ARMY MOTORS

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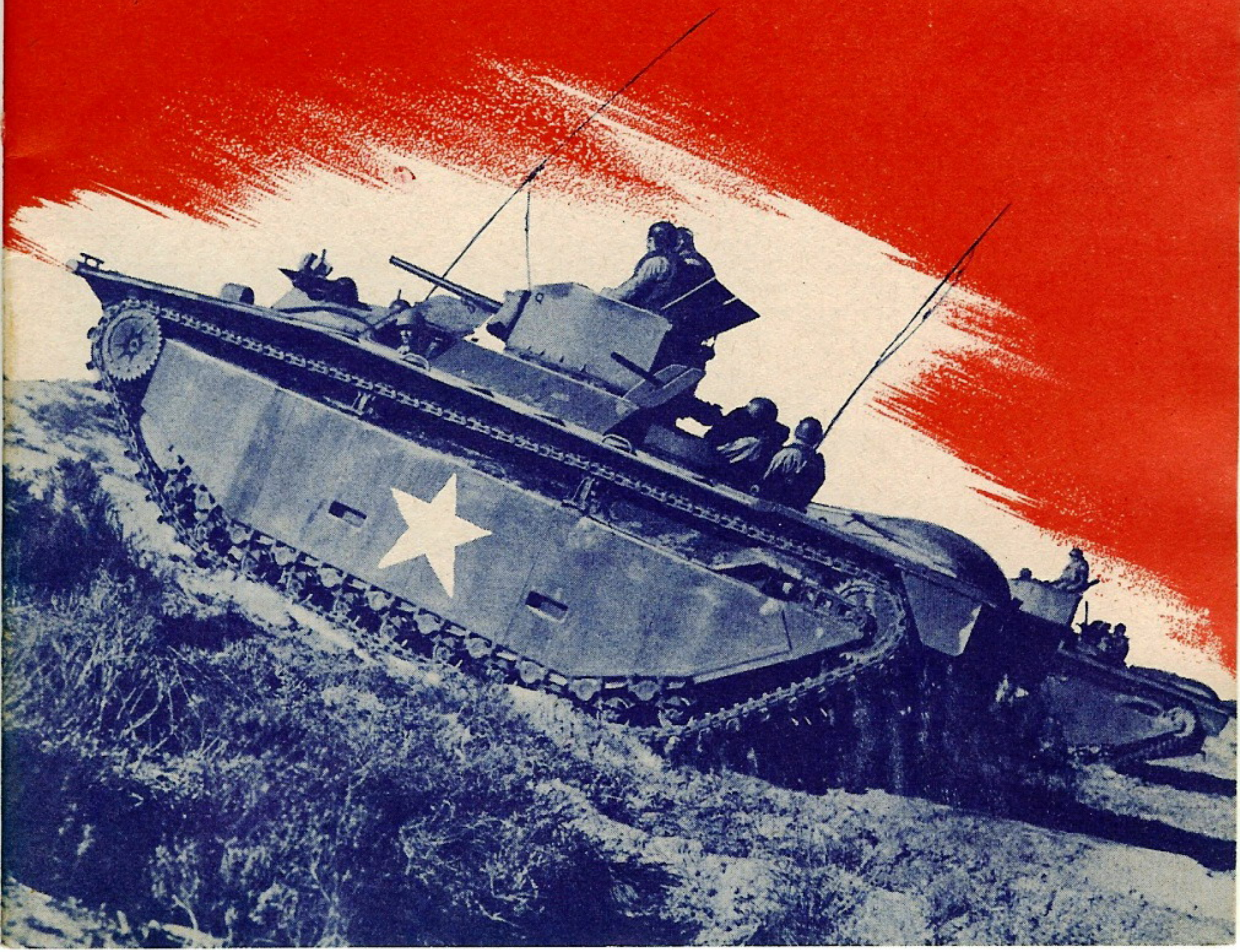

Combat is the Mother of Necessity

A friend of ours, who's with an infantry division on the northern end of the Western Front, wrote in here the other day to tell us where we could stick some of the "luxury items" we advertise. In our pigeonhole, he said. We are doing things in maintenance over here, he said, that would make the hair stand up on your head.

Well okay, nothing wrong with that—so long as he doesn't do anything that'll run him or anybody else any deeper into mechanical trouble. Everybody expects a man to use his noggin. The newspapers call it Yankee ingenuity.

The only kick we got is that he thinks combat maintenance would make the hair stand up on our heads. Why, about sixty or seventy percent of the stuff we print every month comes from the field. And we don't know how many times GMC or Chrysler corporation have braked their assembly lines to a screaming halt because we got a letter from Pfc. Pontchartrain Schultz in New Guinea saying that such-and-such a bolt should better have more threads on it because the old one is stripping out.

We admire very much to hear such things. Take this morning's mail, for instance: Here's a letter from S/Sgt. Wayne Roberts in Naziland who's got lots of tires with shrapnel and bullet holes in them, and a shortage of hot and cold patches. So what does he do? He gets some rubber insulating tape from the wire section. He puts a strip of the rubber tape under an old hot-patch tin which he has saved from way back when. Then he pours a little German artillery gunpower in the tin, lights it, and lets it do the job of heating the rubber on. Not as good as the good old Shaler hot patches, he admits, but better than tying up vehicles.

Then there's Captain William Leach in Italy who suffers from a lack of jeep mufflers. Captain Leach manufactures replacement jeep mufflers out of used German 88mm shell cases, of which he reports there are aplenty, and they work fine. Lt. W. L. McCarty, in the South Pacific, works up 100-lb. practice bombs as jeep mufflers.

"Smoky and Duke," somewhere in the Pacific, can't find any penetrating oil to ease up their sticking jeep brake and clutch-pedal bushings. But there's always plenty of rifle-bore cleaner around. They pump some in, let it stand for an hour or so, follow up with grease—and no more sticking bushings.

From the four corners of this fighting world, wherever there are men with vehicles, we get letters showing faster, better, and substitute ways of doing things—all discoverd under fire or damn close to fire. Sure, we often print "drug-store remedies," or pipe-dream modifications requiring special parts and tools and equipment. But these are usually the "official" ways of fixing things that can't be permanently fixed any other way. You can't just keep on welding a bastard design over and over again.

But we'd damn well rather print combat maintenance—nothing but combat maintenance—the maintenance that counts when the chips are down. You write it, we'll print it.

Hair stand up on our head, indeed! Besides, we ain't got no hair. Billiard-bald.

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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.

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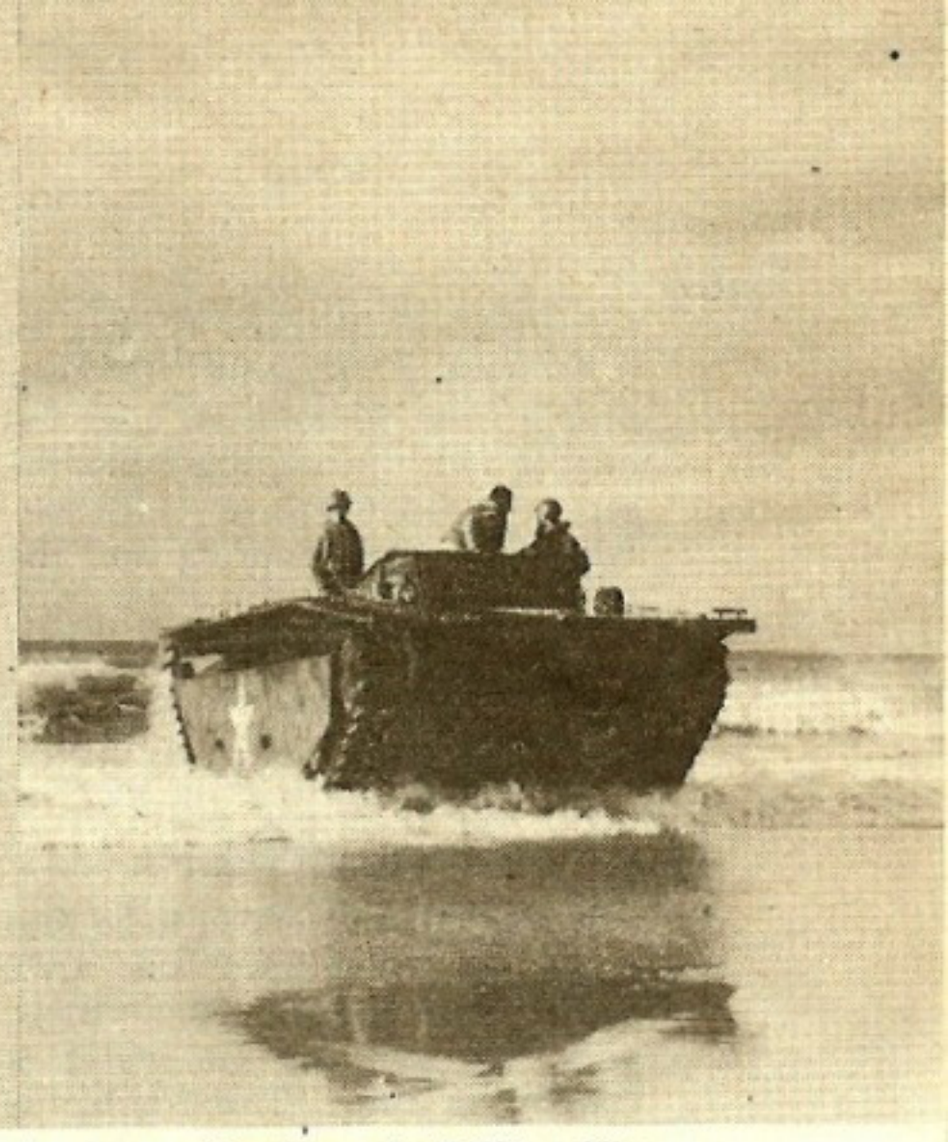
How Well Do You Know Your LVT?

Sea and sand are poison to amphibious tanks and tractors. Here's what combat and hard training have taught men who maintain Landing Vehicles, Tracked



I got into the Armored Force
And drove an M4 tank,
But they transferred me to an LVT
And the son of a beach, it sank.

Tarawa, the speck of coral in the Pacific fortified by the Japs "so a million men couldn't take it," was taken only because somebody dreamed up a vehicle that would come up out of the surf fighting. They call it the LVT—Landing Vehicle, Tracked.

When all the landing boats hung up on the reef almost a thousand yards from shore, the amphibious tanks and tractors picked up their stranded cargoes of marines and brought them in. The LVT's saved the bloodiest victory in the history of the Marine Corps from being the bloodiest defeat.

From the performance of the LVT's at Kwajalein and Eniwetok, in the Mariannas and the Philippines, "it is now believed that island landings in the Pacific Theater cannot be made without their use."

Since considerable landings are expected to be made in the Pacific Theater, it's highly possible that many people, now rolling happily along in earthbound tanks and trucks, may one day soon find themselves "transferred to an LVT." To keep the son of a beach from sinking, it will behoove these people to hie their happy tails up on the maintenance ball. For the LVT, rattling in and out of corrosive salt water, running along beaches in clouds of fine sand, needs a little looking after.

People already operating LVT's can benefit greatly from the experiments and experience of the 18th Armored Group, Col. W. S. Triplet commanding, at Fort Ord, California. A sizeable chunk of the amphibious battalions and personnel now in the Pacific were trained by the 18th Armored. As a matter of fact, the Group was given the green light on the LVT and told to write the book—which it did. Writing the book included recommending modifications and calling attention to tender spots around the vehicle requiring special nursing.

I do not like the ocean,
I don't care for the sea,
A bathtub full of water,
Is large enough for me.

CUNO FILTER

One little-giant modification

Loud and grateful praise for most of the material in this article is due to S/Sgt. F. J. Pususta, Motor Sergeant; H. D. Taylor, Civilian Automotive Advisor; Sgt. Duckworth, Ace LVT Operator; and T/Sgt. E. W. Rosenstiel, Communications Chief—all of the 18th Armored Group, Col. W. S. Triplet Commanding, Fort Ord, California.

Verses are from "The Armored Amphibian," training manual of the 18th Armored Group.

improves the Cuno fuel filter. The discs of the Cuno filter element, which strain the flotsam and jetsam out of the fuel, are themselves cleaned by turning the little handle on top of the filter. But the Cuno filter is located away downstairs in the engine compartment of all the LVT's which have the engine in the stern. To get at it, you have to lift the engine-compartment hatch-cover, lower yourself down into the engine compartment, open the handhold cover and feel for the handle.

Sometimes when the LVT is out on the water, enough strange fruit collects in the Cuno to cork up the fuel and stall the engine. This is especially embarrassing if it happens when the LVT is flouncing through the surf. At times like these, to get at the Cuno handle quickly without clambering down into the engine compartment where the smell of hot oil and the pitching of the vehicle might make you whup your cookies, the 18th Armored Group has devised an extension which brings the Cuno handle right up on deck.

The extension to the handle consists of a length of ¼" rod or similar available material. The simplest way to hook it up to the Cuno is by welding a fork on one end of the rod and fitting it right over the present handle on the Cuno (Fig. 1). Tape the extension to the Cuno handle to anchor it there. Cut whatever holes you have to, to make the extension rear its little head up on deck,

and weld a little piece of stock on it to form a T-handle. To keep people from walking all over the handle and injuring the Cuno, insert a wooden spacer-block between the deck flooring and the new T-handle.

I love to see the surf dash high,
I love the ocean's roar,
As long as I am safe on land,
A hundred yards from shore.

RADIO ANTENNA

It was never intended to be that way, but sometimes the LVT radio operator, busy with his dials, will find that the sea water is coming in fine. The trouble is simply water running in over the antenna mast-base and shorting it out.

Some people have tried waterproofing the mast base by winding rubber tape around it and painting over the tape with glyptal. But now, by a brand-new WD Supply Bulletin, the Signal Corps has spit on its hands and given out with a new antenna that is waterproof. The title of the SB announcing it is "Lightweight Antenna Systems For Vehicular Radio Sets" (the number of the bulletin wasn't available at the time we went to press—but don't worry your shaggy head about it, the antennas are available now).

A built-in neoprene seal waterproofs the new mast-base, and also the whole system has a higher resistance to breakage from whipping action. The new antennas are furnished for the Army's SCR 508 and 528 radios, and the Navy's TCS radio—either of which may be in your LVT. An entire new antenna system must be installed on your LVT—the new parts are not interchangeable with the old antenna. You can't just order the mast base and install that. You have to install the new mast sections and connecting cordage that come with it.

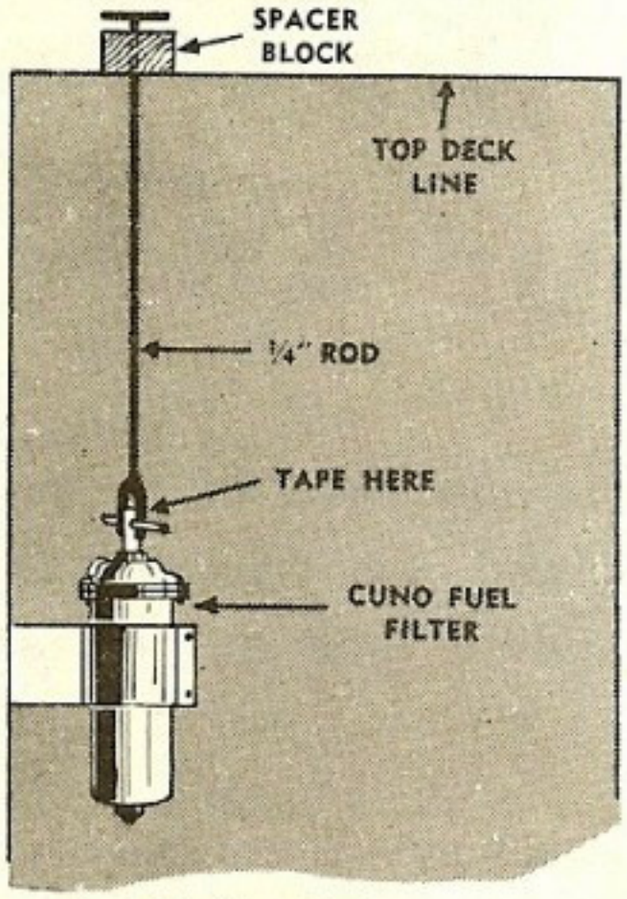


Fig. 1—Here's how to bring the Cuno handle up on deck.

Send your requisitions to the Chicago Signal Depot, 1903 West Pershing Rd., Chicago 9, Ill. For your SCR 508 or SCR 528 radio, **with wire lead-in,** order the following:

Wire W-128 (this is the same as used on your present antenna) as required, Stock No. 1B128.

One Mast Base AB-15/Gr; Stock No. 2A2081-15.

Two Mast Sections MS-116-A; Stock No. 2A2416 (this gives you a spare).

Two Mast Sections MS-117-A; Stock No. 2A2417 (gives you a spare).

Two Mast Sections MS-118-A; Stock No. 2A2418 (gives you a spare).

For your SCR 508 or SCR 528 radio, **with co-axial lead-in,** order the same as above except that instead of Wire W-128, order Cable WC-562, Stock No. 1F562, or Cordage CO-282, Stock No. 3E2282.

For your Navy TCS radio, order:

One Mast Base MP-65-A, Stock No. 2A2088-65.

Six Mast Sections MS-116-A, Stock No. 2A2416 (gives you three spares).

Two Mast Sections MS-117-A, Stock No. 2A2417 (gives you one spare).

Two Mast Sections MS-118-A, Stock No. 2A2418 (gives you one spare).

Ten-foot Antenna Lead-in, Signal Corps Stock No. 1B818.130. This is a ten-foot lead-in which

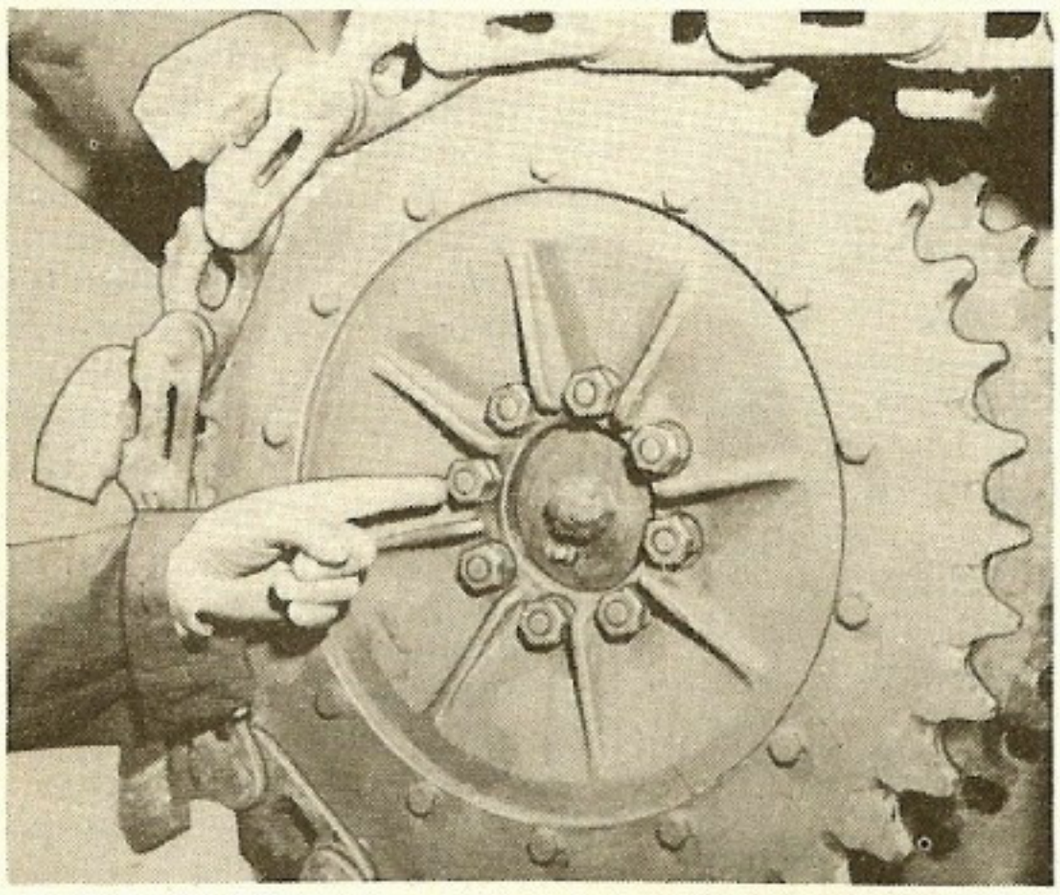


Fig. 2—These are the studs that try men's souls. There's gonna be some changes made.

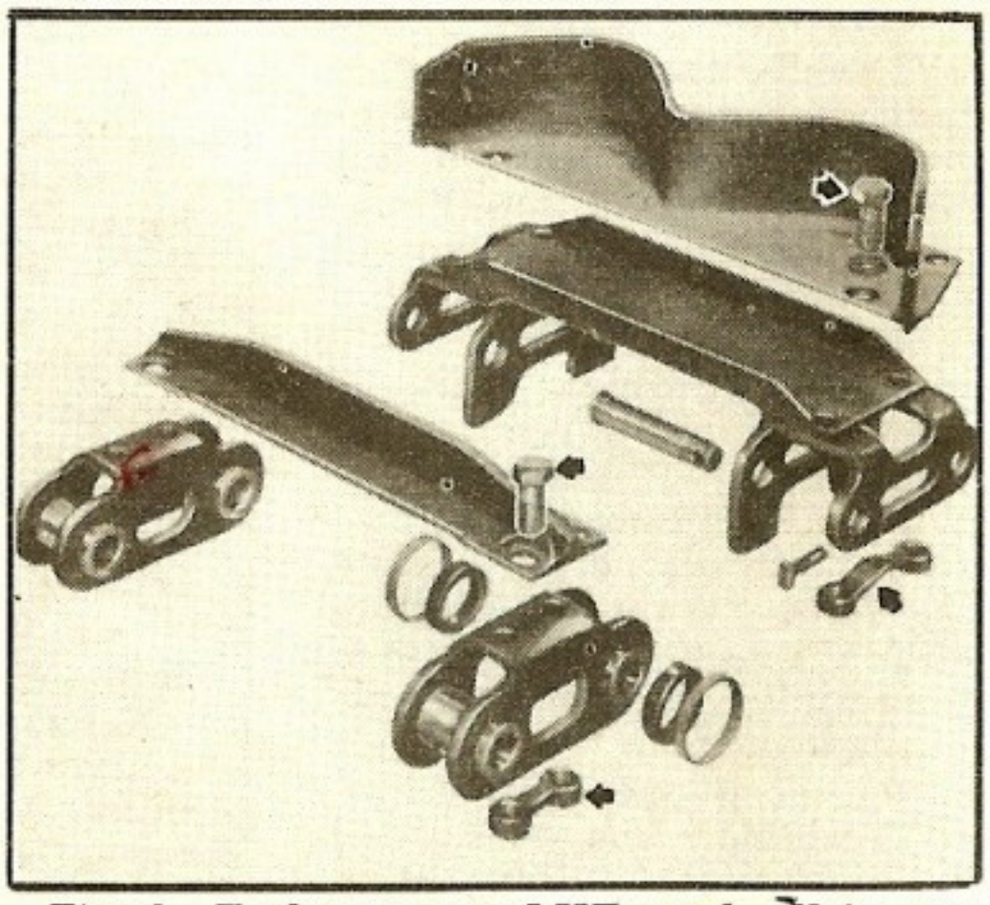


Fig. 3—To keep your LVT track all in one piece, keep after these strategic capscrews.

you will need for your LVT (A) (1) and LVT (A) (4). All other LVT's need a seven-foot lead-in which we hope you can make out of the above ten-foot wire.

I'm daily on the sick report
And pray I'm last in line,
For every minute I can waste
I'm not out on the brine.

DRIVE SPROCKETS

Probably the number-one mechanical nuisance on the LVT, right now, is the studs that attach the driving sprocket to the final-drive flange (Fig. 2). These studs are an interference fit in the final drive—that is, the threads are squeezed in tight by a stud driver in production. As the LVT rides along, however, the movement of the track causes these studs to wear the stud hole egg-shaped. Next thing you know, the studs are loose and the drive sprockets are loose. A special field-modification kit is now in preparation containing "wedged" studs to replace the present straight studs. The wedge part of the new studs will do all the gripping and, it is claimed, will hold the new studs solidly in the final-drive flange. To accommodate the new studs, the present stud holes will have to be reamed out. For the reaming, the modification kit will contain a reamer and a jig to enable the work to be done right on the vehicle without taking the drive sprocket or final-drive flange off. The kit also includes a stud driver.

At the factory, the straight studs are being replaced by through bolts—a correction which can't very well be made in the field because it takes a factory-type of modification to the flange of the final-drive shaft.

Until the modification kits are finally available, probably the best field fix for loose studs is what the 18th Armored Group is doing. This consists of tightening the studs as much as possible and spot-welding them on the inside to keep them from turning. The standard nut (¾-NF-16-3) and a locknut is used on each stud and then the thread above the locknut is upset with a punch. You take the sprocket off to do this job.

In time you can expect the welds to crack, but the remedy saves hours of operation that would otherwise be lost.

TRACK FASTENINGS

A quick way to collect a Section-8 is to keep after the fastenings of the LVT track. The grouser and crossplate capscrews (Fig. 3) have to be watched like a hawk for looseness. Especially in the combat zones where crawling over coral reefs and hard surfaces is all in the day's work. To get away from this job, the 18th Armored Group recommends tightening and tack-welding all capscrews to the short and long linknuts. The vehicles on which this is done should have had enough hours of water operation to stretch the capscrews as much as they're going to stretch. Otherwise, after tack-welding, the capscrews will stretch and the fastenings will be loose again in spite of being tack-welded. In the welding, don't apply too much heat to the capscrews (don't weld a bead all around them) or you'll soften them and they'll be ready to stretch some more in operation.

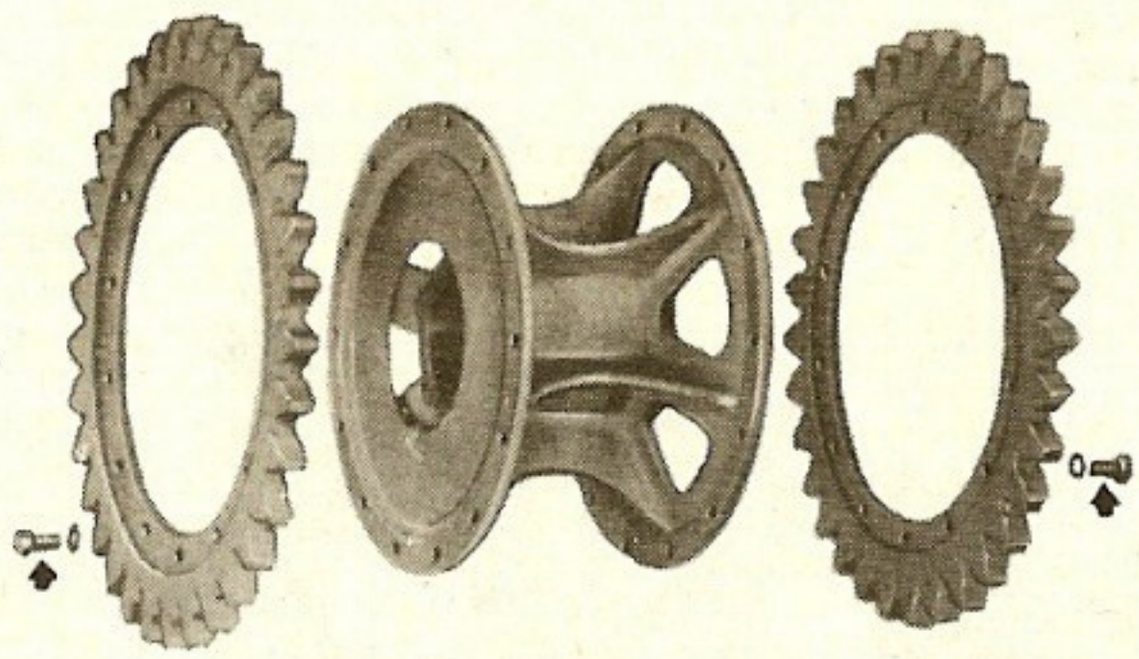


Fig. 4—Convert all the sprocket-to-hub capscrews into rivets to keep the sprocket on the hub.

The answer to those who complain that the grouser capscrews sheer too easily, is that the grouser fastenings were purposely made the weakest link in the track. If the vehicle should hang up on a reef, it's much better to lose a couple of grousers and be able to keep traveling, than to break a track and sit out there to be shot at like a fish in a barrel.

To keep the sprockets tight on both the rear idler and final drive, the Group recommends removing the lockwashers and peening the ends of the capscrews (Fig. 4) into rivets.

The water's full of whitecaps,
The air is full of foam,
Some like to be on an LVT,
But me—I'm going home.

BILGE PUMP

Trouble with the bilge pumps refusing to pump led to a little investigation on the LVT. The little investigation led to the gib keys by which the drive shaft of the bilge pump is keyed to its yokes (Fig. 5). It was found that the gib key marked "A" in Fig. 5 was being installed head down at the factory (also shown this way in the SNL from which Fig. 5 is taken). As the LVT rumbles along, this gib key is shaken out of its keyway and the connection between the drive shaft and the yoke is unconnected. The claim is made that this also happens when the three other keys in the bilge-pump drive are installed head down—sometimes they slip down into the yoke or fall only part-way down and shear under strain. (There are only three gib keys in the bilge-pump drive of the LVT (4); the top coupling of the bilge-pump drive is splined.)

The correction is easy and obvious—re-position the gib keys so that the heads are up. Key "A" in Fig. 5, for instance, will be turned upside down from the way you

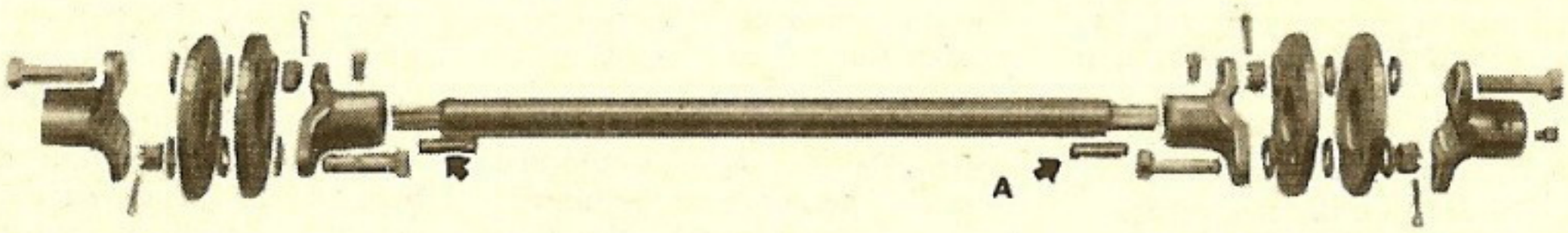


Fig. 5—Bilge-pump-drive gib keys (arrows). Key (A) fell out and uncoupled the drive shaft. The others fall out, too.

see it in the manual. Two-headed keys—with a high nickel content to prevent shearing—are now being used in production to make it impossible to install the keys heads-down.

