

# 2011–2014 FORD F-150 ECOBOOST INTERCOOLER KIT

INSTALLATION GUIDE CONTENTS PAGE



## GUIDE INTRODUCTION

The following guide is broken up into two portions. Each one provides the steps required to install the intercooler and the intercooler pipes. We recommend fully reading over both portions before beginning your install. This will give you a complete representation of how to carry out the install of both parts at once.

It may help to watch video of the install, which can be found on each product's web page:



FORD F-150 ECOBOOST INTERCOOLER



FORD F-150 ECOBOOST INTERCOOLER PIPES



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GUIDE #1.....2011—2014 Ford F-150 EcoBoost Intercooler Pipes  
*7 total pages consisting of 50 steps*

GUIDE #2.....2011—2014 Ford F-150 EcoBoost Intercooler  
*4 total pages consisting of 37 steps*

INSTALL BEGINS ON FOLLOWING PAGE

# 2011-2014 ECOBOOST INTERCOOLER

## PARTS LIST AND INSTALLATION GUIDE



### PARTS LIST

**1 PC** | MISHIMOTO INTERCOOLER

**3 PC** | AIR DIVERSION PANELS WITH ASSEMBLED RUBBER TRIM

### TOOLS NEEDED

10MM SOCKET	3/8" DRIVE EXTENSION
1/4" DRIVE RATCHET	PICK TOOL
1/4" DRIVE EXTENSION	HOSE PICK
13MM SOCKET	FLATHEAD SCREWDRIVER
15MM SOCKET	PANEL TOOL
3/8" DRIVE RATCHET	10MM WRENCH

**INSTALLATION TIME** 2.5 HOURS

**INSTALL DIFFICULTY**     

### DISCLAIMER

- Raise vehicle only on jack stands or on a vehicle lift.
- Allow vehicle to cool completely prior to attempting installation.
- Do not run the engine or drive the vehicle while overheating; serious damage can occur.
- Please dispose of any liquids properly.
- Mishimoto is not responsible for any vehicle damage or personal injury due to installation errors, misuse, or removal of Mishimoto products.
- Mishimoto suggests that a trained professional install all Mishimoto products.

### INSTALLATION INSTRUCTIONS

**NOTE:** There is a drain plug located in the passenger-side mounting peg. Some F-150 owners are experiencing issues with condensation building in the intercooler. If your truck has this issue, the drain plug can be drilled or you can simply unscrew this plug. We recommend wrapping the plug with Teflon tape before reinstalling it to create a good seal.

- 01.** Set the vehicle on an automotive lift or raise it with a jack and place it securely on jack stands. Refer to your owner's manual for safe lifting points if you are unsure.

- 02.** From underneath the vehicle, release the four quarter-turn fasteners and five pop-clips that secure the shrouding to the radiator support. (4x quarter-turn fasteners, 5x pop-clips)



- 03.** Release the two quarter-turn fasteners that secure the rear splash panel to the undertray. Remove the four bolts that secure the undertray. Then remove the undertray from the vehicle. (2x quarter-turn fasteners, 4x 13mm bolts)



- 04.** Loosen the clamps that secure the hot-side intercooler pipes to the intercooler. Then separate the intercooler pipes from the intercooler. (2x worm-gear clamps)



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- 05.** Remove the two nuts that secure the air dam to the vehicle. Then remove the air dam. (2x 15mm nuts)



- 06.** Remove the circlip that secures the cold-side pipe to the intercooler. Work a pick behind the circlip to get it started, and then remove it by hand. Once the circlip is removed, separate the intercooler pipe from the intercooler. (1x circlip)



- 07.** Loosen the clamps that secure the Y-shaped induction hose to the airbox and intake pipes. Then separate the induction hose from each connection and remove it from the vehicle. (3x worm-gear clamps)



- 08.** Disconnect the wiring harness from the sensor on the cold-side intercooler pipe. To release this connector, depress the black tab and pull the connector off the sensor.

- 09.** Disconnect the hose from the cold-side intercooler pipe. To release this connection, squeeze the tabs on the underside of the connector and slide the locking clip away from the port.



- 10.** Loosen the clamp that secures the cold-side intercooler pipe to the throttle body. Then separate the pipe from the throttle body. Lift the pipe upwards to give yourself more room around the intercooler. (1x worm-gear clamp)



- 11.** If you have a newer model F-150, there will be a recirculation valve attached to the intercooler. You will have to disconnect the electrical harness from the solenoid and separate the hose from the valve. To release the hose, rotate it by a quarter turn and pull it off the valve.

