Low Volume Vehicle Technical Association (inc)

SAFETY ALERT
 # 02 - 2021 (June 2021)

Helping New Zealanders Build & Modify Safe Vehicles

AFTERMARKET CHROME BRAKE BOOSTER BOLT FAILURE

LVVTA has recently become aware of several aftermarket chrome brake booster bolt failures. Three cases have been reported to LVVTA involving chrome 8-inch dual-diaphragm boosters in which the studs holding the master-cylinder to the booster have broken at the point at which they crimp to the booster.

One of the boosters had CPP (Classic Performance Products) brand markings on it (part number 8DSRB), however the other boosters could not be identified.

The bolt failures in the three cases brought to the attention of LVVTA occurred when:

1. the owner was bleeding the braking system;
2. the brake pedal was being depressed during a rolling road brake test;
3. the studs were being tightened during master-cylinder fitment.

Material Anaylsis Findings

LVVTA sent the broken studs and an OEM stud to a metallurgist for examination and comparison. The fracture face and microstructure were analysed, and a chemical analysis was carried out. The results showed the aftermarket booster studs broke from a single event rather than from fatigue, and the overall hardness of the straight section of the shank was 190HV ('Vickers'-type hardness measurement) compared to 350HV for the OEM stud. The metallurgist concluded that:

"The fractured brake booster bolt is forged from a low carbon steel and is in the as-forged condition. The high-stressed head has fractured off. The fractured brake booster bolts are poor quality compared to the quenched and tempered higher strength OEM brake booster bolt."

Guidance for Affected Owners and LVV Certifiers

Potentially-affected vehicle owners should cease driving the vehicle, and make contact with an LVV Certifier in order to determine whether the brake booster fitted to their vehicle is of the type detailed in this Safety Alert.

When certifying a vehicle fitted with a chrome 8-inch dual-diaphragm booster, LVV Certifiers must ensure that the bolts securing it to the brake master-cylinder are torqued to 27 Newton-meters (20 Foot-pounds) as part of their inspection.

FOR FURTHER INFORMATION PLEASE CONTACT YOUR LVV CERTIFIER, OR LVVTA.