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RENAULT  
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# ALL ABOUT CYLINDER LINER KITS

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PRODUCT  
TECHNICAL AND COMMERCIAL KNOWLEDGE

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# FACT

**Genuine Renault Trucks cylinder liner kits contain everything needed for a fast and efficient piston and liner replacement.**

**All the parts in the cylinder liner kit are developed together with each variant of complete engine to ensure that they interact with each other in an optimum way. The advantage of this is to ensure a high operational reliability and long service life with optimum engine performance.**

All Genuine Renault Trucks cylinder liner kits are verified through extensive testing both in the Renault Trucks engine laboratories and through extreme field testing on a complete Renault Trucks Truck during tough road tests.

All the parts in the kit comply with Renault Trucks' original specifications for the engine type in question. They are supplied in special packaging which protects against corrosion, knocks and bumps, and other damage.

FEATURES	BENEFITS
Complete kit.	<ul style="list-style-type: none"><li>Renovation work is faster and simpler.</li><li>High repair quality because all parts are replaced.</li></ul>
Transport and storage protection.	<ul style="list-style-type: none"><li>Less risk of damage during transport and storage.</li><li>Good protection against corrosion.</li><li>Less risk of dirt coming in contact with the included parts.</li></ul>
Accurate tolerances and correct clearance.	<ul style="list-style-type: none"><li>Between liner, piston and gudgeon pin minimises the risk of seizing.</li><li>Engine runs more quietly.</li></ul>
Right piston rings.	<ul style="list-style-type: none"><li>Reduced oil consumption.</li><li>Reduced wear.</li></ul>
Right groove pattern and groove angle.	<ul style="list-style-type: none"><li>Right groove pattern depth gives reduced wear and longer durability on liner and piston rings.</li><li>Correct angles between the grooves give good lubrication and reduced risk of seizing.</li></ul>
Advanced geometry with correct combustion volume on top of the piston.	<ul style="list-style-type: none"><li>Optimized fuel consumption level.</li><li>Correct emission levels from engine.</li><li>Low risk for seizing in the liner or with the gudgeon pin.</li></ul>



## REDUCED OIL CONSUMPTION AND WEAR

## THE PROMISE OF A GENUINE RENAULT TRUCKS PART

By choosing a Genuine Renault Trucks cylinder liner kit and only then, you can be sure that it will reach the performance requirements that Renault Trucks have specified for cylinder liner kits approved to be used on a Renault Trucks vehicle.

### 1 | COMPLETE KIT

The Genuine Renault Trucks cylinder liner kit includes: cylinder liner, piston, gudgeon pin with retaining rings, piston rings, O-rings and lubrication for ensuring the critical sealing between the liner and cylinder bore.

By replacing all these parts a high repair quality is achieved.

### 2 | TRANSPORT AND STORAGE PROTECTION

As well as providing protection against knocks and bumps during transport and handling, the packaging provides an efficient protection against corrosion and less risk of dirt coming in contact with the included components in the kit.

### 3 | CORRECT CLEARANCE

The correct clearance between the liner, piston and gudgeon pin reduces the risk of seizing and maximises the service life. If the clearance is too small, the risk of seizing increases. And if it is too large, this will cause "piston chatter". An incorrect clearance can also lead to increased oil consumption, more wear, higher noise level and an increase of emissions coming out from the engine.

### 4 | PISTON RINGS

With correct piston rings which are perfectly adapted to the engine, piston and liner, oil consumption and wear will be kept to a minimum. The piston rings must be capable of withstanding the high temperatures and pressures they are subjected to. They must simultaneously provide a good seal and allow lubrication to take place. If the material in the rings is either too hard or too soft, the wear on both the rings and the liner will increase.

### 5 | RIGHT PHOSPHOR CONTENT IN LINER MATERIAL

The liners are made of a special type of cast iron with a carefully chosen hardness. A liner which is too soft will be quickly worn by the piston rings, whereas a liner which is too hard will wear out the pistons rings.

The hardness is primarily controlled by the phosphor content of the iron. Together with chromium and iron, it forms the eutectic steadite. The service life of the liner depends on the correct steadite content in the iron and on the correct distribution of the steadite in the liner.

### 6 | RIGHT GROOVE PATTERN AND GROOVE ANGLE

By selecting the right depth for the ground/honed pattern, good wear characteristics are achieved to improve durability. This depth must be uniform over the liner's inside surface.

With the correct grain angle of the surface finish, the oil is retained on the liner walls thus providing good lubrication properties and minimising the risk of seizure.

### 7 | HIGH QUALITY O-RINGS AND LUBRICATION

The critical sealing between liner and cylinder bore is ensured by using high quality o-rings which withstands intense heat and keeps its elasticity throughout its service life. To secure installation and function of the o-rings, a tube with lubrication is included in the kit.

### 8 | GUDGEON PIN

Renault Trucks design engineers take great care in selecting the correct base material and heat treatment process to ensure the gudgeon pin operates under extreme stress. It is machined to very small tolerances to ensure the correct clearance between gudgeon pin and the piston to minimise the risk of seizure, preventing major repair costs.

### 9 | PISTON

The piston is made out of a high strength material that is able to absorb the very high forces created at the moment of ignition (approx 25 ton). Each type of piston is developed individually for each engine variant and has an advanced geometry. This ensures that the piston expands in the correct way and maintains its dimensions with the correct tolerances to prevent seizure with the liner or gudgeon pin.

The correct combustion volume on top of the piston ensures a low fuel consumption and low emissions from the engine.



## A CORRECT COMBUSTION ENSURES LOW EMISSIONS FROM THE ENGINE

## PRACTICAL ADVICE

### RENAULT FITTED-PART

- One year warranty.
- Fitted by Renault Trucks trained technicians.

### RENAULT TRUCKS 24/7

- Professional roadside assistance 24 hrs a day, 7 days a week, 365 days a year.
- Dedicated to getting customers' trucks back on the road with minimum delay.