PRE-RENTAL CHECK OFF LIST SNORKEL A38E

CUSTOMER NAME/CONTRACT NUMBER_____

Customer Initials: _____ INITIALS ALSO INDICATE CUSTOMER HAS BEEN SHOWN OPERATION OF LIFT AND IS CONFIDENT OF OPERATION OF LIFT.

Employee Intials: OUT_____IN _____ AND OPERATION MANUAL IS ON LIFT.

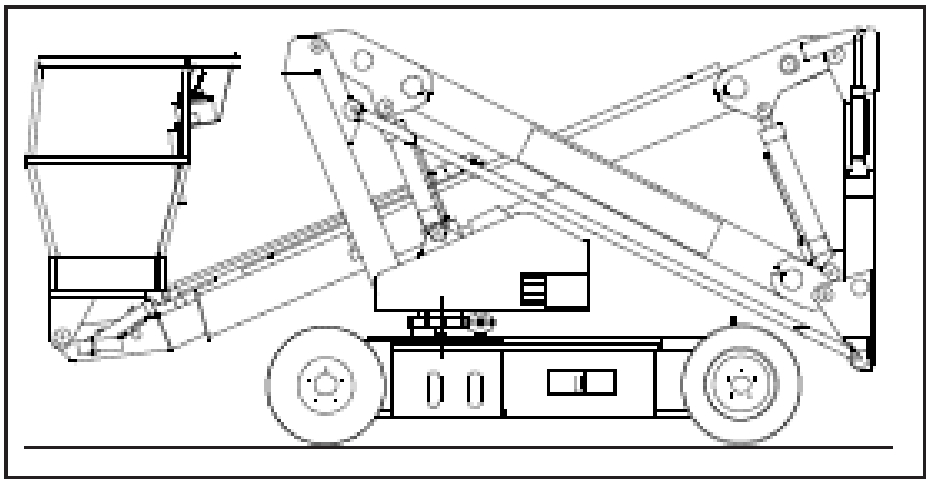
_____CUSTOMER INITIALS THAT HE HAS BEEN SHOWN THE OPERATION AND CUSTOMER FEELS CONFIDENT OF OPERATION OF LIFT. AND OPERATION MANUAL IS ON LIFT

Physical Damage _____

_____

VISUAL INSPECTION HYDRAULIC HOSES AND FITTINGS_____

HAVE PICTURES BEEN TAKEN? Yes / No



Please mark off items as inspected before Equipment leaves the Facility.
Have Customer Initial form and ABC Staff Member please return to front desk. Attach to Open Contract.

SAFETY AND OPERTION PRINT OFF

ITEM	METRIC	IMPERIAL (ANSI)
Duty Cycle	45% of 8 hour shift	45% of 8 hour shift
Platform Size	0.69 m x 1.11 m (inside gaurdrails)	2.26 ft x 3.6 ft (inside gaurdrails)
Max. Platform Capacity	215 kg	475 lbs
Indoors	2 People	2 People
Outdoors	1 Person	1 Person
Height **Maximum Working Height** **Maximum Platform Height** **Min. Platform Floor Height**	 13.45 m 11.45 m 0.65 m	 44.12 ft 37.56 ft 2.13ft
Max. Working Outreach	6.10 m	20.00 ft
Platform Height At Maximum Outreach	5.40 m	17.72 ft
Stowed Dimensions Length Width Height	 4.04 m 1.50 m 2.00 m	 13.25 ft 4.92 ft 6.56 ft
Ground Clearance	0.12 m	0.39 ft
Wheel Base x Gauge	2.00 m x 1.27 m	6.56 ft x 4.16 ft
Rotation (Elevated)	362 degrees non-continuous	362 degrees non-continuous
Rotation (Stowed) See Note *	263 degrees when stowed	263 degrees when stowed
Unloaded Weight	3,795 kg	8,366 lbs
With Load/ Max Weight	4,010 kg	8,841 lbs
Drive Speed Stowed	0 - 4 km/h	0 - 2.49 mph
Drive Speed Elevated	0 - 0.65 km/h	0 - 0.04 mph
Maximum Gradeability	36%	36%
Inside Turning Radius	1.12 m	3.6 ft
Outside Turning Radius	2.40 m	7.87 ft
Power Source	48V DC 4kW, 8 X 6V 210Ah Batteries	48V DC 5.4HP, 8 X 6V 210Ah Batteries
System Voltage Control	12V	12V
Battery Charger	Auto Dual AC input 100-240V ~ 50/60Hz 15A Output 48V, 35A	(Auto Dual AC input 100-240V ~ 50/60Hz 15A) Output 48V, 35A
Hydraulic Oil Tank Capacity	25 Litres	6.5 Gallons US
Max. Hydraulic Pressure	180 bar	2610 psi
Hydraulic Oil Grade	ISO #32	ISO #32
Cylinder Types	2 Double Acting Lift Cylinders With Lock Valves And Manual Emergency Lowering Facility. 1 Double ActingTelescopic Cylinder 1 Double Acting Plat. Rotate Cylinder	2 Double Acting Lift Cylinders With Lock Valves And Manual Emergency Lowering Facility. 1 Double ActingTelescopic Cylinder 1 Double Acting Plat. Rotate Cylinder
	Refer to Section 5 of the Service & Parts Manual	Refer to Section 5 of the Service & Parts Manual
Control System	One handed Proportional Joystick Operating Energy Efficient Motor Control System	One handed Proportional Joystick Operating Energy Efficient Motor Control System
Wheels/Tyres	400 mm Diameter Steel Disc Wheel With Solid All Surface Tyres	15.75 inch Diameter Steel Disc Wheel With Solid All Surface Tyres
Braking	Automatic Spring Applied Hydraulic Release	Automatic Spring Applied Hydraulic Release
Operating temperature range	-20oC to +50oC	-20oC to +50oC
Max Noise Level	69.5 dB(A)	69.5 dB(A)

SAFETY AND OPERTION PRINT OFF

Chapter 3 – Safety

Knowledge of the information in this manual, and proper training, provide a basis for safely operating the aerial platform. Know the location of all controls and how they operate to act quickly and responsibly in an emergency.

Safety devices reduce the likelihood of an accident.

- Never disable, modify, or ignore any safety device.
- Safety alerts in this manual indicate situations where accidents may occur.

If any malfunction, hazard or potentially unsafe condition relating to capacity, intended use, or safe operation is suspected, stop aerial platform operation and seek assistance.

The operator bears ultimate responsibility for following all manufacturer's instructions and warnings, regulations and safety rules of their employer and/or any state or federal law.

Electrocution Hazards

The aerial platform is made of metal components and is not insulated. Regard all conductors as energized. Do not operate outside during a thunderstorm.

Minimum Safe Approach Distance

Minimum safe approach distances to energized power lines and their associated parts must be observed while operating the aerial platform.

⚠Danger

The aerial platform is not electrically insulated. Death or serious injury will result from contact with, or inadequate clearance from, an energized conductor. Do not go closer than the minimum safe approach distance as defined by National Regulations.

ANSI publications define minimum distances that must be observed when working near bus bars and energized power lines. Table 1 and Figure 3 are reprinted courtesy of Scaffold Industry Association, ANSI/SIA A92.5.