CLUTCH SLEEVE

A ticklish spot on the LVT that only wideawake preventive maintenance will take care of is the pressure-plate hub that the clutch-release sleeve rides back and forth on ("A" in Fig. 6). Salt spray flung hither and yon about the vehicle usually manages to reach this hub, rusting it to a heavy-duty sandpaper finish. Cases have been reported where the clutch-release sleeve, instead of riding smoothly on this hub, has actually rusted and frozen to it.

At present, the Lube Order calls for you to take out the little plug in the clutch-release sleeve and lubricate with engine oil every 8 hours. But, because the OE has been thinning out in operation and not doing as good a rustproofing job as the assembly needs, the LVT Lube Order (now being revised) will recommend Oil, lubricating, preservative, medium, Fed. Stock No. 14-0-2833-120 (1-qt. can); Fed. Stock No. 14-0-2833-125 (5-gal. can). In addition, the best thing an LVT driver can do is to make a special point of seeing that sleeve and hub never lack for lubricant. A couple squirts of the lube where the three clutch-release arms swivel on their pads ("B" in Fig. 6) will also keep them from freezing.

Speaking of clutches, reports have come in of people using chassis grease on the clutch pilot-bearing and on the engine flywheel-bearing. Chassis grease used on these bearings melts and runs down into the splines of the clutch plates and flywheel. Dust from land operation of the LVT filters in, mixes with the grease, and gums up the clutch so it can't release.

The proper grease for the pilot and flywheel bearings is ball and roller-bearing grease.

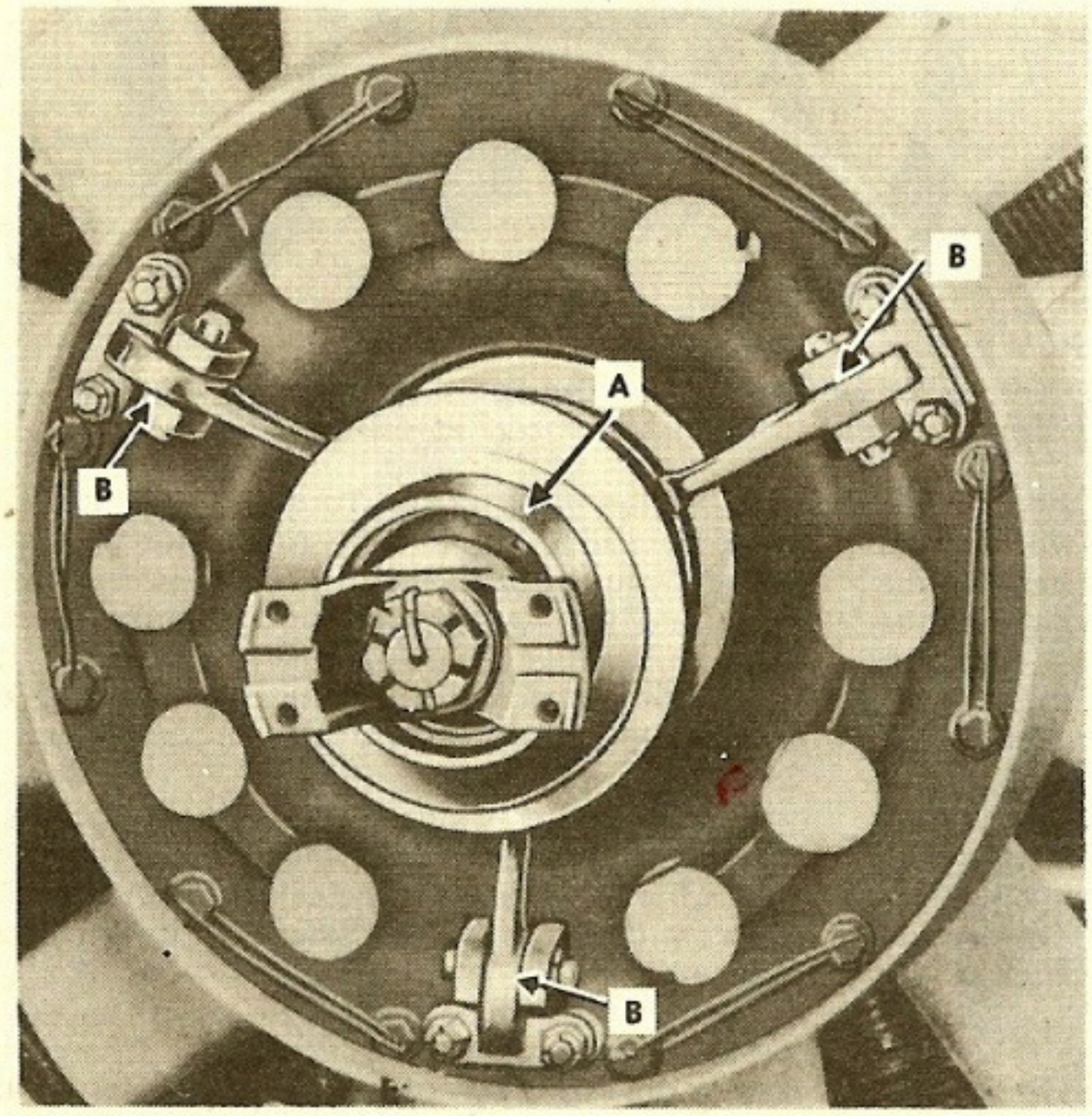


Fig. 6—Preservative oil prevents rusting of the clutch pressure-plate hub. Apply through the sleeve.

Out on the swells of the ocean,
Nothing is ever still;
In fifteen minutes by the clock,
Oh Lord, I get so ill.

ENGINE COVERS

Because the breaking waves dash high, a couple tricks with canvas have been found necessary to keep the ocean out of the innards of the LVT. The first trick consists of fixing a square of canvas over the top of the engine hatch to fend off the occasional wave that tries to wash down into the engine compartment. Attach this canvas loosely enough so that it flattens down under the impact of a wave but doesn't restrict the flow of air. The 18th Armored Group has also found that the spring catch on this same engine-room-hatch cover frequently loses tension and the hatch may be sprung open by a high wave coming aboard and drowning the engine. Secure these catches with a bolt, heavy wire, or metal rod placed crosswise through the triangle formed by the head of the catch.

The second trick with canvas consists of attaching a section of the cloth directly under the air-intake louvres of the engine compartment (Fig. 7), to keep high water shipped aboard from being sucked into the engine compartment. We're talking about LVT's with the engine in the rear—the louvres face into the cargo compartment. Attached below the

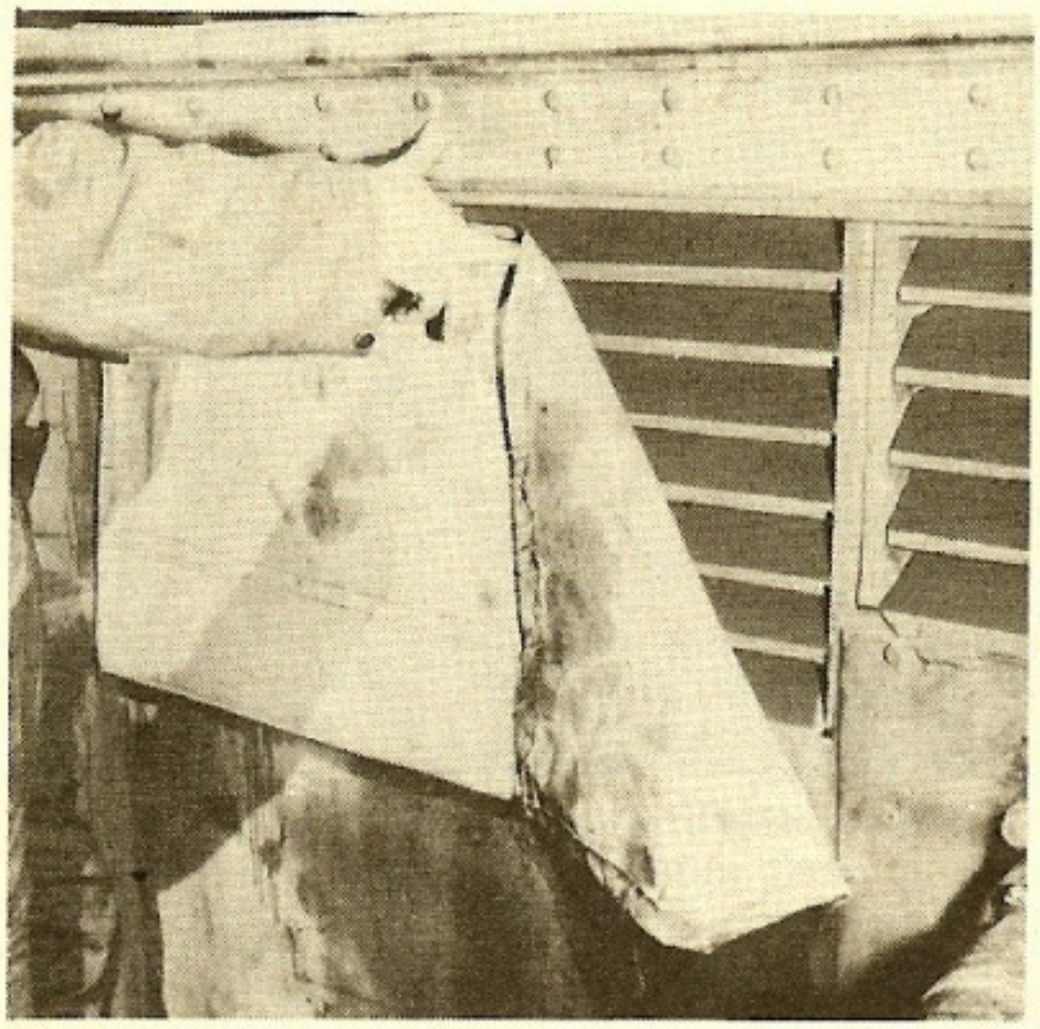


Fig. 7—This canvas door shuts salt spray out of the engine compartment when needed.

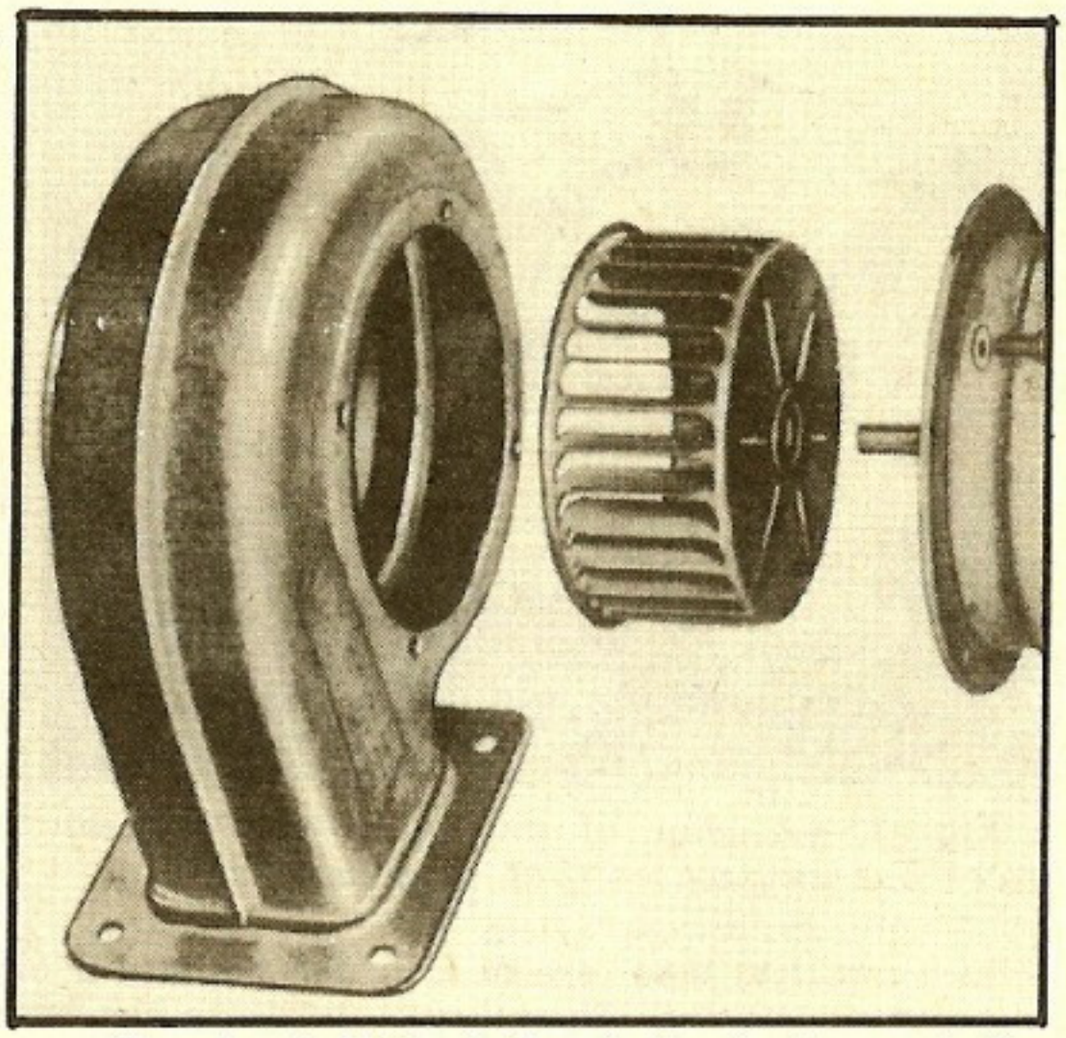


Fig. 8—A little hole at the bottom of the blower housing drains out water and trouble.

louvres, the canvas can be thrown up over the air-intake for a couple of minutes in a high surf and will be held up against the air intake by the inflow of air ("suction"). Since this is the entrance for cooling air, leave this canvas up for only minutes at a time—use only in going in or out of a frisky surf—and watch out for overheating of the air-cooled-radial engine.

For both tricks, use canvas in good enough shape to last for a respectable length of time.

ENGINE BLOWERS

In spite of the canvas cover, some spray will manage to get sucked into the engine compartment by the two blowers whose job it is to blow all the gas fumes out of the compartment during starting, so sparks won't set off a fire or explosion. Some of the water thus sucked in is pulled right into the blowers. According to reports, this water often becomes a permanent part of the "upside-down" blower assembly by settling down in a little puddle in the bottom of the blower-wheel housing (Fig. 8). Every time the blower starts operating, the fan starts throwing the puddle of water all over the assembly. Among other things, the salt water corrodes the bronze bushing that the blower shaft rolls in.

The remedy consists of drilling a little drain hole in the bottom of the blower housing to let any water drain out that does get in. A ⅛" drain hole will do—stop drilling when you're through the housing so you don't drill clean up through the fan.

FUEL SHUT-OFFS

Standard procedure on LVT's, as on certain other vehicles, is to turn off the fuel-shut-off valves when closing up shop for the day. On LVT's with the engine in the stern, the fuel in each tank is shut off by means of a handle in each blower compartment. The handle is attached to a long rod which runs down to the shut-off valve itself, located at the side of the fuel tank near the bottom. This is all fine and dandy except that the connection between the long rod and the fuel shut-off valve at the bottom is a little delicate. The story comes back that if the connection is left alone for a couple of days, some of the salt water that manages to get down to it corrodes it. Next time you turn on the handle to turn on the fuel, the corroded connection twists off. A fine how-do-you-do if you're in a hurry. Specifically, what happens is that the screw IB-43690-2 (Fig. 9) corrodes and sticks in the valve-body cap and doesn't allow the yoke IB-37615 to turn. When you turn the handle upstairs, the little ears of the yoke twist off.

There are two ways of keeping screw IB-43690-2 from corroding. One is to coat its threads with GREASE, graphited, light, Fed. Stock No. 14-G-938-16 (1-lb. container) at the time of disassembly

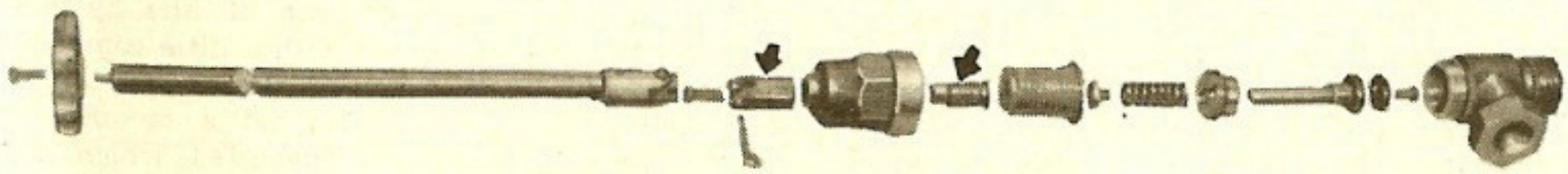


Fig. 9—The fuel shut-off: The screw corrodes and the yoke's ears twist off.

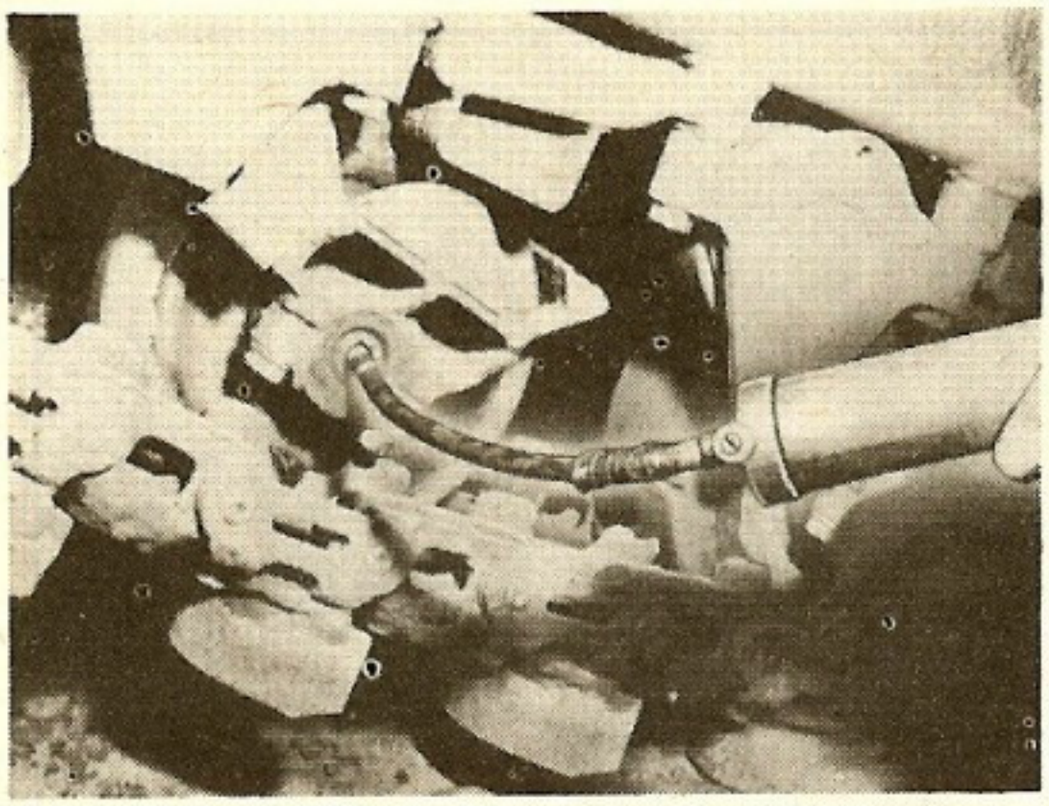


Fig. 10—A shot of grease in the bogies, forces out any water that may have crept in.

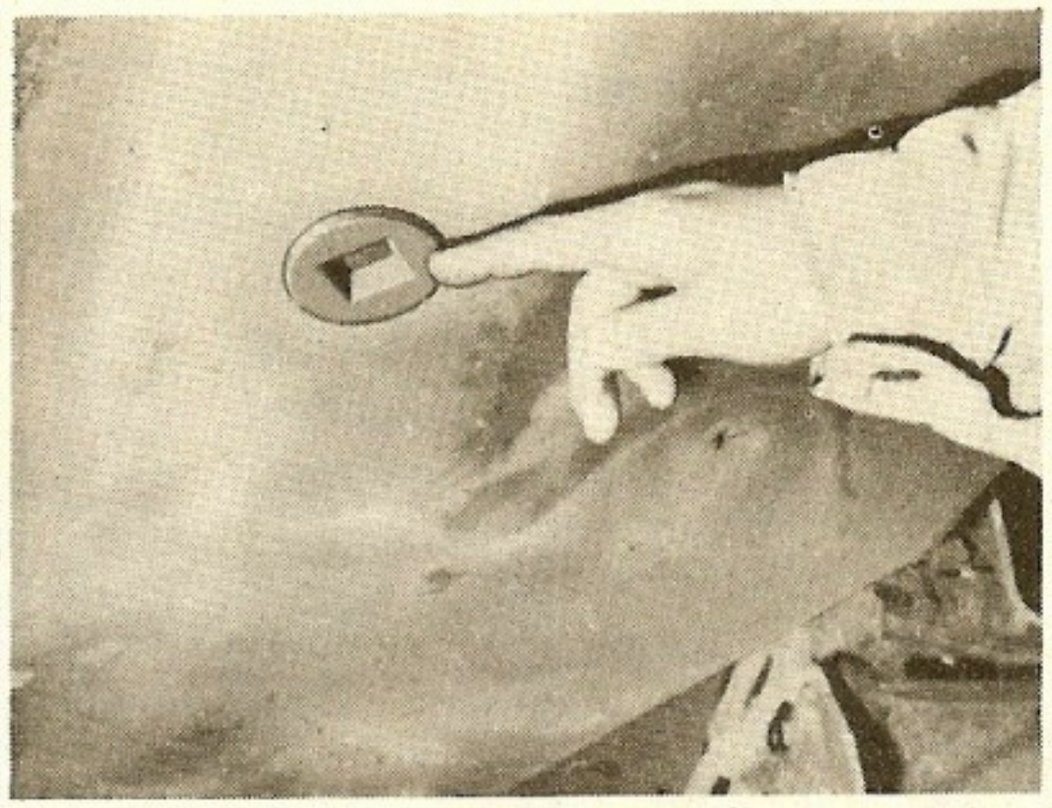


Fig. 11—Hull plug leading to the Cuno: oil it and don't rupture yourself tightening it.

—which ought to take care of it for about six months. The other way is to squirt some of your Oil, lubricating, preservative, medium, down the handle and hope it'll penetrate to the screw. This you'll have to do more often—say every couple days or so.

At any rate, the LVT driver ought to at least turn the shut-off handles daily to try to keep them free.

According to the factory, another fuel shut-off is being installed at the Cuno fuel filter on vehicles now in production. Their recommendation is that you close only this shut-off when you put your vehicle up for the night and leave the other two open.

Out on swells at midnight,
Dumped from an LVT,
With an island there to leeward
Waiting for you and me.

BOGIE FITTINGS

Poking around the LVT with your grease gun, try giving the grease fitting in the center of the bogie wheels (Fig. 10) a little taste of that ever-lovin' CG. The bogie-wheel grease unit is spring-loaded—that is, there's a spring down in the bogie-wheel assembly that's compressed when you give the bogie its full ration of grease—for about 8 hours after that, the spring keeps pushing grease out. The idea is that with grease being forced out, salt water can't get in. However, don't wait for the stroke of 8 hours to relubricate the bogies. In spite of grease being forced out, water sometimes does get in. Give the bogies a taste of grease after every water operation to force out any water that may have crept in. Incidentally, new operators should be warned that the bogie takes a lot of grease—see that they don't quit before grease shows at the unit.

HULL PLUG

Another case of thread corrosion occurs at the hull plug (Fig. 11) under the stern of the LVT, which you take out to get at the drain plug of the Cuno. This plug is made of steel and it corrodes up and is hell to take out. Thing to do is screw it out every day or so to keep it free. Coat the threads with a little of the preservative medium and don't rupture yourself tightening it into the hull. See that it's tight bu' don't overdo it.

LINKAGES

Use plenty of that good preservative medium on the linkages that run through the tunnel, amidships of the LVT's, to the engine at the stern. Take off the left-hand panel of the tunnel weekly and clean and oil the linkages. People who have tried painting the linkages say that it's not a good idea because the paint rolls up, gathers, and may cause the linkage to hang up in the maplewood guide-blocks. Just clean and oil.

OIL VALVE

On 18 July 44, MWO ORD G1-W14 came out, as you probably know by this time, with a red-bordered modification "to eliminate differential failures by installing a pressure lubrication system." In addition to saving your controlled differentials, the MWO will help stop a little trouble with the oil-pressure valve. This valve, which is the upper of the two little units sitting near the top of the transmission, contains a by-pass. The by-pass, when it's open, allows the transmission oil to recirculate right through the transmission without going through the oil cooler. The little trouble is that the brass bushings in the controlled differential flake off and the flakes make their way to, and get pounded onto, the by-pass-valve seat (Fig. 12). This keeps the by-pass valve from seating properly and allows all the hot oil to run directly back into the transmission without first going through the oil cooler.

The pressure lubricating system installed by MWO ORD G1-W14 will keep the brass bushings from flaking in the first place, but you can clean off the by-pass-valve seat with a little compound and a rag on the end of a stick.

Rumor is that a modification has been suggested which will throw all the oil through the oil

cooler. Heat around 400° F. can really raise hell with the needle bearings in the mainshaft of the transmission, despite plenty of oil.

They say the Nips are scared of them,
Scared of an LVT,
But I can guarantee that they
Aren't half as scared as me.

GROUSERS

Anybody who has ever pounded flattened LVT grousers back into shape will tell you the job is a pain in the rompers. And LVT grousers will flatten out if you so much as look at them hard—usually though, it's operation over hard surfaces that does it. One way to keep the grousers from folding up so easily is to trim the ends off. This is already being done on new vehicles at the factory. In the field, however, the only way to do it is with a cutting torch. But with 146 grousers per vehicle, you'd really have your work cut out for you (haw!)—not to mention the wear and tear on our stocks of acetylene gas. Best advice is to keep struggling along with your present grousers until the new factory-modified grousers come your way.

SPLASH DEFLECTORS

Another sore spot that you can't do much about is the splash deflectors at the rear of each LVT track. Look at any group of LVT's which have been in the combat zone and you'll see that a big percentage of the deflectors have been torn off. To begin at the beginning, the splash deflectors were put on there, they tell us, because each of the tracks throws up a waterspout. The Japs used to aim between these two waterspouts and *wham,* they knew they had an LVT. A second effect of the splash deflectors is to make steering a lot easier and faster—which is why they're sometimes called steering vanes.

As we say, we have no information on strengthening the deflectors—this time we're asking for help. All we can do is recite the trouble and remind you that if one deflector is ripped off and you don't have a replacement, you'll have to take its mate off—otherwise you'll be steering around in a circle.

BATTERIES

Back in June, ARMY MOTORS started a bit of commotion when it reported that the battery in the LVT was a funny kind of battery whose specific-gravity reading when fully charged was 1.225. The Army battery you're used to, reads 1.275.

We said it then and we say it again: The LVT battery is a low-specific-gravity battery that the Navy likes for tropical climates. A hydrometer reading of 1.225 on the LVT battery is like a reading of 1.275 on your ordinary variety of Army battery. Of course, if you've replaced the original battery with an Army battery—or if you've replaced the original electrolyte with a high-specific-gravity electrolyte—our figure of 1.225 doesn't hold. But don't knock yourself out when you get this low reading on the original LVT battery.

And don't forget, when testing your battery, to check the voltage of each cell. The rules for checking LVT batteries as we gave them to you back in June were:

1. Test the specific gravity of each cell. (a) If the hydrometer shows more than 1.155, chances are the battery's okay. (b) If the hydrometer shows less than 1.155, the battery's probably down. You can't tell for sure till you . . .

2. Test the voltage of each cell. (take reading with engine off, and all switches off). (a) If the meter shows around 2.1, the battery is okay, positively. (b) If the meter shows less than 1.98, the battery needs recharging right away.

In August we advised you to paint the cell connectors of original (Navy-type) batteries white to distinguish them from ordinary Army batteries. Good idea—especially since the depots are now painting the cell connectors white.

HULL CORROSION

As a final word—if you haven't already heard—the best way to prevent hull corrosion is to prime with **Zinc Chromate Primer (Fed. Stock No. 52-P-20624,** 1-gal. cans); paint; and then coat the paint with **Compound, Rust-Preventive, Thin-Film (14-C-507-10,** 5-gal. cans).

So I am going over the hill
Instead of out to sea,
Better ten years in Leavenworth
Than one on an LVT.

