OPERATOR’S MANUAL
Part Number 8210027
May 2010
Serial number 53578 and after
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 the Minimum Safe Approach Distance section in Chapter 3–Safety.

Regard all conductors as energized.

Allow for electrical wire sag and aerial platform sway.

If the platform, mast, or any part of the aerial platform contacts a high-voltage electrical conductor, the entire machine can become electrically charged.

If that happens, remain on the machine and do not contact any other structure or object. This includes the ground, adjacent buildings, poles, and any other objects that are not part of the aerial platform.

Such contact could make your body a conductor to the other object, creating an electrical shock hazard resulting in death or serious injury.

If an aerial platform is in contact with an energized conductor the platform operator must warn ground personnel in the vicinity to stay away. Their bodies can conduct electricity creating an electrical shock hazard resulting in death or serious injury.

Do not approach or leave the aerial platform until the electricity has been turned off.

Do not attempt to operate the lower controls when the platform, elevating assembly, or any part of the aerial platform is in contact with a high-voltage electrical conductor or if there is an immediate danger of such contact.

Personnel on or near an aerial platform must be continuously aware of electrical hazards, recognizing that death or serious injury can result from contact with an energized conductor.

California

Proposition 65 Warning

Battery posts, terminals, and related accessories contain lead and lead components, chemicals known to the State of California to cause cancer and birth defects or other reproductive harm. Wash hands after handling.
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Chapter 1 – Introduction

Aerial Platform Features
The aerial platform is a self-propelled vertical mast lift that has been designed to raise personnel, their tools, and material to the workstation. The platform is raised and lowered with a hydraulic cylinder and a chain system. A hydraulic motor on each of the front wheels provides power to move the aerial platform.

The standard machine includes the following features.

- Proportional drive and lift controls
- Drivable at full height
- 24 volt DC electrical motor
- Lowering alarm
- Level sensor with drive/lift interlock
- High amp hour rating for long operating cycle
- 25 amp battery charger
- Manual lowering valve
- Non-marking solid rubber tires
- Tie-down/lifting lugs
- Automatic pothole protection system
- Hour meter
- Battery disconnect
- Swing-out hydraulic tray
- Slide-out, lockable battery tray
- Non-slip metal platform floor
- Forklift loadable from two sides
- Chain entry gate
- Five year limited warranty

The aerial platform has been manufactured to conform to all applicable requirements of the following organizations.

- Occupational Safety and Health Administration (OSHA)
- American National Standards Institute (ANSI)

Options
The following options may be provided on the machine.

- Overload alarm
- Special paint colors
- Environmental green oil
- Canadian Standards Association (CSA)

Operator’s Manual
This manual provides information for safe and proper operation of the aerial platform. Some information in this manual refers to options that may not be on your machine. Read and understand the information in this Operator’s Manual before operating the aerial platform on the job.

Additional copies of this manual may be ordered from Snorkel. Supply the model and manual part number from the front cover to assure that the correct manual will be supplied.

All information in this manual is based on the latest product information at the time of publication. Snorkel reserves the right to make product changes at any time without obligation.

Safety Alerts
A safety alert symbol is used throughout this manual to indicate danger, warning, and caution instructions. Follow these instructions to reduce the likelihood of personal injury and property damage. The terms danger, warning, and caution indicate varying degrees of personal injury or property damage that can result if the instruction is not followed.

⚠️ Danger
Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury. This signal word is to be used in the most extreme situations.

⚠️ Warning
Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

⚠️ Caution
Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

Notes
Notes are used to provide special information or helpful hints to assist in aerial platform operation, but do not indicate a hazardous situation.

Operation
The aerial platform has built-in safety features and has been factory tested for compliance with Snorkel specifications and industry standards. However, any personnel lifting aerial platform can be potentially dangerous in the hands of untrained or careless operators.

⚠️ Warning
The potential for an accident increases when the aerial platform is operated by personnel who are not trained and authorized. Death or serious injury can result from such accidents. 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.

Training is essential and must be performed by a qualified person. Become proficient in knowledge and actual operation before using the aerial platform on the job. You must be trained and authorized to perform any functions of the aerial platform. Operation of the aerial platform must be within the scope of the machine specifications.
Chapter 1 – Introduction

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.

**Maintenance**
Every person who maintains, inspects, tests, or repairs the aerial platform must be qualified to do so. Following the daily prestart inspection in this Operator’s Manual will help keep the aerial platform in optimum working condition. Other maintenance functions must be performed by maintenance personnel who are qualified to work on the aerial platform.

Do not modify this aerial platform without prior written consent of the Snorkel Engineering Department. Modification may void the warranty, adversely affect stability, or affect the operational characteristics of the aerial platform.

**Manual of Responsibilities**
All owners and users of the aerial platform must read, understand, and comply with all applicable regulations. Ultimate compliance to OSHA regulations is the responsibility of the user and their employer.

ANSI publications clearly identify the responsibilities of all personnel who may be involved with the aerial platform. A reprint of the “Manual of Responsibilities for Dealers, Owners, Users, Operators, Lessors and Lessees of ANSI/SIA A92.6-2006 Self-Propelled Elevating Work Platforms” is available from Snorkel dealers or from the factory upon request.

Copies are also available from:

Scaffold Industry Association, Inc.
P. O. Box 20574
Phoenix, AZ  85036-0574  USA

**Additional Information**
For additional information contact your local dealer or Snorkel at:

Snorkel International
P.O. Box 1160
St. Joseph, MO 64502-1160 USA
1-800-255-0317

http://www.snorkellifts.com
Chapter 2 – Specifications

Component Identification

Left Side
- Mast
- Upper Controls
- Platform
- Operator's Manual
- Front Tie-Down/Lift Lugs
- Emergency Lowering Knob
- Battery Charger
- Battery Charger Indicator
- Battery Tray
- Batteries
- Battery Disconnect
- Inside Tray

Right Side
- Chassis
- Lower Controls
- Hydraulic Tray
- Hydraulic Reservoir
- Inside Tray
## General Specifications

### Aerial Platform

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Working height</td>
<td>18’ 6” (5.6 m)</td>
</tr>
<tr>
<td>Maximum platform height</td>
<td>12’ 6” (3.8 m)</td>
</tr>
<tr>
<td>Minimum platform height</td>
<td>19” (48.3 cm)</td>
</tr>
<tr>
<td>Turning radius</td>
<td></td>
</tr>
<tr>
<td>Inside</td>
<td>14.4” (36.5 cm)</td>
</tr>
<tr>
<td>Wheelbase</td>
<td>38.5” (97.8 cm)</td>
</tr>
<tr>
<td>Ground clearance</td>
<td></td>
</tr>
<tr>
<td>Pothole protector raised</td>
<td>3” (7.6 cm)</td>
</tr>
<tr>
<td>Pothole protector lowered</td>
<td>0.5” (1.27 cm)</td>
</tr>
<tr>
<td>Maximum wheel load</td>
<td>884 lb (401 kg)</td>
</tr>
<tr>
<td>Weight, EVW Approximate</td>
<td>1,710 lbs (776 kg)</td>
</tr>
<tr>
<td>Weight Width</td>
<td>30” (76 cm)</td>
</tr>
<tr>
<td>Width</td>
<td>29” x 41” (73.7 cm x 1.04 m)</td>
</tr>
<tr>
<td>Stowed length</td>
<td>53.5” (1.36 m)</td>
</tr>
<tr>
<td>Stowed height</td>
<td>64.75” (1.64 m)</td>
</tr>
</tbody>
</table>

### Platform Dimensions, inside

- 29” x 41” (73.7 cm x 1.04 m)

### Toeboard height

- 6” (15.2 cm)

### Guardrail height

- 43” (1.1 m)

### Rated work load

- 500 lb (227 kg)

