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 INTERNATIONAL



#### Driver Shift Modes – LT<sup>®</sup>, RH<sup>™</sup>, HX<sup>®</sup> and HV<sup>™</sup> Series

Multiple drive modes (optional) available for ultimate control for the driver.

- **Economy** – Predictive shifting with fuel efficiency focus
- **Off Road** – Minimizes shifts in Vocational terrains (HX<sup>®</sup> and HV<sup>™</sup> Series Only)
- **Performance** – Perfect balance
- **Performance+** – Shifting at peak power with focus on performance

#### Manual Mode and Shifting (optional)

Manual mode may be engaged by pushing the gear selector dial in toward the steering column.

##### Once engaged:

- Manual downshifts may be requested by pressing the shift stalk down, parallel to the steering column.
- Manual upshifts may be requested by pulling the shift stalk up toward the steering wheel, parallel to the steering column.
- Even if manual mode is not enabled, a parameter may allow for a temporary manual shift request.
- This gear may be maintained by holding the stalk up or down.
- The International<sup>®</sup> S13<sup>®</sup> Integrated Powertrain will protect the vehicle and prevent engine lugging or overspeeding in manual mode by upshifting or downshifting.

#### Creep Mode (standard)

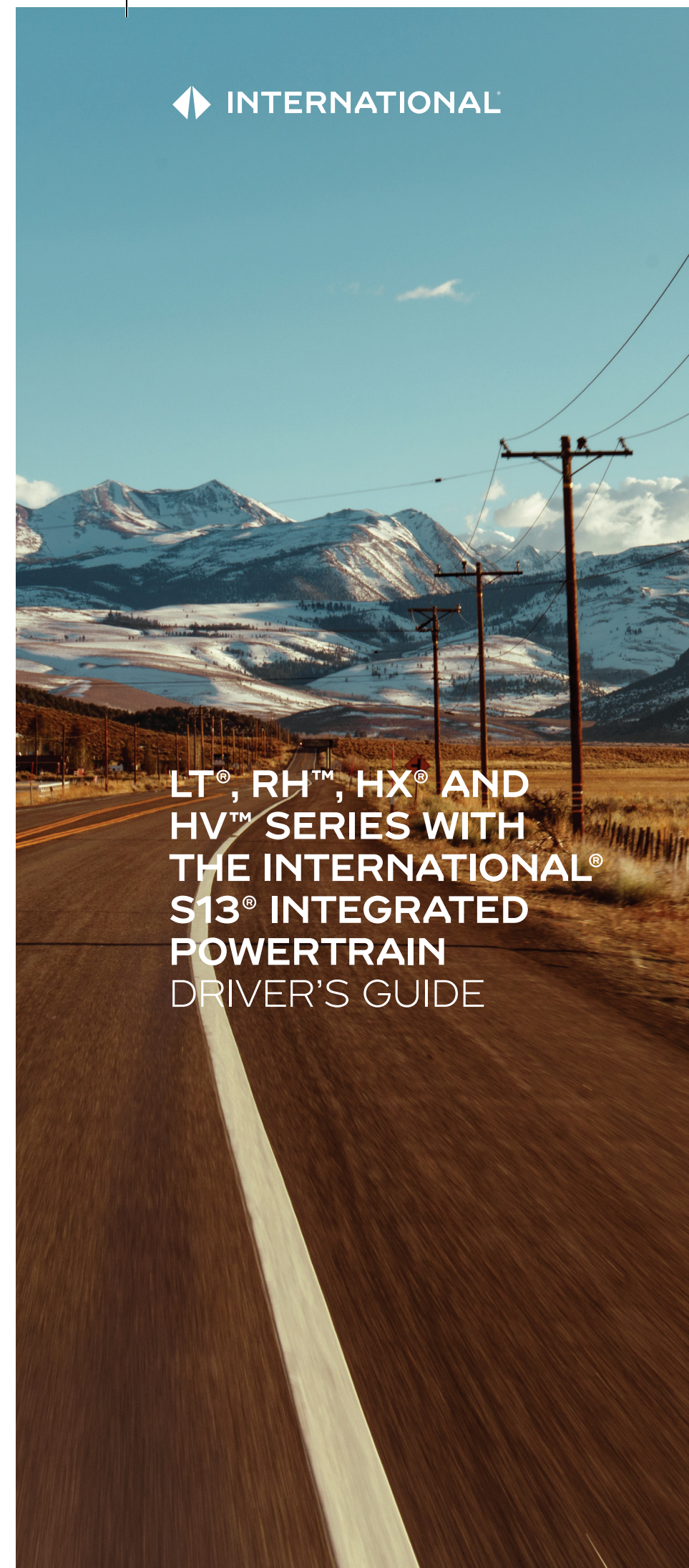
Creep mode is similar to a torque converter in a true automatic transmission.

