



Technical Service Bulletin

New Cylinder Head

Original Topic Number: 06t2-15.

This Technical Service Bulletin introduces a new ISM/QSM cylinder head. The new cylinder head part numbers obsolete and supersede old part numbers as indicated in the table below.

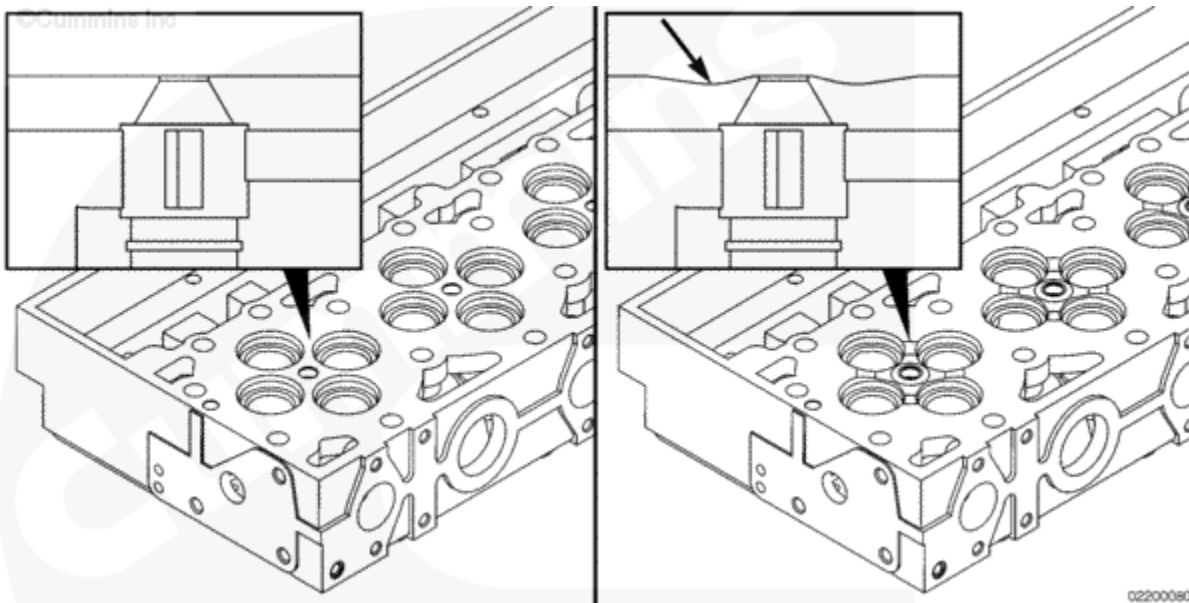
The new part numbers were introduced into engines built on August 21, 2006.

This cylinder head is available to service as a premium cylinder head **only**.

The old cylinder head part numbers are also available to service as a ReCon® cylinder head with or without the three changes on the cylinder head indicated below.

The new cylinder head has three new features:

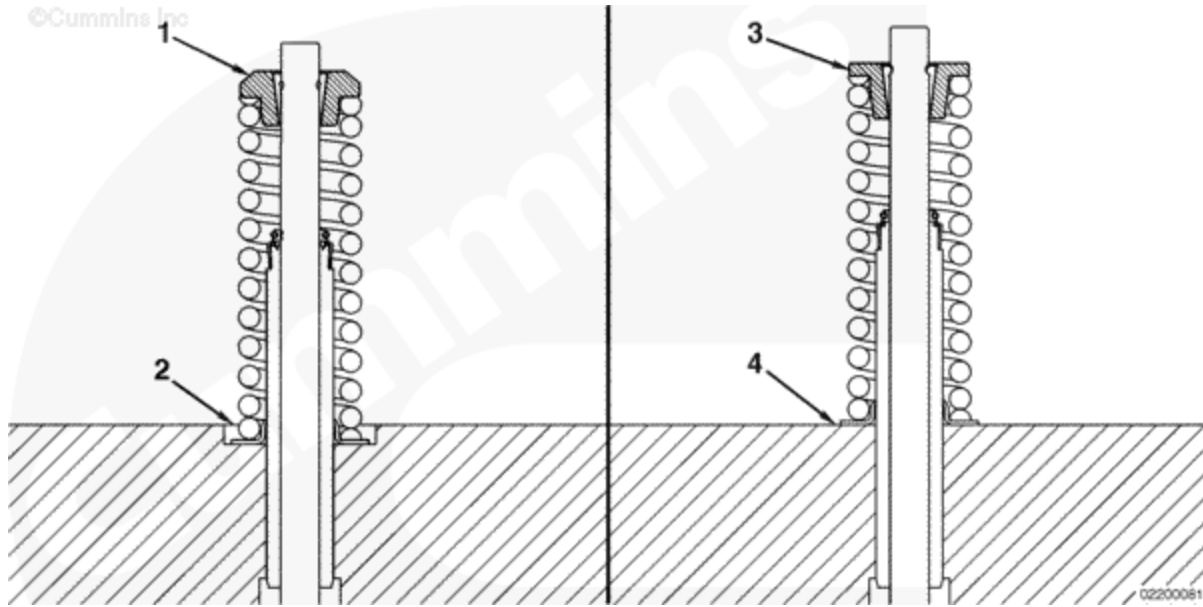
1. Scallop on the combustion face of the cylinder head: A scallop is a circular cut which has been added to the combustion face of the cylinder head and is centered on the injector bore (see illustration below). Note the difference between a scalloped and non scalloped cylinder head in the illustration. This change was made to address the cracking of the cylinder head between the injector bore and the valve counterbore.



