



Technical Service Information

ALLISON 1000/2000 SERIES

3RD OR 5TH GEAR STARTS

DTC P0705, P0706, P0708

COMPLAINT: Some vehicles equipped with the Allison 1000/2000 series transmission may exhibit a 3rd gear or 5th gear start. In rare cases the vehicle may not take drive but will still have reverse. The customer may report NSBU switch related electrical problems, such as improper or no shift indication on the dash indicator, or no back-up light operation. Diagnostic Trouble Codes (DTC) P0705, P0706 and P0708 may be stored in memory.

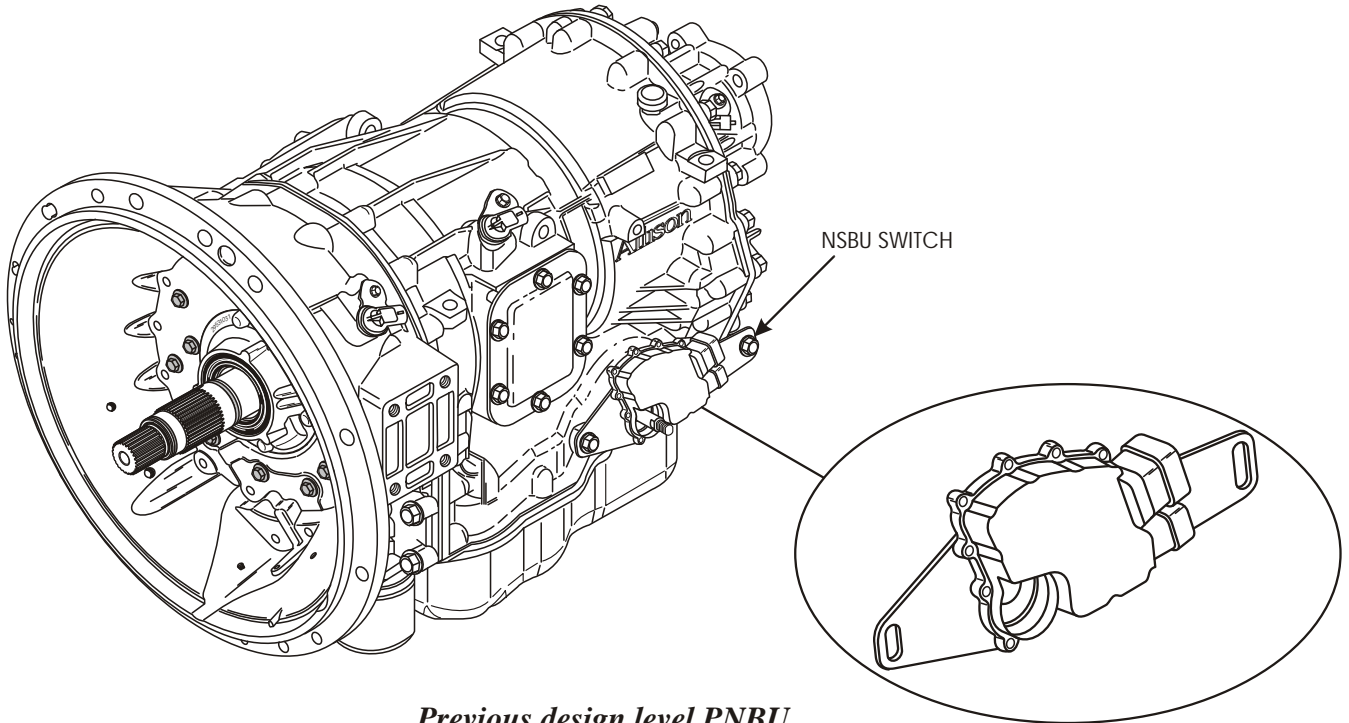
CAUSE: The cause may be, a defective Neutral Start Back-Up (NSBU) switch, created by weather intrusion. The NSBU switch is mounted on the exterior of the transmission and rotated by the manual shaft, as shown in Figure 1.

CORRECTION: There is now available from OEM parts sources, a revised NSBU switch that has improved sealing capabilities to help prevent water intrusion, and is available under OEM part number 29540479. (See Figure 1) Since the original switch is the same part number as the 4L60-E switch, high ambient heat may have caused the sealing compound in the switch to melt and flow into the connectors, sealing the connectors to the switch. There is now available from OEM sources, service repair connectors for both the 7-way and the 4-way connectors under part numbers 15305887 and 15305925 (See Figure 3).

Note: The service connector pigtails use wires that are all the same color. Use the old connector as a pattern to ensure that the new wires are connected to the vehicle harness correctly. This switch is in a wet area, and it is *imperative* that the wires be soldered and heat-shrink tubing be used to insure water-tight connections. Refer to Figure 1 for the location of the Park/Neutral Position Switch. Refer to Figure 2 for a full wiring schematic of the Park/Neutral Position Switch circuit for diagnostic purposes.

