



Jennifer Timian
Chief, Recall Management Division
Office of Investigation – Enforcement
National Highway Traffic Safety Administration
1200 New Jersey Avenue SE
Washington, DC 20590

June 13, 2013

Re: Safety Recall EQ 13-002 and 12V-546

Dear Ms. Timian:

Set forth below is the response of Meritor, Inc. ("Meritor") to your office's equipment query investigation into the sale and distribution of certain Meritor S-Cam tube bracket assemblies (EQ 13-002). Meritor's response has been organized according to the individual requests set forth in your May 31, 2013 letter.

NHTSA should be aware that Meritor sells millions of S-Cam tube bracket assemblies to a variety of customers worldwide. Based on my discussion on Thursday, June 6, 2013 with Cynthia Glass of your office, Meritor understands that NHTSA's requests are focused on S-Cam tube bracket assemblies that exhibit the same characteristics; the same part number; the same specifications; and that could have the same failure mode as those that are the subject of NHTSA Campaign No. 12V546000.

"1. Provide a list of all customers that received the same or similarly affected S-Cam tube bracket assembly and provide their company name, line of business (i.e. vehicle manufacturer, equipment manufacturer, distributor, etc.), address, phone number, contact person, quantity sold to each, and sale date."

RESPONSE: Meritor has compiled the requested information and included it with this letter as Attachment No. 1.

"2. State whether Meritor manufactured and sold or distributed any S-Cam tube bracket assemblies in the replacement market and, if so, provide a list of all customers that received the same or similarly affected and provide their company name, line of business (i.e. vehicle manufacturer, equipment manufacturer, distributor, etc.), address, phone number, contact person, quantity sold to each, and sale date."



RESPONSE: Meritor has compiled the requested information and included it with this letter as Attachment No. 2.

Additionally, in response to the second paragraph on Page 2 of your May 31st letter, please note that Meritor does not agree that its S-Cam tube bracket assemblies contain a safety related defect. As I informed Ms. Glass during a March 27, 2013, telephone conversation, Meritor believes that the issue prompting NHTSA Campaign No. 12V546000 is a vehicle system issue; not a component issue.

This conclusion is based on an extensive investigation conducted by Meritor that utilized 8-D problem solving methodology, lab and vehicle testing, and metallurgical analysis. It was determined from this investigation that fractures in S-Cam tube bracket assemblies resulted from a vehicle front-end system vibration. No defects in the design, material, or manufacture of the returned components were found during the investigation.

More specifically, vehicle testing conducted by Meritor revealed a characteristic in the front end/suspension system that resulted in the system becoming "excited" when brake force was applied during normal road use. The same frequency response also was recorded during Belgium Block testing, which consisted of driving a vehicle over a cobblestone-type surface without any brake force being applied.

Due to new FMVSS-121 reduced stopping distance requirements effective August 1, 2011, brake output torque needed to be significantly increased. On certain Navistar vehicles, the reaction to this increased brake torque excites the vehicle front end resulting in a severe vibration event that shakes all front-end components. During the testing referenced above, the accelerations recorded on the S-Cam tube bracket assembly and frame rails were high. Meritor believes accelerations of these magnitudes lead to bracket fatigue fractures. The additional accelerations measured on the frame rails indicate a system instability and lack of ability to absorb energy.

Although S-cam bracket fractures occasionally occur over the life cycle of the vehicle, the root causes are traced back to specific customer application, regional, and duty cycle. Furthermore, the majority of these fractures occur on rear drive axle brackets which are typically longer in length and support significantly larger (heavier) air chambers than front steer axle brackets. The issue that is specifically the subject of this NHTSA investigation is limited only to a population of Navistar vehicles with certain front steer axle brake assemblies and no other customers to Meritor's knowledge. The exact brake assemblies affected are not sold to any other customers except Navistar.

NHTSA should be aware that the S-Cam tube bracket assemblies that are part of NHTSA



Campaign No. 12V546000 are assemblies containing the combination of stamped spiders and reduced stopping distance ("RSD") brake linings. Meritor and Navistar are continuing to monitor S-Cam tube bracket assemblies containing the combinations of (1) stamped spiders and non-RSD brake linings, and (2) cast spiders and RSD brake linings. Information about these combinations can be found in Attachment Nos. 3 and 4 to this letter. It is important to note that no bracket fractures in these assemblies have been reported to date.

