Section 4.1

Machine Operation - Operator's Cab

Figure 1: Upper Dash

System Monitoring Gauges

The machine is equipped with several gauges to help protect vital systems from damage.

All system monitoring gauges (except the voltmeter) can also be monitored by using the measure screen on the IQAN MDM.

Hourmeter (Reference #1, Figure 1)

The hourmeter records the actual hours the machine has been operated. Do not disconnect the hourmeter for any reason. (tampering of hourmeter could void warrenty) All recommended preventive maintenance procedures are based on the hourmeter.

Voltmeter

(Reference #2, Figure 1)

The voltmeter monitors the condition of the machine's electrical charging system.

If a low battery charge is indicated, have the batteries and the engine's alternator belts checked. The machine can operate with a low battery charge, but IQAN controls may become unstable. Use of auxiliary electrical equipment, such as the exterior lights, will rapidly drain the batteries.

Hydraulic Oil Temperature Gauge (Reference #3, Figure 1)

The hydraulic oil temperature gauge monitors the temperature of the hydraulic oil in the tank.

Max Operating Temp according to ISO rating

ISO 32 . . . . . 170°F (77°C)
ISO 46 . . . . . 190°F (88°C)
ISO 68 . . . . . 210°F (99°C)

If high hydraulic oil temperature is a re-occurring problem, check the oil cooler fins for debris or look for a possible pump or valve relief set too low that is allowing oil to dump over it and creating excessive heat.

Engine Oil Pressure Gauge

(Reference #4, Figure 1)

NOTICE

Operating the machine with low engine oil pressure will cause severe damage to the engine.

The engine oil pressure gauge monitors engine lubricating oil pressure.

Normal operation: . . . . . Varies
@ Cold idle. . . . . 70 - 80 PSI
. . . . . (480 - 550 kPa)
@ Hot idle. . . . . 35 - 40 PSI
. . . . . (210 - 275 kPa)
@ Hot full throttle . . . . . 60 - 70 PSI
. . . . . (415 - 480 kPa)

Normal gauge readings will vary with engine temperature. Shut down engine immediately if engine oil pressure drops. Have machine inspected and get the problem corrected before re-starting the engine.

Engine Water Temperature Gauge (Reference #5 Figure 1)

The engine water temperature gauge monitors the engine's cooling system temperature.

Normal operation:. . . . . 160° - 210°F
. . . . . (70° - 99°C)

If the engine water temperature gauge is higher than 210°F (99°C) , return the engine to an idle until it cools down. If engine overheating is a re-occurring problem, check the radiator/oil cooler fins for debris. Keep the area in front of the radiator clean for maximum cooling air flow.

NOTICE

All Oil Temperatures and Engine Oil Pressure can be also monitored on the IQAN MDM. If Gauges are thought to be faulty. Use IQAN MDM to monitor or check these items.

IQAN Multiple Display Module (MDM) (Reference #6, Figure 1)

The heart of the IQAN digital control system is the Multiple Display Module (MDM). This unit monitors the system and allows the operator to select from four different operational modes, adjust individual function settings, perform troubleshooting procedures, and display error codes and information for the engine.

See the “IQAN Training Manual” shipped with the machine for complete MDM operation instructions.

MDM to PC Connection

(Reference #7, Figure 1)

This is where an authorized TimberPro service technician can connect a laptop computer to the IQAN MDM for troubleshooting of the IQAN system.

Radio (Reference #8, Figure 1 & 2)

The AM \ FM Radio is a modular design with an optional CD changer available. Below is a list of the button controls. For more information on the features of this radio please reference the radio manufactures operator’s manual shipped with the machine

1) Power On \ Off
2) AM \ FM Band Select
3) Tuner Preset Scan
4) Manual Tuning Down
5) Preset 1 - 6
6) Manual Tuning Up
7) Stereo / Mono
8) Mute
9) CD Changer ON \ Off
10) Tuner Seek Up
11) Tuner Seek Down
12) Loudness
13) Volume Control Mode
14) Volume Control Up / Down

Warning Alarm

(Reference #9, Figure 1)

The warning alarm is an audible alert for the operator of a potential system problem monitored by gauges, warning indicator lights, and the IQAN MDM on the dash panel.

