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# The **ARMY MOTORS**

VOLUME 2

SEPTEMBER 15 1941

NUMBER 6

THE HOLABIRD QUARTERMASTER DEPOT    MOTOR TRANSPORT SCHOOL    BALTIMORE MD.

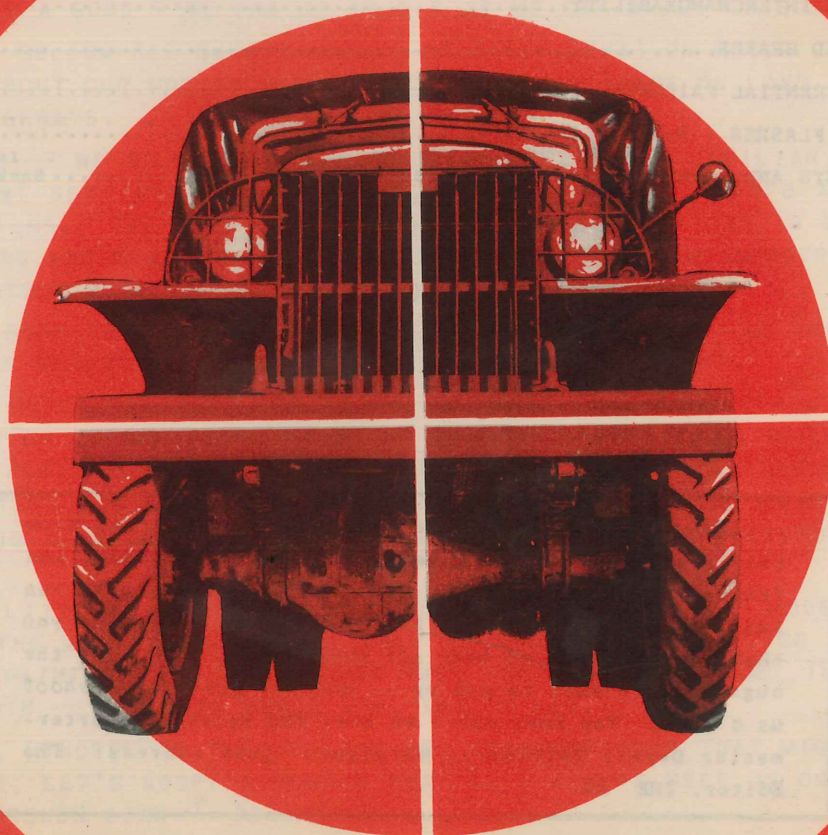




TABLE OF CONTENTS

MAINTAIN OR BUST.....145

TOOLS - *So there's a shortage, eh?* .....146

THE BATTLE OF WINTER.....148

\$100,000 GIVEN AWAY EVERY DAY.....149

KEEP COOL.....150

BRONZE WELDING BUMPERS.....152  
*"Linde Air Products Company"*

TIRES - *They're good for ten times the mileage you get.*.....154

MOTOR MARCHES AND MANEUVERS.....155  
*"Coast Artillery Journal"*

GAS ON THE GO.....158

JEEP DAY - *to end all cartoons about jeeps.*.....160

Z-5'S ARE IMPORTANT.....164

AREA CONTROL.....165

INFORMATION UNLIMITED.....167

PARTS INTERCHANGEABILITY.....169

LOCKED BRAKES.....172

DIFFERENTIAL FAILURES.....174

NEWS FLASHES - *hot off the wire*.....176

DIGESTS AND COMMENTS - *of current technical magazines*.....  
Inside  
Back Cover

~ THE COVER ~

MOTOR TRANSPORT HITS THE BULL'S EYE

Certain regular 'AM departments were omitted from this issue so we could give you additional articles and features dealing primarily with the problems you'll run into on maneuvers. And that reminds us to remind you that the 'AM wants to hear all about them. Watch for the bugs that're sure to pop up -- and for gosh sakes shoot us a line. You know where we are: The Holabird Quartermaster Depot, Baltimore, Maryland. Just address: The Editor, THE 'AM.



# THE 'AM



VOLUME 2

SEPTEMBER 15, 1941

NUMBER 6

## MAINTAIN OR BUST

FROM THE DAYS OF THE COVERED WAGON UNTIL WE BADE "FAREWELL MY LOVELY" TO THE REDOUBTABLE MODEL "T", THE AMERICAN SENSE OF HUMOR HAS REJOICED IN CRUDELY DAUBED SIGNS DISPLAYED UPON ANY CONVENIENT SURFACE OF THE VEHICLE. THESE WISECRACKS JAUNTILY PROCLAIMED AN APPARENT CONTEMPT FOR THE HARDSHIPS AND DIFFICULTIES OF THE CONTEMPLATED JOURNEY.

ACTUALLY, RATHER THAN EXPRESSING REAL BRAVADO, THESE SIGNS WERE A HUMOROUS REALIZATION THAT THE VEHICLE PROBABLY WASN'T GOING "TO GET THERE" ANYWAY, BUT LET'S HAVE A GOOD TIME AND GO AS FAR AS WE CAN WHILE IT'S STILL ROLLING.

TODAY, WE SELDOM SEE SUCH DISPLAYS OF 'AMERICANA' ON MOTOR VEHICLES. NOR DO WE WORRY ABOUT OUR MODERN CAR'S ABILITY TO GET THERE ON LONG JOURNEYS OVER OUR SMOOTH HIGHWAYS.

PROVIDING — WE DO NOT NEGLECT MAINTENANCE. TO A CIVILIAN, MAINTENANCE MEANS FREQUENT SERVICINGS AND INSPECTIONS BY TRAINED STAFFS AT CONVENIENT SERVICE STATIONS. THE SERVICING ROUTINE AT THESE STATIONS IS SUPERVISED BY THE ENGINEERING AND RESEARCH DEPARTMENTS OF THE PETROLEUM INDUSTRY, WORKING IN CLOSE COOPERATION WITH THE AUTOMOBILE INDUSTRY.

HOWEVER, DESPITE THIS ATTENTION WE HARDLY DARE LEAVE THE SMOOTH HIGHWAYS OR SUBJECT OUR MODERN *pleasure* CARS TO CROSS COUNTRY TREKS.

MILITARY MOTOR VEHICLES, ON THE OTHER HAND, ARE ENGINEERED TO WITHSTAND SEVERE OPERATION ON BAD TERRAIN; BUILT TO STAND ABUSE THAT WOULD MEAN SUDDEN DEATH TO THE PLEASURE CAR. THESE QUALITIES ARE MIGHTY DESIRABLE IN A BATTLE WAGON. BUT THEY DON'T LAST FOREVER. SOONER OR LATER THE BEST OF THEM WILL FAIL AT A CRUCIAL MOMENT UNLESS WE PRACTICE MAINTENANCE YESTERDAY, TODAY AND TOMORROW.

THE MOBILITY AND ULTIMATE SUCCESS OR FAILURE OF OUR MODERN ARMY WILL DEPEND UPON THE MAINTENANCE EFFICIENCY OF THE MEN WHO SERVICE ITS VEHICLES. IF YOU DON'T MAINTAIN THE TRUCKS THAT MUST KEEP ROLLING TO GET THERE WITH WHAT IT TAKES TO WIN — WELL, WE DON'T WIN, THAT'S ALL.

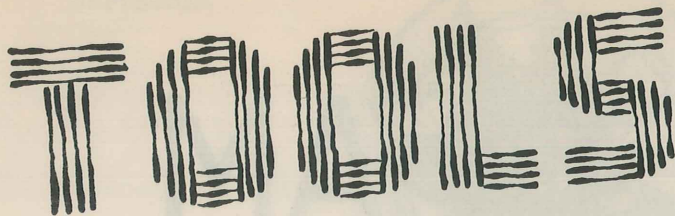
SO, LADS, MINDFUL OF THE DEMANDS AND CIRCUMSTANCES THAT MIGHT BE LURKING IN THE FUTURE, LET'S ADOPT A SLOGAN THAT WILL ALWAYS KEEP US ONE JUMP *ahead*, RATHER THAN BROKEN DOWN — *behind*.

LET'S:

"MAINTAIN OR BUST"

Lieut. F. F. Demarest  
Co. B., 5th Trng. Bn.  
Fort Monmouth. N. J.





SO THERE'S  
A SHORTAGE  
EH!

For a long while now there's been a weeping and a wailing and gnashing of teeth over the shortage of tools.

Up here on THE 'AM we listened to the moaning and shrugged our shoulders. Sure there was a shortage - the sudden national emergency had caught our tool manufacturers with their plants down. But we didn't worry; we knew the shortage would be solved when the U.S. factories really got goin'.

Just like that we were resigned to the tool shortage.

Until the other day when we sharpened up our nose, went out and poked around and found.....*That there was no tool shortage!*

Not only wasn't there a tool shortage, but there were enough tools so that if you were a whale you could dive off the depot roof and wallow around in a sea of them.

Sixteen million dollars worth of tools and only a tiny part of them still undelivered to Holabird or other distribution points. And it ain't hay Jack, it's tools.

Good tools, new tools - to fit the general upward revision of tool sets and equipment, giving the man in the field better and more modern means to make his repairs. Bucketfuls of special tools, of more varieties than Heinz has pickles, to repair the new 1940-41 vehicles from the leapin'est bug to the gruntin'est behemoth used by the Coast Artillery.

Why, any soldier anywhere who's entitled to 'em, by the tables of basic allowances and circular letters, can get the tools he needs (with the exception of the few tools as yet unprocurable, shown in the table on this page).

Of course, if the earth should suddenly open and swallow a lot of putty knives and hammers, the supply might be temporarily exhausted. But even that would mean only a short wait.

Seriously, Holabird has been able to purchase practically everything - so there doesn't seem to be any reason why the depots in Atlanta, Schenectady, or Emeryville, Cal. shouldn't have all they need. In other words - everybody everywhere can have his tools.

Well, then, from whence came the hue and cry about shortage? If there's a veritable treasure trove of equipment, who or what is preventing the field from getting in on the feast?

Fifth columnists? Termites? Uncle Iggy?

Ah, there's your man - Uncle Iggy! Cherchez la rat!

Who is Uncle Iggy? Well, dear comrade, Uncle Iggy has long green whiskers, slew feet and reverse eyeballs. Uncle Iggy is none other than your old Uncle Ignorance - the little man who's usually there to get in your hair.

Uncle Iggy sits on the shoulders of amateur clerks and helps them make mistakes. He's the guy who shows the mail clerk the nice dark shelf on which to hide the package you've been eagerly awaiting.

Let's take a trip and see how Uncle Iggy gums up the works. Let's order some tools:

We take the latest issue of a tentative list of tools authorized for a 4th echelon organization. Taking our requisition sheet in hand, we copy the nomenclature of the tools verbatim from the list, have it properly authorized and get it out on the double-quick.

Your poor little requisition has now been thrust out into the cold, cold world with no papa or mamma to look after it. From here on anything can happen and usually does. So if you've been fortunate or foresighted enough to make the acquaintance of someone in the Supply Depot, you now write



him a letter asking him to keep an eye on your baby. In this way you might be able to find out when and if your requisition is to be filled.

But you can't do a thing about Uncle Iggy. Uncle Iggy, perched on the shoulders of the shipping clerks and the clerks who edit your requisition, will do his dangest to mess up the deal. He's especially adept where changing nomenclature is concerned. We mean that in recent days the pace has been so fast that clerks have difficulty recognizing a new name for an old tool - or fail to recognize a new tool taking the place of an old tool or part they've been accustomed to.

In other words, they call a spade a spade - they wouldn't recognize it if you called it a shovel, a worm turner or any other thing that might substitute for a spade.

Not having the tool you asked for and not recognizing the substitute for it, they hold up your shipment.

You wait and wait and wait and then when your blood pressure hits 290 you holler "TOOL SHORTAGE."

But supposing your requisition does get filled - except for, say, one lonely screwdriver which happens to be scarce for the moment.

Well now, wouldn't it be wise of your post commander to write a little billet-doux to the Supply Depot commander requesting partial shipments of tools? Half a loaf is better than none. You nip Uncle Iggy in the bud that way. Otherwise your shipment may wait around for the missing screwdriver - and you'll be at the other end bellowing "TOOL SHORTAGE!"

Then there's Uncle Iggy and the mail clerk at the Supply Depot. For some un-earthly reason, tools are continually sent to the wrong place. In all good faith, a mail clerk will aim a package of equipment at Camp Hut-Sut and by gosh it'll wind up at Ipswich-on-the Rillerah. Don't think "TOOL SHORTAGE," think of Uncle Iggy.

But don't blame it all on the clerks at the Supply Depot. The clerks in your own diggin's sometimes have five thumbs

on each hand. Maybe they won't recognize a package meant for you, or an important package of tools might get stuck away on a shelf. Then when you come screaming after it like a panther, the receiving clerks have truly forgotten all about it.

Sometimes, instead of crying "TOOL SHORTAGE," friend, try keeping after your receiving clerks; let's you and the property officer in the QM Section be pals so you can needle him a bit about your supplies.

And you yourself - Uncle Iggy will get even you, if you don't watch out. When you finally receive your precious tools and are pawing over them lovingly, don't suddenly roar out "TOOL SHORTAGE!" because something seems to be missing. Check your table of basic allowances and maybe you'll find that you weren't entitled to the gadget you thought was missing. Sillier things have happened.

Now, of course, as our table shows, there is a shortage of some needed tools. And the procurement officers at Holabird have been tearing their hair out for the last ten months trying to get them in.

41-B-1465 BLOCKS. "V", complete with clamp (2 per set). Brown and Sharpe No. 750, or equal.

41-C-39 CALIPERS. firm joint, hermaphrodite, size 6". In accordance with U. S. Army Specification No. 17-21.

