The ARMY MOTORS

VOLUME 2 JULY 15 1941 NUMBER 4

THE HOLABIRD QUARTERMASTER DEPOT MOTOR TRANSPORT SCHOOL BALTIMORE MD.

To GET THERE

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THE 'AM is primarily intended to cover all angles of military motor transportation. Heretofore copies have been gladly mailed directly to all organizations and units.

The subscription list has grown so large, however, that it is a problem, with the limited personnel available, to maintain accurate records and promptly deliver THE 'AM on the 15th of each month.

So, in the future, it will be necessary to send issues to regimental commanders, or in the case of *separate* battalions, squadrons, companies, troops or batteries, to the commanders of those units. Copies will be marked for the attention of the motor transport officer, and sent in the following amounts:

For a regiment..... 15 copies
For a *separate* battalion or squadron..... 5 copies
For a *separate* company, battery or troop..... 3 copies

Due to the limited reproduction facilities available, and in order to have THE 'AM reach personnel interested and serve the purpose for which it is intended, it is suggested that the motor transport officer of the unit distribute the copies to best meet the needs of motor transport.

THE 'AM

VOLUME 3 JULY 15, 1941 NUMBER 4

ONE OF OUR ROVING REPORTERS WANDERED IN TO A POST GARAGE THE OTHER DAY TO SEE WHAT THE BOYS WERE DOING. THE TALK HAPPENED TO SLIP INTO THE SUBJECT OF LUBRICATION, AND OUR REPORTER ASKED THEM WHAT THEY THOUGHT OF THE HYPOID PUMPS MENTIONED IN THE "EXPERIMENTAL" SECTION OF THE MAY 'AM.

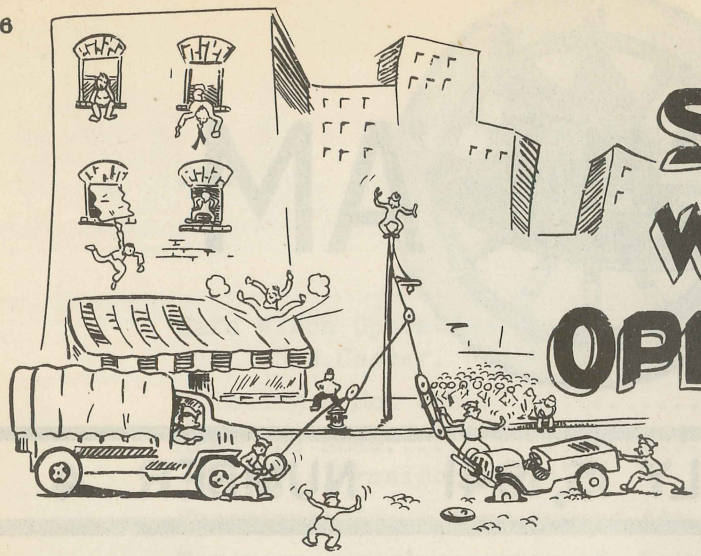
I DON'T KNOW WHO WAS MORE SURPRISED: THE MECHANICS TO HEAR THAT THERE WAS A MAGAZINE CALLED THE 'AM, OR THE REPORTER TO FIND THAT NONE OF THE MECHANICS HAD EVER HEARD OF IT OR SEEN A COPY. ANYWAY, IT WAS PRETTY MUCH OF A BLOW TO US. HERE WE SWEAT AWAY EVERY MONTH TO TURN OUT THE BEST MOTOR TRANSPORT MAGAZINE WE CAN AND THE DARN THING DOESN'T EVEN REACH THE MEN WHO REALLY KEEP MOTOR TRANSPORT ROLLING.

YOU'LL NOTICE ON THE OPPOSITE PAGE, AT THE BOTTOM OF THE TABLE OF CONTENTS, A NOTE ON HOW THE 'AM IS DISTRIBUTED. WE'D LIKE TO HAND A COPY TO EVERY DRIVER, MOTOR MECHANIC, MOTOR SERGEANT AND MOTOR OFFICER IN THE ARMY, BUT IT CAN'T BE DONE AT THE MOMENT. INSTEAD, WE HAVE TO SEND COPIES OF THE 'AM TO REGIMENTAL HEADQUARTERS AND TO THE COMMANDER OF SEPARATE BATTALIONS AND COMPANIES. THIS DISTRIBUTION MAKES IT DIFFICULT FOR US TO KNOW THAT COPIES ARE REACHING ALL THE MEN CONCERNED WITH MOTOR MAINTENANCE.

SO — IF YOU'RE NOT SEEING THE 'AM REGULARLY, SPEAK TO YOUR COMMANDER ABOUT IT. IF YOUR FRIENDS IN OTHER BRANCHES OF MOTOR TRANSPORT HAVEN'T HEARD OF THE 'AM, TELL THEM TO SEE THEIR COMMANDERS. KICK ABOUT IT UNTIL YOU GET SOME ACTION.

IF YOU'RE A COMMANDER, WE CERTAINLY FEEL THAT IT IS TO YOUR ADVANTAGE AND TO THE ADVANTAGE OF EVERY MECHANIC AND DRIVER OF YOUR COMPANY TO SEE THAT THE 'AM TRAVELS RIGHT DOWN THE LINE. IT'S NOT GOING TO DO ANYONE A BIT OF GOOD IF IT STICKS IN HEADQUARTERS, OR IF VARIOUS PERSONNEL NOT ACTIVELY CONNECTED WITH MOTOR TRANSPORT DECIDE IT WOULD BE A GOOD IDEA TO KEEP THEM ON FILE. LIKE ALL OTHER MOTOR TRANSPORT MATERIAL, THE 'AM IS NO GOOD IF IT IS NOT USED AND IT CERTAINLY CAN'T BE USED IF IT IS SLUNG INTO A FILE AND THEN BURIED SOMEWHERE IN A DRAWER.

THE 'AM DEPENDS ON YOU, NOT ONLY FOR CONTRIBUTIONS THAT KEEP IT GOING, BUT TO SEE THAT IT IS DISTRIBUTED AS FAR AND WIDELY AS POSSIBLE. WON'T YOU DO YOUR BEST TO HELP US?



SAFE WINCH OPERATION

B. A. COOPER
GAR WOOD INDUSTRIES

How many of you have seen the end of a broken winch line fly through the air? It can cut off a leg as clean as a surgeon's knife. It can crush a man's head or chest as easily as a boy can smash a bird's egg. And there's no time to jump after the line breaks; hardly time for a quick prayer even if you are watching it.

WINCH LINES STRETCH LIKE RUBBER

A winch line under load stretches like a rubber band and stores up a lot of energy; just like the sling shot you made not so long ago. Remember how fast a stone would fly from it, especially when it was headed for Mrs. Plushbottom's window? Well, that sling shot weighed a couple of ounces, but a winch line will weigh from 50 to 200 pounds and steel is a much better spring than rubber. I don't know how the speed of a broken winch line snapping back compares with a rifle bullet, but at least the bullet makes a fairly clean hole. If you're the driver, duck down behind the cowl when a line breaks. The brush guard will stop it in most cases but a broken cable can do some funny things and playing safe isn't being a sissy. The idea is to treat a winch line under strain with the same respect you would a loaded gun. So —

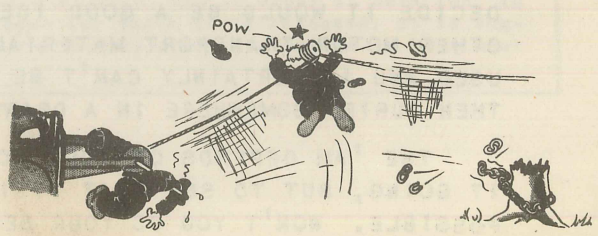
STAY AWAY FROM WINCH LINES UNDER LOAD

If a snatch block is used, keep away from the angle made by the cable and the block. A winch line makes a swell sling shot. I have seen a 95 pound snatch block travel 300 yards on the fly and that's a lot farther than Babe Ruth could sock a 5 ounce baseball.

SHEAR PINS

For your protection a shear pin is provided on the worm shaft of every front mounted winch. It will shear before a good winch line will break. The engineers of the Quartermaster Corps specify that the pin must shear at not more than 10% above the rated capacity of the winch. *Use only standard army shear pins to replace broken ones.* Using anything else may break a chassis frame, snap the winch line, or seriously overload the winch. A soft metal with special characteristics is needed so that the pin hole, the worm shaft or the universal joint will not be damaged when the pin breaks. In the field the broken parts must usually be quickly driven out of the hole. "The field" in this case generally means a nice sloppy mud hole with a long convoy of trucks behind it waiting to get through. It is, therefore, essential to be able to replace this pin quickly and easily.

Your truck comes equipped with two spare shear pins. You should always check the supply of pins before starting on a trip. When a spare shear pin is used it should be replaced *that day*. The motor



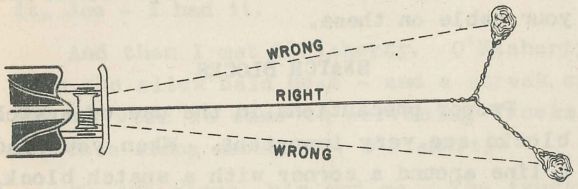
sergeant should keep a small supply of pins where they can be immediately available in an emergency. Remember that your Buddies' lives and yours may depend on this one little item.

WIRE CABLE

Wire cable is the Prima Donna of the winch set up. It is as temperamental as Greta Garbo, and treating it carelessly is like asking Lana Turner to scrub the kitchen floor. A winch line has a tougher life than a soldier on K.P. so give it a chance. However, don't get the idea that this cable is a softy. It's strong and will take plenty of punishment, but even a tough guy will fold up when hit below the belt.

One of the quickest and easiest ways to ruin a length of cable is to put a kink in it. Keep your eye peeled for this when handling them. Only *constant care* will keep the kinks out.

To get proper life from a length of cable, wind it *tightly* and *evenly* on the drum. A loose cable will jam down between the coils and cut and even break the surface wires. This seriously weakens the cable and makes it dangerous to handle. It damages the wires and spreads the strands so water can get in and cause rust.



REWIND THE CABLE CAREFULLY

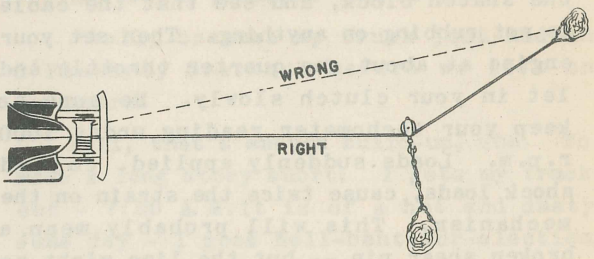
After using the winch, wind the cable on the drum with at least two men hanging on the end to give it some tension. At the first opportunity completely unwind and rewind it under tension.

The best way to do this is to fasten the end of the line to the front bumper of another truck that is properly lined up with the winch. The driver of this truck should keep a slight even pressure on his foot brake and allow the winch to pull his truck. Winding on the first layer is the most important. The coils of cable must be tight against each other so the coils on the next layer cannot jam down between them. As the cable is wound on, it should be tapped every few inches with a hammer. Use a block of wood between the hammer and the cable to avoid flattening the wires. After the first layer is wound properly, the rest is easy, for the cable has to be guided only at the beginning and end of each layer, provided the trucks are kept lined up properly.

If another truck is not available, the same result can be obtained by fastening the end of the winch line to a tree and letting the winch pull the lightly braked winch truck to the tree.

This may sound like a lot of work but don't say, "Oh yeah", for it can and will pay big dividends in cable life, to say nothing of your own.

Whenever the winch line looks dry or shows signs of rusting (but why wait that long), give it a dose of engine oil (crank case drainings do very well). When a rope bends there is a slight movement between the wires, and the oil will reduce the internal wear.



WINCH DRAG BRAKE

Most complaints about the winch drag brake are made because its purpose is not understood. The drag brake is there for one reason only: to keep the drum from spinning when the jaw clutch is out and the cable is being pulled off the drum. If the drum is allowed to turn freely, the cable will fly free, get tangled, and become damaged.

Under no conditions ever attempt to lower even a light load on the drag brake.

When the winch is not in use leave the jaw clutch engaged to keep the cable tight on the drum and be *sure to lock power take off in neutral.* Don't tighten the drag brake to keep the cable tight on the drum

while the truck is being driven, because you'll have a tough job pulling the rope off when you want to use the winch.

If the brake does not work smoothly and evenly, there is probably paint on the drum flange. Remove the paint from the part of the flange covered by the brake and it should work properly.

RIGGING

Anchoring the far end of the rope properly is very important. Fastening the hook over the wire cable after putting it around a tree or other anchorage will seriously bend and cut the strands. Slip the hook through the four feet of chain on the end of the cable. Unless you're an expert rigger, and few people are, don't fasten the cable to an anchor by tying the winch line, except in emergency. The knot kinks and weakens the cable and it is almost sure to slip.

APPLY LOADS SLOWLY

Always apply the load slowly. As the cable starts to tighten, make a final check for proper alignment, the setting of the snatch block, and see that the cable is not rubbing on anything. Then set your engine at about one quarter throttle and let in your clutch slowly. Be sure to keep your tachometer reading under 1000 r.p.m. Loads suddenly applied, called shock loads, cause twice the strain on the mechanism. This will probably mean a broken shear pin -- but the line might go first. Make the driver who pulls this one climb down into the mud to change the pin and he'll not do it again.

OUT BY THE BOOT STRAPS

When pulling your own truck with the winch, anchor to something exactly in line with the direction you want to go, using your snatch block if necessary to accomplish this. Angle pulls tend to pile the cable up at one end of the drum. If it builds up above the top of the drum flange it will climb over and jam down between the drum and the gear case or around the sliding clutch. This ruins the winch line and may severely damage the winch. Always detail one man to watch for this *from a safe distance*. When the cable starts to pile up, either change the line-up by steering in the direction the cable is piling up or, if this is not possible, stop the pull and change the anchor for the winch line.

In pulling out another vehicle, it is always possible to line up exactly either with the vehicle to be pulled or with a snatch block used for this purpose. It takes only a few moments extra to line up right and may save a lot of time and trouble later.

Always be sure that the rope is not rubbing against rocks, gravel, or metal. If you really want to cut the cable a cold chisel is easier but no quicker.

In tough pulls, anchor as far away from the winch as you can to get as much line off the drum as possible. On the 1-1/2 ton and 2-1/2 ton trucks the shear pin will let go at about 10,000 pounds pull when the winch line is on the first layer; but will break at 5,000 pounds when the drum is full. On the 4 ton trucks the pin will let go at 15,000 pounds on the first layer or 7,500 pounds on the top layer. So take the hint and save yourself the trouble of getting out and under to change a shear pin.

Center mounted winches have no shear pins, so you're much more apt to break your cable on these.

