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ARMY MOTORS

VOLUME 6 - NUMBER 5 - AUGUST 1945



You Too Can Be A Suicide Pilot

Driving along the roads where there's been fighting, you see a lot of vehicles turned bottomsides up in the ditches. Most are enemy vehicles, but at pretty regular intervals you see the white star of an American job. Lots of these American vehicles aren't burned out and there's no shell holes in them. But you can tell, by the smashed-in front ends and twisted frames, what wrecked them. Accidents.

You see a jeep with the whole engine compartment folded up into the driver's seat. They must have taken the bodies out with a fork.

It's interesting to speculate on exactly what caused these accidents. One minute the truck was flying through the pretty countryside, the next minute it was the ragged steel coffin for a couple of broken bodies. How does it happen?

In the language of the professional race tracks, the answer, in most cases, is "driving over your head"—**operating the vehicle beyond your simple human capacity to control it.** It means overspeeding to the point where your safety margin is gone, leaving little or no room for action "just in case." Speeding over a narrow road with a convoy coming in the opposite direction, where would you go if some fool suddenly popped out of line trying to pass?

Soldiers have died before they could think of an answer to that one.

Challenging the law of averages is another popular way to die. You're grinding along uphill behind a tank transporter. The blind crest of the hill is just ahead. Chances are ten to one there's nothing coming up the other side. Okay, take the chance. Sure enough, there was nothing coming up the other side. This time you win. But the tenth time, you lose. You die. Sucker.

Strangely enough, sometimes it's "forgivable" ignorance that kills you. When the rain first starts sprinkling down, everybody starts speeding up to get where they're going before the downpour. But here's something every commercial truckdriver knows: the roads are slipperiest at the very beginning of the rain. The first couple drops mix with the oil and dirt deposits on the road to form a tricky, slimy surface. Later, the downpour washes most of this slime away and the roads are actually safer.

But you don't know this. You hurry it up to beat the rain. Around the corner, the truck starts spinning . . .

Okay, you didn't know. You're forgiven.
But you're also dead.



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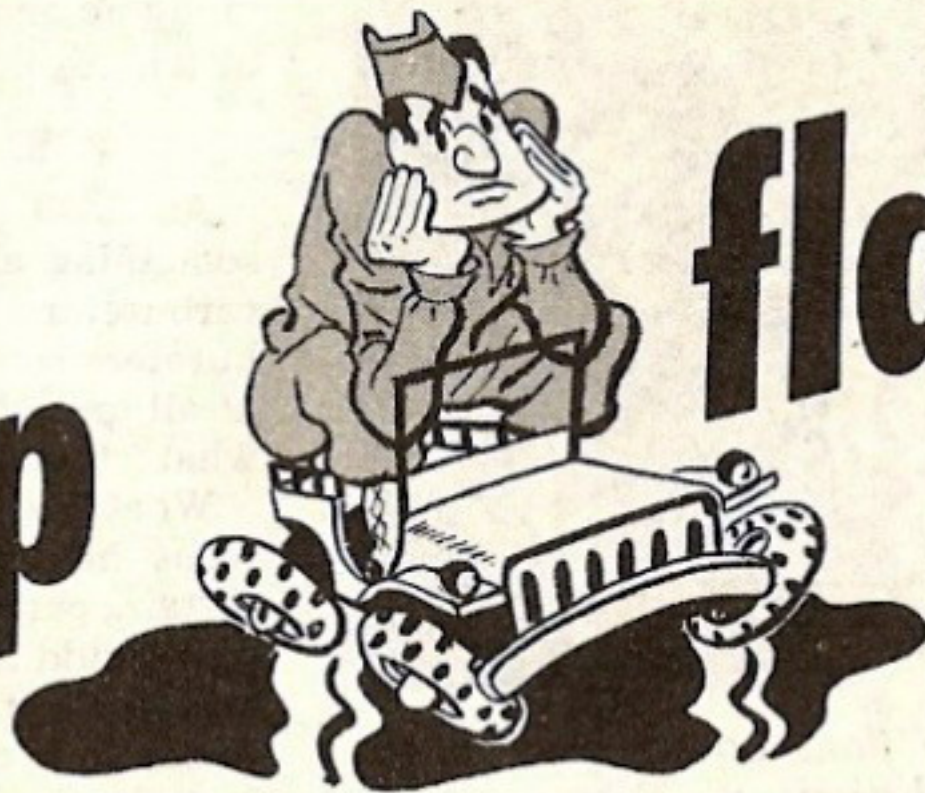
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ARMY MOTORS MAGAZINE is printed monthly with the approval of the Bureau of the Budget, Executive Office of the President. It is published in the interest of organizational maintenance by the Preventive Maintenance Branch, Maintenance Division, Office, Chief of Ordnance-Detroit.

ARMY MOTORS is glad to get your ideas for articles or illustrations, and is glad to answer your questions. Just write to: ARMY MOTORS MAGAZINE, Office, Chief of Ordnance, Detroit 32, Michigan.

Jeep



flat spots

IF THE LEATHER ON THE ACCELERATING-PUMP PISTON GOES BAD, YOUR ¼-TON WILL DO THE HESITATION WALTZ

When you suddenly press down on the accelerator of your jeep, does she falter and hesitate like an old hoss settling into the harness?

Your first thought is that probably the engine is not warmed up. But there are many ¼-tons running around steady-by-jerks, wearing out the power train uselessly with the heat-indicator needle resting comfortably on normal operating temperature.

Your trouble may be in an easily reached and easily remedied part of the carburetor. Namely, the carburetor accelerating-pump-piston leather (Fig. 1). This leather has been drying out, hardening, shrinking up, and not forming a tight enough seal against the little cylinder wall.

If you know your carburetors, you know that the business of the accelerating-pump circuit is to force a quick charge of gasoline

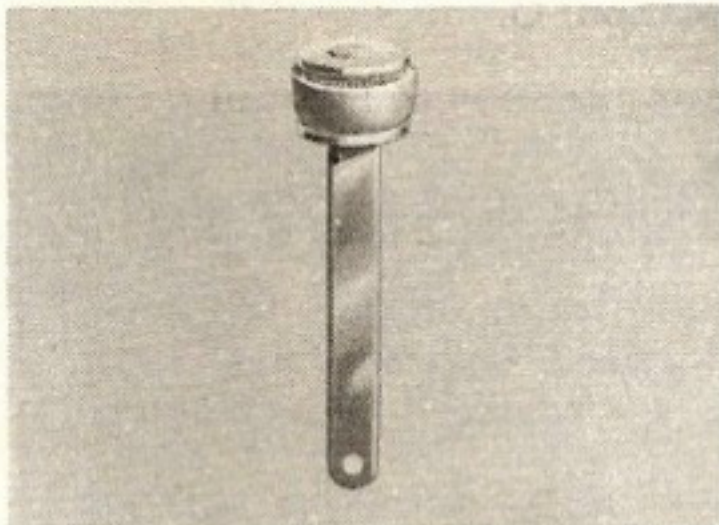


Fig. 1—This piston could be the reason for your flat spot.

into the engine when you suddenly step on the accelerator. It does this by means of the little plunger or piston working in a cylinder (Fig. 2). The piston has a leather around it. The leather, being a porous material, was originally treated with "sizing," but being constantly dunked in gasoline, the sizing washes out. This permits the leather to harden, shrink, and pull away from the cylinder wall. When you suddenly open the throttle, moving the piston down in the cylinder, the fuel squeezes by the leather and you don't get enough pressure to force the gasoline out the pump jets and into the engine. What you do get is a lurch or flat spot.

Before you go about correcting the trouble, there's an easy way to check and see if you're on the right track. Remove the air-horn elbow and look down into the carburetor throat and work the throttle. Watch the fuel as it comes out of the pump jet. If the stream is solid and comes out for about three seconds, it's okay. If it just dribbles out, you've got pump trouble.

Take the top off the carburetor as shown in Fig. 3. If the leather is merely dried out and shrunk a little, then all you've got to do is take a little neatsfoot oil and massage it well into the leather with your fingers to make it soft and pliable again. However, if the leather is worn away or turned up at the edges as in Fig. 3, or if the spring under it is damaged, you need a new piston assembly. Give the new piston leather a good dose of neatsfoot oil before installing. Load it into the cylinder with a cylinder-loading tool. Don't forget the new pump-cylinder gasket for the top of the cylinder.

Of course, the piston is not the only part of the pump circuit that

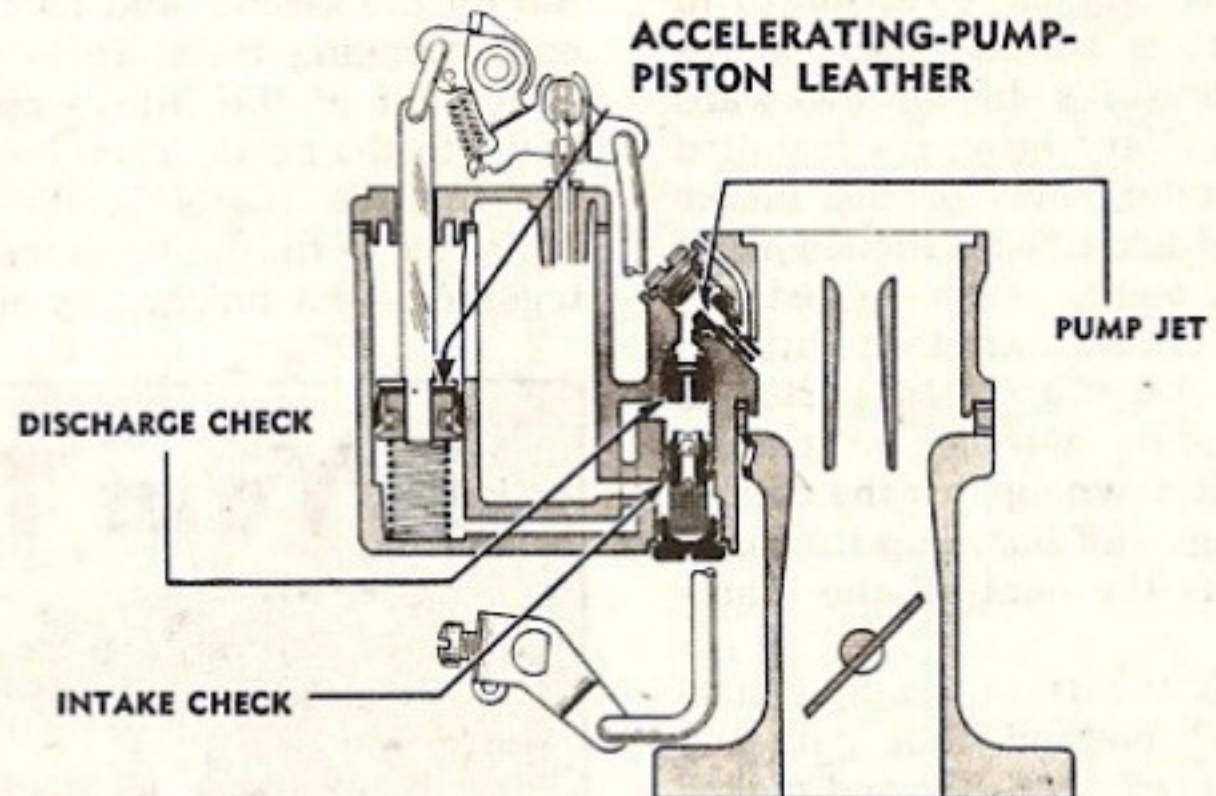


Fig. 2—These are the innards of the accelerating-pump circuit. The piston must fit snugly in the cylinder to do its work.

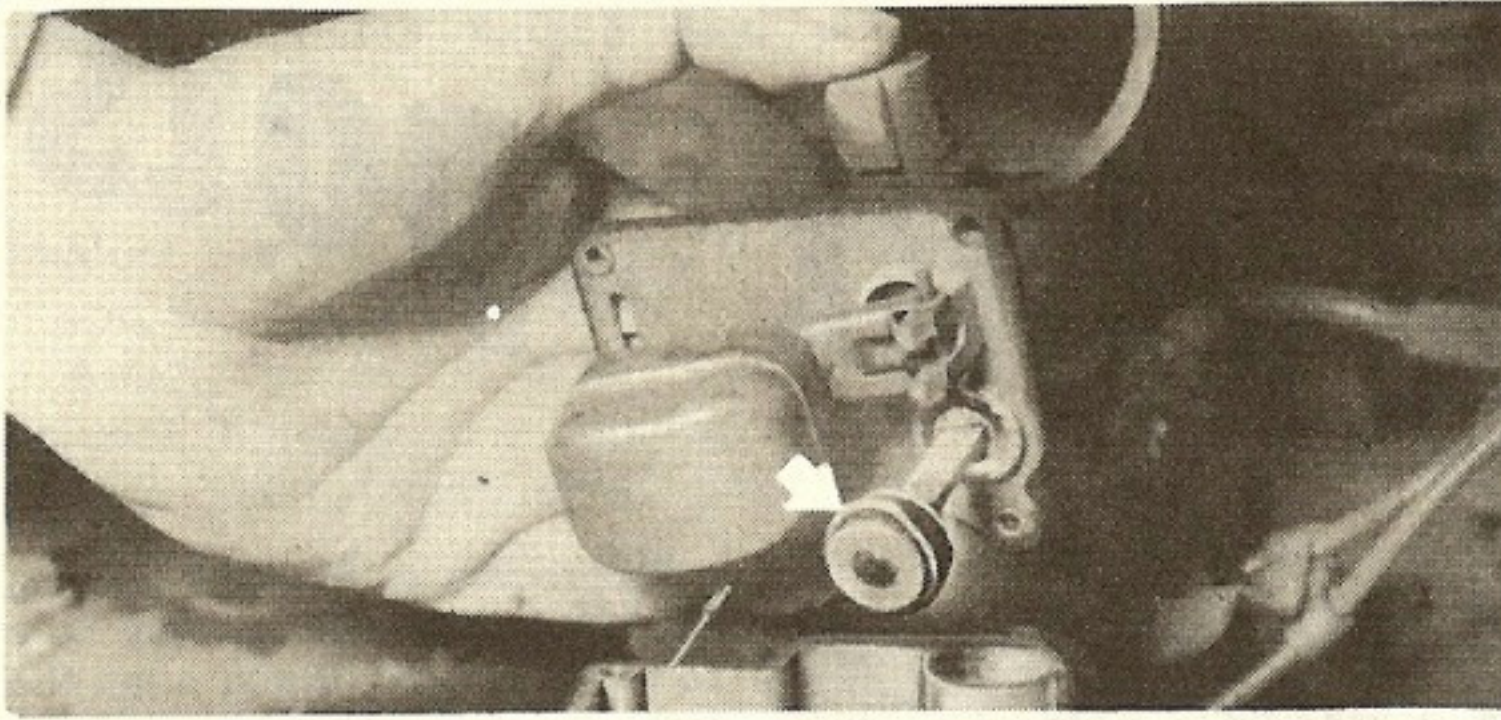


Fig. 3—Just lift off the top of the float bowl. The piston leather in the picture has curled up and died.

can cause a flat spot. It might be nothing more than a clogged-up strainer just below the pump-intake jet (Fig. 2); it might be that either the intake or discharge jet is plugged up with dirt or seated cockeyed so that it doesn't form

a perfect seal in the casting. Or it might be backlash in the linkage (the pump plunger must move as soon as the throttle is opened).

But one of the most common causes of flat spots in jeeps is the leather of the pump piston hard-

ening up and shrinking, or curling at the edges. Check it first.

P. S. ON IDLING

An ETO jeep herder reports something else he found on jeep carburetors. These particular carburetors sometimes wouldn't idle at all and other times ran rich at what should have been an idle.

What he found was this: The jeeps had been sprayed around certain parts of the engine with that liquid ignition-waterproofing and some of it had seeped in between the carburetor air-horn and the body of the carburetor. Right below this point is the idle air-bleed passage and the idle bypass passage. The waterproofing crept in and blocked them up.

After he carefully cleaned the stuff out with a wire, this guy's trouble disappeared. Maybe yours will, too.

GMC MANIFOLDS GO ON EASY

T/3 Presler P. Throckmorton is a big man with a lazy drawl who was happier as an International Harvester man back in Marion, Ohio. This day, he flagged down the ARMY MOTORS jeep near Maxhutte, Germany, to borrow a jackknife to deal with the French-made points on his GMC.

In exchange, Throck, mechanic with the 3537 Ord. MAM Co., passed on an easy way to install the exhaust and intake manifolds on a GMC engine. Wrestling with this unit is no fun because it's heavy and it's in an awkward position. Very often it's installed so the pilot rings of the intake manifold are not positioned right and the engine runs ragged because there's an air leak through the intake-manifold ports—or maybe some muscleman tries to tighten it down against the cocked pilot rings and burrs up the rings or breaks the ears off the manifold.

Throck avoids all this by a simple 1-2-3 method that gets the manifolds on correctly and makes the job easy.

First, he slides the intake-exhaust-manifold assembly up

into approximate alignment against the head. Then he starts a nut, without a washer, on each end of the exhaust manifold. To permit free movement between the two manifolds, he loosens the four bolts that hold the intake to the exhaust manifold. This gives him enough play to put the intake manifold up on the three pilot rings that align it to the head. Holding the unit in place with one hand, Throck puts the washer and nut on the second stud from each end, snugging them up to insure alignment of the intake and exhaust to the head. Then he tightens the four bolts at the heater box to tie the two manifolds together—and finishes by install-

ing the washers that were left off the two end studs, and tightening the nuts and clamps all around.

Since you can't get your torque wrench on all the nuts, here's a little trick to help you judge the torque to be applied to the hard-to-get-at nuts. When you've used the torque wrench on one of the nuts you can get at, put a box socket on the nut and feel how tight it is. Then, using the box socket on the nuts the torque wrench won't reach, apply the same feel to these nuts.

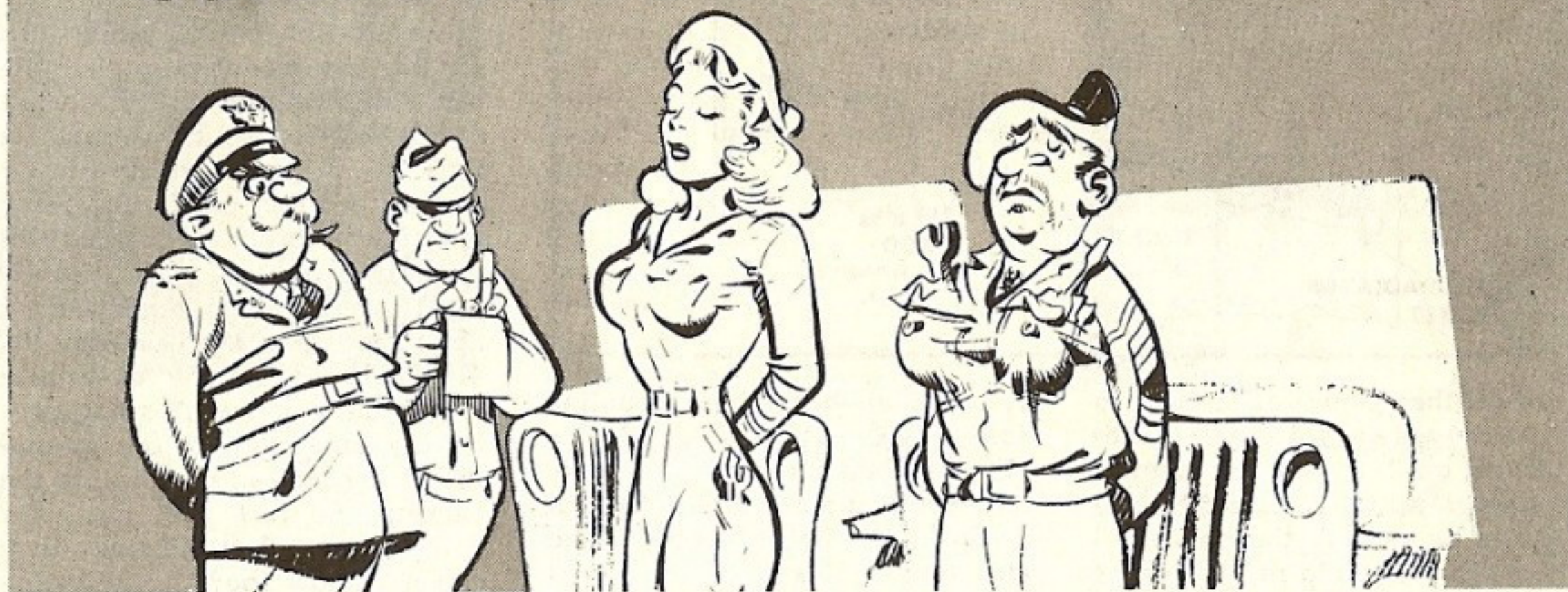
Throckmorton is a big man, but he likes to do things the easy way. He's saving himself for the Acey-Deucey roller rink back in Marion, O.

Is Your Trip Necessary?

Gahdarn right it is—whether you're taking off for the Orient, Occupied Germany, or the well-earned States. One thing sure—a lot of you globe-trotters have a long haul coming up, if it's not already under way.

Another sure thing is that you won't keep getting ARMY MOTORS regularly if we don't know where in hell you are. So keep us posted. Send in the old and new info—the minute you change your address.

CONNIE RODD'S BULLETIN BOARD



Diamond T Front-Axle Grease Leak

What's the cure for those grease-throwing Diamond T front axles? You know, the cases where you have put in seals three or four times and you can still see the inside of the front tires covered with lube after the day's run (even with the right lube in the CV joints and not too much of it, either)?

Well, the problem has finally been licked, but not before a lot of good axles and grease seals beat a hasty retreat to the junk pile. The answer is that worn steering-knuckle bushings (see Fig.), which allow the axle shaft to rattle around like a rat tail in a churn, are responsible for the leakage. The worn bushings permit up and down play of the axle under load or under torque, and this is what beats out the seals. If the bushing is badly worn, the axle shaft will dig through the leather of the seal and strike against the metal seal-retainer. This scores the machined surface especially provided on the axle shaft for the seal to ride on, and no leather seal will ever last long in there. The roughened surface just eats them up.

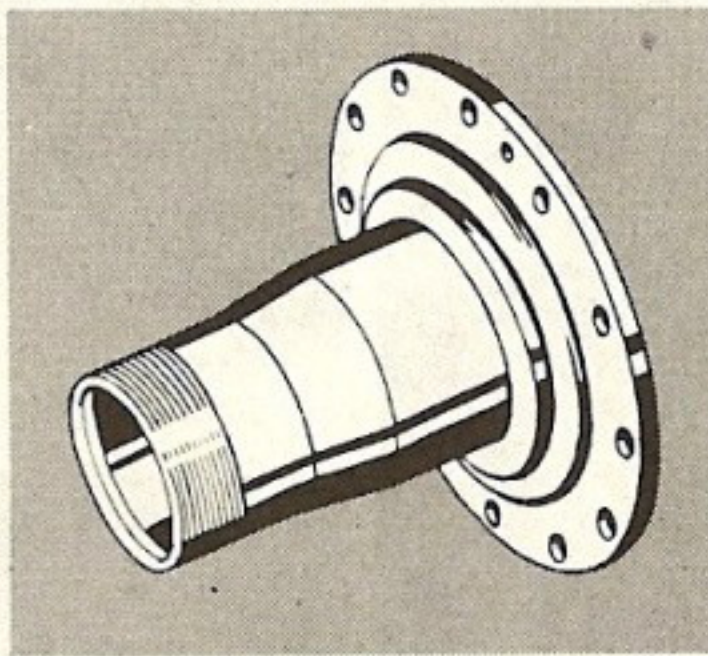
When this happens, you have to replace not only bushing and seal, but axle shaft as well.

So don't just keep replacing those seals when you see grease

all over the inside of the Diamond T front tires. Get after that steering-knuckle bushing and take a look at the machined surface on the axle shaft.

And if you can't get the bushing, you can find some nice kindly old MM or HAM company to make it for you in the field. Tell them to allow .015 to .022 clearance between the bushing and shaft.

Another all-too-common cause of shot grease seals on Diamond T front axles has nothing to do with the steering-knuckle bushings. It has to do with slipshod installation of the axle shaft—shoving it in against the seal and giving same a beating. A protector snapping was added on heavier trucks (by TB ORD 216, 7 Nov. 44) to stop this sort of thing. But the only way to stop it on your Diamond T's is to insert the axle shaft with loving care.



Beware of a worn bushing inside this steering knuckle.

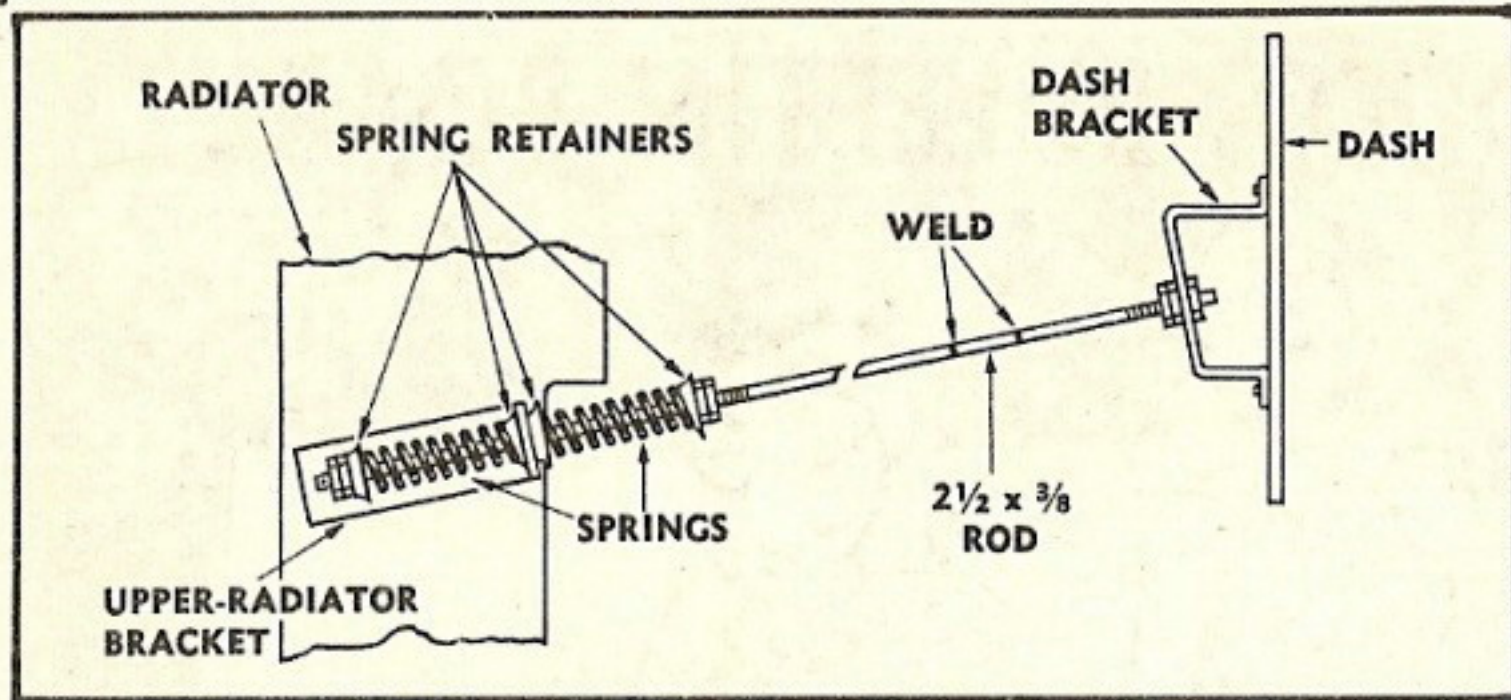
International 4x2 Radiator Cracks

There've been a lot of 5-ton 4x2 International tractor-truck radiators pulling the sieve act between the core and the header tank.

The villains in the act are the rigid braces running from the upper radiator-brackets to the cab support. These braces handcuff the radiator and make it take all the raps from rough roads.

You can stymie this bad actor by spring-loading the braces so they'll cushion the hard knocks, give your radiator a break, and no more cracks.

Like this: Remove the two support rods and saw them in two about 4" from the dash-bracket end. Since these rods have to be lengthened, weld in a $\frac{3}{8}$ "x2 $\frac{1}{2}$ " piece (see Fig., next page). Next, cut 7" of thread on the end of the rod that extends through the upper radiator-bracket, using a $\frac{3}{8}$ "-24NF die, and run two $\frac{3}{8}$ "-24NF nuts to the base of the new threads. On top of the nuts, place a jeep valve-spring (Willys Part No. WO-638636, Ford Part No. FM-GPW-6513), with a spring retainer (WO-637044, FM-GPW-6514) on each side of the spring. Extend this end of the rod through the upper radiator-bracket and put on another valve spring with retainers, as before, and two more $\frac{3}{8}$ "-24NF nuts. Right about now,



take another glance at the Fig. to be sure you've got your braces stacked up like the one shown. If they are, you can adjust the springs by turning the nuts until the radiator is held firmly (never compress the springs all the way), and tighten the locknuts. Curtain.

Air-Brake Gage

Right now, standard air-pressure gages (Fed. Stock No. 41-G-140) for checking the line pressure on Ordnance transport wagons are getting scarce as discharge papers. So if you can't wrap your long prehensile fingers around anything that looks like the McCoy, here's what you can do about the shortage.

Just use a tire-pressure gage (Fed. Stock No. 8-G-650) — any tire-pressure gage (Fed. Stock No. 8-G-650). All you have to do is make an adapter for it out of a tire-tube valve-stem and some kind of pipe fitting that'll fit the

vehicle's air-brake-hose coupling (see Fig. 1) or dash-gage line (Fig. 2). Jam the fitting and stem together and spit on 'em. If that doesn't hold, lay in a good braze and you're all set.

The TM covering power-brake systems frowns on dash gages showing an error of more than 5 lbs. high or low. So a periodic check with this field-made gage ought to become a habit.

M4 Lube Fitting

Wait a minute, put down that axe! There's an easier way to get to the lube fitting on the right bearing-cap of the brake cross-shaft on M4-series medium tanks and tank-recovery vehicle M32B1. You're right, the change from a vertical to a 45° fitting wasn't enough (and you've probably got worry warts to prove it). You still can't work a grease gun squarely onto the fitting because the bow-gun mounting, like an aging debu-

tante, bulges in all the wrong places.

But now there's something new in the fat breeze—a 90° fitting for this spot. It's being installed on all the new models and you, too, can stuff it in and win the battle of the bulge on your own favorite tank 'or Slapsy-Maxie retriever. There's no other comfortable way out of your problem because you can't make lube to that little 45° job if your tool is the standard hand-type gun (Fed. Stock No. 41-G-1344-40) in the on-vehicle kit. If the gun doesn't set squarely, the lube'll squirt out around the fitting instead of entering the bearing. So just send away for your 90° marvel-fitting now—they call it "Elbow (body), lubricating fitting, 90° angle 1/8-27NPT, male x 1/8-27NPT, female," and the Fed. Stock No. is 45-E-8902. It's listed in ORD 5, SNL K-3.

That might also suggest a way out of some of your other fittings problems. To be greased or not to be greased—like to be graduated or not to be graduated—may be just a question of degree.

M18 Starters

It did your heart good to see those M18 gun motor carriages rush into the Battle of the Bulge last winter with so many dough-foots piled on, you could hardly see the vehicle. But there was much too much trouble with the starter motors that could have been avoided.

