



**S&S DIESEL**  
M O T O R S P O R T

**Gen2 6.7L Power Stroke CP4 Bypass Kit**

2011 – 2021 Ford Truck – 6.7L Power Stroke Diesel

CARB EO Pending

**Installation Instructions**



## **Installation Tools Needed**

### **Tools Required:**

- Sockets:
  - 7mm (Some years), 8mm, 10mm, 12mm
- Assorted Extensions, wobble extensions and universal joint is extremely helpful
- Using ¼" Drive tools is very helpful for tight areas
- Inch-pound torque wrench for FCA and plastic intake
- 4mm allen socket
- T25 Torx
- Flush cuts for zip ties
- Plastic Fastener Removal Tool
  - Similar to Lisle PN: 35260
- Stick Magnet (Useful to have on hand if you drop a tool or fastener)

### **Change Log:**

1. Rev1 Initial Release
2. Rev2 2020+ Instructions Added, return filter instructions updated

\*\*\*Skip to step 5 for Bypass Kit specific instructions if you have experience taking apart the intake system. 1-4 is removing intakes to get to CP4 HPFP\*\*\*

**1. Remove intake tube between air filter and lower intake**

- a. 2 hose clamps 8mm, some models may be 7mm.
- b. Some models have an additional bolt holding the plastic resonator chamber that must be removed.

**2. Remove hot side charge pipe from turbo outlet and intercooler inlet for more room and accessibility**

**3. Remove plastic upper intake**

- a. There are 15x 8mm bolts (Figure 2). Use ¼" drive sockets, deep well and short, universal joint, and wobble socket to ease removal. An electric ratchet is recommended.
- b. One bolt doubles as a fastener for dipsticks (10mm nut).
- c. Remove the other 2 bolts holding the dipsticks to the intake and to each other.
- d. Remove all electrical connections and wires from the intake. Also removing the exhaust pressure sensor insulation (Figure 3) and wire clip can aid in access to intake fasteners.
- e. Remove fuel filter housing for extra room to remove intake. 4 bolts (Figure 4) may have to push/rotate fuel hardline upwards to access the bolt under them. Once you remove the fuel line, place it back on the lower hardline to keep it clean. Take special care to not introduce debris into the filter or fuel line.

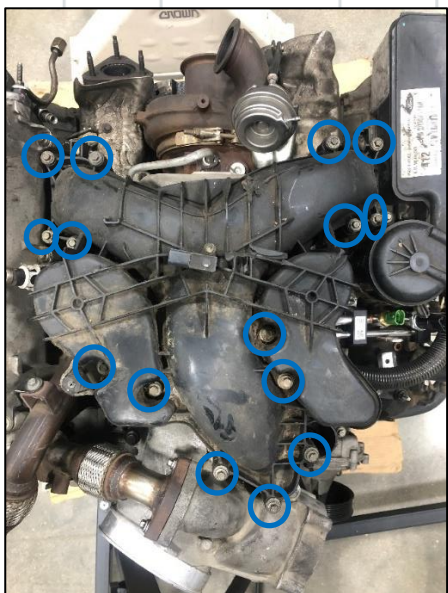


Figure 2: Intake removal



Figure 3: Insulation Removal

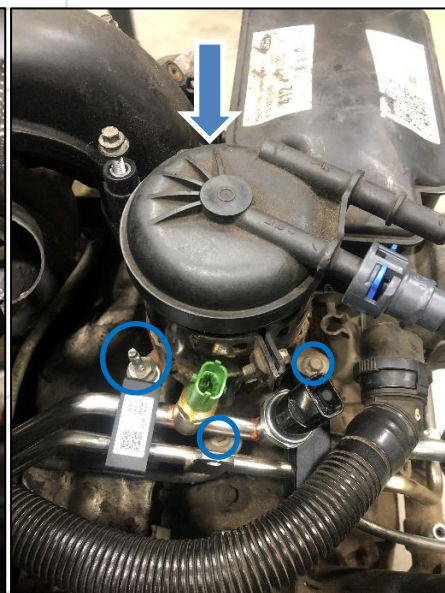


Figure 4: Fuel Filter housing removal

**4. Remove EGR tube between cooler and lower intake**

- a. 4x 8mm bolts
- b. Be sure to keep track of the gaskets
- c. Disconnect the electrical connection and remove wire clip from bottom of lower intake

