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SIL 11-TR-24, Rev. A
August 13, 2024
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SUBJECT: Valve Body Bolt Torque Procedure

MODELS AFFECTED: 5000 Series™, 6000 Series™, 8000 Series™ and 9000 Series™ Transmissions

Introduction:

Allison Transmission has updated the valve body bolt torque procedure for the 5000 Series, 6000 Series, 8000 Series and 9000 Series transmissions to ensure proper clamp and sealing. The procedure update consists of a defined torque sequence and re-torquing of all valve body bolts to mitigate potential leak paths.

5000 Series and 6000 Series Main Control Valve Body Torque Sequence

For the 5000 Series and 6000 Series transmissions, torque each bolt in the sequence defined in [Figure 1](#), [Figure 2](#), [Figure 3](#) and [Figure 4](#) to its specific torque specification. Take note of the type of valve body assembly being worked on to ensure the proper torque sequence and specification is followed. For a manual-hydraulic refer to [Figure 1](#), for an electric-shift refer to [Figure 2](#) and for electronic control refer to [Figure 3](#) (for solid cast valve body) or [Figure 4](#) (contoured cast). Re-torque (check) all bolts a second time.

For bolt specification, location and torque specifications refer to the following:

- Service Manual SM7463 for the 5000 Series and 6000 Series Transmissions
 - Figure 7-96, 7-97 for Manual-Hydraulic Control Valve Assembly
 - Figure 7-98 for Electric-Shift Valve Body Assembly
 - Figure 7-99 for Electronic Control Valve Body (Models with Trim Boost)

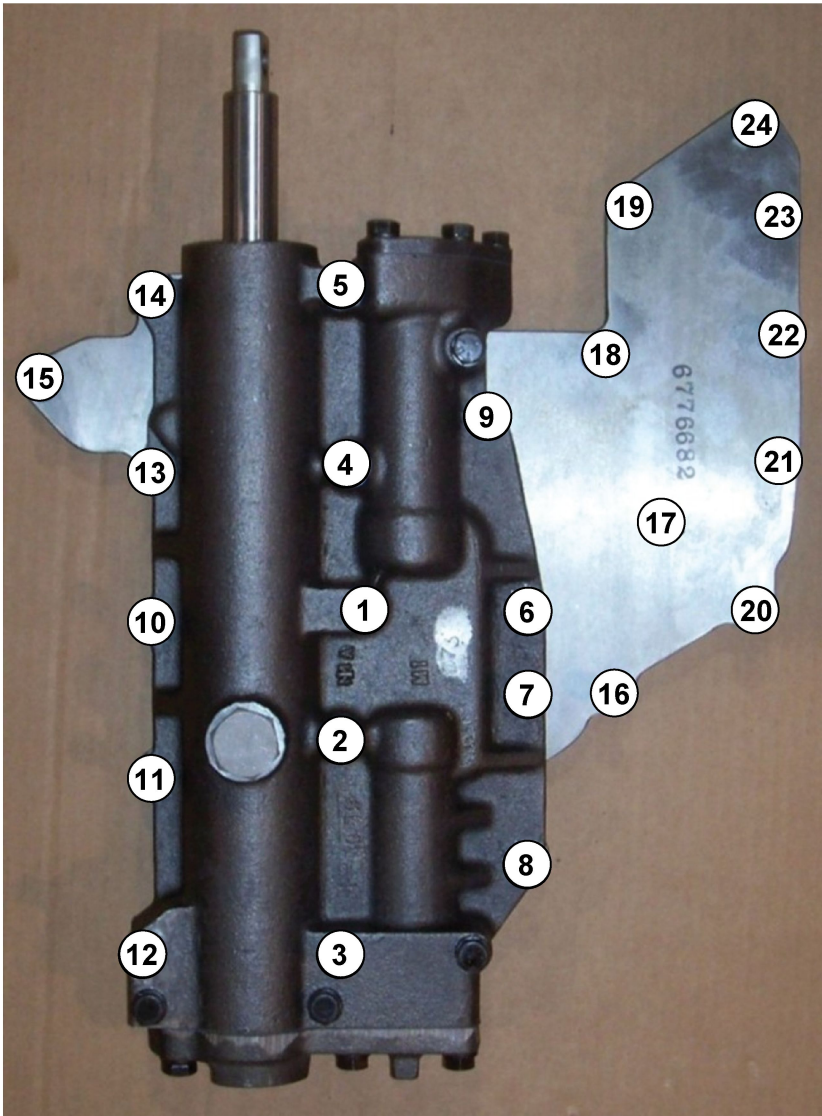


NOTE: The Electric-Shift valve body and Manual-Hydraulic valve body bolts should be torqued to 38-42 lb ft. As of August 2024, SM7463 incorrectly specifies an outdated 26-32 lb ft torque specification.



