ARMY MOTORS

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The Battle is the Pay-off

A rhino barge, like an acre of iron pavement, pushed slowly across the middle of the crowded English Channel on June 6, 1944. On its back, tanks, half-tracks, trucks and trailers sat bumper to bumper in long quiet lines like traffic waiting for the lights to change.

When the barge finally nosed up into shallow water, engines suddenly rose to a healthy roar and vehicles started piling off, splashing fender-deep through surf up onto the pebbly beach.

Everything made it except a one-ton cargo trailer that got its left wheel wiped off by a stray 88mm shell; tanks, half-tracks, trucks highballed to the high ground where a new road was being cut to Berlin.

The battle, as Major Ingersoll put it, is the pay-off. The battle is the pay-off on all those weeks, months, years you put in on finger-busting maintenance. Not that the quick trip across the channel is the toughest hitch your vehicle will have to suffer, but the invasion is kind of a symbol.

Think of what might have happened if there hadn't been maintenance. Take the same picture and put yourself behind the wheel of No. Three vehicle in Line A on that crowded iron raft. You're driving a multiple gun motor carriage M16, a small forest of 50 caliber machine guns on a half-track chassis. Now imagine that for some reason, the vehicle got skipped on maintenance, say the fuel pump sediment bowl finally picked up its full quota of dirt, or the battery cable is dangling loose where it's supposed to be tightly grounded. You're Item No. Three and behind you, 12 other fighting pieces are huffin-puffin' and raring to go. Comes the whistle and Molly won't budge.

There you sit broken-hearted. Can you imagine the ugly face of the bargemaster damning your soul to hell as the split-second unloading grinds to a stop? Brother, that is what is known as screwing up the detail in an epic manner.

Well, fortunately, it didn't happen. You hit the button and the engine burst into song. You threw her into gear and took her off like a big-tailed bird. Up through the surf you went, skirting a couple of steel rails here, and dodging a log trap there. The waterproofing worked like a charm.

On the beach, little groups of men—some bleeding—stalked forward, and you saw your first dead German. The CO was standing by the rendezvous point. His voice was quiet. "Good work, Murphy," he said, and "Take her over there."

The first inning of your game was over—you had brought the guns where they were supposed to go. From now on in, the chips would be coming your way. For a couple of years it had been all grease and no gravy and only a couple of skinned knuckles to show for it. But from now on, Brother, you're marching toward home.

The invasion was the beginning of the maintenance pay-off.

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Half-Mast's SPECIAL BULL SESSION ON THE Light Armored Car, M8 And Utility Car, M20

Engineered to fit the needs of the Cavalry, Tank Destroyer and Armored Command, the M8 is the Army's latest combat wheeled-vehicle. It's a tight little monster scheduled to replace the scout car for reconnaissance work. The M20—a twin to the M8—is a "mobile CP." Half-Mast ponders questions and suggestions.

Dear Half-Mast,

Several M8 armored car drivers have been worrying about water collecting in the gearshift-lever housing. I removed the housing and found that a drain hole was not put in this part of the hull to allow collected water to drain. Furthermore, I found that the crossmember directly underneath this part had several drain holes. I took a prybar, rolling head, and punched a slight hole in all our M8's. Up to this time, drivers had to use a suction gun to remove the water.

Also, they eliminated the hand throttle in the manufacture of this car. As a result, if the idle adjustment of the carburetor is set below 600 rpm, the radio will discharge the battery. Our drivers have been using a small leather strap to hold the foot accelerator down to prevent the discharging of the battery with the radio in operation.

What say?

I am inclosing photos of a little gimmick that is very easy to make and will enable you to open the engine compartment doors on the M8 without the use of an extra pair of hands or feet. The tow cable lays right across the edges of the engine door and is in the way of opening it. My idea is a guide which will hold the cable out of the way (Fig. 1).

And here's another idea for armored car drivers that will hold up both of the rear fenders at times when the tires are rotated (Fig. 2). It consists of a length of rope about seven feet long, and two hooks fashioned from a piece of welding rod. Just pass the rope up above the engine compartment, raise and fasten the rear fenders to the hooks. The rope and hooks can be carried in the tool compartment when not in use. And by the way, Half-Mast,

what are the recommendations on rotating tires?

Ivison W. Rhodes, Jr.
Civilian Automotive Advisor

Dear Mr. Rhodes,

Good. A Tech Sergeant wrote in to say that during the Tennessee maneuvers last winter, the water that collected in the gearshift-lever housing froze and the drivers couldn't shift. Your drain hole idea is okay. The newer M8's have a leather boot over the gearshift lever, but you'd still better put that drain hole in.

About using a leather strap round the accelerator —I don't see why not. They didn't put a hand throttle in the M8 because again, with the engine in the rear, a mechanical linkage would of been a nuisance. That's why the clutch and accelerator are both hydraulically operated.

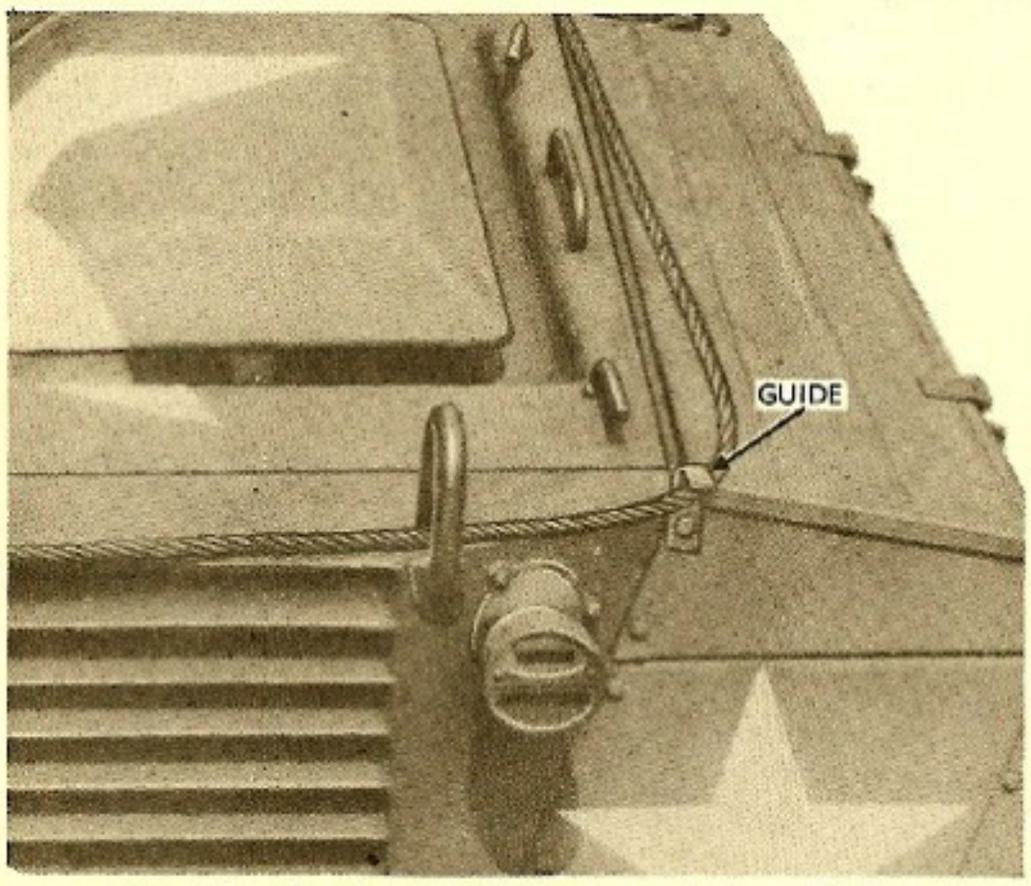


Fig. 1—A piece of flat stock, angled over, with a hole in it, keeps the tow cable away from engine compartment doors. Use the bolt in the wall of the tool box to hold it.

Your gimmicks are both good ideas for anybody with armored cars. About rotating tires, as I've mentioned elsewhere, there's no hard and fast scheme on rotation. What you're supposed to do (speaking of trucks generally, now) is keep the tires evenly matched as to diameter, tread, etc. This means front tires, intermediate, and rear tires must be mates, and things like that. (Also see that the spare gets its exercise on the vehicle—no spare on the M8, you know.) Tell you what, you might keep your eyes peeled for a little article on rotation I'm gonna do after I get done beating my gums with the Ordnance rubber crew.

Half-Mast

Dear Half-Mast,

Connie Rodd had an item in March calling attention to an error in the early M8 TM's. These TM's said that the free travel of the clutch-release lever should be ¼" before the release fork touches the release bearing. Connie says the correct figure should be ⅜". Okay and here's something else to add that has a direct bearing on clutch life: The driver's left-foot rest in the M8 is located about ½" ahead of the clutch pedal when the pedal is at its fully engaged position. Because of the cramped space in the compartment the driver's foot often rests on the clutch pedal as well as the foot rest. With this condition existing, bumps in the road or muscular fatigue may cause the driver's foot to depress the pedal.

D. R. Merrill
Civilian Automotive Advisor

Dear Mr. Merrill,

The only way to keep drivers from riding the

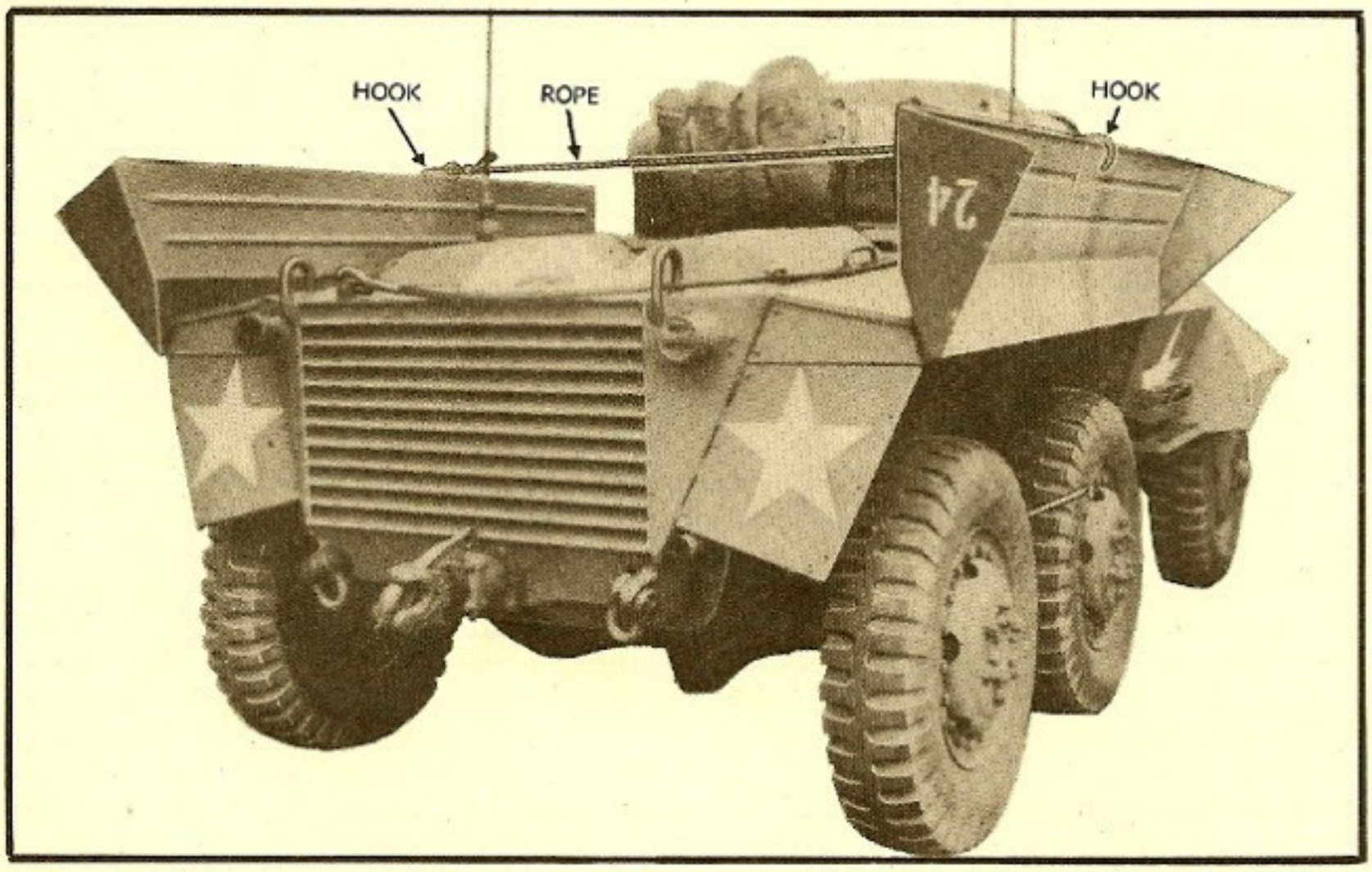


Fig. 2—A rope with two hooks on the ends will keep the fenders out of your hair when you're working around the wheels. Make the hooks out of welding rod, and keep the whole works in the tool compartment.

clutch in the M8 is to cut off their legs up to the armpit—it's really cramped in there. To beat the condition in question, the manufacturer has installed another foot rest in the M8 (see Fig. 3). If they were my vehicles, I would do likewise on every M8 in the field—otherwise, clutch wear is gonna be a real headache.

Half-Mast

Dear Half-Mast,

A subject of controversy the past few weeks has been the proper engine oil level in the light armored car, M8. We're all agreed, that the proper level, cold, before starting the engine, is at the full mark on the dipstick.

The after-operation level, though, is another matter. On most of our M8's after the engine has been started, warmed up and then stopped, it's anywhere from 15 minutes to two hours before the dipstick shows any reading at all—the oil passages in the engine being exceedingly capacious and the dipstick too darned short. And all vehicles do not read alike under identical circumstances of temperature, warm-up time, vehicle load, etc. Needless to say, this inability to read an oil level has been the cause of many vehicles going around with eleven or so quarts of oil in the crankcase because a horrified driver or mechanic—yes, even a motor officer, has checked the oil level, found a dry dipstick, and added oil to the engine, all before the stuff has had time to drain back into the pan.

Have you heard any complaints from others about this trouble? And, have you any suggestions to offer other than to wait longer before checking the oil level? What we'd appreciate—and I'll bet a lot of other people would too—is a longer dipstick with a running mark—a hot-engine-oil-level engraved thereon. Can anything be done?

Capt. M. F. A.
Cavalry

Dear Captain,

The question of the correct oil level in the M8 and M20 has a lot of people up a tree. I finally found the answer after rooting around and making much chop-chop with the Ordnance technicians and the manufacturer. In the first place the correct oil capacity of the entire lubrication system is 7 quarts—which includes about 5½ quarts in the crankcase and 1½ quarts in the oil filter. But let's start from the beginning with a brand new M8. Okay, you pour 7 quarts into the crankcase. If you looked at the dipstick, the reading would be about 1¼ inches **above** the "4/4" mark*. All right, now start up and run the engine for a while. Stop it and take another look at the dipstick. The reading is now **right on** the 4/4 mark and the drop on the dipstick indicates that there's only about 5½ quarts in the crankcase. The "missing" 1½ quarts are, of course, up in the oil filter which is only natural and perfectly all right—you've got the proper amount of oil in your engine. But here's where the stickler comes in: on many of these vehicles, the oil slowly drains out of the oil filter and flows back to the crankcase. Thus during this "drainback" period, you might get higher readings on the dipstick. What's the answer? The answer is **check the oil level with the engine warm.** If the dipstick reads low on a cold engine, add oil to bring it up to the full mark—then run the engine a few minutes, stop it and recheck it. Add more oil if needed to get a 4/4 or "full" reading on the dipstick. Let everybody in on this dope and your troubles are over. Except for one more thing:

This thing comes from the fact that it's a tight squeeze to get at the dipstick because of the battery being in the way. With all the pushing and pulling to get the dipstick in and out, the dipstick is liable to get a curve in it. This wouldn't be so bad except that down in the crankcase there's a baffle covering the oil sump to keep the oil from bouncing around. In taking a reading, the dipstick has to pass down through a little opening or ferrule in this baffle in order to get at the oil at the bottom of the crankcase. If the dipstick is bent, it might not be able to find the hole—it'll just slide across the top of the baffle and won't show any reading at all. The answer is, make sure the dipstick is straight and be careful to get it down through the hole in the baffle. Sir, this is the kind of thing that needs a lot of noising around—if I were you I would get all my boys together and give 'em the lowdown.

Half-Mast

Dear Half-Mast,

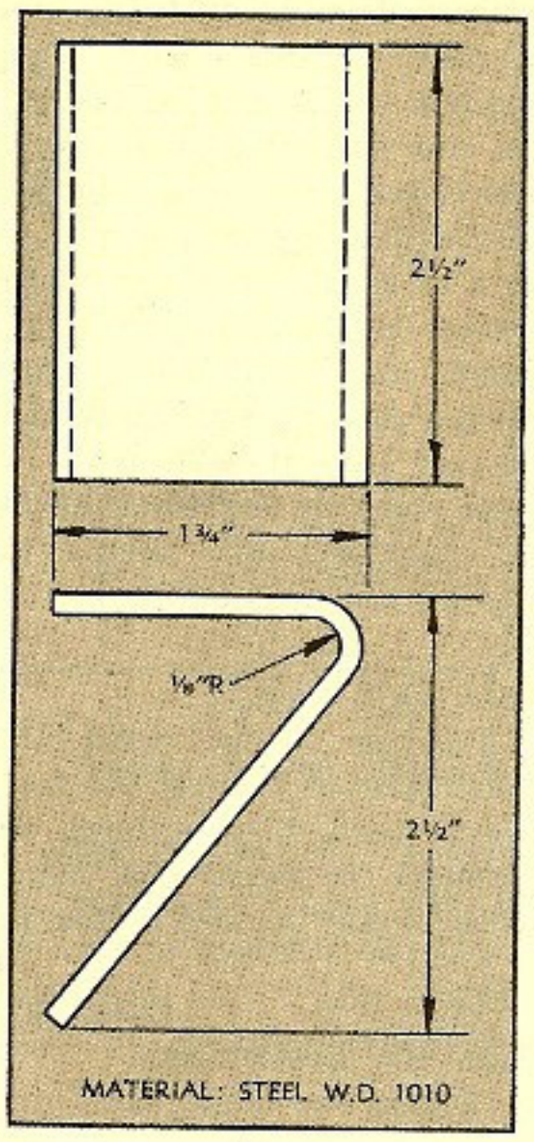
We've just got a bunch of the new M8 armored cars and a few of them have been giving us trouble by using too much oil: four quarts in two hundred miles of operation—and no evidence of an external oil leak. We're using detergent SAE 30.

M/Sgt. P.

Dear Sergeant,

Your trouble may be tied up with the one just above—but if it's not, then my guess is your oil

Fig. 3—This additional foot rest will keep the M8 and M20 driver from riding the clutch. Locate and weld it behind the foot rest already in the driver's compartment, so that the ball of the driver's foot rests on the original foot rest and his heel on this new one.



***The "4/4" incidentally, doesn't mean anything but "4 quarters"—not 4 quarts—future M8 dipsticks will read "Full" instead of 4/4.**

consumption is just the normal thing in breaking in new engines. The reason for new or rebuilt engines using excess oil is that the cylinder walls are not smoothed up and the rings haven't seated themselves. On some engines it takes about 500 miles before this happens and oil burning stops. Give your M8's at least 300 miles of break-in—more would be better. By breaking-in, I mean keep them below top speed and top load. Otherwise, you'll develop scuffed pistons, cylinders and rings—the engines will use oil like it was free. Anyway, I'd say, break these cars in for another 300-500 miles. If they're still burning oil, then's the time to have them opened for inspection.

Half-Mast

Dear Half-Mast,

I'd like to call your attention to the fact that water gets in behind the instrument panel of the M8 and collects high enough to short out some of the wires. I corrected this situation by drilling two ⅛" holes in the bottom of the panel frame.

Harry E. Rosenhaupt
Civilian Automotive Advisor

Dear Mr. Rosenhaupt,

You're the doctor and you're right. But you won't have to take the trouble on the newer M8's. They're coming out with a new instrument panel which is sealed against water. You can recognize this new panel by the fact that it doesn't have a voltmeter, the push-pull BO switch has been replaced by a rotary switch, and the speedometer reads up to 60 mph instead of 80.

Half-Mast

Dear Half-Mast,

We had a couple cases of generator trouble on the M8 armored car—sometimes after only a few hours of operation. We diagnosed the trouble as a short circuit in the field coils. The short is caused by the studs holding the mounting to the generator housing (Fig. 4). The mounting holes in the generator housing go all the way through and the studs which are about 1/16" too long, penetrate the coil windings and short them out. We took and cut that 1/16" off the studs, to clear up the trouble.

Roman J. Rogalla
T/Sgt. Mech. Chief

Dear Sergeant,

The manufacturers are grateful that you called their attention to this (what kind of cigars do you smoke?)—and they say that it's being taken care of

JUICY TIPS FOR M8, M20 OPERATORS

As on every other vehicle, there are certain little things on your light armored cars that you'd do well to keep an eye on.

The castle nut on the drive end of the generator (Fig. 4, next page, above) for instance—keep it good and tight. Don't strip it, but keep it drawn up so that it holds the inner race (cup) of the drive-end bearing tight against the shoulder on the armature shaft (Fig. 4 again). If the nut is loose, the inner race of the bearing will back away from the shoulder and revolve on the armature shaft, wearing a groove. The next thing you know, the armature will drop down on the field coils.

* * *

That fiber cover on top of the battery of your M8 and M20, was not put there for packaging purposes, as some people might be led to believe. It was put there to prevent tools that are dropped on the battery, from shorting it out (also to keep the high amperage from melting the tools down to a hunk of molten metal). If you mistakenly tore the cover off, you can order a new one: Waterproof fiber cover, Ord. Part No. C119451; Item Stock No. G136-01-40229.

* * *

Since the M8 and M20 went on the market, there have been three separate and distinct front springs used. The first spring was a short spring with 11 leaves. The second spring was a longer spring (two inches longer) with 11 leaves and they had to turn the rear spring bracket around in order to fit it on (see FSMWO G136-W1, 9 Nov. 43). The third and present spring is also a long spring but it has a stronger main leaf and 13 leaves and a rebound leaf, which gives it about 4-times longer life than the second spring. This last spring, incidentally, is not yet in the parts book but you can order it by the Part No. on next page. Larger springs require larger U-bolts, Parts Nos. also on next page.