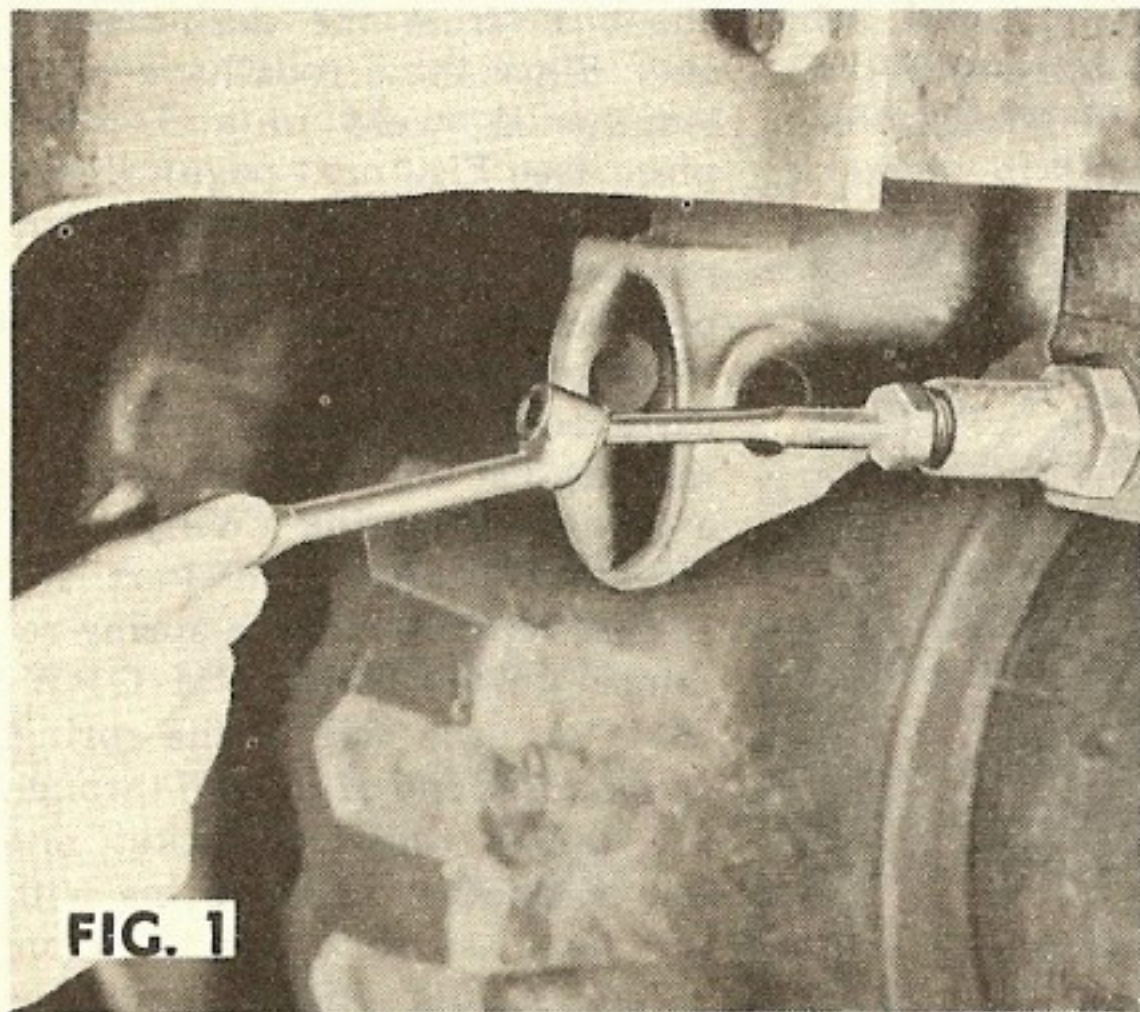


FIG. 1

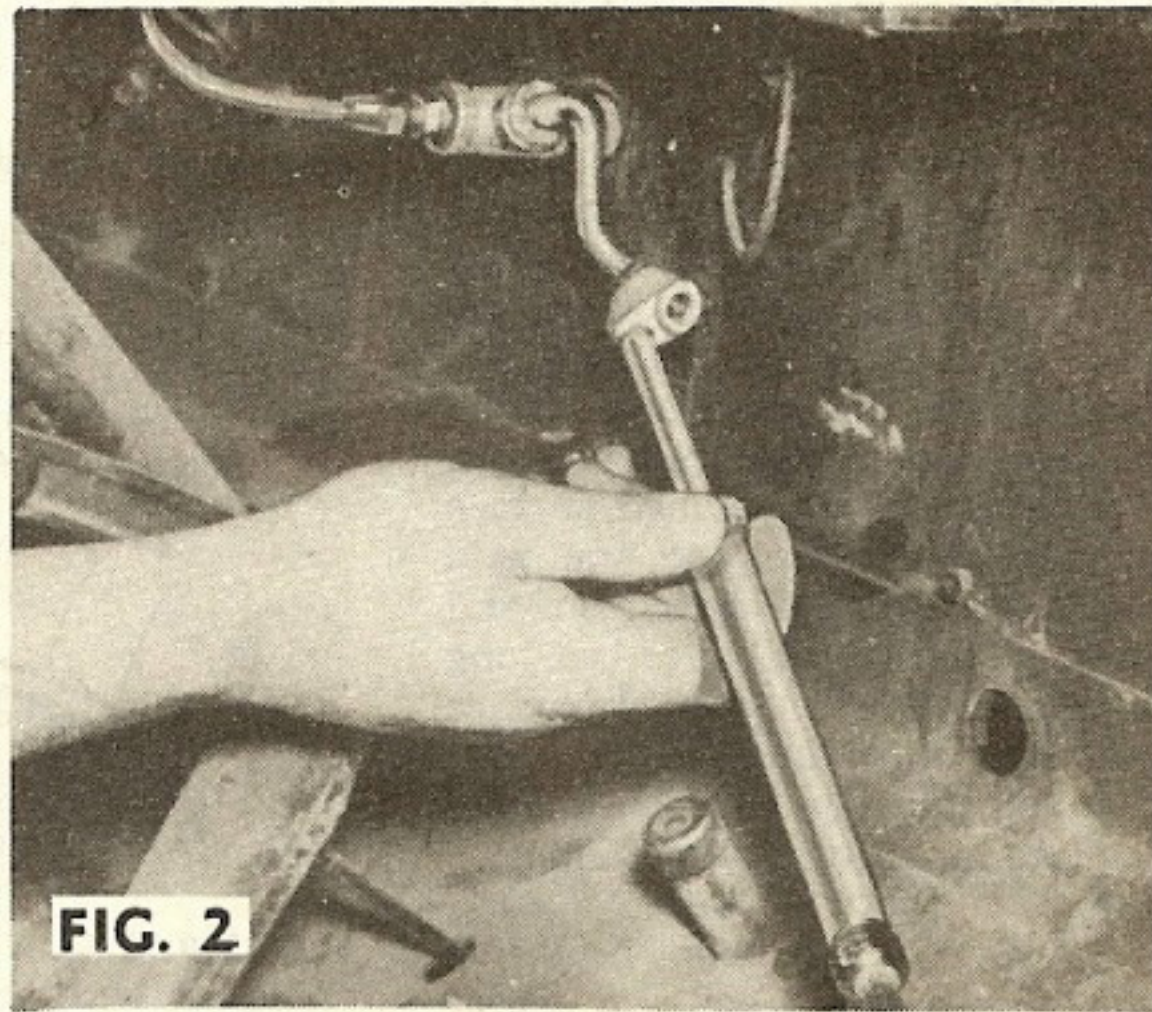
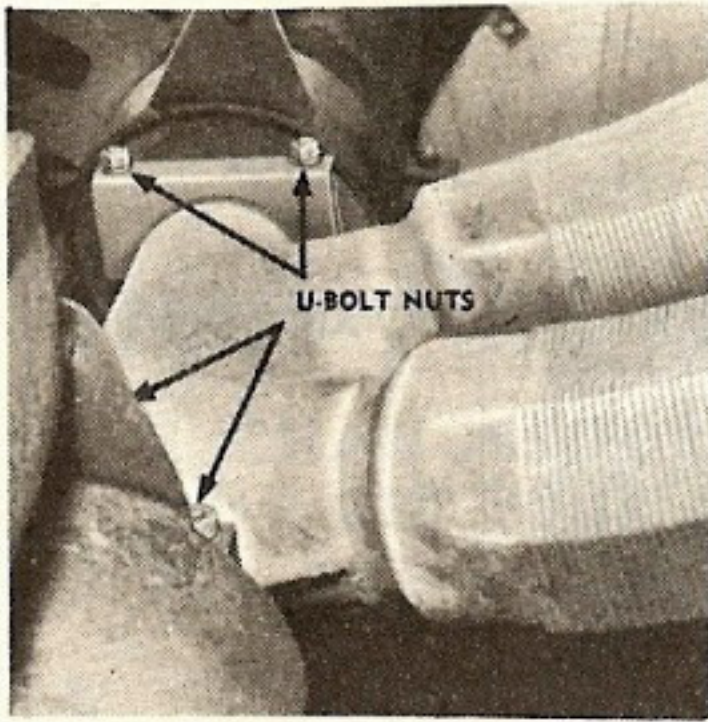


FIG. 2



The cause of the trouble was the flexible exhaust pipes and the way they hang over the starter motor like a sword hanging by a hair (see Fig. above). Maybe what I should have said is that the cause of the trouble was the U-bolts holding the exhaust pipes to the mufflers.

When these U-bolts were allowed to get loose, they let the flexible exhaust pipes sag down. These pipes really get hot. When they sagged, they threw all that heat into the starter motor. The starters burned up—the insulation was baked right off the windings.

It's a bloody shame to put these galloping 76-mm guns out of action because of a snuffed starter. Leave us get those flexible pipes up where they belong and keep those U-bolts tight.

Autobahn Speedways

You people in the ETO may have been surprised to run into a lot more spring breakage when you reached the high-speed autobahns in Germany than in the good old rough-shod operations west of the Rhine. Why should good roads break more springs than rough roads? Well, you take an overloaded truck, give it to a driver named "Speedy," and send it off on one of the German super-highways. Speedy gets the truck going up to where it's singing in high-C and all of a sudden a chuck hole pops up in the road. The overloaded truck comes down on it with a crash, going 50-60-65 mph. You're lucky if all that happens is a broken spring.

Also, why did the statistics on busted transfer cases go 'way up

when we hit the autobahns? High speed again. Truck drivers gave in to the temptation of those clean, ribbon-like highways and opened them up. (Governors, you say? Are you kiddin', bub?) The transfer cases were never built to stand up under 50-60-65 mph speeds for long stretches. They just pulled apart under the vibration.

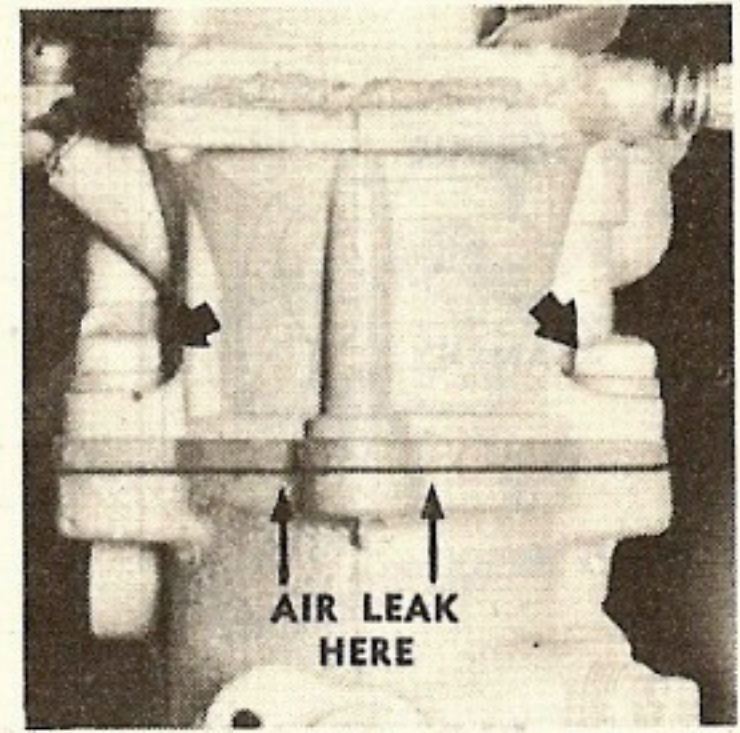
I've got my own personal driver-training program for this type of character. All I need is a club—with a nail in the end of it.

GMC Carb Idling

I've got the answer to why a lot of people can't get the Zenith carburetor on the 2½-ton GMC to idle properly.

It starts with leaving off the brace that supports the air cleaner on this job. Then, in order to properly support the unbraced air cleaner, they tighten up all the screws on the carburetor. This includes the two screws on the ears of the carburetor (see Fig. above, right). The carburetor is white metal—drawing down these two screws causes the bowl face at the throttle body to warp, right there along the gasket. Warping makes just enough of an opening to let air leak into the carburetor at this point.

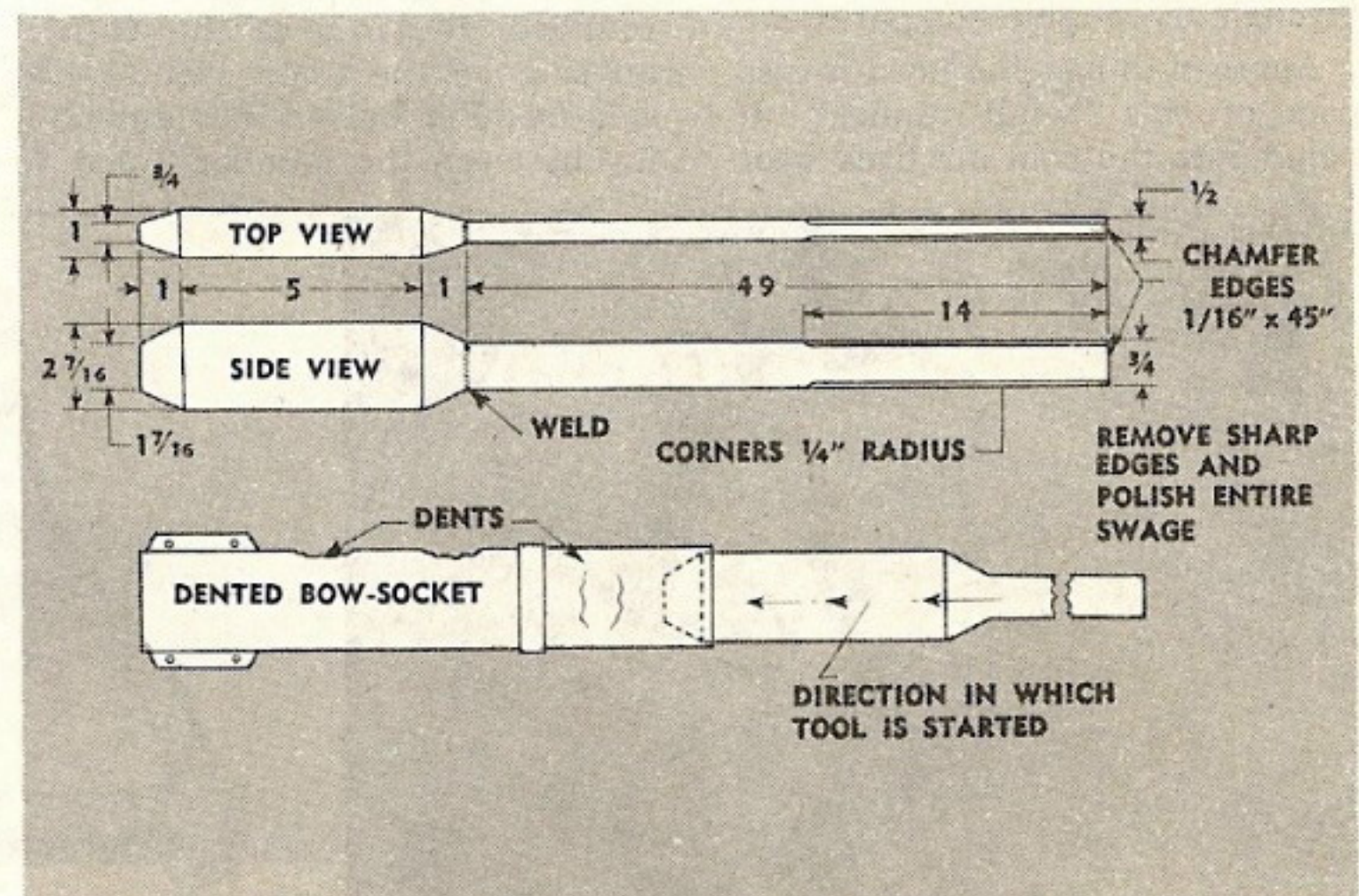
If you get the carburetor to idle with this air leak, you're a better C-and-I man than I am, Gungadine.



Bow-Pocket Straightener-Outer

If the stake or bow pockets on your cargo vehicles get so banged up and dented that you can't budge the stakes or bows in or out, you can make a tool (see Fig. below) to hammer the pockets back to their original shape (TB ORD FE37, 24 Apr. 45). It's best to make this swage out of tool steel—second-best to make it from mild steel that's been case hardened. Once you've got the tool, it takes only a minute to insert it in the pocket as a form to hammer out the dents, though you may have to heat the pocket where it's dented in order to do a good job.

Of course, the bow must come out before the swage can go in. But don't let that stop you—see ARMY MOTORS, Jan. 45, p. 290.



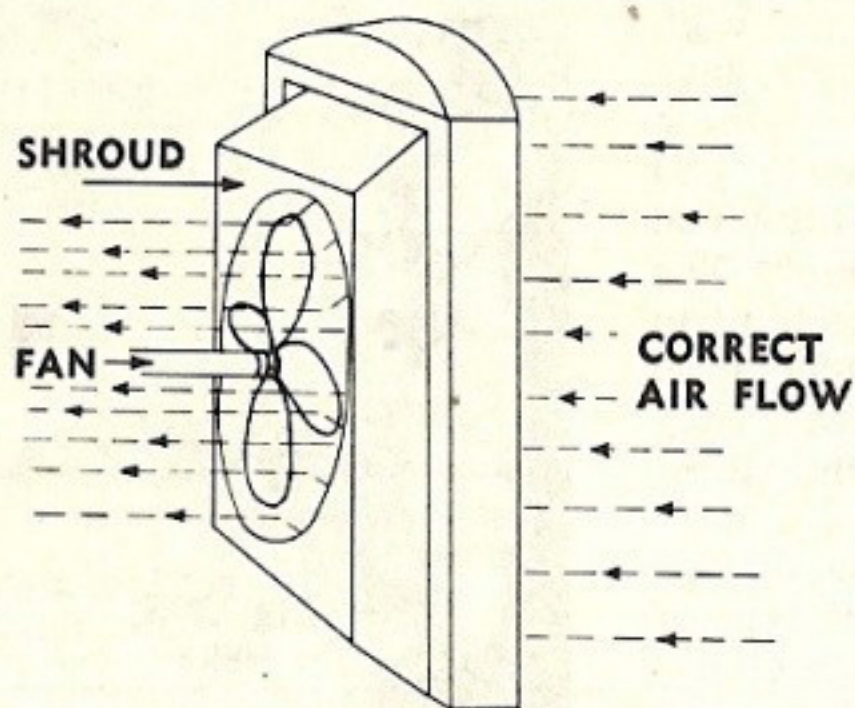


FIG. 3—WITH SHROUD

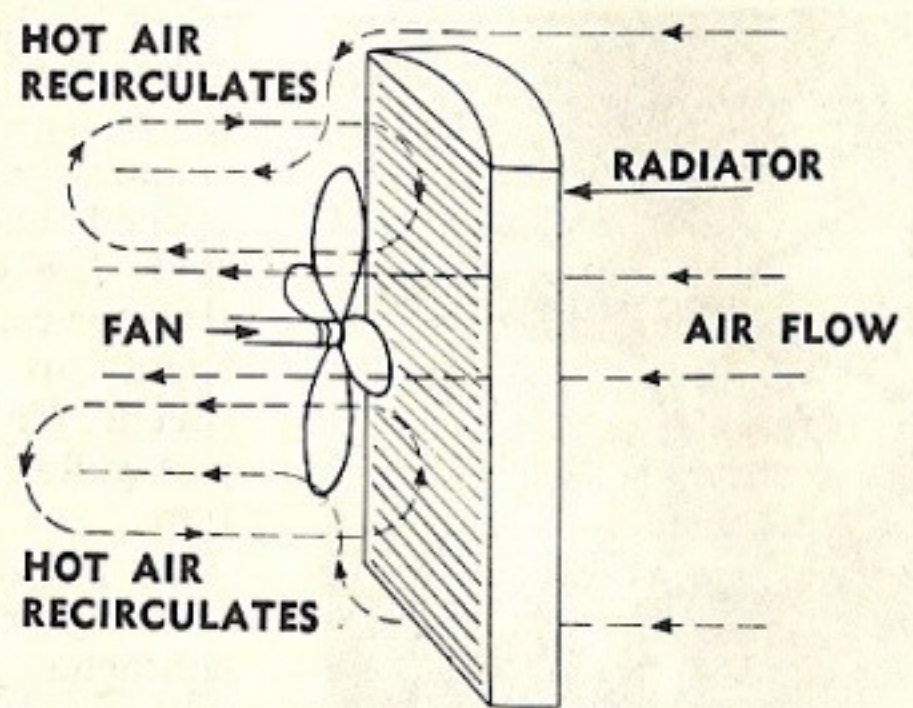


FIG. 4—WITHOUT SHROUD

Why a Fan Shroud?

If you've ever wondered whether the fan shroud and shields on your favorite hack do anything but get in the way, you'll be interested in knowing they're a good part of what keeps your engine from making like a blast furnace in a heat wave. So—no matter how unhappy it makes you—better just keep your shroud on.

With the fan operating, the shroud and shields act together as a sort of wind tunnel which sends a small hurricane through every square inch of radiator core (see Fig. 3) and puts a quick chill on the water inside. This controlled-blow arrangement keeps air from getting a free ride by crawling around instead of through the radiator (Fig. 4). In addition, it keeps hot air from recirculating through the engine compartment.

Another thing—the hood is also part of this "wind tunnel." It helps pass the cool air back over

the engine, and if it's left open, you'll just have another chill breeze that blows no good. But, if you keep your shroud on and your hood buttoned down, life'll be cooler in the engine department.

Pulling Autocar Transmissions

In the midst of removing a transmission from your Autocar U-7144T, U-8144, or U-8144T, you find—as the transmission case is moved to the rear—that the flange of the clutch housing strikes against the exhaust pipe and stops you cold. Whereupon you cuss and take off the exhaust pipe and muffler so you can finish removing the transmission.

Not after you read this, you don't.

What you do is cut off that rounded section of the clutch housing on the upper-right-hand side (see Fig. below, left) extending between the number 2 and 3

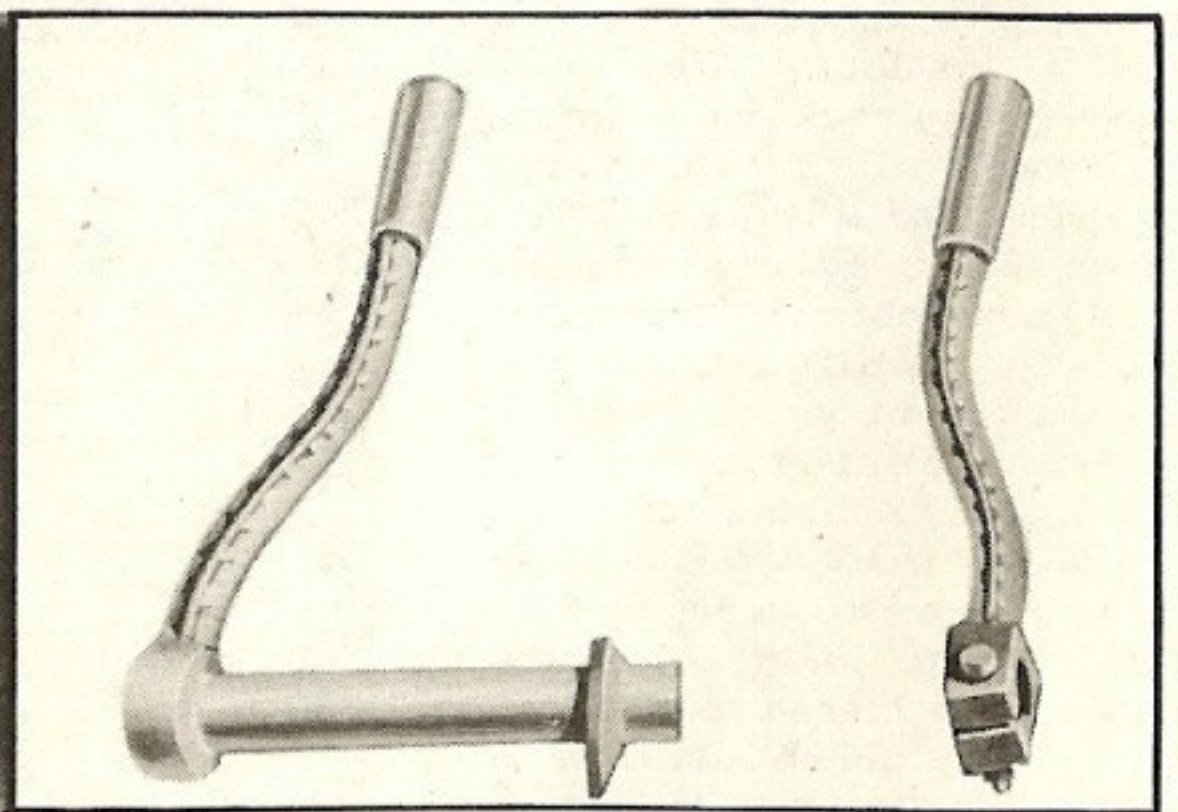
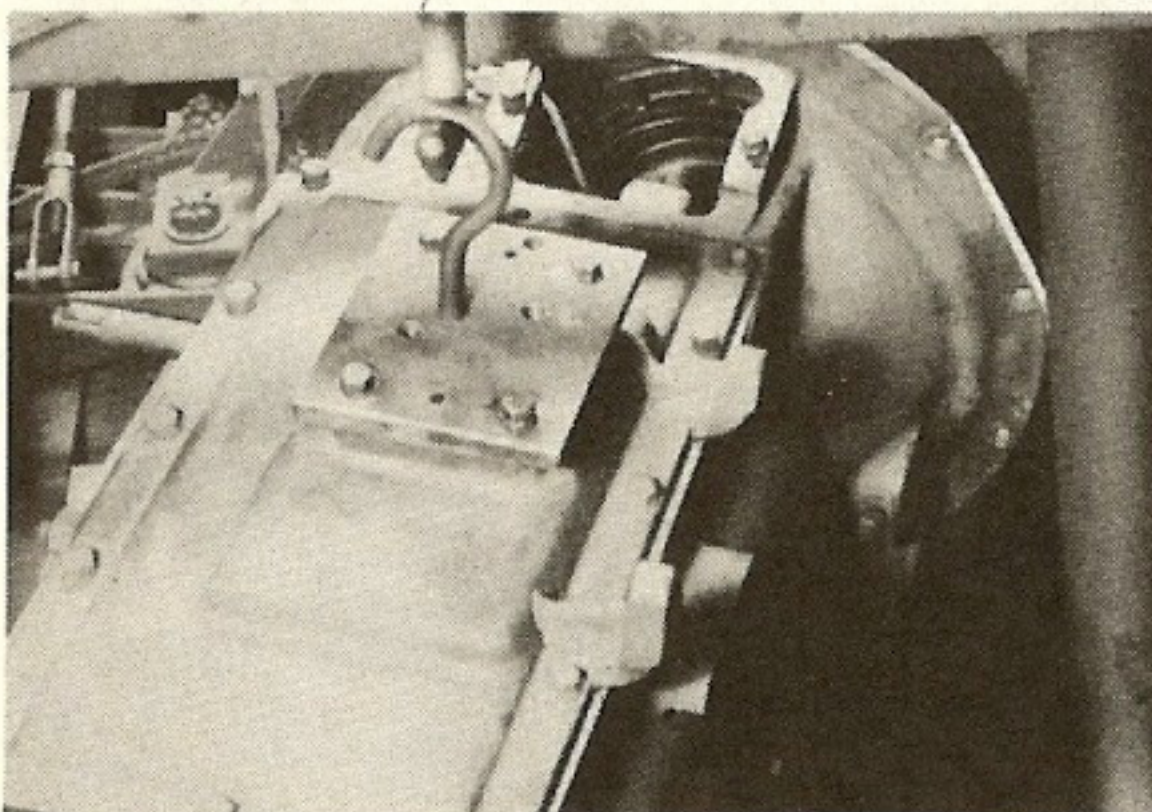
bolt holes. (If Joe Dope is listening, please leave enough of the flange there so you don't cut away the bolt holes. And be sure to support the transmission.)

Now you find that, by rocking the rear of the transmission toward the left-hand frame-rail, you can clear the exhaust pipe and lower the transmission case to the ground. Just like that.

Weasel Steering-Levers

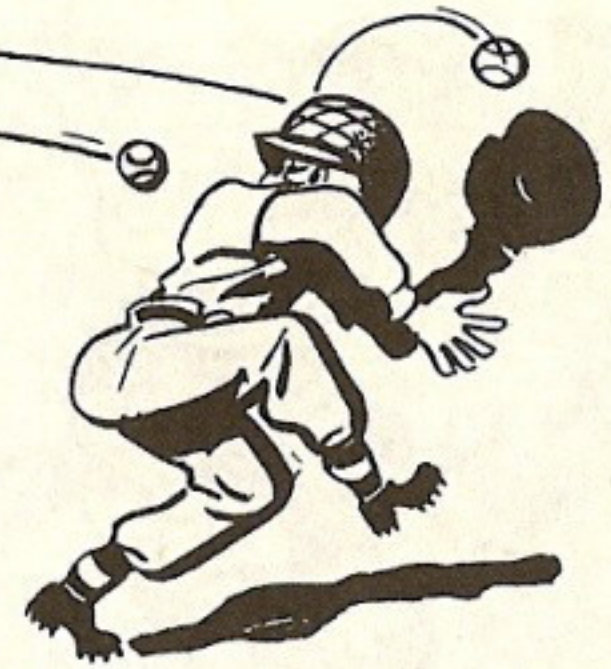
There've been reports of trouble with M29 and M29C steering levers, so here's a preview of a fix-it that'll be in TB ORD 9-772 FE6.

Remove the offending steering lever and straighten it to its original form. Shape a piece of 5/16" rod to fit the lines of the lever where it needs reinforcement and weld it to the forward side of the lever. Police up the job and put it back like you found it, only better—like the Fig. below.



Triple-Play on M8's & M20's

3 CHANGES-FOR-THE-BETTER THAT'LL HELP GET YOUR ARMORED CARS IN TRIM FOR THE BIG PUSH ON SO-SORRY LAND



First off, the info on valve-tappet clearance in TM 9-743 (21 Feb. 44), par. 55c, is now known to be off the ball. For the exhaust and intake valves of your armored car, make the clearance **0.010 inches** when the engine's at operating temperature—and you'll have happier valves from then on. (If you've got an M3A1 scout car, the same change in valve clearances is called for.)

Second, you've probably been heaping harsh words on the oil bayonet-gage of your armored car because you can't get a correct oil-level reading. The gage carries a 4/4 mark and no refill mark—so there's no way to tell when the oil level has dropped to the danger point. On top of that, the old dipstick is made of low-carbon steel and gets bent all to hell. Here's a first-class remedy, if you can get it: A brand-new gage that's marked both "Full" and

"Add" has been released for issue. Being spring steel, it'll bend but snaps back into shape. Order an oil-level-indicator assembly (HM 42423-BS), Item Stock No. G136-7329506, through regular supply channels.

The last item is an old, familiar headache that maybe you've worked out by now. But if you haven't, here's an aspirin: The steering column on M8's and M20's doesn't have much in the way of protection to keep water from col-

lecting in the underside of the steering-wheel hub. Once it gets down there, it can (and does) cause you all kinds of steering trouble. Try making a cup from sheet metal, by following the dimensions in Fig. 1. When it's made, remove the steering-wheel unit and install the cup over the steering-gear jacket-bearing spring (Fig. 2). Slap the steering wheel and nut back on (Fig. 3) and your troubles—in this line—are over.

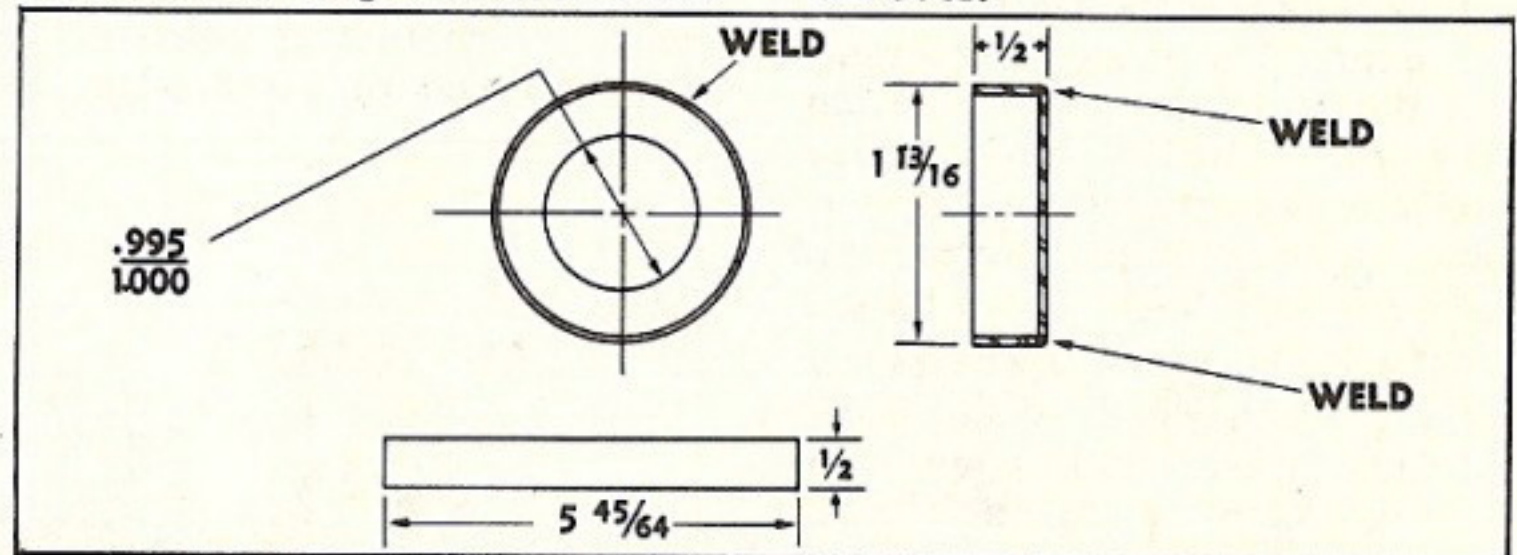


Fig. 1—Make the cup to the dimensions shown here.

