

1999 DODGE RAM 2500 CUMMINS THROTTLE POSITION SENSOR DIAGRAM

1999 DODGE RAM 2500 CUMMINS THROTTLE POSITION SENSOR DIAGRAM IS AN ESSENTIAL REFERENCE FOR ANYONE LOOKING TO UNDERSTAND OR TROUBLESHOOT THE THROTTLE POSITION SENSOR (TPS) SYSTEM IN THIS PARTICULAR HEAVY-DUTY TRUCK. THE THROTTLE POSITION SENSOR PLAYS A CRUCIAL ROLE IN ENGINE MANAGEMENT BY MONITORING THE POSITION OF THE THROTTLE VALVE AND RELAYING THIS INFORMATION TO THE ENGINE CONTROL UNIT (ECU). FOR THE 1999 DODGE RAM 2500 CUMMINS, KNOWING THE WIRING, PIN CONFIGURATION, AND SENSOR PLACEMENT CAN AID IN DIAGNOSING PERFORMANCE ISSUES SUCH AS POOR ACCELERATION, STALLING, OR ERRATIC IDLING. THIS ARTICLE PROVIDES A DETAILED OVERVIEW OF THE 1999 DODGE RAM 2500 CUMMINS THROTTLE POSITION SENSOR DIAGRAM, INCLUDING ITS FUNCTION, WIRING LAYOUT, COMMON PROBLEMS, AND TESTING PROCEDURES. BY EXPLORING THESE AREAS, VEHICLE OWNERS AND TECHNICIANS CAN BETTER UNDERSTAND HOW TO MAINTAIN AND REPAIR THE TPS SYSTEM EFFICIENTLY. THE FOLLOWING SECTIONS WILL COVER THE TPS BASICS, DETAILED WIRING DIAGRAM EXPLANATION, SYMPTOM DIAGNOSIS, AND STEP-BY-STEP TROUBLESHOOTING GUIDANCE.

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UNDERSTANDING THE THROTTLE POSITION SENSOR IN THE 1999 DODGE RAM 2500 CUMMINS

THE THROTTLE POSITION SENSOR IS A VITAL COMPONENT OF THE 1999 DODGE RAM 2500 CUMMINS' FUEL MANAGEMENT SYSTEM. IT MONITORS THE THROTTLE VALVE'S ANGLE, WHICH DIRECTLY AFFECTS THE AMOUNT OF AIR ENTERING THE ENGINE. THIS DATA IS SENT TO THE ENGINE CONTROL MODULE (ECM), WHICH ADJUSTS FUEL INJECTION TIMING AND QUANTITY ACCORDINGLY. THE TPS ENSURES SMOOTH ENGINE OPERATION, OPTIMAL FUEL EFFICIENCY, AND REDUCED EMISSIONS. IN THIS MODEL, THE TPS IS TYPICALLY A POTENTIOMETER-TYPE SENSOR MOUNTED ON THE THROTTLE BODY.

FUNCTION AND IMPORTANCE OF THE TPS

THE PRIMARY FUNCTION OF THE TPS IS TO PROVIDE REAL-TIME FEEDBACK ON THROTTLE POSITION TO THE TRUCK'S ECM. THE SENSOR DETECTS THE OPENING AND CLOSING OF THE THROTTLE PLATE AND SENDS A CORRESPONDING VOLTAGE SIGNAL. THIS SIGNAL HELPS REGULATE ACCELERATION, IDLE SPEED, AND TRANSMISSION SHIFT POINTS. WITHOUT AN ACCURATE THROTTLE POSITION SENSOR, ENGINE PERFORMANCE CAN DEGRADE SIGNIFICANTLY, RESULTING IN DRIVABILITY ISSUES.

