

FOR VEHICLES FITTED WITH ABS



**BENDIX ULTIMATE 4WD BRAKE BOOSTER UPGRADE, ONLY TO BE
FITTED BY AUTHORISED/QUALIFIED FITTER OR TECHNICIANS.**



All brake components must be in good working condition to gain maximum benefit from installing a dual diaphragm booster. We recommend upgrading rubber brake hoses with Bendix Ultimate 4WD stainless steel braided brake hoses.

Before starting it is recommended that the vacuum supply to the booster has a minimum of 67 kpa of vacuum. If the system is not reaching this level, the vacuum system including the vacuum pump and hoses need to be checked.

The vehicle should be driven by the same person before and after installation. Noting: brake pedal effort and travel before brakes start to apply, both with the engine running and not running.

Once work on the hydraulic system has commenced, do not turn the ignition on until you have bled the 2x pipes going into the ABS pump from the brake master cylinder. This will greatly reduce the chance of air being caught in the ABS pump. When the ignition is turned on the ABS pump will cycle and draw air into the system if not bled.

DISASSEMBLY

- 1 Remove the brake pipes at the master cylinder using the correct pipe spanner, try to minimise fluid loss by plugging the ports on the master and placing blockers on the brake lines. Keeping the master and brake lines charged with brake fluid will assist the bleeding process on assembly. Once the master cylinder is removed inspect the plunger seal and replace the master cylinder on any sign of leakage.
- 2 Remove the vacuum hose and disconnect the pushrod from brake pedal.
- 3 Unbolt the booster from the firewall of the vehicle. Taking note of the original spacer fitted between the booster and firewall.

- 4 On the original booster, measure the distance from the fire wall face to the pedal mount and adjust the new booster to the same length.

On the new booster, confirm the push rod end depth on the master cylinder side is set to 23mm from the mounting face of the booster to the push rod end. This is set from factory to suit the OEM master cylinder and should not need to be changed unless the master cylinder has been replaced with an aftermarket unit OR has been previously rebuilt. In this case the push rod end adjustment must be carried out to suit the master cylinder. If in doubt carry out the push rod depth test below.



- 5 To test pushrod end adjustment for NON OEM or rebuilt master cylinders:

On the bench, remove the main o'ring from the brake master cylinder body that seals the master cylinder in the booster, this will allow you to feel if the push rod end is contacting the master cylinder. With the o'ring removed slide the master cylinder into the booster and test for clearance between the push rod end and the master cylinder. The push rod end must not pre load or contact the master cylinder. Ideal distance between the push rod end and the master cylinder is 0.5mm. Undo the push rod end locknut and adjust distance until correct depth is achieved. Ensure locknut is secure on the push rod end and the o'ring is re-installed on the master cylinder body before final assembly.

- 6 Clean any old gasket material from the master cylinder and firewall faces.

ASSEMBLY

- 1 When installing booster pushrod through firewall, inside the vehicle, ensure the pushrod is correctly guided onto the pedal. Ensure supplied gasket AND original spacer is fitted to the booster before assembly.



- 2 Install the master cylinder making sure the push rod end is mated squarely with the master cylinder. Adjust the position of the brake pipes as required then re-install brake pipes and vacuum hose.

- 3 Fill the reservoir with new brake fluid using the specified Dot point fluid.



- 4 With **ignition off** remove any air caught in the pipes between the master cylinder and ABS pump. Using a pipe spanner, loosen the fitting on the ABS pump while another person gently applies the brake pedal. Do not let the master cylinder reservoir run out of brake fluid when bleeding. Brake fluid and any air should come out of the fitting. Tighten the fitting before brake pedal is released.

Repeat if necessary.

- 5 Top up the brake fluid reservoir to the correct level.
- 6 When air is caught in the ABS pump, the use of a compatible scan tool is required to activate and bleed the ABS system. Follow the factory procedure as specified in the factory service manual. Failure to do this will result in poor pedal feel and excessive pedal travel.
- 7 When installation is complete confirm pedal height and operation is the same or better than original without engine running.
- 8 With ignition on, check that the brake lights work as soon as pedal is applied. Then test with engine running before road testing vehicle. Due to the light control valve and higher output of unit, please be aware that the vehicle now requires much less pedal pressure than before the fitment of the booster upgrade.

COMMON INSTALLATION PROBLEMS

Fault	Cause
Soft Brake Pedal + Excessive Pedal Travel	Air in system – Follow factory procedure with use of scan tool to activate ABS bleed process.
Excessive Pedal Travel Only	Incorrect push rod adjustment, confirm pedal side adjustment against original booster, if correct – confirm push rod end adjustment.
Brake Lights Stay On	Incorrect push rod adjustment, pedal side (Too short).
Insufficient Length in Push Rod Adjustment	OEM spacer block not fitted.
Brakes Dragging	Incorrect push rod adjustment, confirm pedal side adjustment against original booster, if correct – confirm push rod end adjustment.
Hard Pedal	Low Vacuum – test for vacuum leaks in hoses and 1 way valve.