



## User Guide



## Type B Trolley (Standard and LUL)

Permaquip Ltd  
Brierley Industrial Park  
Stanton Hill, Sutton-In-Ashfield  
Nottinghamshire, NG17 3JZ  
Tel: +44 (0) 1623 513349  
Fax: +44 (0) 1623 517742  
E-mail: [sales@permaquip.co.uk](mailto:sales@permaquip.co.uk)  
[www.permaquip.co.uk](http://www.permaquip.co.uk)

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## **Please note**

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All information, illustrations and specifications in this User Guide are based on the latest information available at the time of publication. The right is reserved to make changes at any time without notice.

Equipment operators and installers shall be responsible for ensuring that a safe working environment and safe systems of work are in place and in certain circumstances advice and permission from the controlling authority must be sought before any operation, installation or surveying work is carried out.

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# 1 ISSUE AND REVISION RECORD

This document will be updated when necessary by the re-issue of the complete document.

Revision	Description	Date	Revised Page No.	Revised By.
08	Format updated, issue and revision record added, red light fitting detail amended.	23/05/2016	All	M.S.

## 2 INTRODUCTION

The Permaquip™ Type B Trolley is designed to be used as a manual propelled, stand-alone load-bearing rolling platform for use on-track.

Each Type B Trolley is equipped with a fail-safe braking system and is supplied with detachable Brake and Push Handles.

The Type B Trolley has been designed to be split into 2 halves to aid handling and transporting to and from site.

## 3 SAFE AND CORRECT USE

**Please keep this User Guide for future reference.**

To ensure safe and correct use of the Type B Trolley the following should be noted:



Wear feet and hand protection when using the Type B Trolley. Additional Personal Protective Equipment (PPE) should be worn according to local regulations.



The Type B Trolley, or parts of, must be replaced if damage occurs. Do not use the Type B Trolley if any components are damaged.



Store the Type B Trolley in a secure position.



LUL Type B Trolleys and other Type B Trolleys fitted with insulated wheels must not be used in locations where live AC overhead power lines are present. Do not use the Type B Trolley near live DC third-rail or fourth-rail systems.



Ensure the Type B Trolley Sides are only used on a Permaquip™ Type B Trolley.



Both halves of each trolley have the same serial number. Ensure they are kept together as one unit.



Before using, undertake a Manual Handling Risk Assessment and follow the assessment guidelines at all times. Use the Brake and Push Handles provided. Do not exceed walking pace, noting underfoot and rail head conditions. Do not walk on sleepers or the rail head.



Stopping distances will greatly increase by icy or wet conditions; gradients; an increase in load; an increase in speed.



Do not allow any load protrusions to face downwards such that they could interfere with the braking mechanism.



Do not ride on or tow the Type B Trolley.



Do not use the Type B Trolley for any other purpose than as described in the introduction.



Do not hold off the Brake Handle using mechanical means.

## 4 TECHNICAL SPECIFICATION

### 4.1 Physical Data for the Type B Trolley

	<b>Trolley Assembly (standard)</b>	<b>Trolley Assembly (LUL)</b>	<b>Trolley Sides</b>
<b>Width</b>	1800 mm		1805 mm
<b>Length</b>	1940 mm		1810 mm
<b>Height</b>	335 mm (without handles)		157 mm (above trolley load area)
<b>Total Mass</b>	138 kg		24 kg
<b>Centre of mass</b>	Central		

### 4.2 Load Specification

- Maximum load capacity 2,000 kg UDL<sup>1</sup>
- Maximum load capacity when Trolley Sides are fitted 1,976 kg UDL<sup>1</sup>

<sup>1</sup> Note that all loads up to and including the maximum shown should be uniformly distributed. The load must be positioned equally about the Trolley centre. When used on Network Rail infrastructure, the maximum SWL is 1,000 kg UDL.

### 4.3 Product Compliance

The standard Type B Trolley complies with RIS-1701 and BS EN13977.

## 5 STORAGE AND TRANSPORTATION

### 5.1 Storage



The Type B Trolley and any associated spare parts should be stored in a dry and secure environment. Safety critical spare parts must be stored in a dry, secure and controlled environment.



The maximum number of Type B Trolleys that can be stacked during storage is 8.

