

# MaxxForce<sup>®</sup> DT, 9, 10 (2010)

Overview: *Cold Ambient Protection*

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## General Overview: Cold Ambient Protection

The Cold Ambient Protection (CAP) feature keeps the engine warm during cold temperatures and may provide better fuel economy, increased operator comfort, and improved engine performance.

This document will address the unique Cold Ambient Protection functionality for the MaxxForce® DT, 9, 10.

## Description and Operation

CAP maintains engine coolant temperature by increasing engine rpm to a programmed value when ambient air temperature is below 10°C (50°F), coolant temperature is below 75°C (167°F), and engine has been idling at no load for over five minutes.

### Operation

Engine speed will ramp up to 1400 RPM and will maintain at 1400 RPM until coolant temperature has reached 75°C (167°F) or until the following occurs:

- Engine load is greater than 40%.
- Brake pedal is applied or brake switch 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.
- Power Take Off (PTO) switch, also used for electronic hand throttle, is turned on and actively controls engine speed.
- Accelerator pedal is pressed or Accelerator Pedal Position sensor (APP) fault is detected.
- Idle Shutdown Timer (IST) is enabled.
- Engine Coolant Temperature (ECT) sensor fault is detected.
- Air Inlet Temperature (AIT) ambient temperature sensor fault is detected.

**NOTE** - The Idle Shutdown Timer (IST) programmable parameter must be disabled for CAP feature operation.

## Programmable Parameters

There are no user programmable parameters available for the CAP feature.

## Frequently Asked Questions

**My driver states the engine idle speed increases to 1400 RPM when it is cold outside?**

This is normal when CAP has been enabled; this feature is attempting to maintain a coolant temperature of 75°C (167°F). The Low and High idle speeds are non-adjustable.

## Definitions/Acronyms

The following term is referenced in this document:

Acronym	Definition
AIT	Air Inlet Temperature
APP	Accelerator Pedal Position
CAP	Cold Ambient Protection
ECT	Engine Coolant Temperature
PTO	Power Take Off