

Specifications

3054C and C4.4 Industrial Engine and Marine Auxiliary Engine

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Piston and Rings

SMCS - 1214; 1215

S/N - 3341-UP

S/N - MMC1-UP

Note: An arrow which is marked on the piston crown must be toward the front of the engine.

Note: Ensure that the ring end gaps of all the piston rings have 120 degrees spacing from each other.

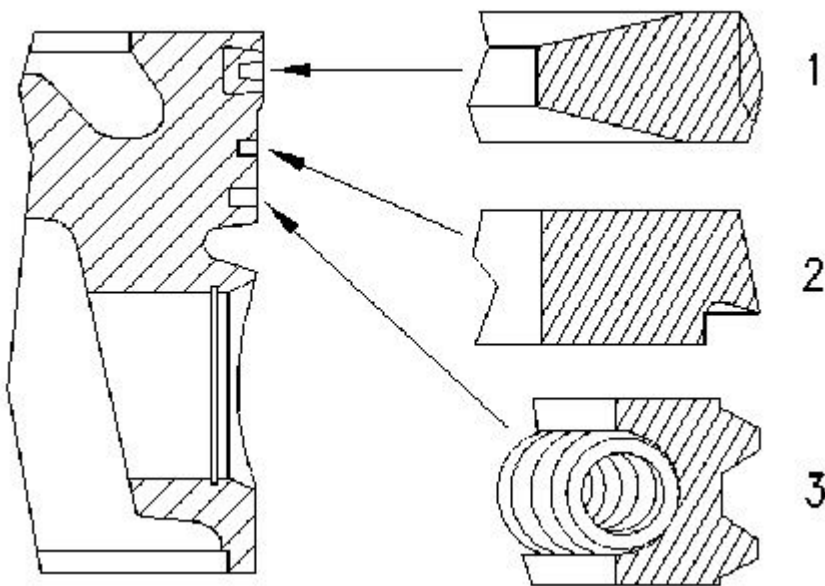


Illustration 1

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A typical example of a piston and rings

Table 1

Top Compression Ring			
When installing a new top compression ring, make sure that the word "TOP" is facing the top of the piston. New top piston rings have a red identification mark which must be on the left of the ring end gap when the top piston ring is installed on an upright piston.			
Callout	Quantity	Type	Specification Description

1	All	Naturally Aspirated	The shape of the top compression ring is rectangular with a barrel face
-	-	-	Thickness of the top compression ring 2.475 to 2.49 mm (0.097 to 0.098 inch)
-	-	-	Clearance between the top compression ring and the piston groove 0.09 to 0.15 mm (0.0035 to 0.0059 inch)
-	-	-	Ring gap 0.30 to 0.55 mm (0.0118 to 0.0216 inch)
1	All	Turbocharged	The shape of the top compression ring is keystone with a barrel face
-	-	-	Thickness of the top compression ring (Tapered)
-	-	-	Ring gap 0.30 to 0.55 mm (0.0118 to 0.0216 inch)

Table 2

Intermediate Compression Ring			
The word "TOP" must be facing the top of the piston when you install a new intermediate compression ring. New intermediate rings have a green identification mark which must be on the left of the ring gap when the intermediate ring is installed on an upright piston.			
Callout	Quantity	Type	Specification Description
2	All	-	The shape of intermediate compression ring is a step in the bottom outside edge with a tapered face
-	-	-	Width of intermediate compression ring 2.47 to 2.49 mm (0.097 to 0.098 inch)
-	-	-	Clearance between the intermediate compression ring and the piston groove 0.05 to 0.09 mm (0.002 to 0.003 inch)
-	-	-	Ring gap 0.70 to 0.95 mm (0.0275 to 0.0374 inch)

Table 3

Oil Control Ring			
A pin is used in order to hold both ends of the spring of the oil control ring in position. The ends of the spring of the oil control ring must be installed opposite the end gap of the oil control ring.			
Callout	Quantity	Type	Specification Description
3	All	-	Shape of oil control ring is a two-piece coil that is spring loaded.
-	-	-	Width of oil control ring 3.47 to 3.49 mm (0.1366 to 0.1374 inch)
-	-	-	Clearance between the oil control ring and the groove in the piston 0.03 to 0.07 mm (0.0011 to 0.0027 inch)
-	-	-	Ring gap 0.30 to 0.55 mm (0.0118 to 0.0216 inch)

Piston

Table 4

Callout	Quantity	Type	Specification Description
-	All	Turbocharged engine	The combustion bowl re-entrant angle is 80 degrees
-	-		Width of top groove in piston (Tapered)
-	All	Naturally aspirated engine	The combustion bowl re-entrant angle is 70 degrees
-	-	-	Width of top groove in piston 2.58 to 2.60 mm (0.1016 to 0.1024 inch)
-	All	Both	Piston height above cylinder block 0.21 to 0.35 mm (0.008 to 0.014 inch)
-	-	-	Width of second groove in piston 2.54 to 2.56 mm (0.1000 to 0.1008 inch)
-	-	-	Width of third groove in piston 3.52 to 3.54 mm (0.1386 to 0.1394 inch)
-	All	Piston pin	Diameter of a new piston pin 39.694 to 39.700 mm (1.5628 to 1.5630 inch)
-	-	-	Diameter of the bore for the piston pin 39.703 to 39.709 mm (1.5631 to 1.5633 inch)