

International[®] S13 Integrated (2023)

Overview: *Idle Shutdown Timer*

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General Overview: Idle Shutdown Timer

The Idle Shutdown Timer (IST) feature is designed to automatically shut down the engine during extended idle time periods.

Effective January 1, 2008, engines built for vehicles registered in California or a CARB opt-in state must be certified under the new California Idle Reduction Rule (CCR Title 13 Section 1956.8 (a)(6)).

Heavy-duty trucks operating in the State of California (and others) are limited in the amount of time that they may sit at idle. Trucks that meet the specifications of the Certified Clean Idle program must display a compliance sticker to exceed these “No Idle” restrictions.



P89224

Sample Certified Clean Idle label

The Idle Shut down Timer feature can be configured to help meet the Certified Clean Idle Program requirements; however, the vehicle owner or operators are ultimately responsible for idle restriction compliance. The regulations for each location are outside the scope of this document.

| Code | Emission Compliance Description |
|--------------------------------|---|
| 12VJL | EMISSION Calendar Year {International® S13} EPA, OBD and GHG Certified for Calendar Year 2023 |
| 12WZE | Federal Does Not Comply With California Clean Air Regulations. NOTE: This feature is for any vehicle that meets current federal EPA standards but is not required to meet CARB regulations. |
| 12WZB | Low NOx Idle Engine, Complies with California Clean Air Regulations; Includes “Certified Clean Idle” Decal on Hood. |
| 12WZJ | Low NOx Idle Engine, Complies with California Clean Air Regulations; Includes “Certified Clean Idle” Decal on Drivers Door. |
| Applicable Sales Feature Codes | |

This document will address unique idle shutdown timer functionality for the International® S13 engine.

Description and Operation

Description

NOTE: Refer to the vehicle operation and maintenance manual, as well as the S13 engine operation and maintenance manual, for additional information on operation and indications.

The IST is used to limit the amount of engine idle time by automatically shutting down the engine after a programmable parameter time limit has expired.

The IST system starts the timer sequence only after the vehicle is stationary; the engine is running and other interlock conditions (i.e. parking brake set, etc.) are met. The IST sequence can be reset by interrupting these interlocks during the impending engine shutdown sequence. A visual indication in the instrument panel and an audible warning will sound thirty seconds before engine shutdown occurs. This will continue until the engine shuts down or the idle shutdown timer is reset.

Operation

The following “Operation” section describes the functionality of the IST system.

This feature will shut down the engine, but the vehicle electrical system and accessories will remain active until the key switch is turned off.

Idle Shutdown Warning

The idle shutdown warning occurs 30 seconds before the idle shutdown timer expires (i.e. 30 seconds before shutdown). The Yellow idle shut down indicator (if equipped) will flash in the gauge cluster for 30 seconds. If a manual reset or override function (i.e. brake, clutch, etc.) is not activated, the engine will shut down.

An override feature allows the brake and clutch to be programmed to stop the shutdown sequence until the vehicle is driven, or the ignition key switch is cycled.

The idle shutdown feature also has an additional (optional) tamper proofing feature which is used to prevent operators from bypassing an impending shutdown. Refer to the Tamper Proofing section for more information.

Engine Shutdown

The IST expires and the idle shutdown feature shuts down the engine.

The vehicle electrical system and accessories will remain active until the key switch is turned off.

Tamper Proofing

Tamper Proofing is included with the IST feature. This feature monitors various inputs (i.e., driver pedals, vehicle speed, etc.) to prevent the driver from overriding the idle shutdown timer.

For further information on this programmable option for the IST system please see the applicable table under the “Programmable Parameter” section.

Idle Shutdown Timer Reset

When specific vehicle operating conditions are met to “start the idle shutdown timer” any of the following conditions will reset the timer (clock) to 0. The reset function can be activated any time before the engine shuts down.

- Accelerator pedal movement.
- Brake pedal movement.
- Clutch pedal movement (Manual transmissions).
- Shift selector movement (Automatic transmissions).
- Parking brake movement.

