SAFE USE OF HAND TROLLEYS AND MANUALLY PROPELLED RAIL HANDLER PE349

1. PURPOSE

The purpose of this procedure is to specify the requirements for safe use of hand-controlled trolleys, Ironman manual propelled lifting devices and other manually propelled rail mounted equipment, used on the infrastructure. It specifies the requirements for the safe use of the trolleys, development of a safe system of work for their use, requirements for pre use checks and requirements for placing and using them on track. Some manually controlled trolleys and manually propelled rail handlers consist of a number of parts that require assembly prior to use. The individual components or assemblies, as supplied by the manufacturer are supplied as a set and as such are intended to be used together as a set. If components or assemblies are from mixed sets, there is a high risk of incompatibility leading to safety and quality risk.

2. SCOPE

This procedure applies to all VolkerRail activities where VolkerRail are the Principal Contractor (PC), and on sites where VolkerRail are contracted to undertake work under another organisations PC arrangements, unless other suitable arrangements are in place and these arrangements have been agreed in writing by the HSQE Director and Professional Head of Plant Engineering of VolkerRail.

Compliance with the requirements of this procedure is necessary to enable the company to meet its Health & Safety responsibilities under current legislation.

All staff who manage, supervise and /or carry out work activities associated with this procedure have a legal obligation to comply with the specified arrangements herein.

3. REFERENCES (INPUTS) / RELATED DOCUMENTS

- HASAWA – Health And Safety At Work Act
- GE/RT 8000 – Rule Book
- LOLER – Lifting Operations and Lifting Equipment Regulations.
- PUWER – Provision and Use of Work Equipment Regulations
- NR/L2/RMVP/0200 Infrastructure Plant Manual
- NR/L2/RMVP/0200/P514 Hand controlled trolleys
- RIS-1701-PLT - Rail Industry Standard for Portable and Transportable Plant Used for Infrastructure Work

4. DEFINITIONS

Definition	Meaning
Manually Propelled Rail Handlers (Ironman)	A small portal frame structure, manually assembled that gives the facility to lift rails and similar, move them laterally and travel along the line on small rail wheels. The equipment are normally used in pairs and may be used in multiple for lifting long strings of rail.
Portable and Transportable Plant	Any portable or transportable machinery, appliance, apparatus or tool and any assembly of components which in order to achieve a common end are arranged and controlled so that they function as a whole and are used for or in association with the construction, alteration, renovation, repair, maintenance, measurement or inspection of railway infrastructure, excluding equipment covered by the scope of RIS-1530-PLT.
Trolley	All hand-controlled trolleys and other manually propelled equipment that is mounted on rail wheels or runners to allow it to be moved along the track
Walking Pace	Walking pace is considered to be 3 to 4 mph on firm level ground, on ballast this should be reduced to no more than 3mph

5. PROCESS

5.1 General requirements

For all rail mounted trolleys and manually propelled rail handlers and other manually propelled equipment mounted on rail wheels or runners:

- Must be accepted for use on the line concerned by the Infrastructure Manager. Any equipment that does not have the relevant infrastructure manager approval should not be used.
- When operated on Network Rail Infrastructure they shall have Product Acceptance in line with NR/L2/RSE/100/05.
- They shall only be used in accordance with the Rule Book GE/RT8000/HB10, Handbook 10, Duties of the COSS and Person in Charge when using a hand trolley.
- They shall be used in accordance with the relevant manufacturers operating instructions.
- They shall be used in accordance with the any limitations of use on the Product Acceptance.
- Only be moved at a maximum speed of walking pace.
- They must not be towed by any other powered equipment, e.g., a road rail vehicle

5.2 Hand Trolleys

5.2.1. Planning

When planning work that includes the use of a hand trolley, the following should be included in the Safe System of Work:

- The size and weight of items to be carried shall be recorded on the Hand Trolley Load Plan PE349F02.
- The loading sequence or limitations shall be applied as defined in the Product Acceptance certificate.
- If more than one trolley will be required to carry a single load.
- Site conditions on which it will be operated including, gradients, cant, ballast shoulders, infrastructure equipment in the four foot, switches and crossings shall be considered.
- The potential for the trolley gaining speed above maximum walking pace shall be considered with appropriate mitigations put in place.
- When planning to use a trolley on gradients the runaway risk shall be considered, the requirements of PE326M013 Runaway Risk is to be followed.
- Weather conditions shall be considered when planning to use the trolleys including changes in weather conditions that may occur.
- Consider the number of persons required to lift the trolley on the track, load and control the trolley.
- The minimum number of staff required to push a trolley is two, one of which must be in charge of the brake.