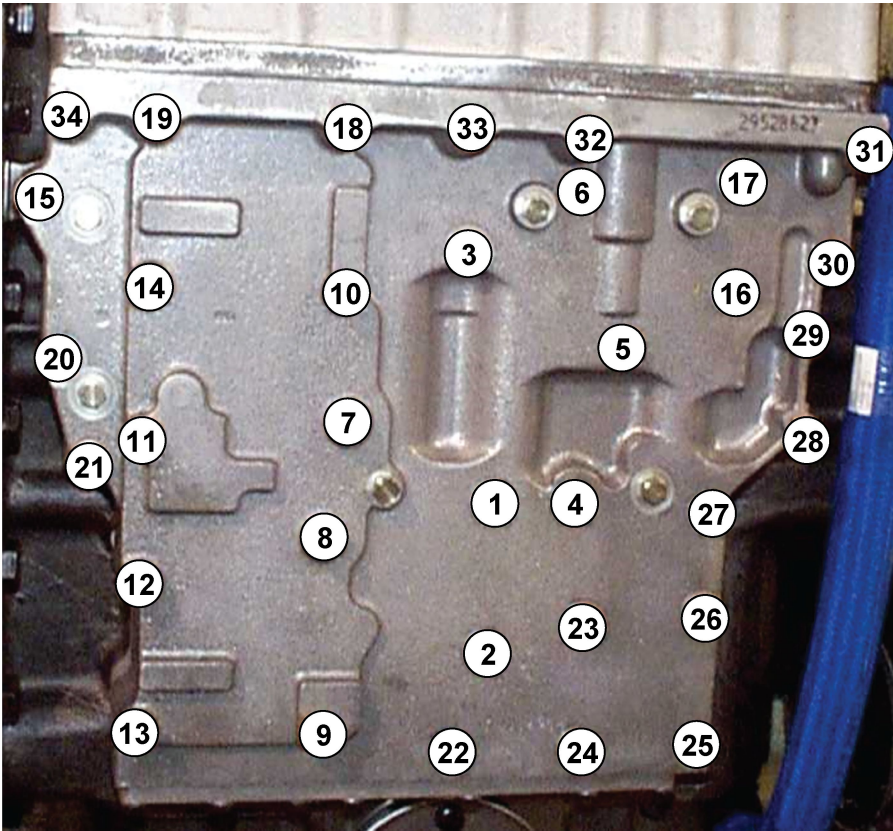
NOTE: The electronic control valve bodies have a solid valve body casting and a contoured valve body casting. The contoured valve body is a legacy part and has the same torque sequence as the solid cast as shown in [Figure 3](#) and [Figure 4](#), but they have *different* torque specifications. See [SIL 9-TR-11](#) for information on this product change. It is important that the bolts for the valve body are torqued to the correct specification for proper functionality of the valve body. As of August 2024, SM7463 does not distinguish the difference between contoured and solid cast valve body. SM7463 ONLY refers to the contoured cast valve body for torque specifications and does not mention the solid cast valve body. Additionally, bolt 8 for ONLY the contoured cast valve body (labeled W in SM7463) should ONLY be torqued to 13-16 lb ft (18-21 N·m). For clarity use the following torque specifications for the Electronic Control valve bodies:

- For solid cast bodies all 34 bolts should be torqued to 38-42 lb ft (52-57 N·m), as explained in [SIL 9-TR-11](#).
- For contoured cast bodies tighten bolt 8 to 13-16 lb ft (18-21 N·m) and all other bolts to 26-32 lb ft (35-43 N·m), as explained in SM7463 Section 7-3m Step 12.



