Countries:	AUSTRALIA, BRAZIL, CANADA, UNITED STATES, MEXICO, PUERTO RICO, SOUTH AFRICA	**Document ID:**	IK1300070
Availability:	ISIS, Bus ISIS, FleetISIS, Body Builder	**Revision:**	3
Major System:	TRANSMISSION	**Created:**	10/27/2009
Current Language:	English	**Last Modified:**	3/10/2014
Other Languages:	Français, Español,	**Author:**	Matthew Boyer
Viewed:	671		

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Title: Transfer case troubleshooting

Applies To: All transfer case equipped NGV units

DESCRIPTION

Air flow and wiring information for units equipped with a transfer case.
The transfer case can be in 5 different states:

- 4x4 or 6x6 High Range
- 4x4 or 6x6 Low Range
- 4x2 or 6x4 High Range
- 4x2 or 6x4 Low Range
- Neutral

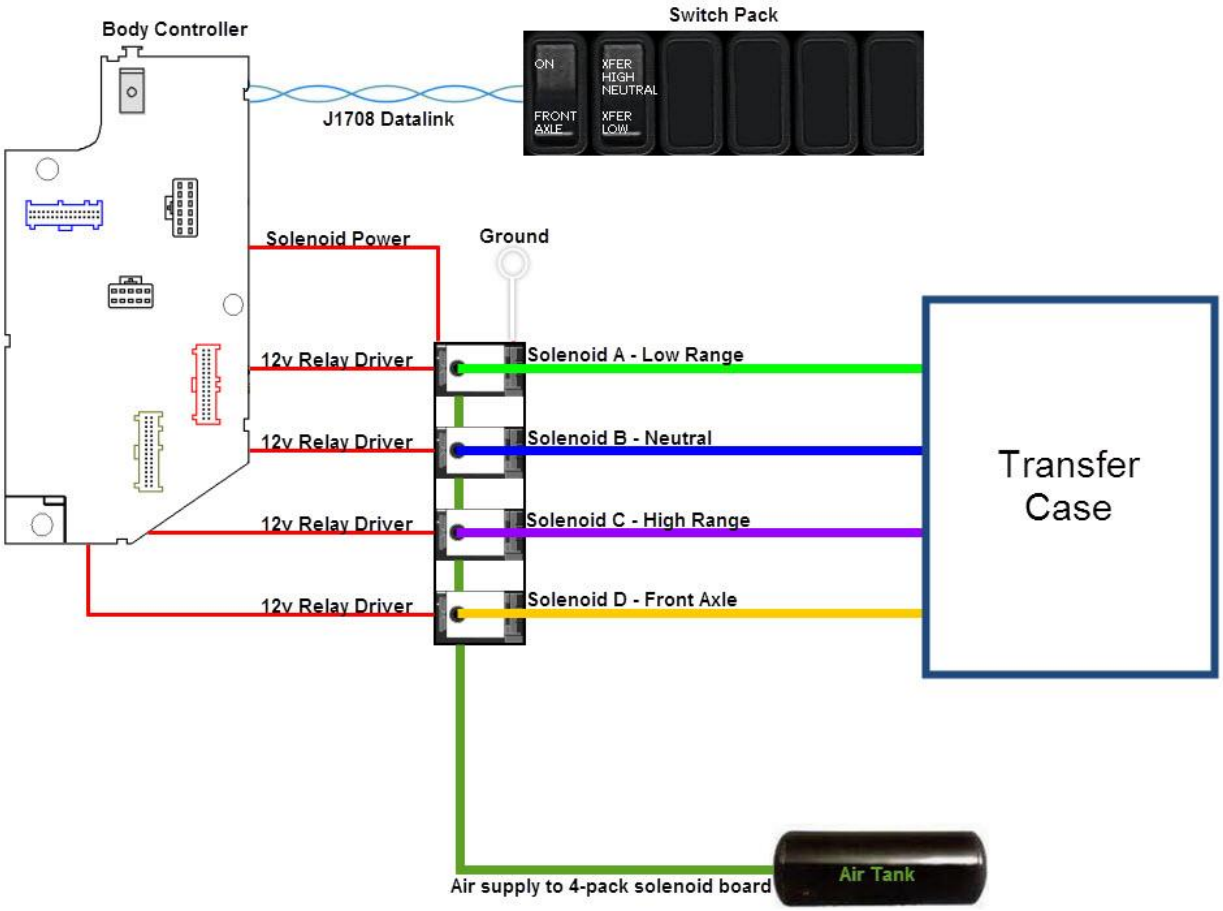
SYMPTOMS

- Transfer case will not shift
- Air leaking from neutral air solenoid, on air solenoid pack

