If your Ford 7.3l truck has these codes 1211 and 1212, here is some good info. These codes can be thrown by a bad **Lpop**, **Hpop**, Injector, Fuel pump, [fuel filter](http://www.ford-trucks.com/forums/1046182-1211-and-1212-codes.html), Clogged fuel pick up, gas in fuel, etc.

Code P1211 is thrown often if a tuner is used.
This code is commonly caused by "Hot Chips" that are demanding more Injection Control Pressure (ICP) than the [High Pressure Oil Pump](http://stat.dealtime.com/DealFrame/DealFrame.cmp?bm=519&BEFID=96477&acode=529&code=529&aon=&crawler_id=1912695&dealId=aOHvC2ORAaI63shGDutLGw%3D%3D&searchID=&url=http%3A%2F%2Frover.ebay.com%2Frover%2F1%2F711-57618-1854-0%2F2%3Fkwid%3D1%26mtid%3D570%26crlp%3D1_240251%26linkin_id%3D%7Blinkin_id%7D%26sortbid%3D%7Bbidamount%7D%26fitem%3D190906123728%26mt_id%3D570%26mpre%3Dhttp%253A%252F%252Fwww.ebay.com%252Fitm%252Flike%252F190906123728%26mid%3D446528%26sdc_id%3D%7Bsdc_id%7D&DealName=Powerstroke%20Hpop%20O-ring%20Kit%207.3l%20High%20Pressure%20Oil%20Pump%20Seal%20Like%20Alliant%20Ap0011&MerchantID=446528&HasLink=yes&category=0&AR=-1&NG=1&GR=1&ND=1&PN=1&RR=-1&ST=&MN=msnFeed&FPT=SDCF&NDS=1&NMS=1&NDP=1&MRS=&PD=0&brnId=2455&lnkId=8070676&Issdt=141106050313&IsFtr=0&IsSmart=0&dlprc=6.99&SKU=190906123728) can deliver. For what it's worth, these are the exact parameters that trigger this code:

* ICP 410psi Higher Than Desired for 7 Seconds
* ICP 280psi Lower Than Desired for 7 Seconds

This code can also be caused by legitimate [High Pressure Oil](http://stat.dealtime.com/DealFrame/DealFrame.cmp?bm=519&BEFID=96477&acode=529&code=529&aon=&crawler_id=1912695&dealId=aOHvC2ORAaI63shGDutLGw%3D%3D&searchID=&url=http%3A%2F%2Frover.ebay.com%2Frover%2F1%2F711-57618-1854-0%2F2%3Fkwid%3D1%26mtid%3D570%26crlp%3D1_240251%26linkin_id%3D%7Blinkin_id%7D%26sortbid%3D%7Bbidamount%7D%26fitem%3D190906123728%26mt_id%3D570%26mpre%3Dhttp%253A%252F%252Fwww.ebay.com%252Fitm%252Flike%252F190906123728%26mid%3D446528%26sdc_id%3D%7Bsdc_id%7D&DealName=Powerstroke%20Hpop%20O-ring%20Kit%207.3l%20High%20Pressure%20Oil%20Pump%20Seal%20Like%20Alliant%20Ap0011&MerchantID=446528&HasLink=yes&category=0&AR=-1&NG=1&GR=1&ND=1&PN=1&RR=-1&ST=&MN=msnFeed&FPT=SDCF&NDS=1&NMS=1&NDP=1&MRS=&PD=0&brnId=2455&lnkId=8070676&Issdt=141106050313&IsFtr=0&IsSmart=0&dlprc=6.99&SKU=190906123728) System issues. Below is a list of some of the causes:

* Failed or Sticking IPR (Injection Pressure Regulator)
* Failed or Weak HPOP (High Pressure Oil Pump)
* Any Leak in High Pressure Oil System (o-ring, stuck injector, etc.)
* Low Fuel Pressure (Rare)

**P1211**, P1212 Ford Powerstroke Diesel
Ford Diesels use oil pressure to drive the high pressure fuel [injection system](http://www.ford-trucks.com/forums/1046182-1211-and-1212-codes.html). The [engine oil pump](http://viglink.pgpartner.com/mrdr.php?url=http%3A%2F%2Fviglink.pgpartner.com%2Fsearch.php%2Fform_keyword%3Dengine%2Boil%2Bpump&mode=) not only pumps oil to lubricate engine components, but also pumps oil into a reservoir to be used by the [high pressure oil pump](http://viglink.pgpartner.com/rd.php?r=5316&m=1396428715&q=n&rdgt=1415193052&it=1415625052&et=1415797852&priceret=29.95&pg=~~3&k=8d73258fd360dd2fe3ef303cb71e382e&source=feed&url=http%3A%2F%2Fwww%2Eamazon%2Ecom%2Fdp%2FB005H7DGDY%2Fref%3Dasc%5Fdf%5FB005H7DGDY3384114%3Fsmid%3DA3I6CZQKLKU76N%26tag%3Dpgmp%2D95%2D01%2D20%26linkCode%3Ddf0%26creative%3D395133%26creativeASIN%3DB005H7DGDY&st=feed&mt=~~~~~~~~n~~~).

