Genie®

Operator's Manual

with Maintenance Information

Third Edition
Third Printing
Part No. 110017

Z™-45/25
Z™-45/25J

Bi-Energy Power

Important

Read, understand and obey these safety rules and operating instructions before operating this machine. Only trained and authorized personnel shall be permitted to operate this machine. This manual should be considered a permanent part of your machine and should remain with the machine at all times. If you have any questions, call Genie Industries.

Contents

Contact us:

Internet: http://www.genielift.com
E-mail: techpub@genieind.com

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These machines comply with ANSI/SIA 92.5-1992.

♻ Printed on recycled paper

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Safety Rules

Danger

Failure to obey the instructions and safety rules in this manual will result in death or serious injury.

Do Not Operate Unless:

☑ You learn and practice the principles of safe machine operation contained in this operator's manual.

1 Avoid hazardous situations.

Know and understand the safety rules before going on to the next section.

2 Always perform a pre-operation inspection.

3 Always perform function tests prior to use.

4 Inspect the workplace.

5 Only use the machine as it was intended.

☑ You read, understand and obey the manufacturer's instructions and safety rules—safety and operator's manuals and machine decals.

☑ You read, understand and obey employer's safety rules and worksite regulations.

☑ You read, understand and obey all applicable governmental regulations.

☑ You are properly trained to safely operate the machine.

SAFETY RULES

Electrocution Hazards

This machine is not electrically insulated and will not provide protection from contact with or proximity to electrical current.

Maintain safe distances from electrical power lines and apparatus in accordance with applicable governmental regulations and the following chart.

Voltage Phase to Phase	Minimum Safe Approach Distance Feet	Meters
0 to 300V	Avoid Contact	
300V to 50KV	10	3.1
50KV to 200KV	15	4.6
200KV to 350KV	20	6.1
350KV to 500KV	25	7.6
500KV to 750KV	35	10.7
750KV to 1000KV	45	13.7

Allow for platform movement, electrical line sway or sag and beware of strong or gusty winds.

Keep away from the machine if it contacts energized power lines. Personnel on the ground or in the platform must not touch or operate the machine until energized power lines are shut off.

Do not use the machine as a ground for welding.

Do not operate the machine during lightning or storms.

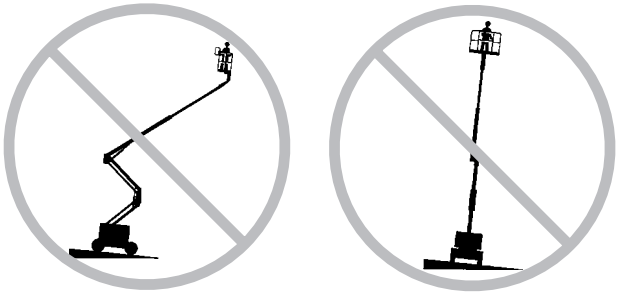
Tip-over Hazards

Occupants, equipment and materials shall not exceed the maximum platform capacity.

Maximum platform capacity	500 lbs	227 kg
Maximum occupants		2

The weight of options and accessories, such as pipe cradles, panel cradles and welders, will reduce the rated platform capacity and must be factored into the total platform load. See the decals on the options.

Do not raise or extend the boom unless the machine is on a firm, level surface.



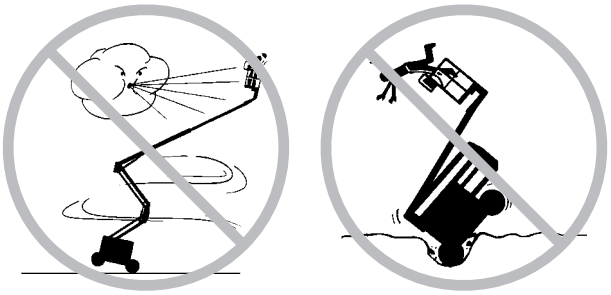
Do not depend on the tilt alarm as a level indicator. The tilt alarm sounds in the platform only when the machine is on a severe slope.

If the tilt alarm sounds:
Do not extend, rotate or raise the boom above horizontal. Move the machine to a firm, level surface before raising the platform. If the tilt alarm sounds when the platform is raised, use extreme caution to retract the boom and lower the platform. Do not rotate the boom while lowering. Move the machine to a firm, level surface before raising the platform.

Do not use the platform controls to free a platform that is caught, snagged or otherwise prevented from normal motion by an adjacent structure. All personnel must be removed from the platform before attempting to free the platform using the ground controls.

Do not raise the boom when wind speeds may exceed 28 mph / 12.5 m/s. If wind speeds exceed 28 mph / 12.5 m/s when the boom is raised, lower the boom and do not continue to operate the machine.

Do not operate the machine in strong or gusty winds. Do not increase the surface area of the platform or the load. Increasing the area exposed to the wind will decrease machine stability.



Use extreme care and slow speeds while driving the machine in the stowed position across uneven terrain, debris, unstable or slippery surfaces and near holes and drop-offs.

Do not alter or disable the limit switches.

Do not use air-filled tires. These machines are equipped with foam-filled tires. Wheel weight and proper counterweight configuration are critical to stability.

Do not drive the machine on or near uneven terrain, unstable surfaces or other hazardous conditions with the boom raised or extended.

Do not drive the machine on a slope that exceeds the maximum uphill, downhill or side slope rating of the machine. Slope rating applies only to machines in the stowed position.

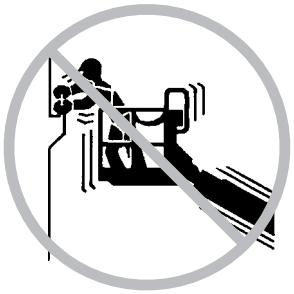
Maximum slope rating, stowed position	
Counterweight uphill	30% (17°)
Counterweight downhill	20% (11°)
Side slope	25% (14°)

Note: Slope rating is subject to ground conditions and adequate traction.

Do not push off or pull toward any object outside of the platform.

Maximum allowable side force - ANSI & CSA
150 lbs / 667 N

Maximum allowable Manual force - CE & Australia
90 lbs / 400 N



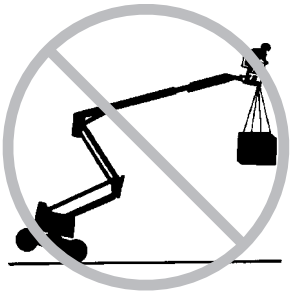
Do not alter or disable machine components that in any way affect safety and stability.

Do not replace items critical to machine stability with items of different weight or specification.

Do not modify or alter an aerial work platform without prior written permission from the manufacturer. Mounting attachments for holding tools or other materials onto the platform, toeboards or guard rail system can increase the weight in the platform and the surface area of the platform or the load.

SAFETY RULES

Do not place or attach overhanging loads to any part of this machine.



Do not place ladders or scaffolds in the platform or against any part of this machine.

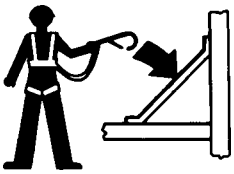
Do not use the machine on a moving or mobile surface or vehicle.

Do not transport tools and materials unless they are evenly distributed and can be safely handled by person(s) in the platform.

Be sure all tires are in good condition and lug nuts are properly tightened.

Do not use batteries that weigh less than the original equipment. Batteries are used as counterweight and are critical to machine stability. Each battery must weigh 105 pounds / 47.6 kg. Each battery box including batteries must weigh a minimum of 530 pounds / 240.4 kg.

Fall Hazards



Occupants must wear a safety belt or harness in accordance with governmental regulations. Attach the lanyard to the anchor provided in the platform.

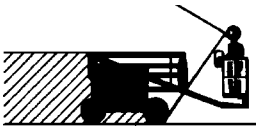
Do not sit, stand or climb on the platform guard rails. Maintain a firm footing on the platform floor at all times.

Do not climb down from the platform when raised.

Keep the platform floor clear of debris.

Lower the platform entry mid-rail or close the entry gate before operating.

Collision Hazards



Be aware of limited sight distance and blind spots when driving or operating.

Be aware of boom position when rotating the turntable.

Check the work area for overhead obstructions or other possible hazards.

Be aware of crushing hazards when grasping the platform guard rail.

Do not lower the boom unless the area below is clear of personnel and obstructions.

Operators must comply with employer, job site and governmental rules regarding the use of personal protective equipment.

Observe and use color-coded direction arrows on the platform controls and drive chassis for drive and steer functions.

Limit travel speed according to the condition of the ground surface, congestion, slope, location of personnel, and any other factors which may cause collision.

Do not operate a boom in the path of any crane unless the controls of the crane have been locked out and/or precautions have been taken to prevent any potential collision.

No stunt driving or horseplay while operating a machine.

Component Damage Hazards

Do not use any battery or charger greater than 12V to jump-start the engine.

Do not use the machine as a ground for welding.

Explosion and Fire Hazards

Do not start the engine if you smell or detect liquid petroleum gas (LPG), gasoline, diesel fuel or other explosive substances.

Do not refuel the machine with the engine running.

Refuel the machine and charge the battery only in an open, well-ventilated area away from sparks, flames and lighted tobacco.

Do not operate the machine in hazardous locations or locations where potentially flammable or explosive gases or particles may be present.

Do not spray ether into engines equipped with glow plugs.

Damaged Machine Hazards

Do not use a damaged or malfunctioning machine.

Conduct a thorough pre-operation inspection of the machine and test all functions before each work shift. Immediately tag and remove from service a damaged or malfunctioning machine.

Be sure all maintenance has been performed as specified in this manual and the *Genie Z-45/25 Bi-Energy & Z-45/25J Bi-Energy Service Manual.*

Be sure all decals are in place and legible.

Be sure the operator's, safety and responsibilities manuals are complete, legible and in the storage container located on the platform.

Bodily Injury Hazard

Do not operate the machine with a hydraulic oil or air leak. An air leak or hydraulic leak can penetrate and/or burn skin.

When the engine is running, operate the machine in a well-ventilated area to avoid carbon monoxide poisoning.

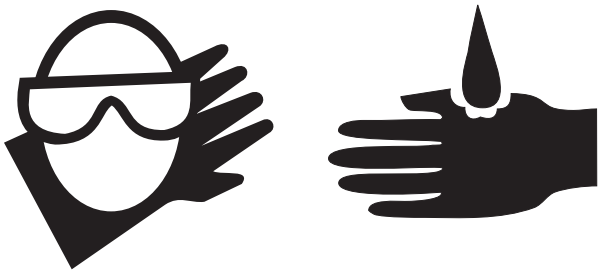
Improper contact with components under any cover will cause serious injury. Only trained maintenance personnel should access compartments. Access by the operator is only advised when performing a pre-operation inspection. All compartments must remain closed and secured during operation.

