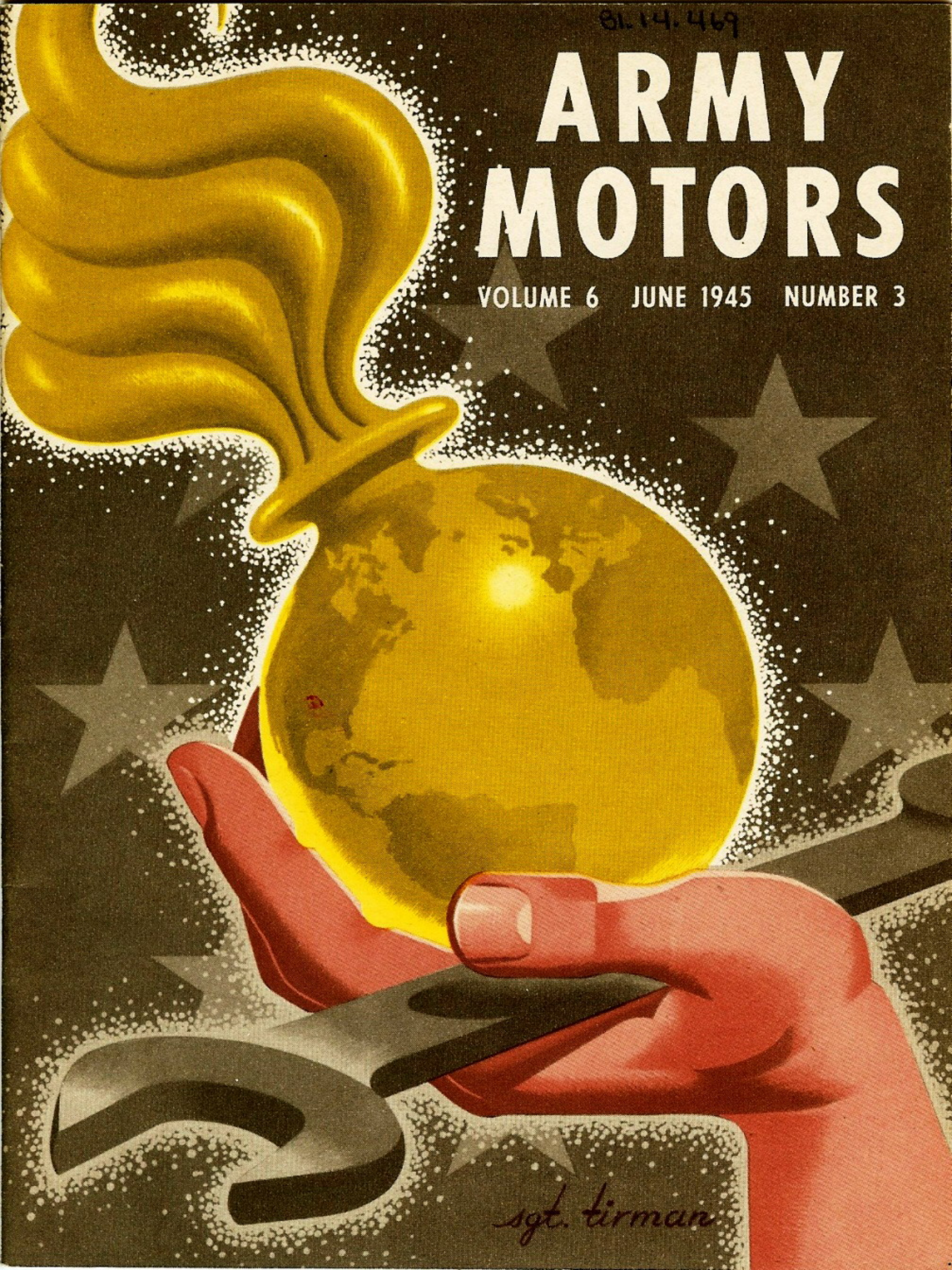


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ARMY MOTORS

VOLUME 6 JUNE 1945 NUMBER 3



sgt. tirman

Who Is A Hero?

Who was the unknown genius who wrote, "Many's the battle was won in the motor pool"?

If you were in Germany the last half of April, you saw it happen: The 4-5-ton tractors and 10-ton semitrailers rolling themselves groggy with ammo, gas, and rations. The 2½-ton busting their tails along the autobahns. The gasoline tankers flying around those blind corners in the little stone villages.

Man, it was a big time. But the thousands of tons of stuff carried up over the Adsec Express and Yellow Diamond Highways fed the spearheads—the armored columns didn't have to stop and wait for the supplies to catch up.

"Many's the battle was won in the motor pool." Maybe a lot of the guys driving those trucks didn't know what they were part of, and maybe some of the mechanics pushing themselves to get the trucks back on the road couldn't think of anything but home. But, whether they knew it or not, they were part of what the history books in ten years will call "the vast and onrushing Allied armies that finally smashed the Nazi legions and ended the Hitler dream of world conquest."

Horsh, you say? Brother, did you get a look at some of those concentration camps and slaughterhouses in Germany? The roasted bodies hanging on the wire; the crazy, diseased skeletons still moving around? Think for a while, brother—they might have been us. That's what you were fighting with your truck and your socket wrench.

Maybe it's hard to think of yourself as a hero when every once in a while you got a glimpse of what the infantry went through. But ask yourself again, did the trucks you drove and RFI'd bring the shells and food and ammo to the front where they were crying for it? And what could they have done without it?

Hero? Hero? Who is a hero? When you finally get back home and somebody asks, "What did you do in the war, soldier?"—you can just shake your head and answer, "Oh not so much. I was just a truck driver or just a mechanic. We only got strafed three times, and once two bombs dropped in our area—but they didn't go off."

But deep down inside, you'll smile and smile. Because you got a secret.

"Many's the battle was won in the motor pool."



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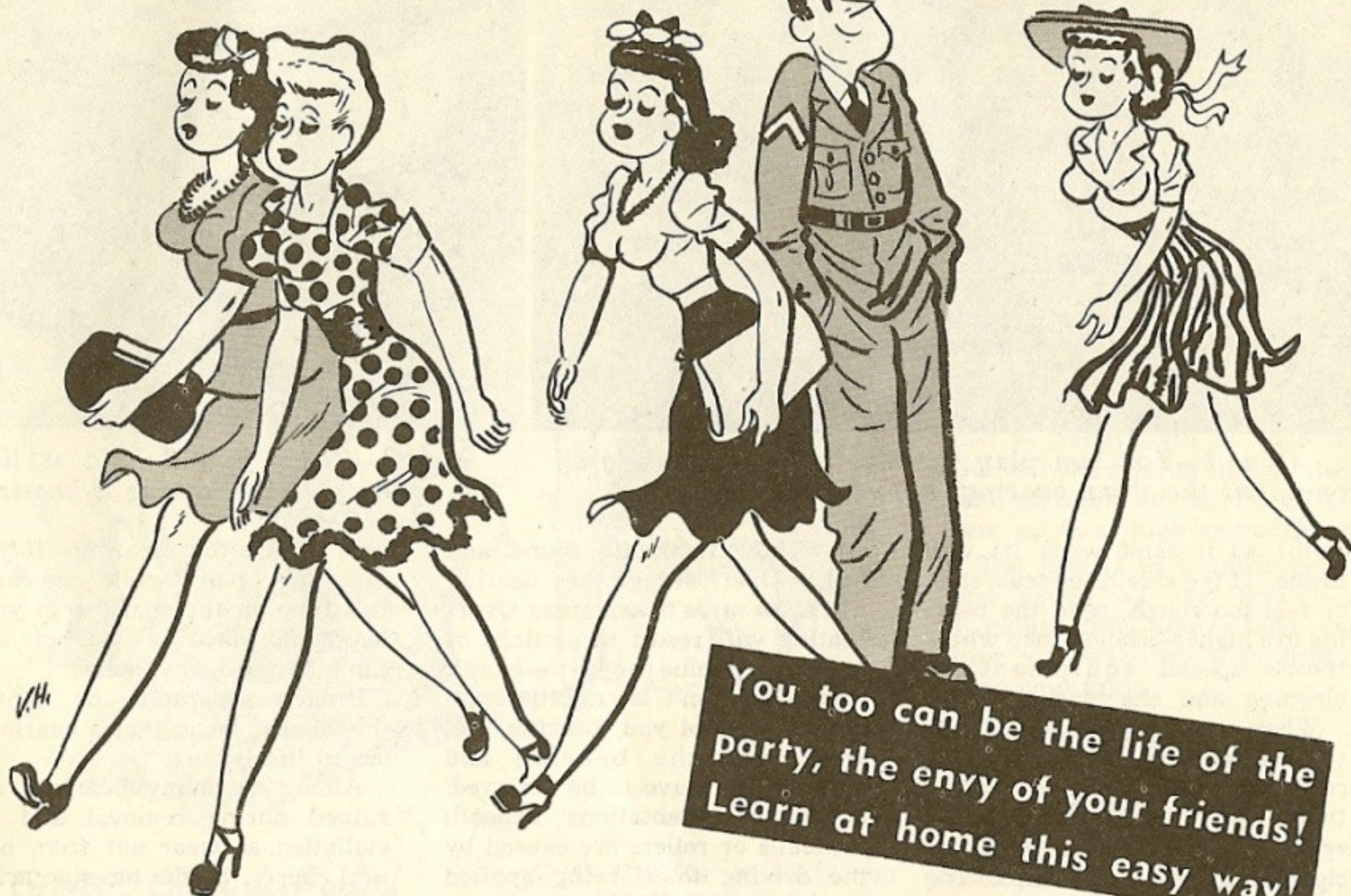
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ARMY MOTORS MAGAZINE is printed monthly with the approval of the Bureau of the Budget, Executive Office of the President. It is published in the interest of organizational maintenance by the Preventive Maintenance Branch, Maintenance Division, Office,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

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

Be A Bearing Expert



So you can't always get your bearings, eh? Well, it just might be because too many people make a habit of saying, "Hmm, might as well throw these damn things away and put new ones in," every time they pull slightly-used bearings out of a vehicle. If there were more bearing experts, there'd be a lot more bearings.

First thing a bearing expert needs to know is how to tell the good from the bad. As the wise prof at the girls' school said to his assistant, "You teach 'em what's good and I'll teach 'em what's bad." This little briefing aims to do both. For further details, see TM 37-265 (Jan. 45).

Before you can tell if a bearing is shipshape, you have to clean it—and the best stuff to use is clean dry-cleaning solvent or Diesel fuel, in a clean container. Slosh the bearing around a bit and it'll probably come out looking as sharp as a pin-up. If there's hardened grease or sludge that's reluctant to leave its new

home, heat up some OE 10 to about 180°-200° F. and soak the bearing in it for a while. Then—and here's the dangerous part—use an air gun to blow out the solvent or oil and old grease. **But not to spin the bearing.** For some reason, a mechanic with an air gun and a bearing feels like a ten-year-old with a snowball and a top hat at point-blank range.

Okay, so you've got your bearing clean—and the solvent completely removed. Now squirt a few drops of oil on it so you won't scratch the thing while you're examining it.

A nice easy way to see if the bearing is worn out from normal use is to note its color. An undamaged bearing is bright and shiny like a new nickel. The balls and race of a bearing that's a little loose due to wear are a dullish gray (Fig. 1). If you're still not sure about the bearing, use your head by using your fingers to feel for roughness or scratches. Squeeze the inner and

outer races together to get a firm contact at the point of pressure and roll the bearing around slowly. If it's rough or scratched, you'll be able to tell soon enough. After doing this with a few bearings, you'll win your bar as a Grade A, No. 1 bearing-feeler.

Don't depend on looseness alone to tell you the worth of a bearing, because not all looseness is due to wear. Over a long period, some dirt will get into the grease and form a lapping compound which'll decrease the diameter of the balls or rollers and change the size of the races. However, some bearings, especially single-row bearings, are made loose because they're intended for a heavy press-fit on a shaft and will expand enough to eliminate the looseness when they're mounted.

Bearings with seals or shields on each side are about the easiest kind to care for. You don't have to clean them so thoroughly—just wipe off the dirt (with a clean

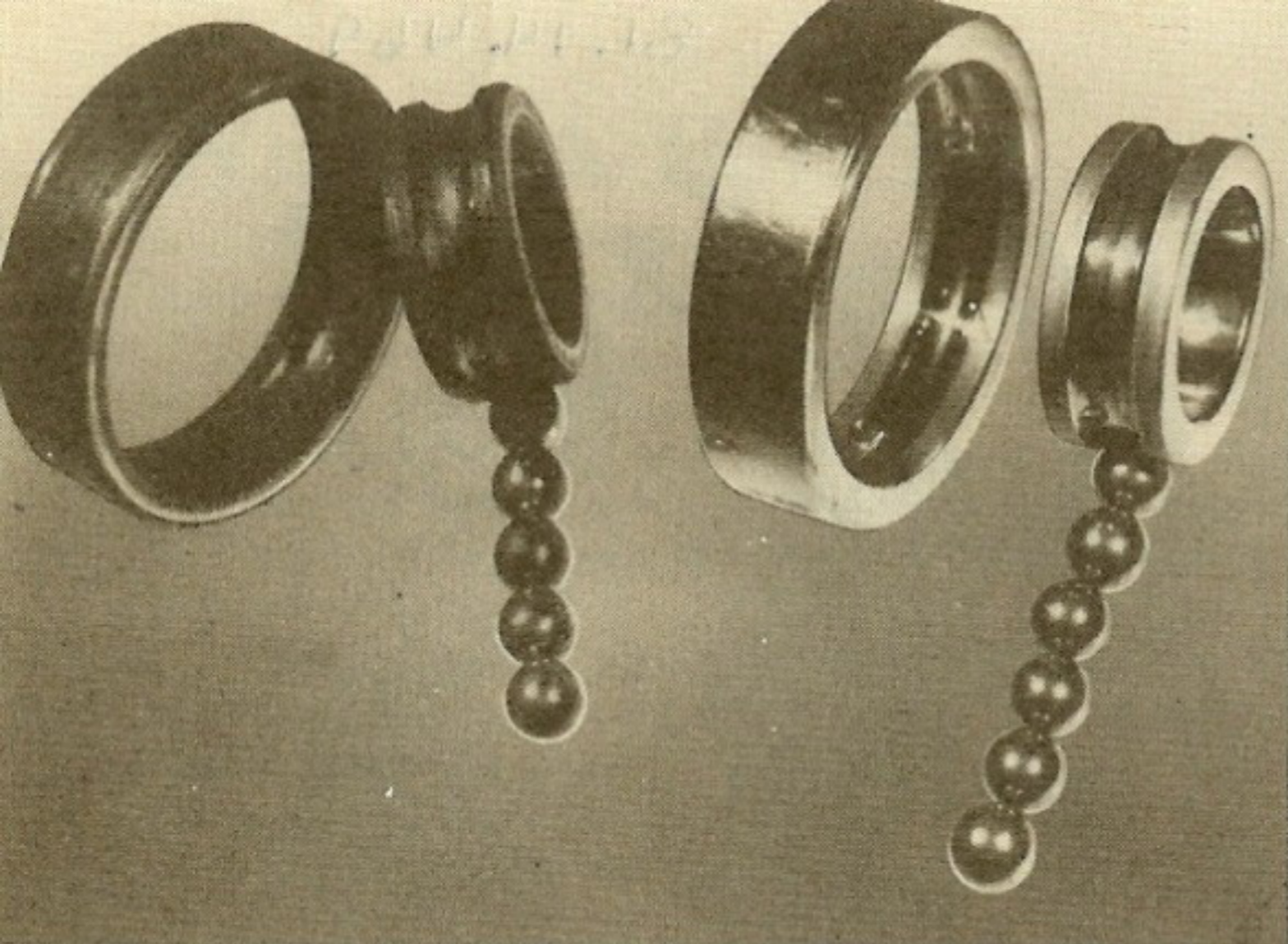


Fig. 1—You can play marbles with the dull gray ones, but the shiny bearings have lots of use in 'em.

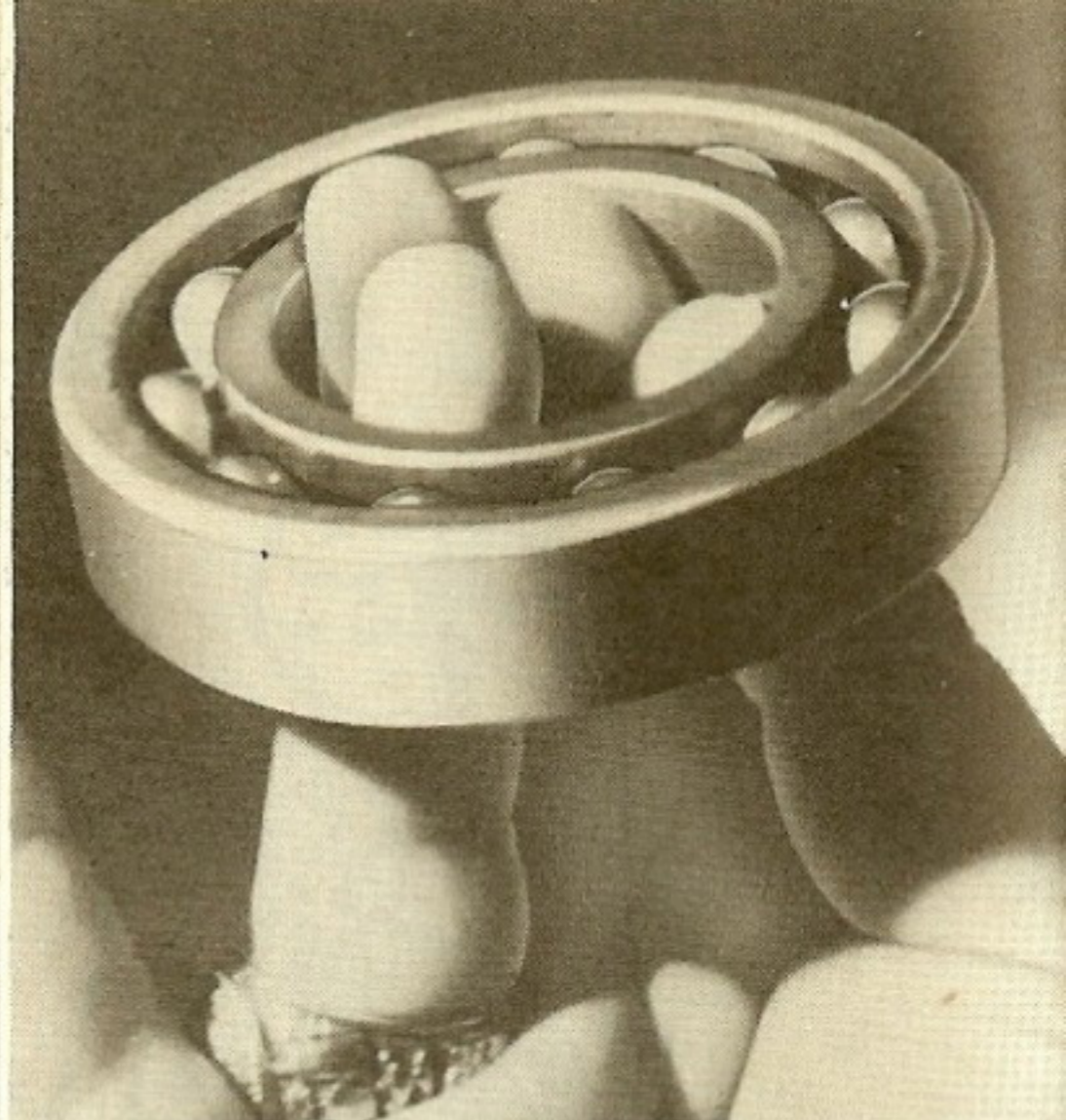


Fig. 2—Clean it and hold it like this when you're checking a bearing.

cloth) so it can't work its way inside. If the shields or seals stick or feel too rough, send the bearing to a higher-echelon shop where there's special equipment for cleaning and checking them.

When you run across bearings that can't be removed from the shaft or housing, you can clean them by rotating them slowly while flushing with OE 10 (a clean stub brush will help). The oil should be heated to about 200° F. In tough cases where this won't remove all the sludge, use solvent to wash the bearing. Follow this through with another flushing of engine oil so the solvent won't hang around to dilute the lubricant used on the shaft or in the housing.

Here are some things to stop, look, and listen for that will call for replacement. To check the bearing, hold it as posed in Fig. 2. You can spot roughness by spinning it—after it's been cleaned, of course. If you hear too much noise and feel vibrations traveling to your hand, and the bearing stops quickly instead of coasting to a gradual stop, it's defective and must be replaced. (Try this with a new bearing sometime, so you'll

know how it **should** sound and feel.) Overloading the bearing will show up as flaked areas. Overheating will result in sections of a brownish-blue or blue-black color—but don't let a little stain or tarnish fool you, because that won't hurt the bearing and doesn't even have to be removed. Nicks or indentations beneath the balls or rollers are caused by the driving force being applied directly to the balls or rollers instead of to the press-fitted ring. Bearings which vibrate or travel through a small arc will show the same effects. Dirt, chips, or carbonized lubricants will also produce dents. Little etchings or corroded spots are a result of water or acid in the bearing.

In addition to all the other things, watch out for side play

in a double-row bearing. If you feel side play while checking this type on the shaft or in your hand, the bearing is shot and can't be used any more.

Broken separators or dented shields also mean that a bearing's useful life is over.

Almost as many bearings are ruined during removal and installation as wear out from natural causes. If you have an arbor press and bearing pullers, or a piece of pipe the right diameter, that's fine—use 'em—but a good substitute is a hammer and a soft-brass drift. In replacing a bearing, start it square with the rounded-corner radius going first. Remember always to apply the force to the seated ring (Fig. 3). Hitting the wrong ring will cause the force to be transmitted through the balls or rollers and

will damage them—or else you're apt to cock the bearing and split the ring. Use many quick taps with the hammer instead of a few hard socks. Better not use a soft-metal hammer or a wooden mallet, 'cause chips may fall into the bearing—and keep an eye on the drift so it doesn't chip. Above all, never use a

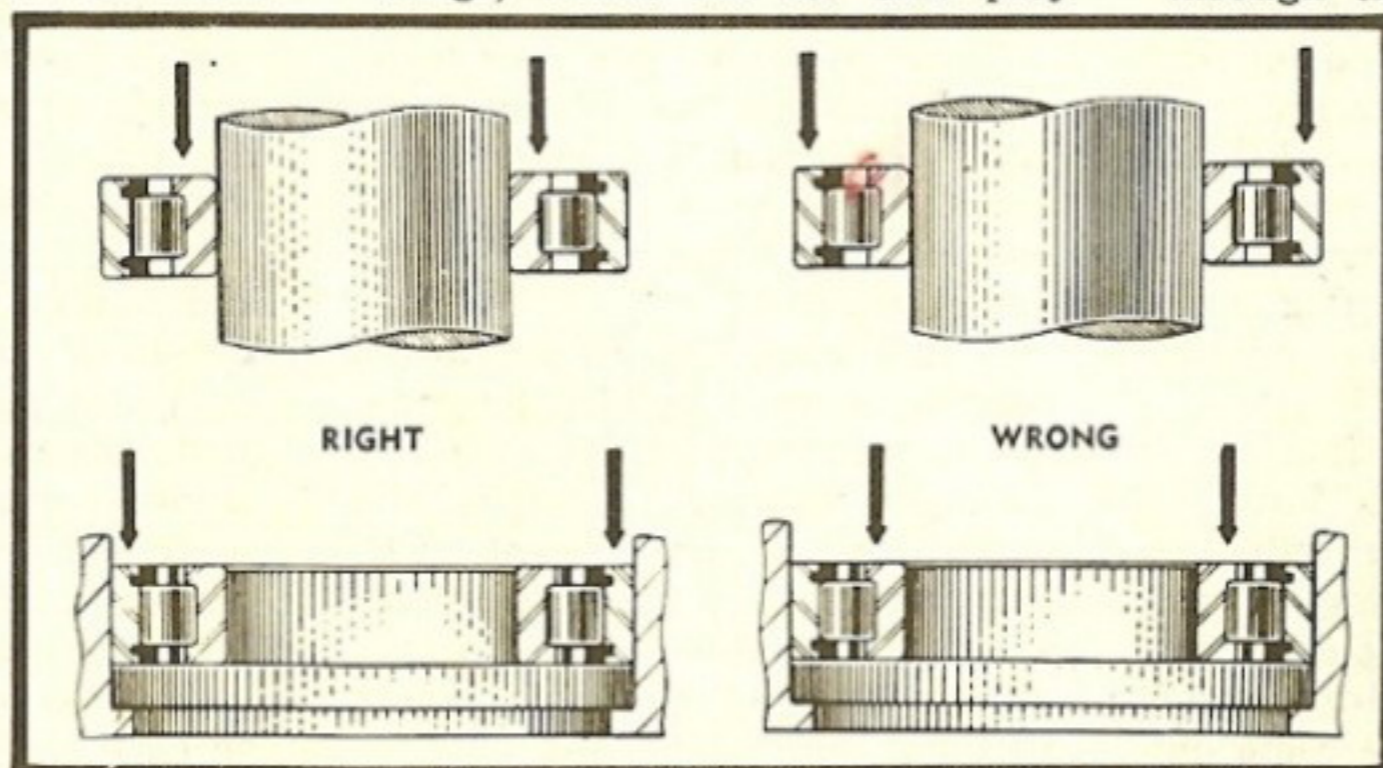


Fig. 3—Always apply the force to the seated ring—and you'll never be caught cocking the thing.

(Cont. on page 84)



GMC Clutch-Pedal Adjusting Links

In the April ARMY MOTORS, we told you about replacing your 2½-ton GMC clutch floorboard-bumper with a higher one to save the diaphragm spring. This higher bumper, of course, affects the adjusting link. And some busy boy uncovered the fact that when you install the higher bumper, you should also be sure to use the longer adjusting link, which'll give you 7/16" adjustment length. With the short one you'll get only ½" adjustment, which means that you'll be replacing clutch facings before they're worn.

The short link, up to now, has been used in production, while the long one's been provided for servicing in the field. If the link has never been replaced on your GMC, you're probably still using the short one.

Here's how you can tell these links apart: The short link (Mfr's Part No. GM-598342, Item Stock

No. G085-3210860) is 3¼" long with a 1-13/16" threaded length. The long link (GM-2061689, Item Stock No. G501-0276555) is 3-9/16" long with a 2½" threaded length. Up to now, both links have been dumped into the same bin under Item Stock No. G085-3210860, so it'd be smart, when you requisition, to specify the long link by size as well as by number.

Using the long link with the higher bumper will save wear 'n' tear on parts supply and on yourself, since you'll have more threads for adjusting and won't be throwing out clutch discs before their time.

There are several things, by the way, that might affect that higher bumper. When you install it, be sure the floorboard is straight, and the engine (including the transmission strut-rod) and cab are aligned. A bent or bulged floorboard'll increase or decrease pedal travel. Also, the engine and cab mountings must be tight and in good shape. If these mountings are broken, loose, or worn, the

bouncing of the engine and cab will change the position and movement of the clutch pedal in relation to the other clutch parts. This'll affect clutch operation. And since the higher bumper means closer controls, you have to be extra-sure they're right.

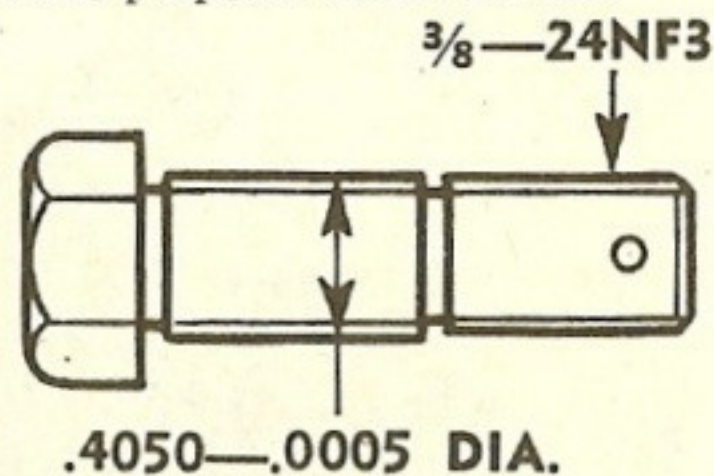
No More GO 80

Probably you're wondering why there's no mention of universal gear lube, SAE 80, on recent lube orders and practically none of the stuff to be had. Here's the story: Grade 80 gear lube is strictly a has-been—it's off the list and almost gone from stock. You'll be just as happy with its successor, GO 90, which lubes like a lulu in temperatures all the way from zero up to as high as you please.

The idea is to simplify supply and save you the trouble of switching from lube to lube every time you wake up with frost in your chin-grass.

M4 Prop-Shaft Flange Bolts

Heard about the new larger-waistline propeller-shaft-companion-flange bolts a lot of combat vehicles are wearing this season? According to TB ORD FE26 (5 Jan. 45), the diameter of the bolt on M4-series tanks, related gun motor carriages and tank recovery jobs, has been increased from 3/8" to 0.405" (see Fig.) and the holes in the flanges from 0.381" to 0.406". That's to get a closer fit and keep the bolts from loosening enough to cause propeller shaft failures.



In replacing a prop shaft, engine, or transmission on one of these tanks, you're apt to find yourself with a pair of flanges with different-size holes. That's because these vehicles have lumbered off the line for about a year

now with the larger flange holes, but the new replacement assemblies are still being manufactured with the same old small ones. A lot of rebuilt replacement assemblies have been modified with big holes, but some haven't—so it's anybody's guess what you'll get when you requisition.

