

CONNIE RODD'S

"SHORT 'N
SWEET
DEPT"



OVERDOSE OF O.D.

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

BRAKE EASY ON HILLS

As a gopher-hole buddy of mine, Pfc. Gene Harris, who used to do a lot of riding in the western hills points out, a very dangerous thing happens when you apply the brakes too much. The drums get hot, expand away from the brake shoes—and the first thing you know, you're going like hell down somebody's mountain without any brakes. Which is roughly equivalent to being up the creek without any oars. I wish I could recommend something beside an anchor in this case, but if the driver knows what happens, he's less apt

to get into trouble. Use the brake as little as possible going down hills.

THE CASE OF THE MISSING GM WASHER

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

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

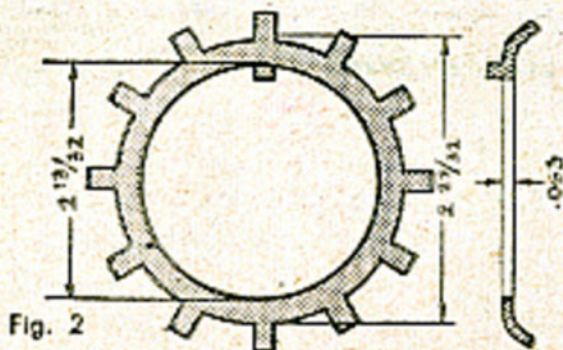


Fig. 2

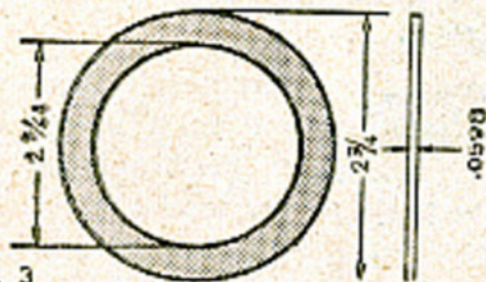


Fig. 3

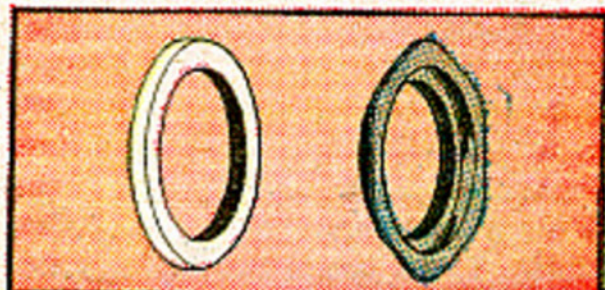


Fig. 4 FELT-TYPE
SEAL

LIP-TYPE SEAL
AND FLANGE

ground down to the diameter shown or (3) follow the dimensions in Fig. 3. and make the washer from scratch.

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

AIR-COMPRESSOR TILT

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

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

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

Change the crankcase oil often—very, very often. The time and oil involved is 2 snaps of the fingers. Needless to say, keep the oil at its proper level always.

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

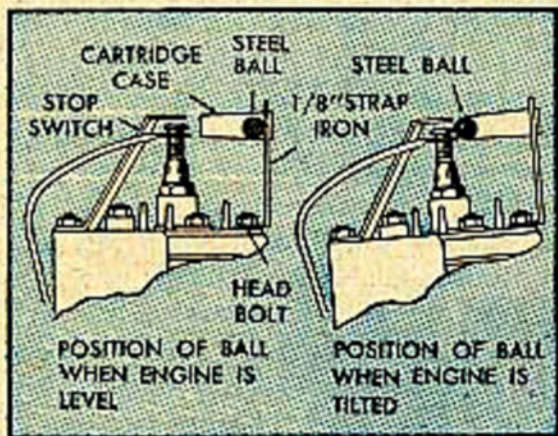
Keep the compressor always level when running. That's one of the limitations of this baby. Running it at too great an angle above the horizontal will sure as hell cause

engine failure. A connecting rod diving into an oil pan and finding no oil gets as big a headache as a GI diving into a dry swimming pool.

Here's a nifty gadget to foil any attempts to run the unit while it's raised. I swiped the mechanics of it from the pin-ball machine in Joe's Barroom. Get yourself a piece of $\frac{1}{8}$ " strap metal about 6 inches long and 1 inch wide, an expended .50 cal. cartridge, and a steel ball that will just fit to roll free within the cartridge case. Now fasten the cartridge case to the strap metal so that it lies on a horizontal plane with the engine head. The open end of the cartridge case should be located so that it is just out of spark-jumping range from the spark plug. The rear head-bolt is an ideal fastener. The ball does the job from now on (see Fig. below).

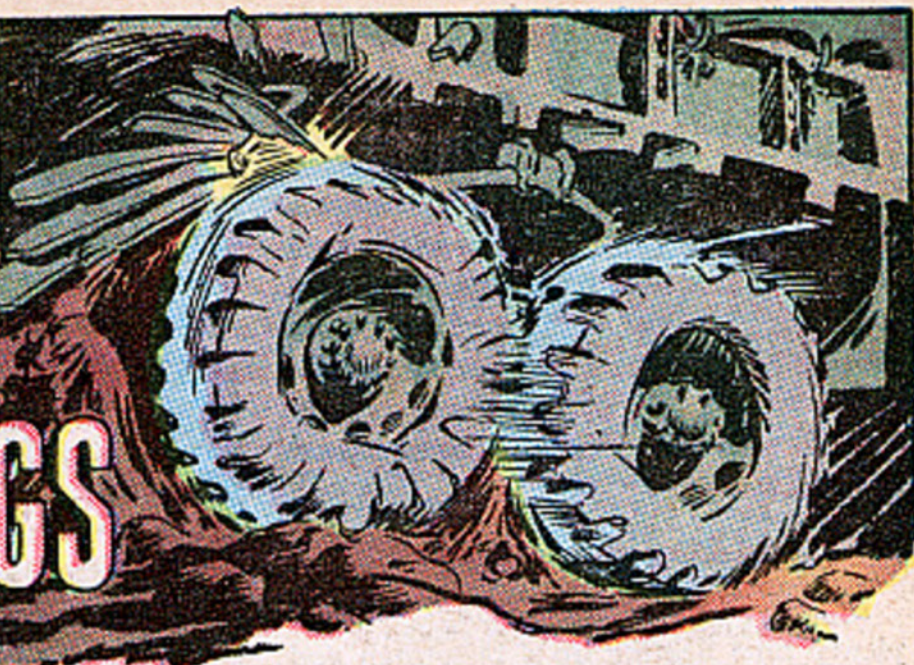
As long as the plant is kept level, everything is Ho Kay; but when the handles are raised, the ball runs over to the plug and grounds it out. When the culprit sets the machine back down again, the good little ball rolls back out of the way.

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



IF YOU'VE GOT TO
DRIVE 'EM ROUGH
HERE'S HOW
TO FIX YOUR

GMC SPRINGS



ONE of the biggest nuisances of the Korean affair, next to the North Koreans and the Chinese Commies, are busted truck springs. Once you get off the main boulevards, of which there ain't any to begin with, the roads mainly feature such unimprovements as rocks, ruts, holes and ditches. Add to this heavy and medium overloads on trucks, and speedy driving and the result is lots of broken springs.

But that's not the whole story; springs don't just up and decide to break. In many cases, it's neglect of something else in the suspension system that leads to broken springs. Like for instance worn or loose spring shackles, spring eyes, or worn bolts or pins where the spring is fastened to the frame hanger. The frame hanger itself may crack loose from the frame.

Any or all of these conditions let the spring flap around loosely, making the truck a sucker for a broken spring or at least increasing the chances that the next hole you hit will mean trouble in the suspension department.

You may look at the heavy spring assembly and find it hard to believe that such hardware could be described as "flapping around loosely," but next time

you're riding abreast of a 2½ ton six by six, cast your glims at the suspension. You'll see what you thought were heavy rigid springs flapping like the wings of a bird.

There's a standard test you can make of the spring system which will help you catch trouble before it starts. All you need is a heavy iron bar, your good right eye and a little know-how which you will quickly get from experience. To test for looseness in the shackles, or wear in the bushings, bolts and what have you, stick the end of the bar under a frame side member with the bar resting on the spring close to the end. Work the spring up and down alternately pressing down and releasing the bar. Watch for vertical movement between the shackles and the spring. This is the tipoff to wear or looseness in the shackle. Some shackles have rubber bushings, don't mistake compression of the rubber for wear.

Now there are different kinds of shackles used on different kinds of trucks such as link shackles, U-type shackles, Y-type shackles and rubber-block shackles. The pictures on the next page show some of these, and the captions indicate what else to watch for in your iron-

bar test. For instance, in checking the single-piece link shackle, if you get any side play, tightening of the shackles is called for.

Notice also that these shackles are plentifully sprinkled with grease fittings. These are not just put on there for pretty. Keep after them with your grease gun and let the grease take the wear instead of the part.

SPRING REBOUND CLIPS

The spring rebound clips were put on the springs to keep the leaves from separating and breaking. If these have worked loose, trouble's coming. The clips must fit the spring snugly enough to prevent side movement or separation of the leaves, and still let the leaves slide on each other.

The clips are usually wrapped around and riveted to the spring leaves or they may be held together with a spacer, bolt, and nut. Examine the clips for looseness. If they are so loose that you can shake them with your finger, tighten like so:

If it's the wraparound type, support one side of the clip with a large hammer or bar serving as an anvil. With another hammer, bang lightly on the opposite side. When this side is tight against the spring, put your anvil on the other side of the clip and again beat lightly on the opposite side until it's snug against the spring.

If the clip is the spacer and bolt type, just tighten the nut until the clip is snug. Don't fracture yourself—too tight will retard the spring action.

Dear Editor,

We've had quite a few GMC springs break on the first, second, or third leaf. They generally break from 4" to 10" away from the center bolt.

We made a clamp out of two pieces of steel, $\frac{1}{4}$ " thick, $1\frac{1}{2}$ " wide, and 5" long. We drilled the holes about 3" apart, so when we put the bolts in they would fit snug against the side of the spring. (see Fig.). Then we bolted them together. Of course, we jacked up the vehicle and fitted the broken ends of the spring together before we put on the clamp. This way, we were able to run our trucks when we had to.

There's also been some trouble with brakes locking on our GMC. We traced the trouble to a clogged-up master-cylinder-port hole.

Instead of tearing the master cylinder apart, we drained it with a suction gun. Then we got a piece of fine steel wire and put it down through the filler opening, worked it through the port hole, and cleaned it that way. It sure saved a lot of work.

S/Sgt. Anthony V. Polesnak
APO 758

Ed. Note—That clamp won't hold a broken spring together for long, so replace it when you can.

When you're pushing in that wire to clean a clogged master-cylinder-port hole, make sure the piston's fully released so you won't cut the piston cup. Better save it for really tough emergencies, too, since some dirt particles are pretty sure to work under the cup and cause leakage later.

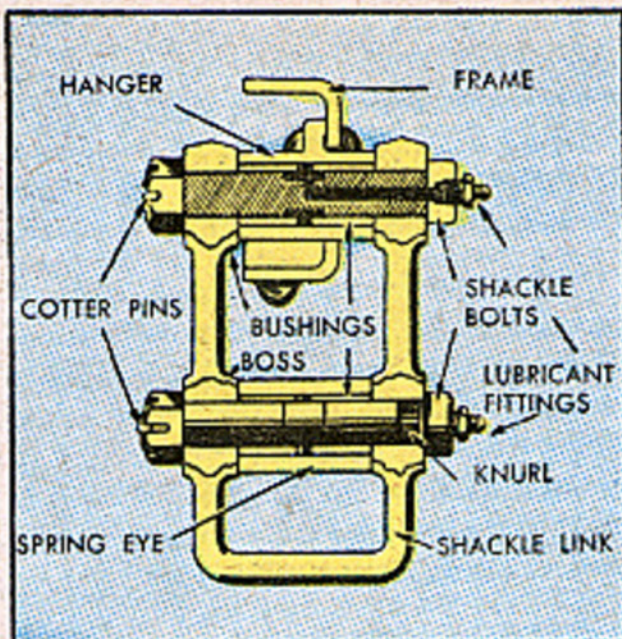


Fig. 1—The busted spring on your truck may have begun right here. Looseness in the spring shackle (single-piece link type above) gives the spring too much bounce to the ounce, leads the breakage. Test the shackle as detailed in our story.

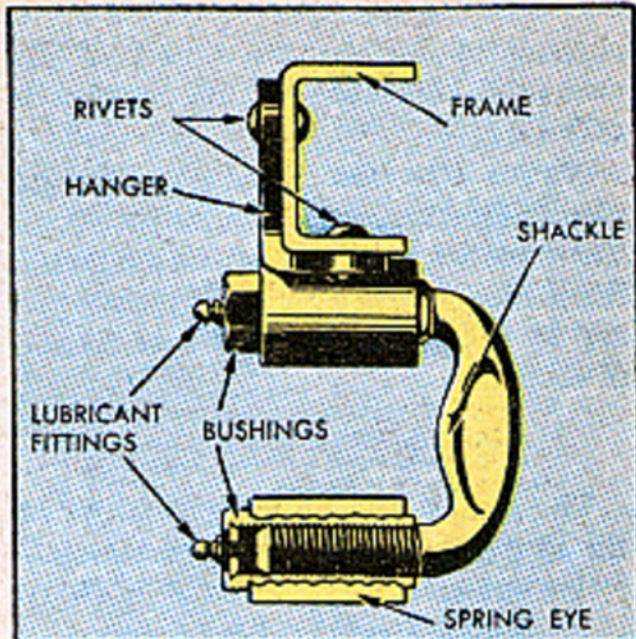


Fig. 2—The "U-type" spring shackle has hardened steel bushings liberally lubricated (by you) to take the wear. When the threaded bushings wear, they are easily replaced. The bar test for shackle looseness tells you when.