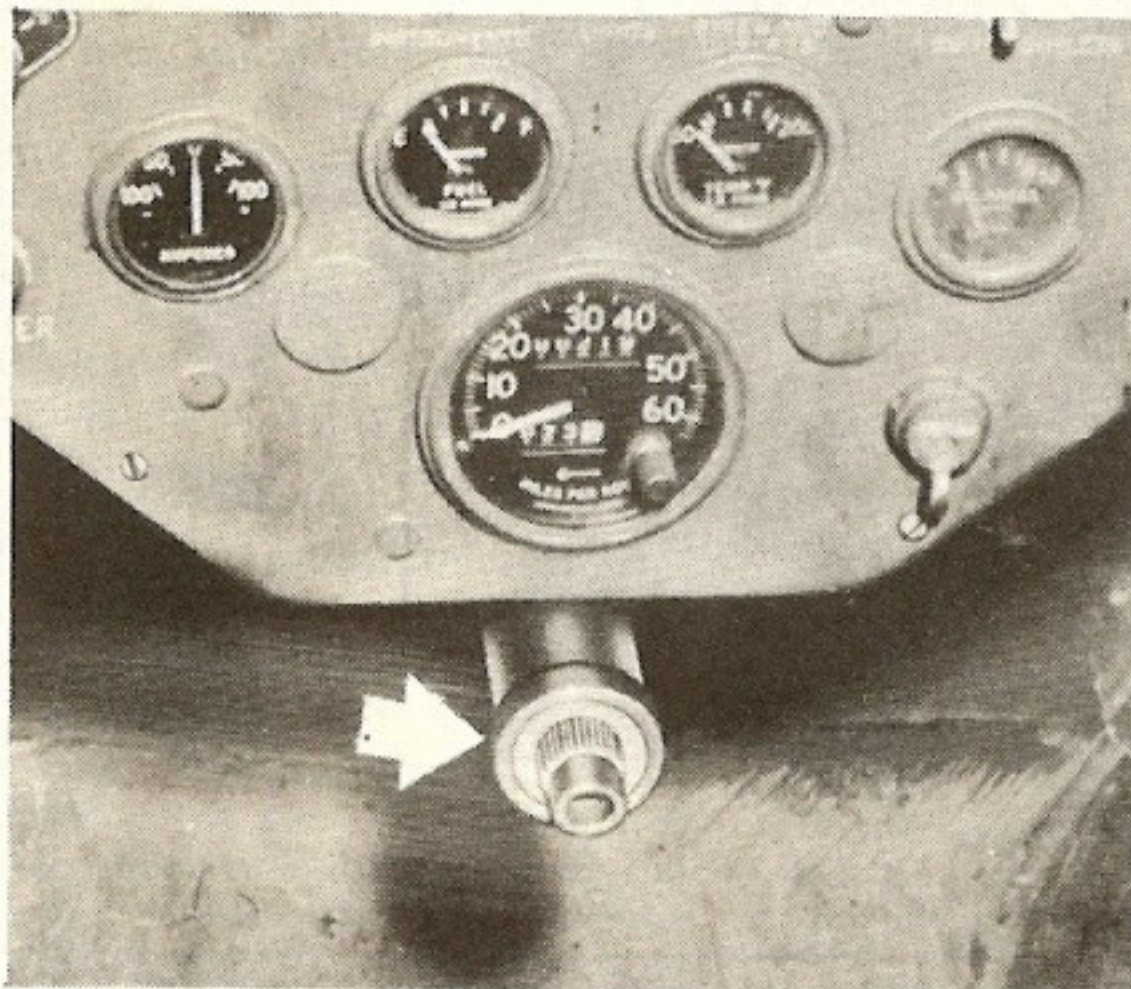


Fig. 2—The cup fits over neatly, just like this.

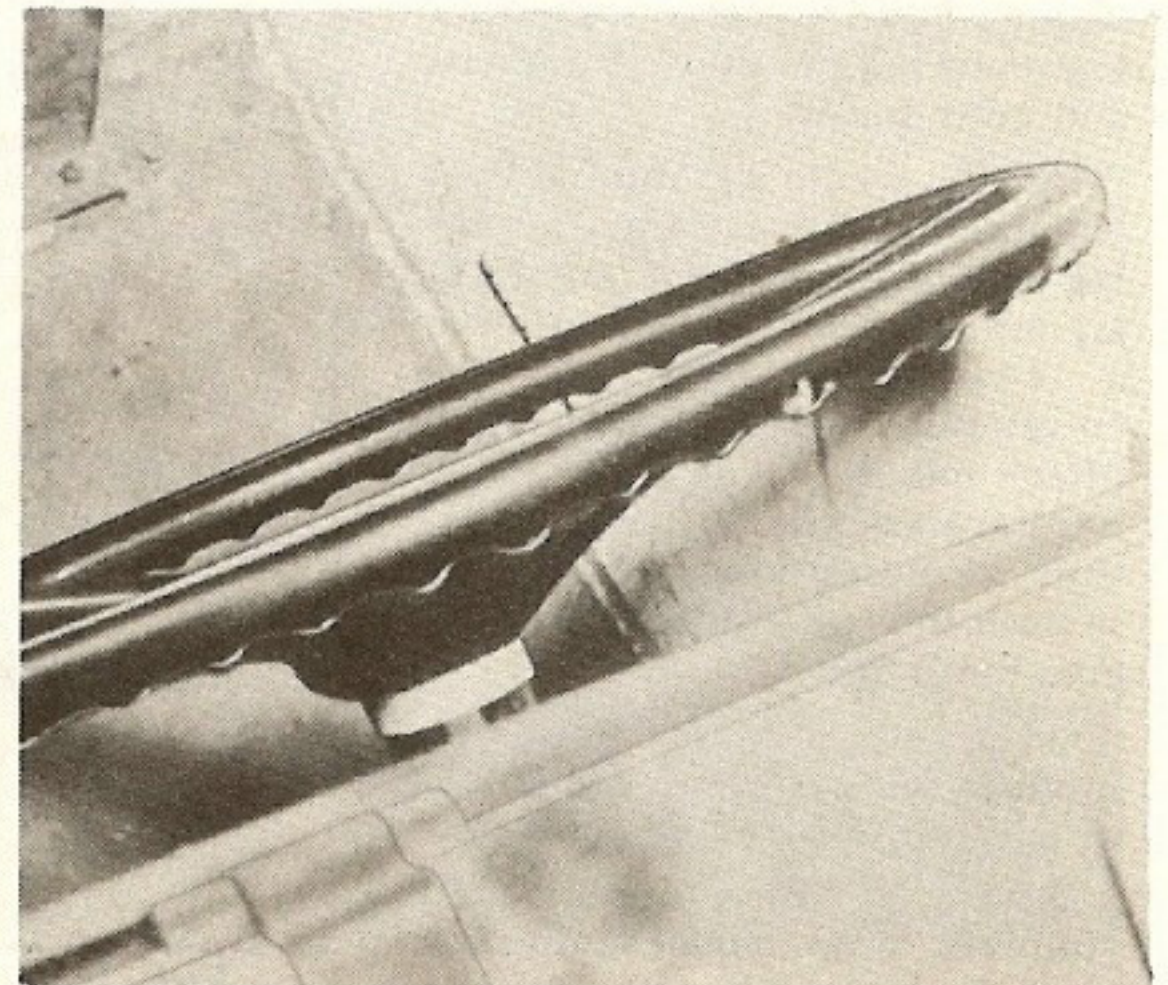


Fig. 3—Everything's ready for the take-off.



A Kid can adjust Air Brakes

**DON'T LET THE HIGH PRIEST MAKE A SUCKER
OUT OF YOU. IT'S A SIMPLE 15-MINUTE JOB**

In many outfits, the mere mention of air brakes is enough to produce an expression of stony ignorance on the faces of most of the mechanics. Usually—too usually, anyway—there's only a couple of men in the outfit qualified to make a minor adjustment on air brakes.

These hearty souls occupy the role of High Priest of the Blow-It-Out System and when summoned forth to do their stuff, usually roll the truck far away from the work area in order not to reveal their secrets, and to retain their high position in the nuts and bolts society.

But the whole situation is a lot of nonsense—because there's nothing complicated about adjusting air brakes. Hell, you could teach a 14-year-old kid to make the "mysterious" minor adjustment in fifteen minutes. All the tools you need are a six-inch steel rule, an eight-inch crescent, and somebody to push the brake pedal when you give the signal.

Okay, all you 014 gen'l mechanics, roll up your eyelids and behold how simply it's done.

For background information, all you have to remember is that the truck is braked by air entering from the brake-valve through the

air inlet (watch Fig. 1 closely) into the brake chamber, forcing the brake-chamber diaphragm forward. The diaphragm pushes the push-rod and slack-adjuster forward, which in turn operate the camshaft and cam and push the

brake shoes out toward the drum. (That big spring in the Fig., plus the brake-shoe-return spring, merely returns the whole works to the "off" position.)

Now, the purpose of your minor adjustment is to take up slack caused by normal wear of the linings. In the air-brake system, it'll also—and this is very important—keep the diaphragm in the brake

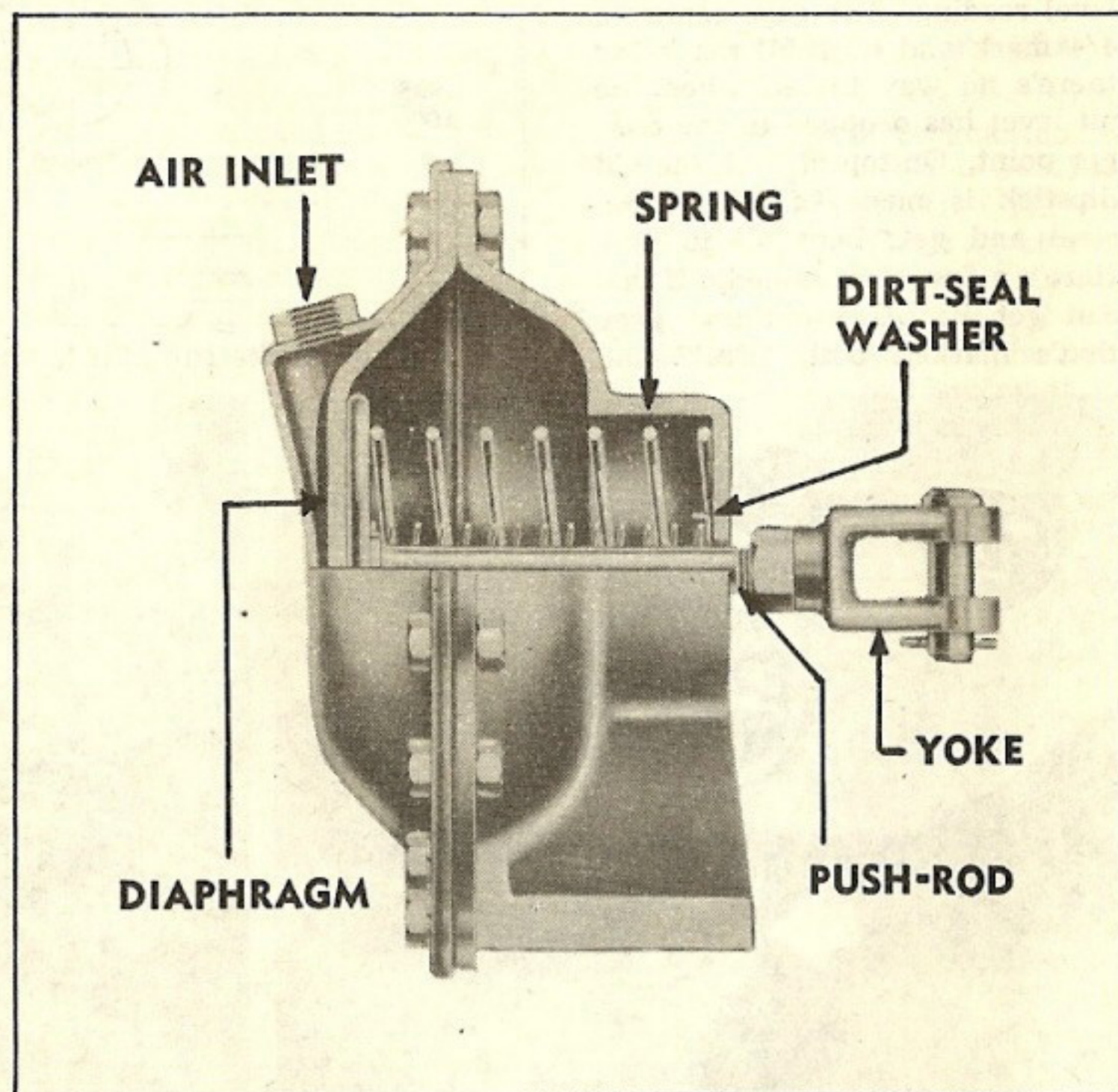


Fig. 1—Nothing mysterious about the brake chamber. Air enters the inlet, pushing the diaphragm and push-rod forward.

chamber from bending over backward to do its work.

The adjustment is made at the adjusting-worm stud (see Figs. 2 and 3). By turning the worm in the right direction, you obtain the proper lining-to-drum clearance. The worm does this by changing the position of the brake camshaft. (The poppet ball and spring, shown in Fig. 4, hold the adjustment locked.)

All right, now you have seen how the brake chamber converts the power in the air pressure into the big push necessary to expand the brake shoes against the drums. Also how the slack-adjuster serves as a brake lever during the brake application and provides the means of making a simple brake adjustment.

Let's go ahead and actually make a minor adjustment. To make the adjustment, we'll simply turn the adjusting-worm stud (Fig. 2 again) in the proper direction, letting somebody step on the brake pedal, and measuring the travel or stroke of the push-rod with the steel rule.

First, we identify the type of brake chamber on our particular vehicle and find out the travel that the push-rod for this particular type should have when in adjustment. The little chart (Fig. 5) gives you the adjustments for our major air-brake vehicles. The first column gives you the stroke or travel at which the brakes are in perfect adjustment. When the travel gets close to or beyond the figures in the second column, it's time for adjustment.

Let's say we're operating on the 4-ton Diamond T wrecker. Okay, start the engine and run it long enough to build up to at least 80 lbs. on the air-pressure gage. Be sure the pressure stays above 60 lbs. during the adjustment.

We're working on the front wheels first (the brake chambers at the rear are slightly larger and the measurements are different). Squat down and place the end of your steel rule directly over the center of the push-rod clevis-pin (Figs. 6 and 7), and anchor the other end firmly on the tire. Now signal your boy up in the cab to

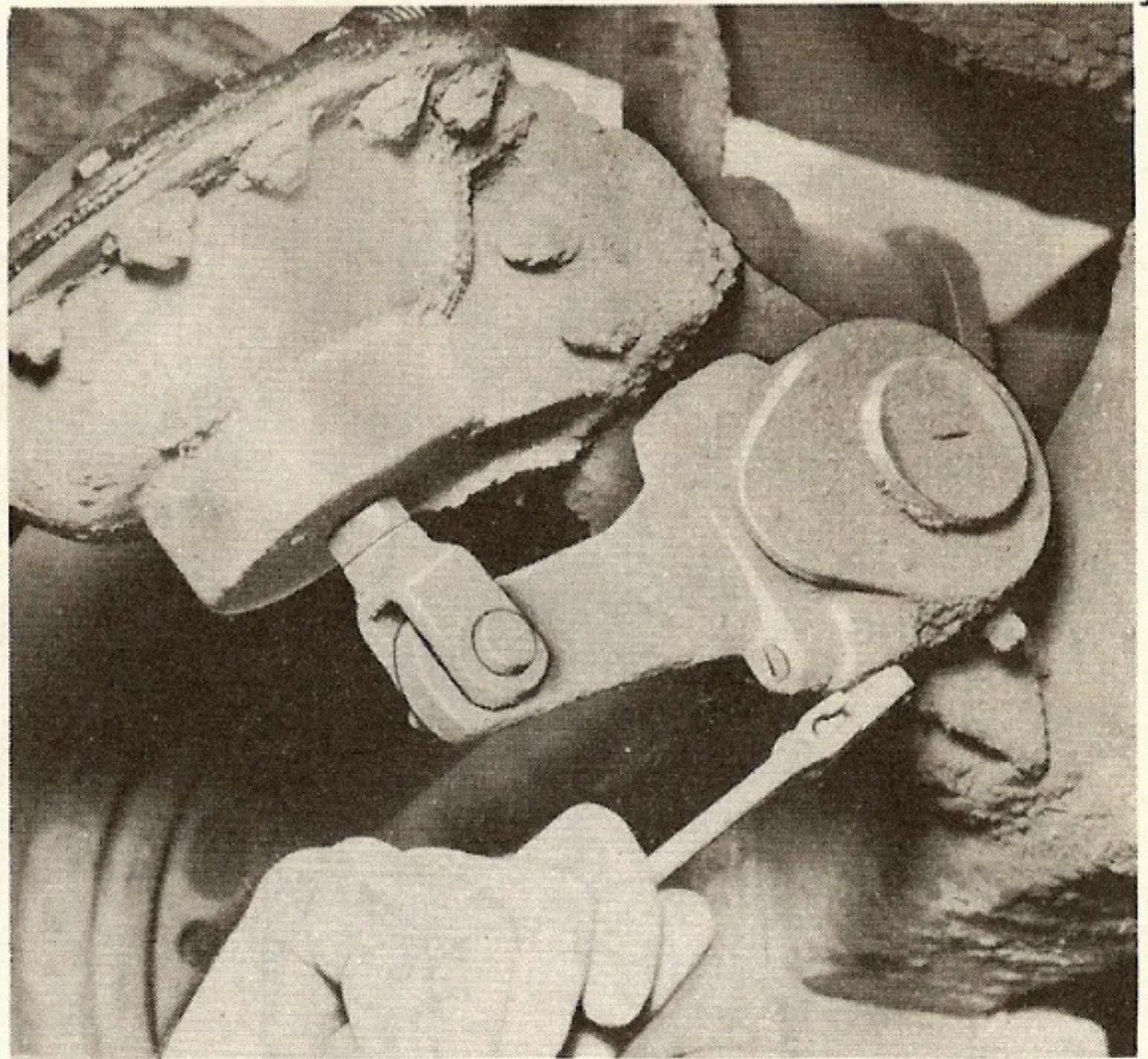


Fig. 2—Making the minor adjustment at the rear axle. Put a crescent wrench on the stud and listen for the clicks.

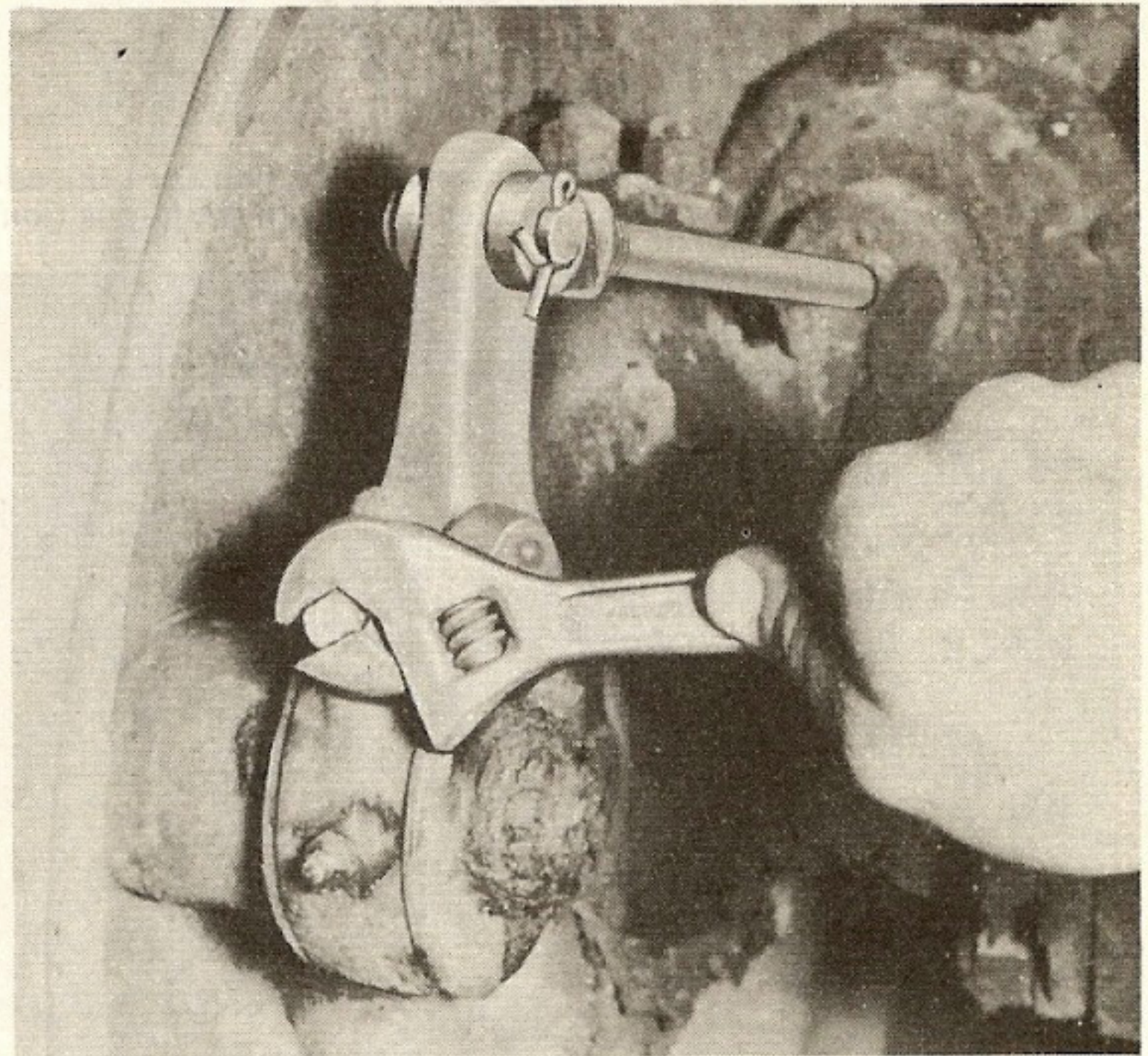


Fig. 3—Making the adjustment at the front axle. Just a crescent wrench on the worm stud is all it takes.

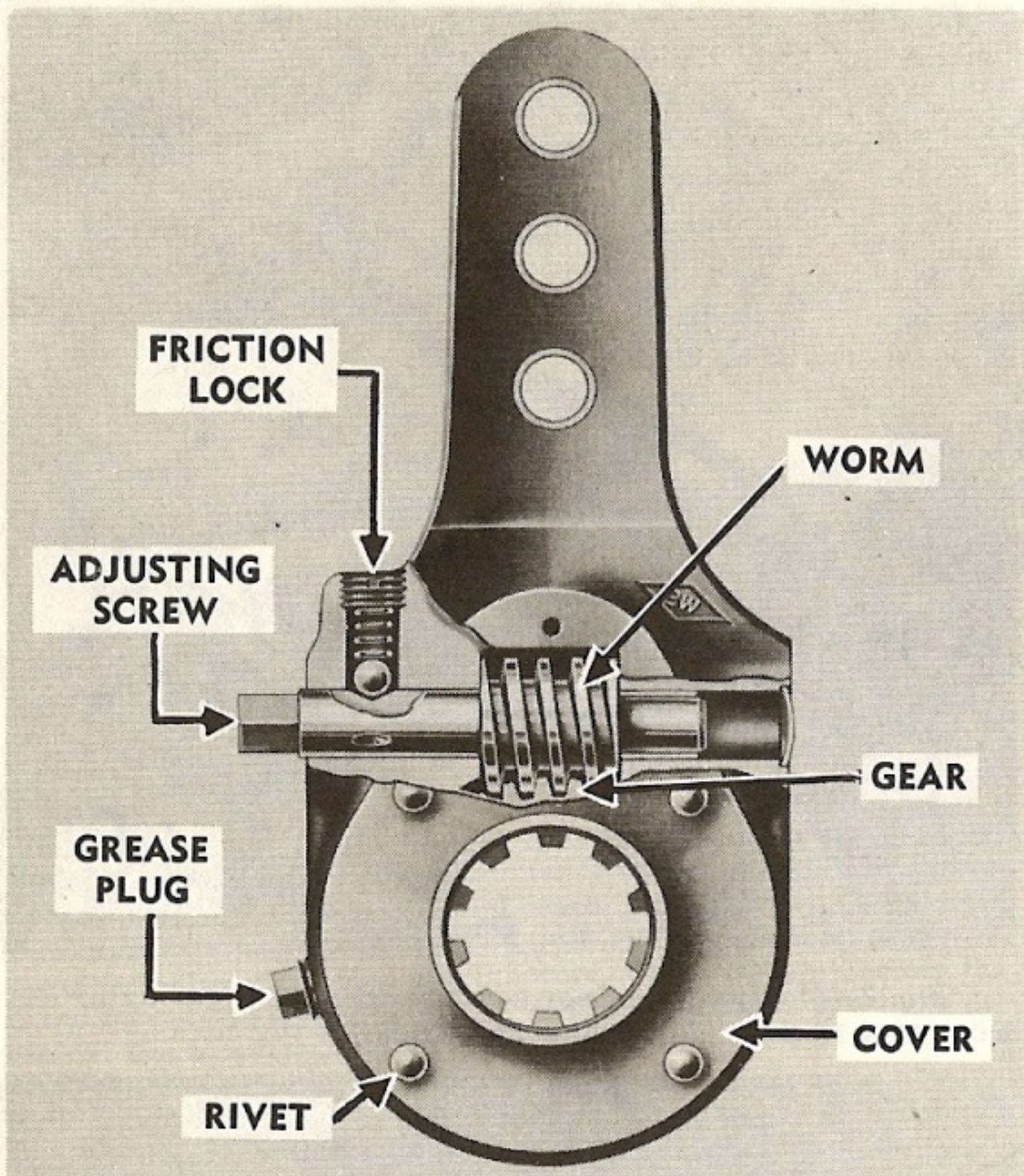


Fig. 4—Secrets of the slack adjuster. When you turn the adjusting stud, the worm turns and changes camshaft position.

FRONT BRAKE CHAMBERS

	Perfect	Readjust at
DIAMOND T 4-ton 6x6	5/8"	1 3/8"
FEDERAL 4-5-ton 4x4	5/8"	1 3/8"
AUTOCAR 5-6-ton 4x4	5/8"	1 3/8"
MACK 7 1/2-ton 6x6	3/4"-7/8"	1 3/8"

REAR BRAKE CHAMBERS

DIAMOND T 4-ton 6x6	3/4"	1 3/4"
FEDERAL 4-5-ton 4x4	7/8"	1 3/4"
AUTOCAR 5-6-ton 4x4	3/4"	1 3/4"
MACK 7 1/2-ton 6x6	7/8"-1"	1 3/4"

Fig. 5—Here are the figures (from TM's) on brake-chamber push-rod travel. When it gets near those at right, get busy.

push the pedal all the way down to the floor. Measure the travel as the push-rod comes back. If it's close to or over the figure in the chart—for our Diamond T wrecker, that's 1 3/8"—then an adjustment is needed. At this figure, the diaphragm in the brake chamber is being over-flexed in order to do its work.

To make the adjustment, put your crescent wrench on the worm stud and turn it clockwise about two clicks (the clicks come from the poppet ball). Measure the push-rod travel again. Keep doing this until you've got the travel down to what's specified on the chart. (If you should happen to set it up too tight, you turn the worm-stud counter-clockwise to correct it.)

As an additional happy feature, you can make the adjustment without jacking up the truck—if you know the wheel-bearing adjustment is right. If not, the truck has to be jacked up. Check your job at this time by inserting a feeler gage through the inspection hole and checking heel and toe clearances as specified in the vehicle TM.

Although the brake chambers on the rear axle are slightly larger and are mounted a little differently, don't let this upset you. The adjustment is made the same way. Just check your manual to get the correct push-rod travel, or consult Fig. 5 for the figures.

As a newly ordained High Priest of the Blow-It-Out System, you will soon discover that it's a common thing to find the stationary type of brake-shoe anchor-pins on the rear axles of air-brake jobs—so a minor adjustment is the only adjustment you'll be making on the rear axles. On the front axle, however, most air-brake jobs have adjustable anchor pins—and these require a major adjustment.

You won't have to worry about this too much, though, because that nice fat brake lining on air-brake jobs ought to outwear the damn drums.

However, if you are ever confronted with a brake-relining job and are summoned to make the major adjustment, just remember it's made the same way as on the

jeep, the Dodge, or the GMC: Loosen the locknuts on the anchor pins. Turn the pins toward the axle (always toward the axle) while you hold a .015 feeler gage through the inspection hole, between the lining and the drum. When the gage is just snug, but not tight, tighten the anchor-pin locknut to hold the adjustment. Recheck the adjustment. If it's .015 on the nose, the heel adjustment is okay. Adjust the other shoe.

With the anchor pins adjusted, go ahead and make the "minor adjustment" of the push-rod travel as above. This will take care of the toe.

There are certain other little tidbits of advice you will be wanting to fling about casually now that you are a Wizard. One of these is that by keeping that brake travel down as close to "perfect" as possible, you'll be cutting down the flexing of the diaphragm in the brake chamber. This'll make it last longer, less air will be used—which'll give the air compressor time to take ten now and then—and all-around brake performance will be better.

To astonish the driver with your knowledge, you will point out to him that because the air pressure within the reservoirs is considerably higher than atmospheric pressure, a lot of water will condense and accumulate in the reservoirs. This moisture is poison to all valves and units in the air-brake system. Show the driver, in a fatherly way, how he can avoid all this by opening the blow-off valves and allowing the reservoirs to drain after each day's operation.

Remember that the slack-adjuster, with its little worm and worm gear, is nothing but a little gear box. It needs its oil. The filler plug is also the level plug. Check it often.

Bursting with all this knowledge, there is practically nothing to keep you from going up to the Old Man and demanding that T/3 that happens to be open on the T/O. If he gives you a five-day's restriction instead, for needing a haircut—well, we'll be damned.

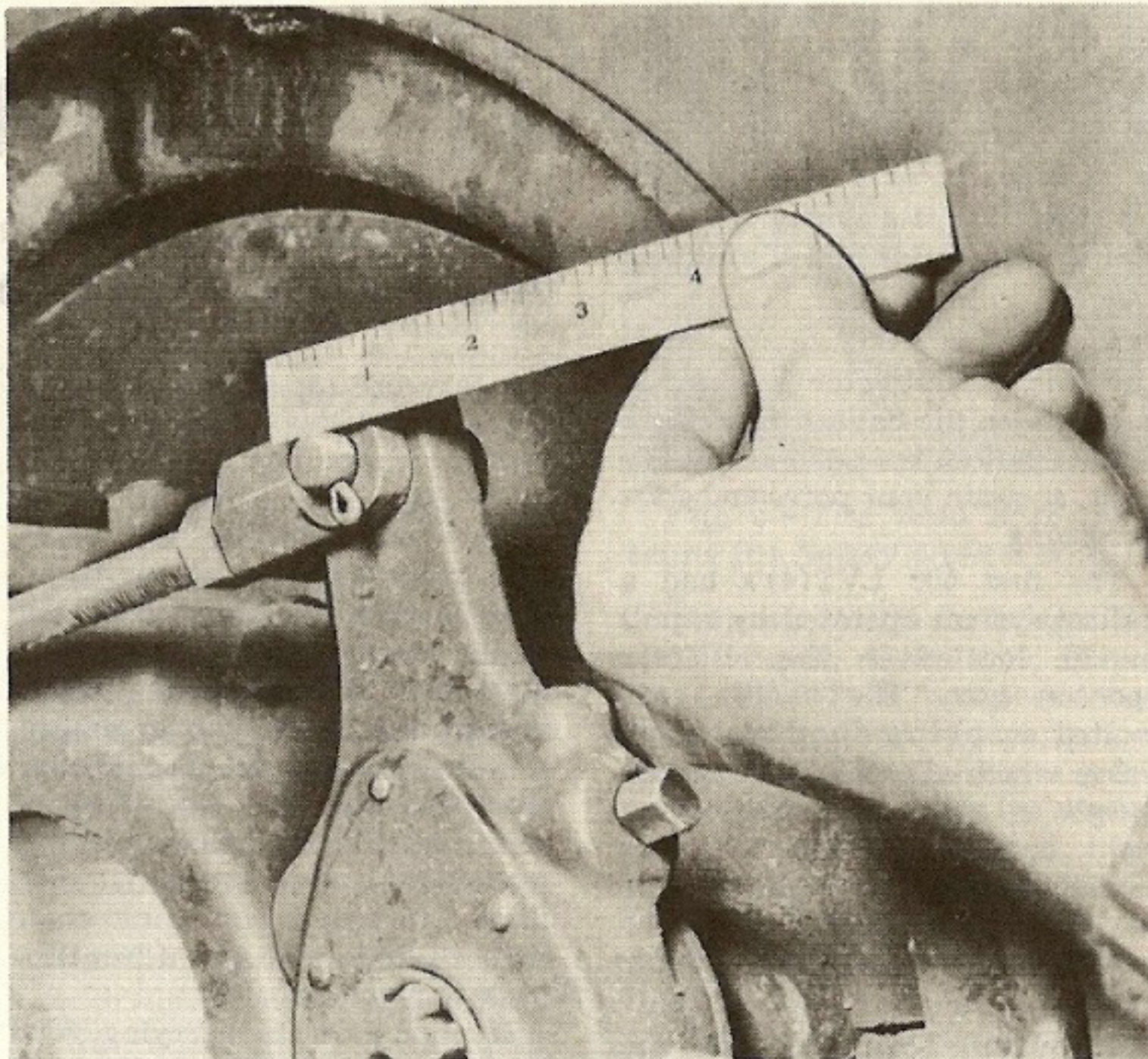


Fig. 6—Checking push-rod travel at the front axle. Measure the travel when your boy in the cab pushes down the pedal.

