HY-BRID LIFTS™
BY CUSTOM EQUIPMENT LLC

OPERATION & SAFETY MANUAL

SERIAL NO. _____

ZT-1230
ZT-1630

ZERO-TURN SERIES

MOBILE ELEVATING WORK PLATFORMS

ANSI A92.20
CSA B354.6:17

ZT5.0-S | REV B

To view machine specific information on your mobile device, scan the code to the left.

Decals with this code can also be found on the manual box and base of the machine.

This manual refers to serial number(s):

ZT-1230 ZT12-50001 -
ZT-1630 ZT16-50001 -

For older Serial Numbers refer to our website:
www.hybridlifts.com/Manuals.htm

General Information

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+1-262-644-1320
www.hybridlifts.com

Service Information

+1-262-297-5195
webservice@hybridlifts.com

Parts Information

+1-262-297-5196
webparts@hybridlifts.com

Register your Hy-Brid Lift at:
www.hybridlifts.com/RegisterOnline.htm

Register your Hy-Brid Lift to:

- Recieve product updates and recalls
- Recieve service bulletins, product and part recalls, and other important notifications
- Comply with ANSI A92.20 Standards
- Provide better records for service

WARNING

REGISTERING YOUR MEWP WITH THE MANUFACTURER IS AN ANSI A92.20 REQUIREMENT.

Original instructions are written in English

The purpose of this Operations and Safety manual is to provide users with the instructions and operating procedures essential to properly and safely operate the Hy-Brid Lift for its intended purpose, and to position personnel and their necessary tools and materials.

- The user/operator should not accept operating responsibility until the manual has been read and understood as well as having operated the lift under supervision of an experienced and qualified operator.
- Because the manufacturer has no direct control over machine application and operation, proper safety practices are the responsibility of the user and all operating personnel.

⚠ DANGER

THE OPERATION AND SAFETY MANUAL MUST BE READ AND UNDERSTOOD PRIOR TO OPERATING THE MACHINE.

⚠ WARNING

ANY MODIFICATION ON THIS MACHINE WITHOUT THE EXPRESS WRITTEN CONSENT OF THE MANUFACTURER IS PROHIBITED.

FALL PROTECTION NOTICE

The guardrail system around the perimeter of the platform is the fall protection system for self-propelled Mobile Elevating Work Platforms (MEWP) per the ANSI A92.20/CSA B354.6:17 Standards. It is prohibited to use an MEWP manufactured by Custom Equipment, LLC, with any portion—or all—of the guardrails removed. Lanyard anchorage points on this type of equipment are not required to conform to the applicable standard. However, if anchorage points for lanyard attachments are required by site authorities or other regulations, the anchorage points on all equipment manufactured by Custom Equipment, LLC are designed to be used for work positioning restraints of personnel only. Lanyard lengths are to be determined by operator/owner to restrict the operator to the confines within the guardrail system.

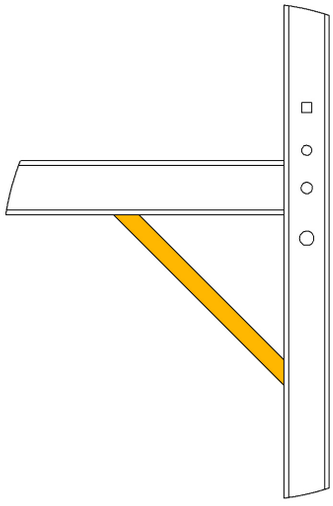

FIGURE 1: Lanyard Attachment

⚠ WARNING

USE OF FALL ARREST SYSTEMS ATTACHED TO ANCHORAGE POINTS ON EQUIPMENT MAY CAUSE MACHINE TO TIP, RESULTING IN SERIOUS INJURY OR DEATH.

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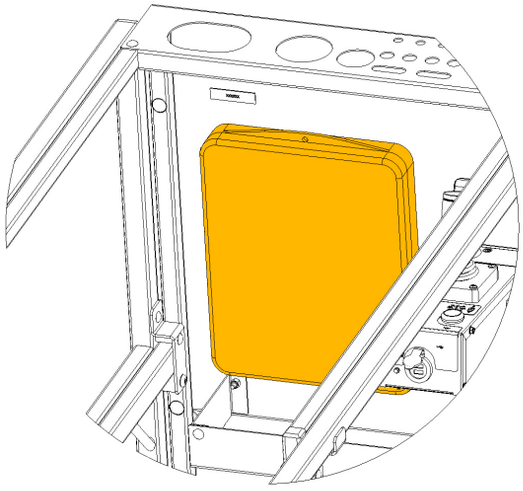
REV A.....October 2019
REV B.....October 2020



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1.4 | OPERATING CHARACTERISTICS

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2.1 | SAFETY SYMBOLS

DANGER

FAILURE TO FOLLOW THIS WARNING WILL CAUSE DEATH OR PERSONAL INJURY.

"DANGER" indicates an imminently hazardous situation, which, if not avoided, will result in death or serious injury.

WARNING

FAILURE TO FOLLOW THIS WARNING MAY CAUSE DEATH OR PERSONAL INJURY.

"WARNING" indicates a potentially hazardous situation, which, if not avoided, could result in death or serious injury.

CAUTION

FAILURE TO FOLLOW THIS WARNING MAY CAUSE INJURY OR DAMAGE TO EQUIPMENT.

"CAUTION" indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury or damage to equipment.

2.2 | GENERAL RULES AND PRECAUTIONS

An operator of any type of work platform is subject to certain hazards that cannot be protected by mechanical means. It is therefore essential that operators be competent, careful, physically and mentally fit and thoroughly trained in safe operation of this machine.

Although Custom Equipment, LLC conforms to specified ANSI, OSHA and CSA, it is the responsibility of the owner to instruct operators with the safety requirements made not only by Custom Equipment, LLC, but by the various safety boards in your area, as well as additional requirements set forth by ANSI, OSHA or CSA. If you come across a situation that you think might be unsafe, stop the platform and request further information from qualified sources before proceeding.

WARNING

NEVER REACH BETWEEN SCISSORS LINKS OR PROP UP PLATFORM

CAUTION

STEERING BRACKETS EXTENDING BEYOND THE SIDES OF THE BASE MAY OCCUR IN TIGHT TURNING SITUATIONS

Potential damage to walls, etc., may occur in tight turning situations due to the steering brackets extending beyond the sides of the base.

2.3 | SAFETY FEATURES

Puncture-Proof Wheels

Guardrails
43.3 in (110 cm) height with 6 in (15 cm) toe guards and a 4 in (10 cm) gate toe guard.

Non-Slip Deck

Entrance Gate

Automatic Parking Brake

Free Descent Protection
A holding valve is installed in the manifold block to prevent the platform from descending in case of a ruptured hydraulic hose. The platform is hydraulically locked until hose has been replaced.

Decals
Danger, Caution, and Warning decals are displayed at various locations on this unit.

Key Switch Security
To prevent unauthorized use, a key switch is required for operation.

2.4 | SAFETY INDICATORS & INTERLOCKS

Tilt Alarm
An audible alarm sounds when the machine is tilted more than 2° longitudinally or 1.5° laterally. Elevating and driving functions are inhibited. Lower the platform and move to a level surface.

Descent/Motion Alarm
An audible alarm sounds when the machine is lowering. Some models also sound an alarm when the machine is elevating or driving.

Slope Alarm
An audible alarm sounds when the stowed machine is on a ramp. Put the caster lock pins in place before continuing. See the "Operation" section of this manual for more detail on the caster locks.

Overload/Warning Alarm
An LED on both the platform controls and base controls will activate when the load for the platform approaches maximum rating. An audible alarm will sound once the rated load has been exceeded. See the "Operation" section of this manual for more detail.

Pothole Protection
Pothole guards are required to be in place when the lift is in the elevated position. If the guards are blocked or not functioning properly, elevating functions will be inhibited. Lower the machine and do not operate until the problem is repaired or the obstruction is removed.