- 12.** Remove the two bolts that secure the upper intercooler mounting bracket to the frame rails, and then remove the mounting bracket. (2x 10mm bolts)



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## INSTALLATION GUIDE



- 13.** Support the intercooler and remove the two bolts that secure the lower intercooler mounting bracket to the frame rails, and then remove the mounting bracket and intercooler as one unit. (2x 13mm bolts)



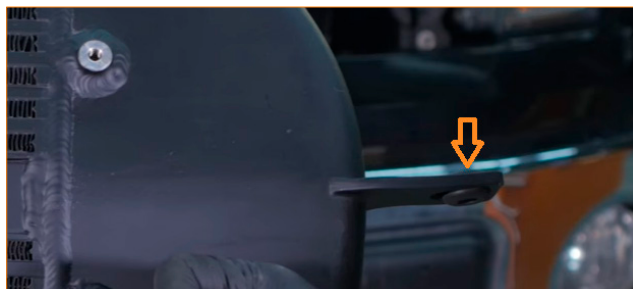
- 14.** Remove the mounting bushings from the bottom of the factory intercooler. (2x bushings)

- 15.** If you have a newer model F-150, remove the recirculation valve from the intercooler by unbolting it and turning it counterclockwise.



- 16.** Locate the bushings included with your kit and install them to the Mishimoto intercooler.

- 17.** Locate the large washers included with your kit and install them over the bolts that secured the upper intercooler mounting bracket. (2x large washers)



- 18.** If you have a 2011-2012 F-150, install the CNC plug to the recirculation valve port on the Mishimoto intercooler. Make sure the plug is fully seated for a good seal. If you have a newer F-150, leave this port open for now. (1x CNC plug)



- 19.** Lower the intercooler into place and allow it to rest on the frame rails.

- 20.** If you have a newer F-150, slide the intercooler as far forward as possible and install the recirculation valve.

- 21.** Install the bushings you removed earlier to the mounting pegs on the Mishimoto intercooler and install the lower support bracket. Then secure the bracket to the vehicle with the original hardware. (2x bushings, 2x 13mm bolts)



- 22.** Secure the intercooler to the frame rails using the two original bolts and the washers you installed earlier. (2x 10mm bolts)

- 23.** Reattach the hot-side intercooler pipes and tighten the clamps to secure them. (2x worm-gear clamps)

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## INSTALLATION GUIDE



- 24.** Attach the cold-side intercooler pipe to the intercooler and secure it with the circlip. Make sure the circlip engages the slots on the hot-side pipe. (1x circlip)



- 25.** Reattach the cold-side intercooler pipe to the throttle body.
- 26.** Reconnect the hose to the cold-side intercooler pipe and lock the connection.
- 27.** Reconnect the wiring harness to the sensor on the intercooler pipe.
- 28.** Reinstall the Y-shaped induction hose and tighten the clamps to secure it. (3x worm-gear clamps)
- 29.** If you have a newer F-150, reconnect the electrical harness for the solenoid and reattach the hose to the valve.
- 30.** Locate the driver side air diversion panel included with your kit. When properly oriented, the tabs on the panel will point toward the outside of the vehicle, and the threaded insert will be at the top. Lower the panel into place so that the front edge of the panel fits between the bolt and tab on the bumper. Then turn it to align the bolt holes in the air diversion panel with the threaded bungs on the intercooler.



- 31.** Locate the passenger-side air diversion panel and lower it into place as shown here. Place the edge of the air diversion panel on the inside edge of the bolt in the bumper. Then turn it to align the bolt holes in the air diversion panel with the threaded bungs on the intercooler.



- 32.** Locate the upper air diversion panel in your kit. Flex the panel slightly to get the front edge under the bumper cover, and then lower it into place over the other panels.



- 33.** Adjust the panel to line up the hole with the threaded insert in the driver-side panel. Thread in one of the provided flange head bolts, but don't tighten it yet. Repeat this process on the passenger side. Thread in the remaining flange head bolts to secure the side panels to the intercooler. (6x 10mm flange head bolts)
- 34.** Tighten the bolts that secure the side panels to the intercooler. Then adjust the upper panel so it is flush with the top of the intercooler and tighten the last two bolts.



