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ARMY MOTORS

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sgt. tirman



The only limit to our realization of tomorrow will be our doubts of today. Let us move forward with strong and active faith.

—FRANKLIN D. ROOSEVELT, 11 April 1945

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V-BELTS

ROUND AND ROUND THEY GO—AND WHERE THEY STOP DEPENDS ON WHAT YOU DO TO KEEP THEM (AND YOUR VEHICLE) RUNNING

V-belts for every size, shape, and personality of the Army's hossless carriages are a little on the scarce side these days. They'd be less so—a lot less so—with a little elementary PM. So, if your jeep or M4 tank (or that aging garbage truck they handed you for a cargo carrier) gets caught in a Nip gun sight on account of a premature belt failure, don't think unkind thoughts about the manufacturer until you've had a long talk with yourself.

Is there something you can do to lengthen the life of your belts—to ward off the damage a wrong-running belt can do to your engine? Man, there's plenty. You can guard against improper fit, improper tension, unmatched belt sets, badly worn pulleys, inadequate precaution against contact with harmful substances, and careless installation. (You can even fight a war on the side, if you concentrate hard.)

IMPROPER FIT

A belt that doesn't fit right can let your pants down just as fast and just as unhappily when you're hi-balling through Berlin or Tokyo as when you're high-balling at the local armpit back in Milwaukee. If your belt's too long, it won't be tight enough even when you take it up all the way. And if it's too short—you

guessed it—it'll be too tight, and invisible inner cords will bust on installation.

If you have any doubt about the right size—well, confidentially, where is your belt riding? It should be saddled in the pulleys so that its top surface is about 1/16" to 1/8" above the highest point of pulley contact. That way the stresses are distributed properly throughout the belt section and you get maximum contact area for proper drive. Otherwise—if the belt is too large or too small to ride that way—you get maximum pain in the medulla oblongata and points south.

So if your belt starts working its way down to the bottom of the pulley, get rid of it. Plant it in the truck driven by your worst enemy—it's one weed you can count on to bloom in a hurry. A low-riding belt can easily bottom in the pulley and relieve the wedging pressure on the sides (the pressure which is supposed to keep it running, by the way). As soon as that happens, it starts slipping and burning and generally going to hell. And even if it doesn't bottom, a low-riding belt usually gets squashed to guava and runs hot enough to develop an advanced case of E. R. O. (burning rubber odor).

And what if it rides too high

instead? It loses contact area. You know what that means if you can remember operating in the old porch swing, or wherever. Lose contact area and you lose a lot of your drive. And a V-belt ain't worth a hive if it ain't got that drive. So do yourself a favor and never put in the wrong belt—unless it comes to a choice between that and a pink hair ribbon.

IMPROPER TENSION

Even with the right belt, you have to keep checking tension. A belt that'll give off with a bass viol twang today may only be good for a limp wriggle when you stroke it again next week. Running too loose, a belt will slip and sizzle (there goes that odor again); it won't drive accessory equipment efficiently; it'll wear away pulleys by constant slipping friction; it could almost better be done without. On the other hand, a belt riding too tight begins to feel like the rope in a tug-of-war. And the bearings carrying the pulley shafts will get hot enough to French-fry your Spam on.

Outside of a direct bomb hit somewhere near the generator, there's only one cure for all that: Check your belt tension for proper adjustment at regular intervals as specified in your map-compartment TM (or by other direc-

tives in your unit). It's your responsibility. Figs. 2 and 3 show two simple ways to skin that cat.

UNMATCHED BELT SETS

If that OD beer truck of yours needs more than one belt, be sure it has a matched set. Don't replace one belt at a time in multiple sets unless the new belt exactly matches the ones already in (you can bet that it won't; new ones give a little stretch that the others don't). Otherwise, it's like wearing suspenders with one strap longer than the other—unequal division of the load. Naturally, the shorter belt (or belts) will take practically the whole load and strain itself in no time, while the longer one just goes along for the ride, carrying enough slack to skip rope with. The short belts in a set-up like that grow old before their time and the long ones get slip-happy and beat themselves to a light froth slapping against the pulleys.

WRONG PULLEYS

If you're running special equipment off your engine—say a compressor and a fan and one small milking machine—it's the 2nd-echelon mechanic's responsibility to get the right pulleys for it. This is something every mechanic

should get to know about—but sometimes even his best friends won't tell him. Anyway, you get more pull out of the right pulley and your belt will last longer.

WORN PULLEYS

Don't wait until the grooves are just a memory before turning old pulleys in for new ones. Worn pulleys are about as good for your belts as a light shrapnel treatment with a rasp file chaser. It's no trick at all for a belt to bottom in a badly worn pulley. And if the wear is uneven, the pulley soon acquires the gentle touch of a swing grinder.

Pulleys sometimes wear very rapidly—especially when they're extremely small in diameter or carry a heavy load. Sometimes wear is speeded, too, by dust and dirt—if it's clogging up the air in which you're operating. Then, again, there's nothing like slippage to help grind away the toughest pulleys. At any rate, keep an eye on your pulleys and when you can see they're headed for the last wind-up, replace them. How can you tell all that? Just look at a new pulley and then take a squint at yours. Notice much difference? Also, how high does the proper belt ride in the pulley? Is it slipping?

(Continued on page 39)

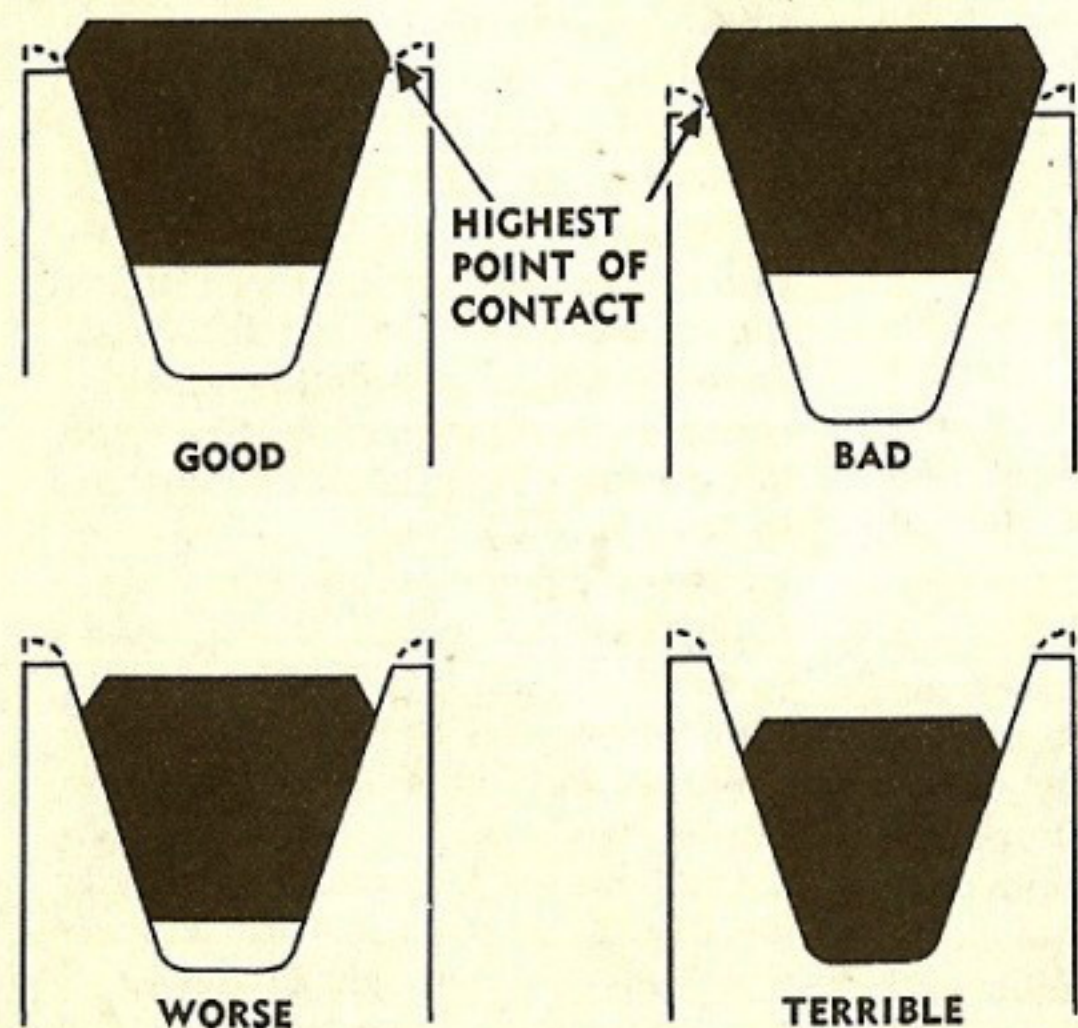


Fig. 1—V-belts should ride as shown at upper left. High-riding, low-riding, and bottoming belts always get you in the end.

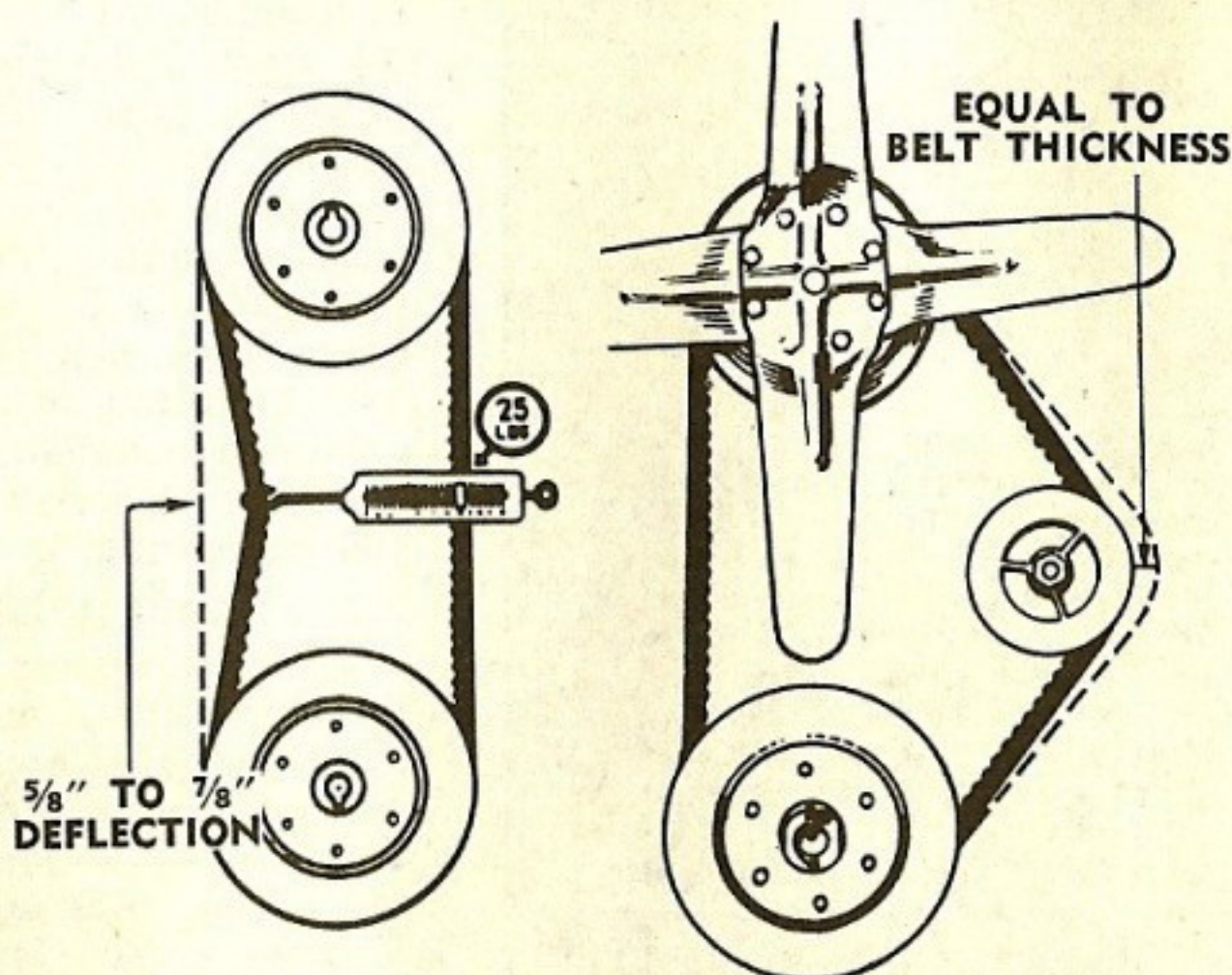


Fig. 2—Spring scales come in handy for testing belt tension. Fig. 3—Some idea of how tight a belt running over three pulleys should be.

M5 Tractor CLUTCH ADJUSTMENTS

When another M5 high-speed tractor gets hauled on the deadline with a burned-out clutch, maybe it's due to normal wear and tear. But more often the reason is wrong clutch adjustments. You can be pulling along with the clutch doing its job perfectly as far as you're concerned, because the force of the air pressure'll slam the clutch into action. But when those linkage and bell-housing stop-screw adjustments aren't exactly on the nose, your clutch may be slipping—so slightly you don't even know it. And in this case, what you don't know is going to hurt the clutch plates, because this slippage'll increase mile after mile. Meanwhile your clutch plates are taking the rub and before long will burn out entirely.

In the two types of adjustments you make—the clutch linkage and the bell-housing stop-screws—remember that when you make one adjustment, it's necessary to check the other adjustments, too. For instance, if you adjust the stop screws—located on each side of the clutch shifting-lever (Fig. 1)—be sure to adjust the linkage, which includes the three clutch-pedal rods and the two valve levers (Fig. 2). And the other way around: If you adjust the linkage,

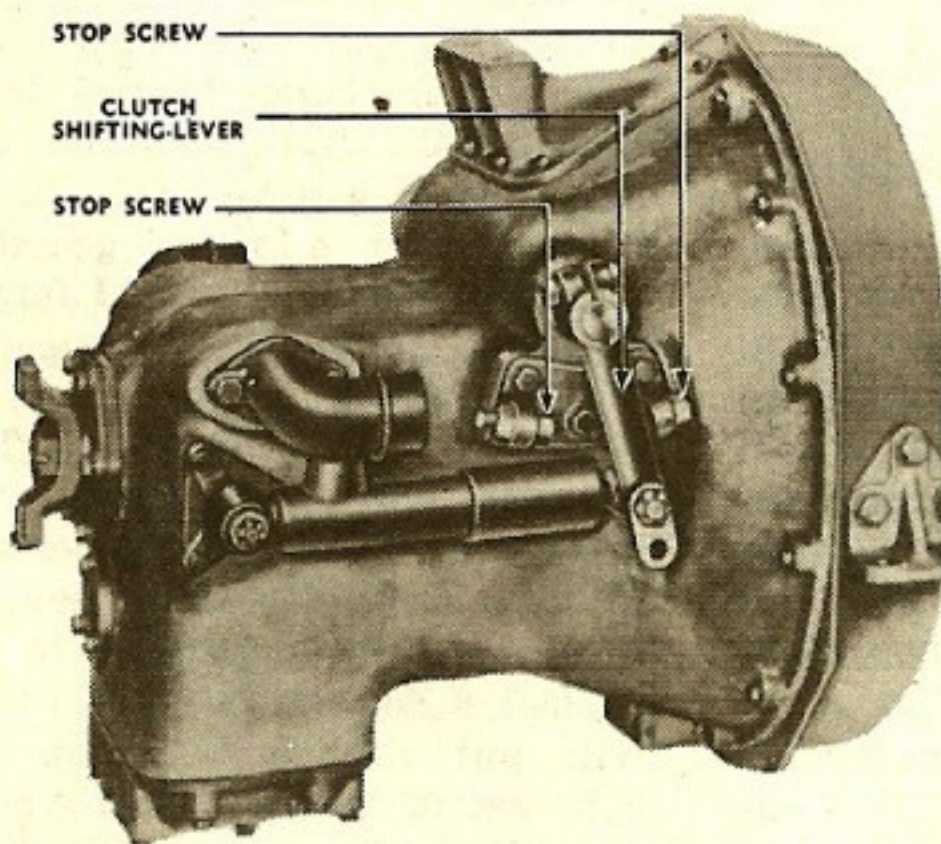
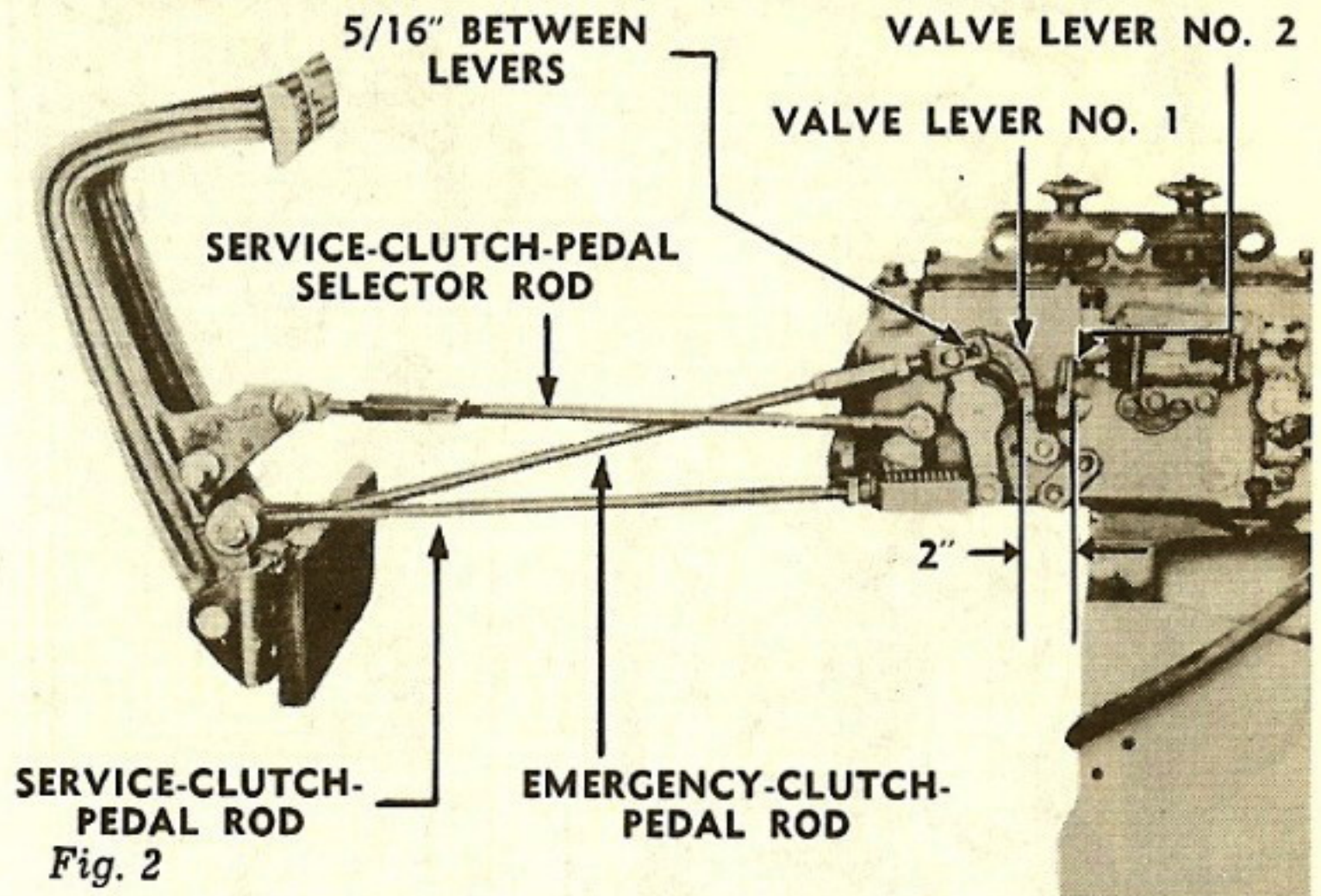


Fig. 1



then adjust the stop-screws. All these adjustments affect one another—so they've all got to be right.

Here's a simple way to check these adjustments by the way your clutch operates: With the engine stopped, first release the air from the air-brake tanks and the clutch power-cylinders. Then press the service-clutch pedal down its full length of travel to the toe-board. After being released, it'll return only to the neutral position—either in high or low range. Now step on the **emergency-clutch**

pedal until the **service-clutch pedal** comes up again to its engaged position—that is, like it was in the first place. And this is what to watch for: In this engaged position, the pedal should fit tight under the toe-board. Try this same operation in the other range. If the pedal isn't tight under the toe-board in both ranges when the clutch is engaged, the linkage needs adjustment—

and your clutch is either slipping or will be soon. When you can't push the service-clutch pedal down its full length of travel in both high and low range, then the bell-housing stop-screw adjustments aren't what they should be. If they're too tight, that's another reason for a slipping clutch. If they're too loose, you're likely to knock off the clutch-sleeve quill. What's more, you'll find that your emergency clutch won't operate, which can put you in a tough spot if you ever run out of air pressure.

Anyhow, if you find that any one or all of these signs of poor adjustment show up in this test, you'll need to adjust both the clutch linkage and the bell-housing stop-screws according to the M5 tractor's manual (TM 9-786, 19 Nov. 43, par. 155).

To repeat: After adjusting the stop screws and the linkage, go back to the stop screws to see whether their adjustments tie in perfectly with the linkage adjustments. This dual-range clutch has a powerful job to do and those adjustments have to be **exact** to stop it from burning itself out. You can prevent a lot of clutch trouble by keeping a sharp watch on how it's working.



M4, T26, & M24 Shock Absorbers

If you're gobbling up shock absorbers on your M4 medium, T26 heavy, and M24 light tanks—it's all for naught, says TB ORD 271 (29 Mar. 45). Just because the shock is oil-stained doesn't mean its useful days are over. In fact, never take that as a good reason for removing one. As little as ½ oz. of the type oil used in these units will make them look like they'd been dunked in an oil drum. The shocks can lose between 6 and 8 ounces of oil before their operation is affected.

Best way of testing your shock absorbers is still the touch system (after five miles of highway or four miles of cross-country operation). Feel the small part of the shock and then feel the hull nearby. That should show up a difference in temperature. If they both feel the same, the shock should be replaced—if it's not warm, it's not working. Don't get me wrong—

the small part of the unit doesn't have to be red hot, just warm enough so you can notice a difference between it and the side of the hull.

When you remove tank shock absorbers for replacement in the continental U. S., send them to Red River Ordnance Depot. Overseas, you send them to the nearest 5th-echelon shop.

M32 Exhaust Vanes and Winch Chains

Here are a couple more things you'll want to know about your M32-series tank recovery vehicle. One is how to save wear on the winch's front-roller chain. And the other—a damn sight more important—is how to save your chums in the towed tank from that sinister stuff called carbon monoxide.

So you won't blow up a dust storm, the M32's and M32B1's exhaust-deflector-vane assembly was designed to take the exhaust

gases straight out the rear rather than down. But there's a powerful amount of carbon monoxide in those fumes. When you're towing a tank with a standard bar, the riders in the towed vehicle can easily inhale this poisonous gas—without even knowing it—and either get plenty sick or go to sleep for good. It'll only take a minute to fix the deflector vane so the exhaust gases'll pass down under the towed vehicle.

First remove the exhaust-deflector-vane assembly, attached by four pins to brackets on the rear engine-compartment doors and rear hull-plate. Now take a look at the exhaust fishtails. If they're the kind with curved plates, remove the plates with a cutting torch to allow the gases to go downward. Then reinstall the exhaust-deflector vane just opposite to the way it was—turn it right around. Now the exhaust gases'll pass safely beneath the towed vehicle instead of directly into the lungs of some innocent victims, maybe.

When you're not towing, better use that exhaust-deflector vane the way it was in the first place—to keep you from clouding up the countryside with dust.

Now for that front-roller chain. When you're not winching with your M32-series tank recovery vehicle and you've disengaged the power-take-off clutch while traveling to keep the winch from operating, does your front-roller chain keep right on rolling? To disengage the controls, TM 9-738 (9 Dec. 43), par. 7 (i), says to put the winch clutch-control lever back in the "out" position and both the power-take-off clutch-control lever and the gearshift lever in **neutral**. The TM forgot, evidently, that the clutch needle-bearing puts enough drag on the chain sprocket to turn it. This keeps the chain moving and wears it out a lot sooner than necessary. To stop this, place the gearshift lever in **high** (according to TB 9-738-2, 6 Feb. 45), which, in turn, will put enough drag on the sprocket to hold it. Then you're more likely to have a chain that's fit for its next winching job.

Diamond T 4-Ton Torque-Rod Clamps

For a long time now, the threaded ends on the upper torque rods on Diamond T 4-ton 6x6's have been a dull pain in the burly necks of 2nd-echelon mechanics. The ends keep stripping and slipping out. The threads just don't seem to hold when the going gets rough, as it so often does.

What's been lacking, it seems, is uniform thread contact (that's short for measured progressive co-alignment of juxtaposed convolutions, of course) throughout the entire thread length of the torque rod. In other words, the threaded end should fit tighter—but doesn't. When it's screwed up into the rod, its forward tip has too much play, practically no thread contact. Naturally, that puts an extra load on the bottom threads, and they rip out like wet Kleenex under anything more than mild persuasion.

Why does the forward tip have too much play? That's simple enough. When you tighten the adjusting clamp (Diamond T Part No. 47244F) at the end of the split torque rod, it just grips the threaded end toward the rear and lets the forward tip sway like an undernourished palm tree in a young gale.

So try moving the adjusting clamp back about 1½" from the

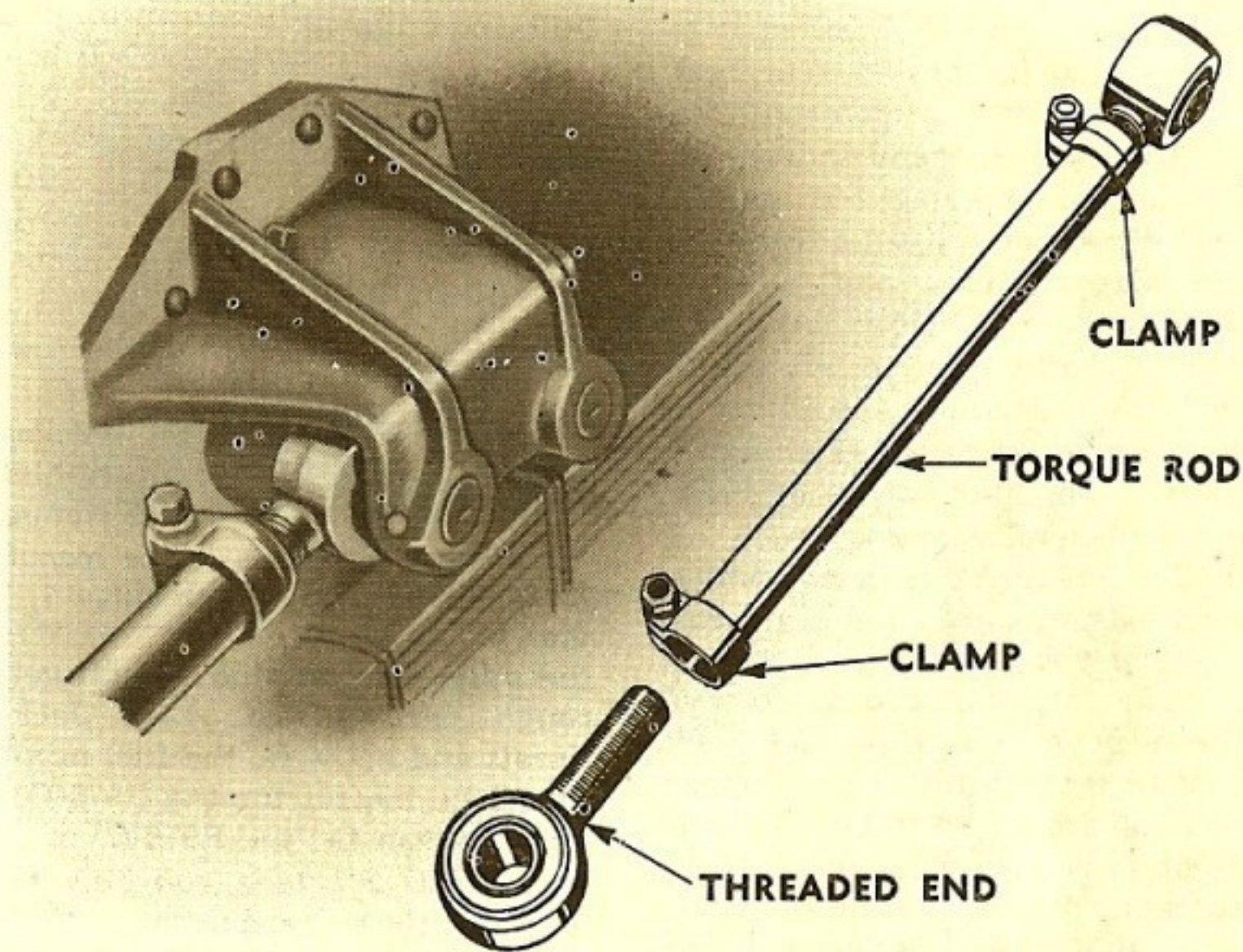


Fig. 1—When threaded ends on upper torque-rods start slipping their moorings, try moving the clamps back 1½" toward the center. A stitch in time saves threads.

end of the rod, right to the middle of the thread length (Fig. 1). That way, when you tighten it, you'll grab the threaded end around the waist and knock all the rhumba out of that forward tip.