Note; Mk1 Permaquip and Stell Link Trolleys shall not be used on gradients greater than 1:150 until further notice from Network Rail Head of Plant (ref Network Rail safety advice NRA 15/06, VolkerRail alert ALT289).

For each trolley a person shall be nominated as being in control with another person nominated as their deputy. This is to be recorded in the Safe System of Work.

All staff members nominated to fulfil these roles shall hold the relevant trolley competence.

Planning teams shall determine the staff requirements when planning to push a trolley, particularly when a gradient is identified (see table 1) Where it is not practical to increase personnel allocation then either the load shall be reduced, or an increased number of trolleys shall be allocated to the work.

Load / Gradient	1000kg	500kg
Up to 1 in 250	2	2
1 in 250 to 150	2	2
1 in 150 to 1 in 70	3	2
1 in 70 to 1 in 50	(4)	2
1 in 50 to 1 in 25 *	(5)	3
* Where authorised in local instructions () Theoretical figures may not be physically possible to achieve.		

Table 1 Estimation of persons required to push a rail mounted manually propelled trolley

Ensure a plan to check that the brakes operate correctly before placing a trolley on the track.

Any trolley found with defective brakes, or one that has failed the brake test shall be:

- removed from the track and secured in a position of safety to prevent its use on the work site; and
- marked as defective equipment.

Always follow the Original Equipment Manufacturer (OEM) Operating Instructions.

5.2.2. Pre-Use Checks

The nominated competent Hand Trolley Controller for each trolley will complete a Hand Trolley Pre - Use Checklist PE349F01 recording the relevant answer for each item on the checklist.

The competent person shall check that each part of the hand trolley includes the following:

- Unique identification number.
- Owner's name and contact details.
- Where applicable the maximum uniformly distributed load (UDL)
- The maintenance brake test has not expired.
- A functioning red light is visible in both directions.
- The trolley decking is in good order.
- Visually check the framework to ensure there are no cracks or damage.
- Check that the load carrying trolleys being use are fitted with non-insulated wheels to activate track circuits

If not compliant then do not use.

Assemble the equipment in accordance with the manufacturer's instructions ensuring that

- The correct braking lever is used.
- The correct push bars are fitted
- When required side and end boards are used
- Verify that the assembled trolley is fit for purpose.

The user should ensure that the brakes are in full working order during each pre-use check prior to the start of a shift. The test should be as follows:

a) For items with braked wheels:
Gain access to the wheels and turning the braked wheels using one hand, see Fig 1, the wheels must resist movement. Always wear gloves for this task.

Figure 1 Checking Braked Wheels

b) For items that are braked by other methods than the rail wheels (e.g. by a friction pad on the rail head) the braking arrangement should be checked before the item is in a condition that it could run away if the brake were not working. For example, this might be achieved by placing the item on one rail without the stabilising arm onto the other rail or placing the item so that the stabilising arm is not on a rail, see Fig 2.

With the machine on the rail and the brake applied the machine should be checked to see that it does resist movement along the track. Pre use brake test should carried out on component parts before assembly

Figure 2

c) For items where the design should prevent unaccompanied movement (e.g. where a tool has to be supported in raised position to allow movement), ensure that the mechanism operates correctly.

If in doubt, the item of rail mounted manually propelled equipment is not to be used until it is checked by the owners competent maintainer. Any item of rail mounted manually propelled equipment that cannot have a pre-use functional brake test it must not be used.

Any item of rail mounted manually propelled equipment that fails the pre-use check should be withdrawn immediately from service and clearly labelled “Do Not Use” and placed in a suitable quarantine area.

5.2.3. Placing onto the Track

Protection of the line should be carried out in accordance with GE/RT8000 Rule Book and VolkerRail Procedure SAF19 - Safety of Persons Working on or Near the Line or rules of the infrastructure manager before placing the item of rail mounted manually propelled equipment on the track.

