

advanced FLOW engineering

Instruction Manual P/N: 46-70040 /46-70041 / 46-70042

Make: **Dodge** Model: **RAM 2500** Year: **2003-2013** Engine: **L6-5.9L/6.7L (td)**

Make: **Dodge** Model: **RAM 3500** Year: **2003-2012** Engine: **L6-5.9L/6.7L (td)**



- Please read the entire instruction manual before proceeding.
- Ensure all components listed are present.
- Ensure you have all necessary tools before proceeding.
- Do not attempt to work on your vehicle when the engine is hot.
- Disconnect the negative battery terminal before proceeding.
- Retain factory parts for future use.

Label	Qty.	Description	Part Number
A1	1	Differential Cover	05-60062 (Black Fins) - Included in 46-70041
A2	1	Differential Cover	05-60063 (Machined Fins) - Included in 46-70042
B	1	Porthole View Gauge	03-50224 (Pre-Installed on Diff. Cover)
C	2	Plug, 3/4"-14 NPTF, Magnet	03-50222
D	14	Socket Head Cap Screws	03-50225
E	2	1/8" Plug	03-50029
F	14	Flat Washers	03-50228
G	1	Silicone (3 oz Tube)	05-60096

Installation will require the following tools:

Oil Drain Pan, 3/8" Drive Ratchet, 13mm Socket, 3/16" mm Allen Wrench, Gasket Scraper, 10mm Socket, 3/8" Torque Wrench, 1/2" Torque Wrench, 6mm Allen Socket, 15mm Socket, 1/2" Drive Ratchet and hack-saw or cutoff tool.

Attention:

The aFe differential cover is designed to fit the factory axle supplied as original equipment. For some applications or due to the use of certain factory options and/or aftermarket products, there may be clearance issues with the aFe differential cover and other vehicle systems.

It is the responsibility of the installer/vehicle owner to ensure that no other vehicle component come in contact with the aFe differential cover. Contact with any other vehicle component, or any modifications made to the aFe differential cover will automatically void the warranty. aFe assumes no liability, express or implied, for damage or injury to persons or property.