Moving the clamp from the end of the rod to the center doesn't strictly jibe with engineering practice, but I hear from the field that it works. Try it for yourself.

Extinguisher Hints for Tank Retrievers

When your later-model M32-series tank recovery vehicle goes to blazes in the engine compartment, the fire extinguisher system packs enough squirt in just one cylinder to put out the flame and do half of next week's laundry. But it's a different story in the early-production models. There you have to pull **both** control handles at once or you won't get enough juice to smother the young fire before it grows up—you'll just stunt its growth a little.

That's because the cylinders in the old model are lying down on the job—stretched out horizontal like a couple of bushed Joes on sack duty (only the cylinders are

mounted that way.) Lying flat like that, a cylinder lets go only 50 to 60% of its CO₂ spray in the first few seconds after the handle's pulled. That's not enough. And the rest just drools and fizzes out too slowly to do much good, as the gas freezes quickly inside the cylinder.

So, to steer clear of a permanent hot seat, make sure the control handles of the two cylinders are connected with a strong cord or wire so they'll both let go at the same time. That'll give you 100 to 120% of the strength of one cylinder in the same first few seconds.

You don't have to worry about the cylinders in the later models, because they're mounted at a 30° angle. Instead of shooting the works with them, you can put out a fire with one cylinder and keep the other in reserve.

M5 Tractor

Fan-Clutch Housing

When you find oil on your M5 high-speed-tractor fan blades and clutch hub—or anywhere in that vicinity—maybe it's a mystery to you where it's coming from. It

BE A GOOD NEIGHBOR

Know any outfits in your neighborhood that could use ARMY MOTORS—and aren't getting it? Be a good neighbor and give them our address, so they can send in their request and T/O & E number.

ARMY MOTORS is distributed on this basis:

- 1 for each Motor Officer
- 1 for each Motor Sergeant
- 1 for each O14 Mechanic or equivalent

—to be passed around, of course, to all concerned.

was to me, too, till I traced it to the fan-clutch-housing rear seal. The suction of that powerful fan pulls it from the vent underneath the housing and sprays it around. Sometimes the oil drips down on the water-pump belt, which'll soon rot as a result. Anyhow, what I really want to tell you is that there shouldn't be so much oil leakage—don't relax thinking it's got to be like that. The reason for it generally is too much oil in the fan-clutch housing, which forces its way past the rear seal.

When you're adding oil to this housing, first be sure to remove the oil-level-tube cap—and don't replace it until the oil has stopped flowing from the tube. This is what tells you when you've got enough. When the oil's higher than this tube, you've got too much. And pretty soon it's going to be on the outside flying around instead of where it belongs.

Vacuum Windshield Wipers for Jeeps

Some of you jeep herders can start riding "no hands"—as far as your windshield wipers are concerned. A new vacuum-operated windshield-wiper kit, Item Stock No. G503-5700249, is being issued for ¼-tons in areas where the rain is heavy and the downpour season long. A TB, out soon, will give the authority and parts numbers.

The kit's complete with two motors, arms and blades, tubing, hose, clamps, and fittings to do the job. All you need's a few tools and a little energy. Fig. 2 shows the finished installation.

Remember, this kit's for where it keeps rainin' all the time, practically, and both hands are better off on the wheel.

Kits are expected to be available this month (May), but don't bust your pencil making out requisitions unless you qualify as a long-term rain-in-the-face.

Identification of R975 Carburetors

The Stromberg carburetors used on the Continental R975-C1 and R975-C4 engines are practically

Mike and Ike in appearance. Although they look alike, the R975-C4 carburetor has smaller jets than the one on the R975-C1. And if you install a Stromberg NAR-9D or NAR9G carburetor on an R975-C1 engine that belongs on the R975-C4—or

the other way around—you'll get rough performance. Like Jack Spratt and his wife, the fuel mixture'll be too fat for the R975-C4 and too lean for the R975-C1.

TB ORD 235 tells you how to identify these carburetors. The only thing to go by is the **manufacturer's parts list number** stamped on the carburetor plate (see box above), especially since a bunch of R975-C4 carburetors got marked by mistake with the R975-C1 Mfr's Part No. CWR-202199. C4 was painted on the

This is how the R975-C1 carburetor is listed:

Official			
Model	Ord. Part No.	Stock No.	Mfr's Part No.
NAR9D	B207314	G104-14-31730	CWR-201982
NAR9G	B264181	G163-01-31450	CWR-202199

The manufacturer's parts list number is 380113 with either 1, 2, 3, 4, or 5 following it.

Here's how you tell the R975-C4 carburetor:

Official			
Model	Ord. Part No.	Stock No.	Mfr's Part No.
NAR9G	Not Issued	0840-NAR9G-380118	CWR-202550
NAR9G	Not issued	0840-380132-1	CWR-203585

The manufacturer's parts list numbers are 380118 with either 1, 2, 3, or 4 following it, and 380132-1.

R975-C4 carburetor for identification, but it wasn't done on **all** of them—so you can't go by that, either.

Sticking strictly with the parts list number will keep you from getting these carburetors mixed—and your gas and air mixed wrong.

Socket Wrench Fix for R975 Engines

TM 9-1751 (19 Apr. 44) tells you that valve-clearance adjusting-screw nuts on Continental R975

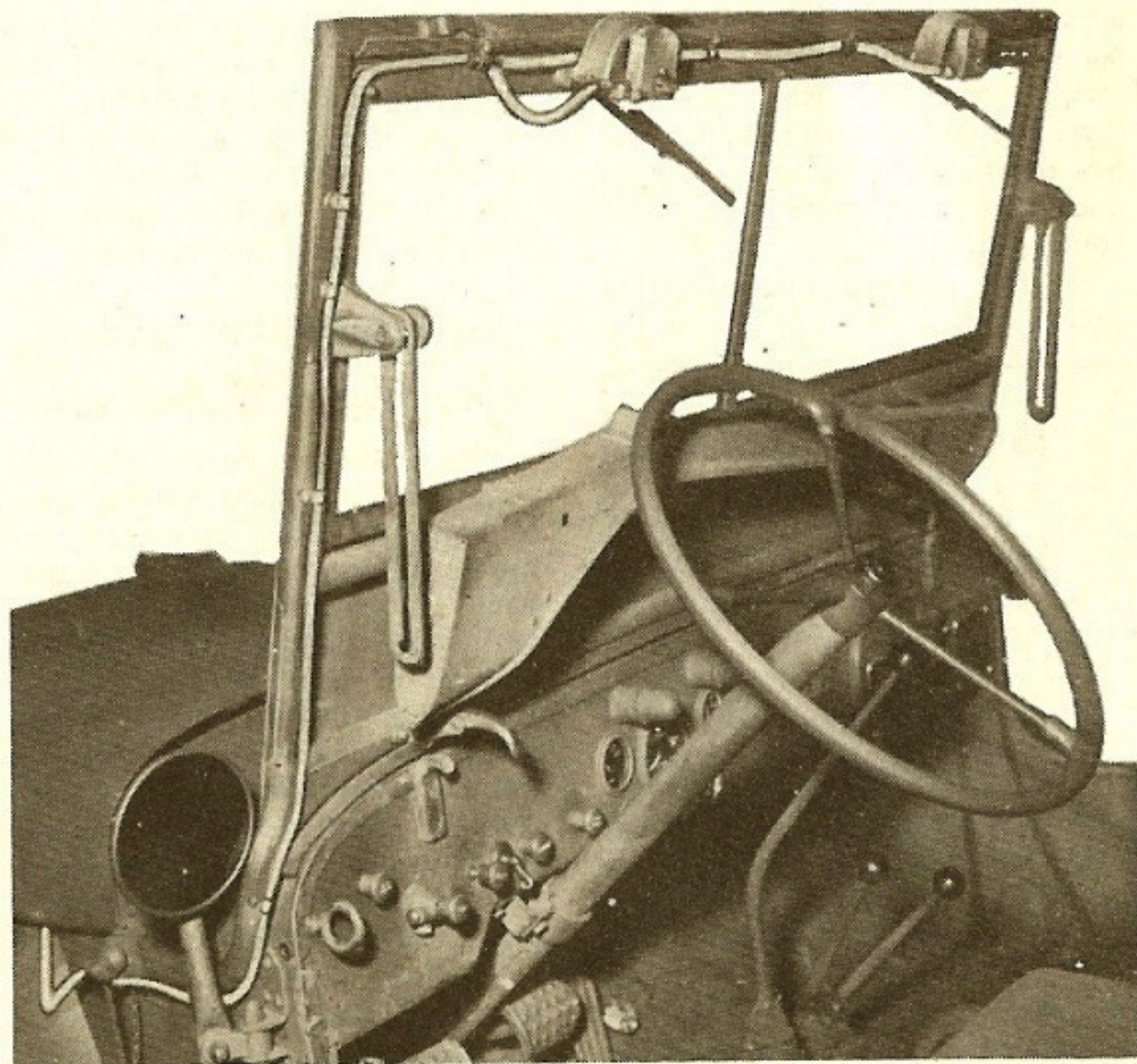


Fig. 2—Into each life some rain must fall. But it won't bother you if your jeep qualifies for these vacuum windshield-wipers.

tank engines should be torqued at 600 to 650 in.-lbs. (50 to 54 ft.-lbs.). That means you need a socket wrench, and TM 9-1725 (27 Jan. 44) specifies a thin-wall socket.

But by now you've probably found out you couldn't even get a paper socket over some of those nuts. No room—the rocker-box wall gets in the way. It was tough enough on some of the R975-C4's. Now, since the C1's have been changed over to the locknut-type rocker arm, you usually have to be three-quarters of a pretzel to look at the top of the nut, let alone get a socket over it.

Here's the answer—any hacker can do it. Just grab a healthy hacksaw and make two cuts in the wall of a standard 15/16" socket: one straight across the socket, 1/2" deep and 3/4" from the bottom of the socket; the other a slanting cut starting 1/2" down from the first cut and going straight up to the bottom of it. Then file 'er down—put a little chamfer where you need it—finish it so the slot you've made will easily clear the rocker-box wall (Fig. 3).

This home-made, air-conditioned tool takes only twenty minutes to turn out and should save you a couple of hours on each job. Only other way you can put that kind of torque on a nut that's

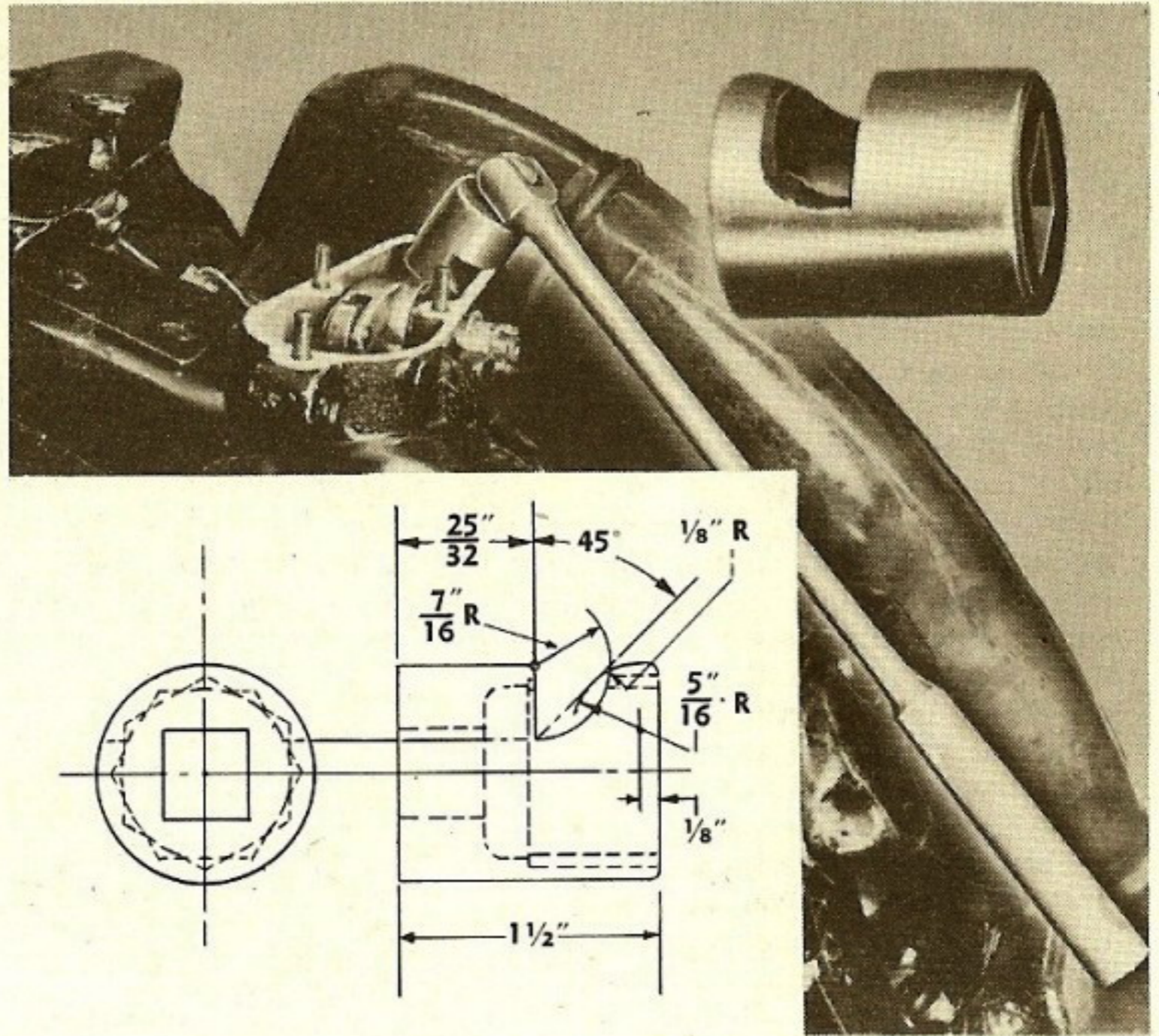


Fig. 3—The wrench in action and hints on how to make it. Notice the 45° angle of the hacksaw cut.

crowded against the rocker wall like that is by rotating the engine until the push rod pushes the rocker up so the socket can reach the nut. That means you have to turn the engine over again to find out whether actual valve clearance is what it should be. You

may have to run through the whole routine eight or ten times before the adjustment's correct.

So if you've got your back against a rocker-box wall, don't give up—just carve yourself one of these new tools and smile, smile, smile.

PREVENTIVE MAINTENANCE OF V-BELTS (CONTINUED FROM PAGE 34)

HARMFUL SUBSTANCES

All oils, greases, and many solvents used in washing engines are quick poison to belts. Pays to remember that and make sure these substances don't come in contact with any of the belts you have come to know and love. When you're about to douse your engine with a cleaning solvent, take off the belt or belts first. They'll appreciate it. And when you're checking your oil, don't dribble it on your belts. When a belt looks dirty, it's okay to wipe it with a dry rag—but steer clear

of water, oil, or belt dressing.

INSTALLATION TIPS

Whether you actually work in a shop or just drive a truck and occasionally have to put on a fan belt, take it easy. Too many belts have been broken while being installed. Remember, you're not drawing a bead with a slingshot; you're putting in an engine part. If a belt is too short to go on easily, don't plant your feet against the wall and stretch it or pry it on with an overgrown crowbar. Get the right size. Send away to

Abercrombie and Fitch if you have to—but get the right size.

If an idler pulley is included in the drive, it's a smart idea to remove it before you install the belts. That'll save a lot of stretching and a lot of rubber. If you have a multiple set of belts slaving for you, make a check every once in a while to be sure that none is broken. If one is, it'll put an overload on the remaining belts and shorten their life expectancy.

SO—

Treat your V-belt as you would like to have it treat you if you were a V-belt. Remember that what hangs by your belt is not only dirt, fungus, and barnacles—it's the life of your engine, your vehicle, and your favorite hide.

BRACKET BRACE FOR AUTOCARS

Bracing the air-compressor mounting-bracket is one sure way to keep said bracket from working loose and the air compressor from leaking oil, causing your Autocar 4-5-ton and 5-6 ton tractor trucks to hit an all-time high in oil consumption. The air compressor with the troublesome bracket is mounted on the Hercules RXC engine in Autocar models U-7144T, U-8144, and U-8144T. Early in 1944, the bracket was braced in production—so take a look at yours and worry only about trucks built before the fix.

Some of the parts needed for the brace have to be made from scratch, either by you or your neighborhood shop; the others are standard hardware from the SNL's of the same name. Requisition the parts in the box at right.

The parts you'll have to cook up are a bushing (Fig. 1), a stud (Fig. 2), and the brace itself (Fig. 3).

To make this fix, the air compressor must be removed from the vehicle, but it's not so giant a job as you think. Do it this way:

(1) Remove the inspection plate

in the left-hand floorboard by loosening the two wingnuts. Then reach over and pull out the clevis pin from the accelerator pedal and drop the throttle rod.

(2) Unscrew the three screws holding the engine hood to the floorboard, unlatch the hood catches on the right side, and yank the hood from the vehicle.

(3) Remove the left-hand floorboard by taking out the two

screws holding the starter-switch bracket and then the eight screws holding the floorboard. Then remove the toeboard—you'll find six screws holding it. (At this point, you should have a view of the air compressor that looks like Fig. 4).

(4) Drain the cooling system and disconnect the water and air lines from the air compressor. Now loosen the fan belt.

(5) Unscrew the four screws from the base of the air compressor and lift the compressor off the mounting bracket.

(6) Remove the mounting bracket from the engine and throw away the old gasket.

(7) Take out and save a cap-screw from the timing-gear cover just below the compressor bracket (see Fig. 5).

INSTALLATION

When you've got all the parts for the fix handy and you're ready to put things back together again, do it like so:

(1) Replace the air compressor mounting-bracket on the engine. Use the same screws you removed

Qty.	Name	Item Stock No.
1	Gasket, mounting, air compressor (BWE-211376)	G126-0194157
1	Screw, cap, hex-hd., S., 1/2-13NC-2 x 1 1/2	H001-10-13072
1	Washer, plain, S., SAE std., 1/2 in. (17/32 in. I.D. x 1-1/16 in. O.D. x 3/32 in. thick)	H001-15-30011
1	Washer, lock, reg., S., 7/16 in. (0.453 I.D. x 0.767 O.D. x 5/32 x 1/8 thick)	H001-15-18010
2	Washer, lock, reg., S., 1/2 in. (0.515 I.D. x 0.859 O.D. x 11/64 x 1/8 thick)	H001-15-18011
4	Nut, regular, hex., s-fin., S., (NC) 7/16-14NC-2	H001-07-18004
3	Washer, lock, external teeth, reg., S., 7/16 in.	H001-70-17711

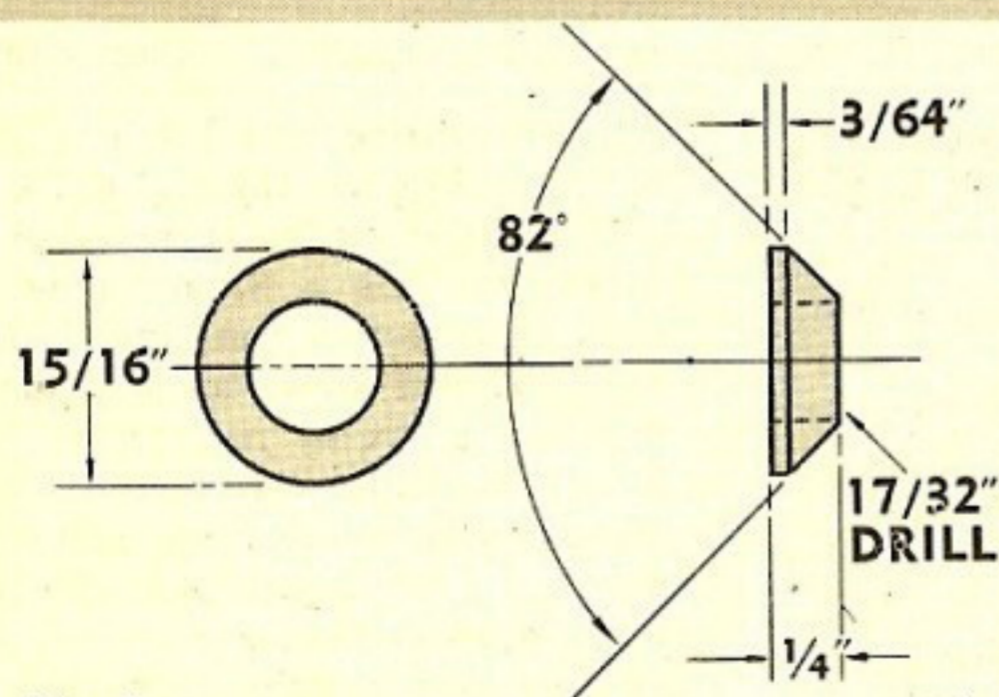


Fig. 1

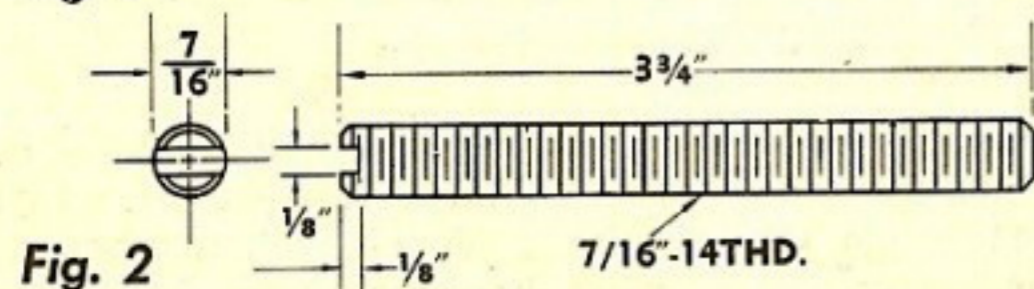


Fig. 2

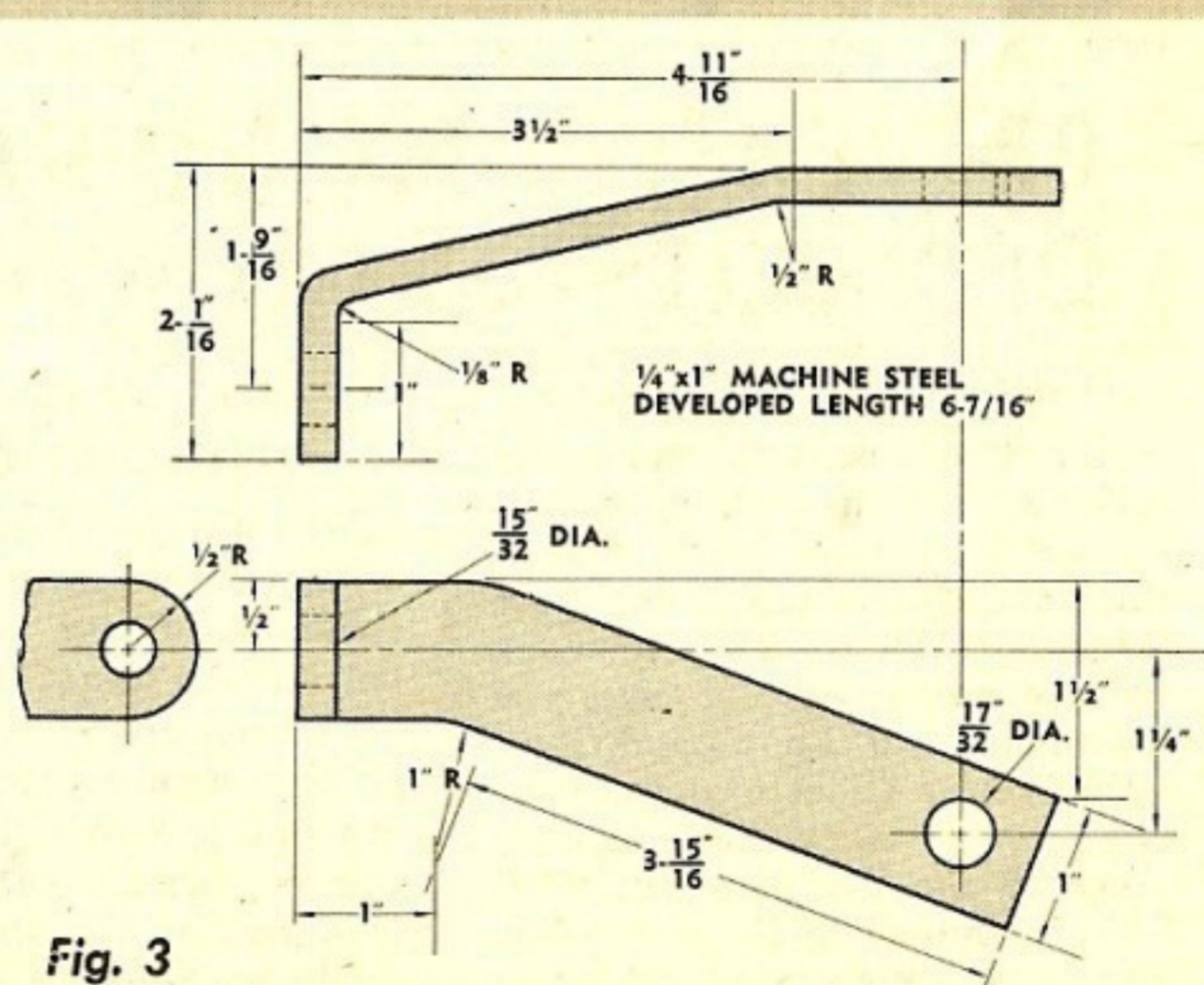


Fig. 3

Bushing and stud above must be machined, but cut the brace yourself. Scrap will do for the brace and bushing. Get Steel, cold fin., rd., WD1112, 7/16" (H010-04-24140), in foot lengths, for the stud.

Dedicated to WOJG E.M.C., who asked about a modification to strengthen his shaky air-compressor brackets

to take it off, with the exception of one. In the rear-upper hole (see Fig. 5) use the capscrew you removed from the timing-gear cover, the tapered bushing you made (Fig. 1), and a lockwasher (H001-15-18011). That makes four screws in the bracket—tighten them tight so the bracket won't wiggle.

(2) Screw the stud you made (Fig. 2) into the outer-front hole of the bracket—use a screwdriver. There should be about 1¼" of stud above the bracket.

(3) Lock the stud in place with a washer (H001-70-17711) and a nut (H001-07-18004). Run a second nut and then a second washer (like the first ones) well up on the stud.