Ensure sufficient resources are available to lift the item of rail mounted manually propelled equipment and place onto the track.

The rail mounted manually propelled equipment shall be put onto the track and the brake system immediately tested as follows:

- trolleys with braked wheels; carry out a push test to verify that the braked wheels do not rotate unless the brake lever is operated. The brake lever shall be in place when this test is carried out
- For items where the design should prevent unaccompanied movement (e.g. where a tool has to be supported in raised position to allow movement): ensure that the tool/restraining device drops to the ballast when released under all circumstances and load.

If any of the braked wheels rotate or the tool/restraining device fails to drop under gravity, then the item of rail mounted manually propelled equipment should be immediately removed from the track, clearly labelled “Do Not Use” and placed in a suitable quarantine area.

- Always use the push bar and correct brake handle to operate the equipment.
- Always push trolleys, when moving them along the track. Do not pull them.
- Do not adjust or interfere with the braking mechanism of a trolley.
- Do not ride on any part of a trolley or its load.
- Do not push or pull a trolley using on-track plant or on-track machines unless it is certificated to do so.
- Do not use a trolley in third or fourth rail areas unless isolations are in place.
- Load and unload trolleys correctly, and in the right sequence, in accordance with the manufacturer's instructions. If required, secure loads correctly.
- Do not exceed the maximum capacity of a trolley
- Trolleys shall have red marker lights fitted and operational that are visible in both directions. Replacement lights shall be readily available in case of failure.

Removal the trolley at the end of a shift

When the hand trolley is no longer required on track then the Hand Trolley Controller shall ensure that the hand trolley is;

- Removed from the track to a position of safety on completion of work.
- Secured to prevent unauthorised use when left unattended trackside.

Once the Hand Trolley Controller has ensured that the trolley is clear of the track they shall complete the final part of the Hand Trolley Pre - Use Checklist PE349F01 to state that the trolley is clear or;

If the Hand Trolley is still required and the current Hand Trolley Controller’s working shift ends, then they need to ensure that the hand trolley is taken over by another qualified Hand Trolley Controller who must check the trolley and complete their own Hand Trolley Pre - Use Checklist PE349F01.

5.2.4. Loading Trolleys

The maximum load to be carried by any hand trolley shall not exceed 1000kg, uniformly distributed across its load area.

This applies to any hand trolley used on Network Rail managed infrastructure irrespective of its manufacturer, type or capacity when in excess of 1000kg.

Reduce the load to be carried if the Safe System of Work identifies that this is required based on the number of people who can push the trolley simultaneously, or the site conditions on which it is to be used.

Distribute the load uniformly across the trolley load area, and check that the brake handle is not obstructed.

Do not allow a load to overhang the sides of a trolley unless a risk assessment has been completed addressing this matter and any necessary protection of adjacent lines has been arranged in accordance with the Rule Book.

Do not carry any load that overhangs a single trolley by:

- More than 50% of the trolley's deck length at one end; and
- Not more than 100% of the trolleys deck length where the overhang is equal at both ends.

The overhang principle of 50% and 100% still applies if the trolleys are linked together.
Carry the load over two trolleys if the load is longer than 100% are to be transported. However, do not use two trolleys with unlinked brakes to move a load.

5.3 Manually Propelled Rail Handlers (Ironman)

5.3.1. Planning

Manually propelled rail handlers (MPRH) commonly known as Ironman, are trolleys that can be used to transport lengths of rail along the track.

The following should be considered during the planning phase:

- Determine whether it is suitable to use MPRH (Ironman) using the planning tool at Appendix A.
- Confirm the gradient less than 1 in 150, **unless** Permaquip Mk3 MPRH only are to be used with Product Acceptance (PA) certificate PA05/07738 then the manufacturers operating restrictions are to be considered
- If the gradient is steeper than 1 in 100 when using Permaquip Mk3 MPRH only, the runaway risk shall be considered and the requirements of PE326M013 Runaway Risk is to be followed.
- MPRH (Ironman) Lift plans shall be prepared using PE349F03.
- Confirm the correct staff resource is available to undertake the lifting and transiting activities. This is identified in the OEM Operating Instructions.
- When planning to use MPRH (Ironman) on gradients consider how the risk of a runaway will be managed.
- Identify the weight of the load and the lifting accessories to lift the load.
- Ensure that the MPRH (Ironman) are only used as described in the manufacturers documentation and within the capabilities of its Product Acceptance certification.
- Calculate the correct number of ironmen and pull lifts required and the necessary attachments to ensure the load is carried safely and individual units are not overloaded by their share in the overall load to be lifted.
- MPRH (Ironman) shall only be operated in accordance with the original manufacturer's instructions.
- Consider the number of staff required for each Ironman depending on the size of load and gradient. Each MPRH (Ironman) needs a minimum of two staff to assemble and four staff to lift complete assembly onto the track
- Ensure that all operators of the MPRH (Ironman) hold the correct competence.

