

MANUAL
...with installation instructions

Banks Big Head[®] Wastegate Actuator

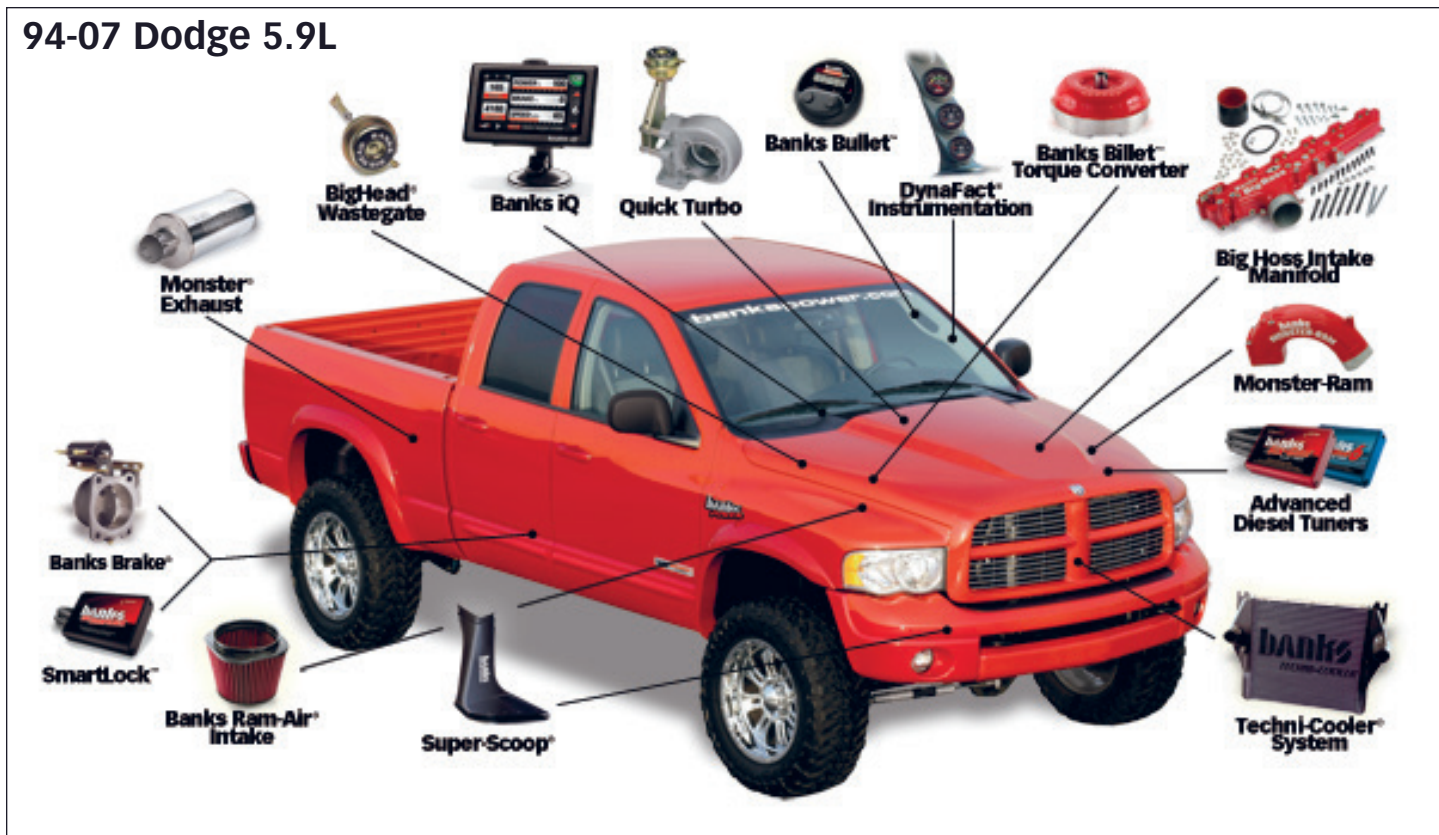
**1994-2004 Dodge ISB 5.9L Cummins
ISB Pickup Trucks**

THIS MANUAL IS FOR USE WITH KITS 24328, 24329, AND
24331

BANKS

Also Available from Banks Power

94-07 Dodge 5.9L



Banks iQ System

03-07 (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

98-02 (P/N 48635-48638)

03-07 Single (P/N 48640-48643, 48700, 48701, 48708)

03-07 Duals (P/N 48702-48707, 48709)

03-07 Sport (P/N 48777-48780)

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

Banks Ram-Air Intake System

03-07 (P/N 42145)

- Increases your airflow over stock.
- Adds power, improves fuel economy, lowers EGTs and reduces smoke.