## 5. Remove Lower Intake

- a. Remove 3x 10mm bolts (Figure 5)
- b. Remove crankcase breather (Figure 6, this hose may be very brittle, be cautious to avoid damage)
- c. Loosen hose clamps that hold the intake to the turbo
- d. Remove clip with a flat screwdriver to take charge tube off the throttle body assembly
- e. Disconnect the electrical connection to the throttle body



Figure 5: Lower Intake Bolts



Figure 6: Crankcase Breather



Figure 7: Failing CP4 FCA

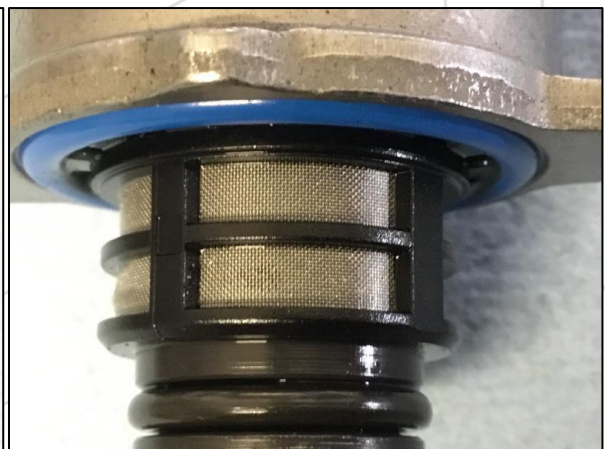


Figure 8: Clean FCA



## 6. Install Bypass Block **\*\* (For 2020+ please see page 7 for special instructions)\*\***

- a. You should now have easy access to the FCA on the CP4. Thoroughly clean the area around the FCA with brake cleaner and compressed air before removing FCA (Figure 9)
- b. Remove FCA using T25 torx and ensure pump is healthy by checking metering unit for debris. It should match figure 8 above, if it looks like figure 7, the pump and fuel system must be replaced.
- c. Remove dust covers from bypass hose assembly quick connects and blow out hoses with compressed air while being careful to not damage o-rings inside the quick connect fittings. Replace dust covers for install after it is blown out. (Hoses are clean before shipping, but blowing them out again ensures no debris was able to enter the bypass block passages during transport or handling).
- d. Install O-rings onto Bypass Block (Figure 10)
- e. Install Bypass Block and FCA onto the CP4 using supplied 4mm allen bolts. Torque to 60 inch-lbs.



Figure 9: Step 5 Starting Point



Figure 10: Install O-Rings

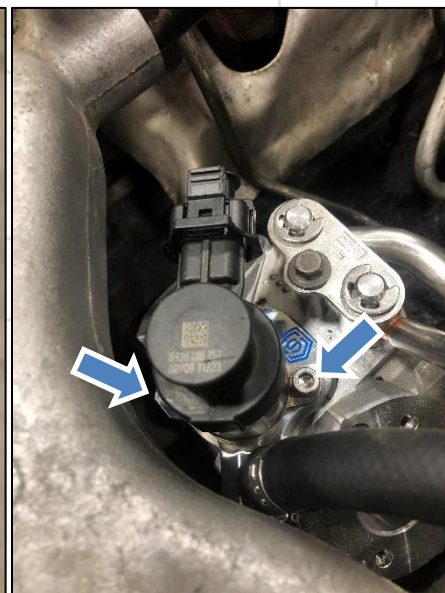


Figure 11: Install Block and FCA

## 7. Reinstall the lower intake

- a. Torque 3x 10mm bolts to 18 ft-lbs
- b. Tighten hose clamps

## 8. Reinstall the EGR Tube with gaskets in place

- a. Torque 4x 8mm bolts to 89 in-lbs

## 9. Reinstall the upper plastic intake

- a. Torque 15x 8mm bolts to 89 in-lbs
- b. Install fasteners for dipsticks
- c. Reconnect all electrical connections and reinstall insulation on pressure sensor
- d. Ensure that all wires are routed away from hot exhaust parts as they were previously