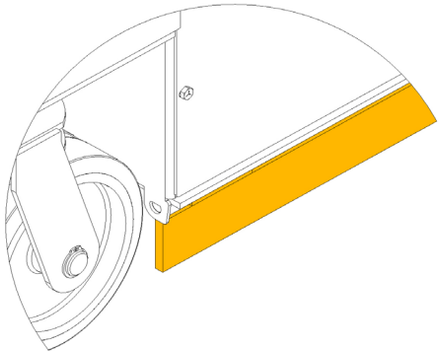

FIGURE 3: Pothole Guard

2.5 | SAFETY CONTROLS

Auxiliary Lowering: Descent - Manual Override

For manually lowering the scissors in the case of power failure, a manual valve on the pump is provided. To lower the scissors, pull the cable located near the rear or the machine.

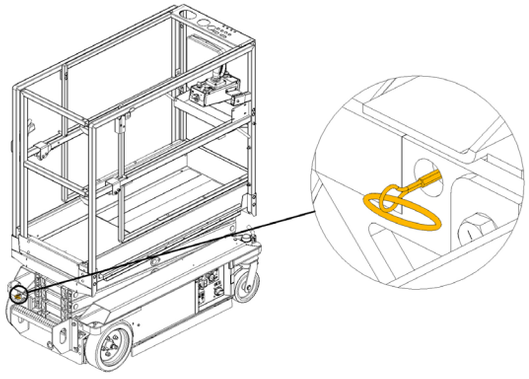

FIGURE 4: Auxiliary Lowering

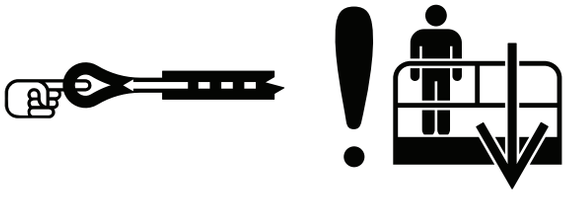

FIGURE 5: Lowering Instructions

⚠ WARNING

IF PLATFORM SHOULD FAIL TO LOWER, DO NOT ATTEMPT TO CLIMB DOWN THE SCISSOR ASSEMBLY. SERIOUS INJURY MAY RESULT. HAVE AN EXPERIENCED OPERATOR USE THE EMERGENCY LOWERING PROCEDURE TO SAFELY LOWER THE PLATFORM.

⚠ WARNING

BEFORE LOWERING PLATFORM, RETRACT THE DECK EXTENSION.

Emergency Stop

This lift is equipped with two emergency stops, one at the platform control and one at the base control, that when activated, will render the unit inoperable until reset. To reset, pull the emergency stop out.

⚠ WARNING

PUSHING THE EMERGENCY STOP WILL APPLY BRAKES IMMEDIATELY. THIS MAY CAUSE UNEXPECTED PLATFORM MOVEMENT AS THE MACHINE COMES TO A SUDDEN STOP. BRACE YOURSELF AND SECURE OBJECTS ON THE PLATFORM DURING OPERATION OF THE MACHINE.

2.6 | MAINTENANCE LOCK

The maintenance locks must be placed into position whenever the machine is being serviced in the raised or partially raised position. Serious injury and/or death could result if the maintenance locks are not used properly.

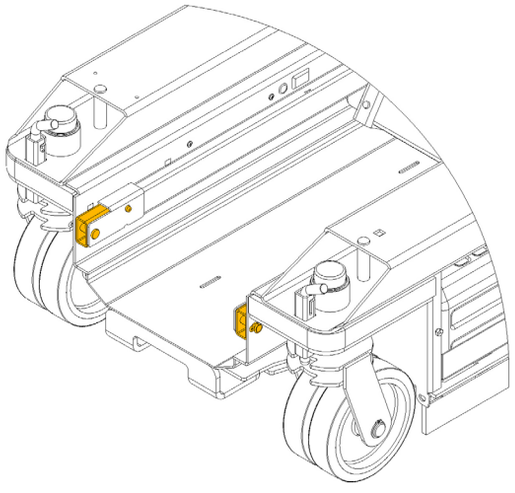

FIGURE 6: Maintenance Lock Storage

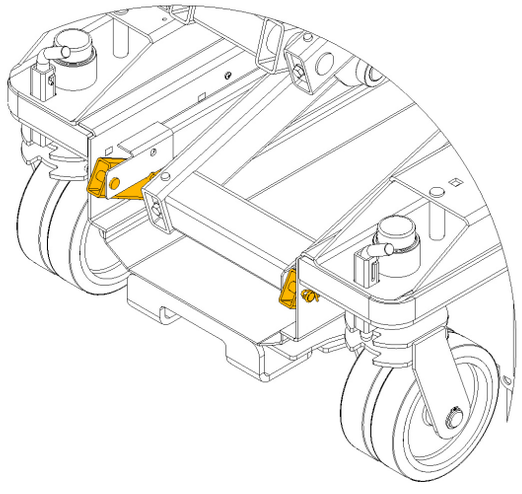

FIGURE 7: Maintenance Lock In Use

2.7 | SAFETY GUIDELINES

Only qualified operators may operate this unit

- All operators must read and understand the Operation and Safety Manual. They must understand all decals and warning labels on unit.
- Do not work on platform if your physical condition is such that you feel dizzy or unsteady in any way.
- Do not neglect/misuse machine. Report any misuse of equipment to proper personnel.
- Prevent unauthorized use; when unit is not in use, remove key.
- It is recommended all personnel on unit wear approved personal protective equipment (PPE), i.e. head gear.

Use machine only for purposes for which it was intended

- Lift should never be used as a crane.
- Do not exceed the load capabilities of the platform.
- Distribute load evenly over platform floor area.
- Never use unit as electrical grounds for arc welding.
- Do not override any hydraulic, mechanical, or electrical safety devices.

Check job site for unsafe working conditions

- Watch out for others. Keep others clear of operating platform. Never allow others to pass under a raised platform or position the platform over someone.
- Avoid contact with fixed objects (walls, buildings, or other machinery, etc) or moving vehicles (automobiles, cranes, etc).
- Follow any applicable national traffic regulations.
- Use indoors only. Lift is not designed for windy conditions or electrical storms.
- Unit must be on hard level surface before elevating. Do not operate on incline or uneven surface.
- You must maintain a clearance between any part of the machine, or its load, and any electrical line or apparatus. Follow local power line clearance regulations.

⚠ DANGER

**DO NOT OPERATE MACHINE NEAR POWER LINES.
THE PLATFORM AND ENCLOSURES ARE NOT
INSULATED.**

Equipment is only as safe as the operator

- Do not use ladders or scaffolding on the platform to obtain greater height.
- Do not enter or exit platform while machine is in motion.
- Never mount or dismount a raised platform.
- Make sure entry gate is secured before operating machine from the platform.
- Never belt or tie off to an adjacent structure.
- Secure tools and materials.
- Personnel must maintain a firm footing on the platform floor and work only within the platform area.
- It is recommended to avoid sudden braking or steering. Go slowly and leave more maneuvering room during cold weather operation.

Before operation, ensure that the machine is properly serviced

- Do not use machine if it is not working properly.
- Make sure platform rails and pins are secured.
- Operator shall use the maintenance lock when performing all types of maintenance procedures.
- Do not smoke while charging the battery.

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3.1 | GENERAL

Custom Equipment's Hy-Brid Lifts are mobile elevating work platforms designed to be safe and reliable. The purpose of the machine is to elevate personnel, along with their necessary tools and materials to overhead work locations.

Manufacturer approval is required for any use other than the intended use.

Before operation, the operator must read and understand the manufacturer's operating instructions and user's safety rules, or have them explained, understand all labels, warnings, and instructions displayed on the work platform or have them explained, ensure that all occupant of the work platform wear appropriate protective equipment for the conditions, including the environment in which the work platform will be operated.

The operator must inspect the workplace for environmental hazards such as, but not limited to drop-offs, holes, slopes, debris, floor or overhead obstructions, surface, wind and weather conditions, or presence of unauthorized persons. Vibration does not create significant hazards on this machine.