SNATCH BLOCKS

Proper precautions in the use of snatch blocks are very important. When you lead a line around a corner with a snatch block, the strain on the hook can be much more than the strain on the wire. If you bring the cable back to where you started from, a 10,000 pound strain on it puts a 20,000 pound strain on the block. If the cable makes a right angle around the block, a 10,000 pound strain on the line puts over 14,000 pounds on the block. Who cares? Well you ought to, because the rigging to hold the block should be twice as strong as the cable, otherwise, you will have some blocks flying through the air. When the snatch block changes the direction of the cable 90 degrees or more, wrap your utility chain *twice* around the tree or

(Continued on page 109)

SPINNING A HOT ONE

Dear Joe,

As one truck driver to another, Joe, this letter could be called, "The Chauffeur's Lament", or "How An Overheated Engine Made Me Lose My Faith in Human Nature."

Not to get too literary, Joe, I'm strictly unhappy.

It all started back in January. You remember how the boys named me 'Hard Luck Haggerty' because there wasn't an assignment that didn't see me calling for the service truck? And how many times did I drop out of a convoy with "truck trouble?"

Whatever could happen, happened to me: engine trouble, chassis trouble. You name it, Joe - I had it.

And then I met O'Flaherty. O'Flaherty with the slick bald head - and a streak of genius when it came to servicing trucks. A prince among mechanics, O'Flaherty.

We got along, him and me. The trucks I took out had O'Flaherty's lovin' hands on 'em. I made sure of that. He would give them the O'Flaherty Treatment - check the connecting rods, check the gaskets, check this and check that.....that was O'Flaherty.

Honest-to-Gosh, Joe, I loved the man.

Never a bit of trouble did I have. Drive here, drive there - sweet and carefree - like a dream.

Until that Tuesday - Black Tuesday, I call it - the week after Spring maneuvers started. The dispatch sergeant, knowing the fine record I'd made for myself for uninterrupted service, called me in that morning.

"Haggerty," he says, and there's a hard look to his eyes (he's been hearing from upstairs about truck breakdowns) "Haggerty, we got to get a truck to "B" company."

I won't go into the problems we'd run into on these maneuvers, Joe, suffice it to say, a truck had to get to "B" company.

The Sarge didn't say another word, just kept looking expectant-like at me.

"Yes sir," was all I said, "A pleasure."

"And why a pleasure thinks you?"

"Well, because my truck just had an O'Flaherty Overhaul before we left on maneuvers.

Well, that's enough build-up, Joe. To make a long story short: I gets my truck out - 7:20 A.M.it is of a hot and dusty June day - I goes hell-bent-for-election for 20 miles.....and bango! the engine starts knocking like a drum.....sighs and dies.

You guessed it, Joe - overheated. O'Flaherty had overhauled her all right, ground the valves, replaced a bearing, put on new gaskets--------

But O'Flaherty hadn't cleaned the cooling system.

The mighty O'Flaherty had struck out.

To get technical, Joe, when an engine gets an overhaul, her efficiency gets stepped up. You get better compression - which means plenty more heat in the cylinders. That starts it - more heat in the cylinders. Before the overhaul your cooling system, fouled with rust and scale as it was, still handled the load. But better

compression increases heat. Which means your cooling system's got to do it's full duty or else.

But it doesn't. And of course you wanna know why not?

Well, your water jackets for one thing. From long use they get a crust of scale, sediment and corrosion. This crust acts as insulation and prevents proper cooling. That's the nub of it, Joe, the crust on this and other surfaces of the motor acting as insulation and checking the heat from getting into the cooling water where it can be passed off. Why, you can get a high enough temperature this way to cause block distortion.

Another thing is that the water passages around the valves are small — and when rust and scale form in them as is natural, the flow of water is restricted. The upshot is that right here where cooling is absolutely necessary, you get what they call a "thermal difference" from one point to another. How would you feel, Joe, if your belly was hot in one place and cool in another?

Take it from me, Pal, this coat of scale and rust all over the guts of an engine is bad medicine. Look at it this way: you got your foot on the gas and the heat is generating inside the cylinders. This heat eases nicely through the metal wall of the cylinder until SMACKO.. it comes up against a coating of scale and sediment hanging on the outside of the cylinder wall like a solid crust of barnacles. There is a film of water clinging to this crust and the heat from the cylinders has about as much trouble getting through to the circulating water of the cooling system as I'd have beating through a brick wall with my bare fists.

So that's two ways it gets you. The scale and sediment, besides clogging up the cooling system and interfering with the circulation of the water, clings on the walls and surfaces and does you double-dirty by insulating and refusing to let the cylinder heat out into the water.

And not only that, but the oil and grease that's around, plus the heat of the system, act as a binder for the rust and scale and help the formation of sludge.

Aggravatin'? Sure, but would it interest you to know about getting rid of all this scale, rust and sediment? Like it does me, I mean? Try the June 15, 'AM. There's a swell article called "Why Service The Cooling System?"

Talking about all this scale and rust, Joe, it reminds me of the rule my old Uncle Pig used to follow, "Never drink water — look what it does to automobile engines". And that kind of got me wondering about the rusting and corrosion in the cooling system.

Seems that air is constantly getting into the cooling system through the overflow pipe. From there on it's a simple matter of oxidation.

And not only that, but a blown or leaky cylinder head gasket, or maybe the head being loose, lets exhaust gases be blown into the cooling system. There are strong acids in the exhaust gases which step up corrosion.

Or maybe your water pump has been leaking or there's a leak in the lower hose connection. This kind of leak can be so small there's no sign of dripping, yet there's enough air drawn into the system to interfere with even cooling and also start things rusting.

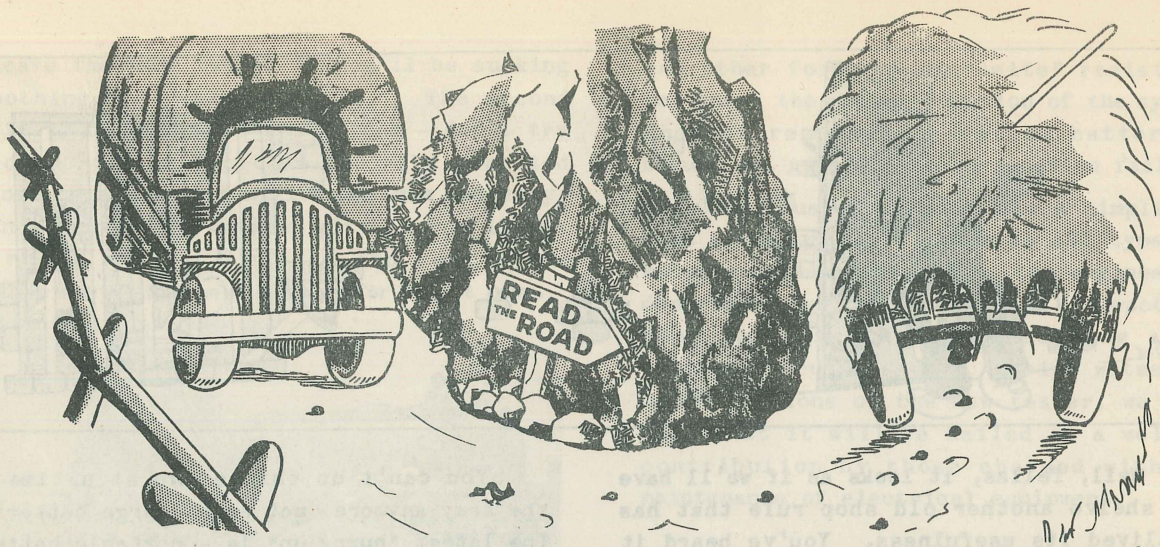
Even cooling, and by that I mean uniform temperature throughout the block, is plenty important. Without it, your engine develops hot spots and a swell chance to crack, especially at the exhaust valve seats. I haven't even mentioned the bad effects of all this on gas and oil economy, power and general motor efficiency. I'll leave that to your imagination.

So what's it all lead up to, you're asking, 'ey Joe?

Just this: Yours Truly's got a standing date the fifteenth of every month. And I don't mean with any blond either. It's "THE 'AM" for me — because as one disillusioned truckdriver to another, Joe, a boy's best friend is his motor. Honest Engine!

Pal,

Haggerty



Read The Road---These three words have had tremendous importance throughout our history, for it was by reading and recognizing signs that the pioneers moved through uncharted wilderness and hostile Indian territory. "Reading the road", and reading it correctly often meant the difference between life and death to them. "Reading the road" *correctly* may mean as much to you some day.

TRAFFIC LIGHTS

By this time you are probably saying: "What is all this? What am I supposed to read? What shall I look for?" Well, for one thing, there are traffic lights. Elementary? Sure. Everything about driving is elementary, but until you learn that basic facts form the foundation of all complex subjects, your education hasn't started. When approaching a traffic light, watch it. Traffic lights usually are timed in cycles of a minute at the most. You know your driving speed, you know the approximate distance from your truck to the light, you know the color it was when you first sighted it. With a little deduction you should be prepared and know what the darn thing will do when you get to it. Remember that some fool on the side road may decide to try to crash through on that amber! Remember also that when two chance takers come together the result is one accident.

LOOK AHEAD

Too many drivers look at the radiator cap instead of the road. Get your chin up and keep it up! Watch the road way ahead, but don't forget as well to watch for holes and ruts right in front of you. Spot the fences, they warn of entrances; watch telephone poles for daytime road direction; that house—what type is it? A schoolhouse says lookout for children; a farmhouse or a barn, lookout for cattle. Houses in groups usually mean a crossroad, and so on. At night, even when driving with blackout lights, the reflection from telephone wires in the distance will tell you road direction—tip you off to curves, hills, intersections, etc.

Road signs generally mean what they say. Most states have their roads pretty well marked to warn of curves, of grades, of crossroads, of towns and whether it is a big place or a small one. Ohio has the safe speed marked on all bad curves. Read these signs and heed them, and remember that stop signs mean STOP!

Then there are other things, a cloud of dust in the distance means something's moving ahead, perhaps a herd of cattle; fresh mud tracks may mean that anything from a small farm cart to a road-hogging haywagon has pulled into the road from a field. Loose stones on the road, wisps of hay or straw, matted grass on the shoulder, a railroad track approaching the road—all are welcome warning signs that tell an alert driver of a change in the road, something on the road, a narrow bridge or culvert, perhaps even a washout. This could be continued indefinitely with explanations of the significance of cleat tracks, a ball rolling, a person calling

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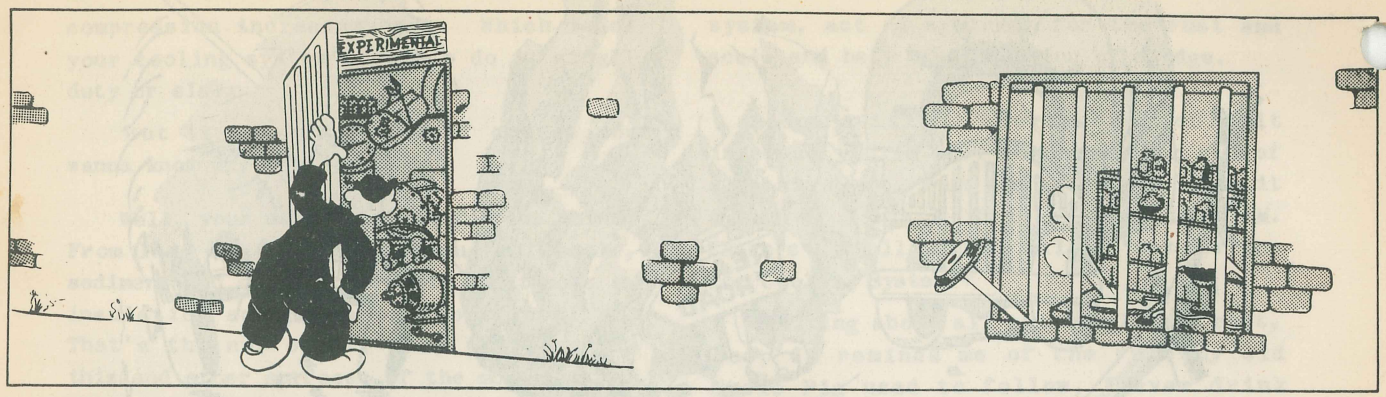


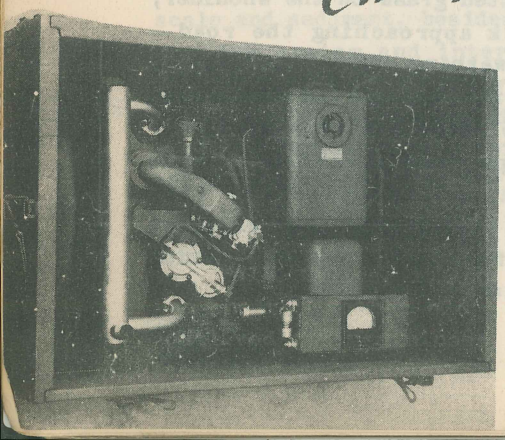
Well, fellas, it looks as if we'll have to shelve another old shop rule that has outlived its usefulness. You've heard it said that "If you learn one new thing every day, you'll keep right up to date on all the improvements that are made in the automotive field." But from all indications you'll have to start absorbing many more than one idea a day or you'll just be a back number.

The boys in the "idea corner" have evidently been told to KEEP 'EM ROLLING and they sure are following instructions. If they keep on at the present rate the whole 'AM will be devoted to listing new ideas and gadgets that are designed to help you in your work.

Newest of a never ending stream of transport innovations are: a rapid charger for as many as sixteen batteries at one time; a mobile re-refining plant for engine oil; an improved gas dispenser operating technique and two radical if not startling conveyances which should evoke plenty of enthusiastic comment.

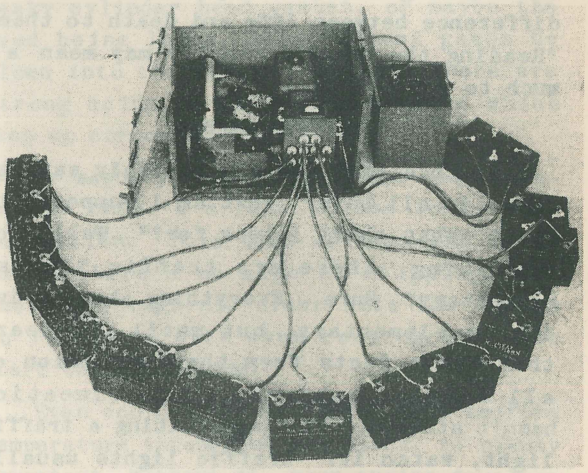
But suppose you just read on and see for yourself that the boys are certainly wearing their thinking caps.

Charger



The charging unit is light, compact and portable. Its large capacity and ease of operation make it an ideal addition to an ever growing list of efficient field maintenance testers.

