5340-00-342-5577 or 5340-00-811-5959 will also do.

In a pinch, use masking tape to cover the contact. When you take it off, be sure to rub an eraser over the contact to remove the sticky stuff.

Got any Connections?

Keeping that middleman working means taking care of the plugs on the base, too.

They're hard to see and harder to get at, but roughhousing a cable connector onto them will bend or break pins and put you out of business.

Before doing any hooking up, be sure your radio equipment is off. Arcing and burned pins are likely if you don't.

To make it easy on yourself, hook the big cable up first. That should head off damage from rubbing the smaller CX-1773 into the J2 connector.

Match keyways and keys and you should have problem-free hookups.

To protect plugs when not in use, cap 'em. The J2 cover is NSN 5985-01-091-0655.

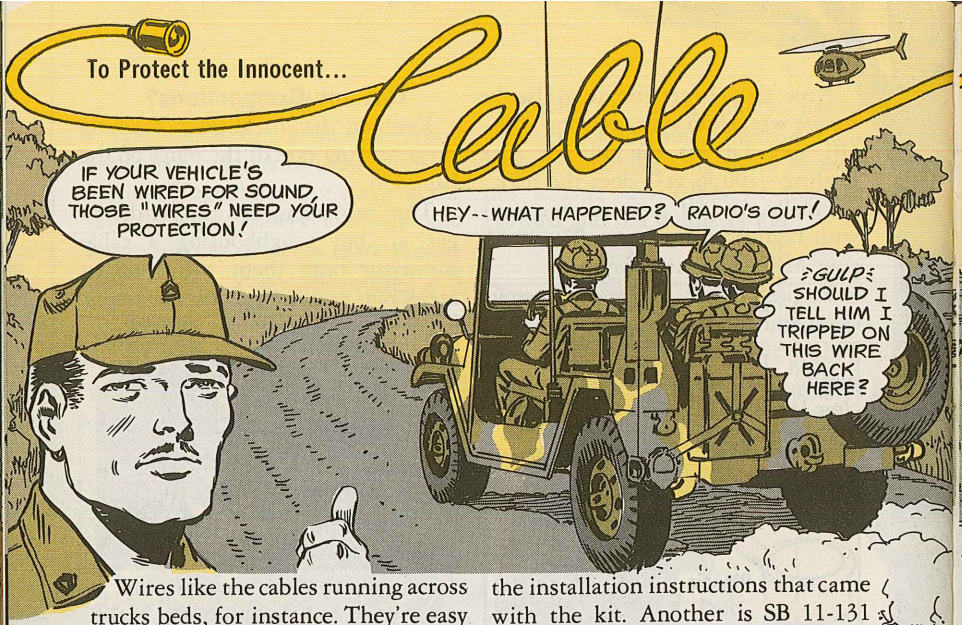
If you want to be sure you're hooked up right and both cable connectors are seated, turn on your radio set. Switch the receiver-transmitter from A to B band. You'll hear the matching unit switching.

Always hook the cables up before you turn on the set, tho. Likewise, don't disconnect cables with the power on. Same burned-up plugs or connectors are likely.

PS END

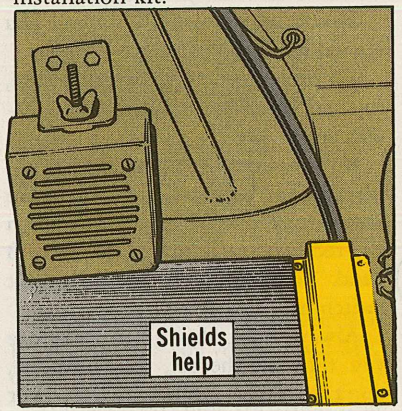
To Protect the Innocent...

Cable Coverup



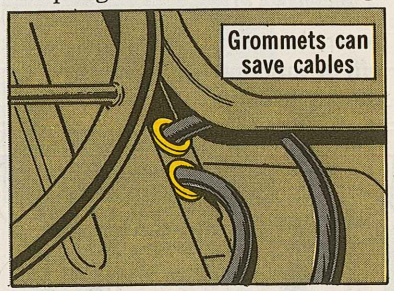
Wires like the cables running across trucks beds, for instance. They're easy prey for boots, boxes, seats...you name it, it'll probably kill a cable.

Your weapon against these killers is a coverup. Cover cables with the shields and guards that come with the installation kit.



If yours are missing, you find replacements in several places. One is the installation instructions that came with the kit. Another is SB 11-131 Vehicular Radio Sets and Authorized Installations. The component listings should have 'em. Another likely place is the kit's TM. If it has one, it's in the TM 11-2300-series. Eyeball DA Pam 310-4.

Another cable saver is the common grommet. This little animal covers sharp edges around holes cut through

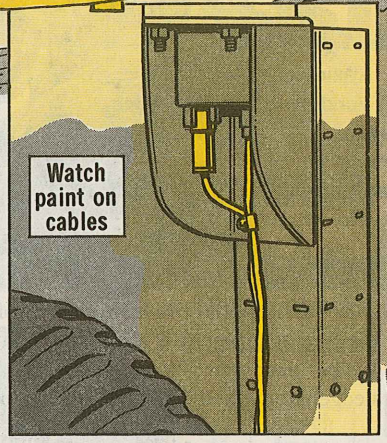


sidewalls to let cables through. Those sharp edges cut rubber and kill cables, too.

One coverup to avoid, tho, is paint. It ages and cracks rubber insulation. You wouldn't paint cables, of course—or the MX-6707 matching unit's plastic top—but your support might.

If you can't pull all those cables out before sending your vehicle in for painting, mask 'em. Better safe than sorry.

