

# Owner's Manual with Installation Instructions

## **Banks Ram-Air<sup>®</sup> Intake System**

**2003-2007 (235, 250, 305 and 325 HP)  
Dodge 5.9L Cummins (24-valve)  
ISB Pickup Trucks**

THIS MANUAL IS FOR USE WITH KIT 42145 & 42145-D

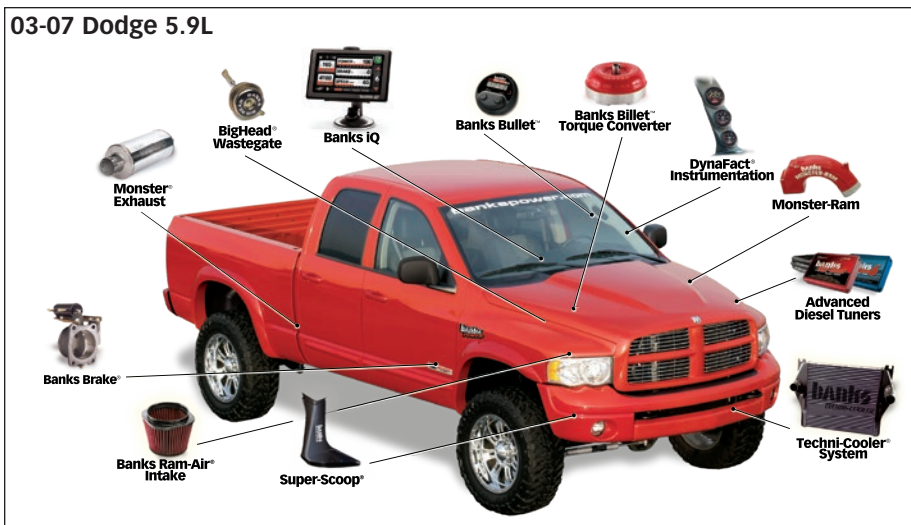
Gale Banks Engineering  
546 Duggan Avenue • Azusa, CA 91702  
(626) 969-9600 • Fax (626) 334-1743

Product Information & Sales: (888) 635-4565  
Customer Support: (888) 839-5600  
Installation Support: (888) 839-2700

**bankspower.com**

# Also Available from Banks Power

03-07 Dodge 5.9L



## **Banks iQ System (P/N 61148-61149)**

- 5" touchscreen interface that can control the Banks Diesel Tuner on the fly.
- Interchangeable gauge display, read and clear codes, monitor engine diagnostics, log data, time your vehicles runs and much more.

## **Banks Monster® Exhaust System Single (P/N 48640-48643, 48700, 48701, 48708) Duals (P/N 48702-48707, 48709) Sport (P/N 48777-48780)**

- Increases exhaust flow, cuts backpressure, lowers exhaust gas temperatures (EGTs) and increases power

## **Banks Ram-Air Intake Super-Scoop (P/N 42190-42191)**

- Adds cooler denser air to the Ram-Air Intake housing, further increasing fuel economy, reducing smoke and lowers EGTs.

## **Banks Monster-Ram (P/N 42765-42766)**

- Increased flow from intercooler
- Raises boost without increasing backpressure at the turbine

## **Big Hoss Intake Manifold System (P/N 42747)**

- Increases flow and provides more uniform air distribution to the engine for more available power at a given boost level.

## **Banks Techni-Cooler® System (P/N 25980-25981)**

- Provides increased air flow to the engine by increasing air density for more increased power, lower EGTs and improved fuel economy.

## **Banks Exhaust Brake (P/N 55222-55229)**

- Increases the stopping power of your truck and extends the service life of your brakes

**Banks SmartLock  
(P/N 55270)**

- Reduces wear on transmission
- Locks Torque Converter and raises trans-line pressure
- Works with Banks Exhaust Brake

**Banks Billet Torque Converter  
(P/N 72515)**

- Higher torque capacity over stock
- Lockup clutch is slip-resistant so transmission fluids stay cooler and transmission life is prolonged

**Banks Bullet  
(P/N 66522-66523)**

- Adds power safely to your vehicle
- Displays critical engine functions
- Engine safeguards
- Change power levels on-the-fly

**Boost and Pyro Gauges  
(P/N 64507)**

- Keep your engine safe by monitoring vital engine parameters

**Banks Diesel Tuner  
EconoMind w/switch  
(P/N 63725, 63793, 63795, 64507)  
EconoMind w/iQ  
(P/N 63807, 63808, 63817, 63818)  
Six-Gun w/switch (P/N 61022, 63797)  
Six-Gun w/iQ (P/N 63809, 63819)**

- Adds power safely to your vehicle
- Engine and transmission safeguards
- Change power levels on-the-fly

**Thermocouple**

- Add a temperature limiting function to your Diesel Tuner

**Banks BigHead® Actuator  
(P/N 24331)**

- Achieves a higher peak boost over stock and gives you precise boost control that gives you crisp acceleration and more mid-range pulling power

**Banks Stinger Systems  
(P/N 49692-49699, 49708-49711, 49716-49721)**

**Contains:**

- Ram-Air Intake system
- Monster Exhaust (single or dual)
- EconoMind Tuner w/ Banks iQ
- Big Head Wastegate Actuator

**Banks PowerPack Systems  
(P/N 49700-49707, 49712-49715, 49722-49727)**

**Contains:**

- Ram-Air Intake system
- Monster Exhaust (single or dual)
- EconoMind Tuner w/ Banks iQ
- Big Head Wastegate Actuator
- Monster-Ram
- Techni-Cooler System

**Banks Six-Gun Bundle  
(P/N 49728-49735, 49744-49747, 49752-49757)**

**Contains:**

- Ram-Air Intake system
- Monster Exhaust (single or dual)
- Six-Gun Tuner w/ Banks iQ
- Big Head Wastegate Actuator