SAFETY RULES

Battery Safety

Burn Hazards

Batteries contain acid. Always wear protective clothing and eyewear when working with batteries.



Avoid spilling or contacting battery acid. Neutralize battery acid spills with baking soda and water.

The battery pack must remain in an upright position.

Do not expose the batteries or the charger to water or rain.

Explosion Hazards

Keep sparks, flames and lighted tobacco away from batteries. Batteries emit an explosive gas.

The battery pack cover must remain off during the entire charging cycle.

Do not contact the battery terminals or the cable clamps with tools that may cause sparks.

Component Damage Hazards

Do not use any battery charger greater than 48V to charge the batteries.

Both battery packs must be charged together.

Disconnect the battery pack plug before removing the battery pack.

Electrocution Hazards

Connect the battery charger to a grounded, AC 3-wire electrical outlet only.

Inspect daily for damaged cord, cables and wires. Replace damaged items before operating.

Avoid electrical shock from contact with battery terminals. Remove all rings, watches and other jewelry.

Tip-over Hazard

Do not use batteries that weigh less than the original equipment. Batteries are used as counterweight and are critical to machine stability. Each battery must weigh 105 pounds / 47.6 kg. Each battery box including batteries must weigh a minimum of 530 pounds / 240.4 kg.

Lifting Hazard

Use a forklift to remove or install the battery packs.

Decal Legend

Genie product decals use symbols, color coding and signal words to identify the following:

Safety alert symbol—used to alert personnel to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

⚠DANGER

⚠

Red—used to indicate the presence of an imminently hazardous situation which, if not avoided, will result in death or serious injury.

⚠WARNING

⚠

Orange—used to indicate the presence of a potentially hazardous situation which, if not avoided, could result in death or serious injury.

⚠CAUTION

⚠

Yellow with safety alert symbol—used to indicate the presence of a potentially hazardous situation which, if not avoided, may cause minor or moderate injury.

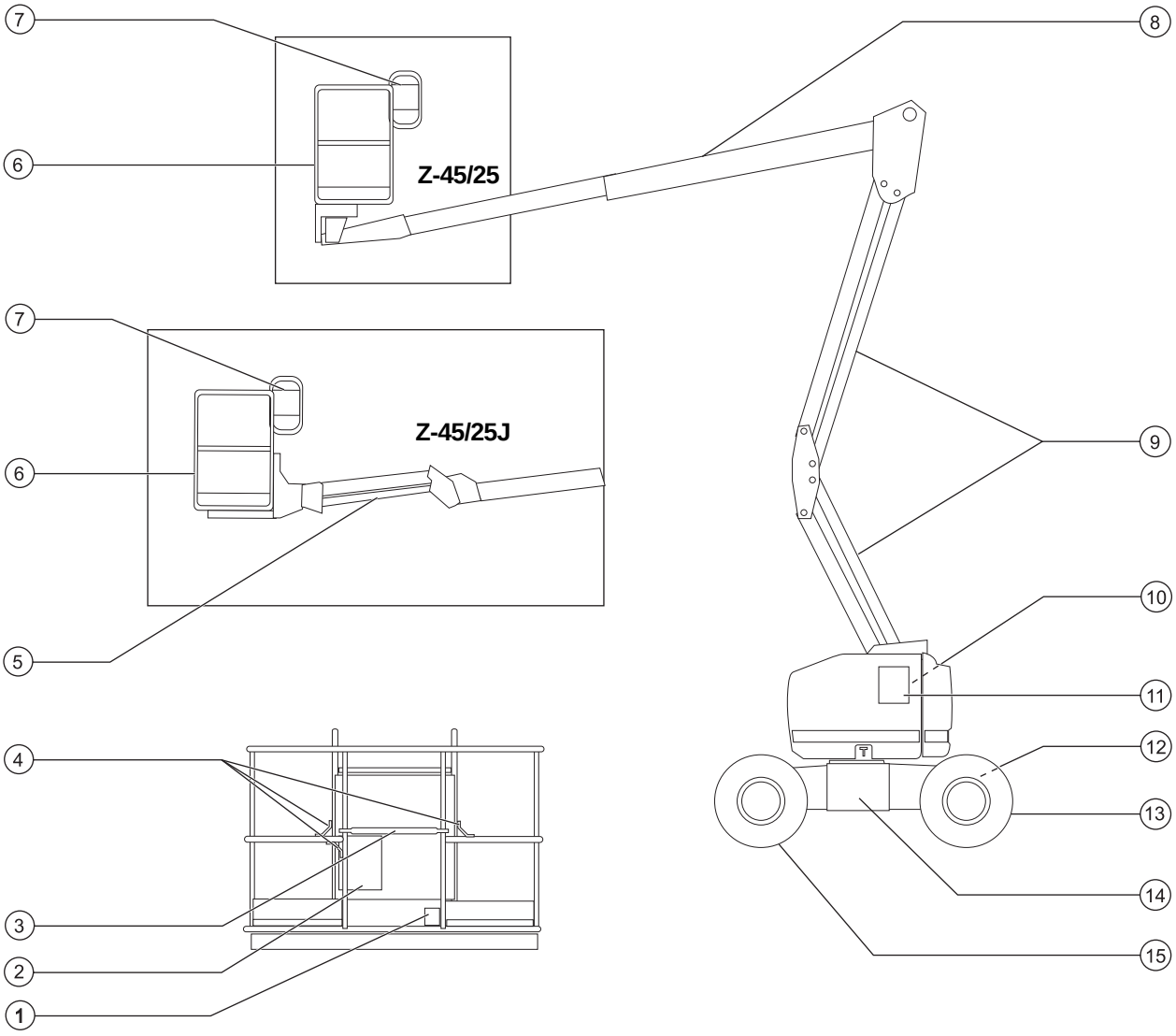
CAUTION

Yellow without safety alert symbol—used to indicate the presence of a potentially hazardous situation which, if not avoided, may result in property damage.

NOTICE

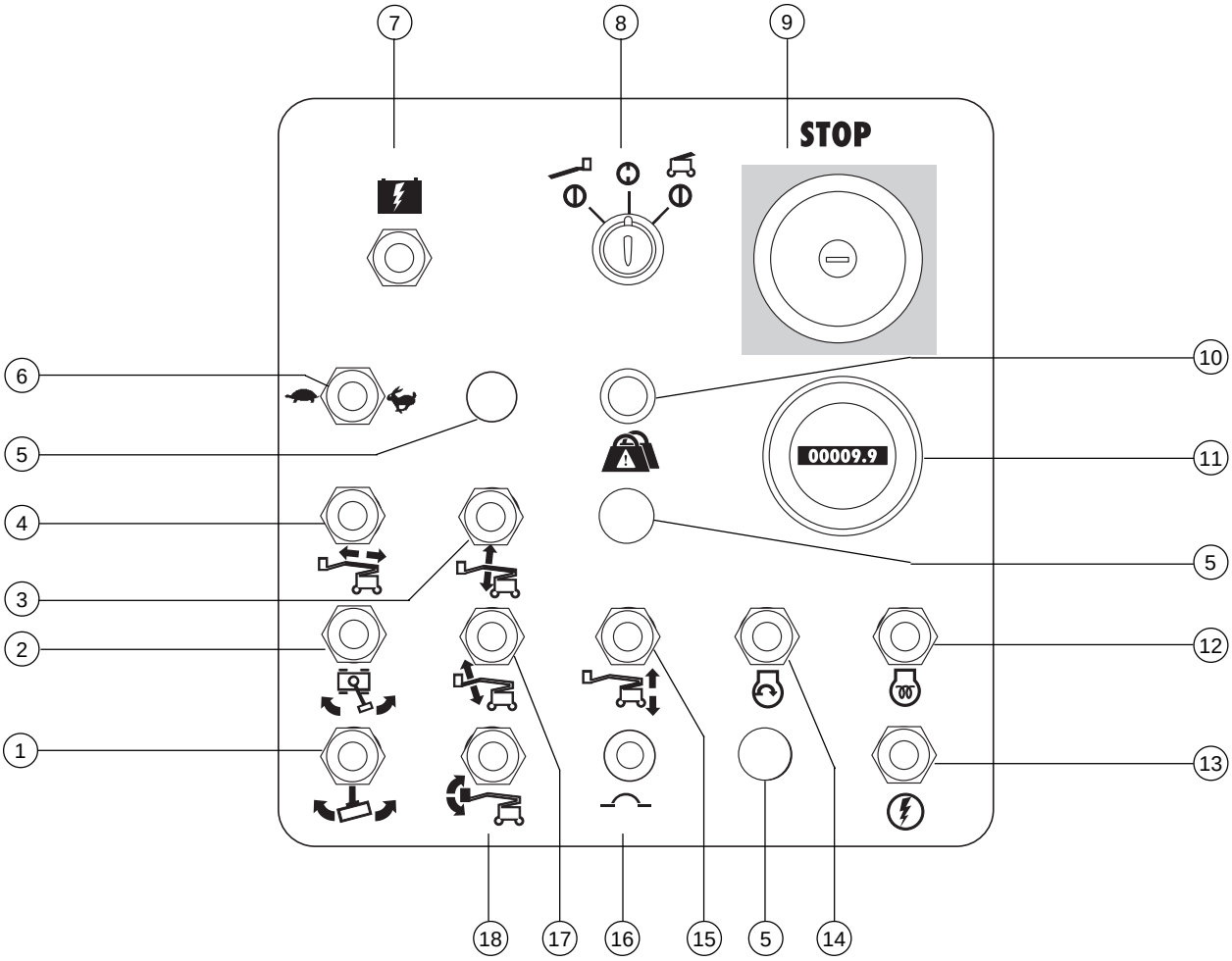
Green—used to indicate operation or maintenance information.

