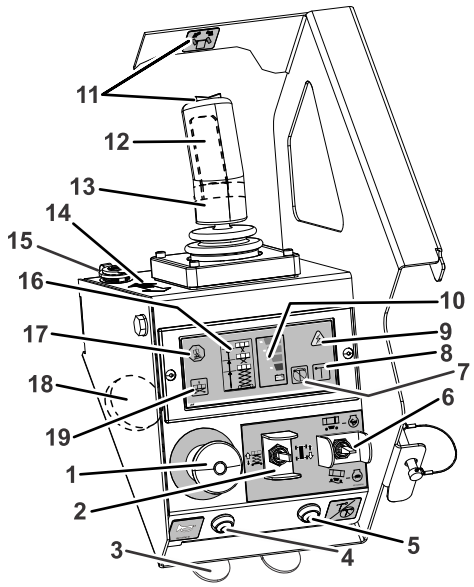
3.8 PLATFORM CONTROL STATION



SC000937A

1. Emergency Stop Switch
2. Lift/Drive Select Switch
3. Mobile Phone Cradle (If Equipped)
4. Horn Button
5. Indoor/Outdoor Operation Mode Switch
6. Drive Speed Select Switch
7. Indoor Mode Capacity Indicator
8. Outdoor Mode Capacity Indicator
9. System Fault Indicator
10. Battery Discharge Indicator
11. Steer Control Switch and Decal
12. Trigger Enable Switch
13. Joystick Controller
14. Black/White Directional Arrow
15. USB Port (If Equipped)
16. Variable Tilt - Platform Restricted Height Indicator
17. Tilt Indicator
18. Alarm
19. Overload Indicator (LSS)

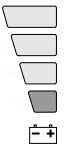
Note: ES1932i is rated for INDOOR USE only.

3.8.1 Platform Control Station Functions

Alarm
This alarm mounted on the front of the platform control station will sound for various machine conditions or warnings such as, system ready chirp or if the machine tilt warning is activated.

Arm Guards (If Equipped)
If the machine is equipped with electronic arm guards, the platform will stop lowering at a predetermined height and the machine's beacons will flash at a different rate to warn ground personnel. The machine can continue lowering after a three (3) second delay and re-engaging the lowering function. Once the lowering function is re-engaged an audible alarm will sound. After a three second delay, the platform will continue lowering.

Battery Charge Indicator
The battery charge indicator displays the current charge status of the onboard batteries.



- RED LED flashing = batteries depleted
- RED LED ON solid = batteries low
- RED LED ON and GREEN LEDs ON = batteries FULL charge

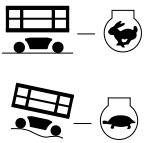
Drive/Lift/Steer Joystick Control
Trigger (Enable) Switch - This trigger switch is located on the front of the joystick controller. It acts as an enable and must be depressed before operating the drive, steer, and lift functions. When released, the function in operation will stop.
The speed on all selected functions is proportionally controlled by the distance from the neutral (center) position of the joystick controller.

Note: Once the trigger switch is pressed, the operator has (5) seconds to begin operating a function. After 5 seconds, the trigger switch must be released and pressed again to operate a joystick function.

Note: If the machine is also equipped with a footswitch, depress the footswitch in conjunction with the trigger (enable) switch located on the joystick controller. Power is removed from the platform controls when the footswitch is released.

Steer Switch - The steer switch is a thumb-operated switch located at the top of the joystick controller handle. Depressing the switch to the right will steer the wheels to the right. Depressing the switch to the left will steer the wheels to the left.
Joystick Controller - This controls drive and lift.

Drive Speed Select Switch
The two-position speed switch controls high or low range drive speed. Use high speed in unobstructed open, flat, and level work areas. Use low speed in close work areas with obstacles, other machinery or personnel to avoid.



Note: Drive speed automatically reduces to low drive when the platform is raised above the stowed position, regardless of speed switch position.

Emergency Stop Switch

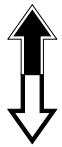
Note: Both the ground and platform emergency stop buttons must be set to ON in order to operate the machine.

When power is directed to the platform from the ground control station, the platform emergency stop switch is turned on by pulling the switch out (on), and is turned off by pushing the switch in (off). The two-position, red, mushroom-shaped emergency stop switch functions to provide power to the platform control station and also to turn off power to machine functions in the event of an emergency.

NOTICE

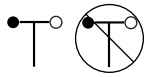
Always position emergency stop switch to off position (pushed in) when machine is not in use.

Forward/Reverse/Lift/Lower Direction Arrow
This decal indicates the proper direction to mount the platform control box, with the black arrow pointing to the front of the machine. The black/white arrow also indicates the direction to move the joystick control per the lift/drive selector switch decal for the lift and the drive select functions.



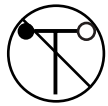
Horn
This push-button switch, when pressed, permits the operator to warn job site personnel when the machine is operating in the area.

Indoor/Outdoor Operation Indicator
The Indoor (GREEN) indicator and the Outdoor (YELLOW) indicator displays which mode the machine is currently set to operate in.

