

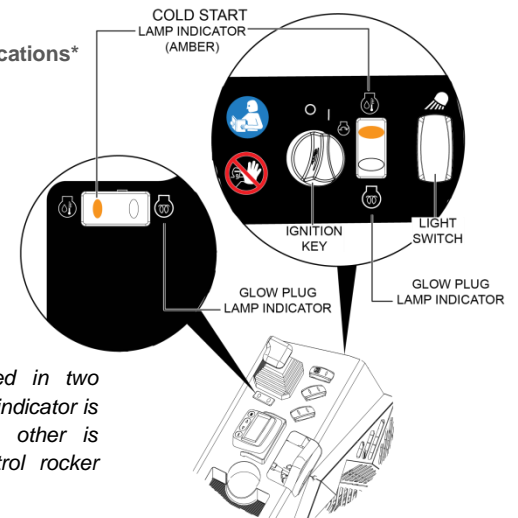
“VERY COLD START” AND “COLD START” MODE OPERATION

The purpose of this document is to outline the function of the “very cold start” mode that is used in the warm up logic on HTX6H and STX6H model. It’s important for an operator and service technician to understand how the trowel is supposed to function prior to determining if there are engine speed and rotor drive faults.

The HTX/STX6H “VERY COLD START” mode logic works like this:

- At system start (key on) the software checks engine oil temperature.
- If oil temperature is above 50° Fahrenheit the new function, ‘Very Cold Start’, is skipped and the machine goes into a normal “cold start” mode.
- If, at start up, the engine oil temperature is below 50° Fahrenheit, several machine functions are disabled until either the engine oil or engine coolant temperature is above 70° Fahrenheit.
- The disabled functions are: pump stroking, normal Cold Start mode and high engine speed commands.
- The Cold Start Lamp indicator (amber) will blink quickly (4 Hz) to tell the operator the machine is disabled while warming from the “very cold start” mode.
- The engine coolant usually heats up quite quickly on these engines so this “Very Cold Start” warmup mode normally lasted less than 10 minutes even at ambient temperatures of 0° Fahrenheit.
- The Very Cold Start function can only be active immediately after system start up (key on). If engine temperatures drop during operation (perhaps because of a sensor fault) the machine does not go back to disabling machine functions.

Figure 1 Cold Start Lamp Locations*



* The cold start lamp indicator is located in two locations, on the right control console. An indicator is above the powerview display, and the other is between the ignition key and light control rocker switch.

The HTX/STX6H normal “COLD START” mode logic works like this:

- While the machine is sitting idle, engine and hydraulic temperatures are monitored. If either is considered cold based on the controller’s parameter set, the engine speed is raised to high idle (1500 RPM on HTX/STX6H) and the cold start indicator is turned on.
- If the hydraulic temperature is cold, oil is pushed over a relief valve to warm the oil.
- This Cold Start mode function of activating the relief valve is turned off any time the operator wants to use the machine by pressing the foot pedal, regardless of temperatures.
- The engine is considered cold when the engine coolant temperature is below 160° Fahrenheit.
- The hydraulic temperatures are considered cold if both sides (left and right hydraulic cooler sensors) are below 80° Fahrenheit. It will warm the hydraulic oil until one side (left or right hydraulic cooler sensors) is above 100° Fahrenheit.