



advanced FLOW engineering

Instruction Manual P/N: 46-20514-B

BladeRunner – Charge Pipe Kit

Make: **Ford**
Make: **Ford**

Model: **F-150**
Model: **F-150 Raptor**

Year: **2021+**
Year: **2021+**

Engine: **V6 – 3.5L(tt)**
Engine: **V6 – 3.5L(tt)**



- 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.

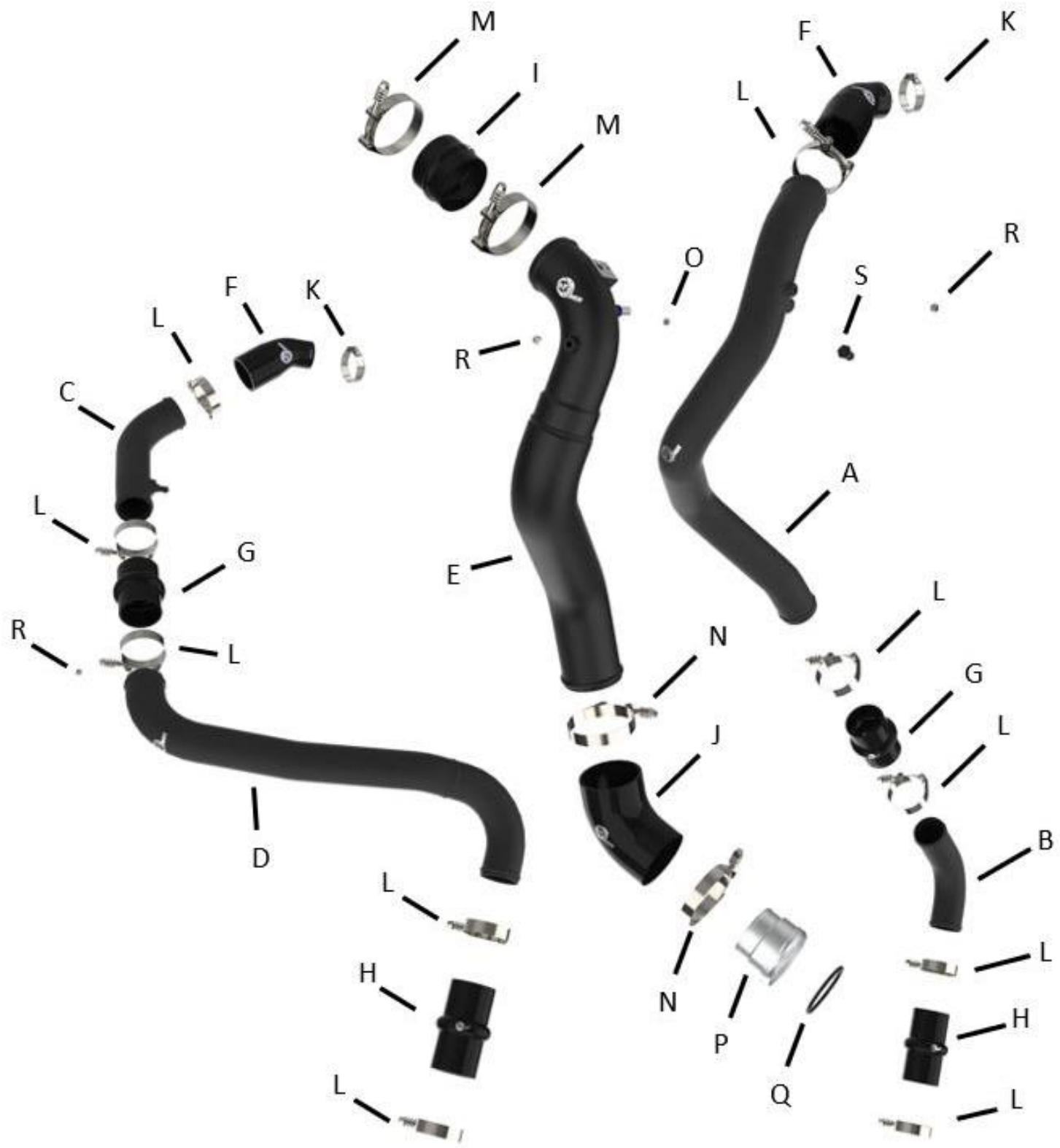
Label	Qty.	Description	Part Number
A	1	Tube, Hot Side Upper DS: 46-20518	05-61231B
B	1	Tube, Hot Side Lower DS: 46-20518	05-61232B
C	1	Tube, Hot Side Upper PS: 46-20518	05-61233B
D	1	Tube, Hot Side Lower PS: 46-20518	05-61234B
E	1	Tube, Cold Side: 46-20519	05-61235B
F	2	Coupling, Silicone Rdr: (1.75"x 2.5") 35 Deg	05-61084
G	2	Coupling, Silicone Hump: 2.5"ID x 4"L	05-60439
H	2	Coupling, Silicone Hump: 2.5" ID x 5.5"L	05-60610
I	1	Coupling, Silicone Hump: 3"ID x 3"L	05-60827
J	1	Coupling, Silicone Elbow: 3.5" ID x 60 Deg	05-61229
K	2	Clamp, SmartSeal, 032 (1.95" – 2.32")	03-50655
L	10	Clamp, Spring Loaded T-Bolt: 2.85" Dia	05-60039
M	2	Clamp, Spring Loaded T-Bolt: 3.5" Dia	05-60530
N	2	Clamp, Spring Loaded T-Bolt: 3.75" Dia	05-60024
O	1	Screw, Btn Hd Socket: M6x1x12	03-50102
P	1	Adaptor, Ford I/C: 46-20219	05-60373
Q	1	O-Ring, #339: 46-20209/19	05-60626
R	3	Plug, Hex Hd Socket: 1/8" NPT (Zn Plt)	03-50029
S	1	Mount, Aluminum: M8x1.25x7	05-01547