## 10. Reinstall the fuel filter and housing

## 11. Complete bypass kit installation

- a. Reinstall crankcase breather hose to lower intake (take special care if the hose is brittle)
- b. Remove factory fuel line from lower hard line
- c. Remove dust covers from the cleaned bypass kit quick connect fittings
- d. Push quick connect fittings onto their respective barbs (Figure 12) until you hear and audible click. Give them a small tug to ensure they are seated all the way.
- e. Use supplied zip tie hose clips to keep the hose from chafing on nearby components (Figure 12)
  - i. Use one on the crank case vent and if needed on the oil filler neck
  - ii. Adjust as necessary to ensure hose does not rub on nearby components

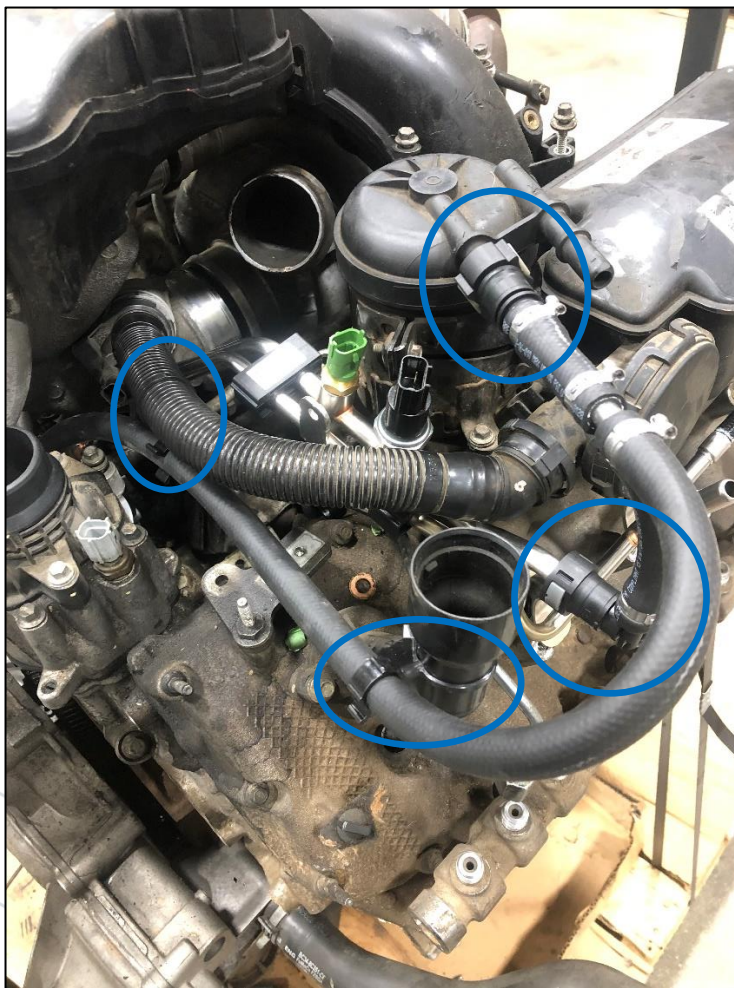


Figure 12: Hose Routing

## 12. Reinstall hot side charge tube between intercooler and turbo outlet

13. After ensuring all connections are secure and fasteners tight, cycle the key without starting to purge air from the system. Watch the clear-view bowl in the S&S return filter to confirm when air is purged. Then start the vehicle and check for leaks.

## 2020+ Special Instructions

### Additional parts provided:

- Hose clamp
- Hose and male quick connect assembly

### 1. Remove the factory plastic hardline and quick connect assembly

- This is best done by removing the factory supply and return line assembly and using a heat gun to soften the hose enough to pull it off the factory hardline as shown below.



### 2. Install the supplied hose and quick connect barb assembly

- Slide the hose over the barbs on the factory supply tube. Ensure there is not metal to metal contact from the aluminum fitting to the tube inside the hose.
- Tighten hose clamp behind the 2<sup>nd</sup> barb (Reference image below)
- Take special care to not introduce debris into the system, or clean before reinstalling
- Reinstall hardline assembly
- Continue the install as normal on step 6





**S&S DIESEL**  
M O T O R S P O R T

**6.7L Power Stroke CP4 Return Fuel Filter**

2011 – 2021 Ford Truck – 6.7L Power Stroke Diesel

**. Installation Instructions**





## Installation Tools Required

- Wrenches:
  - 10mm, 7/16, 3/8
- 4mm Allen
- Flush cuts for zip ties
- Plastic Fastener Removal Tool
  - Similar to Lisle PN: 35260
- **SEE LAST PAGE for filter change and interval instructions**

The return filter mounting is slightly different between 2011-2016 trucks and 2017+. Please see pages below pending your truck model year.