If one or more of the conditions above has caused the timer to “reset” and if the conditions to “start the timer” are still met, the timer will begin counting again.

Idle Shutdown Override

The manual override feature (if enabled) allows the driver to stop the timer (preventing the impending engine shutdown) by pressing the brake (for 1 second) or clutch (on AMT transmission, override can be activated by changing the stalk shifter position out of neutral). The override function can be activated any time before the engine shuts down.

The manual override function is different than the reset function as described in the previous section. When the driver performs the override, the timer will be stopped until the vehicle is driven, or the ignition key is cycled.

The manual override functionality is only allowed if the “Idle Shutdown Timer - Mode” programmable parameter is set to “Mode 1” or “Mode 2”. The “Disabled Option” for the “Idle Shutdown Timer Mode” programmable parameter allows the customer to permanently disable the idle shutdown feature, such that idle shutdown will never occur regardless of vehicle conditions.

The override feature can be selected to automatically prevent the engine from shutting down based on outside ambient temperature for driver comfort, if desired.

Feature Interaction

There is not any interaction between IST and CAP. IST still runs while CAP is active

The IST feature also interacts with Auto Start Stop (A.S.S.) feature. If the A.S.S. feature is active and actively running, the IST feature will be deactivated.

Note 1: While the Electronic Tool Service is connected, this time may be extended regardless of the parameter setting.

Programmable Parameters

The following programmable parameters are available with the IST and Certified Clean Idle engine emissions. These parameters should be programmed to limit engine idle time, but not in a way that may inconvenience drivers who rely on the engine for heat and air conditioning inside the cab, for example.

Parameters indicated as Customer Programmable can be adjusted differently than the production assembly plant setting to meet the customer's needs. If the parameter is indicated as non-customer programmable, the parameter setting is preset from the factory and cannot be changed without dealer authorization.

IST Parameters

| Parameter Value | Description | Possible Values | Cust Pgrm | Recommended Settings |
|--|--|---|-----------|---|
| Idle Shutdown Timer Mode (ISTM) (B108 00E) | <p>This parameter determines the conditions under which the idle shutdown feature will be functional.</p> <ul style="list-style-type: none"> ▪ If set to Disabled - The idle shutdown timer is disabled. ▪ If set to Light Load AESC - The idle shutdown timer sequence will be prevented, and the engine will not shut down while the AESC or any auxiliary engine speeds control is actively ramping the engine above normal engine idle speed. ▪ If set to Light Load AESC - The engine may shutdown if AESC is engaged depending on the programmed value of the Maximum Engine Percent Torque fir Idle Shutdown Timer - parameter (B108 00D). This allows the engine to stay running if the operator desires to have the engine speed ramped up during AESC operation. This mode also prevents the operator from setting the engine speed with a minimum load (e.g., 10% engine torque) without actually engaging the AESC with the intent of bypassing the idle shutdown timer. ▪ If set to (Idle Shutdown Timer - Heavy Load AESC with Tamper Proofing Option) - The engine may shutdown if AESC is engaged. Puts the feature in tamper proofing mode. Refer to the tamper proofing section for more information | <ul style="list-style-type: none"> - Disabled - Light Load AESC - No Load Option - Heavy Load AESC with Tamper Proofing | YES | Customer Selected (at point of purchase) |
| Idle Shutdown Time - No Park Brake Set (ISTNPBS) (B108 009) | <p>Sets the amount of engine idle time before the idle shutdown feature will initiate an engine shutdown while the parking brake is not set.</p> <ul style="list-style-type: none"> ▪ Note 1: While the Electronic Service Tool is installed, this time may be extended regardless of the parameter setting. | Timer is in units of milliseconds 120,000 ms to 7,200,000 ms | YES | 900,000 |