You can't do things one at a time in the army anymore - not even charge batteries. The latest "hurry up" is a portable battery charger to take care of eight 12 volt or sixteen 6 volt batteries. This unit will be driven by a four cycle gasoline engine, capable of 2,000 watt output, that can operate outdoors in practically any kind of weather without protection. It can be



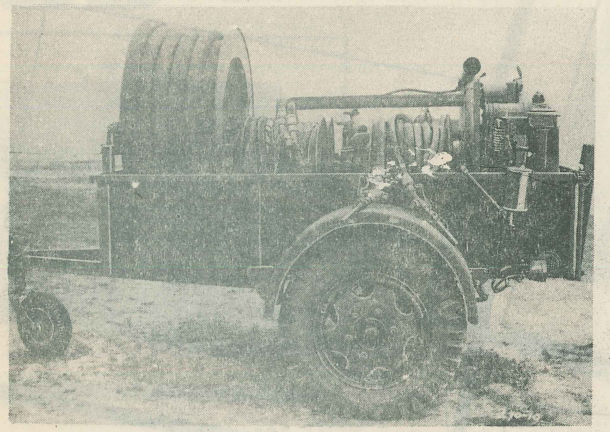
carried by two men, and started either mechanically or manually.

Dispenser

Here's the final cleanup on the portable gasoline dispenser we've been telling you about since February. The photograph is of an actual unit and shows clearly the convenient arrangement of the various hose reels, operating valves and fire extinguisher.

Two words of caution, though: the unit is designed to operate with the hose fully unreeled, regardless of whether you need the full length. The frictional heat from the flowing gasoline increases with every turn of the hose on the reel, and if you

leave the hose reeled in you'll be sucking nothing but gasoline vapor. The second tip is to leave the hose alone - don't try to shorten or lengthen it. The supplied hose is calculated to give maximum delivery, and if you fool around with it you'll increase the fire hazard and reduce the efficiency. See news flashes for latest news.



Analyzer

Do you mind if we contradict you? That is, if you think batteries will always receive just the right amount of charge and that voltage regulators require practically no attention - you're wrong.

Like any other automatic device, regulators will get out of adjustment. They must operate within extremely narrow limits. A fractional increase in the voltage setting will greatly increase the charging rate. Poor electrical contacts, loose connections and other forms of "parasite" resistance may upset the normal function of the system. The net result is a ruined battery, a burned out generator or an ignition failure.

Conscious of the need for a simplified test procedure applicable to all types of voltage regulated systems, the engineering department here at Holabird Q.M. Depot has been instrumental in developing a low voltage circuit tester. Having witnessed demonstrations of the new tester, we predict that it will be hailed as a welcome contribution by those charged with the maintenance of electrical equipment.

DESCRIPTION:

The tester consists essentially of a combination volt-ammeter connected through suitable selector switches to the various parts of the circuit within the vehicle so that the following may be read in the order given:

TEST NO. 1

Battery Voltage ---- on open circuit while cranking.

TEST NO. 2

Generator Voltage Drop ---- Ground Circuit

Circuit Voltage Drop ---- Charging Circuit

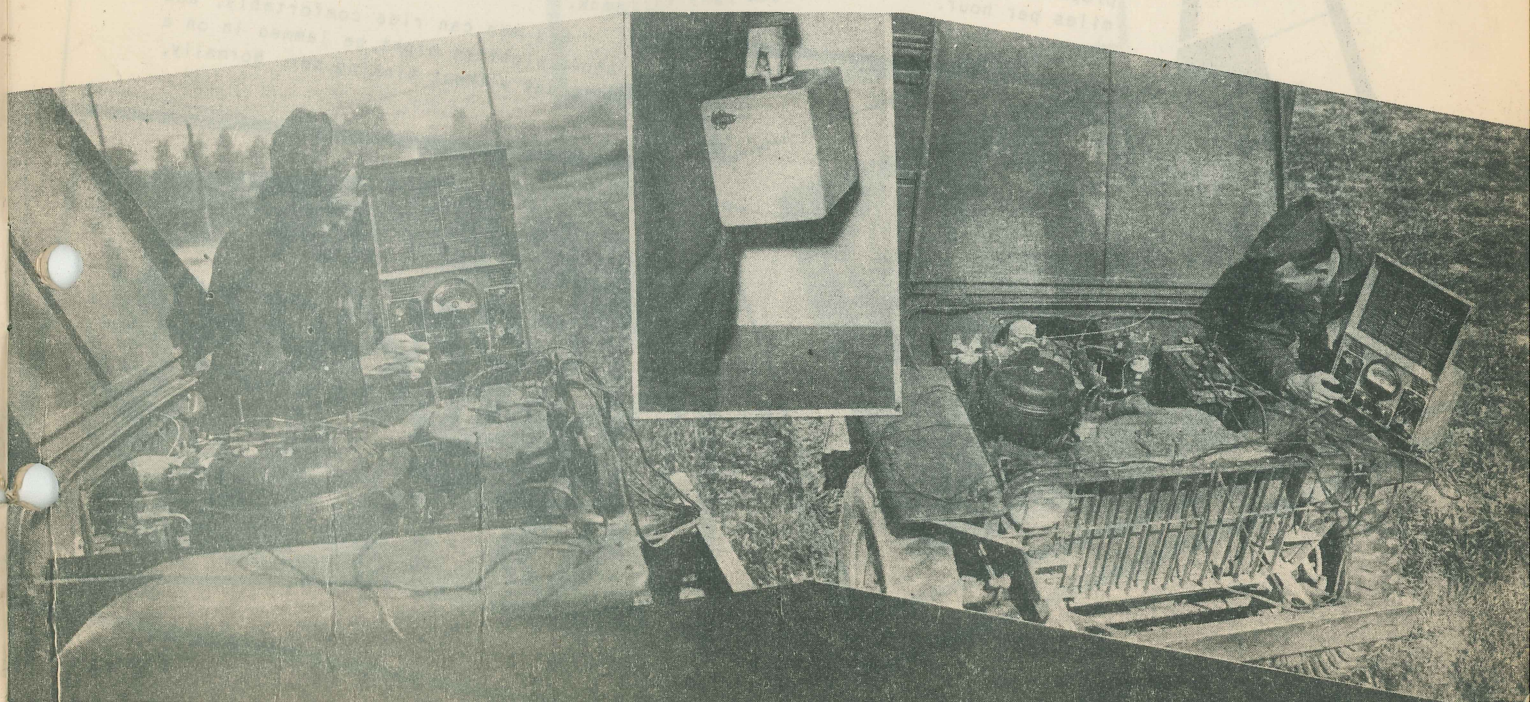
TEST NO. 3

Current ------- Generator Charging Rate

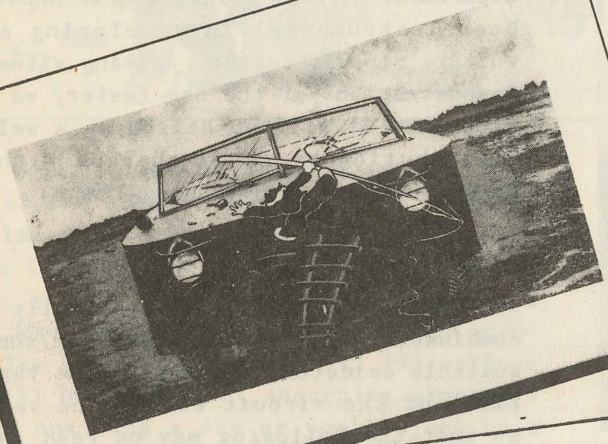
Regulation ----- Current Regulator Setting

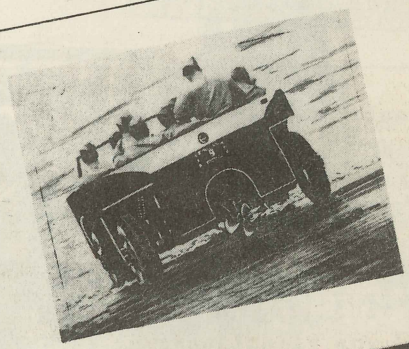
TEST NO. 4

Operator on Cutout --- Closing Voltage, reverse current



TOMO

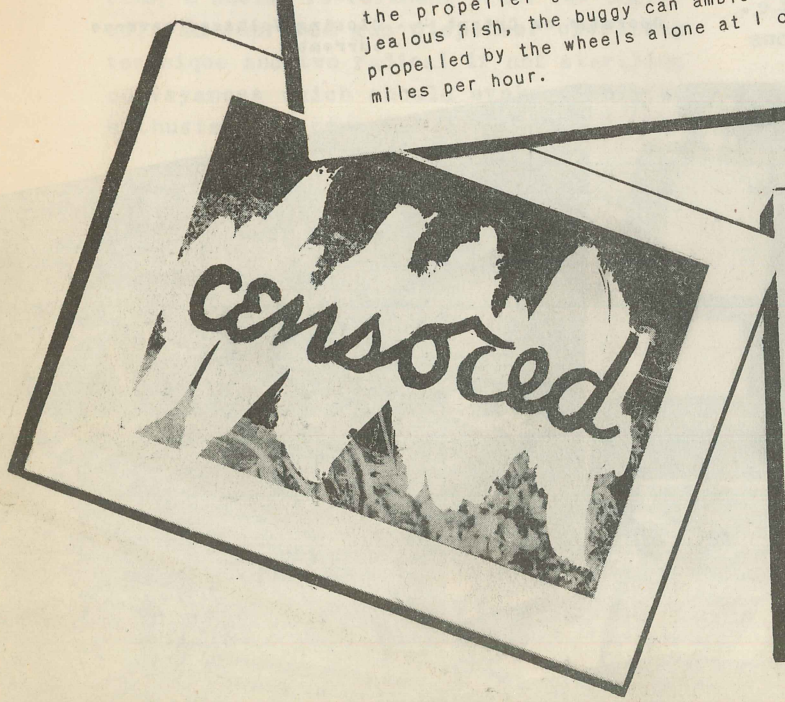


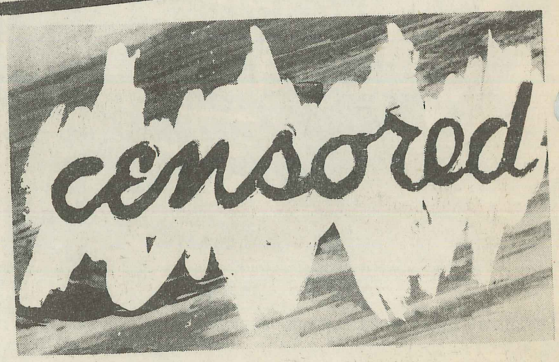


If you think this amphibian is meant to be used as Shorty is so disrespectfully using it -- well, just try it and see what happens. Actually, the engineers around here aren't too sure what they are going to use it for. Every time someone looks at it, a new idea pops out. All we can tell you at the moment is that it looks like a swell scouting vehicle or rambling pontoon, that it can cruise at 55 on the road and at about 5 in the water. Even if the propeller gets bitten off by a jealous fish, the buggy can amble along propelled by the wheels alone at 1 or 2 miles per hour.

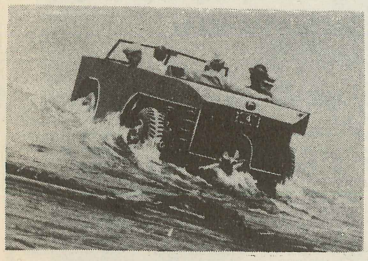
For landing and gumbo work, the propeller and the wheels can be driven at the same time. The rudder is hitched to the front wheel steering mechanism, and the propeller is raised and lowered by a vacuum booster. The wheels are independently suspended -- the system being similar to that used on a Christy tank.

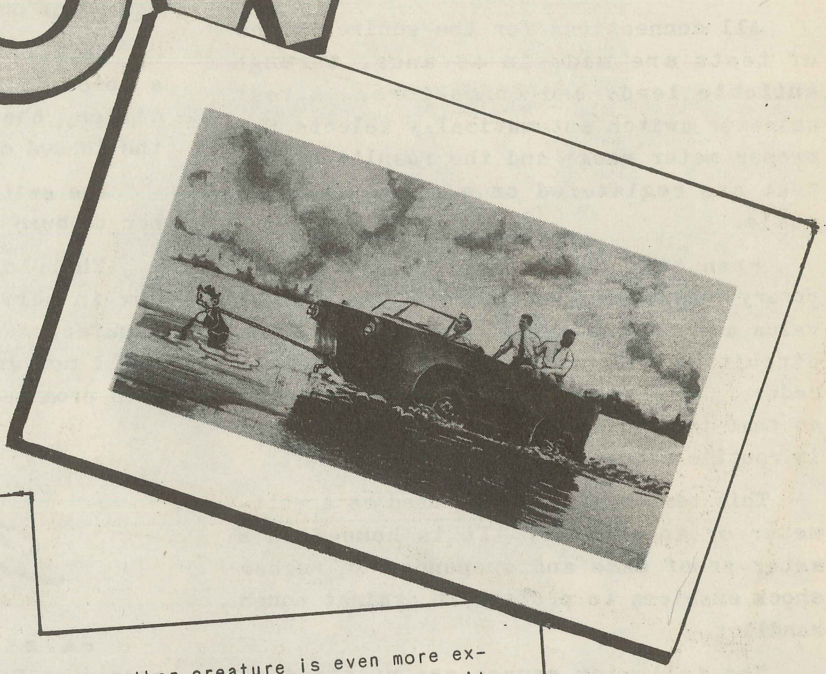
Six men can ride comfortably, and about eighteen might be jammed in on a calm day without sinking her. Normally,





RROW





the freeboard is about eight inches. The unloaded weight is about 46,000 pounds. The engine is amidships and final models will probably have watertight compartments so the ship can stay afloat even if the hull is punctured.

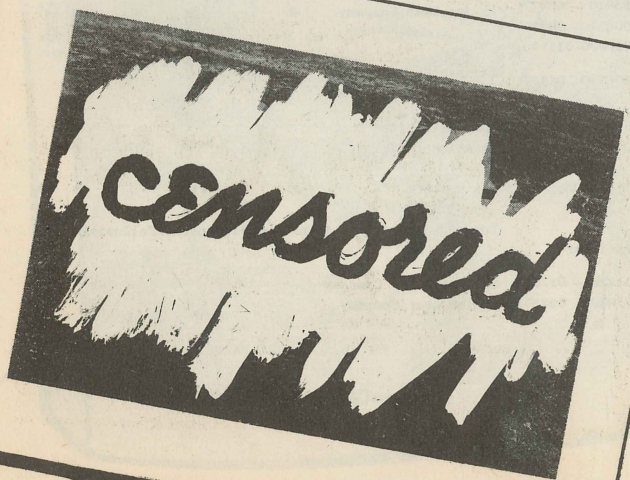
Extensive experiments are still being carried out, and we'll continue our report as fast as we learn the news. In the meantime, we'd like to have suggestions for a name for this baby. Amphibian is rather dry, and we haven't heard a thing that sounds appealing.

