



**ENGINEERED FOR
PRECISION**

Custom SPB Powers
Durable ATV Steering Solution

CCTY



In many instances, customers require a different axial clearance than is standard. We are able to adjust the interference fit to change the clearance. It's another example of our commitment to design-focused solutions.

– **Dave Olson**
CCTY Strategic Sales Manager

EXECUTIVE SUMMARY

A leading recreational vehicle OEM faced a challenge during the testing phase of its newly designed steering system when standard spherical plain bearings (SPB) began showing signs of wear. It became clear that the axial clearance needed to be tighter to meet performance demands. The OEM turned to CCTY's engineering team for a solution.

Leveraging its flexible engineering and manufacturing capabilities, CCTY quickly developed and delivered a custom SPB with optimized axial clearance within just 45 days. Today, this tailor-made solution is now a key component within the OEM's recreational vehicle product line, ensuring a high level of durability and reliability.

THE CHALLENGE

A recreational vehicle manufacturer discovered that the misalignment of moving parts within a pivot joint was causing excessive wear on a dimensional SPB during the testing phase. The issue stemmed from the bearing's inability to accommodate the larger angle clearance required by the application. This wear not only threatened the durability of the component but also jeopardized the overall performance of the vehicle.

To address the challenge, the OEM sought a more robust SPB design capable of handling the rigorous operating conditions. This required a solution that could withstand greater angular misalignment without compromising the bearing's reliability or service life.



We help a number of OEMs with alternate SPB solutions. For example, we can either add the seal and send the SPB as a fully assembled unit or send the seal and bearing separately. This way, if a customer has assembly line specs or wants to use the seal at a later date, they have the option to do so.

– Dali Wang
CCTY Lead Engineer



THE SOLUTION

CCTY's engineering team frequently encounters requests for custom solutions as many OEMs seek to modify angles or enhance load capacity to meet specific performance requirements. Drawing on this expertise, CCTY collaborated closely with the recreational vehicle manufacturer, using shared prints to design and engineer an SPB tailored to the application.

The solution featured an extended inner raceway, providing increased support and durability under high loads. Additionally, CCTY optimized the interference fit between the housing's inner diameter and the bearing's spherical outer diameter, precisely tightening the axial clearance to ensure a perfect match for the demanding conditions. This customized SPB not only resolved the wear issue but also delivered long-term reliability for the OEM's application.

THE RESULTS

The recreational vehicle manufacturer successfully integrated CCTY's custom SPB into its new steering assembly, creating a more robust and reliable design. This tailored solution addressed the challenges of misalignment and wear, offering multiple advantages:

- The optimized bearing featured **tighter axial clearance**, ensuring precision and longevity under demanding conditions.
- It was engineered to **handle heavier loads**, enhancing the system's durability.
- By **improving suspension and steering performance**, the custom bearing not only resolved the immediate issue but elevated the overall functionality and reliability of the vehicle.

This partnership highlighted CCTY's ability to deliver custom-engineered solutions that meet complex OEM performance requirements with a high level of efficiency and expertise.

CCTY's spherical plain bearings provide the durability and flexibility needed for optimal performance in ATV suspension and steering systems.





DRIVING INNOVATION IN MOTION CONTROL

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