

# Section 4.2

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## Machine Operation - Operator's Machine Controls

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# Machine Control System Layout



Figure 1: Machine Control Pods

## System Arm Switch

(See Figure 1 - Item 1)

The System Arm switch is a momentary switch that signals the IQAN digital control system to activate the system controls. After making sure both the engine door and cab door are closed, pressing down on the arming switch will activate the system controls. At this time the System Armed message should be displayed on the MD4 screen. (See Figure 2.)

The system arm switch is part of the safety door interlock circuit. If the cab door or engine door is open the IQAN system will stop any output to control valves or the track drive pump.

## Charge Heater Switch

(See Figure 1 - Item 2)

A wheel drive charge oil heater block is available as an option for helping to speed-up hydraulic system warming in colder climates. The Charge Heater uses track drive system charge oil and forces it across a relief warming the oil and recirculating it back to the hydraulic tank. The Charge Heater is set to shut off automatically at 70° F.

Press down on the “Charge Heater” switch to



Figure 2: System Armed and Park Brake Light activate the charge oil heater. A message for the charge heater should now be displayed on the MD4 screen. Push down on the charge heater switch again to de-activate the charge heater system.

## NOTICE

**NOTE:** The IQAN digital control system is equipped with an interlock to prevent operation of the machine while the charge oil heater is ON. This must be done to prevent damage to the hydraulic system.

## Parking Brake Switch

(See Figure 1 - Item 3)

The Parking Brake switch is used to activate the “auto parking brake feature”. When the parking brake switch is pressed this will activate the auto parking brake and the parking brake indicator on the MD4 should now be off. When the parking brake indicator is off anytime the track drive pedals are pressed the parking brake will be released, allowing the machine to move. (See Figure 2.)

RED colored switch used to engage the auto parking brake. Push down on left side of switch to engage the auto parking brake. Push down on right side of switch to release the parking brake.

With the switch in the “on” position the Auto Parking Brake is active and when the travel pedal is pressed the parking brake will automatically be released. When the travel pedal is released a internal adjustable timer counts down and then the Parking Brake will be engaged. This timer is adjustable from the IQAN MD4 screen.

### **WARNING**

**Always turn auto parking brake switch “on” before exiting the operator’s cab.**

With the switch in the “off” position the Parking Brake is turned off. With the switch “off” the parking brakes are released and the machine can free-wheel. **Always turn auto parking brake switch “on” when exiting the operator’s cab.**

## Spare (Optional)

(See Figure 1 - Item 4)

Optional Spare Switch

## Horn Switch (Optional)

(See Figure 1 - Item 5)

Sound-making device used to warn others

## Max (Auto) Throttle Switch

(See Figure 1 - Item 6)

With the switch in the “on” position, (the Green LED should now be illuminated) When the drive pedal is depressed the engine will automatically increase the engine RPM from the current throttle control setting to full throttle. When anyone of the implement functions are used the throttle will only

rise to the intermediate setting. This can be set by selecting F5 on the main screen. When the functions are left alone for a few seconds the engine will drop to idle or where ever the throttle speed control is set. When the Auto Throttle switch is placed in the “off” position this feature is disabled.

This feature is important when using the loader function on a forwarder and then moving the machine to a different location to resume loading. The wheel drive system requires the engine to be at full RPM for max horsepower. While the loader function works best at about 1300 RPM. Reducing RPM when not needed can save fuel and wear on the engine.

## Engine Throttle Control

(See Figure 1 - Item 7)

### **WARNING**

Operating the engine above an idle when cold can damage the piston rings and increase wear on all engine parts. Allow the engine to warm-up before operating above an idle.

The engine throttle control can be turned clockwise to increase the engine throttle. If the throttle control is rotated counter-clockwise it will return the engine to idle.

When operating machine never run the engine at a higher RPM than what is needed. Running the engine at high RPM’s when not need can waste fuel and cause unnecessary wear on the engine and components.



Figure 1: Machine Control Pods

## Reverse Steer Switch

(Figure 1 - Item 8)

Push down on the switch to select the “ON” position and reverse the steering controls for reverse machine travel. Push down on the switch again to select the “OFF” position and return the steering controls to normal for forward travel.

### NOTICE

**Always be aware of the present configuration of the steering controls and steer reverse switch before moving the machine. Serious personal injury or death could result if the machine makes an unexpected movement because of reversed control settings.**

The Steer Reverse switch used to swap or “reverse” the steering control inputs to make operating the machine in reverse travel easier. Reverse travel is with the operator facing the clam bunk or forwarder bunks. See Figure 3. This allows the actual operator steering control inputs to remain the same regardless of machine travel direction.

