



Countries:	CANADA, UNITED STATES	Document ID:	IK1201012
Availability:	ISIS	Revision:	1
Major System:	ENGINES	Created:	11/11/2013
Current Language:	English	Last Modified:	11/22/2013
Other Languages:	NONE	Author:	Jay Weston
Viewed:	360		

[Less Info](#)

Hide Details

Coding Information

Copy Link	Copy Relative Link	Bookmark	Add to Favorites	Print	Provide Feedback	Helpful	Not Helpful
		 View My Bookmarks				 15	 0

Title: MaxxForce 13 DTC 731-16/18 Knock Detected

Applies To: Big Bore Engines with the latest 3.15 Software Level (Calibration ID xxxxARxx or higher)

DESCRIPTION

SPN	FMI	Description
731	18	Knock detected: Unexpected Fueling Without Demand
731	16	Knock detected: Cylinder Acceleration Above Normal

What the Driver will see when fault code sets:

- Stop Engine Lamp Illuminated
- Audible alarm sounding due to Stop Engine Lamp
- Engine Shut Down without turning the ignition key off
- After a key cycle continued Stop Engine Lamp Illumination an Audible Alarm

731-18 Knock detected: Unexpected Fueling Without Demand

Entry Conditions for fault to set:

1. Vehicle speed = 0 MPH
2. Engine should be running (Engine speed > 500 RPM)
3. Accelerator pedal is in relatively stable position (no rapid/hard acceleration)
4. Clutch should not be released for manual transmission
5. Gear change is not detected for automatic transmission
6. Engine speed is less than 1600 RPM
7. Coolant temperature is between -9 deg C and 120 deg C (15 deg F - 248 deg F)

8. Engine low idle speed set point is stable (no rapid accelerations of RPM)
9. No active faults (listed below)
 1. Coolant Temperature Sensor Faults
 2. Pedal Position Sensor Faults
 3. Clutch Faults
 4. Transmission Gear Faults
 5. Engine CKP/CMP Faults
 6. Vehicle Speed Sensor Faults

731-16 Knock Detected: Cylinder Acceleration above Normal

Entry conditions for fault to set:

1. Vehicle speed =0 MPH
2. Engine should be running (Engine speed > 500 RPM)
3. Engine is in low idle (Accelerator pedal is not pressed)
4. Clutch should not be depressed for manual transmission
5. Coolant temperature is between -9 deg C and 120 deg C (15 deg F - 248 deg F)
6. Engine low idle speed set point is stable
7. Enabled During Operating modes:
 1. Normal Operation
 2. Stationary Regeneration
 3. High Altitude
 4. Medium Altitude
 5. Sea Level
 6. PTO
8. No Active Faults (Listed Below)
 1. Coolant Temperature Sensor Faults
 2. Clutch Faults
 3. Vehicle Speed Sensor Faults

Trouble shooting for 731-16/18.

Step 1.

Inspect boost air piping for signs of oil.
Does it show signs of oil?

- Yes - Refer to HP Turbo Service Plan [IK1200909](#)
- No - Proceed to step 2

Step 2.

Verify Repair History with truck owner and the Warranty History tab on ISIS.
Has the unit had a recent repair for a failed Turbo?

- Yes - Proceed to step 2a.
- No - Proceed to step 3.

Step 2a.

Verify injector replacement at the time of the turbo failure.
Were all injector replaced at the time of the turbo failure?

- Yes - Proceed to step 3
- No - Replace the Injectors that were not done at the time of the turbo failure.

Step 3.

Vehicle test drive at low idle creep. In the event that Vehicle speed does not register the monitor for the 731 fault codes will see the vehicle in a parked state. This will cause the fault to set while the vehicle is in motion.

- For a Manual transmissions select the lowest gear in the transmission, release the parking brake and slowly let the clutch out. Allowing only engine speed at idle to drive the truck (600 - 650 RPM).
- For Automatic transmission put the gear selector into manual mode and lock it into the lowest gear available. Use the accelerator pedal to engage the transmission and let off Allowing only engine speed at idle to drive the truck (600-650 RPM)

Monitor the vehicle speed with ServiceMaxx. Is vehicle speed registering (3.5 k/hr or 5 MPH in low on a 10 speed)?

- Yes - Proceed to Step 3.
- No - Troubleshoot the VSS reporting issue.

Step 4.

Is the Vehicle build date with in 8/1/2011 and 11/1/2011?

- Yes - Please submit a Case File to Programming Support.
- No - Please Submit a Case File to Big Bore Engine Support.

*******Clearing 731 Fault Codes*******

- Hook up to the truck with ServiceMaxx though the 9 Pin diagnostic port
- Turn Key switch to the on position
- Connect SM to the engine
- Clear fault codes
- Turn Key Switch off shutting of power to the ECM
- Wait 30 sec. allowing the ECM to reach house keeping (no engine communication on j1939)
- Turn Key switch on and reconnect verifying fault code clearing

NOTE: This procedure needs to be followed anytime the 731 faults are logged. If cleared without a key cycle it will clear the fault display but the monitor in the ECM can still be active

allowing for faults reappearance of the fault, stop engine lamp, and shut down.

THIS DOCUMENT WILL BE UPDATED PERODICALLY WITH ADDITIONAL INFORMATION.



Hide Details

Feedback Information

Viewed: 359

Helpful: 15

Not Helpful: 0

No Feedback Found

Copyright © 2013 Navistar, Inc.