41-C-344 CALIPERS. spring, inside, size 6". In accordance with U. S. Army Specification No. 17-21.

41-D-1868 DIVIDERS. spring, size 8 inches. In accordance with Type A, Federal Specification GGG-D-351.

41-G-95 GAUGES. center, U. S. standard, 60 degree angle, length overall, 2-1/4".

41-G-296 GAUGES. screw pitch, V-form thread, 30 pitches, 6 to 60 threads per inch.

41-R-2750 RULES. blacksmith, steel, folding, length 36", 3 folds.

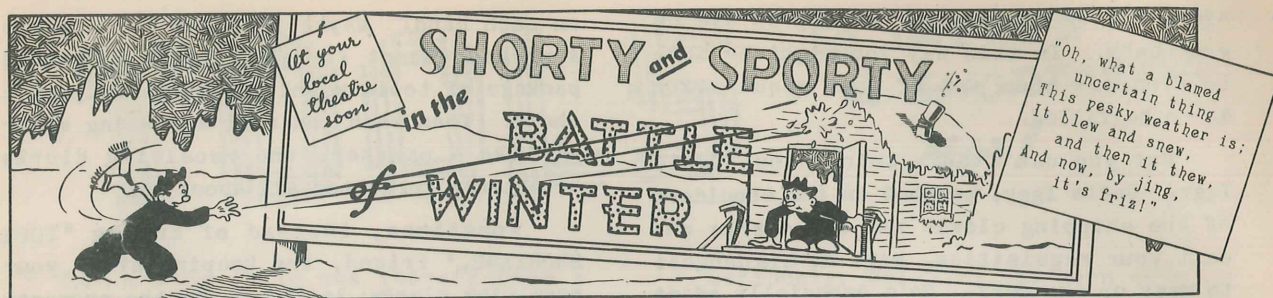
41-S-5865 STRAIGHT EDGE, steel, 2" wide, 3 3/4" thick, 36" long, beveled one edge, corrosion resisting steel.

41-N-434 - NEEDLES - 0 -  
41-N-435 - NEEDLES - 00 -  
41-N-435 - NEEDLES - 000 -  
41-N-425 - NEEDLES - 3"  
41-N-427 - NEEDLES - 5"

As a matter of fact if it hadn't been for the farsightedness of the Quartermaster General's Office, which wisely anticipated

(continued on page 151)





The Battle of France is done, we're watching the Battle of the Atlantic and the Battle of England.

But for you, Gentlemen, The Battle of Winter is about to begin.

The bitter cold, the stinging ice, the sleet, the slush and the frozen highway... remember?

Will you be prepared -- or will there be "no arms, no armour" for you and your lonely truck?

Winter check-up is what we're getting at. The absolute need to search out the weaknesses and strains that a half-year's driving can develop in a vehicle. You wouldn't go over the top with a handful of eggs to toss at an enemy armed with grenades. Why expect your vehicle to enter the Battle of Winter with defective spark plugs, a crippled fuel pump or a set of faulty brakes?

Have a heart, fellas, remember -- your truck she ain't got no momma -- all she's got is you to look after her.

First thing to look into is the lubricants.

Drain the oil and sludge out of the crankcase, and fill with the light grade of oil recommended by the manufacturer for winter. You'll start easier and go better with an oil light enough to penetrate those clearances despite the zero weather. Go over the chassis, draining and refilling all units requiring a winter lubricant; clean out and repack the wheel bearings. And while you're at it, how about getting that maintenance manual out of moth balls and really doing the job right. It'll be a double check on the spots most likely to be missed. It's a

good idea to examine all the old lubricants for bits of metal -- you couldn't ask for a better clue to help you track down impending trouble.

#### IGNITION SYSTEM

Start with the spark plugs: are they clean and in good condition? Inspect the wires for aging insulation, loose terminals. Test the coil, the generator, starter, the voltage regulator -- they've had lightning tearing through them for six months. If you have one, use the low voltage circuit tester mentioned in the July Experimental Section. In the distributor, don't go to work and file the points just because it's tune-up time. If the points are pitted, find out why -- the negative point might mean a faulty condenser or a poor ground for high tension coil-to-distributor leads. A pitted positive point means you'd better balance the whole electrical system.

#### BATTERY

Your battery will take a beating this winter, what with the increased use of lights, and extra cranking. Don't let it enter the winter half-cocked. Test each cell with a voltmeter and a hydrometer. Check the cables and clean the battery terminals with a solution of baking soda and water, coating them with petroleum jelly when you are through.

#### COOLING SYSTEM

If you don't think this is important just remember that there's enough heat generated by your engine to fry an egg for every man in the Army (well, you know what we mean). So give your cooling system a



twice-over-lightly. Cast your glims upon "Keep Cool" in this issue, it's a handy tour through your cooling system.

#### HOW TO KEEP FROM GROWING OLD

If you've got no plans for next spring and want to get away from it all, just don't bother about sealing the leaks in your cab against exhaust fumes. And don't bother about checking the exhaust system which is the source of these fumes. However, if you want to stick around and see who wins the World Series, the Russians or the Prussians, read "Leaky Exhausts" in the August 'AM.

Say, Pal, would you bet your life that your brakes are good? That's what you'll do a couple of hundred times this winter. Scrutinize your brake linings, brake fluid

and connections. That way, you'll live to a ripe and destitute old age.

We're stopping right here with the suggestion that you clean up your air cleaner. But don't you stop, Jack, you keep checking.

You might use Army Motor Maintenance Text No. 11 (TM 10-545) as a checklist, the maintenance manual that you got with the truck and also the text on Tune-Up and Adjustment.

But if you've been really clever, you've been saving your 'AMs, with all its tips on tune-up and adjustment.

If not, go to the ant, thou sluggard, consider her ways and be wise: *start your 'AM file now.*

**\$100,000 GIVEN AWAY EVERY DAY!**

There's no contest involved and you don't have to write a slogan. But every day 100,000 good hard bucks go rolling down the gutter.

And who's giving all these berries away? Why you are, Jack!

If you're one of the couple thousand drivers who are careless about their tires, you're feeding the kitty with rubber. Solid tire rubber --- the supply of which has Uncle Sam worriedly chewing his fingernails.

Now it's grand of you to swell up with proud tears when old glory goes marching by --- but why not be a "practical patriot?"

At the first sign of spotty wear on the tread --- check the wheels for misalignment. A flat spot on the tread means check your brakes at once. They're probably grabbing unevenly. Another cause of uneven tire wear is a flat spot on the brake drum --- faulty operation of the brake will cause the drum to get "out of round."

Regular exercise keeps a fellow healthy --- it does the same for rubber. Put your spare to work.

Rotate your tires at regular intervals as we suggested on page 290 of the February 'AM. Don't let them get in a rut. Let them get even wear by rolling on different wheels.

If changing tires and fixing flats bores you, make your tires "flat resistant" by keeping them properly inflated. A full, bouncy tire resists stone bruises and turns away nails. Firmly seated valve caps on good valves keep inflation exactly at par.

Fast or "jackrabbit" starts waste gas, oil and rubber. You might just as well throw a handful of nickels out the window every time you rush off jackrabbit style.

Remember, soldier, there's less than a year's normal supply of rubber in the warehouse and consumption is up 40%. Don't think that the present production of synthetic rubber is going to see us through. Synthetic rubber at its present peak production will satisfy only about 5% of the country's normal needs.

Tighten up your belt, fella, do your bit to save rubber. Get tire-conscious. We're going on siege rations.



# KEEP COOL

CLEANLINESS  
HOLINESS  
COOLING PREVENTS  
IN THE  
SYSTEM

Winter will be rolling around again fairly soon. This past summer has been good and hot, at least here at Holabird where THE 'AM is published. Summer has played its usual tricks on the cooling system. So before a vehicle is put in winter operation, overhaul the cooling system thoroughly. Might not be a bad idea to check back on your 'AMs, particularly "Why Service the Cooling System?", June 1940; "Fan Belt Adjustment", January 1941; and "Spinning A Hot One", July 1941.

When you consider that the heat from your engine would keep a four story office building comfortably warm in midwinter, it follows that your cooling system must *control* this terrific heat to guarantee maximum engine efficiency.

Poor cooling system maintenance allows corrosive sediments to form in the slender tubes and channels of the radiator and water jacket, which places a tremendous overload on any cooling system. The system must be kept clean, free from leaks and in proper working order.

## PRINCIPAL CAUSES

The principal causes of cooling system complaints are: loose bolts and clamps, loose soldered joints, dirty or corroded water passages, defective water pump, and worn or defective radiator or heater hose.

Check the illustrations for inspection procedure in cooling system maintenance.

Rust, scale, oil and grease frequently clog cooling systems. About 90 percent of

the trouble is due to rust and scale. Even a thin film of these affects the cooling capacity of the radiator. Air passages that are clogged with dirt or bugs also reduce the 'coolability' of the radiator.

To overcome these hazards the cooling system should be cleaned and checked at least twice a year. Natural times for doing this work are in the fall when anti-freeze is put into the engine, and in the spring when it is removed.

## CAUSES OF OVERHEATING

The oxygen in the water corrodes the walls of the engine water jackets and cylinder head. As water circulates through the cooling system it loosens the rust formed in the water jacket. Some of the rust settles in the form of sludge and some is carried into the radiator where it builds up a thin layer of rust scale in the water passages. It will also deposit in the water jackets or cylinder head and prevent proper cooling of the cylinder head and block. This may cause cylinder heads and blocks to warp or crack. It may result in burned valves, scored pistons, cylinders and bearings.

You can't control the amount of oxygen in the water before it is put into the cooling system, but you can keep it down after it is in the engine. A loose cylinder head or leaky gaskets will allow exhaust gases, which contain strong corrosive acids, to enter the cooling system. These acids assist in the formation of rust. Some anti-



freezes, anti-leak compounds, and radiator cleaners also cause corrosion if left in the system too long.

Lime, which is present in most water in varying amounts, aids the formation of hard scale in the cooling system. This scale has the same effect as rust.

Oil and grease which get into the cooling system act as a binder for the rust and scale and accelerate sludge formation, to say nothing of their bad effect on rubber parts and hoses.

The main source of excess oxygen in the cooling system is leaks between the bottom of the radiator and the pump intake. Here, due to the action of the pump, the partial vacuum formed sucks in air at any poor connection.

Some vehicles, whose valve cover plate and cylinder head gaskets are on the suction side of the pump, must also be checked at these points. You can't always tell by looking for water leaks, because air can go through much smaller crevices than water can.

#### CLEANING

To loosen all types of rust, scale, sludge and grease deposits, use either a good prepared cleaner or one you can make by dissolving a pound of baking soda in a gallon of hot water. Then remove the loosened deposits from the system by flushing thoroughly with clean water. When using a commercial cleaner, follow the manufacturer's instructions. After the cleaner has been used, pressure flush the block and the radiator separately. Merely filling

the cooling system and draining it will not remove the loosened sediment or flush all the cleaner from the system. Maximum flushing pressure used on radiators should not exceed 5 lbs. per square inch, as the walls of the water passages are only .005" thick and will not withstand much higher pressure without breaking.

After you think the system's clean, why not check its capacity with the flowmeter described on page 75 of the June 'AM?

To prepare the system for cleaning and flushing, remove the thermostat, disconnect the hose at the upper tank of the radiator and also the lower hose near the water pump or engine.

Flush only in the direction of normal flow when using pressure.

#### FINAL INSPECTION

After the cooling system is clean, inspect the water pump, thermostat, and fan belt to make sure that they are in working order. This is important to prevent overcooling, which can be as harmful as overheating. If any hose is broken, eaten away or swollen, replace it. Also check the drain cocks and tighten all joints, using new gaskets. Then fill the cooling system with clean water and run the engine until the thermostat opens and permits the escape of trapped air from the top of the engine so that there are no air pockets. Now check the entire system for leaks because it is possible that holes in the radiator that didn't leak before cleaning may now show up. Put anti-freeze into the system and note whether or not it contains a rust inhibitor. Add a rust inhibitor if it is not included in the anti-freeze.

## TOOLS,

continued from page 147

the needs of the "new" army, a lot more hair would have been torn out.

But this piddling little bit of a shortage is not to be blamed every time your tools get held up. Remember Uncle Iggy and go over all the places where an amateur might short-circuit your requisition.

For gosh sakes, let's not be yelling "TOOL SHORTAGE" all the time when something else is to blame. We must learn not to cry "wolf" until we actually see the wolf.

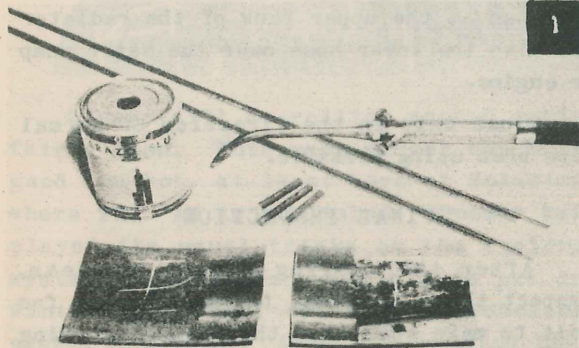
Mustn't we?





# BRONZE-WELDING BUMPERS

FROM THE LINDE AIR PRODUCTS COMPANY



Here's what you'll need. Some 1/8 inch and some 3/16 inch #25 M. bronze rods, some flux, two 2 inch and one 2-1/2 inch pieces of 5/16 No. 1 high-test steel welding rods, and a blowpipe with a tip the size of a #56 drill. Also the ability and patience needed to make a good weld.

Repairing broken vehicle bumpers has been a difficult and costly operation, and not a very satisfactory one insofar as restoring the strength of the bumper was concerned. A new, quicker method has been suggested which restores the bumper to its original strength. Any shop equipped for oxy-acetylene welding can do this job.



