

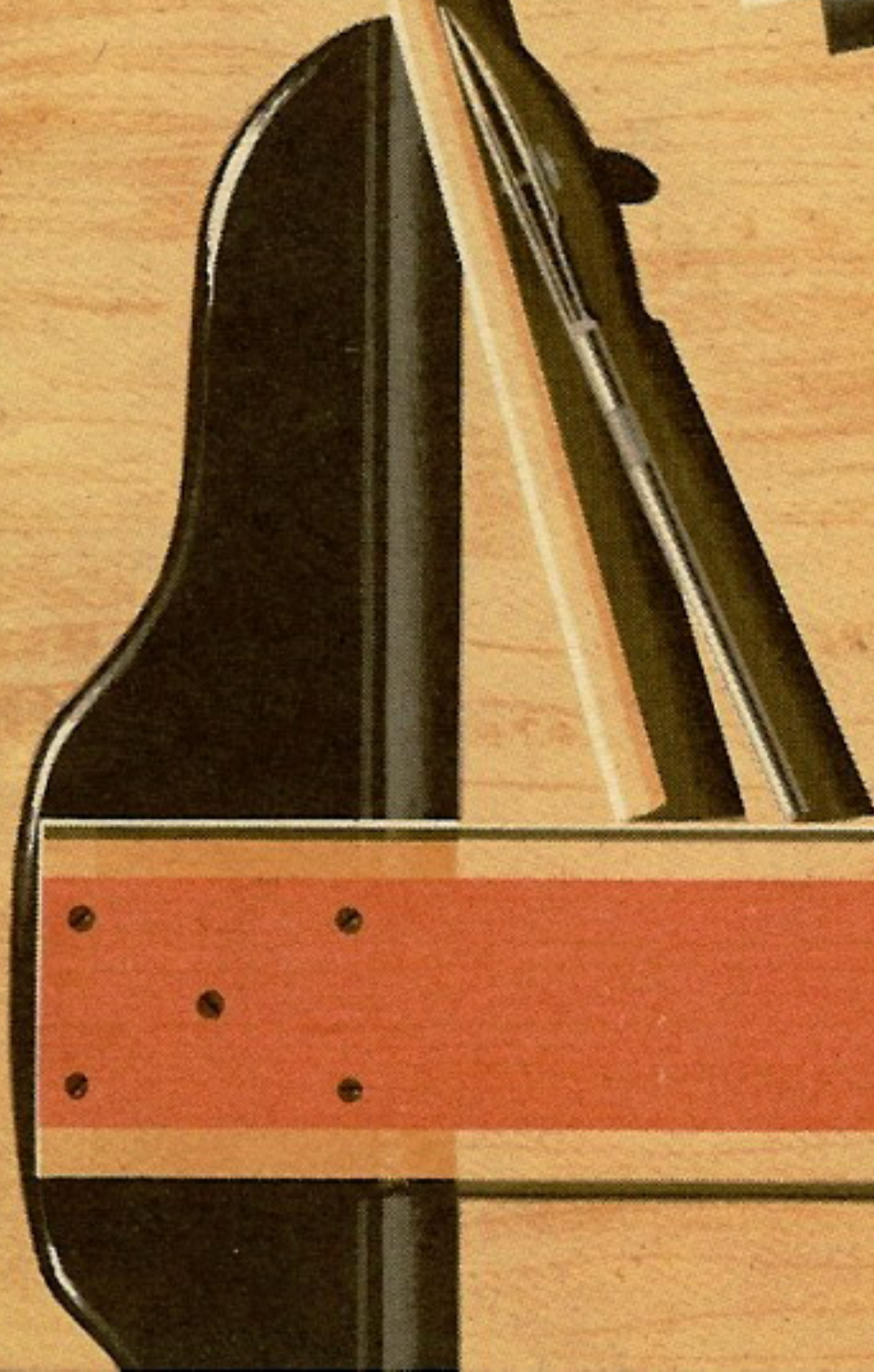
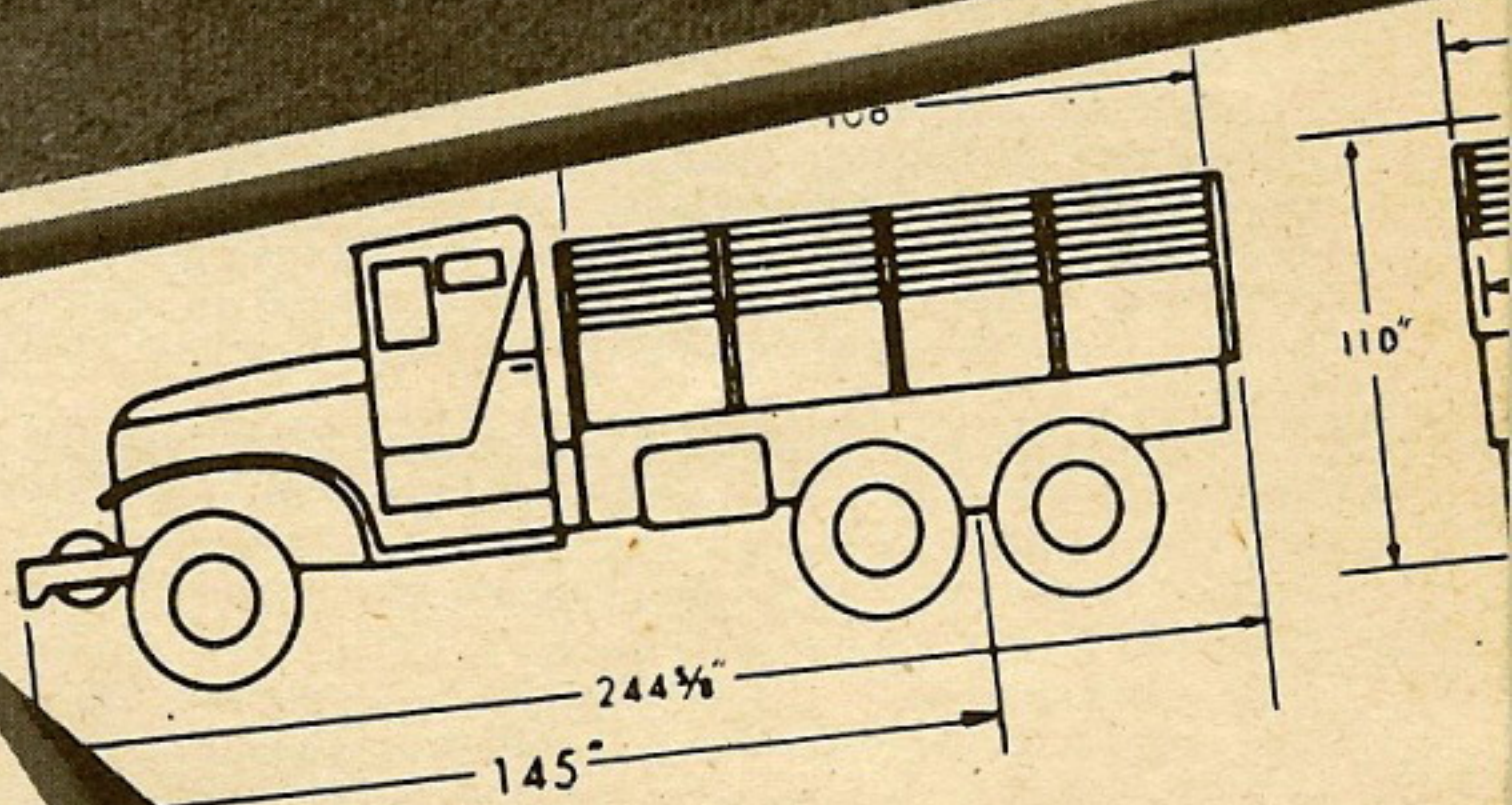
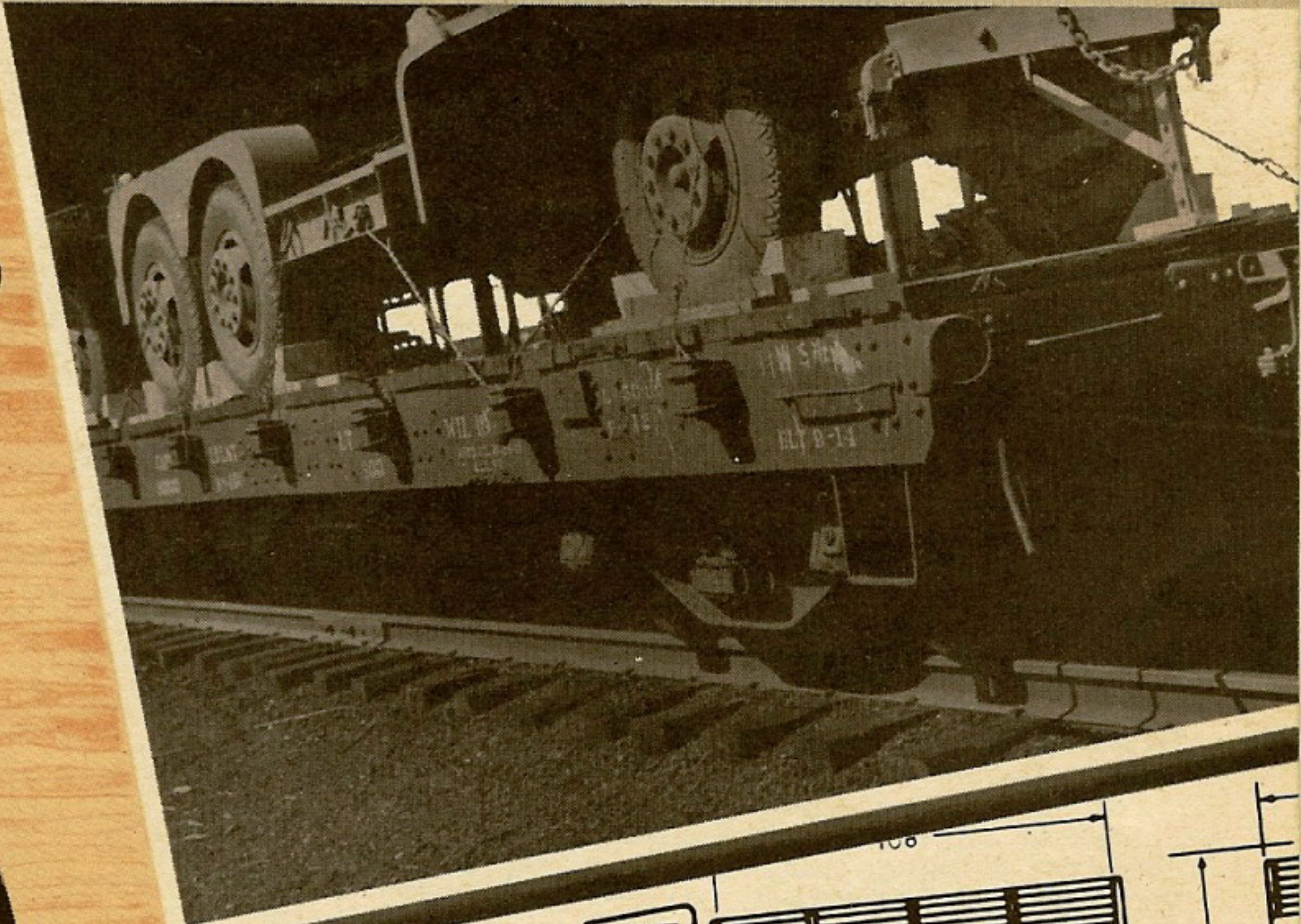
81.14.464

ARMY MOTORS

VOLUME 5

JANUARY 1945

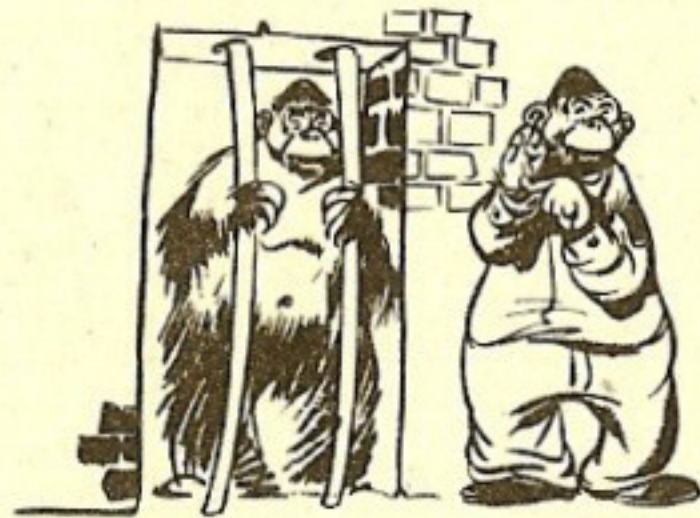
NUMBER 10



How to Tell a Man from an Ape

There's a new AR (AR 600-81, 22 Sep. 44) which spells out the law on the drivers' and mechanics' badge. This is the badge which is supposed to be given to Grade-A drivers and mechanics so you can tell a Grade-A driver or mechanic from a hole in the ground.

To deserve the badge, a man must have a skilled rating either because of his past experience or because of his schooling; must work well enough as a driver or mechanic for at least three months to be given a rating of excellent; and must be actually assigned to duty as a driver or mechanic.



his vehicle fails because of lack of preventive maintenance—no badge.

This is cutting it pretty fine—the reason is to keep the badge from being cheapened by having every Tom, Dick, and Harry sport one on his chest next to his whistle chain and whistle. The point is that if Murphy the Goof-Off, who doesn't know his axle from an elbow fitting, shows up wearing the badge, then On-the-Ball Abramowicz won't even bother to wear his.

Wise company commanders—who realize all these things—award the badge with a little ceremony (special orders printed and all the lager you can drink—depending on the circumstances of the individual organization). They don't just sprinkle a hatful of the badges around the shop or motor pool every Tuesday and Thursday—which, they know, would make it mean zero degrees Centigrade, plus or minus .001 of an inch.

The badge can also be used to show who the hell knows what around the shop. Of course, stripes will do this job a lot better, but if there's not enough stripes to go around, the badge can be used to shim up the clearance between ranks some.

Now, looking you straight in the eye, we'll admit there are some guys who don't give much of a gahdarn about badges. With ten cents, they say, they're worth one beer in any joint in town.

But man does not live by bread or brew alone. There are certain matters of the soul and spirit by which man raised himself up from the great apes.

The drivers' and mechanics' badge, we like to think, is one of them.

Thus speaking, it is the wise driver and mechanic who wears the badge to distinguish himself from the great apes—wears it proudly, with appropriate bar, on the left breast below the line of medals and service ribbons, as a mark of skill and honor.

These qualifications make all the difference in the world: They make the badge signify something. Furthermore, the badge can be revoked. If after working at his job, a man turns out to be a mechanic in name only, off comes the badge. If a man is a driver, and a unit or assembly on

IN THIS ISSUE

JANUARY

1 9 4 5

ARTICLES

Oil-Change Interval	289
Pillow-Block PS	289
Yanking Stuck Bows	290
Duck Maintenance, First Helping	295
Duck Maintenance, Second Helping	299
Oil-Snaffed Autocar Clutches	320

FEATURES

Joe Dope on Downshifting	302
New Valve Clearances	304
Make Your Own Jeep Muffler	306
Bomb Trailer Fix	308

DEPARTMENTS

Connie Rodd	292
Contributions	309
Sgt. Half-Mast	313

SERVICES

Month's Directives	316
Perpetual Index	319

NEWS FLASHES

Inside Back Cover



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

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

CHANGE OIL AT 2000 MILES



The official crankcase oil-change interval has been hiked up to 2000 miles for all general-purpose vehicles. This is announced by TB ORD 232 (Nov. 44).

The new bulletin covers all your standard wheeled vehicles—jeeps, peeps, creeps, everything on up the line to 10-ton trucks. Combat vehicles are not affected by the bulletin—the oil-change period for tanks, gun motor carriages, etc., remains the same as before.

Special-equipment and special-purpose vehicles are not affected by the bulletin, either. You can't make a blanket rule for such different special-equipment and special-purpose vehicles as the 1½-ton Chevy earth-borer and the M5 high-speed tractor. The oil-change intervals for these vehicles will continue as they are—until changed by the WD Lube Order or TM for each vehicle.

Diesel-engine jobs are also not affected by the bulletin.

Lots of work, oil, and wear-and-tear on the supply lines are expected to be saved by the new TB—which is a helluva mammoth thing considering that it covers practically all motor transport.

The reason for extending the

drain period is simply this: much test work and field experience has shown that our crankcase oil will stand up for 2000 miles "under normal and heavy-duty service conditions." But the drain period will be extended only if your vehicles are operating under the following conditions:

(1) Where the average atmospheric temperature is above 0° F.

(2) When the average mileage per month is 500 miles or more.

(3) If low-temperature starting and operating instructions in TB ORD 28 (3 Feb. 44) are followed. (This TB deals with engine sludge formation in low-temperature operation, cautions you to get vehicle engines up to operating temperature, and tells you what to do about it if engines don't warm up to that point.

According to authoritative sources, the 2000-mile figure is intended to be a **maximum** interval for draining and changing oil. If you're operating under conditions stinkin' beyond belief, you can change the oil oftener. Notice, however, conditions (2) and (3) above, dealing with low-temperature operation—these would seem to take care of the sludge formation which is one of the biggest causes of frequent oil changing.

But, of course, if you're in pretty dusty country and you're afraid that some Joe neglected his air cleaner, more frequent oil changes might be in order. Same goes for water fording, if you're afraid water has managed to leak into the crankcase.

As defined by AR 850-15, the **general-purpose vehicles** whose drain periods are extended by the new bulletin are "all standard wheeled vehicles." **Special-equipment vehicles** are "wheeled vehicles, the chassis of which are identical, except for minor alterations, to those used in general-purpose vehicles, but which have a special body or special equipment mounted thereon." **Special-purpose vehicles** are "wheeled or track-laying vehicles, the chassis of which are designed or adapted for special purpose. These vehicles do not incorporate the standard chassis of general-purpose vehicles."

Combat vehicles, on the other hand, are wheeled, half-track, or full-track armored vehicles, with or without armament, designed for specific fighting functions.

The instructions in the new bulletin are, of course, effective at once and supersede all previous instructions.

PS ON GM PILLOW BLOCK

In September, we gave you instructions for changing over from oil to grease in the pillow block of the 2½-ton 6x6 GMC truck (as authorized by TB ORD 127).

These instructions are correct if the pillow block is not disassembled when the changeover is made from oil to grease lubrication. In such cases, enough oil is retained by the bearings and on the seals to lubricate these parts until the grease reaches them after the first lubrication.

But there will be cases where the pillow blocks are disassembled and new bearings or new seals installed. In these cases, it's very important that the bearings be either hand or machine-packed with grease before installation and that the seals be well coated on the inside with grease. Otherwise, because it'll take a little time before the grease

reaches the seals and bearings, the seals and bearings will run dry and be ruined.

The pillow block on the 2½-ton truck is intended to be filled full of grease (unlike the duck which is to run only half-full of grease). Greasing the empty pillow block the first time will fill it only partly full—as the ribbon of grease from the gun shoots through the housing, it will curl around the shaft and block the breather opening in the inside of the housing. This'll trap some air in the housing. More grease pumped in will compress the air in the pillow block, and the air in turn will force out the grease which is blocking the breather opening. Seeing grease coming out of the breather opening, you'll think the whole housing is full of grease and stop. This isn't too bad, though, because after the third greasing, you'll find that the pillow block is full of grease—each successive greasing displaces more air until the housing is filled.

How to Yank Stuck Bows

AND KEEP 'EM UNSTUCK. ALSO HOW TO CLEAN BOW POCKETS WITHOUT TURNING TRUCKS UPSIDE-DOWN AND SHAKING 'EM

When the time comes to remove the bows from your cargo truck, all you have to do is lift them out of the bow pockets and stack them in a neat pile. They'll slide freely in and out of their pockets—it says here.

But field complaints tell a very different story. Say you need your truck open, on the double. You untie the tarpaulin, fold it up, and fling yourself into the rear of the truck to lift out the bows. You pull on a bow—but it stays in the pocket. You shake it, it won't budge. You heave, tug, groan—still nothing comes. Noth-

ing but the realization that the damn bow is in there for good. Wet weather has swollen it so it's practically welded to the pocket. You're in a hurry, so what else can you do? You reach for an axe and chop it off. Now the bow's out of the pocket, all right, but you're out of a bow, too. And how in hell are you going to get that hunk of wood out of the pocket to get another bow back in? You can burn it out, of course, but that ruins the temper of the metal. Sounds like a horror story, but often it's a true one.

And that's not all. When the

truck is used open with the bows out, those pockets get filled up with dirt and debris and sometimes even egg-sized stones. And it's anybody's guess how you're going to poke all that stuff out through those little holes down at the bottom.

Fortunately, along with the complaints from the field came good suggestions. These, together with some slight modifications, should help you prevent the nuisance of stuck bows and clogged bow pockets.

Let's start all over again—easy and relaxed. In a spare moment, as a precaution, try the bows on your cargo truck to see if any are frozen. If you find one that's stuck, here's a handy way to yank it: Use your truck's hydraulic jack. This may take a little time but it generally works, and it's better

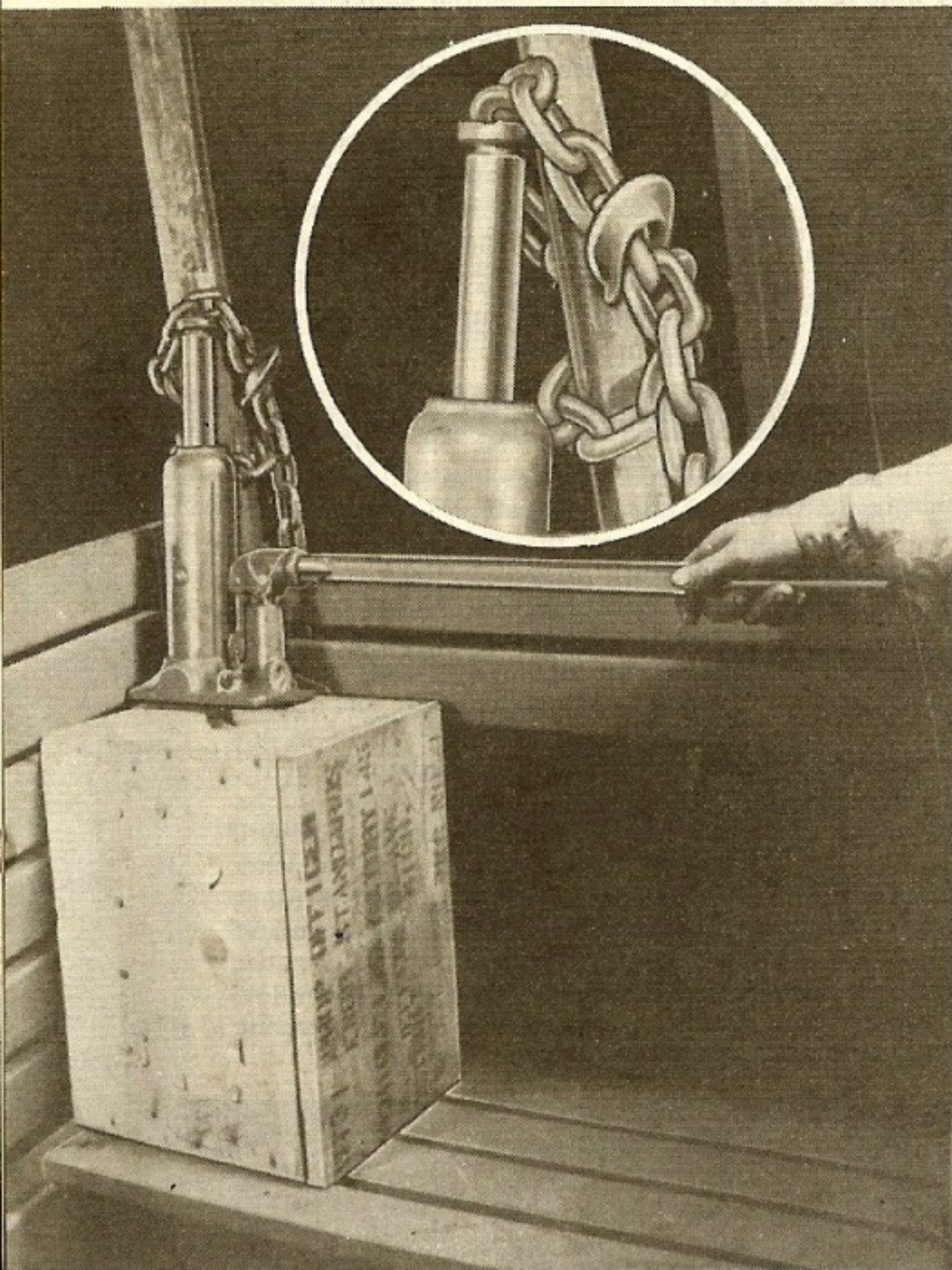
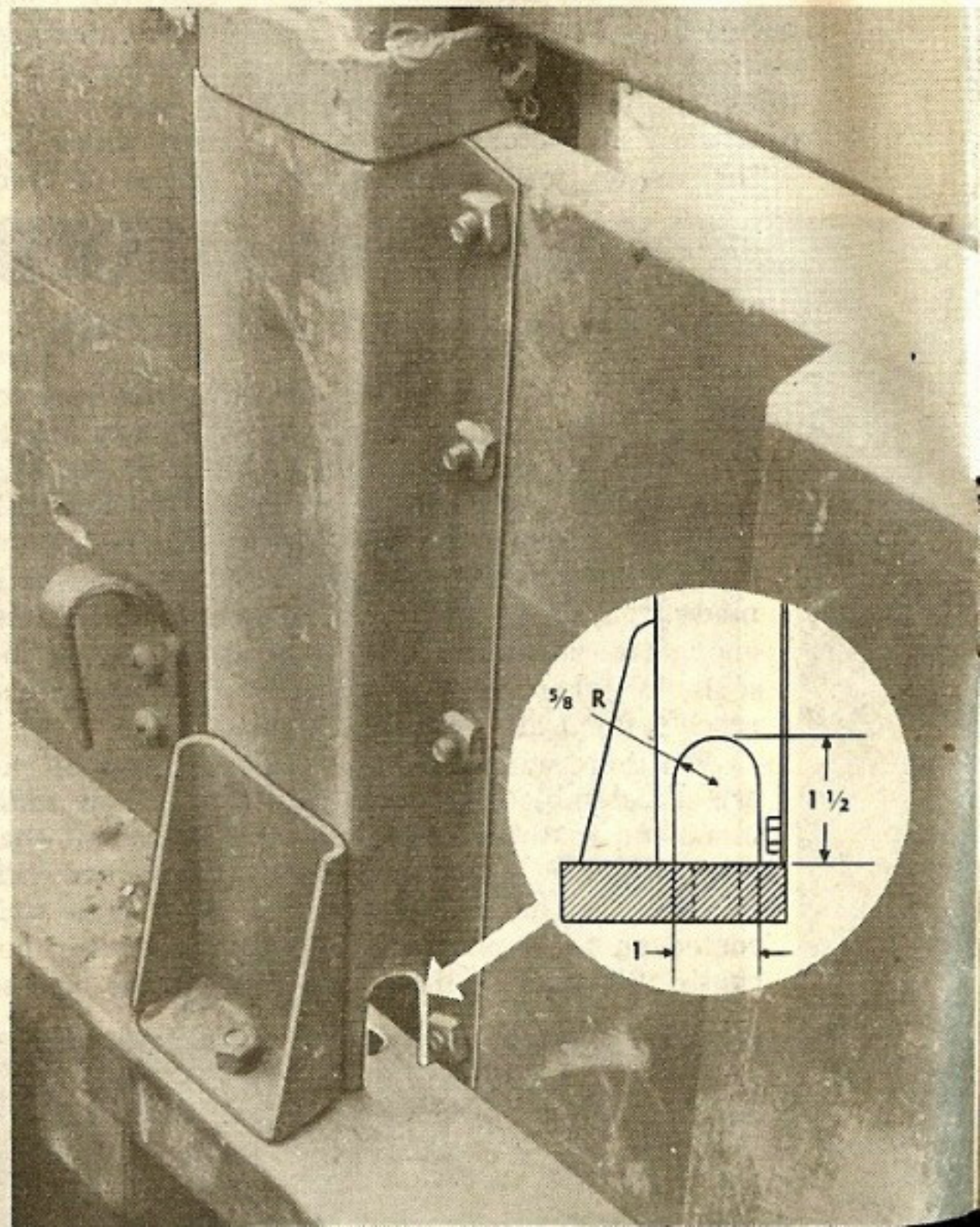


Fig. 1—This is the set-up when you're ready to push up on the chain to yank the bow.

Fig. 2—Increase the size of the holes on the sides of the wood-cargo body pocket.



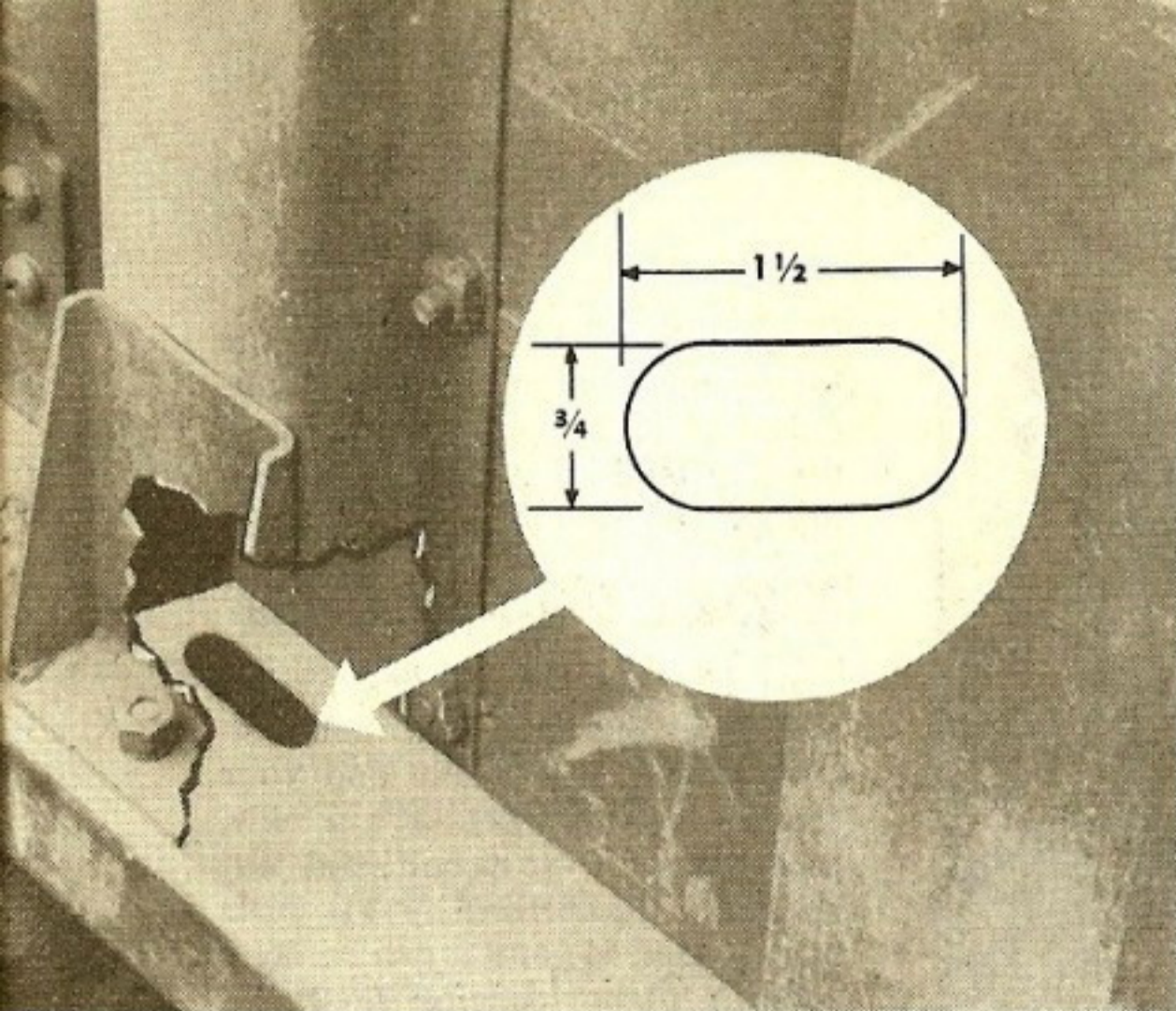


Fig 3—Make a hole in the bottom of wood-body pockets and enlarge it in all-steel ones.