Voltage Range (Phase to Phase)	Minimum Safe Approach Distance	
	Feet	Meters
0 to 300V	Avoid Contact	
Over 300V to 50kV	10	3.05
Over 50kV to 200kV	15	4.60
Over 200kV to 350kV	20	6.10
Over 350kV to 500kV	25	7.62
Over 500kV to 750kV	35	10.67
Over 750kV to 1000kV	45	13.72

Table 1 – Minimum Safe Approach Distance

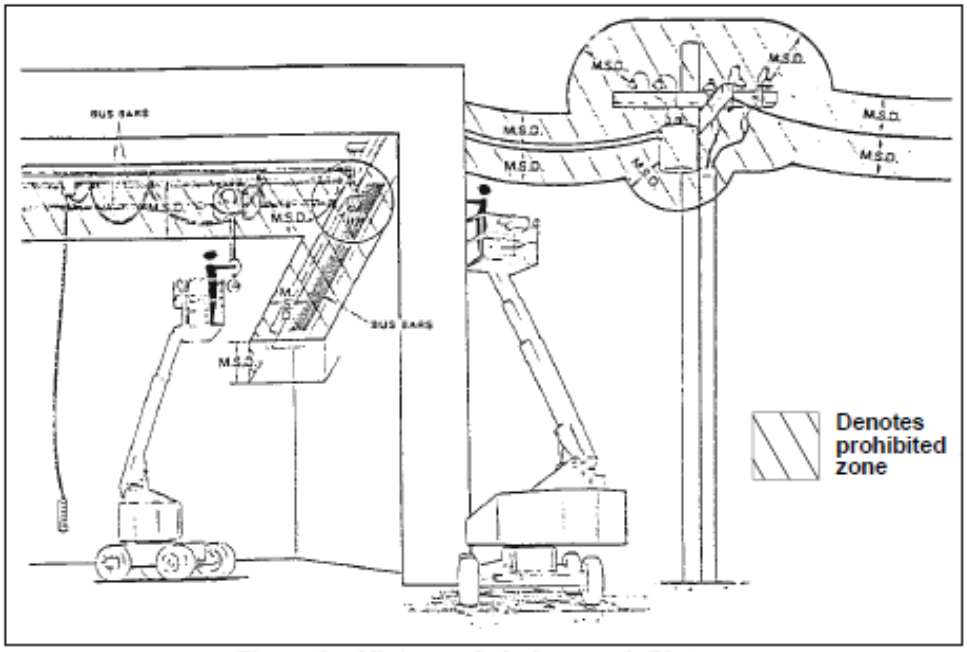


Figure 3 – Minimum Safe Approach Distance

Minimum Safe Approach Distance – AS/NZS

Minimum safe approach distances to energized power lines and their associated parts must be observed while operating the aerial platform.

⚠Danger

The aerial platform is not electrically insulated. Death or serious injury will result from contact with, or inadequate clearance from, an energized conductor. Do not go closer than the minimum safe approach distance as defined by national safety regulations.

AS/NZS 2550.10:2006 define minimum distances that must be observed when working near overhead power lines on poles and overhead power lines on towers. Refer to the clearance requirements decals on the machine to determine safe approach distances (refer to Figure 1).

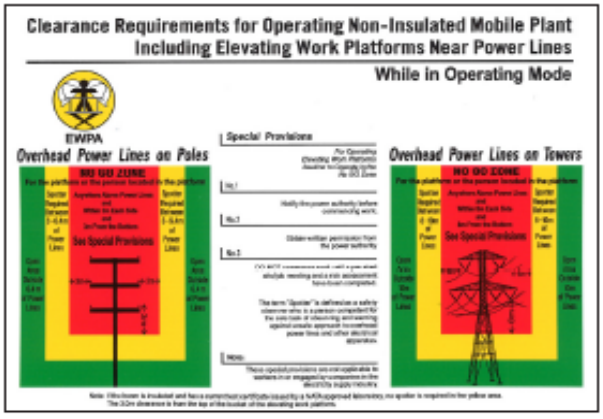


Figure 1 – Minimum Safe Approach Distance

Platform Capacity

Two people and their work materials may occupy the platform.

⚠Danger

The aerial platform can tip over if it becomes unstable. Death or serious injury will result from a tip-over accident. Do not exceed the capacity values indicated on the machine decals, placards, and in the machine specifications in this manual.

The maximum unrestricted rated load capacity and the maximum number of occupants for the aerial platform are stated on machine decals, placards, and in the machine specifications in this manual.

Manual Force

Manual force is the force applied by the occupants to objects such as walls or other structures outside the work platform.

⚠Danger

The aerial platform can tip over if it becomes unstable. Death or serious injury will result from a tip-over accident. Do not exceed the maximum allowable manual force indicated on the machine decals, placards, and in the machine specifications in this manual.

The maximum allowable manual force is limited to 45 lbs (200 N) of force per occupant, with a maximum of 90 lbs (400 N) for two occupants.

Wind Speeds

Do not add anything to the aerial platform that will increase the wind loading such as billboards, banners, flags, etc.

⚠Danger

The aerial platform can tip over if it becomes unstable. Death or serious injury will result from a tip-over accident. Do not operate the machine in wind speeds of 28 mph (12.5 m/s) or greater.

Do not operate the aerial platform in windy conditions with wind gusts or steady wind speeds of 28 mph (12.5 m/s) or greater. Refer to Figure 2.

Prestart Inspection

Perform a prestart inspection before each shift as described in Chapter 8. Do not use the aerial platform on the job unless you are trained and authorized to do so.

Work Place Inspection and Practices

Do not use the aerial platform as a ground connection when welding.

- The welding ground clamp must be attached to the same structure that is being welded.

BEAUFORT RATING	WIND SPEED				GROUND CONDITIONS
	m/s	km/h	ft/s	mph	
3	3,4~5,4	12,25~19,4	11.5~17.75	7.5~12.0	Papers and thin branches move, flags wave.
4	5,4~8,0	19,4~28,8	17.75~26.25	12.0~18	Dust is raised, paper whirls up, and small branches sway.
5	8,0~10,8	28,8~38,9	26.25~35.5	18~24.25	Shrubs with leaves start swaying. Wave crests are apparent in ponds or swamps.
6	10,8~13,9	38,9~50,0	35.5~45.5	24.5~31	Tree branches move. Power lines whistle. It is difficult to open an umbrella.
7	13,9~17,2	50,0~61,9	45.5~56.5	31.~38.5	Whole trees sway. It is difficult to walk against the wind.

Figure 2 – Beaufort Scale

- Electrical current flow can be very intense, causing serious internal damage to some components.

Inspect the area before and during aerial platform use. The following are some potential hazards that may be in the work place:

- Debris
- Slopes
- Drop-offs or holes
- Bumps and floor obstructions
- Overhead obstructions
- Unauthorized persons
- High voltage conductors
- Wind and weather conditions
- Inadequate surface and support to withstand load forces applied by the aerial platform in all operating configurations

Before using the aerial platform in any hazardous (classified) location, make certain it is approved and of the type required by ANSI/NFPA 505 for use in that particular location.

Know and understand the job site traffic-flow patterns and obey the flagmen, road signs, and signals.

While operating the aerial platform, a good safety practice is to have qualified personnel in the immediate work area to:

- Help in case of an emergency
- Operate emergency controls as required
- Watch for loss of control by platform operator
- Warn the operator of any obstructions or hazards that may not be obvious to them
- Watch for soft terrain, sloping surfaces, drop-offs, etc. where stability could be jeopardized
- Watch for bystanders and never allow anyone to be under, or to reach through the booms while operating the aerial platform

⚠Danger

Pinch points may exist between moving components. Death or serious injury will result from becoming trapped between components, buildings, structures, or other obstacles. Make sure there is sufficient clearance around the machine before moving the chassis, booms, or platform. Allow sufficient room and time to stop movement to avoid contact with structures or other hazards.

Always look in the direction of movement.

- Drive with care and at speeds compatible with the work place conditions.
- Use caution when driving over rough ground, on slopes, and when turning.
- Do not engage in any form of horseplay or permit riders any place other than in the platform.