Ignition Key Switch

(Reference #10, Figure 1 & 3)

NOTICE

Keep the ignition key in the “RUN” position while the engine is running. Do not turn the ignition key to the “START” position while the engine is running. Damage to the engine could result.

OFF - Turn the ignition key to the “OFF” position to shut down the engine. Insert and remove the ignition key from this position only. See Figure 3.

START - Turn the ignition key all the way to the right to crank engine. Release the key when the engine starts. Do not crank the engine for more than 30 seconds. If the engine doesn’t start, return the ignition key to the “OFF” position and before trying again. Always wait for the “Wait to Start” light to turn off before cranking over engine.

RUN - The ignition key will automatically return to this position when it is released after the engine starts. (In extreme cold weather start-up make sure key returns to the run position after starting engine.)

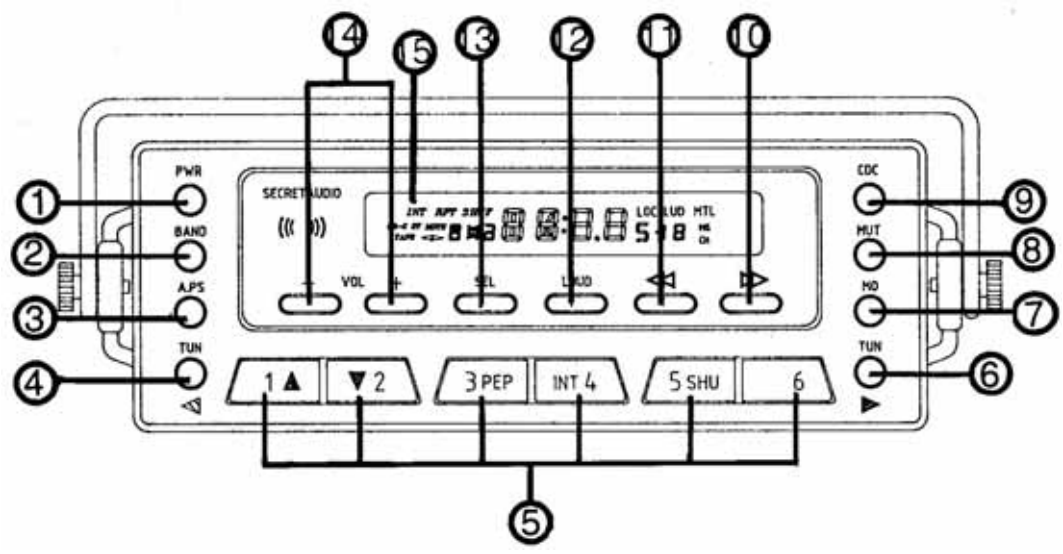


Figure 2: Radio Controls T00010

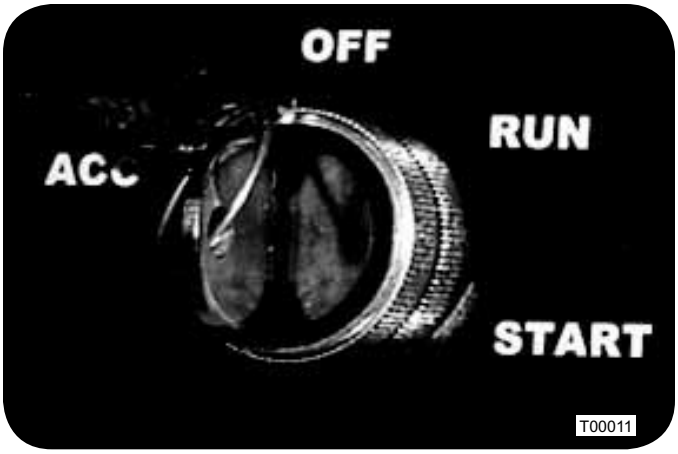


Figure 3: Ignition Key Switch

Upper Dash Control Switches

Hydraulic Tank Vacuum / Vent Switch (optional)

(Reference #11 & 12, Figure 1)

This is a On / Off / "Momentary On" rotory switch with a red indicator light. When this switch is in the "Vacuum" position (#11). The RED indicator light will be on, the vacuum pump will be activated, and the key switch will be disabled.

