



WORK ASSIST VEHICLE

Operator Manual



**Protect
Yourself**

**You & Your
Wave® Vehicle**

**Vehicle
Operation**

**Load
Handling**

**Vehicle
Maintenance**

“Hello”

WAVE

Welcome to your Wave Operator Manual. This manual has been designed to provide you with specific information regarding the safe operation of the Wave work assist vehicle. As you will see in this manual, we've made it easy to use and understand, as well as informative.

Be aware though that only trained and authorized operators are permitted to use the vehicle. This manual is only one part of a complete operator training program that includes live presentations, hands-on training, and practice on the vehicle; all of which must be provided by an authorized trainer before you are permitted to operate any Wave vehicle.





Know the Hazards



EACH WARNING LABEL ON YOUR VEHICLE IS IMPORTANT

Read and obey all of them to protect yourself and others.



WARNING



Do not operate this vehicle unless you are trained and authorized.

You or people around you could be seriously injured or even killed if you don't use this vehicle correctly.

Read the Manuals.

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What's In It For You

WHAT'S IN IT FOR YOU?

The better you understand your vehicle and how to use it, the better and safer operator you can be. Here are some guides to using this manual.

1

SECTION TAB

Along with the table of contents, you can use the colored tabs to quickly find the major sections.

2

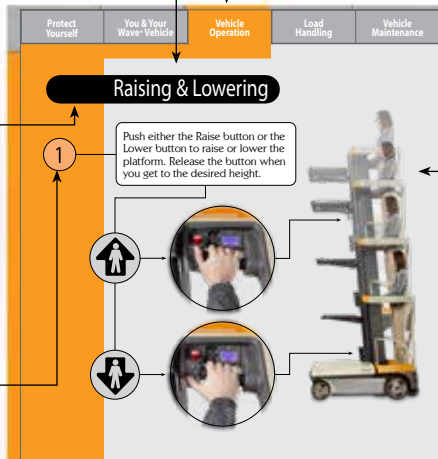
PAGE TOPIC

You will find the topic of each page here. Some topics require more than one page.

3

PAGE SUBTOPIC

You will find the subtopics here.



4

INSTRUCTIONS

On many pages the various topics are numbered to help guide you through the page.

5

NOTES

Extra information on topics will be placed in “note” blocks.

6

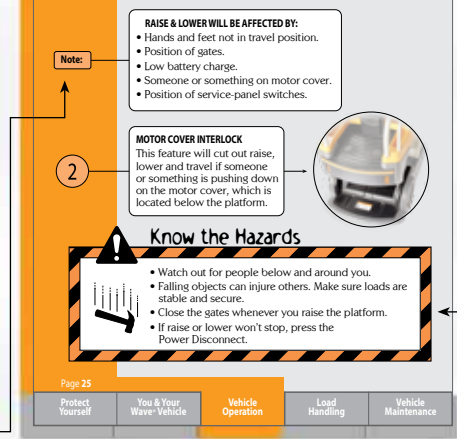
“KNOW THE HAZARDS”

Watch for and read these special blocks. You will find information about possible safety hazards and how to avoid them.

7

“HOW-TO” DRAWINGS

On many pages you will find pictures as well as text to help you understand how to use your vehicle safely and productively.



Protect Yourself and Others

Section Contents

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	5	You Must Be Trained
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	9	Use The Gates
	9	Stay Close To Your Work

WARNING



Do not operate this vehicle unless you are trained and authorized.

You or people around you could be seriously injured or even killed if you don't use this vehicle correctly.

Read the Manuals.

Obey all warnings and instructions in the Manuals and on the vehicle.

Inspect your vehicle before using it. Make sure it is in good working order.

Stop vehicle fully before getting off.

Watch out for people around you.

Falling objects can injure others.

Make sure loads are stable.

Tipovers are very serious accidents.

Make certain your path is clear of debris, holes, or anything that could cause the vehicle to tip over.

Keep gates closed while elevated.

Stay off railing and load areas.

Don't use other objects to stand on. Keep your feet on the platform floor.

You can be crushed by going under a rack. Look where you're driving.

Stay off ramps or grades.

You could

Operate



WARNING



Standing or riding on any load area could cause a fall.

Stay off all load areas.

179

CAPACITY
KG (LBS)

90 (200)

135 (300)

115 (250)

One Operator - No Passengers

WARNING



Stay clear of all moving parts.

Moving parts can cut or crush hands, feet, arms or legs.

07

WARNING

You could be struck or crushed by the lowering platform.

Keep your entire body away from area under platform.

While servicing, block the platform so it won't fall or accidentally lower.



DANGER



This platform is not insulated. You could be burned or even killed if you or your vehicle comes too close to electrical devices or wires.

Know that voltages you may be exposed to, and what the safe working distance is.

WARNING

Operate this truck only with an approved electric power source.

This truck as designed and manufactured from the factory is qualified for lead acid battery and if configured for Crown V-Force products.

Written approval must be obtained prior to installation of a new type of electric power source. OSHA 1910.178 (a)



WARNING

This vehicle does not have brakes, steering or travel control when the switch is in Push Mode.

Do not push vehicle while operator is on platform. Pushing speed must not exceed 2 MPH.

Leaving the switch in Push Mode may damage the battery. Return switch to Drive Mode after moving the vehicle.

600115-200A

8695-A

You Must Be Trained

1

A MOVING VEHICLE CAN BE DANGEROUS

You or others around you can be seriously injured or even killed if you are not careful or don't know how to use this vehicle correctly.



2

YOU MUST BE TRAINED

Only trained and authorized operators are permitted to use this vehicle.