**Banks Big Hoss Bundle  
(P/N 49736-49743, 49748-49751, 49758-49763)**

**Contains:**

- Ram-Air Intake system
- Monster Exhaust (single or dual)
- Six-Gun Tuner w/ Banks iQ
- Big Head Wastegate Actuator
- Monster-Ram
- Techni-Cooler System

**For More Information please call (888) 635-4565  
or Visit us online @ [www.bankspower.com](http://www.bankspower.com)**

# General Installation Practices

Dear Customer,

If you have any questions concerning the installation of your Banks Ram-Air System, please call our Technical Service Hotline at (888) 839-2700 between 7:00 am and 4:00 pm (PT). If you have any questions relating to shipping or billing, please contact our Customer Service Department at (888) 839-5600.

Thank you.

1. For ease of installation of your Banks Ram-air intake system, familiarize yourself with the procedure by reading the entire manual before starting work. This manual contains 20 pages of copy, illustrations and parts listing. If any pages are missing from this manual please call Gale Banks Engineering immediately for a replacement.
2. The exploded view of the Ram-Air assembly (pages 4-5) provides only general guidance. Refer to each step and section diagram in this manual for proper instruction.
3. Throughout this manual, the left side of the vehicle refers to the driver's side, and the right-side to the passenger's side.
4. Disconnect the ground cable from the battery before beginning work. If there are two batteries, disconnect both.

5. Route and tie wires and hoses a minimum of 6 inches away from exhaust heat, moving parts and sharp edges. Clearance of 8 inches or more is recommended where possible.
6. During installation, keep the work area clean. If foreign debris is transferred to any Banks system component, clean it thoroughly before installing.
7. When raising the vehicle, support it on properly weight-rated safety stands, ramps or a commercial hoist. Follow the manufacturer's safety precautions. Take care to balance the vehicle to prevent it from slipping or falling. When using ramps, be sure the front wheels are centered squarely on the topsides; put the transmission in park; set the parking brake; and place blocks behind the rear wheels.

**⚠ CAUTION:** Do not use floor jacks to support the vehicle while working under it. Do not raise the vehicle onto concrete blocks, masonry or any other item not intended specifically for this use.

**NOTICE:** The Banks Oiled Ram-Air Filter comes pre-oiled and no oiling is necessary for initial installation. Service the filter as specified in the Ram-Air Filter Cleaning Instructions Section of this manual.

**Tools Required:**

- 3/8" drive ratchets with metric sockets
- Standard and Phillips head screwdrivers
- Standard and needle-nose pliers
- Clean shop towels or rags
- 5/16 nut driver
- Hack Saw
- Ruler

**Table of Contents**

**Section 1** ..... **6**  
General Assembly

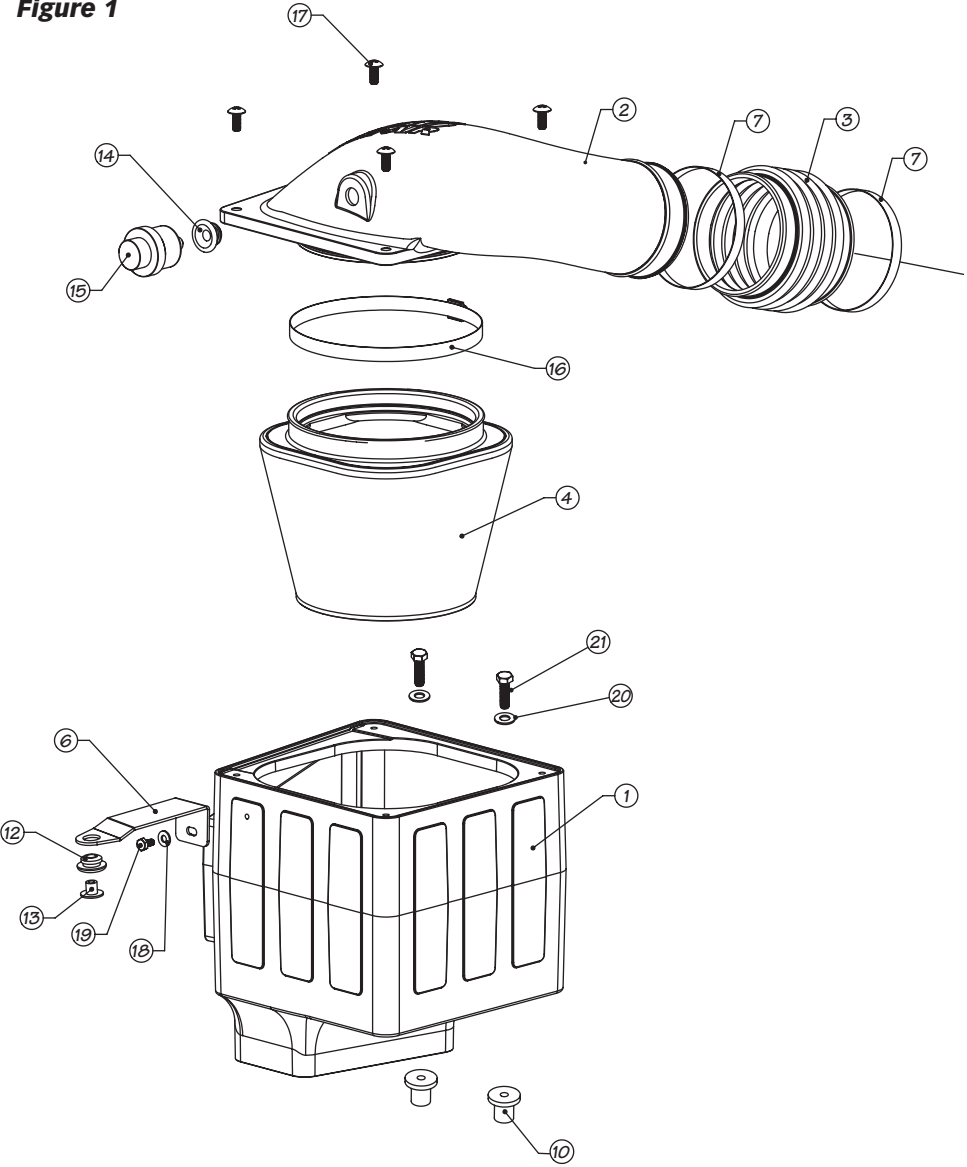
**Section 2** ..... **8**  
Ram-Air Installation

