

DTC P212216, P212317

1. DTC Description

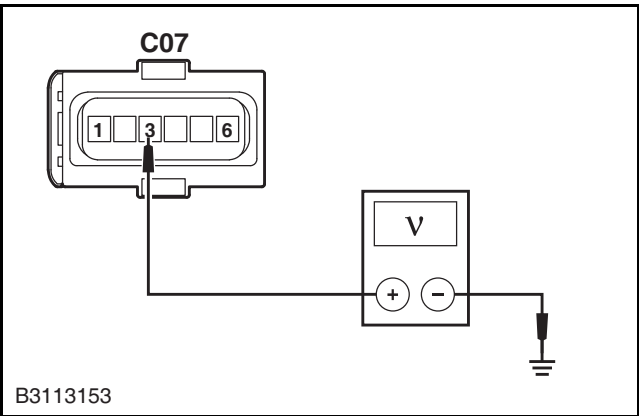
DTC	Description	Definition
P212216	Throttle/Pedal Position Sensor/ Switch "D" Circuit Low	Electronic accelerator pedal sensor circuit consists of followings:
P212317	Throttle/Pedal Position Sensor/ Switch "D" Circuit High	<ul style="list-style-type: none"> Reference voltage: ECM provides reference voltage to terminal 3 of electronic accelerator pedal sensor wiring harness connector C07 via terminal 37 of wiring harness connector C21. Signal circuit: ECM receives signal voltage from terminal 4 of electronic accelerator pedal position sensor wiring harness connector C07 via terminal 45 of wiring harness connector C21. ECM low reference voltage circuit: ECM sets the terminal 5 of electronic accelerator pedal sensor wiring harness connector C07 to low potential via terminal 7 of wiring harness connector C21.

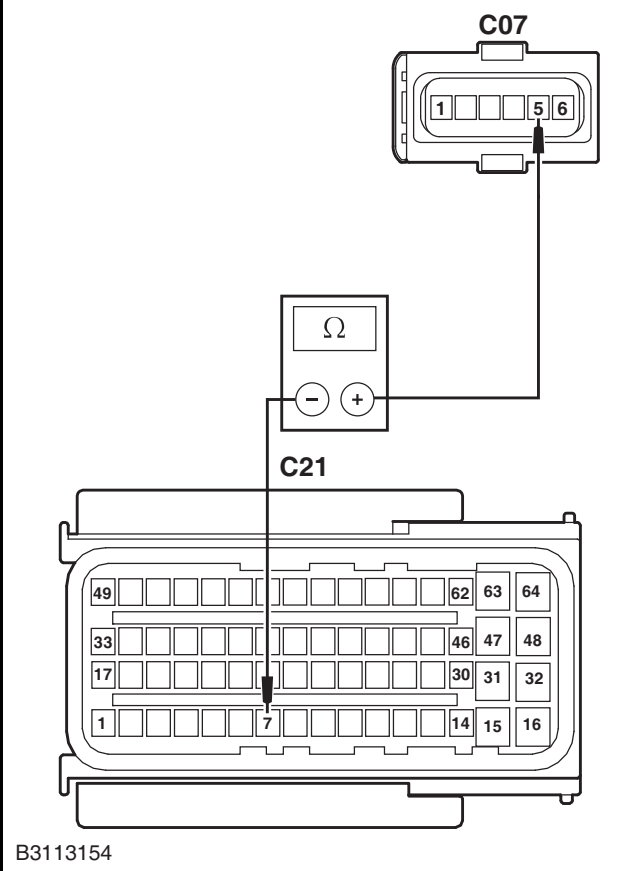
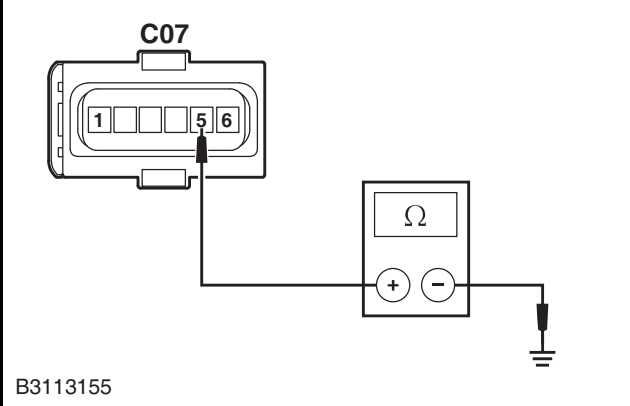
2. Possible Causes

