

**advanced FLOW engineering**

**Instruction Manual** P/N: 46-70020 / 46-70022 / 46-70022-WL

Make: **Ford** Model: **F-250/F-350** Year: **1986-2017** Engine: **V8-6.9L/7.3L/6.0L/6.4L/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.
- If you are missing any of the components, call customer support at 951-493-7100.
- 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, Machined Fins (46-70022)	05-60711B
A2	1	Diff. Cover - Raw, Machined Fins (46-70020)	05-60711A
B	1	Porthole View Gauge (Pre-installed) (46-70022)	03-50224
C	1	O-Ring	05-60057
D	1	Plug, 6" Deep Reach, Magnet (Included in 46-70022)	03-50223
E	12	Socket Head Screws, 5/16" - 18X1.0 (S/S)	03-50227
F	1	Washer, Aluminum: M12, 15.85mm OD	03-50384
G	1	Plug, Magnatic M12 x 1.25	03-50385
H	1	Plug, Square Socket Head, 3/4" -14 NPTF Magnet	03-50222
I	2	Plug, Hex Head Socket, 1.8" - 27 NPT (Zn Plt)	03-50029
J	12	Flat Washers	03-50228
K	1	Plug, 1"-11.5 NPT (included in kit 46-70020)	03-50390
L	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:

3/16" Allen Key, 1/4" Allen Socket Key, 1/2" Ratchet, Oil Drain Pan, Gasket Scraper, 13mm Socket

