JOHN DEERE

CONSTRUCTION SSM

OPTIMIZATION GUIDE

JOHN DEERE

Construction
Sealed Switch Module
Optimization Guide

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B: Clutch Cut-Off Switch

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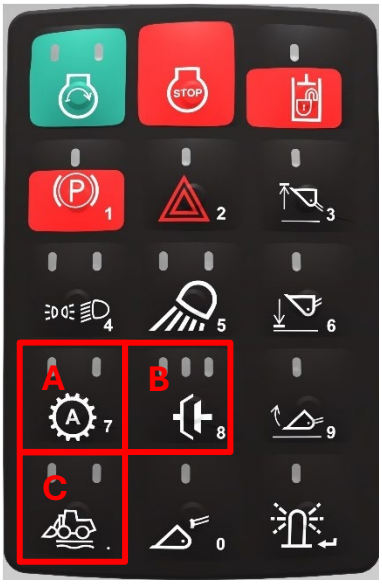


A: Automatic Transmission (Standard)

Function State by Number of Lights

i. No LED Lights - MANUAL mode. Transmission operates in selected gear.

ii. 1 LED Light - AUTO 1-D mode. Transmission will start in second gear when initially shifted from neutral. After initial shift from neutral, transmission will shift to first gear if a high load is encountered. Transmission will upshift or downshift as ground speed dictates but will only upshift to highest gear selected.

iii. 2 LED Lights - AUTO 2-D mode. Transmission will start in second gear and will shift to highest gear selected as ground speed increases or will downshift to second gear as ground speed decreases. Transmission will never shift to first gear. In this setting, first gear can only be obtained by actuating the transmission quick shift button.

Recommendation

Typically, an operator will have sufficient power for load and carry operations using the AUTO 2-D mode. AUTO 1-D is best utilized when the material pile is very dense, when the loader is climbing a steep ramp, or if the loader is being used to push material like a dozer. Caution should be used in AUTO 1-D as this mode may spin tires, increasing O&O costs. AUTO 2-D mode can reduce the number of transmission shifts which in turn can enhance the life of the components.

B: Clutch Cut-Off (CCO) (Standard):

Function State by Number of Lights

i. No LED Lights – CCO Off
ii. LEFT LED Light – Level Ground Mode
iii. MIDDLE LED Light – Slight Slope Mode
iv. RIGHT LED Light – Steep Slope Mode

Recommendation

Set the Clutch Cut-Off based on the slope of the loading area and desired braking disengagement feel of the operator. For instance, when "Level Ground Mode" is enabled, a very light brake pedal application will disengage the transmission and allow the operator to use the accelerator pedal to increase the hydraulic speed of the boom/bucket. For "Steep Slope Mode", it takes a stronger brake application to disengage the transmission from the hydraulics. When the Clutch Cut-Off feature is set properly for the site, application, and operator, the benefit will be enhanced brake life and reduced fuel consumption.

C: Ride Control (Optional)

Function State by Number of Lights

i. No LED Lights – Ride Control OFF
ii. 1 LED Light - Ride Control ON (All the time)
iii. 2 LED Lights – AUTO (active when ground speed is greater than the set point; Default set point is approximately 3.5 mph)

Recommendation

Applications that utilize a bucket on the front of the loader will benefit from the AUTO setting (2 LED Lights), as this feature was designed to optimize the point that ride control turns on and off. By having AUTO mode enabled, the operator can expect to get max bucket fill in the pile and minimum material spill during the carry. While this feature improves fuel economy of the loader, it can also improve the life of the ride control components. If the machine is outfitted with forks, an operator may experience a more consistent operation by turning ride control ON (1 LED Light), especially in very low speed, poor underfoot applications.

Key Feature Identification

A: Automatic Transmission Switch

B: Automatic Differential Lock Switch

C: Spin Control Switch

D: Ride Control Switch (if equipped)

E: Lockup Torque Converter Switch

F: Clutch Cut-Off Switch

A: Automatic Transmission (Standard)

Function State by Number of Lights

i. No LED Lights - MANUAL mode. Transmission operates in selected gear.

ii. 1 LED Light - AUTO 1-D mode. Transmission will start in second gear when initially shifted from neutral. After initial shift from neutral, transmission will shift to first gear if a high load is encountered. Transmission will upshift or downshift as ground speed dictates but will only upshift to highest gear selected.

iii. 2 LED Lights - AUTO 2-D mode. Transmission will start in second gear and will shift to highest gear selected as ground speed increases or will downshift to second gear as ground speed decreases. Transmission will never shift to first gear. In this setting, first gear can only be obtained by actuating the transmission quick shift button.

Recommendation

Typically, an operator will have sufficient power for load and carry operations using the AUTO 2-D mode. AUTO 1-D is best utilized when the material pile is very dense, when the loader is climbing a steep ramp, or if the loader is being used to push material like a dozer. Caution should be used in AUTO 1-D as this mode may spin tires, increasing O&O costs. AUTO 2-D mode can reduce the number of transmission shifts which in turn can enhance the life of the components.

B: Automatic Differential Lock (Optional):

***Differential lock is activated any time the differential lock switch is pressed, regardless of whether automatic differential lock system is enabled or not.**

Function State by Number of Lights

i. No LED Lights – AUTO Differential Lock Disabled
ii. 1 LED Light – AUTO Differential Lock Enabled (The automatic differential lock system locks the axles so that the left and right wheels turn together when wheel slip is detected, and machine speed is below 7.5 mph)

Recommendation

Auto Differential Lock should be enabled on most surfaces, which allows maximum traction and productivity on the jobsite. On hard packed surfaces, or dry asphalt/ concrete, this feature should be disabled to prevent the differential from locking during sharp turns, which could potentially accelerate powertrain and tire wear.

C: Spin Control (Optional):

*** Spin control operates in first gear forward to reduce rim pull by reducing engine RPM when loading the bucket.**

Function State by Number of Lights

i. 1 LED Light – Minimum Engine RPM Decrease
ii. 2 LED Lights – Moderate Engine RPM Decrease
iii. 3 LED Lights – Elevated Engine RPM Decrease
iv. 4 LED Lights – Maximum Engine RPM Decrease

Recommendation

Spin Control should be used when the floor conditions allow the tires to spin under heavy load in first gear. When floor conditions allow maximum traction and tire spinning is not observed, the number of lights may be reduced, to completely off. As floor conditions change and the tires begin to slip while loading, additional lights should be illuminated, one at a time, until no further tire spin is observed. Proper use of this button can enhance tire life, increase productivity, and reduce fuel burn. Beginning a demo or rental with 2 or 3 LEDs illuminated is typically a good place to start and work with the operator preference/deck condition from that point forward.

D: Ride Control (Optional)

Function State by Number of Lights

i. No LED Lights – Ride Control OFF
ii. 1 LED Light - Ride Control ON (All the time)
iii. 2 LED Lights – AUTO (active when ground speed is greater than the set point; Default set point is approximately 3.5 mph)

Recommendation

Applications that utilize a bucket on the front of the loader will benefit from the AUTO setting (2 LED Lights), as this feature was designed to optimize the point that ride control turns on and off. By having AUTO mode enabled, the operator can expect to get max bucket fill in the pile and minimum material spill during the carry. While this feature improves fuel economy of the loader, it can also improve the life of the ride control components. If the machine is outfitted with forks, an operator may experience a more consistent operation by turning ride control ON (1 LED Light), especially in very low speed, poor underfoot applications.

E: Lock-Up Torque Converter (Optional)

***The Lock-Up Torque Converter (LUTC) feature cannot be turned off.**

Function State by Number of Lights

i. No LED Lights – Lock-Up Torque Converter Disabled (LUTC will lock up in gears 4-5)
ii. 1 LED Light – Lock-Up Torque Converter Enabled (LUTC will engage in gears 2 and up or 3 and up, based on the PDU - Machine Setup - Drivetrain settings)

Recommendation

The Lock-Up Torque Converter should be used on jobsites where frequent hill climbing is required as well as any time the machine travels at high speed for more than half a mile in a single trip. Enabling this button will allow the torque converter to lock up in lower gears which will help more effectively put power to the ground, increasing productivity, as well as reducing fuel use. This feature should be disabled when the machine is used in short V-Pattern loading applications to provide a more consistent loading cycle.

