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Idle Speed Control - Driver Technique

The ISX Idle feature group gives you the ability to control idle speed in the cab. It also controls idle time by shu

Idle Speed Control

The Idle Adjust Switch feature can be used to control idle speed in the cab through the use of the Crusie Contr

A typical Idle Speed Adjust switch is shown below.

To increase idle speed:

- Bump up the Crusie Control switch toward increment (+). Each bump results in 25 RPM increment.
- Repeat until you reach the desired idle speed.

To decrease idle speed:

- Bump down the Crusie Control switch toward decrement (-). Each bump results in 25 RPM decrement.
- Repeat until you reach the desired idle speed.

Idle Shutdown

The Idle Shutdown feature is used to limit the amount of idle time. This is a fuel saving feature which automatic

Idle shutdown incorporates an additional security measure that monitors the position of the pedals and override

The timer only starts after a minimum engine speed and coolant temperature are achieved with no pedal activi

If the Idle Shutdown Override Feature is chosen, you can bypass the feature during the shutdown sequence. V

Idle Shutdown Override

If the Idle Shutdown Override Feature is chosen, you can override the feature during the final 30 seconds of th

Idle Shutdown in PTO

The Idle Shutdown in PTO feature is used to limit the amount of idle time in PTO. This is another fuel saving fe

The Idle Shutdown Override Feature works the same in PTO mode as in normal engine operation.

Idle Shutdown Percentage PTO Load Override - Parameter

When Idle PTO Shutdown is enabled, the Idle Shutdown Percentage PTO Load Override is the threshold that

If the engine load is less than the customer-entered value for Idle Shutdown Percentage PTO Load Override, t

Idle Shutdown Ambient Air Temperature Override - Feature Option

Choose this feature to enable or disable Idle shutdown based on outside air temperature. To use this feature it

Idle Shutdown Intermediate Ambient Air Temperature - Parameter

Select an ambient air temperature, in terms of degrees Fahrenheit (°F), at which the driver would not be likely

If the ambient air temperature is between the Intermediate temperature value and the Hot temperature value, t

Ambient air temperatures between the Intermediate and Cold temperature values will cause the engine to shut

Idle Shutdown Hot Ambient Air Temperature - Parameter

Select an ambient air temperature, in terms of degrees Fahrenheit (°F), above which the driver can manually o

At ambient temperatures between the Hot and Intermediate temperature values, the engine will be shutdown a

Idle Shutdown Cold Ambient Temperature - Parameter

Select an ambient air temperature, in terms of degrees Fahrenheit (°F), below which the engine will automatic

At ambient air temperatures between the Cold and Intermediate temperature values, the driver can manually o

Driving Tips

When the vehicle is keyed off and restarted, the idle speed will be reset to the latest "adjusted" idle speed. It w

DO NOT attempt to use this feature as an automatic vehicle shutdown timer. The shutdown sequence will ONL

See Also:

[Overview - Idle Speed Control](#)

[Features and Parameters-Set up - Idle Speed Control](#)

[Theory of Operation - Idle Speed Control](#)

Idle Speed Control - Theory of Operation

The operation of the Idle feature group is simple. They are set up to control idle speeds and to limit the time the engine spends in the idle state.

Idle Speed Control - Feature

Idle Speed is controlled by an isochronous governor. This means the idle engine speed will remain constant regardless of load.

The Idle Adjust Switch feature can be enabled only to control idle speed in the cab through the use of the Cruise Control switches. Using these switches the operator can control idle within the established limits of idle speed. This cab control option is especially helpful in reducing cab noise and vibration.

Idle Shutdown - Feature Option

The Idle Shutdown feature is used to limit the amount of idle time. This is a fuel saving feature which automatically shuts the engine down after a programmed time at idle. The Idle Shutdown Timer determines the length of time before the engine shuts down. The timer only starts after a minimum engine speed is achieved with no pedal activity. Pedal activity before the shutdown sequence will reset the shutdown timer to zero.