If you're one of those lucky characters who always get the bird in a turkey raffle, you may just happen to get a rebuilt assembly with **big** flange holes for your late-model tank—or a brand-new assembly with **small** holes for your old tank. In either case, naturally, the parts'll go together like a jigsaw puzzle of a Varga girl.

But if, for instance, you're replacing a transmission that has the old-style small flange holes (which match the small holes in your propeller-shaft flange) and get a rebuilt transmission with big holes, the TB says you can take the flange out of your old transmission and use it with your new one. Remember SB 9-40, though, which says the part you're not using should be installed on the assembly you're sending back, so it'll get there as a complete unit.

Send the extra flange back to Ordnance with the old transmission.

A 2nd-choice way would be to stick to the new style and use the flange that came with your new transmission. If you do, you'll have to enlarge the holes in your prop-shaft flange to match those in your new transmission flange. Ream the holes with a 13/32" reamer (Fed. Stock No. 41-R-2311-18), using a 3/4" heavy-duty drill (250 rpm) in the drill stand. Be sure and use oil on the reamer so it won't squeak, chatter, get red hot and lose its temper.

If you're someplace where you haven't got reamers by the ream, you **can** enlarge the holes with a 13/32" drill, being sure to oil it, too.

Since you can't use those small bolts in the big holes, you'll have to order the big ones. Here's what you'll need:

Item	Ordnance Part No.
BOLT, S, 3/8"-24NF-3 x 1 1/4"	A277634A
BOLT, S, 3/8"-24NF-3 x 1 5/8" (propeller shaft to transmission on vehicles equipped with propeller-shaft-driven generator only)	A277634C
NUT, S, 3/8"-24NF-3	A277633
WIRE, locking	BFWX1A

(Don't let that 3/8" after the bolt fool you. The new bolt has a .405" body, like I told you—the 3/8" means it's a 3/8" thread.)

Dipsticks in M40 Transmissions

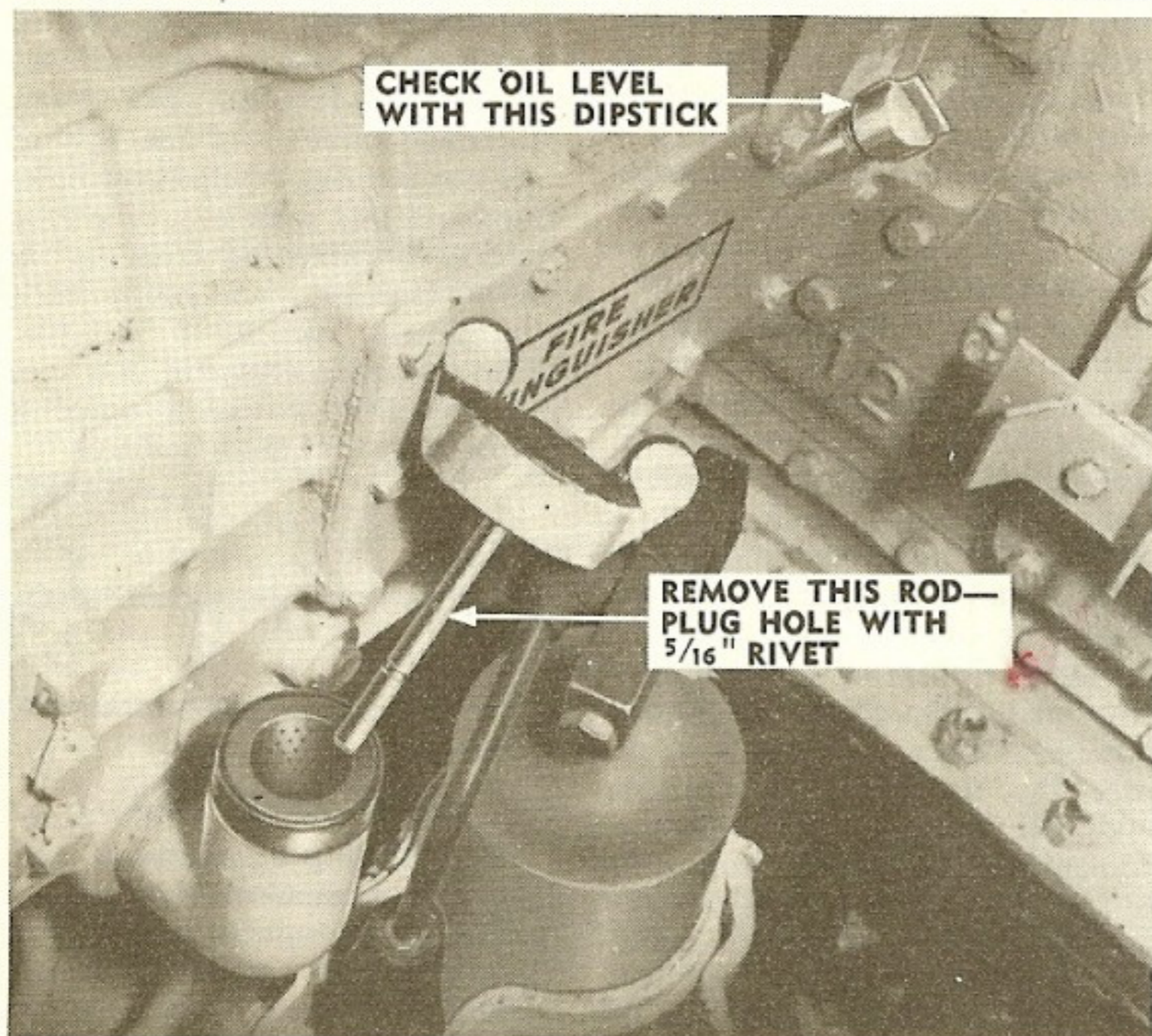
If you've got the kind of calculating eye that can figure different angles when you see 'em, you'll notice that the transmission on the M40 155-mm gun motor carriage is installed at an 11° angle, instead of the usual 4° angle like in M4-series medium tanks. And because of this greater tilt, there's a special dipstick in the forward end of the cover plate on the transmission's right side (see Fig.). This dipstick is calibrated so the required 38 gallons of oil come up to about the same level as in medium-tank transmissions installed at a lower angle.

Now here's where you come in. Before the manufacturers realized it, some M40 gun motor carriages snuck out into the field with a **standard** dipstick (Fig. again) as well as the special one. Take a look at your M40's transmission. If it's one of those with two dipsticks, remove the standard stick from the wingnut filler-cap, and plug the hole in the cap with a 5/16" rivet. This'll prevent some innocent guy from checking the oil level with this dipstick (located at the rear of the transmission) instead of the special one at the front. If oil is measured according to this standard stick, you'll overfill the differential, with the result that the oil will churn and heat up to such an extent that it'll probably leak out the breathers.

By eliminating the filler-cap rod, there'll be only one place to check the differential oil level—the right one—in the forward end of the transmission plate.

Saving Mufflers on M6 Tractors

On the 38-ton M6 high-speed tractor, as you darn well know, both master clutches are hooked up to a single clutch pedal. That's one reason why, when you start the second engine, the rear muffler



If your M40 gun motor carriage transmission has got two dipsticks, don't let the standard one (left) mislead you.

on this big baby sometimes blows wide open.

To help keep that muffler intact, be sure you **depress the clutch pedal** when you start the first engine. If you leave those clutches engaged, what happens is that the first engine can turn over the second one, too. Of course, the second engine doesn't start, but the suction in the cylinders can pull raw gasoline from its carburetor and right through the whole system to the muffler. Then, when you start the second engine, the gas that's collected in the rear muffler can (and does) explode and bang it to bits.

By simply throwing out the clutch pedal when you start the first engine, you can stop gasoline from lurking in the second engine's muffler just waiting for a light to bust it.

M4 Tractor Tips

Fresh from the gam of my pet carrier pigeon come these two little items for you M4 high-speed tractor people:

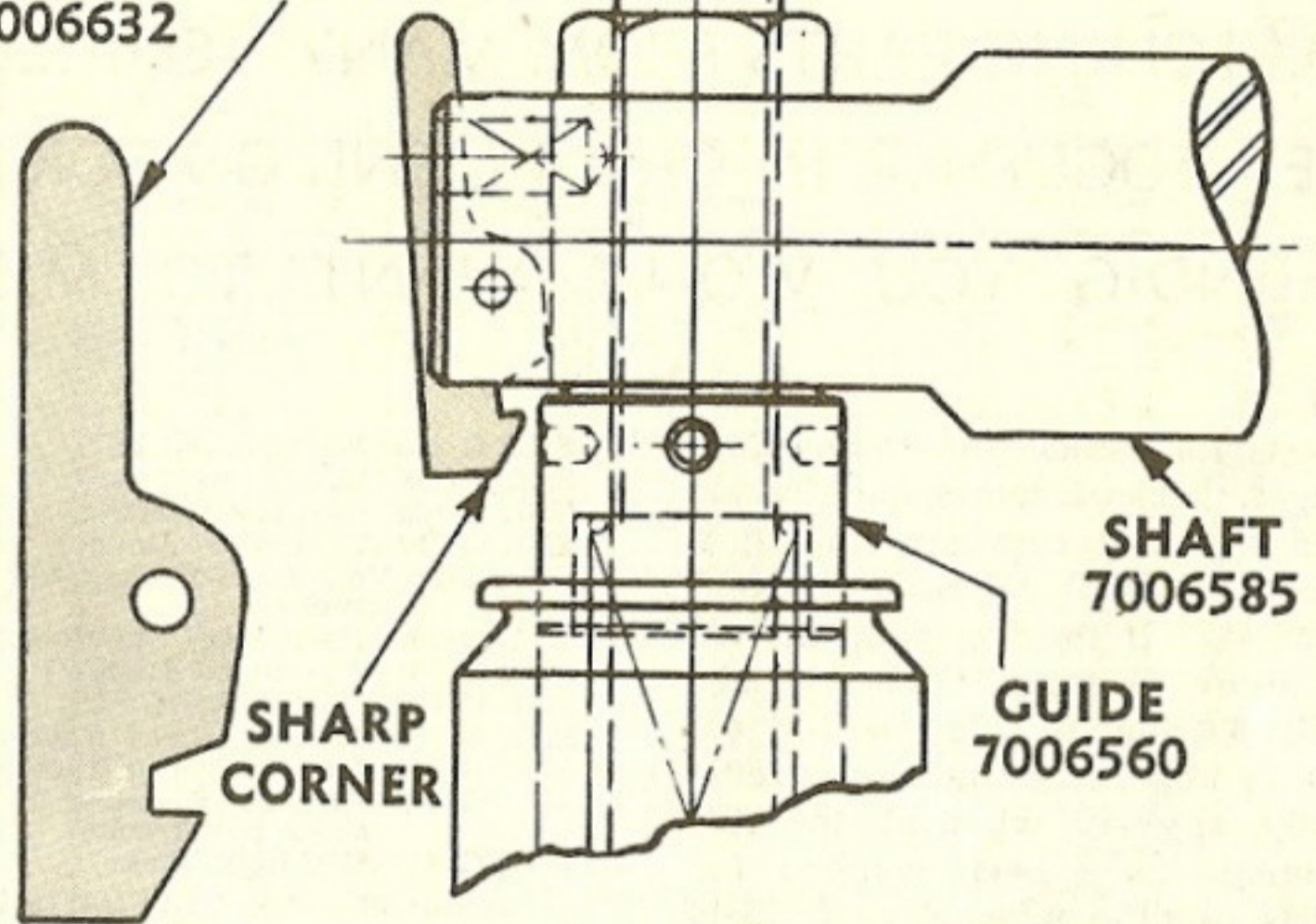
(1) The solenoid between the carburetors has a little hole in it that lays out the welcome mat for dust. You'll be happier if you close that hole with tape.

(2) The wire between the voltage regulator and the generator often rubs itself bare against the generator and shorts out. Something'll be done about this in production—but what you can do is wind two or three layers of heavy insulating tape around the wire. Do that for a stretch of 6 or 7 inches, where the wire and generator are within rubbing distance of each other.

New Catch for M18 Gun Traveling-Lock

The gun traveling-lock on the M18 76-mm gun motor carriage has had the nasty habit of disengaging itself. But the culprit's been discovered, reformed, and given a new number in life by TB 9-755-14 (6 Feb. 45). The modified catch (Ord. Part No. 7020055) has a sharp corner at the point where it contacts the handle, so it really

OLD-TYPE CATCH
7006632



At right is the new, sharp-cornered catch that really locks.

locks when it closes (see Fig.). The old catch (7006632) can be discarded when you make the change.

Like this: Release the gun traveling-lock, elevate the gun barrel, and take the pin from the shaft. Remove 7006632 and toss it in the scrap heap. When you're sure the spring is in the right position, put in the new catch, tuck the pin securely in place, and then test it in the end of the shaft so it operates freely and re-locks when it's released.

The 7020055 catch can be requisitioned from your usual supply sources, and any M18 above serial number 1857 needs it if it hasn't already been replaced.

New Number for Electric-Brake Kit

Speaking of figures (as you boys might sometime), I'd hate to be misquoted on the stock number of the kit for installing electric-trailer-brake controls on towing vehicles.

Last September, quoting TB 9-801-9, I referred you to Kit, Fed. Stock No. 8-A-8000. This number should be changed to **8-A-2000**, according to TB ORD 234 (16 Dec. 44) which supersedes 9-801-9.

The kit's designed only for a 6-volt electrical system, by the way—with any higher voltage, a resistor should be installed to pull it down to 6 volts.

Is Your Trip Necessary?

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

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

SHOOT US YOUR CHANGE OF ADDRESS!

INTERCHANGEABILITY CLAMBAKE

MATCHING PARTS FROM MANY VEHICLES GET TOGETHER IN ORD 13, SNL G-9 FOR A SHINDIG YOU WON'T WANT TO MISS

Parts for tanks, gun motor carriages, trucks, tractors, half-tracks, and armored cars are having a picnic in ORD 13, SNL G-9 (15 Jan. 45). If they're listed in **two or more** G-group ORD 7's and ORD 8's, they're listed in G-9, too. That's how it's going to be eventually, anyway, when all the "G" catalogs have been combed for parts eligible to a place in G-9. The first edition got off to a good start with parts for R975-C1 and R975-C4 Continental engines and parts for all these vehicles:

SNL G-103, Vol. 2 (M5 light tank)
 SNL G-103, Vol. 8 (M5A1 light tank)
 SNL G-200 (M24 light tank)
 SNL G-104, Vol. 8 (M4A3 medium tank)
 SNL G-199 (M7B1 105-mm howitzer motor carriage)
 SNL G-210 (M36 gun motor carriage)

SNL G-136 (M8 armored car)
 SNL G-176 (M20 armored car)
 SNL G-502 (¾-ton 4x4 Dodge)
 SNL G-507 (1½-ton 6x6 Dodge)
 SNL G-85, Vol. 4 (M6 bomb-service truck)

SNL G-506 (1½-ton 4x4 Chevrolet)
 SNL G-501 (2½-ton 6x6 DUKW)
 SNL G-508 (2½-ton 6x6 GMC)
 SNL G-150 (M4 high-speed tractor)
 SNL G-184 (M6 high-speed tractor)
 SNL G-102 (Autocar, Diamond T, and White half-tracks)
 SNL G-147 (IHC half-tracks)

This doesn't mean the parts listed in G-9 are used only on the vehicles shown above. Could be some of those parts are used on vehicles whose SNL's haven't been covered yet. The only way to find out is to check your part number in the part-number index.

The idea is to get into one book every part that's used on two or more vehicles, so you can pick

parts for a Chevrolet out of bins labelled Dodge parts, for example, when the same thing's used on both trucks. When it's not in the truck that carries Chevrolet parts—hold everything—there's still a chance you can find it in the truck that carries your Dodge parts. That's where SNL G-9 comes in. You look in the G-9 parts list to see if the part's used on another vehicle.

The parts for all kinds of vehicles are thrown together in the Standard Government Group where they belong—engine parts for tanks, trucks, and all the rest, in the engine group—clutch parts all together in the clutch group, and so on down the list of groups (Fig. 1). The list has everything you need to identify the part—stock number, Ordnance number, manufacturer's number, nomenclature, and the SNL it's in (which is one way of saying the vehicle the thing's used on).

When a part's been stocked at the depots in more than one bin, all the old numbers are shown as well as the current one (if that number was available when the book was published)—current number first with the old numbers directly below, indented and in parentheses.

Then there are the indexes—a part-number index and a stock-number index—so you can find a part when you know only its number. Find your part number in the part-number index (Fig. 2) and alongside of it you'll see a stock number. You may find the part number listed twice, each time with different stock numbers. (That happens some times when more than one stock number's been assigned to a part.) You can tell which is the official stock number by referring to the group

Stock No.	Ordnance No.	Manufacturer's No.	Nomenclature	SNL Where Used
WHAT ORDNANCE CALLS A STANDARD GOVERNMENT GROUP				
G150-0217821	A334736	WKM-B4504	HOSE, water, engine oil cooler to pump (ru., 2½ I.D., 4 in. lgh.)	G150, G184
G150-0217816	A328850	AS-OD1227	HOSE, water, engine radiator piping (ru., 2½ I.D. x 2½ O.D. x 3½ lgh.)	G150, G184
G501-0217805	OM-2137582		HOSE, water inlet elbow to by-pass tee (made from OM-30858-R, 1½ in., ¾ in. I.D., 1½ in. O.D., 3 ply)	G508, G501
G502-0217827		CC-869418	HOSE, water pump by-pass	G507, G502
G150-0217868	C139424	AS-OD1152	HOUSING, engine thermostat	G150, G184
G122-0247910	C115987	GM-839232	HOUSING, engine thermostat	G501, G85, Vol. 4, G506, G508
WHERE IT'S STOCKED IN THE DEPOT				
G134-0217683		HM-42766C	HOUSING, water outlet and by-pass	G136, G176
G122-0307850	A282494	GM-6107421	NOZZLE, water, cylinder head (long single jet)	G508, G501
G122-0310850				G508, G501
G122-0307890	A281590	GM-6107420	NOZZLE, water, cylinder head (double jet)	G508, G501
G122-0310900				
G150-0314869	A334707	WKM-74713	NUT, engine water manifold stud (S., acorn hex., ¾-20NF-2)	G150, G184
G501-0330438		GM-2070912	OUTLET, water, cylinder head	G508, G501
G085-3109080		CV-839471	OUTLET, water, cylinder head to radiator	G85, Vol. 4, G506
G085-3110220		CV-3659634	PIPE, radiator, outlet	G85, Vol. 4, G506
G104-1781731	A244763		SCREW, outlet connection to radiator (S., ¾-16NC-2 x 5½)	G199, G210
G150-0392269	A334696	WKM-B291	STUD, engine intake manifold water piping elbow (S., ¾-16NC x ¾-24NF x 1½)	G150, G184
G150-0392276	A329333	WKM-B2737	STUD, engine water manifold, long (¾-14NC x ¾-20NF x 6½)	G150, G
G150-0392277	A386077	WKM-B483	STUD, engine water manifold, medium (¾-14NC x ¾-20NF x 4½)	G150, G
	A329332			
	329331			
WHERE IT USED TO BE STOCKED				
ORDNANCE TACKLED ON THIS NUMBER			USED ON THE GMC DUKW, M6 BOMB-SERVICE TRUCK, 1½-TON 4x4 CHEVROLET, AND 2½-TON 6x6 GMC	
VEHICLE MANUFACTURER GAVE IT THIS NUMBER				

Fig. 1—Portion of a typical page layout in ORD 13, SNL G-9.

listing. After you've found a stock number, turn to the stock-number index (Fig. 3) and you've got all the different part numbers stocked in that bin, along with the item's name and the group where it's found in the listing.

While we're talking about part numbers, leave us face the facts of life. One part made of the same stuff, the same size and shape, built to do the same job, can have five or ten different part numbers. Why? Because everybody along the line tacks on a number—the subcontractor who made it for the vehicle manufacturer had a number for it, the vehicle manufacturer had a number for it, and finally Ordnance added the finishing touch with their own kind of number. And any one of these numbers might be stamped on the part. To make sure this same little part with all its different part numbers gets stocked in one place, Ordnance gives it an official stock number. See?

Do you have a little pile of parts stowed away in the corner—can't call 'em by name, don't know what they're used for, never saw anything like 'em before? It so happens that from that little pile, parts that somebody needs bad might be rescued. Check the number stamped on the part with the G-9 parts-number index and see what the stock number is. Then move on to the stock-number index to see what it's called and what group it's listed in. Now back to the group it's listed in and you've cleared up the mystery. You know what it is and where it goes. Now you can park it where it belongs, ready to hand out to the next man who needs it.

There's plenty of interchangeability in ORD 13, SNL G-9 the way it stands now—a lot more is in the making. If parts are your worry (who said "if?"), requisition a copy. It's a sure best-seller and available now.

NUMBERS ARRANGED IN SEQUENCE FROM LOWEST TO HIGHEST

Manufacturer's and/or Ordnance Number	Official Stock Number	Manufacturer's and/or Ordnance Number
DY - BU000	G1978414601	CAT - 1F6
DY - BU000	G1838411681	AL - KIT10
ORD - BCNX1FE	G1041701948	FH - KIT10
ORD - BEBX1BB	G1637005768	AL - VHA16
FLF - VJ1	G1800427859	AUC - VHA16
CAR - ETH1	G5087001053	UT - VHA16
CAR - ETH1	G5027001053	FH - VHA16
FLF - VJ1	G1500427859	PF - VHA16
ORD - DLAX3B	H0010107347	SD - VHA16
ORD - DLAX3B	H0010107347	HF - VHA16
ORD - CNEX4QA	C1360169087	AL - VHA16
AL - GPH4J	G1042382197	AUC - VHA16
AL - GPH4D	G1040803867	UT - VHA16
ORD - NAX5G	G1041531738	FH - VHA16
BS - NAY5G	C1041531738	PF - VHA16
SPT - CDA5	C1041526006	SD - VHA16
FLF - VJ5	C1800427860	HF - VHA16
BEB - 5	3500 60883	AL - VHA16
ORD - NAX5G	C1041531738	AUC - VHA16
BS - NAY5G	C1041531738	UT - VHA16
AL - A5	C1041740490	FH - VHA16
SPT - CDA5	C1041586006	PF - VHA16
AL - GC6	C1210367618	SD - VHA16
DT - GC6	C1210367618	HF - VHA16
FNT - GC6	C1210367618	AL - VHA16
Z - QNC7A	9960 QNC7A	AUC - VHA16
Z - QNC7A	9960 QNC7A	UT - VHA16
AL - DH7	C1210442945	FH - VHA16
AUC - DH7	C1210442945	
KHT - DH7	C1210442945	
HF - DH7	C1210442945	

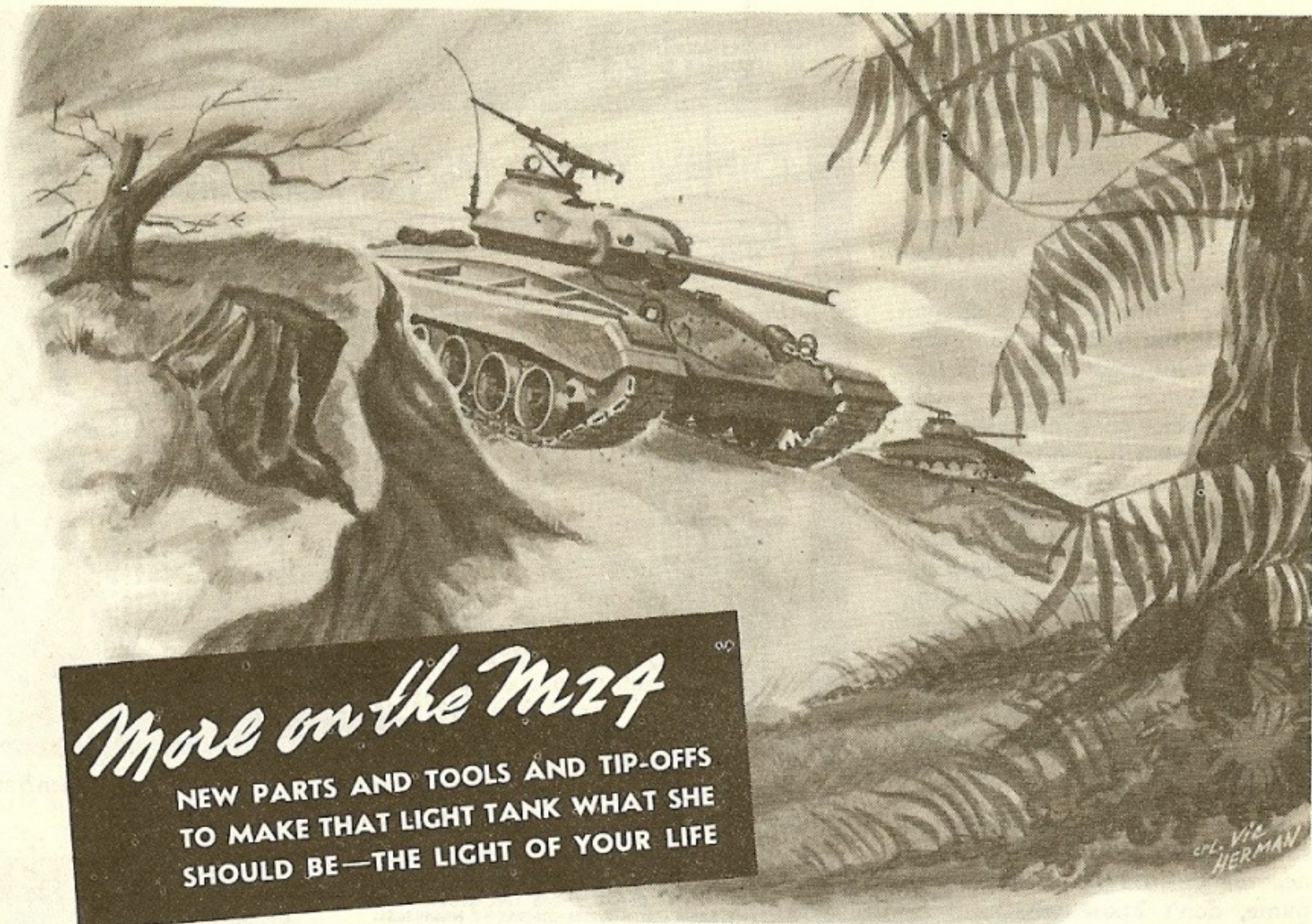
Fig. 2—Close-up of the listing on one page of the part-number index. Part numbers at left, stock numbers at right.

ALL DIFFERENT PART NUMBERS STOCKED IN THE SAME BIN IN THE DEPOT UNDER ONE STOCK NUMBER (IT'S THE SAME PART WITH DIFFERENT NUMBERS)

Stock Number	Item	Group	Stock Number
AUC - 3R7H781	SPRING	0201	DT - 17795R
LN - C1477			SD - 188476
NI - V501870			NO - A1681
G0670700630			INC - 108481
ORD - A167623	SPRING	0201	R - 20610
ORD - A283123			AUC - BBLO455
RC - 18882			NI - 341783
LND - 3431			CC - 643906
PAC - 317853	SPRING	0202	FH - CPH12062
LN - C1431			AL - ICS79A
AUC - 3RLO128			HF - ICS79A
NI - V5022X			GPH - 91882
G0670700670	WEIGHT	0201	KNT - ICS79A
ORD - A167623			PAC - ICS79A
ORD - A283123			PF - ICS79A
RC - 18882			FNT - 5A7074
LND - 3431	WEIGHT	0401	G0670901489
PAC - 317853			CC - 643822
LN - C1431			SD - 667658
AUC - 3RLO128			RC - 667658
NI - V501870	WEIGHT	0201	SD - 643822
G0670700700			AL - ICC1107S
ORD - A283119			HF - ICC1107S
ORD - A194502			KNT - ICC1107S
ORD - A283119	WEIGHT	0201	FNT - 5A7047
ORD - A167562			ORD - A346773
RC - 19432			AUC - BUU069
LN - C4346			DT - BB7885
AUC - 3RLO128A	WEIGHT	0201	NI - 342483
LND - 4346			CC - 599668
NI - V5011X			G0670901889
G0670700930			RC - 667664
ORD - A283117	WEIGHT	0201	SD - 667664
ORD - A283124HK			AUC - BUU0288
RC - 14282			AUC - BUU0388
LND - C1328			FH - CPH12300
AUC - 3RLO784A	WEIGHT	0401	CC - 921274
LN - C1328			AL - ICS1139
G0670700940			HF - ICS1139
ORD - A283117			ORD - A346776
ORD - A283124	WEIGHT	0201	KNT - ICS1139
ORD - A194500			NO - A1631
ORD - A283117			NI - 40482
ORD - A16755R			G06709083
RC - 14282	WEIGHT	0201	NI - 395
RC - 14282			BRO - 50
LND - C1328			CM - 1
AUC - 3RLO784A			
LN - C4344			
NI - 107703			
NI - C134			

STANDARD GOVERNMENT GROUP WHERE PART IS LISTED

Fig. 3—Here's what G-9's stock-number index looks like.



More on the M24

NEW PARTS AND TOOLS AND TIP-OFFS
TO MAKE THAT LIGHT TANK WHAT SHE
SHOULD BE—THE LIGHT OF YOUR LIFE

Most greyhounds are eager beavers when it comes to chasing a mechanical rabbit around a track. But the M24 Greyhound was at her best chasing rats across Germany. A few improvements that maybe you know about—and maybe you don't—will make her even more ready, willing, and able to finish the job on the Japs. So read on and rid yourself of bugs, M24.