'Course, if they do get painted, leave 'em alone. Splashing 'em with paint remover, brake fluid or some other petroleum-based cleaner does more harm than good.



Painted rubber won't fall apart before your eyes, for sure. Still, watch for signs of cracking or deterioration.

M880 Installation Kits

Dear Macon,
We can't seem to track down the individual parts for the installation kits that mount radios in our M882 or M892 trucks.
Are there manuals out for 'em yet?
MSG C. O.

Dear MSG C.O.,
Just. Here's the rundown:

Radio	TM
AN/VRC-49	11-2300-459-14&P-1
AN/GRC-106	11-2300-459-14&P-2
AN/VRC-12	11-2300-459-14&P-3
AN/VRC-47	11-2300-459-14&P-4
AN/VRC-46	11-2300-459-14&P-5
AN/VRC-24	11-2300-459-14&P-6
AN/VRC-43	11-2300-459-14&P-7

TROOP SUPPORT

Removing Large Tires...

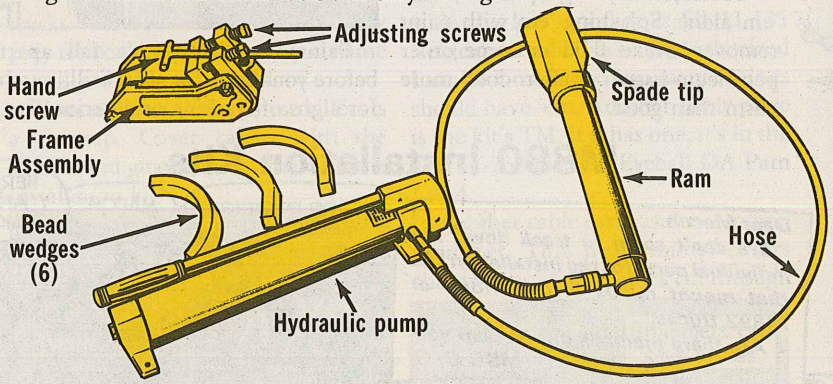
Quick 'n' Easy

Applies to: RT Forklifts, Cranes, Tractors, Earth movers, etc.

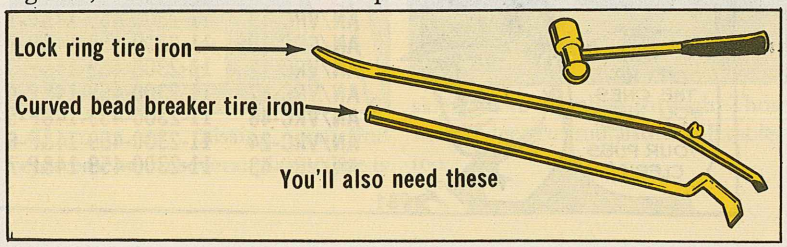
WHAT A JOB!

Removing a flat tire from the rim of RT forklifts, cranes or similar large off-the-road equipment is a cardiac cramper.

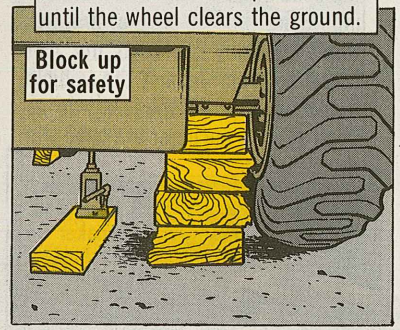
The hard part is breaking the bead. Troops use forklifts, pickaxes, sledgehammers and other tools but only damage the tires.



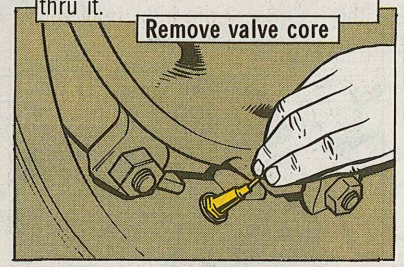
A portable, hydraulic bead breaker—NSN 4910-00-773-9341—makes demounting tire sizes 14.00 x 24 thru 37.50 x 33 easy, safe and quick—whether the wheel is on or off the axle. One man can use the tool to break beads on these big tires, but it's better when 2 troops use it.



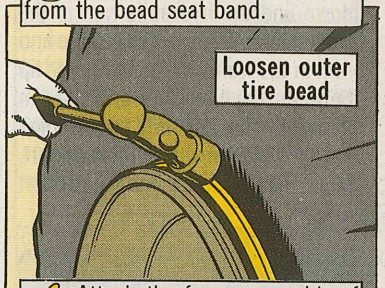
1 First, if the wheel is on the axle, block all wheels except the one you're working on. Use the 12-ton jack from the No. 1 Common shop set under the axle. Jack up the vehicle until the wheel clears the ground.



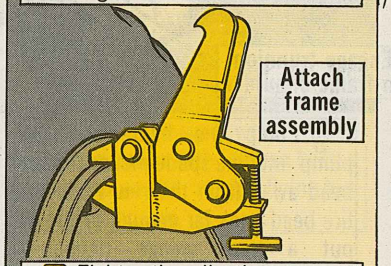
2 Let all air out of the tire. Take out the valve core. If the tire seems to go down slow, could be the stem is clogged with dirt or ice. Free the air passage by running a piece of wire thru it.



3 Loosen the outer tire bead from the bead seat band.



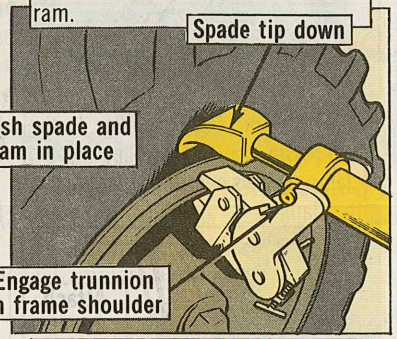
4 Attach the frame assembly of the hydraulic bead breaker to the outer rim flange by slipping the clamping jaws over the outer edge of the flange.