(4) After the washer comes the brace you made (Fig. 3). Slip one end of the brace onto the stud and fasten the other end to the timing-gear cover with a washer (H001-15-30011) beneath the brace (see Fig. 5)—and a washer (H001-15-18011) and a capscrew (H001-10-13072) on top of the brace.

(5) Now run the second nut on the stud down against the brace until it starts to tighten. Then run a third washer (H001-70-17711) and nut (H001-07-18004) on the stud and tighten them underneath the brace. And tighten the third nut until it's really tight.

(6) Install a new gasket (G126-0194157) on the compressor mounting-bracket.

(7) Fit the air compressor over the stud so it sits firm and flat on the mounting bracket. Put back the three capscrews you unscrewed before you lifted off the air compressor; and then, over the stud goes a lockwasher (H001-15-18010) and the last nut (H001-07-18004).

All that's left to be done now is replace the toeboard, floorboard, inspection plate, and engine hood. You can put those back by reversing the steps you used to remove them. You know how, anyway. And don't forget the radiator needs water.

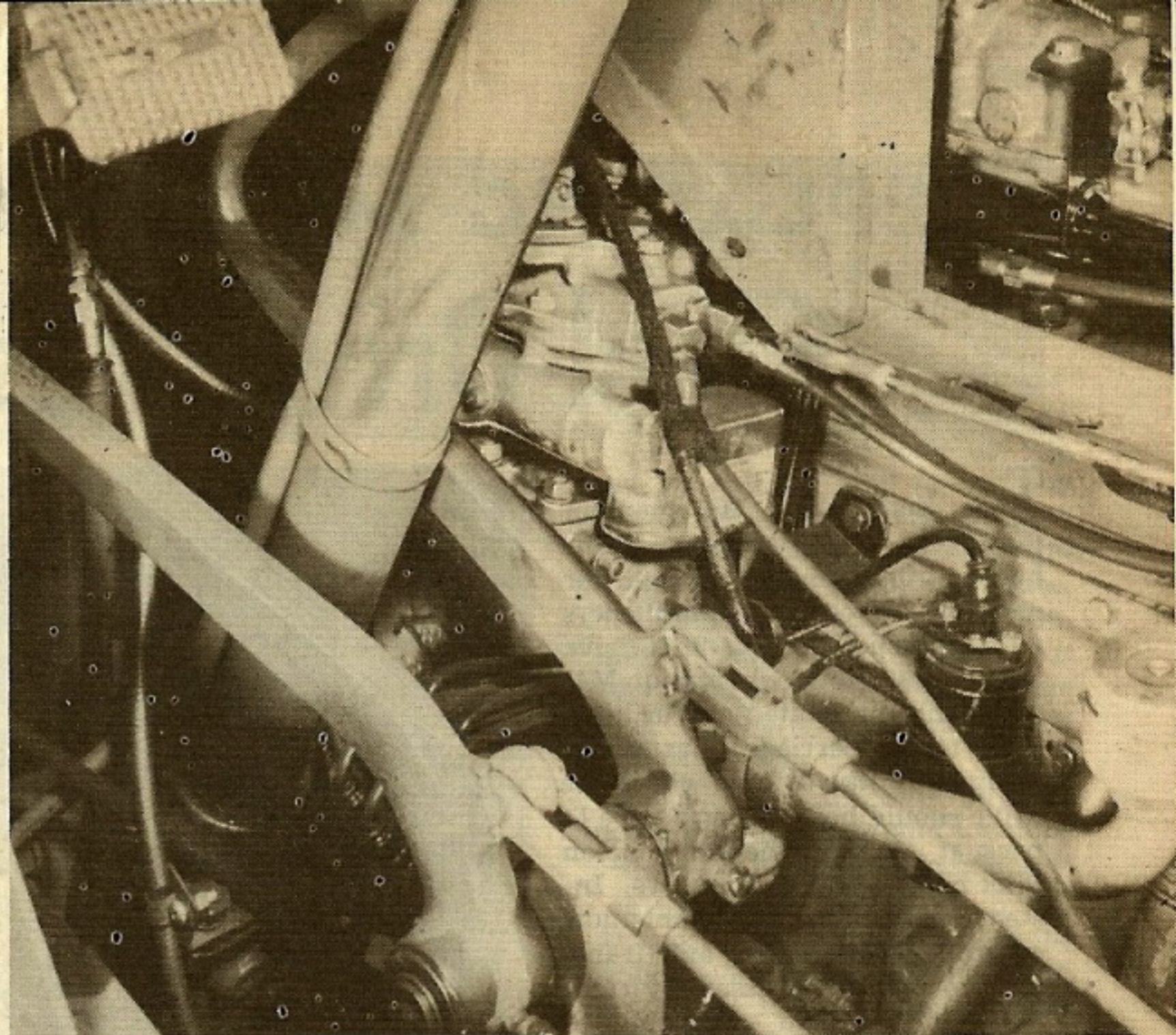


Fig. 4—You can brace the air-compressor mounting-bracket by removing the floorboards and hood—the radiator or cab does not have to be yanked.

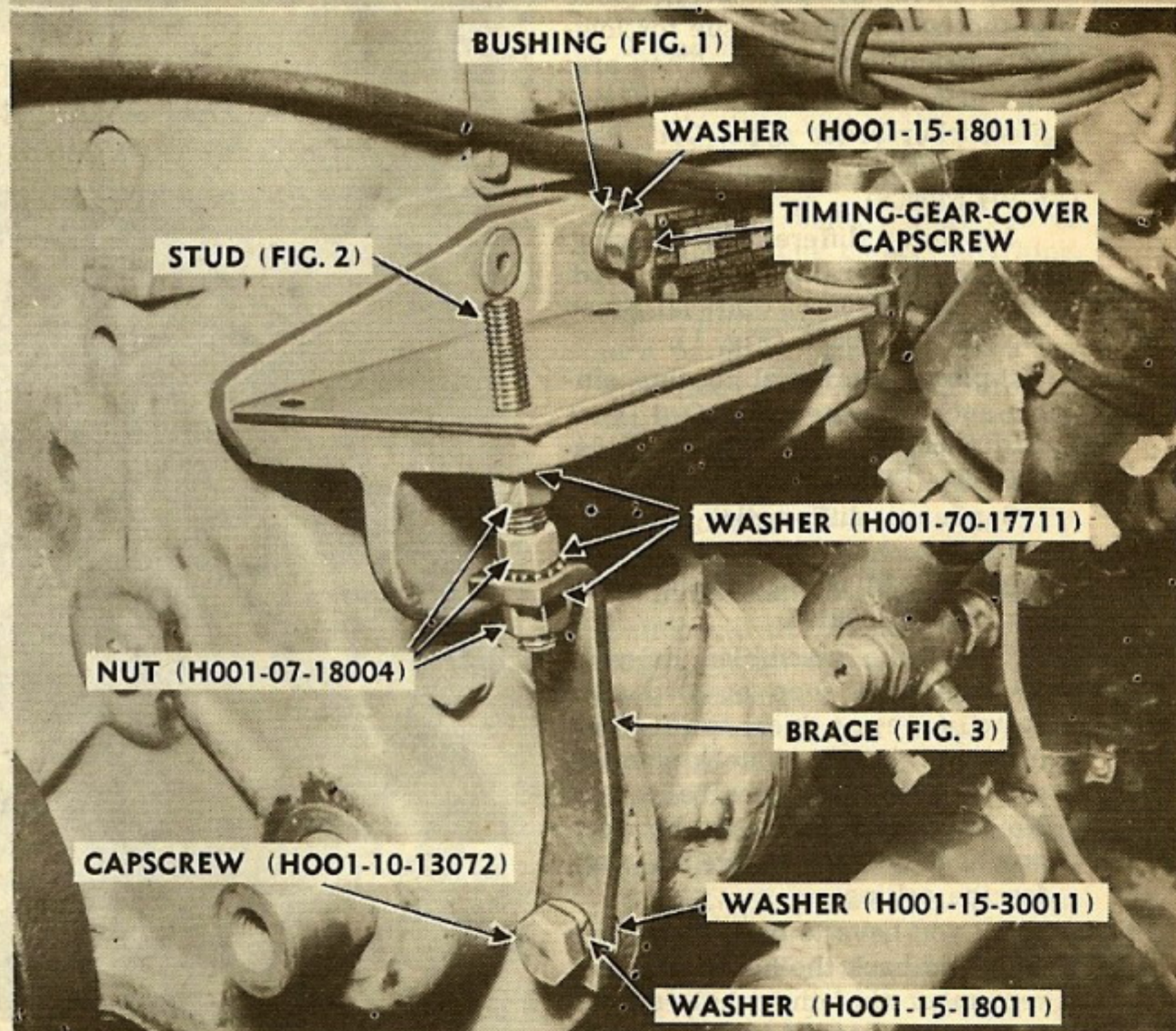


Fig. 5—After a new gasket's atop the bracket, seat the compressor tight with 3 capscrews—washer (H001-15-18010) and nut (H001-07-18004) on the stud.

REPLACING M4 TANK

Final-Drive Assemblies

Time was when M4 medium tanks with damaged power trains had to run home to mother for mending—like little apple-flechers with buckshot in their final-drive assemblies. Now, when your M4-series job (or related gun or howitzer motor carriage) has something more like dribble where the drive should be, you don't have to pack it off to some 4th-echelon tank hospital for a slow cure. Instead, you can put in a whole new controlled differential and transmission final-drive assembly right there in the field, according to TB ORD 275.

Four of these assemblies, complete with everything but whistles, have at last been made authorized items of issue for lower-echelon installation. They are:

1-piece differential housing, single-anchor-brake type, Ord. Part No. A5700061, Official Stock No. G104-5700061.

1-piece differential housing, double-anchor-brake type, Ord. Part No. A5700062, Official Stock No. G104-5700062 (Fig. 1).

3-piece differential housing, single-anchor-brake type, Ord. Part No. A5700060, Official Stock No. G104-5700060 (Fig. 2).

3-piece differential housing, double-anchor-brake type, Ord. Part No. A57000196, Official Stock No. G104-57000196.

They'll be assembled at your favorite base shop or Ordnance supply depot from parts and housings already in stock or made available through cannibalization. No important difference between any of them, and they're all yours for the asking.

All you have to do is install 'em and send back the has-beens. But remember that the whole system will break down if you don't send back **complete** assemblies. Only the final-reduction sub-assemblies

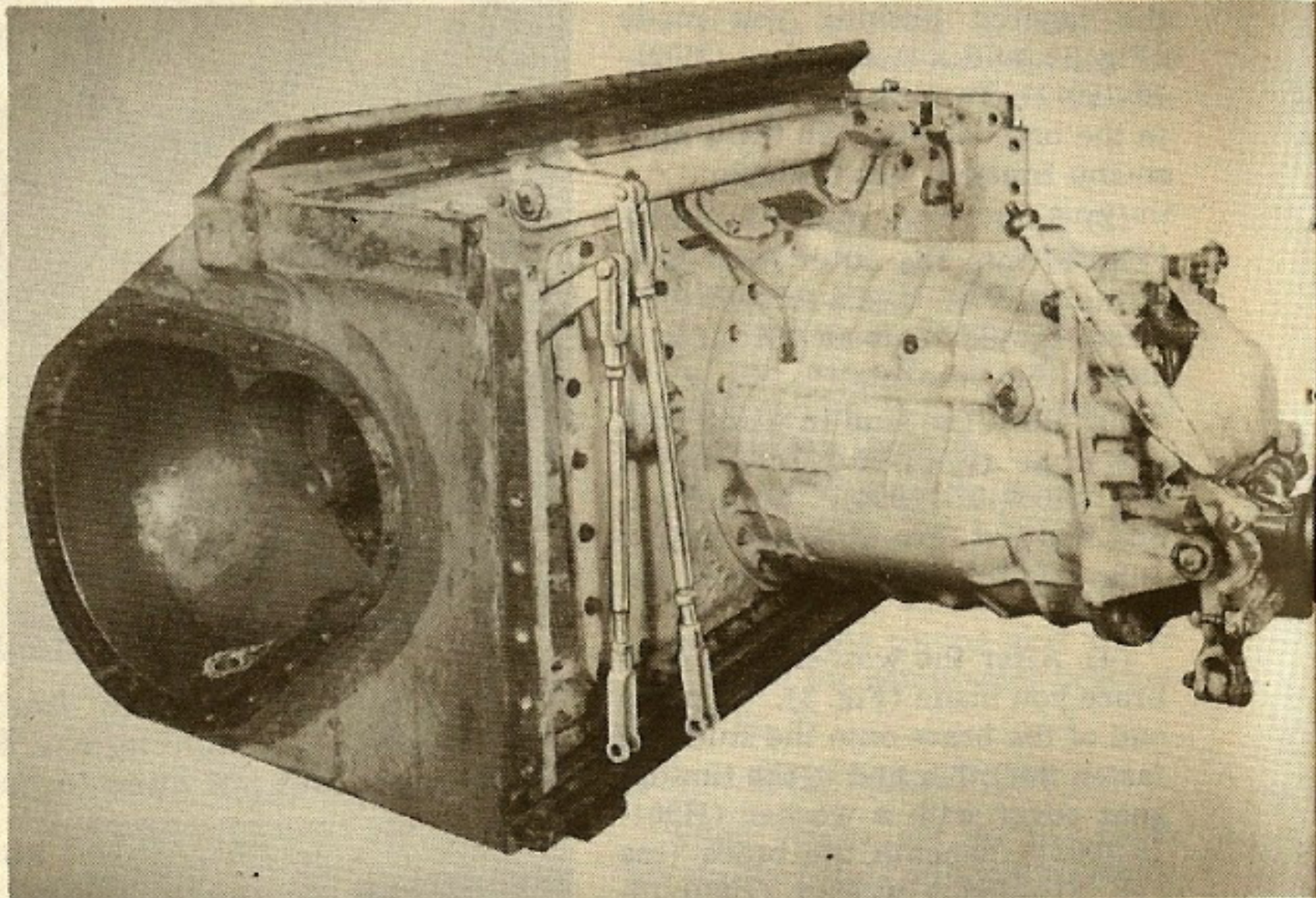


Fig. 1—The 1-piece differential housing, double-anchor-brake type, features push-type steering-brake operating-rods.

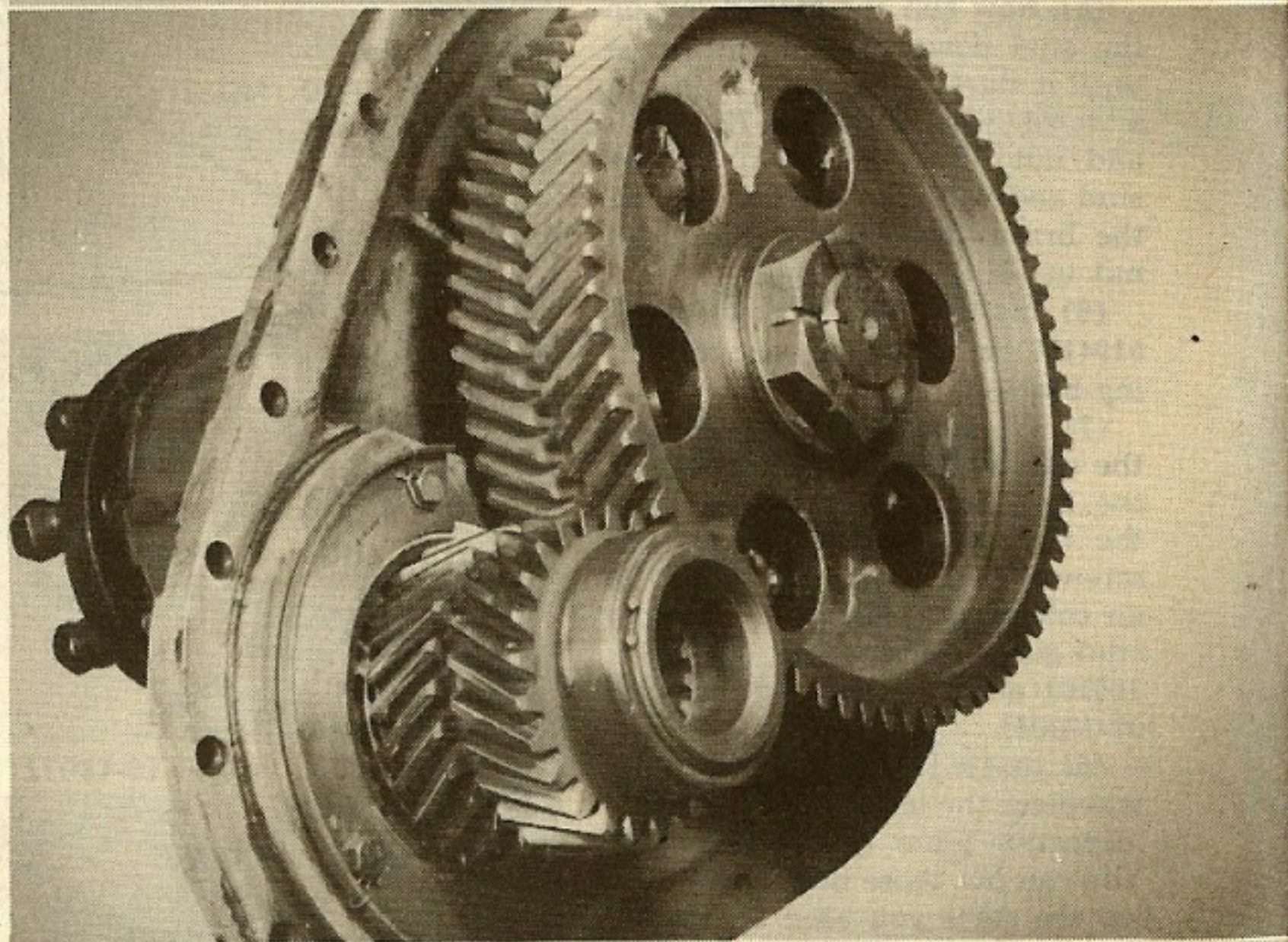


Fig. 3—This is the sub-assembly that comes out of done-in final-drive assemblies before you send them to the rear

(A294625) should be removed from a damaged unit before it's sent to the rear for reconditioning.

The beauty of these assemblies is that they're interchangeable in all M4-series medium tanks and related vehicles—that is, if MWO

G1-W5 (steering-lever parking-brake mechanism) has been applied to the vehicle, or if it's equipped with the later type of parking-brake steering-levers (the kind with two holes at the lower end to allow either the push or pull-type steering-brake operat-

ing-rods to be installed). As suggested in the accompanying glam-or-shots—Figs. 1 and 2—the push-type rods are used on double-anchor jobs, the pull-type on single-anchor.

Anyway, when your M4 transmission suffers from shells or *minen* or just plain folds up, you can yank it out and put in any one of these new babies. Doesn't matter which one—unless you get a choice. If you do, of course, don't start that eenie-meenie routine or run around looking for your weegee board. Just use the type originally installed in the vehicle.

Since there are two ways of doing the job—right and joe-dope—here are a couple of reminders:

First, drain the oil from the damaged assembly and lift out the whole works (ARMY MOTORS, Oct. 44, pp. 208-210). Then take off both final-reduction sub-assemblies (A294625), leaving the outer race, roller bearing, and final-drive shafts inside the differential housing (see Figs. 3 and 4).

Removal of the sub-assemblies will leave openings, barn-door size, for dirt and water to flow into the cast-off assembly. So cover these gaps with whatever's suitable and handy. Plywood is the number one choice; anything strong enough to keep the shaft from falling out will do. And be sure to install pipe plugs in the transmission oil-line and breathing openings. Finally, tape or cover breathers on the differential—and wipe perspiring face with one undershirt, sergeant size.

Then take a deep breath and put in the complete new assembly. Install in it the old final-reduction sub-assemblies—unless you've been hearing a toothless rattle coming from them in operation. Don't use the old, beat-up gaskets if you can spare a couple of new ones. Check the linkage adjustment, preferably with a copy of TB ORD 83 tacked up in front of your eyes. Then look up the lube order for the vehicle and bring the lubricant up to its proper level.

Then hit the sack—you've done a job.

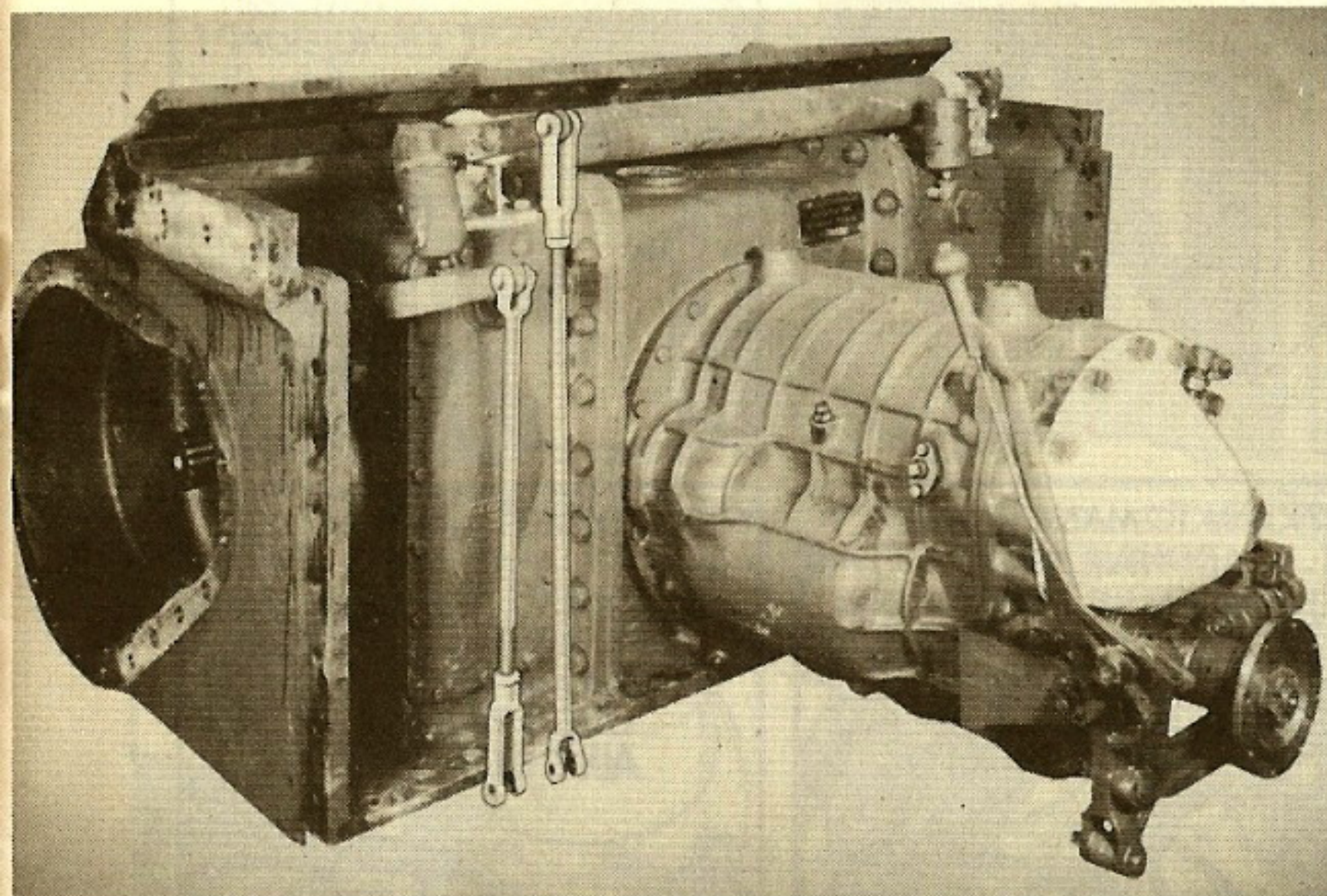


Fig. 2—The 3-piece housing, single-anchor-brake type, is partial to pull-type steering-brake operating-rods.

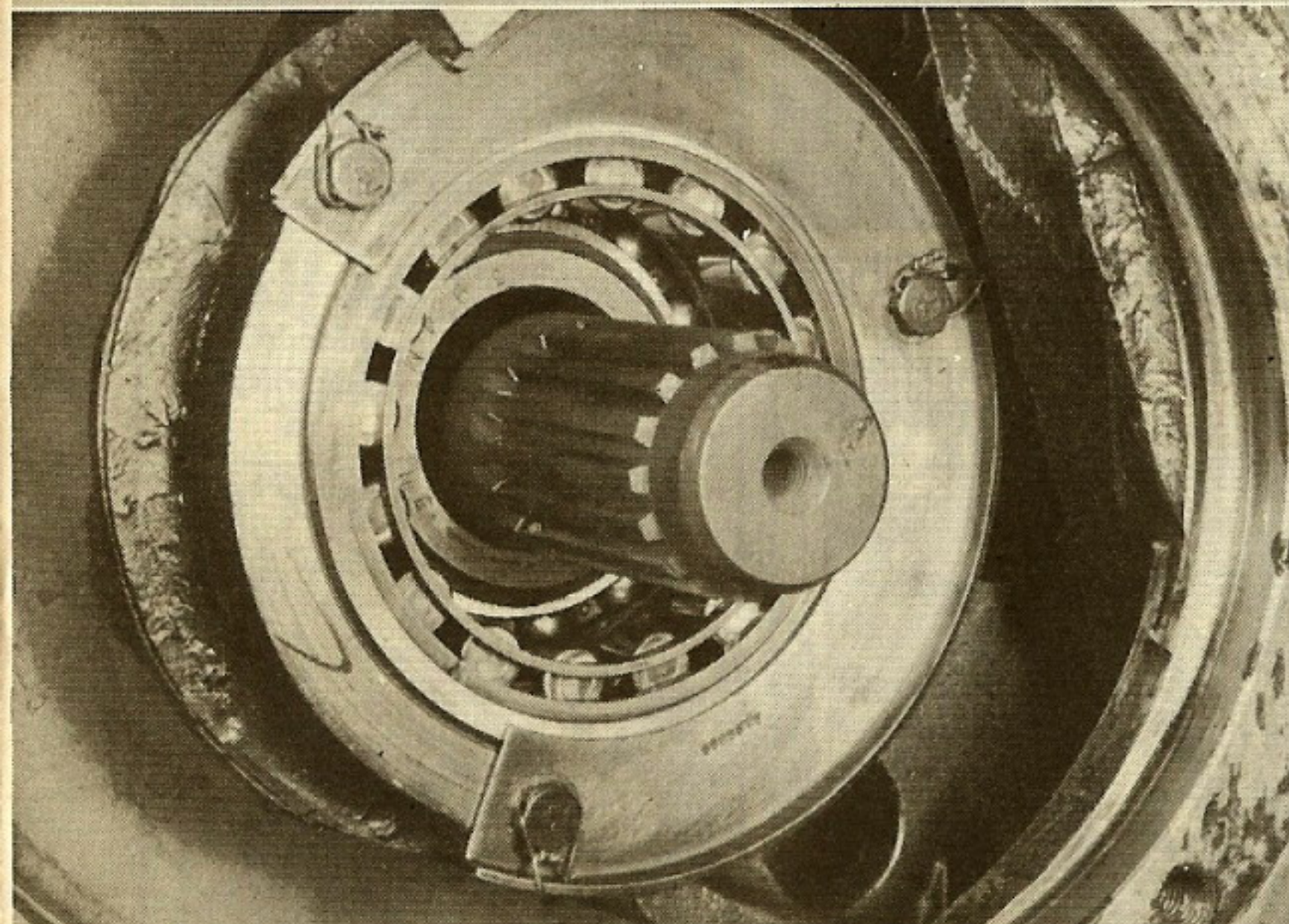
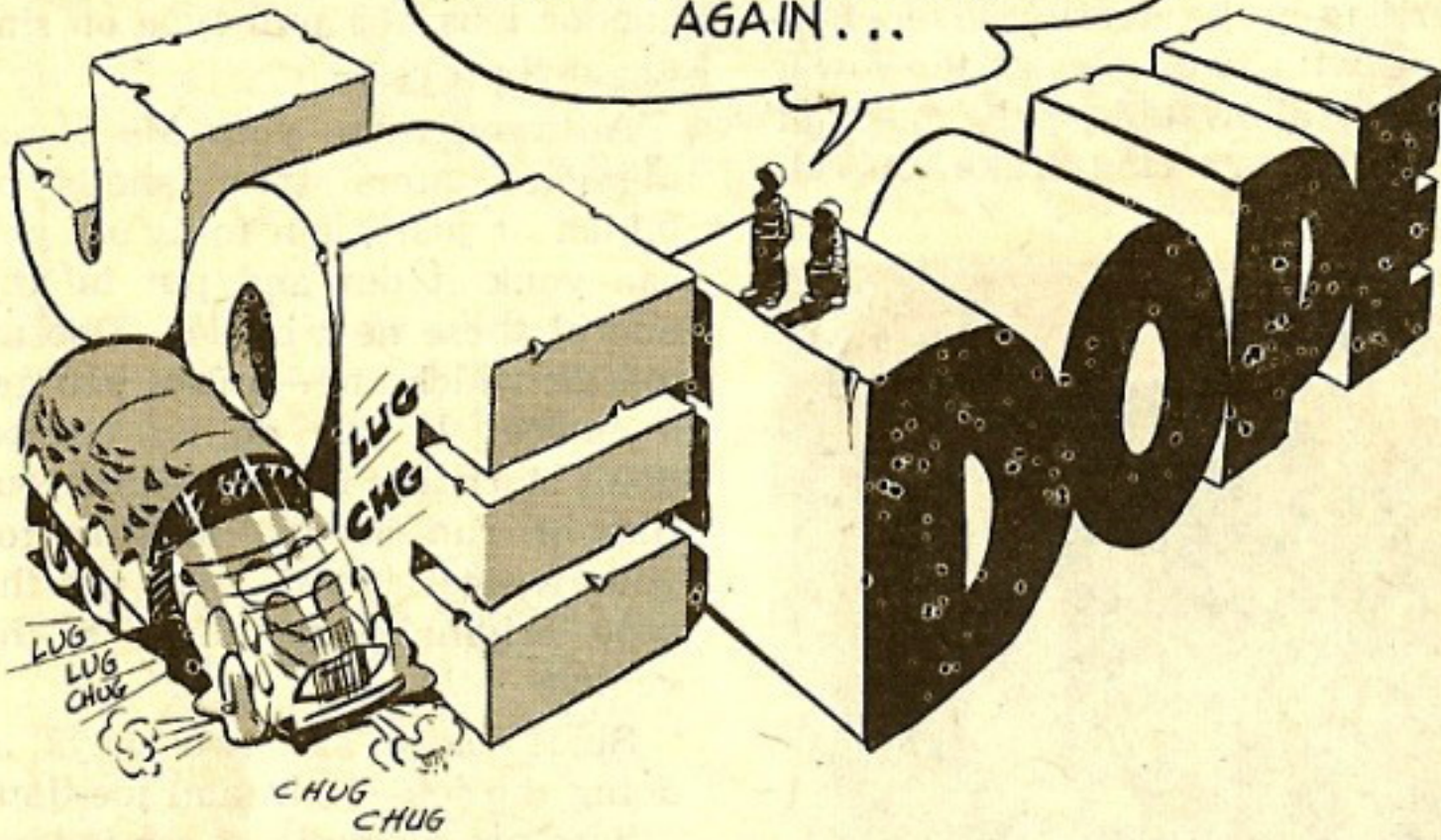


Fig. 4—And this is what should be left in the housing when you ship it: Everything but what's shown in Fig. 3.

