

SPECIALISED TOOLING



BALL STUD REMOVAL TOOL

To suit Caterpillar 777 Haul Trucks

2025 - Revision 2

Make ball stud change-outs safer with Geographe's Ball Stud Removal Tool

Geographe's Ball Stud Removal Tool

In the demanding and rugged terrains where mining trucks operate, routine maintenance is critical yet challenging. Geographe, in collaboration with Fortescue Metals Group, identified a significant bottleneck in the maintenance of Caterpillar haul truck fleets - removing ball studs in outer steering arms, a task made difficult due to the severe conditions causing the studs to seize.

To overcome this, Geographe engineered a solution, the Ball Stud Removal Tool (BSRT) to suit Caterpillar 785, 789 & 793 haul trucks. Designed for safety and efficiency, this hydraulic lightweight one-person tool simplifies the ball stud removal process, safeguarding both personnel and machinery.

Following the global success of the 785, 789 & 793 BSRT, Geographe have now developed a version to suit the Caterpillar 777.

Re-conceptualised and scaled to suit the sub-100T haul truck, the 777 Ball Stud Removal tool will aid in a safer, faster release of studs for crack testing or scheduled replacement. With 20 Tons of pushing force, the 777 BSRT will reduce change-out times significantly, increasing efficiency and productivity.



Increase overall safety practices by minimising the need for thermal lancing, hammering and grinding to remove seized ball studs.



Reduce the occurrence of slippage with the 777 BSRT's two-part split retainers, **securely locking the tool into place.**



Reduce labour costs from prolonged fleet downtime due to traditional removal practices.



Minimise downtime associated with maintenance and repairs, further contributing to cost efficiency.



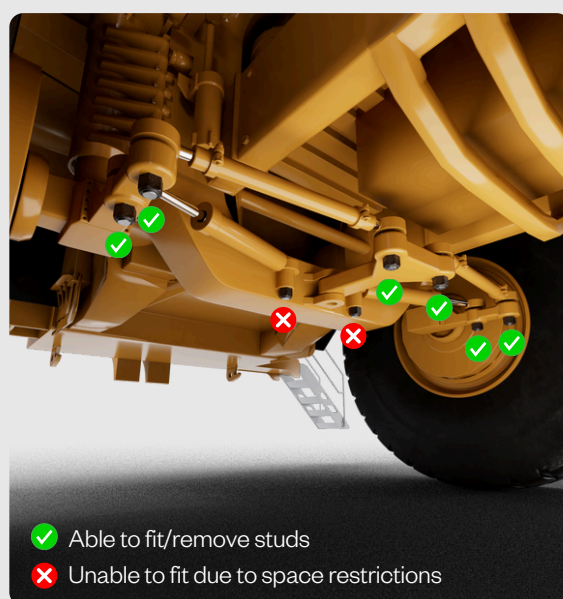
Where does the Ball Stud Removal Tool fit?

The BSRT fits the 6 ball studs from the outer steering arm and bell crank locations on the Caterpillar 777 haul truck. The BSRT does not currently fit the front cylinder stud location.



11542115

BSRT Kit to suit Caterpillar 777



- ✓ Able to fit/remove studs
- ✗ Unable to fit due to space restrictions

Optimised Latching System that Securely Locks into Place

Features

- Crafted from durable high-tensile alloy steel.
- Lightweight and portable design, suitable for individual and in-field use.
- Heat-treated for increased reliability in demanding conditions.
- Optimized through Finite Element Analysis (FEA).
- The flexible two-part split retainers securely hold the Ball Stud Removal Tool in place during operation.
- Convenient user-friendly locking knobs on the retainers enable easy one-person locking and unlocking.

Ball Stud Removal Tool Kit

Suit CAT 777 Haul Trucks
Geographe Ref No: 11542115



BSRT Kit to suit Caterpillar 777 - 11542115

Designed to Release	<ul style="list-style-type: none">• Six studs on the standard centre and outer steering arms
Kit Contents	<ul style="list-style-type: none">• Body• Retainer Assembly• Removal tool body design and rating certificate.• Hi-Force® Hydraulic cylinder rated to 20T.• Hydraulic cylinder certificate of test and conformity.• Cylinder Spacer Assembly 23mm thickness• Cylinder Spacer Assembly 45mm thickness• Laminated user manual.• BSRT usage log.• USB drive containing document electronic copies.• Customised waterproof wheeled Pelican™ case



**DESIGNED
TO DELIVER.**

**CHALLENGING YOU
TO EXPECT MORE
FROM YOURSELF
& YOUR ASSETS**



What customers think about the Ball Stud Removal Tool



"I have seen this tooling at another company and know the value that it gives."

