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Coding Information

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Title: Power Cylinder Replacement Process

Applies To: EPA 2010 MaxxForce DT/9/10 & N9/N10 Engines

CHANGE LOG

Please refer to the change log text box below for recent changes to this article:

02/14/2017 - Added a table of what is included in the Power Cylinder Seals Kit. (see parts section)
01/26/2017 - Added note to replace all components that come in the power cylinder seals kit.
01/10/2017 - Updated parts section
11/15/2016 - removed SRT links
11/11/2016 - Added links to section of diagnostic manual where hydro lock is a possible cause - listed as internal engine damage.

DESCRIPTION

NOTE: REPLACE ALL COMPONENTS THAT YOU RECEIVE IN THE POWER CYLINDER SEALS KIT.

The purpose of this document is to assist:

1. Determining correct repair path
2. Identify correct parts for warranty repair
3. Ensure correct warranty documentation

The above applies for the following base engine conditions:

1. **CPA BEAM Warranty Authorization Code (WAC)**
2. **Hydro lock condition**

SYMPTOM(s)

Diagnostic Trouble Code(s) & Dashboard Indicator Light(s):

DTC/Light	Description
N/A	

Customer Observations or Concerns:

NOTE: REPLACE ALL COMPONENTS THAT YOU RECEIVE IN THE POWER CYLINDER SEALS KIT.

Hard Start / Extended crank
Low Power

Rough idle

No crank (hydro lock) - **For Hydro lock symptom refer to the "[Engine Does Not Start Symptom](#)" Section of the Diagnostic Manual.**

Crank No start

Popping through the intake

DIAGNOSTIC STEP(s)

NOTE: REPLACE ALL COMPONENTS THAT YOU RECEIVE IN THE POWER CYLINDER SEALS KIT.

Follow symptom based diagnostics through the diagnostic manual found [here](#).

For Hydro lock symptom refer to the "[Engine Does Not Start Symptom](#)" Section of the Diagnostic Manual.

Note: RCT+ WAC is only valid if the engine was tested at operating temperature.

Note: Any CPA RCT+ Test that issues a WAC will require a BBT to be performed

If required, contact Technical Services and attach all appropriate .zip file

SPECIAL TOOL(s) / SOFTWARE

Tool Description	Tool Number	Comments	Instructions
N/A			

REPAIR STEP(s)

NOTE: REPLACE ALL COMPONENTS THAT YOU RECIEVE IN THE POWER CYLINDER SEALS KIT.

The CPA BEAM WAC will determine how many cylinders need replacement (See below for details). Depending on the engine configuration the parts that should be ordered is outlined in the parts section below.

Warranty Authorization Code Logic Table

1. VIN and Date Identifier	2. Cylinder Identifier	3. Symptom Identifier
XXXX	XX	X
WAC Logic Table		
Group 1: VIN and Date Identifier Group 2: Cylinder Identifier (Examples below) Group 3: Symptom Identifier		

Cylinder Identifier (group 2):**Currently the CPA will deliver a WAC for 1, 2 or all 6 Cylinder(s)**

Examples of WAC cylinder identifier:

WAC for 1 cylinder example:

XXXX_03_X - replace power cylinder 3 only

XXXX_30_X - replace power cylinder 3 only

WAC for 2 cylinders example:

XXXX_56_X - replace power cylinders 5 & 6

XXXX_65_X - replace power cylinders 5 & 6

WAC for all 6 cylinders example:

XXXX_99_X - replace all 6 power cylinders

SERVICE PARTS INFORMATION**NOTE: REPLACE ALL COMPONENTS THAT YOU RECIEVE IN THE POWER CYLINDER SEALS KIT.****CAUTION:**The following component inspections and/or replacements are **NOT COVERED** under warranty for this repair:

Any additional parts that are replaced will be considered customer responsibility.

- Works Kits (1893941C9*, 1889893C9*, 1889894C9*)
- Oil Pump
- Main Bearings
- Turbocharger(s)
- Fuel Injector(s)
- Oil Cooler
- Engine Coolant
- Cylinder Head
- HPOP (High-Pressure Oil Pump)

NOTE: REPLACE ALL COMPONENTS THAT YOU RECIEVE IN THE POWER CYLINDER SEALS KIT.