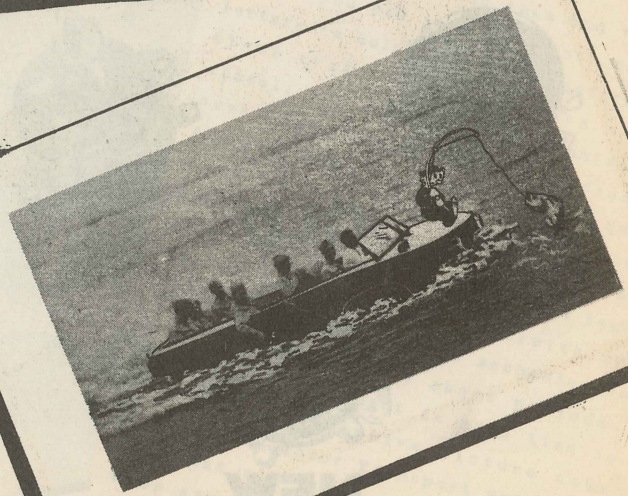
The other creature is even more experimental than the water walker. It was assembled from and is intended primarily for The large on - exceptional It

censored

can tell you about this
eyes peeled for future issues.

Here's another one we need a name for - doesn't sound any better than Amphibian. Any ideas?





TEST NO. 5

Voltage Regulator -- Regulator Setting-Battery Load.

Regulator Setting-Resistance Load

All connections for the entire series of tests are made in advance, through suitable leads and connectors. A test selector switch automatically selects the proper meter range and the results of the test are registered on a coloured meter scale.

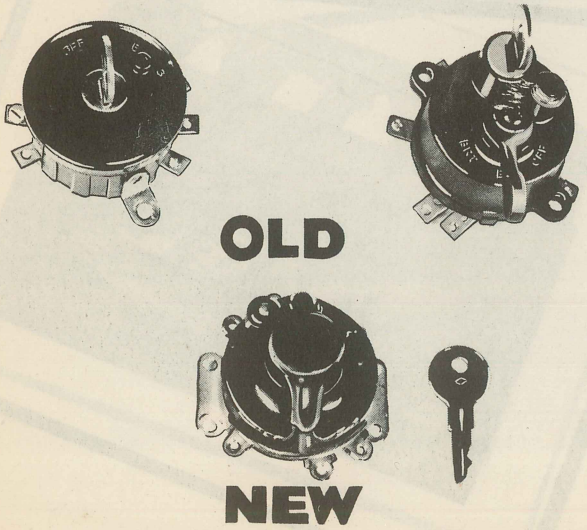
When test conditions require a temporary resistance, resistors of the correct value are automatically connected into the circuit at the proper point in the procedure. The entire switching is arranged so that test procedure will be uniform and in routine sequence.

This tester can also be used as a voltmeter or an ammeter. It is housed in a water-proof case and suspended in rubber shock cushions to protect it against rough handling.

The following ranges are provided on the metered scale in the colors indicated:

-1.8 to 0 to 18 volt in 2/10th volt div'n. (RED)
-.09 to 0 to .9 volt in 1/20th volt div. (GREEN)
-6 to 0 to 60 volt in 1 volt division (BLACK)
-6 to 0 to 60 ampere in 1 ampere div. (BLACK)
-.9 to 0 to 9 volt in 1/10th volt div. (YELLOW)

Blackout



A new improved blackout switch for military motorcycles has been developed by Holabird Engineers and motorcycle manufacturers. The new switch is standard equipment on motorcycles now in production.

Improvements on the new switch include a cover to keep out water and ice; in addition, the key may be removed in either the locked or unlocked position.

The switch has enough carrying capacity not to burn out from short circuits.

The old type switches on motorcycles now in service, will be replaced by the manufacturers without cost. Details are still not available but new switches have been promised for the near future.

Safety Chains

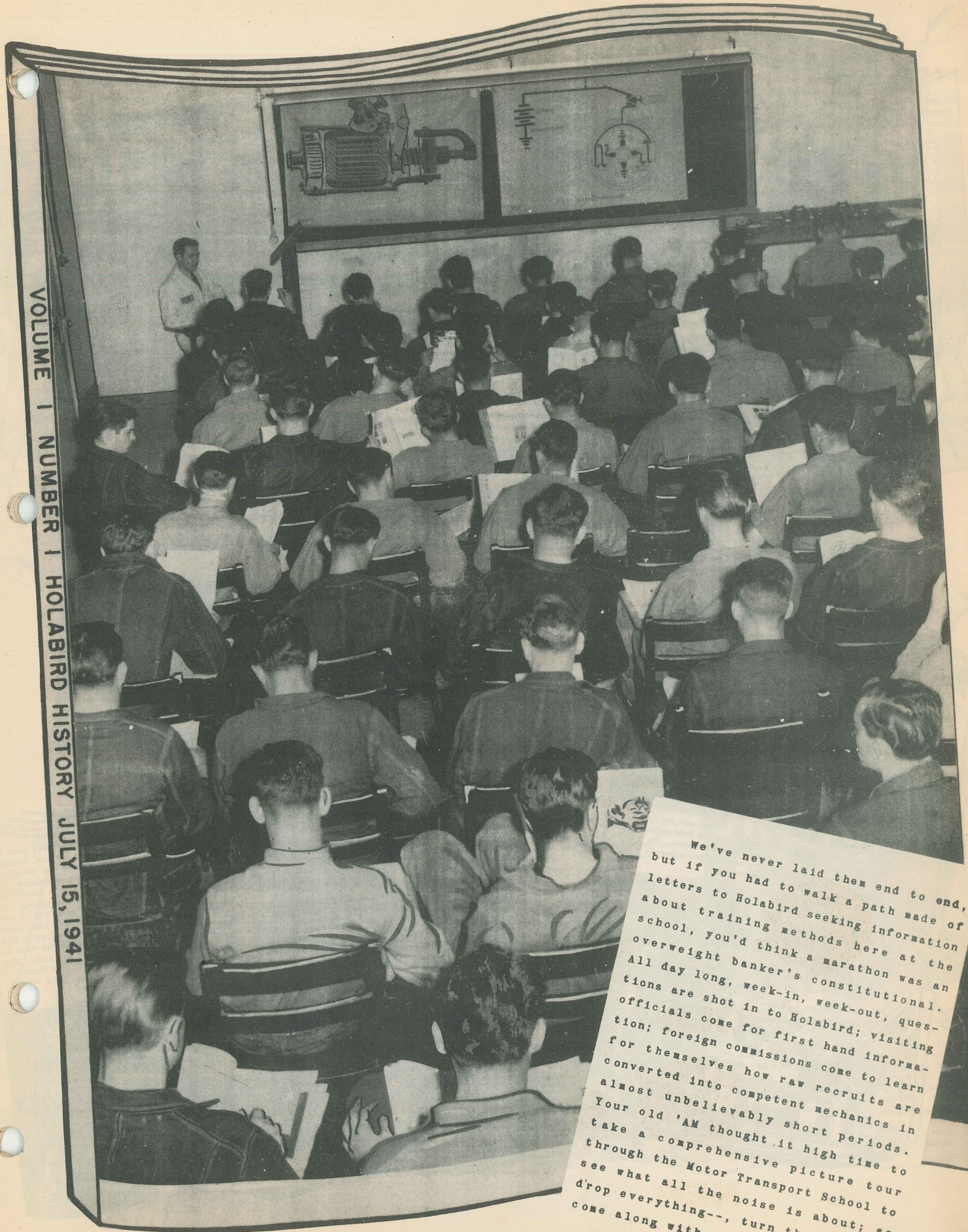
Safety chain equipment mentioned on Page 39 of the May 'AM, consisting of: two safety chain assemblies with hook and attaching clip; two eye bolts 5/8" x 2" with washers and nuts; 1 bolt 3/4" x 4-3/4" long drilled with castellated nut, is now being purchased for stockage at the Fort Wayne Motor Transport Depot. This equipment will be supplied upon requisition after July 1, 1941, on vehicles as noted below.

U.S.A. Numbers	Manufacturer	Safety Chains Per Trailer	Bolts 3/4 x 4-3/4 Required Per Trailer	Eye Bolts Per Towing Vehicle
W 02858 - 02863 W 04455 - 04572	A. Streich and Bros.	2	1	2
W 03389 - 04260 W 05840 - 05877 W 09031 - 09999 W 010000-014238	Lavine Gear Company	2	1	2
W 05473 - 05832	Saginaw Stamping and Tool Company	2	1	2
W 024139-029639	Nash Kelvinator Corporation	2	None	2
W 039507-040337	Ben Hur Mfg. Co.	2	1	2

The above equipment is not usable on the following trailers:

W 01236 - 01791 Gerstenslager Company
W 01889 - 02835 Lavine Gear Company

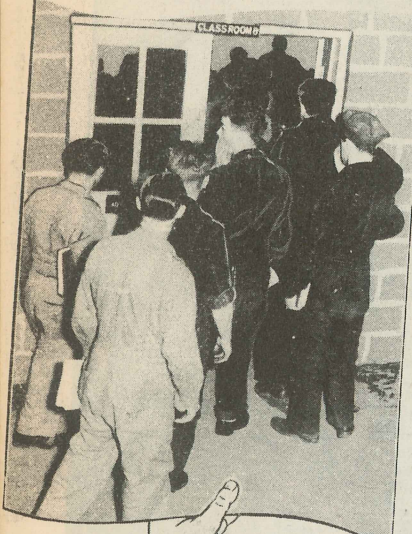
VOLUME I NUMBER I HOLABIRD HISTORY JULY 15, 1941

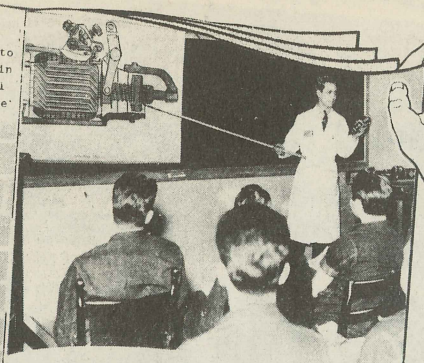


We've never laid them end to end, but if you had to walk a path made of letters to Holabird seeking information about training methods here at the school, you'd think a marathon was an overweight banker's constitutional. All day long, week-in, week-out, questions are shot in to Holabird; visiting officials come for first hand information; foreign commissions come to learn for themselves how raw recruits are converted into competent mechanics in almost unbelievably short periods. Your old 'AM thought it high time to take a comprehensive picture tour through the Motor Transport School to see what all the noise is about; so drop everything--, turn the page and come along with us ~ ~ ~

1

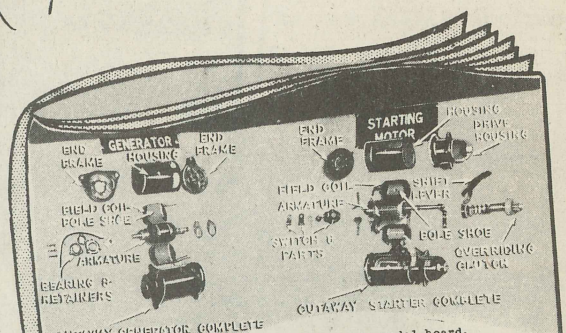
Time: 7:30 A.M. Place: Transport School. Students: Advanced engine. Fresh as daisies and rarin' to go. Hey! You there in the middle. Are you realizing you forgot to shave





Right ideas on starting motors as expounded by the civilian instructor, start the day right for the group in this picture. Classes are kept to about twenty men so that each receives a maximum of individual attention. Note that while lecturing the teacher makes use of the large wall chart to point out minute details which cannot readily be seen in the actual unit which he holds in his hand. Blackboard instruction is coordinated with the school texts which are prepared and published in another department at Holabird.

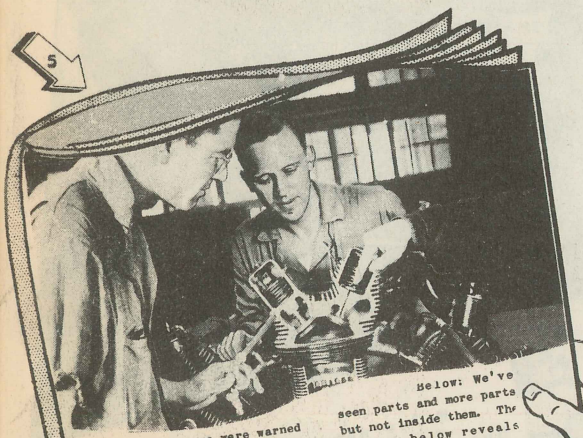
2



During the lesson something comes up for discussion which neither chart nor assembled unit will illustrate properly, so the class refers to the ideal breakdown shown here on the model board. Below, the class has jumped from starter to distributor. We assume from this that today's lecture is taking them right through the ignition system.

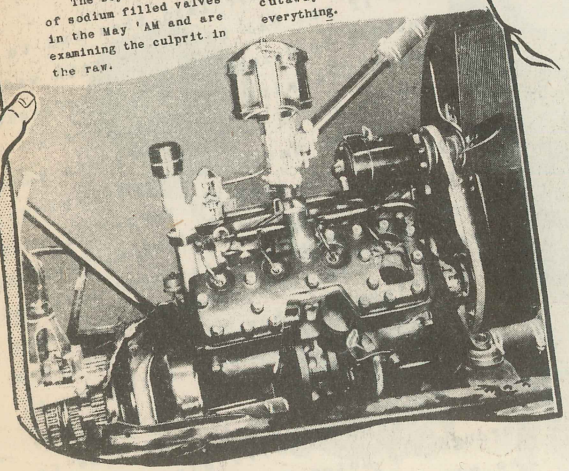
3

5

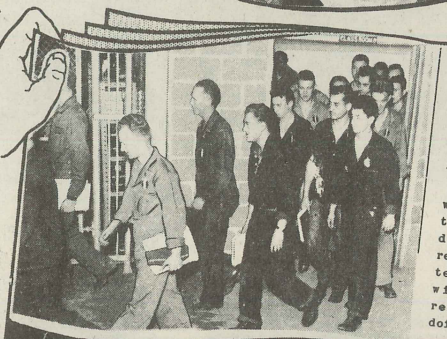


The boys were warned of sodium filled valves in the May 'AM and are examining the culprit in the raw.

Below: We've seen parts and more parts but not inside them. The cutaway below reveals everything.

