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

Applies To: MaxxForce 7

CHANGE LOG

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

01/29/2016- Revised images and PDF and note about Cylinders 3 and 8 on graphs
 12/09/2015 - Initial Article Release

DESCRIPTION

Navistar has released new tests for the Cylinder Performance Analyzer (CPA) called Relative Compression Test (RCT) and Misfire (named "Idle") for MaxxForce 7 engine. The CPA RCT is more reliable than the ServiceMaxx 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.

1. In order to perform a CPA RCT the CPA software must be updated to version 7.1.8.88 or higher . [IK2700062](#) covers the software update process.
2. CPA RCT & Idle test does not issue a WAC but a later version will add this capability
3. As with other CPA tests the set-up instructions for RCT and Idle test are imbedded in the CPA software
4. CPA RCT can also be performed on MaxxForce DT, 9, 10, N9, N10, and MaxxForce 13 but a Case File is needed as these tests are still under development and Tech Services must provide instructions and review the test results before repairs are performed

SYMPTOM(s)

The CPA 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)

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	

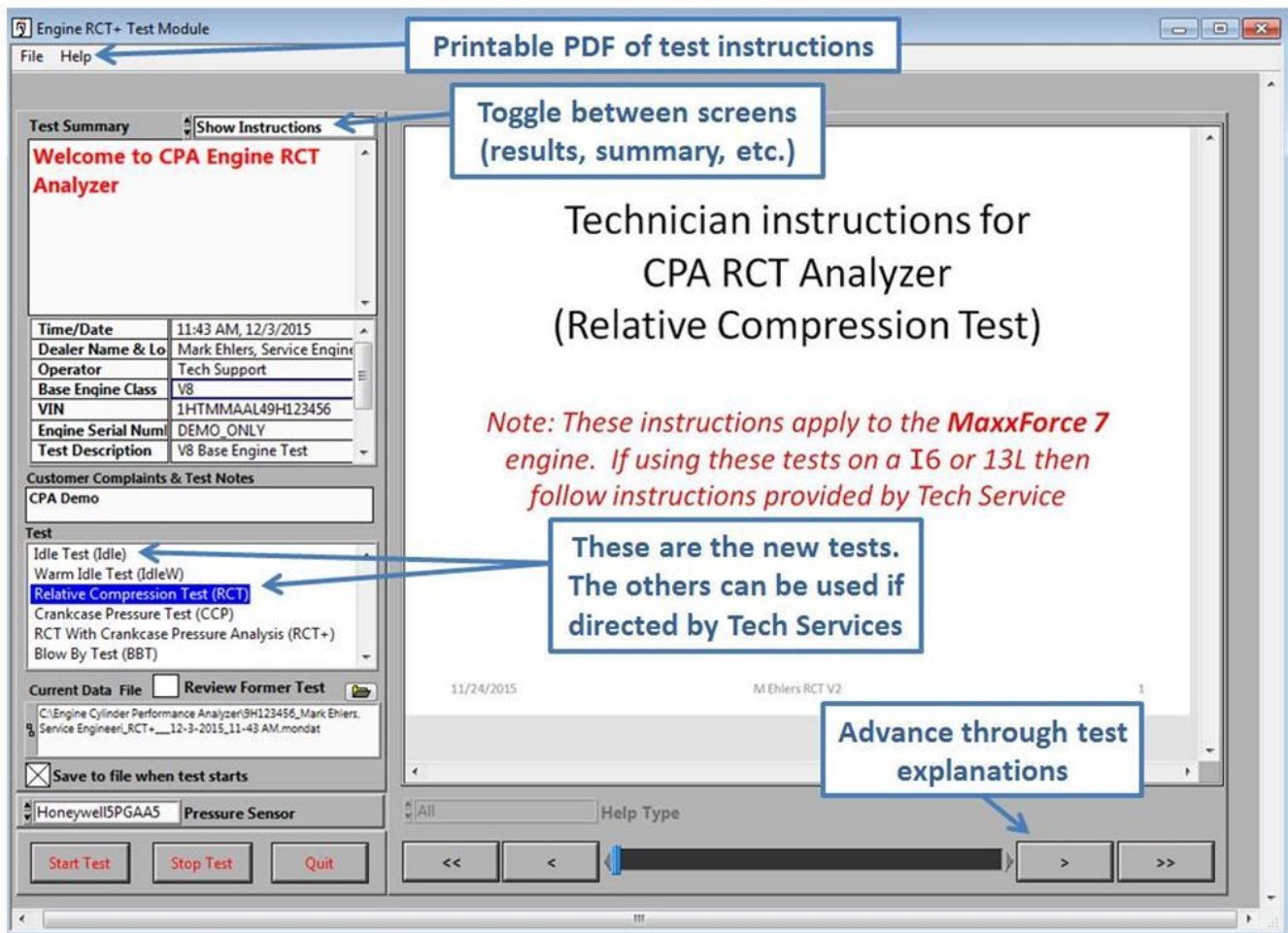
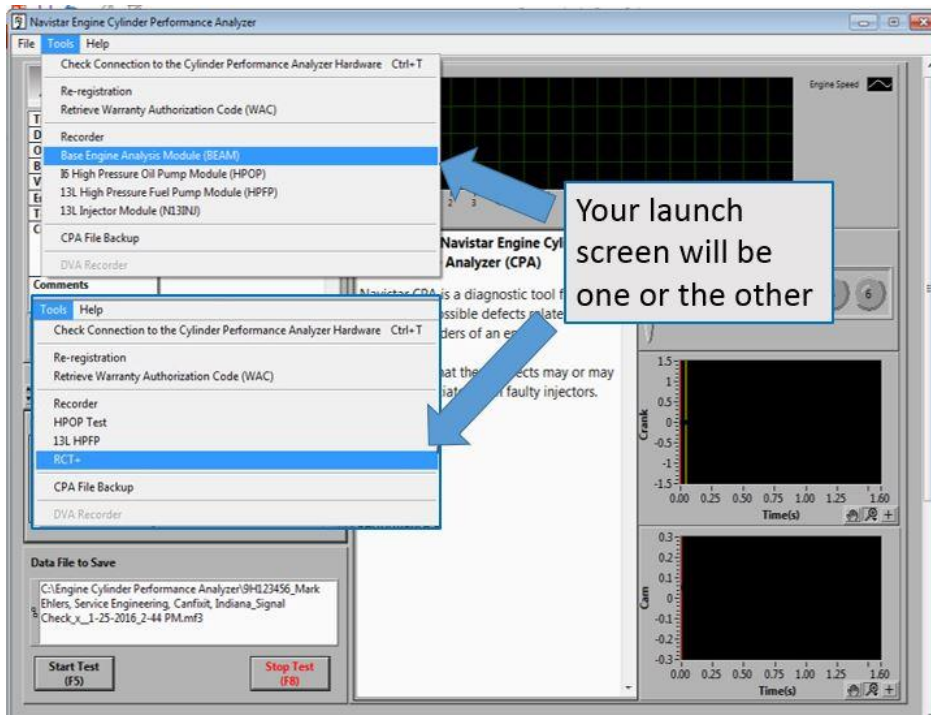
[Tools Resource Center](#)**SERVICE PARTS INFORMATION**

Kit Description	Part Number	Quantity Required	Notes
not applicable			

DIAGNOSTIC STEP(s)**CAUTION:**

Technicians should have completed the CPA training in the LMS and have read the CPA Manual before performing these new CPA tests.

- Perform CPA RCT instead of performing a manual compression test.
- Launch the new tests by Selecting "RCT+" or "BEAM" from the main CPA screen (depending on the CPA software version #)



A PDF of the instructions that are imbedded into the CPA new group of tests are [here](#)

Note- Sometimes with version 7.1.8.88 cylinders 3 and 8 will show slightly weaker than the others but the engine is healthy. Do not perform repairs on these cylinders without having Tech Services review the .zip file. The graphing of 3 and 8 will be improved in the next release.

REPAIR STEP(s)

Use CPA RCT in place of a manual compression test and whenever ServiceMaxx RCT is inconclusive

In most cases you should perform the "Idle Test" first and then perform the "RCT". This will provide you both misfire data and engine compression.

Contact Tech Services before making repairs to an engine because of a CPA RCT or Idle test result.

WARRANTY INFORMATION

Warranty Claim Coding:

Group:	NA
Noun:	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

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

OTHER RESOURCES

[Master Service Information Site](#)

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