Kit Description	Quantity Required	466ST W/o Inner-Stage Cooler Under 245 H.P.	466HT W/ Inner-Stage Cooler 245 H.P and Above	570
KIT, POWER CYLINDER SEALS NOTE: REPLACE ALL COMPONENTS THAT YOU RECEIVE IN THE POWER CYLINDER SEALS KIT. Contains intake components, all gaskets and hardware necessary for repair (does not contain power cylinder kits)	1 Per Repair	2516372C9*		
TUBE ASSEMBLY TURBOCHARGER OIL SUPPLY Must be replaced whenever disconnected	1 Per Repair	1885590C9*		

Kit Piston Sleeve and Ring	1 Per Cylinder	1893925C9*	1889320C9*	1889068C9*
Connecting Rod	1 Per Cylinder - Hydro lock condition only	1877895C9*	1873875C9*	

Power Cylinder Seals Kit Contents - 2516372C91		
Part Number	Description	Quantity
1836197C1	GASKET OIL PAN	1
1841296C1	GASKET OIL SUCTION TUBE	1
1842626C96	KIT, HP OIL RAIL SEALS	1
1889332C92	KIT TURBOCHARGER SEALS	1
1889322C92	CYLINDER HEAD GASKET KIT	1
1844447C1	RING-O #214	4
2015983C1	GASKET EXH PIPE FLANGE	1
3900706C1	GASKET EXH PIPE FLANGE 4 IN J	1
1842033C1	GASKET INTAKE MANIFOLD	1
1817817C1	BOLT M6-1.0 X 20MM HEX FLANGE	3
1817959C1	BOLT M8X40-10.9 HEX FLANGE	3
1889335C94	KIT, EGR CROSSOVER DUCT W/ SEA	1
1884925C1	GASKET INLET DUCT-INTAKE MANIF	1
1838248C1	GASKET INTAKE THROTTLE	1
1883068C1	BOLT HEX FLANGE M8 X 170	1
1890997C92	VALVE ASSEMBLY, EGR	1
2514453C91	KIT, HP OIL PUMP RETROFIT	1
7096633C92	MANIFOLD, ASSY INTAKE	1
1873906C1	GASKET IRREGULAR MOLDED	1
1830858C1	GASKET LIQUID	1
1817963C1	BOLT M8 X 130 HEX FLANGE	1
7096588C2	DUCT, ASSY MIXING W/ HEATER	1
1884508C2	FILTER, ASSY OIL	1
1881778C2	BOLT M8 X 1.25 W/10MM HEX HEAD	2
2516372C91 - Power Cylinder Seals Kit Contents		

NOTE: REPLACE ALL COMPONENTS THAT YOU RECIEVE IN THE POWER CYLINDER SEALS KIT.

Example for cylinder wear WAC:

CPA delivered a WAC - XXXX_99_X - all 6 cylinders

The parts necessary would be:

- 1 Power Cylinder Seals Kit
- 1 Turbocharger Oil Supply Tube
- 12 Rod bolts
- 6 connecting rod bearing kits
- 6 Piston sleeve and rings kits

CPA delivered a WAC - XXXX_23_X - 2 cylinders

The parts necessary would be:

- 1 Power Cylinder Seals Kit
- 1 Turbocharger Oil Supply Tube
- 4 Rod bolts
- 2 connecting rod bearing kits
- 2 Piston sleeve and rings kits

CPA delivered a WAC - XXXX_03_X - 1 cylinder

The parts necessary would be:

- 1 Power Cylinder Seals Kit
- 1 Turbocharger Oil Supply Tube
- 2 Rod bolts
- 1 connecting rod bearing kits
- 1 Piston sleeve and rings kits

NOTE: REPLACE ALL COMPONENTS THAT YOU RECIEVE IN THE POWER CYLINDER SEALS KIT.

WARRANTY INFORMATION

All CPA BEAM tests .zip files must be saved and sent to Navistar Warranty Group upon request.

Hydro lock Condition:

Group:	12000 - Engines
Noun:	892 - Cooler, EGR

Warranty Claim Coding:

Refer to the [Warranty Coding Manual](#) for Group and Noun Codes.

Standard Repair Time(s):

Refer to the [SRT Manual](#) for Repair Times

NOTE: REPLACE ALL COMPONENTS THAT YOU RECIEVE IN THE POWER CYLINDER SEALS KIT.

SRT Description	Qualifier/Notes
Power Cylinder Replacement	One
	Each additional (if Necessary)
Connecting Rod Replace	if necessary
Sleeve Protrusion	All Models
Counter bore	All Models
CPA Hook-up	All Models
Relative Compression Test Plus (RCT+)	All Models
Blow-by Test (BBT)	All Models

NOTE: REPLACE ALL COMPONENTS THAT YOU RECIEVE IN THE POWER CYLINDER SEALS KIT.

OTHER RESOURCES

[Master Service Information Site](#)

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