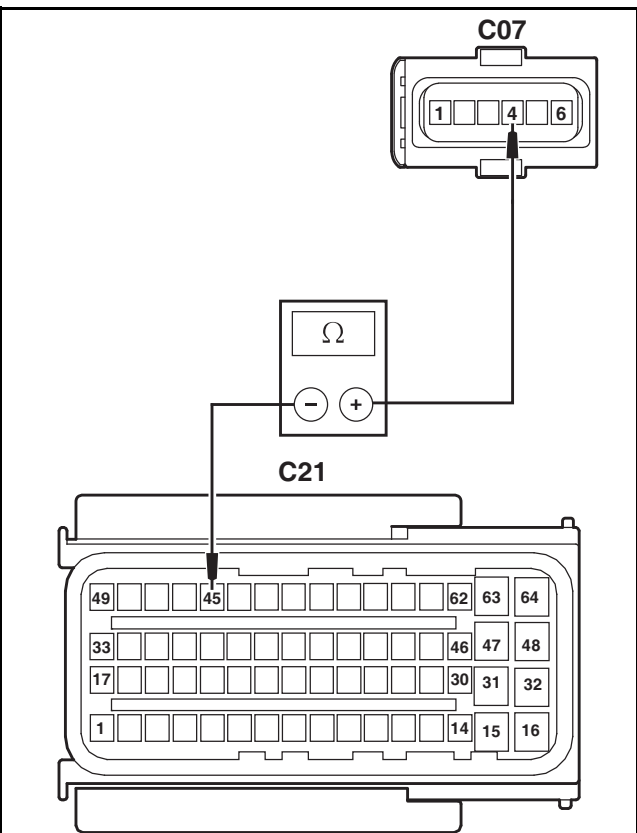
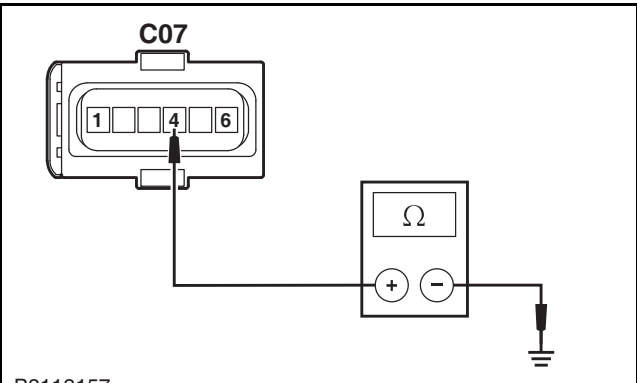
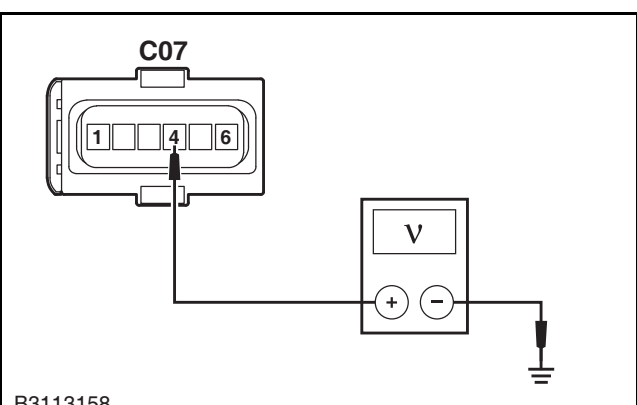
DTC	Monitor Strategy	Setting Condition (Control Strategy)	Faulty Area
P212216	Hardware circuit inspection	<ul style="list-style-type: none"> Circuit is short Circuit is open 	<ul style="list-style-type: none"> Accelerator pedal position sensor Wiring harness ECM
P212317			

