

International® S13 Integration (2023)

Overview: *Cold Ambient Protection*

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General Overview: Cold Ambient Protection (CAP)

CAP is an engine protection feature designed to prevent both hydrocarbon accumulation on the exhaust valves and water condensation in the engine crankcase during periods of stationary idle in cold ambient conditions.

Description and Operation

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.

CAP activates when air temperature is below 4 C (39 F), and the coolant temperature is below 60 C (158 F). CAP will activate and increase the engine speed automatically after all entry conditions have been satisfied for 15 minutes.

Operation

CAP may increase the engine speed, to warm the engine coolant, until one of the following occurs:

- Parking brake is released.
- Brake pedal is pressed, or brake switch fault is detected.
- Accelerator pedal is pressed, or Accelerator Pedal Position (APP) sensor fault is detected.
- Clutch pedal is pressed, or clutch pedal switch fault is detected (manual transmissions, if equipped with a clutch switch).
- Shift selector is moved from neutral (automatic transmissions). Shift selector must be in neutral for CAP to work.
- Engine Coolant Temperature (ECT) is above 75 C (176 F)
- Ambient Air Temperature (AAT) is above 7 C (45 F)
- The engine is operating in Stationary Regen mode.
- The engine is operating in HC Desorb mode.
- The Idle Shutdown Timer (IST) feature is active.

Programmable Parameters

The following programmable parameter, in the CEM1, is available and should be programmed to enable CAP.

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.

Standard CAP Parameter

Parameter Value	Description	Possible Values	Cust Pgrm	Recommended Settings
Cold Ambient Protection (CAP) (CEM1) (10E4 000)	This parameter enables Cold Ambient Protection	-False -True	Engineering only	

Frequently Asked Questions

Why does the CAP feature appear to be shut off when IST is actively running?

The IST feature interacts with the CAP feature. If the IST feature is active and running, the CAP feature will be deactivated.

Definitions/Acronyms

The following term is referenced in this document:

Acronym	Definition
AAT	Ambient Air Temperature
AESC	Auxiliary Engine Speed Control
AIT	Air Inlet Temperature
APP	Accelerator Pedal Position
CAP	Cold Ambient Protection
CEM1	Engine Control Module
ECT	Engine Coolant Temperature
IST	Idle Shutdown Timer