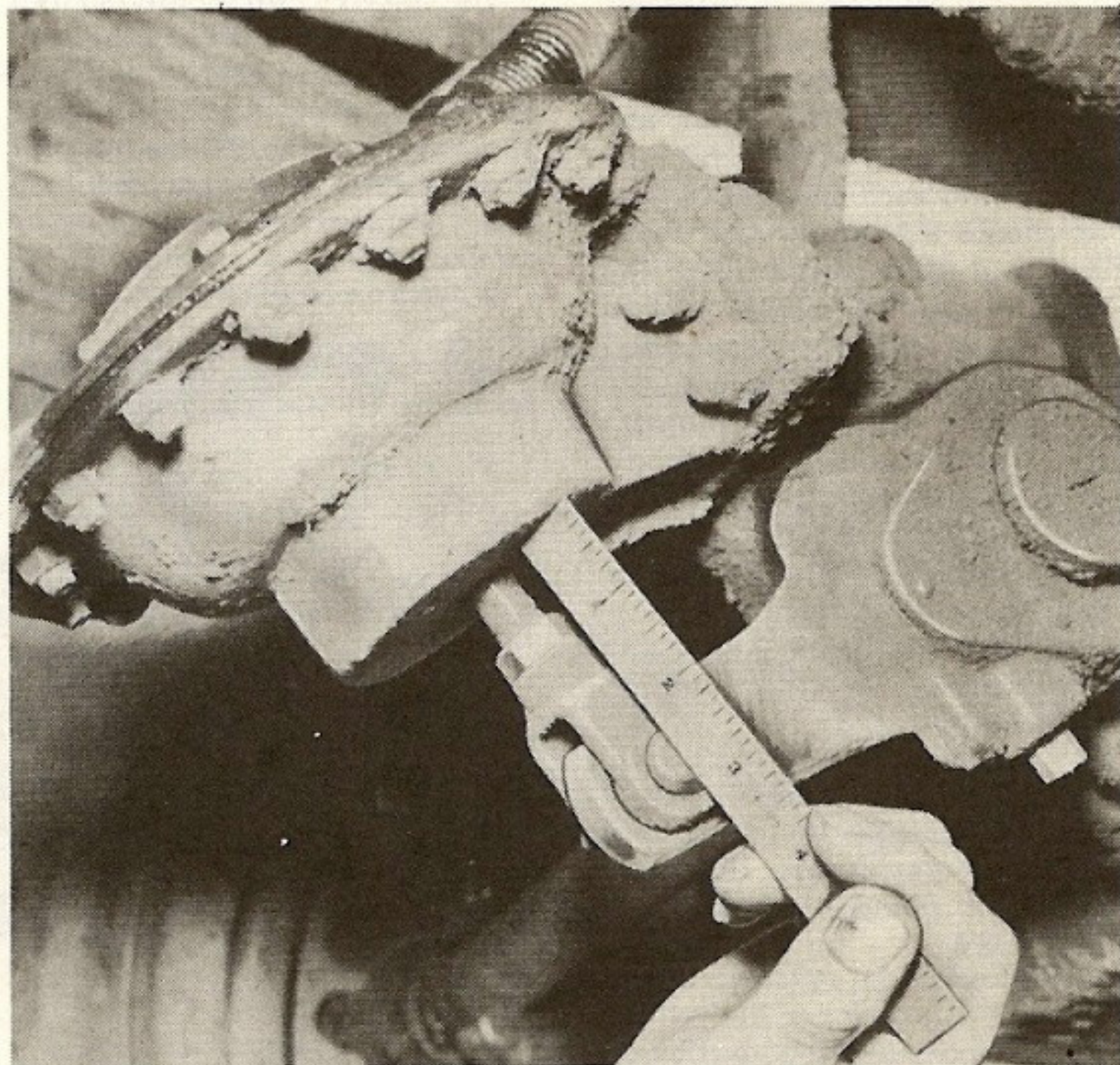


Fig. 7—At the rear axle, hold the rule against the brake-chamber body. Measure push-rod travel same way as at front.

NEW POOP ON THE LVT

*Oh, the LVT is a lovely boat—
Fill it with water and it still will
float.*

That is, if the water is where it belongs—in the ballast tanks. The ballast system has been changed a little, so drain your pores and start absorbing.

The first 500 LVT(4)'s had a ballast system operated by a pull handle located in the left-rear sponson box. The handle controlled a spring-loaded ballast valve which allowed the water to gurgle in and out of the water-tight compartment in the rear pontoons—but once the water was in, it couldn't be drained out until the LVT was sitting high and dry again.

The later LVT(4)'s have the handles at the rear of the driver's seat (see Fig. 1). They are attached to a two-way ballast valve underneath the compartment floor. The sea enters and drains through a 3" pipe which connects the ballast valve, the ocean, and the ballast area. The vent pipe leading into each sponson locker-box should always be kept open.

Raising the handle floods the ballast system by opening the intake valve and letting the aqua-not-so-pura pour into tanks under the floor of the cargo compartment. These tanks are connected by a series of small holes so the water will be across the width of the floor section. The flow stops when the ballast compartment is filled. This adds about 2½ tons to the weight of the LVT—and it's all in the rear.

To drain the water, the handle is shoved down, closing the intake pipe and opening the drain into the bilge-pump sump. Honorable bilge-sump pump pumps sump into the sea.

Sometimes the assistant driver will find a new lever in front of him that looks like the joystick on an old-time airplane, but it won't help him fly. It's only an auxiliary pump for emergency or supple-

Including Helpful Hints About Ballast, Track Adjustment, Periscopes, Governors, Operation

mentary use for short periods.

It's a good idea to know how the system works but it's better to know how and when to use it. When you're hitting the beach with a light cargo, use your tanks. They'll give you about 5000 lbs. in the stern that'll keep the vehicle trim. **Always use the ballast system completely full or empty.** If you partially fill it and then close the sea cock so no more water gets in, the ballast will roll from side to side and you'll soon think you're on a rocking chair with a side-to-side plus a front-to-back movement.

If your LVT is carrying 5000 lbs. or more of cargo to shore, or if it's going out into the sea, keep the ballast tank empty.

The water can be drained ashore or afloat. Keep the bow down on shore so gravity will help the flow of the water to the bilge sump. Asea, keep the engine running at least 2000 rpm and hold the vehicle crossways to the swells.

When you haven't anything else to do, toss your leering eye at the intake screen and sea cock. The intake is on the port side (tight-

pants talk) forward of the pontoon, and it's no place for fruit, magazines, peanuts, or any other flotsam or jetsam. It opens into a sea cock which is for emergency use only—when you want to keep the ballast tanks empty and the ballast valve fails. The sea cock should be left open, but frequent inspections are required to see that it operates freely. Unless it's an emergency, the only time the sea cock should be closed is during operation on a dry, dusty road so the portion of the road that's floating around in the air won't foul things up.

TRACK ADJUSTMENT

How would you like to have your LVT skim through the drink with the greatest of ease? That's kind of difficult but here's something that'll definitely improve water operation.

The present track tension gives you a pretty tight track on land, but when you're in water and the bogies are relieved of the weight of the vehicle, they push out the tracks and make 'em really tight. This causes a lot of horsepower, which might be used to get more

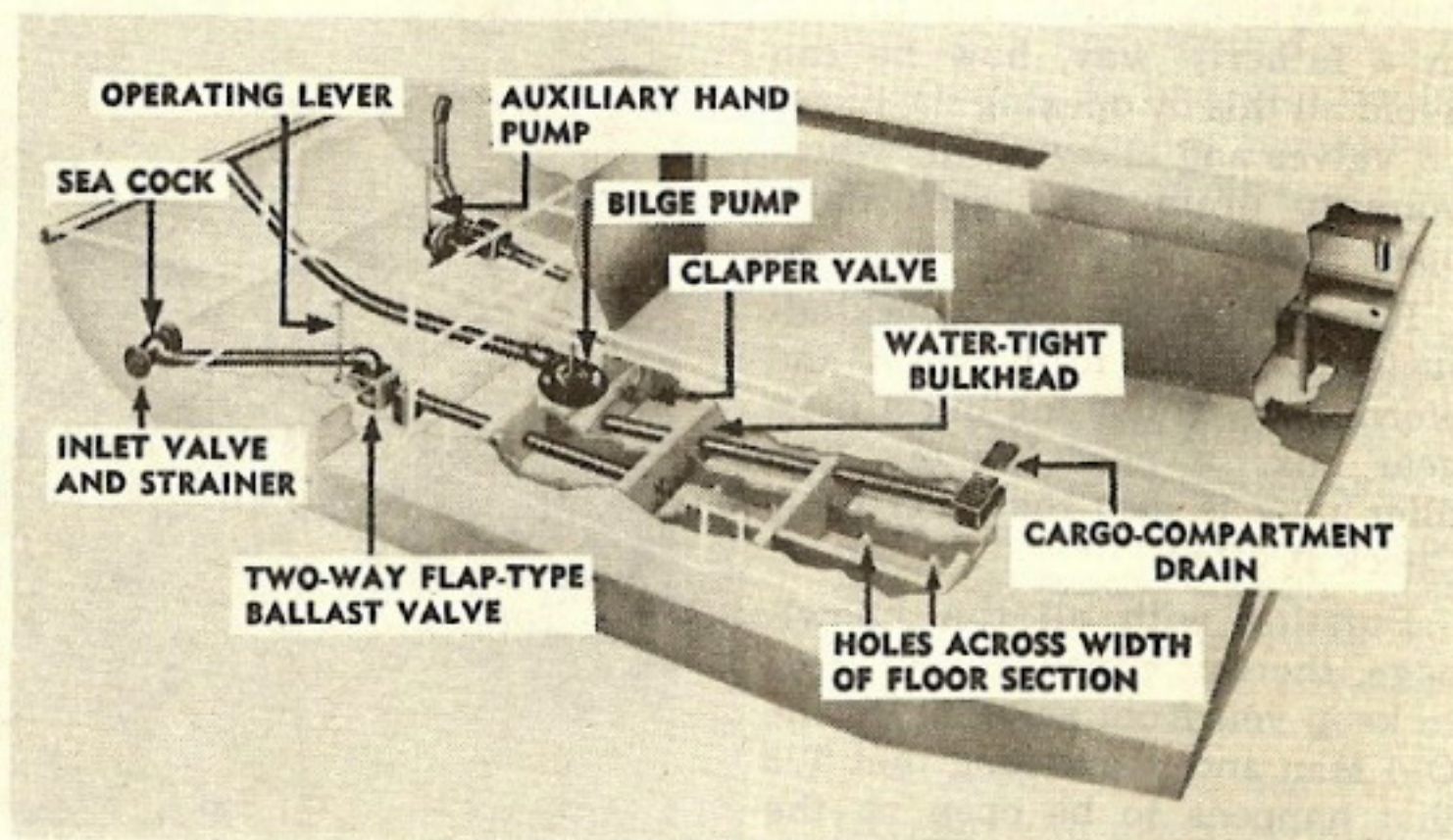


Fig. 1—Know your ballast system. Use it completely full or empty. It'll help you ride like a ferry instead of a canoe.

speed, to be wasted in overcoming the track resistance.

The new procedure (found in TB ORD 307, 25 Jun. 45) should be carried out on level ground—on a hard surface, if possible—and the vehicle should be empty except for fuel and on-vehicle equipment. The mudguard over the track-adjusting screw can be left on because you can turn the screw one notch at a time with the mudguard in place (Fig. 2). Loosen the vertical-clamp screw and the horizontal lock-pin which clamp the locknut on the adjusting screw. With the track-adjusting wrench, turn the adjusting screw so the rear-idler assembly slides to the rear, tightening the track until the slide head-cap is flush against the idler-slide bracket. Now **loosen** the adjusting screw six notches for the LVT(2), LVT(A)(2) and LVT(4); eight notches for the LVT(A)(1) and LVT(A)(4). Tighten up the vertical-clamp screw and the horizontal lock-pin and you're ready to roll again.

TRACK-ADJUSTING SCREW

Since that 33-tooth drive-sprocket replaced the 37-tooth drive-sprocket, there's been some trouble with bending in the track-adjusting screw on the LVT(4)'s.

The reduction in size of the drive-sprocket makes it necessary to start with a greater initial adjustment of the adjusting screw. After the track pins have worn during operation, more adjustments are needed to maintain proper track tension. Since there isn't as much adjusting-screw length with the smaller sprocket as with the larger, you've got to find another way to keep the track tight—and that is by removing a full track-link.

When the rear-idler-slide assembly extends about 1" beyond the end of the rear-idler-slide bracket, it's time to break the track and take out one grouser and adjoining cross tee. Removing the link at this point will keep the adjusting screw from being extended to its full length; and in that closely coupled position, there won't be any chance of bending or breaking it.

It would be nice if a link could

be removed from a new track, but that ain't so good because it'll take up pretty near the whole adjustment in the adjusting screw—and if you get a job like pulling off a bogie wheel, you won't be able to loosen the track enough to do it.

You lucky "amtank" men won't run across this trouble on the LVT(A)(4)'s 'cause the addition of that last stationary bogie wheel has increased the length of the track.

NEW PERISCOPES

According to MWO ORD G1-W30 (8 Mar. 45), the M6 periscope is to be replaced by the plastic M12 periscope on the LVT(A)(1) and (A)(2), LVT(4) and (A)(4). There are two periscopes to be modified on all the vehicles except the LVT(A)(1), which has three. The gunner's sighting-periscope holder is not to be modified.

The M12 provides better vision over a wider range and is less apt to fog up (the M6 frequently had water leaks and an internal fungus growth which prevented clear vision). You can get the new one by ordering under Package Stock No. F1-5800231, MWO ORD G1-W30, through channels to **Maintenance Division, Office, Chief of Ordnance-Detroit, Detroit 32, Michigan, Attention SPOMM-SM**. One kit is needed for each periscope holder to be modified.

Each kit contains two M12 peri-

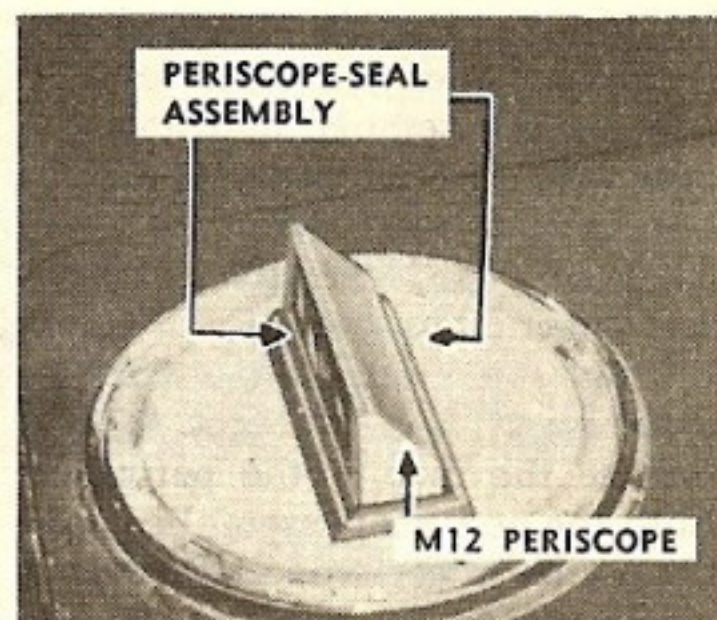


Fig. 3—The new M12 periscope for better sightseeing.

scopes; two No. 44 drills; two No. 4,40NC hand, taper taps; fifteen No. 4, 40NC-2x¼ flat-headed machine screws; and two periscope-assembly seals. The extra periscope and seal are to be carried on the vehicle as spares.

Here's the procedure for installing the M12 periscope: First you remove the plastic periscope-cover, screws, and gasket. Take out the M6 periscope and take out the periscope wiper, wiper clips, and clip-retaining screws. A periscope has to be used to position the new seal assembly, so use the M6 and you won't damage the M12 during the operation. With the M6 in the periscope holder, place the new seal assembly in position with the flat side of the seal toward the holder. Now, you've got a template that can be used as a guide to drill twelve holes in the holder.

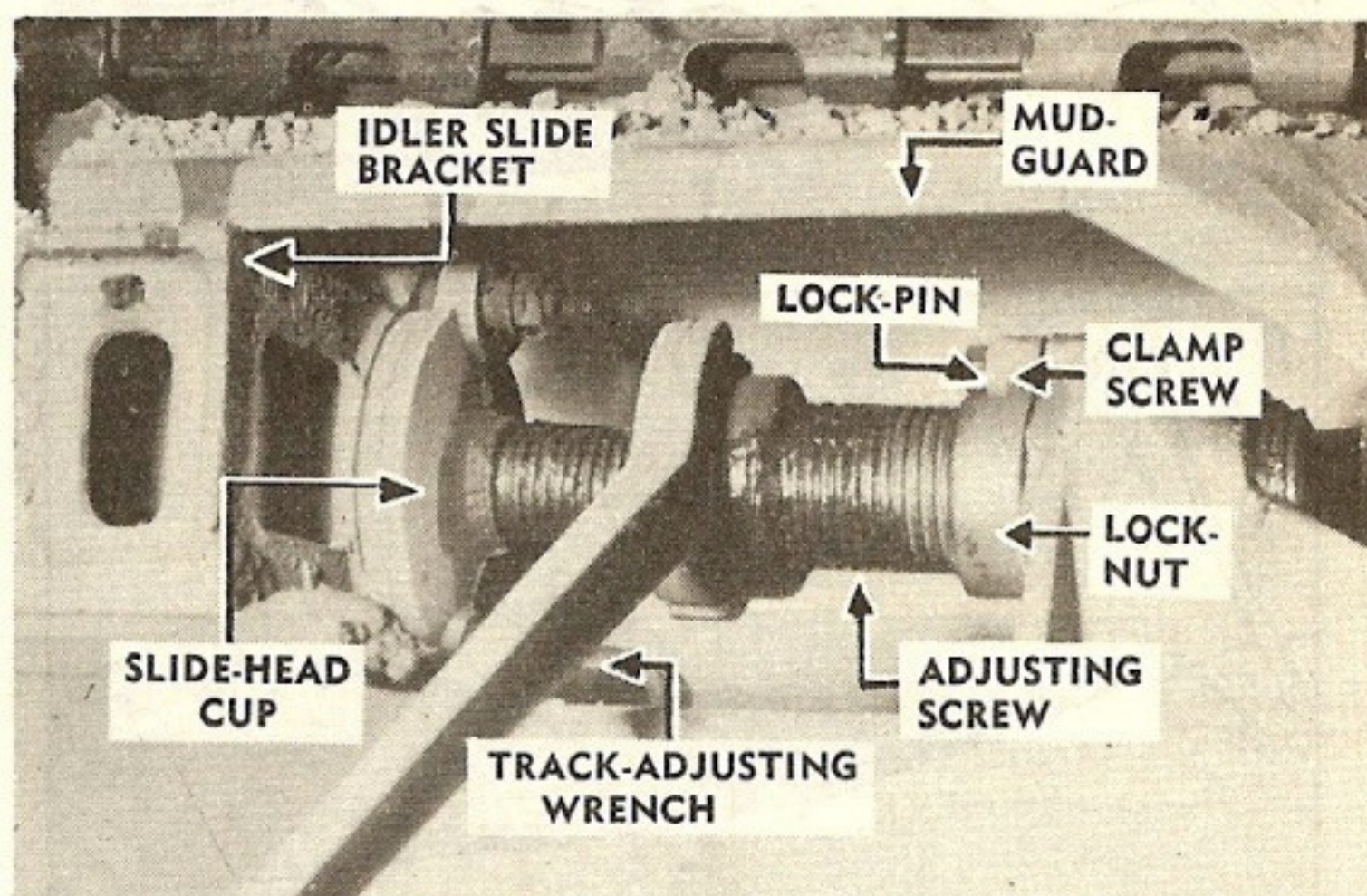


Fig. 2—Here's the new track-adjustment deal that'll give your LVT more zip in the water. Just try it and see.

Remove the M6 periscope and the new seal assembly and tap the dozen holes. Glue the seal assembly to the holder with the machine screws. Most kits will have seal assemblies with two wiping lips but some will have one lip, so examine it first and get the lip toward the face of the periscope. Both the new seal assemblies have the built-in periscope wiper that works the same way as the old wiper assembly—by moving the periscope up and down. After the

seal is on, install the M12 in the same manner as the M6 periscope. The finished operation should look like Fig. 3.

ENGINE-GOVERNOR SETTING

The Continental W670-9A radial engines in the LVT(A)(1), LVT(2), LVT(A)(2), LVT(4), and LVT(A)(4) have had their governor settings changed to 2400 rpm at full load. So says TB ORD 296 (1 May 45). The engine

with this setting will rev up to 2600 with no load but should never under any conditions go above 2600 rpm.

For best operation, **run at governed speed all the time.** Shift gears after the engine is up to 2400 rpm, and if the engine won't go over 2000 rpm after shifting, shift down to the next lower gear.

The governor adjustment isn't to be made by using personnel—so flap your tracks over to the nearest Ordnance maintenance outfit and let them do the dirty work.

The new governor setting will result in a higher speed with better engine performance and better vehicle operation. Engine cooling is greatly improved by the larger amounts of air pulled in by the fan. Entering or leaving the surf in third gear at 2400 rpm will give the vehicle sufficient speed to maintain its course.

LANDING OPERATION

If the sea is a little rough or the breakers are coming in strong, you're apt to find yourself taking a nose dive (Fig. 4). The breakers tend to lift the stern and if the critical point of balance is passed or the front part of the tracks happens to grab a jutting hunk of coral or tree, over you go.

Here's a little tip on water operation when the vehicle is coming in to shore. When you feel your LVT starting to buck pretty hard, come in carefully—ease up on the throttle or kick out the clutch. When the nose comes up, rev up the engine full throttle, let in the clutch, and get in on the beach before the next wave.

The water ballast will help work against this but it may not be enough, especially with the increased water speed obtained by the new track adjustment.

Overturning the LVT is rare—in almost all cases, you'll only ship water—but if you do find the vehicle going over and there's a chance to jump, go over the side. Joes who head for the point where the vehicle is lowest in the water are likely to find themselves trying to swim with an LVT on their backs.

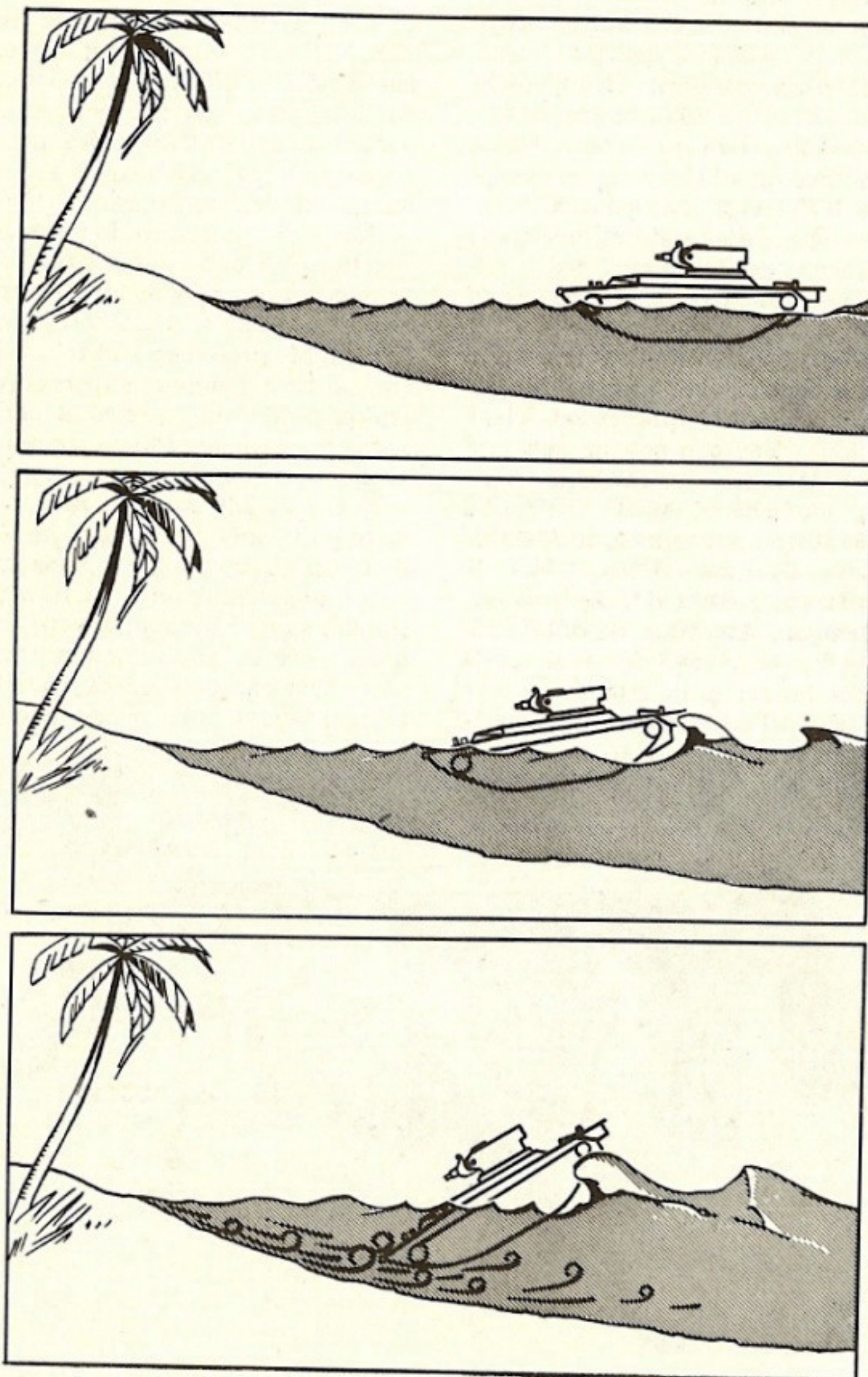


Fig. 4—Take it easy in a rough sea. The LVT doesn't look like a bronco but she sometimes bucks like one, as pictured.

Pin-Boy Saver For M24's



**THOSE %?X!?!* TRACK-CONNECTOR PINS COME OUT EASIER NOW
—THANKS TO SGT. CHARLIE OWENS, 129TH T. D. T. B., CAMP HOOD**

It's an even bet that the M24 track-connector pin—"Old Unremovable" itself—has nosed out everything but a certain wind instrument as the most-cussed hunk of GI metal this season. Reports from many theaters indicate that the pin's a ranking favorite on the GI-Joseph bitch parade—and in some outlying districts it's the worst thing you can call a man.

But now a silver lining for every graying hair. At long, long last comes what looks like the hottest pin-knocker since the three-finger bowling ball (a civilian implement)—and just about as easy to use. Once you had to have a trembling pin-boy hang onto a long drift while you took 355 swings at it with a junior pile-driver. Now, no pin-boy—and you can probably do the job in 150 strokes immediately after lunch.

All that because this new wonder gadget wraps itself around the track and grips the young drift, keeping it pressed square against the head of the pin in an abso-

lutely—measure it yourself—straight line. Now from halfway across the room you can wind up and start swinging. You won't hear any complaints from your drift-holder about stinging hands and rattled teeth. If you hit off center, you won't make a pretzel

of your drift. And if your swing is strictly from Saturday night and never even gets a shadow on the drift, at least you won't kill and maim any more pin-boys.

It's a cinch to make, too—this fugitive from a 21st-century tool kit. Just trot out any old lathe to
(Continued on page 149)

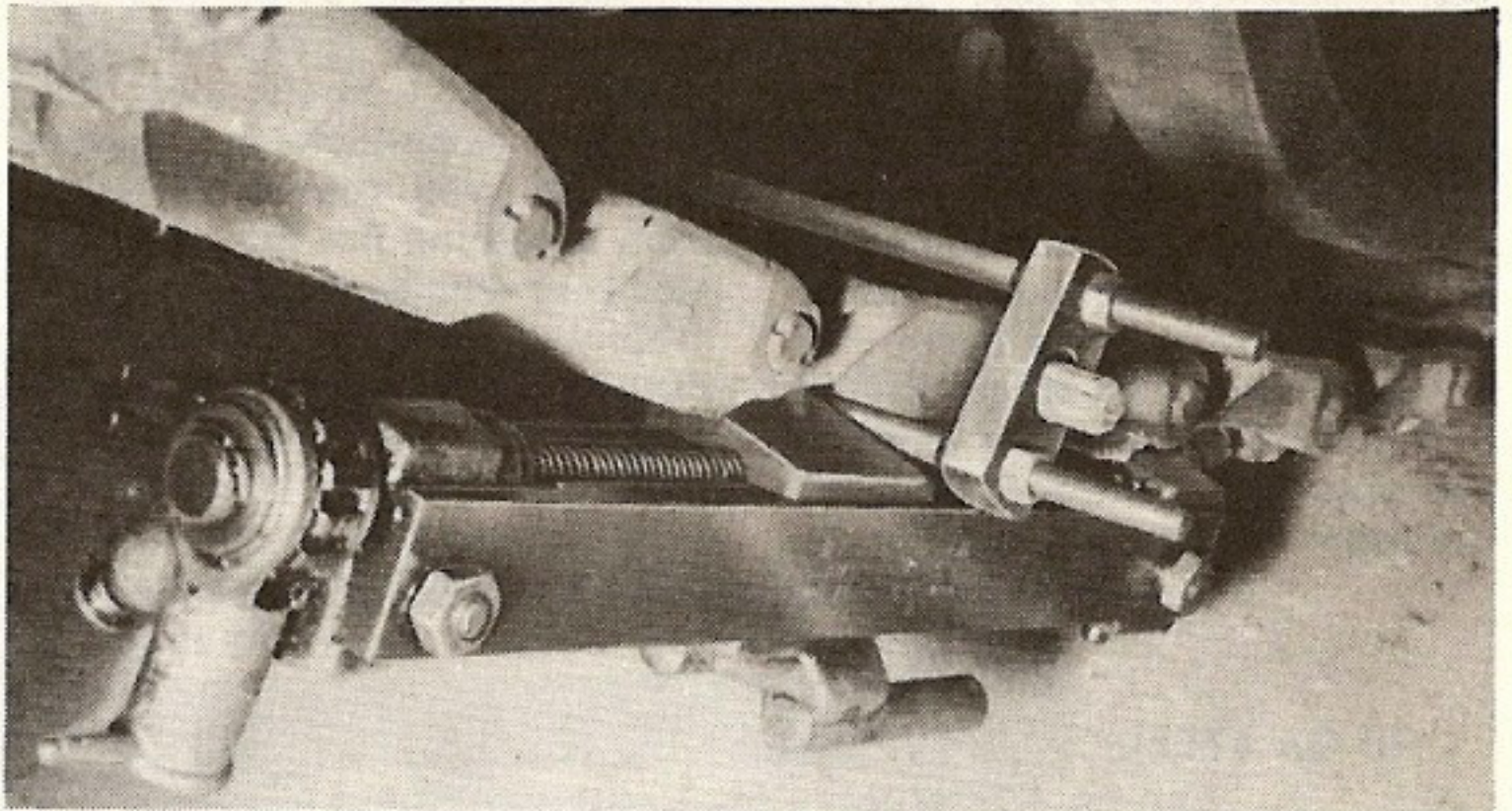


Fig. 2—Pound the short drift, then the long one—and out comes the track-connector pin. Inside edge of track's shown here.

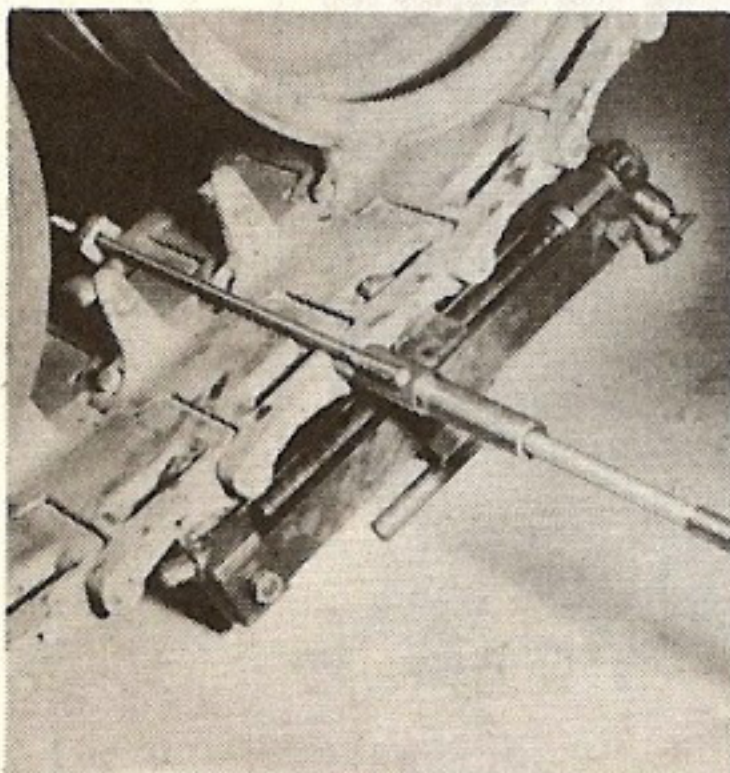


Fig. 1—Business end of the tool that holds your drifts.

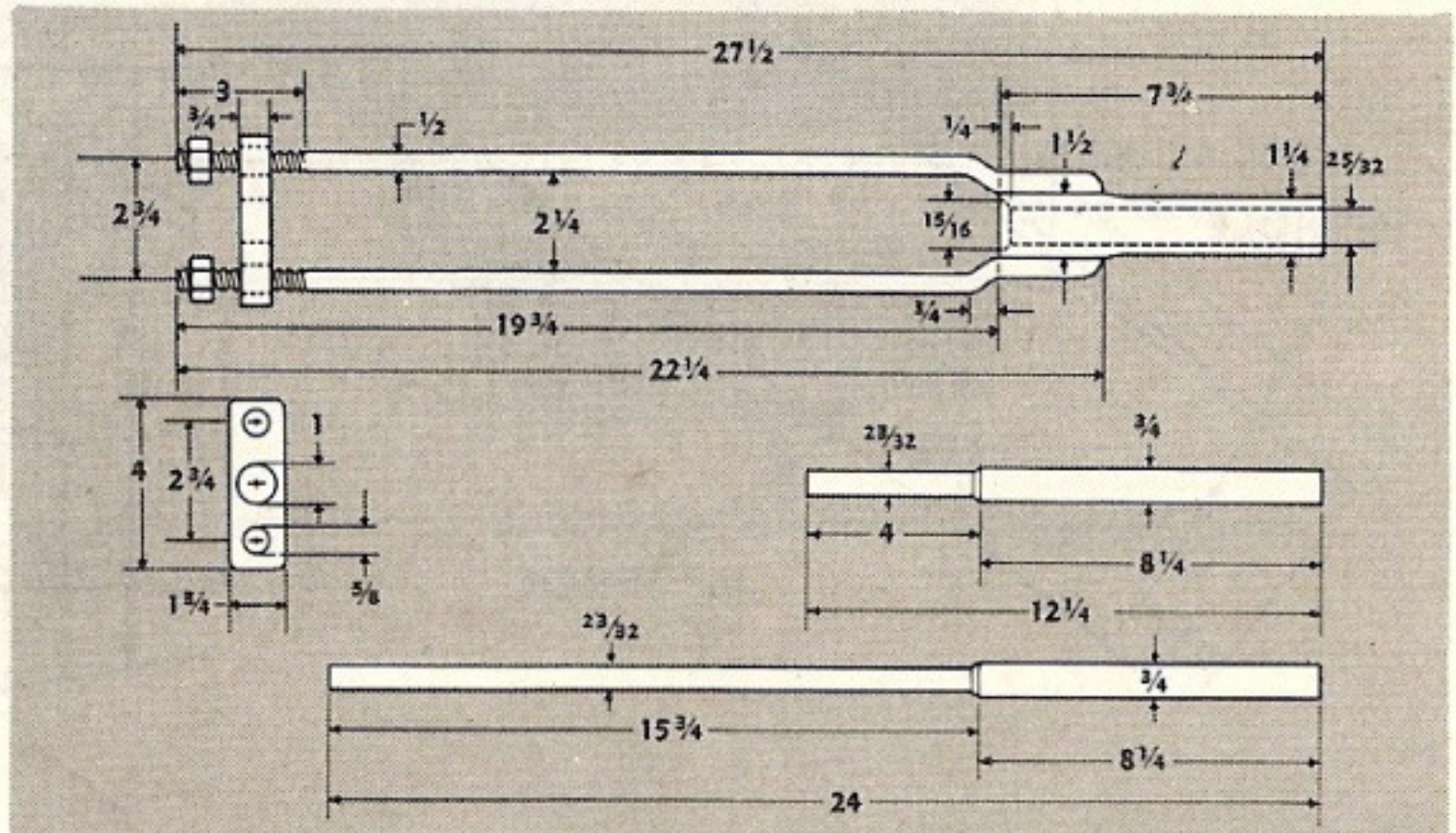


Fig. 3—With these dimensions plus a lathe, drill, welding equipment, and some scrap metal, you're set to pop those pins.