LOCATION OF THE TPS ON THE 1999 DODGE RAM 2500 CUMMINS

IN THE 1999 DODGE RAM 2500 CUMMINS, THE THROTTLE POSITION SENSOR IS MOUNTED DIRECTLY ON THE THROTTLE BODY, WHICH IS LOCATED ON THE INTAKE MANIFOLD. THE SENSOR CONNECTS TO THE THROTTLE SHAFT AND MOVES IN CONCERT WITH THE THROTTLE PLATE. THIS POSITIONING ALLOWS THE TPS TO ACCURATELY DETECT THE THROTTLE ANGLE AND COMMUNICATE IT TO THE VEHICLE'S ECM.

1999 Dodge Ram 2500 Cummins Throttle Position Sensor Wiring Diagram

A DETAILED WIRING DIAGRAM IS CRUCIAL FOR DIAGNOSING ELECTRICAL ISSUES RELATED TO THE 1999 Dodge Ram 2500 CUMMINS THROTTLE POSITION SENSOR. THE TPS WIRING TYPICALLY CONSISTS OF THREE WIRES: A REFERENCE VOLTAGE SUPPLY, A SIGNAL OUTPUT WIRE, AND A GROUND WIRE. PROPER UNDERSTANDING OF THESE CONNECTIONS ENSURES ACCURATE TESTING AND REPAIR.

Wiring Color Codes and Pin Configuration

THE THROTTLE POSITION SENSOR ON THE 1999 Dodge Ram 2500 CUMMINS GENERALLY USES THE FOLLOWING WIRE COLOR SCHEME:

- **REFERENCE VOLTAGE (5V SUPPLY):** OFTEN A GRAY OR PURPLE WIRE SUPPLYING A CONSTANT 5 VOLTS FROM THE ECM.
- **SIGNAL OUTPUT:** USUALLY A TAN OR YELLOW WIRE THAT CARRIES THE VOLTAGE SIGNAL PROPORTIONAL TO THE THROTTLE POSITION.
- **GROUND:** TYPICALLY A BLACK OR BLACK WITH WHITE STRIPE WIRE PROVIDING A GROUND REFERENCE TO THE SENSOR.

THE SENSOR CONNECTOR USUALLY HAS THREE PINS CORRESPONDING TO THESE WIRES. THE EXACT PIN LAYOUT DEPENDS ON THE SENSOR MODEL BUT GENERALLY FOLLOWS THE SEQUENCE: REFERENCE VOLTAGE, SIGNAL OUTPUT, AND GROUND.

Reading the TPS Voltage Signal

WHEN THE IGNITION IS ON BUT THE THROTTLE IS CLOSED, THE VOLTAGE READING ON THE SIGNAL WIRE SHOULD BE LOW, TYPICALLY AROUND 0.2 TO 0.5 VOLTS. AS THE THROTTLE OPENS, THE VOLTAGE SHOULD INCREASE SMOOTHLY UP TO APPROXIMATELY 4.5 VOLTS AT WIDE-OPEN THROTTLE (WOT). ANY SUDDEN JUMPS, DROPS, OR FLAT SIGNALS INDICATE POTENTIAL SENSOR OR WIRING PROBLEMS.

Common Symptoms of a Faulty Throttle Position Sensor

A MALFUNCTIONING THROTTLE POSITION SENSOR CAN CAUSE A WIDE RANGE OF ENGINE PERFORMANCE ISSUES IN THE 1999 Dodge Ram 2500 CUMMINS. RECOGNIZING THESE SYMPTOMS EARLY CAN PREVENT FURTHER DAMAGE AND COSTLY REPAIRS.