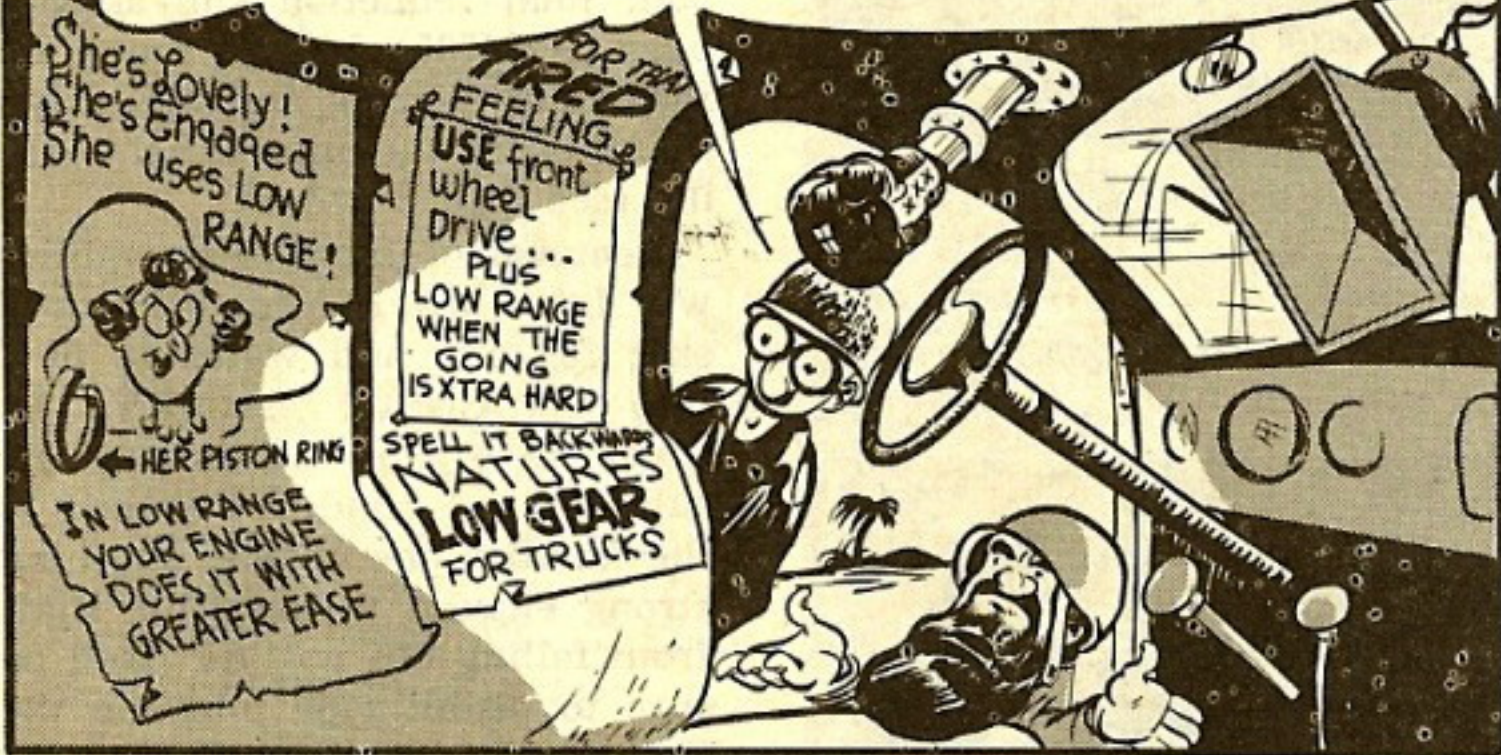
HOLY HAT! LISSSEN T'JOE DOPE LUGGIN' HIS ENGINE AGAIN...



DOESN'T HE KNOW ABOUT **LOW RANGE**? **SURE** BUT LIKE A LOT OF OTHER JOKERS HE F'GETS TO USE IT... I'VE TRIED TO IMPRESS IT ON HIM.. BUT NO SOAP!

DID IT HELP? **NAH!** HE STILL F'GETS ...KNOWING WHEN TO USE **LOW RANGE** IS A MATTER OF ONE'S JUDGMENT.... **JOE AIN'T GOT ANY!**

I'VE TRIED EVERY REMINDER KNOWN TO MAN OR BEAST! **POSTERS... LOUD SPEAKER... AND EVEN A BOXING GLOVE** TO SOCK HIM WHEN HE F'GETS'....



I'VE TRIED ONE LAST THING!! - HIRED **DOCTOR MORON** THE WELL-KNOWN PSYCHIATRIST TO WORK ON JOE... LET'S SEE HOW HE'S MAKING OUT



I GEEV OP! THIS IS TOO MOTCH FOR MY LIMITATIONS.. I WEEL SEND MY CONFRERE, **MADAME SNAZZ**



WILL **SHE** BE ABLE TO MAKE ANY IMPRESSION ?? **HA HA** ..ARE YOU **KEEDINK** ??



Next Day ..

WELL, **MADAME SNAZZ**, HERE COMES **JOE DOPE** NOW..... WANT A PAIR OF **FATIGUES** !?

NO!..I'M **WEARING MY WORKING CLOTHES**

SEE, EVEN NOW HE'S COMIN' UP THE BEACH.. LISTEN! HE'S STRAINING THE HEART OUT OF THAT ENGINE!.. HOPE HE REMEMBERS TO USE THE **LOW RANGE**

HE DIDN'T

©#!@*@IM STUCK ... THAT OL' ENGINE WENT AND DIED OUT ON ME!

LUG LUG CHUG CHUG CHUG

?

COME HERE !! DO YOU KNOW WHY YOUR ENGINE DIED, GETTING YOU STUCK IN THE SAND

?

NO? WELL .. YOU SHOULD USE YOUR **LOW RANGE** SO YOU WON'T BURN OUT YOUR ENGINE

WHEN THE GOING IS **TOUGH** YOU NEED A **LOWER GEAR** TO GET MORE **PULL** ... IF YOU DON'T YOU'LL BURN YOUR ENGINE OUT!

NOW! WILL YOU REMEMBER ALL THIS ?..... WHAT ARE YOU THINKING OF??

SLAP!

Take a Load Off Your Tail, Gate

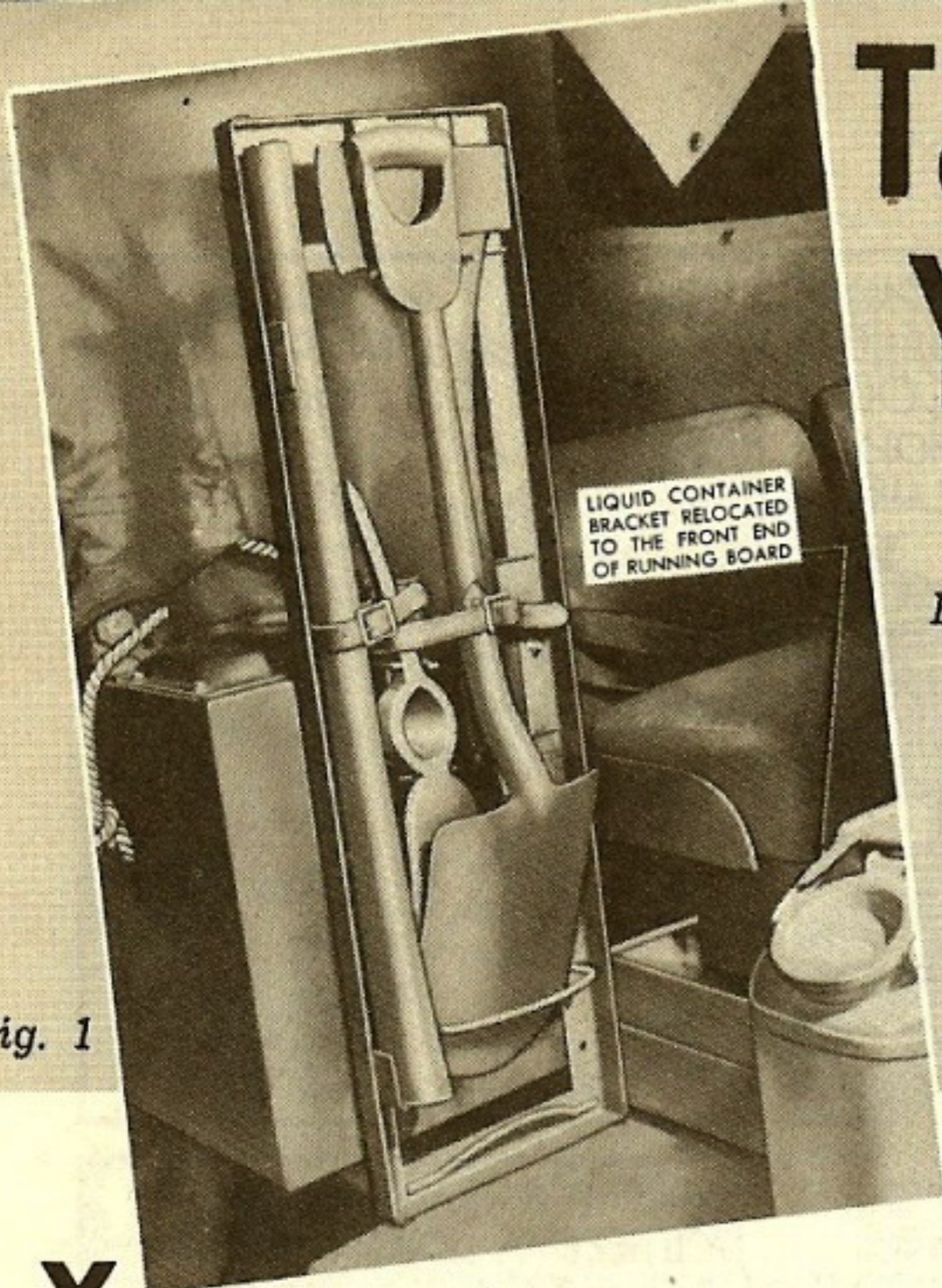


Fig. 1

You guys who've been bitchin' about your pioneer tools and brackets getting smashed on the tailgates of your trucks can now relax and enjoy moving them to a safer location. Just wave TB ORD FE25 (6 Feb. 45) in the face of anybody who objects.

The pix on this page show the new resting places and any additional mounting materials you need. On all vehicles except those shown, the tools remain in their old location—same as in TB ORD 93 (13 May 44), which the new TB supersedes.

Fig. 1—The 1 1/2-ton 6x6 personnel carrier now wears the tools on the front of the right side of the truck. You have to move the liquid-container bracket to the front end of the running board. No new mounting bolts or screws are needed.

Fig. 2—For the 2 1/2-ton cargo truck (wood body), take the tools off the tailgate, slap them on the front

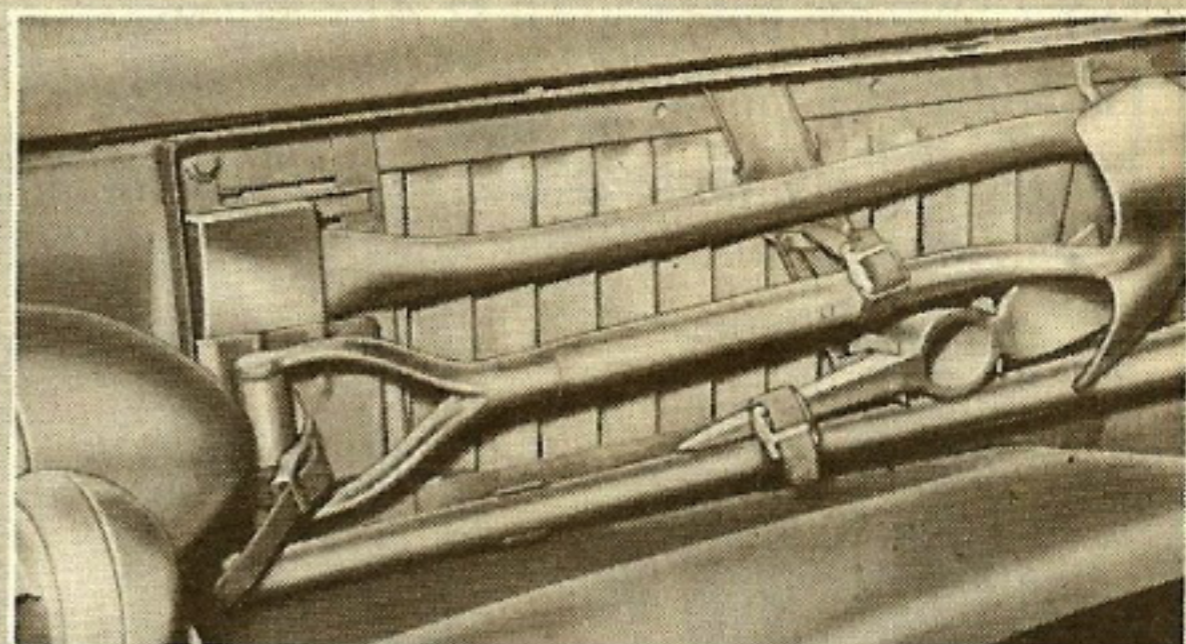


Fig. 3

of the left side like this, and move the name plate and reflector out from under. Besides the 4 nuts and lockwashers you already have, you'll need 4 carriage bolts (3/8"x4 1/2"), 4 escutcheon pins (no. 10x1/2"), 1 wood spacer (1 5/8"x2 3/4"x12 1/4"), and 1 wood spacer (1 5/8"x3 5/8"x12 1/4"). The steel-body job gets the tools mounted the same way, only you cover up the reflector.

Fig. 3—This is an alternative location for the 2 1/2-ton on the left side of the hood. It takes 4 bolts (3/8"-16x1 1/4"), 4 nuts (3/8"-16), 4 wood spacers (1/2"x1 1/2"x2"), 4 flat washers (3/8"), and 4 lockwashers (3/8").

Fig. 4—The tools come off the running board on the 4-ton 6x6 cargo truck and move to the front of the left side of the body. You'll need another lockwasher and flat washer (3/8"), 1 carriage bolt (3/8"x2"), 3 carriage bolts (3/8"x4 1/2"), and 2 wood spacers (3/4"x2"x4 1/2").

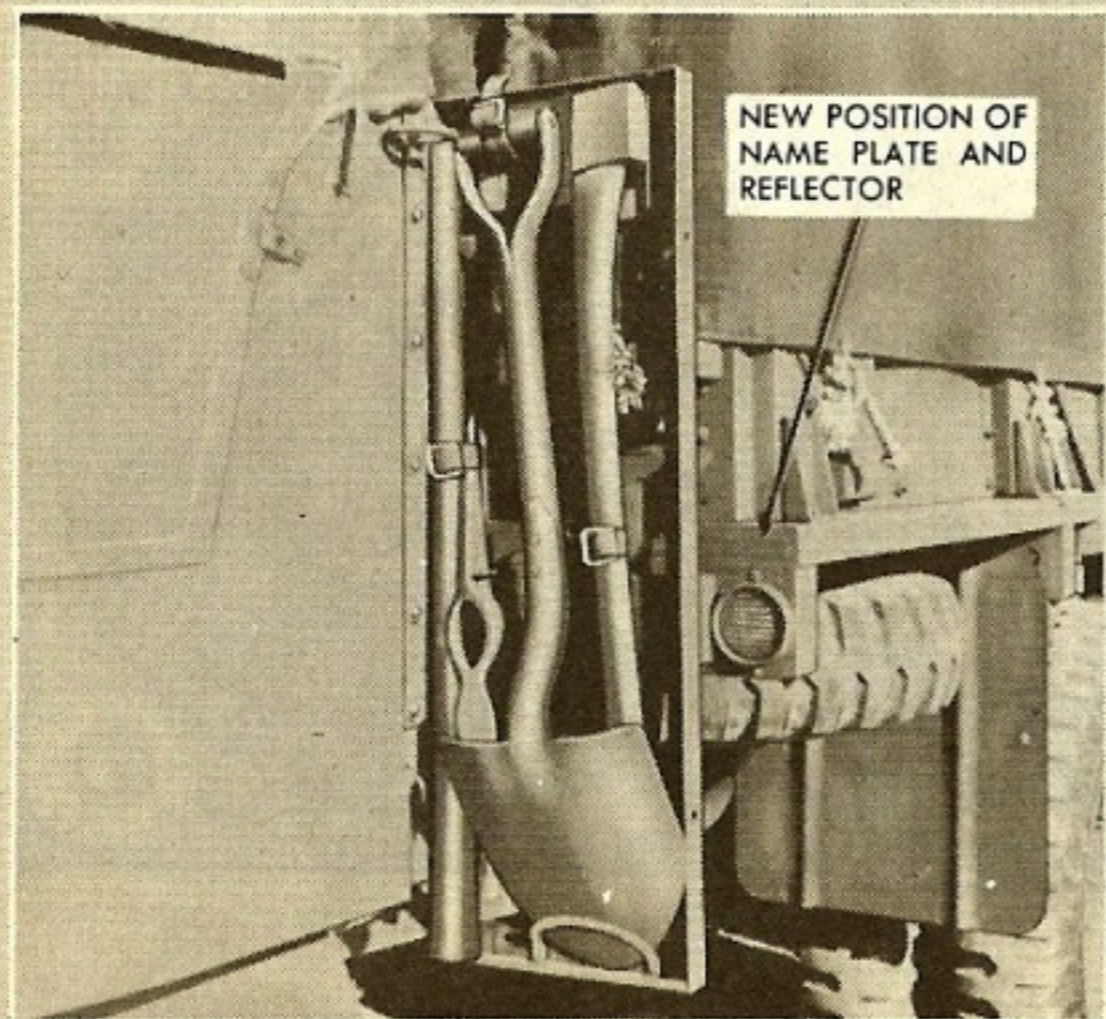


Fig. 2

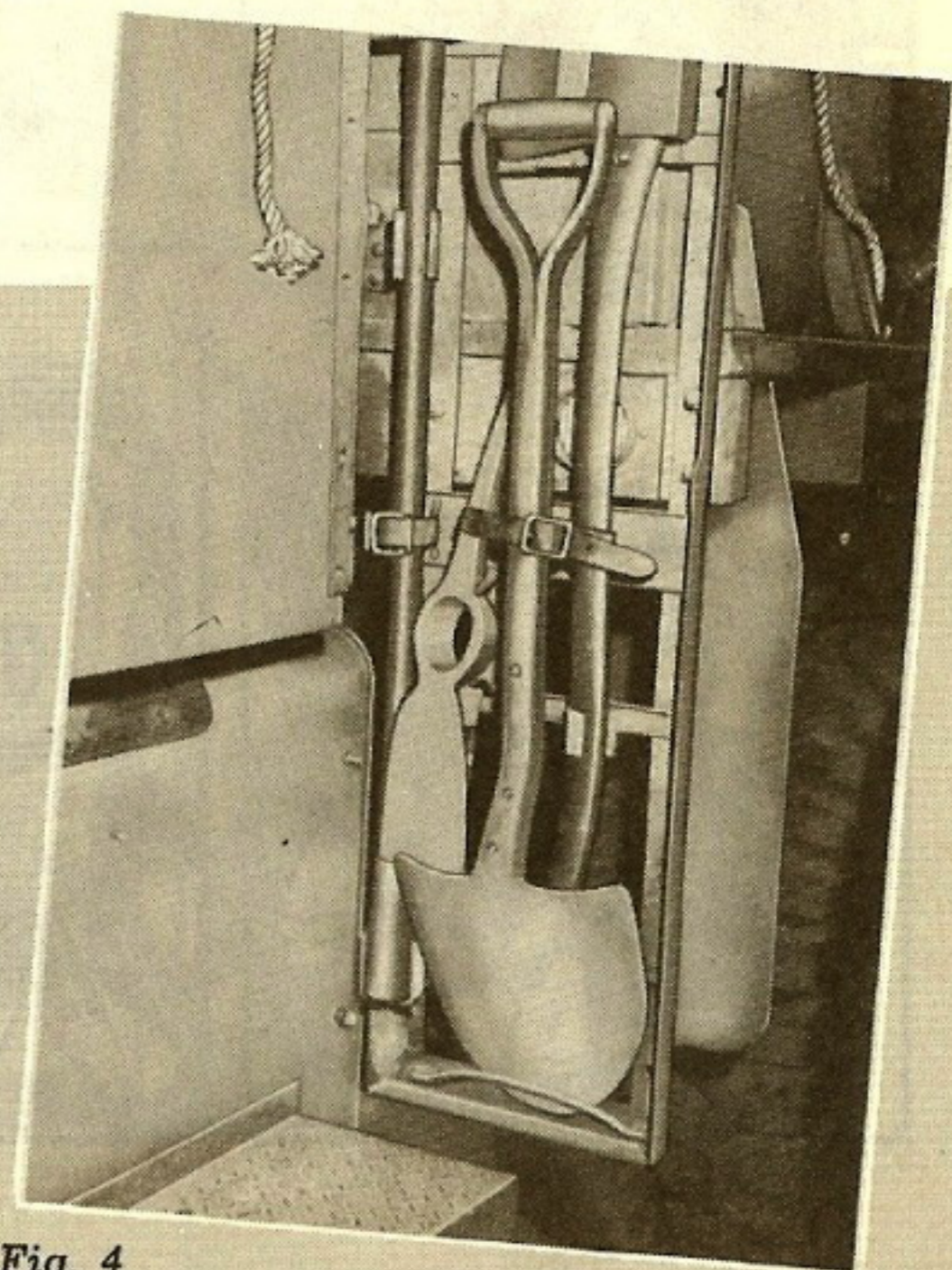


Fig. 4

Form-Filling Exercises



NEW TM 37-2810 GALLOPS TO THE RESCUE OF YOU PEOPLE WHO'VE BEEN KEEPING YOUR RECORDS BY GUESS AND BY GOLLY

Forms, both old and new, have popped up in the latest "Motor Vehicle Inspections and Preventive Maintenance Services" manual (TM 37-2810, Mar. 45). Forms for the driver, mechanic, supply clerk, and company commander—all PM records kept by the lower echelons on automotive and related equipment—are on display. What's more, the TM tells you how to use them.

So nobody'll get knocked out in the scramble to cop that one copy sent to your outfit, ARMY MOTORS presents a special Spring showing of the most popular forms from the new manual.

TRIP TICKET

Behold (below) the new version of the Driver's Trip Ticket & PM Service Record (WD Form 48), with a few items added—for materials-handling equipment, special Engineers' equipment, operator's publications, and a space for the WD Lubrication Order number and date.

Those initials on the deficiency record tell all concerned that the windshield-wiper blade's been replaced. That's the way the new manual does it.

PM ROSTER

Here's the brand-new Preventive Maintenance Roster (WD

AGO Form 460)—successor to the Duty Roster (Form 6) for all equipment that needs regular, scheduled PM treatment. It'll take care of trucks, tanks, tractors, bulldozers, artillery, radios, generators, or anything else you've got. Gather 'round now and see how it works (next two pages).

The left-hand page tells everything you need to know about the equipment—who operates it, its nomenclature, unit serial number, registration number, and number of the trailer or other accessory. The right-hand page tells what PM services it's going to get during the month—and when. That

FRONT

DRIVER'S TRIP TICKET AND P. M. SERVICE RECORD

U. S. A. NUMBER: **456789**

DATE: **1 Aug 44**

TIME OUT: **1300**

TIME IN: **1610**

DRIVER'S NAME: **J. J. Smith**

REPORT TO: **Capt. R. A. Jones**

ORGANIZATION: **Regt. Hvy. Co. 12th Inf.**

DEPARTMENT OR ADDRESS: **Bldg. T-2931-7th Ave. + 4th St. Port**

KIND OF WORK (for route): **Haul Org. Equip. to Warehouse #4**

REQUESTED BY (Organization or individual): **Capt. R. A. Jones**

DISPATCHER'S SIGNATURE: **T/S James A. Brown**

OPERATOR'S INITIALS: **JJS**

SPEEDOMETER: **10453** (In), **10421** (Out), **32** (Miles)

FUEL ADDED: **5** GALS.

OIL ADDED: **1** QTS.

OPERATOR'S SIGNATURE: **J. J. Smith**

DISPATCHER'S SIGNATURE: **T/S James A. Brown**

I HAVE NOTED ALL ENTRIES ON THIS FORM AND TAKE THE NECESSARY ACTION

TRIP OR LOAD RECORD	PASSENGERS OR WEIGHT	SPEEDOMETER OR HOUR METER
Motor Park		10421
Bldg. T-291		10423
Wheal. #4	2 1/2 tons	10430
Bldg. T-2931	3 pass.	10437
Wheal. #4	2 1/2 tons	10444
Bldg. T-2931	3 pass.	10451
Motor Park		10453

VEHICLE RELEASED AT (Speedometer - Hour Meter, date, hour): **10451 1 Aug 44 1600**

OFFICIAL USER (Signature and Grade): **A. L. Brown T/Sgt**

WAR DEPARTMENT FORM 48 APPROVED 15 DECEMBER 1944

BACK

DRIVER'S DAILY PREVENTIVE MAINTENANCE SERVICES

PERFORM THESE SERVICES ACCORDING TO THE INSTRUCTIONS IN TM 37-2810, OR VEHICLE OPERATOR'S MANUAL.

