

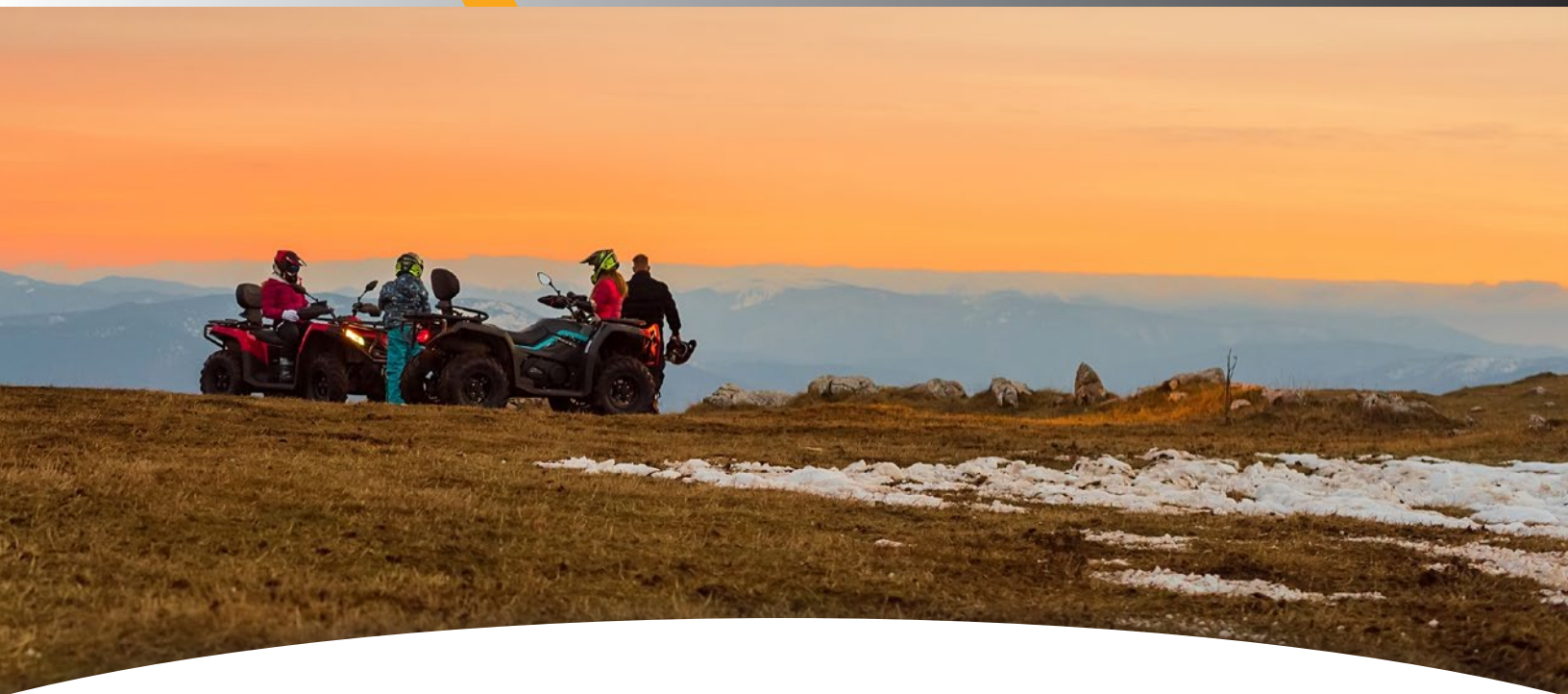


# REVOLUTIONIZING RELIABILITY

An All-in-One Ball Joint  
for Rugged Utility Vehicles



**CCTY**



## EXECUTIVE SUMMARY

When a prospective customer encountered sourcing, quality, assembly and maintenance challenges with some of the ball joint components used in the front suspension of its rugged utility vehicles, it reached out to CCTY for a solution.

In response, CCTY designed an all-in-one ball joint assembly that delivered significant improvements. The new solution was less expensive, more reliable, cleaner and faster to assemble on the production line. Additionally, by consolidating three part numbers into one, it became easier to source and ensured greater reliability compared to the previous components.

## THE CHALLENGE

The original ball joint design required the assembly of the ball joint, retaining plate and rubber shroud, along with greasing during the production process and ongoing maintenance by the end user.

CCTY was tasked with engineering a new ball joint design that addressed these inefficiencies while ensuring backward compatibility. This meant that the updated design had to fit seamlessly with all current and previous models that used this ball joint—ensuring a smooth transition without modifying the customer's equipment.



During a conference call with our customer's project engineer, he said, 'Most suppliers don't ask the kind of questions that your team does. I like it.'

– **Rich Pearlberg**  
*Design Engineer*



As a bearing manufacturer with a state-of-the-art facility, we provide the benefit of partnering with our client's engineers for unique solutions.

– **John Sweetwood**  
*Strategic Sales Manager*

## THE SOLUTION

CCTY's engineering team developed an innovative solution that integrated all of the components into a single part, addressing multiple challenges in the process.

The new maintenance-free ball joint assembly design:

- Eliminated the need for re-greasing the ball joint
- Ensured a positive seal the previous rubber shroud could not support
- Corrected the taper issue on the stud, removing the need for an additional washer
- Eliminated the grease fitting and the need for machining a grease path into the ball joint

## THE RESULTS

CCTY's innovative ball joint design not only passed all of the customer's life and durability testing but it delivered a significant upgrade by eliminating the need for a grease fitting and the corresponding maintenance instructions in the owner's manual. This new solution provided a maintenance-free, longer-lasting ball joint for the end user, enhancing overall performance.

As a result, the all-in-one ball joint assembly has offered numerous advantages, including being less expensive and easier to source by consolidating three part numbers and vendors into one. It is also backwards compatible and more reliable, making it cleaner and faster to assemble on the production line. Additionally, the enhanced design eliminated routine maintenance requirements. The customer is now saving time in production and benefiting from a lower cost per unit.



CCTY offers custom bearings, bushings and tie rods designed for the unique demands of recreational and utility vehicles.





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