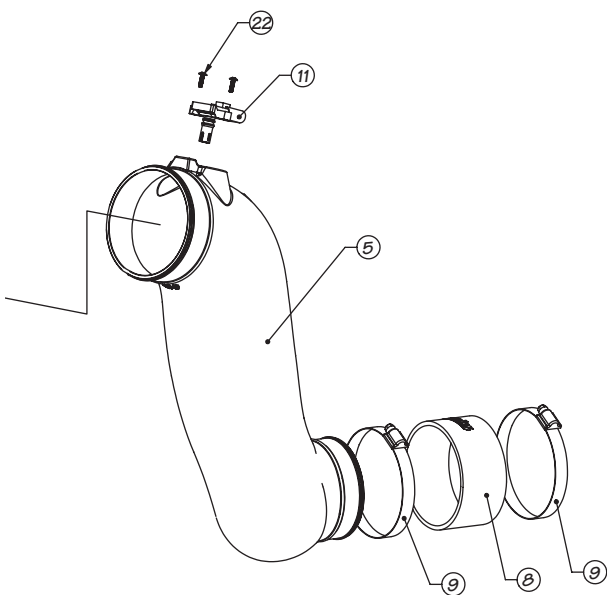
**Section 3**  
Oiled Air Filter Cleaning Instructions. . **18**  
Dry Air Filter Cleaning Instructions . . . **19**

# Section 1

## GENERAL ASSEMBLY

Figure 1





| Item | Description                                  | Part#         | Qty |
|------|----------------------------------------------|---------------|-----|
| 1    | HOUSING, RAM-AIR FILTER                      | 42146         | 1   |
| 2    | COVER, RAM-AIR HOUSING                       | 42147         | 1   |
| 3    | HOSE, BELLOWS, 4.50 I.D.                     | 94300         | 1   |
| 4    | AIR FILTER ELEMENT, RAM-AIR SYST             | 42148/42148-D | 1   |
| 5    | INTAKE TUBE, RAM-AIR SYSTEM                  | 42149         | 1   |
| 6    | BRACKET, SUPPORT, A/F HOUSING                | 42150         | 1   |
| 7    | HOSE CLAMP, #72 w/LINER                      | 92872         | 2   |
| 8    | HOSE, COMPRESSOR INLET                       | 94303         | 1   |
| 9    | HOSE CLAMP, #64                              | 92864         | 2   |
| 10   | WELL-NUT, 3/8"-16, 1.06" LONG                | 91423         | 2   |
| 11   | AIR TEMPERATURE SENSOR                       | OEM STOCK     | 1   |
| 12   | GROMMET, STOCK AIR BOX                       | OEM STOCK     | 1   |
| 13   | BUSHING, STOCK AIR BOX                       | OEM STOCK     | 1   |
| 14   | GROMMET, FILTER MINDER                       | OEM STOCK     | 1   |
| 15   | FILTER MINDER                                | OEM STOCK     | 1   |
| 16   | HOSE CLAMP, #128                             | 92928         | 1   |
| 17   | SCREW, TRUSS HEAD, PHILLIPS, 5/16-18 X 3/4   | 91226         | 4   |
| 18   | WASHER, SAE FLAT, GOLD ZINC, 1/4             | 91124         | 1   |
| 19   | HEX BOLT, GR 5, ZINC, 1/4-20 X 1/2           | 91115         | 1   |
| 20   | WASHER, SAE FLAT, ZINC, 3/8"                 | 91402         | 2   |
| 21   | HEX BOLT, GRADE 5, ZINC, 3/8"-16 X 1-1/4"    | 91428         | 2   |
| 22   | SCREW, TRUSS HEAD, PHILLIPS, 6-32 x 1/2", SS | 91719         | 2   |

## Section 2

### RAM-AIR INSTALLATION

Use the Bill of Materials Chart and the General Assembly Drawing to reference component nomenclature and location. Use caution when working in the engine compartment. Make sure the engine has been OFF for several hours and cool.

You are about to install the Banks Ram-Air Intake System. Read and follow all steps before working on the vehicle. Some components from the stock air intake system will remain in service. Take care when removing stock air intake components to not damage them.

**1.** Remove the nut and washer from radiator core support that secures the factory air housing and set aside. See **Figure 2**.

