COMMON RAIL DODGE/CUMMINS DIESEL NUMBERS

OVER THE YEARS WE HAVE TESTED BOTH M&D REMANUFACTURED COMMON RAIL PRODUCTS AND NON M&D COMMON RAIL PRODUCTS ON VARIOUS DODGE/CUMMINS ENGINES. WE DID THIS SO WE CAN GET A BASE LINE KNOWLEDGE OF THE PERFORMANCE OF COMMON RAIL FUEL INJECTION SYSTEMS AND PRODUCTS. WE HAVE EXPERIENCED ENGINE PERFORMANCE PROBLEMS WITH DODGE TRUCKS AND CUMMINS ENGINES THAT MEET OEM SPECIFICATIONS. THE MOST COMMON OF THESE IS A HARD START HOT AND ENGINE POWER DE-RATE DUE TO LOW FUEL RAIL PRESSURE.

WHEN WE HAVE A DIFFICULT DIAGNOSTICS WE WILL USE THESE MEASUREMENTS FOR DIAGNOSTIC SUPPORT AND CONFIDENCE. WHEN WE INSTALL M&D COMMON RAIL REMANUFACTURED PRODUCTS, WE KNOW HOW THE FUEL SYSTEM WILL REACT AND WHAT WILL CHANGE.

ALL TESTS ARE AT ENGINE OPERATING TEMPERATURE.

PLEASE REMEMBER TO REPLACE INJECTOR CONNECTORS/LINKS WITH EVERY INJECTOR REPLACEMENT.

NOTE: REUSING CONNECTORS/LINKS MAY CAUSE INJECTOR FAILURE, BLACK SMOKE, LOW RAIL PRESSURE, MISS-FIRE, HARD START, EXCESSIVE INJECTOR FUEL RETURN FLOW, LOW POWER AND SHORTENED INJECTOR LIFE.

CUMMINS – DODGE – ISB -5.9L

SIX REMANUFACTURED M&D DISTRIBUTORS INJECTORS INSTALLED IN AN EARLY MODEL. USING THE CUMMINS INJECTOR RETURN FLOW RATE TEST OF 180 MLS IN 60 SECONDS HOT AT IDLE/ MAX. THE SIX M&D INJECTORS FUEL RETURN FLOWED **37 MLS IN 60 SECONDS AT IDLE.**

TESTED A 2013 DODGE R5500 6.7L WITH **OEM/ORIGINAL INJECTORS** WITH 63,320.0 MILES AND NO PERFORMANCE PROBLEMS.

USING THE DODGE **FUEL PRESSURE OVERRIDE TEST** (1200 RPM AND RAIL PRESSURE 1800 BAR – 26107 PSI) THE INJECTORS FUEL RETURN FLOWED **75 MLS IN 30 SECONDS**.

USING A **NON APPROVED TEST** THE INJECTORS FUEL RETURN FLOWED **100 MLS IN 60 SECONDS HOT AT IDLE RPM.**

DODGE TEST SPECIFICATIONS: FUEL PRESSURE OVERRIDE TEST – ON. INJECTOR RETURN FLOW 5.9L – 160 MLS IN 30 SECONDS MAX. 6.7L – 210 MLS IN 30 SECONDS MAX.

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THE HIGH PRESSURE PUMP RETURN FLOW TEST SPECIFICATIONS, MAX.

IDLE RPM, 5.9L: 1000 MLS IN 60 SECONDS, MAX - 6.7L: 1150 MLS IN 60 SECONDS, MAX.

TESTED A 5.9L REMANUFACTURED M&D DISTRIBUTORS HIGH PRESSURE PUMP RETURN FLOW.

THE M&D HIGH PRESSURE PUMP RETURN FLOWED **380 MLS IN 60 SECONDS HOT AT IDLE RPM.**

THE 5.9L HIGH PRESSURE PUMP OUTPUT FLOW TEST SPECIFICATIONS.

DODGE - 70 MLS MINIMUM AT CRANKING RPM

EARLY CUMMINS TEST – 75 MLS MINIMUM IN 30 SECONDS AT 125 RPM CRANKING RPM OR 90 MLS MINIMUM IN 30 SECONDS AT 150 RPM CRANKING RPM.

TESTED A 5.9L HIGH PRESSURE PUMP WITH 141,376 MILES ON THE PUMP.

TEST PUMP OUTPUT FLOW: **140 MLS IN 30 SECONDS** AT 200 RPM.

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CUMMINS MIDRANGE ENGINE FLOW SPECIFICATIONS QSB/ISB 6.7L 2008 ECM - CM 850

MEASURE INJECTOR RETURN FLOW FOR 1 MINUTE

FLOW SPECIFICATIONS WITH FUEL LEAKAGE TEST – ON

300 MLS IN 60 SECONDS MAX

FLOW SPECIFICATIONS IDLE RPM FUEL LEAKAGE TEST - OFF

180 ML IN 60 SECONDS MAX

NO START ENGINE, INJECTOR RETURN FLOW SPECIFICATIONS CRANKING RPM

90 MLS IN 60 SECONDS

GO EASY ON THE STARTER – USE TWO 30 SECOND TEST AND ADD TOGETHER.

