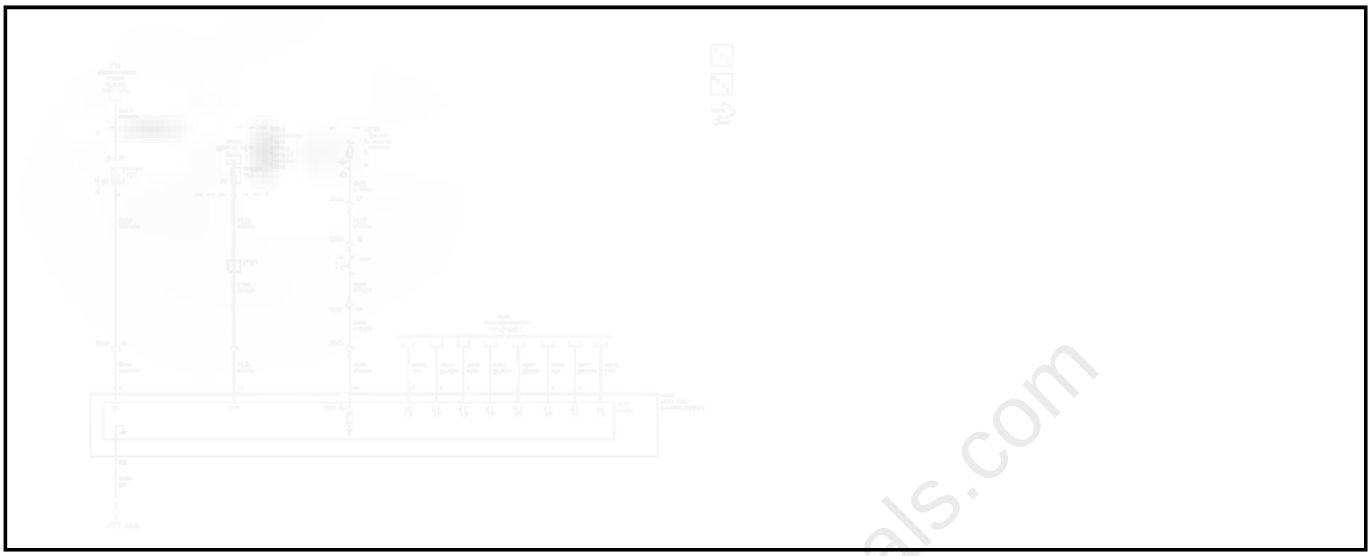
SCHEMATIC WIRING DIAGRAMS

ELECTRONIC TRANSMISSION RANGE SELECTOR WIRING SCHEMATICS

Electronic Shift Controls



DIAGNOSTIC INFORMATION AND PROCEDURES

DTC B2B9B

Diagnostic Instructions

- Perform the **Diagnostic System Check - Vehicle** prior to using this diagnostic procedure.
- Review **Strategy Based Diagnosis** for an overview of the diagnostic approach.
- **Diagnostic Procedure Instructions** provides an overview of each diagnostic category.

DTC Descriptor

DTC B2B9B

Gear Shift Control Module Internal Electrical Failure

Circuit/System Description

The internal fault detection is handled inside the device. No external circuit diagnosis is involved.

Conditions for Running the DTC

- Ignition ON
- System voltage 9 - 16V

Conditions for Setting the DTC

The device has detected an internal malfunction.

Action Taken When the DTC Sets

The device refuses all additional inputs.

Conditions for Clearing the DTC

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- A current DTC clears when the malfunction is no longer present.
- A history DTC clears when the device ignition cycle counter reaches the reset threshold of 50, without a repeat of the malfunction.

Diagnostic Aids

- This DTC may be stored as a history DTC without affecting the operation of the device.
- If stored only as a history DTC and not retrieved as a current DTC, do not replace the device.
- If this DTC is retrieved as both a current and history DTC, replace the device that set the DTC.