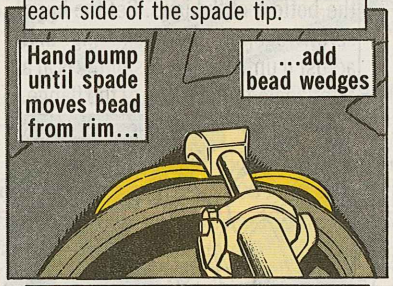
5 Tighten the adjusting screws at the bottom of the jaws. Set the hand screw against the lock ring and adjust it until the jaw assembly is at a right angle to the plane of the flange.

PS MORE

6 With the spade tip pointing down and the hydraulic ram in the retracted position, put the spade and ram in the frame. Place the spade tip between the tire bead and the rim flange. Lift the ram until the trunnion engages the frame shoulder support. Move the stop screw into the support ram.



7 Pump the hydraulic hand pump until the spade moves the tire bead away from the rim. Push the tire bead back far enough to let you put a bead wedge—banana—between the bead and the flange on each side of the spade tip.

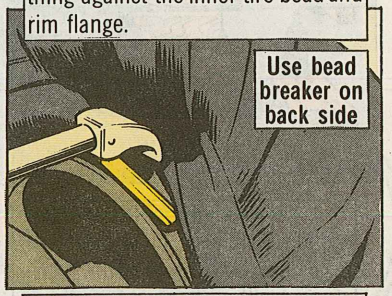


8 Release the pressure, take the spade and ram assembly from the frame. Loosen the clamping jaw bolts and remove the frame from the flange.

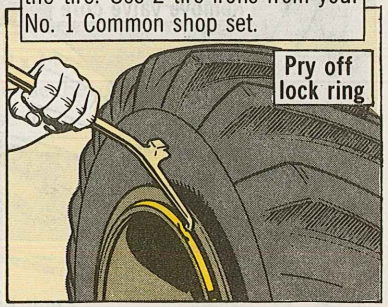
9 Move the bead breaker to another spot on the rim about 90 degrees from the first spot—in either direction—and repeat the whole thing.

You may have to move the bead breaker 2 or 3 times. No sweat. It beats using hammers, forklifts and other tools that damage tires.

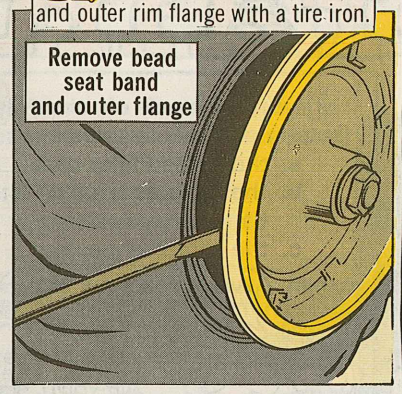
10 If the tire is not free after moving the tool around the rim, use the bead breaker on the back side—inner tire bead—of the tire. No frame assembly is needed, tho. Just brace the ram against the vehicle frame and let the spade tip do its thing against the inner tire bead and rim flange.



11 Pry off the lock ring. Start at the prying notch and work around the tire. Use 2 tire irons from your No. 1 Common shop set.



12 Take off the bead seat band and outer rim flange with a tire iron.



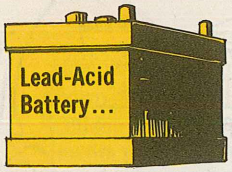
13 Put the valve cap back on to protect the threads when you take off the tire.

14 Work the tire off the rim. Make sure the valve is pried out enough to clear the rim gutter.

1. Be sure all air is out of the tire before you take off any wheel component...nut, clamp, etc. A rim part under high air pressure can come apart and injure you...or worse.
2. Be sure to take the valve core out.
3. Always stand clear when deflating tires and when using the hydraulic bead breaker.
4. Be extra careful taking the tire off the wheel. Use mechanical aids if they're available. Heavy, wet, slippery tires can crunch a hand or foot real quick.
5. Keep fingers clear of rim flanges when using tools. Tire tools are under pressure when you're breaking beads with 'em, so keep a good grip on the irons. A flying tool can clobber you.

TM 9-2610-200-20, Repair of Pneumatic Tires and Inner Tubes (Para 2-23), calls for its use on large tires. It is made to mil specs, so you might see slight differences in models made by different manufacturers. They all work with a hand-operated remote control hydraulic ram.

PS END



Brain Teasers

There's a big push on to get more life from lead-acid batteries. Millions of dollars go down the drain because batteries are allowed to die long before their time. Poor preventive maintenance is the main reason for battery failure.

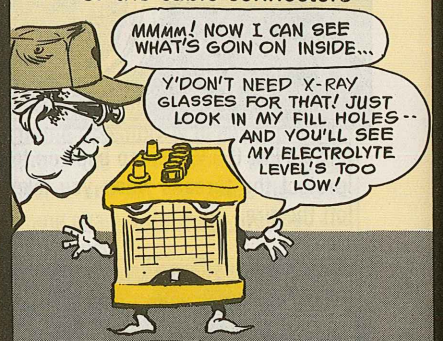
Most of you in using units are getting special training in battery PM.

So now you're experts in battery PM, right?