Idle Shutdown incorporates an additional security measure that monitors the position of the pedals and overrides the timer reset if it detects a relatively long period of constant input. This ensures that Idle Shutdown will still be effective even if the position of the pedals has been artificially changed such as would be achieved through the use of a throttle stick.

If the Idle Shutdown Override Feature is chosen, the operator can bypass the feature during the shutdown sequence. When the engine is ready to shutdown the red stoplight will begin to flash for thirty seconds. Pedal activity during this sequence will override the shutdown. The feature will not attempt to shutdown again until the vehicle is driven or the key switch is cycled.

The shutdown sequence will only turn off the engine. The electrical system and accessories will stay on until the key is turned OFF. Do not use this feature as an automatic "vehicle" shutdown timer as the electrical system will stay active and drain the batteries.

Idle Shutdown Override - Feature Option

This feature option allows the operator to override the engine shutdown timer by altering the position of the accelerator, brake or clutch pedals during the last 30 seconds of the programmed shutdown time. During the last 30 seconds of programmed idle time the Amber dash light will begin flashing. Idle Shutdown Override should be used if the operator relies on engine power for cab heat, air conditioning, etc. Once over-ridden, the idle shutdown feature will not initiate an engine shutdown until after the vehicle has moved and returned to idle, the PTO/remote PTO feature becomes active, or the engine is 'keyed-off', restarted and then returned to idle.

NOTE: Idle Shutdown will only shutdown the engine. The electrical system and accessories will stay on until the key is turned OFF. DO NOT use this feature as an automatic "vehicle" shutdown timer as the electrical system will stay active and drain the batteries.

Idle Shutdown in PTO - Feature Option

The Idle PTO Shutdown feature is used to limit the amount of idle time in PTO. This is another fuel saving feature which automatically shuts the engine down after a programmed time in PTO without activity. The Idle Shutdown Timer determines the length of time before the engine shuts down. The timer only starts after PTO is engaged at a constant speed with no pedal activity. Pedal activity before the shutdown sequence will reset the shutdown timer to zero.

The Idle Shutdown Override Feature works the same in PTO mode as in normal engine operation.

Idle Maximum PTO % Load Shutdown Override - Parameter

The Idle Maximum % Load Shutdown Override prevents an Idle shutdown when PTO/Remote PTO is active and engine load is greater than the Idle Maximum % PTO Load Shutdown Override value.

Ambient Air Temperature Idle Shutdown Override - Feature Option

The Ambient Air Temperature Idle Shutdown Override feature enables and disables Idle Shutdown based on outside air temperature. Three temperature values: "Intermediate", "Hot" and "Cold" are selected during the setup of the feature and these are used to influence when and how Idle Shutdown can be overridden.

See Also:

[Overview - Idle Speed Control](#)

[Features and Parameters-Set up - Idle Speed Control](#)

[Driver Technique - Idle Speed Control](#)

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Idle Speed Control - Features and Parameters

The ISX Idle features and parameters are easily set up. When deciding on the desired engine idle RPM make sure to pick an idle speed that doesn't promote noise and vibration. Idle Shutdown parameters should be set up to limit idle time, but not to inconvenience operators who rely on the engine for cab heat, air conditioning, etc...

Features and Parameters Information:

▼ [Idle Engine Speed](#)

Specify the desired idle speed. Speed should be chosen to limit cab noise and vibration. The range is between 500 and 800 RPM.

▼ [Idle Shutdown](#)

Choose this feature to enable the engine to automatically shutdown after running at idle for a programmed amount of time. This feature is used to limit idle time and increase the vehicle's fuel economy. A warning light will begin to flash during the last 30 seconds of the programmed idle shutdown time.