U-BOLTS

The job of the spring U-bolts is not only to tie the spring and the axle together but also to keep these parts in alignment, prevent broken spring leaves and shearing of the center bolt. Keep the U-bolt nuts tight. Watch also for stripped threads on the U-bolt which may also account for looseness.

CENTER BOLTS

The simple word is, keep 'em tight, make sure the bolts are not broken. Otherwise the spring leaves will be allowed to shift, break and spill all over the lot.

SPRING PINS OR BOLTS

Keep tight. Check and tighten the lock bolts which hold the pin in the hanger. Watch for wear in the bushings. Scrutinize the frame hanger. Make sure it's riveted or bolted tight to the frame.

See Fig. 3 for a quick field fix for a broken or lost spring pin.

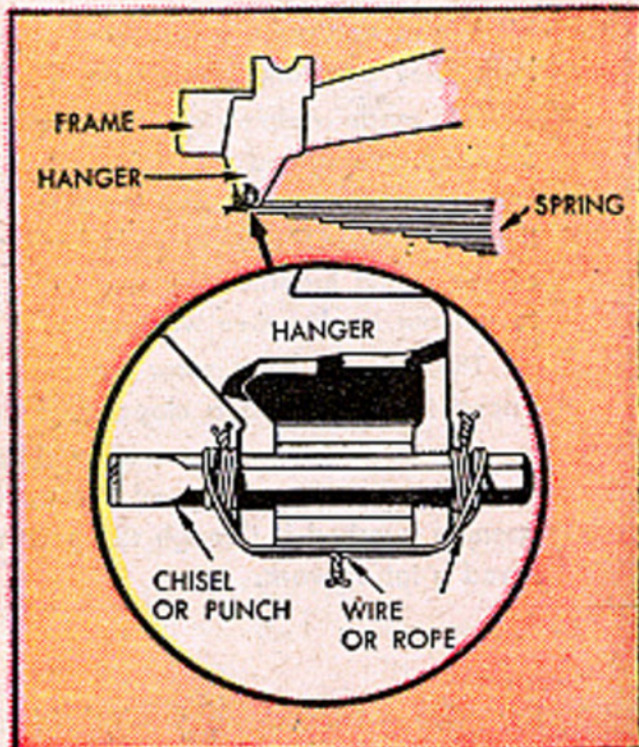
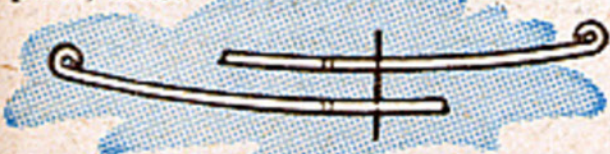


Fig. 3—Here's a quick field fix for a lost or busted spring bolt. If you don't have a bolt and nut, use a punch or a chisel of similar size. Jack up the vehicle to take the weight off the spring and line up the hole in the spring with the hole in the hanger. Install punch, or chisel, let the jack down, and wrap wire around to hold the new pin in place.

And from T/4 George B. Huhn comes this field fix for broken spring leaves: Recently we have experienced a good deal of trouble with broken front springs on GMC 6x6's. Not being able to obtain sufficient replacement caused me to resort to welding broken main leaves. To date the repaired leaves are giving good service — they are holding up as well as rebuilt springs made of original leaves.

The welding procedure is as follows: The only practical place to weld them is as close to the center bolt or as near to the U-bolts as possible. If the leaf is broken outside this area, then two broken leaves are used to make one. The leaves are cut so the weld comes in the right place, thus:



The spring leaves are beveled with a double "V" on an emery wheel after being cut with an oxyacetylene torch, then lined up accurately, like this:



The welding is done with $\frac{1}{2}$ " stainless-steel 18-8 (18% chrome, 8% nickel) electrodes applied with the electric arc. The heat is kept as low as possible consistent with a good weld. The beads are applied thinly and one at a time (next Fig.). Enough time must be allowed between beads for the weld to cool completely, at least until you can hold it in your hand.



P. S.—When you're done, remember that spring U-bolts oughta be tightened when the truck is under normal load.

The next pass is applied opposite the first, and so on in this way:



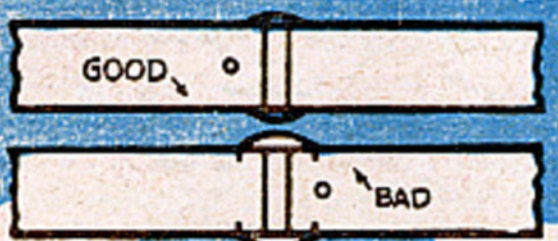
Warping can be controlled by applying two beads on the outside of the warp before applying any on the inside. Again the beads should be allowed to cool separately and completely. This will straighten it out as shown in the next sketch.



Below: six beads will fill one side of the bevel, twelve for the whole weld as you see here. The surfaces are then ground flush.



Some reinforcement may be applied at the sides. However, extreme care must be used not to cause any checks or cracks at the ends of this reinforcement. Good and bad reinforcement look like this:



By "cold welding" in this way, the natural annealing effect and brittleness caused by arc welding high-carbon steel is minimized.

The stainless steel rod makes a very ductile weld and has all the tensile strength needed. This same procedure would work on most spring leaves and bicarbon-steel tools and parts.

Four to six hours may be allowed for the job. A dozen can be welded as fast as one because of the necessary cooling time.

no luck, I tried the Maintenance Manual and the SNL—but I find I'm right back where I started. No shear pin. Yet in the spare parts kit that comes with this type truck, I find I have five Winch Drive-shaft Shear Pins. Now today it happened—two of my K-43's come in with broken winch cables. Well, after a quiet little session in the back office with the two drivers, about hitching on to a "cold" pole with their winch, I wind up with a few more grey hairs and two broken winch cables but still no idea as to what to do in the future to prevent this trouble. Can you kindly enlighten me on this subject so that I can go to bed at night without having winchmares.

Lt. J.R.S.

Dear Lieutenant,

If you've been having broken-winch-cable trouble, maybe you can tell us a way to modify this winch drive-shaft to take a shear pin. But the idea of this winch was for the drive chain to act as a shear pin. There's supposed to be a weak link in the drive chain. If it ain't letting go under overload, maybe you'd better check the chain, and maybe rig up your own weak link. About finding them spare shear pins in the spare-parts kit—all Chevy 1½-tons get the same kit. It's easier than making up a special one for trucks with their winch amidships.

HALF-MAST

Dear Half-Mast,

We've been having trouble with the gas tanks on our 2½-ton GMC's, model CCKW-353. The front corners of the tanks get knocked in by every stick, twig or branch in the neighborhood, and they leak all over the place.

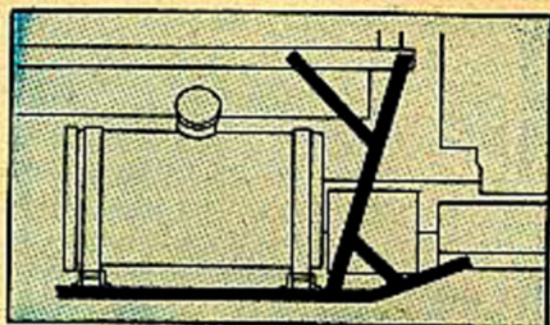
I fixed up a bracket (see Fig.) which, when bolted on, prevents this trouble. The bracket will also serve as a running-board support. How's about it?

Sgt. A. L.

Dear Sergeant,

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

HALF-MAST



Dear Half-Mast,

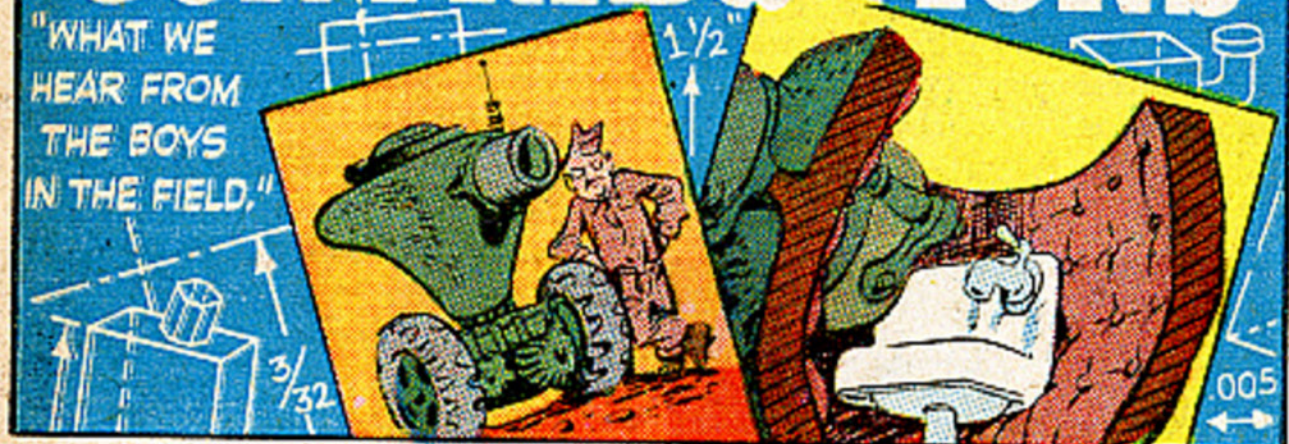
We've been having trouble with our 2½-ton GMC brakes. The trouble is in the hydraulic piston and valve assembly. The rubber cups swell up.

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

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

CONTRIBUTIONS

"WHAT WE
HEAR FROM
THE BOYS
IN THE FIELD."



RATCHET FIELD-FIX

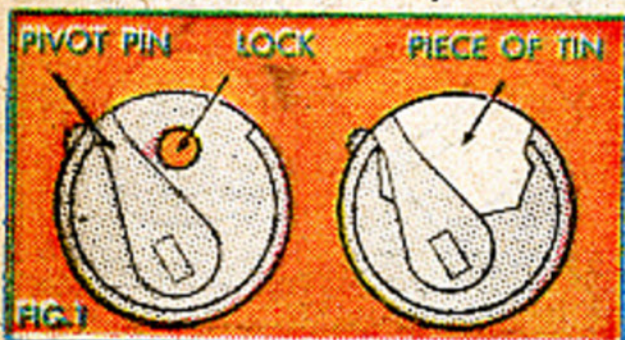
Dear Editor,

I know how important it is to have a ratchet that's working, and how it becomes another piece of junk when it's not working. Here's a fix on the ratchet (SK No. 42470) that comes with the mechanic's tool set.

By taking the ratchet apart, I found out what my trouble was. The pivot pin that comes up to the lock would stop the lock from going from right to left. By cutting a piece of tin from my C-ration can and placing it above the pivot pin and under the lock (see Fig. 1), I got the ratchet to work good as new.

Sgt. Benny R. Pilara
387th. Infantry

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



AXLE-BEARING SHIMS

Dear Editor,

Both TM 9-801 and TM 10-1563—for the 2½-ton 6x6 GMC—tell you to remove shims to add torque, when adjusting the steering-knuckle assembly on a split-type axle. But what if you have no shims left and still need more torque?

Here's what I'm doing: When the bearings are still in good shape, I take a piece of 0.10 shim stock and cut a 15/8" hole in it. I trim the outside to fit the shoulder of the trunnions, put them inside of each cone and then add shims.

M/Sgt. E. V. Mitchell

Ed. Note—Inserting those shims will raise up the knuckle-bearing cones and keep the pin bearings from coming loose, but when you put in the shims, make sure the CV joint inside the ball housing has plenty of room to rotate—otherwise that axle is doomed. Shims used under the bearing cups work fine, too.

STOP MIRROR FLOP

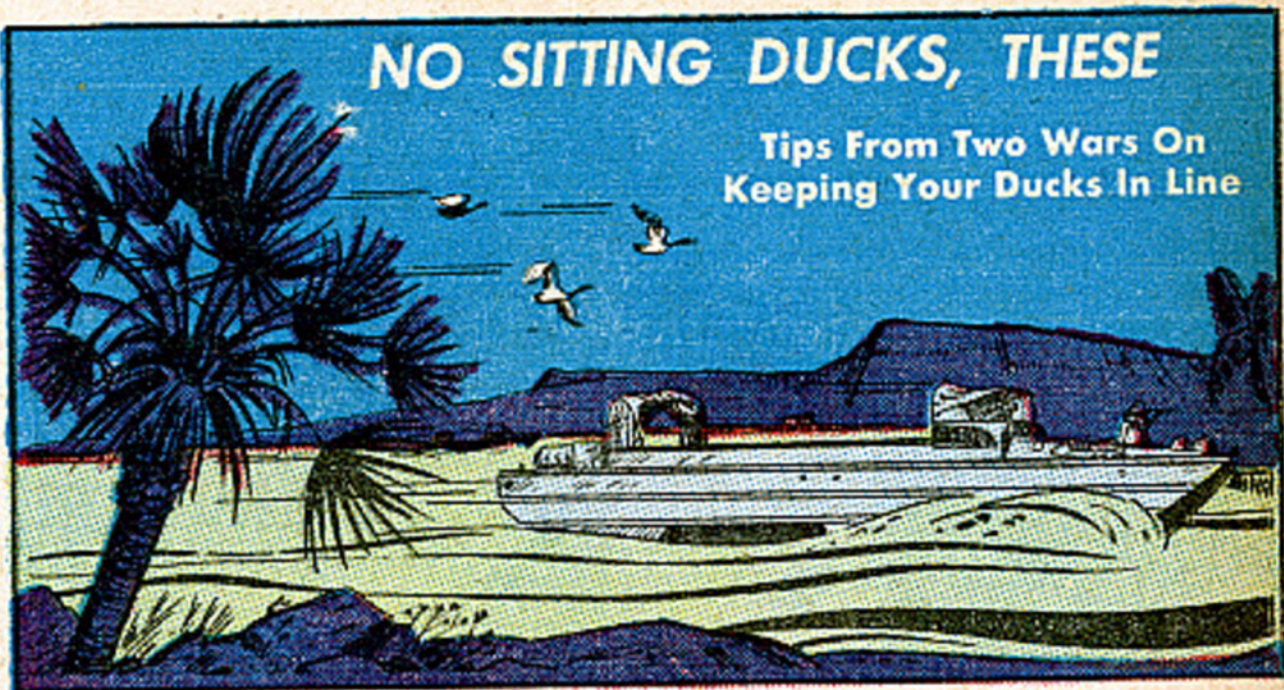
Dear Editor,

Here's a field fix for all those loose rear-view mirrors.