**2.** Loosen the hose clamp to the stock intake tube attached to the air housing.

**3.** Press tab and remove the Intake Air Temperature (IAT) sensor connector and set aside.

**4.** Remove the air housing by lifting up and out of the engine compartment.

*Note: There may be slight resistance when removing the air housing feet due to rubber grommets.*

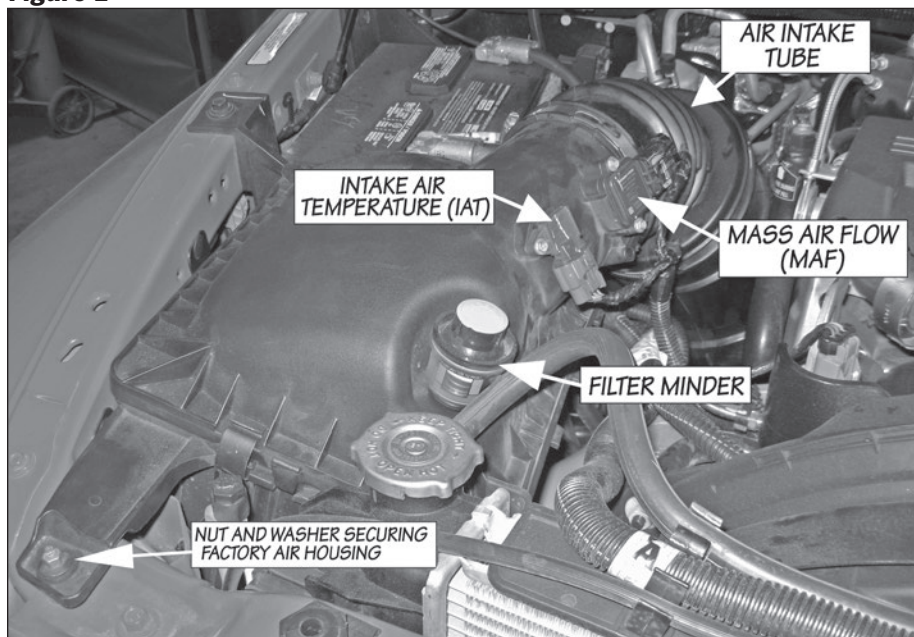
**5.** Remove the factory stock rubber grommets attached to the outside of the battery tray bracket. See **Figure 3**.

**6.** Loosen the hose clamp, and then remove the factory air intake tube connection attached to the compressor inlet.

*Note: Simultaneously lift up and forward to remove the factory intake assembly. See **Figure 4***

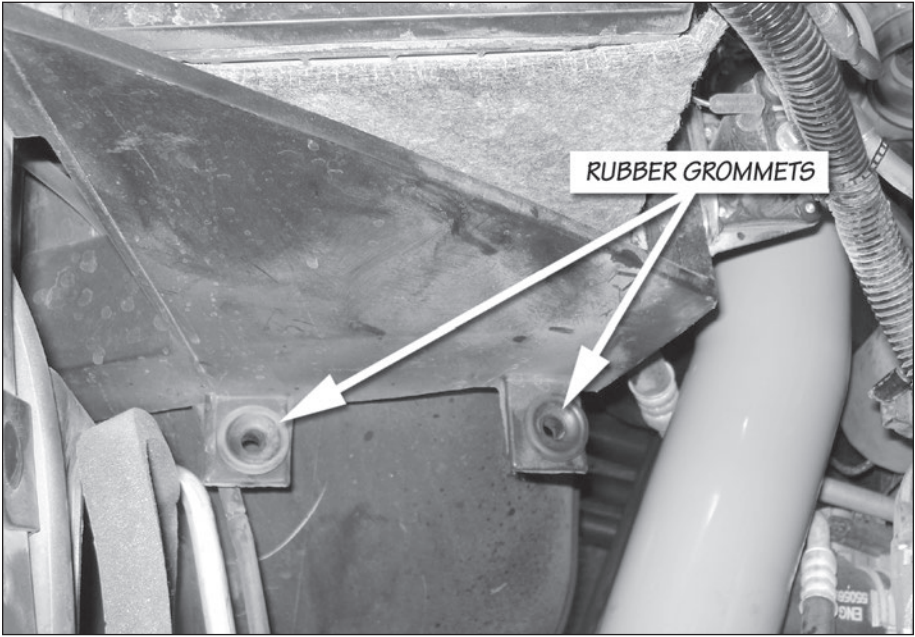
**7.** Install the supplied rubber Well-Nut as shown in **Figure 5**. Install flange side up, flush with bracket.

**Figure 2**

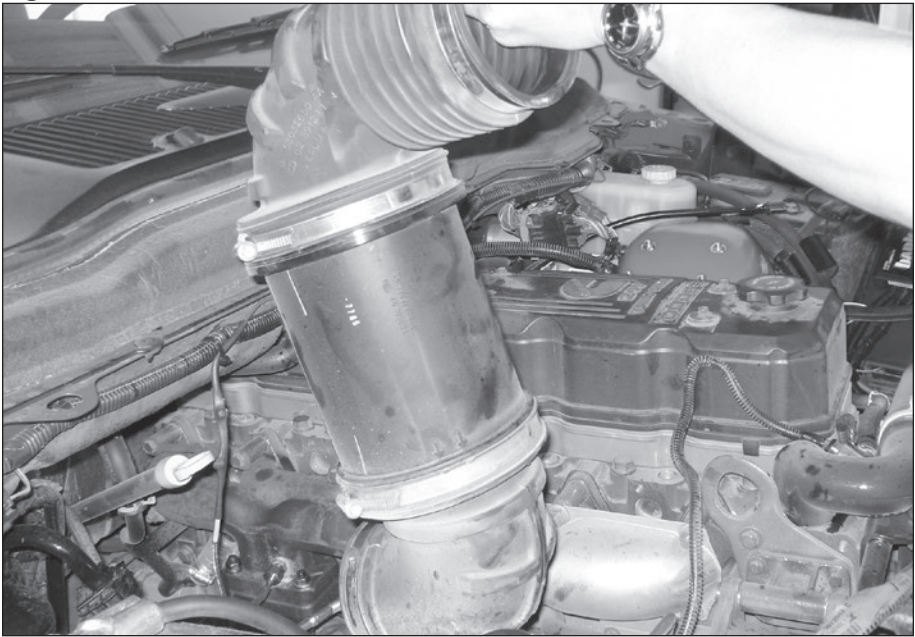




**Figure 3**



**Figure 4**



**Figure 5**



If installing the Banks Super Scoop then proceed to steps 8 thru 11. Otherwise, Skip to **Step 12**.