Hydraulic Tank Vacuum switch turns on a small vacuum pump located in the engine compartment. The vacuum pump can be used to minimize oil loss by pulling a vacuum on the hydraulic system. This is important if there is a hydraulic system leak or if hydraulic components need to be remove for service.

NOTICE

The vacuum system is only ment to be used until a leak can be repaired. Never leave the machine unattended while the vacuum system is on.

Always make sure to vent the hydraulic tank for 60 seconds before start-up after using the vacuum system. Failure to do so could cause severe damage to the hydraulic system.

⚠ DANGER

Turning on the vacuum pump when the machine is running could cause major damage to the hydraulic pumps. Always shut down engine first.

When the Vacuum / Vent switch is held in the Momentary position (#12). This will activate the hydraulic tank vent system and will release any pressure or vacuum in the hydraulic tank.

NOTICE

It could take up to 60 seconds to fully vent the hydraulic tank.

The hydraulic tank is pressurized by the turbo of the engine. This is done to help stop cavitation problems with the hydraulic pumps and motors. If a leak occurs on the machine or repair is to be done on the machine that requires the removal of hydraulic hoses or components. The Vent switch can be rotated "clock-wise" and held until the pressure built up in the tank is released.

The vent should also be used after using the vacuum system to release any vacuum left in the hydraulic tank to prevent cavitation of hydraulic pumps upon start-up.

Exterior Lights "ON/OFF"

(Reference #13, Figure 1)

GREEN colored switch used to turn on the exterior work lights.

Push down on top of switch to turn the exterior lights "ON". Push down on bottom of switch to turn exterior lights "OFF".

Upper Dash Warning Lights

Charge Oil Filter Bypass Light

(Reference #14, Figure 1)

Preventing charge oil filter bypass is very important. Unfiltered oil bypassing the charge filter will enter the hydrostatic wheel drive circuit and begin to contaminate the loop.

Excessive charge oil back pressure is the result of a dirty filter or cold oil being forced through the filter. Change filter according to the preventive maintenance schedule in this manual and always after a major component failure. During cold starts, always allow the machine to reach normal operating temperature before running at full throttle. Following These simple rules will help prevent costly down-time and increase the life of your equipment. The Charge Filter warning light is YELLOW.

Return Filter Bypass Light

(Reference #15, Figure 1)

Preventing return filter bypass is very important. Unfiltered oil bypassing the return filter will enter the hydraulic tank and begin to contaminate the entire hydraulic system.

Excessive return oil back pressure is the result of a dirty filter or cold oil being forced through the filter. Change filters according to the preventive maintenance schedule in this manual and always after a major component failure. During cold starts, always allow the machine to reach normal operating temperature before running at full throttle. Following These simple rules will help prevent costly down-time and increase the life of your equipment. The Return Filter warning light is YELLOW.

Low Fuel Warning Light

(Reference #16, Figure 1)

The Low Fuel Warning Light is used to warn the operator of a low fuel level in the fuel tank and help prevent the operator from running the machine out of fuel. The Low Fuel warning light is YELLOW.

⚠WARNING

low hydraulic oil level can expose suction filters to air and cause catastrophic damage to the pumps keep hydraulic oil level in the green zone of the sight gauge at operating temperature.

Fill Hydraulic Oil

(Reference #17, Figure 1)

The machine is equipped with a sensor which monitors hydraulic oil level in the tank. The Fill Hydraulic Oil sensor is designed to warn the operator that the hydraulic oil tank is getting low. The oil resivoir needs to be filled as soon as possible. Also monitor the red “low hydraulic oil level” light so that the oil resivoir remains above a safe level. The warning light is YELLOW colored.

The oil level sight gauge is located on the side of the hydraulic oil tank. See Figure 4. It is always a good policy for the operator to check oil level before and after every shift.

Wait to Start & Engine Warning

(Reference #18, Figure 1)

This indicator light is used for two different engine warnings.