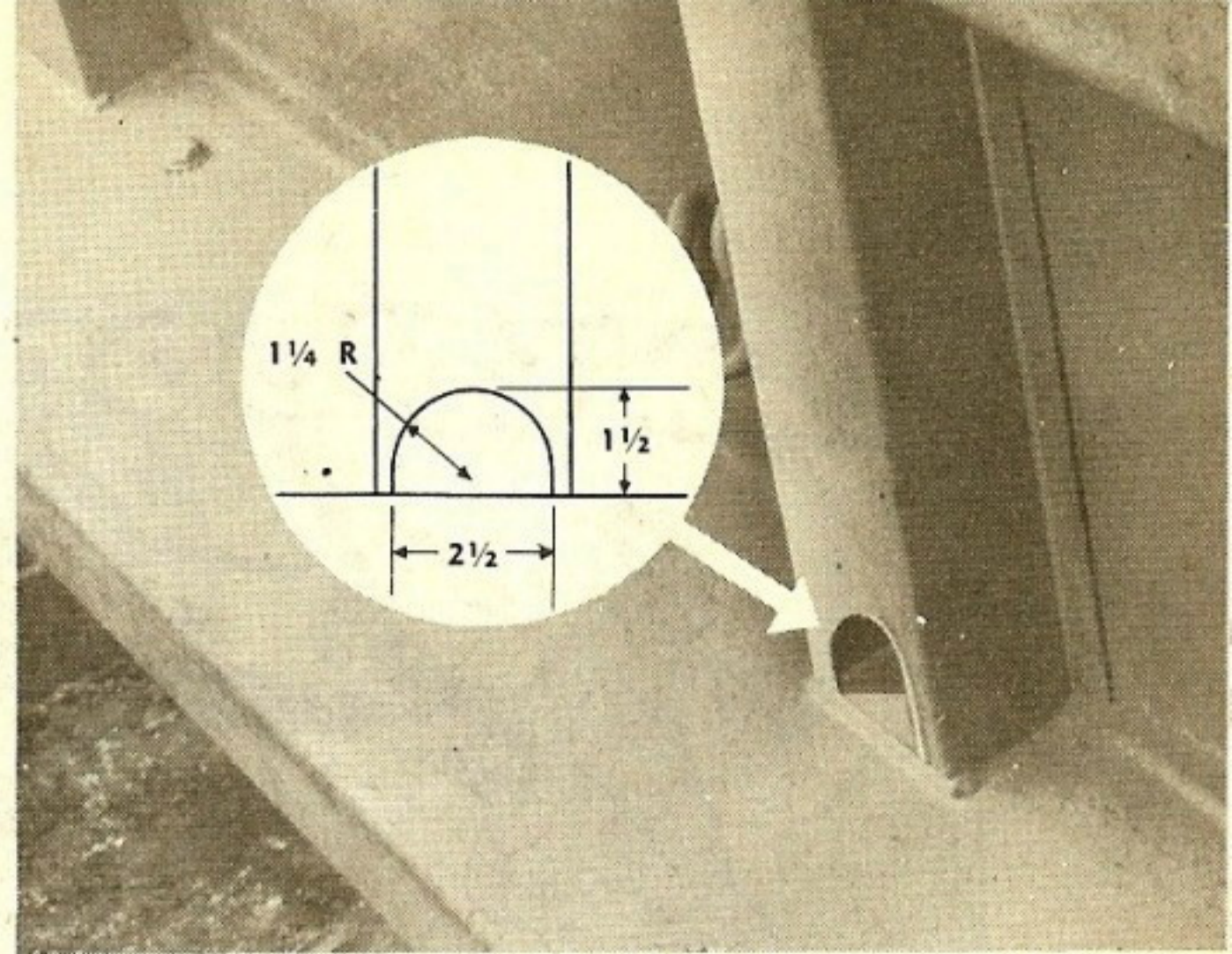


Fig. 4—Cut this hole in front of all-steel body pockets for better drainage and cleaning.

than pulling yourself and the bow apart. We got the general idea from Civilian Modification Inspector **Glenn Lord** at Fort Riley.

Here's how it's done: Position the jack so that its base is almost even with the top of the side rail, by letting down the troop seat and putting a box or block on it for the jack to rest on (see Fig. 1). The troop seat will hold down the side rack so it won't pull right out with the bow. Get the jack as close to the bow as possible, or lean it against the bow for a better hold. Then wind a piece of chain around the bow close to the top of the jack and fasten it securely. Make the first loop tight and the second one loose enough to fit over the end of the jack (see inset, Fig. 1). When you first work the jack, the chain may slip an inch or two, but then the pull on the chain'll give it a tight grip on the bow. And up she starts.

After you've reached the limit of the jack, release it (if the bow is so tight it has to be inched out), push the chain down on the bow to meet the top of the jack, and start all over again. When both ends of the bow are frozen, you'll have to work both sides at the same time. If you have a friend with a jack to work on the other side, it'll take less time. Otherwise, pull out about 12" of the bow on one side, move over to the other side and do the same thing. Switch back and forth across the truck until both ends can be

lifted out together.

If you've got a porto-power in your outfit (or can borrow one), so much the better. This method—sent in by **Dennis A. Loring**, Ordnance Motor Reception Park, Carteret, N. J.—works just like the hydraulic jack, only easier. Use the crotch fitting for the top of the porto-power to hook the chain over. Then place the porto-power directly on the troop seat and push up on the chain to pull out the bow.

(These suggestions are for people who only have to pull bows out of their own cargo trucks. If it's your business to pull bows by the dozens, by the hundreds, ARMY MOTORS will be glad to send you, at your request, drawings and specifications for an effective bow-puller and rack-holder you can make out of scrap metal.)

To prevent the bows from sticking again, plane down the ends to a 3/16" clearance all around between the pocket and bow (and replace the paint you've planed off). It'd be a good idea to do this even if your bows have never stuck—they might. This'll give them room to swell from moisture without freezing tight. The weight of the tarp will hold them down so they won't rattle or sway.

Here's what you can do to the pockets to provide better drainage and make it easier to clean them when they're clogged with coal, dirt, gravel, or what-have-you.

On a **wood-body** cargo truck,

increase the size of the holes on both sides of the **body** pocket (the one bolted to the body) to 1" x 1 1/2" (see Fig. 2). Then make a hole 3/4" x 1 1/2" in the bottom of the pocket (see Fig. 3) by drilling or cutting from underneath the truck through the rub-rail. (Because cross-bolsters interfere, you won't be able to cut holes under the front and rear pockets on the big wood-cargo jobs, or under the rear pockets of the smaller ones.)

On the **all-steel body**, increase the size of the hole in the bottom of the body pocket to 3/4" x 1 1/2". Then cut a 1 1/2" x 2 1/2" hole in the front of the body pocket at the rub-rail (see Fig. 4).

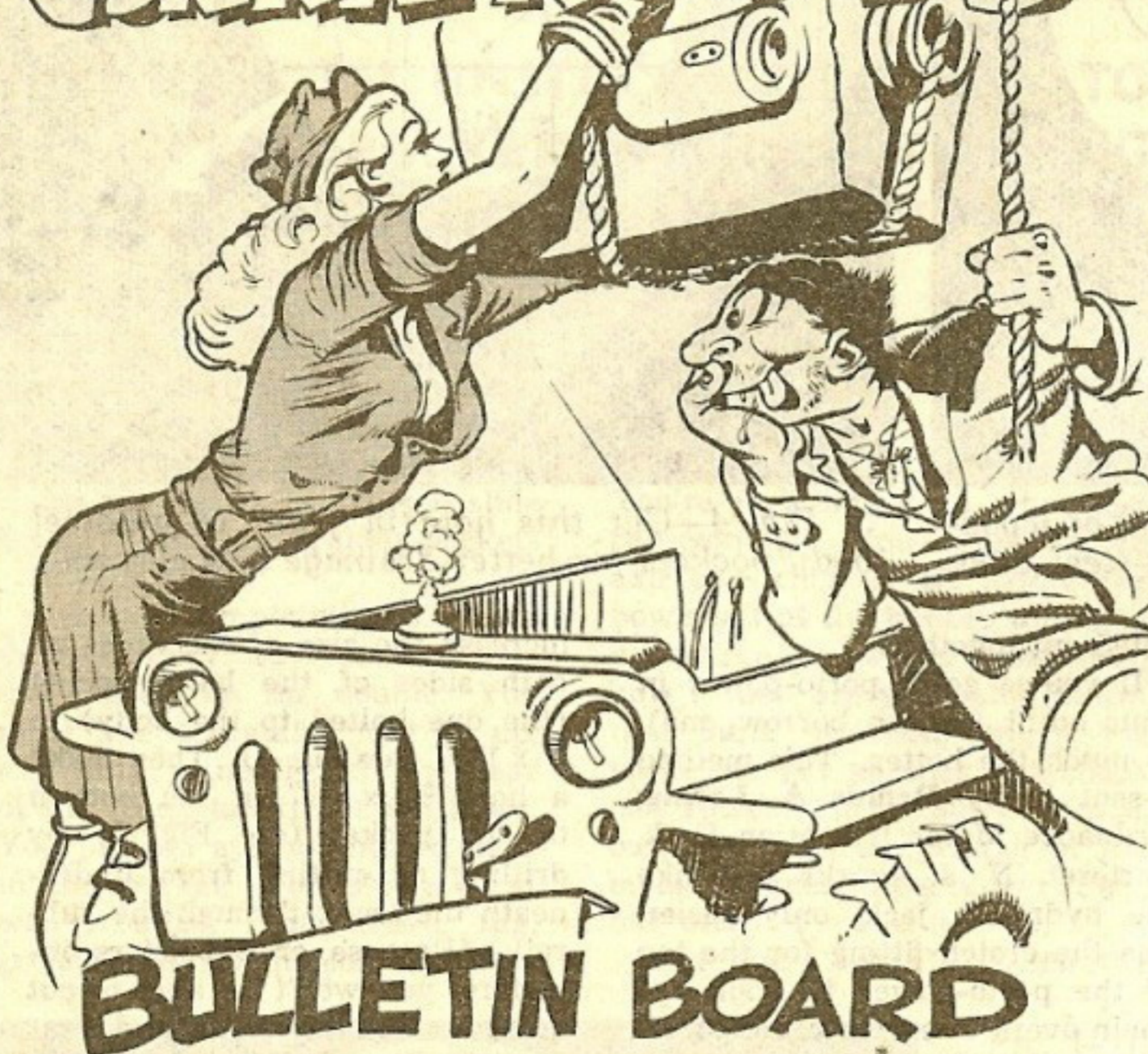
Now take the **bow** pockets (the ones that hold the bows and fit into the body pockets) for wood and all-steel bodies and cut off 1 1/2" from the ends. This'll prevent these pockets from closing up the holes in the body pockets, and provide better drainage, too. The bracket on the side of the bow pocket will stop it from dropping all the way down.

On the **composite** body (steel sides with wood floor), there's a stop 1 1/4" high inside the body pocket, and the bow pocket rests on this. Increase the size of the holes in the stop and the bottom of the body pocket (or rub-rail) to 1" by drilling from underneath the truck through both the rub-rail and the stop.

A good trick to clean out clut-

(Continued on page 320)

CONNIE RODD'S



PM Change on Truck Starters

No sooner do I finish telling you wolves to clean and grease things more often—than along comes an exception to the rule. Lube Orders and TM's on some trucks tell you to remove the starters every 6000 miles to lubricate the outboard bearings and clean the Bendix drives. Turns out it's not necessary to do this so often. (On some vehicles you sure don't pull out the starter just for fun.)

So the Fuels and Lubricants Branch of Ordnance says to forget about the 6000-mile interval. You only have to clean the Bendix drive and lube the outboard bearings when the drive acts sluggish, or when the starter has to be taken off for some other reason. Future Lube Orders and revisions of TM's will be changed to match.

Corrections in MWO G85-W15

If you've got to install a radio-suppression system on your M6 Bomb Service Truck, here's your

chance to get unconfused.

MWO ORD G85-W15 (10 Jul. 44) was issued to provide radio suppression on all such vehicles (not already suppressed) with Ordnance serial numbers from 1 to 5770. But this MWO got through the mill somehow with a couple of errors and omissions in it. Here's the way it **should** read (if you've got the MWO handy, better grab a pencil and correct it as I go along): Change the caption "Figure 1" on page 3 to "Figure 2," and "Figure 2" on page 4 to "Figure 1" (they're just reversed). Then add "See Figure 1" to paragraph (7), page 6; and "See Figure 4" to paragraph (16), page 9. (Are you still with me?) In paragraph 8, page 9, "Serial numbers 1 to 5770" means **Ordnance** serial numbers.

Some condenser substitutions have been made in the kits (the old condenser numbers are listed in the Installation Instructions Manual that goes with the kit): The old Chevrolet condensers Nos. 1901731 and 1902659 are now Signal Corps No. 3DA-100-143; and Chevrolet No. 1902333 is Signal

Corps No. 3DA-10-164. In the lower shield-assembly 609256, condenser No. 3DA-100-143 is now used instead of the original condenser No. 1901731.

Worn Tie-Rod Ends

At last, there's a quick fix for worn tie-rod ends and bolts on your GMC 2½-ton 6x6 and your Chevy 1½-ton 4x4. It's a new, oversize tie-rod bolt and nut assembly authorized by TB ORD 211 (10 Oct. 44) and it can be done at your higher-echelon shop.

Requisition the 0.030" oversize bolt and nut assembly (Chevrolet Part No. 609257) through regular channels. Install it thusly: (1) Remove the old tie-rod bolts, clean the tie-rod ends and bushings. (2) If the bolt-head stops on the tie-rod ends (the raised stops right by the bolt holes that keep the bolt from twirling around) are worn down, weld them up; then trim with a file so the bolt head will fit tight against them. (3) Use a pin-hole grinder or a 25/32" reamer and enlarge the holes in the tie-rod-yoke ends and bushings to 0.781" diameter—but no more than that. (4) Install the new oversize-bolt and nut, tighten the nut, then back it off ⅓ to ½ a turn, and install the cotter pin.

Now check the toe-in and do a thorough greasing. You'll find the oversize bolt will cure shakes and shivers and banish excessive end play without using all new parts.

M22 Bogie-Spring Plunger-Block Fix

So the volute springs on your Light Tank, M22 (T9E1), are dropping down for everyone to see. The boys tell me it's because the spring seat of the bogie-spring plunger-block is shearing off.

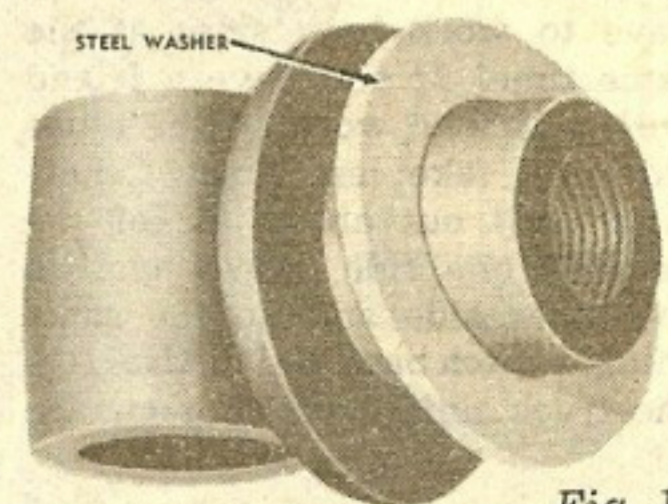


Fig. 1

Well, TB 9-724-6 (21 Sep. 44) dropped into my lap the other day—and it says to install a hardened steel washer (Ord. No. A330995) next time you replace your bogie-spring plunger-blocks (see Fig. 1).

When the present stock of plunger-blocks is exhausted, you'll be able to get heavier ones (Ord. No. B284856). You'll use the hardened steel washer with them, too, for the same good reason.

The Case of the Missing GM Washer

Some oil-seal kits for rear-spring-seat bearings on GMC 2½-ton 6x6 ducks and trucks, and 2½-ton 6x4 trucks, were shipped without a spacer washer (the thing that keeps the clearance between spring seat and trunnion bracket) needed for the new lip-type seal. It isn't listed in the truck SNL G-508 (9 Sep. 43), either.

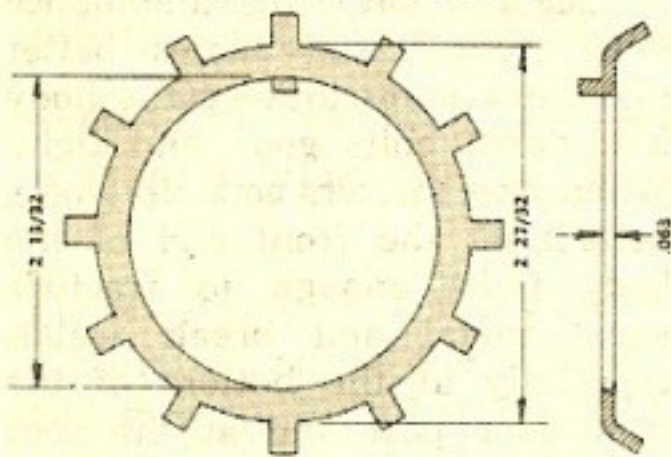


Fig. 2

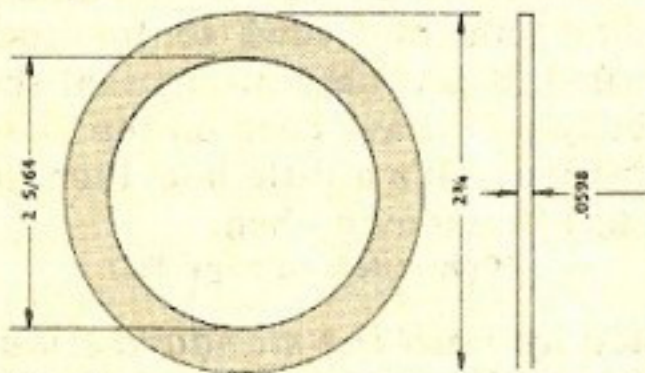


Fig. 3

TB ORD 167 (17 Aug. 44) says you can do one of three things to solve the problem: (1) Requisition Washer, spring spacer, GM No. 2202834—the washer that should've been in the kit. (2) Requisition Washer, ball-bearing lock, Item Stock No. H12-711213 (old Item Stock No. M5-2-59100), Fig. 2. It's a bit thicker and larger than the real thing, but okay to use if ground down to the diameter shown. Or (3) follow the dimensions in Fig. 3 and make the washer from scratch.

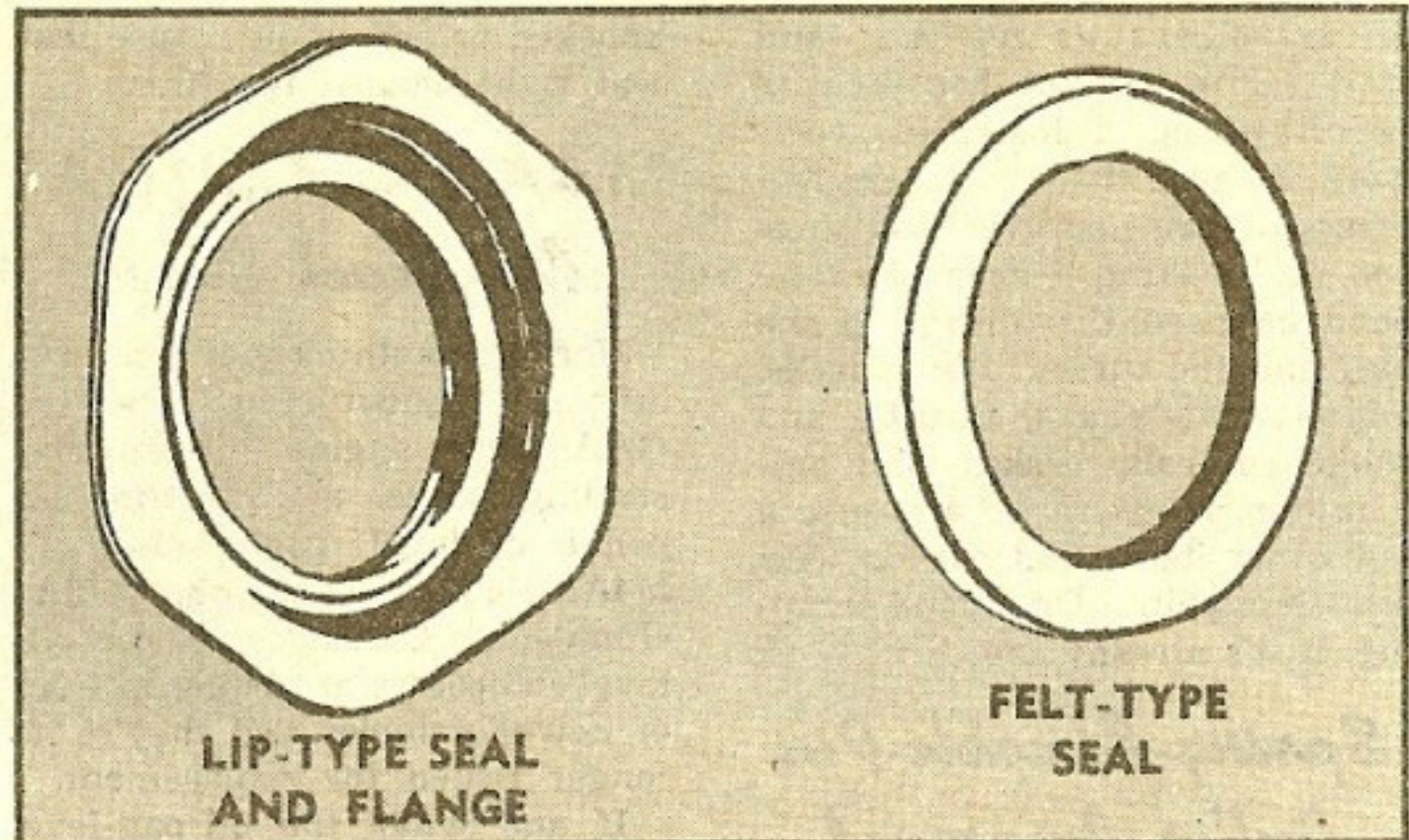


Fig. 4—The left one's from a kit that's missing a washer.

Only kits with the lip-type seal (Fig. 4) got shipped without washers. Felt-type-seal kits are complete.

Longer Rear Roller for M15 Semitrailer

There's a new, longer type of rear removable roller (Mfr. No. FF-80171) for the M15 Semitrailer (part of that giant job, the 40-ton Tank Transporter Truck-Trailer, M25). This roller will replace the old one (Mfr. No. FF-56383) when the supply is used up.

The way it is now, you can't mount the longer roller when the carrier assembly is also mounted on the semitrailer, because the

roller fouls the sheave of the carrier.

To cut out the nuisance of always taking the carrier off to get the roller on, TB 9-767-FE1 (10 Aug. 44) tells you to cut out the metal from the roller bracket (see dotted line, Fig. 5) which obstructs the sheave. Then these two assemblies won't get in each other's way.

Incidentally, the TB says the carrier sheave's part number is 67018. That's wrong. The part number has always been and still is 676018 (with an FF in front for Fruehauf).

Overdose of O. D.

Too many tanks have too much war paint on 'em and it's making

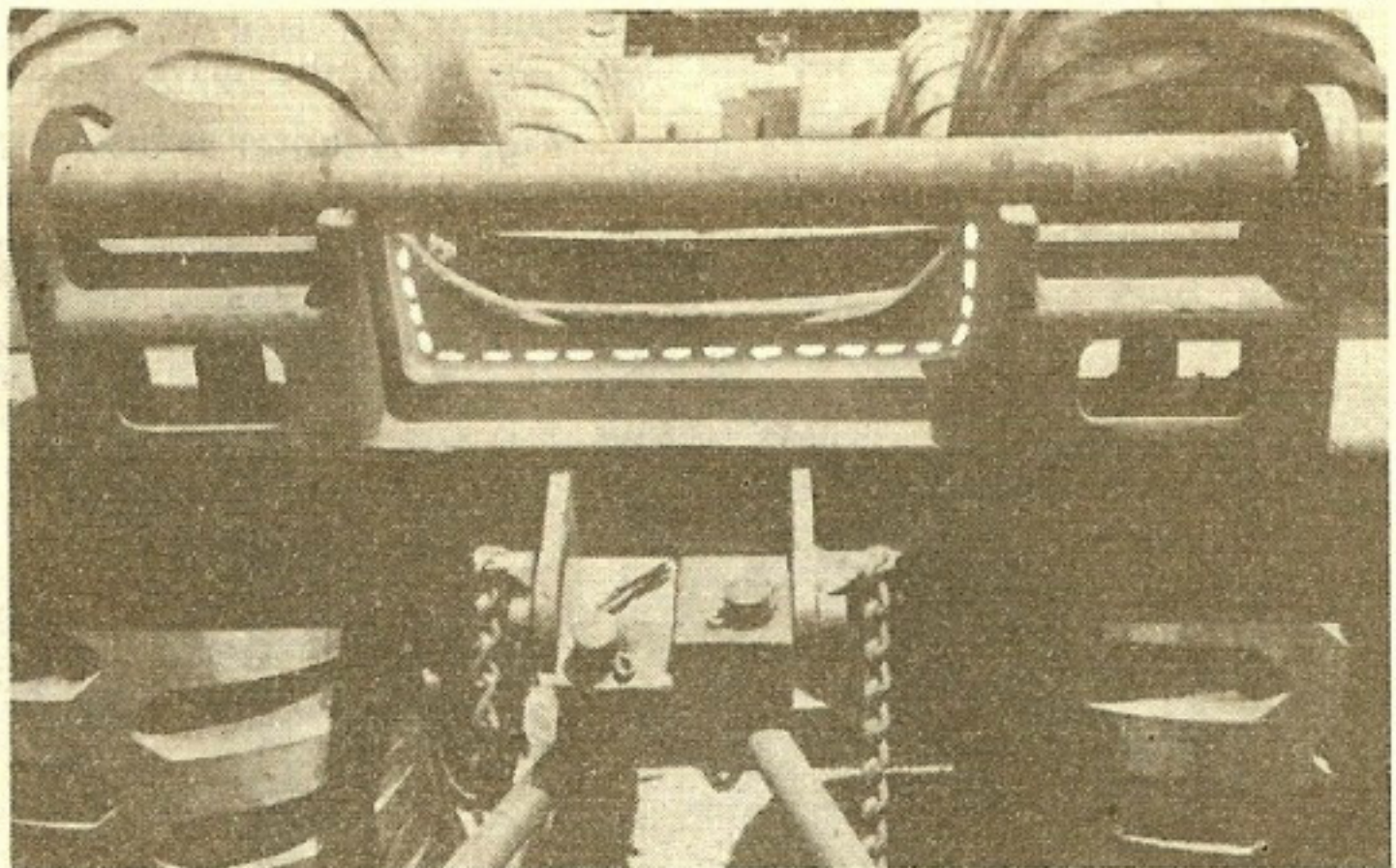


Fig. 5—Rear-removable-roller assembly for M15 Semitrailer.

drivers overseas see red (and OD). The turret-traversing mechanism, for instance, won't work because there're layers and layers of paint sprayed and slapped on—making a cement-like bond between the outside of the hull and the turret. Hatch locks, adjustable seats, throttle and choke controls, brakes, and ammunition ready-racks are just a few other items that can do with a lot less paint. Or a good scraping, if it's already there.

Spring-Shackle-Pin Puller Improved

A new gadget is ready to help you pull the rear spring-shackle pin from any truck that has a 1/8" pipe-tapped hole in the pin. Its nomenclature is Adapter, Spring Shackle Pin Puller, Fed. Stock No. 41-A-18-241 (Fig. 6), and it weighs only a quarter of a pound. Doesn't increase the weight of your tool kit much, and does an easier pin-pulling job. All you do is screw the adapter into the grease-fitting hole, attach the standard slide-hammer puller (Fed. Stock No. 41-P-2957-73), and out comes the shackle-pin (Fig. 7). As you've discovered, those shackle pins can't be

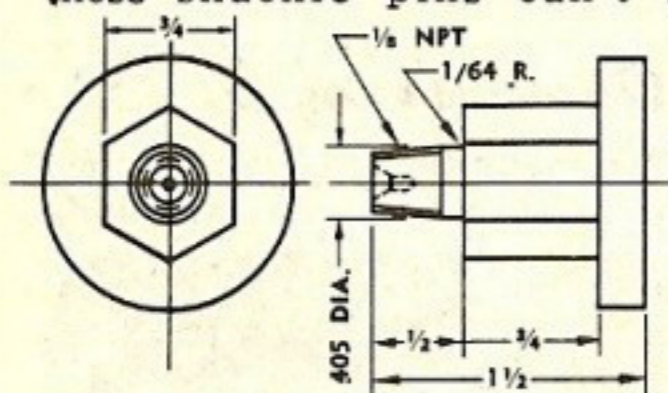


Fig. 6—This is the adapter.

knocked or driven out 'cause they seat right against the frame.

M4A3 and M10A1 Oil-Level Gages

Here's something you can cross off your requisitioning list—Ford GAA tank engine oil-pan-level sending units and instrument-panel oil-level gages, used in M4A3 Medium Tanks and M10A1 Gun Motor Carriages. These oil-level indicators are being left out of newer vehicles and they're no longer issued for replacement.

If and when the oil-pan-level sending unit or the oil-level gage bogs down on your M4A3 or M10A1, disconnect one of the two items—they'll short if you leave 'em lay. Turn in to salvage the wires, shields, and screws you take out, and paint the face of the gage on the instrument panel the same color as the panel itself.