Meritor engineering and quality representatives would be pleased to meet with your office in person to review the details of the foregoing investigation. If you would like arrange for such a meeting, or if you have any questions or need additional information, please contact me at 1-248-435-1968 or email Christine.Wright@Meritor.com.

Regards,

A handwritten signature in black ink, appearing to read "Christine Wright", written over a light blue horizontal line.

Christine Wright
Project Manager
Product Safety and Compliance

Attachments (4)

**Brake Assemblies covered by NHTSA Campaign No. 12V546000
(OE Sales)**

| Lining¹ | Bracket | Number of Brake Assemblies Sold² | Date Range |
|---------------------------|----------------|--|-----------------------------|
| MA1201 | C45 | 12,007 | 7/11 thru 7/12 |
| MA1201 | D26 | 736 | 7/11 thru 11/12 |
| MA1502 | C45 | 6,116 | 7/11 thru 7/12 |
| ===== | | | |
| | Total | 18,859 | All sold to Navistar |

One brake specification is used to meet Navistar requirements. From this specification, Meritor supplies the following 26 variations of brake assemblies, all of which use the same or similar bracket.

| Lining¹ | Brake Assembly | Bracket |
|---------------------------|-----------------------|----------------|
| MA1201 | SP2-1655-59 | C45 |
| MA1201 | SP2-1655-60 | C45 |
| MA1201 | SP2-1655-69 | C45 |
| MA1201 | SP2-1655-70 | C45 |
| MA1201 | SP2-1655-71 | C45 |
| MA1201 | SP2-1655-72 | C45 |
| MA1201 | SP2-1655-77 | C45 |
| MA1201 | SP2-1655-78 | C45 |
| MA1201 | SP2-1655-79 | C45 |
| MA1201 | SP2-1655-80 | C45 |
| MA1201 | SL2-1655-141 | D26 |
| MA1201 | SL2-1655-142 | D26 |
| MA1201 | SL2-1655-151 | D26 |
| MA1201 | SL2-1655-152 | D26 |
| MA1502 | SP2-1655-73 | C45 |
| MA1502 | SP2-1655-74 | C45 |
| MA1502 | SP2-1655-75 | C45 |
| MA1502 | SP2-1655-76 | C45 |
| MA1502 | SP2-1655-81 | C45 |
| MA1502 | SP2-1655-82 | C45 |
| MA1502 | SP2-1655-83 | C45 |
| MA1502 | SP2-1655-84 | C45 |
| MA1502 | SL2-1655-149 | D26 |
| MA1502 | SL2-1655-150 | D26 |
| MA1502 | SL2-1655-173 | D26 |
| MA1502 | SL2-1655-174 | D26 |

¹Reduced Stopping Distance ("RSD") Brake Lining.

²There is one bracket for each Brake Assembly.