The high pressure oil pump pulls oil from the reservoir and raises the pressure to the point where it can pop open the injectors. The [high pressure pump](http://www.ford-trucks.com/forums/1046182-1211-and-1212-codes.html) also increases the pressure of the diesel fuel so it can inject into the cylinders and vaporize quickly.

The oil pressure generated by the high pressure oil pump is regulated by an electric solenoid that is pulsed by the **PCM**. As this Injection [Pressure Regulator](http://www.ford-trucks.com/forums/1046182-1211-and-1212-codes.html) (**IPR**) solenoid is powered and de-powered, a small shaft moves back and forth, allowing spurts of oil to flow into the high pressure oil lines The **IPR** can regulate pressures in excess of 3,000psi. The high pressure oil moves from the pump to the cylinder head through braided steel lines.

The **PCM** fires the [diesel](http://www.ford-trucks.com/forums/1046182-1211-and-1212-codes.html) fuel injectors by energizing a solenoid coil in the injector. Unlike gas fuel injectors where the solenoid lifts a pintle off a seat to allow pressurized fuel to flow into the cylinder, the solenoid in Ford [diesel fuel](http://www.ford-trucks.com/forums/1046182-1211-and-1212-codes.html) injectors allows high pressure oil to flow. Think of this like a doctor’s syringe. The pressurized oil pushes on the plunger of the syringe to “inject” the fuel through the injector and into the cylinder. Since the minimum **psi** required to open the injectors is 400psi, the**PCM** monitors the actual pressure of the oil going to the injector with an Injection Control Pressure (**ICP**) sensor. Using data from the **ICP** sensor, the **PCM** can adjust the pulse rate to the **IPR**.

Since the **IPR** operates off of a pulsed voltage, the amount of ON time versus OFF time is referred to as “duty cycle.” The high pressure pump can easily achieve pressures in excess of 3,000psi. But it’s up to the **IPR** to regulate the amount of pressure going to the injectors. The **IPR** can regulate a 3,000 **psi** reading with no more than a 12% duty cycle. Yet, the **PCM** is capable of providing up to a 60% duty cycle to the **IPR**. However, once it reaches 50%, the **PCM** sets a trouble code **P1211** or P1212 for “ICP above/below normal.

If you receive this code, your first step is to check the oil level in the crankcase. Since the entire high pressure system depends on having enough oil in the reservoir, a drop in oil level of 3 or more quarts can bring the system to a quick stop. Unlike a[gasoline engine](http://www.ford-trucks.com/forums/1046182-1211-and-1212-codes.html) where the oil pressure sending unit is located in the engine block in an oil gallery, the oil pressure sending unit on a Ford Diesel is located in the top of the high pressure oil reservoir. In other words, Ford wants to make sure the high pressure oil reservoir is getting good oil pressure. If the oil “idiot” light does not go out the high pressure oil reservoir isn’t getting enough pressure. The high pressure pump cannot produce high pressure if it’s not getting enough oil from the engine oil pump. If the oil level checks out and the oil pressure light goes out, move on to the rest of the checks.

The **PCM** monitors RPM during cranking. As soon as RPMs reach 150, the **PCM** activates the **IPR** to begin regulating oil pressure. At the same time, the **PCM** starts monitoring the **ICP** sensor to double check oil pressure buildup. As mentioned earlier, the **PCM** can command up to a 60% duty cycle for the **IPR**. But if the **PCM** is providing maximum duty cycle and the **ICP** reports either less than 400psi or 2,000-2,500psi, and the engine is not running, it concludes there is a problem (a reading of 2,000-2,500 is a programmed “default” reading the **PCM** provides on the scan tool when it believes there’s a fault in the **ICP**). If you see 2,000-2,500psi on the **ICP** scan tool readout AND the engine isn’t running, you should suspect a bad **ICP** sensor.

If the engine won’t start, you can conclude there’s a problem in the high pressure system. Either the high pressure pump isn’t working, **IPR** is faulty, or there’s a large leak somewhere in the system that’s preventing pressure buildup. To eliminate a cylinder head leak from the troubleshooting process, remove the high pressure line from the right side head and cap it with a plug that can hold 3,000psi. Then remove the high pressure line from the left side cylinder head and attach a high pressure (3,000psi or more) gauge to the line. Then crank the engine and watch the [pressure gauge](http://www.ford-trucks.com/forums/1046182-1211-and-1212-codes.html). If you get a low reading, the problem is either a faulty high pressure pump or a bad **IPR**. First you must replace the **IPR**. If the problem still exists, replace the high pressure pump.