SM1317EN

# Service Manual

# Allison Transmission

## AUTOMATIC MODELS

## MT 640, MT(B) 643
## MT 650, MT(B) 653

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Allison Transmission
Division of General Motors Corporation
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# IMPORTANT SAFETY NOTICE

**IT IS YOUR RESPONSIBILITY to be completely familiar with the Warnings and Cautions described in this Service Manual. These Warnings and Cautions advise against the use of specific service methods that can result in personal injury, damage to the equipment, or cause the equipment to become unsafe. It is, however, important to understand that these Warnings and Cautions are not exhaustive. Allison Transmission could not possibly know, evaluate, and advise the service trade of all conceivable ways in which service might be done or of the possible hazardous consequences of each way. Consequently, Allison Transmission has not undertaken any such broad evaluation. Accordingly, ANYONE WHO USES A SERVICE PROCEDURE OR TOOL WHICH IS NOT RECOMMENDED BY ALLISON TRANSMISSION MUST first be thoroughly satisfied that neither personal safety nor equipment safety will be jeopardized by the service methods selected.**

**Proper service and repair are important to the safe, reliable operation of the equipment. The service procedures recommended by Allison Transmission and described in this Service Manual are effective methods for performing service operations. Some of these service operations require the use of tools specifically designed for the purpose. The special tools should be used when and as recommended.**

# WARNINGS, CAUTIONS, AND NOTES

**Three types of headings are used in this manual to attract your attention:**

**WARNING!**

**is used when an operating procedure, practice, etc., which, if not correctly followed, could result in personal injury or loss of life.**

**CAUTION:**

**is used when an operating procedure, practice, etc., which, if not strictly observed, could result in damage to or destruction of equipment.**

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**NOTE:**

**is used when an operating procedure, practice, etc., is essential to highlight.**

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# LIST OF WARNINGS

**This manual contains the following Warnings —**

**IT IS YOUR RESPONSIBILITY TO BE FAMILIAR WITH ALL OF THEM.**

- **When checking the transmission fluid level, be sure that the parking brake and/or emergency brakes are set and properly engaged, and the wheels are blocked. Unexpected and possible sudden movement may occur if these precautions are not taken.**
- **While conducting a stall check, the vehicle must be positively prevented from moving. Apply the parking and service brake, and block the wheels securely. Warn personnel to keep clear of the vehicle and its travel path. Failure to do so can cause serious injury.**
- **Do not burn discarded Teflon® seals; toxic gases are produced by burning.**
- **Never dry bearings with compressed air. A spinning bearing can disintegrate allowing balls or rollers to become lethal flying projectiles. Also, spinning a bearing without lubrication can damage the bearing.**
- **Do not position the transmission so that its rear end is lower than its front end. The components in the rear of the transmission are not secured. These components could fall out and cause personal injury and/or damage to the parts.**
- **Certain control valve body components are spring-loaded and must be restrained while retaining pins or bolts are removed.**
- **The main-pressure regulator valve spring is under approximately 65 lbs (290 kN) compression.**
- **Hydraulic fluid under 40 psi (280 kPa) pressure may be trapped in the output retarder accumulators. Personal injury can occur if this pressure is accidently released.**
- **Accumulator piston springs are highly compressed. Use extreme caution during removal of the accumulator cover. Personal injury can occur if the bolts are removed without properly relieving the spring force.**
- **The retarder piston return spring is highly compressed. Use extreme caution during removal of the spring. Personal injury can occur if proper removal procedures are not followed.**


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