- 35.** Reinstall the air dam and secure it with the two original nuts. (2x 15mm nuts)
- 36.** Reinstall the undertray and secure it with the four original bolts. Then reattach the rear splash panel to the undertray with the two quarter-turn fasteners (4x 13mm bolts, 2x quarter-turn fasteners)
- 37.** Secure the shrouding to the radiator support with the five pop-clips and four quarter-turn fasteners. (4x quarter-turn fasteners, 5x pop-clips)

**Congrats! You just finished installing the 2012-2014 Ecoboost Intercooler.**

# 2011–2014 FORD F-150 ECOBOOST

## INTERCOOLER PIPES

### PARTS LIST AND INSTALLATION GUIDE



#### PARTS INCLUDED

- 1PC** | ALUMINUM INTERCOOLER PIPE W/ CNC-MACHINED QUICK-DISCONNECT FLANGE
- 1PC** | ALUMINUM INTERCOOLER PIPE W/ CNC-MACHINED IAT SENSOR HOUSING
- 3PC** | ALUMINUM INTERCOOLER PIPES
- 7PC** | SILICONE BOOTS WITH DURACORE™ TECHNOLOGY
- 2PC** | HIGH-TORQUE WORM GEAR CLAMPS
- 12PC** | CONSTANT-TENSION T-BOLT CLAMPS
- MOUNTING HARDWARE

#### TOOLS NEEDED

- |                    |                  |
|--------------------|------------------|
| 2.5MM ALLEN KEY    | 1/4" EXTENSIONS  |
| T20 TORX DRIVER    | 21MM SOCKET      |
| 8MM SWIVEL SOCKET  | 1/2" BREAKER BAR |
| 8MM SOCKET         | HOSE PICK        |
| 10MM SOCKET        | SMALL PICK       |
| 1/4" DRIVE RATCHET | 8MM WRENCH       |
| 1/4" DRIVER        |                  |

**INSTALL TIME** **TWO HOURS**

**INSTALL DIFFICULTY**

#### DISCLAIMER

- Raise vehicle only on jack stands or on a vehicle lift.
- Allow vehicle to cool completely prior to attempting installation.
- Do not run the engine or drive the vehicle while overheating; serious damage can occur.
- Please dispose of any liquids properly.

- Mishimoto is not responsible for any vehicle damage or personal injury due to installation errors, misuse, or removal of Mishimoto products.
- Mishimoto suggests that a trained professional install all Mishimoto products.

#### CAUTION

Never work on the cooling system when it is hot. The coolant temperature in the radiator can be considerably higher than boiling, and the system may be under pressure. Opening a cooling system that is hot or under pressure can result in serious injury. Always wait until the system has cooled completely before servicing it in any way.

#### INSTALL PROCEDURE

- 01.** Loosen the clamps that secure the Y-shaped induction hose to the airbox and intake pipes. Then separate the induction hose from each connection and remove the induction hose from the vehicle. (3x worm gear clamps)



- 02.** Remove the oil filler cap. Then remove the engine cover from the vehicle. Lift up on the front edge of the cover to release the mounting pegs, and slide the cover forward. Then reinstall the oil filler cap.

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- 03. Separate the hose from the passenger-side induction pipe. Then separate the hose from the passenger-side intercooler pipe.
- 04. Loosen the clamp that secures the cold-side intercooler pipe to the throttle body, and separate the hose. (1x worm gear clamp)



- 05. Disconnect the wiring harness from the sensor on the cold-side intercooler pipe. To release this connector, depress the black tab and pull the connector off the sensor.



- 06. Disconnect the hose from the cold-side intercooler pipe. To release this connection, squeeze the tabs on the underside of the connector, and slide the locking clip away from the port.



