

COMPARE

GENUINE PART



- Perfect thickness
- No risk of short-circuit between the assembly plates



SEPARATING PLATES

NON-GENUINE PART

- Too thin
- Risk of short-circuit between the assembly plates
- Risk of a fault likely to keep the vehicle off the road



GRILLES AND PLATES

- Optimum thickness
- No loss of power at start-up
Optimised battery life
- 15% plus thicker on Prover batteries and 30% thicker on Prover Plus and Prover MEGA batteries compared to a standard battery



GRILLES AND PLATES

- Too thin
- Faster corrosion resulting in a loss of power at start-up
- Reduced battery life

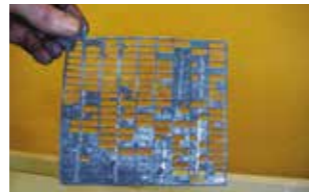


- Optimum amount
- No loss of plate materials due to vibration
- No loss of facilities when the engine is not running



LOCKING ADHESIVE

- Minimum amount
- Loss of plate materials due to vibration
- Loss of operating range when the engine is not running due to loss of capacity



- Secure fixing
- Maximum resistance to vibration



SECURE FIXING OF INTERNAL CONNECTIONS

- Poor fixing
- Risk of the connections breaking due to vibration
- Vehicle breakdown with risk of battery explosion



ALL ABOUT BATTERY



RENAULT TRUCKS DELIVER

PRODUCT
COMMERCIAL KNOWLEDGE



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Renault Trucks SAS with a capital of 50 000 000 € - 954 506 077 RCS Lyon Crédit photos : © Renault Trucks - 01/2017



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FACT

You can avoid expensive downtime by fitting a GENUINE Renault Trucks battery – don't take the risk!

A truck battery has to fulfil two major tasks. It must start the vehicle and it must power accessories for long periods while the vehicle is stationary. Furthermore it must do this while being subjected to all the physical forces (up to 12 times its own weight) of a truck in motion, and it must receive charge at a rate which allows it to deliver this performance day in day out.

THE DIAMOND DISTINCTION

1 | The Renault Trucks pocket separators

The polyethylene pocket separators provide for a lower voltage drop and up to 30% more starting power. The plates remain in place even under powerful vibrations, because the lead plates are fixed to each other with rods of glue and the cell assemblies are retained with wedges. Many competitors do not use glue and simply rely on the location to secure the plates, meaning normal vibration can ultimately damage plates and shorten the useful life of the battery.

2 | The Renault Trucks plates

To maximise charge acceptance, Renault Trucks optimises both the number and thickness of plates as well as utilizing the correct lead/antimony alloy. Under test, some competitor batteries have had only 30% of Renault Trucks's charge acceptance at -18°C.

This means the truck has to be driven much longer to achieve a complete re-charge. More likely the re-charge is not achieved and the battery quickly deteriorates.

3 | The Renault Trucks container

The tough polypropylene casing, as well as being immensely strong, incorporates a number of features designed to enhance functionality and safety.

4 | Vibration protection

Only a GENUINE Renault Trucks battery has the extra supports and hot melt adhesive on the internal plates that prevent them from moving under vibration and gravitation forces. Normal vibration can shorten a battery's useful life if the plates move causing either a short circuit or poor circulation.

GENUINE Renault Trucks batteries have an increased capacity with better start output, meaning fewer stoppages and better economy, ultimately giving a longer life cycle.

FEATURES	BENEFITS
High cycle lifetime with thick plates.	Increased service life with fewer stops.
Unique active lead mass.	Short recharge time due to high charge acceptance. Good charge acceptance at cold conditions.
Optimised plate design.	Strong cold start capacity.
Glue and securely located plate assemblies.	Very high resistance to vibrations. Longer life cycle. The vibration resistance has significantly increased with the HDX II.
95% recyclable.	Protects the environment.

RISKS OF FITTING NON GENUINE

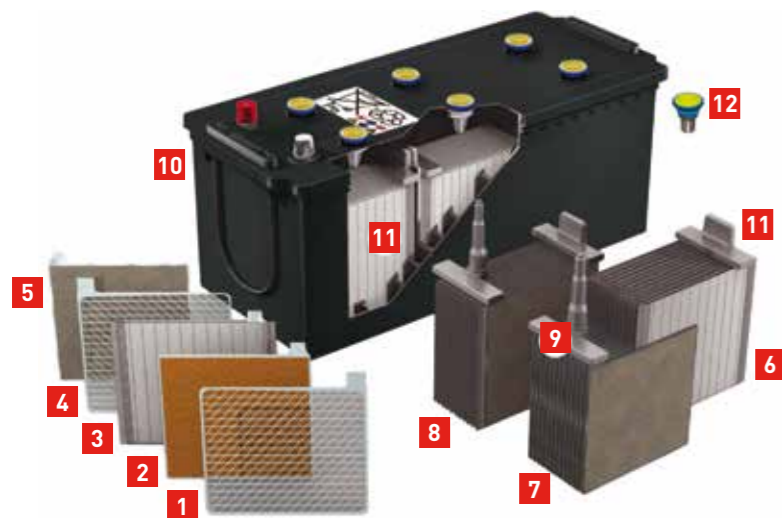


Using an inferior battery can seriously jeopardise the functionality of an operator's truck's electrical system. If a non-genuine battery is installed there is a risk of short circuit from vibration or the increased risk of sulphation – where the battery:

- Becomes difficult to charge (high internal resistance).
- Never becomes fully charged – remains undercharged.
- Overheats by the high current and internal resistance – overheating warping the plates and causing a short circuit.