Reference Information

Schematic Reference

Electronic Transmission Range Selector Wiring Schematics

Connector End View Reference

Master Electrical Component List , or **Component Connector End Views - Index**

Description and Operation

Electronic Transmission Range Selector Description

Electrical Information Reference

- **Circuit Testing**
- **Connector Repairs**
- **Testing for Intermittent Conditions and Poor Connections**
- **Wiring Repairs**

Scan Tool Reference

Control Module References for scan tool information

Circuit/System Verification

1. Verify there are no communication DTCs set.
    - **If there are communication DTCs set**

      Refer to **Diagnostic Trouble Code (DTC) List - Vehicle**

    - **Go to next step: If there are no communication DTCs set**
2. Check for updated software in K212 Gear Shift Control Module.
    - **If software is not current**

      Perform the programming for the K212 Gear Shift Control Module.

    - **Go to next step: If software is up to date**
3. Replace the K212 Gear Shift Control Module.

Repair Instructions

- Perform the **Diagnostic Repair Verification** after completing the repair.
- **Control Module References** for device replacement, programming and setup

DTC P073D, P073E, P07E4, P07E5, P1787, OR P1789

Diagnostic Instructions

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- Perform the **Diagnostic System Check - Vehicle** prior to using this diagnostic procedure.
- Review **Strategy Based Diagnosis** for an overview of the diagnostic approach.
- **Diagnostic Procedure Instructions** provides an overview of each diagnostic category.

DTC Descriptor

DTC P073D

Unable to Engage Neutral

DTC P073E

Unable to Engage Reverse

DTC P07E4

Unable to Engage Park

DTC P07E5

Unable to Engage Drive

DTC P1787

Unexpected Range Change Detected

DTC P1789

Current Transmission Range Unknown

Circuit/System Description

The internal fault detection is handled inside the device. No external circuit diagnosis is involved.

Conditions for Running the DTC

The device runs the program to detect an internal fault when power up is commanded. The only requirements are voltage and ground. This program runs even if the voltage is out of the valid operating range.

Conditions for Setting the DTC

The device has detected an internal malfunction.

Action Taken When the DTC Sets

The device refuses all additional inputs.

Conditions for Clearing the DTC

- A current DTC clears when the malfunction is no longer present.
- A history DTC clears when the device ignition cycle counter reaches the reset threshold of 50, without a repeat of the malfunction.

Diagnostic Aids

- This DTC may be stored as a history DTC without affecting the operation of the device.
- If stored only as a history DTC and not retrieved as a current DTC, do not replace the device.
- If this DTC is retrieved as both a current and history DTC, replace the device that set the DTC.

Reference Information

Schematic Reference

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Electronic Transmission Range Selector Wiring Schematics

Connector End View Reference

Master Electrical Component List , or **Component Connector End Views - Index**

Description and Operation

Electronic Transmission Range Selector Description

Electrical Information Reference

- **Circuit Testing**
- **Connector Repairs**
- **Testing for Intermittent Conditions and Poor Connections**
- **Wiring Repairs**

Scan Tool Reference

Control Module References for scan tool information

Circuit/System Verification

1. Verify all other Transmission related faults are not present.
    - **If Transmission related faults are present**

      Refer to **Diagnostic Trouble Code (DTC) List - Vehicle**

    - **Go to next step: If Transmission related faults are not present**
2. Check for updated software in K71 Transmission Control Module.
    - **If software is not current**

      Perform the programming and learn procedure for the K71 Transmission Control Module.

    - **Go to next step: If software is up to date**
3. Check for updated software in K20 Engine Control Module.
    - **If software is not current**

      Perform the programming for the K20 Engine Control Module.

    - **Go to next step: If software is up to date**
4. Replace the K71 Transmission Control Module
5. Verify above mentioned DTC's are not set.
    - **If above mentioned DTC's are set**

      Replace the K20 Engine Control Module

    - **Go to next step: If above mentioned DTC's are not set**
6. All OK.

Repair Instructions

- Perform the **Diagnostic Repair Verification** after completing the repair.
- **Control Module References** for device replacement, programming and setup

DTC P07B3-P07B5, P07B9-P07BB, P07BE, P082A-P082F, P089B-P089D, P08A0-P08A2, P15FE, P17A3-P17A9, P17D8-P17DC, P17F3, P17F4, P187F, P188A, P189D, OR P18EC

Diagnostic Instructions

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- Perform the **Diagnostic System Check - Vehicle** prior to using this diagnostic procedure.
- Review **Strategy Based Diagnosis** for an overview of the diagnostic approach.
- **Diagnostic Procedure Instructions** provides an overview of each diagnostic category.

