MERITOR
RUN WITH THE BULL



CONCERN UNDER INVESTIGATION
TIE-ROD ASSEMBLIES

BY CUSTOMER

MERITOR CONFIDENTIAL

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PROBLEM AT A GLANCE

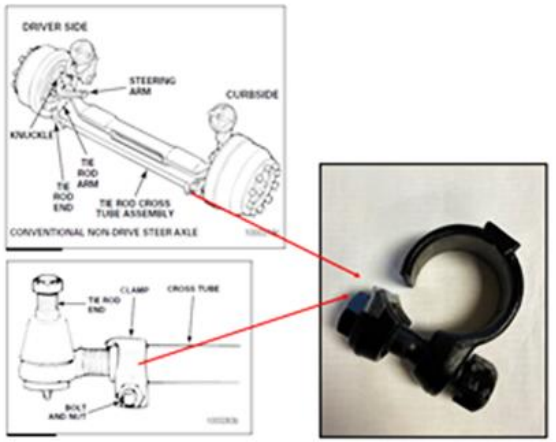
At the end of March 2022, the Meritor Monterrey plant detected in its assembly line a tie-rod carrying a darker stripe which resembled a crack. Immediate actions included working with supplier and sub-supplier containing the issue for on-hand inventories by visual inspection means in different Meritor locations. Further investigation confirmed the defect caused by a problem in the heat-treat process with the sub-tier supplier and helped us to establish clean point for defective components by May 16, 2022.

- No issues from the field have been reported by Meritor customers and only one case was detected by an OEM in their assembly line as of August 25th, 2022.

- Component affecting MFS16 and MFS22 steering front axles
- Suspect tie-rod part numbers: B1-3102N4850 / R4854 & A1-3102S4855
- Three Meritor sites affected: Monterrey, Sisamex and Laurinburg
- Bookends point to axles shipped Dec-16-2021 to May-16-2022
- Impact to 1986 axles serving 12 different customers

- RECOMMENDATION: to replace both clamps on axle tie-rod





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ROOT CAUSE ANALYSIS – CORRECTIVE & PREVENTIVE ACTIONS

Description of Issue:
A crack on one tie rod clamp was detected on the Meritor production floor. A fractured clamp was also found at a down stream assembly process.

Root Cause:
It was determined that the cracking was due to excessive carbon introduced to the clamp surface during a heat treatment process at a sub-supplier to Meritor's tier-1 supplier. This excessive carbon was introduced due to a faulty control board on the sub-supplier's oven.

Containment:
Bookend dates were established and provided by the supplier to Meritor. Parts in house within the time frame were replaced by third party sorting company.

Corrective Actions:

- At Sub-supplier:
  - Faulty oven control board was replaced.
  - Alarm added to oven to alert operators of any deviating conditions.
  - All heat treatment batches receive a metallurgical evaluation for excessive carburization.

- At Supplier:
  - Supplier added quarterly metallurgical evaluation to counter check sub-supplier's carburization inspections.

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CONCLUSION & REPLACEMENT KIT

- Replace both clamps in suspect axle tie-rods.
- A replacement kit has been put together to quickly serve the replacement procedure at a local repairing dealer.

Replacement kit in cardboard box
L9” x W5.5” x H3.25”
Gross W 4.2 lbs.
Barcode Labeled on short end w. PN

Includes:
Clamp (2x); Key (2x); Bolt (2x) and Nut (2x)



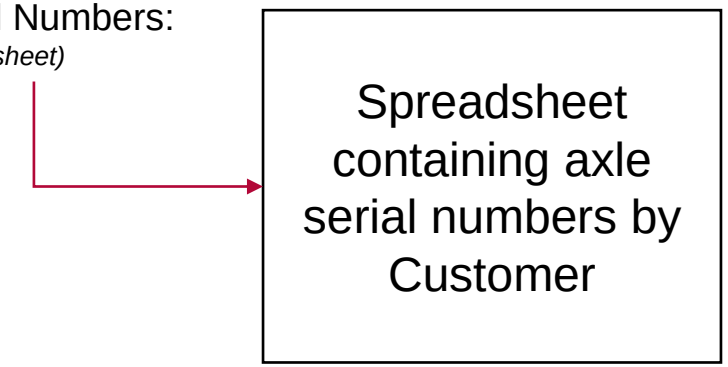


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CUSTOMER AFFECTED POPULATION

Customer	Shipped by Monterrey	Shipped by Laurinburg	Shipped by Sisamex	Quantity (total)
CUSTOMER	562	343	1081	1986

Axle Serial Numbers:
(see attached sheet)



TREAD Act Impact (Non-USA locations only): This issue was found at the Meritor Monterrey, Mexico facility. Axle assemblies have been shipped to OEM customers in the US. Sisamex has shipped to OEM customers in Mexico.

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