



**Installation Manual v1.0:
10-Digit P/N: 202-930-3224
Aurora 3000 Turbo System
99-03 7.3L Powerstroke Ford**

Please read all instructions before installation.

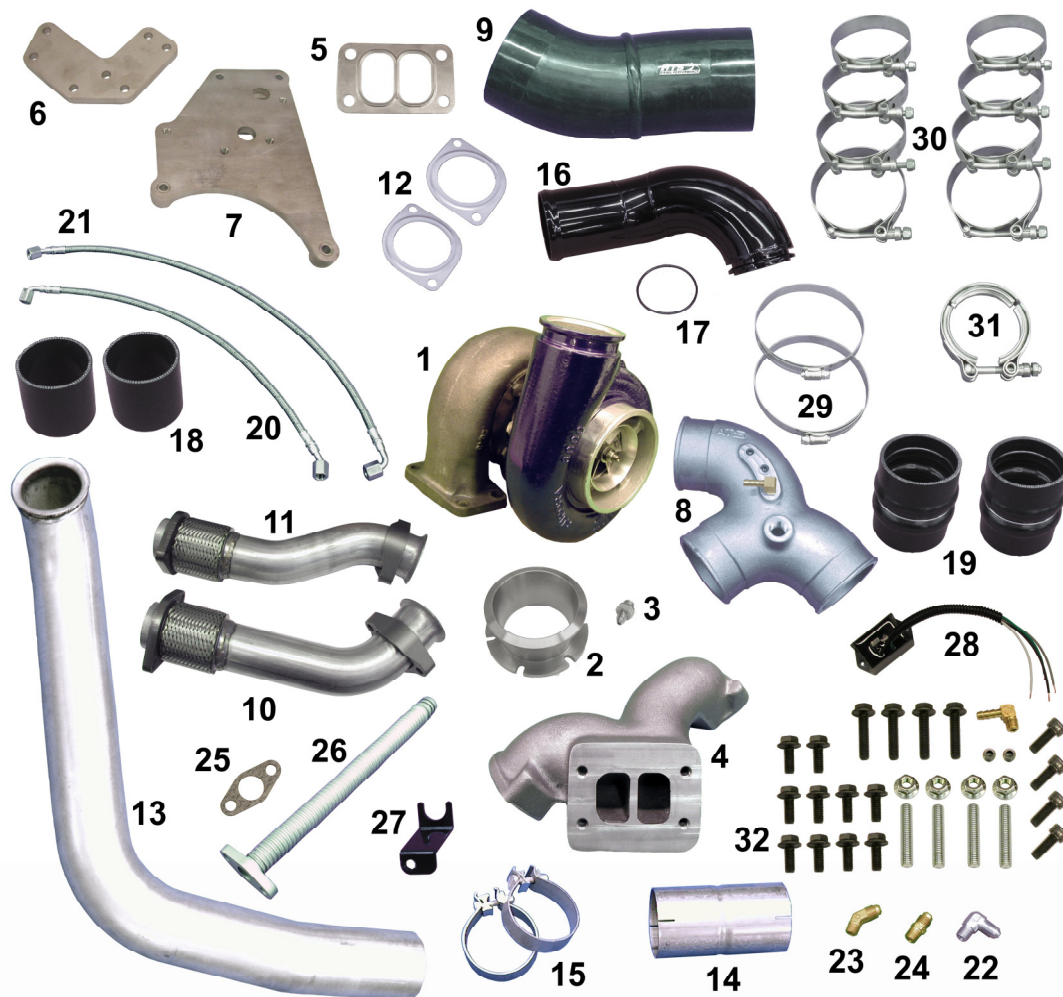


Figure 1 - Full Kit Photo

1. Park the vehicle on level ground, set parking brake and disconnect battery ground cables. Secure the ground cables away from the battery terminals.

2. Remove the engine cover.
3. Disconnect the intercooler charge pipes.

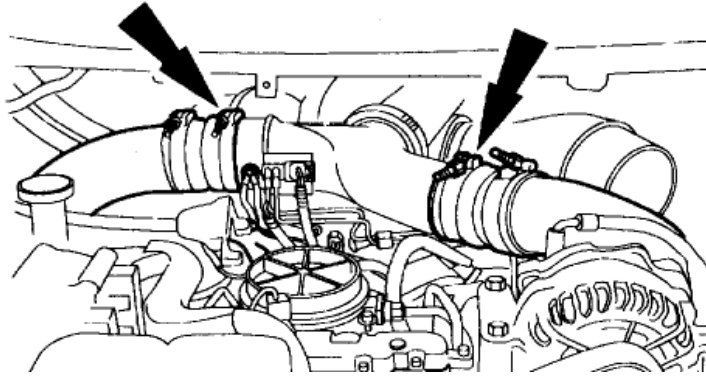


Figure 2 - Factory Intercooler Charge Pipes

4. Label and disconnect the intake air heater element electrical leads, intake air temperature (IAT) sensor connector, manifold absolute temperature (MAP) sensor connector and pressure hoses.

