

# The Canadian Engineer

*A weekly paper for engineers and engineering-contractors*

## POWER INSTALLATION AT YORKTON, SASK.

DESCRIPTION OF CANADA'S FIRST OIL-ENGINE UNIT FOR MUNICIPAL LIGHT AND POWER DEVELOPMENT—STATION EQUIPMENT AND ARRANGEMENT.

**T**O the town of Yorkton belongs the distinction of having installed the first Diesel electric unit for lighting and power purposes in Canada. This installation was made during the winter of 1910-11. The plant consists of 150 b.h.p. Diesel fuel oil engine running at 240 r.p.m. and direct connected to a 3-phase alternator with belt-driven exciter. Since starting up in 1911, the plant has operated practically 19 hours per day and has given entire satisfaction.

Towards the latter end of 1912 and the beginning of 1913, it became expedient, owing to the great demand for lighting and power, to augment this small plant by a further installation. Consequently it was decided to build a power house and plant of the most modern type and at the same time make provision for future growth. The project was consigned to Messrs. Munro and Mead, local architects, and the town electrical engineer, Mr. M. M. Inglis, to carry out the work of designing and supervising the complete installation of both power house and plant. This work has now been carried out to a successful issue and the new plant was placed in operation on October 17th of last year.

The power house is 102 ft. long by 58 ft. wide, the offices and stores taking up 20 ft. of this length. It is of fireproof construction throughout with red tapestry brick and Indiana limestone facings outside, with pressed buff brick interior, steel sash, red quarry tile floor and reinforced concrete roof carried on I-beam purlins supported by steel roof trusses. An auxiliary roof of lumber with tar and gravel finish having an air space between it and the concrete roof, thereby preventing condensation of the concrete. The general contractors for the building were Messrs. Ritchie & Watters, of Portage la Prairie. The installation of the heating and plumbing were carried out by Messrs. Parrott & Byers, Yorkton, Sask.

Foundations for two 500 b.h.p. units have already been installed, but there is room for two additional foundations, thus making a total station capacity of 4 units.

**The Diesel Engine.**—The Diesel engine was built by Messrs. Mirrlees, Bickerton & Day, of Stockport, Eng., and was supplied and erected by their Canadian agents, the Böving Company of Canada, Limited, Toronto. The engine has run 20 hours per day since starting up and

exhaustive tests have been carried out to verify the fuel consumption and governor regulation guaranteed at all loads from 25% overload. In no case did the fuel consumption exceed that originally guaranteed by the engine makers. One very important feature is that the engine can be brought from rest up to full speed with full load in about one minute. No boilers are required, therefore no stand-by losses from that source affect the economy of operation.

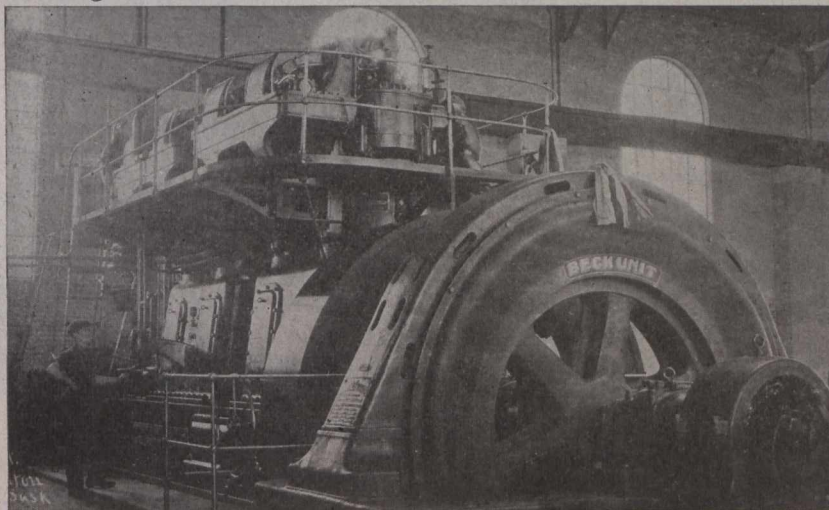


Fig. 1.—Interior View of Power House, Yorkton, Sask.

The engine is of the vertical 4-cylinder totally enclosed, forced lubrication type, and is capable of developing 500 b.h.p. when running continuously at the normal speed of 200 r.p.m. at sea level. It was guaranteed in addition to this to be capable of carrying 25% overload for 2 hours without injurious effects. The cylinders are single-acting and work on the 4-stroke cycle. The cylinder wall is of tubular construction pressed into the casting which forms the water jacket casing and is held in position, as well as the cylinder head, by studs. The valves are opened and closed by cams and springs respectively. Both the air, exhaust and fuel valve levers are in two parts, to facilitate the examination and replacing, when necessary, of the various valves. In addition, the fuel valve spindles are removable for inspection without removing the levers which operate them. The exhaust valve casings are all water-cooled.