1. When starting the machine the electronic engine goes through a series of startup adjustments to prepare the engine for the startup process. The operator need to wait until this light goes off before cranking of the engine can begin. When the outside air temp drops below 30 degrees Fahrenheit this light will go off for a second and then will come back on. This is telling you that the intake grid heater (Cummins) is being used and cranking should not begin until the light has again gone out.

2. This warning light is also used for warning of a problem with the electronic engine. If this light is illuminated the operator should check his engine gauges and also the IQAN MDM screen. The MDM screen will display the engine error codes. If no error codes are present but the engine warning light remains on contact your authorized TimberPro dealer. (Consult your engine operator’s manual for more information on error codes.)

Low Hydraulic Oil Level

(Reference #19, Figure 1)

The machine is equipped with a sensor which monitors hydraulic oil level in the tank. The Low Hydraulic Oil level sensor is designed to protect the machine in the event of a hose failure or rapid oil loss. Shut down machine **IMMEDIATELY** if the Low Hydraulic Oil level warning light signals an alarm. The warning light is RED colored.

NOTICE

It is very important that a safe level of oil is maintained in the tank at all times. The operator will be alerted if the oil level in the tank drops below a safe level. Always use the hydraulic oil level sight gauge mounted on the tank to determine a safe oil level.

WARNING

low hydraulic oil level can expose suction filters to air and cause catastrophic damage to the pumps keep hydraulic oil level in the green zone of the sight gauge at operating temperature.

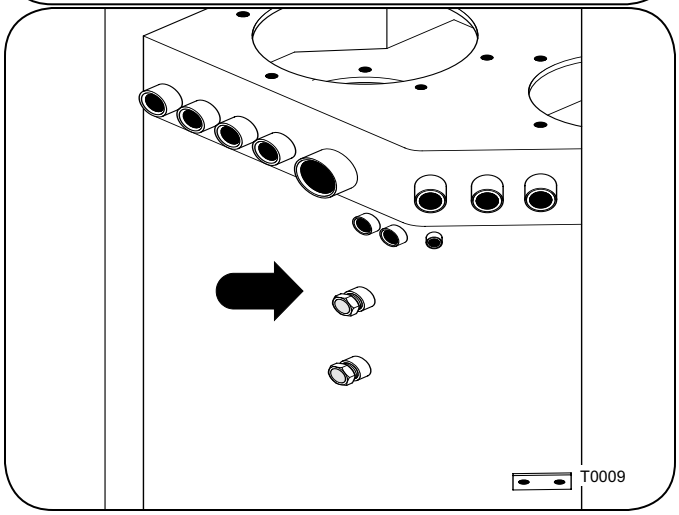


Figure 4: Hydraulic Oil Sight Gauges

The oil level sight gauge is located on the side of the hydraulic oil tank. See Figure 4. It is always a good policy for the operator to check oil level before and after every shift.

Stop Engine Light

(Reference 20, Figure 1)

The Stop engine light is used to warn of a serious problem with your electronic engine. When the stop engine light is illuminated shut down the engine as soon as it is safe to do so. The warning light is RED colored.

The MDM screen will display the engine error codes. If no error codes are present but the red engine stop light remains on contact your authorized TimberPro dealer. (Consult your engine operator's manual for more information on error codes.)

A/C & Heater Control Panel

1) Engine Diagnostics Connector

The Engine Diagnostics Connector is supplied to give the engine technician a place to connect into the engines J1939 Can Bus system. In the event that there is an engine problem that requires a technician to connect a laptop to the engine please inform the technician of the location of this connector.

2) Power Point

The Power Point Socket gives the operator a place to plug in 12 volt devices such as: Cell Phones, GPS Systems, or even CB radios. The Power Point is fused at 5 amps.

3) Fan Speed Select

The Fan Speed Select switch controls the speed of the A/C and Heater fans. This is a three position rotary switch. The first position is Low fan speed, The second position is Medium fan speed and the third position is High fan speed.

