



advanced FLOW engineering

Instruction Manual P/N: 46-70150 / 46-70152

Ford 9.75 – 12 Bolt Rear Differential Cover

Make: Ford	Model: F-150	Year: 1997-2008	Engine: V6 4.2L
Make: Ford	Model: F-150	Year: 2004-2014	Engine: V8 4.6L
Make: Ford	Model: F-150	Year: 2009-2021	Engine: V6 3.5/3.7L, V8 5.0L
Make: Ford	Model: F-150	Year: 2015-2021	Engine: V6 2.7L/3.0L
Make: Ford	Model: F-150 Raptor	Year: 2009-2010	Engine: V8 6.2L
Make: Ford	Model: F-150 Raptor	Year: 2017-2021	Engine: V6 3.5L

Note: Will NOT fit Lightning/Harley Davidson and models with rear sway bars.



- Please read the entire instruction manual before proceeding.
- Ensure all components listed are present.
- If you are missing any of the components, call customer support at 951-493-7100.
- Ensure you have all necessary tools before proceeding.
- Ensure that your vehicle is cooled off before proceeding.
- Retain factory parts for future use.

Label	Qty.	Description	Part Number
A1	1	Differential Cover – Raw, Machined Fins (46-70150)	05-60237A
A2	1	Differential Cover – Black, Machined Fins (46-70152)	05-60237
B	1	Plug, 1" NPT Sight Glass (Included in 46-70152)	03-50224
C	1	Plug, Magnetic 3/4" NPT, 6" Deep Reach (Included in 46-70152)	03-50223
D	1	Plug, 1" NPT (Included in 46-70150)	03-50390
E	1	Plug, 3/4" NPT (Included in 46-70150)	03-50391
F	1	RTV Silicone	05-60096
G	12	Screw, Socket Head 5/16"-18x1.0	03-50227
H	1	Plug, Magnetic 3/4" NPT	03-50222
I	2	Plug, 1/8" NPT	03-50029
J	15	Washer, Flat	03-50228
K	3	Bracket	05-60185
L	3	Zip Tie, 12"	05-60167



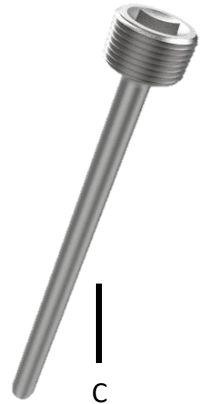
A1



A2



B



C



D



E



F



G



H



I



J



K



L



1. Park your vehicle on a flat, dry surface. You will need to block the tires to prevent the vehicle from rolling.
2. Place a drain pan under the differential cover.
3. If applicable, remove the ABS wire from the studded bolts.
4. If applicable, remove any brackets fastened to the cover or cover bolts.
5. Remove all but the top bolt from the differential cover.
6. Loosen, but do not remove, the top bolt. Break the seal on the cover and the gear oil will begin to drain.



7. Allow for all of the gear oil to drain from the differential.
8. Remove the one (1) remaining bolt from the top of the differential.
9. Carefully insert a gasket scraper between the differential cover and the housing. Pry the differential cover off. **Do not gouge the sealing surface.**
10. Remove the OEM cover from the housing.



11. Use a clean, lint free shop towel to wipe down the remaining gear oil from the housing.
12. Clean off the sealing surface with a gasket scraper. Be careful not to gouge the surface while cleaning.
13. Check the surface of the housing for any irregularities. If there are any, carefully remove high spots using a smooth flat file.

Note: Do not "Round Off" the flat gasket surface.



Note: If your OEM cover utilizes a re-usable gasket, it can be used in place of the supplied RTV silicone.

14. Hold the supplied aFe differential cover up to the gasket surface to make sure you will be able to maneuver it into place easily.
15. Spread the supplied RTV silicone across the gasket surface. Be generous when spreading the silicone across the surface, ensuring to follow along the inside of all the bolt holes.

Note: Before moving on, make sure that the silicone will completely seal with the gasket surface.



16. Hold the aFe differential cover in position, aligning the screw holes. Install four (4) of the supplied 5/16"-18x1.0 socket head screws and flat washers into separate sides of the cover to hold it in place.

Note: Be careful not to move the cover around once it touches the gasket surface.

17. If applicable, install the three (3) supplied brackets, flat washers, and 5/16"-18x1.0 socket head screws where ABS wires were removed in Step 3. Use the supplied zip ties to attach the ABS wire to the brackets.
18. If applicable, install any brackets removed in Step 4 with 5/16"-18x1.0 socket head screws and flat washers.
19. Continue installing the remaining 5/16"-18x1.0 socket head screws and flat washers finger tight.
20. Torque the mounting bolts to 11-14 ft. -lbs. in a crisscross pattern.



21. Apply pipe sealant and install the supplied 3/4" NPT magnetic drain plug into the bottom of the cover.

If installing kit number 46-70150:

22. Apply pipe sealant and install the supplied 1" NPT plug into the side of the cover.

If installing kit number 46-70152:

23. Apply pipe sealant and install the supplied 1" NPT sight glass plug into the side of the cover.



24. Using the top fill port, fill the aFe differential cover with new gear oil. Fill until gear oil runs out of the 1/8" NPT port on the side of the cover (about 4 quarts).

Note: If your vehicle is lifted and your axle has been rotated, you will have to verify you have the correct oil level for your vehicle.

25. Apply pipe sealant and install one (1) of the supplied 1/8" NPT plugs into the side of the cover.



26. If not otherwise utilizing the port, apply pipe sealant and install one (1) 1/8" NPT plugs into the top of the cover.

If installing kit number 46-70150:

27. Apply pipe sealant and install the supplied 3/4" NPT plug into the top of the cover.

If installing kit number 46-70152:

28. Apply pipe sealant and install the supplied 3/4" NPT magnetic 6" deep reach plug into the top of the cover.



29. Verify clearance with the spare tire heat shield (bend if needed).

30. Your installation is complete.

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