	ZT-1230		**ZT-1630**	
	Standard	*Metric*	*Standard*	*Metric*
SPECIFICATIONS				
Working Height (maximum)	17.9 ft	5.5 m	21.3 ft	6.5 m
Platform Height (maximum)	11.9 ft	3.6 m	15.3 ft	4.7 m
Stowed Height	65 in	1.65 m	68 in	1.73 m
Ground Clearance Lowered	3.6 in	9 cm	3.6 in	9 cm
Ground Clearance Elevated	0.5 in	1.3 cm	0.5 in	1.3 cm
Overall Width	30 in	76.2 cm	30 in	76.2 cm
Overall Length	62 in with step	157.5 cm with step	62 in with step	157.5 cm with step
Platform Length & Width	24 in x 53 in	0.61 m x 1.35 m	24 in x 53 in	0.61 m x 1.35 m
Slide-Out Extension Deck Length	28.8 in	73 cm	28.8 in	73 cm
Guard Rail Height	43.3 in	110.0 cm	43.3 in	110.0 cm
Platform Entrance	21 in	0.5 m	24.0 in	0.61 m
Step Height	10.6 in	26.9 cm	10.6 in	26.9 cm
Wheel Base	46.5 in	118.1 cm	46.5 in	118.1 cm
Wheel Track	24.5 in	0.62 m	24.5 in	0.62 m
Inside Turn Radius	Zero	Zero	Zero	Zero
Tire Size (Solid, Non-Marking) - Front / Rear	8 in / 12 in	20.3 cm / 30.5 cm	8 in / 12 in	20.3 cm / 30.5 cm
RATED LOAD				

	ZT-1230		**ZT-1630**	
	Standard	*Metric*	*Standard*	*Metric*
Lift Capacity (Evenly Distributed)	650 lbs 1 Person	295 kg 1 Person	650 lbs 1 Person	295 kg 1 Person
Slide-Out Extension Deck Capacity	250 lbs 1 Person	113 kg 1 person	250 lbs 1 Person	113 kg 1 Person
Horizontal/Manual Force	45 lbs	200 N	45 lbs	200 N

FLOOR LOADING

Machine Weight (Unloaded) (Approx.)	1675 lbs	750 kg	1785 lbs	810 kg
Minimum Wheel Load - Contact Pressure	134.9 psi	930.1 kPa	143.9 psi	990 kPa
Maximum Wheel Load - Contact Pressure	177.5 psi	1223.8 kPa	186.0 psi	1280 kPa
Minimum Machine Loading - Floor Loading Pressure	144.0 PSF	6.3 kPa	153.6 PSF	7.4 kPa
Maximum Machine Loading - Floor Loading Pressure	200.0 PSF	8.4 kPa	210.3 PSF	10.1 kPa

ENVIRONMENTAL LIMITATIONS

Wind	No Wind		No Wind	
Rated Slope	Level Surface		Level Surface	
Tilt Sensor Activated	2° Longitudinal | 1.5° Lateral		2° Longitudinal | 1.5° Lateral	
Grade-ability (Stowed Position)	25% (14°) Unloaded		25% (14°) Unloaded	
Temperature	-4°F to 104°F	-20°C to 40°C	-4°F to 104°F	-20°C to 40°C
Vibration	8.2 ft/s^2 max	2.5 m/s^2 max	8.2 ft/s^2 max	2.5 m/s^2 max
Sound - Normal Use, Alarms	86 dB, 100 dB		86 dB, 100 dB	

POWER SYSTEMS - DRIVE SYSTEM (Proportional Electric)

Drive Speed (Platform Elevated)	0.9 mph (proportional)	0.4 m/s (proportional)	0.9 mph (proportional)	0.4 m/s (proportional)
Drive Speed (Platform Lowered)	2.7 mph (proportional)	1.2 m/s (proportional)	2.7 mph (proportional)	1.2 m/s (proportional)
Lift Speed Lower Speed	18 sec (proportional) 18 sec (proportional)		18 sec (proportional) 18 sec (proportional)	
Hydraulic Pressure (Max)	2500 psi	17.24 MPa	2500 psi	17.24 MPa
Hydraulic Fluid Capacity	1 gal	3.55 L	1 gal	3.55 L
Power System - Voltage	24V DC		24V DC	
Batteries - Deep Cycle Marine	(2) 12V Group 27 AGM		(2) 12V Group 27 AGM	