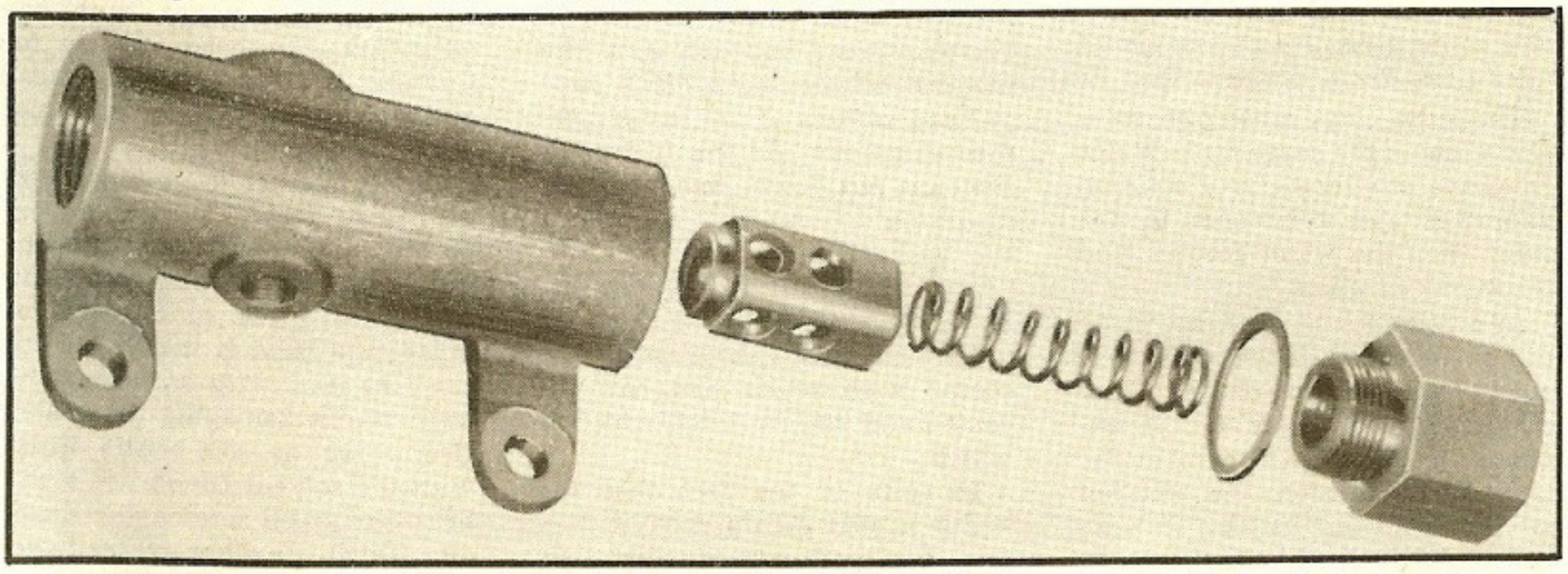
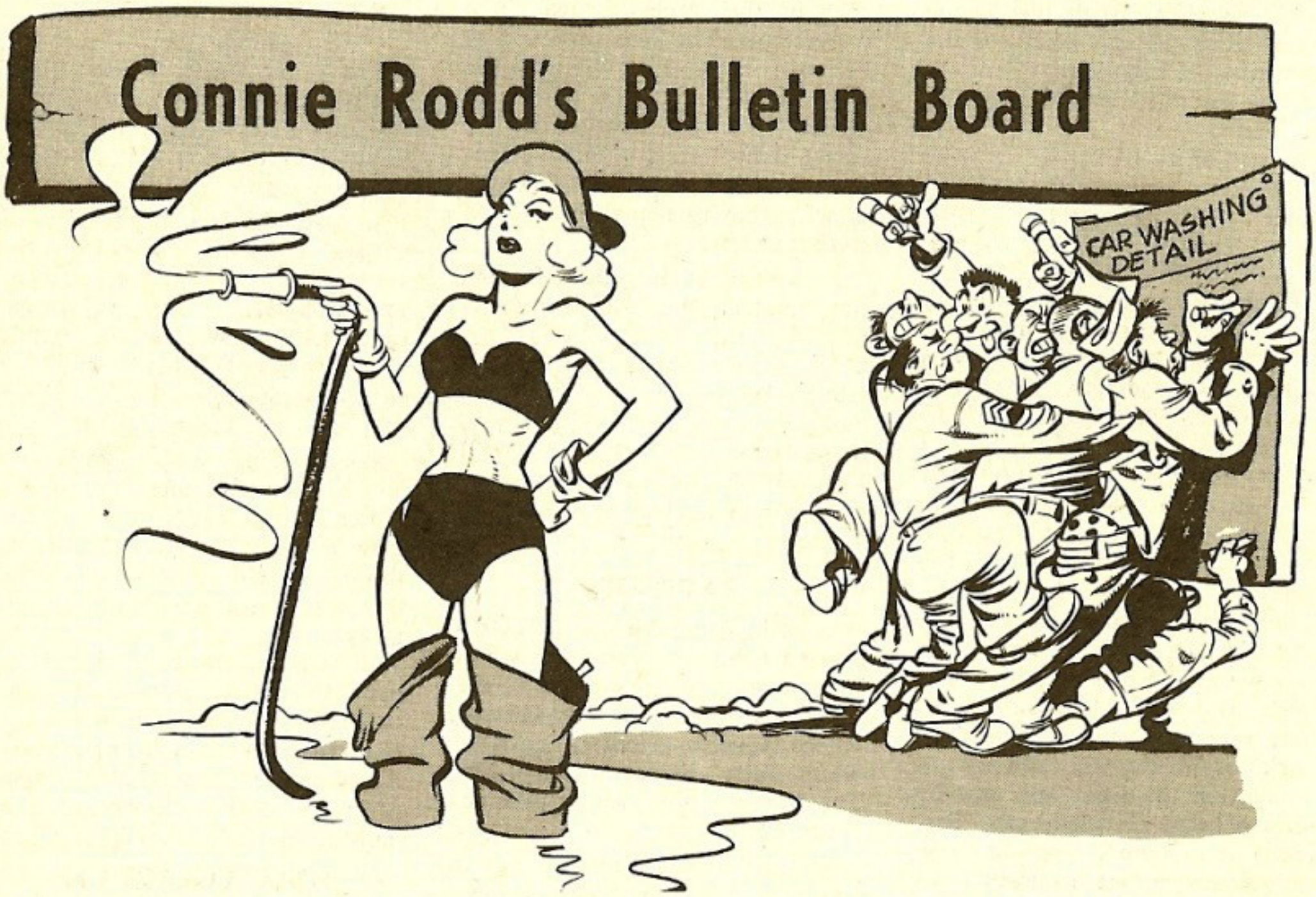


Fig. 12—Bushing flakes from the controlled differential upset your high oil pressure.

Connie Rodd's Bulletin Board



Half-Track & Scout Car Surge Tanks

Just as long as Old Man Winter slides around on his ice, you keep checking the solution of ethylene-glycol in the surge tanks of your half-tracks and M3A1 scout cars. The depth of solution should be kept between 1" minimum and 1¾" maximum, else you'll have trouble with a clogged tube—the one connecting the radiator-inlet filler-neck to the surge tank.

The tube clogs when the solution's low in the surge tank. Water from the ethylene-glycol solution vaporizes and condenses in the tube; then the water freezes, and the tube's blocked.

In a roundabout way, the same thing happens if the solution's above the maximum depth. When ethylene-glycol heats up, it expands; if there isn't room in the tank for expansion, the solution swells right over the top. You can lose enough liquid this way to bring the level below where it should be—and low level means clogged tube.

As TB ORD 107 (20 Jun. 44) said, all you need do to prevent this is keep the solution in the surge tank between 1" and 1¾" deep.

Head-Gasket Sealer

Have you been in the habit of smearing gasket sealer on your head gaskets before installing same?

If you have, you've been wasting your time and defeating the purpose of something that's done to head gaskets at the factory before shipment. At the factory, a sealer is put on the head gaskets. You wouldn't know it to look at the gasket because the sealer is practically invisible. It's in the form of a thin, colorless film, dry to the touch. Look at a head gasket coated with sealer and one not coated and you can't tell which is which.

In spite of the fact that the sealer is just a thin coat, it does the job of sealing up the numerous small crevices in the engine head and block. As pressure is applied when the head is tightened down, and as engine heat develops, the sealer—which is actually a kind of lacquer—squeezes into the tiny crevices. Believe me, chum, that thin coat of sealer does the job—you don't need to apply a thick coat of some paste that you can see. As a matter of fact, adding some other sealer will spoil the original seal. Don't.

The seal is put on all head gaskets before shipment, with one exception—the head gaskets for Cadillac engines. Cadillac head gaskets needs the special paste put up for the purpose.

Here's another thing to remember: Head gaskets packed for export have a coat of rust-proofing put on right over the sealer. This rust-proofing has to be removed before the head is installed. You can take it off with ordinary solvent without damaging the sealer. Use a rag or soft-bristle brush with the solvent (don't use a stiff brush or you'll scratch the sealer off). Don't use oil or grease to get the rust-proofing off or you'll hurt the sealer. Just remove the rust-

proofing with solvent and rag, like I told you—be sure the engine head and block are clean—and install the gasket dry.

Tire-Probing Made Painless

A new tire-probing tool has been added to Tool Set, Special, Tire and Maintenance (Fed. Stock No. 41-T-3542-50). It looks like something the dental clinic dreamed up (see Fig. 1), but don't let it scare

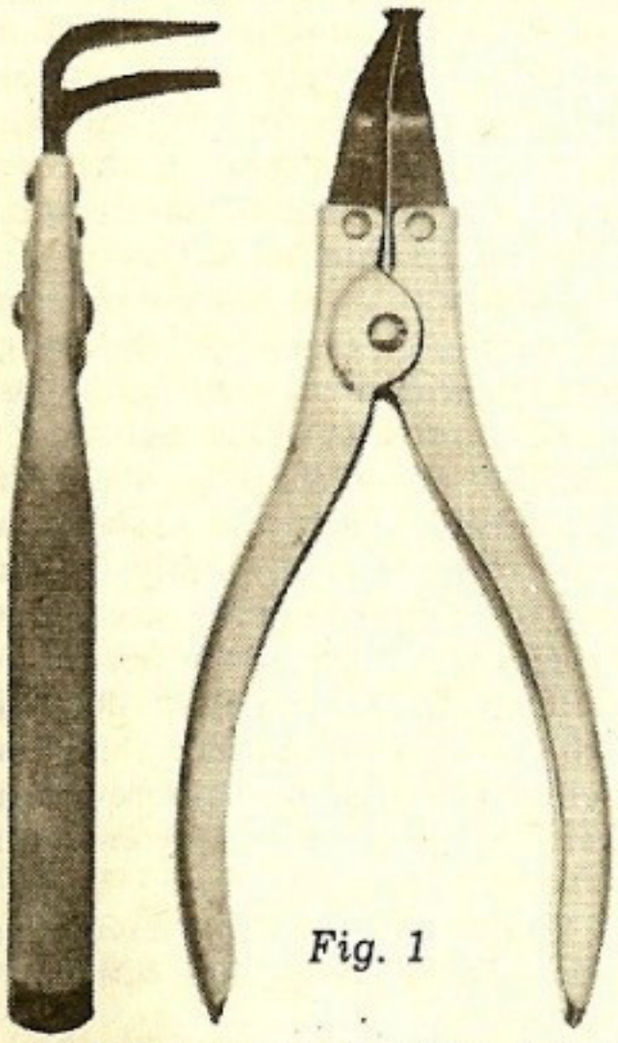


Fig. 1

you. It's just a pair of bent-nose pliers in reverse—when you squeeze the handles, the nose-ends open outward and spread the tire. Because its ends are round and smooth, you can poke this baby into those holes and cuts without keeping your fingers crossed. It's not going to make matters worse and cause further damage to the tire, which is what usually happened when you used any sharp thing you could find.

If you already have that tool set, you can requisition the new tool. Its official nomenclature is: Tool, Tire-Probing, Fed. Stock No. 41-T-3374.

What Means What on a Work Sheet

✓ stands for **satisfactory** on your Preventive Maintenance Work Sheets and Spot Check Inspection Reports—it means that the part inspected is okay. But I keep hearing about rugged individualists who like their own special sign language better. They mark **all** the boxes on the PM Work Sheets with a ✓, or any other mark that's handy, and succeed in messing up the whole system.

Show me one good reason why everybody shouldn't use these four easy-to-remember, easy-to-make symbols, and I'll show you a regiment of reasons why they should:

✓ - satisfactory
X - adjustment required
XX - repair or replacement required
(X) or (XX) - defect corrected

The Army set up these standard symbols to save time and whittle down confusion—but they sure don't do either if every Joe makes up his own. Let's save those marks for signing your mail, and use the Army's brand on WD AGO Forms No. 461, 462, 463, and 9-70. If you need a frequent reminder, take a look at the heading on the forms themselves before scribbling.

M4 Track-Adjusting Wrench Beef-Up

If brute force snaps off the handle of your M4-series Medium Tank's track-adjusting wrench (Fed. Stock No. 41-W-640-400), instead of yelling for another one, repair it yourself—this way:

Reinforce the handle by welding braces on both sides of it (see Fig. 2). Take a piece of ⅜" boiler plate (cold-rolled steel) and cut two pieces ⅜" x 1½" x 38⅝" (see Fig. 3). As a groove for the weld, cut the brace edges off 3/16" at a 45° angle on the sides to be welded to the handle, except the ends that fit next to the wrench head; cut these off ⅛" at a 45° angle. If you've got the grinding equipment, put 2⅝" radius curves in the ends of the braces (Fig. 3) to fit the curve of the wrench head. Otherwise, cut the ends off straight and fill in the space with weld.

Now you've got a wrench that's as strong as you are, practically.

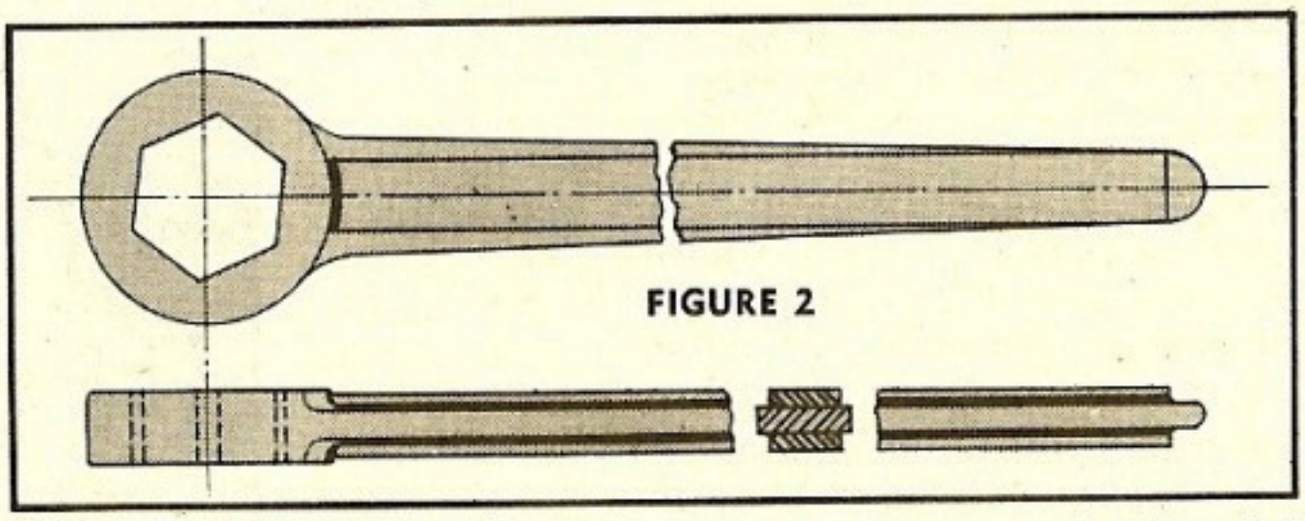
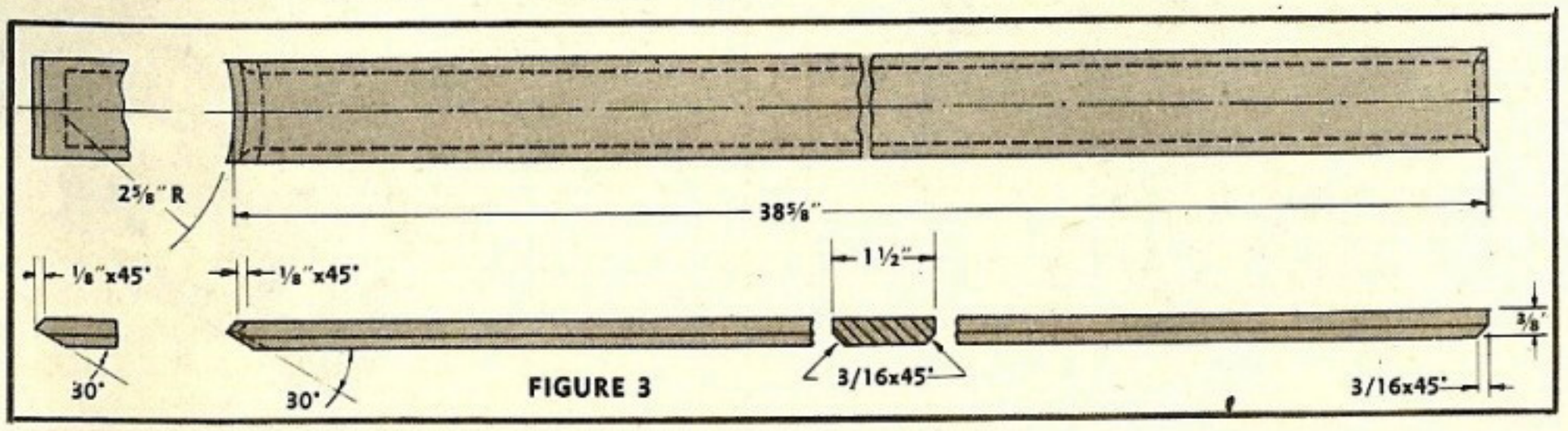


Fig. 2 (above)—Weld braces lengthwise on each side of the handle. Fig. 3 tells you the size and shape of these braces.



Tightening Final Drive Sprockets

If you've been muttering over broken or loose screws that let final-drive sprockets wobble around on your M4-series Medium Tanks, or other vehicles with the same chassis—shut your eyes and hold out your hand, and I'll give you a good field fix for your sprocket troubles. It's done with a sledge hammer and a cold chisel.

First, check the clearance between the sprocket and the hub with a feeler gage (see Fig. 4). If there's any clearance at all (the picture shows .015"), break the track and take out the hub and sprocket assembly. Keep it all screwed together, and set it down with one sprocket flat on the ground. Check all the capscrews and replace broken ones before you start the rest of this trick.

Now, working on the sprocket that's flat on the ground, chalk a line ¼" out from the hub on the **inside** of the sprocket (Fig. 5). Swage a groove about 3/16" deep into the sprocket, following the chalk line, with your hammer and chisel.

When you've done that all around the inside of that sprocket flange, turn the whole assembly over so the other sprocket's down on the ground and do the same thing to **it.** Then replace the hub and sprocket assemblies and adjust the tracks to the normal sag, ¼" to ¾".

Here's the idea: The groove shoves the metal out on either side of it (like a furrow in a field) and some metal gets displaced or pushed between the hub and sprocket, filling up whatever clearance may be left after the capscrews have been tightened. That ought to hold those sprockets tight for the rest of their lifetime.

More on Thermostat Reclamation

TB 9-2830-57 (6 May 44) on reclaiming bellows-type thermostats —I told you about it in September —is being superseded by a TB that'll cover both the bellows and bimetal types.

Turns out that the Brains Dept. had overlooked one little-known fact: Namely, that bellows-type thermostats are charged with a compound of acetone, ether, and alcohol. When a bellows is punctured, a lot of this stuff evaporates. After that, the thermostat won't open on schedule—no matter how well you solder up the hole. You'd find that out when you tested it, of course, but why go to all that trouble—especially when solder is a highly critical material.

So punctured bellows-type thermostats aren't reclaimable after all. But that's no reason why you shouldn't clean up and test **all** thermostats that aren't too banged up or worn for further use. I gave you the testing routine in September, and it's in both the old and new TB's.

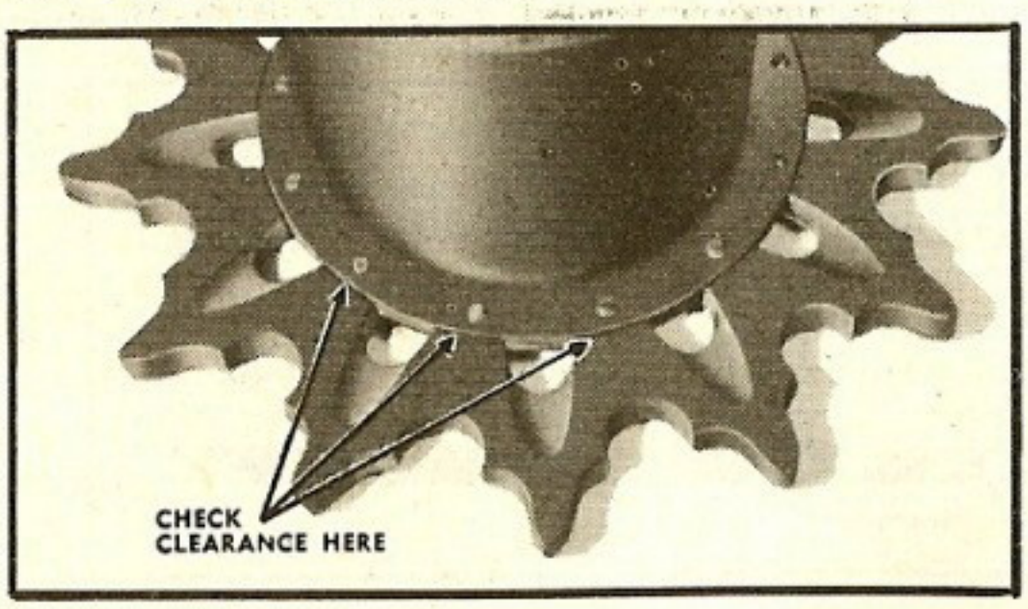
Substitutes for Penetrating Oil

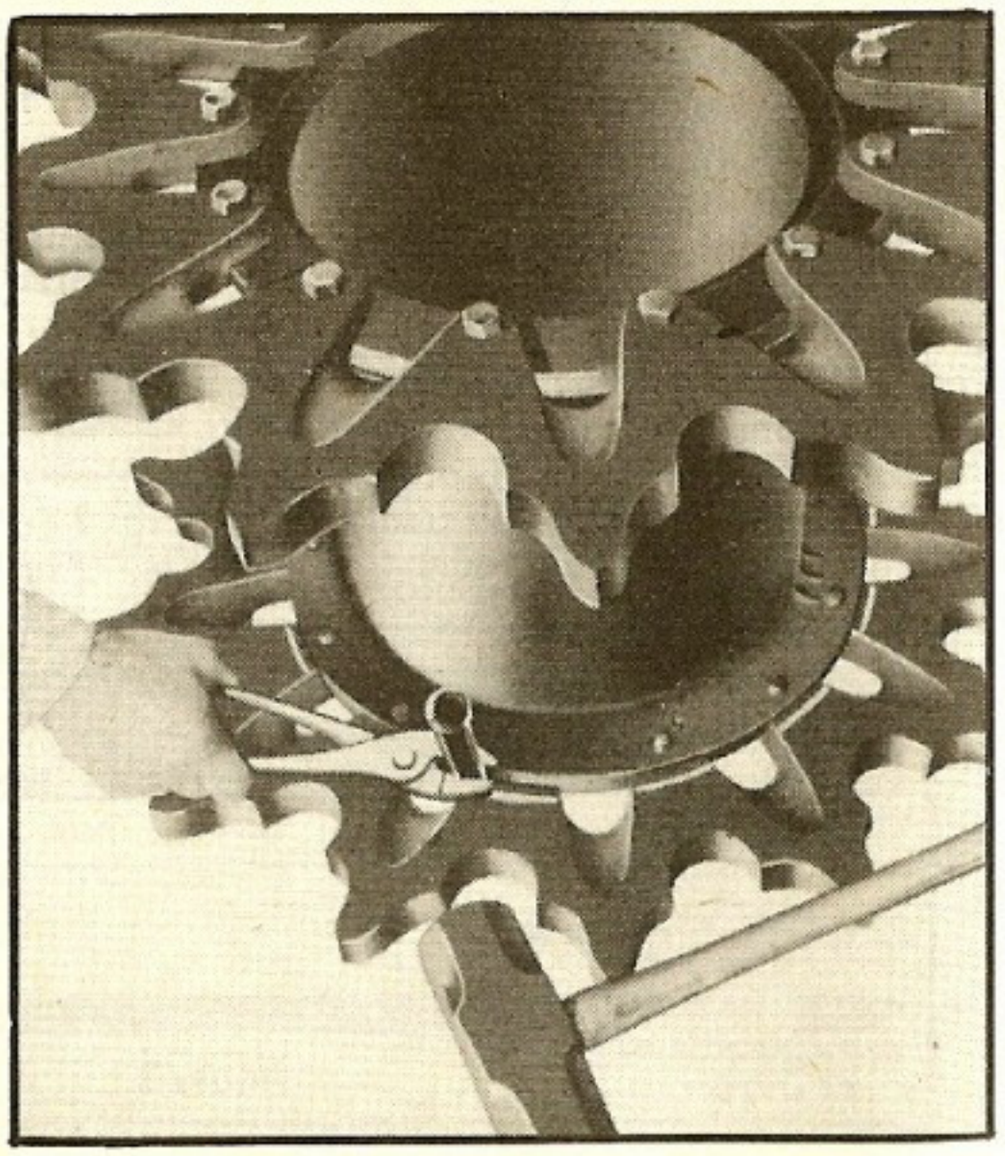
What can you use as a substitute for penetrating oil? Lots of things: Oil, lubricating, preservative, special, for one—preservative, light, for another. All you need to remember is that penetrating oil is nothing but very thin oil. Very thin oil has the habit of spreading or creeping. By creeping, it works its way into close clearances such as between a bushing and a shaft, or along the threads of a capscrew or stud that has frozen in an assembly. Working itself into the close clearance, it acts as a lubricant—then you're able to free up the shaft that has frozen in your bushing, or unscrew the stud or capscrew that refuses to come out, come out, wherever it is.

Couple of other fine penetrating oils: Diesel fuel and rifle-bore cleaner.

Fig. 4—If there's any clearance between the hub and sprocket, check it with a feeler gage. Stick the gage between the outside rim of the hub and the sprocket, as shown.

Fig. 5—Follow the chalk line with a chisel and swage it with a hammer, so the metal in the sprocket will be pushed over to close up the clearance at the hub.





Tip On Supply

Here's a tip I got from a Major just back from the ETO. When you requisition a kit that's got screws or rivets in it—a brake-lining kit, f'rinstance—you know from experience that you'll get only as many rivets as there are holes to put them in. You know, also from experience, that something is going to happen to a couple of those rivets. They're gonna get lost in the mud, or break, or something. So the job has to wait until you can replace them. Well, instead of having that happen again, why not make out a separate requisition for a few extra rivets and send it along with your kit requisition—whichever kit it may be. Then you'll always be sure of having enough.

Don't overdo it, of course—you might grow up to be a pig.

RIGHT THE FIRST TIME

When you requisitioned a rubber gearshift-lever-seal for your Chevrolet Bomb Service Truck M6, it wasn't your fault you didn't get it. The trouble happened "through channels" somewhere and the whole thing wasn't untangled till it got to the Office, Chief of Ordnance-Detroit.

Everything's been straightened out now, so **requisition again** for that Seal, gearshift-lever (Mfr's Part No. 591379) if your M6 doesn't have one. And, as ARMY MOTORS said last August, your M6 needs one if it was built before Ordnance Serial No. 6168, U.S.A. Registration No. 0061751.

The parts are available at Letterkenny Ordnance Depot—you requisition through regular channels.

Fire Hazards in Hydrostatic Lock

I've got some additional info, from TB 9-729-2 (23 Nov. 44), on dire troubles caused by hydrostatic lock—this time fires have shot out of M24 Light Tank engines, burning some of the boys pretty badly while they were trying to remove gasoline from the locked engine. When they tried to pump the gas out of the cylinders, after they'd taken the spark plugs out, sparks from the starter brushes ignited the gas fumes—and that was all, brother.

Hydrostatic lock doesn't happen often in M24 tank engines. When it does happen, one cause may be dirt under the carburetor float-valve. That'll keep the valve open so gasoline will flow into the carburetor faster than the engine can burn it. This gasoline stops the engine, but the fuel will flow right on into the cylinders and build up to an awful let-down.

Another sure way to produce hydrostatic lock is to leave the fuel, ignition, and master battery switches turned on when the engine's not running. With all three switches on, the electric pumps keep right on pumping gas, which seeps right on through the carburetor needle-valve. And next time you try to start the engine, you can start a fire instead.

When one of your M24 engines gets locked, first be sure those three switches are turned **off** before you start monkeying. Take out the spark plugs and lay cloths on the cylinder heads, below the spark-plug holes, to absorb gasoline forced from the cylinders. Get a 1" socket with a 12" flexible handle and roll the engine over six full revolutions by turning the crankshaft-pulley nut. Clean off the cylinder heads with more dry cloths and mop up any gas that's still around. Now you can put the spark plugs back where you got them.

One last fire precaution is to take the muffler off the locked engine and hold it upside down, away from the tank, to drain out any gas that collects in it by overflowing from the cylinders.

Check the crankcase oil-level and if it's more than ½-quart overfull, that means there's some gasoline dilution in it and the oil'll have to be drained and replaced.

Opening the hatches and engine-compartment cover for a half-hour or so lets the tank air out. The point of all this is to get rid of any excess gasoline vapor that can start a fire, in less than a second flat, when you try to start the engine.

Now you can start the engine that **wasn't** locked—it'll help ventilate the hull and engine compartment further. Better get your wife to stand by the outside fire extinguisher, and don't nobody stand above the engine compartment—unless you want to take a chance of warming your face to a crisp. After the first engine's running properly, start the engine that was all locked up.

Exhaust Manifold Cure for BST's

Some of you people, who've been blaming the poor little thermostatic spring on the exhaust manifold of your Bomb Service Truck M6 for all the ills that manifolds are heir to, had better look again. Just because the spring looks limp and lifeless after a few runs around the field is no reason to get panicky—its only function is to hold the heat-control valve open till there's enough heat to expand it and push it away from the valve stop, releasing the valve. Afterward, it looks like it's lost its temper. Exhaust gases **should** hit the bottom of the valve and close it.

Since you're not using your BST for steeplechases, there's seldom enough full-throttle work to build the gases needed for free valve movement and rust piles up where the shaft goes into the manifold casting. So, the valve freezes in the "on" position, instead of closing when the spring's released.

My prescription for this headache is: Periodic inspections. If the valve's movement is stopped by carbon, apply kerosene at each end where the shaft goes into the

(Continued on Page 352)

One Twist of a Wrench Can Ruin Your GMC Hydrovac Unit

If a hex nut is welded around a piece of tubing, can you still call it a hex nut? Who cares? What really matters is this: If you turn that hex nut with a wrench, can you louse up the assembly? The answer is **yes**—and it's happening.

The trouble centers around the tube assemblies that sprawl across the top of GMC hydrovac units. On both the first and second-series hydrovacs, the tube ends that screw into the valve assembly (see Figs.) are adorned with hex nuts. At first glance, these nuts look like ordinary fittings, like jam nuts; but if you take a second glance (and you'd better), you'll find they're welded to the tube and not meant to come off.

Each weld serves only one purpose: It keeps the tube from being squashed with a wrench. The nut gives you something to grip with your wrench **when you're unscrewing the tube from the valve assembly.** You don't turn the nut. You turn the tube by grabbing a hold on the nut. And if you care to do some investigating, you'll damn soon discover that in order to turn the whole tube from the nut end, the tube'll have to be **first** disconnected at the other end (the hose end).

What happens if it's not disconnected at the hose end first? Then you're right back where you started: The tube won't turn and you'll break the weld on the nut—you and your rippling muscles.

This all adds up to the important fact that you can't tighten or loosen the tube by simply turning the nut. You have to turn the whole tube—and in order to do it, the tube's gotta be unhooked at the hose end first. Otherwise, there'll be a lot of hydrovac units with loused-up tube assemblies being shipped for rebuild, inspection, or rejection; and a lot of deadlined GMC's giving you a rousing Bronx cheer.