- 07. Set the vehicle on a lift or raise it with a jack and place it securely on jack stands. Refer to your owner's manual for safe lifting points if you are unsure.
- 08. Reach through the passenger-side wheel well and loosen the clamp that secures the hot-side pipe to the turbocharger. (1x worm gear clamp)



- 09. Reach through the driver-side wheel well and loosen the clamp that secures the hot-side pipe to the turbocharger. (1x worm gear clamp)



- 10. From underneath the vehicle, release the four quarter-turn fasteners and seven pop clips that secure the shrouding to the radiator support. (4x quarter-turn fasteners, 7x pop clips)

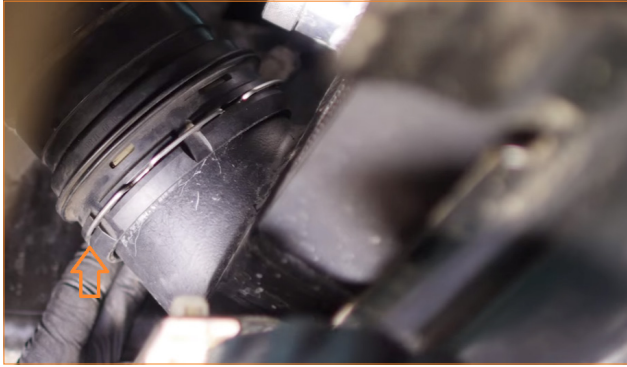
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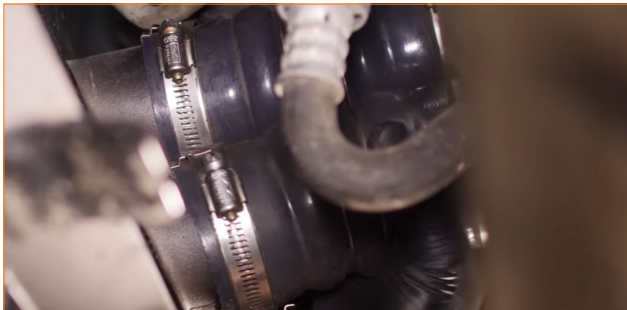
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11. Remove the circlip that secures the cold-side intercooler pipe to the intercooler. Then separate the pipe from the intercooler and remove the pipe from the vehicle. (1x circlip)



12. Loosen the clamps that secure the hot-side pipes to the intercooler. Then wiggle the pipes to break them loose from the intercooler. (2x worm gear clamps)



13. Separate the passenger-side intercooler pipe from the turbocharger outlet and the intercooler inlet. Release the peg in the middle of the pipe from the grommet that secures it to the engine, and then remove the pipe from the vehicle.



14. Separate the driver-side intercooler pipe from the turbocharger outlet. Lift up on the coolant expansion tank, and slip the intercooler pipe out from under it. There is a peg that secures this pipe to the engine directly under the coolant fitting on the expansion tank. Now separate the other side of the pipe from the intercooler and remove the pipe from the vehicle.



15. This system has a lot of couplers and pipes to be installed. Pay special attention to the orientation of the clamps to make sure the adjustment nuts will be accessible when the pipes are installed. Leave all the clamps loose until the pipes are fully assembled to allow for adjustment.

16. Locate the shorter turbocharger coupler in your kit. Install one of the provided worm gear clamps over the smaller end of the coupler, and orient it as shown here. Then install the coupler to the driver-side turbocharger outlet.



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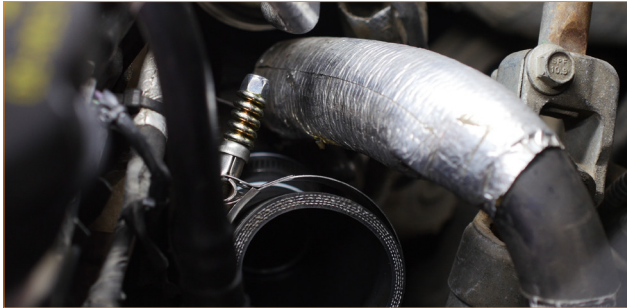
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17. Locate one of the 63–70mm clamps provided in your kit. Orient the clamp as shown here, and slip it over the coupler you just installed. (1x T-bolt clamp)



18. Locate the upper section of the driver-side intercooler pipe. Lead the end with the shorter run of pipe underneath the hoses at the front of the engine bay, and turn the pipe so that the other end runs across the front of the engine. Then slip the pipe into the coupler at the turbocharger.



19. Locate the single-bend, long coupler included with your kit. Identify the smaller end of the coupler and install a 63–70mm clamp over this end. Then lower the coupler into place and slip it over the pipe you just installed. (1x T-bolt clamp)



20. Locate one of the 67–75mm clamps included with your kit and slip it over the coupler you just installed. (1x T-bolt clamp)
21. Locate one of the straight couplers included with your kit. Both are identical. One side of the coupler is larger than the other. The smaller end gets a 67–75mm clamp while the larger end gets a 73–81mm clamp. (2x T-bolt clamps)
22. Install the smaller end of the coupler over the lower section of the driver-side intercooler pipe, and slide it down until the pipe protrudes from the coupler. Now slip the other end of the pipe into the coupler you installed earlier.