2011-2016



2017+

### **Model Year Compatibility:**

This kit has been designed to cover a wide range of model years even though there are some differences in the fitment. Because of this, there are some extra parts provided which you may not need based on the year of vehicle. The list below outlines the extra parts you'll have leftover after install for the various years.

<b>Unneeded parts after a 2011-2016 install:</b>	<b>Unneeded parts after a 2017+ install:</b>
<ul style="list-style-type: none"> <li>• Long pan head bolt (60mm)</li> </ul>	<ul style="list-style-type: none"> <li>• 2x rubber isolators</li> </ul>
<ul style="list-style-type: none"> <li>• Aluminum spacer</li> </ul>	<ul style="list-style-type: none"> <li>• 2x ¼-20 flange nuts</li> </ul>
<ul style="list-style-type: none"> <li>• 1x fender washer</li> </ul>	<ul style="list-style-type: none"> <li>• 1x short pan head bolt</li> </ul>
<ul style="list-style-type: none"> <li>• M6 locknut</li> </ul>	
<ul style="list-style-type: none"> <li>• 2x ¼-20 flange bolts</li> </ul>	

### **Change Log:**

- Rev 1, initial release
- Rev2, Added model year compatibility/extra parts list

## 2011-2016 Model Years

### 1. Assemble filter bracket to provided angle bracket with isolators

- Use the fender washers under the nuts on the black filter bracket side
- Use the flange nuts on both sides. Tighten with 7/16 wrench
- Ensure that the stainless bracket is centered with the black bracket. (The slotted holes allow side to side adjustment later if needed for clearance to nearby components.)

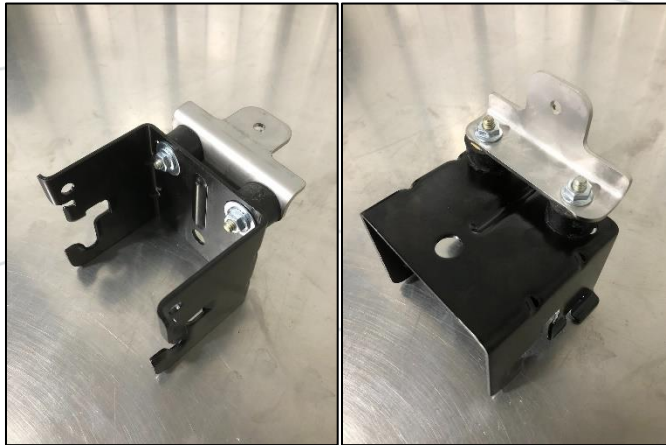


Figure 1: Bracket installation with Isolators      Figure 2

### 2. Remove the bolt holding the ground strap to the upper firewall/cowl above the brake fluid reservoir

### 3. Disconnect return side quick connect and rotate the fitting

- Place some absorbent towels around the joint to catch diesel fuel
- Disconnect the return line quick connect fitting (Circled in blue, figure 3) from the factory return barb (Circled in red, figure 3)
- Rotate the plastic female quick connect fitting inside the molded tube 180°, so it's facing upward. This may have to be slightly adjusted later.



Figure 3: Quick connect to remove and rotate

#### 4. Install filter bracket to the upper firewall/cowl

- Use provided short metric allen drive button head bolt to hold the ground strap and filter bracket to the firewall as circled in blue (Figure 4)



Figure 4: Bracket mounted, filter installed, hoses attached

#### 5. Install the filter into the bracket, ensure flow is going from right to left referencing the arrows on top



Figure 5: Filter orientation and flow direction

#### 6. Install the longer of the 2 provided hoses (right side)

- The larger quick connect goes on the barb that you removed the factory fitting from earlier (Figure 3)
- The hose wraps around the back of the filter and the small black/green quick connect attaches to the right side of the filter



**7. Install the supplied zip tie hose clip**

- a. Put the zip tie around the factory supply line and clip the hose to it, adjust as necessary to keep the hose off the brake booster and reservoir (Figure 6)