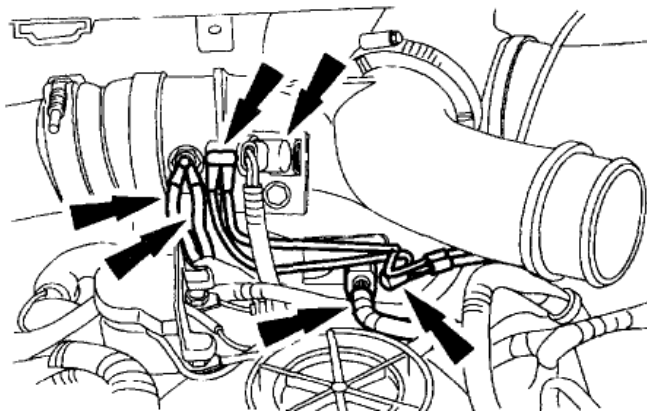


Figure 3 - Connection Removal

5. Loosen the clamps and remove the compressor manifold. Plug the ports on the intake into the heads with a clean rag or equivalent to prevent debris from falling in the engine.

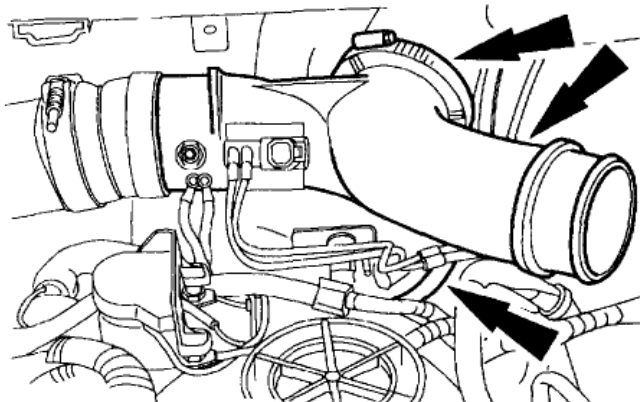


Figure 4 - Compressor Manifold Removal

6. Disconnect the factory downpipe from the factory turbo by removing the v-band clamp on the turbine housing. Remove the downpipe.

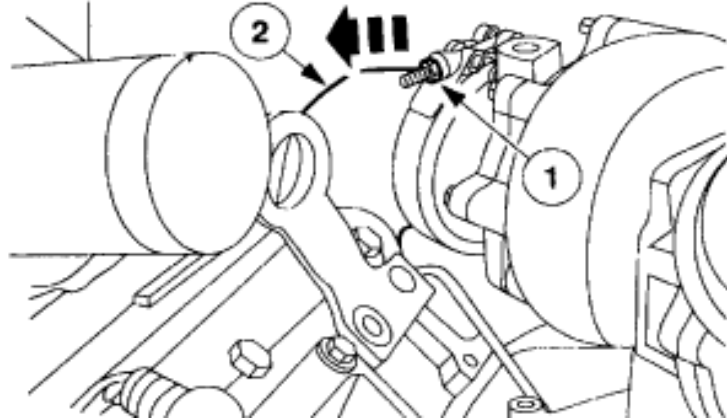


Figure 5 - Downpipe Removal

7. If equipped, disconnect the exhaust back pressure valve by first sliding the retaining clip away from the exhaust back pressure valve actuator lever. Then, detach the exhaust back pressure valve actuator rod.
8. Remove the wastegate solenoid vacuum hose and the pressure hose.
9. Loosen the clamps and remove the air inlet tube. Removing the intake is helpful.

