

TECH ARTICLE # T001

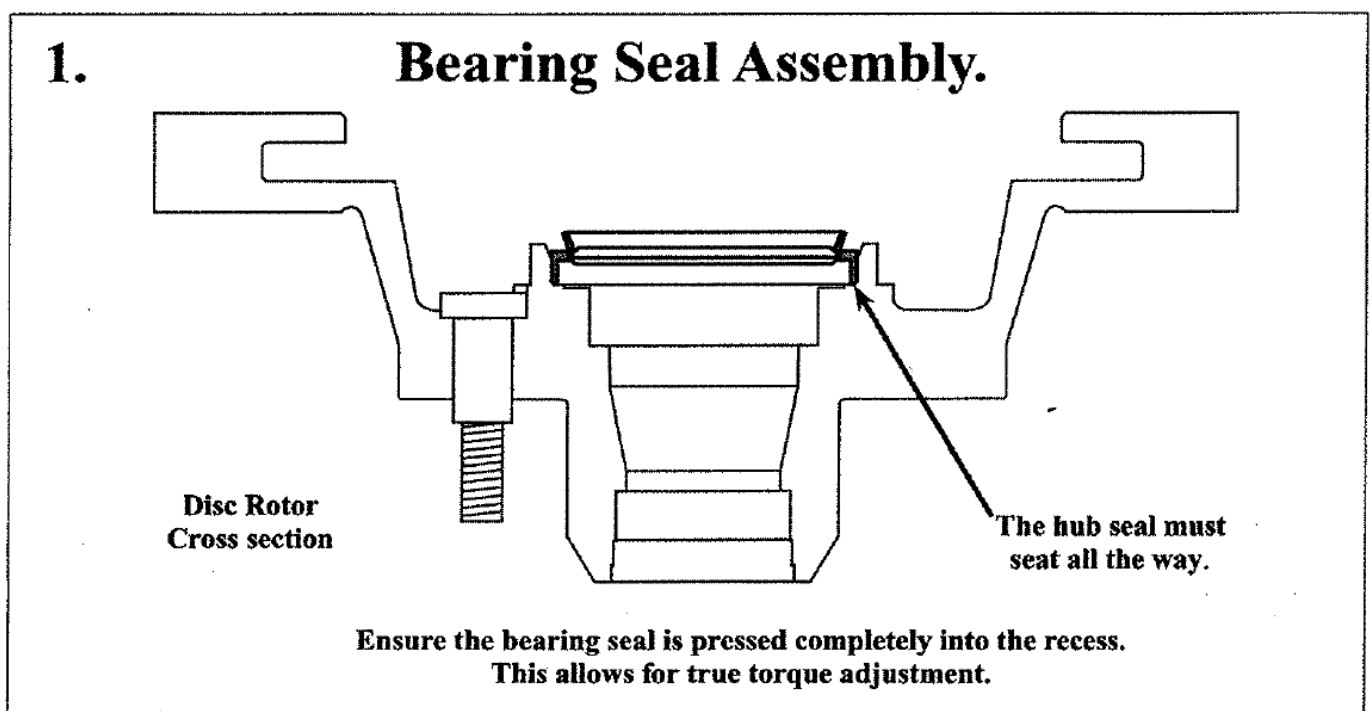
Shudder – EA to EL Falcon – Preventing Shudder

One of the most common problems encountered today is brake pedal pulsation and/or brake shudder in EA to EL model Ford Falcons. This is due to Disc Thickness Variation (DTV) being worn into the disc rotor. As little as 15 microns of DTV will cause this problem, which may not be apparent until the vehicle has travelled between 1500 and 8000 kilometres after new rotors have been fitted. This DTV is generally caused by either the rear seal not being fitted correctly or incorrect preload adjustment on the wheel bearings. This DTV is caused when the brakes are in the off position, the pads continue to rub intermittently along the face of the rotor scalloping the friction faces causing high spots. The more aggressive the pad material the worse the problem becomes.

Consider that 26 microns is 0.026mm or 0.001" (one thousandth of an inch) and you can realise that this becomes very difficult to measure. Using a dial indicator on the friction face of the disc will not measure DTV only run out. By measuring the thickness between the two friction faces with a micrometer over eight different places around the disc this will indicate if DTV is present.

To rectify the shudder, if DTV is present, you will need to machine the rotor, if it remains within the scrap tolerance, or replace the rotor. To prevent DTV returning there are several important service procedures that must be adhered to.

For long term performance of disc rotors to suit Ford models; EA-EL, DA-DL, NA-NL it is recommended to follow these fitment procedures.



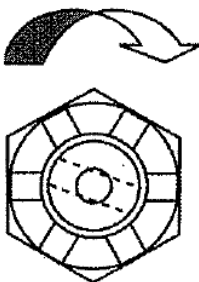
The seal must be inserted all the way to the bottom of the bore (refer to diagram 1).

If it does not go all the way in, when attempting to adjust the bearings, the seal presses against the end of the stub axle and therefore you cannot adjust the bearing correctly.

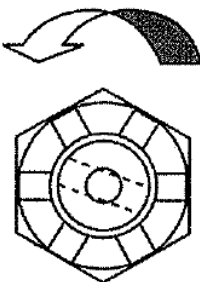
Because of the design of the rotor, it tends to lean over towards the hub and if the bearings are not adjusted correctly then built-in run-out will occur.

It has come to our attention that the bearing adjustment on the above mentioned models is critical to the long term performance and operation of the disc rotor. It is suggested that you follow the Ford Workshop Manual instructions for best results. The front wheel bearing should be adjusted if the hub is too loose on the spindle or if the wheel does not rotate freely.

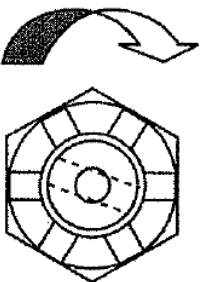
2. Wheel Bearing Adjustment



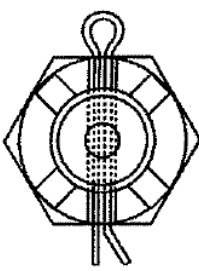
**With hub rotating
tighten adjusting nut
to 30 Nm**



Back off 1/2 a turn



Tighten to 1.5 Nm



**Install the lock and
new cotter pin.**

The following procedure will bring the bearing adjustment to manufacturer's specification.

1. Remove the wheel where necessary.
2. Remove the hub dust cap.
3. Remove the split pin and nut retainer.
4. Loosen the bearing adjusting nut 3 turns. Then, rock the wheel/hub and disc in and out several times to relieve the brake pads from the disc.
5. While rotating the wheel/hub torque the adjusting nut to 30 Nm to seat the bearings.
6. Loosen the adjusting nut half a turn then re-tighten to 1.5 Nm.
7. Selectively position the nut retainer on the adjusting nut so that a set of slots lines up with the hole on the spindle.
8. Lock the adjusting nut and retainer with a new split pin.
9. Check the wheel/hub rotation. If the bearings rotate properly, install the hub dust cap. Install the wheel where necessary. If the bearings are rough or noisy in operation clean and replace the bearing assemblies as required.
10. Lower the vehicle.
11. Before driving the vehicle, pump the brake pedal several times to obtain normal brake lining to disc clearance and restore normal brake pedal travel.

Technical Support
Disc Brakes Australia