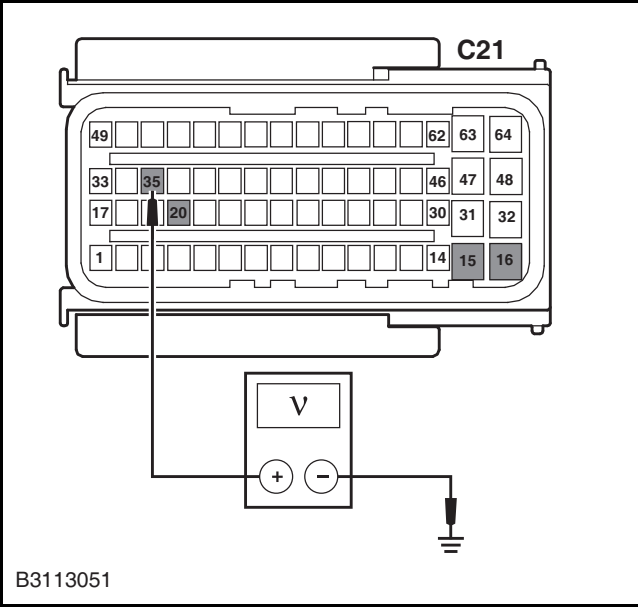
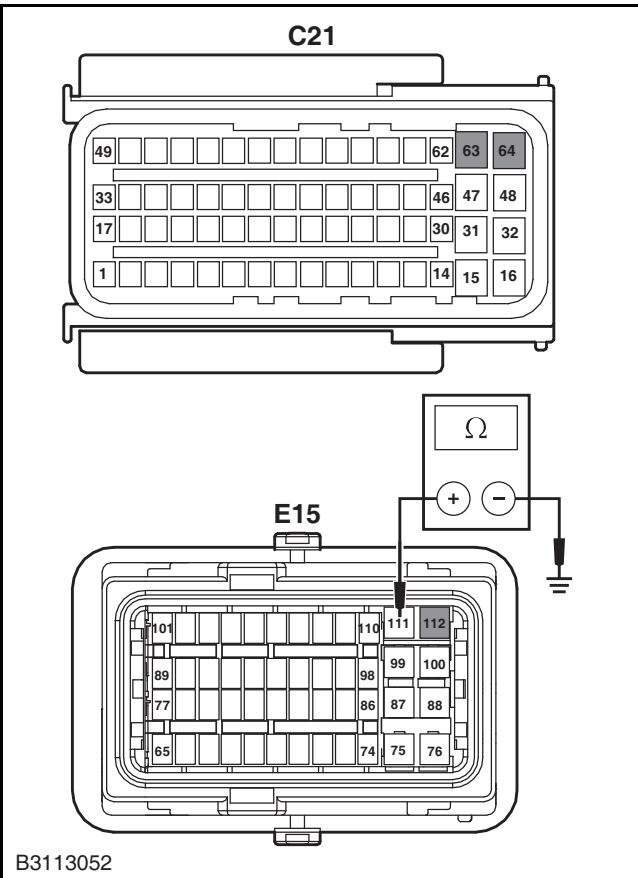
3. Diagnosis Procedure

Test Conditions	Details/Results/Actions
1. General inspection	<p>A. Inspect accelerator pedal position sensor wiring harness connector C07 for looseness or poor contact, etc.</p> <p>Is it normal?</p> <p>Yes</p> <p>Go to step 2.</p> <p>No</p> <p>Repair the faulty area.</p>

Test Conditions	Details/Results/Actions
2. Inspect accelerator pedal position sensor	<p>A. Remove the accelerator pedal position sensor.</p> <p>B. Install the accelerator pedal position sensor to a vehicle with good condition.</p> <p>C. Connect diagnostic tool and turn ignition switch to "ON", then read the DTC.</p> <p>Does DTC occur?</p> <p>Yes</p> <p>Replace the accelerator pedal position sensor.</p> <p>No</p> <p>Go to step 3.</p>
3. Inspect accelerator pedal position sensor power supply circuit	<div data-bbox="102 779 743 1193" style="border: 1px solid black; padding: 5px;">  </div> <p>A. Turn the ignition switch to "LOCK".</p> <p>B. Disconnect the accelerator pedal position sensor wiring harness connector C07.</p> <p>C. Turn the ignition switch to "ON".</p> <p>D. Measure voltage between terminal 3 of accelerator pedal position sensor wiring harness connector C07 and reliable ground.</p> <p>Standard voltage: 4.5 ~ 5.5 V</p> <p>Is voltage normal?</p> <p>Yes</p> <p>Go to step 4.</p> <p>No</p> <p>Inspect and repair faulty circuit between terminal 3 of accelerator pedal position sensor wiring harness connector C07 and terminal 37 of ECM wiring harness connector C21.</p>