CUMMINS MIDRANGE ENGINE FLOW SPECIFICATIONS QSB/ISB 6.7L ECM -- CM 2150 (SAME JUST 30 SECOND TIME USED)

MEASURE INJECTOR RETURN FLOW FOR 30 SECONDS

FLOW SPECIFICATIONS WITH FUEL LEAKAGE TEST – ON

150 MLS IN 30 SECONDS MAX

NO START ENGINE, INJECTOR RETURN FLOW SPECIFICATIONS CRANKING RPM

45 MLS IN 30 SECONDS MAX

ALL THE TESTS EXCEPT TWO ARE PERFORMED ON M&D PRODUCTS. THE REASON IS I INSTALL M&D PRODUCTS.

NOTE: ALWAYS CHECK FOR THE LATEST FLOW SPECIFICATIONS.

EXAMPLE

2006 5.9L DODGE WAS IN THE SHOP WITH COMPLAINTS OF HARD START HOT AND ENGINE POWER DE-RATE. WE FIRST CHECKED THAT THE BASICS AND THE STANDARD FUEL TESTS WERE WITHIN THE OEM SPECIFICATIONS. THEN WE REVIEWED THE FUEL RETURN FLOW RATES OF THE INJECTORS AND HIGH PRESSURE PUMP. THE INJECTORS HAD A FUEL RETURN FLOW OF 120 MLS WHICH IS WELL WITHIN OEM SPECIFICATIONS. WE USUALLY WILL EITHER DO: (A) AN INDIVIDUAL INJECTOR TEST OR (B) DEPENDING ON THE AGE, CONDITION AND MILEAGE OF THE TRUCK WE WILL RECOMMEND REPLACING ALL OF THE INJECTORS. THE REASON FOR THIS IS WE KNOW THAT THIS WILL LOWER THE FUEL RETURN FLOW FROM 120 MLS TO 37 MLS OF FUEL RETURN FLOW WHICH WILL CORRECT THE PROBLEM. WE USE THE SAME REASONING AND APPROACH FOR THE HIGH PRESSURE PUMP IF WE SEE 800 MLS OF FUEL RETURN FLOW AND ALL OTHER TESTS ARE NORMAL. WE WILL REPLACE THE HIGH PRESSURE PUMP BECAUSE WE KNOW THIS WILL LOWER THE FUEL RETURN FLOW FROM 800 MLS TO 380 MLS.

NOTE: WE DO NOT RECOMMEND REPLACING THE FUEL RAIL PRESSURE LIMITING VALVE AS A SINGLE COMPONENT. DURING HIGH PRESSURE EVENTS THE HIGH PRESSURE FUEL WILL CUT THE LIMITING VALVE SEAT IN THE FUEL RAIL. IF A LIMITING VALVE IS INSTALLED THE NEW VALVE NEEDS TO BE RETESTED FOR LEAKAGE. FOLLOWING OEM TEST PROCEDURES, WE SUGGEST COMPARING THE COST OF THE LIMITING VALVE TO A COMPLETE FUEL RAIL ASSEMBLY. THE ASSEMBLY INCLUDES THE LIMITING VALVE AND THE FUEL RAIL SENSOR. IN OUR SHOP IF THE LIMITING VALVE IS LEAKING WE INSTALL A FUEL RAIL ASSEMBLY.

NOTE: ALWAYS CHECK FUEL LIFT PUMP FLOW BEFORE TESTING ENGINE PERFORMANCE COMPLAINTS.

DODGE 5.9L – REMOVE BANJO BOLT AT THE HIGH PRESSURE PUMP LOW FUEL SUPPLY HOSE. INSTALL TEST FITTING 9014 AND USE A FUEL HOSE AND A GRADUATED CYLINDER.
DODGE 6.7L – REMOVE THE FUEL SUPPLY HOSE FROM THE HIGH PRESSURE PUMP AND THE FUEL FILTER HOUSING, USING THE QUICK DISCONNECT FITTINGS. (CUMMINS FUEL HOSE PART NUMBER 4940365). ATTACH FUEL HOSE TO FUEL FILTER HOUSING FITTING AND USE A GRADUATED CYLINDER.

DODGE 5.9L – IN-TANK LIFT PUMP FLOW MINIMUM – 590 MLS IN 10 SECONDS
DODGE 6.7L – IN-TANK LIFT PUMP FLOW MINIMUM – 570 MLS IN 10 SECONDS

INSTALLED A NEW IN-TANK FUEL LIFT PUMP IN A 2007 DODGE 6.7L. **THE NEW PUMP FLOWED 720 MLS IN 10 SECONDS.**

NOTE: WE ALWAYS LIKE TO CHECK THE FUEL SYSTEM FOR WATER CONTAMINATION THAT MAY HAVE DAMAGED THE FUEL SYSTEM COMPONENTS. THE EASIEST WAY TO DETERMINE IF WATER HAS PASSED THROUGH THE FUEL SYSTEM IS TO REMOVE THE FUEL REGULATOR AND CHECK THE VALVE FOR RUST. IF YOU SEE RUST, REGARDLESS OF WHAT'S IN THE FUEL TANK, AT ONE TIME WATER HAS PASSED THROUGH THE INJECTORS, INJECTOR CONNECTORS, HIGH PRESSURE FUEL RAIL AND THE HIGH PRESSURE PUMP.

I HOPE THIS WILL HELP WITH YOUR DODGE AND CUMMINS DIAGNOSTICS.

THANK YOU

MONTY SELTZ

M&D DISTRIBUTORS

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