BATTERIES

Seems to be mighty easy to forget that both batteries on the **left** side of the M24 are installed with the positive posts toward the **front** of the tank, and the batteries on the **right** side are installed with the positive posts toward the **rear** (see Fig. 1). So it's a good idea to paint the positive terminal-insulator sleeves red and the negative green. Then it won't take any deep thinking at all to figure out which way they should set.

And speaking of batteries, it's kind of tough to keep them fully charged—but never let them drop below 1.250 hydrometer reading.

When you have any spare time, start your engines and rev 'em up to 1700 or 1800 rpm to charge those batteries. Your generator won't give out with juice below 1475 rpm, so an idling engine means you're discharging your battery.

There'll be lots of times when you can't run the engines on account of giving away your position. The answer to that is to have a slave cable handy when you're ready to start off again (you already have a slave plug on the right of the bulkhead on the fighting-compartment side). Then when one tank in your company starts, it can run around and start all the others—through the slave cables. If you haven't got one, requisition it (Fed. Stock No. 17-C-568, Ord. Part No. B257839). The cable has just been allocated to the M24 and will be in the next edition of ORD 6, SNL G-27.

FUEL SYSTEM

As you all know (too damn well), the early M24's had only a

screen as an excuse for a fuel filter in the bottom of the fuel tank. This meant that dirt often got between the needle valve and seat, causing the carburetor bowl to overflow and sometimes killing your engine. Then if you forgot to turn off the fuel, ignition, and master switches—all three—the fuel pump kept right on pumping. Result: Gas in the cylinders and hydrostatic lock the next time you tried to start. (See "Fire Hazards in Hydrostatic Lock," page 331, Feb. 45 ARMY MOTORS.) Now they're installing an auxiliary filter on these tanks in production—and you tankers in the field can dry your tears and calm your fears by requisitioning two fuel filters (one for each engine) under Item Stock No. G67-15-00531, Ord. Part No. A226202. Besides the filters, you'll need two standard brass-close-nipples $\frac{1}{8}$ "x $\frac{3}{4}$ " (Item Stock No. H006-02-73005, Ord. No. CPNXIAC—or Fed. Stock No. 45-N-400).

Here's how to install the filter:

Open the engine-compartment door and clean all dirt from around the fuel connections at the carburetor float-chamber. Loosen the hose clamp, disconnect the fuel hose from the carburetor, and slide the fuel hose off the connection from the carburetor float-chamber. Put a nipple in the **outlet** side of the filter, turning in only three threads. Now put the fuel-hose connection (which you took off) in the **inlet** side of the filter. Loosen the knurled nut from the bottom of the filter and remove the fuel bowl from the filter. Careful with the gasket—don't try to remove it, 'cause it's probably cemented on. Install the fuel filter and connections at the float chamber of the carburetor, turning in just a few turns. Apply gasket sealer to the exposed threads of the nipple and tighten securely until the filter is as close to the horizontal position as possible and pointing toward the right side of the tank (see Fig. 2). That's so the fuel-filter bowl won't interfere with the carburetor-to-manifold heat-box tube. Next, put the fuel bowl on the filter, making sure the gasket's in place, and tighten the knurled nut. Slide the fuel-line hose over the fuel connection and tighten the hose clamp securely. Install the other filter the same way.

Run the engines a few seconds and check for leaks. If you've done it right—you're ready to take off.

When you run out of gas in one tank and change to the other, be sure to switch off the empty one or the fuel pump may burn up. Why? Because that pump is lubri-

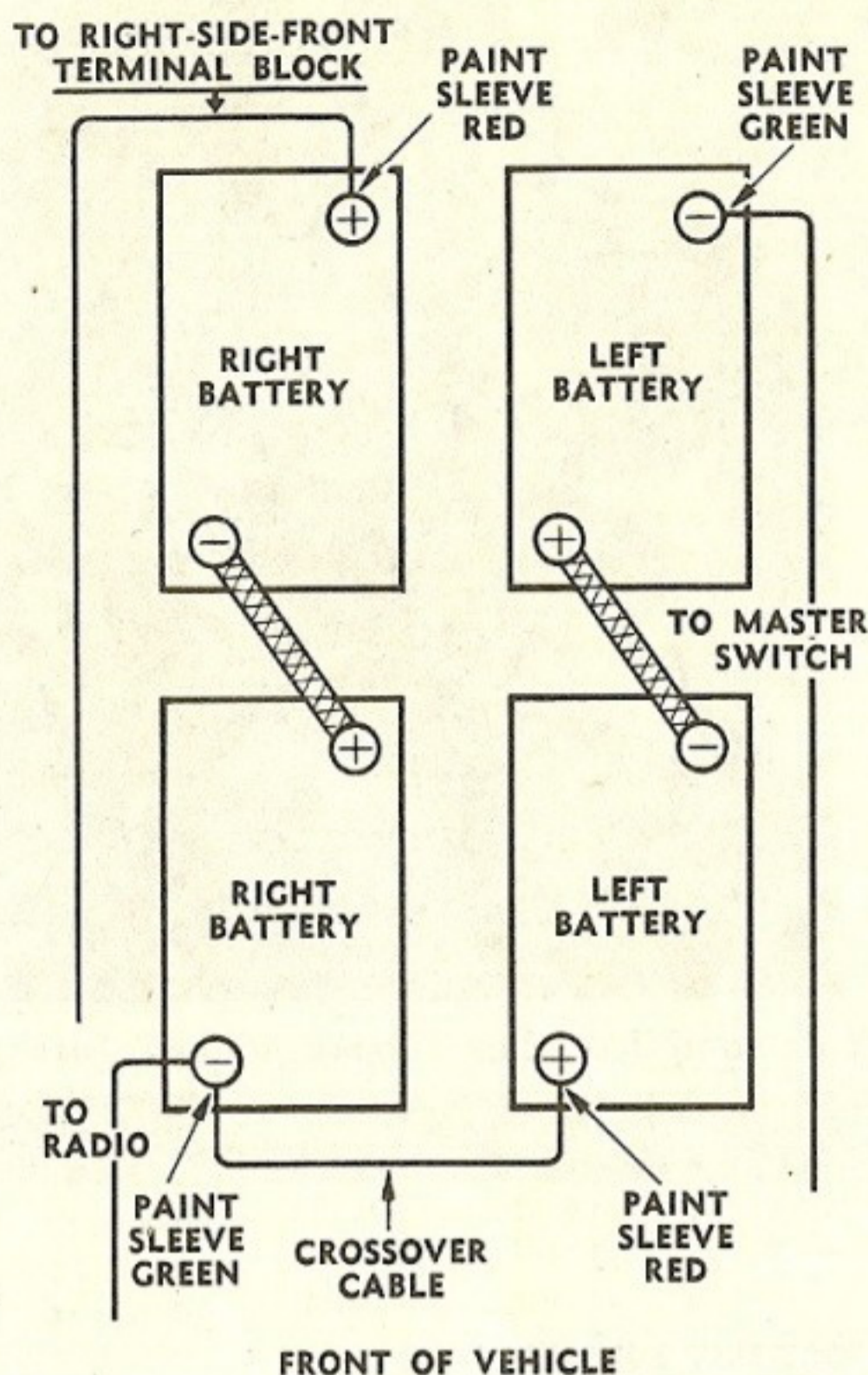


Fig. 1—Put the batteries in this way and you won't have any trouble.

cated by the gasoline in the tank.

TRANSMISSION

Hold on now if you're following should be approximately $\frac{1}{8}$ " from

the front edge of the slot in quadrant when the engine speed drops." Change that to read $\frac{1}{8}$ " in front of the front edge. If the TM 9-729 in checking the adjustment of both transmissions. Page 156 (step 17) of the TM may get you sort of confuddled. It says, "the rear edge of the selector lever linkage is adjusted $\frac{1}{8}$ " back of the front edge, it means a $\frac{1}{4}$ " error in lever travel and upsets the adjustment.

You've probably wondered about the instructions in TB ORD 217 (8 Nov. 44), saying that all lube levels should be checked "before operation." That just won't work on your M24 transmission. Follow the method given in LO 9-729—fill the transmission, then run the vehicle for five minutes while the fluid coupling fills up, then check the transmission to see that it's up to the full mark. If it isn't, add more oil.

HULL

Beginning with serial no. 2351, outside lifting handles for the driver's and assistant driver's doors were put on at the factory. TB 9-729-FE2 (7 Mar. 45) says vehicles in the field are welcome to the same convenience. All you have to get is some $\frac{3}{8}$ "-dia. cold-rolled stock, make two handles, and bend them to the size shown in Fig. 3. Weld them to the rounded edge of the doors so the front of the handle is just at the centerline of the door (Fig. 4).

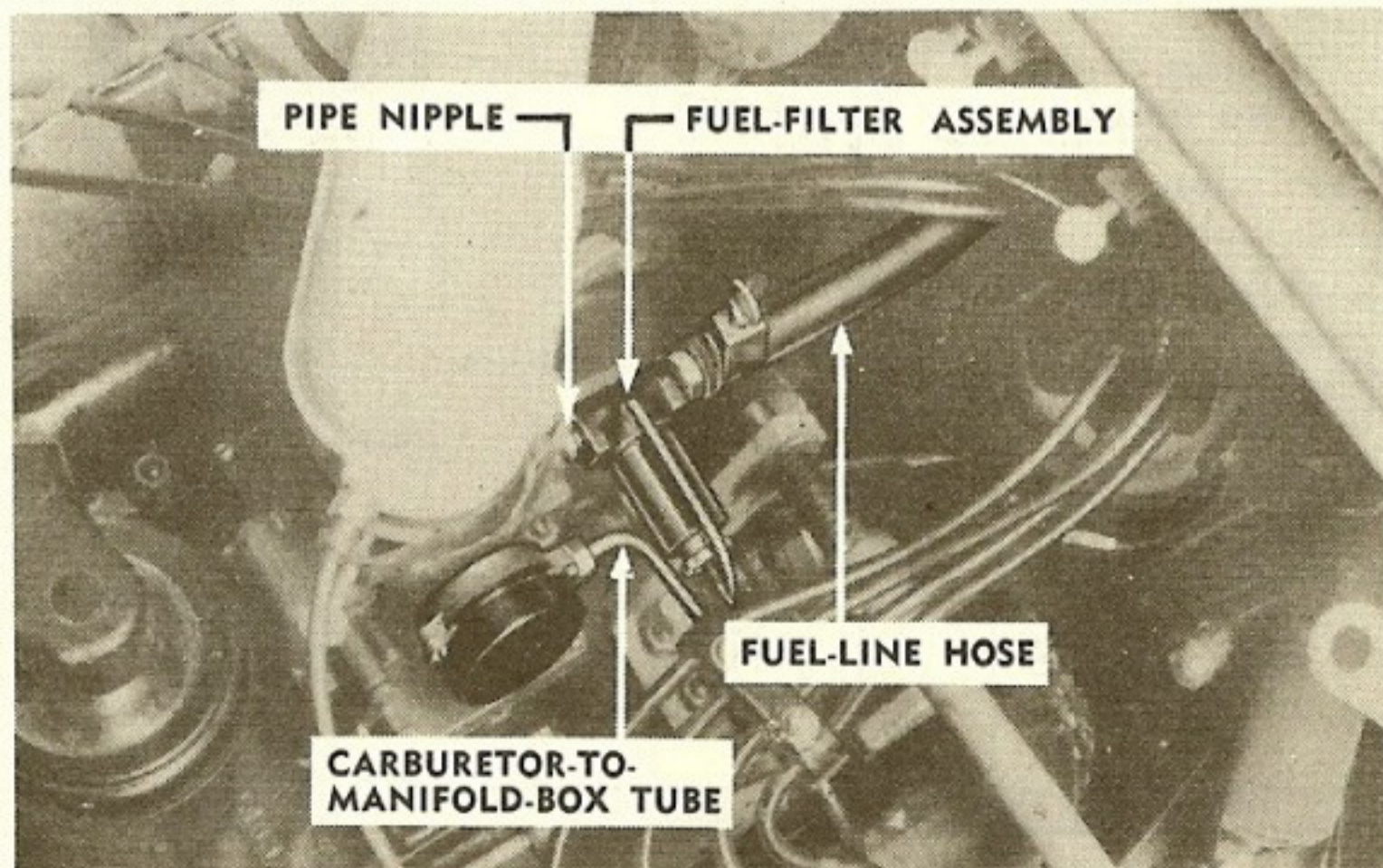


Fig. 2—Here's the auxiliary fuel-filter installed and ready to cure your M24 of hydrostatic lock and the like.

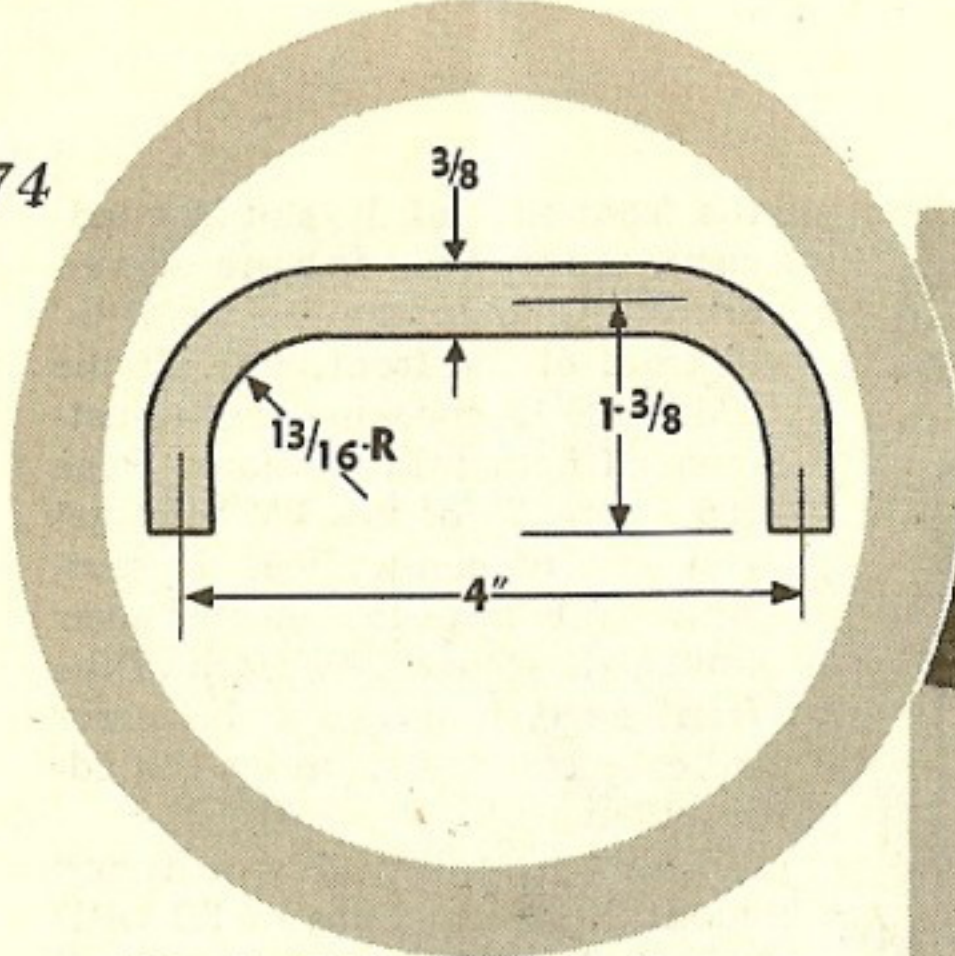


Fig. 3—Follow these dimensions to make the lifting handles for both sides.

Fig. 4—You won't have to be a Charley Atlas to use these handy handles.

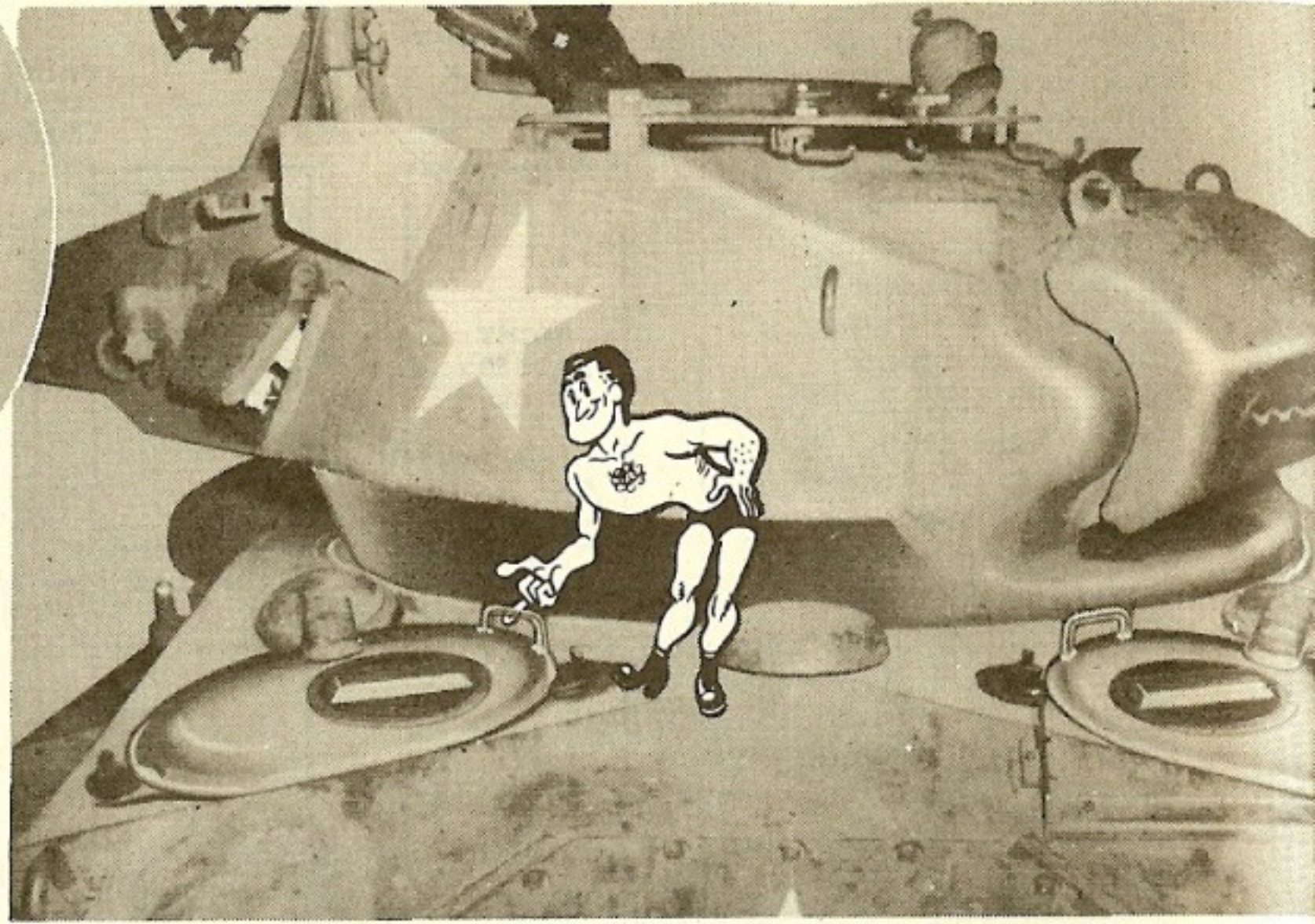
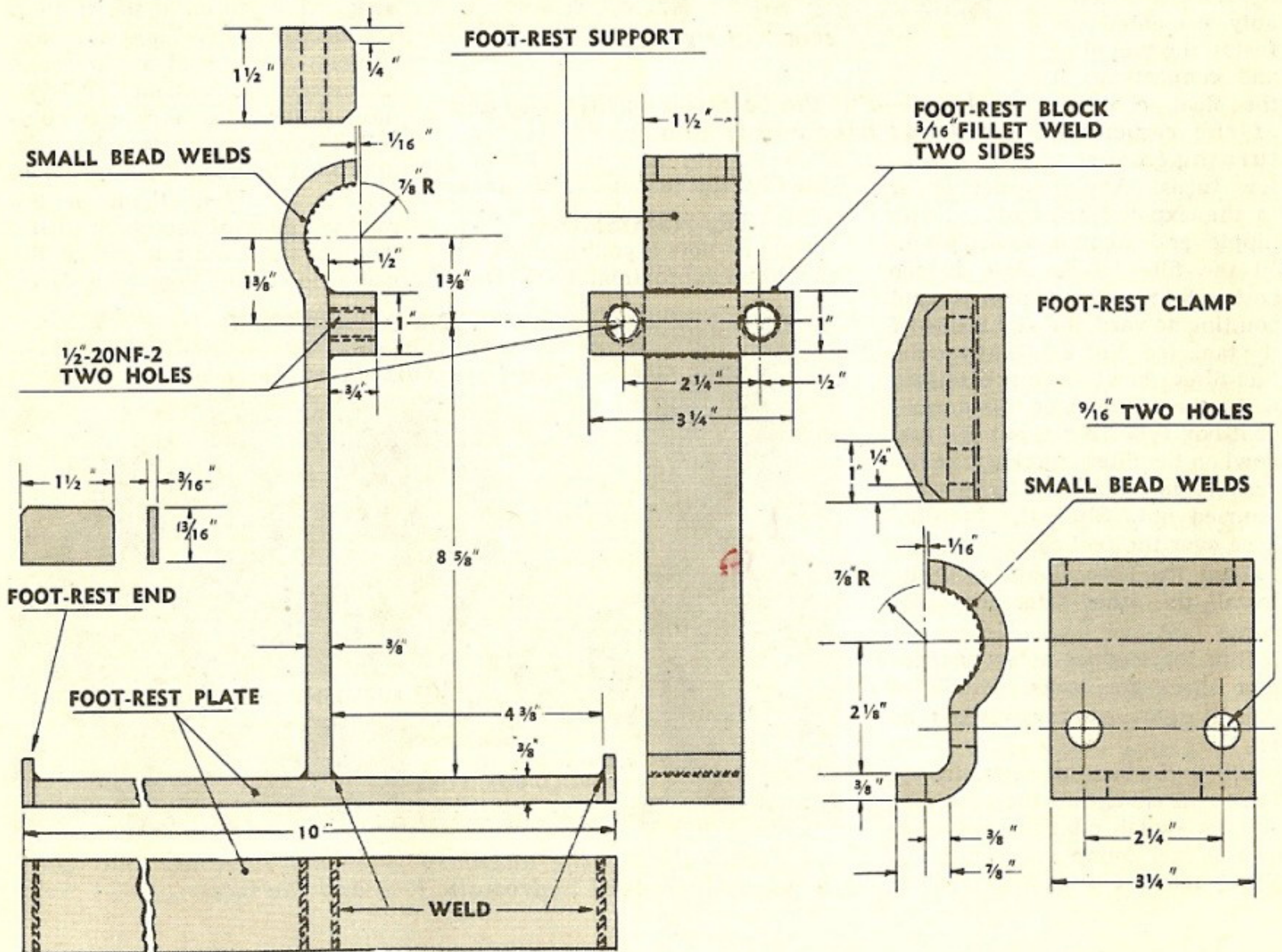


Fig. 5—The gunner's foot rest isn't as complicated as it looks, honest. Just make it slow and easy.



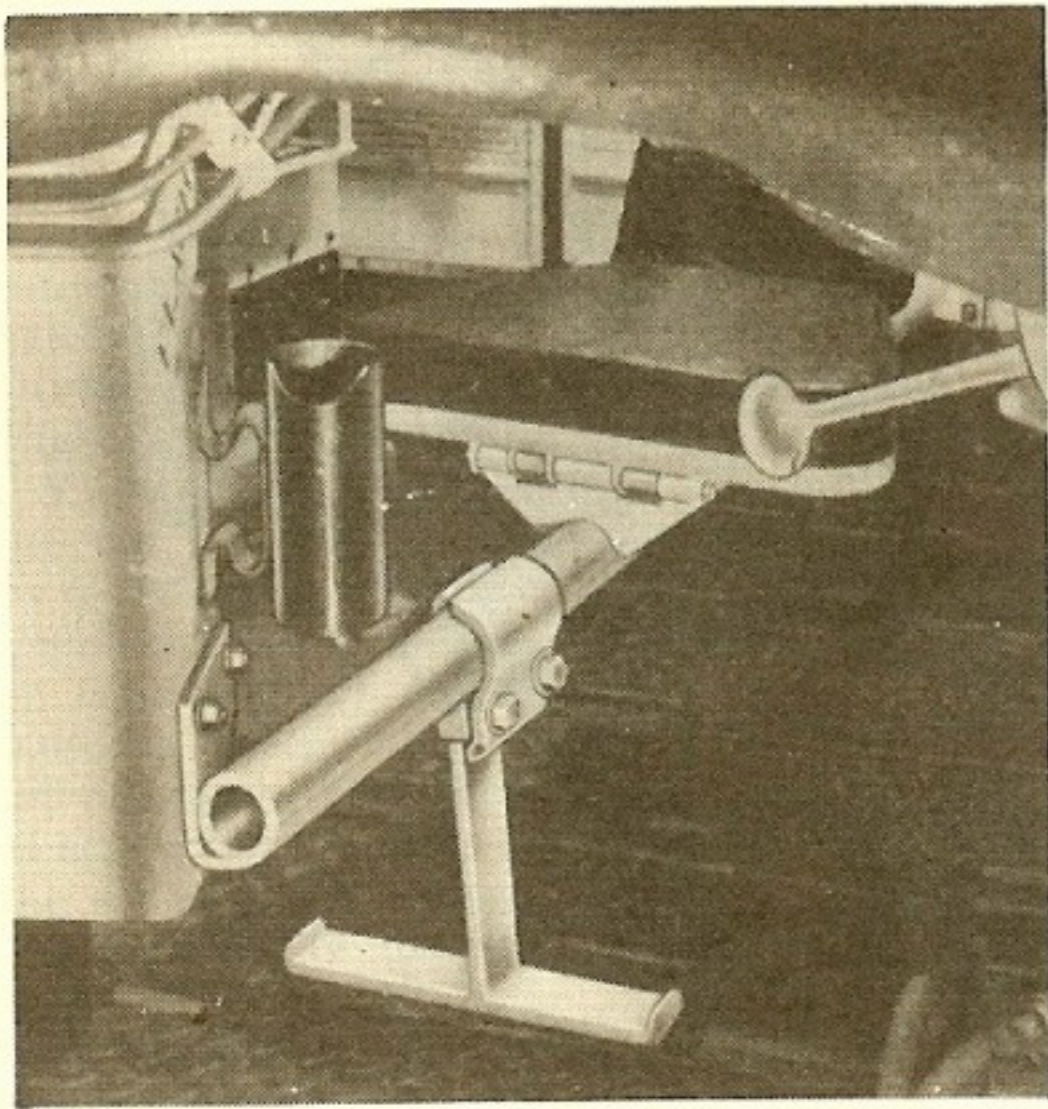


Fig. 6—Attach the foot rest with cap-screw $\frac{1}{2}$ -20NFX1-BCUX2LL-1 and lock-washer $\frac{9}{16}$ " , int-tooth-BEAX2C-1.

ARMAMENT

Been trying to take that M64 combination gun-mount apart with your fingernails? You'll be glad to hear there's an easier way. Use a $\frac{1}{8}$ " Allen wrench to remove the Allen set-screw holding the breech-operating spline-shaft. Somehow the wrench got left out of the original OVM list for the M24, but you can probably scrounge around and find one to help you do the job.

Traversing the turret when you're lubricating it isn't just for the exercise—if you throw the grease in at the three lube fittings but don't traverse the turret, the lube will pile up in those three places. That'll push down the seal around the turret at the points you lubed and it might jam when you need it most.

So the gunner's feet don't get left behind when the turret is traversing, a foot rest has been added in production. In the field you can make up your own. For material, get cold-rolled steel, flat stock (see Fig. 5). Add the foot rest to the seat support (Fig. 6) about 4" forward of the front edge of the gunner's seat. When the job's done, give the turret a whirl to make sure there's no interference.

SUSPENSION

If you're having trouble adjusting the track-suspension bearings, try using a wrench with an 18" handle instead of the 10" handle the TM says to use. Here's how to make the adjustment:

1. Jack up the track wheels (can't have any load on 'em).
2. Use a wrench with an 18" handle, and tighten the adjusting nut as tight as you can.
3. Back off the adjusting nut no less than $\frac{3}{4}$ of a

flat and no more than one full flat. Do it the same way when you adjust the track-support-roller bearings and compensating wheel.

To put it mildly, those track pins are no picnic to get out. Here's a tool that isn't a cure-all, but it'll help some—and at least you won't

sting the devil out of your hands. It's a two-in-one gadget with a short punch to start the pin on its way out and a longer punch to finish the job. Get some tough steel (a broken axle shaft will do), and take it (with Fig. 7) to your nearest shop so they can make it up.

LOOSE SCREWS

It's no cinch to get a wrench in to tighten the screw that holds the fan-driveshaft yoke-flange to the generator pulley. Beginning with engine serial no. 3G-8941, a different-type screw with a smaller head (code marking A-TR) has been put on in production. If you have the old screw with code marking W1-C, grind off the universal-joint trunnion-boss base just enough to permit the use of a socket wrench.

If the differential leaks around the oil pump, it could be the fault of the oil-pan capscrews. After serial No. 3GA4570, the controlled differential had a stronger cap-screw put on at the factory. Next time the differential is removed, if yours is below that number, replace the capscrews with the stronger ones (Item Stock No. H101-0186677). The new screws can be tightened to about 30 ft.-lbs.