NOTE 1: Lift plans for a MPRH will not require Sentinel Lift Planner competence. The initial training for the MPRH covers the requirements for planning lifts and not exceeding the unit SWL

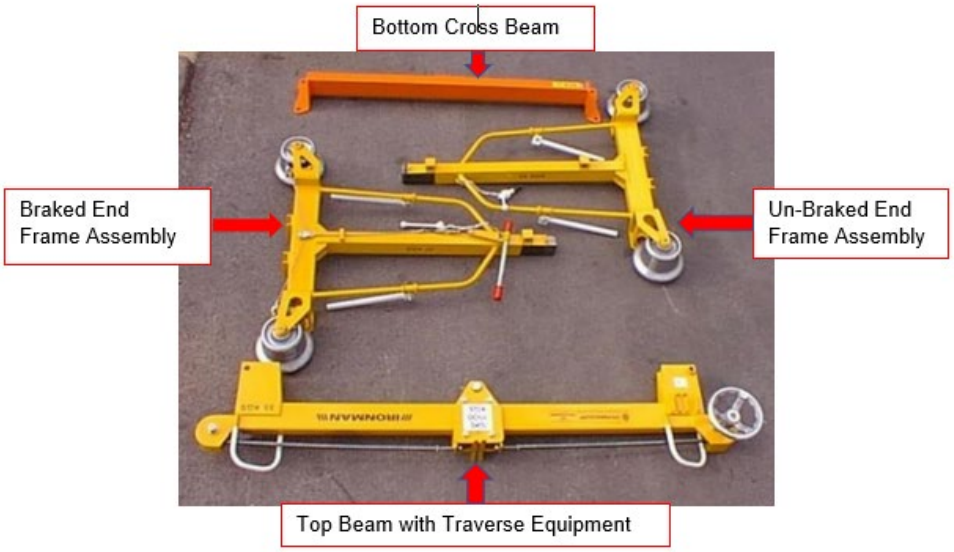
5.3.2. Pre-use checks

Each MPRH (Ironman) consists of four main components without the lifting equipment. Each of these components will have the same serial number and is required to be built and tested as a complete matching set.

Each set consists of the following four parts;

- Top Beam with Traverse Equipment

- Braked End Frame Assembly
- Un-Braked End Frame Assembly
- Bottom Cross Beam



Check that as well as the unique identification number the complete MPRH (Ironman) is labelled with,

- owner's name and contact details.
- Where applicable the maximum SWL is displayed
- the maintenance brake test has not expired.
- There is a red light visible in both directions.

Check that all the lifting equipment is:

- in date for its Thorough Examination as required by LOLER,
- the SWL and identification numbers are clearly visible and
- is inspected for damage and correct operation before use.

If not compliant then do not use.

Assemble the equipment in accordance with the manufacturer's instructions ensuring that:

- the correct braking lever is used.
- The correct push bars and side and end boards are used and
- Verify that the assembled trolley is fit for purpose.

Only trained and competent personnel are allowed to undertake this task.

The user should ensure that the brakes are in full working order prior assembling the equipment, as shown in Fig 1 in section 5.2.2.

Assemble the equipment in accordance with the manufacturer's instructions.
Once assembled then check the carriage traverse is working correctly.

5.3.3. Placing onto the track and operation

Protection of the line should be carried out in accordance with GE/RT8000 Rule Book and VolkerRail procedure SAF19 - Safety of Persons Working on or Near the Line or rules of the infrastructure manager before placing the MPRH (Ironman) on the track.

- The MPRH (Ironman) is designed to be lifted by four staff.