Don't go chucking the oil-pan-level sending unit away—leave it be where you found it, on the engine. See TB ORD 131 (2 Aug. 44) if you crave further details.

Oil-Seal Guard for Heavy Truck Axles

TB ORD 216 provides a new oil-seal protector for Autocar, Corbitt, Brockway, White, Mack, and Ward LaFrance trucks. The two oil seals near the outer ends of the front axle-housing are getting beat up when the drive shafts

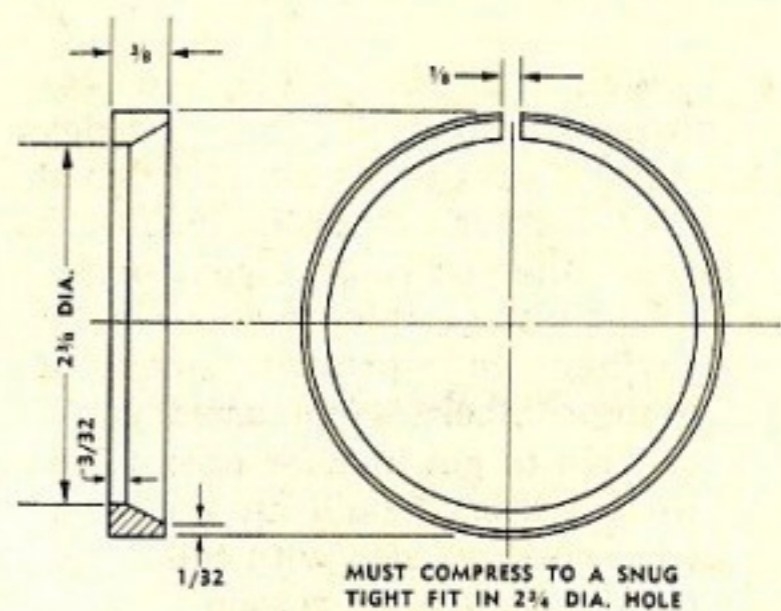


Fig. 8

(Timken series F.3100) are removed and reinstalled.

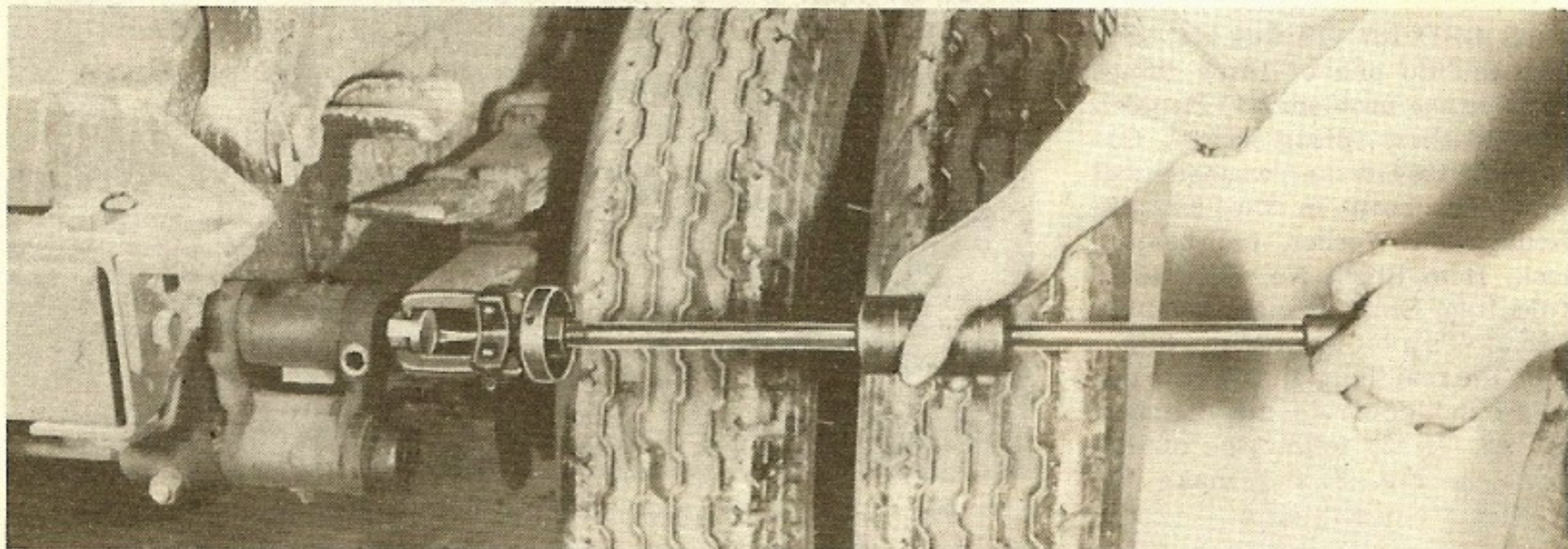
The protector is a snap ring (Class Stock No. 8500-1854-J114). It has a tapered section (Fig. 8) which guides the drive shaft so you don't strike the oil seals.

Ambulance Body Hold-down Bolts

All you guys who have to bounce a 3/4-ton Dodge ambulance over stubble and stones better make it a point to keep the body hold-down bolts good and tight. When the terrain acts up, loose bolts'll let the front end of the body twist enough to fracture sheet metal and break welds, especially at the bottom of the front-door post and at the spot welds above the front doors. If water leaks through the moulding that joins the cowl to the roof panel, it probably means that the body bolts have been on the loose too long. It's a little late, then, to start tightening them.

(Continued on page 320)

Fig. 7—Adapter at work—teamed up with the standard slide-hammer puller, it makes shackle-pin-pulling a quick trick.



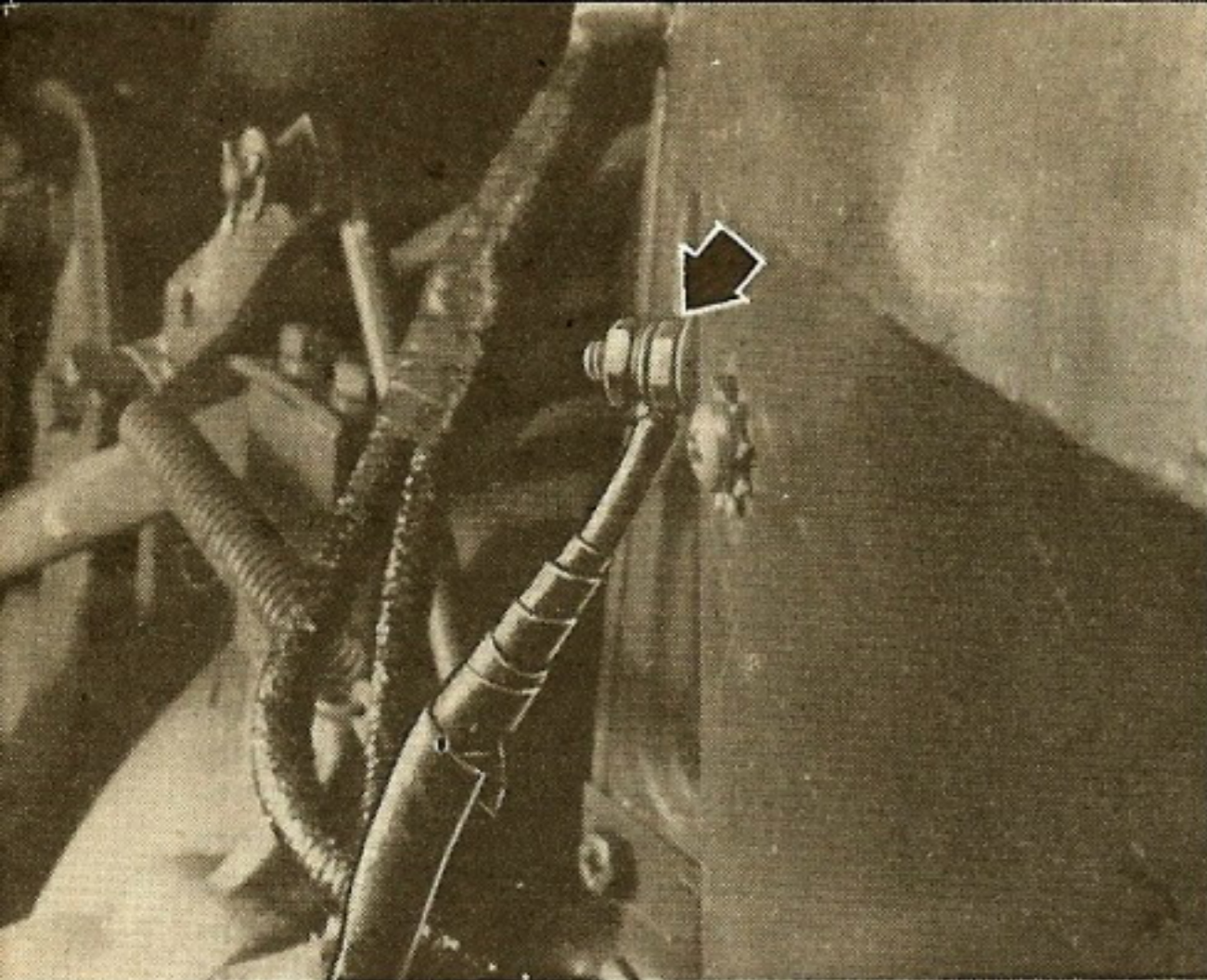


Fig. 1—A little ocean spray on this terminal will leave you high but not dry on the briny.

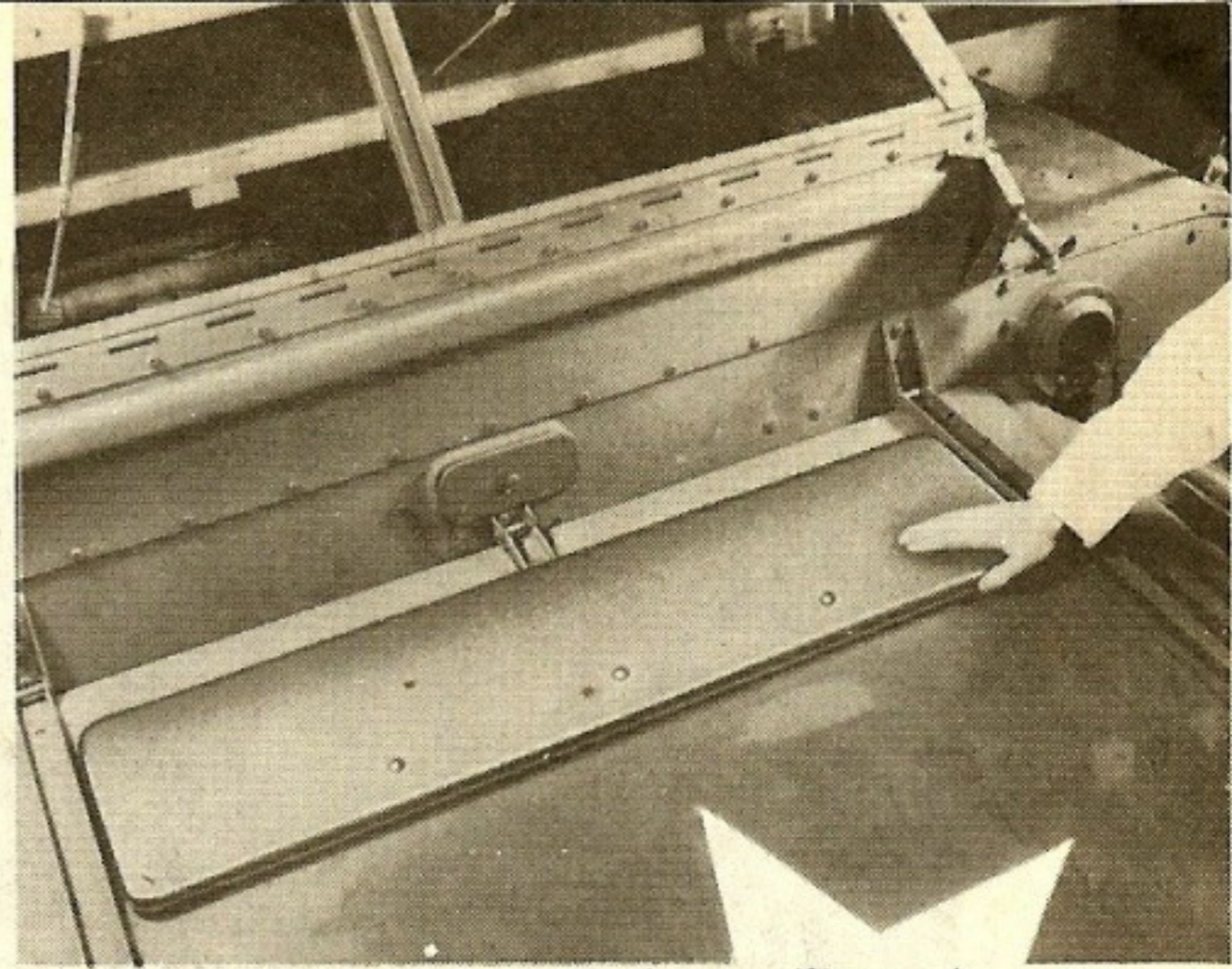


Fig. 2—You don't need the auxiliary air-intake for cooling. Bolt it shut against water.

Before We'd Take Our Duck Into Combat . . .

WE'D DOUBLECHECK ALL THESE LITTLE THINGS—ANY ONE OF WHICH MIGHT SET OUR FANNY BEHIND THE WELL-KNOWN BALL CALLED EIGHT

The 2½-ton DUKW is a wonderful bird. It's one of the main reasons why the U. S. has been able to show the world something it never saw before—full-scale amphibious warfare. But before we'd take our duck into combat, if we were you, we'd cast our worried eye over certain ticklish little items on the vehicle. They are the results of experience and observation both in the States and the Pacific Ocean Areas—and yet there are many duck men who haven't had full information on them up to now.

WIRE TERMINAL

These items start with such a little thing as the primary-wire terminal where the primary wire runs into the ignition shield on the right-hand side of the engine (Fig. 1). Let a little water slop in on this terminal or a little dirt collect on it, and the primary wire shorts across to the ignition shield—cutting the engine dead. This is a helluva thing to have happen when the duck is wallowing

through a ten-foot surf—any surf, for that matter.

The way to prevent it is to clean and tighten the terminal and paint with ignition-insulation compound—or better still, some of that good, useful, glyptal paint. Another way is to wrap the terminal with insulating tape and paint with glyptal. (Issue data on materials mentioned in this article are in the box on page 298.)

COOLING SYSTEM

Another item, which is coming off the ducks in production, is the auxiliary air-intake on the front of the hull (Fig. 2) right under the windshield. This air-intake has proved a nuisance by letting sea-water splash in and all over the engine—not to mention that it's just another entrance for water to get down into the hull. Over two full years of duck operations have proved that the duck will cool satisfactorily with this auxiliary air-intake closed. The best bet for all concerned is to seal it closed. You can do this with the

blessing of TB 9-802-10 (27 Oct. 44—you possibly don't have it yet). First, see that the seal of the auxiliary air-intake hatch is in good shape so it won't leak, then lock the door in the closed position. Bolt a couple of clamps on it, so it can't be opened or so rough water won't accidentally force it open. We said **bolt** a couple of clamps on the door, not weld. The heat of welding may damage the door-seal and you'll have a leak that's hard to get rid of—replacing a burnt door-seal is strictly aggravation. Also, too damn much welding around the hull will probably burn it, weaken it, and take all the temper out of it. Finally, take the auxiliary air-intake handle off altogether, and also the little air-intake instruction plate in the driver's compartment.

Talking about cooling, you know those air-outlet grills (see Fig. 3)—one on each side of the driver's compartment on the outside of the hull? They've got a folding shutter which a lot of people think is supposed to be let down when the duck goes into the water. This is wrong—these shutters are only supposed to be closed in very cold weather, when it's necessary to keep engine hot air inside the hull to heat the hull and the pump system to prevent the formation of ice. At all other times (except maybe when the duck is stored for a long time or sealed for overseas shipment) these shutters must be kept wide open. Otherwise, engine cooling

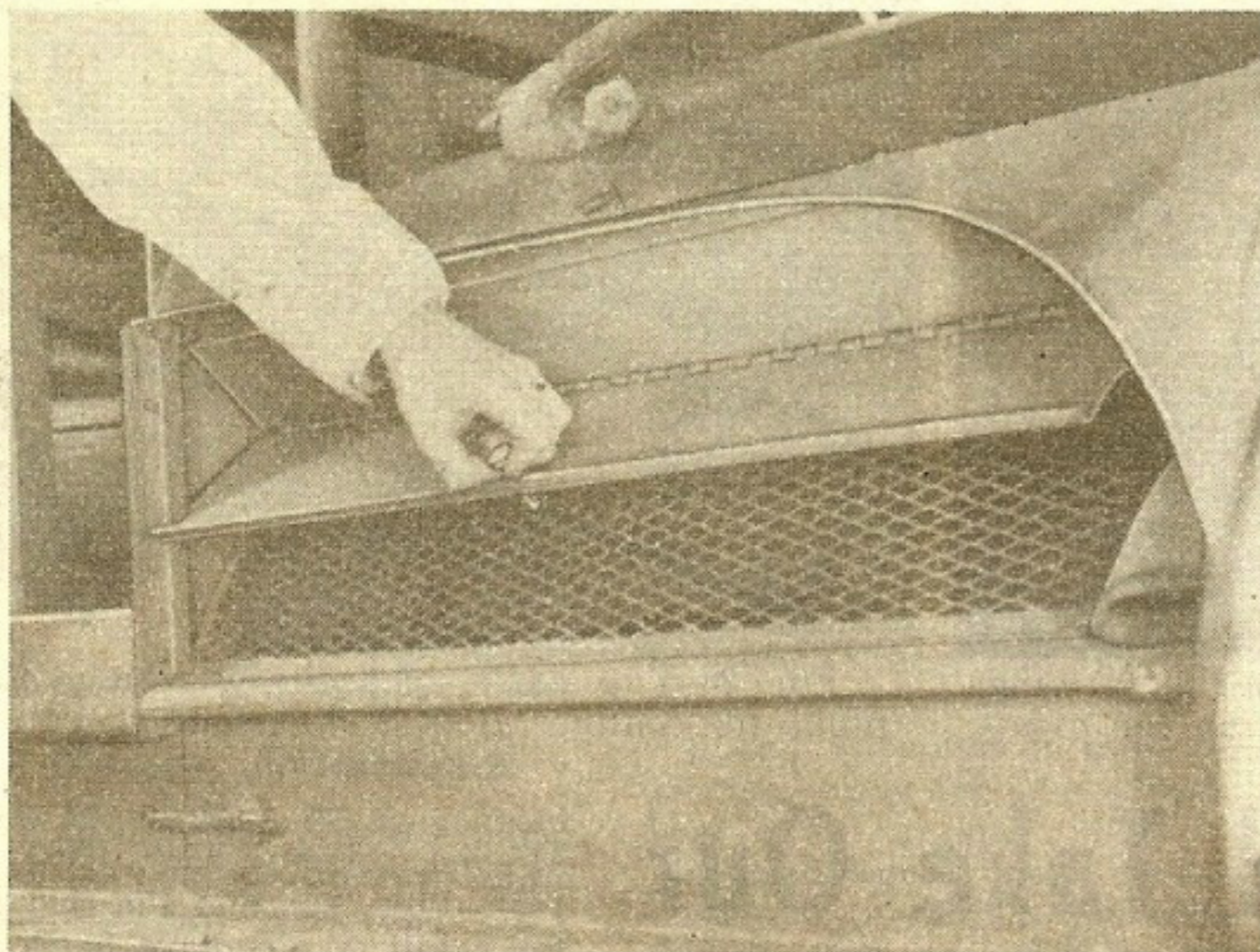


Fig. 3—This shutter on the air-outlet grill is not to keep out water—it's only to help thawing in cold weather.

will suffer, not to mention the discomfort to the crew. Remember, these outlets are the only places where the hot air thrown off by the engine compartment can escape. Even if the shutters are left hanging part way down, they'll interfere with cooling—the grills aren't very big. Make sure your shutters are locked in the full-up position by the two catches at either end. Out in some areas of the Pacific where it's always hot, they've been taking these shutters off altogether. You don't have to worry about rough water flooding in through these outlets—the hot air, they tell us, flows out with enough force to keep most of the water out; any that does get in at this point won't hurt anything.

Still on cooling, let us warn you that although you might possibly get away with a slipping fanbelt on a truck, you won't get away with it on a duck. A truck running down a road has a lot of wind forced through the radiator which gives kind of a "natural" cooling. But the radiator on a duck is all inclosed—it absolutely depends on the fan to pull air through it. Keep after that fan-belt deflection— $\frac{1}{2}$ to $\frac{3}{4}$ of an inch. Too loose and you'll have a roasted duck, too tight and you're liable

to run into burned-out waterpump and generator bearings. See that the belt and pulleys are clean of oil and grease, and then adjust as necessary. A slipping belt will lead to overheating so fast it'll make your head spin.

For the same reason, the radiator core must be kept clean—inside and outside. The loose oil and scum flying around down in the engine compartment may collect all over the outside—all over the fins—and insulate them so the heat can't be easily drawn off. If your fins are fuzzy (not your fins, silly, the duck's fins), clean them off—steam-clean, if possible.

Because, in an emergency, some people have dipped a bucket into the sea to fill up their cooling systems, it's absolutely necessary to add $1\frac{1}{2}$ ounces of corrosion inhibitor in the cooling system to every gallon of water—sea water or otherwise—and clean out the system as soon afterward as possible.

HULL CORROSION

The One and Only Way to cut down on corrosion of the duck's light sheet-metal hull has already been pretty well noised around. In a nutshell, it consists of coating the hull, right over the paint,

with Thin-Film Rust-Preventive Compound. People who've done this in the combat zones swear by it. Of course, the paint job has to be in good shape first. Clean your vehicle (steam clean, if possible) thoroughly, remove any loose paint with sandpaper (so you'll "feather" the edges of the spot to be touched up), and give rusted spots the standard touch-up service. Be sure to use zinc-chromate primer on bare metal before painting. Coat thoroughly with Thin-Film Rust-Preventive Compound or Navy Tectyl 506. It's not advisable to use this treatment on the cargo floor, in the bow compartment, in the engine compartment, or in the stowage space below the rear deck (those parts of a new duck that are painted white).

BRAKE CORROSION

Give this same corrosion-preventive treatment to all parts of the brake except, of course, the brake lining and the braking surface of the drums. Coat the anchor pins, springs, backing plates, shoes, etc. Spray the wheel cylinders with rust-preventive when in the retracted position. To cut down the corrosion of the metal end-covers, butter lightly all areas on the wheel-cylinder body contacted by the end-covers, and the inside of the end-covers themselves, with a mixture of $\frac{1}{3}$ white-lead and $\frac{2}{3}$ waterpump grease or asbestos grease. Also put the mixture around the threaded parts where the stems come out of each end-cover (see TB 9-802-10).

AIR COMPRESSOR

There've been four modifications to the little air compressor for the tire-pump system on all ducks above chassis No. 2005 and through deliveries during the first half of 1944. These modifications (MWO ORD G501-W30, 16 Sep. 44) improve the lubrication of the air compressor. The first improvement raises the breather-pipe about five inches to prevent oil loss. If you haven't already had this modification made, you can raise the breather-pipe as a field expedient by using two $\frac{1}{2}$ -inch

by ½-inch 30° or 45° street elbows joined together and screwed into the original crankcase breather-pipe hole. These elbows are necessary to offset the breather pipe to get around the upper part of the tire pump. In the other end of the joined elbows, install a ½-inch pipe nipple long enough to make an over-all length of breather pipe about 5½" above the top of the crankcase base.

The second thing you can do (you better do it) as a field expedient, if you don't have Kit MWO ORD G501-W30, is to fix the intake on the oil pump so it sits lower in the compressor crankcase and draws in oil even when the oil is at a lower level: take the screen off the old oil-pump intake hole and close this old intake hole by welding or brazing a plate (make it air-tight) on the pump body. Then drill a new ¼-inch oil intake hole in the oil-pump cover plate (Fig. 4).* Finish by solder-

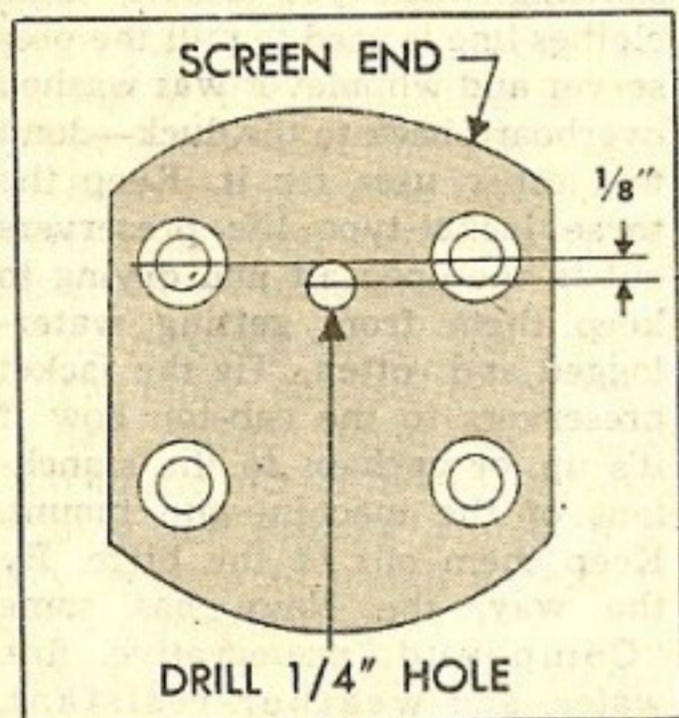


Fig. 4—New oil-intake hole.

ing the old screen over the new hole—let the screen bulge out a little to prevent clogging.

The other two modifications in the MWO consist of (1) replacing the flat base-plate on the compressor crankcase with a dished base-plate; and (2) installing a new "dipstick" filler-plug.

At any rate, the air compressor has such a small oil capacity that the best thing to do is keep the oil level right up to the top of the filler hole at all times (Fig. 5)—never below the "MIN" mark on the dipstick attached to the new filler cap.

*Brazing this hole closed or install a new cover when you perform MWO ORD G501-W30.

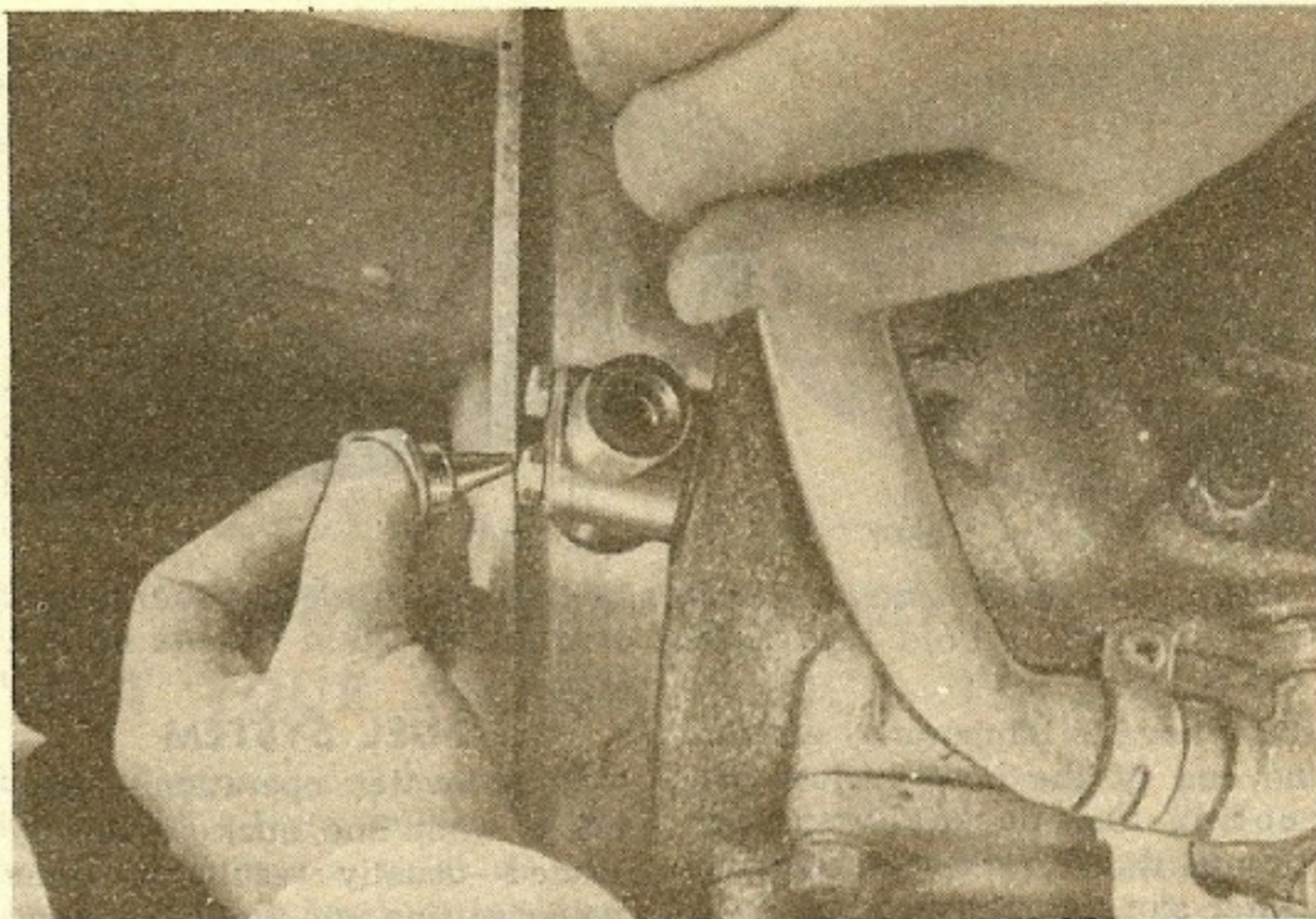


Fig. 5—The new filler cap on the air-compressor has a little dipstick—but the best bet is to keep it full all the time.

BOW STOWAGE

Where do you stow the tarpaulin bows of the duck when you're not using them? They're big, clumsy things and they're always in the way. Some people have been stowing them under the air-intake grating in the aisle-way. But this interferes with inspection of and access to the bilge. It also cuts off some of the inflow of cooling air. Other people have been racking the bows behind the

driver's compartment or in either end of the cargo space. But this interferes with loading cargo at ship's side. The best answer is to stow the steel bows in the hull forward compartment. One at a time put them in through the forward hatch, pushing one end of the bow in the left cooling-air passageway until the other end clears the hatch (Fig. 6). (If it's the old longer bow—38 inches high—the trick is a little harder;



Fig. 6—It takes a little playing around to stow the steel bows in the front compartment; they're better there than underfoot.