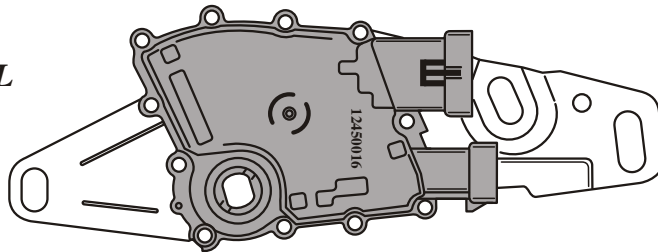
SERVICE INFORMATION:

Park/Neutral Position Switch (All Models, Tan in Color)	29540479
7-Way Repair Connector Assembly (Includes Heat-Shrink Connectors)	15305887
4-Way Repair Connector Assembly (Includes Heat-Shrink Connectors)	15305925



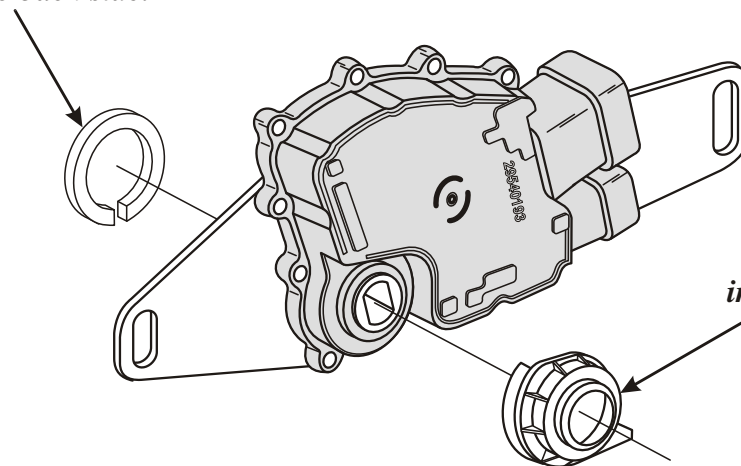
*Previous design level PNB
Switch is "Black" in color.*

**"PREVIOUS"
DESIGN LEVEL**



*New PNB Switch has
seal glued to back side.*

**"NEW"
DESIGN LEVEL**



*New service package
includes cover for front
side of new switch.*

*New design level PNB Switch is "Tan" in color,
and is available under OEM part number 29540479.*

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Figure 1

NEUTRAL START BACK-UP SWITCH

The installation of a transmission mounted Neutral Start/ Reverse Signal switch is required. This switch commonly referred to as an "NSBU Switch", mounts directly onto the transmission case from the outside and detects the angular position of the manual shift selector shaft. This position is relayed to the TCM so that certain vehicle control functions can be coordinated with the position of the shift controls. The NSBU Switch has redundant circuitry to alert the TCM in the event of a single wire or switch failure. The switch is interfaced to the starter circuit, and the reverse signal provision may be used to activate vehicle back-up lights and/or reverse warning devices.