- When the driver releases their foot from the brake, the vehicle will begin to “creep” forward or back (depending on gear selector position) in what is referred to as an Initial Vehicle Movement (IVM).
- Speed may be increased by pulling up on the shift stalk, requesting a higher gear.
- Accelerator pedal input is not required.
- Manual mode is not required at these speeds.
- Speed may be decreased by pushing down on the shift stalk, requesting a lower gear.
- Brake pedal input is not required.
- Manual mode is not required at these speeds.
- This is a passive feature – no driver input is required to enable/disable this feature and there is no indication on the dash.

To see over 80 driver training videos, go to the International Truck YouTube channel <https://www.youtube.com/c/Internationaltruck/playlists>

Note: The information and conclusions contained herein are believed to be correct at time of publication, but do not necessarily apply to similar vehicles with different specifications or with production dates after the production of this publication. Vehicles with different specifications or later dates of production may yield different results. Vehicle specifications are subject to change without notice.

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# LT<sup>®</sup>, RH<sup>™</sup>, HX<sup>®</sup> AND HV<sup>™</sup> SERIES WITH THE INTERNATIONAL<sup>®</sup> S13<sup>®</sup> INTEGRATED POWERTRAIN DRIVER'S GUIDE

#### Using the Gear Selector

Gear selection is activated by using the gear selector. The gear selector dial will “click” at each position.

- To select Drive (D) from Neutral (N), roll the collar of the gear selector dial one position forward.
- To select Reverse (R) from Neutral (N), roll the collar of the gear selector dial one position back.
- To select Low (L) from Neutral (N), roll the collar of the gear selector dial two positions forward. This will engage low range gears 1-8.
- Always come to a complete stop before changing the position of the shift collar.



Always select Neutral (N) and set the parking brakes before exiting the vehicle. While the T14<sup>®</sup> transmission includes Auto Neutral to prevent rollaways, this is only intended for emergency scenarios and should never be relied on.

#### Operation of Engine Brakes

All International<sup>®</sup> S13<sup>®</sup> engines are equipped with 3-stage compression release brake (CRB). The CRB is engaged by pulling the stalk shifter toward the driver, parallel to the plane of the steering wheel.

- Level 1 – All six cylinders are used 33%.
- Level 2 – All six cylinders are used 66%.
- Level 3 – All six cylinders are used 100%.
- Maximum braking force, up to ~ 470 HP.

##### Note:

Depending on the engine parameters of the vehicle, the service brake (brake pedal) may need to be applied to engage the CRB.

Please note: The engine brake should never be considered a substitute for the vehicle service brakes. The service brakes should always be viewed as the primary vehicle braking system. The engine brake cannot bring the vehicle to a complete stop. Only the service brakes can bring the vehicle to a complete stop.



**Hill Start Aid (Hill Hold) (standard)**

This feature holds the service brakes for up to 3 seconds, allowing the driver to safely move their foot from the brake pedal to the accelerator pedal.

- Once the accelerator pedal is depressed, the service brakes will automatically release.
- Active on grades of 2% or greater, inclines and declines.
- As with all commercial vehicles equipped with air brakes, there may be a momentary lag in disengagement and should be anticipated.
- Disable switch located on the dash for situations where rolling is desired (ex. banked docks).



**Predictive Cruise Control (PCC) (standard and for LT/RH Series only)**

Predictive Cruise Control utilizes onboard 3D mapping to improve fuel economy while maintaining trip time.

