



THE PROBLEM SOLVER®

DID ■ YOU ■ KNOW?

ADVICE FOR THE PROFESSIONAL

Overview

Many MOOG® chassis parts feature zerk fittings that indicate greaseable design. It is recommended that these components be regularly serviced for maximum life and smoother operation.

MOOG serviceable components include:

- Ball Joints
- Tie Rod Ends
- Sway Bar Links
- Drag Links
- Center Links
- Idler Arms
- Pitman Arms

Identification Procedure

Photo 1 below shows the zerk fitting that is characteristic of a MOOG serviceable part.



Photo 1

Maintenance Procedure

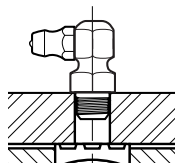
Upon installation, **and at every oil change**, it is recommended that MOOG serviceable parts be greased. MOOG engineers suggest a premium heavy-duty lithium or synthetic grease.

Con't next column

Maintenance Procedure (con't)

Grease at:

Installation



Every oil change



Use a premium heavy-duty lithium or synthetic grease

Greasing chassis parts allows the flow of fresh lubricants to all critical areas. This ensures ball stud movement that is well lubricated, which will keep out contaminants and prolong the life of the component. During the greasing process, the flow of fresh grease is directed across the bearing surfaces, displacing any accumulated debris away from the ball and bearing assembly. The grease-relief valve found in all MOOG dust boots shuts out moisture and debris, while ensuring proper fill levels by releasing excess grease away from vital brake components.

In addition, the ability to grease the part also seals the component by fully filling the cavities of the dust boot. A part completely full of grease is an excellent seal because there is no place for water to occupy. When servicing chassis parts, it is a good idea to inspect the boots for damage and splitting.

Con't next column

Maintenance Procedure (con't)

In addition, be sure to check for loose play and other signs of wear. If any damage or wear is present, the chassis part should be replaced.



When greasing MOOG chassis parts, a hand grease gun is preferred. If a pressurized grease gun is used, take great care that you don't overfill the boot, which may cause it to tear.



Photo 2

Pump grease slowly into the component until the old grease and contaminants are flushed out of the assembly through the grease relief valve (found where the boot contacts the stud). Note: If the old grease does not exit the unit, fill the assembly until the boot starts to swell (see Photo 2).

After greasing each chassis part, be sure to wipe the zerk fitting and surrounding area clean of the older grease.



PROBLEM

Solver[®]
BULLETIN

Plastic bearings' initial smoothness gives way to wear

Tie Rod Ends

PROBLEM:

Plastic bearing tie rod ends

Tie rod ends with sealed plastic bearings feel smooth out of the box, but that initial smoothness comes with a price. Not even the best plastic bearing can hold up the way a metal bearing can.



Non-serviceable plastic design has failed due to intrusion and wear.

PLASTIC BEARING



Plastic bearing tie rod end



SOLUTION:

MOOG® Sunoloy-coated gusher bearing tie rod ends

Many MOOG tie rod ends now feature patent pending Sunoloy-coated metal bearings. These bearings provide the smooth, out-of-the-box stud swing that technicians and drivers prefer, while offering a long-term durability typical plastic bearings can't match.

Stud articulation life cycle test:

MOOG coated metal bearing technology provides smooth, out-of-the-box stud swing, with 3X better performance than plastic designs (after 1 million test cycles).

Radial deflection life cycle test:

MOOG coated metal bearing technology maintains the OE-specification longer than the plastic design, with 3X better performance (after 1 million test cycles).