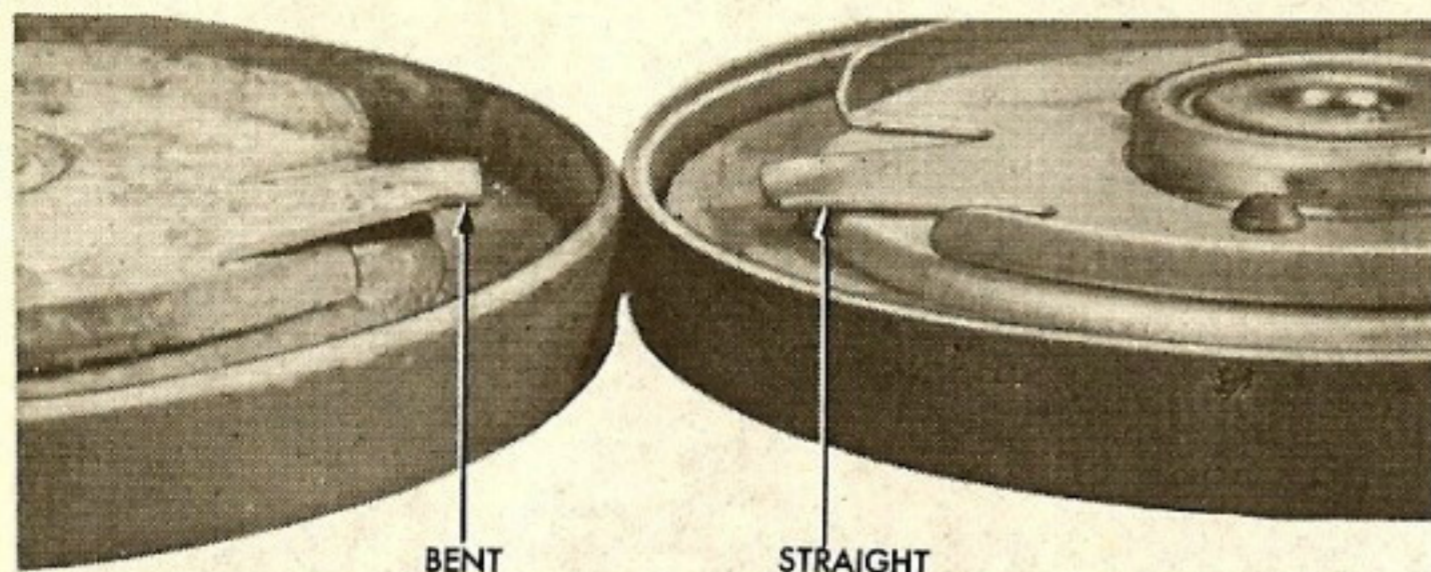


Fig. 7—Sometimes the tangs of the gas-tank cap bend and the cap doesn't hold tight. Just straighten them out as above.

you'll have to temporarily extend the end of the bow in the left cooling-air passageway up through the driver's-compartment heater slot.) Now swing the bow back so that the top of it lies flat against the inside of and faces squarely to the front of the hull. You may have to crawl down in the hull to see what you're doing the first time you try to work the bow into position, but after that you shouldn't have too much trouble. You can also stow the cab-top pipe-bow here when it's not in use.

Warning: Don't stow anything but these steel bows down in the front compartment. The heat of the engine-cooling air plus the heat of the exhaust piping will sure as hell use it to start a fire.

Incidentally, some information in the field says that in order to make it easier to stow the old longer, 38-inch bows in the forward hull-compartment, you can cut them down to the new shorter size (35 inches high). BUT, this doesn't take into account the fact that the tarpaulin is a tailored fit to keep out water and the elements. If you cut down the old, long bows, the tailored tarp may then be a sloppy fit that'll allow the wind to jerk it around and let sea-spray in. Sure, you can alter the tarp—but damn if we'd cut the bows in the first place and then have to alter the tarp. It's too much trouble for the benefits to be gained. Of course, if your tarp has already shrunk up from use, it'll still be a good fit after you cut your longer bows. (We're giving you all sides of the story to help you make up your own mind.)

FUEL SYSTEM

Rough-water operation—especially when the duck is heavily loaded—usually results in some water getting into the fuel system. The following seven steps will help a lot to shortcut trouble:

(1) Keep the fuel-tank cap and gasket in good condition and make sure it fits tight (Fig. 7). Replace a cap that refuses to screw on as tight as it should.

(2) About once a week, or often-er if necessary, drain the fuel tank enough to get rid of the water that settles on the bottom of the tank. Grease the hull plug before replacing.

(3) Keep after the fuel-filter; drain by removing the base plug. And when you drain the filter, catch the drainings in a container—don't let them drop into the bottom of the hull where they can create a fire hazard. At least once a week, clean the fuel filter by disassembling.

(4) Clean the fuel pump weekly. Again, catch any spilled fuel in

a container or with rags—don't let it run into the hull.

(5) Monthly, clean out the carburetor float-chamber.

(6) Always prime the fuel system by operating the hand extension on the fuel pump for about a minute after performing the above cleaning operations. Also prime after running out of fuel and after the duck has been idle over four days.

(7) Frequently, check over the entire fuel system for leaks.

LIFE PRESERVERS

There's a little un-mechanical item of equipment on the duck which when you need it, you need it bad, but too often we've seen it kicked around. This is the life preserver. Hang yours on the front face of the forward cargo-bulkhead. And make sure it has 50 feet of clothes line attached to it and neatly coiled to keep it from snarling when you use it. This clothes line is used to pull the preserver and whomever was washed overboard back to the duck—don't find other uses for it. Keep the three jacket-type life preservers out in the open air and drying to keep them from getting water-logged and rotten. Tie the jacket preservers to the cab-top bow if it's up, or perhaps to the stanchions of the machine-gun mount. Keep them out of the bilge. By the way, the Navy has some "Compound, preservative, fire, water, and weather-resistant, Navy Spec. 52 C26 (INT)," which is supposed to be very good for

(Continued on Page 320)

Order the Materials For Your Duck This Way

Item	Fed. Stock No.
Paint, synthetic (glyptal) red, No. 1201 ..	52-P-8057-700 (½ pt.)
	52-P-8057-710 (1 gal.)
Primer, zinc-chromate	52-P-20624 (1 gal.)
Compound, insulation, ignition	52-C-3099-20 (5 gal.)
Compound, rust-preventive, thin-film	14-C-507 (1 gal.)
	14-C-507-10 (5 gal.)
	14-C-507-75 (55 gal.)
Compound, inhibitor, corrosion	51-C-1588-775 (5 oz.)
Compound, cleaning (cooling system).....	51-C-1568-500 (20 oz.)
Compound, preservative, fire, water, weather-resistant: Navy Spec. 52 C26 (INT) (white or blue)	

Second Helping of

2½-TON DUKW

The official okay has now been given for the changeover from oil to chassis grease in the pillow block of the 2½-ton DUKW (TB 9-802-FE1, 27 Oct. 44).

We told you about the change to grease in 2½-ton trucks in September, but the change for the duck was longer in coming—you've got to do a little modifying of the duck's pillow block to prepare it for the use of grease.

As you may know, we're changing to grease because oil has a bad habit of leaking out of the pillow block too fast. Furthermore, grease will do more to prevent rusting of the little hubs in the pillow block than the seals ride on. Seals riding on the rusty hubs were roughened up, making it easier for oil to escape.

The modification of the duck's pillow block consists of making a new, larger level-hole right next to the old oil-level hole, and drilling and tapping a hole in a new location to install an elbow and a grease fitting.

Duck pillow blocks being modified in production will also get new seals which have double lips, both facing outward (GM-2205869). If there are any of these seals around when you modify your pillow block, install them—but no special supply is being put out for modification purposes. If all you have is the old-type seal, don't hesitate to use it.

You will notice in the instructions that the pillow-block housing is to be filled only up to the level hole with grease. You may feel that because the pillow block will be running around in salt water, we ought to fill the housing chockfull of grease so there won't be room for water to get in. But it doesn't work that way in this case. You know how the pillow

MORE DISSA AND DATA—INCLUDING THE INSIDE STORY ON HOW TO CONVERT YOUR PILLOW BLOCK TO GREASE

block is vented up through the hull? Well, if the pillow block was full of grease, a lot of this grease would expand up into the vent when the assembly heated up in operation. Then when the pillow block struck cold water, a vacuum would be created in the pillow block—but the grease up in the vent would cork the vent up, and the only place then for the pillow block to fill its vacuum would be through the seals. Salt water would be forced right in.

So take out the level plug when greasing and stop when the level of the grease is at the hole.

Special announcement: If some water should happen to creep into the pillow block in operation, you can easily drain the water and contaminated grease by taking out the reducer with the lube fitting.

Here's a blow-by-blow account of how the modification is made:

Item Stock Nos. of Parts needed: Bushing, shoulder, reducing, ¼x⅛ (H006-02-10030); Elbow, inverted flared tube fitting 45°, ¼ pipe (H006-02-65505); Fitting, lubrication, straight, ⅛ (H002-05-0428); Plug, pipe, square head, ½-14 (H006-02-83915 or H6-02-83570). (Part Nos. of new gaskets, etc., required when assembling pillow block are shown in SNL G-501, 1 Jan. 44.)

Special Tools and Equipment: 23/32" and 7/16" diameter drills used in a ½" hand or electric drill and ¼" and ½" standard pipe taps are needed for reworking pillow-block casting.

Standard mechanics' tools only

are needed for removal and installation of pillow block. Special tools listed in TM 9-1802B (23 Nov. 43) are required for disassembly and assembly.

Instructions: Disconnect propeller shafts and remove pillow-block assembly (see TM 9-802, 1 Sep. 43). Disassemble pillow block, clean and inspect parts (see TM 9-1802B, 23 Nov. 43).

Locate and drill hole in pillow-block housing, using a 23/32" diameter drill (Fig. 1). Tap hole, using ½" standard pipe tap.

Locate and drill hole for lube-fitting elbow, using 7/16" diameter drill (Fig. 2). Tap hole, using ¼" standard pipe tap. Remove all machine cuttings and burrs and thoroughly clean with dry-cleaning solvent.

Pack bearings by hand or with lubricator, using CG-1 (or CG-0 below 32° F). This will guarantee lubrication when the pillow block is first put into operation and before the grease you will install in the housing melts enough to run into the bearings. Smear a little grease over the lip of the seals before installing.

Assemble pillow block, and if you've got the new seals, be sure the lips point outward toward the end of the shaft at each end of the pillow block. If you don't have the new seals, the original-type seals (GM-2179916) will do.

Install elbow (144118), reducing bushing (144035), and lube fitting (191758).

Install pillow block and connect propeller shafts.

Fill pillow block with chassis grease through the lube fitting

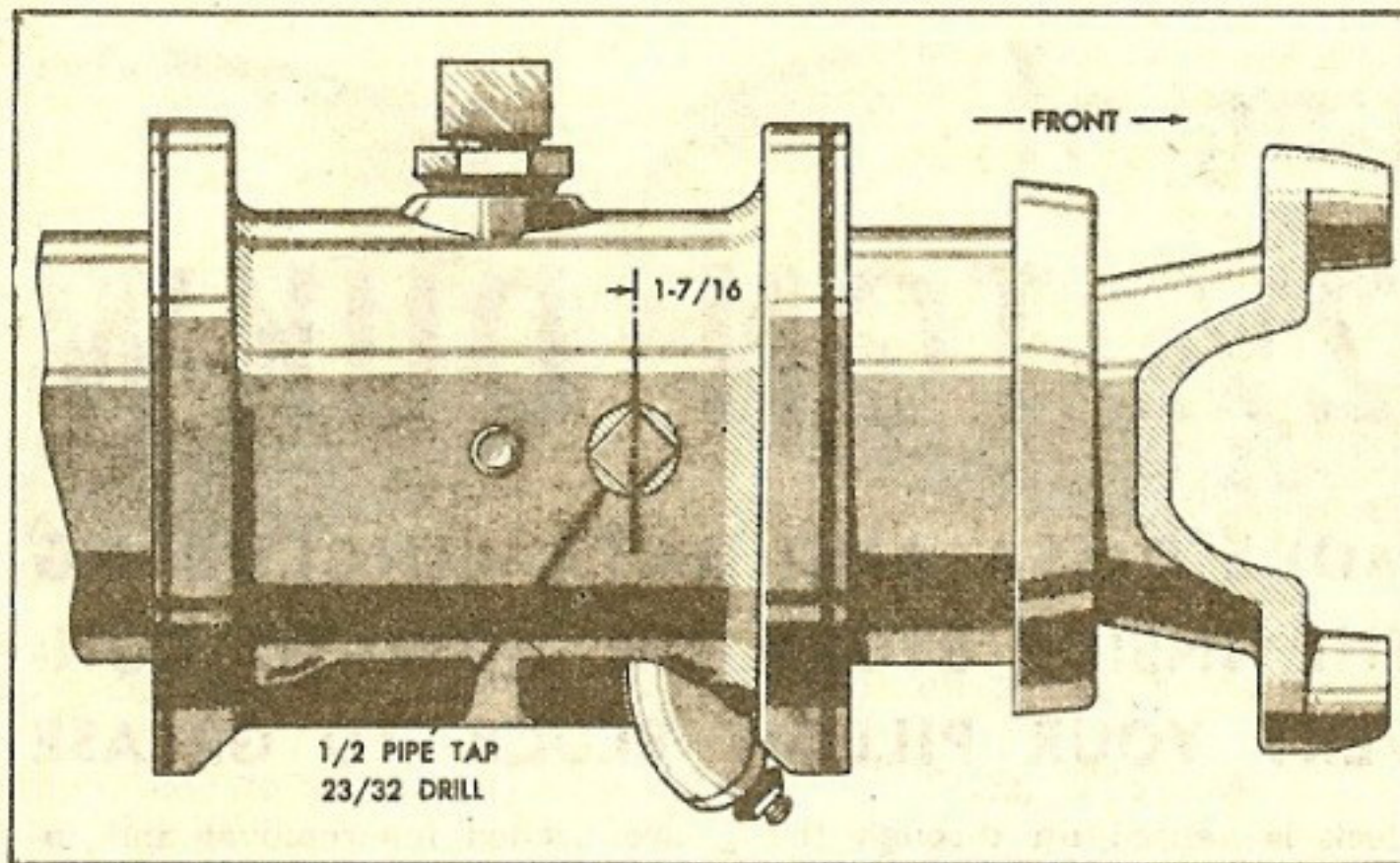


Fig. 1—Old level-hole was for oil. Grease needs a larger one.

until grease shows at level-plug hole. Install level plug (143935) and tighten.

PLUG REMOVERS

Most everybody knows that the duck tool set includes a couple of adapters for removing the hull drain-plugs and the drive-shaft drain-plugs. But what a lot of guys don't know is that these adapters were specially designed to be used with the wheel wrench in the tool set. They try to use an adjustable-end wrench with the adapters and make a miserable job of it.

The right way is shown in Figs. 3 and 4. The larger end of the wheel wrench is used for the hull drain-plugs, the smaller end of the wrench for the drive-shaft drain-plugs.

STORAGE TIPS

Here's some additional SOP that you can add to the treatment you give your ducks when you put them in storage.

First, because the duck has only a light sheet-metal hull and because of the salt-water baths it gets, be sure the paint is in good shape. Sandpaper, prime, and touch up any spots that look like they may go.

Clean the duck inside and out and give it a 1st-class lubrication. And by the way, be sure there's 40 lbs. air pressure in the tires when you're lubricating. Otherwise, when you lubricate through

the fitting on the hub device, grease pressure will force the diaphragm in the hub device off its seat and allow grease to run into the tube.

If the duck is stored in the open, put the tarp up to keep the wind and the rain out of its hair.

If your ducks have a central tire-inflation system, be sure you have valve cores installed and 40 lbs. of air in the tires. You do this so air will be held in the tires—the tire-inflation system has too many connections where the air might leak out.

Another thing—slap some chassis grease on the valve mechanism of the hand-operated hull drain-

valves to prevent corroding. (Take the screen off the valve mechanism of later ducks to put grease on.) If this valve mechanism corrodes, the valve won't be able to close completely and you'll have a leak.

FROZEN BILGE PUMPS

If you're in the ETO or some other choice spot where it's cold, always check for a frozen bilge pump before you take off—even if your duck has only been parked overnight. Test for a frozen bilge pump this way (see TB 9-802-10): With all shift levers, transmission, power take-off, transfer case, etc., in the neutral or "out" position, lift up the cargo floor and try to turn the water-propeller shaft a couple times by hand. If you can't turn it, you've probably got a frozen bilge pump (the bilge pump is driven off the water-propeller shaft, remember). Thaw out the bilge pump by starting the engine and warming it up thoroughly. Set the air circulation and heating controls to direct hot air into the cargo compartment and around the bilge pump. Hurry the thawing by closing the air-outlet grilles and covering the air-intake (using tarps as blankets will help, too). **Watch out for overheating.**

When you think the bilge pump is unfroze, test again as above by hand-turning the water-propeller shaft.

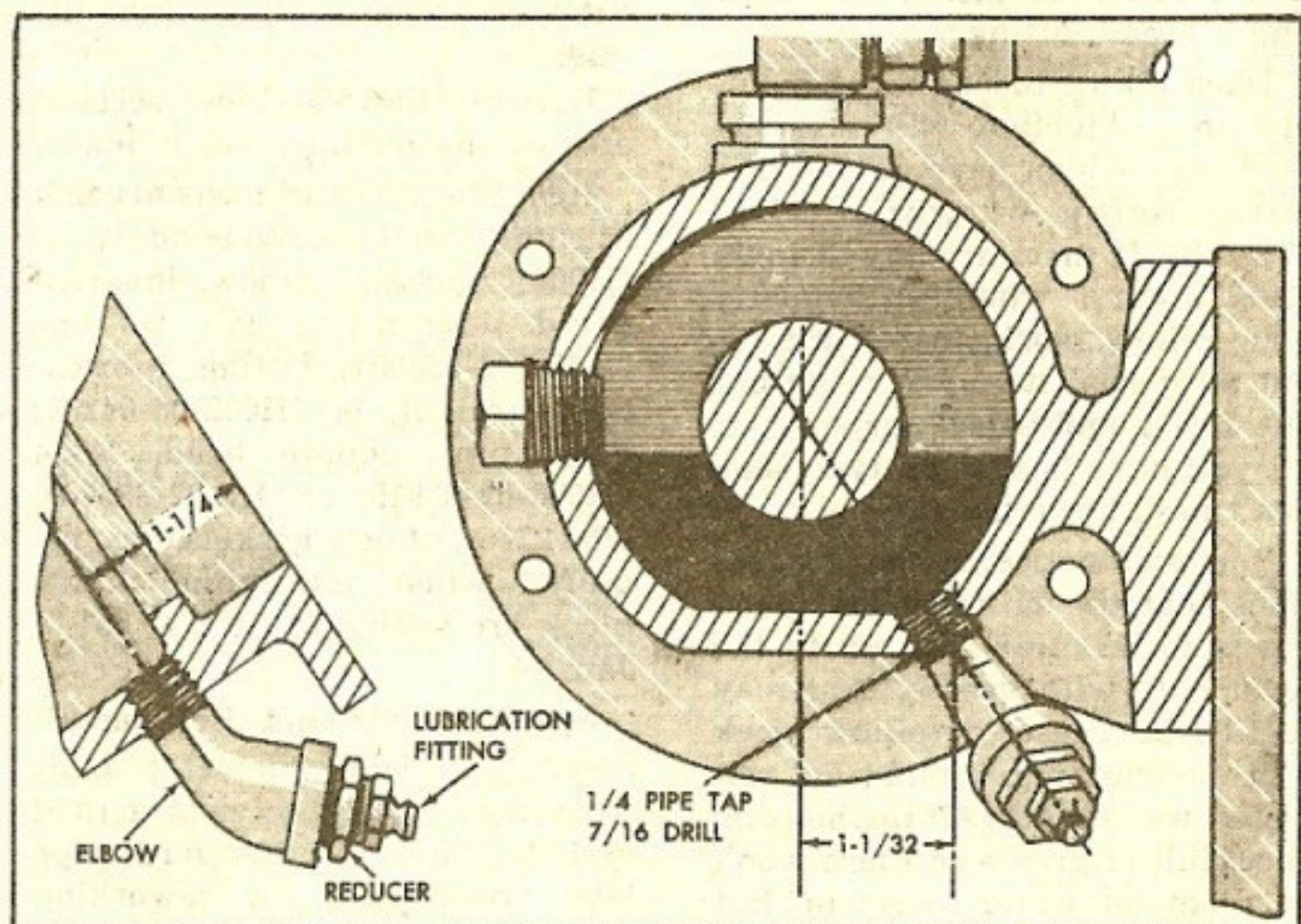


Fig. 2—Grease also needs a fitting. Drill and tap as shown.

By the way, always be sure the bilge-pump outlets are free and clean—there have been cases where back pressure built up and blew out hoses in the system.

DUCK FENDERS

If your duck has eight of those woven-rope fenders, you probably know that one each of them is supposed to be draped on the sides of the duck, right at the midsection. The usual practice is to lash one end of the fender to the mooring eye. However, the mooring hook is run through this same eye when the duck is moored. The result is that the hook rubs back and forth, forth and back, and quickly wears out the fender lashing.

A better way is to provide a more secluded spot for the fender to be lashed to. You can make this more secluded spot by taking a 4-inch piece of $\frac{3}{8}$ " welding rod and welding it from the bottom of the rear end of the mooring eye to the hull rub-rail at a 45° angle (Fig. 5). The rod is now your lashing eye.

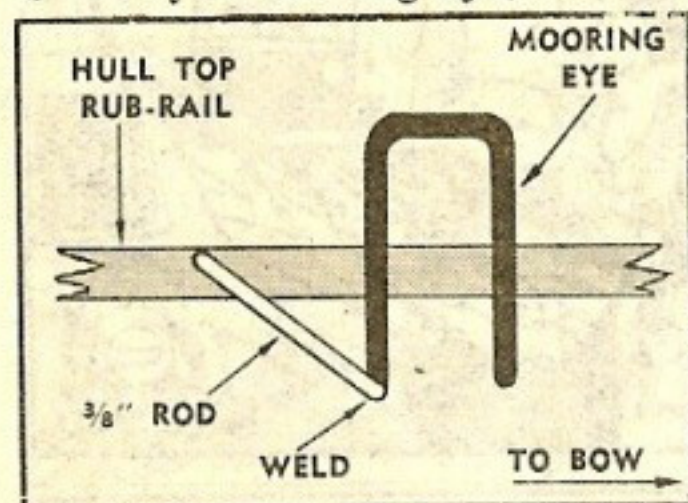


Fig. 5—New lashing eye.

STEADY BEARINGS

A couple more of those little-known places where salt-water has a habit of creeping in, are the steady-bearings on the winch drive-shaft and one steady bearing on the water-propeller shaft.

Salt water is carried up to the steady bearing on the water-propeller shaft by the bilge-pump chain. Salt water gets to the steady bearings on the winch drive-shaft by running down the length of the shaft.

Also, people poking their steam guns around these bearings force water into them.

In spite of the fact that these bearings are sealed bearings,



Fig. 3—The wheel wrench and adapter removes hull drain-plugs without trouble. Don't use an adjustable-end wrench.

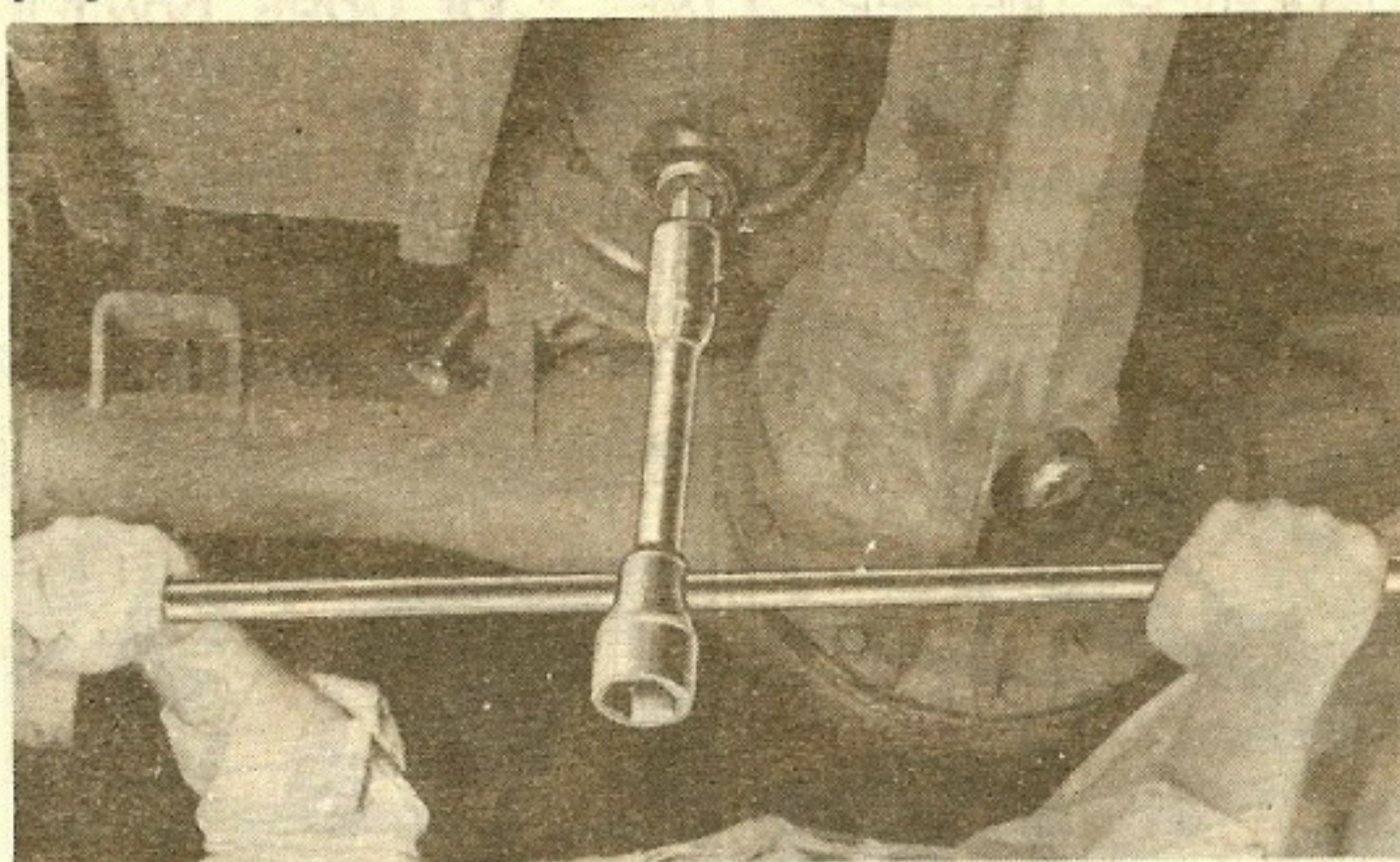


Fig. 4—Use the other end of the wheel wrench with the adapter, to take the drain plugs out of the drive-shaft tunnels.

water—especially salt water—still manages to penetrate and rust them out.

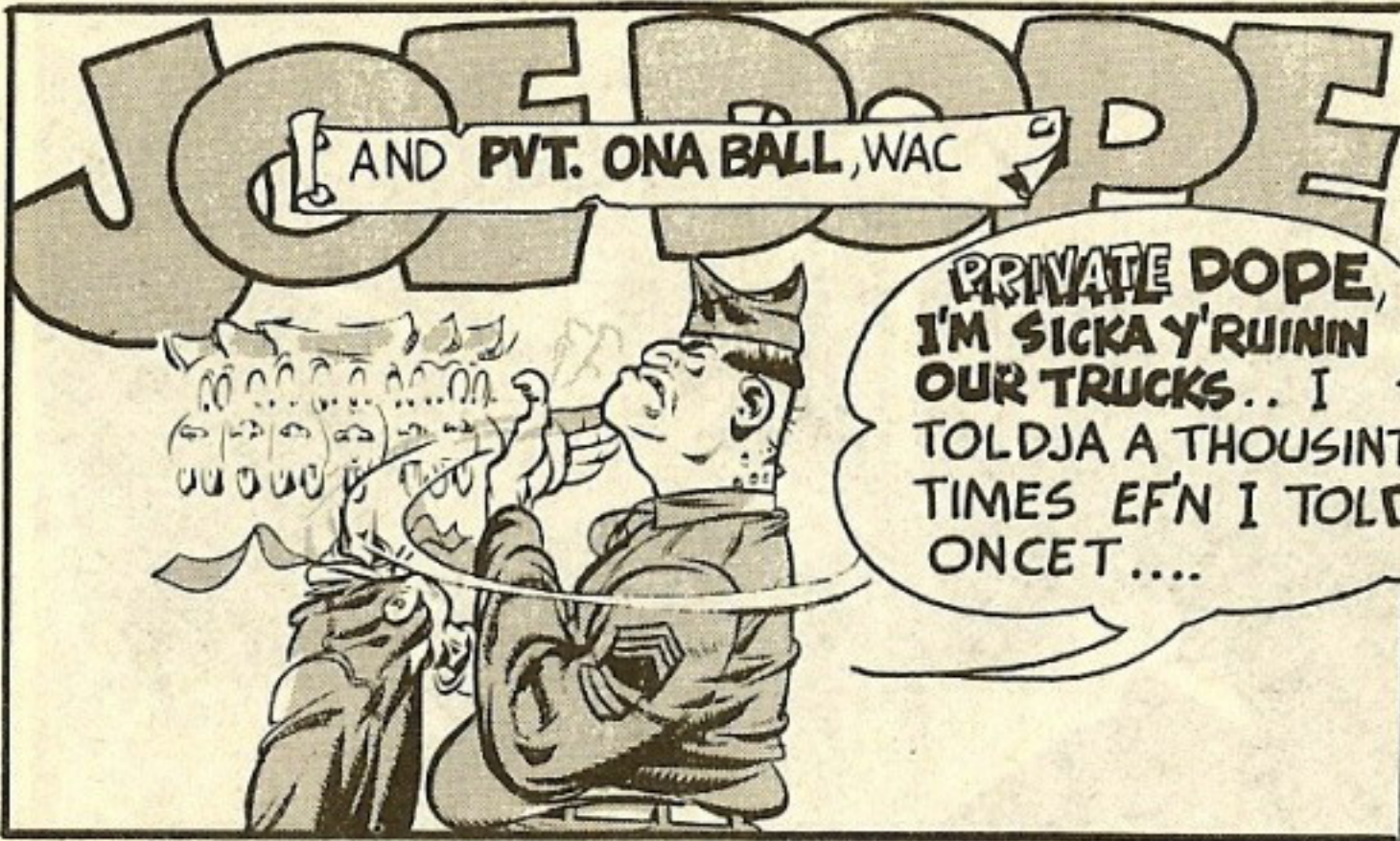
Some information in the field prescribes building a little dam of grease around these bearings to keep the water out. **But** this does not reckon with the fact that up until very lately (about May 44) the rubber seals of these bearings were not grease-resistant rubber. Packing grease around them will rot the rubber, ruining the assembly but good.