- Once on track then ensure all four wheels are in contact with the rail head.
- Carry out an on-track brake push test to verify that the braked wheels do not rotate unless the brake lever is operated ensure that a minimum of two people are pushing the MPRH (Ironman).
- When operating in pairs or in multiple ensure the brake handles are on the same side.
- Ensure that a MPRH (Ironman) lift plan is in place PE349F03.
- Always move the MPRH (Ironman) with the bottom beam in place
- Always push MPRH (Ironman), when moving them along the track. Do not pull them.
- Do not adjust or interfere with the braking mechanism.
- Do not ride on any part of a MPRH (Ironman) or its load.
- Do not push or pull a MPRH (Ironman) using on-track plant or on-track machines unless it is certificated to do so.
- Do not use in third or fourth rail areas unless isolations are in place.
- Load and unload trolleys correctly, and in the right sequence, in accordance with the manufacturer's instructions. If required, secure loads correctly.
- Do not exceed the maximum SWL of the lifting equipment.
- Remove MPRH (Ironman) from the track to a position of safety on completion of work.
- MPRH (Ironman) are to be secured to prevent unauthorised use when left unattended
- Do not move with rail in the rail storage bracket.
- Only authorised competent maintenance staff are permitted to maintain or adjust the braking mechanism.
- Ensure all the units are securely attached to the load to be lifted.
- Co-ordinate the travel activity so that all operators travel simultaneously and brake together. and
- Ensure the load is lowered onto the bottom beams, machine must not travel with load suspended on hooks or clamps.
- Check that some light tension remains in the lifting tackle whilst rail or S&C is supported by the bottom beam.
- Ensure that all site personnel, including operators stand well clear of the suspended load and do not perform any tasks that would require them to go underneath a suspended load for any reason.
- During traversing of the load (laterally) turn traversing wheels simultaneously and in small movements, do not spin.
- Take care when releasing the traversing wheel on canted track always operate traversing wheel from the high side of cant.
- When lifting and carrying S&C units (particularly crossings), webbing straps or chain slings will be necessary to supplement the pull lifts as the camlocks may not clamp onto the crossings. These must be of a similar capacity to the remaining equipment.
- Take care when moving Ironmen through S&C.

5.3.4. Requirements for rail skates

Rail skates consist of two double flanged wheels attached to a metal frame which form a single unit that can be used to carry a load along a single rail. The design is such that it can be speedily lifted and removed, without dismantling.

Figure 4

Where a rail skate is to be used, assess the suitability of using rail skates at the planning stage and include the items listed in points the bullet points below in the safe system of work:

- only use rail skates where a position of safety for staff, the item being carried and the skate itself is immediately available.
- only use rail skates for the movement of single items. The number of staff required to load the skate shall be in attendance at all times throughout the operation, both to lift off the load if required, and to maintain stability of the load in transit.
- only use rail skates singularly (do not use in tandem on the same rail or in pairs, side by side on opposite rails.
- do not use rail skates to handle or transport rail.

5.3.5. Requirements for Rail Scooters

Rail scooters consist of two double flanged wheels attached to a metal arm to provide manual leverage for lifting a load (see figure 5) and use the head of one rail to provide a running surface enabling the load to be transported along the track. Rail scooters are used in pairs for the manual movement of rail or sleepers. Protection of the line shall be in place in accordance with the GE/RT8000/HB10 Rule Book.

Figure 5

5.3.6. Maintenance

All items of rail mounted manually propelled equipment should be subject to maintenance by a competent maintainer, which shall as a minimum meet the manufacturer's recommendations and comply with the requirements of NR/L2/RMVP/0200.

A brake performance test should be performed and documented at least every three months in accordance with either the:

a. Test specification given by the manufacturer as part of the product acceptance.

b. Where a maintenance brake test has not been specified by the manufacturer then the braking distances given in BS EN 13977

Mark the equipment clearly with the due date of the next maintenance brake test.

5.4 Retention of Records

All completed relevant documents are to be retained within the project filling system with the associated Task Briefings in line with the company's document retention schedule requirements:

- PE349F01 – Hand Trolley Pre-Use Checklist,
- PE349F02 – Hand Trolley Load Plan and
- PE349F03 – Work Plan Manually Propelled Rail Handler

6. MONITORING

The frequency of checks is to be undertaken in line with the project risk profile and in accordance with any requirements identified in the Quality Management Plan (QMP) and annual audit schedule.