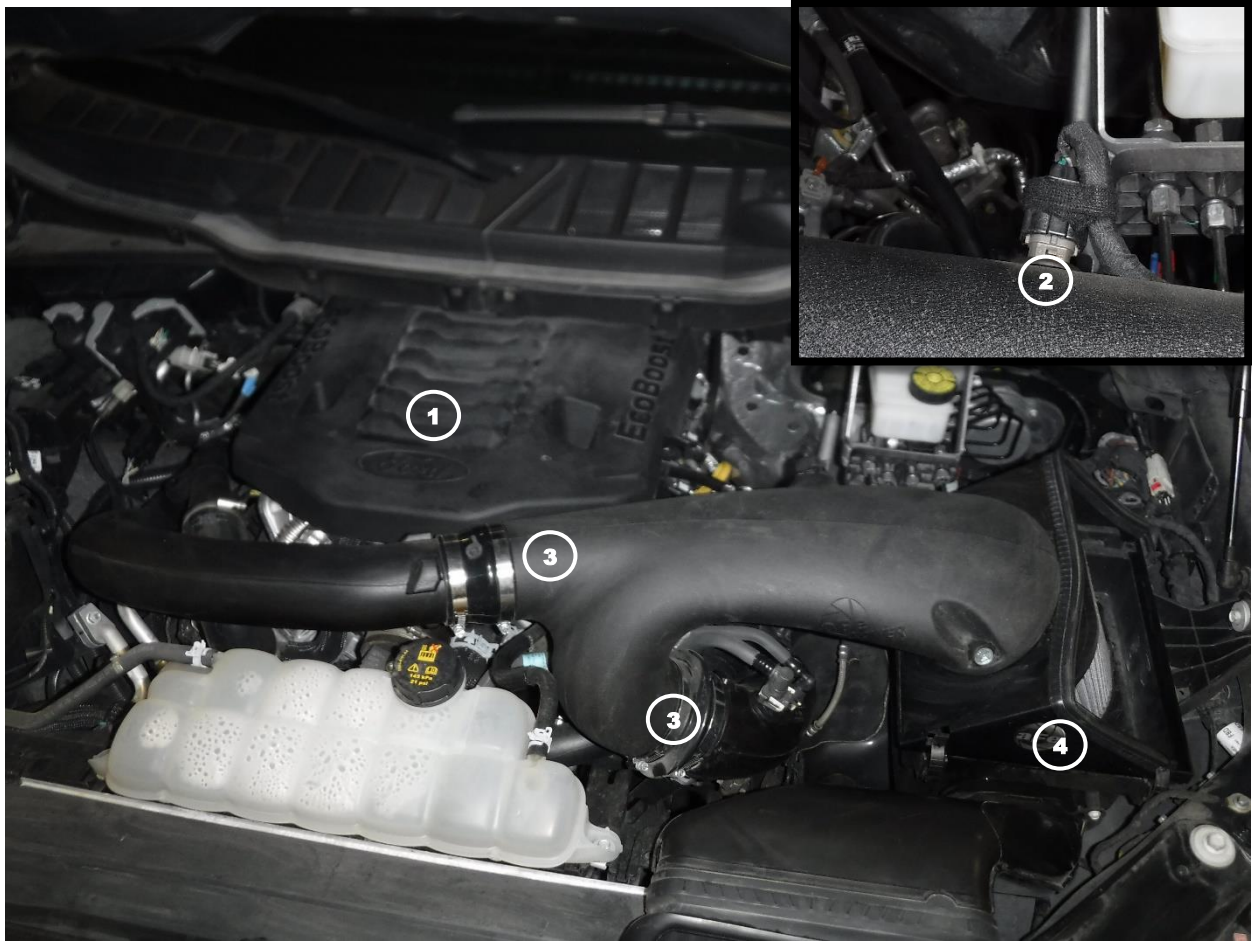
Installation will require the following tools:

7mm socket, 10mm socket, 7/16" deep socket, 5mm allen wrench, 3/16" allen wrench, T30 Torx, 6" extension, ratchet, pick, thread sealant, & grease.

