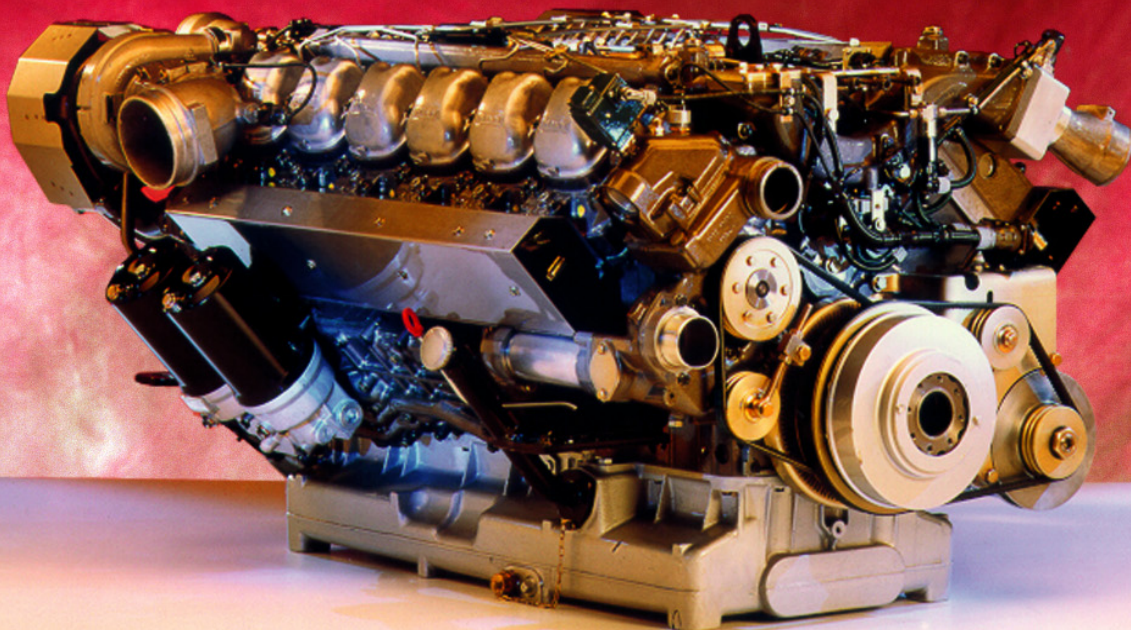


# Repair manual



## MAN-Industrial Diesel Engines

D 2842 LE 602  
D 2842 LE 604  
D 2842 LE 606  
D 2842 LE 607





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This Repair Manual is designed to facilitate competent repair of the engines listed herein.

The pictures and relevant descriptions show typical work that may not always be applicable to the engine in hand, which nevertheless does not mean that they are not correct.

In such cases the repair work is to be planned and carried out in a similar way.

Please note that all jobs described in this Repair Manual were carried out on an engine which was not installed.

The expert knowledge necessary for handling Diesel engines was taken for granted when this publication was compiled.

Any repair of components such as injection pump, alternator etc. ought to be left to our or the manufacturer's service department.

Yours faithfully,  
MAN Nutzfahrzeuge Aktiengesellschaft  
Nuremberg Works

We reserve the right to make technical modifications in the course of further development.

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Important instructions which concern technical safety and protection of persons are emphasised as shown below.

**Danger:**

This refers to working and operating procedures which must be complied with in order to rule out the risk to persons.

**Caution:**

This refers to working and operating procedures which must be complied with in order to prevent damage to or destruction of material.

**Note:**

Explanations useful for understanding the working or operating procedure to be performed.

### Fitting flat seals / gaskets

Flat seals / gaskets are often inserted with sealing agents or adhesives to make fitting them easier or to achieve better sealing. Flat seals may slip in operation due to the “sewing-machine” effect, in particular if they are used between parts with different rates of linear expansion under heat (e.g. aluminium and cast iron), and leaks may then occur.

**Example:**

the cap of the front crankshaft seal. If a sealing agent or an adhesive is used here the flat seal will move inwards in the course of time as a result of the different expansion rates of the materials. Oil will be lost, for which the shaft seal may be thought to be responsible.

**Flat seals / gaskets can be fitted properly only if the following points are observed:**

- Use only genuine MAN seals/gaskets.
- The sealing faces must be undamaged and clean.
- Do not use any sealing agent or adhesive – as an aid to fitting the seals a little grease can be used if necessary so that the seal will stick to the part to be fitted.
- Tighten bolts evenly to the specified torque.

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All the engines dealt with here are related by design and together form a family.

The sequence of letters and numbers which make up the model designation reveal a number of characteristic properties of the engine in question to those familiar with the basic nomenclature.

We will explain the system using model D 2842 LE 602 as an example:

- D        The “D” at the beginning of the model designation stands for “**Diesel**”
  
- 28       The number “28” indicates that the engine has a **128** mm bore
  
- 4        The “4” means **142** mm stroke
  
- 2        The “2” shows that the engine has **12** cylinders. If there is a 0 here instead, the engine is a 10-cylinder model
  
- L        This letter stands for the German word “Ladeluftkühlung”, meaning “**Intercooling**”
  
- E        “E” stands for the German word “Einbaumotor”, meaning “**Installation engine**”, and distinguishes these engines from MAN vehicle engines
  
- 602/4.. This is a Works internal development number.