Test Conditions	Details/Results/Actions
<p data-bbox="172 241 863 275">4. Inspect accelerator pedal position sensor ground circuit</p> <div data-bbox="172 309 815 1189">  <p data-bbox="188 1151 292 1173">B3113154</p> </div> <div data-bbox="172 1205 815 1621">  <p data-bbox="188 1585 292 1608">B3113155</p> </div>	<p data-bbox="847 297 1485 584"> A. Turn the ignition switch to "LOCK". B. Disconnect the accelerator pedal position sensor wiring harness connector C07. C. Disconnect the ECM wiring harness connector C21. D. Measure resistance between terminal 5 of accelerator pedal position sensor wiring harness connector C07 and terminal 7 of ECM wiring harness connector C21. Standard resistance: Less than 5 Ω </p> <p data-bbox="847 640 1453 734"> E. Measure resistance between terminal 5 of accelerator pedal position sensor wiring harness connector C07 and reliable ground. Standard resistance: 10 MΩ or more </p> <p data-bbox="874 790 1023 824">Is it normal?</p> <p data-bbox="874 835 927 869">Yes</p> <p data-bbox="874 880 1031 913">Go to step 5.</p> <p data-bbox="874 925 919 958">No</p> <p data-bbox="874 969 1485 1093"> Inspect and repair faulty circuit between terminal 5 of accelerator pedal position sensor wiring harness connector C07 and terminal 7 of ECM wiring harness connector C21. </p>

Test Conditions	Details/Results/Actions
<p data-bbox="103 241 774 280">5. Inspect accelerator pedal position sensor signal circuit</p> <div data-bbox="103 302 742 1176">  <p data-bbox="111 1142 215 1164">B3113156</p> </div> <div data-bbox="103 1187 742 1590">  <p data-bbox="111 1568 215 1590">B3113157</p> </div> <div data-bbox="103 1601 742 2027">  <p data-bbox="111 1993 215 2016">B3113158</p> </div>	<p data-bbox="774 302 1412 582"> A. Turn the ignition switch to "LOCK". B. Disconnect the accelerator pedal position sensor wiring harness connector C07. C. Disconnect the ECM wiring harness connector C21. D. Measure resistance between terminal 4 of accelerator pedal position sensor wiring harness connector C07 and terminal 45 of ECM wiring harness connector C21. Inspect for open circuit. </p> <p data-bbox="805 593 1252 627">Standard resistance: Less than 5 Ω</p> <p data-bbox="774 638 1380 728"> E. Measure resistance between terminal 4 of accelerator pedal position sensor wiring harness connector C07 and reliable ground. </p> <p data-bbox="805 739 1268 772">Standard resistance: 10 MΩ or more</p> <p data-bbox="774 784 1412 918"> F. Measure voltage between terminal 4 of accelerator pedal position sensor wiring harness connector C07 and reliable ground. Inspect for short to power supply. </p> <p data-bbox="805 929 1077 963">Standard voltage: 0 V</p> <p data-bbox="805 974 949 1008">Is it normal?</p> <p data-bbox="805 1019 853 1052">Yes</p> <p data-bbox="805 1064 957 1097">Go to step 6.</p> <p data-bbox="805 1108 845 1142">No</p> <p data-bbox="805 1153 1412 1276"> Inspect and repair faulty circuit between terminal 4 of accelerator pedal position sensor wiring harness connector C07 and terminal 45 of ECM wiring harness connector C21. </p>