Grind the back of the bumper to remove all plating to a width of about 1-1/2 inches on each side of the break. Align the two parts, hold them firmly in place, and tack weld them.

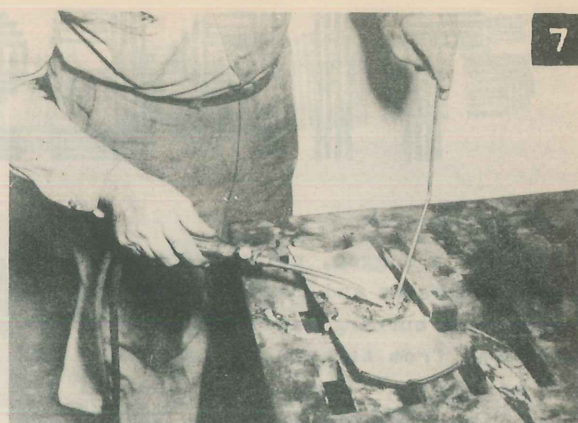


A fracture in metal as thin as this need not be "veed." The picture above shows proper tack welds in two separate types of fracture. The diagonal break, when properly repaired, will be stronger than the square one.

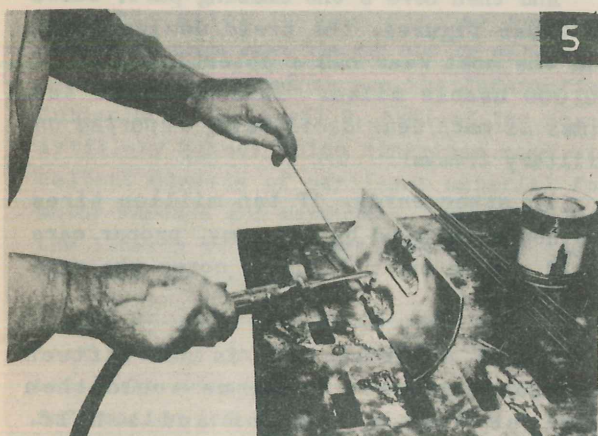




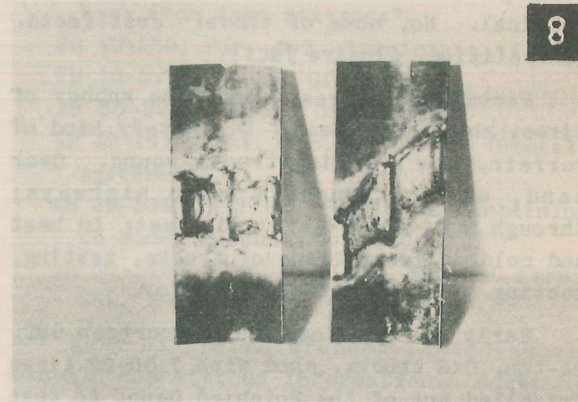
For ease of positioning, join the end of a  $1/8$  inch bronze rod to one of the splints and tack-weld it across the fracture on the back of the bumper. Repeat with the other splints, remembering that the 2-1/2 inch splint goes in the center



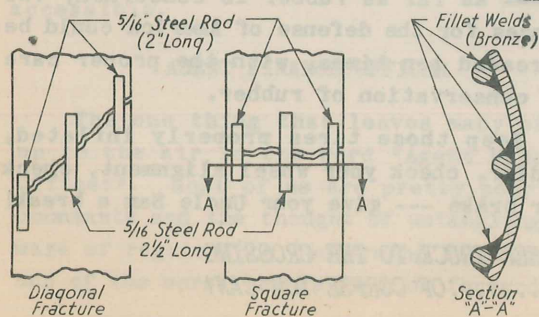
Then make a one inch wide butt-type weld along the fracture. Use the  $3/16$  inch rods here and make sure you get the weld metal down into the crack. Build it up to about  $3/16$  of an inch over the whole area.



Shows positioning of the splints with the 2-1/2 inch reinforcement in the center and the 2 inch rods close to the edges of the bumper. The use of round rods for splints makes filleting fairly easy. Note that the bronze is well under the steel "splint."



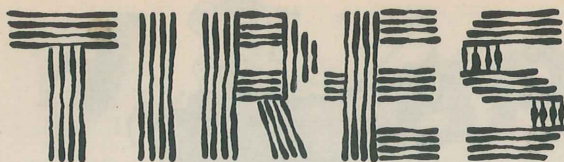
Remove the flux that is left on the work, clean the work, and buff it as usual. Buff the front of the bumper to remove all traces of the job and have it repainted. Now your job will stand more shock than the original bumper metal.



Now join the "splint" to the bumper permanently by making two 45 degree fillet welds, working the bronze well under the splints. Build up each weld in two passes, using the  $1/8$  inch bronze rod.







**THEY'RE GOOD FOR  
TEN TIMES THE  
MILEAGE YOU GET!**

It was a dogged, relentless hunt. Men with drawn faces and hungry eyes goaded the trucks over burning sands that shifted and fell away from the wheels; over ice that bit cruelly at the soft rubber of the tires; through drenching rains that turned the earth to mud, sucking and clinging to the suffering wheels.

For fourteen thousand miles the chase continued --- and at the end the quarry was run to earth.

What manner of beast or criminal was thus pursued? Not beast nor fiend nor criminal. No, none of these! Just facts. Tantalizing, elusive *facts*.

Facts about tires, about the rubber of tires, about the tread. Over every kind of terrain, the grinding trucks wound. Over sand, cobblestones, smooth highways; through mud, snow, rain and sleet; in heat and cold. A weary line of trucks, testing, testing. The tire-testing convoy.

Early one morning, these fourteen GMC, 2½-ton, 6x6 trucks, shod with 7.50-20 tires spiralled out of the Holabird Depot to test the wearing qualities of tires. Each truck wore tires of different tread design. Fourteen thousand miles they traveled, under full loads of 5000 pounds. For the first 500 miles, the speed averaged 30 miles per hour; thereafter, 35 miles per hour.

At 500 mile intervals throughout the trip, the tires were changed from truck to truck --- with the wheel position of the tires unchanged: right front tires wandered from truck to truck but were always, *right front tires*.

In the cool of each morning, the pressure of each tire was brought accurately to 55 pounds. Valve caps were securely tightened.

Carefully, even tenderly throughout the trip, the loss of tread and rubber was checked with depth gauge and scales.

Finally, the astonishing results were determined --- and today this magazine reveals the first of the new statistics.

At the end of 9000 miles the average loss of tread on the five best tires in the fleet was 9.4%, and the average loss of rubber was 2.02 pounds. After 14,000 miles the average tread loss was 18.9%, and the average loss of rubber 3.2 pounds.

And then here's the amazing part: based on these figures, the tread design which had the most wear had a potential life of 40,000 usable miles. *This is up to ten times as much wear as is being reported on military trucks!*

In other words, if ten million tires are now being used by the Army, proper care would enable one million to cover the same territory.

So if our tire bill is now fifteen million dollars a year, we would then pay out only a million and a half.

The hurry and worry over rushing tremendous reserves of rubber from the Dutch East Indies before the storm breaks, could be reduced tenfold. One freighter could take the place of ten now crossing the threatening Pacific. One warehouse could take the place of the ten now bulging with crude rubber.

Think of it --- and keep thinking of it --- as far as rubber is concerned, the chances for the defense of America could be increased ten times, with the proper care and conservation of rubber.

Keep those tires properly inflated, soldier, check your wheel alignment, check your brake --- give your Uncle Sam a break!

**HURRY UP, SOLDIER - YOU CAN BEAT THAT OTHER TRUCK TO THE CROSSING  
.....OF CORPSE YOU CAN!**



# MOTOR MARCHES AND MANEUVERS

REVISED FROM THE COAST ARTILLERY JOURNAL

Maneuvers are just around the corner for most of you, and for most of you they are going to be a new experience. Like all new things, it will be bewildering, but at the same time any mistakes you make will probably stick in your mind so you can profit by them when you go out on maneuvers again. We happened to see the Information Bulletin No. 2, April 9, 1941 of The Coast Artillery School which contained some excellent digests of pertinent material for motor marches and maneuvers. We are taking the liberty of "lifting" some of the ideas for your information.

FM 25-10 "Motor Transport" is a basic text. It is in the process of being extensively revised, but it contains valuable information and is still the official basic Field Manual for Motor Transport.

Tables of Organization are designed so that each motor unit can transport its personnel and equipment in the assigned vehicles. It is not a bad idea to make a load chart so that you can see exactly how much equipment can actually be taken into the field. Vehicles should be loaded and a short shake-down march made to see that everything is "loadable", secure and accessible.

## AGENT FINANCE OFFICER

The one thing that leaves many of us up in the air is the word "Agent Finance Officer". Most of us are pretty poor accountants and the thought of untangling the maze of regulations concerning finances is one of the worst things to look forward to.

The following publications contain all the information necessary for an agent finance officer to carry out his duties away from a garrison:

- AR 35-6300, "Procurement of Supplies, Services, and Rentals by Organizations Away from Home Stations".
- TM 12-250, Par. 197, "Administration".
- TM 10-325, "Agent Officers".
- AR 35-320, "Agent Officers".
- AR 30-1415, Par. 5 b, "Informal (Rental) Agreement".
- AR 35-1040, Par. 1, "Vouchers Pertaining to Money Accounts".
- AR 30-1425, Par. 3 c (2), (WD QMC Forms 289, 290, or 291) "Release".

Many of the references listed above contain repetitious information. Notwithstanding, all are listed to bring together compactly all pertinent data.

If you know ahead of time that you are to be agent finance officer, bone these references and then talk it over with the local finance officer and the quartermaster purchasing agent for advice and assistance in interpreting them.

Gasoline can be procured along the route either from government agencies or from the wholesale distributors who hold government contracts. Methods of procurement must be carefully planned and checked by the advance agent to insure success.

Purchases of gasoline en route may be paid for in cash, if an agent finance officer accompanies the movement and is authorized to expend funds for this purpose. More often, especially in peace time, the purchase is made "on account", the vendor being



reimbursed by the Finance Officer of the home station. In this event, the necessary vouchers and tax exemption certificates should be obtained from the Quartermaster of the home station to facilitate completion of the transaction.

There are two methods for purchasing gasoline when on a motor march. The first may be used to advantage by a motor march operating from a regularly established post or station. The Purchasing & Contracting Officer at the home post or station will supply the march leader with courtesy cards covering firms from which the gasoline is to be purchased and with a government identification card. In the event the amount to be purchased is likely to exceed 25 gallons, the Purchasing & Contracting Officer will furnish the march leader with a list of firms having TPS (Treasury Procurement Schedule) tank wagon or drum delivery contracts in the territory through which the march movement will pass. In order to assure himself of getting gasoline where and when wanted, the Supply Officer of the movement should, when possible, give the firms involved 48 hours notice where tank wagons should be spotted. If he expects to take deliveries from bulk stations, he should know exactly where the stations are so the march movement won't overrun them and have to back-track.

Upon receipt of gasoline the march Supply Officer will obtain a copy of the delivery ticket from the local dealer. Properly filled out, the same delivery ticket will show the amount of fuel purchased and the price as one item, and the state, federal and municipal taxes as another. The ticket should be made out in triplicate, one copy going to the main office of the firm, one copy being retained by the local dealer, and one copy being taken by the Supply Officer. It is essential that this delivery ticket be made out properly; it should show U.S. registration numbers of the individual vehicle if bought for a single truck, or the number of the motor march order, if purchased for the whole unit. The Supply Officer should sign this form. The name and address of the dealer and the address of the Pur-

chasing & Contracting Office should also be plainly shown.

If the march movement is to be on the road for any length of time, the leader must prepare a receiving certificate attesting the purchase as being for immediate use. This certification should be sent immediately to the Purchasing & Contracting Officer so he can prepare his receiving report in time to take advantage of any discounts offered. Upon return to the home station, the march leader will turn over his copy of the delivery ticket to the Purchasing & Contracting Officer who will compare it with the invoice received from the main office of the firm. After checking the prices he will prepare the necessary vouchers and forward them to the Finance Officer so payment may be made promptly. He will also mail the home office of the firm, tax exemption certificates covering state, local and federal taxes, which have been deducted by the firm from the invoice price.

The second method dispenses with the purchase order and uses Standard Forms No. 1034 and 1034a, (Public voucher for purchases & services other than personal). Upon receipt of gasoline from the local dealer, the march leader will make out Standard Form No. 1034 (white) and two copies of Standard Form No. 1034a (yellow), to cover the purchase. The signature of the local dealer will be obtained thereon. The use of *typewriter, ink or indelible pencil* is authorized in preparing this form. Tax exemption certificates are then prepared and turned over to the local dealer with instructions to turn them into his bulk dealer for reimbursement. Two copies of travel orders are then attached to the Standard Form No. 1034 and 1034a, and all papers are then mailed for disposition to the Purchasing & Contracting Officer of the station from which the convoy is operating. The purchase order is unnecessary in this procedure.

The methods related above can also be used in the purchasing of lubricating oil, ferrriage service, spare parts, etc.

The purchase of gasoline by TPS Service Station delivery contracts follows the same



methods. Purchases under this Service Station contract should be made only in emergencies, or for quantities of less than 25 gallons.

#### RATIONS

When purchase of the component articles of the ration is made in the open market from organization mess funds in quantities which (together with those purchased from the Quartermaster) do not exceed the ration allowance, but which cost in excess of the component articles of the ration (at the prices used in figuring the ration and savings account), AR 30-2210 provides that the organization fund be reimbursed for the excess cost. The mess officer should familiarize himself with the proper procedure in this case before the start of the movement.