The ball and socket on the rear-view mirror gets worn so much that the adjusting screw don't tighten enough to hold

NO SITTING DUCKS, THESE

Tips From Two Wars On
Keeping Your Ducks In Line



THE Ducks of the 453rd Amphibious Truck Co. waddled from one end of Europe to the other in World War II through a series of actions from D-Day to crossings of the Our, the Saar, the Moselle, the Rhine and what have you.

Though they weren't much to look at by the time the shindig was over, they were still alive and kicking. Here's some of the maintenance tricks used by the men of the 453rd to bring them through.

FANBELT FIND

Changing fanbelts on the duck with the tire-inflation system, for instance — Sgt. Tom W. Hansom, Duck and Truck Mechanic, learned from experience a much faster way of doing this job that often needs doing.

Unbolting the shaft at the engine, as recommended in the book, is too hard. It's too hard to get at the bolts that uncouple the drive-shaft. What Hansom does is unbolt the drive-shaft at the air compressor on the forward side of the radiator (Fig. 1). There's only four easy-to-get-at (with a $\frac{1}{2}$ " wrench) bolts there. Then just skin the shaft back (it'll slide back about an inch) and slip the fanbelt around the shaft.

Now to put the fanbelt on the other side of the radiator where it belongs, squeeze it through the hole in the core that the air-compressor shaft runs through, drape it around the pulleys, adjust it, bolt up the shaft, and you're done.

You cut the job down to about 5 minutes.

GENERATOR FINGER-FIX

When the ammeter ain't ammin' and a check shows that the generator ain't generatin', Hansom has learned to look for one little thing on his ducks. Salt

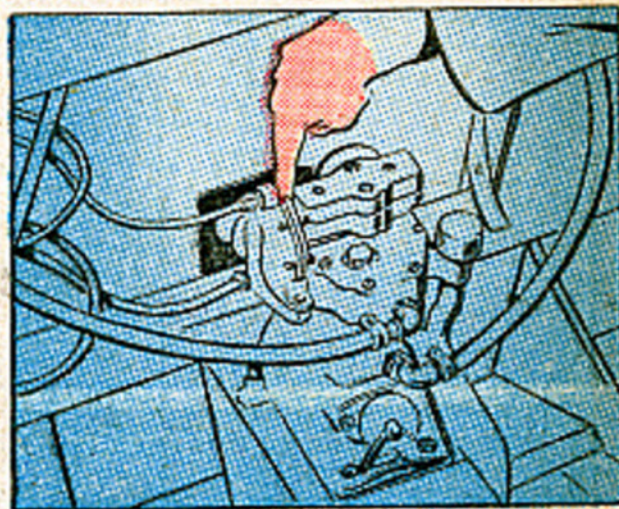


Fig. 1 — After you've loosened the bolts and slid back the shaft, all's left is to slip the new fanbelt right into place.

water, he says, creeps into the generator and corrodes the little springs that hold the brushes to the commutator. These stick and fail to press the brushes against the commutator.

Now, instead of frothing at the mouth and replacing the generator, Sgt. Hansom has taught himself a little trick that gets his generator back in service in the bat of an eye. All he does is flip open the commutator-cover band, reach in his finger, and flick the little arms or levers that work off the coil springs to press the brushes down (Fig. 2). This loosens the corrosion on the springs and gets the generator working instantly.

As you can imagine, this is no cure-all for corrosion in the generator, but as you can easily imagine, there are times and places when you've got to get going in a hurry. As far as the generator is concerned, this is the way to do it.

So the problem of protecting all electrical equipment (including the generator) from salt water, humidity, and fungus growth won't faze ya' in Asia, the best idea is to get your hooks on a copy of TB ORD 242, "Protection of Electrical Equipment On Ordnance Vehicles Against Corrosion and Rust" (15 Jan. 45).

Getting back to the brush springs, the bulletin tells how the springs can be protected against corrosion. But you've got to go easy—the corrosion-proofing compound (red glyptal paint), if slopped on too thick, may cause the brushes to stick in the holders and the brush levers or pins may bind. Another thing, glyptal is a good insulator and you don't want it to turn conductors into non-conductors.

To corrosion-proof the brush springs, do as follows: With the brush-plate assembly out, clean off all corrosion and rust (new springs should also be cleaned). Brush (brush only) a light coat of glyptal (not more than about .001" thick) on the brush springs, pins, or levers, and on the

outside surface of the brush holders. (Keep paint off the inside of the brush holder where the brush rides.) The stuff dries in about two hours.

That ought to do the trick as far as the brush springs are concerned—but remember Sgt. Hansom's trick of flicking the little arms to free them; it may get you out of hot water in a hurry some day.

To do a complete and all-over corrosion-proofing job on the electrical system, get a hold of TB ORD 242.

LITTLE BUT OH MY...

Lots of little things cropped up to plague the men and ducks of the 453rd. The lights, for instance. The sealed-beam units in the head-lights get hot when lit. When the duck splashes into the water, the cold water strikes them and they crack. What's the answer? The answer, with sealed beams, is to remember that they'll crack if run into cold water while they're hot, so try not to use them for a couple of minutes before dunking your duck.

The little spring connections in the tail lights also go to pot when salt water hits them (Fig. 3). So the 453rd simply re-makes the electrical connection by spotting a little ball of solder in place of the springs.

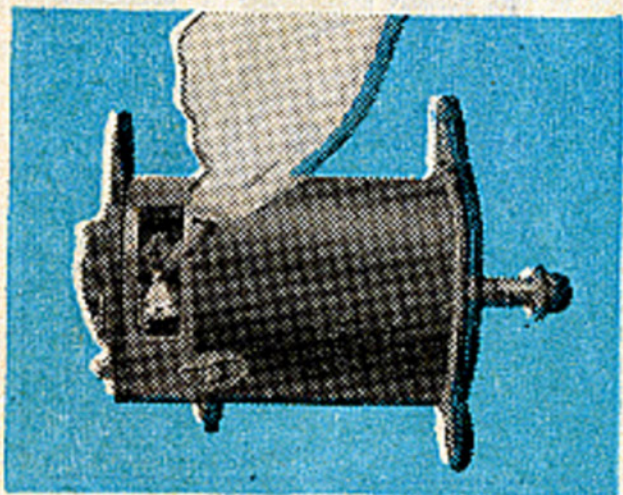


Fig. 2 — A quick flick of the levers is usually all that's needed to loosen up corrosion and start it generating again.



Dear Half-Mast,

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

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

Sgt. F. W. W.

Dear Sergeant,

The right fit for the front-wheel inner-bearing cone on the front-axle spindle should be a "creep" fit — to let the cone creep slightly around the spindle when you're hauling a specially heavy load. That way, the bearing-surface area that gets the load is changed a little at a time, so it wears even. Trucks now in production have either a slight press fit or an easy push fit on the spindle, depending on who builds 'em. But if you're rebuilding a used front axle, you could have the bearing-spindle diameter .003" smaller than the inside diameter of the cone. It should never be .010", though, because that much would damage the bearings and

the spindle.

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

HALF-MAST

Dear Half-Mast,

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

CWO C.G.

Dear Mr. G.,

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

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

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

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

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

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

(4) Two different springs, with different carrying capacities, are used on 2½-ton 6x6 GMC's. GM2140053 is one front-spring assembly that carries 1500 lbs.—it's used on trucks without winch. GM-2140052 carries 1800 lbs. and is used on trucks with winch.

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

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

And (7) Read "GMC SPRINGS" on page 30 of the June P. S.

HALF-MAST

Dear Half-Mast,

On two different occasions we've had 2½-ton GMC's lose their left-rear wheels. Whether it was due to the negligence of the mechanic (failing to lock the lock-washer or whether the bent over part of the washer broke, allowing the nut to loosen, I don't know). But to make things easier, why don't manufacturers make the locknut and spindle with left-hand threads, so if either of those things happens, the locknut will tighten instead of come loose?

Sgt. N. M.

Dear Sergeant,

It looks from here like you can blame the loss of those two left-rear wheels on the driver or mechanic. Because if the mechanic had locked the adjusting nut properly in the first place, it shoulda stayed put. And if the nut did come loose, the driver shoulda noticed an overdose of brake drag and yelled about it before anything else had a chance to happen.

As for locknuts and spindles with left-hand threads, the manufacturers did try that once, but they stopped making 'em because the torque that sometimes winds the nut loose can also wind it too tight if it isn't locked correctly. That'd mean bound and overloaded bearings. And then, the way it is, there ain't as many parts to be manufactured and stocked, and you get interchangeability in the bargain.

It might help you to know that there are various types of lock-washers used to lock the wheel-adjusting nuts securely — three different types on GMC's alone. First, there's GM-657023, which is perforated, and locks the adjusting nut when the holes in the washer line up with the dowel pins in the nut and the inner tang rests in the spindle groove. Next is GM-072415; this is a split-type washer, and locks the adjusting nut by bending the inside half (and part of the outer half) of the washer over the nut, with the tang

in the spindle groove and the locknut pulled up tight against the washer. Then there's GM-3660090, with tangs spaced around the outer edge and one on the inside which fits in the spindle groove; the nut is locked by bending the outside tangs in the notches of the nut. All clear?

HALF-MAST

Dear Half-Mast,

Here's a joker on Willys jeeps we've run into and puzzled over—front-wheel alignment.

When all adjustments were made and clearances were normal, if the steering wheel was placed in position for the mid-point of gear mesh, the front wheels were 3 degrees, more or less, away from the straight-ahead position they should be in. Moving the pitman arm one spline on the sector shaft changed the steering-wheel rim travel 18". We're trying to correct an error of about a half a spline, an average of 9" measured at the steering-wheel rim, or 7/16" or less of drag-link travel.

This was the adjustment procedure we followed: Disconnected the drag-link, checked for defective springs and ball seats, or pitman ball-end; checked for column bind at the dash, adjusted the worm bearings and mesh of the worm and sector; single chalk-marked the steering wheel's lower rim for the mid-point of gear mesh, and tightened the column to the dash. Then we adjusted the bell-crank-shaft nut and also the toe-in (squaring bell crank to front axle); checked the front end of the drag-link for defects and proper adjustment; connected the rear of the drag-link to the pitman arm; placed the front wheels in straight-ahead position, and double chalk-marked the steering wheel's lower rim for straight-ahead of the front wheels.

In many cases, the two different chalk marks were from 2" to 9" apart. And there's our problem.

We've checked our bell crank and pitman arm for bend, and measured the drag-link for variation in length a number of times and rarely found any defects. Several bell cranks and pitman arms, discarded because of worn ball-ends, were tested in the hydraulic press.

A lot of remedies were tried, but what we want is the correct solution to this problem. If you've followed us this far, now is your cue to step out and give the ka kazook kazook ka zam to our chestnut. Combined Maintenance Service

Shop No. 1

Dear Combined Maintenance,

Service Shop No. 1,

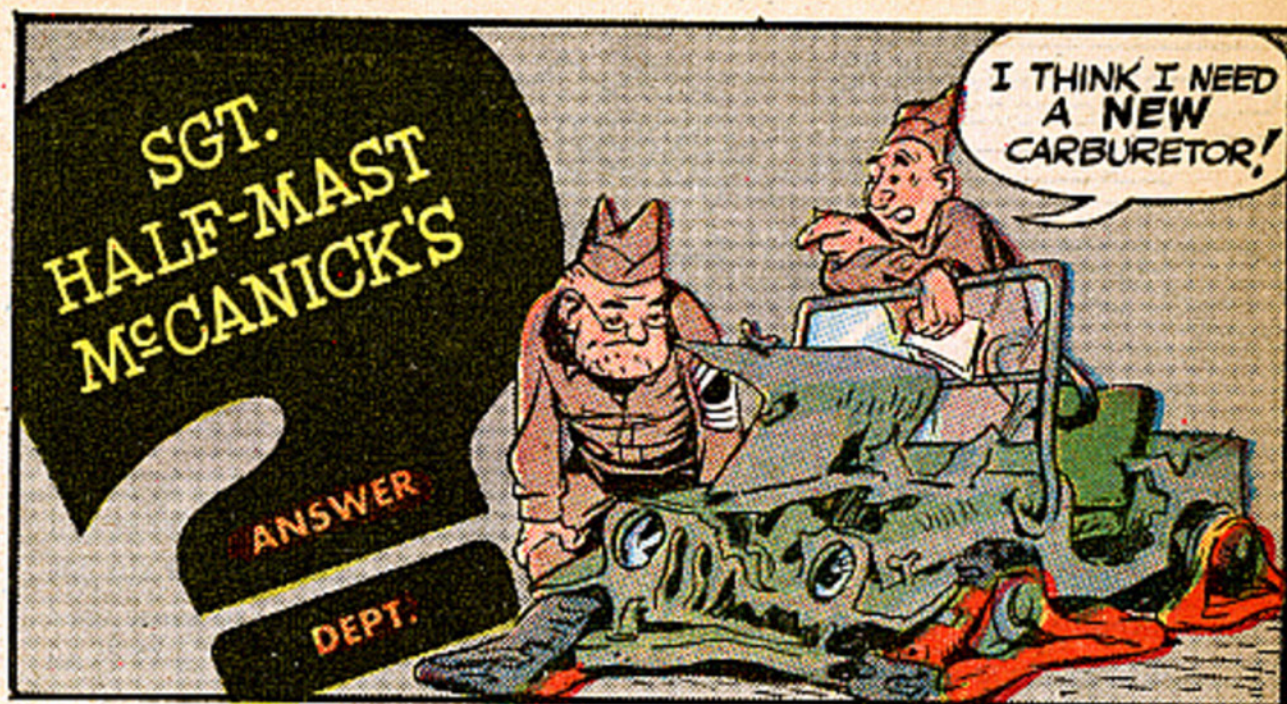
You sure gave me plenty of clues, and I've sherlocked your problem all the way from the zook to the zam.