Test Conditions	Details/Results/Actions
<p>6. Inspect ECM power supply circuit</p>  <p>B3113051</p>	<p>A. Turn the ignition switch to "LOCK".</p> <p>B. Disconnect the ECM wiring harness connector C21.</p> <p>C. Turn ignition switch to "ON", and measure voltage between terminals 15, 16, 20 and 35 of ECM wiring harness connector C21 and reliable ground with a multimeter.</p> <p>Standard voltage: 11 ~ 14 V</p> <p>Is voltage normal?</p> <p>Yes</p> <p>Go to step 7.</p> <p>No</p> <p>Inspect and repair the ECM power supply circuit.</p>
<p>7. Inspect ECM ground circuit</p>  <p>B3113052</p>	<p>A. Turn the ignition switch to "LOCK".</p> <p>B. Disconnect the negative battery cable.</p> <p>C. Disconnect the ECM wiring harness connectors C21 and E15.</p> <p>D. Measure resistance between terminals 63, 64 of ECM wiring harness connector C21 and reliable ground, and between terminals 111, 112 of ECM wiring harness connector E15 and reliable ground with a multimeter.</p> <p>Standard resistance: Less than 5 Ω</p> <p>Is resistance normal?</p> <p>Yes</p> <p>Replace the engine control module.</p> <p>Refer to: Engine Control Module (3.1.13 Electronic Control System, Removal and Installation).</p> <p>No</p> <p>Inspect and repair the ECM ground circuit.</p>

DTC P212716, P212817

1. DTC Description

DTC	Description	Definition
P212716	Throttle/Pedal Position Sensor/ Switch "E" Circuit Low	Electronic accelerator pedal sensor circuit consists of followings: <ul style="list-style-type: none"> • Reference voltage: ECM provides reference voltage to terminal 2 of electronic accelerator pedal position sensor wiring harness connector C07 via terminal 36 of wiring harness connector C21. • Signal circuit: ECM receives signal voltage from terminal 1 of electronic accelerator pedal position sensor wiring harness connector C07 via terminal 30 of wiring harness connector C21. • ECM low reference voltage circuit: ECM sets the terminal 6 of electronic accelerator pedal position sensor wiring harness connector C07 to low potential via terminal 59 of wiring harness connector C21.
P212817	Throttle/Pedal Position Sensor/ Switch "E" Circuit High	

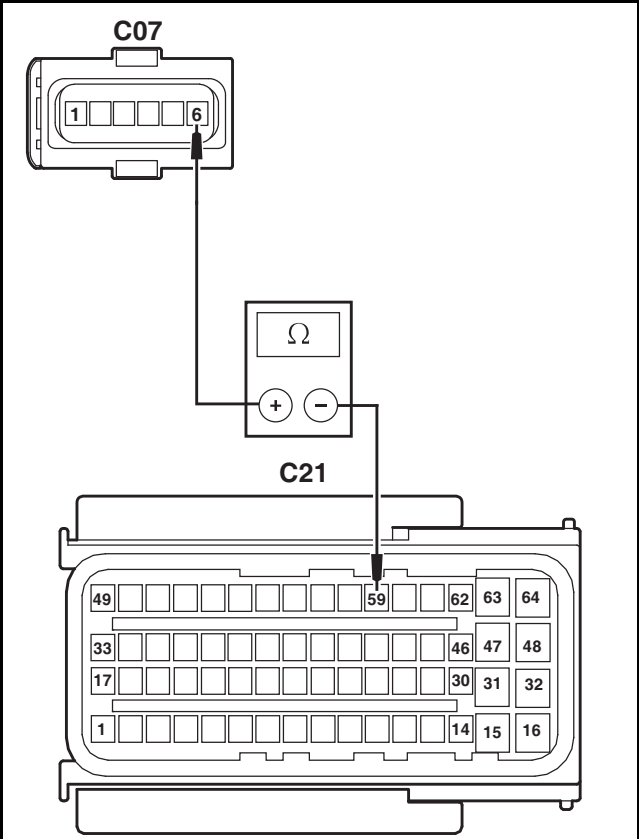
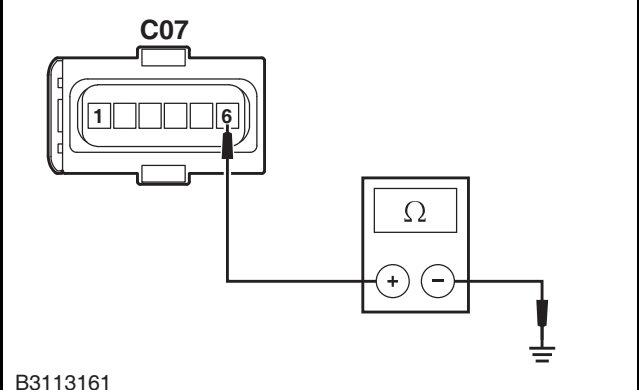
2. Possible Causes