*Figure 6: Zip tie clip placement*

**8. Install the shorter left side hose**

- a. The aluminum barb goes into the quick connect fitting that was previously disconnected and rotated
- b. The other side connects to the left side of the filter
- c. Adjust rotation of quick connect fitting as necessary to avoid chafing as pictured (Figure 7)



*Figure 7: Left side hose installation*

9. **Cycle the key to run the electric supply pump. Monitor the clear view fuel filter bowl to identify when the air is purged from the system. Start the engine and check for leaks.**



## 2017+ Model Years

### 1. Assemble filter bracket to stainless bracket using supplied ¼-20 bolts and flange nuts

- a. Use the fender washers under the nuts on the black filter bracket side
- b. Put the flange nut on the opposite side of the filter so the extra bolt length does not interfere with the filter.

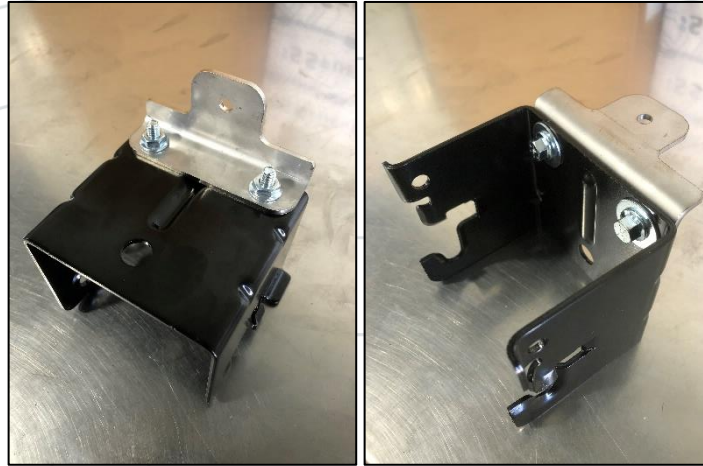


Figure 1: Back side

Figure 2: Front Side

### 2. Loosen the cowl to access the hole for installing the fuel filter

- a. Release 3 clips in the front (red circle) and 2 clips underneath (near where blue circles are) that you release by wiggling and prying up on the cowl gently.
- b. If you break a clip (Figure 4) the part number is: W708771-S300

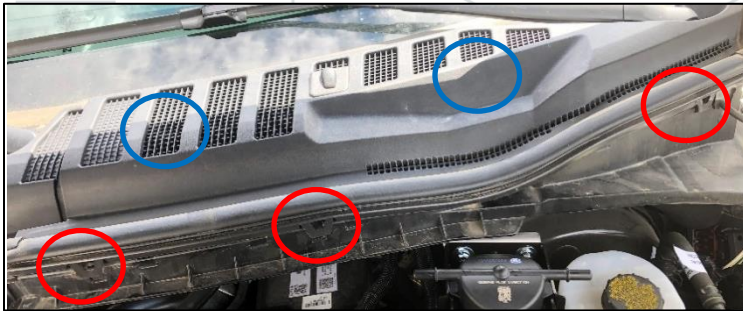


Figure 3: Clip Locations



Figure 4: Clip under the cowl

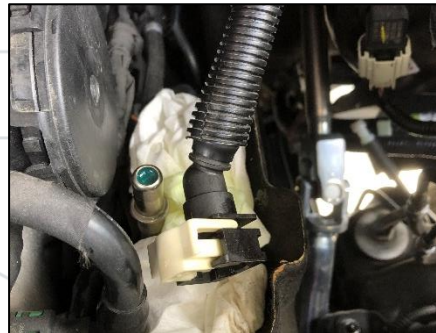
**3. Remove plastic fastener from the hole under the cowl and discard it (Figure 5)**



*Figure 5: Remove plastic fastener*

**4. Disconnect return side quick connect and rotate the fitting**

- a. Place some absorbent towels around the joint to catch diesel fuel (Figure 6)
- b. Disconnect the return line quick connect fitting
- c. Rotate the plastic female quick connect fitting inside the molded tube 180°, so it's facing upward. This may have to be slightly adjusted later.



