BT Prime-Mover

RRX35/45, RSX40/50, RDX30

- **Operator's Manuals**

  306754-000 1997_January
  306754-000 1997_May
  306754-000 1998_June
  306754-000 1998_October

Return

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General safety regulations

Operator’s responsibility

- The truck shall only be driven by personnel that have been specially trained and that have permission to drive the truck.
- The truck shall only be driven with care, good judgement and in a responsible manner.
- Each country (state) has its own safety regulations. It is the operator’s obligation to know and follow these. This also applies to local regulations and for different types of handling. If the recommendations in this manual deviate from your country’s (state), the local safety regulations should be followed.
- The truck should be insured in accordance with local directives and laws where the truck is used.
- Any accidents or near accidents (incidents) must be reported to your supervisor.
- The truck shall only be driven with care, good judgment and in a responsible manner.
- Local regulations regarding personal safety equipment shall be followed.
- The truck should not be driven with oily hands or oily shoes due to the risk of slipping.
- **DO NOT** place any part of body between moving and stationary objects.

Safety regulations

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Truck data

The table provides information regarding some technical data which is of value with daily use of the truck.

Truck type	**RRX35/45**
Operating speed without load, MPH 24 Volt Operating speed without load, MPH 36 Volt	6.0 6.5
Operating speed with classified load, MPH 24 Volt Operating speed with classified load, MPH 36 Volt	5.5 6.0
Maximum operating gradient with load, %	0
Continuous noise level. dB (A)	<80
Truck type	**RDX30**
Operating speed without load, MPH 36 Volt	6.5
Operating speed with classified load, MPH 36 Volt	6.0
Maximum operating gradient with load, %	0
Continuous noise level. dB (A)	<80
Truck type	**RSX40/50**
Operating speed without load, MPH 24 Volt Operating speed without load, MPH 36 Volt	6.0 6.5
Operating speed with classified load, MPH 24 Volt Operating speed with classified load, MPH 36 Volt	5.5 6.0
Maximum operating gradient with load, %	0
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The truck’s lifting capacity, lifting height and weight can be found on the truck’s data plate.

Presentation of truck

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Controls and instruments

Guards and shields have been provided on unit for your protection.

Warning **DO NOT** operate this equipment unless all factory installed guards and shields are properly secured in place.

Decals are also provided to warn of potential danger as well as to display special operating procedures

Warning Read and observe all warnings on this unit before operating it.

Emergency Stop

The truck is fitted with an emergency stop (red in color), which is located on the right side of truck above the battery connectors.

Pressing the emergency stop will cut the power supply in the event of:

- An accident.
- Emergency situation, risk of an accident.

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Programming

- Press the button **PROG** briefly to enter the programming mode. The **LED** in the button lights and the display reads **PL00**. You can program new lifting heights, modify or remove programmed height positions.

Programming a level

Programming of lift heights can only take place within the staging zone, above initial lift (freelift).

Warning ***Forks not horizontal. The load can slide off the forks or catch on the rack. When the load is lifted or lowered the forks should always be positioned horizontally. The forks and load must be positioned completely clear of the racking and other obstructions before lifting and lowering begins.***

“Collection level”

- Press the **PROG** button briefly. State the required level (e.g. 1+5=level 15). The numbers are shown on the display.

- Lift the forks to the required level and press the **COLLECT** button. The **LED** flashes.

“Leaving level”

- Pick-up the load and wait three seconds. Lift the forks just enough so that the pallet can be removed from the rack. Ensure that there is sufficient space (maximum of 5.9”) for safe handling.

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Warning codes

Error No.	Error Code Name	Comment
61	O Lower Prop Err	Shorted or opened lowering proportional valve output
63	O Forward Contactor Err	Shorted or opened forward contactor output
64	O Backward Contactor Err	Shorted or opened backward contactor output
90	Lift Pot Err	Shorted or opened lift potentiometer input
91	Tilt Pot Err	Shorted or opened tilt potentiometer input
92	Reach Pot Err	Shorted or opened reach potentiometer input
93	Sideshfter Pot Err	Shorted or opened sadist potentiometer input
95	Pot Ref Err	Potentiometer supply voltage

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Warning ***Driving with reach extended.***
This will cause excessive wear and maintenance.
Always drive with the reach in the fully retracted position.

NOTE:
Increased machine width.
The outriggers can collide with fixed objects.
A truck with wide outriggers requires a greater operating area.

- Drive the truck with the load trailing, when the load impairs the line of vision.

- If necessary, when the operator's vision is impaired, ask someone to direct operations so that transportation can take place without the risk of causing personal injury or material damage.

- Drive the truck at a reduced speed when driving on inclines. Always drive with the load uppermost on the incline. Drive straight up and down the incline. It is not permitted to turn the truck on an incline.