F: Clutch Cut-Off (CCO) (Standard):

*** This switch has two or four settings depending on whether clutch cut-off (CCO) or adaptive clutch cut-off (ACCO) has been enabled in the PDU. ACCO is only available in automatic transmission mode. CCO is available in both automatic and manual transmission modes.**

ACCO Function State by Number of Lights

i. No LED Lights – ACCO Off
ii. 3 LED Lights – ACCO ON

CCO Function State by Number of Lights

i. No LED Lights – CCO Off
ii. LEFT LED Light – Level Ground Mode
iii. MIDDLE LED Light – Slight Slope Mode
iv. RIGHT LED Light – Steep Slope Mode

<u>Recommendation</u>

Set the Clutch Cut-Off based on the slope of the loading area and desired braking disengagement feel of the operator. For instance, when “Level Ground Mode” is enabled, a very light brake pedal application will disengage the transmission and allow the operator to use the accelerator pedal to increase the hydraulic speed of the boom/bucket. For “Steep Slope Mode”, it takes a stronger brake application to disengage the transmission from the hydraulics. When the Clutch Cut-Off feature is set properly for the site, application, and operator, the benefit will be enhanced brake life and reduced fuel consumption.

Key Feature Identification

A: Automatic Transmission Switch

B: Automatic Differential Lock Switch

C: Coast Control Switch

D: Rimpull Control Switch

E: Ride Control Switch (if equipped)

F: Engine Throttle Control Switch

A: Automatic Transmission (Standard)

Function State by Number of Lights

i. 1 LED Light - AUTO 1-D mode. Transmission will start in second gear when initially shifted from neutral. After initial shift from neutral, transmission will shift to first gear if a high load is encountered. Transmission will upshift or downshift as ground speed dictates but will only upshift to highest gear selected.

ii. 2 LED Lights - AUTO 2-D mode. Transmission will start in second gear and will shift to highest gear selected as ground speed increases or will downshift to second gear as ground speed decreases. Transmission will never shift to first gear. In this setting, first gear can only be obtained by actuating the transmission quick shift button.

Recommendation

Typically, an operator will have sufficient acceleration/power for load and carry operations using the AUTO 2-D mode. AUTO 1-D is best utilized when the material pile is very dense, when the loader is climbing a steep ramp, or if the loader is being used to push material like a dozer. Caution should be used in AUTO 1-D as this mode may spin tires, increasing O&O costs. AUTO 2-D mode can reduce the number of transmission shifts which in turn can enhance component life.

B: Automatic Differential Lock (Optional):

***Differential lock is activated any time the differential lock switch is pressed, regardless of whether automatic differential lock system is enabled or not.**

Function State by Number of Lights

i. No LED Lights – AUTO Differential Lock Disabled
ii. 1 LED Light – AUTO Differential Lock Enabled (The automatic differential lock system locks the axles so that the left and right wheels turn together when wheel slip is detected, and machine speed is below 7.5 mph)

Recommendation

Auto Differential Lock should be enabled on most surfaces, allowing maximum traction and productivity. On hard packed surfaces, or dry asphalt/concrete, this feature should be disabled to prevent the differential from locking during sharp turns, which could potentially accelerate powertrain and tire wear.

C: Coast Control (Standard):

***Enables dynamic braking to slow the machine and reduce fuel consumption.**

Function State by Number of Lights

i. LED Lights Off – Lowest Deceleration Setting (Traditional Powertrain Feel)
ii. 1 LED Light – Moderately Low Deceleration (Slight Hydrostat Feel)
iii. 2 LED Lights – Moderately High Deceleration (Moderate Hydrostat Feel)
iv. 3 LED Lights – Highest Deceleration (Full Hydrostat Feel)

Recommendation

Coast Control changes the way the machine slows down when the accelerator pedal is released. On jobsites with large elevation changes, such as significant ramp climb/descent, three lights may be used, mimicking a hydrostat feel. This will cause the machine to use its electric drive to help slow the machine, extending service brake life while improving fuel efficiency. Each sequential LED light reduction on the SSM button will adjust the feel of machine braking away from a hydrostat feel to a traditional torque converter feel. All LED Lights off will eliminate dynamic braking. Coast Control setting is recommended to be set in the highest setting for job site limitations and operator comfort.

D: Rimpull Control (Standard)

*** Spin control operates in first gear forward to reduce rim pull by reducing power transferred to the ground when loading the bucket.**

Function State by Number of Lights

i. 1 LED Light – Minimum Decrease
ii. 2 LED Lights – Moderate Decrease
iii. 3 LED Lights – Elevated Decrease
iv. 4 LED Lights – Maximum Decrease

Recommendation

Spin Control should be used when the floor conditions allow the tires to spin under heavy load in first gear. When floor conditions allow maximum traction and tire spinning is not observed, the number of lights may be reduced, to completely off. As floor conditions change and the tires begin to slip while loading, additional lights should be illuminated one at a time until no further tire spin is observed. Proper use of this button can enhance tire life, increase productivity, and reduce fuel burn. Beginning a demo or rental with 2 or 3 LEDs illuminated is typically a good place to start and work with the operator preference/deck condition from that point forward.

E: Ride Control (Standard)

Function State by Number of Lights

i. No LED Lights – Ride Control OFF
ii. 1 LED Light - Ride Control ON (All the time)
iii. 2 LED Lights – AUTO (active when ground speed is greater than the set point; Default set point is approximately 3.5 mph)

Recommendation

Applications that utilize a bucket on the front of the loader will benefit from the AUTO setting (2 LED Lights), as this feature was designed to optimize the point that ride control turns on and off. By having AUTO mode enabled, the operator can expect to get max bucket fill in the pile and minimum material spill during the carry. While this feature improves fuel economy of the loader, it can also improve the life of the ride control components. If the machine is outfitted with forks, an operator may experience a more consistent operation by turning ride control ON (1 LED Light), especially in very low speed, poor underfoot applications.

F: Engine Throttle Mode (Standard)

Function State by Number of Lights

i. 1 LED Light – Normal Mode (Variable Engine RPM)

ii. 2 LED Lights – Performance Mode (Constant Engine RPM)

Recommendation

This feature enables the operator to change how the engine throttle operates. With one light engaged, engine speed will increase to the operator set maximum as load increases but will decrease to idle when the machine is not under a load. This setting is recommended in nearly all applications due to fuel consumption gains, noise reduction, and often, the lack of need for full Performance Mode. Performance Mode will lock the throttle to the operator selected position regardless of load. This mode consumes a higher rate of fuel burn, but an operator may note that this provides better hydraulic consistency, for instance when fine metering/craning. Note: After 5 seconds of inactivity, the machine may still return the throttle to idle even in Performance Mode.

Key Feature Identification

A: Automatic Differential Lock Switch

B: Coast Control Switch

C: Spin Control Switch

D: Ride Control Switch

E: Performance Mode Switch

A: Automatic Differential Lock (Optional):

***Differential lock is activated any time the differential lock switch is pressed, regardless of whether automatic differential lock system is enabled or not.**

Function State by Number of Lights

i. No LED Lights – AUTO Differential Lock Disabled

ii. 1 LED Light – AUTO Differential Lock Enabled (The automatic differential lock system locks the axles so that the left and right wheels turn together when wheel slip is detected, and machine speed is below 7.5 mph)

Recommendation

Auto Differential Lock should be enabled on most surfaces, allowing maximum traction and productivity. On hard packed surfaces, or dry asphalt/concrete, this feature should be disabled to prevent the differential from locking during sharp turns, which could potentially accelerate powertrain and tire wear.

B: Coast Control (Standard):

***Enables dynamic braking to slow the machine and reduce fuel consumption.**

Function State by Number of Lights

i. LED Lights Off – Lowest Deceleration Setting (Traditional Powertrain Feel)
ii. 1 LED Light – Moderately Low Deceleration (Slight Hydrostat Feel)
iii. 2 LED Lights – Moderately High Deceleration (Moderate Hydrostat Feel)
iv. 3 LED Lights – Highest Deceleration (Full Hydrostat Feel)

Recommendation

Coast Control changes the way the machine slows down when the accelerator pedal is released. On jobsites with large elevation changes, such as significant ramp climb/descent, three lights may be used, mimicking a hydrostat feel. This will cause the machine to use its electric drive to help slow the machine, extending service brake life while improving fuel efficiency. Each sequential LED light reduction on the SSM button will adjust the machine braking away from a hydrostat feel to a traditional torque converter feel. All LED Lights off will eliminate dynamic braking. Coast Control setting is recommended to be set in the highest setting for job site limitations and operator comfort.