This manual is one part of a complete training program. The program also includes watching the Training Video, along with hands-on training and practice on the vehicle. You must successfully demonstrate understanding of the material presented and be able to safely operate the vehicle before your training is completed.

Be A Safe Operator

THE MOST IMPORTANT PART OF
THE VEHICLE IS YOU.



MAKE SURE YOU ARE READY TO DRIVE

- Don't use this vehicle unless you are trained and authorized.
- Know how your vehicle works, and the hazards that go with it. Don't drive the vehicle if you have any doubts.
- Find the Data Label on the mast. Make certain you understand all the information on it. Such as: capacities, total weight of vehicle, vehicle type and serial number. This vehicle may not be permitted in areas where there are fire hazards. Check with your supervisor.
- Make sure your hands and shoes are clean and dry. Also make sure that your clothing is proper for the job.



MAKE SURE YOUR VEHICLE IS READY

- Inspect your vehicle before using it (see page 33). If it's not working correctly, or something is broken, notify your supervisor. Don't use the vehicle.
- In an open area, check all vehicle operations. Make certain everything is working correctly, especially before operating around other people.

DRIVE CAUTIOUSLY, BE ALERT



- Keep the gates closed when you are elevated.
- Drive with the gates open when the platform is lowered. You may need to get off the vehicle quickly to avoid injury.
- Don't climb on the rails or any other part of the vehicle.
- Keep your entire body inside the operator area, no matter how slow the vehicle is moving. A hand or foot caught between the vehicle and a solid object will be crushed or even cut off.
- Avoid sudden movement of controls. Learn to use them smoothly at a moderate, even rate. Sudden control changes can cause loads to shift or fall. Make sure loads are secure.
- Always be alert to the area around you and watch where you are driving. You could be pinned or crushed by objects intruding or poking into the operator area.
- Always check that you can clear overhead objects.
- Check clearances before raising or lowering.
- Be extra careful if you must use your vehicle in an area where there is a risk of falling objects.
- Make sure you have a clear view in the direction you're traveling. Look where you're going and slow down in congested areas.
- Slow down and be extra careful on wet or slippery floors.
- Look where you are going before you change direction of travel. See that you have room to drive and turn.

Continued

Be A Safe Operator

DEVELOP SAFE WORK HABITS.
WORK SAFELY AND LOOK OUT
FOR PEOPLE AROUND YOU.

WATCH OUT FOR OTHER PEOPLE



- Slow down. Yield or stop for pedestrians. Alert others when you approach them. Watch out for other vehicles in the area. Sound the horn when you come to a crosswalk or intersection.



- Be careful you don't pin or crush someone. For example: Never drive your vehicle toward anyone standing in front of a fixed object.



- Never allow passengers anywhere on your vehicle.
- Make certain the area around and under you is clear of people before lowering or traveling.
- Keep others away from your vehicle while you're working. Don't ever allow anyone under the load or platform.



- Watch out for front end swing while turning.
- Don't let anyone drive your vehicle unless they are trained and authorized.

AVOID FALLS AND TIPOVERS



- Stay away from the edge of docks and drop-offs.
- Watch where you're going. Always check that your path is clear of debris, overhead obstructions or holes in the floor that could cause your vehicle to tip over.
- Don't overload your vehicle or handle unstable loads. Make sure the load weight is evenly distributed.
- Some floors and elevators have weight limits. Make certain your vehicle, including operator and load, isn't too heavy for where you're driving.
- Don't drive onto an elevator unless it is authorized. Check the capacity or load limit, and make sure there are no people present. Keep vehicle gates open. Enter load first.



WHEN LEAVING YOUR VEHICLE

- Stop the vehicle and lower the platform completely before getting off.
- Turn the vehicle off. Remove the key, if necessary, to prevent unauthorized use.

Continued

Be A Safe Operator

Know the Hazards

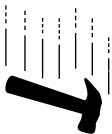


WATCH OUT FOR PEOPLE AROUND YOU

Pedestrians always have the right-of-way. They can't control your vehicle. Start out slowly and don't drive too close to them. Be careful at intersections. Check around the vehicle and under the platform before lowering or driving.

THERE IS NO SAFE PLACE FOR PASSENGERS

Never allow anyone to stand or ride anywhere on your vehicle.



FALLING OBJECTS CAN INJURE PEOPLE BELOW YOU

Be careful when handling tools or merchandise. Work close to racks or shelves when transferring loads. Make sure loads are stable.

FALLS ARE VERY SERIOUS ACCIDENTS



Keep the gates closed when you are elevated. Don't climb on any part of the platform. Never add anything to the platform to stand or climb on. Don't climb down from an elevated platform. Have someone lower the platform using the override controls on the service panel, or the manual lowering valve under the load deck.

HANDS AND FEET CAN BE PINNED OR CRUSHED



Come to a complete stop before leaving your vehicle. While the vehicle is moving, keep your hands on the controls and your heels on the pedals. Any part of your body caught between the vehicle and a solid object will be crushed or even cut off. If you must use a hand to stabilize a load, make certain you will not be pinned or crushed.

AVOID TIPOVERS



Never overload your vehicle. Distribute loads evenly. Watch out for overhead obstructions like pipes or electrical conduits. Stay away from the edge of docks or drop-offs. Be sure your path is clear of debris, holes or anything that could cause a tipover.

KEEP YOUR VEHICLE UNDER CONTROL



Don't drive on ramps or grades. You could lose steering control. Be extra careful and drive slowly over spills or wet floors. Don't drive over things in your path.