DTC Descriptor

DTC P07B3

Transmission Park Position Switch 1 Circuit Low Voltage

DTC P07B4

Transmission Park Position Switch 1 Circuit High Voltage

DTC P07B5

Transmission Park Position Switch 1 Performance

DTC P07B9

Transmission Park Position Switch 2 Circuit Low Voltage

DTC P07BA

Transmission Park Position Switch 2 Circuit High Voltage

DTC P07BB

Transmission Park Position Switch 2 Performance

DTC P07BE

Transmission Park Position Switch and Switch 2 Correlation

DTC P082A

Transmission Range Selector X Position Sensor 1 Circuit Performance

DTC P082B

Transmission Range Selector X Position Sensor 1 Circuit Low Duty Cycle

DTC P082C

Transmission Range Selector X Position Sensor 1 Circuit High Duty Cycle

DTC P082D

Transmission Range Selector Y Position Sensor 1 Circuit Performance

DTC P082E

Transmission Range Selector Y Position Sensor 1 Circuit Low Duty Cycle

DTC P082F

Transmission Range Selector Y Position Sensor 1 Circuit High Duty Cycle

DTC P089B

Transmission Range Selector X Position Sensor 2 Circuit Performance

DTC P089C

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Transmission Range Selector X Position Sensor 2 Circuit Low Duty Cycle

DTC P089D

Transmission Range Selector X Position Sensor 2 Circuit High Duty Cycle

DTC P08A0

Transmission Range Selector Y Position Sensor 2 Circuit Performance

DTC P08A1

Transmission Range Selector Y Position Sensor 2 Circuit Low Duty Cycle

DTC P08A2

Transmission Range Selector Y Position Sensor 2 Circuit High Duty Cycle

DTC P15FE

Secondary Transmission Range Selector Position Message Sequence Number Incorrect

DTC P17A3

Transmission Shift Interlock Switch 1 Circuit Low Voltage

DTC P17A4

Transmission Shift Interlock Switch 1 Circuit High Voltage

DTC P17A5

Transmission Shift Interlock Switch 1 Circuit Performance

DTC P17A6

Transmission Shift Interlock Switch 1-2 Not Plausible

DTC P17A7

Transmission Shift Interlock Switch 2 Circuit Low Voltage

DTC P17A8

Transmission Shift Interlock Switch 2 Circuit High Voltage

DTC P17A9

Transmission Shift Interlock Switch 2 Circuit Performance

DTC P17D8

Transmission Range Selector Controls Memory Checksum Error

DTC P17D9

Transmission Range Selector Controls Long Term Memory Reset

DTC P17DA

Transmission Range Selector Controls Random Access Memory Performance

DTC P17DB

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Transmission Range Selector Controls Processor Performance

DTC P17DC

Transmission Range Selector Controls Long Term Memory Performance

DTC P17F3

Transmission Park Position Switch 1 or 2 Stuck On

DTC P17F4

Transmission Shift Interlock Switch Circuit 1 or 2 Stuck On

DTC P187F

Transmission Range Primary Input Signal Message Counter Incorrect

DTC P188A

Transmission Range Secondary Input Signal Message Counter Incorrect

DTC P189D

Transmission Park Position Switch 1 or 2 Stuck Off

DTC P18EC

Transmission Range Selector Controls Long Term Memory Reset

Circuit/System Description

The internal fault detection is handled inside the device. No external circuit diagnosis is involved.

Conditions for Running the DTC

The device runs the program to detect an internal fault when power up is commanded. The only requirements are voltage and ground. This program runs even if the voltage is out of the valid operating range.

Conditions for Setting the DTC

The device has detected an internal malfunction.

Action Taken When the DTC Sets

The device refuses all additional inputs.

Conditions for Clearing the DTC

- A current DTC clears when the malfunction is no longer present.
- A history DTC clears when the device ignition cycle counter reaches the reset threshold of 50, without a repeat of the malfunction.