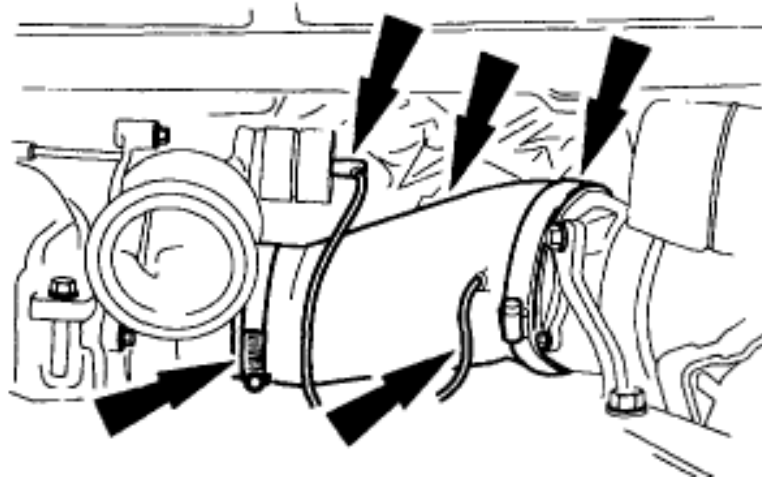


Figure 6 - Air Inlet Removal

10. Loosen the v-band clamp on the turbine housing.

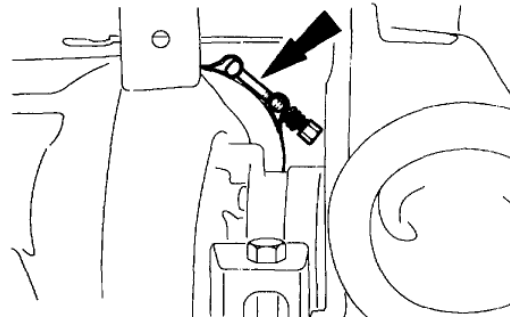


Figure 7 - V-Band Clamp Removal

11. Remove the bolts holding the turbo in place and remove the turbo.

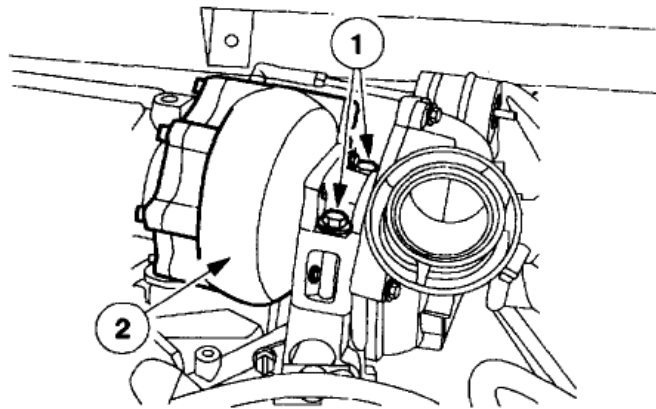


Figure 8 - Turbo Removal

12. Disconnect the exhaust back pressure solenoid electrical connector and remove the four pedestal mounting bolts and pedestal.

Note: Keep the oil supply and return o-rings located between the engine and pedestal. Replace if necessary.

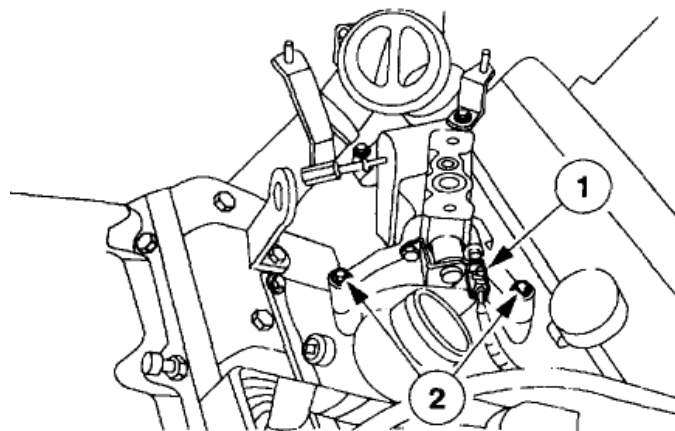


Figure 9 - Pedestal Removal

13. Remove the factory up-pipes and y-pipe.

14. Remove the fuel return line running from the back of the passenger side head to the front of the engine. Replace this line with the fittings and braided line supplied in the kit (#21, Figure 1). Be sure to use a thread sealer on the pipe threads that go into the head and fuel filter housing.