C: Spin Control (Standard):

*** Spin control operates in first gear forward to reduce rim pull by reducing power to the ground when loading the bucket.**

Function State by Number of Lights

i. 1 LED Light – Minimum Decrease
ii. 2 LED Lights – Moderate Decrease
iii. 3 LED Lights – Elevated Decrease
iv. 4 LED Lights – Maximum Decrease

Recommendation

Spin Control should be used when the floor conditions allow the tires to spin under heavy load in first gear. When floor conditions allow maximum traction and tire spinning is not observed, the number of lights may be reduced, down to zero lights. As floor conditions change and the tires begin to slip while loading, additional lights should be illuminated one at a time until no further tire spin is observed. Proper use of this button can enhance tire life, increase productivity, and reduce fuel burn.

D: Ride Control (Standard)

Function State by Number of Lights

i. No LED Lights – Ride Control OFF
ii. 1 LED Light - Ride Control ON (All the time)
iii. 2 LED Lights – AUTO (active when ground speed is greater than the set point; Default set point is approximately 3.5 mph)

Recommendation

Applications that utilize a bucket on the front of the loader will benefit from the AUTO setting (2 LED Lights), as this feature was designed to optimize the point that ride control turns on and off. By having AUTO mode enabled, the operator can expect to get max bucket fill in the pile and minimum material spill during the carry. While this feature improves fuel economy of the loader, it can also improve the life of the ride control components. If the machine is outfitted with forks, an operator may experience a more consistent operation by turning ride control ON (1 LED Light), especially in very low speed, poor underfoot applications.

E: Performance Mode

Function State by Number of Lights

i. No LED Lights – Standard Mode (Engine RPM is limited to 1500)
ii. 1 LED Light – Performance Mode (Allows Engine RPM "+100 RPM" over Standard Mode)

Recommendation

It is recommended to have Standard Mode enabled in nearly all applications. This setting is best for fuel consumption, noise reduction, and component longevity. There are slight productivity gains when enabling Performance Mode, however this comes at the expense of fuel consumption and increased engine noise. Performance Mode may also be best used when using the loader to crane an object.

Key Feature Identification

A: Automatic Transmission Switch

B: Ride Control Switch

C: Coast Control Switch

D: Performance Mode Switch

E: Rimpull Control Switch

A: Automatic Transmission (Standard)

Function State by Number of Lights

i. 1 LED Light - AUTO 1-D mode. Ranges 1—D are available. The machine will start in 2nd range, but 1st range will automatically come on when machine is under load and requires more torque.

ii. 2 LED Lights - AUTO 2-D mode. Ranges 2—D are available. The drive will start in what feels like second gear and will adjust higher as ground speed increases or will reduce as ground speed decreases. The machine will not automatically adjust to what feels like first gear until the operator actuates the orange quick shift button on the bucket joystick.

Recommendation

Typically, an operator will have sufficient acceleration/power for load and carry operations using the AUTO 2-D mode. AUTO 1-D is best utilized when the material pile is very dense, when the loader is climbing a steep ramp, or if the loader is being used to push material like a dozer. Caution should be used in AUTO 1-D as this mode may spin tires, increasing O&O costs. AUTO 2-D mode can reduce the number of transmission shifts which in turn can enhance the life of the component.

B: Ride Control (Standard)

Function State by Number of Lights

i. No LED Lights – Ride Control OFF
ii. 1 LED Light - Ride Control ON (All the time)
iii. 2 LED Lights – AUTO (active when ground speed is greater than the set point; Default set point is approximately 3.5 mph)

Recommendation

Applications that utilize a bucket on the front of the loader will benefit from the AUTO setting (2 LED Lights), as this feature was designed to optimize the point that ride control turns on and off. By having AUTO mode enabled, the operator can expect to get max bucket fill in the pile and minimum material spill during the carry. While this feature improves fuel economy of the loader, it can also improve the life of the ride control components. If the machine is outfitted with forks, an operator may experience a more consistent operation by turning ride control ON (1 LED Light), especially in very low speed, poor underfoot applications

C: Coast Control (Standard):

***Enables dynamic braking to slow the machine and reduce fuel consumption.**

Function State by Number of Lights

i. LED Lights Off – Lowest Deceleration Setting (Traditional Powertrain Feel)
ii. 1 LED Light – Moderately Low Deceleration (Slight Hydrostat Feel)
iii. 2 LED Lights – Moderately High Deceleration (Moderate Hydrostat Feel)
iv. 3 LED Lights – Highest Deceleration (Full Hydrostat Feel)

Recommendation

Coast Control changes the way the machine slows down when the accelerator pedal is released. On jobsites with large elevation changes, such as significant ramp climb/descent, three lights may be used, mimicking a hydrostat feel. This will cause the machine to use its electric drive to help slow the machine, extending service brake life while improving fuel efficiency. Each sequential LED light reduction on the SSM button will adjust the machine braking away from a hydrostat feel to a traditional torque converter feel. All LED Lights off will eliminate dynamic braking. Coast Control setting is recommended to be set in the highest setting for job site limitations and operator comfort.

D: Performance Mode (Standard)

Function State by Number of Lights

i. 1 LED Light – Normal Mode (Variable Engine RPM)
ii. 2 LED Lights – Performance Mode (Constant Engine RPM)

Recommendation

This feature enables the operator to change how the engine throttle operates. With one light engaged, engine speed will increase to the operator set maximum as load increases but will decrease to idle when the machine is not under a load. This setting is recommended in nearly all applications due to fuel consumption gains, noise reduction, and often, the lack of need for full Performance Mode. Performance Mode will lock the throttle to the operator selected position regardless of load. This mode will result in a higher rate of fuel burn, but an operator may note that this provides better hydraulic consistency, for instance when fine metering/craning. Note: After 5 seconds of inactivity, the machine may still return the throttle to idle even in Performance Mode.

E: Rimpull Control (Standard)

*** Spin control operates in first gear forward to reduce rim pull by reducing power to the ground when loading the bucket.**

Function State by Number of Lights

i. LED Lights Off – Maximum Torque Delivered to Wheels
ii. 1 LED Light – Minimum Decrease
iii. 2 LED Lights – Moderate Decrease
iv. 3 LED Lights – Elevated Decrease
v. 4 LED Lights – Maximum Decrease

Recommendation

Spin Control should be used when the floor conditions allow the tires to spin under heavy load in first gear. When floor conditions allow maximum traction and tire spinning is not observed, the number of lights may be reduced, down to no lights. As floor conditions change and the tires begin to slip while loading, additional lights should be illuminated one at a time until no further tire spin is observed. Proper use of this button can enhance tire life, increase productivity, and reduce fuel burn. Beginning a demo or rental with 2 or 3 LEDs illuminated is typically a good place to start and work with the operator preference/deck condition from that point forward.

Key Feature Identification

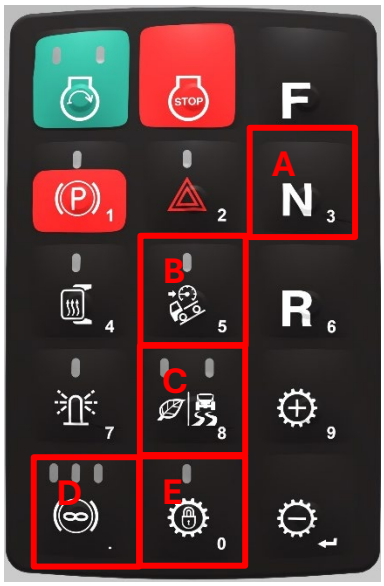
A: Neutral Selection Switch

B: Descent Control Switch

C: Drive Mode Switch

D: Retarder Switch

E: Gear Hold Switch (if equipped)



A: Neutral Selection (Standard)

***Always bring the machine to a complete stop before enabling the neutral selection switch. When the transmission drive is engaged, increased service brake pedal effort will be required to fully stop the machine. Always shift transmission to neutral when machine is stopped for an extended amount of time to reduce service brake pedal effort and to avoid an increased fuel consumption rate.**

Function State by Number of Lights

i. No LED Lights – Press to Select Neutral when the machine is at a complete stop for loading/unloading operations, or periods of significant parked operation (monitor gear selector light displays “N”)

Recommendation

It is nearly always recommended to turn on Load Assist in the monitor (Operator Settings) so that when the operator presses the brake pedal, the brakes remain engaged while the transmission is in Neutral. This feature allows the operator to be most comfortable and reduce fatigue during loading operation since they do not need to hold the brake pedal down after pressing the Neutral Selection. If Load Assist is disabled in the monitor, when the Neutral Selection switch is enabled, the transmission will stay in neutral, with no brake assist, requiring the operator to press the brakes to keep the machine stationary.