THIS PLATFORM IS NOT INSULATED



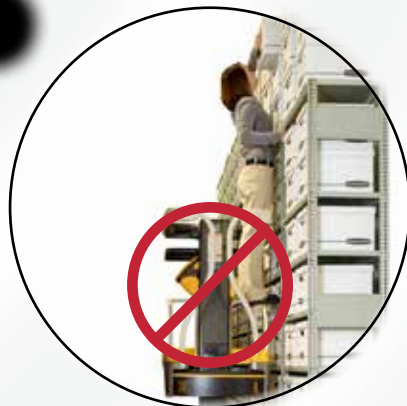
You could be burned or even killed if you or your vehicle comes too close to electrical devices or wires. Know what voltages you may be exposed to, and what the safe working distance is.

Platform Safety

1

KEEP YOUR FEET ON THE PLATFORM

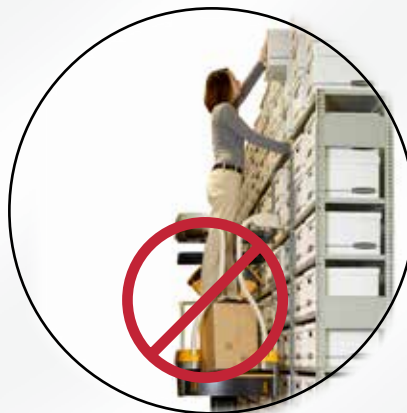
Don't climb on any part of the vehicle or use any other item to stand on.



2

USE THE GATES

Close the gates behind you when you are elevated. Protect yourself from falls.



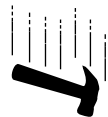
3

STAY CLOSE TO YOUR WORK

Avoid long reaches. Be careful with tools or when transferring merchandise. Watch out for people below, and in the next aisle.



Know the Hazards



FALLS ARE VERY SERIOUS ACCIDENTS

Keep your feet on the platform floor. Don't climb on any part of the vehicle, or use anything else to stand on. Keep gates closed when elevated.

FALLING OBJECTS CAN INJURE OTHERS

Keep your vehicle close to your work. Make sure loads are stable. Watch out for people below you.

You & Your Wave® Vehicle

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You and
Your Wave

Your Work Assist Vehicle

1

THIS IS YOUR WAVE

Use your WAVE (Work Assist Vehicle) for moving and stocking materials, or working at low heights. Use on dry, level floors in temperatures above freezing.

Note:**IT'S NOT LIKE AN AUTOMOBILE**

- You don't steer the same.
- You don't brake the same.
- You don't accelerate the same.



2

HOW TO DRIVE YOUR VEHICLE

- Face the front, or load end of the vehicle.
- Keep your heels on the pedals and hands on the controls.
- Travel with gates open when lowered. Close the gates behind you when elevated.
- Keep your entire body within the operator area.
- Stop your vehicle and lower completely before getting off.

Note:

- Gates Open When Lowered
- Gates Closed When Elevated

GIVE YOUR BODY A BREAK

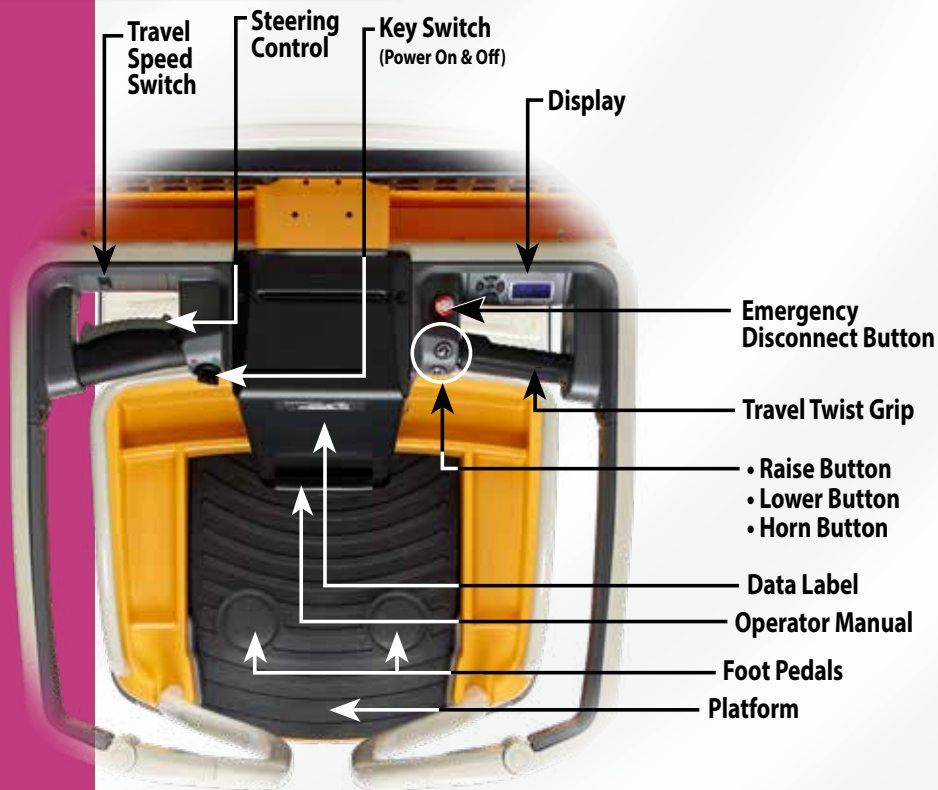
Take advantage of stop time by flexing your arms and legs. Staying alert will help you be a better and safer driver.