4.1 | ZT-1230 DECAL LOCATIONS

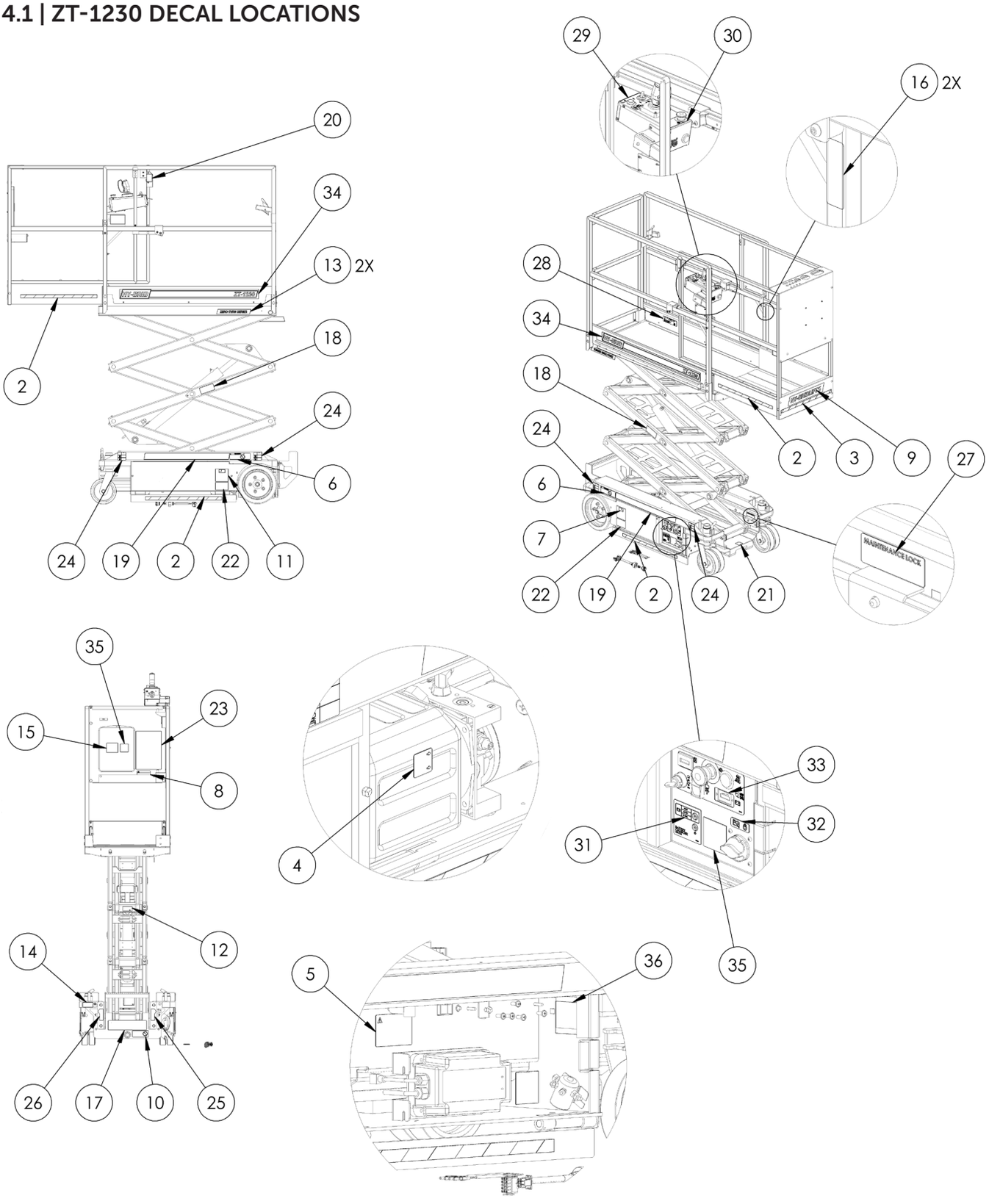


FIGURE 8: ZT-1230 Decal Locations

4.2 | ZT-1230 DECAL DESCRIPTIONS

ITEM NO.	PART NO.	DECAL MEANING OR DESIGNATION	QTY
1	129-21-517-50-K	DECALS,ZT-1230 S5 ANSI	1
2	DE717-61	DECAL,SAFETY STRIPE (24.00)	4
3	DE717-63	DECAL,SAFETY STRIPE (22.25)	1
4	DE1008	DECAL,HYDR FLUID	1
5	DE1022	DECAL,BATT/CHR COMPATABILITY	1
6	DE1024	DECAL,CASTERLOCK	2
7	DE1031	DECAL,MADE IN USA MIRROR	1
8	DE1204	DECAL,CAPACITY,TOOL TRAY	1
9	DE1207	DECAL,HY-BRID LIFTS™	1
10	DE1208	DECAL,BRAKE RELEASE/NO TOW	1
11	DE1221	DECAL,MADE IN USA	1
12	DE1230	DECAL,PROP 65	1
13	DE1233	DECAL,SERIES ZT	2
14	DE1243	DECAL,E-DOWN CABLE	1
15	DE1246	DECAL,MANUAL BOX	1
16	DE1248	DECAL,LANYARD ATTACHMENT	2
17	DE1249	DECAL,ANNUAL INSPECTION	1
18	DE1250	DECAL,SCISSOR CRUSH HAZARD	2
19	DE1252	DECAL,WEBSITE	2
20	DE1259	DECAL,SLIDEOUT	1
21	DE1278	DECAL,TIEDOWN	3
22	DE1282	DECAL,PH CRUSH HAZARD	2
23	DE1291	DECAL,ZT-1630 FRONT PANEL	1
24	DE1301	DECAL,WHEEL LOAD ZT-1230	4
25	DE1303	DECAL,CHARGER CORD	1
26	DE1304	DECAL,PTP	1
27	DE1305	DECAL,MAINT LOCK	2
28	DE1307	DECAL,CAPACITY,650#,1P,I,WO/SO	1
29	DE795.1	DECAL,CTL UPR ZTS5	1
30	DE796.1	DECAL,CTL UPR ID ZT S4	1
31	DE839	DECAL,CHARGER PRO 24V12A	1
32	DE841	DECAL,BATT DISCONNECT	1
33	DE842	DECAL,CTL PANEL	1
34	DE1215	DECAL,MODEL ZT-1230	2
35	DE1317	DECAL,QR ZT SERIES 5	2
36	DE7032	DECAL,SERIAL NO ZT-SERIES	1

4.3 | ZT-1630 DECAL LOCATIONS

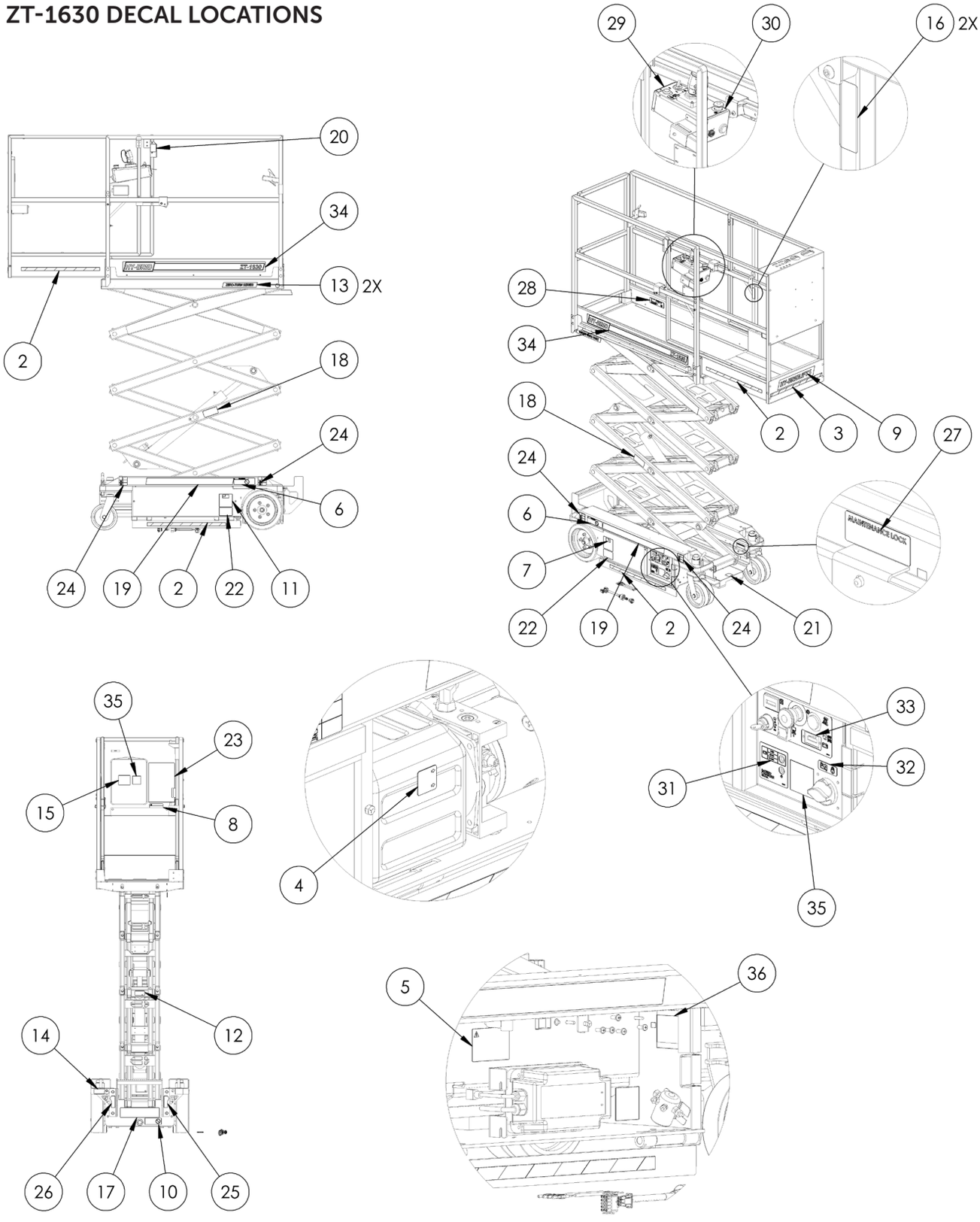


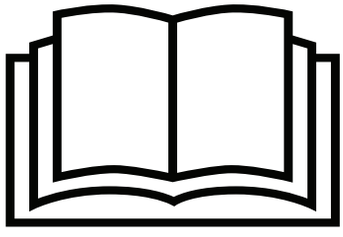
FIGURE 9: ZT-1630 Decal Locations

4.4 | ZT-1630 DECAL DESCRIPTIONS

ITEM NO.	PART NO.	DECAL MEANING OR DESIGNATION	QTY
1	129-21-517-55-K	DECALS,ZT-1630 S5 ANSI	1
2	DE717-61	DECAL,SAFETY STRIPE (24.00)	4
3	DE717-63	DECAL,SAFETY STRIPE (22.25)	1
4	DE1008	DECAL,HYDR FLUID	1
5	DE1022	DECAL,BATT/CHR COMPATABILITY	1
6	DE1024	DECAL,CASTERLOCK	2
7	DE1031	DECAL,MADE IN USA MIRROR	1
8	DE1204	DECAL,CAPACITY,TOOL TRAY	1
9	DE1207	DECAL,HY-BRID LIFTS™	1
10	DE1208	DECAL,BRAKE RELEASE/NO TOW	1
11	DE1221	DECAL,MADE IN USA	1
12	DE1230	DECAL,PROP 65	1
13	DE1233	DECAL,SERIES ZT	2
14	DE1243	DECAL,E-DOWN CABLE	1
15	DE1246	DECAL,MANUAL BOX	1
16	DE1248	DECAL,LANYARD ATTACHMENT	2
17	DE1249	DECAL,ANNUAL INSPECTION	1
18	DE1250	DECAL,SCISSOR CRUSH HAZARD	2
19	DE1252	DECAL,WEBSITE	2
20	DE1259	DECAL,SLIDEOUT	1
21	DE1278	DECAL,TIEDOWN	3
22	DE1282	DECAL,PH CRUSH HAZARD	2
23	DE1291	DECAL,ZT-1630 FRONT PANEL	1
24	DE1301	DECAL,WHEEL LOAD ZT-1630	4
25	DE1303	DECAL,CHARGER CORD	1
26	DE1304	DECAL,PTP	1
27	DE1305	DECAL,MAINT LOCK	2
28	DE1307	DECAL,CAPACITY,650#,1P,I,WO/SO	1
29	DE795.1	DECAL,CTL UPR ZTS5	1
30	DE796.1	DECAL,CTL UPR ID ZT S4	1
31	DE839	DECAL,CHARGER PRO 24V12A	1
32	DE841	DECAL,BATT DISCONNECT	1
33	DE842	DECAL,CTL PANEL	1
34	DE1215	DECAL,MODEL ZT-1630	2
35	DE1317	DECAL,QR ZT SERIES 5	2
36	DE7032	DECAL,SERIAL NO ZT-SERIES	1