Secure all accessories, containers, tools, and other materials in the platform to prevent them from accidentally falling or being kicked off the platform. Remove all objects that do not belong in or on the aerial platform.

Never steady the platform by positioning it against another platform.

⚠Warning

The potential for an accident increases when operating an aerial platform that is damaged or malfunctioning. Death or serious injury could result from such accidents. Do not operate the aerial platform if it is damaged or malfunctioning.

Do not operate the aerial platform if it is damaged or not functioning properly. Qualified maintenance personnel must correct the problem before putting the aerial platform back into service.

Operation

Use three points of support when entering or exiting the platform. For example, use two hands and one foot when climbing into the platform.

Never cover the platform floor grating or otherwise obstruct your view below. Make sure the area below the platform is free of personnel before lowering.

Keep both feet positioned firmly on the platform floor.

- Operate the controls slowly and deliberately to avoid jerky and erratic operation.
- Always stop the controls in neutral before going in the opposite direction.

Do not dismount while the aerial platform is in motion or jump off the platform.

Properly stow the aerial platform and secure it against unauthorized operation at the end of each work day, before transporting, or if it is left unattended.

Tip-Over and Falling Hazards

Operate the aerial platform only on a firm, flat, level surface capable of withstanding all load forces imposed by the aerial platform in all operating conditions. Refer to the General Specifications chart for the maximum wheel load and ground pressure. Raise the booms only when the aerial platform is on level ground.

⚠Danger

The aerial platform can tip over if it becomes unstable. Death or serious injury will result from a tip-over accident. Do not drive or position the aerial platform for elevated use near any drop-off, hole, slope, soft or uneven ground, or other tip-over hazard.

All platform occupants must wear a fall restraint or fall arrest device connected to a fall protection anchor as required by national or local regulations and standards.

It is best not to transfer from the platform to another structure or from the structure to the platform, unless that is the safest way to do the job. Judge each situation separately taking the work environment into account. If it is necessary to transfer from the platform to another structure the following guidelines apply:

1. Where possible, place the platform over a roof or walking structure to do the transfer.
2. Transfer your anchorage from one structure to the other before stepping across.
3. Remember that you might be transferring to a structure where *personal fall arrest* is required.
4. Use the platform entrance, do not climb over or through the guardrails.

Never operate the aerial platform without all parts of the guardrail system in place and the gate closed. Make sure that all protective guards, cowlings, and doors are securely fastened.

Do not exceed the platform capacity as indicated on the platform rating placard on the platform. Do not carry loads that extend beyond the platform guardrails without prior written consent from Snorkel.

Do not operate the aerial platform from trucks, trailers, railway cars, floating vessels, scaffolds, or similar equipment unless the application is approved in writing by Snorkel.

Do not use the aerial platform as a crane, hoist, jack, or for any purpose other than to position personnel, tools, and materials.

Do not climb on the guardrails or use ladders, planks, or other devices to extend or increase the work position from the platform.

Take care to prevent rope, electrical cords, and hoses, etc., from becoming caught in or on the aerial platform.

- If the platform or booms becomes caught on an adjacent structure or other obstacle and is prevented from normal motion, reverse the control to free the platform.
- If control reversal does not free the platform, evacuate the platform before attempting to free it.

Electrical System

Charge the batteries in a well-ventilated area free of flame, sparks, or other hazards that might cause fire or explosion.

Do not operate any of the aerial platform functions while the battery charger is plugged in.

⚠Warning

Batteries give off hydrogen and oxygen that can combine explosively. Death or serious injury could result from a chemical explosion. Do not smoke or permit open flames or sparks when checking the batteries.

Battery acid can damage the skin and eyes. Serious infection or reaction could result if medical treatment is not given immediately. Wear face and eye protection when working near the batteries. Thoroughly rinse away any spilled fluid with clean water.

- Batteries contain sulfuric acid that could damage your eyes or skin on contact.
- Wear a face shield, rubber gloves, and protective clothing when working around batteries.
- If acid contacts your eyes, flush immediately with clear water and get medical attention.
- If acid contacts your skin, wash off immediately with clear water.

Hydraulic System

The hydraulic system contains hoses with hydraulic fluid under pressure.

⚠Danger

Hydraulic fluid escaping under pressure can have enough force to inject fluid into the flesh. Serious infection or reaction will result if medical treatment is not given immediately. In case of injury by escaping hydraulic fluid, seek medical attention at once.

Do not place your hand or any part of your body in front of escaping hydraulic fluid. Use a piece of cardboard or wood to search for hydraulic leaks.

Placards and Decals

The aerial platform is equipped with placards and decals that provide instruction for operation and accident prevention. Do not operate the aerial platform if any placards or decals are missing or not legible.

General Safety Rules

This aerial work platform is intended to lift persons, their tools and materials used for the job. It is designed for repair, assembly, and assignments at workplaces above head height (ceilings, cranes, roof structures, buildings, etc.). Uses or alterations to the aerial work platform must be approved by Snorkel.

This aerial work platform is not insulated. Refer to applicable national/governmental/local regulations for safe approach distances.

SAFETY AND OPERTION PRINT OFF

Exceeding the specified permissible maximum load is prohibited.

The use and operation of the aerial work platform as a lifting tool or a crane is prohibited.

Never exceed the manual force allowed for this machine.

Distribute all platform loads evenly on the platform.

Never operate the machine without first surveying the work area for stationary or moving obstacles and surface hazards such as holes, drop-offs, bumps, curbs, or debris; and avoiding them. Never strike or bump into stationary or moving obstacles while driving or raising and lowering the platform.

Use three points of support when entering or exiting the platform. For example, use two hands and one foot when climbing into the platform.

Platform passengers should watch their hands and fingers for pinch points while holding on the guardrails while the platform is moving.

Operate machine only on surfaces capable of supporting wheel loads.

Never operate the machine when wind speeds exceed the machine's wind rating.

Do not operate the aerial platform in windy or gusty conditions. Do not add anything to the aerial platform that will increase the wind loading such as billboards, banners, flags, etc.

In case of an emergency, push the emergency stop button to deactivate all powered functions.

If an alarm sounds while the platform is elevated, stop and carefully lower platform. Move the machine to a firm, level surface.

Climbing up the railing of the platform, standing on or stepping from the platform onto buildings, steel or prefab concrete structures, etc., is prohibited. Never exit or enter the platform when it is elevated.

For AS/NZS operators, no person shall access or egress from the platform in the elevated position (excepts in an emergency) unless the requirements of AS2550.10 have been met. For full requirements refer directly to AS2550.10

Dismantling the entry gate or other railing components is prohibited. Always make certain that the entry gate is closed.

It is prohibited to keep the entry gate in an open position when the platform is raised.

To extend the height or the range by placing of ladders, scaffolds or similar devices on the platform is prohibited.

Never perform service on machine while the platform is elevated without blocking booms.

Inspect the machine thoroughly for cracked welds, loose or missing hardware, hydraulic leaks, loose wire connections, and damaged cables or hoses before using.

Verify that all placards and decals are in place and legible before using the machine.

Never use a machine that is damaged, not functioning properly, or has damaged or missing placards and decals.

To bypass any safety equipment is prohibited and presents a danger for the persons on the aerial work platform and in its working range.

Never charge batteries near sparks or open flame. Charging batteries emit explosive hydrogen gas.

Modifications to the aerial work platform are prohibited or permissible only at the approval by Snorkel.

After use, secure the work platform from unauthorized use by turning the keyswitch off and removing key.

Driving MEWP's on public highways is subject to national traffic regulations.

Certain inherent risks remain in the operation of this machine despite utilizing proper design practices and safeguarding.