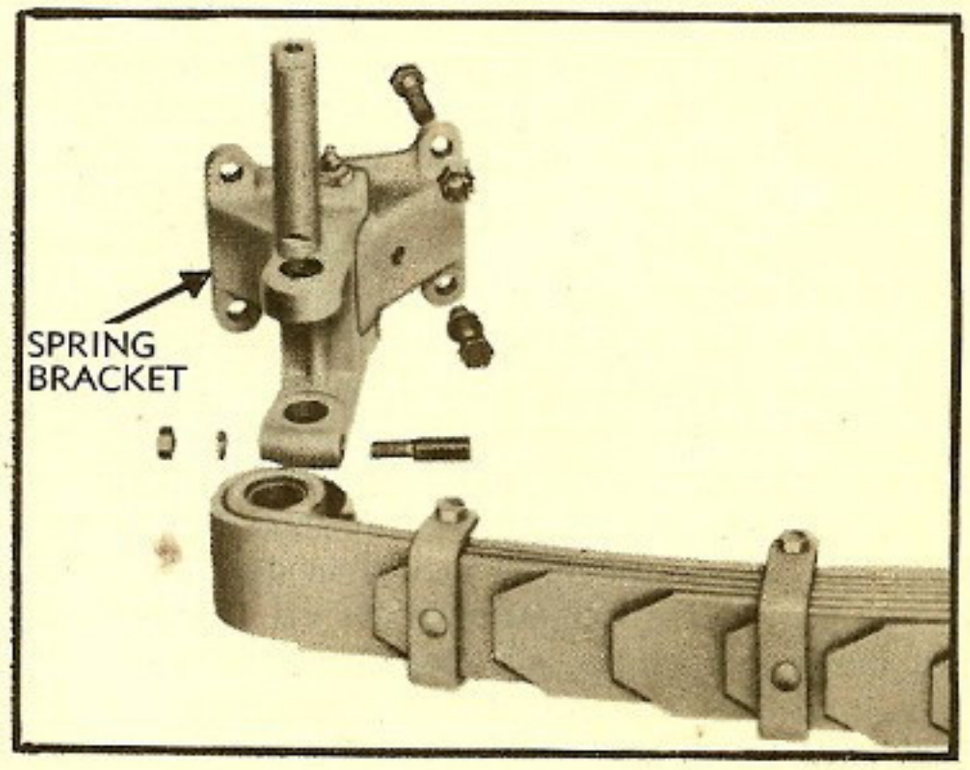


Fig. 6—When the longer springs are installed, turn the bracket around.

on vehicles now in production. However, the earlier M8's might bear looking into. Look at the generator name-plate. If the first two numbers are below "6x" (like 5x1480) then it's possible for this trouble to exist on that particular generator (although it may not).

Half-Mast

Dear Half-Mast,

Having to replace a clutch because of a careless driver, we noticed that the throw-out bearing collar on the M8 has a grease fitting on it but no way to grease it unless the transmission is pulled back. Yes, we could fix it if we had a flexible line to use but they are out and almost impossible to get. I am keeping this grease point quiet from the rest of the troops because if they know about it they'll probably start tearing things apart to get at it and grease it.

S/Sgt. N.

Dear Sergeant,

Whoa. That grease fitting on the clutch release bearing is not to be greased under your regular scheme of lubrication. The clutch release bearing is a pre-lubricated and sealed bearing. The only reason the fitting is there at all, is that the manu-

(Continued on page 114)

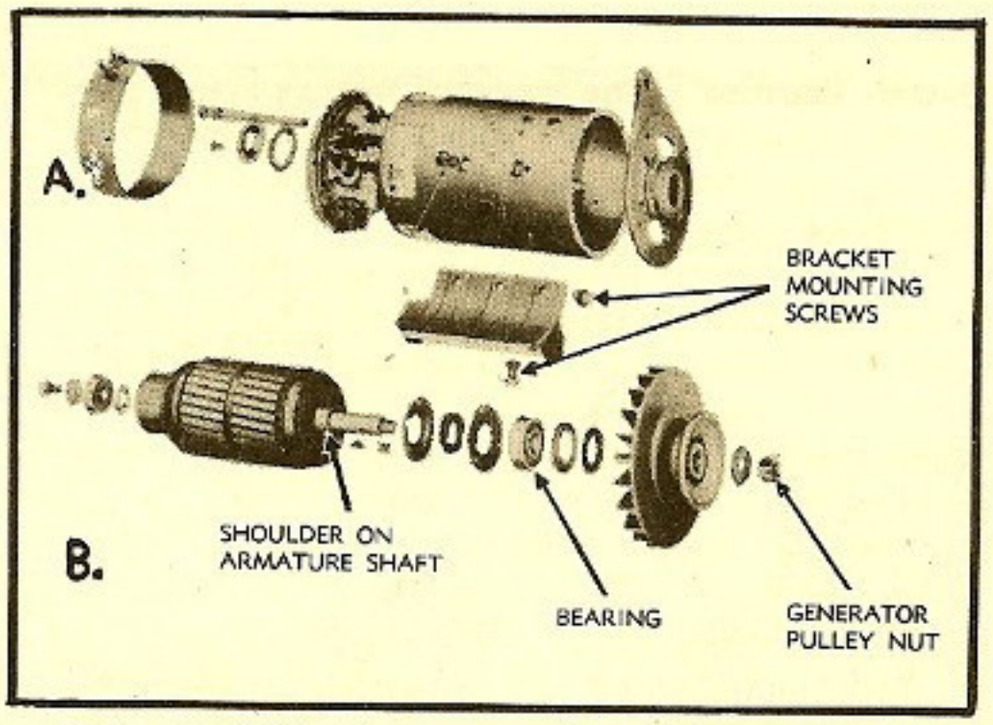


Fig. 4—(A) You may be able to trace a shorted generator field circuit to the bracket mounting screws.

(B) Keep the generator pulley nut tight. This will keep the bearing inner race tight against the shoulder on the armature shaft—the inner race won't revolve, score the shaft and drop the armature down on the field pole shoes.

Now there are certain little things that you've got to know. In the first place, whenever you've got to change springs, make sure you've got matched pairs — you won't have a right-tight vehicle with a short spring on one side and a long spring on the other. Second, if you've got to change springs try to get a pair of the latest springs. And if you're changing from a pair of the original short springs, don't forget, you'll have to turn the rear spring brackets (Fig. 6) around in order to fit the springs in. (When the bracket is turned around, the short end of the bracket faces toward the rear. The short end of the bracket measures 2" from the center line of the spring pin hole to the mounting hole. The long end of the bracket measures 3".)

Here are the three front springs and the U-bolt that go with them:

Springs	U-Bolts
Ord. Part No. 67331 (first one used)	Ord. Part No. B248745
Ord. Part No. D67450 (FSMWO G136-W1)	Ord. Part No. B248980
Ord. Part No. D67515 (latest)	Ord. Part No. B248980A

* * *

Here's a tip which, although it was the subject of a maintenance-manual correction, it won't do any harm to repeat. The earlier TM for the M8 (10 Mar. 43), had a clutch illustration on page 170 which said to install the clutch disk with the short side of the hub toward the flywheel. This was wrong. It was corrected in the later M8 TM (21 Feb. 44) which tells you to install the clutch disk with the **long** side of the hub toward the flywheel. Installing the disk with the short side toward the flywheel would cause the nuts around the hub of the disk to strike the bolts on the crankshaft—making the fur fly in all directions. This is a matter of particular interest to the higher-echelon brothers.

If you like to have your M8 handbrake in operating condition at all times keep the linkage around the cable free of packed dirt and mud. It's been gumming the works.

* * *

Talking about the handbrake, be sure and keep that nut in the center of the handbrake drum (Fig. 7) drawn up. The handbrake drum is on the end of the transfer case input shaft. Inside the transfer case, there are two parts of the input shaft with a pocket bearing joining them. It is the nut in the center of the handbrake drum that keeps the whole business tight. If this nut comes loose,

(Continued on page 114)

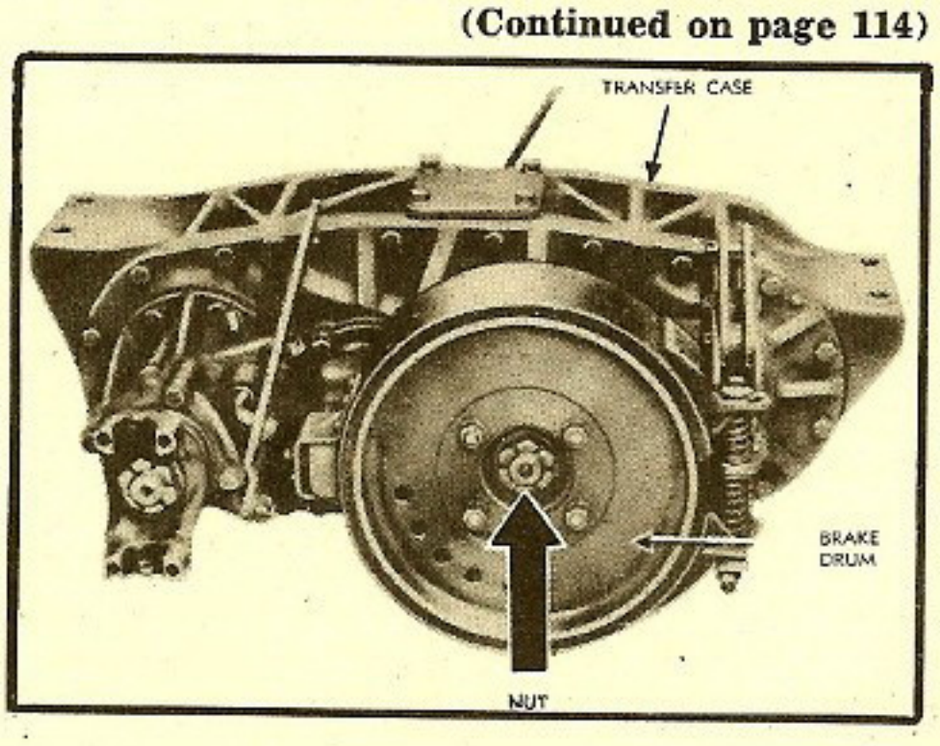
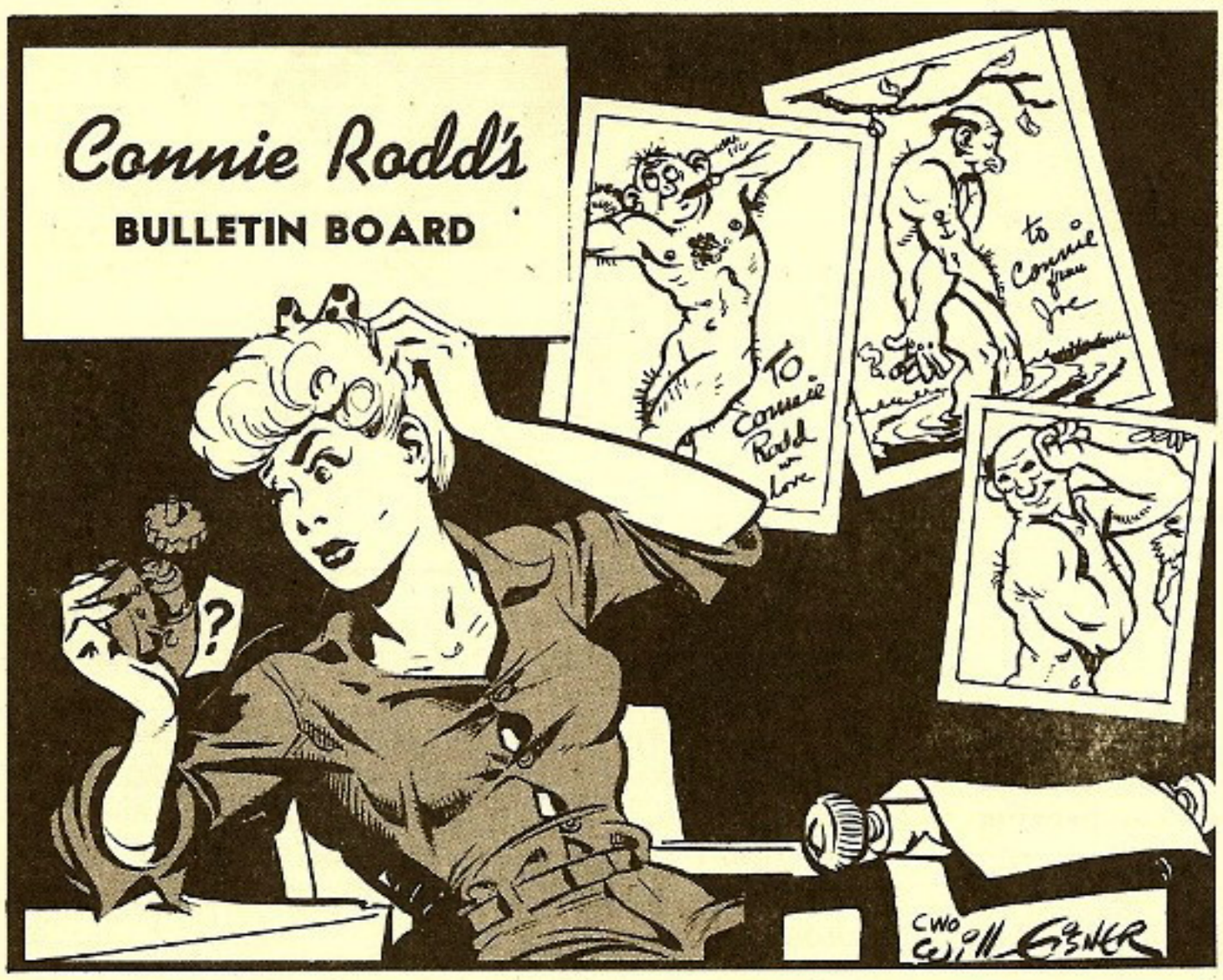


Fig. 7—Keep the nut (arrow) tight—the input shaft inside the transfer case depends upon it.



Correct Oil Pressure on M4A2 and M10

Just heard about a GMC manual (not official) on the diesel M4A2 and M10 circulating around, carrying a wrong oil pressure figure for the engines in these vehicles.

The correct oil pressure in the diesel M4A2 and M10 is 40 pounds at normal operating speed (TM 9-731B, TM 9-752).

Spark Plug Inserts

I'm still running across cases where the spark-plug inserts are blown clear out of the cylinder head of the Model GAA Ford engine (3-inch gun motor carriage M10A1, medium tank M4A3). If my guess is correct, the reason is that somebody has been tightening the spark plugs too tight. The threads on the outside of the insert and on the inside of the cylinder head, are left-hand threads —while the inside of the spark plugs have right-hand threads. When somebody with more muscles than brains starts tightening the plugs, he puts enough pressure on the plugs to start screwing the insert out of the head. (This happens even though the inserts are doweled to the head because all the metal concerned is relatively soft.) The upshot is that the threads may be damaged all around and the insert loosened enough to be blown out of the head by compression.

Moral: Tighten the spark plugs in these engines with 25 to 30 foot-pounds of torque—no more. And see that they're fitted with the proper gaskets.

GMC and Chevrolet Clutch Diaphragm Springs

Because the GMC and Chevrolet clutch diaphragm springs look so much alike, I hear that lots of you boys are putting GMC springs in Chevrolet 4x4's and Chevrolet 4x4 springs in GMC 6x4's and 6x6's.

My friend, Mr. F. T. Wilson, GMC Service Representative in the 6th Service Command Area, tells me you hadn't ought to do that, since the GMC's need GMC springs—(they're made of heavier stock and have the greater spring tension that's needed on the 6x4's and 6x6's to prevent clutch slippage as clutch facings become worn).

You can tell the springs apart because the GMC spring has a double circle ◎ stamped right in the metal on one of the fingers, while the Chevrolet spring has a circle with a line through it ⊖ stamped on one of the fingers.

New Basis of Issue for Cleaning and Preserving Items

Here's good news for you who've been asking about requisitioning cleaning and preserving materials—good news in the form of revised SNL K-1 (27 Mar. 44).

Not only does this new SNL **list** all cleaning, preserving and lubricating materials, recoil fluids, special oils and related items (even brushes, putty knives and modeling clay)—but it has tables giving estimates of all the above items needed for 1st and 2nd-echelon maintenance of vehicles, small arms and artillery for a 30-day period in combat area.

If you don't have, and don't need, the quantities listed in the three tables, don't start ordering like mad. All the Army wants you to do is to keep a **balanced supply** on hand.

On the other hand, just because the table on vehicles says you're entitled to one quart of oil, hydraulic, for 10 half-tracks during the 30-day period, it doesn't mean that you can't have more oil if you **need** it. You aren't all going to use the same amount of material called for by TM's, TB's, circulars and other official publications—since so much depends on where you are, what it's like, and what you're doing there.

That's also the reason why quantities for fuels, engine oils, gear oils, and general purpose greases are given for small arms and artillery and not for vehicles —they'd vary too much.

But let's start at the beginning of this new K-1. Section I lists all items and gives, among other things, their main uses. You know that TM 9-850 "Cleaning, preserving, lubricating, and welding materials and similar items issued by the Ordnance Department" (13 Apr. 42) is where to find details on uses, characteristics, etc.

Section II has a list of all essential items you'll need—Federal

Stock numbers, weights and volumes. The swell tables I mentioned before are also there. And the estimated allowances are even more complete than those listed in WD Circular 78 (22 Feb. 44), which rescinded the Table of Allowances of Cleaning, Preserving and Lubricating Materials (5 Aug. 41).

While we're on the subject of Circular 78—it has one of the neatest and most useful tables I've ever run across—Table IV. It tells the grades, symbols, container sizes and general uses of fuels and lubricating materials supplied combat troops for 1st and 2nd-echelon maintenance of Ordnance materiel.

Incidentally, the new SNL supersedes SNL K-1 (1 Nov. 42) and changes No. 4 (16 June 43).

Winch Notes on the 12-Ton Diamond T Diesel Transporter

The winch on the 12-ton 6x4 Diamond T diesel transporter has an automatic torque control and solenoid arrangement that shuts off the engine when line pull is greater than 22,400 lbs. But it will do this only if the torque control is kept working correctly. Here are two things **you** can do to keep it working.

One is to see that the torque-control spring-pressure is adjusted correctly (see TM 10-1225). And just because you make the adjustment once, is no reason you can forget all about it. That's like putting a crease in your suntans and expecting it to stay there—in spite of wind or rain. You're bound to have baggy knees sooner or later. Torque-control spring-pressure is the same way. It needs periodic rechecking or resetting.

If the adjustment **is** correct, you can be sure that torque control will stop the engine when line pull is too great. If it's **not** correct, then adjust it now to prevent wire rope breaking or shear pins shearing.

Another thing is to lube the rocker assembly on the torque control unit. The rocker assembly is pivoted on a pin (see Fig.) and if you forget about lubing it, the rocker will rust under the shaft. When that happens the solenoid switch plunger can't return to its position once torque control has cut off the engine (because of too much line pull). The fuel supply is automatically shut off at the injector pump, and you won't be able to re-start the engine.

So you won't be a sorry GI, lube that pin with any kind of OE every 1000 miles. And don't forget to check that torque control adjustment every once in awhile.

The Wrong Grease

Is there anybody here that would recommend wheelbearing grease for propeller shaft U-joints, and tank idler and bogie wheels?

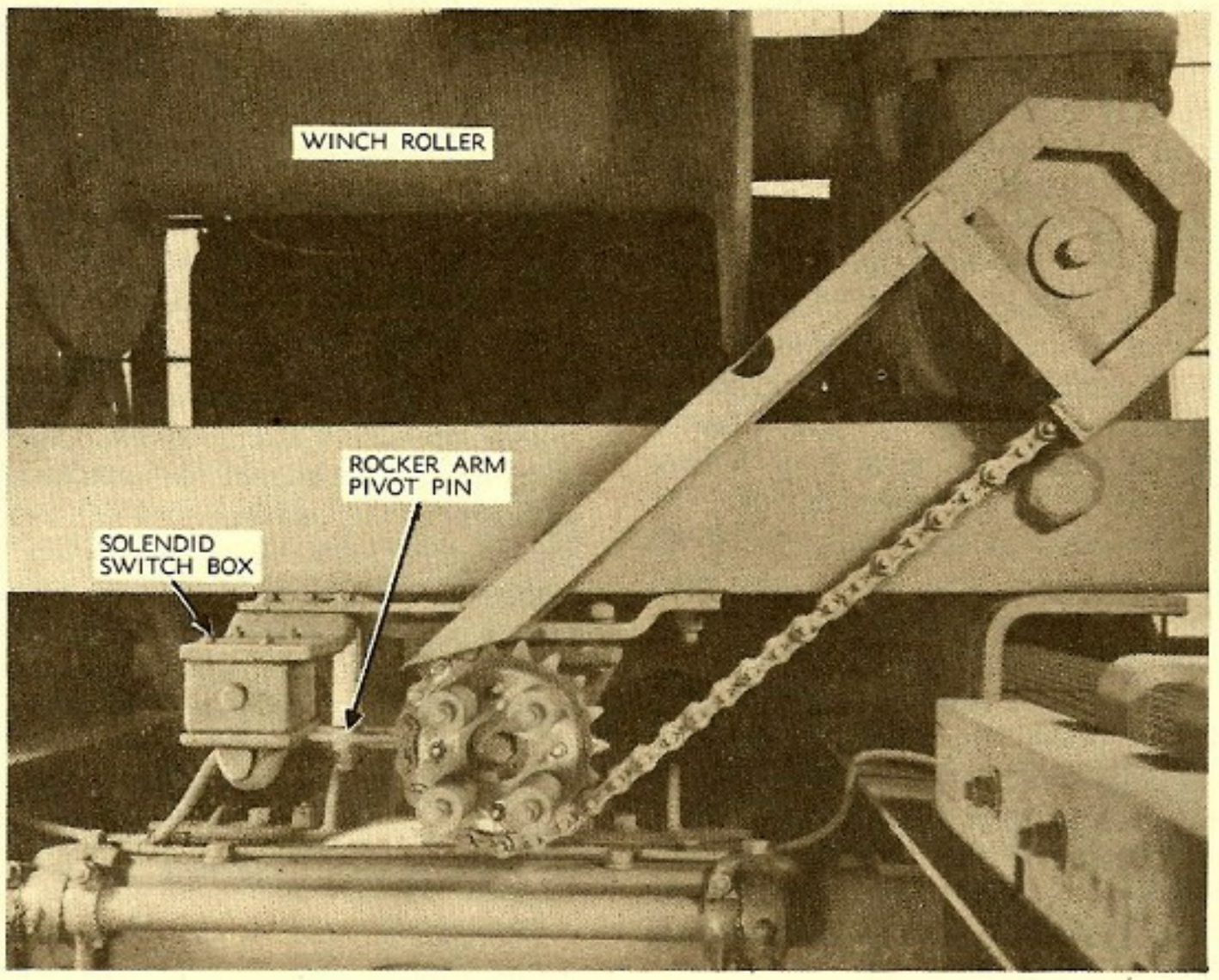
(Take that man's name and serial number.)

Strangely enough there is kind of a bastard program going on under which this very thing is being done extensively both here and overseas. Wheelbearing grease, a thick fiber grease, is being jammed into propeller shaft U-joints, tank idler and bogie wheels, and other points around vehicles calling for CG No. 0 or 1. How anybody expects thick sluggish wheelbearing grease to work around the needle bearings in a U-joint is beyond me. Why, not long ago we put grooves on the trunnions to allow the proper grease, CG No. 0 or 1, to get into these close clearances.

Before I go any further, let me say definitely that the proper grease for the propeller shaft U-joints, and tank idler and bogie wheels, is CG No. 1 in temperatures above 32° F., and CG No. 0 for temperatures below 32° F.

Although I confess I don't know the full reason why wheelbearing grease is being used in place of CG, one reason might be that some people don't trust the lighter CG and go to the heavier WB No. 2 instead. They observe CG seeping out of tank idler and bogie wheels, mistake the **seepage** for **leakage** and promptly shop around for a heavier grease. What they don't realize is that seepage is a necessary condition — it washes out and also prevents the entrance of dirt and water. A recent report by a lubricants engineer just back from Alaska praises CG to the skies, declaring that not one failure due to the use of CG was observed. Go into any other area —warm or cold—where WB No. 2 is being used in place of CG and you'll find dry bearings a-plenty.

I have reason to believe that a case of mistaken identity that



goes back to before Pearl Harbor, before the Simplified Lubricants Program, is also responsible for WB No. 2 being used in place of CG. At that time, what we now know as CG No. 1 was Marfak No. 2. It's my theory that the "No. 2" has become indelibly stamped on some of our minds—today our pre-Pearl Harbor mechanic (otherwise a good joe) walks up to the counter and asks for "some of that there No. 2 grease." Sad to relate, No. 2 grease is today WB No. 2, wheelbearing grease, and that's what mistakenly goes into the propeller shaft U-joints, tank idlers and bogies. In a little while, the bearings are burned out and the shafts are scored.