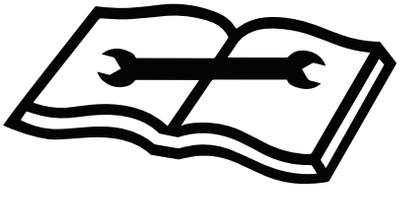
4.5 | DECAL SYMBOLS

- No unauthorized use
- Do not operate this machine unless you have been trained in safe operation.
- Training includes complete knowledge of the safety and operating instructions contained in the manufacturer's manual, your employer's work rules, and applicable government regulations.
- An untrained operator subjects himself and others to death or serious injury.



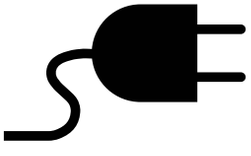
- Read and understand all dangers and warnings in the operator's manual before operating this machine.
- Improper use of this machine could cause death or serious injury.
- Inspect machine and make sure that it is operating properly, that all name plate and hazard signs are in place and legible, and that the machine is in accordance with the manufacturer's maintenance requirements contained in the operating and maintenance requirements contained in the operation and maintenance manual and the daily safety checklist.

- Crushing hazard
- Do not enter the space beneath the work platform or scissor structure unless the maintenance lock is in place.



- Refer to Maintenance Manual
- Only qualified service personnel may service the machine. Failure to comply with listed safety precautions may result in machine damage, personnel injury, or death.
- Replace designated items with manufacturer's specified equipment only. Failure to use these items may cause instability of platform.

- Batteries produce explosive gas. Only charge batteries in a well-ventilated area.
- Do not expose to sparks or flames.
- Do not smoke while charging battery.



- Battery charger cord

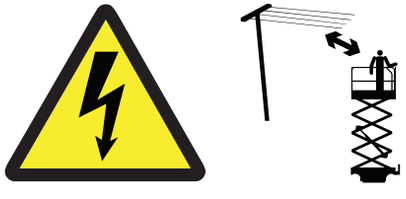
- Tip hazard

- Tip hazard
- Do not elevate platform on an incline or step.

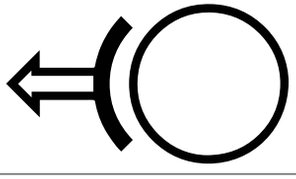
- Tip hazard
- Do not elevate platform on a slope.

- Tip hazard
- Do not elevate platform on uneven or soft surfaces.

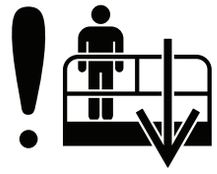
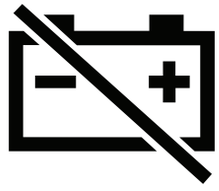
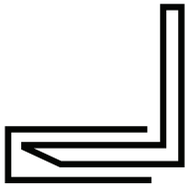
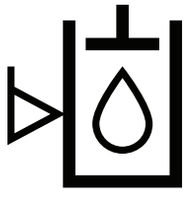
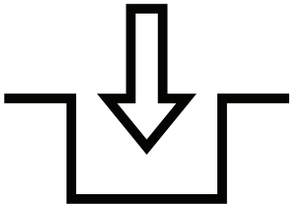
- Indoor use only: No Wind Load



- Electrocution hazard
- This machine is not insulated.
- Maintain safe clearance from electrical lines and apparatus. You must allow for machine sway, rock or sag and electrical lines swaying.
- This machine does not provide protection from contact with or proximity to an electrically charged conductor.
- You must maintain a clearance between any part of this machine or its load and any electrical apparatus. Follow local power line regulations.
- Death or serious injury will result from contact or inadequate clearance.



- Brake release

	• Manual lowering override
	• Battery disconnect
	• Fork pocket
	• Hydraulic oil level
	• Engaging mechanical action: Enable Switch
	• Lanyard anchorage point location: Capacity 1 Person • Lanyard anchorage points are for work positioning restraints only, not for fall protection. • Use of fall arrest systems attached to anchorage points on mobile equipment may cause machine to tip, resulting in serious injury or death.

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5.1 | PRELIMINARY UNPACKING INSTRUCTIONS AND DEALER INSPECTION

Maintenance locks must be engaged prior to inspecting or servicing the unit when the platform is elevated. Inspect machine for any possible damage during shipment; perform pre-delivery inspection. See checklist in the Maintenance Manual. Reset emergency stop switches, if necessary.

5.2 | STORAGE

After periods of storage or exposure to extremes of ambient conditions (heat, cold, moisture, dust etc.) inspect the machine. Refer to the Pre-Delivery/Frequent Inspection Checklist of the Maintenance Manual.

5.3 | PREPARATION FOR TRANSIT

- Lower the work platform to the down position.
- Bring the platform slide-out extension into the retracted position and lock in place.
- Turn the key switch to off position.
- Check the entire machine for loose or unsecured items.
- Remove any loose items from machine.
- To limit caster swivel when loading or unloading, the caster lock pins should be used to lock the casters in the straight position.
- Do not attempt to push or tow unit. Severe gear damage will occur.

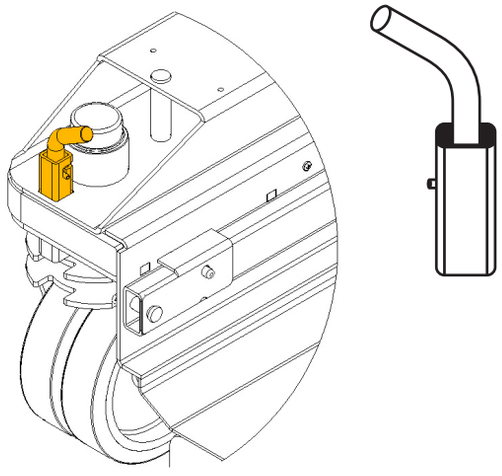

FIGURE 10: Caster Lock Disengaged

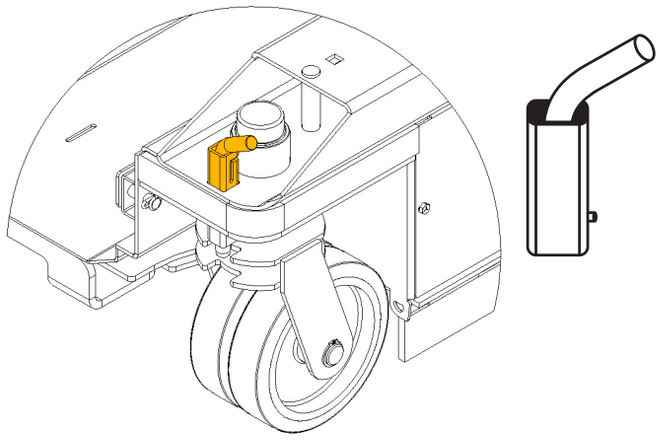

FIGURE 11: Caster Lock engaged

5.4 | LIFTING AND TIE-DOWN POINTS

Tie-down points are provided for securing the machine on a trailer or truck bed for transport between places of use. They may also be used as lift points.