A1

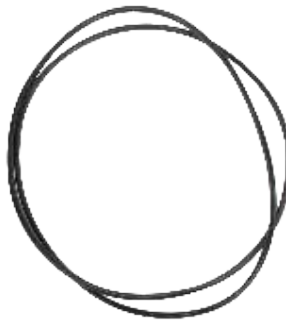


B

C

D

E



A2



F

I

L

K

G

J

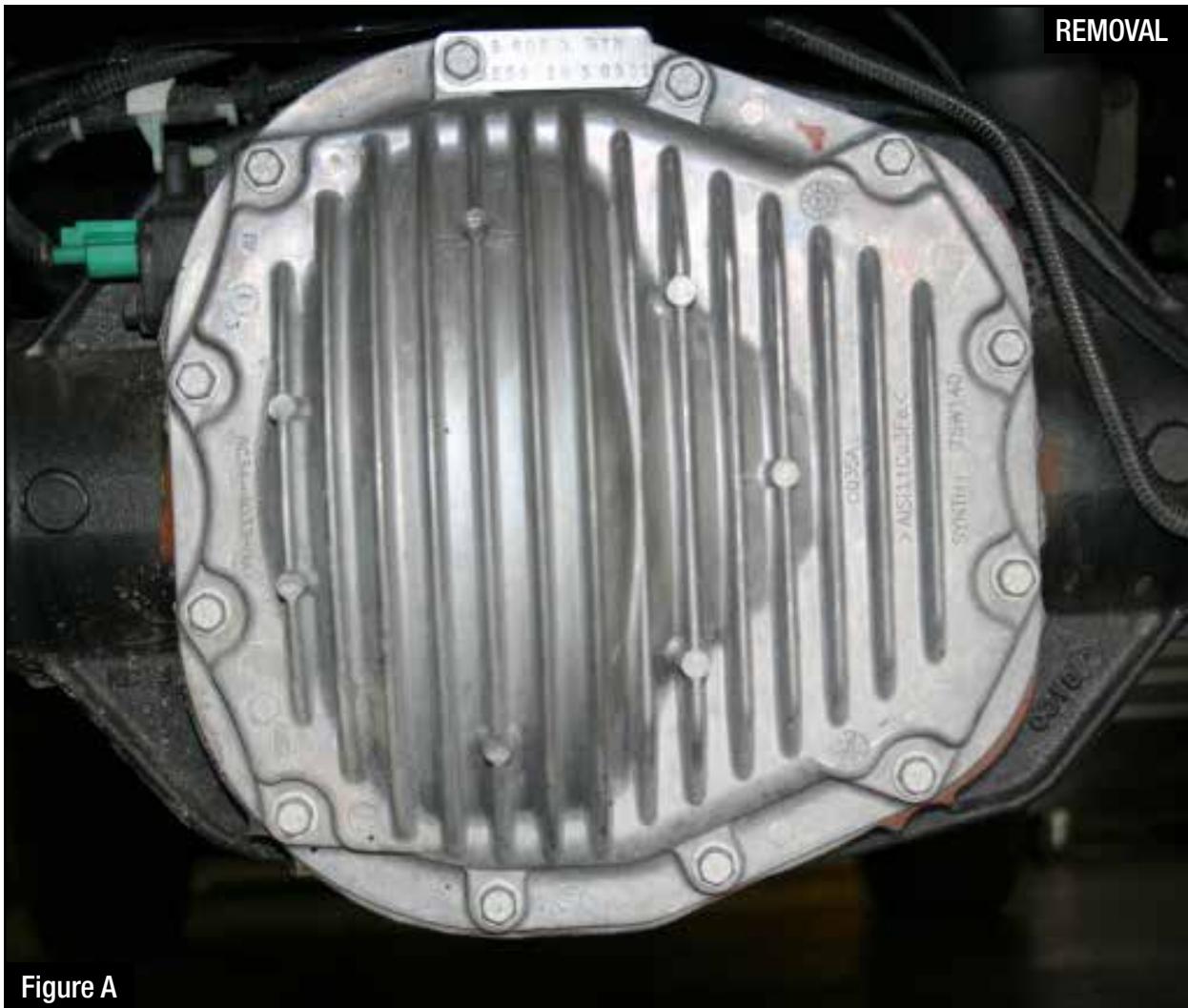


Figure A

**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.

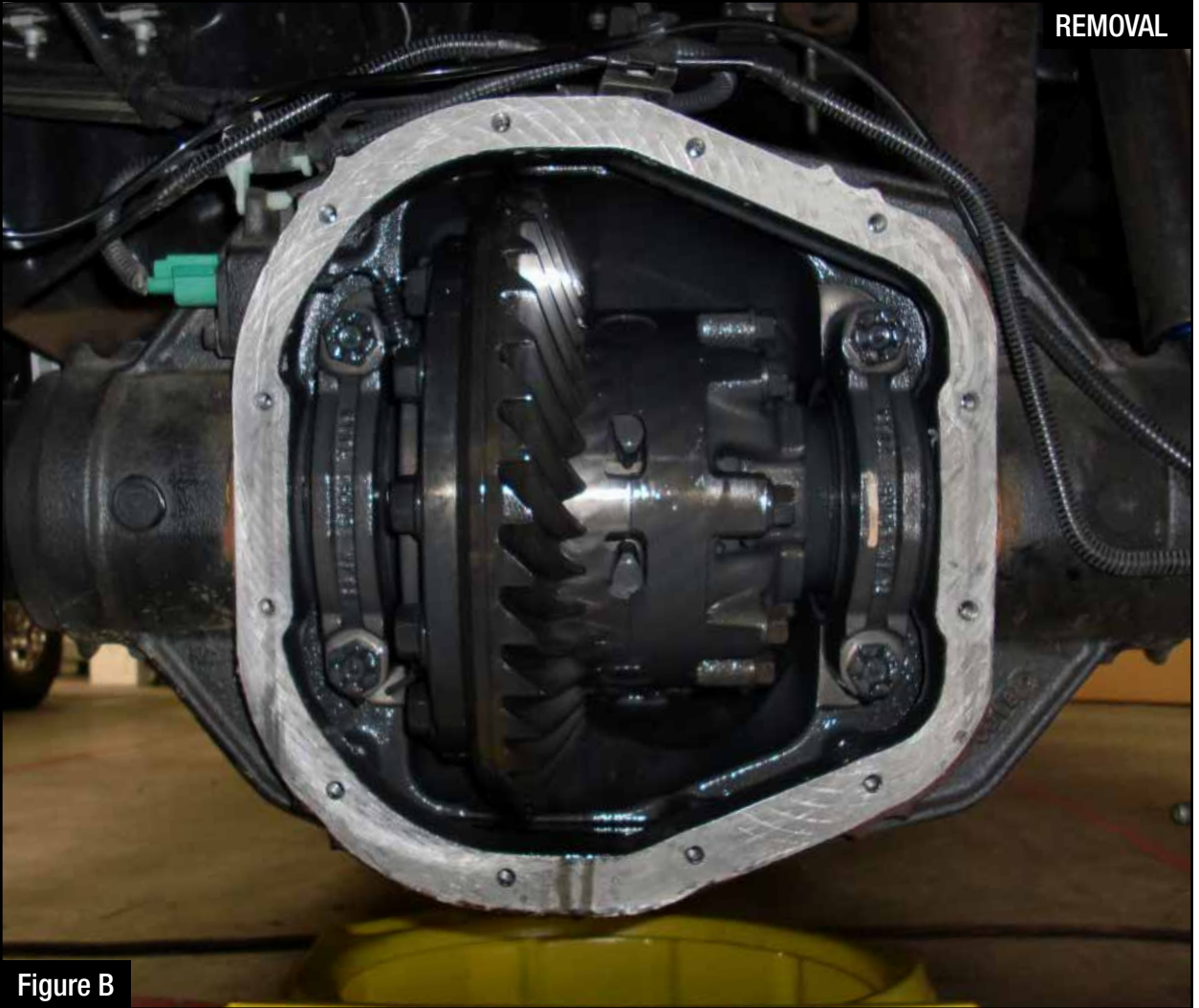


Figure B

**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 (PTFE) tape on the threads of the 1/8" NPT and 3/4" NPT plugs before installing.