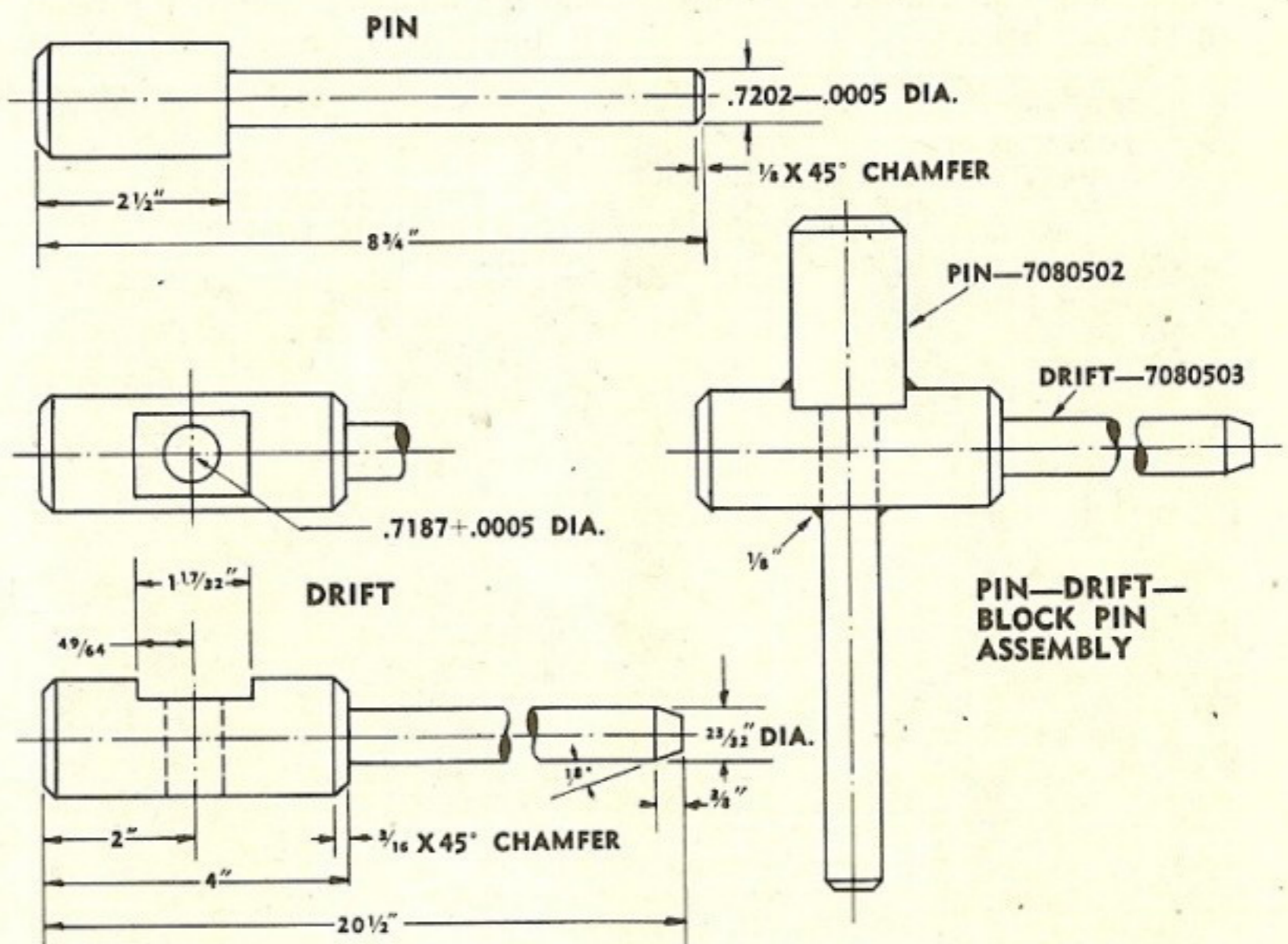
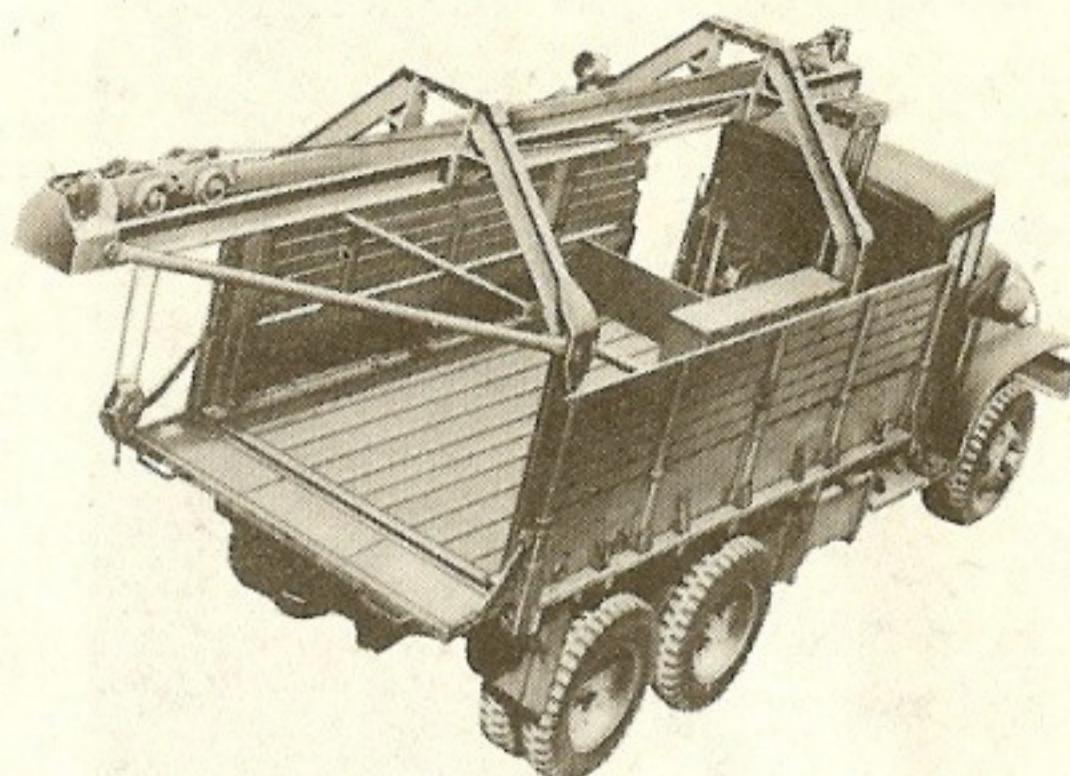


Fig. 7—Your shop mechanic will be glad to make this pin puncher—if you bribe him with a brew or two.

SOME THINGS YOU NEVER
KNEW TILL NOW—ABOUT

TRAILER BRAKES ON M27 BST'S



The 2-½-ton 6x6 GMC bomb-service truck may still be new to you, or maybe you and the M27 are old friends—but no matter how well-acquainted you are, something you probably don't know about yet is the electric brake info that got left clean out of TM 9-766 (18 Aug. 44). And since you're generally operating the BST with tons of explosives following you around in a trailer, knowing all about the braking system for that trailer is strictly self-preservation.

The trailer brakes operate automatically off the hydraulic system when you shove in the brake pedal on your truck. Nothing unusual about that. What is new is that the same pressure of hydraulic fluid that puts your truck brakes into action, also starts the electric trailer-brakes operating.

The gadget that acts as liaison between the hydraulic pressure and the electric brakes is called a hydraulically-actuated switch, and it's mounted just to the rear of the first frame-cross-member

behind the cab of the truck (Fig. 1). Connection A runs to the hydraulic line coming off the hydrovac. Connections B and C carry current from the source of power and take it to the trailer wheels.

Take a look at the cut-away view in Fig. 2. The innards of the switch are simple in operation. When you push in the brake pedal, hydraulic fluid travels into the cylinder through the hydraulic connection. As hydraulic pressure is increased by more push on the brake pedal, the piston shaft is forced forward (into a bushing in the adjusting nut), compressing the spring. At the same time, the yoke on the piston shaft is carried forward with the shaft, pivoting the serrated contact-lever shaft and actuating the contact lever. You can't see the contact lever—it's inside the round metal box that takes in the current and sends it out again.

The adjusting nut on the left end of the assembly can be backed out to let up on spring tension so the trailer brakes will take hold **before** the truck brakes start grabbing. You need the adjustment, too, if you're going to keep the trailer from jack-knifing when you're on slick or slippery terrain, or cutting figure eights across the field.

The way the whole set-up is "timed," with the adjusting nut screwed in tight, the trailer wheels

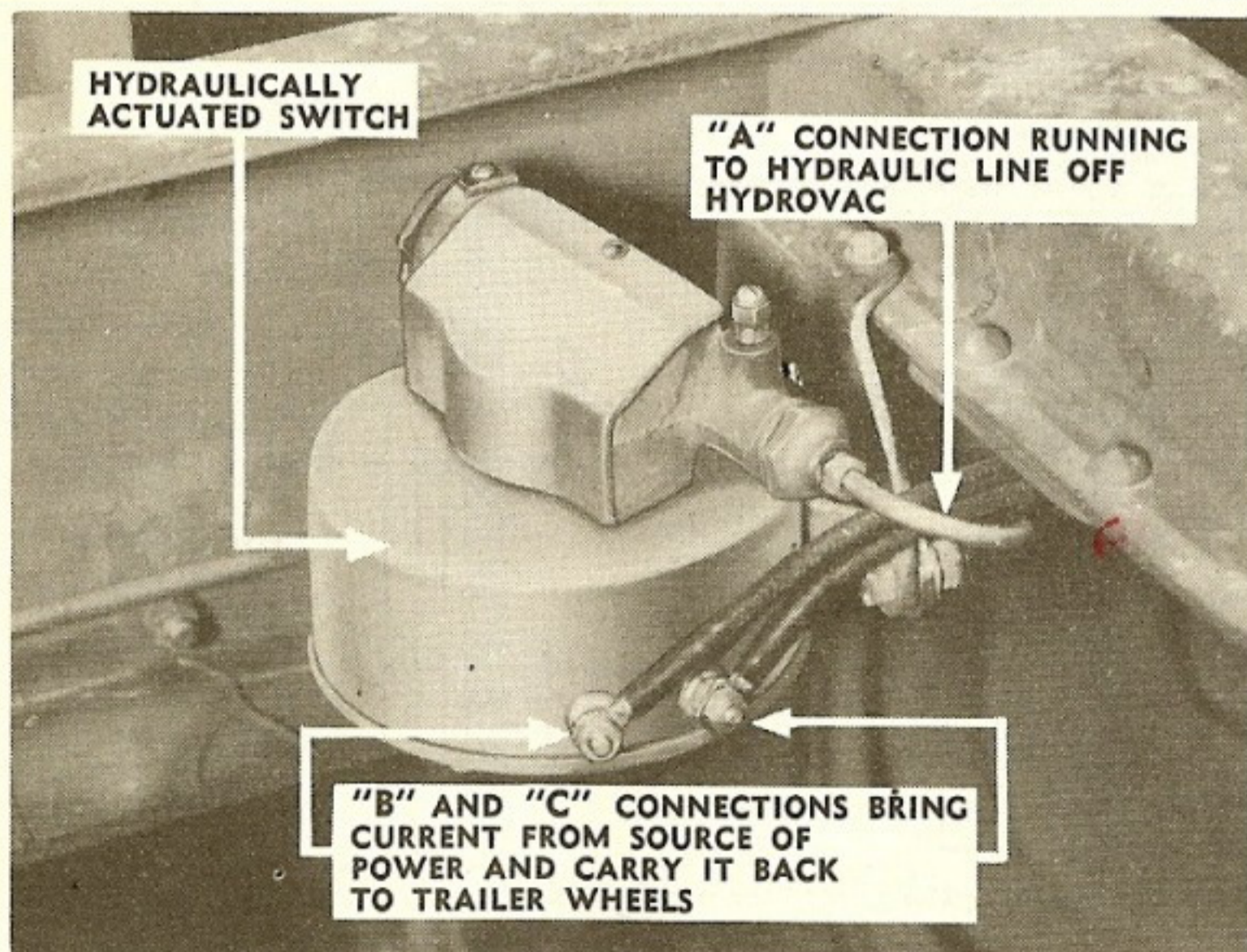


Fig. 1—The hydraulically-actuated switch is mounted to the rear of the first frame-cross-member behind the cab.

will brake just a little in advance of the truck wheels. To brake the trailer still further in advance of the truck, you can unscrew the nut as much as two turns—two turns away from its "tight" position.

You'll find the adjusting nut locked in place by a locking finger, locking screw, and lockwasher (still Fig. 2) which must be loosened before the nut can be backed off at all. Notice the seats in the nut for the locking finger. There're four of them. You might find that unscrewing the nut only $\frac{1}{4}$ of a turn will suit your purpose; but suit or no suit, remember that two complete turns are enough. More than two turns away from the nut's tight position would have the trailer jerking to a dead stop when you merely touched the M27's brake pedal.

The adjusting nut is only for "timing" the trailer brakes. If you want more grabbing power in them, use the variable-resistance control (control knob, in English) mounted on the BST dash panel (Fig. 3).

The control knob has four positions, running from light to heavy. If the trailer is carrying a real light load—or if it's dead-heading behind you—set the control knob on "light" (1). If the trailer's holding as much as she'll carry, use the "heavy" position (4). For loads between light and heavy, you've got positions (2) and (3)—you be the judge on that score. But do your judging before you start traveling and using the brakes. You don't have to keep switching the knob back and forth, either. It's a variable resistance control, all right, but you're not tuning in Crosby—set it for each load, then forget about it.

There's one important something that **shouldn't** be forgotten, though. The bleeder screw (Fig. 2 again) is going to make your job of bleeding the hydraulic system a little more involved—it's one of

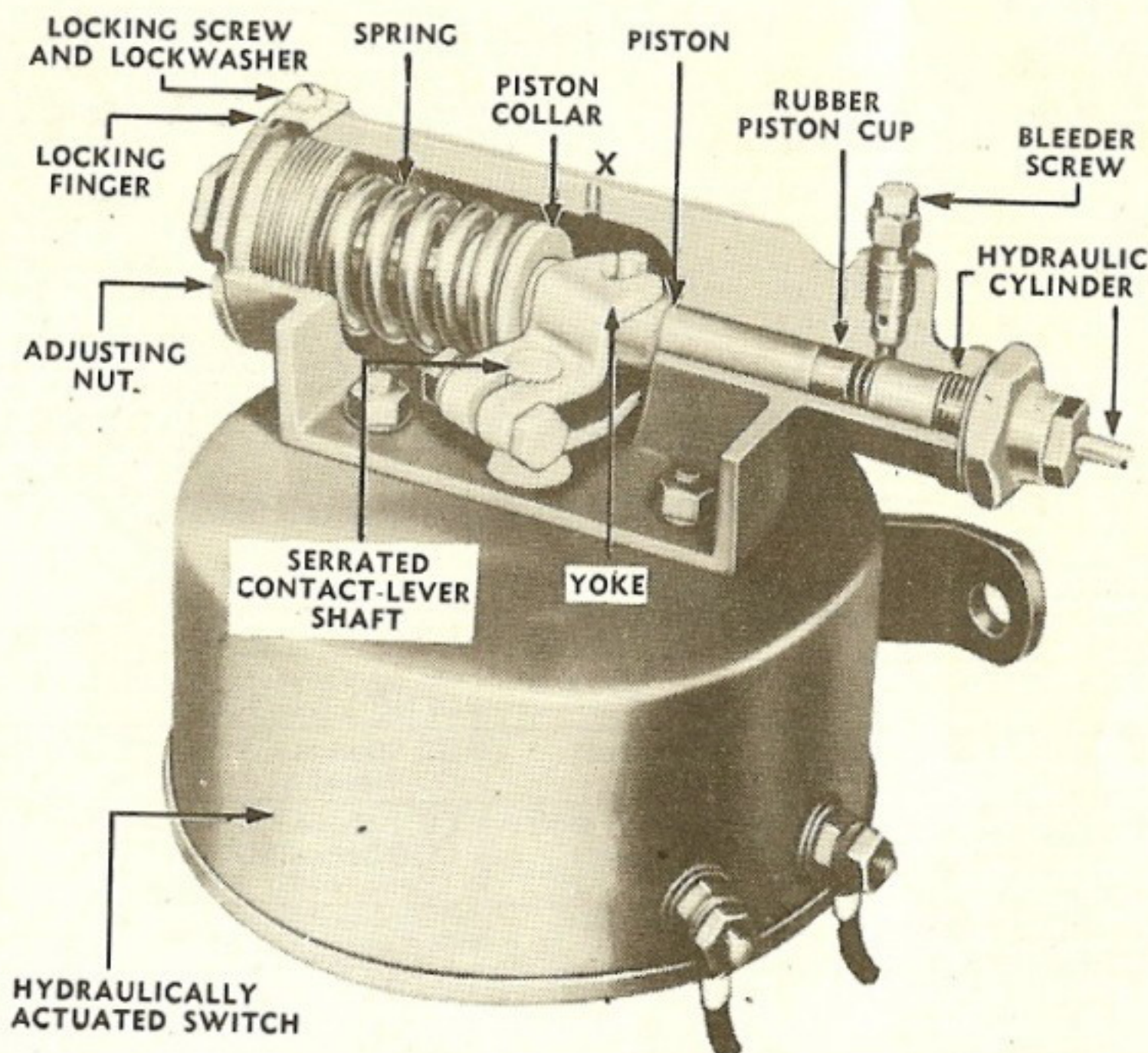


Fig. 2—This view of the switch is cut-away so's you can see how it operates. Screw-hole "X" is for the screw that fastens the cover (Fig. 1).

those necessary evils.

When the time comes for bleeding, follow the instructions in TM 9-801 (24 Apr. 1944) as per usual.

Bleed the master cylinder, the hydrovac, the wheel cylinders—and **then** bleed the hydraulically-actuated electric-brake switch.

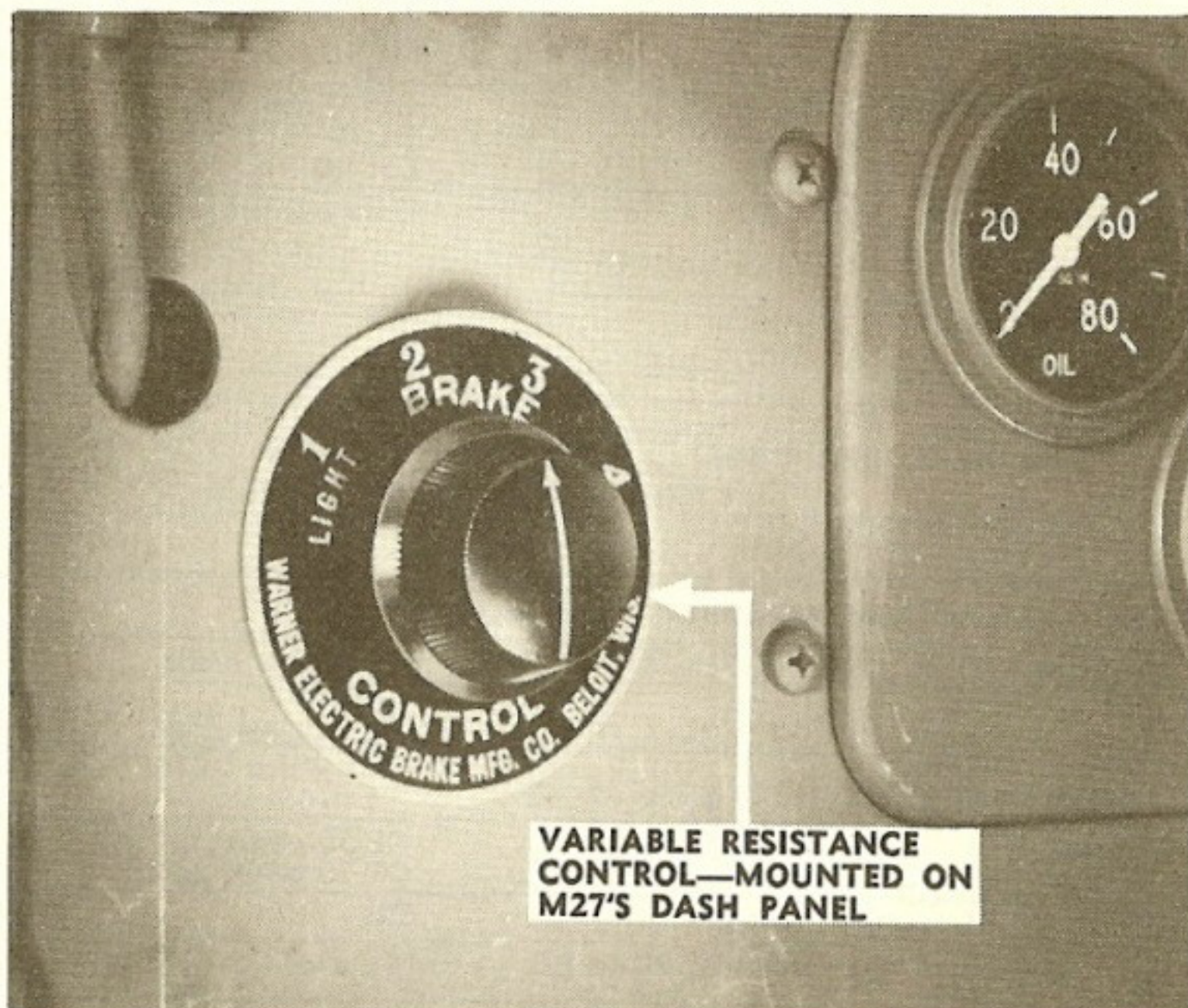


Fig. 3—The variable-resistance control works the same as other electric-brake controls—you set it for trailer-loads.

Hit and Pinch - Hit Lubes

WHAT TO USE—NORMALLY AND IN CRISES—AND WHAT NOT TO TOUCH WITH A 10-FOOT POLE. COURTESY OF TB ORD 282, WHICH DOESN'T SUPERSEDE LO'S OR TM'S

WHEELED AND HALF-TRACK VEHICLES

Item	Lubricant	Emergency Substitute	Do NOT Use
ENGINES	OE 30 above 32° F OE 10 below 32° F	None	OE 50
GEAR CASES	GO 90 above 0° F GO 75 below 0° F	GO 75 or GO 80 32° F to 0° F	OE
UNIVERSAL JOINTS (front and propeller shaft)	CG 1 above 32° F CG 0 below 32° F	OG 0 below 0° F	WB WP WB 3
CLUTCH BEARINGS: Fitting or cup	CG 1 above 32° F CG 0 below 32° F	WB OG 0 below 0° F	BR OG 00 WP
Packed bearings	WB	BR GL	CG OG WB 3
CHASSIS	CG 1 above 32° F CG 0 below 32° F	WB above 90° F OG 0 below 32° F	WP WB below 90° F
VACUUM AND HYDROVAC CYLINDERS	SAL	OH	OE
BRAKE MASTER CYLINDERS	HB	None	Any petroleum oil
SHOCK ABSORBERS: Houde Others	SAH SAL	None OH MO	SAL SAH
DUMP HYDRAULIC CYLINDERS	OE 30 above 32° F OE 10 32° F to 0° F OH below 0° F	OH below 32° F	OE 50
CABLES	Used crankcase oil	PM OE 10 OE 30	Grease
WHEEL BEARINGS	WB	CG 1 or CG 0 below 0° F WB 3 above 90° F	WB 3 below 90° F WP CG above 0° F
HALF-TRACKS: Bogie wheels, idlers, rollers	CG 1 above 32° F CG 0 below 32° F	OG 0 below 0° F	WB WP
Jackshaft bearings	WB	BR WB 3 above 90° F	CG OG
AIR CLEANERS AND BREATHERS (all types)			
OIL RESERVOIRS AND ELEMENTS	OE, engine grade above 0° F OE 10 below 0° F	OH or SAL below 0° F Used crankcase oil above 0° F	PS PL PM
GENERATING UNITS			
ENGINES	OE 30 above 32° F OE 10 below 32° F	None	OE 50
GENERATORS, A. C.	GL	WB BR GM	CG OG
CLEANING MATERIALS			
MOTOR VEHICLE PARTS	SD or DA	Kerosene	Gasoline

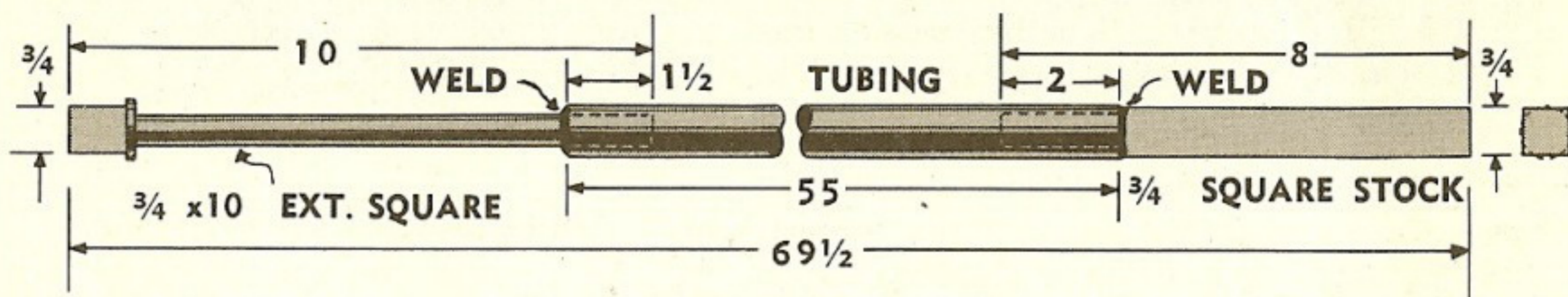
KEY TO SYMBOLS USED

Symbol	Nomenclature	Symbol	Nomenclature
BR	GREASE, ball and roller bearing	OH	OIL, hydraulic
CG	GREASE, general purpose No. 0 and No. 1	PL	OIL, lubricating, preservative, light
DA	OIL, fuel, Diesel	PM	OIL, lubricating, preservative, medium
GL	GREASE, lubricating, special	PS	OIL, lubricating, preservative, special
GM	GREASE, special, high temperature	RS	OIL, recoil, special
GO	LUBRICANT, gear, universal, Grade 75, Grade 80, Grade 90	SAL	FLUID, shock absorber, light
HB	FLUID, hydraulic brake	SAH	FLUID, shock absorber, heavy
MO	OIL, lubricating, for aircraft instruments and machine guns	SD	SOLVENT, dry cleaning
OE	OIL, engine, SAE 10, SAE 30, SAE 50	WB	GREASE, general purpose, No. 2
OG	GREASE, O.D., No. 0, No. 00	WB 3	GREASE, general purpose, No. 3
		WP	GREASE, water pump