### **For Super Scoop Installation Only**

**8.** Locate the Banks air housing. Using a ruler, measure one inch up from the bottom of the housing and repeat several times on all sides of the housing.

**9.** Make a line that traces the marks you have made around the box (see **Figure 6**).

**10.** Use your Hack Saw to cut along the line you have made in **Step 9** (see **Figure 7**).

*Note: Cut housing as straight as possible, it will ease the deburr process.*

**11.** After you have cut off the unneeded portion of the housing, deburr the bottom of the housing to smooth it out and to prevent debris

from entering the system.

**12.** Locate the Banks air housing and Banks air housing bracket in your kit. Hand tighten the air housing bracket to air housing using supplied bolt and washer. See **Figure 8**.

**13.** Remove the steel insert and rubber grommet from the factory air housing. See **Figure 9**.

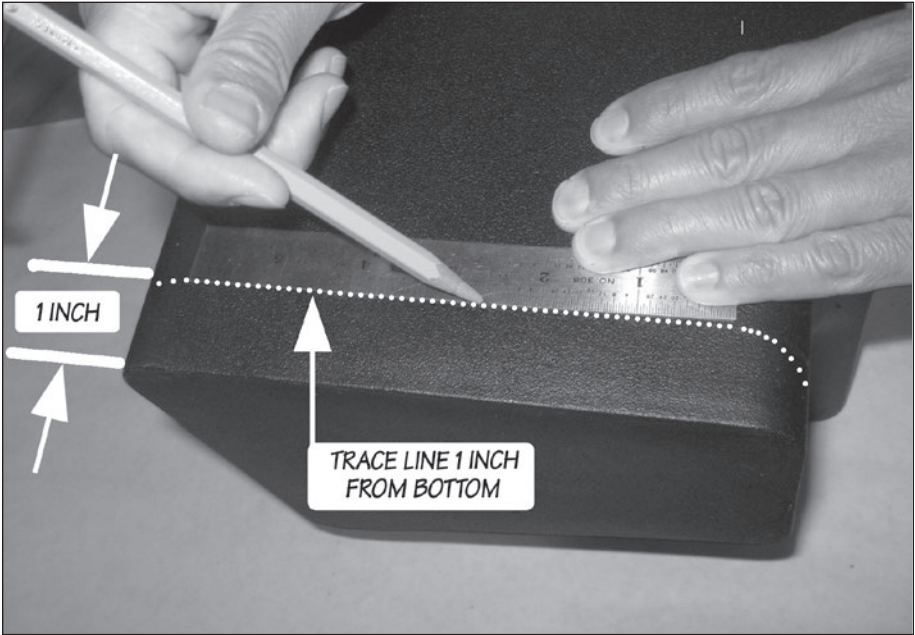
**14.** Insert the rubber grommet flange side down into the air housing bracket.

**15.** Press in the steel insert and make flush to rubber grommet.

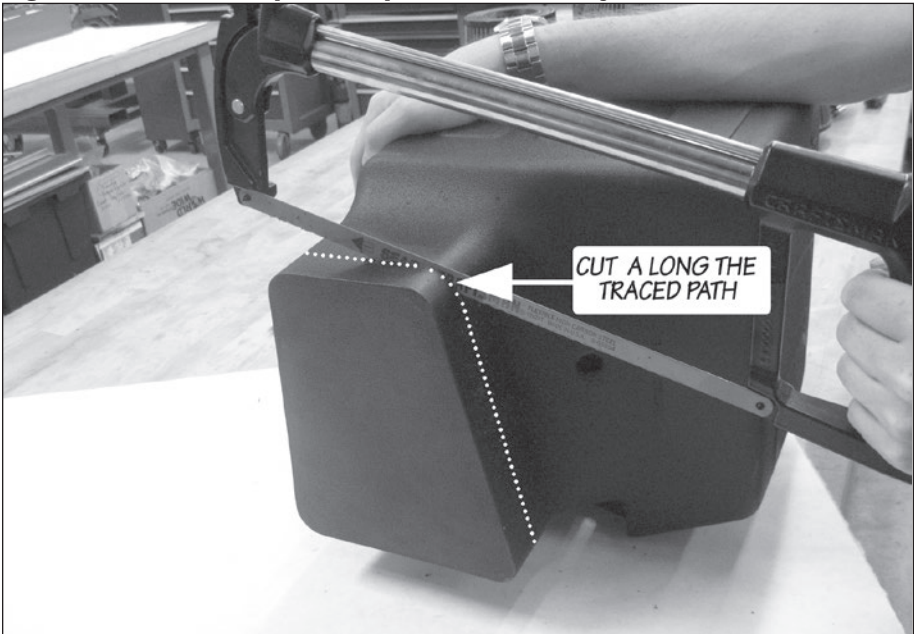
**16.** Install the Banks air filter housing. Align the radiator core support bolt to the air housing bracket hole. Align the air filter housing holes to threaded Well-Nuts installed in fender bracket. See **Figure 10**.

