

advanced FLOW engineering

Instruction Manual P/N: 46-70020 / 46-70021 / 46-70022 & 46-70022-WL

Make: **FORD** Model: **F-250/350** Year: **1986-2015** Engine: **V8-6.9/7.3/6.0/6.4/6.7L**

Make: **FORD** Model: **Excursion** Year: **2000-2005** Engine: **V8-5.4L**



- 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	Diff. Cover - Black Fins (46-70021)	05-60058
A2	1	Diff. Cover - Black, Machined Fins (46-70022)	05-60059
A3	1	Diff. Cover - Raw, Machined Fins (46-70020)	05-60059A
B	1	Porthole View Gauge (Pre-installed) (46-70021, 46-70022)	03-50224
C	1	O-Ring	05-60057
D	1	Plug, 6" Deep Reach, Magnet (Included in 46-70021, 46-70022)	03-50223
E	12	Socket Head Screws, 5/16" - 18X1.0 (S/S)	03-50227
F	1	Plug, Square Socket Head, 3/4" -14 NPTF Magnet	03-50222
G	2	Plug, Hex Head Socket, 1.8" - 27 NPT (Zn Plt)	03-50029
H	12	Flat Washers	03-50228
I	1	Plug, 1"-11.5 NPT (included in kit 46-70020)	03-50390
J	1	Plug, 3/4" -14 NPTF (Included in kit 46-70020)	03-50391

Note: Due to variances and / or modifications, it is up to the installer to make sure there is adequate clearances for the cover. Failure to do so may result in damage that is not covered by aFe's warranty.

Installation will require the following tools:

1/2" Socket, 3/16" Allen Key, 1/4" Allen Socket Key, 1/2" Ratchet, Torque Wrench, Oil Drain Pan, Gasket Scraper