BEFORE OPERATION SERVICE

- TAMPERING AND DAMAGE
- FIRE EXTINGUISHERS
- FUEL, OIL AND WATER
- ACCESSORIES AND DRIVES
- AIR BRAKE TANKS
- LEAKS - GENERAL
- ENGINE WARM-UP
- CHOICE OF PRIMER
- INSTRUMENTS
- HORN AND W/S WIPERS
- GLASS AND REFLECTORS
- LAMPS AND FLANGE NUTS
- WHEEL AND/OR TRACKS
- TYPES AND/OR TRACKS
- SPRINGS AND SUSPENSIONS
- STEERING LINKAGE
- FENDERS AND BUMPER
- TOWING CONNECTIONS
- BODY, LOAD AND TARPS
- DECONTAMINATOR
- TOOLS AND EQUIPMENT
- TOWING OPERATION
- OPERATOR'S PUBLICATIONS
- AMPHIBIAN ITEMS
- MAT'S HANDLING EQUIP ITEMS
- SPECIAL ENGINEER ITEMS
- DURING OPERATION CHECK

OPERATOR'S INITIALS: **JJS**

DURING OPERATION SERVICE

- STEERING BRAKES
- FOOT AND HAND BRAKES
- CLUTCH
- TRANSMISSION
- TRANSFER
- ENGINE AND CONTROLS
- INSTRUMENTS
- STEERING GEAR
- RUNNING GEAR
- BODY AND TRAILER
- QUIB-MOUNTINGS AND ELEVATING, TRAVELING, CYRO. AND FIRING CONTROLS
- AMPHIBIAN ITEMS
- MAT'S HANDLING EQUIP ITEMS
- SPECIAL ENGINEER ITEMS

OPERATOR'S INITIALS: **JJS**

AT HALT SERVICE

- FUEL, OIL AND WATER
- TEMPERATURES - HORN, BRAKE COLUMNS
- AXLE AND TRANSFER VENTS
- PROPELLER SHAFTS
- SPRINGS AND SUSPENSIONS
- STEERING LINKAGE
- WHEEL AND FLANGE NUTS
- TYPES AND/OR TRACKS
- LEAKS - GENERAL
- ACCESSORIES AND BELTS
- AIR CLEANERS
- FENDERS AND BUMPER
- TOWING CONNECTIONS
- BODY, LOAD AND TARPS
- SPECIAL ENGINEER ITEMS

OPERATOR'S INITIALS: **JJS**

AFTER OPERATION SERVICE

- FUEL, OIL AND WATER
- ENGINE OPERATION
- INSTRUMENTS
- HORN AND W/S WIPERS
- GLASS AND REFLECTORS
- LAMPS AND FLANGE NUTS
- FIRE EXTINGUISHERS
- DECONTAMINATOR
- BATTERY AND VOLT-METER
- ACCESSORIES AND BELTS
- ELECTRICAL WIRING
- AIR CLEANERS AND BREATHER CAPS
- FUEL FILTERS
- ENGINE CONTROLS
- TYPES AND/OR TRACKS
- SPRINGS AND SUSPENSIONS
- STEERING LINKAGE
- PROPELLER SHAFT, CENTER BEARING AND VENT
- AXLE AND TRANSFER VENTS
- LEAKS - GENERAL
- GEAR CASES
- AIR BRAKE TANKS
- FENDERS AND BUMPER
- TOWING CONNECTIONS
- BODY, LOAD AND TARPS
- ARMOR AND FRONT ROLLER
- VISION DEVICES
- TURRET AND GUN - MOUNTINGS AND ELEVATING, CYRO. TRAVELING, AND FIRING CONTROLS
- TIGHTEN - WHEEL DRIVE FLANGE, AND SPRING WHEEL NUTS
- LUBRICATE AS NEEDED
- CLEAN ENGINE AND VEHICLE
- TOOLS AND EQUIPMENT
- AMPHIBIAN ITEMS
- MAT'S HANDLING EQUIP ITEMS
- SPECIAL ENGINEER ITEMS

OPERATOR'S INITIALS: **JJS**

THOSE ITEMS MARKED BY AN ASTERISK (*) REQUIRE ADDITIONAL WEEKLY SERVICES AND IT IS MANDATORY THAT THEY BE PERFORMED AS PRESCRIBED.

RECORD ANY ACCIDENT* AND ALL DEFICIENCIES, INDICATING IF CORRECTED:

Windshield wiper blade missing

R.O.D.

NO.	RANK AND NAME	EQUIPMENT NOMENCLATURE	REMARKS	UNIT SERIAL NO.	ACCESSORY	EQUIPMENT REG. NO.
1	T/4 Jones, J. W.	GMC 2½-ton 6x6		11	011069	434561
2	T/5 Moore, A. M.	" "		12	010170	435531
3	T/5 Smith, C. V.	" "	<i>Transferred</i>	13	011119	436521
4	Pfc. Brown, A. B.	" "		14		437232
5	T/4 Horne, W. O.	" "		15		434215
6	Pfc. Greene, C. H.	" "	<i>DS</i>	16		438911
7	Pfc. White, R. M.	" "		17		436321
8	T/5 Miller, J. H.	" "		18		438222
9	T/5 Hawk, S. A.	" "		19		436857
10	T/5 Elliott, W. M.	" "		20		434920
11	T/5 Dzubinsky, W. A.	Ford ½-ton 4x4		1		2237545
12	T/4 Light, T. M.	" "		2		2374986
13	Pvt. Ross, T. R.	" "		3	0121701	2296897
14	Pvt. Black, W. W.	" "		4		2198731
15	Pfc. Onofrio, M. D.	" "		5	0130621	2339431
16	Pfc. Bates, J. P.	" "		6		2147671
17	T/5 Del Monte, F. D.	" "		7		2147631
18	T/5 Shoemaker, W. A.	" "		8		2385362
19	Pvt. Collins, J. T.	" "		9		2197476
20	Pfc. Main, J. R.	" "		10		2337852
21	T/5 Greenberg, I. S.	" "		21		2019542
22	Pvt. Burger, D. A.	" "		22		2019874
23	T/5 Bastian, J. P.	" "		23		2022917
24	Pfc. Korpa, D. L.	" "		24		2013415
25						
26						
27						

story's told in symbols, the authorized symbols printed on the back of the form. So you can tell what's been done and what's coming up, the symbols are **pencilled** in when the schedule's first made up, then traced in **ink** when the service is completed. A line, a circle, and an occasional word or two in the "Remarks" column, help these symbols tell the whole story:

- W—Weekly
- M—Monthly
- S—Semi-Annual
- F—50-Hour
- H—100-Hour
- P—Deadlined for Lack of Parts
- A—Deadlined for Accident
- O—Deadlined in higher-echelon shop

What you see here is the sample PM Roster displayed in TM 37-2810. Follow the line across the

page, and you'll know what's happened to any truck in the outfit.

Sgt. Jones (line 1) drives GMC 2½-ton 6x6, Unit Serial No. 11, Registration No. 434561. The truck tows a trailer (or maybe mounts a piece of equipment) that gets PM servicing at the same time as the truck, and its USA registration number is 011069. The truck's scheduled for service on a 30-day-month basis, and the first monthly was done 1 Aug. (the pencilled symbol's been traced in ink); then eight days later (9 Aug.) it got the first weekly following the first monthly, and on 17 Aug. the second weekly. (Since all this is scheduled on a 30-day-month basis, the weekly services can't be spaced 7 days apart in a 31-day month.) The truck's going to get its third weekly on 25 Aug.

(W3 hasn't been traced in ink).

Cpl. Moore's truck (line 2) gets two monthly services in August, 'cause it's scheduled on a 28-day-month basis, and the first monthly was scheduled and done on 2 Aug. The first weekly was done on 9 Aug.—then here's where the circle comes in. W2 (15 Aug.) is inked, but the service was performed on another date—maybe a day earlier, maybe a day later—therefore the circle. It didn't change the date for the next service, though—that stands as scheduled—a week after 15 Aug., when W2 was supposed to be done.

The "Remarks" column and the line from 16 Aug. through 31 Aug. account for the scheduled service that wasn't performed on **Cpl. Smith's** GMC (line 3). On 16 Aug. the truck was transferred out of

PREVENTIVE MAINTENANCE SERVICE AND TECHNICAL INSPECTION

WD No. 456789 010089

WORK SHEET

Mileage 10751 Date 1 Aug '44

FOR WHEELED AND HALF-TRACK VEHICLES

Organization 13th F.A. Bn.

(See AR 850-15)

Vehicle nomenclature Studebaker U.S.-6 2 1/2 ton 6x6 Cargo

Special instructions: See TM 9-2810 for detailed instructions and procedures. See vehicle maintenance manual for technical information.

Legend for marking: ✓—Satisfactory X—Adjustment required XX—Repair or replacement required O—Defect corrected

SYMBOLS: □ —INSPECT AND CORRECT C—CLEAN T—TIGHTEN A—ADJUST L—SPECIAL LUBRICATION S—SERVE

Main inspection checklist with columns for 6000-mile, 1000-mile, and 100-mile maintenance items, including sections for Road Test, Engine and Accessories, Chassis, Body, & Attachments, and Lower Vehicle to Ground.

*TRAILER ITEMS ALSO COMMON TO OTHER WHEELED VEHICLES

FOLD TO ← VEHICLE NOMENCLATURE LINE → AND FILE

RECORD: Compression pressure: Cylinder No. 1 ¹¹²110 2 ¹¹⁰110 3 ¹¹²112 4 ⁹²91 5 ⁹²92 6 ¹¹²111 7 — 8 — 9 — 10 — 11 — 12 —

BATTERY: SPECIFIC GRAVITY—Cell No. 1 ¹²⁴⁰1240 2 ¹²⁵⁰1250 3 ¹²⁴⁵1245 4 — 5 — 6 — Antifreeze protection to ⁻¹⁰-10 °F.

VOLTAGE— Cell No. 1 ^{1.7}1.7 2 ^{1.8}1.8 3 ^{1.7}1.7 4 — 5 — 6 —

Man hours required for this 1,000 mile maintenance — 6,000 mile maintenance ⁴⁰40 or tech. inspection —

Driver ^{Pls J. J. Jones} (Grade or title) Mechanic or inspector

Repairs by higher echelon entered on Job Order Request No. ¹³¹131 Supervising officer ^{Lt. Br. Mtr. Off.} (Grade or title)

Repairs requested ^{4 Aug '44 C.R.D.} (Date) (Initials) Vehicle forwarded ^{4 Aug '44 C.R.D.} (Date) (Initials) Vehicle returned ^{7 Aug '44 B.D.E.} (Date) (Initials)

Disposition of work sheets: 1000 Mile—May be retained until completion of next 6000 mile, then destroy
 6000 Mile—May be retained until completion of next 6000 mile, then destroy
 Technical inspection—May be retained until completion of next 6000 mile, then destroy
 EARLIER DESTRUCTION MAY BE ORDERED BY LOCAL COMMAND

REMARKS OR RECOMMENDATIONS: ^{3-Replace temperature gage (ordered 2 Aug '44 Reg. No. 121)}
^{18-021 Repective head gasket indicated (ordered 2 Aug '44 Reg. No. 121)}
^{72-Seals defective (third echelon) R.A.S.}
^{87-Shear pin broken (ordered 2 Aug '44 Reg. No. 121)}
^{101-No lock pin (ordered 2 Aug '44 Reg. No. 121)}
^{137 No tow chain (ordered 2 Aug '44 Reg. No. 121)}
^{138 No extra shear pins (ordered 2 Aug '44 - Reg. No. 121)}

6000-MILE MAINTENANCE OR TECHNICAL INSPECTION

1000-MILE MAINTENANCE

ITEMS SPECIAL TO HALF-TRACKS

<input type="checkbox"/>	106 Tracks (guides) (tread wear)
<input type="checkbox"/>	107 Sprockets (flanges) (bearings) (seals)
<input type="checkbox"/>	108 Brake (drums) (supports) (cylinders)
<input type="checkbox"/>	109 Brakes Shoes (linings) (links) (guides) (anchors)
<input type="checkbox"/>	110 Idlers (flanges) (bearings)
<input type="checkbox"/>	111 Idler posts (shackles) (shafts) (adjusting rods) (brackets)
<input type="checkbox"/>	112 Frame Brackets and Cross Tube
<input type="checkbox"/>	113 Bogie (crab assemblies) (springs and blocks) (guides and slides) (arms and bolts)
<input type="checkbox"/>	114 Bogie Rollers: Upper and Lower (tires) (bearings) (seals) (bolts)
<input type="checkbox"/>	115 Track Sprocket (on ground)

ITEMS SPECIAL TO AMPHIBIANS

NOTE: The following items 116 to 123 are the required minimum maintenance for amphibian vehicles in land operations. For maintenance requirements for water operations, consult the vehicle maintenance manual.

6000-MILE MAINTENANCE OR TECHNICAL INSPECTION

1000-MILE MAINTENANCE

ITEMS SPECIAL TO TRAILERS

<input type="checkbox"/>	116 Rudder and Steering Propeller Strut and Bearing
<input type="checkbox"/>	117 Propeller Shaft Housing (seals) (boots) (plugs)
<input type="checkbox"/>	118 Hull (plugs) (rub berakes) (decks) (hatches) (ventilators) (compartments) (bulkheads) (plates) (frame)
<input type="checkbox"/>	119 Bilge Pumps (drives) (valves) (controls) (lines) (strainers)
<input type="checkbox"/>	120 Water Propeller (shafts) (joints) (bearings) (stuffing box)
<input type="checkbox"/>	121 Hand Crank Ratchet and Cover
<input type="checkbox"/>	122 Rudder (shafts) (arms) (cables) (rod) (brackets) (stuffing-box)
<input type="checkbox"/>	123 Anchor, Hand Bilge Pump and Boat Hook

ITEMS SPECIAL TO TRAILERS

<input checked="" type="checkbox"/>	124 Tow Hitch (king pin) (5th wheel plates) (lunette) (tongue)
<input checked="" type="checkbox"/>	125 Air and Electric Connections
<input checked="" type="checkbox"/>	126 Safety Devices (chains) (switch and battery)

6000-MILE MAINTENANCE OR TECHNICAL INSPECTION

1000-MILE MAINTENANCE

<input checked="" type="checkbox"/>	127 Landing gear (shafts) (wheels) (supports) (lock pin) (cams) (swivel)
<input checked="" type="checkbox"/>	128 Front and Rear Axles
<input checked="" type="checkbox"/>	129 Electric Brakes (application controls) (load controls) (resistors)
<input checked="" type="checkbox"/>	130 Parking Brakes (ratchet) (pawl)

TOOLS AND EQUIPMENT

<input checked="" type="checkbox"/>	131 Tools (vehicle) (pioneer)
<input checked="" type="checkbox"/>	132 Fire Extinguishers
<input checked="" type="checkbox"/>	133 Decontaminator
<input checked="" type="checkbox"/>	134 First-Aid Kit (if specified)
<input checked="" type="checkbox"/>	135 Publications and Form No. 25
<input checked="" type="checkbox"/>	136 Traction Devices (chains) (plates and connectors) (grousers)
<input checked="" type="checkbox"/>	137 Tow (chain) (cable) (rope) (block)
<input checked="" type="checkbox"/>	138 Spare (shear pins) (fuses) (bulbs)
<input checked="" type="checkbox"/>	139 Fuel and Water Cans and Bracket
<input checked="" type="checkbox"/>	140 Fuel Can Nozzle and Bucket
<input checked="" type="checkbox"/>	141 Modifications (FSMWO's completed)
<input checked="" type="checkbox"/>	142 Final Road Test (repeat items 2 to 16)

NOTE: Correct or report all deficiencies found during final road test.

The vehicle identification's complete, and so's everything else that belongs at the top of the form—USA registration number, mileage, date, and organization. Wondering about the second registration number? It's the trailer registration number. That trailer's regularly towed by the Studebaker, so it gets the works along with the truck.

They've lined out everything that doesn't go along with a semi-annual maintenance service—headings that don't apply, all the boxes under the 1000-mile maintenance column, and all other items listed on the form that don't apply to the semi-annual maintenance servicing of a 2½-Ton Studebaker, such as air brakes, tracks, etc. But there's a pencilled symbol in the box opposite every item that's left, to tell what condition that item's in, and what's been done about it.

Items marked ✓ were satisfactory according to the book (TM 9-807, the vehicle technical manual); items marked X needed some adjustment; and items marked XX needed replacement or repair. When the adjustment, repair, or replacement was completed the X or XX was circled. When it wasn't, they made a note in the "Remarks" space on the back of the form with a numbered reference to the defective item.

Item 3 (marked XX) needs repair or replacement, and "temperature" is underlined to tell which gage. It hasn't been replaced, so the "Remarks" department tells the rest of the story—the gage was ordered 2 Aug. on requisition No. 121.

Item 72 needed some repair or replacement, but that's been taken care of by Ordnance. (The XX in the box is circled, and the note in the "Remarks" is initialed.)

No question about those special services indicated in the boxes opposite some of the items (C, T, A, L, S)—they're all circled to show they've been performed.

The entries on the back of the form are just the way they should be, too.

Two sets of figures on the compression pressure are put down because two readings were made

—one without oil in the cylinder and the other after oil's been added. It's just one set of figures when one reading's made.

Battery specific gravity's in round figures, but could be in percentages if they'd used a hydrometer with that kind of scale (that's always the reading before the battery's recharged, if a recharge is necessary). Antifreeze protection test is recorded (if antifreeze weren't used, 32°F. would have been written in).

Then along come blanks for the driver, the mechanic, and the motor officer. Pfc. Jones is the regularly-assigned driver of the truck (if it hadn't had one, that space would have been lined out). The mechanic or inspector is the senior mechanic who actually performed the service, and the motor officer's John Henry says that the service is complete and proper action has been taken.

Since the inspection turned up a defect that had to be fixed up in the Ordnance shop, a Work Request and Job Order (WD AGO Form 811) was made. The job order number and date are recorded, along with the date the vehicle was sent up for repair and the date it was returned. Initials say it's been there and come back repaired (if the truck hadn't gone to Ordnance, all those blanks would have been lined out).

Since seven items in the space for "Remarks" aren't initialed and seven X or XX symbols are left uncircled in the boxes, the form won't be filed with the other vehicle records. It's going to be held out as unfinished business until every symbol's circled and the notations under "Remarks" are all initialed, or until the uncorrected items are entered on a new form for the next inspection. When that time comes, it'll be folded like it says at the bottom of the form, and tucked away with the other papers in the vehicle "201" file.

NEW FORM 478

The new MWO and Major Unit Assembly Replacement Record (WD AGO Form 478) is parting company with the vehicle—it jumps out of the map compart-

ment into the organization's record files. It's going to be the vehicle's "201" file, and the final resting place for all the papers belonging to the vehicle—Trip Tickets, PM Work Sheets, Work Orders, etc. And it's the organization's property as long as the vehicle stays there. When it goes back to Ordnance for a repair, Form 478 goes along with it, so the boys back there can make a record of what they've done. When the vehicle's transferred out of the organization, the "201" file is handed over, too.

The new form's printed right on a heavy envelope, the same kind that carries your individual service records—and an order for 25 WD AGO Form 478's brings you a roomy expansion envelope that'll hold 25 of the new envelope forms (the expansion envelope is a bonus). You'll still be using one WD AGO Form 478 for each piece of equipment, but instead of keeping it on the truck or whatever (like the old Form 478), it'll go into the organization's record files in the safekeeping of 2nd-echelon maintenance personnel.

The idea of keeping vehicle records in a jacket file isn't new—seems some ingenious souls have been chiselling Personnel Records Jackets (WD AGO Form 201) to use for equipment records since way back when. The War Department's finally put out a circular saying they don't go for that (WDC 71, 45), but you're getting something better now and getting it with official blessing.

These are just a few of the things you'll see in TM 37-2810. Specific procedures for 2nd-echelon maintenance services on Corps of Engineers equipment have been added. And all PM procedures for wheeled and half-track vehicles, full-track and tank-like wheeled vehicles, and motorcycles are covered, too. Of course, you'll only follow those when the TM on the equipment hasn't been published, but they'll come in mighty handy if you haven't got the TM. You can donate TM 9-2810 to the paper drive any day—TM 37-2810 supersedes it.

TO STAY DRY—THE FORWARD BEARING IN YOUR DUCK'S WINCH DRIVESHAFT NEEDS A WATER SLINGER

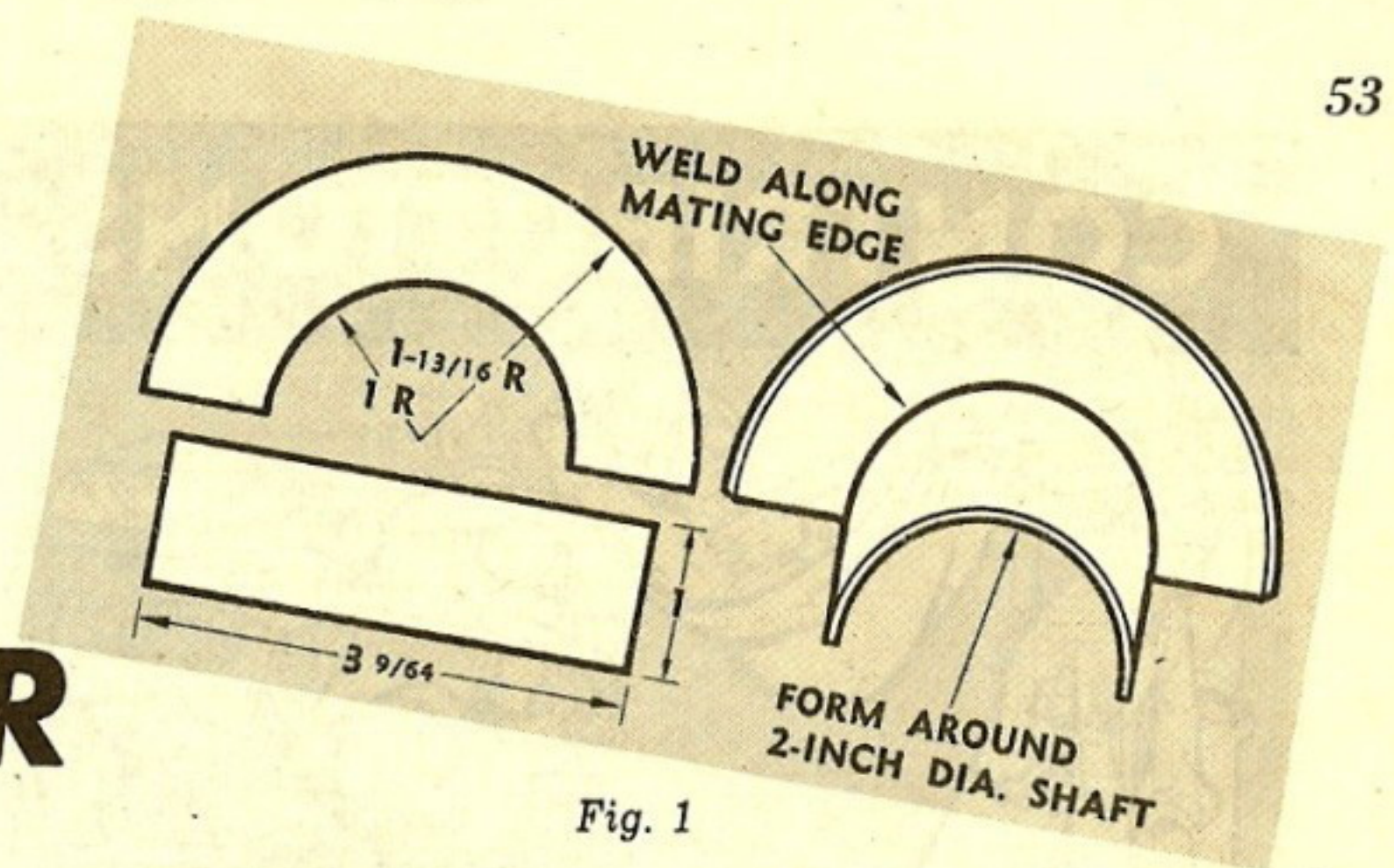


Fig. 1

Back in January, ARMY MOTORS held a bull-session in a snowdrift (page 301) about how salt water gets thrown off the duck's bilge-pump chain, runs down the length of the winch driveshaft, and seeps into the steady bearings—in spite of the fact that they're sealed bearings. The question then was: Should you build up a little dam of grease around the bearings to keep out the water? The answer was: Better not, because not all those bearing seals are grease-resistant rubber—and grease around them might rot the rubber, leaving you worse off than before.

The answer now is: Forget about the grease and forget about the question. What you need to keep those bearings dry is a water slinger. Sometime in the future, production lines will be turning out ducks with the water slinger already installed. But since you can't afford to wait, here's what you do:

Make the slinger yourself from a piece of 16-gage sheet metal, 8" long and 3" wide. First draw and cut out two crescent shapes—then two strips—to match the dimensions of the crescent and strip shown in Fig. 1.

To get the right curve in the two strips, use the winch driveshaft as a forming bar. If the duck isn't available for use at the time, a piece of clean 2" round bar stock will do as well. The curve in the strips should fit the crescent shapes you've cut.

Now put the crescent shape on the shaft (or 2" round bar) and butt it against the curved strip. Tack-weld them together at each end so they'll stay in place while you're welding them permanently.

You can either weld or solder the two pieces together. Whatever you do, it must be a water-tight job. So if solder's your choice, make sure the metal is thoroughly cleaned and tinned before you start.

After you've welded the crescents to the curves, the slinger's in two identical sections and ready for installation. Install the sections on the winch driveshaft just astern of the forward bearing—which is the first bearing behind the power take-off. One section of the slinger goes on top of the shaft and the other section on the bottom. Allow $1/32$ " clearance between the slinger and the bearing housing (Fig. 2).

Fasten the slinger in place with friction tape and a hose clamp. Start by wrapping the tape around the slinger, close to the crescent shape, and continue wrapping over the edge of the slinger onto the driveshaft. You should use about a $13\frac{3}{8}$ " length of tape.

Over the tape and on top of the collar of the slinger, fasten the hose clamp. If you have to make the clamp, any scrap material you can work with will do. The inside diameter should be about $2\frac{9}{32}$ ". Close the clamp with a bolt and nut (Fig. 2).

All that's lacking now is a paint job for protection against corrosion. (Of course, you know the metal must be clean before you paint, else the paint won't stick like it should.)

Once you've got the slinger made and riding the shaft, any water that gets through to the bearings isn't coming from the bilge-pump chain—you can be sure of that. And if you still have wet-bearing trouble, start looking for the turnip-head who's poking his steam gun around the bearings and forcing water into them.