TANKS AND GUN MOTOR CARRIAGES

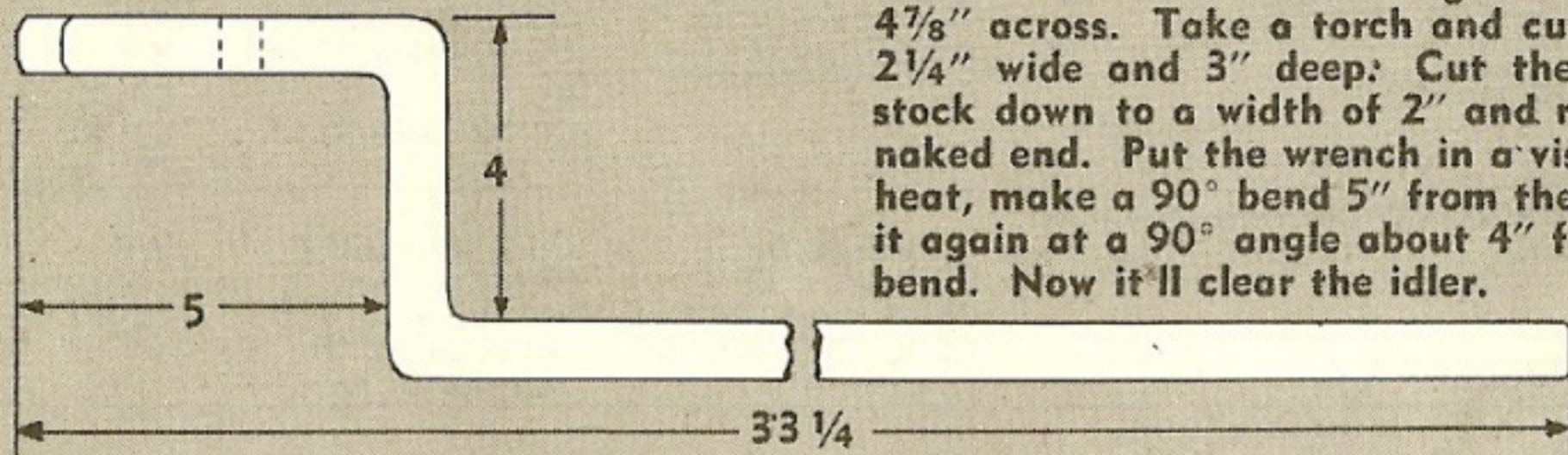
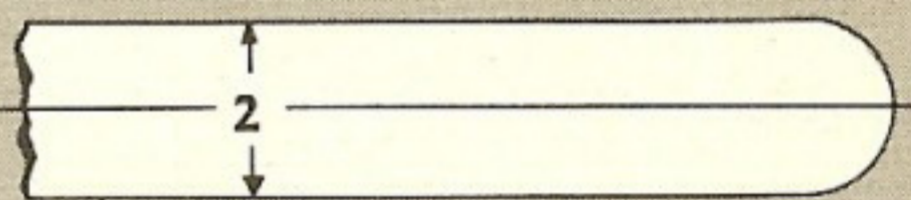
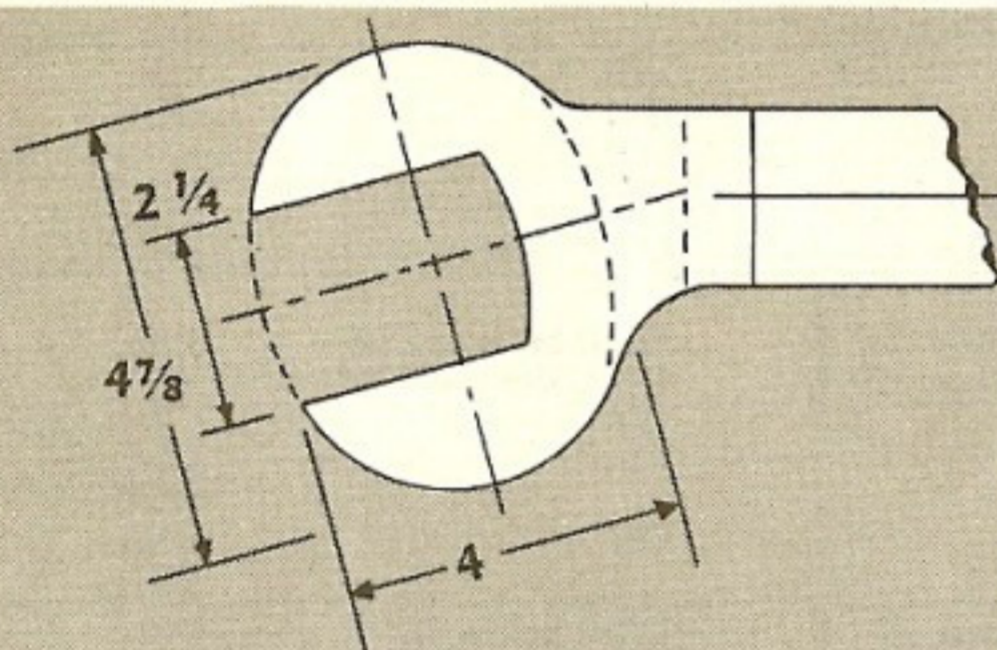
Item	Lubricant	Emergency Substitute	Do NOT Use
ENGINES:			
Radial, Ford, Lycoming	OE 50 above 32° F OE 30 below 32° F	None	OE 10
Other gasoline and Diesel engines	OE 30 above 32° F OE 10 below 32° F	None	OE 50
GEAR CASES:			
Light Tanks M5, M5A1, and M24	OE 30 above 32° F OE 10 below 32° F	None	OE 50
Other	OE 50 above 32° F OE 30 below 32° F	OE 10 below 0° F	OE 10 above 0° F
CLUTCH HUB AND PILOT BEARINGS			
	BR	WB GM WB 3	CG OG
UNIVERSAL JOINTS			
	CG 1 above 32° F CG 0 below 32° F	OG 0 below 32° F OG 00 below 0° F	WB WP
SUSPENSION SYSTEMS:			
Bogie wheels, rollers, idlers	CG 1 above 32° F CG 0 below 32° F	OG 0 below 32° F OG 00 below 0° F	WB WP
Packed bearings	WB	GM GL	CG OG WP
Shock absorbers	SAL	OH	SAH OE
OTHER CHASSIS POINTS			
	CG 1 above 32° F CG 0 below 32° F	OG 0 below 32° F OG 00 below 0° F	WB WP
TURRET AND HATCH BEARINGS			
	CG 1 above 32° F CG 0 below 32° F	OG 0 below 32° F OG 00 below 0° F	WB WP
HYDRAULIC MECHANISMS			
	OH	RS OE 10 above 32° F	OE 30 OE 50 PM
TRAVERSING AND ELEVATING MECHANISM:			
Grease points	CG 1 above 32° F CG 0 below 32° F	OG 0 below 32° F GL	WB
Oil points	OE 30 above 32° F OE 10 32° F to 0° F PS below 0° F	PM above 32° F OH below 32° F PL below 0° F	OE 50
MOTORCYCLES			
ENGINES AND GEAR CASES			
	OE 50 above 32° F OE 30 32° F to 0° F OE 10 below 0° F	None None	
CHASSIS:			
Grease points	CG 1 above 32° F CG 0 below 32° F	OG 0 below 32° F	WB WP
Oil points	OE 30 above 32° F OE 10 32° F to 0° F PS below 0° F	OE 50 above 32° F PM above 32° F PL below 0° F	OE 50 below 32° F
Wheel bearings	WB	WB 3 above 90° F CG 0 below 32° F	CG above 32° F
ROLLER CHAINS			
	OE 30 above 32° F OE 10 below 32° F	PM or OE 50 above 32° F OE 30 32° F to 0° F	Grease Graphite
GENERATORS (packed bearings)			
	WB	BR GM	CG OG

Sweat-Savers for



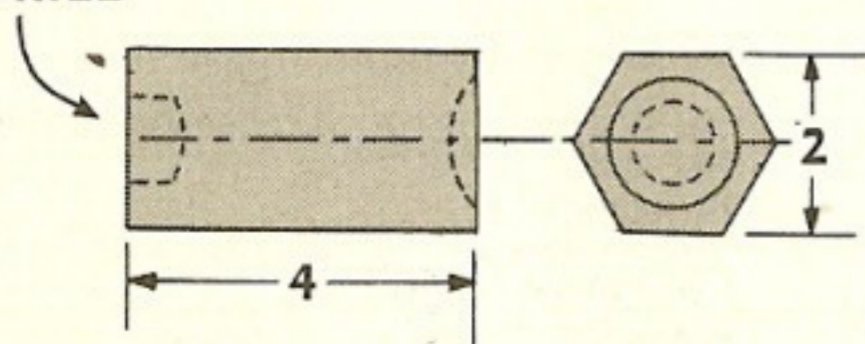
The first deal is a suspension-nut-wrench socket-extension to get at the nuts from the outside of your half-track. Find a piece of $\frac{1}{2}$ " steel tubing about 55" long. Now take a 10" extension for a $\frac{3}{4}$ " drive, grind it down so it'll

fit into the tubing, and weld it to the inside end (above). For the other end, get some $\frac{3}{4}$ " square stock (8" long), grind down about 2" of it, and weld it in the tubing. Sort of remote control, but it does the trick.



As who should know better than you, it's no joke crawling under that half-track, lying on your back, and making a track adjustment. You can do it from the outside with this Gargantuan gadget and save your achin' back. Start with some flat stock $\frac{5}{8}$ " or $\frac{3}{4}$ " thick, 6" wide, and about 3 feet long. Then shoot for the dimensions shown in this Fig. Make the head $4\frac{7}{8}$ " across. Take a torch and cut an opening $2\frac{1}{4}$ " wide and 3" deep. Cut the rest of the stock down to a width of 2" and round off the naked end. Put the wrench in a vise and, using heat, make a 90° bend 5" from the head. Bend it again at a 90° angle about 4" from the first bend. Now it'll clear the idler.

DRILL



A SERIES OF 3
CAN BE MADE
4 — 3 — 2

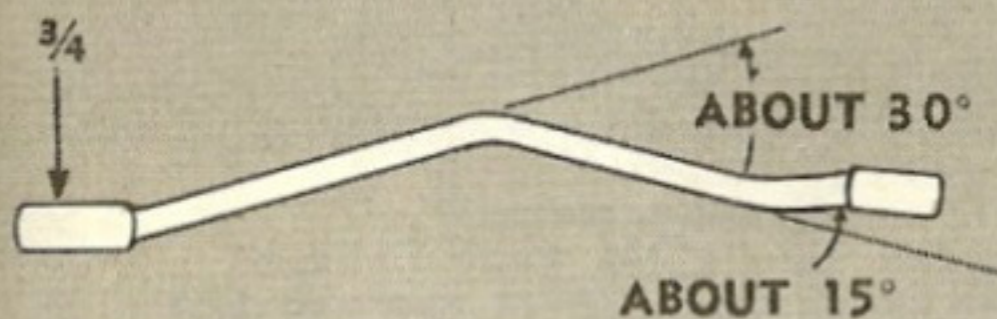
Spacers for use between the track-idler-shackle stop-bolt and the bushing end of the track-idler adjusting-screw are next on the list. They'll make it easier to compress the spring-loaded idler, so that when the track has been compressed, the band track can be removed and another track installed without changing the adjustment of the spring-loaded idler. Use hex stock and make a series of three (4", 3", 2"). Round out one end and drill a hole in the other, $\frac{1}{2}$ " deep and $1\frac{1}{16}$ " across.

or Half-Trackers

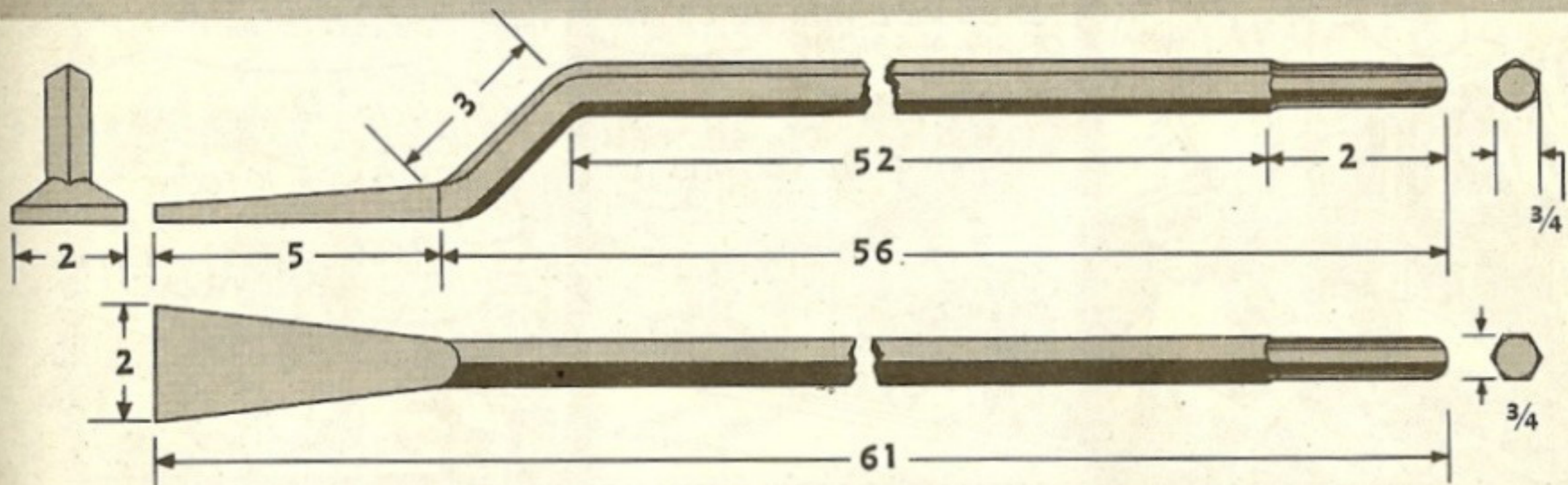
● To hear T/5 Joe Rizzo talk, life on a half-track isn't worth living without these seven special tools. He made and branched them all at Aberdeen Proving Ground—and you can do likewise, wherever you are, by following these Figs.

These tools aren't a "must," mind

you, but they can make it a helluva lot easier to do some of those necessary jobs that keep interrupting your sack duty. Talk sweet to your pet mechanic and help him make up a set for the company or battery — then every vehicle won't have to lug the whole batch around.

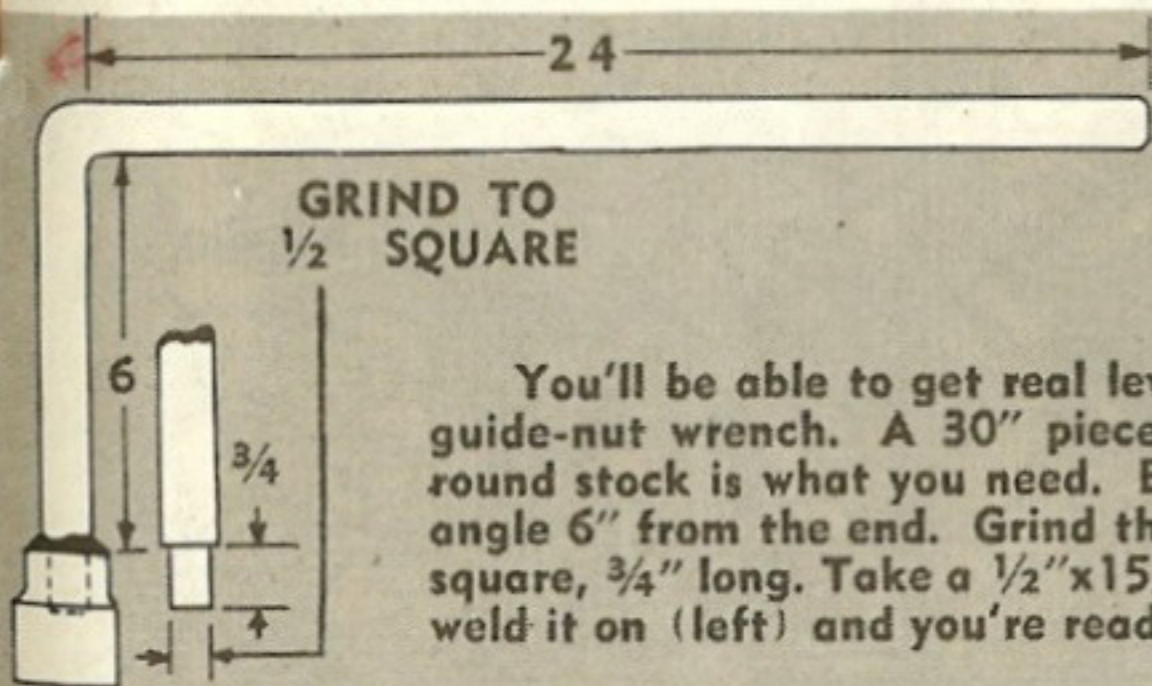


Comes now a brake-adjusting wrench. A standard $\frac{3}{4}$ " x $\frac{11}{16}$ " box wrench is all you need. Put it in a vise and bend it as at left (so it'll clear the drum and wheel) with a two-pound hammer. At no extra charge, you can use the $\frac{3}{4}$ " end for removing roller-assembly bolts on the suspension system.



The next tool is a track-installation bar. It's made from $\frac{3}{4}$ " hex stock about 5 feet long. Flatten out 5" of one end in a taper, then where the taper ends, bend it at a 45° angle as shown

above. Grind the other end down for about 2" and round it off. This one will help you pry the track off and put it back on with less wear and tear on your sweat glands.

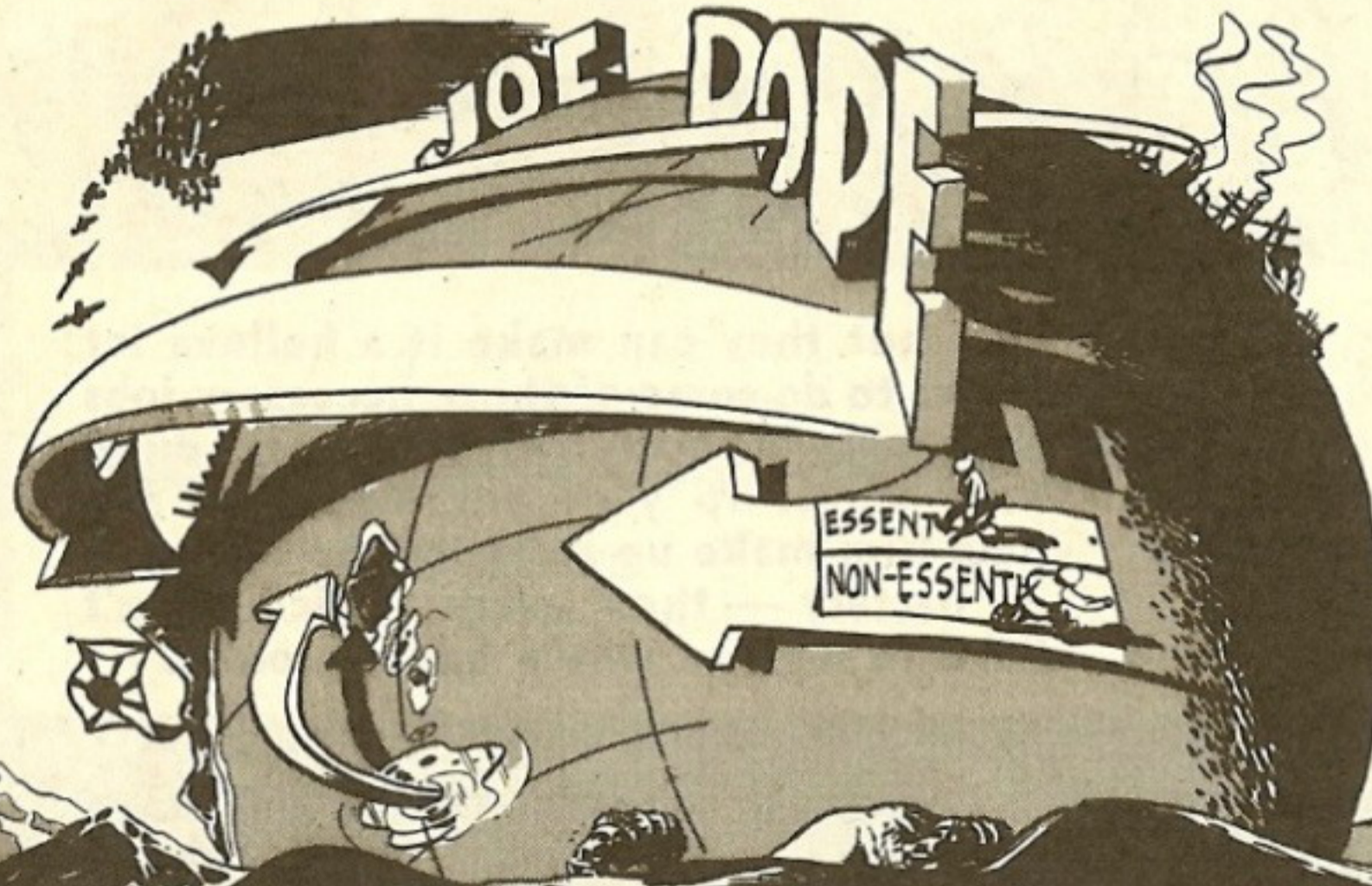


You'll be able to get real leverage with this guide-nut wrench. A 30" piece of $\frac{5}{8}$ " or $\frac{3}{4}$ " round stock is what you need. Bend it at a 90° angle 6" from the end. Grind that end to a $\frac{1}{2}$ " square, $\frac{3}{4}$ " long. Take a $\frac{1}{2}$ " x $\frac{15}{16}$ " socket and weld it on (left) and you're ready to go to work.

The tool below is a thread cleaner for those dirty, clogged threads on the spring-loaded-idler screw. Take a nut like the one you use for adjustment on the vehicle and slot it with a hacksaw at an angle so it'll have a cutting edge.



HACKSAW AND FILE PIECE OUT



GERMANY LIES BEATEN, CRUSHED INTO THE FILTH OF HER OWN BLACK KULTUR... THE MIGHTY ALLIED ARMIES PAUSE FOR A BRIEF MOMENT FOR REDEPLOYMENT AND STRATEGY CONFERENCES BEFORE DESCENDING UPON JAPAN!

IN A SECRET COMMAND ROOM IMPORTANT ALLIED CHIEFS HOLD A TENSE DISCUSSION!

YES! NO! YES! NO! YES! NO!

GENTLEMEN... WE'RE STALEMATED, THERE IS ONLY ONE WAY TO FIND WHETHER OR NOT WE SHOULD DECLARE PFC. JOE DOPE SURPLUS... OR ESSENTIAL! LET US RIDE WITH HIM ON ONE OF HIS MISSIONS

SPLENDID IDEA, SIR. WE'LL ALL ARRANGE TO BE IN HIS TRUCK

Meanwhile...

OH BOY! I JUST FIGGERED IT OUT... I GOT 9,721 1/2 POINTS... WHEN'LL THEY "SEPARATE" ME?

9,721 1/2? WHEW THAT'S THOUSANDS MORE'N I GOT WITH 5 KIDS, 10 FOGEYS, 9 BATTLE STARS PLUS 20 PURPLE HEARTS... WELL, I'LL SUBMIT Y'R CARD!

Next Morning

I'M A CINCH TO BE A SURPLUS.. GEE, ONA, AS A CIVILIAN I'LL BE ABLE TO "DATE" YOU WITHOUT HAVIN' TO WORRY ABOUT RANK!

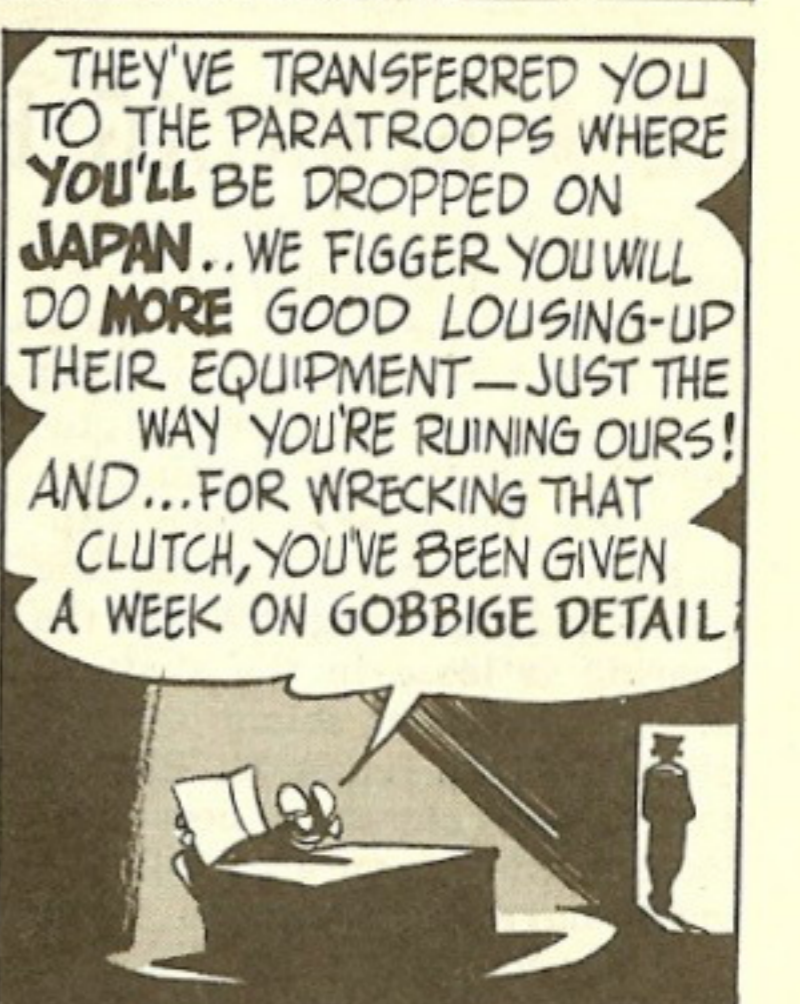
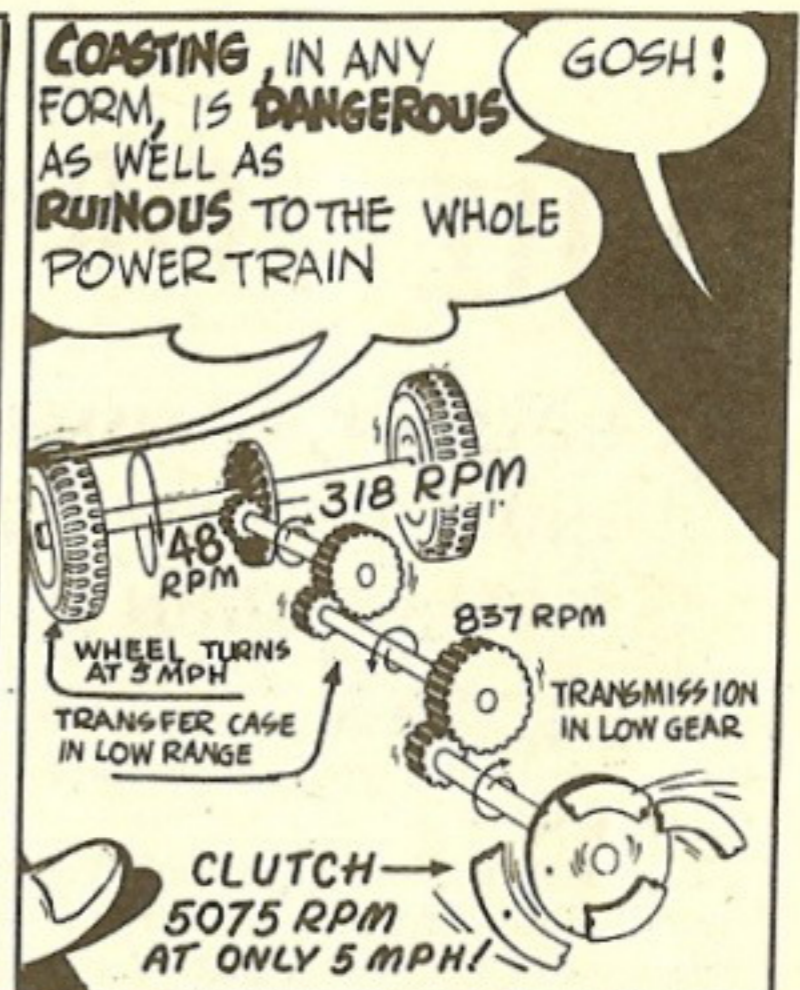
YES, IT'S BEEN AWFUL! YOU'RE A PFC. WHILE I'M ONLY A PVT.. I'VE GOT THE TRUCK READY !!

GOLLY, JOE! SLOW DOWN - WE HAVE SOME OFFICERS IN THE BACK

NOTHIN' TO IT! WHEE... HERE'S A HILL... THIS IS GONNA BE JUST LIKE CONEY ISLAND

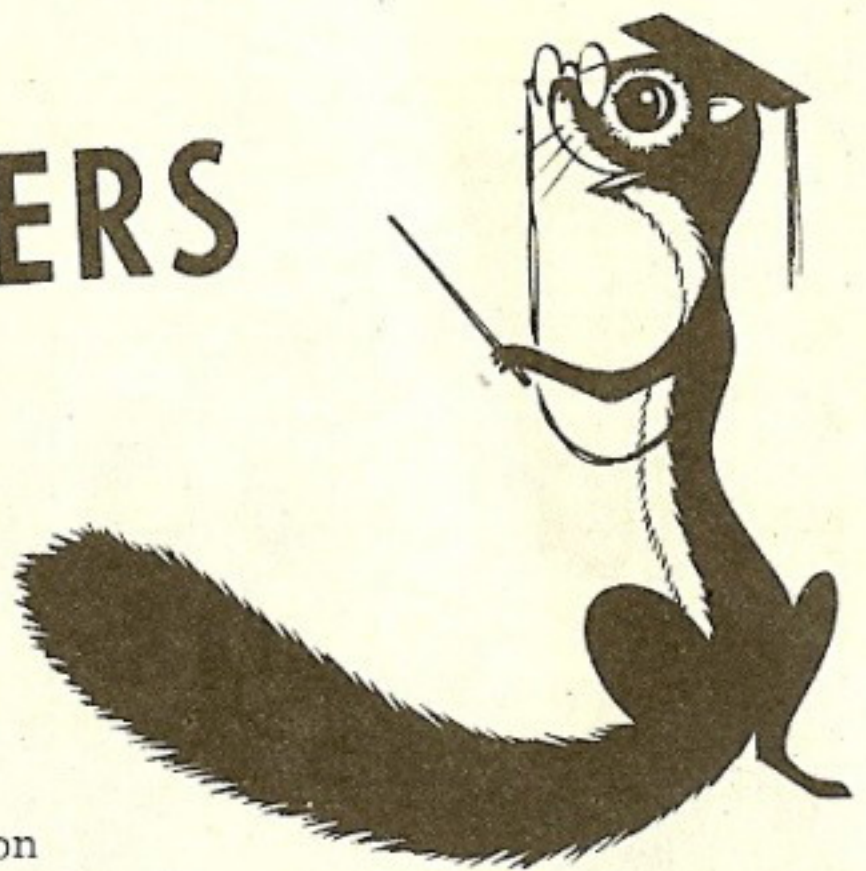
BUT JOE, GI TRUCKS HAVE GOVERNORS - YOU CAN'T GO ANY FASTER.

SEZ YOU? ANYONE KNOWS HOW TO BEAT THAT! JUST COAST... SHOVE DOWN THE CLUTCH AND.. HYOOOOO SILVAHHH!



QUIZ FOR WEASELEERS

**HOTSHOT HELMSMEN OF M29's & M29C's
SHOULD SCORE HIGH ON THESE Q & A's
FROM LT. JOHN A. McDOUGAL, APO 339**



1. Which switches must be turned on before you try to start the engine?

2. Is it necessary to double-clutch when shifting the transmission down into first gear?

3. Is it necessary to double-clutch when shifting into second or high gear?

4. Is it possible to shift the transmission into two gears at the same time, thus tearing up the transmission or the clutch?

5. How often should the lubricant level in the transmission be checked?

6. Will pulling back hard on the steering levers cause the vehicle to turn any faster than a steady pull with one finger?

7. Should you feed the engine more gas while making a turn?

8. What harm may be caused by hitting a bump at high speed with the front end of the vehicle, or by "jumping" the vehicle across a

ditch or other obstacle?

9. What are the more common causes of a thrown track?

10. If you happen to hit a bump and bounce the front end of your weasel up in the air, should you pull back on the steering brakes to let the front end down easy?