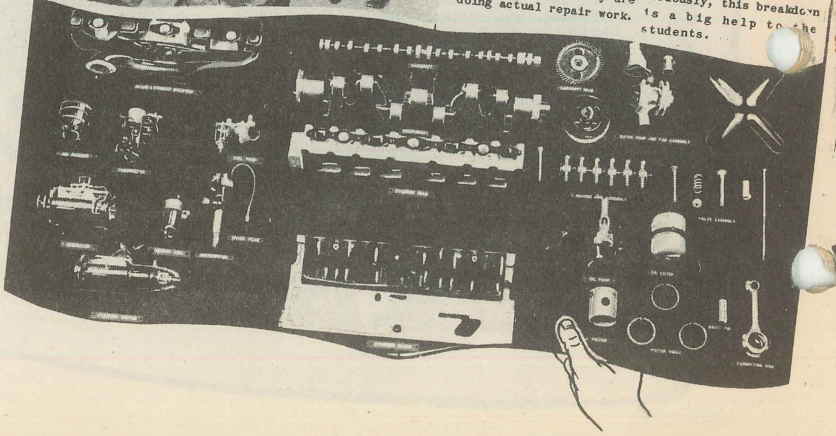


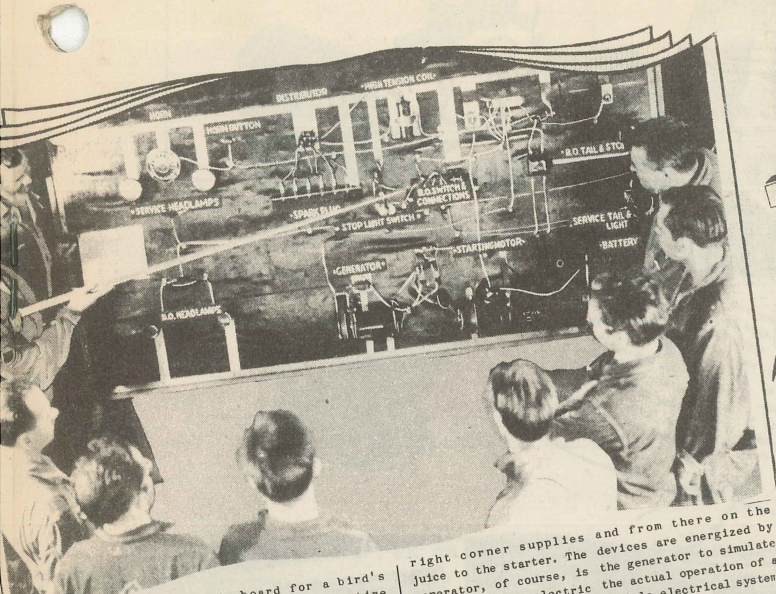
6



Heigh-ho -- heigh-ho, it's
Off to the shops we go; With a chuckle and a grin, We start right in; To watch the motor show.

Now that classroom saw a model board we work is over for the day, thought interesting. At the class exits in the first glance you'll say direction of the engine that somebody who played repair shops. We see the with clocks as a kid texts going right along wasn't satisfied with an with the students for engine that ran. But reference while they are seriously, this breakdown doing actual repair work. is a big help to the students.

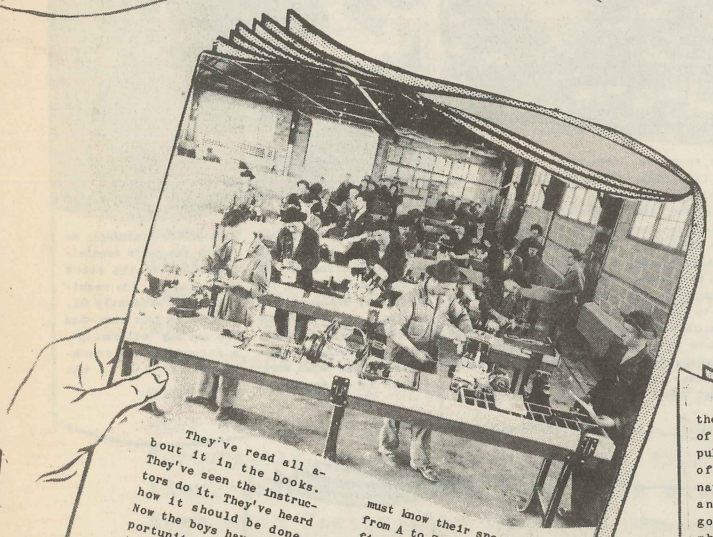




Begorra we guessed it. They've been discussing the individual units which make up the vehicle nervous system and now they come over to the big board for a bird's eye view of the entire layout. This model board is set up with units that actually operate. The battery in the lower right corner supplies and from there on the juice to the starter. The devices are energized by generator, of course, is the generator to simulate activated by an electric the actual operation of a motor back of the board vehicle electrical system

4

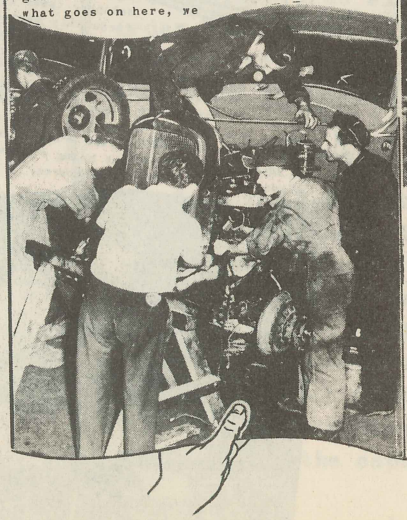
Frequently during the course of instruction the students get parts having a defect which may be slight but hard to locate. To find the trouble they use test equipment like the analyzer shown below. In this case they are going over a voltage regulator. We note as we go along that although the students are encouraged to act on their own initiative, there's always the eagle eye of an instructor or master sergeant watching for error or misjudgment.

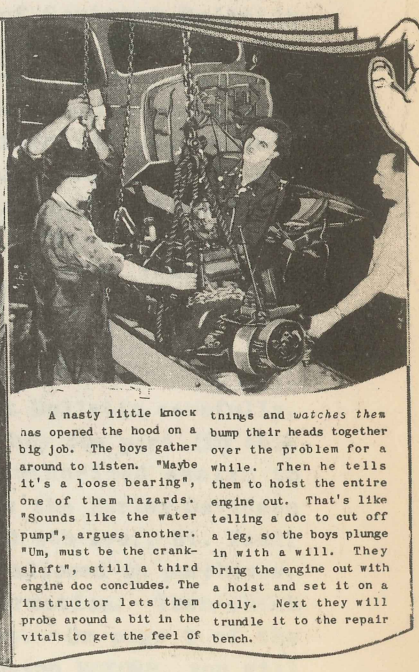


They've read all about it in the books. They've seen the instructors do it. They've heard how it should be done. Now the boys have an opportunity to dig in and take things apart to see at first hand what makes them tick. In the months that these young men are put through basic and advanced engine training they receive the benefits of the accumulated engineering experience of a large and carefully selected staff of experts. Teachers at the Holabird Motor Transport School are chosen by a seasoned group of military motor technicians and must meet a high standard. They must know their specialty from A to Z and be qualified to convey the knowledge they have gained in a sympathetic and understanding manner to groups of enrollees some of whom have never previously raised the hood of a motor car. Instruction includes much actual practice in repairing vehicles that are in daily use as well as the basic training with models and charts. Yessir, when these youngsters complete their tour of duty and return to civilian routine, the country will suffer no lack of capable and highly trained mechanical specialists.

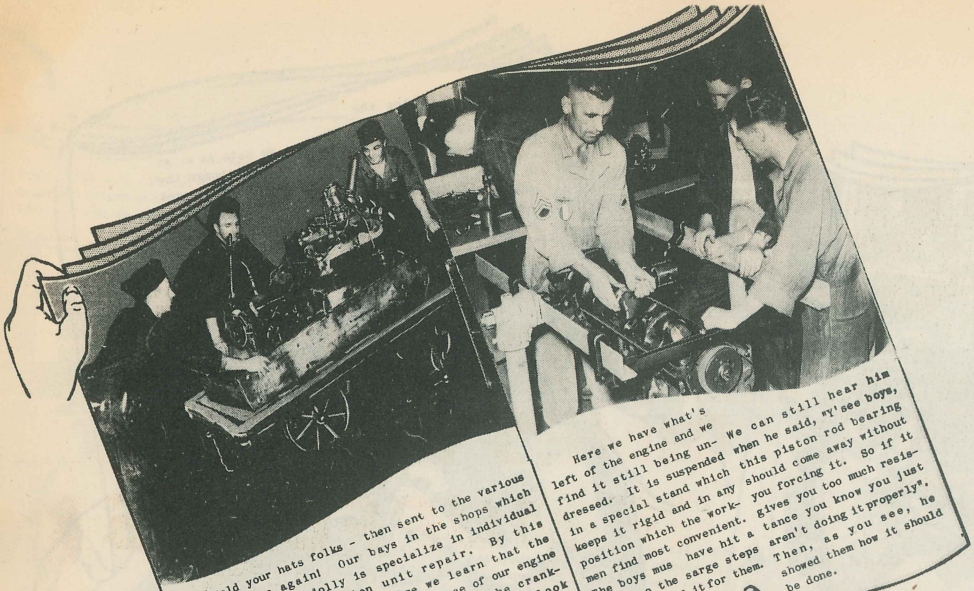
8

As we progress through the shops we see a group of students preparing to pull an engine right out of the chassis. Being naturally interested and anxious to give you a good first hand idea of what goes on here, we asked the instructor for the lowdown. He told us that the truck had come in with a mysterious knock and had been turned over to the group of advanced students you see clambering over the truck in the picture.



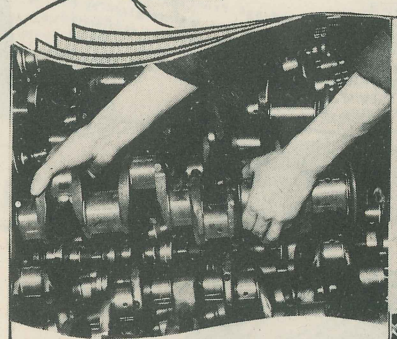


A nasty little knock has opened the hood on a big job. The boys gather around to listen. "Maybe it's a loose bearing", one of them hazards. "Sounds like the water pump", argues another. "Um, must be the crankshaft", still a third engine doc concludes. The instructor lets them probe around a bit in the vitals to get the feel of things and *watches them* bump their heads together over the problem for a while. Then he tells them to hoist the entire engine out. That's like telling a doc to cut off a leg, so the boys plunge in with a will. They bring the engine out with a hoist and set it on a dolly. Next they will trundle it to the repair bench.



Hold your hats folks - then sent to the various here we go again! Our bays in the shops which three manpower-dolly is specialize in individual moving in the direction unit repair. By this of the workbenches where time we learn that the the engine will be quick- main source of our engine ly disassembled. As the knock is in the crank- various units and sub- shaft. So let's look assemblies are dismount- over on the next page of ed, they are tagged to be our little book and see identified with the en- what they'll do to cor- gine we are following and rect the trouble.

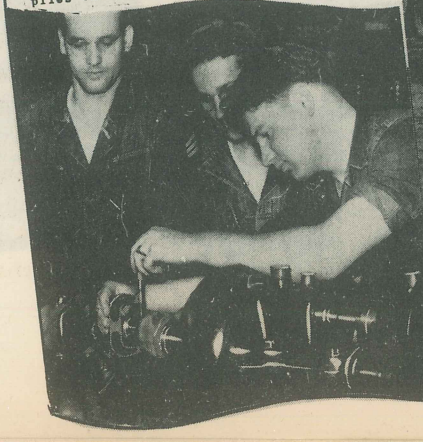
Here we have what's left of the engine and we find it still being un- We can still hear him dressed. It is suspended when he said, "y'see boys, in a special stand which this piston rod bearing keeps it rigid and in any should come away without position which the work- you forcing it. So if it men find most convenient. gives you too much resis- The boys mus have hit a tance you know you just snag, so the sarge steps aren't doing it properly". in to unravel it for them. Then, as you see, he showed them how it should be done.



Sure enough, it is discovered that the crankshaft is to blame. The mystery is solved, the criminal has been tracked down, and the boys feel pretty proud of their work. This has been something more than a routine job; by going to the root of the problem they have had a good chance to correct a lot of wrong ideas and now that they have the engine apart they proceed to give it a thorough check and clean up. When this job leaves their hands it's going to be just as good as new. One of the boys gets a bit of a shock, though, when he takes the crankshaft to the scrap pile. What seemed an unusual job must be pretty common after all, judging from all the crankshafts lying here.

We're anxious to get this engine reassembled and back in the truck, so instead of waiting for the faulty crankshaft to come back to us we decide to get a replacement. After witnessing the execution of the paper work, (which is an important part of the training), we follow the parts requisition over to the stock room window. The requisition is evidently OK, because in less time than you can say 'blitzkreig', a reconditioned crankshaft is laid on the counter.

Off the pile and through the mill. Our crankshaft starts its journey on a rejuvenating tour of the machine shop. An advanced student applies the micrometer caliper, (Mike to you) frequently during the grinding operation. The sarge stands by as usual 'just in case'. Meanwhile, another crew has reassembled the engine and when we next see the truck we started with, it is being run over the test course.



ANOTHER HOLABIRD "STUDENT OVERHAUL" HAS STOOD THE TEST AND WILL KEEP THIS BABY ROLLING FOR MANY THOUSANDS OF MILES.

PARTS DEPT.

GIMME A DIMES WORTH OF MUFFLERS

In the May 'AM on page 30, we published "The Numbers Game", an article bemoaning the unhappy life of a parts man and intended to give out a few hints to make his burden a little lighter. The following sample procurement procedure covering purchases under the new Contract Bulletin No. 78, 1941, dealing with the procurement of Harley-Davidson Motorcycle parts, is presented with this hard working gentleman still in mind.

Prairie dog holes and steep hills are pretty hard on motorcycles — at least they were on the one used by Private John Dare during his hectic ride. Private Dare was on reconnaissance patrol north of Fort Meade, South Dakota, and Bear Butte got right in his way. He tried to climb over it, on his new Harley-Davidson. Unfortunately, gravity triumphed over friction, and Dare and his motorcycle came down much faster than they went up. A quick gander at the remains showed that among other things the muffler was completely demolished, so let's follow through and see how a replacement muffler is obtained.

The Purchasing and Contracting Officer at Holabird Q. M. Depot has entered into a contract, No. W-398-QM-9749, with the Harley-Davidson Company. This contract is mandatory for the HQMD and optional for all other agencies of the War Department. The field was notified of this contract by Contract Bulletin No. 78.

INDEX OF ASSEMBLY GROUPS

MOTORS

FRAME - TANKS - GUARDS (Continued)

Figure 1

Figure 2

Part Number	Name of Part	List Price Each	Number Used On 40WLA	Number Used On 41WLA	Code Word	Used For 1000 Units
	CRANK CASE RELIEF PARTS - GEAR COVERS - OIL PUMPS - GEARS - (Continued)					
713-37	Spring, by-pass valve	$ 0.10	1	1	emnok	25
713-41	Spring, oil pump relief valve	.10	0	1	etuai	25
715-37	Retainer, by-pass ball	.10	1	1	emnto	2
672-32	Screw, chain oiler adjusting	.05	1	1	edell	10
674-32	Washer, .002", adjusting screw	.01	5 to 10	5 to 10	edijm	400
	MUFFLERS - EXHAUST PIPES					
1002-40M	Muffler, complete	10.00	1	1	evnuy	10
1006-35	Pipe, exhaust, front	2.50	1	0	emoby	340
1006-41	Pipe, exhaust, front	3.00	0	1	etuir	340

DO THIS FIRST

Secure a copy of Contract Bulletin No. 78; a copy of the Spare Parts List for the appropriate Harley-Davidson motorcycle. In this case, Dare's machine was a solo covered by parts lists for army models 1940 WLA 45" Twin Solo, and 1941 WLA 45" Twin Solo. Grab six copies of Purchase Order WDQMC Form No. 308; and of course, your blotter record of motor transportation funds available.