There's still another angle you can work on. The tie-rods could be improperly adjusted when squaring the bell crank to the axle (see TM 9-803, page 187). And it seems to me, if your steering gear is at the mid-point, the drag-link attached and the wheels 3 degrees away from the straight-ahead position, you should be able to adjust both halves of your tie-rod enough to straighten the wheels.

HALF-MAST

FREE! FREE! FOR THE ASTIN'!

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



OILING SPRINGS

Dear Half-Mast,

The other day I heard some joes mention that if you'd squirt some #30 SAE engine oil between the spring leaves on the 2½-ton GMC she wouldn't ride so hard. Thought I'd better get some advice on the deal before I tried it.

Sgt. G. I. D.

Dear Sergeant,

My advice is to lay off. Grease 'em where you're supposed to and let it go at that. Pass the information around to those other joes. Don't pull your punches in stopping it, Sarge, or it'll sure screw up the works.

Tell 'em that those springs are designed and put together with just the right amount of friction, and they make use of it. When you squirt 'em with oil you destroy that friction, get too much bounce, and break a spring.

This, to quote a quote, is asking for trouble.

Half-Mast

GMC BRAKE FREE-TRAVEL

Dear Half-Mast,

I disagree with my Ordnance Corps Technician about brake-pedal free-travel on the GMC 2½-ton 6x6. He says it should be ½" to 1". I say ¼" to ½".

Please tell me who is right.

Sgt. R. W.

Dear Sergeant,

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

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

This would come from the .020" clearance between the stop screw in the master-cylinder bracket and the inner-lever arm. The clearance at the stop screw is measured with the return spring discon-

nected. When the spring's fastened and that .020" gets up through the ratio of leverage to the brake pedal, it makes about 1/10" of free travel—hardly any.

Your Ordnance Corps Technician is talking about the "pedal to toe-board clearance." TM 9-801 (24 Apr. 44), on page 350, says this clearance between the lever part of the toe board should be from 1/2" to 1" with the brake pedal in a fully released position. But this is to keep the lever part of the pedal (beneath the floor board) from slamming against the underside of the floor when the pedal's released—and to make sure the pedal can come back far enough to be **fully** released. It has nothing to do with free travel.

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

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

I think that with your brakes adjusted as per all instructions, you don't have to

worry about free travel. You won't travel far once you press down on the pedal with your big brogan.

Half-Mast

DODGE BRAKE VALVES

Dear Half-Mast,

We have in our wheeled-vehicle-mechanics school a few WC 51 1/4-ton Dodge trucks. Mounted above the rear axle and connected above the hydraulic brake line are two valves. Can you tell us what these two valves are used for? None of the "old timers" in the outfit have run across them before. We also checked all the applicable technical manuals and failed to dig up any information on the valves.

W O J G B.J.M.

Dear Mr. B.J.M.

Was a time when the WC 51 was an airborne job. When the vehicle was set up for air transport the rear wheels and axle were yanked and replaced with a dolly. Before yanking the wheels and axle you used these two valves to cut off the hydraulic brake lines to keep 'em from bleeding. If these valves are closed you'll be fresh out of rear brakes. All you gotta do today is to make sure they're open, keep 'em open—and forget about 'em. For more dope, get hold of TB 9x-105 (5 Feb 45). Understand Karitan Arsenal has this bulletin.

Half-Mast

M37 TRANSFER CASES

Dear Half-Mast,

Recently received my first copy of PS Magazine, found it very helpful and passed it around to interested personnel here at Camp Cooke, Calif. They all en-

joyed it and were anxious to know how a man got on the mailing list. I've told them that a worthy contribution will win anyone a free, personal subscription for one year... am I right?

In addition to the compliments I also have the following problem for PS:

While working with units of the 49th Division (California NG) the past two weeks, I ran into unusual transfer case trouble on some M37, 3/4-ton, 4x4 trucks. The transfer case gear would creep out of either high or low range.

When we disassembled the transfer case of one of the afflicted vehicles we found the mainshaft rear-bearing had seized to the bearing cup, caused the cup to spin—the result: a badly worn case.

This particular vehicle had been driven slightly over 600 miles. The case had plenty of oil, but it's evident the bearing was set too tight at the factory.

Can you tell me if this trouble has been experienced elsewhere?

Mr. F. L. G.

OCT

Dear Mr. G.,

Thanks for your nice letter and for introducing PS Magazine to Camp Cooke personnel. You've steered the men right on the free, personal subscription set-up. I'm more than ready to get PS on the way to those anxious Cooke men—all PS asks in exchange is good preventive maintenance information.

You got the right answer to the transfer case trouble the 49th Division had with the M37s.

When the transfer-case gears start creeping out of range it's a sure sign bearings aren't properly adjusted—either too tight or too loose.

Occasionally bearings get adjusted too tight at the factory and since a bad adjust job doesn't give a warning noise or sign, at least the bearing assembly and sometimes the whole transfer case is completely shot before the trouble is discovered. A loose bearing isn't as mean as a tight one—usually, in the case of a too tight bearing the only thing to do is put in a new retainer and bearing assembly.

To adjust the new bearings the higher echelons have been told to tighten companion flanges to 140-160 foot-pounds, then on the driven- and idler-shaft bearings to use an inch-pound torque-wrench... preload the new bearings to 20-35 inch-pounds and lubricate each part of the assembly thoroughly before they put it together.

Since your M37 is just a little over 600 miles old it's still in warranty. UER forms should be filed through your Ordnance Officer and the manufacturer notified of the defect—thru channels.

If you have other new M37s around, better look into their transfer cases too—just in case. The effort might turn out to be just the ounce of prevention needed to save real damage and big expense.

Write again real soon.

Half-Mast

OIL SEAL TOOL

Dear Half-Mast,

Our oil seals, #H013-0500113 for the 2 1/2-ton GMC, are coming to us separate from the adjusting nut. These seals are for the rear-rear-outer axle, banjo type.

We scrounged an old inner-wheel-bearing cone (Timken #18520) from a 1/4-ton Willys 4x4 to do a good job of replacing

the oil seal in the nut. First we aligned the new seal on the nut, leather side up—then placed the cone on this side. Using the cone as a drift, we put the assembly in a vise and forced the oil seal into the wheel-bearing-adjusting nut.

CWO P. J. M.

Dear Mr. M.,

It's real good procedure to use the cone as a press-fixture as long as you've got to use #H013-0500113 oil seals. (Apply the same to bearings too, gentlemen, and spread the good word.)

Won't be for too long though... seems this particular seal tended to leak and the later-model 2½-ton GMC's all came through with nut-and-seal-assembly units (G085-3108780). When the #H013-0500113 supply is exhausted, you'll be getting the units and won't have to assemble your own.

Half-Mast

M34 TAIL PIPE

Dear Half-Mast,

I think something should be done about the location of the exhaust tail-pipe on the Reo M34. Where it is now when you're rolling slow or idling, the exhaust fumes drift up into the cargo compartment... For troops sitting in a covered truck the situation could be dangerous.

What do you think?

Pfc. C. J. F.

Dear Pfc. C. J. F.,

You're right... and your letter's started the wheels turning in search of a solution. Don't know just what the final decision will be, but PS will keep you posted on the outcome.

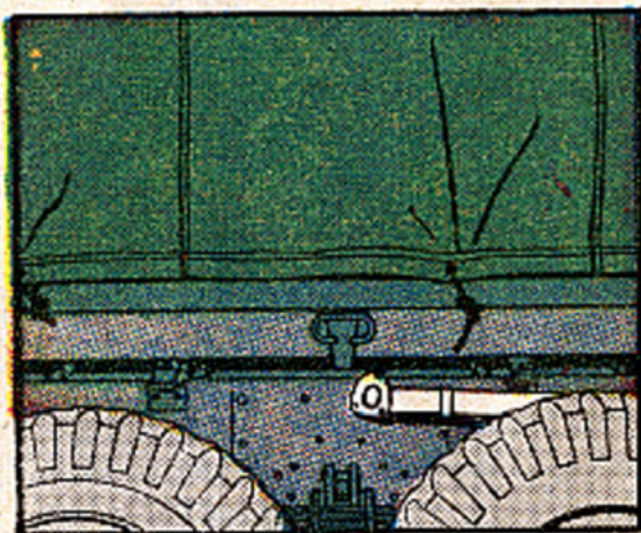
In the meantime here's what I do know:

lashing the tarp on just right helps—at least to some extent—to keep the exhaust fumes out of the cargo area. So until the problem's taken care of, it's a darn good idea to lean heavy on those tarp-tie-down brackets (especially on the exhaust side of the truck).

Draw the tarp on good'n tight—make sure it falls to the lower sill, and sticks close to the truck body.

Thanks for the contribution, a personal subscription to PS is yours for one year.

Half-Mast



BRAKE-CYLINDER TOOL

Dear Half-Mast,

In the June issue of PS (p.28, Contributions) there's an article about making a special tool for removing the vented plug in the brake master-cylinder on the 2½-ton GMC. I've found that the square end of the lug wrench fits the filler plug perfectly, and if you use this wrench it's not necessary to make a special one.

Sgt. Jennings

Dear Sgt. Jennings,

Good deal! Have to close my eyes and ears every time I see a man using the reg-

(continued on page 176)

CHEVY PASSENGER CARS

It's a sad day when you find yourself going at a good 50-mile clip down the highway without OE in your Chevrolet light-sedan. And maybe all you did to get yourself a burned-up engine was release the emergency brake.

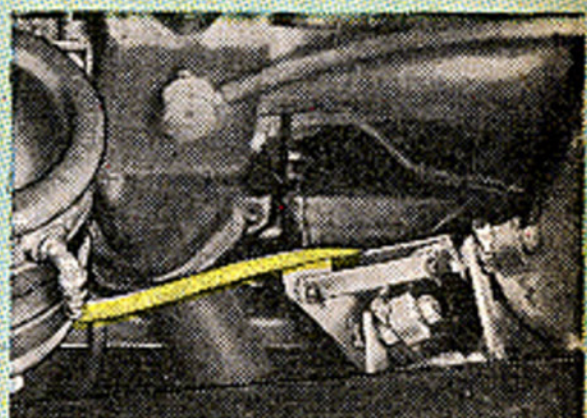
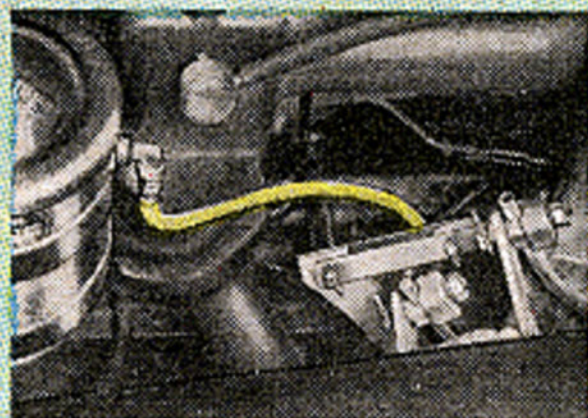
Depending on how your oil-filter-to-block oil-line hangs, the hand-brake linkage can rub through the oil line when you apply and release the hand brake.

To keep it from happening you've got to turn the oil filter in its bracket to taughten or slacken the line that's

getting rubbed so it will clear the brake linkage and also not burn through on the manifold, depending on how much line yours has.

Whichever way you adjust the line, make sure you have a 2" clearance between the exhaust manifold and the oil line, and at least 1 1/4" clearance between the brake rod and the oil line.

But even if you hang the slack to a skyhook to keep it out of trouble, remember that it's no good to tape it to the vacuum line like some people been doing. Two longs don't make a tight.



(continued from page 173)

ular wrench to get to the filler plug, on account of the skinned knuckles and the cussin' that goes with — unless you got the dainty-type hands. But us brawny characters would rather use the lug wrench from above. Better to see what you're doing and sure keeps you out of the Band-Aid box.

Half-Mast

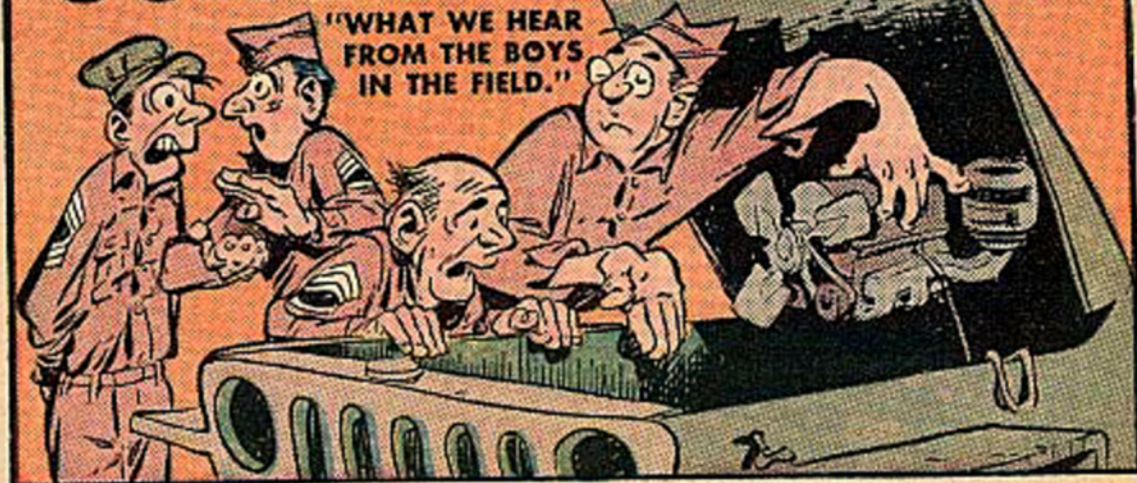
(continued from page 139)

again with the engine running. Check?