Fall protection anchors are provided in the platform and the manufacturer recommends the usage of a fall restraint or fall arrest device as required by national or local regulations and standards.

Care must be taken to ensure that the machines meets the requirements of stability during use, transportation, assembly, dismantling when out of service, testing, or foreseeable breakdowns.

In the event of an accident or breakdown see Chapter 10 – Emergency Operation. Do not operate the aerial platform if it is damaged or not functioning properly. Qualified maintenance personnel must correct the problem before putting the aerial platform back into service.

Chapter 8 – Prestart Inspection

Potential service and safety problems may be detected by inspecting the aerial platform. This chapter includes information on properly inspecting the aerial platform and includes a prestart inspection check list at the end of the chapter to ensure that no areas are overlooked.

⚠Warning

The potential for an accident increases when operating an aerial platform that is damaged or malfunctioning. Death or serious injury could result from such accidents. Do not operate the aerial platform if it is damaged or malfunctioning.

Perform a prestart inspection at the beginning of each shift, before using the aerial platform on the job. The inspection site must have a smooth and level surface.

Operator's Manual Holder

The manual holder is located at the front of the platform (refer to Figure 8.1).

Figure 8.1 – Operator's Manual Holder

To inspect the Operator's Manual holder:

1. Make certain the Operator's Manual holder is securely fastened in place.
2. Check to see that the proper Operator's Manual is in the holder.
3. Check to see that the manual is complete with all pages intact and in readable condition.
4. On ANSI machines make certain ANSI publication "Manual of Responsibilities for Dealers, Owners, Users, Operators, Lessors and Lessees of ANSI/SIA A92.5-2006 Boom-Supported Elevating Work Platforms" is in the manual holder.

Electrical System

Electrical power is supplied from eight, 360 amp, 6 volt batteries. These batteries supply 48 volt DC electrical power to operate the aerial platform drive system and 12 volt DC power to operate the control system.

Note
Refer to Chapter 6 for general battery maintenance and charging information.

⚠Warning

Batteries give off hydrogen and oxygen that can combine explosively. Death or serious injury could result from a chemical explosion. Do not smoke or permit open flames or sparks when checking the batteries.

⚠Caution

Even with low voltage electrical systems, severe arcing can occur. Electrical shock or component damage may result from contact with energized conductors. Use caution when working with any electrical device.

The batteries to power the machine are located in trays on each side of the aerial platform, refer to Figure 8.2.

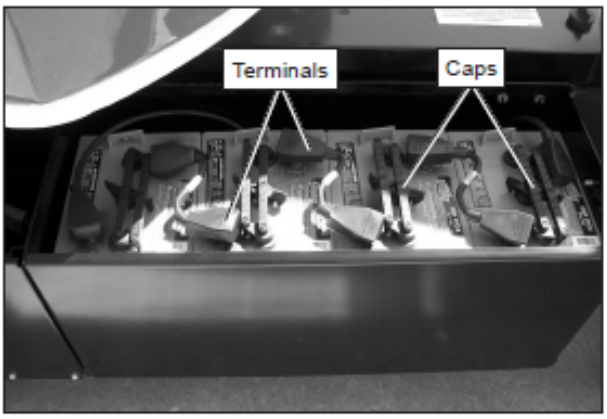


Figure 8.2 – Battery Tray

To access the batteries, release the latch on each side of the battery tray and remove the cover.

For optimal battery performance the battery fluid level must be maintained and the battery connections must be kept clean.

Battery Fluid Level

To inspect the battery fluid level:

1. Remove the caps from each battery (refer to Figure 8.2).
2. Visually check the battery fluid level making sure the level is within ¼" (6 mm) of the bottom of the filler neck inside each hole.
3. If necessary, add distilled water.

Note
Only use distilled water when refilling the batteries. Tap water may contain metallic solids such as iron which can reduce the life of the batteries.

4. Replace the caps on the batteries. The caps must be in place and tight during machine operation.

Battery Terminals
To inspect the battery terminals:

1. Check the top of each battery, the terminals, and cable ends. They should be clean and free of corrosion (refer to Figure 8.2).
2. If necessary, clean the top of the battery. Clean the terminals and cable ends with a wire brush or terminal cleaning tool.
3. Make sure all cable ends are securely fastened to the terminals.

Battery Charger
To inspect the battery charger:

1. At the lower controls, turn the control selector switch to the off position.
2. switch off the main battery disconnect switch.

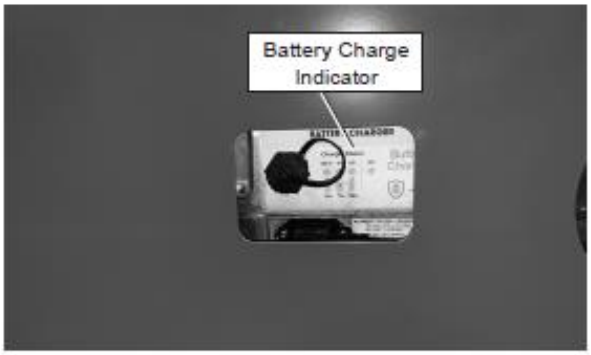


Figure 8.3 – Battery Disconnect Panel

3. Plug the batter charger into a properly grounded outlet (110 -240 volt AC, 50/60 Hz) using a 3 conductor, 12 gauge (1.5 mm) or larger extension cord. The extension cord must be as short as possible and in good electrical condition.
4. After a short delay, visually inspect the battery charge indicator for proper charging rate (refer to Figure 8.3).
   - As the batteries become charged, the battery charge level on the battery charge indicator will increase.
5. Unplug the charger.

Battery Condition Indicator
To inspect the battery condition indicator from the upper controls:

1. Make sure the battery disconnect switch is at the ON position.
2. At the lower controls twist the emergency stop button outward clockwise to the on position (refer to Figure 8.4).

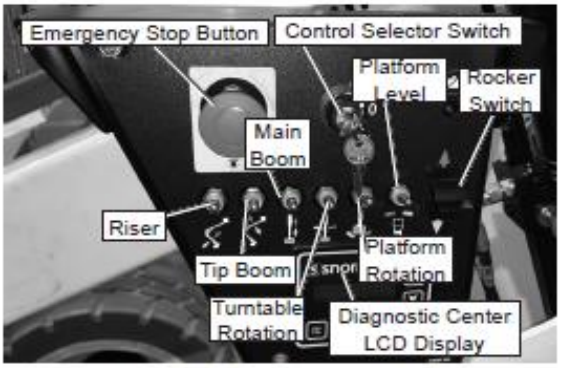


Figure 8.4 – Lower Controls

3. Insert the key into the control selector switch and turn it to the on position.
4. At the lower controls twist the emergency stop button outward clockwise to the on position (refer to Figure 8.5).

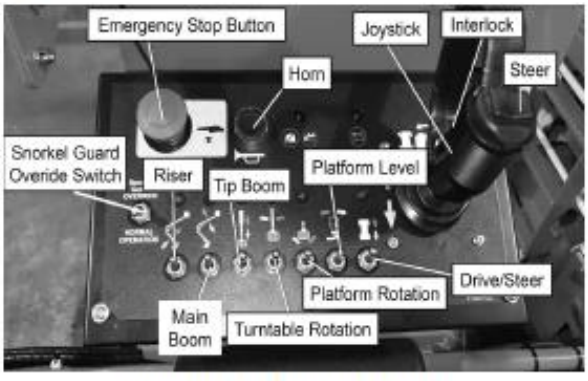


Figure 8.5 – Upper Controls

Cables and Wiring Harness

To inspect the cables and wiring harness:

1. Visually inspect all cables and wiring for wear and/or physical damage such as loose connections, broken wires, and frayed insulation.
2. Check the wiring in areas where a change in routing direction may cause them to become pinched.
3. Make sure the cables and wires are properly routed to avoid sharp edges, pinching, and scuffing.