7. ASSOCIATED GUIDANCE & INFORMATION

- Appendix A - Use of Manually Propelled Rail Handlers Planning Tool

8. DOCUMENTATION (OUTPUTS)

- PE349F01 – Hand Trolley Pre-Use Checklist
- PE349F02 – Hand Trolley Load Plan
- PE349F03 – Work Plan Manually Propelled Rail Handler

9. ISSUE RECORD

Issue	Date	Comments
1	March 2006	First Issue
2	April 2007	Update to Para 4.2 on Page 4 as a result of a recent incident causing serious injury whilst using an Iron Man
3	Oct 2008	Minor updates and consolidation of issues communicated on Take Two Alert TTA003. Inclusion of Appendix C for GTJV
4	05/06/2024	This procedure undergone a five year review and incorporates PE338 Numbering Management and use of Equipment Sets That Could be Split. This procedure is now aligned with the requirements of NR/L2/RMVP/0200 P514 Hand Controlled Trolleys and M&EE COP0018. New forms added, PE349F01 – Hand Trolley Pre – Use Checklist, PE349F02 – Hand Trolley Load Plan and PE349F03 - Work Plan Manually Propelled Rail Handler.
5	28/01/2025	Procedure updated to incorporate reference to new PE326M013 Runaway Risk.

10. WHAT HAS CHANGED IN THIS LATEST ISSUE AND WHY

This procedure has been updated from the previous issues of PE349 and incorporated reference to new PE326M013 - Runaway Risk, clarification on manufacturers Link trolleys that are restricted from been used on 1:150 gradients.

These changes have been made due to the removal of the Network Rail Standard Module NR/L2/OHS/019 Module 05 – Management of Runaway Risk there is no clear procedure for managing runaway risk on Network Rail Managed Infrastructure, hence a company procedure has been produced.

New section 6 – Monitoring has been added.

11. BRIEFING REQUIREMENTS

All new employees will receive an introduction to the Integrated Management System (IMS) at induction, according to the nature of the role.

All employees with an email address receive the ‘Record of Revisions’ each month, which details changes to the IMS. All Line Managers retain the responsibility to ensure their staff are briefed on changes as appropriate.

The following table defines how revised issues of this document are briefed to existing employees according to related specific responsibilities.

This is determined using the 'RACI' principle. Those roles identified as 'Responsible' and 'Accountable' shall receive a formal awareness briefing facilitated by the Document Owner.

Discipline	Role	RACI	Type of briefing
Engineering	Chief Engineer	Informed	Awareness
Engineering	Professional Head of Plant Engineering	Accountable	Detailed
Engineering	POS Compliance Manager	Consulted	Awareness
Engineering	Professional Head of Track Engineering and Welding	Responsible	Detailed
Project Management	Senior / Project Manager	Responsible	Detailed
Senior Management	General Manager	Responsible	Detailed
Senior Management	Business Manager	Responsible	Detailed
Delivery	Senior / Operations Manager	Responsible	Detailed
Delivery	Operations Manager (POM)	Informed	Awareness
Delivery	Hired Plant Asset Manager	Responsible	Detailed
Delivery	Welding Manager	Responsible	Detailed
Delivery	Senior / Construction Manager	Responsible	Detailed
Delivery	Supervisors	Responsible	Detailed
Delivery	Welders	Responsible	Detailed
HSQES	H & S Manager / Advisor	Consulted	Awareness
HSQES	Head of Quality Systems	Informed	Awareness

Competence	RACI	Type of briefing
Hand Trolley Controllers	Responsible	Detailed
Manually Propelled Rail Handlers (Ironman)	Responsible	Detailed
Controller of Site Safety	Responsible	Detailed

12. IMS AUTHORISATION

Document owner approval:

Neil Hewitt, Professional Head of Plant Engineering, 28/01/2025

Document author:

Andrew Shipley, POS Compliance Manager, 28/01/2025

Approval for IMS:

Name, IMS Coordinator, 28/01/2025

APPENDIX A: USE OF MANUALLY PROPELLED RAIL HANDLERS PLANNING TOOL PE349