4) A\C or Heater Mode Switch

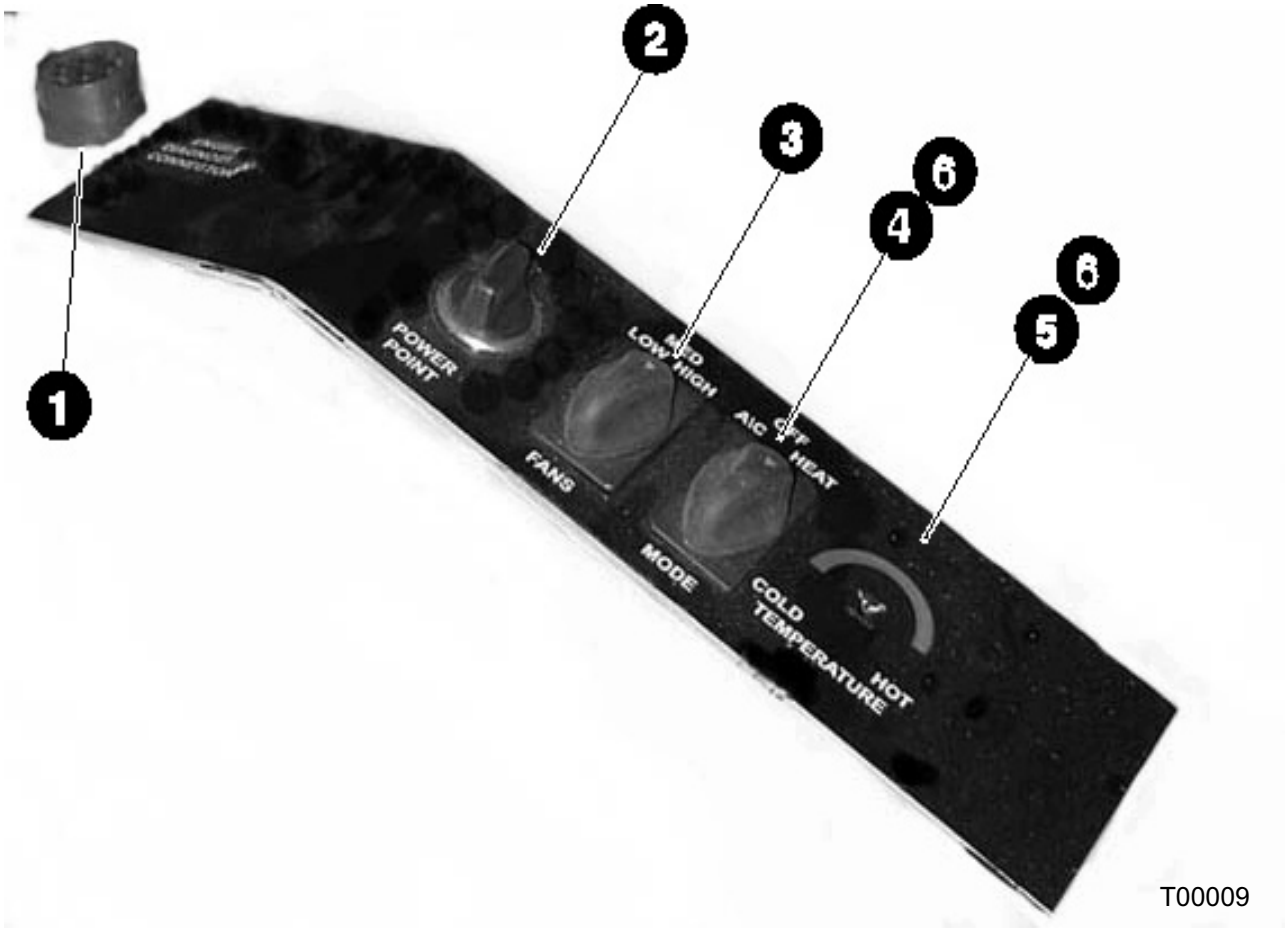
The Mode switch controls if the Air Conditioning system or the Heater system is going to be active. This is a three position rotary switch. The first position is activates the Air Conditioning system. The second position turns everything off, even the fans. The third position activates the Heater system.

