

## OPERATION Allison 2500 Series

### Driving the Allison 2500 Series Transmission

Allison 2500 Series is a fully automatic transmission, featuring a torque converter with a lock up clutch and five (5) forward and one (1) reverse gear ratios.

#### Procedure - Start Up

1. Ensure the park brake is applied.
2. Turn the ignition key to the ON position and observe that the check lamp function has momentarily illuminated the SHIFT LIMIT light, followed by the Automatic Transmission MAINTENANCE light.
3. Ensure the Selector Lever is in the "N" position.
4. Start the engine.

#### Selecting a Starting Gear and Gear Shifting

1. Depress the brake pedal and with the engine at idle speed, select the required driving range ('R', 'D', '3', '2' or '1') and then wait approximately 1 second for full gear engagement.
2. Set the vehicle in motion by releasing the brake pedal and then the park brake whilst progressively applying the accelerator pedal.
3. When moving in the forward direction all gear ratio changes are performed automatically within the parameters of the mode selected.
4. When stopping the vehicle at traffic lights etc. hold the brake pedal depressed to prevent the vehicle from forward or rearward movement.

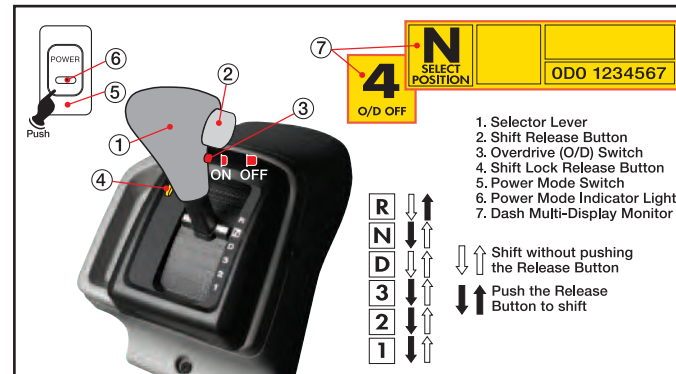
#### Procedure - Shut Down

1. Stop the vehicle and hold the brake pedal depressed.
2. With the engine stabilised to idle speed, select 'N'.
3. Apply the park brake.
4. Turn the ignition key to the OFF position and release the brake pedal.

Notes:

- **Neutral Safety Function:** The starter cannot be activated unless the Selector Lever is in the 'N' position.
- **Shift Lock System - Selector Lever:**
  - Release from 'N' Position: The ignition key must be in the ON position and the brake pedal depressed, additionally if the vehicle is in operation and the 'N' position is selected for approximately 5 minutes the brake pedal must be depressed to release the Selector Lever.
  - Ignition Key Removal: The Selector Lever must be in the 'N' position.
  - Emergency Release: Whilst holding the brake pedal depressed, simultaneously press the Shift Lock Release Button and move the Selector Lever to the required driving range.
- **Range Shift Limit (engine rpm and road speed) Function:** If the 'N' to a driving mode or Forward/Reverse Changeover mode gear selection parameters are exceeded the SHIFT LIMIT warning light will illuminate. If this occurs, stop the vehicle, hold the brake pedal depressed and with the engine at idle speed, select 'N' mode and then reselect the desired driving mode.
- **Extended Idling:** To prevent overheating of the transmission, always select 'N' if you need to idle the engine for more than 5 minutes.

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#### R Reverse Mode

"R" mode is used for moving the vehicle rearwards.

When shifting from 'N' to 'R' mode, the engine must be at idle speed and the brake pedal depressed holding the vehicle stationary.

Refer notes: Shift Lock System and Range Shift Limit Function.

#### N Neutral Mode

"N" mode is used when starting the engine, warming up the engine, extended idling periods and when stopped.

When shifting from 'N' to a driving range, the engine must be at idle speed and the brake pedal depressed holding the vehicle stationary.

Refer notes: Shift Lock System, Range Shift Limit Function and Extended Idling.

#### D Driving Mode

"D" mode is the position used for normal forward driving with shifting between gears done automatically, according to the Overdrive switch position, engine load and road speed.

#### Overdrive Switch (O/D)

- ON: Shifting between forward gear ratios 1~5 is done automatically.
- OFF: Shifting between forward gear ratios 1~4 is done automatically and is used when driving slowly in areas with heavy traffic, or when an additional amount of engine braking is required on level road surfaces.

#### 3 Third Range

"3" mode is used when descending inclines and an increase in engine braking performance is required.

Shifting between forward gear ratios 1~3 is done automatically, according to engine load and road speed. (#)

#### 2 Second Range

"2" mode is used when descending steep inclines and a further increase in engine braking performance is required.

Shifting between forward gear ratios 1~2 is done automatically, according to engine load and road speed. (#)

#### 1 First Range

"1" mode is used for manoeuvring the vehicle at low speed, or when maximum engine braking performance is required.

The transmission selects 1<sup>st</sup> gear. (#)

Note: (#) Refer "Descending Inclines - Caution".

