



# Engine Service Manual

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**Power  
Generation**

## X1.3 Engine

## FOREWORD

This manual is designed to be of assistance to all Personnel concerned with the maintenance and overhaul of the X 1.3 Series Engine.

It presents a complete and detailed Description of the Engine, together with precise instruction on servicing and overhaul procedure and dimensions which should be closely followed when overhauling any part of the Engine to the Manufacturers standards.

Effective maintenance can only be carried out if the personnel concerned are fully conversant with the various components of the Engine.

Before maintenance operations are commenced, this manual should be carefully studied, and it should at all times be kept where it will be needed in the workshop.

Thoroughly read the Workshop Manual before operating the generator set.

Safe operation and top performance can be obtained only when equipment is operated and maintained properly.

This manual is for guidance and assistance with recommendations for correct and safe procedures. Cummins Power Generation Limited cannot accept any liability whatsoever for problems arising as a result of following recommendations in this manual.

The information contained within the manual is based on information available at the time of going to print. In line with Cummins Power Generation Limited policy of continuous development and improvement, information may change at any time without notice. The Installers should therefore ensure that before commencing any work, they have the latest information available.

Consult your Authorised Distributor for further information or assistance if required. It is essential that the utmost care is taken with the application, installation and operation of any diesel engine due to their potentially dangerous nature. Careful reference should also be made to other Cummins Power Generation Limited literature, in particular the Health and Safety Manual 0908-0110.

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# Section A

## GENERAL INFORMATION

### SAFETY

The safety measures that always should be performed in order to avoid risks that is always present.

All servicing normally be carried out with the engine stationary.

Do not approach the running engine with loose cloth or long hair.

Be careful of hot surfaces.

Do not open the radiator filler cap when the engine is hot.

Avoid skin contact with oil, fuel or chemicals that can cause burn. Long term contact with oil can lead to the skin problem.

Run the engine only in a well-ventilated area.



**Note : One receipt of engine by truck, ensure unloading of the engine by skilled personnel. The Personnel have to use necessary personal protective equipment to avoid accidents. Engines are to be un loaded using the lifting hooks fitted on the engines. During the engine installation ensure proper fitment of Anti Vibration Mounting Pad.**

When lifting the engine use the lifting eyes that are fitted to the engine.

Never work alone when removing heavy parts.

When cleaning the engine with high-pressure water, never direct the jet at seals, rubber hoses or electrical components.

Always prevent diesel or oil from contacting rubber parts or tubing



**WARNING : Guarding should not be removed when the engine is is running condition.**



**CAUTION: Warns of a risk of injury, serious damage to the product or serious malfunctions could occur if the instruction is not followed.**

**Important:** Is used to draw attention to things that could cause damage to or malfunction of the product.



**Note : It is used to draw attention to important information to facilitate procedure or handling.**

### TOOLS AND MEASURING EQUIPMENT

Be sure that all necessary tools and equipments are available before starting work.

Use **special tools** where they are specified.

Never drop the tools

Use correct tools as specified.

### REMOVAL OF PARTS:

First find the cause of the problem and then determine whether removal or disassembly is required before starting the job.

### INSPECTION OF PARTS:

Each part when removed should be carefully inspected for malfunction, deformation, damage and other problems.

All disassembled parts required for reassembling should be carefully stored.

Ensure to separate and correctly identify the parts to be replaced from those that will be used again.

### CLEANING OF PARTS FOR REUSE:

All parts to be used again should be carefully and thoroughly cleaned by an appropriate method.

### PARTS

When replacing parts, use genuine parts.

Oil seals, Gaskets, O-rings, Lock washers, split pins and plastic nuts should always be replaced with new ones.

Standard values such as torque and adjustments must be strictly observed in the reassembly of all parts.

### FITMENT

Use correct tools, gauges and testers for correct fitment of the parts to standard value.

### ELECTRICAL SYSTEM

Be sure to disconnect the battery cables from the negative terminal of the battery

Never pull on the wires when disconnecting connectors.

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