Operator Controls

Note: Your machine may not be equipped with all of the controls that are discussed in this topic.

Note: Your machine may be equipped with a Dedicated Dual Direction Control Kit. The Dedicated Dual Direction Control Kit changes the control of the work tool and the movement of the machine. The other functions of the joysticks are not affected by the Dedicated Dual Direction Control Kit. Refer to the topic Dedicated Dual Direction Control Kit for details.

Note: Simple hydromechanical work tools may be shipped without hydraulic oil. Uneven movement may occur until all the air has been removed from the work tool. You may need to add hydraulic oil to the machine after the machine fills the circuits of the work tool. Refer to Operation and Maintenance Manual, "Hydraulic System Oil Level - Check" for the proper procedure for checking the hydraulic oil level.

Note: If the machine is not equipped with a cab that is enclosed, Caterpillar recommends the use of a flying object guard. If the machine is equipped with an enclosed cab, operate the machine with the cab door in the CLOSED position.

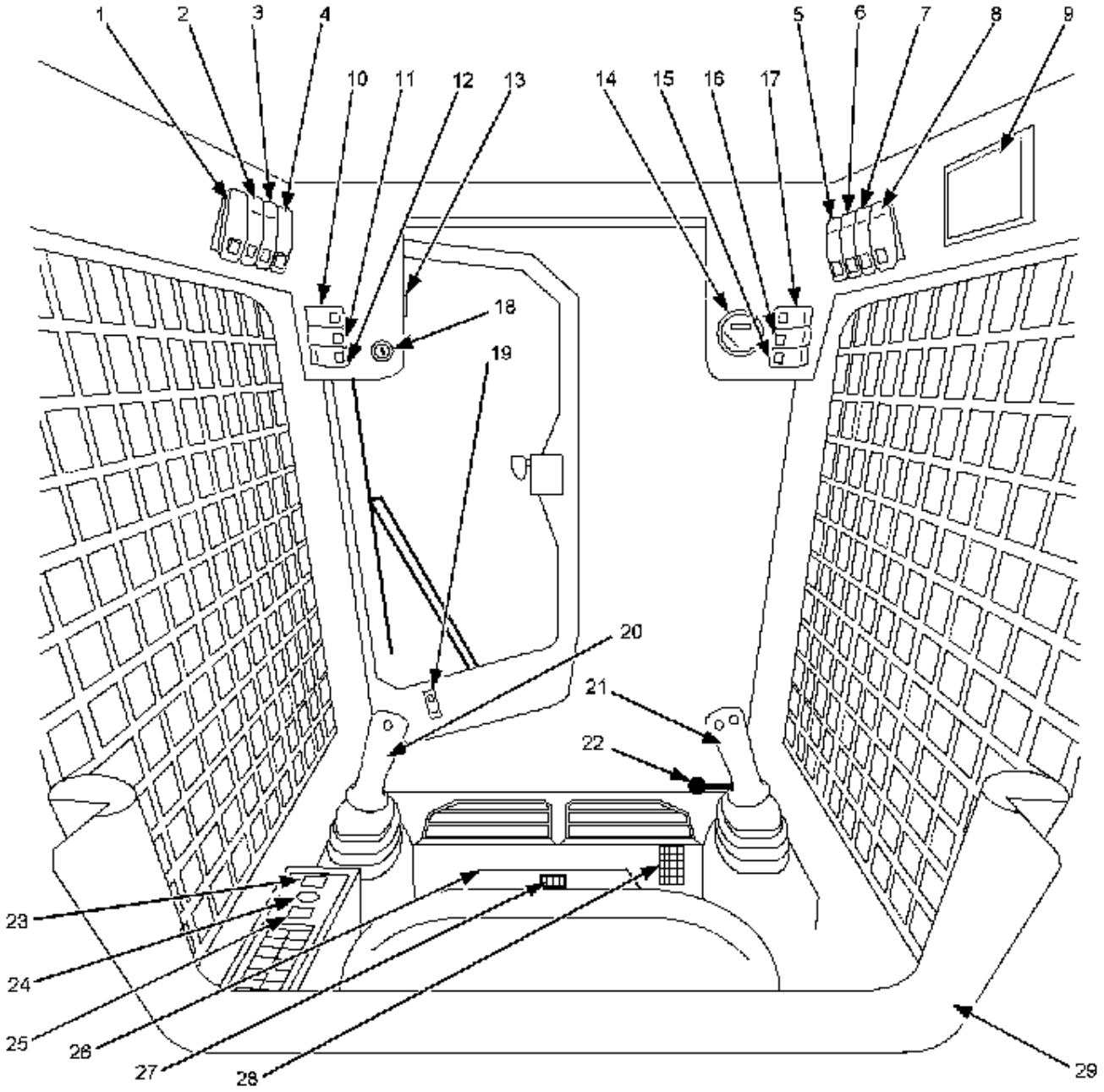


Illustration 1 g01014075

(1) Auxiliary Hydraulic Pressure Release

(2) Automatic Level Control

(3) Auxiliary Electrical Control

(4) Work Tool Coupler Control

(5) Roading Lights

(6) Hazard Flashers

(7) Hydraulic Lockout and Interlock Override

(8) Beacon Switch

(9) Cab Light

(10) Glow Plug Starting Aid

(11) Parking Brake

(12) Auxiliary Hydraulic Mode

(13) Service Hour Meter

(14) Fuel Level Gauge

(15) Rear Work Lights

(16) Front Work Lights

(17) Turn Signals

(18) Engine Start Switch

(19) Window Wiper and Window Washer

(20) Joystick Control

(21) Joystick Control

(22) Governor Control

(23) Fan Speed Control

(24) Temperature Control

(25) Air Conditioning Control

(26) Seat Adjustment

(27) Suspension Seat

(28) Accelerator Control

(29) Interlock Control

Auxiliary Hydraulic Pressure Release (1)

WARNING

Personal injury or death can result from the work tool falling.

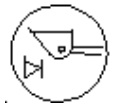
Fully lower the loader arms before you release the hydraulic system pressure.

Auxiliary Hydraulic Pressure Release - Push up on the locking tab and press the bottom of the switch in order to release the pressure in the Standard Flow Auxiliary Circuit and the High Flow Auxiliary Circuit (if equipped). Hold the switch for four seconds and release the switch.

Note: The pressure in the secondary circuit is not affected by this switch. Refer to Operation and Maintenance Manual, "Work Tool Coupler Operation : Secondary Auxiliary Circuit" for the procedure to release the pressure.

Note: The operator must remain in the seat with the armrest in the LOWERED position in order for the control to function.

Automatic Level Control (2)