B: Descent Control (Standard)

***Descent control can be set from (2-34 mph) and is used to maintain a set speed during downhill operation.**

Function State by Number of Lights

i. No LED Lights – Descent Control Mode Off

ii. 1 LED Light - Descent Control Mode On: When enabled, machine ground speed is limited by the automated retarder control when the accelerator or brake pedal is released. Pressing the accelerator or the brake pedal will momentarily deactivate the descent control feature. When the accelerator or brake pedal is released, the new speed with be set for descent control.

<u>Recommendation</u>

Descent Control Mode Off and the Retarder Switch (C) Off allows the machine to coast to a rolling stop with no transmission retardation. A customer may want the machine configured this way in very gentle slopes or flat conditions. This setting is also advantageous for icy conditions, to prevent aggressive braking conditions. Descent Control Mode On maintains the ground speed of the ADT at the point the operator releases the accelerator or brake pedal on a slope. This setting is recommended for any application that has change in elevation/ramp climbing/descending. This is generally a more comfortable and consistent ride, since the speed of the ADT is maintained without the need to feather the brake or accelerator pedals. This feature will reduce brake application/wear and likely improve fuel consumption as the throttle is consistent.

C: Drive Mode (Standard – Only available on 410 and 460):

***Multiple drive modes are available to balance fuel economy, traction control, and productivity. Each mode provides unique machine control parameters for engine power management, launch gear, acceleration, and differential lock engagement. Drive modes can be changed by the drive mode switch and can be limited or locked through owner settings.**

Function State by Number of Lights

i. No LED Lights – Normal Mode (Intended for max production)
ii. 1 LED Light – Economy Mode (Machine power and acceleration are limited to reduce engine load)
iii. 2 LED Lights – Traction Mode (Reduces machine acceleration and increases traction)

Recommendation

Normal Mode is recommended for customers wanting to achieve maximum production, that have nearly no idle time while waiting to load. Economy Mode offers a customer noticeable fuel consumption savings, reduces wear and tear on the machine, however, is slightly less productive if there is no idle loading time. This mode is ideal for icy conditions. Traction Mode is best for sandy/loose/soft material, as this locks the Interaxle Differential Lock and the Cross Differential Lock preemptively to reduce tire spin. This is also beneficial for steep conditions, both climbing and descending. Do not use Traction Mode on firm, clean packed floor conditions, it would be recommended to turn off Auto-Diff Lock Mode in the monitor for these conditions. (Owner Setting in Monitor)

D: Retarder Function (Standard):

***When the brake pedal is depressed, the machine has 100% retardation. Always refer to the hill chart on the right-hand side of the cab window.**

Function State by Number of Lights

i. No LED Lights – Auto Retardation (Allows the machine to coast uphill or on flat surfaces without retarder engagement)
ii. 1 LED Light – Low Retardation When Accelerator Pedal is Released
iii. 2 LED Lights – Medium Retardation When Accelerator Pedal is Released
iv. 3 LED Lights – High Retardation When Accelerator Pedal is Released

Recommendation

See Descent Control ("B" on the SSM) for the applications that Auto Retardation should be utilized. Low Retardation Mode is best for small, short, easy slope applications. Medium Retardation Mode for slightly more aggressive/longer slope applications. High Retardation Mode for the most severe and longest slope applications. Proper retardation settings will increase brake life, may offer slight fuel efficiency gains, and increase operator comfort.

E: Gear Hold (Standard)

*** While operating in changing ground or slope conditions, gear hold may be used to avoid shift cycling and gear hunting.**

Function State by Number of Lights

i. No LED Lights – Gear Hold OFF
ii. 1 LED Light – Gear Hold ON (Prevents upshifting from the set gear while providing normal downshifting)

Recommendation

Gear Hold Off will operate as a normal automatic transmission, typically best served for flat conditions, good underfoot floor surfaces and longer hauls. Gear Hold On is typically recommended for all other applications. This will eliminate gear hunting on slopes, increasing productivity and improving overall powertrain component life. In soft/muddy conditions, this mode will also provide more consistent operating speeds which are best controlled by the manual gear up/down buttons on the SSM.

Key Feature Identification

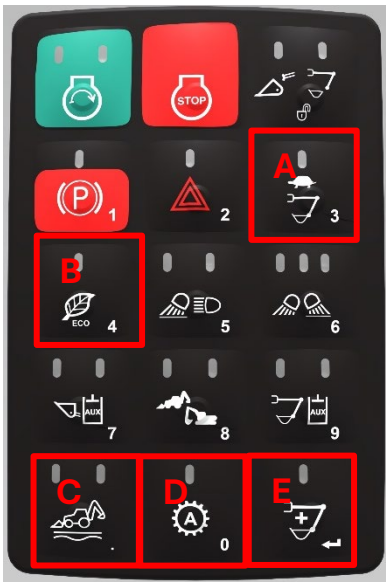
A: Precision Mode Switch

B: ECO Mode Switch

C: Ride Control Switch

D: Automatic Transmission Switch

E: Lift Mode Switch



A: Precision Mode (Standard 320-710) **Not available on 310 models due to hydraulic system*

Function State by Number of Lights

i. No LED Lights – Backhoe Precision Mode OFF
ii. 1 LED Light – Backhoe Precision Mode ON

Recommendation

Precision Mode is best suited for new operators as both the acceleration and top speed of the hydraulic functions are slowed down (Hydraulic flow is 55% of max). A more experienced operator may choose to use this function in urban areas with a high amount of potential site obstacles. With Precision Mode off, there are no speed/acceleration limits on the hydraulic system making it best suited for a veteran operator in a high production environment. There is likely not a significant difference in fuel consumption between the two modes.

B: ECO Mode (Standard):

***If LOCKED ON is selected within the monitor settings, the machine will always run in economy mode regardless of ECO mode switch input.**

Function State by Number of Lights

i. No LED Lights – ECO Mode OFF
ii. 1 LED Light – ECO Mode ON

Recommendation

ECO mode sees its biggest benefit for operations that have significant roading time as the max engine RPM is capped. Since engine RPM are reduced in ECO mode, the bystander noise will be slightly lower than when ECO mode is off. For nearly all backhoe digging/craning operations operators will likely want ECO mode turned off, as this allows the engine to be set to max RPM, and the hydraulic system will achieve maximum flow for both speed and performance.

C: Ride Control (Manual ride control on the 310G/310P, Optional Auto Ride control on the 320P/410P, Standard Auto Ride control on the 710P):

***** Automatic Ride Control can be set in the monitor in 1 MPH increments between 1-15 MPH. Factory default speed is 3.5 MPH.**

Function State by Number of Lights

i. LED Lights Off – Ride Control OFF
ii. 1 LED Light – Ride Control ON
iii. 2 LED Lights – Automatic Ride Control

Recommendation

Applications that utilize a bucket on the front of the backhoe will benefit from the AUTO setting (2 LED Lights), as this feature was designed to optimize the point that ride control turns on and off. By having AUTO mode enabled, the operator can expect to get max bucket fill in the pile and minimum material spill during the carry. This feature may improve fuel economy of the loader since ride control will be turned off when engaging the pile, increasing efficiency. It can also improve the life of the ride control components. If the machine is outfitted with forks, an operator may experience a more consistent operation by turning ride control ON (1 LED Light), especially in very low speed, poor underfoot applications.

D: Automatic Transmission (Standard: 310 P – 710 P)

Function State by Number of Lights

i. No LED Lights – AUTOSHIFT OFF
ii. 1 LED Light - AUTOSHIFT ON

Recommendation

Autoshift is recommended to be turned on nearly all the time since this will give the operator the best powertrain performance for the operation to be completed. Autoshift can also extend the life of the powertrain as the shifting is optimized through the machine software to change at the optimal points. An operator can set the MAX Gear Limit, but there is not an option to set a MIN Gear Limit.

E: Lift Mode (Standard on 320 P – 710 P)

*** Only active in backhoe mode and increases hydraulic system pressure.**

Function State by Number of Lights

i. No LED Lights – Lift Mode OFF
ii. 1 LED Light – Lift Mode ON

Recommendation

When Lift Mode is ON, the hydraulic system automatically provides a 15 second burst of hydraulic pressure when using the craning function to enhance the lifting capability of the machine. This feature is especially useful for operations that are moving jersey barriers, manholes, plates, etc. Fuel consumption is negligible between the two modes and therefore the recommendation is to have this feature turned on for any operations that have craning as a key job.