Hydraulic System

Hydraulic power is supplied from a single stage hydraulic pump with a four horsepower DC electrical motor.

⚠Danger

Hydraulic fluid escaping under pressure can have enough force to inject fluid into the flesh. Serious infection or reaction will result if medical treatment is not given immediately. In case of injury by escaping hydraulic fluid, seek medical attention at once.

The hydraulic reservoir is inside the right side of the chassis.

Fluid Level

To inspect the fluid level:

1. Make sure the aerial platform is fully stowed on a level surface.
2. Remove the drive control compartment cover at the rear of the chassis.
3. Visually check to make sure the fluid is visible in the sight glass (refer to Figures 8.6).

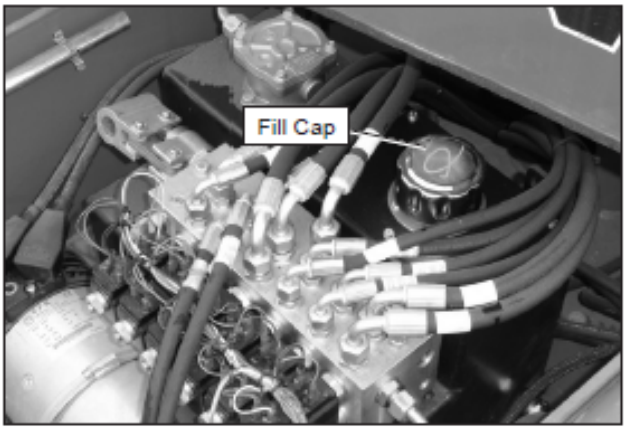


Figure 8.6 – Hydraulic Fluid Gauge

⚠Caution

Not all hydraulic fluid is suitable to use in the hydraulic system. Some have poor lubricating characteristics and may increase component wear. Only use hydraulic fluid as recommended.

4. If necessary, remove the filler cap and add fluid of the proper type. Replace the cap making sure it is tightly in place.

Note
Refer to Chapter 2 for the proper type and grade of hydraulic fluid to use. The need to regularly add fluid indicates a leak that should be corrected.

Fluid Filter

Checking the condition of the hydraulic fluid filter is part of the machine maintenance schedule and should not be performed by the operator.

Hoses, Tubes, and Fittings

To inspect the hoses, tubes and fittings:

1. Inspect all hydraulic hoses, tubes, and fittings for wear, leakage, or damage (refer to Figure 8.7).

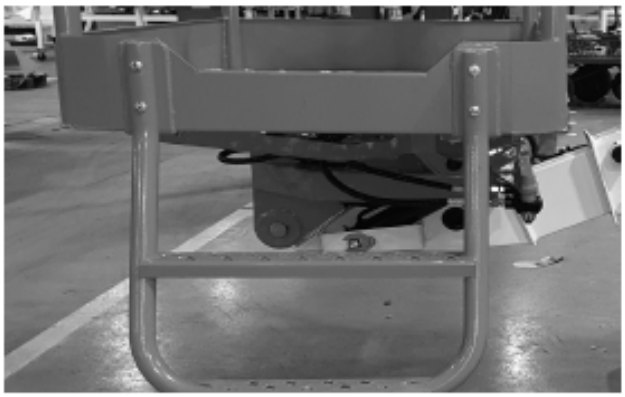


Figure 8.7 – Hoses, Tubes, and Fittings

2. Make sure the hoses are properly routed to avoid sharp edges, kinking, and scuffing.
3. Inspect the tubes for dents or other damage that may restrict fluid flow.
4. Make sure all hoses and tubes are held firmly in their support brackets.
5. Check under the chassis for fluid that has leaked. Hydraulic fluid leaks are easily visible on the ground.

1. Visually inspect all weldments for abnormal wear, abrasion, or deformation that could cause interference between moving parts.

2. Inspect the welds on the structural components. Pay particular attention to boom welds. The area to be inspected should be clean and free of dirt and grease.

3. Look for visible cracks in the welds and at the weld to parent material joints. A bright light may be used to provide adequate visibility of the inspection area.

Boom Slide Pads

The main boom has slide pads (refer to Figure 8.13) between the main and tip boom selections.

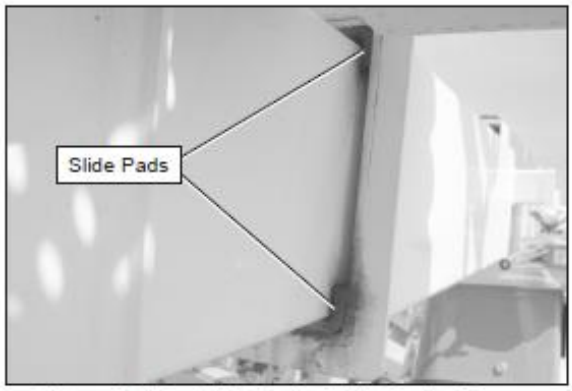


Figure 8.13 – Slide Pads at Tip End of Boom

To inspect the slide pads:

1. Use the lower controls to raise the main boom near horizontal. Extend the tip boom about 1′ (30 cm).

2. Visually inspect the slide pads to make sure they are securely fastened to the main boom.

3. Inspect the surface where the pads contact the tip boom. The paint must be in place with no signs of bare metal.

Fasteners

To inspect the fasteners:

1. Visually inspect all fasteners to see that none are missing or loose.

2. Inspect all of the bolts, nuts, rollpins, collars, and snap rings that connect the booms and cylinders. They should all be present, tight, and not damaged in any way.

3. Raise the riser boom to access the inner race rotation bearing bolts in the turntable (refer to Figure 8.14). The outer race bolts can be viewed through the openings in the turntable. Rotate the turntable to inspect all of the outer race bolts.

Figure 8.14 – Rotation Bearing Bolts

4. Inspect the inner and outer race rotation bearing bolts to ensure that none are missing, damaged, or loose.

Upper Control Station

Inspect the platform and upper controls, after verifying all functions operated properly from the lower controls.

Guardrail System

The guardrail system includes (refer to Figure 8.15):

- A top rail
- A mid rail
- Entry gate
- Toeboards around the sides of the platform

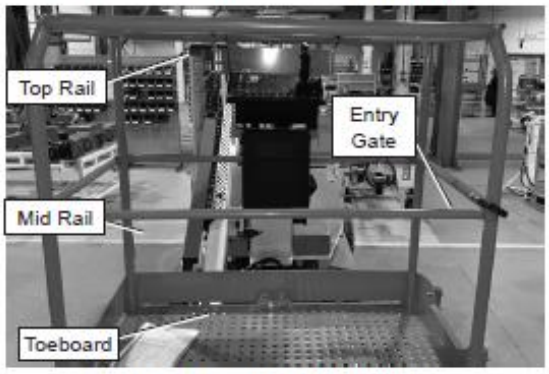


Figure 8.15 – Guardrail System

To inspect the guardrail system:

1. Visually inspect all components of the guardrail system. Make sure the rails and toeboards are all in place and free of any damage or deformation.

2. Visually inspect the rail and toeboard welds for cracks.

SAFETY AND OPERTION PRINT OFF

3. Visually check all bolts and nuts fastening the platform in place. They must be present and not show any signs of looseness.

4. Inspect the gravity gates to be sure they are present, not damaged, and move freely.

Lanyard Anchors

There are two lanyard anchors below the upper control panel (refer to Figure 8.16).