### Maximum number of occupants

- Inside: 2 people
- Outside: 1 person

### Function Speed

**Platform**

- Up, maximum: 18 seconds
- Down, maximum: 25 seconds

**Drive**

- High, platform lowered: 2.27 mph (3.65 km/h)
- Low, platform raised: 0.54 mph (0.87 km/h)

### Drive System

- Standard: Two wheel drive
- Gradeability: 25% (14°)
- Maximum drive height: 12’ (3.6 m)
- Parking brake: 2 wheel spring applied

### Tires

- Non-marking, solid rubber: 12” (30.5 cm) diameter

### Electrical System

- **Voltage**: 24 V DC negative chassis ground
- **Source**: Four - 6 V 220 Ah batteries
- **Fluid recommended**: distilled water
- **Battery duty cycle**: 25% for 8 hours
- **Battery charger**: 25 amp, 220 VAC
- **Minimum battery weight**: 58 lb (26.3 kg)
- **DC electric motor**: 4 hp

### Hydraulic System

- **Maximum pressure**: 2,400 psi (6,154 kPa)
- **Reservoir capacity**: 1.9 US gal (7.2 l)
- **Maximum operating temperature**: 200°F (93°C)
- **Minimum operating temperature**: -20°F (-28°C)
- **Hydraulic fluid recommended**:
  - Above 10°F (-13°C): Mobil DTE-13M (ISO VG32)
  - Below 10°F (-13°C): Mobil DTE-11M (ISO VG15)

### Ambient Air Temperature Operating Range

- **Fahrenheit**: 0°F to 110°F
- **Celsius**: -18°C to 43°C

### Maximum Wind Speed

- Gust or steady: 28 mph (12.5 m/s)
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 ANSI.

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 A92.6.

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

Table 1 – Minimum Safe Approach Distance
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.

• 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 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.

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 drive/lift level sensor interlock information. Raise the platform 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. Do not raise the platform outdoors in wind speeds above 28 mph (12.5 m/s).

Do not operate the aerial platform within 4’ (1.2 m) of any drop-off or hole.

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. If you are using a fall restraint, transfer your anchor- age from one structure to the other before stepping across.

2. Remember that you might be transferring to a structure where personal fall arrest is required.

3. Use the platform entrance, do not climb over or through the guardrails.

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.

Never operate the aerial platform without all parts of the guardrail system in place and the safety chain 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.

• 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.
This aerial work platform is manufactured with safety devices, placards, and decals to reduce the likelihood of an accident.

- For the safety of all personnel, do not disable, modify, or ignore any safety device.
- Safety devices are included in the daily prestart inspection.

⚠️ 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.

If any safety devices are defective, remove the aerial platform from service until qualified maintenance personnel can make repairs.

Emergency Stop Controls
There is an emergency stop control at the lower and upper controls. Both the lower and upper control emergency stop buttons must be on to operate the machine.

At the lower controls, the emergency stop is a two-position push button (refer to Figure 4.1).

- Push the emergency stop button inward to disconnect power to all control circuits.
- Twist the button clockwise to restore power.

At the upper controls, the emergency stop is a two-position push button (refer to Figure 4.2).

- Push the emergency stop button inward to disconnect power to the upper control circuits.
- Twist the button clockwise to restore power.

Pothole Protector Skids
When the platform raise function is actuated at either the lower or upper controls, the pothole protector skids automatically lower just before the platform is elevated. Ground clearance is reduced from 3" (7.6 cm) to 0.5" (1.27 cm) when the skids lock into position (refer to Figure 4.3).

⚠️ 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 within four feet of any drop-off, hole, or other tip-over hazard.

This protection system limits the tilt angle if a wheel is driven into a drop-off or hole. This greatly reduces the likelihood of the aerial platform tipping over.

The pothole protection system is for added protection and does not justify operating near drop-offs or holes.

Drive/Lift Level Sensor Interlock
The aerial platform drive and lift functions are interlocked through a level sensor system. The drive/lift level sensor interlock operates when the platform is elevated approximately 6’ (1.8 m).
Chapter 4 – Safety Devices

If the chassis is tilted more than two degrees side-to-side or front-to-rear, the drive and lift functions will not operate and an alarm will sound.

Lower the platform and drive to a level surface when the drive/lift level sensor alarm sounds.

The drive/lift level sensor system is for added protection and does not justify operating on anything other than firm, flat, level surfaces.

**Lowering Alarm**
As the platform is lowering, the alarm emits a loud beeping sound to warn personnel in the work area to stand clear.

⚠️ **Danger**
Pinch points exist on the machine. Death or serious injury will result if the platform lowers onto personnel. Stand clear while raising and lowering the platform.

Be careful when lowering the platform. Keep hands and fingers away from the machine components.

**Emergency Lowering Knob**
The emergency lowering knob may be used to lower the platform if there is a malfunction in the hydraulic or electrical system. The knob is mounted at the front of the aerial platform (refer to Figure 4.4).

The entry chain allows for access to the platform. After entering the platform the chain must be securely fastened before operating the machine.

![Figure 4.4 – Front of Machine](image)

**Guardrails**
The guardrails (refer to Figure 4.5) help protect personnel from falling off the platform.

The guardrail system includes:

- A top rail
- A mid rail
- An entry chain
- Toeboards around the sides of the platform.

The guardrails (refer to Figure 4.5) help protect personnel from falling off the platform.

The guardrail system includes:

- A top rail
- A mid rail
- An entry chain
- Toeboards around the sides of the platform.

**Lanyard Anchors**
Two lanyard anchors for fall restraint anchorage are provided below the upper controls at the front of the platform (refer to Figure 4.5).

*Note*
The lanyard anchors are not for lifting or tying the machine down.

- All personnel in the platform must connect their fall restraint device to a lanyard anchor before raising the platform.
- Attach only one fall restraint device to each lanyard anchor.
- Do not use the aerial platform for personal fall arrest anchorage.

**Tilt Alarm**
If the aerial platform chassis is out of level more than two degrees side-to-side or front-to-rear when the platform is raised, an alarm will sound.

⚠️ **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.

Completely lower the platform and then drive to a level surface when the tilt alarm sounds.

The tilt alarm is for added protection and does not justify operating on anything other than firm, flat, level surfaces.
Chapter 5 – Gauges and Displays

The aerial platform is equipped with an hour meter and a battery charge indicator to monitor the condition of the machine before and during operation.

Display Screen
An LED display screen is located on the upper control panel (refer to Figure 5.1).

![Figure 5.1 – Upper Controls](image)

The display screen shows:

- general operators information.
- fault codes used to locate and eliminate situations where machine operation may be interrupted.

*Note*
*Refer to Chapter 12 for a list of fault codes.*

Hour Meter
The hour meter is part of the digital display on the upper control panel (refer to Figure 5.1). It measures the accumulated aerial platform operating time.

To view the hour meter reading:

1. From the lower controls, twist the emergency stop button clockwise to the on position and turn the start switch on.
2. From the upper controls, push the emergency stop button inward.
3. Press and hold the platform control and horn buttons and twist the emergency stop button to restore power. The display should now have “hr” shown.
4. Press the right side of the steer switch to scroll through the hour meter reading, two digits at a time.

For example, if pressing the switch slowly three times displays “10” followed by “40” and then “hr” after the third time, the accumulated aerial platform operating time is 1,040 hours.

5. Push the emergency stop button inward.

Battery Charge Indicator
The battery charge indicator is located at the left side of the chassis (refer to Figure 5.2). When the batteries are charging, the battery charge indicator displays the level of charge in the batteries.

![Figure 5.2 – Left Side of Chassis](image)

Hydraulic Fluid Level
The fill lines on the reservoir indicate the proper level of hydraulic fluid in the reservoir (refer to Figure 5.3).