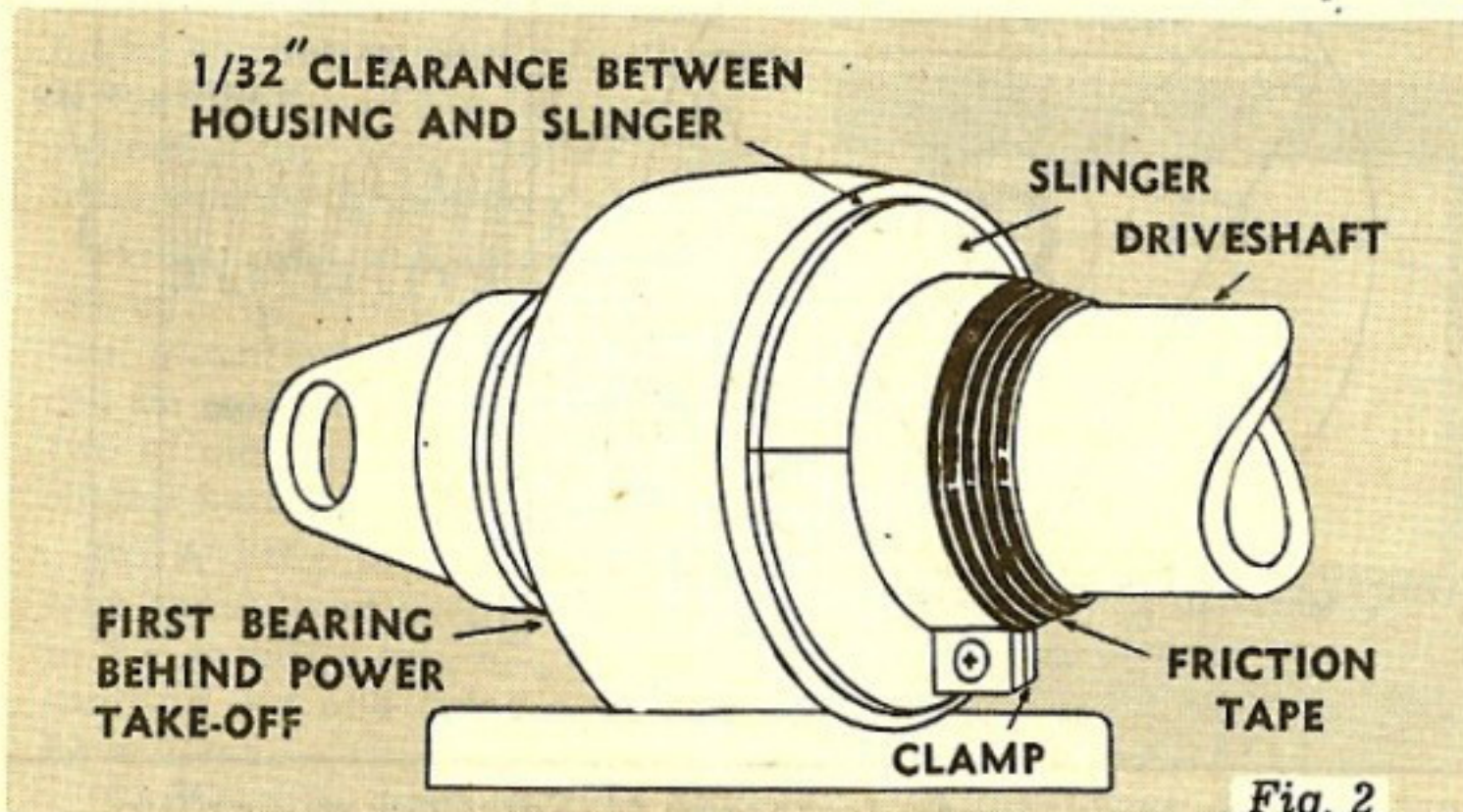
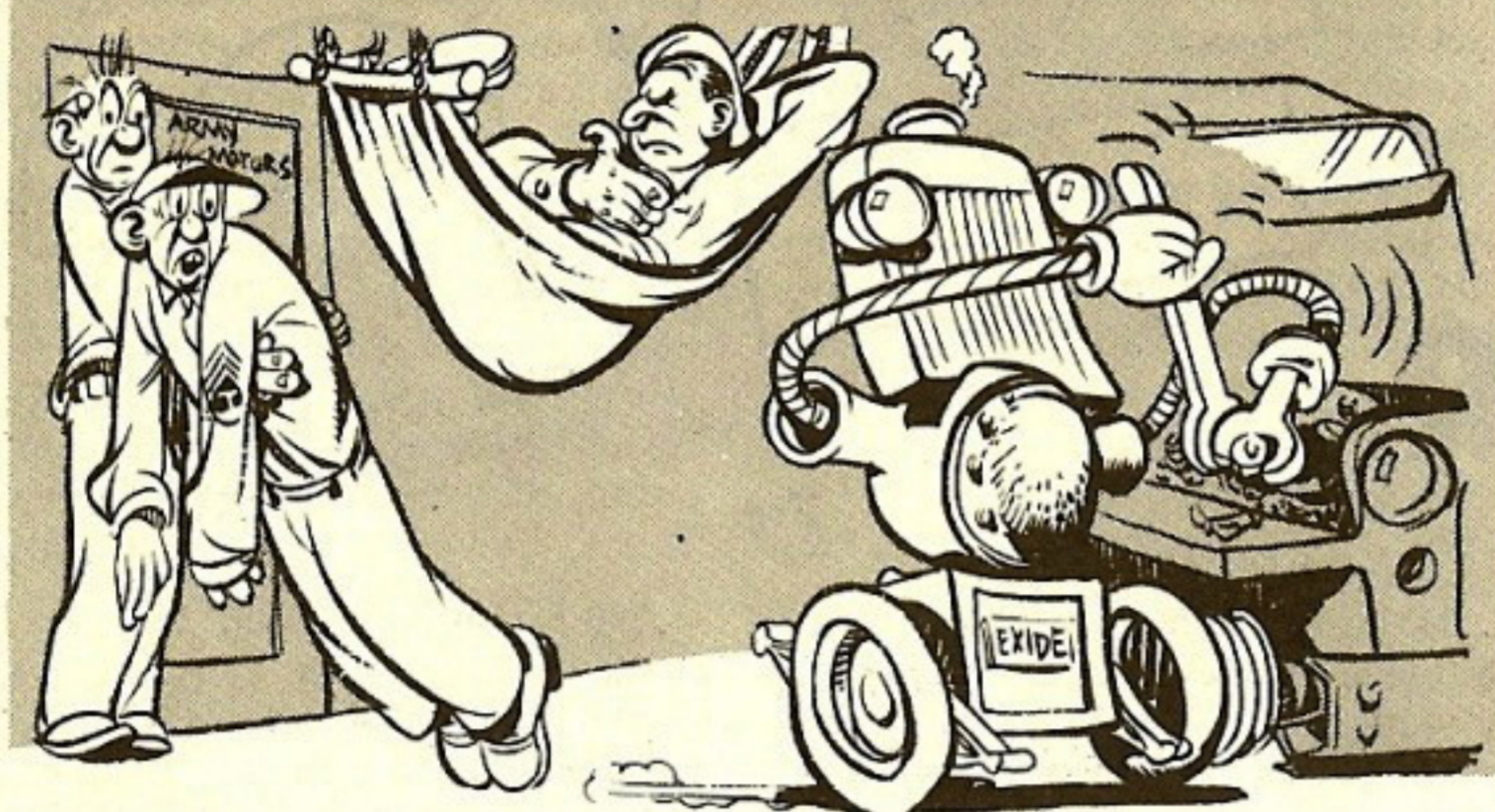


Fig. 2

CONTRIBUTIONS



Dear Editor,

Special tools for removing the pilot bearing from the engine crankshaft are, at times, very hard to get or unavailable. But the operation can be accomplished by a very simple method: (1) Use a heavy-duty wheelbearing grease to pack the hole behind the crankshaft completely full. (2) Use a knife to trim a piece of wood to the inside diameter of the pilot-bearing inner race. (3) Use a hammer to drive the piece of wood through the center hole in the bearing. (4) The grease will then force the pilot bearing out.

This method is satisfactory and will work under any conditions.

T/Sgt. B. Holloway
APO 562

Dear Editor,

Due to a shortage of large gas-tank caps for our GMC's and Diamond T's, we devised a field replacement. **M/Sgt. Kern L. Cockerill** cut a $3\frac{1}{2}$ " triangle from $\frac{1}{8}$ " steel plate and welded a $\frac{3}{8}$ " rod in the center (see Fig.). Then he cut out a round plate $4\frac{3}{4}$ " in diameter from the same material and drilled a $\frac{3}{8}$ " hole in the center. He inserted the rod on the triangle plate through the hole in the round plate and put a jeep valve-spring over the rod, with a flat washer on top. Then he welded a $4\frac{3}{4}$ " T-handle on the end of the rod. Press down on the T-handle, turn clockwise, and the cap is held

firmly in place. If springs aren't available, we've found that threading the center rod all the way down and using a $\frac{3}{8}$ " wingnut in place of the spring works just as well.

We've had a lot of trouble with our drivers losing the short driveshaft between the hoist pump and first U-joint on our $2\frac{1}{2}$ -ton GMC dumps. This resulted from the Allen set-screws working loose and allowing the shaft to slide out of the joint. To prevent this, **T/4 James R. Montgomery** drilled a $\frac{5}{32}$ " hole through each end of the shaft $\frac{1}{2}$ " from each U-joint

and inserted a $\frac{5}{32}$ " cotter pin. This allowed the joint to slide on the shaft, but prevented the shaft from falling out.

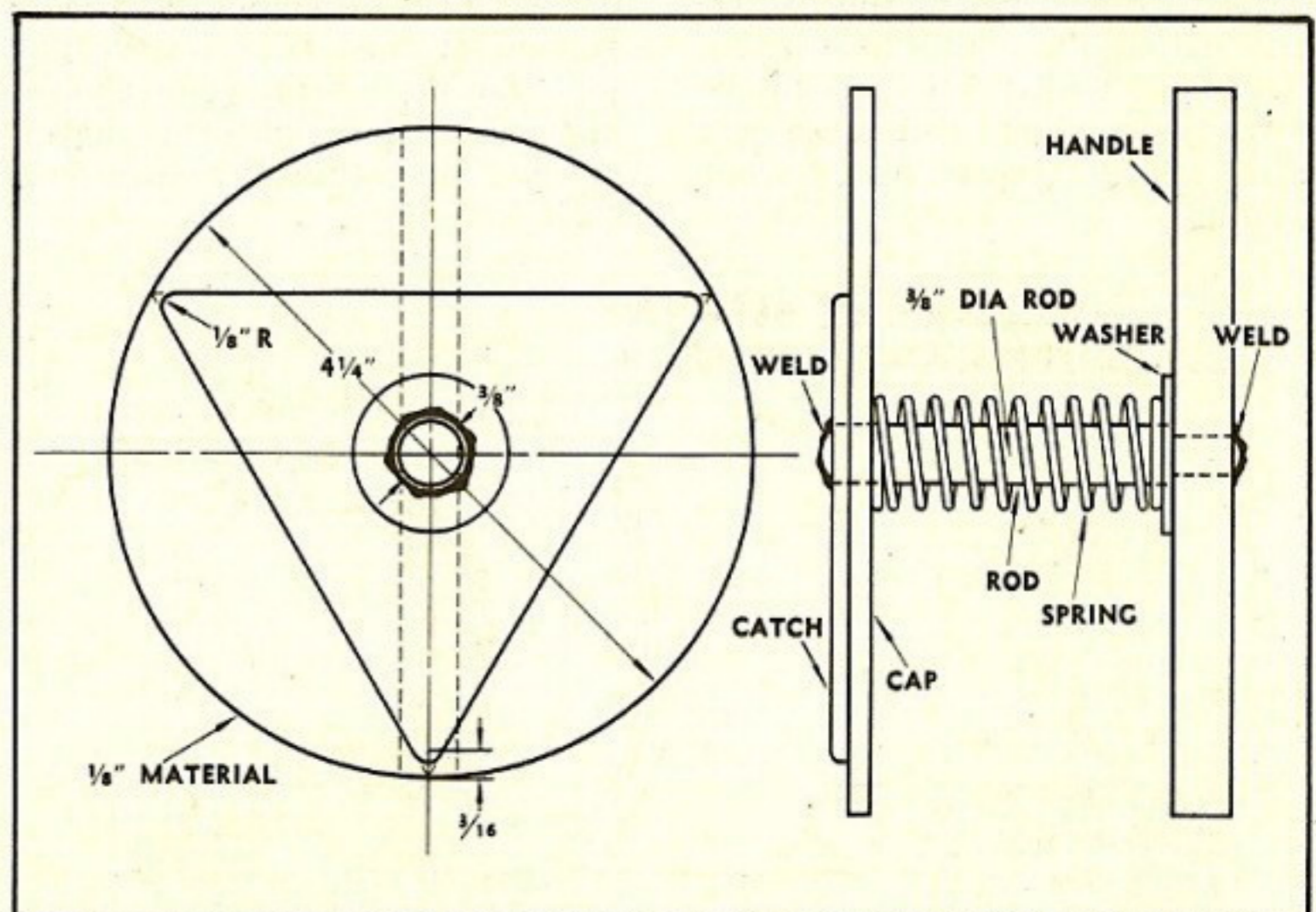
We've also had plenty of trouble with oil seal failure on our $2\frac{1}{2}$ -ton GMC dump hoist-cylinder, rear head. These seals can't be obtained in this theater—so **T/Sgt. Donald A. Lecher** found that oil seal GM-2057128 for the Timken transfer case fits the hydraulic shaft but is a little too large for the hoist-cylinder head. He machined the head from its original size down to 3" or 3.002" and it serves the purpose satisfactorily. The difference in size in machining of the head allows for variation in the size of the seal.

Lt. William L. Solomon
APO 493

Ed. Note—You know a good expedient when you see one, Lieutenant. But when you're rigging up that gas-tank cap, don't forget to vent it so vacuum or pressure won't upset the fuel system.

Another good way to keep those Allen set-screws from loosening, on the short driveshafts of $2\frac{1}{2}$ -ton GMC dumps, is to stake them with a center punch after tightening. It'll help, and it's easier than drilling holes.

Huzzas for **T/Sgt. Lecher's** oil-seal substitution on the dump hoist-cylinder. But you'd better devise a way to notify the next mechanic what kind of seal to use



This gas-tank cap is a feather in M/Sgt. Cockerill's ditto.

—just in case he happened to have the regular one. It wouldn't fit the machined-down head.

If you're having trouble getting new bell-crank bearings for your jeep, take a tip from **T/Sgt. O. Spillman, ARC, Fort Knox**, and try using a GMC tie-rod bushing (Item Stock No. G67-03-00120) in its place. After pressing in the bushing, cut off the $\frac{1}{2}$ " sticking out of the hole and drill a hole for the grease fitting. Ream the bushing to fit the pivot pin and then groove the inside of the bushing so the grease can flow around the pin.

Back in April 44, we told you about the GMC front-spring bushing (Item Stock No. G501-01-28021), which'll also pinch hit for that bell-crank bearing. Take your choice.

Dear Editor,

Here are a few tips the boys from overseas have passed on:

(1) When a $\frac{1}{4}$ -ton hand-brake cable stretches, parts can be saved and the brake still made to work by drilling a new hole in the cable end about $\frac{1}{2}$ " to $\frac{3}{4}$ " farther from the end than it is now.

(2) On Dodge vehicles, when dual wheels have to be mounted on the front for greater flotation, a hole cut in the bumper the size of the inner nut will make a good jig for holding the lug while the outer lug is removed with the wrench.

(3) A small notch cut in the web of the frame cross-member near the hand-brake anchor will facilitate removal of the hand-brake band on a short-wheelbase $\frac{3}{4}$ -ton Dodge. This will save loosening the cross-member. The notch can be 2" long by $\frac{3}{8}$ " deep.

(4) In case of diaphragm failure in a fuel pump, a good substitute diaphragm to get you home can be made from a thickness or two of old raincoat, tarpaulin, or shelter half.

(5) A little tar from the battery, carefully worked into a crack in a distributor cap, may prevent shorting out and bring your vehicle home.

(6) When an exhaust pipe be-

comes loose at the manifold, remove the three studs, wrap one of the two strands of wire around the flange on the exhaust pipe, and reinstall the three studs. A tight connection will help keep carbon monoxide out of the cab.

(7) When crossing a stream that is a little deep, remove the fan belt and cross in reverse—you can take a greater depth easier.

(8) A block of wood 18" long, 8" wide, and 4" deep—tapered at one end—will make it easy to remove an outside dual without using a jack. Simply run the inside dual up on the block.

Lt. P. E. Thomas
Dept. of Motors, Fort Sill

Ed. Note—Go to the head of the class, Lieutenant. But remember that items 4 through 7 are strictly emergency measures.

Dear Editor,

I have an idea that will help stop the free movement in $\frac{1}{4}$ -ton jeep windshield wipers. It has been used on our vehicles and proven itself very efficient.

The procedure is to remove the upper-center windshield bolt and insert a bolt $\frac{1}{4}$ " dia. x $1\frac{3}{4}$ " long with a slot, $\frac{1}{4}$ " wide x $\frac{1}{8}$ " deep, cut at the head end of the bolt (see Fig.). Secure the bolt in the frame with a nut on either side.

Now lift the windshield-wiper tie-rod and insert it in the slot at the head end of the bolt. This prevents your wiper blades from moving when they're not in use.

T/5 Theodore Zabriski
APO 339

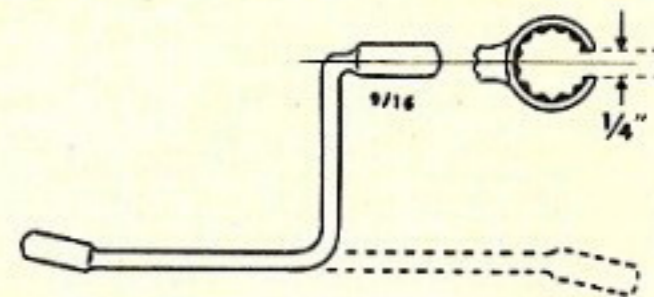
Ed. Note—Good enough, if you are not lucky enough to win one of the new vacuum-operated jobs

(see Connie's item, page 38). Or the tension type in TB 9-803-FE2.

Dear Editor,

Here is a tool I've found useful in removing choke and throttle controls, especially in C.O.E. jobs.

Take a $\frac{1}{2}$ " x $\frac{9}{16}$ " box wrench (10" long) and bend the $\frac{9}{16}$ " end back at right angles (see Fig.).



Bend the wrench near the middle forward to form another right angle. Then cut a small slot in the box just large enough to permit the central loom to enter the box. It's a life-saver on Federal cab-overs.

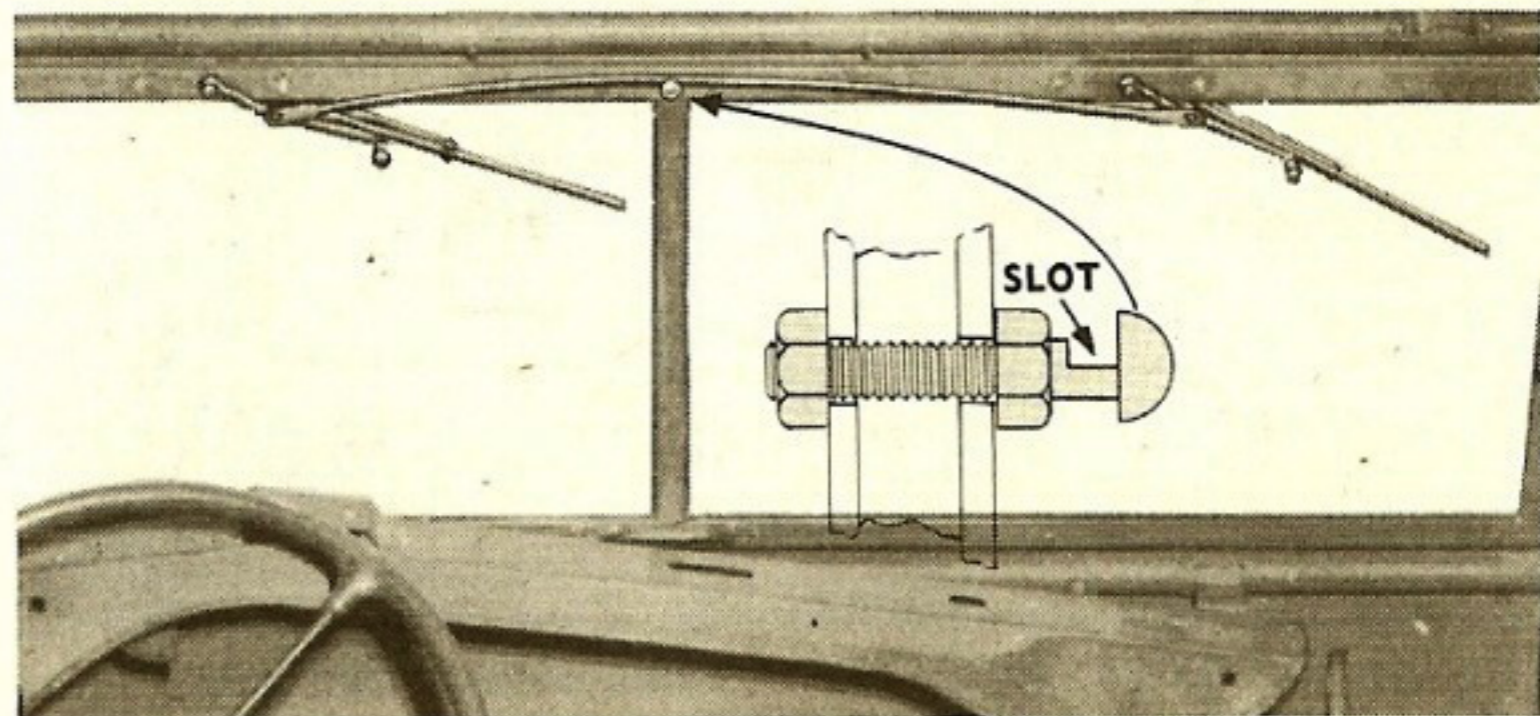
T/5 Bill D. Knowles
APO 667

Ed. Note—Brainy deal. There was something like it in these pages last August for tightening strut rods on GMC banjo-type axles. To repeat, remember that wrench is heat-treated steel and should be annealed (heated to a dull red and allowed to cool slowly) after bending. This will restore the temper lost in the first heating.

Dear Editor,

Some time ago you ran an item on horn-blowing in rainy weather, but it didn't give the most common reason for the trouble.

While the half-track wasn't mentioned specifically, it's the big offender. Many rubber horn buttons are too thick, making the



A good way to keep jeep wipers from waving in the breeze.

clearance between contacts so small that a drop of water will complete the circuit. So the horn blasts away when water seeps in.

If you've got a horn button that travels less than $1/32$ ", simply grind that amount off the underside of the button to give it additional clearance. I've used the figure $1/32$ " because a drop of water will break and run before it reaches that height.

Some might say that water will not conduct low-voltage current, but they'll probably admit that impurities in the water will do so.

A. W. Hall
Automotive Advisor

Ed. Note—If you want to prevent water from getting in there in the first place, Cpl. Harold Honer, 159 Ord. Bn., suggests putting a strip of 4" gun tape over the horn button. Especially on half-tracks that are out in wet weather without a tarp.

Dear Editor,

I have something that will save a lot of tires and grief on our 6x6 trucks. Out here in these islands of the South Pacific, we have had a lot of difficulty in keeping coral out of our rear duals. After trying different methods, the cable method proved most efficient. Make a loop from $3/4$ " or $5/8$ " galvanized cable (a circumference of 10' and 9" fits a GMC 6x6) and install it as shown in the Fig. I have used this on a fleet of 36 dumps and cargoes, and it has really proved its worth. If it will keep wheels clear of coral, it will do likewise for

mud, snow, ice, rocks, or any other matter that may become lodged between the tires.

C. D. Bergquist, MM 1/c
82 Naval Const. Bn.

Ed. Note—Might add that only salvage wire rope should be used. Also that the splice must be smooth, and the loop tight enough so it won't chafe the sidewalls of the tires.

Dear Editor,

It has been a common occurrence for door and cab panels on trucks to rust through. The rusting is due to water and sweating on the inside of doors and cabs, and usually occurs at the point of insulation. The soft rubber or sponge used between braces and panels holds moisture, and the panels are constantly rusting—especially in damp climates and salt-water areas.

Prevention: Remove inside door-panel, seats, and all trimming in order to get directly to the panels. Remove all rubber or sponge insulation strips from between braces and panels. Drill a few small holes in the cells of doors and around cab for water to drain out. Also make sure drain holes provided are open. Clean panels, prime with rust inhibitor (Primer, synthetic, rust-inhibitive, Fed. Stock No. 52-P-20466), and finish with OD paint. Also clean and paint window channels and braces as well. Don't install new rubber or sponge insulation material if not necessary.

Materials: Rust inhibitor, OD

paint, wire brush and sandpaper, spray gun or brush.

Echelons involved: This preventive work should be done by the 1st and 2nd echelons, but shouldn't be overlooked in the higher echelons.

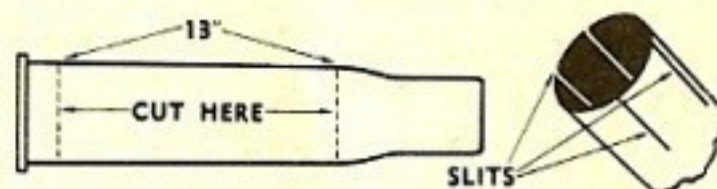
This service should be performed at least twice a year, or oftener if required. It will preserve and prolong the life of doors and cabs of vehicles as well as reduce material and labor costs.

T/3 Lynn W. Meister
Aberdeen Proving Ground

Dear Editor,

A big source of trouble in LVT's is the flexible tubing leading from the exhaust manifold to the muffler. This tubing is supposed to allow for the motion between the engine and the hull, but due to the heat of the exhaust and salt water, it loses its flexibility and invariably breaks. Replacements are difficult to get and brazing only holds for a short while.

We've solved the problem by cutting off the base and part of the top of empty 75-mm and 3-inch Jap shells (see Fig.). We



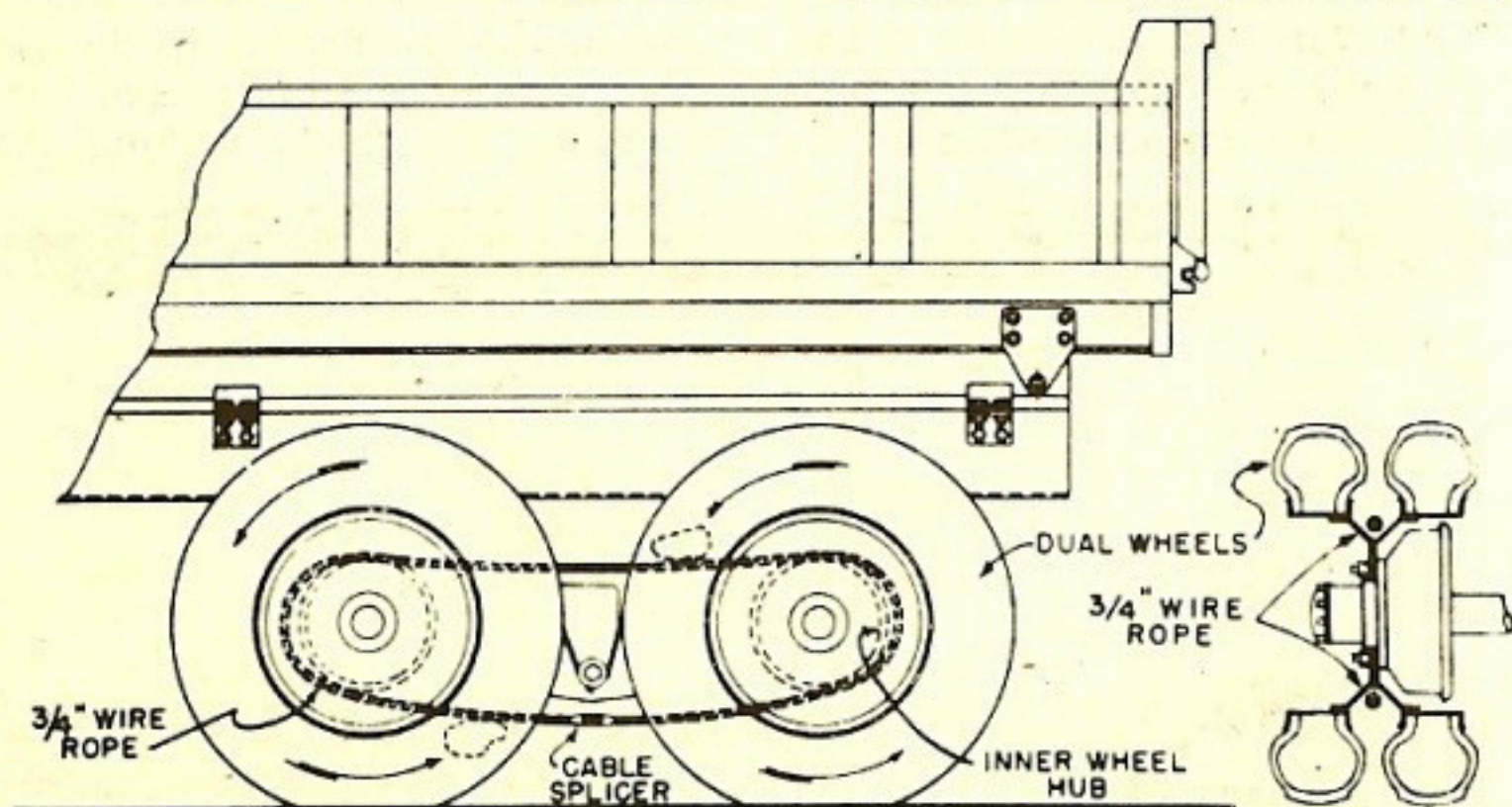
put four slits in the top of the shell to allow for expansion and contraction and to make it fit. Then we place it on the exhaust manifold and clamp one end. This allows for the difference in movement between engine and hull—and the brass, because it doesn't rust, withstands the heat and allows for easy removal.