Warning ***Risk of overturning.***
A loaded truck can overturn when attempting to turn on an incline.
Never turn a loaded truck on an incline.

Warning ***Increased braking distance.***
The braking distance is increased when traveling downhill.
Drive at a reduced speed, use the truck's motor brake.

- Before the truck is driven into an elevator, ensure that the elevator is certified for the overall load (the weight of the

Transporting loads

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Each month:

- Measure the temperature in one of the center cells immediately after charging. The temperature should not exceed 122°F (50°C.)

- Measure the density of the battery fluid using an acid tester. Hold the acid tester absolutely vertical and extract sufficient fluid so that the hydrometer float moves freely.

- Adjust specific gravity with temperatures based on the chart below.

Temperature	Gravity
77°	1.280

WARNING Battery manufactories maintenance and charging procedures must be followed. Battery acid is very corrosive and must be immediately cleaned up after spillage.

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No.	Action	A	B	C	D	E	F	G
8.0	Hydraulic system							
8.1	Check hoses and couplings for leakage					X		
8.2	Check pipes and hoses for wear					X		
8.3	Check the tank for leakage and its mountings					X		
8.5	Check oil level					X		
8.6	Change oil						X	
9.0	Cylinders							
9.1	Check for leakage					X		
9.2	Check the mountings					X		
10.0	Mast and reach carriage							
10.1	Check for damage and cracks					X		
10.2	Check mast mounting bolt torque					X		
10.3	Check for play on the rollers					X		
10.4	Check the electrical limit switch function					X		
10.5	Check for wear and stretch on the chains and sheaves					X		
10.6	Check hoses and couplings for leakage cuts and other damage					X		
10.7	Check for wear to the forks and other lifting devices					X		
11.0	Control console							
11.1	Check the mounting and control console locking mechanism	X						
11.2	Check the micro switches and hydraulic function					X		

Maintenance

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General safety regulations

Control

- Always carry out the daily service before the truck is used. The working order of all safety equipment, guards and safety switches should be checked before you use the truck. Such safety equipment must not be disengaged.

- The battery must be secured in its intended compartment. The battery shall have a weight that corresponds with the value stated on the truck's data plate.

- Read the nameplates. **Do not** operate the truck if the attachment load or maximum lift height are different from the data stated on the nameplate.

- The truck must not be used if it is damaged or has faults that affect safety or its safe use. The truck may not be used if it has been repaired, modified or adjusted unless it has been checked and approved by personnel authorized by BT.

Operating the truck

- The truck is designed and produced to be your tool when collecting and leaving goods at different heights.

- If the truck is to be used in cold storage environments the truck must be especially built for this type of use.

- It is **not permitted** to use the truck for other purposes than it has been designed and produced for, e.g. the following applications:

  - In areas where the atmosphere contains gases that can cause fires or explosions.

Safety regulations

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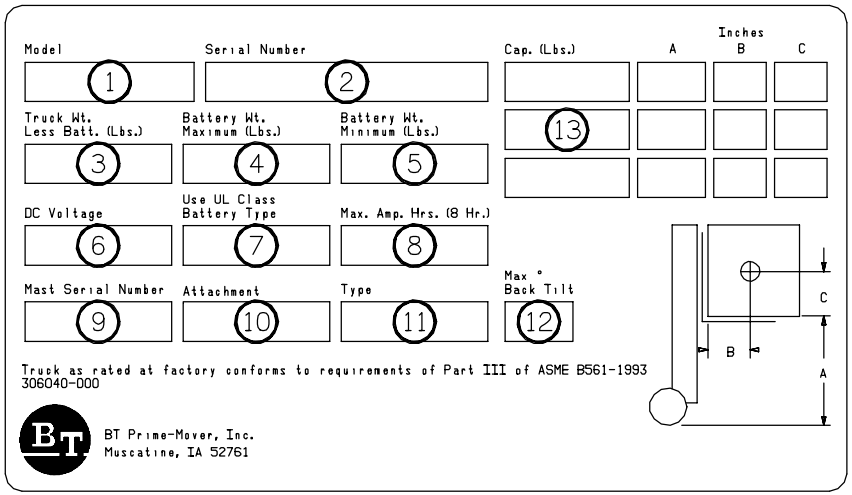
Data plate

Know the rated capacity on the data plate and understand areas 1 through 13 as shown in the illustration.