AUTOCAR AND WHITE RADIATORS

They won't spring leaks so often after you spring 'em up with these strong but flexible new supports

Maybe you're lucky and haven't sprung leaks in the radiators of your 4-5 and 5-6 ton 4x4 C.O.E. Autocars, or your 4-5 ton 4x4 and 6-ton 6x6 C.O.E. White trucks. Anyhow, don't feel left out, because now you can fix 'em up before it happens.

The main cause of those leaks, and what you gotta change to prevent 'em, is the top radiator-brace. This brace—which you can discard—holds the radiator too rigid and lets it absorb more shocks, vibrations, and twists than a belly-dancer's navel.

Let's go from the ridiculous to the upper-radiator-brace bracket in Fig. 1. You need to make two of these, with extra-special attention paid to welding the straight bar onto the U-shaped piece at the correct angle. You'll hit it on

the nose when the $1\frac{3}{4}$ " line extending from the hole center, and the $1\frac{1}{8}$ " line extending from the corner of the "U" piece, form a 90° angle where they meet at the bar edge. Weld these two brackets to the radiator frame as shown in Fig. 2. That big X in the Fig. doesn't mean that's where you lay the body down at this point. It means you take two $\frac{1}{4}$ "x1" bars and weld 'em across the frame as shown. It's an anti-twist idea, recommended to do the trick. Better use a sheet-metal or asbestos shield to keep your blowtorch from breathing fire into the radiator core during the welding.

Moving along to Fig. 3, you'll have to make up two $\frac{1}{2}$ " support rods, threaded as shown, two angle irons to bolt the support rods to those upper brackets you welded

on, and two lower-brace brackets like you see in the inset. The springs are jeep valve-springs, cut to a length of 2" (Willys Part No. WO-638636, Ford Part No. FM-GPW-6513). You'll need four of 'em, two on each support rod, one above and one below the angle iron. For sizes of nuts, bolts, and washers required, and how many of each, focus again on Fig. 3—it tells all.

Now, if you've got your two radiator braces all assembled, let's mosey along to Fig. 4. All it shows is the radiator-brace assembly fastened to the cab support, but brother, that's the way those braces should be—just like you see there—when you start putting the radiator back in. If you fasten 'em to the radiator first, only a contortionist can

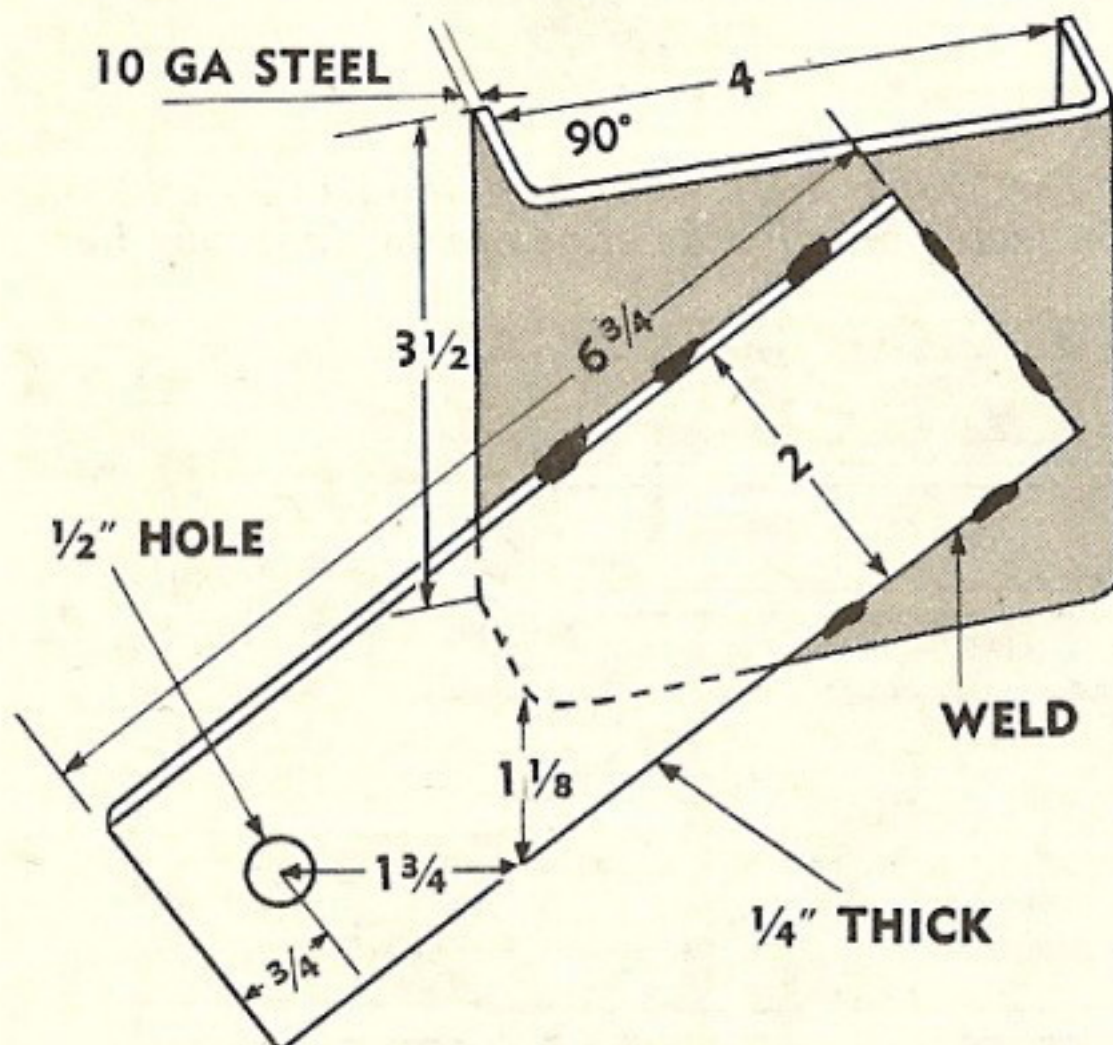


Fig. 1—Upper-radiator-brace bracket, showing position of bar for welding to "U" piece.

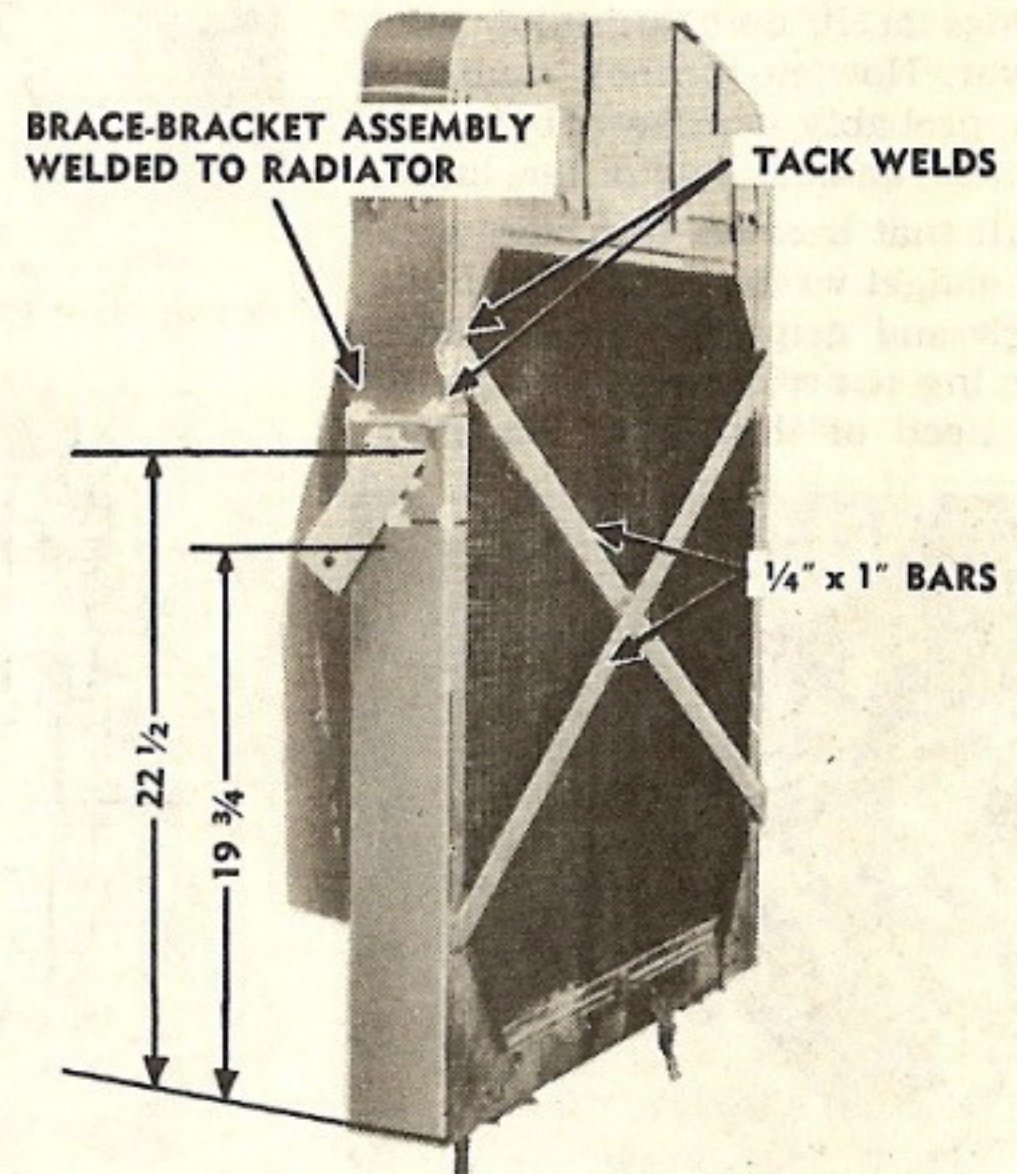


Fig. 2—Where and how to install upper-radiator-brace brackets and frame cross-bars.

get down in there to tighten the bolts to the cab support. The way you see it in Fig. 4, you can fasten the angle irons to the upper-radiator-support brackets through the floorboard opening, easy as pie (blueberry).

To complete the job, aline the radiator by adjusting the top nuts (Item Stock No. H001-17-16005) on the support rods, and lock your adjustment with the jam nut (same number). The springs should be adjusted snug enough but not fully compressed. If they're too tight, you might as well not have any springs, cause you won't get any spring action. Now install the support springs and stud nuts at the bottom of the radiator, tighten 'em evenly, and reinstall your radiator and headlight brush-guard assembly, right and left toe-boards, right floorboard, and right and left fender splash-shield. The whole procedure's by TB ORD FE44—out of Necessity.

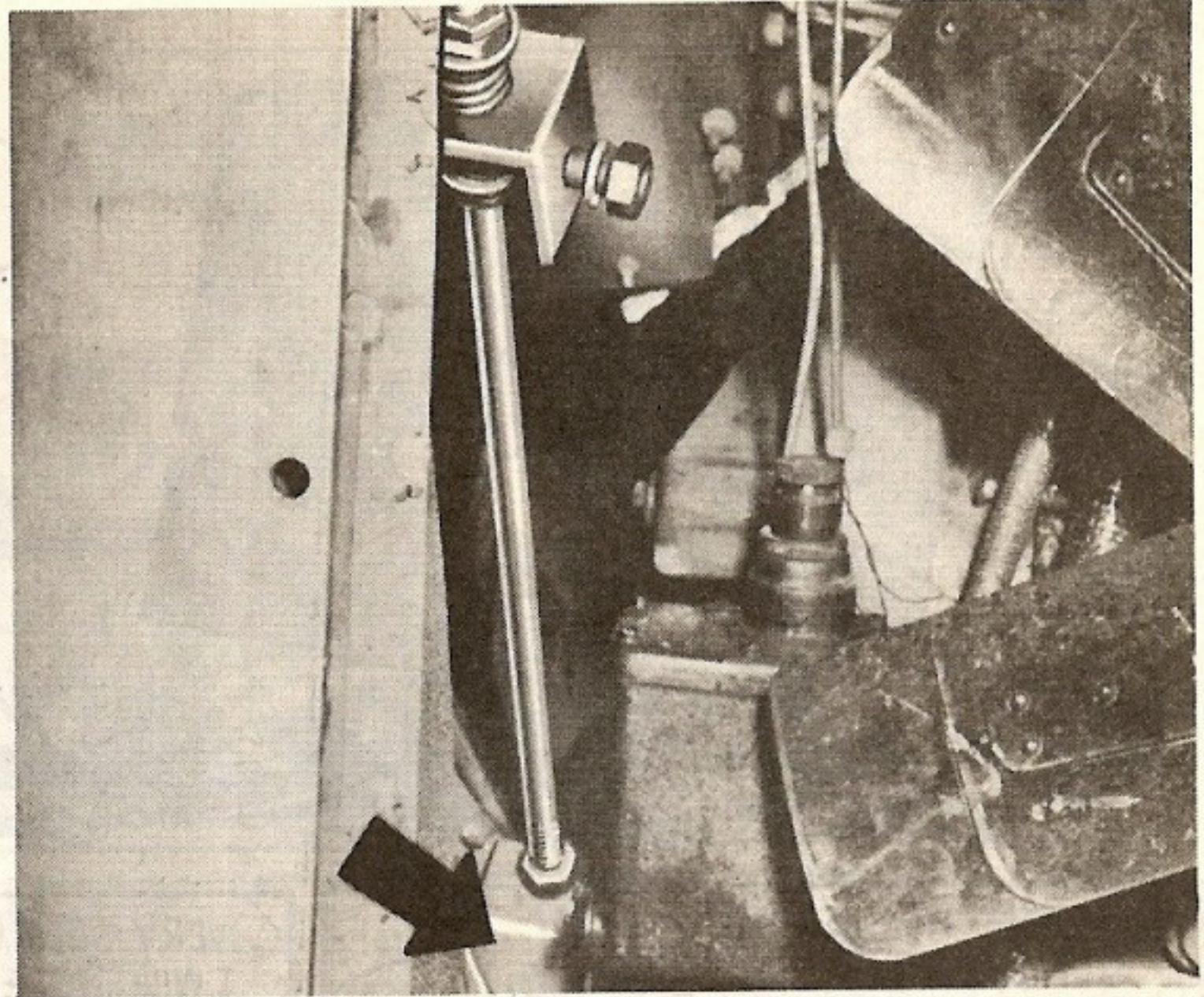


Fig. 4—The first step in remounting the radiator is to bolt the brace to the cab support, as pointed out by the arrow.

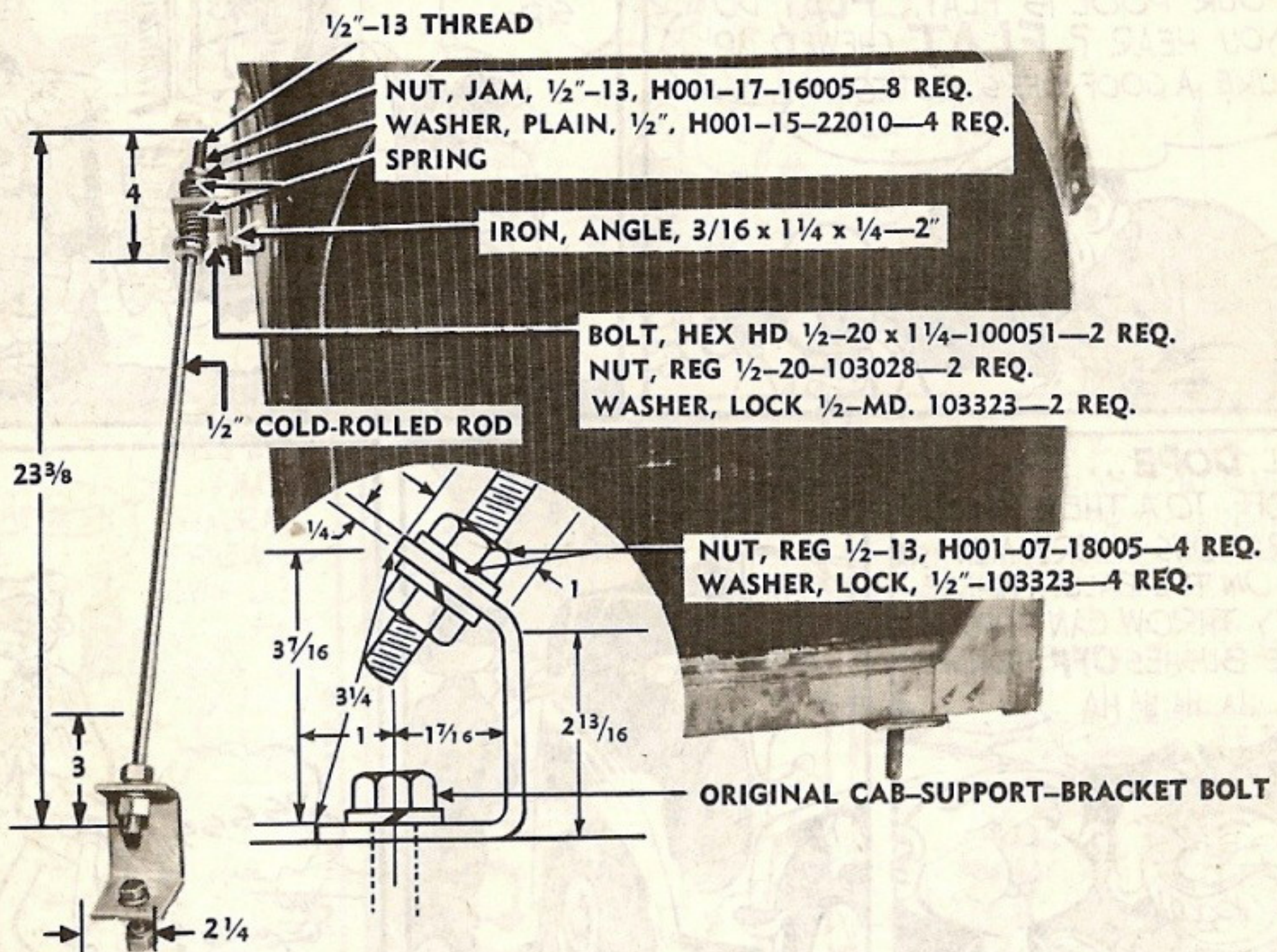
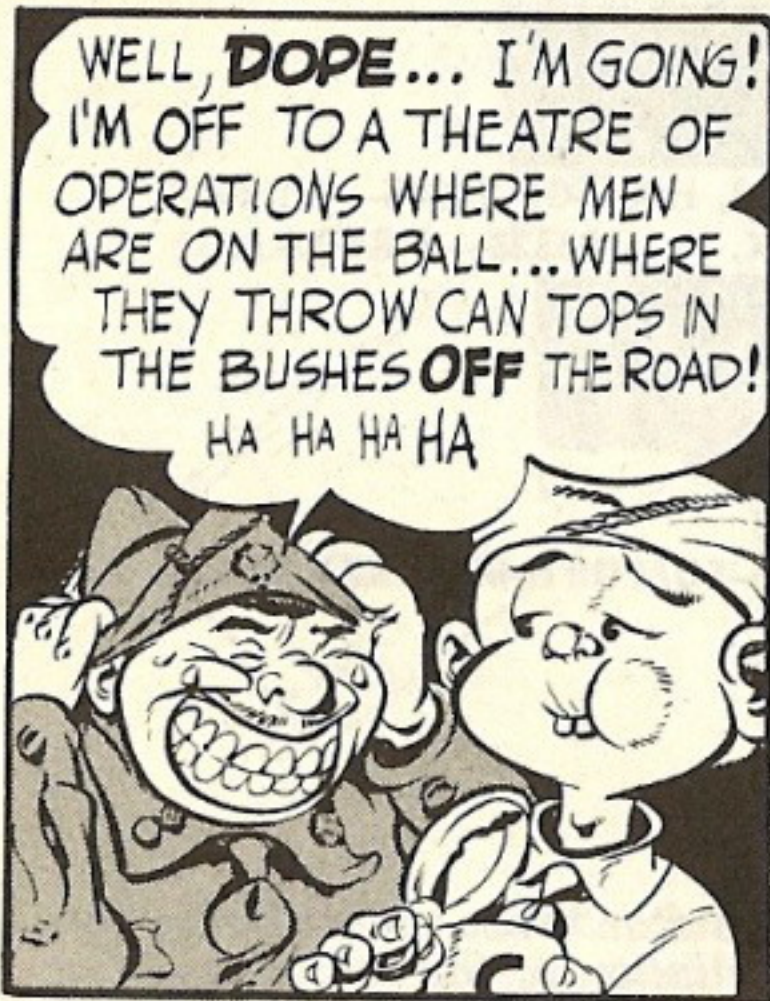
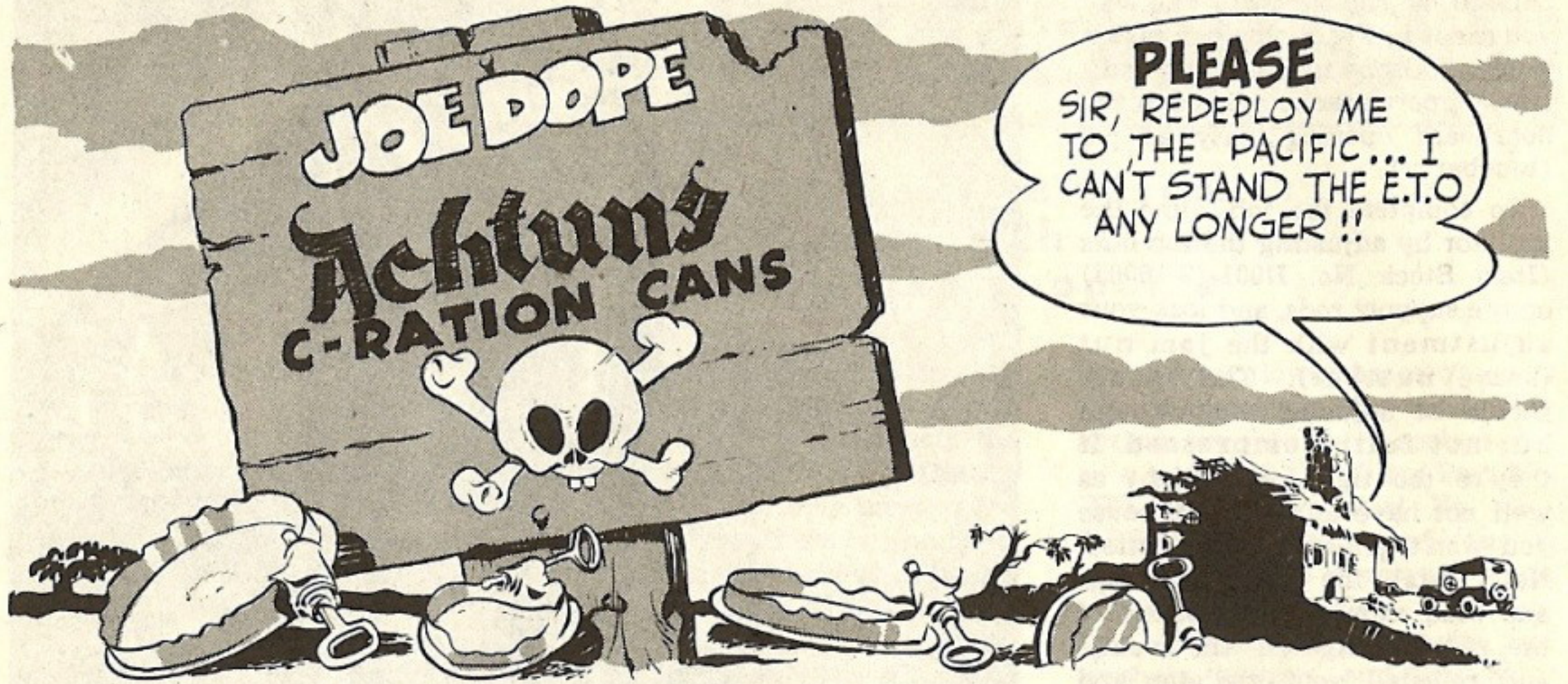
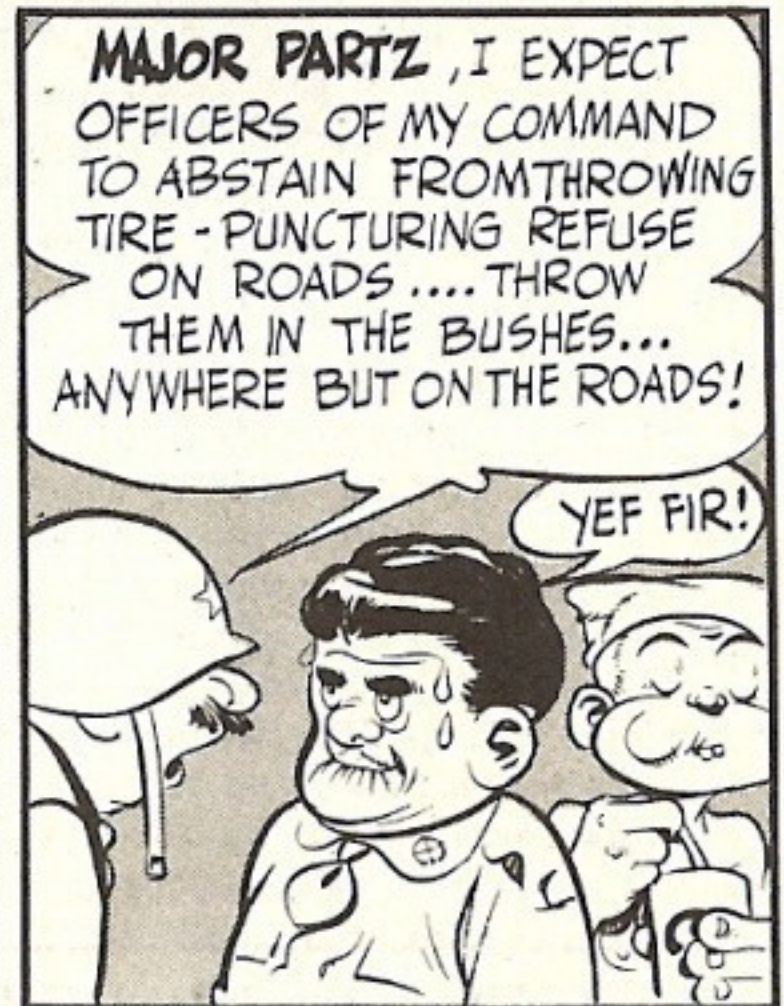
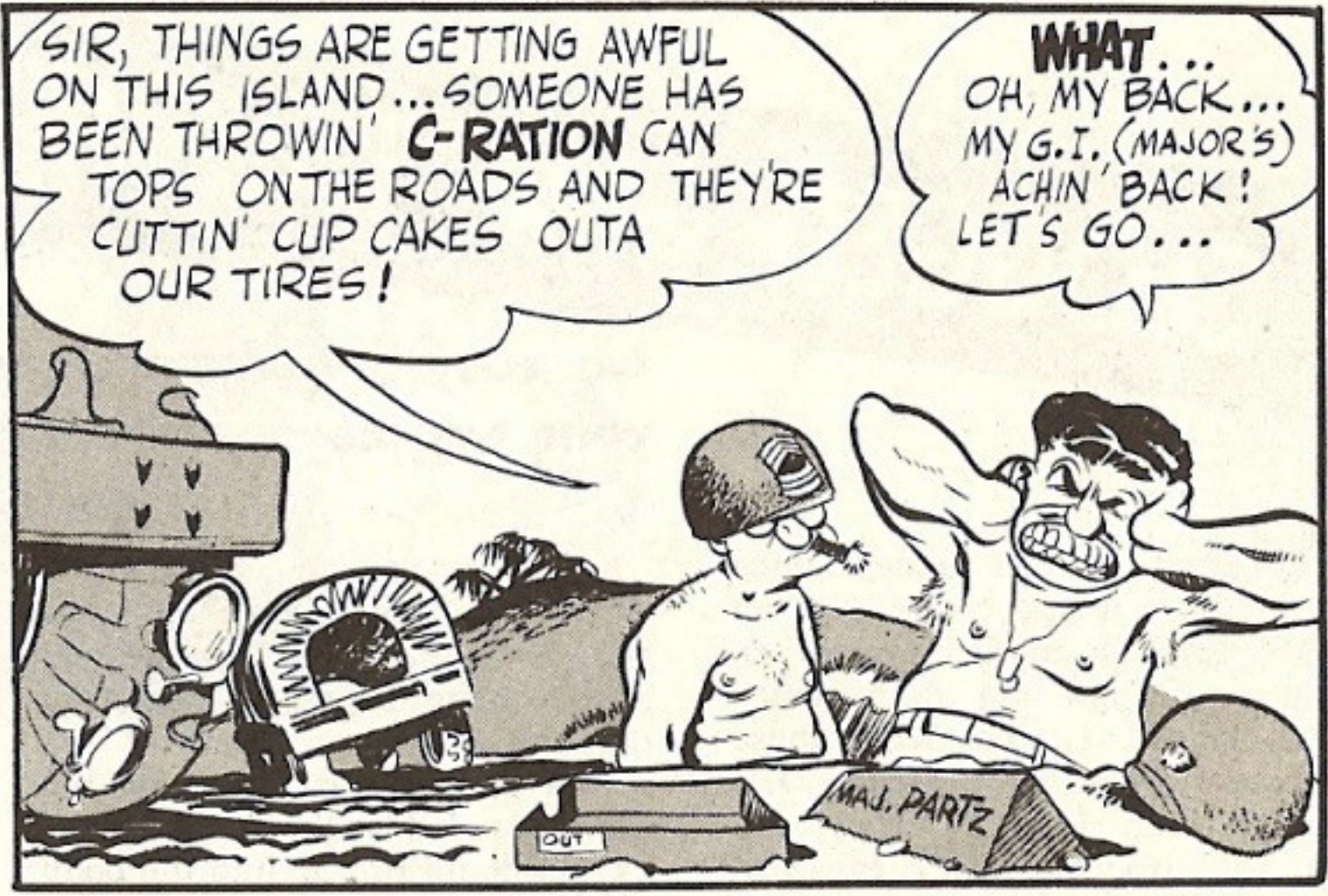


Fig. 3—Material required and method of assembly of finished radiator brace. It is shown here bolted to the frame for demonstration only. See Fig. 4 prior to installation of the radiator.





CLOGGED GMC TAILPIPES

An easy-to-make extension keeps out mud so your engine doesn't have to hold its breath—and neither do you

Wherever on this gooey globe you're jamming your 2½-ton GMC through mud, chances are you're also damning the nuisance of a clogged tailpipe. When those exhaust gases can't escape, the engine soon loses power, the valves burn, and back pressure can crack the exhaust manifold, even. The reason for putting the pipe there—right where it can neatly catch the mud kicked up by the rear tires—was so the air-stream from the wheels would

sweep the fumes down and out behind the vehicle. A lot of you people have suggested that the pipe be moved in front of the splash guard. But that way, the gases—loaded with carbon monoxide—could roll up into the body of the truck and blank out the unsuspecting occupants, or at least have them hanging on the ropes in short order.

The simplest way to keep this tailpipe in the clear is to protect it with a cone-shaped extension. You can either weld it directly on the pipe or bolt it to the splash guard. (Some of the boys are using tomato cans but this is more like what you get downtown.)