Incidentally, the bad practice of using brand names instead of official nomenclature might also get you in the same kind of trouble.

Check your lubricants: the heavy, thick, fiber grease is WB No. 2; the lighter "oilier" lube is CG.

Use of Rubber and Steel Tracks

From now on it's up to the theater commander and the using arm whether there'll be rubber or steel tracks on light tanks M3A3, M5, M5A1; medium tanks, M4 series; all gun motor carriages and special purpose vehicles on light and medium tank chassis.

Which type of track to use will depend upon the type of terrain in which the vehicles are operating or are headed for. That means, as of immediately, vehicles will be equipped with the type of track requested by the theater commander or using arm before they're shipped overseas.

Vehicles in the States will not be changed until the tracks now on them are worn out. Partially worn but serviceable tracks on hand should also be used up first. **Then** order the type you need for replacement, and turn all worn-out tracks in to salvage.

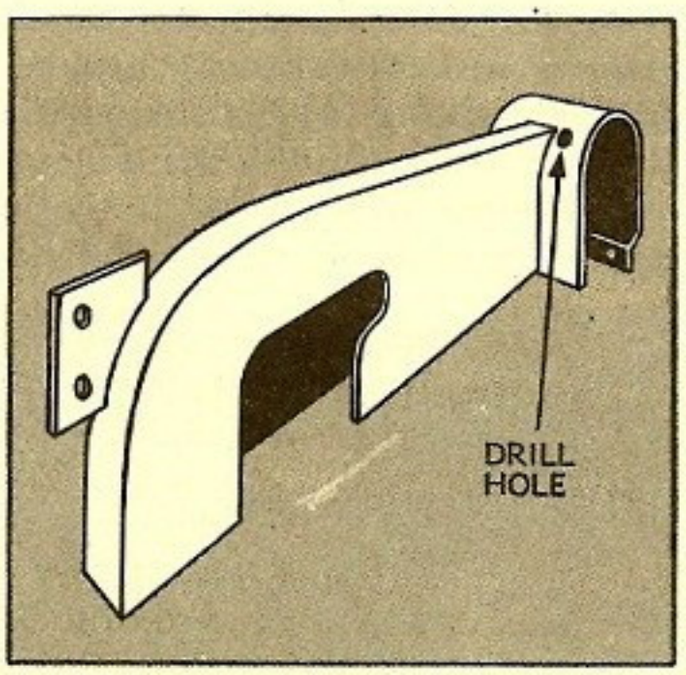
This is from TB ORD 80 (18 Apr. 44) which supersedes OFSTB 700-96 (28 Aug. 43) and OFSTB 700-106 (12 Nov. 43).

Radiator Mud

Plowing through mud, you're liable to find the spinning wheels of the truck ahead of you kicking mud into your radiator core. Wash this mud out of the core, as soon as you can, otherwise it'll insulate the radiator and keep the heat from dissipating out. **When washing, play the water from the engine side of the radiator out** (if you're someplace where you can use a hose). Throwing the water through the radiator toward the engine will soak the electrical parts and you'll be sorry.

Lubing the M32 Winch Drive-Chain Sprocket-Bearing

Are you one of those Sad Sacks who's had to pull a worm act, and wind yourself in among the shift-rods, foot pedals and brakes in order to grease the winch drive-chain sprocket-bearing on the M32 tank recovery unit? Well, take a big breath and relax.



The next time you do that job, take a little extra time and remove the drive-chain cover. Take out the two screws at the left, and one screw at the right and lift the cover off. Now drill a hole 1¼" round in the top of the cover, like in the picture. Put the cover back, and from then on your contortions are over. You can just stick your grease gun in the little hole and grease that sprocket easy.

Driving Down Hill

Dropping over to the shop the other day to show the boys a pair of tight X fatigues (tight in the right places) that I managed to wheedle out of our goof-off supply sergeant, the talk turned to driving habits. Somebody flashed the little green "Driver's Handbook on the Medium Tank M4A2 and 3-Inch Gun Motor Carriage M10." On page 62 under "Descending Hills," the book advises the driver to use the same gear going down that he would use to come up, presumably to "use the engine as a brake." As far as I'm concerned, this is wrong dope. Compared to the weight of the tank, the engine is a little bitty thing—running down a steep hill in a low gear that doesn't match the speed the tank is going, is liable to rev up the engine to beat hell. The right way is for the driver to decide before he starts down the hill, what speed he's gonna go and then shift into that gear. On the way down, the driver should use the steering brakes to keep the speed and the rpm's down to match the particular gear ratio.

* * *

A truck driver running down a steep hill with a heavy overload (this is another good reason for not overloading), and also "using the engine as a brake," might also be faced with the problem of keeping the truck speed down to match the gear ratio it's in. But all he's got is the foot brake to slow it down. As a gopher-hole buddy of mine, Pfc Gene Harris, who used to do a lot of riding in the Western hills points out, a very dangerous thing happens when you apply the brakes too much. The drums get hot and since all our trucks use internal expanding brakes, the drums expand away from the brake shoes—and the first thing you know, you're going like hell down somebody's mountain without any brakes. Which is roughly equivalent to being up the crik without any oars. I wish I could recommend something beside an anchor in this case, but if the driver knows what happens, he's less apt to get into trouble (which goes for a lot of other things like the clutch, for instance). Use the brake as little as possible going down hills.

HOW TO STRENGTHEN YOUR HALF-TRACK

Tow-Hooks

To help half-track tow-hooks stand up under abuse (see box this page) and strains above and beyond the call of duty, late-model half-tracks have come out with their tow-hooks "double-anchored" as shown in Fig. 1. Longer mounting bolts are used, running down through the lower flange of the frame side-rail and lower front gussets. Spacers have been installed between the side-rail flanges and between the gussets.

If you've been having tow-hook trouble on your present half-tracks, it might pay you to double-anchor yours.

The set-up is slightly different between half-tracks with rollers and half-tracks with winches. For one thing, on half-tracks with rollers, you can't double-anchor the rear bolt of the tow-hook. There's a spring hanger in the way on the frame side-rail. In the second place, the bolt sizes vary: the front tow-hook bolt is a ¾" bolt, the rear is a ⅝" bolt. And they are of different lengths between the roller half-tracks and the winch half-tracks.

Anyway, here's the parts you'll need—it's also a guide as to which bolts go where: First, **Spacers**—you can't get these from supply but you can easily make them out of common pipe (cold rolled steel, SA 1010 or equal). The dimensions are shown in Fig. 2 but if we were you, we'd cut the pipe just a hair shorter than the 4-3/16" the drawing calls for, to make installation easier. When you tighten the bolt, it'll take up any slack.

For each winch-mounted half-track ..... 4 Spacers

For each roller-mounted half-track ..... 2 Spacers

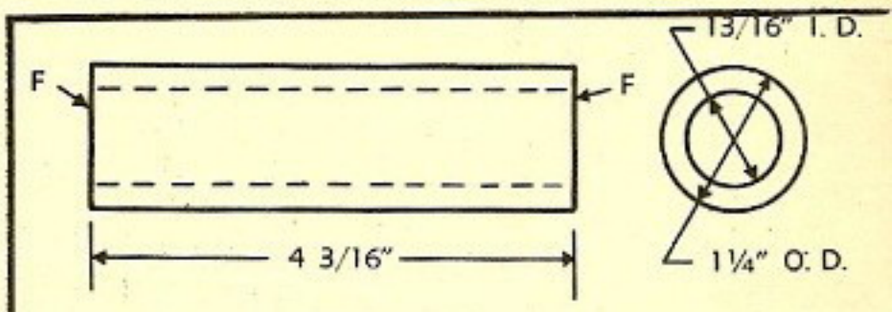


FIG. 1

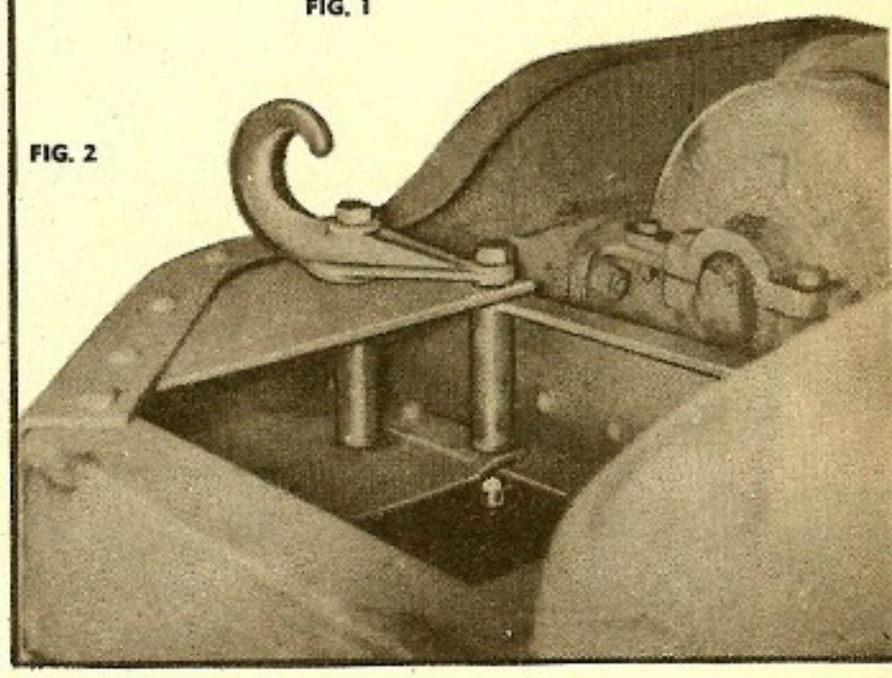


FIG. 2

Fig. 1.—Double-anchor your half-track tow-hooks by running the bolts down into the frame side-rail and gusset plate, and adding spacers. Fig. 2.—The spacers. Material: Cold rolled steel, SAE 1010 or equivalent.

You can get the bolts from supply:

For each winch-mounted half-track: **2 Bolts, Ord. Part No. A226123** (¾-16x8" long—these are the front bolts); **2 Bolts, Ord. Part No. A226122** (⅝-18x7⅛" long—these are the rear bolts).

For each roller-mounted half-track:. **2 Bolts, Ord. Part No. A381153** (¾-16x7¾" long—these are the front bolts).

In drilling, you won't need fancy layouts or drawings. Just use the top bolt holes as guides. Here, for instance, by the numbers, is how you drill the front bolt hole: (1) take out the present front bolt, (2) loosen the back bolt and push the tow-hook to one side, (3) using a ¾" drill for the front bolt hole, insert your drill down through the upper bolt hole and drill the hole in the lower front gusset.

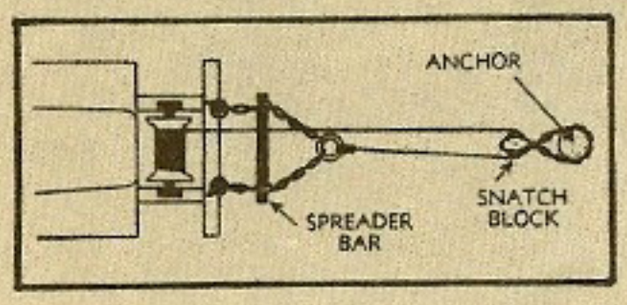
For the rear tow-hook bolt on half-tracks with rollers, you'll use a ⅝" drill.

Drill your holes, install spacers, long bolts, nuts and lock-washers —and your half-track tow-hooks, properly used are ready for anything.

TOW-HOOKS—give it to 'em straight

You wouldn't think that anything as uncomplicated as tow-hooks would require special directions for use, but take a look at the sad-apple tow-hooks—some twisted, some pulled over—decorating many of our vehicles, and you'll begin to believe maybe they do.

The whole story behind the use of tow-hooks is that they were never built to take a side-wise strain. A straight pull is the only thing they're guaranteed to stand up under. A pull from the side may bend them over, jerk up the mountings and generally cheapen the neighborhood around the front bumper.



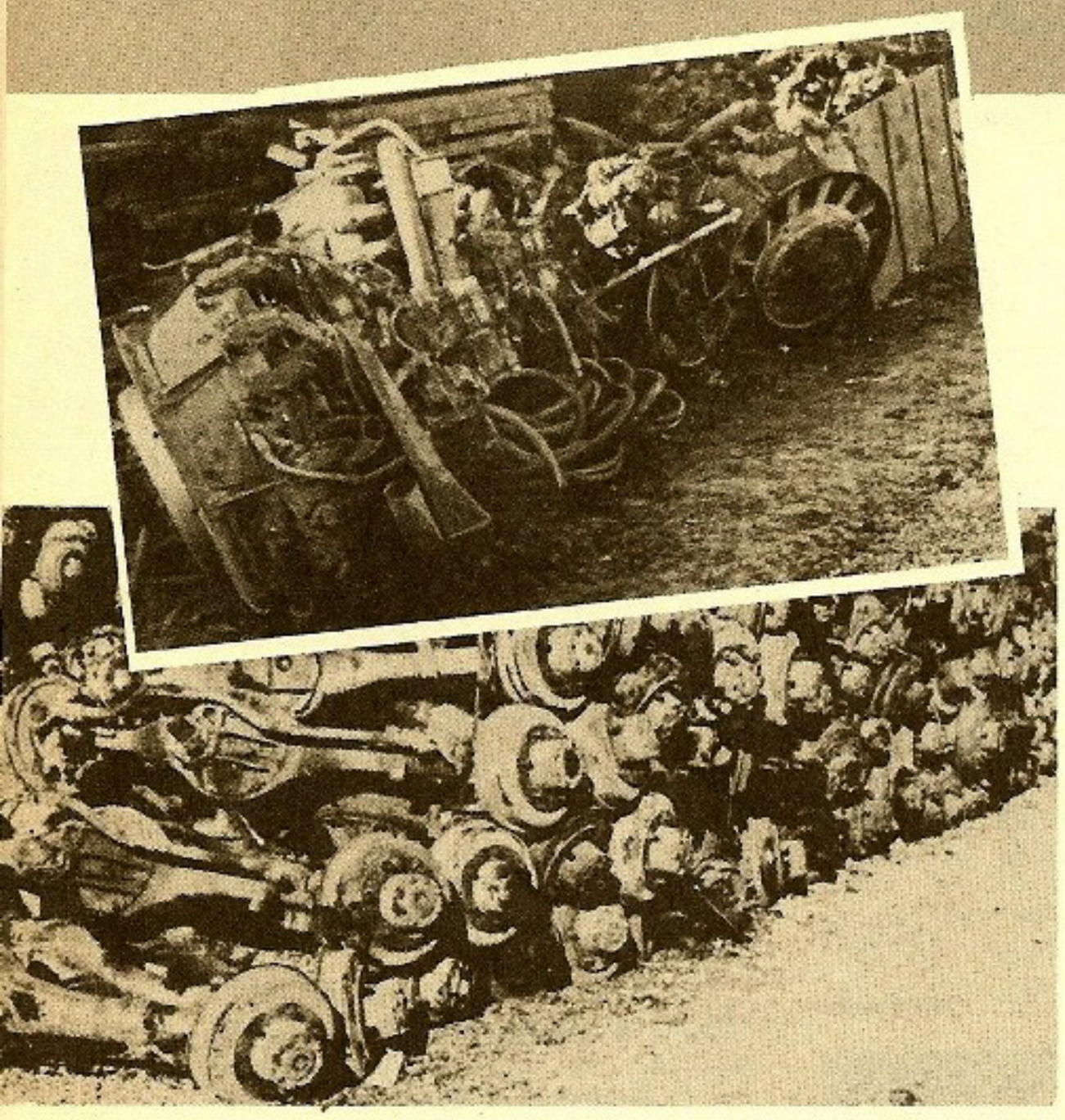
One of the easiest ways to get a beat-up tow-hook is to hook the tow chain over one of the hooks, pass it around the other, and then pull. This exerts a side-wise strain with the results noted above.

The absolutely best way to use the tow-hooks is with a spreader bar (see Fig). Where you get a spreader bar is your business, but if we were you we'd have one in our organization, hook or crook.

If you're caught without a spreader bar, rather than wrap the tow chain around both hooks thus exerting a side-wise pull, use only one hook and give it a straight-on pull. Of course, you've got to use discretion—a giant-size pull might conceivably distort the frame.

Remember: A straight pull and a careful pull.

Do You Like These



The radial engines in the top photo weren't shot up by the enemy—they were just given a dose of don't-give-a-damn treatment. Those axles, piled up like kindling wood, won't roll any trucks cross-country for a long time. The periscopes below were good; you can't even see your face in the glass, now.

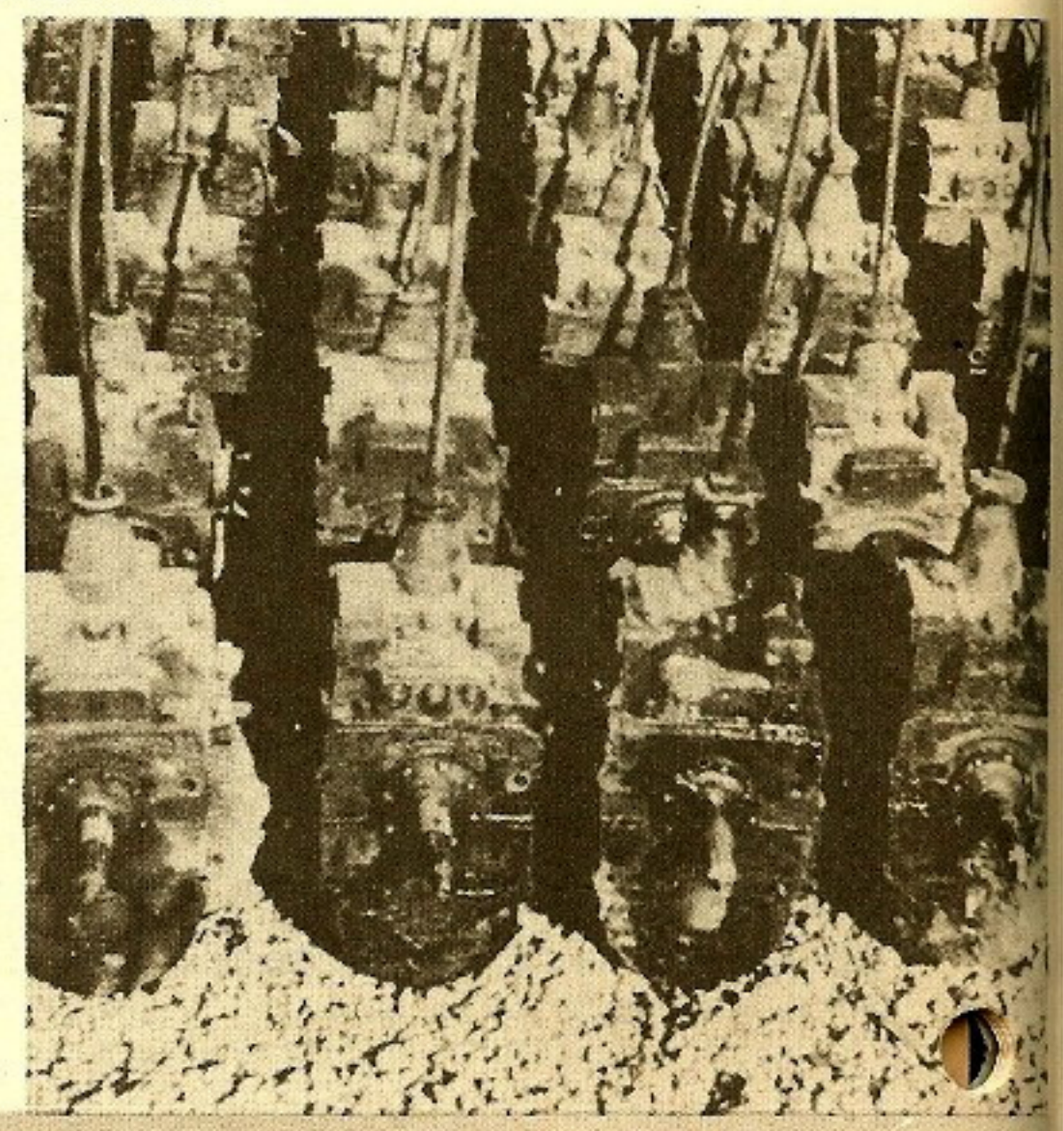
There comes a time in every company mechanic's life when you've just got to buck the book.

One of these times is when it's necessary to pull an engine. You know that the best thing to do with an engine that's shot is to **leave it in the vehicle** and turn it over to the higher echelon boys. But, once in a while, you'll find yourself in a jam—and you'll **have** to yank the engine. When that time comes, there's a few little, but important, things you'll want to remember.

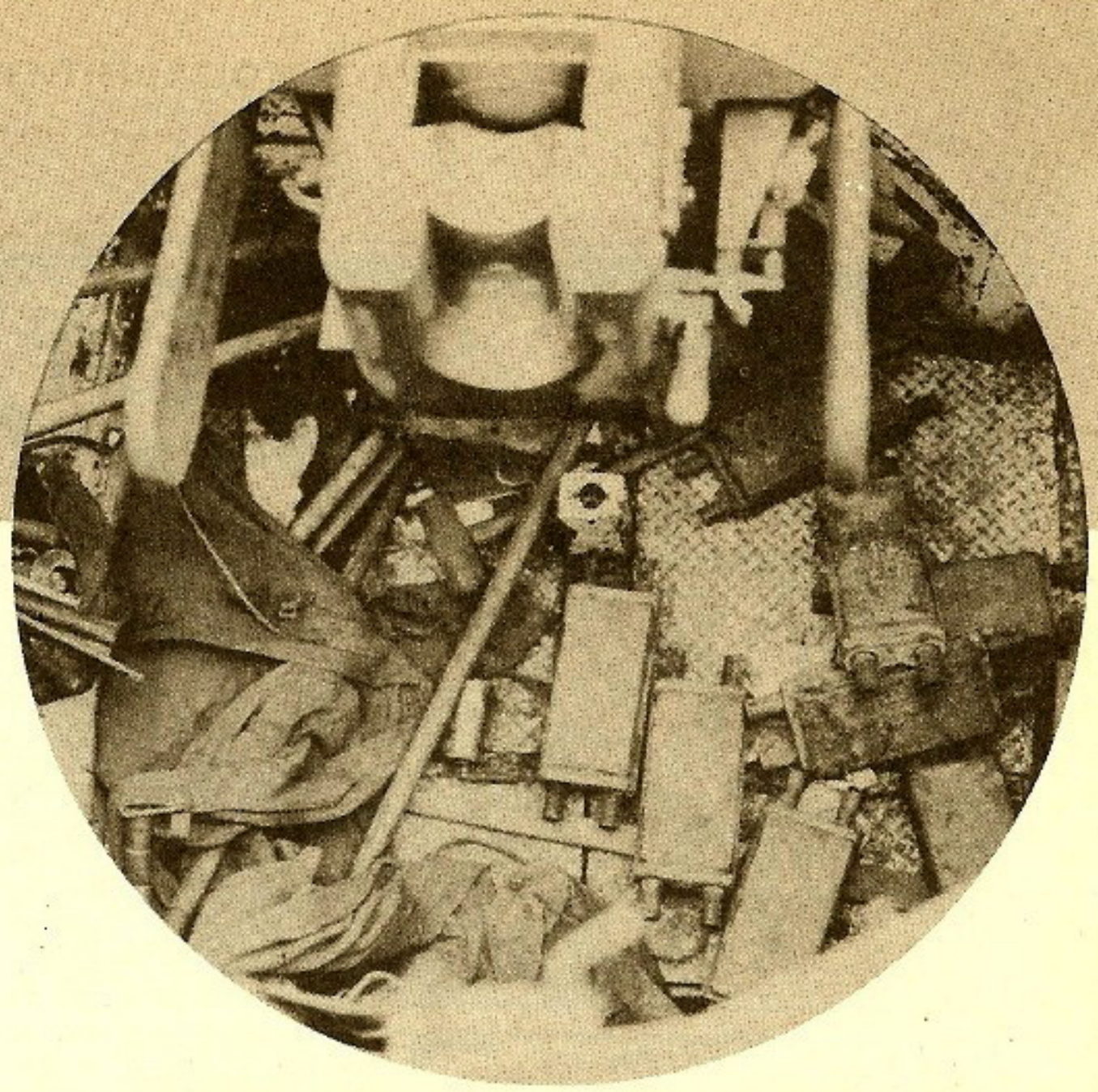
The first thing to keep in mind is that snatching off sub-assemblies is playing dirty pool. If you and a couple thousand other guys hold back generators or carburetors just **in case** you'll need them, there's gonna be an enormous pile of half-used sub-assemblies somewhere. Sure, WD Circular 274* (30 Oct. 43) says you can tie on a tag, if you must turn in an incomplete engine because of a smashed or missing minor part. But that's no engraved invitation for you to cover an engine with tags.