WHAT TO DO NEXT

Read the Contract Bulletin carefully, determining where to buy the part (in this case, the nearest authorized dealer to Fort Meade, S. D., is the Harley-Davidson Minneapolis Co., 1923 4th Ave., St. Paul, Minn.), the discount allowed on purchases, and other vital information. Then check the spare parts list. On page 1 of the Index, under the caption MOTORS, you will

see that the information pertaining to mufflers and exhaust pipes is on page 11. Turn to page 11, and there is all the information you need. See Figures 1 and 2.

PREPARE THE ORDER

Prepare the purchase order as shown in Figure 3, taking care to see that it contains the following information:

1. Contract Symbol Number, Viz: W-398-QM-9749; 2. Delivery point; 3. Contractor's part No.; 4. Certificate as to availability of funds; and 5. Finance officer designated to make payment.

The contract states that all prices are subject to a 20% discount f.o.b. point of delivery within the U. S. continental limits. Therefore, subtracting the discount from the list price, we get the net price.

This particular contract specifies further that all purchases made under it must be reported under entry 6, report of procurement operations, W.D.Form No. 8, since the contract has been made after inviting bids.

Now if you've followed this procedure all the way; you have made the parts man happy, the finance officer happy, the contractor has made a profit, the procurement office isn't a shambles, and one Private John Dare is all set to go out and bust up his motorcycle all over again. You can now go back to the beginning and get out another purchase order because this sort of thing goes on indefinitely.

WAR DEPARTMENT
Q. M. C. Form No. 3009
Revised April 19, 1937

PURCHASE ORDER
WAR DEPARTMENT

DATE June 2, 1941

TO The Quartermaster,
Fort Meade, South Dakota

Harley Davidson Minneapolis Co.
1925 4th Ave.,
St. Paul, Minnesota

SHIP TO The Quartermaster,
Fort Meade, South Dakota

CONTRACT No. (IF ANY) W 398-QM-974
PURCHASE ORDER (OFFICE IDENTIFYING) No. 136
REQUISITION No. QM 500-86-41
TO EXPEDITE PAYMENT PLACE THE ABOVE NUMBERS ON ALL PACKAGES, BILLS, AND CORRESPONDENCE

PAYMENT WILL BE MADE BY FINANCE OFFICER AT Ft. Snelling, Minn.
TO WHOSE INVOICES, IN TRIPLICATE, WILL BE RENDERED. SEE PAR. 7 OF INSTRUCTIONS ON THE REVERSE SIDE HEREOF.

THE SUPPLIES AND SERVICES TO BE OBTAINED BY THIS INSTRUMENT ARE AUTHORIZED BY, ARE FOR THE PURPOSE SET FORTH IN, AND ARE CHARGEABLE TO PROCUREMENT AUTHORITY, No. QUOTED BELOW. THE AVAILABLE BALANCE OF WHICH IS SUFFICIENT TO COVER COST OF SAME.

AUTH. No. QM 000-P35-1280-A0525-01

In accordance with your Cop. Bull bid dated 5-1-41 to 4-30-42, No. ..., and subject to all conditions and requirements thereof, award is hereby made you for furnishing the following articles. Allowable variations from quantities cited no per cent, exclusive of condition 7 on reverse side hereof.

Discounts 20%

Deliveries Not later than June 13, 1941 F. O. B. Fort Meade, South Dakota

Inspection and acceptance at Destination

QUANTITY	UNIT	ARTICLE	UNIT PRICE	TOTAL PRICE
		Parts for Harley-Davidson Motorcycle Model 1941 WLA 45" Twin Solo USA Registration Number W		
1	ea.	Muffler, complete, part number 1002-40M	$10.00	$10.00
		Discount 20%		2.00
		Net Cost		$ 8.00

Distribution:
2 ea. signed copies
Original - General Accounting Office, (Audit Division)
- Duplicate - Contractor
2 ea.-Authenticated copies
1 copy to - The Finance Officer
1 copy to - P & C File
2 ea. - Copies
1 copy to - The Quartermaster General
1 copy to - Contracting Officer
Holabird QM Depot

William C. Johnson, Major, QMC
PURCHASING AND CONTRACTING OFFICER.

SEE IMPORTANT INSTRUCTIONS ON REVERSE SIDE WHICH ARE MADE PART OF THIS AGREEMENT

Figure 3

READ THE ROAD

Continued from page 91

a dog, a piece of lumber, and so on. These few are given as examples and to stimulate intelligent thinking.

As one old Quaker said to the other, "Everyone is queer but thee and me, and sometimes I doubt even thee". We can translate that into driving talk and say: "Everybody is a lousy driver but me and you, and I don't think you're so hot".

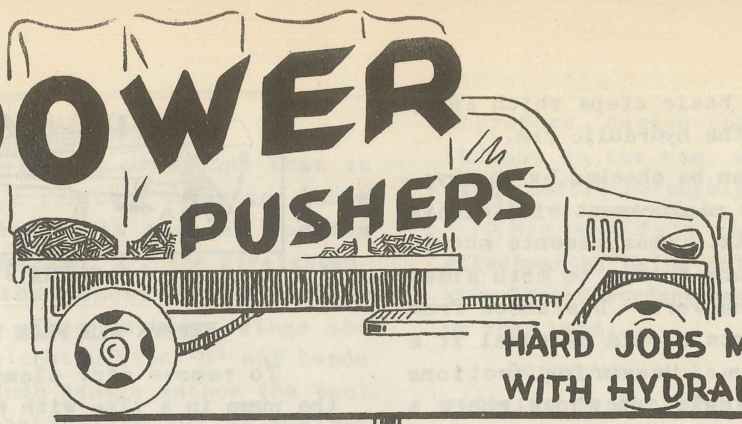
THE OTHER FELLOW

Watch for danger ahead of the cars ahead of you and don't be so close to the next fellow that you can't stop without hitting him, regardless of how he slams on the brakes. Figure that he will always do the thing he shouldn't do, and if he doesn't do it you are still all right.

Speed is all right in its place, but a few seconds gained by taking a needless chance is foolhardy. If horns were taken off all motor vehicles, maybe about 50 percent of the accidents would be cut out, for we'd have to become head drivers and not horn drivers.

Your vehicle is your friend and companion; take care of it, do not abuse it. Be on the alert for any sign, signal, or hint of danger and the need for a quick decision. When your mission is to get there, you can fulfill it best not by careening along at blind, breakneck speed but at reasonable speed governed by road conditions. Remember, when you're told to "Get there", it means you *and* the truck.

POWER PUSHERS



HARD JOBS MADE EASY WITH HYDRAULIC RAMS

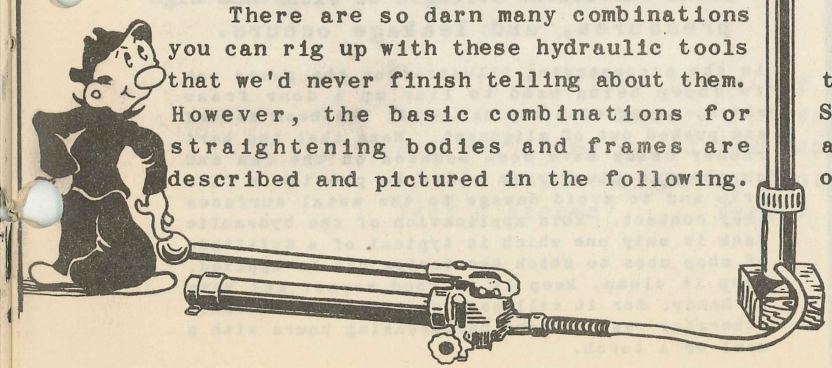
"OH! they'll NEVER *be able to fix that; it's a goner sure as eggs."* We've all heard this or similar expressions whenever people gather at the scene of an accident to gape curiously at a badly wrecked car or truck. Shop men, as well as laymen, are inclined to approach many repair jobs with this same defeatist attitude. True enough, some jobs are not economically repairable and some that are on the borderline really look like plenty of woe.

It is for just such difficult assignments that hydraulic tools came into use. Shorty would have us believe you can simply fix 'em with your fingertips, but even if you don't believe this little fibber, you will agree that with a small, portable hydraulic jack and its proper attachments, many a backbreaking job can be turned into a comparatively easy one.

These hydraulic tools give maximum power in proportion to size and weight. Remember this, however: mere haphazard application of power cannot do the complicated straightening work required by the curves and bends of modern vehicles.

Special attachments are supplied with these hydraulic rams. They can be used singly or in various combinations by merely screwing them onto either the base or top of the ram or onto the plunger.

There are so darn many combinations you can rig up with these hydraulic tools that we'd never finish telling about them. However, the basic combinations for straightening bodies and frames are described and pictured in the following.



Once you understand these you'll soon be able to make special combinations to do special jobs:

HOW TO OPERATE

Insert the handle into the pump beam either horizontally or vertically, as indicated. Close the release valve by turning it as far to the right as it will turn by hand pressure.

When the handle is pumped; the downward stroke forces oil through the hose to the ram, causing the plunger to travel outward under pressure.

To release pressure, turn the release valve on the side of the pump to the left.

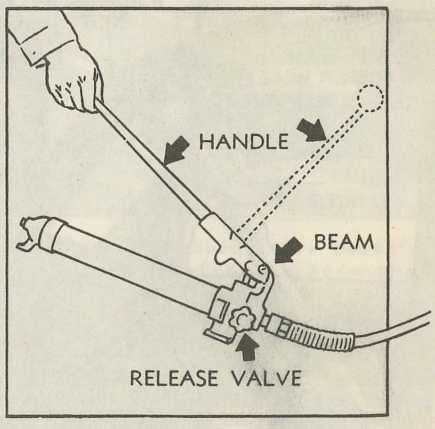


FIGURE 1 — Dotted lines show pump handle inserted vertically in pump beam.

WHERE TO APPLY POWER

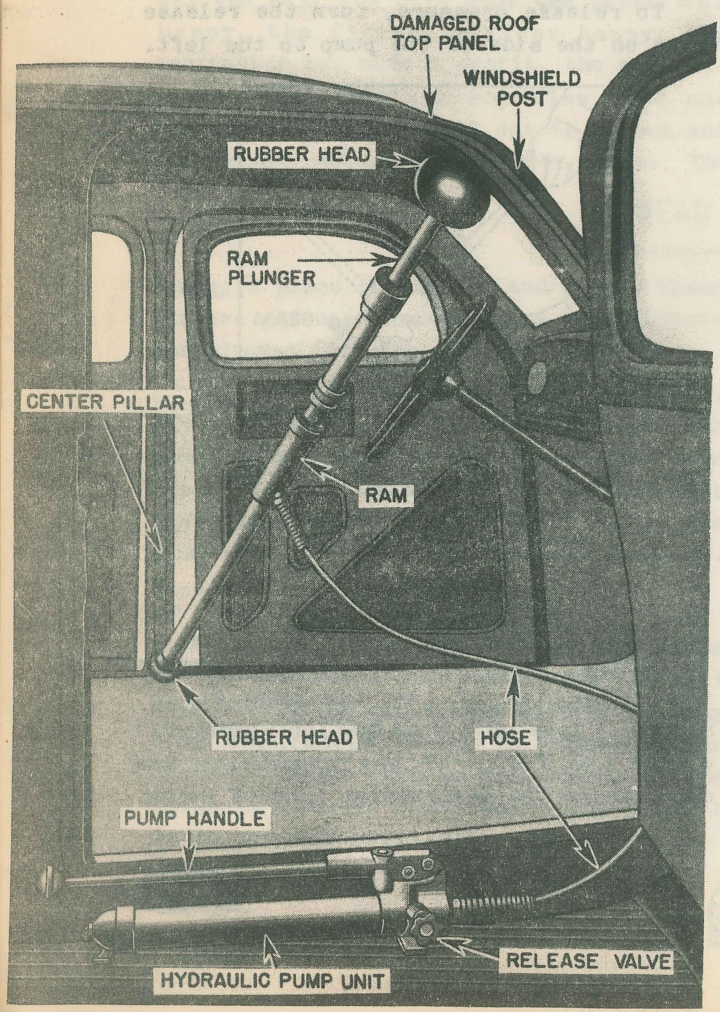
First: Size up the job to determine the direction of the damaging force. Second: Make up a combination which will apply the force of the hydraulic ram opposite to the destructive line of force.

These are the two basic steps which apply to every job with the hydraulic ram.

Misalignment can be checked by observation, but accurate measurement will always give better results. Measurements should be taken from points common to both sides of a section of the work. Distances from corresponding points should be equal if a section is square. Measuring sections rather than the whole job shows where a specific section needs straightening.

Misalignment in door frames is usually checked by the fit of the door but may be checked by measuring a good door frame as follows: Mark off a certain number of inches along the doorpost; then mark off a certain number of inches along the doorsill. Take diagonal measurements from the post to the sill and compare them with similar measurements on the damaged door frame.

The distances from post to sill in a damaged door frame should be made to equal similar measurements from post to sill in the door frame used as a guide.



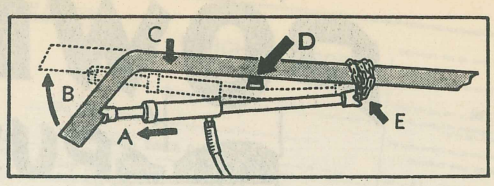


FIGURE 2

REMOVE AIR FROM THE LINES

To remove air, clamp the foot pad of the pump in a vise with the hose end downward. Close the valve and work the pump handle until the plunger of the ram is fully extended. Remove the filler plug at the end of the pump. Open the release valve. Place the end of the ram plunger on the floor and push down on it until fully collapsed. Open the release valve one full turn and work the pump handle rapidly 6 or 8 times. This expels all excess air. Replace and tighten the filler plug with its copper gasket and the tool is again ready for use.

To keep air out of the lines see that the ram is fully collapsed when it is not being used. See that the filler plug at the end of the pump is fitted with a copper gasket and that it is screwed down tightly. If pump cups are badly worn, replace them.

PRESERVE LIFE OF HOSE

The hose for these tools is made of an oilproof rubber tube reinforced by woven steel wire, which in turn is covered with fabric and rubber. This construction provides the desired flexibility and withstands very high pressures.

Do not drop heavy objects on the hose. A sharp impact may kink the wire strands that support the hose. The kink may and may not be noticeable because the hose is rubber covered. Subsequent applications of pressure, however, bend the kinked wires and eventually break them. Once the wires are broken, the rubber and fabric itself lacks sufficient strength to withstand high pressures, and leakage occurs.

In the accompanying illustration the power ram is shown being used to line up a door frame which, along with the cab roof, has been dented and pushed out of alignment. Note that the hard rubber heads have been mounted on the ram and on the ram plunger in order to provide a firm grip and to avoid damage to the metal surfaces they contact. This application of the hydraulic jack is only one which is typical of a multitude of shop uses to which the device can be applied. Keep it clean, keep it in good repair and keep it handy; for it will perform duties which would otherwise require many backbreaking hours with a maul or a torch.

CARE IN MAKING SET-UPS

Figure 2 shows a condition that is often responsible for bent extension tubes and ram cylinders. As the ram applies force in the direction "A", the straightening force on the member "C" is in the direction "B". This in turn swings the tool toward the obstruction "D" and bends it. To avoid such damage anchor the tool ahead of the obstruction "D" or against the chain "E" extended outward by a block of wood placed under it.

