

**advanced FLOW engineering**

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

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

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



- 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; Pro Series (46-70042)	05-60755B
A2	1	Diff. Cover - Raw, Machined Fins (46-70040)	05-60755A
B	1	Porthole View Gauge (Included in 46-70042)	03-50224
C	1	Plug, 3/4" -14 NPTF, 6" Deep Reach (Included in 46-70042)	03-50223
D	14	Socket Head Cap Screws	03-50225
E	1	Plug, Hex Head Socket, 1/8" - 27 NPT (Zn Plt)	03-50029
F	14	Flat Washers	03-50228
G	1	RTV Silicone, Black (3 oz. tube)	05-60096
H	1	Plug, 1"-11.5 NPT (included in kit 46-70040)	03-50390
I	1	Plug, 3/4" -14 NPTF (Included in kit 46-70040)	03-50391
J	1	Plug, M12 x 1.25	03-50385
K	1	Washer, Aluminum: M12	03-50384

Installation will require the following tools:

Oil Drain Pan, 3/8" Drive Ratchet, 13mm Socket, 3/16" Allen Wrench, Gasket Scraper, 10mm Socket, 3/8" Torque Wrench, 1/2" Torque Wrench, 6mm Allen Socket, 15mm Socket, 1/2" Drive Ratchet and hacksaw 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