Automatic Level Control - The Automatic Level Control maintains the selected angle of the work tool as the loader lift arms are raised. Press on the bottom of the switch in order to activate the automatic level control. Press on the top of the switch in order to deactivate the automatic level control.

Note: The Automatic Level Control keeps a load at the selected angle when the lift arms are raised. The Automatic Level Control is not designed to maintain the selected angle of the work tool when the lift arms are lowered.

Auxiliary Electrical Control (3)

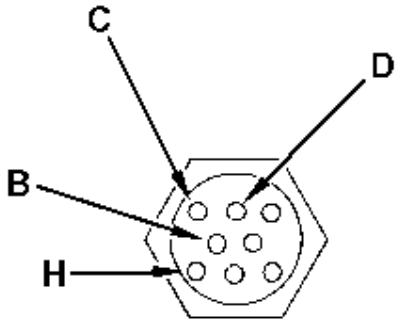


Illustration 2 g01107114

Typical electrical connection on the loading arm

Auxiliary Electrical Control - The auxiliary electrical control supplies continuous electrical power to pin (H) that is located on the loader arm. Press on the bottom of the switch in order to turn on electrical power. Press on the top of the switch in order to turn off electrical power.

Work Tool Coupler Control (4)

WARNING

Improper Attachment of the Work Tool could result in injury or death.

Do not operate the machine without confirmation that the coupler pins are fully engaged. Follow the operating procedures in the Operation and Maintenance Manual.

Work Tool Coupler Control - The work tool coupler control controls the engagement of the coupler pins.

Disengaged - Pull the red button downward and press the bottom of the switch. Hold the switch in the downward position until the coupler pins disengage.

Engaged - Press the top of the switch and hold the top of the switch until the coupler pins engage.

Refer to Operation and Maintenance Manual, "Work Tool Coupler Operation" for the proper procedure for the work tool coupler.

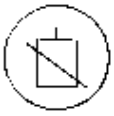
Roading Lights (5)

Roading Lights - Move the switch to the middle position in order to turn on the control panel lights and position lights. Press on the bottom of the switch in order to turn on the front low beams. Press on the top of the switch in order to turn off the lights.

Hazard Flashers (6)

Hazard Flasher Control - Press on the top of the switch in order to activate the hazard flashers. Press on the bottom of the switch in order to deactivate the hazard flashers.

Hydraulic Lockout and Interlock Override (7)



Hydraulic Lockout - Press the top of the switch. This will disable the hydraulic functions. Press the top of the switch again in order to activate the hydraulic functions.

Note: Activate the hydraulic shutoff when you are roading the machine in order to prevent unplanned movement of the work tool and the loader arms.

Interlock Override - The interlock override allows the auxiliary hydraulic circuits to function with the armrest in the RAISED position. First activate the continuous flow control that is located on the left side joystick. Refer to the section "Joystick and Auxiliary Hydraulic Controls" for detailed information. Press the bottom of the interlock override switch. This will activate the interlock override function. In order to turn off the interlock override and continuous flow, press the bottom of the switch again.