Diagnostic Aids

- This DTC may be stored as a history DTC without affecting the operation of the device.
- If stored only as a history DTC and not retrieved as a current DTC, do not replace the device.
- DTCs can be caused by connector not fully seated at K212 Gear Shift Control Module

Reference Information

Schematic Reference

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Electronic Transmission Range Selector Wiring Schematics

Connector End View Reference

Master Electrical Component List , or **Component Connector End Views - Index**

Description and Operation

Electronic Transmission Range Selector Description

Electrical Information Reference

- **Circuit Testing**
- **Connector Repairs**
- **Testing for Intermittent Conditions and Poor Connections**
- **Wiring Repairs**

Scan Tool Reference

Control Module References for scan tool information

Circuit/System Verification

1. Verify all other Transmission related faults are not present.
    - **If Transmission related faults are present**

      Refer to **Diagnostic Trouble Code (DTC) List - Vehicle**

    - **Go to next step: If Transmission related faults are not present**
2. Verify the K20 Engine Control Module software is up to date.
    - **If software is not up to date**

      Program the K20 Engine Control Module.

    - **Go to next step: If software is up to date**
3. Verify none of the DTCs set.
    - **If DTCs set**

      Replace the K212 Gear Shift Control Module

    - **Go to next step: If DTCs are not set**
4. Verify none of the DTCs set while operating the vehicle within the Conditions for Running the DTC.
    - **If DTCs set**

      Replace the K20 Engine Control Module

    - **Go to next step: If DTCs do not set**
5. All OK.

Repair Instructions

- Perform the **Diagnostic Repair Verification** after completing the repair.
- **Control Module References** for device replacement, programming and setup

DTC P16F4

Diagnostic Instructions

- Perform the **Diagnostic System Check - Vehicle** prior to using this diagnostic procedure.
- Review **Strategy Based Diagnosis** for an overview of the diagnostic approach.

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- **Diagnostic Procedure Instructions** provides an overview of each diagnostic category.

DTC Descriptor

DTC P16F4

Control Module Transmission Range Switch Input Circuitry Performance

Circuit/System Description

The internal fault detection is handled inside the device. No external circuit diagnosis is involved.

Conditions for Running the DTC

The device runs the program to detect an internal fault when power up is commanded. The only requirements are voltage and ground. This program runs even if the voltage is out of the valid operating range.

Conditions for Setting the DTC

The device has detected an internal malfunction.

Action Taken When the DTC Sets

The device refuses all additional inputs.

Conditions for Clearing the DTC

- A current DTC clears when the malfunction is no longer present.
- A history DTC clears when the device ignition cycle counter reaches the reset threshold of 50, without a repeat of the malfunction.

Diagnostic Aids

- This DTC may be stored as a history DTC without affecting the operation of the device.
- If stored only as a history DTC and not retrieved as a current DTC, do not replace the device.
- If this DTC is retrieved as both a current and history DTC, replace the device that set the DTC.

Reference Information

Schematic Reference

Electronic Transmission Range Selector Wiring Schematics

Connector End View Reference

Master Electrical Component List , or **Component Connector End Views - Index**

Description and Operation

Electronic Transmission Range Selector Description

Electrical Information Reference

- **Circuit Testing**
- **Connector Repairs**
- **Testing for Intermittent Conditions and Poor Connections**
- **Wiring Repairs**

Scan Tool Reference

Control Module References for scan tool information

Circuit/System Verification

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1. Verify there are no communication DTCs set.
    - **If there are communication DTCs set**

      Refer to **Diagnostic Trouble Code (DTC) List - Vehicle**

    - **Go to next step: If there are no communication DTCs set**
2. Check for updated software in K20 Engine Control Module.
    - **If software is not current**

      Perform the programming for the K20 Engine Control Module.

    - **Go to next step: If software is up to date**
3. Replace the K20 Engine Control Module

Repair Instructions

- Perform the **Diagnostic Repair Verification** after completing the repair.
- **Control Module References** for device replacement, programming and setup

DTC P17E0 OR P17E1

Diagnostic Instructions

- Perform the **Diagnostic System Check - Vehicle** prior to using this diagnostic procedure.
- Review **Strategy Based Diagnosis** for an overview of the diagnostic approach.
- **Diagnostic Procedure Instructions** provides an overview of each diagnostic category.

DTC Descriptors

DTC P17E0

Transmission Range Selector Controls Ignition On/Start Switch Circuit Low Voltage

DTC P17E1

Transmission Range Selector Controls Ignition On/Start Switch Circuit High Voltage

For symptom byte information refer to **Symptom Byte List** .