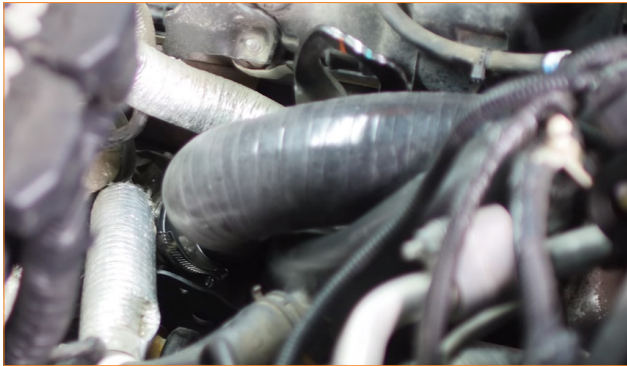


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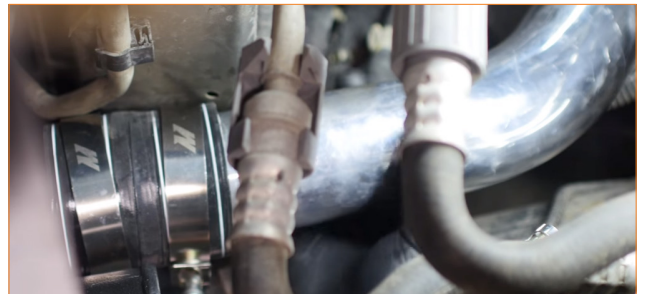
23. Locate the passenger-side turbocharger coupler and install a worm-gear clamp over the smaller end. Then install the coupler to the turbocharger. (1x worm gear clamp)



24. Locate one of the 67–75mm clamps in your kit and slip it over the end of the coupler you just installed. (1x T-bolt clamp)
25. Locate the passenger-side intercooler pipe and identify the upper end by the nipple, which is welded onto the pipe. Lower the pipe into place and slip it into the coupler you just installed.



26. Locate the last coupler in the hot-side pipe kit and assemble it just like the last one. The smaller end gets a 67–75mm clamp while the larger end gets a 73–81mm clamp. (2x T-bolt clamps)
27. Slip the larger end of this coupler over the upper inlet of the intercooler. Now slip the passenger-side intercooler pipe into the coupler.



28. Align the driver-side intercooler pipe with the lower inlet of the intercooler, and slip the coupler down to join the connection.



29. Make sure the couplers are fully seated over both pipes and the intercooler inlets, and then tighten the clamps that secure the couplers to the intercooler. Leave the clamps on the pipe side loose for now so that you can adjust the position of the pipes.
30. The clamps at the turbochargers can be difficult to access. We used a swivel socket for this, but you could also use a universal swivel with a socket attached. Reach through the wheel wells and tighten both clamps.



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31. Check the routing of the driver-side intercooler pipe, and tighten the clamp that secures the turbocharger coupler to the intercooler pipe. Then tighten the clamp at the other end of this pipe. As you tighten the clamps, make sure that they are positioned behind the bead roll of the pipe and that they will not make contact with other engine bay parts.

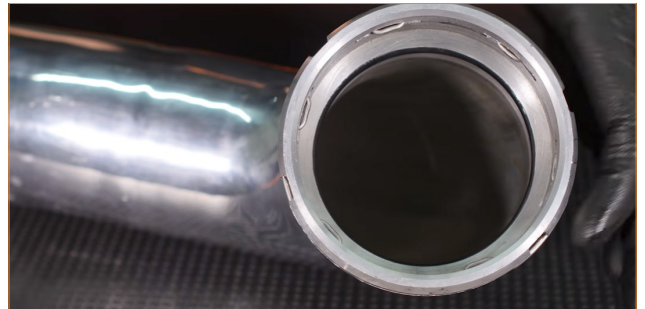


32. Tighten the clamp that secures the passenger-side turbocharger coupler to the intercooler pipe. Then secure the passenger-side induction pipe to the engine by pushing the pin on the pipe into the grommet on the engine.