A1

B

C

D



E

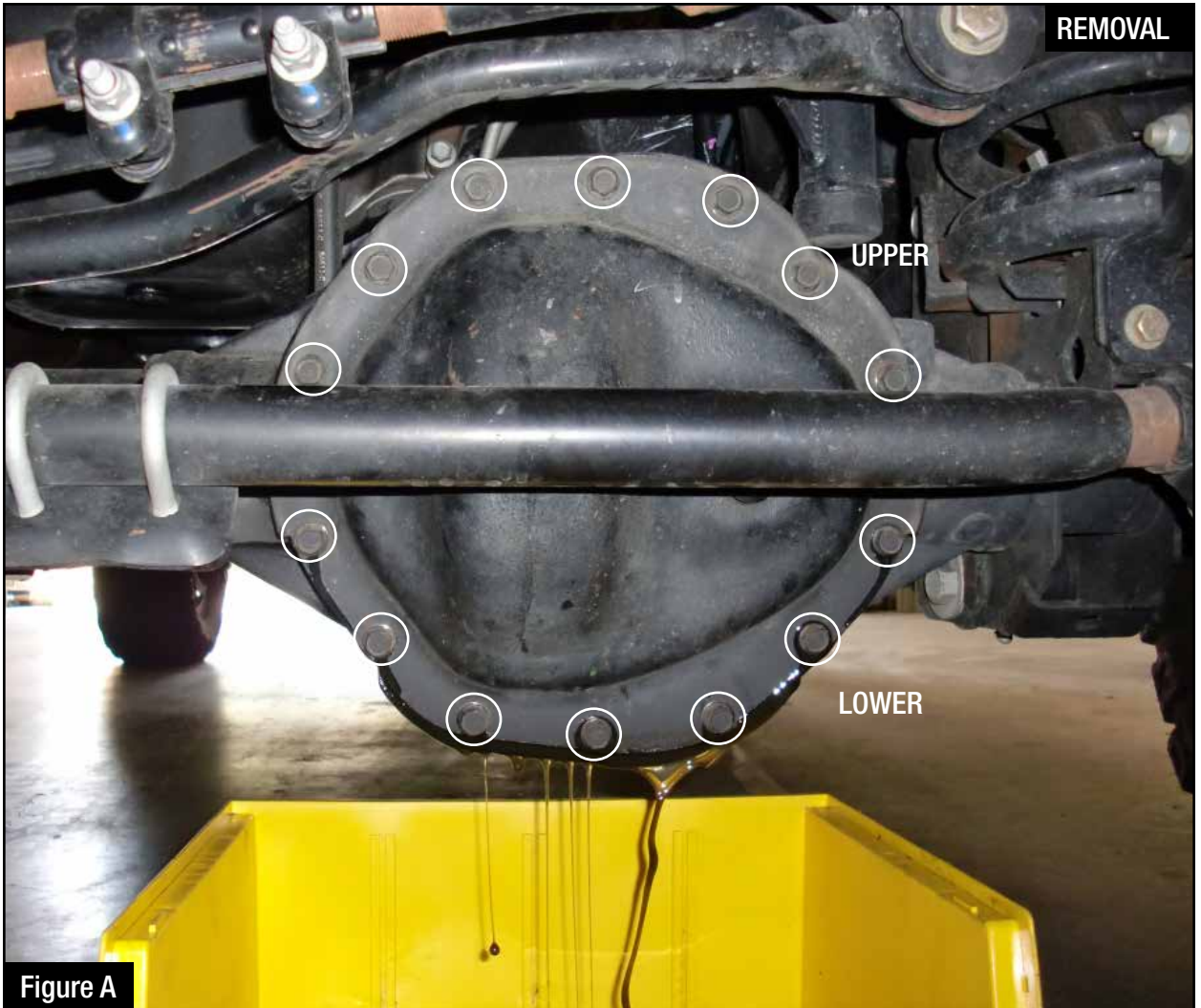
F



A2

G





Refer to Figure A for steps 1-4

Step 1: Park your truck on level ground and apply the parking brake.

Step 2: Position a drain pan under the differential cover.

Step 3: Using a 13mm socket with 3/8" drive ratchet, begin loosening the lower 7 screws on the differential cover.

Step 4: Loosen the upper 7 screws to drain the old gear oil.

NOTE: You may need to use a gasket scraper so the fluid can start draining. If so, start at the bottom of the cover and carefully (so as not to gouge the housing metal) insert and pry off stock cover.

REMOVAL



Figure B

Refer to Figure B for steps 5-7

Step 5: Remove all screws and allow the last of the old gear oil to drain.

Step 6: Using a clean, lint free rag, wipe down the remaining oil from the housing and gasket surface.
This surface must be clean for the new gasket to seal.

Step 7: Before installing the aFe differential cover, check the surface of the differential housing for any irregularities. Should there be any, carefully remove any high spots using a smooth flat file.
DO NOT "ROUND OFF" THE FLAT GASKET SURFACE!



Refer to Figure C for step 8-10

Step 8: Apply teflon pipe sealant tape on the threads of all the plug components before installing.

Step 9: Using a 3/16" allen wrench, install 1/8" NPT plug into aFe differential cover oil level port (torque to 30 in-lbs). Install 1/8" NPT plug or temperature sensor into sensor port at the top.

Step 10: Using a 1/2" ratchet torque wrench, install the drain plug on the bottom of aFe differential cover (torque to 50 ft.-lbs.).

INSTALL



Figure D

Refer to Figure D for step 11

Step 11: Lay your new gasket onto the aFe differential cover and align bolt holes. As an option, a tube of silicone provided for your convenience to create your own gasket around the mounting surface. Allow 15-20 minutes for silicone to skin-over.

NOTE: A gasket is not included in the aFe Front Differential Cover. The Dodge OE part number for the gasket is P/N 5086692AA. RTV Sealant is included for your convenience. But this Dodge OE gasket is also available from aFe and sold separately (P/N 46-70045).


Figure E

Refer to Figure E for steps 12-14

- Step 12: Install the aFe front differential cover by aligning the bolt holes and start one of the new allen cap screws and washers in the top bolt hole. Ensure that gasket is properly aligned. Continue around the bolt pattern until all 14 screws and washers are installed and finger tight.
- Step 13: Using a 6mm hex bit and a 3/8 drive torque wrench, torque the allen cap screws to 12-16 ft.-lbs. in a cross tight pattern.
- Step 14: If installing a temperature sensor, do so at this time in the 1/8" NPT on top. Be sure to use all purpose anti-seize or equivalent on the sensor's threads.

INSTALL



Figure F

Refer to Figure F for step 15-18

Step 15: Refill the aFe differential cover with new gear oil. Your new aFe differential cover takes about 3.5 quarts to fill.

Step 16: Use aFe sight glass to check oil level. (Oil level should be about half way.)

Step 17: If your vehicle has been modified or “lifted” and the axle has been rotated, you will need to establish the correct oil level for your vehicle. NOTE: if fluid is overfilled, it can be drained to proper level through the side oil level port.