After May 44, the seals were grease-resistant rubber—and with these seals it's okay to build a dam of grease. But there's no way of telling which will resist grease

and which won't—the parts numbers of both are the same.

At the factory, they're devising slingers to keep the water out of the bearings, and some people in the field are working up deflectors for the winch-shaft steady bearings to sling off the water running along the shaft.

We're giving you all the dope so you'll know what's what. Question is, shall you pack grease around the bearings and run the risk of rotting some out? Or not use grease and risk having the propeller-shaft bearing freeze up when you need it bad? We like the latter better.



NOW..THE PROPER WAY TO DOWN-SHIFT IS TO DO IT **JUST BEFORE** DESCENDING OR ASCENDING A HILL... ..LIKE THIS!

I GET IT..MUCH SMOOTHER, LESS STRAIN ON THE ENGINE 'N ALL!

CHECK... AND A GOOD RULE IS DESCEND IN THE SAME GEAR YOU WOULD ASCEND IN!

OOPS...HERE'S THE MOTOR POOL! WELL, TAKE THE WHEEL BACK OF A WAY TO STOP A VEHICLE!

HEY..! THAT'S A HECK OF A WAY TO STOP A VEHICLE!

I ALWAYS SHIFT DOWN TO STOP - I WAS **TAUGHT** THAT!

OH YEAH? SGT. BALDY GEARS SAYS IT **NEVER** WAS S.O.P. TO HALT A VEHICLE WITH Y'R GEARS

IT RUINS THE INNARDS AND STRAINS THE POWER TRAIN! WHATCHA GOT BRAKES FOR?

AW, IT'S EASIER TO REPLACE A **CLUTCH** THAN BRAKES

THAT'S JES' PLAIN STEW-ONA-SHINGLE. NEVER LET **SGT. BALDY GEARS** SEE YA DO IT...WE GOT 5 DEADLINED TRUCKS 'CAUSE OF IT

GEE, I DIDN'T KNOW THAT

CAN Y'IMAGINE THAT... "EASIER TO REPLACE A CLUTCH"... **BOY, IS THAT DUMB!**..IT'S THAT KINDA ATTITUDE THAT CREATES MATERIEL SHORTAGES

UH...OH THERE'S THE C.P. UP AHEAD!

GRIND!

PVT. DOPE DELIVERING THE GENERAL'S M-20, SIR!

SOLDIER! WHO TAUGHT YOU HOW TO DRIVE !?

WHAT DO YOU THINK WE HAVE BRAKES FOR .. DO YOU REALIZE WHAT A STRAIN IS PLACED ON THE POWER TRAIN?.. **HALT YOUR VEHICLE WITH THE BRAKES!**

Truck Valve Clearances Revised

The valves in a bunch of transport-vehicle engines got a break when **TB ORD 205** hit the field. You can chalk up a lot of burned valves to improper valve-tappet clearance for 80-octane all-purpose gas, U.S.A. Spec. 2-103B.

Run your jaded eye down the chart below, and see if you're giving the valves in your vehicles the tappet clearance they need. All the dope's lifted right out of the TB, except what engine belongs where. That info's been added just to give you a clue to where to find the engines affected. It isn't a signal to go ahead and adjust tappets in any of these vehicles without making sure it's got the particular engine shown in the chart. The last time your buggy was in for overhaul, could be somebody swapped engines on you. First take a look at the engine plate—if it's the same make and

model shown in the chart for that vehicle, go ahead and adjust the tappets as recommended. And don't worry if the TM gives different clearances. These are guaranteed best.

You may be in for a surprise on the International Harvester RED. 450 and the Hercules HXC engines. Both RED. 450's and RED. 450D's are used in the same truck models—IHC's, Marmon Herringtons, and Kenworths. And Hercules HXC's and HXD's are both used in Whites, Corbitts, and Brockways. Tappet clearance for International Harvester's engine RED. 450 is good for the RED. 450D, and Hercules' HXC clearance is okay for their HXD. It just happens that there isn't much difference between the two models in these engine makes, and clearances aren't affected. **But always check the engine plate.** A little thing like a letter in a model number can make a helluva big difference.

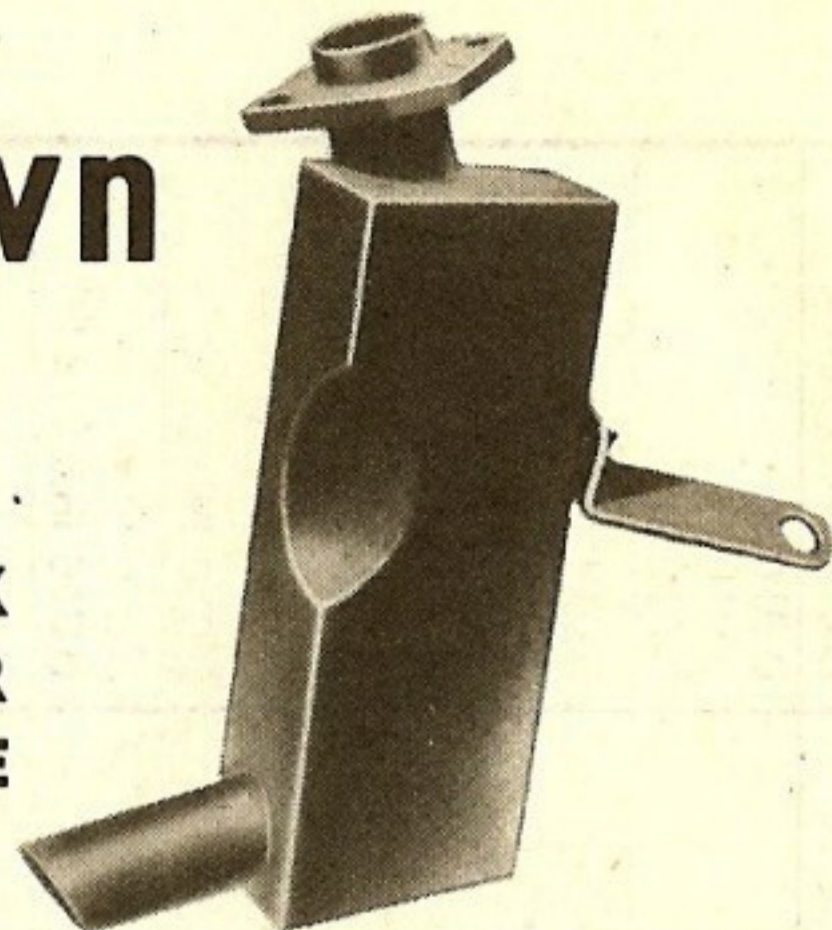
Engine Make	Model	Vehicle	Adjust When	Clearance	
				Intake	Exhaust
Autocar	358	Truck, Tractor, 2 1/2-Ton, 4x4 (Autocar U-4044, U-4144)	Hot	0.015 in.	0.018 in.
Buda	10525	Truck, Shovel-Crane, 4-Ton, 4x4 (Coleman)	Hot	0.018 in.	0.018 in.
Chevrolet	Passenger Trucks	Chevrolet Passenger Cars All Chevrolet Trucks	Hot Hot	0.008 in. 0.010 in.	0.013 to 0.015 in. 0.020 in.
Continental	22R	Truck, Wrecking, Heavy, M1 and M1A1 (Ward La France, Kenworth) Truck, Tractor, 8-Ton, 6x4 (Corbitt 40 SDH)	Hot	0.014 in.	0.020 in.
Dodge	T214 T207 T211 T215	Truck, 3/4-Ton, 4x4 (Dodge) Truck, 1/2-Ton, 4x4 (Dodge) Truck, 1/2-Ton, 4x4 (Dodge) Truck, 1/2-Ton, 4x4 (Dodge)	Hot Hot Hot Hot	0.010 in. 0.010 in. 0.010 in. 0.010 in.	0.014 in. 0.014 in. 0.014 in. 0.014 in.
Ford	19Y 21T GPW 2GA	Truck, 1-Ton, 4x2 (Ford 1941) Truck, 1 1/2-Ton, 4x2 (Ford 1942) Truck, 1/4-Ton, 4x4 (Ford) Passenger Car, Fordor Sedan	Cold Cold Cold Cold	0.013 in. 0.013 in. 0.014 in. 0.012 to 0.014 in.	0.016 in. 0.016 in.* 0.014 to 0.016 in. 0.014 to 0.016 in.
GMC	440	All GMC Trucks	Hot	0.012 in.	0.016 in.
Hall Scott	440	Truck, Tractor, M26	Hot	0.021 in.	0.030 in.
Hercules	Studebaker JXD	Truck, 2 1/2-Ton, 6x6 (Reo) Truck, 2 1/2-Ton, 6x6 (Studebaker)	Hot Hot	0.010 in.	0.016 in.

	Truck, 1/4-Ton, 4x4 (Ford) Passenger Car, Fordor Sedan			Cold Cold	0.014 in. 0.012 to 0.014 in.	0.014 to 0.016 in. 0.014 to 0.016 in.
GMC	All GMC Trucks			Hot	0.012 in.	0.016 in.
Hall Scott	Truck, Tractor, M26			Hot	0.021 in.	0.030 in.
Hercules	Studebaker } JXD			Hot	0.010 in.	0.016 in.
		RXC	Truck, 2 1/2-Ton, 6x6 (Reo) Truck, 2 1/2-Ton, 6x6 (Studebaker) Truck, 2 1/2-Ton, 6x4 (Studebaker) Truck, 2 1/2-5 Ton, 6x4 (Studebaker) Truck, 4-Ton, 6x6 (Diamond T) Truck, Tractor, 4-5 Ton, 4x4 (Autocar U-7144-T) Truck, Tractor, 4-5 Ton, 4x4 (Federal) Truck, Tractor, 4-5 Ton, 4x4 (White 444T) Truck, Tractor, 5-6 Ton, 4x4 (Autocar U-8144-T) Truck, 5-6 Ton, 4x4 (Autocar U-8144)	Hot	0.010 in.*	0.016 in.
IHC	Fac. 269 Red. 450	HXC	Truck, 6-Ton, 6x6 (White 666) Truck, 6-Ton, 6x6 (Corbitt 50 SD6) Truck, 6-Ton, 6x6 (Brockway B666) Truck, Tractor, 10-Ton, 6x6 (Corbitt 50 SDH)	Hot	0.010 in.	0.016 in.
			Truck, Dump, 2 1/2-Ton, 4x2 (IHC K7) Truck, Dump, 5-Ton, 4x2 (IHC KR 11) Truck, Tractor, 5-Ton, 4x2 (IHC KR 11, H-542-9, H-542-11) Truck, Tractor, 5-Ton, 4x2 (Marmon Herrington H-542-11) Truck, Tractor, 5-Ton, 4x2 (Kenworth H-542-11)	Hot Hot	0.018 in. 0.018 to 0.020 in.	0.018 in. 0.018 to 0.020 in.
Mack	EN 532 EY		Truck, Tractor, 5-6 Ton, 4x4 (Mack NJU) Truck, 6-Ton, 6x6 (Mack NM6) Truck, 7 1/2-Ton, 6x6, Prime Mover (Mack NO)	Hot Hot	0.008 to 0.010 in. 0.006 to 0.008 in.	0.022 to 0.024 in. 0.022 to 0.024 in.
Packard	2001 2001A		Packard Passenger Cars Packard Passenger Cars	Hot Hot	0.007 in. 0.007 in.	0.010 in. 0.010 in.
Plymouth	P11		Plymouth Passenger Cars	Hot	0.008 in.	0.010 in.
Pontiac			Pontiac Passenger Cars.	Hot	0.013 in.	0.013 in.
Waukesha	6BZ		Truck, 4-Ton, 4x4 (Four Wheel Drive HAR-1)	Cold	0.010 to 0.012 in.	0.018 to 0.020 in.
Willlys	MB		Truck, 1/4-Ton, 4x4 (Willlys)	Cold	0.014 in.	0.014 to 0.016 in.

*Change approved since TB was published.

NOW YOU CAN Make Your Own Jeep Muffler

AS A COMBAT FIELD FIX, THIS LITTLE BOX UNDER THE HOOD PINCH-HITS FOR YOUR SHOT-TO-HELL MUFFLER AND EXHAUST PIPE



It's a tough deal—when you're jumping your jeep over stumps, stones, through salt water or deep mud—if the exhaust pipe and muffler hang up and tear off. A dangerous deal, too, if you have to operate without a muffler. Not only because of the racket from your vehicle and CO, but because a roaring, rocket-like arrival invites sniper fire.

Lt. James Tom, in the South Pacific, licked this problem on the ¼-ton by eliminating the exhaust pipe entirely and devising a muffler that tucks right into the exhaust manifold next to the engine and away from harm. This method, however, will produce additional heat near the engine, and you'll have to watch for vapor lock. (TB 9-803-FE3 will be issued soon, describing Lt. Tom's method as an official field fix.)

If you're in the same kind of spot—that is, constantly operating over rough stuff that knocks the exhaust pipe and muffler to pieces—here's how you can make your own. This improvised muffler

is a metal box attached directly to the exhaust manifold with the flange and a piece of pipe from your original exhaust pipe, a bracket to fasten it to a mounting, and a sawed-off tail-pipe. You'll need welding equipment, a ⅜" drill, a hammer and chisel or cutting torch, a bolt and nut, and some small scraps of sheet metal (10"x12" is the biggest piece. You can use old grease cans or something similar).

Lay out your sheet metal and cut a piece 10"x12". Measure 7" from the right edge of the 12" width of the metal and drill a 1⅝" dia. hole (see Fig. 1) about ¼" from the bottom. The tail-pipe'll fit into this opening. Then form the sides of your box (Fig. 1) by bending the piece of metal at right angles (over a sharp edge, like a vise) to a shape 10" long, 4" wide, and 2" deep.

Cut out two 2"x4" plates (see Figs. 2 and 3) for the top and bottom of your box. In one plate, drill a 1⅝" dia. hole (Fig. 2) so the edge of it is about 3/16" from the end of the plate. This provides the opening for your flange and

pipe. Cut two more plates, both 1⅞"x3⅞" (see Figs. 4 and 5). In plate #4, drill three ⅝" holes; in plate #5, drill twenty 5/16" holes. These plates'll fit inside the box, and the holes are what'll baffle the sparks and muffle the sound of your exhaust.

You're ready, now, to make a muffler out of the box (see Fig. 6). Take plate #5 (with twenty holes) and weld it securely inside the box 3" from the bottom end (this is the end of the box with the 1⅝" dia. hole). Then weld plate #4 (with three holes) on the inside of the box 2" from the top. You inclose the sides by welding plate #3 on to the bottom of the box and plate #2 on the top (with the hole in the plate to the same side as the hole in the bottom of the box.)

Here's how you make the tail-pipe (Fig. 6). Get a piece of pipe 1⅝" dia. x 3½" long (or make the pipe by welding a piece of sheet metal together), and flatten one end to a ⅜" opening. Weld the round end of the pipe to the 1⅝" dia. opening in the bottom of

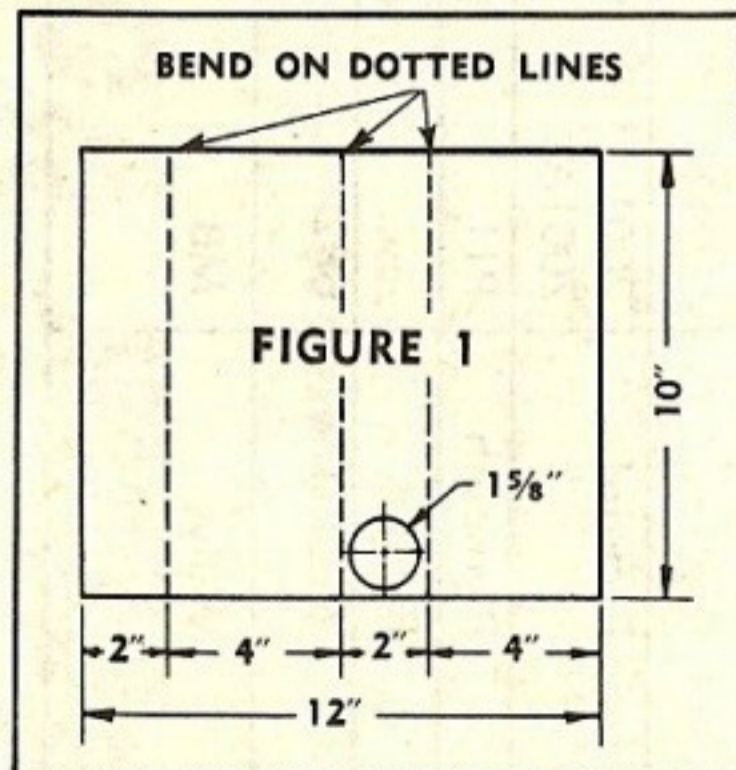


FIGURE 2 1 5/8" DIA.

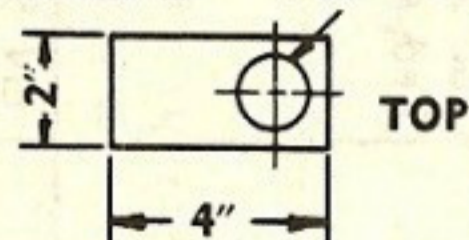


FIGURE 3

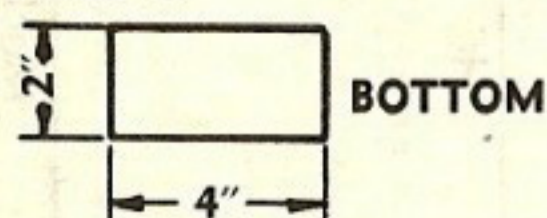


FIGURE 4

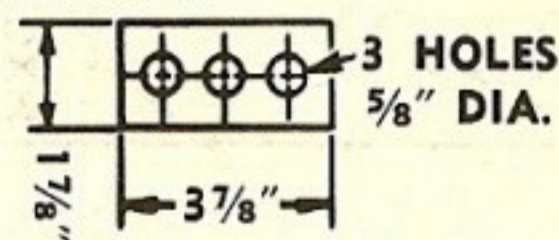
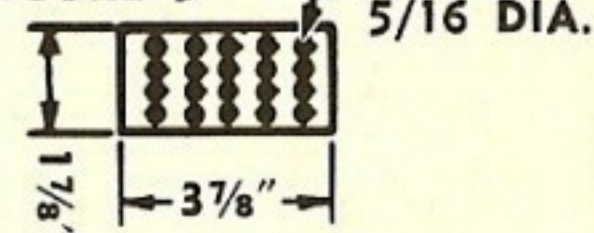


FIGURE 5



the box.

You need the hollow in the muffler (Fig. 6) so it'll fit around the oil pump with a $\frac{1}{4}$ " air-passage clearance. Make this depression 3" in length, $2\frac{1}{2}$ " from the top of the muffler and $4\frac{1}{2}$ " from the bottom. It should be $1\frac{1}{4}$ " deep in the center and extend in width from $\frac{1}{2}$ " from the tail-pipe side to within $2\frac{1}{2}$ " from the edge of the other side. You can make it either by cutting out a piece of the box according to the given dimensions, then reshaping it to form the hollow and welding it back in; or by heating the box where the hollow is to be formed and pounding it in with a hammer.

Take your old exhaust flange and pipe and cut it off 3" from

the top. Place the end of the pipe in the top of the box. Before welding it, however, you'll have to try it in the exhaust manifold to find exactly at what angle the pipe should be secured in the box.

For the bracket, cut a piece of band iron $\frac{1}{8}$ " x $1\frac{1}{4}$ " x 6" (see Fig. 7). Then drill a $\frac{3}{8}$ " dia. hole in one end and a $\frac{5}{8}$ " dia. hole in the other. Make a right angle bend as shown (Fig. 7). Find a $\frac{3}{8}$ " x 16-thread x $\frac{3}{4}$ " bolt and weld the head to the side of the box that's opposite the tail-pipe (see Fig. 8), $3\frac{1}{2}$ " from the top of the box and $\frac{1}{2}$ " from the side. Attach the bent end of the bracket to the box with the bolt and a $\frac{3}{8}$ " 16-thread nut.

Now your muffler's done and ready to install. Attach the flange

and pipe of the muffler to the exhaust manifold (see Fig. 9) as it was originally, using the same bolts and nuts. In order to fasten the bracket to the rubber mounting (under the fuel pump), remove the nut holding the body support to the mounting, place the bracket end over the body support and attach both of them with the same nut. This finishes the job and you're ready to go again—but quietly.

If you have trouble with heat from this muffler causing vapor lock in the gas lines, protecting them with a shield will help. Make it from sheet metal, and for better insulation, glue a piece of asbestos on the side facing the muffler. Attach some sort of bracket to the shield and place it between the muffler and gas lines by fastening the bracket under a convenient nut.

There's going to be a production change soon in the location of the exhaust pipe and muffler on the $\frac{1}{4}$ -ton. The pipe'll then extend straight back with the muffler placed as high as possible, approximately under the rear seat. Also the bend will be taken out of the pipe's flexible section, which'll make it more flexible and prevent some of the breakage and corrosion at this point.

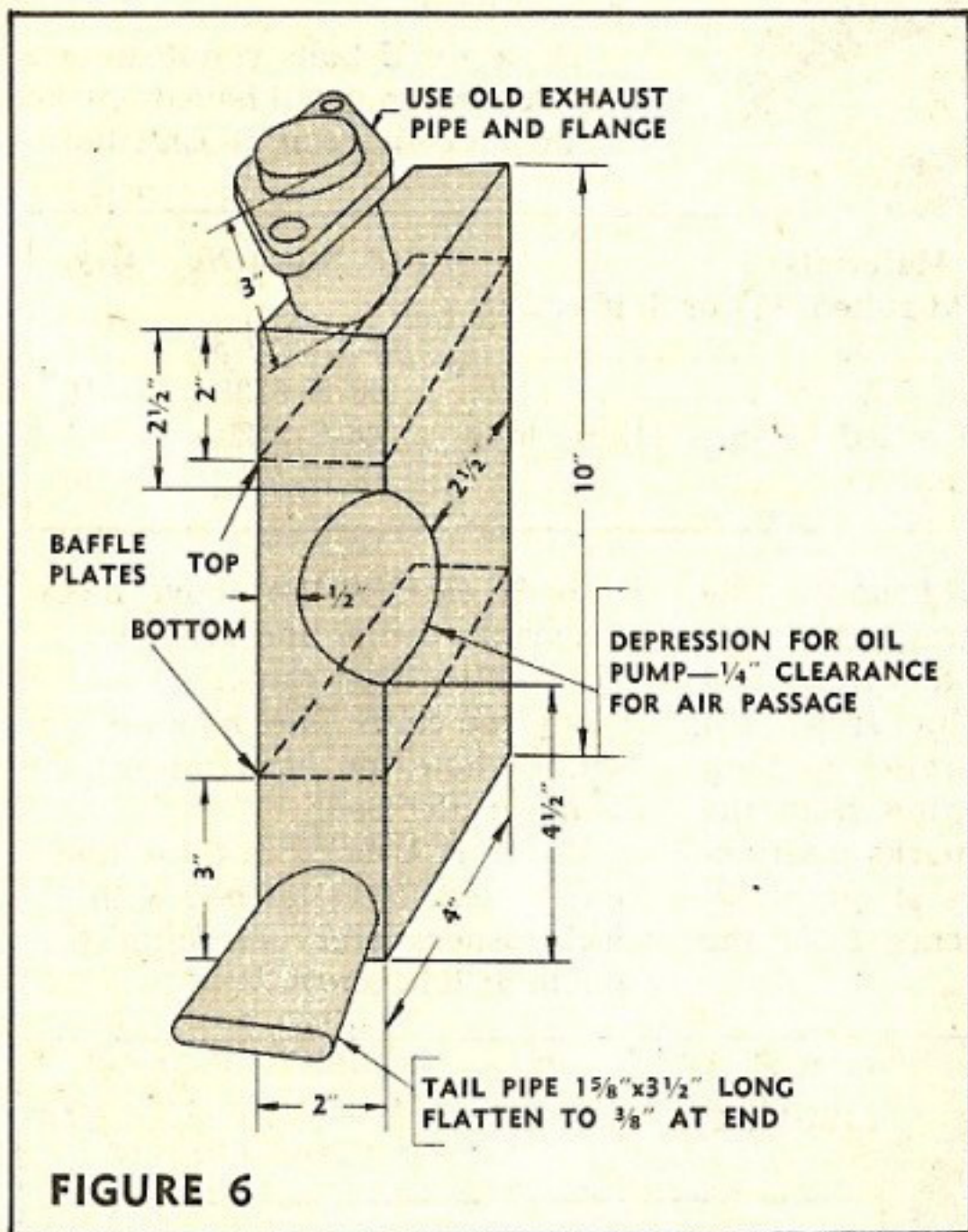


FIGURE 6

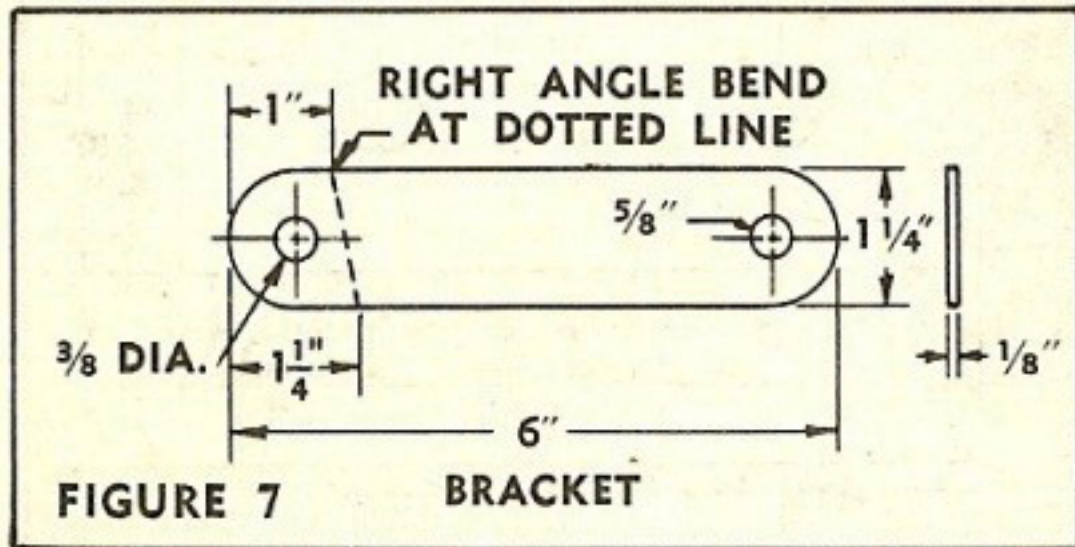
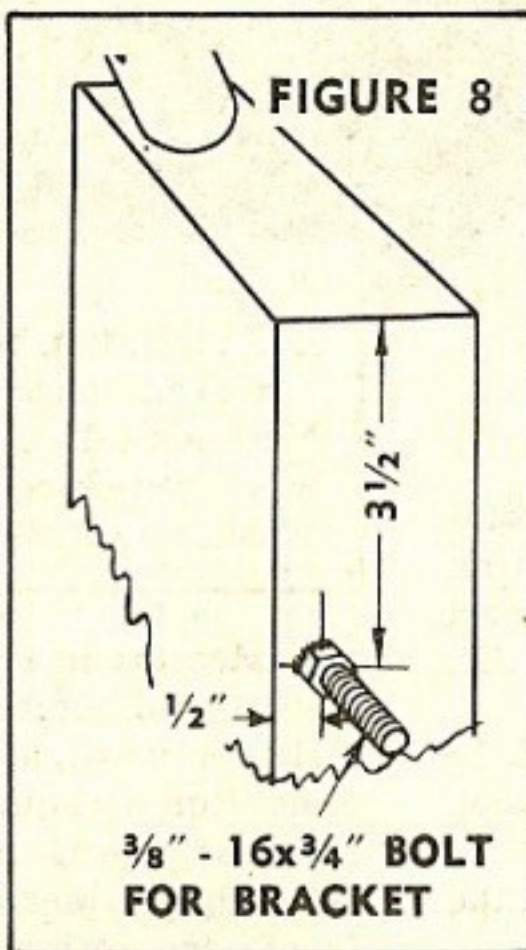