When the engine's in bad enough shape to be rebuilt, chances are the sub-assemblies could use a little rebuilding, too. Maybe it wouldn't be so bad if this business of stripping engines ended there. But it doesn't. The engine gets to the base shop and has to be tested. All the parts you swiped have to be replaced before it can ever be run for testing! All those missing parts have to be scraped up someplace —that someplace is the same supply depot where you

***Now being revised.**



Pin-Ups?



THEY AINT SEXY, BUT THEY'RE WORTH FRAMING—IF THEY REMIND YOU HOW NOT TO TURN IN EQUIPMENT

get your spare parts. And depots just aren't stocked to supply you and the base shop, both. So you end up raising hell when your requisition isn't filled in a hurry. Now, can't you see you're not hurting anybody but yourself when you strip an engine?

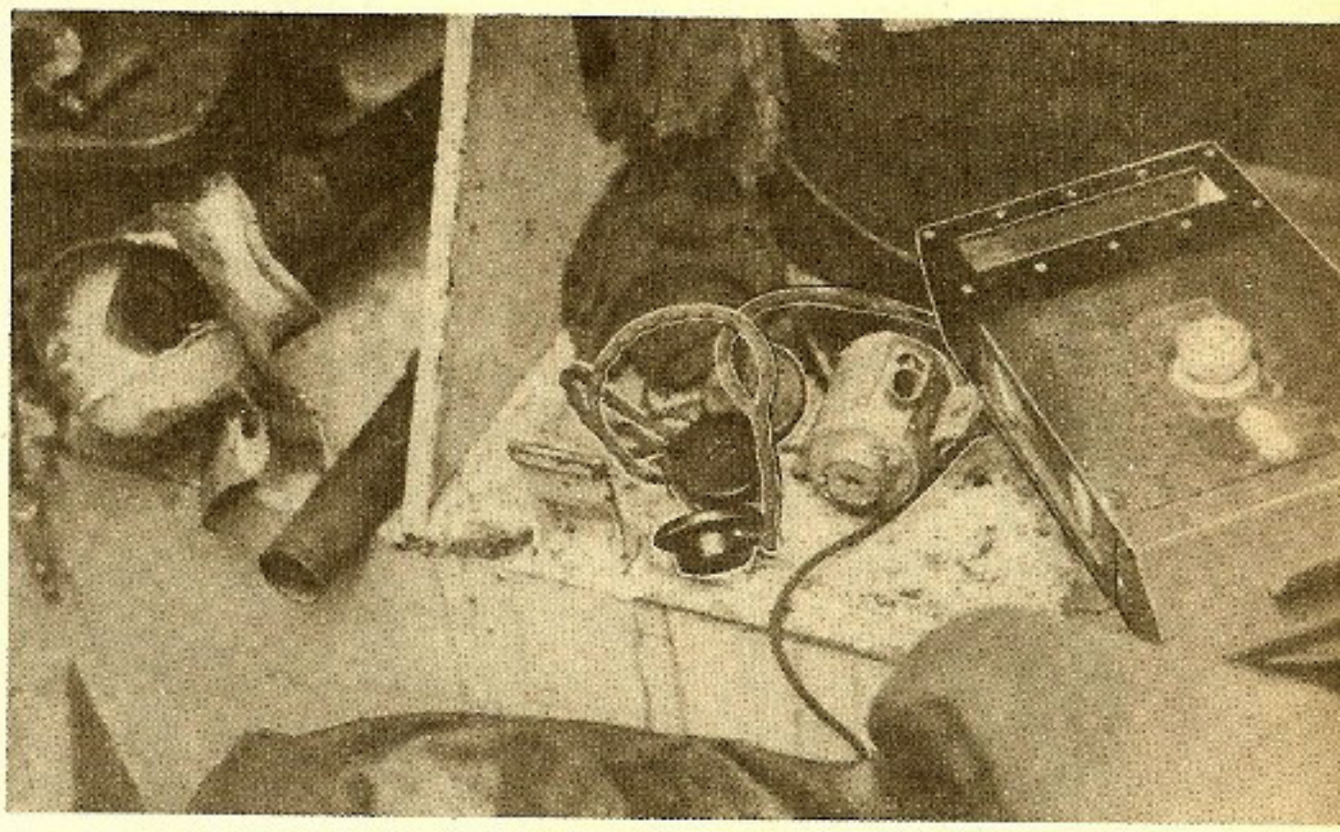
* * *

After you've removed the engine and left the sub-asssemblies **on,** the next step is to crate it. If you're going to slam that engine into the back end of a truck to take it to the shop, you might just as well throw it on the scrap heap. Minor parts of uncrated engines get smashed to bits. Beg, borrow, steal, or make a crate, since you're not likely to find them waiting right next to your broken-down vehicle. Use it to support the engine in the same position it's mounted in your vehicle. Block it so it doesn't fall over and bash the carburetor, air cleaner, or some other part that's hanging out. Best way is to block it at the engine mountings. Then no matter how the crate in turned, the load will be supported by the head or the block. Cover all gapping holes to keep out dust or sand.

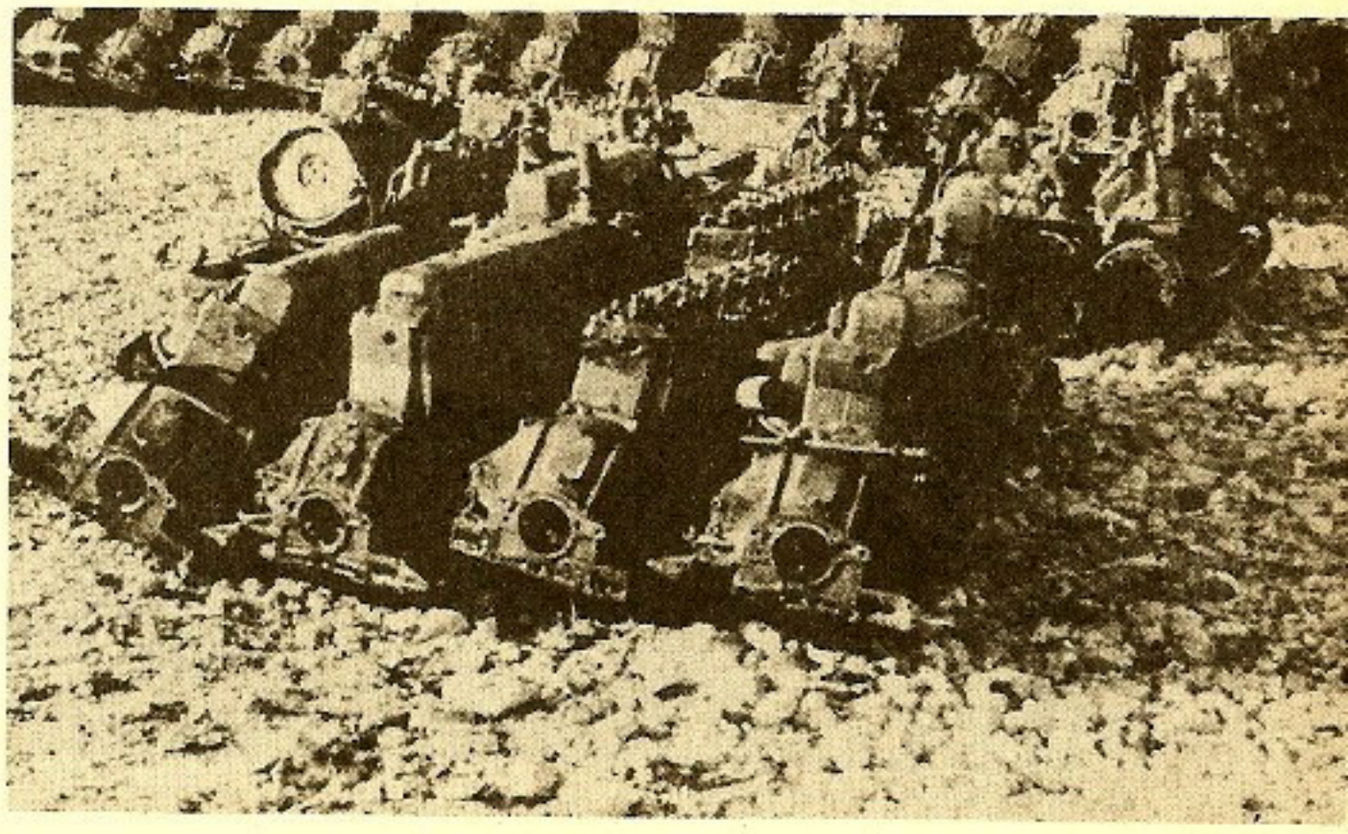
The same handle-with-care treatment you give engines turned in for repair applies to axles, transmisisons, transfer cases, or any other type of equipment.

The pictures on these two pages speak volumes for themselves.

Are they yours?



You'd think that the top photo was a bird's eye view of a gob-bage can, but it ain't. It's the way some of the boys took care of their gun motor carriage. Below, another corner in the same vehicle.



The Rockettes have nothing on the transmissions at the left, but at least they're not left out in sun and rain, unprotected. Even a dirty old tarp would help. The engines at the right are minus a few of the subassemblies they were born with, and a little crating would go a long way toward protecting what's left.

BY CWO WILL EISNER

JOE DOPE

YOU WHAT?

WHAT?

CHAPTER 5 MURDER BY MAINTENANCE !! The Great Spare Parts Mystery

YESSSIREEE..., I'M A **CHANGED** MAN... FROM NOW ON I'M GONNA BE ON THE BALL... I'M GONNA BE THE MOST MAINTAININ' MAINTAINER IN THIS WHOLE MAINTENANCE OUTFIT!

UH-OH! SUDDENLY I DON'T FEEL WELL...

NO MORE NEGLECTIN' MY VEHICLES.... NO SIREE... FROM NOW ON EVVYTHING'S GONNA BE DIFFERENT AROUND HERE!

WHOP

ER.... EXCUSE ME FELLERS...I'VE GOT TO SEE A MAN ABOUT A DOG...!

AHEM... IF YOU WILL PARDON ME T/S **HAMMERHEAD SHNOSS** I WILL RETIRE FROM THIS AUGUST GROUP FOR THE POIPUS OF DISCUSSIN' THE WEATHER WID THA OLD MAN!

WHY, NOT AT ALL MY DEAR **FOSGNOFF** I JUST NOW RE-CALL A **S.N.L.** I GOT TO READ

WHEN **JOE DOPE** STARTS TALKIN LIKE THAT... LOOK OUT BROTHER

GOSH MR. **JOE** THEY ALL LEF'

NEVER MIND **OMMY MOTUS** WE GOT WORK TO DO!

I'M JES' LOOKIN' FOR A CHANCE TO SHOW 'EM....

HEY, JOE, TAKE A LOOK AT MY 6x6 — IT STOPPED DAID! I JES' HAD IT HAULED IN!

WHERE SHOULD I PUT THIS MR. JOE

OH, BOY,- OH, BOY WHAT AN OPPERTOONITY TUH SHOW 'EM SUPER MAINTENANCE... I ORTA GIT A T/S OUTA THIS AT LEAST

PUFF PUFF PUFF

Tools

MEANWHILE.... 10 MILES AWAY --- THE MOTOR POOL OF AN ADVANCE ECHELON.

THE SARGE TOL' US TO GIT UP A 6x6 DIDN'T HE?

YEAH-- -BUT

O.K.- THEN

HEY, MR. JOE I.....!

DON'T BOTHER ME **OMMY MOTUS**.... I GOTTA DIAGNOOZE THE TROUBLE .... HMM I THINK I'LL REPLACE THE CARBURETOR AND THE DISTRIBUTOR

ONE HOUR LATER...

BUT MR. **JOE** I...

GO AWAY ---HMM, OH, WHAT THE HECK I MIGHT AS WELL REPLACE THE TRANSMISHUN TOO!

BUT MR. JOE!

OUR MISHUN IS TO GET THIS **TRUCK** GOIN'--AN' **I'M** JES' THE GUY WHO C'N DO IT! THROW ALL THESE OLD PARTS OUT ON THE SCRAP PILE... WE'LL GET NEW ONES!

BAW, BAW SNIFF BUT **JOEY**, IT'S THE LAST OF ME SPARE PARTS -- IT'LL BE MONTHS BEFORE I GET NEW ONES..... BOO HOO!!

HMMM, NOW LESSEE BEARINGS, TRANSFER CASE, ... STARTER

SNIFF...? GEE... CANTCHA USE SALVAGE? IMPROVISE ANYTHIN?

NOPE TOO MUCH TROUBLE

EW, HELLO♫ JOE♪ ER-AH COULD WE TAKE YR SCRAP--ER-WANTA MAKE A WASHIN' MACHINE!

SURE, TAKE 'EM ALL' ...THEY'RE NO GOOD FER NOTHIN'!

MR. JOE MR. JOE PLEASE LISSEN TO ME...

MUCH LATER....

WELL, SERGEANT SHORTPANTS, SEE WHAT I MEAN BY ME BEIN' ON THE BALL--I SURE GOT THAT TRUCK GOIN' DIDN'T I?

Y'SURE USED ENUF PARTS TO DO IT JOE!

BUT Y'DIDN'T REALLY HAFTA ALL THAT WUZ WRONG WIF THE TRUCK WUZ A BURNT-OUT CONDENSER!

BUT, GOSH JOE I TRIED TO TELL YOU ALL ALONG

JUST KEEP QUIET AND HAN' ME THAT BUCKET

COAL PILE

...AND TEN MILES AWAY!

FINE JOB OF REBUILDING, BOYS! WHERE'D YA FIND THOSE GOOD PARTS

OH, WE JES SCROUNGED AROUND SIR

Created and prepared especially for **ARMY MOTORS MAGAZINE**
by **CWO WILL EISNER—OFFICE, CHIEF OF ORDNANCE**

A CURE FOR
Hard Shifting on The M4

A pain in the arm to drivers are 3 short poppet springs in the transmission.

Have you been having a little too much trouble lately trying to shift gears on your M4-series tanks (or other vehicles using the M4 transmission)?

Slide down to the right side of the transmission and locate the three little buttons (or retainers) shown in Fig. below and we'll tell you a story:

The story is that behind each of those three little retainers are a poppet spring and ball. When you shift gears, the spring forces the little ball into notches on the shift rods in your transmission. The ball in the notch on the rod guarantees that your transmission will stay put in whatever gear you've shifted into.

In the early days of the M4 the transmission contained, behind each of these retainers (1) a **shifter-rod poppet spring** (Part No. A245957; free length 1-13/32"; (2) a **poppet-button plunger** (Part No. A143782); and a steel ball (Part No. CCAXIF).

Later on, however, somebody decided to do away with the poppet-button plunger. The result was that without the plunger, the spring did not have length and tension enough to hold the little ball in the notches on the shift rod. When you went to shift, the shifter rod would not go completely into neutral and the interlocks inside the transmission locked the other two shifter rods. Upstairs, you were saying all kinds of dirty words, but even with this you couldn't budge the shift levers.

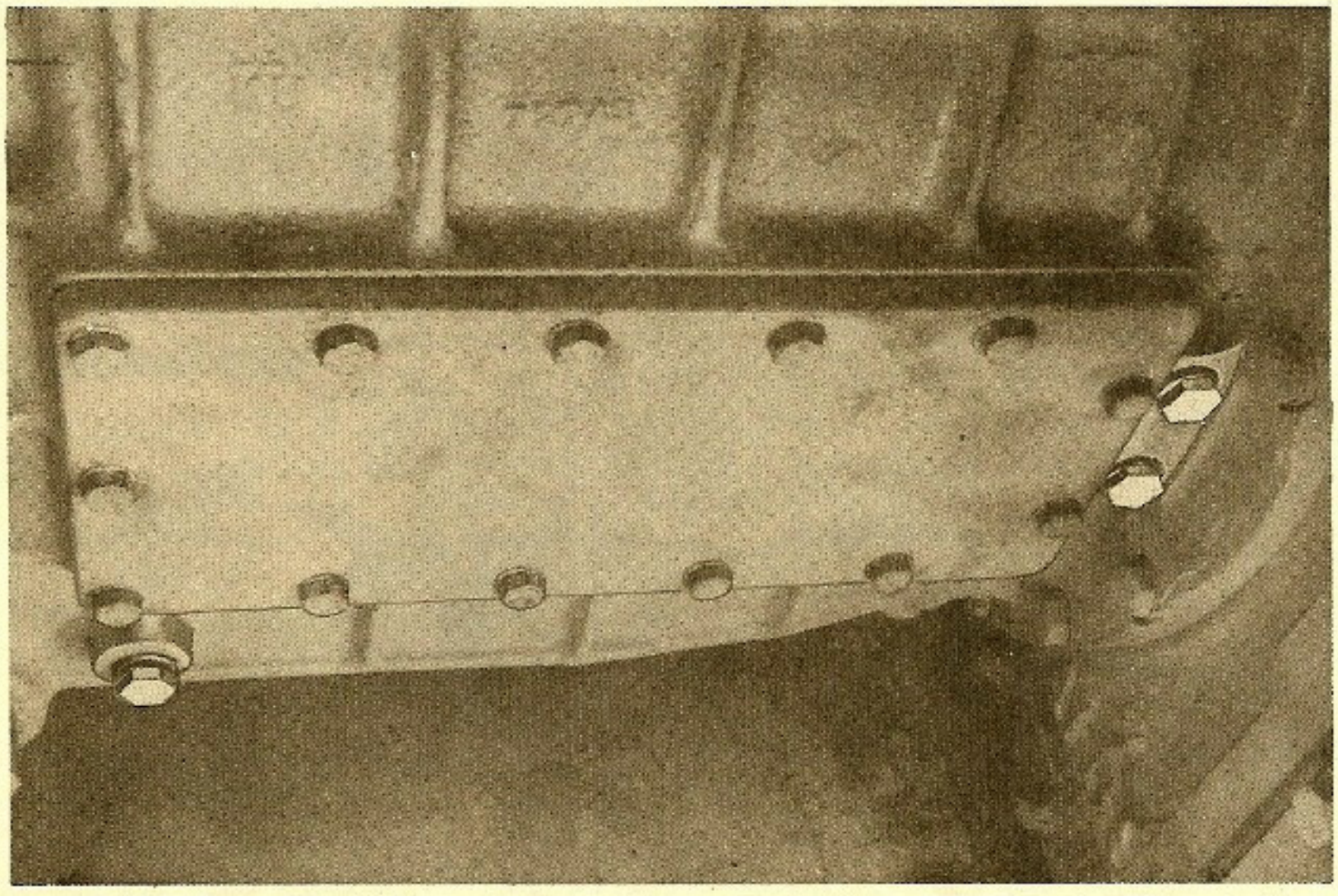
Now, however, comes TB ORD 98 (22 May 44) with three separate and distinct methods of correction. Depending on what parts are available, the corrections are (in their recommended order) as follows (to be made at each of the three retainers shown in our picture):

(1) If you can get it, install a **revised** spring (Part No. 245957). In ordering, specify **revised** spring and give the length, 1-19/32" (free length). Reason is they didn't change the part number when they changed the length of the spring. Also, your SNL describes this spring as being 1-13/32" in length — this is a typographical error. Change it to read 1-19/32".

(2) If you can't get the **revised** spring, see if you can get the poppet-button plunger (A143782) and install it with the present short spring (measures 1-13/32", free length).

(3) Finally, if you can't get nuthin', scratch around your parts common bin and see if you can't find a 7/16" O.D. by ⅛" thick washer (Part No. BEBX1). Install this washer behind the short spring.

Either one of these corrections should clear up the tough shifting problem on your M4 transmission.



Behind each of these three retainers on the right-hand side of the M4-series transmission is a poppet spring. The springs are too short. Therein lies the tale of hard shifting on M4-series tanks and gun carriages.

On Your Tows!

It's little things like pintle hooks, safety chains, and brake connections that keep you pulling

The towing vehicle is many tons of flying truck; the towed load may be a couple tons of jumping gun or bouncing trailer. The only thing that holds the two together is a couple pounds of anxious iron —the pintle hook. It's not very complicated, but it's got one bad habit: it picks up rust and dirt. Rusty and dirty, it'll clam up when you need it.

Far easier for you to spend a little time keeping it clean and lubed (with any kind of engine oil) than to be caught with your pintle hook down.

When you're cleaning the pintle, be certain you slick **all** the joints. Check the pin that fits into the safety latch. The safety latch wasn't put there to complicate matters, but to make sure the pintle won't open its jaws and let the trailer go flying downhill when you're going uphill.

The safety chains that hook from the truck to the trailer should be kept clean and lubed. Be sure the safety chain that throws the brake switch on the trailer—and the switch itself—get the right care, which means giving them the same cleaning and lubricating that the pinfle hook gets.

The fifth wheel needs lubing too. The grooves on the plates of the wheel are grease retainers—see that they retain grease. The grooves lubricate the rubbing surfaces of the upper and lower plates of the wheel and make for free and easy motion when you're pulling the trailer. And don't forget the rocker pins on the fifth wheel (the pins on each side that let the wheel rock up and down) need oil to help them do the rocking.

Here's a good suggestion from the field which ran in the February, 1943 ARMY MOTORS. When you disconnect the trailer, make a cap for the fifth wheel on the truck tractor out of an old burlap bag. Rig it with a drawstring and tie it on tight. This keeps the dirt, sand, gravel and everything else from sticking to the grease in the grooves.

The landing wheel on the semi-trailer is another wheel that needs checking. All parts of the landing wheel, legs and gears should be cleaned with dry-cleaning solvent and then lubricated. The parts should be inspected for fractures and distortions—if they're cracked or bent, they should be replaced or straightened.

The landing-gear legs should also be adjusted for length so that the trailer will start up the ramp on the truck tractor without your having to jack up the trailer. See TB 800-8 (30 Mar. 43). And something else that's good to know: if the landing wheel is on a swivel yoke, it should be turned so that the yoke is curved toward the rear wheels of the trailer. If it's turned out in the other direction, the landing gears will be damaged when the wheel is retracted.

Give the electric brake and air brake connections on the truck tractor a little attention, too. They have a snap cover, but that isn't reliable protection. We know of a case where a trailer-load of ammunition was almost lost because the air brakes didn't work—and after a helluva long time was spent trying to find what had gone on the blink, someone discovered candy wrappers stuffed in the air brake connection!

So keep the connections clean—scour them with steel wool (you can get it—Federal Stock No. 42-W-5018) and then wipe them with a clean cloth. The air brake connection needs lubing after the cleaning, but don't lubricate the electric connection—it's copper and doesn't need oil.