Typical Signs of TPS Failure

- ERRATIC OR HIGH IDLE SPEED
- POOR ACCELERATION OR HESITATION DURING THROTTLE APPLICATION
- ENGINE STALLING AT IDLE OR LOW SPEEDS
- ILLUMINATED CHECK ENGINE LIGHT WITH TPS-RELATED TROUBLE CODES
- TRANSMISSION SHIFTING PROBLEMS, SUCH AS HARSH OR DELAYED SHIFTS
- REDUCED FUEL EFFICIENCY AND ROUGH RUNNING ENGINE

DIAGNOSTIC TROUBLE CODES (DTCs)

WHEN THE THROTTLE POSITION SENSOR FAILS OR SENDS ERRATIC SIGNALS, THE ECM WILL TYPICALLY STORE SPECIFIC DIAGNOSTIC TROUBLE CODES. COMMON TPS-RELATED DTCs FOR THE 1999 DODGE RAM 2500 CUMMINS INCLUDE P0120 THROUGH P0124, WHICH INDICATE CIRCUIT MALFUNCTIONS OR OUT-OF-RANGE SENSOR SIGNALS. USING AN OBD-II SCANNER TO RETRIEVE THESE CODES IS AN EFFECTIVE WAY TO PINPOINT TPS ISSUES.

TESTING AND TROUBLESHOOTING THE TPS ON A 1999 DODGE RAM 2500 CUMMINS

ACCURATE TESTING OF THE THROTTLE POSITION SENSOR REQUIRES A MULTIMETER AND KNOWLEDGE OF THE 1999 DODGE RAM 2500 CUMMINS THROTTLE POSITION SENSOR DIAGRAM. PROPER DIAGNOSTIC STEPS ENSURE THAT THE SENSOR, WIRING, AND RELATED COMPONENTS ARE FUNCTIONING CORRECTLY.

STEP-BY-STEP TPS TESTING PROCEDURE

1. TURN OFF THE IGNITION AND DISCONNECT THE TPS SENSOR CONNECTOR.
2. IDENTIFY THE REFERENCE VOLTAGE, SIGNAL OUTPUT, AND GROUND WIRES USING THE WIRING DIAGRAM.
3. SET A DIGITAL MULTIMETER TO THE VOLTAGE SETTING.
4. TURN THE IGNITION TO THE ON POSITION WITHOUT STARTING THE ENGINE.
5. MEASURE THE REFERENCE VOLTAGE WIRE; IT SHOULD READ APPROXIMATELY 5 VOLTS.
6. RECONNECT THE SENSOR AND BACK-PROBE THE SIGNAL OUTPUT WIRE.
7. SLOWLY OPEN THE THROTTLE MANUALLY AND OBSERVE THE VOLTAGE INCREASE SMOOTHLY FROM ABOUT 0.2 VOLTS TO NEAR 4.5 VOLTS.
8. IF THE VOLTAGE IS ERRATIC, JUMPS, OR REMAINS FIXED, THE TPS MAY BE FAULTY.
9. CHECK THE SENSOR GROUND WIRE FOR CONTINUITY TO CHASSIS GROUND.
10. INSPECT WIRING HARNESES FOR DAMAGE OR CORROSION AND REPAIR AS NECESSARY.

ADDITIONAL TROUBLESHOOTING TIPS

IF THE THROTTLE POSITION SENSOR TESTS WITHIN SPECIFICATIONS BUT SYMPTOMS PERSIST, CONSIDER CHECKING THE THROTTLE BODY FOR MECHANICAL ISSUES SUCH AS STICKING OR BINDING. ALSO, VERIFY THE ECM'S RESPONSE TO TPS SIGNALS THROUGH LIVE DATA MONITORING WITH A SCAN TOOL. WIRING SHORTS OR OPEN CIRCUITS IN THE HARNESS CAN MIMIC SENSOR FAILURE AND SHOULD BE CAREFULLY INSPECTED.

MAINTENANCE TIPS AND REPLACEMENT GUIDELINES

PROPER MAINTENANCE OF THE THROTTLE POSITION SENSOR AND RELATED COMPONENTS CAN EXTEND THE LIFE OF THE 1999

DODGE RAM 2500 CUMMINS AND OPTIMIZE ENGINE PERFORMANCE. REGULAR INSPECTION AND CLEANING OF THE THROTTLE BODY HELP PREVENT SENSOR MISREADINGS CAUSED BY DIRT AND CARBON BUILDUP.

