

INSTALLATION GUIDE

FORD RANGER REAR DISC CONVERSION



For 60 years Harrop Engineering has been at the forefront of designing, developing and manufacturing precision performance components. Today our innovative and logical approach is applied to low volume automotive OEMs and the performance aftermarket through a dedicated team of 65 staff. Core performance products include Superchargers, Engine Components, Brakes, Differentials and we are also the exclusive Australian Distributor for Forgeline Motorsport Wheels & Lingenfelter Performance Parts.

Harrop are also the preferred supplier of Eaton Supercharger and Traction Control technology including dual branded product designed and manufactured in-house. There are currently over 4000 components in our portfolio and this is growing daily as we continually develop more Harrop Performance Products.

Our high profile car manufacturing customers include Holden, HSV, FPV, Roush and Lotus.

We also supply to race teams from categories including F1, NASCAR and V8 Supercars and an extensive range of drag, circuit and off-road competitors. Just as importantly, a large portion of our customers are performance enthusiasts and weekend warriors who are highly passionate about their ride.

Please take a moment to review the following pages and learn why Harrop is the first choice in performance products.

Thank you for choosing Harrop and enjoy your Harrop enhanced ride.

- Team HARROP



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ATTENTION: READ BEFORE PROCEEDING



Special Tools & Parts Required

1. C Spanner or Ford tool 205-330A (Can be purchased from Bosch Automotive Tools) Refer to Step 9 for use.



2. Press jig. Refer to Step 11 for use.



3. Arbour Press. Refer to Step 24 for use.



4. Large Hydraulic Press - Refer to Step 12 for use.



5. Bearings for axles, if found to be water damaged or worn.
Bearing Kit - #WBK5509.

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IMPORTANT INFORMATION

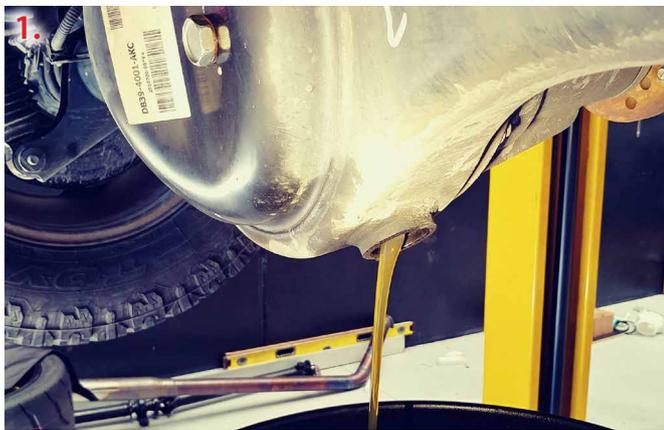
Please read and fully understand installation instructions before commencing disassembly of your vehicle. Recommend installation of this brake kit be completed by Harrop certified dealer.

1. Drain rear differential

- 1.1. Loosen differential fill plug.
- 1.2. Remove differential drain plug and drain fluid from differential.

2. Remove drum brake cover

- 2.1. Remove retaining screw from drum cover.
- 2.2. Remove drum outer and put aside.

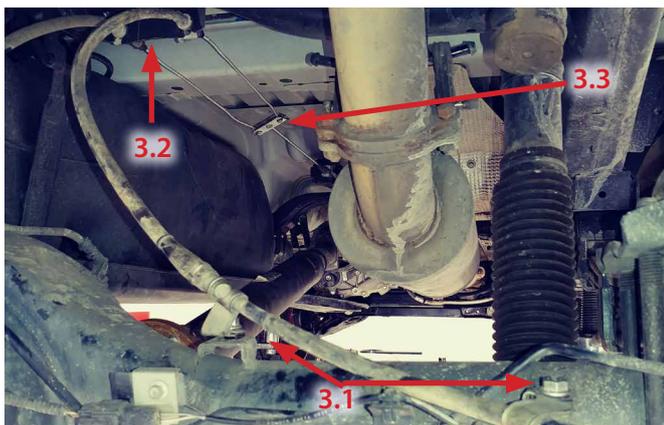


3. Disconnect and remove handbrake cable

- 3.1. Unbolt the two nuts that retain cable to differential housing.
- 3.2. Remove cable retaining clip and remove cable from under car retaining bracket.
- 3.3. Disconnect cable from 2-1 under car cable join.