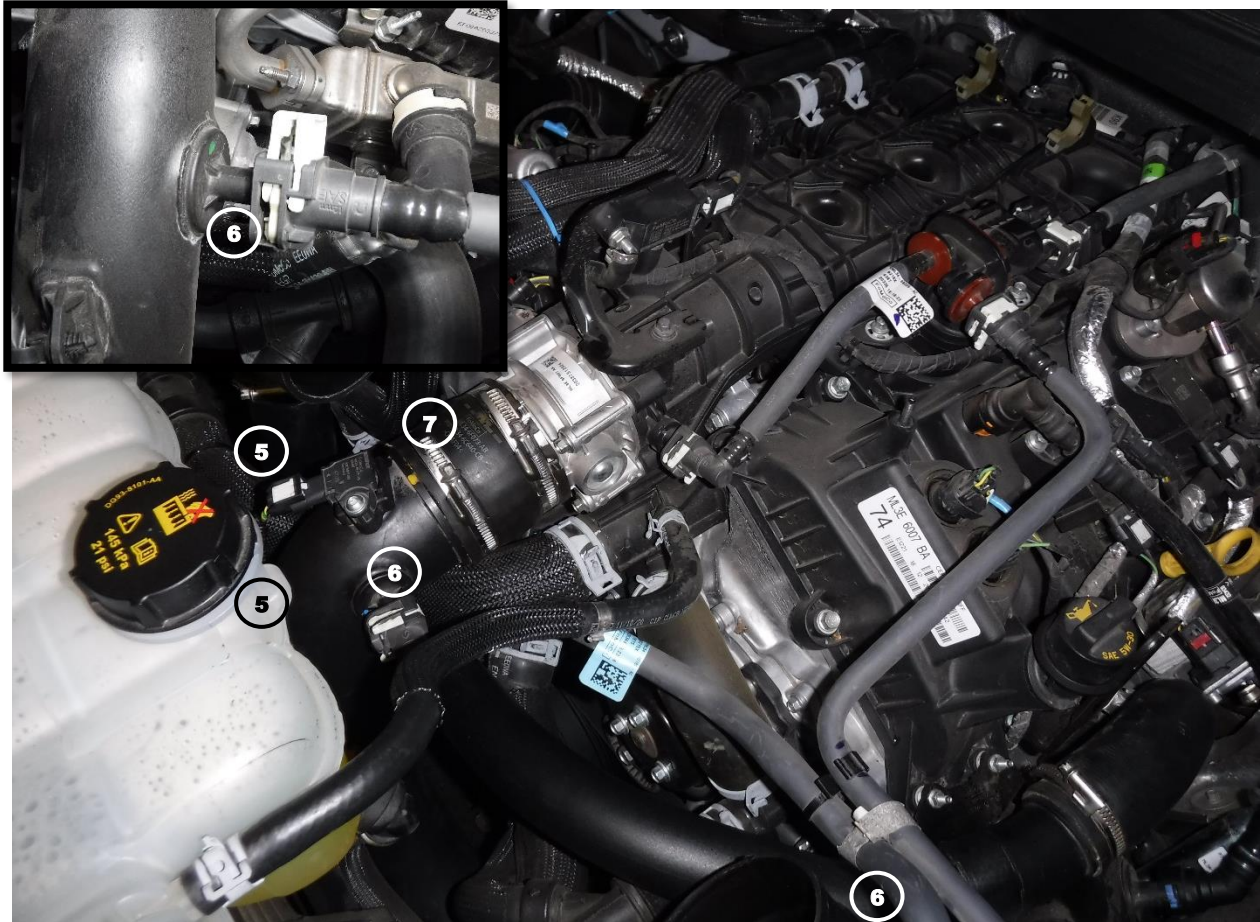
Warranty Information available at <https://afepower.com/contact#warranty>

Note: Legal in California for use on race vehicles only. The use of this device on vehicles used on public streets or highways is strictly prohibited in California and others states that have adopted California emission regulations.





1. Park vehicle on level ground and engage the parking brake.
2. Disconnect the negative battery cable.
3. Remove the two nuts securing the engine cover to the vehicle, then remove the cover from the vehicle ①
4. Disconnect the air intake temperature sensor from the air intake tube and unclip harness from the air box ②
5. Loosen the clamps securing the air intake tube(s) onto the air box and the turbo inlet tubes ③
6. Unclip the top of the air box from the bottom of the air box ④ then remove the air intake tube(s) and top from the vehicle.