FIGURE 7 BRACKET



3/8" - 16x3/4" BOLT FOR BRACKET

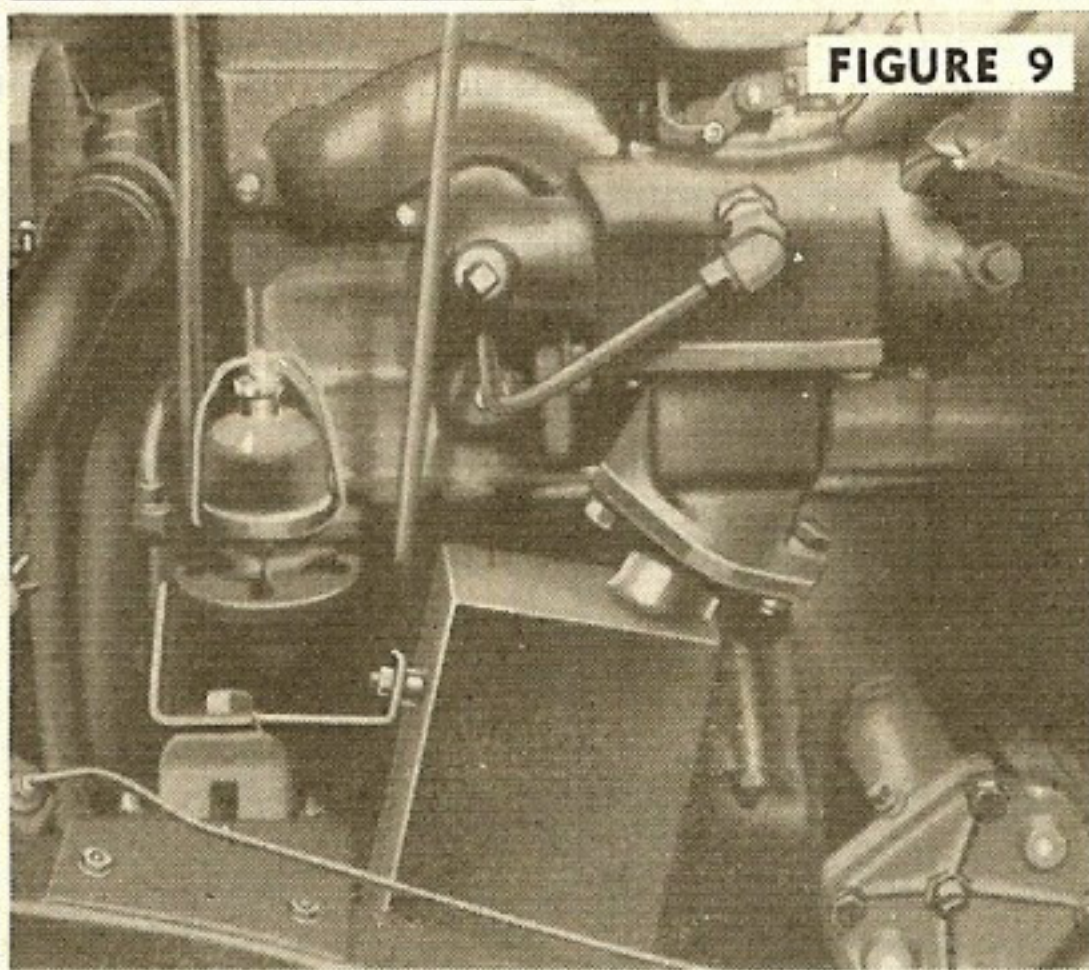


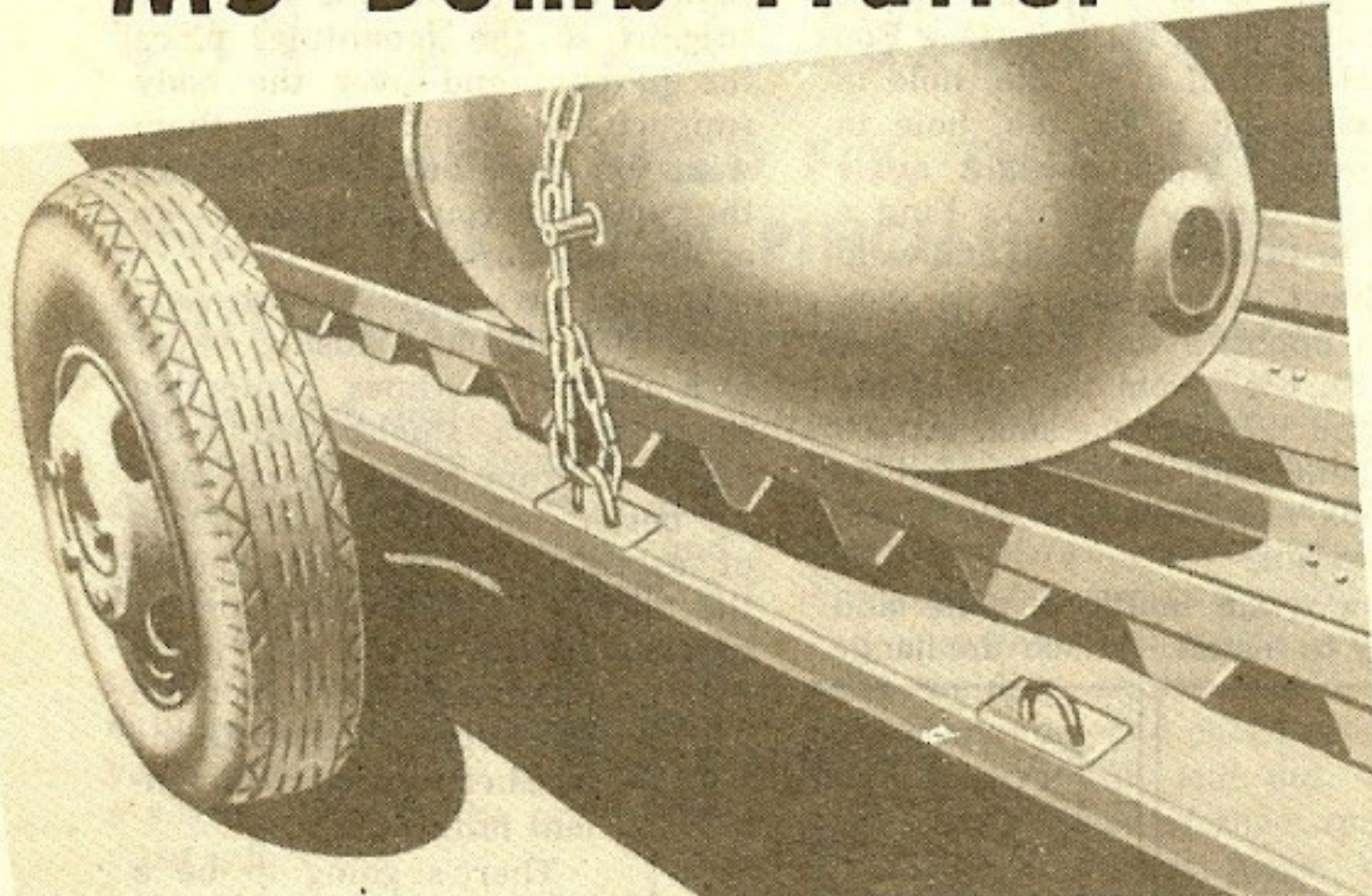
FIGURE 9

Bombs' Rush for Your M5 Bomb Trailer

Three different AAF installations had an idea to make the M5 Bomb Trailer easier, better, and faster to use. As a result, TB 9-706-FE2 suggests running U-bolts along both sides of the trailer so the hold-down chains can be looped from one side of the trailer to the other, over the whole load. The way it is now, you have to thread the chains under the bomb racks.

When you've got a rush job, and lots of different-size bombs to load, this idea also saves you the trouble of unbolting and turning over the bomb racks to accommodate smaller bombs. Just use the large-bomb side of the rack and depend on the chain to hold the bombs tight.

The eight U-bolts you'll use are an odd size, so you'll have to make them yourself. But it isn't hard.



HOW TO DO IT

1. Cut eight pieces of cold-rolled round steel, each measuring 13½" long. Thread each end for a distance of 1½", using a ½" die. Bend as shown in Fig. 1.

2. Cut eight pieces of ¼ or 3/16 x 2" x 5" long, cold-rolled flat steel: Drill two ½" holes (Fig. 2).

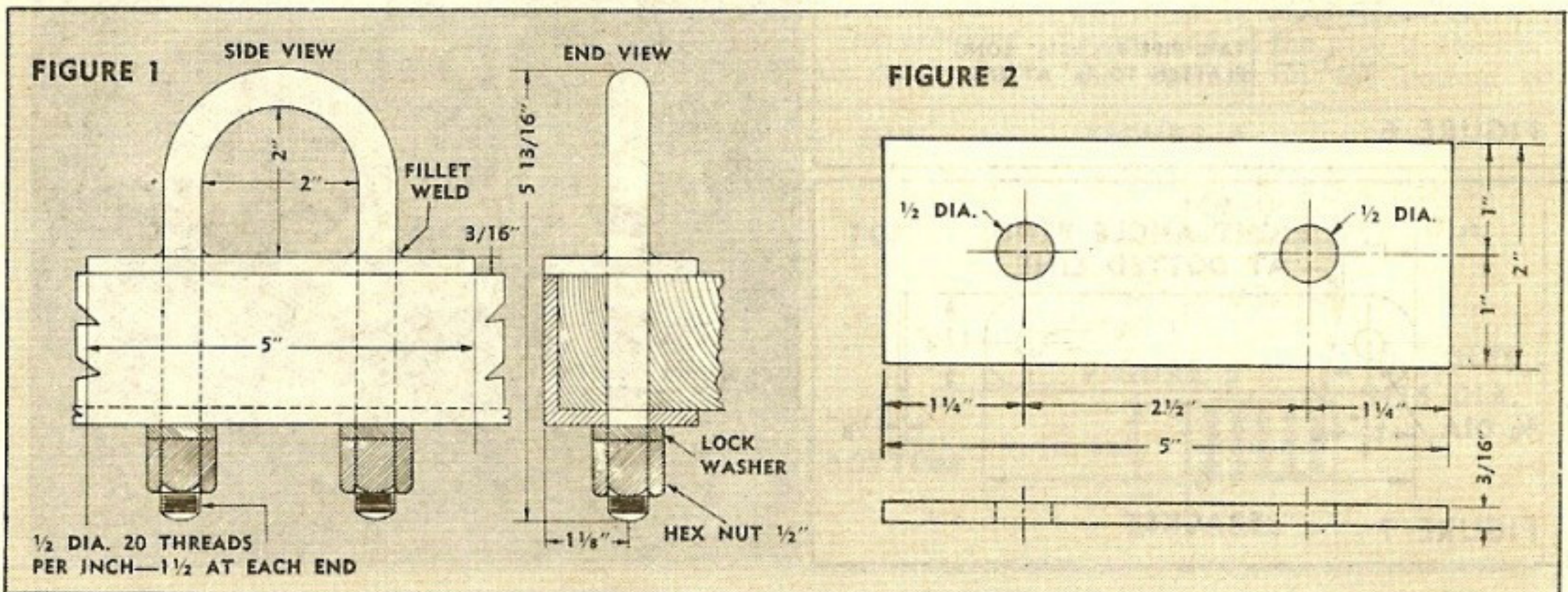
3. Run a U-bolt through the holes in each plate, spacing it so that there's 2" above the plate to the inside top of the U-bolt. Weld U-bolt to plate (Fig. 1).

4. Measure in 1⅞" from the side edge of the bomb-trailer bed and scribe a mark at the front and rear. Run a chalk line from each of these marks parallel to both side edges. Measuring from the front edge, scribe marks intersecting the chalk lines at points 25, 55, 85, and 115 inches from the front edge.

5. At each of the above measurements, center and drill two ½" holes, 2½" from center to center, along the chalk line, making four sets of holes on each side of the bomb-trailer bed.

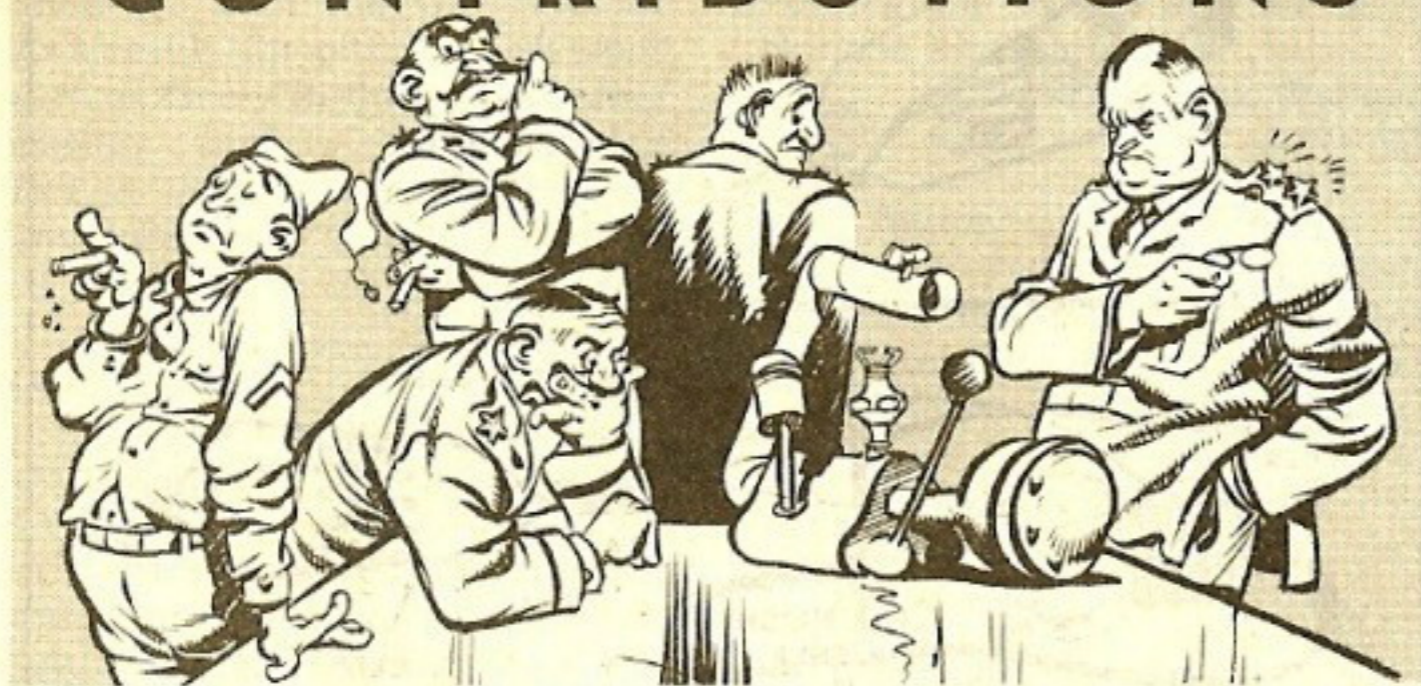
6. Insert U-bolts in these holes, and fasten to trailer bed with ½" lockwashers and hex nuts (see photo at left, above).

Materials	Fed. Stock No.	Qty.
Bar, steel, flat, cold-rolled, ¼" or 3/16 x 2 in. x 44 in. long.....	46-S-9923-50	1
Nut, hex-hd, ½ in.-20.....	43-N-8638	16
Steel, round, cold-rolled, ½ in. x 112 in. long	46-S-2120	1
Washer, lock, ½ in. I. D.....	43-W-5872	16



½ DIA. 20 THREADS PER INCH—1½ AT EACH END

CONTRIBUTIONS



Dear Editor,

Are you bothered with GI's who like to waltz around the motor pool with your portable air compressor while it's in operation? The latest latrine communique uncovered an AR which makes cold-blooded murder with a blunt weapon permissible for such offences. However, if you're complacent about this practice, some morning soon you'll find a hole in the engine base big enough to toss a cat through.

You can turn the wreckage in for another unit (notice I didn't say "another new unit")—but the replacement may not be as good as your present outfit. It may not start as easily; maybe oil will seep continuously from parts that have been welded, thereby making it a great dust and dirt collector, and you a great collector of the Old Man's wrath at inspections.

Now here's how you can add many healthy months to the life of your present air plant:

Change the crankcase oil often—very, very often. The time and oil involved is negligible. Needless to say, keep the oil at its proper level always.

Next, you should bash any PM boy over the head with your 16-lb. sledge whom you catch racing the engine by holding the throttle valve open against the efforts of the governor to close it. Maximum penalty for using the sledge is one night's restriction to Bn. area, plus a 5-buck bonus.

Keep the compressor always level when running. That's one

of the limitations of this baby. Running it at too great an angle above the horizontal will sure as hell cause engine failure. A connecting rod diving into an oil pan and finding no oil gets as big a headache as a GI diving into a tile-lined swimming pool minus water.

Here's a nifty gadget that will foil any attempts to raise the unit while it's running. I swiped the mechanics of it from the pinball machine in Joe's Barroom. Get yourself a piece of $\frac{1}{8}$ " strap metal about 6 inches long and 1 inch wide, an expended .50 cal. cartridge, and a steel ball that will just fit within the cartridge case. Now fasten the cartridge case to the strap metal so that it lies on a horizontal plane with the engine head. The open end of the cartridge case should be located so that it is just out of spark-jumping

range from the spark plug. The rear head-bolt is an ideal fastener. The ball does the job from now on (see Fig. below).

As long as the plant is kept level, everything is Ho Kay; but when the handles are raised, the ball runs over to the plug and grounds it out. When the culprit sets the machine back down again, the good little ball rolls back out of the way.

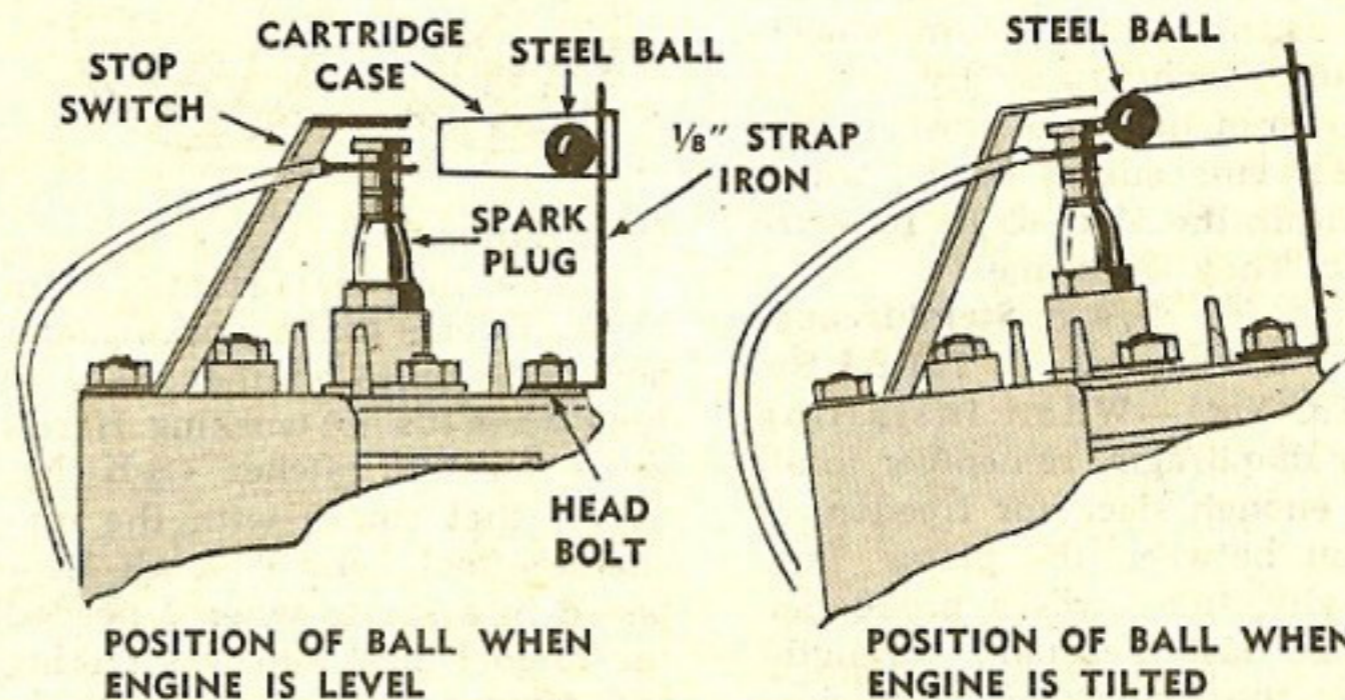
The versatile can, of course, elaborate on this with the addition of bells ringing, lights flashing on the word "TILT," or even a device to dish out black eyes to all offenders. My primary interest is in stopping the engine when it's raised above the horizontal.

Sgt. J. P. Mooney
302 FA Bn.

Dear Editor,

When mechanics disassemble front-axle shaft and U-joint assemblies during the 6000-mile check, they sometimes discard the axle shaft because it seems to have too much end play. Since end play can't be determined after the shaft's been removed from the housing, they often discard good axle shafts.

On the split-type axle, end play is adjusted (after the shaft is in the housing) with shims under the thrust buttons on the differential end of each shaft. The shafts are held in place lengthwise by a screw which pulls the driving flange up against a shoulder on the outer half of each shaft. When the screw's taken out, there's nat-



Here's the general idea on Sgt. Mooney's Pinball Special, designed to stop the engine when the air compressor's tilted.

usually a lot of end play of the axle shaft as you move it back and forth inside the housing.

Always check the amount of end play in the split-type axle before removing the shaft from the housing; that way you can take out excess play by adding extra shims when you reassemble the unit.

On the banjo-type axle, end play is controlled by bronze thrust rings on each side of the universal joint. The washers work against the ground surfaces of the joint. To determine the amount of end play in the banjo-type axle, check the condition of the washers when disassembling the knuckles; and replace the washers if they're worn.

In either type of axle, you're bound to have a certain amount of backlash from worn balls or joints; but you can correct it easy enough by using oversize balls. Since the center ball in the Bendix-Weiss U-joint doesn't get much wear, it doesn't come in oversize.

H. A. Wagle
GMC Service Representative

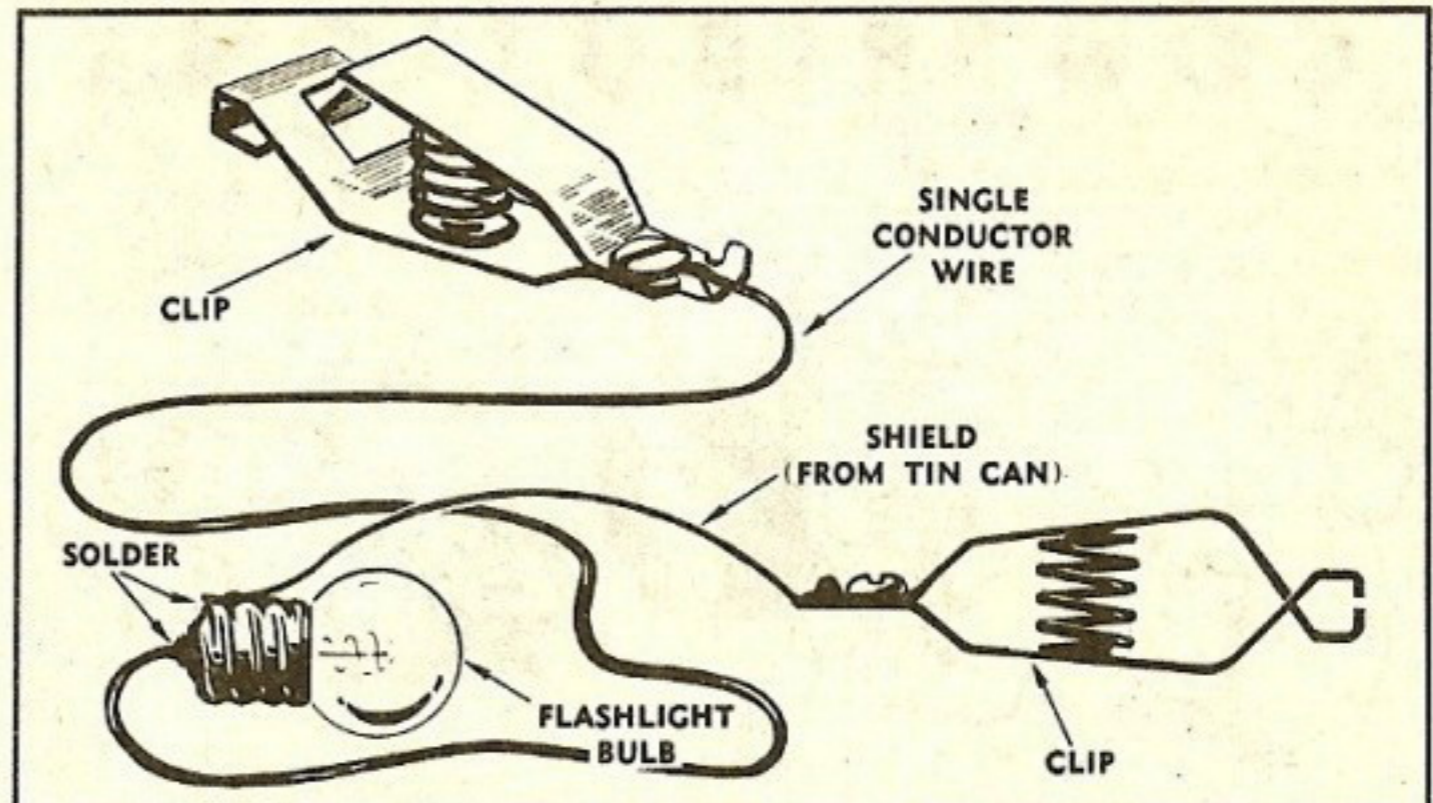
Dear Editor,

We've got some new M5 High-Speed Tractors with an average of only 15 engine hours on them, and the rubber diaphragms in the low-pressure-indicator buzzers aren't holding up. Two of the original diaphragms have broken in the same place—the air pressure seems to be too much.

I figured a thicker diaphragm might be the answer. There aren't many parts available here, so I cut the diaphragms from wheel-brake-cylinder cups. By leaving out two of the three washers, the buzzer cuts out at 62 lb., which is within the 55-to-65 lb. pressure limit. They work fine.

T/4 F. Steinkirchner
763 FA Bn.

(Ed. Note—When installing your diaphragm, remember to allow enough slack for freedom of action between the plates. Incidentally, there was a production change last February strengthening the diaphragm. But since new diaphragms can't be requisitioned separately, your expedient should come in very handy.)



Pvt. Mikesell's "Ersatz Glow Line," easy to make and use.

Dear Editor,

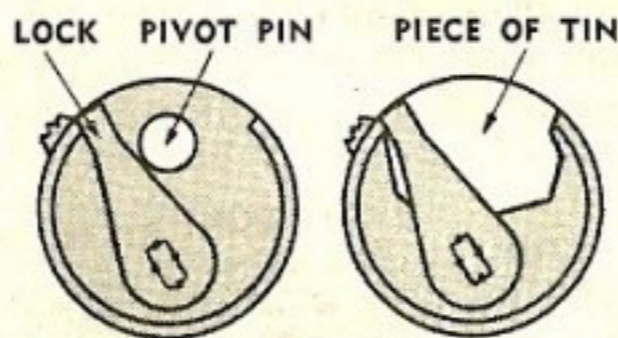
Our company has been on the waiting list for 6-volt trouble-light bulbs for so long that we've developed a very effective "Ersatz Glow-line."

Here's the recipe: Two universal clips, a length of single conductor wire, one 6-volt flashlight bulb, and a small tin can.

Mix together quickly as follows: Clip, wire, bulb, shield (can), clip—just in that order (Fig. above).

If carefully used so you don't strike sparks with the clips and create a fire hazard, it's swell. Gets into all kinds of tight places where the big boys can't go.

Pvt. R. A. Mikesell
Fort Ord, Calif.



Dear Editor,

I know how important it is to have a ratchet that's working, and how it becomes another piece of junk when it's not working. Here's a fix on the ratchet (S-K No. 42470) that comes with the mechanic's tool set. This all happened in a spasm when I needed the ratchet most and was talking the famous language known to all mechanics.

By taking the ratchet apart, I found out what my trouble was.

The pivot pin that comes up to the lock would stop the lock from going from right to left. By cutting a piece of tin from my C-ration can and placing it above the pivot pin and under the lock (see Fig., col. 2), I got the ratchet to work good as new.

T/4 Benny R. Pilara
387th Infantry

(Ed. Note—That's perfect for the particular ratchet you've got, Sarge. There are some other makes issued under the same Fed. Stock No. (41-H-1505) which aren't so easy to take apart.)

Dear Editor,

Several times lately we had leakage from GMC 6x6 and 6x4 steering gears at the pitman shaft. The tough part of it was that we were unable to get packing, GM Part No. 259961, and grease seal, 259960. Then we discovered that the seal for the jeep, Ford Part No. GP-3031, could be used. It is retaining the gear oil very satisfactorily.

Clean the pitman shaft good with solvent and put on a light coat of chassis grease #1. Carefully slip the grease seal onto the pitman shaft and seat it flush with the steering-gear housing. Use a piece of pipe the same diameter as the seal to tap it into place.

Joe W. Tubbs
Civilian Automotive Advisor

(Ed. Note—It's okay in a pinch to use the Ford seal (or Willys Part No. A778) in place of the GM, but avoid it when you can. The jeep seals have a smaller in-

side diameter and a larger outside diameter than the GM retainer. As a result, the pitman shaft won't turn as freely in the gear housing, causing slightly tight steering. But at least it stops the leakage and keeps your GMC's rolling until you can get the proper parts.)

Dear Editor,

While on maneuvers we had a lot of trouble with starter buttons on our ¼-ton jeeps. The dust got in them and caused an arc when the contacts were released—result, burnt starter buttons.

To fix this, I dressed up the points, put the starter buttons back together and dipped them in candle wax. They're still working good. I know most starter buttons are welded together, but that doesn't stop you when you can't get buttons for love or money.

To make it easier to install, reverse the screws on the button and put the nuts on the inside of the jeep. This is easier than trying to feel for the bolt, and then after finding it, dropping the nut.

Pfc Carroll Sovereign
APO 104

(Ed. Note—That's a slick stunt for starter switches on early-model jeeps. Back in May 1942, the manufacturers made a change in the construction of the switch to seal it against water and dust.)

Dear Editor,

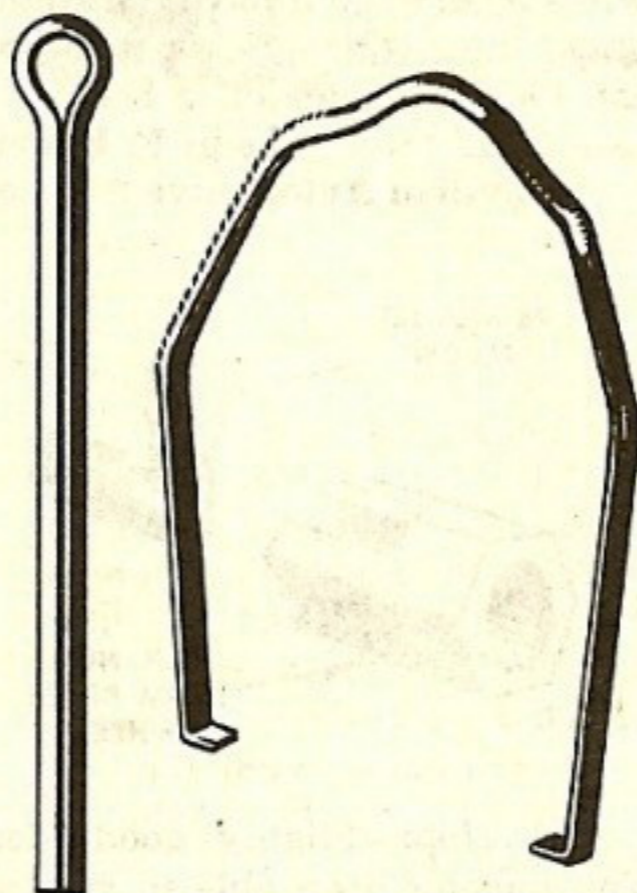
After skinning his knuckles and laboriously raising the boom on his 4-ton wrecker a third of a turn at a time, **T/5 Richard F. Spellman**, wrecker operator extraordinary, made himself a little extension handle for the hand operating crank (see Fig.). This permits him to raise his boom easily

and smoothly by completely revolving the crank, and no more skinned knuckles.

Lt. Frank Wallach
APO 558

Dear Editor,

What do you think of using ~~this~~ reformed fugitive from a 3" cotter key (see Fig.) to pull the lock-



washer out of jeep wheel-hubs after the locknut is removed? We don't have service tool J-1764, and are using this hand-made model as a substitute.

Cpl. Frank S. Payerle
198 Signal Photo Co.

(Ed. Note—Okay—works as well as the special tool Ordnance used to issue for that same job. In fact, special tool J-1764 (Fed. Stock No. 41-H-2695) was taken off the SNL list because it's so easy to improvise a substitute.)

Dear Editor,

I've had trouble with hot patches getting wet and rusty, the way Lt. Silva said in the July ARMY MOTORS, and I can sympathize with him. But to make damp,

rusty hot patches burn, and keep them fit to burn, we've found that storing them in ordinary mayonnaise jars works best.

Put your hot patches in the jar along with a little bag of silica gel to absorb moisture. The crystals can be renewed from time to time by heating them with a blowtorch. This method works out okay in Key West, Florida, and there couldn't be a damper climate anywhere.

T/5 Herman Von Thun
Fort Taylor

(Ed. Note—Silica gel isn't used so much in packaging anymore, but that's a good trick when you've got it. The crystals are a light blue color when they're fresh, and need renewing when they get to be light pink.)