*Note: The compressor supply and return lines may need to be slightly bent away from Banks air housing*

**Figure 6-For Banks Super Scoop Installation Only**



**Figure 7-For Banks Super Scoop Installation Only**





**Figure 8**



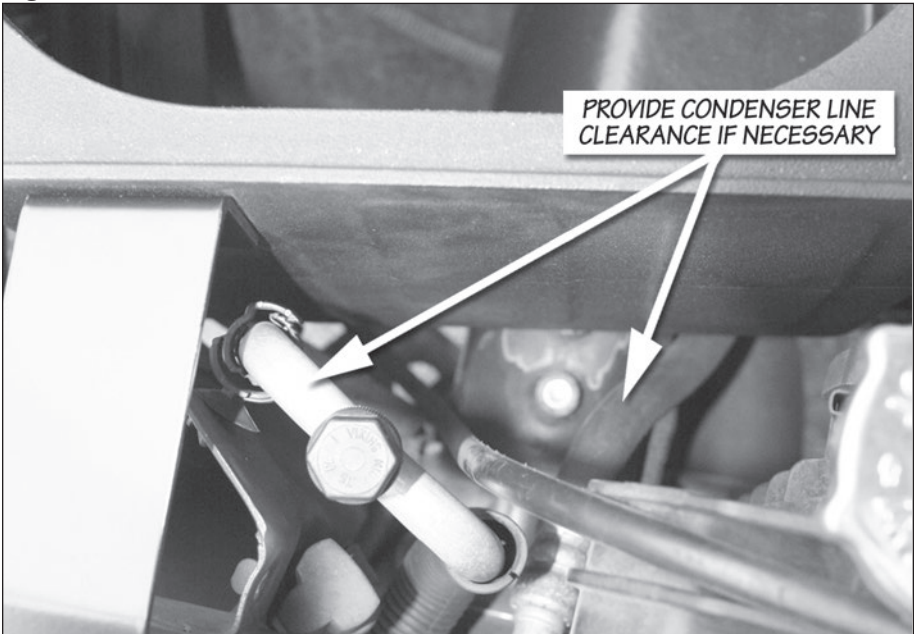
**Figure 9**



**Figure 10**



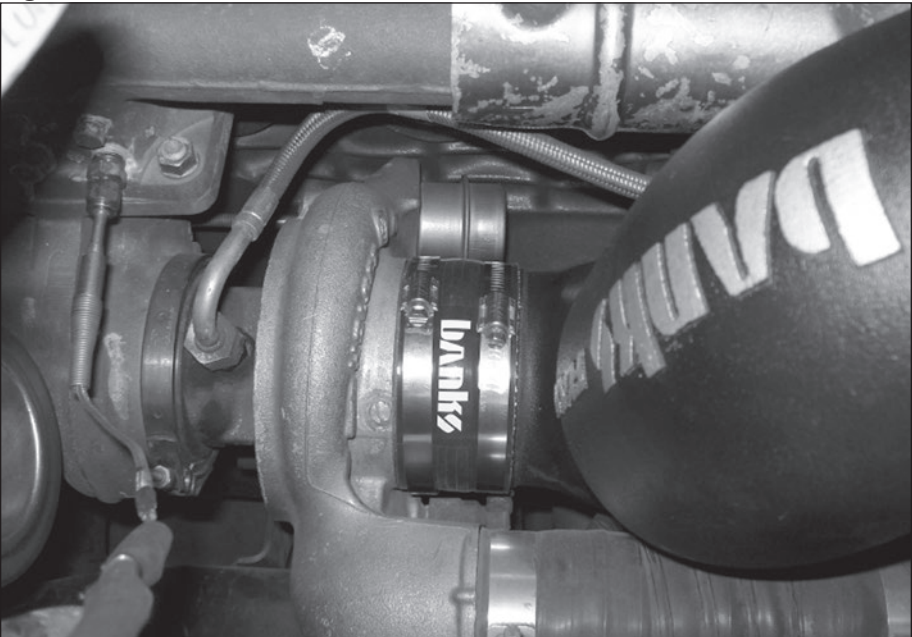
**Figure 11**



**Figure 12**



**Figure 13**



to provide clearance. Be careful not to break the condenser lines when adjusting clearance. See **Figure 11**.

**17.** Fasten the Banks air filter housing to the well-nuts by tightening the supplied  $\frac{3}{8}$  bolt and washer until snug. Tighten the air housing bracket nut to the radiator core support. Tighten the bracket to the air housing using an open-end wrench. See **Figure 12**.

**18.** Connect the Banks hose to the Banks inlet tube and tighten hose clamp.

*Note: Ensure Banks hose is up to and touching the raised bead on the Banks intake tube.*

**19.** Install second hose clamp and leave loose.

**20.** Install Banks intake hose and intake tube to the compressor inlet.

*Note: Ensure hose is flush against step on compressor inlet. Hand tighten the hose clamp. See **Figure 13**.*

**21.** Place Banks air filter cover onto the Banks air filter housing.

**22.** Align intake tube with cover, and then tighten the hose clamp on turbo compressor inlet. See **Figure 14**.

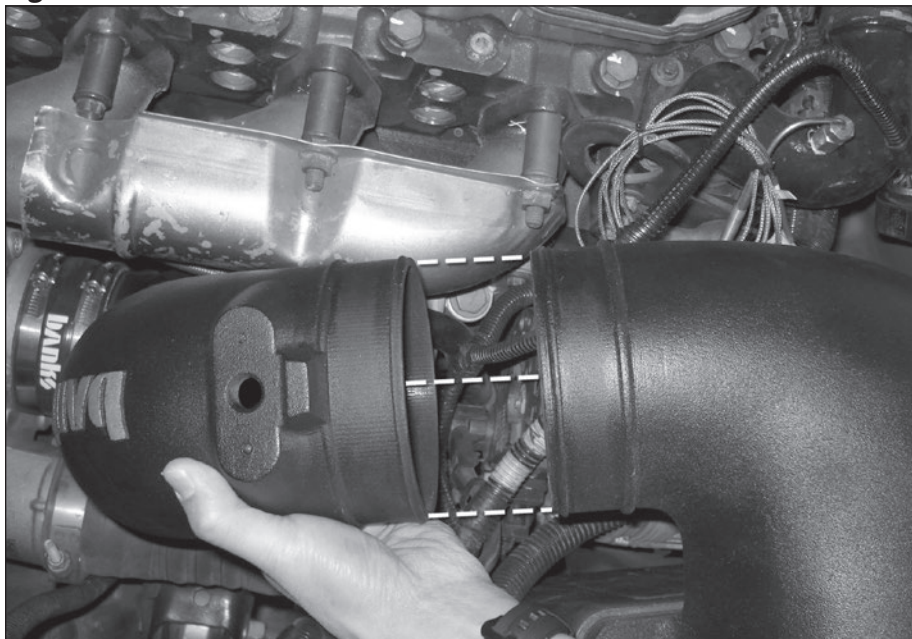
**23.** Remove factory filter minder from factory air housing. Remove rubber grommet from factory air housing.