Fig. 1—This is the first-series hydrovac unit and the hex nut is welded to only one tube—but it **is** *welded, so don't twist it. It's a seat for a wrench to unscrew the tube, not the nut.*

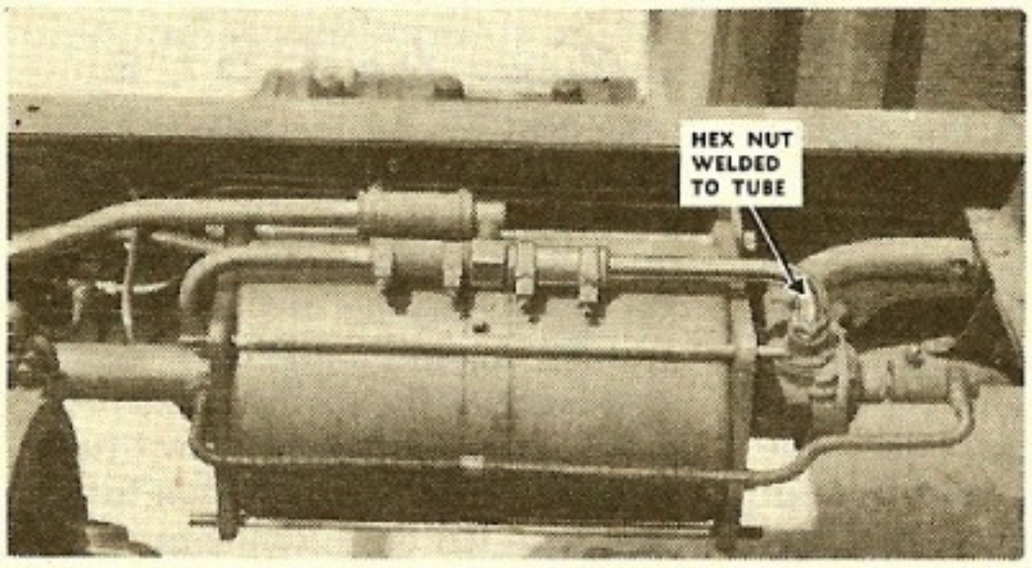
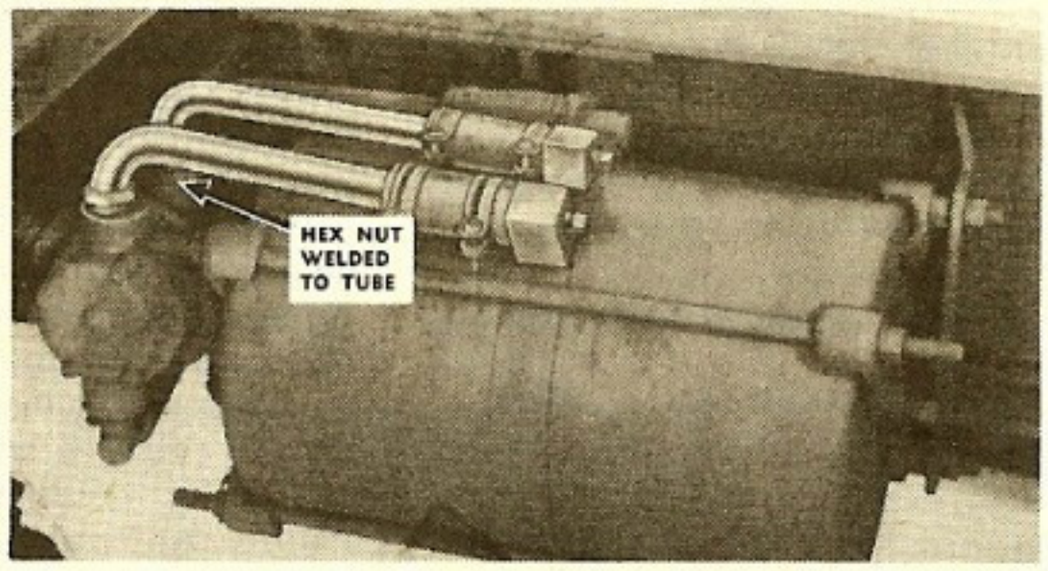


Fig. 2—On the second-series hydrovacs, hex nuts are welded to both tubes (one's behind the other). Disconnect each tube at the hose end before you grab those nuts to turn the tubes.



PLASTIC PARTS-PACKING

For some time now, parts have been shipped out all dressed up in a new plastic coating, name of ethylcellulose. This plastic, which is put on by dipping the part in a hot solution of the stuff, is a pretty sharp idea for protecting against corrosion. Although the idea, they tell us, is practically foolproof, still there's a couple things you ought to know about it.

First, in taking the stuff off a part to be used, the idea is to break the coating and just peel the part like an orange. Break the coat with a sharpened wooden stick. A wooden stick—instead of a knife or sharp tool—will keep you from marring bearing surfaces or highly machined parts.

Be sure you peel all the plastic coating off. When the part is dipped in the solution in the packaging process, some of the plastic may get down into a hidden corner. For instance, say you've got a shaft with internal splines. You may peel all the plastic off the outside, but if some hides out down inside the splines, then it's going to interfere with the operation of the splined shaft when the part is installed on a truck.

Take a connecting rod: When they dip a rod in the plastic, they cork up the drilled oil holes so the plastic won't get down in the holes and plug them up. Howsomever, there have been cases where parts have gotten out with some of the plastic down in the oil holes. After the mechanic carefully stripped off the plastic coat, he still had a clogged oil hole in the connecting rod—which means murder for a thing like a wrist pin.

Don't be surprised, after you take the plastic coat off, if you find a slight film of oil on the part. The plastic gives off a little oil as an added protection and makes it possible to strip the coat off easily. If the part is something that gets lubricated anyway—like a bearing insert—you can forget about the oil. But if it's a part like a spark plug, clean it up with solvent.

LO-down on the New LO's

THINGS ARE GONNA BE DIFFERENT WITH YOUR WD LUBE ORDERS. HERE'S THE STORY—AND A LIST YOU'LL CHERISH

Big news about WD Lubrication Orders is breaking three ways at once:

(1) About 1 March 1945, Fort Wayne Ordnance Depot goes out of the Lube Order business, and the AGO becomes exclusive distributor through its regular publications depots. (2) Lube Orders are to be stocked and issued under a new numbering system. (3) The familiar 10" x 15" metal-bound type's being replaced by a one-color card, in three sizes. New decalcomania Lube Orders for some equipment are being issued by the AGO, too.

Each new Lubrication Order will be numbered to match the vehicle's TM number—if there's a 9-series TM published or in the works. If not, a letter "U" follows the numeral "9" in the LO number (meaning 9-series TM number unassigned). If a TM number has been assigned to a vehicle, but the manual hasn't been printed yet, you'll find an asterisk (*) after the Lube Order number on the listing below—so you won't wear out your brogans trying to find the TM.

It all adds up to this: For the M8 Armored Car, there's a 9-series manual (TM 9-743); so the new War Department Lubrication Order gets the number 9-743 (LO 9-743). For the ½-ton 4x2 Dodge truck there **isn't** a 9-series manual; so the Lube Order gets the number 9U-319 (LO 9U-319), and the 319 is just a number assigned for identification of the Lube Order only. More than one Lube Order on a single TM is indicated by a number following the basic number—for example, with the TM for IHC Basic Half-Track Vehicles (TM 9-707), you'll have LO 9-707-1, LO 9-707-2, etc.

You're entitled to a new Lube Order for every vehicle in your outfit that's listed here. If the AGO skips you somehow in their **automatic** distribution, you can requisition the ones you need through your regular publications supply channels. The change-over is due on or about 1 March 1945, but don't start needling the AG Depots right away—it'll take a little time for the new Lube Orders to hit everybody in the field.

For ready reference, here's the Lube Order list for vehicles and related equipment—the old numbers along with the new. For additions and changes, watch FM 21-6 and The Month's Directives in this magazine. If you've got other equipment that needs lubing (and what doesn't?), you can get the new LO numbers in forthcoming monthly issues of FM 21-6.

Major Item	Old No.	New No.
ARMORED CARS		
Car, Armored, Light, M8	139	**LO 9-743**
Car, Armored, Utility, M20	139	**LO 9-743**
SCOUT CARS		
Car, Scout, M3A1	20	**LO 9-705**
GUN MOTOR CARRIAGES		
Carriage, Motor, Gun, 37-MM, M6	101	**LO 9-750A**
Carriage, Motor, Howitzer, 105-MM, M7	106	**LO 9-731E**
Carriage, Motor, Howitzer, 105-MM, M7B1	157	**LO 9-749**
Carriage, Motor, Howitzer, 75-MM, M8	117	**LO 9-732B**
Carriage, Motor, Gun, 3-In., M10	113	**LO 9-752**
Carriage, Motor, Gun, 3-In., M10A1	109	**LO 9-731G**
Carriage, Motor, Gun, 155-MM, M12	110	**LO 9-751**
Carriage, Motor, Multiple Gun, M13	118	**LO 9-710-3**
Carriage, Motor, Multiple Gun, M14	130	**LO 9-707-1**
Carriage, Motor, Multiple Gun, M15	131	**LO 9-710-4**
Carriage, Motor, Combination Gun, M15A1	158	**LO 9-710-7**
Carriage, Motor, Multiple Gun, M16	132	**LO 9-710-5**
Carriage, Motor, Multiple Gun, M17	133	**LO 9-707-2**
Carriage, Motor, Gun, 76-MM, M18	143	**LO 9-755**
Carriage, Motor, Gun, 90-MM, M36	156	**LO 9-758**
Carriage, Motor, Gun, 90-MM, M36B1	165	**LO 9-748***
Carriage, Motor, Howitzer, 75-MM, T30	111	**LO 9-710-2**
CARRIERS		
Carrier, Personnel, Half-Track, M3	22	**LO 9-710**
Carrier, Personnel, Half-Track, M3A1	22	**LO 9-710**
Carrier, Half-Track, Mortar, 81-MM, M4	23	**LO 9-710-1**
Carrier, Half-Track, Mortar, 81-MM, M4A1	23	**LO 9-710-1**
Carrier, Personnel, Half-Track, M5	116	**LO 9-707**
Carrier, Personnel, Half-Track, M5A1	116	**LO 9-707**
Car, Half-Track, M9A1	116	**LO 9-707**
Carrier, Half-Track, Mortar, 81-MM, M21	23	**LO 9-710-1**
Carrier, Cargo, M29	98	**LO 9-772**
Carrier, Cargo, M29C, Amphibian	98	**LO 9-772**
Carrier, Cargo, M30	110A	**LO 9-751**
LIGHT TANKS		
Tank, Light, M3A3	85	**LO 9-727**
Tank, Light, M5	81	**LO 9-732**
Tank, Light, M5A1	81	**LO 9-732**
Tank, Light, M22 (T9E1)	88	**LO 9-724**
Tank, Light, M24	153	**LO 9-729**
MEDIUM TANKS		
Tank, Medium, M3	32	**LO 9-750**
Tank, Medium, M4, 75-MM Gun	84	**LO 9-731A**

Major Item	Old No.	New No.
Tank, Medium, M4, 105-MM Howitzer	167	LO 9-731AA
Tank, Medium, M4A1, 75-MM Gun	84	LO 9-731A
Tank, Medium, M4A1, 76-MM Gun	168	LO 9-731AA-1
Tank, Medium, M4A2, 75-MM Gun	119	LO 9-731B
Tank, Medium, M4A2, 76-MM Gun	166	LO 9-731B-1
Tank, Medium, M4A3, 75-MM Gun	104	LO 9-759
Tank, Medium, M4A3, 76-MM Gun	170	LO 9-759-2
Tank, Medium, M4A3, 105-MM Howitzer	169	LO 9-759-1
Tank, Medium, M4A4	107	LO 9-754
Tank, Medium, M4A6	149	LO 9-756
Vehicle, Tank Recovery, M31	80	LO 9-739
Vehicle, Tank Recovery, M32 Series	152	LO 9-738
HEAVY TANKS		
Tank, Heavy, T26E3	—	LO 9-735*
TRUCKS		
Truck, ¼-Ton, 4x4 (Ford, Willys)	501	LO 9-803
Truck, ½-Ton, 4x2 (Dodge)	542	LO 9U-319
Truck, ½-Ton, 4x2 (Ford)	541	LO 9U-318
Truck, ½-¾-Ton, 4x2 (Chevrolet)	539	LO 9U-316
Truck, ½-Ton, 4x4 (Dodge)	512	LO 9U-304
Truck, ¾-Ton, 4x4 (Dodge)	508	LO 9-808
Truck, 1½-Ton, 4x2 (Chevrolet)	536	LO 9U-314
Truck, 1½-Ton, 4x2 (Dodge)	535	LO 9U-313
Truck, 1½-Ton, 4x2 (Ford)	532	LO 9-806
Truck, 1½-Ton, 4x2 (IHC K-5)	545	LO 9-824*
Truck, 1½-Ton, 4x4, Bomb Service, M6 (Chevrolet)	56	LO 9-765
Truck, 1½-Ton, 4x4 (Chevrolet)	503	LO 9-805
Truck, 1½-Ton, 4x4 (Chevrolet G-7163, 7173)	519	LO 9-805-1
Truck, 1½-Ton, 4x4 (Ford)	511	LO 9U-303
Truck, 1½-Ton, 6x6 (Dodge)	522	LO 9-810
Truck, 2½-Ton, 4x2 (Federal 2G, 3G)	531	LO 9-821
Truck, 2½-Ton, 4x2, Dump (IHC K-7)	533	LO 9-822*
Truck, 2½-Ton, 6x4 (GMC CCW-353)	538	LO 9U-315
Truck, 2½-Ton, 6x4 (Studebaker)	526	LO 9-807-1
Truck, 2½-Ton, 6x6, Amphibian (GMC)	505	LO 9-802
Truck, 2½-Ton, 6x6, Bomb Service, M27	547	LO 9-766
Truck, 2½-Ton, 6x6 (GMC CCKW 352, 353)	504	LO 9-801
Truck, 2½-Ton, 6x6, C.O.E. (GMC AFKWX 353)	537	LO 9-809
Truck, 2½-Ton, 6x6 (Studebaker)	515	LO 9-807
Truck, 4-Ton, 4x4 (FWD HAR-1)	524	LO 9-815
Truck, 4-Ton, 6x6 (Diamond T)	507	LO 9-811
Truck, Tractor, 4-5 Ton, 4x4, C.O.E. (Autocar, White)	502	LO 9-816
Truck, Tractor, 4-5 Ton, 4x4 (Federal)	509	LO 9-820
Truck, 5-Ton, 4x2 (IHC KR-11)	534	LO 9-823
Truck, Tractor, 5-Ton, 4x2 IHC H-542-9, H-542-11; Marmon Herrington H-542-11; Kenworth H-542-11)	543	LO 9-812
Truck, 5-Ton, 4x2 (Mack EH)	546	LO 9U-320
Truck, Tractor, 5-6 Ton, 4x4, C.O.E. (Autocar U-8144, U-8144-T)	525	LO 9-817
Truck, 5-6 Ton, 4x4 (FWD SU-C.O.E.)	540	LO 9U-317
Truck, 6-Ton, 6x6 (Brockway)	518	LO 9-813-1
Truck, 6-Ton, 6x6 (Corbitt 50SD6)	521	LO 9-813-2
Truck, 6-Ton, 6x6 (White)	506	LO 9-813
Truck, 6-Ton, 6x6 (Mack NM)	517	LO 9U-307
Truck, 7½-Ton, 6x6 (Mack)	513	LO 9U-305
Truck, 10-Ton, 6x4, Cargo (Mack NR)	523	LO 9-818
Truck, 10-Ton, 6x4, Diesel, Cargo (White 1064)	520	LO 9U-308
Truck, 12-Ton, 6x4, M20 (Diamond T 980, 981)	160	LO 9-768
Truck, Tractor, 20-Ton, 6x4, Diesel (Federal 604)	516	LO 9U-306
Truck, Trailer, 40-Ton, Tank Transporter, M25	138, 138A	LO 9-767
Truck, Wrecking, Heavy, M1 (Ward La France, Series 1; Kenworth 570)	24	LO 9-795
Truck, Wrecking, Heavy, M1 Ward La France, Series 2)	82	LO 9-795-1
Truck, Wrecking, Heavy, M1A1 Ward La France, Series 5; Kenworth 573)	544, 544A	LO 9-796
Crane, Truck Mounted, M2	135, 135A	LO 9-771
TRACTORS		
Tractor, High Speed, 18-Ton, M4	122	LO 9-785
Tractor, High Speed, 13-Ton, M5	123	LO 9-786
Tractor, High Speed, 38-Ton, M6	147	LO 9-788
Tractor, Snow, M7	208	LO 9-774
TRAILERS		
Trailer, ¼-Ton, Telephone Cable Splicer (FWD K38)	720	LO 9U-324
Trailer, ¼-Ton Payload, 2W, Cargo	720	LO 9U-327
Trailer, 1-Ton, Snow, M19	208	LO 9-774
Trailer, 1-Ton, 4W, Bomb, T53	806	LO 9-797
Trailer, 1-Ton Payload, 2W, Cargo and Ammunition, M24	730	LO 9-883
Trailer, 1-Ton Payload, 2W, Water Tank, 250 Gal.	732	LO 9-883-1
Semitrailer, 3-Ton Payload, 6-Ton Gross, 2W (Highway)	760	LO 9U-340
Semitrailer, 3-Ton Payload, 2W, Van (Gramm)	744	LO 9U-331
Semitrailer, 3-Ton Payload, 2W, Van (Checker)	743	LO 9U-330
Semitrailer, 3-Ton Payload, 6-Ton Gross, 2W, Van (Truck Engineering)	749	LO 9U-334
Semitrailer, 3-Ton Payload, 6-Ton Gross, 2W, Van (Carolina)	752	LO 9U-336
Semitrailer, 3-Ton Payload, 6-Ton Gross, 2W, Van (Steel Products)	753	LO 9U-337
Semitrailer, 3½-Ton Payload, 6-Ton Gross, 2W, Van, Comb. Stake and Platform (Black Diamond)	734	LO 9-886A
Semitrailer, 3½-Ton Payload, 2W, Comb. Stake and Platform (Checker)	743	LO 9U-330
Semitrailer, 3½-Ton Payload, 6-Ton Gross, 2W, Comb. Stake and Platform (Hobbs)	743	LO 9U-330
Semitrailer, 3½-Ton Payload, 6-Ton Gross, 2W, Van, Comb. Stake and Platform (Kingham)	748	LO 9U-333
Semitrailer, 3½-Ton Payload, 6-Ton Gross, 2W, Comb. Stake and Platform (Dorsey)	746	LO 9U-332
Semitrailer, 3½-Ton Payload, 6-Ton Gross, 2W, Van, Comb. Stake and Platform (Strick)	763	LO 9U-343
Trailer, 4-Ton, 2W, Ammunition, M21	726	LO 9-792
Trailer, 4-Ton Payload, 4W, Van (Superior)	783	LO 9U-350
Trailer, 5-Ton Payload, 4-W, Van (Corbitt T-15)	784	LO 9U-351

Major Item	Old No.	New No.
Semitrailer, 5-Ton Payload, 8-Ton Gross, 2W, Stake and Platform 1944 (Trailer Co. of America, Truck Engineering, Olson)	792	**LO 9-890**
Trailer, 5-6 Ton, 4W, Cargo (Hobbs)	736	**LO 9-887**
Semitrailer, 6-Ton Payload, 10-Ton Gross, 2W, Fuel Tank, 2000-Gal.	795	**LO 9-891**
Semitrailer, 6-Ton Payload, 10-Ton Gross, 2W, Shoe Repair (Gerstenslager W8120, W8125)	688	**LO 9U-354**
Semitrailer, 6-Ton Payload, 2W (Hyde 22-S, Trailer Co. of America B34H)	769	**LO 9U-344**
Semitrailer, 6-Ton Payload, 10-Ton Gross, 2W (Carter C-15-531D, C-15-531DR; Lufkin D-1346; Gramm DF-75; Kentucky 4QB; GSW-4 Steel; Strick 400; Timpte T8)	769	**LO 9U-344**
Semitrailer, 6-Ton Payload, 10½-Ton Gross, 2W, Van, Comb. Animal and Cargo (Highway)	731	**LO 9U-328**
Semitrailer, 6-Ton Payload, 10-Ton Gross, 2W, Van (Highway)	772	**LO 9U-346**
Semitrailer, 6-Ton Payload, 10-Ton Gross, 2W, Van (Olson LV-10)	789	**LO 9-888**
Semitrailer, 6-Ton Payload, 8-Ton Gross, 2W, Comb. Animal and Cargo (Trailer Co. of America)	761	**LO 9U-341**
Trailer, 6-Ton (Athey)	722	**LO 9-790A**
Semitrailer, 6-Ton Gross, 2W, Comb. Stake and Platform (Winter-Weiss)	752	**LO 9U-336**
Semitrailer, 6½-Ton Gross, 2W, Pipe	787	**LO 9U-353**
Semitrailer, 7-Ton Gross, 2W (Highway SKD-2159)	738	**LO 9-882**
Semitrailer, 7-Ton Payload, 10-Ton Gross, 2W (Edwards D-11-B; D-11-A; Fruehauf; Gramm SC-600; Hyde 8C; Pointer-Wililamette PW-S-1; Reliance; Nabors GC, GC-1, 2GC; Kentucky A; Whitehead & Kales SBE; Carter C-11-691, C-11-691-W)	738	**LO 9-882**
Semitrailer, 7-Ton, 4W, Van w/dolly, M26	741	**LO 9-884***
Semitrailer, 7½-Ton Payload, 12-Ton Gross, 2W, Low Bed	777	**LO 9U-348**
Trailer, 8-Ton, 4W, Ammunition, M23	799	**LO 9-793**
Semitrailer, 10-Ton Payload, 14-Ton Gross, 2W, Stake and Platform and 10-Ton Converter Dolly	793	**LO 9-892**
Semitrailer, 11-Ton Payload, 15-Ton Gross, 2W, Van (Kentucky)	721	**LO 9-895**
Semitrailer, 11-Ton Payload, 15-Ton Gross, 2W, Van (Reliance)	754	**LO 9-896**
Semitrailer, 11-Ton Payload, 15-Ton Gross, 2W, Van (Omaha Standard Body Corp. F16)	794	**LO 9-894**
Semitrailer, 11-Ton Payload, 15-Ton Gross, 2W, Van (Trailer Co. of America)	796	**LO 9U-356**
Semitrailer, 11-Ton Gross, 2W, Refrigerator Van (Hyde)	776	**LO 9U-347**
Semitrailer, 22½-Ton Payload, 28½-Ton Gross, 4W, Low Bed (Trailer Co. of America)	780	**LO 9U-349**
Trailer, 45-Ton, 12W, M9	724	**LO 9-768-1**
Trailer, Bomb, M5	25	**LO 9-760**
Trailer, Generator, M7	173	**LO 9-881**
Trailer, Armored, M8	723	**LO 9-791**
Trailer, Director, M13, M14	804	**LO 9-881-1**
Trailer, Generator, M18	803	**LO 9-881-2**
Truck, Bomb Lift, M22	124	**LO 9-762**

Major Item	Old No.	New No.
PASSENGER CARS		
Car, 5-Passenger, Light Sedan (Chevrolet)	527	**LO 9U-309**
Car, 5-Passenger, Light Sedan (Ford)	529	**LO 9U-311**
Car, 5-Passenger, Medium Sedan (Packard 160, 2003, Clipper)	530	**LO 9U-312**
Car, 5-Passenger, Light Sedan (Plymouth)	528	**LO 9U-310**
AMBULANCE		
Ambulance, ¾-Ton, 4x2 (Packard-Henney)	530	**LO 9U-312**
BUS		
Bus, 29-Passenger (1HC KS-5)	545	**LO 9-824***
MOTORCYCLES		
Motorcycle, Chain Drive (Indian 340, 640 Series)	710	**LO 9U-321**
Motorcycle, Chain Drive 30.50 cu. in. (Indian)	714	**LO 9U-322**
Motorcycle, Chain Drive, 74 cu. in., Twin (Harley-Davidson, 40UA, 40LE)	715	**LO 9U-323**
Motorcycle, Chain Drive, (Harley-Davidson 40WLA, 41WLA, 42WLA)	709	**LO 9-879**
SCOOTERS		
Scooter, Motor, 2W, Airborne (Cushman 53)	719	**LO 9-876**
Scooter, Motor, 3W (Package Kar, Cushman 39)	717	**LO 9U-325**
EQUIPMENT		
Charger, Battery, Port., Gasoline-Engine-Driven, 15 V, 133 Amp. (Onan No. OTC-33B)	700	**LO 9-834**
Compressor, Air, Port., Gasoline-Engine-Driven, 4 cu. ft.-per-min. (Bendix-Westinghouse)	702	**LO 9-834-2**
Compressor, Air, Gasoline-Engine-Driven, 16 cu. ft.-per-min. (Curtis)	701	**LO 9-834-1**
Compressor, Air, Gasoline-Engine-Driven, 105 cu. ft.-per-min. (Schramm)	703	**LO 9U-200**
Generator, 2 kw., Port., Gasoline-Engine-Driven, 115 v., 60 c., sgle ph. (Onan)	704	**LO 9U-201**
Generator, 3 kw., Port., Gasoline-Engine-Driven, 110 v., 60 c., sgle ph. (Onan)	707	**LO 9U-204**
Generator, 5 kw., Gasoline-Engine-Driven, 220 v., 60 c., a-c, 3-ph. (Hobart)	708	**LO 9U-205**
Generator, 10 kw., Gasoline-Engine-Driven, 110/220 v., 60 c., sgle ph. (Schramm)	705	**LO 9U-202**
Generator, 25 kw., Gasoline-Engine-Driven, 250 v., 60 c., 3-ph. (Hobart)	706	**LO 9U-203**
Welder, Generator, 12 kw., Gasoline-Engine-Driven, 40 v., 300 amp.. with 3 kw., 115 v., d-c auxiliary generator (Hobart)	798	**LO 9-834-3**

*TM hasn't been published to date.

JOE DOPE

THE SNAFFIEST JOE IN THE ETO

BOY, LOOKIT THE CONDITION OF Y'R TRUCK, JOE...LOOKS LIKE ME FATHER-IN-LAW!

Y'BETTER GIT THAT THING ONNA BALL, JOE .... COL. WHEELBASE IS COMIN' THRU TONIGHT ...HE'LL EAT Y'R HIDE OFF ABOUT IT!

DIRTY STORIES MAG.

HADD'YA LIKE THAT!... MY TRUCK'S A HECK OF A LOT NEATER THAN THEIRS....OH, WELL.. GUESS I'LL GIVE IT A GOIN' OVER ...COL. WHEELBASE IS A HARDBUTTED GUY, I'M LIABLE TO GET RESTRICTED

ALO ♫

A WOMAN... SLUP! SLUP!

HELL.. I CAN DO A "AFTER-OPERATION" TOMORRA!!!!

ZOOM

H'YA YOU GORJIS CREATURE, LET'S GO TO YOUR HOUSE FOR DINNER ...FIRST!

LATER

MEN, COL. WHEELBASE WOULD LIKE TO TALK TO YOU

BRFSK AHEM!

AS YOU WERE...THERE'S ONE THING I'D LIKE TO EMPHASIZE...THAT'S PREVENTIVE MAINTENANCE.. YES, I KNOW MOST OF US REGARD IT AS JUST CHICKEN'... BUT BELIEVE ME, THE OFFICER WHO INSISTS ON CONSTANT CARE IS NOT A NAG.. HE'S A PROPHET!...WE NEVER KNOW WHEN WE'LL NEED OUR VEHICLES

I BEEN HEARIN' THAT STUFF FOR YEARS

WONDER IF ANY-BODY EVER GOT IT IN THE PANTS FOR LACK OF P.M.

... DUNNO BUT KEEP Y'R EYE ON JOE DOPE .. IF IT CAN HAPPEN, IT'LL HAPPEN TO HIM!

AND... IN THE WEE HOURS .....

HIC SHORRY... GOTTA GO NOW... MUS' MAKE CAMP 'AFORE DAWN HIC

ZEN WE DRINK WAN MORE TOAST

GOO 'NIGHT YOU 'OW-YOU SAY... GREAT BEEG HONK OF STAWFS !

S'LONG Y'VONNE HIC PARDONEY MWA HIC PARDONEY MWA HIC

OH, HELL G'NIGHT!

LATER

OH, BOY, HIC WATTA NIGHT! WATTA NIGHT! TREATED ME LIKE A KING!

WAKE UP! ON Y'FEET! WE'RE MOVIN' UP!

GIT THEM @*!!# TRUCKS MOVIN!

O.K. THERE GOES THE LAST TRUCK.. WHERE'S JOE DOPE ?

@*!!! JUST WHEN I GOT THAT LATRINE BUILT

HERE.. I CAN'T GET STARTED

SO LONG JACKSON, WE CAN'T WAIT FOR YOU AND THAT HUNK OF SALVAGE !

BUT FELLERS IT'S ONEY SOMETHIN' SMALL.. I'LL FIX IT.... SOON'S I COMPLETE THE CHECK-UP !

FORM 48

AND... BY DAWN.....

AH... AT LAST! FINISHED... IN PERFICK RUNNING SHAPE ...NOW TO FIND THE OUTFIT. WONDER WHY THEY TOOK OFF IN SUCH A HURRY ?!

BOMPS AVAY, FRITZ!.. DER MAP INDICATES AN AMERICANER MOTOR POOL.. SIEG HEIL!

GOLLY... I WONDER IF SERGEANT BRICKHOUSE 'LL MAKE ME SIGN A STATEMENT OF CHARGES !

338 SPECIAL TOOLS FOR YOUR NEW

H.S./M.F.T.