QUESTIONS

1 A low level of electrolyte (battery acid) causes damage to:

a. the vented filler caps
b. the plates inside the battery
c. the cable connectors



2 When the electrolyte level is below the tops of the plates, you add:

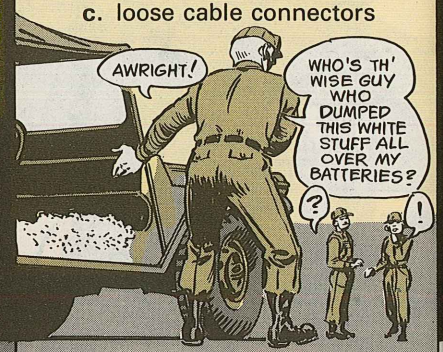
a. sulfuric acid
b. distilled water
c. more electrolyte

3 If you overfill your battery, the electrolyte:

a. is ruined
b. will freeze
c. is weakened

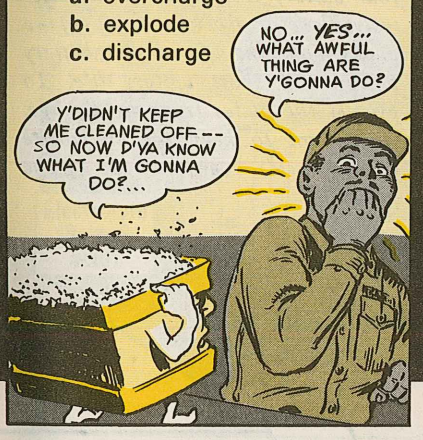
4 Corrosion on your battery and other nearby metal parts is caused by:

a. low electrolyte level
b. acid in the electrolyte
c. loose cable connectors



5 If you fail to keep dirt and corrosion cleaned from your battery, the battery will:

a. overcharge
b. explode
c. discharge



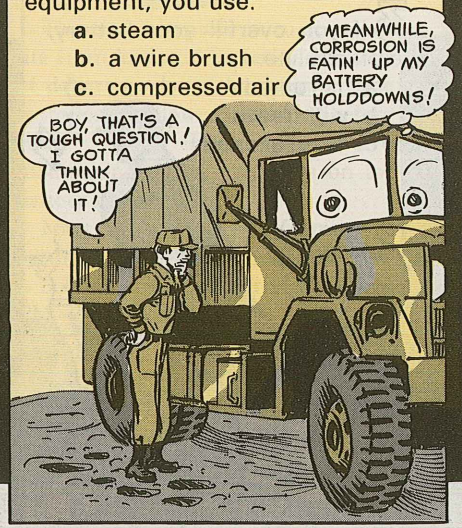
6 To clean corrosion from your battery you use:

a. plain water
b. solvent
c. baking soda and water

PS MORE

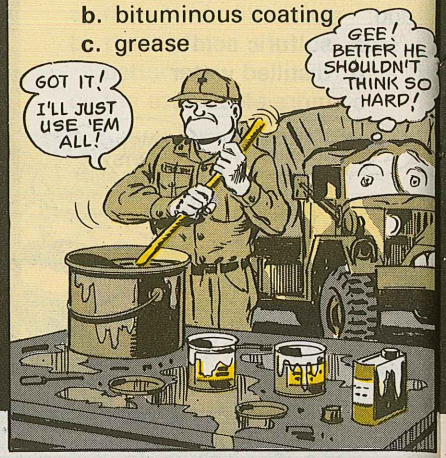
7 To clean corrosion from the battery holddown, battery box and other nearby metal parts on your equipment, you use:

a. steam
b. a wire brush
c. compressed air



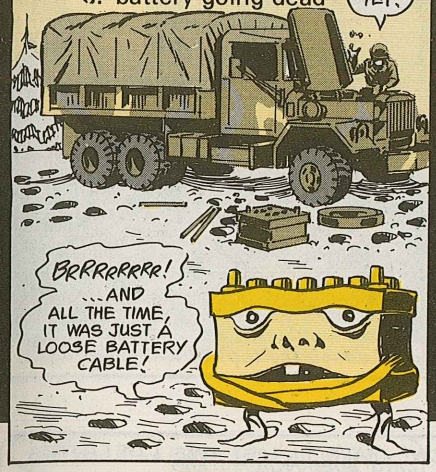
8 After cleaning the battery holddown, battery box and other nearby metal parts on your equipment, you protect them from corrosion with:

a. epoxy
b. bituminous coating
c. grease



9 If you fail to keep battery cable and clamp connections tight, you'll have trouble with:

a. engine starting
b. battery freezing
c. battery going dead

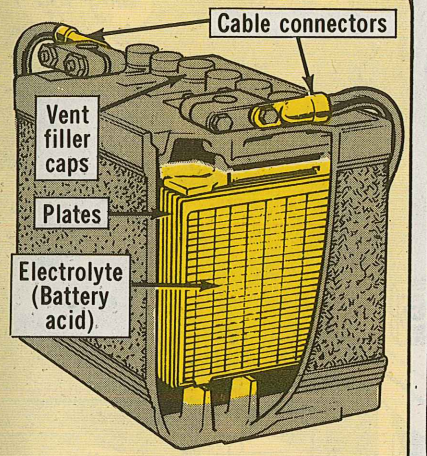


10 If the clamp is not tight on the post, the first thing you do is:

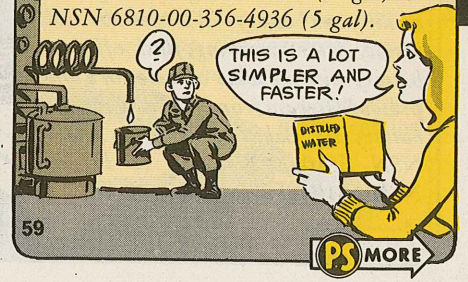
a. tighten the clamp with the right size wrenches
b. coat the clamp and post with grease
c. take the clamp off, inspect the clamp and post for corrosion and, if needed, clean the inside of clamp and the outside of the post.