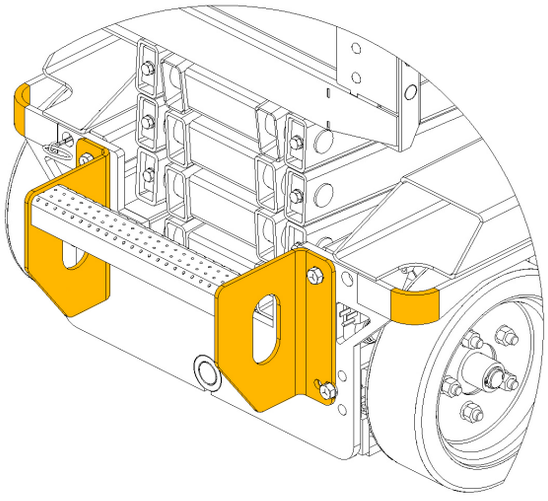

FIGURE 12: Tie-Down Points, Rear

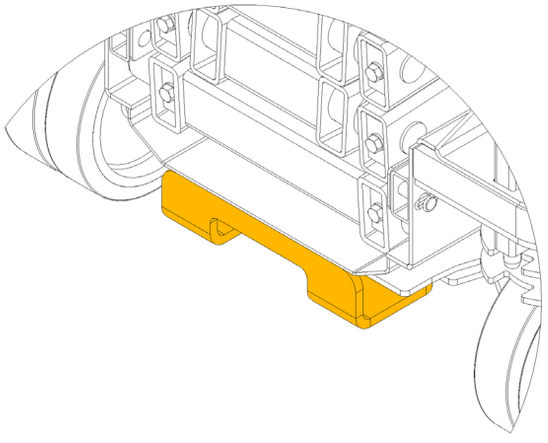

FIGURE 13: Tie-Down Points, Front

⚠ WARNING

DO NOT OVERLOAD BINDERS WHEN SECURING LOAD FOR TRANSPORT

5.5 | FORK LIFT POCKETS

- Fork lift pockets are provided from the rear of the unit for loading and unloading.
- Forklifting from the side of the machine is not recommended.
- Do not use a forklift underneath the machine from the back.
- When moving machine with a forklift, do not let machine slide along floor. Bring forklift to a stop and then gently lower the machine.

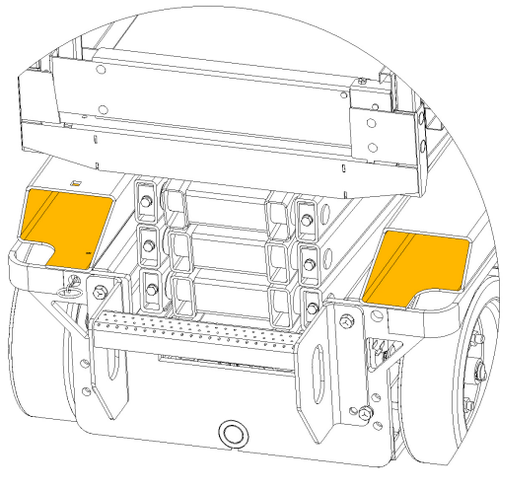

FIGURE 14: Fork Pockets

5.6 | CENTER OF GRAVITY

	X Axis	Y Axis
ZT-1230	26.7 in (67.8 cm)	13.8 in (35.0 cm)
ZT-1630	27.2 in (69.1 cm)	14.5 in (36.8 cm)

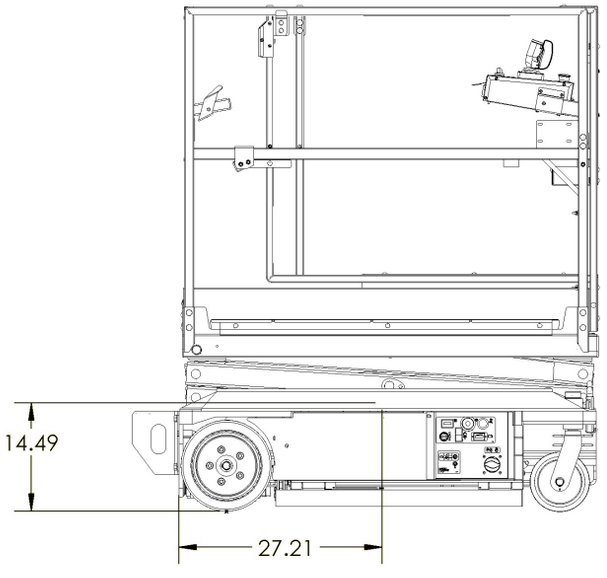

FIGURE 15: Center of Gravity

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6.1 | BEFORE YOU OPERATE

Before use each day or at the beginning of each shift, the machine shall be given a visual inspection and functional test. Repairs (if any) must be made prior to operating the machine, as it is critical to ensure safe operation of the machine. A checklist for pre-start inspection can be found in the "Pre-start Inspection" section of this manual.

Base Controls

Item	Control | Indicator
1	Key Switch (Operation described in section 6.2)
2	Hour Meter (Displays operation hours)
3	Up/Down Rocker Switch (Operation described in section 6.5)
4	Emergency Stop (Operation described in section 2.5)
5	Beeper (Tilt/Descent Alarm)
6	Battery Volt Meter
7	Master Power Switch (Operation described in section 6.2)
8	Battery Charger Indicator
9	Overload Light (Operation described in section 6.5)

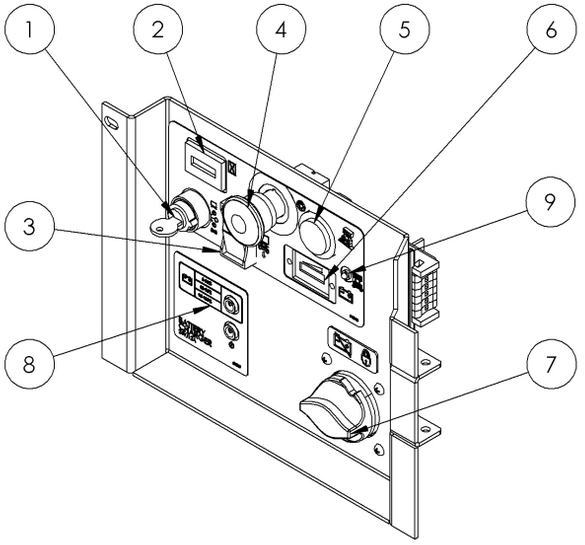


FIGURE 16: Base Controls

Platform Controls

Item	Control | Indicator
1	Emergency Stop (Operation described in section 2.5)
2	Drive Enable Trigger (Operation described in section 6.5)
3	Joystick (Operation described in section 6.4/6.5)
4	Horn
5	USB Power Port
6	Warning Light (Operation described in section 6.5)
7	Lift/Drive Mode Selector Switch (Operation described in section 6.5)

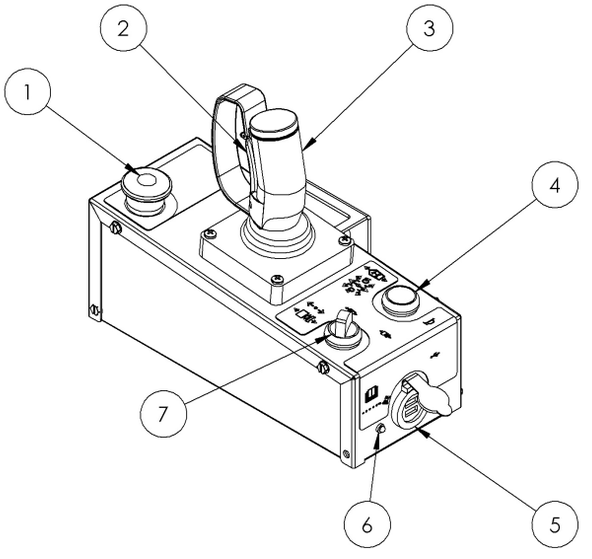


FIGURE 17: Platform Controls

6.2 | STARTUP/SHUTDOWN

⚠ WARNING

THE OPERATOR MUST BE AWARE OF THE ENVIRONMENT. DO NOT RAISE THE PLATFORM IF THE MACHINE IS NOT ON A FIRM, LEVEL SURFACE.