Lt. Milton M. Wellen
APO 565

Ed. Note—The exhaust-manifold-to-muffler tubing on LVT's in production now is being made of stainless steel.

Dear Editor,

We've had a number of heat-control valves break loose from their shafts on GMC's. We don't have a welding torch, so we drill two $3/16$ " holes through the valve and shaft, using two $3/16$ "x $3/4$ " stove bolts to clamp valve and shaft together. It works out okay



Seabee device (as shown in "Construction Battalion Activities") for preventing stuff from jamming in your duals.

Keep Your Dome Fires Burning

When you've got something hot in your head, give it here and give it air. Especially if a maintenance stew is what's cookin'. If it saves time or sweat or precious parts—if it gets you and your vehicle out of a spot—it'll do as much for hundreds of thousands of others. We'll not only publish your deal if it's good, but also reward you handsomely with a one-year **personal** subscription. Tell all to ARMY MOTORS MAGAZINE, Office, Chief of Ordnance, Detroit 32, Michigan.

and we haven't had any trouble from heat so far.

Frank Hendershott
Automotive Advisor

Dear Editor,

During rainy weather, water gangs up in fuel systems, deadlining many vehicles unless their fuel-filter bowls are drained daily.

We exchanged the bottom drain plug with a drain cock as found on engine blocks or radiators (GM Part No. 103647, for example).

This way, without removing the bowl, we can drain the water deposits quickly and also clean the element by back-blowing through the "OUT" opening with a hand pump. We close the shut-off (fuel inlet) valve to keep dirt out of the lines.

Sgt. Frank H. Arndt
AP0 758

Dear Editor,

Here's a tip that oughta help keep 'em rolling. On almost all the Ford 1½-ton trucks that come into our shop, I find that the front-fender brackets have snapped off up close to where they're bolted to the frame. It does no good to replace the brackets, even if you can get them, because they snap off faster than you can put them on. I've found that springing the fender away from the frame and placing a piece of old radiator hose between the bracket and frame makes a good solid job and stops all the rattles and squeaks the drivers bitch about.

Pvt. Kenneth K. Horigan
H & S Co., 1624 S. U.

Dear Editor,

Having worked on many ¼-ton jeeps, we have encountered much trouble removing the forward bolt of the fuel pump. We have no tool for this particular bolt, but we find that a screwdriver slot cut in the bolt will eliminate a lot of the trouble and save much time in installing and removing it.

T/Sgt. Vernon L. Hoffman
AP0 339

Ed. Note—Absolutely. And using two blades in the hacksaw frame will make a good wide slot.

Dear Editor,

Here's a gimmick I built which wrecker operators and maintenance men may find useful.

In my work (on a wrecker) I swim in a sea of balky clevis

pins and rusty pintle hooks, so I built me a "life preserver." Took a pair of electrician's pliers—on one leg I brazed 3" of a screwdriver blade, and on the other leg I brazed the head of a ball-peen hammer. The hammer head is extended a little beyond the screwdriver and mounted at right angles to the pliers so you can close them.

With this gadget, a rusted cotter pin can be straightened or cut and a clevis pin hammered part way out with the peen end of the hammer. This tool also pulls, straightens, and drives nails—cuts wire and strips insulation—and does 1001 odd jobs. It's a bit awkward to use, but far less cumbersome than three separate tools.

Pvt. T. Middleman
AP0 95

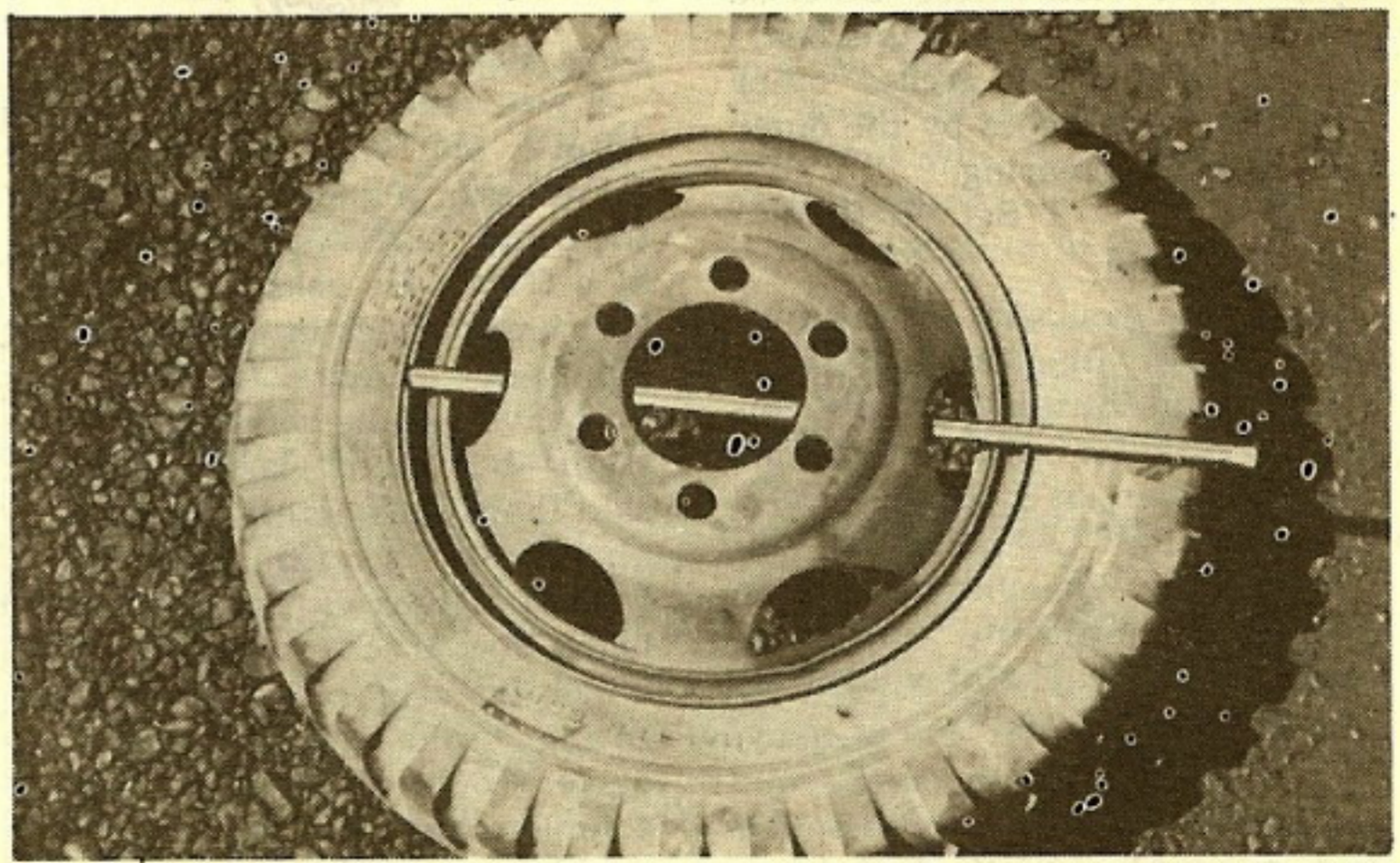
Ed. Note—Sorry you didn't send a picture. This we'd like to see.

Dear Editor,

If a retaining ring on a wheel blows off while you're trying to pound it into place, somebody gets hurt. We're taught to place the ring underneath the tire when inflating it, but as Army vehicles get older, you have to change more and more tires with bent rims—and you can't pound them while they're underneath.

Inserting a tire iron (see Fig.) before inflating is a simple way to save a life.

Pvt. N. S. Anderson
Walla Walla Army Air Field



A simple thing like a tire iron holds that deadly ring in place. This is a GMC wheel, but it works on most any.

SGT. HALF-MAST McCANICK'S



CRYSTAL BALL DEPARTMENT

Dear Half-Mast,

No one around here seems to be able to answer our troubles, so we are writing to you.

The outer bronze bushing (GM Part No. 3659778) of the steering-knuckle assembly, banjo-type axle, in the 2½-ton 6x6 GMC, is freezing onto the constant-velocity joint, and by so doing, the bushing is being gouged and chewed up. So far, this has always occurred on the right front wheel. On close inspection, we find that this bearing receives little grease other than that which goes by the outer bronze thrust-bearing.

T/Sgt. R. R. E.

Dear Sergeant,

First, are you sure you're giving it exactly the right oil (with women and bushings that's important)? Lube orders call for general-purpose grease—CG-1 above 32° F., CG-0 below 32°—in the CV joint. Wheelbearing grease is a lousy substitute and could easily be the cause of your woe.

But supposing it ain't—okay, then have you made sure your grease seals are properly installed and in good shape? And were your bushings and thrust bearings lubricated before reassembly

to take care of the interval before grease from the U-joint reaches them? Are your U-joint or thrust washers badly worn?

Also remember that the total thickness of shim material for the upper bearing must equal the total thickness for the lower. Have you got 'em that way?

Now who's asking questions?

Half-Mast

Dear Half-Mast,

I was reading in your Oct. 44 ARMY MOTORS where S/Sgt. F.F.A. asks a question concerning the center bolt on the front spring of a GMC. He asks if the center bolt helps at all in alining of the front end. The first two functions you gave for the center bolt were right—but your last statement said that it has nothing to do with alinement of the front end. Sorry, I don't agree with you there. I had a few trucks in my outfit on which the center bolt on the right spring broke. As a result, the driver could make more than a complete turn on the right, but couldn't make half the turn on the left. So one of us is wrong, and I'm damn sure I'm not. Please

give me the answer. I have no place to go, so I can wait for your next issue.

Sgt. A. F.

Dear Sergeant,

That center bolt question sure got me up-to-here in arguments. Since the October issue came out, it's been just about unanimously decided that the GMC front-spring center bolt—besides keeping the spring assembled before installation in the vehicle and helping to get it into correct position on the axle—**does** aid in alining the front end (by helping to hold the axle in proper relation to the frame). It wasn't designed chiefly for this purpose—but, as your experience of breaking the bolt on the right spring proved, it's one of those **incidental** functions that just happened to work out. If you keep the U-bolts and spring clips tight all the time, you'll have fewer broken center bolts and better front-end alinement—maintaining the spring-to-axle position is really their job. It's usually when the spring clips are loose that the center bolt's head gets sheared off by the movement of the axle under the spring. Hope that settles **that**.

Half-Mast

Dear Half-Mast,

We've been having some trouble with gear oil leaking around the adjusting nut on 2½-ton 6x6 GMC steering-gear housings. Putting some gasket cement or white lead around the threads seems to solve the problem—any objections?

M/Sgt. K. L. N.

Dear Sergeant,

No objections to cramping that oil leak's style with cement or lead, as long as you don't let none of it get in the housing. There's been a lot of trouble lately with the worm nut pushing up against the end cover on the GMC steering-gear assembly, causing distortion and cracks. So, before you slap on that cement or lead, convince yourself that the gear oil's really leaking around the adjusting nut and not around the edges of the cover or through a crack. The engineering crowd is trying a redesign of the whole

assembly that may lick the problem in future jobs.

Half-Mast

Dear Half-Mast,

The other night we were discussing half-tracks—the battalion command car, in particular. Many's the night I've raised my weary head from the pillow (?) and cussed the radio operator who cranks the engine at regular intervals to recharge the battery for the radio. We decided that instead of using a large power plant like that to run a generator—there must be hundreds of these vehicles that require engine overhaul at a very early age because of it—why not install a "Little Joe" similar to the medium-tank Homilite? The cost would be small compared to the many hours of engine operation required to keep the battery fully charged. What do you say about it?

Major J. W. S.

Dear Major,

All I can give you is sympathy. It's true that half-track engines don't make economical battery chargers, but the expense and wear involved ain't nothing compared to the operation of a tank engine. Half-tracks can't spare the space and weight for an auxiliary generator set. Anyhow, since when has "Little Joe" been so easy on the ears?

Half-Mast

Dear Half-Mast,

A problem has come up here concerning the tandem hitch. I've read all periodicals and training circulars on the subject but the solution has yet to turn up.

In demonstrating the tandem hitch, especially going downgrade, either one or the other of the ¼-ton jumps out of gear. Sometimes it's the low range which jumps out and sometimes it's the gearshift lever. I've checked both jeeps and it doesn't seem to be any mechanical defect. It only happens if one or the other ¼-ton is accelerated, or I should say the rpm's aren't coordinated. If the second jeep's engine is revved

faster than the front one, the latter disengages and vice versa.

Any light thrown onto the subject would be appreciated. Could it be the poppet-ball spring isn't strong enough?

E. J. M.

Dear Mr. M.,

Whenever I hear of jeeps jumping outta gear while being run in tandem, first thing I wonder is how fast they were going.

Top tandem speeds, y'know, are 30 mph on level ground and 10 mph on downgrades. The hitch was intended only for emergency towing at low speeds, when the load serves to steady both jeeps. Fast operation in tandem with a load, or driving in tandem without a load, is pretty damn sure to make mischief.

If your tandem jeeps jump outta gear, even at legit speeds, the trouble could be the poppet-ball springs (like you said), a bent shift-fork, or maybe worn gears.

I don't know the serial numbers of your vehicles, but maybe the transfer case still has the older-type poppet springs (Mfr's Part No. A-966) with 18 lbs. tension, instead of the new springs (Mfr's Part No. A-6468) with 35 lbs. tension when compressed to 45/64 of an inch. The increased tension helps keep the gears where they belong.

You might also check the sliding gear on the spline shaft—too much play here might be causing the jump-out.

Hope this'll cure those tantrums in your tandems.

Half-Mast

Dear Half-Mast,

The ¼-ton jeep's emergency brake, even when the handle rod is well lubricated, is hard to set—and then if you shake the vehicle a little, it releases. Could be I'm way off, but if it were the lever-type running out of the floorboard as it is on larger trucks, wouldn't it be more efficient? How about it, or does an emergency brake rate that much attention?

Sgt. J. H. B.

Dear Sergeant,

I doubt that the lever-type would do the trick any better, Sarge—the same ratchet principle is used on both kinds. Besides, the jeep's got a water-tight floorboard—if a brake lever came through it, streams would, too.

This won't help you directly, but you'll be glad to hear that a new 8 x 1¾ internal-expanding hand brake is going into production on ¼-ton about now—so there oughta be a lot fewer gripes on this score in the future.

By the way—the jeep hand brake is a **parking** brake, not an emergency brake. Using it to stop the vehicle will finish it off in a jiff.

Half-Mast

Dear Half-Mast,

We've always been under the impression, from our previous experience, that the larger brake cylinder is on the rear of wheeled vehicles. However, we've noticed that on the ¼-ton Willys jeeps, the larger brake cylinders are on the front wheels. Could you tell us the reason?

We'd also like to know the cor-

Gray Cells, Why Are You Blue?

Are there a coupla maintenance brainbusters foggin' up the operation? A coupla problems you can't beat? Where you are, the answers ain't. Where Half-Mast is, the answers are—Half-Mast can spit in any direction and hit a truck or tank manufacturer, or an Ordnance engineer—and often does. Send your unsolved chestnuts to "Dear Half-Mast," ARMY MOTORS MAGAZINE, Office, Chief of Ordnance, Detroit 32, Michigan. You'll get a personal subscription **by direct mail** if your question's published.

rect order to bleed the brake lines on a 2½-ton 6x6 GMC.

T/5 F. M. and L. H.

Dear Corporals,

'Smatter of fact, the jeeps that first hit the field had front and rear wheel-cylinders the same size. But it turned out that the rear end would slide around and try to pass the front end when the brakes were applied, especially on slippery roads. Later tests showed that putting bigger wheel-cylinders on the front would lick the trouble. In stopping, the weight of the jeep shifts to the front wheels, so more brake is needed up there.

There's no routine order to follow in bleeding your GMC brake lines—but if you have a hydrovac, be sure to bleed its bleeding screws in 1-2 order before starting on the wheels. (Stick your schnozzle in TM 9-801, 24 Apr. 44, page 335).

Half-Mast

Dear Half-Mast,

Can you give us a definite procedure for signing GI drivers' licenses (OO Form 7360)? There's a difference of opinion as to whether those vehicles a man is **not** authorized to drive should be crossed out and initialed, or just left blank. Are rubber signature stamps permissible?

Lt. H. J. G.

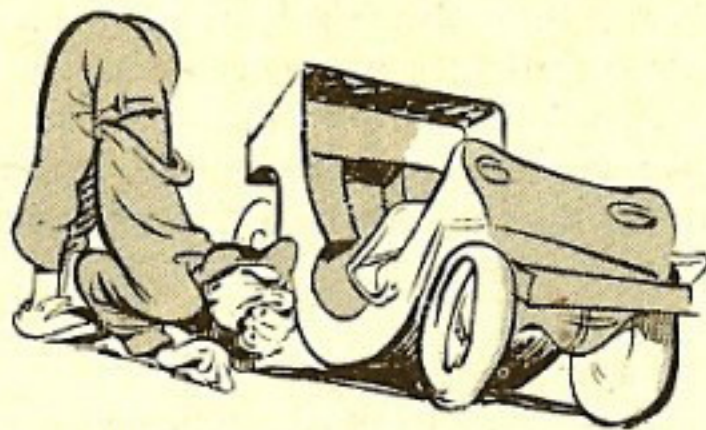
Dear Lieutenant,

I'll answer that one right from the book. Par. 4a (3) in TM 37-2810 (Mar. 45) says, "Authentication of vehicles the operator is qualified to drive will be initialed by the signature and rank only of the examining officer. Type vehicles the operator is not qualified to drive will not be lined out or initialed. No other type of certification is required on this form other than the authenticating officer's signature and rank."

Half-Mast

Dear Half-Mast,

I have a way to clean out the inside of a GMC 2½-ton (split-type axle) steering-knuckle housing and universal joint, and



though I've been using it with good results, I'd like your opinion.

First, flatten down the threads on the nut of the steering-knuckle-upper-bearing cap. Then it can be removed like a cap-screw. Remove, also, the steering-knuckle-lower-bearing capscrew for a drain. The holes are tapped clear through.

With a syringe-type grease-gun, force solvent down through the upper stud hole and let it flush out through the lower hole. After flushing, blow out with air. Replace the lower capscrew, fill the housing with grease, and replace the upper stud and nut.

What do you think?

T/4 S. B. D.

Dear Sergeant,

I think your method of cleaning the steering-knuckle housing and U-joint is a time-saver, sure enough, and in an emergency or in combat I see how it could be used to good advantage. But it oughta be used as an expedient only—and as soon afterward as you can, better disassemble the unit and clean it right.

Here's why I can't go overboard:

(1) Using the short-cut method, you're too likely to force dirt down into the lower bearing—which ain't good. You'll start a rapid wearing of that part and soon need a bearing replacement.

(2) If you do the cleaning as outlined in the TM's, you'll be sure to get **all** the dirt—and you'll also have a chance to see how the internal parts are holding up.

Time-savers can be life-savers when you need 'em bad. But in any case like this, Sarge, I wanta go on record as saying that the job oughta be done right—like it sez in the books—first chance you get.

Half-Mast

Dear Half-Mast,

Been having some trouble with several M5 high-speed tractors—the crankcase breathers are throwing oil. I realize the Donaldson valve on the intake-manifold balance-tube is to take care of the ventilation, but in spite of servicing the valve completely, no success. The oil level's correct and the compression's above 100. Do you have any suggestions on how to stop oil from being thrown out the breather?

S/Sgt. M. S.

Dear Sergeant,

Sounds to me like your trouble's caused by piston-ring wear and an overdose of blow-by (the Donaldson valve on the intake-manifold balance-tube won't take care of the blow-by). Better check the pistons and rings on those tractors. If the pistons are okay, maybe new rings'll do the trick.

Half-Mast

Dear Half-Mast,

You might as well play chaplain for me, too.

In one ¾-ton Dodge manual (TM 10-1531), the ball-socket spring of the drag-link joint follows behind the ball stud of the front-axle steering-arm ball and behind the steering-gear arm. TM 9-808 for the same truck shows just the opposite. Which is it?

T/Sgt. F. B.

Dear Sergeant,

Neither manual you mentioned is quite on the ball where this Dodge drag-link joint is concerned—neither of them says which end of the thing leads to the front-axle steering-arm and which hitches to the steering-gear arm. So they could both be wrong or both be right. There's gonna be a revision of TM 9-808 to give us the right dope, but til that happy day, TM 9-1808B tells the true story in detail. It so happens that the ball-socket spring **does** follow behind the front-axle steering-arm ball and also behind the steering-gear arm.

Half-Mast

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
LO—Lubrication Order

MWO—Modification Work Order
TC—Training Circular
WDC—War Department Circular
SB—Supply Bulletin

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ORDNANCE DEPARTMENT PUBLICATIONS

ASF Catalog, Ordnance Supply Catalog:	ORD 6, Tools and tool sets.
ORD 2, Index.	ORD 7, Organizational spare parts and equipment.
ORD 3, List of items for issue to troops, posts, camps, and stations.	ORD 8, Higher-echelon spare parts and equipment.
ORD 5, Standard hardware, common tools, cleaning and preserving materials, misc. common items.	ORD 9, List of all parts.
	ORD 13, Parts common to two or more major items.

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SCOUT CARS

CAR, SCOUT, M3A1
ORD 7, 8, 9, SNL G-67, C4 (18 Mar. 45).

GUN MOTOR CARRIAGES

CARRIAGE, MOTOR, 105-MM
HOWITZER, M7

MWO ORD G1-W24, 32½" extended grouser (overseas only).

MWO ORD G1-W27, Spaced suspension and 37" extended grouser (overseas only).

ORD 7, 8, 9, SNL G-128, C2 (20 Jan. 45).
ORD 7, 8, 9, SNL G-128, C3 (15 Feb. 45).
LO 9-731E (16 Feb. 45).

CARRIAGE, MOTOR, 105-MM
HOWITZER, M7B1

MWO ORD G1-W24, 32½" extended grouser (overseas only).

MWO ORD G1-W27, Spaced suspension and 37" extended grouser (overseas only).

ORD 7, 8, 9, SNL G-199, C2 (5 Mar. 45).
ORD 7, SNL G-199 (8 Mar. 45).

CARRIAGE, MOTOR, 75-MM
HOWITZER, M8

TB ORD 252, Late type distributor.
ORD 7, 8, 9, SNL G-127, C3 (5 Jan. 45).
ORD 7, 8, 9, SNL G-127, C4 (5 Feb. 45).

CARRIAGE, MOTOR, GUN, 3-IN.,
M10

MWO ORD G1-W24, 32½" extended grouser (overseas only).

MWO ORD G1-W27, Spaced suspension and 37" extended grouser (overseas only).

CARRIAGE, MOTOR, GUN, 3-IN.,
M10A1

MWO ORD G1-W24, 32½" extended grouser (overseas only).

ORD 9, SNL G-170, C1 (10 Mar. 45).
LO 9-731G (20 Feb. 45).

CARRIAGE, MOTOR, GUN,
155-MM, M12

MWO ORD G1-W24, 32½" extended grouser (overseas only).

CARRIAGE, MOTOR, GUN,
76-MM, M18

TB 9-755-14, Modified gun-travel-lock-handle catch 7020055.

CARRIAGE, MOTOR, GUN,
90-MM, M36

MWO ORD G1-W24, 32½" extended grouser (overseas only).

MWO ORD G1-W27, Spaced suspension and 37" extended grouser (overseas only).

TB 9-758-FE1, Stowage for range finder M9A1 with carrying case M51.

CARRIAGE, MOTOR, GUN,
90-MM, M36B1

MWO ORD G1-W24, 32½" extended grouser (overseas only).

MWO ORD G1-W27, Spaced suspension and 37" extended grouser (overseas only).

TM 9-748, Operation and maintenance (20 Jan. 45).

CARRIAGE, MOTOR, GUN,
90-MM, M36B2

MWO ORD G1-W24, 32½" extended grouser (overseas only).

MWO ORD G1-W27, Spaced suspension and 37" extended grouser (overseas only).

CARRIERS

CAR, HALF-TRACK, M2A1
LO 9-710-8 (9 Feb. 45).

CARRIER, PERSONNEL, HALF
TRACK, M5
LO 9-707 (10 Jan. 45).

CARRIER, PERSONNEL, HALF
TRACK, M5A1
LO 9-707 (10 Jan. 45).

CAR, HALF TRACK, M9A1
LO 9-707 (10 Jan. 45).

CARRIER, CARGO, M28
ORD 7, 8, 9, SNL G-154, G-179, C2 (25
Mar. 45).

CARRIER, CARGO, M29
TB 9-772-4, Operation precautions.
ORD 7, 8, 9, SNL G-154, G-179, C2 (25
Mar. 45).
ORD 7, SNL G-179 (16 Mar. 45).

CARRIER, CARGO, M29C
TB 9-772-4, Operation precautions.
ORD 7, 8, 9, SNL G-154, G-179, C2 (25
Mar. 45).
ORD 7, SNL G-179 (16 Mar. 45).

CARRIER, CARGO, M30 (T14)
MWO ORD G1-W24, 32½" extended
grouser (overseas only).

LIGHT TANKS

TANK, LIGHT, M5
TB ORD 252, Late type distributor.
ORD 7, SNL G-103, Vol. 2 (31 Jan. 45).

TANK, LIGHT, M5A1
TB ORD 252, Late type distributor.

TANK, LIGHT, M24
ORD 7, 8, 9, SNL G-200, C1 (5 Mar. 45).

MEDIUM TANKS

TANK-LIKE VEHICLES WITH
MEDIUM-TANK-TYPE VER-
TICAL-VOLUTE SUSPENSION
MWO ORD G1-W24, 32½" extended
grouser (overseas only).
MWO ORD G1-W27, Spaced suspension
and 37" extended grouser (overseas
only).

TANK, MEDIUM, M4-SERIES
MWO ORD G1-W24, 32½" extended
grouser (overseas only).
MWO ORD G1-W27, Spaced suspension
and 37" extended grouser (overseas
only).

TANK, MEDIUM, M4, 75-MM
GUN
LO 9-731A (18 Jan. 45).

TANK, MEDIUM, M4, 105-MM
HOWITZER
LO 9-731AA (31 Jan. 45).

TANK, MEDIUM, M4A1, 75-MM
GUN
LO 9-731A (18 Jan. 45).

TANK, MEDIUM, M4A1, 76-MM
GUN
ORD 7, 8, 9, SNL G-207, C4 (1 Mar. 45).
LO 9-731AA-1 (29 Jan. 45).

TANK, MEDIUM, M4A2, 76-MM
GUN
LO 9-731B-1 (20 Feb. 45).

TANK, MEDIUM, M4A3, 75-MM
GUN
LO 9-759 (15 Jan. 45).

TANK, MEDIUM, M4A3, 75-MM
GUN, WET
ORD 9, SNL G-204, C1 (1 Mar. 45).

TANK, MEDIUM, M4A3, 76-MM
GUN, WET
ORD 7, SNL G-205 (31 Jan. 45).