Troops going on a march may submit, prior to departure, a ration return "in advance" for such period as the commanding officer may deem necessary. This period should be more than adequate to meet all emergencies. The ration return should be made up in the regular manner, for whatever advance period is decided upon, and may be submitted to the Quartermaster who, in turn, will make up a ration and savings account and forward it, after signature by the Commanding Officer, to the Finance Officer. The latter officer will issue a check in the amount due the organization. The value of the check will be dependent upon the number of days estimated for the march. However, if the march terminates earlier than was anticipated, then a proportionate amount of the money must be returned. Example - An Organization draws the money value of five days' rations in advance prior to departure on a march; the march is actually completed in four days. Then only four days' rations have been earned and the fifth day's allowance must be returned to the finance officer.

References may be found in AR 30-2210:  
Purchases, from whom made, par. 18  
(For certificate, see par.130, AR  
210-50)

Issues on march and/or during maneuvers, par. 21.

Troops detached, paragraph 25.

When rations are purchased in the open market, for which reimbursement is expected under the provisions of par. 25, AR 30-2210, it should be kept in mind that reimbursement is allowed only for those items which are actually components of the ration. Example -- An officer and 30 men, purchasing in the open market 25 pounds of lamb, will receive no reimbursement under the provisions of the foregoing regulation, because the ration component is beef, bacon, chicken or pork, and not lamb. Furthermore, if a cut of beef is purchased, it must be billed as so many pounds of beef and not as pot roast or some other cut.

#### CAMP SITES

An officer ordered to procure a camp site or land for any purpose, should follow the procedure set forth in the references listed in second paragraph above. The officer and the property owner should tour the ground in order to determine the initial condition of the property. The officer should prepare an informal (pen and ink) account of his observations, which both parties should sign.

In making a selection for a camp or bivouac, consideration must be given to the availability of fuel, potable water, drainage, latrines, bathing facilities, and shelter for personnel. There should also be firm and sufficient parking ground for vehicles, a suitable location for repair facilities, and in wartime, protection from aerial observation. Where permission can be obtained, National Guard armories, C.C.C. camps, fair grounds, and school houses are recommended as appropriate sites. The site should be located near the prescribed route, so that the march may be resumed with ease. The new site should be reconnoitered well in advance.

The organization commander should have an inspection made of the camp site, its buildings and facilities, shortly before the troops leave. If possible, the owner or caretaker of the site should be present at this inspection, and should be requested to sign a report of inspection. In any case, the owner should be furnished a duplicate copy of the inspection report.

The size of a camp site required can be  
(Continued on page



# GAS ON THE GO

Since last February, there has scarcely been a month when THE 'AM hasn't run an article on refueling practices and equipment. All along we've been receiving quite a few letters asking for further information or complaining that methods of refueling were not clear.

So here goes for a quick run over of the mechanical end of the system of refueling as we understand it, with all the gadgets and equipment used. We'll run another article on the organizations handling the field gasoline supply system soon.

We're *not* laying down the law on this or suggesting it's official, but just summarizing what appears to us the important factors in the very important function of gas supply. Some of the equipment here may never be used, or it may be used in an entirely different way.

## BASE SOURCE OF SUPPLY

The first thing to consider is the base source of supply, whether it be a railway tank car, Figure 1; a commercial tractor-trailer tank unit, Figure 2; an underground storage tank; or an ocean-going tanker.

Regardless of which of these four general sources are used, they will

probably be located far behind the front line so that active enemy demolition would not be expected.

## 5,000-GALLON FLOATING GAS TANK

One of the factors to be considered in supplying our overseas possessions is the supply of gasoline from a bulk maritime source, such as an ocean-going tanker. Fuel has to be delivered across a body of water to a convenient shore location. The Engineering Division here is at present experimenting with a 5,000-gallon floating gas tank. It is intended for landing supplies where marine tankers cannot dock or get alongside. Presumably the tank will be hoisted overboard, filled by the steamer pumps, and towed ashore by a small vessel.

## PORTABLE PIPE LINE

On certain types of terrain, it may be impossible to have the bulk supply of gasoline brought close enough to fill Army trucks or 5-gallon containers. A portable pipe line, Figure 3, is being developed. It will shuttle gasoline between the base source of supply and convenient distribution points. This pipe line comes in self-contained 1/2 mile units, each complete with a centrifugal pump driven by a 20 h.p. gasoline engine. Each 1/2 mile

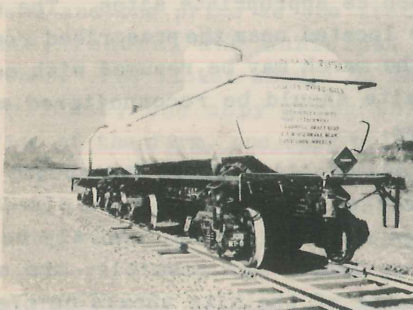


FIGURE 1

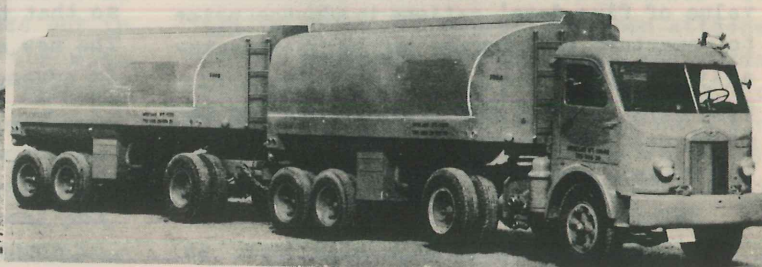


FIGURE 2

The base source of supply may be a railway tank car (Fig. 1) or a tractor-trailer unit (Fig. 2)





FIGURE 3 - This portable pipe line may look like a rail fence, but it gets the gas to where it's needed.

unit can be moved by cargo trucks and used independently of any other unit.

It is claimed that these self-contained sections, alone or in almost unlimited combinations, can deliver gas through swamps or forests, or over mountains, at a rate of approximately 200 gallons a minute. Tests of this equipment will probably be made during coming maneuvers. This pipe line might be used instead of, or with, the floating 5,000 gallon tank for ship-to-shore operation.

#### GASOLINE DISPENSING DEVICE

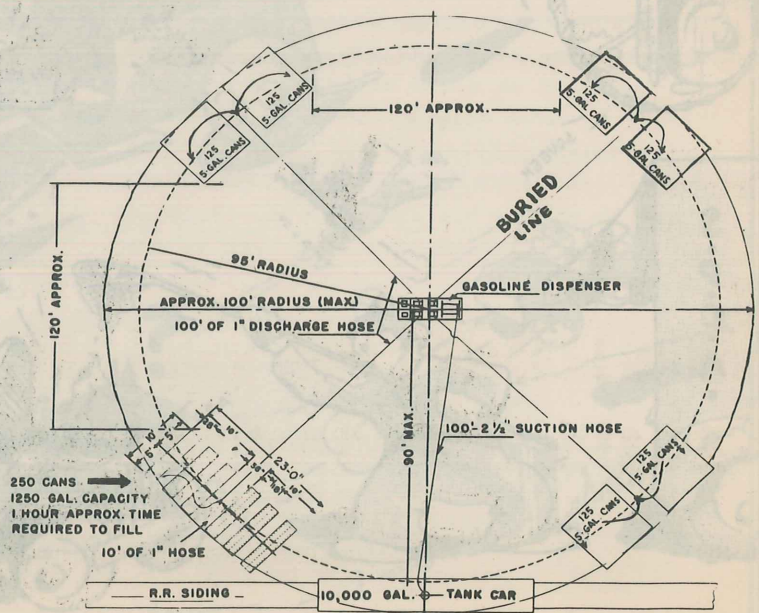
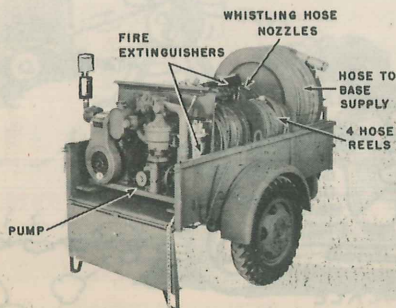
The gasoline dispensing device that we have been talking so much about is what would probably be used to tap the base source of supply located at the rail, beach or truckhead. Figure 4 shows this device and Figure 5 shows the suggested layout for using it. In case you haven't seen

all the stories about it in THE AM, here is a brief description:

This device is a mobile pumping unit that discharges approximately 100 gallons per minute through four 100-foot hoses that each terminate in two 10-foot lengths. The whistling nozzles at the eight outlets permit filling containers at night without using lights. The hose reel provides a suitable means of protecting the hose when not in use. The meter affords a daily check on the delivery of each unit and gives the operator a fair idea of his next day's requirements without bothering with paper work. The pump is equipped with a manual flow control so that if the requirements do not demand the use of all outlets, the pressure can be reduced on the unit and the desired flow can be obtained from any single nozzle on the dispenser. The gauges have luminous dials so that they can be readily seen by the operator during night operation. Remember that this portable unit can be shifted around with extreme rapidity in case of enemy aerial observation or attack.

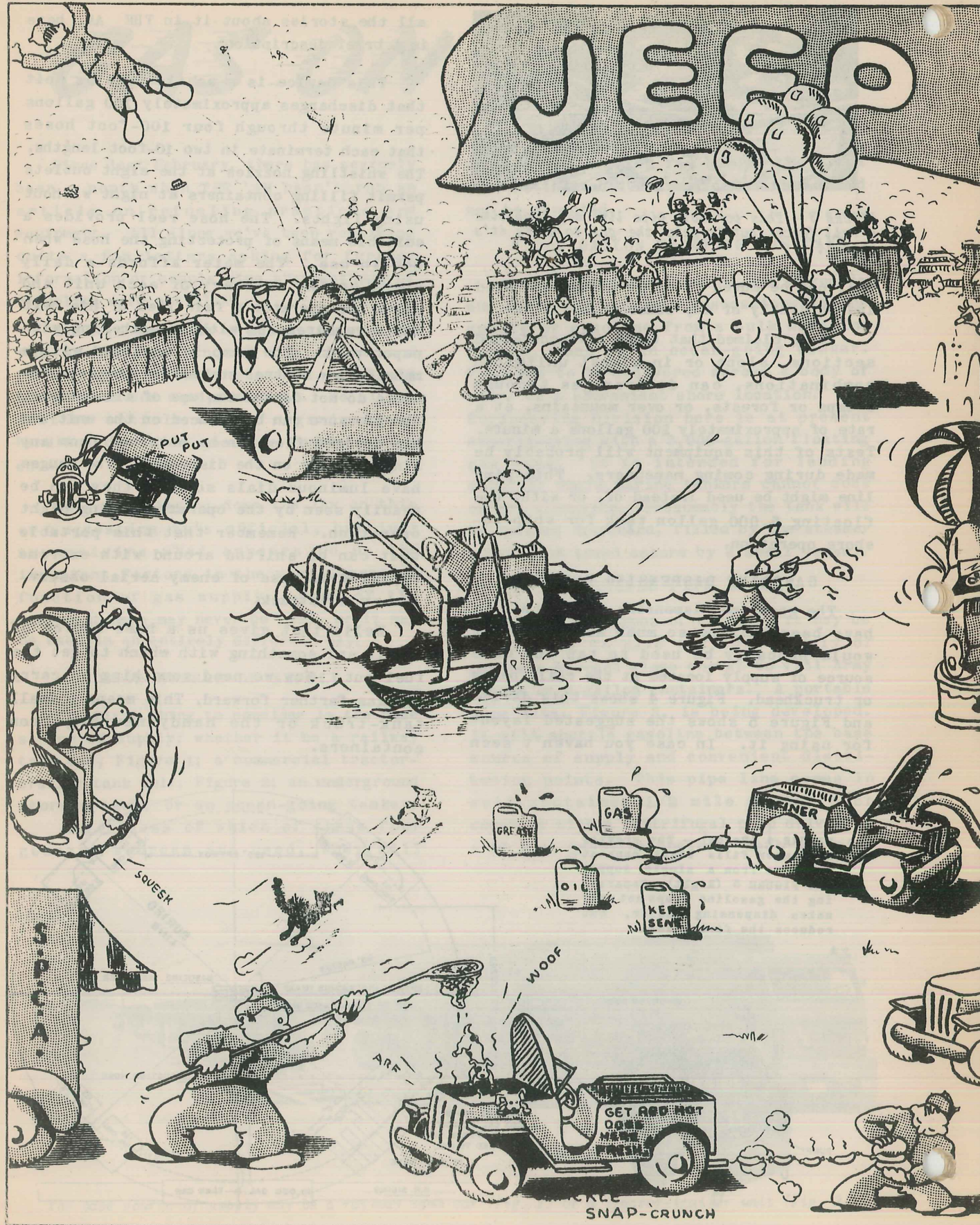
Well, that gives us a base source of supply and something with which to get the fuel out. Now we need something to carry the gas farther forward. This means a small tank-truck or the handy new 5-gallon containers.

FIGURE 4 (Below) - The gravity dispenser fills eight cans at one time from a single supply and FIGURE 5 (Right) - Separating the gasoline dumps not only makes dispensing easier, but reduces the fire hazard.





# JEEP



PUT PUT

SOVESH

S.P.C.A.