1. Truck model number
2. Truck serial number
3. Weight less battery
4. Maximum battery weight
5. Minimum battery weight
6. Truck voltage DC
7. Battery type UL class
8. Battery maximum AMP hours
9. Mast serial number
10. Attachment
11. Truck type
12. Maximum degree rear tilt
13. Truck capacity



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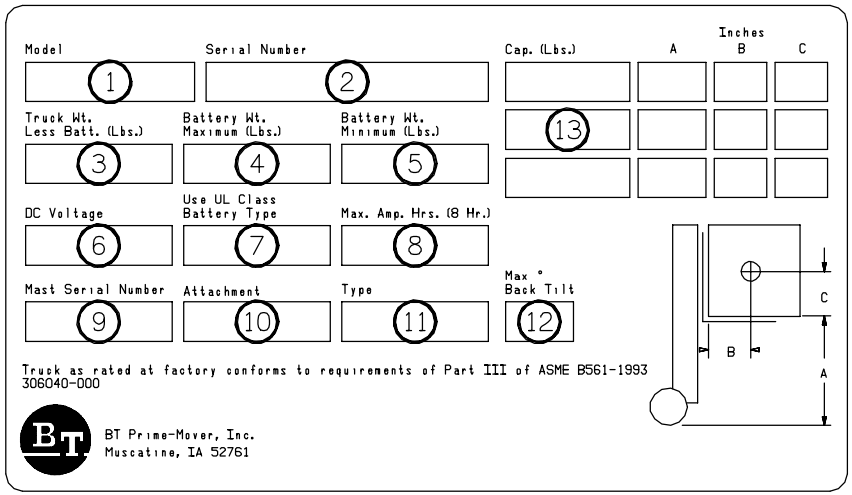

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When the warning/error codes are displayed the indicating window (G) will be lit. A character E/C will be displayed in the left hand side of the character window and the error code in the right hand side. The meaning of the codes is explained in section **Warning codes and/or Error codes**.

D. Battery guard

The battery guard indicates the current charge status of the truck's battery.

1	Full charge battery
1/2	Half charged battery
0	Discharged battery

The battery guard has an integrated cut-out function that cuts out the truck's lift function when a predetermined charge level has been reached. This prevents overloading the battery and increases the operating economy of the truck. When the battery has reached a charge level equivalent to 70% discharge a warning signal is given via flashing lights. A further 10% of the battery's capacity can then be used before the battery guard cuts out the lift function.

F. Parameter control

When checking the set parameters the indicator window (F) will light. For checking procedures, refer to the section **Display/Programming**.

H. Parking brake indicator

The indicator window is lit when the parking brake is applied.

I. Extra indicator window

This indicator window is lit if a hydraulic function is requested without either the brake pedal in the depressed position. The indicator is also lit if the truck is driven and the right foot pedal is not depressed.

Controls and instruments

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Brake pedal

- To release the parking brakes depress the brake pedal with your left foot.

- To apply the proportional brake lift the brake pedal until the desired level of braking is felt. An emergency stop can be made by fully raising the brake pedal quickly.

> ⚠ WARNING ***Risk of crushing exists if any part of the body is outside of the operator's compartment.***
> ***Always have your whole body inside the operator's compartment.***

This truck is also equipped with a **plug braking function**. This method involves simply reversing the travel control to opposite direction **without** applying the brake. This will cause the truck to come to a stop smoothly.

Plug braking function can be done by pressing the travel speed / direction selector to the left to reverse direction. To increase braking speed move the travel speed / direction selector switch back to the right to increase speed.

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Steering

The steering impulses are transmitted to an electric steering motor mounted in the motor compartment. The steering motor moves the transmission by means of gears.

The steering characteristics are progressive, this means that the required steering response on the drive wheel is dependent on the speed of the truck. When driving slowly, a small number of turns to the steering gives the same response as a large number of turns when driving faster.

The drive wheel has no end limit position, which gives the possibility of steering through 360°.

The steering characteristics can be adapted to the operator's experience and requirements. The steering sensitivity, progressiveness can be increased or decreased if necessary. Contact a trained service technician.

When driving slowly and turning the truck, the wheel can be turned more quickly using the spinner.

- When driving at high speed (long transport, etc.) steer the truck by using the tips of the your fingers on steering hub.

⚠WARNING ***Lost stability.***
The truck can overturn and the load fall if you turn the steering quickly at high speed. Only steer with the finger tips on the steering hub when driving at high speed.

- If the truck gets caught against an obstacle, use normal steering force to steer truck free. Try to free truck by carefully driving forwards and backwards while moving the steering wheel.

Driving

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Pre-charging

- Park the truck in the assigned charging area.
- Ensure nothing prevents ventilation above the battery.
- Turn key switch to the **OFF** position.
- Pull out the battery connector from the truck's connector.
- Make sure the battery charger is switched **OFF**.
- Connect the **battery to charger** socket.
- Switch **ON** the battery charger.