5) Climate Control Adjustment

The Climate Control Adjustment is used to increase or decrease the temperature of the operator's cabin. Turning the control counter-clockwise will lower the temperature and turning the control clockwise will increase the temperature in the operator's cabin.

6) Defrost

When Defrost is needed in the operators cab. Turning the A/C & Heater Mode switch to the A/C position and then turning the Climate control Adjustment to the Hot position will help dry out the operator's cabin. You may also want to turn on the defrost fan located at the top of the operator's cabin and help circulate air in the cabin.



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Seat Controls

1) Lumbar Control Lever

The Lumbar Control Lever is a two way adjustable lever for lumbar back support.

2) Seat Belt

The Seat Belt must be worn at all times while operating the machine.

⚠WARNING

Seat belt and mounting hardware must be inspected for wear or damage before operating the machine. Replace the belt or mounting hardware if worn or damaged.

3) Backrest Adjustment Knob

Turn the knob and adjust the backrest angle to desired position.

4) Seat Forward and Backward Adjustment Lever

Push the lever to the left and slide the seat forward or backward to the desired position. Release the lever to lock the seat in place.

5) Seat Heater Switch (optional)

The Seat Heater is an available option. The heater has a three position switch for heat adjustment. The first position marked on the switch (II) is High. The second position marked on the switch (I) is Low. The center position of the switch is the Off position. The seat heater has a “one hour” automatic shut off. After one hour of continuous operation the seat heater will automatically shut off. The only way to restart the heater is to turn the switch to the off position and then back on again.

6) Seat Height Adjustment Knob

Push the knob in to increase air pressure and raise the seat. Pull knob out to decrease air pressure and lower the seat.

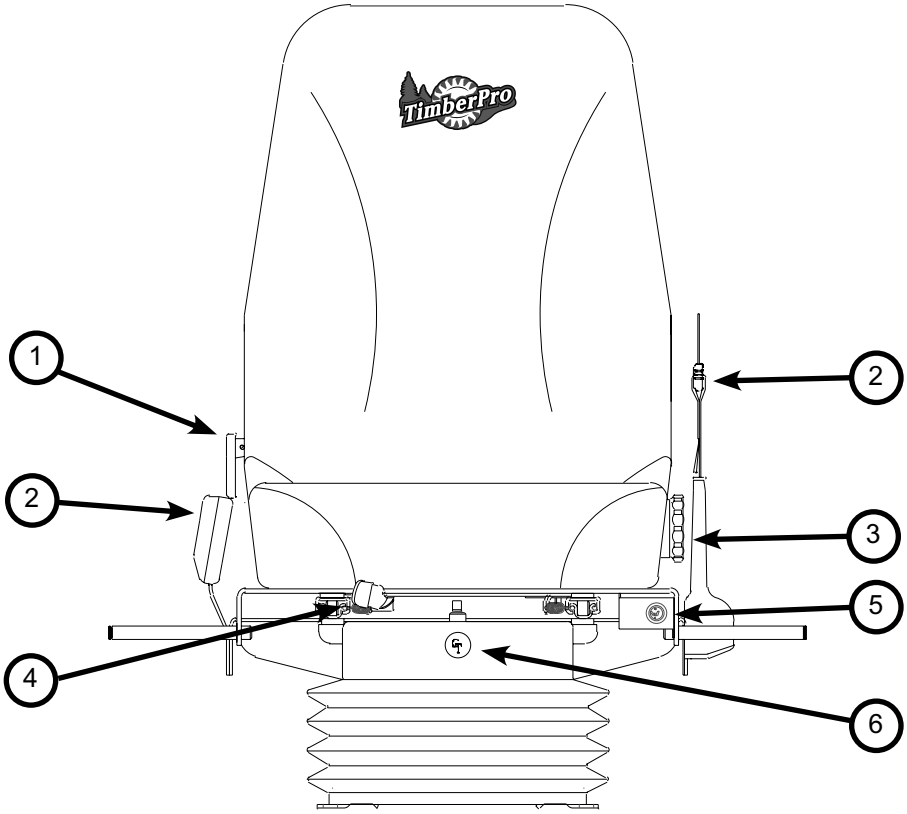

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Figure 2: Seat Controls