Legend



1 Foot switch
2 Manual storage container
3 Sliding mid-rail
4 Lanyard anchorage point
5 Jib boom (Z-45/25J)
6 Platform
7 Platform controls
8 Primary boom
9 Secondary boom
10 Engine (opposite from the ground controls)
11 Ground controls
12 Power to charger (between tires)
13 Steer tire
14 Battery box
15 Non-steer tire

Controls



Ground Control Panel

1 Platform rotate switch

2 Turntable rotate switch

3 Primary boom up/down switch

4 Primary boom extend/retract switch

5 Not used

6 Engine idle (rpm) select switch
- turtle: low idle
- rabbit: high idle and quickest battery charging

7 Auxiliary power switch

8 Key switch for platform/off/ground selection

9 Red Emergency Stop button

10 Platform overload indicator light (if equipped)

11 Hour meter

12 Glow plug switch

13 Function enable switch

14 Engine start switch

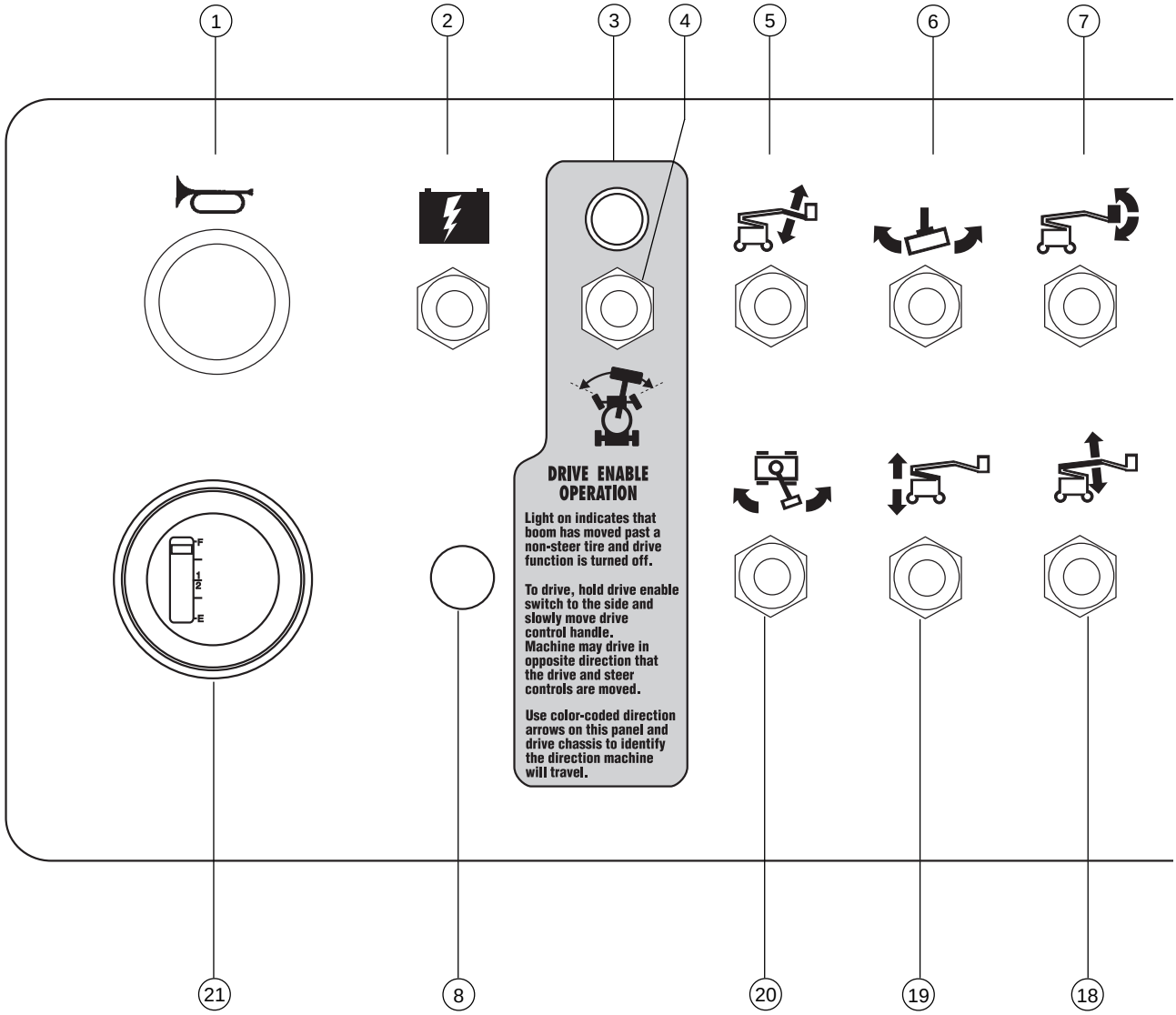
15 Secondary boom up/down switch

16 10A breaker for control electrical circuits

17 Z-45/25J Bi-energy models: Jib boom up/down switch

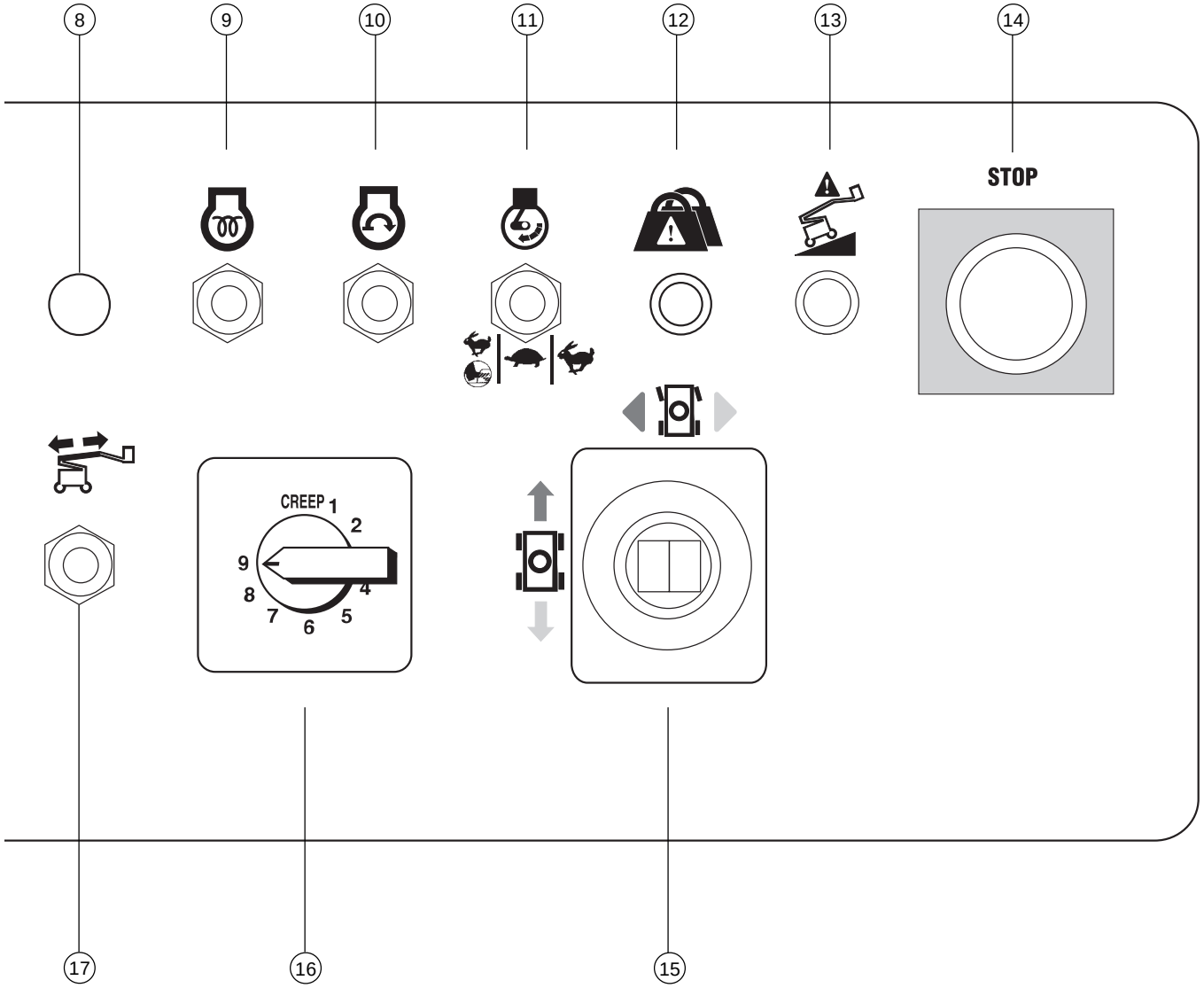
18 Platform level switch

CONTROLS



Platform Control Panel

1 Horn button
2 Auxiliary power switch
3 Drive enable indicator light
4 Drive enable switch
5 Z-45/25J Bi-Energy models: Jib boom up/down switch
6 Platform rotate switch
7 Platform level switch
8 Optional equipment
9 Glow plug switch
10 Engine start switch



11 Engine idle (rpm) select switch
- Rabbit & Foot Switch: foot switch activated high idle
- Turtle: low idle
- Rabbit: high idle and quickest battery charging

12 Platform overload indicator light (if equipped)

13 Machine not level indicator light (if equipped)

14 Red Emergency Stop button

15 Proportional control handle for drive function and thumb rocker for steer function

16 Boom function speed controller

17 Primary boom extend/retract switch

18 Primary boom up/down switch

19 Secondary boom up/down switch

20 Turntable rotate left/right switch

21 Battery charge indicator

Pre-operation Inspection

Do Not Operate Unless:

☑ You learn and practice the principles of safe machine operation contained in this operator's manual.

1 Avoid hazardous situations.

2 Always perform a pre-operation inspection.

Know and understand the pre-operation inspection before going on to the next section.

3 Always perform function tests prior to use.

4 Inspect the workplace.

5 Only use the machine as it was intended.

Fundamentals

It is the responsibility of the operator to perform a pre-operation inspection and routine maintenance.

The pre-operation inspection is a visual inspection performed by the operator prior to each work shift. The inspection is designed to discover if anything is apparently wrong with a machine before the operator performs the function tests.

The pre-operation inspection also serves to determine if routine maintenance procedures are required. Only routine maintenance items specified in this manual may be performed by the operator.

Refer to the list on the next page and check each of the items.

If damage or any unauthorized variation from factory delivered condition is discovered, the machine must be tagged and removed from service.

Repairs to the machine may only be made by a qualified service technician, according to the manufacturer's specifications. After repairs are completed, the operator must perform a pre-operation inspection again before going on to the function tests.

Scheduled maintenance inspections shall be performed by qualified service technicians, according to the manufacturer's specifications and the requirements listed in the responsibilities manual.

