

# MaxxForce<sup>®</sup> 11 and 13 (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. It may provide increased operator comfort and improved engine performance.

This document will address the unique Cold Ambient Protection functionality for the MaxxForce® 11 and 13.

## Description and Operation

CAP maintains engine coolant temperature by increasing engine rpm when the air temperature is below 10°C (50°F) and coolant temperature is below 75°C (167°F). CAP will start increasing RPM after the engine has been idling at no-load for over 5 minutes.

### Operation

Engine speed will increase or decrease to maintain a coolant temperature between 70°C (158°F) and 80°C (176°F) until the following occurs:

- Engine load is greater than 45%.
- Brake pedal is applied or brake switch fault is detected.
- Parking brake is applied unless programmable parameter - Parking Brake CAP Enable (9401) has been enabled.
- 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) is turned on and actively controls engine speed. CAP can also be disabled if a PTO device is engaged. Hybrid applications based on operating mode can disable CAP.
- Accelerator pedal is pressed or Accelerator Pedal Position sensor (APP) fault is detected.
- Engine Coolant Temperature (ECT) sensor fault is detected.
- Air Inlet Temperature (AIT) ambient temperature sensor fault is detected.
- Ambient air temperature is above 15°C (59°F).

## Programmable Parameters

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

## Frequently Asked Questions

**If I have an UltraShift® or UltraShift Plus® transmissions can I use this feature?**

CAP is allowed for the UltraShift® and UltraShift Plus® transmissions. CAP will disengage with a gear change or brake switch activation.

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

The IST feature interacts with the Cold Ambient Protection (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
AIT	Air Inlet Temperature
APP	Accelerator Pedal Position
CAP	Cold Ambient Protection
ECT	Engine Coolant Temperature
PTO	Power Take Off