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Title: I326 Variable Geometry Turbo: Supplemental Diagnostics

Applies To: International MaxxForce DT, 9, and 10 Diesel Engines (2007 through 2009 MY), Serial number range: 3000000 through 3299999.

Description

This document is a diagnostic and repair guide for 2007 through 2009 model year Variable Geometry Turbo (VGT). Use it as a supplement to ISIS versions EGES-335 and EGES-370.

Symptoms

NOTE: Any one of the following test results, performance symptoms, or Diagnostic Trouble Codes (DTC) is a sufficient reason to use this guide.

Key On Engine Running (KOER) tests

- Failed KOER standard test with Exhaust Back Pressure (EBP) codes
- Failed KOER Air management test with Exhaust Back Pressure codes

Symptoms

- Low power
- Poor throttle response
- Boost issues
- EBP issues

· Smoke

DTC

· 2174, 2175, 2176, 2177

· 3345, 3346, 3347, 3348

Procedure

Part A: Turbocharger Assembly Operational Test.

Proper turbocharger Smart Remote Actuator (SRA) link operation is indicated by a *full sweep* of the link when the ignition key is initially turned on. A *full sweep* is confirmed when the SRA link moves fully downwards and returns to its original position.

Observe SRA link while turning ignition on:

1. If SRA link completes a *full sweep* five times (once per ignition key cycle) then the turbocharger is operating properly; *no further turbocharger diagnostic action is required.*

2. If at any time, following initial ignition key-on, the SRA link doesn't move at all, moves partly, erratically, or otherwise does not complete the *full sweep* then proceed to Part B.

Part B: Failed Component Identification.

1. Turn ignition switch to OFF.

2. Wait for ECM to power off (15 seconds).

3. Push the linkage by hand to the opposite end of travel and release.

    a. If the linkage moves smoothly with a spring-like resistance and returns to its original position then go to PART C.
    Note: The link will not bounce when it returns to the stop.

    b. If the linkage is stuck, drags, or does not return to its starting position then go to Part D.

PART C: Circuit Diagnostics.

1. Complete circuit diagnostics per Diagnostic Repair Manual EGES-370.

2. Repeat Part A.

PART D: Mechanical Diagnostics.

Non-serviceable SRA only—ball joint secured with e-clip (do not attempt to remove)

1. Remove turbocharger assembly—See "Variable Geometry Turbocharger (VGT)" section in *Engine Service Manual* EGES-335-1 or latest revision.

2. Disassemble Turbo Housing per iKNow article IK1200432 *Disassembly* section . Push the linkage by hand to the opposite end of travel and release:

a. If the linkage moves smoothly with a spring-like resistance and returns to its original position then replace the turbine housing.

b. If the linkage is stuck, dragging, or does not return to its starting position then replace the turbocharger assembly.

3. Repeat Part A.

Serviceable SRA only—ball joint attached with 4mm Allen-head screw (I-6 engines with ESN 3032558 and later)

Note: The serviceable SRA can be removed and installed with turbocharger assembly installed on the engine.

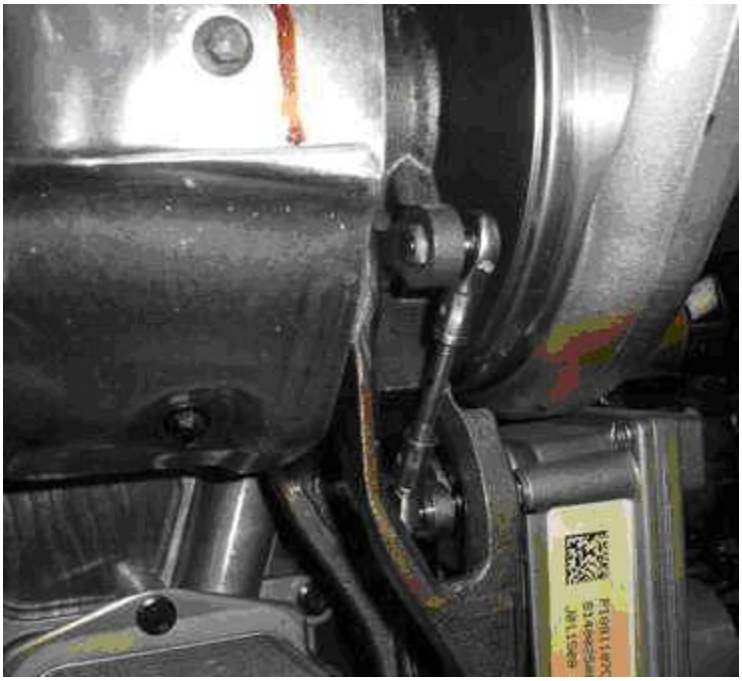
1. Unthread 4mm Allen-head screw to remove the link.
2. Push the linkage by hand to the opposite end of travel and release:

   a. If the arm is stuck, dragging, or cannot move then replace the SRA.
   Note: additionally the turbine housing pivot arm is expected to move free.

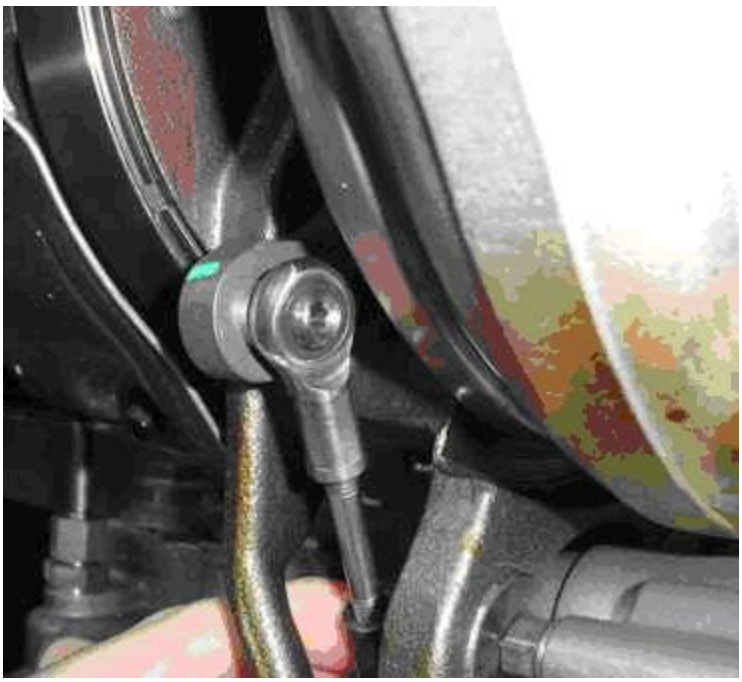
   b. If the arm moves smoothly with a spring-like resistance replace the turbine housing.
   Note: additionally the turbine housing arm is expected to be stuck or resist movement.

3. Repeat Part A.

Serviceable Linkage (encapsulated nut)



Serviceable Linkage (Allen-head bolt)



Non-serviceable Linakge (with E-clip)

Part #	Description

1881150C91	SRA Kit (contains SRA and linkage)

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