**Brake Assemblies covered by NHTSA Campaign No. 12V546000
(Aftermarket Sales)**

| PART NUMBER | INVOICE DATE | CUSTOMER | QTY |
|--------------------|---------------------|--------------------|------------|
| 1C45 3299Z6786 | 9/26/2012 | NAVISTAR | 2 |
| 1C45 3299Z6786 | 9/24/2012 | NAVISTAR | 6 |
| 1C45 3299Z6786 | 9/24/2012 | NAVISTAR | 3 |
| 1C45 3299Z6786 | 9/20/2012 | NAVISTAR | 11 |
| 1C45 3299Z6786 | 9/14/2012 | NAVISTAR | 12 |
| 1C45 3299Z6786 | 8/31/2012 | NAVISTAR | 2 |
| 1C45 3299Z6786 | 8/31/2012 | NAVISTAR | 35 |
| 1C45 3299Z6786 | 8/30/2012 | NAVISTAR | 1 |
| 1C45 3299Z6786 | 8/30/2012 | MERITOR WARRANTY | 1 |
| 1C45 3299Z6786 | 8/29/2012 | NAVISTAR | 11 |
| 1C45 3299Z6786 | 8/23/2012 | NAVISTAR | 7 |
| 1C45 3299Z6786 | 8/10/2012 | NAVISTAR | 4 |
| 1C45 3299Z6786 | 8/3/2012 | NAVISTAR | 12 |
| 1C45 3299Z6786 | 8/2/2012 | NAVISTAR | 1 |
| 1C45 3299Z6786 | 8/1/2012 | NAVISTAR | 8 |
| 1C45 3299Z6786 | 8/1/2012 | NAVISTAR | 7 |
| 1C45 3299Z6786 | 8/1/2012 | NAVISTAR | 11 |
| 1C45 3299Z6786 | 7/27/2012 | NAVISTAR | 6 |
| 1C45 3299Z6786 | 7/27/2012 | NAVISTAR | 20 |
| 1C45 3299Z6786 | 7/24/2012 | NAVISTAR | 23 |
| 1C45 3299Z6786 | 7/20/2012 | NAVISTAR | 20 |
| 1C45 3299Z6786 | 7/6/2012 | NAVISTAR | 2 |
| 1C45 3299Z6786 | 7/6/2012 | NAVISTAR | 10 |
| 1C45 3299Z6786 | 6/1/2012 | NAVISTAR | 6 |
| 1C45 3299Z6786 | 5/31/2012 | MERITOR CVA CANADA | 1 |
| 1C45 3299Z6786 | 5/31/2012 | MERITOR CVA CANADA | 2 |
| 1C45 3299Z6786 | 5/31/2012 | NAVISTAR | 10 |
| 1C45 3299Z6786 | 5/24/2012 | NAVISTAR | 1 |
| 1C45 3299Z6786 | 5/23/2012 | NAVISTAR | 1 |
| 1C45 3299Z6786 | 5/21/2012 | NAVISTAR | 21 |
| 1C45 3299Z6786 | 5/14/2012 | NAVISTAR | 15 |
| 1C45 3299Z6786 | 5/3/2012 | MERITOR CVA CANADA | 1 |
| 1C45 3299Z6786 | 5/2/2012 | NAVISTAR | 1 |
| 1C45 3299Z6786 | 8/31/2011 | NAVISTAR | 20 |
| 1C45 3299A6787 | 9/24/2012 | NAVISTAR | 6 |
| 1C45 3299A6787 | 9/24/2012 | NAVISTAR | 2 |
| 1C45 3299A6787 | 9/14/2012 | NAVISTAR | 9 |
| 1C45 3299A6787 | 9/6/2012 | MERITOR MEXICO | 1 |
| 1C45 3299A6787 | 8/31/2012 | NAVISTAR | 6 |
| 1C45 3299A6787 | 8/30/2012 | NAVISTAR | 1 |

| PART NUMBER | INVOICE DATE | CUSTOMER | QTY |
|--------------------|---------------------|--------------------|------------|
| 1C45 3299A6787 | 8/30/2012 | MERITOR WARRANTY | 1 |
| 1C45 3299A6787 | 8/23/2012 | NAVISTAR | 4 |
| 1C45 3299A6787 | 8/13/2012 | NAVISTAR | 8 |
| 1C45 3299A6787 | 8/10/2012 | NAVISTAR | 6 |
| 1C45 3299A6787 | 8/10/2012 | NAVISTAR | 7 |
| 1C45 3299A6787 | 8/3/2012 | NAVISTAR | 3 |
| 1C45 3299A6787 | 8/3/2012 | NAVISTAR | 3 |
| 1C45 3299A6787 | 8/3/2012 | NAVISTAR | 2 |
| 1C45 3299A6787 | 8/3/2012 | NAVISTAR | 4 |
| 1C45 3299A6787 | 8/1/2012 | NAVISTAR | 55 |
| 1C45 3299A6787 | 8/1/2012 | NAVISTAR | 26 |
| 1C45 3299A6787 | 8/1/2012 | NAVISTAR | 9 |
| 1C45 3299A6787 | 7/27/2012 | NAVISTAR | 15 |
| 1C45 3299A6787 | 7/27/2012 | NAVISTAR | 12 |
| 1C45 3299A6787 | 7/27/2012 | NAVISTAR | 16 |
| 1C45 3299A6787 | 7/19/2012 | NAVISTAR | 2 |
| 1C45 3299A6787 | 7/13/2012 | NAVISTAR | 10 |
| 1C45 3299A6787 | 7/13/2012 | NAVISTAR | 1 |
| 1C45 3299A6787 | 7/6/2012 | NAVISTAR | 4 |
| 1C45 3299A6787 | 6/15/2012 | NAVISTAR | 3 |
| 1C45 3299A6787 | 6/15/2012 | NAVISTAR | 2 |
| 1C45 3299A6787 | 6/15/2012 | NAVISTAR | 4 |
| 1C45 3299A6787 | 6/14/2012 | NAVISTAR | 6 |
| 1C45 3299A6787 | 6/14/2012 | NAVISTAR | 8 |
| 1C45 3299A6787 | 6/11/2012 | NAVISTAR | 1 |
| 1C45 3299A6787 | 6/8/2012 | NAVISTAR | 2 |
| 1C45 3299A6787 | 6/8/2012 | NAVISTAR | 4 |
| 1C45 3299A6787 | 6/8/2012 | NAVISTAR | 2 |
| 1C45 3299A6787 | 6/6/2012 | NAVISTAR | 4 |
| 1C45 3299A6787 | 5/31/2012 | MERITOR CVA CANADA | 3 |
| 1C45 3299A6787 | 5/31/2012 | NAVISTAR | 1 |
| 1C45 3299A6787 | 5/30/2012 | NAVISTAR | 1 |
| 1C45 3299A6787 | 5/16/2012 | NAVISTAR | 1 |
| 1C45 3299A6787 | 9/2/2011 | NAVISTAR | 20 |
| 2 D26-3299Z6786 | 11/8/2012 | NAVISTAR | 1 |
| 2 D26-3299A6787 | 11/19/2012 | NAVISTAR | 1 |
| | | | ===== |
| Total | | | 571 |