I



H



E



F



K



J

A2



G

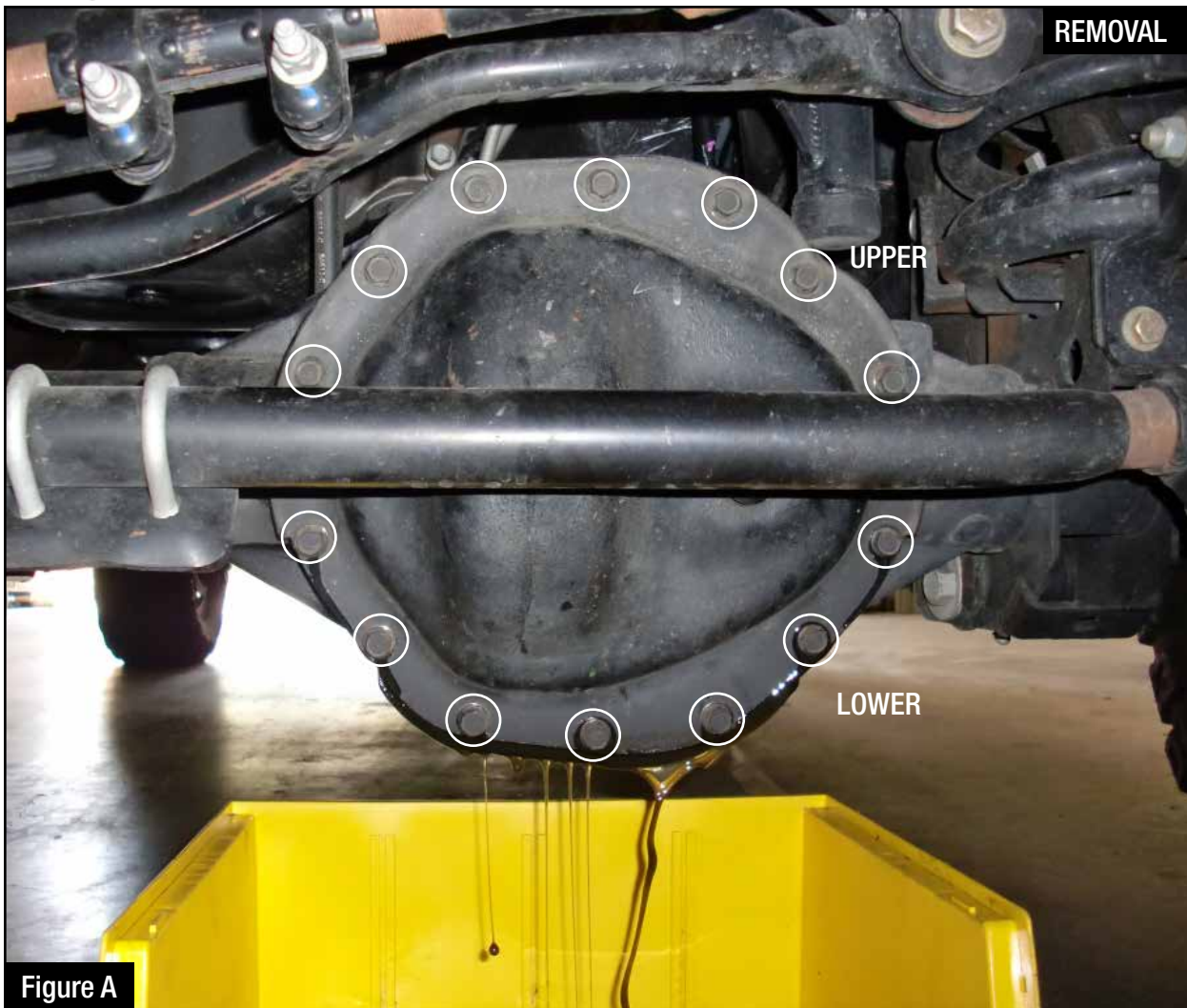


Figure A

**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 with 3/8" drive ratchet, begin loosening the lower 7 bolts on the differential cover.

Step 4: Loosen the upper 7 bolts 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.**

**Figure B****Refer to Figure B for steps 5-7**

Step 5: Remove all bolts 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!**





Figure C



**Refer to Figure C for steps 8-9**

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

Step 9: Install the M12 magnetic drain plug and washer into the bottom of the aFe differential cover and tighten.

**When installing kit number 46-70040 only:**

Step 10: 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.**

**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 is provided for your convenience to create your own gasket around the mounting surface. Allow 15-20 minutes for the 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.**



Figure E

**Refer to Figure E for steps 12-13**

Step 12: Install the aFe front differential cover by aligning the bolt holes and start one of the new socket head 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 socket head cap screws to 12-16 ft.-lbs. in a cross tight pattern.



**Figure F****Refer to Figure F for step 14-17**

Step 14: Fill the aFe differential cover using new oil. Fill until the oil runs out of the 1/8" NPT plug of the side of the differential cover.

Step 15: Install the 1/8" NPT plug in the side of the aFe differential cover.

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

**If installing kit 46-70040:**

Step 16: Install the 3/4" NPT plug in the top of the aFe differential cover and tighten.