**24.** Install factory filter minder rubber grommet into the Banks cover. Insert the factory filter minder into rubber grommet.

**25.** Remove cover from housing. Install Banks bellows with hose clamps to Banks Intake tube.

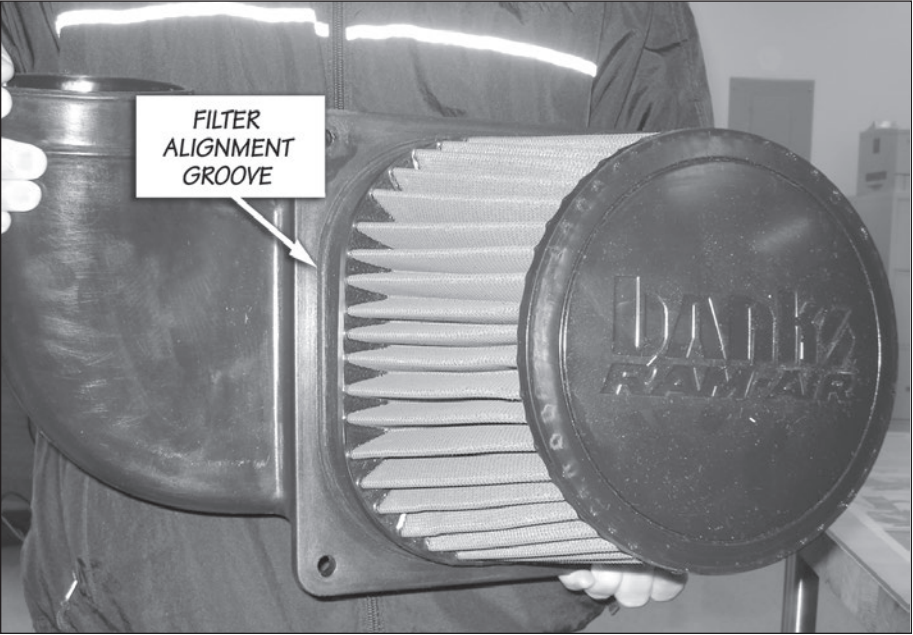
**26.** Loosely install the hose clamp to the Banks air filter.

**Figure 14**





**Figure 15**



**Figure 16**





**27.** Install Banks air filter onto the Banks cover. Note the audible snap. Tighten the hose clamp on the air filter. Make sure the air filter is lined up with the alignment groove. See **Figure 15**.

**28.** Insert the Banks cover into the Banks bellows. Place cover on to housing and tighten the hose clamp. See **Figure 16**.

**29.** Using supplied screws fasten the banks cover to the air filter housing.

**30.** Remove the stock IAT sensor from the factory air housing.

**31.** Install IAT sensor into Banks Intake tube using supplied  $\frac{5}{32}$  screws.

See **Figure 17**.

*Note: ensure o-ring is in good condition.*

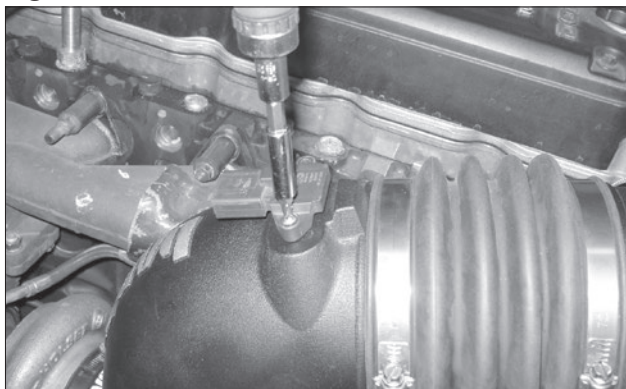
**32.** Connect the IAT connector to the IAT sensor.

*Note: Route harness away from the exhaust manifold heat shield.*

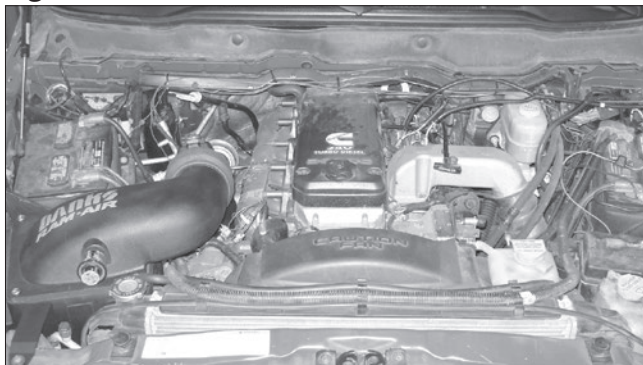
**33.** Re-connect battery grounds. You have successfully completed the installation of the Banks Ram-Air Intake system. See **Figure 18**. Make sure to go over all hose clamps for tightness and connectors for a sure fit. Make sure that the intake tube is not touching any engine components.