Banks Ram-Air Intake Super-Scoop

03-07 (P/N 42190-42191)

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

Banks Techni-Cooler® System

03-07 (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 Monster-Ram

98-02 (P/N 42764)

03-07 (P/N 42765-42766)

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

Twin Ram Intake Manifold System

94-98 (P/N 42710, 42711, 43400)

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

Big Hoss Intake Manifold System

03-07 (P/N 42747)

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

Banks Exhaust Brake

98-02 (P/N 55219, 55221)

03-07 (P/N 55222-55229)

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

Banks SmartLock

98-02 (P/N 55262)

03-07 (P/N 55270)

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

Boost and Pyro Gauges

03-07 (P/N 64507)

- Keep your engine safe by monitoring vital engine parameters.

Banks Bullet**03-07 (P/N 66522-66523)**

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

Banks Diesel Tuner**98-02 Big Hoss (P/N 62781-62783)****03-07 EconoMind w/switch (P/N 63725, 63793, 63795, 64507)****03-07 EconoMind w/iQ (P/N 63807, 63808, 63817, 63818)****03-07 Six-Gun w/switch (P/N 61022, 63797)****03-07 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 QuickTurbo**94-02 (P/N 24052, 24053)**

- More boost through the powerband
- Does not over-boost
- Turbo-diesel efficiency

Banks Billet Torque Converter**94-07 (P/N 72515)**

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

Banks Git-Kit Systems**94-98 (P/N 46381)****Contains:**

- Monster Exhaust
- OttoMind Tuner

98-02 (P/N 49357-49362)**Contains:**

- Big Head Wastegate Actuator
- OttoMind Tuner

Banks Stinger Systems**94-98 (P/N 49205, 49206)****98-02 (P/N 49363-49374)****Contains:**

- Ram-Air Filter
- Monster Exhaust
- OttoMind Tuner
- Big Head Wastegate Actuator
- Gauges

03-07 (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 Stinger-Plus Systems**94-98 (P/N 49275, 49276)****98-02 (P/N 49320-49323, 49351, 49352)****Contains:**

- Ram-Air Filter
- Monster Exhaust
- OttoMind Tuner
- Big Head Wastegate Actuator
- Gauges
- Quick Turbo

Banks PowerPack Systems**94-98 (P/N 49280-49283)****Contains:**

- Ram-Air Filter
- Twin-Ram Manifold
- Monster Exhaust
- OttoMind Tuner
- Big Head Wastegate Actuator
- Gauges

98-02 (P/N 49330-49335, 49353-49356)**Contains:**

- Ram-Air Filter
- Monster-Ram
- Monster Exhaust
- OttoMind Tuner
- Big Head Wastegate Actuator
- Gauges
- Quick Turbo

03-07 (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**03-07 (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**03-07 (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

GENERAL INSTALLATION PRACTICES

1. For ease of installation of your Banks system, familiarize yourself with the procedure by reading the entire manual before starting work.

2. Throughout this manual, the left side of the vehicle refers to the driver's side, and the right side to the passenger's side.

3. Disconnect the ground cable from the battery (or batteries, if there are two) before beginning work.

4. Route and tie wires and hoses a minimum of 6" away from exhaust heat, moving parts and sharp edges. Clearance of 8" or more is recommended where possible.

5. 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 hand 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.

6. During installation, keep the work area clean. Do not allow anything to be dropped into intake, exhaust, or lubrication system components while performing the installation, as foreign objects will cause immediate turbocharger and/or engine damage upon start-up.

