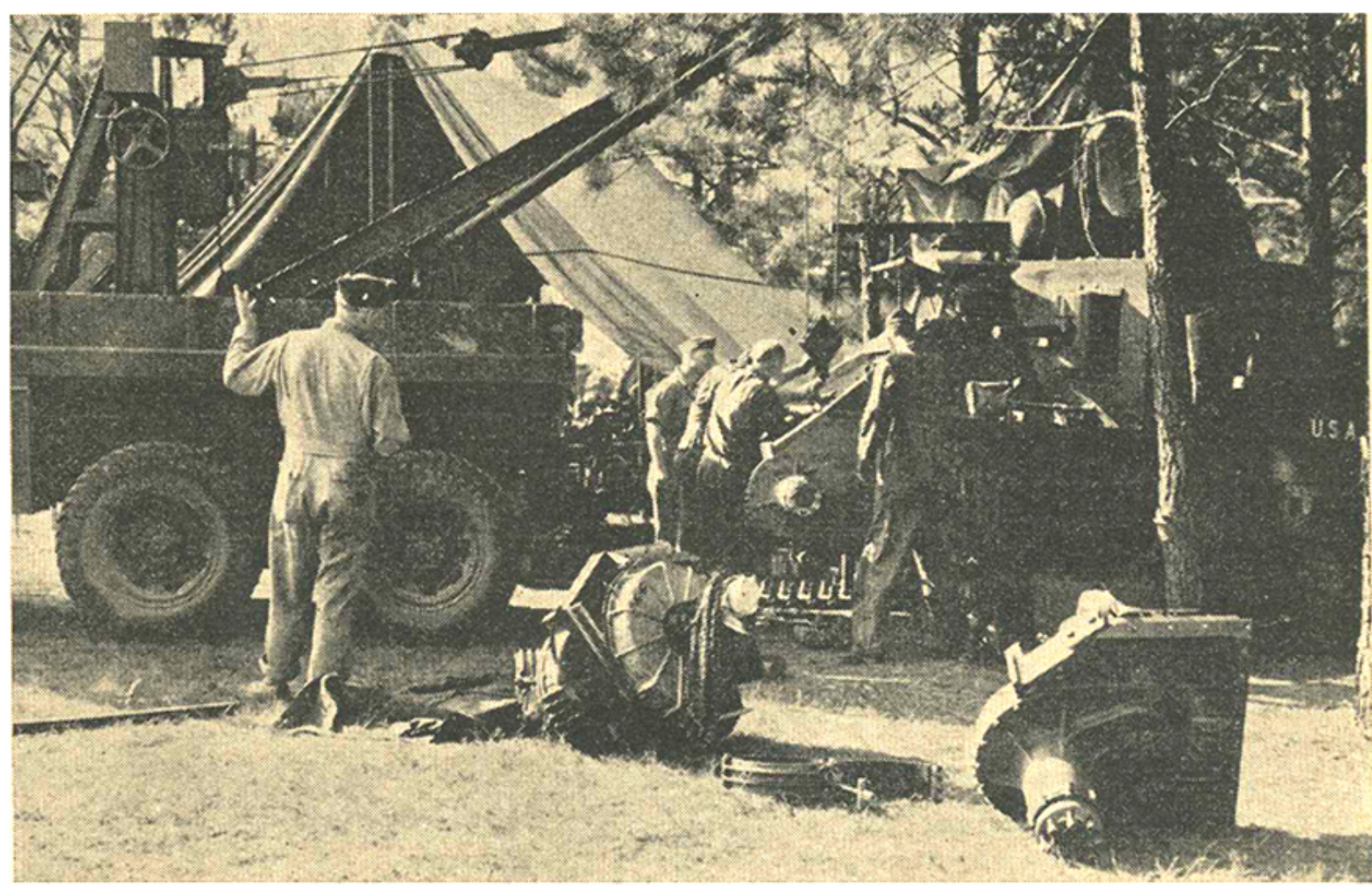


The March of Industry—

Keeping the Army on Wheels —Factories at the Front



TANK REPAIRMEN: Mars' mechanics from Main Street garages

How the mechanical forces function in maintaining and repairing equipment

XXIII—Front-line machine shops

Side by side with the fighting men who ride to battle goes an army of men who fight with tools and machinery, instead of guns and tanks. They operate beyond the glow of headlines—but without the aid of mechanics the Army's wheels would not roll.