**- Reliability Analyst,
Mineral Resources**



"Using the Geographe Ball Stud Removal Tool, the workgroup was able to separate 6 ball studs in under 15 minutes, this all done without heat or excessive stress on steering components."

**-Mobile Maintenance
Supervisor, South 32**



"The Caterpillar Haul Truck Ball Stud Removal Tool has reduced the time to remove ball studs from 12 hours per truck to just 1 hour. The risk of damaging jacks throughout the process has also been removed. This initiative represents a significant cost and time reduction while also improving safety for our maintainers."

**-Truck Maintenance Superintendent,
FMG Fortescue Metals Group**



Also Available, 777 Ball Studs

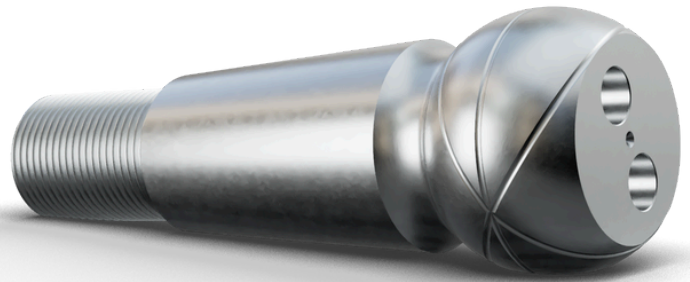
Enhancing Fatigue Resistance through Heat Treatment and Quality Materials.

Caterpillar haul trucks are known for their rugged durability and ability to handle heavy-duty tasks in the mining industry. However, the ball studs in these trucks can experience premature failure due to several factors, including design shortfalls and poor fitment through compromised repairs to the associated steering components. The condition of the tapered bore receiving the ball stud must be of a quality that results in a high surface contact ratio. When this contact ratio is less than ideal, stress concentrations exist which can lead to fatigue failure.

Geographe paid close attention to material selection and heat treatment specification, the result being a ball stud that has optimised mechanical attributes designed to better cope with fatigue, and ball wear.

Increasing Fleet Uptime & Component Longevity

Geographe Enhanced Performance™ (EP) Ball Studs are manufactured using high-quality materials offering optimum impact toughness and fatigue resistance. As well as improved wear resistance by increased lubrication grooving on the ball section.



There is increased ease of fitment, reducing time and associated labour costs.



No hot work is required, reducing high-risk work and machine downtime.



Manufactured from one piece of material meaning it is not prone to movement under dynamic load conditions.

Ball Stud Kits Make it easy



Streamlined Maintenance: Each kit contains exactly what's needed for specific repairs or routine maintenance, significantly cutting down the time and effort spent sourcing parts.



Ease of Ordering and Inventory Management: Our kits simplify procurement and inventory management by consolidating multiple parts into a single SKU.



Enhanced Safety: Our kits ensure correct, compatible parts are used every time, minimising malfunctions and maximising safety.





ENHANCED PERFORMANCE

With over 1,000 Enhanced Performance (EP™) components now catalogued to suit OEM brands such as Caterpillar, Komatsu, Hitachi, and Liebherr, Geographe creates and manufactures products to outperform any wear parts in the market.



Extend the
Operational Life
of parts



Correct known
deficiencies in
OEM parts



Adapt existing
designs for specific
conditions



Cut maintenance
costs and increase
uptime

How we add value to your operation

At Geographe, our products are designed to deliver beyond expectations. We provide engineered solutions to achieve higher equipment utilisation and performance rates.

We collaborate with our customers to solve mine site challenges, helping to significantly reduce maintenance time, improve safety, and decrease up-front and whole-of-life operating costs.

Through innovative thinking and a pioneering approach, our dedicated team of skilled engineers, metallurgists, analysts, and developers design and engineer high-performance parts to support optimal performance and minimal interruptions to operating equipment in mine sites around the world.

Let us know how
we can help.

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**DESIGNED
TO DELIVER.**



All manufacturers names, numbers, symbols and descriptions are used for reference purposes only.

It is not implied that any part listed is the product of the OEM.

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