It's much the same with the air-pressure gage. If it's been registering normal changes in pressure right along—don't replace it for the simple reason that it doesn't zero when you switch off the ignition.

The important thing to remember is that these balanced-pointer gages are not supposed to zero just because you turn off the ignition, but they're still good gages — for all of that.

CONTRIBUTIONS



REVIVED SHOCK ABSORBERS

Dear Editor,

I've found that we're able to get a few more months service out of shock absorber links by loosening the tapered shafts and giving them a $\frac{1}{4}$ turn to expose new wearing surface on the pin to the up and down motion.

The system works good on about 75% of all shock absorber links on GMC 2 $\frac{1}{2}$ -ton and the Dodge $\frac{3}{4}$ and 1 $\frac{1}{2}$ -ton vehicles.

Sgt W. B. Anderson
Service Co 2d A/C Regt
c/o PM New York, N. Y.

BUMPER LUGS

Dear Editor,

During our several months of recovery operations in Korea we have found that many of our jobs have involved recovering tanks practically buried in rice paddies. Here, even though we have applied every mechanical device available, the torque on the line has pulled the bumper lugs out of their seatings, sometimes caus-

ing damage to other mechanical features of the vehicles. So our idea was to cut holes through the bumper and then improvise special bumper lugs that could be passed through the holes and bolted directly to the side rail of the frame. In this way the pull comes on the strongest part of the frame.

1st Lt Leroy Ingram
57th Ordnance Recovery Company

STEEL-WOOL HONE

Dear Editor,

Often the wells on distributor caps corrode for one reason or another. Here's our method of putting the caps back into service.

You'll need some solvent, a small ball of steel wool and a crank devised from an eight-inch piece of $\frac{3}{16}$ " or $\frac{1}{8}$ " welding rod with small prongs at one end made with a hacksaw. (A short straight piece of welding rod with prongs at one end chucked in an electric drill, however, works much faster.)

First clean the distributor cap on the outside with solvent. Either let this dry naturally or hasten the drying with air. Make sure there are no cracks in the body and also that there are no carbon cracks between posts.

Then place the ball of steel wool in the distributor well, insert the prongs of the crank tool in the steel wool and turn it to remove the corrosion inside the distributor well. Neat? (See Fig).

SFC W. C. Rowekamp and
SFC R. H. Fortin,

9301 TSU ORD (ORD BD) APG, Md.

LUBE FREES GMC BRAKES

Dear Editor,

Mechanics that have difficulty adjusting brakes on the 2½-ton, 6x6 due to frozen adjusting screws in end covers of wheel cylinders and rusted pin and washer assemblies, should remember to lubricate and free up these items during a semi or monthly service. A little oil here will go a long way and save time.

Sgt. Stanley A. Niemiec

Service Co 2d A/C (USCON)

c/o PM New York, N. Y.

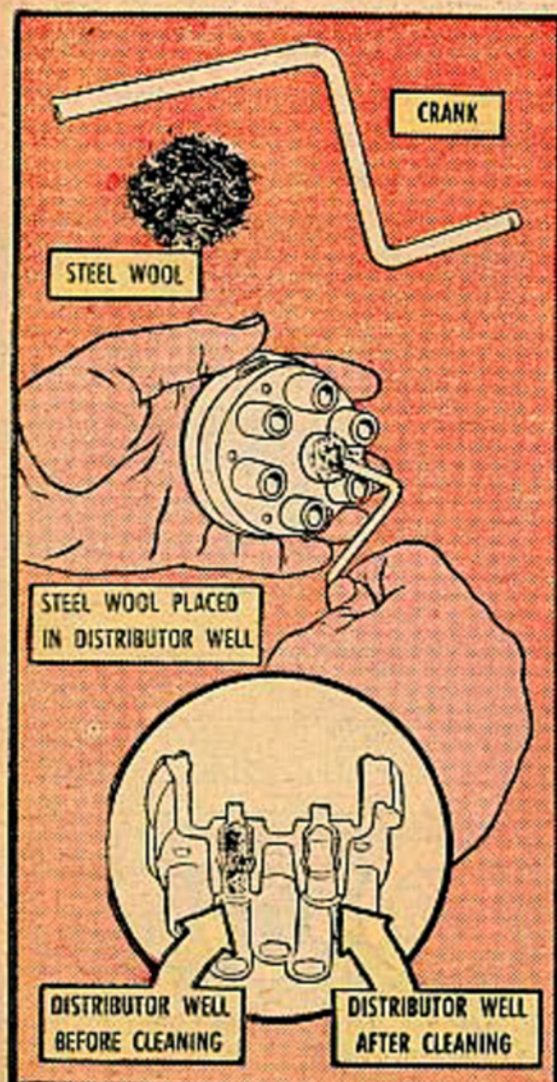
(Ed Note—You're OIL right, Sergeant.)

2½-TON DUMP SEALSAVER

Dear Editor,

Here's a fix we used on the GMC, 2½-ton, 6x6 cargo dump trucks equipped with Anthony Hoists. These trucks had been giving us a lot of trouble with the seals blowing out (or at least coming out) in the dump body hoist-cylinder. Then an auto mechanic at Sierra Ordnance Depot came through with an idea that not only prevents the standard-equipment seal from coming out, but also keeps the piston shaft clean, in this way making the original equipment seal last longer. The machine shop at the Sierra Ordnance Depot developed the idea and it worked out very successfully. Here's how you do it:

Make a sleeve to go over the end of the hoist-cylinder with a plate on the back end of the sleeve to restrict the movement or blowing out of the original seal. Also install another seal to the forward end of the sleeve (this seal to be installed in the opposite direction to the original seal). Secure the sleeve to

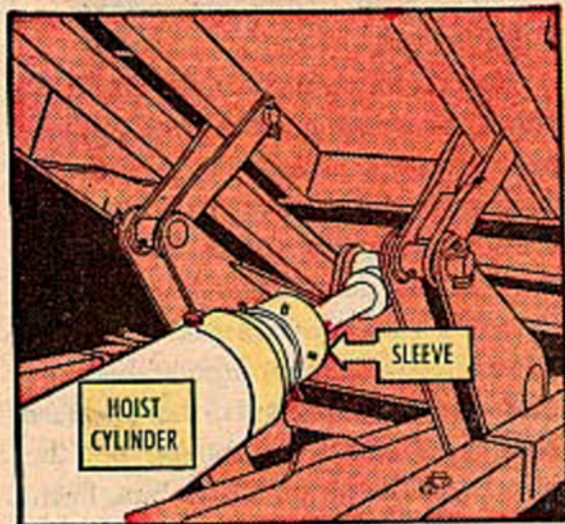
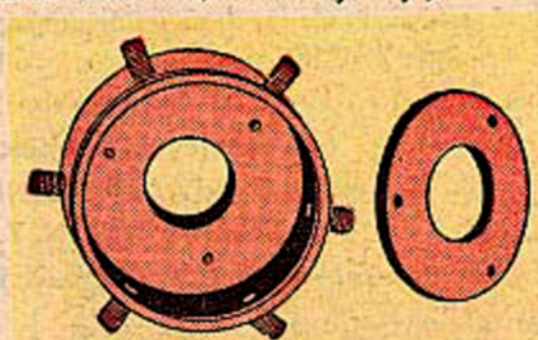


the hoist cylinder with six diametrically opposed allen screws as shown in attached photographs.

Forrest L. Gibson, OCT

~~Senior Ordnance Depot~~

(Ed Note—The proof of the pudding is in the eatin', we always say!)



M52 WINCH

Dear Editor,

Our first shipment of tractor 5-ton 6x6 M52 Diamond T's just arrived and already we got troubles.

Our biggest headache is the winch and believe me they are really tricky. Watch that lock pin when you are using the winch from the cab of your vehicle and be sure it isn't in its locked position.

And that dog or outside clutch, the first notch on your right of which is

supposed to be neutral. You'll have to push that lever past the notch and as far as you can go to the right to reach that position.

Now we finally get to the operating lever. We advise putting a hinge affair on the floor to keep and make positive sure it's in neutral. If you notice there isn't a thing to keep you from knocking this lever in gear.

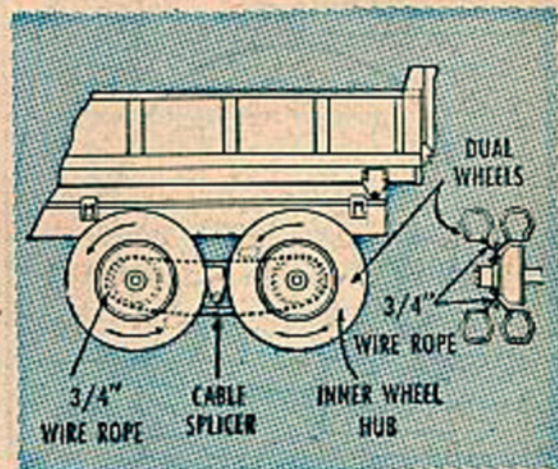
MSgt E. R. Wortz
Camp Atterbury, Indiana

MUCKRAKER

Dear Editor,

Here in Korea the mud will build up between the wheels on a 6x6 truck when operating at a slow speed, in this way reducing one's traction. To overcome this I have taken a discarded winch cable and run it around both sets of duals, clamping the ends together. The splice must be smooth and the loop tight enough so it won't chafe the sidewalls of the tires, but not so tight as to cut the wheels or interfere with changing them. The attached diagram will show what I mean.

Pvt Wayne E. Glover
San Francisco, Cal.



OLD BRAKES ON 2-1/2-TON'S

Dear Half-Mast,

Out here in Korea we're having trouble getting parts for the box-type master-cylinder brake-booster-valve and the vacuum booster on our old closed-cab 2 1/2-ton vehicles. I'd like to know where I could get the parts we need or if it's possible to convert the braking system to the later hydrovac type used on the GMC's.

Sgt R.T.S.

Dear Sgt R.T.S.

First about remodeling the old brakes on your old 2 1/2-ton trucks; that's a tough one, but it can be done. You'd have to take out the old system completely and start from scratch on installing the hydro-

vac system. As I said, it's a rough job because all the hydrovac parts may not be available to you. If you can get a wrecked truck with a hydrovac, and if you can get the old man's permission to cannibalize its braking rig, that would be your best bet. With the aid of TM 9-801, TM 9-1801 and TM 9-1827B, a good mechanic, and a fair share of ingenuity, it wouldn't be too tough to put the cannibalized parts in your truck.

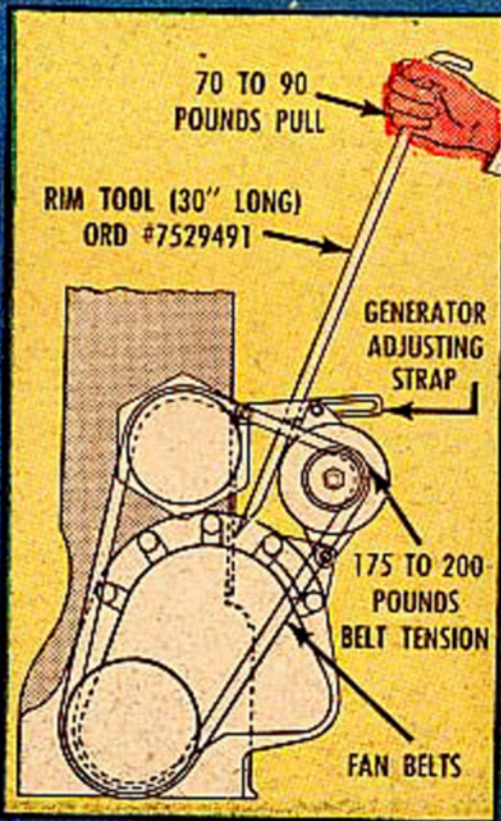
Now the parts for your old braking system; I agree with you. They're definitely hard to get because that type became obsolete about ten years ago. The easiest way out would be to turn the truck in for a later model you could get parts

P.S. TO MR. P.

In the July issue we got talking about adjusting the fanbelt on the M51 (5-ton 6x6 International Dump). Those belts are made of a steel-rubber combination which won't snap, crackle, or pop in low temperatures the way standard belts do. And they should be set tight. The manufacturer has wised me up on the right way to handle the belts on all R6602 engines. He says to put a 70 to 90 lb pull on a 30-inch-long bar, resting against the generator, and pointed against the block just under the retaining cap-screw for the front tappet-cover.

This'll leave those belts just the way you want them.

And if you ever hear mice-noises from under the hood, it's your cue to look for loose belts.



for. But if you **really** want the parts, and have a pocket fulla dough, they can be had on a commercial purchase-order sent direct to Bendix Brake Co., South Bend, Ind.

Half-Mast

HOW TO REVERSE M46 GENERATOR POLARITY

Dear Half-Mast,

My question deals with the M46; when the batteries are low and a slave cable is used, do you have to flash the fields of the generator? If so, how is this best done?

Sgt G. K.

Dear Sgt G. K.,

Having to flash the generator is about a one-in-a-thousand shot. The only time it could be necessary is when the tank hasn't been run for a long time; like when it's been in storage or shipment, or when a new generator that's been sitting

in stock is installed. Chances are even then you wouldn't have to flash it.

To flash . . . remove the center set of batteries, get at the cables entering the rear of the master junction-box and unscrew the #2 main generator cable connection (extreme top receptacle) (Fig. 2). Get a 6-foot piece of #16 wire, fasten one end to the output side of the **auxiliary** generator, and wind up the auxiliary generator 'til it hums on its own power. Then with a quick motion, jab the other end of the #2 generator cable (female) receptacle (Fig. 2). This'll flash the main generator and set it straight.