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

Step 10: Install the M12 x 1.25 magnetic drain plug and M12 washer into the bottom of the aFe differential cover and tighten.

**When installing kit number 46-70020 only:**

Step 11: Apply Teflon (PTFE) tape on the threads of the large 1" NPT plug and install 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 D for step 12**

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

**Figure E****Refer to Figure E for steps 13-14**

Step 13: Install the aFe differential cover by aligning the bolt holes and start one of the new socket head screws and flat 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 ¼" allen socket key, torque the socket head screws to 11-14 ft.-lbs. in a cross tight pattern.





Figure F

**Refer to Figure F 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.**



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.**



Page left blank intentionally

Page left blank intentionally



**Diesel Fuel System**



P/N: 42-13041 (Full Time)  
42-13042 (Boost)

**SCORCHER HD Module**



P/N: 77-43014

**Front Differential Cover**



P/N: 46-70082 (Black)  
46-70082-WL (w/ Oil)  
46-70080 (RAW)

**Intercooler Tubes**



P/N: 46-20144-B

**Air Intake System**



P/N: 50-73005-1 (P10R)  
51-73005-1 (PDS)

**D/P Back Exhaust System**



P/N: 49-43066-B (Blk Tips)  
49-43066-P (Pol Tips)

**DPF-Back Exhaust System**



P/N: 49-43064-B (Blk Tip)  
49-43064-P (Pol Tip)  
49-43064 (No Muffler)

**OE Replacement**



P/N: 30-10202 (P5R)  
31-10202 (PDS)  
72-10202 (PG7)

**Oil Level Sight Glass**



P/N: 46-00001

**Magnetic Dipstick**



P/N: 46-00002

To purchase any of the items above, view airflow charts, dyno graphs, photos, and video; please go to [aFepower.com](http://aFepower.com).

# Warranty

## General Terms:

- aFe warrants their products to be free from manufacturer's defects due to workmanship and material.
- This warranty applies only to the original purchaser of the product and is non-transferrable.
- Proof of purchase of the aFe product is required for all warranty claims.
- Warranty is valid provided aFe instructions for installation and/or cleaning were properly followed.
- Proper maintenance with regular inspections of product is required to insure warranty coverage.
- Damage due to improper installation, abuse, unauthorized repair or alteration is not warranted.
- Incidental or consequential damages or cost, including installation and removal of part, incurred due to failure of aFe product is not covered under this warranty.
- All warranty is limited to the repair and/or replacement of the aFe part. To request Return Goods Authorization ("RGA"), email [RGA@afepower.com](mailto:RGA@afepower.com) or call (951)493-7100. Upon receipt of the RGA, you must return the product to the address provided in the RGA, freight prepaid and accompanied with a dated proof of purchase and the RGA. Upon receipt of the defective product and upon verification of proof of purchase, aFe will either repair or replace the defective product within a reasonable time, not to exceed thirty days.

<b>Product Category</b>	<b>P/N Prefix</b>	<b>Warranty duration</b>
Direct OE Replacement Filters	10, 11, 30, 31, 71, 73	Life of the vehicle
Racing Filters	18	1 year
Universal	21, 24, 72	2 years
Air Intake Systems	50, 51, 54, 55, 75	2 years
Exhaust Systems	49	2 years
Intercoolers & Intercooler Tubes	46-2	2 years
Intake Manifolds	46-1	2 years
Differential Cover/Transmission Pan	46-7	Life of the vehicle
Exhaust Manifolds	46	2 years
Throttle Body Spacers	46-3	2 years
Fluid Filters	44	90 days
Pre-Filters	28	2 years
Heavy Duty OE Replacement	70	2 years
PowerSports OE Replacement	81, 87	2 years
PowerSports Intake Systems	85	2 years

No other warranty expressed or implied applies nor is any person or advanced FLOW engineering authorized to assume any other warranty. Some States do not allow the exclusion or limitation of incidental or consequential damages or do not allow limitations on how long an implied warranty lasts, so the above limitations or exclusions may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which vary from State to State.



**advanced FLOW engineering, inc.**

252 Granite Street Corona, CA 92879

TEL: 951.493.7100 • TECH: 951.493.7100 x23

E-Mail: [Tech@aFepower.com](mailto:Tech@aFepower.com)