4. Remove ABS Sensor

- 4.1. Remove bolt that retains ABS sensor to diff housing.
- 4.2. Set ABS sensor out of the way. Be careful with the ABS sensor – it is delicate.



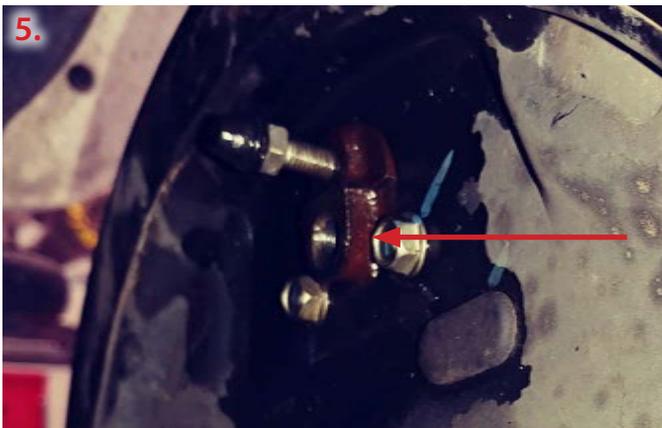
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5. Disconnect brake line

- 5.1. Use a brake line clamp to crimp the brake line upstream at a soft line point.
 - 5.2. Disconnect brake line from rear wheel cylinder.
- Recommend gloves whenever working with brake fluid.

6. Remove axle retaining bolts

- 6.1. Remove 4 axle retaining nuts from their studs and set aside.

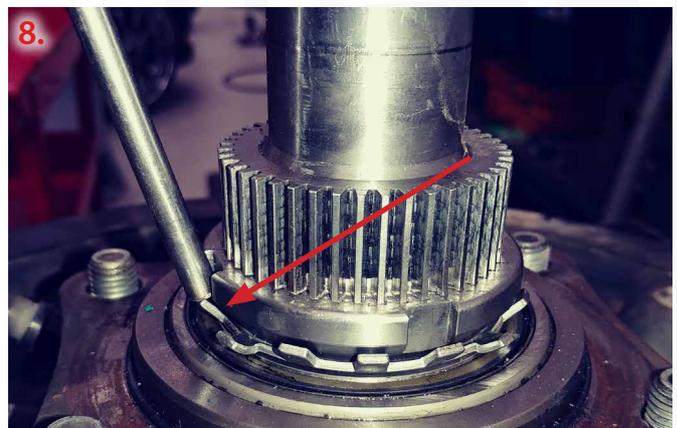


7. Remove axle and drum assembly

- 7.1. Slide axle and drum assembly away from differential housing.
- This assembly is heavy. Be careful not to drag axle along axle tube oil seal.

8. Unstake axle bearing retainer clip

- 8.1. Use a punch to bend the axle retaining clip away from the axle retaining nut.



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9. Remove axle bearing retaining nut and ABS tone ring

9.1. Use a C-Spanner or appropriate tool to remove the axle bearing retaining nut.

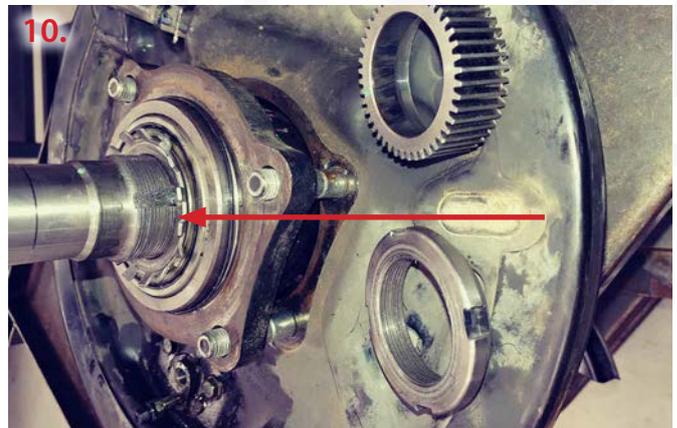
9.2. The ABS tone ring will come off as the nut is unwound.