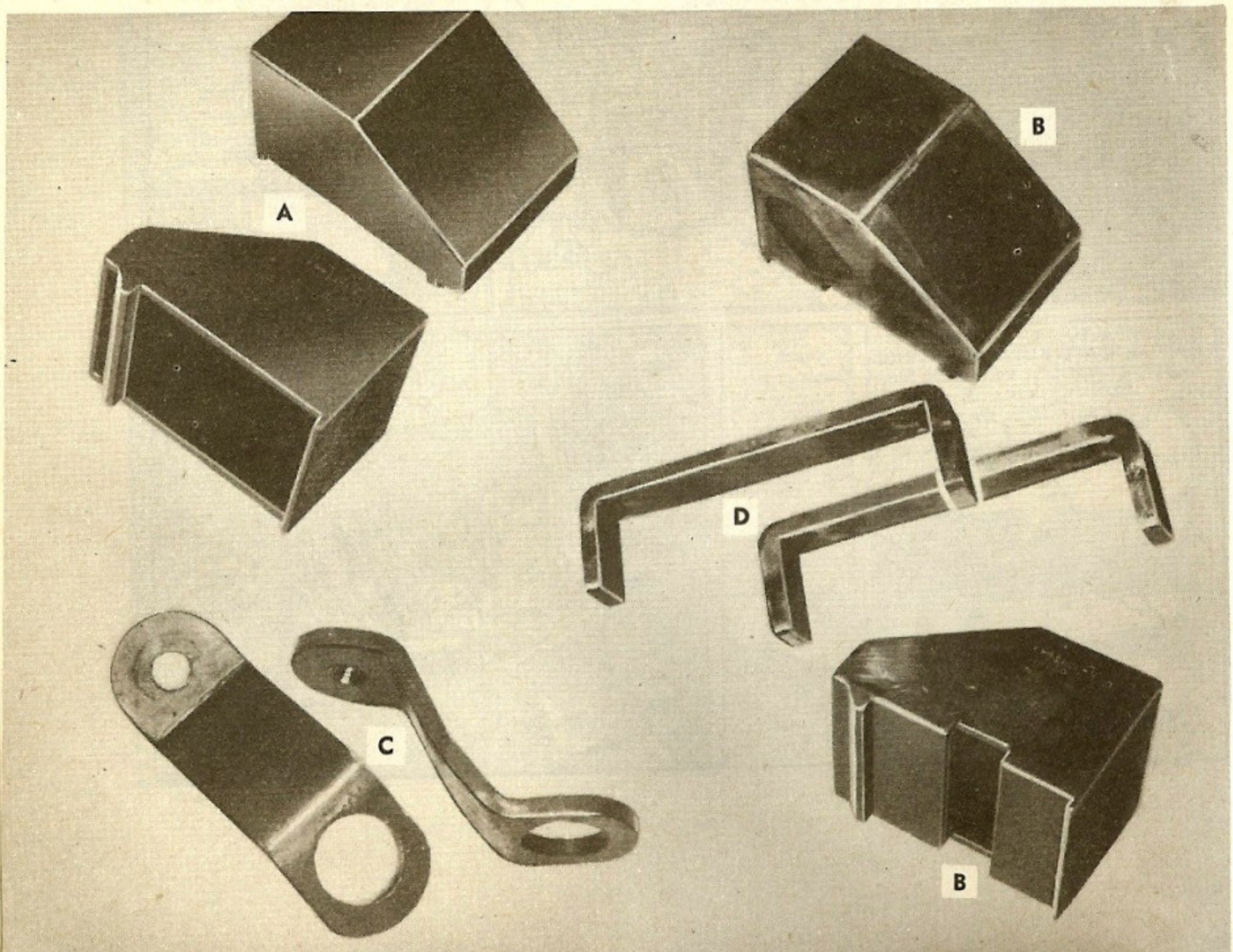
Meaning: Horizontal - Suspension M-Four Tank. If that is your brand, this SOP is your oyster

If you're an M4-series medium tankman, with a new-fangled horizontal-volute suspension to nurse, you've a break comin' that'll help with your chores. A new set of special tools just issued to the 2nd and higher echelons makes a couple of tough jobs a damn sight easier—to wit, removing the volute springs from the suspensions, and taking off an inner bogie-wheel.

As you know if you've seen them, these horizontal-volute suspensions come with two types of tracks—the T66 with all-steel track-shoes, and the T80 with rubber-shod track-shoes. If you've got a T66, you can use the riser block as originally designed, but if it's a T80, be sure to use the *modified* riser block. Any or all volute springs can be removed while the center bogie-assembly is raised up on the jack. We posed the T66 for the revealing photos that phollow.

When you go to remove an inner bogie-wheel, be sure to leave the hub-caps **on** throughout the job or you'll haye the wheelbearings full of grime and grit before you know it—and we don't have to remind you that spells woe. Another thing—if the outer bogie-tire is worn, you'll be wise to change it before you start to change the inner bogie-wheel. Then you'll have good clearance between the wheel and hull, and between the wheel and track on the inner wheel. Carry on.

Fig. 1—Here's all the special tools you need to do either of these exercises: (A) Block, riser, bogie-wheel, Fed. Stock No. 41-B-1411-200 (before modification). (B) Block, riser, bogie-wheel, Fed. Stock No. 41-B-1411-200 (after modification). (C) Adapters, volute-spring removing, Fed. Stock No. 41-A-30-650. (D) Lock, riser-block, Ord. No. B-7080204. Any other tools you'll use are OVM or common tools found on your M1 Heavy Wrecker.



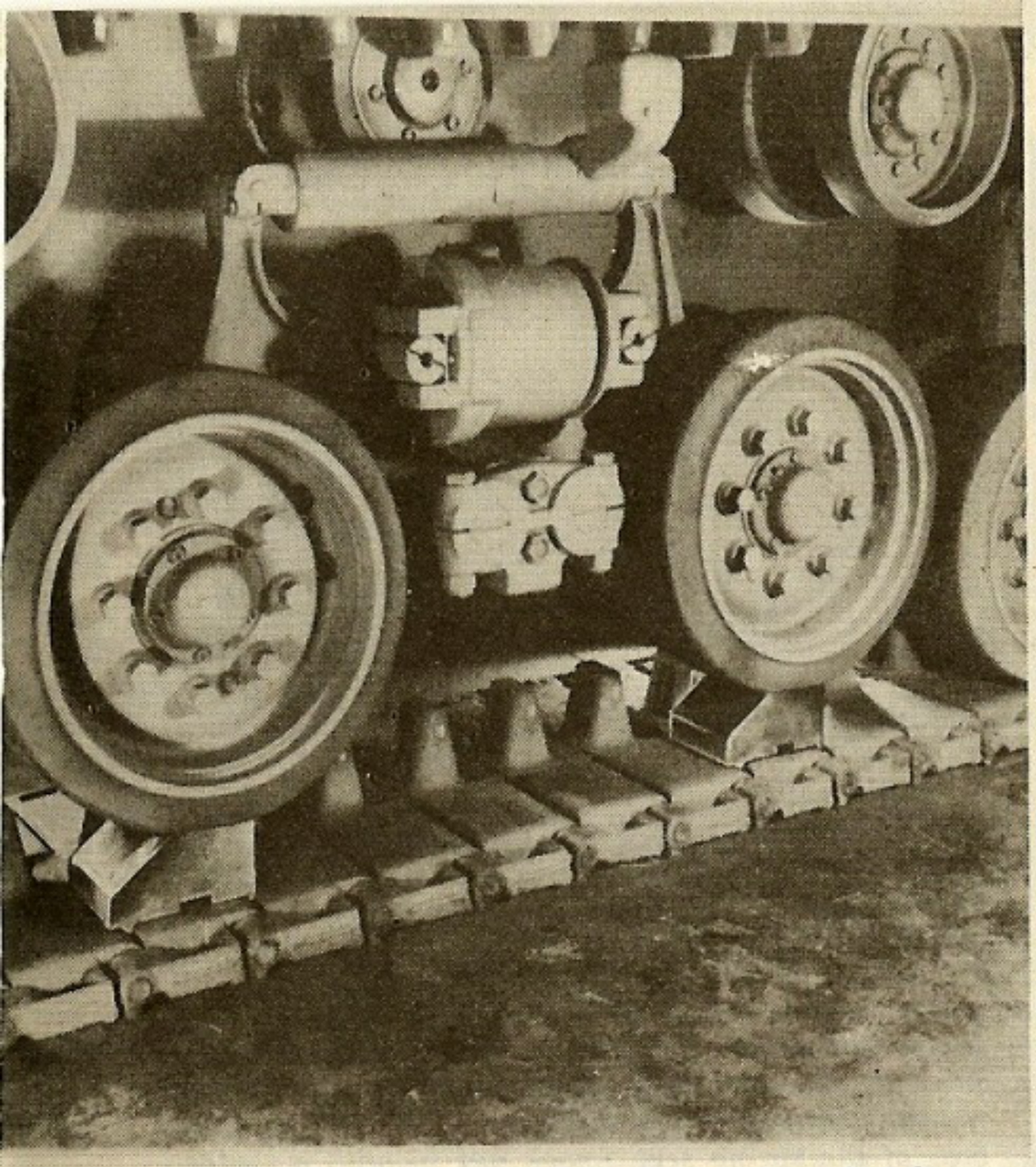


Fig. 2—To remove the volute spring, first loosen one wheel-bolt on each wheel of the bogie assembly involved. Place riser blocks, one in front of each wheel of the center bogie-assembly, and hunch the tank forward until the bogie-wheels center on the blocks as you see them here.

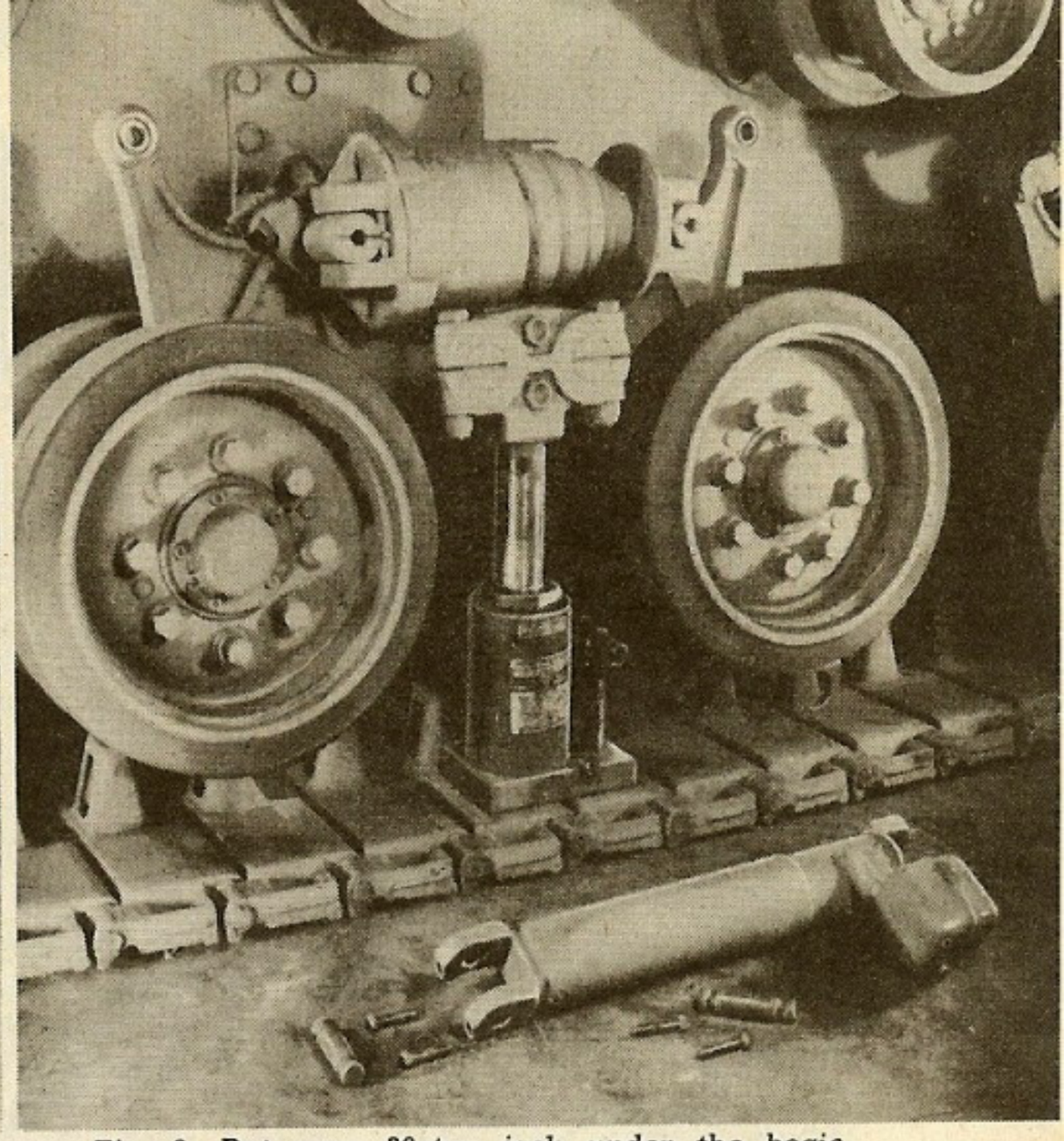


Fig. 3—Put your 30-ton jack under the bogie bracket, high-speed side outside, and raise to its full height. Right now is a good time to disconnect the shock absorber—so go ahead and do it. With the center bogie-assembly jacked up thisaway, you can flip out any volute springs on this side of the tank.

Fig. 4—Slip the riser blocks out and let the wheels drop. You may have to use your 8-ton jack to lift the wheels, one at a time, to get the blocks out. Now you're ready to attach the adapters, one to each loosened wheel-bolt. Put them on as shown, and be sure to draw the bolts up **tight.**

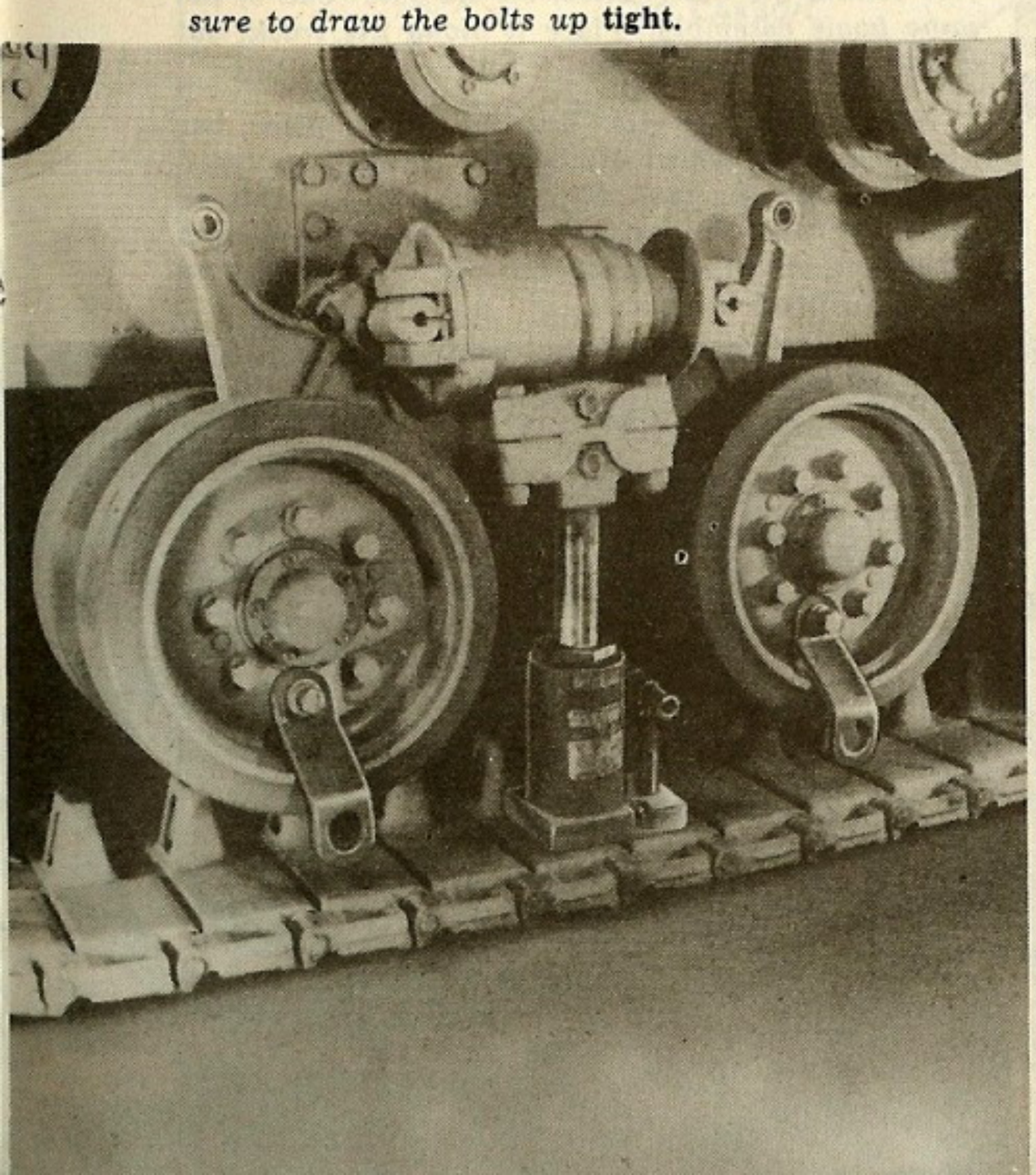
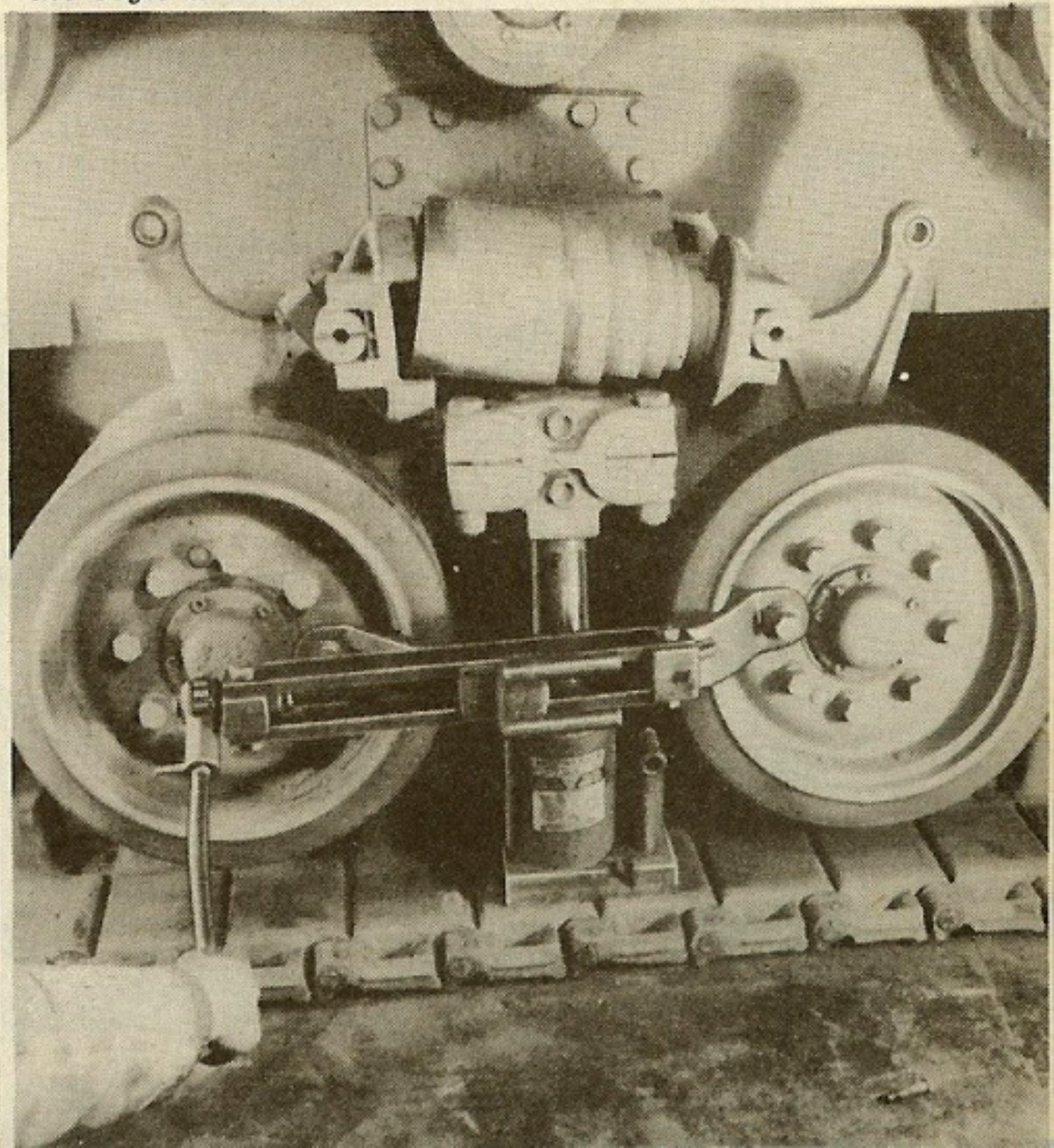


Fig. 5—Connect your track-connecting fixture to both adapters and tighten it to draw the wheels together, releasing the volute spring's tension. Release tension on the idler as much as possible with your track-adjusting wrench, thus eliminating all drag on the bogie wheels.



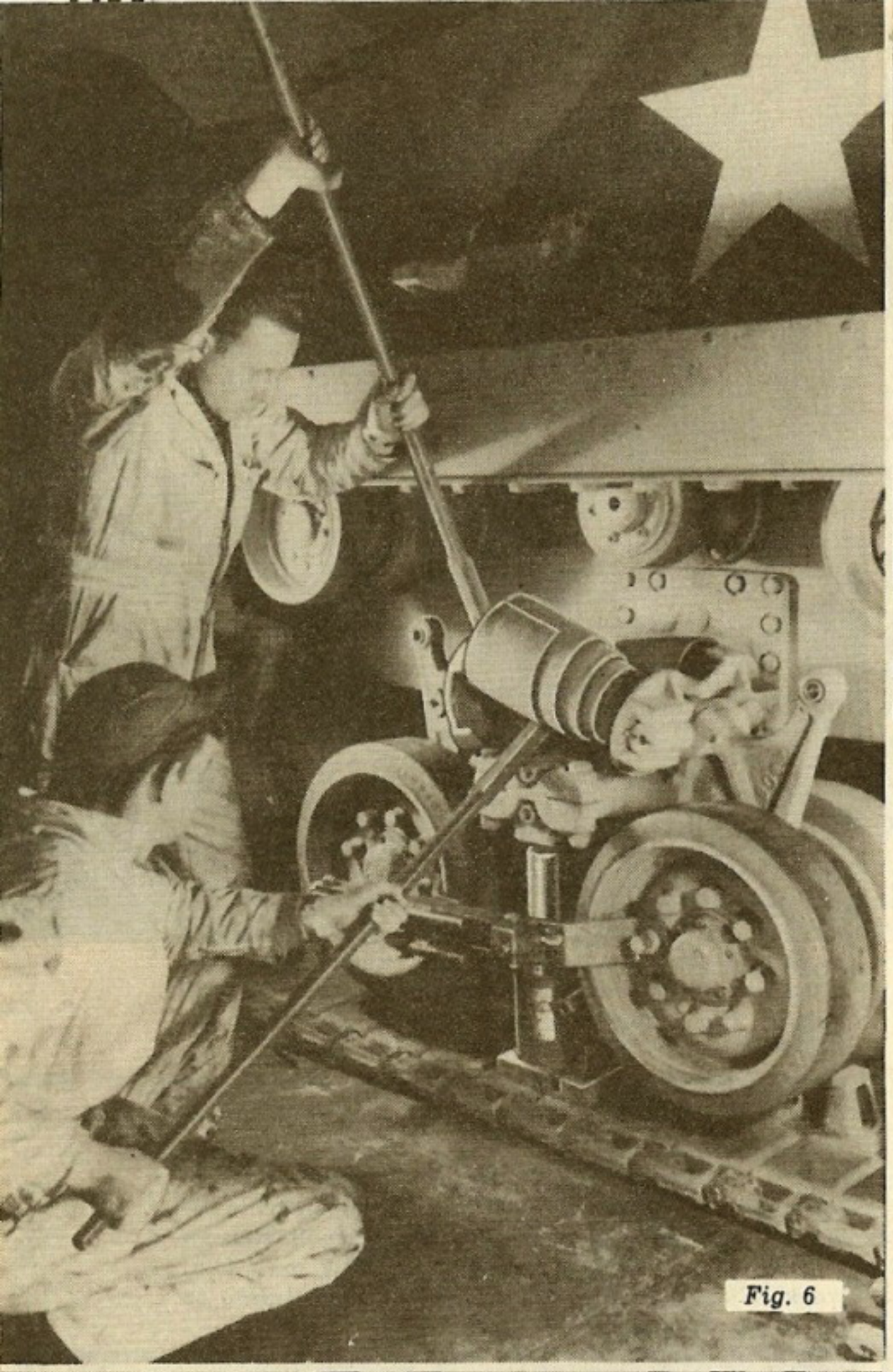


Fig. 6

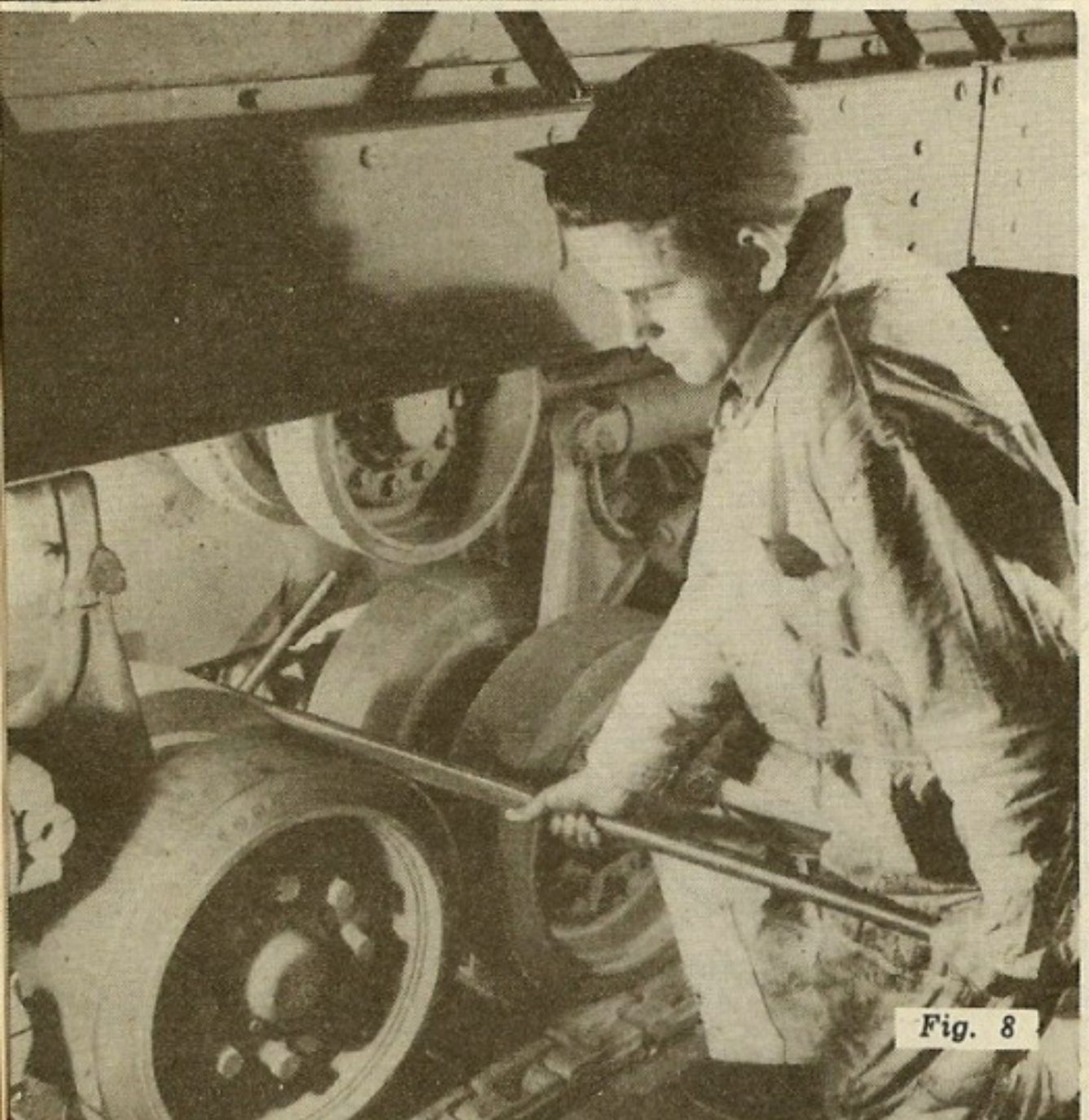


Fig. 8

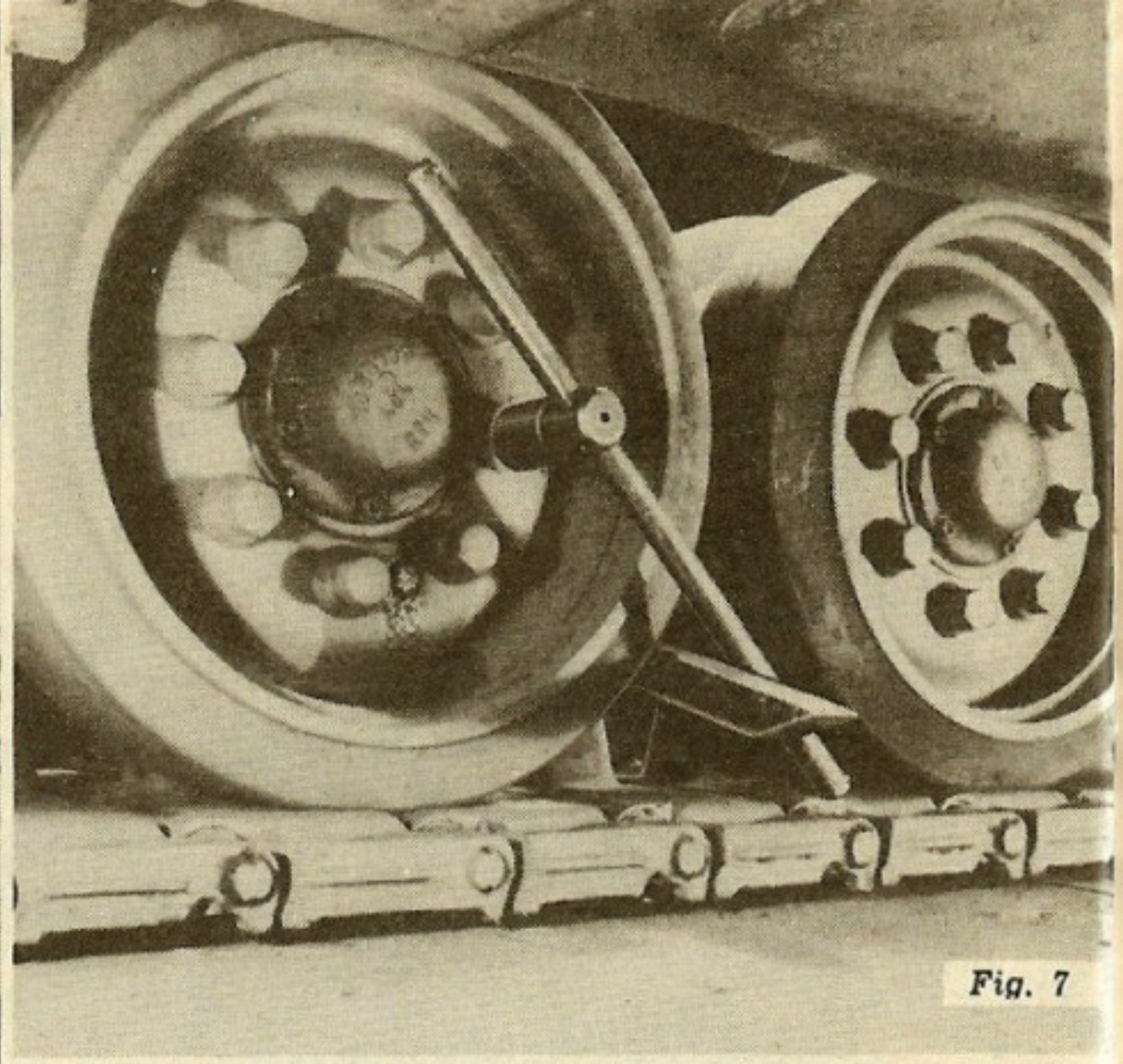


Fig. 7

Fig. 6—Get a fellow sweat-merchant to compress the spring so it'll clear the bracket, as you pry up-and-out with a crowbar. Replacing the spring is just reverse action. Seat the small end of the spring in the boss of the spring seat, knock her in with a sledge, and go on from there—backwards.