- Trip time may vary +/- 2% vs conventional cruise control (CC) while improving fuel economy 4% or greater.
- May predictively accelerate 1-2 mph above cruise control set speed before climbing a grade.
- May coast / Eco Coast over the crest of a hill at down to 4 mph below CC set speed if PCC predicts the CC set speed will be reattained when descending the other side of the hill.
- May coast / Eco Coast up to 5 mph over CC set speed down the hill.
- May coast / Eco Coast up to 2 mph further over CC set speed at the bottom of a hill if PCC predicts the vehicle will roll out back to CC set speed on coming flat terrain.
- May be modified through parameters.

**Precision Maneuvering Mode (optional)**

This feature allows very fine control of the vehicle at slow speeds.

- Engaged by depressing the "Turtle" switch on the dash.
- Creep mode is disabled and accelerator pedal is desensitized.
- The accelerator pedal will now function much like a clutch pedal.
- When backing to a trailer, the accelerator pedal may be lightly depressed to the point the vehicle begins to roll and gently moves back to the kingpin.
- The feature may be disengaged by selecting the crossed-through "Turtle" switch or driving above 10 mph.
- Note: As the accelerator pedal now functions like a clutch pedal, large movements may cause the vehicle to lurch, similar to dumping a clutch pedal.



**Eco-Coast (standard)**

Eco Coast may disengage the driveline by opening the clutch on slight downhill grades at highway speeds, allowing the vehicle's momentum to carry the truck forward, improving fuel economy.

- During Eco Coast, the gear indication in the ICU will flash, engine rpm will fall to 500 rpm and engine oil pressure will drop to idle levels (~20-25 psi).
- As the engine, transmission, and stability control system are in constant communication, the vehicle will only deviate 2-5 mph and will reengage the driveline immediately if a wheel slip is detected.

**Direct Drive Optimization & Low RPM Cruise (optional)**

An International® S13® Integrated Powertrain may be downsped to primarily operate in Direct Drive (13th gear) for peak fuel economy. While this is one gear down from top gear, this is intentional and no driver interaction is needed. This also allows the T14® transmission to upshift for further fuel economy improvements in light/bobtail, heavy tail winds, and/or downhill scenarios (aka Low RPM Cruise).

- Optimized not to lug the engine. Very low NVH.
- Engine speeds between 800-1000 RPM are normal.

**Downhill Speed Control (optional)**

Downhill Speed Control (DHSC) functions like conventional cruise control without acceleration. While descending a grade, the driver may turn on downhill speed control to maintain up to their current speed.

- The Downhill Speed Control set speed may be increased or decreased through the Res+ or Set- toggle switch.
- When DHSC is engaged, the icon to the right of the gear selection will turn green with the DHSC speed limit shown. This is the speed above cruise control that can be achieved before the engine brakes engage to slow the truck.
- Note: The vehicle will brake to maintain up to this speed but will not throttle to regain the speed upon rollout.

**International® S13® Engine Differences – Engine RPM Variations**

Engine RPM of the International® S13® engine may often be lower than you have previously experienced.

- When the engine is warm and the parking brake is set, engine RPMs may fall to 500.
- In Eco Coast, engine RPM will reduce to 500.
- During low RPM cruise (14th gear with a Direct Drive optimized truck), engine RPM may safely fall to 800-1000 rpm while in gear.

**S13 Oil Pressure & Drain Back**

Oil pressure may safely fluctuate to values as low 19 psi under normal operating conditions. The International® S13® engine is equipped with active oil pressure management to help ensure that all components are adequately lubricated.

- Enhances oil pump efficiency and improves fuel economy.
- If oil pressure is a concern, a malfunction indicator lamp will illuminate.
- Note: This is an electronically controlled variable pump – the pressure may jump abruptly from value to value (ex: 90-95 psi at cold start to 25 psi at operating temp cruising).
- Due to oil pump configuration, oil drain-back can take longer than previously experienced. If checking the oil within 15 mins of engine operation, oil may be in the lower part of the hashmarks and top-off is not required. If engine is left sitting for an extended time (~2 hours), oil will drain back to full.

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