

# CASE STUDY

## CRITICAL FAILURES IN OEM DESIGN LEADS TO INNOVATIVE SOLUTION

A customer reported that an OEM magnetic plug failure in their D11 final drive application set off a chain of events that highlighted the critical importance of robust component design.

In this instance, the magnetic portion of the plug dislodged and jammed within the final drive gear set. This unintended obstruction immobilized the final drive, leaving the operator with no choice but to jack up the machine to regain mobility. Tragically, this maneuver caused a catastrophic failure of the right final-side drive, resulting in a split hub and the ejection of two bolt heads across the workshop—a situation that posed serious risks to personnel safety.

### UNCOVERING A PATTERN, MULTIPLE APPLICATION FAILURES

In the aftermath of this incident, our team discovered a recurring pattern of failures involving the same type of plug, not only in D11 applications but also in 797 applications across different regions. The consequences of these failures were far-reaching, leading to substantial damage to critical components.

### INTRODUCING H-E PARTS BEST PLUG

Responding to this pressing challenge, our engineers developed a solution. Drawing from over fifteen years of proven success, our Birrana™ Engineering Sealing Technology magnetic plug (BEST Plug) was optimized further for D11 applications and provided as a solution to the existing plug that causes the failures above. We are also in the process of confirming that this plug is viable for the other applications in which the OEM plug is used.

### ENHANCED SAFETY AND ENVIRONMENTAL RESPONSIBILITY

Our BEST plug introduces a host of advantages that redefine the magnetic plug inspection process:

- The BEST plug enables the magnetic plug to be effortlessly removed and inspected without oil loss, making the process safer, quicker, and more environmentally friendly.
- By eliminating the use of the long magnet that was susceptible to dislodging, the BEST plug mitigates the risk of similar failures and subsequent damages.

### A TRANSFORMATIONAL SOLUTION FOR SAFER OPERATIONS

The introduction of the BEST plug not only addresses a critical industry issue but sets a new standard for safety, efficiency, and environmental responsibility. With a commitment to enhancing component reliability, our teams at H-E Parts continue to pioneer innovative solutions that empower operators and elevate operational excellence.

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CUSTOMER	Various
LOCATION	Australia
APPLICATION	Caterpillar D11, 797
PRODUCT	Birrana™ BEST Plug kits