ANSWERS

1 b *Air damages the plates inside your battery when you let the electrolyte level drop below the tops of the plates. You wind up with poor battery power and short battery life. To protect the plates from air damage, you've got to keep the electrolyte (battery acid) over the tops of the plates.*

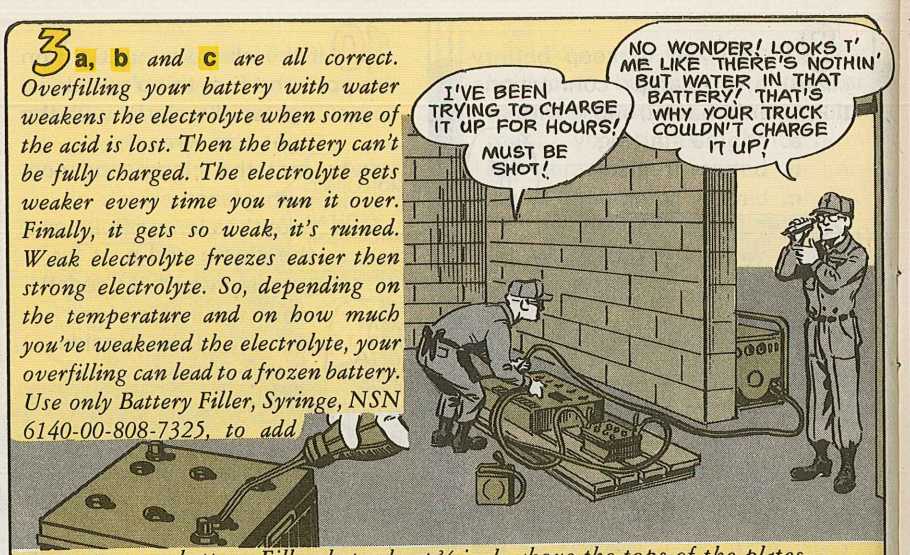


2 b *Only water is put into your battery at the Organizational Maintenance level. Distilled water is best. Next best is drinking water. But, in a pinch, almost any water is better than letting the plates suffer damage from air. You get distilled water with NSN 6810-00-682-6867 (1 gal) or NSN 6810-00-356-4936 (5 gal).*

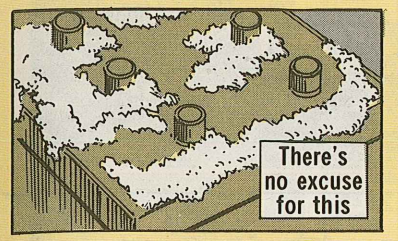


PS MORE

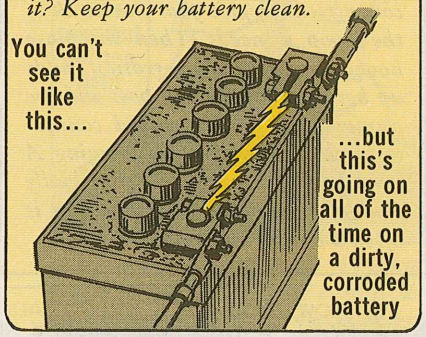
3 **a**, **b** and **c** are all correct. *Overfilling your battery with water weakens the electrolyte when some of the acid is lost. Then the battery can't be fully charged. The electrolyte gets weaker every time you run it over. Finally, it gets so weak, it's ruined. Weak electrolyte freezes easier then strong electrolyte. So, depending on the temperature and on how much you've weakened the electrolyte, your overfilling can lead to a frozen battery. Use only Battery Filler, Syringe, NSN 6140-00-808-7325, to add water to your battery. Fill only to about 3/8 inch above the tops of the plates.*



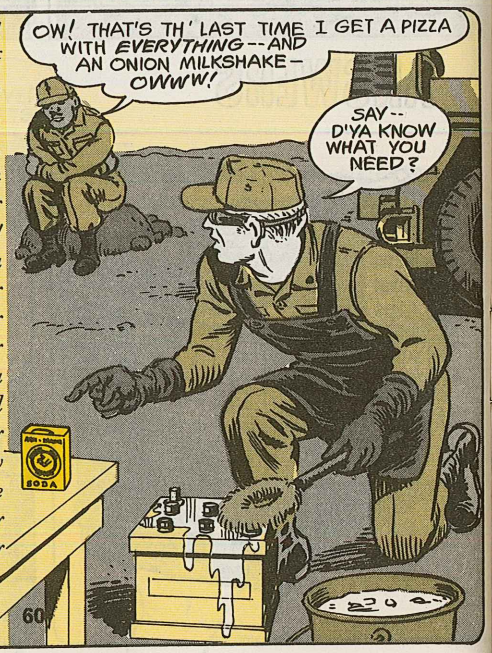
4 **b** *A little of the acid in the electrolyte escapes from your battery during normal charging. It's vented through the filler caps as a fine mist. This acid attacks metal parts on and near your battery. Corrosion is that white powdery, or fluffy stuff you see on the top of your battery, on the clamps and posts and on other nearby metal parts.*



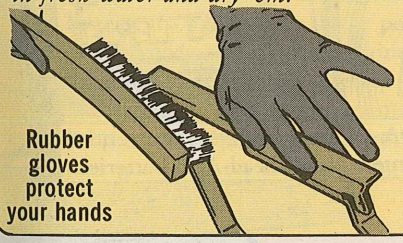
5 **c** *Dirt and corrosion will cause your battery to discharge—go dead. This is because dirt and corrosion hold moisture. Electricity travels through moisture. This moisture is like a wire connecting the positive (+) and negative (–) posts of your battery. Got it? Keep your battery clean.*