Diagnostic Fault Information

Circuit Number	Circuit Function	Short to Ground	Open/High Resistance	Short to Voltage	Signal Performance
5440	B+	-	-	-	-
2139	Ignition	P17E0, P17E1	P17E0, P17E1	P17E0, P17E1	-
1450	Ground	-	P17E0, P17E1	-	-

Circuit/System Description

The vehicle control modules or sensors monitor the system voltage to verify the system voltage is within the normal operating range.

Conditions for Running the DTC

The ignition is ON.

Conditions for Setting the DTC

The control module or sensor detects a system voltage below or above a threshold.

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Action Taken When the DTC Sets

- A driver information center message and/or warning indicator may be displayed.
- The control module may be temporarily disabled.

Conditions for Clearing the DTC

The system voltage returns to normal operating range.

Diagnostic Aids

- A high or low voltage DTC set or voltage value in multiple modules/sensors indicates a concern in the charging system.
- A possible cause of this DTC could be overcharging with a battery charger or jump starting.

Reference Information

Schematic Reference

Electronic Transmission Range Selector Wiring Schematics

Connector End View Reference

Master Electrical Component List , or **Component Connector End Views - Index**

Description and Operation

Electronic Transmission Range Selector Description

Electrical Information Reference

- **Circuit Testing**
- **Connector Repairs**
- **Testing for Intermittent Conditions and Poor Connections**
- **Wiring Repairs**

Scan Tool Reference

Control Module References for scan tool information

Circuit/System Verification

1. Ignition OFF, measure and record the battery voltage at the battery terminals.
2. Verify the battery voltage stabilizes between 12.4 and 12.8 V within a few minutes of turning the ignition OFF.
    - **If battery voltage is less than 12.4 V or more than 12.8 V**

      Refer to **Battery Inspection/Test** .

    - **Go to next step: If battery voltage is between 12.4 and 12.8 V**
3. Engine running, headlights ON, measure and record the battery voltage at the battery terminals.
4. Verify the voltage is at least 1 V greater than the voltage measured in step 1, but less than 15 V.
    - **If the voltage is not at least 1 V greater than the voltage measured in step 1 or is greater than 15 V.**

      Refer to **Charging System Test** .

    - **Go to next step: If the voltage is at least 1 V greater than the voltage measured in step 1, but less than 15 V.**
5. Verify the appropriate control module battery voltage and ignition voltage parameters are available in the scan tool.

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- **If parameters are not available in the scan tool**

  Refer to Circuit/System Testing

- **Go to next step: If parameters are available in the scan tool**

6. Verify the appropriate control module scan tool battery voltage and ignition voltage parameters are within 1 V of the battery voltage.
   - **If not within 1 V of the battery voltage**

     Refer to Circuit/System Testing

   - **Go to next step: If within 1 V of the battery voltage**
7. A fault is not currently present and may be an intermittent condition.

Circuit/System Testing

NOTE: **Some control module ground circuits may require up to 20 min after the ignition is turned off before achieving a resistance reading of less than 5 Ω. In most cases the readings will drop below 20 Ω within 1 min indicating the control module is going to sleep.**

1. Ignition OFF and all vehicle systems OFF, disconnect the harness connectors at the K212 Gear Shift Control Module. It may take up to 2 min for all vehicle systems to power down.
2. Verify a test lamp illuminates between ground circuit terminal 20 and B+.
   - **If the test lamp does not illuminate**

     Repair the open/high resistance on circuit 1450 or the ground connection.