The hoses that fit the brake connections have probably been dropped on the ground and kicked around plenty, but they aren't orphans—give them some attention. Blow out the hose with an air gun to clean its insides (we hope you disconnect the hose from both trailer and truck tractor before using the air gun). Then clean all the metal parts of the hose with dry-cleaning solvent and if you have to scour the metal to get rid of dirt or rust —well, looks like you have to scour again.

We know of TM 9-1827A, "Power Brake Systems," which holds a pack of tips on how to make trailer brakes happy. And another good book for a cram-session is TM 10-560, "Chassis, Body and Trailer Units," which has lots of good reading on truck tractors and trailers in general—the hows and whys and whats on trailing. If you can't get your hands on either, any TM on trailers or truck tractors has good points for smooth trailing.

The most important point, though, is to make sure those connections stay clean and sparkling. They aren't made to tote dirt.

When You Brake Your Trailer —

Something we forgot to tell you in the April "Don't Break Your Half-track—Brake Your Trailer" article, is that the number of amps transmitted to the electric brakes when the dash-panel control was set on "Heavy," was figured for a four-wheel-brake trailer. If you're testing amperage on a two-wheel-brake trailer, you'll have to allow for the difference.

The amperage reading for **each braked wheel** on the trailer should be about 3.3 when the control on the dash panel is set on "Heavy," or in the No. 4 position.

Your Slip* Is Showing

FOR USING ORGANIZATIONS ONLY

Here's WD AGO Form 446, now specified for requisitioning spare parts when you can't make a direct exchange. (When you can, the Exchange Tag still goes.)

To save paper, AG Depots are using up their old QMC Form 400's—surprinted as shown here to function as Form 446. If you haven't got 'em, you can get 'em—or modify Form 400 for yourself. When the old forms are gone, there'll be an all-new 446 printed, laid out like the one on this page and used the same way.

Address your Property Issue Slip to the Supply Officer at the point where your outfit gets its parts and supplies.

Your organization—whatever it is—goes here with its **complete** address.

THE ITEMS ARE IMPORTANT, TOO

Get out your SNL's—the OSPE to see if you're entitled to the parts, and the SPC if you need a picture to identify them.

Copy the Official Stock Number, as shown in the SNL. This is the number on the bin where the part is stored in the depot. If no Official Stock Number is listed in the SNL, use the Ordnance or manufacturer's number here.

Copy the nomenclature exactly as it appears in the SNL, including **all** the part numbers you find listed. Indicate whether the item is issued as a unit (ea.), or in yds., lbs., ft., or whatever.

Double-space between items. It's neater.

WHAT'S YOUR AUTHORITY?

The Property Issue Slip editors have to know your unit's T/O & E, T/A, or T/BA, and which SNL you used. If you don't let 'em in on it, your PI Slip will bounce right back at you.

ANY SPECIAL NOTES

Down here you can add any special packing or marking instructions, reasons for unusual requests, love and XXXXX to the Supply Officer, etc.

WAR DEPARTMENT [redacted] PROPERTY ISSU

W. D. AGO Form No. 446
6 August, 1943

To: 859th Ord. Depot Co., Ft. Knox, Ky. Supply Officer

[redacted] Voucher No. 325 Date 6 June 194

For: [redacted] 896th Medium Tank Battalion, Ft. Knox,

[redacted] Issuance or acceptance of c
ties shown in "ACTION" column is authorized. Items marked "EX
be ordered. When received, these items will be issued on prese
of this slip. Inquiries must refer to No... 325-44
For the Station Supply Officer

Date

....., 194....

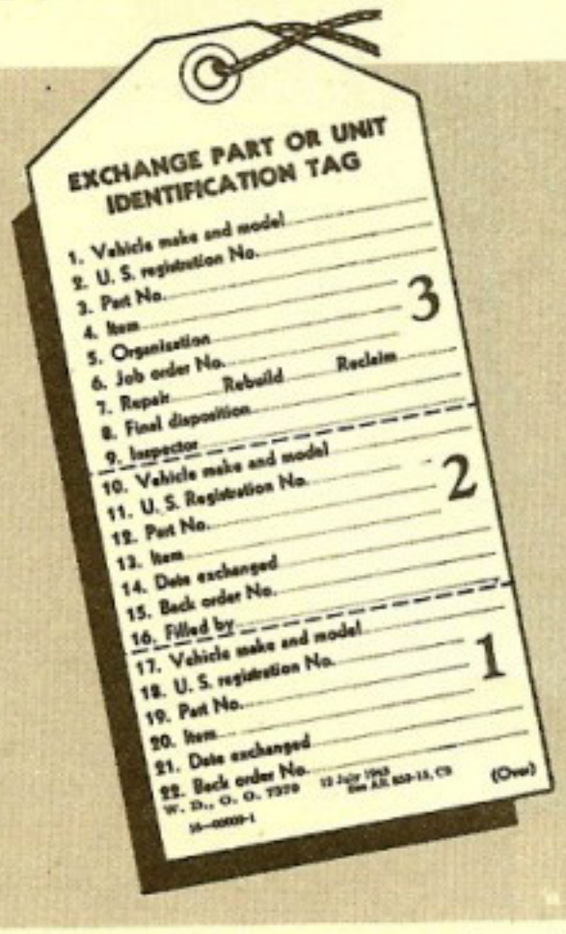
STOCK No.	NOMENCLATURE [redacted] UNIT	MAX. O [redacted] AUTH -LEVEI
	SNL G-104, Tank, Medium, M4A1	
G104-01-27700	GASKET, valve rocker box cover (oil resisting .030 thk.) (ORD. B167540; CWR-200695) ea.	70
G104-15-37883	CLAMP, hose, tube to air cleaner (ORD. B207304; CWR-202516) ea.	1
G163-01-39400	COIL, booster, assembly (ORD. C126369; DR-1115482) ea.	1
ORD. C74452A	ELBOW, ignition harness conduit at spark plug (CWR-201326) ea.	8

Authority: T/O&E 17-45S; OSPE, SI

Quantities shown in "ACTION" column have been received:

Date....., 194....

U. S. GOVERNMENT PRINTING OFFICE



EXCHANGE TAG

Used When Swapping Parts

This one hasn't changed a bit. It's still the Exchange Part or Unit Identification Tag, WD OO Form No. 7370. 2nd echelons use it when making a direct exchange of parts or assemblies. For the whole story, turn back to your November 1943 copy of ARMY MOTORS.

For Current Directives Covering Requisitions, See: TM 38-220, Stock Control Manual for Posts, Camps, and Stations (9 N

g . . . *IF IT'S A PROPERTY ISSUE SLIP (WD AGO FORM NO. 446, PRESCRIBED BY CHANGES 4 TO AR 850-15) IT OUGHTA LOOK LIKE THIS

RTY ISSUE SLIP

TYPE OF ISSUE

INITIAL	REPLACE-MENT	DEBIT MEMO RECEIPT	CREDIT MEMO RECEIPT
	X		

[redacted] pply Officer No. of Sheets 1 Sheet No. 1

Issue Slip No. [redacted] 325-44

e 1944

[redacted] t., Knox, Ky. (Organization Unit)

[redacted] Date 6 June, 1944.

eptance of quanti- marked "EXT" will ed on presentation

Officer

For the Commanding Officer:

John Doe
Capt., AF (Inf).

Organization Supply Officer

IIT	MAX. OR [redacted] AUTH. LEVEL	ON HAND	[redacted] DUE IN	QUANTITY [redacted] DESIRED	[redacted] ACTION
l					
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aner					
ea.	1	0	0	1	
ea.	1	0	0	1	
uit					
ea.	8	5	0	3	

OSPE, SNL G-104, Vol. VI, XI, XIV, 15 Feb. 1944

l:

PRINTING OFFICE o 16—25627-1

Authorized Representative

YOU NEED SEPARATE PI SLIPS FOR:

Items stored by each technical service—Ordnance, Quartermaster, and so on.

Expendable and non-expendable items.

Items requiring special authorization (if you're ordering items not listed in the OSPE, or quantities in excess of authorized allowances, you'll have to tell **why** in a note at the end).

Items required for each vehicle (give the proper vehicle nomenclature, model, and SNL number before listing the parts).

HOW TO FIGURE THE QUANTITY TO REQUEST

In the designated column, fill in:

The maximum quantity you're allowed to have in stock (as recorded on the stock record card).

The quantity you have in stock now.

The quantity you've already ordered but haven't received.

The quantity you still need to bring your stock up to the maximum level (this added to "on hand" and "due in" should equal the "maximum or authorized level" quantity).

Leave the "action" column blank (this will be filled in at the warehouse).

NOW IT'S READY FOR APPROVAL

Your organization Supply Officer will approve and sign for the unit's CO. His signature will be taken to mean that the requested parts or supplies are necessary and that they won't add up to more than your authorized allowances.

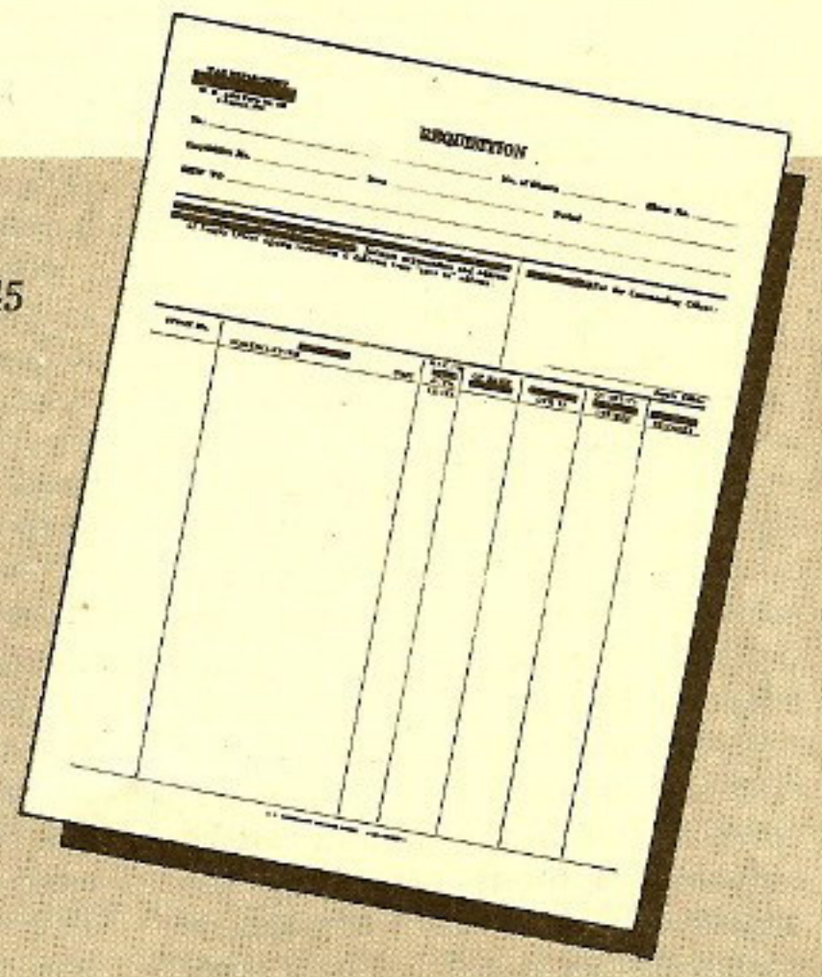
THAT'S ALL, BROTHER

Then when you get what's coming to you, somebody in the outfit signs your PI Slip at the bottom. The "authorized representative" in this case isn't your Congressman.

REQUISITION

Form 400 Becomes Form 445 For Higher Echelons

Surprinted somewhat differently, the old QMC Requisition now serves as WD AGO Form No. 445. It's used by higher echelons, by posts, camps, and stations, by overseas theater depots, to order parts and supplies—including items extracted from organizations' PI Slips.



ns (9 May 44); ASF Manual M-403, Station Supply Procedure (1 Sep. 43); and WD Supply Bulletin 9-20 (18 Mar. 44).

BULL SESSION ON THE M8, M20

CONTINUED FROM PAGE 101

facturer feels it won't do the bearing any harm to have a shot of grease at the time of overhaul or when the clutch is taken down for inspection. That's the only time the fitting is to be given a shot of grease. The reason they went to a sealed bearing was to prevent overlubrication that would spill grease all over the clutch and put it out of the ball game.

Half-Mast

Dear Half-Mast,

We've just got a shipment of M8 armored cars and I find that most everybody that drives them, revs hell out of them in the low gears. It really burns me up, but I'm only the sergeant and all I can do is holler my head off. Why didn't they put some kind of obstruction or restrictor in these vehicles like in the half-track—at least for the first 500 miles. It would save us quite a few engines.

S/Sgt. T. R. N.

Dear Sergeant,

I agree that a restrictor plate might have been a good idea—but this car was supposed to be ready for anything, including action almost immediately, so they left the restrictor out. They tell me, that in order for the M8 to be ready for use as soon as it hit the field, they gave it greater piston clearance and made the by-pass in the thermostat housing larger to give better cooling. As far as I'm concerned, I'd still give it a careful break-in, just to be on the safe side. And be damn sure the driver follows the warnings on the caution plate in the driver's compartment and uses the proper gear for the speed he's going.

Half-Mast

Dear Half-Mast,

Here's a little condition I ran into on the M8. The oil filter is mounted on a base which also contains a water passage (Fig. 5). Between the water passage and the oil passage to the filter there's only a thin gasket. Now, with the filter subjected to a lot of vibration, you get oil running into the cooling system and vice versa. How about installing a brace from the oil filter to the nearest cylinder-head stud to keep it from shaking loose?

T/Sgt. R. J. R.

JUICY TIPS FOR M8 AND M20 OPERATORS

(Continued from page 101)

it allows play in that pocket bearing — not only will the pocket bearing be ruined, but you'll find your transfer case walking out of gear. Keep that nut tight.

* * *

You fellas whose T/O&E's allow you two radios to cart around in your M8, are hereby notified that a forthcoming WDMWO will give you another shelf to install to accommodate your second radio. Don't start writing for the part, wait for the work order.

* * *

If you look at page 107 of the light armored car technical manual you will find the oil pressure specified as 26 lbs. This was true once upon a time, but since October, they've been setting the oil pressure up to 35 lbs. at the factory. Upon the advice of the OCO-D, Maintenance Branch, you may go ahead and do likewise. As you can read in the TM, the oil-pressure regulator is incorporated in the oil pump, and can be adjusted without removing the engine oil pan. The oil pressure is automatically regulated by a compression spring which controls a by-pass valve. The oil pressure must be set at (and here's where you make your maintenance-manual correction) 35 lbs. at 1600 rpm's when the temperature of the oil is about 140° F. Using the special crowfoot wrench (41-W871-40), loosen the locknut. With a T-handle socket wrench, turn the screw in to increase the oil pressure.

* * *

Another couple things you want to watch on these babies are the valve adjustment and the timing. In adjusting the valves (intake .008; exhaust .010) be sure the locknuts are properly tightened.

Keep an eye on the clamp bolt at the distributor to make sure it doesn't loosen and mess up the timing. And remember in setting the timing, follow the TM directions which say, "Hold the spark plug end of the No. 1 plug wire ⅛" away from the cylinder head. Turn the engine over until the timing mark on the flywheel is **¼" in advance of the index mark.** Rotate the distributor to the point where the spark occurs between No. 1 spark plug wire and cylinder head and tighten the clamp bolt. The engine will then be timed two crankshaft degrees advanced. Reinstall the spark plugs."

M8 AND M20 MODIFICATIONS

Just to keep you hep on all the latest developments on the M8 and M20, here's a couple of modifications that are in the wind:

Heavier armorplate on the floors as protection against land mines.

A new AA machine gun mount for the M8.

* * *

At no extra charge, here are the work orders and the TB's issued on the M8 and M20 to date:

TB 743-1 (29 Nov. 43) tells you to remove the fire detector system at the first major overhaul.

TB 743-2 (13 Dec. 43) talks about adjustment of shock absorbers (but, as we reveal in our story, the shocks are no longer adjustable).

TB 9-743-4 (6 Jan. 44) tells you that the copper-asbestos gasket has been replaced by a steel gasket—which requires 75 foot pounds of torque on the cylinder head cap-screws.

TB 705-13 }
TB 74303 } tell you what accessories have to be jerked around in order to make the Hercules JXD engine in the M8 and M20 completely interchangeable with the Hercules JXD engine in the scout car M3A1.

FSMWO G136-W1 (9 Nov. 43) gives you the dope on the modification of the front springs, front knuckle guards, and draglink assembly.

FSMWO G136-W2 and G176-W2 (4 Oct. 43) fixes the gas-gage float arm so it won't cut the gas tank bulletproof liner, and also gives you a new draincock to install in the fuel tank which has a screen in it to prevent trash from entering the lines.

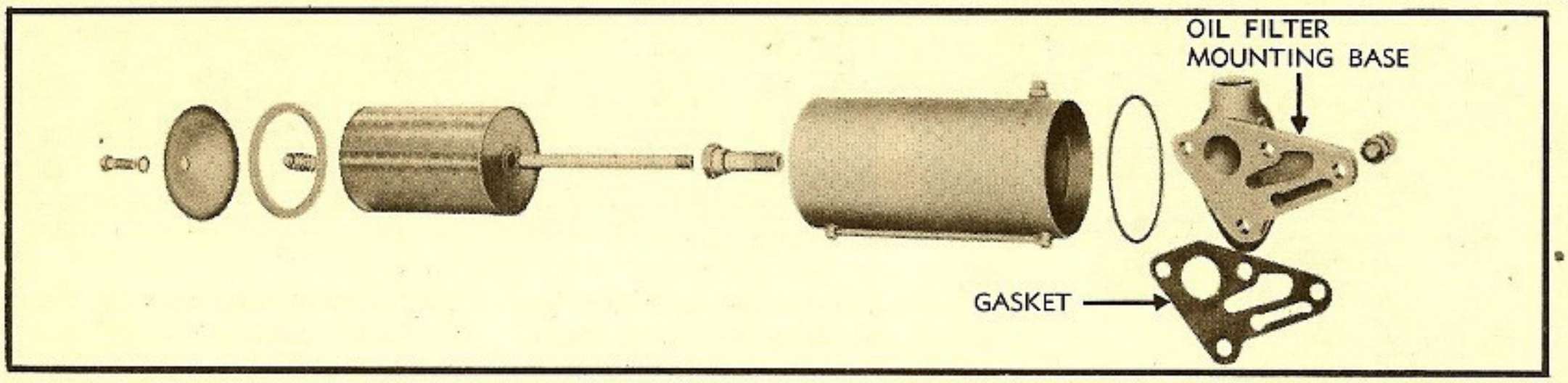


Fig. 5—An unevenly machined oil filter mounting base will allow oil to creep into cooling system and vice versa.

Dear Sergeant,

Your complaint of oil getting into the cooling system through the oil filter is something the rest of us M8'ers better look into. The trouble is that on some of the early M8's, the filter mounting-base wasn't machined smooth and the oil could get past the gasket and into the water passage. Although a brace such as you suggest will always help in cases of extreme vibration, the real trouble here is the uneven mounting base. I'd try putting an additional gasket on the base and tighten down the bolts holding the base to the engine block.

Half-Mast

Dear Half-Mast,

Why didn't they put a tachometer in the M8? With the engines being in the rear, it's hard for the driver to judge the speed of the engine, thus overdriving it.

Sgt. W. F. W.

Dear Sergeant,

They tried to put a tachometer on this job but with the engine and the transmission being in the rear, they would of had to make a technicolor production to get it in there right. And then with all that linkage the damn thing wouldn't of been dependable. The best they could do was install a caution plate showing the driver what was the highest speed permissible for each gear (depending on him not to burn the engine up by revving while standing still). They didn't even put a governor on this engine. In the kind of action the M8 is headed for, it'll need all the moxie the engine can turn out. All this indicates that the M8 driver has to be a smart joe—keeping the engine rpm's down where they belong: take hills in the highest gear possible without lugging the engine and going downhill in the gear ratio that corresponds with the speed he's going (see caution plate).

Half-Mast

Dear Half-Mast,

We're operating a number of armored cars, M8 in a section densely covered with trees, especially pine. Have a difficult time keeping leaves and pine needles from clogging up radiator cores. To overcome this we covered the engine compartment door louvers with ¼" wire mesh screen. This is easily wired to supports on the outside of the louvers, and has eliminated all this trouble. Have also had trouble (in extreme heat) with battery sealing compound becoming loose—fans draw battery solution down across the distributor cap causing electrical leaks in caps and shorts across the terminals. How about putting the battery in a box or outside the hull? Also why didn't they put the battery master switch up in the driver's compartment. (Hell, I forgot about the shortage of materials.)

Carl C. Vought
Civilian Automotive Advisor

Dear Mr. Vought,

That fine-mesh screen is a good idea for anybody with the same trouble. Also I've been wondering if maybe that clogged radiator core didn't have something to do with the battery getting over-hot and causing the sealing compound to melt enough to allow the electrolyte to escape. Of course, with the radio in the M8 and with such a high charging rate, that battery is liable to get pretty hot. Usually, electrolyte escaping is due to the boys overfilling the battery—and this is a point to look out for on the M8. But putting the battery in a box will make it even hotter since then it won't be getting the cooling air drawn in by the fan. And putting it outside the hull takes away all its protection. Anybody else have this complaint?

About the master switch location—well, they put it back there so they wouldn't have to wind the cable all along the hull up to the driver's compartment—which would increase its chances of getting hit. If it did get cut, the whole electrical system would be knocked out. I realize that because the master switch is so far away it's left on half the time, but this is another thing you've got to teach the boys.

Half-Mast

Dear Half-Mast,

A question has come up regarding the correct procedure for bleeding the second series hydrovac unit which is used on 2½-ton GMC's and on M8 armored cars.

TM 9-743 (10 Mar. 43) on the M8 armored car says, "The Hydrovac unit must be bled at the (3) bleeder valves in the following order, 1, 2, and finally 3. The No. 1 valve is the farthest to the rear on the unit."

TM 9-801 (12 Apr. 43) on 2½-ton GMC's says, "It is especially important that the Hydrovac be bled in the correct sequence. Refer to Figure 174 and bleed the Hydrovac at the bleeding screws in the

(Continued on page 128)

I Love My

Fig. 1
Kidde-LUX

With important things such as kitten and beer on your mind, we don't know whether you've given any thought to the fire extinguisher on your truck lately. But a small tongue of flame that licked up out of the clutch pedal opening and ate the brogan clean off our foot, brought home the realization that the extinguisher is just about as important as any other weapon in the deck.

But being present and accounted for is not enough—you've got to be sure the extinguisher is hopped up and ready for use. When you need it, you need it bad and there's nothing in the world that'll take its place.

Portable extinguishers mounted in vehicles are of two basically different types: carbon dioxide (CO_2) and carbon tetrachloride (CCl_4).

They differ slightly in operation and maintenance—but all should be checked daily for the same things.

First, the cylinder itself and the handle or squeeze grip should be checked for dents. If bent or damaged, the extinguisher is injured internally and probably won't pump when the time comes. Replace banged up extinguishers.

Mount the extinguisher snug and tight in its mounting brackets to prevent injury next time.

The discharge nozzle must be clean—a clogged or dirty nozzle won't squirt.

Additional maintenance, and operation will depend on the type of extinguisher you've got. Here's a play-by-play description.