To make the extension that's bolted on, get a piece of 15" long by 12¼" wide scrap metal

and cut it as shown in Fig. 1. The bottom curve is an 11" radius and the top one is a 22" radius. So you don't have to figure out a fancy angle to cut out that piece on the left side, draw a line 6" from the side of the metal and 5" from the bottom. The cut-out piece on the right side is a 45° angle. After you've drilled the two 5/16" bolt holes, bend the metal into a sort of cone, but keep the side flat that'll be attached to the guard (Fig. 2). The holes should be 2½" apart. Remove the U-bolt that holds the pipe to the guard. Then, after trying the cone on the end of the pipe, shape the small end to fit the pipe snugly. To attach the extension to the guard, for the top hole use the same bolt and nut that fastens the support to the guard. You may find the lower hole already drilled in the guard. If not, drill it by using the extension as a pattern and fasten it with a 5/16" bolt (either ¾" or ⅞" long) and a 5/16" nut and lock-washer. Remember to replace the

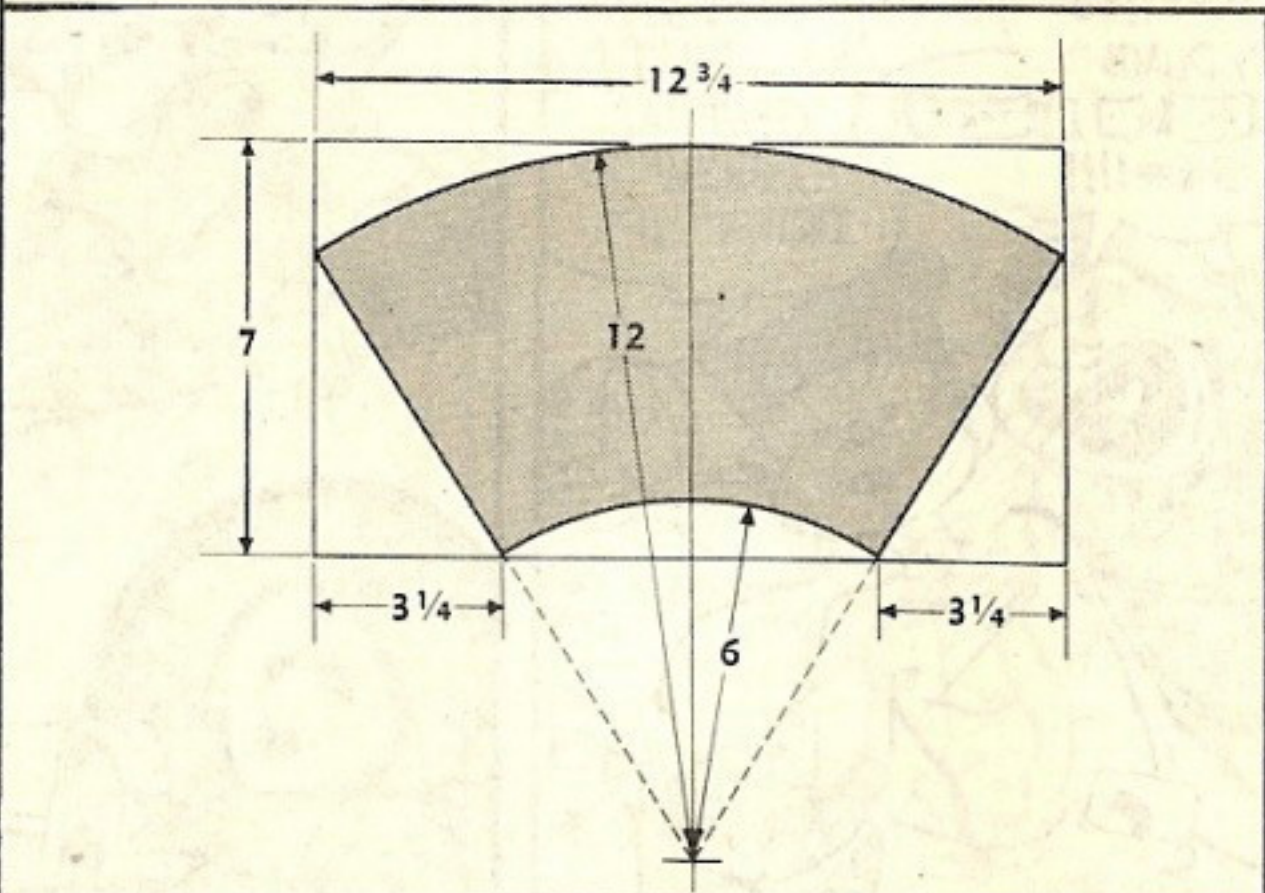
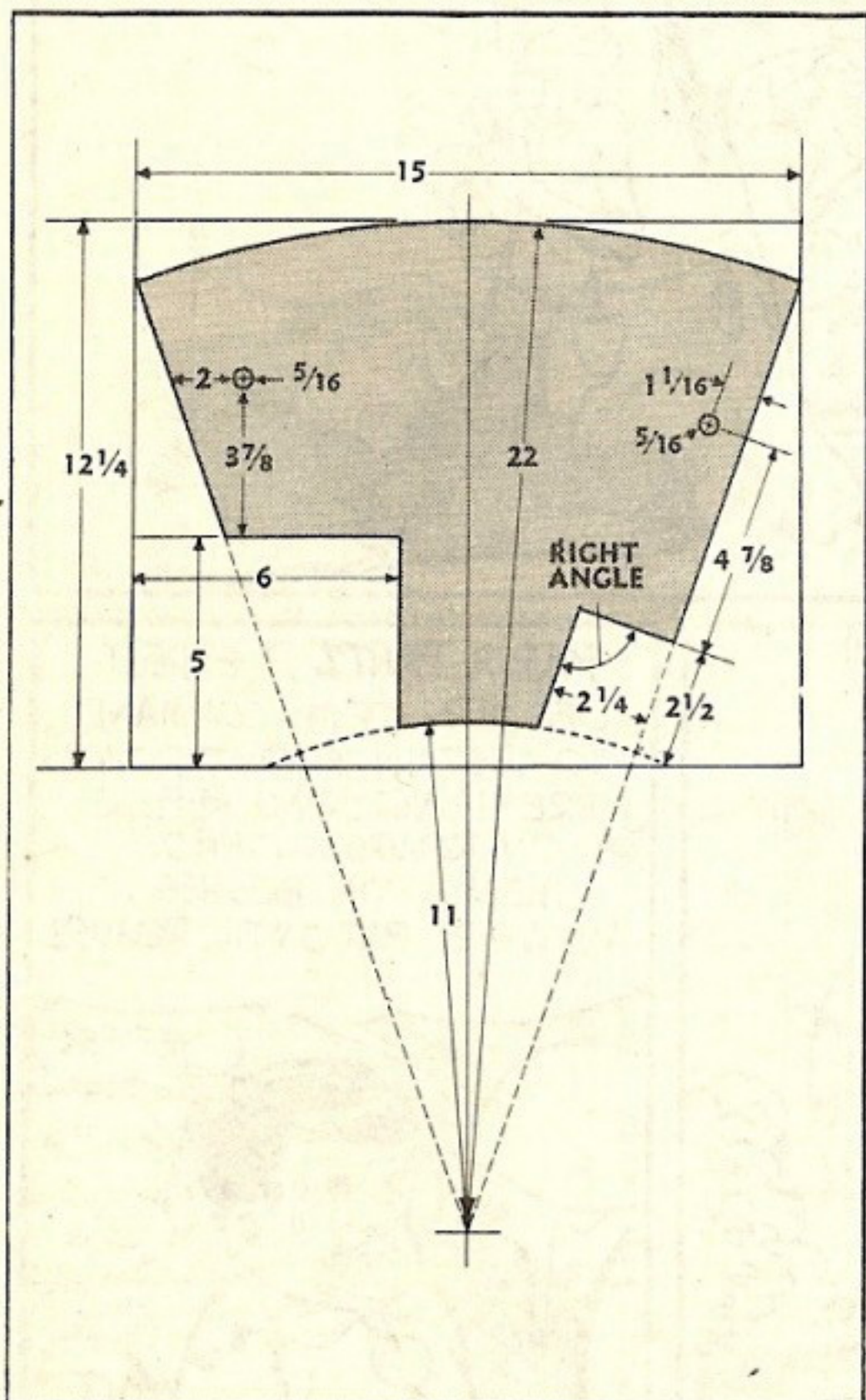


Fig. 1—Either the bolted (left) or welded (right) extension will keep your tail mud-free.

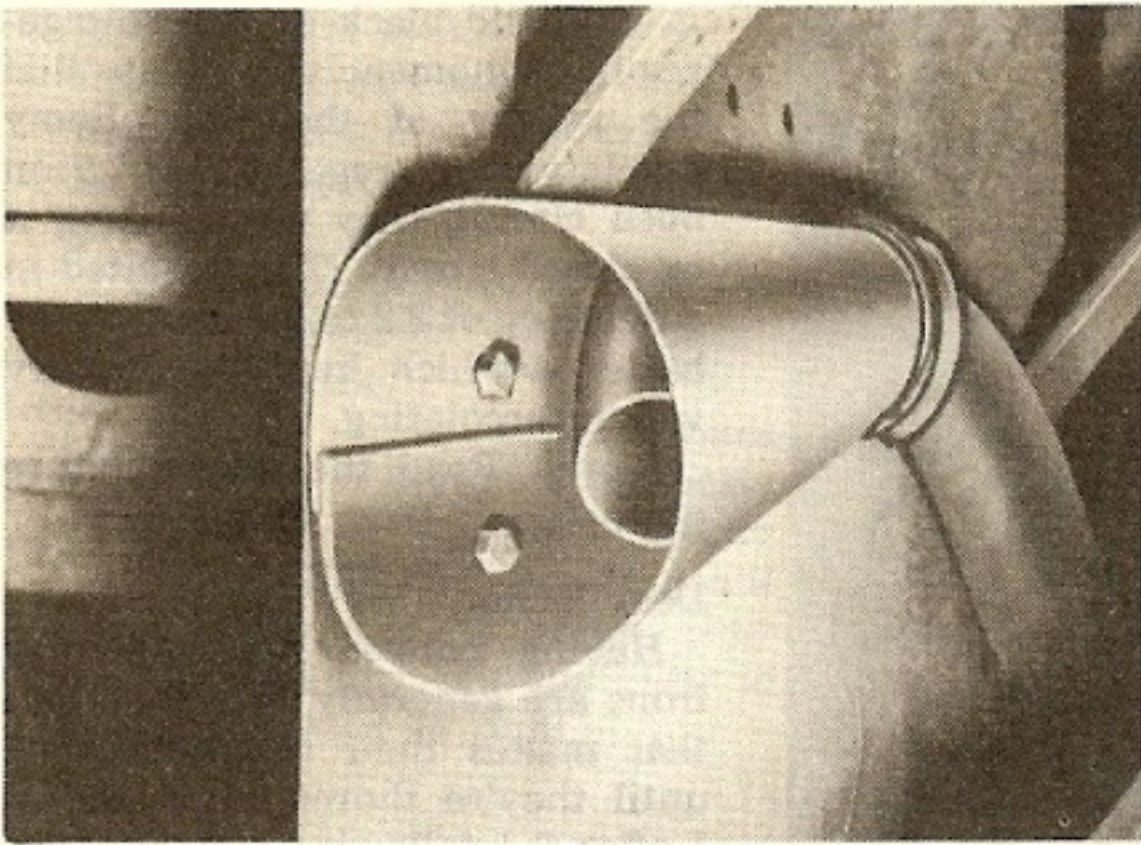


Fig. 2—This one's bolted to the splash guard.

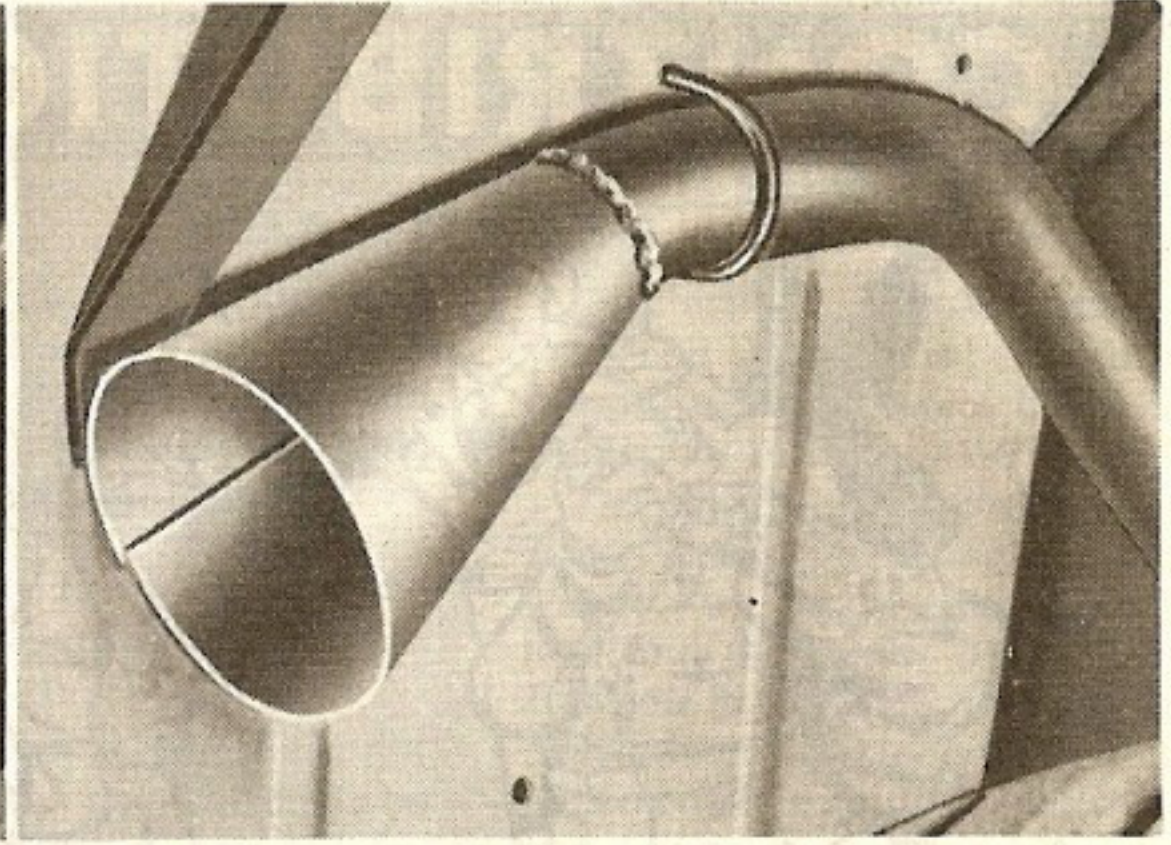


Fig. 3—The welded version. Take your choice.

U-bolt like you found it.

The position of the fender-support bracket varies on different GMC's, so you may have to adapt the extension to fit. The main thing is to have the cone extend to about the edge of the guard. If it's any shorter, mud might still block the pipe, and if it's longer,

it can easily be knocked off.

In production, the manufacturers are going to weld a funnel-shaped extension on the tailpipe. If you've got welding equipment and would rather do it that way, use a 12 $\frac{3}{4}$ " long by 7" wide piece of metal and cut it fan-shaped with a 6" bottom radius and a 12"

top radius (see Fig. 1 again). Weld the edges together and then weld it on the pipe (Fig. 3).

Anyway, with either one of these extensions, you won't have to keep digging mud out of the pipe so your engine can exhale properly and stop collapsing from the strain of holding its breath.

M24 TRACK TOOL

(Continued from page 143)

bore and taper the shank (that's what the drift slides through), weld a couple of arms to it, thread the ends, and then drill three holes in a small block. When you're all through, you oughta have something like the tool in the fancy Figs.

To work it, you just slip the arms over the track like a hairpin so that the head of the pin slides

into the bored shank. Then fasten it with the end block at the other end of the pin (if confused, sit and stare at Fig. 1). To make sure the tool's centered right, by the way, you can keep tapping it while you're tightening the nuts.

When your jacks are in place and tight, shove in the shorter drift, back off a few paces, grasp sledge firmly, and let 'er have it. Then, if you've had enough, lie down—come back tomorrow and

pound until the short drift almost disappears. Before it does, pull it out and put in the longer one. Using both that way, you'll always be working with the shortest possible length of drift protruding—it won't wiggle, it won't bend.

You'll save time and trouble with this long-legged extractor. But, above all—and this fact should be carved most conspicuously on its escutcheon—you'll save a lot of pin-boys.

Sackcloth and Ashes Department

In the July ARMY MOTORS, Fig. 4 on page 105 showed that four different grease fittings had been replaced by a single standard fitting. Fact is that the fitting specified (Fed. Stock No. 45-F-479-985) replaces only item #7 on the requisition—and it's a 14-15 lb. relief, not 2 $\frac{1}{2}$ oz. Items #4 and #5 on the requisition have been replaced by a fitting with Fed. Stock No. 45-F-448-200; item #6 by the same fitting plus elbow 45-E-8902.

Point is that if you go right to ORD 5, SNL K-3, for grease-fitting nomenclature and numbers (among other things), you won't go wrong.

Dear Editor,

Please refer to the April issue of ARMY MOTORS. On page 10 in the first column there is a paragraph headed "Pinion Bearing," a part of the story on M25 tank transporters.

It so happens that the pinion bearings are **not** lubricated separately from the rest of the differential; there is no oil level to be maintained at this point unless you want to fill up the whole differential carrier to that level, and under such conditions the oil will run out of the axle's ears.

L. W. Fischer
The Timken-Detroit Axle Co.

CONTRIBUTIONS



BE RICH! BE FAMOUS!

It's a breeze. All you gotta do is send full details whenever you dream up an idea that helps a vehicle—or a lower-echelon maintenance man—to do a better job. You'll be rich (in a way that money can't buy) because you'll earn yourself a one-year **personal** subscription. You'll be famous (if your deal hits print) because GI's by the hundreds of thousands will bless your name for showing them a way out of their troubles. Address **The Editor, ARMY MOTORS Magazine, Office, Chief of Ordnance, Detroit 32, Michigan.**

T/3 Louis Gamelli, 293rd Ordnance MM Co., plays Little White Father to drivers who come to him with the complaint that their lights burn dim and their starters don't seem to have any pep. Gamelli takes the driver by the ear and asks him: (1) Do you ever bother to clean the battery terminals of all the green corrosion that grows on them? And (2) how do you clean them?

Usually, if the driver's the rare type who bothers to clean the terminals at all, he confesses that he just brushes the corrosion off without actually taking the cables off. But, as everybody should know, the most important part to

get clean is the inside of the clamp where it hugs up against the battery post. This is the point of contact. You've got to take the cable terminal off to clean it.

Gamelli proves his point by doing the job himself under the driver's marvelling eyes—then the lights burn bright and the starter responds with an action that can only be described as "snappy."

Gamelli was also called in as the doctor on the strange case of the infantry regiment that couldn't hold its water—in its batteries, of course. The stuff was boiling off at a merry rate. What do you think he found?

Although it was clearly stated

in gold and black on the voltage-regulator nomenclature-plate that the setting of the Delco-Remy 6-volt voltage regulator is 7.5 on **open circuit**, they were setting it on **closed circuit**. This resulted in a delivery of 8.2 to 8.5 volts to the battery—which kept the battery water percolating.

Moral: Read the nomenclature plate—don't trust to memory.

Dear Editor,

Having noticed that soldering irons are generally in a condition that makes their use impossible until they're thoroughly cleaned, I offer the following suggestion:

After finishing a soldering job, while the iron is still hot (the hotter the better)—plunge it into cold water, allowing it to remain there until cool enough to handle. This method will completely and thoroughly clean the iron and leave it beautifully tinned.

Don't submerge electric irons beyond the end of the copper.

Ralph D. Hess
Automotive Advisor

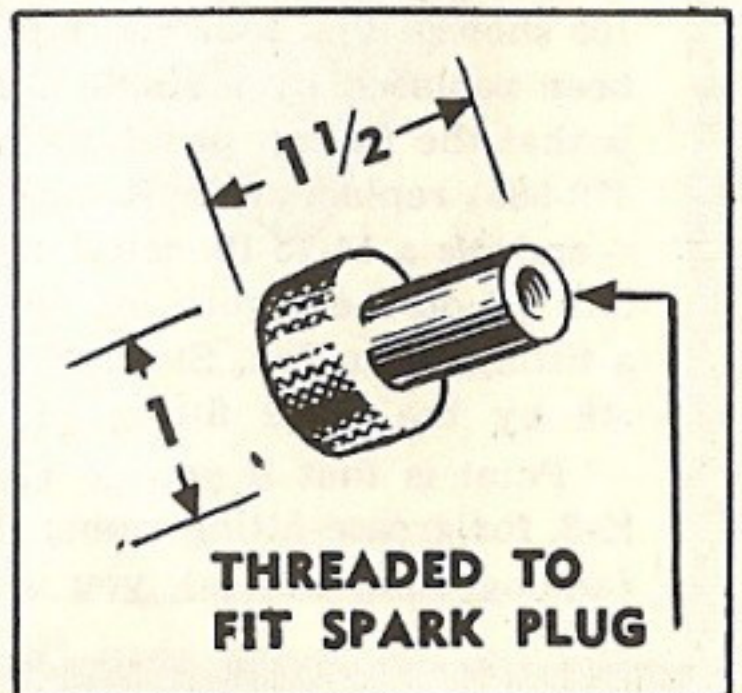
Dear Editor,

Many of our Dodge gas pedals got so loose from wear that they kept falling off the accelerator rod at one side or the other. So we removed the rubber attachment on the lower (heel) end of the pedal and also the part on the floor-board. Then we bolted a regular door hinge to the pedal and floor-board—it's even better than the standard hook-up.

S/Sgt. James Talerico
APO 230

Dear Editor,

Here's an easy way of installing spark plugs in GMC's, especially those equipped with Superflex



heaters. Just make yourself a little gadget as shown in the Fig. and your troubles will be over. In fact, you'll enjoy changing plugs.

This is not only for GMC's. It's a great time-saver on any valve-in-head engine.

**W. S. Daines
Edmonton, Alberta**

Ed. Note—The gadget screws onto the top of the plug so you'll have something to wrap your fingers around when you want to screw the plug in tight.

Dear Editor,

My observation on clutch maintenance is that a good many drivers don't know how much free travel a clutch pedal should have. This results in a great deal of damage, especially on the GMC, which requires 2½" free travel.

You can protect the clutch assembly and transmission by painting a bright-colored line on the clutch pedal to show where it should be when fully released. This'll also serve as a guide to warn the operator that his clutch-pedal pull-back spring is weak, or that the linkage is binding. A second line can be painted on the pedal, coming in line with the floor when depressed by hand, to show where the free travel should be.

**Curtis A. Cleary
Haverhill, Mass.**

Ed. Note—The position of these lines might also warn you when there's dirt under the pedal or the floorboard bumper is worn. But remember that as facings wear, you back off the adjusting-link nut until it's at the end of the thread—then you can run the free travel down to 1".

Dear Editor,

Here's a little modification for the rear winch on the 10-ton M1 wrecker. I've tried it several times and it worked out swell.

The purpose is to release the brake while unwinding cable from the drum. As this winch is now, the brake applies itself automatically whenever the winch is reversed to let the cable run off. This will loosen and burn out the brake and if an emergency arises with the cable under load, it will

slip and won't hold the load. This modification will let the cable run off easily without a load and still let the brake work by itself when the cable has a load on it.

The materials needed are an old lever or piece of shaft about 12" long, a piece of 11/16" round stock to replace the shorter guide pin, and a couple of 3/8" set screws with locknuts (see Figs. 1 and 2). I used an old front-wheel-drive declutching lever from a ½-ton Dodge, cut down.

A small chunk of frame behind the winch-brake housing must be cut away or slots cut in the in-

spection plate on each side of the guide pin, in order to replace the cover over the longer guide pin.

**T/4 Martin D. Rodrigue, Jr.
Camp Hood**

That annoying brake squeal on jeeps and Dodges has been tracked down and eliminated by **T/Sgt. Russell O. Johnson, 3478 MAM Co.**

The source of the brake squeal is dirt collecting along the ridge where the taper begins at the heel and toe of the brake lining. Johnson gets rid of the dirt and dust-collecting ridge by the simple expedient of rounding off the heel and toe on each brake lining.

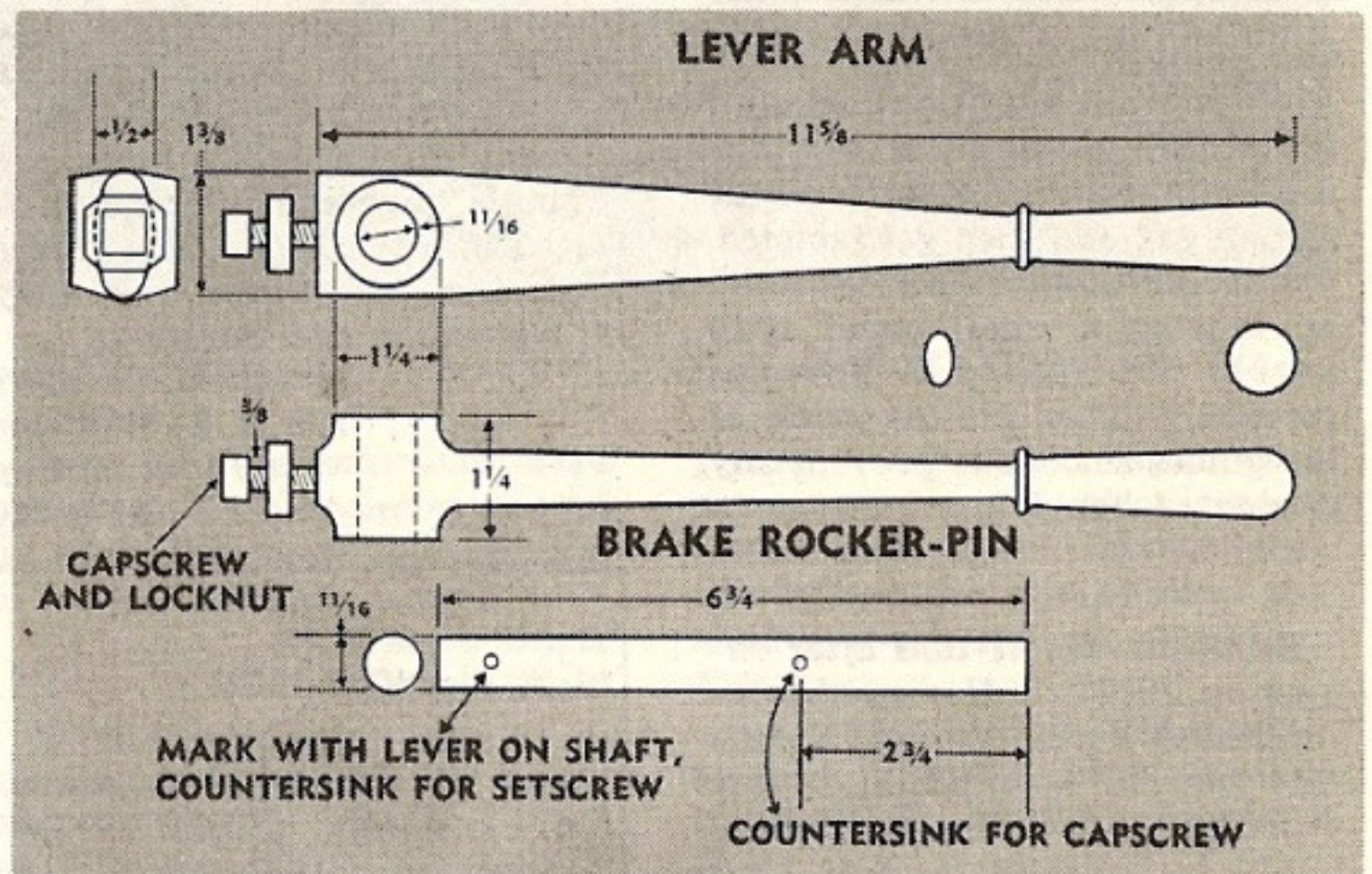


Fig. 1—Use an old front-wheel-drive lever and a piece of round stock for the arm and the longer guide pin.

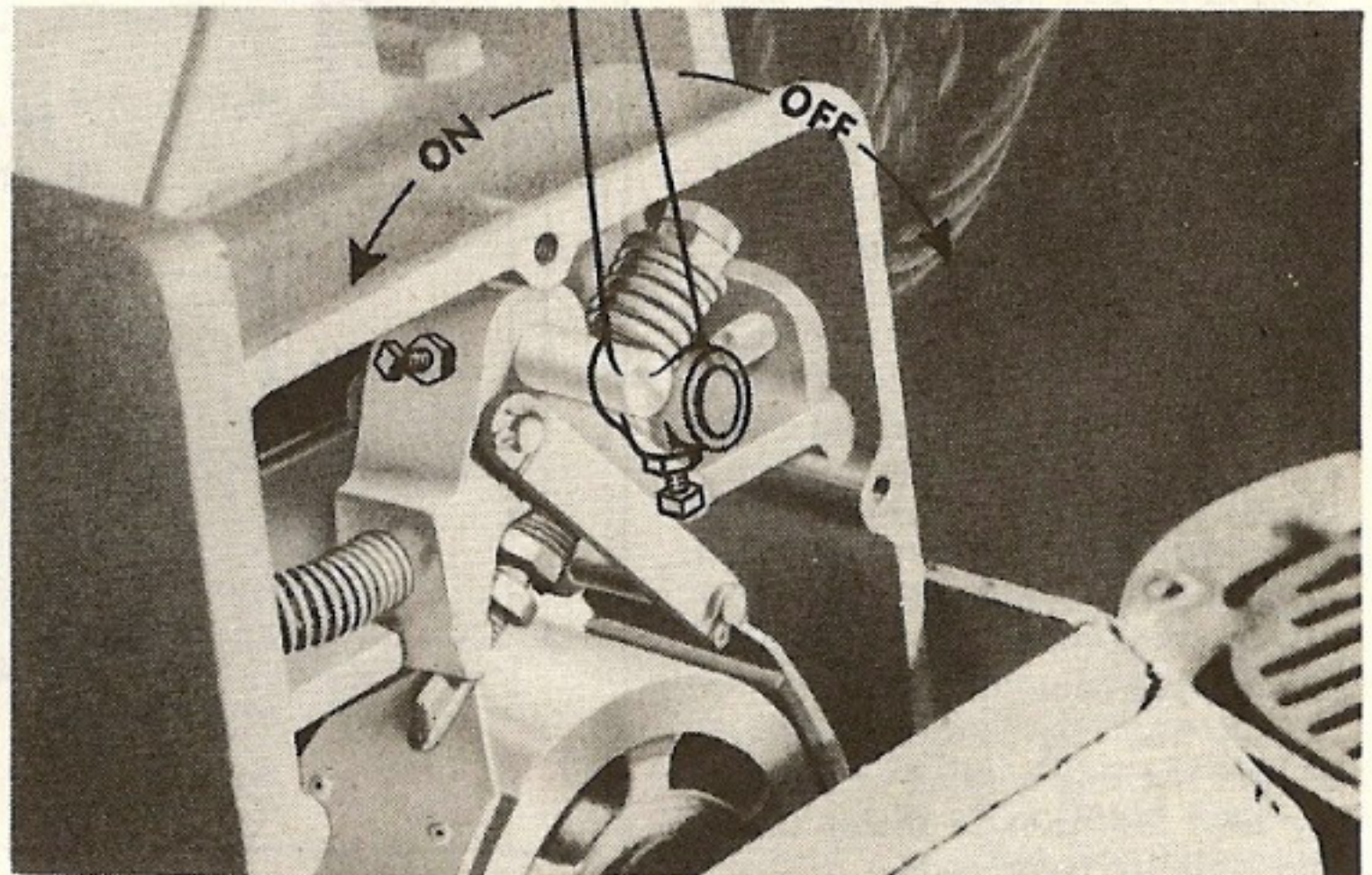
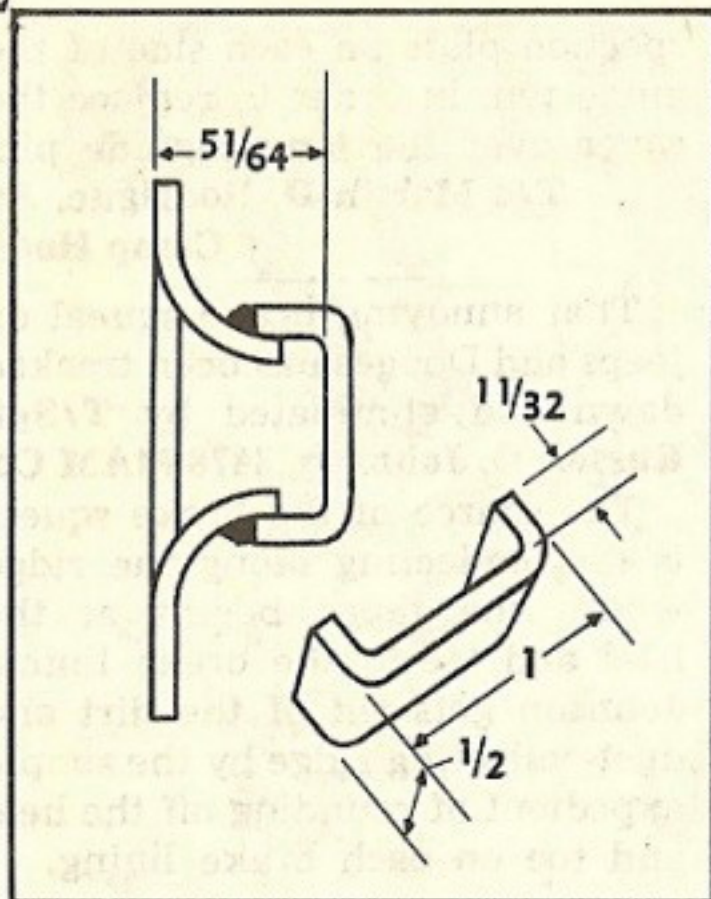


Fig. 2—How to run off cable with the greatest of ease—pull the lever to the right and watch the cable go by.



Dear Editor,

We've had a lot of trouble with the shifter plates in jeep transmissions. The vertical guides wear and spread and then get jammed.

You can correct this condition by brazing a small metal strip across the guides to prevent spreading. Then file the inside of the guides smooth to prevent any chance of hanging.

Sgt. Geza Kosta
APO 928

Ed. Note—On 1/4-ton after engine no. 202962, a U-shaped reinforcement similar to Sgt. Kosta's was put on in production (see Fig. above).