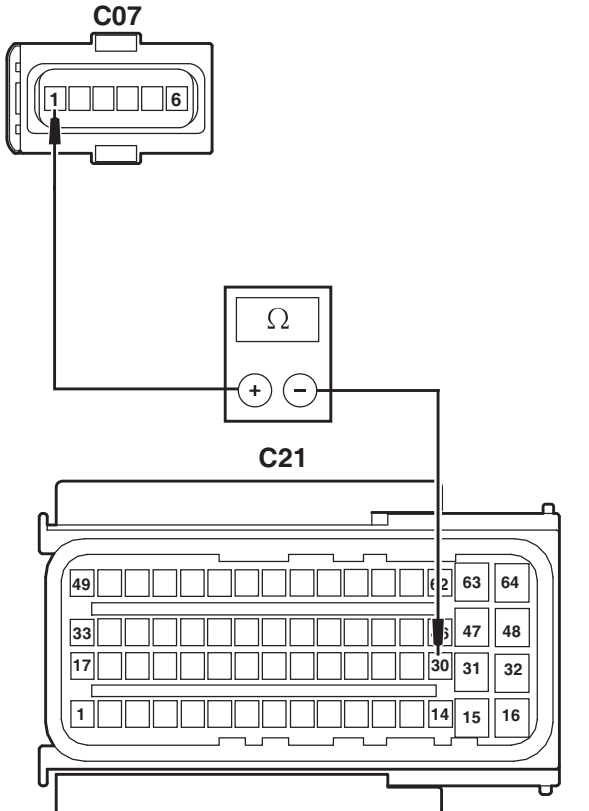
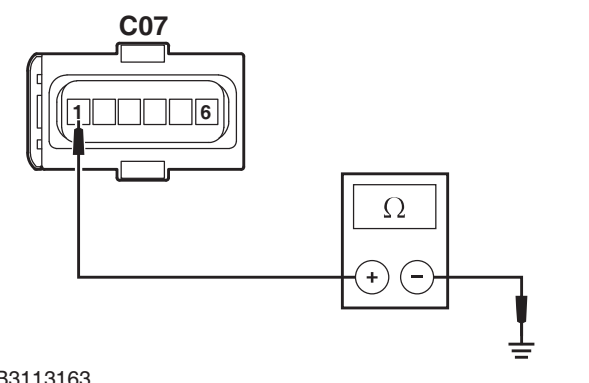
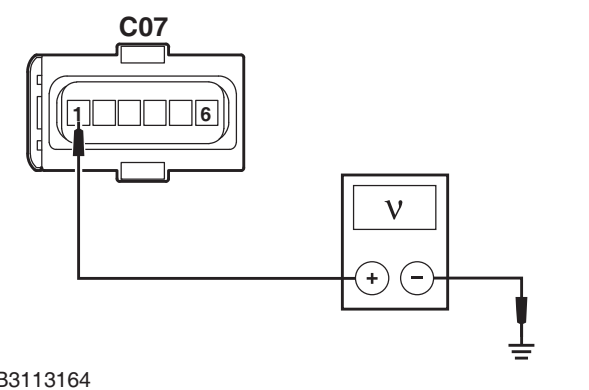
DTC	Monitor Strategy	Setting Condition (Control Strategy)	Faulty Area
P212716	Hardware circuit inspection	<ul style="list-style-type: none"> • Circuit is short • Circuit is open 	<ul style="list-style-type: none"> • Accelerator pedal position sensor • Wiring harness • ECM
P212817			