### 5.2 Transportation



During transit the Type B Trolley should be secured, and kept away from all electrified lines. Ensure that any method used to secure the Type B Trolley in/on a vehicle applies the load uniformly and does not exceed the SWL. Do not use excessive force when using a ratchet type loading strap. Two Retaining/Lifting Hooks are provided each side for use during transit. These can be used to retain the Type B Trolley and for lifting with suitable lifting equipment.

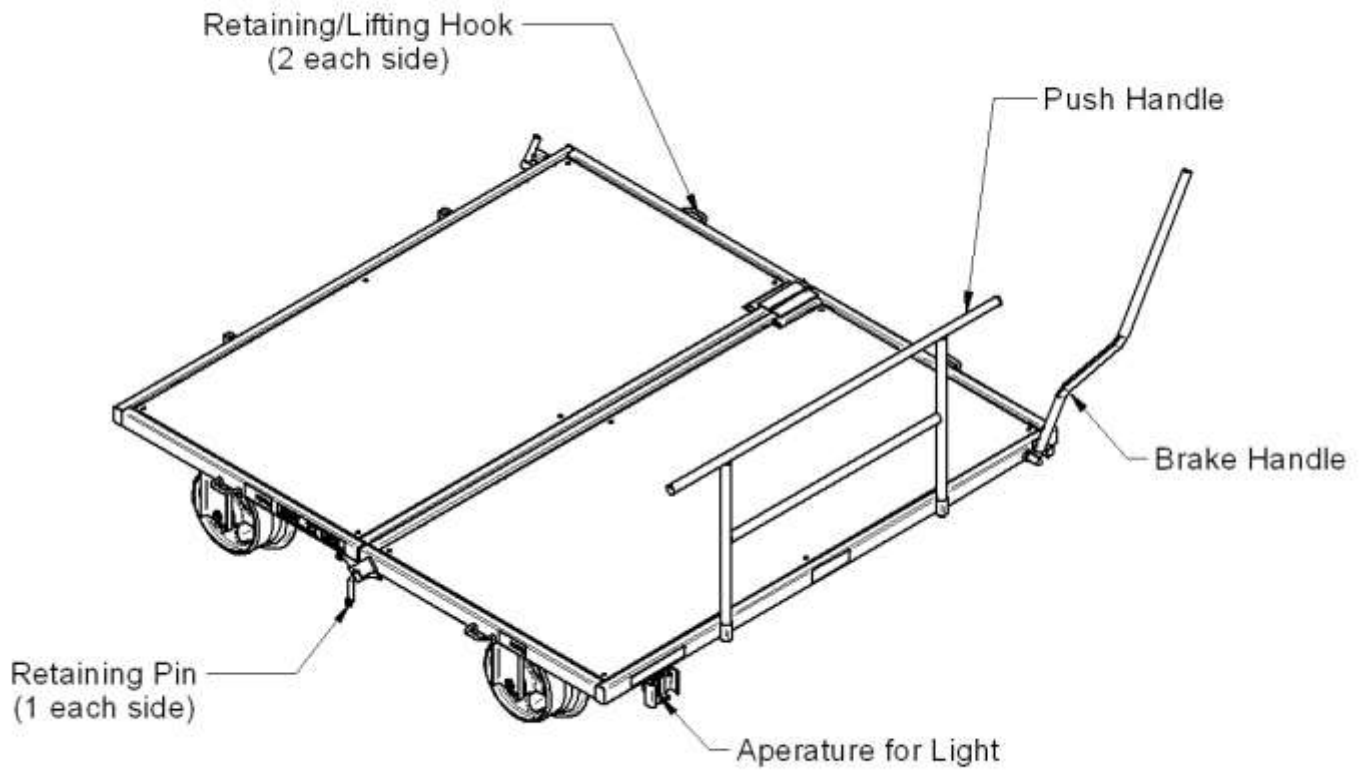
If the two halves are separated for transit, ensure that no damage occurs to the brake mechanism or frame.



The maximum number of Type B Trolleys that can be stacked during transit is 5, provided that this is within the vehicles operating capabilities. Note that the load must be secure and stable.

## 6 GENERAL LAYOUT

The following shows the main components of the Type B Trolley.





## 7 OPERATING INSTRUCTIONS

The following procedure outlines the correct method for operation.



Always push, never pull, the Type B Trolley.



All work should only be performed by competent personnel.