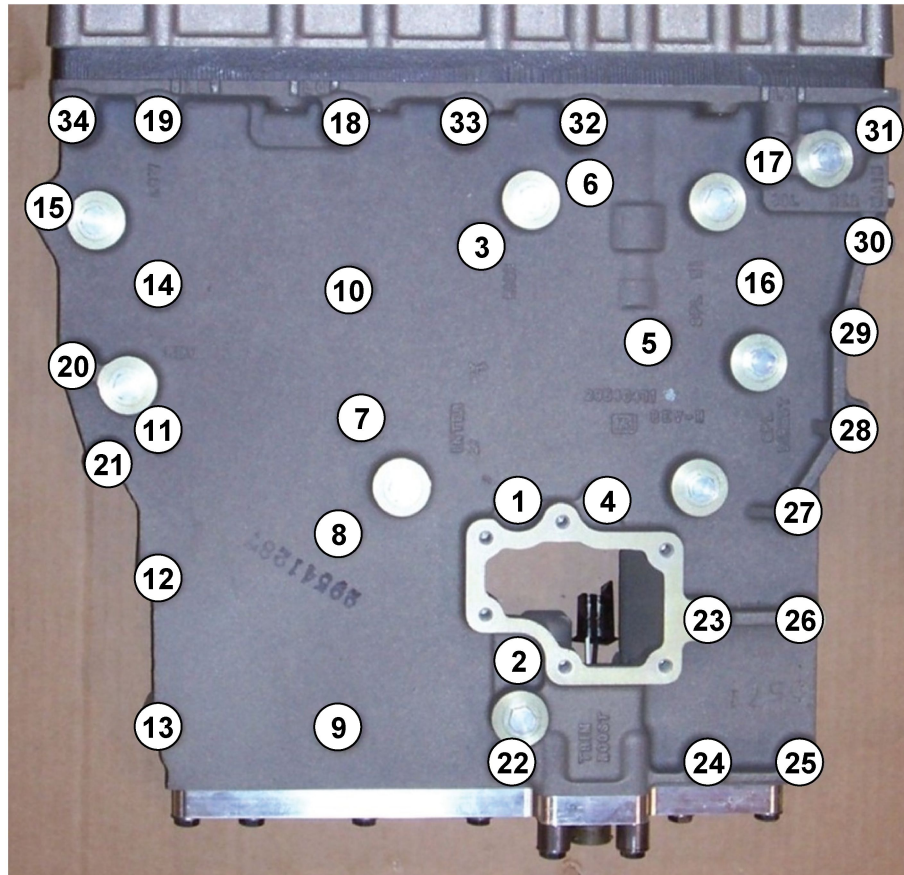
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Figure 1. 5000 Series and 6000 Series Manual-Hydraulic Control Valve Body Torque Sequence



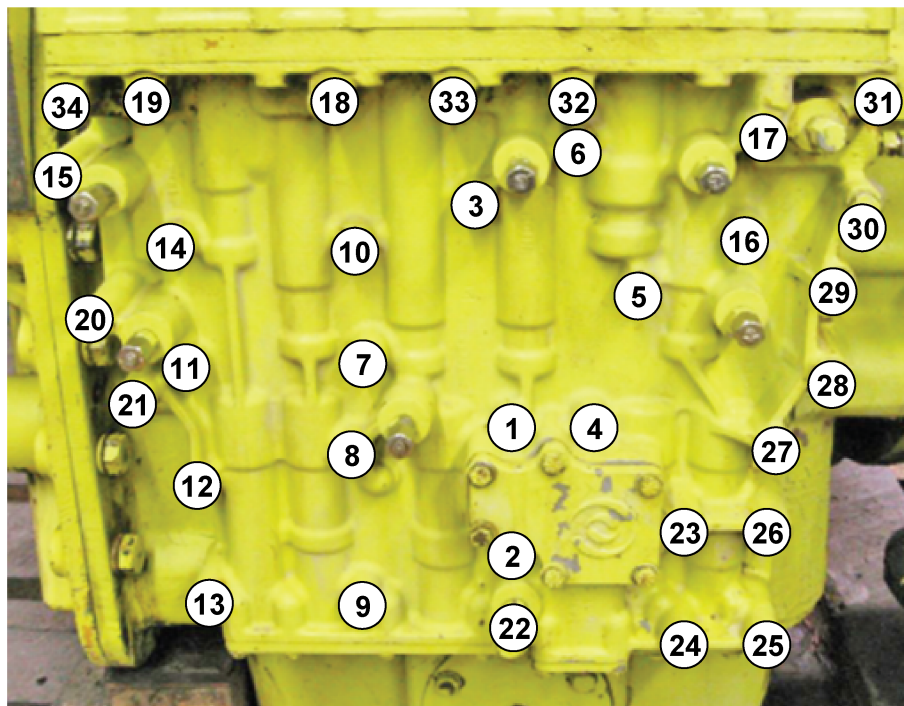
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Figure 2. 5000 Series and 6000 Series Electric-Shift Valve Body Torque Sequence



