## Fault symptom

Customer reported that Engine fault indicator light alarm while normal driving. W/S checked and found ECM reported multiple fault codes.



## **Fault diagnosis process**

- 1. Upon inspection, it was found that the mileage of the car was only 982km. The customer did not do any modification in this vehicle.
- 2. W/S Connected GLDS to check and found that multiple fault codes related to the engine control system as follows:

|     | DTC  | -      |
|-----|--|--------|
| 100 | ECos Petrona Dependently ECM resided fault service required Algorithm Based Falses. Tour extension<br>ECOS PD 12200 Thrombo Petro Produce Service A Court  | Status |
| 24  | COM PD 12202 Throatis/Pedial Positive Series A Creat Case Connect Failure Teachers Teachers  |        |
|     | Contract Provident Demon Departs Department Alegander  |        |
| ę,  | PAG-DITIONAT Strengt wheel reaching this tignal Meetings Fallows Meeting Pression  |        |
| 4   | PAS-UT34587 Ram and light sensor RLSM. Use Separal / Message Falses. Mining ressage  |        |
|     | FAS-B185817 Sumoul Module Res Septial Advance Fables. Meaning message  |        |
|     | EChil Collizabil Delivered Driving Torque. Algorithm Based Falares, Kovet elementes  | •      |
|     | COLORS 1000 International Control of the Control of the Control State of the Control State of the Control of th |        |
| r   | LCM P0617A02 Internal Control Module Torque Pletamance. Algorithm Based Fallows. Signal company taxes  | •      |
|     | ECLIL #020900 Turbocharger Sopercharger "A" Underbeoof Condision Devenal Palae Internation   |        |
| 5   | ECM PO10002 Mandold Absoluto Pressuen/Damentic Pressue Sensor Casal Nango Pertonomes Conset<br>Sature Internation: Centeral signal failure   | 0      |

3. It could be thought that there might be abnormal on throttle components or its wiring circuit through above fault codes. Further inspected fuses, throttle connector, and ECM connector, but did not find any abnormalities.

W/S measured the continuity of the circuit from the connector of the throttle valve to the corresponding pin of the ECM one by one, No open circuit was found for each wire.

|           |                           | Parameters   | Activations   | Diagnostic Sequences  | Images  | ECU Identification   |
|-----------|---------------------------|--|---|---|---|--|
| Engine ma | anagement system, VEP4 7D | CT A 📰 Engine n  | nanagement system   | , VEP4 7DCT B Engine  | management  | system, VEP4 8AT A   |
|           |                           |  |   |   |   |  |
|           |                           |  |   |   |   |  |
|           |                           |  |   |   |   | +50  |
| 34        |                           | 0.75   | 22  | - ⊘   |   | *  |
| 15        |                           | 0.75   | OYON  |   |   | ~ <u>M</u>   |
| ы         | he .                      | 0.35   | BNBK  | 0   | An  |  |
| 34        | <i>4</i> ј                | 0.35   | VT/WH   | V   | An  | м  |
| ы         | λį                        | 0.35   | BNBU  | λ   | Au  | м  |
| 14        | Аg                        | 0.35   | 00  |   | An  | AS   |
|           | 11<br>11<br>10            | 10<br>10<br>10<br>10<br>10<br>10<br>10<br>10<br>10<br>10 | In 0.75   IN 0.75   IN 0.75   IN 0.35   IN 0.35   IN 0.35   IN 0.35   IN 0.35   IN 0.35 | In     0.75     WH       IN     0.75     O'LON       IN     0.35     BNBK       IN     0.35     VT/WH       IN     0.35     BNBU       IN     0.35     OO | In     0.75     %H       In     0.75     %H       In     0.75     WH       In     0.35     WT/WH       In     0.35     WT/WH       In     0.35     WT/WH | Ar     0.75     WH     Ar       BN     0.75     0YGN     Ar       BN     0.75     0YGN     Ar       BN     Ar     0.15     BNBK     Ar       Ar     0.15     NTWR     Ar       Ar     0.15     NTWR     Ar       Ar     0.15     BNBU     Ar       Ar     0.15     BNSU     Ar |

4. After removing the throttle valve for inspection, no foreign objects were found to be stuck. After replacing the throttle components and testing the vehicle, it was found that the fault codes reappeared, as shown in the following figure:



| C C | been boo   | Unconfirmed A            | THING Diagram | Parameters         | Activations        | Congrande Sergamore      |     |
|-----|--|--------------------------|---------------|--------------------|--------------------|--------------------------|-----|
|     | DTC  | Conservationed A         | LD TCa        |                    |                    |                          | 0.1 |
| -   | COM-PO12000 Throatile Pedal Position Sensor A Crimit Line, Gamera Patron Internation |                          |               |                    |                    |                          |     |
|     |  | 199743 Dependabil<br>Non |               | arvine required. A | Agentifier Based 7 | ation.<br>Feltures Suara | •   |

5. Focusing on checking the engine harness from the throttle connector to ECM, it was found that the wire from ECM connector -pin B43 was grounded to the body when shaking the engine harness. Further inspection along the wiring harness found that the engine wiring harness was crushed by a fixed bracket near it, causing short ground to the body.



Fault analysis

The engine wiring harness was crushed and damaged by a fixed bracket near it, causing short ground to the body, which causing abnormal throttle signal and ECM malfunction.

## **Fault solution**

Replace this engine wiring harness to solve the problem.

## Quality inspection & repair confirmation

Recheck again and confirm problem is solved.