WHEN TO REPLACE THE TPS

THE THROTTLE POSITION SENSOR SHOULD BE REPLACED IF TESTING CONFIRMS ERRATIC VOLTAGE OUTPUT, PHYSICAL DAMAGE, OR PERSISTENT DIAGNOSTIC TROUBLE CODES RELATED TO TPS FAILURES. ALWAYS USE OEM OR HIGH-QUALITY AFTERMARKET SENSORS DESIGNED SPECIFICALLY FOR THE 1999 DODGE RAM 2500 CUMMINS TO ENSURE COMPATIBILITY AND RELIABILITY.

BASIC MAINTENANCE CHECKLIST

- INSPECT WIRING HARNESS AND CONNECTORS FOR WEAR OR CORROSION
- CLEAN THE THROTTLE BODY AND SENSOR MOUNTING AREA REGULARLY
- TEST THE TPS SIGNAL DURING ROUTINE ENGINE DIAGNOSTICS
- REPLACE THE SENSOR AT THE FIRST SIGNS OF FAILURE TO AVOID ENGINE PERFORMANCE ISSUES

FREQUENTLY ASKED QUESTIONS

WHERE CAN I FIND THE THROTTLE POSITION SENSOR (TPS) DIAGRAM FOR A 1999 DODGE RAM 2500 CUMMINS?

THE THROTTLE POSITION SENSOR DIAGRAM FOR A 1999 DODGE RAM 2500 CUMMINS CAN TYPICALLY BE FOUND IN THE VEHICLE'S SERVICE MANUAL OR REPAIR GUIDE. ADDITIONALLY, ONLINE FORUMS AND WEBSITES SPECIALIZING IN DODGE OR CUMMINS TRUCKS OFTEN PROVIDE WIRING DIAGRAMS AND SENSOR LAYOUTS.

WHAT IS THE FUNCTION OF THE THROTTLE POSITION SENSOR IN A 1999 DODGE RAM 2500 CUMMINS?

THE THROTTLE POSITION SENSOR (TPS) IN A 1999 DODGE RAM 2500 CUMMINS MONITORS THE POSITION OF THE THROTTLE VALVE AND SENDS THIS INFORMATION TO THE ENGINE CONTROL UNIT (ECU) TO REGULATE FUEL INJECTION AND ENGINE TIMING FOR OPTIMAL PERFORMANCE.

HOW IS THE THROTTLE POSITION SENSOR WIRED IN A 1999 DODGE RAM 2500 CUMMINS?

IN THE 1999 DODGE RAM 2500 CUMMINS, THE TPS TYPICALLY HAS THREE WIRES: A 5V REFERENCE VOLTAGE WIRE, A GROUND WIRE, AND A SIGNAL WIRE THAT SENDS VARIABLE VOLTAGE TO THE ECU REPRESENTING THROTTLE POSITION. REFER TO THE SPECIFIC WIRING DIAGRAM FOR EXACT WIRE COLORS AND PIN ASSIGNMENTS.

CAN I TEST THE THROTTLE POSITION SENSOR ON A 1999 DODGE RAM 2500 CUMMINS USING A MULTIMETER?

YES, YOU CAN TEST THE TPS USING A MULTIMETER BY MEASURING THE VOLTAGE OUTPUT ON THE SIGNAL WIRE WHILE SLOWLY OPENING THE THROTTLE. THE VOLTAGE SHOULD SMOOTHLY INCREASE FROM ABOUT 0.5 VOLTS AT CLOSED THROTTLE TO

ABOUT 4.5 VOLTS AT WIDE OPEN THROTTLE.

WHAT ARE COMMON SYMPTOMS OF A FAULTY THROTTLE POSITION SENSOR IN A 1999 DODGE RAM 2500 CUMMINS?

COMMON SYMPTOMS INCLUDE ERRATIC IDLE, POOR ACCELERATION, ENGINE STALLING, HESITATION DURING THROTTLE INPUT, AND THE CHECK ENGINE LIGHT ILLUMINATING WITH RELATED DIAGNOSTIC TROUBLE CODES (DTCs).