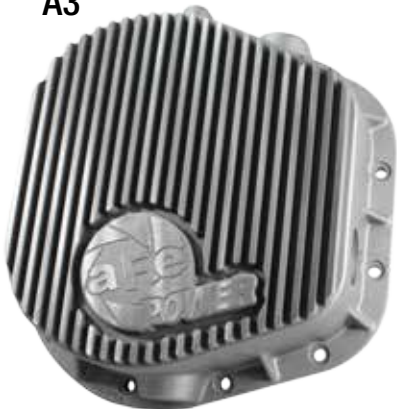
A1



A2



A3

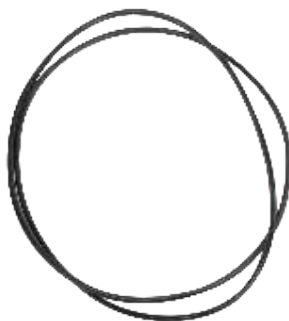


B

C

D

E



F

G

J

I

H

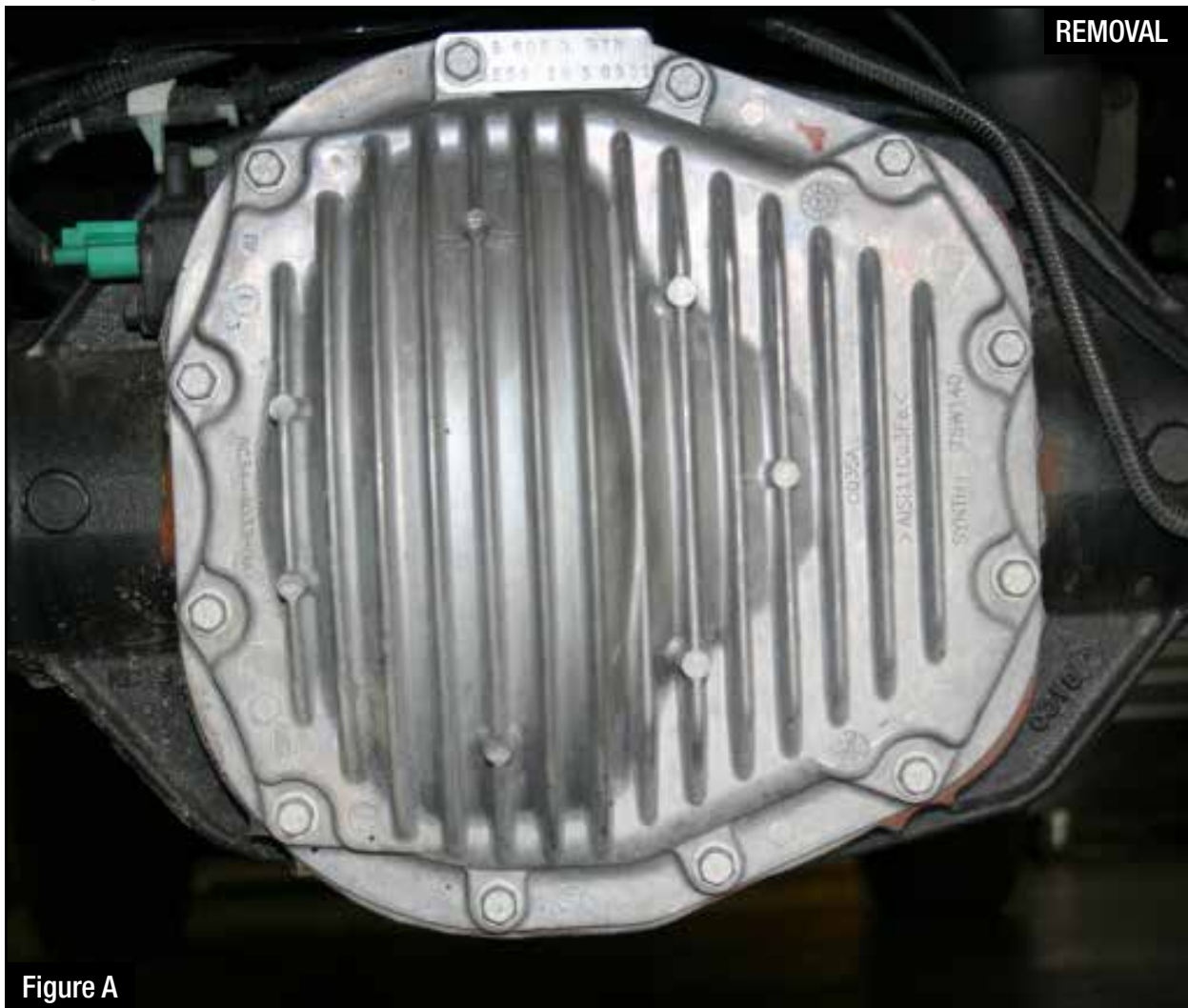


Figure A

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, remove all but one bolt in the top of the differential cover.

Step 4: Loosen but do not remove the remaining bolt. Break the seal on the cover and the oil will start to drain.

Note: You may need to pry the cover so that the old oil can start to drain. If so, use a gasket scraper starting at the bottom of the cover and carefully insert and pry off. Do not gouge sealing surface.

REMOVAL



Figure B

Refer to Figure B for steps 5-7

Step 5: Remove the last bolt and allow old oil to drain.

Step 6: Use a clean lint free rag and wipe down the remaining oil from the housing and scrape the gasket surface clean. This surface must be clean for the o-ring 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 high spots using a smooth flat file.

DO NOT "ROUND OFF" THE FLAT GASKET SURFACE!



Figure C

Refer to Figure C for steps 8-11

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

Step 9: Install the 1/8" NPT plug into the top of the aFe differential cover and tighten.

Step 10: Install the 3/4" NPT magnetic drain plug into the bottom of the aFe differential cover and tighten.

When installing kit number 46-70020 only:

Step 11: Install the large 1" NPT plug into the large hole on the side of the differential cover (not shown).

Note: Do not overtighten NPT plugs.

INSTALL



Figure D

Refer to Figure G for step 12

Step 12: Lightly coat the supplied O-ring with oil and install onto the aFe differential cover.



INSTALL



Figure E

Refer to Figure H for steps 13-14

- Step 13: Install the aFe differential cover by aligning the bolt holes and start one of the new allen cap screws and washers in the top bolt hole. Continue around the bolt pattern until all 12 screws and washers are installed and finger tight.
- Step 14: Using a 1/4" allen socket key, torque the allen cap screws to 22-25 ft.-lbs. in a cross tight pattern.



Figure F

Refer to Figure I for steps 15-16

Step 15: Fill the aFe differential cover using new oil. Fill until the oil runs out of the 1/8" NPT plug in side of differential cover (approximately 4.5 quarts).

Step 16: Install the 1/8" NPT plug in the side of the aFe differential cover.

Note: If your vehicle has been modified or "lifted" and the axle has been rotated, you will need to check if you have the correct level of oil in the differential of your vehicle.

