

Con Rod Assembly Service Kit for TWIN Cylinder 85mm Dia. Piston

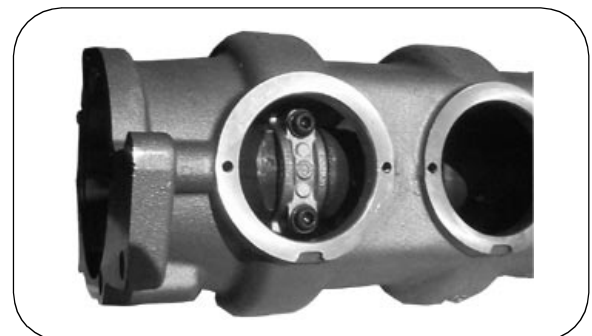
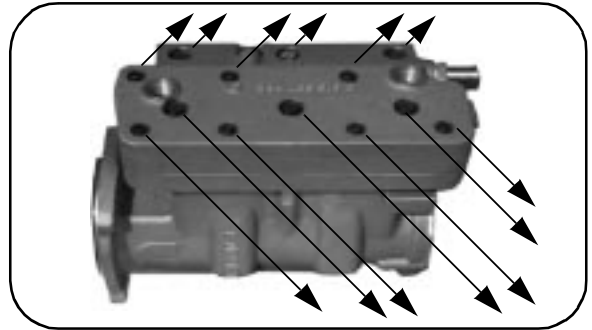
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for Cummins Signature, ISX, N, ISM, M, and L Engines

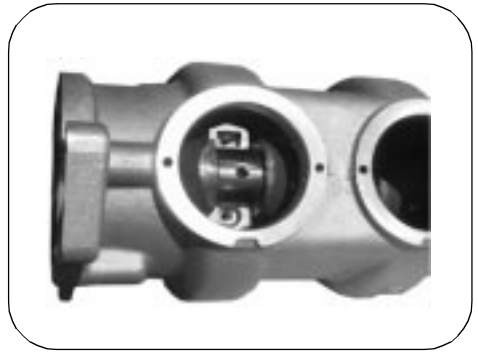
Kit contains two ready-to-use **Con Rod Assemblies** with bushings and screws. Also included, for field service, sump access seals and screws, head bolts, cover screws, and head and cover gaskets, since the **head and pistons must be removed and replaced to service the connecting rods**.

Disassembly

1. **First**, remove the head assembly.
2. Find the new bolts and screws in the kit and then discard the originals
3. Remove the head, valves, and gaskets. Note the position of these parts with respect to the crankcase for reassembly. Paint marker can be used.
4. Using a hex socket wrench, remove the four screws retaining the sump covers. Pry the covers out, applying lifting force on each side to remove them evenly.
5. Align the crankshaft to position the rod cap in the access hole.
6. Remove the two T-30 rod bolts.

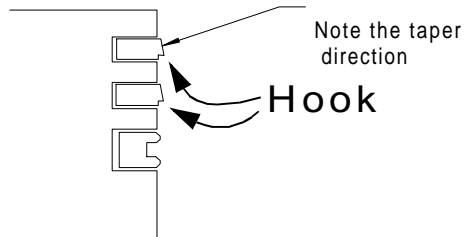


7. Pull the rod cap off the rod and crankshaft.
8. Repeat steps 5-7 for the other rod.
9. Push the piston and rod assembly out of the top of the crankcase with a wooden dowel or hammer handle, pushing on the bottom of the rod.
10. Remove one pin retaining clip. Push out the pin to separate the connecting rod from the piston assembly. **Keep** the Piston Assemblies for reuse (unless the Piston Assembly is also being replaced).



Reassembly

1. Check the piston assembly and, if necessary, stagger ring gaps so that they are about 90 degrees apart. Also check to see that the "hook" of the upper rings is away from the top of the piston as shown.



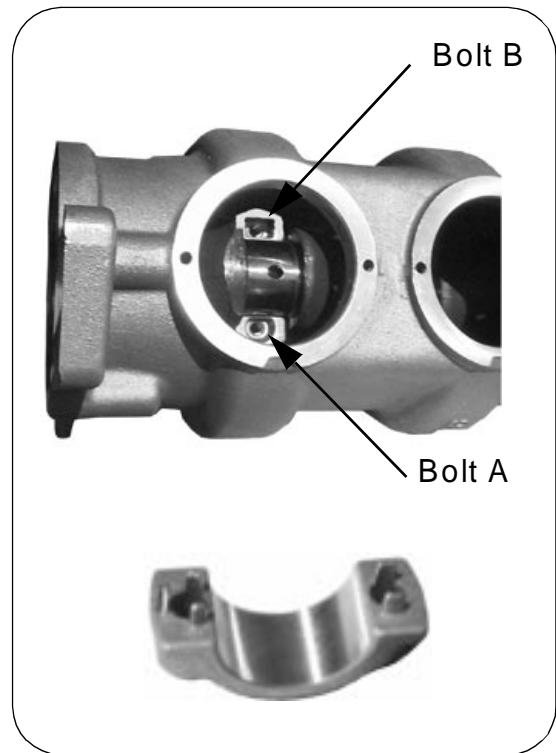
2. Coat the wrist pin, piston pin bore and rod bore with light oil. Assemble the rod, wrist pin and retainers. Insure that the retainers are secure in their grooves. The rod should move freely.
3. Coat the crankcase cylinder bores with light oil. Using a ring compressor, install the pistons into the crankcase. Align the rods to permit them to match up to the crankshaft. Note the orientation features of the cap and rod.