> ⚠WARNING ***During the charging process oxygen and hydrogen gases are always formed in the battery.***
> ***Short circuits, open flames and sparks in the vicinity of the battery can cause an EXPLOSION.***
> ***Always switch OFF the charger current BEFORE removing the battery connector.***
> ***Provide good ventilation, especially if the battery is recharged in a confined area.***

During charging

- After approximately ten minutes make sure that the ammeter indicates a normal reading and that the control lamp is **ON**.

After charging

- Make sure that the ammeter indicates an insignificant or

Battery

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- Make sure that the ammeter indicates an insignificant or

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NOTE:
Risk of short-circuiting.
The electrical system can be damaged.
Electrical components must not be cleaned with a high pressure washing unit.

- Clean the motor compartment using a degreasing agent, diluted to a suitable concentration.
- Rinse off loose grime using warm water.

Electrical components

- Blow electric motors dry using compressed air.

> **WARNING** Compressed air used for cleaning **MUST** be reduced to less than 30 p.s.i., and then only with effective chip-guarding and personal protective equipment.

- Clean the electrical panels, electronic boards, contacts, connector, solenoid valves, etc. using a damp cloth and a cleaning agent.
- **Do not spray or pressure wash** in the compartment.

NOTE:
Risk of short circuiting.
Electrical components can be damaged.
Do not break the warranty seal on the electronic board.

Maintenance

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Storing the truck

Take the following action if the truck is not used for **one week** or more:

Battery

- Recharge the battery fully and carry out usual battery maintenance.
- Maintenance charge the battery every **3rd month** and check the fluid level.

Hydraulic system

- Change the oil in the hydraulic system when stored for periods longer then **1 year**, see the oil specification in the section **Maintenance and lubrication chart**.

Drive unit

- Block up the truck's drive section to take the load off the drive wheel and load wheels when storing for periods longer than **one week**.

Starting after a period of disuse

- Before the truck is put into operation after a period of disuse it should undergo a function and safety check as stated in the section, **Daily service/safety checks**.
- When stored for a period **greater** then **3 months,** carry out preventive maintenance as stated in the instructions, **500 hours interval**.

Transporting and storing the truck

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Warning symbols

Always follow the warnings given in this Instruction Manual and on the truck to avoid accidents from occurring.

Warning levels

Warning texts are given in four levels and provide information on the risks, describe the consequences, and instruct how to avoid accidents.

DANGER

Warns that an accident will occur if you do not follow the instructions.
The consequences are serious personal injury or possibly death, and/or extremely large material damage.

WARNING

Warns that an accident can occur if the instructions are not followed.
The consequences are serious personal injury or possibly death, and/or large material damage.

CAUTION

Warns that an accident can occur if the instructions are not followed.
The consequences are personal injury and/or material damage.

NOTE!

Marks the risk of a crash/breakdown if the instructions are not followed.

Safety regulations

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DANGER

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The consequences are serious personal injury or possibly death, and/or extremely large material damage.

WARNING

Warns that an accident can occur if the instructions are not followed.
The consequences are serious personal injury or possibly death, and/or large material damage.

CAUTION

Warns that an accident can occur if the instructions are not followed.
The consequences are personal injury and/or material damage.

NOTE!

Marks the risk of a crash/breakdown if the instructions are not followed.

General safety regulations

Handling the battery 

- Always handle the battery and its connections with care. Read and follow the instructions for changing or recharging the battery carefully. See chapter **Battery**.
- Always wear protective glasses when working with the battery.
- Make sure the battery in the truck is of a weight that corresponds with the information on the truck's data plate.
- Make sure the battery is secured in its compartment.

Safety regulations

General safety regulations

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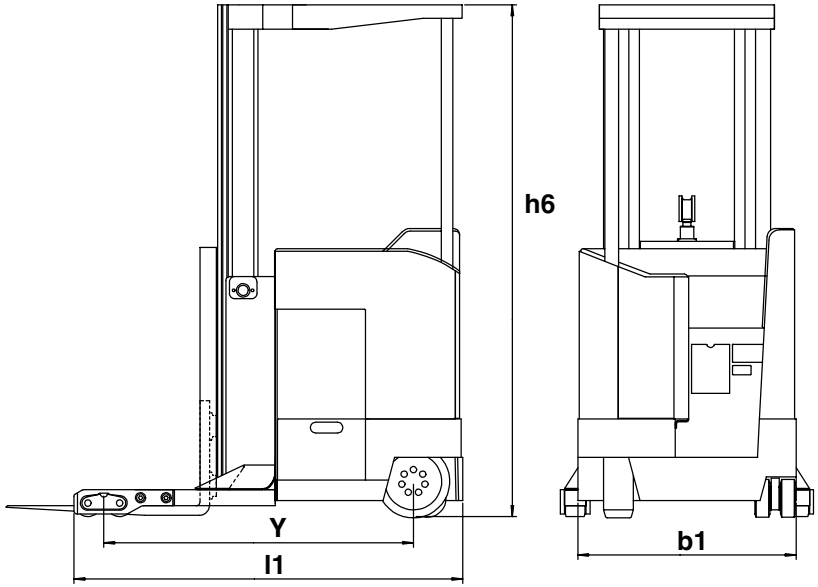
RSX40 Truck dimensions

The diagrams below shows external dimensions for RSX40.