### General information

This brief overview summarises important instructions and is structured into areas of main concern in order to impart the knowledge necessary to prevent accidents involving injury to persons, damage to the engine or other property and harm to the environment. Additional notes are included in the operator's manual for the engine.

#### Important:

If despite all safety precautions an accident occurs as a result of contact with caustic acids, penetration of fuel into the skin, scalding with hot oil, anti-freeze splashes into the eyes etc, **consult a doctor immediately**.

### 1. Instructions for preventing accidents with injury to persons

**Checks, setting jobs and repair work must be carried out by authorised skilled personnel only.**

- When carrying out maintenance and repair work, ensure that the engine cannot be accidentally started from the bridge by unauthorised persons.
- The engine must be started and operated by authorised personnel only.
- When the engine is running, do not get too close to revolving components. Wear tight-fitting working clothes.
- Do not touch hot engine with bare hands: risk of burning yourself.
- Keep engine vicinity, ladder and steps free of oil and grease. Accidents resulting from slipping may have serious consequences.
- Work only with tools that are in good condition. Worn spanners slip: risk of injuries.
- Persons must not stand under an engine suspended from a crane hook. Keep lifting gear in good order.
- Open coolant circuit only after the engine has cooled down. If opening the coolant circuit while the engine is hot is unavoidable, observe the instructions in the chapter "Maintenance and care" in the Operator's Manual.
- Neither retighten nor open pressurised pipelines and hoses (lube oil circuit, coolant circuit and downstream hydraulic oil circuit if fitted): risk of injuries resulting from emerging fluids.
- When checking the injection nozzles, do not hold your hands in the fuel jet. Do not inhale fuel mist.





- When working on the electrical system, unplug earth cable from battery first and reconnect it last to avoid short-circuits.
- Observe the manufacturer's instructions for handling batteries.  
**Caution:**  
Battery acid is toxic and caustic. Battery gases are explosive.
- When carrying out welding work, observe the "Information sheets for welders".



### 2. Instructions for preventing damage to the engine and premature wear

- **Prior to repairing the engine, clean it thoroughly. Ensure that dirt, sand or foreign matter will not get into the engine during repair work.**
- In the event of operational faults immediately identify the cause and rectify to prevent more serious damage.
- Always use genuine MAN parts only. Installation of "equally" good parts from other suppliers may cause severe damage for which the workshop carrying out the work is responsible.
- Never operate the engine while it is dry, i.e. without lubricant or coolant.  
**Use a suitable label to mark engines not ready for operation.**
- Only use operating materials (fuel, engine oil, antifreeze and anticorrosion agents) approved by MAN. Ensure that everything is kept clean. Diesel fuel must be free of water.
- **Do not fill up with engine oil above the max. notch on the dipstick. Do not exceed the engine's maximum permissible operating inclination.**  
Non-compliance with these instructions may cause severe engine damage.
- Control and monitoring devices (charge check, oil pressure, coolant temperature) must work faultlessly.
- Observe the instructions for operating the alternator; see chapter "Maintenance and care" in the Operator's Manual.



### 3. Instructions for preventing environmental damage

#### Engine oil and filter cartridges and elements, fuel / fuel filters

- Take old oil to an old oil disposal point only.
- Ensure without fail that oil and Diesel fuel will not get into the sewerage system or the ground.

**Caution:**

Danger of contaminating potable water!

- Treat filter elements and cartridges as special waste.

#### Coolant

- Treat undiluted anticorrosion and / or antifreeze agents as special waste.
- The regulations of the relevant local authorities are to be observed for the disposal of spent coolants.

### 4. Instructions for handling used engine oil \*

Prolonged or repeated contact of any kind of engine oil with the skin causes the skin to degrease, which may result in dryness, irritation or inflammation. Old engine oil also contains hazardous substances which in animal experiments have caused skin cancer. Handling old engine oil does not pose any health hazard if the basic safety and hygiene related regulations are observed.

#### Health and safety regulations:

- Avoid prolonged, excessive or repeated contact of old engine oil with the skin.
- Use a suitable skin protection agent or wear protective gloves.
- Clean the skin that has been in contact with engine oil.
  - Wash yourself thoroughly with soap and water. A nailbrush is an effective aid.
  - Special hand cleaning agents facilitate cleaning soiled hands.
  - Do not use petrol, Diesel fuel, gas oil, fluxes or solvents as cleaning agents.
- After washing apply moisturising handcream to your skin.
- Change oil-soaked clothes and shoes.
- Do not put any oil-soaked cloths into pockets.

**Pay meticulous attention to the proper disposal of old engine oil.**

**– Old oil is a water hazard –**

Therefore, do not pour any old oil into the ground, the drains or the sewerage system. Any violation of this rule is punishable.

Collect and dispose of old engine oil properly. For information concerning collection points, contact seller, supplier or the local authorities.

- \* Based on the "Information sheet for handling used engine oil"  
(Notes on how to handle old engine oil).