NOTICE

Do not leave the machine unattended while you have the interlock override function activated.

A switch is provided on the cab door that prevents implement operations when the cab door is open. If you choose to operate without the cab door, you must install a jumper wire between Terminal 4 and Terminal 5 in the wiring harness connector for the Window Wiper. Refer to Special Instruction, REHS1738, "Installing the Cab Door and Mounting Group" for more information about the cab door.

Note: When the door is installed, remove the jumper wire from the connector plug before you connect the harness. Damage to the door could occur if the jumper is left in place.

Beacon Switch (8)

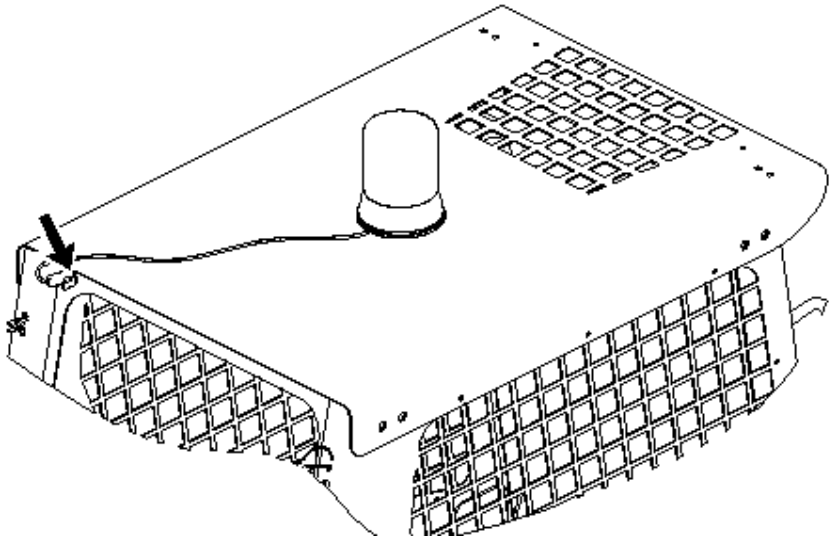


Illustration 3 g00897909

Beacon - Press on the bottom of the switch in order to turn on the beacon. Press the top of the switch in order to turn off the beacon. The receptacle for the beacon is located on the upper left corner on the rear of the cab.

Cab Dome Light (9)

Cab Dome Light - Press on either side of the light in order to turn on the light. Move the light to the middle position in order to turn off the light.

Glow Plug Starting Aid (10)

Glow Plug Starting Aid - Refer to Operation and Maintenance Manual, "Engine Starting" for the starting procedure with glow plugs.

Parking Brake Control (11)

Parking Brake Control - Press on the right side of the switch in order to engage or disengage the parking brake.

Note: The parking brake will engage when the engine is stopped. The parking brake will engage when the armrest is moved to the RAISED position. The parking brake will engage when the operator leaves the operator seat for an extended period of time.

Auxiliary Hydraulic Mode (12)

NOTICE

High flow should not be continuously operated on machines that are equipped with high flow hydraulics. The high flow can be operated continuously on machines that are equipped with high flow and high pressure hydraulics.

Note: High flow will not operate if rabbit mode has been selected with the two speed control. High flow mode also requires an electrical connection that is located on the loader arm. Refer to Operation and Maintenance Manual, "Work Tool Coupler Operation" or Operation and Maintenance Manual, "Work Tool Operation" for additional details.

Connect the work tool harness to the electrical plug on the loader arm.

Note: If your High Flow work tool does not have a wiring harness, a Jumper Plug needs to be installed on the electrical plug for the work tool control. Without this Jumper Plug, the machine will not provide High Flow to the work tool. Please refer to your Parts Manual for the current part number for the Jumper Plug.

Auxiliary Hydraulic Mode - Press the right side of the switch in order to select high flow. The indicator light will illuminate. Move the thumb wheel that is located on the right side joystick in order to supply hydraulic oil flow to the auxiliary hydraulic lines. Press the left side of the switch in order to select standard flow. The indicator light will not be illuminated. Move the thumb wheel that is located on the right side joystick in order to supply hydraulic oil flow to the auxiliary hydraulic lines. Refer to the section "Joystick and Auxiliary Hydraulic Controls" for additional details.

Note: The thumb wheel must be moved to full displacement in order to achieve maximum pressure and flow for the following models: 248B, 268B and 287B High Flow.

Service Hour Meter (13)

Service Hour Meter - The service hour meter should be used to determine service hour maintenance intervals.

Fuel Level Gauge (14)

Fuel Level Gauge - The needle in the yellow range indicates low fuel.

