|  |  |  |  |
| --- | --- | --- | --- |
| Station | | Task | |
| 7 | | 6 | |
| Running 1503 | | | |
|  |  |  |  |

**

# Input fault Diagnosis

## TASK OBJECTIVE

At the completion of this task the technician will be able to properly perform various electrical circuit diagnostics by methods of dynamic testing and using input versus output strategies.

In addition, the student will be able to demonstrate these methods and he also will be able to demonstrate in a timely fashion how to approach an electrical diagnostic situation on a circuit.

**REPAIR ORDER INFORMATION**

#### The engine runs very rough. Maintenance light is on. Vehicle feels like it runs in limp mode. It fouls spark plugs very rapidly. Further information states that compression tests have been performed and compression is within specifications

**INTRODUCCTION**

Now the diagnosis begins. You need to apply a logical method of diagnosis.

For example, first check the schematic and check the wire colors and locations of the terminals and components.

Visually check for disconnected connectors or backed out terminals. Ensure there is enough grip on the terminals.

Ensure the wires are in the correct positions in the connectors.

Test any power source and/or ground to the component at the component. If any resistance values exist for the component, check those values at the component and if in specification, continue testing in the direction of the ECM connectors or ECM.

Remember, disconnecting or replacing the ECM should only be done as a last resort. When it is necessary to disconnect the ECM, ensure to verify the continuity of the wires from the component to the ECM.

In conclusion, diagnosis is simply a process of eliminating what is good to determine what is bad.

**Note:** The ECM connector terminals are **very** delicate and therefore the ECM connections should never be removed unless absolutely necessary. Perform as many tests as possible without disrupting the ECM connectors.

An LED (Light Emitting Diode) or a Noid light is useful in finding output fault codes. Simply insert the test device into the suspect component connector and activate the component. If the light flashes, the positive and negative is going to the component. The circuit would be good and the component at fault. If the light does not flash further circuit diagnosis will be necessary.

**Note**: An LED will only allow current to flow in one direction. If the light does not flash in the first test, reverse the polarity of the wires and try it again.

**PROCEDURES**

####  Place the switches on the switch box in the following positions.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| A | X |  | X | X | X | X | X | X |
| B |  | X |  |  |  |  |  |  |

Follow the steps and answer the questions below:

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1. Connect BUDS to the unit. | | | | | | | | | | |
| 1. Start the engine for 30 seconds and stop it | | | | | | | | | | |
| 1. Read BUDS data | | | | | | | | | | |
| 1. Check the faults | | | | | | | | | | |
| 1. Record the faults and descriptions here: | | | | | | | | | | |
| 1. Highlight the fault and go to more details. | | | | | | | | | | |
| 1. What are the color codes of the wires of the input components? | | | | | | | | | | |
| 1. What are the terminal locations of the wires at the ECM location? | | | | | | | | | | |
| 1. Check the specifications and test procedures in "More Details" at the faults screen. | | | | | | | | | | |
| 1. What is the specification in ohms of the input? | | | | | | | | | | |
| 1. Install the ECM diagnostic box. | | | | | | | | | | |
| 1. With the multi-meter check the reading from ECM connector. | | | | | | | | | | |
| 1. Record the result here: | | | | | | | | | | |
| 1. Is the reading correct? | YES | |  | | | NO | |  |  | |
| 1. With the multi-meter check at the component. | | | | | | | | | | |
| 1. Is the reading correct? | YES | |  | | | NO | |  |  | |
| 1. Check the terminals of the wire for grip | | | | | | | | | | |
| 1. Check the continuity of the wires in the circuit | | | | | | | | | | |
| 1. Is the continuity good? | | YES | |  | NO | |  | | |  |
| 1. What component have you determined to be at fault? | | | | | | | | | | |

**QUESTIONS**

1. What have you learned from this task?

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**Instructor sign off-- Go \_\_\_\_\_\_\_\_\_\_**