33. Reconnect the hoses to the passenger-side induction pipe and intercooler pipe.
34. Tighten the clamp that secures the lower section of the driver-side intercooler pipe to the long coupler.

35. Check to make sure all the couplers are fully seated over the bead rolls of their connections, and then tighten the last two clamps at the intercooler.
36. Locate the lower section of the Mishimoto cold-side pipe, and check to make sure the circlip is properly installed on the fitting. It should protrude from the inside of the pipe as shown here.



37. Lift the bottom section of the cold-side pipe into place and install it to intercooler outlet. Make sure the circlip engages the slots on the hot-side pipe. The clip should snap into place when you press the pipe down over the intercooler outlet. (1x circlip)



38. Locate the transition coupler included with your kit. Install an 89–97mm clamp over the wider end of the coupler and a 79–87mm clamp over the smaller end.

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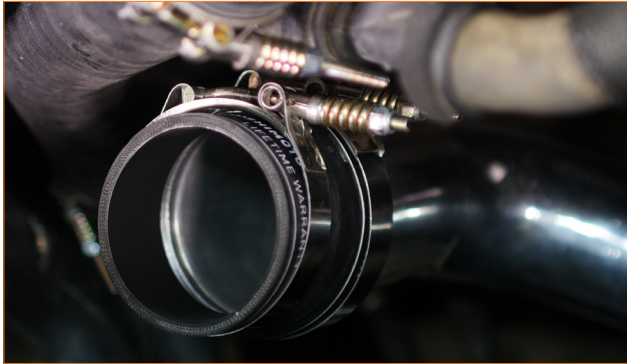
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39. Install the wider end of the coupler to the pipe you just installed and make sure it is fully seated

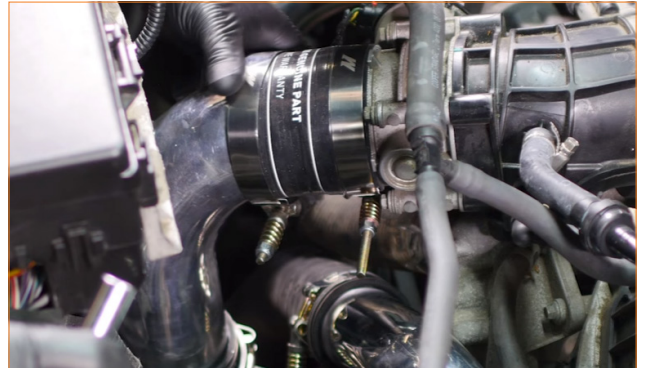


40. Remove the two screws that secure the sensor to the stock cold-side pipe. Then carefully remove the sensor by pulling it directly out of the housing. (2x T20 Torx screws)
41. Install the sensor to the Mishimoto cold-side pipe and secure it with the provided Allen bolts. Do not reuse the stock hardware. (2x 2.5mm Allen bolts)



42. Locate the last coupler in your kit. One side of this coupler is larger than the other. The wider end of the coupler gets an 86–94mm clamp, while the smaller end gets a 79–87mm clamp. Install the clamps, and then attach the smaller end of the coupler to the upper section of the cold-side pipe. Slide it all the way until the pipe protrudes from the coupler. (2x T-bolt clamps)

43. Lower the upper section of the cold-side pipe into place, and slip it into the coupler on the lower section. Then align the other end of the pipe with the throttle body, and slide the coupler down to join the connection. Then tighten the clamp that secures the coupler to the throttle body.



44. Check to make sure that the transition coupler is positioned over the bead roll of both pipes, and tighten the clamps to secure it.
45. Tighten the clamp that secures the throttle body coupler to the cold-side pipe.
46. Reconnect the wiring harness to the sensor on the intercooler pipe. Then reconnect the hose to the cold-side intercooler pipe and lock the connection.
47. Reinstall the Y-shaped induction hose and tighten the clamps to secure it. (3x worm gear clamps)
48. Remove the oil filler cap and reinstall the engine cover. Then reinstall the oil filler cap.
49. Secure the shrouding to the radiator support with the seven pop clips and four quarter-turn fasteners. (4x quarter-turn fasteners, 7x pop clips)
50. If you removed the wheels, reinstall them at this time.

**Congrats! You just finished installing  
the 2011–2014 Ford F-150 EcoBoost  
Hot- and Cold-side Intercooler Pipes.**