**If installing kit 46-70042:**

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

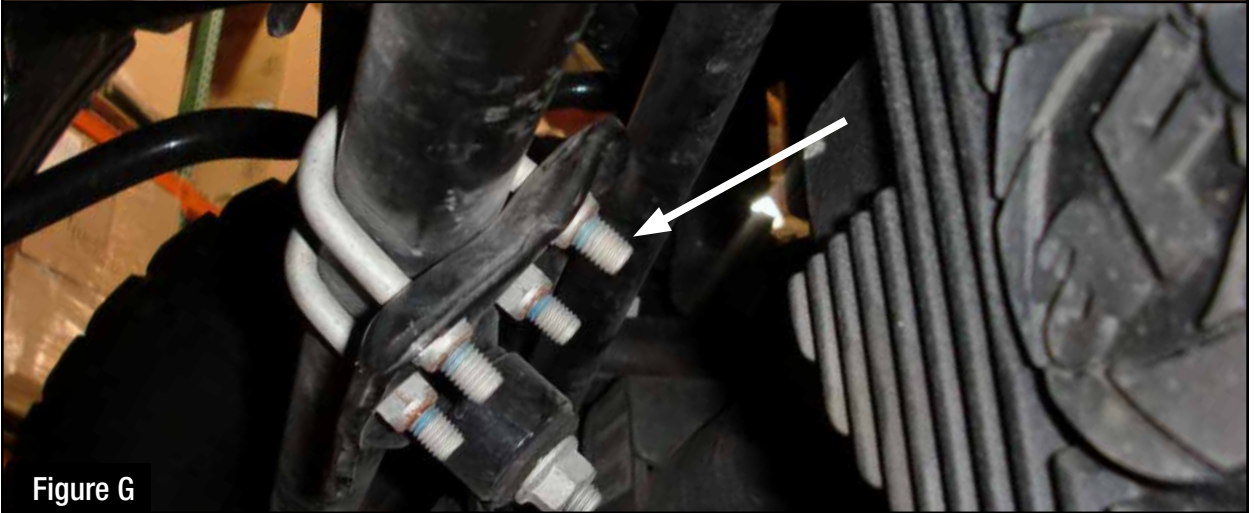


Figure G

**Refer to Figure G for step 18**

Step 18: 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.

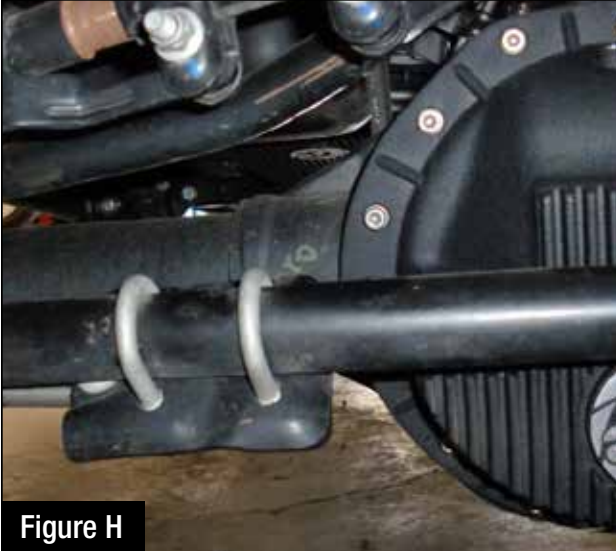


Figure H

### **Refer to Figure H for step 19-22**

Step 19: 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 20: Reinstall the stock U-bolt back into its original place with the shortened end up.

Step 21: Reinstall the nuts back onto the U-bolt and tighten to 50 ft.-lbs. of torque.

Step 22: Recheck for steering clearance by turning the steering wheel slowly to the extreme right and left with assistance from someone else visually verifying clearance.



Figure 1

**Refer to Figure 1 for step 23**

Step 23: Your installation is now complete.

*NOTE: Retighten all connections after approximately 100-200 miles.*

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**Turbocharger**



P/N: 46-60050 (5.9L)

**Intercooler Tubes**



P/N: 46-20134-B (5.9L)  
46-20084-B (6.7)

**Exhaust Manifold**



P/N: 46-40012 (5.9L)

**Intake Manifold**



P/N: 46-10011 (5.9L)  
46-10073-1 (6.7L)

**Cold Air Intake System**



P/N: 50-72002 (P10R) 5.9L  
50-72004 (P10R) 6.7L

**Rear Differential Cover**



P/N: 46-70012-WL (w/ Oil)  
46-70012 (Black)  
46-70010 (RAW)

**5.9L Transmission Pan**



P/N: 46-70052 (Black)  
46-70050 (RAW)

**DFS Fuel System**



P/N: 42-12021 (5.9L)  
42-12033 (6.7L)

**TB-Back Exhaust System**



P/N: 49-02032 (5.9L)  
49-02005NM-1 (6.7L)

**Front Differential Cover**



P/N: 46-70042-WL (w/ Oil)  
46-70042 (Black)  
46-70040 (RAW)

**Grid Spacer Delete**



P/N: 46-10019 (5.9L)

**Intercooler**



P/N: 46-20011

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)