

**With over  
1000 acres of  
cash crops on  
the line,  
bearing  
failure is  
not an option.**

A tractor during harvest time just can't fail. Miles of farmland must be economically processed. But, conditions can be very tough on mechanical components, including bearings. Dust and crop debris constantly bombard bearings with contaminants. Crisscrossing rugged, uneven fields creates high impact loads on critical components. In particular, tractor steer axle king pin assemblies can be subjected to heavy abuse. In addition to impact loads, steering corrections create friction induced wear in king pin bearings.

In fact, these converging elements had been inducing repeated bearing failure in the king pin assembly of a steer axle for a major line of large agricultural tractors.

**RBC**  
**BEARINGS**

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**CrossLube®**

**RBC Engineered Solutions for the Most Rugged Bearing Challenges**

## bearing up to the elements

RBC eliminates premature bearing failure for applications with high thrust loads in dirty, contaminated environments.



### What The Customer Needs:

RBC engineers develop solutions to tough problems.

The tractor producer approached its supplier of steer axles for a solution, fast. Premature bearing failure was rapidly developing into a trend. Good customer relations are precious. Warranty costs can get out of control. RBC engineers, known for innovative solutions for the most rugged bearing applications, were asked by the axle supplier to look at the problem.

#### Analyzing the problem.

Our engineers examined the existing king pin assembly that utilized taper roller bearings. The bearings were pressed into upper and lower positions on each end of the axle housing. The king pins were fixed to steering knuckle assemblies, sharing a common centerline with the taper roller bearings. King pin rotation within the taper roller bearings provided proper location of steering components as well as free rotation during steering maneuvers.

# CrossLube®

## RBC Engineered Solutions for the Most Rugged Bearing Challenges

### The Solution:

RBC eliminated premature bearing failure by specifying spherical plain angular contact bearings using our exclusive CrossLube lubrication groove technology.



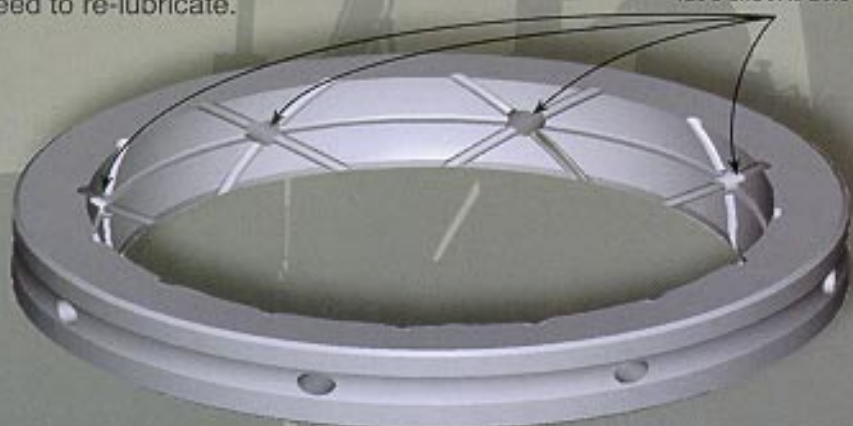
Multiple planes of motion accommodate rotation and misalignment.

Warranty claims for early replacement of bearings have been eliminated.

The Angular Contact Bearing with CrossLube will serve you well in demanding applications with these design criteria:

- High thrust loads combined with radial loads.
- Need for design misalignment capability.
- Dirty and contaminated operating environment.
- Need to re-lubricate.

Designed for optimum lube distribution



Improved groove design enhances efficiency of lube distribution.

For years in extensive lab simulation and in-field testing, RBC has charted the finite capabilities of spherical plain bearings to improve the performance and reliability of machines in rigorous conditions.

For this agricultural application, our engineering team recommended using an angular contact bearing with RBC's CrossLube lubrication groove technology.

First, the inherent design feature of a self-centering inner race eliminated the concern with housing bore alignment. Angular misalignment capability was also critical for this application. And, the bearing provides smooth radial motion combined with very high thrust load capabilities.

The CrossLube feature is particularly effective in dusty high contamination situations like farm machinery. This particular bearing uses the latest generation lube groove system that greatly improves lube distribution (See Picture). It also facilitates re-lubrication purging to flush out wear debris and contaminants.

This tractor manufacturer now enjoys renewed design confidence knowing that it has increased the bearing service life in steer axles for its farm tractors. With easier re-lubrication. And greater tolerance for bearing contamination. Production people are also happy with the avoidance of the line bore operation.

# RBC®

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