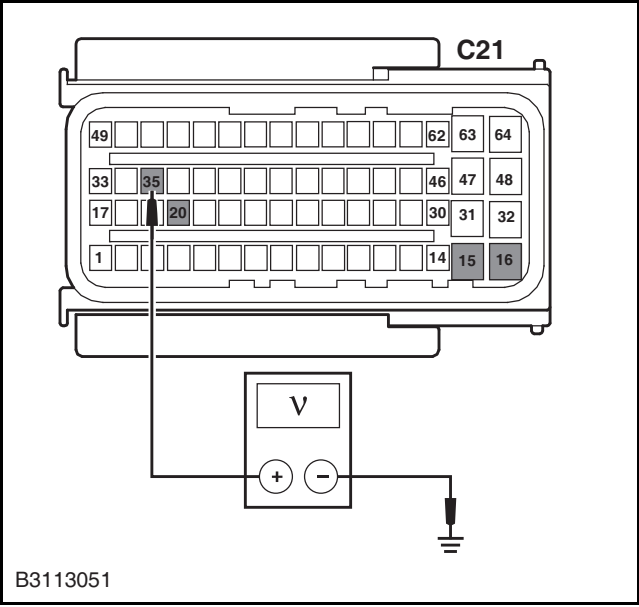
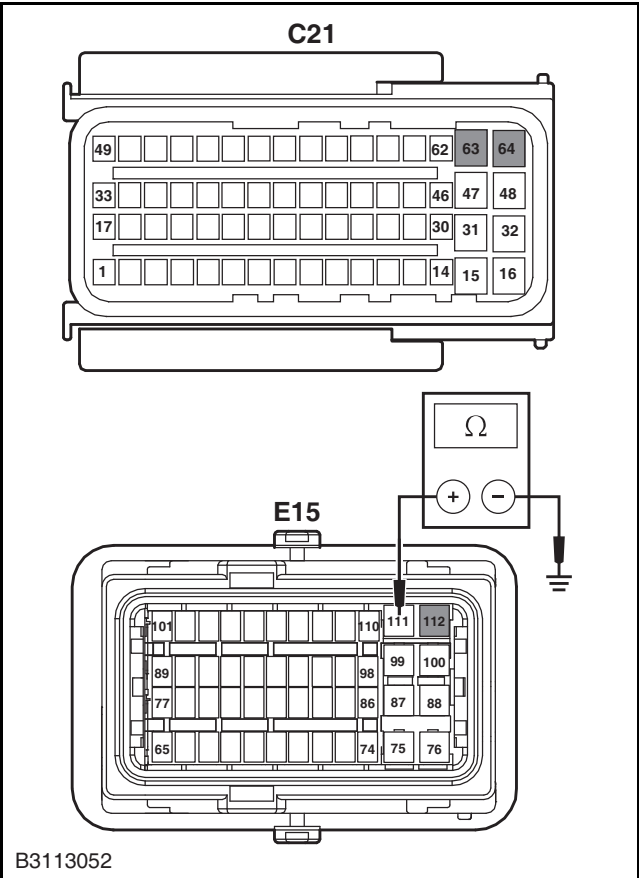
3. Diagnosis Procedure

Test Conditions	Details/Results/Actions
1. General inspection	A. Inspect accelerator pedal position sensor wiring harness connector C07 for looseness or poor contact, etc. Is it normal? Yes Go to step 2. No Repair the faulty area.

Test Conditions	Details/Results/Actions
2. Inspect accelerator pedal position sensor	<p>A. Remove the accelerator pedal position sensor.</p> <p>B. Install the accelerator pedal position sensor to a vehicle with good condition.</p> <p>C. Connect diagnostic tool and turn ignition switch to "ON", then read the DTC.</p> <p>Does DTC occur?</p> <p>Yes</p> <p>Replace the accelerator pedal position sensor.</p> <p>No</p> <p>Go to step 3.</p>
<p>3. Inspect accelerator pedal position sensor power supply circuit</p> <div data-bbox="177 779 818 1193" data-label="Diagram"> </div>	<p>A. Turn the ignition switch to "LOCK".</p> <p>B. Disconnect the accelerator pedal position sensor wiring harness connector C07.</p> <p>C. Turn the ignition switch to "ON".</p> <p>D. Measure voltage between terminal 2 of accelerator pedal position sensor wiring harness connector C07 and reliable ground.</p> <p>Standard voltage: 4.5 ~ 5.5 V</p> <p>Is voltage normal?</p> <p>Yes</p> <p>Go to step 4.</p> <p>No</p> <p>Inspect and repair faulty circuit between terminal 2 of accelerator pedal position sensor wiring harness connector C07 and terminal 36 of ECM wiring harness connector C21.</p>