**Brake Assemblies being Monitored by Meritor & Navistar
(OE Sales)
(No Reported Fractures)**

| Lining¹ | Bracket | Number of Brake Assemblies Sold² | Date Range |
|---------------------------|----------------|--|----------------------|
| R301 & MA212 | C45 | 11,102 | 7/11 thru 3/13 |
| R301 & MA212 | D26 | 0 | 7/11 thru 10/12 |
| MA1201 | B81 | 29,754 | 7/11 thru 7/12 |
| ===== | | | |
| Total | | 40,856 | All sold to Navistar |

One brake specification is used to meet Navistar requirements. From this specification, Meritor supplies the following 24 variations of brake assemblies, all of which use the same or similar bracket.

| Brake Assemblies with Stamped Spiders & Non-RSD Brake Linings | | | Brake Assemblies with Cast Spiders & RSD Brake Linings | | |
|--|-----------------------|----------------|---|-----------------------|----------------|
| Lining¹ | Brake Assembly | Bracket | Lining¹ | Brake Assembly | Bracket |
| MA212 | SP2-1655-107 | C45 | MA1201 | QP2-1655-1235 | B81 |
| MA212 | SP2-1655-108 | C45 | MA1201 | QP2-1655-1236 | B81 |
| MA212 | SP2-1655-111 | C45 | MA1201 | QP2-1655-1237 | B81 |
| MA212 | SP2-1655-112 | C45 | MA1201 | QP2-1655-1238 | B81 |
| MA212 | SP2-1655-115 | C45 | MA1201 | QP2-1655-1239 | B81 |
| MA212 | SP2-1655-116 | C45 | MA1201 | QP2-1655-1240 | B81 |
| MA212 | SP2-1655-119 | C45 | MA1201 | QP2-1655-1241 | B81 |
| MA212 | SP2-1655-120 | C45 | MA1201 | QP2-1655-1242 | B81 |
| R301 | SP2-1655-105 | C45 | | | |
| R301 | SP2-1655-106 | C45 | | | |
| R301 | SP2-1655-109 | C45 | | | |
| R301 | SP2-1655-110 | C45 | | | |
| R301 | SP2-1655-113 | C45 | | | |
| R301 | SP2-1655-114 | C45 | | | |
| R301 | SP2-1655-117 | C45 | | | |
| R301 | SP2-1655-118 | C45 | | | |

¹R301 and MA212 are non-Reduced Stopping Distance ("Non-RSD") Brake Linings.
MA1201 is a Reduced Stopping Distance ("RSD") Brake Lining.

²There is one bracket for each Brake Assembly.

