

## Four Key Tests Were Performed

# CAT® Premium High Output (PHO) Batteries

**TOP PERFORMANCE AND ROBUSTNESS TO ENHANCE YOUR PRODUCTIVITY**



**Third-Party testing proves that CAT PHO batteries OUTPERFORM and OUTLAST batteries from other brands.**

A third-party laboratory completed a comparative battery evaluation\* in 2020 to gather performance data on different sizes of lead-acid starting batteries. The batteries that were tested are offered by:

- Caterpillar Inc.
- Exide Technologies
- Interstate Batteries



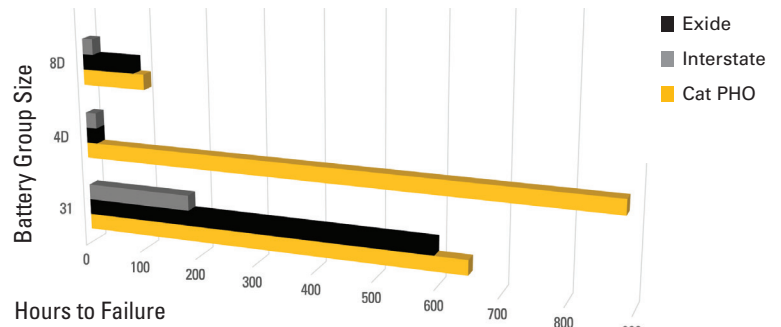
### SAE J537 Electrical Performance Test –

This test provides meaningful measurements of battery performance to the end user.



### Industry-leading Vibration Test –

This test is used to determine the ability of the battery to withstand vibration forces without suffering mechanical damage, loss of capacity, loss of electrolyte, or developing internal or external leaks. The test samples were vibrated per Caterpillar Engineering Specifications for a series of 18-hour intervals.



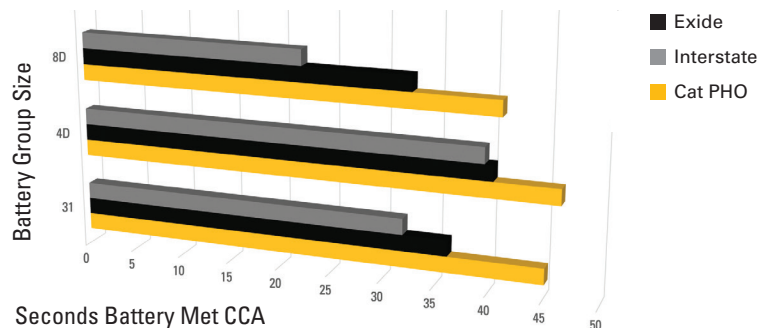
### Reserve Capacity Test –

This test measures the ability of the battery to sustain a minimum vehicle electrical load in the event of a charging system failure.



### Cold Cranking Amps Test –

This test measures the battery's ability to provide power to crank an engine during starting.



## The Results Were Conclusive

All Cat PHO batteries exceeded the Exide and Interstate batteries in terms of electrical performance and vibration robustness.

**LET'S DO THE WORK.™**

\* Contact your Cat dealer for more details about the evaluation.



# 3 REASONS WHY CAT® PHO BATTERIES PROVIDE GREATER VALUE



## 1. Supreme Durability

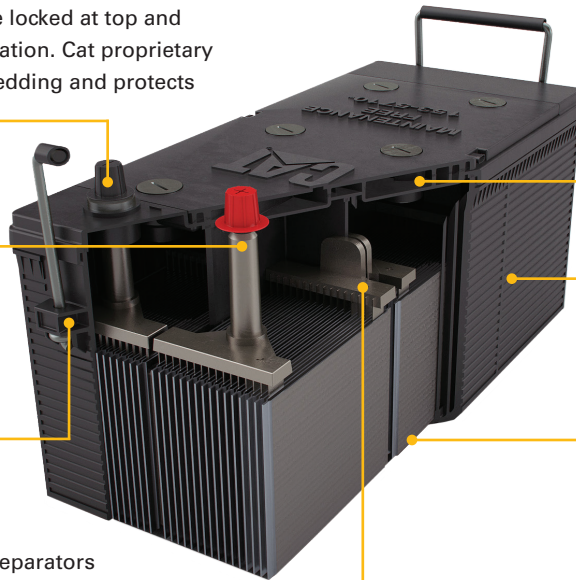
Vibration is the leading cause of failure in off-highway applications because it is the leading cause of broken components. That is why Cat PHO batteries are designed for maximum vibration resistance. Caterpillar's 100-hour battery vibration test is five times better than the industry-standard 20-hour vibration test, assuring that Cat PHO batteries will provide longer life and maximum resistance to the damaging effects of vibration.

Elements (positive and negative plates) are locked at top and anchored at container bottom to resist vibration. Cat proprietary acid/paste combination resists material shedding and protects against shorts.

Thicker internal posts provide lower electrical resistance, resulting in higher output under starting conditions.

Heavy-duty cast-on (not welded) straps are utilized, with shortened through-partition connectors to shorten the electrical path and maximize starting power.

Grids use denser lead within the plates to increase battery life and power in extreme heat and cold. Microporous polyethylene separators provide protection against "shorts" and vibration damage.



A heat seal/venting system design prevents both interior and exterior electrolyte leakage. Flame arrestor safety vents reduce possibility of explosion from external sparks.

The battery case has a brickwork design for reinforcement, to provide extra strength in all temperature extremes and reduce the chance of punctures and case flexing.

The additional step of using hot melt to anchor the bottom of the plates provides for superior retention of active material in the plates.

## 2. Unmatched Performance

Cat® PHO batteries include more lead versus the industry standard and are designed to meet stringent Caterpillar design specifications, which provide industry-leading cold cranking amp capability and reserve capacity.

## 3. Excellent Warranty

Every Cat PHO Battery comes with a two-year standard warranty\* to enhance your ownership experience and provide extra peace of mind. If a battery should fail within its two year coverage period, Caterpillar will provide a full replacement.



\* Contact your Cat dealer for more details.

# LET'S DO THE WORK.™

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