



Countries: CANADA, UNITED STATES, MEXICO
Availability: ISIS, Bus ISIS, Fleet!ISIS, IsSIR
Major System: ENGINES
Current Language: English
Other Languages: NONE
Viewed: 3042

Document ID: IK1201344
Revision: 4
Created: 9/28/2016
Last Modified: 11/15/2016
Author: Caleb Iverson

[Less Info](#)

Hide Details

Coding Information

Copy Link	Copy Relative Link	Bookmark	Add to Favorites	Print	Edit Document	Provide Feedback	Helpful	Not Helpful
		 View My Bookmarks					 32	 91

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:

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.
11/11/2016 - Updated SRT section with CPA BEAM SRTs.
11/08/2016 - Updated naming in parts section
11/01/2016 - Initial Article Release

DESCRIPTION

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:

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)

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

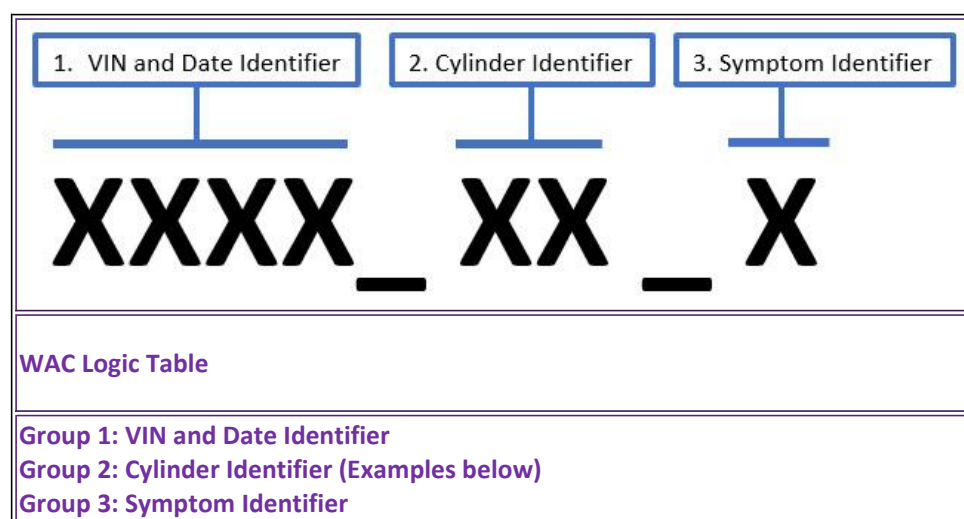
SPECIAL TOOL(s) / SOFTWARE

Tool Description	Tool Number	Comments	Instructions
N/A			

REPAIR STEP(s)

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



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

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)

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 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*		
Rod Bolts	2 Per Cylinder	1873884C*		
ROD CONNECTING-BEARING-STANDARD KIT	1 Per Cylinder	1842570C9*		
Kit Piston Sleeve and Ring	1 Per Cylinder	1893925C9*	1889320C9*	1889068C9*
Connecting Rod	1 Per Cylinder - Hydro lock condition only	1877895C9*		1873875C9*

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

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

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

OTHER RESOURCES

[Master Service Information Site](#)

Viewed:
Helpful: 32
Not Helpful: 91

Staff ID	Client ID	Comments	Created Date
U023960		You received the following feedback From: u023960 - Bill Cosby Email Address: SMTP:{Bill.Cosby@Navistar.com}Bill.Cosby@Navistar.com Feedback: On the linked page for hydro-locked T/S, step 6 has 2 yes answers. 2.1 - Engine Cranks Slow or Does Not Crank Step 6 Determine if engine has internal damage or starter / flywheel gears are binding. Decision Using Engine Rotation Tool ZTSE6072, rotate crankshaft by hand to determine if starter/flywheel gears are binding or engine has internal damage. Does crankshaft rotate appropriately? Yes: Go to Step 7 Yes: Go to Step 8. I believe it should be No: Go to step 8.	11/17/2016 11:35:00 AM

Copyright © 2016 Navistar, Inc.