

SPL541 Reaction Arm for Cat[®] Mining Trucks 789/793/795* /797*

A CUSTOMISED SOLUTION FOR TORQUING
CAT TRUCK STRUT ASSEMBLY BOLTS.

Cat[®] Mining Trucks

Cat is the world's leading manufacturer of construction and mining equipment, engineered to withstand tough mining conditions. Cat equipment is hailed within the mining industry for its ruggedness and dependability.

Difficult to Access Strut Bolts

Accurate servicing is key to the ongoing reliability of Cat equipment, with each assembly requiring specific servicing tasks to keep it operational.

The front suspension strut assemblies on Cat mining trucks are under immense load during normal use. They can fail catastrophically if the assembly bolts are inaccurately torqued, leading to unscheduled downtime and high repair costs. Typically, a surface or bolt adjacent to the bolt being tightened would serve as a reaction surface for applying torque. On the Cat 789, 793, 795 and 797 mining trucks, these methods are not viable due to physical constraints:

- Reinforcement ribs between each bolt prevent access to two bolts at one time when using typical tools.
- The flange plate area is too small, and is sloping. This slope applies undesirable side-loads to tools that could damage them or cause them to slip.

Safety Risks and Inefficiencies

Hydraulic wrenches are commonly used to complete this task, however they are slower and difficult to manoeuvre due to their bulky size and heavy hoses, with two technicians often required to perform the operation.

A hand hold on the hydraulic tool is required while torque is applied, so there is a risk of oil injection injuries. It also means hands are closer to crush/pinch points than when using a torque multiplying tool such as the PTS, PTM, or EBT from the Norbar range.

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between each bolt
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using typical tools.*

*Image: The strut retaining bolts on
the front strut assembly of a CAT vehicle.*



* SPL541 Reaction Arm requires a 12-inch extension for use with struts on 795 and 797 models.



The SPL541 reaction arm and PTS tool offer a stable and safe reaction force transfer between the nut being tightened and the adjacent nut.

Image: The Norbar PneuTorque® PTS Multiplier and the SPL541 reaction arm in use.

Engineering the solution

The mechanical engineering team at Norbar developed the SPL541 Reaction Arm to address the specific servicing requirements of the 789/793/795*/797* Cat mining trucks.

Reaction Arm Features:

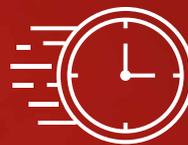
- **Interchangeable sockets** — (available separately) suits a range of bolt hex sizes.
- **Socket lateral adjustment slot** — allows the socket to move laterally to accommodate the PCD (pitch circle diameter) of different truck models' bolts.
- **Reversible socket** — allows the socket to be inverted for use on the top and bottom bolts of the strut assembly.

The Outcome

The SPL541 reaction arm in combination with a Norbar powered torque multiplier results in significant improvements in safety and operation time.

- **Efficient** — The solution allows a single service technician to complete a task that previously required two technicians.

- **Safe** — Moves the technicians hands further away from potential crush/pinch points. Reduced strain and
- **Reduced side-loads** — By bridging the struts reinforcement ribs, the bolt adjacent to the bolt being tightened can provide safe force transfer. This eliminates side-load on the tool that can result in costly damage to the tool.



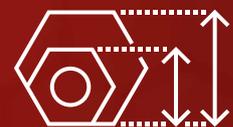
**DECREASED
SERVICING TIME**



**OH&S RISK
REDUCTION**



**DESIGNED
SOLUTION**



**MULTI-SIZE
COMPATIBLE**

Find out more about these products:

- › **PneuTorque® PTM/E Series Multiplier**
- › **PneuTorque® PTS Multiplier**
- › **EvoTorque® Battery Tool (EBT) Multiplier**

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