IS THE THROTTLE POSITION SENSOR LOCATION THE SAME ON ALL 1999 DODGE RAM 2500 CUMMINS MODELS?

GENERALLY, THE TPS IS MOUNTED ON THE THROTTLE BODY NEAR THE THROTTLE PLATE SHAFT ON ALL 1999 DODGE RAM 2500 CUMMINS MODELS. HOWEVER, SLIGHT VARIATIONS MAY EXIST DEPENDING ON ENGINE CONFIGURATION OR AFTERMARKET MODIFICATIONS.

WHERE CAN I DOWNLOAD A DETAILED WIRING DIAGRAM THAT INCLUDES THE THROTTLE POSITION SENSOR FOR A 1999 DODGE RAM 2500 CUMMINS?

DETAILED WIRING DIAGRAMS INCLUDING THE TPS CAN BE FOUND IN CHILTON OR HAYNES REPAIR MANUALS, OR THROUGH ONLINE SUBSCRIPTION SERVICES LIKE ALldata AND MITCHELL 1. SOME DODGE AND CUMMINS ENTHUSIAST FORUMS ALSO SHARE SCANNED COPIES OR USER-CREATED DIAGRAMS.

HOW DO I REPLACE THE THROTTLE POSITION SENSOR ON MY 1999 DODGE RAM 2500 CUMMINS?

TO REPLACE THE TPS, DISCONNECT THE BATTERY, UNPLUG THE SENSOR WIRING CONNECTOR, REMOVE THE SCREWS OR BOLTS HOLDING THE SENSOR TO THE THROTTLE BODY, REPLACE IT WITH A NEW TPS, SECURE IT PROPERLY, RECONNECT THE WIRING, AND THEN RECONNECT THE BATTERY. AFTER REPLACEMENT, THE SENSOR MAY NEED TO BE CALIBRATED OR THE ECU RESET.

ADDITIONAL RESOURCES

1. *UNDERSTANDING THE 1999 DODGE RAM 2500 CUMMINS ENGINE SYSTEMS*

THIS COMPREHENSIVE GUIDE DELVES INTO THE INTRICACIES OF THE 1999 DODGE RAM 2500 EQUIPPED WITH THE CUMMINS DIESEL ENGINE. IT COVERS ENGINE COMPONENTS, INCLUDING THE THROTTLE POSITION SENSOR (TPS), WITH DETAILED DIAGRAMS AND TROUBLESHOOTING TIPS. PERFECT FOR MECHANICS AND ENTHUSIASTS AIMING TO MASTER THEIR VEHICLE'S PERFORMANCE.

2. *THROTTLE POSITION SENSOR DIAGNOSTICS FOR DODGE CUMMINS TRUCKS*

FOCUSED SPECIFICALLY ON THROTTLE POSITION SENSORS, THIS BOOK EXPLAINS HOW TPS AFFECTS ENGINE PERFORMANCE IN DODGE CUMMINS TRUCKS. IT INCLUDES STEP-BY-STEP DIAGNOSTIC PROCEDURES, WIRING DIAGRAMS, AND REPAIR STRATEGIES TAILORED FOR MODELS LIKE THE 1999 RAM 2500. READERS WILL LEARN HOW TO IDENTIFY FAULTS AND RESTORE OPTIMAL SENSOR FUNCTION.

3. *ELECTRICAL WIRING DIAGRAMS FOR DODGE RAM 2500: 1994-2002*

THIS MANUAL PROVIDES EXHAUSTIVE ELECTRICAL WIRING DIAGRAMS FOR DODGE RAM 2500 TRUCKS FROM 1994 THROUGH 2002, INCLUDING THE 1999 CUMMINS MODELS. IT FEATURES CLEAR ILLUSTRATIONS OF THE THROTTLE POSITION SENSOR WIRING, CONNECTORS, AND RELATED CIRCUITS. ESSENTIAL FOR ANYONE WORKING ON ELECTRICAL REPAIRS OR UPGRADES.