   - **Go to next step: If the test lamp illuminates**
3. Verify a test lamp illuminates between B+ circuit terminal 9 and ground.
   - **If the test lamp does not illuminate and the circuit fuse is good**
   1. Test circuit 5440 for an open/high resistance.
      - If an open/high resistance is found, repair the fault on the circuit.
      - Go to next step: If an open/high resistance is not found.
   2. Replace the X51A Fuse Block - Instrument Panel for an internal fault.
   - **If the test lamp does not illuminate and the circuit fuse is open**
   1. Test circuit 5440 for a short to ground.
      - If a short to ground is found, repair the fault on the circuit.
      - Go to next step: If a short to ground is not found.
   2. Replace K212 Gear Shift Control Module.
   - **Go to next step: If the test lamp illuminates**
4. Ignition ON.
5. Verify a test lamp illuminates between ignition circuit terminal 17 and ground.
   - **If the test lamp does not illuminate and the circuit fuse is good**
   1. Test circuit 2139 for an open/high resistance.
      - If an open/high resistance is found, repair the fault on the circuit.
      - Go to next step: If an open/high resistance is not found.
   2. Replace the X51A Fuse Block - Instrument Panel for an internal fault.
   - **If the test lamp does not illuminate and the circuit fuse is open**
   1. Test circuit 2139 for a short to ground.
      - If a short to ground is found, repair the fault on the circuit.
      - Go to next step: If a short to ground is not found.
   2. Replace K212 Gear Shift Control Module.

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- **Go to next step: If the test lamp illuminates**

6. Replace the K212 Gear Shift Control Module.

Repair Instructions

Perform the **Diagnostic Repair Verification** after completing the repair.

Control Module References for control module replacement, programming and setup.

REPAIR INSTRUCTIONS

CRITICAL FAULT MODE MANEUVERING

Critical Fault Mode Maneuvering

The following procedure should be followed if vehicle is in Critical Fault Mode and needs to be moved:

1. Verify charge of battery. If necessary, charge or jump start battery.
2. Set the parking brake in service mode. Refer to: **Rear Brake Caliper Replacement**
3. Wheel dollies will need to be used in order to move the vehicle.

TRANSMISSION PARK MECHANISM RELEASE

Special Tools

DT-52910 Manual Park Release Tool

Equivalent regional tools: **Special Tools**

Installation Procedure

WARNING: **The transmission will be placed in N (Neutral) when the manual park release is pulled. The vehicle can roll on you or others could be injured. Ensure the vehicle is on level ground, parking brake applied, and wheels blocked prior to installation of the manual park release.**

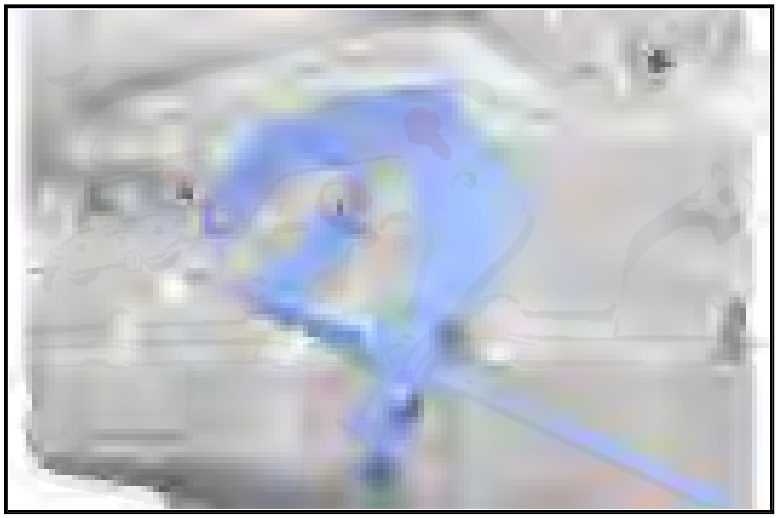
CAUTION: **If the manual park release is pulled while the vehicle is on or if the ignition is turned on while the manual park release is pulled, the DIC will display a message to service the transmission.**

CAUTION: **The latching mechanism in the manual park release lever will release if the vehicle is started and placed in Park. An attempt to override this function or use of an un-approved tool may cause internal damage to the transmission.**

NOTE: **The vehicle transmission is equipped with an internal Electronic Transmission Range Select (ETRS) system that requires hydraulic pressure to disengage the park mechanism. In the case of an ETRS system fault or engine no start condition, the manual park release tool can be installed to temporarily shift the vehicle into N (Neutral) when the engine is not running.**