Pre-operation Inspection

- ❑ Be sure that the operator's, safety and responsibilities manuals are complete, legible and in the storage container located on the platform.
- ❑ Be sure that all decals are legible and in place. See Decals section.
- ❑ Check for engine oil leaks and proper fluid level. Add oil if needed. See Maintenance section.
- ❑ Check for engine coolant leaks and proper fluid level. Add coolant if needed. See Maintenance section.
- ❑ Check for hydraulic oil leaks and proper oil level. Add oil if needed. See Maintenance section.
- ❑ Check for battery fluid leaks and proper fluid level. Add distilled water if needed. See Maintenance section.

Check the following components or areas for damage, improperly installed or missing parts and unauthorized modifications:

- ❑ Electrical components, wiring and electrical cables
- ❑ Hydraulic power unit, hoses, fittings, cylinders and manifolds
- ❑ Generator, belts and related components
- ❑ Fuel and hydraulic tanks
- ❑ Drive and turntable motors and torque hubs
- ❑ Boom wear pads
- ❑ Tires and wheels
- ❑ Engine and related components
- ❑ Limit switches, alarms and horn
- ❑ Nuts, bolts and other fasteners
- ❑ Platform entry mid-rail/gate
- ❑ Beacon and alarms (if equipped)

Check entire machine for:

- ❑ Cracks in welds or structural components
- ❑ Dents or damage to machine

- ❑ Be sure that all structural and other critical components are present and all associated fasteners and pins are in place and properly tightened.
- ❑ After you complete your inspection, be sure that all compartment covers are in place and secured.

Maintenance

Observe and Obey:

- ☑ Only routine maintenance items specified in this manual shall be performed by the operator.
- ☑ Scheduled maintenance inspections shall be completed by qualified service technicians, according to the manufacturer's specifications and the requirements specified in the responsibilities manual.

Maintenance Symbols Legend

NOTICE The following symbols have been used in this manual to help communicate the intent of the instructions. When one or more of the symbols appear at the beginning of a maintenance procedure, it conveys the meaning below.

Indicates that tools will be required to perform this procedure.

Indicates that new parts will be required to perform this procedure.

Indicates that a cold engine is required before performing this procedure.

Check the Engine Oil Level

Maintaining the proper engine oil level is essential to good engine performance and service life. Operating the machine with an improper oil level can damage engine components.

NOTICE Check the oil level with the engine off.

1 Check the oil level dipstick. Add oil as needed.

⊙ Result: The oil level should be at the FULL mark on the dipstick.

Kubota Engine Z482-E	
Oil viscosity requirements	10W-30
Engine oil should have properties of API classification CC/SE, CD/SE, CC/SF or CD/SF grades. Units ship with 10W-40 SG/CC	

Check the Hydraulic Oil Level

Maintaining the hydraulic oil at the proper level is essential to machine operation. Improper hydraulic oil levels can damage hydraulic components. Daily checks allow the inspector to identify changes in oil level that might indicate the presence of hydraulic system problems.

1 Be sure the boom is in the stowed position, then visually inspect the oil level in the hydraulic tank.

⊙ Result: The hydraulic oil level should be within the FULL and ADD marks on the hydraulic reservoir.

2 Add oil as needed.

Hydraulic oil specifications	
Hydraulic oil type	Chevron Rykon Premium MV equivalent

Check the Engine Coolant Level

Maintaining the engine coolant at the proper level is essential to engine service life. Improper coolant level will affect the engine's cooling capability and damage engine components. Daily checks will allow the inspector to identify changes in coolant level that might indicate cooling system problems.

⚠CAUTION Burn hazard. Beware of hot engine parts and coolant. Contact with hot engine parts and/or coolant may cause severe burns.

1 Check the fluid level in the coolant recovery tank. Add fluid as needed.

⊙ Result: The fluid level should be at the FULL mark.

NOTICE Do not remove the radiator cap.

Check the Batteries

Proper battery condition is essential to good machine performance and operational safety. Improper fluid levels or damaged cables and connections can result in component damage and hazardous conditions.

⚠WARNING Bodily injury hazard. Batteries contain acid. Avoid spilling or contacting battery acid. Neutralize battery acid spills with baking soda and water.

NOTICE Charging the batteries with the engine does not fully charge the batteries. Periodically, use the AC battery charger to fully charge the batteries.

NOTICE Perform this test after fully charging the batteries.

1 Put on protective clothing and eye wear.

2 Be sure that the battery cable connections are tight and free of corrosion.

3 Remove the battery vent caps.

4 Check the battery acid level. If needed, replenish with distilled water to the bottom of the battery fill tube. Do not overfill.

5 Install the vent caps.

Scheduled Maintenance

The scheduled maintenance items must be completed by a person trained and qualified to perform maintenance on this machine according to the procedures found in the service manual for this machine.

Machines that have been out of service for more than three months must receive the quarterly inspection before placing the machine back into service.

Function Tests

Do Not Operate Unless:

☑ You learn and practice the principles of safe machine operation contained in this operator's manual.

1 Avoid hazardous situations.

2 Always perform a pre-operation inspection.

3 Always perform function tests prior to use.

Know and understand the function tests before going on to the next section.

4 Inspect the workplace.

5 Only use the machine as it was intended.

Fundamentals

The function tests are designed to discover any malfunctions before the machine is put into service. The operator must follow the step-by-step instructions to test all machine functions.

A malfunctioning machine must never be used. If malfunctions are discovered, the machine must be tagged and removed from service. Repairs to the machine may only be made by a qualified service technician, according to the manufacturer's specifications.

After repairs are completed, the operator must perform a pre-operation inspection and function tests again before putting the machine into service.

1 Select a test area that is firm, level and free of obstruction.

At the Ground Controls

2 Turn the key switch to ground control.

3 Pull out the red Emergency Stop button to the on position.

⊙ Result: The beacon (if equipped) should flash.

4 Start the engine. See Operating Instructions section.

Test Emergency Stop

5 Push in the red Emergency Stop button to the off position.

⊙ Result: The engine should turn off and all functions should not operate.

6 Pull out the red Emergency Stop button to the on position.

Test the Machine Functions

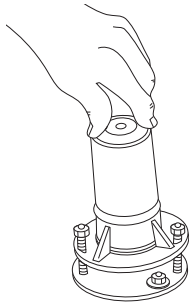
7 Do not hold the function enable switch to either side. Attempt to activate each boom and platform function toggle switch.

⊙ Result: All boom and platform functions should not operate.

8 Hold the function enable switch to either side and activate each boom and platform function toggle switch.

⊙ Result: All boom and platform functions should operate through a full cycle. The descent alarm (if equipped) should sound while the boom is lowering.

Test the Tilt Sensor



9 Turn the key switch to platform control. Pull out the platform red Emergency Stop button to the on position.

10 Open the engine side turntable cover and locate the tilt sensor to the right of the hydraulic pump.

11 Press down one side of the tilt sensor and hold for 5 seconds.

⊙ Result: The alarm, located in the platform, should sound.

Test Auxiliary Controls

12 Turn the key switch to ground control.

13 Pull out the red Emergency Stop button to the on position.

14 Simultaneously hold the auxiliary power switch on and activate each boom function toggle switch.

Note: To conserve battery power, test each function through a partial cycle.

⊙ Result: All boom functions should operate.

FUNCTION TESTS

At the Platform Controls

Test Emergency Stop

15 Push in the platform red Emergency Stop button to the off position.

16 Activate each machine function control handle or toggle switch.

⊙ Result: No functions should operate.

17 Pull out the red Emergency Stop button to the on position.

Test the Horn

18 Push the horn button.

⊙ Result: The horn should sound.

Test the Foot Switch

19 Push in the platform red Emergency Stop button to the off position.

20 Pull out the red Emergency Stop button to the on position but do not start the engine.

21 Press down the foot switch and attempt to start the engine by moving the start toggle switch to either side.

⊙ Result: The engine should not start.

22 Do not press down the foot switch and test each machine function.

⊙ Result: The machine functions should not operate.

Test Machine Functions

23 Press down the foot switch.

24 Activate each machine function control handle or toggle switch.

⊙ Result: All boom/platform functions should operate through a full cycle.

Note: Control the speed of boom functions by adjusting the boom function speed controller. Drive and steer functions are not affected by the boom function speed controller.

Test the Steering

25 Press down the foot switch.

26 Depress the thumb rocker switch on top of the drive control handle in the direction identified by the blue triangle on the control panel.

⊙ Result: The steer wheels should turn in the direction that the blue triangles point on the drive chassis.

27 Depress the thumb rocker switch in the direction identified by the yellow triangle on the control panel.

⊙ Result: The steer wheels should turn in the direction that the yellow triangles point on the drive chassis.

Test Drive and Braking

28 Press down the foot switch.

29 Slowly move the drive control handle in the direction indicated by the blue arrow on the control panel until the machine begins to move, then return the handle to the center position.

⊙ Result: The machine should move in the direction that the blue arrow points on the drive chassis, then come to an abrupt stop.

30 Slowly move the drive control handle in the direction indicated by the yellow arrow on the control panel until the machine begins to move, then return the handle to the center position.

⊙ Result: The machine should move in the direction that the yellow arrow points on the drive chassis, then come to an abrupt stop.

Note: The brakes must be able to hold the machine on any slope it is able to climb.

Test the Drive Enable System

31 Press down the foot switch and lower the boom to the stowed position.

32 Rotate the turntable until the primary boom moves past one of the non-steer wheels.

⊙ Result: The drive enable indicator light should come on and remain on while the boom is anywhere in the range shown.

33 Move the drive control handle off center.

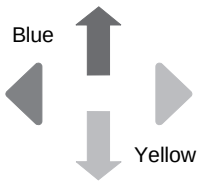
⊙ Result: The drive function should not operate.

34 Move and hold the drive enable toggle switch to either side and slowly move the drive control handle off center.

⊙ Result: The drive function should operate.

Note: When the drive enable system is in use, the machine may drive in the opposite direction that the drive and steer control handle is moved.

Use the color-coded direction arrows on the platform controls and the drive chassis to identify the direction of travel.



FUNCTION TESTS

Test Limited Drive Speed

35 Press down the foot switch.

36 Raise the primary boom approximately 2 feet / 61 cm.

37 Slowly move the drive control handle to the full drive position.

⊙ Result: The maximum achievable drive speed with the primary boom raised should not exceed 1 foot / 30 cm per second.

38 Lower the primary boom to the stowed position.

39 Raise the secondary boom approximately 2 feet / 61 cm.

40 Slowly move the drive control handle to the full drive position.

⊙ Result: The maximum achievable drive speed with the secondary boom raised should not exceed 1 foot / 30 cm per second.