![Figure 5.3 – Hydraulic Fluid Reservoir](image)

Open the hydraulic tray and check the fluid level with the aerial platform in the stowed position. Otherwise, the cylinder acts as a large reservoir for hydraulic fluid making the level appear too low. The fluid should be between the minimum and maximum fill lines.
Chapter 6 – Batteries

The battery tray at the rear of the chassis, contains four, 220 amp, 6 volt batteries to operate the aerial platform drive and control systems.

To access the batteries, remove the latch pin and slide the tray outward.

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

General Maintenance
Always keep the batteries clean, free of dirt and corrosion. A film on top of the battery can accelerate discharge.

⚠️ Warning
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.

If necessary, clean the batteries, terminals, and cable ends (refer to Figure 6.1) with a wire brush or terminal cleaning tool.

Use distilled water to refill the batteries. Avoid water containing metallic solids such as iron which can reduce the life of the batteries.

Consult a battery charger specialist if extreme temperature use is unavoidable.

- Cold reduces battery capacity and retards charging.
- Heat increases water usage and can result in overcharging.
- Very high temperatures can cause thermal run away which may lead to an explosion or fire.

Charging
The aerial platform is equipped with a 20 amp automatic battery charger that will completely recharge the batteries and turn off after the charge cycle is completed. The battery charger is located inside the chassis.

⚠️ Warning
Batteries give off hydrogen and oxygen that can combine explosively. Death or serious injury can result from a chemical explosion. Charge the batteries only in a well ventilated area away from sparks or flame.

⚠️ Caution
The batteries may be overcharged and/or damaged if the charger fails to shut off automatically. Do not leave the battery charger on for more than two days.

It may take from 1½ to 16 hours to recharge the batteries depending on the amount of discharge. If the charging cycle exceeds 16 hours without the batteries being fully recharged, unplug the charger and have the batteries checked.

Fully recharge the batteries, immediately after use.

- One charging cycle per day is preferred.
- Fully charged batteries perform best.
- The deeper the discharge, the fewer number of cycles a battery will deliver. Deep discharges deteriorate the battery quicker than light shallow cycles.
- An overly discharged battery may need to be cycled a few times before it can fully recover.
- If a battery begins to heat before becoming fully charged, it may be necessary to recharge and discharge the battery a few times.

Use the following procedure to charge the batteries.

1. At the lower controls, turn the key switch to the off position.
2. Remove the latch pin and slide the battery tray outward. Make sure the battery disconnect (refer to Figure 6.1) is fully connected.
3. Remove the caps from each battery (refer to Figure 6.1).
4. 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. If needed, add distilled water.
5. Tightly replace the caps on each battery, slide the tray back in the chassis and replace the latch pin.
6. Plug the battery charger into a properly grounded outlet (115 volt AC, 60 Hz) using a 3 conductor, 12 gauge or larger extension cord. The extension cord must be as short as possible (no longer than 50’) and in good electrical condition.

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

7. Visually inspect the battery charge indicator for proper charging rate (refer to Figure 6.2).
   - The charger will turn on three to five seconds after a complete electrical connection is made.
   - As the batteries become charged, the indicator light for each level of charge will blink until its level is reached and then it will remain lit.
   - When the batteries are fully charged, all three lights on the battery charge indicator will be lit.

8. Leave the battery charger plugged in until it shuts itself off.

Note
If the charging cycle exceeds 16 hours without the batteries being fully recharged, unplug the charger and have the batteries checked.

9. After the battery charger turns itself off, unplug the extension cord from the battery charger and allow the batteries to cool.

10. Remove the latch pin and slide the battery tray outward. Remove the caps from each battery (refer to Figure 6.1).

11. 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. If needed, add distilled water.

12. Tightly replace the caps on each battery, slide the tray back in the chassis and replace the latch pin.

---

Figure 6.2 – Battery Charge Indicator Lights
Chapter 7 – 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 while operating the aerial platform.

- Controls to position the platform are located on the lower control panel on the chassis and on the upper control panel in the platform.

- Controls to drive the aerial platform are located on the upper control panel only.

Battery Disconnect
The battery disconnect is located at the front of the battery tray (refer to Figure 7.1).

Figure 7.1 – Battery Disconnect Plug
The battery disconnect removes electrical power from all electrically controlled functions when it is unplugged.

- Plug in the connector to electrically connect the batteries to the electrical system.

Lower Controls
The lower controls (refer to Figure 7.2) are located on the right side of the chassis. Only platform functions can be operated from the lower controls. The following are located on the lower control panel:

- Start switch
- Emergency stop button
- Ground operation button
- Platform raise/lower switch

Start Switch
The start switch (refer to Figure 7.2) connects power to all control circuits with a key switch.

- Turn the switch to the on position to connect the electrical power to the lower and upper controls.

- When the machine is not in use, turn the switch to the off position to preserve the battery charge.

Emergency Stop Button
The emergency stop (refer to Figure 7.2) is a two-position, red push button.

- Push the button inward to disconnect power to all control circuits.

- Twist the button clockwise to restore power.

Both the lower and upper control emergency stop buttons must be on to operate the machine.

Ground Operation Button
Hold the ground operation button (refer to Figure 7.2) inward continually to operate the machine from the lower controls. This button is spring returned to the off position.

Platform Raise/Lower Switch
The platform raise/lower switch (refer to Figure 7.2) is used to raise or lower the platform. The switch is spring returned to the center off position.

- Hold the switch upward to raise the platform.

- Hold the switch downward to lower the platform.

Upper Controls
The upper controls (refer to Figure 7.3) are located on the control panel at the platform. Platform and drive functions can be operated from the upper controls.
The following controls are located on the upper control panel:

- Emergency stop button
- Platform select button
- Drive select button
- Joystick
- Steer switch
- Horn button – optional

**Figure 7.3 – Upper Controls**

**Emergency Stop Button**
The emergency stop is a two-position, red push button on the top of the upper control panel (refer to Figure 7.3).

- Push the button inward to disconnect power from all control circuits at the upper controls.
- Twist the button clockwise to restore power.
- Push the emergency stop button inward when the upper controls are not in use to protect against unintentional operation.

Both the lower and upper control emergency stop buttons must be on to operate the machine.

**Drive Select Button**
Press the drive select button (refer to Figure 7.3) to drive the aerial platform with the joystick. The platform will not raise or lower while driving.

**Platform Select Button**
Press the platform select button (refer to Figure 7.3) to operate platform functions with the joystick. The machine can not be driven while operating the platform raise or lower functions.

**Joystick**
The joystick (refer to Figure 7.3) is used to either drive the aerial platform or to raise and lower the platform after selecting the appropriate function.

- Press the drive select button to use the joystick to drive the aerial platform.
- Press the platform select button to use the joystick to operate platform functions.

Movement of the joystick in a given direction produces a corresponding movement of the aerial platform. The steering and drive functions may be operated separately or simultaneously.

**Interlock**
The joystick has an interlock switch in the handle. Engage the interlock by grasping and squeezing the joystick. Engage the interlock to activate the steering, drive, or platform functions.

**Driving**
The joystick is used to control forward and reverse motion of the aerial platform. The distance the joystick is moved is proportional to the machine drive speed.

Hold the joystick forward to move the aerial platform forward and backward to move in reverse as indicated by the directional arrows on the upper control panel.

Drive and steer functions may be operated simultaneously.

**Steer Switch**
The steer switch (refer to Figure 7.3) is a momentary contact, rocker switch on top of the drive joystick. This switch controls the two front wheels to steer the aerial platform.

- 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.

**Raising and Lowering the Platform**
The joystick (refer to Figure 7.3) is used to raise and lower the platform. The distance the joystick is moved is proportional to the function speed.

Hold the joystick forward to raise the platform and backward to lower the platform as indicated by the directional arrows on the upper control panel.

**Horn Button**
The optional horn button is at the bottom of the upper control panel. Press the button to sound the horn.
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 on the left side of the mast (refer to Figure 8.1).

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.