Dimensions	RSX40	
	14.5 in. [368.9 mm] Battery	16.5 in. [419.1 mm] Battery
b1 Chassis width	40.5 in. [1028.7 mm]	40.5 in. [1029 mm]
h6 Height over head	89/95 in. [2260.6/2413 mm]	89/95 in. [2260.6/2413 mm]
l1 Truck length less forks	70.14 in. [1781.5 mm]	72.14 in. [1832.4 mm]
Y Wheel base	55.45 in. [1408.4 mm]	57.45 in. [1459.2 mm]
Turning radius	67.05 in. [1703.1 mm]	69.05 in. [1753.9 mm]

Presentation of truck

RSX40 Truck dimensions

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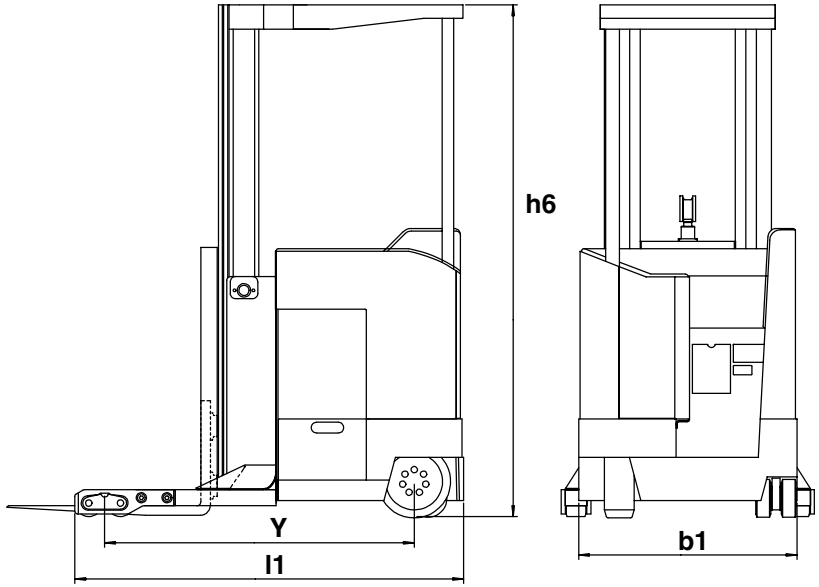

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	Function
Lever A	
+	Lower forks
-	Lift forks
Lever B	
+	Reach carriage out
-	Reach carriage in
Lever C	
+	Fork tilt down
-	Fork tilt up
Lever D	
+	Sideshifter right
-	Sideshifter left

Lowering the forks and another function can be used together. When the lever B, C, or D are used and the forks lift is started, the fork lift function will disengage the other functions.

Note. No hydraulic functions can be used if the key switch is in the **OFF** position or if the operator is not in the operator's compartment.

Controls and instruments

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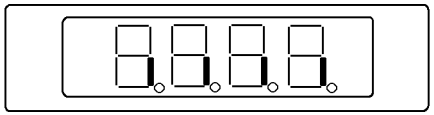
Note. No hydraulic functions can be used if the key switch is in the **OFF** position or if the operator is not in the operator's compartment.

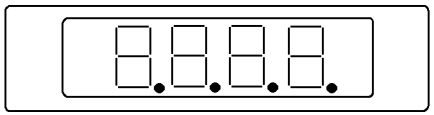
Error Codes

Error Code	Remark
Err 1	The requested height level is not programmed or is incorrect.
Err 2	The forks have stopped outside of the tolerance area (P5).
Err 9	Incorrect values stated when programming.
Err flashes	Communication error between the preset height and the truck computer.

- **Four lines light up** when started. This indicates that no communication has been established between the preset height and the main electronics. These go out when contact between the two units has been established.



- **Four points are light** in the display when the forks are in the free lift zone.



- If the points flash, this indicates that the reference switch was active when the truck was started, e.g. the forks were over the free lift zone. If the points still flash the preset mast height could be set to "**0**", or when the forks are lowered there can be a fault in the wiring or the reference height switch can be faulty.