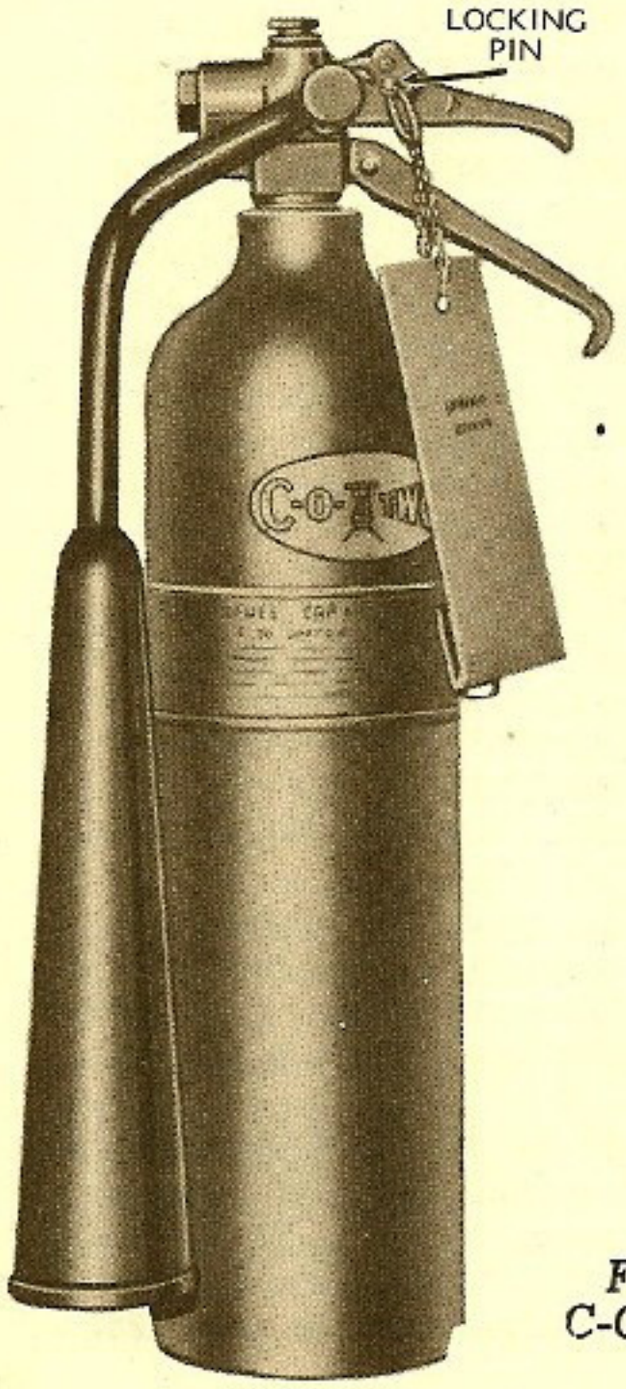


Fig. 2
C-O-Two

CARBON-DIOXIDE EXTINGUISHERS

The carbon-dioxide gas extinguishers are the **C-O-Two** and the **Kidde-LUX.** Inspect them monthly to see if they're still fully charged. This can be done only by **weighing the cylinders**—you won't get an accurate result with a pressure gage.

The C-O-Two extinguisher has the **empty weight stamped** on the valve for use in making the weight check. This weight does **not** include the weight of the discharge horn, so take off the horn before weighing the cylinder. Now, subtract the empty weight stamped on the valve from the full weight—the difference should not be less than 3.6 lbs. If it is less, the cylinder needs recharging.

But you don't recharge carbon-dioxide fire extinguishers. All servicing and parts replacement on these extinguishers are done by 3rd-echelon. Replace the empty or partially empty extinguisher at the 3rd-echelon shop for another that has been recharged. Weigh the replacement when you get it. If it's over-weight, take it back—else the pressure built up inside the over-weight cylinder will break the seal, discharge the gas, and leave you with an empty extinguisher.

On the Kidde-LUX extinguisher, the **full weight** stamped on the valve **does** include the weight of the discharge horn. When you weigh this extinguisher and find that the weight is ¼ lb. or more under the weight stamped on the valve—replace the whole extinguisher.

Carbon-dioxide extinguishers are easy to operate. They have a sealing wire in the trigger that must be broken before the cylinder will discharge its fire-killing gas. When you're using a Kidde-LUX extinguisher (Fig. 1), all you've got to do is pull the trigger—like a gun—and the sealing wire will be automatically broken. Then keep the trigger pushed in, and direct the spray with the discharge horn.

The C-O-Two extinguisher has a locking pin in the trigger (Fig. 2) that must be pulled before the

Fire Extinguisher

sealing wire will break. You then discharge the cylinder by squeezing the trigger and the handle together. But remember to pull the locking pin first, or you won't get any action from the extinguisher.

CAUTION: Don't touch the "snow" that sprays from the extinguishers. It'll give you a sorta painful case of frost-bite.

CARBON-TETRACHLORIDE EXTINGUISHERS

Carbon-tetrachloride extinguishers are the **S. O. S. Fire Guard** (Safety Phlare), the **Pyrene,** and the **Fire-Gun.** To check, monthly, for fullness fasten the handle in the locked position and shake the cylinder. The extinguishers can lose their fluid by evaporation and by guys testing them. When you shake the extinguisher it must feel and sound absolutely full.

It's also possible for the fluid in these extinguishers to become dirty—from oxygen or dampness sneaking inside the cylinders and forming corrosion—so every four months pump the fluid into a clean, glass container for a check-up. If the fluid's not dirty, put it back into the extinguisher. If it is dirty, replace it with fresh fluid. **Requisition Liquid, extinguisher, fire; 1 qt. container, Item Stock No. K2-01-00440; or a 1 gal. container, Item Stock No. K2-01-00445.**

Never put water in the fire extinguishers. Moisture, even a little bit, will mix with the extinguisher fluid and cause hydrochloric fumes that'll corrode and damage the internal parts of the extinguisher—and also render the liquid itself practically harmless to fire. Replace dirty fluid and leave the extinguisher alone—don't try to clean its insides.

These 1 qt. carbon-tetrachloride extinguishers (Fig. 3) are operated by a pump handle. First, release the handle from the locked position by turning it ¼ turn right or left—then pump away. The liquid will spray out on the upstroke **and** downstroke; the faster the pumping action, the farther the liquid goes.

Immediately after use, refill the cylinder with the fire-extinguisher liquid mentioned above. You fill all carbon-tetrachloride extinguishers the same way. Here's how: remove the gasket and plug from the top of the extinguisher. Using a funnel, pour the liquid through the filler hole. Replace the gasket and plug and make sure they're tight. Then put the extinguisher back where you got it—it'll be there the next time it's needed.

HOW TO USE AN EXTINGUISHER

Now that you've got your portable extinguisher in fighting shape, you've got to handle it right to quench a fire in the least possible time. Direct the stream from CO_2 extinguishers at the base of the flame, or if the fire is over a level stretch of ground, at the part of

(Continued on last page)

Fig. 3—Left to right: S.O.S. Fire Guard, Pyrene, and Fire-Gun

CONTRIBUTIONS

Dear Editor,

We had the inside of the light switch on a ¼-ton trailer all rusted and corroded because mud and water from the rear truck wheels had splashed on it. I think it would be a good idea to put a mud flap on the front of the trailer to protect the switch.

Here's an idea for convoy driving that we use over here—it might help the boys out back home. We learn to keep our trucks 60 yards or so apart by using telephone poles as spacing guides—that way, we can hold our positions easily.

Pfc. Winfield Luther
Co. D, 115th Infantry

(*Ed. Note*—A mud flap for the trailer light switch certainly **is** a good idea. Using telephone poles to space your trucks when in convoy is a swell trick, too—provided there **are** telephone poles.

Dear Editor,

A year ago last summer we sweated out both the IV Corps and VIII Corps maneuvers. Motor transport was in fine shape. We lacked many of our 2nd-echelon tools, but still had enough for the 6000-mile inspections. But we cried about it and felt very abused, indeed. Supply was good—parts were usually available from stock. Yet if parts were backordered for a week or ten days, we cried the blues. Now look at us over here. Did you ever see anything sadder than a handful of requisitions with all or almost all items zeroed?

We took to the salvage yards. In most of them you need a pass signed by God Almighty to get in, but if you make friends with the officer in charge, you're all set. The Tunisian Campaign was just over and we were working plenty hard. From the start of the campaign until October, 1943, parts were hell to get. We used to ferret out depots within a radius of 200 miles and just keep working them. Of course, until May or so, there were no parts to speak of. Our motor sergeant was kept busy just hunting up salvage parts. We've used more salvage parts from junk yards than we ever used from Ordnance stock.

Why not make the supply problem tough on maneuvers? Make it as tough as it is over here. The lessons learned will pay dividends where they really count. The American soldier is the most ingenious and mechanically minded in the world—use that ingenuity. Learn to work with little and achieve much. On maneuvers, why not fill a yard with the average salvage from the combat zone, to use as the supply point?

Chevrolet parts were almost unknown over here. We broke every front Chevy spring in our company at least once, as our work takes us across country-to-hell with building telephone lines. After several breaks in each spring, we located a new supply—a British Chevy spring with an extra leaf. It throws the front end up slightly, but we haven't had a break since we changed to them. On jeep springs, which broke at the shackle, we got another broken spring, dismantled it for the broken leaves, cut each spring so the good shackle was at one end and the break came near the center. Then we had it welded and had a serviceable spring.

What do we do when an Engineer or Signal Corps special trailer ruins its bearings? Replacements are hard to get, even in the States. We got an old rear differential of the correct load capacity, removed the gears and axles, and put plates over the axle flange holes. Next we cut the housing off at each end, leaving about 3" next to the backing plate, and arc welded a piece of steel pipe (steel shaft, salvage drive-shaft, or what-have-you) the correct length, to the two differential ends, being sure they lined up correctly. This makes a trailer axle assembly using standard parts and it just won't quit.

When outfits are busy, there's only one way to keep up preventive maintenance and that's by working at night. Business during the day's too pressing to have a deadlined vehicle. We've stressed 1st-echelon maintenance all along the line. It saves our mechanics much work and keeps our trucks in good shape after 20,000 miles of driving.

Lt. C. W. Converse
Tunisia

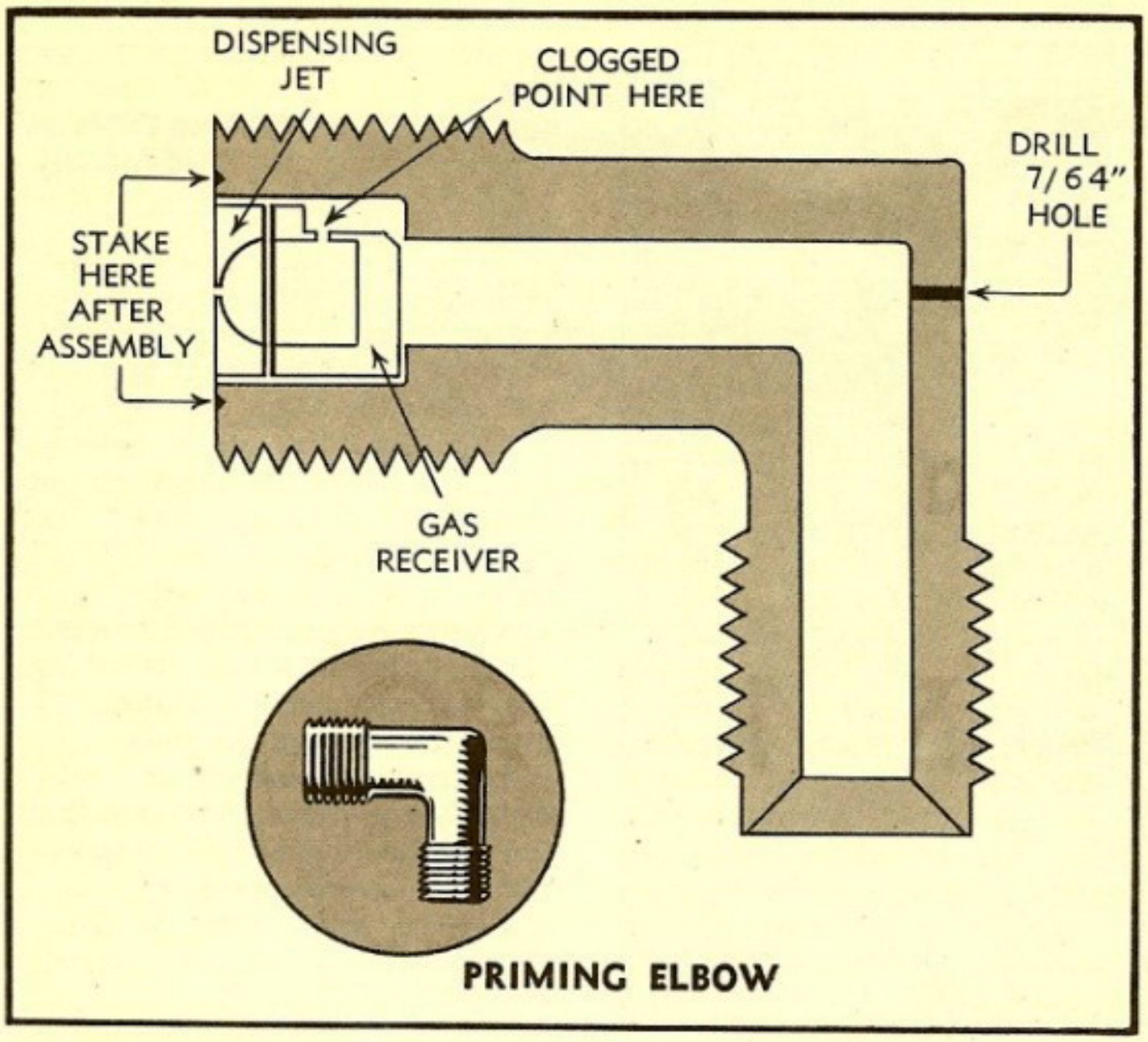
Dear Editor,

We've been having trouble with the steel rivets that fasten the brake lining to the brake shoes on ¼-ton 4x4's. When the trucks are used in mud and water, the lining gets soft and quickly wears down to the rivets. The steel rivets cut the drums and ruin them, so the trucks are often out of action two or three days while they're being repaired.

I suggest using brass rivets, since they aren't as hard as steel and wouldn't ruin the drums when the lining is worn.

T/4 George C. Bible
1st Bn., Hq. Co., 142 Infantry

(*Ed. Note*—No doubt about it—brass rivets are better than steel. We were using brass rivets up until the time brass became critical. Then the manufacturers went to steel. So until they start using brass again, you'll just have to watch brake-lining wear extra-close.)



PRIMING ELBOW

Dear Editor,

We've had a lot of trouble with priming elbows (Continental No. CWR 200974) becoming stopped up on our R975-C1 radial engines.

I found that they could be reclaimed by drilling a 7/64" hole in the corner of the elbow (see Fig.). Then use a 3/32" pin punch to drive out the gas receiver and dispensing jet. Before reassembling the unit, braze the hole shut and clean out any obstructions that might be left from brazing.

Remove the solid that's plugging the hole in the gas receiver (usually a piece of packing from the priming pump) and reinstall the receiver and dispenser.

If the gas receiver isn't tight enough after reassembly, use a center punch to stake it at the points indicated in the figure. I've reclaimed more than 100 elbows this way and the gas dispensers haven't needed staking to hold them tight.

Louis W. Boyler
Modification Advisor

Dear Editor,

Here in the tropics we were always running into trouble with hot patches because they were completely wet and rusty when we wanted to use them. (Doesn't this sound funny about hot patches? It's the truth, though.) I've rigged up a hot-patch incubator that's a simple device for eliminating the trouble. A sketch is inclosed.

Make a wooden box 12"x12"x18" and furnish it with an inside socket for a 150-watt bulb. Drill five ½" holes at the top and attach two hinges at the end section for a door. Connect a power line to the socket and insert a bulb.

The hot patches are then placed inside to be dried with the heat generated by the bulb. After about 8 or 10 hours, those patches are so dry they'll burn like gun powder.

If you believe this idea is OK, please pass it along to the rest of the gang.

Lt. Guillermo Silva
295th Infantry

(Ed. Note—It sure does sound funny about hot patches being completely wet and rusty when you need them. Each hot patch is wrapped with moisture-proof cellophane or rubber hydrochloride, which is supposed to be ample protection from wet and rust. And they're expected to be stored in a cool, dry place.

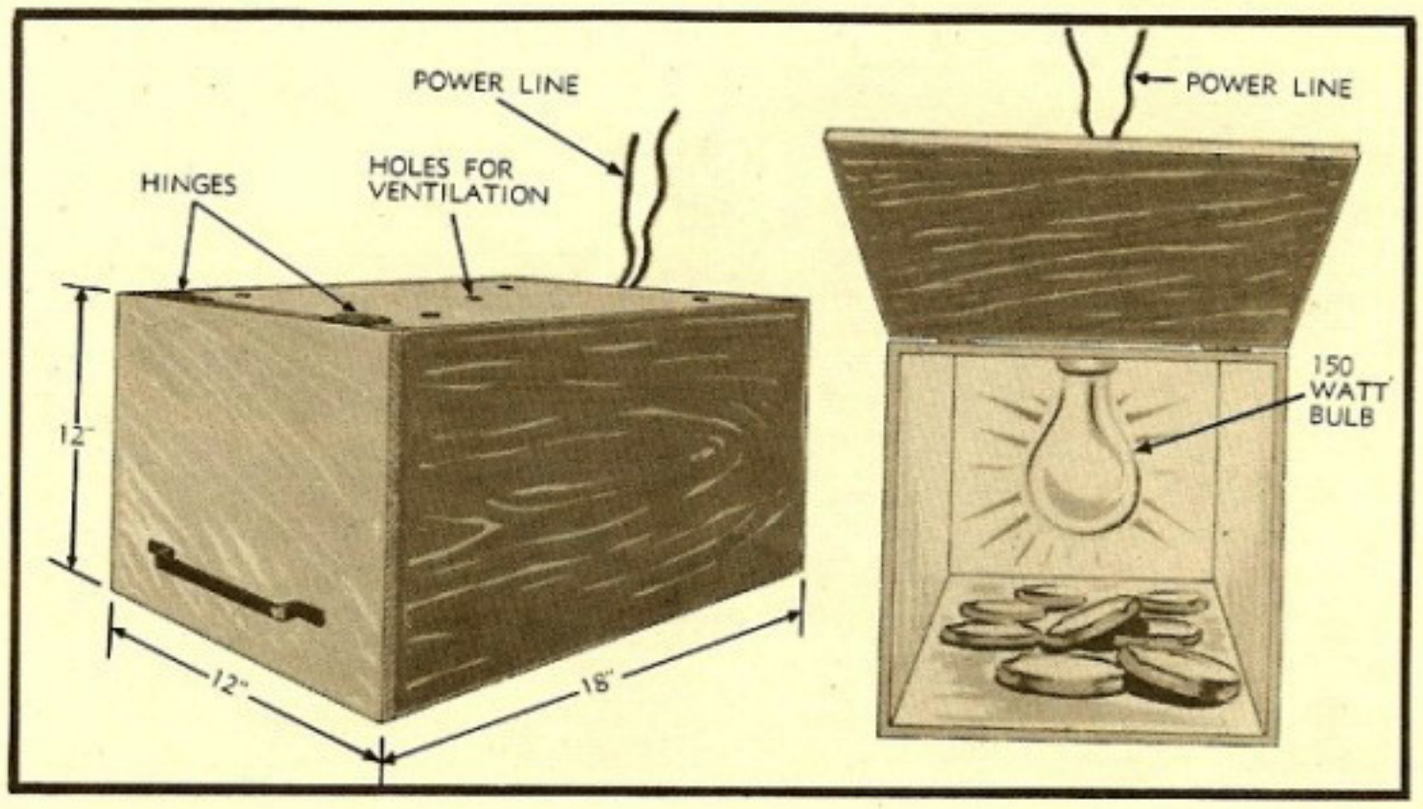
But if you've been having trouble and are using your hot-patch incubator successfully, it certainly must be OK for drying the patches.

A word of caution—dry the patches slowly and only as long as it actually takes to dry them. No need to give them 8 or 10 hours if 4 or 5 will do. Extreme heat causes the patch materials to "set-up," which leads to improper cures and premature repair failures.)

Dear Editor,

Because the drivers in our motor pool aren't assigned any particular vehicle, they often have trouble on a cold, dark morning locating the choke button (which isn't in the same place on all vehicles). To remedy this, I painted a small section of each choke button white, making them easier to locate in the dark.

I also found that many new drivers were using the hand throt-



tle to race their engines while warming them up. To break the men of this habit, I put a small wire hook on the set-screw at the end of the hand throttle wire, so that the throttle couldn't be pulled beyond a moderate speed during the warm-up period. The hook is easily slipped off when higher speeds with the hand throttle are desired **after** the engine's warm.

Sgt. W. M. Dierks
Hq. Co., 70th Repl. Bn.

Dear Editor,

We received our ring mounts for the 2½-ton GMC short wheelbase trucks, and mounted them. But a driver came in from the field yelling his head off about having a flat tire and not being able to get his spare tires off. And he has legitimate reason for yelling.

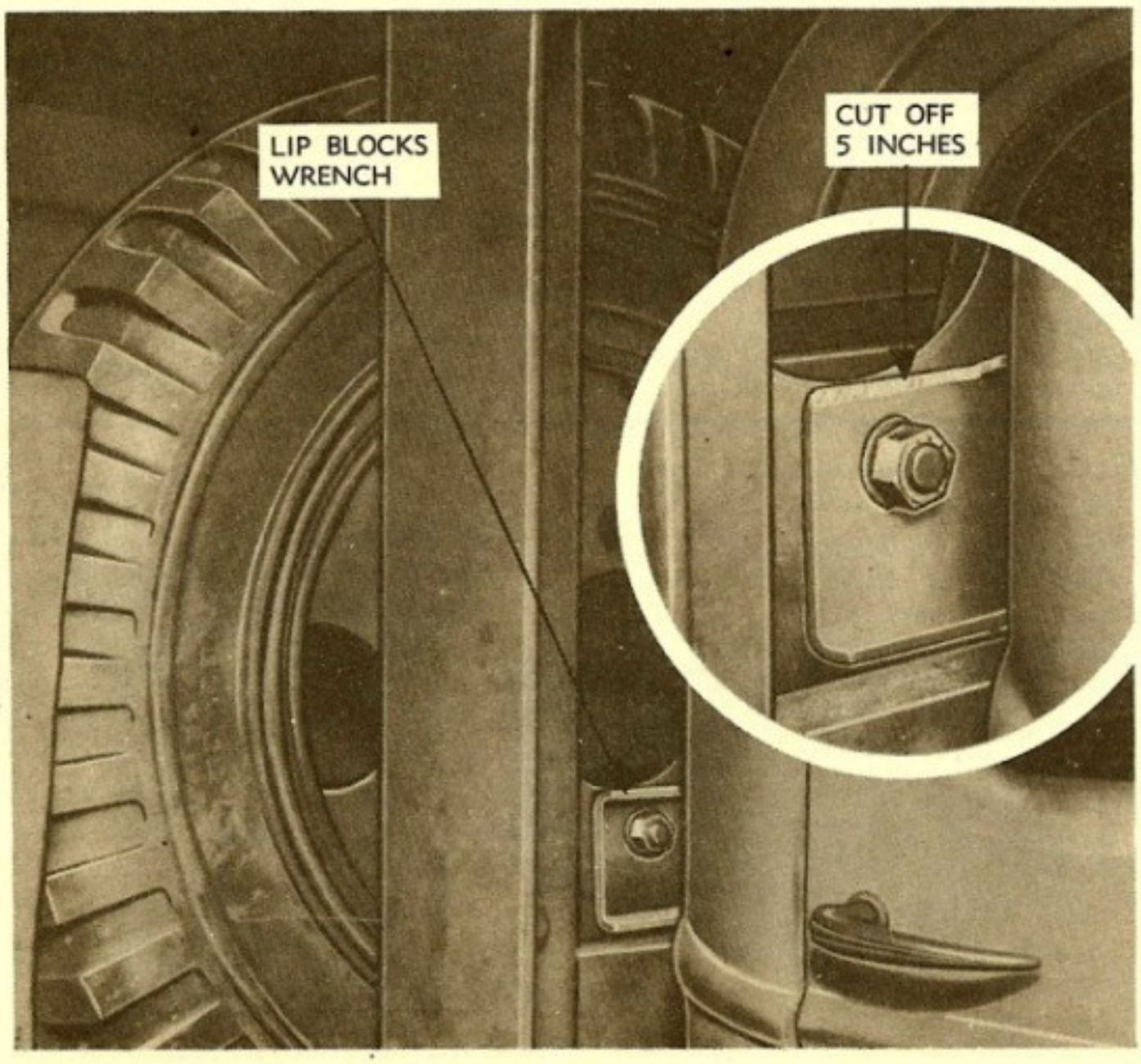
Upon examining the equipment, I discovered the supporting side of the ring mount comes directly in front of the spare tire frame (see Fig.) in such a way that it's impossible to remove the nut and bolt that anchors the wheel to the spare tire frame—unless you use a flexible wrench that the driver doesn't have.