11. How many grease fittings are there on the track suspension on each side of most M29's and M29C's?

12. How often should the track suspension be lubricated when operating the vehicle in swamps or water?

13. Can you over-lubricate any parts of the track-suspension system using a hand-operated grease gun?

14. On the M29C, why should you drive on land with the surf guard in the rear position?

15. Should the engine ever be operated with the lid in the top of the air duct closed?

16. If rocks, brush, or trash get stuck up underneath the track aprons on the M29C, what should you do?

17. What will happen if you open the fuel-filter drain or the gas-tank drain before removing the gasoline drain-plug at the right front of the hull?

18. What is the maximum speed at which this vehicle should be driven for any period longer than 15 minutes?

19. Should you always shift to as high a gear as possible while driving?

20. In what gear should you drive the M29C in water?

21. What precaution should be observed in towing a heavy load down a steep hill?

(For answers, turn to page 96)

BE A BEARING EXPERT (Continued from page 66)

chisel or hard-steel drift on the inner ring or a hammer directly on the outer ring.

With a bearing on a revolving shaft, a tight fit is needed to prevent the shaft from turning inside the inner ring. Such slippage will wear out both the shaft and the ring. When the bearing is loose in the shaft or in the housing, shims or any other quick fix won't do. Replace the shaft or housing, because a loose bearing is sure trouble and you'll have the same job to do over again.

A too-tight fit will crack the

bearing ring—but you can measure it first to be sure. Some bearings have to be heated before they can be installed, especially on a long shaft. Hot air or a bath in hot OE 10 will do it, but keep the temperature between 200° and 250° F. Overheating or leaving the bearing in the bath too long will destroy its hardness.

Now for the payoff question: What's the most important single thing to a bearing? You win, it's cleanliness—clean hands, clean tools, clean lubricants, clean containers, clean cloths. But—just

because the bearing and housing were cleaned once, they won't stay that way without a little care. If they aren't going into action right away, oil 'em to prevent rust and cover 'em to keep out dirt. You can use rags or paper—even handkerchiefs, shirts, socks, or neckties if nothing else is around—but keep 'em covered.

Just as a clincher on the critical importance of bearings, think back to when the AAF commenced those daily bombing raids over Germany. One of the first targets they smithereened was bearing factories—because without bearings all transportation, including combat vehicles, goes phhht. But phast.

Is Your M4 Quick On The Draw?

NOT IF ITS SHOOTIN' IRON GETS CAUGHT IN THE TRAVELING LOCK AT THE CRUCIAL MOMENT. HERE'S WHAT TO DO IF IT DOES



After quietly cruising along in your M4 medium tank, have you ever suddenly spied a nice fat target—only to find, as you move in for the kill, that you can't elevate your gun because the traveling lock won't let go of the loop on the gun cradle when you release the handle?

This'll make even a patient man tear out his hair in big divots—and it can happen on M4-series tanks with a 76-mm gun or a 105-mm howitzer, even when the lock's adjusted right. Before you start making out requisitions for a fright wig to replace the one you were born with, let's try getting to the root of the trouble. It's pretty sure to be caused by (1) too much forging flash on the tip of the hook, (2) not enough metal on the boss (welded to the top of the turret) at the point where the body of the lock contacts it, or (3) both.

To find out which, force the lock free from the loop on the gun cradle. Then elevate the gun so you'll have room to measure the distance the hook moves in the body from locked to unlocked position. Make your measurement with the lock in just about the same position on the boss as when it's engaged in the loop on the gun cradle. The hook should move $3/16$ " to $1/4$ " (see Fig.). If it has this much travel and won't come out of the cradle loop when you raise the lever, there's probably too much metal (forging flash) on the tip of the hook.

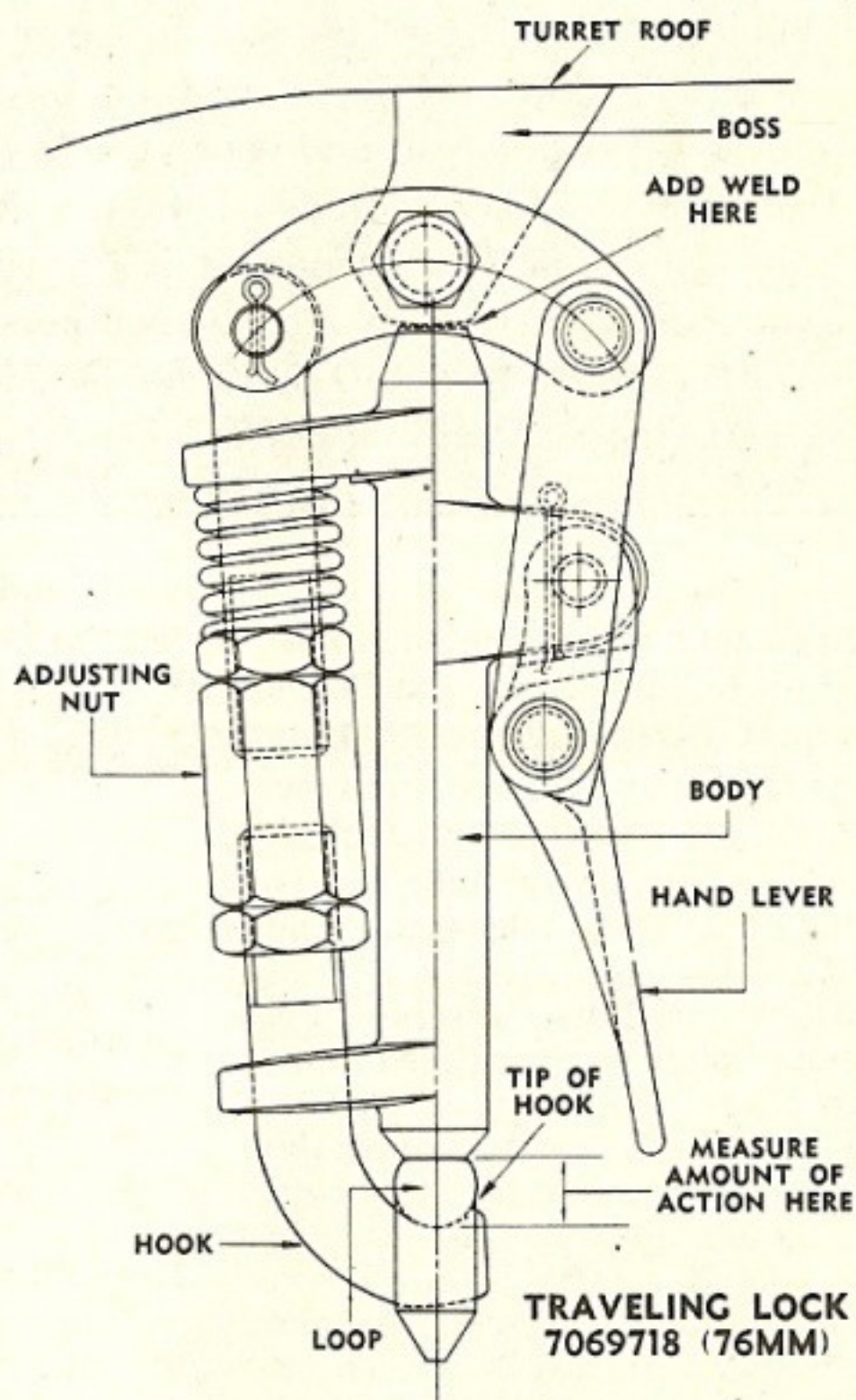
Remedy: File or grind the excess metal off the tip of the hook until you get enough clearance for the lock to be freed from the

gun-cradle loop when you release the handle. Better not go hog wild, though, and take off too much metal—or the lock won't lock when you're through. This should do the trick, if that travel distance was right.

If the travel didn't measure $3/16$ " to $1/4$ " when you tried it, there's probably not enough metal on the boss. Take off the traveling lock so you can get at it and add a $1/16$ " to $3/32$ " spot of weld on the bottom of the boss, where it contacts the body of the lock (see Fig. again). You can add your weld to the top of the body where it meets the boss, instead, but it's a little better to weld on the boss. File or grind the weld smooth and then put the lock back on. Now elevate your gun to the point where it meets the traveling lock and engage the lock in the loop on the gun cradle. (Since the added weld will make a difference in the lock adjustment, you'll have to work a little with the adjusting nut to get it right again, but that'll only take your practiced paws a couple of seconds.) Release the handle

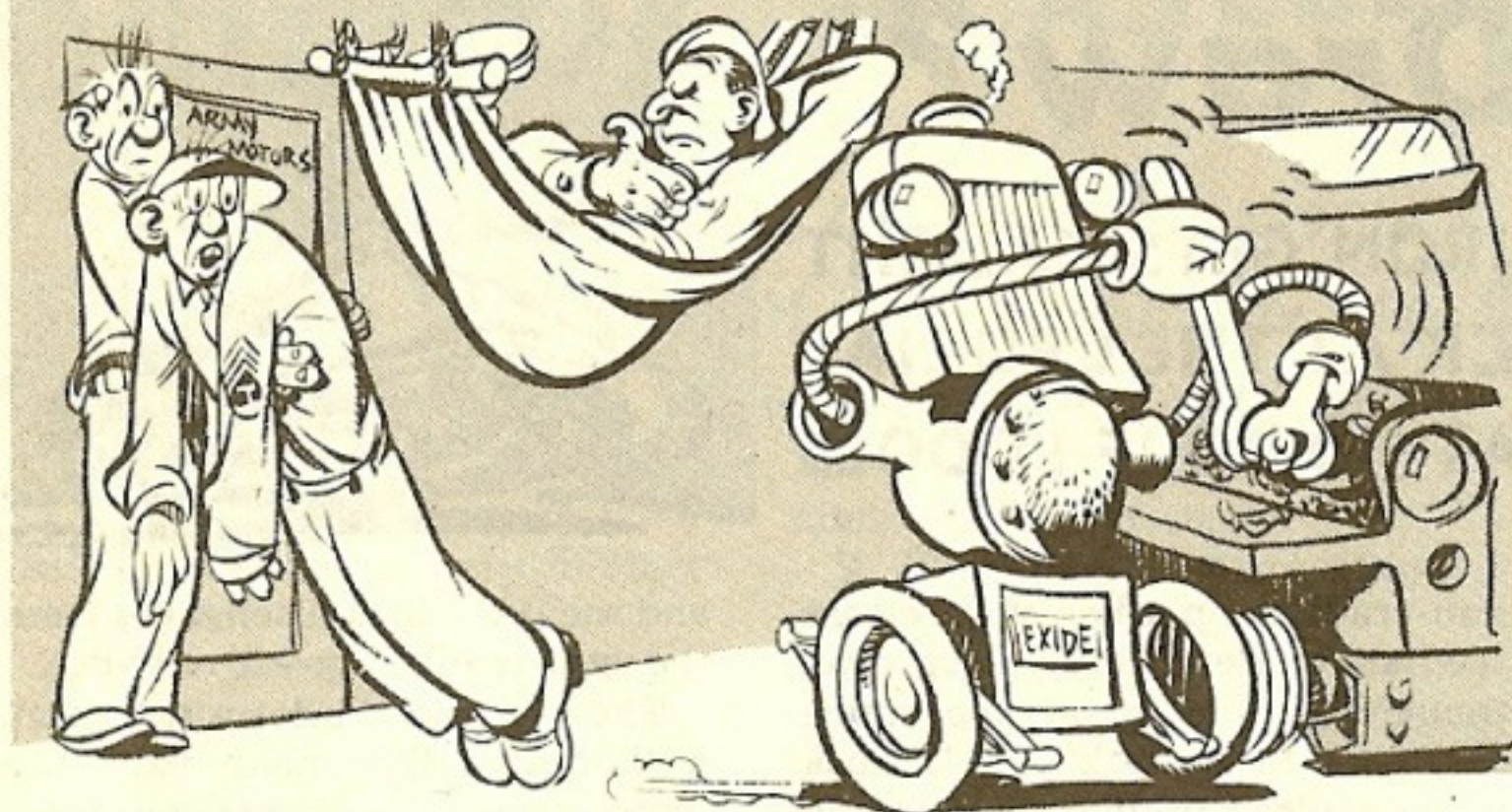
and see if the lock disengages from the gun-cradle loop—it oughta.

There'll be a bulletin out soon, authorizing this field fix. The figure shows the 76-mm-gun traveling-lock (Ord. Part No. 7069718). The lock for the 105-mm howitzer's installed the other way around, but the procedure for fixing, if the lock won't unlock, is exactly the same for both.



The hook should travel $3/16$ " to $1/4$ " from locked to unlocked position.

CONTRIBUTIONS



Keep Your Dome Fires Burning

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

Dear Editor,

Replacing an engine or transmission in the 7½-ton 6x6 Mack is a pretty formidable task. Both units are heavy and, in either case, lining up the splined clutch shaft has been extremely difficult. To do either of these jobs easier, and in far less time, simply do not assemble the clutch. Just hang the pressure plate on the splined shaft, then put on the clutch disc, pushing both units back toward the transmission as far as they will go. Swing the unit into place in the vehicle, start the two flywheel-housing dowel-bolts into their holes in the clutch cover, push the units together, and replace bolts. The pressure plate can be rotated with a pry-bar to line up the holes in the pressure

plate and flywheel. This whole process takes only a few minutes, and one trial will convince any shop of its usefulness as a time and labor saver.

Ralph D. Hess
Automotive Advisor

Ed. Note—As an "extension of remarks," Mr. H., let's point out that the bolts holding the clutch pressure-plate to the flywheel should be tightened in sequence—and only one turn at a time—to avoid distorting the clutch cover.

Dear Editor,

Experience is the best teacher, but I'd rather pass this on so some mechanic can learn the easy way, and avoid a trip to the hospital. Be sure your truck's ignition key is turned off before attempting to

juggle the distributor when timing the engine.

An accumulation of gas vapor in the crankcase, a spark from the grounding distributor-shaft (points closed), and the stage is set for the big explosion. In my case, the jeep's oil-gage stick played a tattoo on my noggin.

Sgt. Frank Moulin
Liberal Army Air Field

Dear Editor,

To remove broken studs, use a washer with a hole smaller than the stud (to stop you from welding the stud to the block). Weld a good-sized nut to the washer (see Fig. 1A). Put on a couple drops of oil and then tap with a hammer. Let cool, then remove the stud. The nut-welding trick is old, of course, but it's not so good on **small** studs. This way, studs from ¼" up can be pulled. Either arc or acetylene is okay, but better braze if you use gas.

Another thing, a bar of GI soap will stop a small gas-tank leak temporarily. I've fixed some mighty big leaks long enough to carry the vehicle into the shop. If it's a large crack, use a little waste to bridge the crack and give strength to the soap.

Also, have you ever lost a nut, bolt, or washer down in a gear case or some other tight hole and had to spend a day tearing it up, draining, etc. to get it? I made a tool that'll fish out anything made of iron up to the size of a chisel.

Take a piece of ¼" rod about 3 feet long (acetylene-steel rod's about right) and slip a piece of ¼" hose over the rod for a handle, leaving about 1" on one end and 10" on the other end clear. Wind 20 to 50 turns of heavy copper wire, depending on the strength you want, around the 10" clear end (see Fig. 1B). Connect to a good D.C. source—tank battery or welding set—with the controls at the minimum setting. This makes a long, powerful electromagnet. It can be bent and will fish out anything—it's saved the day for me lots of times.

Pvt. Martin Friedmann, Jr.
ARTC, Fort Knox

Ed. Note—Your gadget for rescuing nuts and bolts is okay if

used with caution. Better wind at least 100 turns of wire around that rod, though, and use No. 16 or 18 insulated wire. Be sure, too, that the controls on your D.C. source are set at not more than 5 amps.

Dear Editor,

If the batteries in a flashlight burn out and new cells aren't available, it's possible to recharge them two or three times.

Ground the negative end of the cell to the negative post of a 6-volt battery or half of a 12-volt battery. Place the negative end of the cell directly on the negative post of the battery, or connect them with a piece of wire; then connect the positive terminal of the battery to the carbon in the center of the cell with a piece of wire (see Fig. 2). Time required for charging is about a half a minute. And the cell is good for about one hour's steady use.

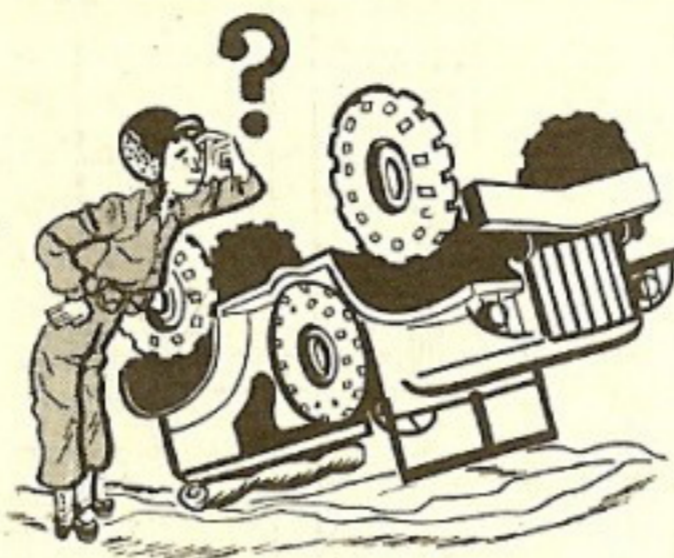
Alfred W. Kennedy
So. Portland, Me.

Dear Editor,

Every time we pull a 3/4-ton Dodge into our garage, we find the transfer-case bolts loose. The poor drivers get bawled out but they all have the same answer—"How in hell can we get at the nuts?"

You just can't get a big fat thumb into the inspection hole

under the seat, let alone reach the cotter key with a pair of pliers. Our solution was to turn the bolts



upside-down so the nut and cotter key are at the bottom. It works fine.

Sgt. Gregory Pisaniello
APO 339

Ed. Note—If you have any of the earlier model 3/4-ton Dodges with fiber insulators on the transfer-case bracket-to-frame bolts, you can help matters by replacing them with steel washers. Those bolts are going to be turned around in production.

Dear Editor,

We've been having quite a time opening the hinge on Dodge bead-lock rims. They're very hard to open after they've been in use for awhile, and have become rusty and dirty.

We have improvised a very

handy tool from an old crank. Simply cut a slot in the end of the crank to fit the hinge on the rim (Fig. 3). By fitting the slot over the hinge and turning the crank handle, the rim will collapse. This tool is also very handy in replacing the rim.

Sgt. John Dzialo
T/5 Ray Bergren
Co. C, 313 Med. Bn.

Dear Editor,

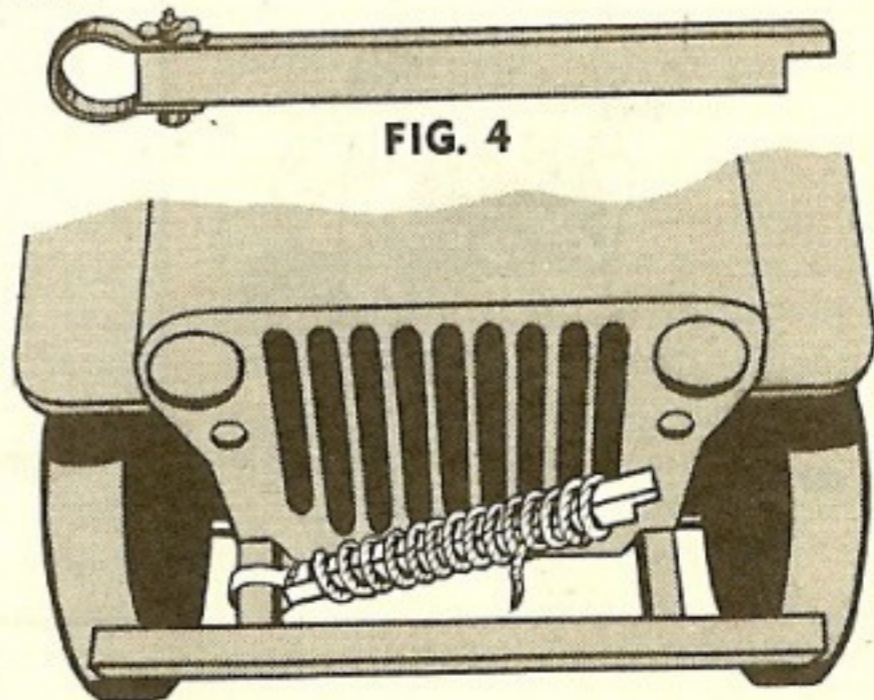
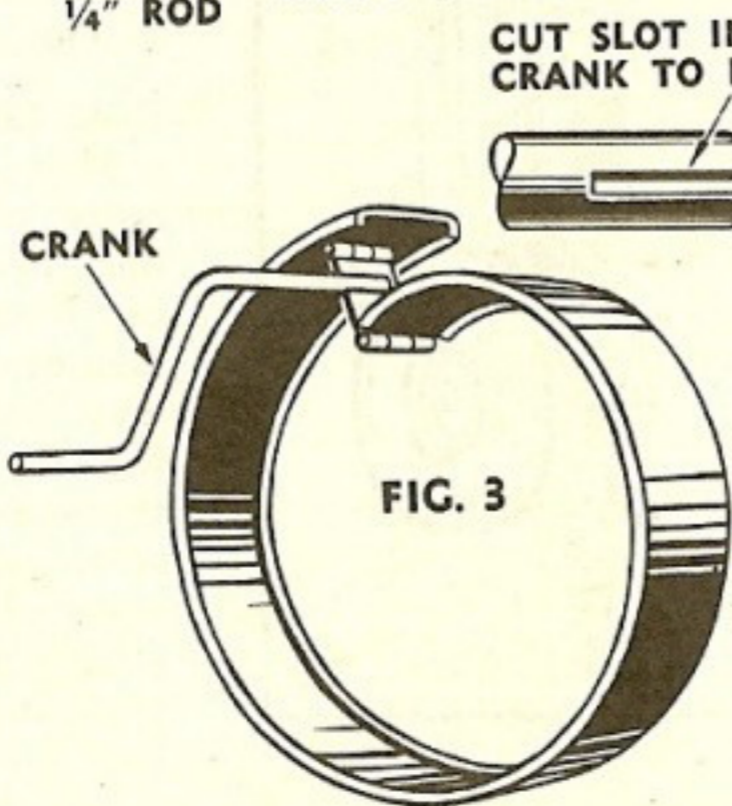
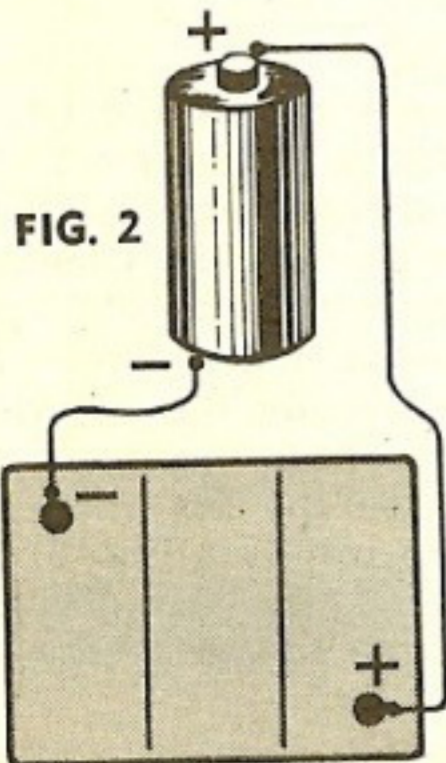
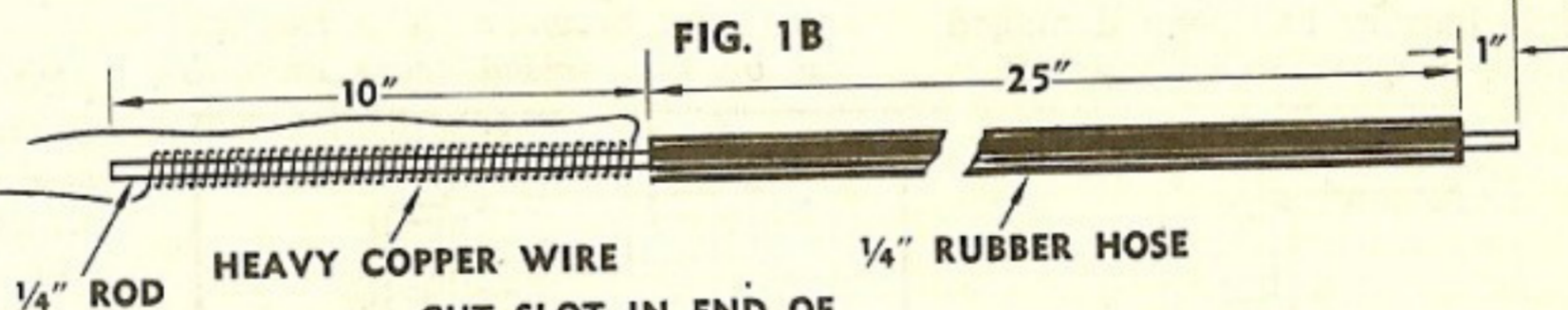
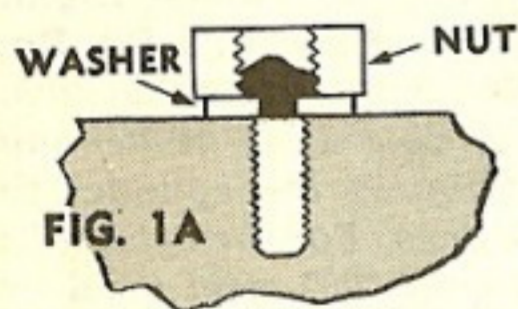
Here's a neat way to carry a tow rope on a jeep. The way it's usually carried around the front bumper, it's bound to take a lot of punishment when you're pushing other vehicles and whatnot.

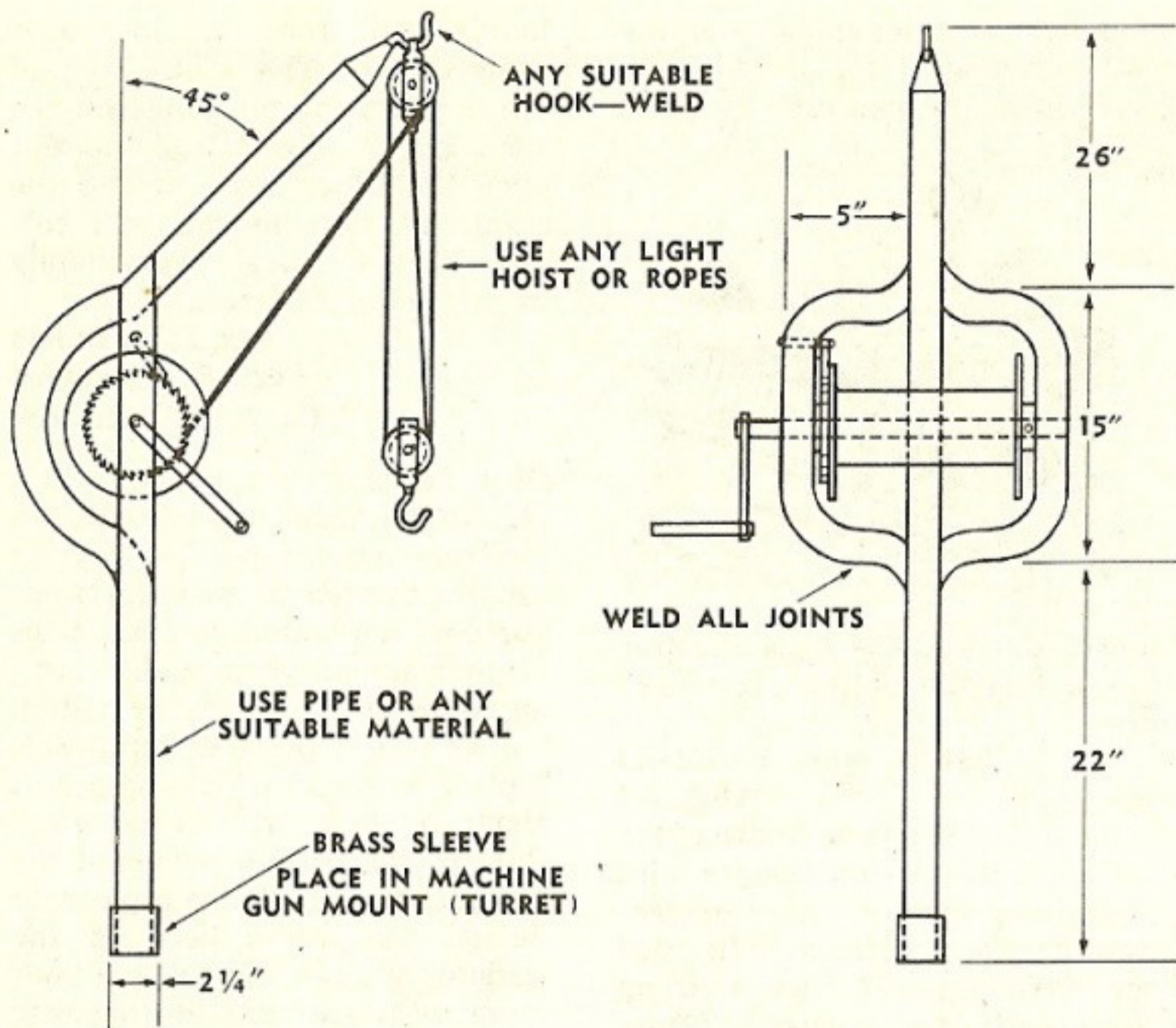
Just take a piece of scrap 2x4, a piece of tin 2" wide, and a bolt about 5" long with a wingnut. Cut out the bottom corner of the 2x4 enough to have the top corner lie on the frame between the radiator and the bumper, put your piece of tin around the opposite frame member, and attach it to the 2x4 with the bolt and wingnut (see Fig. 4).

