

INSTRUCTION MANUAL

6.7L FORD POWERSTROKE HEAD STUD KIT

PART NUMBER CP880 | 2011 - 2022

In certain vehicles, there are high cylinder pressures that can damage head gaskets. Factory OEM head bolts are torque to yield, meaning you torque the bolt to a specific torque with a final 90 degree rotation that will place the bolt at its' maximum stretch point.

Our observation through years of inspecting and repairing vehicles is that when you add parts that increase horsepower (turbocharger, injectors, chips etc.), you risk creating higher cylinder pressures lower than your RPM range, consequently leading to a blown head gasket.

In contrast to head bolts, head studs are engineered to resist stretching. Xotic Performance head studs are created using premium steel alloys (XOTIC 7200) that are superior in tensile strength in comparison to a bolt. We take real pride in manufacturing fasteners that will last you a lifetime.

To ensure optimal head stud installation, accurate preload must be achieved. Preload is the tensile force generated when a fastener is tightened, creating a compressive force in the bolted joint—known as clamp force.

Head gasket failures occur when the clamping forces securing the gasket, head, and engine block are

insufficient to withstand high cylinder pressures. By choosing head studs over head bolts, these failures can be avoided.

To ensure accurate preload, it is necessary to clean and lubricate every component in the joint. While torqueing each head stud, the same torque must be applied on every head stud – or else you risk unequal distribution of preload and possibly joint failure.

A COMMON MISTAKE TO AVOID

When torqueing a fastener, do not stop short of the recommended torque value before reaching the desired torque (i.e., continue torqueing in one motion until the specified torque is achieved). If by accident, you stop short of the recommended torque, loosen the fastener and retorquer.

VERIFY FIRST

Before installing any components, verify that this part number is compatible with the vehicle applications listed above. Inspect all package components, and clean as necessary to ensure accurate installation. Any obvious defects or shipping damages should be reported to us.

KIT INCLUDES

-  **45 X** HEAD STUDS
36X M12 STUDS
9X M8 STUDS
-  **45 X** NUTS
-  **45 X** HARDENED PARALLEL
WASHERS
-  **1 X** FASTENER ASSEMBLY
LUBRICANT
-  **2X** SOCKET
-  **2X** ALLEN WRENCH

GET TO ACTION!

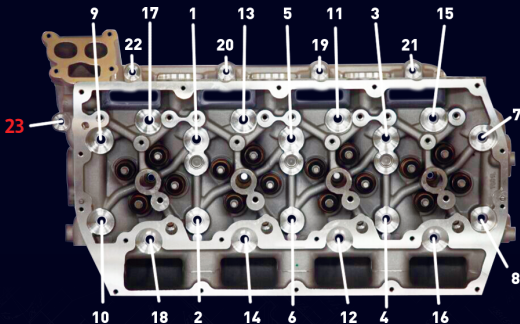
1. Clean threads in the block prior to installing the head studs to ensure accurate fitment and precise torque readings. You may purchase a thread chaser separately by searching **CS304** in our catalog.
2. Thread the head studs into the block by hand without applying torque. Install the shorter studs in positions #11, 13, 15, and 17 as shown in the diagram below.
3. Install the head gasket and cylinder head, ensuring proper alignment.
4. Clean the washer seating areas on the cylinder head using a fast-evaporating solvent like non-chlorinated brake cleaner to remove oil, grease, and contaminants. Ensuring a clean surface is essential for achieving proper fastener preload.
5. Place the washers onto the head studs. Using the assembly lubricant provided, apply a thin coat to the threads of the head studs, the underside of the nuts, and the top side of the washers.
6. Thread the nuts onto the studs and hand-tighten until they make contact with the washers.
7. Follow the torque recommendations using the sequence below.

TORQUE M12 NUTS FROM POSITIONS 1-18

First to to 42 ft.-lb., 84 ft.-lb., and finally to 125 ft.-lb.

TORQUE M8 NUTS FROM POSITIONS 9-23

28 ft.-lb. For position #23, use the short M8 x 1.25 with Under Head Length of 3.70" on the driver's side.



NEED HELP?

For technical support, please email:
support@xotic-performance.com



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