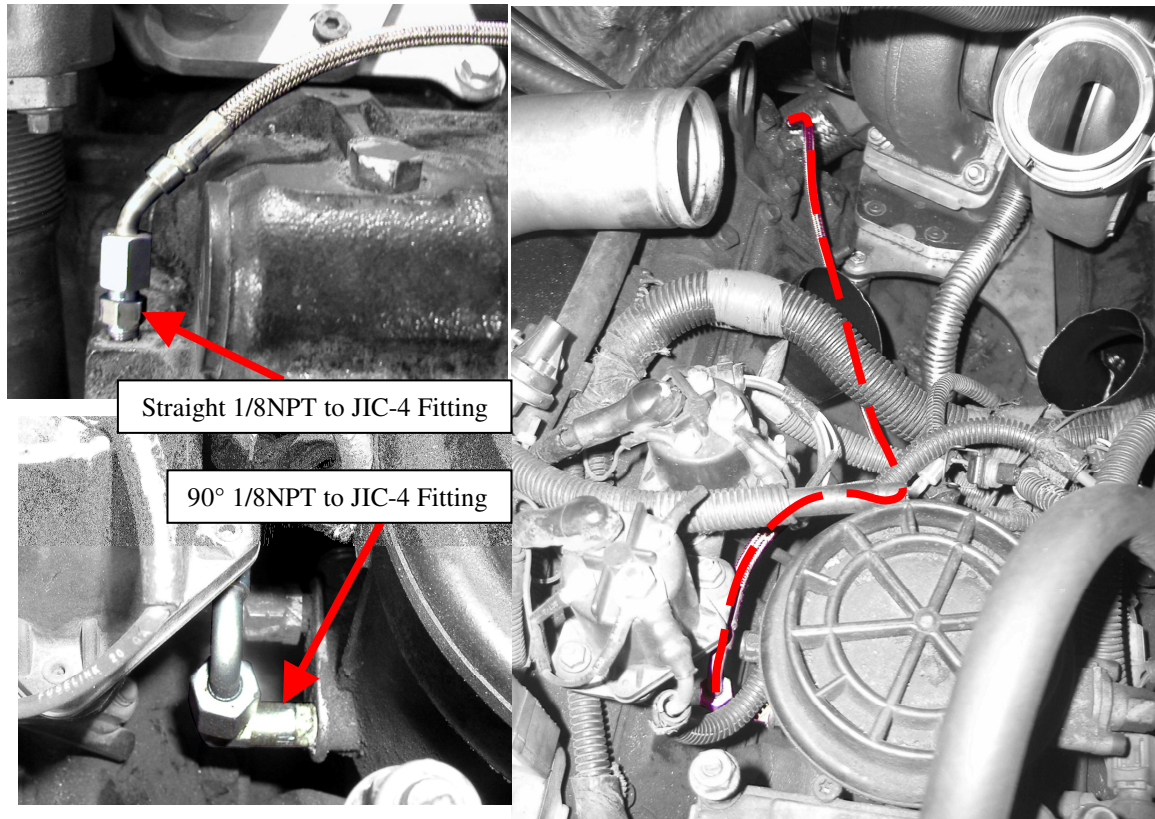


Figure 10 - Fuel Transfer Line Routing

15. With the oil supply and return o-rings in place, place the pedestal mount plate in place of the factory pedestal. Install using the M8-1.25x35mm hardware provided in the kit.

Note: The oil drain port is plugged as the Aurora Turbo System utilizes a larger oil drain line.

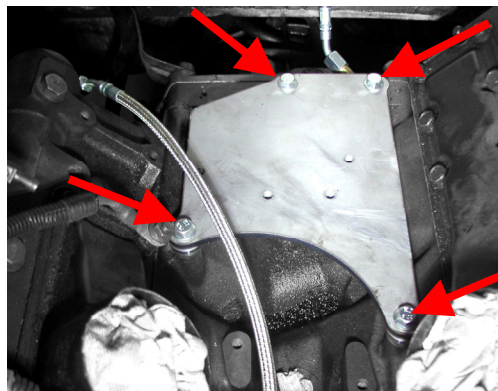


Figure 11 - Base Plate

16. Install the new oil supply line (#20, Figure 1) as shown.

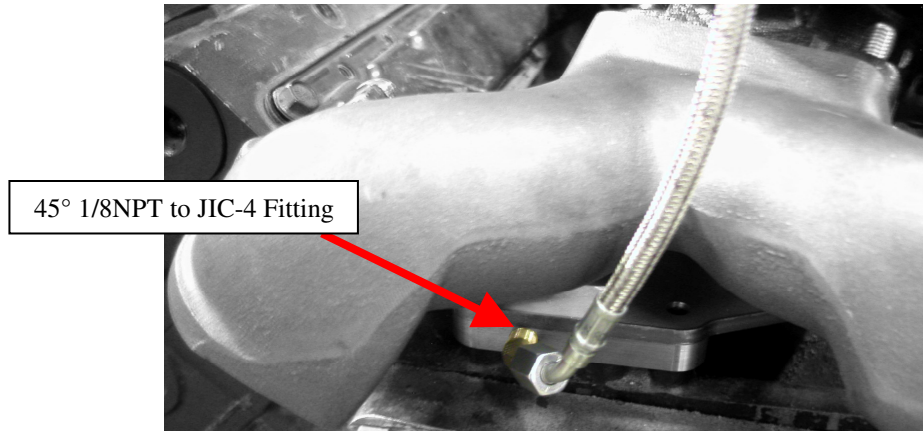


Figure 12 - Oil Supply Line

17. Place the new pedestal and adapter plate on the mount plate. Secure them together using the 8mm hardware provided. Leave them loose as this will aid in up-pipe installation.