Operation Start-up and Shutdown Practices

- Check that the work area is safe.
- Check that the Operation & Safety manual is inside the weatherproof box.
- Check that the Master Power Switch is in the "ON" position.
- Ensure that the key in the lower control panel is in the "ON" position for the upper or lower controls. The key may be removed when to upper control location is selected to prevent unauthorized operation from the ground.
- Machine must be on a hard, level, surface before operation.
- Enter the work platform in the stowed position using the constant three point contact method.
- Follow all general rules and precautions stated in this manual.
- When finished with the machine, place the platform in the stowed position.
- Park the machine on a level surface.
- Carefully exit the platform using the constant three point contact method.
- NEVER JUMP OFF PLATFORM.
- Remove key from lower control panel to prevent unauthorized use.
- The master power switch knob may be removed when in the isolated position and placed in a secure, padlockable location. (Ex. In the manual box)

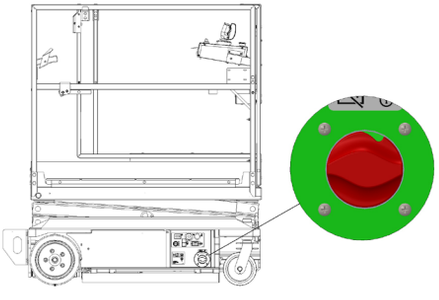


FIGURE 18: Master Power Switch

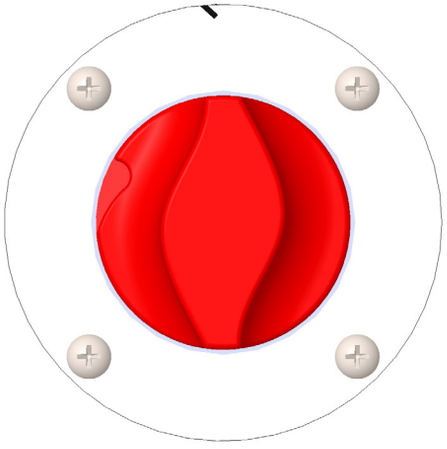


FIGURE 19: Master Power Switch Off

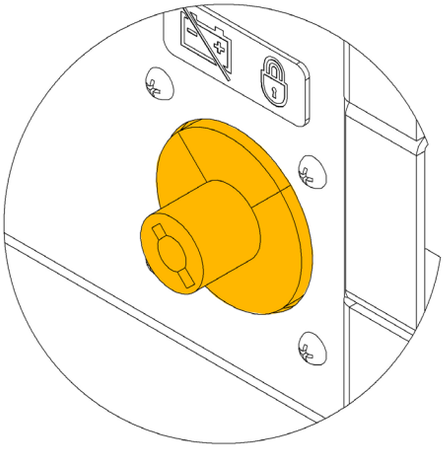


FIGURE 20: Master Power Switch Knob Removed

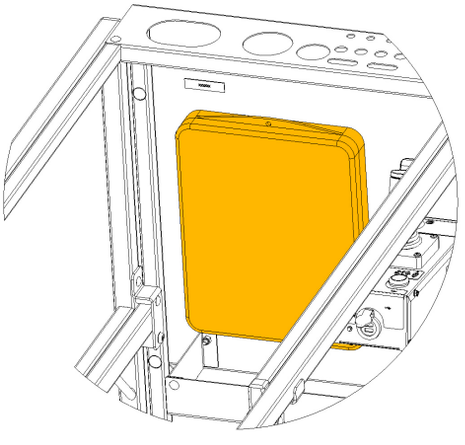
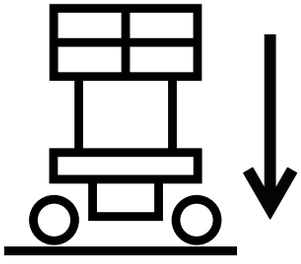
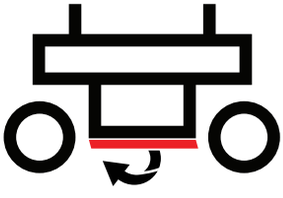
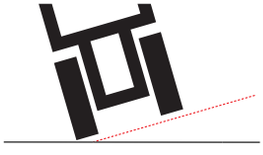
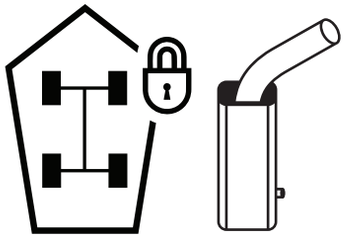


FIGURE 21: Secure Location

6.3 | ERROR ALARMS

The table below lists audible alarms that signal a potential hazard or that an interlock is functioning.

ALARM	ALERT ILLUSTRATION	MEANING
Slow Pulse		Machine is descending. Be aware of bystanders and possible obstructions.
		Machine is overloaded. Lower machine to stowed position. Remove weight from platform until alarm subsides before operating.
Medium Pulse		Machine begins elevating and stops: Pothole guards not engaged-check for obstruction.
		Drive axle not locked. Move to level surface.
Fast 3 and Pause		The machine is being transported on a slope. Engage the caster locks to limit movement.

6.4 | DRIVING AND STEERING

⚠ WARNING

CHECK THAT THE ROUTE OF TRAVEL TO BE TAKEN IS CLEAR OF PEOPLE, OBSTRUCTIONS, DEBRIS, HOLES, AND DROP-OFFS; AND IS CAPABLE OF SUPPORTING THE MACHINE.

Always check front steer wheel direction before driving. If there is resistance in turning the casters while pivoting the machine, steer forward to allow the casters to straighten out before turning.

For best control, distribute the load on the work platform starting from the rear of the machine if possible.

To activate drive function, select drive mode using the switch on the platform control box.

To drive, hold the joystick trigger while moving the joystick. Moving the joystick will cause the machine to drive in that direction. Moving the joystick handle away from the operator will cause FORWARD travel, and pulling the joystick toward the operator will cause REVERSE travel. Moving the joystick directly to one side or the other will cause the machine to pivot. Travel speed is proportional and is controlled by the joystick. The farther it is moved, the faster the speed will be. The joystick returns to the neutral position when released.

BRAKING: For parking, the brake is automatically applied when the joystick is positioned in the center (neutral) position.

6.5 | ELEVATING AND LOWERING

Using Upper Platform Controls
Use the key switch on the base controls to select the platform controls.

To activate elevate/lower function, select elevate mode using the switch on the platform control box.

To elevate/lower, hold the joystick trigger while moving the joystick. Moving the joystick handle away from the operator will cause elevating, and pulling the joystick toward the operator will cause lowering. Speed is proportional and is controlled by the joystick. The farther it is moved, the faster the speed will be. The joystick returns to the neutral position when released.

Using Base Controls
Use the key switch to select the base controls. Pressing the top of the switch raises the platform, pressing the bottom lowers the platform.

6.6 | EXTENDING THE PLATFORM

1. Stand on the platform deck.
2. Grip the slide lock handle and push down, allowing the deck to slide.
3. Slide the deck out to a locking point, fully extended at approximately 30 in (76 cm), at a midway locking point, or fully retracted.
4. Release the handle to keep deck in place. Be sure lock is engaged before entering.

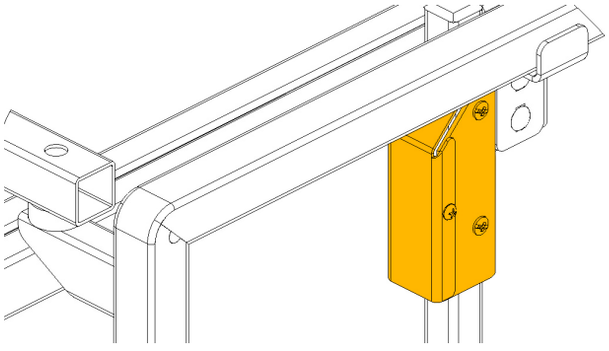


FIGURE 22: Slide Lock Handle

⚠ WARNING

DO NOT DRIVE UNIT WHEN STANDING ON EXTENSION. STAND ON PLATFORM BEHIND JOYSTICK.

⚠ WARNING

IF THE SLIDE-OUT DECK IS EXTENDED, RETRACT THE SLIDE-OUT DECK, OR CHECK FOR CLEARANCE UNDER AREA BEFORE LOWERING PLATFORM.

6.7 | POWER TO PLATFORM

This unit is equipped with power to platform. Power to platform provides the operator with a 110V AC power supply to the platform.

To Use Power to Platform

1. Attach the power to platform plug securly to an external power supply.
2. Plug electronic tools and equipment into the power to platform outlet located under the platform controls.