**Brake Assmblies being Monitored by Meritor & Navistar
(Aftermarket Sales)
(No Reported Fractures)**

| PART NUMBER | INVOICE DATE | CUSTOMER | QTY |
|--------------------|---------------------|--------------------|------------|
| 1B81 3299Z6786 | 1/11/2013 | NAVISTAR | 1 |
| 1B81 3299Z6786 | 1/9/2013 | NAVISTAR | 1 |
| 1B81 3299Z6786 | 12/17/2012 | NAVISTAR | 1 |
| 1B81 3299Z6786 | 12/12/2012 | NAVISTAR | 1 |
| 1B81 3299Z6786 | 12/12/2012 | NAVISTAR | 3 |
| 1B81 3299Z6786 | 12/5/2012 | NAVISTAR | 1 |
| 1B81 3299Z6786 | 11/30/2012 | NAVISTAR | 4 |
| 1B81 3299Z6786 | 11/20/2012 | NAVISTAR | 15 |
| 1B81 3299Z6786 | 10/29/2012 | NAVISTAR | 1 |
| 1B81 3299Z6786 | 10/29/2012 | NAVISTAR | 17 |
| 1B81 3299Z6786 | 10/22/2012 | NAVISTAR | 7 |
| 1B81 3299Z6786 | 9/21/2012 | NAVISTAR | 1 |
| 1B81 3299Z6786 | 9/21/2012 | NAVISTAR | 1 |
| 1B81 3299Z6786 | 9/12/2012 | NAVISTAR | 1 |
| 1B81 3299Z6786 | 8/30/2012 | MERITOR CVA CANADA | 1 |
| 1B81 3299Z6786 | 8/13/2012 | NAVISTAR | 1 |
| 1B81 3299Z6786 | 7/16/2012 | NAVISTAR | 1 |
| 1B81 3299Z6786 | 7/16/2012 | NAVISTAR | 1 |
| 1B81 3299Z6786 | 7/16/2012 | NAVISTAR | 1 |
| 1B81 3299Z6786 | 7/10/2012 | NAVISTAR | 1 |
| 1B81 3299Z6786 | 7/10/2012 | NAVISTAR | 1 |
| 1B81 3299Z6786 | 5/18/2012 | NAVISTAR | 5 |
| 1B81 3299Z6786 | 1/23/2012 | NAVISTAR | 2 |
| 1B81 3299Z6786 | 11/30/2011 | NAVISTAR | 2 |
| 1B81 3299Z6786 | 8/3/2011 | NAVISTAR | 1 |
| 1B81 3299Z6786 | 7/26/2011 | NAVISTAR | 1 |
| 1B81 3299Z6786 | 6/20/2011 | NAVISTAR | 1 |
| 1B81 3299Z6786 | 6/14/2011 | NAVISTAR | 6 |
| 1B81 3299A6787 | 4/19/2013 | NAVISTAR | 12 |
| 1B81 3299A6787 | 3/29/2013 | NAVISTAR | 2 |
| 1B81 3299A6787 | 11/30/2012 | NAVISTAR | 2 |
| 1B81 3299A6787 | 11/20/2012 | NAVISTAR | 16 |
| 1B81 3299A6787 | 9/26/2012 | NAVISTAR | 1 |
| 1B81 3299A6787 | 9/26/2012 | NAVISTAR | 2 |
| 1B81 3299A6787 | 8/17/2012 | NAVISTAR | 1 |
| 1B81 3299A6787 | 8/13/2012 | NAVISTAR | 5 |
| 1B81 3299A6787 | 7/30/2012 | NAVISTAR | 1 |
| 1B81 3299A6787 | 12/29/2011 | NAVISTAR | 2 |

| PART NUMBER | INVOICE DATE | CUSTOMER | QTY |
|--------------------|---------------------|-----------------|------------|
| 1B81 3299A6787 | 12/12/2011 | NAVISTAR | 2 |
| 1B81 3299A6787 | 11/17/2010 | NAVISTAR | 1 |
| 1B81 3299A6787 | 11/9/2010 | NAVISTAR | 1 |
| 1B81 3299A6787 | 8/13/2010 | NAVISTAR | 1 |
| 1B81 3299A6787 | 7/23/2008 | NAVISTAR | 4 |
| 1B81 3299A6787 | 5/16/2008 | NAVISTAR | 1 |
| 1B81 3299A6787 | 5/9/2008 | NAVISTAR | 1 |
| 1B81 3299A6787 | 4/29/2008 | NAVISTAR | 1 |
| | | | ===== |
| Total | | | 136 |