Controls and instruments

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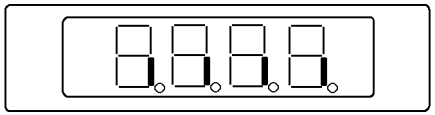

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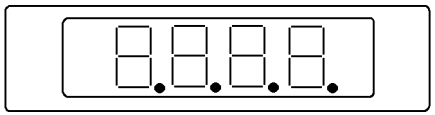

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Driving

Starting the truck

- Make sure the emergency stop is not pressed in.
- When key switch is turn **ON** the electrical controller will run a self check. One check is to see if the floor switch is functioning correctly. This is done by checking the right floor switch with no weight on it, resulting in an open switch. If a weight is found (closed switch) no hydraulic function will be allowed. After the checks have been performed the right foot must be returned to the floor. If not, the triangle on display will flash until this is done.
- Turn the key switch to the **ON** position (making sure your right foot is off the floor for about 2-3 seconds). The instrument lighting should come on.
- Make sure the battery indicator indicates a sufficient charge level (**1/2-1**).

NOTE:
Low charge level.
Prolonged operation with a low battery charge level can result in damage to the battery.
Do not drive without first recharging the battery.

- Place your foot on the brake pedal to release brake.

Warning ***Risk of crushing exists if any part of the body is outside of the operator's compartment.***
Always have your whole body inside the operator's compartment.

- Select the travel direction.

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Battery

Type of battery

- Check that the battery used in this truck is the correct voltage as shown on the truck's data plate. Use a traction battery having a weight within the minimum/maximum values stated on the data plate.

Changing the battery

- Only replace the battery with a battery of the same weight as the original. The battery weight affects the truck's stability and its braking capacity. Information on the lowest permitted battery weight can be found on the truck's data plate.

WARNING Risk of moving the center of gravity.
A battery weight that is too low gives impaired stability and braking capacity.
The battery weight must be in accordance with the information on the truck's data plate.

When changing the battery proceed as follows:

- Park truck at battery removal station.
- Turn **OFF** key and remove.
- Push the emergency disconnect button to the **OFF** position to stop hourmeter from running.
- Disconnect the battery connector from the battery.
- Remove battery stops.

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- Always disconnect the battery by pulling out the battery connector when carrying out maintenance work on the truck unless otherwise stated in this publication or the **Service Manual**.
- Relieve the system pressure slowly before starting work on the truck's hydraulic systems.
- Use paper or a rigid sheet of cardboard when checking for oil leakage. **Never** use your hand.
- Bear in mind that the oil in the transmission or the hydraulic system can be **hot**.

Warning ***Risk of burns.***
Hot transmission and hydraulic oil
Let the truck cool before changing the oil.

- Only fill the hydraulic system with new clean oil. Oil should meet BT cleanliness specification 12-00-002. Contact your BT representative for assistance or more information.

Warning ***The hydraulic system can be damaged.***
If the oil is contaminated hydraulic components can be damaged.
Always use new and clean oil in the hydraulic system.

- Store and dispose of changed oil in accordance with local regulations.
- **Do not** dump solvents, which are used for cleaning/ washing, into drains that are not intended for this purpose. Follow the local regulations that apply for disposal.
- When working underneath the truck, support the truck on trestle-blocks.

Warning ***Risk of crushing.***
A badly supported truck can fall.
Never work under a truck that is not supported on trestle-blocks and secured by a lifting device.

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Transporting and storing the truck

The truck's dimensions and weight as standard

NOTE! The truck's dimensions and weight can vary with different accessories.

The RRX35/RSX40 truck's dimensions and weight		
Battery Width	14.5 in. [368.3 mm]	16.5 in. [419.1 mm]
Height, truck without mast/OHG	53.5 in. [1351.3 mm]	
Height, dependent on mast	89 in. - 119 in. [2260.6 mm - 3022.6 mm]	
Width, dependent on outrigger	40.6 in. - 61.0 in. [1031.2 mm - 1549.4 mm]	
Length excl. forks	70.5 in. [1760.7 mm]	72.14 in. [1832.36 mm]
Minimum battery weight	1600 lb [726.4 kg]	2000 lb [908 kg]
Service weight without battery	5400 lb and UP 2451.6 kg and UP]	
The RRX45/RSX50 truck's dimensions and weight		
Battery Width	16.5 in. [419.1 mm]	21.0 in. [533.4 mm]
Height, truck without mast/OHG	53.5 in. [1351.3 mm]	
Height, dependent on mast	95 in. - 172 in. [2413 mm - 4368.8 mm]	
Width, dependent on outrigger	40.6 in. - 61.0 in. [1031.2 mm - 1549.4 mm]	

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Width, dependent on outrigger	40.6 in. - 61.0 in. [1031.2 mm - 1549.4 mm]	

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IMPORTANT NOTICE

This is the **"SAFETY ALERT SYMBOL"**. This symbol is used to call your attention to items or operations that could be dangerous to you or other persons using this equipment. Please read these messages carefully. It is essential that you read the instructions and safety regulations before you attempt to assemble or use this truck.