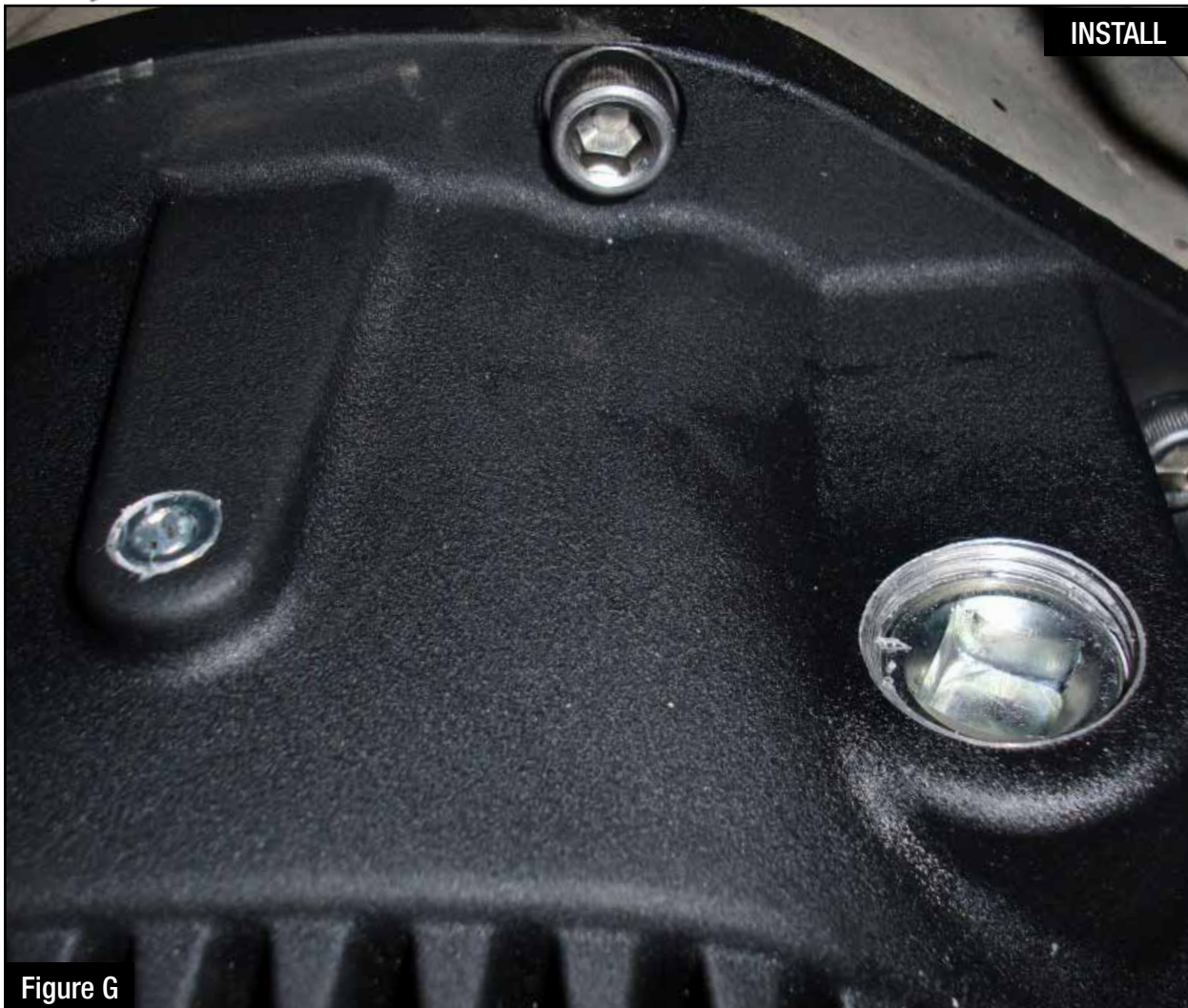


Figure G

Refer to Figure G for step 17

If installing kit 46-70020:

Step 17a: Install the 3/4" NPT plug in the top of the aFe differential cover and tighten.

If installing kit 46-70021 or 46-70022:

Step 17b: Install the 3/4" NPT 6" deep reach magnet into the top of the aFe differential cover and tighten.

Do not over tighten NPT plugs.

INSTALL



Figure H

Refer to Figure H for step 18

Step 18: Your installation is now complete.

NOTE: Drive at least 25 miles and check oil level, fill and re-torque all bolts if necessary.

See back page for alternate NPT plugs.