

OPERATION ESCOT TRANSMISSION

Driving the ESCOT Transmission

ESCOT is a 3-pedal semi automated mechanical transmission with a sequential shift pattern, featuring nine (9) forward, 2nd-9th synchromesh, and two (2) reverse gear ratios that requires the use of the clutch pedal for starting and stopping the vehicle. Once the vehicle is in motion all forward gear ratio selection is 'clutch-less' in operation.

NOTE: To assist when starting on gradients, all models feature an EHS (Easy Hill Start) system.

Procedure - Start Up

1. Ensure the park brake is applied.
2. Depress the clutch pedal and turn the ignition key to the ON position.
3. Select "N HOLD" or "N", a solid 'N' to appear in the dash display.
4. Start the engine and release the clutch pedal.

Selecting a Starting Gear and Gear Shifting

1. Depress the clutch pedal.
2. Taking the load and gradient conditions into consideration, select the desired starting gear by selecting either the;
 - "UP" (selects gear '2' - recommended only when lightly laden),
 - "DOWN" (selects gear '1') or
 - "R" (selects gear 'R LOW' or 'R HIGH', refer SPL Mode) position.
3. Set the vehicle in motion by releasing the park brake whilst progressively engaging the clutch.
4. When moving in the forward direction gear ratio changes are requested by operating the shift lever in either the "UP" or "DOWN" direction. Refer note, Requested Gear Ratio Changes.
5. When stopping the vehicle, depress the clutch pedal and using the shift lever momentarily select the "N" position. This will automatically place the transmission in 'N' irrespective of the previously selected gear.

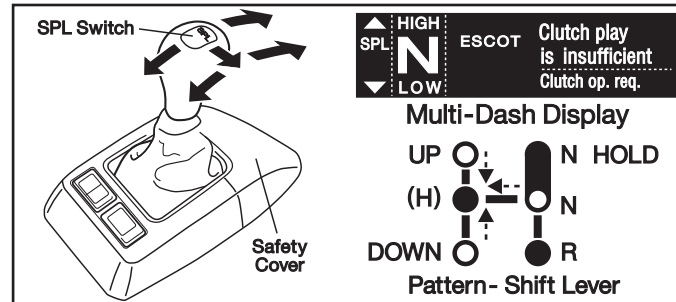
Procedure - Shut Down

1. Remember to depress the clutch pedal when stopping the vehicle.
2. Select "N HOLD" and make sure a solid 'N' appears in the dash display.

CAUTION: It is very important that you DO NOT shut the truck off for extended periods while the transmission is in gear as both the transmission and clutch are pneumatically assisted in their operation and any loss off air pressure may have to be restored by a remote source to enable the engine to be restarted.

3. Apply the park brake.
4. Turn the ignition key to the OFF position and release the clutch pedal.

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NOTE: When either the "N", "UP" or "DOWN" positions are selected, the shift lever automatically returns to the (H) position

(N HOLD) Neutral Hold Mode

"N HOLD" mode should only be engaged when the vehicle is stationary and locks the transmission in 'N' mode. This mode is recommended when either parking the vehicle or operating a PTO.

(N) Neutral Position

Momentarily selecting "N" automatically returns the transmission to neutral gear mode and 'N' will appear in the dash display.

(R) Reverse Mode

"R" mode can only be engaged when the vehicle is stationary. Refer SPL Mode for 'R LOW' and 'R HIGH' range selection.

(H) HOLD Mode

This is the normal at rest position for the shift lever when operating the vehicle in a forward direction.

(UP) Upshift and **(DOWN)** Downshift Positions

Momentarily operating the shift lever in either the "UP" or "DOWN" direction once requests the transmission to shift one gear ratio, operating the shift lever "UP" twice requests the transmission to upshift up to two gear ratios at one time. Refer note, Requested Gear Ratio Changes.

(SPL) Skip Shift Mode

When selected 'SPL' illuminates in the dash display.

- "UP / DOWN" Positions: Momentarily operating the shift lever once automatically requests the transmission to shift up to two gear ratios at one time. Refer note, Requested Gear Ratio Changes.
 - "R" Mode: Selects the "LOW / HIGH" range (refer table below).
- | SPL Switch | Gear Ratio Selected |
|------------|--|
| OFF | R LOW |
| ON | R HIGH (SPL illuminated in dash display) |

NOTE: Requested Gear Ratio Changes that would either overrun or underrun the engine will not be accepted by the transmission, the operation message 'Out of shift range' will appear in the dash display and a warning buzzer will sound 3 short beeps.

SPL Switch OFF

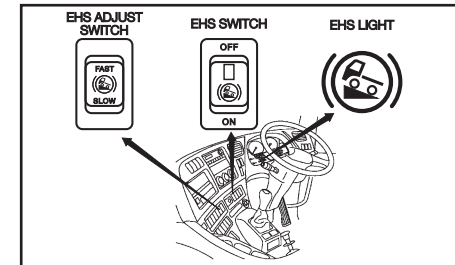


SPL Switch ON



OPERATION EHS (Easy Hill Start)

EHS is a device that assists the driver to start the vehicle in motion on gradients without using the park brake or having to rapidly work the pedals, it also eliminates the need to continue pressing the brake pedal while waiting at a traffic signal or on congested roads.