Dear Editor,

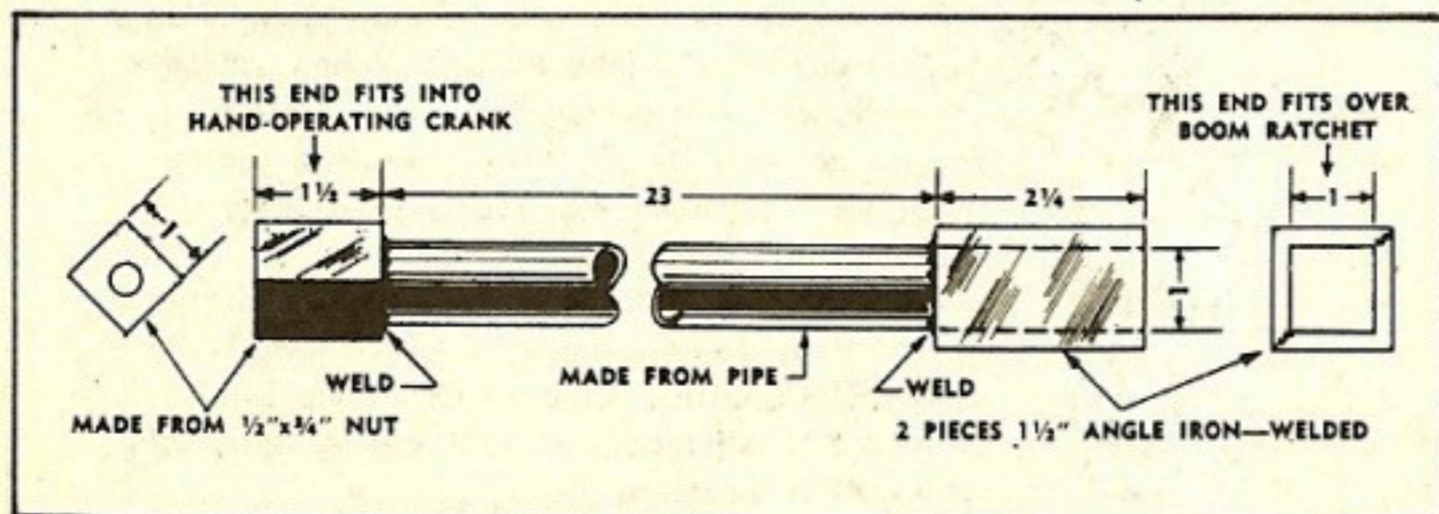
Here's a little hint you might want to pass on. The spring-shackle bolts on the ¼-ton amphibian are mounted in rubber, and when those rubber bushings get dry and harden, they squeak something awful. Fill a trigger-operated oil can—or an ordinary one—with hydraulic brake fluid, give the bushings a squirt, and the squeak disappears. The fluid does not deteriorate the bushings.

Sgt. J. E. Lyttle
APO 252

(Ed. Note—That'll do the trick on other vehicles, too. Better label your oil can, though, before somebody squirts brake fluid where oil ought to go.)

Rainy weather, strong cleaning agents used with live steam to clean front axles, frequent washing of vehicles, and operation in sand and mud. These are some of the reasons **F. A. Gallagher** and **R. F. Hamilton**, GMC Service Representatives, give for the failure of spherical ball seals on the front axle universals of GMC vehicles.

One way to prevent water from getting into the universal joints of split-type front axles when using cleaning compound or steam is to protect the front-axle ball-joint seals with masking tape. Then be sure and dry all exposed machined surfaces with a clean cloth



How T/5 Spellman made his wrecker-boom-crank handle.

and put a light coat of chassis grease on them just as soon as you finish washing or cleaning the vehicle.

Incidentally, unless all rust preventive material is removed from newly installed front-axle ball-joints before the vehicle (from a two-unit pack) is operated, the material will harden and cut the seal.

Dear Editor,

Due to the design of the horn wire in the steering shaft on GMC trucks, it's difficult to remove the steering wheel without damaging the wire on the contact tip unless the wire is first removed, which is a sizable operation in itself. By using the puller adapter described below, which can be made in a few minutes by any mechanic, it's possible to remove the wheel without damage either to the wire or to the shaft threads.

Obtain one $\frac{5}{8}$ " x $1\frac{3}{4}$ " hex-head bolt. File a groove $\frac{5}{16}$ " deep (measured on the head of the bolt) along the full length of it. This groove will protect the horn wire when the bolt is inserted in the steering shaft. After filing the groove, countersink the bolt head slightly with a $\frac{3}{8}$ " drill to make a seat for the puller screw.

Joe L. Thompson
Automotive Mechanic

(Ed. Note—It's okay to use this if you can't get hold of the new adapter that's now available to the 2nd echelon. The official nomenclature of this tool is: **Adapter, puller, steering wheel, Fed. Stock No. 41-A-18-251**, to be used with the universal steering wheel puller, Fed. Stock No. 41-P-2954.)

Dear Editor,

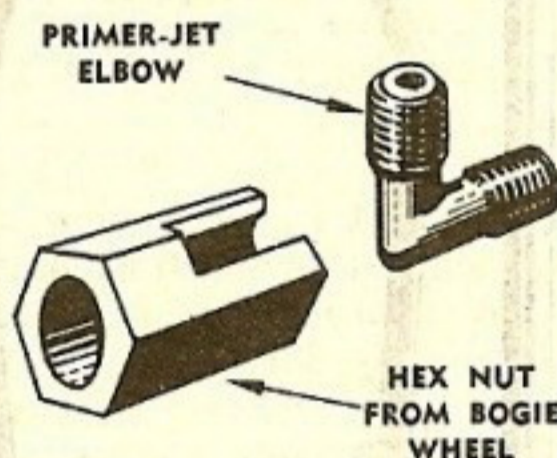
We've been trying for nearly a year to find an easy way to remove, without damage, the primer-jet elbow (Mfr. Part No. AN 4023-1) from Continental engines, Model W670-9A, in M3-series light tanks. TM 9-1726 has a picture of a nifty wrench that would take out these elbows in nothing flat. We've tried all over hell to get this wrench, but, as usual, no dice.

Finally I invented a gadget (see Fig.) that's probably as good as

the regular wrench. Here's the easy way to make one—it can be done in about ten minutes:

First, take a hexagon nut from the hub of a discarded bogie wheel, and cut off a piece $\frac{7}{8}$ " long. Then hacksaw a slot lengthwise in the nut— $\frac{1}{4}$ " wide and $\frac{3}{8}$ " deep. That's all there is to it. Just slip the nut onto the elbow, use a $\frac{9}{16}$ " wrench, and you'll have the elbow out of the engine quicker than you can blow the suds off a beer.

Louis F. Hyams
Civilian Automotive Advisor



(Ed. Note—Mighty good idea. You haven't been able to get the wrench shown in the TM because it's not being issued. Shortly after the TM came off the press, the parts men decided it was an unnecessary tool—they think it's just as easy to remove those elbows with a pair of pliers. But we agree with you—it's a job for the tool you've made. Incidentally, the same engine is used in the following LVT's: (A) (1), (2), (A) (2), (A) (3), (4), and (A) (4). Your wrench will work swell on the R975 Continental engine, too.)

Dear Editor,

We've noticed that FSMWO G102-W35 doesn't mention that there's a right and wrong way to install the front-spring bracket on half-tracks. The end with the greatest amount of slant should be toward the rear of the vehicle, on both sides. Since the shackle-bolt isn't halfway between the two ends of the bracket, the whole front end of the half-track can be thrown out of line by incorrect installation. The brackets on new vehicles are being marked to prevent this from happening when they're installed, but hundreds of unmarked brackets are still being put in wrong.

Incidentally, in paragraph 7c (5) of the Fismo, the number of the bracket is wrong. That number is not C15177—it's C125177.

Lou Boyler
Modification Advisor

(Ed. Note—The work order illustrates pretty clearly the correct way to install the bracket, but some word of caution would have helped. You're right about the wrong part number—better correct it in the later MWO G102-W35, 10 Mar. 44, too.)

Dear Editor,

Many door squeaks can be stopped by opening the door and smearing a small bit of grease on the shiny spots around the door frame (with the finger). This is especially helpful on the $1\frac{1}{2}$ and $2\frac{1}{2}$ -ton trucks.

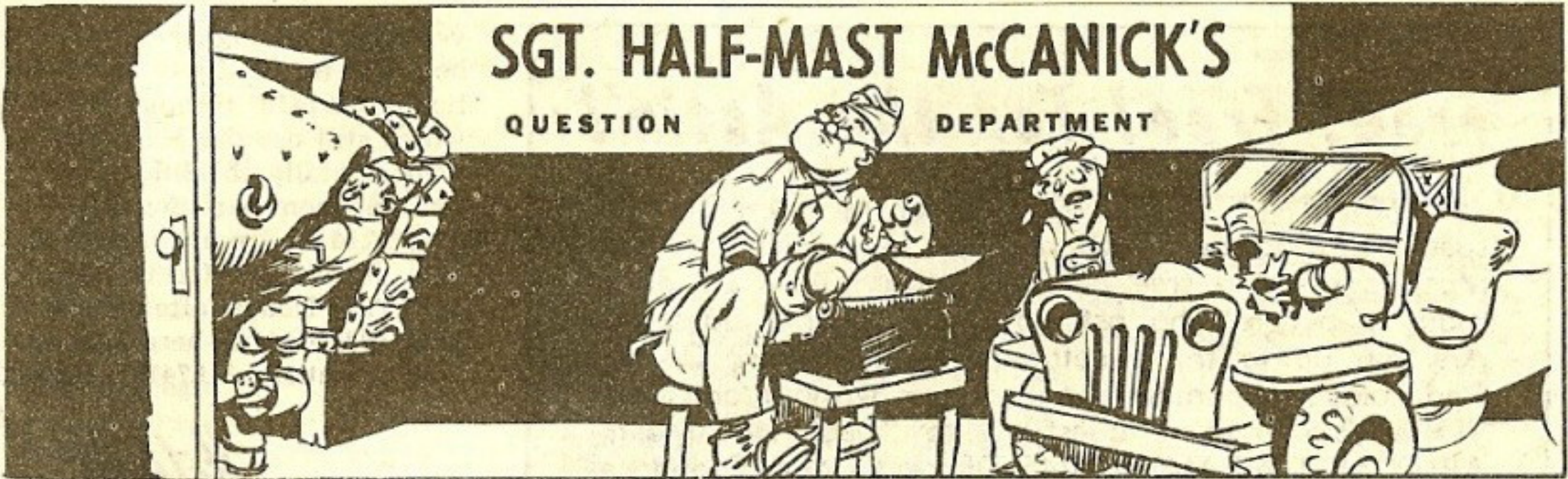
Capt. Calvert B. Andrus,
6th E. T. Group

What Do You Think About?



Okay, what else do you think about? Do you f'rinstance think about new tricks, gadgets, or ways to make maintenance on trucks and tanks easier? When you do figger out a better way to do a job, what do you do with it? Do you leave it to gather flyspecks in the corner of your skull—or do you pass it on for somebody else's benefit?

Pass on them bright ideas. Tell 'em to the GI world by telling them to ARMY MOTORS MAGAZINE, Office, Chief of Ordnance-Detroit, Detroit 32, Michigan. You'll get a personal subscription for being sharp.



SGT. HALF-MAST McCANICK'S

QUESTION

DEPARTMENT

Dear Half-Mast,

I'd like a little advice on M5A1 Light Tanks.

No matter how tight we draw the stud bolts on the rear support-rollers, they shear or loosen so badly we have to put in new bolts after about 100 miles of operation. We can't retighten them because the threads are shot. Tried all Permatex compounds and even laced them tight with wire, but it didn't work.

We're stuck, Sarge.

Sgt. A. E. R.

Dear Sergeant,

My little advice is to do one of two things. When the support rollers have worked loose and damaged both the capscrew threads and threads in the hull: (1) Drill out the damaged threads and tap the hull for a larger-size stud. Or (2) drill all the way through the hull and install a bolt secured by a nut. There isn't any other way when the threads are shot to hell.

Like you said, Permatex wouldn't help much. The mounting studs on the roller should always be safety wired after they've been tightened.

Half-Mast

Dear Half-Mast,

Has Ordnance ever put out an SNL or organizational spare parts for Truck, tractor, 5-6 ton, 4x4, C.O.E., Autocar U-8144-T? We have 53 of the darn things and don't know what to stock in 2nd echelon to be safe from our friends the Inspectors.

Is there a modification on the air-compressor bracket on Hercules RXC engines? The brackets

have a habit of working loose on this model and the oil consumption hits an all-time record.

One last question and I will sign off. How about the exhaust-valve clearance on the Mack NJU-1 tractor truck, 1941? The maintenance manual calls for .024 to .027 when cold. We have tried this and from the noises in the cylinder head, that valve is trying to pound its way out and striking the top of the cylinder head.

WOJG E. M. C.

Dear Mr. C.,

The publication you need for the 5-6 ton, 4x4, Autocar is the OSPE section of SNL G-511 (17 Jun. 44).

The capscrews on your Hercules air-compressor brackets shouldn't loosen up if you keep them properly tightened and lockwashed—but since you're having that trouble, you might anchor them by drilling holes in the capscrew heads and wiring 'em down. Like on aircraft engines.

About the exhaust-valve clearance—there's a new TB (ORD 205) that changes things for the better. Turn to page 304 in this magazine and see for yourself.

Half-Mast

Dear Half-Mast,

Can you wise us up on this problem?

If the eccentric is passed while tightening the track on an M10 Gun Motor Carriage, and the track is still loose, is it advisable to remove one block? If a block is removed from one track, and the other is tight enough not to warrant taking out a block, will this condition have any ill effects on driving? One track will have

slightly more surface touching the ground.

Sgt. F. L. M.

Dear Sergeant,

When the track is still too loose after extreme adjustment, all you can do is pull out a block. One block's difference between the tracks won't affect the steering enough to notice.

Half-Mast

Dear Half-Mast,

In the April issue, Connie Rodd outlined a method, suggested by Mr. J. S. Hemingway, to get rid of gremlins in turret-guide rollers (bracket, turret-retaining, w/bearings, assembly).

I would be very much interested in finding out exactly what Mr. Hemingway used to tap a hole in the bearing shaft. We are well equipped here with drill presses and the necessary tools, even a lathe, and we haven't been able to scratch the surface.

Can you give me more details on the Hemingway?

Capt. N. J. S.

Dear Captain,

We published Mr. Hemingway's suggestion purely on his say-so that it worked. Here's the story: ARMY MOTORS, for once, didn't try out the idea before publishing it, and now they tell me it takes a high-powered speed drill to do the job—a drill nobody has in the field. So you're right—the operation isn't practical.

Guess it worked for our contributor because he was at an arsenal and had what it took to do the drilling.

Half-Mast

Free! Free! For the Astin'!

ARMY MOTORS is now yours for the astin'. Through special arrangement with nobody in particular, Half-Mast is offering free personal subscriptions by direct mail to people who ast good, publishable questions. Are you up to the sweetbreads in problems? Do you find yourself up maintenance creek without any oars? Write your burning questions to "Dear Half-Mast," ARMY MOTORS MAGAZINE, Office, Chief of Ordnance-Detroit, Detroit 32, Michigan. If they're important enough to be published, you'll get a personal subscription. Even if they're not, you'll get an authoritative answer.

Dear Half-Mast,

For a long time I've been wondering why there can't be a way arranged to remove the jeep front propeller-shaft and joint without first removing the stump guard. It would save much time.

Sgt. G. B.

Dear Sergeant,

There is a way. Block up the front end of the jeep so you can turn the propeller shaft. Turn it around till the U-bolt nuts face the right side of the vehicle. (You can take the nuts off when they're facing that way.) Then slide the universal joint up on the spline to clear the yoke end.

You can do it that way, Sarge, but I doubt if it will save any time. Taking the shield (stump guard) off is just a matter of removing three little bolts, and that's no major operation.

Half-Mast

Dear Half-Mast,

We had an argument in our automotive section the other day about whether or not the fan on a GMC (2½-ton) was balanced. Some claimed it wasn't, because of the spacing of the five blades. Others said it had to be, and was. Can you settle it for us?

Pfc L. V. M.

Dear Pfc,

Here's your chance to get scientific—this little experiment will prove that the fans are balanced: Break one blade off an old fan, then put the fan on the engine and

let her run. The engine will act like "Shaky" in the Tracy strip.

When the fan is designed, it's balanced both statically and dynamically. Then the dies and jigs are made up, using the original fan as a sample, and all measurements are held to a close tolerance.

The fan blades on the GMC's are unevenly spaced to eliminate noise. When five or more blades are evenly spaced, the flow of air when the fan is in motion makes just like a siren.

Half-Mast

Dear Half-Mast,

Recently, we had to change the drive-pinion oil seal in the facing of the front differential on a ¾-ton '43 Dodge, T214, and weren't able to get a parts catalog covering the registration number of our vehicle. The only seal listed in the SNL we had (SNL G-502, 15 Mar. 43), is Dodge Part No. 856864, and is 3½" in diameter, whereas the seal we need is 4" in diameter. We would like to know the part number of the 4" seal, because all the ¾-tons we have use it.

Lt. W. C. W.

Dear Lieutenant,

The correct Dodge Part No. for the 4" seal is 928114, the Item Stock No. is G507-03-82800. You'll find it in SNL G-502 (1 Jul. 44) and SNL G-507 (1 Sep. 44). The 3½" seal you mentioned is used on ¾-ton Dodge T214's up to Serial No. 81657582, while all

vehicles with higher serial numbers use the 4" (with the exception of 81674101 through 81674747, which still use the 3½" seal).

Incidentally, the differential and its component parts for the ¾-ton, 4x4, T214 Dodge are interchangeable with those for the 1½-ton, 6x6, T223 Dodge, after Serial No. 81657582, except—here I go again—on numbers 81674101 through 81674747.

Half-Mast

Dear Half-Mast,

On the inside back cover of the August ARMY MOTORS, it states that TB ORD 106 says to put 13 gallons instead of 16 gallons of oil in the reservoir tank of M4 Medium Tanks. I'm sure this is a misprint. TM 9-731A as well as the Lube Order says 9 gallons.

We find when we carry 9 gallons in the reservoir, after the oil gets warm it foams up and runs out the breather, where the fan picks it up and throws it all over our nice clean engines. We have been carrying 8 gallons to remedy this.

Can you give me the answers?

Capt. E. F. P.

Dear Captain,

Sure can. That 13's no misprint. TB ORD 106 applied to late model vehicles only—those with a 13-gallon oil tank located in the engine compartment. The TM you mentioned is for earlier models that have a 9-gallon oil tank in the lower, right-rear portion of the fighting compartment. Since TB ORD 106 didn't make this clear, it's just been superseded by TB ORD 219, which does.

Sounds like you're getting old oil without a defoaming agent in it, or have some water in your oil. I wouldn't cut the quantity unless nothing else helps.

Half-Mast

Dear Half-Mast,

About 20% of our ¼-tons come in with cracked oil-filter brackets, so we remove the bracket and weld it back on the bottom side. The gage of the bracket is small enough to allow complete penetration when welded on one side. It's only necessary to grind down

about 1/4" of the bead so the bracket will rest evenly on all three stud shoulders.

I believe these cracks are due to the construction of the bracket—and exercise my "American right" to disagree with you when you say (in the July issue), "Don't worry about it."

M/Sgt. L.X.D.

Dear Sergeant,

Glad you did worry about it. Now, with your fix, nobody else'll have to. Willys tells me they're lookin' into a production change to make them brackets crackproof.

Half-Mast

Dear Half-Mast,

Quite a few M8 Light Armored Cars are coming from the factory with the propeller shaft and universal joint, between the transfer case and front axle, mounted with the slip-joint toward the front axle. But WD Lubrication Order 139 and SNL G-136 show the propeller shaft mounted with the slip-joint toward the transfer case. This ought to be brought to someone's attention, because it's causing some confusion among using units, and we'd like to know which is correct.

CWO E. J. R.

Dear Mr. R.,

The slip-joint should be toward the transfer case, like the Lube Order and SNL say. The manufacturer's making it a point to see that the propeller shaft is assembled that way in all future M8's and M20's. Reversing the position doesn't affect the vehicle's operation, but if the slip-joint is installed right, there'll be less wear on the splines and the prop shaft'll last longer.

Half-Mast

Dear Half-Mast,

Have any modifications been ordered for M5A1 light tanks that aren't equipped with a foot-firing device?

Also, when should M5A1 tank engines be overhauled or replaced?

Finally, in the January 44 ARMY MOTORS (News Flashes)

you claimed we could drain the final drive of the M5 and M5A1 and install whatever oil we were using in the engines, transmissions, and differential. You didn't mention what TB gives us authority to do so.

T/Sgt. T. E. F.

Dear Sergeant,

Sorry, there's no modification to give a foot-firing gadget to a M5A1 that ain't got one. The only modification is to make the foot-firing cable longer where it's too short, on vee-hicles that already got one.

When to overhaul and replace tank engines is too long a story to handle here, but you'll find it in TB 700-66 (11 Jun. 43).

Get ahold of Lube Order 81 or TM 9-732 (27 Nov. 43) for the official highsign on using the same oil for final drives, engines, transmissions and differentials. That's SAE 30 above 32° F., SAE 10 below 32° F.

Half-Mast

Dear Half-Mast,

Here's one for you. In the States, some of the boys made their vehicles look shiny and pretty by using gasoline and oil on the paint. Much to their regret they didn't get away with it. Now it's begun over here. Nothing has been said about it because no one knows just where in hell it says you can't use oil to make your vehicles look clean.

Could you help us out?

S/Sgt. L. E.

Dear Sergeant,

There's no regulation actually

sayin' you can't use grease or gas on paint. But it does destroy the camouflage value of lusterless OD, which is definitely required on vehicles (by AR 850-15).

Just point out the reason for the lusterless paint being there in the first place. Army vehicles ain't supposed to knock your eye out, especially when the enemy's looking.

Half-Mast

Dear Half-Mast,

We've been having trouble with the gas tanks on our 2 1/2-ton GMC's, model CCKW-353. The front corners of the tanks get knocked in by every stick, twig or branch in the neighborhood, then they leak all over the place.

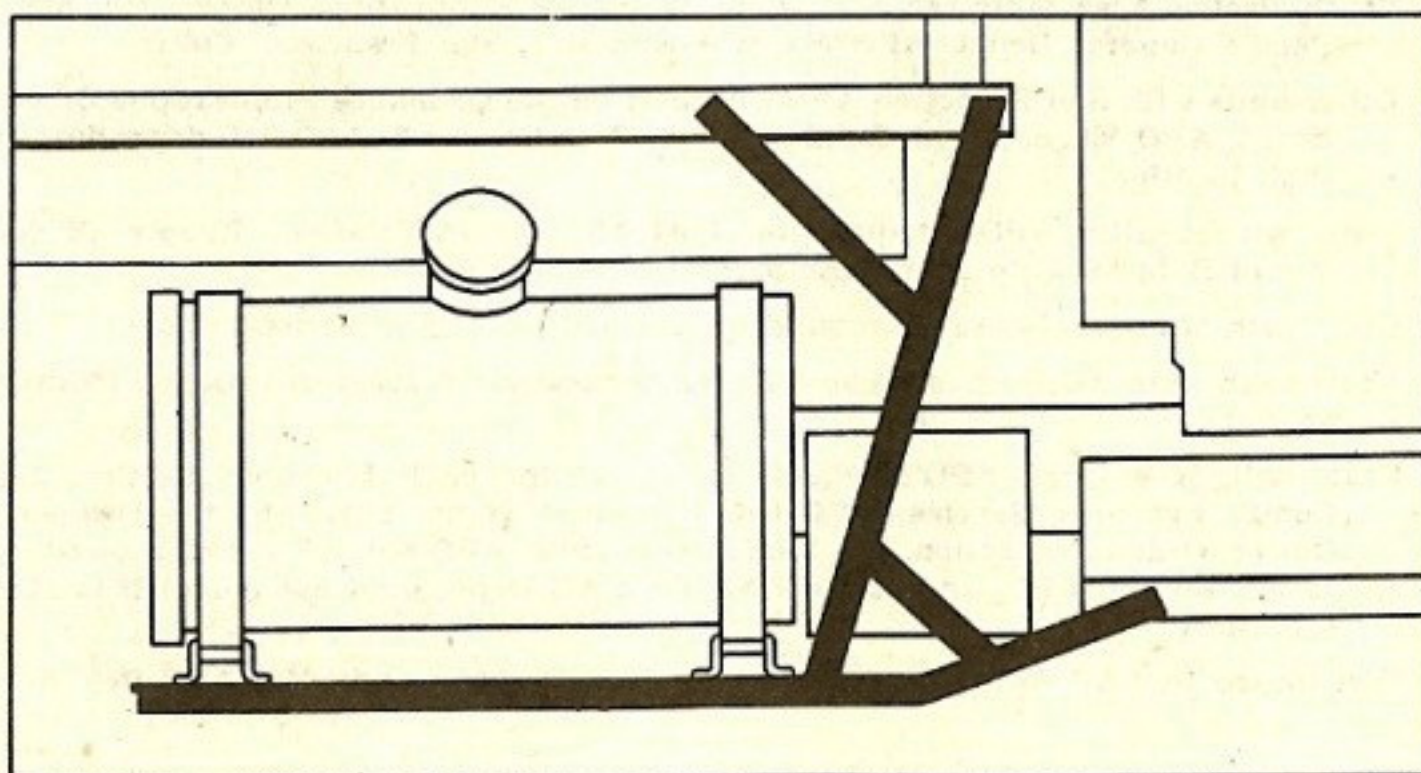
I fixed up a bracket (see Fig.) which, when bolted on, prevents this trouble. The bracket will also serve as a running-board support. How's about it?

Sgt. A. L.

Dear Sergeant,

S'right sharp idea. As long as you're doin' it, why not use a wider plate and run it from the running-board to the bottom of the tank, tip the sides up slightly and have full protection for the tank bottom? A 16 gage of 1/8" metal will do it. To brace the running-board, attach the bracket to the vehicle frame—the front end of the body is spring mounted and flexible, and vibration might damage the tank.

Half-Mast



The Month's Directives

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

WAR DEPARTMENT AGO PUBLICATIONS

AR—Army Regulations
FM—Field Manual
TM—Technical Manual
TB—Technical Bulletin

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

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

New York AG Depot, 1926 Broadway, New York 23, N. Y.
(Serves both 1st and 2nd Service Commands.)

AG Pentagon Depot, The Pentagon, Washington 25, D. C.
(Serves 3rd Service Command and the Military District of Washington.)

Atlanta AG Depot, Glenn Street and Murphy Avenue, S. W., Atlanta, Ga.

Columbus AG Depot, 42-52 So. Starling Street, Columbus 8, Ohio.

Chicago AG Depot, 111 North Canal Street, Chicago 6, Ill.

Omaha AG Depot, 16th and Cuming Streets, Omaha 2, Neb.

San Antonio AG Depot, Grayson St. Station, San Antonio, Texas.

Ogden AG Depot, 2325 Wall Avenue, Ogden, Utah.

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

Distributed outside Continental United States by Ports of Embarkation.

Ordnance TB's, MWO's, SB's, and WD Lubrication Orders distributed in the ETO by Ordnance Publications Section, Hq. ComZ, Ordnance Service, APO 887, % Postmaster, New York, N. Y.

Ordnance TM's and FM's distributed to APO 456 units by the Ordnance Publications Officer, Box 5, APO 456, % Postmaster, San Francisco, Calif.

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

ORDNANCE DEPARTMENT PUBLICATIONS

SNL—Standard Nomenclature List
Organizational Spare Parts and
Equipment (OSPE)

Service Parts Catalog (SPC)
ORD 2 OPSI—Formerly Ordnance Pub-
lications for Supply Index

Distributed through Ordnance Officers by AG Depots listed above.

South Pacific Area units request on the Ordnance Publications Officer, Hq. South Pacific General Depot, APO 502, % Postmaster, San Francisco, Calif.

Other units with San Francisco APO's request on the Ordnance Publications Officer, Box 5, APO 456, or the Ordnance Officer, Base Section 3, APO 923, depending on their location.

Units with Seattle APO's request on Port Military Publications Supply Officer, Moran Bldg., Seattle Port of Embarkation, Seattle 4, Wash.

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

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

Units with New York APO's request on (a) Ordnance Publications Section, Hq. ComZ, Ordnance Service, APO 887, if located in the ETO; (b) the Ordnance Officer, Ordnance Section, Hq. MBS, Depot 150-0, APO 600, if located in territory served by that APO; and (c) on New York AG Depot (address above) if located elsewhere.

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

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

ARMORED CARS

CAR, ARMORED, LIGHT, M8

TB 9-743-7, Periodic inspection, fly-wheel bell-housing.

SNL G-136, G-176, ORD 7, 8, 9, C5 (10 Nov. 44).

CAR, ARMORED, UTILITY, M20

TB 9-743-7, Periodic inspection, fly-wheel bell-housing.

SNL G-136, G-176, ORD 7, 8, 9, C5 (10 Nov. 44).

GUN MOTOR CARRIAGES

CARRIAGE, MOTOR, 105MM
HOWITZER, M7

TM 9-731E, Operation and maintenance (15 Aug. 44).

SNL G-128, ORD 7, 8, 9, C1 (5 Nov. 44).

CARRIAGE, MOTOR, 75MM
HOWITZER, M8

TB ORD 179, Steering-brake link-pin.
TB ORD 191, Servicing hydraulic valve-lifters.

CARRIAGE, MOTOR, 3-IN. GUN,
M10A1

TB ORD FE14, Eliminating interference between engine compartment top-door splash-shield and carburetor-air-intake manifold.

SNL G-170, ORD 7, OSPE (20 Oct. 44).

CARRIAGE, MOTOR, 155MM
GUN, M12

TB 9-751-4, Equipment list.

CARRIAGE, MOTOR, MUL-
TIPLE GUN, M16

WD Lubrication Order 132 (31 Jan. 44).

CARRIAGE, MOTOR, 76MM
GUN, M18

MWO G163-W5, Signal Corps reel assembly.

CARRIAGE, MOTOR, 90MM
GUN, M36

MWO G210-W1, Signal Corps reel assembly.

TB ORD FE14, Eliminating interference between engine compartment top-door splash-shield and carburetor-air-intake manifold.

WD Lubrication Order 156 (13 Jul. 44).

CARRIAGE, MOTOR, 90MM
GUN, M36B1

WD Lubrication Order 165 (14 Aug. 44).

CARRIERS

CARRIER, CARGO, M28

TB 9-893-2, Equipment list.

CARRIER, CARGO, M29

TB 9-772-FE1, Increasing transmission lubricant capacity.

CARRIER, CARGO, M29C

TB 9-772-FE1, Increasing transmission lubricant capacity.

CARRIER, CARGO, M30

TB 9-751-4, Equipment list.

HALF-TRACKS

(See also individual vehicle listings)

ALL HALF-TRACK VEHICLES (WHITE, AUTOCAR, DIAMOND T)

TB ORD 191, Servicing hydraulic valve-lifters.

TB 9-710-26, Correct torque reading when tightening cylinder-head cap-screws.

TB 9-710-28, Replacement engine equipped with radio suppression.