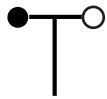


Note: ES1932i is rated for INDOOR USE only.

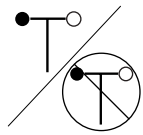
The Indoor Operation Indicator displays when Indoor Operation mode is selected. Indoor Mode is to be used in areas defined for INDOOR USE.



The Outdoor Operation Indicator displays when Outdoor Operation mode is selected. Outdoor Mode is to be used in areas defined for OUTDOOR USE.



Indoor/Outdoor Operation Mode Switch
This button will toggle between the indoor/outdoor operation modes.



Note: ES1932i is rated for INDOOR USE only.

Note: INDOOR USE is use of a MEWP in areas shielded from wind so that there is no wind. OUTDOOR USE is use of a MEWP in an environment that can be exposed to wind.

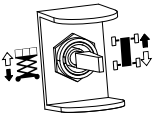
Prior to selecting Indoor Mode, ensure the machine will be used in an area that is shielded from wind so that there is no wind.

CE/UKCA machines only: To switch from one mode to another, the platform must be in the stowed position. If the mode switch is pressed while the machine is elevated, the indicator will flash but the machine state will not change.

⚠ WARNING

Do not operate the machine in INDOOR MODE while in OUTDOOR USE. Follow all information on the platform capacity decal for the selected operating mode. Failure to comply could result in machine tip over, personal injury, or death.

Lift/Drive Select Switch



Note: When selecting between the lift and drive functions the joystick control must be returned to the neutral position for approximately 1/2 second before the function change is operable.

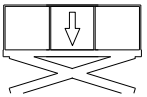
This toggle switch is used to select operation of either the drive or lift function. After selecting a function, the joystick controller must be used in order to activate that function. Only change the function selected, with the joystick in the neutral position. Otherwise, the function selected will not change until the joystick is returned to the neutral position.

Mobile Phone Cradle (If Equipped)

Provides an enclosed area for mobile phones in the platform.

Overload Indicator (LSS)

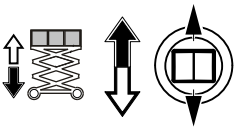
The Overload Indicator indicates when the platform has been overloaded. An audible alarm will also signal when the platform is overloaded.



Note: If the Overload Indicator is illuminated, further elevation will be prevented. Reduce the weight in the platform to not exceed the rated workload indicated on the capacity decal, then the controls will work again.

Note: When ambient temperatures are below freezing, the LSS will have a reduction in available capacity. This will trigger the LSS before achieving the maximum allowable capacity.

Raising And Lowering Platform

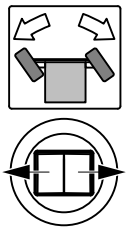


1. If the machine was shut down, place the key selector switch to the platform position.
2. Position both emergency stop switches, to the ON position.
3. Position the lift/drive select switch to lift.
4. Squeeze and hold the trigger switch, and move the joystick back (platform up - white arrow direction) or move the joystick forward (platform down - black arrow direction) and hold until desired elevation is reached. Releasing the trigger switch or moving the joystick back to its center position will stop the function being operated.

Steering

On the platform control station, position the lift/drive select switch to the drive position.

To steer the machine, engage trigger switch and the thumb operated steer rocker-switch on the joystick handle. Press to the right for steering right, or to the left for steering left. When released, the switch will return to the center-off position and the wheels will remain in the previously selected position. To return the wheels to the center position, the switch must be activated in the opposite direction until the wheels are centered.



Steering And Traveling

1. Place key selector switch at the ground control station to platform operation.
2. Position emergency stop switches, one at the platform and one at the ground control station to the ON position.

⚠ WARNING

Do not drive with platform raised except on a smooth, firm surface, within the limits of the maximum operating slope, free of obstructions and holes.

To avoid loss of travel control or upset on grades and side slopes, do not drive machine on grades or side slopes exceeding those specified in Section 6.

Before driving, locate the decals with the black/white orientation arrows on the chassis and the platform controls. Move the joystick in the direction of the black or white arrow that matches the color of the arrow on the chassis for the intended direction of travel.

If the tilt indicator warning light/alarm is activated while driving with platform raised, lower platform completely and drive to a smooth, firm surface, within the limits of the maximum operating slope.

System Fault Indicator

When this indicator light is flashing, a system fault has occurred, possibly stopping machine operation.

Check the MDI Indicator (if equipped) on the Ground Control Station to see if a DTC is displayed.

If the code cannot be cleared by the operator, the machine will require service by a qualified JLG mechanic.

Tilt Indicator Warning Light and Alarm

A red warning light on the control panel illuminates and an audible alarm sounds when the chassis is at or beyond the tilt cutout settings.

4 System Operation

☞	• This section explains the normal operation of the Protective Shield System. For correct functioning the Protective Shield system must be installed and configured correctly. The positioning and configuration of the sensor is a key-element in the correct functioning of the system.