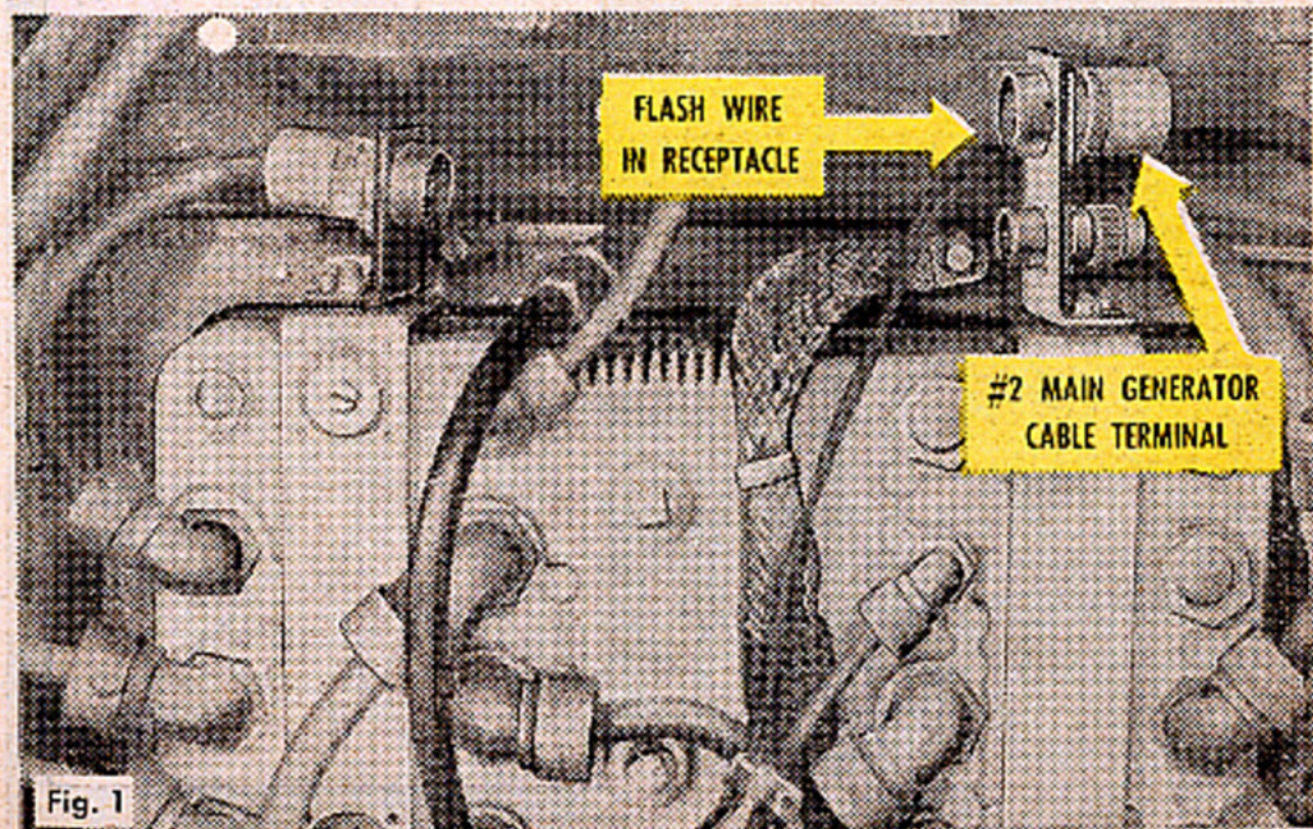
You'll never have to worry about flashing the auxiliary generator, it flashes itself every time it's cranked electrically.

Half-Mast

TOOL SET SNL

Dear Half-Mast,

I have been trying to locate a TB on



SOME READER TIPS ON

OIL SEAL SEEP AND LEAK

Dear Editor,

After months of greasy black nightmares over GMC 2-1/2-ton oil-seals leaking, we finally learned the answers and thought we ought to pass them on to other reserve outfits that might be as green as we are.

We were using some kind of black stuff the consistency of chassis lube instead of the light-colored bearing lube that's made for the job.

We were filling gear cases up to level instead of an inch below like

PS has been advising.

And by not watching tire diameters to get matched radii, our differentials were churning merrily and pressuring gear lube past the oil seals.

Finally, we found out by asking a few discreet questions of people who've been around these trucks a while longer than we have, that you just don't worry about a little seepage out of those rear banjos. It's been going on for years and never got any better or any worse no matter what anybody did about it.

PFC R. Wass
Camp Atterbury, Indiana

INSPECTION-HOLE COVERS

Dear Editor,

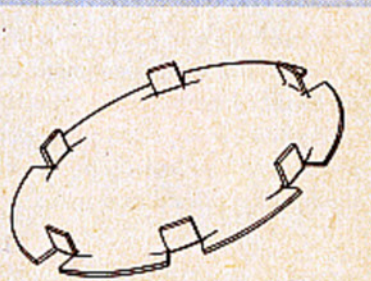
Lots of drivers lose the covers from the inspection holes in the floor of the old 2-1/2-ton trucks.

I have found that the metal plate from a discarded hotpatch is just right if you split the rim with a pair of dikes in eight places—leave a half-inch standing in about four places, and straighten out the rest.

It will fit the inspection hole for the master cylinder very nicely.

WO Paul M. Dent
APO 86, San Francisco

(Ed Note—Splitting the rim in twelve places, six standing, should work even better. Makes it easier to flatten the sides and gives you more prongs.)



WORLD WAR II TRUCKS

LEAKY HYDROVAC-TUBES

Dear Editor,

A few days ago, the brake system of our 2-1/2-ton, 6x6 (GMC) truck (CCKW-353) started acting up. The trouble was caused by a leaky connection where the inverted end of the hydrovac-cylinder tube joins the master cylinder. (This is the second vehicle that I know of to have this happen.)

Since I couldn't get another tube from the Ordnance Depot here, I repaired the one I had. First I applied a coat of Permatex to the tube,

and wrapped a piece of cloth around it so that both ends would meet. Then I forced the opening of the inverted screw on the tubing and soldered it, using soldering flux and acid-core solder. After that I covered the soldered place with another coat of Permatex.

It worked perfectly—but this is only an emergency repair to keep the vehicle off the deadline until we get another tube.

Cpl Jules Jacobs
Fort Devens, Massachusetts

(Ed Note—But like you say, don't consider it a permanent fix.)

PROTECTOR for the PROTECTOR

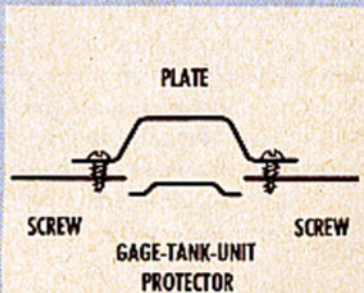
Dear Editor,

Our shop foreman, Sgt Clifford H. Sparks, has an answer to the problem of fuel-gage-tank-unit Protectors constantly wearing out on 1/4-ton 4x4's.

He solved our problem with a plate made of scrap sheet-metal and a couple of metal screws. The seat springs no longer wear out the unit protector. The metal plate was shaped and placed as shown.

Lt Charles F. Beal
Ft. Clayton, Canal Zone

(Ed Note—Good deal for the old Jeep. The seat on the M38 rests on a metal frame and doesn't worry the protector.)



CONTRIBUTIONS



HOOKUP MIXUP

Dear Editor,

When the 1-1/2-ton trailer, 2-wheel, M104 is connected to the 2-1/2-ton M135, GMC, the right-hand blackout-marker on the trailer will not light.

A separate wire is provided for each blackout marker-light on the M104. Each wire is terminated at a separate pin in the plug for connection to the trailer receptacle on the truck. The truck's wire (wire marked #24) for the trailer blackout-lights should divide and connect to both "A" and "C" terminals. "A" should lead to the left and "C" to the right blackout-markers so both receive current (see TM 9-819 on the 2-1/2-ton M34's).

But in checking with TM 9-819A (the M135 Manual) Fig. 90 shows that "C" connection has been omitted from the diagram, and wire #24 is not divided. On a trailer connected to the M135 the right blackout-marker will

not light until a jumper is connected from "A" to "C".

You can make your own light connection as follows: Get a short length of #14 P&G gage rubber-covered stranded-copper-wire (similar to wire used on truck) and solder it in terminal "C" of receptacle on truck. Splice the other end of this wire to wire #24 on the truck. Solder this wire carefully, seal with rubber tape, and give it a protective cover with friction tape.

E. M. Hinsdale, OCT*
Camp Stewart, Georgia

*Ordnance Corps Technician

GMC SYMBOLS

Dear Editor,

For the benefit of Sgt K.L.H., Korea (PS Magazine, November) and any others who may be interested, the following may be of help in figuring out the meaning of the symbols on the GMC

truck: CCKW, CFKW, etc.

Chassis serial suffix "1" always indicates split type axles, suffix "2" always indicates the year built. "A" is 1940, "C" is 1941 and after.

The second letter in the model indicates the type of cab. "C" is conventional, "F" is cab-over-engine, "K" indicates front axle driving, "W" indicates both rear axles driving.

H. Mills, Ordnance Inspector
Fort Lewis, Washington

DISLODGING RUSTED TIRES

Dear Editor,

Here is an idea that'll save the sledge-hammer mechanics much work when breaking loose a tire which has rusted to the rim. By using the weight of the truck, the tire will break loose.

WOJG John Maguire
NGUS-Chicago

(Ed. Note—If you're wondering what's holding up the truck while the jack breaks the rim loose, remember that where a flat's usually fixed there's no jack shortage.)

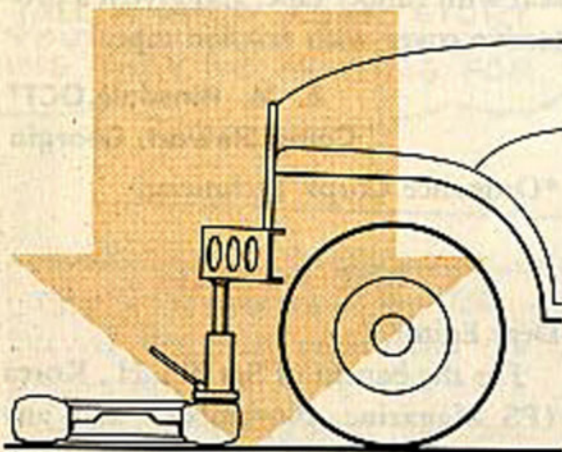


Fig. 1—Place tire on solid ground, jack on tire and in line with bumper, and "jack-away."

STEERING-KNUCKLE BOOT

Dear Editor,

I thought you would be interested in what the Ordnance field-maintenance shop here in Fort McClellan has done with the M34 steering-knuckle-boot failure.

They have fabricated a boot from heavy 3-ply canvas-top material, using the damaged rubber boot as a pattern. This fabricated boot has done a wonderful job protecting the steering knuckle. It will seep lubricant, but will effectively keep water and dirt out.

By using the wire retainer from the regular rubber boot, the fabricated boot, is very easily installed and will stay in place.

J. H. Fuller, OCT
Fort McClellan, Alabama

(Ed Note—Sure, why not? But before making yourself unnecessary work, try drawing Kit, Steering Knuckle Boot, G742-7410883 from your supply channels—the latest beer-buzz says they have 'em.)

SEALING COMPOUND

Dear Editor,

In your October issue, Number 5, p. 187, article entitled "Wide Open Spaces"; Sealer, Synthetic Rubber, Stock Number 7300-828075 is a good Air Force number. Army synthetic rubber sealer is Compound, Sealing, (synthetic rubber adhesive) #52-C3257-50.

W. Russell
Camp Drum, New York

(Ed Note—You are so right.)



OBSOLETE DIRECTIVES

Dear Half-Mast,

Remember back there in the old Army they used jeeps aplenty and there was a TM that gave adjustments on the 1/4-ton 4x4 carburetor metering rod. If I'm not mistaken the adjustment was made right along with the axle, end-play, etc., at 6000 mile check. I've forgotten the setting and can't find it in any publications on hand. What was that old TM?

Also, there was a floor plan in the TM for a 2-1/2-ton 6x6 for setting up a shop truck complete with super-structure (this was about 1941 to 1944).

WO P. M. D.

Dear WO P. M. D.,

Lots of things happened in "the old army" that best be forgotten... among them, obsolete directives. Assuming your 1/4-ton 4x4 to be a Willys-Overland or

Ford GPW Jeep, TM 9-803, Feb 44, mentions no RPM spec for carburetor adjustment except for the idle-screw which should be 600 revolutions (8-mph). No other carburetor adjustments are made in the 6000 mile check. When interior adjustments are needed, the defective carburetor is replaced and the old one sent to a special shop to be rebuilt.

TB 9-819-2 and the TB ORD 444 series shows layouts for installing organizational maintenance set #2 in the 2-1/2-ton, 6x6, M34 truck. People are using these layouts as a guide and including second echelon set #7 (super-structure) and mounting both on the GMC CCKW-353 6x6 cargo truck. This is new dope for the new equipment. Most things as far back as 1941-1944 are obsolete.

Half-Mast

eral Mechanics' Tool Set (Ord 6, SNL J-10, section 4, page 5) don't cover your requirements and you can show need for added screwdrivers—your CO can requisition what you lack. And also, do you know that unwanted, unneeded stuff can be turned in through supply channels?

Half-Mast

NEW TYPE CHROME FINISH

Dear Half-Mast,

Last month you wrote a guy about getting rust off chrome. Wouldn't it be better to keep it off? And shouldn't it be said there are chromes and chromes? Some chromes are so thin most anything will scratch them and you couldn't give a buddy a push—the chrome would strip off the bumper.