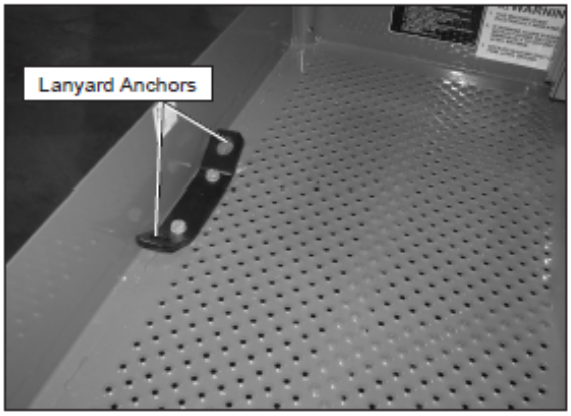


Figure 8.16 – Inside Rear of Platform

To inspect the lanyard anchors:

1. Visually inspect the lanyard anchors to make sure they are in place and not deformed.

2. Look for visible cracks in the welds and at the weld to parent material joints. A bright light may be used to provide adequate visibility of the inspection area.

Operating Controls

Use the following procedure to operate the machine from the upper controls:

1. Make sure the battery disconnect is set to the ON position.

2. At the lower controls, twist the emergency stop button clockwise to restore power. Insert the key into the control selector switch and turn the switch to the upper controls position.

3. Twist the emergency stop button clockwise at the upper controls (refer to Figure 8.17).

4. Press a boom function switch downward and release to select a machine function. Only one function can be selected at a time. A green LED above the function icon indicates which function has been selected.

5. After selecting the function, operate the joystick in the direction of the blue and yellow arrows on the control placard.

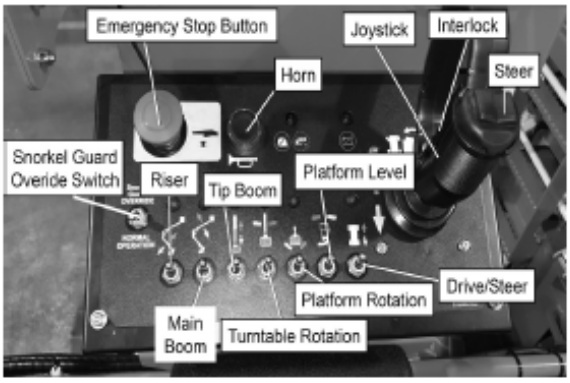


Figure 8.17 – Upper Controls

⚠Danger

Pinch points may exist between moving components. Death or serious injury will result from becoming trapped between components, buildings, structures, or other obstacles. Make sure all personnel stand clear of the aerial platform while performing the prestart inspection.

⚠Warning

The potential for an accident increases when operating an aerial platform that is damaged or malfunctioning. Death or serious injury could result from such accidents. Do not operate the aerial platform if it is damaged or malfunctioning.

6. Test the interlock switch by operating a boom function without engaging the interlock on the joystick. If movement occurs the interlock is not functioning properly. Do not operate the machine until the problem is corrected.

7. Test the operation of each control in both directions from the upper controls.

Emergency Stop

To test the emergency stop button from the upper controls:

1. At the lower controls, place the control selector switch in the upper control position.

2. At the upper controls, push the emergency stop button inward to turn off electrical power.

3. Verify that the upper control functions do not operate.

Horn

Operate the horn switch (refer to Figure 8.17) to ensure that it sounds to warn personnel in the area.

Snorkel Guard
To test the Snorkel Guard system:

1. Turn the battery disconnect switch on.
2. At the lower controls, pull the emergency stop button outward and place the control selector switch in the upper control position.
3. At the upper controls, pull the emergency stop button outward (refer to Figure 8.18).

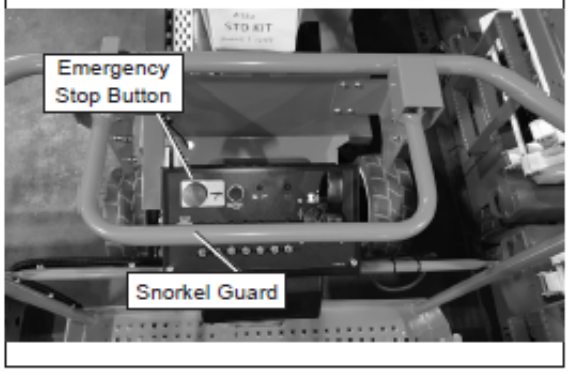


Figure 8.18 – Upper Controls

4. Engage the interlock on the upper control joystick and slightly raise the main and riser booms.
5. Press down on the Snorkel Guard rail and verify that:
   - the horn sounds.
   - the blue light on the front top of the chassis flashes.
   - all functions are interrupted.
6. Hold the Snorkel Guard override switch upward in the override position and verify that the main boom and riser boom lower functions operate.
7. Release the Snorkel Guard rail and the override switch. Verify that all other machines function operate.

Electrical Power Outlet (ANSI or Optional)
To test the electrical power outlet:

1. Connect a source of 110 volt AC power to the power-input connector on the right side of the chassis (refer to Figure 8.19).

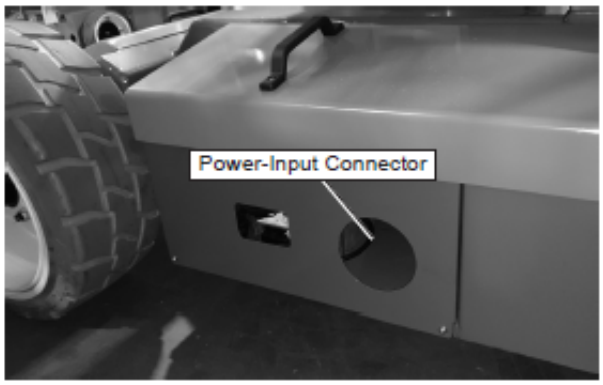


Figure 8.19 – Power-Input Connector

2. Plug an electrical tool into the receptacle at the platform and try to operate the tool to verify proper operation of the outlet.

The outlet is equipped with a ground fault circuit interrupter (GFCI). Use the following procedure to test the GFCI.

1. Push the test button (refer to Figure 8.20).

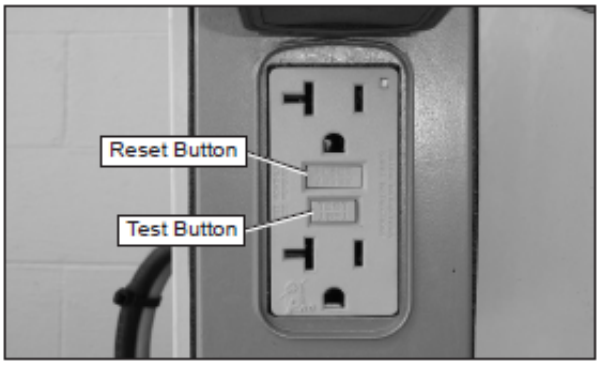


Figure 8.20 – Electrical Power Outlet

2. Plug an electrical tool into the outlet and verify the power is off.
   - If the power was off, push the reset button to restore power.
   - If the power was on, repair or replace the receptacle.