Key Feature Identification

A: Grade Control Switch

B: Neutral Rotate Mode Switch

C: Decelerator Mode Switch

D: Reverse Ratio Switch

E: Economy (ECO) Mode Switch

A: Grade Control (Optional):

***If grade control "ready" is not installed on the machine, neither LED will be illuminated. The John Deere Grade control systems can include multiple options: EZGrade™, Slope Control, Slope Control w/ Laser, and SmartGrade™ 3D.**

Function State by Number of Lights

i. No LED Lights – Grade Control is not installed (Mechanical Control Machine Only)
ii. 1 LED Light – John Deere Grade Control ON
iii. 2 LED Lights – Aftermarket Grade Control ON

Recommendation

EZ Grade – Basic grade control system to enhance the operator's ability to create smooth planer surfaces by automating the blade movements to compensate for unintended machine movements. System runs in the background without the need for operator input. Can be turned off in the monitor if needed to create complex transitions like super curves and sweeping slopes.

Slope Control – Onboard 2D grade control system that assists the operator with single and compound sloping planes relative to machine track plane. Consists of 3 operating modes (Target, Joystick, Manual) that can be tailored to the mainfall and

cross slope parameters of the plane. This system allows for creating of planer surfaces based on the operators input of the slopes. This system works well when GPS signal may not be available, for simple grading projects not requiring tight elevation tolerances, and for simple surfaces.

Slope Control w/ Laser– Onboard 2D grade control system that utilizes input from a rotating laser to benchmark elevation. This system can be configured with either single or dual laser receivers. It allows for creating planer surfaces based on the guidance of the rotating laser for increased accuracy providing tighter grade tolerances. This system works well when GPS signal may not be available, for simple grading projects requiring tight elevation tolerances.

SmartGrade 3D– Onboard 3D grade control system that utilizes input from GPS correction. This system allows for creating planer and complex surfaces based on the guidance of the GNSS receivers and base station. This system works well when GPS signal is available, for complex grading projects requiring elevation tolerances or for engineered models and plans.

B: Neutral Rotate Mode (Standard):

***Allows the operator to turn the machine in place without moving in forward or reverse.**

Function State by Number of Lights

i. LED Lights Off – Neutral Rotate Mode OFF
ii. 1 LED Light – Neutral Rotate Mode ON

<u>Recommendation</u>

Neutral Rotate is commonly used to wind winch cable uniformly across the spool. Additionally, it should be used when making slight steering corrections when positioning the machine on a trailer or placing a side boom. This feature requires the park brake to be released and the engine to be above low idle speed.

C: Decelerator Mode (Standard):

Function State by Number of Lights

i. No LED Light – "ENGINE MODE": When the decelerator/brake pedal is applied, both the engine and transmission speed are decreased, which effectively decreases ground speed and all corresponding machine functions.

ii. 1 LED Light – "TRANSMISSION MODE": When the decelerator/brake pedal is applied, the transmission speed decreases but the engine speed remains constant. Hydraulic functions to continue to perform at the associated engine speed.

Recommendation

Historically, John Deere crawlers have operated in "Engine Mode," and therefore operators commonly prefer this setting due to its familiarity. Engine mode is best used to slow the ground speed and all hydraulic functions in very tight/precise applications. This will also reduce power to the tracks which can limit slip and has some fuel consumption benefits. Transmission mode is commonly used when increased hydraulic flow is needed for blade or attachment performance. Examples include, creating transitions in grade (flats to slopes, swales, ditches), running automatic grade control in confined areas or around obstacles, using high flow attachments like winches, or low speed tools such as vibratory plows.

D: Reverse Ratio (Standard)

Function State by Number of Lights

i. No LED Lights – Used for setting forward and reverse speeds independently (Machine remembers the last speed in either F or R direction when shifting)

ii. 1 LED Light – Reverse speed ratio of 100% of forward speed

iii. 2 LED Lights – Reverse speed ratio of 115% of forward speed

iv. 3 LED Lights – Reverse speed ratio of 130% of forward speed

Recommendation

John Deere suggests that no LED lights are set for Reverse Ratio, requiring an operator to choose independent forward and reverse speeds that best accommodate the job and site conditions. Higher reverse speeds can have a negative impact on undercarriage life and should be minimized when possible. A lower reverse speed setting is best for track life, but this comes with the potential cost of lower production.

E: Economy (ECO) Mode (Standard)

***ECO mode can be force enabled/disabled through the primary display unit (PDU). A display message appears on the PDU unit if disabled and the function does not change with the SSM.**

Function State by Number of Lights

i. No LED Lights – ECO Mode OFF

ii. 1 LED Light – ECO Mode ON: automatically lowers engine speed to reduce fuel consumption when the engine is not under load

Recommendation

John Deere recommends ECO mode “ON” for most applications. The most common environments that an operator would want this feature turned off is when there is inconsistent underground material(roots), or slope work. These conditions can result in engine surging, where the engine is looking for the optimal run speed with ECO Mode ON. Eco Mode works much like an overdrive transmission, where the engine is idled down to run the most efficient speed, providing peak power and torque, while the hydrostatic transmission is shifted up to maintain travel speeds. When additional load is encountered, the transmission will automatically downshift while the engine speed is increased until the load is reduced. ECO Mode also provides improved grade control performance by running the hydraulics at the engine speed the grade system is calibrated at. This also reduces the noise of the engine and smooths out the power to the tracks providing increased traction in loose materials.

Key Feature Identification

A: Pitch Select Switch

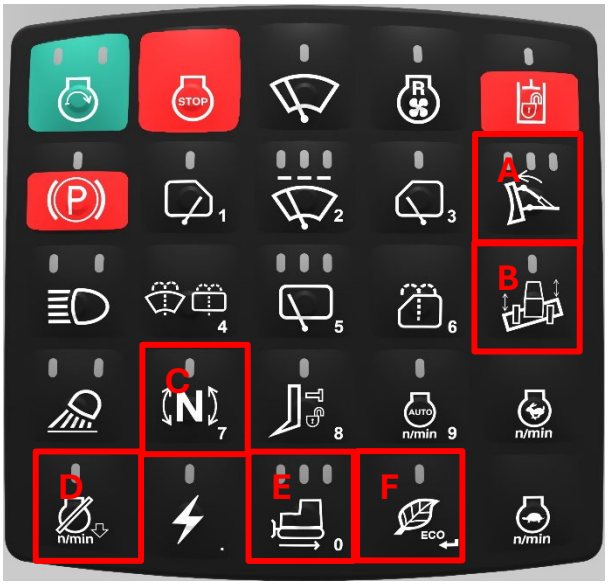
B: Dual Tilt Switch

C: Neutral Rotate Mode Switch

D: Decelerator Mode Switch

E: Reverse Ratio Switch

F: Economy (ECO) Mode Switch



A: Pitch Select (Optional):

***Allows the operator to select the optimal pitch and mode for the return-to-pitch feature when the pitch select button on RH joystick is pressed. Presets can be adjusted between 0-100%.**

Function State by Number of Lights

i. No LED Lights – Return to Pitch Mode Turned OFF
ii. 1st LED Light – Returns blade to pitch position one (factory default 20% of stroke)
iii. 2nd LED Light – Returns blade to pitch position two (factory default 50% of stroke)
iv. 3rd LED Light – Returns blade to pitch position three (factory default 80% of stroke)
v. All LED Lights – Return-to-pitch cycle (cycles through each preset pitch position)

Recommendation

Power Pitch is very effective in repetitive dozing applications to increase ground penetration, material retention, carrying capacity and to reduce carry-back. When using the joystick proportional roller to manually adjust blade pitch, the pitch recall button will return the blade to the corresponding preset. In most cases, operators will set the blade pitch for increased penetration at the start of the cut. After filling the blade, they will cycle the pitch to a carry position by pressing the joystick button to increase carrying capacity. At the end of the push, the blade is cycled to a forward position to aide with shedding the material and reduce carry back.

B: Single vs Dual-Tilt (Optional – If you have the Pitch Select feature, you have Single/Dual Tilt)

***This switch allows the operator to select single or dual tilt mode. When this light is on, both tilt cylinders will move equally while tilting the blade. With the light off, only one cylinder will provide tilt.**

Function State by Number of Lights

i. No LED Lights – Single Tilt Mode
ii. 1 LED Light –Dual Tilt mode

Recommendation

Dual Tilt mode provides equal tilt in both directions, regardless of blade pitch and is commonly used for most applications. This provides the most consistent grading behavior of the machine. With Single Tilt turned on, one cylinder will provide tilt function, and the opposite cylinder will provide pitch. In this configuration, blade tilt may be limited or biased to one side, but it may provide a steeper tilt angle to be achieved. Single Tilt Mode is used for very aggressive transitions in cut from flat to steep. (Example: Switchbacks or Fore slope → Back slope & vice versa)

C: Neutral Rotate Mode (Standard):

***Allows the operator to turn the machine in place without moving in forward or reverse.**

Function State by Number of Lights

i. LED Lights Off – Neutral Rotate Mode OFF
ii. 1 LED Light – Neutral Rotate Mode ON

Recommendation

Neutral Rotate is commonly used to wind winch cable uniformly across the spool. Additionally, it should be used when making slight steering corrections when positioning the machine on a trailer or placing a side boom. This feature requires the park brake to be released and the engine to be above low idle speed.

