



Technical Service Bulletin

Technical Service Bulletin: TSB170022	Released Date: 24-Mar-2020
Steel Piston and Aluminum Piston Kit Introduction	

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Warranty Statement

The information in this document has no effect on present warranty coverage or repair practices, nor does it authorize TRP or Campaign actions.

Contents

Product Affected

- ISL G CM2180

Description of Change

- New steel and aluminum piston kits have been released.
- The new steel piston replaces the original aluminum piston for select ISL G CM2180 models.

Reason for Change

Improved piston durability.

Customer Communication

Customers who operate 320 hp engines may experience a reduction in power when cruising at high rpm.

Service Instructions

⚠ CAUTION ⚠

Use of an aluminum piston engine control module (ECM) calibration code in an engine with steel pistons will create an uncertified engine configuration and can result in inconsistent and undesirable engine behavior, and possible engine damage.

Note : Some engines with specific control parts lists (CPL) are **not** able to be converted to steel pistons at this time and **must** continue to use aluminum pistons. Reference the Service Parts section below for more information.

Warranty Considerations:

For warrantable piston replacements requiring the upgrade of aluminum pistons to steel pistons, steel piston upgrade kit, Part Number 5472934 or Part Number 5579235, **must** be used.

Components replaced as directed in this document are **not** to be inspected for reuse.

Installation of Aluminum Pistons:

- See Table 1 for aluminum piston kit part number and kit contents.
- See Table 4 for a list of CPLs that **must** use aluminum pistons.

Conversion from Aluminum Pistons to Steel Pistons:

- See Table 2 below for steel piston part numbers and steel piston upgrade kit contents.
- See Steel Piston Installation Instruction, Bulletin 5414627, supplied with the steel piston upgrade kit.
- See Table 3 for a list of CPLs that are required to use the steel piston upgrade kit when being converted from aluminum to steel pistons.
- Except for the upper and lower gasket kits, all parts in the steel piston upgrade kit **must** be used during the conversion from aluminum pistons. Gaskets that are **not** required for the repair of the engine, such as the rear main seal may be discarded.
- When changing from aluminum to steel pistons, an updated ECM calibration code **must** be installed. Reference Table 5 for ECM calibration code information.
- When changing from aluminum to steel pistons, the CPL number will change.
- The CM2380 ECM requires that the OEM Amber Check Engine Lamp, Red Stop Engine Lamp, and Low Fuel Pressure Lamp circuits be the same voltage as the ECM supply voltage (12 VDC). When changing from a CM2180 to CM2380 ECM the engine lamp circuits **must** operate at 12 volts. Some vehicles with 24 volt electrical systems will need to be modified so that lamp circuit voltage measured at the OEM connector is the same as the ECM supply voltage. Failure to do so will result in erroneous engine lamp behavior.
- The CM2380 ECM does **not** support J1708 datalink communication. Vehicles that require J1708 communications will need to install a J1708 to J1939 translator.
- Upon completion of the conversion from aluminum to steel pistons, an authorized change label, Part Number 5297400 **must** be completed and installed on the engine. See Figure 1 below.