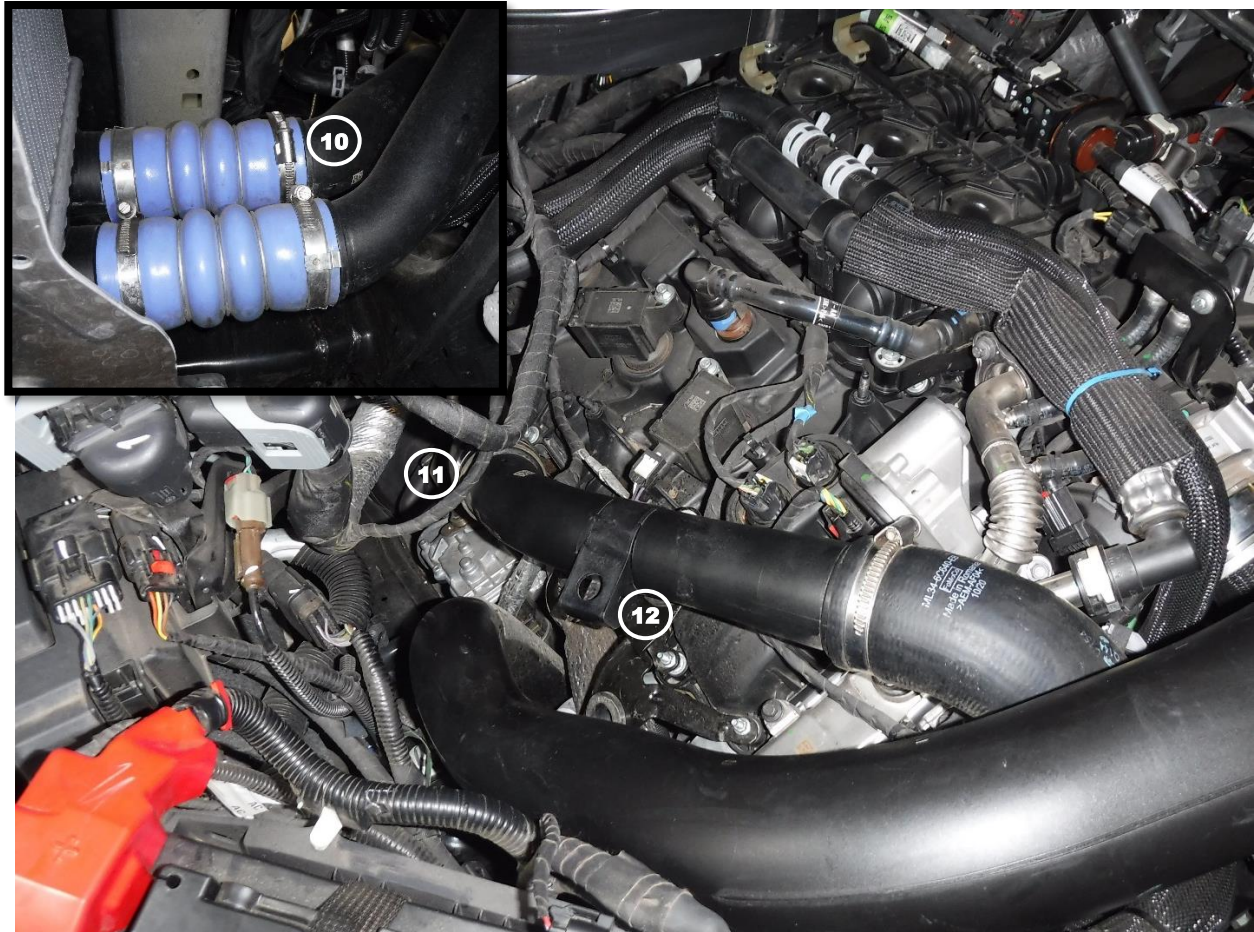
7. Disconnect the MAP sensor connector and unclip the harness from the cold side charge pipe ⑤
8. Disconnect the vent hose from the turbo inlet tube and the cold side charge pipe, then remove it from the vehicle ⑥

It may be necessary to use a pick to break the connection between the charge pipe coupling and the vehicle in order to disconnect the coupling.