Fig. 7—Now to take off that inner bogie-wheel: First step is to loosen the capscrews on the inner bogie-wheel. Quite a trick, too—you'll have to attach the 1 3/16"-socket wrench, with sliding T-handle, from underneath the tank. At least, you don't have to manipulate it from there.

Fig. 8—Use the crowbar from the outside for leverage on the T-handle. After the capscrews are loose, lay the head of your track-adjusting wrench just behind the outer wheel on the other end of the same bogie assembly. Place it along the track, out of the way, as illustrated.

Fig. 9—Now the riser block goes into place, behind the outer wheel of the pair you're concerned with. Jockey the tank till it's perched like this on the block and the wrench-head. Finish removing capscrews, with the ratchet from the ¾" square-drive set, and lift off the wheel.

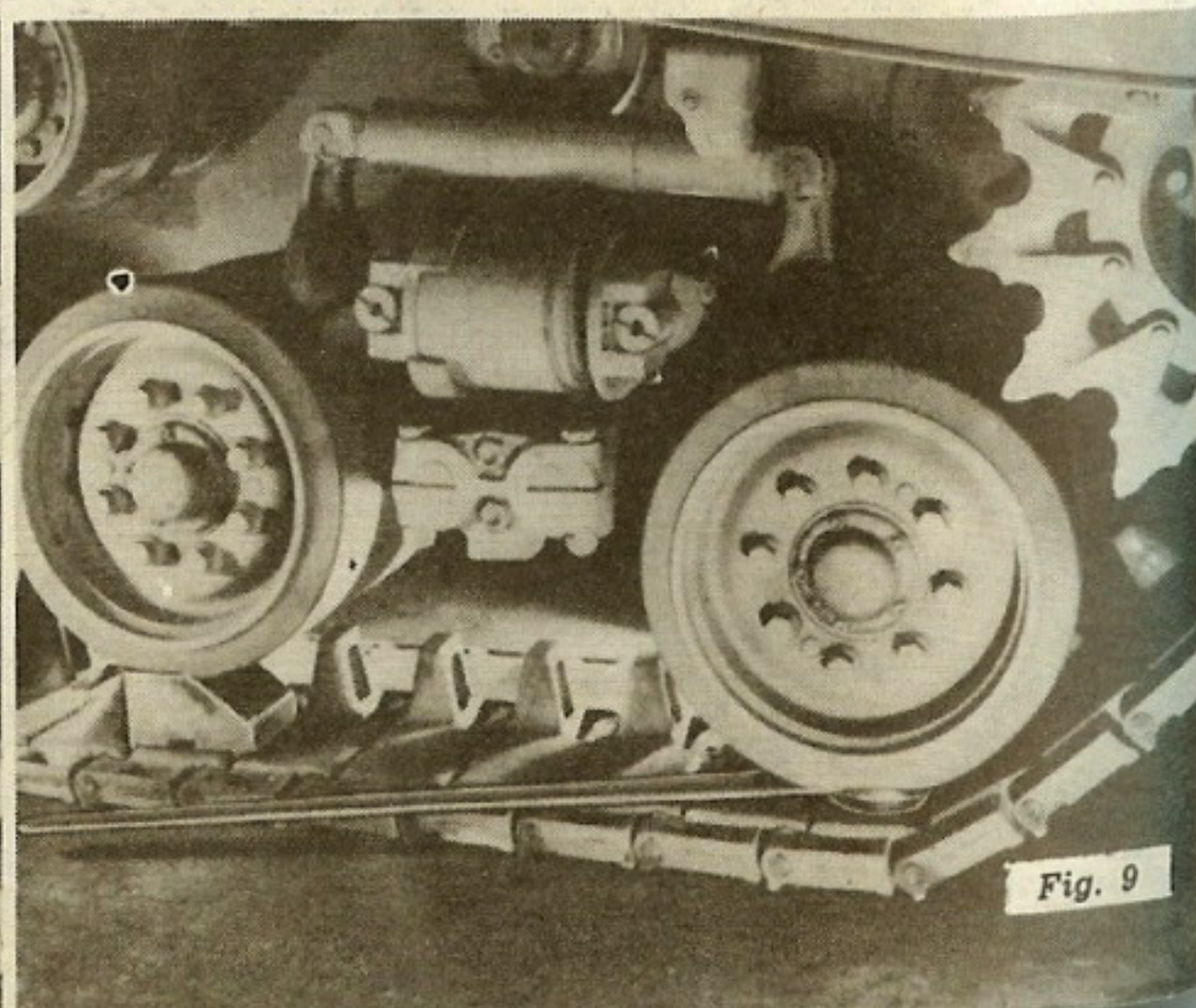
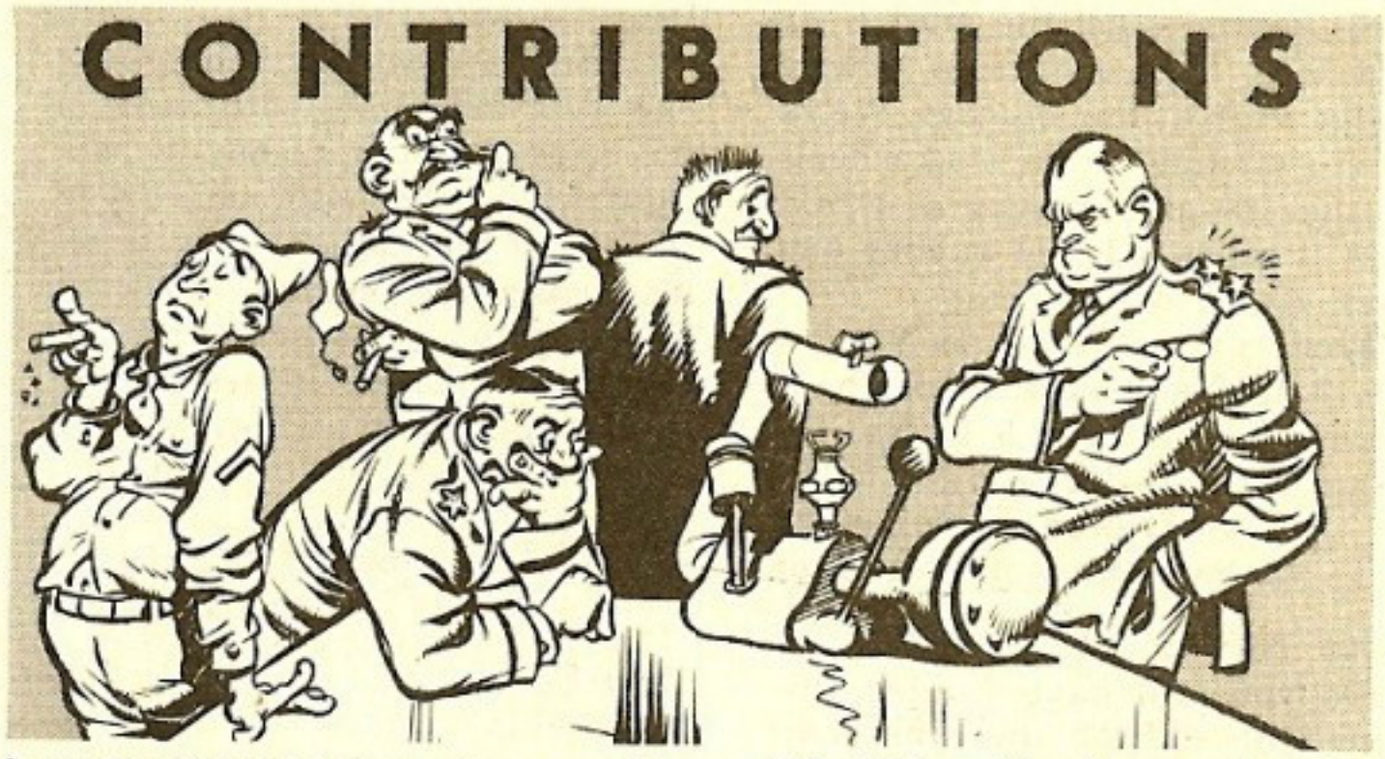


Fig. 9

CONTRIBUTIONS



Dear Editor,

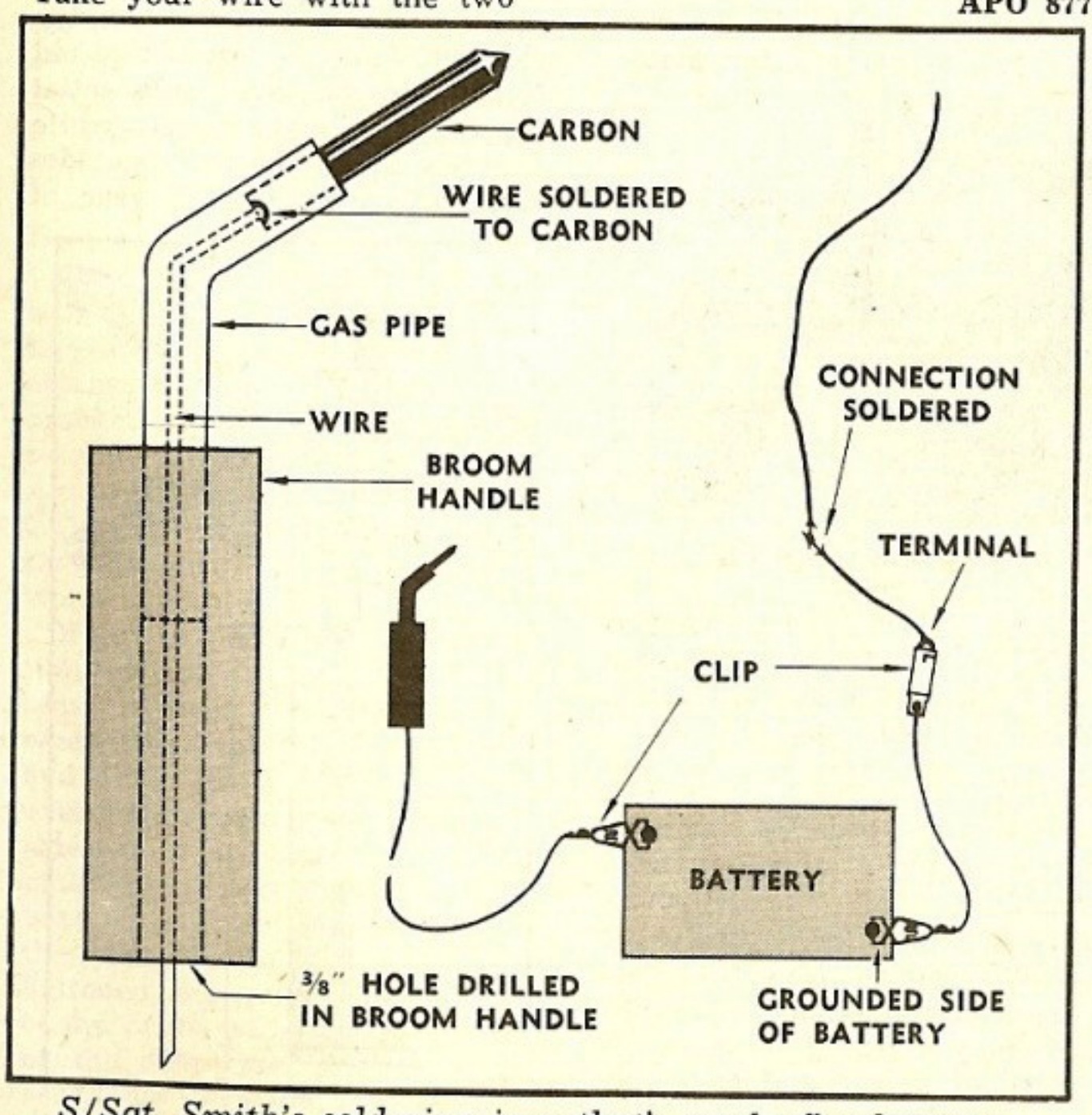
I lost more time heating up a blowtorch and soldering iron to do a five-second job on a wire connection—until I fixed me a little iron to use off a battery.

Here's all you need: 3 universal battery-clips, an old flashlight-battery carbon, a piece of broomstick 3" long, a piece of ⅜" gas pipe 3" long, and two pieces of high-tension wire, both about 4 feet long. First, put a battery clip on each end of one wire. Then put a battery clip on one end of the other wire. Drill a ⅜" hole lengthwise through the broom-handle. Run the end of the wire through the handle and gas pipe. Push the pipe back in the handle about an inch, and bend the other end of the pipe at a 45° angle (see Fig.). To attach the wire to the carbon, drill a 1/16" hole in the end of the carbon and solder the end of the wire in this hole. Then push the carbon in the pipe about ¾". Point the carbon end like a pencil for better contact when soldering.

Take your wire with the two battery clips and connect one end to the grounded side of the battery and the other end to the wire to be soldered (see Fig.). Then attach the battery clip on the soldering iron to the insulated side of the battery. Now you're all set to solder.

Maybe this'll save the fellows a lot of time, and it won't hurt a battery. You can connect to any live wire in a vehicle and solder connections.

S/Sgt. Russell Smith
APO 877



S/Sgt. Smith's soldering iron that's used off a battery.

Ed. Note—That's a handy gadget, Sarge. And it can be used on both live and dead wires. But if you solder a live one, disconnect it before you solder, otherwise you can easily get a short circuit. Don't take insulation off the wire just to ground it. Attach the clip close to the part you're connecting where the insulation has to be removed anyhow. Or disconnect the wire you're soldering and ground it to the terminal. If there's no terminal, it's okay to unravel a bit of the insulation on the end of the wire. (Be sure to use a non-corrosive soldering paste. An acid solder will corrode electrical wire.)

A similar method of making an electric-arc soldering iron was sent in by ***Peter J. Schmalz,*** *Civilian Automotive Advisor. Instead of a broom handle he used a discarded screwdriver handle, and a piece of ⅜" copper tubing about 5" long instead of the gas pipe. (The advantage of the copper tubing is that the wire can be attached to it and not to the carbon.) Then he drilled a ¼" hole through the handle to insert the wire, and a 5/16" hole, 1" deep, in the small end of the handle to hold the tubing. The wire was attached to the tubing by splitting it up about an inch, and inserting the wire in the split. The other end of the tubing was flared so the carbon could be pushed in.*

Take your choice.

Dear Editor,

On the M18 Gun Motor Carriage, the road-wheel tire closest to the rear compensating wheel

(#5) seems to get the most wear and tear. In some cases they're badly worn at low mileage. We've been switching these road wheels at the 100-mile checks and find that it saves a lot of rubber and tires. Here's our system:

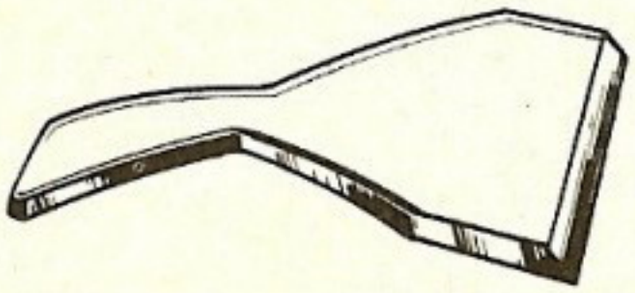
First change: No. 5 to No. 3—No. 3 to No. 1—No. 1 to No. 5. Second change: No. 5 to No. 4—No. 4 to No. 2—No. 2 to No. 5.

George B. Hammond
Civilan Automotive Advisor

Dear Editor,

Do you still have trouble ridding yourself of the frost that settles on your windshield glass? We know you use an old razor blade and cut your hands to hell, or an old sock, handkerchief, etc., and mess the glass all up.

We have something here that will be a boon to your driving during the winter months.



Take a piece of discarded plexiglas, any size or shape, and using a hacksaw or sharp knife, cut down the piece to the right shape (see Fig.). There are no dimensions you need follow—suit yourself as to size. The sharp cutting edge can be ground down on an emery wheel. If no wheel is available, a file can be used to get the same result.

Pfc. Edmund Lachowicz
APO 557

Dear Editor,

You say you welcome suggestions on how to prevent trouble in Army vehicles. Here's one:

Spot-check teams have a habit of taking off the oil filter. But when putting it back, they often don't wait to see if it leaks, and neither does the driver, as it takes from 10 to 15 minutes to find out. Result—no oil in the crankcase, burned bearings and cylinders. These people should be told not to tamper with the oil filter unless they take the time to put it back in properly.

Sgt. E. Rissmann
APO 159

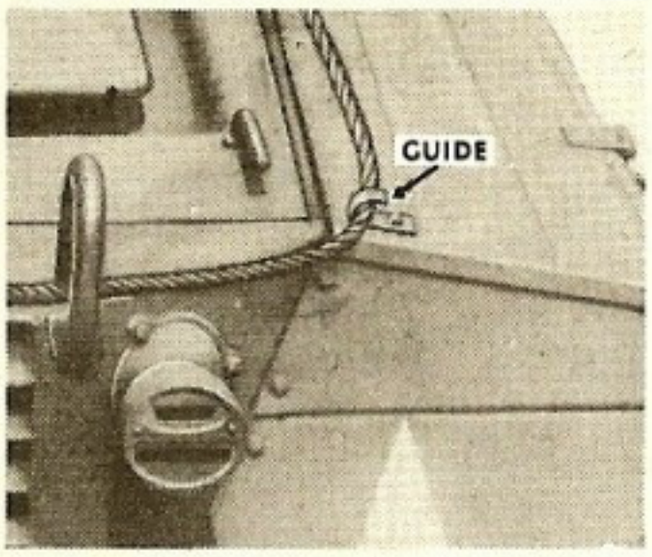
Dear Editor,

During a recent maneuver, we had a lot of trouble with leaks in the cooling system of our jeeps—right where the hose connects to the top of the radiator. We think it's caused by engine vibration breaking loose the solder at the connection. Three inches off the metal tubing, and a longer rubber hose to replace the original, will fix it up.

"Boys of C Battery"
297 AAA SL Bn.

Dear Editor,

We think we've an improvement over the method used by Mr. Rhodes (in the July 44 ARMY MOTORS) to keep the tow cable out of the way when opening the engine-compartment doors of M8 and M20 Armored Cars. The way he has it, you can get into the engine compartment easy enough, but you must take the cable off his guide to get into the external tool box. Why not mount the guide on top of the external-box cover and be able to get into either box or compartment without touching the cable? The guide can be made from any piece of flat stock, just as his was, but placed



on the box cover (see Fig.) with two nuts and bolts.

T/5 Fred G. Thomas
107 Cav. Rcn. Sq.

Ed. Note—A similar production change is on the fire.

Dear Editor,

It sometimes becomes necessary to remove the driving hub from a medium tank, and if you're lucky, it comes off according to the book. I've come across cases where it seemed that the hub was welded onto the studs. I have since learned of a sure and easy way to get it off.

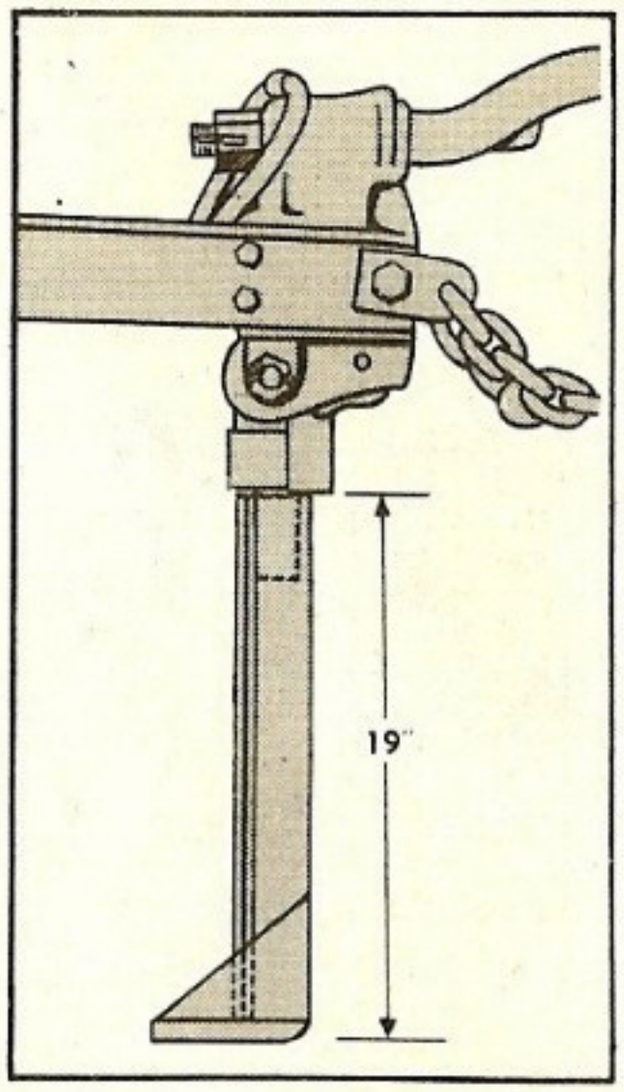
Before the tracks are broken to remove the hub, back off the nuts about ¼" from the hub, then drive the tank a short distance and notice the clearance between the nut and the hub—also see if there is clearance between the hub center-hole and the final-drive shaft. If there is a clearance there, and none between the nut and the hub, you can be damn sure that the hub is loose from the axle, and proceed to remove the driving hub without wondering if it's frozen onto the studs.

Sgt. Abe Slutsky
211 Ord. Bn.

Dear Editor,

Your article of last June, "Landing Wheels Ride High," was probably quite helpful to those who still have landing wheels on their 1-ton trailers. But in our more than two years overseas, we've broken and lost a good many of those original wheels. So here's a tip for outfits whose trailers are minus that landing wheel.

Weld an angle iron or steel leg, made from any pieces of scrap you've got around the shop, to the quadrant swivel-pin (you can discard what may be left of that old fork)—and you have a substantial support for that trailer while standing idle. The leg also rides high, and from over a year of



using it, we find that our landing wheel troubles are over.

Lt. Robert G. Reis, Jr.
APO 650

Ed. Note—Good idea, if you haven't got a landing wheel. The angle iron should be at least ¼" thick, and 19" is okay for length (see Fig.). Might add that you'll need a shoe on the bottom of the leg with a surface large enough to keep the leg from sinking into mud or soft ground, yet not too big to tuck up between the sides of the trailer drawbar. About 5"x 4" of ¼" material should do it. The gusset from shoe to leg is put on for extra strength.

Dear Editor,

On the Ford and Willys ¼-ton, we've had trouble with the battery-to-starter cable, which rubs against the battery hold-down bracket. To prevent wear and a possible serious short, I've slipped a piece of old garden hose about 6" long over the terminal end of the cable. This saves a lot of tape, which is hard to get.

Here's a suggestion for outfits that have ambulances. There's no place to keep the four blankets where they won't get stepped on and dirty. We fold the blankets over a wire, strung along the body side-panels on each side of the ambulance. Take a length of ⅛" wire about 6 feet long and flatten the ends. Then put a bend in the flattened ends, and a loop in the center of the wire. Take out three of the side-panel screws in the second or third row from the top. Stick the screws through the loops in the ends and center of the wire and screw them back in place. The blankets also make a good back rest for walking wounded who ride on the side seats.

Sgt. Paul K. Mueller
APO 44

Dear Editor,

While repairing M4 Medium Tanks, our crew ran into a number of fuel cut-off solenoids with the leads coming out of the winding broken off from vibration. After studying the construction of this part, we found they weren't too hard to fix. Just open the crimp on the outer shell and unwind one turn of wire from the center and outside of the winding. Bring the wires back through the holes in the insulation plate. Recrimp the outer shell again, solder these ends back to their original terminals, and the repaired solenoids'll work like a charm.

E. O. Hutsell
St. Louis, Mo.

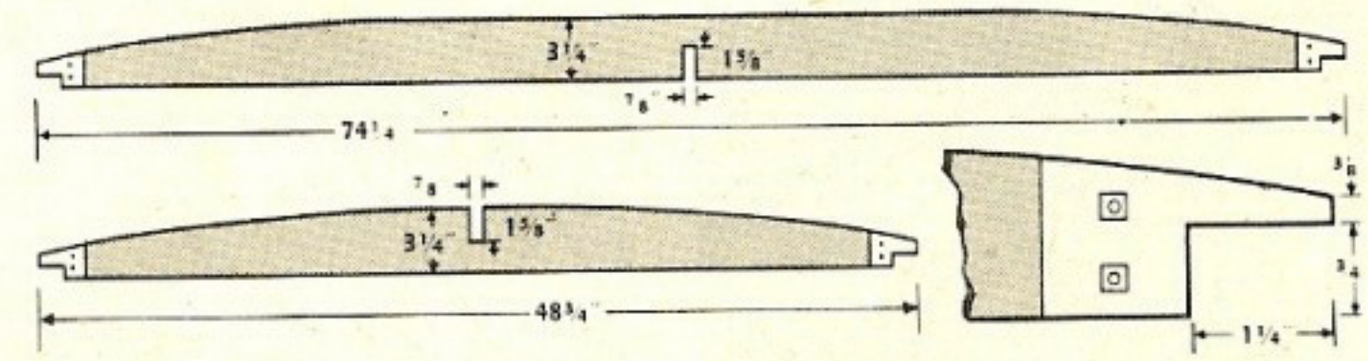
Dear Editor,

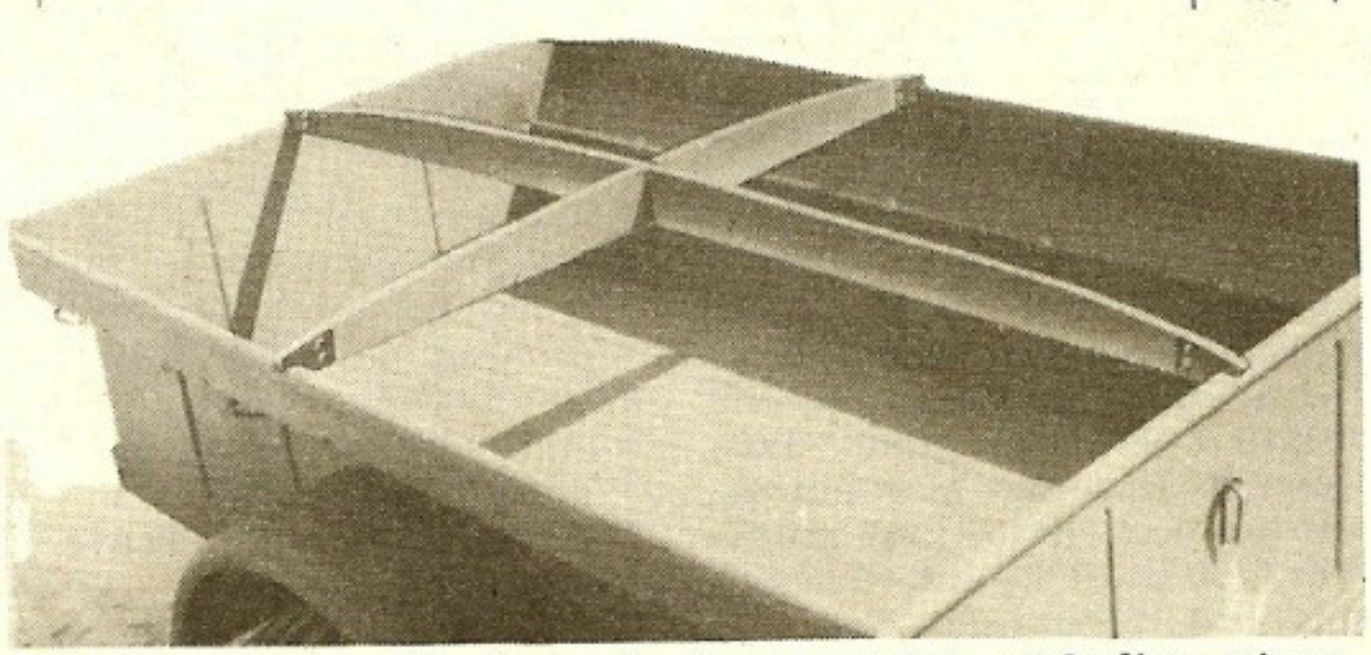
I thought you might be interested in this method I have of keeping water from leaking through the canvas on my ¼-ton trailers. I built cross braces (see Fig.), which run the water off the canvas before it can soak through, using nothing more than two pieces of wood. Pieces of L-shaped metal can be put on the ends to strengthen them.

Lt. D. E. Menown
APO 17665

Ed. Note—M/Sgt. W. T. Booth, 94 Cml. Bn. Mtz., rigged up and sent in a similar idea.