1. Raise and support the vehicle. **Lifting and Jacking the Vehicle**

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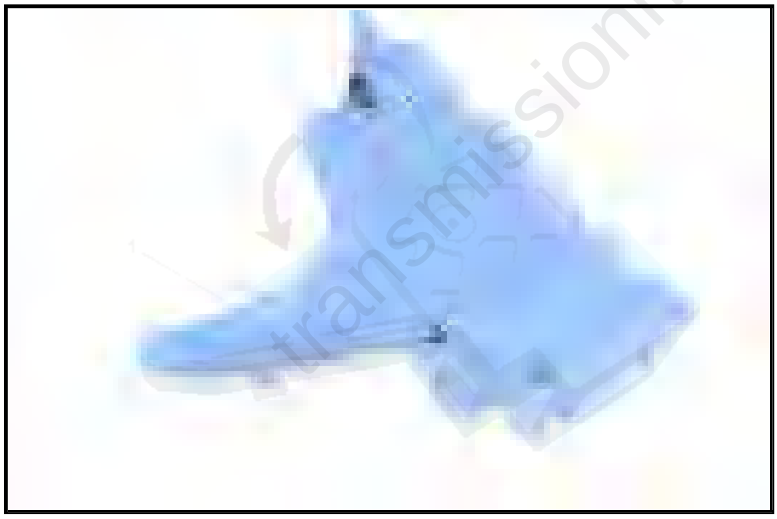
2. 

   Install the **DT-52910** Manual Park Release Tool (1).

3. Install the 2 manual park release tool bolts (2).
4. Install the manual park release tool lock collar (3).
5. Route the manual park release tool control handle under the vehicle and safely secure the handle near the left front lower area of the windshield.

To place the vehicle in N (Neutral) using the manual park release tool

1. Ensure the vehicle is on level ground, parking brake applied and wheels blocked.
2. Turn the vehicle off.
3. Ensure more than one minute has elapsed since the vehicle has been turned off.
4. Apply the brake pedal.

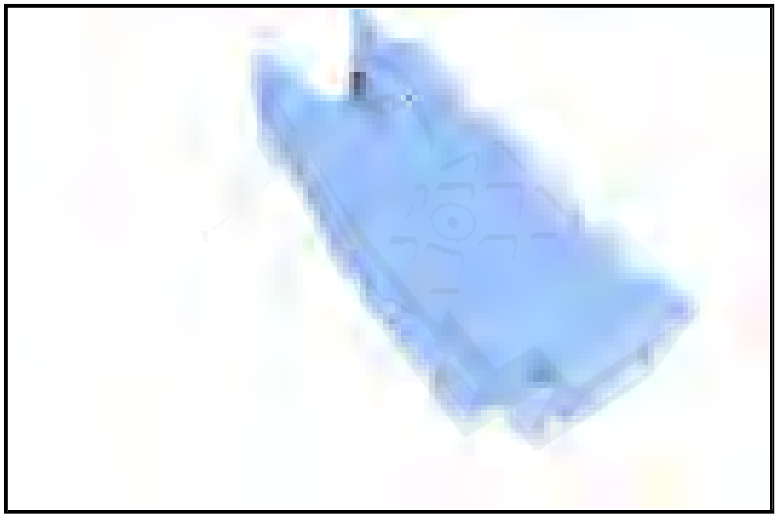
5. 

   Pull the **DT-52910** Manual Park Release Tool (1) 90B° to its latching position.

6. With the brake pedal released, place the ignition in ACC/ACCESSORY. Then apply the brake pedal and release the parking brake.
7. The vehicle may automatically apply the electric parking brake in some situations. To prevent inadvertent park brake apply during vehicle maneuvering, place the park brake in service mode. **Parking Brake Service Mode Selection**

To return the vehicle to P (Park) using the manual park release tool

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1. 

   Apply the parking brake.

2. Rotate the **DT-52910** Manual Park Release Tool (1) 90B° back to its original position.
3. Confirm that the vehicle is in P (Park) by turning the ignition on or by placing the vehicle in ACC/ACCESSORY, then ensure that the indicator displays P.

NEUTRAL SERVICE MODE

Neutral Service Mode

The following procedure allows the vehicle to remain in Neutral:

NOTE: **In cases of an ETRS system fault or a no start condition, refer to: Critical Fault Mode Maneuvering**

Engine Off - Driver in Vehicle

1. Ignition ON - Engine Running.
2. Apply the brake pedal.
3. Shift to Neutral.
4. Release Parking Brake.
5. Turn off the engine and release the brake pedal.
6. The indicator should continue to show N. If it does not, repeat steps 2 - 4.
7. Vehicle is now in Neutral Service Mode.

