

The new Saddle tank "Austerity" locomotive, a simple and robust design developed from an industrial type. Photographs by courtesy of the Ministry of Supply.

## A Saddle Tank "Austerity" Locomotive

BRITISH locomotive firms have recently received orders from the Ministry of Supply for considerable numbers of "Austerity" 0-6-0 saddle tank locomotives. Through the courtesy of the Minister of Supply, who is responsible for this new design, we give photographs and a description of the first of these locomotives, which are notably straightforward and robust in design. Every opportunity has been taken to simplify construction and to avoid the use of materials in short supply.

The locomotives are capable of shunting trains of 1,000 tons, also of dealing with military trains and mixed traffic generally for short journeys. The design closely resembles that of a British locomotive builder's standard 18 in. cylinder industrial locomotive, many of the parts being interchangeable.

The design follows closely the heaviest type of industrial locomotive, modified to meet the more general work now in view. The inside cylinders, placed between the deep plate frames, give great strength and immunity from damage in the event of derailment or minor accidents. They have a diameter of 18 in. and a stroke of 26 in. The drive is to the second axle, and the slide valves, located

between the cylinders, are operated by a straightforward Stephenson's link motion, controlled by a hand reversing lever on the right side of the cab. The driving wheels have a diameter of 4 ft. 3 in. Their centres are of cast iron, with hardened steel crankpins pressed into them, and a notable departure in the interests of economy is the use of cast iron bushes in the coupling rods in place of adjustable split brasses. Steel castings have been reduced to an insignificant minimum, and simplicity has been achieved with success without sacrificing efficiency.

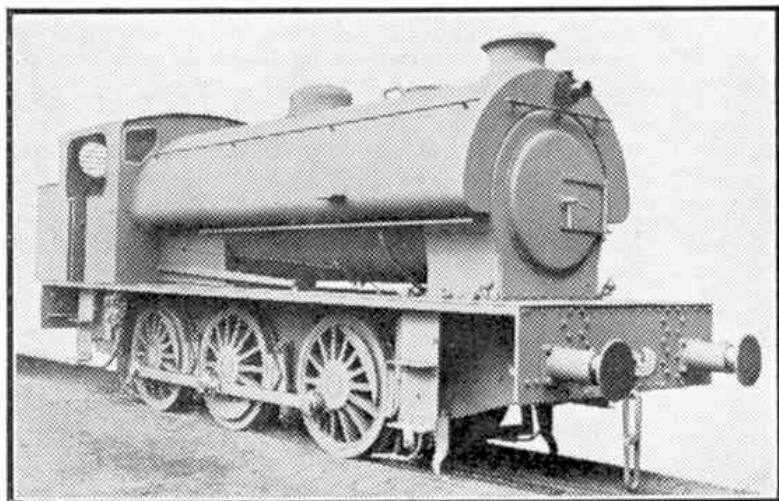
The parallel boiler barrel is constructed in two rings with inside (and outside) butt straps, all rivet holes being drilled, and steel rivets closed by hydraulic pressure. The fire-box casing is round topped, with a vertical backplate. The inner fire-box is made of copper and provides a grate area of 16.8 sq. ft. Steel boiler tubes are fitted, and clear waterways are provided, with numerous washout openings to enable the boilers to be kept clean under bad feed water conditions. Normal pattern cast iron firebars are fitted.

The fire-box heating surface is 87½ sq. ft. and that of the tubes is 872½ sq. ft., giving a total of 960 sq. ft. The boiler pressure is 170 lb. per sq. in. The tractive effort at 85 per cent. of the boiler pressure is 23,870 lb. The weight of the engine in working order is 48 tons 4 cwt. The coal bunker holds 2½ tons, and the water capacity is 1,200 gal.

Simplicity of maintenance and operation has influenced the selection of all fittings. The boiler is fed by two hot-water injectors, and the two safety valves are of the Ross pop type. Steam sanding is fitted and there are steam and hand brakes that can work together or independently on all wheels. The steam brake valve is arranged for operation from either side of the cab, as is the regulator.

The cab is roomy and is fitted with hinged windows front and back. It has ample side openings and a ventilator in the roof. The upper part of the cab is easily removed.

Welded construction has been widely used throughout the construction of these engines, for large and small units, including saddle tank, cab, coal bunker, ashpan and sand boxes.



Another view of the new engine. It is capable of shunting trains of 1,000 tons.