*Figure 6: Removing Return line and reorienting fitting*

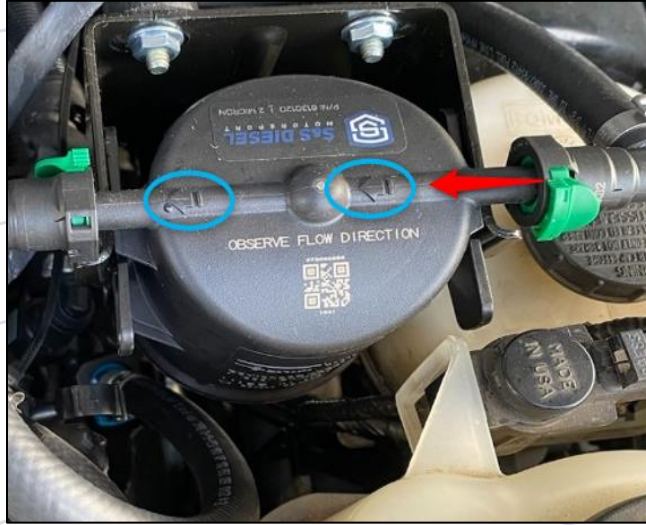
**5. Install the filter bracket in the same hole that the plastic fastener came out of under the cowl**

- a. Put the provided long bolt through the hole, then the spacer, then the filter bracket (Figure 7). Tighten with the provided lock nut. Be careful to not crack the plastic around the bolt.



*Figure 7: Bracket installed with spacer*

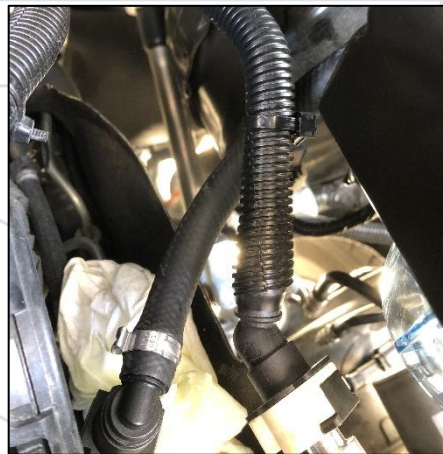
**6. Install the filter into the bracket, ensure flow is going right to left with the arrows on top**



*Figure 8: Filter orientation and flow direction*

**7. Install the longer of the 2 provided hoses (right side)**

- The larger quick connect goes on the barb that you removed the factory fitting from earlier (Figure 9)
- The hose wraps around the back of the filter and the smaller quick connect attaches to the right side of the filter



*Figure 9*

**8. Install the shorter left side hose**

- The aluminum barb goes into the quick connect fitting that was previously disconnected
- The other side connects to the left side of the filter
- If installing with Gen2 Bypass kit the hose will likely have to wrap around the bypass kit hose to route nicely

**9. Install the supplied zip tie hose clip**

- Attach in location seen on figure 10 and connect it further back on the return hose (Figure 9)



- b. May have to adjust zip tie clip and rotation of the factory quick connect to ensure proper placement on that hose to not chafe on any components. It should look like figure 11



Figure 10: Zip tie clip placement



Figure 11: Proper Hose Clearance

#### Filter Change Interval:

- The filter is designed to be easily serviceable and is a complete disposable unit. You simply squeeze the tabs on the side of the filter, pull the filter assembly forward out of the mount and dispose of the assembled unit. Purchase a replacement filter from an S&S Diesel Motorsport dealer. Part Number: 6130120
- The return side fuel filter recommended change interval is the same as the other fuel filters on the vehicle. See below for the factory Ford filter change recommendations based on duty cycle and operating conditions.
- A major advantage to the return side filter is the ability to visually see when air is purged from the system. When the factory fuel filters are changed on the truck, it can take up to 7-8 key cycles to purge the air. Monitor the S&S clear view return side filter bowl when the electric supply pump is running to confirm when the system is primed. This prevents running the CP4 dry, pump damage, and air locks in the system.

Vehicle Service	6.7L Normal	6.7L Special*
Fuel Filter Change (both) <sup>1</sup>	Change both fuel filters every 3rd oil change or every 22,500 miles (36,000 km) or as indicated by the message center, whichever comes first.	Change every 15,000 miles (24,000 km) or 600 engine hours or as indicated by the message center, whichever comes first.

\*Special = Operating Conditions like Extensive Towing, Long Idle Time, Extended Low Speed Driving. For Off Road/Dusty Conditions oil change intervals should be every 7,500 miles (12,000km) or 300 hours of engine operation.