Further still, the overheating and premature failure of the alternator as they run at a continuous high power in an attempt to force charge into the battery.

BATTERY COMPONENTS



BATTERY CONSISTS OF THE FOLLOWING COMPONENTS:

- 1 Positive lead grids, alloyed with antimony or calcium, silver
- 2 Positive plates, made of grids, is double pasted with lead dioxide
- 3 Positive plate covered with separator of micro porous polythene
- 4 Negative lead grids, alloyed with antimony or calcium, silver
- 5 Negative plates made of grids which is double pasted with lead dioxide
- 6 Positive plate unit
- 7 Negative plate unit
- 8 Complete plate unit for one cell
- 9 Strengthened terminal bridge with strong connectors between the cells
- 10 Strengthened terminal bridge with strong connectors between the cells
- 11 Maintenance friendly battery
- 12 Cell plug with protection against acid splash and leakage

BATTERY - HOW IT WORKS

BATTERY – FUNCTION

The battery is one of two voltage sources supplying the truck's electrical systems with current. The other is the alternator. The battery stores chemical energy, which is transformed into electrical power when charge is drawn from the battery, meaning connected to an electrical load.

When the engine is switched off and the alternator is not charging, the battery supplies current to a number of components, such as the parking lamps.

When the engine is started the battery supplies current to the starter motor, the ignition and the fuel system. When the engine is running the battery acts as an energy reserve for the alternator when the alternators capacity is not sufficient. Trucks generally have two batteries connected in series.



BATTERY PLATES AND ELECTROLYTE

Each plate is composed of a grid coated with a surface layer of an active material.

- The active material on the positive electrode consists of porous lead oxide (PbO₂).
- The active material on the negative electrode consists of porous lead (Pb), also known as spongy lead.

The plates are immersed in a conductive fluid consisting of electrolyte also known as battery acid.

- Electrolyte is a mixture of concentrated sulphuric acid (H₂SO₄) and battery water (H₂O).
- Battery water is distilled or deionised water.

Because the plates consist of different materials a voltage is produced between the positive and the negative electrodes. The active materials take part in the electrochemical process when the battery is charged and discharged.

CHARGING

While charging the battery the process is reversed.

There is a reversed chemical reaction and the battery's capacity is restored.

1 | Battery charging

A battery requires care and maintenance to work efficiently over a long period of time. To ensure maximum longevity of a batteries service life, it is important that a battery is charged regularly as part of the service/inspection process. As a result a battery will last longer, perform more efficiently and reduce the risk of failure.



2 | Battery reconditioner

The installation of a battery reconditioner will prevent sulphation in new batteries and reverse sulphation and restore performance in older batteries:

- Extends battery life.
- Improves battery performance.
- Saves costs.
- Reduces downtime.

The clear advantage of the installation of a battery reconditioner is:

- Financial – Low cost electronic device saves money on high cost batteries and electrical equipment.
- Reliability – Maximum battery performance/Maximum battery service life.



DISCHARGE

When charge is drawn from the battery, that is when it is connected to an external electrical load, a chemical reaction starts between the electrodes and the electrolyte. The stored chemical energy is transformed into electrical energy and current flows through the circuit. This process is called discharging.

INCREASED USAGE OF BATTERIES

As vehicle technology advances and the number of day to day technologic gadgets which we live with increase – so too does the demands on a vehicle's batteries.

Such electrical consumers for on-board living include:

- IPC (Integrated Parking Cooler).
- Microwave, coffee maker, refrigerator, TV.
- DC/AC inverters – In cab resting/living equipment: laptops, iPads, shaving equipment and chargers.
- Cab illumination.

MAIN CAUSES OF PERMANENT BATTERY FAILURE

There are five main reasons for a battery to fail:

- Slow repeated discharging of the battery.
- Vibration – resulting in the movement of the plates causing either a short circuit or poor circulation.
- Extreme temperatures – Cold and Hot.
- Sulphation – where the lead from the plates (both negative and positive) combines with the sulphuric acid to form the gradual build up and hardening of lead sulphate on the battery plates. This is the most likely cause of premature battery failure.
- Short circuit.



USEFUL FACTS

During the discharge process the active material on the negative and the positive electrodes lead (Pb) and the lead oxide (PbO₂) is transformed into lead sulphate (PbSO₄). During this reaction the active material on the plates use up the sulphuric acid (H₂SO₄) and water (H₂O) is formed. This results in a decrease in the electrolyte density since water has lower density than sulphuric acid. During discharge this density continues to decrease. After discharge the electrolyte is almost completely transformed into water.

During the charging process the active material on the electrodes is transformed from lead sulphate (PbSO₄) into porous lead (Pb) on the negative electrode and into lead dioxide (PbO₂) on the positive electrode. Water (H₂O) is consumed and sulphuric acid (PbSO₄) is formed. This results in the density of the electrolyte increasing again.