Electrical System

Electrical power is supplied from four 220 amp hour, 6 volt batteries. The batteries are in the tray at the rear of the machine (refer to Figure 8.2). The batteries supply 24 volt DC electrical power to operate the aerial platform electrical and electrohydraulic components.

⚠️ 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.

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 the batteries (refer to Figure 8.2).

2. Visually check the battery fluid level making sure the level is $\frac{1}{4}$ " (6 mm) above the plates.

3. If necessary, add distilled water.

Note

Use only distilled water when refilling the battery. Tap water may contain metallic solids such as iron which can reduce the life of the battery.
4. Replace the caps on the battery. The caps must be in place and tight during machine operation and battery charging.

**Battery Terminals**
To inspect the battery terminals:

1. Check the top of the 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**
Inspect the battery charger (refer to Figure 8.3) to ensure that it is operating properly.

1. Unplug the battery disconnect.
2. Plug the charger into a source of power.
3. Observe the LED’s on the charger. They indicate the level of charge on the batteries.

4. Unplug the charger.

**Blocking the Mast**
Always block the mast when the platform is raised before inspecting or performing service or maintenance procedures on the machine.

**Danger**
Pinch points exist on the aerial platform. Death or serious injury will result if the platform drops onto personnel working under the raised platform. Properly block the mast when the platform is raised, before inspecting or performing service or maintenance procedures on the machine.

Use the following procedure to properly block the mast.

1. Remove all tools and material from the platform.
2. Using the lower controls, raise the platform approximately 4’ (1.2 m).
3. Place a solid 2 x 4 wood block, approximately 18” (50 cm) long, at the rear of the mast between the number one and number two mast as shown in Figure 8.4.

Use the following procedure to remove the block.

1. Using the lower controls, raise the platform approximately 4’ (1.2 m).
2. Remove the 2 x 4.
3. Using the lower controls, completely lower the platform.

**Cables and Wiring Harness**
To inspect the cables and wiring harnesses:

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 4 horsepower DC electric 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 tray on 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. Open the hydraulic tray on the right side of the machine.

3. The fluid should be between the minimum and maximum fill lines (refer to Figure 8.5).

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.

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 8.6).

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.

Tires and Wheels

Visually inspect the tires and wheels (refer to Figure 8.7) to make sure they are suitable for service.

1. Visually inspect the tires. They should be smooth without any cuts, gouges, or missing rubber that might affect aerial platform stability.
2. Check the wheels to see that the fasteners are in place and are not damaged or loose.

**Parking Brakes**
Inspect the brake shoes to make sure they fully engage the rear tires as shown in Figure 8.8.

![Figure 8.8 – Rear of Chassis](image)

**Lower Control Station**
With no personnel in the platform, test the operation of each control from the lower controls (refer to Figure 8.9).

![Figure 8.9 – Lower Controls](image)

**Operating Controls**
Use the following procedure to operate the machine from the lower controls.

1. Make sure the battery disconnect is plugged in.
2. At the lower and upper controls, twist the button clockwise to restore power.
3. Insert the key into the start switch and turn the switch to the on position.
4. Press and hold the ground operation button.

---

**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 pre-start 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.

5. Test the operation of the platform raise/lower switch in both directions.

**Lowering Alarm**
While the platform is lowering listen to ensure that the alarm sounds to warn personnel in the area that the platform is lowering.

**Emergency Stop**
To test the emergency stop button from the lower controls:

1. Push the emergency stop button inward to turn off electrical power.
2. Test the lower control functions to make sure they no longer operate.

**Emergency Lowering**
Use the following procedure to test the emergency lowering valve:

1. Partially raise the platform from the lower controls.
2. While standing clear of the chassis and platform, pull the emergency lowering knob outward (refer to Figure 8.10). The platform will begin to lower as the knob is pulled.

![Figure 8.10 – Front of Machine](image)
3. Release the knob to stop.

4. Make certain the knob is fully released after lowering the platform.

Structures
Visually inspect all weldments and related components. It is important to inspect the fasteners that connect the components.

Weldments
To inspect the weldments:

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.

Mast Bearings
The mast has front and rear bearings (refer to Figure 8.11) between each section.

Fasteners
To inspect the component 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. They should all be present, tight, and not damaged in any way.

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 8.12):

- A top rail
- A mid rail
- Chain entry gate
- Toeboards around the sides of the platform.

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.

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

4. Inspect the entry chain to be sure it is present and securely fastened to the rail. The chain must be free of damage and deformation that may prevent it from functioning properly. Inspect the hook and eye that secures the chain to the rail.
Chapter 8 – Prestart Inspection

Lanyard Anchors
There are two lanyard anchors at the left front of the platform (refer to Figure 8.12).

To inspect the lanyard anchors:

1. Visually inspect the lanyard anchors to make sure they are in place and are 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 plugged in.

2. At the lower controls, twist the emergency stop button clockwise and turn the start switch on.

3. At the upper controls (refer to Figure 8.13), twist the emergency stop button clockwise.

   ![Figure 8.13 – Upper Controls](image)

   **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.

4. Press either the drive or platform select button and test the interlock by moving the joystick without engaging the interlock switch. If movement occurs the interlock is not functioning properly. Do not operate the machine until the problem is corrected.

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

   • Press the drive select button and test the operation of the joystick in both directions. The joystick should only operate the drive functions.

6. The maximum travel speed is interlocked through a limit switch at the front of the chassis that senses the position of the platform.

   • When the platform is raised approximately 1’ (0.3 m), the machine should travel in low speed only.

   • To operate in high speed the platform must be fully lowered in the stowed position.

Emergency Stop
To test the emergency stop button from the upper controls:

1. At the lower controls, twist the emergency stop button clockwise and 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 platform and drive functions do not operate.

Horn Button
The machine may be equipped with an optional horn. Operate the horn button (refer to Figure 8.15) to ensure that it sounds to warn personnel in the area.

Placards and Decals
To inspect the placards and decals:

1. Inspect all safety and operational placards and decals. Make certain they are in place, in good condition, and are legible.

2. Clean the placards and decals with soap and water, and a soft cloth if the words or pictures cannot be seen.

   **Caution**

   Solvents may contain hazardous ingredients. Follow the manufacturer’s label for proper use and disposal. Wear protective gloves and splash-proof safety glasses when using solvents.

3. Remove wet paint overspray using a natural biodegradable solvent and a soft cloth.

4. Replace any missing or illegible placards or decals before operating the aerial platform.

Placard and decal kits are available from Snorkel.

The safety related placards and decals are illustrated on the following pages.
Chapter 8 – Prestart Inspection

**WARNING**
MAXIMUM DISTRIBUTED
PLATFORM LOAD 500 LBS.
OR 2 OCCUPANTS
MAXIMUM SIDE LOAD 100 LBS.

**CAUTION**
BEFORE operating this
equipment, read, understand
and then follow all safety
information in instruction
manual.

**DANGER**
BEFORE operating this
equipment, read, understand
and then follow all safety
information in instruction
manual.