It's Col. H. J. Crigger's idea and our instructor tried it out.

Pfc. Frank DeMar
Fort Sill

Ed. Note—The tin loop around the frame member acts as a hinge for easier winding or removal of the rope. N'est-ce pas?





Dear Editor,

One of the boys in the tank shop, **T/4 George W. Fields**, designed a lift for removing batteries safely and quickly from M4-series medium tanks. He built the lift entirely from scrap materials. In using it along with a battery-lifting sling, it's possible for one man to remove a battery in 10% of the time formerly required when 3 or 4 men were needed for the job (see Fig. 5). Records also show that not a single battery has been damaged while being removed, against a

loss of approximately 15% when removed by means of brute strength and awkwardness.

Sheridan L. Moyers
Automotive Advisor

Ed. Note—To be more specific, you'll need about 5½ feet of any old 2¼" pipe you can lay your hands on for the "frame" of the lift. The side supports can be made out of either strap iron or pipe. For the drums the ratchet goes up against, find two discarded brake drums and weld a piece of strap iron between. The ratchet can be improvised from an old

piece of boiler plate, using a cutting torch to cut the notches on the plate. You can make the ratchet's handle out of a former M4-series-tank crank. Use an old winch cable and any pulley you can get with a hook on the end of it.

That sling you use along with the lift is one of the special tools now issued for M4-series medium tanks—Sling, battery-lifting, Fed. Stock No. 41-S-3829-50.

Dear Editor,

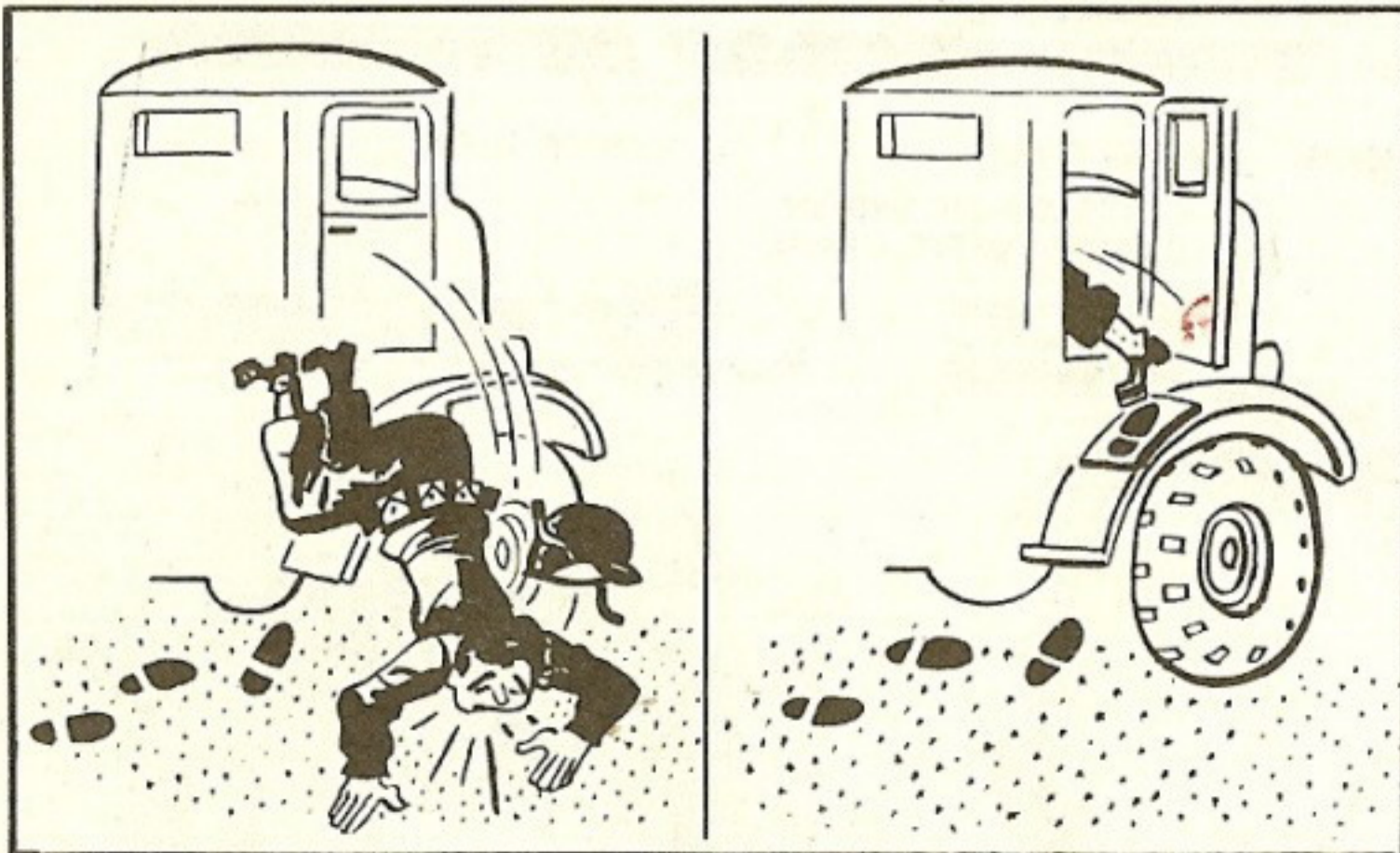
We're stationed on an island where we've experienced quite a bit of trouble with a corrosion or salt crust that freezes the piston in the wheel cylinders of the brake system, especially on the ½-ton Dodge 4x4. Not having a machine to rehone the cylinders, I hit on the idea of taking a ½" bolt, sawing the head off it, and sticking it in my drill press—then taking a wad of steel wool slightly larger than the cylinder and wrapping it around the bolt. Holding it fast with a piece of wire at the end near the chuck, I then take the wheel cylinder and start the steel wool in it. The steel wool shapes itself to the diameter of the cylinder and does an excellent job of cleaning and polishing without scoring or marking the cylinder as sandpaper or emery would do. It's worked so well for me, I thought someone else might be able to use it.

Cpl. William Biglin
Btry. F, 2 CA Bn.

Ed. Note—No flies on that idea as long as you don't leave any wool particles in the cylinder to cut up the cups. For the cylinder's sake, use only "00" steel wool or crocus cloth.

Dear Editor,

This idea is simple and what's more, it works. To overcome the hazard of slippery steps on Auto-car tractor trucks, **Pfc. Glenn G. Hemm** suggested the use of "Walkway" non-skid material to cover the steps. Actually, the only steps that have to be covered are the small ones on the left and right sides of the cab (see Fig. 6). A strip 8"x14" covers the step and portion of the fender where the



driver steps when getting out of the vehicle. Black cement of the same type used to anchor the "Walk-way" material on planes is used for anchoring.

If sufficient "Walk-way" material is available from salvage, all the steps on the tractor can be covered.

Lt. Sidney Lapin
Merced Army Air Field

Dear Editor,

Here's a trick we use to free rusted or corroded shafts, bolts, grease passages, and the like—anything that's frozen and can't be heated free with a torch. Use a 12-volt battery or two 6-volt batteries in series (or even one 6-volt if that's all you've got), hold one terminal on the object to be heated, clamp a piece of carbon from a dry cell on the other terminal, and hold that to the object, too. The time and units saved will surprise you. Just be careful not to burn yourself or your work. This idea saved me many hours—and made me plenty of dough in civilian life.

Cpl. Alfred M. Canales
Ellington Field

Dear Editor,

We have worked out a little item to overcome bent starter shafts on the $\frac{3}{4}$ -ton Dodge. I've had to take the thing off so many times that my hands have scratches all over them.

This is the way I fixed it: Cut off enough of the cowl guide to free the shaft. Drill a hole in the instrument panel half-way be-

tween the ignition switch and the choke control, and with a hacksaw cut a slot long enough to extend a $\frac{1}{2}$ " to $\frac{3}{8}$ "-dia. rod through the slot down to the top of the starter-pedal shaft. Weld rod to the shaft. The rod should extend beyond the instrument panel about 4". A 2 $\frac{1}{2}$ " length cut from the end of a broom handle goes on the end of the rod for the starter handle (see Fig. below).

We used a piece of Number 9 wire looped around the rod to raise it off the bottom of the slot, so the rod would slide easily. Another way (if you have the equipment) would be to put a plate on the instrument panel to hold the rod.

This idea helped us a lot and I think it'll help others.

T/4 John B. McGhghy
APO 928

Ed. Note—Just take care that the wiring behind the instrument panel doesn't short on the longer starter rod. A change now under consideration uses a slotted adjustable bracket at the dash to eliminate the binding in the present bracket.

Dear Editor,

An experience of mine while on duty in China may be of interest to your readers and perhaps someday might be of assistance. My duties kept me traveling on the Burma road in western Yunnan Province. In early 1943 we had but very little transportation and what we did have was somewhat the worse for wear.

In a $\frac{1}{4}$ -ton Ford, about halfway between points on the top of a mountain,

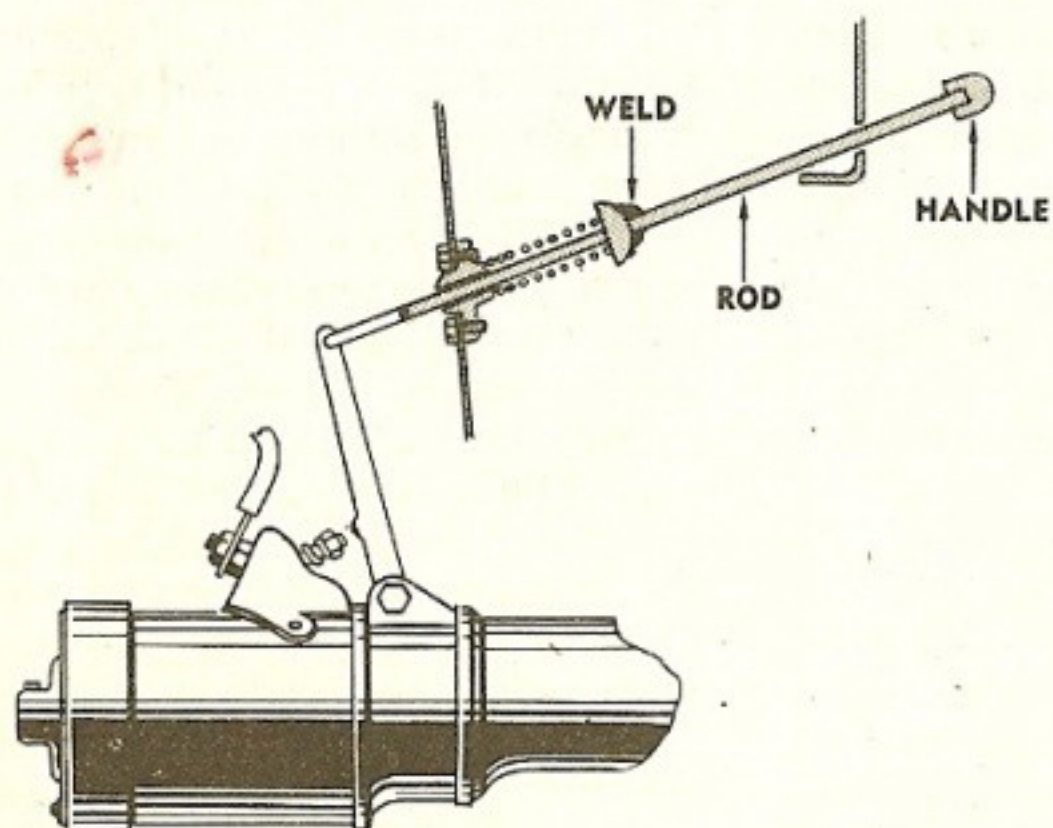


with the rain coming down in sheets, the fuel pump went out. The screw that runs down through the pot-metal case had stripped the threads and there was no way of tightening it to maintain the vacuum.

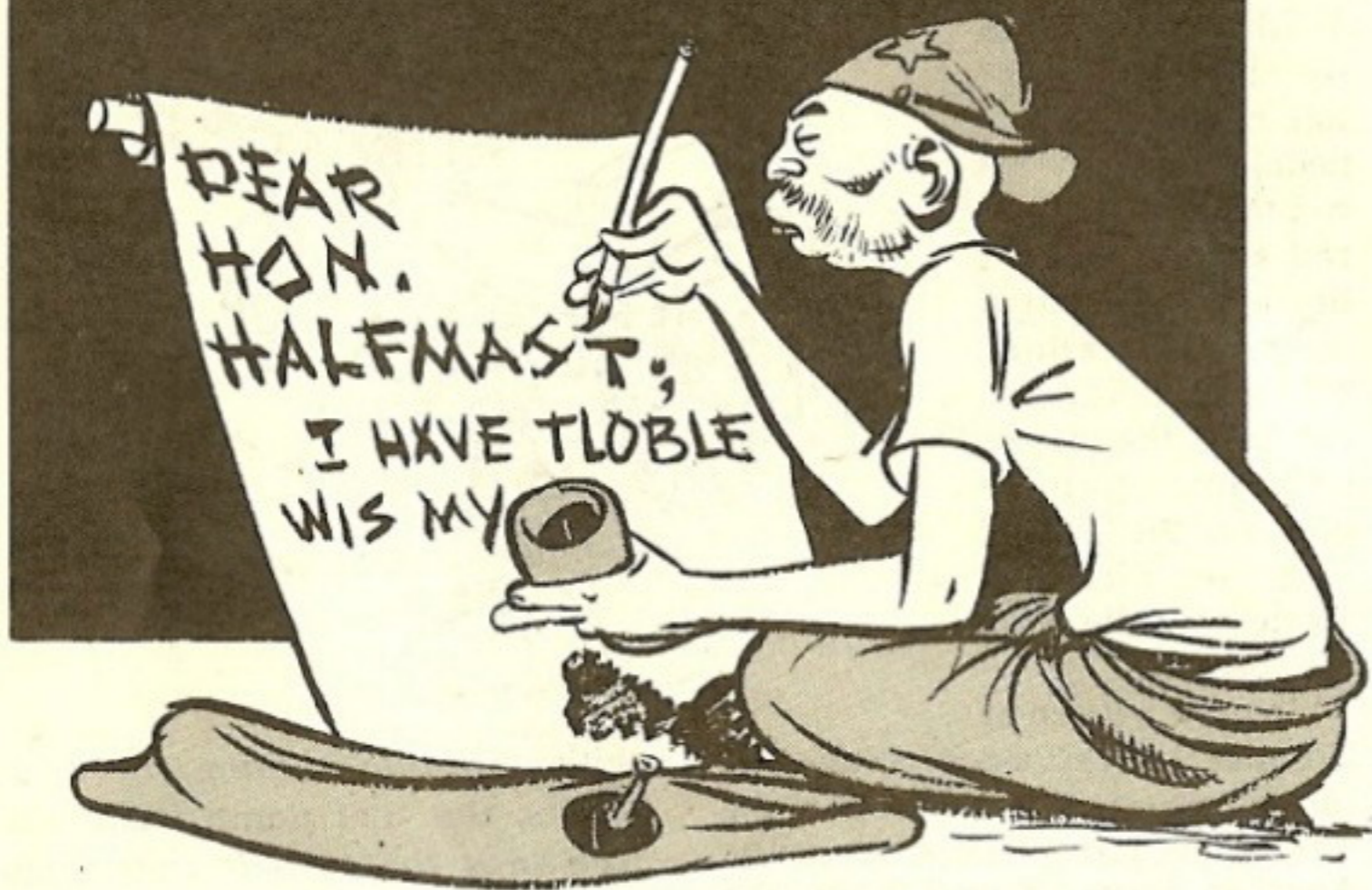
Distances between stations required carrying an extra gas tank which was mounted under the other front seat, and, in addition, I had an extra 5-gallon can of gas. Very little, if any, traffic was on the road at that time and there was no American transport. It was either fix it or else.

I shut off the gas tanks and took off the gas line, tied the 5-gallon can to the windshield so the bottom of the can was above the carburetor and placed the end of the gas line inside the can right down to the bottom. The line was extended out around the windshield and under the hood to the carburetor. Suction was applied to start the siphoning effect (see Fig. above) and then the line was attached to the intake connection of the carburetor. Each time the can was emptied, this procedure had to be repeated as I had no way to refill it except to use the gas line to siphon it out of the tanks into the can. A little more time and gas than usual was required—but I reached my destination that night.

Maj. Bruce E. Rey
Camp Lee



SGT. HALF-MAST McCANICK'S QUESTION DEPARTMENT



Dear Half-Mast,

This time I really have a dilly for you. We have two M5 light tanks that run like meat grinders—but that's not the trouble. The problem is that no matter how we try to back up these tanks, we can use only one engine. If we start one engine and put it in reverse, it works—but if we start both engines and put it in reverse, it just stands and hums. We remedied it up to a certain point by adjusting the linkage, throttle controls, and the bands of both transmissions and the transfer case. Then we tried it again and guess what—it still didn't work except with one engine.

The tank's TM says you can't run a tank backwards with one engine. Well, we can go backwards with either engine, but not with both. We have to do a lot of backing up and the one engine takes a beating, even if we do use one for a while and then the other. We have four mechanics, graduates of Fort Knox Tank School this year, but we have not been able to solve this problem. What can we do?

Sgt. A. E. R.

Dear Sergeant,

Dilly is right. But it ain't quite

as baffling as it sounds. The trouble lies in the valve-control assembly and the best plan is to replace both of 'em. If your transmission serial number is between 1GH1 and 1LH19874, order the new unit under Item Stock No. G103-18-27199 (Ord. Part No. C107743); and if your transmission number is 1MH19875 or higher, the Item Stock No. is G103-18-27186 (Ord. Part No. C108466).

Try that on your reluctant dragons, Sarge.

Half-Mast

Dear Half-Mast,

With the engine at operating temperature, would the thermostat valve in the oil cooler on an M7 howitzer motor carriage (R975-C1 engine) allow the oil to pass into the hopper if the small holes inside the cooler get clogged with dirt?

Lt. J. R. M.

Dear Lieutenant,

The oil will by-pass through the passage on the side of the cooler if the smaller holes get clogged—as long as the by-pass itself ain't clogged. You've probably noticed that if the cooler does clog up, you get a noticeable rise in engine oil

temperature. Scavenge oil pressure also goes up due to restriction in the cooler, and as the pressure rises to 40 pounds or over, the by-pass valve will open to prevent damage.

Don't seem like there oughta be too big a chance of the cooler clogging, on account of the filter is located in the line between the engine and the cooler. TM 9-731E (15 Aug. 44) tells you in par. 75b how to keep that cooler clean.

Half-Mast

Dear Half-Mast,

There are a few points on the 2½-ton 6x6 GMC that have been puzzling me for some time. I believe you can clear them up.

We had a couple of engine replacements, one of them bringing us the new two-piece crankcase. This engine develops, at normal operating temperature, an oil pressure of 60 pounds. It drops to 20 pounds at idling speed, as in the old type—but as soon as the revs are picked up, it climbs back to 60 and stays there. Is this a normal feature of this engine? If it is, what prompted this engineering change? I've checked with the mechanics in other outfits and they all report the same condition.

These engines also operate at a higher temperature than the other type. They don't overheat but operate at about 180°. Are they equipped with higher thermostats? If so, is there any particular reason for this? I mean, have the engineers uncovered something that caused them to recommend a higher operating temperature?

I figure there is some specific function for the peculiar type of crankcase drain-plug on this job other than merely catching sediment. Never having had occasion to pull the pan on one, I'm not quite certain what it is. Can you give me an explanation, please?

One more question and I'll leave you alone to pull your hair out by yourself. Why does the valve at the manifold in the crankcase-breather system get plugged more frequently on an engine equipped with the old-type valve cover, in which the vents have been closed and a pipe connection installed,

than on one having the newer-type valve cover? Can dust be working through the old vents and causing this condition? If so, would you recommend brazing these vents as a cure?

T/4 M. V. B.

Dear Sergeant,

There's nothin' screwy about your oil pressure being 20 pounds at idling speed and then climbing to 60 pounds when the revs are up. Y'see, the two-piece crankcase is deep sump instead of shallow sump like the old one—and that quick pressure-build-up in a deep sump crankcase (especially on a new or rebuilt engine) is perfectly normal.

There's been only one crankcase engineering change designed to increase oil pressure. That came out on only about one-third of the shallow-pan jobs, starting with engine 270-179221. It's a heavier oil-pressure-relief-valve spring (GM-2137564) and you can tell it by a blob of red paint on one end. It replaces the lighter spring (GM-1290361).

Then there're a couple new features which weren't meant specially to lift the oil pressure, but do have that effect. Which is fine. For instance, the sump in the two-piece job is located so the engine oil stays cooler throughout the whole operating range. This coolness boosts the pressure like a sat-on tack, because the oil doesn't thin out so much.

Also, they're using a new type of connecting-rod bearing—a Moraine bearing—on all engines after 270-430613. That means, uh course, none of the shallow pans rated 'em. They're designed to give less journal-to-bearing clearance than the copper-lead type used optionally in these engines. Actual figures on that, in case you need 'em, are .0015"-.0036" clearance with copper-lead and .0006"-.0026" with Moraine bearings. The diff between deep and shallow-pan engines in oil temperature and bearings alone could make an important diff in oil pressure.

The new engine doesn't have any higher thermostats than the ones on all later shallow-pans, which start moving at 160° and

open all the way at 185°. You might've gotten 143° thermostats on some of your trucks, somehow—either because the trucks were issued early or because they needed a thermostat replacement in the field. A 160° operating temperature's what you gotta have to permit vaporization of the crankcase condensation that often forms. You have to make a vapor of it so the ventilation system can blow it out—that's why the higher thermostats. Might take a gander at TM 9-801 (24 Apr. 44), page 227, if you get a chance.

That drain plug you were sheddin' dandruff about has a new deflector tube with a built-in scraper device. That's all that's new. The tube fits into the oil cleaner proper when the drain-plug assembly's installed. When you yank out the plug, the scraper goes to work on the tube and drags out any dirt sticking to the lower section of the cleaner. Roll your glassy orbs over page 52 of TM 9-1802A (15 Jul. 43), and you too can be three-quarters of a plug expert.

The vent-type rocker-arm valve cover was put on older engines. That explains why the valve at the manifold gets plugged more often—these engines have had more wear 'n' tear and there's more crankcase dilution on accounta decreased efficiency of ventilation. Contaminants (stuff like dirt), instead of forming sludge in the engine, only get as far as the ventilator valve and stick there, because the ventilation system can't quite make the grade.

Vents in the early-type covers oughta be sealed tightly. That'll keep out dust and prevent air leaks which raise hell with the ventilating system, reducing the amount of vapors drawn from the crankcase. For extra edgication, wrap yourself around the story on page 12 of the April ARMY MOTORS.

Dear Half-Mast,

I'd like to refer you to item 33 of the lube guide in TM 10-1255 for the M20 Diamond T tank transporter. It says to use #30 engine oil in the water pump.

We've found water-pump lubricant (Spec. No. 2-109) or chassis grease in the water pumps of these vehicles when they're received from the States.

In my opinion, the water-pump lube is more desirable than engine oil, since it can still lubricate if there is water getting through the seals, whereas the oil quickly breaks down. Can you enlighten us on this?

Capt. M. M. M.

Dear Captain,

My guess is that you're talkin' about the bearing on the generator-drive end of the M20's water pump—right?

In spite of finding WP or CG in the water pump when you receive them tank-transporters (and don't ask me how it got there), engine oil is still the only right lube for it. Water ain't likely to get into the bearing, 'cause the water pump has a face-type seal and any water that gets past the seal will drain out a hole in the housing before it ever gets to the bearing. So the OE's okay, like the lube order (and your TM) says.

Half-Mast

Dear Half-Mast,

TM 10-1501 says, "Hook up coil wires, positive to distributor, negative to ignition switch." TM 10-1563 gives just the opposite, while both stress the importance of having them hooked up correctly.

Please tell us which is right and why.

Sgt. G. E. L.

Dear Sergeant,

Both TM's are right, because the polarity of the battery ground determines the proper connections to the primary terminals of the ignition coil, and the two manuals cover systems of different polarity.

TM 10-1501 covers the 2½-ton 6x6 GMC equipped with a Delco-Remy 25-amp generator, model 1105854, and has a **positive-grounded** battery. TM 10-1563 covers the 2½-ton 6x6 GMC equipped with a Delco-Remy 40-amp generator, model 1105861, and the battery is **negative-grounded**.

But how come you're still using those vintage TM's, chum? They've long since been super-

Half-Mast

seded by 9-series manuals—TM 9-801 (24 Apr. 44) for 1st and 2nd echelons, and TM 9-1801 (10 Mar. 44) and TM 9-1802A (15 Jul. 43) for higher echelons.

Half-Mast

Dear Half-Mast,

Is there any information published concerning the proper adjustment of pintle hooks? If not, please let me know how tight or how loose these pintles should be on 2½-ton, 4-ton, and 6-ton trucks.

WOJG W.

Dear Mr. W.,

You'll find that some TM's for vehicles with pintle hooks give their adjustment. If not, what you do is keep the pintle-shaft nut tight enough so it won't rattle, but the fit oughta be free. And lube the moving parts regularly with seasonal-grade engine oil.

Half-Mast

Dear Half-Mast,

While working on a 6-ton 6x6 Mack prime mover, I noticed that the specifications for the exhaust-valve settings call for them to be set closer when cold and wider when hot. This is in TM 10-1477, Section 01-67, under Valves, Exhaust. I always thought it would be the other way around. Can you set me straight on these settings?

T/5 M. S.

Dear Corporal,

Those specs in TM 10-1477 are okay. They look screwy if you've been used to the smaller L-head engines, 'cause this could happen only on an overhead-valve job.

One reason is the position of the

valve stems. In an L-head engine, the valve stem sits pretty close to the cylinder and everything expands when it gets hot, including the cylinder block, head, valve, and valve seat. When all these parts get bigger, the valve clearance gets smaller—so you have to start with a wider clearance when the engine's cold. On the other hand, with the overhead-valve job, the valve stem points away from the cylinder and is sitting up in the head with a lot of nice cool water flowing around it. In the Macks, too, the push rods are made of invar, a material that hardly expands at all when it gets hot. Then when everything else expands except the valve stem, cylinder head, and push rod, the valve is sort of pulled away from the rocker arm, making the clearance greater. So that means you have to start with a closer clearance when the engine's cold.

Half-Mast

Dear Half-Mast,

They told me in school that the ¼-ton jeep has from ¼" to ⅜" toe-in on the right rear wheel. Mind you, I said right rear. They weren't kidding, either, for we checked several vehicles. Nobody could tell me why, though, and I can't think of any good reason, myself. Maybe you can help me out on this riddle.

T/3 K. J. A.

Dear Sergeant,

That business about pigeon-toed jeeps gave Willys the willies. They say honest they don't make 'em that way—the rear wheels are

supposed to point straight forward.

After you adjust your front-wheel toe-in like the TM says, you can hold a straightedge along the left wheels, front and rear, and it'll touch both the front and back of each tire. Then if you hold the straightedge along the right wheels, it'll hit only the back of each tire—and there **should** be about ⅜" clearance between the straightedge and the front of the right rear tire. Maybe it **looks** like a toe-in on the rear wheel, but it ain't. The position of the toed-in front wheel is what keeps the straightedge from touching the front of the rear wheel. See?

If those rear wheels really **do** toe in, the rear-axle housings must be bent or something.

Half-Mast

Dear Half-Mast,

I'm the motor sergeant in a Mobile Laundry Co. and we have 4-5 ton 4x4 Autocar tractor trucks, Model U-7144-T, with which to haul our semitrailers around. We've had trouble using our ignition timing light on these vehicles because the fuel pump is almost smack up against the flywheel housing, making it impossible to get any results with the timing light. What can I do about it?

T/Sgt. S. M.

Dear Sergeant,

Using a timing light on that baby is a tough deal, no argument. They've corrected it in production by showing the dead-center position with another mark on the flywheel rim which you can see from an opening in the bottom of the flywheel housing.

But here's a method that oughta work, even with that fuel pump stuck in the way. First, see that the distributor's fully retarded. When No. 1 cylinder is near the end of the compression stroke, remove the plug wire from this cylinder and hold it ⅛" off the head. Meanwhile, hand-crank slowly until the spark jumps to ground. Then use a mirror to check the flywheel marks.

Half-Mast

Answers In His Panswers!

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

The Month's Directives

Recent official publications affecting lower-echelon motor maintenance—and how to get them

WAR DEPT. AGO PUBLICATIONS—ZONE OF INTERIOR

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

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

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

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

Atlanta AG Depot, 1215 Sylvan Road, S.W., Atlanta, Ga.
(Serves 4th Service Command.)

Columbus AG Depot, 42-52 So. Starling Street, Columbus 8, Ohio.
(Serves 5th and 6th Service Commands.)

Omaha AG Depot, 16th and Cuming Streets, Omaha 2, Neb.
(Serves 7th Service Command.)

San Antonio AG Depot, San Antonio ASF Depot,
Grayson St. Station, San Antonio 8, Texas.
(Serves 8th Service Command.)

Ogden AG Depot, Ogden ASF Depot, Warehouse 12A, Ogden, Utah.
(Serves 9th and N. W. Service Commands.)

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

WD Lubrication Orders (new-type LO-9 series) are requisitioned from AG Depots listed above. Old-type LO's (1-1000 series) are requisitioned from Fort Wayne Ordnance Depot, Detroit 32, Mich. See FM 21-6.

WAR DEPT. AGO PUBLICATIONS—OVERSEAS*

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.