BUILT A BETTER GIMCRACK LATELY?

Have you worked out a new wrinkle that makes a tough job easier to do? We pay off heavily for valuable—or even just helpful—maintenance dope from the field. For a good printable tip, you'll get a personal subscription to ARMY MOTORS. For a real heavyweight idea, we'll send you the "Little Jim-Dandy Athlete's Foot Scratcher" with which you can tear your toes to ribbons. Get on the ball, Jack, don't keep them good ideas to yourself—shoot 'em in and we'll spread 'em out for everybody to use.

To help the driver dismount the tires (which are on a rigid upright frame between the body and the cab), we cut a strip about 5" long from the top lip of the brace bar (see Inset). This enables the driver to use his crescent wrench when removing the spare tire.

WOJG Ivan E. Myers
Hq. 83rd Inf. Div.



Dear Editor,

We've found that rust is a common cause of brake-shoe return-spring failures, since rust weakens the spring and causes it to break and score the drum.

Before leaving on maneuvers we did a 6000-mile check on our vehicle and found we had to replace the brake springs. We coated a couple of these with water pump grease by putting one end of the spring in a vise, stretching the spring, and working WP grease in between the coils.

After maneuvers we did another 6000-mile check and found that those springs we had prepared with WP grease were in perfect condition, while those we'd replaced without grease already showed signs of rust.

Sgt. R. H. Fortin
567th Ord. Co. (HM)

(*Ed. Note*—Sgt. Fortin will be glad to know these springs are now being rust-proofed by parkerizing and painting in production, and that the new ones test to about five times longer life than the old springs.)

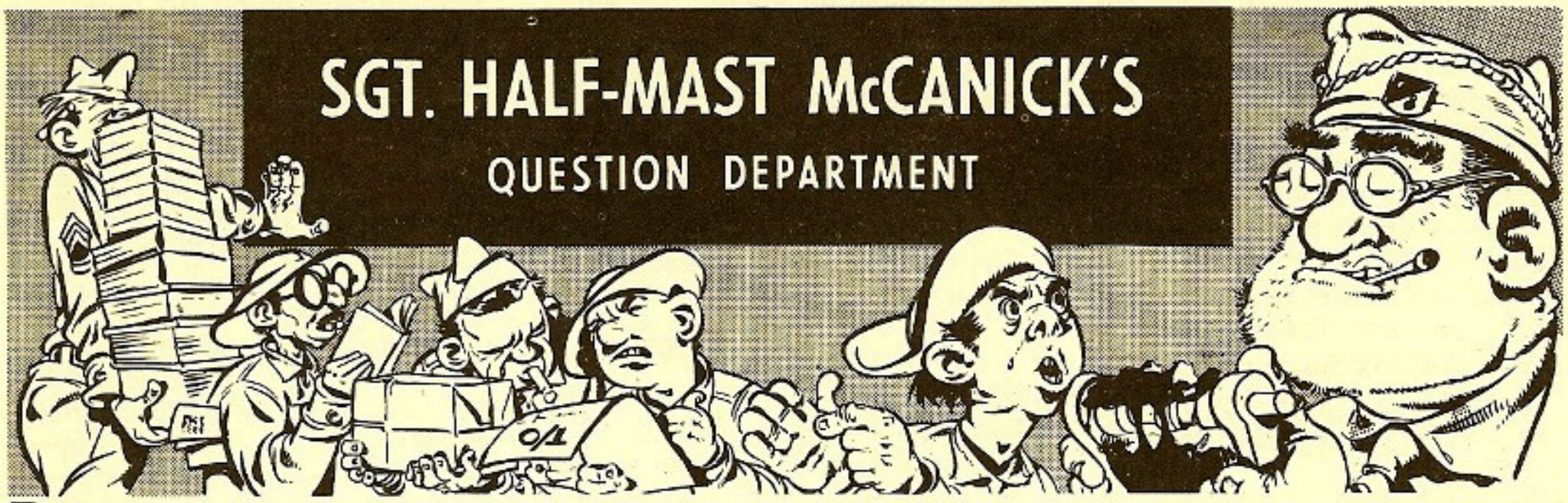
Dear Editor,

Our squadron has had difficulty with pintles binding in the pintle sleeves on the Chevrolet bomb service truck, M6, because sand and water rust them. When this happens, the pintle won't turn. Result is: the lunette rings on the bomb service trailer, M5, bend. Then there's trouble when you try to hook the trailer to the truck.

I'd suggest drilling and tapping each end of the pintle sleeve so a grease fitting could be inserted. This would stop the trouble.

Lt. David R. Austin
820th Bomb. Squadron (M)

(*Ed. Note*—The TM on this truck (TM 9-765, page 27, item 12) says to lube the pintle with OE every 1000 miles. Under normal circumstances, this should take care of it. However, if you're operating where sand and water are really bad, then there's no reason why Lt. Austin's idea shouldn't be used.)



Dear Half-Mast,

Since you're the answer man—how about answering a few questions that have been on my mind for some time?

Are we supposed to have the national symbol (star) on our ambulances? I've seen some with and some without.

My four mechanics and master sergeant are at odds regarding which way the front-axle shaft inner oil seal (Ford Part No. GPW 3034) goes. Is the lip to be in or out? We've received new jeeps with the seals turned both ways—so we've turned all of ours with the lip toward the inside—are we right?

How can we keep the steering bell crank (Ford Part No. GPW 3131) tight on the pin on the front axle housing? It always seems to work loose and wears out the bearings.

For answering my questions, here's a tip you might pass on. A common knock in the ¼-ton engine worried us till we discovered the real cause — the distributor shaft friction-spring (Ford Part No. GPW 12083). It's a small part, but it sure can cause a heap of trouble when you don't know what's doing the knocking.

Lt. C. H. B.

Dear Lieutenant,

According to AR 850-5, ambulances don't carry the star. Since the Red Cross is an international symbol, I guess the Army figures no national symbol is needed for recognition. However, the Theater Commander has the final say.

To ease your mind—you're right about turning the inner oil seal toward the inside—because that's where it belongs. The new TM 9-803 (22 Feb. 44) and SNL G-503 (15 Jan. 44) both back you up.

You aren't the only one who's been having trouble with the ¼-ton steering bell crank working loose. Army engineers and the manufacturers are trying to find an answer for your problem. But one thing you can do is to be sure and keep **all** steering linkage connections tight. That'll reduce the shock load and save the bearings you're worried about.

Thanks for the tip on the distributor shaft friction-spring—maybe it'll solve the problems of other guys who've been bothered by that knock in their jeep engines.

Half-Mast

Dear Half-Mast,

What's the lowdown on Phillips screwdrivers? SNL G-508 (21 Apr. 43), page 17, shows that only the banjo-type axle 2½-ton, 6x6 and 6x4 GMC's have them; yet they're needed with the split-type axle, too.

Sgt. E. V. M.

Dear Sergeant,

If you look in Section 3, Vehicular Spare Parts and Equipment List, in the "all-in-one" SNL G-508 (**29 Dec. 43**), you'll see that the Phillips screwdriver is a standard accessory for the 2½-ton GMC, regardless of axle type. But you're right—it was listed wrong in the earlier SNL.

Half-Mast

Dear Half-Mast,

In the January ARMY MOTORS you told how to get Motor Vehicle Driver and Mechanic awards. We're interested in finding out the exact qualifications required to merit such an award—the length of driving service, etc.

As we understand it, a mechanic would also rate a driver's bar—so he'd get two bars. Is that right?

Also, please explain the W, T, and M that appear on the bars.

Sgt. J. S.

Dear Sergeant,

To rate a driver's award, you have to pass the driver qualification test in FM 25-10 "Motor Transport" if it's for wheeled vehicles or FM 17-5 "Armored Force Drill" if it's for tracked vehicles. Then you must have driven or "assistant-driven" an Army vehicle for at least three months with no traffic violations or accidents, and with an excellent rating; you gotta be assigned as a driver, assistant driver, or driver instructor; and must not have had a previous driver's award revoked during the last six months.

For a mechanic's award, you've got to have a skilled mechanic's rating (either through former experience as an automotive mechanic or graduation from an Army mechanics school); an excellent rating as a mechanic for at least three months; be assigned as a 2nd-echelon-or-higher mechanic or as an instructor; and must not have had a previous mechanic's award revoked during the last six months.

You can see that a mechanic doesn't automatically rate a driver's bar just because he's a mechanic. If you pass the driver's

tests, you'd rate a driver's bar; but to get both awards at the same time, you'd have to be twins and be assigned to both jobs at the same time.

The W, T, and M that are on the bars simply mean: Driver-W (wheeled vehicles); Driver-T (track or half-track vehicles); Driver-M (motorcycles). See WD Circulars 248 (1942) and 119 (1943) for any further details.

Half-Mast

Dear Half-Mast,

We were taught that a compression test should be made on an internal-combustion in-line engine, after the engine has reached operating temperature. But one of the mechanics in our shop was taught, at the time he went to school, to make this test with the motor cold. He seems to have some good arguments on his side, and we also have some good reasons for sticking to our way of thinking.

Will you give us the inside dope?

Cpl. V. O.

Dear Corporal,

As far as I'm concerned, there's only one sensible way to make a compression test—and that's when the engine's at operating temperature.

The engine is designed to operate at certain temperatures and maximum efficiency isn't reached until you get to those temperatures.

There may be some reasons for making the test cold, but I'll stick to mine until somebody convinces me otherwise.

Half-Mast

Dear Half-Mast,

The oil filter bracket on the ¼-ton 4x4 is cracking at the front head hold-down bolt—about ½" to 1½" long. I figure welding is out, as the head bolt won't go down with a bead on the bracket. It is possible to remove the bead, but due to the shape of the bracket, filing is the only way to do that. A washer on either side would add support. So far the cracks seem to be harmless, as some of them have existed for a long time without getting any larger.

Can you help me, or should I just forget it?

Lt. D. R. W.

Dear Lieutenant,

Never heard of that before. If the cracks are as harmless as you say, I'd just forget about the whole thing.

Half-Mast

Dear Half-Mast,

Recently, new technical manuals on various vehicles were published to supersede the manufacturers' maintenance manuals. Can we requisition one for each vehicle we have? What about the new SNL's which supersede the ones we're now using for ¼-ton Fords, 1½-ton 4x4 Chevrolets, and 2½-ton GMC's—must we have one for each vehicle?

I think it would help promote better PM work if each vehicle were supplied with the new TM's, but decided to find out if requisitioning the manuals in quantities is legal before I order any.

WOJG D. L. I.

Dear Mr. I.,

Sure is legal. According to AGO regulations, each vehicle is entitled to one SNL and one TM—and that means the latest issues. So you can go right ahead and requisition any number of manuals you need from your AG depot.

Just in case they can't supply you, write the Adjutant General's Office, Publications Division, Distribution Branch, The Pentagon, Washington 25, D. C. They'll help you get all the manuals you need—but be sure to try your own depot first.

Incidentally, trade in any old manuals to your adjutant for the new ones.

Half-Mast

Dear Half-Mast,

There's been a lot of disputes in my battalion about lubricating the rear bogie and bogie bearing on the 2½-ton GMC.

Just what type grease should be put in it and how should it be put in? Some say lubricate through the fitting underneath the bearing race; others say to remove the cap or plate over the end of the shaft and pack the grease there.

We've used everything from wheel bearing grease to No. 1 chassis grease. Please tell me what you think about the whole matter.

T/5 E. P. G.

Dear Corporal,

It's not what I think about grease for that spring seat bearing, it's what War Department Lube Orders say. And they specify CG No. 1 when the temperature's above 32° F. and CG No. 0 when it's below 32° F.

As for how to lube it, the new TM 9-801 (24 Apr. 44) says: every 6,000 miles remove the bearing cap; then remove the plug under the bearing race, insert fitting, and lube with CG until all old grease is forced out of the bearing. Replace the plug and bearing cap. On some GMC 2½-tons, there's already a fitting under the spring seat—so you'll lube it through that.

Half-Mast

Dear Half-Mast,

Lately we have been having trouble with a rattling clutch on the ¼-ton 4x4. The clutch rattles only when it is disengaged and it stops as soon as it is engaged.

We've tried everything under the moon to get the rattles out as you can see by the list here.

1) New pilot bearing

2) New pressure plate and clutch disk

3) Check and adjust pressure plate fingers

4) New transmission and transfer case

5) New throw-out bearing

6) Check and tighten engine support

7) Took one clutch apart four times, checked it and put it together. After all this . . . the clutch still rattles.

Can you help us?

T/4 A. J. G.

Dear Sergeant,

After a brief huddle with a Willys representative which netted me three cheap cigars, I think I

got the answer to your problem. It has to do with the Clutch Pressure Plate Return Spring, Willys Part No. 638153. If this spring doesn't test to 15 lbs., you're gonna get rattle.

So if yours don't pull 15 lbs., replace them. The Willys Part No. of the spring is WO-638153; the Ford Part No. is FM-GPW-7590. If you're gonna use the Willys part, it'll come as part of the Engine Clutch Cover Repair Kit—but if you'd rather get the spring alone, they tell me you can get the Ford part singly on requisition.

Half-Mast

Dear Half-Mast,

Is there such a thing as an assigned assistant driver? If so, where does he ride? Is he entitled to ride in the cab with the assigned driver?

The question often comes up when our outfit is on long convoys, and no one knows the answer. Are there any AR's, TB's, TC's or other official directives that cover this subject?

S/Sgt. H. S. G.

Dear Sergeant,

Seems to me that your best official directive is FM 25-10 "Motor Transport," paragraph 6, which says "a driver and assistant driver should be assigned to each motor vehicle." Of course, it's not always possible to have an assistant driver for every vehicle, so the CO's the man to decide.

If there is an assistant driver, he should certainly ride beside the driver, since he's the guy to keep the driver awake. Besides, on convoy operations he has to be on the alert for column signals and warnings while the driver's watching the road. Then there's the chance that the assistant driver might have to take the wheel sometime.

Half-Mast

Dear Half-Mast,

In the case of an emergency where the cylinder head is slightly warped and one gasket doesn't give satisfactory results, is it OK to use two gaskets? If so, what effect would the additional gasket have on the compression ratio? How big a slice would have to be taken off the clyinder head to increase compression?

Sgt. R. J. S.

Dear Sergeant,

I've heard of using two gaskets on a warped cylinder head, but I'd never do it—too much danger of blown gaskets. As for affecting the compression ratio, it probably wouldn't cut down the power enough to be noticed—but using two gaskets is just not a good idea.

As for head-shaving—leave that to GI barbers. It's not recommended on Army vehicles. I'd suggest a new head (on the engine), if the one you've got is warped.

Half-Mast

Dear Half-Mast,

Is there an interchangeability list published for 2nd-echelon? Many times we've had a vehicle deadlined for a part, only to find out later that we could have substituted a part from some other vehicle.

Lt. R. L. U.

Dear Lieutenant,

Yes, there's a book on interchangeability for the 2nd-echelon to use. It's called Vol. I "Parts Interchangeability and Cross-Reference Manual, General Purpose and Combat Vehicles (Except Tanks)." The first edition came out in 1942, and there's a revised edition of it just being distributed to AG depots. So you can requisition your copy from your regular AG depot.

That takes care of wheeled vehicle interchangeability — the story on tanks and track-laying vehicles is this. The Army's working on one now that's similar to the one for transport vehicles, only it will be called ASF Catalog, ORD 14, "Tanks and Vehicles of Related Chassis Interchangeability List."

Half-Mast

Dear Half-Mast,

I need some help on the system of blackout identification of fuels and lubes. Week after week my classes have been asking what the letters H. D. on OIL, ENGINE tags mean. Can you tell me?

T/4 D. M.

Dear Sergeant,

Sure—the letters H. D. mean Heavy Duty. All standard engine oils used by the American and British Armies are heavy duty oils. H. D. oils contain certain additives that reduce carbon, gum and sludge accumulations; and they have better starting characteristics for sub-zero weather. TB 9-2835-4 (30 Dec. 43) "Oil, Engine, USA 2-104" gives you the whole story on heavy duty oil. And while we're on the subject, Connie Rodd told all about fuel and lube identification tags (for both blackout and daylight) on page 263, January, 1944 ARMY MOTORS.

Half-Mast

The Chaplain's Assistant

The Chaplain turns all maintenance troubles over to Half-Mast—all them aggravatin' problems that won't work out. But Half-Mast, who also plays the organ and leads the congregation in the race to the nearest bistro, will never hand you a T.S. Slip. If you've got a problem, somewhere there's an answer—and Half-Mast knows where to find it. He's got an "in" with vehicle manufacturers and there's not an Ordnance designer or engineer that he hasn't borrowed money from. Write "Dear Half-Mast," ARMY MOTORS Magazine, Office, Chief of Ordnance-Detroit, Detroit 32, Michigan.

The Month's Directives

Your monthly check-list of War Department AGO and Ordnance publications affecting 1st and 2nd-echelon motor maintenance—and how to get them

WAR DEPARTMENT AGO PUBLICATIONS

AR—Army Regulations
FM—Field Manual
TM—Technical Manual
TB—Technical Bulletin
MWO—Modification Work Order
TC—Training Circular
WDC—War Department Circular
SB—Supply Bulletin

Distributed through Post Adjutants by AG Depots in each Service Command:

Boston AG Depot, 594-596 Commonwealth Avenue, Boston 15, Mass.
New York AG Depot, 111 Eighth Avenue, New York 11, N. Y.
Baltimore AG Depot, 601 South Haven Street, Baltimore 24, Md.
Atlanta AG Depot, Glenn Street and Murphy Avenue, S. W., Atlanta, Ga.
Columbus AG Depot, 42-52 So. Starling Street, Columbus 8, Ohio.
Chicago AG Depot, 111 North Canal Street, Chicago 6, Ill.
Omaha AG Depot, 16th and Cuming Streets, Omaha 2, Neb.
San Antonio AG Depot, San Antonio, Texas.
Ogden AG Depot, 2325 Wall Avenue, Ogden, Utah.
AG Pentagon Depot, The Pentagon, Washington 25, D. C.

Distributed to AAF Activities by Publications Distribution Branch of Area Air Service Commands (see AAF Reg. 5-9).

Distributed outside Continental United States by Ports of Embarkation.

Ordnance TB's, MWO's, SB's, and WD Lubrication Orders distributed in the ETO by Ordnance Publications Section, U. S. General Depot G-25 (address below).

Ordnance TM's and FM's distributed in Central Pacific Area by Ordnance Officer, CPA (address below).

WD Lubrication Orders for Ordnance materiel are requisitioned (except in the ETO) from Fort Wayne Ordnance Depot, Detroit 32, Michigan.

ORDNANCE DEPARTMENT PUBLICATIONS

FSMWO—Field Service Modification Work Order
OPSI—Ordnance Publications for Supply Index
SNL—Standard Nomenclature List
Organizational Spare Parts and Equipment (OSPE)
Service Parts Catalog (SPC)

Distributed through Ordnance Officers by AG Depots listed above.

Units (other than Central Pacific Area) with San Francisco APO's request on Publications Supply Officer, Overseas Supply Division, Warehouse B—Oakland Branch, San Francisco Port of Embarkation, Oakland, Calif.

Central Pacific Area units request on the Ordnance Officer, Hq. U. S. Army Forces, Central Pacific Area, APO 456, % Postmaster, San Francisco, Calif.

Units with Seattle APO's request on Military Publications Supply Officer, Ordnance Unit, Overseas Supply Division, Seattle Port of Embarkation, Warehouse No. 7, Seattle 4, Wash.

Units with Minneapolis APO's request on Chicago AG Depot (address above).

Units with New Orleans APO's request on The Adjutant General Publications Supply Officer, New Orleans Port of Embarkation, Poland and Dauphine Streets, New Orleans 12, La.

Units with Miami APO's request on Atlanta AG Depot (address above).

Units with New York APO's request on (a) **Ordnance Publications Section, U. S. General Depot G-25, APO 518, % Postmaster, New York, N. Y., if located in the ETO;** (b) the Ordnance Officer, Ordnance Section, Hq. MBS, Depot 150-0, APO 600, % Postmaster, New York, N. Y., if located in territory served by this APO, and (c) on New York AG Depot (address above) if located elsewhere.

Distributed to AAF Activities by Area Air Service Commands (see AAF Reg. 5-9).

NOTE: The Office, Chief of Ordnance-Detroit and the Publications Department, Raritan Arsenal, **DO NOT** distribute publications to the field.

ARMORED CARS

CAR, ARMORED, LIGHT, M8
SNL G-136, G-176, C3 (27 Apr. 44).
CAR, ARMORED, UTILITY, M20
SNL G-136, G-176, C3 (27 Apr. 44).

GUN MOTOR CARRIAGES

CARRIAGE, MOTOR, 75-MM GUN, M3
SNL G-102, SPC, C1 (10 May 44).
CARRIAGE, MOTOR, 75-MM GUN, M3A1
SNL G-102, SPC, C1 (10 May 44).
CARRIAGE, MOTOR, 105-MM HOWITZER, M7
TB ORD 29, Carburetor pump stem, lever lubrication.
CARRIAGE, MOTOR, 105-MM HOWITZER, M7B1
TB 9-749-1, Operation and maintenance.
CARRIAGE, MOTOR, 75-MM HOWITZER, M8
TB ORD 66, Steering brake link pin.
CARRIAGE, MOTOR, 155-MM GUN, M12
TB ORD 29, Carburetor pump stem, lever lubrication.
CARRIAGE, MOTOR, MULTIPLE GUN, M13
SNL G-102, SPC, C1 (10 May 44).
CARRIAGE, MOTOR, MULTIPLE GUN, M14
SNL G-147, ORD 7, 8, 9 (15 May 44).
CARRIAGE, MOTOR, MULTIPLE GUN, M15
SNL G-102, SPC, C1 (10 May 44).
CARRIAGE, MOTOR, MULTIPLE GUN, M15A1
SNL G-102, SPC, C1 (10 May 44).
CARRIAGE, MOTOR, MULTIPLE GUN, M16
SNL G-102, SPC, C1 (10 May 44).
CARRIAGE, MOTOR, MULTIPLE GUN, M17
SNL G-147, ORD 7, 8, 9 (15 May 44).
CARRIAGE, MOTOR, 76-MM GUN, M18 (T70)
TB ORD 29, Carburetor pump stem, lever lubrication.
CARRIAGE, MOTOR, 90-MM GUN, M36 (T71)
TM 9-758, Operation and maintenance (15 Apr. 44).
SNL G-210, ORD 7, OSPE (11 Apr. 44).