**DANGER**
TIP-OVER HAZARD
BATTERIES ACT AS COUNTERWEIGHT
EACH REPLACEMENT BATTERY SHALL WEIGH
80 LB OR MORE

**CAUTION**
CUT-OFF EDGES OR SPARKS
WILL CAUSE INJURY

---

Left Side

- 101250-000
- 66554-000
- 66550-001
- 62562-001
- 66556-000
# Prestart Inspection Checklist

<table>
<thead>
<tr>
<th>Item</th>
<th>Inspect For</th>
<th>Ok</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operator's Manual</td>
<td>In place, all pages readable and intact</td>
<td></td>
</tr>
<tr>
<td><strong>Electrical System</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Battery fluid level</td>
<td>Proper level</td>
<td></td>
</tr>
<tr>
<td>Battery terminals</td>
<td>Clean, connectors tight</td>
<td></td>
</tr>
<tr>
<td>Batter charger</td>
<td>Proper operation</td>
<td></td>
</tr>
<tr>
<td>Cables and wiring harness</td>
<td>No wear or physical damage</td>
<td></td>
</tr>
<tr>
<td><strong>Hydraulic System</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fluid level</td>
<td>Between full and add marks with platform stowed</td>
<td></td>
</tr>
<tr>
<td>Hoses, tubes, and fittings</td>
<td>No leaks, all fittings tight</td>
<td></td>
</tr>
<tr>
<td><strong>Tires</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Wheels</strong></td>
<td>All fasteners present with no signs of looseness</td>
<td></td>
</tr>
<tr>
<td>Parking Brakes</td>
<td>Proper operation</td>
<td></td>
</tr>
<tr>
<td><strong>Lower Control Station</strong></td>
<td></td>
<td></td>
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<tr>
<td>Operating controls</td>
<td>Proper operation</td>
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<tr>
<td>Emergency stop</td>
<td>Shuts off lower controls</td>
<td></td>
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<tr>
<td>Lowering alarm</td>
<td>Sounds when platform lowers</td>
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<tr>
<td><strong>Level Sensor</strong></td>
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<td><strong>Emergency Lowering</strong></td>
<td></td>
<td></td>
</tr>
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<td><strong>Structures</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weldments – Chassis, mast, platform, etc.</td>
<td>Welds intact, no damage or deformation</td>
<td></td>
</tr>
<tr>
<td>Front and rear mast bearings</td>
<td>In place, no damage or deformation</td>
<td></td>
</tr>
<tr>
<td>Fasteners</td>
<td>In place and tight</td>
<td></td>
</tr>
<tr>
<td><strong>Upper Control Station</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Guardrail system</td>
<td>Welds intact, no damage or deformation</td>
<td></td>
</tr>
<tr>
<td>All fasteners in place, no loose or missing parts</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Platform floor</td>
<td>No damage or deformation</td>
<td></td>
</tr>
<tr>
<td>Clean to prevent slip and fall hazards</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lanyard anchors</td>
<td>In place, no damage or deformation</td>
<td></td>
</tr>
<tr>
<td>Entry chain</td>
<td>In place, no damage or deformation, proper operation</td>
<td></td>
</tr>
<tr>
<td>Brakes</td>
<td>Proper operation</td>
<td></td>
</tr>
<tr>
<td>Operating controls</td>
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<tr>
<td>Emergency stop</td>
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<td>Lowering alarm</td>
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<td>Drive motion alarm</td>
<td>Sounds when aerial platform moves</td>
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</tr>
<tr>
<td><strong>Placards and Decals</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>In place and readable</td>
<td></td>
</tr>
</tbody>
</table>
Preparing for Operation

Make certain the batteries are charged and the charger is unplugged before operating the aerial platform. 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.

Only the platform raise and lower 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 raise or lower the platform using the lower controls.

1. Twist the emergency stop button clockwise at both the lower (refer to Figure 9.1) and upper controls (refer to Figure 9.2).
2. Turn the start switch to the on position.
3. Press and hold the ground operation button.
4. Hold the platform raise/lower toggle switch up to raise the platform and down to lower it.
5. Release the toggle switch to stop movement.
Upper Controls
The upper controls may be used for driving the aerial platform and positioning the platform while on the job.

Before operating from the upper controls, properly set up the aerial platform as described under Preparing for Operation. Use the following procedure to operate the aerial platform from the upper controls.

1. From the lower controls, twist the emergency stop button clockwise (refer to Figure 9.1).
2. Insert the key into the start switch and turn the switch to the on position.
3. Enter the platform and secure the chain.
4. Twist the emergency stop button clockwise (refer to Figure 9.2).

5. The aerial platform may be driven and the platform may be raised and lowered from the upper controls.

Driving

⚠️ 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 a fully stowed machine on grades that exceed 25 percent.

A fully stowed machine may be operated on grades up to 25 percent. A grade of 25 percent is a 30” (0.76 m) vertical rise in 10’ (3.05 m) horizontal length.

⚠️ Warning
Death or serious injury can 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.

Use the following procedure to operate the drive functions.

1. Press the drive select button (refer to Figure 9.2).
2. Squeeze and hold the interlock switch against the joystick.
   - To move forward, slowly push the joystick forward.
   - To move backward, slowly pull the joystick backward.

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

Drive speed ranges are interlocked through a limit switch that senses scissors arm position. When the platform is elevated below approximately seven feet, the aerial platform may be driven within the full range of drive speeds. Above 6’ (1.8 m) of elevation, only the slowest drive speed will work.

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

Do not use the aerial platform if it drives faster than 0.54 mph (0.87 km/h), which is 23’ 9” (7.24 m) in 30 seconds, when elevated above 6’ (1.8 m).

Drive/Lift Level Sensor Interlock
When the platform is elevated above 6’ (1.8 m), lift and drive functions are interlocked through a level sensor system. If the chassis is tilted more than two degrees side-to-side or front-to-rear, platform raise and drive functions are disabled and an alarm sounds when those controls are activated.

If the drive/lift level sensor interlock shuts off the platform raise and drive functions, lower the platform and drive to a level surface.

Steering
The steer control switch is located on the joystick (refer to Figure 9.2). Use the following procedure to steer the aerial platform using the upper controls.

1. Squeeze and hold the interlock switch against the joystick.
   - To turn to the left, tap lightly on the left side of the steer switch.
   - To turn to the right, tap lightly on the right side of the steer switch.
Note
Holding the steer switch down too long may result in a sharp turn. This is especially true when driving and steering at the same time. It may be easier to turn the wheels in small increments using a series of quick taps on the steer switch.

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

Platform
Use care when entering and exiting the platform to avoid slipping and/or falling. Securely close the safety chain when the platform is occupied.

Raising and Lowering
The raise speed is proportional to the joystick position. The farther the joystick is moved, the faster the platform raises. There is only one lowering speed.

1. Press the platform select button (refer to Figure 9.2).

2. Squeeze and hold the interlock switch against the joystick.
   - To raise the platform, slowly pull the joystick back until the desired speed is reached.
   - To lower the platform, push the joystick forward.

Brakes
Each rear wheel is equipped with a mechanical spring-applied, hydraulically released parking brake. When the drive control is in neutral, a spring-activated brake actuator presses the park brake shoe (refer to Figure 9.3) against the wheel to prevent movement.

Swing-Out/Slide-Out Trays
The lower controls and hydraulic components are enclosed in a swing-out tray (refer to Figure 9.4) on the right side of the chassis.

Danger
The aerial platform can tip over if it becomes unstable. Death or serious injury can result from a tip-over accident. Do not open the trays when the platform is raised more than eight feet.

To open the swing-out tray, pull the latch outward and swing the tray open.

The batteries and battery disconnect connector are enclosed in a slide-out tray (refer to Figure 9.5) at the rear of the chassis.

Danger
The aerial platform can tip over if it becomes unstable. Death or serious injury can result from a tip-over accident. Do not open the trays when the platform is raised more than eight feet.

To open a tray, remove the latch pin and carefully slide the tray outward.
Chapter 10 – Stowing and Transporting

To prevent unauthorized use and damage, properly stow the aerial platform at the end of each work day. It must also be properly stowed while transporting.

**Stowing**
The properly stowed position is shown in Figure 10.1.

![Figure 10.1 – Stowed Position](image)

Use the following procedure to properly stow the aerial platform.

1. Fully lower the platform.
2. Push the emergency stop button inward on the lower control panel.
3. Unplug the battery disconnect connector.
4. Securely close the trays.

**Transporting**
The aerial platform may be moved on a transport vehicle. Depending on the particular situation, the aerial platform may be lifted with a forklift, driven, winched, or hoisted onto a vehicle such as a truck or trailer. Lifting with a forklift is the preferred method.