CARE IN USE OF CHAINS

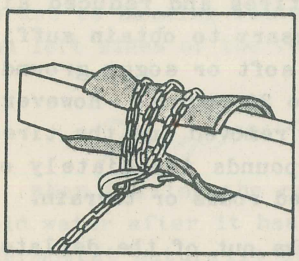


FIGURE 3- This drawing shows the use of an old tire casing to protect the chain links from damage due to chafing against the sharp, abrasive edges of a steel bar. Bar is being used to give leverage for a pulling operation with the ram.

The principle chain abuses can be avoided if the following precautions are taken:

Keep the chain from twisting.

Do not twist the chain before applying the load.

Wrap the chain so that the load is distributed over as many links as possible.

Protect the chain links where they rest on sharp corners. This can be done with wooden blocks, pieces of tire casings, etc. Unless you provide this protection, the links in contact with sharp corners are subjected to a bending force which easily breaks any chain.

THREADS ON RAM AND RIGS

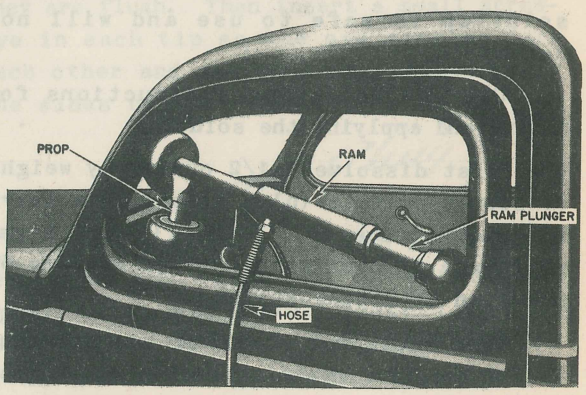
Threads that are gummed with dirt and grease, or are marred and scratched, prevent proper connection of attachments. When heavy loads are applied they will, therefore, damage the threads. Keep the threads on the ram, extension tubes, and other parts thoroughly clean at all times.

Use the full thread in connecting attachments. Using only part of the available thread surface puts an abnormal strain on that used.

Guard the outer threads on the ram with the protector ring when you are not using the attachments.

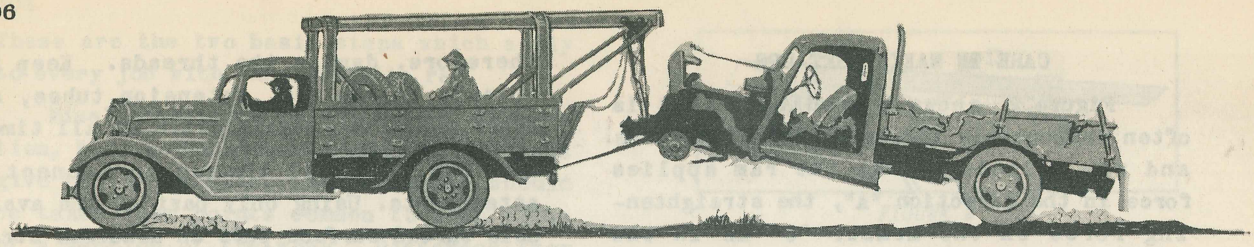
Guard the threads of the plunger with the saddle when not otherwise used.

Now that you know what to avoid and have a bit of an idea on the ins and outs of these tools, if your third or fourth echelon shop is struggling along without one, why just drop a line to the nearest Motor Transport Supply Depot. They may also have some new attachments that you haven't seen in the allowances.



The portable ram is shown above being used to straighten a window frame. Note that once again the hard rubber heads are used on the ram, the ram plunger and on the prop. This precaution insures the finished surfaces against harm and at the same time provides more friction against the work so that there is little chance of a slip. The "V" prop used for this job is needed because of the precarious angle at which the ram must be set to straighten out this particular kink. Always bear in mind that this portable jack packs a tremendous wallop and its use requires more brain than brawn.

If a driver traveling at forty miles an hour blew his horn to warn a pedestrian sixty feet ahead, how much time would the pedestrian have to get out of the way considering that sound travels at 1100 feet a second? *Answer on page 112.*



HELP!

The bright finish on new ten gallon drums is undesirable because of its easy visibility. It is true that the finish will darken gradually from exposure to the air, but meanwhile it's a good idea to darken it artificially. Standard vehicle paint will not do a satisfactory job so two other methods have been worked out.

The first, using zinc paint, is not recommended due to cost and procurement difficulties. The second, dipping or painting the drums with a vinegar-copper-sulfate solution, is the method recommended. This solution is safe to use and will not decompose.

Use the following instructions for mixing and applying the solution:

First dissolve 1-1/2 ounces by weight of copper-sulfate (blue stone) in a quart of common vinegar. (Distilled vinegar preferred if available.) This makes a 5% solution of copper-sulfate.

Then apply two coats of the solution to the bright finish either by brushing or by dipping. After drying, wash the can with soap and water and then rub vigorously with a dry rag. This will remove most of the glossy zinc coat and leave a darker copper coating.

After applying the solution, the word GASOLINE may be stenciled on the can with any ES - No. 359b primer.

Tire Pressure

Carrying on the discussion of tire pressures from page 68 of the June 'AM, here are some exact figures on the 1-1/2 ton Chevrolet using 7.50-20 8-ply tires. The recommended pressure is 55 pounds for all wheels. The strain imposed on the gear train by the difference in rolling radii of the wheels is believed to be negligible and from a field maintenance standpoint only one inflation pressure should be required.

If dual front tires and reduced air pressures are necessary to obtain sufficient flotation on soft or soggy ground, deflate all tires to 30 pounds. However, the duals should be removed and the tires re-inflated to 55 pounds immediately on reaching hard surfaced roads or terrain.

To take the kinks out of the deflated tube, a completely deflated tire should be inflated to the required 55 pounds before being deflated to 30 pounds.

Chevrolet Shorts

1941 CONDENSER CAPACITY

The correct Microfarad capacity for the 1941 Ignition Distributor Condenser is .28 to .32 mfd.

This capacity has been quoted as .22 mfd., and possibly other figures have been given since introduction of the 1941 models; however, .28 to .32 mfd. is the correct capacity for all 1941 Condensers.

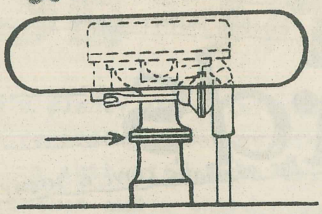
TRUCK ENGINE VALVE CLEARANCE

Where truck engines are subjected to heavy duty, with continuous full throttle operation, better valve life and engine operation can be obtained by setting the valve clearance as follows:

Intake.....010" Hot Exhaust....020" Hot

This applies to all Chevrolet Trucks, 1929 through 1941, and includes the regular production 216 and heavy duty 235 cu. in. engines.

Axle Aids



Shows Location Of Bolts To Be Inspected

Trucks such as Mack - White - Autocar - Corbitt, etc., using Timken Axle F-3100 type should be inspected every month or 1000 miles to make sure the eight trunnion socket to housing bolts on both the right and left sides of the vehicle are tight.

Trapped Air

When filling the cooling system with cold water after it has been drained, the thermostat naturally closes. This traps air in the engine water jacket and prevents complete filling of the system. The radiator may be full, but the engine can be short as much as two gallons of liquid.

If the truck is allowed to go out with trapped air in the engine, overheating will take place the first time the truck is driven any distance.

To avoid overheating complaints from this cause, run the engine long enough to open the thermostat and release the trapped air, after which more water can be added to fill the radiator to the proper level.

It's Greek to Me

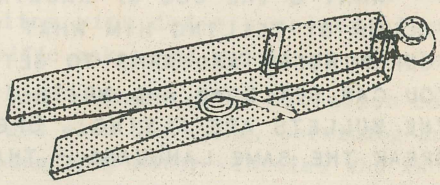
One of these days, you'll run across some odd combinations of letters in an engineering or technical article and wonder who's been finagling with the language and why. It's nothing serious. The American Standards Association has just completed revising its "American Standard Abbreviations for Scientific and Engineering Terms." It contains some abbreviations that look like Greek letter fraternities at first but are really simple when you get to know them. Psi, for example, is not the 23rd letter of the Greek alphabet but the abbreviation for "pounds per square inch." Some other new abbreviations are:

kgps--kilograms per second.

var.--reactive volt-ampere.

F-----degrees Fahrenheit.

All Balled Up



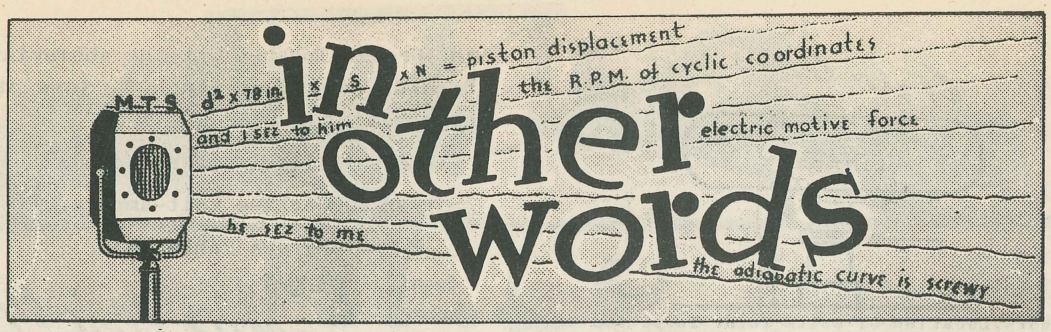
A simple device which will help in handling the individual balls of a ball bearing so they can be picked up and placed in position in difficult spots can be made from an ordinary spring-type clothespin. Whittle the front tips of the pin until they are flush. Then insert a small screw-eye in each tip so the eye circles face each other and may thus be used to grasp the sides of the ball.

Lug and Chug

The way a truck is handled has a great deal to do with bearing life. Failures of upper mains and lower connecting rod bearings are caused by too heavy inertia loads — that is, the heavy load placed on the bearing by reversing the direction of the piston travel from up to down between the exhaust and intake stroke when the engine is overspeeded. If the *upper* half of the connecting rods and the *lower* half of the main bearings fail consistently it is the result of explosion pressures and is caused by too much lugging at low speed with wide open throttle.

Lube Leaks

We hear that a good many 2-1/2 ton 6x6 GMC's are having trouble with wheel bearing lubricants leaking. GMC recommends using No. 3 grease for summer operation and No. 2 for winter. Winter grease is too light for summer work and will leak unless changed.



in other words

WHAT'S THE USE OF KNOWING SOMETHING IF YOU CAN'T IMPRESS THE OTHER FELLOW BY TELLING HIM WHAT YOU KNOW. OF COURSE, YOU CAN WIG-WAG WITH YOUR FINGERS AND ARMS TO GET YOUR INFORMATION OVER BY SIGN LANGUAGE, OR YOU CAN SIT DOWN AND WRITE IT - BUT NEITHER OF THESE ARE VERY GOOD WHEN THE BULLETS ARE FLYING. SPEAK IT SON, SPEAK IT - SPEAK IT PLAINLY AND SPEAK THE SAME LANGUAGE - THAT'S THE BEST WAY TO PUT YOUR IDEAS OVER.

WE'VE BEEN DIGGING AROUND COLLECTING AS MUCH OF THE MOTOR TRANSPORT LINGO AS WE COULD. WE'RE GIVING IT TO YOU HERE SO YOU CAN UNDERSTAND THE OTHER FELLOW WHEN HE STARTS TALKING MOTORS. WE'VE PROBABLY GOT SOME OF THE TERMS WRONG- EACH LOCALITY SEEMS TO GIVE A SLIGHTLY DIFFERENT TWIST TO EACH DEFINITION - SO WE'D LIKE TO HEAR FROM YOU, EITHER CORRECTING US OR ADDING TO OUR LIST.

INCIDENTALLY - WE HAVE A PRETTY GOOD IDEA OF WHAT YOU CALL AN ENGINE WHEN IT DIES IN THE MIDDLE OF A CONVOY, OR WHEN IT STAYS DEAD AFTER FIVE HOURS WORK. SO DON'T SEND THAT ONE IN.

ARMSTRONG STARTER — *Crank handle*
BAREBACK — *Tractor without trailer*
BEACH HER — *Coast to parking place*
BIBLE — *Driver's Manual*
BOBTAIL — *Tractor without trailer*
BOOM WAGON — *Ammunition truck*
BROKE TO LEAD — *Needs to be toed in*
BULL O' THE WOODS — *Convoy Commander*
BUTTONING 'ER UP — *Tie down a load on a truck or trailer*
CACKLE CRATE — *Radio reconnaissance car*
CINCHERS — *Brakes*
COP CALLER — *Truck with noisy brakes*
COWBOY — *Reckless driver*
DIG-OUT — *To gun the engine*
DOPE — *Slow thinking and acting driver*
EMERJENSON — *Emergency brake*
FREE HOLE — *Coast in neutral*
GEAR FIGHTER — *Driver who makes a noise shifting gears*
GOOSE HER — *Accelerating an engine while standing*
HEARSE — *Ambulance*
HIGHBALL — *Speeding*
HOT FOOT — *One who rides his clutch*
JESSE JAMES — *M. P.'s*
JOHNSON BAR — *Gear shift lever*
KILLER — *Truck with no brakes*
LAZY-BACK — *Tired driver*
MEAT WAGON — *Ambulance*
NUT BUSTER — *Auto mechanic*
PERSUADER — *16# sledge*
PIN 'ER EARS BACK — *Glide her*
PNEUMONIA WAGON — *Command car*
POP CART — *Motorcycle*
PUNCTURED LUNG — *Leaky radiator*
RED BALL — *Fast truck*
RIDE A FIREBUG — *Drive with one flat rear tire on dual wheels, causing a fire hazard*
RUBBER BANDS — *Tires*
SHAKE DOWN THE ASHES — *Crank a truck*
SLEEPER — *Assistant driver*
STEM WINDER — *Hand-crank starter*
THROTTLE SNAPPER — *Motorcycle rider*
TIMING GEAR — *Watch*
THUMB BUSTER — *Spinning steering wheel*
TOSS OUT THE ANCHOR — *Brake it*
WIND 'ER UP — *Crank it*
WIND JAMMER — *Air compressor*
YODELER — *Gears that make high, singing noises*

USE THE BULLETINS

There's plenty of misinformation floating about regarding motor maintenance. One self-styled authority says this, and the other says that and a third disagrees with both of them. The 'AM tries hard to recommend and give only material of proved value. Or if it is still in the experimental stage, it's designated as such.

We recommend the Motor Transport Technical Service Bulletins as a valuable source of information. These bulletins, issued periodically by the Quartermaster General, are designed to include all desirable information of a technical nature that is not given in vehicle manufacturer's parts lists and maintenance manuals. This system enables each Motor Transport Organization to keep a complete file of essential information and data in one volume.

New information, amendments and cancellations of obsolete bulletins are issued as the need arises. At the present time, the MTTSB cover items such as: lubrication, air brakes, tire wear, wheel alignment, steering geometry, welding, clutch maintenance, transmissions, and many other subjects of vital interest. There are also bulletins dealing with defects or deficiencies in specific makes and models of vehicles.