Engine Off - Driver out of Vehicle

1. Ignition ON - Engine Running.
2. Apply the brake pedal.
3. Open the door.
4. Shift to Neutral.
5. Release Parking Brake.
6. Turn off the engine and release the brake pedal.
7. The indicator should continue to show N. If it does not, repeat steps 2 - 5.
8. Exit the vehicle and close the door. Vehicle is now in Neutral Service Mode.

NOTE: **The vehicle may automatically shift to Park upon re-entry.**

Engine On - Driver in Vehicle

1. Ignition ON - Engine Running.

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2. Apply the brake pedal.
3. Shift to Neutral.
4. Release Parking Brake.
5. Release the brake pedal.
6. Vehicle is now in Neutral Service Mode.

Engine On - Driver out of Vehicle

1. Ignition ON - Engine Running.
2. Apply the brake pedal.
3. Open the door.
4. Shift to Neutral.
5. Release Parking Brake.
6. Release the brake pedal.
7. The indicator should continue to show N. If it does not, repeat steps 2 - 4.
8. Exit the vehicle and close the door.
9. Vehicle is now in Neutral Service Mode.

NOTE: **The vehicle may automatically shift to Park upon re-entry.**

DESCRIPTION AND OPERATION

CRITICAL FAULT MODE DESCRIPTION

Critical Fault Mode

When a fault is detected in the Electronic Transmission Range Selector system and the Requested Gear Position or Actual Gear Position cannot be determined

- Vehicle will remain in current commanded gear position until the vehicle speed is below 9 kph
- In order to lower vehicle speed, the electronic brake control module will engage braking
- When vehicle speed is below 8 kph, the vehicle will engage electronic park brake and backup park lock (also know as Default to Park)
- Electronic park brake will not disengage until the issue is corrected and all related DTC's are History

ELECTRONIC TRANSMISSION RANGE SELECTOR DESCRIPTION

When a gear is selected, the Transmission will shift into the range commanded by the ETRS system. The ETRS system components will communicate on CAN 2, CAN 3, and LIN.

The Backup Park Lock functionality is internal to the Transmission, and forces the transmission into Park position under specified conditions. Under these conditions the vehicle is put in Latent Fault Mode, refer to **Latent Fault Mode Description**.

The K212 Gear Shift Control Module in the ETRS system has no mechanical linkage to the transmission. Instead, the K212 Gear Shift Control Module will provide electrical signals based on customer input to the Engine Control Module, where the customer shift request will be determined.

K212 Gear Shift Control Module Assembly includes:

- Park Button - Single push button. Normally open switch that is closed when the button is pressed. Actuation is one push.
- Reverse - Push lever forward two positions. Normally open switch that is closed when the lever is moved forward.
- Neutral - Push lever forward one position. Normally open switch that is closed when the lever is moved forward.

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- Drive/Manual - Pull lever back one position. Normally open switch that is closed when the lever is pulled.

The vehicle is equipped with the following Electronic Transmission Range Selector Components:

- K212 Gear Shift Control Module
- K20 Engine Control Module
- K71 Transmission Control Module

LATENT FAULT MODE DESCRIPTION

Latent Fault Mode

When a fault is detected in the Electronic Transmission Range Selector system, the data information center will display the message "Service Transmission Now, Unable to Shift Soon" along with a 10 second chime. The driver must acknowledge the message to show other data on the data information center. The frequency that the message and chime occur will increase until a programmed number of trips (50 or 100) are reached with the fault present. At that point, the transmission will not be allowed to shift out of park and the data information center will display the message "Service Transmission, Unable to Shift."

When "Service Shifter See Owner's Manual" message is shown on the data information center, the shift lever is requiring service. If the vehicle is automatically shifting into P (Park), check to see if the park button is stuck by running through the shifter electrical diagnostics. To operate the vehicle, hold the shift lever in the desired gear, R (Reverse) or D (Drive), until vehicle speed exceeds 15 km/h (10 mph), then release the shift lever.

SPECIAL TOOLS AND EQUIPMENT

SPECIAL TOOLS

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Illustration	Tool Number/Description
	**DT-52910** Manual Park Release Tool

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