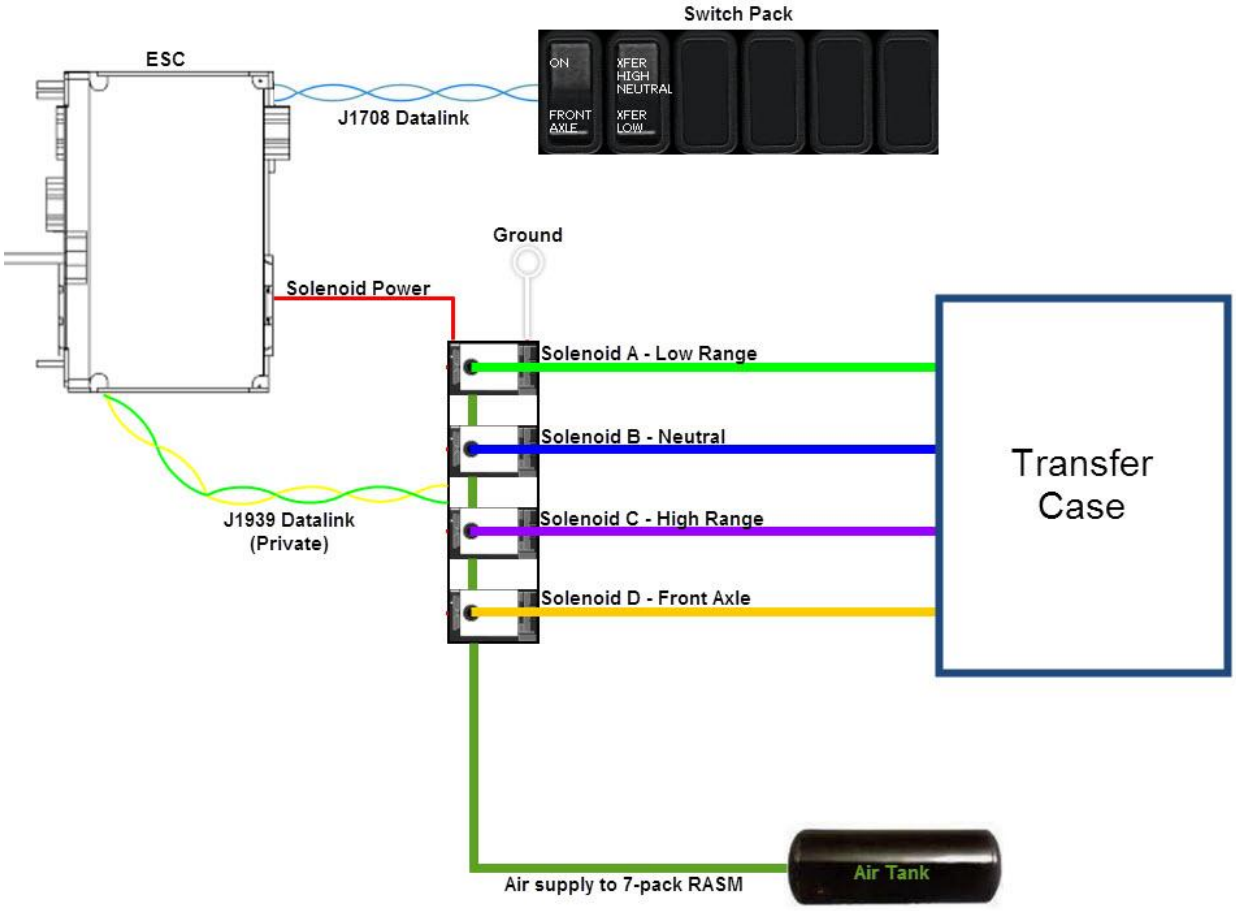
TROUBLESHOOTING

1. Check for fault codes using DLB. Verify if there is an issue for the switch input, the output command, or a mechanic issue with air flow or the shift cylinders. For information on checking faults in DLB follow IK2600036
2. Verify the interlocks are being met properly. Make a session in DLB using the feature that is installed for the Transfer case. If you are unfamiliar with making a session from a feature in DLB follow IK2600008
   - In order to shift ranges the following signals must be seen in DLB:
     - Park Brake is Set or the Service Brakes are applied
     - Ignition is On
     - Primary air pressure is greater than 90 psi
     - Transmission is in Neutral or Park (Automatic Transmission)
     - Vehicle is stopped (No vehicle speed being seen)
     - Key State has a valid value
   - In order to engage the front axle:
     - Vehicle speed must be less than 10 mph
     - Ignition is On
     - Primary air pressure is greater than 90 psi
     - Vehicle is not in a Traction Control event
     - Key state has a valid value
3. Verify the correct solenoids are installed. The transfer case utilized normally closed solenoids. When the solenoid is energized it will then allow air flow to the transfer case.
4. Verify which system is installed on the truck. The air flow will be the same for both systems. A 4-pack air solenoid board uses high side (12v) drivers to each solenoid, while a RASM uses a datalink message sent over the body builder (private) datalink from module to module.
5. For each solenoid location, unplug the air line, and then turn the switch on in the cab to energize that solenoid. If you now have air flow at that solenoid location, the electrical side is checking good. (Example: With Neutral selected at the switch pack, you should have air flow at solenoid B only)