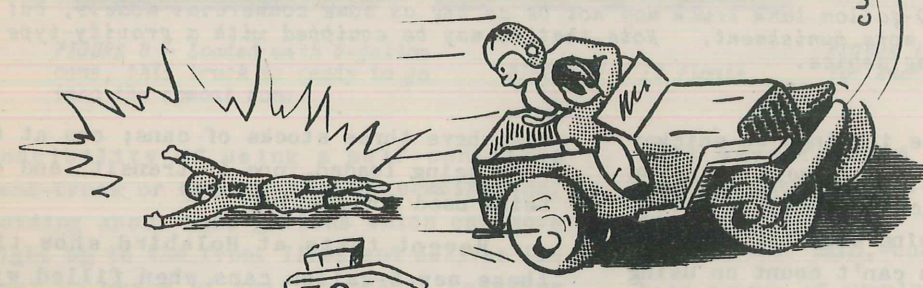
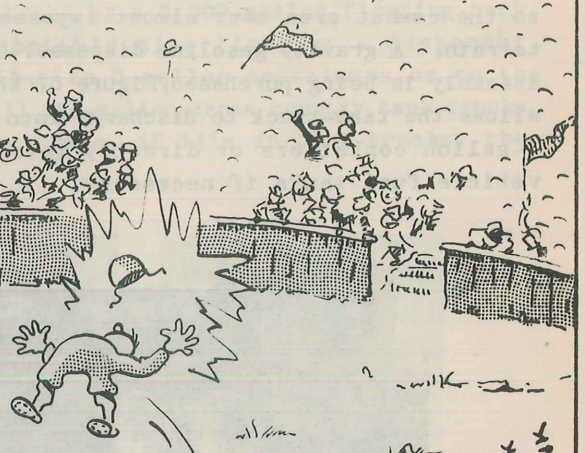
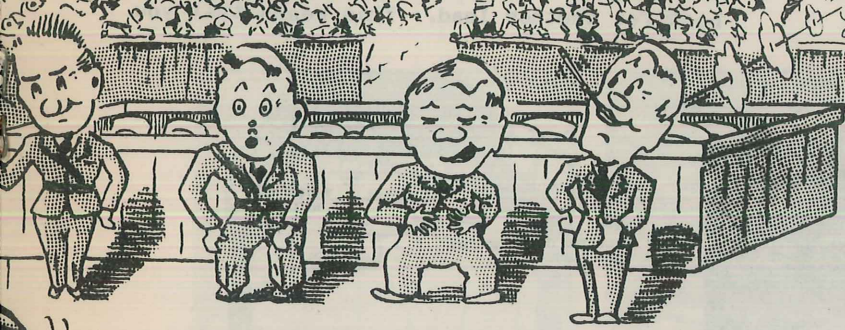
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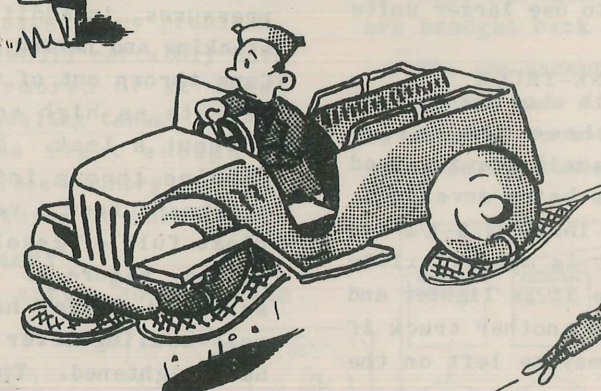
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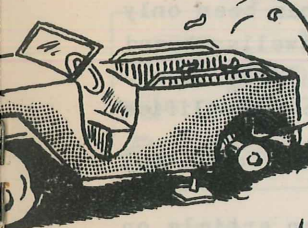
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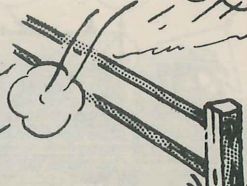
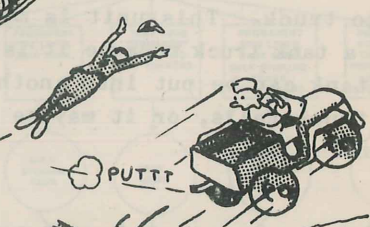
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## TANK TRUCKS

Figure 6 shows one of the new 750 gallon tank-trucks. These trucks can go to the combat area over almost impassable terrain. A gravity gasoline dispenser hose assembly is being purchased, Figure 6, which allows the tank-truck to discharge into the 5-gallon containers or directly into the vehicle fuel tanks if necessary.

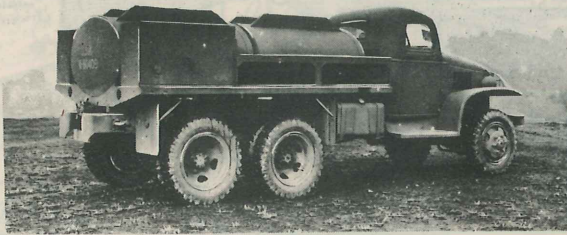


FIGURE 6 The 750-gallon tank truck may not be as big as some commercial models, but it can take a lot more punishment. Note that it may be equipped with a gravity-type gasoline dispensing device.

You'll probably be inclined to snicker over these small capacity trucks when you remember the huge commercial tractor-trailers that go booming down the highway, but remember that you can't count on using highways in war time and it doesn't seem practical at the moment to use larger units for cross country work.

## REMOVABLE TANK-TRUCK

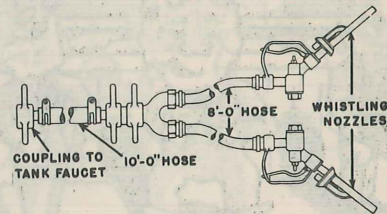
In addition to these 750-gallon tank-trucks, a similar small gravity feed tank mounted on skids is being developed, Figure 7. This will fit into any 2-1/2-ton cargo truck. This unit is more flexible than a tank truck because it is lighter and the tank can be put into another truck if one truck fails, or it may be left on the ground.



FIGURE 7 - This gravity feed tank is portable.

## 5-GALLON CANS

In addition to the tank-trucks, the dispensing device may discharge gas directly into the 5-gallon containers for transportation by truck, Figure 8, to dumps in the combat zone or directly to the using organizations. Truck-tanks are filled and empty containers are picked up and taken back for another load. This means that you



must have three stocks of cans; one at the base being loaded, one in transit, and one being used for fueling.

Recent tests at Holabird show that these new 5-gallon cans when filled will stand extreme internal and external pressures, in addition to being light for stacking and having good pouring qualities. Cans thrown out of moving trucks and from heights as high as 30 feet have landed without a leak. *But don't try it!* If they're thrown into a stream or tossed overboard from a vessel, these cans will float full of gasoline for an indefinite period, Figure 9. Tests with a new type asbestos gasket have proved them to be self-sealing after the cap has been only hand tightened. The gasket swells up and tightens the plug so that no leaks occur. A nozzle carried on each vehicle simplifies delivery.

## GAS BRACKET

You'll remember seeing an article on the new gas bracket, in the August 'AM and here, Figure 10, is what it looks like.

The bracket allows any vehicle to carry a small supply of gas for emergency use, when the gas supply can't catch up with the vehicle or the vehicle can't get in touch



with a gas supply. A sizable number of these brackets are now being purchased for field test. Watch THE 'AM for more dope.

### LARGE ARMORED GAS TANK UNITS

Some of the mechanized units use such tremendous quantities of fuel that it may be impossible to maintain an operating supply with 5-gallon containers. The

gas supply method, Figures 11, and 12, it seems safe to say that fuel is delivered by rail or truck, or ocean-going tanker to a supply head. From there it may be distributed by a 5,000-gallon floating tank, a portable pipe line, or a dispenser, either to 5-gallon containers or to the small 750-gallon cross country tank-trucks. From there, if it's in tank-trucks, they

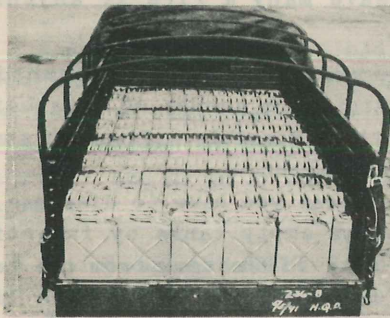


FIGURE 8 - Loaded with 5-gallon cans, this truck is ready to go into the combat zone.

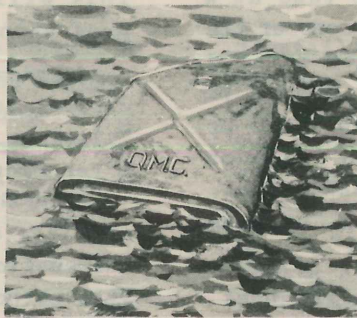


FIGURE 9 - It floats.



FIGURE 10 - New bracket for emergency gas supply.

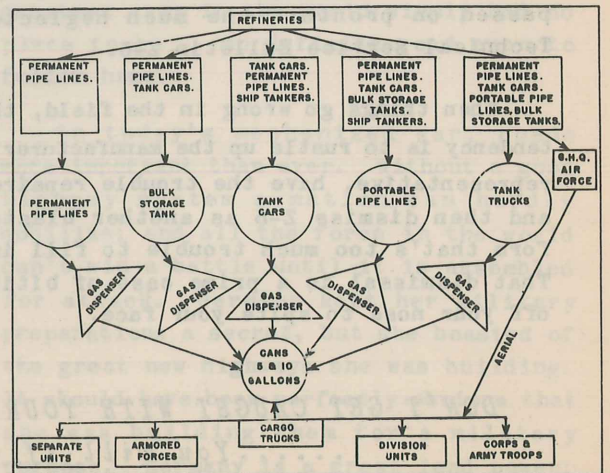
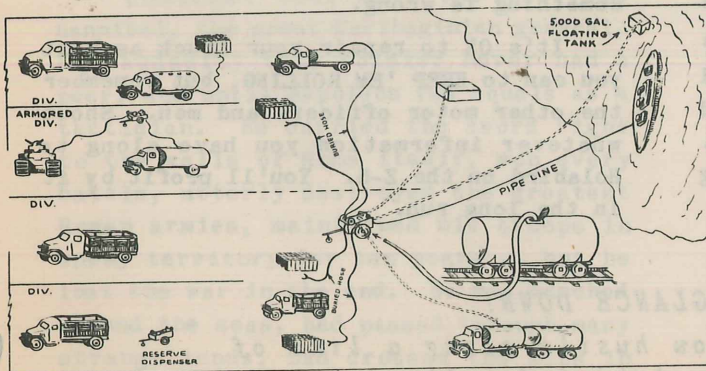
possibility of using a self-contained tank-truck or tractor-trailer combination, holding about 2000 gallons which can move right up to the front lines and deliver the fuel by means of small portable transfer pumps, is now being studied. A unit like this, of course, involves many problems. The engineers say it would certainly have to be thoroughly armored or at least provided with bullet sealing tanks; and yet at the same time be light enough to negotiate difficult cross-country terrain. We hope to have something on this later.

will move forward and dispense it by gravity into other 5-gallon containers or directly into the vehicle fuel tanks. On the other hand, containers filled at the base source of supply will be moved forward by truck and exchanged for empty ones which are brought back and refilled.

The one exception would be fairly large deliveries made directly to the front lines by armored tank-trucks to the mechanized units in the combat area.

### SUMMARY

To summarize the entire contemplated



FIGURES 11 & 12 - The whole story at a glance. Gas on the go - from supply to demand.





## SAFETY

A couple of additional words on safety --- remember that gas is supposed to burn *inside* the engine cylinder, and that if it burns or explodes outside, it's not worth a hoot. The consequences of carelessness are too obvious and dreadful to need elaboration here. Some things are worth mentioning, though.

First, the precautions to take at a "tank farm." We saw a picture of one of the maneuvers recently that showed several thousand gallons of gasoline stored in 5-gallon containers. They were lined up in neat squares and we couldn't see an extinguisher or a fire trench any place. If the gas had started burning, nothing could have saved the whole dump.

Be sensible about things like that. If you have a trench digger handy, send it around the separated piles and isolate them so the burning gas can't spread. If you

haven't a trencher, get the pioneer tools out and dig trenches, throwing the dirt on the outside of the ditch to form an additional bulwark. This sounds like plenty of work --- and it is --- but it may make the difference between getting there and being left behind.

Second, bury the gas lines leading to and from the dispensing device in a 6-inch or 1-foot trench to prevent "fire backs." This will save many a fire if anything goes wrong.

Third, when using the dispensing device, separate the groups of cans being filled as much as possible. Figure 5 shows a recommended layout.

Fourth, unless you have to dispense by gravity, always empty tanks by inserting the suction hose in the tank from the top. This method makes it easy to yank the line out in a hurry in case of fire or other trouble. With a rigid fitting this would be impossible.

IF YOU DON'T  
YOU'LL  P.D.Q.  
BE S.O.L.!

Our roving reporter was on the job the other day and roved into a garage for a yarn with the lads on the vexing subject of motor transport. He came up with one surprising bit of news that deserves being passed on pronto: the much neglected Technical Service Bulletin Z-5.

When things go wrong in the field, the tendency is to rustle up the manufacturer's representative, have the trouble repaired and then dismiss Z-5 as another blasted form that's too much trouble to fill in. That dismissal is a prime case of biting off your nose to spite your face.

Say the "bug" has been designed into the truck. Unless notice of it gets to Holabird on the Z-5, that same defect will be incorporated in the next model because no one told the engineers anything was wrong. It's pretty selfish too, to get your truck fixed without passing the word along to other units by way of Z-5 that something is wrong.

It's OK to repair your truck as best you can to **KEEP 'EM ROLLING**, but remember the other motor officers and men. Shoot whatever information you have along to Holabird on the Z-5. You'll profit by it in the long run.

**DON'T GET CAUGHT WITH YOUR GLANCE DOWN!**

.....You will if you hustle along a line of parked cars without watching for the dope who always swings out without warning.



# AREA CONTROL

## A VITAL FACTOR IN MARCH MOVEMENT

A soldier travels on his stomach, a motor vehicle travels on its fuel supply, and both of them travel over roads. The vital problems of supply, transport and maneuver are briefly expressed in these terms.