41 Lower the secondary boom to the stowed position.

42 Extend the primary boom approximately 1 foot / 30 cm.

43 Slowly move the drive control handle to the full drive position.

⊙ Result: The maximum achievable drive speed with the primary boom extended should not exceed 1 foot / 30 cm per second.

44 Retract the boom.

If the drive speed with the primary boom raised, the secondary boom raised or the primary boom extended exceeds 1 foot / 30 cm per second, immediately tag and remove the machine from service.

Test Auxiliary Controls

45 Shut the engine off.

46 Pull out the red Emergency Stop button to the on position.

47 Press down the foot switch.

48 Simultaneously hold auxiliary power switch on and activate each function control handle or toggle switch.

Note: To conserve battery power, test each function through a partial cycle.

⊙ Result: All boom and steer functions should operate. Drive functions should not operate with auxiliary power.

Test the Lift/Drive Select Function (if equipped)

49 Press down the foot switch.

50 Move the drive control handle off center and activate a boom function toggle switch.

⊙ Result: No boom functions should operate. The machine will move in the direction indicated on the control panel.

Workplace Inspection

Do Not Operate Unless:

☑ You learn and practice the principles of safe machine operation contained in this operator's manual.

1 Avoid hazardous situations.

2 Always perform a pre-operation inspection.

3 Always perform function tests prior to use.

4 Inspect the workplace.

Know and understand the workplace inspection before going on to the next section.

5 Only use the machine as it was intended.

Fundamentals

The workplace inspection helps the operator determine if the workplace is suitable for safe machine operation. It should be performed by the operator prior to moving the machine to the workplace.

It is the operator's responsibility to read and remember the workplace hazards, then watch for and avoid them while moving, setting up and operating the machine.

Workplace Inspection

Be aware of and avoid the following hazardous situations:

- drop-offs or holes
- bumps, floor obstructions or debris
- sloped surfaces
- unstable or slippery surfaces
- overhead obstructions and high voltage conductors
- hazardous locations
- inadequate surface support to withstand all load forces imposed by the machine
- wind and weather conditions
- the presence of unauthorized personnel
- other possible unsafe conditions

Operating Instructions

Do Not Operate Unless:

☑ You learn and practice the principles of safe machine operation contained in this operator's manual.

1 Avoid hazardous situations.

2 Always perform a pre-operation inspection.

3 Always perform function tests prior to use.

4 Inspect the workplace.

5 Only use the machine as it was intended.

Fundamentals

The Operating Instructions section provides instructions for each aspect of machine operation. It is the operator's responsibility to follow all the safety rules and instructions in the operator's, safety and responsibilities manuals.

Using the machine for anything other than lifting personnel, along with their tools and materials, to an aerial work site is unsafe and dangerous.

Only trained and authorized personnel should be permitted to operate a machine. If more than one operator is expected to use a machine at different times in the same work shift, they must all be qualified operators and are all expected to follow all safety rules and instructions in the operator's, safety and responsibilities manuals. That means every new operator should perform a pre-operation inspection, function tests, and a workplace inspection before using the machine.

Introduction

This machine can be operated with or without the engine running.

Starting the Engine

1 At the ground controls, turn the key switch to the desired position.
2 Be sure both ground and platform control red Emergency Stop buttons are pulled out to the on position.
3 Move the engine start toggle switch to either side. If the engine fails to start or dies, the restart delay will disable the start switch for 3 seconds.

If the engine fails to start after 15 seconds of cranking, determine the cause and repair any malfunction. Wait 60 seconds before trying to start again.

In cold conditions, hold the glow plug switch to either side and then start the engine.

In extreme cold conditions, 20°F / -6°C and below, hold the glow plug switch to either side for 10 seconds and then start the engine. Warm the engine (use low idle) for 5 minutes to prevent hydraulic system damage.

Emergency Stop

Push in either the ground or platform red Emergency Stop button to the off position to stop all functions and turn the engine off.

Repair any function that operates when the red Emergency Stop button is pushed in.

Selecting and operating the ground controls will override the platform red Emergency Stop button.

Auxiliary Controls

Use auxiliary power if the primary power source fails.

1 Turn the key switch to ground or platform control.
2 Pull out the red Emergency Stop button to the on position.
3 Press down the foot switch when operating the auxiliary controls from the platform.
4 Simultaneously hold the auxiliary power switch on and activate the desired function.

The drive function will not operate with auxiliary power.

Operation from Ground

1 Turn the key switch to ground control.
2 Pull out the red Emergency Stop button to the on position.

To Position Platform

1 Hold the function enable switch to either side.
2 Move the appropriate toggle switch according to the markings on the control panel.

The drive and steer functions are not available from the ground controls.

OPERATING INSTRUCTIONS

Operation from Platform

1 Turn the key switch to platform control.

2 Pull out both ground and platform red Emergency Stop buttons to the on position.

To Position Platform

1 Press down the foot switch.

2 Slowly move the appropriate function control handle or toggle switch according to the markings on the control panel.

To Steer

1 Press down the foot switch.

2 Turn the steer wheels with the thumb rocker switch located on top of the drive control handle.

Use the color-coded direction triangles on the platform controls and the drive chassis to identify the direction the wheels will turn.

To Drive

1 Press down the foot switch.

2 Increase speed: Slowly move the drive control handle off center.

Decrease speed: Slowly move the drive control handle toward center.

Stop: Return the drive control handle to center or release the foot switch.

Use the color-coded direction arrows on the platform controls and the drive chassis to identify the direction the machine will travel.

Machine travel speed is restricted when the booms are raised.

Driving on a slope

Determine the uphill, downhill and side slope ratings for the machine and determine the slope grade.

Maximum slope rating, counterweight uphill (gradeability): 30% (17°)

Maximum slope rating, counterweight downhill: 20% (11°)

Maximum side slope rating: 25% (14°)

Note: Slope rating is subject to ground conditions and adequate traction.

Be sure the boom is below horizontal and the platform is between the non-steer wheels.

Move the drive speed select switch to machine on incline symbol.

To determine the slope grade:

Measure the slope with a digital inclinometer OR use the following procedure.

You will need:

carpenter's level

straight piece of wood, at least 3 feet / 1 m long

tape measure

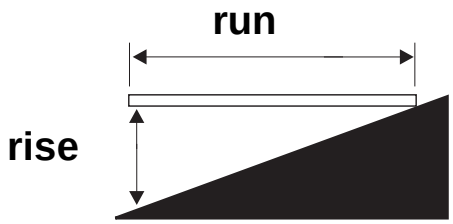
Lay the piece of wood on the slope.

At downhill end, lay the level on the top edge of the piece of wood and lift the end until the piece of wood is level.

While holding the piece of wood level, measure the vertical distance from the bottom of the piece of wood to the ground.

Divide the tape measure distance (rise) by the length of the piece of wood (run) and multiply by 100.

Example:



Piece of wood = 144 inches (3.6 m)

Run = 144 inches (3.6 m)

Rise = 12 inches (0.3 m)

12 in ÷ 144 in = 0.083 x 100 = 8.3% grade

0.3 m ÷ 3.6 m = 0.083 x 100 = 8.3% grade

If the slope exceeds the maximum uphill, downhill or side slope rating, then the machine must be winched or transported up or down the slope. See Transport and Lifting section.

Drive Enable

Light on indicates that the boom has moved just past either non-steer wheel and the drive function has been interrupted.

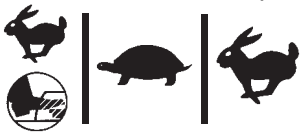
To drive, hold the drive enable switch to either side and slowly move the drive control handle off center.

Be aware that the machine may move in the opposite direction that the drive and steer controls are moved.

Always use the color-coded direction arrows on the platform controls and the drive chassis to identify the direction the machine will travel.

Engine Idle Select (rpm)

Select the engine idle speed (rpm) using the symbols on the control panel. Engine idle speed does not affect machine function speed.



- Rabbit and foot switch symbol: foot switch activated high idle
- Turtle symbol: low idle and slow battery charging
- Rabbit symbol: high idle and quickest battery charging

At high idle, the engine supplies enough power for charging and for machine functions. At low idle, machine functions will use battery power.

Platform Overload Indicator Light (if equipped)

Light flashing indicates the platform is overloaded and no functions will operate.

Remove weight from the platform until the light goes off.

Machine Not Level Indicator Light (if equipped)

Light on indicates the machine is not level. The tilt alarm will be sounding when this light is on. Move the machine to a firm level surface.

Controller Fault Indicator Light On

If the controller fault indicator light is on, push in the red Emergency Stop button, wait a few seconds and pull out the red Emergency Stop button to reset the system.

If the light stays on, tag and remove the machine from service.

Fall Protection

Personal fall protection equipment (PFPE) is required when operating this machine.

All PFPE must comply with applicable governmental regulations, and must be inspected and used in accordance with the PFPE manufacturer's instructions.

Charging the Batteries

Use the engine or the AC battery charger to recharge the batteries.

Charging the Batteries with the Engine

Running the engine will automatically charge the batteries. At high idle, the engine supplies enough power for charging and for machine functions. At low idle, machine functions will use battery power.

All lift and drive functions can be operated while the engine is running.

The battery charge indicator will reset when the engine has been turned off for 2-3 minutes.

Charging the batteries with the engine does not fully charge the batteries. Periodically, use the AC battery charger to fully charge the batteries.

Charging the Batteries with the AC Charger

Be sure the engine is not running.

Use the AC battery charger included with the machine for overnight charging. The charger shuts off automatically.

Periodically, use the AC battery charger to fully charge the batteries.

After Each Use

1 Select a safe parking location—firm level surface, clear of obstruction and traffic.

2 Retract and lower the boom to the stowed position.

3 Rotate the turntable so that the boom is between the non-steer wheels.

4 Turn the key switch to the off position and remove the key to secure from unauthorized use.

5 Chock the wheels.

6 Charge the batteries (if necessary).

Transport and Lifting Instructions

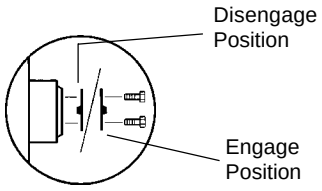
Observe and Obey:

- ☑ The transport vehicle must be parked on a level surface.
- ☑ The transport vehicle must be secured to prevent rolling while the machine is being loaded.
- ☑ Be sure the vehicle capacity, loading surfaces and chains or straps are sufficient to withstand the machine weight. See the serial plate for the machine weight.
- ☑ Be sure the turntable is secured with the turntable rotation lock before transporting. Be sure to unlock the turntable for operation.
- ☑ Do not drive the machine on a slope that exceeds the slope or side slope rating. See Driving on a Slope in the Operating Instructions section.
- ☑ If the slope of the transport vehicle bed exceeds the uphill or downhill maximum slope rating, the machine must be loaded and unloaded using a winch as described.