CARRIERS

CAR, HALF-TRACK, M2
SNL G-102, SPC, C1 (10 May 44).
WD Lubrication Order 21 (18 Jan. 44).
CAR, HALF-TRACK, M2A1
SNL G-102, SPC, C1 (10 May 44).
WD Lubrication Order 21 (18 Jan. 44).
CARRIER, PERSONNEL, HALF-TRACK, M3
SNL G-102, SPC, C1 (10 May 44).
CARRIER, PERSONNEL, HALF-TRACK, M3A1
SNL G-102, SPC, C1 (10 May 44).

CARRIER, 81-MM MORTAR, HALF-TRACK, M4
SNL G-102, SPC, C1 (10 May 44).
WD Lubrication Order 23 (1 Feb. 44).

CARRIER, 81-MM MORTAR, HALF-TRACK, M4A1
SNL G-102, SPC, C1 (10 May 44).
WD Lubrication Order 23 (1 Feb. 44).

CARRIER, PERSONNEL, HALF-TRACK, M5
SNL G-147, ORD 7, 8, 9 (15 May 44).

CARRIER, PERSONNEL, HALF-TRACK, M5A1
SNL G-147, ORD 7, 8, 9 (15 May 44).

CAR, HALF-TRACK, M9A1
SNL G-147, ORD 7, 8, 9 (15 May 44).

CARRIER, 81-MM MORTAR, HALF-TRACK, M21
SNL G-102, SPC, C1 (10 May 44).

CARRIER, CARGO, M30 (T14)
TB ORD 29, Carburetor pump stem, lever lubrication.

HALF-TRACKS

(See also individual vehicle listings)

ALL HALF-TRACK VEHICLES
TB ORD 38, Idler shackle stop bolt adjustment (reprint of TB 700-83, 23 Jul. 43).

ALL BASIC HALF-TRACKS (White, Autocar, Diamond T)
TM 9-710, Operation and maintenance (23 Feb. 44).

LIGHT TANKS

ALL LIGHT TANKS
TB ORD 61, Replacement lube fittings.

TANK, LIGHT, M5
TB ORD 66, Steering brake link pin.

TANK, LIGHT, M5A1
TB ORD 66, Steering brake link pin.

MEDIUM TANKS

ALL MEDIUM TANKS
TB ORD 61, Replacement lube fittings.

TANK, MEDIUM, M4
TB ORD 29, Carburetor pump stem, lever lubrication.
SNL G-104, Vol. 6, 11, 14, C2 (16 May 44).

TANK, MEDIUM, M4 (105-MM HOWITZER)
SNL G-104, Vol. 6, 11, 14, C2 (16 May 44).

TANK, MEDIUM, M4A1
TB ORD 29, Carburetor pump stem, lever lubrication.
SNL G-104, Vol. 6, 11, 14, C2 (16 May 44).

TANK, MEDIUM, M4A3 (76-MM GUN, WET)
SNL G-104, Vol. 15, & G-205 (1 May 44).

TANK, MEDIUM, M4A3 (105-MM HOWITZER)
SNL G-104, Vol. 15, & G-205 (1 May 44).

VEHICLE, TANK RECOVERY, M31
SNL G-169, C2 (6 Apr. 44).

TRUCKS

TRUCK, 1½-TON, 4x4, SMALL ARMS REPAIR, M1 (GMC)
SNL G-72, ORD 7, OSPE (3 Apr. 44).

TRUCK, 1½-TON, 4x2 (CHEVROLET)
WD Lubrication Order 536 (1 Feb. 44).

TRUCK, 2½-TON, 6x6 (GMC)
FSMWO G508-W6, 700 gal. water tank and 750 gal. gas tank, camouflage cover.
TB ORD 54, Crankcase ventilator air cleaner oil loss.

TRUCK, 2½-TON, 6x4 (GMC)
WD Lubrication Order 538 (7 Feb. 44).

TRUCK, AMPHIBIAN, 2½-TON, 6x6 (GMC DUKW-353)
TB 9-802-6, Bilge pump operation.
TB ORD 54, Crankcase ventilator air cleaner oil loss.

TRUCK, 2½-TON, 6x6, AUTOMOTIVE REPAIR, M8 (LOAD A)
SNL G-139 (18 Mar. 44).

TRUCK, 2½-TON, 6x6, AUTOMOTIVE REPAIR, M8A1 (LOAD A)
SNL G-139 (18 Mar. 44).

TRUCK, TRACTOR, 4-5 TON, 4x4 (AUTOCAR U-7144T)
TM 9-816, Operation and maintenance (21 Mar. 44).

TRUCK, TRACTOR, 4-5 TON, 4x4 (FEDERAL)
TM 9-820, Operation and maintenance (15 Mar. 44).
WD Lubrication Order 506 (6 Jan. 44).

TRUCK, TRACTOR, 5-TON, 4x2, C.O.E. (INTERNATIONAL, MARMON-HARRINGTON, KENWORTH)
TM 9-812, Operation and maintenance (11 Mar. 44).

TRUCK, TRACTOR, PONTON, 5-6 TON, 4x4 (AUTOCAR U-8144T)
TM 9-817, Operation and maintenance (10 Apr. 44).

TRUCK, WRECKING, HEAVY, M1 (WARD LA FRANCE SERIES 1)
WD Lubrication Order 24 (1 Feb. 44).

TRUCK, WRECKING, HEAVY, M1A1 (KENWORTH 573, WARD LA FRANCE SERIES 5)
TM 9-796, Operation and maintenance (3 Mar. 44).

TRACTORS

TRACTOR, HIGH SPEED, 13-TON, M5
TB ORD 66, Steering brake link pin.

TRACTOR, HIGH SPEED, 18-TON, M4
FSMWO G150-W2, Driver's compartment ventilator.

TRACTOR, HIGH SPEED, 38-TON, M6
SNL G-184, C2 (30 Mar. 44).

TRAILERS

SEMITRAILER, 10-TON PAYLOAD, 14-TON GROSS, 2W, STAKE & PLATFORM, AND CONVERTER DOLLY, 10-TON
TM 9-892, Operation and maintenance (22 Apr. 44).

TRUCK, TRAILER, 40-TON, TANK TRANSPORTER, M25
TM 9-767, Operation and maintenance (23 Feb. 44).
SNL G-160, SPC (1 Dec. 43).

LANDING VEHICLES

VEHICLE, LANDING, TRACKED, ARMORED, MK II, LVT (A) (2)
TB 9-775-3, Increased gun mount.
WD Lubrication Order 141 (14 Feb. 44).

VEHICLE, LANDING, TRACKED, UNARMORED, MK II, LVT (2)
TB 9-775-3, Increased gun mount.
WD Lubrication Order 141 (14 Feb. 44).

PASSENGER CARS

CAR, 5-PASSENGER, LIGHT SEDAN (CHEVROLET)
WD Lubrication Order 527 (22 Jan. 44).

SCOOTERS

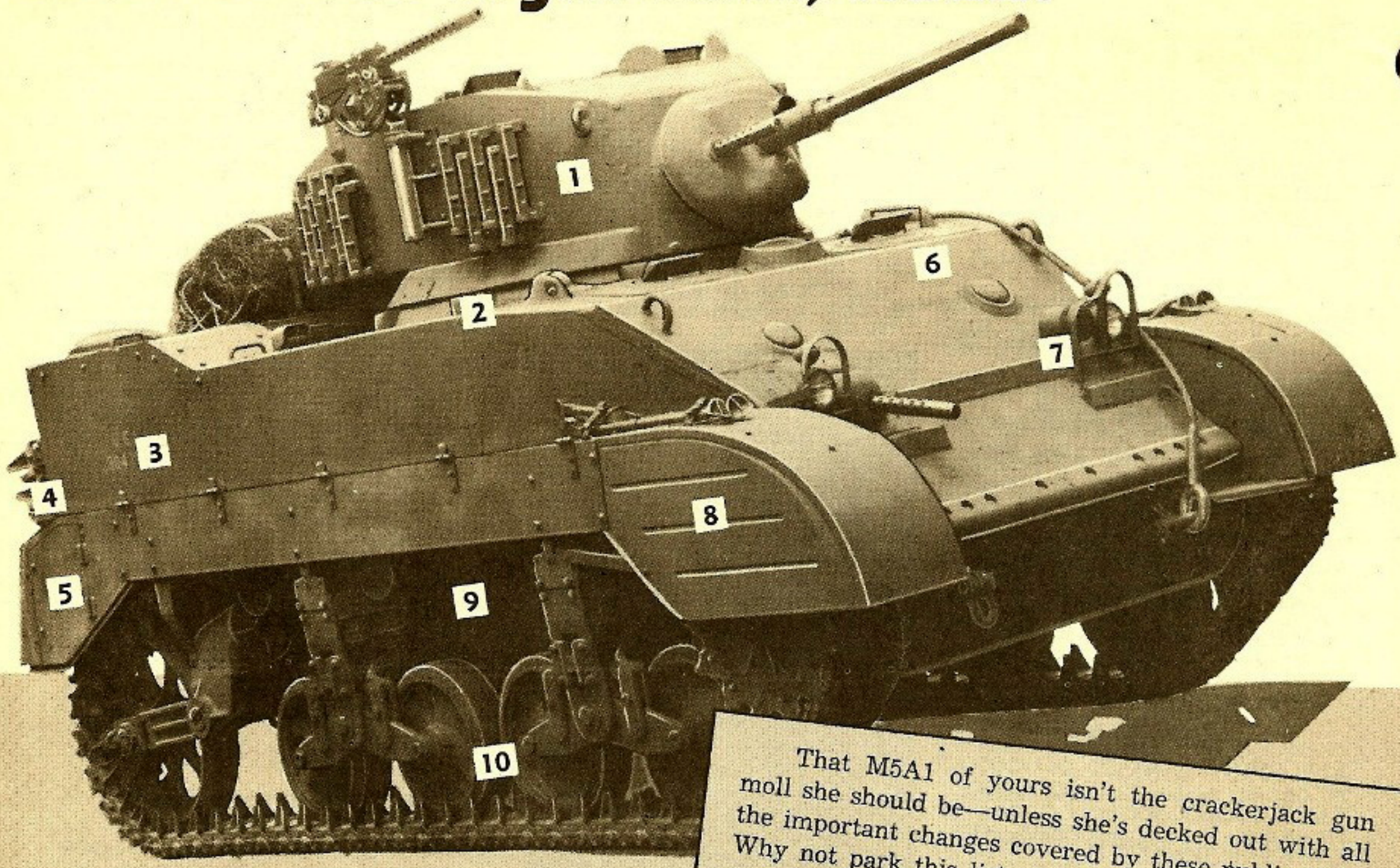
SCOOTER, MOTOR (CUSHMAN 53)
TM 9-876, Operation and maintenance (5 Apr. 44).

GENERAL

AR 310-200, Military publications, allowance and distribution, C4 (8 Mar. 44), C5 (2 May 44).

(Continued on last page)

How's Your Light Tank, Hank?



That M5A1 of yours isn't the crackerjack gun moll she should be—unless she's decked out with all the important changes covered by these publications. Why not park this list next to your tank and make comparisons, just for the hell of it?

To keep her in trim, keep an eye on FM 21-6 (w/monthly changes) and on "The Month's Directives" in this magazine.

1
- MWO ORD A55-W8, Telescope instrument light
- FSMWO C56-W1, C1, Mono-gyro control
- FSMWO C56-W2, Stabilizer oil pump stuffing box
- FSMWO C56-W4, Stabilizer piston stuffing box
- FSMWO G103-W27, Tank commander's compass
- FSMWO G103-W32, Telescope hole on gun shield
- FSMWO G103-W33, Telescope adjusting knob cover
- FSMWO G103-W37, Gunner's periscope sight bearings
- FSMWO G103-W39, Combination spot and signal light
- FSMWO G103-W40, Impulse relay and new solenoid
- TB 727C-16, Tripod brush shield

2 FSMWO G103-W23, Hull roof reinforcement

3
- FSMWO G103-W35, Crankcase ventilating system and engine air leaks (supersedes G103-W30)
- FSMWO G103-W41, Fire detector system removal
- TB 700-76, Oil filter replacement elements
- TB 727C-8, Ignition timing (superseded by TM 9-732, 27 Nov. 43)
- TB 727C-10, New fuel tank outlet screw
- TB 727C-12, Engine sling modification
- TB ORD 68, Temperature gage and linkage adjustment

4 TB 9-850-13, Waterproofing canvas and duck

5 TB 727C-13, Paper gasket for sponson door (superseded by TM 9-732, 27 Nov. 43)

6
- TB 700-37, Driver's caution tags (included in TM 9-732, 27 Nov. 43)
- TB 700-58, Decontaminating apparatus
- TB 700-68, Instrument panel voltmeter
- TB 700-98, Fire detector system
- TB 727C-14, Steering-brake link pin

7
- FSMWO G103-W25, Blackout driving lights
- TB 726-10, Headlight and blackout lamp assembly (superseded by TM 9-726, C1, 31 Dec. 42)

8 FSMWO G103-W31, Sand shields

9
- FSMWO G103-W34, Transfer unit improvement
- FSMWO G103-W38, Hydra-Matic transmission
- FSMWO G103-W44, Differential bushings
- TB 1725C-1, Holes in torus hubs
- TB ORD 12, Propeller shaft U-joint lube
- TB ORD 61, Replacement lube fittings

10
- FSMWO G27-W1, Bogie lift modification
- TB ORD 22, Spoke-type bogie and idler wheels (overseas only)
- TB ORD 80, Rubber or steel track replacement

PERPETUAL INDEX

Your monthly reference guide to all subjects covered in the last 12 issues of ARMY MOTORS

SUBJECT	JUN. 44	MAY 44	APR. 44	MAR. 44	FEB. 44	JAN. 44	DEC. 43	NOV. 43	Sep.-Oct.	AUG. 43	JUL. 43	JUN. 43
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2C-Inside Front Cover, 3C-Inside Back Cover 4C-Outside Back Cover.

BULL SESSION ON M8 & M20

CONTINUED FROM PAGE 115

sequence marked No. 1, No. 2, and No. 3." An examination of Figure 174 reveals that this manual recommends bleeding the middle bleeder valve first, then the rear bleeder valve, and then the bleeder valve on the slave cylinder.

In their manual "Servicing the Bendix Hydrovac" the manufacturer says, "Whether single or double hydraulic line installation, when bleeding the second series hydrovacs, bleed in the 2-1-3 order." They then show a diagram which indicates that the middle bleeder valve should be bled first, the rear bleeder valve next, and the bleeder valve at the end of the slave cylinder last.

The manufacturer therefore recommends the system prescribed by the GMC manual. Is the armored car manual wrong on this point, or is there a special reason for changing the bleeding procedure on the M8?

WO E. J. R.

Dear Mr. R.,

All the procedures you mention are right—the snafu develops in the way the valves are numbered which is different in different books. On the M8, that No. 2 bleeder valve (the one second from the cylinder) is a separate line which controls the valve for atmospheric air pressure. This line is independent of the No. 1 and No. 3 bleeder valves and can be bled in any sequence. All you've got to be careful of is to bleed the No. 1 valve before the No. 3 which is at the end of the slave cylinder. On the M8, the No. 1, 2, and 3 valves are right in line inside the engine compartment to make the bleeding operation simple.

Half-Mast

Dear Half-Mast,

If you look in the M8 manual TM 9-743, and also in TB 743-2, you'll read that the shock absorbers on the armored car can be adjusted by the 2nd-echelon. But our M8's got non-adjustable shock absorbers. Well?

Pfc. J. R.

Dear Private,

The lit-trit-choor was published before certain changes were made on the M8. One of these changes specifies that the vehicle will have shock absorbers which are non-adjustable in the field. They are adjusted properly at the factory so what you read about adjusting them, you can forget.

Half-Mast

THE MONTH'S DIRECTIVES

(Continued from page 125)

AR 850-15, C4, Miscellaneous, motor vehicles (6 May 44).
AR 850-150, C3, Authorized abbreviations and symbols (22 Apr. 44).
FM 5-20B, Camouflage of vehicles (Apr. 44).
FM 21-6, C3, Training publications (1 May 44).
FM 21-7, C3, Training films, film strips, film bulletins (2 May 44).
TC 33, Use of amphibian tractors and tanks (4 May 44).
TC 36, Military training aids (17 May 44).
WDC 157, Training literature and training aids (21 Apr. 44).
WDC 170, Publications, cancellations, supersessions (1 May 44).
WDC 174, Truck, tractor distribution (4 May 44).
WDC 178, Interpretation of T/E (5 May 44).
WDC 180, Motor vehicles, weight and dimension limitations exceeded (8 May 44).
WDC 191, Equipment, controlled items (13 May 44).
WDC 192, Stock record procedure, posts, camps, stations (13 May 44).
TB 9-850-4, Dry cleaning solvent.
TB 9-850-13, Waterproofing canvas and duck.
TB ORD 67, Storage batteries.
OPSI, ORD 2, Index (1 May 44).
SNL G-1, ORD 3, Sup. 1, Vehicular armament and mount chart (1 Apr. 44).
SNL J-2, ORD 5, Cutting, boring, tweezer tools (1 Apr. 44).
SNL K-1, ORD 5, Cleaning, preserving, lubricating materials (27 Mar. 44).
SB 9-16, Automotive winterization equipment (2 Mar. 44).
SB 9-19, Oil conservation (16 Mar. 44).
SB 9-20, Ordnance spare parts requisitions (18 Mar. 44).

SOLVENT, NOT GAS—FOR WASHING HAIR

In the article "Air Compressors are Vehicles, Too" in the May 1944 ARMY MOTORS, you were told to wash the curled hair from the compressor air-strainer with gasoline.

As you well know, Army directives say don't use gasoline to clean parts. Instead they say use Solvent, dry-cleaning (Federal Stock No. P-S-661a).

I Love My Fire Extinguisher

(Continued from page 117)

the flame nearest you. Shoot the spray in short bursts so you won't discharge the cylinder completely before the fire's out. See if you haven't extinguished a portion of flame before you waste more gas on it.

The spray from the carbon-tet extinguisher should be directed on the **hottest** part of the flame in order to produce the gas that does the smothering. Shoot the spray at something hot and solid —like the metal or wood or whatever's burning.

Center the spray on one spot at a time, and put out that section of the fire **completely** before you direct the spray someplace else. Make a slow, steady advance and you'll extinguish the flames faster —coat the dying embers completely so they won't flare up again.

After the fire's out, don't forget to replace or recharge that extinguisher. Then, as the beginning of the story says, keep going on that daily check for damaged cylinders, bent handles, clogged discharge nozzles—and on that monthly check for fully charged extinguishers. When you need that extinguisher, it's always an emergency. So keep it ready.

••NEWS FLASHES••

The items on this page include latest news, revisions, and corrections verified after the publication deadline

If you haven't been lavishing loving care on your vehicle's battery, better start now. And if you have been, better make that PM even better. Reason: all domestic issue of **new storage batteries** for motor vehicles has been **suspended** (except in cases of the highest priority) to meet overseas requirements. For the latest info on battery maintenance, see **TB ORD 67** (18 Mar. 44).

* * *

A lot of 2nd-echelon fog about organizational requirements for **standard hardware and shop supplies** is cleared away by **SNL G-182,** ORD 5 (16 May 44). Items and quantities are listed for companies, regiments, and separate battalions—and the stuff is grouped into basic kits which can be made up by depots on request. When you get your G-182, by the way, better make sure it contains page 11, which had to be tacked on after the rest of the SNL was printed.

You'll be interested, too, in the recently revised **SNL K-1,** ORD 5 (27 Mar. 44). It's full of authorized **cleaning, preserving, and lubricating materials,** etc.—plenty complete and plenty useful.

Gone are the days when you could look up Ordnance publications in **OFSB 1-1.** Gone, in fact, is OFSB 1-1. Gone, too, are all other OFSB's and all OSSC's—as such. No more will be published, says the Publications Department at Raritan Arsenal.

OFSB's (except 1-1) and OSSC's have been, are being, or will be superseded by the new-style **War Department Supply Bulletins (SB)**—which ARMY MOTORS will obligingly include in "The Month's Directives".

FM 21-6, List of Publications for Training, and monthly Changes thereto, will proceed to do a neat job of most of what OFSB 1-1, Index to Ordnance Publications, has been doing. So now you know where to turn.

* * *

A couple more of the old QM automotive TM's have been **rescinded** by WDC 192 (13 May 44). Toss out your dog-eared **TM 10-540,** Automotive Lubrication (26 Dec. 40) and **TM 10-575,** Diesel Engines and Fuels (25 Jul. 41). For current data on these subjects, rely on your current TM's for individual vehicles.

LETTER FROM NEW GUINEA

CONTINUED FROM OUTSIDE BACK COVER

I don't doubt that the new mechanic schools are doing a great job, and turning out some excellent workmen well qualified to "Keep 'em Rolling," but I wonder how big a percentage of their time is spent on field expedients and jawbone repairs which are so necessary in the field.

Major Ingersoll, in his book, "The Battle is the Pay-Off," suggests eliminating all barracks and permanent installations from the training program. I can think of nothing that would be finer for 2nd-echelon men than to be obliged to do their work under field conditions from scratch. We are unusually fortunate just here; we have a tarp roof over the grease pit, a shop truck for our tools, and a tent for tire and battery work. The "shop" is an area of ground (mud when it rains) behind the shop truck. The air compressor (pending parts on ours) is miles away on the line. The office is a grass shack, and the service station is a pile of drums and a hand pump.

Mind, I'm not complaining about this—we do fine, thank you. But I am suggesting it as appropriate training conditions for our replacements. (And you can send us **them** any time you like.)

Pfc H. R. M.

Letter from New Guinea

15 May 1944

Dear Editor,

I am a regular reader of ARMY MOTORS (when I can get it) and lately I have been reading it with a growing feeling of unreality. I realize you must have representatives reporting from the field somewhere, but do you have any in New Guinea? We have been out of touch with conditions at home for more than two years, and so cannot appreciate the situation at present—however, from my viewpoint most of the recommended procedure in the magazine is wishful thinking.

Hereabouts, maintenance is a very rough and ready sort of thing. When a GPW needs a new windshield, you chisel some Plexiglas from Technical Supply (maybe) and make one. Tops generally began life as tents or tarps. Not to mention the vast numbers of jeeps with neither top nor windshield.

I am sitting here looking at our Chevrolet 4x4 dump truck. Lord only knows how or where we got a dump truck in a bomber squadron, but we've got it. There sits one of the best running and most useful trucks we've got —30,000 miles up on it, sans doors, sans windshield, sans engine side louvers, still banging away hauling gravel, garbage, etc.

We have a miscellaneous collection of rolling stock, running from the CO's brand-new jeep to the line chief's old-style Dodge pickup, and we have had to adapt most every type of part to some use for which it was not intended. Whenever a device is needed (such as power-driven winches on bomb service trucks), we simply make it. The only question the inspector asks is, "Does it work?" Modification kits are things we read about. Likewise Modification Work Orders.

Still, for all our unorthodox methods, a very small percentage of our vehicles are on deadline and most of them are awaiting parts.

I commend you most highly, by the way, for harping on the parts hoarders. We're on the dirty end of that stick out here, but plenty!

One of the things that cause wry grins here is the order about leaving keys in all vehicles. The affinity between stray soldiers and parked jeeps is amazing. Leave your key in, as per order, and the next day your jeep, with altered numbers, adorns a motor pool thirty miles away. I know of one that ran out of gas and was left without key, rotor, distributor housing and coil wire —still it was gone two hours later!

Also found your article on cleaning vehicles a bit whimsical. Ever been out here when it rains?

These driver classifications and awards are another thing. Any man in our section can and does operate anything from little Australian motorcycles up to the Autocar gas truck—but if you can get three GI operator's permits amongst us, it's a minor miracle (sure we had 'em, once). But as to wearing a dingleferry on the uniform, my God! Hell, the only decoration any of these instructors and drivers need is a campaign ribbon with stars. That's what counts, isn't it? (Or maybe a Unit Citation?)

CONTINUED ON INSIDE BACK COVER