Any regimental or battalion commander charged with operating, servicing and maintaining army motor vehicles who is not receiving MTTS Bulletins may be placed on the mailing list by applying directly to the commanding officer at the Holabird Quartermaster Depot, Baltimore, Md.

A suggestion, though - these bulletins are purely technical guides and are not administrative in character. Therefore, they should be given to maintenance men and others who have good use for them, *not* filed at headquarters.

SAFE WINCH OPERATION

CONTINUED FROM PAGE 88

other anchor and place the hook of th block through both loops of the chain.

SOME TIPS

After all this spiel, here are a few simple tips that will make things easier for the boys in the repair echelons and the Medical Corps.

Know your MTTSB Z-10 on truck mounted winches.

Keep away from winch lines.

Keep out of the angle made by the winch line and the snatch block.

Be sure there are never any kinks in the line.

Line the truck up properly before starting to pull.

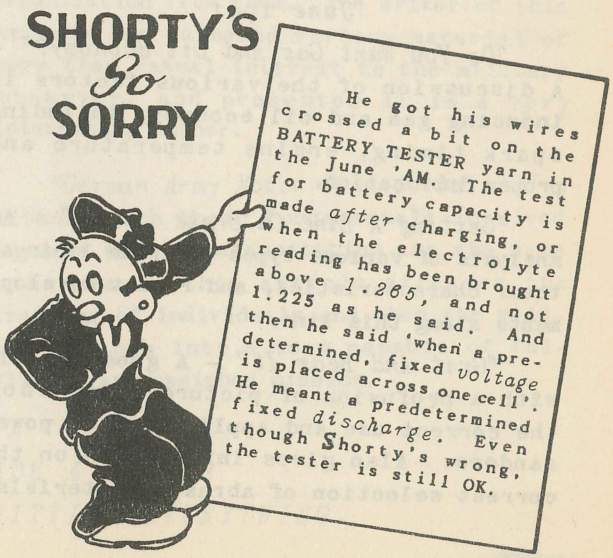
Check the setting of the snatch block.

Watch the winch line, block and anchors for signs of overload.

Keep the cable properly and evenly wound on the drum.

Apply load slowly and evenly.

Watch the winch line for broken wires, localized wear, or broken strands.



digests of CURRENT

AUTOMOTIVE INDUSTRIES
June 1941

"Black-out Lights On Army Vehicles" - This article takes the black-out lights apart and shows you what makes them tick.

FLEET OWNER
June 1941

"Engine Deposits" - Engine deposits are known to be a greater source of trouble than normal wear. This article gives the various causes and cures for this nuisance.

"How to Match Duals" - Improper matching of dual truck tires takes a heavy toll in truck tire tread wear. This article gives helpful hints on correct matching and general tire maintenance.

"Trouble Shooter's Department" - We'd like to recommend this monthly feature as an aid in picking-up many valuable trouble shooting hints.

COMMERCIAL CAR JOURNAL
June 1941

"Do You Want Gas And Oil Economy?" - A discussion of the various factors in inducing gas and oil economy, including spark timing, engine temperature and proper lubrication.

"Getting A Line On Brake Lining" - An analysis of various types of brake linings, their characteristics, and recent developments along this line.

"Grit And Bear It" - A good article with a profusion of pictures that show the correct use and application of power sanders. Also gives information on the correct selection of abrasive materials.

AUTOMOBILE DIGEST
June 1941

"Spark Timing versus Octane Rating" - Engine knock can be licked by two methods; adjusted spark timing and high octane fuel. This article discusses the peculiarities and advantages of each method.

"Practical Notes On Refinishing" - This is not an article on refinishing. It's just a collection of random ideas from here and there that will help you to get a better refinishing job.

"Servicing Chevrolet Brakes" - A good article on the subject - freely illustrated.

"1941 Truck Tune-up" - This article contains an invaluable reference chart covering tune-up specifications on standard make trucks.

"Overheating After Overhauling" - Insulation is a wonderful thing in its place, but that place is not in the cooling system of a vehicle. Rust and hard water deposits should not be allowed to accumulate in the engine block, because they insulate the walls and prevent the coolant from carrying off heat. Here are some hot tips on cooling systems.

INFANTRY JOURNAL
June 1941

"The New Medium Tank" - The tragic "Battle of France" has taught our army heads valuable lessons in tank manufacture. The new medium tank mounts a 75 mm and a 37 mm cannon in a revolving turret. This article covers specifications and includes some good action shots.

comments

TECHNICAL MAGAZINES

"From The Chief's Office — The Service Company" - Here's the first part in a discussion devoted to the duties of a service company. The duties of the various platoons are fully discussed, as well as a concise review of the duties of the various echelons. Also included is a particularly valuable section dealing with regimental train bivouac.

"Mobility For Small Headquarters Staff Sections" - With the present accent on the utmost in mobility, Major St. Elmo P. Tyner comes forth with a suggestion for a small mobile field office. This "trailer office" was tested and proved during the 1940 Wisconsin Maneuvers of the 73d Brigade.

CAVALRY JOURNAL
May-June 1941

"Rubber Tires, Cavalry" - It has often been said that the horse is no better than his feet. In this age of extensive mechanization, this statement is equally applicable to our rubber tired vehicles. This article not only gives hints on tire maintenance, but also classifies the various types and discusses mounting and balance problems. One of the best and most comprehensive articles we've read on the subject.

"Mounting Trooper's Individual Equipment On Solo Motorcycle" - The Sixth Reconnaissance Troop has tested several methods of transporting individual equipment on motorcycles. Here is their approved method.

FIELD ARTILLERY JOURNAL
June 1941

"The Versatile Jeep" - Neither hell nor high water can stop this baby. In trial tests the Jeep has negotiated grades up to 75%, been used as a prime mover for a 37 mm anti-tank gun, and as a Cavalry liaison vehicle. This article gives the complete dope including suggestions for further possible uses.

"The Automotive Driver" - Another in a long line of driver training schedules. This schedule is designed primarily to instruct drivers who are to operate trucks with towed loads. Time required for training — approximately 85 hours.

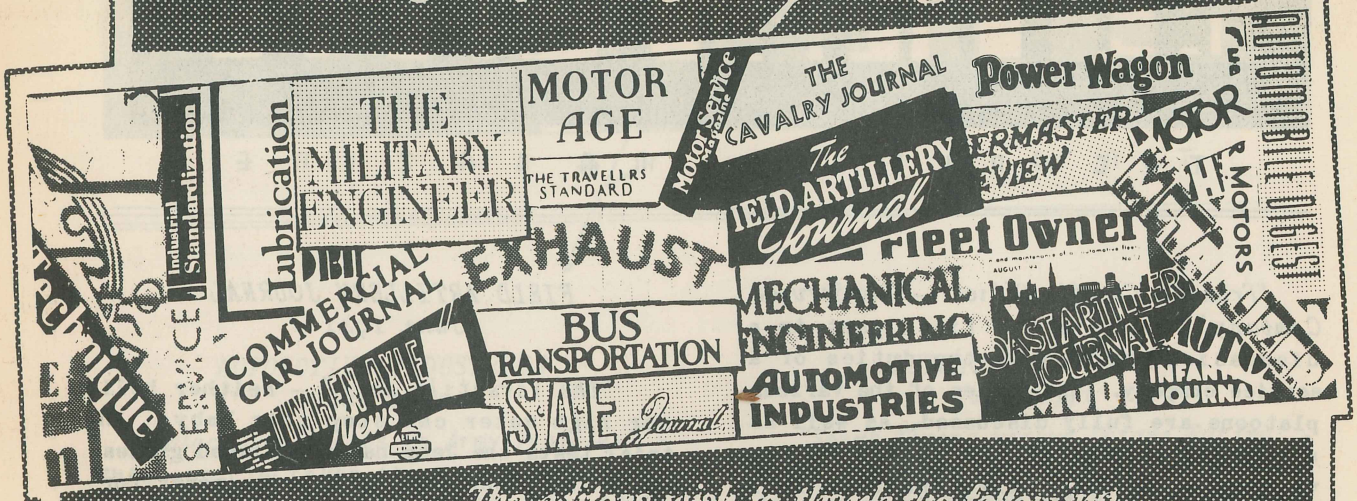
QUARTERMASTER REVIEW
June 1941

"There Is Nothing New Under The Sun" - Alexander, Hannibal, Caesar and Napoleon — we can still learn a lesson in tactical organization from them. The writer of this article has gathered various material of more than casual interest to the military observer, and presented it in a very interesting manner.

"German Army Motor Transportation" - Although the basic fundamentals involved in mass motor transportation are the same everywhere, this article stresses the training of individuals and then the welding of them into a team capable of fulfilling any assigned mission.

A DRAFTEE WHO HAD BEEN A
POOR GOLFER WAS MADE A DRIVER
AND BEGAN HITTING EVERYTHING.

Acknowledgments

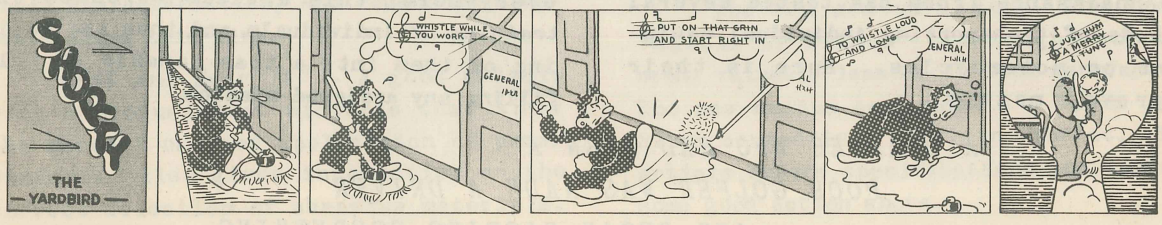


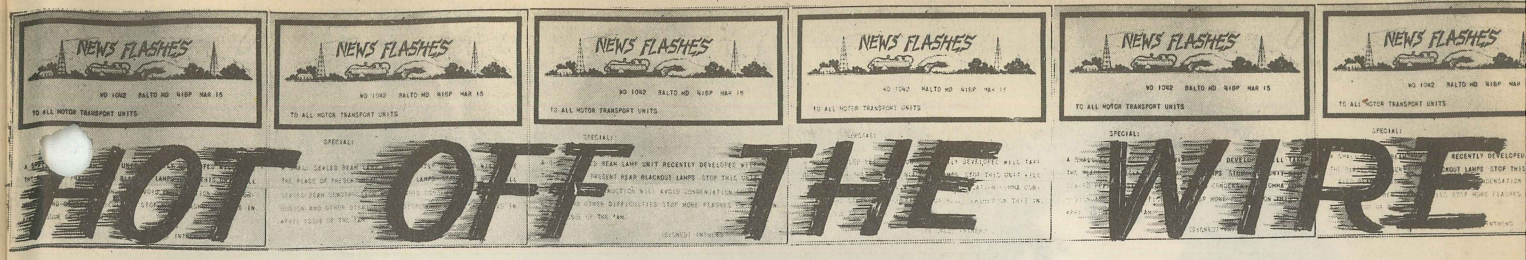
The editors wish to thank the following publishers for their courtesy in allowing The 'AM to make use of articles and illustrations from their publications. There were many articles that could not be used, but it is hoped that those published here will stimulate interest in the source material.

"Read the Road", page 91, is taken from an article in the June issue of "Bus Transportation". This trade periodical is issued by the McGraw-Hill Publishing Co., Inc., 99-129 North Broadway, Albany, New York. The subscription price is $3.00 a year. The June issue was the 16th annual maintenance number and contained a couple of articles well worth reading: "Engine Lubrication" and "What Makes an Engine Knock?".

"Power Pusher", page 103, was taken from material included in a bulletin issued by the Blackhawk Mfg. Co., Milwaukee, Wis. This company manufactures, under the trade name of "Porto Power", a versatile portable hydraulic ram. Its number 239P Service Manual offers many helpful hints on the various phases of body repair to anyone concerned with sheet metal working.

Answer to problem page 105: The pedestrian has a fraction less than one second to get out of the way. Now subtract his reaction time from that and you'll understand why you as a *driver* should be more careful and considerate and why as a *pedestrian* you should keep on the alert when crossing the road.





SEE CONTRACT BULLETIN #95, OQMG, JUNE 11, 1941 FOR DETAILS OF REPAIR AND REPLACEMENT PARTS FOR CONTINENTAL ENGINES.

FLASH ON GAS DISPENSERS

DO NOT REMOVE CHECK VALVE AT END OF SUCTION HOSE AND ATTACH HOSE TO FAUCETS OF TANK TRUCKS BY A REDUCER. THIS CONSIDERABLY REDUCES DISPENSING CAPACITY OF UNIT. USE ONLY 1941 1-TON TRAILERS FOR DISPENSING UNIT. 3/4 TON TRAILERS ARE NOT STRONG ENOUGH AND YOU MAY HAVE TROUBLE WITH SPRING SAG.

DO YOU KNOW THAT TRANSFER CASES HAVE BREATHERS? DO YOU KNOW WHERE THEY ARE LOCATED? IF SO, BE SURE TO SEE THAT THEY ARE IN GOOD WORKING ORDER. IF NOT, KEEP A SHARP LOOKOUT FOR A TECHNICAL SERVICE BULLETIN ON TRANSFER CASES - OIL SEALS, AND "BREATHERS" WHICH GIVES MAINTENANCE PROCEDURE FOR TRANSFER CASE BREATHERS.

KEEP YOUR EYE ON THE 'AM FOR DETAILS OF A UNIVERSAL RIFLE BRACKET FOR MOTOR VEHICLES.

TIRES RUNNING LESS THAN 30,000? CHECK INFLATION, ALIGNMENT AND THE AUGUST AM FOR THE CURE.

YOU CAN GET REPAIR AND REPLACEMENT PARTS AND UNIT ASSEMBLIES FOR TIMKEN TAPER ROLLER BEARINGS, CUPS AND CONES FROM THIS DEPOT UNTIL APRIL 30, 1942. FOR DOPE ON REQUISITIONING THESE, SEE BULLETIN NO. 90, JUNE 6, 1941.

ALUMINUM IS VALUABLE. THE ARMY MUST SET AN EXAMPLE TO THE COUNTRY BY LIMITING ALUMINUM TO ESSENTIAL MILITARY PURPOSES ONLY. NO PURCHASES OF GARRISON EQUIPMENT OR SUPPLIES WHICH REQUIRE ALUMINUM WILL BE MADE. THIS IS OFFICIALLY STATED IN CIRCULAR LETTER NO. 104, JUNE 7, 1941.

DIRTY? READ CONTRACT BULLETIN NO. 88, JUNE 5, 1941, FOR INFORMATION ON ORDERING YOUR LIGHT AND HEAVY DUTY ALKALINE CLEANER, ALKALI PAINT STRIPPER AND DEGREASING SOLVENT.

IF YOU'D GIVE YOUR LIFE TO SAVE YOUR COUNTRY