

DORMAN 415 volt Generating Set

Technical History

This generating set comprises a DORMAN TYPE 6LB diesel engine coupled to a LANCASHIRE DYNAMO & CRYPTO Ltd. 415 volt alternator. The engine was made by W.H.DORMAN & Co. Ltd., Stafford, England.

The unit was donated to the Club by the Defence Support Centre, Woomera, and was installed at the Hesso water pumping station on the Pt Augusta to Woomera pipeline. It was part of the plant that provided water to the Woomera town and rocket range from 1957 to 1992.

The unit came with operating and spare parts manuals for the engine, but no information about the alternator and switchboard. From this information the following technical information has been extracted.

The L series DORMAN engines were a family of 4 stroke direct injection diesel engines (toroidal cavity in piston), all fitted with CAV "N" type fuel injection equipment.

The LA engines had a swept volume of 89.7cu.ins. (1.470 litres) per cylinder. Engines were made in 2,3,4,5, & 6 cylinder versions. The LB engines had a swept volume of 97.4 cu.ins. (1.595 litres) per cylinder and were made in 2, 3, 4, 5, 6, & 8 cylinder versions. The 6 cylinder LC engine had a swept volume of 115.3 cu.ins. (1.889 litres) and came either naturally aspirated or turbo charged.

The 6LB engine owned by the Club has specifications as follows

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| Engine No | 76840 |
| Horsepower | unknown |
| Bore | 125mm |
| Stroke | 149mm |
| Volume | 9.570 litres |
| Compression Ratio | 15.8:1 |
| Journals/Crankpins | 3 3/4 in.diam. |
| Main/Big End Bearings | Steel Shell, Copper-Lead lined |
| Pistons | High duty aluminium alloy |
| Piston Rings | Three compression rings, two scraper rings |
| Oil Capacity | 6 1/4 gallons |

Amongst papers supplied with this engine is a very faded "photocopy" of a report on a 9000hr. overhaul conducted at the Weapons Research Establishment (WRE), Salisbury, South Australia. Some of the comments that can be read include:

"The valve seats were undercut during this overhaul and I consider they will not last another 9000hrs.

Liners are in “as new” condition except for a step of .004” in the top quarter inch of the bore. This has been relieved by grinding.

Pistons & gudgeons in good condition. New piston rings fitted.

Bearings: Mains – originals refitted in good condition. Big Ends – clearances up to .008ins necessitating fitment of replacements.

A new water pump fitted, tachometer reset, gauges calibrated, filters serviced, and cooling system cleaned.

Electrical repairs: Slip rings, commutator and brushes cleaned & bedded in. Bearings checked and repacked. Windings cleaned & varnished.”

Working History

The origin of this generating set is not known. However, it is highly likely that it was exported from England as part of the development of the Woomera rocket range & nuclear testing facility. It was here in “outback” South Australia, that Britain tested rockets and bombs as part of its efforts to be a player in the Nuclear Club.

The packaged generating set was installed and operated at Hesso, a remote railway siding 53km north of Pt Augusta, South Australia, where a water pumping station supplied water for the Woomera township and facilities through a connection at Pt Augusta with the Morgan–Whyalla water pipeline. It is likely that it spent its working life there. The pumping station was decommissioned in 1993 and replaced with remote controlled packaged pumps.

Volunteers from the Club with assistance from the Australian Army, Defence Support Centre, Woomera, and other sponsors recovered the generating set together with one of the pumping engines, and pumps. It is in storage awaiting restoration and re-packaging in a manner that will facilitate demonstration and display