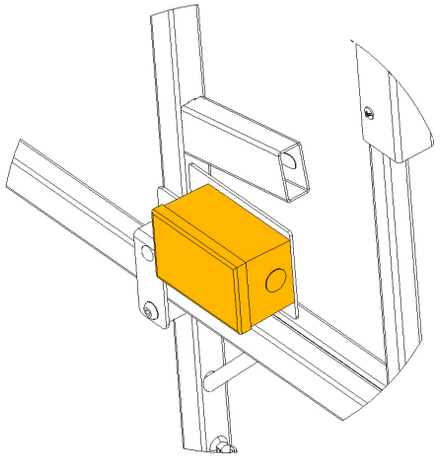


FIGURE 23: Power to platform outlet

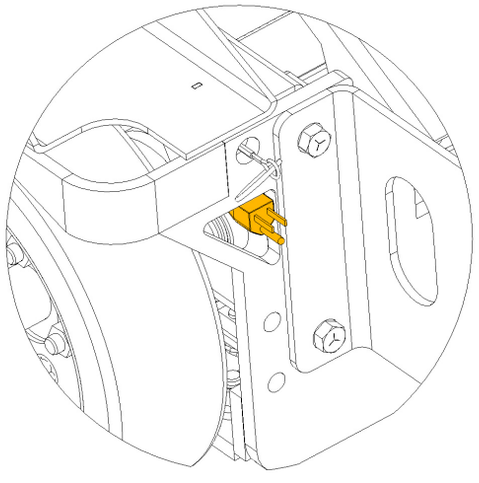


FIGURE 24: Power to platform plug

6.8 | DAILY MAINTENANCE

Regular inspection and conscientious maintenance is important to efficient economical operation of this machine. It will help to assure that equipment will perform satisfactorily with a minimum of service and repair. Make checks at the stated intervals or more frequently if required by local operating conditions. A Pre-Start Inspection Checklist is included in this manual.

Additional maintenance for use by trained personnel is included in a separate Maintenance Manual. Refer to the Maintenance Manual for Pre-Delivery/Frequent and Monthly Checklists and replacement part information.

⚠ CAUTION

FAILURE TO PERFORM INSPECTIONS AND PREVENTATIVE MAINTENANCE AT RECOMMENDED INTERVALS MAY RESULT IN THE UNIT BEING OPERATED WITH DEFECTS THAT MAY RESULT IN INJURY OR DEATH OF THE OPERATOR.

6.9 | CHARGING THE BATTERY

This unit is equipped with 12-volt AGM maintenance-free batteries.

NOTE: The surrounding temperature greatly affects the power reserve within a battery.

EXAMPLE: A battery that is 100% charged at 80° F (27°C) drops to 65% at 32°F (0°C). At 0°F (-18°C), this battery will drop to 40% efficiency.

⚠ WARNING

BATTERIES GENERATE EXPLOSIVE GASES. KEEP SPARKS AND FLAME AWAY FROM BATTERIES. DO NOT SMOKE WHILE CHARGING.

The charger may include an interlock circuit. If so equipped, the unit will not operate while charging. Operating while charging can shorten battery life.

To Charge

- Park the machine on a level surface.
- Plug charger into AC outlet until charged.
- For best battery life, leave the charger plugged in until machine will be used again. The charger will maintain the battery charge.

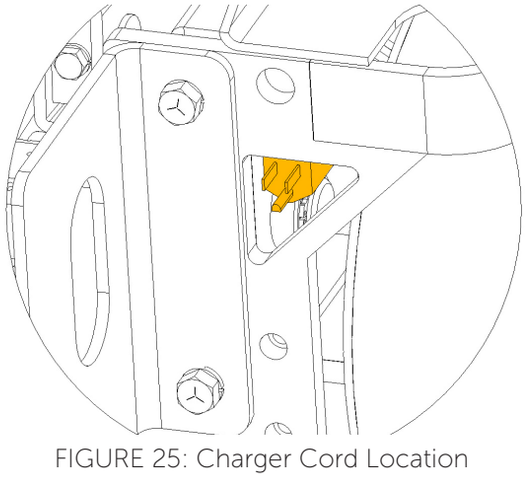


FIGURE 25: Charger Cord Location

6.10 | BATTERY DISPLAYS

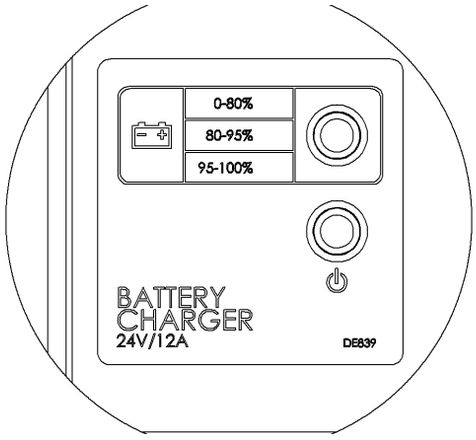


FIGURE 26: Battery Charger LED Display

⚠ CAUTION

OPERATING WHILE CHARGING CAN SHORTEN BATTERY LIFE.

⚠ CAUTION

NEVER ADD ACID TO BATTERY!

Battery Charge Displays: Pro Charging Systems IS2412

Charge Status Light	(OFF)	(FLASHING)	(SOLID)	(SOLID)	(FLASHING)
Power Light	(SOLID)	(SOLID)	(SOLID)	(SOLID)	(FLASHING)
Meaning	**Standby Mode** (Or battery/ connection error)	**Normal Charging** Bulk Charging	**Normal Charging** Absorption Stage	**Charge Complete** Flat/Maintenance Mode	**Charger Error**

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7.1 | PRE-START INSPECTION CHECKLIST

Pre-Start Inspection (Zero-Turn Series)

Model: _____

Serial No. _____

- Keep inspection records up-to-date.
- Record and report all discrepancies to your supervisor.
- A dirty machine cannot be properly inspected.

⚠ CAUTION

THIS CHECKLIST MUST BE USED AT THE BEGINNING OF EACH SHIFT OR AFTER EVERY SIX TO EIGHT HOURS OF USE. FAILURE TO DO SO COULD AFFECT THE SAFETY OF THE OPERATOR.

Y-Yes/Acceptable **N**-No/Unacceptable **R**-Repaired **N/A**-Not Equipped	**Y**	**N**	**R**	**N/A**
VISUAL INSPECTIONS				
There are no loose or missing parts.				
Check that warning and instructional labels are legible and secure. Ensure that load capacity is clearly marked.				
Check the platform rails and safety gate for damage.				
Platform and base controls are not missing, damaged, or disconnected.				
Electrical cables and wires are not torn, frayed, or disconnected.				
Hydraulic hoses are not torn or loose, and there are no leaks. Hoses and the cables have no worn areas or chafing.				
Check the tires for damage. Check that wheel axle retaining rings and any set screw(s) in rear wheel are tight.				
Check that all snap rings are secure in grooves on pivot pins.				
FUNCTIONAL TESTS				
Gate closes automatically and latches.				
Platform Controls: Check all switches and push buttons for proper operation.				
Emergency Stop (Stops all movement)				
Drive & Up/Down Mode Switch (Selects drive/steer or elevate mode)				
Joystick: (Return to neutral, drives forward & reverse,) Enable Trigger (Must be activated for joystick-operated movement) Elevates & lowers				
If so equipped, horn sounds when button is pressed.				
Base Controls: Check all switches and push buttons for proper operation.				
Emergency Stop (Stops all movement)				
Key Switch (Selects Platform Control, Ground Control, or Off)				
Up/Down Rocker Switch (Elevates, Lowers)				
Descent Alarm (Not damaged, sounds for descent; may also sound for drive & elevate, if so equipped)				
Tilt Alarm (Not damaged, sounds when tilted and machine elevated above designated height)				
Master Power Switch disconnects battery				
Wheels: Front and rear wheels rotate freely. Front wheels pivot freely.				
Drives in slow speed when elevated.				
Brakes: Machine stops when joystick released.				
Pothole guards deploy and lock when platform is elevated.				
Lift does not elevate when pothole guards are blocked.				
DATE:	INSPECTED BY:			

HY-BRID LIFTS™
BY CUSTOM EQUIPMENT LLC

Self-Propelled
Mobile Elevated Work Platform
ZT-1230, ZT-1630

Operation & Safety
Manual

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