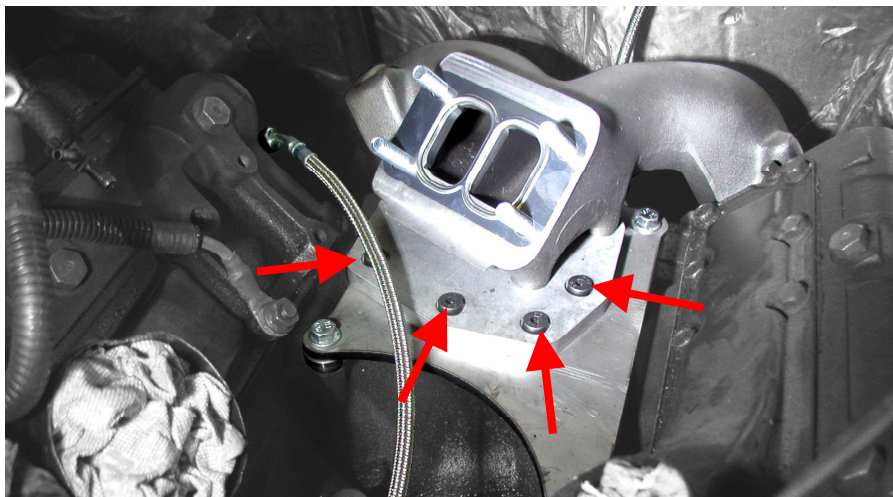


Figure 13 - Pedestal and Adapter Plate

18. Install the passenger side up-pipe by first placing the pedestal flange gasket on the up-pipe and slide the end of the up-pipe into the pedestal. Push the up-pipe into place by sliding the flared end of the up-pipe over the port on the exhaust manifold (the up-pipe should snap into place). Align the gasket (#12, Figure 1) and flange with the holes in the pedestal. Install the new socket head cap screws included in the kit.

19. Repeat the previous process for the driver side up-pipe.

20. Once the up-pipes are in place, tighten the bolts holding the pedestal adapter to the mount plate.

21. A freeze is plug located in the valley of the engine just in front of the pedestal. Clean thoroughly around this plug as it will be the location for the new oil drain.
22. Using a hammer and small drift, lightly tap on the edge of this freeze plug to spin it out of place. Be careful not to knock the freeze plug into the engine as it can be extremely difficult to retrieve if this occurs. Once spun out of place, remove the freeze plug with a pair of vice grips or pliers.



Figure 14 - Freeze Plug Removal

23. If not already installed, install the 10mm studs in the turbo pedestal.
24. Place the new turbo flange gasket (#5, Figure 1) on the pedestal.
25. Carefully, slide the turbo over the 10mm studs and hand tighten the 10mm nuts included to hold the turbo in place.
26. Starting at the turbo cartridge, bend the new drain tube to plug into the new oil drain port.
27. With the new drain tube bent to shape, carefully remove the turbo and bolt the drain tube to the oil drain port on the turbo cartridge. Don't forget to install the drain tube gasket (#25, Figure 1). Reinstall the o-rings on the drain tube if they were removed.
28. With the drain tube installed, place the turbo back into the engine compartment. Slide the drain tube into the new oil drain port while placing the turbo over the studs in the pedestal. Reinstall and tighten the 10mm nuts.
29. A drain tube retainer is included with the kit. Install this piece to hold the base of the drain tube in place using the 8mm hardware included with the kit. Be sure to install it in the slot on the fitting and not the flexible portion of the tubing as it can damage the tubing.
30. Carefully add a half or a full ounce of clean engine oil in the supply fitting on top of the turbo cartridge while slowly spinning the compressor wheel. This will lubricate the turbo at startup.

31. Route the oil supply line to the fitting in the top of the new Aurora turbo and tighten the fittings.
32. Install the new downpipe using the factory v-band clamp, exhaust coupler and exhaust clamps provided in the kit. Depending on the exhaust system installed, modifications may be necessary to connect the new downpipe.
33. Using the hose clamps provided (#29, Figure 1), install the new silicone intake boot between the compressor inlet and the factory intake junction. It will likely be necessary to remove the two 6mm bolts holding the junction in place.