## Spare (Optional)

(See Figure 1 - Item 9)

Optional Spare Switch

## Axle Differential Lock Switch

(See Figure 1 - Item 10)

YELLOW colored switch used engage the axle differential lock. Locking the axle differentials allows all wheels to drive forward and reverse. This feature should only be used when necessary. Always turn off the differential lock when not needed.

Push down the switch to engage the differential lock. The green LED should now be illuminated. Push down on the switch again to turn the function “OFF” and dis-engage the axle differential lock.

The Axle Lock switch is controlled by the IQAN system and should only be activated and de-activated when the machine is stopped. It will also will stay activated “even after the switch has been turned off” until the machine again has come to a stop. This is necessary to prevent damage to the axle differential.

### **! DANGER**

**DO NOT ENGAGE THE AXLE DIFFERENTIAL LOCK WHILE THE MACHINE IS IN MOTION OR THE WHEELS ARE SPINNING. This is a positive locking system and major damage will be done if the differential lock is engaged while the wheels are turning.**

## Spare (Optional)

(See Figure 1 - Item 11)

Optional Spare Switch

## Gearbox Shift Switch

(See Figure 1 - Item 12)

The Gearbox Shift Switch used to shift the gearbox or transfer case between high and low gear.

Push down on the switch once. The MD4 Screen should now display a “shift message” On the MD4 select the gear you wish to be in. If you don't want to change select cancel.

### **DANGER**

The default working position for the gear box is “LOW GEAR”. If the machine is working “Unloaded” in flat terrain, the operator may select “HIGH GEAR”.

High Gear should only be used for traveling long distances on flat ground. Never attempt to use High Gear when in the forest, in severe terrain or while machine is loaded.

**WHEN SHIFTING THE MACHINE ALWAYS STOP THE MACHINE FIRST.** Make sure to turn off the parking brake and then make a gear change selection. After making a gear change the IQAN MD4 screen may instruct you to steer the machine. This will need to be done to help the gears mesh inside the gearbox. A small gear symbol with the number “1 for Low” or Number “2 for High” will be visible on the MD4 screen to let you know what gear the transfer case is currently in.

### **DANGER**

Never attempt to shift gearbox when machine is on an incline. Shifting of the gearbox should only be attempted on flat ground.

## Hydraulic Motor Shift Switch

(See Figure 1 - Item 13)

The Hydraulic Motor Shift Switch used to shift the wheel drive motors between high, medium and low displacement.

Push down on the switch once to select the “MEDIUM” position. Push down the switch again to select “LOW” speed. Push the switch down a third time and this will select “HI” speed.

LOW - This setting locks both drive motors on the 8 wheel machine into MAX displacement giving the most power and top speed of

about 2 M.P.H.

MEDIUM (Down Hill) - This setting locks one of the two motors on the 8 wheel machine into max displacement and will allow a top speed of about 4 M.P.H. This **MUST** be used in a down hill / over running load condition.

### **NOTICE**

Always use “Medium” setting when working in severe conditions. This can prevent an “over-speed” condition when traveling down steep grades.

HIGH - This setting allows both motors to flex in displacement automatically depending on power required and is the normal setting for average working conditions. Top Speed will be about 7 M.P.H in the low gear box position.

On the 6-wheeled machine there is just one motor and the shift switch will just have 2 positions. One for locking the motor into MAX displacement (low) and the other position for normal machine operation.

## Wheel Drive Speed Control

(See Figure 1 - Item 14)

The Wheel Drive Speed Control is used to fine tune the current output to the wheel drive pump. This feature is used to increase or decrease the speed of the machine.

If the control is rotated counter-clockwise the machines top speed will be slower. If the control is rotated clockwise the machines top speed will increase. This is very useful when traveling in harsh environments and maintaining a constant speed is difficult. Press the travel speed pedal down and then adjust the wheel drive speed control to the desired travel speed.

## Steer Joystick

(See Figure 1 - Item 15)

The steer joystick is a single axis joystick that can be moved left and right to steer the machine. When the reverse steer switch is activated on the control panel the steer joystick will be reversed.

# Joystick Controls

TimberPro prides itself on being able to provide custom machines with a variety of different attachments and controls handles. The following is just a brief view of some of the control layouts that TimberPro provides. **Your machine controls may be setup different than the following diagrams.**

Changes to boom controls can be done by simply pressing the **Joystick Control** information button on the main screen of the MD4. (see figure 4) The next screen will give you three options. Just select one of the three layouts (US, US-Mod, and SAE) that work best for you. (see figure 5)



Figure 4: Boom Control Selection

# Foot Pedal Controls

Figure 6 shows the foot pedal controls in the TimberPro wheeled machines. The left pedal is the travel brake control pedal. Press the brake pedal to stop the machine or to hold the machine on a steep hill. Never press the pedal while also using the Travel Pedal.