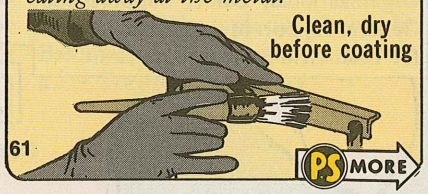
6 **c** *Baking soda is an "acid neutralizer". It's the same stuff (bicarbonate of soda) that some people use for an upset stomach—because it "neutralizes" stomach acid. Baking soda does the same thing when you use it to clean the outside of your battery. Plain water won't do the job! You mix a half-pound of baking soda with a gallon of water. Use a fiber brush (not a wire brush!) to scrub your battery with the baking soda/water mix. Be careful not to get baking soda inside your battery—it'll ruin the acid inside. After scrubbing, flush off your battery with a bucket of water or a low pressure stream from a hose. Wipe the battery dry. Baking soda comes under NSN 6810-00-264-6618 (1 lb) or NSN 6810-00-290-5574 (100 lb).*



7 **b** *A wire brush takes most of the corrosion off battery holddowns, the battery box and other nearby metal parts that're attacked by acid. To do a good job, take the batteries out. If you can, take out all of the corroded metal parts so you can clean 'em all over. You may need to use a blow torch to burn off old paint or coating—but keep the flame away from your batteries. They can explode! When you've cleaned down to bare metal, wash the parts with baking soda and water, rinse 'em in fresh water and dry 'em.*

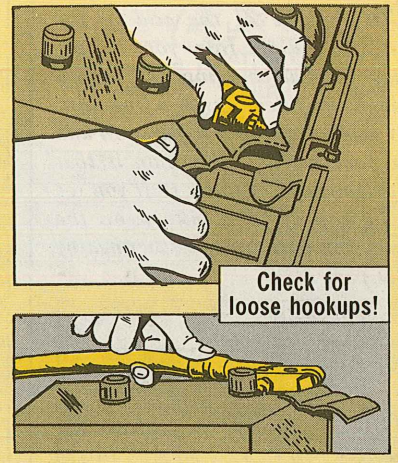


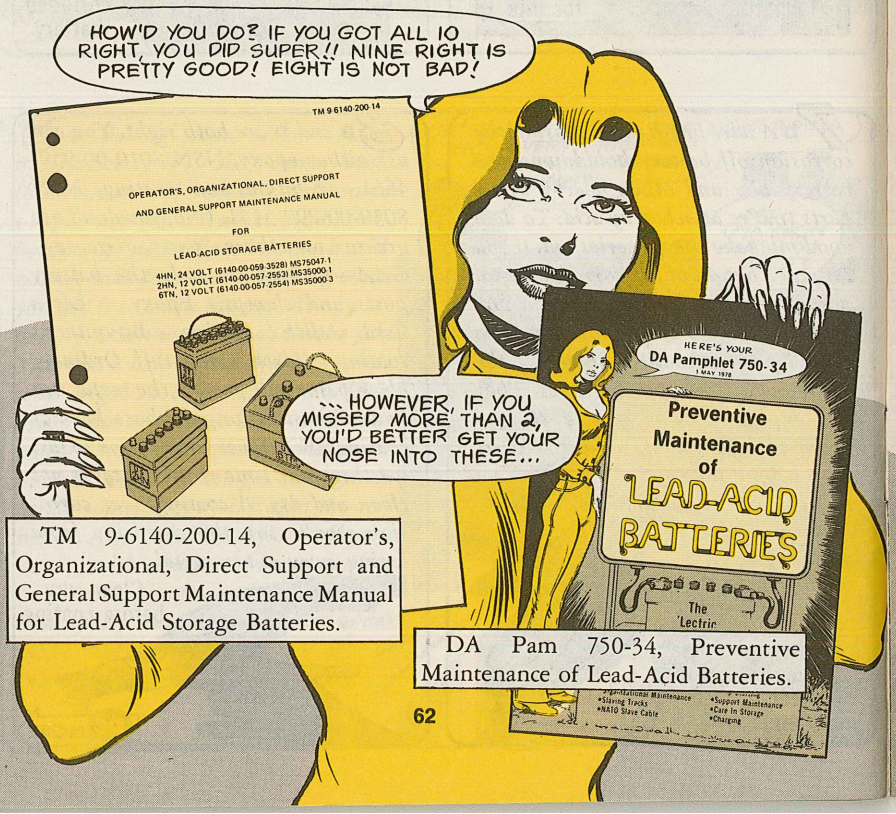
8 **a** and **b** *are both right. You can use either epoxy, NSN 8010-00-959-4661, or bituminous coating, NSN 8030-00-290-5141. (No, you don't use grease on these parts. Grease—GAA—is used on only the battery posts and clamps.) Epoxy makes a hard, slick coating. Bituminous coating is black, tarry stuff. Ordinary black paint will protect the metal, but it won't last as long as those heavier coatings. Whatever you use, you're just wasting your time if the metal is not clean and dry. A coating over corrosion won't stop the corrosion from eating away at the metal.*



PS MORE

9 **a, b** *and* **c** *are all correct. Loose cable and clamp connections are one of the main causes of hard engine starting—or no starting at all. Your engine starter needs all of the power it can get from your batteries. Full battery power can't get thru loose connections to give your starter all of the poop it needs. Then the loose hookup gets worse as corrosion builds up between the battery post and the clamp. Loose and corroded connections also foul up battery charging. A weak battery freezes easier than a fully charged battery. A frozen battery is often a busted battery!*

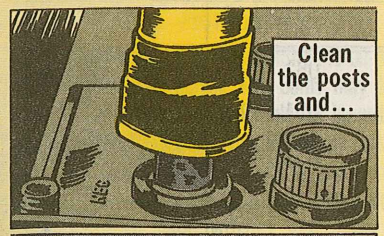


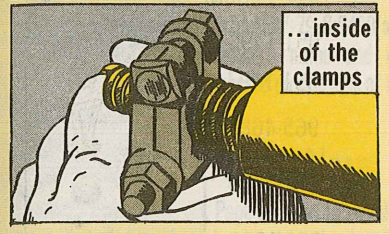


TM 9-6140-200-14, Operator's, Organizational, Direct Support and General Support Maintenance Manual for Lead-Acid Storage Batteries.