4. Apply light oil to the crankshaft rod journal and assemble the rod cap. Note that the rod cap is designed to assemble on the rod with the three prongs of the cap to fit into the "D" shaped recess of the rod and the two-prong side of the cap to assemble into the rectangular recess of the rod **Bolt "A" is the one nearer the "W" of the word "WABCO"**

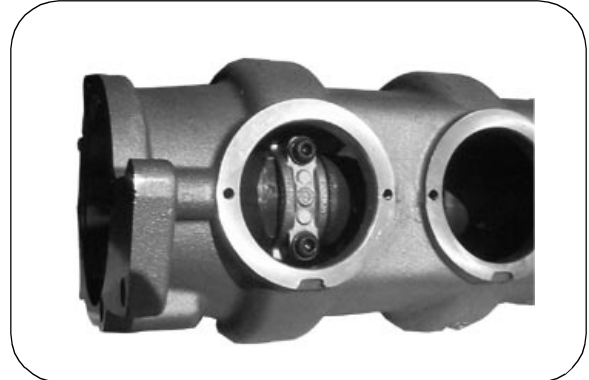
Bolt Tightening Sequence

Step	Bolt	Torque Nm	Rotation Degrees
1	A	6 $^{+.6}_{-.6}$	not yet
2	B	6 $^{+.6}_{-.6}$	not yet
3	A		70° $^{+15}_{-5}$
4	B		70° $^{+15}_{-5}$



5. Assemble both rod caps using the same procedure.

6. Check that the crankshaft rotates without binding or excessive torque. **The maximum torque is 6 Nm.**

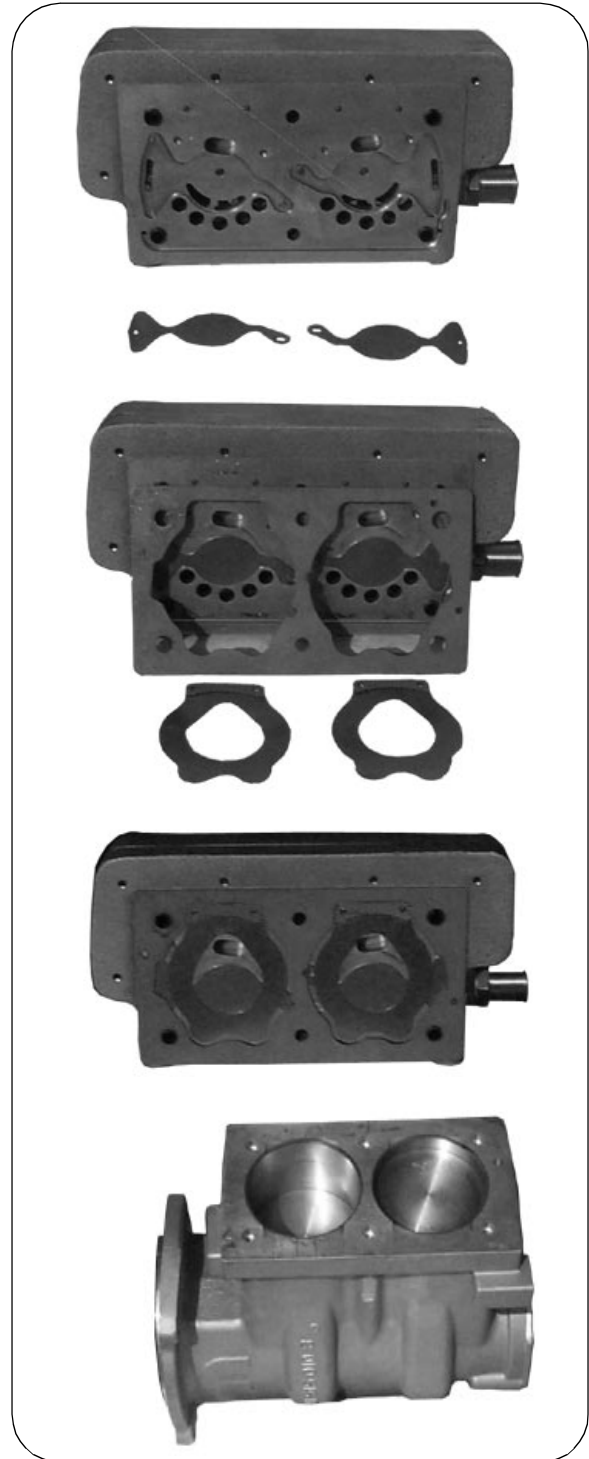


7. Lubricate the sump plug seals with light oil and install on the sump plugs. Assemble them into the sump bores and torque the four new flat head socket screws to 10 ± 1 Nm. **Note:** Use of a removable grade of "Loctite" thread locking compound on the screw threads is good practice.