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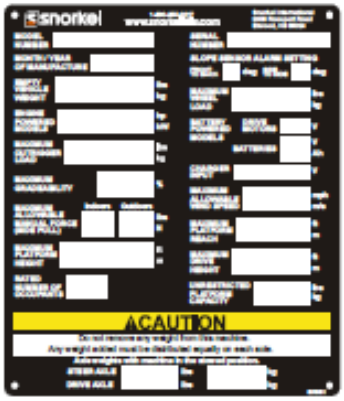

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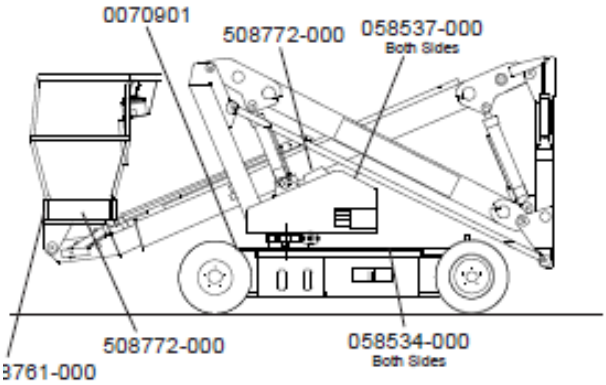

Right Side

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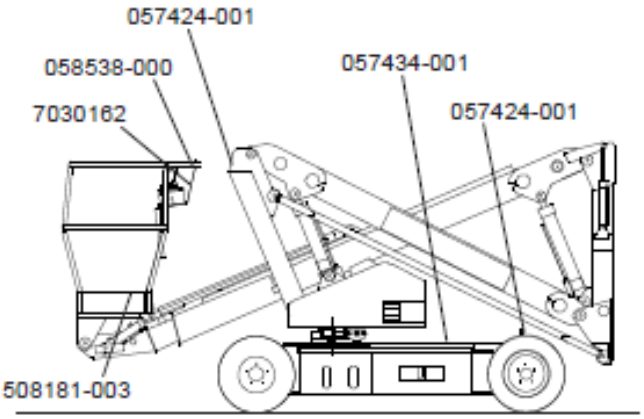

Right Side

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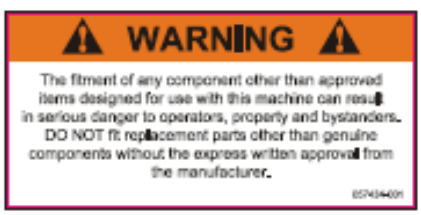

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Prestart Inspection Checklist

Item	Inspect For	Ok
Operator's Manual	In place, all pages readable and intact	
Electrical System		
Batteries	Condition and charged for proper operation	
Battery fluid level and terminals	Proper level/clean, connectors tight	
Battery charger and condition indicator	Proper operation	
Cables and wiring harness	No wear or physical damage	
Hydraulic System		
Fluid level	Between full and add marks	
Hoses, tubes and fittings	No leaks	
Tires	Good condition	
Wheels	All wheel lug nuts present and properly torqued	
Lower Control Station		
Operating controls	Proper operation	
Emergency stop	Shuts off lower controls/proper operation	
Level Sensor	Sounds tilt alarm	
Flashing Light	Proper operation	
All Motion Alarm	Sounds when machine is operated and/or driven	
Structures		
Weldments	Welds intact, no damage or deformation	
Slide pad retainers	In place, no damage or deformation	
Fasteners	In place and tight	
Upper Control Station		
Guardrail system and lanyard anchors	Welds intact, no damage or deformation	
Operating controls	Proper operation	
Emergency stop	Shuts off upper controls/proper operation	
Horn	Sounds when activated	
Snorkel Guard	Proper operation	
Electrical power outlet	Proper operation	
Placards and Decals	In place and readable	

Chapter 9 – Operation

The aerial platform may be operated from either the lower or upper controls.

⚠Danger

The aerial platform is not electrically insulated. Death or serious injury will result from contact with, or inadequate clearance from, an energized conductor. Do not go closer than the minimum safe approach distance as defined by ANSI or by national safety regulations.

Pinch points may exist between moving components. Death or serious injury will result from becoming trapped between components, buildings, structures, or other obstacles. Make sure there is sufficient clearance around the machine before moving the chassis, booms, or platform. Allow sufficient room and time to stop movement to avoid contact with structures or other hazards.

The aerial platform can tip over if it becomes unstable. Death or serious injury will result from a tip-over accident. Operate the aerial platform on a firm, flat, level surface. Avoid travel speeds and/or rough terrain that could cause sudden changes in platform position. Do not drive or position the aerial platform for elevated use near any drop-off, hole, slope, soft or uneven ground, or other tip-over hazard.

The platform rated work load is the total weight of the personnel and equipment that may be lifted in the platform.

The work loads are stated on the platform rating placard and at the machine entrance.

⚠Danger

The aerial platform can tip over if it becomes unstable. Death or serious injury will result from a tip-over accident. Do not exceed the capacity values indicated on the platform rating placard.

Capacity values indicate the rated lifting capacity and do not indicate aerial platform stability.

The operator bears ultimate responsibility for ensuring that the aerial platform is properly set up for the particular conditions encountered.

Cold Weather Start-Up

If the ambient temperature is 32°F (0°C) or below, the hydraulic system oil may need to be warmed before operation.

Cold, thick hydraulic oil does not flow well and may cause delay in response to control movement. Cold hydraulic oil may also cause cavitation and pump damage.

Manually Warming the Hydraulic System

The hydraulic oil may be warmed by bottoming out the boom extension cylinder. Raise the main boom so it is horizontal and operate the boom retract function while the machine is stowed. With the cylinder bottomed out the oil flow will produce heat to warm the hydraulic oil.

⚠Caution

Not all hydraulic fluid is suitable to use in the hydraulic system. Some have poor lubricating characteristics and may increase component wear. Only use hydraulic fluid as recommended.

Use cold weather hydraulic oil as recommended in the machine General Specifications in temperatures of 10°F (-13°C) or below.

Preparing for Operation

Before operating the aerial platform, make certain the batteries are charged and the charger is unplugged.

Use the following procedure to prepare the aerial platform for operation.

1. Perform a prestart inspection (refer to Chapter 8).
2. Make sure the battery disconnect is plugged in.
3. Close and latch the battery and hydraulic trays.

Lower Controls

The lower controls override the upper controls. This means that the lower controls can always be used to operate the platform regardless of the position of the upper control emergency stop button.

Boom, turntable, and platform functions may be operated from the lower controls. The lower controls may be used for initial set up of the aerial platform, and for testing and inspection.

Use the following procedure to operate boom, turntable, or platform functions using the lower controls.

1. Twist the emergency stop button clockwise at the lower controls (refer to Figure 9.1).

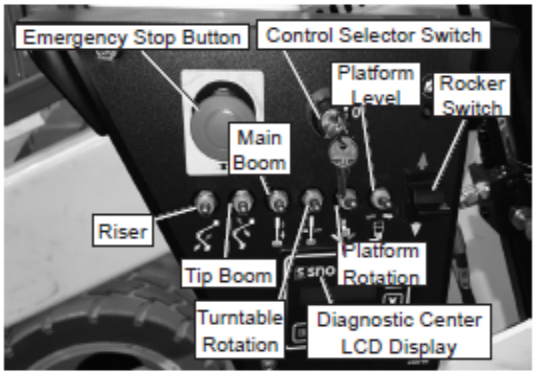


Figure 9.1 – Lower Controls

2. Insert the key into the control selector switch and turn the switch to the lower controls position.

3. Press and hold a boom function switch while operating the rocker switch to operate the boom function.

4. Release the analog rocker switch to stop movement.

Upper Controls

The upper controls may be used for driving the aerial platform and positioning the booms and platform while on the job.

Use the following procedure to operate machine functions using the upper controls.

1. At the lower controls, pull the emergency stop button outward (refer to Figure 9.1), insert the key into the control selector switch and turn the switch to the upper control position.