Rear Work Lights (15)

Rear Work Lights - Press the left side of the switch in order to turn on the lights. Press the right side of the switch in order to turn off the lights.

Front Work Lights (16)

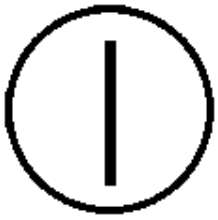
Front Work Lights - Press the left side of the switch in order to turn on the lights. Press the right side of the switch in order to turn off the lights.

Turn Signals (17)

Turn Signals - Press on the left side of the switch in order to turn on the left turn signals. Press on the right side of the switch in order to turn on the right turn signals. Move the switch to the middle position in order to turn off the turn signals.

Engine Start Switch (18)

OFF - Insert the engine start switch key only from the OFF position and remove the engine start switch key only from the OFF position. Turn the engine start switch key to the OFF position in order to stop the engine. In the OFF position, there is no power to most electrical circuits on the machine. The cab lights, panel lights, tail lights, working lights (if equipped) and fuel gauge light are operational even when the engine start switch is in the OFF position.



ON - Turn the engine start switch key clockwise to the ON position in order to activate all of the cab circuits.

START - Turn the engine start switch key clockwise to the START position in order to crank the engine. Release the engine start switch key after the engine starts and the engine start switch key returns to the ON position.

Note: If the engine fails to start, the engine start switch key must be returned to the OFF position in order to attempt to start the engine again.

Window Wiper and Window Washer (19)

Window Wiper and Window Washer - Move the switch to the middle position in order to turn on the wiper. Press on the right side of the switch in order to operate the washer. Press on the left side of the switch in order to turn off the wipers.

Joystick Control (20)

Refer to the section "Joystick and Auxiliary Hydraulic Controls" for detailed information.

Joystick Control (21)

Refer to the section "Joystick and Auxiliary Hydraulic Controls" for detailed information.

Governor Control (22)

Governor Control - Use the governor control when you want to set a constant engine speed. Move the lever forward in order to increase engine speed. Move the lever backward in order to decrease engine speed.

High Idle

Low Idle

Fan Speed Control (23)

Fan Speed Control

Temperature Control (24)

Temperature Control

Air Conditioner Control (25)

Air Conditioner Control

Seat Adjustment (26)

Seat Adjustment

Suspension Seat (27)

Suspension Seat

Accelerator Control (28)

Accelerator Control - Push down on the accelerator pedal in order to increase engine speed. Release the accelerator pedal in order to decrease engine speed. The accelerator pedal will return to the setting of the governor control.

Interlock Control (29)

Interlock Control - Move the armrest to the RAISED position in order to lock out the hydraulic controls.

Note: When the armrest is moved to the RAISED position, the parking brake will engage. Move the armrest to the LOWERED position and push the switch for the parking brake in order to activate the hydraulic controls.

Note: When you start the engine, the parking brake must be disengaged in order for the hydraulic controls to be activated. If the armrest is raised and then lowered during operation, you must disengage the parking brake in order for the hydraulic controls to be activated.

Machine Security System (If Equipped)

NOTICE

This machine is equipped with a Caterpillar Machine Security System (MSS) and may not start under certain conditions. Read the following information and know your machine's settings. Your Caterpillar Dealer can identify your machine settings.

Machine Security System (MSS) - Machines that are equipped with a Caterpillar Machine Security System (MSS) can be identified by a decal in the operator station. MSS is designed to prevent theft of the machine or unauthorized operation.

Basic Operation

MSS may be programmed to read a standard Caterpillar key or an electronic key. The electronic key contains an electronic chip within the plastic housing for the key. Each key emits a unique signal to the MSS. The keys can be identified by a gray housing or a yellow housing. MSS can have programmed settings to require an electronic key or a standard Caterpillar key for starting during certain periods of time.

When the key start switch of the machine is turned to the ON position, the ECM will read the unique ID that is stored in the electronic key. The ECM will then compare this ID to the list of authorized keys. The following table tells the operator the status for starting the machine. The status light is located near the key start switch.

Table 1

Green light	The machine will start.
Red light	The key is not authorized.

Note: MSS will not shut down the machine after the machine has started.

Security Management

The MSS has the capability to allow you to program the system to automatically activate at different time periods with different keys. The MSS can also be programmed to reject a specific electronic key after a selected date and time. When you turn the key to the OFF position and the MSS is active, you have a 30 second interval in order to restart the machine with an unauthorized key. Also if the machine stalls, there is a 30 second interval for restarting the machine. This 30 second interval is counted from the time of turning the key to the OFF position.

Note: Know your machine's settings because the use of an electronic key is no guarantee that the machine can be restarted.

An expiration date can be set for each electronic key that is contained in the list of keys for the machine. The key will no longer start the machine when the internal clock in the security system passes the expiration date. Each entry in the list of keys can have a different expiration date.