D: Decelerator Mode (Standard):

Function State by Number of Lights

i. No LED Light – "ENGINE MODE": When the decelerator/brake pedal is applied, both the engine and transmission speed are decreased, which effectively decreases ground speed and all corresponding machine functions.

ii. 1 LED Light – "TRANSMISSION MODE": When the decelerator/brake pedal is applied, the transmission speed decreases but the engine speed remains constant. Hydraulic functions to continue to perform at the associated engine speed.

Recommendation

Historically, John Deere crawlers have operated in "Engine Mode," and therefore operators commonly prefer this setting due to its familiarity. Engine mode is best used to slow the ground speed and all hydraulic functions in very tight/precise applications. This will also reduce power to the tracks which can limit slip and has some fuel consumption benefits. Transmission mode is commonly used when increased hydraulic flow is needed for blade or attachment performance. Examples include, creating transitions in grade (flats to slopes, swales, ditches), running automatic grade control in confined areas or around obstacles, using high flow attachments like winches, or low speed tools such as vibratory plows.

E: Reverse Ratio (Standard)

Function State by Number of Lights

i. No LED Lights – Used for setting forward and reverse speeds independently (Machine remembers the last speed in either F or R direction when shifting)

ii. 1 LED Light – Reverse speed ratio of 100% of forward speed

iii. 2 LED Lights – Reverse speed ratio of 115% of forward speed

iv. 3 LED Lights – Reverse speed ratio of 130% of forward speed

Recommendation

John Deere suggests that no LED lights are set for Reverse Ratio, requiring an operator to choose independent forward and reverse speeds that best accommodate the job and site conditions. Higher reverse speeds can have a negative impact on undercarriage life and should be minimized when possible. A lower reverse speed setting is best for track life, but this comes with the potential cost of lower production.

F: Economy (ECO) Mode (Standard)

***ECO mode can be force enabled/disabled through the primary display unit (PDU). A display message appears on the PDU unit if disabled and the function does not change with the SSM.**

Function State by Number of Lights

i. No LED Lights – ECO Mode OFF

ii. 1 LED Light – ECO Mode ON: automatically lowers engine speed to reduce fuel consumption when the engine is not under load

Recommendation

John Deere recommends ECO mode “ON” for most applications. The most common environments that an operator would want this feature turned off is one of an inconsistent material, or slope work. These conditions can result in engine surging, where the engine is looking for the optimal run speed. Eco Mode works much like an overdrive transmission, where the engine is idled down to run the most efficient speed providing peak power and torque while the hydrostatic transmission is up-shifted to maintain travel speeds. When additional load is encountered, the transmission will automatically downshift while the engine speed is increased until the load is reduced. ECO Mode also provides improved grade control performance by running the hydraulics at the engine speed the grade system is calibrated at. This also reduces the noise of the engine and smooths out the power to the tracks providing increased traction in loose materials.

Key Feature Identification

A: Lever Steer/Auto Articulation

B: Machine Preset Switch

C: Autoshift Switch

D: Auto Differential Lock Switch

E: Auto Blade Control Switch

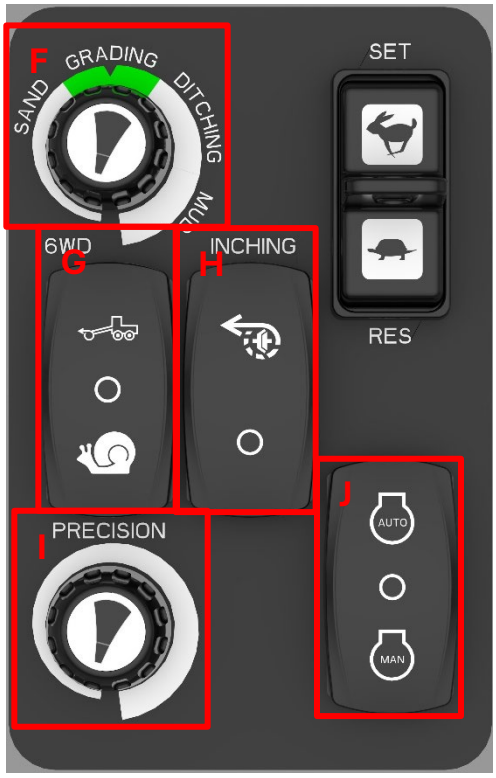
F: Aggressiveness Mode Dial

G: 6WD/Precision Switch

H: Inching Mode Switch

I: Precision Mode Speed Dial

J: Engine Speed Control Mode Switch



A: Lever Steer (Standard on GP Units)/Auto-Articulate (Optional Automation Upgrade):

Function State by Number of Lights

i. No LED Lights – Disable lever steering and auto articulation (Steering Wheel only)
ii. Left LED Light – Enable lever/joystick steering
iii. Middle LED Light – Enable lever/joystick steering and auto articulation in F and R
iv. Right LED Light – Enable lever/joystick steering and auto articulation in forward only

Recommendation

Typically, the steering wheel (No LED Lights) is most needed for roading applications, snowplow applications and backing/working next to fresh concrete, like a curb or sidewalk. Lever Steering (Left LED) is favored for most other applications. Auto Articulation Forward and Reverse (Middle LED) improves efficiency in snowplow applications, navigating winding roads with tight corners, and working in cul-de-sacs. Auto Articulation Forward only (Right LED) is best utilized for the operator who wants to control reverse steering manually.

B: Machine Preset (Optional Automation Upgrade):

Function State by Number of Lights

i. No LED Lights – Preset Machine Settings Turned Off
ii. Left LED Light – Setting #1 for Operator Specified Machine Settings
iii. Middle LED Light – Setting #2 for Operator Specified Machine Settings
iv. Right LED Light – Setting #3 for Operator Specified Machine Settings

Recommendation

The monitor allows three unique machine setting configurations by selecting; "Automation→Presets." These become the pre-defined settings for each LED light state. All presets have the same configuration options to choose from. For example, if a "roading feature" is desired as a preset, you can assign all roading features to Setting # 1. (ie. driving lights, autoshift, flashers, stow the blade, etc.) If a "working feature" is desired as a preset, you can assign those settings to Setting # 2. (Auto diff lock, working lights, blade to home, grade control etc.) Push and hold the SSM button to active a preset configuration, an audible beep will sound, and those predefined settings will enable as the operator had previously set them to be. This quick switch of settings improves efficiency and production.

C: Autoshift (Optional Automation Upgrade):

Function State by Number of Lights

i. LED Lights Off – Autoshift OFF

ii. 1 LED Light – Autoshift ON or Autoshift Plus ON

Recommendation

Autoshift is often most appreciated by newer operators. Autoshift allows the transmission to automatically shift gears 4th - 8th when the gear shift lever is in 5th or higher. Autoshift uses inputs of engine speed, gear shift lever position, and inching pedal position. Autoshift uses machine inputs of percent throttle and percent engine load at current speed. Autoshift will only shift as high as the gear selected by the operator. If 6th gear is selected, autoshift will shift through gears 4th—6th. The lowest gear available in autoshift mode is 4th, unless otherwise commanded by the gear shift lever (lever manually moved below 4th gear). Autoshift is not available in gears 1st—3rd.

Autoshift Plus enables all gears for autoshifting. Autoshift Plus also allows the operator to use only the brake and throttle pedal to initiate movement or stop movement. This makes it easier for an operator to work around obstacles when the blade needs to be repositioned multiple times in tight areas. By having Autoshift Plus enabled, an operator can also press the brake pedal while the transmission is in any gear other than neutral, and the machine will “hill hold”, if the unit is on a slope greater than 4%. The transmission locks, preventing the machine from moving forward or reverse. Once the throttle is pressed again, the machine will start in the previously selected gear. Your most experienced operators that understand engine pull down and very precise response (fine grading) may prefer to have Autoshift and Autoshift Plus turned off.

D: Auto Differential Lock (Standard):

***Differential lock is activated any time the manual differential lock switch is ON regardless of whether the automatic differential lock system is enabled or not.**

Function State by Number of Lights

i. No LED Light – Automatic Differential Lock OFF
ii. 1 LED Light – Automatic Differential Lock ON. Automatic differential lock system locks the rear axle, making left and right wheels turn together when machine travels straight while in 1st—4th gear.