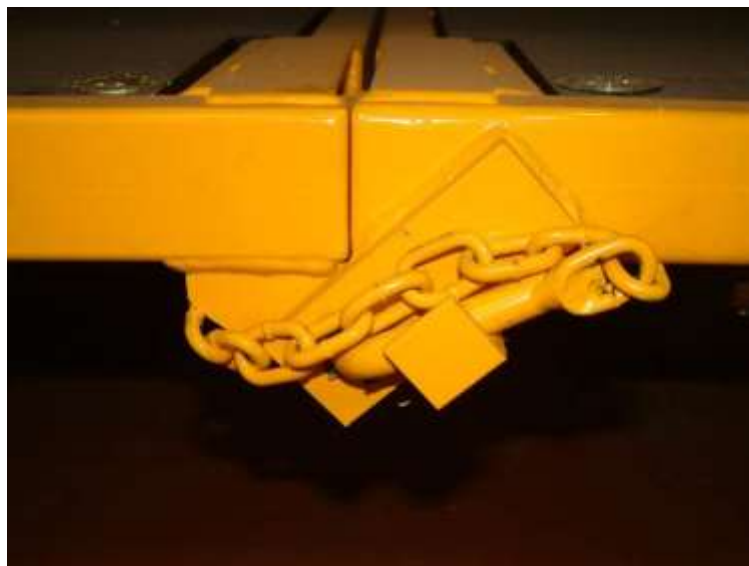
Always follow local regulations.



Observe Manual Handling Regulations.

### 7.1 Mounting on the Track

1. It is recommended that the Type B Trolley is lifted by four persons.
2. Check that both Type B Trolley halves have the same serial number, are identified with the SWL and the 'Next Brake Test Due' has not expired.
3. Check that the brakes are in good working order. To do this, access the braked wheels and rotate with one hand. The wheels should resist movement. If in doubt do not use until it has been checked by a competent person.
4. Assemble the two halves on firm level ground or on the track by standing both halves onto their wheels, with the locating lugs facing each other. Bring both halves together whilst interlocking the brake locating lugs. Once together push both Retaining Pins fully into both halves and rotate so the Pin is locked in position, as shown below.



5. Ensure that all four wheels are in contact with the rail head.
6. Fit the Brake Handle and Push Handle onto the Type B Trolley at the opposite end to the intended direction of travel.
7. Check the brakes are working correctly – they are fail-safe so should be on when the Type B Trolley is stationary.

## 7.2 Loading the Type B Trolley

1. Ensure that the SWL is not exceeded. Note that the SWL is reduced when the Trolley Sides are fitted.
2. Ensure that the load is stable and is uniformly distributed over the Type B Trolley loading area.
3. Ensure that the load does not overhang the Type B Trolley sides and infringe on the track gauge.

## 7.3 Using the Type B Trolley

1. Move the Brake Handle sideways to release the brakes. Use the Push Handle on the trolleys to aid movement.
2. Releasing the Brake handle will then re-apply the brakes.

## 7.4 Fitting the Red Light

1. The Red Lights are located in two positions on the Type B Trolley. There are no additional fixings required as they slot into the light brackets fitted within the apertures, as shown below. The two locking screws supplied with the light bracket can be fitted to prevent unauthorised removal.



2. The Red Lights can be switched from underneath using the on and off switch positioned between the support tabs. It will need to be actuated using your fingernail or a small thin flat object. Operation has purposely been made difficult to prevent false operation.

## 7.5 Using the Crane Attachment (optional)

The following procedure outlines the correct method for operation.



Wear eye, feet, head and hand protection when using the Ironman. Additional Personal Protective Equipment (PPE) should be worn according to local regulations.



Ensure any slings or chains to be used are suitable and that valid test certificates are available.



Before attempting to lift a load, ensure that all component parts of the crane are properly assembled.



Before attempting to lift a load, ensure that the trolley is securely strapped down to the rail.



Only freely suspended loads are permitted.



When the trolley is in motion, the crane must be stowed in its travelling position.



Ensure familiarity with all controls before attempting to operate the crane.



All work should only be performed by competent personnel.



Always follow local regulations.



Observe Manual Handling Regulations.



Do not commence slewing until the load is suspended.



Do not stand under any suspended load or within the crane's slewing range.



Do not leave the crane or move the trolley with a suspended load.



Do not attempt to over load the crane.