Spare keys are available from your dealer. Before a key can operate the machine, the MSS must be set to accept that particular key. Contact your Caterpillar dealer for information on additional features of the MSS.

Joystick and Auxiliary Hydraulic Controls

The joystick controls the functions that are listed below. Your machine may not be equipped with all of the controls that are discussed in this topic.

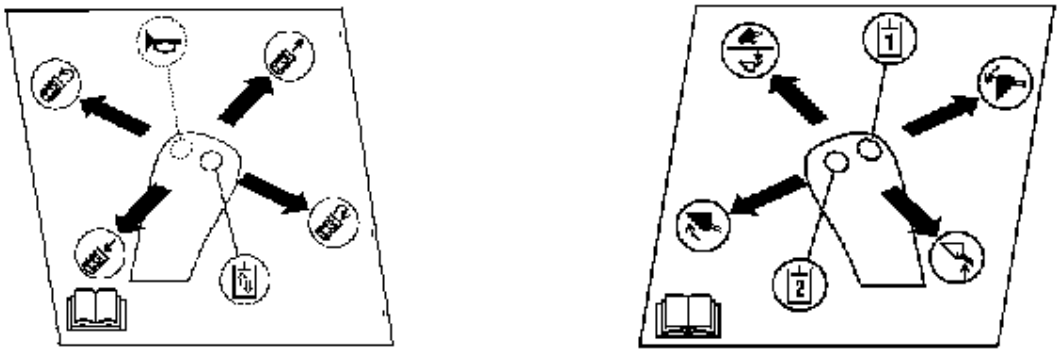


Illustration 4 g01112346

Instruction Decals A - Instruction Decal for Left Hand Joystick and Instruction Decal for Right Hand Joystick

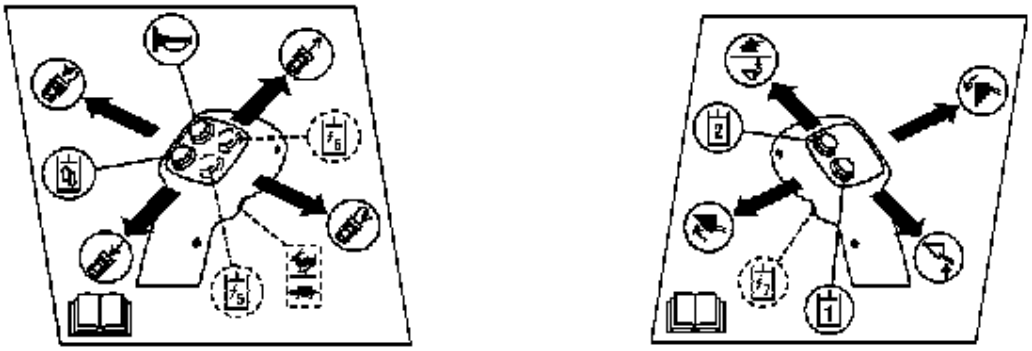


Illustration 5 g01112439

Instruction Decals B - Instruction Decal for Left Hand Joystick and Instruction Decal for Right Hand Joystick

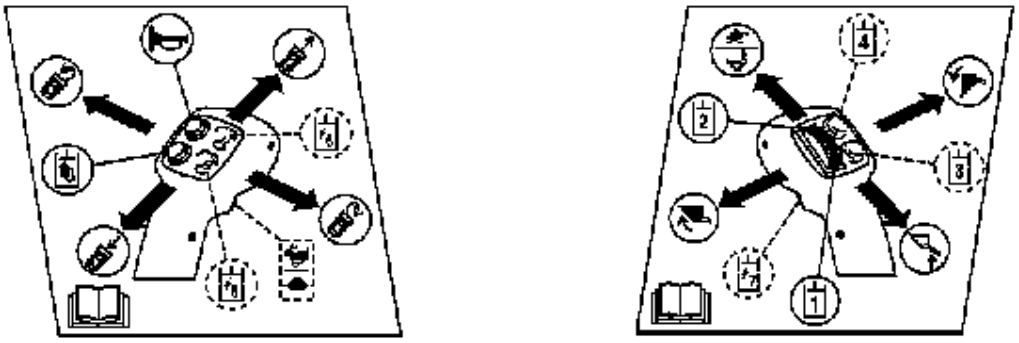


Illustration 6 g01112442

Instruction Decals C - Instruction Decal for Left Hand Joystick and Instruction Decal for Right Hand Joystick with Thumb Wheel

Forward

Forward Travel - Push the joystick forward in order to travel forward.

Backward

Backward Travel - Pull back on the joystick in order to travel in reverse.

Right Turn

Right Turn - Move the joystick to the right in order to turn the machine to the right.

Left Turn

Left Turn - Move the joystick to the left in order to turn the machine to the left.