Dear Editor,

In the course of my field duty in the southwestern states, I encountered many 2 1/2-ton 6x6 GMC trucks whose heat indicator read above normal when the engine was normally heated. This is caused by not pairing off the heat indicator and thermal units according to their color code during reconditioning of these vehicles.

There are four types of heat indicators and thermal units used, coded by a red, yellow, blue, or green color. The color is indicated by a little dab or dot. Both indicator and thermal unit must be paired off by matching colors before installation.

The TM for these vehicles doesn't list this method of matching heat indicator to motor thermal unit by color code.

I believe that a careful use of this code while the vehicles are

being reconditioned will eliminate much labor and unnecessary search for the cause of a supposedly overheated engine afterwards.

Daniel J. DeLoi
Equipment Specialist

Dear Editor,

Here is a little something we have more or less invented. We have been having *beaucoup* trouble with 3/4-ton Dodge WC tailgate hinges. The factory type don't quite stand the punishment we hand them. All through France our tailgate hinges were cracking and replacements were impossible until we made our own (see Fig. below) which have served us faithfully and taken all the punishment we could give them.

The 7/8" pipe-end, after being inserted into the 15/16" hole in the angle iron and brazed over, may be welded to add durability.

S/Sgt. M. Guatieri
T/5 B. L. Williams
T/4 W. R. Ray
APO 350

Dear Editor,

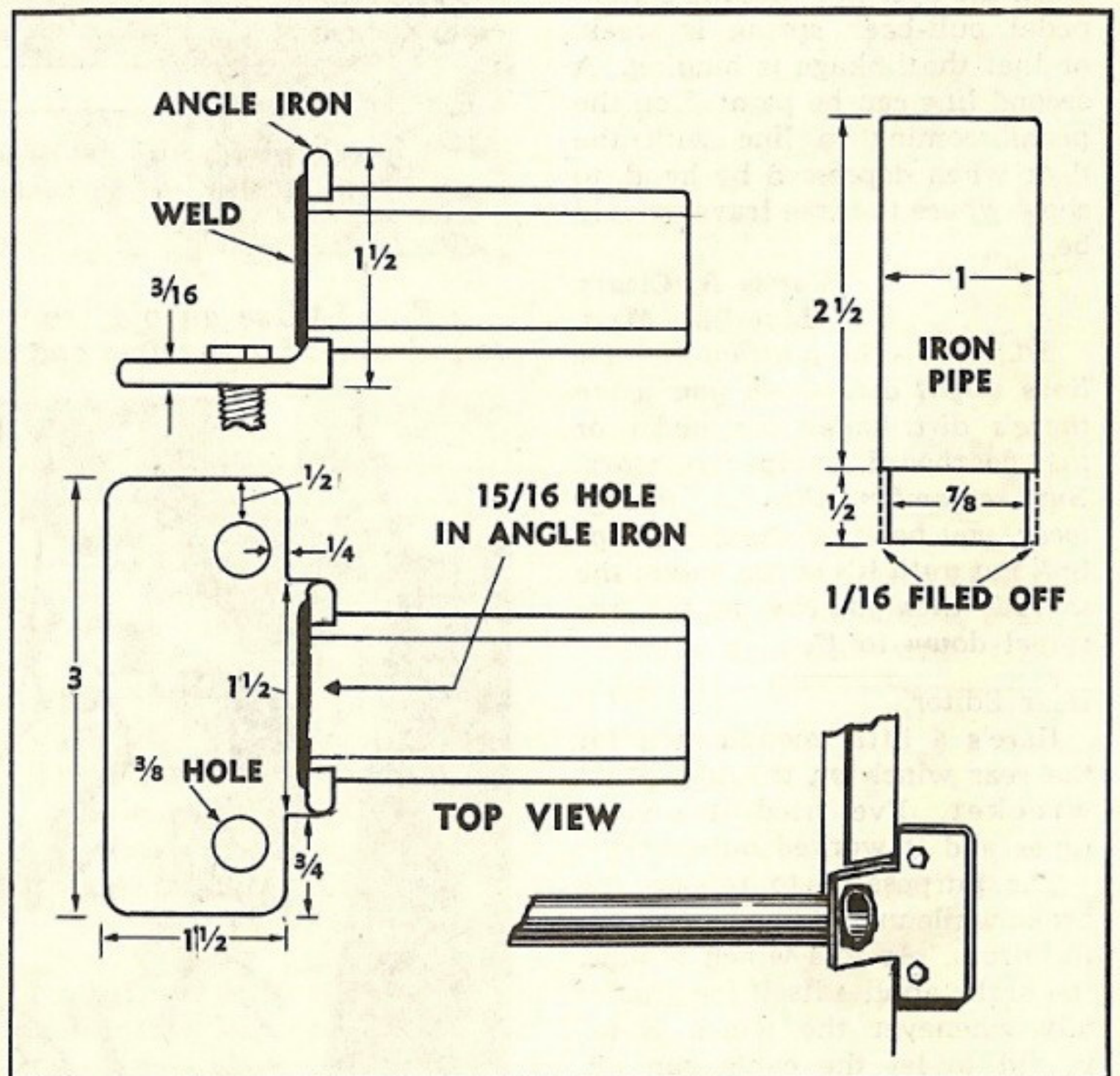
Over here, where tire-valve caps are hard to get, we're having our share of tire trouble due to dirty and leaking valve cores.

I took some old air hose and cut from it a 3/4" length. Then I closed one end of this section with a piece of old inner tube held on with cold-patching cement.

This makeshift is easy to put on (just push it over the valve)—and mud or sand won't pull it off.

T/4 Roy E. Johnson
APO 394

Ed. Note—Sharp idea, if you have enough old air hose. Capt. James O. Parker, Kelly Field, also came up with something along that line—only he uses 1" of 7-mm (I.D.) rubber tubing and "a filler plug of solid rubber approximately 1/4" long" to seal the end. Lt. Alvin C. Bartunek, University of Delaware, suggests that valve caps be painted a conspicuous color, like red or yellow, so they won't get lost so often in the first place.



Assorted views of the Guatieri-Williams-Ray tailgate hinge for 3/4-ton Dodge weapons carriers. It's a pipe.

Dear Editor,

We use a tool that can be made very easily and saves much time and profanity when there are ¼-ton jeep transmissions to work on.

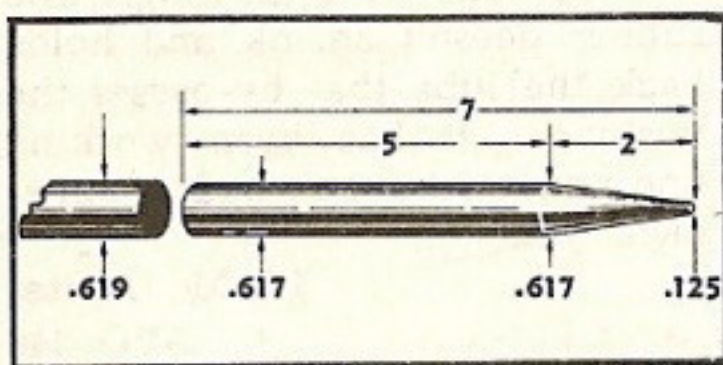
To line up the thrust washers on the countershaft, which must be set in the case before the clutch shaft can be installed, use a tool of the dimensions shown in the Fig. below.

The tapered end of the tool will pick up and align the washers. It's .002" smaller in diameter than the countershaft and slides through the clusters easily.

The countershaft is used to push the tool through. Since both tool and shaft have flat ends, the washers are picked up smoothly by the shaft and are not bent or chipped.

T/5 Robert E. Bayes
APO 298

Ed. Note—Good idea—in fact, it's similar to what the manufacturers use. A little grease on the washers helps to hold them in place during assembly.



Dear Editor,

Here's a gimcrack (Fig. below) we've found very useful for rethreading axle-flange studs. It's an idea of **Pfc. Howard A. Smith**—one of our crack parts-room clerks.

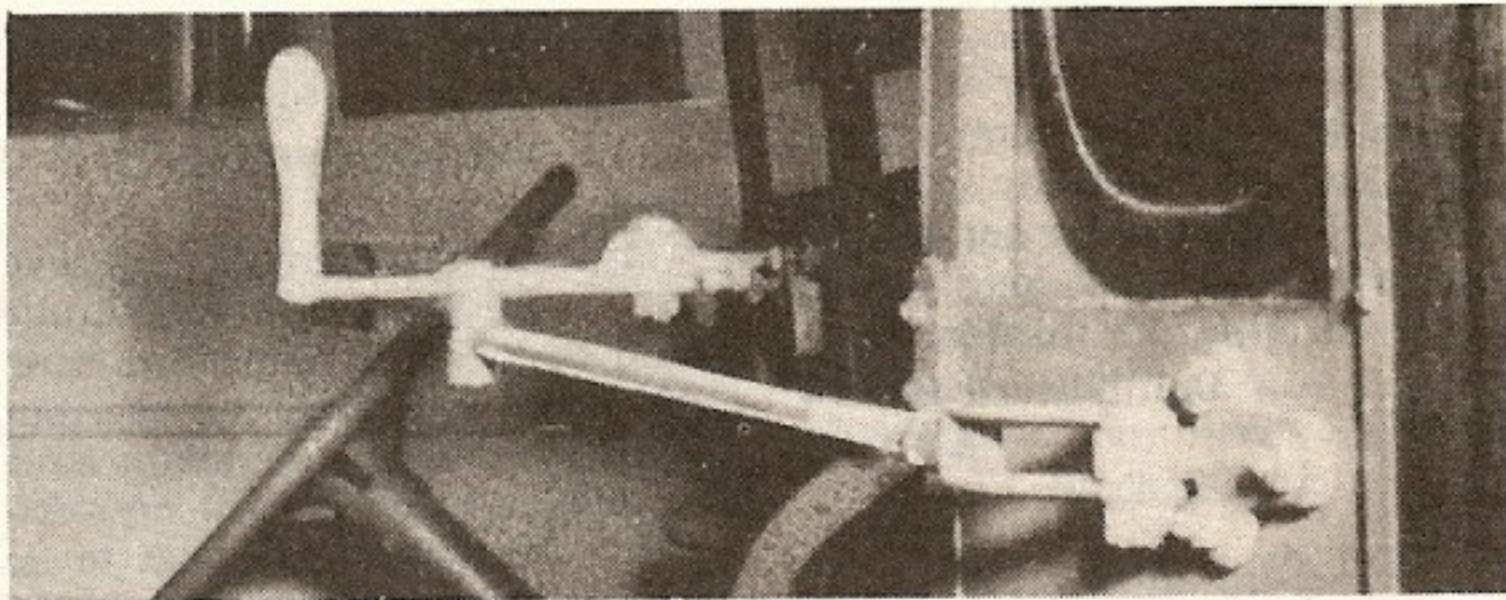
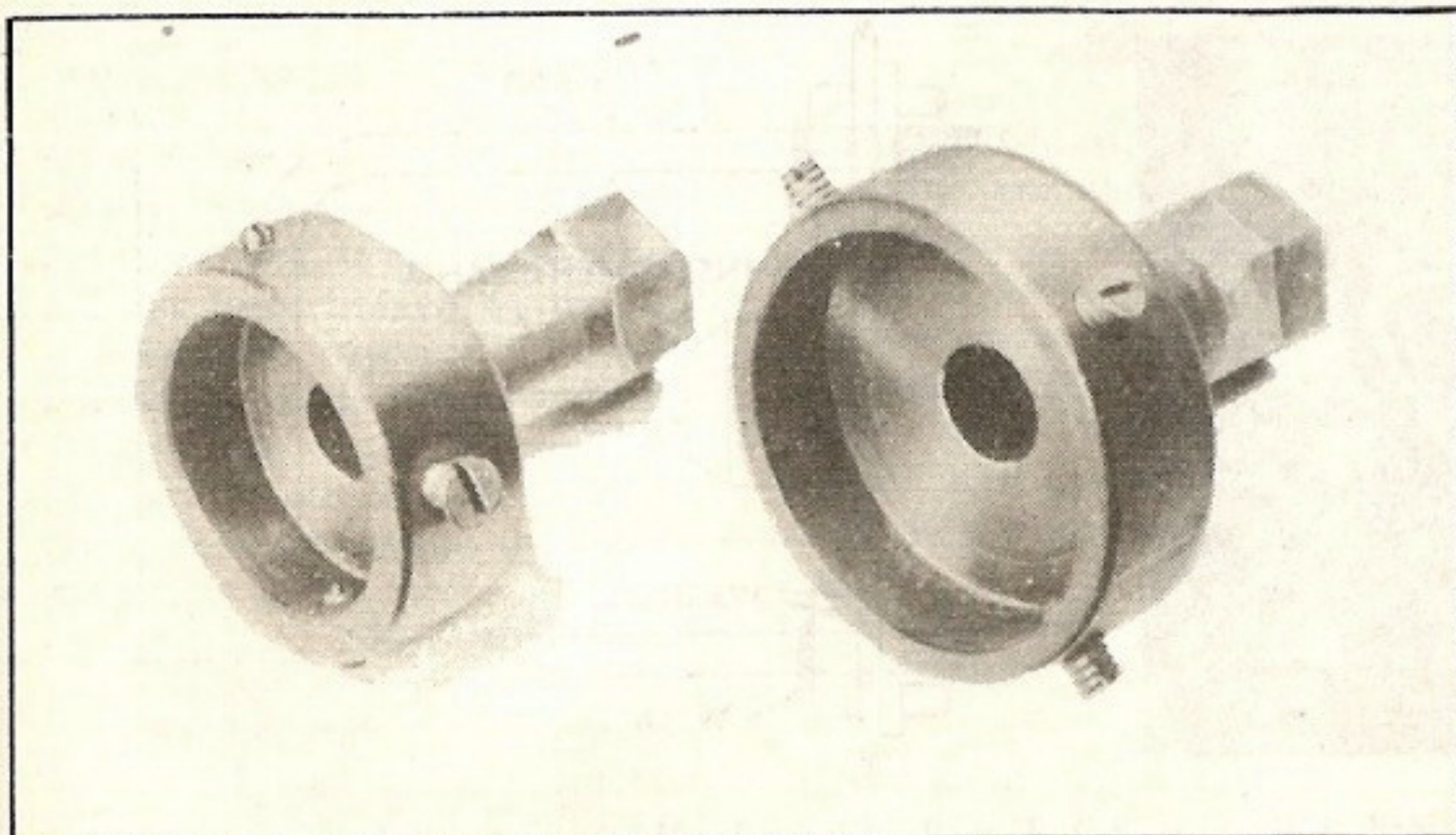


Fig. 1—Any GI could snag himself on this door control, but—

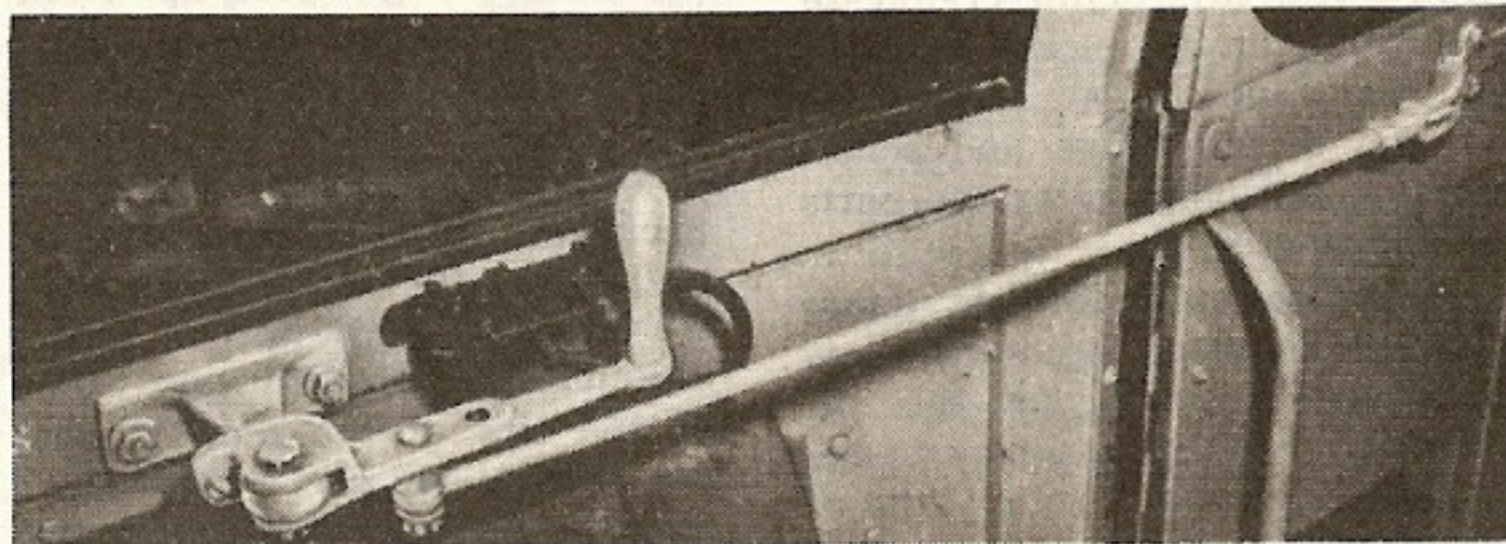


Fig. 2—Only an octopus gets hooked when it's fixed like this.

These two die extensions were made to hold most commonly used die sizes. The material used was all rescued from the scrap pile.

Lt. Wm. R. Keyfe
Tyndall Field

Ed. Note—This tool acts as an adapter, holding the die away from the handle so you can get into tight places to rethread a stud and still turn the handle. Only catch is that 2nd-echelon shops aren't equipped to make it for themselves.

It may not be too serious, but it can be irritating as hell, when

you or your barracks bag or pack get snagged on the door control of the 2½-ton 4x2 International 37-40-passenger bus because the handle sticks out as shown in Fig. 1.

You can eliminate this annoyance by following the suggestion of **Lt. D. W. Plaskett, Brooklyn Army Base Terminal, N. Y.**, and moving the pivot pin at the end of the door tie-rod 1⅜" closer to the pivot point of the door-control lever. This allows the lever and tie rod to swing up close to the dash, like you see it in Fig. 2, and leaves the stepwell clear for entering and departing GI's.

Dear Editor,

We've been having a great deal of trouble with our Truck, 1½-ton, 4x4, Earth Borer, K-44. The bracket that holds the control levers to the housing is made of cast metal and breaks quite easily when in operation. To combat this, we took the old part to an Ordnance shop and had it copied in steel. It works darn good.

S/Sgt. Ervin Williams
T/4 David Swayne
T/4 Bob Robinson
T/5 Terry Lee Pittman
APO 696

Dear Editor,

I've been using .45 and .30 cal. cartridge shells for stamping out holes in gaskets—many different types. I find it quite handy, and one shell will go a long way if it's used on a soft wooden block.

Cpl. Edward Harlow
APO 464

When you lose your Allen wrench (and they do disappear like magic), it's impossible to remove the tire-pump-crankcase drain-plug on the duck. And that's too bad. Since the air compressor has no filter, sludge and sometimes metal chips wear the parts on the double.

Maj. George K. Busiek, Camp Gordon Johnston, knowing how important it is to get this oil drained, thought of a way to remove this plug with any type of wrench. You simply braze a $\frac{1}{2}$ " hex-head nut on the plug—then a box-end, open-end, adjustable, or socket wrench'll fit it.

It's no longer necessary to sit on your left leg while driving $\frac{1}{4}$ -ton jeeps at night, to keep from pushing in the light switch with your left knee and leaving yourself in the dark.

All you gotta do, if you got legs like a colt, is make and install the light-switch guard shown in Fig. 1. The idea and pictures were sent in by **Capt. Robert Swan, APO 403**.

The material you'll need consists of a piece of $\frac{1}{4}$ " rod 11" long, two $\frac{1}{4}$ " nuts, two $\frac{1}{4}$ " wash-

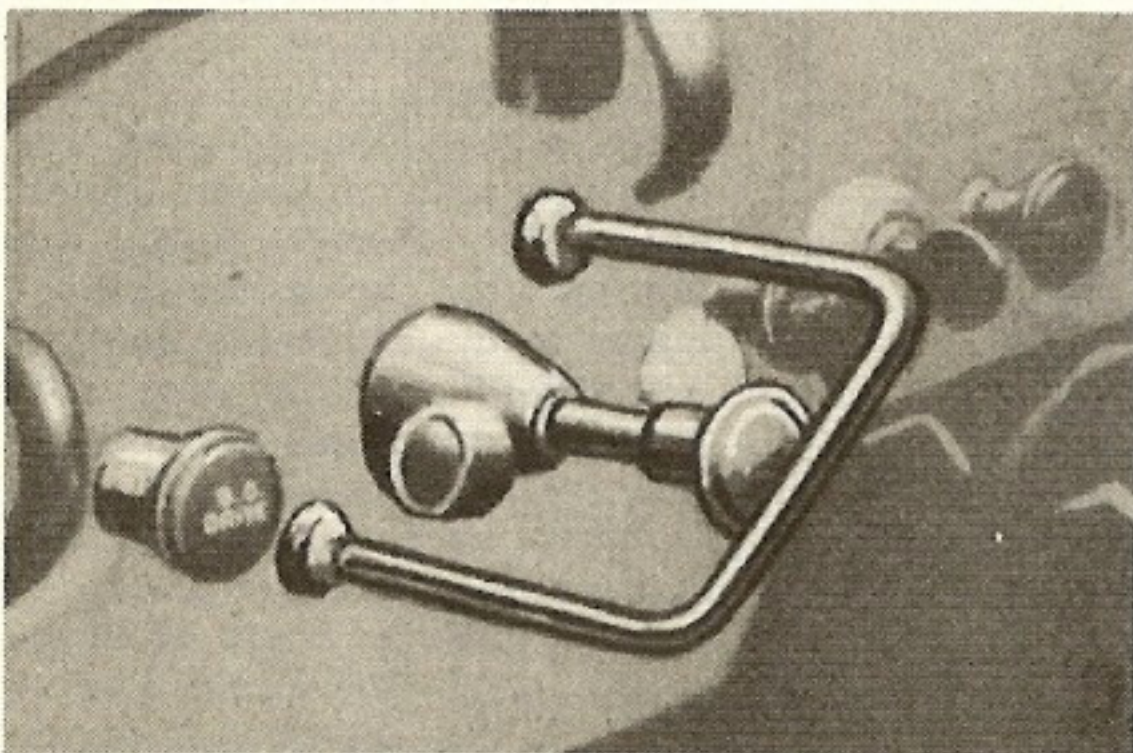


Fig. 1—Light-switch guard keeps lights lit.

ers, and two $\frac{1}{4}$ " washers $\frac{3}{8}$ " thick—all assembled as shown in Fig. 2.

Dear Editor,

My first contribution may save some precious hydraulic-brake fluid that's so badly needed here. We save all fluid for re-use, but what bleeder hose we might have on hand almost always mysteriously disappears. So what to do for bleeder hose? First, all the salvage hose we could put our hands on was gathered up. Next, we made arrangements with one of the hospitals to give us all the used rubber tubing that comes in the standard Army and Navy package of blood plasma. It can't be re-used for hospital purposes, we've been told, but it serves a double purpose, anyway. Some of the tips of the bleeder hose are plastic, and are a little large for the tubing, but a pocket knife fixes that in a hurry. The salvage-metal tips work smooth as a button (we had one of our HAM's turn them out for us). So by the time you receive this, bleeder hose and conservation of brake fluid should be well in hand. Incidentally, the strainer or filter in the plasma tube may be incorporated in the bleeder hose, if you like.

CWO Wendell R. Miller
APO 689

Ed. Note—Don't have to tell you how good that is. Maybe it's better without the strainer, though. The glass tube is fragile and most of the contamination comes in after the fluid is bled from the brake system, anyway.

Dear Editor,

The island where we are located has some pretty rough coral roads and the wear and tear of operation has caused leaks at the steering-pitman packing-seal on our GMC $2\frac{1}{2}$ -ton CCKW's. We have changed the packing and retainers but in a week's time the vehicle has sprung the same leak. This is true on both the old- and new-type steering.

Upon investigation, we discovered that the bushings on the shaft are worn slightly oval—not enough to cause shimmy or play, but enough to let the gear lube run down fast enough to shrink the cork packing and create a leak. The ideal solution would be to replace the bushings but they aren't available. We are equipped in our shop to make bushings, but we need the little stock we have for bushings that really need replacing—and these still have a lot of wear in them.

Our solution was to procure some synthetic-rubber sheeting and cut our own packing. The rubber doesn't shrink and holds back the lube that by-passes the bushings. It has been working fine and we haven't had a comeback yet.

Lt. M. Levites
APO 246

Ed. Note—Swell idea, using synthetic rubber for the pitman packing-seal. You can use it with slightly-worn bushings as long as the rubber's available—but whenever you replace the bushings, might be better to install the regular cork seal.

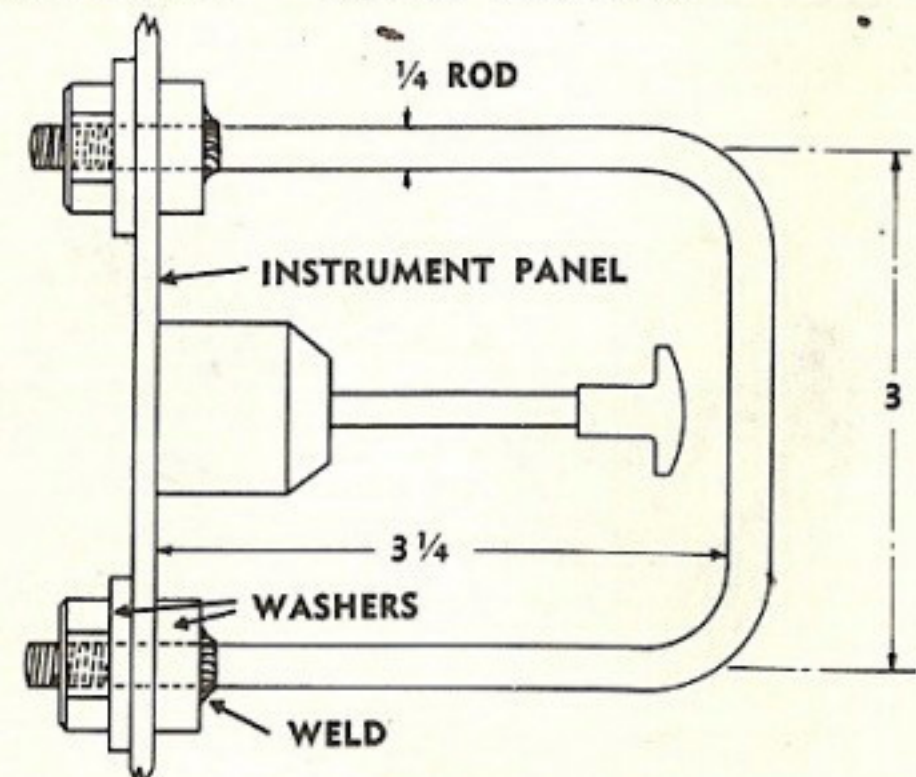


Fig. 2—Guard all rigged up for mounting.

SGT. HALF-MAST McCANICK'S



QUESTION DEPARTMENT

Dear Half-Mast,

There's one item in 2nd-echelon tool set no. 2 which I, and I'm sure a lot of other fellows, have been cussing for a good while. When Ordnance revised the tool sets, they did a damn good job—but they sure overlooked that breast drill. My gripe is that it won't hold a high-speed steel drill. All our drill shanks are scored and generally beat up from being ground up in that no-good chuck.

Here's a suggestion on how to make that drill a lot more useful: Rig a chuck on the order of a regular Jacob's chuck, reinforce the handles because they're too flimsy as they are now, and we'll have a lot better tool. As for the key which is normally used with a Jacob's chuck, it could be either a regular key chained to the drill or a knurled knob could be incorporated into the chuck to lock it.

Hope you can make some improvement on that drill. We're about ready to chuck the one we have now in the Rhine.

M/Sgt. H. G. H.

Dear Sergeant,

You're barkin' up the right alley on that breast drill. Somebody shoulda chucked out that chuck

long ago—and that's what they're doin' right now.

The tool people tell me a Jacob's chuck for that kind of drill is out of the question, but they have a new drill coming out with a 3-jaw chuck that's supposed to be a beaut. Its Fed. Stock No. will be 41-D-1663-25, and it'll replace the drill you're griping about. Better not throw the ones you have into the drink just yet, though, because the new ones'll take a while to get into supply channels.

Half-Mast

Dear Half-Mast,

We're constantly being asked for prices on vehicle parts for reports of survey, accident-damage estimates, etc. We use the old 10-series TM's or accompanying price lists. What's the law on this? Are these net prices, and are they okay to use for the purpose?

How about depreciation estimates—how much can we allow?
Lt. F. W.

Dear Lieutenant,

Vehicle parts prices for reports

of survey and statements of accountability ought to be pulled out of SB 9-46, "List of Prices for Ordnance Materiel, Automotive Spare Parts" (17 Feb. 45). Ordnance materiel price lists are coming out in SB's now, and all those published are listed in FM 21-6—so far, there's SB 9-10A, SB 9-10B, SB 9-10C, SB 9-45, SB 9-46, and SB 9-52.

If you can't find the item prices in an SB (SB 9-46 for automotive spare parts, etc.), SB-9-30 says to ask the Office, Chief of Ordnance, Fiscal Division, Budget Branch, Washington 25, D.C. (through channels) what prices to use.

SB 9-30 (2 Aug. 44) and Change 1 (23 Apr. 45), and TM 14-904 (Apr. 45), "Accounting for Lost, Damaged, and Destroyed Property," oughta answer your question on depreciation.

Half-Mast

Dear Half-Mast,

We have considerable trouble with the fuel pumps on all our vehicles. The pin that holds the rocker arm in the fuel pump leaks oil at both ends and keeps the outside top of the oil pan dirty and full of oil. Is there any way to stop the pin from leaking without replacing the fuel pump?

Sgt. W. S. S.

Dear Sergeant,

You don't have to replace your fuel pump unless those leaks get really bad. Instead, you can yank out the pin, free it from the rocker arm and link, stick it back in again, and then peen the housing stock so that there's a tight fit around the pin.

Try that and see if your pump still keeps drooling. If it does, you'd better clamp your fuzzy fist on a new one.

Half-Mast

Dear Half-Mast,

I have a very small problem that has worried me very much. On my jeep, the fan belt makes what I call a bird in the engine. It doesn't cause any trouble, only makes noise while the engine is running. Of course, people say I

can't get it out but if I put a small amount of grease on it, it will stop. I think it's wrong to put grease on rubber—that's the reason I don't. Please solve my problem.

S/Sgt. R. M. P.

Dear Sergeant,

There are several possible reasons why your fan belt might be giving you the bird.

Try raising your hood and watching your fan belt turn over with the engine idling. Then give her the gas in a hurry and see if the belt keeps up with it. If it doesn't, it's either too loose or it's bottoming in the pulley. While you're doin' all this, notice whether the chirping increases or decreases. If it increases, slippage is your problem—slippage either from looseness or bottoming. If it's looseness that's causing the trouble, take up the belt a notch. If it's bottoming, replace it—and find out whether you need a new fan pulley. If the chirping decreases with the engine turning over faster, the trouble may be in bent fan blades or lousy fan bearings—not in belt slippage.

You're right about grease, by the way—it's poison to belts. Soap is all right if you really need it. Take a squint at the May ARMY MOTORS, page 33.

Half-Mast

Dear Half-Mast,

What is the difference between the right- and left-front springs on Willys ¼-tons? Are they interchangeable? Could I use a spring leaf #2 (A-612-2) instead of a

spring leaf #2 (A-613-2)?

All the leaves measure the same as far as I know or could find out.
T/4 K. M.

Dear Sergeant,

On all jeeps, the left-front spring has greater load-carrying ability than the right-front spring—it also uses left-hand-threaded shackle-ends and bushings in the spring eye. In an emergency, you could interchange the spring leaves with the exception of the main leaf—but for best spring action, better get the right one (or left one) as soon as you can.

Half-Mast

Dear Half-Mast,

(1) Is there a manual or publication that pertains to the removal of ignition keys from vehicles when they're parked?

(2) What regulation covers the removal of an engine serial number from the block when removing the engine and stamping it on the new engine that's installed in the same vehicle?

M/Sgt. O. L. B.

Dear Sergeant,

(1) There's an old MTTSB (Quartermaster Motor Transport Technical Service Bulletin D-4) that authorized filing ignition keys so they couldn't be taken out of the locks once they were stuck in (the Aug. 42 ARMY MOTORS told the story). This was to keep the older jobs in line with the new ones that had lever-operated ignition switches in place of keys—so they could all be moved in a hurry.

The bulletin was cancelled long

ago, when the front office figured all keys had been locked in the locks. If you've still got a job with a removable key, looks like it's up to you and your CO whether you take it out when you park.

(2) SB 9-36 (26 Oct. 44) says: "All engines rebuilt at fifth echelon (automotive) shops will bear serial numbers. Where no factory serial number appears, serial numbers will be applied by the shops, in accordance with assignments which will be made upon application by the Office, Chief of Ordnance-Detroit, Detroit 32, Michigan. Under no circumstances will a factory serial number appearing on an assembly, including engines, be obliterated and another number substituted."

If you got an engine that needs a serial number, you can get it assigned by going through channels to your Service Command or Theater Ordnance Officer. Be sure a complete description of the engine rides along with your request.

Half-Mast

Dear Half-Mast,

TM 9-710 (23 Feb. 44), Basic Half-Track Vehicles, states in par. 94d that the spark-plug gasket should be inserted between the spark plug and the lower spark-plug shield.

TM 9-1711 (26 Jan. 42), Maintenance Manual for White 160 AX Engines, states in paragraph 75a that the spark-plug gasket should be placed between the lower spark-plug shield and the cylinder head.

Which is correct and why?

T/Sgt. M. V. B.

