

- If brake pedal height is maintained, reinstall brake tubes and tighten to specification. REFER to: Brake Master Cylinder . After installation, bleed the brake system. REFER to: Brake System Pressure Bleeding .

DIAGNOSIS AND TESTING > BRAKE SYSTEM > COMPONENT TEST- BRAKE MASTER CYLINDER - COMPENSATOR PORT

1.

Inspect the master cylinder.

2.

REFER to: Jacking and Lifting - Overview .

3.

Apply and release the brakes.

4.

With the brakes released, attempt to rotate each wheel and check for any brake drag.

- If an excessive amount of brake drag exists at multiple wheels, continue to Step 5.
- If an excessive amount of brake drag exists at only one wheel, it indicates a possible seized brake caliper, brake wheel cylinder or parking brake component. Repair or install new components as necessary.

5.

Check the brake stoplamp switch and the brake pedal free play to verify the brake pedal is not partially applied.

6.

Loosen the brake master cylinder nuts and position the brake master cylinder away from the brake booster.

7.

With the brakes released, attempt to rotate each wheel and check for any brake drag.

- If the brake drag is no longer present, install a new brake booster. REFER to: Brake Booster - 2.3L EcoBoost (201kW/273PS) . REFER to: Brake Booster - 3.7L Duratec (227kW/301PS) . REFER to: Brake Booster - 5.0L 32V Ti-VCT .
- If the brake drag is still present, install a new master cylinder. REFER to: Brake Master Cylinder .

GENERAL PROCEDURES > BRAKE DISC MACHINING

Repair



NOTE: On-Vehicle Brake Lathe Training Videos

1.

Vehicle preparation.



A multimedia supplement to the instructions contained in this article is available.

To view the multimedia example of the condition described go to;

**<http://www.youtube.com/user/Mitchell1Tips>
then type, "A00673934.Vid1" into the "Search Channel" box.**

2.

Mounting the machine.



A multimedia supplement to the instructions contained in this article is available.

To view the multimedia example of the condition described go to;

**<http://www.youtube.com/user/Mitchell1Tips>
then type, "A00673934.Vid2" into the "Search Channel" box.**

3.

Lateral runout adjustment.



A multimedia supplement to the instructions contained in this article is available.

To view the multimedia example of the condition described go to;

**<http://www.youtube.com/user/Mitchell1Tips>
then type, "A00673934.Vid3" into the "Search Channel" box.**

4.

Making the cut.



A multimedia supplement to the instructions contained in this article is available.

To view the multimedia example of the condition described go to;

**<http://www.youtube.com/user/Mitchell1Tips>
then type, "A00673934.Vid4" into the "Search Channel" box.**

box.

5.

Cutting the opposite side.



A multimedia supplement to the instructions contained in this article is available.

To view the multimedia example of the condition described go to;

**<http://www.youtube.com/user/Mitchell1Tips>
then type, "A00673934.Vid5" into the "Search Channel" box.**

6.

Lathe maintenance.



A multimedia supplement to the instructions contained in this article is available.

To view the multimedia example of the condition described go to;

**<http://www.youtube.com/user/Mitchell1Tips>
then type, "A00673934.Vid6" into the "Search Channel" box.**

Repair



NOTE: On-Vehicle Brake Disc Machining



NOTE: Do not use a bench lathe to machine the brake discs. Use an on-vehicle brake lathe only. Read the entire operating manual and/or view the video shipped with the lathe before installing, operating or repairing the lathe.



NOTE: Lateral runout and disc thickness variation measurements are not required because correct adjustment of the on-vehicle brake lathe will make sure that these dimensions are within specification.

1.

Refer to: Wheel and Tire .



NOTE: It is not necessary to disconnect the brake hose from the brake caliper.



NOTE: Do not allow the caliper to hang from the brake hose or damage to the hose may occur.

2.

Remove the bolts and position the brake caliper or brake caliper and anchor plate assembly aside, as required. Support the brake caliper using mechanic's wire.



NOTE: On some vehicle applications the axle on the opposing side may rotate during the machining process. On these applications the brake disc must be secured or damage may occur.

3.

If necessary, secure the opposing brake disc by installing 2 wheel nuts finger tight.

4.

Install the hub adapter using four wheel nuts on a 4, 7 or 8-stud wheel hub.

Install the hub adapter using five wheel nuts on a 5 or 10-stud wheel hub.

Install the hub adapter using six wheel nuts on a 6-stud wheel hub.

5.

Install the cutting lathe.



NOTE: An on-vehicle brake lathe with an automatic runout adjustment feature is preferred. However, if the lathe is not self adjusting, the lathe oscillation must be adjusted using a dial indicator. The total indicated runout target is 0.000 mm (0.000 in). The maximum indicated runout should be no more than 0.050 mm (0.002 in). If the runout adjustment (automatic or manual) is carried out correctly prior to machining, then the final brake disc runout will be within specification and a runout measurement is not necessary after machining.

6.

If the lathe is not self-adjusting, adjust the lathe oscillation using a dial indicator.

7.

Center the cutting head, adjust the cutting bits and install the chip deflector/silencer.



NOTE: The depth of the cut should be between 0.10 and 0.40 mm (0.004 and 0.015 in). Lighter cuts will cause the bit to heat up and wear faster. Heavier cuts will cause poor brake disc surface finish.

8.

Machine the brake disc.