Dump

Dump - Move the joystick to the right in order to tilt the bucket downward.

Raise

Raise - Pull the joystick backward in order to raise the bucket.

Tilt Back

Tilt Back - Move the joystick to the left in order to tilt the bucket upward.

Lower

Lower - Push the joystick forward in order to lower the bucket.

Float

Float - Push the joystick forward into the detent in order for the bucket to follow the contour of the ground.

Horn

Horn - Press the switch in order to sound the horn. Use the horn in order to alert personnel.

Two Speed Control

Note: If rabbit mode is selected, the high flow control will not operate.

Two Speed - Press the switch on the front of the left hand joystick in order to activate rabbit mode.

Note: Keep the work tool close to the ground when you travel in rabbit mode. This will maximize the stability of the machine.

Auxiliary Hydraulic Controls

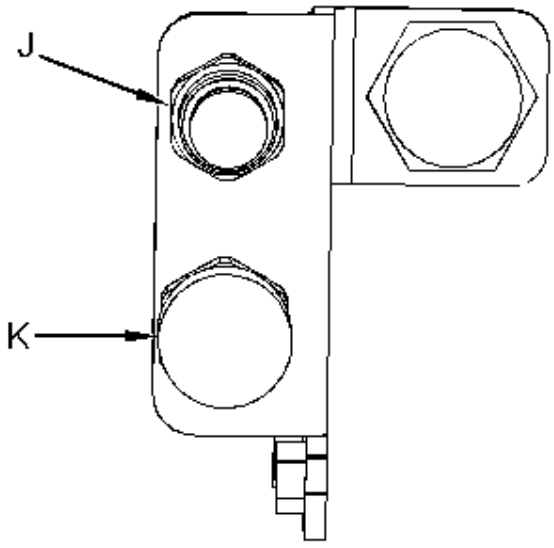


Illustration 7 g01106739

Standard Auxiliary Connections

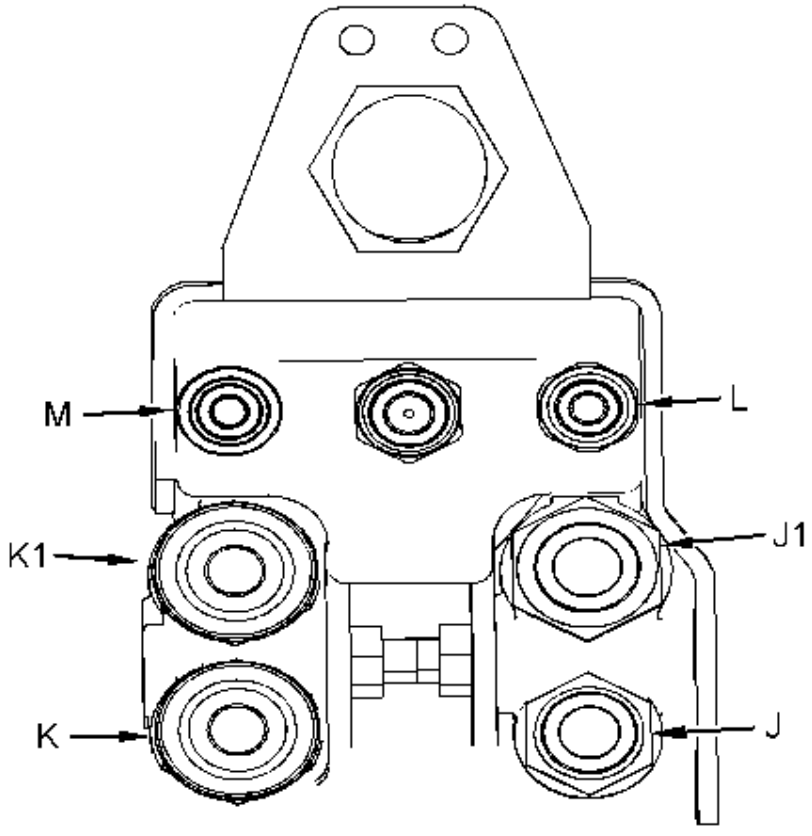


Illustration 8 g01106740

226B, 242B and 257B High Flow

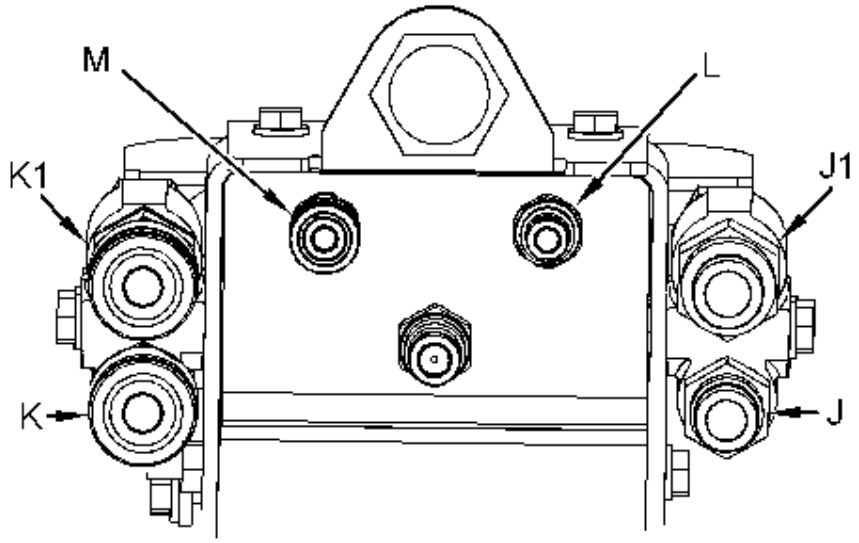


Illustration 9 g01106742

248B, 268B and 287B High Flow

Auxiliary Hydraulic Control (A1) - This control provides hydraulic oil flow to the auxiliary connections on the loader arm. Engage the control in order to provide hydraulic oil flow to the connector (K). For high flow work tools, engage the control in order to provide hydraulic oil flow to the connector (K1) .

Auxiliary Hydraulic Control (A2) - This control provides hydraulic oil flow to the auxiliary connections on the loader arm. Engage the control in order to provide hydraulic oil flow to the connector (J). For high flow work tools, engage the control in order to provide hydraulic oil flow to the connector (J1) .

Secondary Auxiliary Hydraulic Control (C-) - This control provides hydraulic oil flow to the auxiliary connections on the loader arm. Press the control in order to provide hydraulic oil flow to the connector (M) .

Secondary Auxiliary Hydraulic Control (C+) - This control provides hydraulic oil flow to the auxiliary connections on the loader arm. Press the control in order to provide hydraulic oil flow to the connector (L) .