EHS Switch: To activate EHS,

1. Push the EHS switch to the ON position (the indicator light in the switch will turn OFF).
2. Whilst the vehicle is stationary, apply the brake pedal for approximately one second until the EHS light in the instrument cluster illuminates.
3. After confirming that the EHS light is illuminated, carefully release the brake pedal. In this state, the braking force will be maintained even if the transmission is shifted into 'N' and the clutch is released.
4. To release EHS either,
 - select the desired start gear and progressively engage the clutch or
 - push the EHS switch to the OFF position.

NOTE: a) Refer 'EHS Adjust Switch' to reset the release timing.
b) It is recommended that EHS be switched OFF when manoeuvring the vehicle at low speed.

WARNING: The EHS is used to temporarily hold the vehicle and must not be used for parking. ALWAYS ENGAGE THE PARK BRAKE WHEN LEAVING THE DRIVER'S SEAT.

EHS Adjust Switch: To reset the EHS brake release timing to suit your driving style and the vehicle operating conditions, perform the following procedure whilst the vehicle is stationary.

1. Apply the park brake, confirm the engine is running and that the air pressure is normal.
2. Turn the EHS switch to the ON position.
3. Depress the brake pedal, release the park brake, and then hold the brake pedal depressed for approximately one second until the EHS warning lamp in the instrument cluster illuminates.
4. Depress the clutch, shift into any gear position except 'N' and hold the clutch in the disengaged position.
5. Push the EHS adjust switch in the FAST direction (if the brake release is delayed or dragging at start off) or the SLOW direction (if the brake release is too early).

OPERATION EHS (Easy Hill Start) contd:

- A buzzer sounds each time the switch is pushed
 - The amount of adjustment increases according to the number of times the switch is pushed. The buzzer ceases to operate when the extremity of either the FAST or SLOW adjustment is reached.
 - It is recommended that you initially set the release timing to the FAST extremity of adjustment and then fine tune your desired release timing by progressively using the SLOW adjustment direction.
6. Start off, and if the EHS release timing does not match your preferred operation, perform the procedure again from step 3.

OPERATION CRUISE CONTROL

When a gear ratio change is requested while the cruise control is activated ESCOT will cancel the cruise control while performing the shift, requiring 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.

NOTE: Cruise control can only be set between 60–100 km/h. Cruise control is automatically cancelled if vehicle speed falls below 60 km/h.

OPERATION MESSAGES

Typical messages that may be displayed whilst operating ESCOT and the recommended actions are;

- **'Air pressure is insufficient':** Stop the vehicle in a safe location, increase the air pressure by running the engine.
- **'Clutch play is insufficient':** Clutch adjustment is required, contact your UD Trucks dealer to have the adjustment performed.
- **'Emergency switch op.':** Stop the vehicle in a safe location; refer to the 'Emergency Driving' procedure.
- **'Lever N op. req.':** When leaving the driver's seat, ensure "N HOLD" is selected.
- **'Load on clutch is large':** Incorrect start gear selection overloading the clutch, select the correct start gear ratio.
- **'No clutch learning':** Appears when the ignition switch is turned ON, if it does not turn OFF within two seconds fully depress the clutch pedal and wait approximately five seconds before releasing it.
- **'Out of shift range':** Perform the operation again after checking/adjusting the vehicle and/or engine speed.
- **'Re-op. of clutch':** Gear engagement has been interrupted; depress the clutch pedal again to enable gear engagement to be completed.

EMERGENCY DRIVING

If the **'ESCOT'** warning lamp (red) illuminates and the operation message **'Emergency switch op.'** appears in the dash display.

1. Stop the vehicle in a safe location, apply the park brake and turn the ignition key to the OFF position. Release the clutch pedal and wait for 1~2 minutes.
2. Restart the engine and check the ESCOT warning lamp.
3. If the lamp is OFF, continue driving.
4. If the lamp remains illuminated, use the following emergency driving procedure.
 - Remove the Safety Cover in front of the shift lever.



Lift Tab to remove Safety Cover and expose switches.

- Ensure the emergency shift (rotary) switch is in the "N" position.
- Turn the emergency main (red) switch to the ON position, the operation message **'Clutch op. req.'** will appear in the dash display.
- Depress the clutch pedal fully, using the emergency shift switch select a start gear and then set the vehicle in motion by releasing the park brake whilst progressively engaging the clutch.
- Once in forward motion gear ratio changes can be made manually by depressing the clutch pedal, selecting the desired forward gear ratio, waiting a moment until the selected gear appears in the dash display and then releasing the clutch pedal.
- Proceed to your nearest UD Trucks dealer for assistance.

NOTE: If the above procedure does not work, contact your UD Trucks dealer for assistance (ph. 1300 289 283).

ESCOT Gear Display	Ratio
1	10.16
2	6.58
3	4.67
4	3.39
5	2.54
6	1.94
7	1.38
8	1.00
9	0.75
R LOW	10.16
R HIGH	3.00



Driver Instructions GK400 Series with ESCOT 9-Speed Sequential Transmission