



## IPD TECH BULLETIN

### *Compatibility of design changes in the Cummins® ISX/QSX components*

JUNE 2010

IPDTB-0023

There have been many changes so far, and certainly will be more in the future for the components in Cummins® ISX/QSX engines. Using compatible designed components is critical to the service life on these engines.

Listed below are a few of the basic, although major changes you may encounter in rebuilding an ISX/QSX engine:

#### Head Gaskets:

- Early versions of these engines were produced with a multiple piece head gaskets to seal the cylinder head to the block. This design could only be used with the early “grooved top” liner design.
- Later versions were produced with an updated single piece head gasket and updated “flat top” liners. The new head gasket and liner design could be retro fitted back into the earlier engines, BUT only in full sets. The single piece head gasket must only be used with the later “flat top” liners.

#### Cylinder Liners:

- As mentioned above, the early “grooved top” liners must be used with the multiple piece head gaskets
- The “flat top” liners must be used with single piece head gaskets.
- “Flat top” and “grooved top” liners cannot be mixed in an engine.

#### Pistons:

- Generally speaking, engines produced before 2003 were released with two piece articulated pistons. Many of these engines can be upgraded to one piece steel pistons (additional components may need to be changed to complete these conversions. Refer to the latest OE service bulletins or contact IPD for assistance).
- Generally speaking, engines produced during and after 2003 were released with one piece steel pistons. One piece steel pistons must be used in complete sets and with drilled connecting rods.
- The skirt design of one piece pistons may also vary:
  - Open skirt pistons have a large opening between the sides of the piston skirt and the crown. (as shown below on the left)
  - Closed skirt pistons have a smaller opening between the sides of the piston skirt and the crown. (as shown below on the right)



- Care must be taken when replacing less than full sets of pistons within an engine since the actual piston design may have updated within an engine kit previously installed.

Examples:

Engine Kit #

4955597

4955598

Originally included open skirt pistons, but have since updated to closed skirt pistons without a change to the original engine kit part numbers.

#### Connecting Rod Bearing:

- With the release of the one piece piston came updated drilled connecting rods and rod bearings. These later connecting rod bearings have a oil hole which allows the oil flow to continue up through the connecting rod to lubricate the piston pin connection. The drilled connecting rod bearing can be used in the older non-drilled rod, but a non-drilled bearing cannot be used with a drilled connecting rod or with a one piece piston.

Refer to the latest OE service bulletins or contact IPD for further information.

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