Another contribution to ARMY MOTORS has appeared in official form (TB ORD 10-1435-FE1)—it's one we got from **Berry A. Barnette,** Civilian Automotive Advisor. On the 1½-ton 4x4 Ford GTB, the position of the voltage regulator often allows water to seep in; then the sticky, corroded regulator develops trouble in the electrical system. The TB recom-

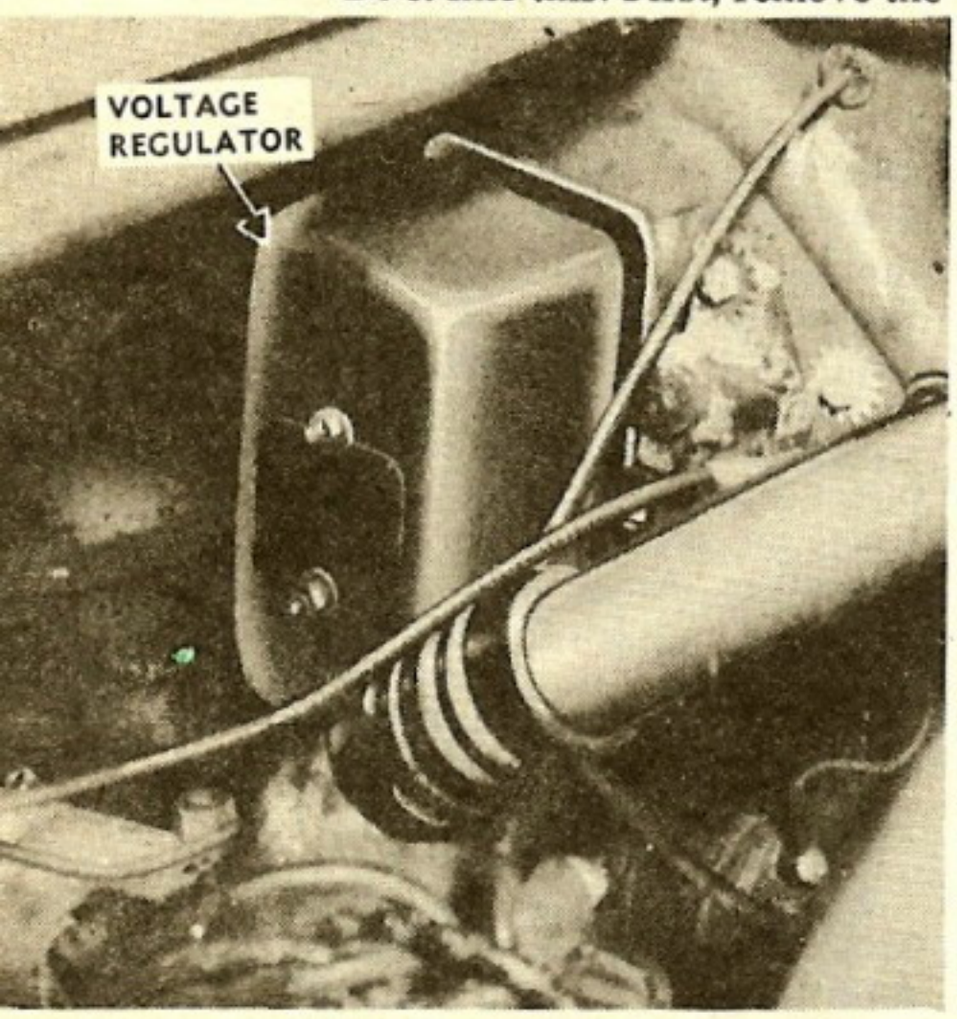


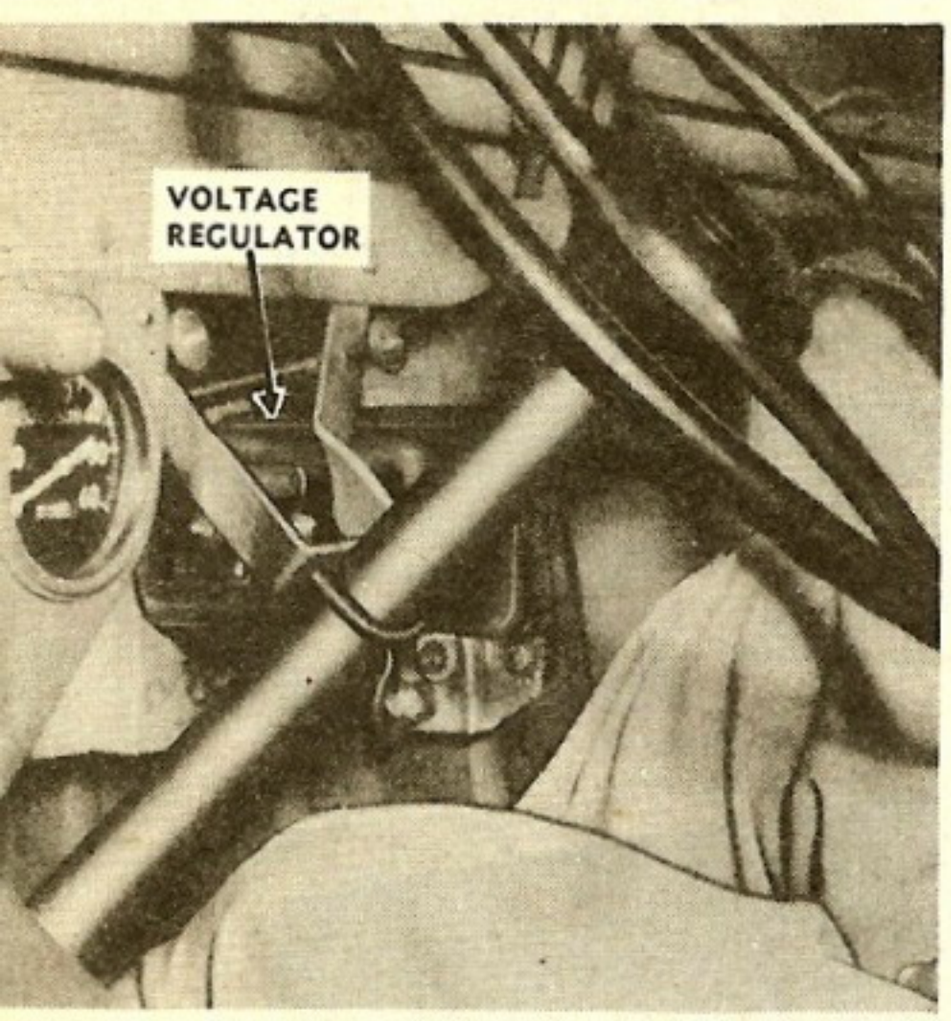


Drainage system for ¼-ton trailer, complete with dimensions.

mends Mr. Barnette's method of relocation to keep it dry. He moved the regulator from the back of the engine (see Fig. 1) to inside the cab (see Fig. 2), and placed it in a horizontal instead of a vertical position, with the terminals pointing floorward.

Do it like this: First, remove the





regulator from the engine side of the firewall by disconnecting the wires. Clean and adjust it, and install a new cover gasket. Then place the regulator in a horizontal position on the rear panel-partition inside the cab. Reinstall the bolt, lockwasher, and nut, using the original top-rear hole in the partition and the top-rear hole in the regulator. Now drill three holes through the panel, taking the mounting holes in the regulator base as a guide, and reinstall the bolts, lockwasher, and nuts. Remove the terminals from the wires which are attached to the regulator, by taking off the solder. Then splice and solder a piece of wire about 2" long to the ends. Resolder the terminals, tape all connections, and your regulator's out of the wet.

Mr. Barnette had another problem with Ford GTB's. Drivers frequently complain that the engine misses when it's first started in damp weather. He thinks it's caused by a wet ignition coil and a dirty, greasy, secondary-output-lead nipple. This missing was stopped, he says, by turning the coil around so the secondary nipple points **away** from the fan.

This change is okay, if your vehicle doesn't have a radio. But if it has, the longer coils to the distributor high-tension wire and low-tension wire might create radio interference. In this case, it's better to use another method —like shielding the coils with some non-conducting material, such as fiber-board or bakelite. Or you can mount the terminals in a vertical position, pointing down. If you use this last method, you may have to re-work the bracket. Be sure, too, that the center wire is firmly seated in the coil terminal-housing.

Here's something we ran across in the Canadian Army's maintenance magazine, CAM. Looks like the best bet yet when it comes to rigging up a tool box under the back seat of the ¼-ton jeep, which is something many a jeep driver has been yearning for for years.

Lt. R. H. D. Todd's idea is to weld a plate onto the floorboard at the front edge of the rear seat, and another across the back, to keep the tools from rolling out. The seat lifts up on its hinge and, with a padlock attached, forms a lockable lid for your improvised tool compartment.

The drawing below shows you the whole set-up. All you need is about one man-hour and:

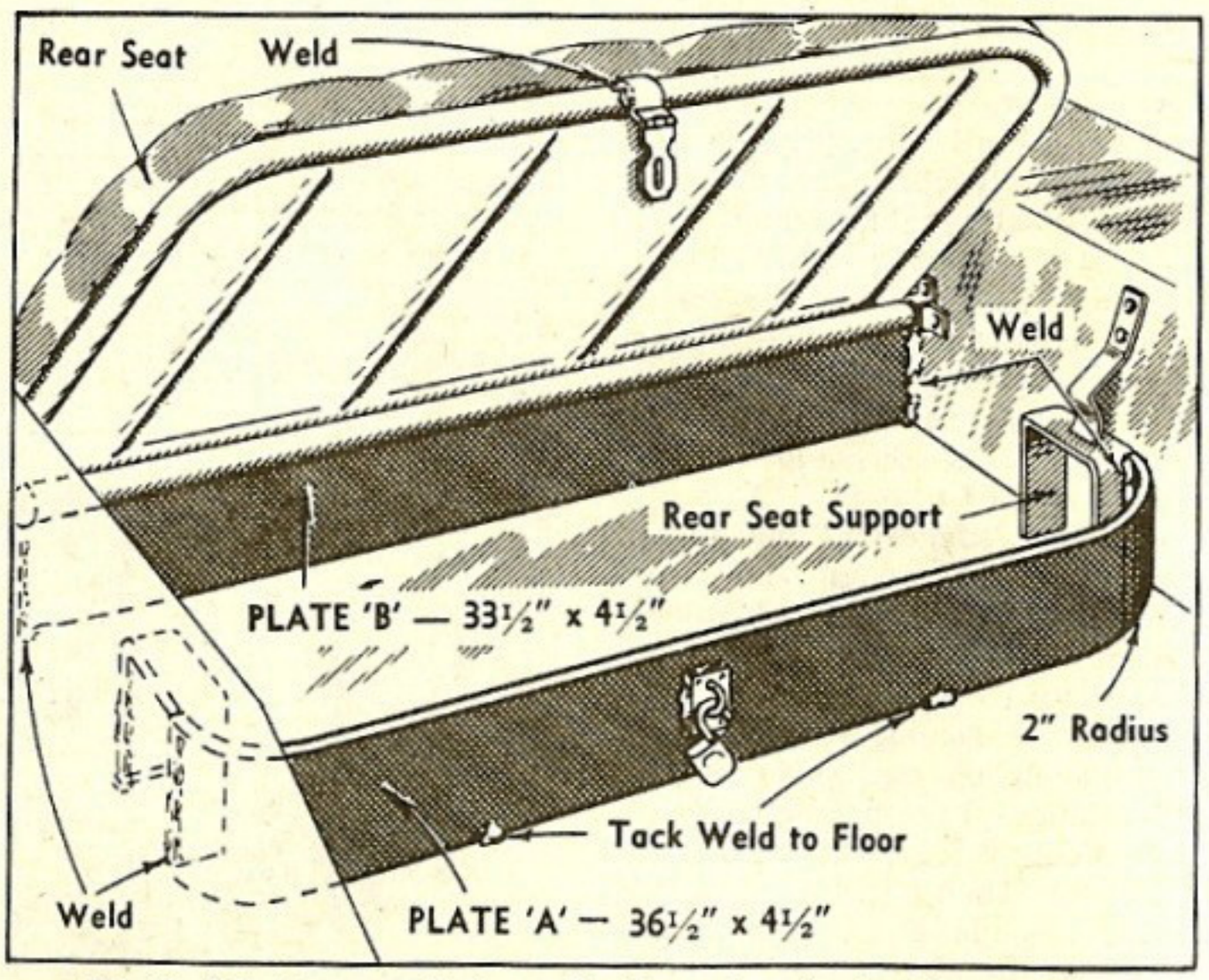
1 mild-steel plate, 36½" x 4½" x 3/16"

1 mild-steel plate, 33½" x 4½" x 3/16"

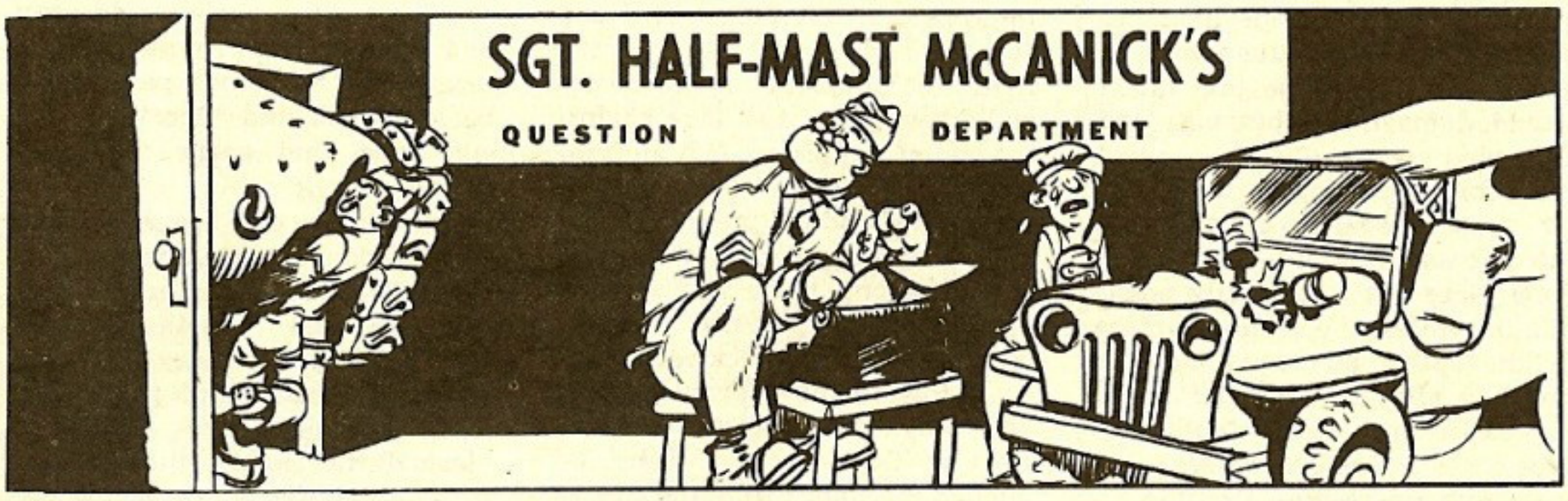
1 hasp and staple, 3"

1 padlock

Shake well while using—and you still won't be losing your tools.



Lt. Todd's jeep tool-chest, built under the back seat. Reverse lend-lease from the Canadian Army's CAM magazine.



Dear Half-Mast,

Several months ago we heard about a new elbow and grease cup to be installed on all Dodge water pumps. These fittings are supposed to do away with the over-lubrication resulting from the zerk now being used.

At the time, we were given part number 112488 for the grease cup, and part number 930227 for the elbow—are these numbers correct? So far our requisitions haven't gotten anywhere.

M/Sgt. F. C. S.

Dear Sergeant,

You have the right part number for the elbow (CC-930227, Elbow, water-pump-body grease cup), but the part number of the grease cup is CC-112465, Cup, grease, water-pump body, and for the fitting it's CC-145434, Fitting, lubricating, S., cd.-pltd., 30° (water pump).

These numbers apply to ¾-ton Dodges having serial numbers above 81685185, except 81695001 through 81697092. You'll find them in SNL G-502, ORD 7-8-9 (15 Aug. 44), on page 115.

Don't get in a stew about your requisitions not being filled—the parts aren't available just yet. In fact, the supply depots won't get distribution from the manufacturer till sometime around March.

Half-Mast

Dear Half-Mast,

A knocking noise developed in the steering gear of our M8 and M20 Armored Cars when traveling over rough roads. This was traced to the lost motion between the worm lug at the lower end of the steering-column assembly (Ord. No. B248679) and the mainshaft snubber-bar (A283678). The space between the lug and bar was shimmed as an experiment, and it eliminated the noise.

I'd like to know why the steering-gear assembly was designed with this lost motion. And what about the gigs Ordnance inspectors are handing out for the noise?

WOJG J. W. P.

Dear Mr. P.,

The snubber bar is there to prevent road shock from reaching the steering wheel. That "lost motion", as you call it, is working clearance. The bar needs this clearance so that when a shock comes from the wheels to the worm, the worm lug'll contact the bar and force the wider edge into the narrow part of the race. This snubs the bar and stops the shock from going any farther. Moving the steering wheel, however, forces the snubber bar into the wide part of the race, where it won't give any resistance to the steering. The snubber-bar spring keeps the clearance from getting any greater.

That shim you used stops the noise, no doubt, but it also stops the snubber action, which is necessary on a vehicle as heavy as the Armored Car—so you'd better take it out. I don't know exactly where you put this shim. But if you used it between the wide part of the bar and the worm-shaft lug, it'll stop the snubber action and allow road shock from the wheels to reach the steering wheel. If it's between the narrow part of the bar and the worm, you'll have snubber action all the time, and there'll be a drag on your steering wheel.

The action of the bar will natcherly cause some noise (and your Ordnance inspectors oughta know that). But if there's **too much** noise, maybe some part of the steering-gear assembly is worn or out of adjustment, and you'd better take the vehicle into an Ordnance shop for checking. They should have TB 9-1743-1 (1 Nov. 44) to go by.

Half-Mast

Dear Half-Mast,

Should the front-wheel inner-bearing on a GMC 2½-ton 6x6 fit tightly on the steering-knuckle assembly, as the factory turns them out, or should the bearing be able to slide freely, having approximately .010" clearance between the bearing cone and the steering-knuckle assembly?

We'd also like to know if the front-wheel inner-bearing oil seal (GM-3665138) is interchangeable with the retainer (2031378) and felt (2031377) on the Timken front axle?

Sgt. F. W. W.

Dear Sergeant,

The right fit for the front-wheel inner-bearing cone on the front-axle spindle should be a "creep" fit—to let the cone creep slightly around the spindle when you're hauling a specially heavy load. That way, the bearing-surface area the load is applied to is changed a little at a time, so it wears even. Trucks now in production have either a slight press fit or an easy push fit on the spindle, depending on who builds 'em. But if you're rebuilding a used front axle, you could have the bearing-spindle diameter .003"

smaller than the inside diameter of the cone. It should never be .010", though, because that much would damage the bearings and the spindle.

As for interchanging the front-wheel inner-bearing oil seal, and the felt and retainer—I wouldn't do it, Sarge. It's physically possible, but unless the sealing surface of the split-type-axle spindle is polished after the retainer is removed, to provide a smooth surface for the seal lip, the seal will wear out long before its time.

Half-Mast

Dear Half-Mast,

We've been having trouble with our 2½-ton GMC brakes. The trouble is in the hydraulic piston and valve assembly. The rubber cups swell up.

We've taken every precaution to see that the mechanics don't wash any parts of the brake system in solvent or mineral oil; yet the cups swell and cause plenty of trouble. The drivers claim the trucks drink brake fluid, and they're right, because most of the time these cups in the early valve-assemblies don't hold. The fluid passes from the cylinder into the tube assembly, then into the hydrovac shell, and from there into the vacuum line, the intake manifold, and the combustion chamber. The fluid not burned by the engine goes out the exhaust tail-pipe.

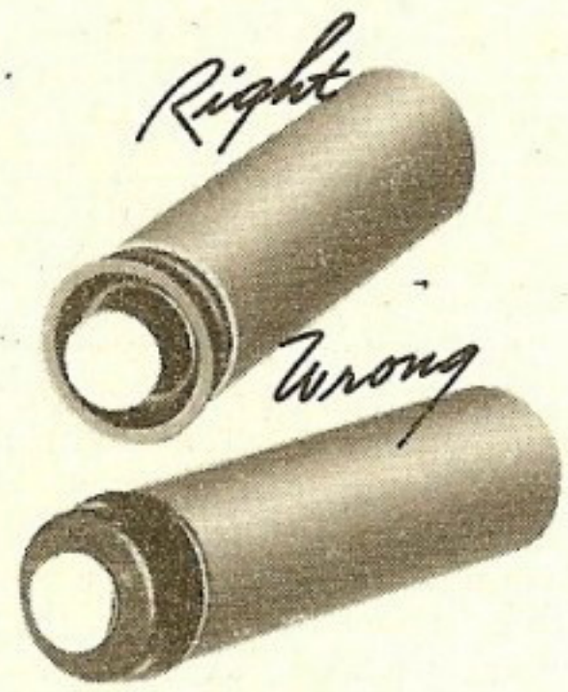
We have experienced most of this trouble with 1943 GMC trucks. Please put me on my dogs, because we have enough brake trouble in this Pacific area without the hydrovac unit acting up.

S/Sgt. H. L. M.

Dear Sergeant,

It's kinda tough to figure out your trouble, since you're sure somebody ain't washing the brake parts with solvent or mineral oil. The wrong type of brake fluid (containing mineral oil) would cause swelling cups, but then **all** the cups in the system would swell. And if only the rubber cup in the hydraulic piston and valve assembly is giving you trouble, the brake fluid can't be the reason.

What could be your trouble is improper installation. The cup (on the end of the piston in the hydraulic adapter) oughta be installed with the flat face against the end of the piston. If it ain't installed that way, when the brakes are applied and the pressure of the fluid smacks the cup, it smacks in the wrong place and distorts or swells the cup. Also, with the cup installed bass-ackwards, the lip is toward the hydraulic piston and away from the direction of the flow of fluid—which means not enough resistance from the cup, so the fluid squeezes right by and enters the hydrovac shell. That's probably what's happening when the drivers squawk about trucks "drinking" the fluid.



So try checking the installation of those cups. The flat face goes against the end of the hydraulic piston (see Fig.). And I'm prayin' this gets rid of your trouble.

Half-Mast

Dear Half-Mast,

We've had a lot of front springs break on our 2½-ton GMC's, so we took leaves from Chevrolet rear springs and cut them to fit our GMC trucks. Also added two of these leaves to the original nine leaves on the truck. This made the riding slightly harder, but it eliminated the breaking. We suggest GMC springs be made 2½" wide with eleven leaves. What do you think?

CWO C. G.

Dear Mr. G.,

I look at it this way: With the front springs 2½" wide, they probably wouldn't break when the truck's jouncing over rough terrain—but other parts would snap and crack, such as frame and axle assemblies. Some one part has to be left weak and "shock-absorbent," and that part's the front springs.

Sometimes old leaves, taken from broken springs, may be corroded or have slight cracks you can't see—and when they're used to rebuild springs, they'll shorten spring life instead of prolonging it. So any old leaves should be cleaned thoroughly with a wire brush or buffer, and a sharp eye should be cast over them for flaws.

Got some basic maintenance tips that may help save your springs:

(1) Tighten spring clips regularly, and be sure there isn't any rust or dirt around them to keep the clips from being **properly** tightened.

(2) Over-tightening the shackle bolts'll cause the leaves to break near or at the spring eyes. Draw the nuts up as tight as possible, then back them off one-half turn so they don't bind.

(3) Grease or dirt on the brake linings, loose backing plates, or a quick stop at the same time the front wheels hit a deep rut or rock, will set up all kinds of spring deflection.

(4) Two different springs, with different carrying capacities, are used on 2½-ton 6x6 GMC's. GM-2140053 is one front-spring assembly that carries 1500 lbs.—it's used on trucks without winch. GM-2140052 carries 1800 lbs. and is used on trucks with winch.

(5) Keep the axle-to-frame bumper blocks in good shape, or they'll let the springs go too far in reverse camber (arch).

(6) Don't lubricate spring leaves, as I've often said before—the lube takes away the friction between the leaves and reduces their load-carrying ability. Sometimes grease gets into spring leaves from over-lubing the spring-shackle bolts, with the same sad result.

Half-Mast

Dear Half-Mast,

I disagree with my Civilian Automotive Advisor about brake-

pedal free-travel on the GMC 2½-ton 6x6. He says it should be ½" to 1". I say ¼" to ½".

Please tell me who is right.

Sgt. R. W.

Dear Sergeant,

You and your CAA could be talking about a few different things when you mention free travel of a brake pedal, and I'm kinda leery about sticking my neck out—but here goes.

Staying on the real technical side of things, if all the brake parts were shiny-new and the brakes were adjusted accurately, the **only** free travel you'd get in the pedal would amount to approximately 1/10".

This would come from the .020" clearance between the stop screw in the master-cylinder bracket and the inner-lever arm. The clearance at the stop screw is measured with the return spring disconnected. When the spring's fastened and that .020" gets up through the ratio of leverage to the brake pedal, it makes about 1/10" of free travel—hardly any.

On the other hand, one of you could be talking about the "pedal to toe-board clearance." TM 9-801 (24 Apr. 44), on page 350, says this clearance between the lever part of the pedal and underside of the toe board should be from ½" to 1" with the brake pedal in a fully released position. But this is to keep the lever part of the pedal (beneath the floor board) from slamming against the underside of the floor when the pedal's released—and to make sure the pedal can come back far enough to **be** fully released. It has nothing to do with free travel.

There's also the distance the piston in the master cylinder travels before it closes the relief port. Multiplied up through the ratio of leverage, it would be approximately 5 times the distance between the relief port and the edge of the piston cup. But this distance isn't adjustable—it is what it is, depending on each complete assembly. You wouldn't be calling that "free travel," would you?

Maybe, too, you mean the distance the brake pedal travels before the brake shoes contact the drum. That's something else again, and the distance the pedal travels in this case would vary with the amount of clearance between the brake shoe and drum. If the linings are a little worn and no readjustment's been made, then the brake pedal's gonna travel farther before the truck starts stopping—with a fresh adjustment, the pedal travels less. But that ain't free travel, either.

I sorta think that with your brakes adjusted as per all instructions, you don't have to worry about free travel. You won't travel far once you press your big hoof on the pedal.

Half-Mast

Dear Half-Mast,

In the July 44 ARMY MOTORS, "I Love My Fire Extinguisher" described how to use a carbon tetrachloride extinguisher. Isn't it dangerous to use this extinguisher where the ventilation is poor? The vapor from carbon tetrachloride has an anesthetic effect. High temperatures combined with the reaction of metals and other substances cause carbon tet to form phosgene and hydrochloric-acid gas. Both gases are poisonous.

Outdoors, the stream from the extinguisher should be directed from the windward side of the fire to protect the operator from these gases.

For ground fires, the liquid will vaporize more rapidly if the operator places his finger partly over the nozzle to force the solid stream to fan out.

Capt. E. T. L.

Dear Captain,

Absolutely—it's bad business to use a carbon tet extinguisher where there's poor ventilation. It does form phosgene gas—which ain't healthy to inhale. Matter of fact, the instructions say never to use the carbon tet extinguisher in a closed area. Instead, use your CO_2 extinguisher, which is issued for that purpose.

I sure would stand with my stern to the wind when dousing a fire, to keep the smoke—and the gases—from blowing right in my puss.

You're right about making a spray for ground fires, too.

Half-Mast

Dear Half-Mast,

What is the purpose of the three little hooks welded on the outside of the hull of the M24 Light Tank? They're on the front of the hull on the right side.

Lt. Q. R.

Dear Lieutenant,

Those hooks musta been added at a tank depot where the M24 was rigged up for overseas shipment. I know they ain't put on in production.

Usually the tank's sealed up at the depot and wire cables are attached to each steering brake. A plate with three hooks is welded to the right front of the hull and the cables are fastened to these hooks. That's so the tank can be towed without having a driver inside to steer it.

Half-Mast

(Continued on Page 352)

The Month's Directives

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

WAR DEPARTMENT AGO PUBLICATIONS

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

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ORDNANCE DEPARTMENT PUBLICATIONS

SNL—Standard Nomenclature List
Organizational Spare Parts and Equipment (OSPE)
Service Parts Catalog (SPC)
ORD 2 OPSI—Formerly Ordnance Publications for Supply Index

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

ARMORED CARS

CAR, ARMORED, LIGHT, M8

MWO ORD G1-W18, Quick method for fastening tow cable.
TB ORD 111, Fuel-cell information and repair instruments.

CAR, ARMORED, UTILITY, M20

MWO ORD G1-W18, Quick method for fastening tow cable.
TB ORD 111, Fuel-cell information and repair instruments.

GUN MOTOR CARRIAGES

ALL GUN MOTOR CARRIAGES ON LIGHT AND MEDIUM TANK CHASSIS

TB ORD 71, Reversing track end-connectors.

CARRIAGE, MOTOR, HOWITZER, 105-MM, M7

MWO ORD G1-W18, Quick method for fastening tow cable.
TB ORD 202, Ammunition boxes and brackets.
TB ORD 213, Master-clutch assembly 7067270, service instructions.
TB ORD 219, Incorrect engine-oil-gage-blade markings.

CARRIAGE, MOTOR, HOWITZER, 105-MM, M7B1

MWO ORD G1-W18, Quick method for fastening tow cable.

CARRIAGE, MOTOR, HOWITZER, 75-MM, M8

MWO ORD G1-W18, Quick method for fastening tow cable.

CARRIAGE, MOTOR, GUN, 3-IN., M10 AND M10A1

MWO ORD G1-W18, Quick method for fastening tow cable.

CARRIAGE, MOTOR, GUN, 155-MM, M12

MWO ORD G1-W18, Quick method for fastening tow cable.

CARRIAGE, MOTOR, MULTIPLE GUN, M14

SNL G-147, ORD 7, 8, 9, C1 (8 Nov. 44).

CARRIAGE, MOTOR, MULTIPLE GUN, M17

SNL G-147, ORD 7, 8, 9, C1 (8 Nov. 44).

CARRIAGE, MOTOR, GUN, 76-MM, M18

MWO ORD G1-W18, Quick method for fastening tow cable.

CARRIAGE, MOTOR, GUN, 90-MM, M36

MWO ORD G1-W18, Quick method for fastening tow cable.
SNL G-210, ORD 7, 8, 9, C1 (12 Nov. 44).

CARRIAGE, MOTOR, GUN, 90-MM, M36B1

MWO ORD G1-W18, Quick method for fastening tow cable.

CARRIERS

CARRIER, PERSONNEL, HALF-TRACK, M5 AND M5A1
SNL G-147, ORD 7, 8, 9, C1 (8 Nov. 44).

CAR, HALF-TRACK, M9A1
SNL G-147, ORD 7, 8, 9, C1 (8 Nov. 44).

CARRIER, CARGO, M28 (T15)
SNL G-154, G-179, ORD 7, 8, 9, C1 (15 Dec. 44).

CARRIER, CARGO, M29 (T24)
TB 9-772-FE2, Conversion to 20-inch track suspension.
TB 9-772-3, Vehicle identification-plate oil specification.
SNL G-154, G-179, ORD 7, 8, 9, C1 (15 Dec. 44).

CARRIER, CARGO, M29C AMPHIBIAN
SNL G-154, G-179, ORD 7, 8, 9, C1 (15 Dec. 44).

CARRIER, CARGO, M30 (T14)
MWO ORD G1-W18, Quick method for fastening tow cable.

HALF-TRACKS

(See also individual vehicle listings)

ALL HALF-TRACK VEHICLES (WHITE, AUTOCAR, DIAMOND T)
TB 9-710-27, Equipment list.

LIGHT TANKS

TANK, LIGHT, M3A3, M5 AND M5A1
MWO ORD G1-W18, Quick method for fastening tow cable.
TB ORD 71, Reversing track end-connectors.

TANK, LIGHT, M24
MWO ORD G1-W18, Quick method for fastening tow cable.
TB 9-729-FE1, Front torsion-bar-cushion-stop brackets.

MEDIUM TANKS

TANK, MEDIUM, M4 SERIES
TB ORD FE8, 75-mm and 76-mm shell-clamp seals (wet stowage).
TB ORD 71, Reversing track end-connectors.