Free-wheel Configuration for Winching

1 Chock the wheels to prevent the machine from rolling.

2 Release the non-steer wheel brakes by turning over the drive hub disconnect caps.



3 Be sure the winch line is properly secured to the drive chassis tie points and the path is clear of all obstructions.

After the machine is loaded:

1 Chock the wheels to prevent the machine from rolling.

2 Apply the non-steer wheel brakes by turning over the drive hub disconnect caps.

Towing a Genie Z-45/25 Bi-Energy or a Z-45/25J Bi-Energy machine is not recommended. If the machine must be towed, do not exceed 2 mph / 3.2 km/h.

TRANSPORT AND LIFTING INSTRUCTIONS

Securing to Truck or Trailer for Transit

Always chock the machine wheels in preparation for transport.

Turn the key switch to the off position and remove the key before transporting.

Inspect the entire machine for loose or unsecured items.

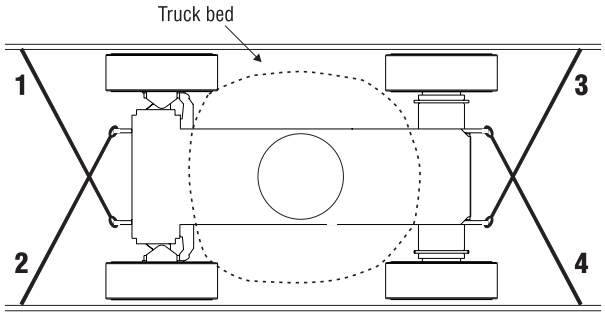
Securing the Chassis

Use the tie points on the drive chassis for anchoring down to the transport surface.

Use chains or straps of ample load capacity.

Use a minimum of 4 chains.

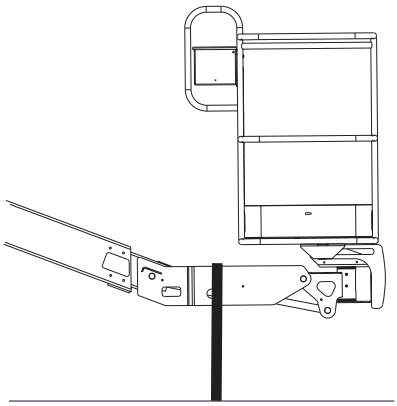
Adjust the rigging to prevent damage to the chains.



Securing the Platform - Z-45/25

Make sure the platform is in the stowed position.

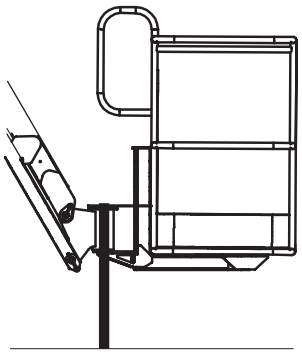
Secure the platform with a nylon strap placed over the platform mount near the platform rotator (see below). Do not use excessive downward force when securing the boom section.



Securing the Platform - Z-45/25J

Make sure the jib and platform are in the stowed position.

Secure the platform with a nylon strap placed over the platform mount near the platform rotator (see below). Do not use excessive downward force when securing the boom section.



Observe and Obey:

- ☑ Only qualified riggers should rig and lift the machine.
- ☑ Be sure the crane capacity, loading surfaces and straps or lines are sufficient to withstand the machine weight. See the serial plate for the machine weight.

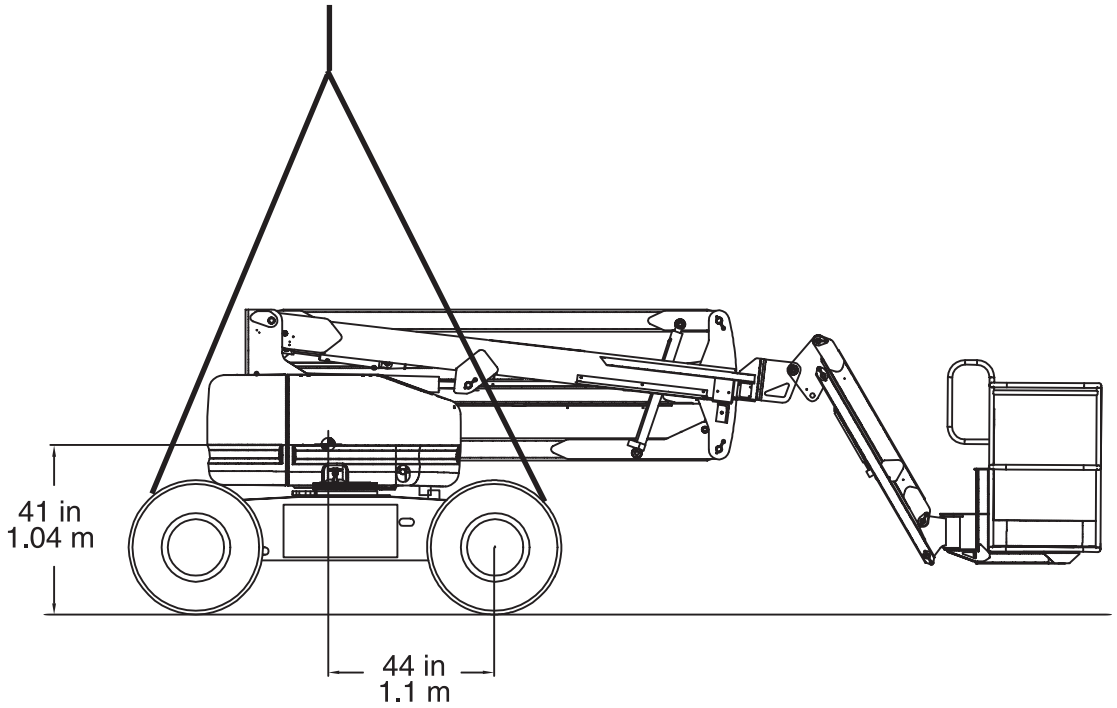
Lifting Instructions

Fully lower and retract the boom. Fully lower the jib (if equipped). Remove all loose items from the machine.

Determine the center of gravity of your machine using the picture on this page.

Attach the rigging only to the designated lifting points on the machine. There are four lifting points on the chassis.

Adjust the rigging to prevent damage to the machine and to keep the machine level.



Decals

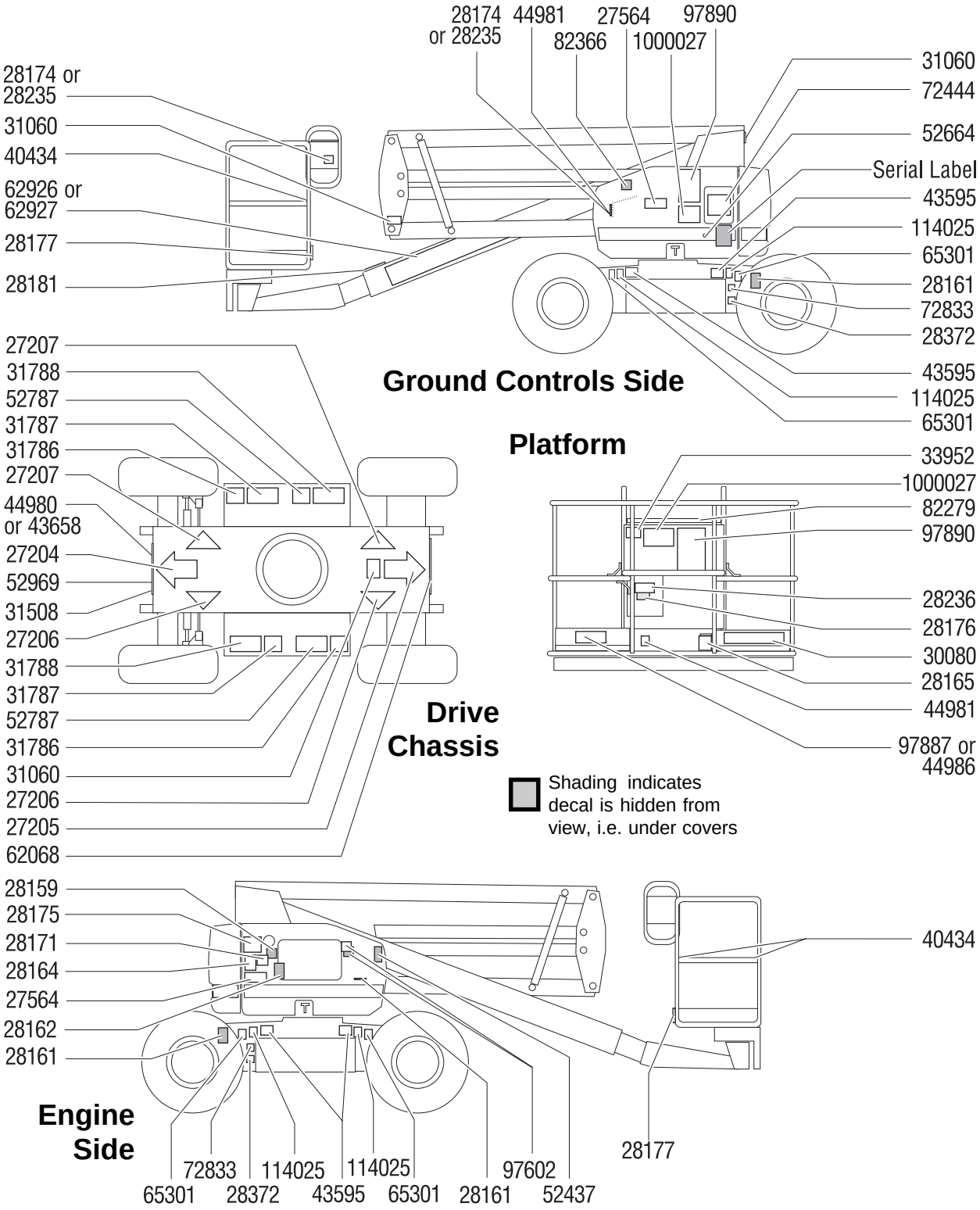
Inspection for Decals with Words

Determine whether the decals on your machine have words or symbols. Use the appropriate inspection to verify that all decals are legible and in place.