The equipment used to load, unload, and transport the aerial platform must have adequate capacity. Refer to Chapter 2 to determine the approximate weight of the aerial platform.

The user assumes all responsibility for:

- Choosing the proper method of transportation.
- Choosing the proper selection and use of transportation and tie-down devices.
- Making sure the equipment used is capable of supporting the weight of the aerial platform.
- Making sure that all manufacturer’s instructions and warnings, regulations and safety rules of their employer, the DOT and/or any other state or federal law are followed.

**Lifting With a Forklift**
Use the following procedure to lift the aerial platform with a forklift.

1. Properly stow the aerial platform.
2. Remove all personnel, tools, materials, or other loose objects from the platform.

⚠️ **Caution**
Lifting the aerial platform with the forklift forks positioned improperly can produce enough force to damage machine components. When lifting the machine from the side, place the forklift forks directly under the designated lift points.

3. Place the forklift forks directly under the designated points under the pothole protector skid (refer to Figure 10.2).

![Figure 10.2 – Side of Chassis](image)

4. Do not raise the aerial platform higher than necessary to transport it. Drive the forklift slowly and carefully when transporting the aerial platform.

**Driving**
Use the following procedure to drive the aerial platform onto the transport vehicle.

1. Locate the transport vehicle so it is in a straight line with the loading ramp.
2. Chock the vehicle wheels so it cannot roll away from the ramp while the machine is loaded.
3. Remove any unnecessary tools, materials, or other loose objects from the platform.
4. Drive the machine to the foot of the loading ramp with the front wheels nearest the ramp.

5. Verify that the machine wheels, loading ramps, and transport vehicle are aligned.

⚠Danger
The aerial platform can tip over if it becomes unstable. Death or serious injury will result from a tip-over accident. Fully stow the platform before driving up or down a grade.

6. Make sure the platform is fully lowered.

7. Drive the aerial platform onto the transport vehicle in a straight line through the grade transitions with minimal turning.

Winching
Use the following procedure to winch the aerial platform onto the transport vehicle.

1. Locate the transport vehicle so the aerial platform will not roll forward after it is loaded.

2. Remove any unnecessary tools, materials, or other loose objects from the platform.

3. Drive the machine to the foot of the loading ramp with the front wheels nearest the ramp. Make sure the machine is centered with the ramps and that the steering wheels are straight.

4. Make sure the platform is fully lowered.

⚠Warning
The aerial platform is free to move when the brakes are released. Death or serious injury can result. Re-enable the brakes before operating the aerial platform.

5. Chock the wheels to prevent uncontrolled motion of the aerial platform.

6. Open the door on the right side of the machine.

7. Using a 15/16" open end wrench, loosen the compression nut (refer to Figure 10.3) so the spring is loose and the brake pads are not touching the tires.

8. Attach the winch to the tie-down lugs (refer to Figure 10.4) on the front of the chassis.

9. Remove the wheel chocks and use the winch to position the aerial platform on the transport vehicle.

⚠Warning
The aerial platform is free to move when the brakes are released. Death or serious injury can result. Re-enable the brakes before operating the aerial platform.

10. After moving the aerial platform, tighten the compression nut until the spring measures 8 ¾" to 9" (22.2 cm to 22.9 cm) in length from washer to washer (refer to Figure 10.3).

11. After unloading the aerial platform from the transport vehicle, verify that the drive system and brakes operate properly before operating the aerial platform.

Hoisting
Use a four point sling arrangement attached to the lifting lugs when hoisting the aerial platform. Machine damage can occur if the sling is attached to the chassis, mast, or platform.
The potential for an accident increases when the aerial platform is lifted using improper equipment and/or lifting techniques. Death or serious injury will result from such accidents. Use proper equipment and lifting techniques when lifting the aerial platform.

Know the weight of the aerial platform and the capacity of the lifting devices before hoisting.

- Lifting devices include the hoist or crane, chains, straps, cables, hooks, sheaves, shackles, slings, and other hardware used to support the machine.

- The empty vehicle weight is stamped on the serial number placard and is listed in Chapter 2.

The user assumes all responsibility for:

- Making sure the equipment used is capable of supporting the weight of the aerial platform.

- Making sure all manufacturer’s instructions and warnings, regulations and safety rules of their employer and/or any state or federal law are followed.

Use the following procedure to hoist the aerial platform onto the transport vehicle.

1. Properly stow the aerial platform.

2. Inspect the front lifting lugs (refer to Figure 10.4) and the rear lifting lugs (refer to Figure 10.5) to make sure they are free of cracks and are in good condition. Have any damage repaired by a qualified service technician before attempting to hoist the machine.

3. Remove all personnel, tools, materials, or other loose objects from the platform.

4. Connect the chains or straps to the lifting lugs using bolted shackles. Hooks that fit properly in the lugs and that have latching mechanisms to prevent them from falling out under a slack line condition may also be used.

Do not run the sling cable through the lifting lugs.

- Cable damage and/or failure can result from the cable contacting the sharp corners of the lug.

- There is no effective way of putting a corner protector in the hole of the lifting lug.

5. Use spreader bars of sufficient length to keep the chains, straps, or cables from contacting the chassis, mast, or platform.

- When using cables, use rigid corner protectors at any point where the cable contacts sharp corners to prevent damaging the cable.

- Careful rigging of the spreaders is required to prevent machine damage.

6. Adjust the length of each chain or strap so the aerial platform remains level when raised off the ground.

7. Use the hoist or crane to carefully raise and position the aerial platform onto the transport vehicle.

Securing for Transport

Use the following procedure to secure the aerial platform on the transport vehicle.

1. Chock the wheels.

2. Remove all personnel, tools, materials, or other loose objects from the platform.

3. Properly stow the aerial platform.

4. Place wood blocks under the front ends of the pothole protection skids to limit excessive loading on the front drive wheel bearings.

5. Place the lower controls emergency stop switch in the off position.

6. Unplug the battery disconnect connector.

Caution

Ratchets, winches, and come-alongs can produce enough force to damage machine components. Do not over tighten the straps or chains when securing the aerial platform to the transport vehicle.

7. Use chains or straps to securely fasten the aerial platform to the transport vehicle using the front and rear tie-down lugs as attachment points. Proper tie-down and hauling is the responsibility of the carrier.
If the main hydraulic system fails:

- The aerial platform may be lowered using the emergency lowering knob.
- The machine may be towed if the drive system fails.
- Refer to Emergency Lowering, or Towing for the appropriate procedure.

### Emergency Lowering

Use the following procedure to lower the platform.

#### Warning

The potential for an accident increases when safety devices do not function properly. Death or serious injury can result from such accidents. Immediately push the emergency stop button inward to disable the control system before using the emergency lowering system in the event of an emergency.

1. Immediately push the emergency stop button inward to disable the control system in the event of an emergency.

2. Locate the emergency lowering knob at the front of the aerial platform (refer to Figure 11.1).

3. Make sure there is nothing in the way to obstruct the platform when it lowers.

#### Danger

Pinch points exist on the aerial platform. Death or serious injury will result from becoming trapped between the platform and the chassis. Make sure all personnel stand clear while lowering the platform with the emergency lowering knob.

4. Pull the knob outward to lower the platform. Release the knob to stop.

5. Make certain the knob is fully released and the emergency lowering valve is fully closed before operating the aerial platform.

### Towing

The aerial platform may be pushed or pulled after disengaging the brakes. Use the following procedure to manually disengage the brakes.

#### Warning

The aerial platform is free to move when the brakes are released. Death or serious injury can result. Re-enable the brakes before operating the aerial platform.

1. Chock the wheels to prevent uncontrolled motion of the aerial platform.

2. Open the door on the right side of the machine.

3. Using a 15/16" open end wrench, loosen the compression nut (refer to Figure 11.2) so the spring is loose and the brake pads are not touching the tires.

