

WATCH

WORLDWIDE ALLISON TRANSMISSION COMMUNICATION HOTLINE



Revisions to this document are noted
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WATCH #543, Rev. B
January 23, 2020
Page 1 of 4

SUBJECT: Release of Allison Transmission 6th Generation Controls

MODELS AFFECTED: 1000 Series™, 2000 Series™, 3000 Series™, and 4000 Series™

Introduction:

Allison Transmission, Inc. is pleased to announce the introduction of Allison 6th Generation Controls starting in October 2021. The Allison 6th Generation Controls will replace the current Allison 5th Generation Controls used on 1000, 2000, 3000, and 4000 Series. The Allison 6th Generation Controls will include new Transmission Control Module (TCM), Push Button Shift Selector (PBSS), Output Speed Sensor hardware and improved software for the TCM.

The Allison 6th Generation Controls include software and hardware upgrades from 5th Generation Controls that enable **Cyber Security** and **Functional Safety** capabilities to support industry trends of advanced connectivity. Vehicles equipped with Allison Transmission world-class transmissions and 6th Generation Controls will provide a foundation for safety and cyber security capabilities that facilitate safer connectivity and protection from outside cyber threats.

This WATCH is organized as follows:

- 6th Generation Controls new features
- Hardware and software updates
- Compatibility and support table
- Transition timing
- Additional information

6th Generation Controls New Features:

- Cyber Secure OEM Integration Ready
 - Improved protection of Allison Transmission TCM Push Button Shift Selector interface
 - Improved protection of Allison Transmission Digital Content
- Functional Safety Capability
 - The new Allison Transmission TCM in combination with the new Allison 6th Generation Controls PBSS was developed in accordance with ISO 26262 Functional Safety standard and contains capabilities to support specific OEM integration objectives. Allison Transmission 6th Generation Controls are designed to meet the standard's most stringent level of vehicle functionally safe operation.

- Enhanced Technology
 - 6th Generation Controls hardware is capable of communicating with CAN-FD networks. CAN-FD offers increased network bandwidth compared to classical CAN.
 - Upgraded software, processors, and increased memory.
 - Enables feature expansion and development of Over-the-Air solutions.

Hardware and Software Updates:

- TCM Hardware External:
 - Same connector and mounting locations as 5th Generation Controls.
 - A 10 mm (0.393 in.) increase in size between mounting and connector (refer to [Figure 1](#)). Increased TCM size for housing additional memory and an improved microprocessor for future capability and feature expansion.