That army of fighter-mechanics has grown in importance with the increase in the Army's dependence on motorized equipment. It now assumes the proportions of a full-sized industry in itself, with millions of dollars' worth of equipment, tens of thousands of men. American industry is building the equipment for it, helping the Army train its men.

This mechanical army is built to go right into the battle sectors. Base supply depots far behind the lines no longer are enough to keep an army running. Tanks, trucks, planes and motorized artillery require expert and frequent attention, wherever they go. The Army's industrial force must be on the spot to give it this attention. The job is to provide maintenance on the move.

At home. Bulk of the Army's mechanical work is done in the elaborate repair shops at main bases within this country. The Motor Transport Service of the Quartermaster Corps keeps the Army's immense fleet of trucks and noncombat vehicles in repair, ready to be issued to the using services, at supply depots and at field base shops.

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Ordnance Department uses arsenals for base repair shops, operates smaller ordnance stations at each post to repair combat vehicles and guns. The Air Service Command maintains large depots, stocked with spare parts and equipped to handle major overhaul and rebuilding jobs. From these depots replacements of parts and engines are flown by air freight to any continental post, when needed. Demands of this extensive service explain in part why the Army has first call on the civilian air lines for space.

Overseas. When an Army task force moves into a zone of operations across the seas, maintenance organizations show up in battle dress, with streamlined battle techniques.

Mobile warfare, coupled with the danger of air-borne attack, has made them front-line soldiers in every sense. They relied mainly on combat troops for protection in the past. Now they carry their own guns, including anti-aircraft weapons.

In the case of trucks, primary maintenance starts with the drivers. They make the roadside repairs any motorist might have to make in an emergency. Secondary repair work is done in camps by light maintenance companies. The companies have their own rolling machine shops, set up garages in the field, can replace engines, transmissions, other major units in a truck or car. Their mobile shops are equipped with welding tools, lathes, valve grinders, drills, battery chargers, other garage equipment. Far behind the front lines are the base shops, where wrecked vehicles are brought for complete rebuilding.

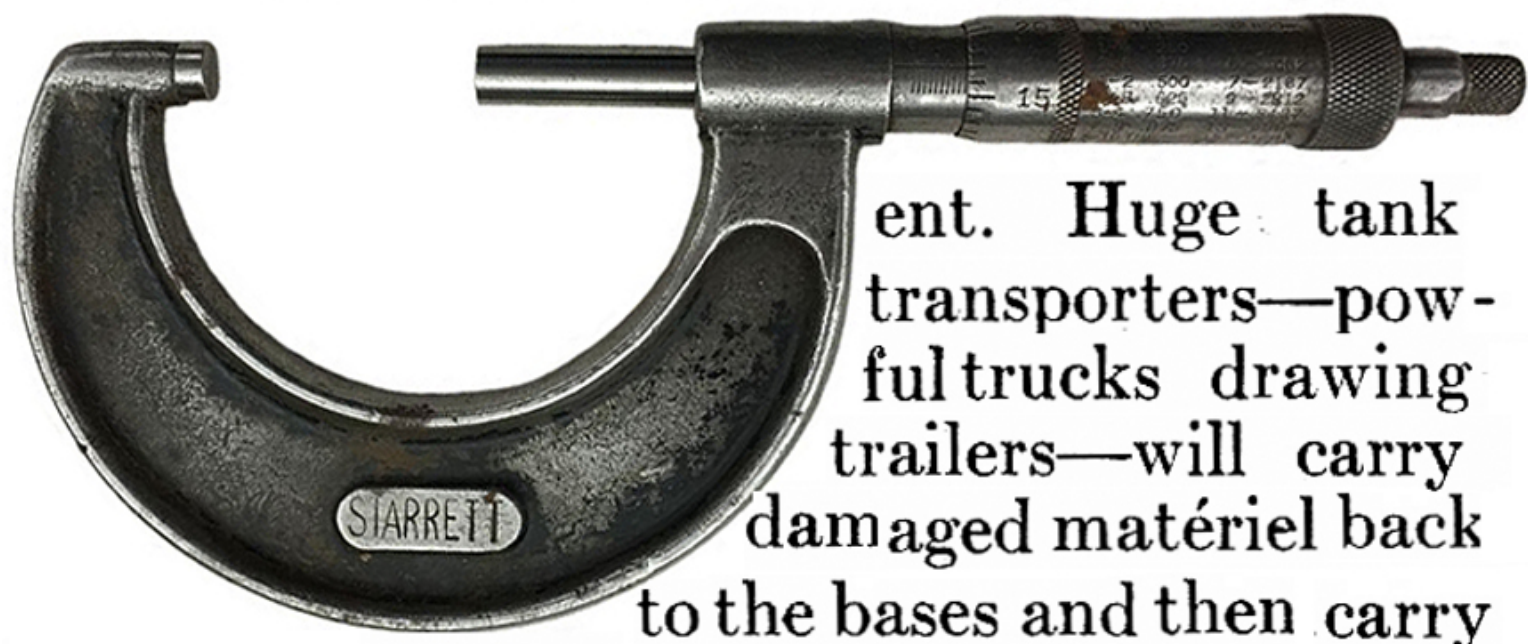
Ordnance maintenance units are severely tested under field conditions. They must keep the combat vehicles operating on the battlefield, repair all guns in quick order, from .30-caliber rifles up to 240-mm. howitzers.