4. Do not exceed 1' per second (0.3 m/sec) when towing.

5. After moving the aerial platform, tighten the compression nut until the spring measures 8 ¾" to 9" (22.2 cm to 22.9 cm) in length from washer to washer (refer to Figure 11.2).
The troubleshooting chart may be used to locate and eliminate situations where machine operation may be interrupted. If the problem cannot be corrected with the action listed, stow the machine and remove it from service. Repairs must be made by qualified maintenance personnel.

**Troubleshooting Chart**

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Possible Cause</th>
<th>Corrective Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>All functions stop working.</td>
<td>Motor or pump failure.</td>
<td>Manually stow the machine.</td>
</tr>
<tr>
<td></td>
<td>Low fluid level in reservoir.</td>
<td>Check fluid level. Add correct type of fluid if necessary.</td>
</tr>
<tr>
<td></td>
<td>Low battery charge.</td>
<td>Make sure the batteries and charger are working properly. Fully charge the batteries.</td>
</tr>
<tr>
<td></td>
<td>Battery disconnect is unplugged.</td>
<td>Make sure the battery disconnect is fully plugged in.</td>
</tr>
<tr>
<td></td>
<td>Electrical system malfunction.</td>
<td>Stow the machine and do not operate until repairs are made.</td>
</tr>
<tr>
<td>Platform will not raise or lower from lower controls.</td>
<td>Control selector switch in the upper control position.</td>
<td>Place switch in the lower control position.</td>
</tr>
<tr>
<td></td>
<td>Battery disconnect is unplugged.</td>
<td>Plug in the battery disconnect cable.</td>
</tr>
<tr>
<td></td>
<td>Emergency stop button is pushed inward to the off position.</td>
<td>Twist the button clockwise to restore power.</td>
</tr>
<tr>
<td></td>
<td>Emergency lowering knob is not properly disengaged.</td>
<td>Make sure the knob returns to the normal operating position.</td>
</tr>
<tr>
<td>Upper controls will not work.</td>
<td>Control selector switch is in the lower control position.</td>
<td>Place switch in the upper control position.</td>
</tr>
<tr>
<td></td>
<td>Battery disconnect is unplugged.</td>
<td>Plug in the battery disconnect cable.</td>
</tr>
<tr>
<td></td>
<td>Emergency stop button is pushed inward to the off position.</td>
<td>Twist the button clockwise to restore power.</td>
</tr>
<tr>
<td>Platform will not raise or lower from upper controls.</td>
<td>Drive/lift selector is in the drive position.</td>
<td>Place switch in the lift position.</td>
</tr>
<tr>
<td></td>
<td>Emergency lowering lever not properly disengaged.</td>
<td>Ensure lever returns to normal operating position.</td>
</tr>
</tbody>
</table>

*Continued on next page...*
<table>
<thead>
<tr>
<th>Symptom</th>
<th>Possible Cause</th>
<th>Corrective Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Platform will not raise, or raises slower than normal.</td>
<td>Emergency lowering knob not properly disengaged.</td>
<td>Make sure the knob returns to the normal operating position.</td>
</tr>
<tr>
<td>Platform capacity has been exceeded.</td>
<td></td>
<td>Remove items from platform to observe the rated work load of 500 lb (227 kg).</td>
</tr>
<tr>
<td>Low battery charge.</td>
<td></td>
<td>Check the battery charge indicator and recharge the batteries if necessary.</td>
</tr>
<tr>
<td>Platform drifts down.</td>
<td>Emergency lowering knob not properly disengaged.</td>
<td>Make sure the knob returns to the normal operating position.</td>
</tr>
<tr>
<td>Hydrolic system malfunction.</td>
<td></td>
<td>Stow the machine and do not operate until repairs are made.</td>
</tr>
<tr>
<td>Drive functions don’t work.</td>
<td>Drive/lift selector is in the lift position.</td>
<td>Place the switch in the drive position.</td>
</tr>
<tr>
<td>Machine is not on a level surface or too steep a grade.</td>
<td>Lower the platform and drive to a level surface.</td>
<td></td>
</tr>
<tr>
<td>Load capacity exceeded.</td>
<td>Remove load from platform. Refer to platform capacity placard for maximum capacity.</td>
<td></td>
</tr>
<tr>
<td>Low hydraulic system pressure.</td>
<td></td>
<td>Stow the machine and do not operate until repairs are made.</td>
</tr>
<tr>
<td>Only slow drive speed works.</td>
<td>Platform elevated above 3’ (0.9 m).</td>
<td>Lower platform to drive machine at faster speed.</td>
</tr>
<tr>
<td>Machine will not steer.</td>
<td>Joystick interlock switch not engaged.</td>
<td>Engage the interlock switch before operating the steer switch.</td>
</tr>
<tr>
<td>Wheels won’t turn when winching or pushing.</td>
<td>Brakes are engaged.</td>
<td>Manually release the brake pads by removing the spring compression nut (refer to Figure 10.2) so the spring is loose and the brake pads are not touching the tires.</td>
</tr>
<tr>
<td>Brakes don’t work.</td>
<td>Brake are not fully engaged.</td>
<td>Replace the spring compression nut and/or tighten it until the spring measures 8 ¾” to 9” (22.2 cm to 22.9 cm) in length (refer to Figure 11.2).</td>
</tr>
<tr>
<td>Tilt alarm does not work.</td>
<td>Platform is not raised more than 3’ (0.9 m).</td>
<td>Normal operation. The tilt alarm is not active until the platform is raised more than 3’ (0.9 m).</td>
</tr>
<tr>
<td>Battery charge indicators do not indicate a reading when charging the batteries.</td>
<td>No source of power.</td>
<td>Make sure power source is plugged in and turned on.</td>
</tr>
<tr>
<td>Charged power fuse is blown.</td>
<td></td>
<td>Stow the machine and do not operate until repairs are made.</td>
</tr>
</tbody>
</table>
## Chapter 12 – Troubleshooting

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Possible Cause</th>
<th>Corrective Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydraulic fluid temperature of 160°F (71°C) or more.</td>
<td>Prolonged driving or platform operation.</td>
<td>Stop operation until fluid cools.</td>
</tr>
<tr>
<td></td>
<td>High pressure fluid return to reservoir caused by kinked or twisted hose.</td>
<td>Remove the kink or twist from the hose. Let fluid cool before resuming operation.</td>
</tr>
<tr>
<td></td>
<td>Hydraulic system component failure.</td>
<td>Stow the machine and do not operate until repairs are made.</td>
</tr>
<tr>
<td>Severe hydraulic leak.</td>
<td>Failure of hose, tube, fitting, seal, etc.</td>
<td>Stow the machine and do not operate until repairs are made.</td>
</tr>
</tbody>
</table>

When a fault code is displayed on the upper control panel, the chart below may be used to locate and eliminate situations where machine operation may be interrupted. If the problem cannot be corrected with the action listed, stow the machine and remove it from service. Repairs must be made by qualified maintenance personnel.