Recommendation

Auto Differential Lock should be used for most dirt and snow applications. All four rear wheels work together to increase traction, even in dry working conditions. If the application is slick and the machine is working through corners, Manual Diff Lock should be selected to override the auto feature. The operator needs to unlock or disengage the manual differential lock to return to the automatic feature. The automatic differential lock continues to be locked until a machine turn is made.

E: Auto Blade Control (Optional)

***Cross slope is not functional if the saddle locking pin is unlocked or assigned outside of center position.**

Function State by Number of Lights

i. No LED Light – Automatic Blade Control OFF
ii. 1 LED Light – Enables the cross slope system
iii. 2 LED Lights – Enables aftermarket electronic grade control system or SmartGrade

Recommendation

Cross Slope is used for simple pads or sloping surfaces like roads. It allows the operator to move one side of the blade manually and one automatically to maintain blade elevation with one hand. The second LED light allows the operator to engage grade control systems and work in automatic blade control or grade control mode.

F: Aggressiveness Mode Dial (Standard)

***When the Motor Grader Icon is selected on switch G, the Aggressiveness Mode Dial is activated.**

Function State by Dial Position

i. Counterclockwise from Center– Front wheel speed is less than rear wheel speed
ii. Center – Front and rear wheel speeds are matched
iii. Clockwise from center– Front wheel speed is more than rear wheel speed

Recommendation

Turn the dial counterclockwise from center when high traction conditions exist, like grading road base or sand to prevent front wheel slippage (hop). Turn the dial clockwise from center when low traction conditions exist (slopes, mud, snow) or when the load on machine blade is greatest. To prevent machine damage, do not drive the machine on pavement or high traction areas with the aggressiveness dial in full clockwise position. Overheating of hydraulic oil and tire scrub can occur.

G: 6WD/Precision Switch (Standard)

***Switch G is used to enable/disable switches F and I.**

To engage 6WD, the following must occur; Transmission in gear 1-7 forward or reverse and 6WD/Precision switch in the 6WD position. (620-622 Models: Gears 1-4 Forward or Reverse)

Function State by Switch Position

i. Off – 6WD operation disabled
ii. 6WD – 6WD operation enabled
iii. Precision – Precision mode is enabled

Recommendation

Six-wheel drive should be used in soft underfoot, slopes, or normal conditions as it gives the operator 30% more tractive effort. It helps hold the machine in a straight line and reduces rear wheel slippage even in normal grading conditions. Six-wheel drive can be enabled on the fly to adjust tractive aggressiveness as needed. 6WD is recommended to be turned off while roading the machine (6WD automatically disengages in 8th gear (622 disengagement occurs at 5th gear). Precision Mode is recommended to be turned on when completing finishing grade, especially when an operator is on and off the inching pedal. This is essentially making the machine act like a hydrostatic transmission and front wheel drive only.

H: Inching Mode (Standard)

***To engage inching mode; the transmission must be in gears 1—3. The 6WD/Precision switch is in the forward (6WD mode) position. 6WD inching mode switch is in the forward (ON) position.**

Function State by Switch Position

i. Off – Front wheel drive engagement occurs at the top of inching pedal travel
ii. Inching – Front wheel drive engagement is controlled throughout entire inching pedal travel

Recommendation

Inching Mode Off is recommended for most working situations except for snow and mud. When working around obstacles like valve boxes or manholes the machine requires a lot of blade angle change, and the Inching Mode should be OFF. This reduces the potential chatter on the front wheels as the inching pedal is used to slowly initiate start and stop machine movement when working in tight areas. Inching mode ON should be reserved for applications when the operator needs all six wheels for traction as soon as movement of the machine is initiated. A good example of Inching Mode ON is snowplow applications, when the machine is pushing heavy snow and requires all six wheels to move the load of snow.

I: Precision Mode Speed Dial (Standard)

***When the Snail Icon is selected on switch G, the Precision Mode Speed Dial is activated.**

Allows the machine to operate at slower speeds than can be achieved by using the transmission by using only the front wheels to move the machine. To initiate precision mode, ensure that the transmission is in a gear 1—3 forward and push 6WD/Precision switch to the precision mode position. The precision mode light will display on the monitor when engaged.

Function State by Switch Position

i. Full Counterclockwise– Slowest ground speed for selected gear and engine speed
ii. Full Clockwise– Greatest ground speed for selected gear and engine speed

Recommendation

Precision mode should be used when an operator only wants the front wheels driving for slow grading applications. An example is finishing a cul-de-sac, where the rear wheels could spin, and the site would need to be regraded. By using precision mode, spinning and scuffing is reduced for overall improved grade behind the moldboard. This also allows the machine to be hydrostatic drive and reduce the need for using the inching pedal. The machine ground speed is also reduced for precision grading when very little material is left to cut or finish.

J: Engine Speed Control Mode Switch (Standard)

Function State by Switch Position

i. Off – Only accelerator pedal can be used to control engine speed

ii. Auto – Automatic engine speed control enabled: pushing the accelerator pedal past the 85% position or pushing the brake pedal reduces engine speed to slow idle. Push and release engine speed control set switch to RES (turtle) position to resume previously set engine speed.

iii. Manual – Manual engine speed control enabled: pushing the brake pedal or accelerator pedal past the 85% position has no effect on the set speed.

Recommendation

Auto is recommended for nearly all applications and is best for roading, working on gravel roads, or snow plowing. This allows the operator to set a comfortable engine speed for the application and allow them to use the brake or accelerator pedal much like cruise control in a car. The manual feature holds the engine at the desired speed no matter if the pedals are depressed. Both Auto and Manual features can benefit an operator that is making long grading passes or roading the machine.

Key Feature Identification

A: Transmission Response Switch

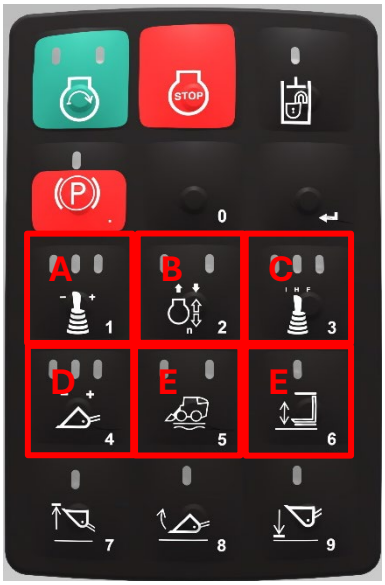
B: Accelerator/Decelerator Mode Switch

C: Pattern Select Switch

D: Hydraulic Response Switch

E: Ride Control Switch

F: Self Leveling Switch



A: Transmission Response (Optional): EH machines only, if equipped with joystick performance package.

Function State by Number of Lights

i. 1 LED Light – Precision Rate Enabled
ii. 2 LED Lights – Utility Rate Enabled
iii. 3 LED Lights – Production Rate Enabled

Recommendation

Transmission Response allows an operator to customize the aggressiveness of joystick controls relative to travel response: Precision (slowest response), Utility (standard response), and Productivity (fastest response). Precision mode provides 80% of hydraulic function acceleration, often used for precise grading, operating in tight/confined areas, and serves as useful tool to teach inexperienced operators. Utility mode is the factory default on the unit, provides the default hydraulic acceleration (normal) relative to joystick throw and is commonly used across most jobs and site conditions. Production mode is available for operators who desire very quick joystick response.

B: Accelerator/Decelerator Mode (Optional):

***This switch allows the engine speed control pedal to increase or decrease engine speed.**

Function State by Number of Lights

i. LEFT LED Lights On – Enables acceleration mode
ii. RIGHT LED Light On – Enables deceleration mode

Recommendation

This function can be set based on operator preference and job specific conditions. Acceleration mode may be utilized when an operator sets the desired engine RPM with the throttle dial and then uses the pedal to increase engine RPM on the fly for increased travel speed or faster hydraulic cycle times. For example, an operator may run the machine at ¾ throttle during fine grading and then press the accelerator pedal to increase engine RPM when traveling between grading areas.

Deceleration mode is useful when an operator wants to use the foot pedal to lower engine RPM for "on the fly," controlled/precise steering or slower hydraulic cycle times. For example, an operator may choose to run their machine at full throttle when shuttling material to a desired location and then apply the deceleration pedal to slow engine RPM for short periods of controlled movement.

C: Pattern Select (Optional): EH machines only, if equipped with joystick performance package.