TANK, MEDIUM, M4
MWO ORD G1-W18, Quick method for fastening tow cable.
TB ORD 202, Ammunition boxes and brackets.
TB ORD 213, Master-clutch assembly 7067270, service instructions.
TB ORD 219, Incorrect engine-oil-gage-blade markings.
SNL G-104, Vol. 6, 11, 14, ORD 7, 8, 9, C3 (1 Nov. 44).

TANK, MEDIUM, M4, 75-MM GUN, DRY
MWO ORD G1-W19, Hatch-door hold-open lock-pin.

TANK, MEDIUM, M4, 105-MM HOWITZER
MWO ORD G1-W18, Quick method for fastening tow cable.
MWO ORD G1-W19, Hatch-door hold-open lock-pin.
TB ORD 213, Master-clutch assembly 7067270, service instructions.
SNL G-104, Vol. 6, 11, 14, ORD 7, 8, 9, C3 (1 Nov. 44).

TANK, MEDIUM, M4A1
MWO ORD G1-W18, Quick method for fastening tow cable.
TB ORD 213, Master-clutch assembly 7067270, service instructions.
TB ORD 219, Incorrect engine-oil-gage-blade markings.
SNL G-104, Vol. 6, 11, 14, ORD 7, 8, 9, C3 (1 Nov. 44).

TANK, MEDIUM, M4A1, 75-MM GUN, DRY
MWO ORD G1-W19, Hatch-door hold-open lock-pin.

TANK, MEDIUM, M4A1, 76-MM GUN, WET
MWO ORD G1-W18, Quick method for fastening tow cable.
MWO ORD G1-W19, Hatch-door hold-open lock-pin.
TB ORD 213, Master-clutch assembly 7067270, service instructions.
SNL G-207, ORD 7, 8, 9, C2 (12 Nov. 44).

TANK, MEDIUM, M4A2
MWO ORD G1-W18, Quick method for fastening tow cable.

TANK, MEDIUM, M4A2, 75-MM GUN, DRY
MWO ORD G1-W19, Hatch-door hold-open lock-pin.

TANK, MEDIUM, M4A2, 76-MM GUN, WET
MWO ORD G1-W18, Quick method for fastening tow cable.
MWO ORD G1-W19, Hatch-door hold-open lock-pin.

TANK, MEDIUM, M4A3
MWO ORD G1-W18, Quick method for fastening tow cable.

TANK, MEDIUM, M4A3, 75-MM GUN, WET
MWO ORD G1-W18, Quick method for fastening tow cable.
MWO ORD G1-W19, Hatch-door hold-open lock-pin.
MWO ORD G204-W1, Commander's vision cupola.

TANK, MEDIUM, M4A3, 76-MM GUN, WET
MWO ORD G1-W18, Quick method for fastening tow cable.
MWO ORD G1-W19, Hatch-door hold-open lock-pin.
SNL G-104, Vol. 15, G-205, ORD 7, 8, 9, C1 (8 Nov. 44).

TANK, MEDIUM, M4A3, 105-MM HOWITZER
MWO ORD G1-W18, Quick method for fastening tow cable.
MWO ORD G1-W19, Hatch-door hold-open lock-pin.
SNL G-104, Vol. 15, G-205, ORD 7, 8, 9, C1 (8 Nov. 44).

TANK, MEDIUM, M4A3E2
MWO ORD G1-W18, Quick method for fastening tow cable.

TANK, MEDIUM, M4A4
MWO ORD G1-W18, Quick method for fastening tow cable.

TANK, MEDIUM, M4A6
MWO ORD G1-W18, Quick method for fastening tow cable.

TANK, MEDIUM, M4A6, 75-MM GUN, DRY
MWO ORD G1-W19, Hatch-door hold-open lock-pin.

BULLDOZER, TANK MOUNTING (LA PLANT CHOATE BM4) AND EXCAVATOR, MINE, T5E3
SNL G-228, ORD 7, 8, C1 (1 Dec. 44).

VEHICLE, TANK-RECOVERY, M31, M31B1, M31B2, M32, M32B1, M32B2, M32B3, M32B4
MWO ORD G1-W18, Quick method for fastening tow cable.

TRUCKS

TRUCK, ¼-TON, 4x4 (WILLYS, FORD)
TB 9-803-FE2, Adjustable tension-type windshield wiper.
TB 9-803-FE3, Improvised muffler.

TRUCK, ¾-TON, 4x4 (DODGE T214)
MWO ORD G502-W10, Enlarging cross on ambulance.

TRUCK, 1½-TON, 4x4 (CHEVROLET)
SNL G-85, Vol. 4, G-506, ORD 7, 8, 9, C3 (12 Oct. 44).

TRUCK, BOMB SERVICE, M6 (CHEVROLET)
SNL G-85, Vol. 4, G-506, ORD 7, 8, 9, C3 (12 Oct. 44).

TRUCK, 2½-TON, 4x2 (FEDERAL 2G)
SNL G-539, ORD 7, 8, 9, C4 (12 Oct. 44).

TRUCK, 2½-TON, 6x4, C.O.E., 1940 (MACK NB)
SNL G-629, ORD 7, OSPE, C1 (12 Oct. 44).

TRUCK, 2½-TON, 6x4 (GMC CCW-353)
SNL G-508, ORD 7, 8, 9 (16 Oct. 44).

TRUCK, BOMB SERVICE, M27
SNL G-508, ORD 7, 8, 9 (16 Oct. 44).

TRUCK, 2½-TON, 6x6 (GMC CCKWX-353 & AFKWX-353)
SNL G-508, ORD 7, 8, 9 (16 Oct. 44).

TRUCK, 2½-TON, 6x6 (GMC CCKW-352, 353)
TB 9-801-FE 1, Relocating hydrovac air-cleaner.
SNL G-508, ORD 7 8, 9 (16 Oct. 44).

TRUCK, 2½-TON, 6x6, AMPHIBIAN (GMC DUKW-353)
FM 55-150, Amphibian truck company (15 Sep. 44).
TB 9-802-FE1, Emergency field maintenance.
TB 9-802-8, Correcting corrosion and waterproofing procedure.
TB 9-802-9, Hull drainage and ventilation; bilge-pump and bilge-pump-valve-manifold cold weather precautions.
TB 9-802-10, Maintenance instructions.
SNL G-501, ORD 7, 8, 9 (1 Oct. 44).

TRUCK, 2½-TON, 6x6, SMALL ARMS REPAIR, M7, M7A1, M7A2
SNL G-138, Vol 1, ORD 7, OSPE (6 Nov. 44).

TRUCK, 2½-TON, 6x6, AUTOMOTIVE REPAIR, M8 AND M8A1 (LOAD B)
SNL G-139, Vol. 2, ORD 7, OSPE (18 Nov. 44).

TRUCK, 2½-TON, 6x6, MACHINE SHOP, M16, M16A1 (LOAD C)
SNL G-146, Vol. 3, ORD 7, OSPE (11 Nov. 44).

TRUCK, TRACTOR, 4-5 TON, 4x4, C.O.E. (FEDERAL)
SNL G-513, ORD 7, 8, 9 (10 Nov. 44).

TRUCK, TRACTOR, 5-TON, 4x2, C.O.E. (IHC H-542-9, H-542-11; MARMON HERRINGTON 5-542-11; KENWORTH H-542-11)
SNL G-671, ORD 7, 8, 9, C1 (12 Oct. 44).

TRUCK, TRACTOR, 5-TON, 4x2 (IHC KR-11)
SNL G-542, ORD 7, 8, 9, C2 (7 Nov. 44).

TRUCK, 5-TON, 4x2, DUMP (IHC KR-11)
SNL G-542, ORD 7, 8, 9, C2 (7 Nov. 44).

TRUCK, 5-6 TON, 4x4 (AUTOCAR, U-8144-T)
TB ORD 216, Protector snap-ring for front-axle-shaft oil seal.

TRUCK, TRACTOR, 5-6 TON, 4x4, C.O.E., 1941 (MACK)
SNL G-639, ORD 7, OSPE, C1 (12 Oct. 44).

TRUCK, 6-TON, 4x2, DIESEL, DUMP, 1941 (MACK FPD)
SNL G-640, ORD, OSPE, C1 (12 Oct. 44).

TRUCK, 6-TON, 6x6 (BROCKWAY)
TB ORD 216, Protector snap-ring for front-axle-shaft oil seal (Model B 666 only).
TB 9-813-FE1, Airline fractures on storage tanks (models w/Quickway crane w/winch).

TRUCK, 6-TON, 6x6 (BROCKWAY, WARD LA FRANCE B666, C666, F666)
SNL G-547, ORD 7, 8, C1 (12 Oct. 44).

TRUCK, 6-TON, 6x6 (CORBITT 50SD-6, WHITE 666, MACK NM)
TB ORD 216, Protector snap-ring for front-axle-shaft oil seal.

TRUCK, 10-TON, 6x4 (MACK NR)
TB 9-818-2, Items to be disassembled periodically.
SNL G-528, ORD 7, 8, C1 (12 Oct. 44) (models NR 8 through NR 13).

TRUCK, 10-TON, 6x4, DIESEL (WHITE 1064)
SNL G-642, ORD 7, OSPE (15 Nov. 44).

TRUCK, WRECKING, HEAVY, M1 (WARD LA FRANCE, KENWORTH)
TB ORD 216, Protector snap-ring for front-axle-shaft oil seal.

TRUCK, TRACTOR, M26
MWO ORD G1-W18, Quick method for fastening tow cable.

TRUCK, TRAILER, 40-TON, TANK TRANSPORTER, M25
TB 9-767-2, Correct winch-brake operation and adjustment.

TRUCK-TRAILER, 45-TON, TANK TRANSPORTER, M19
TM 9-768, Operation and maintenance (25 Oct. 44).

CRANE, TRUCK MOUNTED, M2 AND TRAILER, CLAMSHELL, M16
SNL G-172, ORD 7, OSPE (6 Nov. 44).

TRACTORS

TRACTOR, HIGH-SPEED, 18-TON, M4
TB ORD FE16, Preventing muffler breakage.

TRACTOR, HIGH-SPEED, 38-TON, M6
TB ORD FE16, Preventing muffler breakage.
SNL G-184, ORD 7, 8, 9, C3 (26 Sep. 44).

TRAILERS

SEMITRAILER, 6-TON PAYLOAD, 10-TON GROSS, 2W, FUEL TANK, 2000-GAL. (HEIL, PROGRESS, KRIEGER, KEYSTONE, DAVIS, INDEPENDENT, LUFKIN—ST-6-2M)
SNL G-678, ORD 7, 8, 9 (15 Nov. 44).

SEMITRAILER, 11-TON PAYLOAD, 2W, VAN (RELIANCE)
TM 9-896, Operation and maintenance (25 Nov. 44).

CARRIAGE, MULTIPLE, CAL. .50 MACHINE GUN, M51
SNL G-217, ORD 7, OSPE (23 Oct. 44).

LANDING VEHICLES

LANDING-VEHICLE, TRACKED, ARMORED, MK I
MWO ORD G1-W28, Waterproof radio cabinet.
TB ORD 111, Fuel-cell information and repair instruments.
TB 9-775-6, Cold-weather operation.
TB 9-775-7, Equipment list.

LANDING-VEHICLE, TRACKED, MK II
MWO ORD G1-W28, Waterproof radio cabinet.
TB ORD 111, Fuel-cell information and repair instruments.
TB 9-775-6, Cold-weather operation.
SNL G-167, G-168, ORD 7, 8, 9, C4 (30 Nov. 44).

LANDING-VEHICLE, TRACKED, ARMORED, MK II
MWO ORD G1-W28, Waterproof radio cabinet.
TB ORD 111, Fuel-cell information and repair instruments.
TB 9-775-6, Cold-weather operation.
SNL G-167, G-168, ORD 7, 8, 9, C4 (30 Nov. 44).

LANDING-VEHICLE, TRACKED, ARMORED, MK III
TB ORD 111, Fuel-cell information and repair instruments.

LANDING-VEHICLE, TRACKED, MK IV
MWO ORD G1-W28, Waterproof radio cabinet.
TB ORD 111, Fuel-cell information and repair instruments.

LANDING-VEHICLE, TRACKED, ARMORED, MK IV
MWO ORD G1-W28, Waterproof radio cabinet.
TB ORD 111, Fuel-cell information and repair instruments.

MOTORCYCLES

MOTORCYCLE, CHAIN-DRIVE, SOLO (HARLEY-DAVIDSON WLA)
SNL G-523, ORD 7, 8, 9 (15 Sep. 44).

GENERAL

AR 850-15, C7, Motor vehicles (7 Dec. 44).
FM 17-32, Tank Company (Nov. 44).
FM 17-42, Armored Infantry Battalion (Nov. 44).
FM 18-24, Tank Destroyer Pioneer Platoon (Nov. 44).
FM 21-6, Training Publications (Nov. 44).
FM 30-40, C3, Recognition, armored vehicles (26 Sep. 44).
TB ORD 210, Magneto identification, Continental R975-C1, R975-C4 engines.
TB ORD 217, All Ordnance combat and transport vehicles, gear case lubricant levels.
TB ORD 218, All Ordnance combat and transport vehicles, U-joint relief valves.
TB 9-850-16, Additives in motor fuels, engine oils, gear lubricants.
TB 31-200-6, Pneumatic tires and rubber treads.
WD Publications Lists, Index to General Orders, Bulletins, Circulars (Nov. 44).
ORD 2, OPSI (1 Jan. 45).
SNL G-27, ORD 6, Sec. 2, C1, Tools, automotive and semi-automotive vehicles (16 Nov. 44).
SNL M-5, ORD 13, Items common to two or more groups (23 Sep. 44).
SB 9-3, Distribution and issue of Ordnance general supplies (26 Oct. 44).
SB 9-16, C1, Winterization equipment for automotive material (16 Nov. 44).
SB 9-35, List of manufacturers and their symbols (1 Dec. 44).
SB 9-37, Identification of pneumatic tires (30 Oct. 44).
SB 9-38, Modification of Ordnance materiel (8 Nov. 44).
SB 9-39, Removal of clocks from tanks (11 Nov. 44).
SB 9-41, Transfer of vehicles (27 Nov. 44).

PERPETUAL INDEX

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

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TOOLS	294, 299, 310, 311, 312	257, 261, 280, 281, 284	2C, 230, 240, 247, 248	208, 211, 214, 215	163, 165, 167, 182, 3C	131, 132, 138, 150	121	83, 84	56	18, 22, 24	342, 350	309, 314, 315, 3C
TRACK	292, 313	3C	240, 242, 3C		175, 182		104	82, 88, 89, 91	42		350	306, 315
TRAILERS	293, 308	260	2C, 225, 228, 247, 250	196, 206, 216	165, 192	144	111, 118, 120	77, 82, 93	59	7, 29	343, 352	318
TRAINING		278, 280					118, 3C	2C, 94	37, 53, 57	4C	321	2C, 293, 320, 4C
TRANSFER CASE		283		197, 204		150, 154		87, 91	36, 38, 3C			
TRANSMISSION		261, 263	246, 248	204, 208		139	97, 110	69, 79, 87				311
TURRET	313, 3C	260	256			152				5		295
VESICANTS												311
WHEELS		278, 281		3C	179, 180, 185, 186, 192		103	77, 78	38, 3C	7, 27, 3C	344	303
WINCH	299	279, 282		198	179	139, 151	103, 104		52		325	312

2C-Inside Front Cover 3C-Inside Back Cover 4C-Outside Back Cover.

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Releasing 76mm Shells for Active Duty

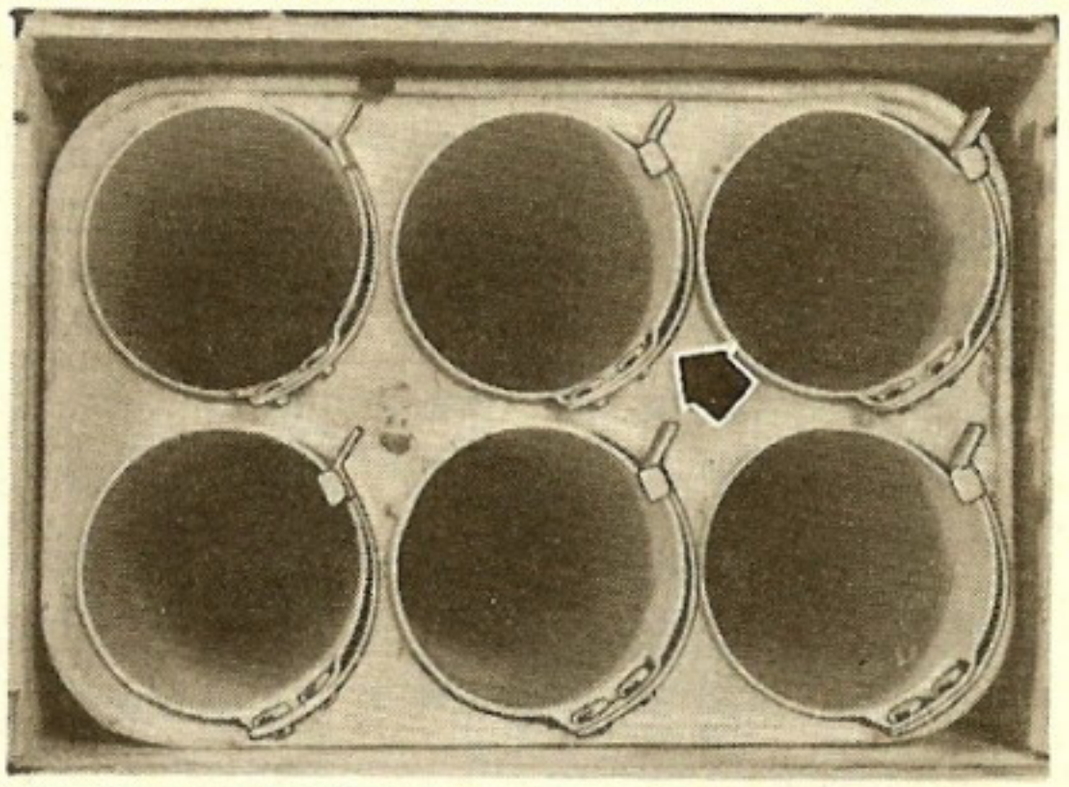
If the 76mm, six-round ready rack or four-round ready rack on your medium tank (in the turret near the gunner's seat) looks like the one shown in Fig. 1, here's a simple fix to loosen the ammo.

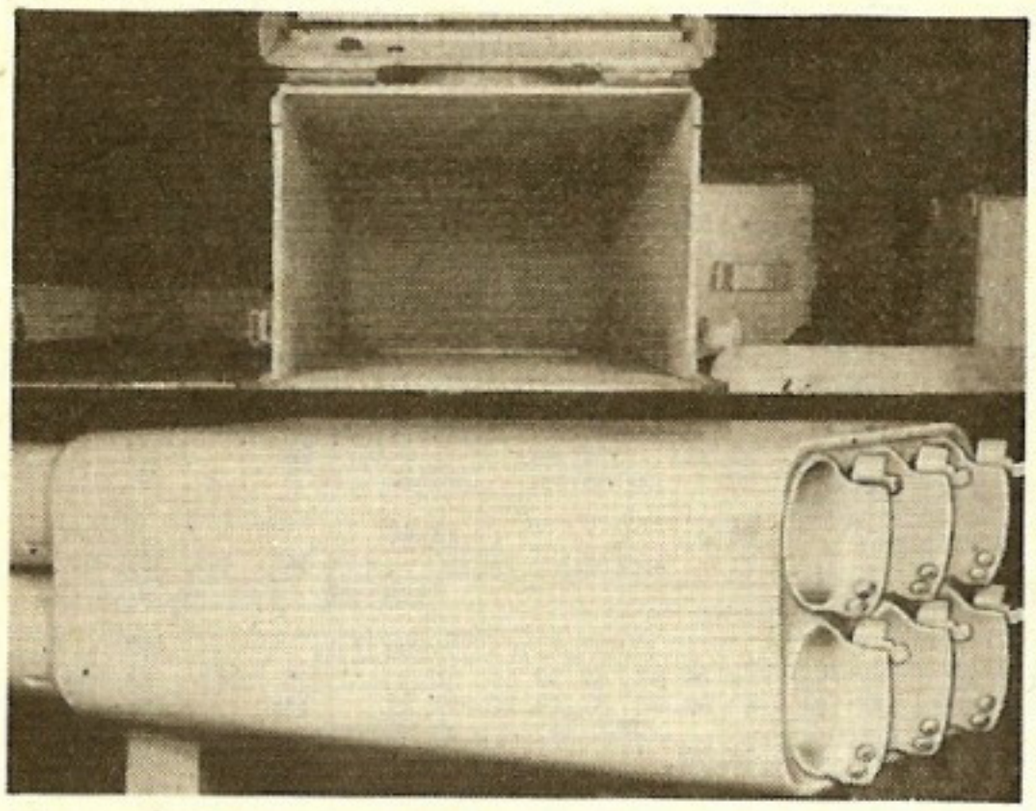
The end clips (arrow in Fig. 1) hold the shells in the rack good and tight—too tight for fast unloading. So, loosen the top screw and remove the ammo container from the box (Fig. 2). Snap off the clips by bending them back and forth with a pair of pliers or cut the rivets with a sharp chisel. Then turn the box **upside down,** so the shell holes that were on top are now on the bottom, and slide it back into the rack (Fig. 3).

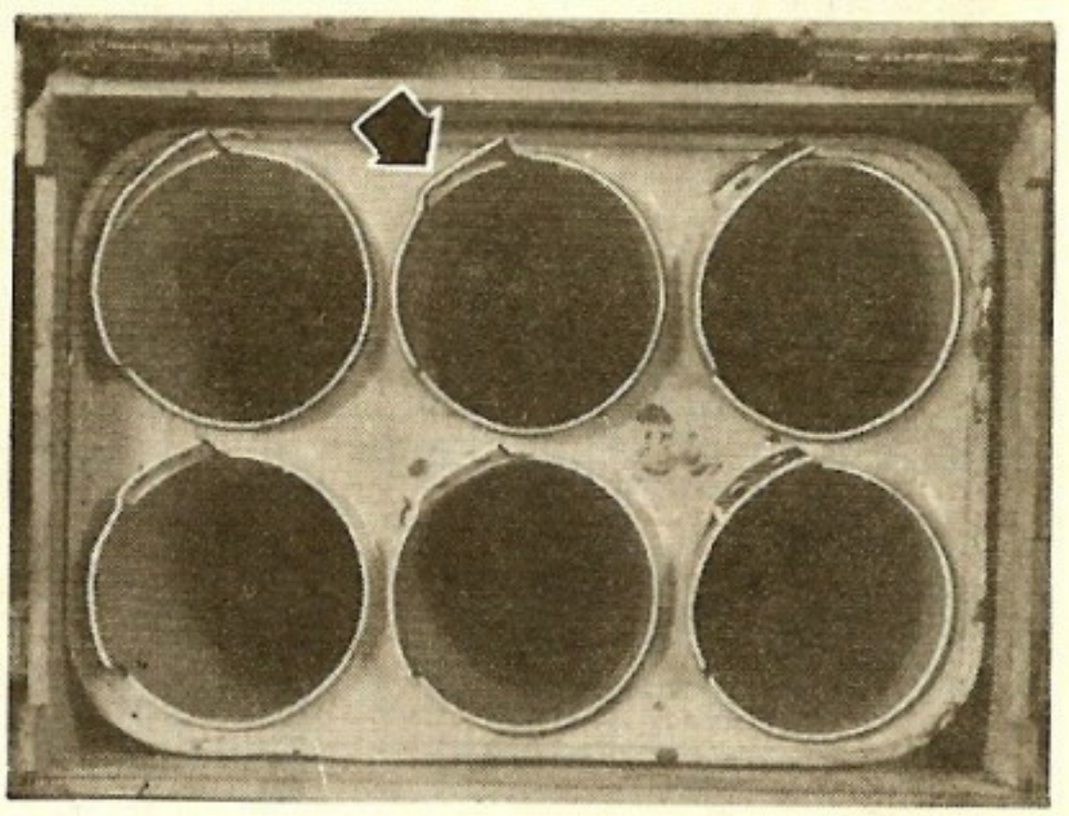
This is the important thing because inside the shell container there's a spring that presses down on the shell, holding it firmly. That's what makes the shell so hard to get out. When the box is turned over, the shell presses on the spring—the pressure's gone and you can unload lots faster.

There're several types of six-round ready racks (76mm), so be sure you work this only on the type rack that's pictured.

UPSIDE-DOWNING YOUR TANK'S READY RACK AND SNAPPING OFF THOSE CLIPS IS WHAT DOES IT







CONNIE RODD

(Continued from Page 331)

casting and give the counter weight a light one-two with a hammer until the carbon loosens up and the valve moves freely.

But if your weather eye is really out for improvements, rig up a manual heat-control valve like on a GMC truck. It'll let you throw that spring where all good little used springs go—and close the valve above 60° F., open it half-way from 30° F. to 60° F., and open it completely below 30° F.

Then again, if you're rushed like crazy and expect to be where the tropic breezes blow indefinitely, you **can** wire the valve shut. That'll do the trick until the temperature heads down again.

HALF-MAST

(Continued from Page 347)

Dear Half-Mast,

Why were radio bondings installed on Army vehicles? Are they put on to prevent the enemy's radio from picking up the location of our vehicles, or are they put there to stop radio interference?

I'd like to make a suggestion about these bondings. If they're left dry, they soon wear out. But if you put a very light coat of oil on them, they'll last many times longer. I've tried it and I know.

Pfc. J. P. M.

Dear Pfc.,

The main reason for those bonding straps is to cut down radio interference. Without 'em, you'd get an awful racket from ungrounded metal parts and loose parts that jiggle around and generate static electricity.

Lubricating bonding straps with a light coat of oil is a first-class idea—glad you didn't keep it private.

Half-Mast

• • NEWS FLASHES • •

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

TB ORD 217 (8 Nov. 44) should end those arguments about gear-case lubricant levels—in all Ordnance combat and transport vehicles. From now on, lube levels in transmissions, transfer cases, and final-drive assemblies will go like this: Gear-case oil levels should be checked **before** a vehicle's operated. Wherever a plug is used to mark the level of lubricant, **fill right up to the level of the plug**—with your vehicle on level ground, uh course. The same rule holds for gear-reduction cases, power-take-off units, differential-gear cases, and winch-gear-case units.

Where bayonet-type gages or others are used to check lube levels, fill until the gage reads "FULL."

The new TB gives you the authority to do this on both initial fills and refills. And even though lubricant levels will rise above the "FULL" marks or plug levels during operation, you won't be gigged on a spot-check. It's to be expected.

It's even more important now to keep gear-case vents clean and open, to prevent rupture of oil seals from high pressure at top speeds and temperatures.

* * *

All lubricating equipment's been pulled out of various SNL's and rolled up into one—**SNL K-3, ORD 5, Lubricating Equipment, Accessories, and Related Dispensers** (28 Oct. 44). You'll find Federal Stock Numbers for all such items in it, and there's a cross-reference to show which items were previously stocked under Item Stock Numbers. Your neighborhood Ord. Co. oughta have a copy of K-3 by now.

* * *

Inspection teams from Army Ground Forces Hq. are hotfooting it around, ransacking spare-parts bins. They're helping Ordnance round up **heavy-duty-truck spare parts** (4-ton and up) that are on the "critical" list. According to ASF Circular 404 (11 Dec. 44), AGF have instructed units that aren't under movement orders to turn in heavy-duty-truck spare parts in excess of their authorized allowances, plus any that aren't urgently needed, even though they're authorized. If you're hanging on to some, just in case—might as well come across before the inspection team comes around.

* * *

Last month on this page, we told you to peel your eye for TM 9-2856 on the care and maintenance of ball and roller bearings. A last-minute change says this TM will be numbered **37-265** instead.

WD Pamphlet 12-6 is on the market now. That's the new listing and index of administrative and supply publications—Mobilization Regulations, Modification Work Orders, Pamphlets, Readjustment Regulations, and Supply Bulletins. The first edition's dated 15 Nov. 44, and a revised edition will be coming out every month.

One copy belongs in every Company (or similar unit) headquarters file. You can keep up-to-date on the latest issue by watching "The Month's Directives" in this mag.

* * *

At long last, you men with frozen brake and clutch pedals on your 2½-ton GMC's can stop campaigning for grease fittings.

The idea has finally jelled in the form of **TB ORD FE21,** which authorizes the installation of lubricator fittings in the brake and clutch-pedal shafts, lists the higher-echelon parts and tools needed, and gives full instructions for doing the job. So take your problem to a 3rd-echelon shop some day and get it solved.

The same change has been made in production—you'll find fittings in the pedal shafts of all late-model GMC's.

* * *

If you're moving track-laying vehicles for any distance overland, in the States, better lend a hairy ear to **WD Circular 484** (20 Dec. 44).

It points out that a long overland haul results in excessive wear and increased maintenance (natch). For that reason, and to conserve fuel and rubber, these limits on long-distance movements have been set up:

1. Tanks, gun motor carriages, tractors, half-tracks, and other track-laying vehicles having a normal operating speed **over 12 mph** won't be moved more than **150 miles** overland except in cases of urgent need. Even then, you gotta get authority from the commanding general of the major command using the vehicle. For greater distances, rail or water transportation should be used when possible.
2. Tractors, tractor-cranes, and other track-laying vehicles having a normal operating speed of **12 mph or less** won't be moved overland more than **24 miles** (or more than 2 miles for each mph of operating speed).
3. The maximum sustained speed of any track-laying vehicle will not be more than **25 mph.**

The WDC adds that you don't have to use the maximum speeds given. The slower you go, the less wear and tear.

81.14.465

C.N.C. LOVES D.R.I.V.E.R.S.

Dear Half-Most,

Here in France for the past five months, being an FA Bn. unassigned to any particular division, we have been on the move constantly up and down the Third Army front. Also, being an unattached organization, we have to haul our own supplies from supply points. What it adds up to is that our vehicles are on the go most of the time. They average at least 1000 miles a month.

Two of our original vehicles met up with Jerry and were completely destroyed—but all the others are still going strong. To whom do I give the credit for this? To the **drivers,** by all means.

I recall a letter in ARMY MOTORS ("Man Blows Top," October issue) that claimed drivers were always getting in the way because people were trying to make mechanics out of them. Well, my drivers accompany their vehicles on all 1000 and 6000-mile inspections. I had just as dumb drivers to start with as anyone else. They're a young group, but our Bn. and Btry. Motor Sgts. and mechanics went to work on them and got them on the ball.

Sure, I had some sorry vehicles in the States—in fact, four different sets of them. But a driver could keep one in shape if he knew all he was supposed to know.

A driver over here is a top man. When a monthly comes up, he goes to work with the mechanic and they soon knock it out. With a semi-annual it's the same way—and our mechanics sure appreciate it. What I want to get across is this: **Let these drivers learn all they can.** Tell them what they **should** know that they **don't** know, and keep at it until you've got drivers you don't have to worry about. It pays dividends, I can assure you.

Preventive maintenance still goes on, battle or not. We're ahead of schedule on our inspections and intend to stay that way.

Lt. C. N. C.