4. *CUMMINS DIESEL ENGINE REPAIR AND MAINTENANCE MANUAL*

A DETAILED REPAIR AND MAINTENANCE MANUAL FOR CUMMINS DIESEL ENGINES USED IN DODGE RAM TRUCKS. IT COVERS SENSOR COMPONENTS SUCH AS THE THROTTLE POSITION SENSOR, OFFERING GUIDANCE ON INSPECTION, REPLACEMENT, AND CALIBRATION. THE BOOK IS INVALUABLE FOR BOTH PROFESSIONAL MECHANICS AND DIY ENTHUSIASTS.

5. *ADVANCED TROUBLESHOOTING FOR DODGE RAM 2500 DIESEL TRUCKS*

THIS BOOK TACKLES COMPLEX PROBLEMS ENCOUNTERED IN DODGE RAM 2500 DIESEL TRUCKS, INCLUDING SENSOR FAILURES AND

ENGINE MANAGEMENT ISSUES. IT INCLUDES A SECTION DEDICATED TO THE THROTTLE POSITION SENSOR SYSTEM, COMPLETE WITH WIRING DIAGRAMS AND TROUBLESHOOTING FLOWCHARTS. READERS GAIN SKILLS TO DIAGNOSE AND FIX ELECTRONIC CONTROL PROBLEMS EFFECTIVELY.

6. AUTOMOTIVE SENSORS AND CONTROL SYSTEMS: A PRACTICAL GUIDE

WHILE NOT DODGE-SPECIFIC, THIS GUIDE EXPLAINS THE FUNCTION AND DESIGN OF VARIOUS AUTOMOTIVE SENSORS, INCLUDING THROTTLE POSITION SENSORS. IT OFFERS INSIGHTS INTO SENSOR OPERATION, COMMON FAILURE MODES, AND TESTING METHODOLOGIES, MAKING IT USEFUL FOR UNDERSTANDING TPS ISSUES IN A 1999 DODGE RAM 2500 CUMMINS.

7. DODGE RAM 2500 CUMMINS PERFORMANCE UPGRADES AND MODIFICATIONS

THIS BOOK EXPLORES PERFORMANCE TUNING AND UPGRADES FOR THE DODGE RAM 2500 CUMMINS ENGINE, INCLUDING SENSOR RECALIBRATION AND THROTTLE RESPONSE ENHANCEMENTS. IT SHOWS HOW TO MODIFY OR REPLACE THE THROTTLE POSITION SENSOR FOR IMPROVED THROTTLE CONTROL AND ENGINE EFFICIENCY.

8. DIESEL ENGINE ELECTRONICS: CONTROL AND DIAGNOSTICS

FOCUSED ON THE ELECTRONIC CONTROL SYSTEMS IN DIESEL ENGINES, THIS BOOK COVERS SENSORS, ACTUATORS, AND ECU INTERACTIONS. IT INCLUDES DETAILED DIAGRAMS AND EXPLANATIONS RELEVANT TO THE 1999 DODGE RAM 2500 CUMMINS THROTTLE POSITION SENSOR AND ITS ROLE IN ENGINE MANAGEMENT.

9. DIY DODGE RAM REPAIR: ELECTRICAL AND SENSOR SYSTEMS

A HANDS-ON REPAIR MANUAL AIMED AT DODGE RAM OWNERS WHO WANT TO TACKLE ELECTRICAL AND SENSOR-RELATED REPAIRS THEMSELVES. THE BOOK INCLUDES SPECIFIC CHAPTERS ON THROTTLE POSITION SENSOR TESTING, WIRING DIAGRAMS, AND COMMON ISSUES FOUND IN THE 1999 RAM 2500 CUMMINS MODEL. IT EMPOWERS READERS TO PERFORM ACCURATE DIAGNOSTICS AND REPAIRS.

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