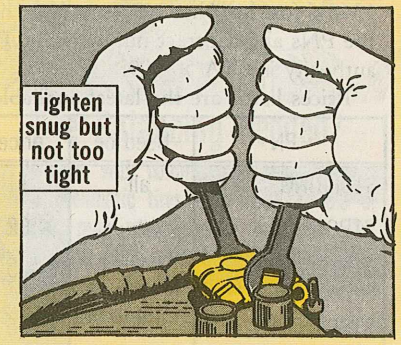
DA Pam 750-34, Preventive Maintenance of Lead-Acid Batteries.

10 **c** *If the clamp's loose there's a good chance corrosion has taken ahold between the clamp and the post. There's no sense in tightening a corroded clamp on a corroded post. So you take off the loose clamp. Clean the clamp and the post with the special tool, NSN 6140-00-831-3449. Then*





tighten the clamp on the post with the right size wrenches—so there's no chance of a wrench slipping off and busting the battery. Finally, coat the



clamp and post with about ⅛ inch of grease (GAA) to head off corrosion.

Lead-Acid Battery... DA Pam Is for You!

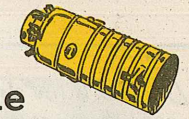
Do you have your very own copy of DA Pam 750-34, Preventive Maintenance of Lead-Acid Batteries?

Yes, you—equipment operator or mechanic!

DA Pam 750-34 is pocket-size because it's meant to be in the pocket of everybody who uses and maintains batteries. Everybody! It tells you how to take care of your batteries so they'll keep your equipment hot to trot. It's also got poop on slave-starting and jump-starting disabled equipment.

And it tells you how to use battery charging equipment. (Army policy now authorizes Organizational Maintenance to charge batteries after Direct Support has activated 'em.)

Your pubs people can get as many copies of DA Pam 750-34 as your outfit needs by ordering from the Baltimore AG Publications Center on a DA Form 4569.



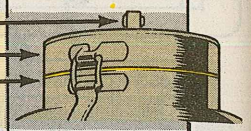
Vacuum Jug Parts Puzzle

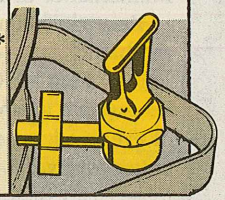
Here're the parts for the 3-, 5-, and 10-gal size Vacuum Can Company jugs.

Only the 3- and 5-gal jug cover NSN is on the AMDF...so use DD Form 1348-6 for the other NSNs and go the exceptional data supply route. Include the PNs and contract number. The FSCM is 62565 and the RIC is GO. Your authority is CTA 50-909.

Prices listed are the latest available, but your cost could be higher.

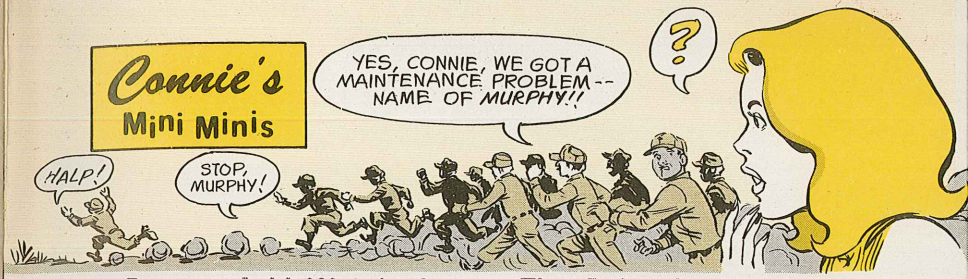
PN	Used on	price	NSN 7330-00-
S1SPRING	all	.11	051-1492
S1BONNET	"	.62	051-1493
S1STEM	"	.25	051-1494
S1SEATCUP	"	.95	051-1495
S1HANDLEPIN	"	.21	051-1496
S1WASHER	"	.01	051-1497
S1HANDLE	"	.58	965-4685
904FAUCETTUBE (adapter)	"	.32	051-1499
904AIRVENT	"	.83	051-1501
904COVER	3 and 5	23.07	051-1498
904GASKET (cover gasket)	3 and 5	1.79	051-1502
784COV (cover)	10	29.63	01-071-7680 *
784GKT (gasket)	"	4.95	01-071-7679 *
S1 (complete faucet assembly)	all	16.78	7310-00-961-7571*





The NSN for the 3-gal jug is 7330-00-721-8499; 5-gal, 7330-00-781-3859; and for the 10-gal size, 7330-00-819-7738.

* For these use RIC MPB.



Battery Acid Warning!

Watch those 6TN batteries, NSN 6140-00-057-2554, when you handle 'em. Some may leak around the cover seal. You could get burned by the electrolyte (battery acid). Before you pick up one, tip it to each side to check for leaks where the cover is attached to the case. If it leaks, don't use it. Some bum batteries were made by Teledyne under Contracts DAAE07-79-C-5458 and DAAE07-78-C-6442. Teledyne's name and the contract number are embossed on one side of the battery.

Chemical Agent Alarm

We goofed. PS 335, Page 58, says to schedule the pump assembly replacement for the chemical agent alarm on DD Form 314. It's not necessary. The pump is replaced by the operator after 1440 hours of use without any help or supervision from organizational maintenance. The DA Form 2408-1 has the total accumulated hours.