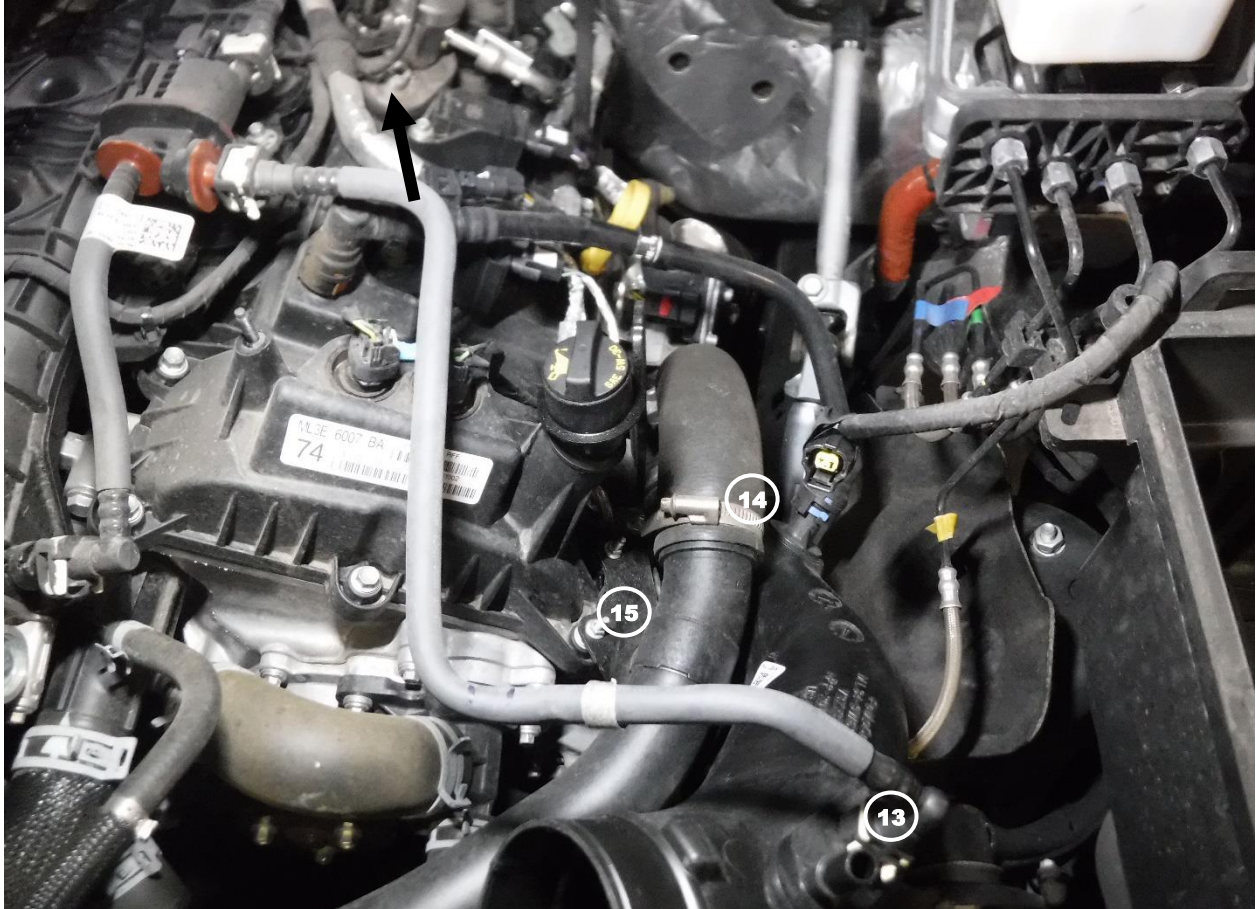
9. Loosen the clamp securing the throttle body coupling to the cold side charge pipe ⑦ then disconnect the charge pipe from the throttle body coupling.



10. Underneath the vehicle, disconnect the bypass valve tube from the bypass valve and rotate out of the way (8)
11. Remove the retaining clip from the cold side charge pipe connector, then firmly pull the connector off the intercooler (9)
12. Remove the cold side charge pipe from the vehicle from the bottom or top of the vehicle.
13. Loosen the clamp securing the throttle body coupling to the throttle body, then remove the coupling from the vehicle (not shown).



14. Loosen all of the clamps securing both hot side charge pipes to the intercooler from underneath (10) then remove the couplings from the vehicle.
15. Loosen the clamp securing the hot side charge pipe to the turbo outlet coupling on the passenger side (11)
16. Lubricate the mounting grommet (12) and disconnect the charge pipe from its mount and the turbo coupling, then remove the pipe from the vehicle.
17. Loosen the clamp securing the hot side charge pipe coupling to the passenger side turbo, then remove the coupling from the vehicle.



18. Disconnect the PCV hose from the driver's side turbo inlet tube (13)
19. Loosen the clamp securing the hot side charge pipe to the turbo outlet coupling on the driver's side (14).
20. Lubricate the mounting grommet (15) and disconnect the charge pipe from its mount and the turbo coupling, then remove the charge pipe from the vehicle from the top.
21. Loosen the clamp securing the hot side charge pipe coupling to the driver's side turbo, then remove the coupling from the vehicle.