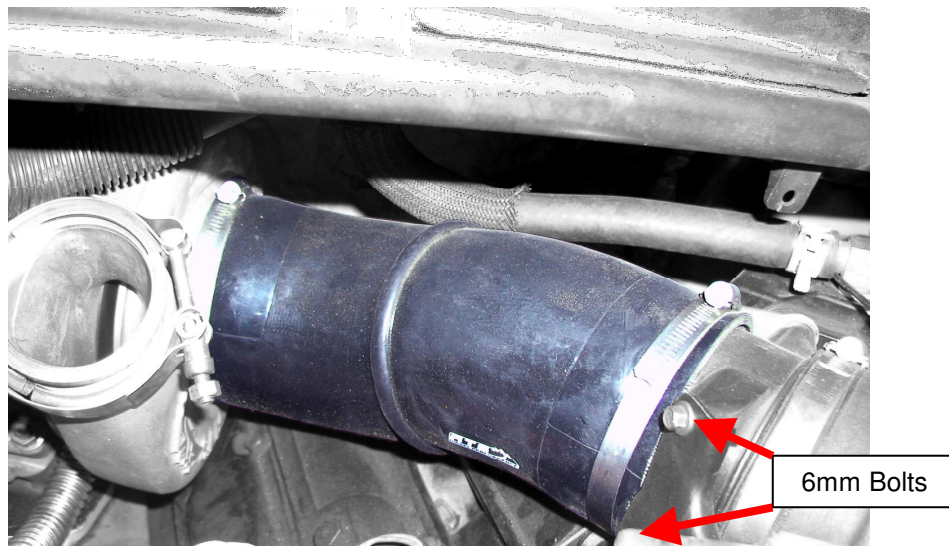


Figure 15 - Intake Boot Installation

34. Remove the intake air heater, intake air temperature and MAP sensor from the factory compressor manifold. Install them in the appropriate ports on the new Arc-Flow intake manifold. Also install the 90° barbed fitting and pipe plugs in the 1/8 NPT ports.

Note: The Arc-Flow intake is pre-tapped with three 1/8 NPT holes for easy installation of ATS WaterBoy Stage 3 water injection, nitrous or a boost gauge.

35. It will be necessary to relocate the connections for the intake air heater. Remove the black ground wire from the driver side head and relocate it to the stud on the opposite head behind the inlet to the passenger side head.
36. Using the new 3" silicone couplers (#18, Figure 1) and the 3.5" clamps provided in the kit, install the Arc-Flow intake in place of the factory compressor manifold.
37. Install a silicone coupler (#19, Figure 1) between the passenger side factory charge pipe and the top port on the Arc-Flow manifold using the

clamps provided. Be sure the internal rib is seated properly in the groove in the charge pipe before tightening the clamp.

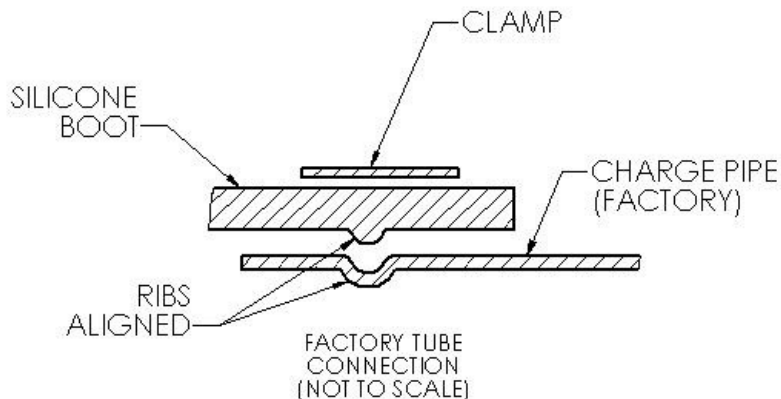


Figure 16 - Boot Rib Feature

38. Route the intake air heater ground wire to the intake heater. Reroute the red power wire under the intake manifold as well. This will require loosening the nut holding the power wire in place and rotating it back toward the intake manifold. Don't forget to install the insulator between the power and ground wire.
39. Connect the electronic MAP signal voltage cap (MAP CAP) included in the kit (#28, Figure 1) as shown in Figure 18. This will prevent the MAP sensor (#2, Figure 17) from measuring higher than factory boost and setting a check engine code.

NOTE: Some aftermarket tuners already cap the MAP signal to the ECM. If a tuner is installed, do not connect the ATS MAP CAP. The MAP CAP limiting voltage is preset by ATS and should not need adjustment.