Continue with the remainder of the compressor reassembly, **referring to the following head assembly pages**

1. Place the head upside down on a bench to begin the head assembly operation. Place both unloader valves into the recesses so that the unloader pin engages the valve and the valve pivots around the stationary pin near the center of the head. A small amount of Lubriplate grease can be used under the valves to insure that they stay in place.
2. Lay the new head gasket in place, insuring that it fits over the guide bushings and that the unloader hole allows air pressure communication from the head to the crankcase.
3. Place the inlet valves over the guide pins provided, insuring that the pads are up and the valves will lie flat against the head openings. A small amount of of Lubriplate grease can be used to insure they remain in place for the remainder of the assembly.
4. Turn the crankcase upside down with the rear(accessory drive end) in the same direction as the inlet air port and carefully place it on the head assembly. As the guide bushings find the counterbores in the crankcase, it will drop into position.
5. Holding the head on the crankcase, turn the assembly rightside up. Place the crankcase into an appropriate fixture to begin the head bolt assembly.
6. (For the **85mm dia. piston** models), assemble the three new 65 mm long bolts in the thinner part of the head and the three new 80 mm long bolts in the thicker part. Also install seven new cover screws. Follow the tightening sequence on the next page.

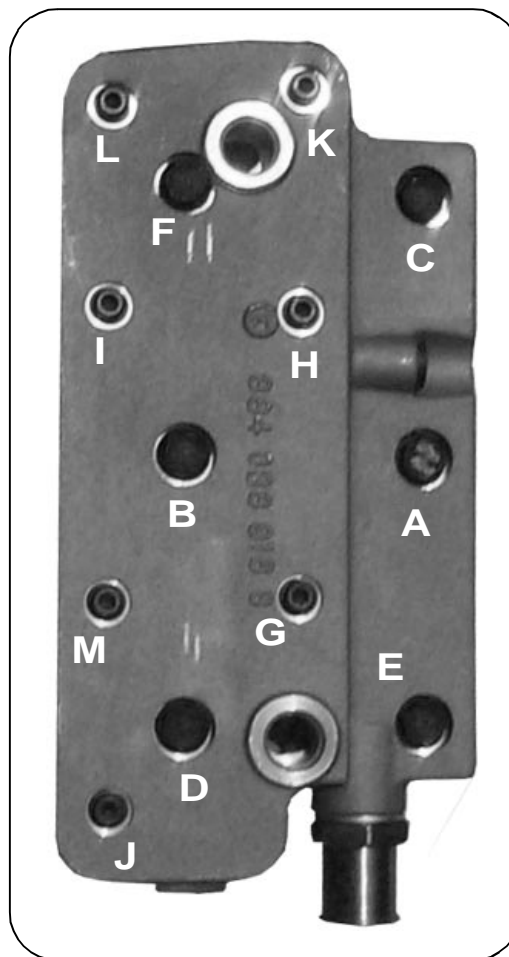


For 85mm piston models:

Tighten and turn the six head bolts and then the seven head cover screws following these steps;.

Tightening Sequence

Step	Bolt	Torque Nm	Rotation Degrees
1	A	25 $^{+0}_{-5}$	
2	B	25 $^{+0}_{-5}$	
3	C	25 $^{+0}_{-5}$	
4	D	25 $^{+0}_{-5}$	
5	E	25 $^{+0}_{-5}$	
6	F	25 $^{+0}_{-5}$	
7	A		150° $^{+15}_{-5}$
8	B		150° $^{+15}_{-5}$
9	C		120° $^{+15}_{-5}$
10	D		120° $^{+15}_{-5}$
11	E		120° $^{+15}_{-5}$
12	F		120° $^{+15}_{-5}$
13	G	6 $^{+.6}_{-.6}$	
14	H	6 $^{+.6}_{-.6}$	
15	I	6 $^{+.6}_{-.6}$	
16	J	6 $^{+.6}_{-.6}$	
17	K	6 $^{+.6}_{-.6}$	
18	L	6 $^{+.6}_{-.6}$	
19	M	6 $^{+.6}_{-.6}$	
20	G		135° $^{+15}_{-5}$
21	H		135° $^{+15}_{-5}$
22	I		135° $^{+15}_{-5}$
23	J		135° $^{+15}_{-5}$
24	K		135° $^{+15}_{-5}$
25	L		90° $^{+15}_{-5}$
26	M		90° $^{+15}_{-5}$



Use the proper tools to perform this torque-turn bolt tightening sequence EXACTLY. Accuracy will be CRITICAL to your field service SUCCESS !