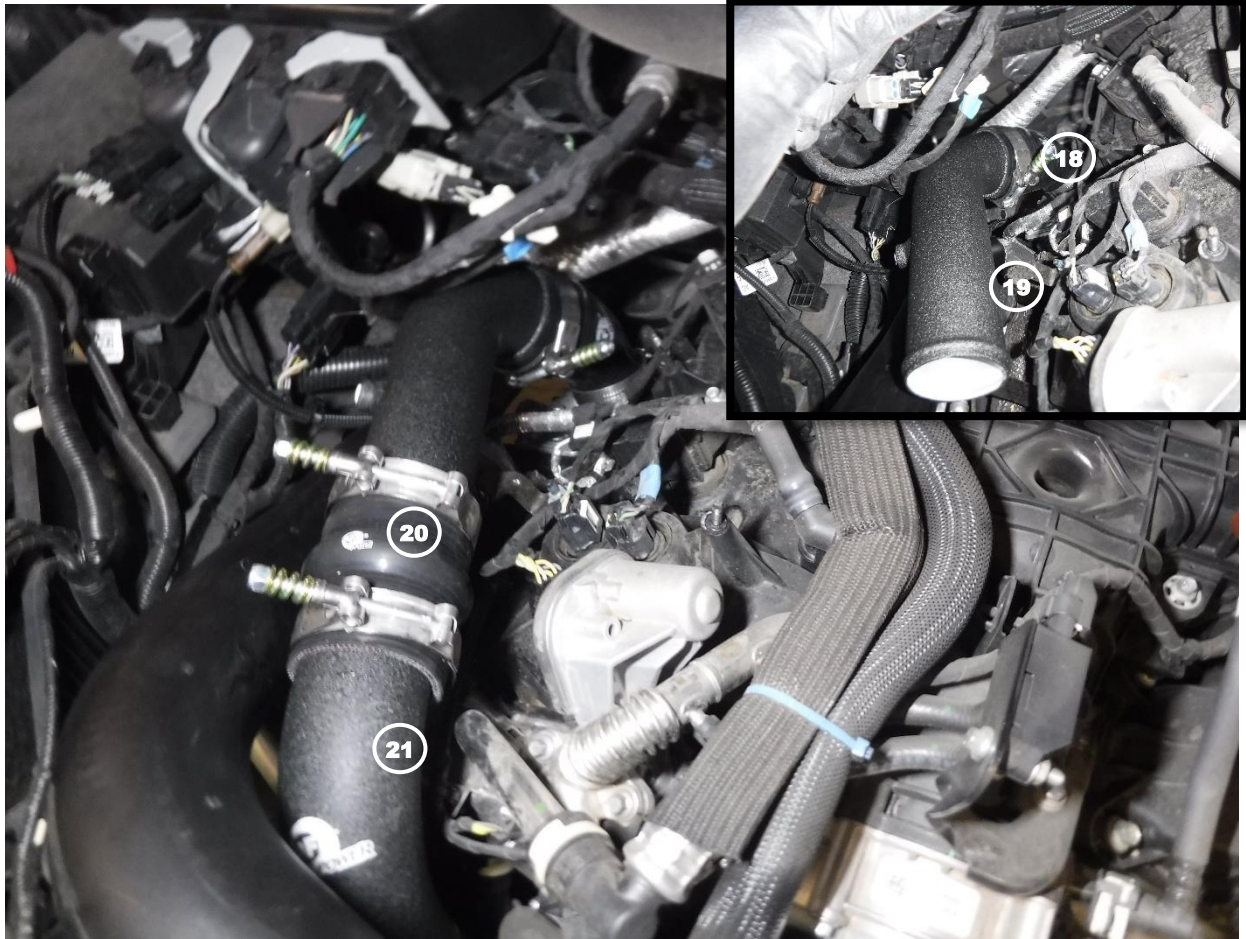


Note: Be sure to use thread sealant on the plugs or sensors to prevent any leaking.

22. If you are not using any aftermarket sensors, install the supplied 1/8" NPT plugs (16) into the threaded fittings on the aFe charge pipes.
23. Remove the MAP sensor from the factory pipe.

Note: Be sure to lubricate the O-ring to prevent it from tearing during installation.

24. Install the MAP sensor into the port on the supplied aFe cold side charge pipe and secure it using the supplied M6x1x12mm screw (17)
25. Install the supplied Aluminum Mount into the threaded fittings on the driver's side upper hot charge pipe.



Note: Be sure to thoroughly clean all oil residue off of the connections before installing any of the aFe couplings onto the vehicle.

26. Install the supplied aFe silicone Rdr: (1.75"x 2.5") 35 Deg coupling and one supplied SmartSeal, 032 (1.93" – 2.32") clamp onto the passenger side turbo outlet (18) do not tighten the clamp yet.
27. Install the supplied aFe passenger side upper hot charge pipe into the vehicle with one 2.85" spring-loaded T-Bolt clamp (19) ensure the mounting pin goes into the factory grommet, do not tighten the clamps yet.
28. Install the supplied aFe silicone hump: 2.5"ID x 4"L coupling and one supplied 2.85" spring-loaded T-Bolt clamp onto the aFe passenger side upper hot charge pipe (20) do not tighten the clamp yet.
29. Install the supplied aFe passenger side lower hot charge pipe into the vehicle along with one 2.85" spring-loaded T-Bolt clamp (21) Connect the passenger side lower charge pipe to the upper charge pipe coupling from the previous step.



Note: Be sure to thoroughly clean all oil residue off of the connections before installing any of the aFe couplings onto the vehicle.

30. Install the supplied aFe silicone hump coupling 2.5"ID x 5.5"L and one 2.85" spring-loaded T-Bolt clamp onto the upper hot side intercooler inlet (22) do not tighten the clamp yet.
31. Connect the aFe passenger side lower hot charge pipe to the coupling from the previous step along with one 2.85" spring-loaded T-Bolt clamp (23).



Note: Be sure to thoroughly clean all oil residue off of the connections before installing any of the aFe couplings onto the vehicle.

32. Install the aFe silicone straight coupling 3"ID x 3"L and one 3.5" spring-loaded T-Bolt clamp onto the throttle body (24) do not tighten the clamp yet.
33. Install the aFe cold side charge pipe into the vehicle with one 3.5" spring-loaded T-Bolt clamp (25) and connect to coupler at throttle body, do not tighten the clamps yet.