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Figure 3. 5000 Series and 6000 Series Electronic Control Solid Cast Valve Body Assembly (Models with Trim Boost) Torque Sequence



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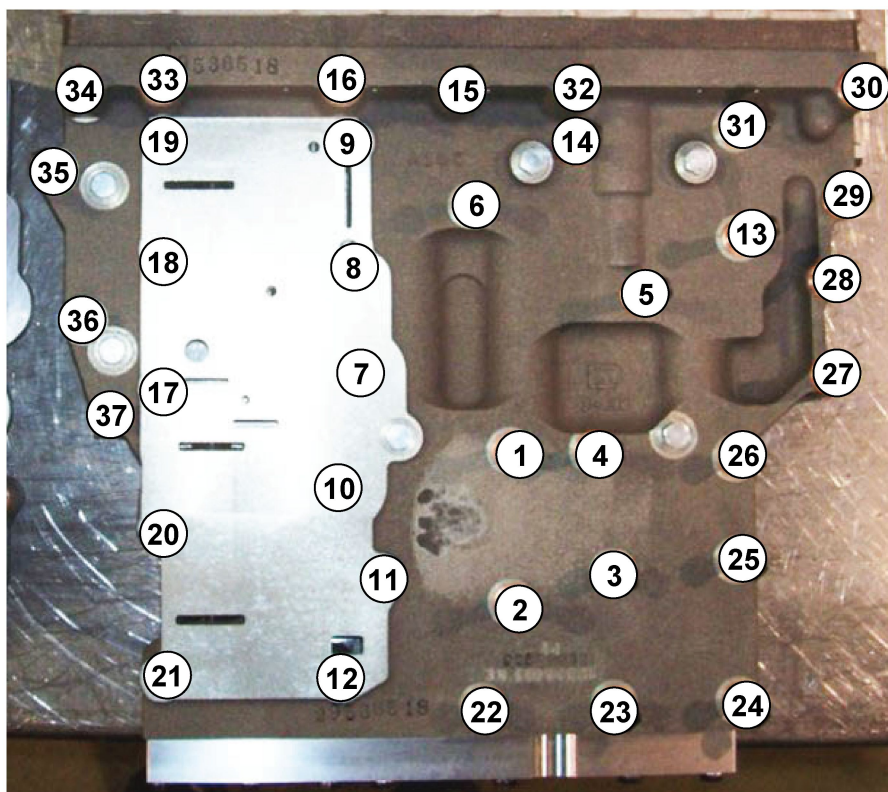
Figure 4. 5000 Series and 6000 Series Electronic Control Contoured Cast Valve Body Assembly (Models with Trim Boost) Torque Sequence

8000 Series Main Control Valve Body Torque Sequence

For the 8000 Series transmissions, torque each bolt in the sequence defined in [Figure 5](#) to its specific torque specification. Re-torque (check) all bolts a second time around.

For bolt specification, location and torque specifications refer to the following:

- Figure 7-65 in Service Manual SM1228 for 8000 Series Commercial Electronic Controls



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Figure 5. 8000 Series Valve Body Assembly Torque Sequence

9000 Series Valve Body Torque Sequence

For the 9000 Series transmissions, torque each bolt in the sequence defined in [Figure 6](#) to its specific torque specification. In the order as listed, torque the main control valve body assembly bolts (labeled in white), then the lower range valve body assembly bolts and trimmer valve body assembly bolts (labeled in blue). Re-torque (check) all bolts a second time around.

