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Coding Information

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Title: Performing RCT (Relative Compression Test) and misfire test with CPA Tool

Applies To: MaxxForce 7, DT, 9, 10, 11, 13, N9, N10, N13

## CHANGE LOG

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

04/25/2017- Updated diagnostic software to Navistar Engine Diagnostics™.
10/06/2016- pointed reader to instructions inside BEAM tests
07/18/2016- Added new image for BEAM instructions
07/08/2016- Added link to BEAM Idle test instructions
06/21/2016- Updates MF7 RCT instructions
05/24/2016- Added info about RCT+
03/30/2016- Added "DT" to applies to and memory error tip
03/14/2016- Added RCT instructions for I6 and 13L and updated CPA software version and added SRT's
01/29/2016- Revised images and PDF and note about Cylinders 3 and 8 on graphs
12/09/2015 - Initial Article Release

**Tip:** If the vehicle batteries cannot handle 3 cranking sessions with RCT+ then press "Stop Test" when the CPA prompts you to start cranking for the 3rd time. The CPA will process the test.

## DESCRIPTION

Navistar has released new tests for the Cylinder Performance Analyzer (CPA) called Relative Compression Test (RCT) and Misfire (named "Idle")

The CPA RCT is more reliable than the Navistar Engine Diagnostics™ RCT because of the CPA's signal processing capabilities which results in more accurate cylinder compression analysis.

The CPA RCT identifies low cylinder compression which is a result of worn cylinders, valve train issues, bent connecting rod, etc.

The CPA Idle test can identify misfires & weak cylinders caused by failing injectors, valve train issues, and other causes. It does not issue a WAC but shows in graph form each cylinders contribution.

- In order to perform a CPA RCT the CPA software must be updated to. [IK2700062](#) covers the software update process.
- Idle / Misfire test for MF7 is [here](#)
- CPA RCT can be performed on MaxxForce 7, DT, 9, 10, N9, N10, and MaxxForce 13 & N13
  - Instructions for performing RCT for MF 7 are [here](#) (printing is recommended)
  - Instructions for performing RCT on MaxxForce 9, 10, DT, N9, and N10 are [here](#) (printing is recommended)
  - Instructions for performing RCT on MaxxForce 11, 13 and N13 are [here](#) (printing is recommended)
- CPA RCT+ instructions are [here](#) (and have been added to the CPA software and diagnostic manuals). RCT+ requires the CPA PressurePlus module (added May 2016)

## SYMPTOM(s)

The CPA **RCT** and **RCT+** can assist you when diagnosing the following:

- DPF failures & repeat DPF failures or short DPF life
- High blow-by
- Oil carry-over at road draft tube
- Air compressor front seal leaks
- Repeat oil leaks

- Low power
- High oil consumption
- Misfiring
- Engine noises
- Suspected bent connecting rod due to hydrolocked (excess coolant or fuel entered cylinder)
- Hard Starts

The CPA **Idle** test (misfire) can assist you when diagnosing the following:

- **DPF failures**
- **Repeat DPF failures or short DPF life**
- **Oil carry-over at road draft tube**
- **Low power**
- **Misfiring or weak cylinder**
- **Suspected bent connecting rod due to hydrolocked (excess coolant or fuel entered cylinder)**

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

DTC/Light	Description
SPN xxxx FMI xx (link to FCAP)	none at this time
SPN xxxx FMI xx (link to FCAP)	

Customer Observations or Concerns:  
See symptoms (above)

### **SPECIAL TOOL(S) / SOFTWARE**

Tool Description	Tool Number	Comments	Instructions
CPA Kit	12-999-01		
CPA to banana 12" extension	12-999-01-08		
Banana to alligator clamps	Fluke or other	test leads with alligator clamps at each end will also work	

[Tools Resource Center](#)