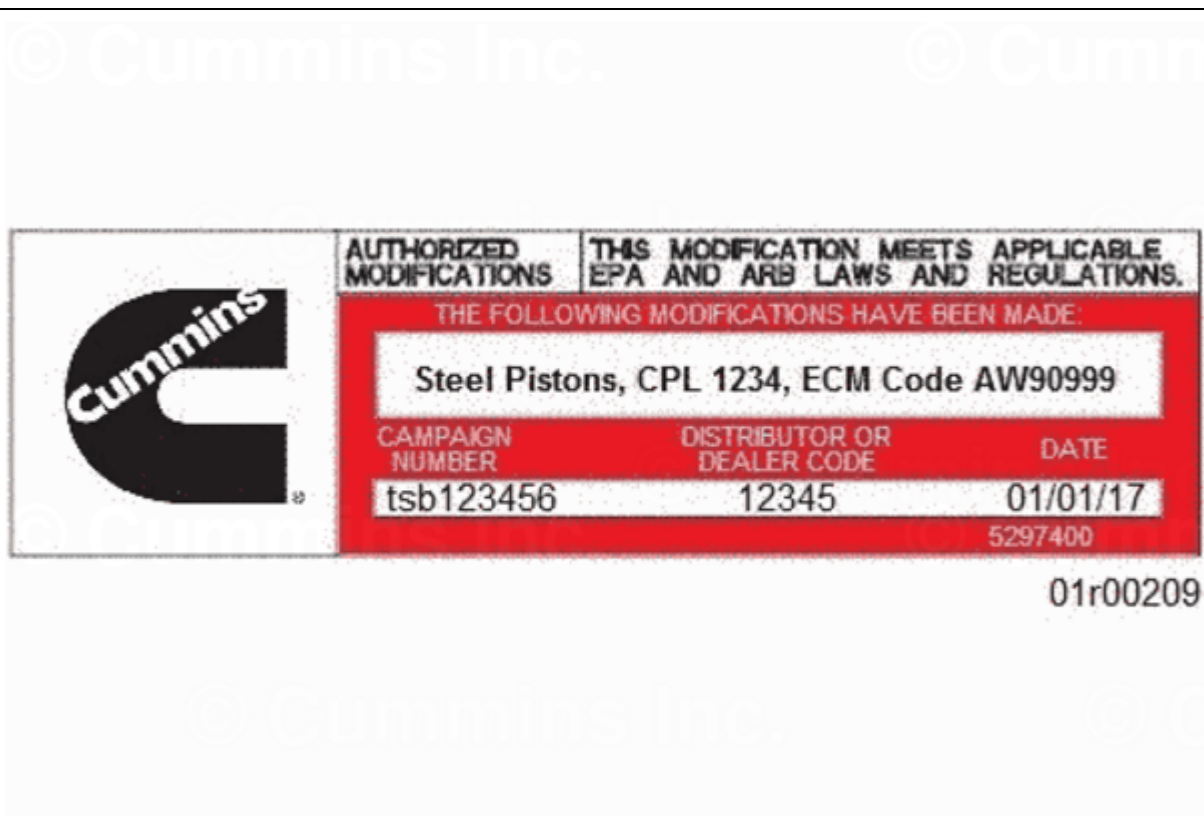


Figure 1, Steel Piston Authorized Change Label.

Service Parts Availability

Note : Engines that require a replacement Engine Control Module (ECM) **must** reference TSB190110 for information on correct part numbers and ECM calibration codes.

Table 1, Aluminum Piston Kit, Part Number 5406108, Contents

Part Description	Part Number	Quantity
Ring, Retaining	3920692	2
Pin, Piston	3934046	1
Set, Piston Ring	4025290	1
Piston, Engine	5311086	1

Table 2, Steel Piston Upgrade Kit, Part Number 5579235, Contents

Part Description	Part Number	Quantity
Kit, Liner	5404408	6
Bearing, Connecting Rod	3950661	12
Kit, Lower Engine Gasket	4089889	1
Kit, Upper Engine Gasket	4352349	1
Kit, Piston Ring	5406026	6
Kit, Engine Piston*	5406084	6

Table 2, Steel Piston Upgrade Kit, Part Number 5579235, Contents		
Part Description	Part Number	Quantity
Stainless Steel Oil Cooler	5477432	1
Label, Authorized Change	5297400	1
*Kit Includes Piston Cooling Nozzle, Part Number 5341745.		

Table 3, Aluminum Piston to Steel Piston Conversion by CPL		
Aluminum Piston CPL	Steel Piston Upgrade Kit Part Number	Steel Piston CPL
Group 1		
887	5579235	5232
897	5579235	
3297	5579235	
3517	5579235	
3518	5579235	
3519	5579235	
Group 2		
4835	5579235	5579
4836	5579235	
4926	5579235	
Additional Parts Required for engines in Table 3, Group 2 Only		
Part Description	Part Number	Quantity
Module, Engine Control	5491911	1
Valve, Pressure Regulator	5477889	1

Table 4, Aluminum Piston to Aluminum Piston by CPL	
Aluminum Piston CPL	Aluminum Piston Kit Part Number
3205	5406108
3235	5406108
4177	5406108
4352	5406108
4365	5406108
4715	5406108
4818	5406108
4819	5406108