Hands on Controls

Heels on Pedals



Vehicle Parts





Located under Load Deck:
• Manual Lowering Valve
• Batteries

Gates

Load Tray
(Optional Power Load Tray shown)

Storage Compartments

Located Under Platform:
• Service Manual
(see page 5)

Motor Cover
(Located Under Platform)

Located Behind Pull-Down Cover:
• Service Panel
• Emergency Disconnect Button
• Raise/Lower Switch
• Push/Drive Switch
• Platform/Base Switch
• Battery Charging Socket or Pullout Cord & Display

Display

1

**SERVICE ALERT**

This yellow light will come on and the vehicle will stop when a fault is sensed. Try restarting the vehicle. If the light comes on again, shut the vehicle off and notify your supervisor.

2

**OPERATOR ACTION**

A yellow light here, along with a “beep”, means your hands and/or feet are not in the travel position.

If the vehicle won't drive when you move the twist grip, check the display for error messages.

3

**BATTERY STATUS**

When you see the yellow light flashing, it's time to have the batteries charged. The display screen shows how much charge is left.



Know the Hazards



FALLS FROM A RAISED PLATFORM CAN CAUSE SERIOUS INJURY OR DEATH

This red safety light means you must close the vehicle gates to continue operating.

EMERGENCY DISCONNECT

When you see this red light, the Emergency Disconnect button is in the “power off” position. Release the emergency disconnect button to restore power to the vehicle.

4



Continued

Display

1

SERVICE ALERTS & OPERATOR ACTION

When you hear “beeps” and/or see lights on the display there may be something you need to do. Check the display for error messages. If anything doesn’t look, work, feel, or sound right, don’t use your vehicle. Notify your supervisor.

2

STATUS/INFORMATION SCREENS

In addition to the lights you may see screens giving vehicle status such as: battery status, maintenance due, performance level, vehicle is ready to operate, etc.

While the vehicle is operational each screen shows the percent of battery charge remaining and the performance level your company has set.



3

NOTIFICATION SCREENS

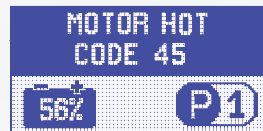
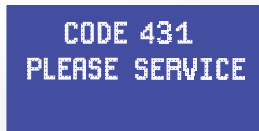
There are a number of screens that require a response from you such as: enter your code, charge the battery, close gates, check covers or doors, switch operation, placement of feet and hands, etc.



4

TROUBLE SCREENS

These screens are shown when there is a problem with your truck, such as: overheating of components, sensor issues, etc.



Switch Panel

1



OPTIONAL WORK LIGHT SWITCH

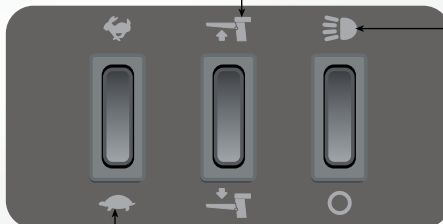
Controls any optional lighting added to the vehicle.

2



OPTIONAL POWER LOAD TRAY SWITCH

Use this switch to raise or lower the optional power load tray to the most convenient height.
WARNING: When lowering, always make certain the area under the load tray is clear of people and obstructions.



3



TRAVEL SPEED SWITCH

When working in an open area, with few people around, you have the option of selecting faster travel speeds by pushing the switch up towards the “rabbit” symbol. Push the switch down towards the “turtle”, to select slower travel speeds.

Know the Hazards



CONGESTED AREAS CAN BE DANGEROUS

Slow down and keep your vehicle under control. Don't use high travel speed in crowded or busy areas. Pedestrians always have the right of way.



WATCH OUT FOR PEOPLE AROUND AND BELOW YOU

Always make certain the area around and below the load tray, as well as the platform, is clear of people and obstructions.

Vehicle Operation

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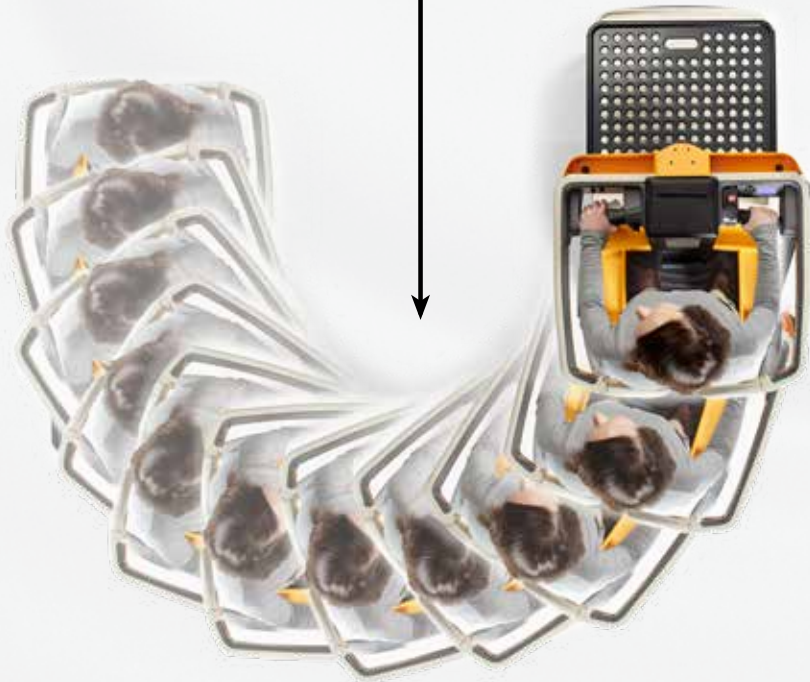
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Power On & Off

1

KEY ON

Turn the key vertical to the green dot. Check that beeper and all display lights are working. Don't put your hands on the controls until beeping stops.