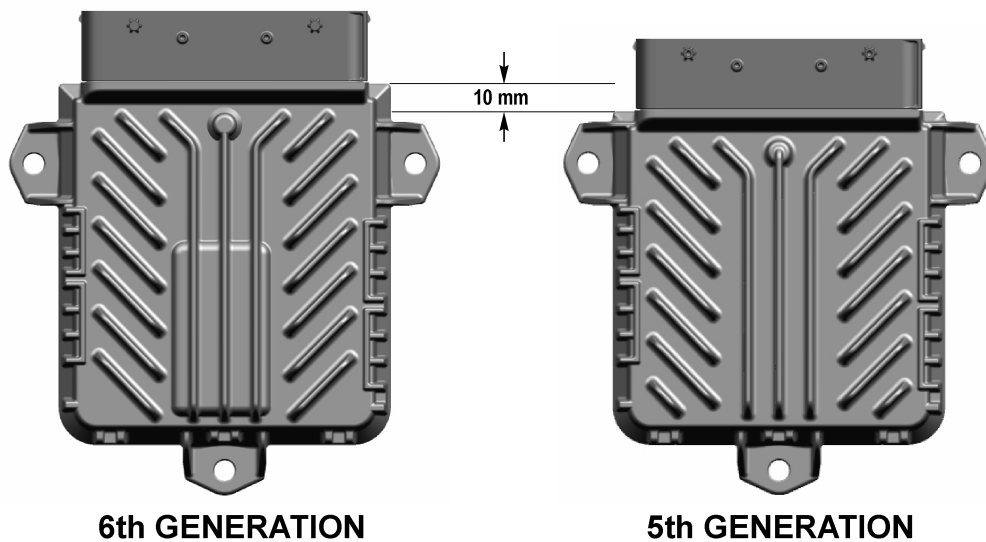
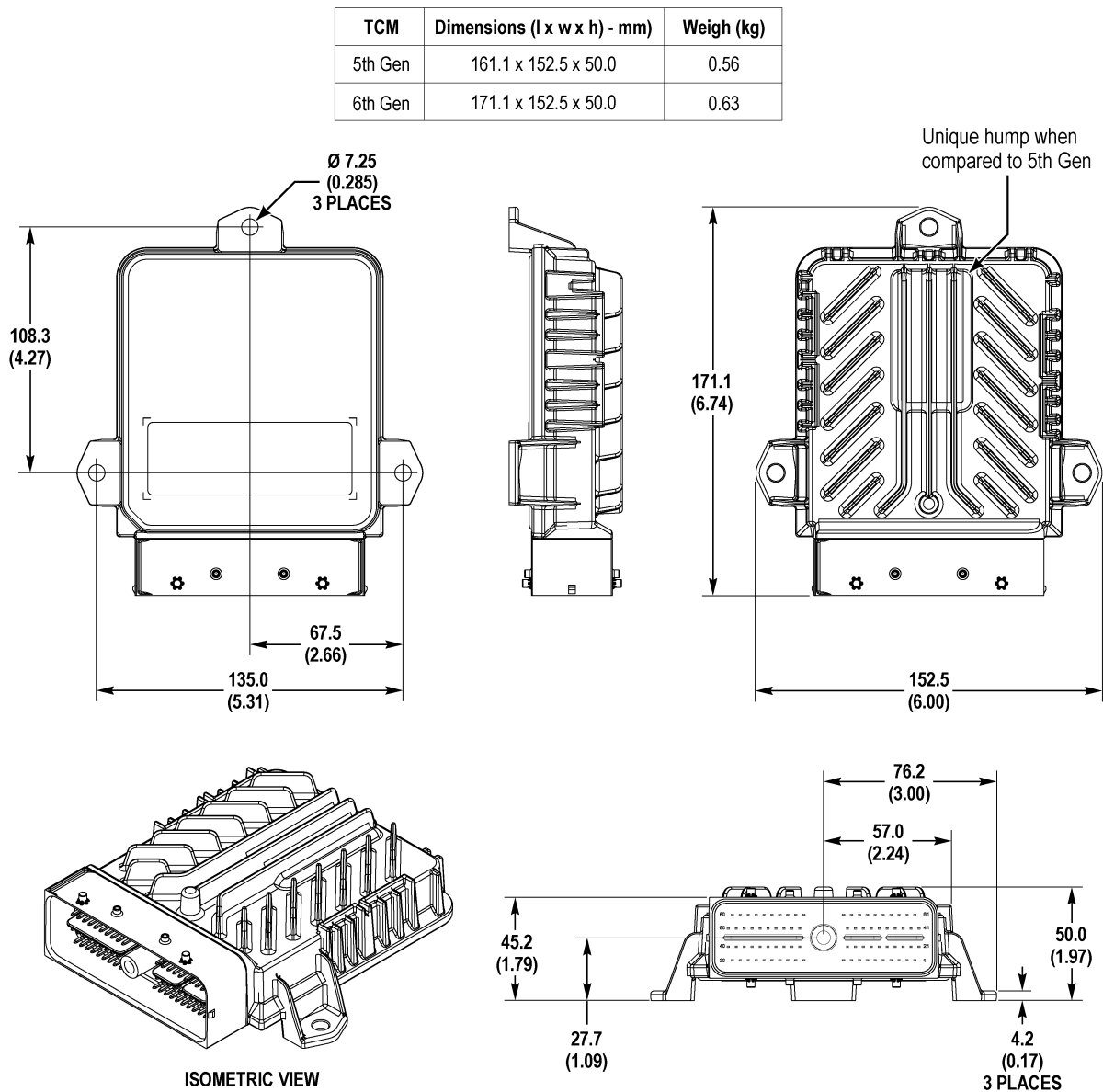


Figure 1. New 6th Generation Compare to 5th Generation TCM

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Figure 2. 6th Generation Controls Hardware

- New 6th Generation Controls PBSS
 - Same form and fit as 5th Generation PBSS
 - 6th Generation Controls PBSSs are required to enable & support Cyber Security and Functional Safety capabilities regarding TCM to PBSS interfacing
- Upgraded Output Speed Sensor
 - The output speed sensor has been upgraded to a Hall Effect design, which enables greater accuracy at low speeds and the capability to detect direction.
 - Same location on transmission

- Change to connector
 - Same connector family
 - Same amount of wires
 - Different keying
- 6th Generation Controls Software Features
 - Cyber Security improvements in programming and vehicle communications
 - Functional Safety features capable of meeting the customer-specified ISO 26262 requirements
 - Fuel Economy feature improvements, including engine speed optimization and Neutral At Stop improvements
 - Additional speed management features, including retarder and automatic preselect improvements
 - Communication protocol support expansion, including CAN-FD hardware ready



NOTE: Allison Transmission, Inc. will continue to support 5th Generation Controls Bump Lever (BLSS), and Strip selectors and their integration with 6th Generation Controls TCM and software. However, the 5th Generation Controls selectors will not include the additional **Cyber Security** and **Functional Safety** improvements featured in 6th Generation Controls Push Button (PBSS) shift selectors.

Compatibility and Support (refer to [Table 1](#)):

Table 1. 5th Generation Controls and 6th Generation Controls Compatibility and Support Table

	5th Generation TCM	6th Generation TCM	Functional Safety	Cyber Security
4th Generation Selectors	Yes	No	No	No
5th Generation PBSS	Yes	No	No	No
5th Generation BLSS	Yes	Yes	No	No
5th Generation Strip	Yes	Yes	No	No
6th Generation PBSS	No	Yes	Yes	Yes

Transition Timing:

6th Generation Controls hardware, software, and programming tools, as well as transmissions with the updated Hall Effect output speed sensor, will need to be aligned at OEMs to support transition:

- BC 221 controls software release will be launched in October 2021 to support 6th Generation Controls
- OEM transition period is October 2021 through January 2023 , with pre-production validation opportunities

For Additional Information:

For further information regarding the Allison 6th Generation Controls, contact your Allison representative.