-END, SECTION 2-

**Figure 17**



**Figure 18**



# Section 3

## AIR FILTER CLEANING INSTRUCTIONS

### OILED AIR FILTER ONLY

***NOTICE***: The Banks Ram-Air Oiled Air Filter comes pre-oiled and no oiling is necessary for initial installation. Use Banks Ram-Air Filter Cleaning System (part#90094), available from Gale Banks Engineering to service the Air Filter. Follow the instructions included with the cleaning system to clean and re-oil your Bank Ram-Air Oiled Air Filter.

#### 1. PRE-CLEANING

Tap the element to dislodge any large embedded dirt, then gently brush with a soft bristle brush. *NOTE: If complete cleaning is not practical at this time, reoil the element and reinstall in your vehicle.*

#### 2. SPRAY-ON CLEANING

Spray air-filter cleaner liberally onto the entire element and let soak for 10 minutes.

#### 3. PAN CLEANING

Large air-filter elements can be rolled or soaked in a shallow pan of air-filter cleaner. Remove immediately and let soak for approximately 10 minutes.

***NOTICE***: NEVER use gasoline, steam, caustic solutions, strong detergents, high-pressure nozzles, or cleaning solvents to clean the filter element. All of these can cause harm to the filter media as well as SHRINK and HARDEN the rubber end caps.

#### 4. RINSING

Rinse off the element with low-pressure water. Tap water is okay. Always flush from the clean side to dirty side. This removes the dirt

and does not drive it into the filter.

#### 5. DRYING

Always dry naturally. After rinsing, shake off all excess water and let the element dry naturally.

#### 6. AEROSOL OILING

After cleaning air filter always reoil before using. Spray air filter oil down into each pleat with one pass per pleat. Wait 10 minutes and re-oil any white spots still showing.

#### 7. OILING HINTS

Never use a Banks Ram-Air filter without oil (the filter will not stop the dirt without the oil). Use only air filter oil. Air-filter oil is a compound of mineral and animal oil blended with special polymers to form a very efficient tack barrier. Red dye is added to show just where you have applied the oil. Eventually the red color will fade but the oil will remain and filter the air. NEVER USE Automatic Transmission Fluid. NEVER USE Motor Oil. NEVER USE Diesel Fuel. NEVER USE WD40, LPS, or other light-weight oils.

#### 8. REINSTALL

Reinstall your Banks Ram-Air filter element with proper care. Make sure the element seats properly in the filter case. Install the cover making sure it's in the right position. Tighten all the nuts, bolts, screws or clips to factory specifications.

#### 9. DO NOT DISCARD

Affix the "Do Not Discard" sticker to the filter case (included with every Banks replacement element). Make sure you put the sticker in a highly visible place to alert your mechanic not to discard.

#### 10. PERFORMANCE HINTS

Service every 50-100,000 miles on

street-driven applications. Service more often in offroad or heavy-dust conditions. If an air-filter restriction gauge is installed, then change the element when the air-filter restriction reaches 18"—H.O.

**⚠ CAUTION:** **Extremely fine dust from agriculture or offroad use will pull the oil from the element. Frequent reoiling of the element's clean side might be required. Completely service when practicable. For extra protection use an air-filter sealing grease on rubber ends of the element. Service only with air-filter cleaner and air-filter oil.**

## DRY FILTER CLEANING

Clean every 50-100,000 miles on street-driven applications. Clean more often in offroad or heavy-dust conditions. If an air-filter restriction gauge is installed, then change the element when the air-filter restriction reaches 18"—H.O.

### 1. PRE-CLEANING

Carefully tap the air filter element to dislodge any large embedded dirt or debris.

### 2. CLEANING

Spray an appropriate DRY AIR-FILTER CLEANER SOLUTION liberally onto both sides of the entire filter element with the majority applied to the dirty side. Soak for 10 minutes. Do not allow the DRY AIR-FILTER CLEANER SOLUTION to dry on the air filter.

**NOTICE:** **NEVER use gasoline, steam, caustic solutions, strong detergents, high-pressure nozzles, or cleaning solvents to clean the filter element.** All of these can cause harm to the filter media as well as SHRINK and HARDEN the rubber end caps.

### 3. RINSING

Rinse the filter element with cool or warm (not hot) water from the clean side out in order to flush the dirt out of the filter. It may be necessary to use your fingers on the hose to apply light water pressure. Repeat steps 2 and 3, until the water flowing through the media is completely clear of any dirt and debris.

### 5. DRYING

After rinsing, gently shake off excessive water and allow to dry naturally. Re-install the filter onto the intake system, airbox or custom assembly once it is dry or just slightly damp. Follow all original installation instructions.

### 6. REINSTALL

Reinstall your Banks Ram-Air filter element with proper care. Make sure the element seats properly in the filter case. Install the cover making sure it's in the right position. Tighten all the nuts, bolts, screws or clips to factory specifications.

### 7. DO NOT DISCARD

Affix the "Do Not Discard" sticker to the filter case (included with every Banks replacement element). Make sure you put the sticker in a highly visible place to alert your mechanic not to discard.

### 8. PERFORMANCE HINTS

Service every 50-100,000 miles on street-driven applications. Service more often in offroad or heavy-dust conditions. If an air-filter restriction gauge is installed, then change the element when the air-filter restriction reaches 18"—H.O.

-END, SECTION 3-

Gale Banks Engineering  
546 Duggan Avenue • Azusa, CA 91702  
(626) 969-9600 • Fax (626) 334-1743

Product Information & Sales: (888) 635-4565  
Customer Support: (888) 839-5600  
Installation Support: (888) 839-2700

**bankspower.com**