KEY OFF

Turn the key horizontal to the red dot. Always turn the key off when leaving your vehicle. Remove the key if necessary to prevent unauthorized use.



SOME THINGS THAT WILL PREVENT "KEY ON"

- Hands placed on controls too quickly.
- The Emergency Disconnect button on either the platform or the service panel (see page 34) is in the "power off" position.
- Vehicle may have options added to prevent unauthorized use.

Note:

2

EMERGENCY DISCONNECT

Push down the red Emergency Disconnect button anytime your vehicle isn't working correctly. Don't use your vehicle. Notify your supervisor.



POWER ON OR OFF

- When the red Emergency Disconnect button is down, power is off.
- Twist the button clockwise to turn power on.

Hand/Feet Sensors

Power On & Off

1

HAND SENSORS

You must be in the travel position, with a hand on each of the controls.



2

FOOT SENSORS

You must be in the travel position, with both foot pedals down, to travel, raise or lower.

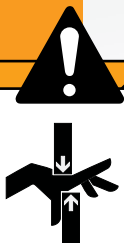


Note:

TRAVEL POSITION

- Hands on the controls.
- Heels on the pedals.

Know the Hazards



Any part of your body outside the operator area can be pinned or crushed.

Three Ways
to Brake

Braking

1

FOOT BRAKE

Lift a heel from either foot pedal to apply the brake.



2

PLUGGING

While traveling, rotate the twist grip in the opposite direction of travel to slow or stop the vehicle. The farther you rotate the grip past center, the quicker the braking. Return the grip to center as soon as your vehicle comes to a stop.



3

PARKING BRAKE

The parking brake is automatically applied after the vehicle stops moving, or if there is loss of power.

In an emergency, push the Emergency Disconnect button. This will cut power to the vehicle and apply the parking brake.

Know the Hazards



WATCH OUT FOR PEOPLE AROUND YOU



Don't drive too close to them. Know the distance it takes to stop.

In an emergency, push the Emergency Disconnect button to stop your vehicle.

Travel

1

DIRECTION AND SPEED

Rotate the top of the twist grip in the direction you want to travel. The farther you rotate the grip from the center position, the faster your vehicle will travel.



Note:

TRAVEL OR TRAVEL SPEED WILL BE AFFECTED BY:

- Position of travel speed (rabbit/turtle) switch.
- Elevated height.
- Position of gates.
- Direction of travel.
- Hands and feet not in travel position.
- Someone or something on the motor cover.
- Battery charger plugged in.

Know the Hazards



PEDESTRIANS HAVE THE RIGHT-OF-WAY

Watch out for people around you. Don't drive too close to them. Be careful at intersections. Use your horn. Check around you before changing direction. Look in the direction you are traveling.



AVOID FALLS AND TIPOVERS

Make certain your path is clear of debris, holes, or any objects that could cause you to fall, or your vehicle to tip over. Don't run over anything on the floor.

Continued

Travel

2

CASTER SWING

The front of the vehicle may move a couple of inches to one side or the other when you begin traveling, or change direction of travel. This is caused by the swing of the casters and usually does not require steering correction.



3

HORN

Sound the horn as needed and when you come to a crosswalk or intersection.

H



Know the Hazards



IT'S NOT SAFE TO OPERATE ON RAMPS OR GRADES

You could lose steering control. Operate your vehicle on level surfaces only.

SLOW DOWN FOR SPILLS OR WET FLOORS

Powder or liquid spills can cause slippery floors. Slow down or you could lose control of steering and braking. Be careful and allow for a longer stopping distance.

When Not Traveling

Turning

1

You can turn your vehicle even when you are not traveling. Squeeze the steering control in the direction you want the front, or load end of the vehicle, to turn.

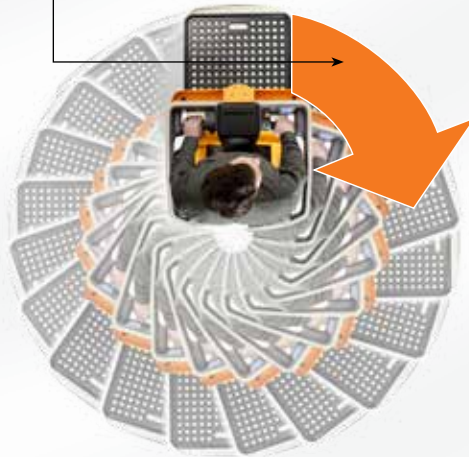


2

Squeeze the right side of the steering control...



The front of the vehicle will turn to the right.



3

Your turning speed will vary depending on how far you squeeze the steering control.

Know the Hazards



WATCH OUT FOR PEOPLE AROUND YOU

- Look before turning.
- Avoid sudden vehicle movement.
- Don't drive too close to them.
- Know the distance it takes to stop.

Forward
Traveling

Turning



1

While traveling forward...

2

Squeeze the steering control in the direction you want the front of the vehicle to turn. Release the control when the vehicle is turned and pointed to the direction you want to travel.



Note:

Turns will become larger as travel speed increases, or the load weight increases.

Reverse Traveling

Turning

1

While traveling in reverse...

2

Squeeze the steering control in the direction you want the front of the vehicle to turn. Release the control when the vehicle is turned and pointed to the direction you want to travel.





Know the Hazards



The front of the vehicle will swing wide when you turn. See that you have room to drive and steer. Watch out for people around you. Turns will become larger as travel speed increases or load weight is increased.