Before operating the truck:

1. The operator must be instructed on safe and correct use of this truck.

2. The operator must read and understand the **Operator's Manual** for this truck.

WARNING

BEFORE OPERATING TRUCK
STUDY OPERATOR'S MANUAL SAFETY MESSAGES.
READ ALL SAFETY DECALS ON TRUCK.
CLEAR THE AREA OF OTHER PERSONS.

LEARN AND PRACTICE USE OF CONTROLS BEFORE OPERATING.

IT IS YOUR RESPONSIBILITY TO UNDERSTAND AND FOLLOW MANUFACTURER'S INSTRUCTIONS ON TRUCK OPERATION AND TO OBSERVE PERTINENT LAWS AND REGULATIONS. OPERATOR MANUALS, PARTS MANUALS, AND REPAIR MANUALS MAY BE OBTAINED FROM YOUR EQUIPMENT DEALER.

WARNING INJURY OR DEATH TO YOU OR OTHER PERSONNEL COULD OCCUR IF YOU DO NOT FOLLOW THESE INSTRUCTIONS AND MESSAGES.

Operator's warning

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General safety regulations

Driving and conduct while driving

- Always drive the truck from the normal operator position.
- Always drive the truck in a responsible manner and with full control. Sudden starts and braking as well as cornering at high speed should be avoided.
- Drive at a reduced speed on inclines. Drive the truck straight up and down on inclines. It is **not** permitted to turn the truck on an incline.
- Reduce the speed if the surface is slippery to prevent the truck from sliding or overturning.
- Adapt your speed to the driving conditions, both to pedestrians and other trucks in the working area. Reduce speed when the line of vision is limited and when pedestrians or other vehicles can be encountered.
- Pay particular attention to other personnel as well as fixed and moving objects within the working area and thereby avoid accidents.
- Always be prepared to stop if other personnel are in the working area.
- Keep a safe distance from all vehicles ahead.
- Always keep a safe distance from the edges of loading bays and loading ramps. Be attentive to marked risk areas.
- Sound the horn when overtaking other vehicles and when the attention of other personnel is required.

Safety regulations

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11

Truck battery dimensions

Truck battery dimensions

Important

Use only batteries that meet the following specifications:

Compartment Size:	Minimum	Maximum
Deep (14.5 in. [368.3 mm])	13.7 in. [348 mm]	14.2 in. [361 mm]
Deep (16.5 in. [419.1 mm])	15.9 in. [404 mm]	16.4 in. [417 mm]
Deep (21.0 in. [533.4 mm])	20.4 in. [518 mm]	20.9 in. [531 mm]
Wide	38.2 in. [970 mm]	38.7 in. [983 mm]
Height	31.5 in. [800 mm]	32.0 in. [813 mm]
Battery Weight	(Consult Data plate on truck)	

For smaller industrial battery sizes, provide blocking to restrain the battery from moving not more than 0.5 in. [12.7 mm] in any horizontal direction.

Presentation of truck

Truck battery dimensions

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Battery Weight	(Consult Data plate on truck)	

For smaller industrial battery sizes, provide blocking to restrain the battery from moving not more than 0.5 in. [12.7 mm] in any horizontal direction.

Controls and instruments

Guards and shields have been provided on unit for your protection.

Warning **DO NOT** operate this equipment unless all factory installed guards and shields are properly secured in place.

Decals are also provided to warn of potential danger as well as to display special operating procedures

Warning Read and observe all warnings on this unit before operating it.

Emergency Stop

The truck is fitted with an emergency stop (red in color), which is located on the right side of truck above the battery connectors.

Pressing the emergency stop will cut the power supply in the event of:

- An accident.
- Emergency situation, risk of an accident.

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Programming

- Press the button **PROG** briefly to enter the programming mode. The **LED** in the button lights and the display reads **PL00**. You can program new lifting heights, modify or remove programmed height positions.

Programming a level

Programming of lift heights can only take place within the staging zone, above initial lift (freelift).

> **Warning** ***Forks not horizontal.***
> ***The load can slide off the forks or catch on the rack. When the load is lifted or lowered the forks should always be positioned horizontally. The forks and load must be positioned completely clear of the racking and other obstructions before lifting and lowering begins.***

"Collection level"

- Press the **PROG** button briefly. State the required level (e.g. 1+5=level 15). The numbers are shown on the display.

- Lift the forks to the required level and press the **COLLECT** button. The **LED** flashes.

"Leaving level"

- Pick-up the load and wait three seconds. Lift the forks just enough so that the pallet can be removed from the rack. Ensure that there is sufficient space (maximum of 5.9 in. [149.9 mm]) for safe handling.