Old and New Cylinder Heads

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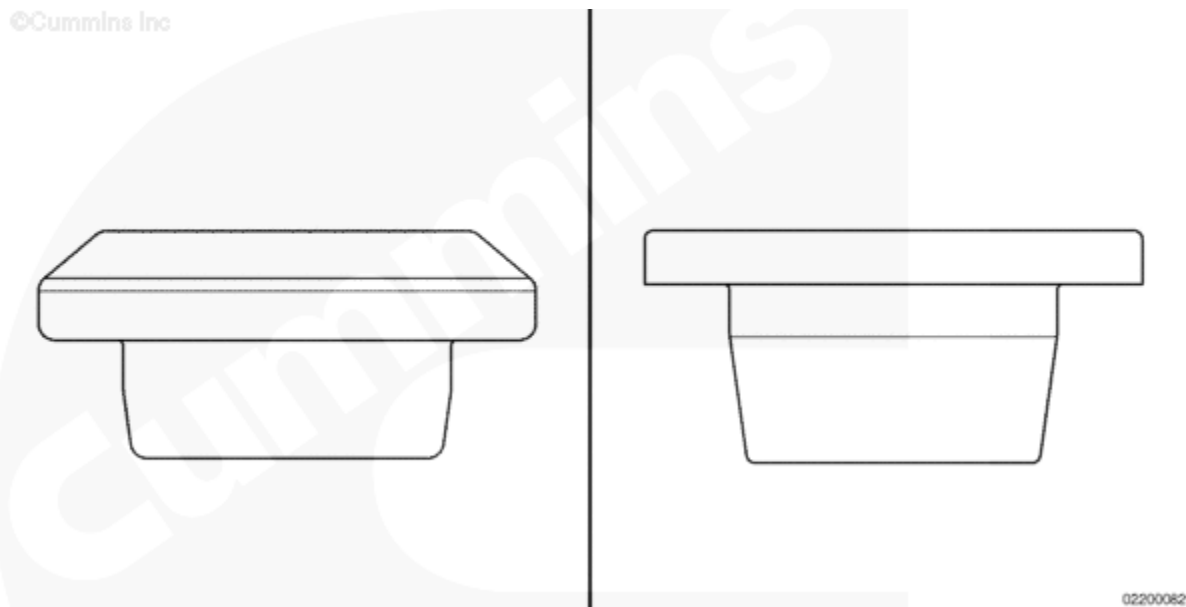
2. Elimination of the Valve Spring Counterbore: The valve spring counterbores have been eliminated to reduce the possibility of cracking between spring pockets and between spring pockets to cup plug holes. The difference between the old and new valve springs can be seen in the illustration below.



Old and New Valve Springs: (1) Old Valve Spring Retainer; (2) Old Cylinder Head with Valve Spring Counterbore; (3) New Valve Spring Retainer; (4) New Cylinder Head with No Valve Spring Counterbore

3. Valve Spring Retainer Change: In order to accommodate the height change of the valve springs when the valve spring counterbore was eliminated, the retainer was redesigned. The difference between the new and old retainers can be seen in the illustration below.

NOTE: The retainers are not backwards compatible and can not be used with the old cylinder head, Part Number 3103482. The valve spring retainers, Part Number 3104151, were introduced into QSM11 cylinder heads on production engines on June 7, 2005. The Engine Serial Number First is 35132172.



Old and New Valve Spring Retainers

NOTE: This is a product improvement and is not subject to campaign.

Old and New ISM Cylinder Head Part Numbers		
Part Description	Old Part Number	New Part Number
ISM Cylinder Head	4003968	4952819
	4003970	4952822
	4003973	4952824
	4003975	4952834
	4003978	4952837
	3607357	4952840
	4952441	4952844
	4952446	4952832
	3607274	4962453
	4952450	4962454
	4952453	4952829
	4952222	4962775
	4952455	4962779

Valve Recession for Cylinder Heads Built Prior to August 21, 2006

mm		in
0.76	MIN	0.030
1.17	MAX	0.046

Maximum Operational Recession for Cylinder Heads Built Prior to August 21, 2006

mm		in
3.05	MAX	0.120

Valve Recession for Cylinder Heads Built After August 21, 2006 with the Scallop

mm		in
0.51	MIN	0.020
0.92	MAX	0.036

Maximum Operational Recession for Cylinder Heads Built After August 21, 2006 with the Scallop

mm		in
2.8	MAX	0.110

Maximum Valve Recession Variation Between Valves on Same Cylinder for Cylinder Heads Built Prior to August 21, 2006

mm		in
0.76	MIN	0.030
1.17	MAX	0.046

Maximum Valve Tip Height for Cylinder Heads Built Prior to August 21, 2006

mm		in
99.6	MAX	3.921

Maximum Valve Recession Variation Between Valves on Same Cylinder for Cylinder Heads Built After August 21, 2006 with the Scallop

mm		in
0.51	MAX	0.020

Maximum Valve Tip Height for Cylinder Heads Built After August 21, 2006 with the Scallop

mm		in
99.35	MAX	3.911

Inset Bore Depth (Standard Insert) for Cylinder Heads Built Prior to August 21, 2006

mm		in
9.40	MIN	0.370

Inset Bore Depth (Standard Insert) for Cylinder Heads Built Prior to August 21, 2006		
mm		in
9.50	MAX	0.374
Inset Bore Depth (Standard Insert) for Cylinder Heads Built After August 21, 2006 with the Scallop		
mm		in
9.15	MIN	0.360
9.25	MAX	0.364

The vacuum tester, Part Number ST1257, can **not** be used to test the seal between the valve and valve seats on the scalloped cylinder heads. A Service/Parts Topic will be released soon indicating the release of a new tool for this task.

Last Modified: 16-May-2008

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