Auxiliary Electrical Control

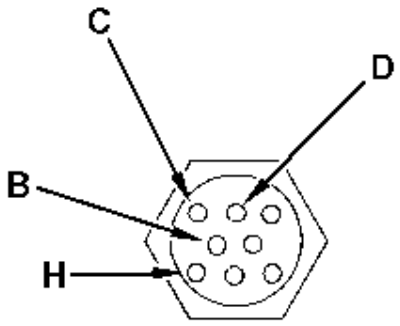


Illustration 10 g01107114

Typical electrical connection on the loading arm

Auxiliary Electrical Control (C2) - This control provides electrical power in order to control a three-position diverter valve that is located on some work tools. Press the switch and hold the switch in order to send power to the pin (D). Release the switch in order to deactivate the control.

Auxiliary Electrical Control (C1) - This control provides electrical power in order to control a three-position diverter valve that is located on some work tools. Press the switch and hold the switch in order to send power to pin (C). Release the switch in order to deactivate the control.

Right Hand Trigger - Pull the trigger and hold the trigger on the right hand joystick in order to provide electrical power to pin (B). Release the trigger in order to deactivate the control.

Continuous Flow Control

Continuous Flow - The continuous flow control supplies continuous flow of hydraulic fluid to the auxiliary hydraulic circuit without continuously holding the auxiliary hydraulic control. Press one of the two auxiliary hydraulic switches that are located on the right side joystick. Press the continuous flow switch on the left hand joystick and release the continuous flow switch. Immediately release the auxiliary hydraulic switch after you release the continuous flow switch. The continuous flow function will be activated if the operator releases the auxiliary hydraulic switch within one second of releasing the continuous flow switch. Press on either the auxiliary hydraulic control or the continuous flow switch in order to stop the flow to the auxiliary circuit.

Dedicated Dual Direction Control Kit

Note: The following illustrations reflect the operation of the joysticks when the machine is equipped with a Dedicated Dual Direction Control Kit. The Dedicated Dual Direction Control Kit changes the control of the work tool and the movement of the machine. The other functions of the joysticks are not affected by the Dedicated Dual Direction Control Kit. The Dedicated Dual Direction Control Kit may be used with standard joysticks or optional joysticks.