TANK, MEDIUM, M4A3E2
TB 9-759-FE2, Inside turret hold-down
bolt modification.

VEHICLE, TANK RECOVERY,
M31
LO 9-739 (3 Feb. 45).

VEHICLE, TANK RECOVERY,
M32-SERIES
TB 9-738-2, Winch operation.
LO 9-738 (10 Jan. 45).

VEHICLE, TANK RECOVERY,
M32, M32B1
ORD 7, SNL G-185 (31 Jan. 45).

VEHICLE, TANK RECOVERY,
M32B3
ORD 7, SNL G-187 (31 Jan. 45).

SB 9-1 (1 FEB. 45)

is the newest member of the Index family. It supersedes OFSB 1-1, Vol. 1 (1 Jan. 44), and gets all publications on Ordnance materiel under one cover again. Just find your vehicle, weapon, or whatnot in the alphabetical major-item listing in SB 9-1, and you've got the list of publications which affect it—all except current OFSB's and FSMWO's that straggled in after OFSB 1-1 was published. Those are still indexed only in SB 9-9 (5 Oct. 44).

Section III of SB 9-1, "Differences Among Models," is in there to help you identify things.

TRUCKS

TRUCK, ¼-TON, 4x4 (WILLYS,
FORD)

TB 9-803-FE5, Differential oil-seal guard.
TB 9-803-FE6, Drag-link bell-crank re-
inforcement.

TB 9-803-7, New-type valve-cover studs
(Ford only).

TB 9-803-FE7, Rear-spring bracket re-
inforcement.
ORD 9, SNL G-503 (15 Feb. 45).

TRUCK, ½-TON and ¾-TON, 4x2
(CHEVROLET)
LO 9-U316 (1 Feb. 45).

TRUCK, ¾-TON, 4x4 (DODGE
T214)

TB 9-808-FE1, Frame side-rail rein-
forcement.
LO 9-808 (6 Jan. 45).

TRUCK, 1½-TON, 4x2 (FORD)
ORD 7, SNL G-540 (10 Mar. 45).

TRUCK, 1½-TON, 4x4 (FORD
GTB)
LO 9-U303 (29 Jan. 45).

TRUCK, 1½-TON, 4x4, BOMB
SERVICE, M6
ORD 7, 8, 9, SNL G-85, Vol. 4, G-506, C6
(20 Mar. 45).

TRUCK, 2½-TON, 4x2 (IHC K-7)
LO 9-822 (26 Feb. 45).

TRUCK, 2½-TON, 6x4 (STUDE-
BAKER)

ORD 7, 8, SNL G-630, C1 (15 Mar. 45).
ORD 7, 8, SNL G-630, C2 (1 Apr. 45).
ORD 9, SNL G-630, C1 (15 Mar. 45).

TRUCK, 2½-TON, 6x4 (GMC)
TB ORD 250, Prevention, clutch-
diaphragm spring failure.

TRUCK, 2½-TON, 6x6 (STUDE-
BAKER AND REO)

ORD 7, 8, SNL G-630, C1 (15 Mar. 45).
ORD 7, 8, SNL G-630, C2 (1 Apr. 45).
ORD 9, SNL G-630, C1 (15 Mar. 45).

TRUCK, 2½-TON, 6x6 (GMC)
MWO ORD G508-W10, Front brake-hose
protection.

TRUCK, 2½-TON, 6x6 (GMC
CCKW-352, 353)

TB ORD 250, Prevention, clutch-
diaphragm failure.
LO 9-801 (5 Feb. 45).

TRUCK, 2½-TON, 6x6 (GMC
DUKW-353)

MWO ORD G501-W28, Front brake-hose
protection.

ORD 7, 8, 9, SNL G-501, C2 (18 Mar. 45).
LO 9-802 (20 Jan. 45).

TRUCK, 2½-TON, 6x6 ORD-
NANCE MAINTENANCE (GMC
CHASSIS)

LO 9-801 (5 Feb. 45).

TRUCK, 2½-TON, 6x6, SMALL
ARMS REPAIR, SIGNAL
CORPS, M7

ORD 7, SNL G-229, C2 (7 Feb. 45).

TRUCK, 2½-TON, 6x6, SMALL
ARMS REPAIR, M7, M7A1,
M7A2

ORD 7, SNL G-138, Vol. 1, C1 (1 Mar.
45).

TRUCK, 2½-TON, 6x6, AUTO-
MOTIVE REPAIR, M8, M8A1
(LOAD B)

ORD 7, SNL G-139, Vol. 2, C1 (22 Feb.
45).

TRUCK, 2½-TON, 6x6, WELD-
ING, M12, M12A1

ORD 7, SNL G-142, C1 (21 Feb. 45).

TRUCK, 2½-TON, 6x6, MACHINE
SHOP, M16, M16A1, M16A2
(LOAD A)

ORD 7, SNL G-146, Vol. 1 (23 Oct. 44).

TRUCK, 2½-TON, 6x6, MACHINE
SHOP, M16, M16A1 (LOAD F)

ORD 7, SNL G-146, Vol. 5 (13 Dec. 44).

TRUCK, 2½-TON, 6x6, MACHINE
SHOP, M16, M16A1 (LOAD B,
B1, B2)

ORD 7, SNL G-146, Vol. 2 (21 Oct. 44).

TRUCK, 2½-TON, 6x6, INSTRU-
MENT BENCH, M23

ORD 7, SNL G-178 (20 Oct. 44).

TRUCK, 2½-TON, 6x6, SIGNAL
CORPS REPAIR, M30

ORD 7, SNL G-235, C1 (26 Feb. 45).

TRUCK, 2½-TON, 6x6, SIGNAL
CORPS GENERAL REPAIR,
M31

ORD 7, SNL G-229, C2 (7 Feb. 45).

TRUCK, TIRE REPAIR, 2½-TON,
6x6, M32 and TRAILER, TIRE
REPAIR, 1-TON, 2W, M25

(LOADS A and B)

ORD 7, SNL G-234 (24 Feb. 45).

TRUCK, 4-TON, 4x4, CARGO (FWD HAR-1)
LO 9-815 (20 Feb. 45).

TRUCK, 4-TON, 6x6 (DIAMOND T)
ORD 9, SNL G-509, C1 (15 Mar. 45).
LO 9-811 (20 Jan. 45).

TRUCK, TRACTOR, 4-5 TON, 4x4, C.O.E. (FEDERAL 94x43C)
ORD 7, 8, 9, SNL G-513, C1 (27 Mar. 45).
LO 9-820 (10 Feb. 45).

TRUCK, TRACTOR, 5-TON, 4x2, C.O.E. (IHC H-542-9, H-542-11, MARMON HERRINGTON H-542-11, KENWORTH H-542-11)
ORD 9, SNL G-671 (20 Mar. 45).

TRUCK, 5-TON, 4x2 (IHC KR-11)
ORD 7, 8, 9, SNL G-542, C1 (4 Oct. 44).

TRUCK, TRACTOR, 5-6 TON, 4x4 (AUTOCAR U-8144, U-8144T)
LO 9-817 (12 Jan. 45).

TRUCK, 5-6 TON, 4x4, CARGO, C.O.E. (FWD SU-COE)
LO 9-U317 (15 Feb. 45).

TRUCK, 6-TON, 6x6 (MACK NM)
LO 9-U307 (31 Dec. 44).

TRUCK, 6-TON, 6x6 (WHITE, CORBITT)
LO 9-813 (15 Feb. 45).

TRUCK, 10-TON, 6x4 (MACK NR)
LO 9-818 (27 Dec. 44).
TB 9-818-FE1, Correction of oil flow through oil-filter bracket.
TB 9-818-4, Replacement, defective 4-way fuel valve.

TRUCK, WRECKING, HEAVY, M1 (WARD LAFRANCE SERIES 2, KENWORTH 571), CRANE (GAR WOOD)
LO 9-795-1 (12 Jan. 45).

TRUCK, WRECKING, HEAVY, M1A1
TM 9-796, C1, Operation and Maintenance (26 Feb. 45).

TRUCK, WRECKING, HEAVY, M1, M1A1, (WARD LAFRANCE, SERIES 1, 2, 3, 4, 5, KENWORTH 570, 571, 572, 573)
ORD 7, SNL G-116, C1 (9 Mar. 45).

TRUCK, TRAILER, 40-TON, TANK TRANSPORTER, M25
MWO ORD G160-W1, Adapting semi-trailer M15 for transportation of Tank T26E1.

TRACTORS

TRACTOR, SNOW, M7
ORD 7, 8, 9, SNL G-194, G-195, C1 (10 Mar. 45).

TRACTOR, HIGH-SPEED, 18-TON, M4
LO 9-785 (30 Jan. 45).

TRAILERS

TRAILER, 1-TON, SNOW, M19
ORD 7, 8, 9, SNL G-194, G-195, C1 (10 Mar. 45).

TRAILER, AMMUNITION, 4-TON, 2W, M21
TM 9-792, Operation and maintenance (5 Feb. 45).

TRAILER, 6-TON (ATHEY)
LO 9-790A (17 Jan. 45).

SEMITRAILER, 6-TON PAYLOAD (SNL G-589, G-592 MODELS)
LO 9-U344 (28 Dec. 44).

SEMITRAILER, 6-TON PAYLOAD, 10-TON GROSS (SNL G-534, G-538, G-584, G-587, G-588, G-590, G-591 MODELS)
LO 9-U344 (28 Dec. 44).

SEMITRAILER, 6-TON PAYLOAD, 10-TON GROSS, 2W VAN (HIGHWAY)
LO 9-U346 (28 Dec. 44).

SEMITRAILER, 7-TON GROSS, 2W (SNL G-572 MODELS)
LO 9-882 (25 Jan. 45).

SEMITRAILER, 7-TON PAYLOAD, 10-TON GROSS, 2W (SNL G-544, G-546, G-596, G-597, G-598 MODELS)
LO 9-882 (25 Jan. 45).

SEMITRAILER, 10-TON GROSS (SNL G-581 MODELS)
LO 9-U344 (28 Dec. 44).

TRAILER, LOW-BED, 22-TON, (LA CROSSE DF 6-22)
TM 9-897, Operation and maintenance (5 Feb. 45).

TRAILER, 45-TON, 12W, M9 (FOR TRUCK, TRAILER, 45-TON, TANK TRANSPORTER, M19)
LO 9-768-1 (30 Jan. 45).

LANDING VEHICLES

VEHICLE, LANDING, TRACKED, MK IV
ORD 7, 8, 9, SNL G-209, C1 (25 Mar. 45).

BUSSES

BUS, 29-PASSENGER, 1½-TON, 4x2 (IHC K-5, KS-5)
TM 9-897, Operation and maintenance (30 Dec. 44).

BUS, 37-PASSENGER, 4x2 (IHC KS-7)
LO 9-822 (26 Feb. 45).

MOTORCYCLES

MOTORCYCLE, CHAIN-DRIVE, SOLO (HARLEY-DAVIDSON WLA)
ORD 7, 8, 9, SNL G-523, C1 (1 Mar. 45).

EQUIPMENT

CHARGER, BATTERY, PORTABLE, GASOLINE-ENGINE-DRIVEN, 15V, 133 AMP. (ONAN OTC-33) COMPLETE (17-C-9635)
LO 9-834 (15 Jan. 45).

COMPRESSOR, AIR, PORTABLE, GASOLINE-ENGINE-DRIVEN, 5 H.P., 16 CU. FT. CAPACITY, W/TANK AND HOSE (CURTIS VG-959 QMC) COMPLETE (66-C-1175)
LO 9-834-1 (17 Jan. 45).

COMPRESSOR, AIR, GASOLINE-ENGINE-DRIVEN, 3-CU. FT. PER. MIN. (KELLOG NO. GE-140-S 13632) COMPLETE (JOHNSON ENGINE) (66-C-1369) (1 Mar. 45).
ORD 7, SNL J-114, C1 (1 Mar. 45).

GENERAL

WDC 69, Spare parts issues (3 Mar. 45).

FM 17-71, Crew drill for half-track vehicles, Armored Infantry (Jan. 45).

FM 21-6, Training publications (20 Feb. 45).

TM 21-300, Driver selection, training and supervision, wheeled vehicles (Feb. 45).

TM 37-265, Instruction guide, care and maintenance of ball and roller bearings (Jan. 45).

TM 38-505, Salvage in zone of interior (1 Mar. 45).

TM 37-2810, Motor vehicle inspections and preventive maintenance services (Mar. 45).

TB ORD FE23, All vehicles with bow stakes and bow pockets: Stake and pocket modification.

TB ORD 238, Aircraft-type radial engines: Precautions on hydrostatic lock.

TB ORD 244, Painting in-line and radial engines.

TB ORD 247, All transport vehicles: Headlight adjustment.

TB 9-2853-3, Preparation of wheeled and half-track vehicles for deep water fording.

WD Pamphlet 12-6, Administrative and supply publications index (1 Jan. 45).

WD Pamphlet 25-1, Muddy terrain equipment (Nov. 44).

SB 9-32, C1, Issue of materiel not meeting serviceability standards (11 Dec. 44).

SB 9-32, C2, Issue of materiel not meeting serviceability standards (31 Jan. 45).

SB 9-35, C2, List of manufacturers and their symbols (1 Feb. 45).

SB 9-35, C3, List of manufacturers and their symbols (1 Mar. 45).

SB 9-45, Tools and equipment price list (24 Jan. 45).

SB 38-1, Disposition of critical, surplus and obsolete items (Jan. 45).

SB 38-1-9, Disposition of critical, surplus and obsolete items (28 Feb. 45).

ORD 2, Index (1 Mar. 45).

ORD 3, SNL G-1, C1, Suppl. data chart, vehicular armanent and mounts (1 Mar. 45).

ORD 5, SNL H-2, C4, Miscellaneous hardware (15 Jan. 45).

ORD 5, SNL H-7, Pipe, tubing and hose (7 Feb. 45).

ORD 5, SNL J-3, Sec. 1, Geometrical tools and instruments (6 Feb. 45).

ORD 5, SNL J-4, Sec. 1, Punch, drift, fastening and scraping tools (4 Mar. 45).

ORD 5, SNL J-5, Sec. 1, Lifting, holding and forming tools (10 Feb. 45).

ORD 5, SNL J-8, Sec. 1, Hand tool ap-purtances (8 Feb. 45).

ORD 5, SNL J-10, Sec. 1, Small tools (24 Feb. 45).

ORD 5, SNL J-14, Sec. 1, Paint spraying equipment and related items (20 Feb. 45).

ORD 5, SNL J-16, Sec. 1, Tire repair and maintenance tools and equipment (12 Mar. 45).

ORD 5, SNL J-20, Sec. 1, Miscellaneous kits and tool sets (8 Mar. 45).

ORD 6, SNL G-27, Sec. 2, C1, Tools, automotive and semi-automotive vehicles (16 Feb. 45).

ORD 14-2, Vol. 1, Ordnance general purpose and combat vehicles, interchangeability list (20 Dec. 44).

64 Are Your Headlights on the Beam?

Here's a procedure for adjusting the headlights of any and all transport vehicles. It's guaranteed to aim the hot spot of the headlight beam smack into the ground 300 feet ahead—and grounding that hot spot at 300 feet is what takes the glare out of everybody's eyes. This adjustment is now SOP. The authority is TB ORD 247 (29 Jan. 45).

Before you do any adjusting, though, here's a **must**: Make sure your vehicle's got a load on, its rated load. If you haven't got her loaded, you'll be wasting your time. You'll get the adjustment perfect, all right, and the hot spot will hit the dirt at 300 feet on the

nose; but the minute you start down that lonesome road with cargo, the adjustment'll be off, plenty. You know why—when your vehicle's loaded, her back end gets weighted down. Her front end rises up at the same time, and the headlight beam tilts up with it. Then the hot spot's glaring at the whites of their eyes instead of at the ground. So you check off the following adjustment when you're carrying a load (in the truck):

(1) Find yourself some level terrain. If there's pavement in the vicinity, fine. Some place on the level stretch, you'll need a vertical surface—a wall or fence, anything that's straight up and down. Now, with a tape or yardstick, mark a line at right angles to the wall and bring it out 25 feet from the wall. Then at the 25-foot mark, draw a straight line parallel to the wall. Your work of art should form an oversize "T".

(2) Drive your vehicle up to the "T" formation so the headlights straddle the 25-foot line and are directly over the straight line atop the "T". Measure the distance from the center of the headlight to the ground. Mark off that same distance on the wall, from the ground up, and draw a horizontal line through that point, directly in front of the vehicle. Call that line X.

(3) Now line X is the same distance from the ground as the center of the headlights. Measure off 1/12 of that distance and draw a second line just below line X and parallel to it. Call the second line A.

(4) You're ready now to draw two vertical lines through the two horizontal lines—the vertical lines must be directly in front of

each headlight. That can be done accurately by dropping a plumb line (tie a heavy nut on the end of a piece of string) from the center of the headlight to the ground.

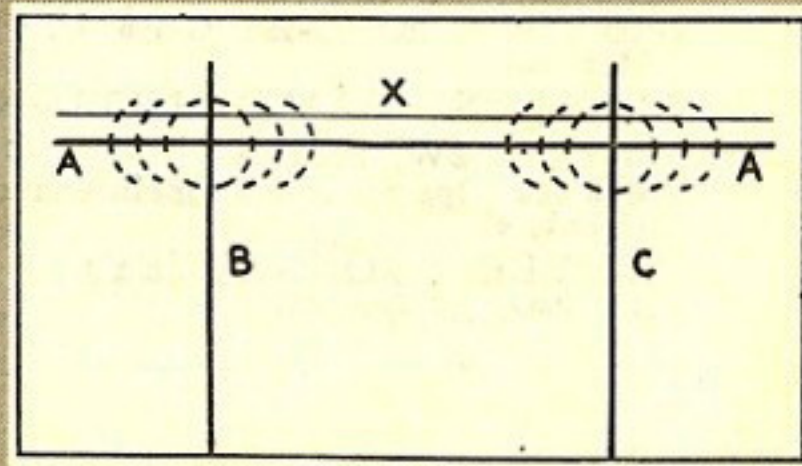
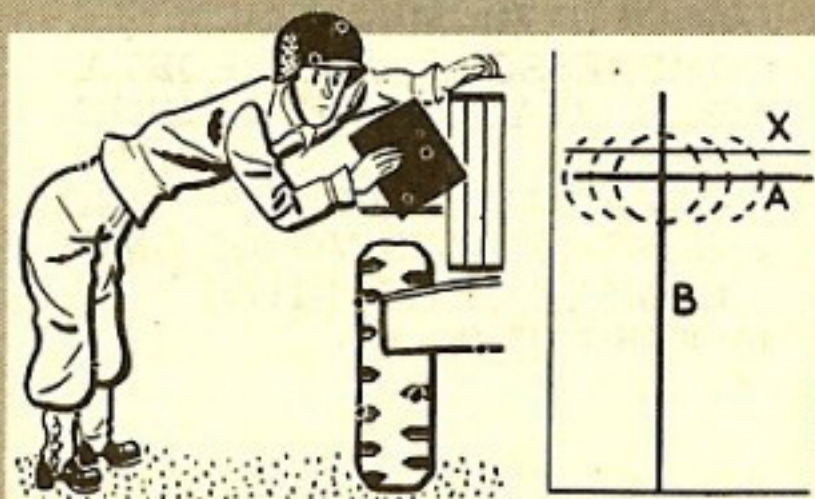
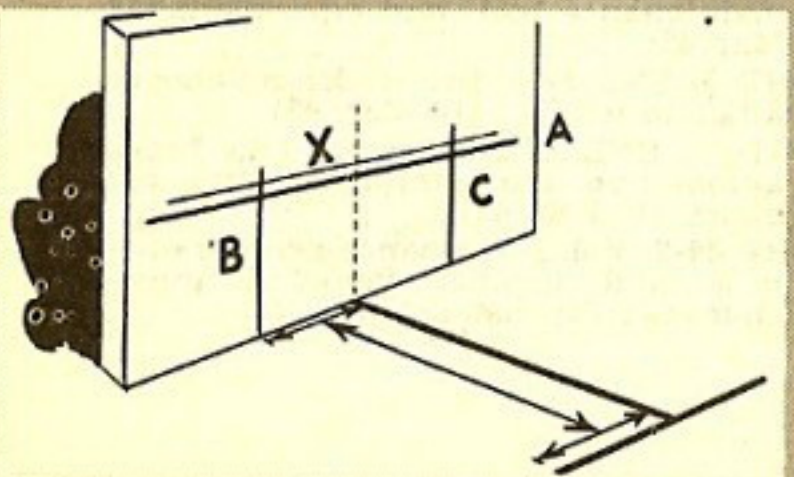
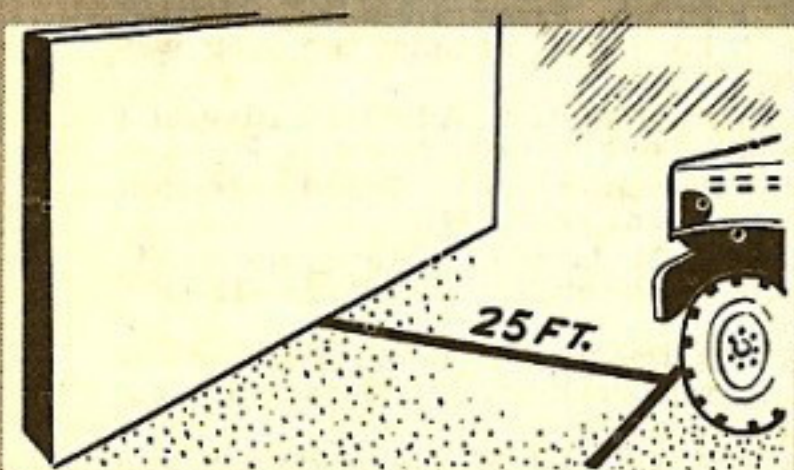
(5) Measure the distance, on the ground, from the point where the plumb line landed to the 25-foot line of the "T" formation. Then mark off that same distance on the wall and draw a vertical line straight up. Do it for each headlight. Call those lines B and C, respectively.

(6) Turn on the headlights now, and find high beam with your selector switch. (You needn't make any adjustment on low beam.) Cover one headlight while you're aiming the other. Aim the headlight so the hot spot of the beam centers at the intersecting horizontal and vertical lines A and B, or A and C—depending on which headlight you're adjusting.

(7) After you've adjusted each headlight separately, check 'em together just to make sure they center up and down on line A.

And that's it. If this adjustment were made on all Army vehicles, there wouldn't be any more of that "blindness" that fills the night with curses. You know when you're driving in the dark and some joker comes from the opposite direction in a blaze of light and glory, you can't see **nothing** for the next four minutes. Nothing except maybe a bright red baseball floating around in your own private blackout. And that short period of blindness is enough to send you careening off the road into the valley, or into somebody's tailgate up ahead. Okay, okay—so you do know all that.

The point is: Are your headlights innocent or guilty?



• • NEWS FLASHES • •

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

If you're making tracks over hard-surface roads in an LVT, better look twice at WD Circular 484 (20 Dec. 44). It says the **maximum sustained** speed of any track-laying vehicle will be 25 mph. But your LVT's burned-up bogies will tell you that 15 mph—except in emergencies—is plenty fast enough. And this **15-mph maximum speed** will be officially included in the revised TM for the LVT.

On a hard-packed pike, how can you tell your rate of speed so you can keep it under 15 mph? Easy. On later models (built during 1945 A.D.), don't use 5th speed in the transmission. On earlier models, stay out of 4th and 5th speeds. Late-model LVT's can be spotted by "3.15 ratio" stamped on a metal plate on the final-drive housing, and by the letters "AB" after the transmission serial number.

* * *

Something else Ordnance wants to know when you send in a major unit assembly for rebuild—how many miles or hours of operation has it had? You can figure it out from the MWO and Major Unit Assembly Replacement Record (WD AGO Form 478), and the odometer or hour-meter reading when the assembly's removed. They need that info when you turn in major unit assemblies from combat vehicles, general-purpose vehicles, and those special-purpose vehicles and special equipment assigned to Ordnance for 5th-echelon maintenance.

Fill in everything called for on the front of the Exchange Tag (WD AGO Form 9-81, or old WD 00 Form 7370), then turn it over and jot down on the back of Section 3 the number of hours or miles the assembly's been in operation—just like it says in **WDC 43** (5 Feb. 45).

* * *

The electrical equipment on your vehicle, if not moisture-proofed in production, can now be treated in the field for protection against rust and corrosion. Very high or low temperatures, quick temperature changes, high humidity plus fungi and bacteria, seacoast salt air, ozone, even salt water dips during amphibious operations, won't faze electrical systems that have been carefully coated (in the right places) with Paint, synthetic (Glyptal), red, No. 1201.

TB ORD 242 (15 Jan. 45) gives higher-echelon shops the whole procedure—so the climate, however clammy, won't put the whammy on your steed.

A new TM that'll be a real help, when your outfit packs up its equipment to go places, is **TM 9-2854** (17 Feb. 45), "Ordnance Packaging and Shipping (Posts, Camps, and Stations)." Follow the instructions therein, and you'll turn out a professional packaging job that'll pay dividends when the stuff catches up with you at your final destination.

Incidentally, the weights of military vehicles given in TM 9-2800 (1 Sep. 43) are N.G. for shipping purposes, according to TB 9-2800-1 (26 Feb. 45). **SB 9-OSSC-G** (16 Nov. 44) is the official weighting list.

* * *

You Ordnance outfits can quit guessing about serviceability standards—fits, tolerances, and wear limits—on several of the better-known brands of Army truck engines. **TB 9-1802A-1** (1 Mar. 45) covers the GMC "270" engine, in 2½-ton 6x6 trucks and ducks. **TB 9-1803A-2** (26 Feb. 45) deals with the Willys-Overland MB engine, in Willys and Ford ¼-ton jeeps. **TB 9-1808A-1** (26 Feb. 45) covers the Dodge T214 engine, in ¾-ton 4x4's, and the T223, in 1½-ton 6x6's. **TB 9-1765B-2** (1 Mar. 45) does likewise for the Chevrolet BV engine. And **TB ORD 258** (28 Feb. 45) covers the Chevrolet BQ.

* * *

Three ORD 5's you haven't seen before are in the field now—**SNL J-14**, Paint Spraying Equipment (20 Feb. 45), **SNL J-16**, Tire Repair and Maintenance Tools and Equipment (12 Mar. 45), and **SNL J-20**, Miscellaneous Tool Kits and Tool Sets (8 Mar. 45). This doesn't mean you can grab anything you see in their shining pages, but if your T/O&E entitles you to any of the items, these lists will help you make up your requisition.

* * *

If you've been scratching your head over how to install that replacement distributor you got for your M5 light tank or M8 howitzer motor carriage, stop scratching and snatch a copy of **TB ORD 252** (6 Feb. 45). Could be you got the late-type distributor, Ord. Part No. C107890, instead of C107514 which used to be used on these vehicles. It's the same one that's on the M5A1 and M24 light tanks, so you've probably seen it around.

The TB tells you all you need to know about installing the distributor, with your engine in or out of the vehicle.

HOW DO YOU KEEP 'EM

Rolling In The Isles?

Calling all Jap-bopping, island-hopping sons of San Francisco APO's. All you gents who've piloted and pampered Uncle's vehicles from Guadalcanal to Okinawa.

You've learned—and you've got TS slips to prove it—what coral and surf can do to a truck. What happens to ducks, LVT's, and weasels when the heat's on. How a tank takes to the jungle and to deep volcanic ash. How every vehicle out there suffers from too much sun, too much rain, and often too little of everything else.

Point is, your maintenance problems will be everybody's maintenance problems one of these days. And your solutions can be everybody's salvation—but only if you spread 'em out for all to see.

So, if your vehicles have caught hell from the Pacific brand of climate or terrain, scribble down the details and mail 'em now to ARMY MOTORS MAGAZINE, Office, Chief of Ordnance, Detroit 32, Michigan, U. S. A.

If you've worked out the answers, so much the better. You'll get a personal subscription that way.

Either way, you'll save no end of achin' backs.