Tools Required:

- 1/4" and 3/8" drive ratchets with standard and metric sockets and 1/4" and 3/8" drive extension
- Standard and metric combination or open-end wrenches
- Small standard screwdriver
- Standard or needlenose pliers
- Clean shop towels or rags

Highly recommended tools and supplies:

- Compressed air source and hose
- Air pressure regulator
- Inch-pound and foot-pound torque wrenches
- Penetrating oil or light lubricant spray
- Anti-seize compound

INSTALLATION INSTRUCTIONS

CAUTION: When working on the turbocharger system, take care that no foreign objects enter any of the turbocharger connections on the engine or the turbocharger. Foreign objects entering air, exhaust, or oil connections may cause major damage to the engine and/or turbocharger. Such damage is not covered under any warranty.

1. Loosen the clamps that attach the air inlet tube to the air filter housing and turbocharger. Remove the air inlet tube and air filter housing from the vehicle. Loosen the clamp holding the compressor outlet tube to the compressor outlet and slide the tube off of the turbocharger. This will allow easier access to the turbocharger and wastegate actuator.

2. Stuff clean shop towels into the compressor outlet and inlet hoses to prevent foreign objects from entering the pipes.

3. Disconnect the boost line attached to the nipple on the wastegate actuator. Discard the two (2) spring clamps and factory boost line, as they will not be reused.

For ease of installation, Gale Banks Engineering recommends removing the turbocharger from the vehicle prior to installing the Banks Big Head wastegate actuator. If installing the Banks Big Head actuator without removing the turbocharger, proceed to Step **8**.

4. Remove the v-band clamp that attaches the turbine outlet elbow to the turbine housing. Retain the V-band clamp for reassembly.

5. Loosen the upper hose clamp on the turbocharger oil drain-tube hose that is located between the two sections of the oil drain tube. Disconnect the oil supply hose at the turbocharger.

6. Remove the turbocharger mounting nuts or bolts and the turbocharger from the exhaust manifold. Save the nuts for reassembly. Clean and inspect the exhaust flange mating surfaces on the exhaust manifold and turbocharger. Make sure all surfaces are clean and dry.

7. Cover the turbo oil drain pipe with a clean shop towel to avoid oil system contamination.

8. Using a small standard screwdriver or similar tool, carefully remove the e-clip securing the factory actuator rod link to the pin on the wastegate arm. Retain the e-clip for reassembly. A spare clip is provided with the kit in case the factory clip is damaged or lost - use of a magnet during removal may aid in retaining the factory clip.

9. Remove and discard the two (2) nuts holding the factory actuator to the turbocharger compressor housing or mounting bracket. Remove the actuator.

10. Install the BigHead actuator in place of the factory actuator using the two (2) supplied locknuts.

11. Turn the rod end link on the threads of the actuator rod until the end link will slip over the pin on the wastegate arm. Turn the rod end clockwise an additional six (6) full turns, such that it will shorten the rod and add preload to the wastegate.

12. Apply a regulated supply of air pressure to the nipple of the actuator (a standard Schraeder valve filler attachment can be used) until the rod extends enough to slip over the pin on the wastegate arm. Reinstall the E-clip on the pin. Tighten all bolts and nuts that remain loose.

If the Banks BigHead™ actuator was installed without removing the turbocharger, please proceed to Step **15**.

TURBOCHARGER INSTALLATION

CAUTION: Remove all the rags that are inside the compressor hoses before re-installing the turbocharger.

13. Re-install the turbocharger on the exhaust manifold. As the turbocharger is reinstalled, slip the oil drain tube into the drain hose. Apply a small dab of anti-seize compound on the threads and tighten the turbocharger mounting nuts or bolts to 32 ft-lbs. Tighten the oil drain hose clamp. Reconnect and tighten the turbo oil supply hose.

14. Re-install and tighten the v-band clamp that attaches the turbine outlet elbow to the turbine housing.

15. Install the supplied actuator pressure hose, being careful to route it safely away from close contact with heat, moving objects and sharp surfaces. Secure it using the two (2) supplied spring clamps.

16. Double-check that any shop towels or rags in the compressor outlet and inlet tubes have been removed. Re-install the compressor outlet tube, air filter housing, and compressor inlet tube. Tighten all clamps and mounting bolts.

17. Start the engine and allow it to warm up. Drive the vehicle, listening for any exhaust leaks or rattles. Adjust and tighten any clamps removed during the installation process if necessary.