### ROME WON WITH ROADS

We are likely to think of super highways as products of the motor age exclusively, but great roads have been built by military conquerors throughout history. Much of the Roman Empire's success can be attributed to the superiority of its roads. The Roman world was held together by a network of roads that still excite the admiration of engineers. Down these ancient highways the armies marched and the traders followed, and the goods flowed back along them. Rome never became a great maritime power, but she was the most enduring military force in the history of the world. And it was no coincidence that she was also the greatest road builder of ancient times.

### HANNIBAL LOST WITHOUT THEM

Contrast this with the story of Hannibal, the great Carthaginian general. For audacity this soldier never had a peer, and until Napoleon few equals as a tactician. He carried the sword right to the walls of Rome itself, won every battle, utterly destroyed the greatest Roman armies, maintained his troops in enemy territory for ten years -- but he lost the war in the end. He had marched around the seas, had passed through many strange lands, had crossed the Alps in winter -- but the very magnitude of such achievements was to prove the cause of his

downfall. For there was no road back to Carthage and he could get neither supplies nor replacements. He had to live off the enemy land, and he could spare no men to till the conquered soil. Though he won every battle cheaply it was still too dear if he did not win the war by it. The Romans could replace every ten men that fell; Hannibal could not replace even one.

### NAPOLEON LOST WITHOUT THEM

Napoleon was responsible for building many of the great roads of Europe. His army was always on the march, for Napoleon was the master of mobility, of swift maneuver and surprise attack. He always got there first with the largest force. The "Grand Army" fought all over Europe and was never defeated -- never defeated until that Russian winter in which all roads disappeared in the mud and ice and snow, and all maneuver was stalled, communication broken, supplies and replacements shut off, retreat practically suicidal. The greatest general and the greatest army in the world simply had no place to go -- no definite road even to follow home.

In today's mechanized war, roads more important than ever. Without a good highway system a nation can hardly mobilize; and all the force in the world can't win a battle until it is assembled for attack. Germany kept her military preparations a secret, but she boasted of the great new highways she was building. It should have been perfectly obvious that she was building them for a military purpose. Germany is a great land power; such a power, always builds great roads and she builds them to march troops on.



France built the Maginot line, but Germany built the tanks and the super highways. When a great military power suddenly builds a road in your direction it's the same as having a million guns leveled at your vitals.

#### CLOGGED ROADS ARE USELESS

The United States possesses the greatest highway system in the world. Comparatively, we have plenty of roads, but most of them lead through cities. Our transport problem thus becomes largely a matter of traffic control in the metropolitan centers. Road congestion is worse than no roads at all. One of the chief factors in the collapse of France was the overrunning of her roads by fleeing civilians. Her military forces were often stalled because of the vast throngs of people and carts and luggage that swamped the roads. If this kind of thing can occur along open highways, imagine what would happen to a convoy caught in a traffic snarl in a panic-stricken city.

#### TRAFFIC CONTROL

Recent experiments in motor marching through cities have led to two methods of traffic control. In one of these methods, that most used to date, the motor march enters a city along a designated route, and is conducted by a detail of military police plus the regular metropolitan force. These facilities expedite matters greatly, but the motor march still moves at a slow rate, gaps develop, and

accidents are likely to occur because of confusion in civilian traffic.

#### AREA CONTROL

A better method now coming into use is area control. In this operation, civilian traffic is blocked off from certain areas entirely and the motor march is allowed unimpeded progress throughout the region. Progress is smoother and more rapid, gaps are eliminated, and the burden of police control is lightened. Despite the blocked off area there is less dislocation to traffic than in the case where a motor march mingles with it.

Civilian morale and cooperation are vital parts of modern war. City dwellers, particularly during motor march operations and evacuations, become almost an integral part of the armed forces. Many of our largest cities are concentrated along the East Atlantic coast, and a defending army will have to move at will and with the utmost dispatch through any of them. Civilians must cooperate with the military authorities to make area control a fool-proof, efficient procedure.

Successful mechanized war depends on the smooth cooperation of every participating element, and this is only attained by skill and practice. So intricately interdependent are all the elements that a foolproof, swift method of transporting troops and supplies through cities must be found. Area control for mass motor movements, rather than traffic control, seems to be the answer.

### MOTOR MARCHES AND MANEUVERS

continued from page 157

figured on the basis of ten square yards per man and 150 square yards per vehicle, for a one night camp and fifty square yards per man and 300 square yards per vehicle, for a semi-permanent camp.

Should claims arise after a maneuver, refer to AR 30-1430.

#### SPARE PARTS DURING MARCH

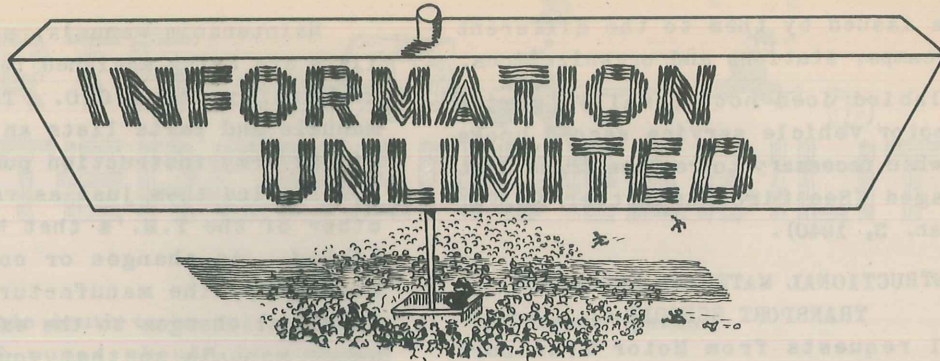
During marches, one officer, who is authorized to purchase motor vehicle spare parts not carried with the column, and

other similar items, should always bring up the rear of the column. If both the S-4 and MTO are on other duties, some officer at the rear of the column should be given funds, proper vouchers, and blank forms so that the necessary items can be purchased.

In case of motor vehicle accidents on the march, refer to par. 17, AR 850-15.

In case it becomes necessary to place personnel in civilian hospitals or to procure civilian medical treatment, see pars. 3 a and 3 k, AR 40-505.





Way back in March, a Circular Letter, Number 37, came from the OQMG containing a lot of miscellaneous information on various subjects.

Paragraphs #3 and #9, however, were of considerable importance to all maintenance and operating units.

Paragraph #3 says that all officers and units of the Quartermaster Corps under the jurisdiction of the Corps Area Commander should apply to their respective Corps Area Headquarters for necessary publications such as Army Regulations, War Department Circulars, OQMG Circulars, Contract Bulletins, etc. However, each Corps Area Commander is charged with distributing Army Regulations and other publications which do *not* solely concern Quartermaster Corps, to all personnel, organizations and activities within the territorial limits of the Corps Area. Only officers of the Quartermaster Corps who are exempt from command of the Corps Area Commander and who are not stationed on a camp, post, or station receive publications directly from the OQMG.

#### MOTOR TRANSPORT SCHOOL TEXTS

are published by the Technical Service Division for the Motor Transport School at Holabird. Most of these texts have been issued as technical manuals, but those that haven't are distributed to the field upon request submitted direct to the Commanding Officer, Holabird Quartermaster Depot. Such requests should indicate the number and state briefly the purpose for which they are desired. Requests for a number of sets of these texts greater than three per company, or five per battalion, or fifteen per regiment should give specific reasons for the greater quantity desired.

#### MOTOR TRANSPORT TECHNICAL SERVICE BULLETINS

are normally distributed in the quantities indicated above. Requests for these bulletins should be sent to the Commanding Officer, Holabird Quartermaster Depot, through the Corps Area concerned, in order that subsequent changes may be properly distributed. These changes are mailed from time to time by the Holabird Quartermaster Depot and are distributed to each Corps Area (and department), who distribute them automatically to holders of the bulletins. Copies of the bulletins issued to students should be retained by the school when the students leave. Students have no way of getting changes, and without changes the bulletins are soon obsolete. At the same time Holabird issues the changes directly to maintenance units --- so that those most concerned are sure to get them one way or the other.

#### MOTOR VEHICLE SERVICE RECORDS

QMC Form #248 are prepared at Holabird to include information common to all vehicles, from data supplied by vehicle manufacturers. These service records are then shipped to the various Quartermaster Motor Supply Depots, the number being based on the total number of vehicles of the various types shipped to each of these depots. Depot Commanders will complete these records to include U.S.A. numbers, serial numbers and other data pertaining to the actual assignment and will issue the records with the vehicles.

Each Quartermaster Motor Supply Depot, in turn, is charged with the responsibility of distributing a properly completed motor vehicle service record for each specific



vehicle issued by them to the different posts, camps, stations and organizations.

Holabird does not normally furnish blank motor vehicle service record books except when necessary to replace those lost or damaged (See Circular Letter No. 2, OQMG, Jan. 3, 1940).

#### INSTRUCTIONAL MATERIAL FOR MOTOR TRANSPORT SCHOOLS

All requests from Motor Transport Schools for such manufacturers' instructional and training material as Motor Vehicle Maintenance Manuals and Parts Lists for 1940 and 1941 vehicles, which have been assigned technical manual numbers, should be sent to the Adjutant General's Office. Check with FM 21-6 "List of Publications for Training" for the latest technical manuals. Manuals and Parts Lists for vehicles before 1940 (which have not been assigned technical manual numbers) Motor Transport School Texts, Quartermaster Corps Motor Transport Technical Service Bulletins, etc., should be requested from the Commanding Officer, Holabird Quartermaster Depot, Baltimore, Maryland. Each request from Motor Transport Schools for instructional material should contain explicit and detailed requirements, as titles of publications, number required, purpose, size of classes and other pertinent information.

#### MANUALS AND LISTS

Maintenance manuals and parts and price lists are produced by the manufacturer of motor vehicles in accordance with the terms of the procurement contract and its specifications. One copy of each will normally be shipped with each vehicle. If, due to unforeseen conditions, the production of the maintenance manual is delayed, it will be delivered later through the Motor Supply Depot concerned. In this case, each vehicle will have with it a brief instruction sheet covering important details of servicing before placing it in operation. In addition to the original vehicle distribution, Quartermaster and Ordnance Maintenance Units will receive copies of the Maintenance Manuals and Parts Lists automatically from Holabird.

Maintenance manuals, parts and price lists are being assigned technical manual numbers by the A.G.O. This makes the manuals and parts lists an integral part of the Army instruction publications and you'll find them just as valuable as any other of the T.M.'s that have been published. As changes or corrections are necessary, the manufacturer will issue numerical changes to the existing maintenance manuals so that you will be kept constantly up-to-date on all phases of maintenance. Changes to maintenance manuals and parts lists are sent to the Motor Transport Supply Depots. These notify the Corps Areas that changes are available, and holders of the originals are circularized to request them. *All replacement manuals and those required by schools for instructional use must be obtained from the A.G.O.*

Another idea is being worked on: to place the appropriate technical manual number right smack on the vehicle nomenclature plate inside the cab. If a manual or parts list is lost, you can write direct to the A.G.O. and quote the Technical Manual number when asking for replacement. You won't have to know the serial number, model number, chassis number, or anything else -- just the T.M. number.


#### SENSIBLE DISTRIBUTION SET-UP

So, you see, there's a pretty sensible set-up to control the distribution of motor transport literature. The Technical Service Division here has received so many inquiries and requests for information and material that we begin to think that Circular No. 37 has spent most of its time in the bottom of a filing cabinet. THE 'AM is always pleased to answer any questions and try to help solve problems on maintenance and operations, but we don't feel that we should act as intermediaries when there are adequate official channels that can be used.

\* \* \*

Learn the ropes, keep in touch with THE 'AM, write us when you want to, and you'll find that most of your troubles are down the drain.





# PARTS INTERCHANGEABILITY

"We hold this truth to be self-evident, that all fuel pumps should be created equal....."

We don't intend to be blasphemous, but the above nicely illustrates a decision reached by Motor Transport Engineers late in the spring of 1940.

All fuel pumps should be created equal, all ignition systems should be created equal, all batteries, spark plugs, windshield wipers, oil filters - should be created equal.

Interchangeability of parts is to be the watchword - especially high-mortality parts. Standardization to make a unit fit all vehicles alike, so that a fellow won't go mad with two dozen different kinds of parts in his hand and none to fit the particular truck he's working on.

Heretofore, it's been sixteen different kinds of starting motor in a third echelon's chest - yo-ho-ho and a bottle of alkaseltzer for the poor guys trying to see if any one of them will fit. Practically no standardization.

It all goes back to the commercial field where each vehicle manufacturer distinguishes his product by making it different down to the smallest detail. These last few years, with things in such a rush, the Army couldn't do a thing about it, only take what it could get, to benefit from existing speedy assembly lines.

In the days of the escort wagon, the Army called the tune - specifications went out from headquarters and wagons were built accordingly, by whatever manufacturer. The result was peas in a pod. An axle on a wagon in Tuckahoe, N. Y. would fit on a wagon out in Kokomo, Ind. Sure as death and taxes.

More recently, we've had a carnival of

"different" parts.

But a new day dawned June 11, 1940. On that happy day the Quartermaster General accepted an offer from the Society of Automotive Engineers. Committees with wide knowledge of the motor industry were placed at the Army's disposal, to study and offer recommendations on possible standardization.

The effects of this worthwhile arrangement are already apparent on vehicles now a-building on current contracts. Late model trucks that take the field in the fall maneuvers, will feel the first kindly benefits.

The following catalogue of interchangeable parts in the high-mortality brackets, is a result of the SAE-Army cooperation.

## IGNITION SYSTEM

From now on you will find only two ignition systems in Army vehicles: Delco-Remy and Autolite. Generally speaking, the two systems are not interchangeable, but units between the two systems are. The ignition coil, generator and regulator can be interchanged as a whole between systems. That is, a Delco-Remy generator will fit on an Autolite system and vice versa. But the inside parts of the Delco-Remy unit cannot be interchanged with the inside parts of the Autolite unit. You've got to go the whole hog.

