RANGER BRAKE

TECH BULLETIN: BRAKE CHAMBER STUDS RIPPED OUT

Factors That Create STUD HOUSING (NPH) Damage

PLEASE NOTE:

- INITIAL MOUNTING NUT TORQUE FOR **TYPE 30** CHAMBER IS **135-155 FT LBS**.
- THE TORQUE MUST BE MAINTAINED FOR THE LIFE OF THE CHAMBER.
- STUD HOUSINGS BECOME BROKEN WHEN THEY WORK LOOSE ON THE BRACKET OR WHEN THE BRAKE CHAMBER COMES IN CONTACT WITH A HARD SURFACE PER EXAMPLES BELOW.

3 LEADING CAUSES OF BROKEN STUD HOUSINGS:

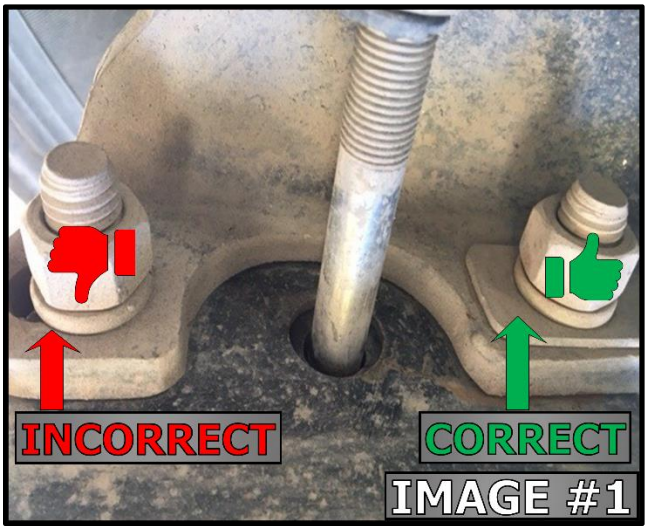
1. A MOUNTING BRACKET WITH SLOTTED HOLE DESIGN:

   A. **IMAGE #1 INCORRECT:**
   - NOTICE THE SPRING PORTION OF THE LOCK WASHER IS NOT AGAINST A SOLID SURFACE.
   - THIS INSTALLATION SET-UP WILL ALLOW THE NUT TO BECOME LOOSE OVER TIME AND DESTROY THE STUD HOUSING AS SHOWN IN **IMAGE #2 BELOW.**

   B. **IMAGE# 1 CORRECT:**
   - THIS INSTALLATION SET-UP HAS A FLAT WASHER UNDER THE LOCK WASHER.
   - THIS PROVIDES A FLAT SURFACE FOR THE LOCK WASHER TO LOCK AGAINST.
   - IF NO FLAT WASHER IS USED, THEN THE LOCK WASHER MUST BE ORIENTED SO THAT THE SPRING/SPLIT PORTION IS ON THE SOLID SURFACE OF THE MOUNTING BRACKET.
   - THE LOCK WASHER MUST BE ORIENTATED SO IT CAN ACTUALLY LOCK.

2. A MOUNTING BRACKET WITH A DAMAGED OR WORN ROUND HOLE (**IMAGE 1A**).
   - A FLAT WASHER, LOCK WASHER AND CORRECT TORQUE WILL MINIMIZE THE POSSIBILITY OF THE HEX NUT BECOMING LOOSE DURING VEHICLE OPERATION. SEE **IMAGE #1A.**

3. A CHAMBER MAKING PHYSICAL CONTACT WITH A CONCRETE CURB, DIRT, ROCK OR GRAVEL, ETC.
   - THIS CONTACT WILL APPLY EXTREME PRESSURE TO THE SPRING HOUSING.
   - THE RESULT IS IMMEDIATE DAMAGE TO THE STUD HOUSING (NPH) TO SOME EXTENT.
   - THE TERM FOR THIS CONTACT IS CALLED "BOTTOMING OUT".
   - BENDING, TEARING AND COMPLETELY RIPPING OFF THE STUD HOUSING (NPH) FROM THE MOUNTING BRACKET CAN OCCUR.
   - SEE **IMAGE #2,** WHICH REPRESENTS THE EXTREME RESULT IN ALL THREE OF THE MAIN CAUSES OF BROKEN STUD HOUSINGS.



SEE ARTICLE PUBLISHED IN TODAY'S TRUCKING **ON PAGE 2**

SPRING BRAKE CHAMBER INSPECTION TIPS

Posted: August 1, 2014

Loose mounting nuts

The key to increasing the service life of a truck's spring brake chamber system is to know what to look for, and how to spot safety problems easily during a daily pre-trip inspection.

Often overlooked, the spring brake chamber is at the very heart of the air brake system, and provides the pneumatic and mechanical power to stop the vehicle, along with the parking and emergency power to keep it stopped.

These important inspection tips from TSE Brakes, Inc., make it possible to keep an eye on the condition of your spring brakes, optimizing the chamber's performance and extending it's service life. TSE has seen just about everything that can possibly go wrong with a spring brake chamber. Our work in new spring brake research and development today is part of a 40-year effort by TSE that has examined over three million spring brake failures by all major manufacturers.

There is more going on inside your brake chambers than you probably think. The units are full of moving parts, many of which are inaccessible to the end user. But from the outside, it is easy to spot trouble brewing, even at an arm's length away.

These specific tips offer the best advice on quickly inspecting your spring brake chamber system:

Loose mounting nuts

Some major spring brake manufacturers including TSE have strengthened the method by which the unit's two mounting studs are attached, so the occurances of mounting stud breakage and pullout have been minimized. But none of that matters if the nuts that hold the chamber on are allowed to work loose. During an inspection of the braking system, be sure to look carefully at the two mounting nuts that hold every chamber onto the axle. Any signs of uneven wear, loose or missing nuts, or road damage require immediate attention to prevent the type of severe damage shown in the illustration.

Misalignment Installation: misalignment:

Once mounted in the proper spot on your axle, the chamber's pushrod, which connects the unit to the slack adjuster, should come directly out of the hole in the bottom of the service chamber. Common causes of misalignment are improper push rod length, or mounting in the wrong hole or slat position. These installation mistakes force the pushrod up against the side of the opening, causing premature wear, and eventual damage to the diaphragm.

Missing cap - Missing breather cap

As a spring brake chamber operates, air is going in and out all over the place. This constant displacement of air as the unit's two diaphragms cycle through requires a need for the chamber to breathe.

One of the quickest ways to prevent future damage to your chamber is to always be sure there is a secure breather cap in good condition installed. Once the breather cap becomes damaged or missing, moisture, dirt and debris can be easily sucked into the chamber, causing premature corrosion damage to the main power spring. During a walk around inspection, missing breather caps are easy to spot. Catching one early is your best defense against additional internal damage.

All drivers and fleet maintenance personnel would be well advised to add these inspection tips to their daily pre-trip ritual, as the spring brake chambers are not a part of the braking system that should be overlooked. Kept in top shape, the modern spring brake chamber will last for years, providing plenty of stopping and parking power for today's demanding Class 8 trucks.