The Pedal on the right side is your Travel Pedal. Press the right side of the pedal to travel forward and the left side of the pedal to travel in reverse. This works in coordination with the Travel Speed control on the joystick pod to control the machine speed.

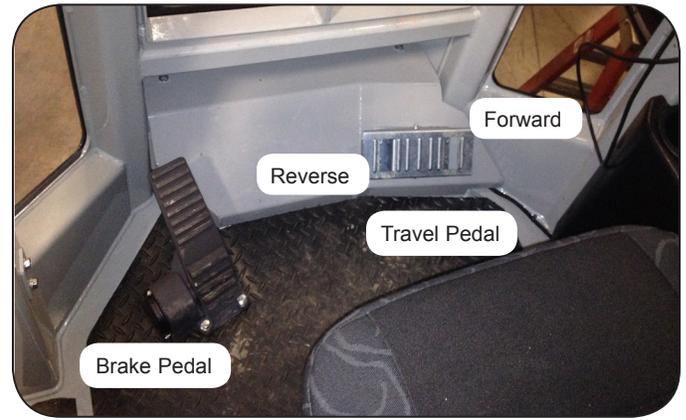


Figure 6: Cab Pedal Control Layout

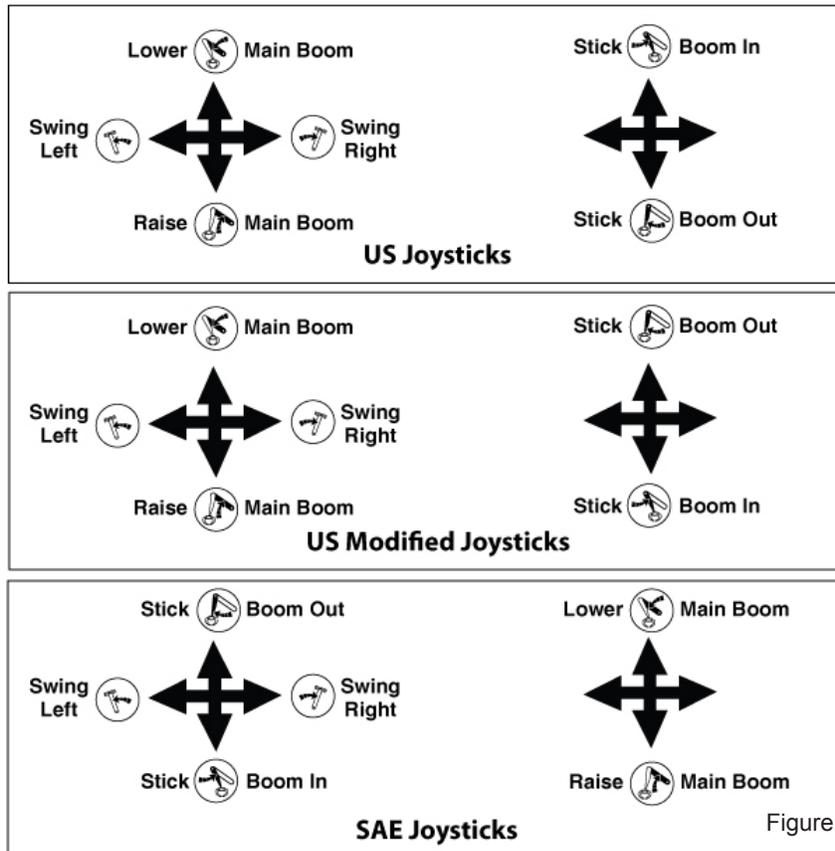


Figure 5: Boom Controls

# Handle Controls

Because TimberPro offers so many different attachment options. It is not possible to have a specific layout for every situation.

To check the handle controls on your TimberPro you can simply press the **Joystick Control** information button on the main screen of the MD4 (See Figure 7 and 8) This will show you how your TimberPro is configured.

If the controls you require are different than what is show, you will need to contact your authorized TimberPro dealer for assistance.

Never attempt to change controls by re-wiring handles or valve connections.

**! DANGER**

**Any alterations of the controls or wiring can cause severe electrical damage and will become the sole responsibility of the machine owner. Machine controls can only be changed by an authorized TimberPro Technician with special instruction to do so from the factory.**



Figure 4: Boom Control Selection