MOOG Sunoloy-coated metal gusher bearing tie rod end



THE PROBLEM SOLVER®





MOOG® PATENTED COVER PLATE

THE PROBLEM SOLVER®

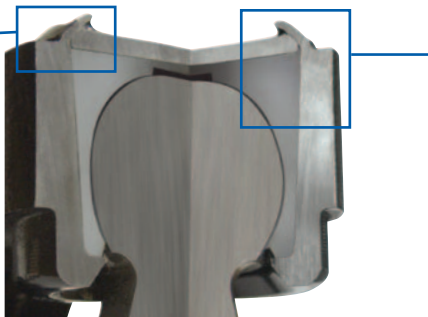
PROBLEM:

Tolerance "Stackup"/Excessive Play/Premature Failure

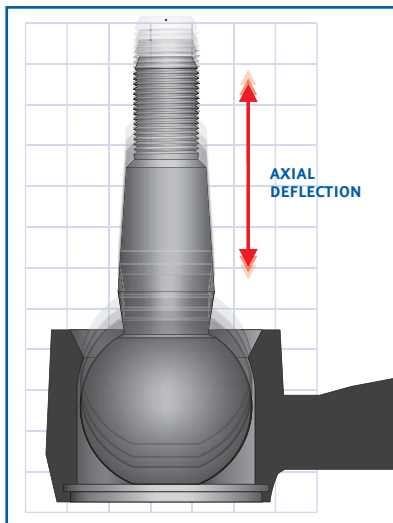
- Traditional spun cover plate design does not allow precise component clearance control.
- Excessive clearance within the housing can lead to axial deflection (or lash), reducing component and assembly life.

TRADITIONAL COVER PLATE DESIGN IS UNABLE TO CONTROL INTERNAL CLEARANCE AND CAN ALLOW CONTAMINANTS TO LEAK INTO THE BEARING.

NON-MOOG DESIGN



A new socket style part should have virtually no deflection. But over use, deflection will occur as the bearing inside the unit wears, and the part loosens up. And the more deflection or looser it gets, the more it wears, as the ball stud is no longer tight in the socket, and is literally bouncing around in the socket, which will rapidly wear the bearing surface. Eventually, the component will fail.



AXIAL DEFLECTION IS VERTICAL MOVEMENT (UP AND DOWN) OF THE BALL STUD WITHIN THE HOUSING.

SOLUTION:

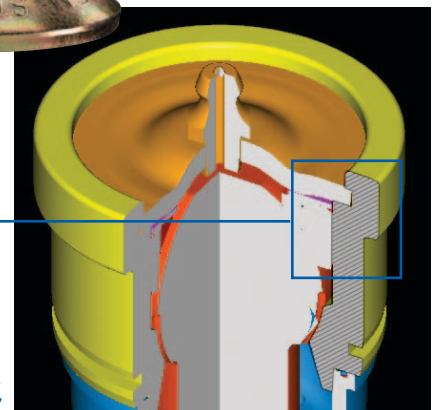
MOOG® Premium Patented Domed Cover Plate Design

- The MOOG exclusive patented domed cover plate fits into a machined groove and is pressed into the part, where it flattens and securely grips the groove, sealing against the housing. This technique allows for a consistent, tight part with minimal axial clearance or deflection (based on a typical 200-lb. test).
- The domed cover plate eliminates excessive lash while allowing adequate assembly clearance, and controls component high-side tolerance "stackup" to prevent binding.
- The patented, proprietary cover plate design holds axial clearances to near-zero lash.
- Axial and radial deflection consistency is more precise than conventional closure methods; providing for more durability, extending the life of the part.



THE COVER PLATE IS MANUFACTURED WITH A DOMED SHAPE THAT FLATTENS AS IT IS PRESSED INTO THE COMPONENT.

MOOG DOMED COVER PLATE IS PRESSED INTO A MACHINED GROOVE TO CONTROL BOTH LASH AND COMPONENT TOLERANCE "STACKUP."



MOOG PATENTED COVER PLATE DESIGN IS FOUND ON MOOG SOCKET-STYLE COMPONENTS, INCLUDING: BALL JOINTS, TIE-ROD ENDS AND SOCKET-STYLE SWAY BAR LINKS



Federal-Mogul Motorparts Corporation. NASCAR is a registered trademark of NASCAR, Inc. MOOG and The Problem Solver are trademarks owned by Federal-Mogul Corporation, or one or more of its subsidiaries, in one or more countries. All other trademarks are the property of their respective owners. All rights reserved. Form# MG27018-R