J. E. C.

Dear J. E. C.,

You're sure right about one thing—chrome ain't what it used to be. The new type chrome finish on administrative vehicles is not only thinner, but is spread right over the copper and then protected with a coat of varnish. But that doesn't take the place of the nickel plate that used to be put on the copper before applying the chrome. If you have the slightest suspicion that some of your vehicles have the new type chrome, don't take any chances with it. Get yourself a copy of the new TB ORD 466. Till you get the TB, you can follow these two rules for safety—avoid anything even slightly abrasive on the new chrome and keep it waxed with paste wax.

Half-Mast

SNL TROUBLES

Dear Half-Mast,

I don't know if anyone else has been having trouble with ORD 7 SNL G-508 (August 51) but I did and I have found out that you'll have to go back to the old G-508 to get what you order.

For instance group 0401, line 4, G 501-7538002, muffler w/spark arrester assy for CCKW 353—the item received looked more like a hot water boiler.

Also, in group 1206, line 6, G 508-7373563, pedal, brake, w/bearing assy. I later found by using manufacturer's part number from ORD 9 SNL G-508 this item is for the GMC truck AFKW X-353.

Could you tell me if there has been something left out by the printer or should I get myself a new pair of glasses?

WOJG C. F. C.

Dear WOJG C. F. C.,

On the first item, line 4 in group 0401 is just as you described it and you should have received G 501-7538002, muffler w/spark arrester assy for GMC CCKW 353. Anything could have happened to cause a physical mix-up. Did you try requisitioning a second time?

As for the second item, perhaps the new glasses would be in order—or at least a few sheets of 58-P-14060 (ORD 3 SNL K-1). You did slip a cog on that one. Line 6 in group 1206 in the new ORD 7 SNL G-508 (August 1951) is not the brake pedal you described at all. You were reading line 7. So maybe it's just a matter of getting used to the new SNL and by now you've had time to get better acquainted.

Half-Mast

Your governor need a punch?

Maybe you've been thinking something's wrong with the vacuum-operated accelerator-pump, or carburetor, or governor on your 2-1/2-ton GMC's (CCW and CCKW)—and maybe you're getting close to the whole truth. Could be the replacement governor you got doesn't have the vacuum port-hole punched all the way thru the governor body, and could be the vacuum channel is blocked by an edge of flashing. This means that the manifold vacuum isn't getting thru to the carburetor, and this is a possibility on Monarch governors, Mfrs. Part No. 753-52.

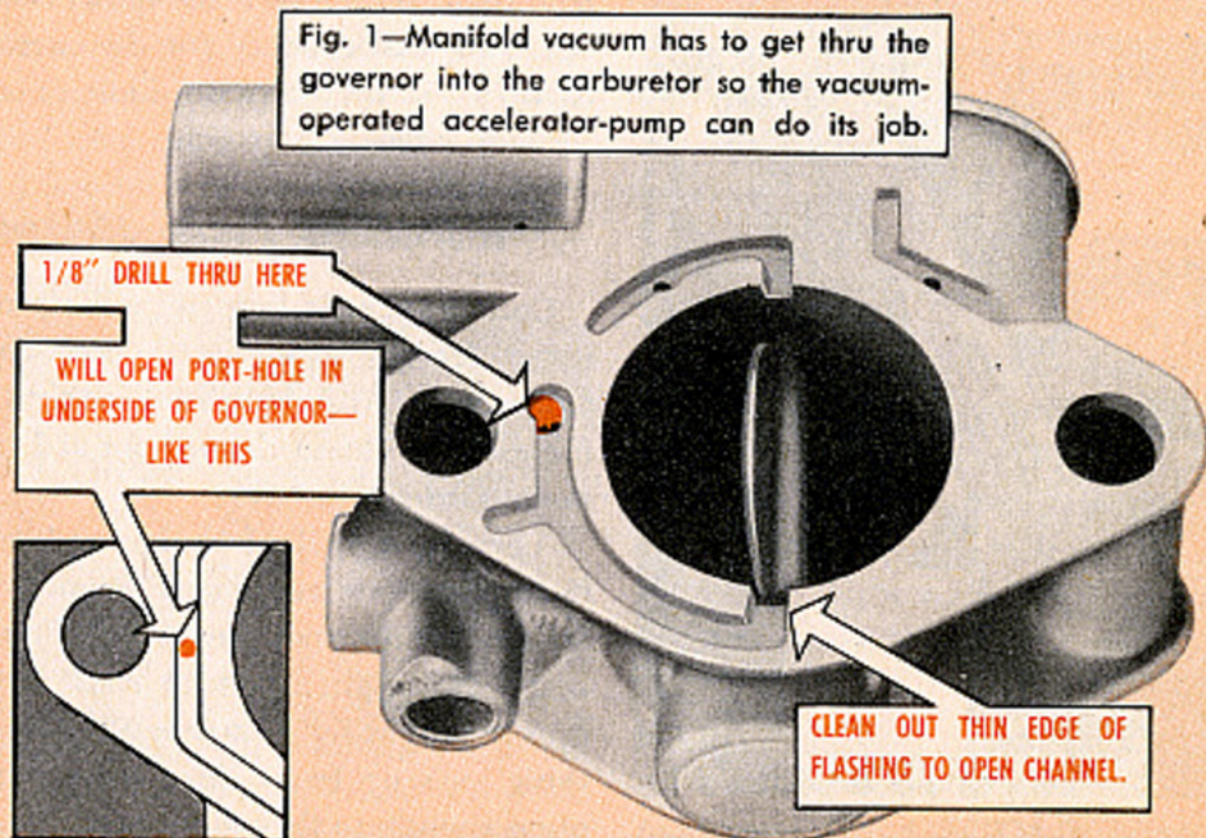
A minor operation (Fig. 3) should've been performed on that governor before installation. And, of course, the

governor-to-carburetor gasket should also have a corresponding by-pass hole.

Tank work stands

Saw a handy gadget in a Battalion motor pool at Fort Hood. A staircase, or work stand, which they ran up alongside the tank to get at it, and to prevent climbing up each time they needed a tool or something from the ground. A floodlight and a couple of electrical outlets on the stand could increase its usefulness.

Of course, this was a strictly level-floor shop deal, but I'm wondering about a temporary platform for the back of a 3/4-ton to do the same thing in the field. A lighting plant in the bed would give power for lights and power tools, while the tool kits could ride on the platform. Hm-m-m?



ICY DRIVING

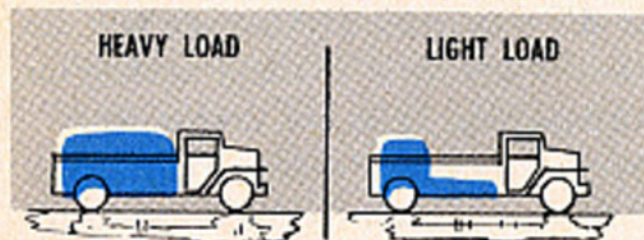


Like any other slippery character, we can deal better with our truck on ice if we learn, beforehand, what to expect.

With ice under wheel, tires haven't got their usual grip on the road, either fore-and-aft or sideways. An over-all way to avoid trouble is to do your driving, not where you are now, but down the road where you expect to be shortly. If a stop is coming up, get the speed off the truck way back here. Not all at once up there.

Look well ahead and plan your moves well ahead. And before you hit the icy road, know what you can do to make that trip a little less slippery.

WEIGHT DISTRIBUTION



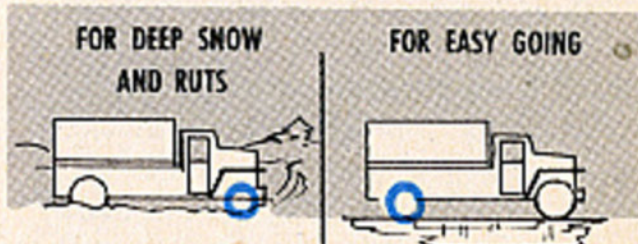
The kind of truck you're driving is your clue on how to load it. If it's a two-wheel-drive or a commercial model, get the weight over the driving wheels. In case it's a light load, (1/4 of truck's rated capacity or less) you'll get more traction by loading way to the rear. However, speed makes a difference. Too much load at the rear also increases the tendency to skid out on turns. And you want to make sure that your unbalanced load is well

lashed down so it won't shift.

So figure on all the conditions. If you have a light load for a short drive, or expect to need every bit of traction you can get to travel slippery hills, load well to the back. Then remember to take it extra easy on the turns, or you'll have the load coming up beside you.

On the other hand, with a full load for a two-wheel drive, or in the case of a four or six-wheel drive, you're better off to load as usual. The point is that your full load gives you all the traction there is anyway, so in case you do have trouble, the load is as low and secure as possible.

TIRE CHAINS



What do you do when you find yourself with only one set of chains for a four-wheel-drive vehicle? Where to put 'em? It is mainly a question of where you are going.

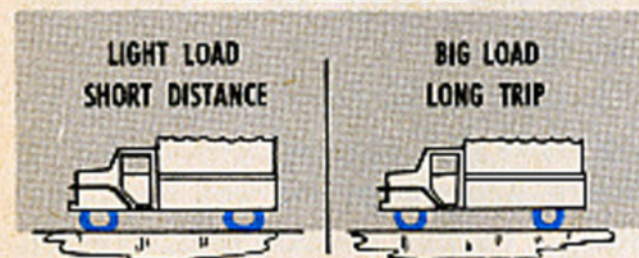
If you have lots of deep snow and ruts to worry about, chains on the front wheels will help you steer around the ruts (in front drive, of course) and will

let your front wheels chew their way through the deep snow instead of being pushed through by the driving wheels. But, if the going is fairly easy, put the chains back on the driving wheels where they'll be under the weight of the load. The load weight gives the driving wheels more bite in hard ice or packed snow. Naturally, on a two-wheel drive, the chains go on the driving wheels.

If you have the World War II GMC with the two spare tires, put them on the front wheels as duals, and with three sets of dual chains, this combination will go darn near everywhere.

Speaking of chains, sedan drivers please remember that the total life of a set of chains on dry concrete is very short—about 50 miles—and doesn't do the tires any good. It would pay you to put a set of fatigues in your trunk when you toss in chains. Then you needn't hesitate to get out and remove the chains when you encounter dry pavement.

TIRE PRESSURE



The various TM's give the approved reduced pressures for the different type tires for maximum traction on ice. But—all this traction is gained at the expense of greater sidewall deflection, so again we gotta consider where we are going and over what.

Military necessity or not, you are not

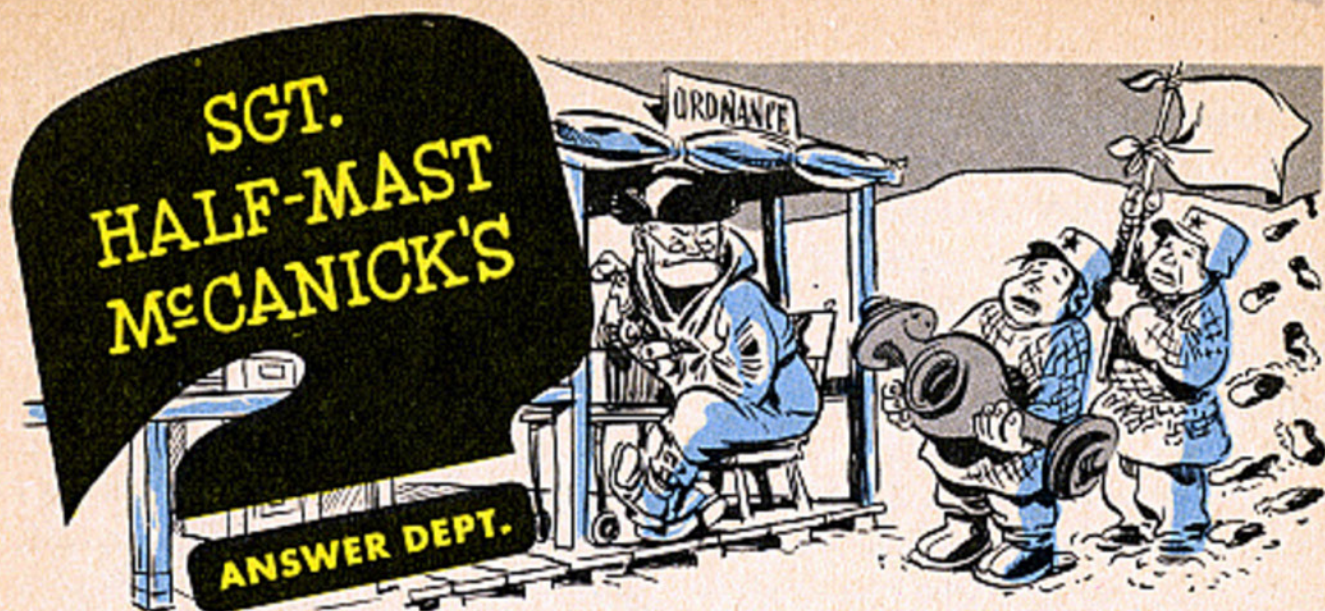
going to carry a maximum load too far with minimum tire pressure, and there comes a time when the traction you get from deflated tires is no greater than that you get from full loading anyhow. If you are just going a short distance with a light load, deflate away. But if you have a two-hundred-mile march with full load, fall back on sweet reason and don't come in on six flat tires.

With the new fleet, the air compressor and hose will let you deflate for the worst going and re-inflate for the rest. In any case, when you have the tire softened up till the entire tread is on the ground, that's all the gain you'll get—any more is just destructive to the tires.

WHICH RANGE?



When driving a combat-type vehicle, or any truck with a wide spread between high range and low range, there's nothing to be gained by using low range unless the grade or type of ground would call for low range anyway—icy or dry weather. In general, the lower gears make it tougher to drive without spinning the wheels. Too much power at the wheels makes control at the throttle too hard. **A spinning wheel has only a fraction of the traction of a wheel that is not slipping.** But by driving in the highest gear that will pull the load without lugging the engine, you can use more throttle with less chance of spinning.