***This switch allows for quick change of joystick functions between electrohydraulic (EH) hands only (ISO pattern) controls, EH hands only (H pattern) controls, or EH hand controls (4-Way Control).**

Function State by Number of Lights

i. LEFT LED Light On – EH hands only (ISO pattern) controls
ii. MIDDLE LED Light On – EH hands only (H pattern) controls
iii. LEFT & RIGHT LED On – EH hand controls

Recommendation

ISO Pattern is the industry standard (EH) hand control most operators utilize. In this pattern, the left joystick is assigned for propel, front/back, left/right. The right joystick is assigned to boom and bucket controls. H-Pattern assigns both right and left joystick to “H” pattern, commonly known as CASE controls. Left LED & RIGHT LED ON simultaneously is a Deere exclusive 4-way switchable control. This is a dealer installed kit only available on large frame machines. It provides the ability to get foot controls in a large frame SSL or CTL. This feature is especially valuable for those operators who may have lost a limb. The operator can use foot controls to control bucket/boom functions while using the left joystick for propel/steering. All other small and mid-frame machine can select ISO or H-pattern with the appropriate package or kit.

D: Hydraulic Response (Optional) EH machines only, if equipped with joystick performance package.

Function State by Number of Lights

i. 1 LED Light – Precision Rate Enabled
ii. 2 LED Light – Utility Rate Enabled
iii. 3 LED Lights – Production Rate Enabled

Recommendation

Hydraulic Response allows an operator to customize the acceleration of hydraulic functions relative to the amount of joystick throw: Precision (slowest response), Utility (standard response), and Productivity (fastest response). Precision Mode should be used when reduced hydraulic function acceleration is desired relative to joystick throw. The hydraulic functions still attain 100% speed at the end of joystick travel; however, the beginning of the joystick throw yields less response than the back half of joystick travel. Ideally this is used for conditions when an operator wants to achieve the greatest machine precision of hydraulic functions. Utility Mode is the default setting from the factory and will be a balance of control and acceleration at the beginning of the joystick throw. Production Rate is the most aggressive acceleration of the hydraulic functions at the beginning of joystick throw.

E: Ride Control (Optional)

***Turning on self-leveling disables ride control.**

Function State by Number of Lights

i. No LED Light – Ride Control OFF
ii. 1 LED Light – Ride Control Stand-by Mode (RH Joystick trigger turns ON/OFF)
iii. 2 LED Lights – Ride Control ON; Self-Level is OFF

Recommendation

The Ride Control feature must start with 1 LED illuminated to turn ride control on. Ride Control “ON” is activated by using the trigger on the RH Joystick. Each pull of the trigger will toggle ride control between on/off and change the SSM status from one light to two. If the Self-Level (SSM Button F) is enabled this feature will engage as soon as ride control is turned off. This feature interaction is intentional to reduce operator fatigue and enhance focus on the task at hand. Ride control should be off in certain applications, like grading, digging into stockpiles, or loading trucks.

F: Self Leveling (Optional)

***If machine is equipped with boom performance package, the operator can select that the attachment remains level as the boom is moved up.**

Function State by Number of Lights

i. No LED Lights – Self-Leveling Disabled

ii. 1 LED Light – Self-Leveling Enabled

Recommendation

Self-Leveling is used in many applications to keep the bucket/forks level throughout the vertical lift path. Self-level is best used in repetitive lifting applications such as loading trucks or stacking material with forks. Self-Level is also designed to work in tandem with Ride Control, as previously described in the Ride Control Recommendations section.

Key Feature Identification

A: Accelerator/Decelerator Mode Switch

B: Dozer Mode Switch

C: High Flow On/Off Switch

D: Transmission Response Switch

E: Ride Control Switch

F: Boom and Bucket Rate Switch

A: Accelerator/Decelerator Mode (Optional):

Function State by Number of Lights

i. No LED Lights – Feature turned OFF
ii. LEFT LED Light – Acceleration Mode ON
iii. RIGHT LED Light – Deceleration Mode ON

Recommendation

This function can be set based on operator preference and job specific conditions. Acceleration mode may be utilized when an operator sets the desired engine RPM with the throttle dial and then uses the pedal to increase engine RPM "on the fly," for increased travel speed or faster hydraulic cycle times. For example, an operator may run the machine at ¾ throttle during fine grading and then press the accelerator pedal to increase engine RPM when traveling between grading areas.

Deceleration mode is useful when an operator wants to use the foot pedal to lower engine RPM for "on the fly," controlled/precise steering or slower hydraulic cycle times. An operator may run the unit at full throttle when shuttling material and then apply the deceleration pedal to slow engine RPM to unload.

B: Dozer Mode (Optional):

***This function is only available if machine is attached to the SG96A blade. Right joystick function will change. Press right joystick trigger after pressing SSM button once to activate dozer mode.**

Function State by Number of Lights

i. LED Lights Off – Dozer Mode OFF
ii. 1 LED Light – Dozer Mode Enabled
iii. 2 LED Lights – Dozer Mode Enabled and ON

Recommendation

Once this option is configured correctly in Attachment Manager, Dozer Mode is automatically activated. One LED light illuminates and alters the control pattern of the RH joystick. By pressing the right joystick trigger, two LED lights turn on and Auto is activated. The term "Auto" encompasses slope control and laser functionality, with plans to include 3D capabilities in future updates.

C: High Flow On/Off (Optional):

***This button should only be enabled with attachments rated for high flow, always verify flow specifications prior to using this feature.**

Function State by Number of Lights

i. No LED Light – Hi Flow OFF
ii. 1 LED Light – Hi Flow ON.

Recommendation

High flow capability is required for any attachment that operates within a flow rate range of 24 to 45 GPM. When an attachment is correctly configured in the Attachment Manager, the high flow function will engage automatically, ensuring optimal performance. If the unit does not have the 8-inch advanced display, this function needs to be toggled manually. Attachments with flow rates less than 24 GPM do not require high flow to be turned on. This option allows an operator to run both low and high flow attachments for better versatility on the jobsite.

D: Transmission Response (Standard/Optional)

***If machine is equipped with joystick performance package, this switch controls the machine responsiveness and steer functions.**

Function State by Number of Lights

i. 1 LED Light – Precision Rate Enabled
ii. 2 LED Light – Utility Rate Enabled
iii. 3 LED Lights – Production Rate Enabled

Recommendation

Transmission Response allows an operator to customize the aggressiveness of joystick controls relative to travel response: Precision (slowest response), Utility (standard response), and Productivity (fastest response). Precision mode provides 80% of hydraulic acceleration, often used for precise grading, operating in tight/confined areas, and serves as useful tool to teach inexperienced operators. Utility mode is the factory default on the unit, provides the default hydraulic acceleration (normal) relative to joystick throw and is commonly used across most jobs and site conditions. Production mode is available for operators who desire very quick joystick response.

E: Ride Control (Standard/Optional)

***Turning on self-leveling disables ride control.**

Function State by Number of Lights

i. No LED Light – Ride Control OFF
ii. 1 LED Light – Ride Control Stand-by Mode (RH Joystick trigger turns ON/OFF)
iii. 2 LED Lights – Ride Control ON; Self-Level is OFF

Recommendation

The Ride Control feature must start with 1 LED illuminated to turn ride control on. Ride Control “ON” is activated by using the trigger on the RH Joystick. Each pull of the trigger will toggle ride control between on/off and change the SSM status from one light to two. Ride control should be turned off in certain applications like grading, digging into stockpiles, or loading trucks. Ride Control should be turned on while driving the unit across a jobsite and load/carry applications.

F: Boom and Bucket Rate (Optional)

***If machine is equipped with joystick performance package, this switch controls the responsiveness of boom and bucket functions.**

Function State by Number of Lights

i. 1 LED Light – Precision Rate Enabled
ii. 2 LED Light – Utility Rate Enabled
iii. 3 LED Lights – Production Rate Enabled

Recommendation

Boom and Bucket Rate allows an operator to customize the acceleration of hydraulic functions relative to the amount of joystick throw: Precision (slowest response), Utility (standard response), and Productivity (fastest response). Precision Mode should be used when reduced hydraulic function acceleration is desired relative to joystick throw. The hydraulic functions still attain 100% speed at the end of joystick travel; however, the beginning of the joystick throw yields less response than the back half of joystick travel. Ideally this is used for conditions when an operator wants to achieve the greatest machine precision of hydraulic functions. Utility Mode is the default setting from the factory and will be a balance of control and acceleration at the beginning of the joystick throw. Production Rate is the most aggressive acceleration of the hydraulic functions at the beginning of joystick throw.