



Engine Design Change on Cummins A Series Diesel Engines

The AERA Technical Committee offers the following information on engine design changes on Cummins A Series diesel engines. This engine was originally built by the Onan Corporation, before obtained by Cummins. The engines now are made in Korea by KMC, the KUKJE MACHINERY COMPANY.

The major changes involved the cylinder bores as they went from a sleeved block to a parent bore block. With those changes the bore size dimensions also changed which also required the head gasket and head to be revised. The method of repair of cylinder bores has also been revised to allow for an oversize bore. Note: The standard size head gasket for the engine allows for use with oversize pistons.

The A-Series engine platform was previously built with a dry liner and on November 26, 2004 with engine serial number (ESN) 70003688, the change was made on three-cylinder engines. On October 11, 2004 and engine serial (ESN) 70003281, the four-cylinder engines were changed. This change was implemented to improve coolant flow, reduce cylinder head operating temperature, prevent cylinder head cracking and improve white smoke. Refer to the charts below to determine the proper repair and parts available.

Engine Model	ESN First
A1400	70019326 (84mm bore)
A1700	70017771 (88mm bore)
A2000	70021504 (84mm bore)
A2300	70017295 (88mm bore)
A2300T	70017765 (88mm bore)

Standard Bore Size	Engine Name	Part Name	Oversize Bore (+0.25mm [0.01 in.])
88mm	A1700, A2300, A2300T	Piston Kit	Part #4901341
84mm	A1400, A2000	Piston Kit	Part #4901342

Table 1: Cylinder Head and Cylinder Head Gasket Options and Part Numbers

Engine Series	OLD CYLINDER HEAD			NEW CYLINDER HEAD				
	Old Option	Head Part No.	Gasket Part No.*	New Option	Head Part No.	Gasket Part No.	Gasket Set**	Gasket Set***
A1400	HH35005	4900922	4900533	HH35009	4901001	4901036	4900957	4900958
A1700	HH35002	4900940	4900533	HH35008	4900998	4901036	4900957	4900958

*Still Available

**Gasket set includes both gaskets – old 4 bolt gear cover.

***Gasket set includes both gaskets – new SAE gear cover.



Table 2: New Cylinder Head Usage

Engine Series	Cylinder Head Part Number and Usage
3-Cylinder- A1400	4901001 Must also purchase nut, Part Number 4900586, and washer, Part Number 4900587, as the new cylinder head uses a stud instead of a capscrew hole for one of the intake manifold capscrews. Must also use new cylinder head gasket, Part Number 4901036.
3-Cylinder - A1700	4900998 Must also purchase nut, Part Number 4900586, and washer, Part Number 4900587, as the new cylinder head uses a stud instead of a capscrew hole for one of the intake manifold capscrews. Must also use new cylinder head gasket, Part Number 4901036.

Table 3: New Cylinder Head Gasket Usage

Engine Series	Cylinder Head Gasket Part Number
3-Cylinder - Old Gasket	4900533 Must be used on engines built prior to November 26, 2004 and before engine serial number (ESN) first 70003688 (pre-white smoke fix).
3-Cylinder - New Gasket	4901036 Must be used on engines built after November 26, 2004 and after engine serial number (ESN) first 70003688 (pre-white smoke fix) or on engines which have a cylinder head replaced with 4900998 or 4901001.

Table 4: Cylinder Head and Cylinder Head Gasket Options and Part Numbers

Engine Series	OLD CYLINDER HEAD			NEW CYLINDER HEAD				
	Old Option	Head Part No.	Gasket Part No.*	New Option	Head Part No.	Gasket Part No.	Gasket Set**	Gasket Set***
A2000	HH35004	4900977	4900969	HH35007	4901033	4901032	4900956	4900955
A2300 or A2300T	HH35001	4900931	4900969	HH35006	4900995	4901032	4900956	4900955

*Still Available

**Gasket set includes both gaskets – old 4 bolt gear cover.

***Gasket set includes both gaskets – new SAE gear cover.



Table 5: New Cylinder Head Usage

Engine Series	Cylinder Head Part Number and Usage
4-Cylinder - A2000	4901033 Must also purchase nut, Part Number 4900586, and washer, Part Number 4900587, as the new cylinder head uses a stud instead of a capscrew hole for one of the intake manifold capscrews. Must also use new cylinder head gasket, Part Number 4901032.
4-Cylinder - A2300 or 2300T	4900995 Must also purchase nut, Part Number 4900586, and washer, Part Number 4900587, as the new cylinder head uses a stud instead of a capscrew hole for one of the intake manifold capscrews. Must also use new cylinder head gasket, Part Number 4901032.

Table 6: New Cylinder Head Gasket Usage

Engine Series	Cylinder Head Gasket Part Number and Usage
4-Cylinder - Old Gasket	4900969 Must be used on engines built prior to October 11, 2004 and before engine serial number (ESN) first 70003281 (pre-white smoke fix).
4-Cylinder - New Gasket	4901032 Must be used on engines built after October 11, 2004 and after engine serial number (ESN) first 70003281 (pre-white smoke fix) or on engines which have a cylinder head replaced with 4900995 or 4901033.