Step 18: Once oil level is correct, install magnetic fill plug (torque to 50 ft-lbs) using 1/2” ratchet torque wrench. DO NOT OVER TIGHTEN.



INSTALL

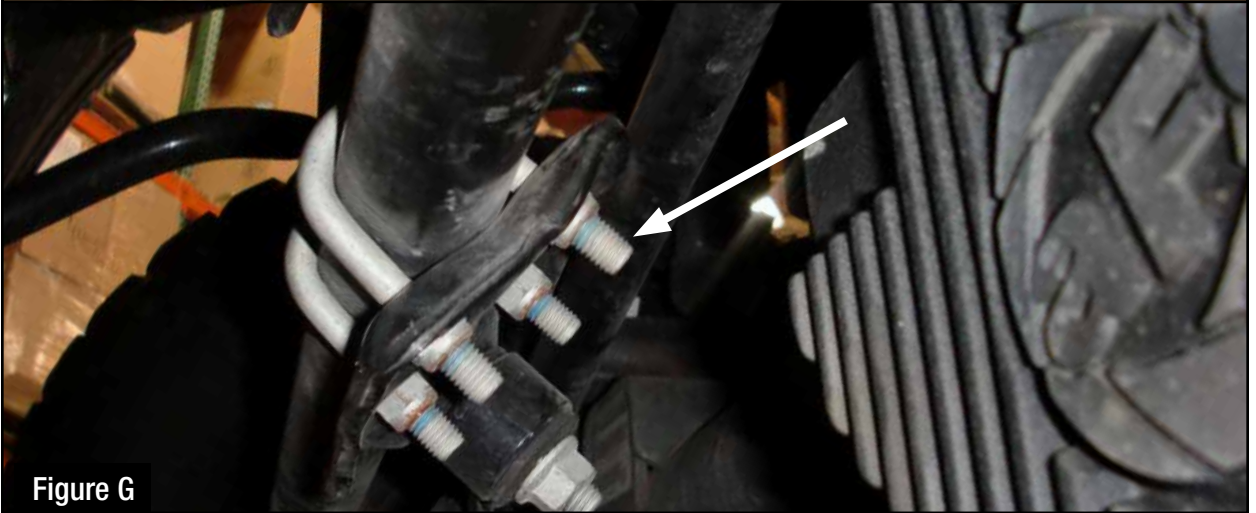


Figure G

Refer to Figure G for step 19

Step 19: Before test-driving the vehicle, check to ensure there are no steering clearance issues with the steering drag link and stabilizer bracket. With someone helping to turn the steering wheel very slowly to the extreme right and left, check if the bracket or bolt touches the aFe cover.

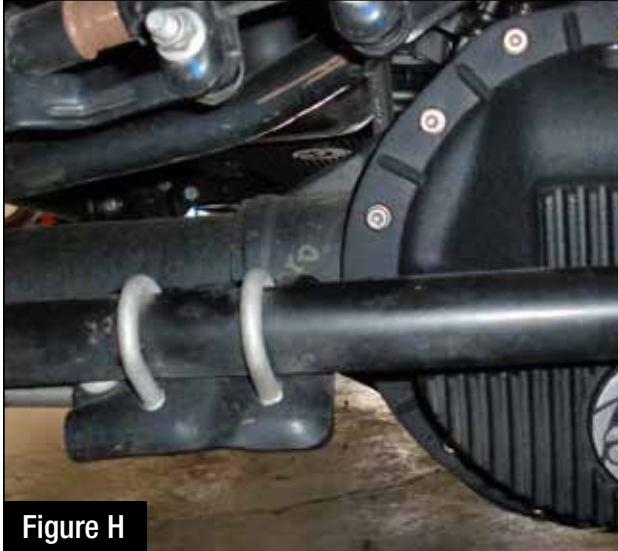


Figure H

Refer to Figure H for step 20-23

Step 20: If the U-bolt touches the aFe differential cover, you will need to remove the U-bolt closest to the cover using 1/2" ratchet w/15 mm socket. With hacksaw or cutoff tool, cut 3/8" off one side only as shown. DO NOT LOOSEN OR REMOVE THE SECOND U-BOLT.

Step 21: Reinstall the stock U-bolt back into its original place with the shortened end up.

Step 22: Reinstall the nuts back onto the U-bolt and tighten to 50 ft-lbs of torque.

Step 23: Recheck for steering clearance by turning the steering wheel slowly to the extreme right and left with assistance from someone else visually verifying clearance.



INSTALL



Figure 1

Refer to Figure 1 for steps 24

Step 24: Your installation is now complete. Drive at least 25 miles and check oil level using aFe sight glass and fill if necessary.