Raising & Lowering

1

Push either the Raise button or the Lower button to raise or lower the platform. Release the button when you get to the desired height.



Note:

RAISE & LOWER WILL BE AFFECTED BY:

- Hands and feet not in travel position.
- Position of gates.
- Low battery charge.
- Someone or something on motor cover.
- Position of service-panel switches.

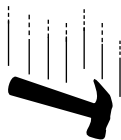
2

MOTOR COVER INTERLOCK

This feature will cut out, lower and reverse if someone or something is pushing down on the motor cover, which is located below the platform.



Know the Hazards



- Watch out for people below and around you.
- Falling objects can injure others. Make sure loads are stable and secure.
- Close the gates whenever you raise the platform.
- If raise or lower won't stop, press the Emergency Disconnect button.

Optional

Rail Guidance

1

RAIL GUIDANCE OPTION

By adding a guide wheel option to your vehicle and guide rails at the floor, you can operate in narrow aisles without steering your vehicle.

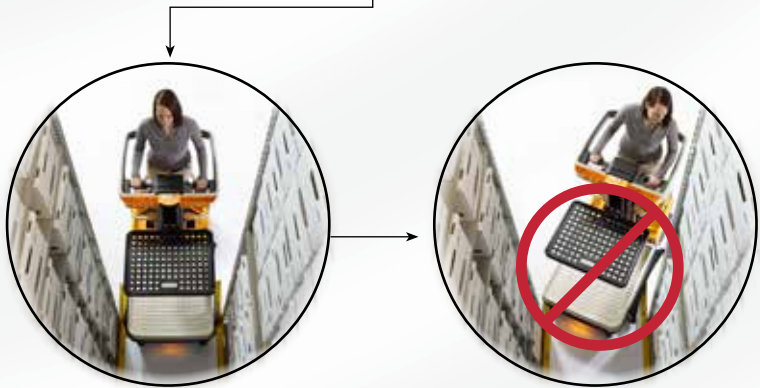
**Note:**

Travel speeds may change as you enter or exit guided aisles.

2

IN & OUT OF AISLES

Drive straight into and out of aisles. Do not approach or leave at an angle. Do not try to steer while you are in a guided aisle. Your company must train you how to enter, exit and drive in aisles with rail guidance.



Know the Hazards



STAY ALERT



You must be just as careful and alert while driving in a guided aisle as you are when driving with manual steering.



- Make sure there is nothing in your path, on the floor or sticking into the aisle.
- You must take control of steering as you leave a guided aisle.
- Stop and check for people and other vehicles before exiting or entering any aisle.

Load Handling

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Vehicle Capacity

1

WHAT IS VEHICLE CAPACITY

Capacity is the maximum weight that can be carried or lifted. Your vehicle has three separate capacities: Operator Platform, Load Deck and Load Tray.

For both the Deck and the Tray, load weight must be evenly distributed over the surface. This will give your vehicle better stability.

2

LOAD DECK

Capacity is limited to 250 pounds.

3

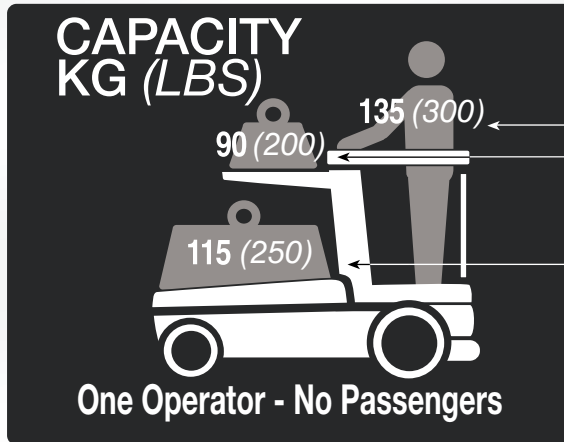
LOAD TRAY

Capacity is limited to 200 pounds.

4

OPERATOR PLATFORM

Capacity is limited to one person, including tools, weighing not more than 300 pounds.



Know the Hazards



- Exceeding any of your vehicle's capacities could cause an accident.
- Do not handle unstable loads.
- There is no safe place for passengers anywhere on the vehicle. No passengers.

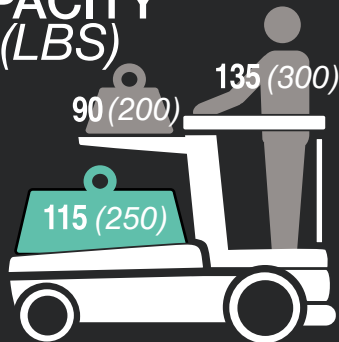
Load Deck

1

CAPACITY

Don't put more than 250 pounds on the load deck.

CAPACITY KG (LBS)



One Operator - No Passengers

EVENLY DISTRIBUTED LOAD

Make certain the load weight is evenly distributed over the surface of the deck.



Load Tray

1

CAPACITY

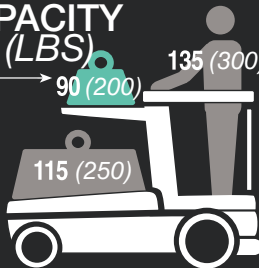
Don't put more than 200 pounds on the load tray.

CAPACITY
KG (LBS)

90 (200)

135 (300)

115 (250)



One Operator - No Passengers

2

EVENLY DISTRIBUTED LOAD

Make certain the load weight is evenly distributed over the surface of the tray.