ABS tone ring is press fit to the shaft. The retaining nut will be tight until the tone ring is removed.

10. Remove axle bearing retaining nut clip

10.1. The clip can now be slid off the axle assembly.

The retaining nut and tone ring are two pieces. They are sided. Do not mix left hand and right hand.



11. Prepare to remove axle from bearing carrier

11.1. Attach a suitable press jig to the 4 studs that retain the axle assembly in the axle housing.

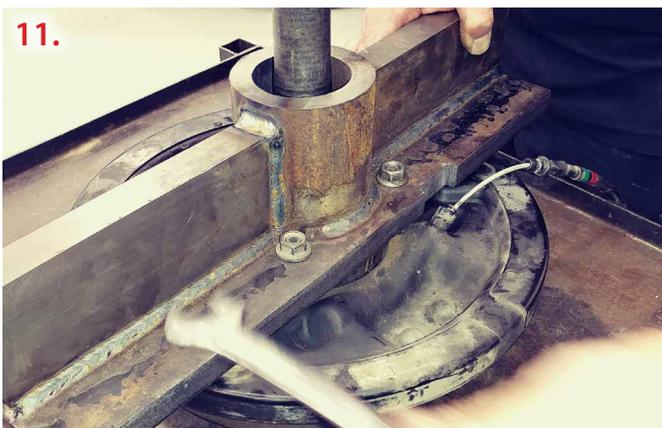
11.2. Tighten all 4 nuts to the studs.

12. Press axle out of bearing carrier

12.1. Use a suitable press to press down on axle tube.

12.2. This will remove the axle tube from the bearing housing.

Note - This is a tight press fit. A hydraulic press is required.



13. Inspect bearings

13.1. Remove bearing housing from press jig and inspect bearings in bearing housing and on the axle.

13.2 Replace bearings if worn or damaged.

Bearing kit #WBK5509

14. Remove hand brake cable

14.1. Remove retaining clip from outside of backing plate

14.2. Disconnect hand brake cable from shoes in stock backing plates.

14.3. Feed hand brake cable back through stock plates to remove.



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15. Assemble backing plates

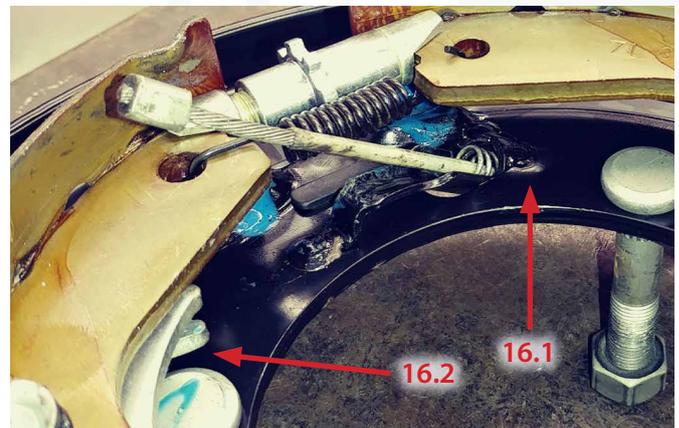
- 15.1. Assemble backing plates by pressing supplied studs through supplied back plate.
- 15.2. Assemble hand brake shoes onto backing plate assembly.

Use a light smear of brake part lubricant between shoes and backing plate where contact is made.