Refer to Figure 2

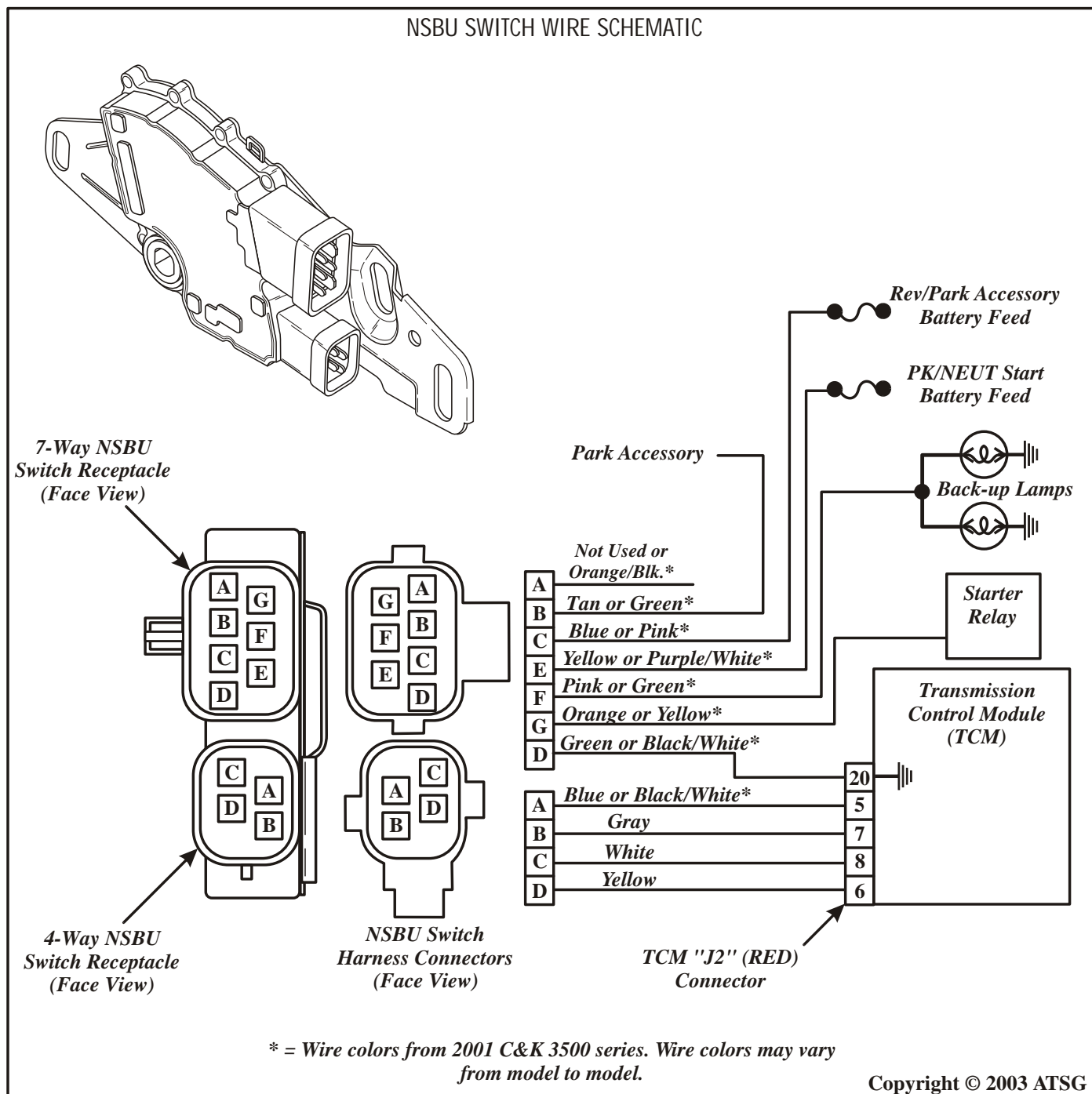
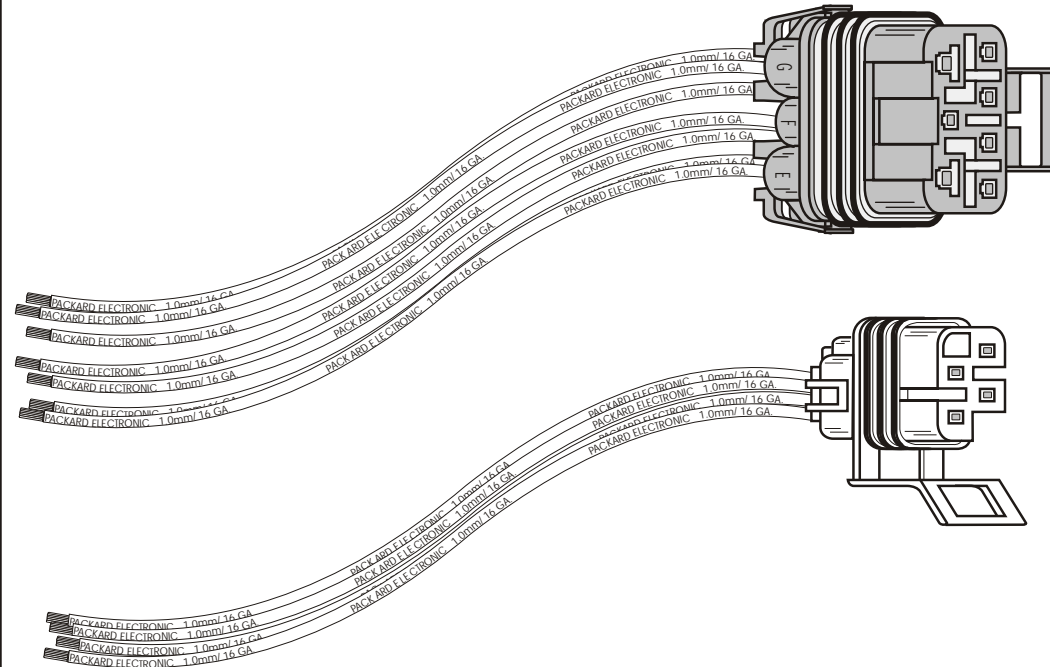


Figure 2

NSBU SWITCH REPAIR CONNECTORS



**PART NUMBER
15305887**

**PART NUMBER
15305925**

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Figure 3