M880 Seal Flip-Flop

You'll get the wrong rear wheel seal for your M880-series 1¼-ton truck if you order like it says in TM 9-2320-266-20P for Item 11, Fig 59. Switch that TM info around to make it right. NSN 5330-00-239-8331 is for axles 4031368 and 4032948. NSN 5330-01-032-5630 is for axle 4032949.

☆ U.S. GOVERNMENT PRINTING OFFICE: 1980—757-003/4

Tire Balancing Needed?

Vehicles with commercial design highway tread pneumatic tires, size 9.50R x 16.5 or smaller, may require wheel balancing. This includes the M880-series 1¼-ton vehicles. Check your vehicle's TM. The job, tho, goes to Direct Support Maintenance.

Goer Brake Failure

A loose screw can let the parking brake drum come off Goer trucks. It's happened before. It could happen again. Don't let your parking brake drum screw work loose. Get your DSU to make the field fix called for on Pages 2-87 and 2-88 in TB 43-0001-39-2 (Jul 80).

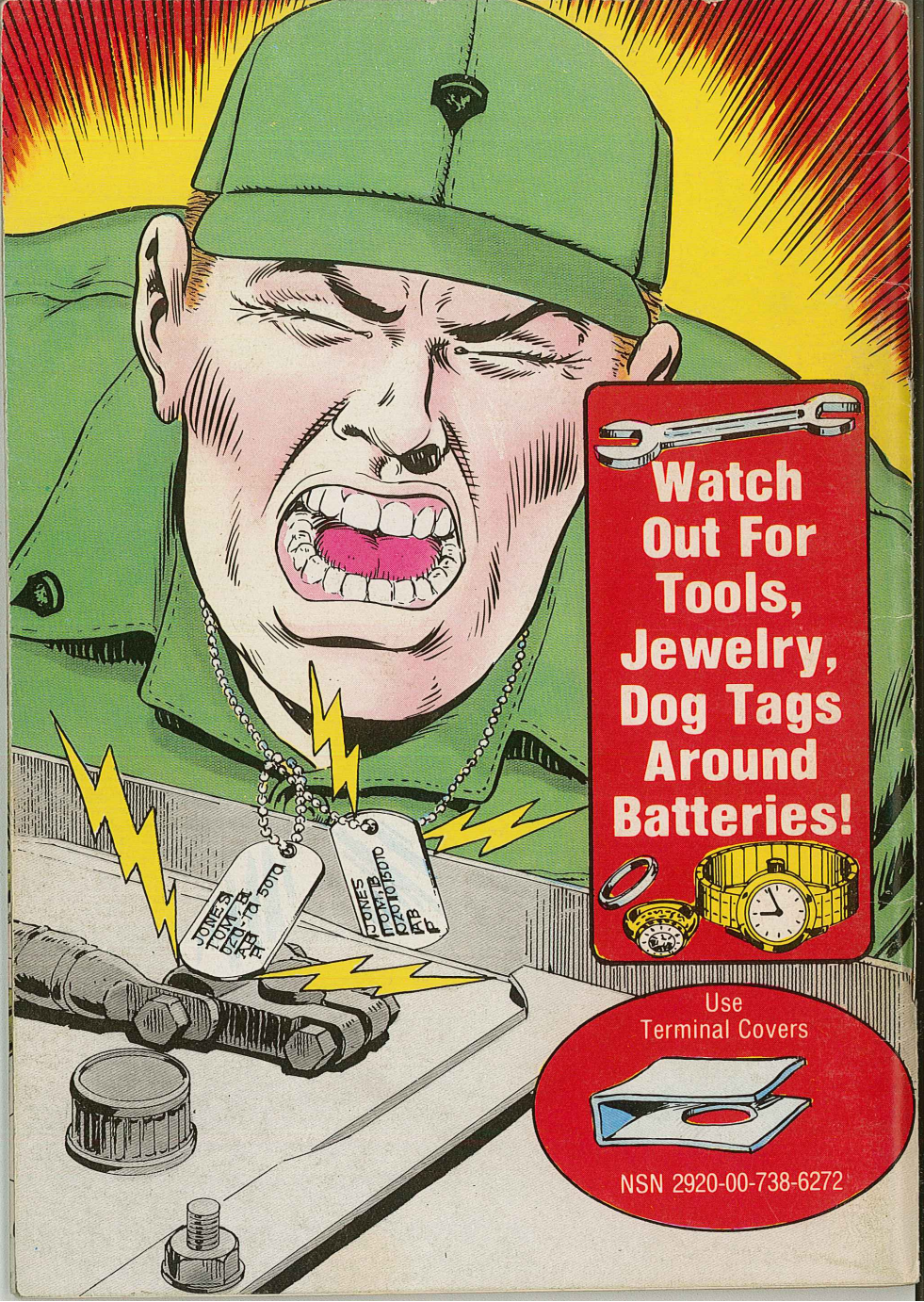
M35A2C Cargo Rack

Use NSN 2510-00-478-0748 to get the front rack assembly for your M35A2C 2½-ton truck. TM 9-2320-209-20P identifies the item only by PN 10937463, and the Army Master Data File (AMDF) lists the wrong nomenclature for the NSN. It should be Rack Assembly, Front.

M203 Firing Pin

Oops! Printing errors screwed up the M203 Grenade Launcher's firing pin NSN's in the boxed copy on page 26 of PS 337. NSN for the new firing pin is 1010-00-348-8433. The old pin is 1010-00-438-7455.

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


Watch Out For Tools, Jewelry, Dog Tags Around Batteries!
Use Terminal Covers
NSN 2920-00-738-6272