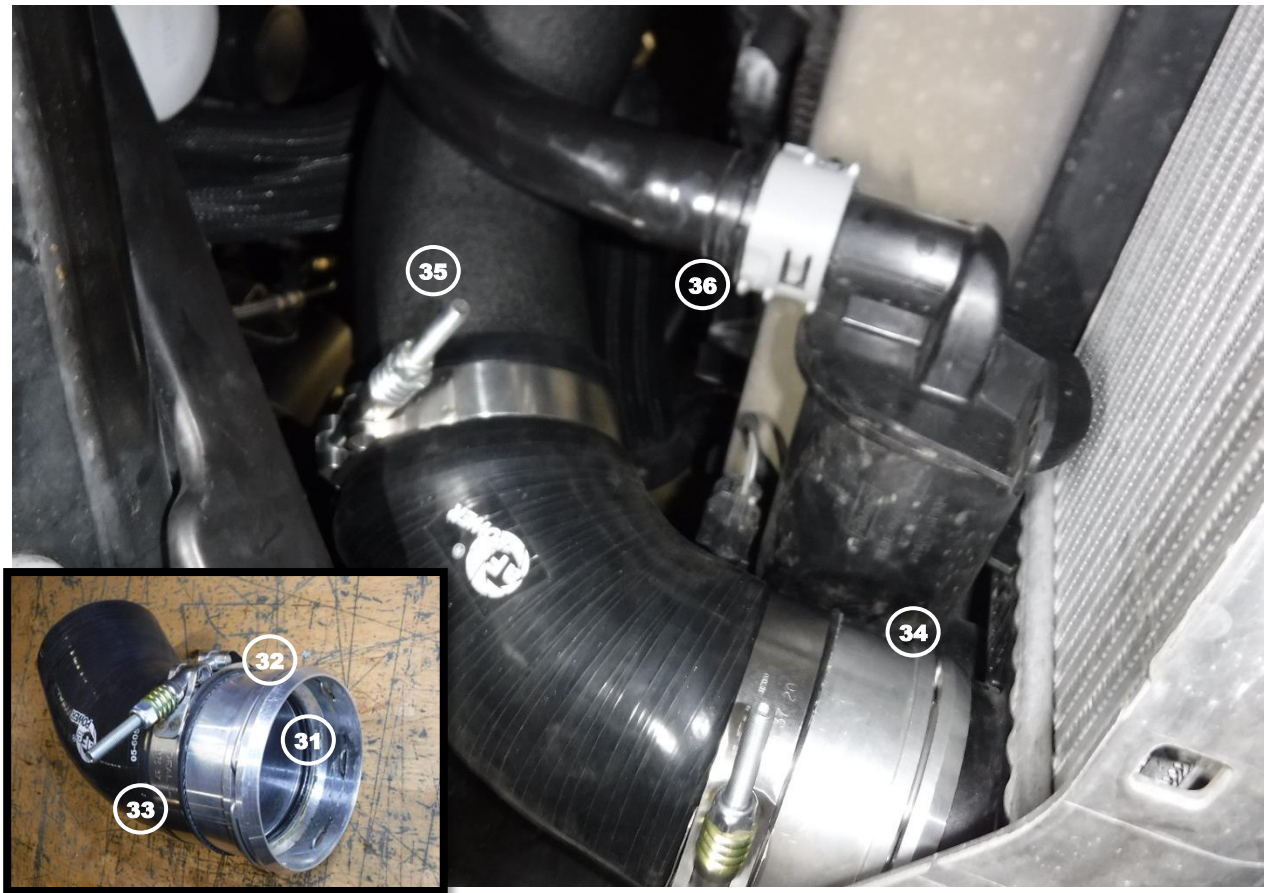
Note: Be sure to thoroughly clean all oil residue off of the connections before installing any of the aFe couplings onto the vehicle.

34. Install the aFe silicone Rdr: (1.75"x 2.5") 35 Deg coupling and the remaining SmartSeal, 032 (1-15/16" - 2-5/16") clamp onto the driver's side turbo outlet (26) do not tighten the clamp yet.
35. Install the supplied aFe driver's side upper hot charge pipe into the vehicle with one 2.85" spring-loaded T-Bolt clamp on the driver's side (27) ensure the mounting pin goes into the factory grommet, do not tighten the clamp yet.