4.1 Pre-start System Checks

☞	• Before operating any machinery with the Protective Shield System installed, a pre-start check is mandatory to ensure that all system components are functioning correctly and to ensure no damage has occurred to the system during transit / storage.
⚠	• **Never skip the Pre-start checks. Failure to do so may result in serious injury or death.**

A simplified pre-start checklist should be implemented according to your company guidelines and should preferably be a part of the machine's pre-start check. Protective has existing Quick Access & Prestart Guides available on request.

4.1.1 Checks to Perform Before Power On

Sr. #	Check	Steps / Details
1.	Check Master Control Unit	• Ensure all cabling leading into the controller is connected. • No wiring shows signs of strain / stress. • Inspect MCU front panel and enclosure for any physical damage (cracks, dents, etc.). • MCU is mounted securely
2.	Check the Sensor(s)	• Check sensor alignment (bent brackets, loose mounting, etc.). • Make sure that the sensor face is clean (free from any dirt or foreign materials). • Inspect sensor face for any damage (chips, dents, etc.). • Ensure sensor connector is secure and undamaged. • Inspect sensor cabling for any damage (cuts, signs of stress, kinks, etc.).

4.1.2 Checks to Perform on System Power-up

Sr. #	Check	Steps / Details
1.	Check Sensor Functioning	• Ensure all LEDs on the Operator Panel Unit illuminate in sequence to indicate correct startup functionality. • Check that no errors occur on startup (Indicated by blinking RED indicator and beeping horn / buzzer). • Check that all connected sensors have an illuminated LED indicator to show that power is provided. • Block each sensor one-by-one to check that they are communicating with the MCU correctly, and that the lockout features are behaving as expected.

		• Block sensor with hand (intentionally invoke RED indicator), check that the Override button on the Operator Panel is functioning correctly by pressing it and observing that the BLUE indicator becomes visible AND that the siren output stops sounding. • With the sensor blocked and the override active (BLUE indicator), ensure that the machine can be moved after activating the dead-man switch.

4.2 System Startup

- The following procedures assume that the system has been installed, tested and commissioned correctly and that the system is powered from a power supply/battery system on the machine that is within specifications.
- On successful startup, the operator panel LEDs should all light up sequentially. Afterwards, the Green LED will stay ON, indicating power is OK.

☞	• If GREEN LED is OFF, it indicates that the supply voltage is not present. Check the power source and retry.
⚠	• If GREEN LED is blinking, it indicates a low supply voltage. Turn of the system and check the power source for the correct voltage range.

4.3 Normal Operation

The following table in this section describes the indications and sounds that represent normal operation of the Shield system. Point 6 provides some guidance on errors that are most likely to be encountered.

Sr. #	Event / State	Details / Description
1.	Power up	• The GREEN LED stay ON after initial blinking.
2.	No Objects / Obstacle Detected	• The GREEN LED stay ON indicating normal operation or “All Clear” status.
3.	Warning State *(Near Obstacle Status)*	• When the operator begins to approach an object, the system will enter a ‘Warning’ state. • In this state, the machine is still able to move, and the Amber LED and the horn output will pulse at a rate of 2.5Hz, alerting the operator of an approaching object. • The Warning zone of a sensor is 1.5x the Alarm zone. ○ A sensor with a 1-meter alarm threshold will have a warning threshold of 1.5 meters. • The system will warn when at least 1 sensor is in Warning zone, and no sensors are reporting a higher alert level (Alarm, Error).
4.	Alarm State *(Obstacle Detected)*	• When the sensor detects an obstacle within its Alarm threshold, the system will enable the machine lockout and the operator panel will display a solid Red LED. • The machine will not move any further in this state and the Red LED will remain active until the hazard is cleared. • The operator can re-enable the machine movements by either clearing the obstruction from the sensor

		area or by pressing the manual override button on the operator panel.
5.	Override state (*Operator manually overrides in alarm state)*	<u>Alarm State</u> • If the system is in the Alarm state, pressing the override button will disable the safety relay. The operator control will be enabled. • In this state, the Blue Override indication LED will turn ON and will Blink Red/Blue alternatively. <u>Warning State</u> • The override will remain active even in the Warning state. • As the machine is moving away from the obstacle, the warning siren output will not re-engage. • This allows the operators to enable the override from alarm, move away from the obstacle and continue to work in the warning zone without the siren constantly activating. <u>Error State</u> • If the system is in the Error state, the override will clear the buzzer, and will also clear the LED state. The override will also enable the machine movements. <u>Override Auto clear Function</u> • When the affected sensor's Alarm zone is clear (i.e., the obstacle is clear), the Override will automatically clear. It takes the system only ONE second to detect the status and clear the Override state. • As the system clears the Override state, the machine can be re-locked if another obstacle is detected in the Alarm zone. • In case of a System Error, the Override state will clear after 10 seconds. This enables the operator to move the machine to a safe area and fix the malfunction. This prevents the need for a constant override if a system component is removed / damaged.
6.	Error State *(System Error)*	• The system will enter the "Error" state when a device is missing from the LIN-BUS, or any LIN-BUS device reports an error. • In the Error state the Red LED will blink continuously and the siren will also activate. • In the error state, the machine will Lockout.