3

VERTICAL TRAY ADJUSTMENT

Hold the load tray at the side edge with both hands to support the tray when released from its present height position. Tip the tray up until it is free to slide up or down on the mast. When you have it positioned at the best work height, return the tray to a level, latched position.



4

TRAY STORAGE

Tilt the load tray up and slide it down the mast as far as it will go. Move the tray back against the mast until it is latched.



Know the Hazards



WATCH OUT FOR PEOPLE AROUND AND BELOW YOU

Always make certain the area around and below the load tray, as well as the platform, is clear of people and obstructions.

Optional

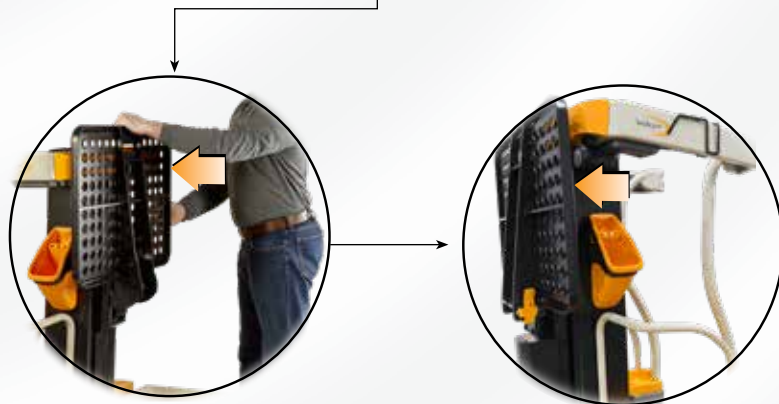
Power Load Tray

1

TRAY STORAGE

Lower the power load tray down as far as it will go. Tilt the tray back against the mast until it is latched in place.

WARNING: When lowering, always make certain the area under the load tray is clear of people and obstructions.



2

TRAY LATCH

To release the load tray, hold the tray on the side edge and press the tray latch. Use both hands to lower the tray to a level position.



Know the Hazards



WATCH OUT FOR PEOPLE AROUND AND BELOW YOU

Always make certain the area around and below the load tray, as well as the platform, is clear of people and obstructions.

Vehicle Maintenance

Section Contents

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	39	To Charge The Batteries
	39	Troubleshooting The Battery Charger



Daily Safety Check

1

CHECK YOUR VEHICLE BEFORE STARTING WORK

You must make sure your vehicle is safe, both for you and for people around you.

2

IF ANYTHING DOESN'T LOOK, WORK, FEEL OR SOUND RIGHT, DON'T DRIVE YOUR VEHICLE. NOTIFY YOUR SUPERVISOR.

3

WALK AROUND YOUR VEHICLE & CHECK IT OVER

- Make sure the batteries are charged. See page 36 for battery charging and servicing information.
- Check that all wheels are in good condition.
- Look into and under the vehicle for signs of leaks.
- Turn the key to ON. See that the “beeper” and all display lights are working. Try the horn.
- Make sure the Emergency Disconnect button works.
- See that all options are working if your vehicle is so equipped.
- Check your vehicle for any damage that could be a hazard to you or to people around you.

4

TEST DRIVE YOUR VEHICLE IN AN UNCONGESTED AREA

- Make certain the service panel door is closed.
- Check raise and lower. Platform should not elevate above 20 inches with gates open.
- Make sure the steering is smooth.
- Drive the vehicle slowly in both directions.
- Drive through the full speed range, in forward and reverse. In forward, and with platform lowered, the speed should be slower with gates closed.
- Check stopping distance in forward and reverse. Caution, travel speed, load weight and floor conditions can affect stopping distance.
- Know the distance it takes to stop before you start working. If the stopping distance is too long for you, don't drive your vehicle. Notify your supervisor.
- If your vehicle is equipped with optional alarm or flashing lights, make certain they are working.

5

CHECK THE AREA WHERE YOU'LL BE WORKING.

Report any hazards or unsafe conditions to your supervisor.

Service Panel

1

LOCATION

The Service Panel is behind the hinged door at the front of your vehicle.



Note:

Do not operate vehicle with the service panel door down.

Battery Charging Display (See pages 35 & 36 for instructions)



Charging Socket or
Pullout Cord (optional)

Continued next page...

Continued

Service Panel

2

PUSH/DRIVE SWITCH

If for some reason your vehicle won't drive, put this switch in the Push Mode position. This should release the brake so the vehicle can be pushed. If it does not release, contact your supervisor.

Note:

No one may ride anywhere on the vehicle while it is being pushed. Pushing speed must not exceed 2 MPH.

3

EMERGENCY DISCONNECT

Push down the red Emergency Disconnect button anytime your vehicle isn't working correctly. Don't use your vehicle. Notify your supervisor.



4

RAISE & LOWER OVERRIDE SWITCHES

The switch on the lower left determines whether the operator platform or this service panel has control of raise & lower. If the left switch is on BASE, the right switch will control raise and lower. The Raise & Lower buttons on the platform won't work until the left switch is placed back on PLATFORM.

Note:

If the Lowering button does not work, the platform can be lowered by following the instructions for operating a manual lowering valve. Both the valve and the instructions are located under the load deck.

Know the Hazards



DON'T LET THE OPERATOR GET HURT



Before you use the Raise/Lower override switches, warn the operator to keep hands and feet inside the operator area.

Don't push the vehicle until the operator is off the platform and the area is clear.

Emergency

Manual Lowering

Note:

If you are unable to lower the truck to the ground call for authorized assistance to help. A manual lowering valve and instructions are located under the load deck.

