



BRAKES

ENGINEERED SOLUTIONS

Bulletin BES 04-10

Subject: BRAKE FLUID INTEGRITY

Vehicle Involved: ALL

Condition: Detrimental Corrosion in the Brake Hydraulic System

Repair Procedure: Flush and replace the brake hydraulic system fluid with new brake fluid based on service intervals determined by the vehicle manufacture. If service intervals are not specified by the manufacture, we recommend flushing the brake system a minimum of every 2 years or 24,000 miles.

The reasons for the brake fluid replacement have increased with the addition of new chemical data analysis. Within the hydraulic system significant corrosion is found with minimal water contamination existing. The first explanation is the depletion of corrosion inhibitors, ph stabilizers and antioxidants that were additives designed to provide long-term corrosion protection to the hydraulic system. Secondly, a high concentration of copper partials eroded from the inner wall of the steel brake lines contribute to a galvanic reaction between dissimilar metals promoting a corrosion build up on brake hydraulic components like master cylinders, wheel cylinders, calipers, filter screens and ABS valve bodies.

According to time interval testing the corrosion starts when the vehicle is new and proceeds at a rate corresponding to the oxidizer content of the brake fluid. Copper will corrode before other metals in brake systems because of contact with more active metals, and the low conductivity of brake fluid allows copper corrosion to proceed.