ORDNANCE DEPT. PUBLICATIONS—ZONE OF INTERIOR

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

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ORDNANCE DEPT. PUBLICATIONS—OVERSEAS*

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 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.

*Addresses supplied by distribution headquarters concerned.

CORRECTION: TM 9-824 (30 Dec. 44) is the new manual for Bus, 29-pass., 1½-ton, 4x2 (IHC K-5, KS-5). It was listed incorrectly in May as TM 9-897.

ARMORED CARS

CAR, ARMORED, LIGHT, M8

LO 9-743 (15 Feb. 45).

CAR, ARMORED, UTILITY, M20

LO 9-743 (15 Feb. 45).

SCOUT CARS

CAR, SCOUT, M3A1

ORD 7, SNL G-67 (6 Mar. 45).

LO 9-705 (12 Feb. 45).

GUN MOTOR CARRIAGES

ALL GUN MOTOR CARRIAGES
ON M4-TANK CHASSIS

TB ORD FE26, Propeller-shaft bolt size.

CARRIAGE, MOTOR, 105-MM

HOWITZER, M7B1

LO 9-749 (28 Feb. 45).

CARRIAGE, MOTOR, 75-MM

HOWITZER, M8

LO 9-732B (10 Mar. 45).

CARRIAGE, MOTOR, 3-IN. GUN,
M10

LO 9-752 (1 Mar. 45).

CARRIAGE, MOTOR, 3-IN GUN,
M10A1

TB ORD FE29, Safety fuel-shut-off
valve.

CARRIAGE, MOTOR, 155-MM
GUN, M12

LO 9-751 (8 Mar. 45).

CARRIAGE, MOTOR, MUL-
TIPLE-GUN, M15

LO 9-710-4 (25 Feb. 45).

CARRIAGE, MOTOR, MUL-
TIPLE-GUN, M15A1

LO 9-710-7 (23 Feb. 45).

CARRIAGE, MOTOR, 76-MM
GUN, M18

LO 9-755 (15 Feb. 45).

CARRIAGE, MOTOR, 90-MM
GUN, M36

TB ORD FE29, Safety fuel-shut-off
valve.

LO 9-758 (26 Feb. 45).

CARRIAGE, MOTOR, 90-MM
GUN, M36B1

TB ORD FE29, Safety fuel-shut-off
valve.

CARRIAGE, MOTOR, 75-MM
HOWITZER, T30

LO 9-710-2 (10 Mar. 45).

CARRIERS

CARRIER, PERSONNEL, HALF-
TRACK, M3, M3A1

LO 9-710 (10 Mar. 45).

CARRIER, 81-MM MORTAR,
HALF-TRACK, M4, M4A1, M21

LO 9-710-1 (1 Mar. 45).

CARRIER, CARGO, M28

ORD 7, SNL G-154 (9 Apr. 45).

CARRIER, CARGO, M29

TB 9-772-5, Checking and adjusting
track tension.

CARRIER, CARGO, M29C
TB 9-772-5, Checking and adjusting track tension.
CARRIER, CARGO, M30 (T14)
LO 9-751 (8 Mar. 45).
VEHICLE, UTILITY, ARMORED, M39
LO 9-755 (15 Feb. 45).

LIGHT TANKS

TANK, LIGHT, M22
LO 9-724 (11 Feb. 45).
TANK, LIGHT, M24
TB 9-729-FE2, Driver's and assistant driver's door lift-handles.
TB 9-729-4, New-type carburetor air-cleaner.
LO 9-729 (2 Mar. 45).

MEDIUM TANKS

TANK, MEDIUM, M4-SERIES
TB ORD FE26, Propeller-shaft bolt size.
TANK, MEDIUM, M4A2, 75-MM GUN
LO 9-731B (29 Mar. 45).
TANK, MEDIUM, M4A3-SERIES
MWO ORD G1-W22, Radiator protection against ground bursts.
TANK, MEDIUM, M4A3, 75-MM GUN, DRY
TB ORD FE29, Safety fuel-shut-off valve.
TANK, MEDIUM, M4A3, 76-MM GUN, WET
ORD 7, SNL G-205, C1 (7 Apr. 45).
TANK, MEDIUM, M4A3, 105-MM HOWITZER
ORD 7, SNL G-104, Vol. 15, C1 (7 Apr. 45).
LO 9-759-1 (6 Mar. 45).
TANK, MEDIUM, M4A6
LO 9-756 (15 Feb. 45).
VEHICLE, TANK RECOVERY, M32-SERIES
TB ORD FE26, Propeller-shaft bolt size.
MOVER, PRIME, FULL-TRACK, M33
ORD 7, SNL G-222 (27 Mar. 45).
MOVER, PRIME, FULL-TRACK, M35
ORD 7, SNL G-223 (27 Mar. 45).

HEAVY TANKS

TANK, HEAVY, M26
ORD 9, SNL G-226 (15 Mar. 45).
LO 9-735 (10 Mar. 45).

TRUCKS

TRUCK, 1/2-TON, 4x2 (DODGE)
LO 9-U319 (19 Feb. 45).
TRUCK, 1/2-TON, 4x4 (DODGE)
LO 9-U304 (20 Feb. 45).
TRUCK, 1 1/2-TON, 4x2 (DODGE)
LO 9-U313 (12 May 45).
TRUCK, BOMB SERVICE, M6 (CHEVROLET)
LO 9-765 (10 Mar. 45).
TRUCK, 1 1/2-TON, 4x4 (CHEVROLET)
TM 9-805, C1, Operation and maintenance (19 Mar. 45).
LO 9-805 (14 Feb. 45).
TRUCK, 1 1/2-TON, 4x4 TELEPHONE MAINTENANCE, K43 (CHEVROLET G-7173), TELEPHONE EARTH-BORER K43 (CHEVROLET G-7163)
LO 9-805-1 (1 Mar. 45).

TRUCK, 1 1/2-TON, 6x6 (DODGE T223)
TM 9-810, Operation and maintenance (28 Feb. 45).
LO 9-810 (28 Feb. 45).
TRUCK, 2 1/2-TON, 4x2 (FEDERAL)
LO 9-821 (15 Feb. 45).
TRUCK, 2 1/2-TON, 6x6, CARGO (STUDEBAKER, REO)
LO 9-807 (12 Feb. 45).
TRUCK, 2 1/2-TON, 6x6 (GMC CCKW-352, 353)
TB ORD FE22, Demountable-type brake drum and new oil deflectors.
TB ORD 265, Equipment list.
TRUCK, 2 1/2-TON, 6x6, C. O. E. (GMC AFKWX-353)
TB ORD 265, Equipment list.
LO 9-809 (5 Mar. 45).
TRUCK, 2 1/2-TON, 6x6 (GMC DUKW-353)
TB ORD FE22, Demountable-type brake drum and new oil deflectors.
TB 9-802-11, Forward bilge pump (Blackmer, serial numbers 006 to 4201).
TRUCK, 2 1/2-TON, 6x6, AUTOMOTIVE REPAIR, M8, M8A1 (LOAD B)
ORD 7, SNL G-139, Vol. 2, C2 (21 Mar. 45).
TRUCK, 2 1/2-TON, 6x6, INSTRUMENT REPAIR, M10, M10A1 (LOAD A)
ORD 7, SNL G-141, Vol. 1, C2 (5 Mar. 45).
ORD 7, SNL G-141, Vol. 1, C3 (26 Mar. 45).
TRUCK, 2 1/2-TON, 6x6, WELDING, M12, M12A1
ORD 7, SNL G-142 C2 (14 Mar. 45).
ORD 7, SNL G-142, C3 (26 Mar. 45).
TRUCK, 2 1/2-TON, 6x6, ELECTRICAL REPAIR, M18, M18A1, M18A2 (16 Mar. 45)
ORD 7, SNL G-149 (16 Mar. 45).
TRUCK, 2 1/2-TON, 6x6, INSTRUMENT BENCH, M23
ORD 7, SNL G-178 (8 Mar. 45).
ORD 7, SNL G-178, C1 (24 Mar. 45).
TRUCK, BOMB SERVICE, M27
LO 9-766 (10 Mar. 45).
TRUCK, TIRE REPAIR, 2 1/2-TON, 6x6, M32 AND TRAILER, TIRE REPAIR, 1-TON, 2W, M25 (LOADS A AND B)
ORD 7, SNL G-234, C1 (24 Mar. 45).
TRUCK, 4-TON, 6x6 (DIAMOND T)
TB 9-811-FE1, Tandem-frame-bracket reinforcement, replacement of loose attaching rivets.
ORD 7, SNL G-509 (6 Mar. 45).
TRUCK, TRACTOR, 4-5 TON, 4x4, C. O. E. (AUTOCAR, WHITE)
LO 9-816 (5 Mar. 45).
TRUCK, 5-TON, 4x2 (IHC KR-11)
LO 9-823 (15 Feb. 45).
TRUCK, 5-TON, 4x2 (MACK EH)
LO 9-U320 (8 Mar. 45).
TRUCK, TRACTOR, 5-TON, 4x2, C. O. E. (IHC H-542-9, H-542-11, MARMON HERRINGTON H-542-11, KENWORTH H-542-11)
LO 9-812 (1 Mar. 45).

TRUCK, 6-TON, 6x6 (BROCKWAY)
LO 9-813-1 (25 Feb. 45).
TRUCK, 6-TON, 6x6, PRIME MOVER, W/WINCH, 2000-GAL. GAS TANK, CHASSIS, VAN (WHITE 666)
ORD 7, SNL G-514 (15 Mar. 45).
TRUCK, 7 1/2-TON, 6x6 (MACK)
LO 9-U305 (1 Mar. 45).
TRUCK, 10-TON, 6x4, DIESEL, PRIME-MOVER AND GENERAL-SERVICE LOAD CARRIER (WHITE 1064)
LO 9-U308 (19 Mar. 45).
TRUCK, 12-TON, 6x4, M20 (DIAMOND T 980, 981)
LO 9-768 (20 Feb. 45).
TRUCK, TRACTOR, 20-TON, 6x4, DIESEL (FEDERAL 604)
LO 9-U306 (12 Mar. 45).
TRUCK, WRECKING, HEAVY, M1 (WARD LA FRANCE, SERIES 1, KENWORTH 570)
LO 9-795 (15 Feb. 45).
TRUCK, WRECKING, HEAVY, M1A1 (WARD LA FRANCE, SERIES 5 KENWORTH 573)
LO 9-796 (1 Mar. 45).
CRANE, TRUCK-MOUNTED, M2
LO 9-771 (20 Feb. 45).
BODIES, SHOP TRUCK, ST-5, ST-6
ORD 9, SNL G-227 (30 Jan. 45).

TRACTORS

TRACTOR, HIGH-SPEED, 18-TON, M4
TB ORD FE27, Torque-converter oil-cooler radiator.
TRACTOR, HIGH-SPEED, 13-TON, M5
ORD 7, 8, 9, SNL G-162, C1 (1 Apr. 45).
TRACTOR, HIGH-SPEED, 38-TON, M6
TB ORD FE27, Torque-converter oil-cooler radiator.
LO 9-788 (15 Feb. 45).

TRAILERS

TRAILER, 1/4-TON PAYLOAD, 2W, CARGO
LO 9-U327 (10 Feb. 45).
TRAILER, 1/4-TON, TELEPHONE CABLE SPLICER, K38 (FWD)
LO 9-U324 (17 Jan. 45).
SEMITRAILER, 3-TON PAYLOAD, 2W, VAN (GRAMM)
LO 9-U331 (8 Jan. 45).
SEMITRAILER, 3-TON PAYLOAD, 6-TON GROSS, 2W, VAN (CAROLINA)
LO 9-U336 (25 Jan. 45).
SEMITRAILER, 3-TON PAYLOAD, 6-TON GROSS, 2W, VAN (TRUCK ENGINEERING)
LO 9-U334 (15 Feb. 45).

SEMITRAILER, 3½-TON PAYLOAD, 6-TON GROSS, 2W, COMB. STAKE AND PLATFORM (DORSEY)

LO 9-U332 (25 Feb. 45).

SEMITRAILER, 3½-TON PAYLOAD, 6-TON GROSS, 2W, VAN, COMB. STAKE AND PLATFORM (KINGHAM)

LO 9-U333 (19 Jan. 45).

SEMITRAILER, 3½-TON PAYLOAD, 6-TON GROSS, 2W, VAN, COMB. STAKE AND PLATFORM (BLACK DIAMOND)

LO 9-886A (17 Jan. 45).

TRAILER, 4-TON, 2W, AMMUNITION, M21

LO 9-792 (25 Jan. 45).

TRAILER, 4-TON PAYLOAD, 4W, VAN (SUPERIOR)

LO 9-U350 (15 Jan. 45).

TRAILER, 5-6 TON PAYLOAD, 4W, CARGO (HOBBS)

LO 9-887 (17 Feb. 45).

SEMITRAILER, 6-TON PAYLOAD, 10-TON GROSS, 2W, VAN

TB 9-888-1. Lubrication instructions.

SEMITRAILER, 6-TON PAYLOAD, 10-TON GROSS, 2W, FUEL TANK, 2000 GAL.

LO 9-891 (19 Feb. 45).

SEMITRAILER, 6-TON PAYLOAD, 10-TON GROSS, 2W, VAN (SNL G-545, G-665, G-707 MODELS)

LO 9-888 (17 Jan. 45).

SEMITRAILER, 6-TON PAYLOAD, 10½-TON GROSS, 2W, VAN, COMB. ANIMAL AND CARGO (HIGHWAY)

LO 9-U328 (20 Feb. 45).

TRAILER, 6-TON (ATHEY BT 898-1, BT 898-4)

ORD 8, 9, SNL G-123, Vol. 1, 2 (15 Feb. 45).

SEMITRAILER, 7-TON, 4W, VAN, W/DOLLY (ORDNANCE M26, SIGNAL CORPS V-9 MPG-1)

TM 9-884, Operation and maintenance (2 Mar. 45).

SEMITRAILER, 7½-TON PAYLOAD, 12-TON GROSS, 2W, LOW BED

LO 9-U348 (27 Feb. 45).

SEMITRAILER, 11-TON GROSS, 2W, REFRIGERATOR VAN (HYDE)

LO 9-U347 (29 Dec. 44).

SEMITRAILER, 11-TON PAYLOAD, 15-TON GROSS, 2W, VAN (BLACK DIAMOND)

LO 9-886A (17 Jan. 45).

SEMITRAILER, 11-TON PAYLOAD, 15-TON GROSS, 2W, VAN (OMAHA STANDARD BODY)

LO 9-894 (10 Jan. 45).

TRAILER, 20-TON (ATHEY ET 1076-1)

ORD 8, 9, SNL G-123, Vol. 1, 2 (15 Feb. 45).

SEMITRAILER, 22½-TON PAYLOAD, 28-TON GROSS, 4W, LOW BED (TRAILER CO. OF AMERICA)

LO 9-U349 (15 Feb. 45).

TRAILER, ARMORED, M8 (T32)

LO 9-791 (18 Jan. 45).

TRAILER, DIRECTOR, M13, M14, AND M22

LO 9-881-1 (25 Jan. 45).

TRAILER, GENERATOR, M18

TB 9-881-FE1, Heavier winch cable.

TRUCK, BOMB LIFT, M22

LO 9-762 (5 Feb. 45).

CARRIAGE, MULTIPLE CAL. .50 MACHINE GUN, M51

LO 9-223 (1 Mar. 45).

MOUNT, TRAILER, MULTIPLE CAL. .50 MACHINE GUN, M55

LO 9-789 (27 Feb. 45).

PASSENGER CARS

CAR, 5-PASSENGER, LIGHT SEDAN (CHEVROLET)

LO 9-U309 (14 Mar. 45).

CAR, 5-PASSENGER, LIGHT SEDAN (FORD)

LO 9-U331 (15 Feb. 45).

CAR, 5-PASSENGER, LIGHT SEDAN (PLYMOUTH)

LO 9-U310 (12 Mar. 45).

CAR, 5-PASSENGER MEDIUM SEDAN (PACKARD 160, 2003, CLIPPER)

LO 9-U312 (12 Mar. 45).

LANDING VEHICLES

VEHICLE, LANDING, TRACKED, ARMORED, MKI

MWO ORD G1-W30, Installing M12 periscope.

VEHICLE, LANDING, TRACKED, MKII

MWO ORD G1-W30, Installing M12 periscope.

VEHICLE, LANDING, TRACKED, ARMORED, MKII

MWO ORD G1-W30, Installing M12 periscope.

VEHICLE, LANDING, TRACKED, MKIV

MWO ORD G1-W30, Installing M12 periscope.

ORD 7, 8, 9, SNL G-209, C1 (25 Mar. 45).

VEHICLE, LANDING, TRACKED, ARMORED, MKIV

MWO ORD G1-W30, Installing M12 periscope.

AMBULANCES

AMBULANCE, ¾-TON, 4x2 (PACKARD-HENNY)

LO 9-U312 (12 Mar. 45).

SCOOTERS

SCOOTER, MOTOR, 2W, AIRBORNE (CUSHMAN 53)

LO 9-876 (17 Jan. 45).

EQUIPMENT

COMPRESSOR, AIR, GASOLINE-ENGINE-DRIVEN, 3 CU. FT. CAPACITY, W/TANK, CURTIS VG-C-2, COMPLETE (66-C-1369)

ORD 7, SNL J-107 (12 Mar. 45).

COMPRESSOR, AIR, GASOLINE-ENGINE-DRIVEN, 3 CU. FT. PER MIN., DEVILBISS UA-JE5103, 5103-1, COMPLETE (66-C-1369)

ORD 7, SNL J-108, C1 (16 Mar. 45).

COMPRESSOR, AIR, GASOLINE-ENGINE-DRIVEN, 4 CU. FT. PER MIN., BENDIX-WESTINGHOUSE (66-C-1380)

LO 9-834-2 (18 Dec. 44).

GENERAL

AR 260-10, C1, Flags, colors, standards, guidons, streamers, silver bands, tabards and automobile plates (6 Apr. 45).

WDC 91, Vehicle density report discontinued (22 Mar. 45).

WDC 94, Ordnance materiel, maintenance responsibilities and functions (26 Mar. 45).

WDC 111, Tube, flexible nozzle, authorization for issue (7 Apr. 45).

WDC 113, Tires, tubes, and flaps, replacement (9 Apr. 45).

FM 21-6, Index, training publications (20 Mar. 45).

FM 60-20, Amphibian tank and tractor battalions (Feb. 45).

WD Pamphlet 12-6, Index, administrative and supply publications (1 Mar. 45).

TM 9-2854, Instruction guide, Ordnance packaging and shipping (posts, camps and stations) (17 Feb. 45).

TM 20-205, C3, Dictionary, U. S. Army terms (6 Mar. 45).

TB ORD FE25, Ordnance wheeled vehicles: Pioneer tool bracket.

TB ORD 254, Engines, radial, aircraft type: Hydrostatic lock precautions.

TB ORD 274, Grade 80 universal gear-lubricant discontinued.

TB 9-2800-1, Official vehicular shipping weights.

TB 9-2835-10, Internal combustion engines: Change from straight mineral oil to engine oil.

SB 9-3, Distribution and issue of Ordnance general supplies (19 Feb. 45).

SB 9-5, C1, Disposition of excess and unserviceable Ordnance general supplies (22 Mar. 45).

SB 9-46, List of prices for Ordnance materiel (17 Feb. 45).

SB 38-1-9, Disposition of critical, surplus, and obsolete items (27 Mar. 45).

ORD 2, C1, Index, Ordnance Supply Catalog (1 Apr. 45).

ORD 5, SNL H-3, Straps, leather findings, and piece leather (6 Mar. 45).

ORD 5, SNL H-7, Pipe, tubing and hose (16 Mar. 45).

ORD 5, SNL H-11, Nonferrous metals (26 Feb. 45).

ORD 5, SNL H-12, Antifriction bearings and related items (16 Mar. 45).

ORD 5, SNL J-2, Sec. 1, Cutting, boring and tweezer tools (8 Mar. 45).

ORD 5, SNL J-8, Sec. 1, C1, Hand tool appurtenances (24 Mar. 45).

ORD 7, SNL J-5, Sec. 1, Lifting, holding, and forming tools (20 Mar. 45).

ORD 13, SNL M-5, Items common to two or more groups (21 Feb. 45).

Top Honors In Maintenance

The individuals cited here have distinguished themselves in the maintenance or development of Army motor vehicles. So notable were their achievements that the War Department has decorated these men with the specified awards.

A perpetual personal subscription to ARMY MOTORS is the most—and the least—we can offer by way of additional tribute.

LEGION OF MERIT

T/SGT. LAEL V. BROWN

For devising a production modification to the M29 and M29C which provides improved performance and reduces wear on vital parts.

LT. COL. (then Capt.) STEVE M. DIVICH, Infantry

For formulating the original plan for the motor maintenance school of the 51st Infantry Training Battalion and for services as senior instructor.

CWO KENNETH J. DOE

For services as G-4 Motor Transportation Officer, 100th Infantry Division, whose maintenance standards he raised from unsatisfactory to superior.

CAPT. (then Lt.) WILBUR A. GRAMLICH, Corps of Engineers

For ingenuity and tireless effort in servicing and repairing vehicles during and after the original landings in North Africa.

COL. E. B. McINERNEY, Ordnance

For services in the Office, Chief of Ordnance, and at Aberdeen, particularly the development of improved combat-vehicle production methods.

M/SGT. MARIO H. POMATO (Posthumous)

For supervising the maintenance and operation, under difficult conditions, of much motorized equipment in the Persian Gulf Command.

LT. (then M/Sgt.) CHARLES W. ROHMAN, Field Artillery

For services as Battalion Motor Sergeant, including the invention of a simple and effective cable towing-device for the M4 tractor.

COL. WILLIAM S. TRIPLET, Infantry

For developing and directing the program for combat preparation of all Army amphibious tank and tractor battalions using LVT's.

COL. FRANK R. WILLIAMS, Infantry

For outstanding accomplishments as President of the Armored Board at Fort Knox from April 1943 to October 1944.

LT. COL. (then Capt. and Maj.) WILLIAM A. WOOD, Field Artillery

For services as Test Officer and later Chief of the Automotive Section of the Tank Destroyer Board at Camp Hood.

BRONZE STAR MEDAL

T/4 BEVERLY A. GILMORE, Infantry (Posthumous)

For outstanding services as an antitank-company mechanic on Guadalcanal, including the prompt reclamation of abandoned vehicles.

ANSWERS TO QUESTIONS ON PAGE 84

- Both the electrical master-switch and the ignition switch.
- Not if you stop the vehicle before shifting, like you should.
- No. Second and high gears in this transmission are synchromesh.
- Yes. To avoid this when shifting gears, be sure the bottom of the gearshift lever is clear over, in either the right or left-hand notch, before moving the lever backward or forward.
- The TM says weekly, but many outfits do it every day when their vehicles are really on the go.
- No. When the weasel's brakes are properly adjusted, you have fingertip steering control. The trick to steering is to pull back on the steering lever a fraction of a second before you want the vehicle to turn—don't expect it to turn the instant you pull the lever. The steering-brake bands

- run in oil and it takes an instant to squeeze out this oil from between the brake bands and the drums. Pulling back hard on the steering levers will bend the levers and brake linkage, throwing the brakes out of adjustment.
- Yes. It takes more power to turn the vehicle than to drive it straight down the road.
- You'll bend the track-tension-adjusting "half springs" at the front end, loosening the track tension and later causing your weasel to throw a track. You might also bend the idler-wheel-support tube.
- (a) Turning out of deep ruts. (b) Turning abruptly or at high speed in sticky mud. (c) Loose track-tension adjustment. (d) Bent idler-wheel-support tube.
- No. This would slam the front end down on the ground too hard. If you bounce the front end

up in the air, feed her gas with the accelerator to let the front end down easy.

- Twenty-seven.
- Daily.
- No. Just don't get grease on the rubber parts of the track.
- It improves visibility for the driver and helps scoop air down the radiator duct.
- No.
- Raise the track aprons, remove the trash, and drive with the track aprons wired up in the raised position while on land.
- You'll drain gasoline into the bottom of the hull, creating a fire hazard.
- 25 mph.
- Yes. Drive the weasel in as high a gear as possible without lugging the engine.
- Second gear, high range.
- Have somebody ride (or walk beside) the towed load to apply the towed-load brakes in case it starts to jack-knife.

• • NEWS FLASHES • •

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

For you 10 o'clock scholars who still haven't switched over from straight mineral oil to heavy-duty engine oil (USA Spec. 2-104B) in your vehicles, **TB 9-2835-10** (22 Mar. 45) gives the changeover dope on in-line, V-type, and radial engines. This is the same info that used to be in WDTC 32 (22 May 42), which was rescinded long ago when detergent OE was thought to have entered all crankcases. But in case you haven't converted, here's your chance to get up-to-date and the authority you need to do it.

This method also applies to any captured enemy equipment you're fixing up for our use.

* * *

SB 9-44 (22 Jan. 45), stating that canvas curtains and tops would no longer be available for certain half-tracks and jeeps, got misquoted on this page in April. Please note: Bows, rods, and webbed straps from **half-tracks only** are to be turned in when the curtains and tops are worn out. They're **not** to be turned in from jeeps.

* * *

It's now official to remove the starting crank (if any) from your Weasel—like we told you back in September. The thing did more harm than good. So if you have an M29 with serial no. below 3103 (they left 'em out in production beginning then), **TB 9-772-6** (30 Mar. 45) says yank out the crank and dispose of it in the usual way.

* * *

Add these to your list of new TB's covering engine fits, tolerances, and wear limits:

- TB 9-1707A-2** (17 Mar. 45)—International RED-450-B engine (basic half-tracks).
- TB 9-1711-7** (5 Mar. 45)—White 160AX engine (basic half-tracks).
- TB 9-1750G-7** (17 Mar. 45)—GMC series 71, model 6046 twin-Diesel engine (M3A3, M3A5, and M4A2 medium tanks).
- TB 9-1767A-1** (17 Mar. 45)—Hall-Scott 440 engine (M26 tractor truck).
- TB 9-1785A-1** (28 Feb. 45)—Waukesha 145-GZ engine (M4, M6 high-speed tractors).
- TB ORD 257** (26 Feb. 45)—Cadillac V8 tank engine (M5, M5A1, M24 light tanks, M8 howitzer motor carriage, and M19 gun motor carriage).
- TB ORD 260** (5 Mar. 45)—Waukesha 6-MZR engine (M2 truck-mounted crane).
- TB ORD 268** (19 Mar. 45)—Autocar 358 engine (2½-ton 4x4 Autocar tractor truck, U-4044).
- TB ORD 269** (19 Mar. 45)—International FBC-318-B engine (2½-ton 6x6 and 5-ton 6x4 IHC trucks).

Reels and reels of new releases, along with the old-standby moom pitches, are listed and indexed by subject in **FM 21-7** (Jan. 45), "List of War Department Films, Film Strips, and Recognition Film Slides." It supersedes FM 21-7 (Jan. 44) and all eight changes.

* * *

If your 10-ton 6x4 Mack truck has a serial number between NR4D-8442-D and NR4D-11266, maybe you've got a defective oil-filter bracket on your hands. This bracket, which has No. 1426B411 cast on the web, forces oil to enter the center of the filter cartridge and flow to the outside, instead of flowing from outside to inside like it should. The oil flowing in the wrong direction through the filter causes paper-type elements to rupture and cotton-waste-type elements to swell. Then the filtering material bleeds into the oil passages of the engine, eventually clogging them. You know what happens to bearings after that.

Your bracket may already have been modified by the manufacturer—in which case there'll be a 1/8-inch pipe plug in the side of the lower oil passage under the base. If it has no pipe plug, it hasn't been modified. But you can do the job yourself by getting ahold of **TB 9-818-FE1** (29 Jan. 45), which supplies the "show-how."

* * *

On M8 and M20 armored cars, it seems that armature shaft, Ord. Part No. C118151, in generator assembly D67368 (Ford), is longer than the thickness of the fan-belt-pulley hub, so's you can't anchor the pulley to the shaft.

Next time the generator's pulled out for a major overhaul, the armature shaft should be machined shorter at the thread-end shoulder. Then the pulley can be tightened against the bearings, to stop the bearing inner-race from eating into the shaft.

TB 9-1743-FE1 (19 Jan. 45) is the authority for this higher-echelon repair.

* * *

Some Continental R975-C4 engines of recent vintage have the valve-timing info (on the engine name-plate) stamped on bass-ackwards. Most of the mistakes were made between engine serial numbers 504825 and 505300. **TB ORD FE33** (26 Mar. 45) says next time the engine or the fan and flywheel are removed, better check the name plate to make sure it says:

Intake closes, I.C. 34° ABC±4°.

Exhaust opens, E.O. 56° BBC±4°.

If it's the other way around, fix it up.

Take the "HE" out of summer's HEAT!

Hot weather can stop your vehicle just as dead as a burst of hot steel—it takes a bit longer, that's all. Summer-wise GI's will bear down early and often on vital items like these:

COOLING SYSTEM—Drain antifreeze, flush system, install rust inhibitor. Check cylinder-head and filler-cap gaskets, thermostat, fan belt, pressure-relief valve, hose connections. Police up that radiator core. Look for leaks everywhere and always.

AIR CLEANERS—Keep elements clean—with solvent. Maintain proper oil level (if any).

FUEL FILTERS—Drain and clean element frequently.

MANIFOLD HEAT-CONTROL—Switch valve to summer position.

ENGINE—Wipe off heavy dirt and grease.

VALVES—Adjust timing and clearances with extra care.

BATTERIES—Watch electrolyte level. Water must be added more often in summer months.

TIRES—Keep air pressure what it should be. Check tires when they're coolest—and don't bleed them when they're hot.