LIGHT TANKS**TANK, LIGHT, M3A3**

TB ORD 176, Turret-mounting lubrication and adjustment procedure.

TANK, LIGHT, M5

TB ORD 176, Turret-mounting lubrication and adjustment procedure.

TB ORD 179, Steering-brake link-pin.

TB ORD 191, Servicing hydraulic valve-lifters.

TB 9-732-29, Equipment list.

WD Lubrication Order 81 (16 Mar. 44).

TANK, LIGHT, M5A1

TB ORD 176, Turret-mounting lubrication and adjustment procedure.

TB ORD 179, Steering-brake link-pin.

TB ORD 191, Servicing hydraulic valve-lifters.

TB 9-732-29, Equipment list.

TANK, LIGHT, M22 (T9E1)

TB 9-724-6, New type bogie-spring plunger-blocks and hardened steel washers.

TANK, LIGHT, M24

TB ORD 191, Servicing hydraulic valve-lifters.

TB ORD 197, Ammudamp installation in ammunition container (wet stowage only).

TB 9-729-1, Engine ignition-timing procedure.

MEDIUM TANKS**TANK, MEDIUM, M4-SERIES (105MM HOWITZER)**

FM 17-76, Crew drill (15 Sep. 44).

TANK, MEDIUM, M4-SERIES (WET STOWAGE)

TB ORD 197, Ammudamp installation in ammunition container.

TANK, MEDIUM, M4

MWO G104-W112, Providing 360° vision cupola.

TB ORD 178, Grouser-compartment-plate reinforcement.

TB ORD 192, Master clutch D78123.

TANK, MEDIUM, M4 (105 MM HOWITZER)

MWO G104-W112, Providing 360° vision cupola.

TB ORD 178, Grouser-compartment-plate reinforcement.

TB ORD 192, Master clutch D78123.

TANK, MEDIUM, M4A1

MWO G104-W112, Providing 360° vision cupola.

TB ORD 178, Grouser-compartment-plate reinforcement.

TB ORD 192, Master clutch D78123.

TANK, MEDIUM, M4A1 (76MM GUN)

TB ORD 178, Grouser-compartment-plate reinforcement.

TB ORD 192, Master clutch D78123.

TANK, MEDIUM, M4A2

MWO G104-W112, Providing 360° vision cupola.

TANK, MEDIUM, M4A3

MWO G104-W112, Providing 360° vision cupola.

TM 9-759, Operation and maintenance (15 Sep. 44).

TANK, MEDIUM, M4A3 (75MM GUN, DRY)

SNL G-104, Vol. 8, ORD 7, 8, 9, C1 (5 Nov. 44).

FRIENDS! ROAMIN' COUNTRYMEN!

If you want to stay on ARMY MOTORS' mailing list, you've got to help us keep it up-to-date. Notify us immediately when you change your address—and give both the new and old addresses when you write.

TANK, MEDIUM, M4A3 (75MM GUN, WET)

TB 9-759-FE1, Clutch-housing lubrication fitting.

SNL G-204, ORD 7, 8, C1 (8 Nov. 44).

TANK, MEDIUM, M4A3E2

SNL G-225, ORD 9, SPC (10 Nov. 44).

SNL G-225, ORD 7, OSPE (27 Oct. 44).

TANK, MEDIUM, M4A4

MWO G104-W112, Providing 360° vision cupola.

TRUCKS**ALL TRANSPORT VEHICLES**

TB ORD 205, Engine valve-tappet clearance.

TRUCK, ¼-TON, 4x4 (WILLYS, FORD)

TB 9-803-5, Heavier front and rear springs and longer spring clips.

SNL G-503, ORD 7, OSPE (11 Oct. 44).

TRUCK, ¾-TON, 4x4 (DODGE T214)

SNL 502, ORD 7, 8, 9 (15 Aug. 44).

TRUCK, 1½-TON, 4x4 (CHEVROLET)

SNL G-85, Vol. 4, G-506, ORD 7, 8, 9, C4 (15 Nov. 44).

TRUCK, BOMB SERVICE, M6 (CHEVROLET)

SNL G-85, Vol. 4, G-506, ORD 7, 8, 9, C4 (15 Nov. 44).

TRUCK, 2½-TON, 6x4 (STUDEBAKER)

SNL G-630, ORD 7, 8 (1 Nov. 44).

TRUCK, 2½-TON, 6x6 (STUDEBAKER, REO)

SNL G-630, ORD 7, 8 (1 Nov. 44).

WD Lubrication Order 515 (8 Jun. 44).

TRUCK, 2½-TON, 6x4 (GMC CCW 353)

TB ORD 167, Spring-seat spacer-washer 2202834 for rear spring-seat-seal (lip-type) kit.

TRUCK, 2½-TON, 6x6 (GMC, ALL MODELS)

TB ORD FE13, Cylinder-head rocker-arm-cover reinforcements.

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

TB ORD 167, Spring-seat spacer-washer 2202834 for rear spring-seat-seal (lip-type) kit.

TB ORD 185, New-type cast-iron carburetor and flange-mounted air cleaner.

TB ORD 186, Reducing exhaust manifold failures.

TRUCK, 2½-TON, 6x6, C.O.E. (GMC AFKWX)

TB ORD 185, New-type cast-iron carburetor and flange-mounted air cleaner.

WD Lubrication Order 537 (27 Jun. 44).

TRUCK, 2½-TON, 6x6, AMPHIBIAN (GMC DUKW 353)

MWO G501-W30, Tire-pump oiling improvement.

TB ORD 167, Spring-seat spacer-washer 2202834 for rear spring-seat-seal (lip-type) kit.

TB ORD 185, New-type cast-iron carburetor and flange-mounted air cleaner.

TB ORD 186, Reducing exhaust manifold failures.

TRUCK, 2½-TON 6x6, AUTOMOTIVE REPAIR, M8 AND M8A1 (LOAD A)

SNL G-139, Vol. 1, ORD 7, OSPE (14 Oct. 44).

TRUCK, 2½-TON, 6x6, INSTRUMENT REPAIR, M10 AND M10A1 (LOAD A)

SNL G-141, Vol. 1, ORD 7, OSPE, C1 (14 Oct. 44).

TRUCK, BOMB SERVICE, M27

WD Lubrication Order 547 (23 Jun. 44).

TRUCK, 5-TON, 6x4 (GMC CCW 352)

TB ORD 185, New-type cast-iron carburetor and flange-mounted air cleaner.

TB ORD 186, Reducing exhaust manifold failures.

TRUCK, 6-TON, 6x6, BRIDGE
ERECTION (WHITE 666)
SNL G-690, ORD 7, 8 (10 Sep. 44).

TRUCK, 10-TON, 6x4, DIESEL
(WHITE 1064)
WD Lubrication Order 520 (28 Jun. 44).

TRUCK, TRAILER, 40-TON,
TANK RECOVERY, M25
SNL G-160, ORD 7, 8, 9 (10 Oct. 44).

BUS, 29-PASSENGER (IHC K-5,
KS-5)
WD Lubrication Order 545 (4 Jul. 44).

TRACTORS

TRACTOR, HIGH-SPEED, 18-
TON, M4
TB ORD 200, Track-tension standardi-
zation.

TRACTOR, HIGH-SPEED, 13-
TON, M5
MWO G162-W3, Providing gun-mount
attachment.
TB ORD 179, Steering-brake link-pin.
TB ORD 200, Track-tension standardi-
zation.

TRACTOR, HIGH-SPEED, 38-
TON, M6
TB ORD 200, Track-tension standardi-
zation.
WD Lubrication Order 147 (15 Mar. 44).

TRACTOR, SNOW, M7
WD Lubrication Order 208 (23 Mar. 44).

TRAILERS

TRAILER, 1/4-TON, 2W
TB ORD 204, Heavier springs, longer
clips.

TRAILER, 1-TON PAYLOAD,
2W, CARGO
SNL G-518, ORD 7, 8, 9 (10 Oct. 44).

TRAILER, 1-TON, 2W, AMMUNI-
TION, M24
SNL G-518, ORD 7, 8, 9 (10 Oct. 44).

TRAILER, SNOW, 1-TON, M19
WD Lubrication Order 208 (23 Mar. 44).

TRAILER, GENERATOR, M7
WD Lubrication Order 155 (1 Jun. 44).

TRAILER, 4-TON, 2W, AMMUNI-
TION, M21
SNL G-213, ORD 7, 8, 9 (1 Nov. 44).

SEMITRAILER, 5-TON PAY-
LOAD, 8-TON GROSS, 2W,
STAKE AND PLATFORM
SNL G-675, ORD 7, 8, 9, C1 (4 Oct. 44).

SEMITRAILER, 6-TON PAY-
LOAD, 10-TON GROSS, 2W,
VAN (OLSON LV-10)
TM 9-888, Operation and maintenance
(16 Oct. 44).
SNL G-545, ORD 7, 8, 9, C1 (4 Oct. 44).

SEMITRAILER, 6-TON PAY-
LOAD, 10-TON GROSS, 2W,
VAN (KNOCKDOWN BODY)
TM 9-888, Operation and maintenance
(16 Oct. 44).
SNL G-665, ORD 7, 8, 9, C1 (12 Oct. 44).

SEMITRAILER, 7-TON PAY-
LOAD, 10-TON GROSS, 2W,
CARGO
SNL G-544, ORD 7, 8, 9, C1 (4 Oct. 44).

SEMITRAILER, 10-TON PAY-
LOAD, 14-TON GROSS, 2W,
STAKE AND PLATFORM
1944 AND CONVERTER
DOLLY, 10-TON, 2W
SNL G-676, ORD 7, 8, 9, C1 (12 Oct. 44).

TRAILER, BOMB, M5
TB 9-760-FE2, Bomb hold-down U-bolts.

LANDING VEHICLES

LANDING VEHICLES,
TRACKED (LVT)
TB ORD 198, Storage battery identifica-
tion when prepared with 1.200 to 1.225
specific-gravity electrolyte.

VEHICLE, LANDING, TRACKED
(ARMORED) MK I, LVT (A)
(1)
WD Lubrication Order 141 (15 Jun. 44).

VEHICLE, LANDING, TRACKED
(UNARMORED) MK II, LVT
(2)
TB 9-775-5, Rubber self-sealing fuel
tanks.
WD Lubrication Order 141 (15 Jun. 44).

VEHICLE, LANDING, TRACKED
(ARMORED) MK II, LVT (A)
(2)
WD Lubrication Order 141 (15 Jun. 44).

VEHICLE, LANDING, TRACKED
(ARMORED) MK IV, LVT (4)
SNL G-209, ORD 7, 8, 9 (16 Oct. 44).

VEHICLE, LANDING, TRACKED
(ARMORED) MK IV, LVT (A)
(4)
WD Lubrication Order 159 (20 Jul. 44).

VEHICLE, LANDING, TRACKED
(UNARMORED) MK IV, LVT
(4)
SNL G-209, ORD 7, 8, 9 (16 Oct. 44).
WD Lubrication Order 206 (30 May 44).

MOTORCYCLES

MOTORCYCLE (INDIAN, ALL
MODELS)
TB ORD 203, Bleeding oil pump.

MOTORCYCLE, SOLO
(HARLEY-DAVIDSON WLA)
TB 9-879-2, Installation, front-wheel-
hub cone, grease seal, dowels in rear-
wheel sprockets.

SCOOTERS

SCOOTER, MOTOR, 2W, AIR-
BORNE (CUSHMAN 53)
SNL G-683, ORD 7, 8, 9, C1 (4 Oct. 44).

EQUIPMENT

GENERATING UNIT, M5 AND
M6
WD Lubrication Order 120 (12 Feb. 44).

GENERATING UNIT, M7
WD Lubrication Order 121 (21 Mar. 44).

GENERATING UNIT, M18
WD Lubrication Order 155 (1 Jun. 44).

GENERAL

AR 600-81, Qualification badge, motor-
vehicle driver and mechanic
(22 Sep. 44).

AR 850-60, C2, Compressed-gas cylin-
ders, safe handling, storing, shipping,
using (10 Nov. 44).

FM 7-35, C1, Antitank Company, Infan-
try (13 Nov. 44).

FM 9-16, C6, Ordnance field mainte-
nance (16 Oct. 44).

FM 21-6, Training publications
(1 Oct. 44).

FM 21-7, C7, Training films (1 Sep. 44).

FM 21-8, C2, Military training aids
(18 Sep. 44).

FM 21-8, C3, Military training aids
(2 Oct. 44).

TC 67, Stabilizers in armored vehicles
(25 Oct. 44).

WDC 421, Ordnance vehicles, storage of
used antifreeze (26 Oct. 44).

WDC 429, Supply sergeant (3 Nov. 44).

TB ORD 173, Unit replacement and re-
pair time-guide for wheeled vehicles.

TB ORD 205, Transport vehicles, engine
valve-tappet clearance.

WD Publications Lists, Index to General
Orders, Bulletins, Circulars (Oct. 44).

SB 9-5, Disposition of excess and un-
serviceable Ordnance general supplies
(16 Sep. 44).

SB 9-5, C1, Disposition of excess and
unserviceable Ordnance general sup-
plies (28 Oct. 44).

SB 9-9, Current Ordnance OFSB's and
FSMWO's (5 Oct. 44).

SB 9-16, General supply, automotive
materiel winterization equipment
(5 Oct. 44).

SB 9-31, Rust-preventive materials
(19 Oct. 44).

SB 9-32, Issue of materiel not meeting
serviceability standards (17 Oct. 44).

SB 9-34, Identification of Willys and
Ford 1/4-ton, 4x4, clutch-release-bear-
ing assemblies (19 Oct. 44).

SNL G-27, ORD 6, Sec. 2, Automotive
and semi-automotive maintenance
tools (1 Oct. 44).

SNL J-2, ORD 5, Cutting, boring and
tweezer tools (18 Oct. 44).

SNL K-1, ORD 5, Cleaning, preserving
and lubricating materials; recoil flu-
ids, special oils, and miscellaneous
related items (16 Sep. 44).

SNL K-2, ORD 5, Soldering, brazing,
and welding material, gases and re-
lated items (23 Oct. 44).

PERPETUAL INDEX

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

SUBJECT	DEC. 44	NOV. 44	OCT. 44	SEP. 44	AUG. 44	JUL. 44	JUN. 44	MAY 44	APR. 44	MAR. 44	FEB. 44	JAN. 44
ACCESSORIES	261, 267, 277	229, 245, 254, 256	197, 218	178, 181	129, 133, 134, 146, 152	97, 111	75, 82	52, 53, 54, 58, 59, 3C	2, 6, 7, 30	326, 344	293, 303, 311	264, 268, 277, 3C
AMPHIBIANS	2C, 261, 264	231, 3C	193	161, 187	134		96			321, 323		
AWARDS	288	256	224	192		121, 3C	96, 4C				310	280
AXLES	262, 279, 284	2C, 228	202	190	134, 150	121	78, 91	36, 56	9	326, 330, 345, 346, 3C		263
BATTERIES		242, 247, 3C	218	185	133, 146	97, 100, 115, 3C	74, 96	3C	26, 27	346	309	277
BODY		226, 230, 251	196, 200, 215		129, 133, 149, 151	100, 105, 120, 128	85, 3C	38, 52	6, 30	345, 4C	294, 309, 310	279
BRAKES		225, 231, 246	193, 215	165	149, 151	101, 111, 115, 118, 120	69, 78, 83, 87	46, 52, 57	7, 9, 22, 24, 27	342, 344	308	278, 281
CAMOUFLAGE				168			90				293	
CHASSIS	258, 266, 267, 284	242, 246	198, 206, 217, 218, 3C		139, 152	100, 122			4, 24	326	293, 3C	277, 280, 3C
CLUTCH	262, 265	226			131, 150	98, 101, 102, 122			25	325, 343		273
CONSERVATION	262									326, 343	308	3C
COOLING SYSTEM	283	2C, 249	215, 216	166	132, 149	104, 114, 115	68, 69, 72, 93	58		322, 339	308	258, 3C
DOCTRINE	2C, 262, 268, 280, 4C	2C, 250, 4C	2C, 219, 3C	2C, 179, 184, 4C	132, 139, 144	2C, 106, 108, 4C	2C, 65, 66, 70, 87, 90	2C, 39, 44	12, 14, 24, 26, 32, 3C	2C, 336, 345, 3C	2C, 296, 298, 312, 314	261, 280, 281, 282
ELECTRICAL	260, 280	238, 242, 248, 250, 251	204, 214, 216, 217, 218, 219	165, 179, 180, 184, 185	139, 141, 149	100, 102, 114, 115, 118, 121	68, 70, 84	36, 51, 52	22, 24, 30	324, 326, 342, 347, 3C	298, 309, 314, 320	277, 279, 3C
ENGINE	264, 278, 282, 284, 288	226, 227, 242, 249, 3C	201, 205, 207, 214, 219, 222	164, 167, 175, 179, 181, 3C	133, 134, 139, 146, 149, 153	99, 102, 114, 119, 122, 123	68, 72, 79, 83, 84, 94	36, 37, 56, 57, 58, 4C	4, 16, 23, 24, 26	324, 327, 343, 345, 346	293, 295, 298, 312, 313, 3C	262, 264, 265
EQUIPMENT	280, 283, 284, 3C	246, 3C	197, 199, 214, 222	164, 166	134, 146, 152, 3C	120		33, 37, 40, 43, 53, 57	2, 4, 23, 24	3C		272, 281, 288
EXTINGUISHERS						116						264
FINAL DRIVE	257, 284, 288	2C	202, 208, 216, 3C	162, 163	134		91		4, 3C			3C
FORMS	281, 3C, 4C	2C, 229			152, 154, 4C	112	89, 3C	39	12, 25, 32, 3C	2C, 323, 327, 3C	296, 309	261
FUEL SYSTEM	280, 283	227, 247, 251	219	184, 186	132, 134, 146		74, 83	36, 53, 56	6, 22, 23, 26	342, 345	311, 313	262, 281, 3C
IDENTIFICATION	261				133, 149	121, 123	3C	37, 3C		341, 346, 3C	293	263, 264
INSPECTIONS					153, 3C					327		262
INSTRUMENTS	280	230	205, 3C	3C	131, 139, 146, 151, 3C	100, 115, 119	71	56				
LUBRICATION	257, 260, 261, 265, 284, 3C	225, 226, 228, 249, 3C	202, 203, 211, 217, 219, 3C	162, 163, 175, 179, 185	134, 150, 152, 153, 154	99, 102, 103, 114, 122	78, 87	57, 58	2, 3, 4, 26, 27, 30	326, 327, 330, 345, 3C, 4C	298, 309, 313, 3C	257, 263, 265, 282, 3C
MOTORCYCLES								3C	30, 3C			286
OPERATIONS	278	226, 242	196	175	129, 134, 144, 153, 154	104, 105, 111, 114, 115	65, 72, 3C	2C, 38, 53	5, 9, 25, 26, 32	321	293	262, 264, 273
ORGANIZATION		3C				123	88		25, 4C			
PAINT	260	251	218			119	71	52	3C	341	293, 312	280
PERISCOPE					131				1			
PRESERVATIVES	260			3C	132							
PROCUREMENT									11, 30		293	274, 281, 3C
PUBLICATIONS	268, 284, 285, 3C	249, 251, 252, 3C	196, 197, 214, 220, 3C	185, 187, 188, 3C	2C, 150, 155, 156, 3C	114, 122, 123, 124, 126, 3C	69, 86, 88, 89, 92, 3C	37, 39, 55, 57, 58, 3C	2C, 13, 21, 28, 32, 3C	2C, 323, 348	294, 296, 301, 316	260, 274, 284
RADIO	270		204, 207, 217	175		114	67, 76			341	289	
RECLAMATION				166, 181		106	80				309	
SALVAGE						118	80, 85, 91			343		
SOLVENTS			218	3C		128			30			
STEERING	278		194, 202, 203, 215	161		121	84, 88	46	9, 22, 23, 27	342	313	278
STORAGE				3C			68		5	3C	313	
SUPPLY		249, 250	216, 219	185, 3C	142	108, 112, 118, 4C	84	52	11, 14, 30, 3C	336	295, 3C, 4C	264, 274, 282, 283, 3C
TIRES	3C	247, 250, 251	219	165, 3C	134, 138, 152	97, 119, 120	75, 83	34, 52	22, 23	324, 333	303, 308, 311	282, 288
TOOLS	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	271, 272, 277, 278, 282
TRACK	3C	240, 242, 3C		175, 182		104	82, 88, 89, 91	42		350	306, 315	268, 288
TRAILERS	260	2C, 225, 228, 247, 250	196, 206, 216	165, 192	144	111, 118, 120	77, 82, 93	59	7, 29	343, 352	318	286
TRAINING	278, 280					118, 3C	2C, 94	37, 53, 57	4C	321	2C, 293, 320, 4C	2C
TRANSFER CASE	283		197, 204		150, 154		87, 91	36, 38, 3C				263
TRANSMISSION	261, 263	246, 248	204, 208		139	97, 110	69, 79, 87				311	
TURRET	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	278, 282
WINCH	279, 282		198	179	139, 151	103, 104		52		325	312	278

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

Oil-Snaffed Autocar Clutches

TIP OFF BY LT. FRANK WALLACH, APO 558

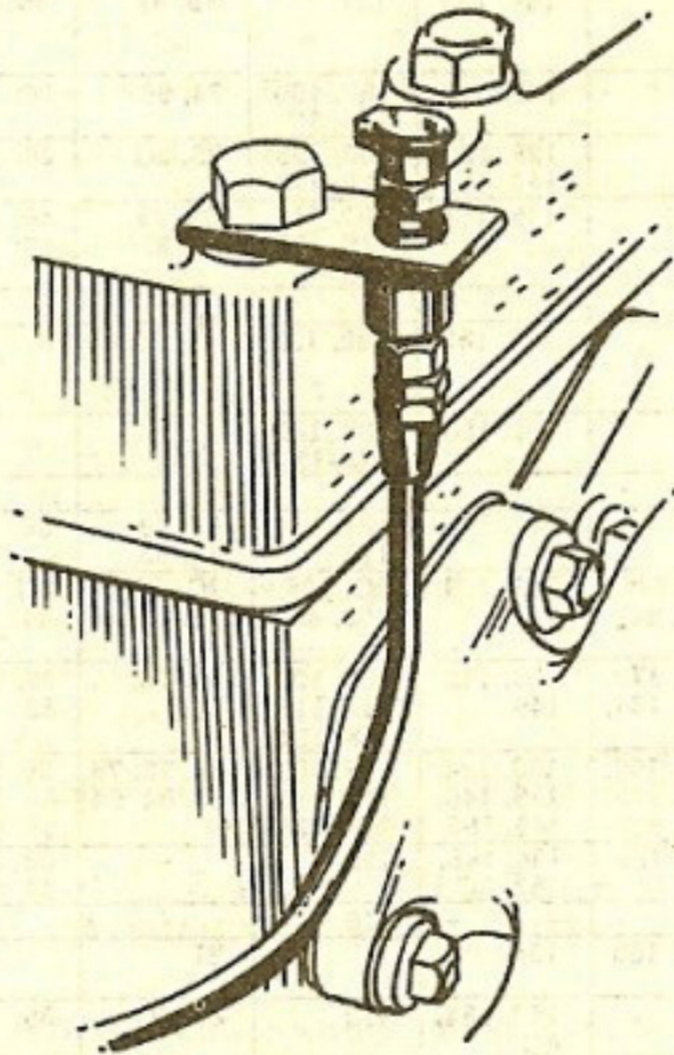
Have you been bothered with the clutch slipping, grabbing, and chattering on your 4-5 ton Autocar tractor-truck? (Or 2½-ton 6x6 Reo?)

The reason for your trouble may be—probably is—oil all over the clutch face.

The release bearing on the Autocar clutch is lubricated through an oil cup located at the right-rear of the cylinder head (see Fig.). A long tube runs down from the oil cup to a pan or trough which supplies oil to the release bearing. Ordinarily, you'd expect there'd be a wick down in the tube to the release bearing. But no.

The lubrication instructions in the Autocar manual say, "This oil reservoir should be refilled weekly or every 250 miles, using light engine oil." WD Lubrication Order 9-816 (formerly WDLO No. 502) says 1000 miles.

A driver or greaseball might stand up there and pour a gallon of oil into the cup and down the



tube trying to "refill" the oil cup. Meanwhile, all the oil is running down into the neighborhood of the clutch. When the truck is started and things start spinning around, oil may be thrown over

the clutch facings. About the same happens on the 6x6 Reo.

You'd discover all this when you found your clutch slipping, grabbing, and chattering. And the only thing to do with oil-soaked clutch facings is—replace them.

To put the nix on all this, word from Washington is that the Lubrication Orders will be immediately changed to read, "15 to 20 drops only" where it says to lubricate the clutch release bearings every 1000 miles. Item 50 (clutch release bearing) on the lubrication chart in the maintenance manual should also be changed from the "250 or weekly" column to the "1000-mile or monthly" column. Change the detailed instructions, further along in the manual, to read "add 15 to 20 drops to the oil cup every 1000 miles." You might also tie a caution tag to the tube.

This particular case is proof that some assemblies can be over-lubricated, as most of us sooner or later find out.

STUCK BOWS

(Continued from page 291)

tered-up pockets is one that Pfc David Uehlein, Como, Miss., uses. He takes a thin pipe about 4 feet long and attaches it to a compressed-air hose. Then he pokes it around in the pockets while forcing the air through and the dirt out.

With larger drainage holes in the pockets to keep them clean and dry, and with the bows planed down to a proper size, they should behave the way the book says they should've been behaving right along—sliding in and out, free and easy.

CONNIE RODD

(Continued from page 294)

The bolts along each side of the ambulance body are easy to get at, and it takes only a minute or two

to check and tighten them. I've found that from 35 to 40 ft.-lbs. on the torque wrench is just about right. To make sure they're kept tight, include them in your regular monthly or 1000-mile inspection routine.

If those bolts have already worked loose while you weren't looking, and those welds have already broken, simply reweld and repaint them. Stopping a leak at the roof-panel moulding takes a bit longer: First, remove the windshield header-panel cover-plates. After removing the paint from the moulding and the metal around it, weld the moulding to the roof and cowl panels (don't forget to protect the windshield-wiper motor and hose with a piece of sheet asbestos). Solder over the weld and smooth it. Repainting the moulding finishes the job, except to replace the cover plates.

BEFORE WE'D TAKE OUR DUCK INTO COMBAT...

(Continued from page 298)

keeping life preservers and jackets in good shape. They tell us it comes in blue for life jackets and white for life preservers.

All these things we have mentioned as being fanny-savers in the operation of the duck are not just things we've dreamed up—they are the results of observation all the way from the Solomon Islands to the GM duck school in Detroit, Michigan, U.S.A. Most of them are just little things, but it takes just such little things to undo such a big thing as a 2½-ton DUKW. If it was our duck and our fanny, we'd make good and sure of each and every one of these points before venturing out on the briny.

• • NEWS FLASHES • •

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

You know what a petroleum-base fluid in your hydraulic brake system will do to the rubber parts of that system? It'll swell up the rubber and rot it out in nothing flat.

Reason we bring the matter up is that a lot of surplus AAF hydraulic brake fluid is being put up for sale on the open market. This brake fluid is a petroleum-base fluid designed for use **only** in aircraft brake systems which use synthetic rubber.

If you're in the habit of making local purchases, be sure you don't pick up any of this stuff—there's no warning on the containers against using it in automotive brake systems. And if you do, you'll sure be sorry.

Buy authorized merchandise only. Accept no substitutes.

* * *

The first edition of the new **FM 21-6** (1 Oct. 44) is being distributed at you—new giant format (8" x 10³/₄")—some changes in listings, etc. Better look it over—it's your check on all current FM's, FT's, WDLO's, MTP's, TB's, TM's and TC's. It also has an index of publications arranged by vehicle. From now on, you'll be getting a complete, up-to-date FM 21-6 each month—no more monthly supplements to litter up your memory and your files.

Hang on to your old FM 21-6 (1 Feb. 44) and all its seven changes, though. You'll need it to check MWO's, SB's, and WD Pamphlets until **WD Pamphlet 12-6** comes off the press. That's goin' to be the index for all those publications and some more, too—WD General Orders, Bulletins, Numbered Circulars, Mobilization Regulations, and Readjustment Regulations. We'll flash you the news when it's ready.

* * *

Don't interchange magnetos between Continental R975-C1 and R975-C4 engines, warns **TB ORD 210**. That's asking for engine failure.

You can usually identify C4 mags by a large white "C4" painted on the side of the housing. But just in case that's been rubbed off, better check the numbers on the specification plate:

For the R975-C1 engine, Scintilla magnetos are marked VAG9DFA, 2-1071-4, or VAG9DFA, 2-1071-6. American Bosch mags are marked MJT-9A-304 or MJT-9A-306.

For the R975-C4 engine, Scintilla mags are marked VAG9DFA, 2-1071-2; VAG9DFA, 2-1071-3; or VAG9DFA, 2-1071-7. American Bosch are marked MJT-9A-308.

If your new M24 Light Tank has grease smeared all over the door-race assembly in the commander's vision cupola, clean it off with dry cleaning solvent. Those ball bearings are stainless steel and won't rust, so they don't need to be protected with grease. Quite the contrary—dust or sand particles that are blown around the vision cupola will mix with the lube and in short order you'll have one devil of a time traversing the thing.

* * *

Bearings are still way up high on the list of critical items. So peel your eye for **TM 9-2856**, "Maintenance of Ball and Roller Bearings," due out any day now.

This new manual will tell you how to handle bearings, how to determine whether or not they're in good shape, and how to reclaim them if they're not. Three things need bearing in mind: (1) Keep them clean—anything that touches bearings (including your lily-white fingers) must be dirt-free. (2) Keep them properly adjusted—too tight, and they'll overheat—too loose, they'll jolt and jar around. (3) Last but not least, keep bearings lubricated the way the vehicle Lube Order says.

* * *

Some outfits are having an epidemic of spring breakage on their 1/4-ton, 2-wheel, cargo trailers due to rough going and required overloading. Heavier springs (10 leaves instead of 8) and longer clips are now being used in production on these vehicles. You'll be able to get these new springs and clips in the field, too—but they'll be supplied first where they're most needed. When the present stock of lighter springs is used up, the heavier springs'll be available to everyone. Part numbers are listed in **TB ORD 204**.

If you get the heavier springs, remember to install them in pairs. Don't trail along with a light spring on one side and a heavy on the other.

* * *

TB ORD 191 clears up the problem of cleaning up hydraulic valve-lifters on M5, M5A1, and M24 Light Tanks; M8 Howitzer Motor Carriages; and Half-Tracks built by Autocar, White, or Diamond T. Seems that some people have been throwing away their dirty old valve-lifters rather than clean them, because valve-lifters look like they're too complicated to fool with. That's where they're wrong, and the TB shows you why.

WAR

WARM I

WARM IT U

WARM IT UP BEF

WARM IT UP BEFORE YO

WARM IT UP BEFORE YOU DR

WARM IT UP BEFORE YOU DRIVE I

WARM IT UP BEFORE YOU DRIVE IT AWAY!