6. Check each shift solenoid at the transfer case. Manually apply air pressure to see if the transfer case will shift, and listen for any air leaks.

System Equipped with a 4-Pack Air Solenoid Board



System Equipped with a 7-Pack RASM (Remote Air Solenoid Board)



Operating Mode	Solenoid A (Low Range)	Solenoid B (Neutral)	Solenoid C (High Range)	Solenoid D (Front Axle)
4x4 or 6x6 High Range	Normally Closed State (No air flow)	Normally Closed State (No air flow)	**Energized** (Allowing air flow)	**Energized** (Allowing air flow)
4x4 or 6x6 Low Range	**Energized** (Allowing air flow)	Normally Closed State (No air flow)	Normally Closed State (No air flow)	**Energized** (Allowing air flow)
4x2 or 6x4 High Range	Normally Closed State (No air flow)	Normally Closed State (No air flow)	**Energized** (Allowing air flow)	Normally Closed State (No air flow)
4x2 or 6x4 Low Range	**Energized** (Allowing air flow)	Normally Closed State (No air flow)	Normally Closed State (No air flow)	Normally Closed State (No air flow)
Neutral	Normally Closed State (No air flow)	**Energized** (Allowing air flow)	Normally Closed State (No air flow)	Normally Closed State (No air flow)

RESOLUTION

If you find the shift cylinders on the transfer case are leaking, replacement of all four orings is required. Each piston has an outer and an inner oring. This procedure can be performed without the removal or disassembly of the transfer case. Please see attached link to the ArvinMeritor service manual for details of the removal and installation procedure.

OTHER RESOURCES

- Meritor Transfer Case Manual MM0146

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