WINCH CABLE CARE

Dear Half-Mast,

All the LO's and TM's (for vehicles with winches) I've checked say to clean and oil winch cables with OE or used crankcase oil. I think OE is OK for the job, but as for "used crankcase oil"—can you really trust it to clean and protect wire rope?

WOJG E. M. V.

Dear WOJG E. M. V.,

You're right, sir—when it comes to the winch cable, used crankcase oil is a poor preservative. As an expedient—well, it's better than nothing. But even as a cleaner its scouring qualities are questionable.

It's best by far to use unadulterated OE to clean and oil the cables, as new directives will tell you.

As you know, pertinent LO's and TM's give clear and simple instructions on how to care for winch cables—after each operation, and at the weekly, monthly, and semi-annual inspection sessions. Follow those instructions as per usual, **except** where the call is for

cleaning and oiling the cable—then it's better to draw some trustworthy OE for the job.

Half-Mast

VALVE ADJUSTMENT

Dear Half-Mast,

In school I was taught that adjusting valves properly was very important. I understood the adjustment of the valves of a 2½-ton, 6x6, GMC (CCKW) was set at 0.012" Intake, and 0.016" Exhaust. Well, I have seen some mechanics set them at 0.012" straight through. The other day while looking for the engine number of a vehicle assigned to us, I noticed the valve adjustment on the valve cover read "0.012" Intake, 0.020" Exhaust." What I would like to know is: what authority do mechanics have to change those adjustments?

Cpl J. J.

Dear Cpl J. J.,

Glad to hear from you again, Corporal. Your question on the valve clearances for the 2½-ton GMC engines puzzled me for quite awhile. But

after poking about in the TM's, I think we've got the answer. True, TM 9-801 calls for valve settings of 0.012" intake, and 0.016" exhaust. However, there is a pamphlet entitled Change No. 1 (12 Sept 50) which says, "(1) Valve stem. With engine hot and idling, insert feeler gage (0.012" for intake and 0.016" or 0.020" for exhaust) between rocker arm and valve stem at each valve. Adjust exhaust-valve clearance to 0.016" on engines having the early type camshaft installed. Adjust... to 0.020" on engines having the late-type camshaft installed. The late-type camshaft can be identified by the GM Part No. 2191529 stamped on the shaft between Number One intake and Number Two exhaust cam, and by the dark colored cams in contrast to the highly polished cams of the early-type shaft.

"Note: If there is any doubt as to whether the camshaft in an engine is of the late type, adjust exhaust-valve clearance to 0.020 inch."

There it is. And I have no doubt that the cover you found stamped for twenty-thousandths exhaust clearance came from a late-type-camshaft engine. As to the boys who swear by the twelve and twelve setting, chances are they got their schooling on the Cab-Over-Engine model, which calls for that setting.

Half-Mast

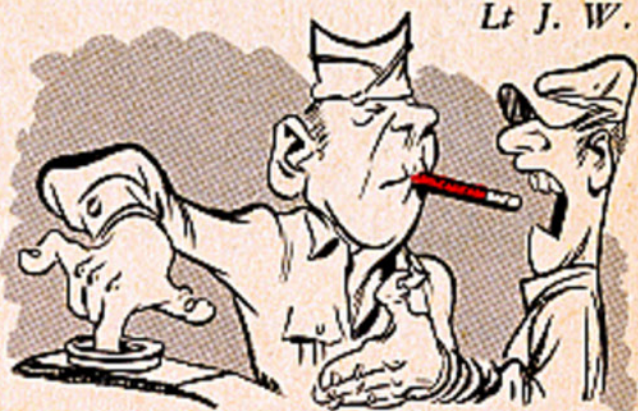
TESTING ANTIFREEZE

Dear Half-Mast,

I've always read that you need a

warm engine to test the strength of antifreeze. Tell me if I'm right, because we're forever getting gigged by technical inspectors who insist on testing the stuff when the engine's cold. Naturally it shows up weak.

Lt J. W.



Dear Lt J. W.,

If the hydrometer is calibrated for a warm solution, naturally the antifreeze should be tested when the engine's warm. Many hydrometers are charted for both cold and warm solutions, however, and it's just a matter of reading in the right place on the chart. Now, tell the inspector. (Also see p. 513)

Half-Mast

TOO MUCH OIL

Dear Half-Mast,

Why is too much oil in the crankcase just as bad as not enough? And why do some engines use about a pint of oil and then seem to stay at that level?

MSgt T. A. B.

Dear MSgt T. A. B.,

The best reason for sticking to the prescribed oil-levels is that there's no added benefits from being overly generous with the oil. Any more than the

Connie Rodd's BRIEFS



Oil-cooler ground-strap gaskets

On your 5-ton, 6x6's, you'll find a $\frac{3}{8}$ " copper gasket (Stock No. H102-0105451) squeezed behind the head of the oil-cooler-housing-to-engine-block screw, which anchors the rear-engine ground-strap. If you remove the ground strap or screw for any reason, for oil's sake, stick a new copper gasket behind the head of that screw; or you might find your oil cooler leaking oil all over your block.

Winch lube

TM 9-819 and the Lube Orders for the 2½-ton Reo and Studebaker winch need correcting. The winch worm-housing (gear case, as it's more commonly called) will not hold the specified 3½ pints. The correct capacity is 1¼ pints. The winch-end-bearing frame-housing on the other hand, needs more than the specified ½ pint. The correct amount is 1 pint.

The same winch is used on the 2½-ton GMC, but you'll find TM 9-819A and

the Lube Order for this vehicle are correct. Which explains why the M34 winches have been shooting their seals while the same winches on the M135's have been giving no trouble.

Personnel-heaters

About the South Wind personnel-heater fix (PS #11, p. 489)—forgot to tell you to tap mighty easy on that baffle. It's welded in three places, but might not be if you get rough. Also, don't make wholesale fixes—heaters modified in production after Serial No. 61055 aren't likely to give trouble.

Map-light plug-in

On some of your M42 utility trucks (command), the place to plug in the command's map-light is under the dash. It's a quick-disconnect on one of the circuit breakers, set on the cowl ventilator-brace's right side, between the instrument-panel and the cowl front-panel. Stick your head under the dash, disconnect the terminal from the wire, and you're in.

generator and regulator grab bag



Speaking of generators and regulators for the 24-volt vehicles—since Auto-Lite generator and regulator parts are not interchangeable with Delco-Remy generator and regulator parts, you might think the units themselves aren't mixable. But they are.

No need to knock yourself out hunting for a Delco-Remy regulator to match that Delco-Remy generator, or an Auto-Lite generator to match that Auto-Lite regulator—they can be switched around any which-way. You can also use the two-brush-type generators as replacements for the four-brush-type generators (and vice versa) no matter what kind of regulator is in the truck.

The only thing you must remember is that the shock mount, if any, goes with the vehicle, not with the regulator. It seems that while both the Delco-Remy and the Auto-Lite regulators are designed to work OK in the midst of the vibration they get from the vehicles, some installations were found to be troubled by real low-frequency vibrations and the shock mount was the best answer. So you leave the shock mount

where it belongs and switch only the regulators. (This is the only way you **can** do it anyhow—the holes for mounting the shock mount on a vehicle don't match the holes that let you put the regulators on the shock mount. Clear?)

Another thing: The regulator you're using for replacement was calibrated for either a vertical or horizontal mounting position, and you are maybe going to use it the other way around. For this reason alone, it's good to remember that when teaming unmatched components, they should always be recalibrated as a team—by people who know how to use the right instruments. However, as a field expedient, the variation in voltage is so slight that you can go about your mission unconcerned till you can get to an adequate shop.

This whole business of interchangeability of generators and regulators as units might cause confusion in areas where radio bonding is important. Why? Because Delco-Remy worked radio suppression into the generator and regulator both, while Auto-Lite put it all in the regulator. Which means an Auto-Lite generator mated with a Delco-Remy regulator equals no radio suppression, but a Delco generator and an Auto-Lite regulator will be quiet. Tell it to the Signal Corps if they start scratching their heads over your vehicle.



it off, might break the valve, too—then you'd really be in the soup.)

WW II OIL SEALS

Dear Editor,

When we can't get the I-beam or banjo-type-axle inner-front oil seals for our WW II GMC's, we use the split-type axle inner-front-hub seal. We push this felt seal onto the knuckle the same as the regular seal. Then we use the split-type-axle oil-seal retainer and assemble the unit as usual. We've operated a vehicle for almost 5000 miles on all kinds of terrain without a leak.

MSgt Paul A. Mabe
APO 301, San Francisco

PM KEEPS YOU MOBILE

Dear Editor,

Some people think we don't have time for Preventive Maintenance up front here in Korea but believe me they're wrong—dead wrong. Our Ord Bn is supposed to be semi-mobile, and we're close enough to some of the hot spots to make it healthy to keep that way. Our mobility—maybe even our skins, and a lot of other hard-to-get equipment—depends on good PM.

It'd make you cry to see how far-reaching one man's neglect can be. Here's one good example of many, many stories I could tell you.

We moved in right behind our fighting men to a new area the Commies had just been driven out of. No telling how long we could stay—there'd been a lot of see-sawing. Our mobility was mighty important.

The trek northward was a chilly one and getting chillier all the while. An Autocar truck-tractor and trailer, loaded to the gills with supplies and equipment to set up the new area, jogged a water hose loose and lost all its water **and** anti-freeze. It was easy to pull aside and replace the water (thru the ice in a rice paddy). OK up to that point.

What the driver didn't do was report the loss of his anti-freeze to the motor officer when he reached the new area. He just made a mental note to do that later.

Later turned out to be a week. It took that long to set things up to the point where supplies could be unloaded from the trailer. Then, by strange happenstance, the truck tractor **couldn't** be moved. A surprised driver reported to the motor officer—just couldn't imagine what was wrong with his vehicle!

One look under the hood changed all that—icicles everywhere, cracked head and all. And to make a short story shorter, there wasn't an Auto car head to be had in all Korea. In due time one came along from stateside and that equipment was rolling again—only a few months. How do I know? I'm the motor officer.

Lt Dorsey E. West
Korea

LOOSE HAMMER HEADS

Dear Editor,

Some 1# and 2# copper hammers (Stock Nos. 41-H-265 and 41-H-267, respectively) have been loosing their

The proper adjustment of the self-locking nuts on the radiator mounting studs and the stay-rod will supply this flexibility.

When you adjust them, tighten the mounting-stud nuts up even and snug. When you get to the stay-rod nut be careful not to pull it up too tight so that you completely compress the spring on the stay-rod bracket at the upper radiator tank. Get it tight enough to hold the radiator snug. This'll leave enough spring to let the radiator flex when you hit the cow pastures.

Rust in the shift tower

You can put an end to rust which crops up on starter, transmission and transfer linkage inside the shift tower of hydramatic 2½-ton 6x6 trucks. Get at the linkage by removing the shift tower, clean off any rust that has formed and coat the linkage with AXS-673, Rust Preventive Compound (Stock No. 14-C-507). You have to be careful about nylon bushings; they've already been lubricated—so, don't add more. Late models of your M135 and similar trucks have already had their linkage coated. You might take a peek into the tower to make sure no rust is forming.



Winch shear-pin replacement

Despite previous warnings, there are still some steel shear pins floating around. Remove the shear pins from your winch-equipped 2½-ton and 5-ton trucks, beg or borrow a magnet for yourself, (magnetic drain plug H002-0541516 will do the trick) and if you



can pick up the pins with the magnet—bury those steel pins. Replace with the aluminum-alloy type that'll shear when they're supposed to and save those transmissions and power-takeoff units.

All of your 2½-ton 6x6's now need the new-type shear pin G742-7368685, plus two cotter pins H001-4417141 per shear pin. All 5-ton 6x6's should now use shear pin G744-7409348, plus one cotter pin H001-4417425 per shear pin. Take a gander at TB Ord 532 (15 July 1953).

tighten the screw again. And loosen the door lock retainer-screw and position the lock so it'll strike the striker plate's center. Then tighten that screw, too.

Those first-aids should hold it. But if it doesn't, bend the striker plate in or out (careful like) until the latch'll hold that plate good and tight.

Half-Mast

WHAT'S THE THING

Dear Half-Mast,

In Ord 7 SNL G-501 (Jan 53, 2½-ton, 6x6 Amphibian truck) there is listed a Container, metal, assembly, Stock No. G501-7744120 (page 6, On-Vehicle Material).

Can you clear up a mystery and tell us what is "the thing"?

H. P. L.



Dear H. P. L.,

Don't let the nomenclature throw you.

That container used to be a spare gasket container on some of the early DUKW's. Now it's merely two metal straps for holding a gasket set which has been packed for overseas shipment.

If you want to get an idea of what the thing looks like, refer to page 20, Fig. 9, in TM 9-802 (23 Feb 45).

Half-Mast

TILT CONTROL

Dear Half-Mast,

What are the two wedges under the 5th wheel of the M52 tractor-truck for?

WOJG D. R. C.

Dear Mr. D. R. C.,

To control her tilt, m'boy — the amount of sidewise tilt between the truck and trailer. This set-up isn't found in commercial vehicles which aren't built for the rough, cross-country driving many Army vehicles meet. The wedges are moved back according to the roughness of terrain you expect to travel over, and forward when moving on paved highway.

Half-Mast

SOUND-OFF—TO HALF-MAST

Got troubles? Ideas? Fixes? Tricks? Wanna tell somebody about 'em?

Then, Sgt Half-Mast is your man. He'll listen to anybody's idea or problem. Just send them to him in care of **PS Magazine, Aberdeen Proving Ground, Maryland.** And, if you need an answer to that problem, he'll fire it right back. He'll pass your ideas, fixes and tricks on better maintenance along to the other guys who need 'em.