▼ [Idle Shutdown Timer](#)

Specify the maximum idle time allowed before engine shutdown (see table below for limits). The Idle Shutdown Timer can be reset at any time prior to shutdown by momentarily changing the position of the accelerator, brake or clutch pedals. This permits drivers to delay the engine shutdown as long as they are present, effectively preventing the shutdown. Idle Shutdown incorporates an additional security measure that monitors the position of the pedals and overrides the timer reset if it detects a relatively long period of constant input. This ensures that Idle shutdown will still be effective even if the position of the pedals has been artificially changed such as would be achieved through the use of a throttle stick.

▼ [Idle Shutdown Manual Override](#)

This feature option allows the operator to override the engine shutdown timer by altering the position of the accelerator, brake or clutch pedals during the last 30 seconds of the programmed shutdown time. During the last 30 seconds of programmed idle time the Amber dash light will begin flashing. Idle Shutdown Override should be used if the operator relies on engine power for cab heat, air conditioning, etc. Once over-ridden, the idle shutdown feature will not initiate an engine shutdown until after the vehicle has moved and returned to idle, the PTO/remote PTO feature becomes active, or the engine is 'keyed-off', restarted and then returned to idle.

***Issue:** For calibrations released before summer of 2004, if the [Manual Override](#) and [Ambient Air Temperature Override](#) options are both enabled, the driver will not be able to 'reset' the timer after the warning light starts flashing. Calibrations released after summer of 2004 will fix this issue.

▼ [Idle Shutdown in PTO](#)

Choose this feature to enable the engine to automatically shutdown after running in PTO with no activity for a programmed amount of time. This feature is used to limit idle PTO time and increase the vehicle's fuel economy.

▼ [Idle Shutdown Percentage PTO Load Override](#)

When Idle PTO Shutdown is enabled, the Idle Shutdown Percentage PTO Load Override is the threshold that will allow the user to operate PTO without the engine being shutdown due to the Idle Shutdown in PTO feature. As long as the engine load is greater than the customer-entered value for Idle Shutdown Percentage PTO Load Override, then the engine will not be shutdown.

If the engine load is less than the customer-entered value for Idle Shutdown Percentage PTO Load Override, then the engine will shut down after the Idle Shutdown Timer has expired. The Idle Shutdown Percentage PTO Load Override can be set at any value between 0% and 100%.

▼ [Idle Shutdown Ambient Air Temperature Override](#)

Choose this feature to enable or disable Idle shutdown based on outside air temperature. To use this feature it is necessary for an additional ambient air temperature sensor to be installed. Three temperature values: "Intermediate", "Hot" and "Cold" are selected and these are used to influence the activation of the Idle Shutdown Override feature.

This option interacts with the Manual Override option, in accordance with this table:

Ambient Temperature	Example (° F)	ENABLED Manual Override	DISABLED Manual Override
Colder than 'Cold'	20°F	Auto-shutdown is Disabled. Engine stays running.	Auto-shutdown is Disabled. Engine stays running.

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Between 'Cold' and 'Intermediate'	50°F	Manual Override option is Activated. Engine shuts down after timer expires, unless driver 'overrides' with pedal. Override keeps engine running indefinitely.	Engine shuts down after timer expires, unless driver 'Resets' timer with pedal.
Between 'Intermediate' and 'Hot'	70°F	Manual Override option is <u>Deactivated</u> . Engine shuts down after timer expires, unless driver 'resets' timer with pedal. * See <u>Issue</u> below.	Engine shuts down after timer expires, unless driver 'resets' timer with pedal.
Hotter than 'Hot'	90°F	Manual Override option is Activated. Engine shuts down after timer expires, unless driver 'overrides' with pedal. Override keeps engine running indefinitely.	Engine shuts down after timer expires, unless driver 'resets' timer with pedal.
DISABLED Ambient Temperature Override Option	N/A	Manual Override option is activated always. Engine shuts down after timer expires, unless driver 'overrides' with pedal. Override keeps engine running indefinitely.	Engine shuts down after timer expires, unless driver 'resets' timer with pedal.