All ignition systems will be of 6-volt potential.

There will be a 6-volt starting motor on 1/4, 1/2, 1-1/2 and 2-1/2 ton trucks.

On trucks of four tons and over, there will now be a 12-volt starting motor with two 6-volt batteries to supply the current. A series parallel starting switch is used to put the batteries in series (yielding



twelve volts) for starting, and in parallel (yielding six volts) for the remainder of the system. All future vehicle procurements will specify that ignition systems be negative grounded instead of positive as in the past. This is to provide for possible radio installations.

#### BATTERIES

There will be two types of batteries. The "2H" dimensions, the smaller of the two, will be used in passenger cars, 1/4 ton and 1/2 ton vehicles.

The "4H" dimensions will be used on 1-1/2 and 2-1/2 ton vehicles. On vehicles of four tons and over with a series parallel starting switch, two 4H batteries are used.

4H and 2H batteries are not interchangeable except that in a pinch, the 2H may be fitted into mountings intended for the 4H by the use of wooden blocks.

#### FUEL PUMPS

There will be two types of fuel pumps: one, the "inverted bowl" type as used on the Bantam, Willys, Ford, Chevrolet, and G.M.C. Any of this type may be interchanged with any other of the species - except for the rocker arms. The body covers and any part except for the rocker arms, can be switched about.

Type two of the fuel pumps will be the standard pump with 1/4 inch openings as used on Dodge, Studebaker, Diamond T, Auto-car, Mack, White and Corbitt. With the exception of the rocker arms the parts of this type may be interchanged one with the other.

On both types one and two, a metal sediment bowl now available, may be substituted for the present glass bowl.

#### OIL FILTERS

There will be two kinds of oil filters: the "junior" and the "military standard." These filters are entirely interchangeable within their respective classes - as are their component parts.

#### WINDSHIELD WIPERS

There are two kinds: vacuum and air. The vacuum wipers now have two types of

arms: hinged (or knee) and straight. All parts of each are interchangeable within the family.

The same holds for the air wiper which has only the knee type of arm.

#### TACHOMETER KEY

There will be one series of tachometer key: the H-800. This will enable the harried truck master to unlock all the tachometers in his fleet with a single key. This is a different series from the H-700 Ignition key, thus preventing unauthorized tampering with the tachometer.

#### REAR VIEW MIRRORS

All parts of both inside and outside rear view mirrors have been standardized except the mounting bracket. The Dodge 1/2 ton is the only exception - the arm used on this is too short to be interchanged with any other kind of arm.

#### RADIATOR CAPS

Due to the rough going military motor vehicles are expected to encounter, a pressure type of cap will be furnished to prevent spilling over from the radiator. One cap will fit all types of vehicles.

#### GASOLINE TANK CAP

This is a pressure type of cap with an inside cam. The pressure feature builds up a pressure in the fuel tank thus eliminating "vapor lock" which occurs when a heavily loaded truck ascends steep hills in low gear or follows foot troops in hot weather. One cap for all trucks.

#### RADIATOR DRAIN PLUGS

Weather head No. 145-1/4" IPT or No. 270-3/8" IPT have been selected as the two basic plugs to be used for draining radiators.

#### GASOLINE TANK OUTLET FITTINGS

On trucks up to and including 2-1/2 tonners, 5/16 size tubing with inverted flared fittings will be used. On vehicles larger than 2-1/2 ton or vehicles equipped with air brakes, 3/8 size tubing with long vent compression type fittings, inter-



changeable with air brake system will be used.

#### GASOLINE TANK DRAIN PLUG

A 1/4 pipe plug either recessed or with a square head will be the thing for this and many other seasons to come.

#### AIR BRAKE HOSE FITTINGS

Fittings of the replaceable types will be used to facilitate repairs in the field when shop equipment is not available. This way the lines themselves won't have to be monkeyed with.

#### CHASSIS LUBRICATING SYSTEM

All fittings are made according to specifications and are interchangeable regardless of make.

#### AIR BRAKE TUBING

To make replacements easy, with practically no shop equipment at hand, air brake tubing will be of dead-soft, annealed copper.

#### PANEL LAMP SWITCHES

This switch will be push-pull, two position, "off" and "on."

#### FOOT DIMMER SWITCH

The mountings of this switch which is used to control the headlight beam, will be the same on all late model vehicles.

#### PANEL INSTRUMENTS

All instruments on the panel are round with "keys" or "pins" to keep them in line. A "yoke" arrangement holds them tightly in place. It will be necessary to drill only two size holes in the dash. All gauges will fit the small holes and the speedometer and tachometer will fit the larger holes.

Instruments are individually mounted and directly lighted.

#### AIR OPERATED SPOTLIGHT SWITCH

This will have 1-1/4 mounting bracket hole spacing with 9/32" diameter holes;

1/8" female pipe connection with No. 10-32 connection studs.

#### HORNS

A single, laminated motor vibrator horn will be used on the 1/4 ton to 2-1/2 ton trucks. On trucks larger than 2-1/2 ton with hydraulic brakes, a "euphonic" or air-electric horn will be used. On full air brake systems an air horn will be used.

The horn mountings are interchangeable within the species.

#### REFLEX REFLECTORS

The two types of reflectors that will be in style are the "individual marble" type, and plastic. The mounting holes are spaced 3-15/16 inch for interchangeability.

#### HYDRAULIC STOPLIGHT SWITCHES

A stoplight switch with a 1/8" male pipe thread will be used. The operating pressure will be between 40 and 110 pounds. A standard has been adopted for terminals of the "snap" type with male terminals mounted on the switch, and a wire harness with female sleeves attached to it.

#### SPARK PLUGS

All engines will be tapped for either ten or fourteen mm size spark plugs. Except, of course, for motorcycles.

#### WATER TEMPERATURE INDICATOR CONNECTION

This connection is to be of the 1/2" pipe tap size on all military vehicles.

#### OIL PRESSURE GAUGE CONNECTION

This will be 1/8" pipe tap.

#### GASOLINE INLET CONNECTION AT CARBURETOR

On all vehicles up to and including the 2-1/2 ton capacity, the 1/8" pipe tap size will be used. On vehicles with a load rating over 2-1/2 tons, a 1/4" pipe tap size will be used.

#### OIL FILLER AND BREATHER CAP

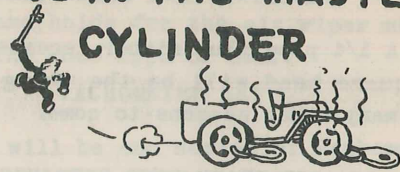
On all vehicles, if this part is removable from the engine for service, it will be securely fastened to the engine

(continued on Page 173)



# LOCKED BRAKES

## THE TROUBLE MIGHT BE IN THE MASTER CYLINDER



A little birdie tells us that there's been some trouble with the brakes locking on the 2½ ton GMC (ACKWX and CCKW, 6x6) trucks. For the information and guidance of all concerned, including the little birdie, here's a way to shoot the trouble. First make these routine checks:

Check the clearance between the shoes and drums on all wheels. Clearance should be .020 at the toe and .010 at the heel of the shoes.

Next see that the vent in the master cylinder filler cap is not plugged. Fill the master cylinder with fuel if it needs it.

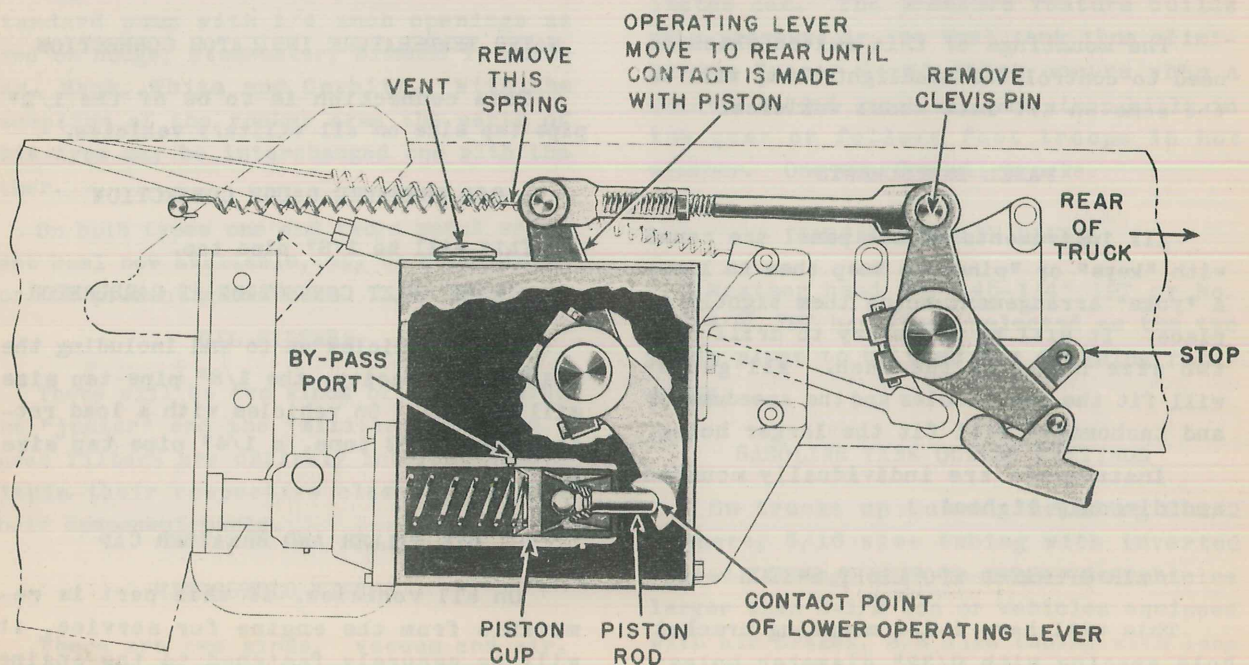
Now if your brakes are still locking, the trouble is probably more deeply seated. Take the accompanying diagram in hand and come with us to the heart of the brake system.

Look at the cut away section of the master cylinder shown in the diagram. Notice that the piston cup is drawn back so that the by-pass port is uncovered. That's the

way it should be. When you put your foot on the brake, this piston cup goes forward, compresses the fluid in the brake lines and you stop on a dime. When you take your foot off the brake, the piston cup is pushed back by the return spring so that the by-pass port is uncovered. This lets the brake fluid in the lines relax. The fluid spreads out through the by-pass port into the master cylinder and the pressure is off.

But how about if the piston-cup doesn't clear the port? What if that little piston-rod is prevented from moving back far enough so it holds the piston-cup over the port? Then the brake fluid can't stretch out and release its pressure into the master cylinder. Result: The pressure remains in the lines and your brakes drag.

Further pressure is built up in the lines by fluid that seeps over from behind the piston-cup when you pump the brake pedal. The piston-cup acts as a check valve - preventing the fluid from seeping





back the way it came. The only escape is by way of the by-pass port. And that's closed.

Well, what prevents the little piston-rod from moving back far enough (thus holding the piston-cup over the by-pass port)? Answer: The lower arm of that operating lever. There's your villain.

Push the lower arm of the operating lever back and happy days are here again.

It's a problem in linkage adjustment, fellas. Let's roll up our eyelids and go to work (follow the diagram closely):

First we'll have to free that operating arm. Then we can adjust it to give clearance to our little piston-rod. We take the spring off it and remove the clevis pin at the rear of the lever rod (above the bell crank).

Now we can move the operating arm back and forth freely. Let's move it toward the rear until we can feel it touching the piston-rod - then move it forward 1/16 of an inch - giving sufficient clearance between the piston and the lever.

The piston-cup will now clear the by-pass port and the fluid in the brake lines will be able to dissipate its pressure into the master cylinder and your brakes will stop locking.

All we have to do at this point, is tighten up the linkage so our new clearance will stay put. With our operating lever held firmly in position as described above, and the bell crank against its stop, we adjust the length of the lever rod by turning the yoke on the rod. When the adjustment is correct the clevis pin that we removed, will slip freely into place and complete the linkage.

As you can see, we have moved the lower arm of the operating lever away from the piston-rod so that it will allow the piston-cup to return enough to clear the by-pass port.

O.K., fellas, the job is done, but before you put on your hat and go home, check and see that all the pin connections of the linkage are free, in alignment and well lubricated.

There's a good boy!

## PARTS INTERCHANGEABILITY

(continued from Page 171)

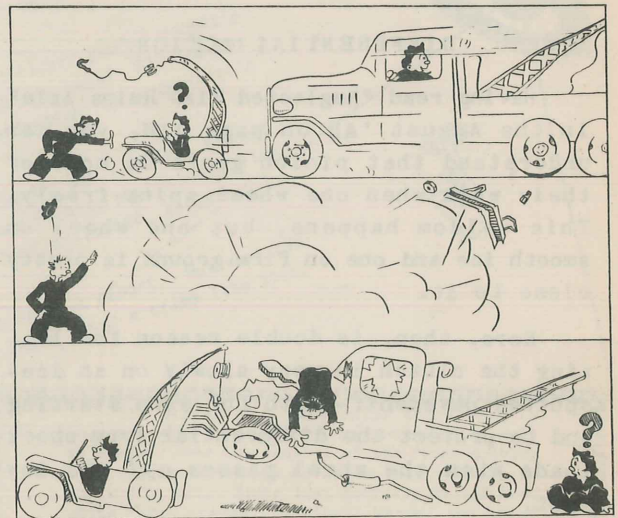
with a chain or some such device, to prevent loss.

### OIL PAN DRAIN PLUG

This will be 7/8"-18 NF right hand thread type with the head either recessed or protruding.

What you've just read represents only the spearhead of the coming army of interchangeable parts. There'll be a heart-lifting flood of them pouring off the assembly lines and into the rapidly closing gaps in America's defense lines.