Part No.	Decal Description	Quantity
27204	Arrow - Blue	1
27205	Arrow - Yellow	1
27206	Triangle - Blue	2
27207	Triangle - Yellow	2
27564	Danger - Electrocution Hazard	2
28159	Label - Diesel	1
28161	Warning - Crushing Hazard	3
28162	Warning - Crushing Hazard	1
28164	Notice - Hazardous Materials	1
28165	Notice - Foot Switch	1
28171	Label - No Smoking	1
28174	Label - Power to Platform, 230V	2
28175	Caution - Compartment Access	1
28176	Notice - Missing Manuals	1
28177	Warning - Platform Rotate	2
28181	Warning - No Step or Ride	1
28235	Label - Power to Platform, 115V	2
28236	Warning - Failure To Read . . .	1
28372	Caution - Component Damage Hazard	2
30080	Notice - Maximum Load, 500 lbs / 227 kg	1
31060	Danger - Tip-over Hazard, Interlock	3
31508	Notice - Power to Charger	1
31786	Notice - Connection Diagram	2
31787	Danger - Tip-over Hazard	2
31788	Danger - Battery Safety	2

Part No.	Decal Description	Quantity
33952	Danger - Tilt-Alarm	1
40434	Label - Lanyard Anchorage	3
43595	Danger - Tip-over, Tires	4
43658	Label - Power to Charger, 230V	1
44980	Label - Power to Charger, 115V	1
44981	Label - Air Line to Platform	2
44986	Notice - Max Manual Force, 90 lbs / 400N	1
52437	Notice - Kubota Diesel Engine Specs	1
52664	Label - Controller Status Indicator Light	1
52787	Notice - Charger Operating Instructions	2
52969	Cosmetic - Genie Boom	1
62068	Cosmetic - Bi-Energy	1
62926	Cosmetic - Genie Z-45/25J	1
62927	Cosmetic - Genie Z-45/25	1
65301	Label - Tire Specifications	4
72444	Ground Control Panel	1
72833	Label - Open	2
82279	Platform Control Panel	1
82366	Label - Chevron Rykon	1
97602	Warning - Explosion Hazard	2
97887	Notice - Max Side Force, 150 lbs / 667N	1
97890	Danger - General Safety	2
114025	Label - Wheel Load	4
1000027	Notice - Operating Instructions	2

DECALS


28174 or 28235
44981
27564
97890
82366
1000027
31060
72444
52664
Serial Label
43595
114025
65301
28161
72833
28372
43595
114025
65301
28174 or 28235
31060
40434
62926 or 62927
28177
28181
Ground Controls Side
Platform
33952
1000027
82279
97890
28236
28176
30080
28165
44981
97887 or 44986
27207
31788
52787
31787
31786
27207
44980 or 43658
27204
52969
31508
27206
31788
31787
52787
31786
31060
27206
27205
62068
Drive Chassis
Shading indicates decal is hidden from view, i.e. under covers
28159
28175
28171
28164
27564
28162
28161
40434
28177
Engine Side
72833
65301
114025
28372
114025
43595
65301
97602
28161
52437

DECALS

Inspection for Decals with Symbols

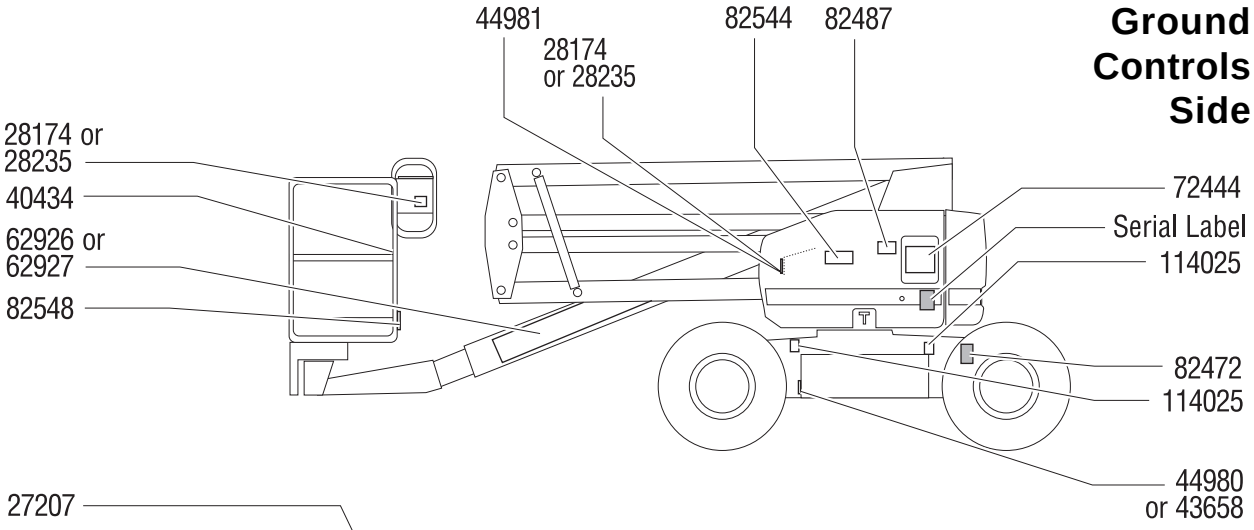
Determine whether the decals on your machine have words or symbols. Use the appropriate inspection to verify that all decals are legible and in place.

Part No.	Decal Description	Quantity
27204	Arrow - Blue	1
27205	Arrow - Yellow	1
27206	Triangle - Blue	2
27207	Triangle - Yellow	2
28159	Label - Diesel	1
28174	Label - Power to Platform, 230V	2
28235	Label - Power to Platform, 115V	2
40434	Label - Lanyard Anchorage	3
43658	Label - Power to Charger, 230V	1
44980	Label - Power to Charger, 115V	1
44981	Label - Air Line to Platform	2
52969	Cosmetic - Genie Boom	1
62068	Cosmetic - Bi-Energy	1
62926	Cosmetic - Genie Z-45/25J	1
62927	Cosmetic - Genie Z-45/25	1

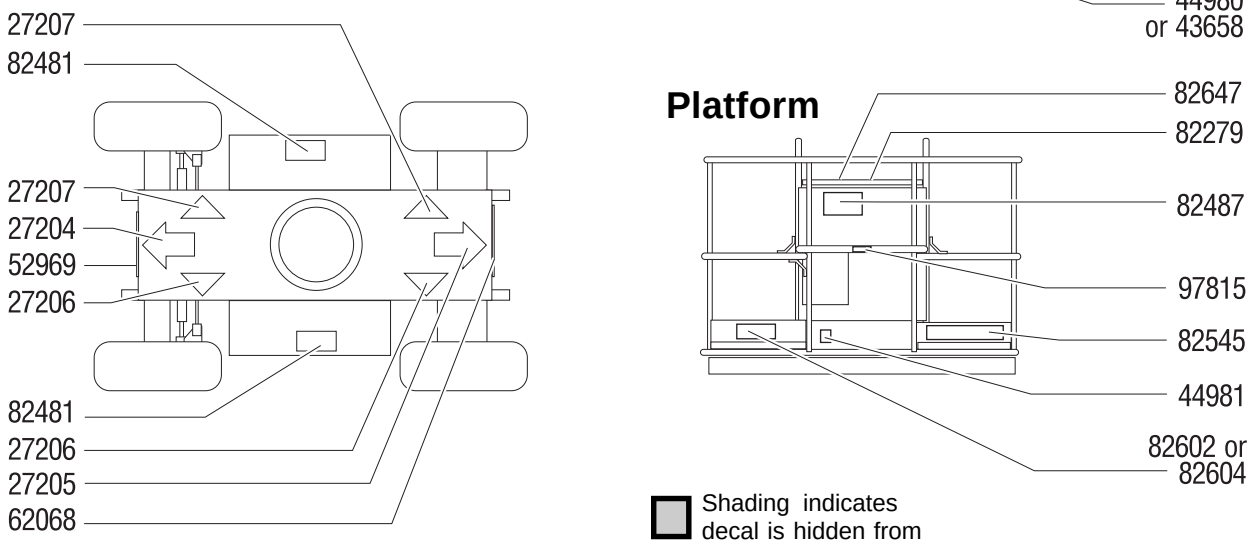
Part No.	Decal Description	Quantity
72444	Ground Control Panel	1
82279	Platform Control Panel	1
82472	Warning - Crushing Hazard	3
82473	Caution - Compartment Access	1
82481	Danger - Battery Safety	2
82487	Label - Operating Instructions	2
82544	Danger - Electrocution Hazard	2
82545	Danger - Max Capacity, 227 kg	1
82548	Warning - Platform Rotate	2
82602	Danger - Max Manual Force, 667N	1
82604	Danger - Max Manual Force, 400N	1
82647	Label - Drive Enable Patch	1
97815	Label - Lower Mid-rail (CE models)	1
114025	Label - Wheel Load	4