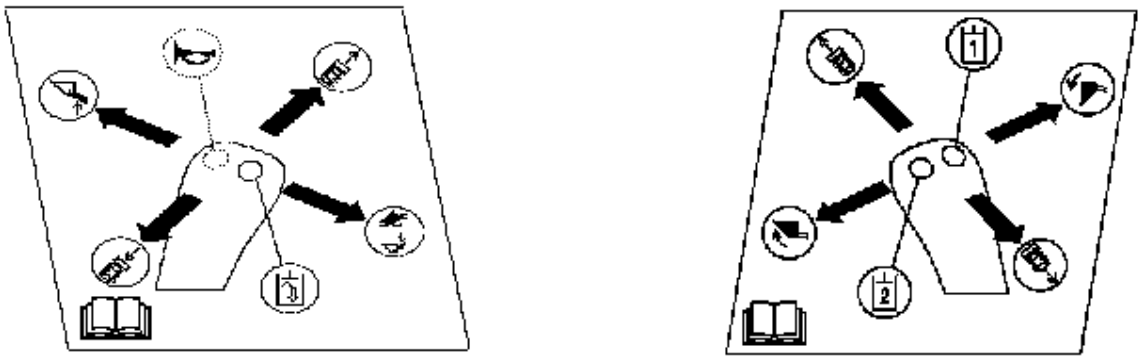


Illustration 11 g01112348

Instruction Decals A - Instruction Decal for Left Hand Dual Direction Control Joystick and Instruction Decal for Right Hand Dual Direction Control Joystick

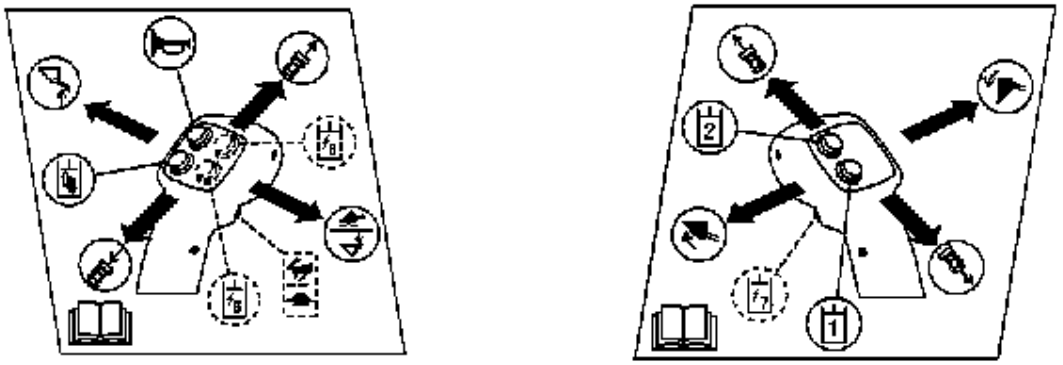


Illustration 12 g01112448

Instruction Decals B - Instruction Decal for Left Hand Dual Direction Control Joystick and Instruction Decal for Right Hand Dual Direction Control Joystick

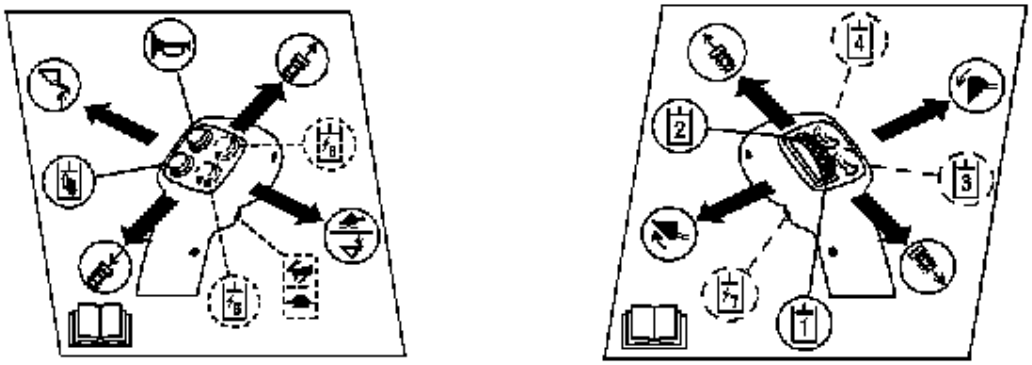


Illustration 13 g01112451

Instruction Decals C - Instruction Decal for Left Hand Dual Direction Control Joystick and Instruction Decal for Right Hand Dual Direction Control Joystick with Thumb Wheel

Forward

Forward - Push both joysticks forward in order to move the machine forward.

Reverse

Reverse - Pull both joysticks backward in order to move the machine backward.

Right Turn

Push the left joystick forward in order to turn the machine to the right.

Push the left joystick forward and pull the right joystick backward in order to rapidly turn the machine to the right.

Left Turn

Push the right joystick forward in order to turn the machine to the left.

Push the right joystick forward and pull the left joystick backward in order to rapidly turn the machine to the left.

Float

Float - Move the joystick to the right into the detent in order for the bucket to follow the contour of the ground.

Lower

Lower - Move the joystick to the right in order to lower the bucket.

Raise

Raise - Move the joystick to the left in order to raise the bucket.

Dump

Dump - Move the joystick to the right in order to tilt the bucket downward.

Tilt Back

Tilt Back - Move the joystick to the left in order to tilt the bucket upward.