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### POWER Mode

When pushed once, the indicator light illuminates and the transmission selects POWER mode. This mode raises the gear shift points under both light and heavy vehicle acceleration modes.

Note: Excessive use of POWER mode may increase fuel consumption.

**Switch Location:** On the dash panel to the left of the steering column and in front of the Selector Lever.

### WARNING LIGHTS



### SHIFT LIMIT

#### Automatic Transmission SHIFT LIMIT

Illuminates under the following conditions, the ECU prohibits gear shifting for the purpose of protecting the transmission.

- Engine speed is greater than 1000 rpm when shifting from 'N'.
- Forward/Reverse Changeover: When the vehicle is moving and exceeds the specified speed.
- When the ECU receives an abnormal request signal, gear shifting is limited to protect the transmission from damage.



#### Engine Overrun WARNING

When the engine rpm exceeds the maximum allowable rpm, the warning illuminates and a warning buzzer sounds.

- Refer to "DRIVER TIPS - Descending Inclines".



#### Automatic Transmission FLUID TEMPERATURE

If the transmission fluid temperature rises above approximately 121°C, the warning illuminates and a warning buzzer sounds.

**CAUTION:** If the fluid temperature warning is activated, stop the vehicle, select 'N' mode and then operate the engine at 1200~1500 rpm until the fluid temperature returns to normal. It is also recommended that the transmission fluid level be checked - refer the Minor Maintenance section of the vehicle Owner's Manual.



#### Automatic Transmission MAINTENANCE

Illuminates when either the transmission fluid or filters require replacement or general transmission servicing is required - refer to the vehicle Owner's Manual, Section 9 "Maintenance Schedule".



#### Automatic Transmission WARNING

The warning light illuminates when the transmission ECU detects a fault in the transmissions operation.

- If illuminated, park the vehicle in a safe place and refer to the vehicle Owner's Manual, Section 3 "ATM Warning System".

**NOTE:** If any of the above warning lights remain illuminated, contact your UD Trucks dealer for assistance (ph. 1300 289 283).

## DRIVING TIPS Allison 2500 Series

### Exhaust Brake - Performance

When using the exhaust brake to retard the vehicle and increased engine braking performance is required, use the 'O/D OFF' button position or the '3' or '2' Selector Lever range positions to select and hold an appropriate gear range. The exhaust brake does not function when '1' range position is selected.

### Exhaust Brake - Interface (optional feature)

When programmed and the exhaust brake is activated and the accelerator pedal is in the engine idle position (foot lifted off accelerator pedal), the transmission will automatically perform downshifts at a higher road speed increasing the engine braking performance.

Exhaust brake activated is the recommended driving mode.

### Descending Inclines

Taking into consideration the vehicle load and gradient conditions, use the 'O/D OFF' button position or the '3', '2' or '1' Selector Lever range positions to select an appropriate gear range that in combination with the exhaust brake and intermittent application of the brake pedal will maintain a vehicle speed within the engine governed speed range (up to 2600 rpm).

**CAUTION:** DO NOT EXCEED THE ENGINE GOVERNED SPEED IN A LOWER GEAR RANGE AS THE TRANSMISSION MAY UPSHIFT TO THE NEXT HIGHER GEAR RANGE, RESULTING IN DIMINISHED VEHICLE CONTROL.

### Cruise Control

- Cruise control can only be set or resumed between 35-100 km/h and when activated, the auto cruise control will continue to function within its operating range as the transmission automatically changes gear ratios.
- When driving in auto cruise, cruise control is cancelled when:
  - a) the vehicle speed drops below approximately 35 km/h or by the momentary operation of the
  - b) exhaust brake or
  - c) brake pedal.
- Once cancelled, it requires the driver to manually reactivate the cruise control by either pressing the RESUME switch if the original speed is required or the SET switch once the desired vehicle cruise speed is attained.

**CAUTION:** AS THE CRUISE CONTROL IS CANCELLED AUTOMATICALLY WHEN THE VEHICLE SPEED DROPS BELOW APPROXIMATELY 35 KM/H THE VEHICLE MAY LOSE ROAD SPEED RAPIDLY.

WHEN **CLIMBING HILLS** IT IS RECOMMENDED THAT THE DRIVER OVERRIDE THE CRUISE CONTROL BY APPLYING PRESSURE TO THE ACCELERATOR PEDAL.

### Power Take Off (PTO)

When equipped with a transmission PTO, ensure that the PTO manufacturer's operating instructions are adhered to.

## MISC. ITEMS Allison 2500 Series

### Optional Feature (contact your UD Trucks dealer for details)

To accommodate special vehicle applications, it is feasible to have the transmission ECU reprogrammed to include the listed optional feature.

- Exhaust Brake Interface:

Recommended for general duty cargo/distribution truck, reduces reliance on the service brakes.



## Driver Instructions Allison 2500 Series 5-Speed Automatic Transmission



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Pub. No. AUS000449

Aug-11

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