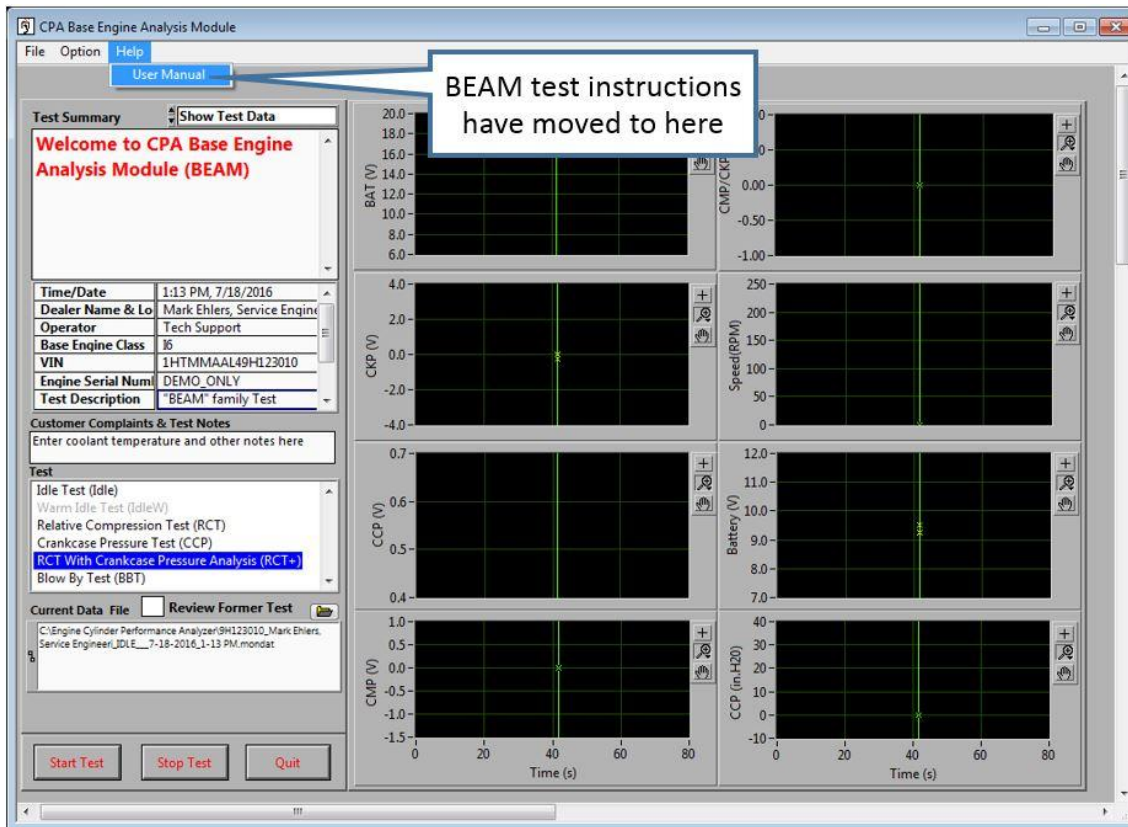
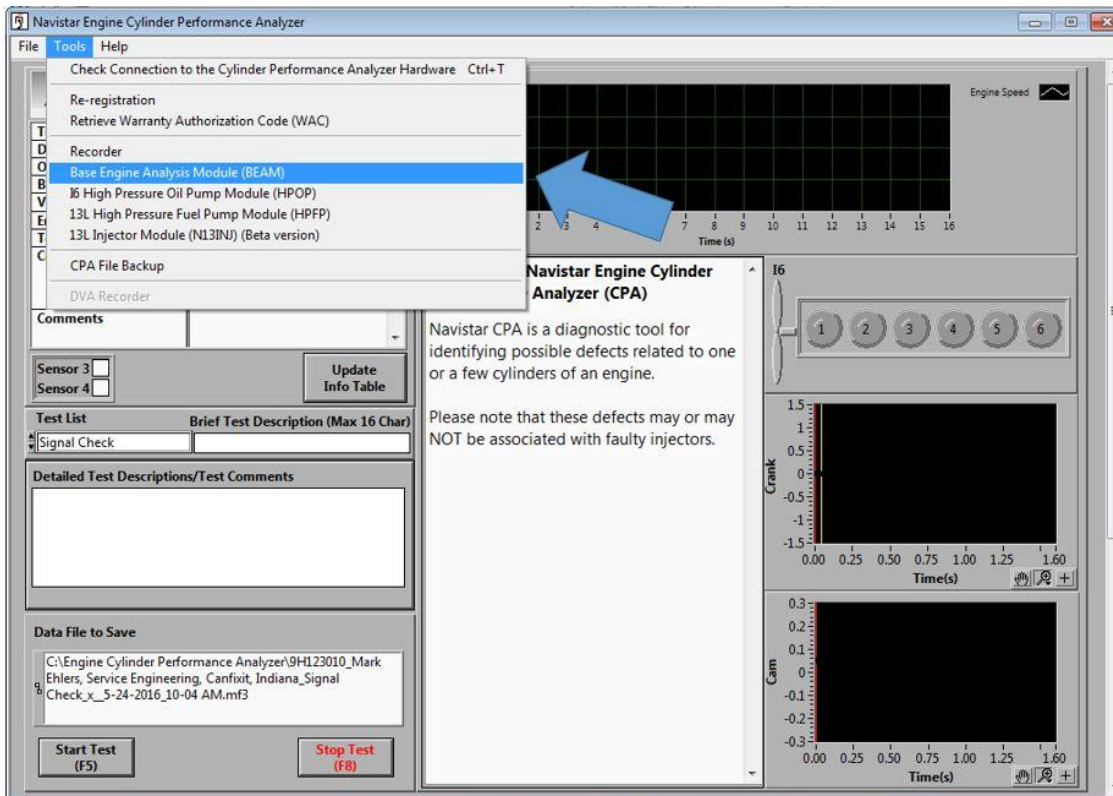
### **SERVICE PARTS INFORMATION**

Kit Description	Part Number	Quantity Required	Notes
not applicable			

### **DIAGNOSTIC STEP(S)**

<b>CAUTION:</b>
<b>Technicians should have completed the CPA training in the LMS and have read the CPA Manual before performing these new CPA tests.</b>

- Perform CPA RCT or RCT+ instead of performing a manual compression test.
- Launch the new tests by Selecting "BEAM" from the main CPA screen



**REPAIR STEP(s)**

Use CPA RCT and RCT+ in place of a manual compression test and whenever Navistar Engine Diagnostics™ RCT is inconclusive

## **WARRANTY INFORMATION**

**Warranty Claim Coding:**

<b>Group:</b>	NA
<b>Noun:</b>	NA


**Standard Repair Time(s):**

Step	Repair	Model	Engine	SRT	Hours
	CPA Idle (misfire) test	All	MaxxForce7	A12-2158X	.3
	CPA RCT (Relative Compression Test)	All	MaxxForce7	A12-2158X	.3
	CPA RCT+ (requires a loaner tool)	All	MaxxForce7	T-Time	.6
	CPA Cylinder / Injector test and RCT	All	MaxxForce DT & N9 &N10	A12-2158K	.6
	CPA Cylinder / Injector test and RCT	All	MaxxForce 13 & N13	A12-2158U-20	.8

- Link to the Standard Repair Time Manual: [Click Here](#)

## **OTHER RESOURCES**

[Master Service Information Site](#)

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