COLD START OPERATION

Whiteman ride-on trowel models STXD6i and HTXD6i have a “Cold Start” operational mode that is programmed into the machine control unit (MCU) and controlled by the MCU.

The purpose of the Cold Start mode is to allow the trowel to reach operational temperatures quicker than when in normal engine idle speed mode.

The cold start function is described in the operator’s manual as follows:

1. Idle speed is raised automatically to expedite bringing machine to operating temperature when:
    a. Hydraulic oil is below preset temperature (Oil forces across relief valve to raise oil temperature)
    b. Engine coolant temperature is below preset temperature.
2. Aux 1 lamp indicator will light and fan will turn off when machine is in cold start mode.

COLD START NOTES FOR OPERATOR

1. The cold start mode begins every time the unit is started.
2. When the unit is in “cold start” mode: (ENABLED) the Aux 1 lamp will always be on.
3. When the unit is in “cold start” mode: (ENABLED) the engine speed will automatically be in high idle, (1750 RPM) and cannot be lowered to idle.
4. If the foot pedal is depressed during the Cold Start process the engine speed will rise to full operating speed (3000 RPM), only while operator is sitting in the seat.
5. Once the unit reaches the temperature set parameters the MCU will DISABLE the cold start mode, turn off the AUX 1 lamp, and automatically reduce the engine speed to idle (1000 RPM).
6. If the unit is extremely cold it may not reach the cold start temp parameters to allow the MCU to DISABLE the cold start mode in 30 minutes. A 30 minute timer is set in the MCU for cold start mode operation. If the unit doesn’t reach the temp parameters in 30 minutes the MCU interprets this as a fault. The condition is indicated by the amber warning lamp illumination and the hydraulic cooler fan will turn on. This is a component safety feature to ensure the fan comes on in the event of a temp sensor circuit failure.
7. If the above event occurs, turn the engine off for 10 seconds and restart the engine. The MCU will now cycle back into a new cold start mode and 30 minute timer begins again.

COLD START MODE OPERATION TABLE

COLD START MODE	WHEN IT OCCURS	DESCRIPTION OF OPERATION
On (ENABLED)	1. At unit start up. 2. When engine and hydraulic temps are below parameters	AUX 1 lamp illuminated Engine at high idle speed, 1750 RPM
Off (DISABLED)	1. Once engine and hydraulic temps reach set parameters	AUX 1 lamp not illuminated Engine drops to idle speed, 1000 RPM

COLD START MODE - NOTES FOR TECHNICIANS

1. Cold start raises engine RPM to high idle & forces hydraulic oil over pitch circuit relief valve.
2. Fluid thru the pitch circuit relief valve increases the temperature of the hydraulic fluid to assist in bringing it to operating temps quicker.
3. During cold start mode the hydraulic pressure increases due to the pitch activation valve being activated.
4. System charge pressure cannot be tested while unit is in cold start mode.
5. If the foot pedal is depressed, the pitch bypass valve is deactivated ensuring proper fluid power to the system. ***NOTE**: During this process the fan will remain off and the AUX lamp stays on.*

COLD START MODE – TEMP SET POINTS

COLD START MODE	WHEN IT OCCURS	NOTES
On (ENABLED) AUX 1 Lamp ON	1. Hydraulic temp is below 130° F (sensing by Hydro temp sender at cooler) 2. Engine coolant temperature is less than 160°F (sensing by engine temp)	• ---- ---- ---- ---- ---- ---- ---- ---- ---- •
Off (DISABLED) AUX 1 Lamp OFF	1. Hydraulic temp reaches 130° F 2. Engine coolant temp is over 160° F	Both hydraulic and engine coolant temps must reach the temp set points for the MCU to disable cold start mode

HYDRAULIC COOLER FAN CONTROL SETTINGS

The hydraulic cooler fan is solely controlled by the trowel MCU based on the hydraulic temperature sender. Any time the fan turns on the engine will be at high idle speed (1750 RPM).

FAN-ON	TEMP > 140° F	Hydro oil reaches 140° F the MCU turns the fan ON
FAN-OFF	TEMP > 135° F	Hydro oil reaches 135° F the MCU turns the fan OFF