DECALS

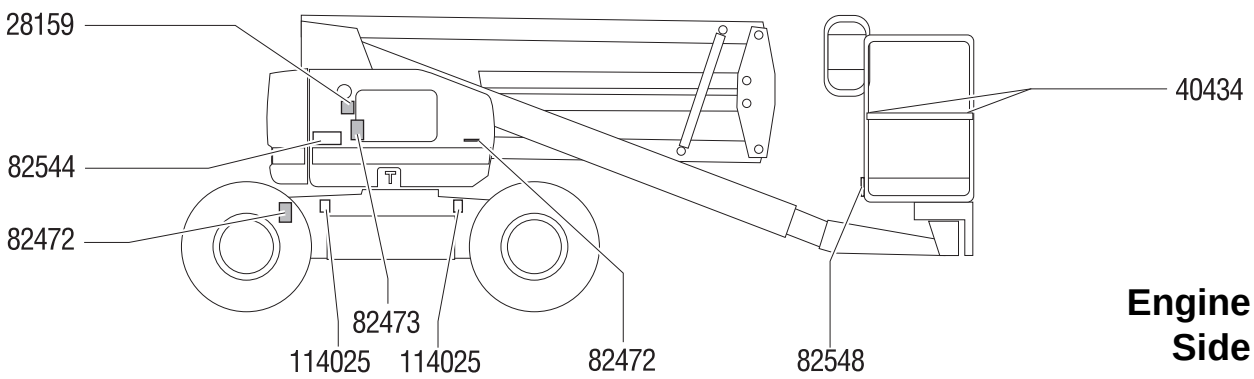
Ground Controls Side



Platform



Shading indicates decal is hidden from view, i.e. under covers



Engine Side

Specifications

Model	Z-45/25 Bi-Energy (no jib)	
Height, working maximum	51 ft 6 in	15.8 m
Height, platform maximum	45 ft 6 in	13.8 m
Height, stowed maximum	6 ft 7 in	2.0 m
Horizontal reach maximum	[1]25 ft	[1]7.6 m
Width	5 ft 10.3 in	1.79 m
Length, stowed	18 ft 3 in	5.56 m
Maximum load capacity	500 lbs	227 kg
Maximum wind speed	28 mph	12.5 m/s
Wheelbase	6 ft 8 in	2.0 m
Turning radius (inside)	6 ft	1.8 m
Turning radius (outside)	14 ft	4.3 m
Turntable rotation		355°
Turntable tailswing	0 in	0 cm
Power source		8 Group-4H, 6V 315AH Batteries with Kubota Z482-E engine
Drive speed, stowed	3.0 mph 40 ft/9 sec	4.8 km/h 12.2 m/9 sec
Drive speed, booms raised	0.6 mph 40 ft/45 sec	1 km/h 12.2 m/45 sec
Airborne noise emissions Maximum sound level at normal operating workstations (A-weighted)		73 dB
Ground clearance, center	9.5 in	24.1 cm
Ground clearance, minimum	7.5 in	19.1 cm
Weight (Machine weights vary with option configurations)		See Serial Label

Platform dimensions, 6 foot (length x width)		72 in x 30 in 1.8 m x 76 cm
Platform leveling		self-leveling
Platform rotation		180°
Controls		24V DC proportional
AC outlet in platform		standard
Hydraulic pressure, maximum (boom functions)	3200 psi	221 bar
System voltage		48V
Tire size, 2WD Industrial Foam-filled only		9-14.5 LT
Fuel tank capacity	9 gallons	34.1 liters
Maximum slope rating, stowed position		
Counterweight uphill		30% (17°)
Counterweight downhill		20% (11°)
Side slope		25% (14°)

Note: Slope rating is subject to ground conditions and adequate traction.

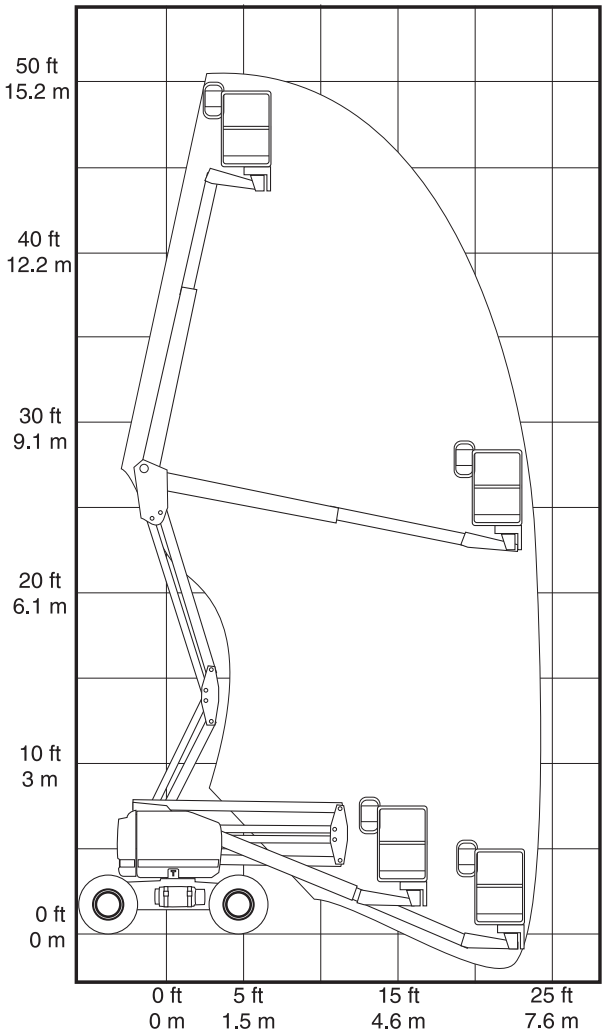
Floor loading information		
Tire load, maximum	8100 lbs	3674 kg
Tire contact pressure	100 psi	7.03 kg/cm^2 689 kPa
Occupied floor pressure	306 psf	1494 kg/m^2 14.65 kPa

Note: Floor loading information is approximate and does not incorporate different option configurations. It should be used only with adequate safety factors.

[1] Outreach specification with platform rotated 90 degrees

Continuous improvement of our products is a Genie policy. Product specifications are subject to change without notice or obligation.

SPECIFICATIONS



SPECIFICATIONS

Model	**Z-45/25J Bi-Energy (jib)**	
Height, working maximum	51 ft 9 in	15.9 m
Height, platform maximum	45 ft 9 in	13.9 m
Height, stowed maximum	6 ft 7 in	2.0 m
Horizontal reach maximum	25 ft 1 in	7.7 m
Width	5 ft 10.3 in	1.79 m
Length, stowed	22 ft 5 in	6.83 m
Maximum load capacity	500 lbs	227 kg
Maximum wind speed	28 mph	12.5 m/s
Wheelbase	6 ft 8 in	2.0 m
Turning radius (inside)	6 ft	1.8 m
Turning radius (outside)	14 ft	4.3 m
Turntable rotation		355°
Turntable tailswing	0 in	0 cm
Power source		8 Group-4H, 6V 315AH Batteries with Kubota Z482-E engine
Drive speed, stowed	3.0 mph 40 ft/9 sec	4.8 km/h 12.2 m/9 sec
Drive speed, booms raised	0.6 mph 40 ft/45 sec	1 km/h 12.2 m/45 sec
Airborne noise emissions Maximum sound level at normal operating workstations (A-weighted)		73 dB
Ground clearance, center	9.5 in	24.1 cm
Ground clearance, minimum	7.5 in	19.1 cm
Weight (Machine weights vary with option configurations)		See Serial Label

Platform dimensions, 6 foot (length x width)		72 in x 30 in 1.8 m x 76 cm
Platform leveling		self-leveling
Platform rotation		160°
Controls		24V DC proportional
AC outlet in platform		standard
Hydraulic pressure (maximum) (boom functions)	3200 psi	221 bar
System voltage		48V
Tire size, 2WD Industrial Foam-filled only		9-14.5 LT
Fuel tank capacity	9 gallons	34.1 liters
Maximum slope rating, stowed position		
Counterweight uphill		30% (17°)
Counterweight downhill		20% (11°)
Side slope		25% (14°)

Note: Slope rating is subject to ground conditions and adequate traction.

Floor loading information		
Tire load, maximum	8100 lbs	3674 kg
Tire contact pressure	100 psi	7.03 kg/cm^2 689 kPa
Occupied floor pressure	325 psf	1587 kg/m^2 15.56 kPa

Note: Floor loading information is approximate and does not incorporate different option configurations. It should be used only with adequate safety factors.

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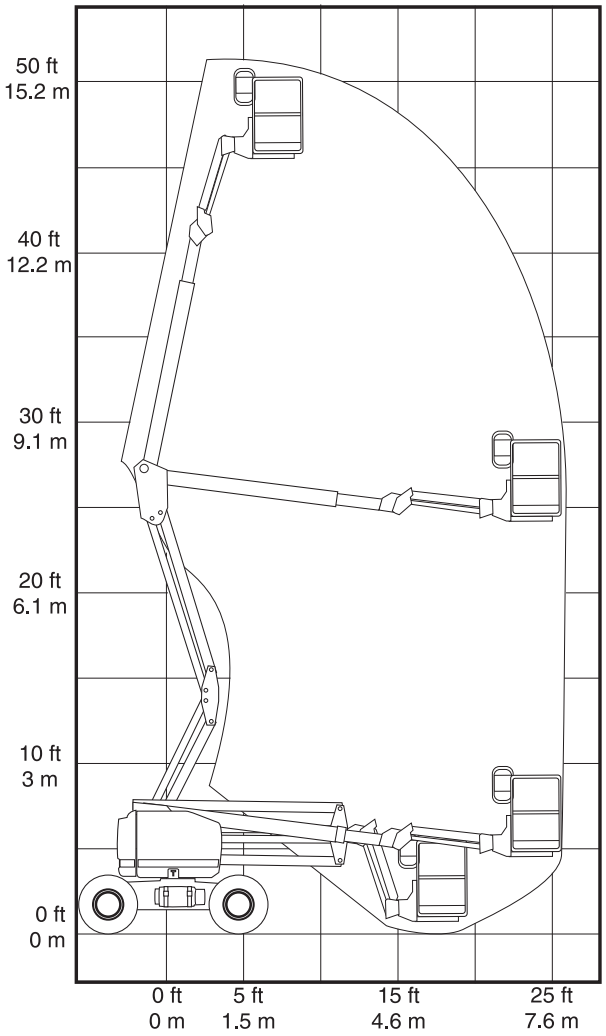
SPECIFICATIONS



California Proposition 65

WARNING

The exhaust from this product contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

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Genie North America
Phone 425.881.1800
Toll Free USA and Canada 800.536.1800
Fax 425.883.3475

Genie Australia Pty Ltd.
Phone +61 7 3375 1660
Fax +61 7 3375 1002

Genie China
Phone +86 21 53852570
Fax +86 21 53852569

Genie Malaysia
Phone +65 98 480 775
Fax +65 67 533 544

Genie Japan
Phone +81 3 3453 6082
Fax +81 3 3453 6083

Genie Korea
Phone +82 25 587 267
Fax +82 25 583 910

Genie Brasil
Phone +55 11 41 665 755
Fax +55 11 41 665 754

Genie Holland
Phone +31 183 581 102
Fax +31 183 581 566

Genie Scandinavia
Phone +46 31 575100
Fax +46 31 579020

Genie France
Phone +33 (0)2 37 26 09 99
Fax +33 (0)2 37 26 09 98

Genie Iberica
Phone +34 93 579 5042
Fax +34 93 579 5059

Genie Germany
Phone +49 (0)4202 88520
Fax +49 (0)4202 8852-20

Genie U.K.
Phone +44 (0)1476 584333
Fax +44 (0)1476 584334

Genie Mexico City
Phone +52 55 5666 5242
Fax +52 55 5666 3241