1

BEFORE USING THE MANUAL LOWERING VALVE

1. Make certain all people, including yourself, are clear of the platform and load tray.
2. Warn the operator to stay completely inside the operator area.
3. Stop lowering immediately if the chains become slack, or any part of the platform gets caught.

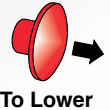
Note:**SLACK CHAIN CONDITION**

Always be alert for “RAISE PLATFORM” shown on the display or any other indication that the lift chains have become slack. A slack chain condition can cause serious injury by allowing the platform to drop suddenly.

2

MANUAL LOWERING VALVE

To lower the platform, pull the red knob.



3

To stop the lowering, release the red knob.



Know the Hazards



DON'T LET THE OPERATOR GET HURT

Before you use the Manual Lowering Valve, warn the operator to keep hands and feet inside the operator area.

Don't push the vehicle until the operator is off the platform and the area is clear.



Power Sources

POWER SOURCES

Your truck can be designed to use the following power sources:

- “Flooded” and “Maintenance Free” Lead Acid Batteries
- Lithium-Ion Batteries

If your truck is equipped with a V-Force Lithium-ion battery, see the data plate installed on your truck.

Only Crown approved power sources are permitted to be used in your truck. Only authorized service personnel are permitted to modify the power source installed in your truck.

See the power source data plate for the approved power source installed in your truck.

1

Note:

Follow the manufacturer’s specification and instructions when handling power sources.

WORKING WITH POWER SOURCES

Your company should provide an area that is safe to work on power sources. Use that area for all power source work and charging.

- Do not charge a power source unless you are trained and authorized.
- Do not remove or install a power source unless you are trained and authorized.

2

Note:

⚠ WARNING

Adding electrical devices (radio, terminal, lights etc.) or changing existing components or wiring can affect truck operation and could cause an accident.

Contact authorized Crown personnel before adding to or changing the electrical system in any way.

⚠ WARNING



High voltage can be present, even after vehicle is turned off or batteries are disconnected.

Serious injury or death could occur.

Wait 5 minutes before working on or around wiring.

⚠ DANGER



A damaged lithium-ion battery can be highly flammable. Immediately exit the area for leaking gas or liquid, excessive heat, flames, or sudden noise coming from the battery.

Alert emergency personnel and notify your supervisor. In case of contact, get medical attention.

Do not smoke, use open flame, create an arc or sparks near this battery.

600122-200A

Know the Hazards



AVOID DAMAGING THE POWER SOURCE

Do not operate or leave the truck in freezing temperatures. Always follow the battery manufacturer's instructions.

Battery Maintenance

1

BATTERIES & CHARGER

- Make sure that the charger has the correct voltage and amperage for the power source.
- Read the instructions for the charger and power source.
- Don't charge or service the batteries unless you are trained and authorized. See the Service Manual for instructions.
- Charge batteries in areas designated for that use. Do not expose the vehicle to moisture or snow while charging. Don't try to charge a frozen battery.
- Wear protective eyewear, gloves and clothing when servicing the batteries.





DANGER

Note:



Batteries can produce explosive gas. Do not smoke, use open flame, or create an arc or sparks near this battery. Ventilate well when in an enclosed area and when charging.

This battery contains **Sulfuric Acid** which causes severe burns. Do not get in eyes, on skin, or clothing. In case of contact, flush immediately and thoroughly with water. Get medical attention if your eyes are affected.

20



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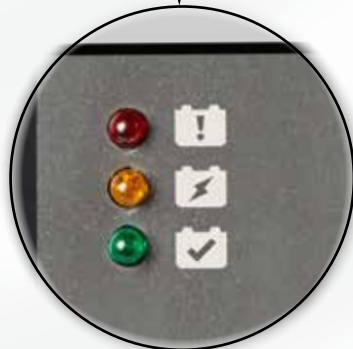
Battery Maintenance

2

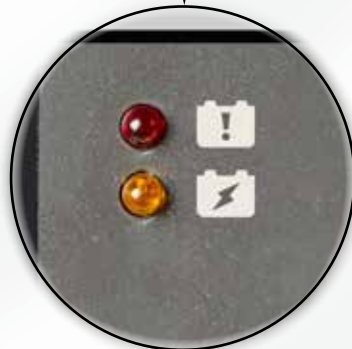
TO CHARGE BATTERIES

- To use a charger built into the truck you must first have access to an AC electrical outlet.
- Turn the vehicle key to off or push the Emergency Disconnect button.
- Use an extension cord less than 25 ft. long with a wire size of 14 AWG or heavier.
- Plug one end of the extension cord into the charging socket on the service panel.
- Plug the other end of the extension cord, or the optional retractable cord, into a 120 volt AC outlet.
- Check the charging display on the service panel.

LEAD ACID



LITHIUM-ION



3

TROUBLE SHOOTING THE BATTERY CHARGER

- A red light means something is wrong with the charger. Try plugging the charger in a second time. If the red light still comes on, unplug the charger and notify your supervisor.

LEAD ACID

- A yellow light means the charger is working.
- A green light means the charging is finished. Unplug the extension cord. The vehicle is ready to use.
- If none of the lights come on, the charger is not getting power. Make sure the AC outlet is working and the extension cord is OK.

LITHIUM-ION

- A flashing yellow light means the charger is charging.
- A solid yellow light means the charge is complete.

Know the Hazards



BATTERIES CAN BE DANGEROUS

They produce gas that can explode. They also contain acid that can burn or disfigure you.



- Don't service any batteries unless you are trained and authorized.
- Never smoke or use open flames around batteries.
- Use protection such as gloves, eye shields, etc.
- Do battery work in a safe area provided by your company.



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