16. Install hand brake cable

- 16.1. Feed hand brake cable in through the backing plate assembly.
- 16.2. Hook hand brake cable onto the hand brake shoes. It will clip onto the silver bracket attached to the trailing shoe.

It is imperative that this step is completed at this stage. The cable will be difficult to install on vehicle.



17. Install handbrake cable retaining clip

- 17.1. Install hand brake cable retaining clip.

Ensure the clip is all the way home to ensure correct operation of the hand brake and retention of the hand brake cable.

18. Install backing plate assembly onto axle

- 18.1. Slide the backing plate assembly onto the axle.



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19. Install bearing carrier assembly onto axle

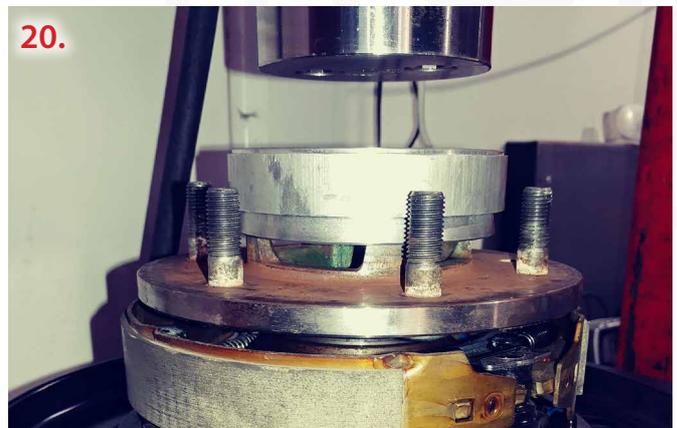
19.1. Slide the bearing carrier down over the axle.

19.2. Install press tool back onto axle assembly to prepare to press the components together.

20. Press axle assembly together

20.1. Use a hydraulic press to press the axle assembly back together.

Note - This is a tight press fit and will require a hydraulic press to complete.



21. Reinstall bearing retaining nut and bearing retaining clip

21.1. Slide bearing retaining clip and nut back onto the axle assembly.

21.2. Tighten nut to 275Nm.

22. Re-stake retaining clip in 2 places to ensure proper retention



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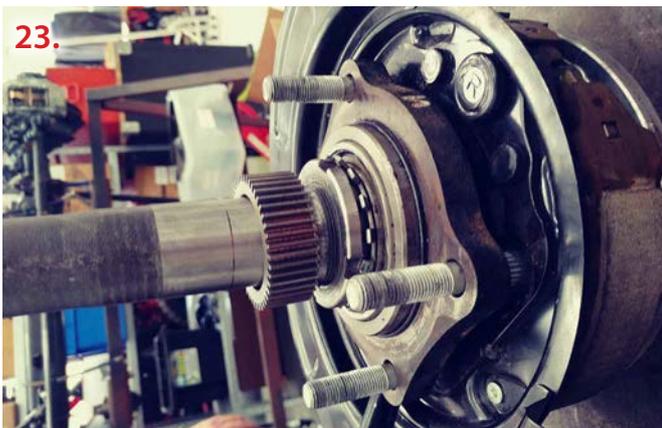
23. Reinstall ABS tone ring

23.1. Slide ABS tone ring back onto axle assembly.

24. Press ABS tone ring back onto axle assembly

24.1. A small arbour press can be used to reinstall the ABS tone ring.

Note - Take care when reinstalling this part. It is critical to install correctly.



25. Final check before installation

25.1. The axle assembly is now ready to be installed back into the vehicle axle housing.

25.2. Make sure all bearings have been pressed together correctly and the axle still turns in the bearing housing.

26. Reinstall axle assembly

26.1. Reinstall the axle assembly into the housing. The opening in the dust shield should be upward.

26.2. The splines on the axle will need to be aligned to the splines in the differential to seat the bearing housing all the way down to the axle flange.

Note - Be careful not to damage the oil seal while installing the axle shaft.