| Parameter Value | Description | Possible Values | Cust Pgrm | Recommended Settings |
|---|--|---|-----------|--|
| Idle Shutdown Timer with Park Brake Set (ISTPBS) (B108 00A) | Sets the amount of engine idle time before the idle shutdown feature will initiate an engine shutdown while the parking brake is set. | Timer is in units of milliseconds 120,000 ms to 15,300,000 ms | YES | 300,000 |
| AAT Enable for Idle Shutdown (AATEIS) (B108 002) | This parameter prevents the idle shutdown feature from shutting down the engine based on outside air temperature for driver comfort. Up to 3 temperature values: Intermediate, Maximum and Minimum can be selected to influence the activation of the AAT Enable for Idle Shutdown feature. | - Disabled - Enabled | YES | Customer Selected (at point of purchase) |
| Maximum AAT for Idle Shutdown (MAATIS) (B108 000) | This parameter is part of the AAT Enable for Idle Shutdown feature. The idle shutdown feature will not shut down the engine above this temperature. This allows the engine to stay running when temperatures are high in order to allow the air conditioning to function for driver comfort, for example. Required Parameter Settings: <ul style="list-style-type: none"> AAT Enable for Idle Shutdown (B108 002) must be enabled. | -40°F (-40°C) to 302°F (150°C) | YES | |
| Minimum AAT for Idle Shutdown (MAATIS) (B108 001) | This parameter is part of the AAT Enable for Idle Shutdown feature. The Idle Shutdown feature will not shut down the engine below this temperature. This allows the engine to stay running when temperatures are low in order to allow the engine to stay warm for engine protection, and to allow the heater to function for driver comfort. Required Parameter Settings: <ul style="list-style-type: none"> AAT Enable for Idle Shutdown (B108 002) must be enabled. | -40°F (-40°C) to 302°F (150°C) | YES | 45°F (7.2°C) |
| Latched Override Intermediate AAT Enable (LOIAATE) (B108 003) | This parameter adds functionality to the AAT Enable for Idle Shutdown feature by enabling or disabling the use of the Intermediate Ambient Temperature feature functionality. Required Parameter Settings: <ul style="list-style-type: none"> AAT Enable for Idle Shutdown (B108 002) parameter must be enabled. Latched Override Intermediate AAT (B108 003E) parameter must be set. <p>Note 1: If set to (Enabled) and the ambient temperature is between the Minimum and Intermediate temperatures, the driver may choose to manually override the idle shutdown timer by transitioning the brake or clutch switch.</p> <p>If the timer is overridden, the timer will remain stopped until the vehicle is moved (vehicle speed >0) or the ignition key is cycled.</p> <p>Note 2: If set to (Enabled) and the ambient temperature is between the Intermediate and the Maximum temperatures, the driver may choose to reset the idle shutdown timer, but the timer will not be overridden.</p> | - Disabled - Enabled | YES | Customer Selected (at point of purchase) |