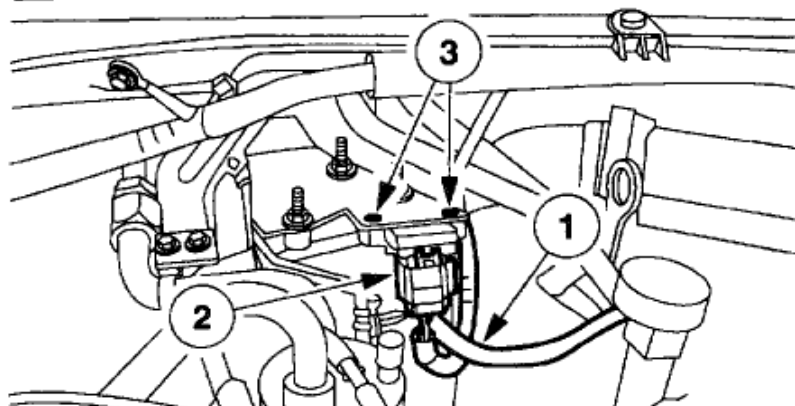


Figure 17 - MAP Sensor Location



99-03 Ford 7.3L Adjustable Map Sensor Voltage Cap v1.0

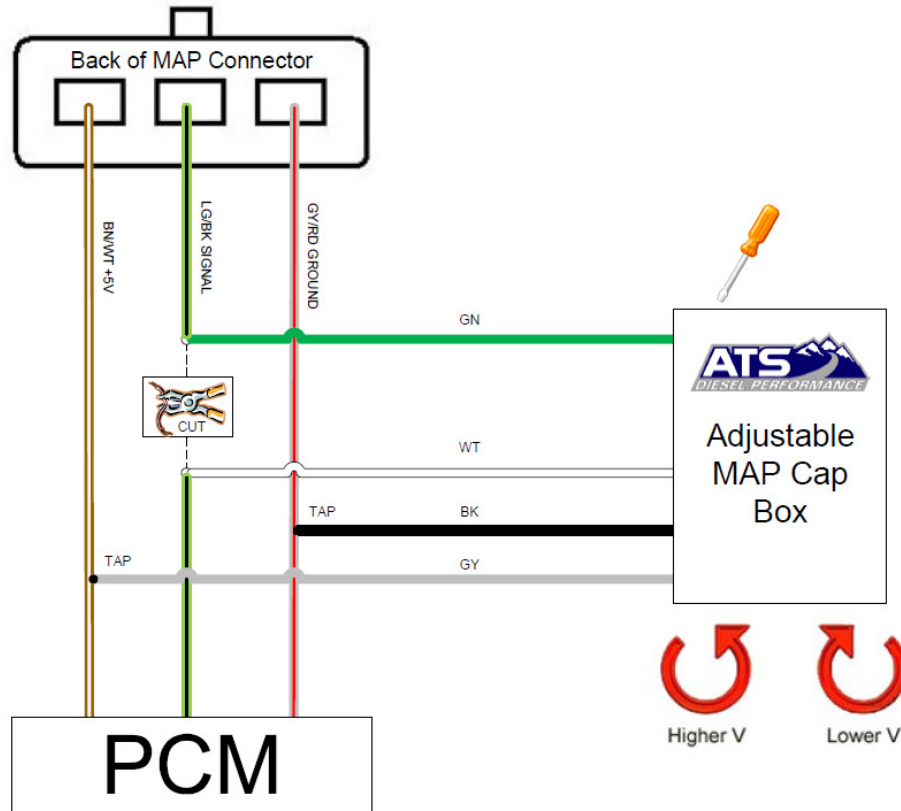


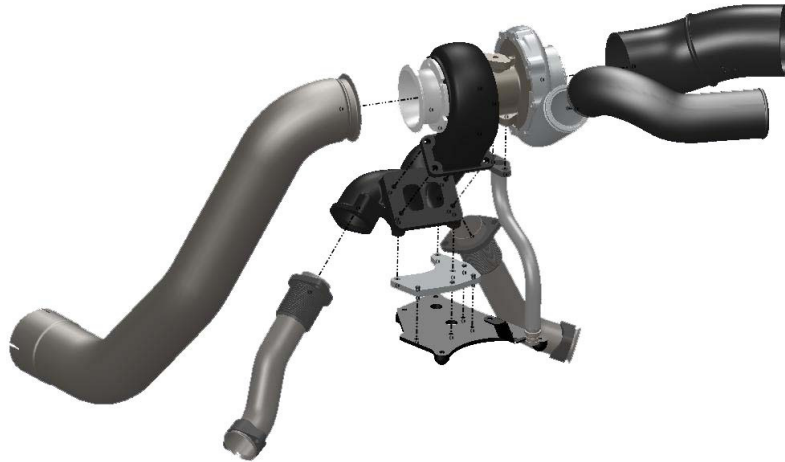
Figure 18 - Map Sensor Voltage Cap Wiring

NOTE: Although the MAP Cap comes preset, the output voltages of some MAP sensors can vary causing an overboost situation where the PCM will defuel. Tuning the MAP Cap box simply requires adjusting the screw in the top of the electronics box. Turning the screw clockwise will reduce the output voltage the PCM receives from the MAP sensor. Adjust the screw in 1/4 turn increments until injector defueling no longer occurs.