Test Conditions	Details/Results/Actions
4. Inspect accelerator pedal position sensor ground circuit	
 <p>B3113160</p>	<p>A. Turn the ignition switch to "LOCK".</p> <p>B. Disconnect the accelerator pedal position sensor wiring harness connector C07.</p> <p>C. Disconnect the ECM wiring harness connector C21.</p> <p>D. Measure resistance between terminal 6 of accelerator pedal position sensor wiring harness connector C07 and terminal 59 of ECM wiring harness connector C21.</p> <p>Standard resistance: Less than 5 Ω</p> <p>E. Measure resistance between terminal 6 of accelerator pedal position sensor wiring harness connector C07 and reliable ground.</p> <p>Standard resistance: 10 MΩ or more</p> <p>Is it normal?</p> <p>Yes</p> <p>Go to step 5.</p> <p>No</p> <p>Inspect and repair faulty circuit between terminal 6 of accelerator pedal position sensor wiring harness connector C07 and terminal 59 of ECM wiring harness connector C21.</p>
 <p>B3113161</p>	

Test Conditions	Details/Results/Actions
<p data-bbox="172 241 850 275">5. Inspect accelerator pedal position sensor signal circuit</p> <div data-bbox="172 309 815 1144">  <p data-bbox="188 1151 292 1173">B3113162</p> </div> <div data-bbox="172 1193 815 1608">  <p data-bbox="188 1574 292 1597">B3113163</p> </div> <div data-bbox="172 1624 815 2040">  <p data-bbox="188 2007 292 2029">B3113164</p> </div>	<p data-bbox="847 297 1485 918"> A. Turn the ignition switch to "LOCK". B. Disconnect the accelerator pedal position sensor wiring harness connector C07. C. Disconnect the ECM wiring harness connector C21. D. Measure resistance between terminal 1 of accelerator pedal position sensor wiring harness connector C07 and terminal 30 of ECM wiring harness connector C21. Inspect for open circuit. Standard resistance: Less than 5 Ω E. Measure resistance between terminal 1 of accelerator pedal position sensor wiring harness connector C07 and reliable ground. Standard resistance: 10 MΩ or more F. Measure voltage between terminal 1 of accelerator pedal position sensor wiring harness connector C07 and reliable ground. Inspect for short to power supply. </p> <p data-bbox="874 927 1150 960">Standard voltage: 0 V</p> <p data-bbox="874 974 1023 1003">Is it normal?</p> <p data-bbox="874 1016 927 1046">Yes</p> <p data-bbox="874 1059 1031 1088">Go to step 6.</p> <p data-bbox="874 1102 916 1131">No</p> <p data-bbox="874 1144 1485 1272">Inspect and repair faulty circuit between terminal 1 of accelerator pedal position sensor wiring harness connector C07 and terminal 30 of ECM wiring harness connector C21.</p>

Test Conditions	Details/Results/Actions
<p>6. Inspect ECM power supply circuit</p>  <p>B3113051</p>	<p>A. Turn the ignition switch to "LOCK".</p> <p>B. Disconnect the ECM wiring harness connector C21.</p> <p>C. Turn ignition switch to "ON", and measure voltage between terminals 15, 16, 20 and 35 of ECM wiring harness connector C21 and reliable ground with a multimeter.</p> <p>Standard voltage: 11 ~ 14 V</p> <p>Is voltage normal?</p> <p>Yes</p> <p>Go to step 7.</p> <p>No</p> <p>Inspect and repair the ECM power supply circuit.</p>
<p>7. Inspect ECM ground circuit</p>  <p>B3113052</p>	<p>A. Turn the ignition switch to "LOCK".</p> <p>B. Disconnect the negative battery cable.</p> <p>C. Disconnect the ECM wiring harness connectors C21 and E15.</p> <p>D. Measure resistance between terminals 63, 64 of ECM wiring harness connector C21 and reliable ground, and between terminals 111, 112 of ECM wiring harness connector E15 and reliable ground with a multimeter.</p> <p>Standard resistance: Less than 5 Ω</p> <p>Is resistance normal?</p> <p>Yes</p> <p>Replace the engine control module.</p> <p>Refer to: Engine Control Module (3.1.13 Electronic Control System, Removal and Installation).</p> <p>No</p> <p>Inspect and repair the ECM ground circuit.</p>