2. Enter the platform and securely close the gate.

3. Twist the emergency stop button clockwise at the upper controls (refer to Figure 9.2).

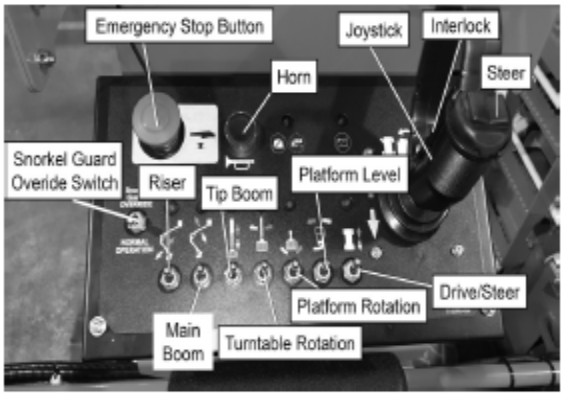


Figure 9.2 – Upper Controls

4. Attach the fall restraint lanyard to one of the anchor points.

Push the emergency stop button inward when the upper controls are not in use to protect against unintentional operation.

Boom Operation

Use the following procedure to operate the turntable, boom, or platform functions.

1. Press a machine function switch downward and release to select a machine function. Only one function can be selected at a time. A green LED above the function icon indicates which function has been selected.

2. Squeeze and hold the interlock switch against the joystick and push and hold the joystick in the corresponding direction of the colored arrow for the selected function. Always look in the direction of movement.

3. To stop movement release the joystick to its neutral position or release the interlock switch.

Driving and Steering

⚠Danger

The aerial platform can tip over if it becomes unstable. Death or serious injury will result from a tip-over accident. Do not drive an elevated aerial platform on soft, uneven, or sloping surfaces. Do not drive the machine on grades that exceed 36 percent.

For operation on grades up to 36 percent, it is recommended that the main boom be near horizontal and the jib be elevated just enough to provide adequate ground clearance.

A 36 percent grade is a 43" (1.1 m) vertical rise in 10' (3.05 m) horizontal length.

Avoid driving with the platform over the front end of the chassis. In this position the machine is difficult to control because:

- drive and steer control movements and their resulting machine movements are reversed.
- when driving fast, sudden turns or stops produce more severe reactions to platform occupants.
- more turning space is required to prevent the platform from colliding with obstacles several feet beyond the path of the tires.

⚠Warning

Death or serious injury could result from improperly driving or steering the aerial platform. Read and understand the information in this manual and on the placards and decals on the machine before operating the aerial platform on the job.

The blue and yellow arrows next to the function select buttons on the upper control placard indicates the direction the chassis will move when the drive or steer control is moved toward the corresponding color.

When the machine is in the stowed position, with the booms centered between the rear wheels, the direction of drive and steer control movement corresponds with the direction of chassis movement.

When the turntable is rotated from the stowed position, with the booms to either side of or in front of the chassis, the direction of control movement does not correspond with the direction of chassis movement.

- To avoid confusion, always drive to the work area or move between work areas with the turntable and booms in the stowed position.
- After arriving at the work area, the booms may be positioned to the side or the front of the chassis for final positioning.
- Always look in the direction of movement as indicated by the directional arrows.

Use the following procedure to operate the drive and steer functions.

1. Press the drive/steer switch downward and release it to select the drive and steer functions.
2. Squeeze and hold the interlock switch against the joystick. Push the drive joystick forward to move the chassis forward, the direction of the blue arrow. Pull the joystick backward to move the chassis backward, the direction of the yellow arrow. The drive speed is proportional to the joystick position.
3. To stop drive motion, return the joystick to neutral.
4. The steer switch is a momentary contact, rocker switch on top of the drive joystick. The switch controls the two front wheels to steer the aerial platform. Squeeze and hold the interlock switch against the joystick.
    - To steer to the right, hold down the right side of the steer switch.
    - To steer to the left, hold down the left side of the steer switch.

Note
The steering wheels are not self-centering. Set the steering wheels straight ahead after completing a turn.

5. After driving to the desired location, release the interlock switch, or push the emergency stop button to apply the parking brakes.

Drive Speeds
The drive speed is proportional to the joystick position. The farther the joystick is moved, the faster the travel speed.

Always slow down before traveling over any sloped surface.

Drive speed range is interlocked through a limit switch that sense the main and riser boom position.

- When either boom is elevated, only the slowest drive speed will work regardless of the joystick position.
- To avoid a sudden speed change from high to low elevated boom speed, always bring the machine to a stop before raising the booms from the stowed position.

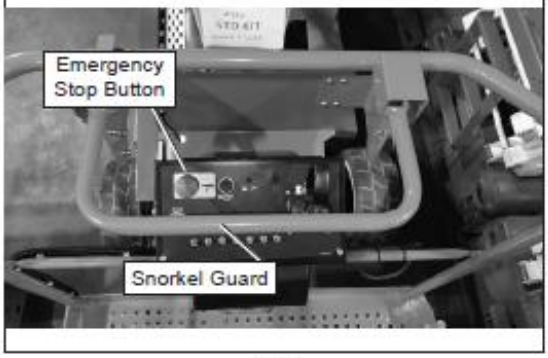
⚠Warning

The potential for an accident increases when safety devices do not function properly. Death or serious injury could result from such accidents. Do not alter, disable, or override any safety device.

Do not use the aerial platform if it drives faster than 0.25 miles per hour (11 feet in 30 seconds) when any of the booms are out of the stowed position.

All Motion Alarm
The optional all motion alarm sounds loud intermittent beeps anytime the machine functions are being operated.

Snorkel Guard Override Switch
When the Snorkel Guard system is activated, the Snorkel Guard override switch (refer to Figure 9.3) is used to override the system to operate main boom and riser boom down functions. The switch is spring returned to the normal operation position.



Top

Front

Figure 9.3 – Upper Controls

⚠Warning

The potential for an accident increases when safety devices do not function properly. Death or serious injury could result from such accidents. The Snorkel Guard override switch must only be used when all controls are released and in the neutral position. If a zero or neutral state cannot be achieved, depress the emergency stop and obtain assistance at the lower controls.

1. When machine is stopped due to activation of the Snorkel Guard system, immediately depress the emergency stop, release the foot switch and all controls. Perform an assessment of the situation which caused the system to activate.

2. If it is determined that all controls are released and operation can proceed, return the emergency stop to the on position, and activate the Snorkel Guard override switch.

3. Activate the necessary functions to move the platform away from the obstacle that caused the Snorkel Guard activation.

4. Assess the machine for any damage. If damage occurred, return to the stowed position, exit the unit and perform a thorough inspection before returning to service.

Electrical Power Outlet

The electrical outlet at the platform has two, 3-prong, 110 volt AC electrical connectors. Their combined output is limited by a 15 amp circuit breaker.

To use the outlet, plug a source of power into the power-input connector on the right side of the chassis (refer to Figure 9.4). Unplug the source of power before moving the aerial platform.

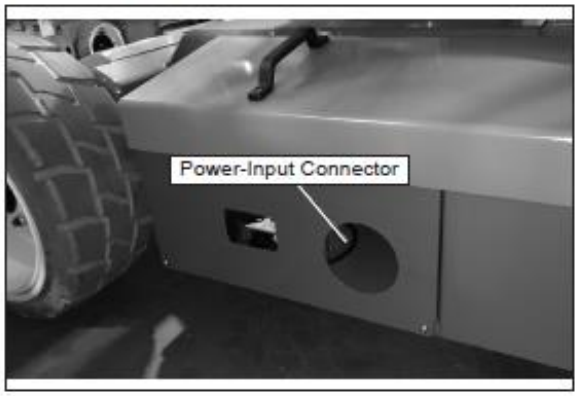


Figure 9.4 – Power-Input Connector