### **Attachment of the Crane Attachment to the Type B Trolley**

1. Ensure that all 4 of the main components are available.
2. Check crane, rope and attachments for any obvious signs of damage. The crane must not be used if any damage to the rope is apparent.
3. It is recommended that the Crane attachment is assembled by two persons.
4. Strap the Type B Trolley to the rail, using the straps included with the crane attachment, as shown below.



5. Mount the Crane Attachment base to the Type B Trolley in position between the two push handle mounting tubes, as shown below.





6. Secure the Crane Attachment base to the Type B Trolley by turning the threaded handle, as shown below.



7. Mount the Crane Attachment arm onto the base, as shown below.



8. Ensure that the locking pin is located properly as shown below.



### **Lifting a Load with the Crane Attachment**

1. Release the locking pin and place it in its stowing position, as shown below.



2. Position the crane over the load to be lifted.

3. Connect the correct lifting equipment to the crane hook in accordance with the manufacturer's instructions.

4. Lift the load by turning the winch handle in the direction specified at the base of the handle, as shown below.



5. Once the load has been lifted to the correct height, the crane can be slewed and the load lowered into position on the deck of the trolley, as shown below.









## 8 MAINTENANCE



All work should only be performed by competent personnel.



Always follow local regulations.



Observe Manual Handling Regulations.

For components that require replacing please refer to the Type B Trolley Spare Parts List. Please contact Permaquip Ltd for additional copies.

### Note that:

- **The Maintenance and Testing of the Brakes, Wheels and Axles are defined as Railway Safety Critical under CoP0010, Railway Safety Critical Maintenance Elements of Small Plant and Equipment.**
- **The Maintenance and Testing of the Brakes are covered under CoP0018, Rail Mounted Manually Propelled Equipment. The brakes must be maintained and tested at a periodicity of no greater than 3 months.**

### 8.1 Wheels and Axles

1. With the brakes released using the Brake Handle, check the wheels rotate freely.
2. Resistance to rotation or rocking of the wheel on the axle indicates either a worn axle or a cracked bearing. The wheel bearings are sealed for life and do not require lubrication. There should be no more than 2.0mm end float of the wheels.
3. Check the wheel profile for wear, cracks or damage. Replace damaged or worn wheels.
4. Check the Axle Retaining Pin is securely in place.

## 8.2 Brakes

1. Remove the brakes and check the brake linings. Remove any dirt or oil from the working surfaces. The recommended minimum thickness of the brake pad lining is 2.5mm.
2. Check the operation of the brake to ensure that the brake rod, mechanism and adjusters are in good condition.
3. Lubricate all brake pivot pins, brake rod and adjusters with a general purpose lubricant.
4. Check that both brake shoes apply and release simultaneously. The adjusting screw enables this to be achieved. Once both of the brakes are in contact with their wheels, the chain should have no tension.
5. Test the brake efficiency using the Brake Test Tool. Ensure that the wheels and brake pads are dry. The brakes should be tested at all four quadrants of each braked wheel and in both directions. The average torque at which the wheel resists movement should be equal or greater than 80 Nm.
6. If the brake torque is not achieved, check and adjust the brakes as described previously and repeat the tests.
7. Fix a 'Next Brake Test Due' label onto the Trolley. The date specified must be within 3 months. Complete the Maintenance Brake Test Record Sheet.

## 8.3 Type B Trolley Assembly

1. Check that the frame structure is free from deformation and that all welds are in good condition.
2. Ensure that the axle mounts are straight and are in-line.
3. Check that all four wheels make contact with the rail head when in an unladen condition.
4. Check that the brake rod and chain/cable assemblies are in good condition.
5. For standard Type B Trolleys fitted with wooden decks, check the condition of the wood. Decks that are loose, de-laminated, cracked or have holes need to be replaced.
6. For LUL Type B Trolleys fitted with aluminium decks, check the condition of the aluminium. Decks that are loose, damaged or deformed need to be replaced.
7. Check that the Retaining/Lifting Hooks are in good condition, that they are fit for purpose and that the lifting SWL label is fitted next to each of the Hooks

## **8.4 Red Light**

1. To replace the batteries within the Red Light, remove the 4 off cross-headed screws from the rear of the light assembly and lift off the rear cover.
2. Replace the 2 off batteries to the correct specification, noting the polarity.
3. With the gasket in position replace the rear cover and secure using the 4 off screws.
4. Discard the old batteries according to local and national regulations.
5. Check the light operation using the rotary switch on the rear cover.
6. Replace into the Type B Trolley.