For bolt specification, location and torque specifications refer to the following:

- Figures 7-60, 7-61 in Service Manual SM7449 for 9832, 9826, 9832 Series Transmissions
- Figures 7-84, 7-85 in Service Manual SM7335 for 9000 Off-Highway 6-Speed Models
- Figures 7-60, 7-61 in Service Manual SM7336 for 9000 Off-Highway 8-Speed Models
- Figures 7-84, 7-85 in Service Manual SM1833 for 9000 Off-Highway Electric Shift Models

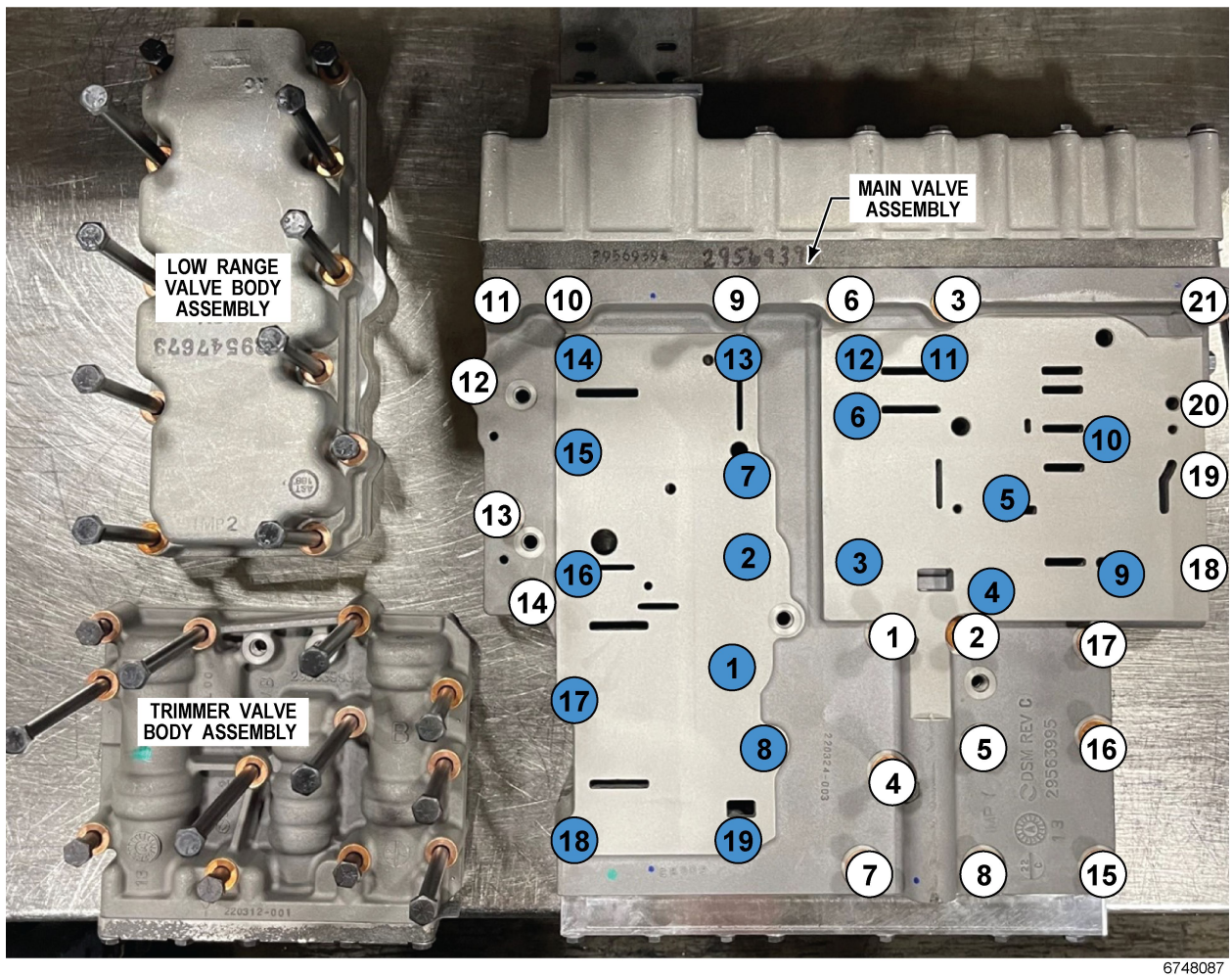


Figure 6. 9000 Series Main Control Valve Body Assembly Torque Sequence