***Issue:** For calibrations released before summer of 2004, if the [Manual Override](#) and [Ambient Air Temperature Override](#) options are both enabled, the driver will not be able to 'reset' the timer after the warning light starts flashing. Calibrations released after summer of 2004 will fix this issue.

▼ [Idle Shutdown Intermediate Ambient Air Temperature](#)

Select the minimum ambient air temperature, in terms of degrees Fahrenheit (°F), at which the driver would not be likely to experience discomfort should the engine be automatically shutdown by the Idle Shutdown Timer. The Intermediate Ambient Air Temperature can be set at a value of between 0 °F to 120 °F. The suggested Intermediate Ambient Air Temperature value is about 60 °F.

When the Idle Shutdown Manual Override option is Disabled, this parameter has no impact.

When the Idle Shutdown Manual Override option is Enabled, this parameter is used to disable the Manual Override for 'comfortable' temperatures, ranging between the Intermediate and Hot temperature settings. For ambient temperatures between the Cold and Intermediate settings, the Manual Override option is still active.

▼ [Idle Shutdown Hot Ambient Air Temperature](#)

Select an ambient air temperature, in terms of degrees Fahrenheit (°F), above which the driver can manually override the automatic Idle Shutdown. The Hot Ambient Temperature can be set at a value of between 0 °F and 120 °F Fahrenheit and must be greater than the Intermediate temperature value. The suggested Hot Ambient Air Temperature value is about 85 °F.

When the Idle Shutdown Manual Override option is Disabled, this parameter has no impact.

When the Idle Shutdown Manual Override option is Enabled, this parameter is used to set the threshold above which the Manual Override option will be activated.

See description of [Idle Shutdown Intermediate Ambient Air Temperature](#) above for more details.

▼ [Idle Shutdown Cold Ambient Air Temperature](#)

Select an ambient air temperature, in terms of degrees Fahrenheit (°F), below in which the engine will stay running and will not begin auto-shutdown. The Cold Ambient Air Temperature can be set at a value of between 0 and 120 °F and should be less than the Intermediate temperature value. The suggested Cold Ambient Air Temperature value is about 30 °F. At ambient air temperatures between the Cold and Intermediate temperature values, the driver can manually override Idle Shutdown.

Parameter Summary Table:

Feature/Parameter	Range	Default
Idle Engine Speed - Parameter	500 - 800 rpm	600 rpm
Idle Shutdown - Feature Option	Enable/Disable	Disable

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Idle Shutdown Timer - Parameter	2 - 1440 minutes	60 minutes
Idle Shutdown Manual Override - Feature Option	Enable/Disable	Disable
Idle Shutdown in PTO - Feature Option	Enable/Disable	Disable
Idle Shutdown Percentage PTO Load Override - Parameter	0 - 100 %	10 %
Idle Shutdown Ambient Air Temperature Override - Feature Option	Enable/Disable	Disable
Idle Shutdown Intermediate Ambient Air Temperature - Parameter	0 - 120 °F	60 °F
Idle Shutdown Hot Ambient Air Temperature - Parameter	0 - 120 °F	85 °F
Idle Shutdown Cold Ambient Air Temperature - Parameter	0 - 120 °F	30 °F

See Also:[Overview - Idle Speed Control](#)[Theory of Operation - Idle Speed Control](#)[Driver Technique - Idle Speed Control](#)

Idle Speed Control - Overview

All engines spend a significant portion of their life at idle. The ISX engine gives you the ability to set desired idle speed. It also gives you the ability to control idle speed using the Cruise Control switches. Idle Speed Control increases fuel economy and can be helpful in reducing cab noise and vibration.

Idle time also affects fuel economy of the vehicle. The Idle Shutdown feature allows you to cause the shutdown of the engine after a specified period of inactivity. This encourages operators to limit idle time and thereby increases the fuel economy of your vehicle.

Detail Information:

[Feature and Parameters Set up - Idle Speed Control](#)

[Theory of Operation - Idle Speed Control](#)

[Driver Technique - Idle Speed Control](#)