## **8.5 Trolley Sides**

1. Place both of the long Trolley Sides along the length of the assembled Type B Trolley so that the Side Supports are resting in the Trolley Retaining Hooks. Move the Antiluce Retaining Pins into the horizontal position.
2. Place one of the short Trolley Sides at one end of the Trolley and locate onto the long trolley Side.
3. Secure in position by moving the Antiluce Retaining Pins to the vertical position.
4. Repeat for the other end.

## 9 TEST SPECIFICATION

The Type B Trolley should be tested to the following specification after the Maintenance procedures have been completed where necessary.

**Note the testing of the Brakes is defined under the Maintenance section of this User Guide. This is important as the brakes must be checked and maintained before testing.**

The Type B Trolley should be tested to the following specification after any structural repairs have been carried out, or when the Type B Trolley has been damaged.

1. Note the Serial Number of the Type B Trolley (note that both halves have the same serial number).
2. Mount the Type B Trolley onto a test track and ensure the brakes are on.
3. Measure the height between the track and the centre position of the Type B Trolley frame on all four sides.
4. Lower a 2,500kg calibrated test mass onto the trolley (1.25 x 2,000kg SWL).
5. Leave for 10 minutes.
6. Remove the test mass.
7. Measure the heights again. There should be no more than 1.5mm difference in the two measurements.
8. Check the frame has no deformation or weld damage.

The standard Type B Trolley should also be tested to the following specification in addition to that above.

1. The conductivity between the wheels and frame of the Type B Trolley needs to be checked using a calibrated resistance meter.
2. Zero the meter so the display reads 0.00Ω.
3. Connect one lead to an unpainted section of the Type B Trolley frame. Connect the other lead to one of the wheels. The measured resistance should be less than 0.15Ω.
4. Repeat for the other trolley half.

The LUL Type B Trolley and other Type B Trolleys fitted with insulated wheels should also be tested to the following specification in addition to that above.

1. The resistance of the insulation of the Type B Trolley needs to be checked using a calibrated resistance meter.
2. Ensure the brakes are on.
3. Check that the meter display reads  $1\Omega$  or less when the two leads are connected together.
4. The resistance between the trolley frame and wheels needs to be checked. Connect one lead to an unpainted section of the Type B Trolley frame. Connect the other lead to one of the wheels of the same trolley half. The measured resistance should be less than  $5\text{ M}\Omega$ .
5. Repeat for the remaining three wheels and record the four measurements taken.
6. The resistance between the wheels needs to be checked. Connect one lead to one of the wheels. Connect the other lead to the opposite wheel that sits on the opposite rail head of the same trolley half. The measured resistance should be at least  $5\text{ M}\Omega$ .
7. Repeat for the remaining pair of wheels and record the two measurements taken.

Permaquip Ltd offer a testing and maintenance service – please contact us for further details.

## **10 TRAINING**




Persons that will operate, maintain and test the Type B Trolley should undertake a programme of training. This programme of training should include the following aspects:

- Product familiarisation.
- Component location and function.
- Product preparation.
- Safe and Correct Use.
- Maintenance.
- Testing.
- Practical experience.

Permaquip Ltd offer a training service – please contact us for further details.

## 11 ORDERING

DESCRIPTION		PADS Cat. No.	PART NO
Type B Trolley (Standard)		PA05/03388	24681
Type B Trolley (LUL)		LUL Cert. Number PE007/123B	27791
Type B Trolley (Standard with insulated wheels)			27789
Swinglift Crane to Suit Type B Trolley c/w Straps			28810

Swinglift Crane to Suit Type A or B Trolley Side Fitting c/w Straps			38378
Brake Test Tool		066/019180	34712
Trolley Sides			33043
Gas Cylinder Support Frame	Please refer to Lawton Tools (Rail Products) for details. Tel: 01270 753636	094/006005 (094/011011 for fitting kit)	35187
Red Light		068/011260	040820218

For spare parts please see the Type B Trolley Spare Parts List.

Please contact Permaquip Ltd for further information and support.

Our contact details are shown on the front of this User Guide.

In order to avoid delay and to have your orders fulfilled promptly,

**Please telephone, e-mail, fax or write giving the following information:**

1. **Company name.**
2. **Contact details.**
3. **Invoicing and delivery details.**
4. **Purchase order number.**
5. **Method of delivery.**
6. **Part number, description and quantity for each item.**