40. Reinstall the intake if necessary.

41. Install the new charge pipe (#16, Figure 1) between the compressor outlet and the intercooler charge pipe using the silicone coupler (#19, Figure 1) and clamps provided. The best way to do this is install the silicone coupler on the charge pipe making sure the internal rib is seated on the factory charge pipe. Then slide the charge pipe into the coupler and connect the

- v-band flange to the compressor housing using the 3" v-band clamp provided (#31, Figure 1). Don't forget to install the o-ring (#17, Figure 1).
42. Double check all clamps and fittings.
 43. Reconnect the negative (-) battery terminals.
 44. Start the truck and check for boost leaks.
 45. If no boost leaks are present, allow 100 miles of easy driving to break in the new turbo.



Have Any Questions?

Thank you for purchasing the Ford 7.3L Aurora Turbo System. Please check our website at <http://www.atsdiesel.com> for technical support and other performance products such as the 5-Star™ torque converter, ATS High Performance Valve Body and ATS High Performance Transmission along with our full line of power enhancers. Please call or e-mail our Technical Service Department, 8:00am to 5:30pm Mountain Standard Time, Monday through Friday.

Contact Information

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We strive to make our instructions as clear and complete as possible. To achieve this, our instructions are under constant construction. We encourage you to visit our Technical Support Website (<http://www.atsdiesel.com/ATSWebSite/Technical.asp>) to check for the most up-to-date manuals and diagrams as well as other information. If you have any suggestions as to how we can improve this installation manual, let us know at <mailto:Suggestions@ATSDiesel.com>.

Bill of Materials

1. Aurora 3000 Turbo 202-301-1000
2. Turbine Discharge Adapter 202-044-3224 (installed on turbo)
3. Fitting, 14mm to JIC-4 7400-4-14 (installed on turbo)
4. Turbo Pedestal 202-021-3170C
5. T-3 Divided Flange Gasket 311496
6. Pedestal Adapter 202-023-3170
7. Mount Plate 202-053-3170
8. 7.3L Arc-Flow 201-090-3170
9. Intake S-Duct 206-027-3224
10. Up-Pipe, Driver Side 204-106-3170
11. Up-Pipe, Passenger Side 204-104-3170
12. (2) Up-Pipe Gasket 1831328C1
13. Downpipe 205-005-3224
14. 4" Exhaust Coupler 400045
15. (2) 4" Exhaust Clamp BC400A
16. Charge Tube (S1), Turbo to CAC 202-050-3170
17. Charge Tube O-Ring Seal N70143
18. (2) 3" I.D. Silicone Couplers SIL000617
19. (2) 3" I.D. x 4" Long Silicone Coupler 202-057-1000
20. Oil Supply Line 202-028-3170
21. Fuel Return Line 702-021-3224
22. 90° 1/8npt to JIC-4 Fitting 4CTX-S
23. 45° 1/8npt to JIC-4 Fitting 4VTX-S
24. Straight 1/8npt to JIC-4 Fitting 4FTXO-S
25. Oil Drain Flange Gasket 311496
26. Oil Drain Tube 202-048-3170
(2) 9262K402 O-Rings Installed
27. Oil Drain Retainer Bracket 202-037-3170
28. Signal Voltage Cap (MAP CAP) 601-006-1000
29. (2) 4.5" Hose Clamp ET-72
30. (8) 3.5" T-Bolt Clamp 94100-0350

31. 3" V-Band Clamp 3903652

32. Hardware Kit

(10) M8-1.25x20mm Serrated Flange Bolt M8-1.25X20TL

(4) M8-1.25x35mm Serrated Flange Bolt 92820A440

(4) M10-1.5x50mm Stud M10STUD-1.5X50MM

(4) M10-1.5 Serrated Flange Nut M10WHIZ

(2) 1/8 NPT Plug 18PPB

(1) 90° 1/8 NPT to Barbed Fitting 07020-0402

(4) M8-1.25x20mm Socket Head Cap Screw 91290A426