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Warning codes

Error No.	Error Code Name	Comment
61	O Lower Prop Error	Shorted or opened lowering proportional valve output
63	O Forward Contactor Error	Shorted or opened forward contactor output
64	O Backward Contactor Error	Shorted or opened backward contactor output
90	Lift Pot Error	Shorted or opened lift potentiometer input
91	Tilt Pot Error	Shorted or opened tilt potentiometer input
92	Reach Pot Error	Shorted or opened reach potentiometer input
93	Sideshifter Pot Error	Shorted or opened sadist potentiometer input
95	Pot Ref Error	Potentiometer supply voltage

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51

Warning ***Driving with reach extended.***
This will cause excessive wear and maintenance.
Always drive with the reach in the fully retracted position.

NOTE:
Increased machine width.
The outriggers can collide with fixed objects.
A truck with wide outriggers requires a greater operating area.

- Drive the truck with the load trailing, when the load impairs the line of vision.

- If necessary, when the operator's vision is impaired, ask someone to direct operations so that transportation can take place without the risk of causing personal injury or material damage.

- Drive the truck at a reduced speed when driving on inclines. Always drive with the load uppermost on the incline. Drive straight up and down the incline. It is not permitted to turn the truck on an incline.

Warning ***Risk of overturning.***
A loaded truck can overturn when attempting to turn on an incline.
Never turn a loaded truck on an incline.

Warning ***Increased braking distance.***
The braking distance is increased when traveling downhill.
Drive at a reduced speed, use the truck's motor brake.

- Before the truck is driven into an elevator, ensure that the elevator is certified for the overall load (the weight of the

Transporting loads

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The braking distance is increased when traveling downhill.
Drive at a reduced speed, use the truck's motor brake.

- Before the truck is driven into an elevator, ensure that the elevator is certified for the overall load (the weight of the

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Each month:

- Measure the temperature in one of the center cells immediately after charging. The temperature should not exceed 122°F [50°C.]

- Measure the density of the battery fluid using an acid tester. Hold the acid tester absolutely vertical and extract sufficient fluid so that the hydrometer float moves freely.

- Adjust specific gravity with temperatures based on the chart below.

Temperature	Gravity
77°F [25.2°C]	1.280

WARNING Battery manufactories maintenance and charging procedures must be followed. Battery acid is very corrosive and must be immediately cleaned up after spillage.

Battery

Each month:

- Measure the temperature in one of the center cells immediately after charging. The temperature should not exceed 122°F [50°C.]

- Measure the density of the battery fluid using an acid tester. Hold the acid tester absolutely vertical and extract sufficient fluid so that the hydrometer float moves freely.

- Adjust specific gravity with temperatures based on the chart below.

Temperature	Gravity
77°F [25.2°C]	1.280

WARNING Battery manufactories maintenance and charging procedures must be followed. Battery acid is very corrosive and must be immediately cleaned up after spillage.

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No.	Action	A	B	C	D	E	F	G
8.0	Hydraulic system							
8.1	Check hoses and couplings for leakage					X		
8.2	Check pipes and hoses for wear					X		
8.3	Check the tank for leakage and its mountings					X		
8.5	Check oil level					X		
8.6	Change oil						X	
9.0	Cylinders							
9.1	Check for leakage					X		
9.2	Check the mountings					X		
10.0	Mast and reach carriage							
10.1	Check for damage and cracks					X		
10.2	Check mast mounting bolt torque					X		
10.3	Check for play on the rollers					X		
10.4	Check the electrical limit switch function					X		
10.5	Check for wear and stretch on the chains and sheaves					X		
10.6	Check hoses and couplings for leakage cuts and other damage					X		
10.7	Check for wear to the forks and other lifting devices					X		
11.0	Control console							
11.1	Check the mounting and control console locking mechanism	X						
11.2	Check the micro switches and hydraulic function					X		

Maintenance

No.	Action	A	B	C	D	E	F	G
8.0	Hydraulic system							
8.1	Check hoses and couplings for leakage					X		
8.2	Check pipes and hoses for wear					X		
8.3	Check the tank for leakage and its mountings					X		
8.5	Check oil level					X		
8.6	Change oil						X	
9.0	Cylinders							
9.1	Check for leakage					X		
9.2	Check the mountings					X		
10.0	Mast and reach carriage							
10.1	Check for damage and cracks					X		
10.2	Check mast mounting bolt torque					X		
10.3	Check for play on the rollers					X		
10.4	Check the electrical limit switch function					X		
10.5	Check for wear and stretch on the chains and sheaves					X		
10.6	Check hoses and couplings for leakage cuts and other damage					X		
10.7	Check for wear to the forks and other lifting devices					X		
11.0	Control console							
11.1	Check the mounting and control console locking mechanism	X						
11.2	Check the micro switches and hydraulic function					X		

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