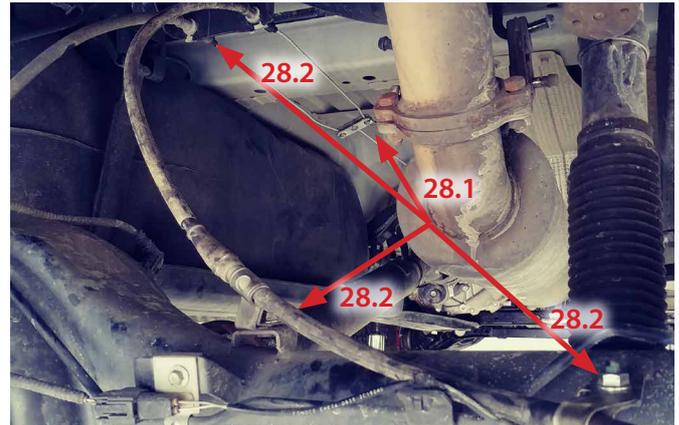
27. Retain the axle

27.1. Install two supplied nuts finger tight on the studs to retain the axle assembly.

28. Reinstall handbrake cable

28.1. Reinstall hand brake cable in the opposite to removal.

28.2. Reattach clip at body mount and tighten mounts on differential housing to 6Nm.



29. Install caliper bracket and ABS sensor

29.1. Remove nuts retaining the axle and slide the caliper bracket onto the 2 studs as shown.

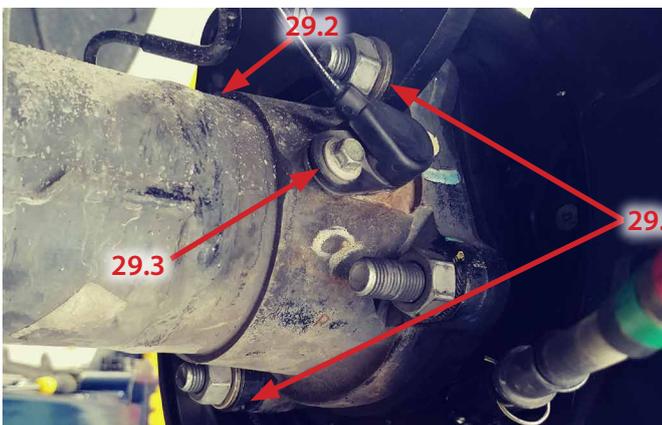
29.2. Leave the third stud without its nut, this will be fitted in step 34.

29.3. Reinstall the ABS sensor being careful not to damage the O-ring. Torque to 6Nm.

30. Install Disc

30.1. Install the supplied disc onto the hub.

30.2. Install the screw that retains the disc to the hub flange. This does not need to be tight as the wheel will aid retention.



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31. Install Caliper

31.1. Slide the caliper housing down over the disc but do not bolt it down.

32. Caliper alignment

32.1. Use the supplied shims and bolts to shim the caliper out to have it sit centrally over the disc.

Note - This may take a few attempts to get right and maybe different from one side to another. This is why a large range of shims are supplied.



33. Install brake pads

33.1. Install the brake pads into the caliper bracket.

33.2. 'Close' the caliper and reinstall the retention bolt. Torque to 18Nm.

33.3. Torque the caliper to caliper bracket bolts to 58Nm.

34. Installing brake line

34.1. Install brake hose onto caliper and then bolt the brake hose bracket to the final stud mount on the differential housing.

34.2. A slight adjustment of the brake line is required and the flare nut can be installed into the brake house and torqued to 18Nm.



35. Tighten axle retaining bolts

35.1. Tighten the 4 x axle retaining bolts to 108Nm.

36. Final checks

36.1. Go over all the external nuts and bolts and make sure they have been torqued. Check workshop manual if uncertain of specification.

36.2. Bleed the brakes and refill the differential oil.

36.3. Adjust handbrake.