<table>
<thead>
<tr>
<th>Fault Code</th>
<th>Possible Cause</th>
<th>Corrective Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>01 - 39</td>
<td>Upper or lower control function depressed during machine start up.</td>
<td>From the upper controls make sure:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• no selector buttons are depressed.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• the interlock switch is not depressed.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• the joystick is in neutral.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• the steer switch is not depressed.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>From the lower or upper controls:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• cycle machine power off then on by pressing the emergency stop button and then twisting the button clockwise to restore power.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Faulty lower or upper control panel or machine error.</td>
</tr>
<tr>
<td>54 - 68</td>
<td>Machine error.</td>
<td>Stow the machine and do not operate until repairs are made.</td>
</tr>
</tbody>
</table>
aerial platform – a mobile device that has an adjustable position platform, supported from ground level by a structure.

ambient temperature – the air temperature of the immediate environment.

authorized personnel – personnel approved as assigned to perform specific duties at a specific location.

base – the relevant contact points of the aerial platform that form the stability support (e.g. wheels, casters, outriggers, stabilizers).

battery tray – a slide-out compartment that holds the batteries and the battery disconnect.

center of gravity – the point in the aerial platform around which its weight is evenly balanced.

chassis – the integral part of the aerial platform that provides mobility and support for the scissors structure.

fall restraint – a system that is used while working on a boom lift within the boundaries of platform guardrails to provide restraint from being projected upward from the platform. This system includes a harness or belt, lanyard, and a lanyard anchor. Although federal regulations, OSHA, ANSI, and Snorkel do not require the use of additional fall protection beyond the platform guardrails on scissor lift aerial platforms, local, state, or employer rules may require their use.

gradeability – the maximum slope that the aerial platform is capable of travel.

guardrail system – a vertical barrier around the platform to prevent personnel from falling.

hazardous location – any location that contains, or has the potential to contain, an explosive or flammable atmosphere as defined by ANSI/NFPA 505.

hydraulic tray – a swing-out compartment that holds the electrical panel for the lower controls and the hydraulic fluid reservoir.

level sensor – a device that detects a preset degree of variation from perfect level. The level sensor is used to prohibit certain aerial platform functions if operating on a slope greater than the preset value.

lower controls – the controls located at ground level for operating some or all of the functions of the aerial platform.

manufacturer – a person or entity who makes, builds, or produces an aerial platform.

mast – the assembly located between the chassis and the platform which is used to raise and lower the platform.

maximum travel height – the maximum platform height or the most adverse configuration(s) with respect to stability in which travel is permitted by the manufacturer.

maximum wheel load – the load or weight that can be transmitted through a single wheel to the floor or ground.

Minimum Safe Approach Distance (M.S.A.D.) – the minimum safe distance that electrical conductors may be approached when using the aerial platform. Also called M.S.A.D.

operation – the performance of any aerial platform functions within the scope of its specifications and in accordance with the manufacturer’s instructions, the users work rules, and all applicable governmental regulations.

operator – a qualified person who controls the movement of an aerial platform.

personal fall arrest system – a fall protection system that is used while working on an unprotected edge (such as a roof top with no guardrail). This system includes a harness, lanyard or other connecting device, a fall arrester, an energy absorber or decelerator, an anchorage connector, and a secure anchorage such as a building beam, girders or columns. An aerial platform is not a fall arrest anchorage.

platform – the portion of an aerial platform intended to be occupied by personnel with their tools and materials.

platform height – the vertical distance measured from the floor of the platform to the surface upon which the chassis is being supported.

pothole protection system – a mechanical tip-over prevention system consisting of skids along the bottom of both sides of the chassis which lower as the platform is raised.

prestart inspection – a required safety inspection routine that is performed daily before operating the aerial platform.

qualified person – a person, who by reason of knowledge, experience, or training is familiar with the operation to be performed and the hazards involved.

rated work load – the designed carrying capacity of the aerial platform as specified by the manufacturer.

stow – to place a component, such as the platform, in its rest position.

turning radius – the radius of the circle created by the wheel during a 360° turn with the steering wheels turned to maximum. Inside turning radius is the wheel closest to the center and outside turning radius is the wheel farthest from the center.

unrestricted rated work load – the maximum designed carrying capacity of the aerial platform allowed by the manufacturer in all operating configurations.

upper controls – the controls located on or beside the platform used for operating some or all of the functions of the aerial platform.

wheelbase – the distance from the center of the rear wheel to the center of the front wheel.

working envelope – the area defined by the vertical limits of travel that the platform may be positioned in.

working height – platform height plus six feet.
LIMITED WARRANTY

Snorkel warrants each new machine manufactured and sold by it to be free from defects in material and workmanship for a period of one (1) year from date of delivery to a Customer or for one year after the machine has been placed in first service in a Dealer rental fleet, whichever comes first. Any part or parts which, upon examination by the Snorkel Service Department, are found to be defective, will be replaced or repaired, at the sole discretion of Snorkel, through its local Authorized Dealer at no charge.

Snorkel further warrants the structural components; specifically, the mainframe chassis, turntable, booms and scissor arms, of each new machine manufactured by it to be free from defects in material and workmanship for an additional period of four (4) years. Any such part or parts which, upon examination by the Snorkel Service Department, are found to be defective will be replaced or repaired by Snorkel through its local Authorized Dealer at no charge; however, any labor charges incurred as a result of such replacement or repair will be the responsibility of the Customer or Dealer.

The Snorkel Service Department must be notified within forty-eight (48) hours of any possible warranty situation during the applicable warranty period. Personnel performing warranty repair or replacement must obtain specific approval by Snorkel Service Department prior to performing any warranty repair or replacement.

Customer and Dealer shall not be entitled to the benefits of this warranty and Snorkel shall have no obligations hereunder unless the “Pre-Delivery and Inspection Report” has been properly completed and returned to the Snorkel Service Department within ten (10) days after delivery of the Snorkel product to Customer or Dealer’s rental fleet. Snorkel must be notified, in writing, within ten (10) days, of any machine sold to a Customer from a Dealer’s rental fleet during the warranty period.

At the direction of the Snorkel Service Department, any component part(s) of Snorkel products to be replaced or repaired under this warranty program must be returned freight prepaid to the Snorkel Service Department for inspection. All warranty replacement parts will be shipped freight prepaid (standard ground) from the Snorkel Service Department or from Snorkel’s Vendor to Dealer or Customer.

REPLACEMENT PARTS WARRANTY

Any replacement or service part made or sold by Snorkel is not subject to the preceding Limited Warranty beyond the normal warranty period of the machine upon which the part was installed.

THIS WARRANTY EXCLUDES AND SNORKEL DOES NOT WARRANT:

1. Engines, motors, tires and batteries which are manufactured by suppliers to Snorkel, who furnish their own warranty. Snorkel will, however, to the extent permitted, pass through any such warranty protection to the Customer or Dealer.

2. Any Snorkel product which has been modified or altered outside Snorkel’s factory without Snorkel’s written approval, if such modification or alteration, in the sole judgment of Snorkel’s Engineering and/or Service Departments, adversely affects the stability, reliability or service life of the Snorkel product or any component thereof.

3. Any Snorkel product which has been subject to misuse, improper maintenance or accident. “Misuse” includes but is not limited to operation beyond the factory-rated load capacity and speeds. “Improper maintenance” includes but is not limited to failure to follow the recommendations contained in the Snorkel Operation, Maintenance, Repair Parts Manuals. Snorkel is not responsible for normal maintenance, service adjustments and replacements, including but not limited to hydraulic fluid, filters and lubrication.

4. Normal wear of any Snorkel component part(s). Normal wear of component parts may vary with the type application or type of environment in which the machine may be used; such as, but not limited to sandblasting applications.

5. Any Snorkel product that has come in direct contact with any chemical or abrasive material.

6. Incidental or consequential expenses, losses, or damages related to any part or equipment failure, including but not limited to freight cost to transport the machine to a repair facility, downtime of the machine, lost time for workers, lost orders, lost rental revenue, lost profits or increased cost.

This warranty is expressly in lieu of all other warranties, representations or liabilities of Snorkel, either expressed or implied, unless otherwise amended in writing by Snorkel's President, Vice President-Engineering, Vice President-Sales or Vice President-Marketing.

SNORKEL MAKES NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION OF THIS LIMITED WARRANTY. SNORKEL MAKES NO IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE AND DISCLAIMS ALL LIABILITY FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES, INCLUDING BUT NOT LIMITED TO INJURY TO PERSONS OR PROPERTY.

The Customer shall make all warranty claims through its local Authorized Dealer and should contact the Dealer from whom the Snorkel product was purchased for warranty service. Or, if unable to contact the Dealer, contact the Snorkel Service Department for further assistance.

Effective July 1995