| Parameter Value | Description | Possible Values | Cust Pgrm | Recommended Settings |
|---|--|--------------------------------|-----------|--|
| Latched Override Intermediate AAT (LOIAAT) (B108 004) | <p>This parameter is part of the Intermediate AAT Enable for Idle Shutdown feature.</p> <p>This parameter can be used to select a minimum outside air temperature that a driver would not likely experience discomfort if the engine were to be shut down by the Idle Shutdown Timer feature.</p> <p>Required Parameter Settings:</p> <ul style="list-style-type: none"> AAT Enable for Idle Shutdown (B108 002) Latched Override Intermediate AAT Enable (B108 003) Latched Override Logic Enable (B108 005) <p>Refer to Example Programmed Values for more information about this feature.</p> <p>Note 1: This value must be set between the minimum and maximum AAT Enable for Idle Shutdown parameter settings for the AAT Enable for Idle Shutdown functionality to operate correctly.</p> | -40°F (-40°C) to 302°F (150°C) | YES | 70°F (21°C) |
| Latched Override Logic Enable (LOLE) (B108 005) | <p>This parameter allows the driver to reset or stop the idle shutdown timer by pressing either the clutch or the brake pedal.</p> <p>If set to (Disabled) - The driver will be allowed to reset the idle shutdown timer by pressing the brake, clutch, or accelerator pedal. Transitioning the shifter or parking brake will also reset the timer. When set to (Disabled) and the timer is reset, the timer will begin counting again starting at 0.</p> <p>If set to (Enabled) - The driver will be allowed to stop the idle shutdown timer by pressing the brake or clutch pedal. When set to (Enabled) and the timer is overridden, the timer will remain stopped until the vehicle is moved (vehicle speed >0) OR the ignition key is cycled.</p> <p>Required Parameter Settings: Idle Shutdown Timer Mode (B108 00E) must be set Light Load AES or No Load Option.</p> | - Disabled - Enabled | YES | Customer Selected (at point of purchase) |
| Maximum Engine Percent Torque for Idle Shutdown (MEPTIS) (B108 00D) | <p>The Idle Shutdown feature will be prevented from shutting down the engine if the engine load is above this value.</p> <p>This allows the engine to stay running if the operator desires to operate the AESC at or near idle speed.</p> <p>This parameter also prevents the operator from setting the engine speed with a minimum load (i.e. 10% engine torque) without actually engaging the AESC with the intent of bypassing the idle shut down timer.</p> <p>Required Parameter Settings: The Idle Shutdown Timer Mode (B108 00E) parameter must be set to (Idle Shutdown Timer - No Load Option) or (Idle Shutdown Timer - Heavy Load AESC with Tamper Proofing Option).</p> | 0 to 100% | YES | 30 |
| Maximum ECT for Idle Shutdown (MECTIS) (B108 007) | <p>The engine coolant temperature must be below this value for Idle Shutdown to occur.</p> <ul style="list-style-type: none"> This allows the engine to stay running during extreme temperatures to protect the engine from damage. | -40°F (-40°C) to 302°F (150°C) | YES | 302°F (150°C) |

| Parameter Value | Description | Possible Values | Cust Pgrm | Recommended Settings |
|--|--|--------------------------------|-----------|----------------------|
| Minimum Engine ECT for Idle Shutdown (MECTIS) (B108 006) | The engine coolant temperature must be above this value for Idle Shutdown to occur. This allows the engine to stay running during extreme temperatures to protect the engine from damage. | -40°F (-40°C) to 302°F (150°C) | YES | 60°F (16°C) |

Parameter Setup

N/A

Frequently Asked Questions

Can I operate a power take off (AESC) device on a vehicle equipped with an idle shutdown timer?

Yes, the Idle Shutdown Timer Mode (B108 00E) programmable parameter can be adjusted to disable IST during AESC operation.

An input requesting AESC must be seen, by the engine to identify, that the AESC is active.

Can I restart the engine immediately after the idle shutdown timer feature has shut the engine down?

Yes, just cycle the key switch and restart the engine. Normal idle shutdown functionality will be reactivated if conditions are met.

My Idle Shut Down warning light and the audible alarm has been activated. Can I prevent the engine from shutting down?

Yes, the driver can perform a manual “reset” to restart the timer any time before the engine shuts down by pressing the brake, clutch, or accelerator pedal.

In addition, if the “Latched Override Logic Enable” (B108 005) parameter is set to “enabled”, the driver is allowed to perform a manual “override”, which stops the timer, by pressing the brake or clutch. If overridden, the timer will remain stopped until the vehicle is driven, or the ignition key is cycled.

Definitions/Acronyms

The following terms are referenced in this document:

| Acronym | Definition |
|---------|---------------------------------|
| AESC | Auxiliary Engine Speed Control |
| AAT | Air Intake Temperature |
| A.S.S. | Auto Start Stop |
| CAP | Cold Ambient Protection |
| ECM | Engine Control Module |
| ECT | Engine Coolant Temperature |
| IST | Idle Shutdown Timer |
| OEM | Original Equipment Manufacturer |
| AESC | Power Take Off |
| PIM | Powertrain Interface Module |