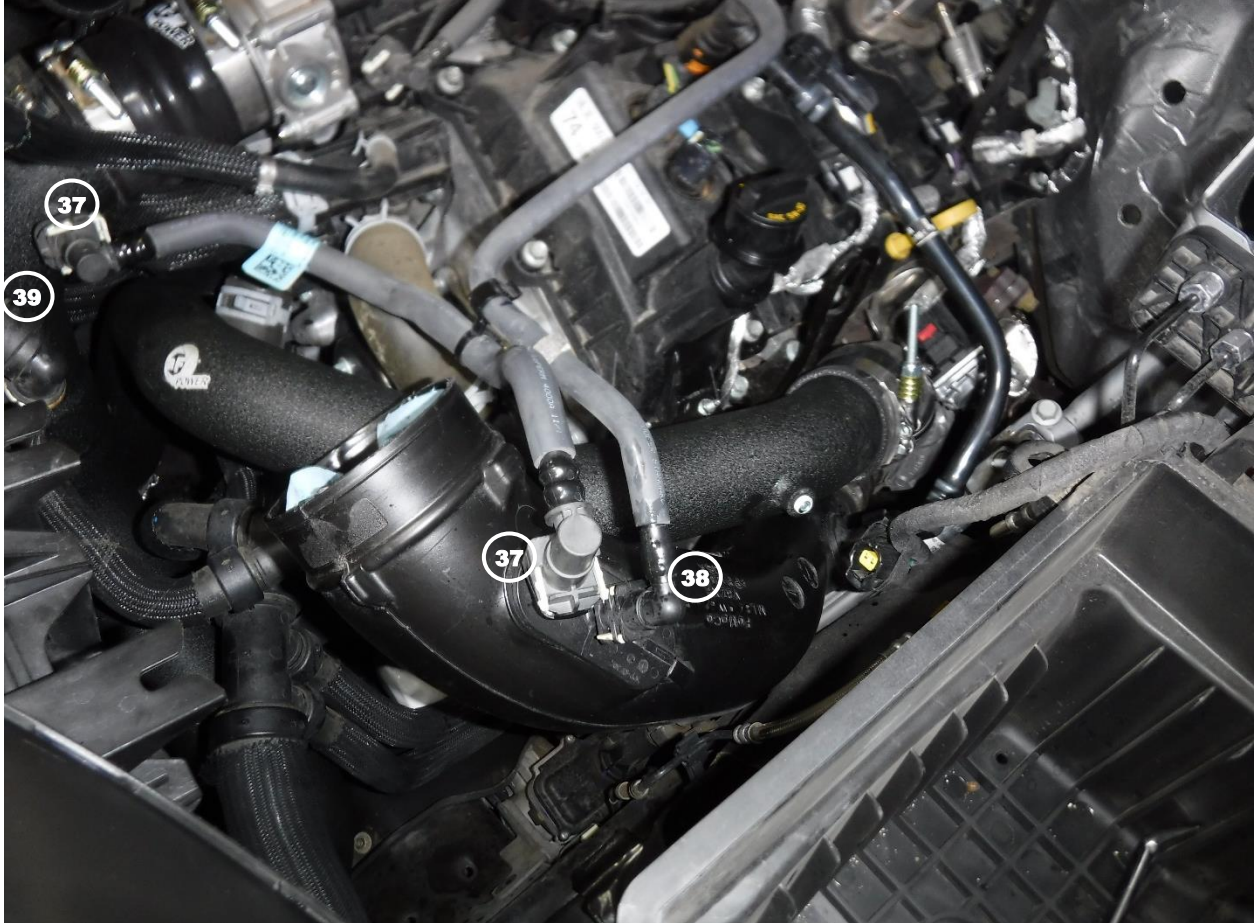
Note: Be sure to thoroughly clean all oil residue off of the connections before installing any of the aFe couplings onto the vehicle.

36. Install the remaining aFe silicone hump coupling 2.5"ID x 4"L and one 2.85" spring-loaded T-Bolt clamp onto the longer side of the aFe driver's side lower hot charge pipe (28) do not tighten the clamp yet.
37. Install the remaining 2.5"ID x 5.5"L coupling and one 2.85" spring-loaded T-Bolt clamp onto the lower hot side intercooler inlet (29) do not tighten the clamp yet.
38. Install the aFe driver's side lower hot charge pipe into the vehicle along with one 2.85" spring-loaded T-Bolt clamp (30) Connect the driver's side lower charge pipe to the lower intercooler coupling from the previous step, and then to the upper charge pipe from Step 35.



Note: Be sure to lubricate the O-ring with grease to prevent it from tearing during installation.

39. Install the supplied -339 O-ring into the groove on the inside of the supplied aFe intercooler adaptor (31)
40. Install the factory retaining clip onto the aFe intercooler adaptor (32)
41. Install the supplied aFe silicone elbow coupling 3.5"ID x 60Deg and one 3.75" spring-loaded T-Bolt clamp onto the aFe intercooler adaptor (33) then tighten the clamp.
42. Install the aFe intercooler adaptor onto the intercooler and ensure the retaining clip snaps all the way into the groove on the intercooler (34)
43. Install the remaining 3.75" spring-loaded T-Bolt clamp onto the aFe silicone elbow coupling 3.5"ID x 60Deg, then connect the coupling to the aFe cold side charge pipe (35)
44. Reconnect the bypass valve tube to the bypass valve (36)



45. Reconnect the vent hose to the aFe charge pipe and the turbo inlet tube, ensure the retaining clips lock into place (37)

46. Reconnect the PCV hose from the driver's side turbo inlet tube (38)

47. Reconnect the MAP sensor connector to the aFe charge pipe (39)

48. Ensure the aFe hot and cold side charge pipes are not touching anything and tighten all of the clamps.



49. Reinstall the air intake tube(s) and top of the air box into the vehicle and tighten the clamps (40)
50. Reconnect the air intake temperature sensor to the air intake tube and clip harness onto the air box (41)
51. Reinstall the engine cover (42)
52. Reconnect the negative battery cable.
53. Install is now complete.

Note: Be sure to check all connections after 50-100 miles.

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