Table 5, ECM Calibration Code Cross-Reference	
Original ECM Code	Steel Piston ECM Code
AW90001	AW90160
AW90002	AW90154
AW90003	AW90171
AW90004	AW90140
AW90005	AW90146
AW90006	AW90161
AW90007	AW90150
AW90013	AW90162
AW90014	AW90144
AW90015	AW90172
AW90016	AW90145
AW90017	AW90163
AW90023	AW90151
AW90024	AW90141
AW90025	AW90167
AW90026	AW90147
AW90027	AW90142
AW90028	AW90156
AW90029	AW90164
AW90030	AW90152
AW90031	AW90175
AW90032	AW90173
AW90034	AW90155
AW90035	AW90168
AW90036	AW90157
AW90037	AW90158
AW90038	AW90143
AW90043	AW90125
AW90044	AW90127
AW90045	AW90148
AW90046	AW90128
AW90047	AW90130

Table 5, ECM Calibration Code Cross-Reference	
Original ECM Code	Steel Piston ECM Code
AW90048	AW90165
AW90049	AW90131
AW90050	AW90133
AW90051	AW90166
AW90052	AW90134
AW90053	AW90153
AW90054	AW90136
AW90055	AW90138
AW90056	AW90170
AW90073	AW90126
AW90074	AW90174
AW90075	AW90129
AW90076	AW90149
AW90077	AW90132
AW90078	AW90139
AW90079	AW90135
AW90080	AW90169
AW90081	AW90137
AW90082	AW90159
AW90096	AW90201
AW90097	AW90202
AW90098	AW90203
AW90099	AW90206
AW90100	AW90207
AW90101	AW90208
AW90102	AW90211
AW90103	AW90212
AW90104	AW90213
AW90105	AW90216
AW90106	AW90217
AW90107	AW90220
AW90108	AW90221
AW90109	AW90222
AW90115	AW90204

Table 5, ECM Calibration Code Cross-Reference	
Original ECM Code	Steel Piston ECM Code
AW90116	AW90209
AW90117	AW90214
AW90118	AW90218
AW90119	AW90223
AW90120	AW90205
AW90121	AW90210
AW90122	AW90215
AW90123	AW90219
AW90124	AW90224

Part Compatibility

- Certain engines, based on CPL, are required to upgrade to steel pistons if piston replacement is required. When upgrading to steel pistons, steel piston upgrade kit, Part Number 5579235, **must** be used. All other engine CPLs **must** use aluminum pistons. Reference Table 3 and Table 4.
- Steel piston and aluminum piston part numbers are **not** to be mixed in the same engine.

Publications Affected

Table 6, Publications Affected					
Manual Type	Engine	Bulletin Number	Procedure Title	Procedure	Section
Service Manual	ISL G CM2180	4021649	Piston Cooling Nozzle	Refer to Procedure 001-046 (/qs3/pubsys2/xml/en/procedures/45/45-001-046-tr-islg.html)	1
			Piston	Refer to Procedure 001-043 (/qs3/pubsys2/xml/en/procedures/45/45-001-043-tr-islg.html)	1

Table 6, Publications Affected					
Manual Type	Engine	Bulletin Number	Procedure Title	Procedure	Section
			Piston Rings	Refer to Procedure 001-047 (/qs3/pubsys2/xml/en/procedures/45/45-001-047-tr-islg.html)	1
			Lubricating Oil Cooler	Refer to Procedure 007-003 (/qs3/pubsys2/xml/en/procedures/45/45-007-003-tr-islg.html)	7

Document History

Date	Details
2017-2-20	Module Created
2017-3-30	Updated part numbers.
2017-4-13	Added Warranty Considerations Section.
2017-4-24	Updated name of kit.
2017-6-27	Added note for part number 5406084.
2017-7-12	Added statement: Components replaced as directed in this document are not to be inspected for reuse.
2017-10-9	Replaced part number 5406086 with part number 5472934 and part number 3800328 with part number 5404408.
2019-8-27	Added steel piston upgrade kit, Part Number 5579235. Added stainless steel oil cooler, Part Number 5477432.

Date	Details
2019-9-17	Updated Steel Piston Upgrade Kit Part Number from 5472934 to 5579235.
2019-9-30	Updated Table 2, 3, 4, and 5.
2019-10-3	Updated CPL typo in Table 3.
2019-10-10	Removed part numbers and calibrations.
2019-10-16	Updated Table 5.
2019-11-7	Non-Product Problem Solving (PPS)
2020-2-25	Updated Service Instructions section.
2020-3-20	Added note in Service Parts Availability section.

Last Modified: 24-Mar-2020