Under the streamlined plan now used by the Army, certain units of ordnance mobile repair shops follow right along with the armored divisions, work within sound of gunfire. Their traveling shops can make primary repairs such as replacing lost or damaged parts.

British experience in Libya shows what good co-operation in repair can mean to an army fighting without much leeway in equipment. After fighting has died down in the battle zone, recovery sections speed out over the scene of action, picking up damaged trucks, tanks and guns. Wreckers and trucks tow and carry the crippled weapons back to the base for rebuilding, sometimes traveling as far as 600 miles over the jolting desert roads. Soon the reclaimed tanks and motorized weapons are back in the front lines.

Usually the British have driven their replacements from the base up to the fighting front. U. S. practice will be differ-

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ent. Huge tank transporters—powerful trucks drawing trailers—will carry damaged matériel back to the bases and then carry replacements to the fighting front.

In the case of tanks and half-track armored vehicles, this practice will save a considerable number of the precious military miles in each tank tread. That means a tank will arrive at the point of fighting with 100 per cent efficiency. In present-day mobile warfare, a few extra miles of operating efficiency may mean the advantage over the enemy needed to win a deciding action.

Aircraft maintenance follows the same general pattern as that of truck and ordnance repair. Each expeditionary Air Force—already they are scattered from Ireland to Australia—is accompanied by its own Base Service Command. It includes the mobile maintenance units which can shift from field to field in their own trucks. Working organization and methods were tested and perfected in the Carolina maneuvers last November.

The Marines gave a spectacular demonstration of what efficient ground service can accomplish in their stand against the Japanese at Wake Island. They lost seven of the twelve planes at the island's field in the first Japanese attack. The remaining five were damaged and eventually lost in subsequent actions. But by trading engines from plane to plane, stripping them, rebuilding them, and all but creating new planes from remnants of wreckage, the Marines kept enough fighters in the air to knock out a verified total of one Japanese ship, a submarine and five planes.

Getting equipment. Maintenance has had to expand in scope and complexity as the use of specialized mechanical equipment expanded. Design and manufacture of the tools and vehicles needed to keep maintenance even with matériel has been aided by co-operation between Army engineers and private companies.

Shortage of rubber called forth an outstanding example of industry's co-operation with the Army to solve a difficult maintenance problem. After Pearl Harbor, ideas about mobile tire retreading units that could accompany expeditionary forces into the field were hastily translated into designs. A committee of engineers from private companies worked with the Army to iron out details of the proposed units. Result is that now such mobile units are under construction, will play an important part in the Army's extensive rubber salvage and conservation program.

Getting the men. The Army's mechanics must be machinists, electricians, all-around experts to handle their complex equipment. Industry has launched training programs

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to help the Army train the thousands of men it needs for its industrial forces.

The Aeronautical Chamber of Commerce of America reports that some 40 plane and engine factories now are giving free training each month to several thousand Army Air Force mechanics, teaching them the details of engines and planes as they move down the assembly lines.

One of the country's largest manufacturers of electrical equipment is teaching Army and Navy men the care of radio equipment, searchlights, gun controls, airplane locators and similar devices.

Tire manufacturers have a program for Army men, increasing their knowledge of the care and repair of rubber equipment and including training in retreading and recapping tires. One automobile company operates 30 schools for officers and enlisted men, showing them the techniques for obtaining peak performance of vehicles in the field. Other companies send out specialists to Army posts to teach the ins and outs of truck maintenance. Still others lend their best engineers and technicians to the Army as instructors in mechanic-training schools. American industry is doing its part to "keep 'em rolling."

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