Dear Sergeant,

You can tuck that gasket in either place, and still be okay. I sorta like it between the shield and cylinder head, because lots of times the shield ain't 100% efficient as a compression seal. You'll protect the surface of the shield that way, too, when the spark plug's tightened in the cylinder head—and it's easier to replace a spark-plug gasket than a shield.

Half-Mast

SAVE WASTE FAT

Don't burn off all your blubber over a maintenance problem that's got you stymied—you may have to live off that fat some day. Send your problems to M/Sgt. Half-Mast McCanick, who has plenty of fat to spare. The old boy's been riddled with riddles for years but there's very few holes in his answers. Write direct to **Half-Mast, ARMY MOTORS Magazine, Office, Chief of Ordnance, Detroit 32, Michigan.** If your question's fascinating enough to be published, you'll also get a one-year **personal** subscription to this Greaseball's Home Companion.

Dear Half-Mast,

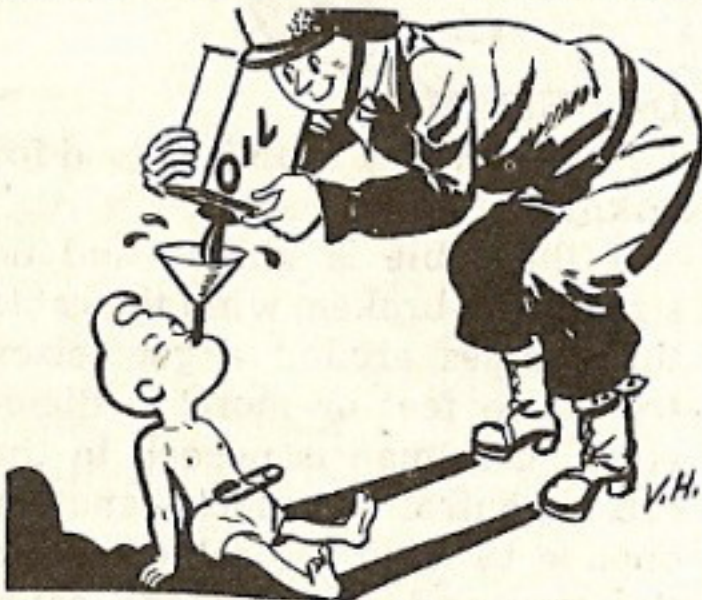
Please give me the lowdown on the oil bayonet-gage as it applies to the Federal C2 wrecker, model 606D.

The lubrication chart gives the crankcase capacity at 20 quarts. The T.O. states there's a "full mark" on the bayonet gage. The mark 4/4 and the number 30850 are on the gage, but no "full mark." Twenty quarts in the engine shows to the plug part of the gage. We still fill with 20 quarts and will until other information is received.

C. S. H.

Dear Mr. H.,

Right now you can stop putting 20 quarts of oil in that wrecker's engine. The lube chart you're going by has been superseded.



That baby takes 16 quarts, according to the chart on page 22, sec. 2 of T.O. 19-20-16 (10 Sep. 43). AAF Lubrication Chart No. C19-20-1 (15 Mar. 45) gives 16 quarts, too. However, dry engines with new oil-filter elements need 18 qts.

The Hercules HXC engine used in the AAF C2 wrecker has only two filters. But the HXC engines in 6-ton 6x6 Ordnance vehicles (Corbitt, White, Ward LaFrance, and Brockway) have three filters, and they take 20 quarts of oil. Here's a little trick nobody can explain: Tests show you can measure the oil more accurately on these vehicles if you first remove the gage and then wait about 20 seconds before you stick it back in to check it.

That T.O. must've meant the 4/4 mark when it said "full mark." The dipstick should be marked off in quarters.

Half-Mast

Dear Half-Mast,

Is there any way that the two bolts holding the bottom of the timing-gear cover on GMC engines can be reversed, so you don't have to drop the oil pan to remove the timing-gear cover? If they could be reversed it would save valuable time and gaskets for any 2nd- or 3rd-echelon shop.

Sgt. D. E. J.

Dear Sergeant,

No doubt about it—a lot of time and gaskets would be saved. But if you ever had to replace a front main-bearing, it'd be necessary to remove the whole damn radiator assembly and crankshaft pulley in order to get at the bolts.

Half-Mast

Dear Half-Mast,

I just noticed that TB 9-2830-33 (25 Jan. 44) contains the same idea I put forward to you on 20 Jun. 43. My suggestion was cutting a dog-ear on both sides of the flywheel ring-gear, thereby doubling the life of the flywheel. This idea was published in your column in the Sep.-Oct. 43 ARMY MOTORS, with the comment that it wouldn't be practical because the only damage that usually hits the flywheel ring-gear is the loss of its teeth. Now this TB pops up with exactly the same idea I sent in. What goes?

T/3 D. J. P.

Dear Sergeant,

You sure caught me behind the 8-ball on that one. I know now—but didn't know then—that just before your idea came in, Reclamation Procedure Bulletin #36 (7 Jun. 43) was published, saying that flywheel ring-gears could be reclaimed by dog-earing both sides. This same stunt came out later in the TB, as you darn well know. (Most people think the red on my face is sunburn but we know different.)

Sorry as hell you had to wait so long for the chance to holler, "I told you so!"—but loud.

Half-Mast

Dear Half-Mast,

On the GMC 2½-ton 6x6 with

banjo-type axle housing, why do they use inverted hypoid final-drives in the live front axles? I've got three good ideas about the answer but I don't want to start shooting off my mouth until I get you to back me up.

Sgt. G. R. M.

Dear Sergeant,

'Cording to the manufacturer, one reason is to simplify the parts-supply problem. The design engineer decided to make the differential-carrier parts for the banjo-type front axle the same as those for the rear axles, so they'd be interchangeable. The 6x6 is designed for the transfer case to be located near the center of the vehicle, and for power to be transmitted through it by way of the propeller shafts to the front and rear driving axles. This means the drive pinion for the front axle has to point toward the rear, while the drive pinions of the rear axles point toward the front of the truck. To accomplish this, the front differential was rotated on its axis 180°, putting the pinion above the center-line of the axle.

Also, with this design, the front propeller shaft can be placed along the right side of the engine oil-pan. This way, the clearance between the road and the engine ain't reduced, and you get a lower center of gravity for straight-line drive when the truck's loaded.

Don't know what your third reason is, but two's enough for me.

Half-Mast

Dear Half-Mast,

Can you come to the aid of a group of distressed tank drivers who have received no aid from TM's, TB's or tomatoes? Come on over and show us a possible and foolproof method of checking the stationary CO₂ fire extinguishers without removing them from the tanks and weighing them. More distressful is that we have no scales available. What to do? What to do?

Lt. W. J. A.

Dear Lieutenant,

Even if I came over, I couldn't give you a sure-fire method of checking those fire extinguishers

except wrestling them out of the tanks and digging up a scale. But if the safety-pin seal-wire on the control head is intact, and the stop pin in the control-head shaft is in a vertical position (in line with the arrow on the housing), you're pretty safe in figuring the cylinders are full.

Half-Mast

Dear Half-Mast,

I've noticed a difference between the M5 high-speed tractor I drive and the other M5's around here. The tires on my bogie wheels are solid while the tires on the other M5's are grooved.

Which is better and why are they different?

T/5 C. S.

Dear Corporal,

With those solid tires on your M5, you're right in the groove. Those with the grooved tires ain't, and here's why:

Bogie tires were grooved for a while to prevent 'em from overheating and blowing out. But this turned out to be a bum idea because the grooves picked up sticks and stones which tore up the tires, especially synthetics. So the only kind used in production now is the solid type like you've got.

Half-Mast

Dear Half-Mast,

While out in the field we noticed a defect on our 7½-ton Mack prime movers. It seems that when they're loaded down and hauling a gun over rough terrain, the front propeller-shaft on the winch hits the spring clip. This is wearing a small groove in the propeller-shaft spline.

I think if we file about ⅛" off the spring clip, it'll save us considerable trouble later on. Would it be permissible to make this modification, or should we wait for some kind of work order to come out?

T/Sgt. S. K.

Dear Sergeant,

It's okay to file off that spring clip about ⅛"—that is, if your CO gives you the nod. There ain't

going to be any modification that I know of.

Have you tightened up the spring clips and the winch-to-frame brackets, and checked the shock absorbers for fluid and adjustment? If you haven't, maybe these things'll give you enough clearance without filing the clip.

Half-Mast

Dear Half-Mast,

We've had a lot of trouble with gasoline-soluble paint, used to paint the large service command insignia on administrative vehicles and the national symbol on tactical vehicles. The nomenclature



is Paint, gasoline-soluble, lusterless (paste), white; Fed. Stock No. 52-P-2732. This problem came to a head at our last inspection by the CG, who was able to wipe the things off by hand. We've also found that rain causes them to run and wash away or fade.

How can we prevent this?

Lt. R. W. G.

Dear Lieutenant,

It's now okay to use Enamel, synthetic, stenciling, lusterless, white (Fed. Stock No. 52-E-8400-275) for the star on all motor vehicles assigned to tactical units

and AGF installations, and on administrative vehicles in theaters of operations as directed by the theater commander. Says so in AR 850-5 (15 Feb. 45).

This white enamel should also be used for registration numbers. If yours are still blue, AR 850-5 says repaint 'em by 15 Aug. 45.

For any other national symbol, as directed by the Commanding General, ASF, for vehicles assigned to service command installations, gasoline-soluble paint will still be used. Likewise for unit identification markings, tactical markings, and weight-class markings—which ain't necessarily permanent.

Half-Mast

Dear Half-Mast,

Here's an idea I think is good for unkinking winch cables.

If the cable is kinked and no strands are broken, wind the cable three times around a good-sized tree (two feet or more in diameter). One man is needed in the cab to control the winch—another outside to wind the cable around the tree and see that the cable hook doesn't pull fast to anything while it's winding in.

It helped me a lot during maneuvers in the Louisiana mud. Think it'll help some other Joe?

Sgt. N. M.

Dear Sergeant,

I think it might be a right smart way to unkink a winch cable—providing the kink ain't short and tight. The safest thing to do with a badly kinked cable is to have it cut and spliced or get a new one.

Even if you turned the cable around a tree and got rid of the kink, you could break some strands or otherwise weaken the cable. Either would make it dangerous to use the cable again.

Your idea's okay for a loose kink. Like I always say, though, the best idea is to watch the cable with an eagle eye when you're using it and never let it slack enough to kink.

Half-Mast

The Month's Directives

A check-list of recent official publications affecting lower-echelon vehicle maintenance. All are distributed to the field through established channels —not by the Office, Chief of Ordnance-Detroit or the Publications Department, Raritan Arsenal. For further dope on distribution, consult **FM 21-6** or your organizational or post publications officer.

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

ASF CATALOG, ORDNANCE SUPPLY CATALOG

ORD 1—Introduction
ORD 2—Index
ORD 3—List of Major Items for Issue to Troops, Posts, Camps and Stations
ORD 4—Allowances of Expendable Supplies
ORD 5—Stock List of All Items
ORD 6—Sets of Equipment
ORD 7—Organizational Spare Parts and Equipment
ORD 8—Higher-Echelon Spare Parts and Equipment

ORD 9—List of All Parts or List of All Service Parts
ORD 10—Tool, Load, and Supply Guide
ORD 11—Ammunition
ORD 12—Obsolete General Supplies
ORD 13—Items Common to Two or More Major Items
ORD 14—Interchangeability List
ORD 15—Cross Reference Lists
ORD 16—Captured Foreign Materiel

GUN MOTOR CARRIAGES

CARRIAGE, MOTOR, 105-MM HOWITZER, M7

MWO ORD G1-W27, Spaced suspension for extended end-connectors; 37-in. extended grouser.

ORD 7, SNL G-128 (21 May 45).

CARRIAGE, MOTOR, 105-MM HOWITZER, M7B1

MWO ORD G1-W27, Spaced suspension for extended end-connectors; 37-in. extended grouser.

CARRIAGE, MOTOR, 3-IN. GUN, M10

MWO ORD G1-W27, Spaced suspension for extended end-connectors; 37-in. extended grouser.

ORD 9, SNL G-130 (16 June. 45).

CARRIAGE, MOTOR, MULTIPLE GUN, M14

ORD 7, 8, 9, SNL G-147, C2 (30 May 45).

CARRIAGE, MOTOR, MULTIPLE GUN, M17

ORD 7, 8, 9, SNL G-147, C2 (30 May 45).

CARRIAGE, MOTOR, 76-MM GUN, M18

TM 9-755, Operation and maintenance (25 Apr. 45).

CARRIAGE, MOTOR, 90-MM GUN, M36, M36B1, M36B2

MWO ORD G1-W27, Spaced suspension for extended end-connectors; 37-in. extended grouser.

CARRIERS

CARRIER, PERSONNEL, HALF-TRACK, M5

ORD 7, 8, 9, SNL G-147, C2 (30 May 45).

ORD 7, SNL G-147, Vol. 2 (21 Jun. 45).

CARRIER, PERSONNEL, HALF-TRACK, M5A1

ORD 7, 8, 9, SNL G-147, C2 (30 May 45).

CAR, HALF-TRACK, M9A1

ORD 7, 8, 9, SNL G-147, C2 (30 May 45).

CARRIER, CARGO, M28

ORD 7, 8, 9, SNL G-154, C3 (15 May 45).

CARRIER, CARGO, M29, M29C

TB 9-772-7, Additional operating and maintenance instructions.

ORD 7, 8, 9, SNL G-154, C3 (15 May 45).

LO 9-772 (10 Feb. 45).

HALF-TRACKS

(See also Individual Vehicle Listings)

ALL HALF-TRACK VEHICLES

WD Pamphlet 37-3, Maintenance drill (8 Mar. 45).

LIGHT TANKS

TANK, LIGHT, M24

TB 9-729-5, Correct adjustment of transmission manual-control linkage.

MEDIUM TANKS

TANK-LIKE VEHICLES WITH MEDIUM-TANK-TYPE VERTICAL-VOLUTE SUSPENSION

MWO ORD G1-W27, Spaced suspension for extended end-connectors; 37-in. extended grouser.

TANK, MEDIUM, M4-SERIES

TB ORD FE41, Elimination of interference between rotor-block retaining-pins and commander's vision-cupola hatch-door-periscope holder.

TANK, MEDIUM, M4

MWO ORD G1-W27, Spaced suspension for extended end-connectors; 37-in. extended grouser.

TB ORD FE35, Grouser-compartment-plate reinforcement.

TANK, MEDIUM, M4, 105-MM HOWITZER

MWO ORD G1-W27, Spaced suspension for extended end-connectors; 37-in. extended grouser.

TB ORD FE35, Grouser-compartment-plate reinforcement.

TANK, MEDIUM, M4A1

MWO ORD G1-W27, Spaced suspension for extended end-connectors; 37-in. extended grouser.

TB ORD FE35, Grouser-compartment-plate reinforcement.

TANK, MEDIUM, M4A1, 76-MM GUN, WET

MWO ORD G1-W27, Spaced suspension for extended end-connectors; 37-in. extended grouser.

TB ORD FE35, Grouser-compartment-plate reinforcement.

ORD 7, SNL G-207 (8 Jun. 45).

TANK, MEDIUM, M4A2

MWO ORD G1-W23, Replacing sheet-metal exhaust deflectors with armor-plate strip.

MWO ORD G1-W27, Spaced suspension for extended end-connectors; 37-in. extended grouser.

TANK, MEDIUM, M4A2, 76-MM GUN, WET

MWO ORD G1-W23, Replacing sheet-metal exhaust deflectors with armor-plate strip.

MWO ORD G1-W27, Spaced suspension for extended end-connectors; 37-in. extended grouser.

ORD 9, SNL G-212, C1 (16 May 45).

TANK, MEDIUM, M4A3

MWO ORD G1-W27, Spaced suspension for extended end-connectors; 37-in. extended grouser.

TANK, MEDIUM, M4A3, 75-MM GUN, WET

MWO ORD G1-W27, Spaced suspension for extended end-connectors; 37-in. extended grouser.

TANK, MEDIUM, M4A3, 76-MM GUN, WET

MWO ORD G1-W27, Spaced suspension for extended end-connectors; 37-in. extended grouser.

LO 9-759-2 (6 Mar. 45).

TANK, MEDIUM, M4A3, 105-MM HOWITZER

MWO ORD G1-W27, Spaced suspension for extended end-connectors; 37-in. extended grouser.

TANK, MEDIUM, M4A3E2

MWO ORD G1-W27, Spaced suspension for extended end-connectors; 37-in. extended grouser.

TANK, MEDIUM, M4A4

MWO ORD G1-W27, Spaced suspension for extended end-connectors; 37-in. extended grouser.

VEHICLE, TANK RECOVERY, M32, M32B1
 TB ORD FE35, Grouser-compartment-plate reinforcement.
 VEHICLE, TANK RECOVERY, M32B2
 MWO ORD G1-W23, Replacing sheet-metal exhaust deflectors with armor-plate strip.
 VEHICLE, UTILITY, ARMORED, M39
 TM 9-755, Operation and maintenance (25 Apr. 45).

HEAVY TANKS

TANK, HEAVY, T26 SERIES
 TB ORD FE 41, Elimination of interference between rotor-block retaining-pins and commander's vision-cupola hatch-door-periscope holder.

TRUCKS

TRUCK, ¼-TON, 4x4 (WILLYS, FORD)
 TB 9-803-FE8, Vacuum-type windshield wiper.
 WD Pamphlet 37-1, Maintenance drill (26 Mar. 45).
 ALL TRUCKS, ¾-TON AND 1½-TON, 4x4
 WD Pamphlet 37-2, Maintenance drill (26 Mar. 45).
 ALL TRUCKS, 1½-TON AND 2½-TON, 6x6
 WD Pamphlet 37-2, Maintenance drill (26 Mar. 45).
 TRUCK, 2½-TON, 6x4 (STUDEBAKER)
 ORD 7, 8, SNL G-630, C3 (26 May 45).
 TRUCK, 2½-TON, 6x6 (STUDEBAKER, REO)
 TB 9-807-6, Lubrication instructions.
 ORD 7, 8, SNL G-630, C3 (26 May 45).
 TRUCK, 2½-TON, 6x6, AUTOMOTIVE REPAIR, M8, M8A1 (LOAD A)
 ORD 7, SNL G-139, Vol. 1 (2 May 45).
 ORD 7, SNL G-139, Vol. 1, C1 (17 May 45).
 TRUCK, 2½-TON, 6x6, AUTOMOTIVE REPAIR, M8, M8A1 (LOAD B)
 ORD 7, SNL G-139, Vol. 2, C3 (3 Jun. 45).
 TRUCK, 2½-TON, 6x6, ARTILLERY REPAIR, M9, M9A1
 ORD 7, SNL G-140, C1 (4 May 45).
 TRUCK, 2½-TON, 6x6, INSTRUMENT REPAIR, M10, M10A1 (LOAD A)
 ORD 7, SNL G-141, Vol. 1, C4 (20 May 45).
 TRUCK, 2½-TON, 6x6, MACHINE SHOP, M16, M16A1 (LOAD B, B1, B2)
 ORD 7, SNL G-146, Vol. 2, C1 (12 May 45).
 TRUCK, 2½-TON, 6x6, MACHINE SHOP, M16, M16A1 (LOAD D).
 ORD 7, SNL G-146, Vol. 4, C1 (29 May 45).
 TRUCK, 2½-TON, 6x6, MACHINE SHOP, M16, M16A1 (LOAD F)
 ORD 7, SNL G-146, Vol. 5, C1 (15 May 45).
 TRUCK, 4-TON, 4x4, CARGO (FWD HAR-1)
 ORD 7, SNL G-531 (9 Jun. 45).
 TRUCK, TRACTOR, 4-5 TON, 4x4, C.O.E. (AUTOCAR U-7144-T, WHITE 444)
 ORD 9, SNL G-510 (1 Jun. 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, C1 (14 May 45).
 TRUCK, TRACTOR, 5-TON, 4x2, DUMP (IHC KR 11)
 ORD 7, 8, 9, SNL G-542, C3 (25 Apr. 45).
 TRUCK, 6-TON, 6x6, PRIME MOVER (CORBITT 50SDH)
 ORD 7, SNL G-512 (10 May 45).
 TRUCK, 6-TON, 6x6 (BROCKWAY, WARD LA FRANCE)
 ORD 7, 8, SNL G-547, C3 (25 May 45).

TRACTORS

TRACTOR, HIGH-SPEED, 13-TON, M5A1
 TB 9-786-1, Additional operating and maintenance instructions.
 TRACTOR, HIGH-SPEED, 18-TON, M4
 ORD 7, 8, 9, SNL G-150, C1 (15 Apr. 45).
 ORD 7, 8, 9, SNL G-150, C2 (5 Jun. 45).
 TRACTOR, HIGH-SPEED, 38-TON, M6
 ORD 9, SNL G-184 (1 Jun. 45).
 TRACTOR, SNOW, M7
 LO 9-774 (15 Mar. 45).

TRAILERS

TRAILER, 1-TON PAYLOAD, 2W, CARGO
 LO 9-883 (10 Feb. 45).
 TRAILER, 1-TON, SNOW, M19
 LO 9-774 (15 Mar. 45).
 TRAILER, 1-TON PAYLOAD, 2W, AMMUNITION, M24
 LO 9-883 (10 Feb. 45).
 TRAILER, BOMB, 1-TON, 4W, T53
 ORD 9, SNL G-224, C1 (15 Jun. 45).
 TRAILER, 2½-TON PAYLOAD, 2W, AMPHIBIAN CARGO (CLEAVER-BROOKS WTCT-6)
 TM 9-872, Operation and maintenance (5 May 45).
 SEMITRAILER, 3-TON PAYLOAD, 2W, VAN (CHECKER)
 LO 9-U330 (24 Feb. 45).
 SEMITRAILER, 3½-TON PAYLOAD, 2W, COMB. STAKE AND PLATFORM (CHECKER AND HOBBS SNL G-560, G-564)
 LO 9-U330 (24 Feb. 45).
 TRAILER, 4-TON, 2W, AMMUNITION, M21
 ORD 7, 8, 9, SNL G-213, C1 (20 May 45).
 SEMITRAILER, 5-TON PAYLOAD, 8-TON GROSS, 2W, STAKE AND PLATFORM
 ORD 7, 8, 9, SNL G-675, C2 (31 May 45).
 SEMITRAILER, 6-TON GROSS, 2W, COMB. STAKE AND PLATFORM (WINTER WEISS)
 LO 9-U330 (24 Feb. 45).
 SEMITRAILER, 6-TON PAYLOAD, 8-TON GROSS, 2W, COMB. ANIMAL AND CARGO (TRAILER CO. OF AMERICA)
 LO 9-U341 (17 Feb. 45).
 SEMITRAILER, 6-TON PAYLOAD, 10-TON GROSS, 2W, FUEL TANK, 2000 GAL.
 ORD 7, 8, 9, SNL G-678, C1 (31 May 45).

SEMITRAILER, 6½-TON GROSS, 2W, PIPE
 LO 9-U353 (3 Feb. 45).
 TRAILER, AMMUNITION, 8-TON, 4W, M23
 ORD 7, 8, 9, SNL G-216, C1 (5 Jun. 45).
 SEMITRAILER, 11-TON PAYLOAD, 15-TON GROSS, 2W, VAN (RELIANCE)
 LO 9-896 (15 Mar. 45).
 TRAILER, 22-TON PAYLOAD, 6W, LOW BED (FRUEHAUF)
 LO 9-898 (1 Apr. 45).
 TRAILER, GENERATOR, M7
 LO 9-881 (12 Feb. 45).
 TRAILER, GENERATOR, M18
 LO 9-881-2 (8 Mar. 45).
 TRAILER, 2W, BOMB, M29
 TM 9-701, Operation and maintenance (1 Jun. 45).
 MOUNT, TRAILER, MULTIPLE CAL. .50 MACHINE GUN, M55
 ORD 7, 8, 9, SNL G-220, C1 (5 Jun. 45).

MOTORCYCLES

MOTORCYCLE, CHAIN DRIVE (INDIAN 340, 340B, 640, 640B)
 LO 9-U321 (13 Mar. 45).
 MOTORCYCLE, CHAIN DRIVE, 74 CU. IN., TWIN (HARLEY DAVIDSON 40UA)
 LO 9-U323 (15 Mar. 45).

GENERAL

WDC 174, Tire inflation pressure (12 Jun. 45).
 FM 21-6, List and Index of WD Publications (10 Jun. 45).
 TM 9-2852, C1, Welding, theory and application (26 Apr. 45).
 TM 9-2858, Cooling systems, vehicles and powered ground equipment (8 May 45).
 TB ORD FE37, Ordnance wheeled vehicles with stake and platform bodies: Body-stake-socket swage.
 SB 9-1, Ordnance major items and combinations and pertinent publications (1 May 45).
 SB 9-2, C1, Standards for overseas shipment and domestic issues (3 May 45).
 SB 9-2, C2, Standards for overseas shipment and domestic issues (24 May 45).
 SB 9-4, Preparation of unboxed Ordnance material for shipment (10 Apr. 45).
 SB 9-30, C1, Standard overhaul cost of items most frequently lost or damaged (23 Apr. 45).
 SB 9-35, C-2, List of manufacturers and their symbols (1 Jun. 45).
 SB 9-41, Transfer of responsibility for storage and issue of spare parts for specific vehicles (15 May 45).
 SB 9-48, C1, Production-control procedure for automotive shops (10 May 45).
 SB 9-53, Determination of repairability, Ordnance automotive general purpose vehicles (16 Apr. 45).
 ORD 2, C1, Index (1 Jun. 45).
 ORD 5, SNL J-1, Sec. 1, C1, Abrasion and compression tools (16 Apr. 45).
 ORD 5, SNL J-2, Sec. 1, C1, Cutting, boring, and tweezer tools (17 Apr. 45).
 ORD 5, SNL J-3, Sec. 1, C1, Geometrical tools and instruments (18 Apr. 45).
 ORD 5, SNL J-4, Sec. 1, C1, Punch, drift, fastening, and scraping tools (19 Apr. 45).
 ORD 5, SNL J-10, Sec. 1, C1, Small tools (11 Apr. 45).
 ORD 5, SNL J-16, Sec. 1, C1, Tire repair and maintenance tools and equipment (13 Apr. 45).
 ORD 5, SNL J-20, Sec. 1, C1, Miscellaneous kits and tool sets (13 Apr. 45).
 ORD 5, SNL J-20, Sec. 1, C2, Miscellaneous kits and tool sets (13 May 45).
 ORD 6, SNL G-27, Sec. 2, C1, Tools, automotive and semi-automotive (15 May 45).
 ORD 13, SNL M-5, Items common to two or more groups (21 Apr. 45).

• • NEWS FLASHES • •

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

WDC 174 (12 Jun. 45) says tire pressures are to be stenciled on vehicles—the tire pressure prescribed in TM 31-200. (Pending revision of this TM, the latest list of correct tire pressures appears in **TB 31-200-7**, 23 May 45.)

Here's where it goes: On the instrument panel (prominently displayed) of all wheeled, general-purpose, special-equipment, and special-purpose vehicles—in the driver's compartment (prominently displayed) of all tank-like wheeled combat-vehicles—on the outside of the fender, or on the body near the wheels, of trailers and semitrailers.

The markings should be legible block or stencil-type letters, not over one inch high, and put on with approved **white**, lusterless, stenciling, synthetic enamel, except when the area to be marked is painted white; then, the markings go in approved **black**, lusterless, stenciling, synthetic enamel.

* * *

TM 9-2858, "Cooling Systems: Vehicles and Powered Ground Equipment" (8 May 45), trouble-shoots the whole cooling system—tells you how to diagnose the trouble and gives you the cure. PM tips for drivers and mechanics are in there, too, along with other dope on cooling systems that you'll want to know. It's a new TM that belongs in every automotive-shop library—including yours.

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That M29 cargo carrier tow-bar kit (**MWO ORD G179-W7**, 29 May 45) you read about in the March ARMY MOTORS is now on the market. Better install it first chance you get, because then you can travel in tandem and it'll be easier to recover vehicles. On weasels below serial No. 2103, the old-type pintle hook won't fit the tow-bar lunette, so the MWO also tells you how to install a new-type pintle. Requisition the kit by Package Stock No. G179-5700242, MWO ORD G179-W7, from Maintenance Division, Office, Chief of Ordnance-Detroit, Detroit 32, Michigan, Attention SPOMM--SM.

* * *

If your M4-series medium tank has horizontal-volute suspension and is equipped with the new T80 track, you're going to need a special socket wrench and extension bar for servicing the center-guide bolt and nut. If you haven't got 'em, says **TB ORD 287** (12 Apr. 45), requisition through regular supply channels—Bar, extension-assembly (B7080147), Fed. Stock No. 41-B-309-18; and Wrench, socket, center-guide (A7080150), Fed. Stock No. 41-W-3038-10.

Maybe your M10 tank destroyer isn't equipped with an azimuth indicator for indirect fire—in which case, grab ahold of **MWO ORD G130-W15** (23 Apr. 45) and requisition the kit (Item Stock No. G130-5700359). The work order gives you full details on how to do the job. Wait a minute—the work order also supersedes the one with the same number dated 18 Sep. 43. You have to relocate the indicator if you followed the original FSMWO.

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Still rolling off the presses are TB's on **fits, tolerances, and wear limits** for the engines of Army vehicles. Here are some more:

TB ORD 267 (19 Mar. 45)—Mack EY engine (6-ton 6x6 and 7½-ton 6x6 Mack prime mover).

TB ORD 270 (22 Mar. 45)—International FAC-269 engine (International 2½-ton 4x2, K-7 and LC).

TB ORD 277 (31 Mar. 45)—Dodge T202 engine (¾-ton 4x4 and 1½-ton 6x6 Dodge).

TB ORD 283 (9 Mar. 45)—Cummins HB-600 engine (10-ton 6x4 White Diesel prime mover 1064, 20-ton 6x4 Federal Diesel tractor truck 604, 20-ton 6x4 Reo Diesel 28XS).

TB ORD 289 (19 Apr. 45)—GMC 256 engine (2½-ton 6x6 GMC ACKWX-353, 2½-ton 6x4 GMC AFWX-354).

TB ORD 290 (21 Apr. 45)—Dodge T203 engine (Dodge 1½-ton trucks, 1941).

TB ORD 291 (21 Apr. 45)—Dodge T118 engine (Dodge 1½-ton 4x2).

TB ORD 293 (23 Apr. 45)—Dodge T211 (to engine serial no. 42001), T207, and T112 engines (Dodge ½-ton 4x4 and 4x2, 1941).

TB ORD 298 (24 May 45)—Packard 2001-A engine.

TB 9-1724A-1 (19 Apr. 45)—Lycoming 0-435-T engine (M22 light tank).

TB 9-1786A-2 (17 Mar. 45)—Continental R6572 engine (13-ton IHC high-speed tractor, M5).

TB 9-1815A-1 (23 Apr. 45)—Waukesha 6BZ engine (2½-4-ton 4x4, Four Wheel Drive HAR-1).

TB 9-1818A-1 (23 Apr. 45)—Mack ED engine (Mack 10-ton 6x4).

TB ORD 9-1832A-2 (2 Feb. 45)—Hercules RXB, RXC, HXD, HXC, and JXD engines.

TB ORD 10-1160-1 (19 Mar. 45)—Autocar 377 engine (5-ton 4x4 Autocar COE).

TB ORD 10-1271-1 (21 Apr. 45)—Reo GC-310 engine (2½-ton Reo 21-BHHS and 21-XHHS).

TB ORD 10-1377-1 (21 Apr. 45)—Waukesha 6SRKR-517 engine (5-6-ton 4x4 SU C.O.E. truck).

81.14.471

WAR DEPARTMENT LUBRICATION ORDER LO 9-785
 30 JANUARY 1945 (Supersedes WDLO No. 122, 26 October 1943)

TRACTOR, HIGH SPEED, 18-TON, M4

Reference: TM 9-785, ORD 7 SHL, G-150

Clean fittings before lubricating. Lubricate after washing.
 Clean parts, use SOLVENT, dry cleaning or Oil, fuel, Diesel, Dry
 before lubricating.

Service intervals are based on actual hours of operation under normal
 conditions. Reduce under extreme conditions.

This is an order!



Serviced From Inside Cab

- 48 CG Throttle Control Brake Springs
- 48 CG Air Brake Control Valve Lever
- 8 OE Trans. and Diff. Fill and Level
- OE Torque Converter Pump Drive Housing Fill
- 8 Torque Converter Pump Drive Housing Level
- 96 Torque Converter Fluid Filter
- 96 CG Universal Joints and Slip Joint
- 96 Torque Converter Fluid Reservoir Drain

Serviced Through Left Ventilator Grille

- Winch Drive Universal and Slip Joints
- Starter (SAE 10)
- Engine Crankcase Level
- Engine Crankcase Fill
- Water Pump Brg.
- Air Compressor Air Cleaner
- Air Compressor Belt Adjusting Idler
- Fan Drive Gear Housing Drain
- Fan Drive Gear Housing Level
- Fan Drive Gear Housing Fill
- Winch Universal Joint
- Winch Gear Housing Drain
- Winch Gear Housing Level
- Winch Gear Housing Fill

- 288 Fan Drive Drain
- OE Fan Drive Level
- 8 CG Fan Drive Level
- 8 CG Fan Drive Level
- 48 W

- 48 CG Winch Drum Bearings
- 8 Air Supply Tank
- 48 OE Winch Jaw Clutch
- 48 CG Winch Frame End Brg.
- W OE Winch Cable
- 48 CG Pintle Spring Housing
- 192 CG Pintle

Drop that pen, ungentle reader. Blow that letter asking Half-Mast which grease to use where on your vehicle. All you gotta do is take a look at your lube order—which Tells All and means what it says. The word "order" also means what it says: instructions in LO's are mandatory (WD Circular 114, 1944).

Just be sure you've got the new card-type or decal LO—available now (through regular publications channels) for most of your wheeled and tracked hacks. See the latest list of LO's in FM 21-6, or check ARMY MOTORS' "Month's Directives," starting last April. You grease-gunners can be sharpshooters, too.