On your mark, soldier, get ready and set to - keep'em rolling!



WHEN IS AN ACCIDENT NOT AN ACCIDENT?

When it's a-voidable!



# DIFFERENTIAL FAILURES ELIMINATING CAUSE AVOIDS CURE

When you first discovered what a differential is and does, you were probably amazed at the ingenuity of the device. It is even more amazing that they give so little trouble in return for the brutal treatment they usually get. The following prescriptions for their ills should be good medicine for your truck differentials.

When a vehicle takes a curve, the outer driving wheel travels farther and faster than the inner driving wheel. If both these wheels were rigidly connected to the same axle shaft, the inner wheel in making a turn would slide a distance equal to the difference in the length of the paths of the two wheels.

The differential which prevents this is, therefore, an automatic device which permits the driving wheels to revolve at unequal speeds by dividing the propelling effort between them.

## DIFFERENTIAL ACTION

Having read "Neglected Tire Ruins Axle" in the August 'AM on page 116, you can understand that pinion gears do most of their work when one wheel spins freely. This seldom happens, but one wheel on smooth ice and one on firm ground is pretty close to it.

Here, then, is double reason for letting the clutch in very slowly on an ice-spotted pavement:- Both for sure starting and to protect the differential from shock loads when the wheel passes *off* the icy spot.

When differentials fail, it's usually due to:

1. Insufficient lubricant.
2. Improper lubricant.
3. Long, continuous operation of the

differential with one wheel spinning.

#### 4. Unequal tire pressure.

Differential cases generally fail when the differential support bearings are out of place because of loose case bolts. Extreme overloading and erratic clutch operation cause loose bearings and excessive ring gear thrust block clearance which bend the case.

When the differential case bolts get loose, the two halves wear against each other and eventually result in a breakdown.

Differential case bolts must be checked frequently and tightened when necessary. When they become loosened, they will stretch or break. They in turn will cause the two halves of the case to separate. When the case halves separate, the gear teeth fail to contact and --- blooie, you need a new differential.

## SCORING AND BINDING ALSO RESULT

When the pinions on the differential spiders are overworked and underlubricated, they will score and, if sufficient heat is generated, they may actually weld together. This is most frequently caused by wheel spinning. Off-the-highway service under excessive loads in bad weather and on ice covered pavements, accounts for the majority of this trouble.

Such operation also produces wear of the differential and pinion thrust washers. Unless badly worn washers are replaced, excessive wear will destroy normal tooth contact between gears and pinions. This condition is accelerated by an inadequate supply of lubricant or by the wrong grade of lubricant. When normal gear tooth contact is destroyed, contact area shifts



to the outer ends of the gear teeth, increasing the bending stress and inviting plenty of trouble.

Remedies for these conditions are simple. Use enough of the right kind of lubricant in the differential and keep the lubricating channels free from obstructions. Avoid excessive loads, avoid wheel spinning, and check tire pressure every day.

TOOTH BREAKAGE

Gear failures due to fatigue and shock are the result of overloading, erratic clutch operation, ice spotted pavements, careless vehicle operation and sloppy maintenance. Gear failures start with a fine hairline crack at a point near the base of the tooth. The crack gets wider with each overload, until finally it breaks. The speed with which the crack progresses depends upon the number of overloads.

To avoid gear failures at the splined

section, check the alignment of axle shafts frequently and watch closely for any deflection of the axle housing. Correct this condition immediately by aligning axles.

CAUTIONS

Remember that differential pinions are not made to render constant service. Remember that every shock to the axle shaft is transmitted to the pinions and side gears of the differential. Remember to provide sufficient tooth bearing surface between pinions and side gears by proper and frequent adjustment. Remember to provide the right amount of the right kind of lubricant at all times. Remember to drive the vehicle carefully and avoid overloading.

Because, remember, when that baby of yours gives up the ghost out in the middle of nowhere; brother --- it won't be funny to walk back.



DIPSY DOODLE DEPT

Who's responsible for reports like the one below --- which come pouring in here almost every day?  
The responsibility lies with the Motor Officer, you'll probably say --- but don't you think it goes even farther back? All the way back to the officer giving the driver his examination for an Operator's Permit?  
Operator's Permits aren't meant to be handed out like free tickets to a church supper. When you give someone a Permit, you're entrusting him with several thousand dollars worth of equipment, which can be ruined quicker 'n a wink.  
We started writing an article to cover this report. But what can you say in an article that would adequately cover a crime like this:



"The driver of a particular truck that is equipped with an auxiliary transmission as well as a gear lever for control of the front driving axle did not know how to drive this vehicle in any way at all. Since last February he had been using three speeds --- first, second and third --- and he did not know how to use the auxiliary nor did he know how to use the front wheel control. He did not even know how to find out the oil capacity and on checking, our inspector found practically no oil at all in the engine."





# HOT OFF THE WIRE

GIVE UP? "MOTOR MARCHES AND MANEUVERS" IS CONTINUED ON PAGE 166.

LINKERT CARBURETOR TOOLS INCLUDED IN THE SPECIAL TOOLS FOR HARLEY-DAVIDSON MOTORCYCLES, CAN BE USED ON THE MODEL 45 INDIAN MOTORCYCLES, WHICH ALSO USES THE LINKERT CARBURETOR.

PLENTY OF Z-5'S ARE COMING IN HERE WITH ALL INFORMATION EXCEPT THE NAME AND ADDRESS OF THE ORGANIZATION.

TO BE SURE YOU DON'T ACCIDENTALLY QUENCH YOUR THIRST WITH A SWIG OF HI-OCTANE "JEEP JUICE," BE SURE TO MARK YOUR 5-GALLON WATER CANS ACCORDING TO OQMG CIRCULAR LETTER 209, AUGUST 20, 1941.

MANUFACTURERS ARE IN URGENT NEED OF VITAL METALS LIKE TUNGSTEN, NICKEL, ETC. BE SURE ALL OLD IGNITION PARTS AND SPARK PLUGS GO TO SALVAGE INSTEAD OF SCRAP HEAP AND ARE SOLD IMMEDIATELY TO SMELTERS AND REFINERS. SEE OQMG CIRCULAR LETTERS NO. 180, JULY 31, 1941 AND 194, AUGUST 7, 1941.

NEW PAPER STENCILS AND MUCILAGE FOR NUMBERING ARMY VEHICLES CAN BE PASTED FLAT AGAINST THE SURFACE. THEY REPLACE THE OLD BRASS STENCILS. REQUISITION BY FOLLOWING STOCK NUMBERS FROM ALL DEPOTS AFTER OCTOBER 22:

For 2 Inch Letters and Numerals  
 U S A.....53 - S - 5241  
 W.....53 - S - 5242  
 Numerals 0 to 9...53 - S - 5240

For 4 Inch Letters and Numerals  
 U S A.....53 - S - 5246  
 W.....53 - S - 5247  
 Numerals 0 to 9...53 - S - 5245

THE "ADHESIVE STICKUM" USED WITH THE STENCILS IS AVAILABLE IN GALLONS AND QUARTS. A STOCK NUMBER HAS NOT YET BEEN ASSIGNED TO IT - ORDER BY DESCRIPTION WITH RELATION TO STENCILS.

FLASH FROM THE OQMG TO HOLABIRD SEPTEMBER 11: ACTION HAS BEEN TAKEN BY THIS OFFICE TO HAVE THE ITEM OF CANS, OIL, 1-GALLON, STOCK NUMBER 42-C-3805 ELIMINATED FROM TABLES OF BASIC ALLOWANCES: THIS ITEM SHOULD BE CANCELLED ON ALL BACK ORDERS AT YOUR DEPOT. INSTRUCTIONS WILL BE ISSUED TO THE FIELD THAT IN LIEU OF THE CAN, OIL, 1-GALLON, LUBRICANTS MAY BE PURCHASED IN PACKAGED CONTAINERS TO BE CARRIED AS A RESERVE ON MOTOR VEHICLES.

AFTER FEATHER EDGE HAS WORN OFF THE LEAVES ON GMC TRUCKS, THE SPRINGS MAY SETTLE AND LOOSEN SPRING CLIPS. AFTER TRUCK IS IN SERVICE, TIGHTEN FRONT AND REAR SPRING CLIPS WITH VEHICLE LOADED. USE 24" SOCKET WRENCH WITH A 12-POINT SOCKET. CHECK THE CLIPS REGULARLY.

DON'T LET WATER REMAIN IN NEW 5-GALLON WATER CANS (W) FOR A LONG TIME. THEY SHED A POISONOUS DEPOSIT. RINSE AND DRY THEM THOROUGHLY BEFORE STORING.

THE FOLLOWING EQUIPMENT IS NOW AVAILABLE: ETCHER, ELECTRIC ARC (TOOL MARKER, PAGE 130, AUGUST 'AM) STOCK #41-E-30. BATTERY CHARGER (PAGE 92 JULY 'AM) STOCK #17-C-9820; FROM ALL SUPPLY DEPOTS FOR THIRD ECHELON SET #1. LOW VOLTAGE CIRCUIT TESTER (PAGE 92 JULY 'AM) STOCK #17-T-5575. FROM ALL SUPPLY DEPOTS FOR THIRD ECHELON SET #1. GRAVITY DISPENSING HOSE ASSEMBLY, MANHOLE LOCKS AND BAFFLES FOR ALL PRESENT 750 GALLON TANK TRUCKS, REQUISITION FROM FORT WAYNE; WATCH FOR FURTHER INFORMATION ON GAS DISPENSING DEVICES AND PROCEDURES.

KEEP WATER OUT OF TRUCK CABS. IT CAN DRAIN INTO THE STARTER SWITCH AND CORRODE THE CONTACT POINTS. KEEP STARTER PEDAL RETURN SPRING COATED WITH NO. 3 FIBER TYPE GREASE AT ALL TIMES.

DON'T USE THINNER TENT. SPEC. ES 3706 TO CLEAN PAINT OFF BLACKOUT LAMP LENSES. THESE LENSES ARE MADE OF LUCITE AND ARE STREAKED, CRACKED AND DISSOLVED BY THE THINNER. KEEP PAINT OFF LENSES BY MASKING.

SHEET METAL BREAKAGE AT THE SIDE OF THE COWL HAS BEEN REPORTED ON SOME OF THE DODGE 1940 WC 6, 7 & 8 COMMAND RECONNAISSANCE TRUCKS. GRATIS REINFORCEMENTS FOR THE COWL TO SIDE PANEL ARE AVAILABLE FOR THOSE TRUCKS NOT CORRECTED BY THE MANUFACTURER. A CONSOLIDATED REQUISITION FOR THIS PART SHOULD BE SUBMITTED TO THE QUARTERMASTER, WHO WILL REQUISITION ON THE MANUFACTURER FOR THE QUANTITY REQUIRED. VEHICLE U.S.A. NUMBERS AND SERIAL NUMBERS MUST BE STATED. THE MOTOR TRANSPORT SERVICE MANAGER OF YOUR CORPS AREA CAN ARRANGE FOR SIMILAR ASSISTANCE IN INSTALLATION. BREAKAGE OF A TRUCKS. REINFORCEMENTS FOR THESE SHOULD BE OBTAINED EXACTLY AS ABOVE. YOU SHOULD HAVE ONLY A VERY FEW "ORPHANS" THAT HAVEN'T ALREADY BEEN CORRECTED BY THE MANUFACTURER.



# digests-comments

CURRENT TECHNICAL MAGAZINES

## "AUTOMOBILE DIGEST"

August 1941

"Low Again -- Battery Water" - With winter only a wind or two away batteries will need stricter attention. This article gives some live tips on dead batteries.

### "Tune-Up Oils and Thermal Efficiency" -

A "Whodunnit" article that sleuths out the causes of engine deposits and recommends a cure.

## "FLEET OWNER"

August 1941

"Trouble Shooter's Department" - A monthly institution devoted to a discussion of various shop problems and hints.

## "MOTOR AGE"

August 1941

"Service Problems in War-Torn Britain"- Repairmen in Britain have had the task of keeping as many vehicles running as possible during the present emergency. A great deal of ingenuity is required to keep them rolling in the face of acute shortage of material, but these boys do it.

"Clutch Overhauling" - A step-by-step picture article on rebuilding the Long clutch.

"Voltage Control in Generator Service"- Here's a practical article dealing with the need to control generator output and the various devices used to achieve that end.

"Experts Study Lubrication" - Factory, operating and refining engineers offer varying opinions as to the causes of failures in high-output automobile engines.

"Shop Kinks" - Another department devoted to shop hints. This month's contains some good information on installing radiator hose.

## "POPULAR SCIENCE"

August 1941

This month's Popular Science is devoted in a large part to a report on defense production. Many valuable "Shop Kinks" also are included. -- An unusually interesting and informative issue.

## "COAST ARTILLERY JOURNAL"

August 1941

"Motor Marches and Maneuvers" - Here is a group of notes and references that will prove invaluable to regimental staff officers and those responsible for maintenance.

## "COMMERCIAL CAR JOURNAL"

August 1941

"New Light On Light Oils" - An oilman questions the use of light oils in summer and offers evidence that they promote sludge and lacquer.

## "NATIONAL SAFETY NEWS"

August 1941

"Traffic Safety for Defense" - "America's security and aid to democracies needs every man on the job." Here's a timely article on how we can make our homes, shops and highways safer.

## "INFANTRY JOURNAL"

August 1941

"Vehicle Spacing in Motor Columns" - Captain Warren S. Everett has tackled this old problem and comes through with a thorough discussion of motor column problems and some excellent suggestions and statistics. The section devoted to intra-column interference is particularly good. A "must" for the Transport Officer.





**THEY CALLED HIM**  
***SPEEDY* FOR SHORT**  
***but not for long!***